THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU
29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
Phone: (603) 271-2147 Fax: (603) 271-6588
http://des.nh.gov/organization/divisions/water/wetlands

PERMIT APPLICATION

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)

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

ADDRESS: **I-93 Rest Area Exit Road over Policy Brook**			TOWN/CITY: **Salem**
TAX MAP:	BLOCK:	LOT:	UNIT:
USGS TOPO MAP WATERBODY NAME: **Policy Brook** ☐ NA		STREAM WATERSHED SIZE: **10.34 mi2** ☐ NA	
LOCATION COORDINATES (If known): **042`45'14.72" 071`13'15.66"** ☐ UTM ☐ State Plane			☒ Latitude/Longitude

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.

The existing structure is a twin multi-plate pipe arch. Each pipe arch opening has a span of 8'-10" and a rise of 6'-1". The pipes are 84'-3" long. There are small holes in the inverts and there is 30% to 40% section loss in various locations. Proposed work consists of the following: place sandbag cofferdams, install concrete inverts and cutoff walls, repair stone headwalls as necessary and place riprap at the inlet and outlet.

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

5. 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 **16** - **1744** .

b. ☐ Designated River the project is in ¼ miles of: _____ ; and
date a copy of the application was sent to Local River Advisory Committee: Month: __ Day: __ Year: ____
☒ NA

6. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **Johnson, Steve W**

TRUST / COMPANY NAME: **NH Dept. of Transportation** | MAILING ADDRESS: **7 Hazen Drive**

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

EMAIL or FAX: **sjohnson@dot.state.nh.us** | PHONE: **603 271 3667**

ELECTRONIC COMMUNICATION: By initialing here: SJ, I hereby authorize DES to communicate all matters relative to this application electronically

7. 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 DES to communicate all matters relative to this application electronically

8. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: **Weatherbee, Anthony N** | COMPANY NAME: **NH Dept. of Transportation**

MAILING ADDRESS: **7 Hazen Drive**

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

EMAIL or FAX: **aweatherbee@dot.state.nh.us** | PHONE: **603-271-3667**

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize DES to communicate all matters relative to this application electronically

9. PROPERTY OWNER SIGNATURE:

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

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a copy of the application materials to the NH State Historic Preservation Officer.
8. I authorize DES 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 DES correspondence. DES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
Steve W Johnson	STEVE W JOHNSON	8/25/16

MUNICIPAL SIGNATURES

10. 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.

Authorized Commission Signature	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. The Conservation Commission signature should be obtained prior to the submittal of the original application and four copies to the town/city clerk for mailing to the DES.
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.

11. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 1991), I hereby certify that the applicant has filed five application forms, five detailed plans, and five USGS location maps with the town/city indicated below and I have received and retained certified postal receipts (or copies) for all abutters identified by the applicant.

Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I(d):

1. For applications where "Expedited Review" is checked on page 1, accept the application for mailing only if the Conservation Commission signature has been sought;
2. Collect the postal receipts demonstrating that all abutters and the Local Advisory Committee were sent proper notice;
3. Collect any administrative fees, not to exceed $10 plus the cost of postage by certified mail (RSA 482-A:3,I).
4. IMMEDIATELY sign the original application and four copies in the signature space provided above;
5. Retain one copy of the application form, one complete set of attachments and the postal receipts demonstrating that all abutters and the Local River Advisory Committee were notified and make them reasonably accessible to the public;
6. 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 in accordance with RSA 482-A:3, I; and
7. IMMEDIATELY send the ORIGINAL application form, one complete set of attachments and filing fee, by CERTIFIED MAIL to the NHDES Wetlands Bureau at the address indicated on page 1 of this application. (DO NOT HOLD FOR CONSERVATION COMMISSION SIGNATURE).

12. 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.

After-the-fact (ATF): work completed prior to receipt of this application by DES. Check box to indicate ATF.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland		☐ ATF		☐ ATF
Emergent wetland		☐ ATF		☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF		☐ ATF
Perennial Stream / River	515 / 76	☐ ATF	1850 / 87	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	15 / 10	☐ ATF	173 / 81	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
TOTAL	530 / 86		2023 / 168	

