

Durham, X-A001(202), 16236
US Route 4 Bridge Replacement
NHDOT Bridge No. 145/116

Draft Categorical Exclusion Document





CATEGORICAL EXCLUSION NON-PROGRAMMATIC ENVIRONMENTAL IMPACT SUMMARY

Action/Project Name: Durham **State Project Number:** 16236
Federal Project Number: X-A001(202)

Description of Project:

The New Hampshire Department of Transportation (NHDOT) is proposing the replacement of the bridge (NHDOT Bridge #145/116) over Bunker Creek on US Route 4 in the Town of Durham, NH (NHDOT Project #16236) (*Exhibit 1, Project Location*). The bridge is a single-span reinforced concrete slab that has most recently been updated ca. 1970. The bridge, originally built in 1933, has deteriorated to an extent that necessitates its complete replacement. Several options have been evaluated, including construction of a new crossing north or south of the existing bridge or detouring traffic around the bridge while it is rebuilt in place.

Existing Conditions:

US Route 4 is a major artery that connects Concord, NH and points west with the City of Portsmouth, NH. Although active farm land at the time of the original bridge construction in 1933, the surrounding areas have become increasingly developed. Subdivisions are present on either side of the project area, although the banks of Bunker Creek and its associated intertidal zone north of the bridge are currently sparsely developed with residences.

The Bunker Creek Bridge is currently 18 feet in length with a clear span of 15 feet and a curb-to-curb width of 30 feet, sitting 12.8 feet above the mean low water line of Bunker Creek. Bunker Creek is tidally influenced, discharging immediately south of the bridge into the north side of the Oyster River, which subsequently discharges into Little Bay. Drainage ditches have been constructed in uplands on the north side of US Route 4 that discharge into the creek. The ditches have developed into small freshwater wetlands contiguous with the estuarine intertidal zone.

Project Purpose and Need:

The purpose of this project is to address the deteriorated condition of the bridge as demonstrated by the substandard condition of the bridge. The bridge has required numerous repairs over the years and more recently in 2012 and 2014. Repair or replacement of the bridge is NHDOT Bridge Priority #8 of 2014 and is currently funded for replacement in 2019 in the approved Ten Year Transportation Improvement Plan 2015-2024. The project also will address two geometric deficiencies, the sag vertical curve restricting sight distance on US Route 4 and deficient intersection sight distance at Morgan Way. The existing bridge also has low clearance at mean high tide, preventing passage by kayaks during certain times in the tide cycles.

Proposed Action:

The project will involve complete replacement of the existing bridge across Bunker Creek on its current alignment. It includes installation of two lanes 12 feet in width with 5-foot shoulders. The clear span will be increased from 15 feet to 61 feet. The proposed improvements will also include the reconstruction of US Route 4 extending 850' east and 750' west of the bridge (*Exhibit 2, Public Hearing Plan*). There are two alternatives for maintaining traffic during construction of the online option. The first traffic control alternative (Alternative 1) is to close the bridge for two to three weeks and use Accelerated Bridge Construction techniques for the bridge replacement and approach construction, reopen the crossing, and construct the remainder of the project under traffic. This would require a detour of over 18 miles during the bridge closure (*Exhibit 3, Traffic Control Alternative 1*). Alternative 2 is an on-site diversion with a temporary bridge to the north of the existing bridge. (*Exhibit 4, Traffic Control Alternative 2*). Both alternatives are discussed in this document. The two alternatives are being further evaluated and a traffic control alternative will be selected pending input from the public, communities, state and local officials, and resource agencies.

Alternatives Considered:

ALTERNATIVE A: NO-BUILD ALTERNATIVE

The No-Build Alternative is not a viable option as the bridge needs to be repaired or replaced to allow users safe passage to their homes and other destinations. This alternative also does not address current roadway geometric deficiencies or the deteriorated condition of the bridge.

ALTERNATIVE B: REPAIR ALTERNATIVE

The Repair Alternative would simply repair the existing span. The existing bridge is in an advanced state of disrepair and has substandard width for the existing vehicular and bicycle traffic. Rehabilitation would be cost prohibitive and would not address the geometric deficiencies of the bridge or the roadway.

