STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: May 23, 2022

FROM: Joshua Brown
Wetlands Program Analyst

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Tamworth, 41434

TO Karl Benedict, 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 NHDOT Bureau of Bridge Design for the subject major impact project. The NHDOT is proposing a bridge rehabilitation and superstructure replacement project of Bridge No. 061/091 that carries NH Route 113A over the Swift River in Tamworth, NH. The proposed project involves the complete, in-kind replacement of the existing superstructure including the girders and deck, rehabilitation of the existing abutments including replacing the existing beam seats, backwalls, and wingwalls, the placement of grouted rip rap around the existing bridge piers for the purpose of scour protection, installation of new approach guardrail and terminal units, and the rehabilitation of an existing drainage outfall under the bridge along the southern bank of the Swift River including construction of a new headwall and slope stone/outlet pad to prevent erosion.

This project was reviewed at the Natural Resource Agency Coordination Meeting on March 16, 2022. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm.

NHDOT anticipates and request that this project be reviewed and permitted by the Army Corp of Engineers through the State Programmatic General Permit process. A copy of the application has been sent to the Army Corp of Engineers.

Mitigation was determined to not be required as the proposed work was determined to be self-mitigating.

The lead people to contact for this project are Jenifer Reczek Bureau of Bridge Design (271-3226 or jennifer.e.reczek@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-3226 or Andrew.O'Sullivan@dot.nh.gov).

A payment voucher has been processed for this application (Voucher #683030) in the amount of $2,385.20.

If and when this application meets with the approval of the Bureau, please send the permit directly to Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment.

JRB;
cc:
BOE Original
Town of Tamworth (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
John Magee, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Beth Alafat & Jeanie Brochi, US Environmental Protection Agency (via electronic notification)
Michael Hicks & Rick Kristoff, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)

Tamworth 41434

Bridge No. 061/091
Superstructure
Replacement

NH Standard Dredge & Fill Application

Prepared By:

McFarland Johnson

Tamworth, New Hampshire
41434
X-A004(636)

May 2022

NHDOT Tamworth, 41434
Bridge No. 061/091 Superstructure Replacement
NHDES Standard Dredge & Fill Permit Application
May 2022

Contents

NHDES Standard Dredge and Fill Wetlands Permit Application Form

STANDARD DREDGE AND FILL WETLANDS PERMIT APPLICATION

Water Division/Land Resources Management
Wetlands Bureau

Check the Status of your Application

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

APPLICANT'S NAME: **NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION** **TOWN NAME:** TAMWORTH

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

A person may request a waiver of the requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interest of the public or the environment but is still in compliance with RSA 482-A. A person may also request a waiver of the standards for existing dwellings over water pursuant to RSA 482-A:26, III(b). For more information, please consult the Waiver Request Form.

SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))

Please use the Wetland Permit Planning Tool (WPPT), the Natural Heritage Bureau (NHB) DataCheck Tool, the Aquatic Restoration Mapper, or other sources to assist in identifying key features such as: priority resource areas (PRAs), protected species or habitats, coastal areas, designated rivers, or designated prime wetlands.

Has the required planning been completed?	☒ Yes ☐ No
Does the property contain a PRA? If yes, provide the following information:	☐ Yes ☒ No
• Does the project qualify for an Impact Classification Adjustment (e.g. NH Fish and Game Department (NHF&G) and NHB agreement for a classification downgrade) or a Project-Type Exception (e.g. Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04.	☐ Yes ☒ No

• Protected species or habitat?
  ○ If yes, species or habitat name(s): N/A
  ○ NHB Project ID #: 21-3208
	☐ Yes ☒ No

• Bog?	☐ Yes ☒ No
• Floodplain wetland contiguous to a tier 3 or higher watercourse?	☐ Yes ☒ No
• Designated prime wetland or duly-established 100-foot buffer?	☐ Yes ☒ No
• Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone?	☐ Yes ☒ No
Is the property within a Designated River corridor? If yes, provide the following information: • Name of Local River Management Advisory Committee (LAC): N/A • A copy of the application was sent to the LAC on Month: -- Day: -- Year: ----	☐ Yes ☒ No

For dredging projects, is the subject property contaminated? • If yes, list contaminant: N/A	☐ Yes ☐ No
Is there potential to impact impaired waters, class A waters, or outstanding resource waters?	☒ Yes ☐ No
For stream crossing projects, provide watershed size (see WPPT or Stream Stats): N/A	

SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))

Provide a **brief** description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached"; please use the space provided below.

The New Hampshire Department of Transportation (NHDOT) is proposing a bridge rehabilitation and superstructure replacement project of Bridge No. 061/091 that carries NH Route 113A over the Swift River in Tamworth, NH. The existing bridge was built in 1956 and consists of a concrete deck supported by steel beams founded on concrete piers and abutments. The existing deck is in serious condition and the steel beams and abutments/piers are both in satisfactory condition. Due to the condition of the deck, the bridge was added to the NH State Bridge Red List in 2015. The existing structure has also been identified as a scour critical bridge, meaning that the estimated scour depths extend below the bottom of the existing pier footings.

The proposed project involves the complete, in-kind replacement of the existing superstructure including the girders and deck, rehabilitation of the existing abutments including replacing the existing beam seats, backwalls, and wingwalls, the placement of grouted rip rap around the existing bridge piers for the purpose of scour protection, installation of new approach guardrail and terminal units, and the rehabilitation of an existing drainage outfall under the bridge along the southern bank of the Swift River including construction of a new headwall and slope stone/outlet pad to prevent erosion.

The proposed project will result in 493 SF / 46 LF of permanent channel impacts and 607 SF / 79 LF of permanent bank impacts. Permanent impacts are associated with the installation of the partially grouted riprap and stone outlet pad for the purpose of scour protection. The proposed project will also require 3,181 SF / 82 LF of temporary channel impacts and 1,682 SF / 185 LF of temporary bank impacts associated with construction access and water diversion.

SECTION 3 - PROJECT LOCATION

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

ADDRESS: NH Route 113A (Bridge No. 061/091)

TOWN/CITY: Tamworth

TAX MAP/BLOCK/LOT/UNIT: N/A (Right-of-Way)

US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: Swift River
☐ N/A

(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places): 43.89220° North
-71.29812° West

SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a)) If the applicant is a trust or a company, then complete with the trust or company information.		
NAME: NH Department of Transportation, Attn: Jennifer Reczek, PE		
MAILING ADDRESS: 7 Hazen Drive		
TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03302
EMAIL ADDRESS: jennifer.e.reczek@dot.nh.gov		
FAX:	PHONE: (603) 271-3226	
ELECTRONIC COMMUNICATION: By initialing here: JCR, I hereby authorize NHDES to communicate all matters relative to this application electronically.		
SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c)) ☐ N/A		
LAST NAME, FIRST NAME, M.I.: Hoffmann, Stephen		
COMPANY NAME: McFarland-Johnson, Inc.		
MAILING ADDRESS: 53 Regional Drive		
TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03301
EMAIL ADDRESS: shoffmann@mjinc.com		
FAX:	PHONE: (802) 862-9381	
ELECTRONIC COMMUNICATION: By initialing here SH, I hereby authorize NHDES to communicate all matters relative to this application electronically.		
SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b)) If the owner is a trust or a company, then complete with the trust or company information. ☒ Same as applicant		
NAME:		
MAILING ADDRESS:		
TOWN/CITY:	STATE:	ZIP CODE:
EMAIL ADDRESS:		
FAX:	PHONE:	
ELECTRONIC COMMUNICATION: By initialing here , I hereby authorize NHDES to communicate all matters relative to this application electronically.		

SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))

Describe how the resource-specific criteria have been met for each chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters):
Env-Wt 400: A wetlands and surface waters delineation was completed in May 2020. Jurisdictional resource areas including the ordinary highwater and top of bank of the Swift River were delineated and classified using the USFWS (Cowardin, et al.) Wetland Classification System (federal method). There are no priority resource areas (PRAs) located in the vicinity of the project. According to the NHB DataCheck Results Letter, there are no documented occurrences of protected species or habitats anticipated to be impacted by the proposed project. The proposed project will result in 493 SF / 46 LF of permanent impacts to the channel of the Swift River, and 607 SF / 79 LF of permanent impacts to the banks of the Swift River. Based on the proposed impacts and types of resources present (Tier 3 stream crossing), the proposed project is anticipated to be classified as a major impact project.

Env-Wt 500: The proposed project is covered under Env-Wt 527 Public Highways. The proposed project has been designed in accordance with the criteria specified in Env-Wt 527.04 and is consistent with RSA 482-A:1, 483-B, 485-A, and 212-A. The purpose of the proposed project is to maintain a structurally sound crossing and improve public safety for motorists travelling along NH Route 113A. The proposed project is not anticipated to impact any floodplains, regulatory floodways, or the flood storage function of wetlands (no palustrine wetland impacts). Impacts have been avoided and minimized to the maximum extent practicable.

Env-Wt 600: N/A

Env-Wt 700: N/A

Env-Wt 900: Rehabilitation of a Tier 3 crossing

SECTION 8 - AVOIDANCE AND MINIMIZATION

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)).* Any project with unavoidable jurisdictional impacts must then be minimized as described in the Wetlands Best Management Practice Techniques For Avoidance and Minimization and the Wetlands Permitting: Avoidance, Minimization and Mitigation Fact Sheet. For minor or major projects, a functional assessment of all wetlands on the project site is required (Env-Wt 311.03(b)(10)).*

Please refer to the application checklist to ensure you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). Use the Avoidance and Minimization Checklist, the Avoidance and Minimization Narrative, or your own avoidance and minimization narrative.

**See Env-Wt 311.03(b)(6) and Env-Wt 311.03(b)(10) for shoreline structure exemptions.*

SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)

If unavoidable jurisdictional impacts require mitigation, a mitigation pre-application meeting must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month: 03 Day: 16 Year: 2022

(☒ N/A - Mitigation is not required)

SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c)

Confirm that you have submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent unavoidable impacts that will remain after avoidance and minimization techniques have been exercised to the maximum extent practicable: ☐ I confirm submittal.

(☒ N/A – Compensatory mitigation is not required)

SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without a permit).

For intermittent and ephemeral streams, the linear footage of impact is measured along the thread of the channel. *Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/rivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

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

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland			☐			☐
	Scrub-shrub Wetland			☐			☐
	Emergent Wetland			☐			☐
	Wet Meadow			☐			☐
	Vernal Pool			☐			☐
	Designated Prime Wetland			☐			☐
	Duly-established 100-foot Prime Wetland Buffer			☐			☐
Surface Water	Intermittent / Ephemeral Stream			☐			☐
	Perennial Stream or River	493	46	☐	3,181	82	☐
	Lake / Pond			☐			☐
	Docking - Lake / Pond			☐			☐
	Docking - River			☐			☐
Banks	Bank - Intermittent Stream			☐			☐
	Bank - Perennial Stream / River	607	79	☐	1,682	185	☐
	Bank / Shoreline - Lake / Pond			☐			☐
Tidal	Tidal Waters			☐			☐
	Tidal Marsh			☐			☐
	Sand Dune			☐			☐
	Undeveloped Tidal Buffer Zone (TBZ)			☐			☐
	Previously-developed TBZ			☐			☐
	Docking - Tidal Water			☐			☐
TOTAL		1,100	125		**4,863**	**267**	

SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)

☐ **MINIMUM IMPACT FEE**: Flat fee of $400.

☐ **NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION:** Flat fee of $400 (refer to RSA 482-A:3, 1(c) for restrictions).

☒ **MINOR OR MAJOR IMPACT FEE:** Calculate using the table below:

Permanent and temporary (non-docking):	5,963 SF	× $0.40 =	$ 2385.20
Seasonal docking structure:	0 SF	× $2.00 =	$ 0
Permanent docking structure:	0 SF	× $4.00 =	$ 0
Projects proposing shoreline structures (including docks) add $400 =			$ 0
		Total =	$ 2385.20

The application fee for minor or major impact is the above calculated total or $400, whichever is greater =	$ 2385.20

SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05)

Indicate the project classification.

☐ Minimum Impact Project	☐ Minor Project	☒ Major Project

SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)

Initial each box below to certify:

Initials: JCR SH	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials: JCR SH	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.
Initials: JCR SH	The signer understands that: • The submission of false, incomplete, or misleading information constitutes grounds for NHDES to: 1. Deny the application. 2. Revoke any approval that is granted based on the information. 3. If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1. • The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641. • The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact forestry SPN projects and minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.
Initials: JCR SH	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.

SECTION 15 - REQUIRED SIGNATURES (Env-Wt 311.04(d); Env-Wt 311.11)

SIGNATURE (OWNER): Jennifer E. Reczek	PRINT NAME LEGIBLY: Jennifer Reczek	DATE: 5/16/2022
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER):	PRINT NAME LEGIBLY:	DATE:
SIGNATURE (AGENT, IF APPLICABLE): Stephen Hoffmann	PRINT NAME LEGIBLY: Stephen Hoffmann	DATE: 4/29/2022

SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))

As required by RSA 482-A:3, I(a)(1), 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.

TOWN/CITY CLERK SIGNATURE: Exempt per RSA 482-A:3, I(a)(1)-State Agency	PRINT NAME LEGIBLY: N/A

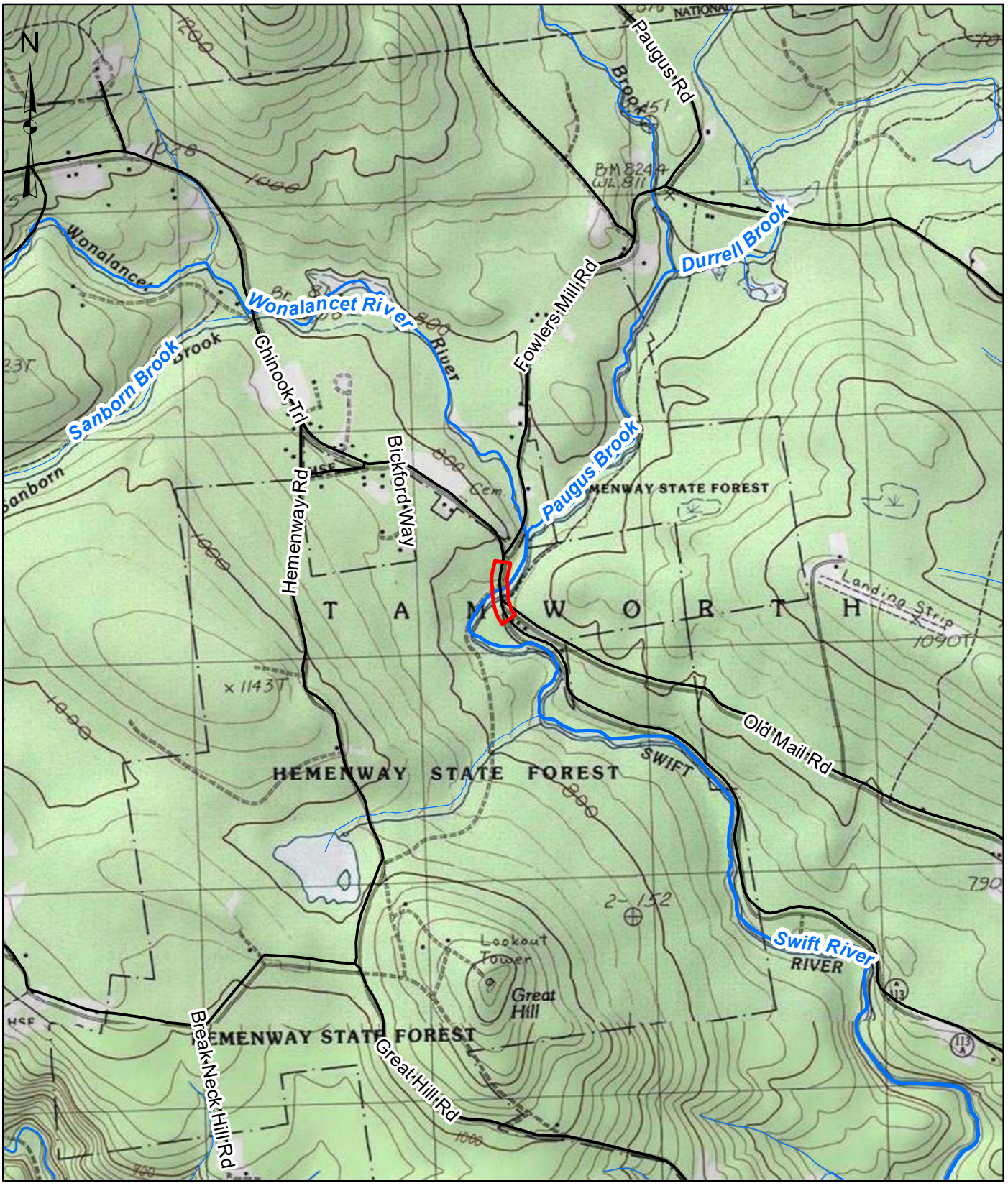
TOWN/CITY: Tamworth	DATE:

DIRECTIONS FOR TOWN/CITY CLERK:
Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. 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.
3. 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.
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:
Submit the 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 at the address at the bottom of this page. Make check or money order payable to “Treasurer – State of NH”.

Figure 1 - USGS Location Map



Tamworth 41434 Project Area

0 2,000 4,000
Feet

NH DEPARTMENT OF TRANSPORTATION
TAMWORTH 41434 - TAMWORTH, NH

USGS LOCATION MAP

SCALE :	DATE :	FIGURE :
1 inch = 2,000 feet	FEBRUARY 2022	1

McFarland Johnson

M:\18844.01 Tamworth 41434-Final Dsg\Draw\GIS\Wetland Permit Figures\Figure 1 - Tamworth 41434 - USGS Location Map (Wetland).mxd

Attachment A: Minor and Major Projects

STANDARD DREDGE AND FILL WETLANDS PERMIT APPLICATION ATTACHMENT A: MINOR AND MAJOR PROJECTS

Water Division/Land Resources Management

Wetlands Bureau

Check the Status of your Application

RSA/ Rule: RSA 482-A/ Env-Wt 311.10; Env-Wt 313.01(a)(1); Env-Wt 313.03

APPLICANT'S NAME: NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION **TOWN NAME:** TAMWORTH

Attachment A is required for *all minor and major projects*, and must be completed *in addition* to the Avoidance and Minimization Narrative or Checklist that is required by Env-Wt 307.11.

For projects involving construction or modification of non-tidal shoreline structures over areas of surface waters having an absence of wetland vegetation, only Sections I.X through I.XV are required to be completed.

PART I: AVOIDANCE AND MINIMIZATION

In accordance with Env-Wt 313.03(a), the Department shall not approve any alteration of any jurisdictional area unless the applicant demonstrates that the potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized, as described in the Wetlands Best Management Practice Techniques For Avoidance and Minimization.

SECTION I.I - ALTERNATIVES (Env-Wt 313.03(b)(1))

Describe how there is no practicable alternative that would have a less adverse impact on the area and environments under the Department's jurisdiction.

