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 Dept of Transportation** **TOWN NAME:** Walpole, NH

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): Sycamore floodplain forest, Loesel's wide-lipped orchid ○ NHB Project ID #: NHB23-1011	☒ 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): • 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:	☐ 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): 6,253 Acres	

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 proposed project would address deteriorating stone work and concrete on the existing double barrel stone arch culvert carrying the abandoned Cheshire Branch Railroad over Great Brook off of Halls Crossing Road in the Town of Walpole, NH. The crossing was constructed in the late 1840s and is located under fill, which was placed to transport the railroad over Great Brook. There is a large degree of undermining between the stone walls and the floor inside the north barrel. Work has been previously done under an emergency wetland permit in 2014 (des: 2014-01283) to stabilize the sidewalls by installing a concrete toe wall, however, undermining continues and warrants further repair.

The proposed work will install a 12" thick concrete slab floor approximately 36'x15'wide on top of the concrete subfloor to tie in to the elevation of the original granite block floor inside the north barrel. The concrete slab will wrap around approximately 4' of the front edge of the outlet and extend 24' across the length of the outlet to cover the granite blocks in front of both the north and south barrels. This will preserve the stepped condition of the existing granite blocks. The concrete will form a ramp in front of the south barrel to tie in to the existing elevation of the granite block invert. The proposed repair will also include installing toe walls on both sides of the north barrel approximately 2' thick and 28' long to secure the undermined sidewalls. Additional work will involve stabilizing the southwest wingwall.

Permanent impacts for this project total 652 ft2 and are a result of:
1. Installation of a 12" thick concrete over the stone floor in the northern barrel for a length of 36 feet.
2. Installation of concrete overlay on the downstream edge of the invert for both barrels.
3. Form and place concrete underneath the southwest corner dry stone laid wing to fill an exisiting void.

Temporary impacts (752 ft2) due to access and erosion control.

SECTION 3 - PROJECT LOCATION

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

ADDRESS: Cheshire Branch Railroad, Over Great Brook

TOWN/CITY: Walpole, NH

TAX MAP/BLOCK/LOT/UNIT:

US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: Great Brook
☐ N/A

(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places): 43.04176° North
72.44372° 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, Attention: Chuck Corliss, PE		
MAILING ADDRESS: 7 Hazen Drive, PO Box 483		
TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03302
EMAIL ADDRESS: charles.a.corliss@dot.nh.gov		
FAX:	PHONE: +1 6032713465	

ELECTRONIC COMMUNICATION: By initialing here: CAC, 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.:		
COMPANY 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 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 - Jurisdictional areas were delineated in accordance with Env-Wt 406. Classification of the project does not fall under Env-Wt 400 as it falls under Env-Wt 900 as this project is rehab of a stream crossing.

Env-Wt 500 - Not applicable

Env-Wt 600 - Not applicable

Env-Wt 700 - Not applicable

Env-Wt 900 - The project is classified as major under Env-Wt 903.01(g)(3)(b), Rehab of an existing tier 3 crossing. This application meets the General Design Criteria established in Env-Wt 904.01 and the tier specific criteria for rehab of a tier 3 crossing found in Env-Wt 904.09.

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: 8 Day: 15 Year: 2018

(☒ 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	617	39	☐	570	27	☐
	Lake / Pond			☐			☐
	Docking - Lake / Pond			☐			☐
	Docking - River			☐			☐
Banks	Bank - Intermittent Stream			☐			☐
	Bank - Perennial Stream / River	35	9	☐	182	19	☐
	Bank / Shoreline - Lake / Pond			☐			☐
Tidal	Tidal Waters			☐			☐
	Tidal Marsh			☐			☐
	Sand Dune			☐			☐
	Undeveloped Tidal Buffer Zone (TBZ)			☐			☐
	Previously-developed TBZ			☐			☐
	Docking - Tidal Water			☐			☐
TOTAL		652	48		**752**	**46**	

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):	1,404 SF	× $0.40 =	$	561.60
Seasonal docking structure:	SF	× $2.00 =	$	
Permanent docking structure:	SF	× $4.00 =	$	
Projects proposing shoreline structures (including docks) add $400 =			$	
		Total =	$	561.60

The application fee for minor or major impact is the above calculated total or $400, whichever is greater =	$ 561.60

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: CAC	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials: CAC	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: CAC	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: CAC	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)

Charles A Corliss Jr Digitally signed by Charles A Corliss Jr DN: C=US, E=Chuck.Corliss@DOT.NH.GOV, O=Rail & Transit, OU=Railroad, CN=Charles A Corliss Jr Date: 2023.04.21 08:24:52-04'00'	PRINT NAME LEGIBLY: Charles A Corliss Jr	DATE: 4-21-2023
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER):	PRINT NAME LEGIBLY:	DATE:
SIGNATURE (AGENT, IF APPLICABLE):	PRINT NAME LEGIBLY:	DATE:

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:	PRINT NAME LEGIBLY: Exempt - State Agency

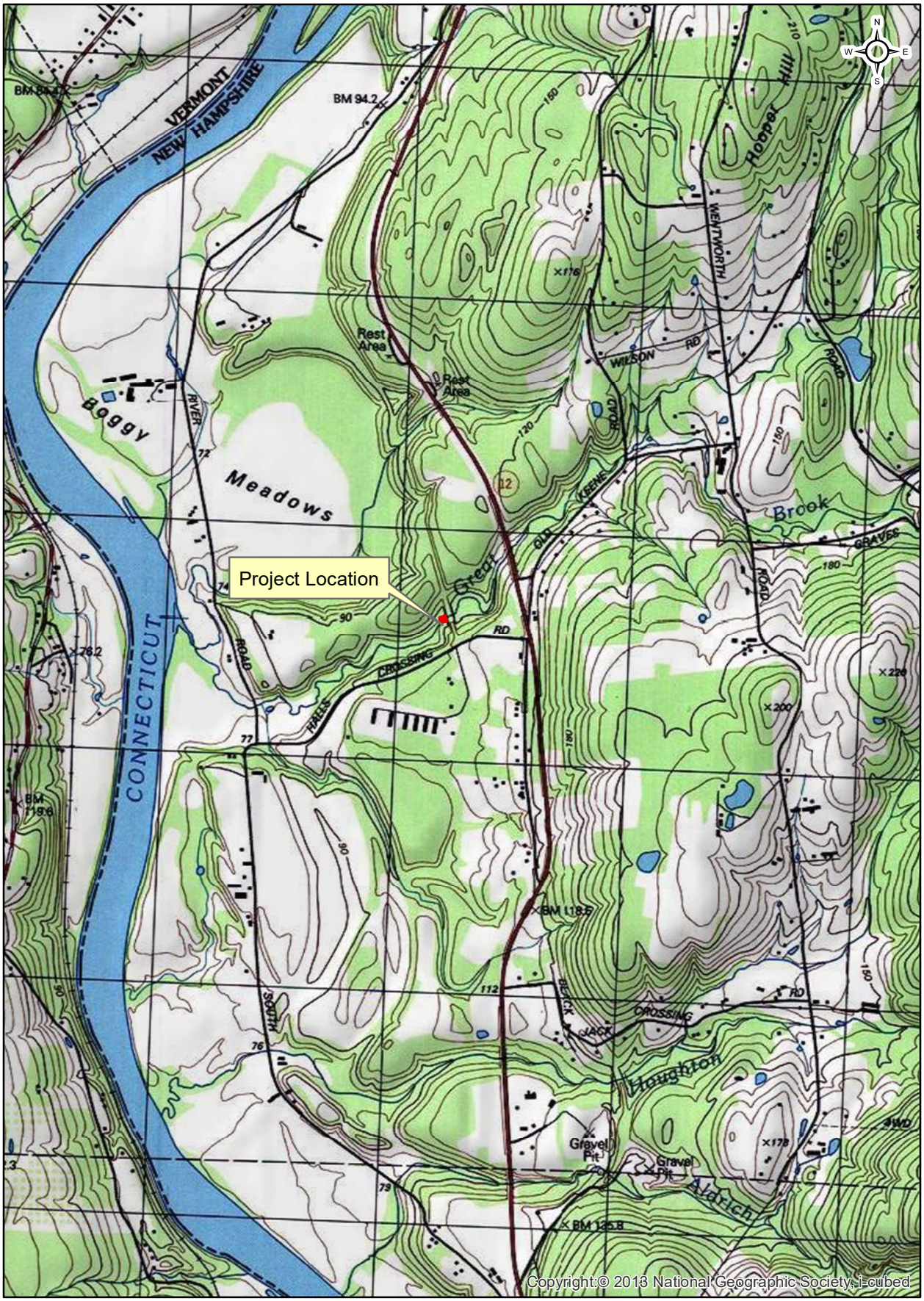
TOWN/CITY:	DATE:

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”.

Walpole 41624A Culvert Rehabilitation
Cheshire Branch Rail Road over Great Brook



0 0.25 0.5 1 Miles

1:24,000

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: **NH Department of Transportation** **TOWN NAME:** Walpole, NH

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.

THERE WERE THREE ALTERNATIVES CONSIDERED FOR THIS PROJECT:

1. TAKE NO ACTION - THIS OPTION WAS NOT SELECTED AS IT DOES NOT MEET THE OBJECTIVE OF THE PROJECT AND THE CONDITION OF THE HISTORIC CROSSING WOULD CONTINUE TO DETERIORATE.

2. REPAIR THE DAMAGED FLOOR IN KIND WITH LARGE GRANITE BLOCKS. THIS WAS NOT SELECTED AS THE EXISTING GRANITE BLOCKS HAVE BECOME DISLODGED AND THE OVERALL DESIGN IS OUTDATED AND WOULD RISK FUTURE FAILURE. THIS OPTION WOULD ALSO INCREASE IMPACTS TO THE STREAM AS IT WOULD INCREASE DURATION OF IN-STREAM WORK AND LARGER EQUIPMENT IS NEEDED TO COMPLETE THIS TYPE OF REPAIR.

3. REHABILITATE THE BARRELS USING CONCRETE. THIS IS THE PREFERRED ALTERNATIVE BECAUSE IT HELPS LIMIT IMPACTS TO JURISDICTIONAL AREAS BECAUSE OF EASE OF CONTRUCTABILITY. THIS OPTION ADDRESSES THE PROJECT NEED AND PURPOSE, AND WILL PROVIDE A LONGER AND MORE COST EFFECTIVE SOLUTION OVER THE LONG TERM.

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.

There are no marshes present in the work area.

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

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

This project maintains hydrologic connection in a similar fashion as it does currently. Great Brook will continue to flow through the crossing.

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 NH Department of Transportation has long implemented best practices for protection of the state's resources. The site's jurisdictional areas were identified and delineated on August 8, 2022 by Josh Brown and Deidra Benjamin, CWS of the NH Dept of Transportation's Bureau of Environment. The current design was selected in part because it had the least impact on Great Brook and its banks.

The NHDOT completed a NHB check (NHB20-0232) of the project area, which found possible presence of Northeastern bulrush (Scirpus ancistrochaetus), Loesel's wide-lipped orchid (Liparis loeselii), and a natural community of a sycamore floodplain forest. Coordination for Northern bulrush occurred with USF&W and with NHB. Since all work is within previously disturbed areas, no concerns were raised about the project. Coordination between NHDOT and USF&W and NHB are included in this application.

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.

This project will not impact commerce, navigation, or recreation.

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.

There are no mapped floodplains within the project area.

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.

This project will have no impact on wetlands. All work will take place within the Great Brook and its banks.

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.

There will be no impact to drinking water supply. Proper erosion controls will be used during construction to maintain water quality throughout the duration of construction. There are no known public drinking water wells, or aquifers and the area directly surrounding the project is primarily undeveloped.

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.

The hydaullic capacity of the crossing is not changing as this is a rehab project that aims to address structural deficiencies in the floor of the crossing by using concrete and tie into existing invert elevations.

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.

Not applicable.

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.

Not applicable.

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.

Not applicable.

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.

Not applicable.

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.

Not applicable.

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.

Not applicable.

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: A stream crossing assessment of Great Brook was completed by Josh Brown, Deidra Benjamin, CWS and Meli Dube on August 2, 2022.
NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT: JOSH BROWN, DEIDRA BENJAMIN, MELI DUBE
DATE OF ASSESSMENT: 8/2/2022
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.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: August 15, 2018
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Sarah Large
Ron Crickard
Mark Hemmerlein
Brian Lombard
Meli Dube
Nancy Spaulding
Kirk Mudgett
Ron Kleiner
Chris Carucci
Bob Landry
Jennifer Reczek
Marc Laurin
Samantha Fifield
Kevin Nyhan
Bob Hudson
Maggie Baldwin

ACOE
Mike Hicks

NHDES
Gino Infascelli
Lori Sommer

NHF&G
Carol Henderson

NHB
Amy Lamb

Consultants/Public Participants
Mike Croteau
Sean Sweeney
Jennifer Riordan
Brent Williams
Christine Perron
Brian Colburn
Darren Benoit
Jim Murphy
Stephanie Dyer-Carroll
Dan Hageman
Johanna Lyons
Eric Feldbaum

(When viewing these minutes online, click on an attendee to send an e-mail)

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

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

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

Walpole, #41624A

Meli Dube, NHDOT Bureau of Environment (BOE), introduced the project which is a twin stone arch culvert carrying the abandoned Cheshire Branch RR over Great Brook in the Town of Walpole. The arch floor and sidewalls are deteriorating and restoration efforts to preserve the crossing are proposed. Brian Lombard, NHDOT Bureau of Rail and Transit, provided a history of the crossing, the current condition and the proposed work. The crossing was originally constructed when the RR was built in the 1800s, the Cheshire Branch RR was purchased by the State in 1995 and the need for work was identified in 2012 when the culvert was surveyed as part of the Cultural Resources mitigation efforts for the work on the nearby stone arch culvert in Westmoreland. The current condition at the outlet is severely perched with a deep pool (estimated at least 5' deep) and it is believed that the crossing was constructed with the perched condition, evidenced by repair plans from 1921 which depict the installation of a timber plank sluice from the outlet to the Right-of-Way line with a large timber blank at the outlet of the culvert which may have served as a dam. The timber planking is no longer in place and some granite blocks which were constructed as part of the invert of the culvert have washed out of the north barrel. A concrete subfloor, which extended around the outside face of the concrete blocks at the outlet, was installed at some point prior to DOT ownership, however, part of the concrete subfloor has also washed out and some granite blocks on the culvert sidewalls have loosened. Concrete toe-walls were installed as part of an emergency repair effort in 2014, however, the sidewalls continue to undermine and warrant repair.