ALTERNATIVE C: OFFLINE ALIGNMENT TO THE NORTH

This alternative would build a new bridge to the north of the existing bridge and realign the roadway accordingly. The Offline Alignment to the North would result in greater impact to conservation lands and result in greater natural resource impacts. Comments at the Public Informational Meeting held on October 17, 2013 indicated a preference for maintaining the current alignment. The replacement bridge and roadway modifications would address the reduced sight distance along US Route 4 and the deficient intersection sight distance at Morgan Way.

ALTERNATIVE D: OFFLINE ALIGNMENT TO THE SOUTH

This alternative would build a new bridge to the south of the existing bridge and realign the roadway accordingly. The Offline Alignment to the South would result in greater impacts to private property, natural resources, and possibly cultural resources. Comments at the Public Informational Meeting held on October 17, 2013 indicated a preference for maintaining the current alignment. The replacement bridge and roadway modifications would address the reduced sight distance along US Route 4 and the deficient intersection sight distance at Morgan Way.

IMPACT ASSESSMENT SUMMARY

1. Air Quality

A conformity determination is not required, as the project is consistent with exempt projects listed in Table 2 of 40 CFR 93.126. Additionally, when completed, the project is not expected to result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative or contribute to violations of the NAAQS. As a result, it can be concluded that this project will not have an adverse impact on air quality. No further air quality review is warranted.

2. Historic/Archaeological Resources (Section 106 or RSA 227-C:9)

Historic Resources Investigated? Yes No

National Register Eligible? Yes No

Effects on historical and archaeological properties were determined by the Federal Highway Administration (FHWA) in consultation with the NH Division of Historical Resources (NHDHR) based on the Section 106 review process established by the National Historic Preservation Act (NHPA) of 1966 and outlined in 36 CFR 800.9.

A review of previous land uses was conducted for this project at NHDHR's office on Thursday, March 20, 2014. This file review found no documented significant historical resources within or adjacent to the project area. NHDHR's Request for Project Review Package (RPR) was reviewed by NHDHR staff. It was determined that no historic properties were located within the Area of Potential Effect (APE) for the project, which includes both privately- and publicly-owned parcels immediately abutting the bridge and Bunker Creek, and a Determination was made that no historic properties will be affected by the project (*Exhibit 5, No Historic Properties Affected Memo*).

Archaeological Resources Investigated? Yes No

National Register Eligible? Yes No

A Phase 1A Archaeological assessment was conducted by Independent Archaeological Consulting, LLC on March 18, 2014. NHDHR reviewed the Phase 1A Archaeological Sensitivity Assessment. Its response dated April 29, 2014 concurred with the assessment's findings that no sensitive resources would be impacted by the proposed project. It was noted that testing would be required should Sensitivity Areas 1 and 2 be impacted, and that monitoring is to be required at the nearby Twombly family cemetery to ensure that no impact would occur at that location. A Phase 1B assessment was performed on June 24, 2014 by Independent Archaeological Consulting, LLC, within the two sensitivity areas identified in Phase 1A. No cultural resources were located in Sensitivity Area 1. Two positive soil test pits were located in Sensitivity Area 2, containing a total of four artifacts. Three of these items, including plastic and glass, are attributed to modern use of the area and trash disposal.

Findings: No Historic Properties Affected No Adverse Effect Adverse Effect

Current plans of the proposed action will not affect the area of the Twombly burial ground. If actions are proposed within 25 feet of this site, monitoring by a qualified archaeologist will occur during excavation to comply with NH RSA 289:3(111). A temporary construction fence will be installed around the cemetery during construction to prevent inadvertent encroachment onto the site. The project, as currently proposed, does not warrant further review for cultural resources.

