

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


FROM: Matt Urban
Wetlands Program Manager

DATE: April 11, 2016

AT (OFFICE): Department of
Transportation

SUBJECT Dredge & Fill Application
Dixville-Colebrook, 40518

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 Highway Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(p). This project includes rehabilitation/reconstruction of Golf Link Road in the Towns of Dixville and Colebrook, which connects the Balsams Resort to the Balsams, owned Panorama Golf Course. This project, in addition to the roadway rehabilitation will consist of replacing several cross pipes, replacing the ditch lines, and installing areas of underdrain. A more detailed project description has been included within this application package.

This project was reviewed at the Natural Resource Agency Coordination Meeting on January 20th 2016. The minutes from that meeting can be found within this application package as well as on the Departments website via the following link:
<http://www.nh.gov/dot/org/projectdevelopment/environment/units/project-management/nracrmeetings.htm>

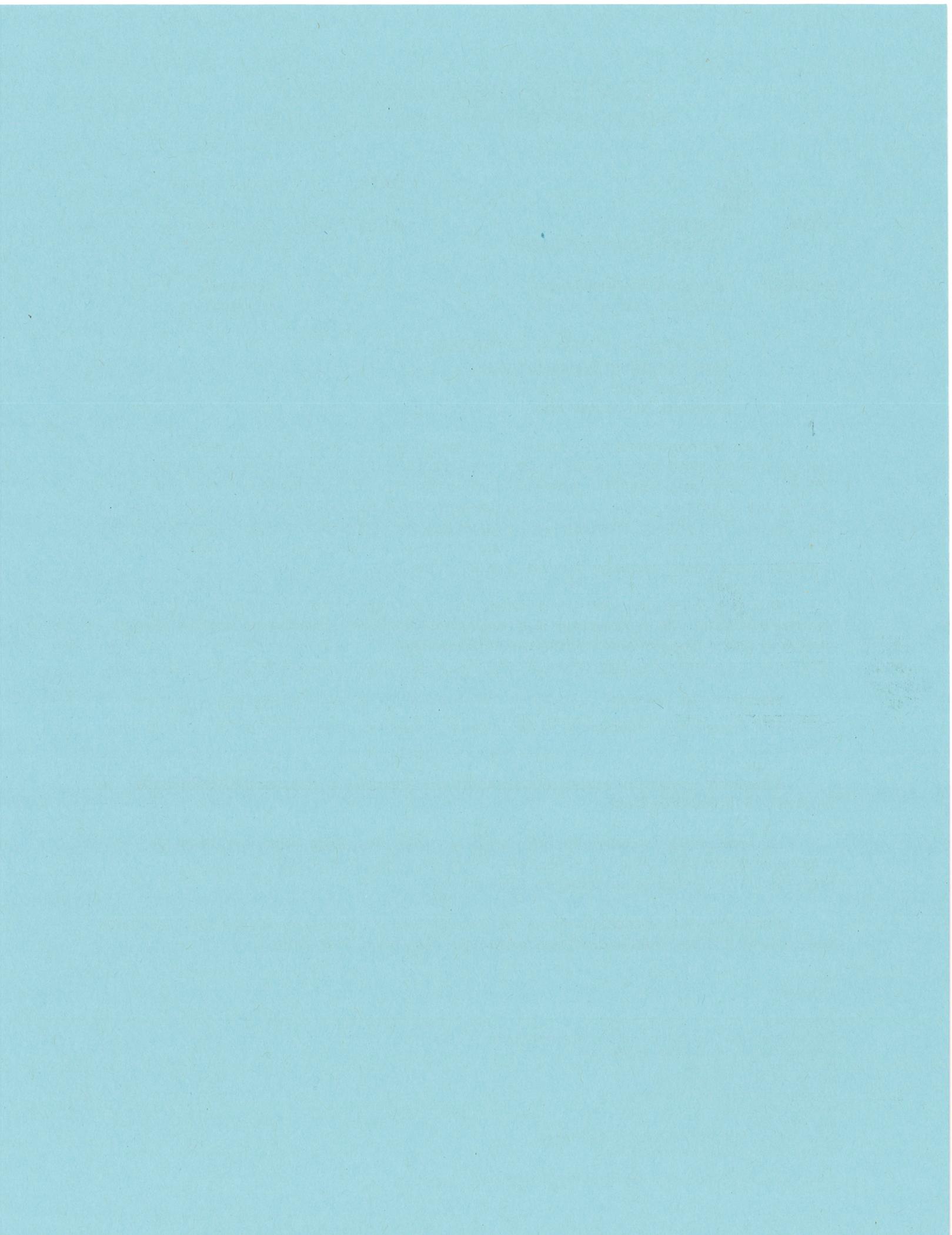
The DOT met with DES on March 22, 2016 and it was determined that this project would not require any additional mitigation beyond the self-mitigating re-establishment of existing ditch lines.

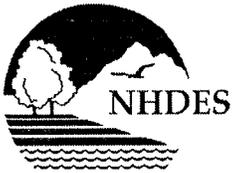
A payment voucher has been processed for this application (Voucher #434836) in the amount of \$10,000 (Fee Cap).

The lead people to contact for this project are Tobey Reynolds, Highway Design (271-2171 or treynolds@dot.state.nh.us) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or murban@dot.state.nh.us).

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 Dixville thru Coos County (4 copies via certified mail)
Town of Colebrook (4 copies via certified mail)
Randy Talon, Environment
NH DOT Bureau of Construction
Carol Henderson, NH Fish and Game
Maria Tur, USF&WS
Mark Kern, EPA
Edna Feighner, NHDHR (See Cultural Review Within)
Michael Hicks, US Army Corp of Engineers





WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: <http://des.nh.gov/onestop>



RSA/Rule: Env-Wt 100-900

| | | | |
|---------------------------------------|---------------------------------------|---------------------------------------|------------|
| Administrative Use Only | Administrative Use Only | Administrative Use Only | File No.: |
| | | | Check No.: |
| | | | Amount: |
| | | | Initials: |

1. REVIEW TIME:
Indicate your Review Time below. Refer to Guidance Document A for instructions.

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

2. PROJECT LOCATION:
Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: **GOLF LINK ROAD AT THE BALSAMS RESORT** TOWN/CITY: **DIXVILLE-COLEBROOK**

TAX MAP: **N/A** BLOCK: **N/A** LOT: **N/A** UNIT: **N/A**

USGS TOPO MAP WATERBODY NAME: NA STREAM WATERSHED SIZE: NA

LOCATION COORDINATES (If known): **44°52'48.01"N/71°19'03.82"W** Latitude/Longitude UTM State Plane

3. 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.

This Betterment project includes rehabilitation/reconstruction of Golf Link Road, which connects the Balsams Resort to the Balsams owned Panorama Golf Course. The work begins approximately 3,650 feet north of NH Route 26, beyond Spur Road and Cold Springs Road, at the intersection of Valley Road, and extends 1.8 miles north to the golf course parking area. See attachment for additional details.

4. SHORELINE FRONTAGE

NA This lot has no 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.

5. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

N/A

6. 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 **15** - **2810**

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: ___

NA

| | | | |
|--|--|--|-----------------------------|
| 7. APPLICANT INFORMATION (Desired permit holder) | | | |
| LAST NAME, FIRST NAME, M.I.: NH Department of Transportation, Bureau of Highway Design | | | |
| TRUST / COMPANY NAME: N/A | | MAILING ADDRESS: 7 Hazen Drive / PO Box 483 | |
| TOWN/CITY: Concord | | STATE: NH | ZIP CODE: 03302-0483 |
| EMAIL or FAX: treynolds@dot.state.nh.us | | PHONE: (603) 271-2171 | |
| ELECTRONIC COMMUNICATION: By initialing here <u>TR</u> , I hereby authorize NHDES to communicate all matters relative to this application electronically | | | |
| 8. 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 | | | |
| 9. 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 | | | |
| 10. 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 be reviewed for the presence of historical/ archeological resources. 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 | |  Print name legibly | 3/30/2016 Date |

shoreland@des.nh.gov or (603) 271-2147
 NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
www.des.nh.gov

MUNICIPAL SIGNATURES

11. 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 |
|---|--------------------|------|

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.

12. 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 |
|---|--------------------|-----------|------|

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,1

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.

13. 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 | 30,608 | <input type="checkbox"/> ATF | 14,749 | <input type="checkbox"/> ATF |
| Scrub-shrub wetland | 0 | <input type="checkbox"/> ATF | 1,223 | <input type="checkbox"/> ATF |
| Emergent wetland | 4,585 | <input type="checkbox"/> ATF | 0 | <input type="checkbox"/> ATF |
| Wet meadow | | <input type="checkbox"/> ATF | | <input type="checkbox"/> ATF |
| Intermittent stream | 558 / 252 | <input type="checkbox"/> ATF | 220 / 91 | <input type="checkbox"/> ATF |
| Perennial Stream / River | 0 | <input type="checkbox"/> ATF | 1,428 / 75 | <input type="checkbox"/> ATF |
| Lake / Pond | / | <input type="checkbox"/> ATF | / | <input type="checkbox"/> ATF |
| Bank - Intermittent stream | 849 / 129 | <input type="checkbox"/> ATF | 627 / 96 | <input type="checkbox"/> ATF |
| Bank - Perennial stream / River | 132/23 | <input type="checkbox"/> ATF | 376/ 93 | <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 | 36,732 SF / 404 LF | | 18,623 SF / 355 LF | |

14. 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 table below

Permanent and Temporary (non-docking) 55,355 sq. ft. X \$0.20 = \$ 11,071

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 = \$ _____

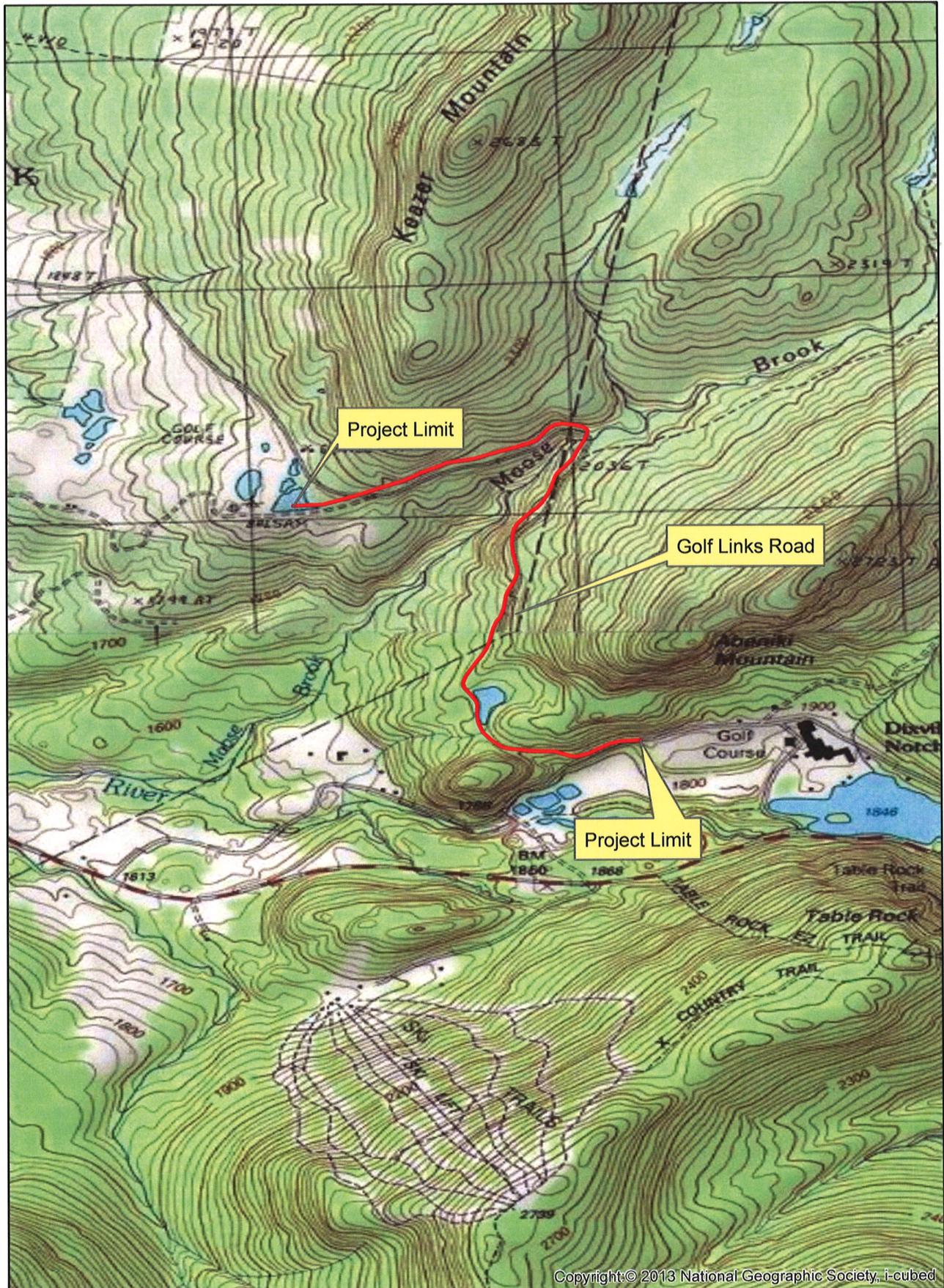
Total = \$ 10,000.00 (Fee Cap)

The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 10,000.00 (Fee Cap)

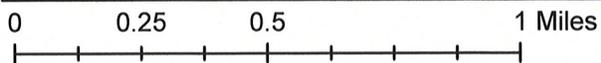
shoreland@des.nh.gov or (603) 271-2147
 NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
www.des.nh.gov

The project consists of reconstructing the roadway to improve the riding surface, and reestablishing a typical roadway width, as well as constructing a stone lined ditch along the cut side of the roadway for the length of the project. Other improvements include culvert replacements and repairs, headwall improvements at inlets and outlets, and installation of stone at crossings to prevent future erosion. The project also proposes limited underdrain installation, as well as culvert replacement and a proposed new headwall at the inlet of Moose Brook. Stabilization of approximately 300 feet of failed roadway embankment through soil nailing is also proposed, as well as guardrail upgrades throughout the project. Ledge removal, as part of the roadway typical improvements and drainage installation, is anticipated.

40518 Golf Links Road



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1:24,000

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

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

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 proposed project is Dixville-Colebrook 40518 to rehabilitate Golf Links Road.

In general, the proposed improvements are to parallel the redevelopment of the Balsams Resort and grounds, which is currently underway. The project aims to improve the roadway and to allow for year round travel and maintenance.

Golf Link Road is the only paved roadway for accessing the Balsams owned Panorama Golf Course. The road originates at the Balsams Resort. Little information is known regarding the road's original construction, including details of the structural integrity of the pavement base courses, and the thickness of pavement along the roadway. The roadway currently shows signs of severe stress, including significant raveling, rutting, cracking and settlement of the pavement. Additionally, significant erosion of the steep uphill cut side of the roadway, as well as settlement of the fill slope on the opposite side of the roadway, currently exist due to the presence of significant offsite runoff in the project area. The erosion of the cut slope has filled in existing ditch lines and culvert inlets, which further reduces drainage effectiveness along the roadway. Additionally, existing guardrail is substandard, and requires replacement. This project will also address a slope failure along a steep embankment adjacent to Moose Brook.

Wetland impacts relative to the proposed roadway work could not be avoided. There are 14 overall forested wetland systems some with ephemeral and intermittent streams, 2 open water or emergent systems and 1 perennial stream system within the project area. The drainage improvements proposed, as well as road work and stabilization will require impacts to the wetland systems. If the project was not completed, the roadway would continue to deteriorate and erosion and sedimentation will continue along the roadway. Also, if the condition of the drainage is not addressed, more slope failures like the one at the hairpin turn near Moose Brook are expected and the project goals would not be met.

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

Other alternatives were considered during the design process, including a wider typical width, partial roadway relocation at Moose Brook, varying pavement treatment options, and a no-build option. The impacts to wetlands and surface waters varied with these options, as did the extent to which the work would meet the objectives of the project. The current alternative best meets all goals of the project, while maintaining the contextual nature of the surrounding area, and limiting impacts to the natural resources.

The wetlands along the project roadway are a variety of hill side seeps and wetland drainages. In many areas these seeps and drainages form scoured channels due to the extreme slopes on both sides of the road. To manage the considerable runoff coming from offsite into the project area and to address drainage failures in order to improve conditions of the roadway, it will be necessary to impact wetlands. The project design attempts to minimize impacts to wetlands while meeting the goals of the project. In several cases wetlands will be impacted along the roadway to improve the condition of roadway drainage. These drainage improvements will reduce erosion and sedimentation in the project area, which may lead ultimately to improved function and value of the overall wetland system.

One of the alternatives considered was to widen Golf Links Road throughout the length of the project. This would have required significantly more area of wetland impacts to accomplish the project. The negative impacts to natural resources is one of the reasons why the wider roadway was not selected.