B. Lombard detailed the proposed work, which will install a 12" thick concrete slab floor approximately 28' long by 11' wide (308 square feet) to tie in to the elevation of the original granite block floor inside the north barrel. The concrete slab will wrap around approximately 4' of the front edge of the outlet and extend 24' (96 s.f.) across the length of the outlet to cover the granite blocks in front of the south and north barrels and preserve the existing stepped condition of the granite blocks. The concrete will form a ramp in front of the south barrel to tie in to the existing elevation of the granite block invert. The proposed repair also includes installing toe walls on either side of the north barrel approximately 2' thick and 28' long (112 s.f.) to secure the undermined sidewalls. All work impacting the stream will be located within the existing structure and on the face of the outlet from the existing granite block step at the outlet. No work will occur in the stream bed or pool adjacent to the structure. Water can be diverted through the south barrel during work on the north barrel and vice versa so all work can be accomplished in the dry. This proposed work will result in approximately 516 s.f. of stream impact in the structure. This culvert will be access via an existing access road, minor tree clearing around the top of the existing outlet is also proposed.

Carol Henderson, NH Fish and Game, asked if the existing perched condition could be fixed. Gino Infascelli, NHDES Wetlands Bureau, commented that this would require reconstructing the entire downstream channel and banks to raise the elevation of the stream bed to meet the invert elevation. M. Dube and B. Lombard explained that funding for this project is limited through the Capital Fund and the work required to address the perch and deep pool would increase impacts and cost beyond the scope of the proposed project and current budget. It was agreed that addressing the perch is infeasible at this time.

Michael Hicks, US Army Corps of Engineers, inquired if the repairs to the culvert floor would change hydraulics through the structure and requested that this be addressed and documented in the wetland application. M. Dube confirmed that the FEMA Flood Insurance Rate Maps for this area were checked and there are no known floodplains or regulatory floodways in the project area. M. Hicks also noted that consultation with the US Fish and Wildlife Service (USFWS) and the NH Division of Historical Resources (NHDHR) would be required. M. Dube stated that Section 106 coordination with NHDHR is in process. M.

Dube confirmed that the USFWS Information for Planning and Conservation Tool identified the project area as being in the range of the northern long-eared bat (NLEB) and the northeastern bulrush. M. Dube will complete a survey for NLEB during the wetland delineation scheduled for late summer/earl fall. M. Hicks asked if there is a known NLEB hibernacula in Walpole and M. Dube responded that there is not but she will confirm with USFWS and NHFG. Amy Lamb, NH Division of Natural and Cultural Resources Natural Heritage Bureau (NHB), noted that it is unlikely for northeastern bulrush to occur in the project area due to lack of preferred habitat. M. Dube will work with M. Hicks to complete necessary USFWS consultation for NLEB and northeastern bulrush, "no effect" findings for both species are anticipated.

Amy Lamb expressed concern for impacts to NHB resources on the RR embankment due to access to the culvert and B. Lombard confirmed that the access road which was constructed for the 2014 emergency repair efforts is still in place and will be used for this work. A. Lamb confirmed that there is no further concern for the species and habitats noted on the NHB DataCheck Response Memo (NHB18-2540) including Loesel's wide-lipped orchid (historic record), red maple-black ash swamp, and sycamore floodplain forest.

Sarah Large, NHDOT Bureau of Environment, noted that all permanent impacts through the culvert are necessary for the maintenance of existing infrastructure and Lori Sommer, NHDES Wetlands Bureau, confirmed that no mitigation would be required for this work. S. Large noted that the US Coast Guard has been consulted and has no concern for impacts to navigable waters as a result of this work.

This project has not previously been reviewed at a Natural Resource Agency Meeting.

Wakefield, M312-13

Nancy Spaulding presented on the project and project history. She described the project location as being approximately 500 feet SW of the Maine boarder on NH 153 along Province Lake. The tier 3 crossing carries the South River under NH 153. The river starts in the hills of Maine and makes its way down gradient to Province Lake. There is a large marshy wetland area to the east of the crossing at the inlet of the pipes where the South River flows through. The project scope is to replace the deteriorating twin metal pipes. The Department is proposing to replace the twin 28" corrugated metal pipes with twin 34" reinforced concrete arch pipes. N. Spaulding showed images of the crossing and surrounding landscape. Images showed the expansive marsh at the inlet side of the crossing and Province Lake at the outlet.

N. Spaulding summarized the impacts for the project: 650 sq. ft. temporary impacts, 300 sq. ft. of permanent wetland impacts. The project is necessary and needed to maintain the integrity of NH 153 in this area. This will ensure vehicle access to the roadway system is maintained. The alternatives for this pipe crossing included a 20' span concrete box structure to accommodate the upstream drainage area calculated by Streamstats. The 20' span box however, is not practicable at this location; the vertical alignment of the road would have to be raised for a substantial distance of NH 153 in both directions due to the limited cover depth. With the current Highway Maintenance budget the costs associated with this alternative would be cost prohibitive. NHDOT Project Development's Culvert Improvement Program would be more equipped to design and construct a larger span structure; however, the program may not be able to work on the project until 2021.

The project was previously submitted as a minimum impact project with DES file number 2017-01738 and was denied as a major impact project. The project team plans to resubmit for the replacement as a major impact project and to address the stream crossing rules for this crossing.

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: **NH Department of Transportation** **TOWN NAME:** **Walpole**

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?

Not applicable.

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?

Not applicable.

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.*

There is not more than one acre of proposed impacts. The proposed project is a stream crossing rehabilitation and so it is not feasible to achieve the project's purpose without impacting the stream.

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?

During design of the proposed project, consideration was given to lessen impacts to jurisdictional areas. The current alternative was selected primarily because it offered the least amount of impact while still accomplishing the purpose of the project.

Impacts to Great Brook and its banks have been minimized as much as possible by utilizing proper construction sequencing, construction best practices, erosion control, and by utilizing areas that were already previously disturbed to access the work area.

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

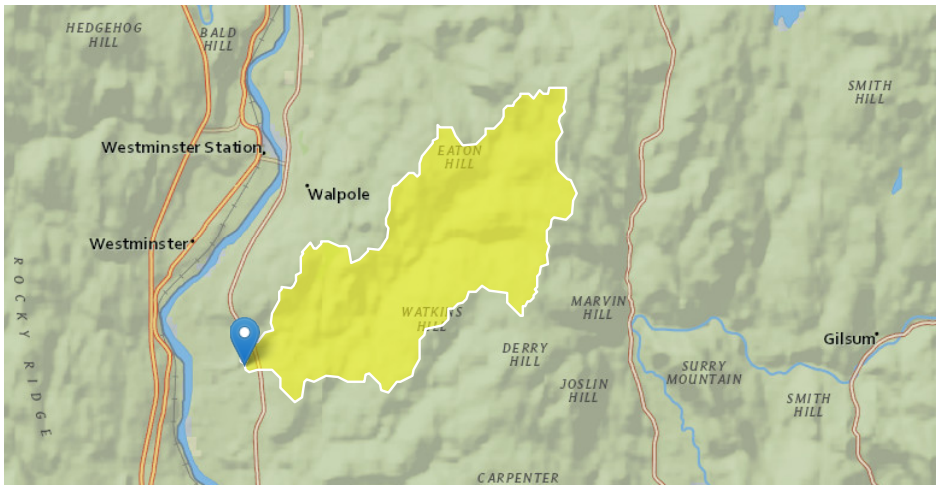
How does the project conform to Env-Wt 311.10(c)?

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

The project has been designed to have the least amount of impact on Great Brook as possible while still accomplishing the purpose of the project. No functions of the stream will change as a result of this project because this is a repair of an existing crossing. Once work has been complete, the stream will continue to function as it does today.

Walpole 41624A: Cheshire RR over Great Brook

Region ID: NH
Workspace ID: NH20200122160009687000
Clicked Point (Latitude, Longitude): 43.04175, -72.44378
Time: 2020-01-22 11:00:26 -0500



9.77 square miles = 6252.8 acres = Tier 3

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	9.77	square miles
CONIF	Percentaqe of land surface covered by coniferous forest	22.4959	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	7.09	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	12.329	percent
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	23.4698	percent
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	8.2	inches
TEMP	Mean Annual Temperature	44.821	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	61.212	degrees F
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	16.6	inches
ELEVMAX	Maximum basin elevation	1515.575	feet

Seasonal Flow Statistics Parameters[Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	9.77	square miles	3.26	689
CONIF	Percent Coniferous Forest	22.4959	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	7.09	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	12.329	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	23.4698	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	8.2	inches	6.83	11.5
TEMP	Mean Annual Temperature	44.821	degrees F	36	48.7
TEMP_06_10	Jun to Oct Mean Basinwide Temp	61.212	degrees F	52.9	64.4
PREG_06_10	Jun to Oct Gage Precipitation	16.6	inches	16.5	23.1
ELEVMAX	Maximum Basin Elevation	1515.575	feet	260	6290

Seasonal Flow Statistics Flow Report[Low Flow Statewide]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEp
Jan to Mar15 60 Percent Flow	5.86	ft^3/s	4.05	8.17	21.2	21.2
Jan to Mar15 70 Percent Flow	4.95	ft^3/s	3.45	6.84	20.7	20.7
Jan to Mar15 80 Percent Flow	4.25	ft^3/s	3.09	5.67	18.2	18.2
Jan to Mar15 90 Percent Flow	3.27	ft^3/s	2.33	4.43	19.3	19.3
Jan to Mar15 95 Percent Flow	2.61	ft^3/s	1.81	3.61	20.7	20.7
Jan to Mar15 98 Percent Flow	2.14	ft^3/s	1.32	3.24	27.1	27.1
Jan to Mar15 7 Day 2 Year Low Flow	4.33	ft^3/s	3.2	5.68	17.2	17.2
Jan to Mar15 7 Day 10 Year Low Flow	2.44	ft^3/s	1.66	3.42	21.5	21.5
Mar16 to May 60 Percent Flow	22.2	ft^3/s	17.9	27	12.2	12.2
Mar16 to May 70 Percent Flow	17.4	ft^3/s	14.3	20.9	11.4	11.4
Mar16 to May 80 Percent Flow	13.4	ft^3/s	10.8	16.3	12.4	12.4
Mar16 to May 90 Percent Flow	9.42	ft^3/s	7.45	11.7	13.7	13.7
Mar16 to May 95 Percent Flow	6.97	ft^3/s	5.41	8.79	14.8	14.8
Mar16 to May 98 Percent Flow	5.07	ft^3/s	3.72	6.73	18.1	18.1
Mar16 to May 7 Day 2 Year Low Flow	6.1	ft^3/s	4.71	7.73	14.5	14.5
Mar16 to May 7 Day 10 Year Low Flow	3.34	ft^3/s	2.49	4.35	16.2	16.2
Jun to Oct 60 Percent Flow	1.18	ft^3/s	0.612	2.05	36.7	36.7
Jun to Oct 70 Percent Flow	0.855	ft^3/s	0.419	1.55	39.9	39.9
Jun to Oct 80 Percent Flow	0.662	ft^3/s	0.299	1.27	44.5	44.5
Jun to Oct 90 Percent Flow	0.417	ft^3/s	0.168	0.856	50.7	50.7
Jun to Oct 95 Percent Flow	0.286	ft^3/s	0.103	0.626	57	57
Jun to Oct 98 Percent Flow	0.239	ft^3/s	0.0798	0.552	61.1	61.1
Jun to Oct 7 Day 2 Year Low Flow	0.467	ft^3/s	0.167	0.995	55.6	55.6
Jun to Oct 7 Day 10 Year Low Flow	0.169	ft^3/s	0.0404	0.435	78.5	78.5
Nov to Dec 60 Percent Flow	8.54	ft^3/s	5.69	12.2	23.3	23.3
Nov to Dec 70 Percent Flow	6.5	ft^3/s	4.14	9.64	25.9	25.9
Nov to Dec 80 Percent Flow	4.84	ft^3/s	2.98	7.37	27.8	27.8
Nov to Dec 90 Percent Flow	3.15	ft^3/s	1.81	5.04	31.6	31.6
Nov to Dec 95 Percent Flow	2.12	ft^3/s	1.08	3.69	38.3	38.3
Nov to Dec 98 Percent Flow	1.37	ft^3/s	0.56	2.74	50.6	50.6
Oct to Nov 7 Day 2 Year Low Flow	4.84	ft^3/s	3.2	6.94	23.3	23.3
Oct to Nov 7 Day 10 Year Low Flow	2	ft^3/s	1.03	3.4	36.6	36.6

Seasonal Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (http://pubs.water.usgs.gov/wrir02-4298)

Application Version: 4.3.11

WETLANDS PERMIT APPLICATION
STREAM CROSSING WORKSHEET

Land Resources Management
Wetlands Bureau

RSA 482-A/ Env-Wt-900

NOTE: This worksheet can be used to accompany Wetlands Permit Applications when proposing stream crossings.

1. Tier Classifications

Determine the contributing watershed size at USGS StreamStats

Note: Plans for Tier 2 and 3 crossings shall be designed and stamped by a professional engineer who is licensed under RSA 310-A to practice in New Hampshire.

Size of contributing watershed at the crossing location:	**6,253** acres

☐ **Tier 1**: A *tier 1* stream crossing is a crossing located on a watercourse where the contributing watershed size is less than or equal to 200 acres

☐ **Tier 2**: A *tier 2* stream crossing is a crossing located on a watercourse where the contributing watershed size is greater than 200 acres and less than 640 acres

☒ **Tier 3**: A *tier 3* stream crossing is a crossing that meets any of the following criteria:

- ☒ On a watercourse where the contributing watershed is more than 640 acres
- ☐ Within a Designated River Corridor
- ☐ On a watercourse that is listed on the surface water assessment 305(b) report
- ☐ Within a 100-year floodplain (see *section 2* below)
- ☐ In a jurisdictional area having any protected species or habitat (NHB DataCheck)
- ☐ In or within 100 feet of a Prime Wetland

2. 100-year Floodplain

Use the FEMA Map Service Center to determine if the crossing is located within a 100-year floodplain. Please answer the questions below:

☒ **No**: The proposed stream crossing *is not* within the FEMA 100-year floodplain.

☐ **Yes**: The proposed project *is* within the FEMA 100-year floodplain. Zone = _____

- ☐ Elevation of the 100-year floodplain at the inlet: _____ feet (FEMA El. or Modeled El.)