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

☐ Minimum Impact Fee: Flat fee of $ 200

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

Permanent and Temporary (non-docking) **2553** sq. ft. X $0.20 = $ **510.60**

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

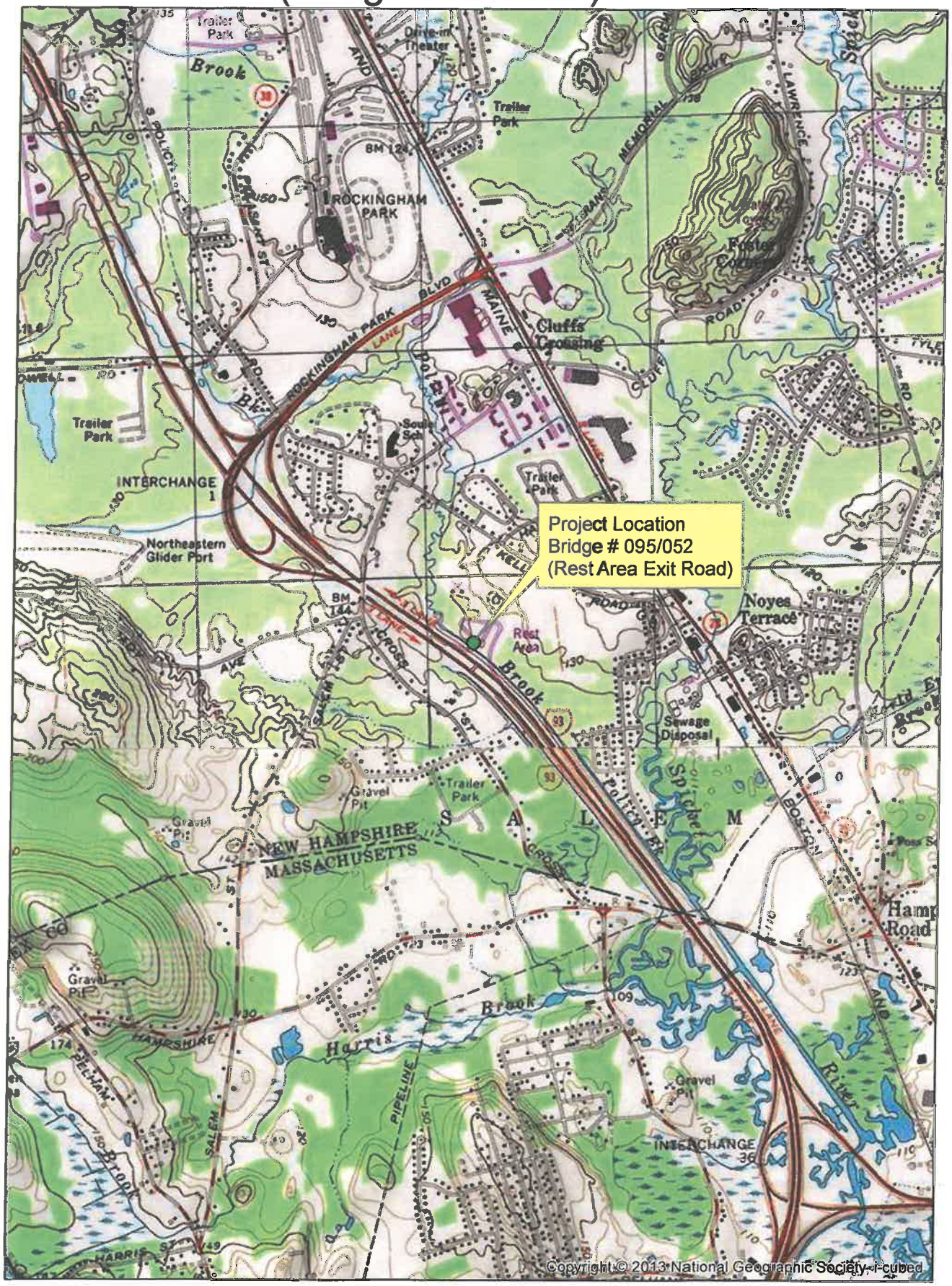
Permanent docking structure: _____ sq. ft. X $2.00 = $ _____

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

Total = $ _____

The Application Fee is the above calculated Total or $200, whichever is greater = $ **510.60**

Salem 41012 (Bridge #095/052)



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1:24,000

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http://des.nh.gov/organization/divisions/water/wetlands/index.htm
Permit Application Status: http://des.nh.gov/onestop/index.htm

PERMIT APPLICATION – ATTACHMENT A
MINOR & MAJOR 20 QUESTIONS

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

1. The need for the proposed impact.

The existing metal pipes are rusted, pitted and there are small holes in the inverts. There is 30% to 40% section loss at various locations. Concrete inverts are required to prolong the life the structure and riprap is required to protect the inlet and outlets. It is necessary to impact jurisdictional areas to provide for the repairs. The impacts are for the riprap, and for temporary construction access. If the structure is not rehabilitated, it will eventually be load posted or closed.

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

The alternatives considered are as follows:

Replace structure with a new structure in compliance with the NH Stream Crossing Guidelines: According to the NH Stream Crossing Guidelines, if a new structure were to be constructed at this location it would require a span of 29'-0". A structure of this size would cost approximately $750,000. Spending this much money on a structure that could be adequately preserved for approximately $80,000 would not be a practicable use of resources. There would also be significant wetland impacts if a structure of this size were installed due to the additional footprint and for construction.

Slip line pipe and riprap: It was determined that this alternative would reduce the hydraulic capacity of the structure more than the other alternatives; therefore, this alternative was not chosen. The requirements for riprap for this alternative are less than a structure replacement and are the same as a centrifugal cast pipe and concrete invert.

Centrifugal cast pipe and riprap: It was determined that this alternative would only cause miniscule changes to the hydraulic capacity of the structure. Due to the increased cost and difficultly in assuring a quality finished product however, this alternative was not chosen. The requirements for riprap for this alternative are less than a structure replacement and are the same as a slip lined pipe and concrete invert.

Install concrete invert and riprap: This is the proposed alternative. The structure can be preserved by installing concrete inverts that will not increase the square footage of the structure. The temporary impacts for construction access are less than what would be required for a new and larger structure. The project as proposed has an estimated cost of $80,000. This is the most cost-effective solution and also proposes the least amount of wetland impacts. The requirements for riprap for this alternative are less than a structure replacement and are the same as a centrifugal cast pipe and slip lined pipe.

In the June 15, 2016 Natural Resource Agency Coordination Meeting there were concerns raised with connectivity with this type of structure repair. Gino Infascelli stated that he wanted to see how this project would improve existing connectivity. After considering this request, it has been determined that one pipe will be cast three inches lower than the other pipe. This will cause water to flow through the lower pipe in low flow conditions. Water will be backed up in the low flow pipe to create a minimum depth of three inches. The pipe that is cast higher will allow small critters to pass through it during low flow conditions.