A VARIETY OF BRIDGE REPLACEMENT AND REHABILITATION ALTERNATIVES WERE CONSIDERED, INCLUDING DECK REPLACEMENT, SUPERSTRUCTURE REPLACEMENT, AND FULL BRIDGE REPLACEMENT. THE SUPERSTRUCTURE REPLACEMENT ALTERNATIVE WAS SELECTED IN PART BECAUSE IT MINIMIZES THE IMPACTS TO THE CHANNEL AND BANKS OF THE SWIFT RIVER BY AVOIDING THE COMPLETE REPLACEMENT OF THE EXISTING PIERS AND ABUTMENTS. THE SUPERSTRUCTURE REPLACEMENT/REHABILITATION ALTERNATIVE ALSO REDUCED COSTS, TRAFFIC IMPACTS, ELIMINATED RISKS ASSOCIATED WITH DECK REPLACEMENT AND REUSING EXISTING STEEL BEAMS, WHILE STILL MEETING THE OVERALL PURPOSE AND NEED OF THE PROJECT. MULTIPLE SCOUR PROTECTION ALTERNATIVES WERE ALSO CONSIDERED INCLUDING A-JACKS INSTALLED AT EXISTING GRADE, EMBEDDED A-JACKS, AND EMBEDDED PARTIALLY GROUTED RIPRAP (PGR). THE FOOTPRINTS OF THE PROPOSED IMPACT AREAS FOR BOTH SCOUR PROTECTION ALTERNATIVES WERE SIMILAR, HOWEVER, THE PGR MATERIAL WAS DETERMINED TO BE MORE SUITABLE FOR THE EXISTING SITE CONDITIONS DUE TO THE LARGER SIZE OF THE CHANNEL SUBSTRATE AND WATER VELOCITIES. THE PGR IS A STRONGER AND MORE DURABLE MATERIAL THAT IS LESS PRONE TO BEING DAMAGED BY LARGE COBBLES AND BOULDERS POTENTIALLY MOBILIZED DURING HIGHER FLOWS. THE PGR WILL ALSO PROVIDE A SLIGHTLY MORE NATURAL APPEARANCE OVER THE ANGULAR, CONCRETE A-JACKS ARMOR UNITS. THE PROPOSED PGR WILL BE EMBEDDED IN ORDER TO MATCH THE EXISTING GRADE OF THE CHANNEL AND BANKS. THE EXISTING DRAINAGE OUTFALL REPAIRS WILL RESULT IN BANK IMPACTS, HOWEVER THE PROPOSED IMPROVEMENTS WILL HELP REDUCE THE EROSION THAT IS CURRENTLY BEING CAUSED BY THE DETERIORATED DRAINAGE OUTLET.

SECTION I.II - MARSHES (Env-Wt 313.03(b)(2))

Describe how the project avoids and minimizes impacts to tidal marshes and non-tidal marshes where documented to provide sources of nutrients for finfish, crustacean, shellfish, and wildlife of significant value.

N/A - The proposed project does not involve any impacts to tidal or non-tidal marshes.

SECTION I.III - HYDROLOGIC CONNECTION (Env-Wt 313.03(b)(3))

Describe how the project maintains hydrologic connections between adjacent wetland or stream systems.

The proposed project will maintain all existing hydrologic connections. There are no fringe wetland systems or tributaries located adjacent to the Swift River within the project area. The proposed project is anticipated to be completed in Summer 2023 (late-June to mid-August) during low flow conditions. Flow in the Swift River will be maintained and at least a portion of the channel will remain open throughout the duration of construction. It is anticipated that the contractor will install a temporary cofferdam (likely large sandbags or similar) surrounding the in-water work areas around the existing piers. Approximately 17'-6" or 33 percent of the channel will remain open with the temporary water diversion structures installed.

SECTION I.IV - JURISDICTIONAL IMPACTS (Env-Wt 313.03(b)(4))

Describe how the project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern, or any combination thereof.

The proposed project has minimized and avoided impacts to wetlands and other areas of jurisdiction under RSA 482-A to the maximum extent practicable. There are no palustrine wetlands located in the immediate vicinity of the proposed project, and therefore, wetland impacts are not anticipated or proposed. Impacts to the channel and banks of the Swift River have been minimized to the maximum extent practicable. The proposed project will result in 493 SF / 46 LF of permanent channel impacts for the installation of proposed scour protection, as well as 607 SF / 79 LF of permanent bank impacts for the installation of the proposed scour protection and stone outlet pad for the existing drainage outfall. The NHB DataCheck Results Letter did not identify any exemplary natural communities or protected species and/or habitats in the vicinity of the proposed project. A wetlands and surface waters delineation was completed in May 2020, and no vernal pools were identified in the vicinity of the proposed project.

The Swift River is not identified as Essential Fish Habitat (EFH) for Atlantic salmon according to the National Marine Fisheries Service (NMFS) Final Omnibus Essential Fish Habitat Amendment 2 Volume 2: EFH and HAPC Designation Alternatives and Environmental Impacts (October 2017). Multiple dams located downstream from the project area act as barriers to fish and other aquatic organism passage including Atlantic salmon.

According to the NHDES Wetlands Permit Planning Tool (WPPT) and the 2020 NH Wildlife Action Plan (WAP) mapping, the Swift River is identified as a Cold Water Fishery, a stream containing a Species of Conservation Concern, and an Eastern Brook Trout stream. Appropriate Best Management Practices (BMPs) for soil erosion and sediment control will be implemented throughout the duration of construction to minimize and avoid potential water quality impacts. No in-water work or dredging will occur between October 1 and March 31. The proposed project is anticipated to be completed between June - August 2023 and will be completed during low flow conditions.

SECTION I.V - PUBLIC COMMERCE, NAVIGATION, OR RECREATION (Env-Wt 313.03(b)(5))

Describe how the project avoids and minimizes impacts that eliminate, depreciate or obstruct public commerce, navigation, or recreation.

The proposed project is not anticipated to have a substantial impact on public commerce, navigation, or recreation. The proposed project is needed in order to address the deteriorating bridge structure and provide continued safe passage for the public and motorists travelling along NH Route 113A. The proposed project will require an approximately one to two month closure of NH Route 113A in order to complete the proposed repairs and replacement of the existing bridge. A signed 22-mile detour route will be provided as well as a nine-mile local road detour. The proposed roadway closure/detours will be short term and temporary in nature, and is not anticipated to result in major traffic, public commerce or navigation disruptions.

Hemenway State Forest is located on both sides of NH Route 113A within the project area. There is an existing unnamed trail and unimproved dirt pull-off/parking area in the southeast bridge quadrant. There is also a multi-use/snowmachine trail, Great Hill Pond Loop, that crosse NH Route 113A approximately 100 feet north of the existing bridge. Access to both trails will be disrupted during construction in order to protect public safety and keep unauthorized persons out of the active construction zone. Coordination with the NH Department of Natural and Cultural Resources has been completed regarding the proposed project and implications on the State Forest lands and recreational resources in the vicinity. Impacts on recreation are short term and temporary in nature.

SECTION I.VI - FLOODPLAIN WETLANDS (Env-Wt 313.03(b)(6))

Describe how the project avoids and minimizes impacts to floodplain wetlands that provide flood storage.

N/A - The proposed project does not involve any impacts to floodplain wetlands that provide flood storage. There are no Federal Emergency Management Agency (FEMA) mapped floodplains or regulatory floodways located in the vicinity of the proposed project. There are also no floodplain wetlands located adjacent to the Swift River or any proposed impacts to palustrine wetlands. The installation of the proposed scour protection is not anticipated to result in more than a negligible increase in the Base Flood Elevation of the Swift River.

SECTION I.VII - RIVERINE FORESTED WETLAND SYSTEMS AND SCRUB-SHRUB – MARSH COMPLEXES (Env-Wt 313.03(b)(7))

Describe how the project avoids and minimizes impacts to natural riverine forested wetland systems and scrub-shrub – marsh complexes of high ecological integrity.

N/A - There are no natural riverine forested wetland systems or scrub-shrub marsh complexes located within the proposed project impacts. Impacts to these resource area types are not proposed.

SECTION I.VIII - DRINKING WATER SUPPLY AND GROUNDWATER AQUIFER LEVELS (Env-Wt 313.03(b)(8))

Describe how the project avoids and minimizes impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

N/A - There are no palustrine wetland impacts. Therefore, the proposed project is not anticipated to impact any wetlands that would result in a detrimental impact to adjacent drinking water supply and/or groundwater aquifer levels. Appropriate Best Management Practices (BMPs) for soil erosion and sediment control will be implemented throughout the duration of construction to minimize and avoid potential water quality impacts.

SECTION I.IX - STREAM CHANNELS (Env-Wt 313.03(b)(9))

Describe how the project avoids and minimizes adverse impacts to stream channels and the ability of such channels to handle runoff of waters.

Impacts to the channel of the Swift River have been avoided and minimized to the maximum extent practicable. The decision to replace only the superstructure eliminated the need for additional impacts associated with replacement of the existing bridge piers. However, it was determined that additional scour protection is required around the bridge piers to protect the existing infrastructure and the safety of the public travelling along NH Route 113A. The footprint of the scour protection has been minimized to reduce impacts to the channel and banks of the Swift River.

SECTION I.X - SHORELINE STRUCTURES - CONSTRUCTION SURFACE AREA (Env-Wt 313.03(c)(1))

Describe how the project has been designed to use the minimum construction surface area over surface waters necessary to meet the stated purpose of the structures.

N/A - The proposed project does not involve the construction of shoreline structures over surface waters.

SECTION I.XI - SHORELINE STRUCTURES - LEAST INTRUSIVE UPON PUBLIC TRUST (Env-Wt 313.03(c)(2))

Describe how the type of construction proposed is the least intrusive upon the public trust that will ensure safe docking on the frontage.

N/A - The proposed project does not involve the construction of shoreline structures involving docking.

SECTION I.XII - SHORELINE STRUCTURES – ABUTTING PROPERTIES (Env-Wt 313.03(c)(3))

Describe how the structures have been designed to avoid and minimize impacts on ability of abutting owners to use and enjoy their properties.

N/A - The proposed project does not involve the construction of shoreline structures.

SECTION I.XIII - SHORELINE STRUCTURES – COMMERCE AND RECREATION (Env-Wt 313.03(c)(4))

Describe how the structures have been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.

N/A - The proposed project does not involve the construction of shoreline structures.

SECTION I.XIV - SHORELINE STRUCTURES – WATER QUALITY, AQUATIC VEGETATION, WILDLIFE AND FINFISH HABITAT (Env-Wt 313.03(c)(5))

Describe how the structures have been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.

N/A - The proposed project does not involve the construction of shoreline structures.

SECTION I.XV - SHORELINE STRUCTURES – VEGETATION REMOVAL, ACCESS POINTS, AND SHORELINE STABILITY (Env-Wt 313.03(c)(6))

Describe how the structures have been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.

N/A - The proposed project does not involve the construction of shoreline structures.

PART II: FUNCTIONAL ASSESSMENT
REQUIREMENTS Ensure that project meets the requirements of Env-Wt 311.10 regarding functional assessment (Env-Wt 311.04(j); Env-Wt 311.10).
FUNCTIONAL ASSESSMENT METHOD USED: US Army Corps of Engineers Highway Methodology
NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT: STEPHEN HOFFMANN, CWS #306
DATE OF ASSESSMENT: MAY 2020
Check this box to confirm that the application includes a NARRATIVE ON FUNCTIONAL ASSESSMENT: ☒
For minor or major projects requiring a standard permit without mitigation, the applicant shall submit a wetland evaluation report that includes completed checklists and information demonstrating the RELATIVE FUNCTIONS AND VALUES OF EACH WETLAND EVALUATED. Check this box to confirm that the application includes this information, if applicable: ☒ Note: The Wetlands Functional Assessment worksheet can be used to compile the information needed to meet functional assessment requirements.

Supplemental Narrative

NHDES MAJOR IMPACT WETLANDS PERMIT APPLICATION

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

TAMWORTH, 41434

BRIDGE NO. 061/091 SUPERSTRUCTURE REPLACEMENT

TAMWORTH, NEW HAMPSHIRE

APRIL 2022

SUPPLEMENTAL NARRATIVE

McFarland Johnson

Contents

1.0 Introduction

The New Hampshire Department of Transportation (NHDOT) is proposing to replace the existing superstructure of Bridge No. 061/091 carrying NH Route 113A over the Swift River in Tamworth, New Hampshire. The proposed project also includes the installation of scour protection around the two existing bridge piers, as well as the rehabilitation of an existing drainage outfall on the southern bank of the Swift River, located between the existing bridge abutment and pier.

The existing deck is in serious condition (condition rated 3 out of 9) and the superstructure and substructure are in satisfactory condition (6 out of 9). The existing bridge piers have been identified as "scour critical" meaning that the estimated scour depths extend below the bottom of the existing pier footings. The existing bridge was added to the NHDOT Red List of Bridges in 2015.

1.1 Purpose

The purpose of the proposed project is to address the serious condition of the existing bridge deck and scour concerns at the two bridge piers, to maintain safe passage of vehicles and pedestrians along NH Route 113A over the Swift River.

1.2 Need

The need for this project is evidenced by the following:

- Holes extending through the deck have recently been discovered and have been temporarily covered with steel plates by the Bureau of Bridge Maintenance.
- The existing deck is in serious condition and the bridge is currently included on the NHDOT Red List of Bridges.
- The existing piers have been designated as "Scour Critical" based on a Plan of Action Report completed in 2009.

1.3 Alternatives

Three bridge alternatives were evaluated including deck replacement, superstructure replacement, and full bridge replacement. In addition to the bridge replacement work, two scour countermeasures were also considered including A-Jacks and grouted riprap.

1.3.1 Deck Replacement

This alternative included deck replacement, painting structural steel, rehabilitating concrete wingwalls, constructing scour countermeasure at the piers and replacing abutment backwalls and deck joints. Challenges with this alternative included reusing the existing structural steel beams and the inherent uncertainties associated with this practice as well as risks to the accelerated bridge construction schedule. Impacts are still required for the proposed scour countermeasures as well as the drainage outfall repairs.

1.3.2 Superstructure Replacement

This alternative includes superstructure replacement, replacing bearings, constructing scour countermeasure at the piers, and replacing abutment backwalls, wingwalls, and deck joints. The superstructure replacement is preferred over deck replacement due to the risks associated with the existing steel framing with an accelerated construction schedule. The superstructure replacement also provides a greater service life than deck replacement. Impacts to the channel and banks of the Swift River are identical for the deck and superstructure replacement alternatives. The superstructure replacement was determined to be the selected alternative.

1.3.3 Full Bridge Replacement

This alternative replaces the existing bridge in its entirety with a single span bridge. Existing piers would be removed and would therefore not require scour countermeasure. While this alternative would eliminate the need for the scour countermeasures, impacts to the channel and banks of the Swift River would still be required for construction access and removal of the existing bridge piers. This alternative was not considered further due to impacts to the project schedule and increased costs associated with complete replacement. This alternative is also not warranted due to the satisfactory condition of the existing substructure, the adequate hydraulic capacity of the bridge, and lack of obstructions to aquatic organism passage.

1.3.4 Scour Countermeasure Alternatives

Multiple scour countermeasures were considered, including A-Jacks concrete armor units installed at existing grade, embedded A-Jacks, and embedded partially grouted riprap (PGR). PGR was selected as the preferred scour protection method due to the existing site conditions, channel velocities, and the size of the substrate. The PGR is more durable and less prone to damage than the A-Jacks from large cobbles and boulders potentially mobilized during higher flows and increased channel velocities. The embedded material will approximately match the grade of the existing streambed and will not result in a constriction of the channel at the bridge location. For these reasons the embedded PGR was selected as the preferred scour countermeasure.

2.0 Existing Conditions

2.1 Roadway & Bridge

Bridge No. 061/091 is a 3-span steel beam bridge with a reinforced concrete deck that was originally constructed in 1956. The bridge has two 48’ end spans and a 56’ center span, totaling 152-feet, and a curb-to-curb width of 24’-6” and an out-to-out of 27’-6”. The existing roadway is classified as a Tier 4 highway and consists of two 11’-0” travel lanes and roughly 1’-0” shoulders for a total roadway width of about 24’-0”. NH Route 113A has an Average Annual Daily Traffic (AADT) of 448 vehicles with 10% trucks based on 2017 traffic counts.

2.2 Jurisdictional Resources

A wetlands and surface waters delineation was completed by McFarland-Johnson, Inc. on May 6, 2020. Two palustrine forested wetlands were delineated north of Bridge No. 061/091 on both the east and west sides of NH Route 113A. A palustrine emergent roadside ditch wetland associated with an intermittent stream was also delineated north of the existing bridge. No vernal pools were identified in the vicinity of the proposed project during the May 2020 delineation.

The Swift River is the most prominent surface water in the vicinity of the project. The ordinary high water and top of bank of the Swift River were delineated. At the location of Bridge No. 061/091, the Swift River is a fourth order, perennial stream, with a watershed area of approximately 25.3 square miles. The stream crossing is classified as a Tier 3 stream crossing based on the watershed size pursuant to the NHDES Stream Crossing Rules (Env-Wt 900). The Swift River has a Cowardin Classification of R3UB1H.

According to the NHDES Wetlands Permit Planning Tool (WPPT) there are no Priority Resource Areas (PRAs) mapped in the vicinity of the proposed project.

According to the WPPT and the 2020 NH Wildlife Action Plan (WAP) mapping, the Swift River is identified as a Cold Water Fishery, a stream containing a Species of Conservation Concern, and an Eastern Brook Trout stream.

2.3 Rare Species / Fish and Wildlife

2.3.1 NH Natural Heritage Bureau

The proposed project was submitted to and reviewed by the New Hampshire Natural Heritage Bureau (NHB) via the online NHB DataCheck Tool on October 13, 2021. The NHB DataCheck Results Letter (NHB21-3208) dated October 19, 2021, indicated that although there was a NHB record (e.g. rare wildlife, plant, and/or natural community) present in the vicinity of the proposed action, NHB does not anticipate any impacts from the proposed action.

2.3.2 US Fish and Wildlife Service

The United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) planning tool was accessed on February 4, 2022, and an Official Species List was generated for the proposed project area (see attached USFWS Official Species List). According USFWS Official Species List, the proposed project is located within the range of the federally threatened northern long-eared bat (*Myotis septentrionalis*), as well as the monarch butterfly (*Danaus plexippus*), a candidate species currently undergoing review for potential listing. The project was evaluated using the IPaC-Assisted Determination Key for the FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-eared Bat. Based on the proposed action it was determined that the project may affect and is likely to adversely affect the NLEB due to potential tree clearing and proposed bridge work during the active season for NLEB. The USFWS confirmed that the project is consistent with the Programmatic Biological Opinion and is therefore not likely to jeopardize the continued existence of the northern long-eared bat.

2.3.3 NH Wildlife Action Plan

The NHF&G developed the New Hampshire Wildlife Action Plan (WAP), which includes ranked habitat tiers that identify the highest quality habitats across the state. The NHF&G created the WAP habitat tiers based on NHF&G biological data, landscape data, and human influence/disturbance information. Habitats are separated into three ranking tiers including, 1) Highest Ranked Habitat in the State, 2) Highest Ranked Habitat in the Biological Region, and 3) Supporting Landscapes.

According to the 2020 WAP mapping, the proposed project is located within an area identified as Highest Ranked Habitat in the State (see Figure 4 – NH WAP Habitat Tiers Map). The WAP habitat mapping is a coarse filter, landscape level mapping tool, and while Highest Ranked Habitat in the State is identified within the project limits along the Swift River and the adjacent forested areas, the proposed project is located in a previously disturbed area associated with the existing bridge and NH Route 113A roadway corridor. Impacts on wildlife from the proposed action will be temporary and short-term in nature (the project is anticipated to require 1-2 months to complete). The proposed action is not anticipated to result in any changes to terrestrial wildlife or aquatic organism passage or connectivity at the bridge location.

2.4 Floodplains and Floodways

There are no Federal Emergency Management Agency (FEMA) mapped regulatory floodway or 100-year floodplains associated with the Swift River in the vicinity of the proposed action.

2.5 Cultural and Historic Resources

The proposed action was reviewed by the NHDOT Cultural Resources Staff on February 11, 2020, under the Section 106 Programmatic Agreement, Appendix B Certification – Activities with Minimal Potential to Cause Effects, and a No Historic Properties Affected determination was reached.