3. Calculating Peak Discharge

Existing 100-year peak discharge (Q) calculated in cubic feet per second (CFS): **1,390** CFS	Calculation method: **USGS Stream Stats**
Estimated Bankfull discharge at the crossing location: **unchanged** CFS	Calculation method: **unchanged**

Note: If Tier 1 then skip to Section 10

4. Predicted Channel Geometry based on Regional Hydraulic Curves

*For **Tier 2** and **Tier 3** Crossings Only*

Bankfull Width: **38** feet	Mean Bankfull Depth: **2.4** feet
Bankfull Cross Sectional Area: **89.6** square feet	

5. Cross Sectional Channel Geometry: Measurements of the Existing Stream within a Reference Reach

*For **Tier 2** and **Tier 3** Crossings Only*

Describe the reference reach location: **Upstream, Forested**

Reference reach watershed size: **6,253** acres

Parameter	**Cross Section 1** Describe bed form **Run** (*e.g. pool, riffle, glide*)	**Cross Section 2** Describe bed form **Riffle** (*e.g. pool, riffle, glide*)	**Cross Section 3** Describe bed form **Run** (*e.g. pool, riffle, glide*)	**Range**
Bankfull Width	**22 feet**	**15 feet**	**25 feet**	**15 - 25 feet**
Bankfull Cross Sectional Area	**9.9 SF**	**9.9 SF**	**8 SF**	**8 - 9.9 SF**
Mean Bankfull Depth	**0.5 feet**	**0.7 feet**	**0.4 feet**	**0.4 - 0.7 feet**
Width to Depth Ratio	**48.9**	**22.7**	**40.5**	**22.7 - 48.9**
Max Bankfull Depth	**0.9 feet**	**1.2 feet**	**0.8 feet**	**0.8 - 1.2 feet**
Flood Prone Width	**40 feet**	**26 feet**	**25 feet**	**25 - 40 feet**
Entrenchment Ratio	**1.82**	**1.73**	**1.39**	**1.39 - 1.82**

*Use **Figure 1** below to determine the measurements of the Reference Reach Attributes*

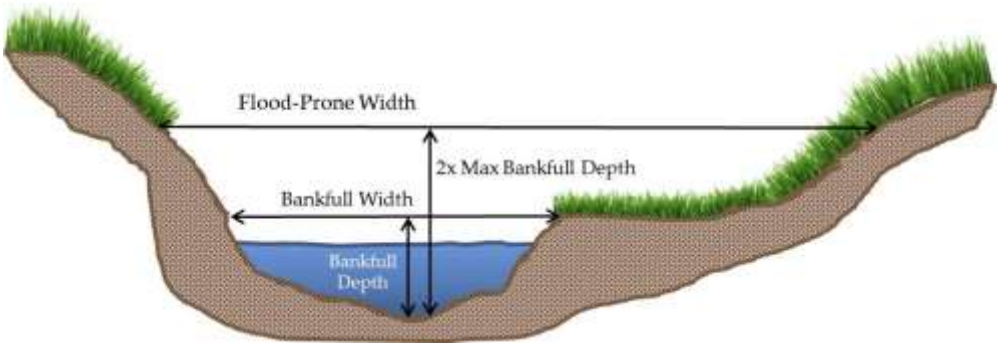


Figure 1: Determining the Reference Reach Attributes

6. Longitudinal Parameters of the Reference Reach and Crossing Location

*For **Tier 2** and **Tier 3** Crossings Only*

Average Channel Slope of the Reference Reach: **1%**
Average Channel Slope at the Crossing Location: **6%**

7. Plan View Geometry

*For **Tier 2** and **Tier 3** Crossings Only*

Sinuosity of the Reference Reach: **1.04**
Sinuosity of the Crossing Location: **1.14**

Note: Sinuosity is measured a distance of at least 20 times bankfull width, or 2 meander belt widths

8. Substrate Classification based on Field Observations *For **Tier 2** and **Tier 3** Crossings Only*	
% of reach that is *bedrock*	**0** %
% of reach that is *boulder*	**3** %
% of reach that is *cobble*	**40** %
% of reach that is *gravel*	**33** %
% of reach that is *sand*	**22** %
% of reach that is *silt*	**2** %

9. Stream Type of Reference Reach *For **Tier 2** and **Tier 3** Crossings Only*	
Stream Type of Reference Reach:	**Type B**

*Refer to Rosgen Classification Chart (**Figure 2**) below*

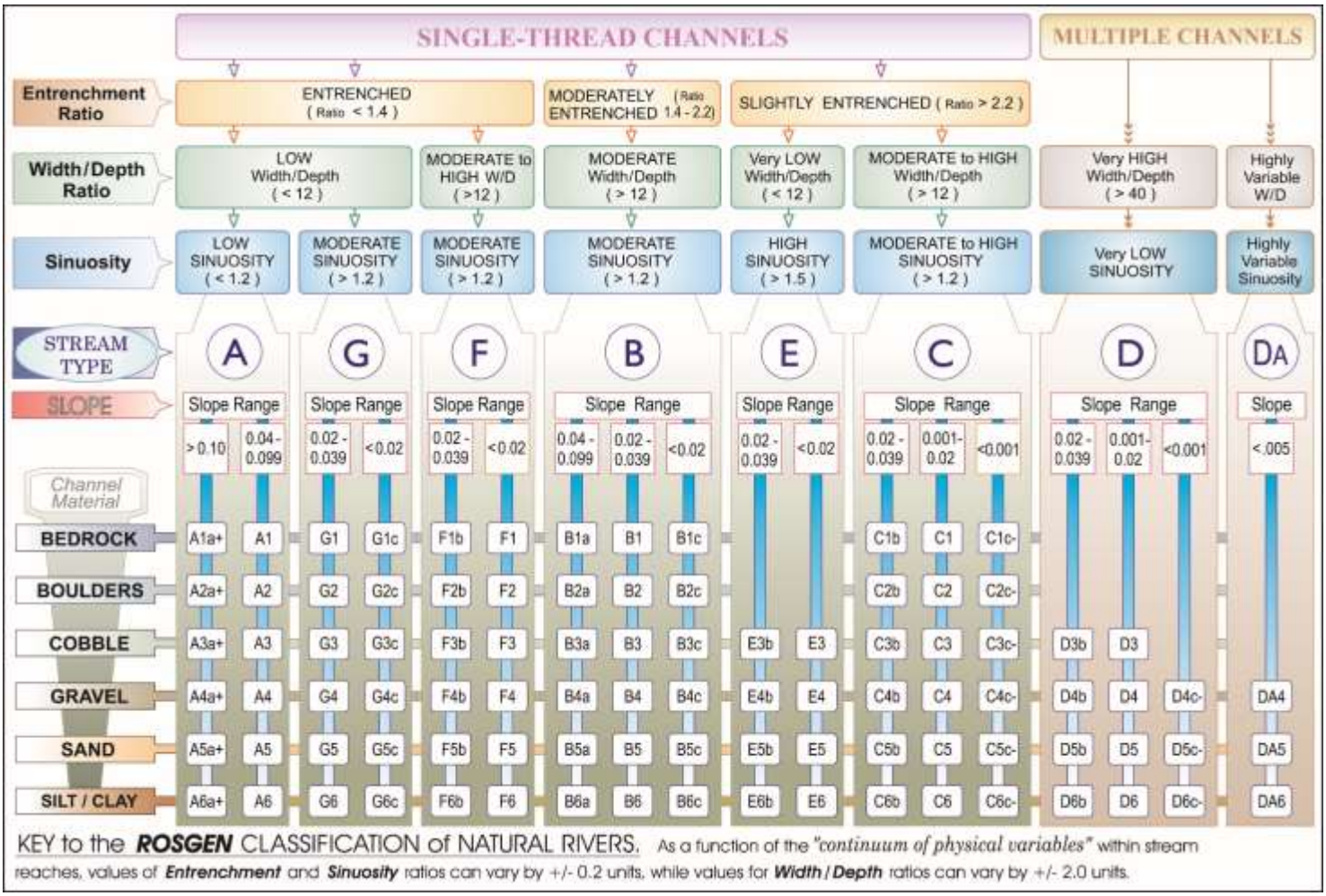


Figure 2. Reference from Applied River Morphology, Rosgen, 1996

10. Crossing Structure Metrics

Existing Conditions

Existing Structure Type:	☒ Bridge Span ☐ Pipe Arch ☐ Open-bottom Culvert ☐ Closed-bottom Culvert ☐ Closed-bottom Culvert with stream simulation ☒ Other: **Arch**	
Existing Crossing Span *(perpendicular to flow)*	**35** feet	**Culvert Diameter** _____ feet **Inlet Elevation** _____
Existing Crossing Length *(parallel to flow)*	**171** feet	**Outlet Elevation** _____ **Culvert Slope** _____

Proposed Conditions

Proposed Structure Type:	**Tier 1**	**Tier 2**	**Tier 3**	**Alternative Design**
Bridge Span	☐	☐	☒	☐
Pipe Arch	☐	☐		☐
Closed-bottom Culvert	☐	☐		☐
Open-bottom Culvert	☐	☐	☐	☐
Closed-bottom Culvert with stream simulation	☐	☐	☐	☐

Proposed structure Span *(perpendicular to flow)*	**Same** feet	**Culvert Diameter** **Same** feet **Inlet Elevation** **Same**
Proposed Structure Length *(parallel to flow)*	**Same** feet	**Outlet Elevation** **Same** **Culvert Slope** **Same**
Proposed Entrenchment Ratio* **Same** *For **Tier 2** and **Tier 3** Crossings Only*		*Note: To accommodate the entrenchment ratio, floodplain drainage structures may be utilized*

* *Note: Proposed Entrenchment Ratio must meet the minimum ratio for each stream type listed in **Figure 3**, otherwise the applicant must address the Alternative Design criteria listed in Env-Wt 904.09*

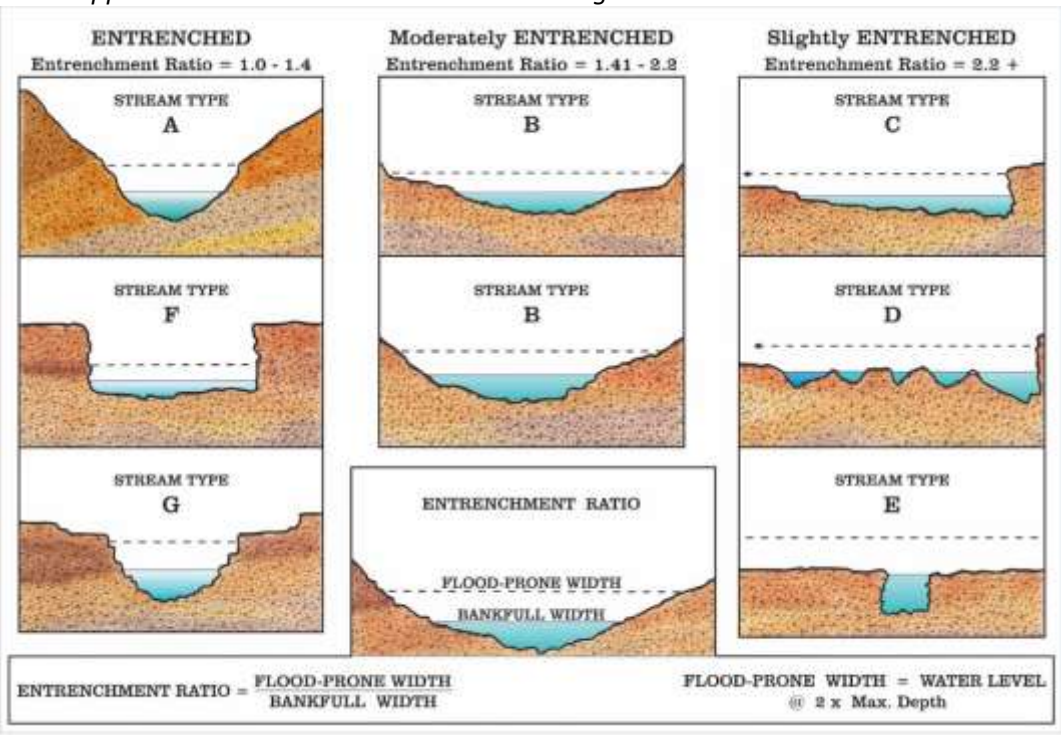


Figure 3. Reference from Applied River Morphology, Rosgen, 1996

11. Crossing Structure Hydraulics

	Existing	Proposed
100 year flood stage elevation at inlet	**Same**	**Same**
Flow velocity at outlet in feet per second (FPS)	**Same**	**Same**
Calculated 100 year peak discharge (Q) for the proposed structure in CFS		**Same**
Calculated 50 year peak discharge (Q) for the proposed structure in CFS		**Same**

12. Crossing Structure Openness Ratio

*For **Tier 2** and **Tier 3** Crossings Only*

Crossing Structure Openness Ratio = _____

Openness box culvert = (height x width)/length

Openness round culvert = (3.14 x radius^2)/length

13. General Design Considerations

Env-Wt 904.01 requires all stream crossings to be designed and constructed according to the following requirements. Check each box if the project meets these general design considerations.

All stream crossings shall be designed and constructed so as to:

☒ Not be a barrier to sediment transport.

☒ Prevent the restriction of high flows and maintain existing low flows.

☒ Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction.

☒ Not cause an increase in the frequency of flooding or overtopping of banks.

☒ Preserve watercourse connectivity where it currently exists.

☒ Restore watercourse connectivity where:

(1) Connectivity previously was disrupted as a result of human activity(ies); and

(2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both.

☒ Not cause erosion, aggradation, or scouring upstream or downstream of the crossing.

☒ Not cause water quality degradation.

14. Tier Specific Design Criteria

Stream crossings must be designed in accordance with the Tier specific design criteria listed in Part Env-Wt 904.

☒ The proposed project meets the Tier specific design criteria listed in Part Env-Wt 904 and each requirement has been addressed in the plans and as part of the wetland application.

15. Alternative Design

NOTE: If the proposed crossing does not meet all of the general design considerations, the Tier specific design criteria, or the minimum entrenchment ratio for each given stream type listed in **Figure 3**, then an alternative design plan and associated requirements must be addressed pursuant to Env-Wt 904.09.