If the project is not constructed, the goals of the project, including a more stable roadway which can be open and maintained through out the year, will not be achieved.

3. The type and classification of the wetlands involved.

BANK - Non-Wetland, Permanent and Temporary Impacts

R3UB1 - Riverine, Upper Perennial, Unconsolidated Bottom, Cobble-Gravel

PSS1E - Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded/Saturated

PFO1E/4E - Palustrine, Forested, Broad-leaved Deciduous/Needle-leaved Evergreen, Seasonally Flooded/Saturated

R4SB3 - Riverine, Intermittent, Streambed, Cobble-Gravel

PUB2H - Palustrine, Unconsolidated, Sand Bottom, Dike/Impound

PFO1E - Palustrine, Forested, Broad-leaved Deciduous/Needle-leaved Evergreen, Seasonally Flooded/Saturated

PEM1E - Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated

R4SB1 - Riverine, Intermittent, Streambed, Bedrock

PEM1EX - Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated and Excavated

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

Impacted wetlands include several ditch lines, which will be stabilized and directed to drainage culverts that are being replaced in-kind (or with very minimal alterations from existing). The project will address a significant amount of cut slopes that have eroded adjacent to existing wetlands, and will likely improve the function and value of those wetlands through stabilization. Stone armoring at culvert inlet and outlets is proposed in order to reduce adverse effects to the wetlands adjacent or downstream by reducing erosion in the project area. The overall pattern of flow within the site will not change.

The entire project site drains to Moose Brook. Moose Brook is a tributary of the Mohawk River, which drains to the Connecticut River.

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

The wetlands proposed to be impacted are, for the most part, part of drainage networks associated with the roadway (e.g. roadside ditches, discharge points of existing watersheds) and are not considered to be rare. There are several intermittent streams and one perennial stream, Moose Brook, which will be impacted by the project as proposed. The intermittent streams generally drain to Moose Brook and Moose Brook drains to the Mohawk River. The Mohawk River and its tributaries are classified as a Class II water considered as being acceptable for fishing, swimming and other recreational purposes.

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

Wetland – 35,193 s.f.

Intermittent – 558 s.f. / Bank 849 s.f.

Perennial – 0 s.f. / Bank 132 s.f.

Temporary (all) –18,623s.f.

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.

The results of the NH Natural Heritage Bureau database review are enclosed.

- a. The project is not expected to impact rare species or species of special concern. The NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program determined that there are no impacts expected to rare plant species or rare wildlife species from the project as proposed.
- b. The project as proposed will not affect Canada Lynx as appropriate habitat for the Lynx is not likely to be impacted by the limited actions proposed within the project area. According to information provided by the New Hampshire Fish and Game Department, there are not documented Northern Long-Eared Bat (NLEB) roost trees or hibernacula in Dixville or Colebrook. US Fish and Wildlife Service New England Field Office personnel concurred with the Department's assessment that the project will result in no prohibited take of NLEB. The project was reviewed in accordance with the USFWS Biological Opinion for the Final 4(d) Rule which facilitates Section 7 consultation through submission to the appropriate field office of details pertinent to project activities that are exempted from the prohibition of take (section 9 of the Endangered Species Act) by the Final 4(d) rule for NLEB.
- c. The project will not impact species at the extremities of their ranges.
- d. The project will not impact migratory fish and wildlife.
- e. The project will not impact exemplary natural communities identified by the DRED-NHB. The NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program determined that there are no impacts to rare plant species, rare wildlife species, or exemplary natural communities expected from the project as proposed.
- f. There were not any vernal pools identified in the project area, therefore, the project will not impact vernal pools.

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

The roadway is currently restricted to use by authorized personnel year round, since the Panorama Golf Course is currently undergoing renovations, which will continue through the duration of the proposed roadway construction. Further, the roadway is currently closed during the winter and following the project completion will be able to be open year round for travel and maintenance. Therefore, no impact to public commerce or navigation is anticipated during construction.

The road closure for the project will be temporary and will only continue during the construction of the project. Also, accommodations are intended for recreational use that crosses the Golf Links Road where appropriate during construction. The rehabilitated/reconstructed roadway final product will improve commerce and navigation, and offer an increase in recreational value.

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.

Historical review of Golf Link Road indicated the existing roadway layout was designed to mimic the natural setting through which the road traverses. Current proposed design elements, including minimum pavement width, sinuous alignment within the existing roadway footprint, maintenance of existing historical features, in-kind drainage replacement and minimization of slope work and clearing, allow the roadway to maintain the contextual feel with an upgraded travel surface. Depending on final field conditions, placement of 2 feet of Class C stone may be required for long-term stabilization of cut slopes, but will be overlain with 6 inches of humus and seeded to blend with the environment.

The project design specifies avoidance, where practicable, of historic features, ledge, and outcroppings adjacent to the roadway. The resulting roadway will be similar to the existing from an aesthetic point of view.

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.

There are no anticipated obstructions to public rights relative to this project. The roadway is currently restricted to use by authorized personnel year round. Further, the roadway is currently closed during the winter and following the project completion will be able to be open year round for travel and maintenance. Also, the Panorama Golf Course is currently closed and is undergoing renovations, which will continue through the duration of the proposed roadway construction. Therefore, the road closure will not impact commerce at the golf course.

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 proposed work should not have any impacts on upstream or downstream abutters. The project as proposed will not alter the risk of flooding on abutting properties. The roadway is in a forested environment and any impacts that result from the drainage improvements are expected to be localized.

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

This project will improve the safety for road users by upgrading the riding surface, improving drainage and controlling storm water/runoff, as well as including proposed guardrail adjacent to steep or unrecoverable slopes. Also, the rehabilitation will prevent further erosion and sedimentation from occurring in the project area, thus protecting water quality.

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.

The existing drainage conditions allow surface runoff to be collected in a series of ditches and passed through culverts. However, a significant amount of erosion on the cut side of the roadway has filled in the ditch lines and forced the runoff to flow across the roadway and into the fill side of the road where settlement of the slope is occurring. Additionally, the sediment deposits in the ditch lines often gets carried with the uncontrolled flow pattern, and has the potential to negatively impact other wetland areas. The proposed design will stabilize the existing ditch lines and inlet/outlets of the culverts through use of stone armor. The design also proposes to the existing cut slope back moderately, which will decrease further erosion potential and create long term improvements to the function of the drainage and connected wetlands. Lastly, it should be noted that the proposed design includes less impervious area than the existing roadway for formalizing a consistent typical. This will provide an overall improvement to the adjacent wetlands through reduced pollutant loading. This project is also expected to improve surface water quality by preventing sediment from entering the streams and wetlands. Erosion and sediment controls will be utilized during construction to protect water quality. Therefore, the proposed project will not impact the amount or quality of water entering or exiting the project site.

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

The proposed project will not increase existing or future flooding, erosion, or sedimentation. By stabilizing the ditch lines, providing flatter cut slopes, armoring inlet and outlets at the culverts, and minimizing overall earthwork, the proposed project is anticipated to eliminate a considerable amount of erosion and sedimentation that currently occurs within the site. This project will not decrease hydraulic capacity of any of the pipes included in the project. The project will prevent further erosion/sediment by adding scour protection (rip rap). Erosion and sediment controls will be utilized during construction to prevent erosion and 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.

This project will not impact surface waters in a way that will reflect or redirect current or wave energy.

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 impacted wetlands are fairly local to this area, and relatively small in size. A significant cumulative impact is not anticipated. Also, abutting property owners would not have a need to propose similar impacts due to the unique nature of NHDOT road rehabilitation activities.

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

The wetlands (along slopes, ditches and at culvert inlets/outlets) should become more stable and reduce erosion/sedimentation. The value and functions of the wetlands will not be altered as a result of the proposed project impacts. The drainage rehabilitation will minimize erosion and reduce the likelihood of future failures that would negatively impact the wetlands surrounding the project areas.

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 the National Register of Natural Landmarks located in the proposed 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 national rivers, national wilderness areas, or national lakeshores areas named in acts of congress or presidential proclamations located in the proposed project area.

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

All proposed drainage utilizes existing inlet and outlet points within the same watershed. No water will be redirected from one watershed to another.

Additional comments

The proposed project will minimize impacts to all streams and wetland areas in the project areas to the extent practicable. Proper Best Management Practices will be utilized to prevent erosion and the transportation of sediment downstream.

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: January 20, 2016

LOCATION OF CONFERENCE: John O. Morton Building

ATTENDED BY:

NHDOT

Matt Urban
Ron Crickard
Randy Talon
Kerry Ryan
Mark Hemmerlein
Marc Laurin
Charlie Blackman
Peter Salo
Maggie Baldwin
Sam Fifield
Don Lyford
John Sargent
Rebecca Martin
Tobey Reynolds
Meli Dube
Chris Carucci
Laurel Pushee
Darrell Elliott
Steven Liakos

Carol Niewola
Keith Cota

**Federal Highway
Administration**

Jamie Sikora

Army Corps of Engineers

Michael Hicks

NHDES

Gino Infascelli
Lori Sommer

NH Fish & Game

Carol Henderson

**Consultants/Public
Participants**

Mike Pillsbury
Christine Perron
Josh Lund
Kimberly Peace
Jason Ayotte
Thom Marshall
Vicki Chase
Jennifer Riordan
Glen Smart
John Pelletier
Sean Tiney
Richard Fixler
John Trottior
Mark Hutchins
Chris Bean
Leo Tidd

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Dixville, 40518, Nonfederal

Margarete Baldwin presented the project and described the project impacts. Golf Links Road connects the Balsams Resort to the Panorama Golf Course and is a state maintained roadway. The road varies between 15 and 20 feet wide and is thought to have evolved over time. There is no formal construction date or plans for the road. M. Baldwin explained that the project has significant constraints due to ledge in the area, steep slopes, and wetlands. There is also significant slope instability in the switchback in the road located near Moose Brook. The road is typically closed during the winter and one of the project goals is to allow year round use.

M. Baldwin explained that a significant part of the design is to address issues with offsite flows impacting the roadway. There are two dams in the project area for recreational ponds at the Golf Course and at Two Towns dam. The Moose Brook crossing was formerly dammed, but the dam has since been removed and replaced with a culvert. M. Baldwin explained that there are significant cuts along the road and that in some areas these have led to the ditchline being filled by the sloughing of materials. There are also significant erosion issues. M. Baldwin showed photos of various portions of the roadway. Photos included some areas of significant pavement and drainage failures. M. Baldwin explained that some of the failure may be the result of roadway widening that was not on established road materials. The report to address the eligibility of Golf Links Road prepared by Patrick Harshbarger, a Historian from Hunter Research Inc., recommended that the road is eligible as a contributing resource and individually. The original road was as a dirt road apparently placed over a compact stone foundation constructed around 1914. The road is believed to have been paved in the 1930s.* This is a correction, the road was constructed prior to the paving in the 1930s.

M. Baldwin explained that only the portion of work near the Moose Brook crossing at the switchback turn has or is intended to be surveyed. This area has significant slope failures which will be addressed by the project. Due to the quick turnaround time for the project there is not time to survey the entire road. M. Baldwin explained the intent of the project is to maintain the existing context of the road by adopting a limited a typical width of 16 feet with areas of limited local widening. As currently designed, the project decreases the total impervious area by around 10,000 square feet by formalizing the typical and reducing the number of widened areas along the roadway.

M. Baldwin described the sandwich treatment proposed for some of the project length and informed the group that in the areas around the two dams the project activities will be in accordance with recommendations from the NH DES Dam Bureau. Treatments in the roadway at the dams will likely include removing the pavement and excavating the gravel materials, up to 12", and replacement of gravel and pavement.

M. Baldwin showed drawings of the "typicals" that have been drafted for the project. She explained that these were developed from information gathered through field reviews and available maps and images. These "typicals" assume the worst case scenario in order to ensure all impacts are accounted. Generally the left edge of pavement will be maintained and a stone lined ditch will be constructed on the right side to manage offsite flows. In many areas the slopes will be 2:1, in

some areas 1.5:1 stone lined slopes with humus may be more appropriate. The “typicals” will not be perfect in every situation.

M. Baldwin described the failures at the Moose Brook Crossing switchback turn and described two potential treatments: soil nailing, which is expensive, but has few impacts, and shifting Golf Links Road away from the failure.

Lori Sommer inquired about the treatment for the drainage pipes. M. Baldwin explained that the intention is to replace pipes in kind and add protection at the inlet and outlet of the pipes. Matt Urban explained that Cindy Balcius delineated the wetlands in accordance with the Army Corps of Engineers method. With the worst case scenario “envelope”, all possible impacts will be addressed. M. Urban explained that NH DOT will make a project commitment to use the perimeter control as the extent of allowable impacts. There will be no work permitted beyond the defined edge as shown in the wetland plans. M. Urban explained that the streams will be evaluated with StreamStats, but the only known Tier 3 stream is Moose Brook. At this location, construction of a new headwall to support the existing failing headwall is anticipated, as well as the investigation of cause and potentially a repair of a depression (bump) in the pipe crown, located towards the outlet, but still within the embankment. M. Urban explained an Alternative Design form will be needed at this location. M. Urban explained that there will be some need for mitigation for bank and channel impacts beyond the existing condition. M. Baldwin estimated inlet impacts and included some temporary outlet impacts at this crossing in case the repair required access from the outlet side of the pipe.

M. Baldwin explained that the current estimate for permanent wetland impacts is approximately 40,000 square feet. M. Baldwin assumed temporary impacts 5 feet beyond the slope impacts for installation of erosion controls. The estimated temporary impacts are 20,000 square feet.

There was some discussion about the appropriateness of the current design and intentions for use of the road by the Balsams. M. Baldwin explained that the intention of the project is to improve the roadway condition for the existing roadway use.

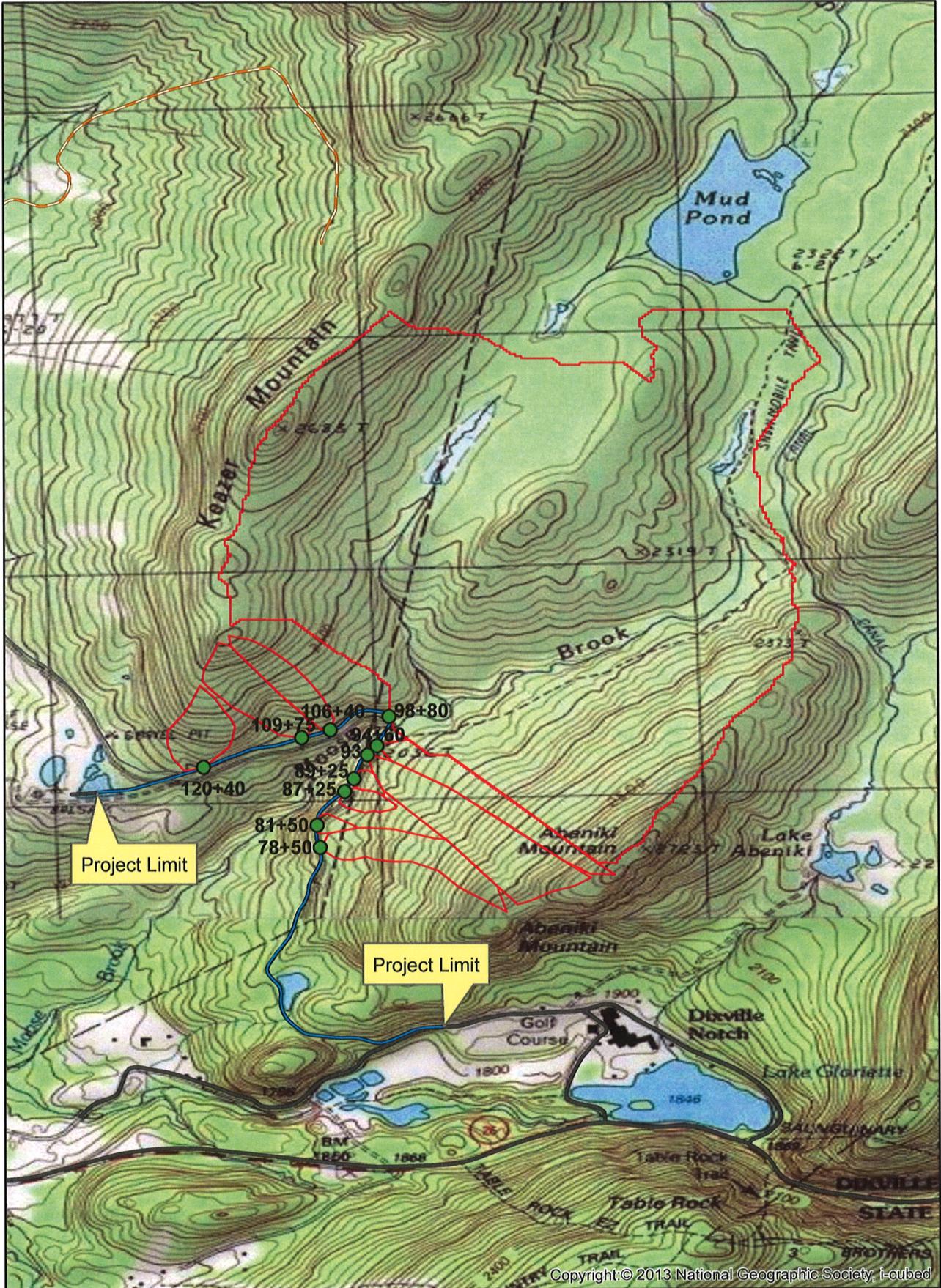
Carol Henderson inquired about guardrail improvements. M. Baldwin explained that there will be approximately the same amount of guardrail, some project areas will have additional and some areas will have guardrail removed. Tobey Reynolds explained that the guard rail will be low profile with small steel posts. There will be openings in the guard rail, which will allow for wildlife passage. C. Henderson described that wildlife will continue to travel through the area, regardless of the road being open year round.