3.0 Proposed Project

The following sections describe the proposed work, resource area impacts, avoidance and minimization measures, and additional components of the project.

3.1 Bridge Repairs and Replacement

The proposed project includes the replacement of the existing superstructure of Bridge No. 061/091. In addition to the superstructure replacement, the project also includes the removal and replacement of the abutment beam seats, backwalls, wingwalls, minor modifications to the pier caps, installation of new bridge bearings, and installation of new bridge rail and approach rail. The proposed bridge rehabilitation and repair work is located outside of jurisdictional resource areas and is not anticipated to result in any impacts to wetlands, surface waters, or banks.

3.2 Scour Countermeasures

In order to protect the existing bridge infrastructure, the proposed project includes the installation of PGR around the existing bridge piers. The proposed PGR will be installed at a depth of approximately 2’-0”

thick and will extend approximately 6'-0" from the face of the bridge piers on the channel sides and approximately 7'-6" from the face of the piers on the bank sides. The PGR will be embedded approximately two feet in order to match the approximate grade of the existing streambed.

Access to the northern bridge pier is limited by right-of-way (ROW) constraints and steep grades along the northern side of the Swift River making it a challenge to access this area with equipment and machinery required to install the scour protection. Based on the existing ROW and grades, it is anticipated that the contractor will utilize the southeast bridge quadrant to access the bridge piers for the installation of the PGR. In order to access the northern bridge pier, wooden construction mats will be placed across the channel during low flow conditions in order to move machinery and materials across the channel to access the northern pier and install the PGR. The use of construction mats was discussed with NHDES at prior NHDOT Resource Agency Coordination Meetings and NHDES staff concurred with this approach.

Temporary water diversion structures will be installed around the proposed in-water work areas within the channel of the Swift River. All in-water work will be completed during low flow conditions and outside the October 1 – March 31 work window for documented cold water fishery [Env-Wt 307.10(g)(1)]. The temporary water diversion structure will likely consist of large sandbag cofferdams but will ultimately be determined by the means and methods of the selected contractor. Flow in the Swift River will be maintained throughout the duration of construction. Approximately 17'-6" of the middle of the channel or approximately 33 percent of the total width of the channel at the bridge location will remain open with the water diversion structures installed. This will allow for flow and fish/aquatic organism passage to be maintained throughout the duration of the project.

3.3 Drainage Outfall

There is an existing drainage outfall located under the bridge near the top of bank on the southern side of the river. The proposed project will replace the existing deteriorated pipe and construct a new headwall and install a stone outlet pad. The proposed improvements will repair and eliminate the erosion and scour that is currently occurring along the southern bank of the Swift River caused by the deteriorated drainage outlet.

3.4 Wetland and Surface Water Impacts

3.4.1 Wetlands

The existing wetlands that were delineated north of the project are no anticipated to be impacted by the proposed project. The proposed project does not involve palustrine wetland impacts.

3.4.2. Vernal Pools

No vernal pools were identified within the Study Area or were observed in the vicinity of the proposed project.

3.4.3 Surface Waters

The proposed project is anticipated to result in 493 SF / 46 LF of permanent channel impacts associated with the installation of the PGR around the existing bridge piers for scour protection. The installation of the PGR will also result in 532 SF / 70 LF of permanent bank impacts. An additional 75 SF / 9 LF of

permanent bank impacts are associated with the installation of the stone outlet pad for the existing drainage outlet. Permanent impacts total 1,100 SF / 125 LF.

In addition to the proposed permanent impacts, temporary impacts are required for construction access and the installation of perimeter controls including the temporary water diversion structures. The proposed project will result in 3,181 SF / 82 LF of temporary channel impacts, and 1,682 SF / 185 LF of temporary bank impacts. Temporary impacts and disturbed areas will be restored following the completion of construction.

3.5 Avoidance and Minimization Measures

Avoidance and minimization measures were limited by the location of the existing infrastructure as well as the need for scour protection and repairs to the existing drainage outlet. Multiple bridge replacement/rehabilitation alternatives were considered as well as multiple scour countermeasures. The selected alternatives minimized the impacts to the maximum extent practicable. The footprint of the proposed PGR was reduced to the smallest area that would provide the necessary scour protection based on the hydraulics at the site. Flow within the channel of the Swift River will be maintained throughout the duration of the project, minimizing impacts to fish and other aquatic organisms. Temporary water diversion structures and soil erosion and sediment controls will also help reduce water quality impacts from the proposed project.

3.6 Water Quality

Appropriate Best Management Practices (BMPs) will be implemented throughout the duration of construction to avoid and minimize any potential water quality impacts. In-water work including the installation of the PGR as well as placement of construction mats for crossing the channel will be completed during low flow conditions. Excavation around the existing piers and the installation of the PGR will be completed behind temporary cofferdams to minimize turbidity releases or other negative water quality impacts.

Consistent with prior NHDOT projects involving the use of PGR, a Special Provision for the PGR will be included in the Prosecution of Work. The special provision will specify the construction requirements including specific procedures for water quality monitoring and grout washing. Water quality, including pH, will be monitored throughout the duration of the grouting process to minimize quality impacts as outlined in the Special Provision.

Construction mats and the machinery used to install them will be required to be clean and free of any dirt or other debris prior to placement within the channel. The mats and any heavy machinery used to install them shall be inspected for and cleaned of all vegetative matter by a method and in a location that prevents the spread of the vegetative matter to jurisdictional areas. Construction mats will be properly installed and not dragged into position. The contractor will likely construct a temporary bridge-like crossing structure out of the crane mats in order to access the northern bridge pier with equipment and machinery required to install the PGR and complete the project. The proposed use of crane mats is assumed to have less of an impact on the stream and water quality compared to the construction of a

temporary causeway or other more substantial crossing structure. Construction mats will be removed immediately following the completion of the work.

3.7 Right-of Way

The NHDOT is evaluating the potential need for a temporary construction easement in the NW bridge quadrant. This area would aid in the constructability of the project and allow for an additional access point to the northern bridge pier. The lands outside the ROW located in the NW bridge quadrant are part of Hemenway State Forest and are owned and operated by the State of New Hampshire's Department of Natural and Cultural Resources (DNCR). This area is currently cleared and appears to be maintained as part of the existing NH Route 113A corridor and therefore, tree clearing is not anticipated. Following the completion of the bridge rehabilitation/replacement, disturbed areas will be restored using a slope seed mix and red-osier dogwood (*Cornus sericea*) shrubs will be planted along the banks in order to help stabilize the slopes and revegetate the stream banks.

Preliminary coordination with DNCR has occurred and they are aware of the proposed project and impacts. The NHDOT will continue to coordinate with DNCR regarding impacts outside the ROW, and will secure all necessary authorization and approvals for impacts outside the ROW prior to the start of construction.

4.0 Mitigation

Based on discussion and comments received from the New Hampshire Department of Environmental Services (NHDES) staff at the October 20, 2021 and March 16, 2022 NHDOT Natural Resource Agency Coordination Meetings, the proposed project is considered maintenance and repairs to protect existing infrastructure and, therefore, mitigation is not required for the proposed impacts. However, a planting plan was developed in order to help restore the project area and revegetate the banks. A total of 50 red-osier dogwood shrubs are proposed to be planted along the stream banks to help stabilize and revegetate these areas following construction.

NHDES Avoidance and Minimization Checklist

AVOIDANCE AND MINIMIZATION CHECKLIST

Water Division/Land Resources Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A/ Env-Wt 311.07(c)

This checklist can be used in lieu of the written narrative required by Env-Wt 311.07(a) to demonstrate compliance with requirements for Avoidance and Minimization (A/M), pursuant to RSA 482-A:1 and Env-Wt 311.07(c).

For the construction or modification of non-tidal shoreline structures over areas of surface waters without wetland vegetation, complete only Sections 1, 2, and 4 (or the applicable sections in Attachment A: Minor and Major Projects (NHDES-W-06-013).

The following definitions and abbreviations apply to this worksheet:

- "A/M BMPs" stands for Wetlands Best Management Practice Techniques for Avoidance and Minimization dated 2019, published by the New England Interstate Water Pollution Control Commission (Env-Wt 102.18).
- "Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (Env-Wt 103.62).

SECTION 1 - CONTACT/LOCATION INFORMATION		
APPLICANT LAST NAME, FIRST NAME, M.I.: NH Department of Transportation, Attn: Jennifer Reczek		
PROJECT STREET ADDRESS: Bridge No. 061/091 / NH Route 113A		PROJECT TOWN: Tamworth
TAX MAP/LOT NUMBER: ROW		
SECTION 2 - PRIMARY PURPOSE OF THE PROJECT		
Env-Wt 311.07(b)(1)	Indicate whether the primary purpose of the project is to construct a water-access structure or requires access through wetlands to reach a buildable lot or the buildable portion thereof.	☐ Yes ☒ No

If you answered "no" to this question, describe the purpose of the "non-access" project type you have proposed:

The purpose of the proposed project is to replace the deteriorating bridge superstructure and install scour protection around the existing piers in order to maintain a structurally sound and safe crossing structure. The proposed project also involves replacing an existing drainage outlet along the southern bank of the Swift River to address the deteriorating outfall that is currently contributing to bank erosion.

SECTION 3 - A/M PROJECT DESIGN TECHNIQUES Check the appropriate boxes below in order to demonstrate that these items have been considered in the planning of the project. Use N/A (not applicable) for each technique that is not applicable to your project.		
Env-Wt 311.07(b)(2)	For any project that proposes new permanent impacts of more than one acre or that proposes new permanent impacts to a Priority Resource Area (PRA), or both, whether any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs.	☐ Check ☒ N/A
Env-Wt 311.07(b)(3)	Whether alternative designs or techniques, such as different layouts, construction sequencing, or alternative technologies could be used to avoid impacts to jurisdictional areas or their functions and values.	☒ Check ☐ N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(1) Env-Wt 311.10(c)(2)	The results of the functional assessment required by Env-Wt 311.03(b)(10) were used to select the location and design for the proposed project that has the least impact to wetland functions.	☐ Check ☒ N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(3)	Where impacts to wetland functions are unavoidable, the proposed impacts are limited to the wetlands with the least valuable functions on the site while avoiding and minimizing impacts to the wetlands with the highest and most valuable functions.	☐ Check ☒ N/A
Env-Wt 313.01(c)(1) Env-Wt 313.01(c)(2) Env-Wt 313.03(b)(1)	No practicable alternative would reduce adverse impact on the area and environments under the department's jurisdiction and the project will not cause random or unnecessary destruction of wetlands.	☒ Check ☐ N/A
Env-Wt 313.01(c)(3)	The project would not cause or contribute to the significant degradation of waters of the state or the loss of any PRAs.	☒ Check ☐ N/A
Env-Wt 313.03(b)(3) Env-Wt 904.07(c)(8)	The project maintains hydrologic connectivity between adjacent wetlands or stream systems.	☒ Check ☐ N/A
Env-Wt 311.10 A/M BMPs	Buildings and/or access are positioned away from high function wetlands or surface waters to avoid impact.	☒ Check ☐ N/A
Env-Wt 311.10 A/M BMPs	The project clusters structures to avoid wetland impacts.	☒ Check ☐ N/A
Env-Wt 311.10 A/M BMPs	The placement of roads and utility corridors avoids wetlands and their associated streams.	☒ Check ☐ N/A
A/M BMPs	The width of access roads or driveways is reduced to avoid and minimize impacts. Pullouts are incorporated in the design as needed.	☒ Check ☐ N/A
A/M BMPs	The project proposes bridges or spans instead of roads/driveways/trails with culverts.	☒ Check ☐ N/A

A/M BMPs	The project is designed to minimize the number and size of crossings, and crossings cross wetlands and/or streams at the narrowest point.	☒ Check ☐ N/A
Env-Wt 500 Env-Wt 600 Env-Wt 900	Wetland and stream crossings include features that accommodate aquatic organism and wildlife passage.	☒ Check ☐ N/A
Env-Wt 900	Stream crossings are sized to address hydraulic capacity and geomorphic compatibility.	☐ Check ☒ N/A
A/M BMPs	Disturbed areas are used for crossings wherever practicable, including existing roadways, paths, or trails upgraded with new culverts or bridges.	☒ Check ☐ N/A
SECTION 4 - NON-TIDAL SHORELINE STRUCTURES		
Env-Wt 313.03(c)(1)	The non-tidal shoreline structure has been designed to use the minimum construction surface area over surfaces waters necessary to meet the stated purpose of the structure.	☐ Check ☒ N/A
Env-Wt 313.03(c)(2)	The type of construction proposed for the non-tidal shoreline structure is the least intrusive upon the public trust that will ensure safe navigation and docking on the frontage.	☐ Check ☒ N/A
Env-Wt 313.03(c)(3)	The non-tidal shoreline structure has been designed to avoid and minimize impacts on the ability of abutting owners to use and enjoy their properties.	☐ Check ☒ N/A
Env-Wt 313.03(c)(4)	The non-tidal shoreline structure has been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.	☐ Check ☒ N/A
Env-Wt 313.03(c)(5)	The non-tidal shoreline structure has been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.	☐ Check ☒ N/A
Env-Wt 313.03(c)(6)	The non-tidal shoreline structure has been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.	☐ Check ☒ N/A

NHDES Avoidance and Minimization Written Narrative

AVOIDANCE AND MINIMIZATION WRITTEN NARRATIVE

Water Division/Land Resources Management

Wetlands Bureau

Check the Status of your Application

RSA/ Rule: RSA 482-A/ Env-Wt 311.04(j); Env-Wt 311.07; Env-Wt 313.01(a)(1)b; Env-Wt 313.01(c)

APPLICANT'S NAME: NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION TOWN NAME: TAMWORTH

An applicant for a standard permit shall submit with the permit application a written narrative that explains how all impacts to functions and values of all jurisdictional areas have been avoided and minimized to the maximum extent practicable. This attachment can be used to guide the narrative (attach additional pages if needed). Alternatively, the applicant may attach a completed Avoidance and Minimization Checklist (NHDES-W-06-050) to the permit application.

SECTION 1 - WATER ACCESS STRUCTURES (Env-Wt 311.07(b)(1))

Is the primary purpose of the proposed project to construct a water access structure?

NO

SECTION 2 - BUILDABLE LOT (Env-Wt 311.07(b)(1))

Does the proposed project require access through wetlands to reach a buildable lot or portion thereof?

NO

SECTION 3 - AVAILABLE PROPERTY (Env-Wt 311.07(b)(2))*

For any project that proposes permanent impacts of more than one acre, or that proposes permanent impacts to a PRA, or both, are any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, that could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs?

**Except as provided in any project-specific criteria and except for NH Department of Transportation projects that qualify for a categorical exclusion under the National Environmental Policy Act.*

NOT APPLICABLE

SECTION 4 - ALTERNATIVES (Env-Wt 311.07(b)(3))

Could alternative designs or techniques, such as different layouts, different construction sequencing, or alternative technologies be used to avoid impacts to jurisdictional areas or their functions and values as described in the Wetlands Best Management Practice Techniques For Avoidance and Minimization?

The superstructure replacement alternative was selected because the existing piers and abutments are in satisfactory condition. Compared to full bridge replacement, the selected alternative reduced channel and bank impacts, overall construction costs, and traffic impacts. Complete superstructure replacement was also selected over deck replacement because it eliminated some of the risks and constructability concerns involved with reusing the existing steel beams.

Multiple scour protection alternatives were also considered including A-Jack concrete armor units installed on top of the existing grade, embedded A-Jacks, and embedded partially grouted riprap (PGR). The PGR was selected as the preferred scour countermeasure alternative due to the existing site conditions including the large cobble/boulder substrate and high water velocities particularly during flood flows. The embedded PGR material is stronger, more durable, and resistant to damage from large cobbles and boulders that could be mobilized during higher flows. The embedded PGR material provides a smaller footprint than dumped riprap, and is comparable to the footprint of the A-Jacks. The footprint of the PGR was minimized to the maximum extent practicable while still providing adequate scour protection for the existing bridge footings.

SECTION 5 - CONFORMANCE WITH Env-Wt 311.10(c) (Env-Wt 311.07(b)(4))**

How does the project conform to Env-Wt 311.10(c)?

***Except for projects solely limited to construction or modification of non-tidal shoreline structures only need to complete relevant sections of Attachment A.*

The location of the proposed impacts was constrained by the location of the existing infrastructure and bridge piers. The footprint of the permanent impacts associated with the scour protection was minimized to the maximum extent practicable, while still providing the necessary scour protection for the existing bridge pier footings. The proposed scour protection was designed to be embedded to match the existing grade in order to avoid constricting the channel at the bridge location.

NHDOT Natural Resource Agency Coordination Meeting Minutes

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: October 20, 2021
LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT
Andrew O'Sullivan
Matt Urban
Mark Hemmerlein
Rebecca Martin
Marc Lauren
Tobey Reynolds

ACOE
Mike Hicks

EPA
Jeanie Brochi

NHDES
Lori Sommer
Karl Benedict

NHB
Jessica Bouchard

NH Fish & Game
Carol Henderson

Federal Highway
Absent

The Nature Conservancy
Pete Steckler

Consultants/ Public Participants
Gregory Goodrich
Jason Hilton
Hannah Beato
Peter Walker
Dave Cloutier
Sam White
Joshua Lund
John Stockton
Anna Giraldi
Jim Bouchard
Sam Cheney
Ron Kleiner
Kyle Fox
Chris Fournier
Trevor Ricker
Tucker Gordon
Bob Landry

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

Tamworth, #41434 (X-A004(636))

Stephen Hoffmann introduced the Tamworth 41434 project involving the replacement of the superstructure of the NH Route 113A Bridge over the Swift River (Bridge No. 061/091) in Tamworth, New Hampshire. The existing bridge was constructed in 1956 and consists of a 3-span, concrete deck supported by steel beams founded on concrete piers and abutments. The existing span lengths are 48' between the abutment and piers and 56' between the two piers. The deck is in serious condition and has been included on the State Red List since 2015. The bridge has also been identified as a scour critical bridge, meaning that the estimated scour depths extend below the bottom of the existing pier footings.

Wetlands and surface waters were delineated in May 2020 including the ordinary high water and top of bank of the Swift River. At the location of the NH Route 113A bridge the Swift River is a perennial, fourth order stream, with a watershed size of 25.3 square miles. Based on the watershed size the stream crossing is classified as a Tier 3 crossing under the NHDES stream crossing rules. This segment of the Swift River is also subject to jurisdiction under the NHDES Shoreland Water Quality Protection Act. There are no Priority Resource Areas mapped in the vicinity of the bridge, and there are no mapped FEMA 100-year floodplain or regulatory floodway associated with the Swift River. The NHB DataCheck Results Letter indicated that the proposed project is not anticipated to impact any state listed rare species or natural communities. The USFWS Official Species List indicated that the proposed project is within the range of the northern long-eared bat and small whorled pogonia. Hemenway State Forest is also located in close proximity to the bridge, but no property impacts are anticipated. Additional coordination with NH DNCR will occur.

In addition to the superstructure replacement the proposed project also includes scour countermeasures consisting of A-Jacks concrete armor units being placed around the two existing bridge piers. Each A-Jacks bundle is approximately 3' x 5' and each unit is 1.5' deep/high. The A-Jacks are currently proposed to be installed around both bridge piers on the existing grade. This method is more conducive to the accelerated bridge construction (ABC) schedule and requires less time and less disturbance within the Swift River. Sheet pile cofferdams are not feasible at this location due to the construction schedule and rocky substrate. There is a possibility for using other water diversion methods such sandbags. The proposed project is anticipated to result in approximately 760 SF / 65 LF of permanent channel impacts and 760 SF / 76 LF of permanent bank impacts associated with the installation of the scour protection. Additional temporary impacts will be required for construction access, and additional permanent bank impacts will be required for the repair/replacement of an existing drainage outlet located on the southern bank. Access will likely be from the southern bank due to right-of-way constraints on the northern side. However, a temporary causeway or other means of access to the northern side may be required and will be evaluated further. Mr. Hoffmann asked for input/suggestions from the agencies on this issue.