☐ I have submitted an alternative design and addressed each requirement listed in Env-Wt 904.09

New Hampshire Department of Transportation
Bureau of Environment
Stream Crossing Summary Report

Project: Walpole, 41624A
Date of Assessment: 8/22/2022
Names of who completed the assessment: Josh Brown, Deidra Benjamin, & Meli Dube

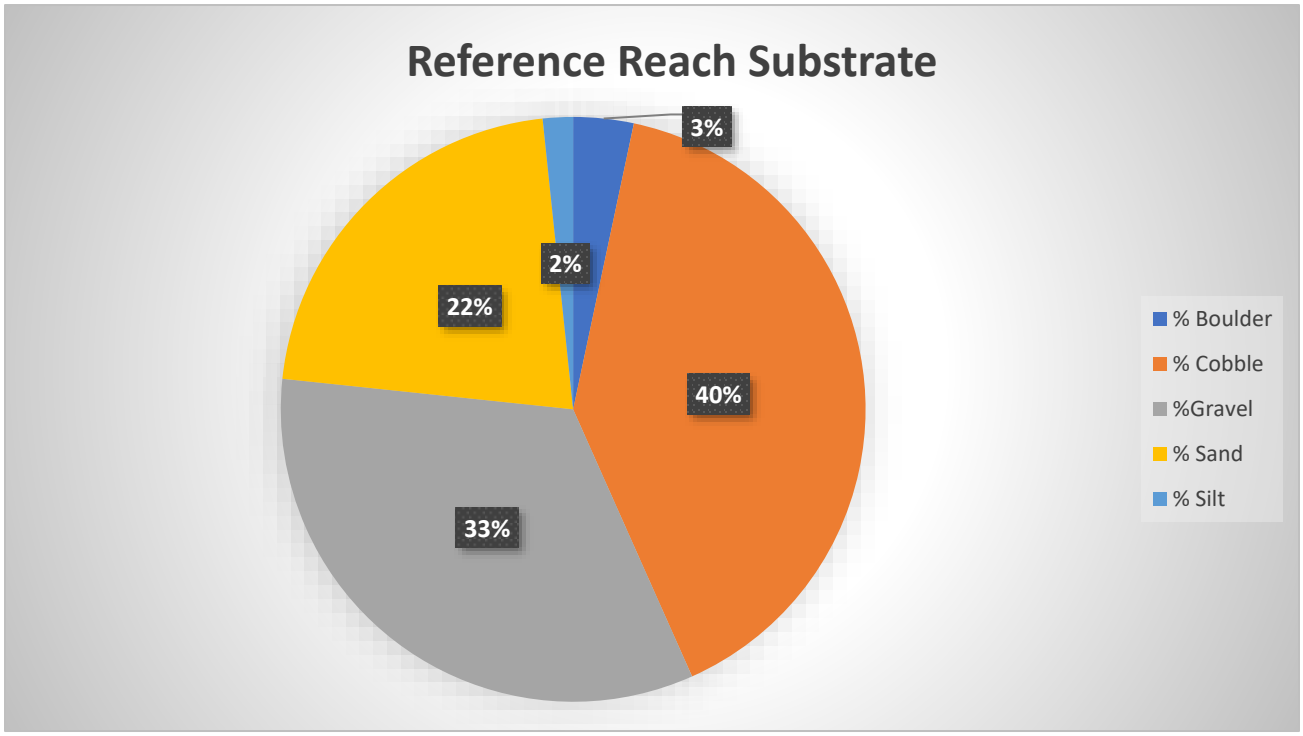
Stream Information:

Stream Name: Great Brook
Watershed Area: 6,253 acres
Stream Tier: Tier 3
Wetland Classification: R2UB1

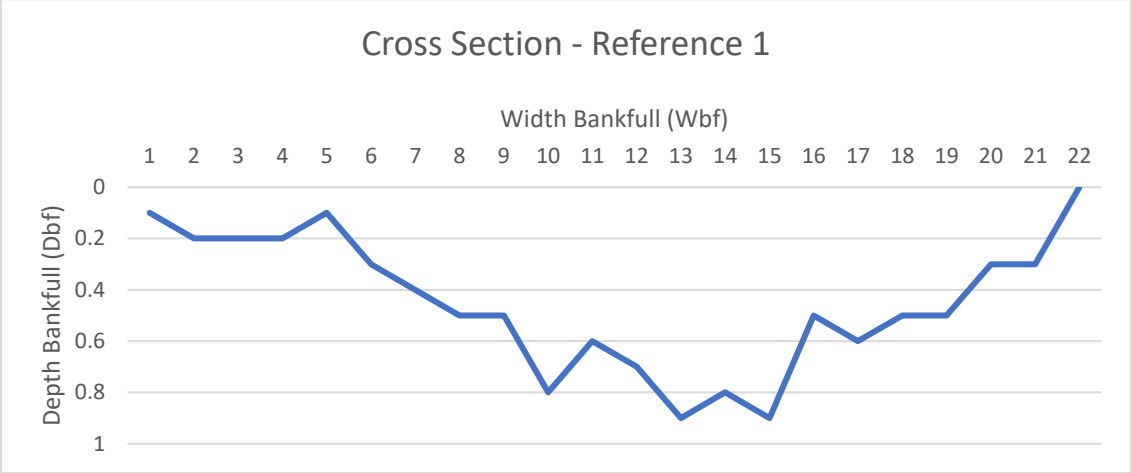
Reference Reach:

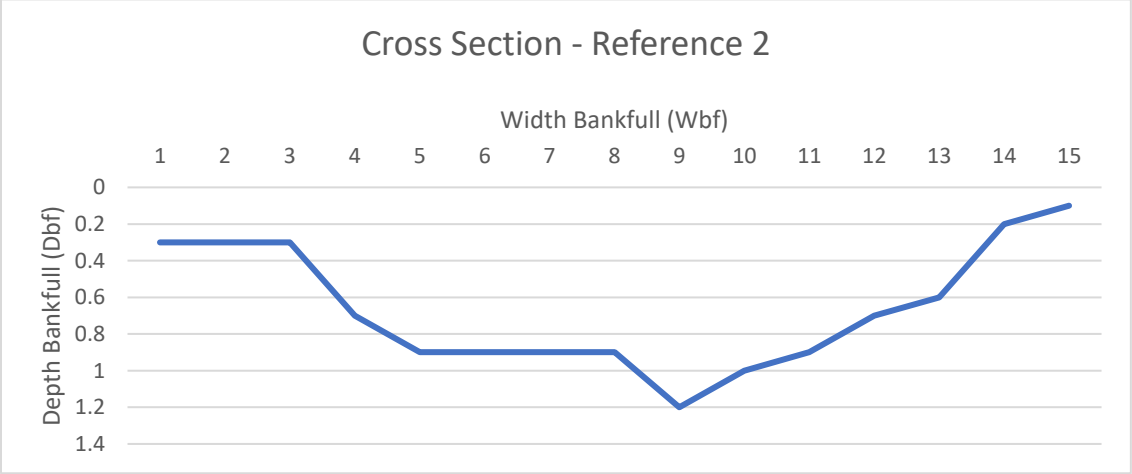
Average Bankfull Width: 20.7'
Average Floodprone Width: 30.3'
Average Depth: 0.5'
Average Slope: 1%
Entrenchment Ratio: 1.65
Rosgen Classification: Type B

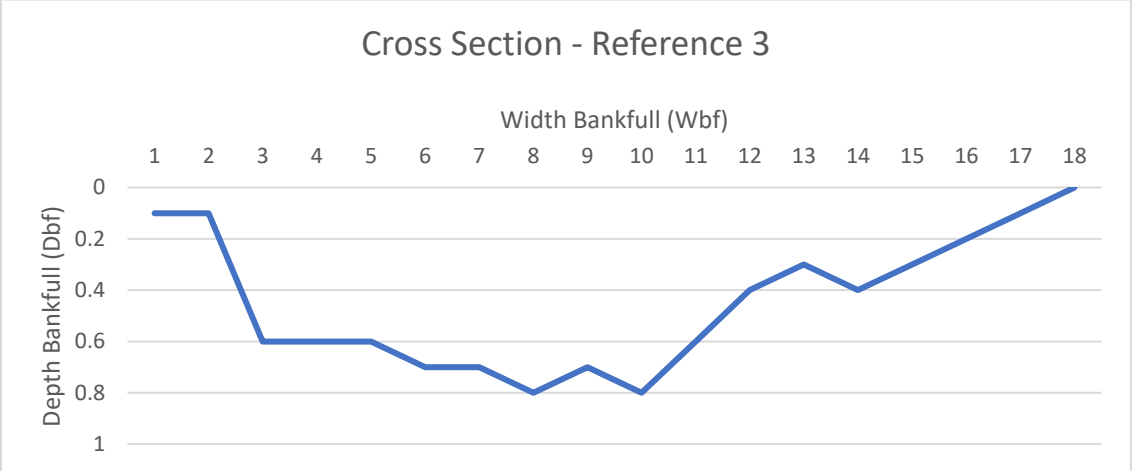
Channel Material (Average Reference Reach):



New Hampshire Department of Transportation
Bureau of Environment
Stream Crossing Summary Report
Cross Sections:







New Hampshire Department of Transportation
Bureau of Environment
Stream Crossing Summary Report

Photos:

Photo 1: Outlet looking upstream

Photo 2: Outlet looking downstream

Photo 3: Inlet looking downstream

Photo 4: Inlet looking upstream

Photo 5: Reference Reach One

Photo 6: Reference Reach Two

Photo 7: Reference Reach Three

NH Department of Transportation
Bureau of Rail & Transit
Project Walpole, #41624A
Env-Wt 904.09 Repair, Rehabilitation, or Replacement of Tier 3 and Tier 4 Crossings
Stream Crossing Report
Prepared by: Chuck Corliss P.E.

Env-Wt 904.09(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.

Crossing's Drainage Area: 9.77 Square Miles

Env-Wt 904.09(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.

Project Description:
The proposed work will install a 12" thick concrete slab floor approximately 36'x15'wide on top of the concrete subfloor to tie in to the elevation of the original granite block floor inside the north barrel. The concrete slab will wrap around approximately 4' of the front edge of the outlet and extend 24' across the length of the outlet to cover the granite blocks in front of both the north and south barrels. This will preserve the stepped condition of the existing granite blocks. The concrete will form a ramp in front of the south barrel to tie in to the existing elevation of the granite block invert. The proposed repair will also include installing toe walls on both sides of the north barrel approximately 2' thick and 28' long to secure the undermined sidewalls. Additional work will involve stabilizing the southwest wingwall. Permanent impacts for this project total 652 ft2 and are a result of: 1. Installation of a 12" thick concrete over the stone floor in the northern barrel for a length of 36 feet. 2. Installation of concrete overlay on the downstream edge of the invert for both barrels. 3. Form and place concrete underneath the southwest corner dry stone laid wing to fill an exisiting void. Temporary impacts (752 ft2) due to access and erosion control.

Env-Wt 904.09(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;
No
**Included with this form is a hydraulic capacity report prepared by the project PE that supports the findings for Env-Wt 904.09(c).*

(2) The proposed stream crossing will:
- **a. Meet the general criteria specified in Env-Wt 904.01;**
  see page 2 for Env-Wt 904.01 form
- **b. Maintain or enhance the hydraulic capacity of the stream crossing;**
  Maintain
- **c. Maintain or enhance the capacity of the crossing to accommodate aquatic organism passage;**
  Maintain

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

e. Not cause or contribute to the increase in the frequency of flooding or overtopping of the banks upstream or downstream of the crossing.
No Change

Env-Wt 904.09(d) Repair, rehabilitation, or replacement of a tier 4 stream crossing shall comply with Env-Wt 904.07(d). *(if not tidal, answer N/A)* N/A

Env-Wt 904.01 General Design Considerations
Applicable to All Stream Crossings

(a) All stream crossings, whether over tidal or non-tidal waters, shall be designed and constructed so as to:

1) Not be a barrier to sediment transport;
No Change

2) Not restrict high flows and maintain existing low flows;
No Change

3) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;
No Change

4) Not cause an increase in the frequency of flooding or overtopping of banks;
No Change

5) Maintain or enhance geomorphic compatibility by:
   a. Minimizing the potential for inlet obstruction by sediment, wood, or debris; and
   Maintain
   b. Preserving the natural alignment of the stream channel;
   Maintain

6) Preserve watercourse connectivity where it currently exists;
No Change

7) Restore watercourse connectivity where:
   a. Connectivity previously was disrupted as a result of human activity(ies); and
   No Change
   b. Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;
   No Change

8) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and
No Change

9) Not cause water quality degradation.
No Change

(b) For stream crossing over tidal waters, the stream crossing shall be designed to:

1) Match the velocity, depth, cross-sectional area, and substrate of the natural stream: and
N/A

2) Be of sufficient size to not restrict bi-directional tidal flow over the natural tide range above, below, and through the crossing.
N/A

New Hampshire Department of Transportation Bureau of Rail & Transit

Walpole, Cheshire Branch Railroad Corridor Bridge MP106.65 over Great Brook

Hydraulic Analysis

1. Existing Conditions:
    a. Twin 15 ft wide x 15 ft high x 140 ft in length stone arch culverts
    b. Upstream invert elevation = 84.3, Downstream invert elevation = 80.5
    c. Brook slope within arch = 2.86%
    d. Drainage Area = 9.77 Square Miles (USGS Stream Stats)
    e. 100-year flow, Q100 = 1,390 cfs (USGS Stream Stats)
    f. The twin arches can pass the flow from a 100-year storm event.

2. Proposed Conditions:
    a. Same
    b. This project has no significant change in flow parameters.
    c. The concrete overlay on the downstream end of the northern barrel will have very little impact on the twin arches flow parameters during normal and storm events.

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/14/2018 at 2:23:33 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

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

From: NHB Review, NH Natural Heritage Bureau
Date: 4/6/2023 (valid until 04/06/2024)
Re: Review by NH Natural Heritage Bureau
Permits: NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit

NHB ID: **NHB23-1011** Town: Walpole Location: Cheshire Branch Rail Road over Great Brook, Walpole

Description: 41624A: Previous NHB20-0232: The proposed project would repair the outlet of the existing double stone arch culvert carrying Great Brook under the Cheshire Branch Rail Road. The Walpole double barrel granite arch culvert carrying the Cheshire Railroad over Great Brook has deteriorating stonework and concrete. These structural concerns were first identified in 2011 and work was done under an emergency wetland permit in 2014, but undermining continues and warrants further repair. The proposed work will install a 12" thick concrete slab floor approximately 28' long by 11'wide on top of the concrete subfloor to tie into the elevation of the original granite block floor inside the north barrel and install toe walls.

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB: The following records within the project area are included for your information. If the project has not changed, NHB has no additional comments. Please contact NHB if there will be additional impacts such as additional tree clearing, new access areas, or disturbance to seeps.**
F&G: No comments at this time.

Natural Community	State[1]	Federal	Notes
Sycamore floodplain forest	--	--	Threats are primarily changes to the hydrology of the river, land conversion and fragmentation, introduction of invasive species, and increased input of nutrients and pollutants.

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

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

Plant species	State[1]	Federal	Notes
Loesel's wide-lipped orchid (*Liparis loeselii*)*	T	--	This inconspicuous orchid occurs in a variety of wet, sunny habitats. Threats include succession (reforestation), habitat destruction (e.g., changes in local hydrology), and herbivory (including grazing by deer).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

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

IMPORTANT: NHFG Consultation

If this NHB Datacheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB Datacheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://wildlife.state.nh.us/wildlife/environmental-review.html. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and **must include the NHB DataCheck results letter number and "Fis 1004 consultation request" in the subject line.**

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule)*, coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email NHFGreview@wildlife.nh.gov, and include the NHB DataCheck results letter number and "review request" in the email subject line.