M. Baldwin described that there is established ditch line in some areas, but it is not consistent. In some areas it has likely been filled in. L. Sommer inquired about the decrease in impacts if the ditchlines are considered self-mitigating. M. Baldwin said the decline in estimated wetland impacts would be approximately 10,000 square feet. L. Sommer will need to see locations of the current ditchline and photos to make the determination of if, and where, the ditchline qualifies as existing and self-mitigating. M. Baldwin inquired if the slope impacts that include stoning with humus overtop could be considered temporary. L. Sommer indicated that her inclination is that these slope impacts are permanent impacts and would require mitigation. The mitigation for this project will be in the form of an ARM fund payment.

M. Baldwin stated that the wetland application will be submitted soon.

Rebecca Martin explained that a NHB search indicated that there is a record of rare wildlife, plant, and/or natural community in the vicinity, but that, according to the NHB report, it is not expected to be impacted by the proposed project. An IPaC search indicated potential presence of Canada Lynx and Northern Long-Eared Bat. As the project will not reduce habitat that would be used by the Canada Lynx, no impacts to this species are expected. R. Martin described that a Final 4(d) rule has been published for the NLEB, which goes into effect on February 16th. If the Army Corps of Engineers, the lead federal agency for this project, agrees to adopt the streamlined Section 7 consultation included in the Intra-Service Programmatic Biological Opinion (PBO) issued by USFWS, a 30 day notification process for the project could be utilized, which would allow clearing of trees outside of the Time of Year restriction. Otherwise, District will likely clear trees during the NLEB inactive season, prior to April 14th. As FHWA is not the lead agency for this project, informal consultation with USFWS will be necessary, if the streamlining procedures included in the USFWS PBO for section 7 compliance are not utilized.

40518 Watersheds



0 0.25 0.5 1 Miles

1:24,000

| | Drainage Area (Acres) | Tier of Stream | Form |
|----------------------------|--------------------------|----------------|--------------------|
| Moose Brook Crossing 98+80 | 716.8 | Tier 3 | Alternative Design |
| R4SBB3 at 78+50 | 24.7 | Tier 1 | 904_07 |
| R4SBB3 at 81+50 | 2.2 | Tier 1 | 904_07 |
| R4SBB3 at 87+25 | 4.4 | Tier 1 | 904_07 |
| R4SBB3 at 89+25 | 2.1 | Tier 1 | 904_06 |
| R4SBB3 at 93 | 47.9 | Tier 1 | 904_06 |
| R4SBB3 at 94+60 | 25.6 | Tier 1 | 904_07 |
| R4SBB1 at 106+40 | 14.9 | Tier 1 | 904_07 |
| R4SBB1 at 109+75 | 20.9 | Tier 1 | 904_07 |
| R4SBB3 at 120+40 | 16.6 | Tier 1 | 904_07 |

*The Moose Brook Crossing watershed boundary was downloaded as a shapefile via the USGS Stream Stats Watershed Boundary Mapping Tool.

* The remaining watershed boundaries were delineated by hand using GIS. The reason for this was because the smaller intermittent streams were not available through the USGS Stream Stats Watershed Boundary Mapping Tool.



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGE MAINTENANCE
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WETLANDS PERMIT APPLICATION – ATTACHMENT C **Stream Crossing Requirements & Information**

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

1. 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”) (question 2, Attachment A, Minor and Major 20 Questions);

Moose Brook has a drainage area of 1.12 square miles, which qualifies this great as a Tier 3 Crossing. The required span, based on the NH Stream Crossing Guidelines for a new crossing, would be 10’. A structure of this size would cost approximately \$315,000. Spending this much money on a structure that could be adequately preserved for approximately \$55,000 would not be a practical use of resources.

The location of this culvert, which is in the crux of a hairpin turn with significant topographic relief, would require exorbitant slope impacts, and may cause destabilization in the temporary and/or permanent conditions.

Additionally, significantly more temporary and permanent wetlands impacts that would result from construction of a fully compliant structure.

2. Please explain how the proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*. 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..

... In accordance with the NH Stream Crossing Guidelines:

The NH Stream Crossing Guidelines do not mention maintenance to a structure in a Tier 3 watershed.

The proposed structure will match the existing slope and alignment.

Wildlife passage through the proposed structure will be no different than through the existing structure.

The proposed structure will maintain the flow depths found in the existing structure.

The proposed structure is expected to be able to pass the 100 year flood event.

... 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:

Water depths and velocities within the crossing at a variety of flows will be comparable to the existing depths and velocities. Flows found in the natural channel upstream and downstream of the stream crossing will not change between existing and proposed conditions.

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

It is not possible to provide vegetated banks on both sides of the watercourse below the roadway, regardless of the type of structure installed. Wildlife passage for the proposed structure will be the same as the existing condition.

... To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the function of the natural floodplain (*questions 14 and 15, Attachment A, Minor and Major 20 Questions*);

Repairing the concrete headwall and constructing an in-kind replacement will have no effect on the hydraulic capacity of the structure. The existing pipe currently projects at the inlet approximately 1' at a steep grade. This project proposes to cut the existing pipe flush with the proposed headwall, which will minimally improve the inlet efficiency. The existing crossing has no history of flooding or overtopping of the banks of the stream.

... To accommodate the 100-year frequency flood and to ensure that there is no increase in flood stages on abutting properties (*questions 11 and 14, Attachment A, Minor and Major 20 Questions*);

**The project as proposed will not alter the chance of flooding on abutting properties.
The project will not significantly change the passage of the 100 year flood event between existing and proposed conditions.**

... To simulate a natural stream channel:

The current topography and geometry of the site at the culvert location would make it difficult to construct a natural embedment that would simulate a natural stream channel, without significant additional impacts to the slopes.

... So as not to alter sediment transport competence (*question 14, Attachment A, Minor and Major 20 Questions*):

Nothing that will be a barrier to sediment transport will be installed in this project.

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

(a) Not be a barrier to sediment transport (*question 14, Attachment A, Minor and Major 20 Questions*);

Nothing that will be a barrier to sediment transport will be installed in this project.

(b) Prevent the restriction of high flows and maintain existing low flows (*question 14, Attachment A, Minor and Major 20 Questions*);

Repairing the concrete headwall and constructing an in-kind replacement will have no effect on the hydraulic capacity of the structure. The existing pipe currently projects at the inlet approximately 1' at a steep grade. This project proposes to cut the existing pipe flush with the proposed headwall, which will minimally improve the inlet efficiency. The existing crossing has no history of flooding or overtopping of the banks of the stream.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction (*question 7, Attachment A, Minor and Major 20 Questions*);

The proposed structure will provide the same degree of aquatic passage as the existing structure. After construction the site will be similar to its current condition.

(d) Not cause an increase in the frequency of flooding or overtopping of banks (*question 14, Attachment A, Minor and Major 20 Questions*);

Repairing the concrete headwall and constructing an in-kind replacement will have no effect on the hydraulic capacity of the structure. The existing pipe currently projects at the inlet approximately 1' at a steep grade. This project proposes to cut the existing pipe flush with the proposed headwall, which will minimally improve the inlet efficiency. The existing crossing has no history of flooding or overtopping of the banks of the stream.

(e) Preserve watercourse connectivity where it currently exists (*question 15, Attachment A, Minor and Major 20 Questions*);

Connectivity will remain unchanged with the proposed structure and will not be worsened.

| |
|---|
| |
| (f) Restore watercourse connectivity where... |
| ... connectivity previously was disrupted as a result of human activity(ies) (<i>question 15, Attachment A, Minor and Major 20 Questions</i>); |
| Connectivity will remain unchanged with the proposed structure and will not be worsened. |
| ... restoration of connectivity will benefit aquatic life upstream or downstream of the crossing (<i>question 15, Attachment A, Minor and Major 20 Questions</i>); |
| Aquatic life upstream and downstream will not be affected as a result of this project. |
| (g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing (<i>question 14, Attachment A, Minor and Major 20 Questions</i>); |
| No erosion, aggradation or scouring of upstream or downstream surface waters are anticipated with the proposed design. |
| (h) Not cause water quality degradation (<i>question 13, Attachment A, Minor and Major 20 Questions</i>). |
| The project as proposed will not impact the quantity or quality of surface and/or groundwater at this site. Best Management Practices will be used to prevent any adverse effect to water quality during construction. |

**NH Department of Transportation
Bureau of Environment
Project, # 40518, Station 78+50 #22 Replace 15" RCP**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?

No, the crossing within the project area does not have a demonstrated a history of flooding. The project proposes to replace the pipe, the inlet headwall, and the outlet headwall. The drainage area was estimated to be around 24.7 acres (tier 1) for the stream. The stream is an Intermittent Cobble Gravel Streambed (R4SB3).

The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project.

The project proposes to replace the 15" reinforced concrete pipe (RCP) with a 15" plastic pipe of the same length. The project also proposes construction of an inlet headwall and an outlet headwall. Stone will be added at the pipe inlet and outlet for stabilization. The current pipe inlet is plugged and the pipe segments are separating. The new pipe, headwalls, and stone stabilization will improve the condition of the crossing.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. The inlet of the pipe is currently plugged and the pipe sections are separating. The replacement will improve the capacity of the crossing.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The pipe will be replaced with a pipe with the same diameter as the existing pipe. The inlet of the pipe is currently plugged and the pipe sections are separating, so a replacement will accommodate passage more easily.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The current inlet is plugged, so the replacement will improve the crossing and allow water to pass more freely.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. Water will be able to cross more freely when the current situation is improved by replacement of the pipe and removal of the obstruction. Since the pipe is being replaced in kind, the low flows should be relatively similar.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep, therefore, no fish passage is expected at this crossing. The removal of the obstruction at the inlet side of the pipe will allow more free movement of other animals.

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

No, the size of the pipe is being maintained, so replacement of the pipe will not cause an increase in the frequency of flooding or overtopping of banks. In addition, with the removal of the current obstruction, water should be able to flow more freely, reducing the risk of flooding or of the stream overtopping its banks.

(e) Preserve watercourse connectivity where it currently exists;

Water course connectivity has been compromised by the currently plugged inlet. Replacement of the pipe to allow more free passage of the intermittent stream will increase watercourse connectivity. The work at this crossing will not reduce watercourse connectivity.

(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;

Water course connectivity has been compromised by the currently plugged inlet. Replacement of the pipe to allow more free passage of the intermittent stream will increase watercourse connectivity. This will allow any aquatic life that inhabits the stream to pass more freely from upstream to downstream and vice versa.

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

No, the size of the pipe is being maintained, so replacement of the pipe will not cause an increase in erosion, aggradation, or scouring upstream or downstream. The inlet and outlet headwall are also being replaced and stone is being added, which will stabilize the crossing. This stabilization will reduce the chance of erosion.

(h) Not cause water quality degradation.

No, the replacement pipe will not cause water quality degradation. The crossing function will be improved by the work and the stone will reduce potential for erosion.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The pipe replacement will not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The replacement will increase stability by adding stone and unplugging the inlet.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The pipe replacement will not cause an increase in the frequency of flooding or overtopping of banks. In fact, by removing the obstruction, the water will be able to flow more freely through the channel.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 81+50 #26 Replace 12" CMP**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?

No, the crossing within the project area does not have a demonstrated history of flooding. The project proposes to replace the pipe, the inlet headwall, and the outlet headwall. The drainage area was estimated to be around 2.2 acres (tier 1) for the stream. The stream is an Intermittent Cobble Gravel Streambed (R4SB3).

The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project.

The project proposes to replace the 12" corrugated metal pipe (CMP) with a 12" plastic pipe. The project also proposes replacement of the inlet headwall and replacement of the outlet headwall. Stone will be placed at the pipe inlet and outlet for stabilization. The existing pipe is bent and cannot be rehabilitated. The new pipe and headwalls will increase the stability of the crossing.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the replacement will not diminish the capacity of the crossing.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The pipe will be replaced with a pipe of the same diameter of the existing pipe, and so, will accommodate passage in the same manner as is currently available.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The pipe is being replaced with a pipe of the same diameter of the existing pipe, so any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. Since the pipe is being replaced with a pipe of the same diameter of the existing pipe, the high flows should not be restricted and low flows should be relatively similar to the existing conditions.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep,

therefore, no fish passage is expected at this crossing. The replacement of the pipe and headwalls should not impede the movement of other animals.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in the frequency of flooding or overtopping of banks.

(e) Preserve watercourse connectivity where it currently exists;

Replacement of the pipe crossing of the intermittent stream will not impact watercourse connectivity. The work at this crossing includes replacing the current pipe with a pipe of the same diameter of the existing pipe, therefore, it will not reduce watercourse connectivity. The new headwalls will improve stability.

(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 pipe will be replaced with a pipe of the same diameter, therefore, it will not reduce watercourse connectivity. The new headwalls will improve stability and may improve connectivity. Aquatic life that inhabits the stream that currently passes through the pipe will still be able to do so after the work is complete. Also, replacement of the aged pipe will reduce the chances of future impacts to connectivity.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in erosion, aggradation, or scouring upstream or downstream. The inlet and outlet headwall are also being replaced, which will stabilize the crossing.

(h) Not cause water quality degradation.

No, the replacement pipe will not cause water quality degradation. The crossing function will be improved by the work and the stone will reduce potential for erosion, reducing the chances of water quality degradation.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The pipe replacement will not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The replacement will increase stability by adding stone and replacing the pipe headwalls.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The pipe replacement will not cause an increase in the frequency of flooding or overtopping of banks. The pipe is being replaced with a pipe with the same diameter, and so water will be able to continue to flow through the channel as it does currently.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 87+25 #35 Replace 15" CMP**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?
No, the crossing within the project area does not have a demonstrated a history of flooding. The project proposes to rehabilitate the crossing. The drainage area was estimated to be around 4.4 acres (tier 1) for the stream. The stream is an Intermittent Cobble Gravel Streambed (R4SB3).

The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project.

The project proposes to replace the 15" corrugated metal pipe with a 15" plastic pipe, construct an inlet headwall, and install a stone apron at the pipe inlet and outlet. The current pipe is perched and projects from the roadway bank. The new pipe will be shorter and will outlet on the slope. This will improve the condition of the crossing. The design of the project in this location is intended to maintain current flow conditions through the project area. If the deterioration of the crossing is not addressed, a more serious failure could lead to erosion and impacts to water quality and aquatic life.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the replacement will not diminish the capacity of the crossing. In fact, after the replacement, the crossing function will be improved.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The Department will be maintaining the existing diameter of the existing pipe and by adjusting the outlet of the pipe the crossing may better accommodate passage of aquatic life.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The pipe is being replaced with a pipe with the same diameter, so any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. Since the pipe is being with a pipe with the same diameter, the high flows should not be restricted and low flows should be relatively similar to the existing conditions.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep, therefore, no fish passage is expected at this crossing. The replacement of the pipe and the headwall work should not impede the movement of other animals. In fact, by adjusting the outlet of the pipe the crossing may better accommodate passage of aquatic life.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in the frequency of flooding or overtopping of banks.

(e) Preserve watercourse connectivity where it currently exists;

Replacement of the pipe crossing of the intermittent stream will not impede watercourse connectivity. Adjusting the outlet of the pipe should improve connectivity and the work overall will stabilize the crossing.

(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 work at this crossing will be replacement in kind, therefore, it will not reduce watercourse connectivity. Adjusting the outlet of the pipe should improve connectivity and the work overall will stabilize the crossing. Aquatic life that inhabits the stream that currently passes freely from upstream to downstream and vice versa will still be able to do so after the work is complete. Also, replacement of the aged pipe will reduce the chances of future impacts to connectivity. Reducing the pipe perch will improve access from downstream to upstream.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in erosion, aggradation, or scouring upstream or downstream. The headwall construction and installation of stone aprons will stabilize the crossing.

(h) Not cause water quality degradation.

