Hollis
15310

Environmental Study

May 2008

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Description of Project/ Proposed Action

This project involves the replacement of a culvert on Depot Road in Hollis, NH. This 6' wide, 7' high, 42' long, potentially historic stone box culvert is located on Sucker Brook approximately 1,800 feet north of the Depot Road/NH Route 111 intersection (*Exhibit A)*. This culvert was severely damaged during the floods of April 2007 resulting in substantial structural deficiencies and safety concerns.

The proposed project involves replacing the existing stone box culvert with a 7' wide, 7' tall, 60' long, concrete box culvert. The invert of the new culvert will then be buried approximately 1-foot below the streambed to provide for 1-foot of naturalized material to be placed on the bottom. The length of the culvert has been lengthened from 42' to 60' to allow for more stable shoulders and embankments and to provide an adequate base for updated guardrail. This project will also include minor shoulder adjustments and pavement rehabilitation. This project may require a detour of approximately 3 miles around the project site, to allow for the most efficient installation of the new structure.

In accordance with the National Environmental Policy Act of 1969 (42 USC 4332(2)(c)) as implemented in 23 CFR 771.117(d)(1) this environmental study addresses the reconstruction of the Depot Road, Sucker Brook Culvert, and has been prepared using a systematic, interdisciplinary approach to assess the engineering considerations and environmental effects of this project.

Project Purpose and Need

The proposed project is located on Depot Road in Hollis, NH (*Exhibit A*). The intent of this project is to replace the existing 6' wide, 7' high, 42' long stone box culvert that carries Depot Road over Sucker Brook with a similarly sized, although somewhat longer, structure. This culvert was severely damaged during the floods of April 2007. During this flooding event, high waters dislodged multiple granite blocks at both the inlet and the outlet of the culvert and caused the ceiling and walls to become extremely unstable (*Exhibit D*). Since this event the Department has temporarily stabilized portions of the culvert in order to prevent collapse and maintain traffic on Depot Road. The intent of this project is to permanently fix this culvert in order to maintain safe travel along Depot Road.

Alternatives Considered

"No-Build"

The "No-Build" alternative is not considered feasible and prudent, as it does not address the obvious deficiencies and safety concerns associated with the existing box culvert. Selection of this alternative would allow the culvert to continue to deteriorate to a point where it collapses, requiring the road to be closed until a future project can be developed. Overall, the impacts associated with the proposed action are not of a magnitude to warrant selection of this alternative.

Repair of the Existing Structure

This alternative would involve repairing the existing stone box culvert to a more stable condition. Given the poor state of the existing culvert the entire culvert would need to be reconstructed and many of the granite blocks would need to be replaced. This alternative would cost substantially more than other replacement options and would require the road to be closed for a longer period of time.

New Location Alternatives

These alternatives would relocate Depot Road to either the east or west of its current location. Both an east or west alignment would require constructing a new roadway that would have far greater impacts to undeveloped forestlands, wetlands and private properties. Moreover, these alternatives would substantially increase project costs and the additional property and right-of-way impacts would likely raise serious public concerns.

Slip-Line the Existing Culvert

This alternative involves slip-lining the existing box culvert with a smaller pipe which could be placed within the structure. This alternative would reinforce the existing structure from the inside, however it would substantially decrease the culvert's carrying capacity. By decreasing the carrying capacity of the culvert, the potential for flooding both upstream and downstream from the crossing increases and mitigation would likely be necessary. The existing culvert also has an angle approximately half-way through the structure, making the installation of a straight slip-line pipe difficult.

Twin Concrete Pipes

This alternative involves the replacement of the existing box culvert with two 60-68" reinforced concrete pipes approximately 60' in length. The invert elevation of one pipe would be raised slightly above that of the other to enhance amphibian and reptile crossing along Sucker Brook. This alternative is considered the "second" option as it does not provide for a naturalized bottom and the smaller size of the culverts are considered deterrents for aquatic wildlife attempting to cross through the structures. This option is easier to install, as the pipe sections are lighter than the box culvert option, allowing for smaller equipment to be used. Smaller equipment could be used around the existing utility lines without the need for relocation. If utility relocation could be avoided, this project could be completed much faster and may be necessary depending on the complexity of the utilities. The Resource Agencies including NH Fish & Game and the NH Department of Environmental Services are in agreement that this option can be utilized if the preferred alternative is determined to be unfeasible.