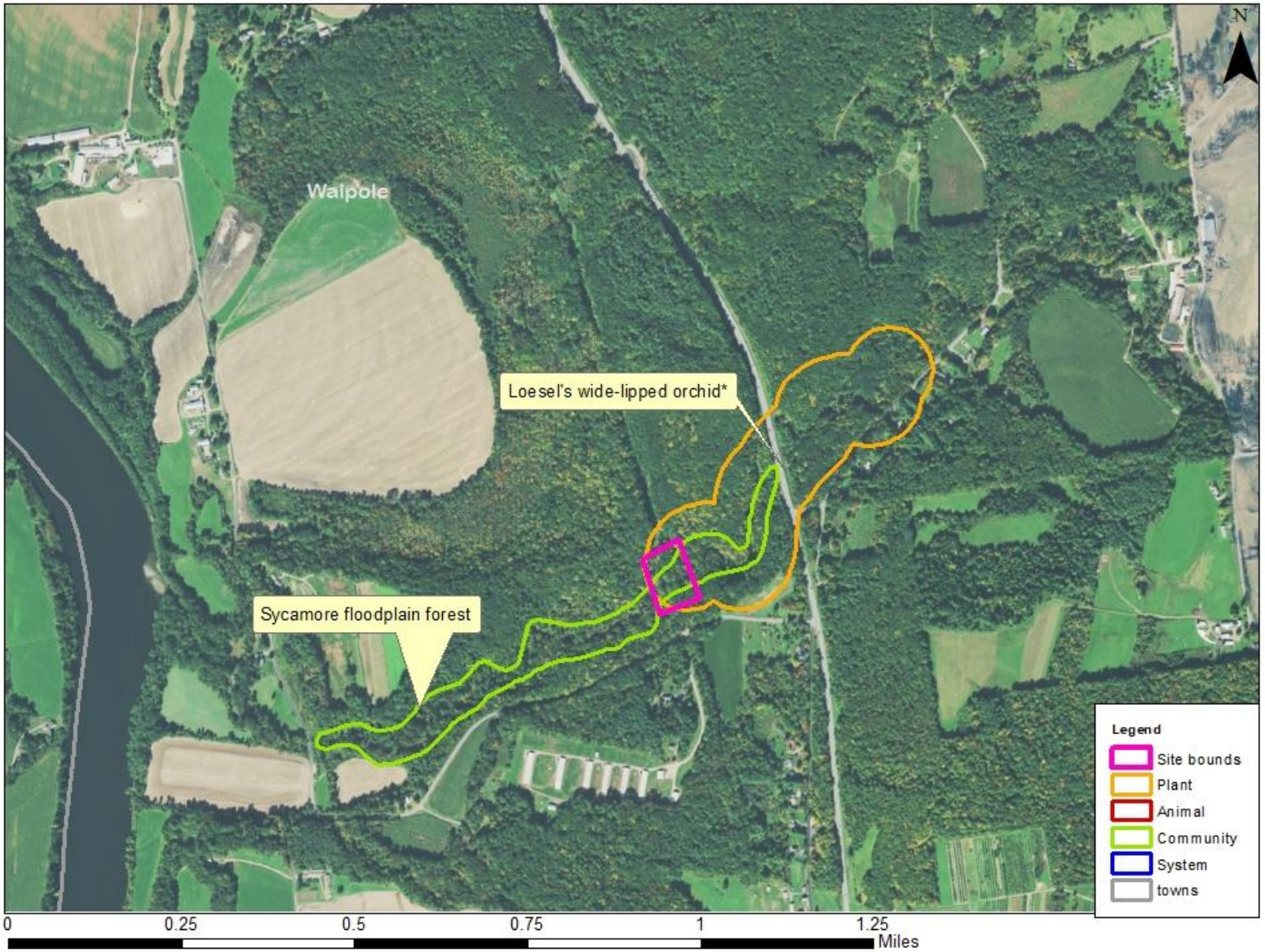
Contact NH Fish & Game at (603) 271-0467 with questions.

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

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB23-1011



New Hampshire Natural Heritage Bureau - Community Record

Sycamore floodplain forest

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Not ranked (need more information)
State:	Not listed	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Fair quality, condition and/or landscape context ('C' on a scale of A-D).
Comments on Rank: --

Detailed Description: 2010: Community observed and photographed along both banks of Great Brook. It is seemingly in good condition; many leaning sycamore trunks, especially along the immediate banks of the brook, but presumably that is fairly normal. 2002: The canopy in this relatively narrow floodplain is characterized by *Platanus occidentalis* (sycamore), *Acer saccharum* (sugar maple), and *Ulmus americana* (American elm). Associated species include *Tilia americana* (basswood), *Fraxinus* spp. (ashes), and *Betula alleghaniensis* (yellow birch). *Acer negundo* (box elder), *Carpinus caroliniana* var. *virginiana* (musclewood), and the alien and invasive *Frangula alnus* (glossy buckthorn) are common shrubs. In addition to the glossy buckthorn, other non-native species are also common on the floodplain and in the stream channel on cobble bars. Cobble bars are frequent and support a high diversity of plant species.

General Area: 2010: Steep-sided, narrow ravine with a shallow, cobbly brook. 2002: Halls Crossing Road runs near the southern edge of the floodplain. A bridge supporting an old railroad bed crosses the floodplain. A discontinuous band of a ***twisted sedge low riverbank*** community occurs in some areas just above the stream. The width of the floodplain, including the channel, typically ranges from 20-70 m (65-230 ft.).

General Comments: --
Management Comments: --

Location

Survey Site Name: Great Brook
Managed By: Great Brook Town Forest

County: Cheshire
Town(s): Walpole
Size: 22.3 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: From River Road South drive to Great Brook and park just south of the brook, on the east side of the road, in a lot on the Great Brook Town Forest. The (narrow) forest extends upstream (east) along the banks of the brook for about a mile to Rte. 12.

Dates documented

First reported: 2002-06-24 Last reported: 2010-09-15

New Hampshire Natural Heritage Bureau - Plant Record

Loesel's wide-lipped orchid (*Liparis loeselii*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 1972: Specimen collected.
General Area: 1972: Seepy area near brook. Found with *Equisetum variegatum* (variegated horsetail).
General Comments: --
Management Comments: --

Location

Survey Site Name: Great Brook
Managed By: Fanny Mason Forest

County: Cheshire
Town(s): Walpole
Size: 46.3 acres
Elevation:

Precision: Within 1.5 miles of the area indicated on the map (location information is vague or uncertain).

Directions: 1972: Seepy area near Great Brook, at Rte. 12.

Dates documented

First reported: 1972-06-27 Last reported: 1972-06-27

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

In Reply Refer To:
Project Code: 2022-0063626
Project Name: Walpole 41624A

April 07, 2023

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:

Updated 3/8/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

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. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

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 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. 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 by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (Updated 3/8/2023) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule will go into effect on **March 31, 2023**. After that date, the current 4(d) rule for NLEB will be invalid, and the 4(d) determination key will no longer be available. New compliance tools will be available in March 2023, and information will be posted in this section on our website and on the northern long-eared bat species page, so please check this site often for updates.

Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project may result in incidental take of NLEB after the new listing goes into effect, this will need to be addressed in an updated consultation that includes an Incidental Take Statement. Many of these situations will be addressed through the new compliance tools. If your project may require re-initiation of consultation, please wait for information on the new tools to appear on this site or contact our office for additional guidance.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines 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 Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. 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:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) 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. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

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: 2022-0063626
Project Name: Walpole 41624A
Project Type: Culvert Repair/Replacement/Maintenance
Project Description: The proposed project will repair the existing double stone arch culvert carrying Great Brook under the Cheshire Branch Rail Road
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.041636003058656,-72.44404662946147,14z

Counties: Cheshire County, New Hampshire

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 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.

---

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*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

FLOWERING PLANTS

NAME	STATUS
Northeastern Bulrush *Scirpus ancistrochaetus*	Endangered

Population:
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6715

CRITICAL HABITATS

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

IPAC USER CONTACT INFORMATION

Agency: New Hampshire Department of Transportation
Name: Rebecca Martin
Address: 7 Hazen Drive
City: Concord
State: NH
Zip: 03302
Email rebecca.a.martin@dot.nh.gov
Phone: 6032716781

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

Dube, Melilotus

From: Lamb, Amy
Sent: Tuesday, January 28, 2020 10:46 AM
To: Dube, Melilotus
Subject: RE: NHDOT Walpole 41624A, NHB20-0232

Hi Meli,

I apologize for sending out the new DataCheck letter without replying to your email. Thank you for sending the August 2018 Nat Res Meeting minutes and photos, and summarizing coordination on the project.

Since all work remains the same as described during previous discussions, and work will remain within previously disturbed areas, then NHB has no concerns to the species and natural community included on the new NHB DataCheck (NHB20-0232):

Sycamore floodplain forest
Loesel's wide-lipped orchid
(*Red maple – black ash swamp* was removed from the new DataCheck letter since it is outside of the project area.)

Regarding USFWS consultation for northeastern bulrush (*Scirpus ancistrochaetus*), I concur that there are still no concerns about this species. Northeastern bulrush typically occurs in graminoid-dominated, beaver-influenced wetlands. This species is often found growing in shallow water, and/or on sediments that are intermittently exposed as a result of water level changes in these wetlands. Based on the photos provided, it does not appear that there are any graminoid-dominated, emergent wetlands in the proposed work area. Therefore, there are still no concerns about potential impacts to this species.

Thank you for your coordination,
Amy

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

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

From: Dube, Melilotus <Melilotus.Dube@dot.nh.gov>
Sent: Wednesday, January 22, 2020 10:44 AM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: NHDOT Walpole 41624A, NHB20-0232

Hi Amy,
I just sent through a request to review this project through the NHB DataCheck tool. We are restarting efforts to get this project out the door so the current NHB # is 20-0232, but it was previously reviewed under NHB18-2540 at which time red maple- black ash swamp, sycamore floodplain forest and Loesel's wide-lipped orchist. We also discussed this project

at the August 2018 Nat Res Meeting (minutes attached), at which time you agreed that there is no concern for impacts to these species/habitats if impacts/access remained with previously disturbed areas. Proposed work has not changed, so this is still the plan.

We also discussed USFWS consultation for NLEB and northeastern bulrush. At the 2018 meeting, you stated that you did not find it likely that northeastern bulrush would be present in the project area due to lack of suitable habitat. Mike Hicks concurred that he anticipated a "no effect" finding for this species. Since I am updating everything for the impending wetland application, do you think the discussion from the 2018 meeting is still accurate/applicable? I'm attaching maps and pictures of the culvert and access area.

Thank you!
Meli

Melilotus M. Dube
Environmental Manager
NHDOT Bureau of Environment
7 Hazen Drive
Concord, NH 03301
(603) 271-1612
NEW EMAIL: Melilotus.Dube@dot.nh.gov

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

In Reply Refer To:
Project code: 2022-0063626
Project Name: Walpole 41624A

April 07, 2023

Federal Action Agency (if applicable): Army Corps of Engineers

Subject: Record of project representative's no effect determination for 'Walpole 41624A'

Dear Rebecca Martin:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on April 07, 2023, for 'Walpole 41624A' (here forward, Project). This project has been assigned Project Code 2022-0063626 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter.

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis, your project has reached the determination of "No Effect" on the northern long-eared bat. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may

include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate
- Northeastern Bulrush *Scirpus ancistrochaetus* Endangered

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

Based upon your IPaC submission, your project has reached the determination of “No Effect” on the northern long-eared bat. If there are no updates on listed species, no further consultation/ coordination for this project is required with respect to the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2022-0063626 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Walpole 41624A

2. Description

The following description was provided for the project 'Walpole 41624A':

> The proposed project will repair the existing double stone arch culvert carrying Great Brook under the Cheshire Branch Rail Road

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.041636003058656,-72.44404662946147,14z

DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the Endangered northern long-eared bat (Myotis septentrionalis). Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. The proposed action does not intersect an area where the northern long-eared bat is likely to occur, based on the information available to U.S. Fish and Wildlife Service as of the most recent update of this key. If you have data that indicates that northern long-eared bats are likely to be present in the action area, answer "NO" and continue through the key.

   Do you want to make a no effect determination?

   Yes

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: New Hampshire Department of Transportation
Name: Rebecca Martin
Address: 7 Hazen Drive
City: Concord
State: NH
Zip: 03302
Email rebecca.a.martin@dot.nh.gov
Phone: 6032716781

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

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

January 31, 2019

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm (accessed January 2019)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

Dube, Melilotus

From: Tur, Maria <maria_tur@fws.gov>
Sent: Tuesday, January 28, 2020 2:10 PM
To: Dube, Melilotus
Subject: Re: Walpole 41624A project

Hello Meli,

You should be all set. Thank you for checking in.

Maria

From: Dube, Melilotus <Melilotus.Dube@dot.nh.gov>
Sent: Friday, January 24, 2020 3:47 PM
To: Tur, Maria <maria_tur@fws.gov>
Subject: [EXTERNAL] RE: Walpole 41624A project

Hi Maria,

Thank you for checking in! I have consulted with NHNHB and USACOE regarding northeastern bulrush and have made a "no effect" determination for this species based on their guidance. This project was reviewed by both agencies, as well as NHDES Wetlands Bureau, EPA and NHFG, at the Natural Resource Agency Meeting hosted by NHDOT on August 15th, 2018, minutes are attached to this email. At that time, Amy Lamb (NHNHB) stated that it is unlikely that northeastern bulrush would be located in the project area due to lack of preferred habitat. Mike Hicks (USACOE) concurred with this and indicated that he anticipated a "no effect" finding for this species.

I recently updated the NHB DataCheck request (attached), which did not indicate northeastern bulrush on the list of species present in the project area. I also emailed Amy Lamb to ensure that her recommendation from 2018 is still accurate, although I have not heard back from her yet.

My understanding of the current process is that I am able to make a "no effect" determination through the USFWS New England Field Office online Project Review and Consultation Process, which ultimately led me to the selection of the "no species present" letter posted on the website, also attached.

Does this sound like an appropriate decision making process to you? Please let me know if there's another route you'd like me to take.
Thanks!
Meli

Melilotus M. Dube
Environmental Manager
NHDOT Bureau of Environment
7 Hazen Drive
Concord, NH 03301
(603) 271-1612

NEW EMAIL: Melilotus.Dube@dot.nh.gov

From: Tur, Maria <maria_tur@fws.gov>
Sent: Wednesday, January 22, 2020 4:57 PM
To: Dube, Melilotus <Melilotus.Dube@dot.nh.gov>
Subject: Walpole project

Hello Mr. Dube,

I was reviewing the NLEB form you submitted through IPaC, and I noticed that the endangered northeastern bulrush also appears on the report. Did you (or the Corps) make a determination regarding that species? Please let me know. Thank you.

Maria E. Tur
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
Phone (603) 227-6419
FAX (603) 223-0104

http://www.fws.gov/newengland/

New Hampshire DOT
Department of Transportation

Victoria F. Sheehan
Commissioner

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

William Cass, P.E.
Assistant Commissioner

Walpole
41624A
RPR 11431

Adverse Effect Memo

Pursuant to meetings and discussions on May 10, 2018 and February 13, 2020 and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Department of Transportation (NHDOT) have coordinated the identification and evaluation of historic and archeological properties with plans to repair a double barrel granite arch culvert carrying the Cheshire Railroad over Great Brook in Walpole, New Hampshire.

Project Description:

The Walpole double barrel granite arch culvert (at 106.65) carrying the Cheshire Railroad over Great Brook in Walpole, New Hampshire has deteriorating stone work and concrete. These structural concerns were first identified in 2011 and work was done under an emergency wetland permit in 2014 to stabilize the sidewalls by installing a concrete toe wall, however, undermining continues and warrants further repair. An inspection performed by TEC Associates in 2018 further describes the existing condition of the culvert and is included in the Request for Project Review packet.

The existing barrels are approximately 15' wide, 15' tall and 150' in length. The crossing was constructed in the late 1840s and is located under a large amount of fill which was placed to transport the railroad over Great Brook. The stones used to construct the arches and wingwalls are generally rectangular in shape and measure approximately 1'8" tall, 1'8" wide and 4' long. The current condition of the outlet is extremely perched with a pool of approximately 5' or deeper, and it is believed that it was constructed in this perched condition. Granite blocks which were constructed as part of the invert of the culvert have washed out of the north barrel. A concrete subfloor, which likely is not original but was certainly installed sometime prior to DOT ownership, extends around the outside face of the concrete blocks at the outlet, however, part of the concrete subfloor has washed out and some granite blocks at the culvert sidewalls have loosened. There is a large degree of undermining between the stone walls and the floor inside the north barrel.