3. The type and classification of the wetlands involved.
R2UB2,3: Riverine, lower perennial, unconsolidated bottom, sand/mud **Bank**
4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.
Policy Brook flows into the Spicket River. There are no proposed impacts to any surrounding wetlands. All of the impact are confined to Policy Brook.
5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.
Policy Brook has not been identified as a rare surface water of the state.
6. The surface area of the wetlands that will be impacted.
2365ft^2 Riverine (1850ft^2 temporary, 515ft^2 permanent) **188ft^2 Bank (173ft^2 temporary, 15ft^2 permanent)**
7. The impact on plants, fish, and wildlife, but not limited to: a. Rare, special concern species; b. State and federally listed threatened and endangered species; c. Species at the extremities of their ranges; d. Migratory fish and wildlife; e. Exemplary natural communities identified by the DRED-NHB; and f. Vernal pools.
a) No rare or special concern species were identified within the proposed project area. **b) There were no State or Federally listed threatened or endangered species identified within the project limits according to the results of the NHB search. However, the USFWS IPaC identified the Northern Long-Eared Bat. The Department has submitted the streamlined 4(d) consultation for this work.** **c) There are no species known to be at the extremities of their ranges located in the project area.** **d) Currently, migratory fish and wildlife can travel through either metal pipe. During construction, they will have one pipe to travel through. Upon project completion, migratory fish will be able to travel through the low flow pipe even during low flow conditions. Migratory wildlife will be able to travel through the higher elevation pipe. The proposed low flow invert will have water backed up into it.** **e) The Department has coordinated with DRED and the results of the NHB review revealed no records in this area.** **f) There were no vernal pools identified and/or delineated in the project area.**
8. The impact of the proposed project on public commerce, navigation and recreation.
During construction, access to the rest area will be maintained at all times. Access will be maintained with a reduced lane width. Policy Brook is non-navigable water which makes it non-conducive to boaters. There are no recreational areas that have been identified in this area except for the possibility for fishing. During construction fishing activities from the banks of the brook will need to occur outside of the construction work zone. When construction is completed, the project as proposed will be a benefit to the public commerce.
9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.
The project will not significantly interfere with the aesthetic interests of the general public. The proposed improvements will be more pleasing to the eye than the substructure in poor condition.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.
The project will not interfere with or obstruct public rights of passage or access. During construction, traffic will be maintained at all times. This will ensure access to the rest area. Upon completion of this project the road will be returned to the full lane width.
11. The impact upon the abutting pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to riprap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.
The project is expected to have a positive impact on abutting properties. The rehabilitated structure will better serve the abutting properties if they need to travel on the road. The riprap that is being installed will prevent a washout of the structure which will better protect abutting properties. **The project as proposed will not alter the chance of flooding on abutting properties.**
12. The benefit of a project to the health, safety, and well-being of the general public.
The project will provide a safer, longer lasting structure and roadway. If the structure is not rehabilitated, the bridge will eventually be load posted or closed. Keeping the roadway open benefits commerce, trade, emergency access, etc, for the general public.
13. The impact of a proposed project on quantity or quality of surface and 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 difference in the quality of water entering and exiting the site.
The surface water currently runs off the road, over natural vegetation, and then off the headwalls and wingwalls. Upon completion of the project surface will drain water in the same manner. This will have no adverse effects on the quality or quantity of surface and ground water. Best Management Practices will be used to prevent any adverse effect to water quality during construction.
14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.
Flooding: Installing a concrete invert was analyzed by VHB and the report is included with this application. It was determined that installing concrete inverts will have a negligible effect on floodwaters upstream and downstream of the structure. **Erosion: The riprap placed at the inlet and outlet will prevent erosion and preserve the natural alignment and gradient of the stream channel.** **Sedimentation: Nothing that will be a barrier to sediment transport will be installed in this project.**
15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.
Surface waters will not be reflected or redirected as a result of this project. Policy Brook does not have enough surface water for wave energy to be an issue.
16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alternations 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 ownership of that wetland and the percentage of that ownership that would be impacted.

The work consists of the repair of an existing bridge structure. There are no similar structures in the vicinity owned by other parties that would require repair.
17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.
The value of the wetland as a habitat for living organisms will not be changed as result of this project. The project will be constructed outside the fish spawning season. A function of Policy Brook is to carry water from a higher elevation to a lower elevation. This project will not interfere with that function.
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.
This project is not located in or near any Natural Landmarks listed on the National Register.
19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.
There are no areas named in acts of congress or presidential proclamations as national rivers, national wildness areas, or national lakeshores that will be impacted as a result of this project.
20. The degree to which a project redirects water from one watershed to another.
The project as proposed will not redirect water from one watershed to another.

Additional comments

Salem 095/052 & 098/049, non-federal, 41012
The bridge is located at the I-93 rest area entrance and exit.

Both structures are similar twin multi plate arches.

Tony Weatherbee explained that concrete inverts will be installed in one pipe at a time. Dewatering will be done with sandbag cofferdams. After the first invert is installed the dewatering will be switched a invert will be installed in the next pipe.

The headwalls will be repaired and riprap will be placed in front of them.

A hydraulic study has been done by VHB and it has been shown that the inverts will not decrease the hydraulic capacity of the structures.