No, the replacement pipe will not cause water quality degradation. The crossing function will be improved by the work and the headwall and stone aprons will reduce potential for erosion, reducing the chances of water quality degradation.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The pipe replacement will not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The replacement will increase stability and improving the inlet and outlet will increase stability.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The pipe replacement will not cause an increase in the frequency of flooding or overtopping of banks. The pipe is being replaced with a pipe with the same diameter, so water will be able to continue to flow through the channel as it does currently.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 89+25 #40 Construct Headwall**

Env-Wt 904.06 Repair or Rehabilitation of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?

No, the crossing within the project area does not have a demonstrated a history of flooding. The project proposes to construct an inlet headwall at the crossing. The drainage area was estimated to be around 2.1 acres (tier 1) for the stream. The stream is an Intermittent Cobble Gravel Streambed (R4SB3).

Repair or rehabilitation pursuant to this section may be accomplished by concrete repair, slip lining, cured-in-place lining, or concrete invert lining. Please describe how this applies to the subject project.

The project proposes to construct a headwall to stabilize the crossing. The design of the project in this location is intended to maintain current flow conditions through the project area. Construction of the inlet will improve conditions at the crossing.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the headwall installation will not diminish the capacity of the crossing.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The rehabilitated crossing will accommodate passage in the same manner as is currently available.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The size of the pipe is being maintained, and so, any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. As the size of the pipe and general configuration is not being altered, the high flows should not be restricted and low flows should be very similar to the existing conditions.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep,

therefore, no fish passage is expected at this crossing. The installation of a headwall at the crossing should not impede the movement of animals.

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

No, the diameter of the pipe is being maintained, so construction of the headwall is not expected to cause an increase in the frequency of flooding or overtopping of banks.

(e) Preserve watercourse connectivity where it currently exists;

The rehabilitated structure will preserve watercourse connectivity as it currently exists.

(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 proposed improvement will ensure continued watercourse connectivity. This project will allow aquatic life upstream or downstream of the crossing to continue to pass through the project area. The area should be more stable after the work on the crossing is complete.

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

The rehabilitated crossing will not cause erosion, aggradation, or scouring upstream or downstream, as the project perpetuates current flow through the project area and does not present new impediments to water passage. The new headwall should make the crossing more secure.

(h) Not cause water quality degradation.

The rehabilitated crossing will not cause water quality degradation. The crossing will continue to function as it does currently.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The rehabilitated crossing will not adversely impact the stability of the stream banks or stream beds upstream or downstream of the crossings.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The rehabilitated crossing will not cause an increase in the frequency of flooding or overtopping of banks.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 93 #44 Construct CMP Inlet Headwall**

Env-Wt 904.06 Repair or Rehabilitation of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?

No, the crossing within the project area does not have a demonstrated a history of flooding. The project proposes to construct an inlet headwall for the crossing. The drainage area was estimated to be around 47.9 acres (tier 1) for the stream. The stream is an Intermittent Cobble Gravel Streambed (R4SB3).

Repair or rehabilitation pursuant to this section may be accomplished by concrete repair, slip lining, cured-in-place lining, or concrete invert lining. Please describe how this applies to the subject project.

The project proposes to remove the existing headwall and construct an inlet headwall to stabilize the crossing. The design of the project in this location is intended to maintain current flow conditions through the project area. If the deterioration of the crossing is not addressed, a more serious failure could lead to erosion and impacts to water quality and aquatic life.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the headwall installation will not diminish the capacity of the crossing.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The rehabilitated crossing will accommodate passage in the same manner as is currently available.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The size of the pipe is being maintained, and so, any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. As the size of the pipe and general configuration is not being altered, the high flows should not be restricted and low flows should be very similar to the existing conditions.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep,

therefore, no fish passage is expected at this crossing. The improvements at the crossing should not impede the movement of animals.

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

No, the diameter of the pipe is being maintained, so construction of an inlet headwall is not expected to cause an increase in the frequency of flooding or overtopping of banks.

(e) Preserve watercourse connectivity where it currently exists;

The rehabilitated structure will preserve watercourse connectivity as it currently exists.

(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 proposed improvement will ensure continued watercourse connectivity. This project will allow aquatic life upstream or downstream of the crossing to continue to pass through the project area. The area should be more stable after the work on the crossing is complete.

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

The rehabilitated crossing will not cause erosion, aggradation, or scouring upstream or downstream, as the project perpetuates current flow through the project area and does not present new impediments to water passage. The new headwall should make the crossing more stable.

(h) Not cause water quality degradation.

The rehabilitated crossing will not cause water quality degradation. The crossing will continue to function as it does currently.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The rehabilitated crossing will not adversely impact the stability of the stream banks or stream beds upstream or downstream of the crossings.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The rehabilitated crossing will not cause an increase in the frequency of flooding or overtopping of banks. Improvements to the inlet headwall should improve the function of the crossing.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 94+60 #48 Replace 24" RCP**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?

No, the crossing within the project area does not have a demonstrated history of flooding. The project proposes to replace the pipe, the inlet headwall, and the outlet headwall. The drainage area was estimated to be around 25.6 acres (tier 1) for the stream. The stream is an Intermittent Cobble Gravel Streambed (R4SB3).

The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project.

The project proposes to replace the 24" reinforced concrete pipe (RCP) with a 24" plastic pipe of the same dimensions. The project also proposes in kind replacement of the inlet headwall and to construct an outlet headwall with wing walls. Currently there is ponding over the pipe and the segments of the pipe are disjointing. Replacing the pipe and improving the inlet and outlet will improve the function of the crossing.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the replacement will not diminish the capacity of the crossing. Also, by replacing the failing pipe, the future capacity of the crossing will be ensured.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The pipe will be replaced with a pipe with the same dimensions as the existing pipe, and so, will accommodate passage in a similar manner.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The pipe is being replaced with a pipe with the same dimensions as the existing pipe, and so any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced. In fact by improving the inlet and outlet of the pipe, the crossing functionality will be improved.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. Since the pipe is being replaced with a pipe with the same dimensions as the existing pipe, the high flows should not be restricted and low flows should be relatively similar to the existing conditions.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep,

therefore, no fish passage is expected at this crossing. The replacement of the pipe and headwall work should not impede the movement of other animals.

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

No, the size of the pipe is being maintained, so replacement of the pipe will not cause an increase in the frequency of flooding or overtopping of banks. By replacing the pipe before it fails, the risk of the pipe failing and causing flooding will be reduced.

(e) Preserve watercourse connectivity where it currently exists;

Replacement of the pipe crossing of the intermittent stream will not impact watercourse connectivity. The current pipe will be replaced with a pipe with the same dimensions as the existing pipe, therefore, it will not reduce watercourse connectivity. The work will repair conditions that are currently unstable and could interfere with connectivity if not addressed.

(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 current pipe will be replaced with a pipe with the same dimensions as the existing pipe, therefore, it will not reduce watercourse connectivity. Aquatic life that inhabits the stream that currently passes freely from upstream to downstream and vice versa will still be able to do so after the work is complete. Also, replacement of the aged pipe will reduce the chances of future impacts to connectivity.

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

No, the size of the pipe is being maintained, so replacement of the pipe will not cause an increase in erosion, aggradation, or scouring upstream or downstream. The headwalls are being improved, which will stabilize the crossing and reduce the risk for erosion.

(h) Not cause water quality degradation.

No, the replacement pipe will not cause water quality degradation. The crossing function will be improved by the work and the headwalls will reduce potential for erosion, reducing the chances of water quality degradation.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The pipe replacement will not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The replacement will increase stability by replacing the pipe and improving the inlet and outlets.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The pipe replacement will not cause an increase in the frequency of flooding or overtopping of banks. The pipe is being replaced in kind, so water will be able to continue to flow through the channel as it does currently.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 106+40 #63 Replace 15" CMP**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?
No, the crossing within the project area does not have a demonstrated history of flooding. The project proposes to replace the 15" corrugated metal pipe with a 15" metal pipe of the same length, lower the pipe inlet by 2', construct an inlet headwall around 10' from the paved surface, and construct an outlet headwall with wingwalls and a stone apron. The drainage area was estimated to be around 14.9 acres (tier 1) for the stream. The stream is an Intermittent Bedrock Streambed (R4SB1).

The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project.

The project proposes to replace the 15" corrugated metal pipe in kind and to lower the pipe inlet by 2'. The project also proposes to construct an inlet headwall around 10' from the paved surface, and construct an outlet headwall with wingwalls and install a stone apron. The current pipe inlet is below the ground surface and is plugged. The outlet is currently projecting out of the road bank. By adjusting the position of the pipe, these conditions will be improved.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the replacement will not diminish the capacity of the crossing. In fact, adjusting the inlet will likely improve the capacity of the crossing. The current pipe inlet is below the ground surface and is plugged. After the replacement, the crossing function will be improved.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The pipe will be replaced in-kind, and by adjusting the inlet of the pipe the crossing may better accommodate passage of aquatic life. Also, by remedying the plugged inlet, aquatic life should be able to pass more freely.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The pipe is being replaced in kind, so any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced. In fact, adjusting the inlet will likely improve the function of the crossing.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. Since the pipe is being replaced in kind, the high flows should not be restricted and low flows should be relatively similar to the existing conditions. The current pipe inlet is below the ground surface and is plugged. By remedying this condition, the crossing function will be improved.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep, therefore, no fish passage is expected at this crossing. The replacement of the pipe and the headwall work should not impede the movement of other animals. In fact, by adjusting the inlet of the pipe the crossing may better accommodate passage of aquatic life.

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

No, the size of the pipe is being maintained, so replacement of the pipe will not cause an increase in the frequency of flooding or overtopping of banks. In fact, by adjusting the inlet of the pipe the crossing function should be improved and reduce the chances of flooding.

(e) Preserve watercourse connectivity where it currently exists;

Replacement of the pipe crossing of the intermittent stream will not impede watercourse connectivity. The work at this crossing will be in kind, therefore, it will not reduce watercourse connectivity. Adjusting the inlet of the pipe should improve connectivity and the work overall will stabilize the crossing.

(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 work at this crossing will be replacement in kind, therefore, it will not reduce watercourse connectivity. Adjusting the inlet of the pipe should improve connectivity and the work overall will stabilize the crossing. Aquatic life that inhabits the stream that currently passes freely from upstream to downstream and vice versa will still be able to do so after the work is complete. Also, replacement of the aged pipe will reduce the chances of future impacts to connectivity.

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

No, the size of the pipe is being maintained, so replacement of the pipe will not cause an increase in erosion, aggradation, or scouring upstream or downstream. The headwalls are being improved and a stone apron is being installed, which will stabilize the crossing.

(h) Not cause water quality degradation.

No, the replacement pipe will not cause water quality degradation. The crossing function will be improved by the work and the headwalls will reduce potential for erosion, reducing the chances of water quality degradation.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The pipe replacement will not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The replacement will increase stability by replacing the pipe and improving the inlet and outlets and will remove the blockage at the pipe inlet.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The pipe replacement will not cause an increase in the frequency of flooding or overtopping of banks. The pipe is being replaced in kind, so water will be able to continue to flow through the channel as it does currently.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 109+75 #68 Replace 15" CMP**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?

No, the crossing within the project area does not have a demonstrated a history of flooding. The project proposes to replace the 15" corrugated metal pipe (CMP) with a 15" metal pipe, construct an inlet headwall with a stone apron and construct an outlet headwall approximately 8' from the paved surface with a stone apron. The drainage area was estimated to be around 20.9 acres (tier 1) for the stream. The stream is an Intermittent Bedrock Streambed (R4SB1).

The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project.

The project proposes to replace the 15" corrugated metal pipe with a 15" metal pipe. The project also proposes to construct inlet and outlet headwalls with stone aprons. Inlet and outlet headwalls will be constructed at the crossing. At the outlet the pipe will be 3' shorter and wingwalls will be installed. The inlet of the current pipe is plugged and the outlet is projecting from the road bank and showing signs of erosion. The replacement will be more stable.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the replacement will not diminish the capacity of the crossing.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The pipe will be replaced with a pipe with the same diameter and should accommodate passage of aquatic life in a similar manner to existing conditions.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The pipe is being replaced with a pipe with the same diameter, so any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced. Stabilizing the inlet and outlet with headwalls will improve the function of the crossing. Also, the pipe is currently plugged at the inlet, so the new pipe will improve the crossing.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. Since the pipe is being replaced with a pipe with the same diameter, the high flows should not be restricted and low flows should be relatively similar to the existing conditions.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the

waterbody beyond the actual duration of construction;

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep, therefore, no fish passage is expected at this crossing. The replacement of the pipe and the headwall work should not impede the movement of other animals. Also, the current pipe has a plugged inlet and the new crossing will not, which will ease passage for aquatic life.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in the frequency of flooding or overtopping of banks. In fact, by remedying the plugged inlet and stabilizing the inlet and outlet of the pipe the crossing function should be improved.

(e) Preserve watercourse connectivity where it currently exists;

Replacement of the pipe crossing of the intermittent stream will not impact watercourse connectivity. The work at this crossing will be in kind, therefore, it will not reduce watercourse connectivity. The work overall will stabilize the crossing.

(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 work at this crossing will maintain the diameter of the pipe, therefore, it will not reduce watercourse connectivity. The work overall will stabilize the crossing. Aquatic life that inhabits the stream that currently pass freely from upstream to downstream and vice versa will still be able to do so after the work is complete. Also, replacement of the aged pipe will reduce the chances of future impacts to connectivity.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in erosion, aggradation, or scouring upstream or downstream. The headwalls are being improved and stone aprons are being installed, which will stabilize the crossing. By remedying the plug at the inlet and addressing the erosion at the outlet, erosion will be reduced at and around the crossing.

(h) Not cause water quality degradation.

No, the replacement pipe will not cause water quality degradation. The crossing function will be improved by the work and the headwalls will reduce potential for erosion, reducing the chances of water quality degradation.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The pipe replacement will not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The replacement will increase stability by replacing the pipe and improving the inlet and outlets.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The pipe replacement will not cause an increase in the frequency of flooding or overtopping of banks. The pipe is being replaced with a pipe of the same diameter, so water will be able to continue to flow through the channel as it does currently.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

**NH Department of Transportation
Bureau of Environment
Project, #40518, Station 120+40 #77 Replace 15" CMP**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding?
No, the crossing within the project area is not known to have a demonstrated a history of flooding. The project proposes to replace the 15" corrugated metal pipe (CMP) with a 15" metal pipe, to construct an inlet headwall with a stone apron and to construct an outlet headwall with a stone apron. The drainage area was estimated to be around 16.6 acres (tier 1) for the stream. The stream is an Intermittent Cobble Gravel Streambed (R4SB3).

The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project.

The project proposes to replace the 15" corrugated metal pipe with a 15" metal pipe. The project also proposes to construct inlet and outlet headwalls with stone aprons. The outlet pipe currently projects from the roadway bank. The new pipe will be 4' shorter to limit the pipe perch. The outlet headwall will be approximately 9' from the edge of pavement. The replacement crossing is the same size and the headwalls will increase stability and be an upgrade of the existing conditions. The wetland is referred to as #77.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a minimum impact project if:

The crossing does not diminish the hydraulic capacity of the crossing.

No, the work proposed will not diminish the hydraulic capacity of the crossing. The Department will be maintaining the existing diameter of the existing pipe. Therefore, the replacement will not diminish the capacity of the crossing.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage.

No, the project does not diminish the capacity of the crossing to accommodate aquatic life passage. The pipe will be replaced with a pipe with the same diameter and should accommodate passage of aquatic life in a similar manner to existing conditions. By shortening the pipe so that it does not project from the road bank and limiting the perch, passage may be improved.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

No, the proposed crossing will not be a barrier to sediment transport. The pipe is being replaced with a pipe with the same diameter, so any sediment transport that is currently occurring would be expected to be maintained after the pipe is replaced. Stabilizing the inlet and outlet with headwalls will improve the function of the crossing.

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

The crossing will not create restrictions of high flows and will maintain existing low flows. Since the pipe is being replaced with a pipe with the same diameter, the high flows should not be restricted and low flows should be relatively similar to the existing conditions.

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

The crossing will not obstruct or substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction. The stream is intermittent and the slopes along the roadway are steep, therefore, no fish passage is expected at this crossing. The replacement of the pipe and the headwall work should not impede the movement of other animals. By shortening the pipe so that it does not project from the road bank and limiting the perch, passage may be improved.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in the frequency of flooding or overtopping of banks. In fact, by stabilizing the inlet and outlet of the pipe the crossing function should be improved by the project.

(e) Preserve watercourse connectivity where it currently exists;

Replacement of the pipe crossing of the intermittent stream will not impact watercourse connectivity. The pipe replacement at the crossing will be with a pipe with the same diameter, therefore, it will not reduce watercourse connectivity. The work overall will stabilize the crossing.