NHDOT evaluated multiple alternatives and impacts to the following properties within the APE were considered:

- Walpole double arch barrel culvert
- Cheshire Railroad (ZMT-OCRR) – assumed eligible (project area form).

These and the preferred alternative were discussed at the May 10, 2018 Cultural Resource Agency Meeting.

The proposed work will install a 12" thick concrete slab floor approximately 28' long by 11'wide on top of the concrete subfloor to tie in to the elevation of the original granite block floor inside the north barrel. The concrete slab will wrap around approximately 4' of the front edge of the outlet and extend 24' across the length of the outlet to cover the granite blocks in front of both the north and south barrels. This will preserve the stepped condition of the existing granite blocks. The concrete will form a ramp in front of the south barrel to tie in to the existing elevation of the granite block invert. The proposed repair will also include installing toe walls on both sides of the north barrel approximately 2' thick and 28' long to secure the undermined sidewalls. Additional work will involve stabilizing the southwest wingwall. Tree growth and undermining have caused some stones at the base of the wingwall to become dislodged. The trees will be removed and concrete will be used to fill the gaps to prevent further shifting and avoid collapse of the wingwall. Due to limited funding, it is intended the NHDOT Bureau of Bridge Maintenance will complete the work as described in a proposed repair plan.

The updated proposed Walpole Arch repair Plan (December 17, 2019) further described the actions:

> We determined that the work required to repair the arch involved installing a reinforced concrete invert in the north barrel from the end of the existing concrete invert inside the arch to the outlet cutoff wall (approximately 28 feet) to replace the missing portion of the existing invert. Because portions of the granite blocks at the outlet of both barrels have been dislodged, a concrete cap with steel dowels needs to be constructed over the dislodged granite blocks at the outlet of both arches to prevent further dislodging of the blocks and the potential for portions of the arch to collapse. In addition, work is required to stabilize the south west wing at the outlet due to undermining caused by tree roots and drainage run off. The undermined stones will be supported with concrete, trees removed and the area will be modified to move surface run off away from the wing. Bridge Maintenance believes the required work is relatively simple and of short duration to complete.

The Area of Potential Effects (APE) is approximately irregular in shape and encompasses only the Cheshire Railroad bed from the crossing at Halls Crossing Road northerly approximately 400' where it widens to a total width of 400' (200' on either side of the railroad) at the crossing of the railroad over Great Brook, and then continues at that width an additional 400' to the north to the beginning of the existing access roads which extends from the railroad to the stream at both the inlet and the outlet. The Railroad bed from Halls Crossing Road and the existing access roads are included to accommodate access to the site. The 400' width beginning at the crossing over Great Brook is included in the APE to allow for access, to accommodate installation of a clean-water bypass structure to enable the work in the culvert to be done in dry stream bed conditions and to allow installation of Best Management Practices to maintain water quality during construction.

Identification:

Above-Ground Resources

On January 29, 2020, a Request for Project Review (RPR) was submitted to NHDHR for the Walpole 41624A project with plans to repair and stabilize the double barrel granite arch culvert carrying the Cheshire Railroad over Great Brook in Walpole, New Hampshire.

While no individual inventory was compiled for the Walpole double barrel granite arch culvert, it is a contributing element of the potentially eligible Cheshire Railroad, documented in the 1996 Project Area Form completed for the Cheshire Railroad.

A Project Area Form was completed in 1996 for the Cheshire Railroad (ZMT-OCRR). The Determination of Eligibility assessment of the rail line concluded that:

> *The Cheshire Railroad is one of the 'most thoroughly-constructed lines in the country.' Its 7 stone arch bridges, 13 large box culverts, 120 smaller stone box culverts, 4 double box culverts and 4 granite block cattle underpasses of local granite have considerable historic and engineering significance which may make the line or these elements of the line eligible under Criteria A and C. To make a final determination, however, it would need to be evaluated against others, and, at this time we have produced a sufficient context to evaluated the Cheshire Line for National Register Eligibility.*

The Cheshire Railroad documentation effort noted that although the majority of the buildings and track components have been destroyed or deteriorated, the most visible and significant remaining infrastructure associated with the railroad are the multitude of stone arch bridges and culverts, stone box culverts and cattle crossings. Additional efforts would be required to determine if the Cheshire Railroad listing would constitute a contiguous linear transportation district along the entire length of the Cheshire Railroad or represent a selective group of rail-related resources such as stone arch culverts or resources within a segment of the railroad line.

The subject culvert was called out as a contributing element of the potentially eligible Cheshire Railroad, significant under A & C as an important link in the transportation system of the Cheshire Railroad as well as the work of an engineering master. It was identified as the singular double arch culvert constructed along this line. In general, these culverts were constructed under large amounts of fill and are excellent examples of engineering and craftsmanship from the late 1840's. The "National Register Statement of Significance" from the Area Form states that the railroad served a significant role in the historical development of Cheshire County and that the "railbed, bridges and culverts were also substantial examples of railroad engineering design."

Based on a review pursuant to 36 CFR 800.4 and 36 CFR 67.8 of the architectural and/or historical significance of above-ground resources in the APE, two (2) properties are currently identified as listed in the National Register or eligible for listing. Inventory and National Register forms are on file at NHDHR offices in Concord, NH, and online through the NHDHR Enhanced Mapping and Management Information Tool (EMMIT), available at https://emmit.dncr.nh.gov.

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Archaeological Sites

EMMIT (3/11/2020) revealed that there are no documented archaeological sites in the project area.

Public Consultation:

Town officials have been contacted regarding the project to gather information about the project area and to inform them of the proposed work. No responses have been received to date.

Determination of Effect:

The Walpole double barrel granite arch culvert carrying the Cheshire Railroad over Great Brook in Walpole, New Hampshire has been subjected to significant damage due to multiple large storm events that caused undermining and collapse of the original form. Although various repair and stabilization efforts have been undertaken., significant undermining is still occurring and there is a high risk for continued collapse. NHDOT Bridge Maintenance feels that the most cost effective solution and best engineering remedy for would be to maintain the twin arches in place.

While some original elements of the culvert have dislodged naturally over time, the proposed work will not remove any additional original stones or concrete work. The installation of the new concrete floor, concrete cap, toe walls and wingwall stabilization are intended to preserve the existing infrastructure and are not intended to alter the aesthetic or functionality of the crossing. This work is necessary to stabilize the stone work to avoid further deterioration of the structural integrity and avoid eventual collapse of the culvert. The culvert will be accessed using the existing rail trail and previously constructed access road to the outlet which was installed during the 2014 emergency repair efforts. The work will be irreversible, and a change of materials & design.

This proactive effort represents the least intrusive solution to stabilize the arch for the following reasons:

- It minimizes work on the arch and on the rail corridor because it limits the work area to the outlet of the arch and adjacent slope, and
- It retains remaining portions of the arches and provides a permanent stable engineered solution that stops further collapse of the arch.

Applying the criteria of effect at 36 CFR 800.5(a)(2), we have determined that the Walpole 41624A project will result in an Adverse Effect to the potentially eligible Cheshire Railroad district. As such, the project warrants the compilation of a Memorandum of Agreement and determination of mitigation for the adverse effect. The proposed alternative however minimizes adverse effects to the structure.

Archaeology

There were no archaeological concerns as the culvert will be accessed using the existing rail trail and previously constructed access road to the outlet which was installed during the 2014 emergency repair efforts. Work is concentrated within the culvert or within previously disturbed areas associated with the wing and toe walls.

The result of identification and evaluation for the proposed 41624A Contract is a finding of *Adverse Effect.*

Mitigation Measures:

Appropriate mitigation will be determined in consultation with NHDHR, and if interested, the Town of Walpole and the consulting parties. Mitigation will be recorded in a Memorandum of Agreement.

Section 4(f) *(to be completed by FHWA)*	*There Will Be:*	☐ **No 4(f);**	☐ **Programmatic 4(f);**	☐ **Full 4 (f);** or
	☐ **A finding of *de minimis* 4(f) impact as stated:** In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with 23 CFR 774.3, FHWA intends to, and by signature below, does make a finding of *de minimis* impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the *de minimis* findings. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.			

In accordance with the Advisory Council's regulations, consultation will continue, as appropriate, as this project proceeds.

Jill Edelmann — 3/20/2020

Jill Edelmann
Cultural Resources Manager
Date

Concurred with by the NH State Historic Preservation Officer:

Nadine Miller, DSHPO — 3/20/2020

Nadine Miller
Deputy State Historic Preservation Officer
NH Division of Historical Resources
Date

cc: Brian Lombard, NHDOT; Meli Dube, NHDOT; Laura Black, NHDHR; David Trubey, NHDHR; Marika Labash, NHDHR; Mike Hicks, ACOE; Rick Kristoff, ACOE

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BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: Monthly SHPO-FHWA-ACOE-NHDOT Cultural Resources Meeting
DATE OF CONFERENCES: February 13, 2020
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT	Russell St Pierre	**ACOE**
Timothy Boodey	Shelley Winters	Richard Kristoff
Sheila Charles		
Ron Crickard	**FHWA**	**GM2**
Meli Dube	Jamie Sikora (via phone)	Seth Hill
Jill Edelmann		
Steve Johnson	**NHDHR**	**MJ**
Kathy Corliss	Laura Black	Jennifer Zorn
Marc Laurin	David Trubey	
Arin Mills		

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

Plaistow-Kingston 10044E, X-A000(378)
Participants: Jennifer Zorn, MJ; Darren Blood, Seth Hill, GM2; Marc Laurin, Kathy Corliss, NHDOT

The goal of this meeting is to review the project as a whole in relation to the previous Effect Memo and MOA for the Plaistow-Kingston 10044B project and discuss the revised design for this final 1.8-mile section of NH Route 125. Cultural resources considerations and eligible property impacts will be reviewed.

J. Zorn provided a brief overview of the project history. The overall project was 6 miles in length and previously designed, as well as been vetted through the NEPA process and Public Hearing process in 2004/2005. Most of the project has been construction, with the exception of Contract E, the project at-hand. Contract E is 1.8 miles in length. A redesign of the last section has been done due to the decrease in actual projected traffic volumes. This current design calls for a reduction in footprint from the previously proposed 5-lane roadway. The current design calls for a 3 lane roadway, which has been supported by the towns, the public, and project Working Group.

J. Zorn then identified the areas of interest from a cultural resource perspective. Two locations of interest are present. One location is known as “Area 6” which is an archaeologically sensitive area located near the Diamond Oaks Boulevard/NH Route 125 intersection. The other location is the property and cottage located at 56 NH Route 125, which is eligible for the National Register.
J. Zorn stated that there would be slope impacts to Area 6, and the IAC would complete an Expanded Phase 2 starting spring of 2020.

J. Zorn stated that no impacts were proposed on the #56 property, but tree clearing and grading activities would likely occur on the adjacent NHDOT owned property to expand the existing water quality treatment facility. The question was asked whether this clearing would be considered an impact, but further design would be needed to provide and accurate answer.

cemetery, Happy Hollow Cemetery, on parcel 286 was also discussed. The current design avoid impacts to the cemetery, but it was stated that any excavation within 25' of the cemetery would require monitoring during construction activities. The current design does include excavation within 25' of the cemetery.

L. Black indicated that an Impact Table should be created to the #56 property and that the design team should attend another meeting once additional design information/impacts are known.
The Heath property and barn were discussed as being previously demolished by others. The CRA staff shall investigate this property and its location relative to the project site.

M. Laurin brought the historic district along Newton Junction Road to the attention of the attendees and stated that it may be beneficial to show this on future figures. This led to a discussion of where an APE was created for the project. J. Zorn and S. Hill were not sure and would have to check with Preservation Company regarding the APE. M. Laurin stated that because the project originated 20 years ago, an APE probably wasn't originally created as that is a newer policy.

J. Zorn closed with a brief overview of the project schedule, starting with a draft NEPA submission to NHDOT in the spring of 2020 and a public hearing most likely in the fall of 2020.

Walpole 41624A (no federal number)
Participants: Meli Dube, Timothy Boodey, Steve Johnson, Shelley Winters, NHDOT

The proposed project addresses deteriorating granite stone work and concrete on an existing double barrel stone arch culvert carrying the abandoned Cheshire Branch Railroad over Great Brook. The goal of the meeting was to discuss the Request for Project Review comments, including specific concerns about using concrete as the stabilization treatment for installing a new floor in the north barrel of the culvert and a cap over the front of the outlet of the structure.

Meli Dube, NHDOT Bureau of Environment, introduced the project and provided a summary of the location, current condition, previous damage and repair efforts and the proposed stabilization project. The proposed work would involve proactive stabilization of the 150' long double stone arch culvert carrying the Cheshire Rail Road over Great Brook in the Town of Walpole. Each barrel is approximately 15' wide and 15' tall. The current condition of the outlet is extremely perched with an approximately 5' deep pool, it is believed the culvert was constructed in this condition. Portions of the original granite block invert have washed out approximately 28' into the northern barrel, which has destabilized the stone walls and concrete subfloor. There is a large degree of undermining of the stone walls, which was first identified in 2011 at which time emergency repairs were made to stabilize the walls by installing a concrete toe wall. Unfortunately, undermining continues and additional stabilization is required. Steve Johnson, NHDOT Bureau of Bridge Maintenance, summarized the proposed preferred alternative which involves installing a 12" thick concrete slab floor approximately 28' long by 11' wide on top of the original concrete sub floor to tie into the elevation of the original granite block invert in the north barrel. The concrete slab will wrap around approximately 4' of the front edge of the outlet and extend 24' across the length of the outlet to cover the granite blocks in front of both the north and south barrels. New 2' thick 28' long toe walls will be installed on top of the new concrete slab floor to further stabilize the stone walls. Finally, concrete will be used to patch and stabilize gaps in the southwest wingwall where stones have shifted due to tree growth. S. Johnson stated that this alternative for stabilizing the wingwall is preferred over excavating to reposition shifted stones due to the risk of further destabilizing the structure.

NH Division of Historic Resources indicated that it would be preferred to fix the perched condition. M. Dube clarified that this project is not receiving federal funding and that the US Army Corps of Engineers is the primary federal agency. Both USACOE and NH Department of Environmental Services Wetlands Bureau have reviewed the proposed work and agreed that it is infeasible to address the perch at this location. S. Johnson added that constructing the necessary staging and access to accommodate the equipment necessary for this work is beyond the scope of the project, and the alterations to the stream bed are infeasible given the limited funding source and increased impacts to natural resources. Laura Black, NHDHR, expressed concern with the use of concrete and noted that if the stones were previously dry laid then repair efforts should mimic this technique. She added that concrete can cause additional problems in the future if used irresponsibly. M. Dube stated that it is believed this is dry laid but this is not confirmed. S. Johnson stated that the concrete is not intended to be used as mortar and that chinked stone and mortar will be used appropriately during the stabilization efforts. For example, repairs to the southwest wingwall will involve clearing debris, adding concrete where needed to fill large voids below the granite blocks and then rechinking stone and adding mortar where necessary between the blocks. He also stated that use of concrete in the floor should not have a negative effect on the stones because concrete will be used to overlay the area where the floor washed out but will not be used in between stones. Tim Boodey, NHDOT Bureau of Bridge Maintenance, confirmed that the Department will follow the Secretary of the Interiors Standards for Pointing and Mortaring and the National Park Service's Technical Briefs. S. Johnson clarified that some clearing will occur around the culvert to prevent future destabilization from roots.