Coordination and Public Participation

Letters were sent to various Federal, State and local agencies and groups, as well as the general public, requesting input on this project on the following dates:

Agency / Organization	Contact	Date Sent	Date Received
Town of Hollis			
Chair, Historic District Commission	Frank Cadwell	11/16/2007	-
Chair, Conservation Commission	Tom Dufresne	11/16/2007	-
Chair, Heritage Commission	M. Honi Glover	11/16/2007	11/30/2007
Director of Administration	Catherine Hallsworth	1/8/2008	-
Road Agent	Arthur LeBlanc	11/16/2007	-
Chair, Planning Board	Edwin Makepeace	11/16/2007	-
Recreation Director	Kevin McDonnell	11/16/2007	-
SAU # 41Superintendent of Schools	Richard Pike	11/16/2007	-
Fire Chief	Richard Towne	11/16/2007	-
Police Chief	Russell Ux	11/16/2007	-
Chair, Board of Selectmen	Melinda Willis	11/16/2007	-
Nashua Regional Planning Commission	Stephen Williams	11/16/2007	-
NH DRED, LWCF	Shari Colby	11/15/2007	11/19/2007
NH Natural Heritage Bureau	Melissa Coppola	11/16/2007	11/19/2007
NH Office of Energy and Planning	Jennifer Gilbert	11/15/2007	11/20/2007
NH Office of Energy & Planning (CLS)	Steve Walker	11/15/2007	11/15/2007

Meetings have periodically been held throughout the development of this project, with various Federal, State and local agencies, as well as with the general public. Project review meetings were held on the following dates:

Date	Topic
December 13, 2007	Cultural Resource Agency Meeting
January 16, 2007	Natural Resource Agency Meeting
January 28, 2008	Public Officials Meeting
May 2008	Proposed Public Informational Meeting

Evaluation of Environmental Effects

The effects of the project relative to the following social, economic, natural and cultural resources/issues have been reviewed. Resources/issues, which are not discussed in the body of the report, were investigated, however no impacts were evident. As such, these resources/issues are omitted from this environmental documentation. The resources and issues deemed applicable for this project are indicated in **bold**/underlined type.

Resources/Issues

Social/ Economic		Natural	Cultural
Safety	Farmlands	Water Quality	Historical
Transportation Patterns	**Community Services**	NPDES, Stormwater Mgt.	Archaeological
Air Quality	Energy Needs	Wetlands	Stonewalls
Noise	Utilities	Surface Water	Aesthetics
Displacements	Environmental Justice	Groundwater	
Contaminated Properties		Floodplains	
Neighborhoods		Wildlife	
Business Impacts		Fisheries	
Land Acquisition		Endangered Species	
Land Use		Natural Communities	
Tax Base		Invasive Species	
Recreation		Wild & Scenic Rivers	
Public Lands		Stream Rechannelization	
Construction Impacts		NH Designated Rivers	
		Forest Lands	
		Costal Zone	

Discussions of the effects on resources/issues in bold follow.

Safety/Transportation Patterns/Community Services

This project involves the replacement of a culvert on Depot Road in Hollis, NH. This 6' wide, 7' high, 42' long, stone box culvert is located on Sucker Brook approximately 1,800 feet north of the Depot Road/NH Route 111 intersection.

The current posted speed limit of Depot Road within the project limits is 40 mph. This section of roadway handles approximately 6,200 vehicles per day and serves as a connection between the F. E. Everett Turnpike, NH Route 111 and downtown Hollis. This rural/suburban section of roadway also serves as an important connector between multiple neighborhoods of Hollis.