(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 work at this crossing will be replacement with a pipe with the same diameter, therefore, it will not reduce watercourse connectivity. The work overall will stabilize the crossing. Aquatic life that inhabits the stream that currently passes freely from upstream to downstream and vice versa will still be able to do so after the work is complete. Also, replacement of the aged pipe will reduce the chances of future impacts to connectivity.

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

No, the diameter of the pipe is being maintained, so replacement of the pipe will not cause an increase in erosion, aggradation, or scouring upstream or downstream. The headwalls are being improved and stone aprons are being installed, which will stabilize the crossing. These improvements will reduce potential erosion at this location.

(h) Not cause water quality degradation.

No, the replacement pipe will not cause water quality degradation. The crossing function will be improved by the work and the headwalls will reduce potential for erosion, reducing the chances of water quality degradation. Limiting the perch at the outlet should also reduce the chance of erosion at the crossing.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a minor impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing.

The pipe replacement will not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The replacement will increase stability by replacing the pipe and improving the inlet and outlets. The work is anticipated to create a more stable crossing.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks.

The existing pipe is being replaced with a pipe that is the same diameter as the existing, therefore, the replacement will not cause an increase in the frequency of flooding or overtopping of banks. Water will be able to continue to flow through the channel as it does currently.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).



NEW HAMPSHIRE NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Rebecca Martin, NH DOT
7 Hazen Drive
PO Box 483
Concord, NH 03302

From: NH Natural Heritage Bureau

Date: 8/31/2015 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 8/24/2015

NHB File ID: NHB15-2810

Applicant: Rebecca Martin

Location: Colebrook, Dixville
40518: Golf Links Road

Project

Description: 40518: Rehabilitate existing Golf Links Road, with a portion of full box reconstruction, replace existing drainage structures and install aggregate underdrain along the cut side of the roadway, upgrade existing cable guardrail, and reconstruct/stabilize slope at existing failure location

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program 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.

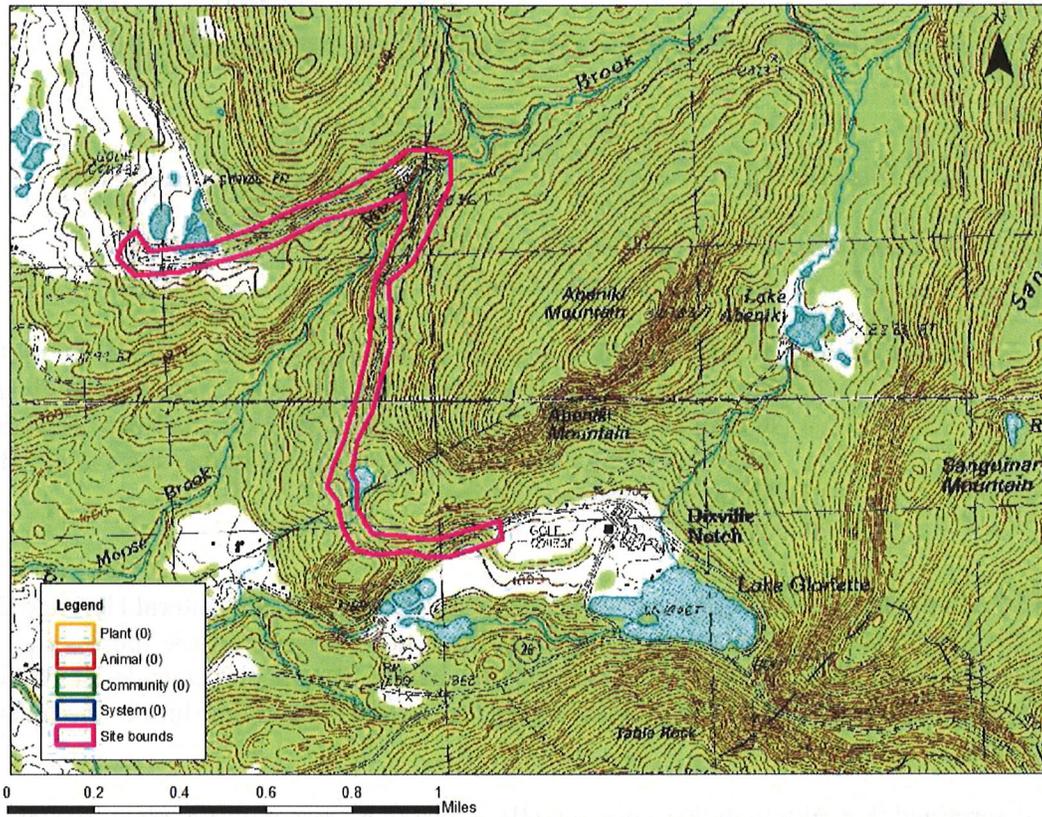
It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 8/24/2015, and cannot be used for any other project.



NEW HAMPSHIRE NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

MAP OF PROJECT BOUNDARIES FOR: **NHB15-2810**

NHB15-2810





United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland

Consultation Code: 05E1NE00-2015-SLI-1643

August 18, 2015

Event Code: 05E1NE00-2015-E-02109

Project Name: 40518 Dixville - Colebrook

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



United States Department of Interior
Fish and Wildlife Service

Project name: 40518 Dixville - Colebrook

Official Species List

Provided by:

New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
(603) 223-2541
<http://www.fws.gov/newengland>

Consultation Code: 05E1NE00-2015-SLI-1643

Event Code: 05E1NE00-2015-E-02109

Project Type: TRANSPORTATION

Project Name: 40518 Dixville - Colebrook

Project Description: Rehabilitate existing Golf Links Road, with a portion of full box reconstruction, replace existing drainage structures and install aggregate underdrain along the cut side of the roadway, upgrade existing cable guardrail, and reconstruct/stabilize slope at existing failure location

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: 40518 Dixville - Colebrook

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Coos, NH



United States Department of Interior
Fish and Wildlife Service

Project name: 40518 Dixville - Colebrook

Endangered Species Act Species List

There are a total of 2 threatened or endangered species on your 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. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

| Mammals | Status | Has Critical Habitat | Condition(s) |
|---|------------|----------------------|--------------|
| Canada Lynx (<i>Lynx canadensis</i>) Population: (Contiguous U.S. DPS) | Threatened | Final designated | |
| Northern long-eared Bat (<i>Myotis septentrionalis</i>) | Threatened | | |



Victoria F. Sheehan
Commissioner

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



William Cass, P.E.
Assistant Commissioner

February 17, 2016

Ms. Susi von Oettingen
Endangered Species Biologist
USFWS New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
Susi_vonOettingen@fws.gov

Subject: NH Department of Transportation Project 40518: Dixville-Colebrook Golf Link Road Rehabilitation, Not Likely to Adversely Affect the Northern Long-Eared Bat (NLEB): No Prohibited Incidental Take

Dear Ms. von Oettingen:

Please consider this letter and the attachments as the project level documentation as required for fulfillment of project-specific section 7(a)(2) responsibilities in accordance with the programmatic intra-Service consultation for the final 4(d) rule through the USFWS Programmatic Biological Opinion for a project proposed to rehabilitate Golf Links Road in Dixville and Colebrook New Hampshire. The proposed project is not within the scope of the Federal Highway Administration and Federal Railroad Administration Range-Wide Biological Assessment for Transportation Projects for Indiana Bat and Northern Long-Eared Bat, as the lead federal agency is not FHWA or FRA. The project will be constructed with state funds (no federal funding) and will require a wetland permit. The wetland permit and coverage under the USACE Programmatic General Permit for the State of New Hampshire constitutes a federal nexus, which obliges consultation in accordance with Section 7(a)(2) of the Endangered Species Act. An Official Species List has been retrieved from the USFWS IPaC site, Consultation Code: 05E1NE00-2015-SLI-1643. The list indicates potential presence of Northern Long-Eared Bat and Canada Lynx. No Critical Habitat is designated in the project area. The project activities are excepted from incidental taking prohibitions in the final 4(d) rule for NLEB.

Proposed Project and Action Area

Golf Links Road connects the Balsams Resort to the Panorama Golf Course and is a state maintained roadway in Dixville and Colebrook New Hampshire. The road varies between 15 and 20 feet wide and is thought to have evolved over time. The project is approximately 1.8 miles in length and proposes to set the width of the roadway to a 16 foot typical. Widening may be incorporated in locations where vehicle paths of passing cars may conflict. There is no formal construction date or plans for the existing roadway. The proposed project has significant constraints due to ledge in the area, steep slopes, and wetlands. There is also significant slope instability in the switchback in the road located near Moose Brook. There are two dams in the project area for recreational ponds at the Golf Course and at Two Towns dam. The road is typically closed during the winter and one of the project goals is to allow year round use. The roadway and pavement show significant signs of deterioration.

The project proposes a sandwich treatment for most of the project length, which will include installation of 6 to 8 inches of base materials over the existing roadway and around 5.5 inches of pavement overtop. At grade reconstruction is

proposed in the areas around the two dams within the project area in accordance with recommendations from the NH DES Dam Bureau. Treatments in the roadway at the dams will likely include removing the pavement and excavating the gravel materials and replacement of gravel and pavement.

A significant goal of the project design is to address issues with offsite flows impacting the roadway. The Moose Brook crossing was formerly dammed, but the dam has since been removed and replaced with a culvert. There is a significant slope failure near the Moose Brook crossing that will require either soil nailing with slope protection or a shift in the roadway away from the failure. There are significant cuts along the road and that in some areas these have led to the ditch line being filled by the sloughing of materials. There are also significant erosion issues. The project also proposes to address drainage failures. Drainage improvements will include ditch and underdrain and replacing crossing pipes with addition of protection at the inlet and outlet of the pipes.

Project Clearing

The project will require some clearing of potentially suitable NLEB habitat to accommodate rehabilitation of the roadway. NLEB is known to inhabit a variety of forested areas throughout the Northeast, and so, there is potential for the species to be present within the project limits during the NLEB active season. No direct impacts to Canada Lynx are expected to result from the project activities. The habitat being cleared is adjacent to the roadway and will not segment any blocks of habitat. Clearing is necessary to allow access to work areas and to remove trees that are encroaching on the roadway.

NLEB Listing

The Northern Long-Eared Bat (NLEB) (*Myotis septentrionalis*) has been listed under the Endangered Species Act (ESA) as "threatened". According to USFWS, "take" is defined as any action to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such activity" or "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding or sheltering." Along with the listing of NLEB the USFWS has issued a final 4(d) rule that limits the prohibition of take of NLEB. The 4(d) rule limitation of take prohibitions reflects that the disease white-nose syndrome (WNS) is the primary factor affecting the status of the NLEB, WNS has caused significant NLEB population declines. USFWS has indicated that any additional loss of individual NLEB resulting from the activities excepted from take prohibitions in the final 4(d) rule would not exacerbate the effects of WNS at the scale of states within the range of the NLEB.

Project Incidental Take: Not Prohibited

The proposed project does not cause purposeful take of NLEB. The project does not include activities within a NLEB hibernaculum. Further, the proposed project area has been reviewed by the NH Natural Heritage Bureau with no report of nearby hibernacula or maternity roost trees indicated for this project. In addition, the list of known hibernacula and maternity roost trees provided by the NH Fish and Game Department was consulted and neither Colebrook nor Dixville was found to be included in the list of towns with known maternity roost trees or hibernacula. Therefore, NH DOT has concluded that tree removal activities do not include removal of a known NLEB occupied maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31. Also, the project clearing activities do not include removal of any trees within 0.25 miles of a NLEB hibernaculum.

Habitat (Indirect) Impacts of Project Clearing

New Hampshire is a largely forested state and is the second most forested state in the United States. Around 4.8 million acres of New Hampshire land is forested, that is around 84% of the state (USDA Forest Service 2002). The Northern Long Eared Bat has been found to be more flexible than some other bat species in selecting summer roosts (Carter and Feldhamer 2005). Lacki et al. (2009) assessed 28 published sources and found that NLEB demonstrated greater

variability in height of roosts and stem diameter of roost trees than Indiana bats. In a study of NLEB maternity colony roosting areas the researchers found that the roosting areas did not appear to change as a result of either of two roost removal treatments (Silvis et al. 2015). Silvas et al. (2015) concluded that NLEB seem to be able to withstand the loss of some roost trees, as evidenced by colonies continuing to roost in an area following removal of some roost trees and habitat. This flexibility improves the chances that NLEB can find a suitable substitute roost tree if one is lost due to natural or anthropogenic influences.

Determination

For these reasons, it was determined that the proposed project will result in no prohibited take of NLEB as defined in the 4(d) rule under the Endangered Species Act. The project activities are not likely to adversely affect NLEB. No further coordination with USFWS is intended for this project. If USFWS does not respond within 30 days, NH DOT will presume our determination, which is informed by best available information, is accepted and consider project responsibilities under section 7(a)(2) with respect to the NLEB fulfilled through the USFWS Programmatic Biological Opinion.

Sincerely,



Rebecca Martin
Environmental Manager
NH DOT Bureau of Environment
7 Hazen Drive
Concord, NH 03302
(603)271-6781
rmartin@dot.state.nh.us

encl: Official Species List, Natural Heritage Bureau Review Report, Project Location Map, Golf Links Road Photos
cc: Michael Hicks, USACE
David Keddell, USACE

Resources:

Carter, T. and Feldham, G. June 2009. Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois. *Forest Ecology and Management* 219:259-268

Lacki, M., D. Cox, L. Dodd, M. Dickinson. 2009. Response of Northern Bats (*Myotis septentrionalis*) to Prescribed Fires in Eastern Kentucky Forests. *Journal of Mammalogy*. 90(5):1165-1175

Silvis, A., W.M. Ford, E.R. Britzke. 2015. Effects of hierarchical roost removal on Northern Long-Eared Bat (*Myotis septentrionalis*) maternity colonies. *PloS ONE* 10(1):1-17

Rebecca A. Martin

From: vonOettingen, Susi <susi_vonoettingen@fws.gov>
Sent: Thursday, March 03, 2016 10:03 AM
To: Rebecca A. Martin
Subject: Re: NH DOT Project 40518 -Golf Links Road Rehabilitation Dixville-Colebrook

Found the letter, you are good to go.

However, the first letter's effects determination of not likely to adversely affect would be incorrect. I didn't see an estimate of acreage or a time of year restriction but see on the second form that it is less than 5 acres with no TOY, right?

In order to reach not likely to adversely affect, there needs to be a minimum threshold of one acre for any time of year clearing, or a time of year restriction for up to a certain amount of acreage (depending on surrounding landscape) e.g. 20% or less. I'm still hoping to reach an minimum acreage with no TOY that's greater than 1 acre. Will work on that when I have time...

In the future, you can just state "may affect" if you don't know if it's an adverse effect (no TOY enough acres of trees being removed to increase the chance of a bat being in a tree when it's cut OR significant acreage with a TOY depending on surrounding forested landscape - XX% of habitat being removed) or not likely to adversely affect (minimum trees cut, TOY, etc.).

Thanks.

Susi

Susi von Oettingen
Endangered Species Biologist
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(W) 603-223-2541 ext. 6418
Please note my new extension.

www.fws.gov/newengland

On Thu, Mar 3, 2016 at 8:04 AM, Rebecca A. Martin <RMartin@dot.state.nh.us> wrote:

Good morning Susi,

Please find attached the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form for the Dixville-Colebrook 40518 Golf Links Road project. I believe this form has just become available. I had emailed you about the project previously and sent a letter last month.

Do I need to assume that the clock has been "reset" for the 30 day waiting period? "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."

I believe that my attached letter dated February 17 met all of the items specified in the Optional Framework to Streamline Section 7 Consultation

for the Northern Long-Eared Bat. Due to an aggressive project schedule, it would be best if we did not have to start the waiting period over, but I understand if that is necessary.

Thank you,

Rebecca Martin

Environmental Manager

NH DOT Bureau of Environment

7 Hazen Drive

Concord, NH 03302

(603)271-6781

rmartin@dot.state.nh.us

From: vonOettingen, Susi [mailto:susi_vonoettingen@fws.gov]

Sent: Wednesday, February 10, 2016 1:48 PM

To: Rebecca A. Martin

Subject: Re: NH DOT Project 40518 -Golf Links Road Rehabilitation Dixville-Colebrook

Thanks Rebecca,

**STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENT**

NOTE TO FILE

Date: March 28, 2016

From: Rebecca Martin
Environmental Manager
Bureau of Environment

RAM

Subject: Dixville-Colebrook 40518

RE: Cultural Resources

The proposed project includes rehabilitation of the existing Golf Links Road from the intersection with a gravel road called Valley Way, located northwest of the Balsams Resort property in Dixville, to the Panorama Clubhouse and Golf Course property in Colebrook. The project proposes to reconstruct approximately 1.8 miles of roadway to improve the riding surface. The roadway currently shows signs of severe stress, including significant rutting, cracking and settlement of the pavement. Additionally, significant erosion of the steep uphill cut side of the roadway, as well as settlement of the fill slope exist due to the presence of significant offsite runoff. The erosion of the cut slope has filled in existing ditch lines and culvert inlets. Ledge removal will be necessary in some areas. The current roadway condition is not suitable for year round travel. The improvements proposed will allow travel and maintenance of the roadway year round. The project also proposes to address drainage failures along Golf Links Road. In addition, a stone lined ditch along the cut side of the roadway will be constructed for the length of the project. The project will also include upgrades to guardrail and stabilization of approximately 300 feet of failed roadway embankment through soil nailing.