Gino Infascelli noted that these structures were originally part of the I-93 job and there may have been a commitment made to fully replace the pipes. He said to ask Mark Lauren. Gino stated that concrete inverts are not allowed to be placed in Tier 3 watersheds. He instructed that it was required to show how the project will improve connectivity. He said that this can be done by showing what the ponded water elevation is after completion. He said that it is possible to install a low flow channel or to roughen the concrete.

There were no NHB records or impact.

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

MITIGATION REPORT

This project is maintenance of an existing structure and therefore mitigation is not required. At the June 15, 2016 Natural Resources Agency Meeting it was determined that no mitigation would be required.

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGE MAINTENANCE
7 Hazen Drive, PO Box 483, Concord, NH 03302-0095
Phone: (603) 271-3667 Fax: (603) 271-1588

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)*;
Policy Brook has a drainage area of 10.34 square miles which qualifies this stream as a Tier 3 Crossing. The required span based on the NH Stream Crossing Guidelines for a new crossing 29'-0". A structure of this size would cost approximately $750,000. Spending this much money on a structure that could be adequately preserved for approximately $80,000 would not be a practicable use of resources. There would be a significant increase in wetland impacts if a structure of this size were installed due to the additional footprint and for construction.
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.** **The bottom of the existing structure is currently a metal pipe invert and after completion it will be a concrete invert.** **Fish will be able to pass through the structure during low flows using the low flow pipe. Small critters will be able to pass through the structure during low flow in the pipe that is cast higher.** **The proposed structure will maintain the flow depths found in the existing structure. The low flow pipe will have water backed up into it.** **The proposed structure will not significantly change the hydraulic capacity of the structure.**
...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. These flows are comparable to those found in the natural channel upstream and downstream of the stream crossing.
...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.

...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)*;
The natural alignment and gradient of the stream channel will be preserved so as to accommodate natural flow regimes and the function of the natural floodplain.
...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 proposed project will not change the structures ability to pass the 100 year flood event.**
...To simulate a natural stream channel:
The structure invert will go from a metal pipe invert to a concrete invert. The low flow pipe will have water backed up into it.
...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)*;
Installing concrete inverts and riprap will have a negligible effect on the hydraulic capacity of the structure. The proposed structure has been checked at a variety of flows and the results can be seen in the attached Hydraulic report by VHB. The concrete inverts will not change the structures ability to pass the 100 year storm event. High flows will not be restricted, and low flows will be maintained as a result of this project.
(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 movement of aquatic life indigenous to the water body will be able to pass through the low flow pipe during low flow. Small critters will be able to pass through the pipe cast higher during low flows.
(d) Not cause an increase in the frequency of flooding or overtopping of banks *(question 14, Attachment A, Minor and Major 20 Questions)*;
Installing concrete inverts and riprap will have a negligible effect on the hydraulic capacity of the structure. The proposed structure has been checked at a variety of flows and the results can be seen in the attached Hydraulic report by VHB. The concrete inverts will not change the structures ability to pass the 100 year storm event. High flows will not be restricted, and low flows will be maintained as a result of this project.
(e) Preserve watercourse connectivity where it currently exists *(question 15, Attachment A, Minor and Major 20 Questions)*;
Connectivity will be improved as a result of this project by allowing fish to better pass through the pipe cast lower with water backed up into it, and by allowing small critters to pass through the pipe cast higher during low flows.

(f) Restore watercourse connectivity where…
…connectivity previously was disrupted as a result of human activity(ies) *(question 15, Attachment A, Minor and Major 20 Questions)*;
Connectivity will be improved as a result of this project by allowing fish to better pass through the pipe cast lower with water backed up into it, and by allowing small critters to pass through the pipe cast higher during low flows.
…restoration of connectivity will benefit aquatic life upstream or downstream of the crossing *(question 15, Attachment A, Minor and Major 20 Questions)*;
Connectivity will be improved as a result of this project by allowing fish to better pass through the pipe cast lower with water backed up into it, and by allowing small critters to pass through the pipe cast higher during low flows.
(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing *(question 14, Attachment A, Minor and Major 20 Questions)*;
Erosion: The riprap placed at the inlet and outlet will prevent erosion and scouring. **Sedimentation: Nothing that will be a barrier to sediment transport will be installed in this project.**
(h) Not cause water quality degradation *(question 13, Attachment A, Minor and Major 20 Questions)*.
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.

New Hampshire Natural Heritage Bureau

To: Tony Weatherbee
7 Hazen Drive
Concord, NH 03302

Date: 6/1/2016

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 6/1/2016

NHB File ID: NHB16-1744

Applicant: Tony Weatherbee

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

Project Description: Rehabilitate the two bridges that carry the I-93 Rest Area Entrance and Exit over Policy Brook. The existing structures each are twin multi-plate pipe archs. Each pipe arch opening has a span of 8'-10" and a rise of 6'-1". Proposed work consists of the following: place sandbag cofferdams, install concrete inverts, and place riprap at the inlets and outlets.