A general discussion about the kinds of adverse effects that the proposed work would have occurred. David Trubey, NHDHR, raised the question of previous repairs now being considered part of the historic value of the culvert, especially those reflecting the "railroad repair mentality" of the era during which the railroad was constructed and used as a major industry. A discussion about the pins placed in the stone blocks at the outlet occurred, and it seems likely that these were used to hold wooden planking in place at some point. S. Johnson confirmed that the new concrete cap would cover these pins and L. Black responded that they should be adequately documented prior to the work.

M. Dube reiterated that the State has obtained Capitol Funds for this work, which are very limited and are being shared with the Westmoreland 41624 project so options for using these funds for mitigation purposes is limited, however, the Department is still vested in creating a mitigation plan that is realistic and appropriate. A management plan is not considered feasible because there is no certain funding at this time to complete work on a predetermined schedule. Instead, the project team proposed a monitoring plan that would involve inventorying all of the stone structures on the Cheshire Line (approximately 12 structures) for both structural and cultural integrity on a regular interval, which would provide the ability to have a prioritized work plan in place should additional funding become available and to continuously check for damage that may require emergency repairs from large storm events. Inventory efforts would include photos and a written report. An initial inventory to be completed during the Summer of 2020 at which point an appropriate interval for continued monitoring will be determined. This mitigation strategy will be for both this project and the Westmoreland 41624 project located at the crossing of the Cheshire Railroad over White Bridge Brook in the Town of Westmoreland. At this time, an Effect Memo will be completed this spring to further the wetland permitting process and a Memorandum of Understanding will completed later in the Summer of 2020 once the mitigation plan is finalized.

Westmoreland 41624 (no federal number)
Participants: Meli Dube, Timothy Boodey, Steve Johnson, Shelley Winters, NHDOT

The goal of the meeting is to discuss previous protocol for the project Section 106 documentation, revisions of the former Adverse Effect Memo, and compilation of the MOA.

US Army Corps of Engineers ®
New England District

Appendix B
New Hampshire General Permits
Required Information and USACE Section 404Checklist

USACE Section 404 Checklist

1. Attach any explanations to this checklist. Lack of information could delay a USACE 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 3 for information on single and complete projects.
4. Contact USACE at (978) 318-8832 with any questions.
5. The information requested below is generally required in the NHDES Wetland Application. See page 61 for NHDES references and Admin Rules as they relate to the information below.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See the following to determine if there is an impaired water in the vicinity of your work area. * https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/ https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx		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 tidal SAS, prime wetlands, or priority resource areas? 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://www4.des.state.nh.us/NHB-DataCheck/.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?	NA	
2.7 What is the area of the proposed fill in wetlands?	NA	
2.8 What % of the overall project sire will be previously and proposed filled wetlands?	NA	
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://www4.des.state.nh.us/NHB-DataCheck/. USFWS IPAC website: https://ipac.ecosphere.fws.gov/	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: https://wildlife.state.nh.us/wildlife/wap-high-rank.html. • 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 31?	X	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		NA
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the 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 37 GC 14(d) of the GP document**	X	
6. Minimal Impact Determination (for projects that exceed 1 acre of permanent impact)	Yes	No
Projects with greater than 1 acre of permanent impact must include the following: • Functional assessment for aquatic resources in the project area. • On and off-site alternative analysis. • Provide additional information and description for how the below criteria are met.		NA
6.1 Will there be complete loss of aquatic resources on site?		NA
6.2 Have the impacts to the aquatic resources been avoided and minimized to the greatest extent practicable?		NA
6.3 Will all aquatic resource function be lost?		NA
6.4 Does the aquatic resource (s) have regional significance (watershed or ecoregion)?		NA
6.5 Is there an on-site alternative with less impact?		NA
6.6 Is there an off-site alternative with less impact?		NA
6.7 Will there be a loss to a resource dependent species?		NA
6.8 Are indirect impacts greater than 1 acre within and adjacent to the project area?		NA
6.9 Does the proposed mitigation replace aquatic resource function for direct, indirect, and cumulative impacts?		NA

*Although this checklist utilizes state information, its submittal to USACE is a federal requirement.

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

NHDOT Walpole 41624A

NHDHR Request for Project Review Photos

Taken by Meli Dube and Deidre Benjamin, NHDOT BOE, on December 12, 2019

Figure 1. Looking north at crossing along the Cheshire Railroad

Figure 2. Looking south at crossing along the Cheshire Railroad

Figure 3. Looking west at outlet from the Cheshire Railroad trail

Figure 4. Looking east at inlet from Cheshire Railroad trail

Figure 5. Looking east towards outlet from downstream

Figure 6. Looking east at top of outlet center buttress support from downstream

Figure 7. Looking east at the base of outlet center buttress support from downstream

Figure 8. Looking east at north barrel outlet from downstream

Figure 9. Looking at east at northwest barrel wingwall from downstream

Figure 10. Looking east at south barrel outlet from downstream

Figure 11. Looking east at south barrel outlet and southwest wingwall from downstream

Figure 12. Looking east at southwest wingwall and railroad tie support from downstream

Figure 13. Looking south at the southwest wingwall 15’ extension from the outlet

Figure 14. Looking east at stone displacement at base of southwest wingwall

Figure 15. Looking east through the north barrel from the outlet

Figure 16. View of the keystone at the western end (outlet) of the north barrel

Figure 17. Looking east through the north barrel at the 3’ drop located 30’ into the structure where the stone floor washed away and revealed the original concrete floor

Figure 18. View of the southern sidewall of the north barrel showing where the stone floor has washed away and undermining of the concrete toe wall installed in 2014

Figure 19. View of northern sidewall of the north barrel showing where the stone floor washed away and undermining of the concrete toe wall installed in 2014

Figure 20. View of typical stone used throughout the structure measuring 1’8” tall and 4’ long, looking at the northern sidewall of the north barrel

Figure 21. View of typical markings found on stones used throughout the structure, view of the northern sidewall of the north barrel

Figure 22. View of typical markings found on stones used throughout the structure, view of the northenr sidewall of the north barrel

Figure 23. Looking west at inlet from upstream

Figure 24. Looking west at southeast wingwall from upstream

Figure 25. Looking west at northeast wingwall from upstream

Figure 26. Looking west at northern barrel eastern end (inlet) keystone from upstream

Figure 27. Looking west at center pier with pointed ends on spandrel wall at eastern end (inlet) from upstream

New Hampshire Department of Transportation Bureau of Rail & Transit
Walpole, Cheshire Branch Railroad Corridor Bridge MP106.65 over Great Brook

Construction Sequence

Work is anticipated to take approximately 4 weeks and is currently proposed to be done during Fall 2023. Work will be completed in two phases. Access to the location of the bridge structure will be from the existing railroad corridor rail trail. Access to the outlet will be from an existing northwestern ramp parallel rail trail, and access to the inlet will be directly down the slope from the rail trail (no equipment required).

1. Work is proposed to be done during low flow.

2. Install erosion barrier controls at base of northwestern access roadway and at along lower portions of eastern embankment prior to any disturbance and jurisdictional impacts.

3. Install a sandbag cofferdam across the northern barrel inlet to divert all water into the southern barrel away from the work area. A sandbag cofferdam will also be installed to separate the 2 downstream barrel outlets to prevent southern barrel flows from impacting concrete placement on the northern barrel's downstream end.

4. Any water seepage within the northern barrel work area protected by the upstream cofferdam will be pumped to a dewatering basin to allow for sediment to settle out prior to the water being introduced back into the brook.

5. A silt boom will also be installed downstream of the northern barrel to accommodate any seepage with the work area that is not addressed by water pumps moving water into the sediment basin.

6. Prep, form, and place northern barrel concrete per approved plans.

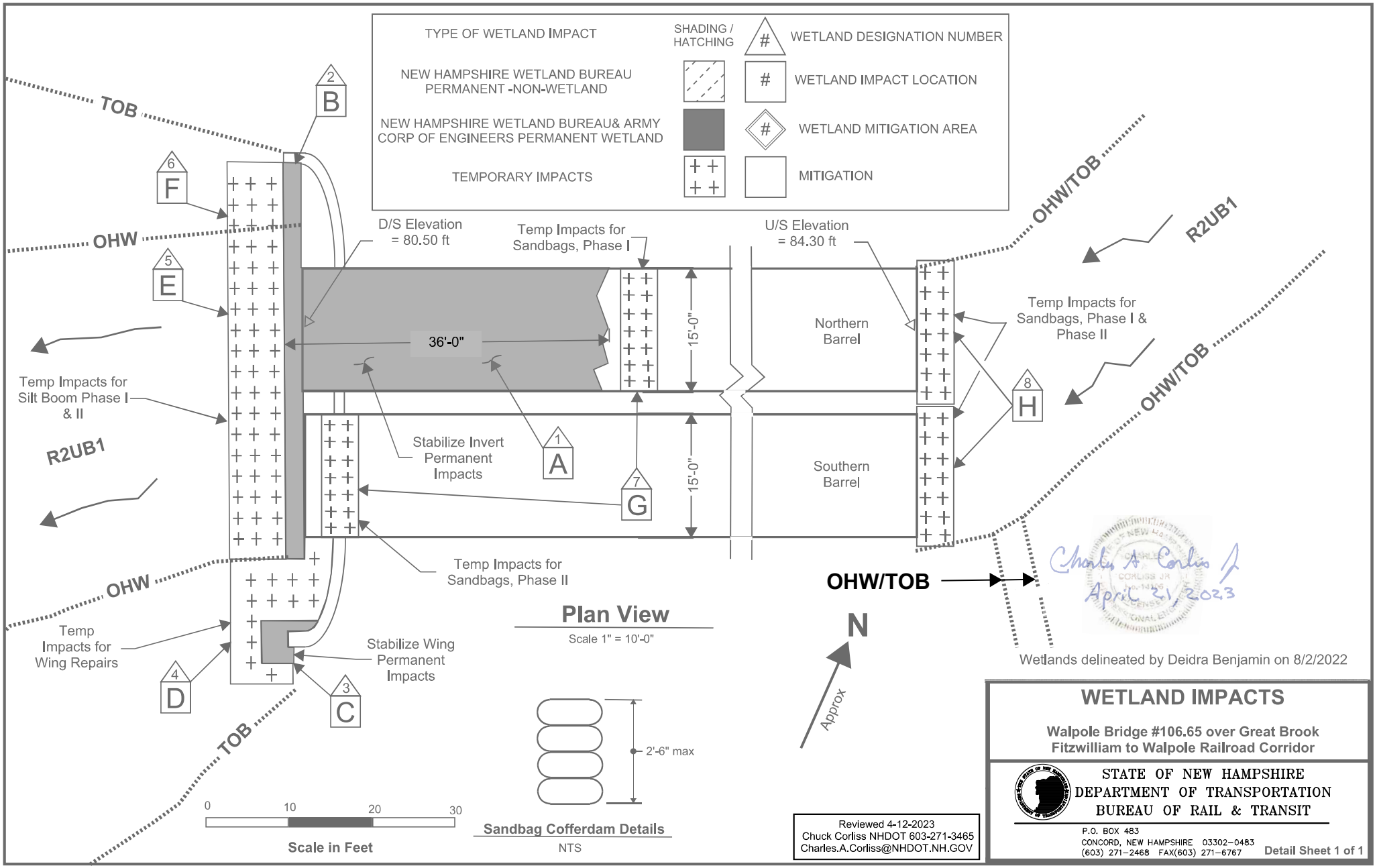
7. Swap all northern barrel water diversion controls and dewatering basin(s) noted above to allow work on the southern barrel and southwest's corner wing undermining.

8. Prep, form, and place northern barrel concrete per approved plans along with the southwest's corner wing undermining prevention concrete placement (note all excavation for the southwest's corner wing form work will be completed by hand, no equipment).

9. Remove all sandbag/water diversion controls and dewatering basin(s).

10. Stabilize the any temporary impact areas, the Project will utilize BMP's from the Best Management Practices manual during all phases of construction.

11. While on site, vegetation above the Top-of-Bank jurisdictional areas will be removed to protect the historic stone arch structure from tree blow down damage to both rail trail corridor embankments.



WETLAND IMPACTS

Walpole Bridge #106.65 over Great Brook
Fitzwilliam to Walpole Railroad Corridor

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF RAIL & TRANSIT

P.O. BOX 483
CONCORD, NEW HAMPSHIRE 03302-0483
(603) 271-2468 FAX(603) 271-6767

Reviewed 4-12-2023
Chuck Corliss NHDOT 603-271-3465
Charles.A.Corliss@NHDOT.NH.GOV

WETLAND IMPACT SUMMARY

WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS						LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY		PERMANENT		
			N.H.W.B. (NON WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)				BANK LEFT	BANK RIGHT	CHANNEL
			SF	LF	SF	LF	SF	LF	LF	LF	LF
1	RUB12	A			617	39					
2	BANK	B	15	2							
3	BANK	C	20	7							
4	BANK	D					127	12			
5	RUB12	E					270	7			
6	BANK	F					55	7			
7	RUB12	G					150	10			
8	RUB12	H					150	10			
		I									
		J									
		K									
		LOCATION									
		TOTAL	35	9		39	752	465			

PERMANENT IMPACTS:	652	SF
TEMPORARY IMPACTS:	752	SF
TOTAL IMPACTS:	1,404	SF

SUBTOTALS		PERMANENT				TEMPORARY	
		N.H.W.B. (Non-Wetland)		N.H.W.B. & A.C.O.E. (Wetland)			
CLASS	DESCRIPTION	SF	LF	SF	LF	SF	LF
RUB12	RIVERINE			617	39	570	27
BANK	BANK	35	9			182	19

Reviewed 4-12-2023
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WETLAND KEY AND SUMMARY