The Balsams Resort is located in Dixville on the north side of NH Route 26 and is currently listed in the National Register of Historic Places. The Panorama Clubhouse and Golf Course is located in Colebrook and has been determined by the NH Division of Historical Resources (DHR) to be eligible for the National Register of Historic Places. The NH DHR Eligibility Committee determined in a review on January 13, 2016 that Golf Links Road is eligible for the National Register of Historic Places and is also a contributing resource for The Balsams.

The Department's Cultural Resource Program Manager conferred with the NH DHR Preservation Project Reviewer, Nadine Peterson, for this project and determined that the Section 106 process for the Golf Links Road rehabilitation is considered part of the larger Balsams development, which has been deemed complete by the US Army Corps of Engineers. Under the 106 process, the NH DHR Preservation Project Reviewer has reviewed the project as proposed and believes that because of the restricted budget and minimal scope, the project likely will not impact historic resources. The project design has been reviewed by the Department's Cultural Resources Manager to ensure a minimal and sympathetic design that will limit impacts to historic resources. No additional mitigation will be required for the roadway rehabilitation and the proposed action will not have an adverse effect on properties eligible for or listed in the National Register of Historic Places.



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 <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? | 172,767sf | |
| 2.7 What is the size of the proposed impervious surface area? | 164,891sf | |
| 2.8 What is the % of the impervious area (new and existing) to the overall project site? | 33% / 35% | |
| 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 |
| 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? | - | - |
| 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.



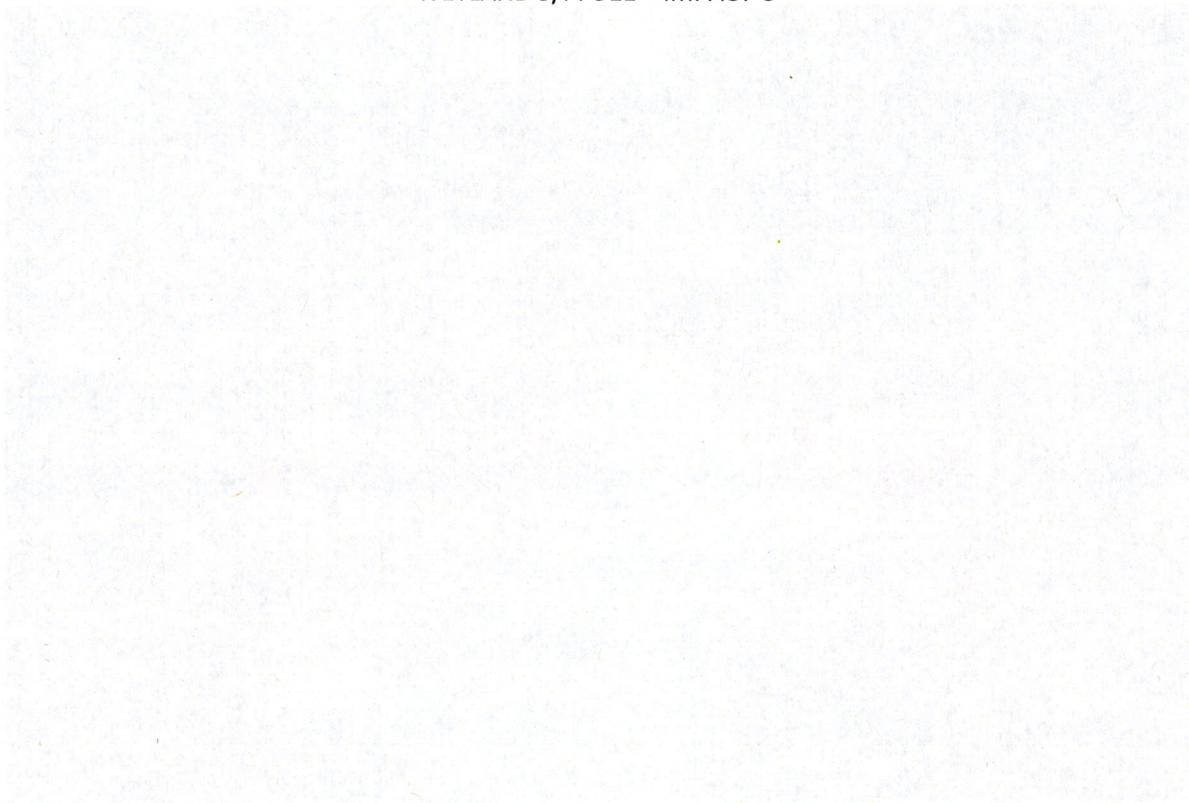
WETLAND 1/PFO1E – IMPACT A



WETLAND 1/PFO1E – IMPACT A



WETLAND 4/PFO1E – IMPACT B
WETLAND 5/PFO1E – IMPACT C





WETLAND 4/PFO1E – IMPACT B
WETLAND 5/PFO1E – IMPACT C



WETLAND 6/PFO1E – IMPACT D



WETLAND 6/PFO1E – IMPACT D



WETLAND 10/PFO1E/4E (DITCH) – IMPACT E



WETLAND 11/PFO1E/4E – IMPACT F



WETLAND 11/PFO1E/4E – IMPACT F



WETLAND 13/PFO1E – IMPACT G



WETLAND 13/PFO1E – IMPACT G



WETLAND 14/PFO1E/4E (DITCH) – IMPACT H



WETLAND 14/PFO1E/4E (DITCH) – IMPACT H



WETLAND 15/PEM1EX (DITCH) – IMPACT I
WETLAND 16/PFO1E/4E – IMPACT J



WETLAND 17/PEM1EX (DITCH) – IMPACT K
WETLAND 18/PFO1E/4E (DITCH) – IMPACT L



WETLAND 18/PFO1E/4E – IMPACT L



WETLAND 18/PFO1E/4E (DITCH) (STA. 77+11) – IMPACT L



WETLAND 19/PFO1E/4E – IMPACT M



WETLAND 20/PFO1E/4E – IMPACT N



WETLAND 20/PFO1E/4E – IMPACT N



WETLAND 20/PFO1E/4E – IMPACT O



WETLAND 20/PFO1E/4E – IMPACT O



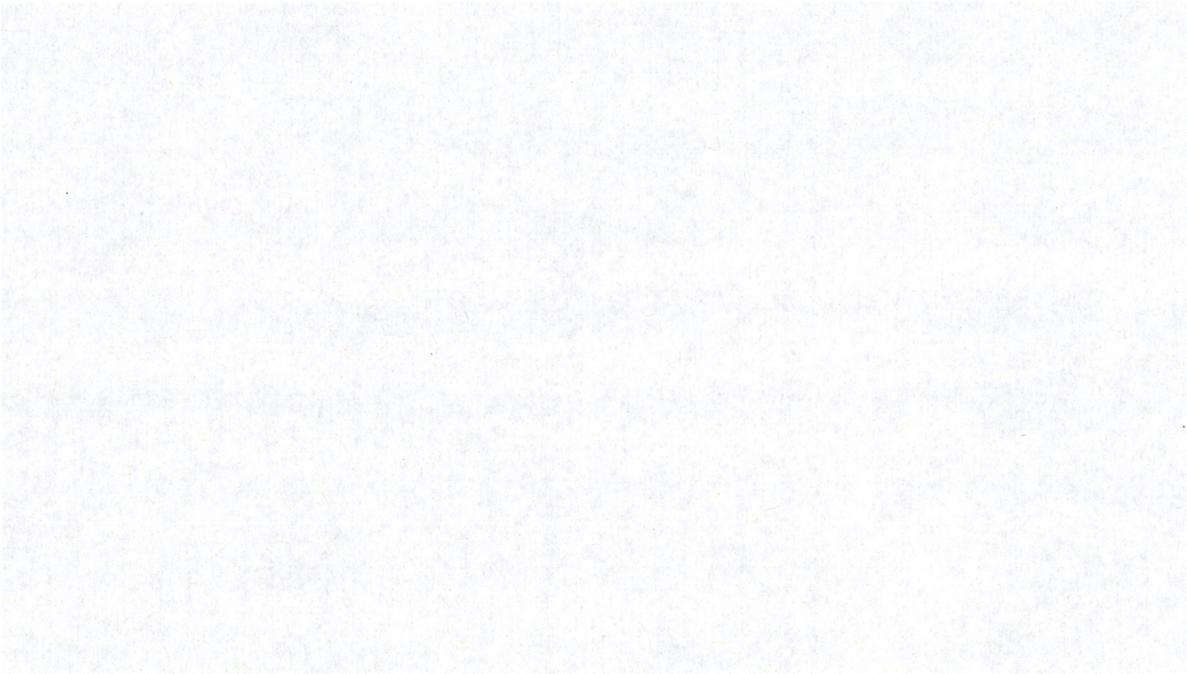
WETLAND 21/PFO1E/4E – IMPACT P
WETLAND 22/R4SB3 – IMPACT Q
WETLAND 23/PFO1E/4E (DITCH) – IMPACT S



WETLAND 21/PFO1E/4E – IMPACT P
WETLAND 22/R4SB3 – IMPACT Q
WETLAND 23/PFO1E/4E (DITCH) – IMPACT S



WETLAND 22/R4SB3 – IMPACT R
WETLAND 24/PFO1E/4E – IMPACT T



WETLAND 22/R4SB3 – IMPACT R
WETLAND 24/PFO1E/4E – IMPACT T



WETLAND 22/R4SB3 – IMPACT R

WETLAND 24/PFO1E/4E – IMPACT T



WETLAND 25/PFO1E/4E (DITCH) – IMPACT U
WETLAND 26/R4SB3 – IMPACT V



WETLAND 25/PFO1E/4E (DITCH) – IMPACT U
WETLAND 26/R4SB3 – IMPACT V
WETLAND 29/PEM1EX (DITCH) – IMPACT Z



WETLAND 29/PEM1EX (DITCH) – IMPACT Z
WETLAND 30/PFO1E/4E – IMPACT AA



WETLAND 27/PFO1E/4E – IMPACT X
WETLAND 26/R4SB3 – IMPACT W
WETLAND 28/PFO1E/4E – IMPACT Y



WETLAND 27/PFO1E/4E – IMPACT X
WETLAND 26/R4SB3 – IMPACT W
WETLAND 28/PFO1E/4E – IMPACT Y



WETLAND 30/PFO1E/4E – IMPACT AA
WETLAND 31/R4SB3 – IMPACT AB



WETLAND 30/PFO1E/4E – IMPACT AA
WETLAND 31/R4SB3 – IMPACT AB



WETLAND 34/PFO1E/4E (DITCH) (STA. 89+00) – IMPACT AD



WETLAND 34/PFO1E/4E (DITCH) (STA. 87+75) – IMPACT AD



WETLAND 34/PFO1E/4E (DITCH) (STA. 89+25) – IMPACT AD



WETLAND 34/PFO1E/4E (DITCH) – IMPACT AD
WETLAND 35/R4SB3 – IMPACT AE



WETLAND 35/R4SB3 – IMPACT AE



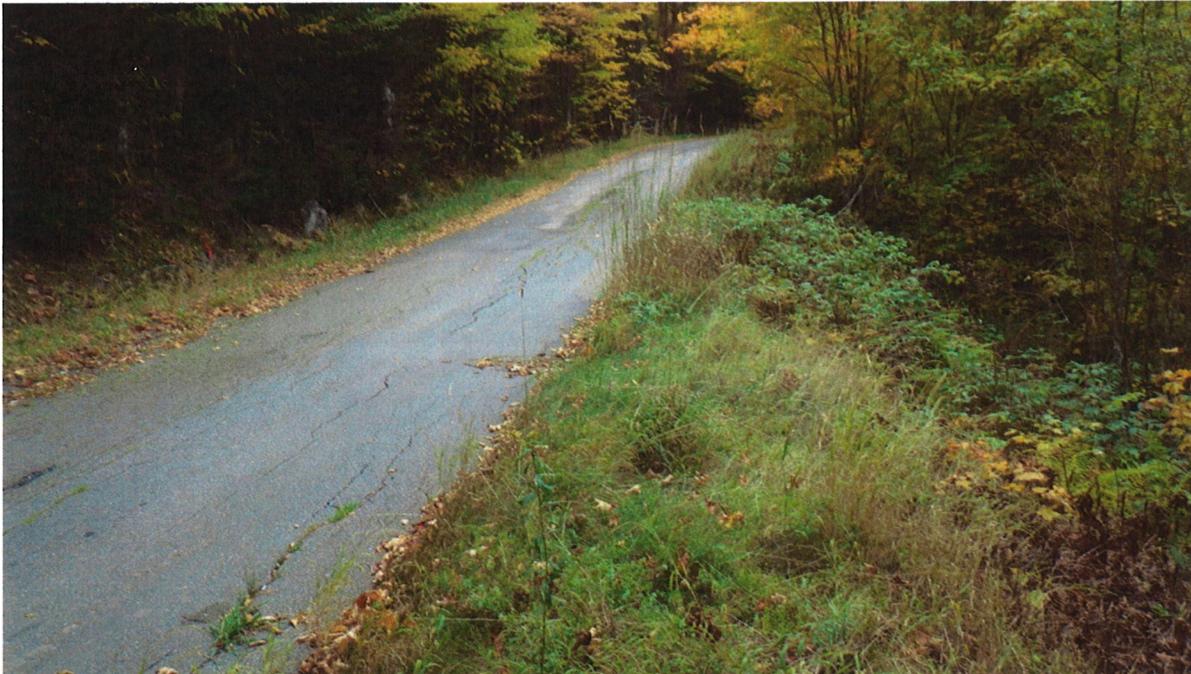
WETLAND 35/R4SB3 – IMPACT AF
WETLAND 36/BANK – IMPACT AG
WETLAND 37/BANK – IMPACT AH



WETLAND 35/R4SB3 – IMPACT AF
WETLAND 36/BANK – IMPACT AG
WETLAND 37/BANK – IMPACT AH



WETLAND 39/PFO1E – IMPACT AI
WETLAND 40/R4SB3 – IMPACT AJ
WETLAND 41/PFO1E – IMPACT AK



WETLAND 42/PFO1E/4E – IMPACT AL



WETLAND 43//PFO1E/4E (DITCH) – IMPACT AM
WETLAND 44/R4SB3 – IMPACT AN
WETLAND 47/PFO1E/4E (DITCH) – IMPACT AQ



WETLAND 43/PFO1E/4E (DITCH) – IMPACT AM
WETLAND 44/R4SB3 – IMPACT AN
WETLAND 47/PFO1E/4E (DITCH) – IMPACT AQ



WETLAND 43/PFO1E/4E (DITCH) – IMPACT AM
WETLAND 44/R4SB3 – IMPACT AN
WETLAND 47/PFO1E/4E (DITCH) – IMPACT AQ



WETLAND 47/PFO1E/4E (DITCH) – IMPACT AQ



WETLAND 45/BANK – IMPACT AO
WETLAND 46/PFO1E/4E – IMPACT AP



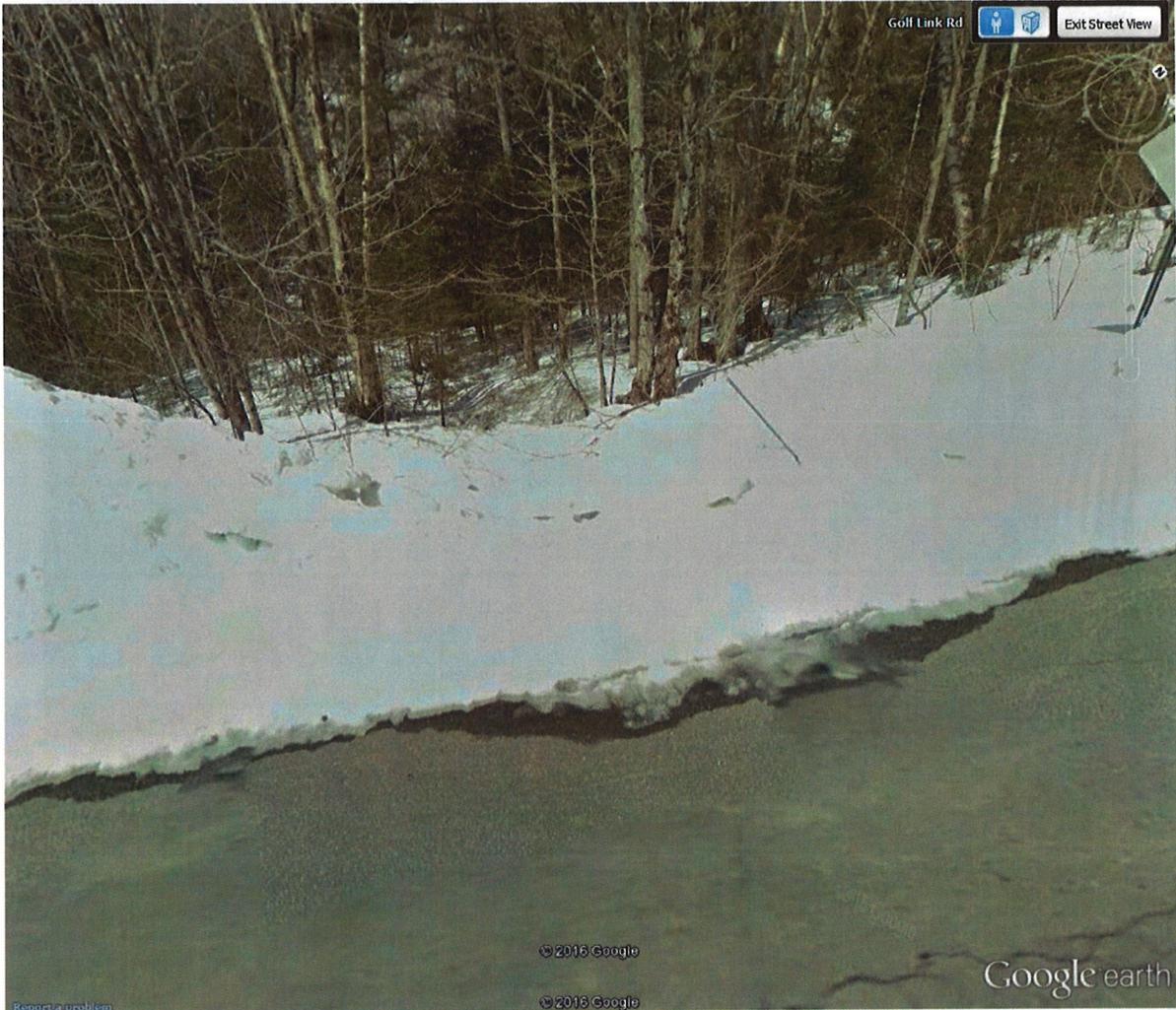
WETLAND 47/PFO1E/4E (DITCH) – IMPACT AQ
WETLAND 52/PEM1EX (DITCH) – IMPACT AV