Based on the current project schedule, permitting is anticipated to be completed in the Spring of 2022 with final contract plans and advertising in October 2022. Construction would likely begin in Spring 2023.

Discussion / Agency Comments:

Karl Benedict expressed concerns with the placement of the A-Jacks above grade in regard to a reduction in the channel width as well as the long-term permanent impacts associated with the placement of unnatural materials within the stream channel. He requested that the avoidance and minimization procedures be reviewed and to further consider installing the A-Jacks subgrade with natural streambed material overtop. Mr. Benedict also suggested possibly using temporary construction mats to cross the channel with equipment during low flows instead of constructing a causeway. Mr. Benedict also commented that a water diversion plan and bank restoration/planting plan would be required during permitting.

Mr. Hoffmann said that the project team would take a closer look at the possibility of embedding the scour protection to see if this request could be accommodated.

Lori Sommer asked for clarification on an earlier comment that Sam White had made regarding the pier foundations. Sam clarified that the existing piers were supported by spread footings founded on earth, and that no piles are present under the piers. This lack of redundancy furthers the need for implementation of a scour countermeasure such as A-Jacks. Ms. Sommer indicated that the placement of A-Jacks for scour protection is considered a repair or work to protect existing infrastructure and therefore mitigation would not be required for these impacts. Ms. Sommer also concurred with Mr. Benedict's suggestion of utilizing temporary construction mats.

Carol Henderson commented that it would be beneficial to minimize impacts from narrowing the channel.

Mike Hicks had no comment.

Jessica Bouchard had no comment.

Pete Steckler suggested possibly using a crane to lift equipment and materials across the channel to access the northern side of the river. Mr. Hoffmann explained that this was something that had been suggested but the project team was not sure whether this would be possible.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: March 16, 2022
LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT
Andrew O'Sullivan
Matt Urban
Jon Evans
Joshua Brown
Julie Avenant
Margaret Baldwin
Michael Mozer
Jennifer Reczek
Meli Dube
Jason Ayotte
Gerard Bedard
John Stockton
Anthony Weatherbee
Hannah Gibson
Jason Tremblay

ACOE
Mike Hicks

EPA
Jean Brochi

NHDES
Karl Benedict
Lori Sommer
Christian Williams

NHB
Jessica Bouchard

NH Fish & Game
John Magee

Federal Highway
Jamie Sikora

The Nature Conservancy
Pete Steckler

Consultants/ Public Participants
David McNamara
Lee Carbonneau
Stephen Hoffman
Sam White
Evan Lowell
Christine Perron
Brian Gargan

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

Table of Contents:

Tamworth, #41434 (X-A004(636)):

NOTES ON MEETING:

Stephen Hoffmann reintroduced the Tamworth 41434 project involving the replacement of the superstructure of the NH Route 113A Bridge over the Swift River (Bridge No. 061/091) in Tamworth, New Hampshire. The project was previously discussed at the October 20, 2021, resource agency meeting. The proposed bridge rehabilitation project involves the replacement of the existing bridge superstructure, abutment beam seats, backwalls, and wingwalls, minor modifications to the pier caps, installation of new bridge bearings and minor modifications to the existing roadway approaches including the installation of new approach guardrail. The proposed project will also include the installation of partially grouted riprap (PGR) around the two existing bridge piers and the rehabilitation/replacement of an existing drainage outfall on the southern bank. The proposed project is anticipated to be completed utilizing Accelerated Bridge Construction (ABC) techniques and is anticipated to require an approximate one to two month road/bridge closure.

At the location of the NH Route 113A bridge, the Swift River is a perennial, fourth order stream, with a watershed size of 25.3 square miles. Based on the watershed size, the stream crossing is classified as a Tier 3 crossing under the NHDES stream crossing rules. This segment of the Swift River is also subject to jurisdiction under the NHDES Shoreland Water Quality Protection Act. There are no Priority Resource Areas mapped in the vicinity of the bridge, and there are no mapped FEMA 100-year floodplain or regulatory floodway associated with the Swift River. At the location of the proposed project the Swift River is identified as a cold water fishery as well as an eastern brook trout water. Mr. Hoffmann clarified that no dredging or in-water work will occur between October 1 and March 31 in order to comply with Env-Wt 307.10 (g)(1).

The NHB DataCheck Results Letter indicated that the proposed project is not anticipated to impact any state listed rare species or natural communities. Consultation with the USFWS regarding northern long-eared bat has been completed under the FHWA programmatic biological opinion.

Hemenway State Forest is located adjacent to the project area on both the east and west sides of NH Route 113A. Preliminary coordination with DNCR has occurred and the primary concern was ensuring that the public and local residents received adequate notification of the proposed project and impacts on surrounding areas. At the time of the October 20, 2021, it was assumed that ROW impacts would not be required. However, impacts outside the ROW may be required on DNCR lands in the northwest bridge quadrant for a temporary construction easement. If impacts are required additional coordination with DNCR will occur.

The scour countermeasures originally proposed at the October 20, 2021 meeting consisted of A-Jacks concrete armor units installed at existing grade. Comments from the resource agencies at the previous meeting requested that the design team evaluate the possibility of embedding the A-Jacks to avoid constricting the channel. The design team reevaluated the proposed scour countermeasures and determined that PGR was a more appropriate material for the specific site conditions given the existing substrate and channel velocities. The footprint of the PGR is similar to that required for the A-Jacks, and the PGR addressed the durability concerns regarding

the use of A-Jacks for this site. The PGR will extend approximately six feet from the face of the existing piers on the channel side, and approximately 7'-6" on the bank side. The proposed PGR will also be embedded so that the final grade will roughly match the existing grade.

The proposed project is anticipated to result in the following permanent impacts:

	Permanent (SF/LF)	**Temporary (SF/LF)**
Channel	493 / 46	3,181 / 82
Right Bank (Northern)	245 / 35	658 / 95
Left Bank (Southern)	362 / 44	1,024 / 90
	1,100 / 125	**4,863 / 267**

Permanent impacts are associated with the installation of the PGR around the existing bridge piers as well as the replacement of the existing drainage outlet and installation of a stone outlet pad. Temporary impacts are associated with construction access and temporary water diversion structures associated with the PGR installation. Due to ROW limitations and existing grades, the contractor will likely access the project area via the SE bridge quadrant. As previously discussed at the October 20, 2021 meeting, it is anticipated that the contractor will cross the Swift River using timber crane mats to access the northern pier. Water diversion will likely consist of temporary sandbag cofferdams (or similar) installed around the proposed footprint of the PGR. In-water work will be completed during low flow conditions likely between late June 2023 – early August 2023. With the water diversion in place, approximately 17'-6" or 33% of the channel will remain open to maintain flow and aquatic organism passage.

Based on the current project schedule, permitting is anticipated to be completed in the Spring of 2022 with final contract plans and advertising in October 2022. Construction would likely begin in Spring 2023. The project will be permitted as a Standard Dredge and Fill Permit with a Major Impact Project classification. Based on prior discussions with NHDES, it is assumed that the project qualifies as maintenance or repairs to protect existing infrastructure and therefore, it is assumed that no mitigation will be required for the proposed impacts.

Discussion / Agency Comments:

Karl Benedict requested that the permit application provide details on the use of crane mats for crossing the channel to access the northern pier, including a description of the sequencing and erosion controls. Mr. Benedict concurred with the permitting approach, Major classification, Tier 3 stream crossing, and that the work is considered repairs/rehabilitation to an existing structure.

Lori Sommer confirmed that no mitigation would be required since the project involves the protection of existing infrastructure. Ms. Sommer added that if DNCR lands in the NW bridge quadrant are impacted during construction, DES would like to see a restoration plan detailing how this area would be restored.

John Magee asked for confirmation that the proposed PGR would be installed to match existing grades. Mr. Hoffmann confirmed that this material will be embedded, and final grades will approximately match the existing grades with minor deviations due to the larger substrate size.

Mike Hicks asked about USCG coordination and Section 106 consultation. Mr. Hoffmann explained that NHDOT was coordinating with the USCG and that Section 106 Consultation had been completed under DOT's Programmatic Agreement.

Jessica Bouchard confirmed that a NHB occurrence was located in the vicinity, but no impacts were anticipated from the proposed project.

Pete Steckler and Jeannie Brochi had no additional comments.

Jon Evans added that he wanted to discuss the proposed project with Darrell Elliot and the Bureau of Construction to talk about the constructability of the project. Mr. Evans also added that potential impacts to the State Forest lands would require additional coordination with FHWA regarding 4(f) as this was not discussed in the initial review. Mr. Hoffmann explained that the potential ROW impacts had recently been identified and have not been finalized at this time. However, additional coordination with DNCR and FHWA will occur if impacts are required. Jamie Sikora concurred with this approach, and Christine Perron asked if the entire state forest would be considered a Section 4(f) Resource. Mr. Sikora confirmed that the State Forest is multi-use public land that would not necessarily be protected under Section 4(f) and that only specific components of the State Forest such as trails and parking areas could potentially be considered a protected resource.

Submitted by:

Stephen Hoffmann
McFarland Johnson, Inc.

Wetlands Functional Assessment Worksheet

WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

APPLICANT LAST NAME, FIRST NAME, M.I.: NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet (NHDES-W-06-079) for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Avoidance and Minimization Written Narrative (NHDES-W-06-089) and the Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached to the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)	
ADJACENT LAND USE: FORESTED / TRANSPORTATION	
CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? ☐ Yes ☒ No	
DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0'	
SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Stephen Hoffmann (CWS No. 00306)	
DATE(S) OF SITE VISIT(S): 05/06/2020	DELINEATION PER ENV-WT 406 COMPLETED? ☒ Yes ☐ No
CONFIRM THAT THE EVALUATION IS BASED ON: ☒ Office and ☒ Field examination.	
METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in blank if "other"): ☒ USACE Highway Methodology. ☐ Other scientifically supported method (enter name/ title):	

SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
WETLAND ID: Swift River	LOCATION: (LAT/ LONG) 43.89225/-71.29813
WETLAND AREA: N/A - Stream Channel	DOMINANT WETLAND SYSTEMS PRESENT: Perennial Stream
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 3	COWARDIN CLASS: R3UB1H
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? ☐ Yes ☒ No if not, where does the wetland lie in the drainage basin? MID	IS THE WETLAND PART OF: ☒ A wildlife corridor or ☐ A habitat island? IS THE WETLAND HUMAN-MADE? ☐ Yes ☒ No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? ☐ Yes ☒ No	ARE VERNAL POOLS PRESENT? ☐ Yes ☒ No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? ☒ Yes ☐ No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? ☒ Yes ☐ No
PROPOSED WETLAND IMPACT TYPE: Fill (riprap)	PROPOSED WETLAND IMPACT AREA: 1,100 SF

SECTION 4 - WETLANDS FUNCTIONS AND VALUES (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:

1. Ecological Integrity (from RSA 482-A:2, XI)
2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)
3. Fish & Aquatic Life Habitat (from USACE Highway Methodology: Fish & Shellfish Habitat)
4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)
5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)
6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)
7. Nutrient Trapping/Retention & Transformation (from USACE Highway Methodology: Nutrient Removal)
8. Production Export (Nutrient) (from USACE Highway Methodology)
9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)
10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)
11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)
12. Uniqueness/Heritage (from USACE Highway Methodology)
13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)
14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)

First, determine if a wetland is suitable for a particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE *The Highway Methodology Workbook Supplement*. Second, indicate which functions and values are principal ("Principal Function/value?" column). As described in *The Highway Methodology Workbook Supplement*, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	☐ Yes ☐ No		☐ Yes ☐ No	
2	☐ Yes ☐ No		☐ Yes ☐ No	
3	☐ Yes ☐ No		☐ Yes ☐ No	
4	☐ Yes ☐ No		☐ Yes ☐ No	
5	☐ Yes ☐ No		☐ Yes ☐ No	
6	☐ Yes ☐ No		☐ Yes ☐ No	
7	☐ Yes ☐ No		☐ Yes ☐ No	
8	☐ Yes ☐ No		☐ Yes ☐ No	
9	☐ Yes ☐ No		☐ Yes ☐ No	
10	☐ Yes ☐ No		☐ Yes ☐ No	
11	☐ Yes ☐ No		☐ Yes ☐ No	
12	☐ Yes ☐ No		☐ Yes ☐ No	
13	☐ Yes ☐ No		☐ Yes ☐ No	
14	☐ Yes ☐ No		☐ Yes ☐ No	

SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)

Delineations of vernal pools shall be based on the characteristics listed in the definition of "vernal pool" in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3rd Ed.*, 2016, published by the New Hampshire Fish and Game Department; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

"Important Notes" are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE "Vernal Pool Assessment" form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1					
2					
3					
4					
5					

SECTION 6 - STREAM RESOURCES SUMMARY

DESCRIPTION OF STREAM: Swift River	STREAM TYPE (ROSGEN): B
HAVE FISHERIES BEEN DOCUMENTED? ☒ Yes ☐ No	DOES THE STREAM SYSTEM APPEAR STABLE? ☒ Yes ☐ No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: Cold water fishery / eastern brook trout water

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	☒ Yes ☐ No		☐ Yes ☒ No	Disturbance in project area from existing bridge abutments/piers
2	☒ Yes ☐ No	8, 9, 10, 11	☐ Yes ☒ No	Parking areas in vicinity, easily accessible
3	☒ Yes ☐ No	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 14, 15, 16, 17	☒ Yes ☐ No	Documented eastern brook trout/cold water fishery
4	☐ Yes ☒ No	N/A	☐ Yes ☒ No	Stream channel provides limited flood storage, no adjacent wetlands
5	☒ Yes ☐ No	N/A	☐ Yes ☒ No	Groundwater discharge into stream channel
6	☐ Yes ☒ No	N/A	☐ Yes ☒ No	No threatened or endangered species habitat present
7	☐ Yes ☒ No	N/A	☐ Yes ☒ No	High gradient stream channel, high water velocity, coarse substrate
8	☒ Yes ☐ No	1, 6, 10	☐ Yes ☒ No	Stream provides fish habitat, export of nutrients downstream
9	☒ Yes ☐ No	2, 9, 10,11, 12	☒ Yes ☐ No	Swift River provides some scenic visual/aesthetic value
10	☐ Yes ☒ No	10	☐ Yes ☒ No	High water velocities, limited sediment trapping potential
11	☐ Yes ☒ No	N/A	☐ Yes ☒ No	No wetlands adjacent to stream that provide shoreline anchoring function
12	☒ Yes ☐ No	7, 8, 9, 11, 13, 16, 18, 19, 22	☐ Yes ☒ No	Swift River is a cold water fishery/eastern brook trout water, accessible
13	☒ Yes ☐ No	1, 2, 3, 4, 5, 6, 7, 8, 10, 11	☒ Yes ☐ No	Fishing, Hemenway State Forest, trails
14	☒ Yes ☐ No	4, 5, 6, 7, 8, 9, 12, 19	☐ Yes ☒ No	Wildlife habitat adjacent to Swift River, forested areas

SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

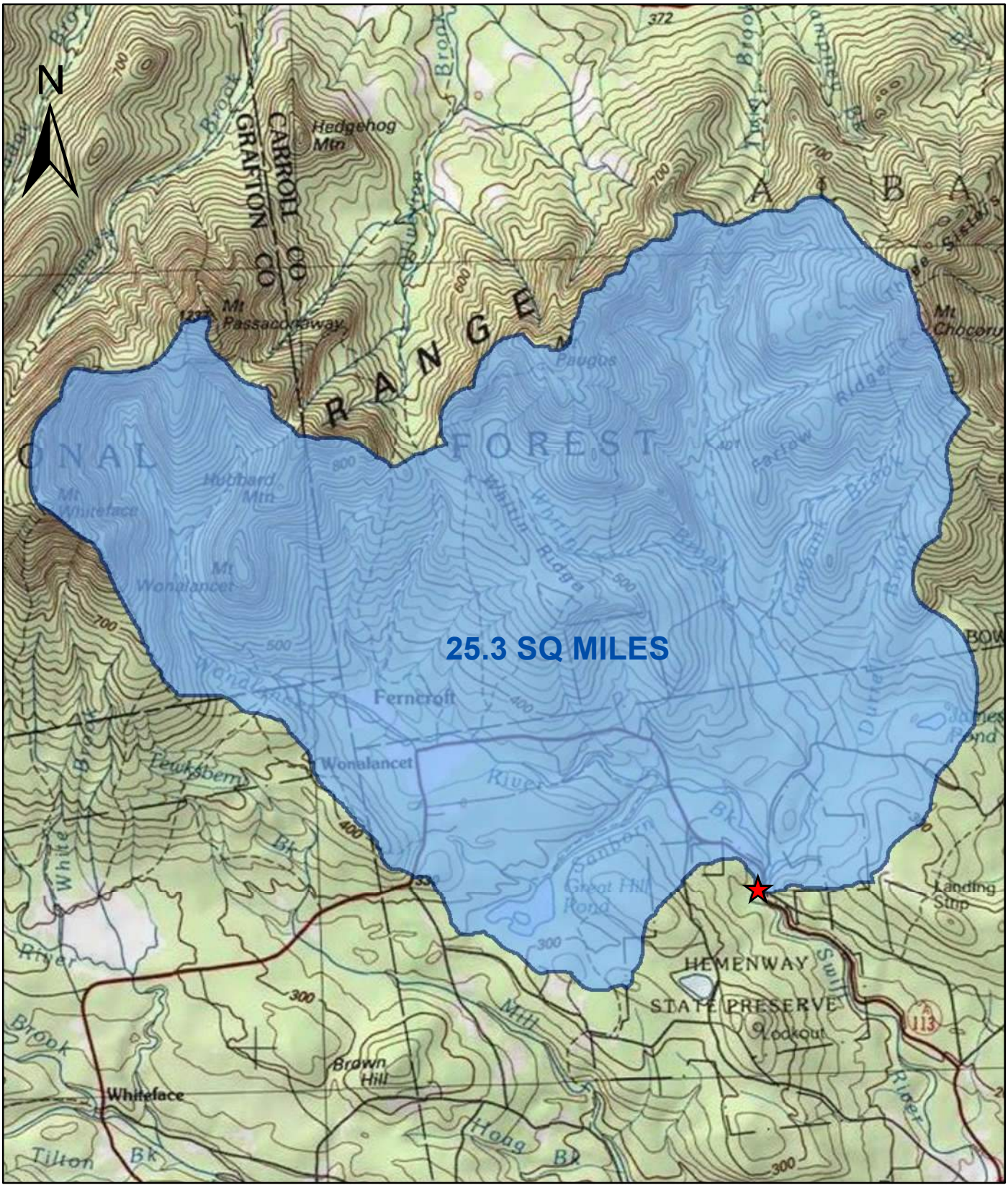
☐ Wildlife and vegetation diversity/abundance list.

☒ Photograph of wetland.

☒ Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.

☐ For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04. Please refer to the Coastal Area Worksheet (NHDES-W-06-079) for more information.