The intent of this project is to improve the condition and safety of this section of roadway. This project may require Depot Road to be closed for up to a month to allow for the safe and efficient

installation of the new culvert. If this detour is necessary, traffic will be temporarily rerouted around the project area for a distance of approximately 3 miles (*Exhibit C*). The signed Detour Route is expected to utilize 3 local roads, Twiss Lane, Dow Road and Jewett Lane. This detour is likely to impede certain community services such as emergency response and certain forms of public transportation including school buses. Currently Depot Road is one of several direct routes for medical, police and fire response vehicles to reach emergencies on NH Route 111 and neighborhoods to the southeast of downtown Hollis. The implementation of this detour will require emergency vehicles and school buses to avoid the project area during construction, but given the number of alternative routes, and the length of the detour, these services are not expected to be substantially affected by the construction of this project. Once construction is complete, traffic patterns, bus and emergency response routes will return to their pre-construction status. The project has been discussed with town emergency officials and to date there have been no concerns expressed regarding the implementation of this detour.

Contaminated Properties

An in-house database search of the New Hampshire Department of Environmental Services (NHDES) One-Stop Environmental Site Information Guide indicated the presence of one (1) remediation site in close proximity to the project area (*Exhibit F*). This site is known as the Hollis Stump Dump and is located uphill and in close proximity to the project area. Information listed on the One-Stop database did not indicate any noteworthy signs of contamination and therefore it is unlikely that any hazardous materials will be encountered during the construction of this project. Should any visual or olfactory indications of the presence of hazardous materials be encountered during construction, the Bureau of Environment should be contacted immediately and work in the immediate area discontinued until the situation is assessed (*Environmental Commitment 6*).

Easements

There are two properties located within the project area, on the west and east sides of Depot Road. The property to the west is the Hollis Transfer Station and the property to the east is privately owned. Access to both properties will be maintained throughout construction (*Environmental Commitment 5*). This project will require several temporary easements however it is not expected that any permanent easements or acquisitions will be necessary. The subject temporary construction easements will be needed to access both the inlet and outlet areas of the existing structure, but upon completion of the project these properties will be returned to their pre-construction state. The Department will obtain the necessary easements and rights of entry prior to the commencement of construction (*Environmental Commitment 4*).

Utilities

The proposed project may require the temporary relocation of aerial utility lines and power poles. Disruption to service, if any, will be kept to an absolute minimum. The following utility companies have been identified within the project area:

SERVICE	LOCATION
Public Service of NH (Electric)	Aerial
TDS Telecom (Telephone)	Aerial
Carter Communications Cable (Cable TV)	Aerial

Wetlands

Work associated with this project involves dredge and fill activities within the jurisdiction of the New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau and the Army Corps of Engineers (ACOE). Impacts consist of approximately 1,250 ft^2 of temporary and permanent impacts to jurisdictional wetlands. The proposed project will incur impacts to a Riverine, Lower Perennial, Unconsolidated Bottom, Organic (R2UB4) wetland as classified by the United States Fish and Wildlife Service.

The project was reviewed by the ACOE, New Hampshire Fish and Game (NHF&G), US Fish and Wildlife Service (USF&WS), US Environmental Protection Agency (EPA), NH Office of Energy and Planning (NHOEP), and the Federal Highway Administration (FHWA) at the January 16, 2008 Natural Resource Agency coordination meeting. None of the above listed agencies objected to the proposed project. It is anticipated that the project will qualify for a State Programmatic General Permit administered by the ACOE. A Wetlands and Non-Site Specific Permit will be obtained prior to construction within any areas under the jurisdiction of the NHDES Wetlands Bureau and the ACOE (*Environmental Commitment 7*).

Surface Waters/ Water Quality

The project is located along Sucker Brook approximately 400 feet upstream from the Nashua River. Although this project does not directly impact the Nashua River, the entire length of the project is located within ¼ mile of the river. In accordance with section 303(d) of the Clean Water Act of 1987, the State of NH Department of Environmental Services (NHDES) has designated the subject section of the Nashua River (NHRIV700040402-05) as an impaired water for multiple contaminants. As the proposed project is not expected to increase traffic volumes and does not involve the addition of any additional impervious surfaces, the action is not expected to further impair the subject section of the Nashua River. The Department has been coordinating this effort with NHDES and NHF&G to ensure that the project not only meets transportation needs, but is also sensitive to the aquatic ecosystems of the area.

To minimize the potential for erosion and sedimentation increases in Sucker Brook the Nashua River and other downstream wetland systems during construction, the contractor responsible for the work will be required, as a contract provision, to prepare a Stormwater Pollution Prevention Plan detailing the pollution prevention measures which will be employed prior to the commencement of construction activities (*Environmental Commitments 1 and 2*).