Walpole Bridge #106.65 over Great Brook
Fitzwilliam to Walpole Railroad Corridor

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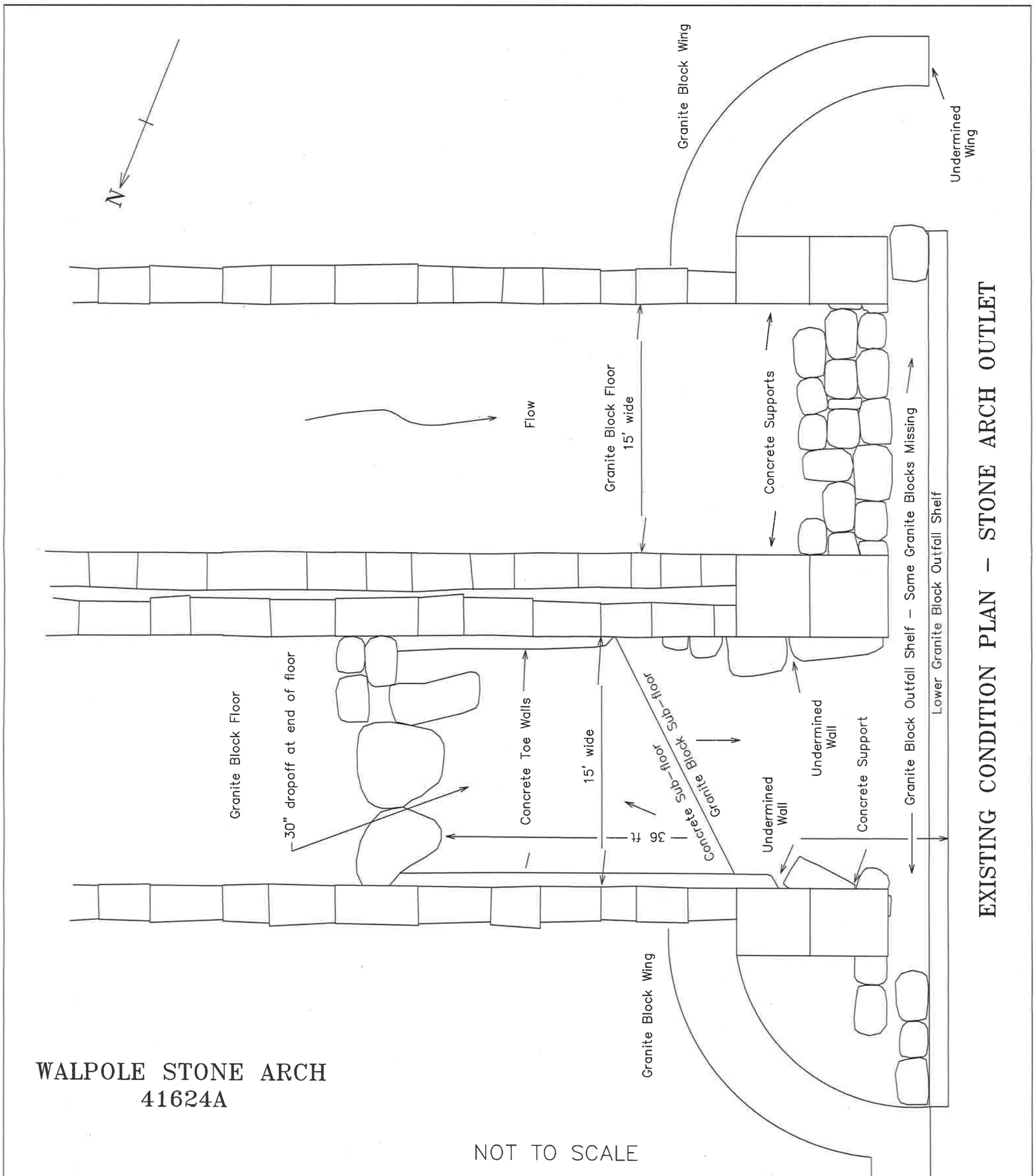

EXISTING CONDITION PLAN - STONE ARCH OUTLET

WALPOLE STONE ARCH
41624A

NOT TO SCALE

STATE OF NEW HAMPSHIRE
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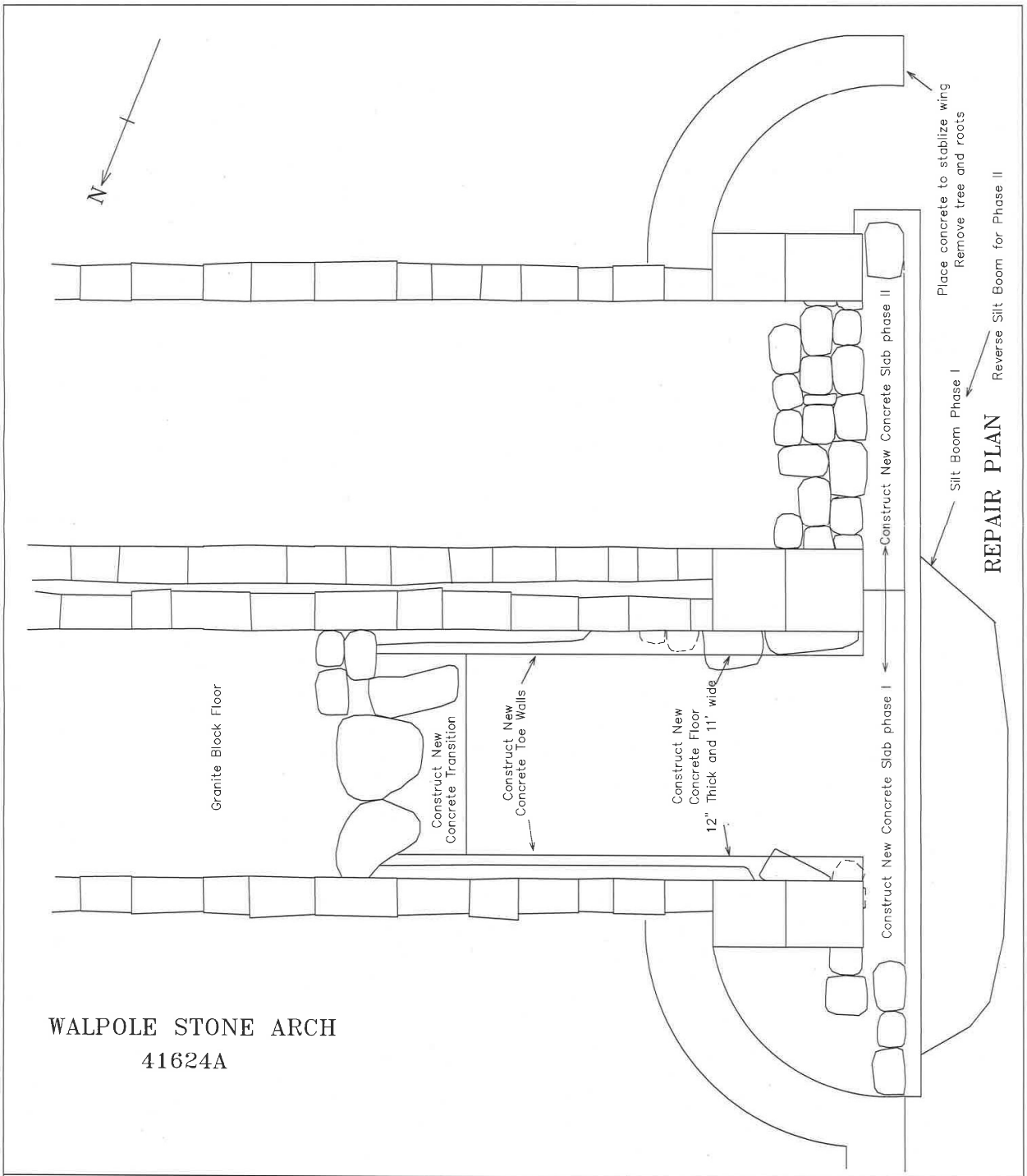
Twin Stone Arch 106.65
Cheshire Branch Railroad – Walpole, NH

REVISIONS	
DATE	DESCRIPTION
February 12, 2023	Update Drawing
	Chuck Corliss, PE

SHEET: Sht 1 of 3



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Twin Stone Arch 106.65

Cheshire Branch Railroad – Walpole, NH

REVISIONS	
DATE	DESCRIPTION
February 12, 2023	Update Drawing

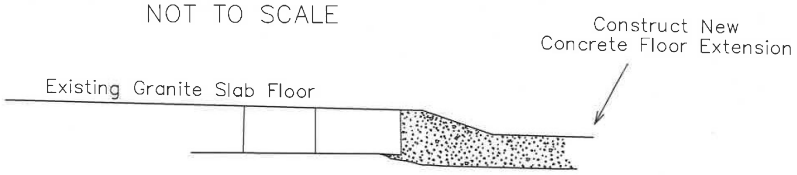
Chuck Corliss, PE

NOT TO SCALE

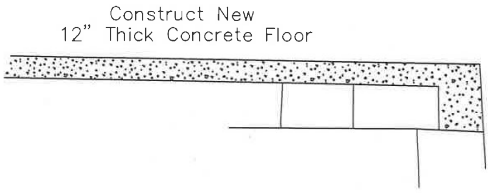
SHEET: Sht 2 of 3

TYPICAL NORTH BARREL FLOOR REPAIR

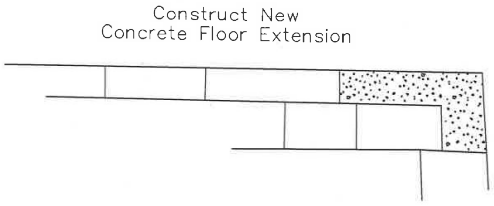
NOT TO SCALE



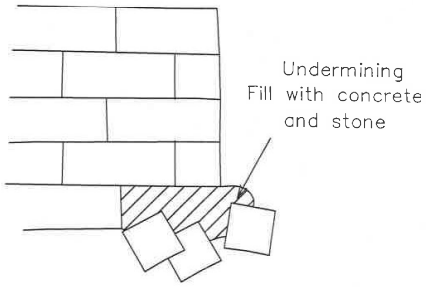
CONCRETE TRANSITION RAMP IN NORTH BARREL



NORTH BARREL FLOOR REPAIR



SOUTH BARREL FLOOR EXTENSION



SOUTH EAST WING

NOTES

1. Construct a concrete transition ramp sloped from the old granite block floor to the concrete subfloor.
2. Steel dowels will be anchored into the existing granite blocks in the toe walls, the concrete transition ramp and where the concrete floor extends over the outfall blocks.
3. Put a slight slope on toe walls away from the granite block walls and toward the stream channel.
4. Install mats of reinforcing steel in the toe walls, the concrete transition ramp and where the concrete floor extends over the outfall blocks.

CONSTRUCTION SECTIONS AND DETAILS

WALPOLE STONE ARCH
41624A

NOT TO SCALE

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Twin Stone Arch 106.65
Cheshire Branch Railroad – Walpole, NH

REVISIONS	
DATE	DESCRIPTION
February 12, 2023	Update Drawing

SHEET: Sht 3 of 3

Reviewed 4-12-2023
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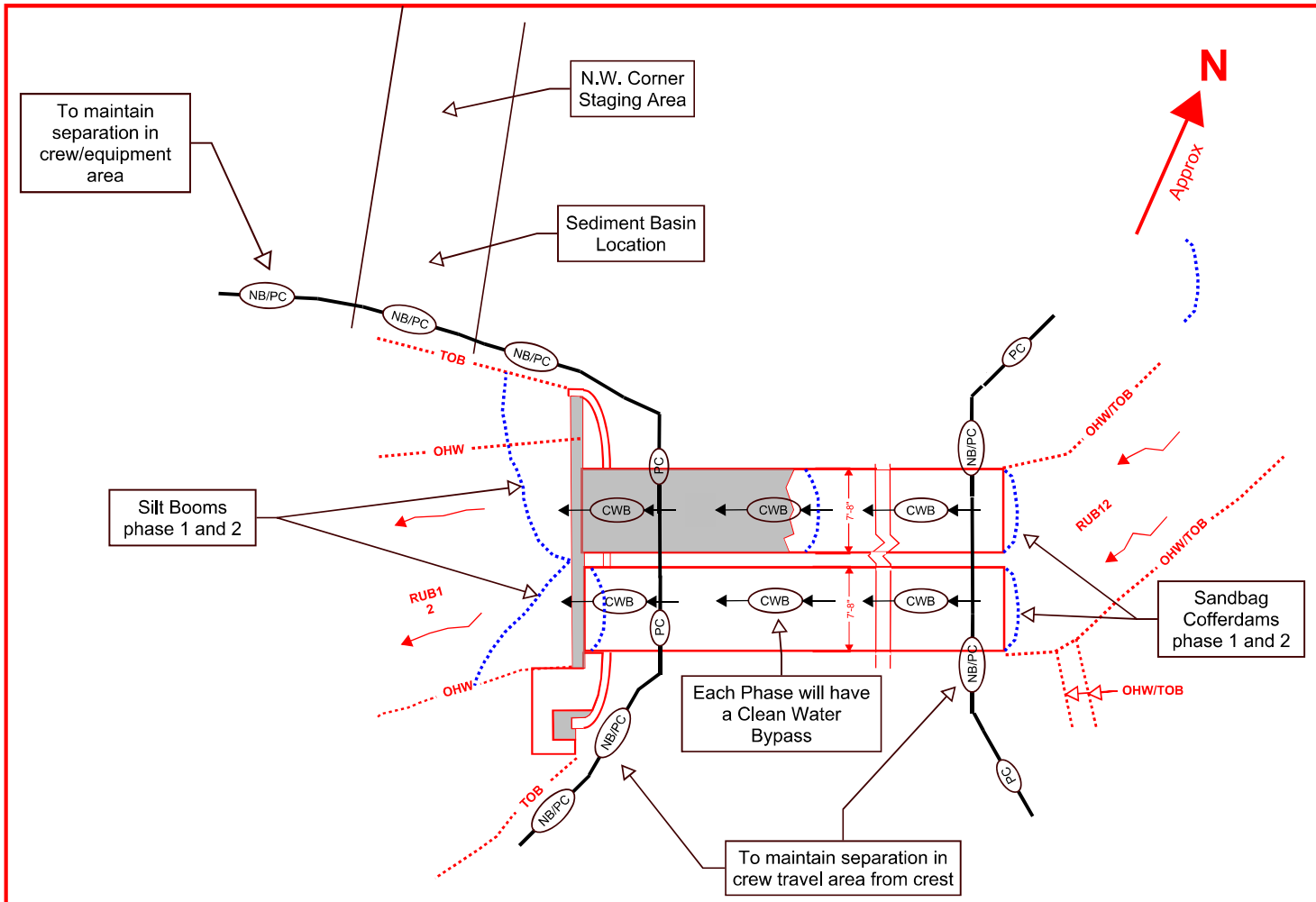
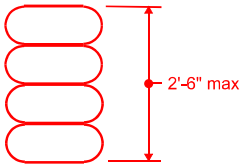


Plan View

Scale 1" = 20'-0"

0 20 40 60

Scale in Feet



Sandbag Cofferdam Detail

NTS

EROSION CONTROL PLAN LEGEND

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

Notes:

1. Clean water bypass will be controlled by u/s sandbags placed across openings for each phase.
2. Sediment basin will be located on the N.W. corner and provide more than 20 ft of vegetated buffer before reaching the brooks edge.
3. Double BMP's will be utilized in location where crew and equipment may be working as materials are moved in and out of the work site.
4. Single BMP's will be utilized for protection when trees are being removed form the slope and minor ground disturbance is expected.
5. A silt boom will be placed across the d/s invert for each phase to provide separation during each phase of clean water bypass.

Reviewed 4-12-2023
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Erosion Control Plan

Walpole Bridge #106.65 over Great Brook
Fitzwilliam to Walpole Railroad Corridor

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