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

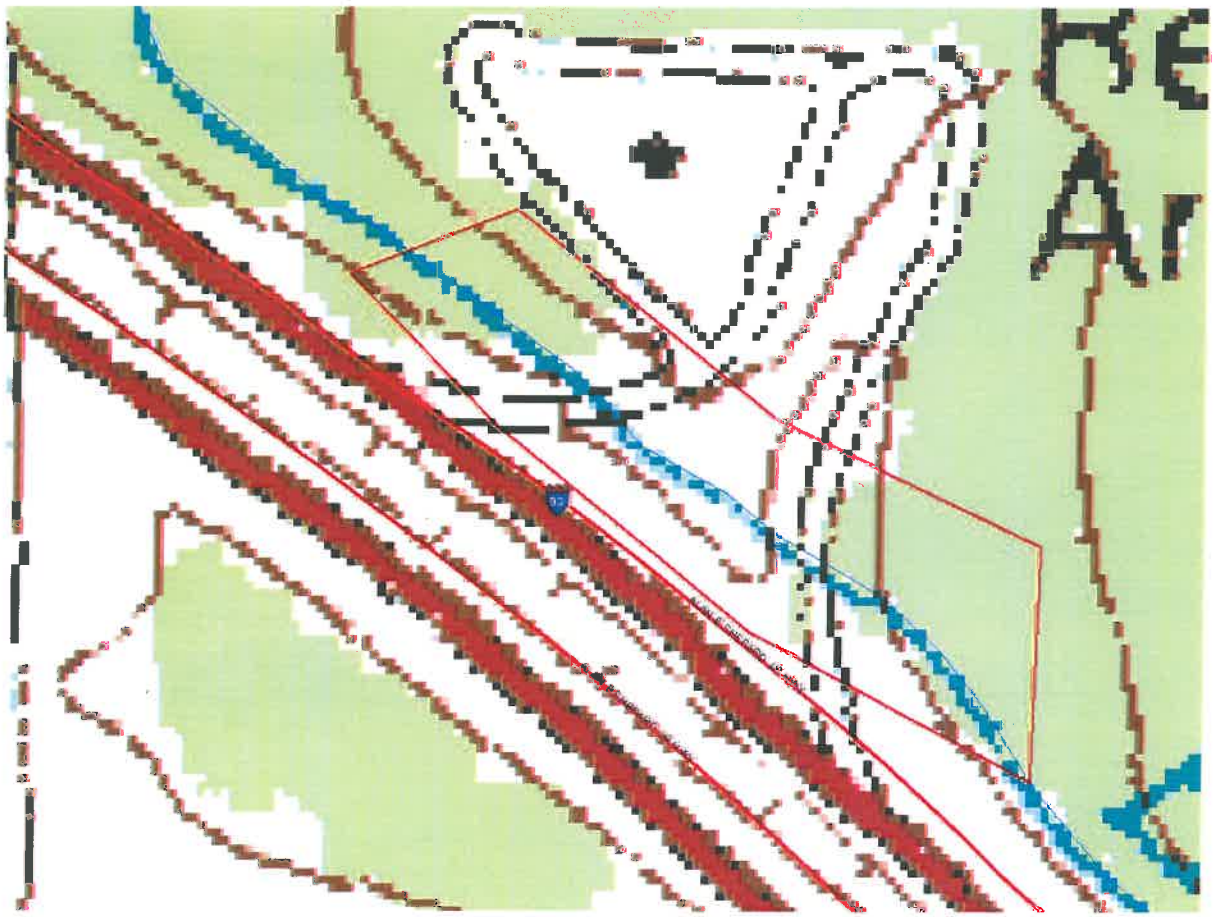
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed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

This report is valid through 5/31/2017.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB16-1744



Department of Resources and Economic Development
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DRED/NHB
172 Pembroke Road
Concord NH 03301

Salem 095/052 & 098/049, non-federal, 41012
The bridge is located at the I-93 rest area entrance and exit.

Both structures are similar twin multi plate arches.

Tony Weatherbee explained that concrete inverts will be installed in one pipe at a time. Dewatering will be done with sandbag cofferdams. After the first invert is installed the dewatering will be switched a invert will be installed in the next pipe.

The headwalls will be repaired and riprap will be placed in front of them.

A hydraulic study has been done by VHB and it has been shown that the inverts will not decrease the hydraulic capacity of the structures.

Gino Infascelli noted that these structures were originally part of the I-93 job and there may have been a commitment made to fully replace the pipes. He said to ask Mark Lauren. Gino stated that concrete inverts are not allowed to be placed in Tier 3 watersheds. He instructed that it was required to show how the project will improve connectivity. He said that this can be done by showing what the ponded water elevation is after completion. He said that it is possible to install a low flow channel or to roughen the concrete.

There were no NHB records or impact.

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

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: 05E1NE00-2016-SLI-1877
Event Code: 05E1NE00-2016-E-02641
Project Name: Salem 095/052

July 19, 2016

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: Salem 095/052

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: 05E1NE00-2016-SLI-1877
Event Code: 05E1NE00-2016-E-02641