Wildlife/ Fisheries/ Endangered Species/ Natural Communities/ Invasive Species

The proposed action has been reviewed by the NH Natural Heritage Bureau (NHNHB) for the presence of federal or state, listed or proposed, threatened or endangered species, or other species of special or exemplary status. In a letter dated November 19, 2007, the NHNHB responded that they have no recorded occurrences for sensitive species near this project area (E*xhibit I*). This project has been reviewed using the guidelines set forth by the US Fish and Wildlife Service (USF&WS) New England Region to determine the potential presence of federally-listed or proposed threatened or endangered species within the project area. Based on this review and the information currently available, no further consultation with the USF&WS is necessary as no species or habitats under the jurisdiction of the USF&WS were identified within the project area (*Exhibit J*). This project was reviewed by NHF&G at the January 16, 2008 Natural Resource Agency coordination meeting and it was requested that the Department utilize either a naturalized bottom to the culvert or use an overflow structure to allow for the passage of amphibians and other small aquatic and terrestrial organisms. This request has been incorporated into the design of the proposed project.

The Magnuson-Stevens Fishery Conservation and Management Act requires the federal government to identify Essential Fish Habitat (EFH) and make conservation recommendations to agencies whose actions could damage it. The project is located along Sucker Brook approximately 400 feet upstream from the Nashua River. Although Sucker Brook is not considered to be an EFH, the Nashua River is an EFH for Atlantic Salmon (*Salmo salar*). The proposed project was reviewed with the NH Wetlands Bureau (NHWB), DES RMPP and the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) at the January 16, 2008 Natural Resource Agency Coordination Meeting and no concerns were expressed regarding the nearby EFH habitat.

In accordance with the NH Invasive Species Act (ISA), (HB 1258-FN) the The NH Department of Agriculture, Markets and Food (DAMF), Division of Plant Industry is responsible for the evaluation, publication and development of rules on invasive plant species. The purpose of this oversight is to protect the health of native species, the environment, commercial agriculture, forest crop production and human health. DAMF rules, specifically AGR 3800, state that "no person shall knowingly collect, transport, sell distribute, propagate or transplant any living or viable portion of any listed prohibited invasive plant species including all of their cultivars, varieties and specified hybrids." Pursuant to this rule, the project area was reviewed for invasive species during the initial phases of design. Two patches of Japanese Barberry, an invasive shrub, were found on the southeastern and southwestern quadrants of the culvert. If these plants will be impacted during construction they shall be cut, bagged, and disposed of prior to construction at this site. If berries are present, every effort shall be made to avoid spreading the berries during removal (*Environmental Commitment 8*).

Floodplains/ Floodways

A review of the Federal Emergency Management Agency's (FEMA) National Flood Insurance Rate Map (FIRM) for the Town of Hollis, NH (Community-Panel Number 330091 0010 B) indicates that the project is located within an area designated flood zone B/X (*Exhibit K*). Flood zones B and X

are defined by the Federal Emergency Management Agency as "areas outside the 1 % annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone." Based upon this definition and the information provided in the FIRM, this project is located within an area of relatively low flooding potential. This project is intended to replace and update the existing drainage structure. Upon completion of this project flood storage and water conveyance within the subject flood zone are expected to be similar to or better than the conditions that existed prior to construction.

The Department has coordinated with the New Hampshire Office of Energy and Planning (NHOEP) and the Town of Hollis, NH (*Exhibit L*). The Hollis Fire Chief and Road Agent were notified of the proposed project on November 16, 2007 and did not express any objections to the proposed project.

Cultural Resources

The Department has consulted with the State Historic Preservation Officer (SHPO), the NH Division of Historical Resources (NHDHR) and the US Army Corps of Engineers (ACOE) to locate and identify National Register of Historic Places listed, or eligible, properties or districts within the immediate area of the proposed project. The proposed project has been reviewed by the SHPO, NHDHR and the ACOE, based on the Section 106 review process set forth by the National Historic Preservation Act of 1966, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800).