WETLAND 52/PEM1EX (DITCH) – IMPACT AV



WETLAND 48/R4SB3 – IMPACT AR
WETLAND 49/BANK – IMPACT AS
WETLAND 50/BANK – IMPACT AT
WETLAND 51/PFO1E/4E – IMPACT AU



WETLAND 53/PFO1E – IMPACT AW



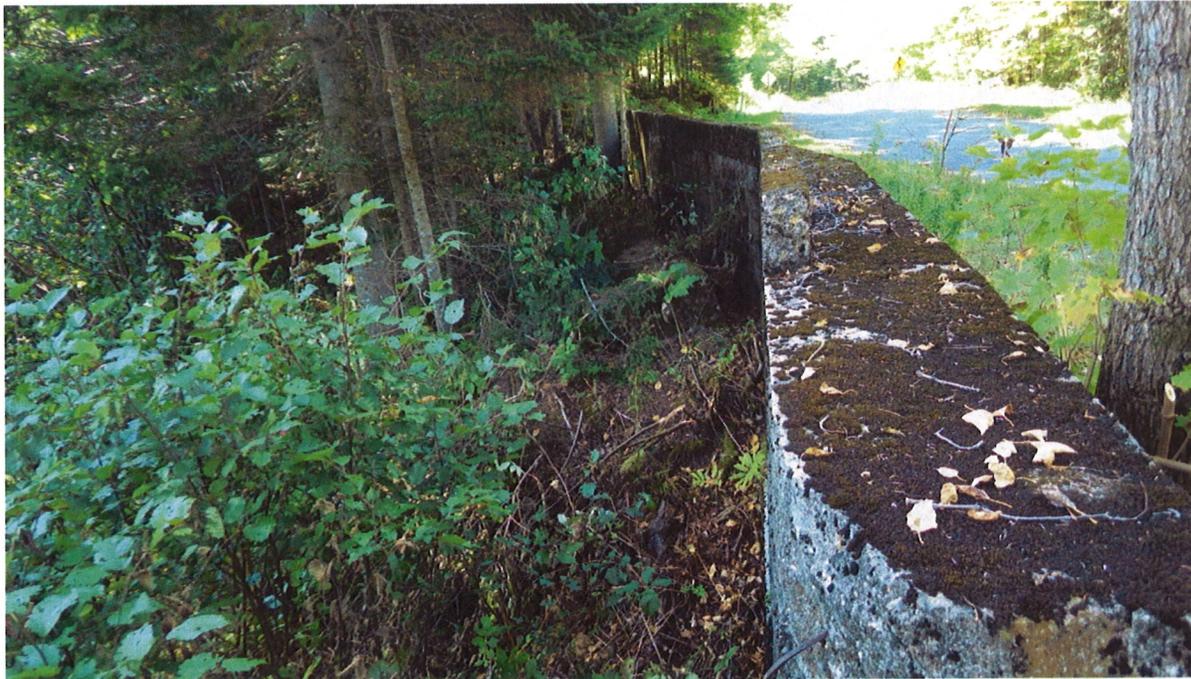
WETLAND 54/PSS1E – IMPACT AX
WETLAND 55/R3UB1 – IMPACT AY
WETLAND 59/PSS1E – IMPACT BE



WETLAND 54/PSS1E – IMPACT AX
WETLAND 55/R3UB1 – IMPACT AY
WETLAND 59/PSS1E – IMPACT BE



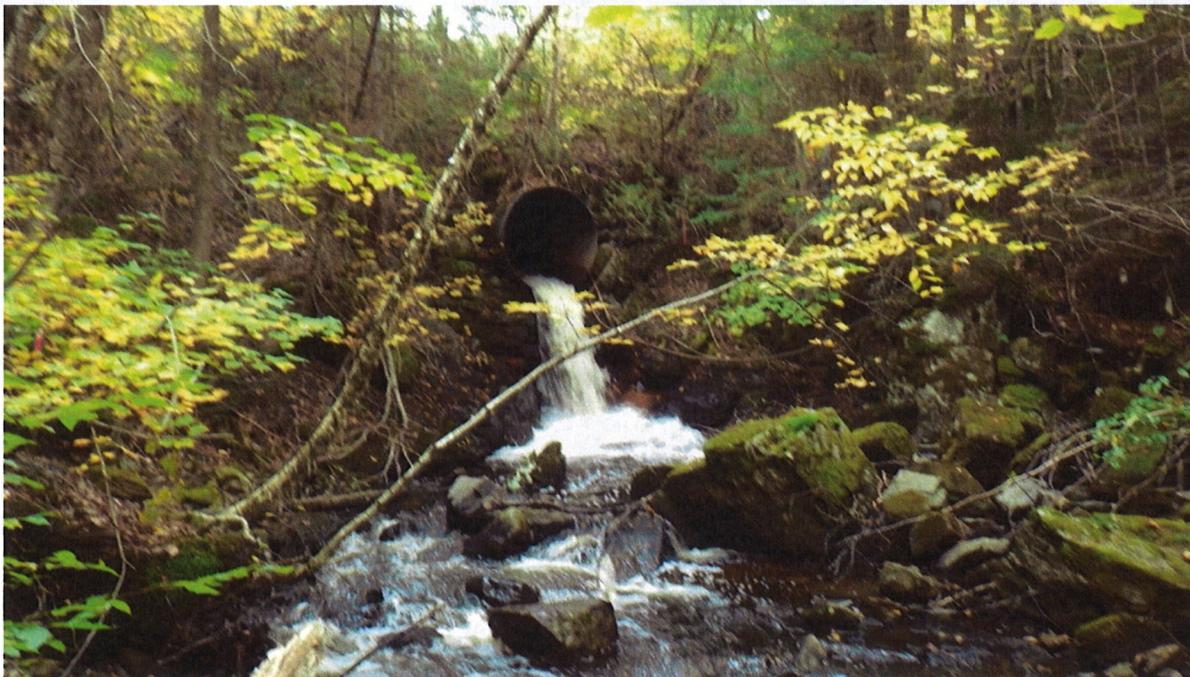
WETLAND 54/PSS1E – IMPACT AX
WETLAND 55/R3UB1 – IMPACT AY



WETLAND 59/PSS1E – IMPACT BE



WETLAND 55/R3UB1 – IMPACT AZ
WETLAND 56/BANK – IMPACT BA
WETLAND 57/BANK – IMPACT BB
WETLAND 58/PFO1E – IMPACT BD



WETLAND 55/R3UB1 – IMPACT AZ
WETLAND 56/BANK – IMPACT BA
WETLAND 57/BANK – IMPACT BB
WETLAND 58/PFO1E – IMPACT BD



WETLAND 55/R3UB1 – IMPACT AZ
WETLAND 56/BANK – IMPACT BA
WETLAND 57/BANK – IMPACT BB
WETLAND 58/PFO1E – IMPACT BD



WETLAND 57/BANK – IMPACT BC



WETLAND 60/PFO1E/4E (DITCH) (STA. 102+00) – IMPACT BF



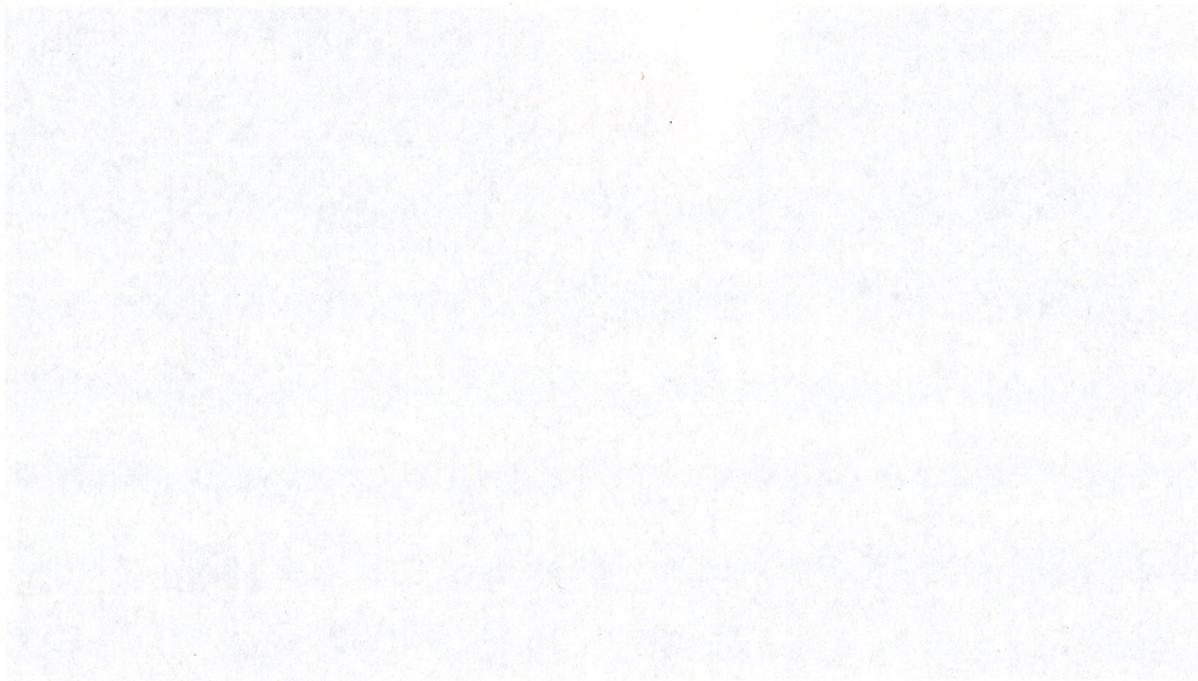
WETLAND 60/PFO1E/4E (DITCH) (STA. 104+00) – IMPACT BF