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

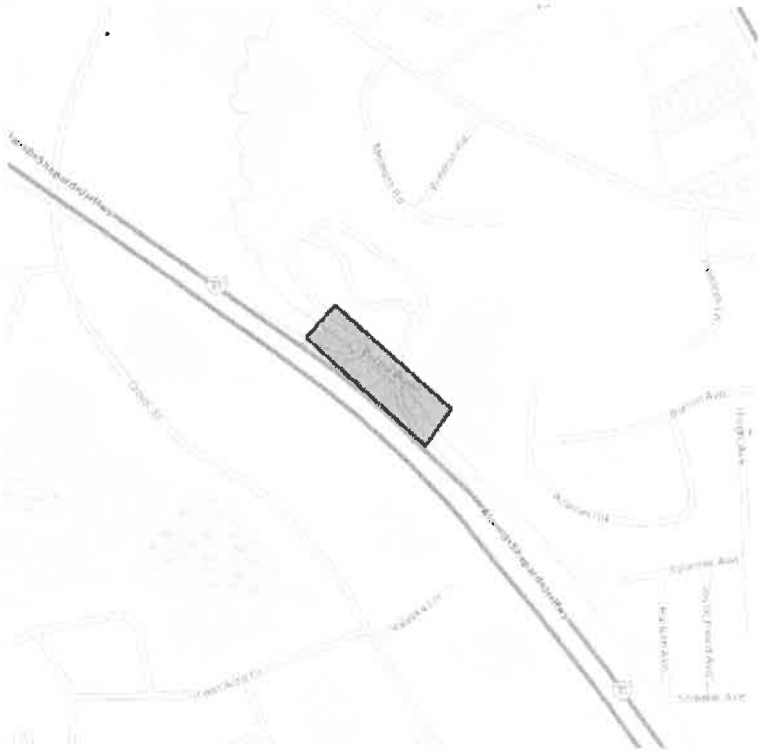
Project Name: Salem 095/052
Project Description: The existing structure is a twin multi-plate pipe arch. Each pipe arch opening has a span of 8'-10" and a rise of 6'-1". The pipes are 84'-3" long. There are small holes in the inverts and there is 30% to 40% section loss in various locations. Proposed work consists of the following: place sandbag cofferdams, install concrete inverts, repair stone headwalls as necessary and place riprap at the inlet and outlet.

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: Salem 095/052

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-71.2219887971878 42.754350846125185, -71.22140407562256 42.75484715012232, -71.21895790100098 42.75328338517178, -71.21947288513184 42.75272010500701, -71.2219887971878 42.754350846125185)))

Project Counties: Rockingham, NH

United States Department of Interior
Fish and Wildlife Service

Project name: Salem 095/052

Endangered Species Act Species List

There are a total of 1 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)
Northern long-eared Bat *(Myotis septentrionalis)*	Threatened		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Project___Salem 41012 Rest Area Entrance Rd over Policy Brook 095/052_____

Wetland Application – NHDOT Cultural Resources Review

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

Above Ground Review -

Known/approximate age of structure: 1967 twin multi-plate corrugated pipe arch (098/049) with cemented boulder stone head walls on outlet/inlet

☒ No Potential to Cause Effect/No Concerns

Feature is less than 50 years old. Proposed work consists of placing sandbag cofferdams, installing concrete inverts and cutoff walls, repairing stone headwalls as necessary, placing riprap at inlet and outlet. Bottom of existing structure is metal pipe invert, after completion it will be concrete invert.

☐ Concerns:

Below Ground Review

Recorded Archaeological site: ☐Yes ☒No

Nearest Recorded Archaeological Site Name & Number: 27-RK-0327 (not named)

☐Pre-Contact ☒Post-Contact

Distance from Project Area: 1.818 miles (2.926 km) northwest of project area

☒ No Potential to Cause Effect/No Concerns

Policy Brook is non-navigable water sources; setting derives in part from i-93 construction activities; riprap will prevent erosion and preserve alignment and gradient of stream channel; minimal impacts due to repairs in kind; square footage of structure will not increase

☐ Concerns:

Reviewed by:

Sheila Charles

NHDOT Cultural Resources Staff

9/14/2016

Date:

US Army Corps of Engineers ®
New England District

New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

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

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	X	
2.5 The overall project site is more than 40 acres.		X
2.6 What is the size of the existing impervious surface area?	11235 ft²	
2.7 What is the size of the proposed impervious surface area?	11235 ft²	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	0%	
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: • 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?		N/A
5. Historic/Archaeological Resources		
For a minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) shall be sent to the NH Division of Historical Resources as required on Page 5 of the PGP**		N/A

*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..

Figure 1: Rest Area Exit Road facing rest area (6/2016).

Figure 2: Rest Area Exit Road facing I-93 (6/2016).

Figure 3: Facing upstream above structure (6/2016).

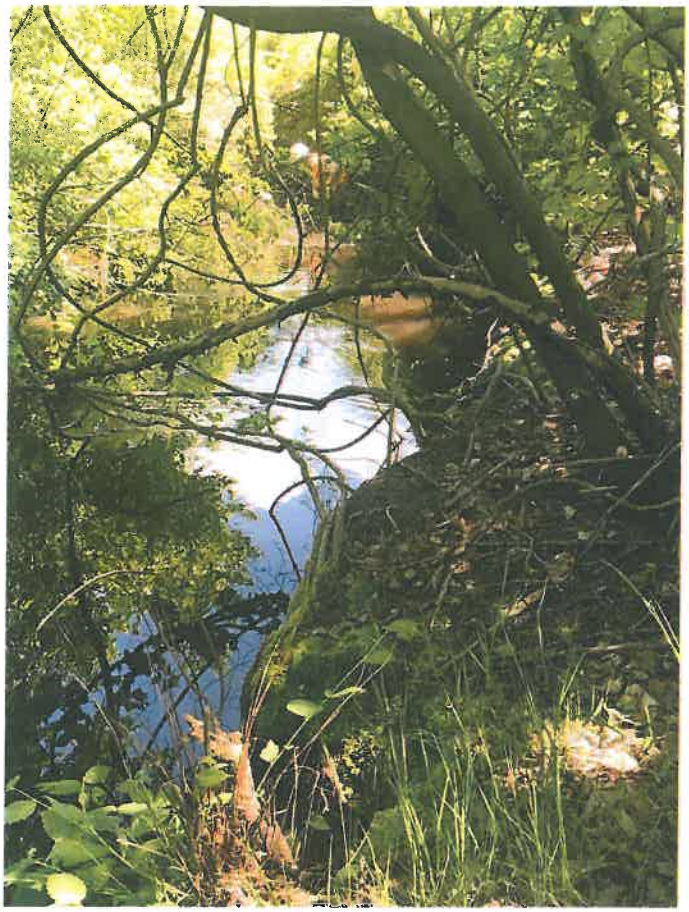


Figure 4: Structure inlet (6/2016).