The proposed design of this project was presented at the Monthly Cultural Resource Agency Meeting held on December 13, 2007 and it was determined that this stone box culvert is eligible for listing on the National Register of Historic Places under Criterion C. Several alternatives were examined to avoid and/or minimize impacts to this historic resource, however it was determined that these options were not feasible and prudent. (See the Alternatives Considered section for additional information.) As this project requires the complete removal of the existing stone box culvert, it was also determined at the December 13, 2007 meeting that this project would have an Adverse Effect on the structure. An Adverse Effect Memo detailing this impact and the required mitigation was signed by NHDHR and NHDOT on December 13, 2007 (*Exhibit E*). The ACOE solicited input from the Advisory Council on Historic Preservation (ACHP) for impacts to this historic structure. On April 3, 2008 the ACHP responded that it did not wish to become a consulting party during the design of this project. Pursuant to the provisions of Section 106 of the National Historic Preservation Act (36 CFR 800), an MOA addressing the proposed action and subsequent mitigation was signed by the ACOE, NHDOT and NHDHR in April 2008 (*Exhibit E1*).

Impacts to this historic structure will be mitigated through the completion of a New Hampshire Historic Property Document Form to document the structure. This documentation, will include large format photographs, mapping, a physical description and a town records search of the subject stone box culvert (*Environmental Commitment 9*). As an additional form of mitigation for impacts to this historic structure, and at the request of the ACOE, the granite blocks from the existing culvert will be

offered to the Hollis Heritage Commission prior to disposal or use offsite (*Environmental Commitment 10*).

Construction Impacts

Construction of this project is anticipated to cause temporary increases in noise and dust levels within the project area. All standard measures will be employed to ensure such increases are minimized to the extent practicable and limited to the construction period (*Environmental Commitment 3*).

It is anticipated that the construction of this project will temporarily disrupt traffic patterns. Access to all occupied residences will be maintained throughout construction. Although traffic might need to run on gravel surfaces for short periods of time, through traffic will be maintained whenever possible or temporary detours with appropriate signage will be implemented during construction (*Environmental Commitment 5*).

To minimize the potential for erosion and sedimentation increases in the Nashua River and other downstream wetland systems during construction, the contractor responsible for the work will be required, as a contract provision, to prepare a Stormwater Pollution Prevention Plan detailing the pollution prevention measures which will be employed prior to the commencement of construction activities (*Environmental Commitments 1 and 2*).

Summary of Environmental Commitments

The following environmental commitments have been made for this project.

1. Prior to the commencement of work, the contractor shall submit a Stormwater Pollution Prevention Plan specific to this project. The plan shall be approved by the Department and implemented and monitored as noted. (**Construction & Environment**)

2. Standard pollution prevention measures will be employed to assure all negative impacts are avoided and/or minimized to the maximum extent practicable. (**Construction**)

3. Precautions shall be employed to minimize noise and dust levels during the construction period, primarily for the abutting receptors located adjacent to the project area. (**Construction**)

4. The Department will obtain the necessary easements and rights-of-entry prior to the commencement of construction. (**Design & Right-of-Way**)

5. Although traffic might need to run on gravel surfaces for short periods of time, through traffic will be maintained whenever possible or temporary detours with appropriate signage will be

implemented during construction. Access to all occupied properties shall be maintained throughout construction. (**Design & Construction**)

6. One NHDES hazardous waste remediation site has been identified in close proximity of the project area. Should any visual or olfactory indications of the presence of hazardous materials be encountered, the Bureau of Environment should be contacted immediately and construction in the immediate area discontinued until the situation is assessed and resolved. (**Construction & Environment**)

7. A Wetlands and Non-Site Specific Permit will be obtained prior to construction within any areas under the jurisdiction of the NHDES Wetlands Bureau and the ACOE. (**Construction & Environment)**

8. Two patches of Japanese Barberry, an invasive shrub, were found on the southeastern and southwestern quadrants of the culvert. If these plants will be impacted during construction they shall be cut, bagged, and disposed of prior to construction at this site. If berries are present, every effort shall be made to avoid spreading the berries during removal. (**Construction & Environment**)

9. A New Hampshire Historic Property Document Form will be prepared to document the structure. This documentation, will include large format photographs, mapping, a physical description and a town records search of the structure. (**Environment**)

10. The granite blocks from the existing culvert will be offered to the Hollis Heritage Commission prior to disposal or use offsite. (**Environment, Design & Construction**).