Figure 2 - Watershed Map



M:\18844.01 Tamworth 41434-Final Dsg\Draw\GIS\Wetland Permit Figures\Figure 2 - Tamworth 41434 - Watershed Map.mxd

NH DEPARTMENT OF TRANSPORTATION

TAMWORTH 41434 - TAMWORTH, NH

WATERSHED MAP

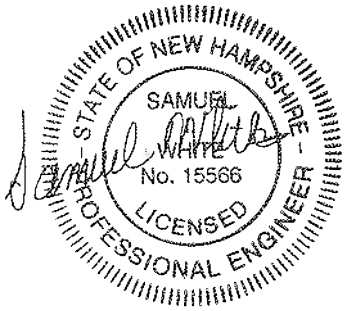
SCALE :	DATE :	FIGURE :
1 inch = 5,500 feet	MARCH 2022	2

McFarland Johnson

Env-Wt 904.09 Repair, Rehabilitation, or Replacement of Tier 3 and Tier 4 Existing Legal Crossings

NHDES MAJOR IMPACT WETLANDS PERMIT APPLICATION
NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
TAMWORTH, 41434
BRIDGE NO. 061/091 SUPERSTRUCTURE REPLACEMENT
TAMWORTH, NEW HAMPSHIRE

NHDES STREAM CROSSING RULES



Env-Wt 904.09 Repair, Rehabilitation, or Replacement of Tier 3 and Tier 4 Existing Legal Crossings.

(a) The repair, rehabilitation, or replacement of tier 3 stream crossings shall be limited to existing legal crossings where the tier classification is based only on the size of the contributing watershed.

The proposed project is considered rehabilitation of an existing legal crossing. Bridge No. 061/091 was originally constructed in 1956 and the existing deck is in serious condition. The proposed project involves replacing the existing superstructure as well as the installation of partially grouted riprap around the existing bridge piers for the purpose of scour protection. At the location of the existing bridge, the Swift River has a watershed size of approximately 25.3 square miles. Based on the size of the watershed the existing structure is a Tier 3 stream crossing.

(b) Rehabilitation of a culvert or other closed-bottom stream crossing structure pursuant to this section may be accomplished by concrete repair, slip lining, cured-in place lining, or concrete invert lining, or any combination thereof, except that slip lining shall not occur more than once.

Not applicable. The proposed project involves repairs/rehabilitation of an existing bridge span.

(c) A project shall qualify under this section only if a professional engineer certifies, and provides supporting analyses to show, that:

(1) The existing crossing does not have a history of causing or contributing to flooding that damages the crossing or other human infrastructure or protected species habitat; and

The existing crossing does not have a history of causing or contributing to flooding that damages the crossing or other human infrastructure or protected species habitat.

(2) The proposed stream crossing will:

a. Meet the general criteria specified in Env-Wt 904.01;

The proposed project meets the general criteria specified in Env-Wt 904.01.

b. Maintain or enhance the hydraulic capacity of the stream crossing;

The hydraulic capacity of the existing bridge will be maintained. The partially grouted riprap will be embedded so that the final grades of the stream channel match the existing channel grade. Embedding the partially grouted riprap will avoid constricting the channel at the crossing locations.

c. Maintain or enhance the capacity of the crossing to accommodate aquatic organism passage;

Aquatic organism passage will be maintained.

d. Maintain or enhance the connectivity of the stream reaches upstream or downstream of the crossing; and

Stream connectivity will be maintained.

e. Not cause or contribute to the increase in the frequency of flooding or overtopping of the banks upstream or downstream of the crossing.

The proposed project is not anticipated to cause or contribute to an increase in the frequency of flooding or overtopping of the banks upstream or downstream

from the crossing. The hydraulic opening of the existing bridge will be maintained.

(d) Repair, rehabilitation, or replacement of a tier 4 stream crossing shall comply with Env-Wt 904.07(d)

Not applicable. At the location of the project the Swift River is a Tier 3 stream crossing.

NH NHB DataCheck Results Letter

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

To: Stephen Hoffmann
53 Regional Drive

Concord, NH 03301

From: NH Natural Heritage Bureau
Date: 10/19/2021 (valid until 10/19/2022)
Re: Review by NH Natural Heritage Bureau of request submitted 10/13/2021
Permits: NHDES - Shoreland Standard Permit, NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit, USCEQ - Federal: NEPA Review, USEPA - Stormwater Pollution Prevention

NHB ID: **NHB21-3208** **Applicant:** Stephen Hoffmann

Location: Tamworth
NH Route 113A

Project Description: The proposed project involves the replacement of the superstructure of Bridge No. 061/091 carrying NH Route 113A over the Swift River in Tamworth. Impacts within the Swift River will be required to install scour countermeasures around the existing piers.

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.

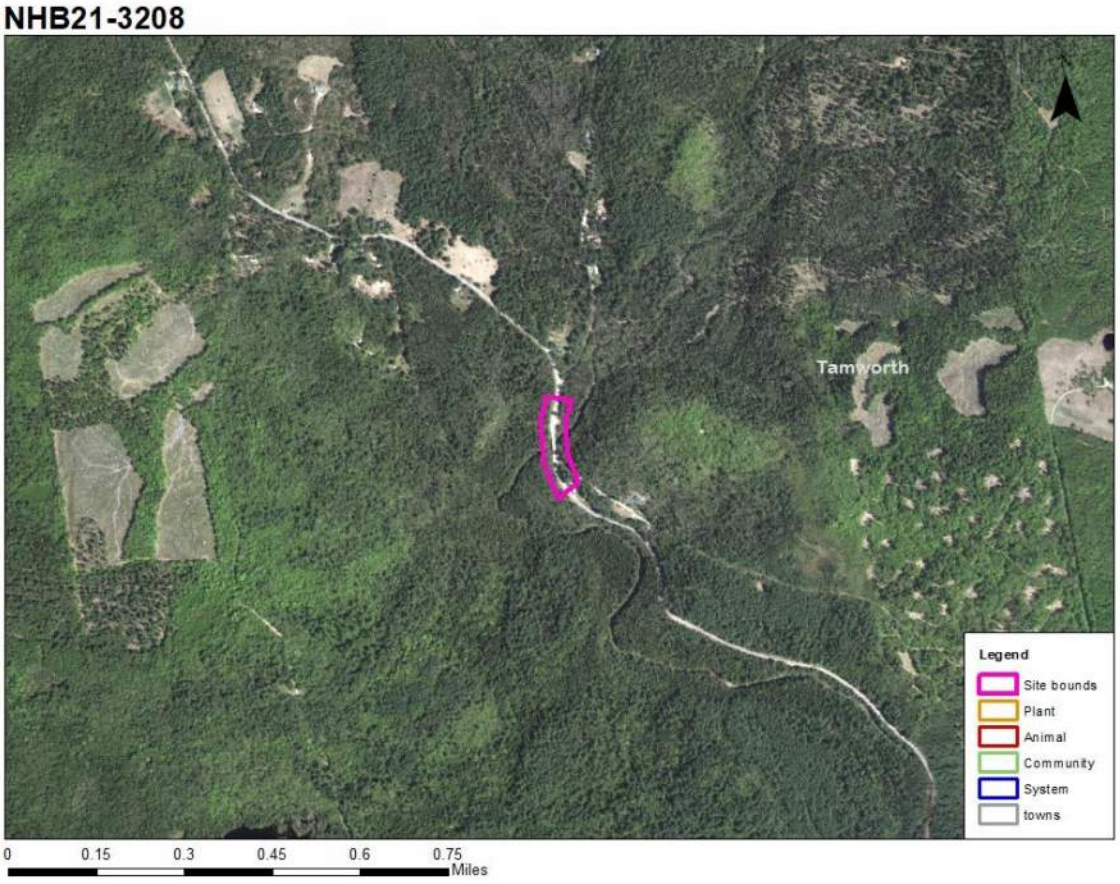
It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 10/13/2021 8:38:28 AM, and cannot be used for any other project.

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

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

MAP OF PROJECT BOUNDARIES FOR: **NHB21-3208**



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

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

USFWS Official Species List

United States Department of the Interior

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

In Reply Refer To:
Project Code: 2022-0003525
Project Name: Tamworth Bridge

February 04, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location 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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Project Code: 2022-0003525
Event Code: None
Project Name: Tamworth Bridge
Project Type: Bridge - Maintenance
Project Description: The proposed project involves the replacement of the superstructure of Bridge No. 061/091 carrying NH Route 113A over the Swift River in Tamworth.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.89268564778304,-71.29806716763493,14z

Counties: Carroll County, New Hampshire

Endangered Species Act Species

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

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

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

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

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

USFWS Concurrence Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

February 15, 2022

Rebecca Martin
Bureau of Environment
NH Department of Transportation
7 Hazen Drive, P.O. Box 483
Concord, New Hampshire 03302-0483

Re: NH DOT Project Tamworth 414314
Project Code: 2022-0003525

Dear Rebecca Martin:

The U.S. Fish and Wildlife Service (Service) is responding to your request, dated February 9, 2022, to verify that the New Hampshire Department of Transportation (NHDOT) Project Tamworth 414314 (Project), the proposed replacement of a bridge superstructure in Tamworth, New Hampshire, may rely on the revised February 5, 2018, Programmatic Biological Opinion (BO) for federally funded or approved transportation projects that may affect the northern long-eared bat (*Myotis septentrionalis*) (NLEB). We received your request and the associated LAA Consistency Letter on February 9, 2022, via electronic transmission. This letter provides the Service's response as to whether the Federal Highway Administration may rely on the BO to comply with section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; U.S.C. 1531 *et seq.*) for the Project's effects to the NLEB.

The NHDOT, as the non-Federal agency representative for the Federal Transportation Agency, has determined that the Project may affect, and is likely to adversely affect the NLEB. The Project consists of the replacement of a bridge superstructure carrying Route 113A over the Swift River. Approximately 0.5 acre of tree clearing will occur and may be implemented during the bat active season.

NHDOT also determined the Project may rely on the programmatic BO to comply with section 7(a)(2) of the ESA, because the Project meets the conditions outlined in the BO and all tree clearing related to the proposed work will occur farther than 0.25 mile from documented roosts and farther than 0.5 mile from any known hibernacula. The Service reviewed the LAA Consistency Letter and concurs with NHDOT's determination. This concurrence concludes your ESA section 7 responsibilities relative to this species for this Project, subject to the Reinitiation Notice below.

Conclusion

The Service has reviewed the effects of the proposed Project, which include the NHDOT's commitment to implement the impact avoidance, minimization, and compensation measures as indicated on the LAA Consistency Letter. We confirm that the proposed Project's effects are consistent with those analyzed in the BO. The Service has determined that the Project is consistent with the BO's conservation measures, and the scope of the program analyzed in the BO is not likely to jeopardize the continued existence of the NLEB. In coordination with your agency, the Federal Highway Administration, and the other sponsoring Federal Transportation Agencies, the Service will reevaluate this conclusion annually in light of any new pertinent information under the adaptive management provisions of the BO.

Incidental Take of the Northern Long-eared Bat

The Service anticipates that tree removal associated with the proposed Project will cause incidental take of the NLEB. However, the Project is consistent with the BO, and such projects will not cause take of NLEBs that is prohibited under the final 4(d) rule for this species (50 CFR §17.40(o)). Therefore, this taking does not require exemption from the Service.

Reporting Dead or Injured Bats

The NHDOT, the Federal Highway Administration, its State/local cooperators, and any contractors must take care when handling dead or injured NLEBs that are found at the project site, in order to preserve biological material in the best possible condition and to protect the handler from exposure to diseases, such as rabies. Project personnel are responsible for ensuring that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Reporting the discovery of dead or injured listed species is required in all cases to enable the Service to determine whether the level of incidental take exempted by this BO is exceeded, and to ensure that the terms and conditions are appropriate and effective. Parties finding a dead, injured, or sick specimen of any endangered or threatened species must promptly notify the Service's New England Field Office.

Reinitiation Notice

This letter concludes consultation for the proposed Project, which qualifies for inclusion in the BO issued to the Federal Transportation Agencies. To maintain this inclusion, a reinitiation of this project-level consultation is required where the Federal Highway Administration's discretionary involvement or control over the Project has been retained (or is authorized by law) and if:

1. new information reveals that the Project may affect listed species or critical habitat in a manner or to an extent not considered in the BO;
2. the Project is subsequently modified in a manner that causes an effect to listed species or designated critical habitat not considered in the BO; or
3. a new species is listed or critical habitat designated that the Project may affect.

In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation.

We appreciate your continued efforts to ensure that this Project is fully consistent with all applicable provisions of the BO. If you have any questions regarding our response, or if you need additional information, please contact Susi von Oettingen of this office at 603-748-8357.

Sincerely yours,

AUDREY MAYER

Digitally signed by AUDREY MAYER
Date: 2022.02.15 14:32:58 -05'00'

Audrey Mayer
Supervisor
New England Field Office

cc: Reading file
Jonathan Evans/NHDOT, via email Jonathan.a.evans@dot.nh.gov
Rebecca Martin/NHDOT, via email
ES: SvonOettingen:jd:2-15-22:603-748-8357

Section 106 Cultural Resources Review Effect Finding

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

Date Reviewed: (Desktop or Field Review Date)	2/6/2020		
Project Name:	Tamworth		
State Number:	41434	**FHWA Number:**	X-A004(636)
Environmental Contact:	Christine Perron	**DOT**	
Email Address:	cperron@mjinc.com	**Project Manager:**	Joseph Adams

Project Description: Rehabilitation of Bridge 061/091, which carries NH Route 113A over the Swift River in the Town of Tamworth, NH. The project also includes the placement of scour protection in the Swift River.

Please select the applicable activity/activities:

Highway and Roadway Improvements	
☐	1. Modernization and general highway maintenance **that may require additional highway right-of-way or easement**, including: Choose an item. Choose an item.
☐	2. Installation of rumble strips or rumble stripes
☐	3. Installation or replacement of pole-mounted signs
☐	4. Guardrail replacement, provided any extension does not connect to a bridge older than 50 years old (unless it does already), and there is no change in access associated with the extension
Bridge and Culvert Improvements	
☐	5. Culvert replacement (excluding stone box culverts), when the culvert is less than 60" in diameter and excavation for replacement is limited to previously disturbed areas
☐	6. Bridge deck preservation and replacement, as long as no character defining features are impacted
☒	7. Non-historic bridge and culvert maintenance, renovation, or total replacement, **that may require minor additional right-of-way or easement**, including: a. replacement or maintenance of non-historic bridges Choose an item.
☐	8. Historic bridge maintenance activities within the limits of existing right-of-way, including: Choose an item. Choose an item.
☒	9. Stream and/or slope stabilization and restoration activities (including removal of debris or sediment obstructing the natural waterway, or any non-invasive action to restore natural conditions)
Bicycle and Pedestrian Improvements	
☐	10. Construction of pedestrian walkways, sidewalks, sidewalk tip-downs, small passenger shelters, and alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons
☐	11. Installation of bicycle racks
☐	12. Recreational trail construction
☐	13. Recreational trail maintenance when done on existing alignment
☐	14. Construction of bicycle lanes and shared use paths and facilities within the existing right-of-way
Railroad Improvements	
☐	15. Modernization, maintenance, and safety improvements of railroad facilities within the existing railroad or highway right-of-way, **provided no historic railroad features are impacted,** including, but not limited to: Choose an item.

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

	Choose an item.
☐	16. In-kind replacement of modern railroad features (i.e. those features that are less than 50 years old)
☐	17. Modernization/modification of railroad/roadway crossings provided that all work is undertaken within the limits of the roadway structure (edge of roadway fill to edge of roadway fill) and no associated character defining features are impacted
Other Improvements	
☐	18. Installation of Intelligent Transportation Systems
☐	19. Acquisition or renewal of scenic, conservation, habitat, or other land preservation easements where no construction will occur
☐	20. Rehabilitation or replacement of existing storm drains.
☐	21. Maintenance of stormwater treatment features and related infrastructure

Please describe how this project is applicable under Appendix B of the Programmatic Agreement.

The bridge is a 1956 I-Beam/concrete deck (IB-C) bridge that qualifies for inclusion in the Program Comment for Common Post-1945 Concrete and Steel Bridges and is, therefore, considered non-historic. The project proposes to rehabilitate the bridge and place scour protection in the river around the piers. Construction access around the bridge will result in some earth disturbance. Additionally, the installation of approach slabs and backwall replacement will require excavation in the roadway footrpint. All work is anticipated to occur within the existing right-of-way and no other structures over 50 years of age are located adjacent to the project area. NHDHR files were reviewed and there are no eligible properties or districts in the project area. Emmit review further indicated there are no archaeological sites in the vicinity.

Please submit this Certification Form along with the Transportation RPR, including photographs, USGS maps, design plans and as-built plans, if available, for review. Note: The RPR can be waived for in-house projects, please consult Cultural Resources Program Staff.

Coordination Efforts:

Has an RPR been submitted to NHDOT for this project?	No	NHDHR R&C # assigned?	n/a
Please identify public outreach effort contacts; method of outreach and date:	Initial contact letters have been sent to town officials to seek input on potential resource concerns associated with the project. No comments have been received to date. A Combined Public Officials/Public Informational Meeting will be scheduled in Tamworth in late winter/early spring 2020.		

Finding: (To be filled out by NHDOT Cultural Resources Staff)

☐	**No Potential to Cause Effects**	☒	**No Historic Properties Affected**
This finding serves as the Section 106 Memorandum of Effect. No further coordination is necessary.			
☐	**This project does *not* comply with Appendix B. Review will continue under Stipulation VII of the Programmatic Agreement. Please contact NHDOT Cultural Resources Staff to determine next steps.**		
NHDOT comments:			

Sheila Charles — NHDOT Cultural Resources Staff

2/11/2020 — Date

Coordination of the Section 106 process should begin as early as possible in the planning phase of the project (undertaking) so as not to cause a delay.

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

Project sponsors should not predetermine a Section 106 finding under the assumption a project is limited to the activities listed in Appendix B until this form is signed by the NHDOT Bureau of Environment Cultural Resources Program staff.

Every project shall be coordinated with, and reviewed by the NHDOT-BOE Cultural Resources Program in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the New Hampshire State Historic Preservation Office, the Army Corps of Engineers, New England District, the Advisory Council on Historic Preservation, and the New Hampshire Department of Transportation Regarding the Federal Aid Highway Program in New Hampshire*. In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

If any portion of the project is not entirely limited to any one or a combination of the activities specified in Appendix B (with, or without the inclusion of any activities listed in Appendix A), please continue discussions with NHDOT Cultural Resources staff.

This No Potential to Cause Effect or No Historic Properties Affected project determination is your Section 106 finding, as defined in the Programmatic Agreement.

Should project plans change, please inform the NHDOT Cultural Resources staff in accordance with Stipulation VII of the Programmatic Agreement.

New Hampshire Recordation of Bridges that Apply to the Program Comment for Common Post-1945 Concrete & Steel Bridges

Project Name:	Tamworth		
State Number:	41434	**FHWA Number:**	X-A004(636)
Form Completed by: Email if not NHDOT staff:	Christine Perron cperron@mjinc.com	**Date:**	02/06/2020

Town	Tamworth	**NHDOT Bridge No.**	061/091
Year Built (rebuilt)	1956 (2006)	**Owner**	NHDOT
Road carrying	NH Route 113A	**Over feature**	Swift River
Bridge/culvert Type	IB-C	**Number of Spans**	3
Length	152'	**Width**	24'-4"
Abutment style	full-height concrete abutments on spread footings	**Pier style**	concrete hammer head piers founded on spread footings
Rail Type	2-bar aluminum bridge railing	**Rail installation date:**	2006
Designer/Engineer (if known)	Unknown	**Bridge Plaques or Engravings?**	No
Reviewed by:	Sheila Charles NHDOT Cultural Resources Staff	**Date Reviewed:**	2/11/2020

Approved ☒ Not Approved ☐ **Justification:**

RPR Number:_____ Reviewed under PA: _____

Created March 27, 2014 Updated September 15, 2014

Please refer to the *NHDOT Guidance on Using the Program Comment for Common Post-1945 Concrete and Steel Bridges*, located on the NHDOT Bureau of Environment Website, for information on using this form: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/cultural.htm

Information on specific bridges can be found on the NHDOT Bureau of Bridge Design **Bridge Summary** Spreadsheet: http://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents.htm.