Figure 5: Structure outlet (6/2016).

Figure 6: Facing downstream above structure (6/2016).

Figure 7: Vegetation above structure outlet (6/2016).

Figure 8: Vegetation above structure inlet (6/2016).

CONSTRUCTION SEQUENCE

1. Sandbags will be placed in the brook and the work zone will be dewatered. Stream flow will be maintained through one pipe.
2. A concrete invert and riprap will be installed.
3. Water will be diverted into the other pipe and the second concrete invert will be placed.
4. Stone headwalls will be repaired as necessary.
5. Riprap will be installed.
6. All dewatering devices will be removed and the site will be restored to its original quality.

Note:

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

PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

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

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

Wt 404.01 Least Intrusive Method

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

Wt 404.02 Diversion of Water

Proposed roadway drainage will allow storm water run-off to be diverted so that it will flow over vegetated areas, insofar as possible, prior to entering Policy Brook. This will minimize erosion of the shoreline.

Wt 404.03 Vegetative Stabilization

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

Wt 404.04 Rip-Rap

(a) Stone fill, as proposed, is shown on the attached plans to protect the channel and bank as necessary. Stable embankments are necessary to maintain the structural integrity of the bridge during all flow conditions.

(b) (1-5) The minimum and maximum stone size, the gradation, cross sections of the stone fill, proposed location, and other details have been provided on the attached plans. Bedding for the stone fill will consist of natural ground excavated to the proposed underside of the stone fill.

(b) (6) Enclosed are plan sheets to sufficiently indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline.

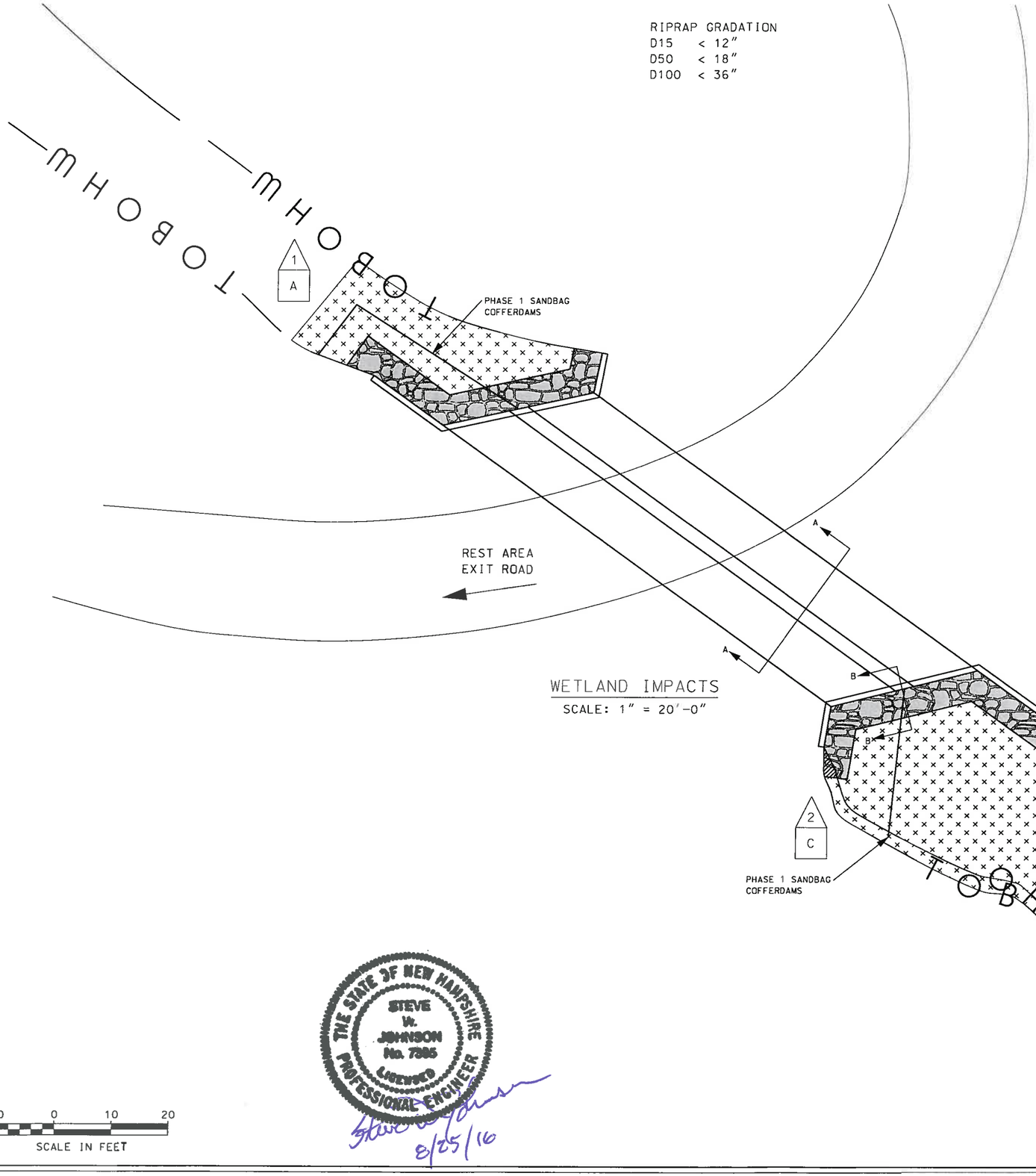
(b) (7) Stone fill is recommended for the limits shown on the attached plans to protect the banks from erosion during flood flows, from scour during all flows, and slopes greater than 2:1 have difficulty supporting vegetation.