WETLAND 60/PFO1E/4E (DITCH) (STA. 105+00) – IMPACT BF



WETLAND 60/PFO1E/4E (DITCH) (STA. 106+45) – IMPACT BG

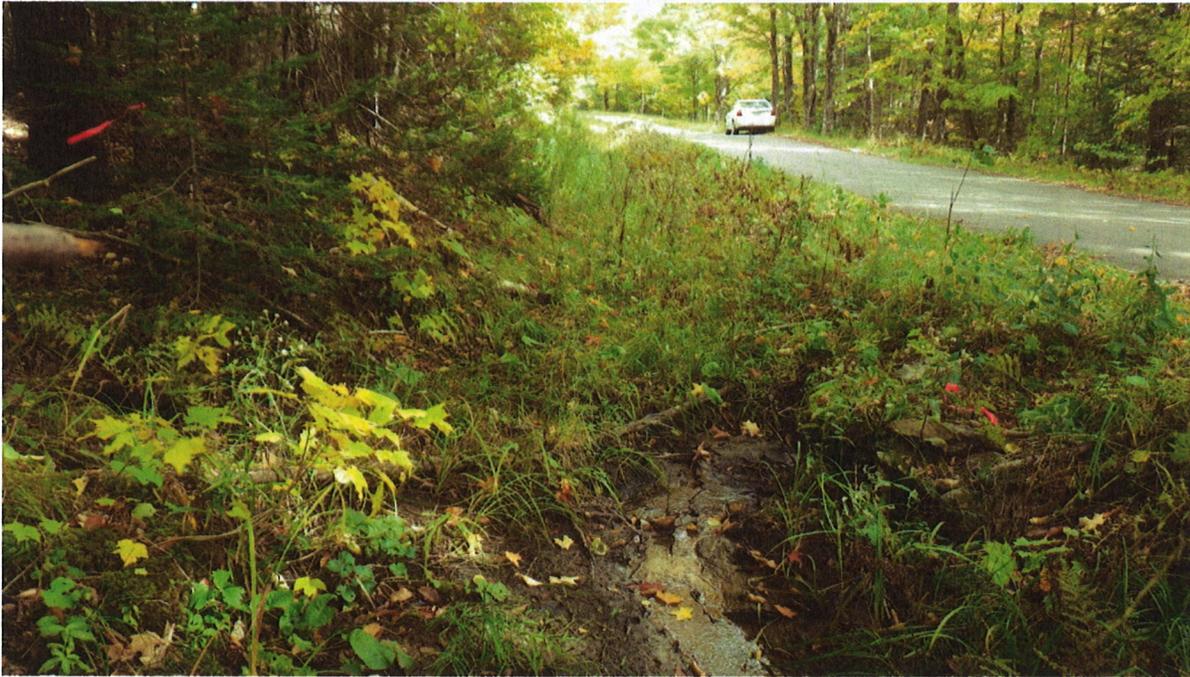




WETLAND 60/PFO1E/4E (DITCH) (STA. 107+65) – IMPACT BG



WETLAND 60/PFO1E/4E (DITCH) (STA. 109+80) – IMPACT BG



WETLAND 60/PFO1E/4E (DITCH) (STA. 109+80) – IMPACT BG
WETLAND 68/R4SB1 – IMPACT BN



WETLAND 61/PFO1E/4E – IMPACT BH



WETLAND 61/PFO1E/4E – IMPACT BH



WETLAND 62/PFO1E/4E – IMPACT BJ
WETLAND 63/R4SB1 – IMPACT BK
WETLAND 64/PFO1E/4E – IMPACT BL



WETLAND 65/FPFO1E/4E – IMPACT BM



WETLAND 65/FPFO1E/4E – IMPACT BM



WETLAND 68/R4SB1 – IMPACT BN



WETLAND 68/R4SB1 – IMPACT BO
WETLAND 69/BANK – IMPACT BP
WETLAND 70/BANK – IMPACT BQ



WETLAND 68/R4SB1 – IMPACT BO
WETLAND 69/BANK – IMPACT BP
WETLAND 70/BANK – IMPACT BQ



WETLAND 71/PFO1E/4E (DITCH) – IMPACT BR



WETLAND 71/PFO1E/4E (DITCH) – IMPACT BR



WETLAND 72/PFO1E/4E – IMPACT BS



WETLAND 72/PFO1E/4E – IMPACT BS



WETLAND 73/PFO1E/4E – IMPACT BT



WETLAND 74/PFO1E/4E – IMPACT BU



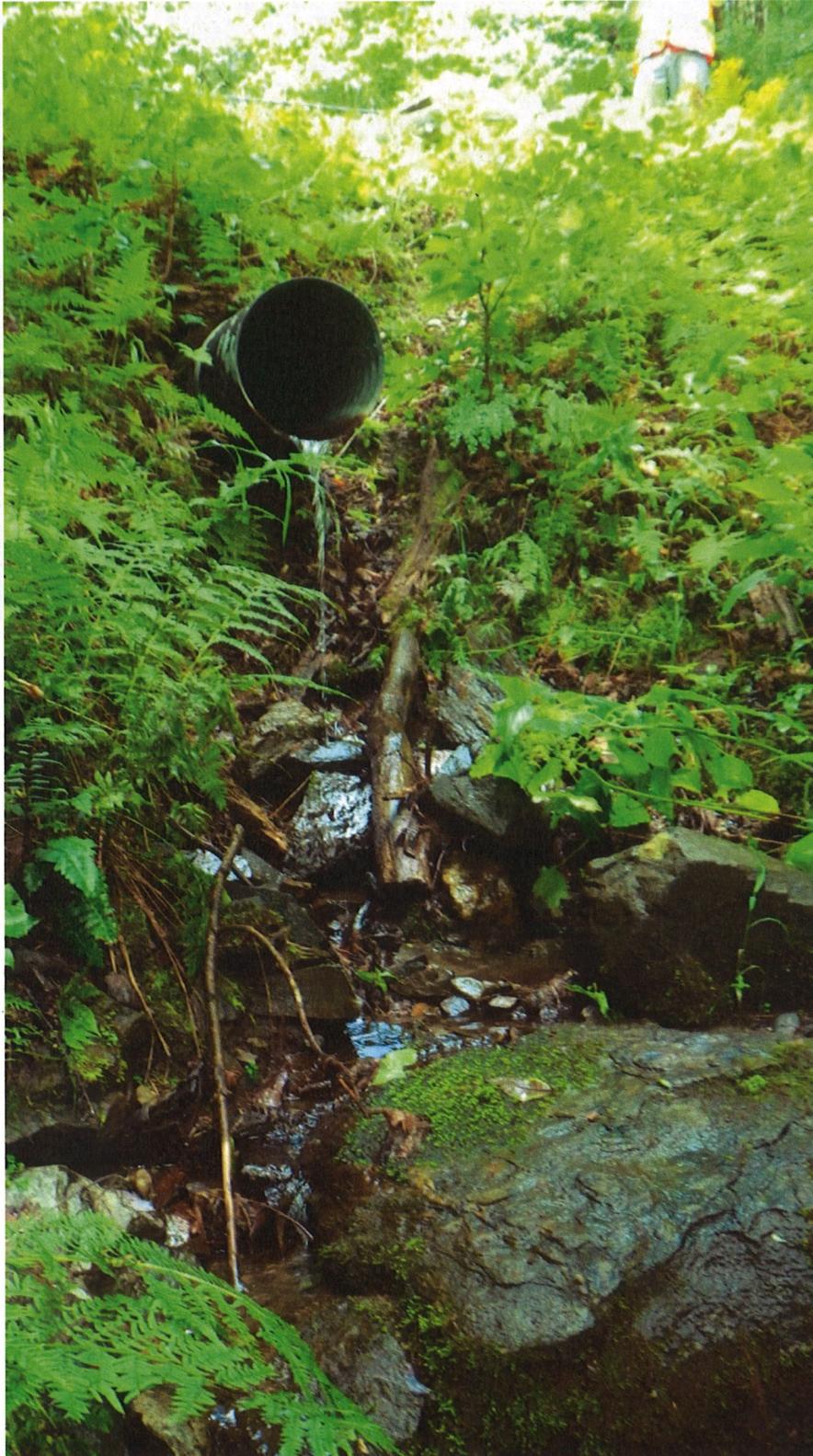
WETLAND 76/PFO1E – IMPACT BV
WETLAND 77/R4SB3 – IMPACT BW



WETLAND 76/PFO1E – IMPACT BV
WETLAND 77/R4SB3 – IMPACT BW



WETLAND 77/R4SB3 – IMPACT BX
WETLAND 78/PFO1E – IMPACT BY
WETLAND 79/PFO1E – IMPACT BZ



WETLAND 77/R4SB3 – IMPACT BX
WETLAND 78/PFO1E – IMPACT BY
WETLAND 79/PFO1E – IMPACT BZ

2016 Season

1. Install all perimeter controls and define maximum work limits for all grading and drainage work
2. Begin clearing operations
3. Perform uphill cuts and ledge removal, as well as downhill fill, as necessary to install temporary water diversion and/or proposed drainage (outlet and inlet stone aprons, uphill stone lined ditch and proposed culverts)
4. Continue clearing and earthwork operations
5. Complete roadway earthwork (up to pavement subgrade) and drainage installation
6. Stabilize all disturbed areas

2017 Season

1. Fine grade proposed roadway
2. Pave full length roadway

Anticipated completion in Early 2017

PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

The rehabilitation of Golf Links Road includes the improvement of the drainage system along the roadway. These improvements propose the placement of stone within areas under the jurisdiction of the NH Wetlands Bureau and the US Army Corps of Engineers on and within the banks of surface waters. The stone fill will be located primarily at the inlets and outlets of culverts of several of the streams crossing Golf Links Road that are proposed for crossing improvements. Some of the areas of stone fill will extend in the channels and along the banks of the streams to protect against scour and erosion. The roadway currently exhibits significant erosion of the steep uphill cut side of the roadway, as well as settlement of the fill slope on the opposite side of the roadway, due to the presence of significant offsite runoff in the project area. Many of the pipes that the intermittent streams in the project area pass through under the roadway are in poor or failing condition. Also, the erosion of the cut slope has filled in existing ditch lines and culvert inlets, which further reduces drainage effectiveness along the roadway. The improvements proposed, including the placement of stone fill, will result in a more stable and resilient drainage system for the roadway.

Env-Wt 404.01 Least Intrusive Method. Shoreline stabilization shall be by the least intrusive but practical method.

The stone that is proposed to be placed for stabilization treatment is the least intrusive construction method necessary which is deemed suitable to address the erosion that occurs at the project areas. Many of the stone aprons proposed at the culvert inlets and outlets will be Class C stone installed in areas that are approximately 10 feet by 10 feet. In some areas where there is more substantial existing erosion issues and steep slope and channelization in the streams, aprons of Class C stone that are 25 feet by 20 feet will be installed and in other areas where less stabilization is necessary, the aprons will be as small as 5 feet by 10 feet. The least intrusive, but still effective, apron is intended for each of the crossings.

Env-Wt 404.02 Diversion of Water. Diversion of stormwater run-off often provides effective and low maintenance erosion protection, and shall be used to the maximum extent practical.

The majority of the runoff that is entering the drainage system of Golf Links Road comes from the steep slopes surrounding the roadway. The proposed improvements perpetuate the existing flow patterns, which outlet the water on the opposite side of the roadway. In the areas where stone is not being installed, vegetation shall be promoted for stabilization. Further, during construction perimeter controls will be in place.

Env-Wt 404.03 Vegetative Stabilization.

(a) Natural vegetation shall be left intact to the maximum extent possible. If space and soil conditions allow, unstable banks shall be cut back to a flatter slope, seeded, and replanted with native, non-invasive trees and shrubs.

Natural vegetation will be left undisturbed to the maximum extent possible. The locations being disturbed are the impacted areas on the plans 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. Also, the project proposes to lay back a significant amount of the slope on the cut slope side of the roadway. This flatter slope along the roadway should reduce the velocity of water entering the Golf Links Road drainage system and reduce erosion above the roadway.

(b) If space relative to the highest observable tide line, water turbulence, and soil conditions allow, the project shall include vegetation of existing sand beach or dunes or construction of vegetated sand dunes.

N/A

Env-Wt 404.04 Rip-rap.

(a) Rip-rap applications shall be considered only where the applicant demonstrates that anticipated turbulence, flows, restricted space, or similar factors render vegetative and diversion methods physically impractical.

Stone fill, as proposed, is shown on the attached plans to protect the crossing inlets and outlets, channels, banks, and ditchlines where it has been determined to be necessary. Due to the steep slopes and high volume of water that cross Golf Links Road, stabilizing the inlets and outlets is necessary to maintain the stability of the crossings and mitigate for erosion.

(b) Applications for rip-rap shall include Items 1-5:

Item 585.3, Stone Fill Class C, is proposed at the inlets and outlets of the drainage culverts, within the proposed ditchline, and Item 585.2, Stone Fill Class B, is proposed on an as-needed basis to stabilize slopes steeper than a 2:1 (H:V). In the event fill is needed beneath the stone in any of these applications, Item 209.1, Granular Backfill or other equally suitable fill material will be used. Depth of stone fill material is proposed at 2 feet, in all instances. Descriptions of the material size, gradation and construction requirements of these items can be found on the attached item specifications. Typical sections of stone fill, proposed locations, and other details have been provided on the attached plans.

(6) Sufficient plans to clearly indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline;

Enclosed are plan sheets to sufficiently indicate the relationship of the project to fixed points of reference, abutting properties, and features such as the perennial Moose Brook and the intermittent streams that will be impacted.

and

(7) A description of anticipated turbulence, flows, restricted space, or similar factors that would render vegetative and diversion methods physically impractical.

Stone fill is recommended for the limits shown on the attached plans to protect the inlet and outlets of culverts, as well as the proposed ditchlines, from erosion during flood flows, from scour during all flows, and slopes steeper than a 2:1 (H:V), which have difficulty supporting vegetation.

(c) Applications to use rip-rap adjacent to great ponds or water bodies where the state holds fee simple ownership shall include a stamped surveyed plan showing the location of the normal high water shoreline and the footprint of the proposed project.

This project is not located adjacent to a great pond or water body where the state holds fee simple ownership.

(d) Rip-rap shall be located shoreward of the normal high water shoreline, where practical, and shall not extend more than 2 feet lakeward of that line at any point.

There are no lakes or ponds in the project area, therefore, there is no normal high water shoreline and this provision does not directly apply to the proposed project stone installation.

Stone fill is proposed to extend to the toe of slope at the culvert inlet and outlets to prevent potential undermining of the slope, as well as erosion and sediment transport into the adjacent resources.

(e) Stamped engineering plans shall be provided as part of any application for rip-rap in excess of 100 linear feet along the bank of a stream or river.

The enclosed plan has been stamped by a professional engineer.

SECTION 209

SECTION 209 -- GRANULAR BACKFILL

Description

1.1 This work shall consist of furnishing and placing porous granular material at the locations shown on the plans or ordered.

Materials

2.1 The material shall consist of stones, rock fragments, and fine hard durable particles resulting from the natural disintegration of rock. The material shall be free from harmful amounts of organic matter. The wear shall not exceed 60 percent. No more than 12 percent of the material passing the No. 4 sieve shall pass the No. 200 sieve, and the material shall conform to the following gradations:

2.1.1 Granular backfill (sand) shall consist primarily of particles with 100 percent passing the 3" sieve and 70 to 100 percent passing the No. 4 sieve.

2.1.2 Granular backfill (gravel) shall consist of a mixture of stones or rock fragments and particles with 95 to 100 percent passing the 3" sieve and 25 to 70 percent passing the No. 4 sieve.

2.1.3 **Granular Backfill (Bridge).** When this item is specified the material shall meet the gradation requirements of Item 304.2.

2.1.4 **Granular Backfill.** When this item is specified, the gradation shall conform to 2.1.1 or 2.1.2.

2.2 Concrete class F, flowable fill may be requested in writing as a substitute for granular backfill. Approval shall be in consideration of, but not limited to, differential frost heaving due to dissimilar materials, unit weight, structural requirements, lack of permeability, and damming resulting from water flow cut off.

Construction Requirements

3.1 Granular backfill of the specified or ordered gradation shall be placed in layers at the locations shown or ordered. Backfill shall be placed in the manner detailed in the appropriate section in which the backfill is specified. The backfill layers shall not exceed 8" of compacted depth unless otherwise directed. Density shall meet the requirements of 203.3.8.

Method of Measurement

4.1 Granular backfill will be measured by the cubic yard in accordance with 109.01. When granular backfill is specified as included in another item, no separate measurement will be made for the backfill furnished in connection with that item.

4.2 Backfill of over-excavated areas beyond or below the lines and grades shown or ordered will not be measured for payment.

4.3 For pipe having an inside diameter of less than 48" no deduction will be made from granular backfill of the volume occupied by the pipe constructed under 603 when granular backfill is ordered as bedding material.

4.4 Granular backfill (bridge) will not be measured, but shall be the cubic yard final pay quantity in accordance with 109.11 for compacted material required within the limits shown on the plans.

Basis of Payment

5.1 The accepted quantity of granular backfill, of the type specified, will be paid for at the Contract unit price per cubic yard complete in place.

5.2 Granular backfill (bridge) is a final pay quantity item and will be paid for at the Contract unit price per cubic yard complete in place in accordance with 109.11.

5.3 Concrete class F, flowable fill substituted for granular backfill will be paid for at the Contract unit price for granular backfill of the type specified.

Pay items and units:

| | | |
|---------|--------------------------------|------------|
| 209.1 | Granular Backfill | Cubic Yard |
| 209.20X | Granular Backfill (Bridge) (F) | Cubic Yard |
| 209.3 | Granular Backfill (Sand) | Cubic Yard |
| 209.4 | Granular Backfill (Gravel) | Cubic Yard |

SECTION 585 -- STONE FILL**Description**

1.1 This work shall consist of furnishing and placing a dense stone fill at the locations shown on the plans or ordered. Stone Fill is typically required for stability of embankment fill and soil cut slopes steeper than 2 horizontal to 1 vertical, although slopes at a flatter grade with water seepage or subject to submergence, such as in water quality treatment basins, could require stone fill. Stone fill is also used for erosion protection at pipe outlets, in drainage channels and for other drainage structures where expected water flows and velocities may require it.

Materials

2.1 Stone for stone fill shall be approved quarry stone, or broken rock of a hard, sound, and durable quality. The stones and spalls shall be so graded as to produce a dense fill with a minimum of voids.

2.1.1 Class A stone shall be irregular in shape with approximately 50 percent of the mass having a minimum volume of 12 ft³, approximately 30 percent of the mass ranging between 3 and 12 ft³, approximately 10 percent of the mass ranging between 1 and 3 ft³, and the remainder of the mass composed of spalls.

2.1.2 Class B stone shall be irregular in shape with approximately 50 percent of the mass having a minimum volume of 3 ft³, approximately 40 percent of the mass ranging between 1 and 3 ft³, and the remainder of the mass composed of spalls.

2.1.3 Class C stone shall consist of clean, durable fragments of ledge rock of uniform quality, reasonably free from thin or elongated pieces. The stone shall be made from rock which is free from topsoil and other organic material. The stone shall be graded as follows:

| Sieve Size | Percentage by Weight Passing |
|------------|------------------------------|
| 12 in | 100 |
| 4 in | 50 - 90 |
| 1-1/2 in | 0 - 30 |
| 3/4 in | 0 - 10 |

2.1.4 Class D stone shall conform to Table 520-3 - Coarse Aggregate, Standard Stone Size No. 467.

2.1.5 Spalls for filling voids shall be stones or broken rock ranging downward from a maximum size of 1 ft³.

2.2 Gravel blanket material shall conform to 209.2.1.2.

2.3 Geotextile shall conform to Section 593.

Construction Requirements

3.1 Stones and spalls for stone fill shall be deposited and graded to eliminate voids and obtain a dense mass throughout the course. The spalls shall be tamped into place using an equipment bucket or other approved method.

3.1.1 When stone fill is placed on a slope, the stones shall be deposited in such a manner as not to dislodge the underlying material unnecessarily.

3.1.2 When stone fill is placed on a geotextile, it shall be deposited in a manner to maintain the integrity of the geotextile.

3.2 When gravel blanket is shown or ordered, the gravel shall be placed in layers not exceeding 12" in depth unless otherwise ordered.

3.3 The completed surface shall approximate the lines and grades shown or ordered. When ordered, stone placed over 1 ft. outside or above such lines and grades shall be removed.

3.4 Stone fill (Bridge) shall be placed within the limits shown on the plans.

Method of Measurement

4.1 Stone fill will be measured by the cubic yard and in accordance with 109.01.

Basis of Payment

5.1 The accepted quantity of stone fill of the class specified will be paid for at the Contract unit price per cubic yard complete in place.

5.2 Gravel blanket material specified or ordered will be paid for under Section 209.

5.3 Geotextile specified or ordered will be paid for under Section 593.

5.4 The accepted quantity of excavation required for placing stone fill and for placing any underlying gravel blanket will be paid for under the item of excavation being performed. Excavation herein refers only to excavation of original ground or to material ordered removed not shown on the plans.

5.5 Free borrow will not be required to replace the accepted quantity of stone obtained from the excavation. However, when the plans do not call for borrow, but the quantity of material removed from excavation for use under this item requires the Contractor to furnish borrow to complete the work, such borrow will be subsidiary.

Pay items and units:

| | | |
|--------|------------------------------|------------|
| 585.1 | Stone Fill, Class A | Cubic Yard |
| 585.2 | Stone Fill, Class B | Cubic Yard |
| 585.21 | Stone Fill, Class B (Bridge) | Cubic Yard |
| 585.3 | Stone Fill, Class C | Cubic Yard |
| 585.4 | Stone Fill, Class D | Cubic Yard |