(Additional photographs may be attached here if needed).

Tamworth, NH Route 113A Over the Swift River
Bridge Maintenance and Preservation
DOT Project # 41434 Bridge # 061/091

Photo 1: View south over bridge, NH Route 113A. 8/22/19

Photo 2: View north over bridge, NH Route 113A. 8/22/19

Photo 3: Eastern elevation of Bridge #061/091, NH Route 113A. 8/22/19

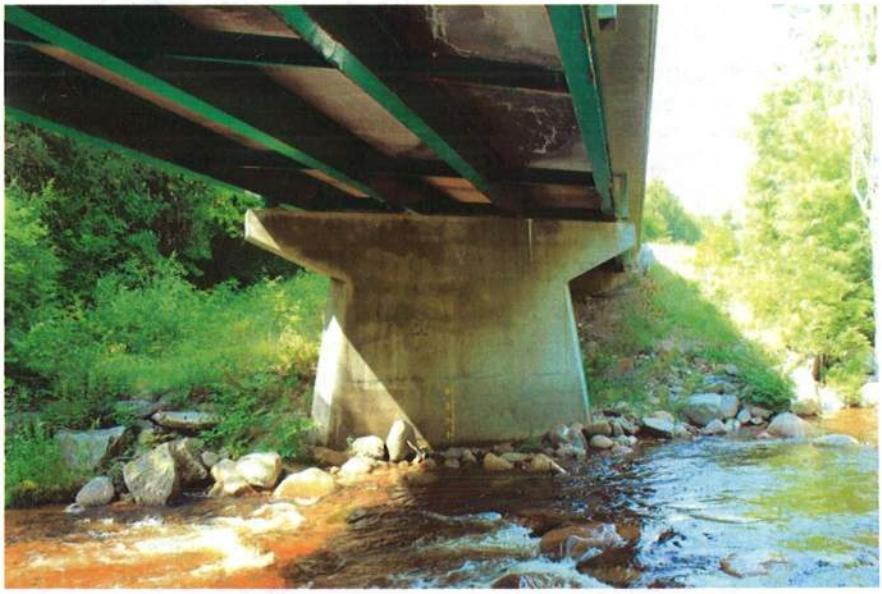
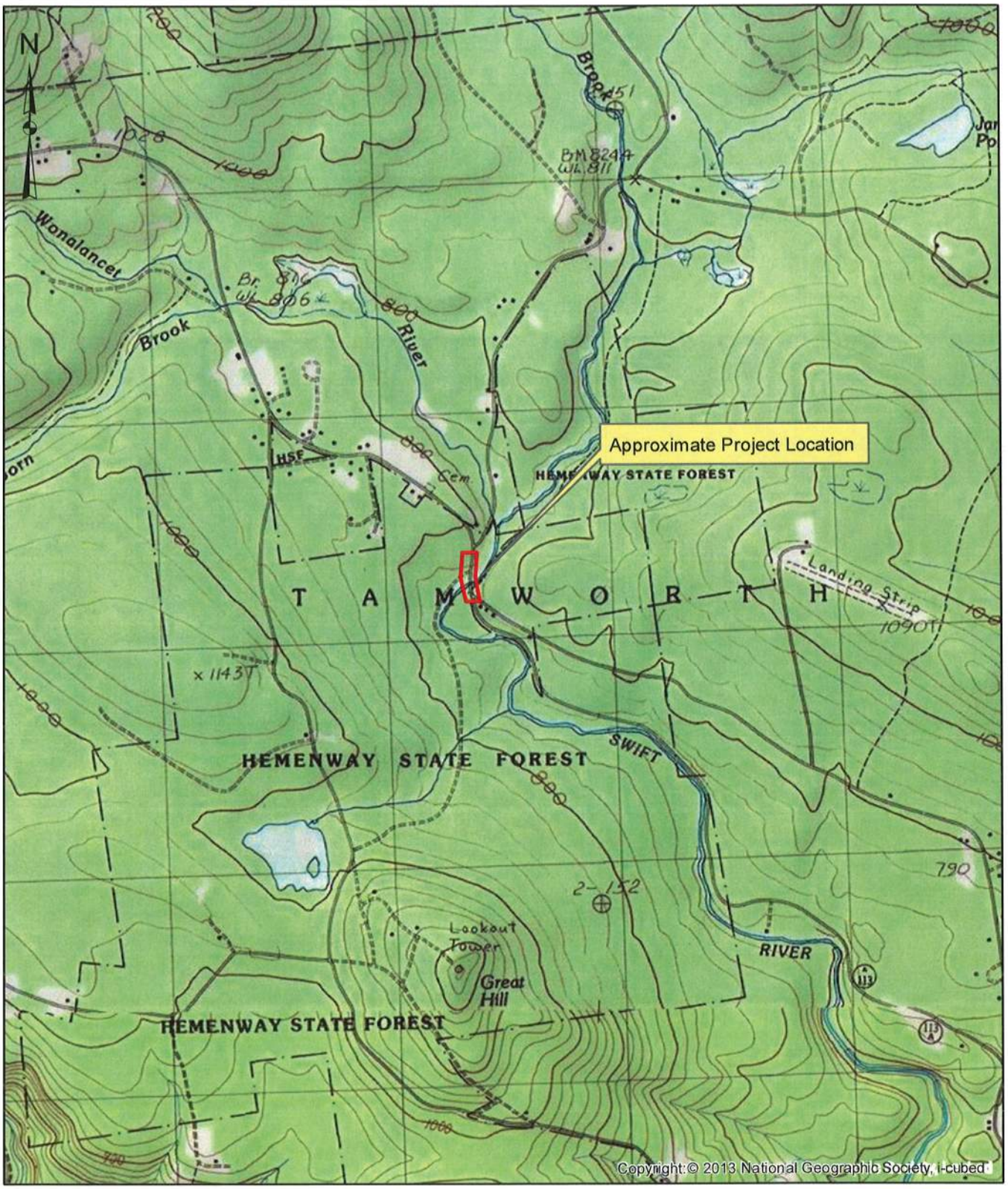


Photo 4: Underside of Bridge #061/091. 8/22/19

Photo 5: Western elevation of Bridge #061/091. 4/25/19

Photo 6: Looking upstream from Bridge #061/091. 8/22/19



0 2,000 4,000
Feet

NH DEPARTMENT OF TRANSPORTATION
TAMWORTH, 41434

LOCATION MAP

SCALE :	DATE :	FIGURE :
AS SHOWN	NOVEMBER 2019	1

McFarland Johnson

\\Mjcolo-fs\M\18283.20 Tamworth 41434\Draw\GIS\ResourceID.mxd

Tamworth 41434 EMMIT Search

January 29, 2020

- National Register Districts
- Counties
- Towns

1:18,056

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Saved 41434

Appendix B – Corps Secondary Impacts Checklist

US Army Corps of Engineers®
New England District

New Hampshire General Permits (GPs)
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 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, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/. The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	N/A	
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 area of the previously filled wetlands?	UNKNOWN	
2.7 What is the area of the proposed fill in wetlands?	493 SF	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?	UNKNOWN	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS 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 an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index	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 GC 21?	N/A	
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 minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review**)** with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.
`

Appendix B – Supplemental Information

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION - TAMWORTH, 41434
BRIDGE NO. 061/091 SUPERSTRUCTURE REPLACEMENT
NHDES MAJOR IMPACT WETLANDS PERMIT APPLICATION
TAMWORTH, NEW HAMPSHIRE
MARCH 2022

New Hampshire General Permits (GPs)

Appendix B - Corps Secondary Impacts Checklist

Supplemental Narrative

1. Impaired Waters

1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water?

The proposed project involves impacts within the channel of the Swift River associated with the installation of scour protection around the existing bridge piers. The proposed project also involves temporary and permanent bank impacts associated with the reconstruction of an existing drainage outfall, as well as for construction access. According to the NHDES 2020 Draft 303(d) List (most recent available), the Swift River (Assessment Unit ID: # NHRIV600020603-12) is impaired by pH for Aquatic Life Integrity. The proposed project involves in-kind replacement of the existing bridge superstructure and is not anticipated to result in an increase in impervious surface area or result in an impact to surface water quality. The proposed work in the channel and along the banks of the Swift River will be completed using appropriate Best Management Practices (BMPs) to minimize and avoid detrimental impacts to water quality within the Swift River.

2. Wetlands

2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?

Yes, Bridge 061/091 carries NH Route 113A over the Swift River. The Swift River is located within the project area and will be impacted as part of the proposed work. There are also palustrine forested wetlands and an intermittent stream located approximately 200-250 feet north of Bridge 061/091. However, these resource areas are not anticipated to be impacted by the proposed project.

2.7 What is the area of the proposed fill in wetlands?

The proposed project will result in 493 square feet of permanent impacts located within the channel of the Swift River associated with the installation of the proposed scour protection around the existing bridge piers. The proposed project will require an additional 3,181 square feet of temporary impacts associated with construction access and temporary water diversion.

3. Wildlife

3.1 Has the NHB & USFWS 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?

New Hampshire Natural Heritage Bureau (NHB):

The proposed project was submitted to NHB via the online DataCheck Tool, and according to the Results Letter (NHB21-3208) there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, however, NHB does not expect that it will be impacted by the proposed project.

United States Fish and Wildlife Service (USFWS):

The project was submitted through the US Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) webtool and an Official Species List was generated on February 4, 2022. The Official Species List identified the federally threatened northern long-eared bat (*Myotis septentrionalis,* NLEB) and the monarch butterfly (*Danaus pleippus*), a candidate species currently under review for listing, as potentially occurring within the project area. The project was evaluated using the IPaC-Assisted Determination Key for the FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-eared Bat. Based on the proposed action it was determined that the project may affect and is likely to adversely affect the NLEB due to potential tree clearing and proposed bridge work during the active season for NLEB. The USFWS confirmed that the project is consistent with the Programmatic Biological Opinion and is therefore not likely to jeopardize the continued existence of the northern long-eared bat.

3.2 3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"?

According to the 2020 NH Wildlife Action Plan mapping, the proposed project is located within an area identified as Highest Ranked Habitat in NH. This habitat polygon appears to be associated with the Swift River and the forested lands adjacent to the river. Highest Ranked Habitat in the Biological Region and Supporting Landscapes are also mapped in the vicinity of the project. The proposed action is located in a previously disturbed area associated with the existing bridge and NH Route 113A roadway corridor. Impacts on wildlife from the proposed action will be temporary and short-term in nature (the project is

anticipated to require 1-2 months to complete). The proposed action is not anticipated to result in any changes to terrestrial wildlife or aquatic organism passage or connectivity at the bridge location.

5. Historic/Archaeological Resources

For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document.

The proposed action was reviewed by the NHDOT Cultural Resources Staff on February 11, 2020, under the Section 106 Programmatic Agreement, Appendix B Certification – Activities with Minimal Potential to Cause Effects, and a No Historic Properties Affected determination was reached.

Photo Log

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION - TAMWORTH, 41434
BRIDGE NO. 061/091 SUPERSTRUCTURE REPLACEMENT
NHDES MAJOR IMPACT WETLANDS PERMIT APPLICATION
TAMWORTH, NEW HAMPSHIRE
MARCH 2022

PHOTO LOG

Photo 1: Bridge No. 061/091 carrying NH Route 113A over the Swift River (05/06/2020) Photo Direction: NE

Photo 2: IMPACT AREAS: D / H / I - Northern bridge pier facing downstream (05/06/2020) Photo Direction: W

Photo 3: IMPACT AREA: I – Channel of the Swift River at the location of proposed scour protection along northern bridge pier facing downstream (05/06/2020) Photo Direction: SW

Photo 4: IMPACT AREAS: D & H – Bank behind northern bridge pier (05/06/2020) Photo Direction: W

Photo 5: IMPACT AREAS: F & G – Southern bridge pier facing upstream (05/06/2020) Photo Direction: NE

Photo 6: IMPACT AREAS: F & G – Channel of the Swift River at the location of proposed scour protection along southern bridge pier facing downstream (05/06/2020) Photo Direction: SW

Photo 7: IMPACT AREAS: B / E / F – Bank behind southern bridge pier (05/06/2020) Photo Direction: SW

Photo 8: IMPACT AREAS: A / B / E / F – Southern bank & existing drainage outfall (05/06/2020) Photo Direction: E

Photo 9: IMPACT AREAS: A & E – Bank behind southern bridge pier showing erosion/scour from existing drainage outfall (05/06/2020) Photo Direction: SE

Photo 10: Swift River from Bridge No. 061/091 facing downstream (05/06/2020) Photo Direction: SW

Photo 11: Swift River from Bridge No. 061/091 facing upstream (05/06/2020) Photo Direction: NE

Photo 12: Swift River from northern pier/bank facing across the channel (05/06/2020) Photo Direction: S

Photo 13: Swift River from southern pier/bank facing across the channel (05/06/2020) Photo Direction: N

Construction Sequence

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION - TAMWORTH, 41434
BRIDGE NO. 061/091 SUPERSTRUCTURE REPLACEMENT
NHDES MAJOR IMPACT WETLANDS PERMIT APPLICATION
TAMWORTH, NEW HAMPSHIRE
APRIL 2022

Anticipated Construction Sequence

Notes:

- The advertisement date is currently anticipated to be October 21, 2022
- The start of construction is anticipated to be Spring 2023, with the bridge closure and in-water work being completed in Summer 2023 (June-August).
- Project will be constructed using Accelerated Bridge Construction (ABC) techniques and is anticipated to require an approximately one to two month full bridge closure.
- The following sequence is a preliminary and likely order of construction but the exact means and methods will ultimately be decided by the selected contractor.

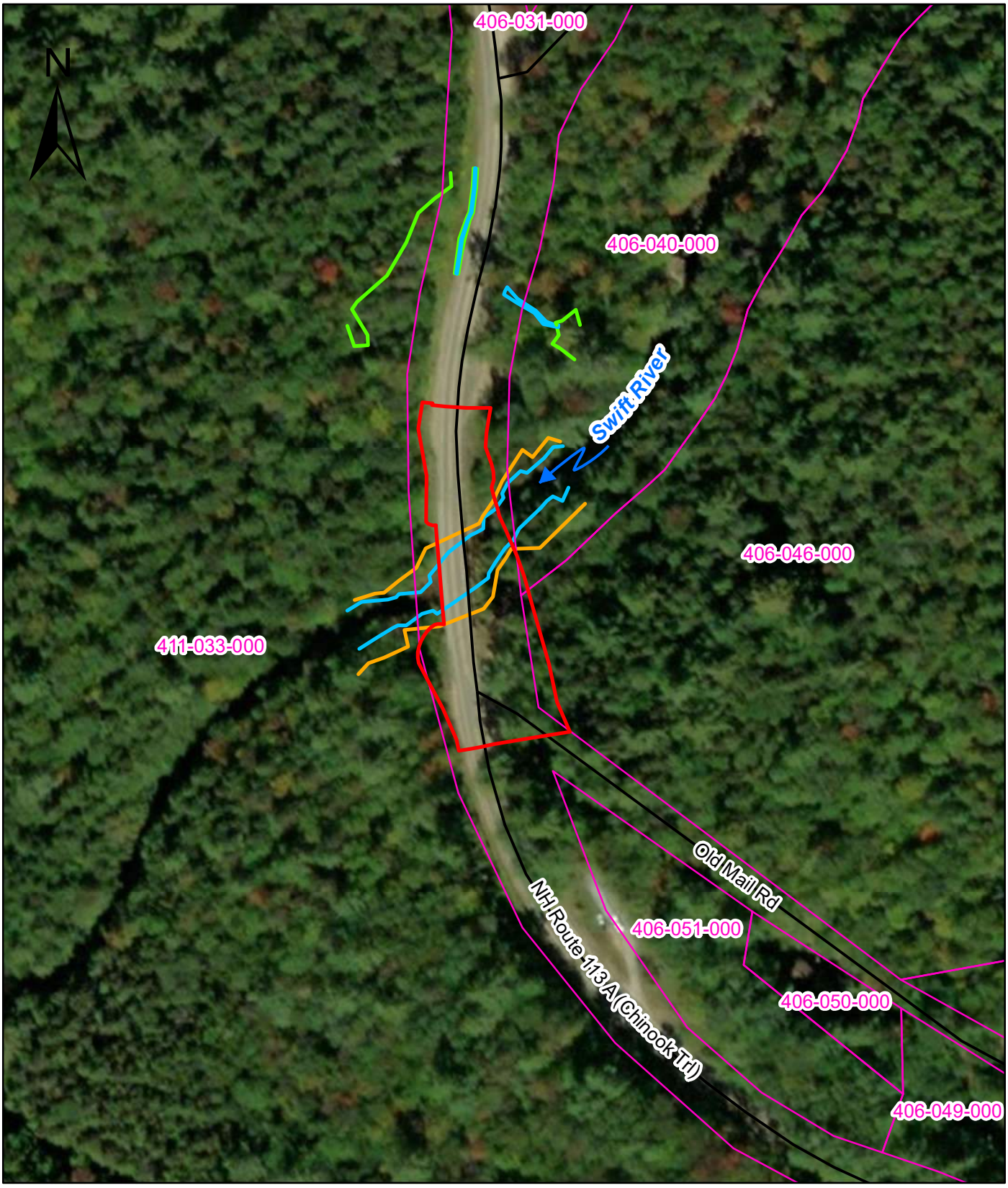
Construction Sequence:

1.) Mobilize equipment and materials to the project site.
2.) Submit SWPPP that includes details on temporary water diversion and water quality monitoring during grout installation.
3.) Using appropriate traffic control procedures to the satisfaction of the Engineer, close the road with the signed detour and install construction barrier.
4.) Install appropriate perimeter controls for soil erosion and sediment control.
5.) Remove the existing superstructure.
6.) Install temporary water diversion structures around the existing bridge piers during low flow to direct flow to the middle of the channel.
7.) Clean timber construction mats that are free of dirt and other debris will be installed across the channel during low flow conditions to access the northern bridge pier. Prior to the installation of mats, the mats and any heavy machinery used to install them shall be inspected for and cleaned

of all vegetative matter by a method and in a location that prevents the spread of the vegetative matter to jurisdictional areas. Construction mats will be properly installed and not dragged into position. The mats will likely be stacked as necessary to provide a base on each side of the channel and mats will be installed across the channel in order to provide a temporary crossing structure to allow equipment and machinery to access the northern pier.

8.) Excavate areas around the existing bridge piers/footings for the installation of the scour countermeasures.
9.) Place riprap around existing piers.
10.) Grout the riprap following water quality monitoring procedures of the Special Provision for Partially Grouted Riprap.
11.) Replace existing drainage outfall pipe and construct new headwall and stone outlet pad.
12.) Remove temporary water diversion structures and remove construction mats immediately upon the completion of the work. Mats shall be disposed of properly in an upland location.
13.) Remove and replace the abutment beam seats, backwalls, and wingwalls with precast elements.
14.) Complete closure pours on precast elements and allow to cure
15.) Backfill abutments.
16.) Prepare pier beam seats.
17.) Erect new steel girders.
18.) Place and grout partial depth precast concrete deck panels.
19.) Place deck reinforcement and expansion joints.
20.) Place deck concrete and cure.
21.) Place brush curbs with rail post anchorages and cure.
22.) Install new bridge rail and approach rail.
23.) Pave approaches.
24.) Remove perimeter controls and reopen bridge and roadway to traffic.