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

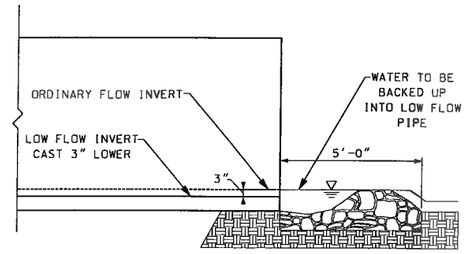
(d) Stone fill is proposed to extend down to and adequately keyed into the channel bottom to prevent possible undermining of the slope.

(e) The enclosed plan has been stamped by a professional engineer.

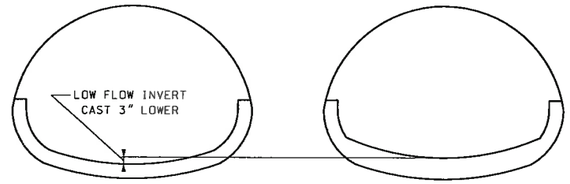
RIPRAP GRADATION
D15 < 12"
D50 < 18"
D100 < 36"



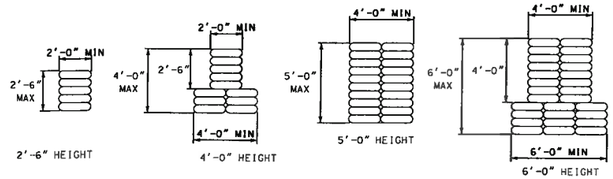
WETLAND IMPACTS
SCALE: 1" = 20'-0"



INVERT CROSS SECTION B-B
NOT TO SCALE



INVERT CROSS SECTION A-A
NOT TO SCALE



COFFERDAM DETAILS
NOT TO SCALE

WETLANDS DELINEATED BY ANW ON 6/2016

10 0 10 20
SCALE IN FEET

THE STATE OF NEW HAMPSHIRE
STEVE W. JOHNSON No. 7385 LICENSED PROFESSIONAL ENGINEER
8/25/16

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE

TOWN SALEM BRIDGE NO. 095/052 STATE PROJECT 41012
LOCATION I-93 REST AREA EXIT ROAD OVER POLICY BROOK

WETLAND IMPACTS

REVISIONS AFTER PROPOSAL	BY	DATE

	BY	DATE		BY	DATE
DESIGNED	ANW	6/9/16	CHECKED		
DRAWN	ANW	6/9/16	CHECKED		
QUANTITIES			CHECKED		

ISSUE DATE		FISCAL YEAR	CREW	SHEET NO.	TOTAL SHEETS
REV. DATE		2016	14	1	2

BRIDGE SHEET 1 OF 2
FILE NUMBER SALEM 095/052
SHEET SCALE AS NOTED

WETLAND IMPACT SUMMARY

WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS PERMANENT N.H.W.B. (NON WETLAND) SF	N.H.W.B. (NON WETLAND) LF	N.H.W.B. & A.C.O.E. (WETLAND) SF	N.H.W.B. & A.C.O.E. (WETLAND) LF	AREA IMPACTS TEMPORARY SF	AREA IMPACTS TEMPORARY LF	LINEAR STREAM IMPACTS FOR MITIGATION PERMANENT BANK LEFT LF	BANK RIGHT LF	CHANNEL LF
1	R2UB2,3	A			247	37	499	36			
2	R2UB2,3	B			268	39	1351	51			
3	BANK	C	7	5			122	57			
4	BANK	D	8	5			51	24			
		TOTAL	15	10	515	76	2023	168	0	0	0

WETLAND CLASSIFICATION CODES	
R2UB2,3	RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, SAND/MUD
BANK	

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

- # — WETLAND DESIGNATION NUMBER
- # — WETLAND IMPACT LOCATION
- # — WETLAND MITIGATION AREA
- MITIGATION

TOTAL PERM 530
TEMP 2023
2,553 sq. ft.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE

TOWN SALEM BRIDGE NO. 095/052 STATE PROJECT 41012

LOCATION I-93 REST AREA EXIT ROAD OVER POLICY BROOK

WETLAND KEY AND SUMMARY

BRIDGE SHEET 2 OF 2

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
DESIGNED	ANW	6/9/16	CHECKED		
DRAWN	ANW	6/9/16	CHECKED		
QUANTITIES			CHECKED		
ISSUE DATE		FISCAL YEAR 2016	CREW 14	SHEET NO. 2	TOTAL SHEETS 2
REV. DATE					

FILE NUMBER SALEM 095/052

SHEET SCALE AS NOTED