Figure 3 - Tax Map



Tamworth 41434 Project Area

Carroll County Tax Parcels

NHDOT Tamworth Wetland Delineation Lines (May2020)

OHW

TOB

WET

0 150 300

Feet

NH DEPARTMENT OF TRANSPORTATION

TAMWORTH 41434 - TAMWORTH, NH

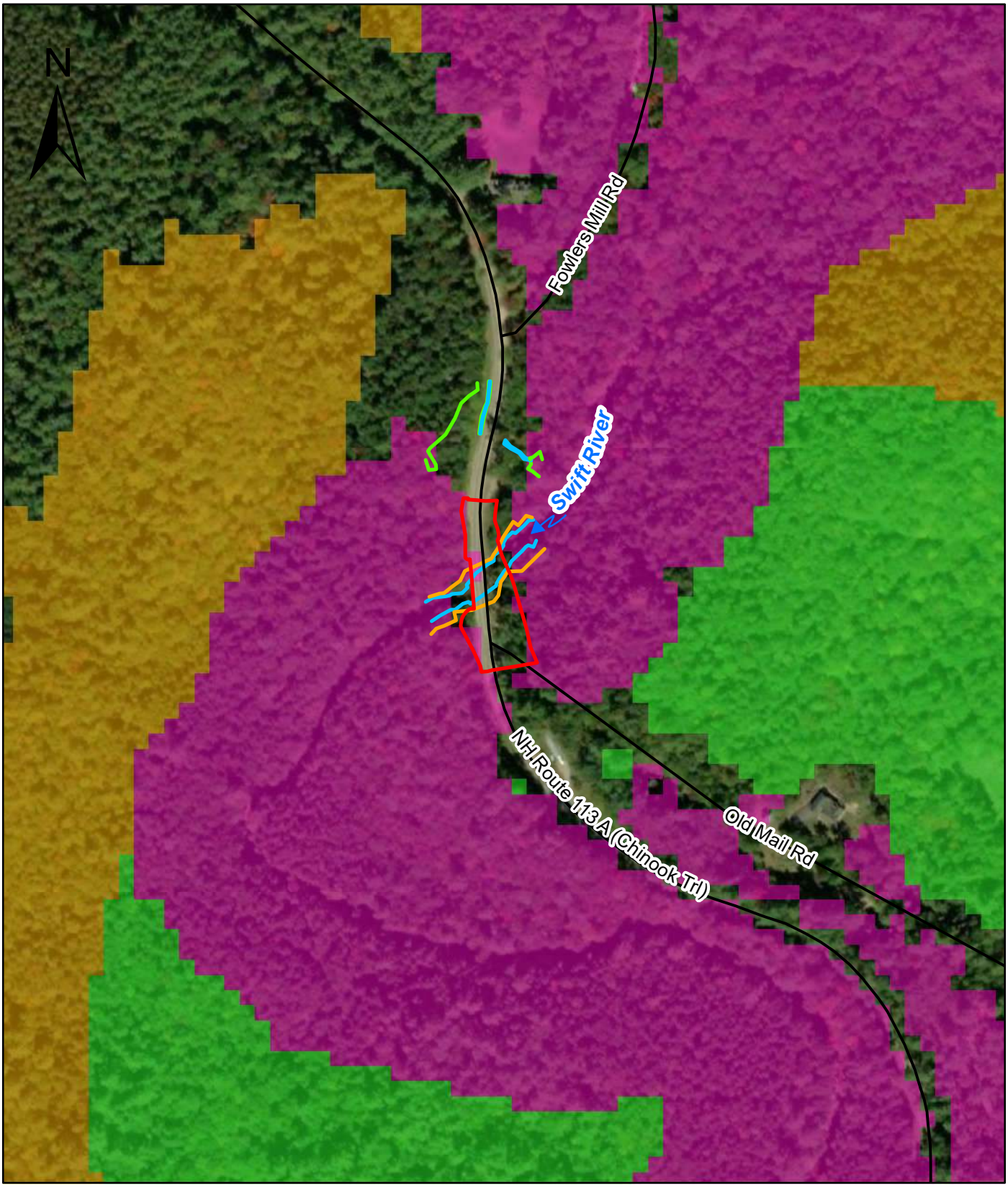
TAX MAP

SCALE :	DATE :	FIGURE :
1 inch = 150 feet	MARCH 2022	3

McFarland Johnson

M:\118844.01 Tamworth 41434-Final Dsg\Draw\GIS\Wetland Permit Figures\Figure 3 - Tamworth 41434 - Tax Map (Wetland).mxd

Figure 4 - NH Wildlife Action Plan Habitat Tiers Map



Tamworth 41434 Project Area

NHDOT Tamworth Wetland Delineation Lines (May2020)

- OHW
- TOB
- WET

NH Wildlife Action Plan (2020)

WAP TIER

- 1 Highest Ranked Habitat in New Hampshire
- 2 Highest Ranked Habitat in Biological Region
- 3 Supporting Landscapes

0 300 600

Feet

NH DEPARTMENT OF TRANSPORTATION

TAMWORTH 41434 - TAMWORTH, NH

NH WAP HABITAT TIERS

SCALE :	DATE :	FIGURE :
1 inch = 300 feet	MARCH 2022	4

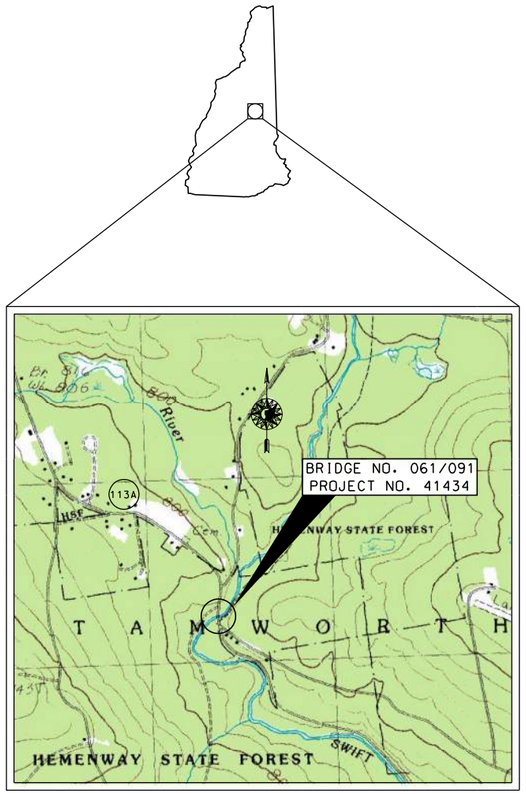
McFarland Johnson

M:\18844.01 Tamworth 41434-Final Dsg\Draw\GIS\Wetland Permit Figures\Figure 4 - Tamworth 41434 - NH WAP Map (Wetland).mxd

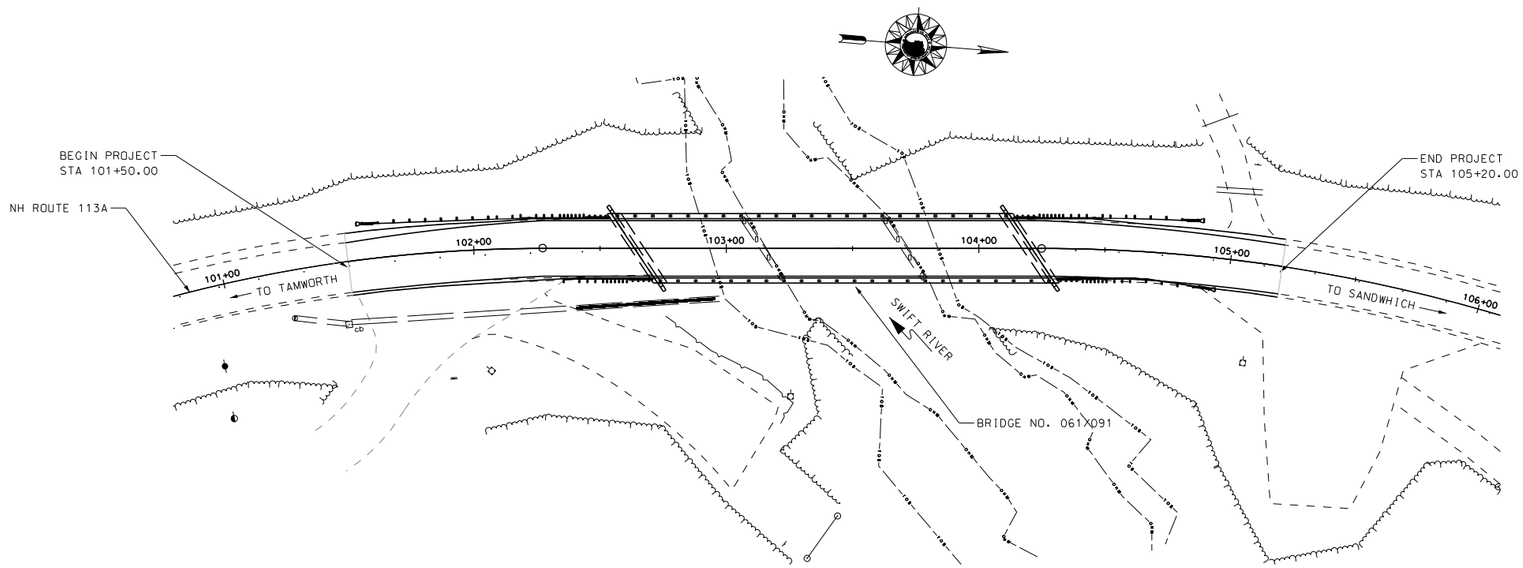
Wetland Impact and Erosion Control Plans

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
WETLAND PLANS
FEDERAL AID PROJECT
OF PROPOSED BRIDGE REHABILITATION
BRIDGE NO. 061 / 091
X-A004(636)
NH PROJECT NO. 41434

PROJECT DATA		
AVERAGE DAILY TRAFFIC	2017	546
AVERAGE DAILY TRAFFIC	2039	808
PERCENT OF TRUCKS		10%
POSTED SPEED		35 MPH
LENGTH OF PROJECT		0.07 MILES



LOCATION MAP



LAYOUT

30 0 30 60

SCALE IN FEET

WETLANDS DELINEATED BY MCFARLAND-JOHNSON, INC. ON MAY 6, 2020, IN ACCORDANCE WITH THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012, US ARMY CORPS OF ENGINEERS.

DRAWN BY	RSG	DATE 5/2022
CHECKED BY	SCH	DATE 5/2022

PLANS PREPARED BY

McFarland Johnson

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, N.H. 03301
(603)225-2978

STATE OF NEW HAMPSHIRE
STEPHEN C. HOFFMANN
No. 00306
CERTIFIED WETLAND SCIENTIST

STATE OF NEW HAMPSHIRE
SAMUEL WHEELER
No. 15566
LICENSED PROFESSIONAL ENGINEER

TOWN OF TAMWORTH
COUNTY OF CARROLL

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:

DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:

ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A004(636)	41434	1	8

GENERAL

EDGE OF PAVEMENT — PROPOSED ROADWAY
TRAVELED WAY — existing roadway — (pavement removed outside slope lines)

DRIVEWAYS — (label surface type)

BUILDINGS — (building to be removed)
(label house or type of building)

FOUNDATION — (label type)

LEACH FIELD — leach field

BRIDGE CROSSINGS — STREAM — OVERPASS

STEPS AND WALK — (label type)

INTERMITTENT WATER COURSE

SHORE LINE — river/stream — pond — (label name of water body)

POTENTIAL WET AREA SYMBOL

BRUSH OR WOODS LINE

TREES (PLANS) — (deciduous) (coniferous) (stump)

TREE OR STUMP (CROSS-SECTIONS) — (show station, circumference in feet & type)

HEDGE — (label type)

MONITORING WELL — mon W

WELL — W

FLAG POLE — fp

ORIGINAL GROUND (TYPICALS)

ROCK OUTCROP

ROCK LINE (TYPICALS & SECTIONS ONLY)

GUARDRAIL (label type) — existing — PROPOSED — bgr — cgr

JERSEY BARRIER

CURB (LABEL TYPE)

STONE WALL

RETAINING WALL (LABEL TYPE) — (points toward retained ground)

FENCE (LABEL TYPE)

SIGNS — (single post) — (double post)

GAS PUMP — gp

FUEL TANK (ABOVE GROUND) — ft (label size & type)

STORAGE TANK FILLER CAP — fc

SEPTIC TANK — S

GRAVE — gr

MAILBOX — mb

VENT PIPE — vp

SATELLITE DISH ANTENNA — da

PHONE — ph

GROUND LIGHT/LAMP POST — gl — lp

BORING LOCATION — B

TEST PIT — TP

INTERSTATE NUMBERED HIGHWAY — 293

UNITED STATES NUMBERED HIGHWAY — 3

STATE NUMBERED HIGHWAY — 102

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE — 2 PUB2E

DELINEATED WETLAND — DW
ORDINARY HIGH WATER — OHW
TOP OF BANK — TOB
TOP OF BANK & ORDINARY HIGH WATER — TOBOHW
NORMAL HIGH WATER — NHW
WIDTH AT BANK FULL — WBF
PRIME WETLAND — PWET
PRIME WETLAND 100' BUFFER — PWET100
NON-JURISDICTIONAL DRAINAGE AREA — NJDA
COWARDIN DISTINCTION LINE — CDL
TIDAL BUFFER ZONE — TBZ
DEVELOPED TIDAL BUFFER ZONE — DTBZ
HIGHEST OBSERVABLE TIDE LINE — HOTL
MEAN HIGH WATER — MHW
MEAN LOW WATER — MLW
VERNAL POOL — VP
SPECIAL AQUATIC SITE — SAS
REFERENCE LINE — REF
WATER FRONT BUFFER — WB50
NATURAL WOODLAND BUFFER — NWB150
PROTECTED SHORELAND — PS250
INVASIVE SPECIES LABEL — I.S. I — I.S. II
INVASIVE SPECIES — INV

FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY — FP500
100 YEAR FLOODPLAIN BOUNDARY — FP100
FLOODWAY — FW

ENGINEERING

CONSTRUCTION BASELINE — 30 — 31 — 32

PC, PT, POT (ON CONST BASELINE)

PI (IN CONSTRUCTION BASELINES)

INTERSECTION OR EQUATION OF TWO LINES

ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)

PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)

CLEARING LINE — SLOPE LINE

SLOPE LINE

SLOPE LINE (FILL)

SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:
ORIGINAL GROUND ELEVATION (LEFT) — 72.5
FINISHED GRADE ELEVATION (RIGHT) — 79.14

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	symb1	41434	2	8

DRAINAGE

MANHOLE

CATCH BASIN

DROP INLET

(existing) (PROPOSED)

DRAINAGE PIPE (existing)

DRAINAGE PIPE (PROPOSED)

(label size & type)

UNDERDRAIN (existing) W/ FLUSHING BASIN

UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN

show direction of flow

(label size & type)

HEADER (existing & PROPOSED)

(with stone outlet protection)

END SECTION (existing & PROPOSED)

METAL or PLASTIC

RCP

OPEN DITCH (PROPOSED)

EROSION CONTROL/ STONE SLOPE PROTECTION

BOUNDARIES / RIGHT-OF-WAY

RIGHT-OF-WAY LINE (label type)

RR RIGHT-OF-WAY LINE

PROPERTY LINE

PROPERTY LINE (COMMON OWNER)

TOWN LINE BOW / CONCORD

COUNTY LINE COOS / GRAFTON

STATE LINE MAINE / NEW HAMPSHIRE

NATIONAL FOREST

CONSERVATION LAND

BENCH MARK / SURVEY DISK

BOUND (PROPOSED)

STATE LINE/ TOWN LINE MONUMENT S/L T/L

NHDOT PROJECT MARKER

IRON PIPE OR PIN

DRILL HOLE IN ROCK

TAX MAP AND LOT NUMBER 156 14 1642/341 6.80 Ac.±

PROPERTY PARCEL NUMBER 12

HISTORIC PROPERTY

UTILITIES

existing PROPOSED

TELEPHONE POLE

POWER POLE

JOINT OCCUPANCY

(plot point at face not center of symbol)

MISCELLANEOUS/UNKNOWN POLE

GUY POLE OR PUSH BRACE

LIGHT POLE

LIGHT ON POWER POLE

LIGHT ON JOINT POLE

POLE STATUS: REMOVE, LEAVE, PROPOSED, OR TEMPORARY AS APPLICABLE e.g.:

R L P+04 25.0' T+04 25.0'

RAILROAD (label ownership)

RAILROAD SIGN

RAILROAD SIGNAL

UTILITY JUNCTION BOX jb JB

OVERHEAD WIRE OW (label type)

UNDERGROUND UTILITIES

WATER (on existing lines label size, type and note if abandoned) W PW

SEWER S PS

TELEPHONE T PT

ELECTRIC E PE

GAS G PG

LIGHTING L PL

INTELLIGENT TRANSPORTATION SYSTEM ITS

FIBER OPTIC FO PFO

WATER SHUT OFF

GAS SHUT OFF

HYDRANT

MANHOLES

SEWER MHS

TELEPHONE MHT

ELECTRICAL MHE

GAS MHG

UNKNOWN

TRAFFIC SIGNALS / ITS

existing PROPOSED

MAST ARM (existing) 30' MA (NOTE ANGLE FROM ℄)

OPTICOM RECEIVER

OPTICOM STROBE

TRAFFIC SIGNAL

PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT

SIGNAL CONDUIT C PC

CONTROLLER CABINET cc CC

METER PEDESTAL mp MP

PULL BOX pb PB

LOOP DETECTOR (QUADRUPOLE) (label size)

LOOP DETECTOR (RECTANGULAR) (label size)

CAMERA POLE (CCTV)

FIBER OPTIC DELINEATOR fod FOD

FIBER OPTIC SPLICE VAULT SVF

ITS EQUIPMENT CABINET its ITS

VARIABLE SPEED LIMIT SIGN

DYNAMIC MESSAGE SIGN

ROAD AND WEATHER INFO SYSTEM

CONSTRUCTION NOTES

CURB MARK NUMBER - BITUMINOUS	B-1
CURB MARK NUMBER - GRANITE	G-1
CLEARING AND GRUBBING AREA	A
DRAINAGE NOTE	1
EROSION CONTROL NOTE	A
FENCING NOTE	A
GUARDRAIL NOTE	1
ITS NOTE	1
LIGHTING NOTE	A
TRAFFIC SIGNAL NOTE	1

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	symb2	41434	3	8

WETLAND IMPACT SUMMARY - NEW HAMPSHIRE													
WETLAND NUMBER	WETLAND CLASS-IFICATION	LOCATION	AREA IMPACTS							LINEAR STREAM IMPACTS FOR MITIGATION			COMMENTS
			PERMANENT				TEMPORARY			PERMANENT			
			N.H.W.B (NON-WETLAND)		A.C.O.E. (WETLAND)					BANK LEFT	BANK RIGHT	CHANNEL	
			SF	LF	SF	LF	SF	LF		LF	LF	LF	
1	BANK	A					628	50					TEMPORARY IMPACTS FOR CONSTRUCTION ACCESS
1	BANK	B					396	40					TEMPORARY IMPACTS FOR CONSTRUCTION ACCESS
3	R3UB1H	C					3181	82					TEMPORARY IMPACTS FOR CONSTRUCTION ACCESS
2	BANK	D					658	95					TEMPORARY IMPACTS FOR CONSTRUCTION ACCESS
1	BANK	E	75	9						9			STONE APRCN FOR DRAINAGE STRUCTURE
1	BANK	F	287	35						35			GROUTED RIP RAP BELOW @ GRADE FOR PIER 1
3	R3UB1H	G			196	23						23	GROUTED RIP RAP BELOW @ GRADE FOR PIER 1
2	BANK	H	245	35							35		GROUTED RIP RAP BELOW @ GRADE FOR PIER 2
3	R3UB1H	I			297	23						23	GROUTED RIP RAP BELOW @ GRADE FOR PIER 2
		TOTAL	607	79	493	46	4863	267		44	35	46	

NEW HAMPSHIRE IMPACTS

PERMANENT IMPACTS:	1,100 SF
TEMPORARY IMPACTS:	4,863 SF
TOTAL IMPACTS:	5,963 SF

SWIFT RIVER CLASSIFICATION:
R3UB1H (RIVERINE, UPPER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL, PERMANENTLY FLODDED)

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED NHDOT DATE 10-2020
NEW DESIGN RSG DATE 05-2022
SHEET CHECKED SCH DATE 05-2022
AS BUILT DETAILS DATE

NOT TO SCALE

McFarland Johnson

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN
WETLAND IMPACT SUMMARY SHEET

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
wetsum	41434	4	8

N

SLOPE LINE
PER NHDOT PLAN
PROJECT # S-2740

3
R3UB1H

TEMPORARY CONSTRUCTION EASEMENT

SLOPE LINE
PER NHDOT PLAN
PROJECT # S-2740

EXISTING ROW

TO TAMWORTH

102+00

103+00

104+00

105

TO SANDWICH

B
G
I
D
H
E
F
C
A

TOB
OHW

1

EXISTING ROW

NF
STATE OF NH
(DNCR)
DIVISION OF FORESTS
AND LANDS
HEMENWAY STATE FOREST

SWIFT RIVER

SLOPE LINE
PER NHDOT PLAN
PROJECT # S-2740

2
BANK

1
BANK

WETLAND PLAN

10 0 10 20
SCALE IN FEET

* BRIDGE SUPERSTRUCTURE NOT SHOWN FOR CLARITY *

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

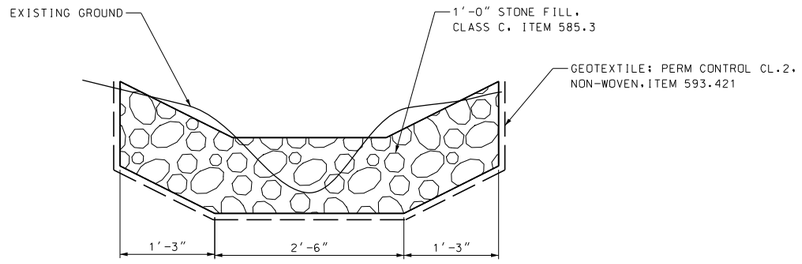
REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION	DATE	NUMBER

SDR PROCESSED	NHDOT	DATE 10-2020
NEW DESIGN	RSG	DATE 05-2022
SHEET CHECKED	SCH	DATE 05-2022
AS BUILT DETAILS		DATE

McFarland Johnson

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF BRIDGE DESIGN
WETLAND PLAN 01

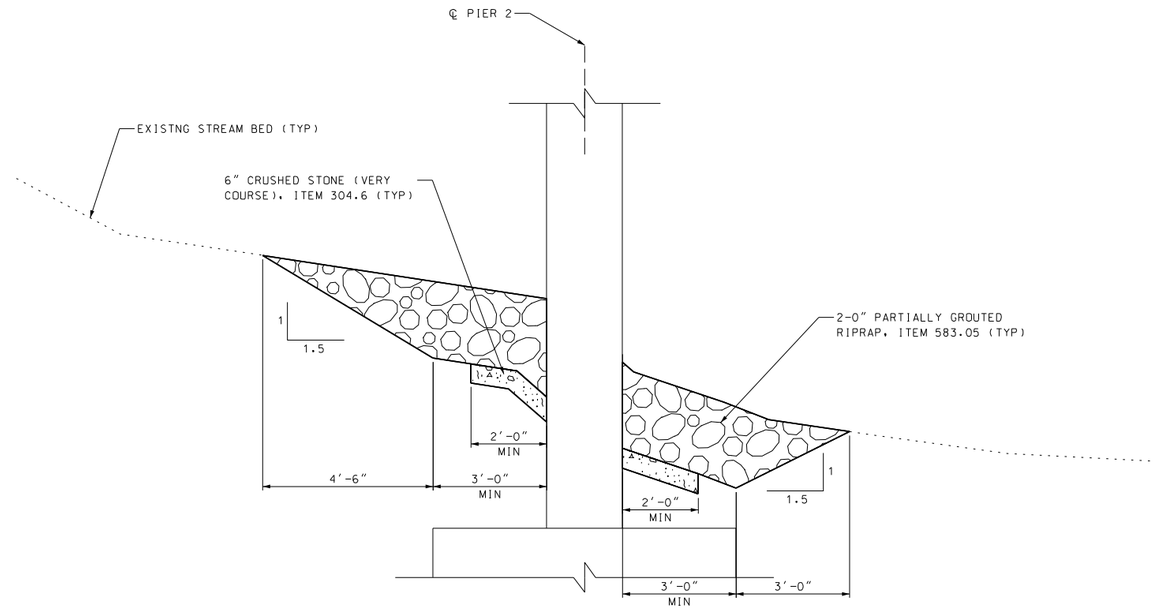
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WetlandPln_01	41434	5	8



STONE OUTLET PAD DETAIL

0 1/2 1 2

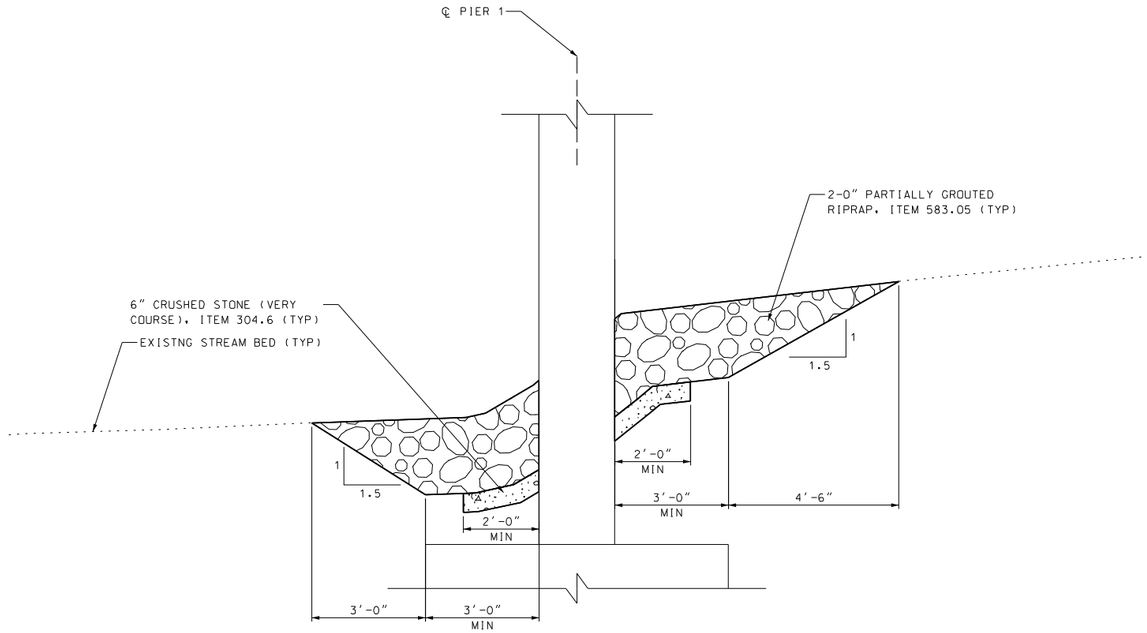
SCALE IN FEET



SECTION B-B
PIER 2

0 1 2 4

SCALE IN FEET



SECTION A-A
PIER 1

0 1 2 4

SCALE IN FEET

0 1 2 4

SCALE IN FEET

McFarland Johnson

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF BRIDGE DESIGN

SCOUR PROTECTION DETAILS

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
chnsec_01	41434	6	8

REVISIONS AFTER PROPOSAL	NUMBER	DATE	STATION	DESCRIPTION

SDR PROCCESSED	NHDOT	DATE 10-2020
NEW DESIGN	RSG	DATE 05-2022
SHEET CHECKED	SCH	DATE 05-2022
AS BUILT DETAILS		DATE

EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
   1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
   1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
   1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
   1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
   1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WQ 1500 REQUIREMENTS (HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM)
   1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.

2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
   2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
   2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
   2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
   2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
      (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
      (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
      (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
      (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
   2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
   2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
   2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
   2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30" AND MAY 1" OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
      (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
      (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
      (C) AFTER NOVEMBER 30" INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
      (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER STABILIZATION PLAN HAS BEEN APPROVED BY NHDOT.
      (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30".

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

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
   3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
   3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
   3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
   3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
   3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.

4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
   4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
   4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
   4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1" THROUGH NOVEMBER 30", OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.

5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
   5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
   5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
   5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
   5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
   5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.

6. PROTECT SLOPES:
   6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
   6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
   6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
   6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.

7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
   7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
   7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.

8. PROTECT STORM DRAIN INLETS:
   8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
   8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
   8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
   8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.

9. SOIL STABILIZATION:
   9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
   9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
   9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
   9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.

10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
   10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WQ 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
   10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
   10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

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

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

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
   12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500; ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
   12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
   12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
   12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
   12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
   12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
   12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.

13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
   13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
   13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
   13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
   13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.

14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
   14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
   14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
   14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WQ 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES[2]				ROLLED EROSION CONTROL BLANKETS[3]			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES[1]												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES'	YES'	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

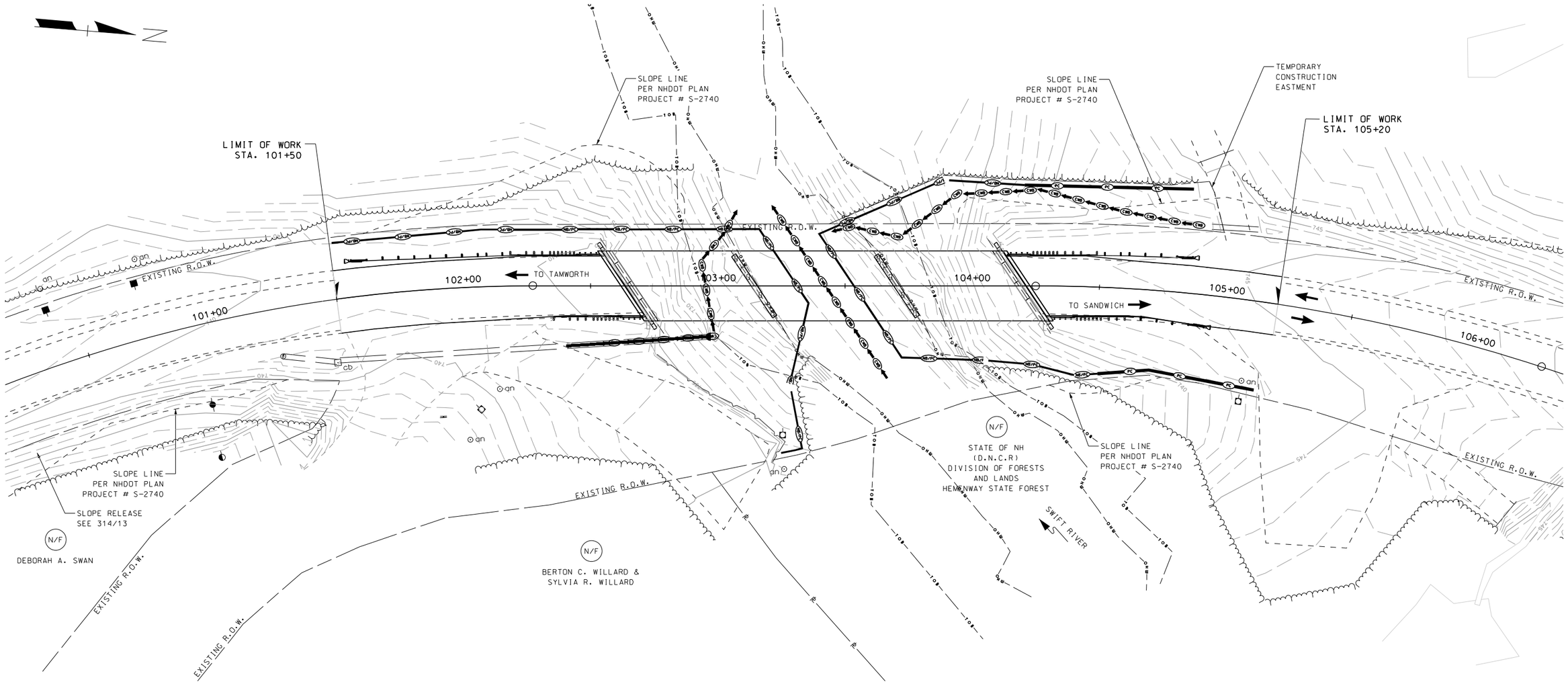
ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT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

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

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL STRATEGIES

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	erostr	41434	7	8



EROSION CONTROL PLAN LEGEND

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

NOTES

1. AREAS BEYOND THE ROW HAVE BEEN REVIEWED FOR JURISDICTIONAL WETLANDS. NO WETLANDS ARE LOCATED WITHIN 50' OF THE EXISTING ROW.

2. NO WORK SHALL BE CONDUCTED OUTSIDE OF THE EXISTING ROW UNTIL TEMPORARY CONSTRUCTION EASEMENTS HAVE BEEN OBTAINED.

3. ALL PROPOSED 2' CONTOURS MATCH EXISTING. THEREFORE ONLY THE EXISTING 2' CONTOURS ARE SHOWN FOR CLARITY.

4. THE CONCRETE WASHOUT AREA SHALL BE IN AN UPLAND & 20FT FROM ANY WETLANDS OR SURFACE WATERS IN ACCORDANCE WITH THE PROJECT PERMITS AND NHDES WETLAND RULES.

5. CONSTRUCTION MATS PLACED IN ACCORDANCE WITH NHDES WETLAND RULES.

6. THE NATURAL BUFFER/PERIMETER CONTROL SHALL BE PLACED IN A MANNER THAT ENSURES IT PASSES THE 2 YEAR STORM EVENT. THIS MAY REQUIRE STAGING OF THE PIER WORK TO INCREASE THE OPENING OF THE CLEAN WATER BYPASS. THE MEANS AND METHODS WILL BE DETERMINED BY THE CONTRACTOR.

20 0 20 40
SCALE IN FEET

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DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF BRIDGE DESIGN

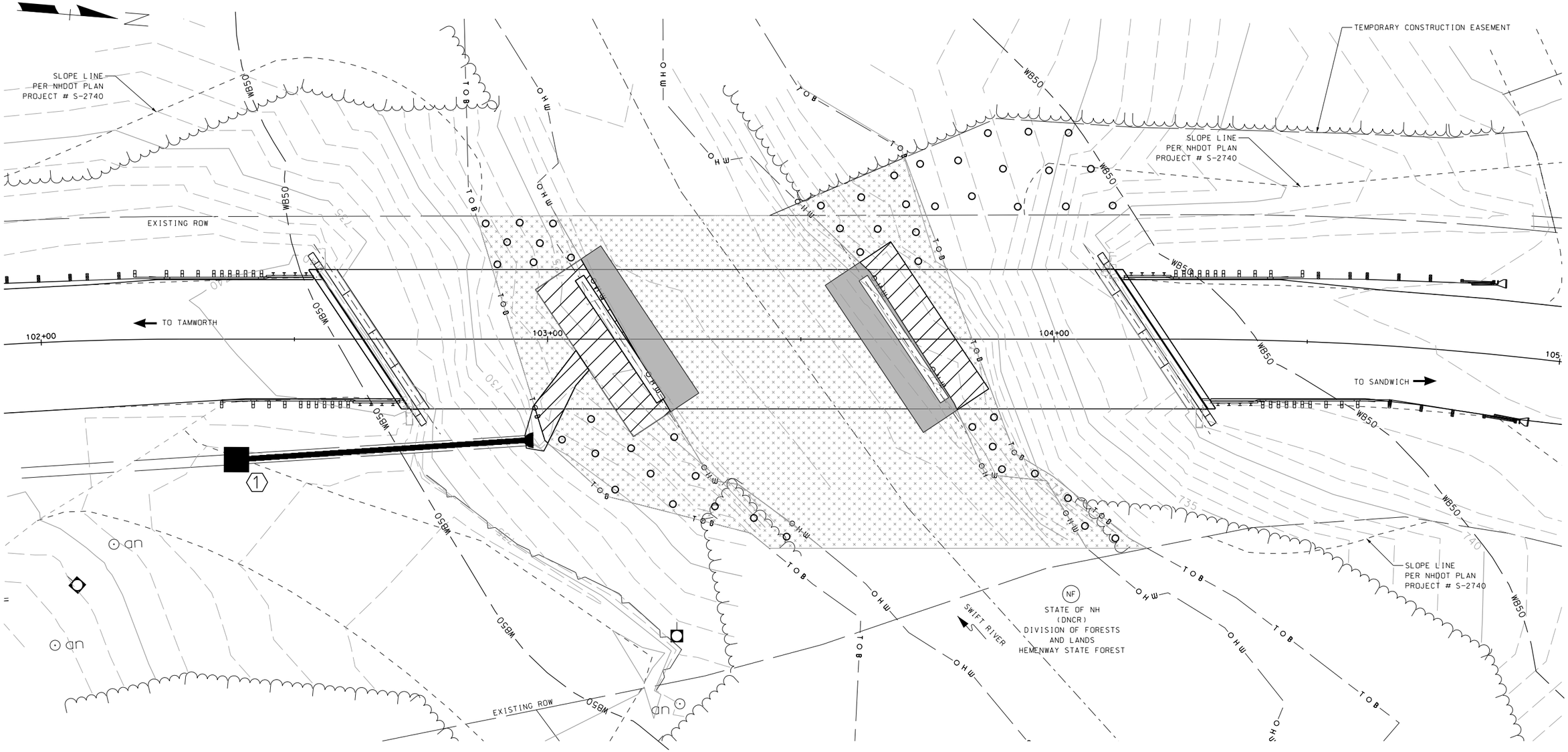
EROSION CONTROL PLAN

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
eroplans	41434	8	8

REVISIONS AFTER PROPOSAL	NUMBER	STATION	DATE	DESCRIPTION

SDR PROCESSED	NHDOT	DATE 10-2020
NEW DESIGN	RSG	DATE 05-2022
SHEET CHECKED	SCH	DATE 05-2022
AS BUILT DETAILS		DATE

Planting Plan



PLANTING PLAN

10 0 10 20

SCALE IN FEET

PLANT INVENTORY LIST
(INCLUDED IN ITEM 650.2 - LANDSCAPING)

SYMBOL	HEIGHT	QUANTITY	COMMON NAME	SCIENTIFIC NAME
O	3' - 4'	50	RED-OSIER DOGWOOD	CORNUS SERICEA

LEGEND

—— —OHW— —— DELINEATED ORDINARY HIGH WATER

—— —TOB— —— DELINEATED TOP OF BANK

PLANTING NOTES:

1. SEED DISTURBED SLOPES WITH SLOPE SEED (WF) TYPE 45, SUBSIDIARY TO ITEM 646.31.
2. STABILIZE DISTURBED SLOPES WITH WILDLIFE FRIENDLY ERROSION CONTROL MATTING (ITEM 645.44).
3. SEED ALL DISTURBED WETLAND AREAS WITH WET BASIN SEED, TYPE 62 SUBSIDIARY TO ITEM 646.31.
4. ALL PLANTINGS SHALL BE IN ACCORDANCE WITH SECTION 650 OF THE STANDARD SPECIFICATIONS.

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCCESSED DATE
NEW DESIGN DATE
SHEET CHECKED DATE
AS BUILT DETAILS DATE

McFarland Johnson

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF BRIDGE DESIGN

PLANTING PLAN

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
41434 Planting_Plan		1	1