3. Threatened or Endangered Species/Natural Communities

State-Listed Threatened or Endangered species in project area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Exemplary Natural Community in project area?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Federally-Listed Threatened or Endangered species in project area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Section 7 consultation necessary?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

The NH Natural Heritage Bureau (NHNHB) database has been reviewed for records of rare species and exemplary natural communities near the project area. The species considered include those listed as Threatened or Endangered by either the State of New Hampshire or the federal government (*Exhibit 6, Natural Heritage Bureau Response*). The NHNHB currently has a recorded historic occurrence for crested sedge (*Carex cristatella*), a historic occurrence for downy false foxglove (*Aureolaria virginica*) and a current occurrence of green rockcress (*Boechera missouriensis*) near this project area, which is identified as endangered within New Hampshire. Additionally, potential habitat for the New England cottontail (*Sylvilagus transitionalis*) is present near the site. The New England cottontail is currently listed as endangered within the state of New Hampshire and is a candidate for listing as federally endangered by the US Fish and Wildlife Service (FWS). A review of the FWS database did not reveal any further federally listed or candidate species in Strafford County, NH. A further discussion of the four state-listed species follows and three exemplary communities located within the project area follows.

Crested Sedge (*Carex cristatella*)

A survey for the crested sedge (*Carex cristatella*) was performed by a Normandeau Associates botanist on July 1, 2014. Timing of the survey was intended to coincide with peak blooming for the target species and thus increase detection and identification ability. The survey focused on areas suitable to support this species, which is limited to freshwater marshes. This habitat type is very limited within the proposed project area and is composed solely of the delineated roadside swales that have been constructed for stormwater drainage. A general survey of the upper edges of saltmarsh bordering Bunker Creek and the Oyster River was also conducted to account for a potential freshwater wetland fringe that could support the target species.

Dominant species within the freshwater wetlands on site consisted of a variety of plants commonly associated with disturbance, including loosened soft rush (*Juncus effusus* ssp. *solutus*), poison-ivy (*Toxicodendron radicans*), sallow sedge (*Carex lurida*), and broad-leaved cattail (*Typha latifolia*), with lower densities of awl-fruited sedge (*Carex stipata*) and clovers (*Trifolium* sp.).

Crested sedge was not located during the survey. The NHNHB record was historical, last observed in 1950 from an area along Bunker Creek approximately 0.5 miles north of the proposed project area. This occurrence coincided with an alder-dominated freshwater wetland. This type of habitat was not observed during the survey. The freshwater wetlands on site are limited to the roadside drainages and did not support the target species. A freshwater wetland fringe of Bunker Creek was also not observed and therefore unable to support the crested sedge. No areas suitable for this species were observed during the survey. The dominant wetland system present is that of a saltmarsh dominated by cordgrass (*Spartina* sp.).

Downy False Foxglove (*Aureolaria virginica*) and Green Rockcress (*Boechera missouriensis*)

Downy false foxglove and green rockcress prefer the rich Appalachian oak rocky woods habitat present on the slopes to 0.5 miles to the north of the project area. During a visit on July 1, 2014 a Normandeau Associates botanist characterized the upland habitats impacted by the project as dry white pine forest. Additionally, the project area does not contain the topography required for rocky ledges or ridges that these species required. Given the lack of available habitat, no additional survey is necessary.

New England Cottontail (*Sylvilagus transitionalis*)

Habitat suitability for New England cottontail (NEC) in the Project Area was evaluated with aerial photography (April 2013) and a reconnaissance-level survey conducted on October 22, 2013 by a Normandeau Associates wildlife biologist. Suitable habitat was determined not to be present. Any area of open, grassy vegetation or residential development abutting the roadway was immediately discounted. Upon inspection in the field, all the forested areas were confirmed as having an inadequately-dense understory to meet the cover requirements of NEC. There is one shrubby area west of the project area on the south side of US Route 4, immediately west of Riverview Road, where the cover appeared dense enough to meet the requirements of NEC. However, this block of brushy habitat extends for only 150 feet along the roadway, and extends approximately 300 feet southwards away from the road, and is surrounded by residential development. Although NEC have limited area needs, this small block’s lack of connection to other suitable habitat blocks and its proximity to domestic pets (cats, dogs) that may harass or actively hunt rabbits likely renders it unsuitable for NEC.

Exemplary Communities

NHNHB has mapped three exemplary communities within the project area: subtidal system, sparsely vegetated intertidal system, and high salt marsh. Although there will be temporary impacts to all three of these systems during construction, there will be long term benefits as a result of the reduced flow restriction at the widened bridge span. It is anticipated that any temporary impacts would be restored within one to two years of the completion of construction.

4. Floodplains or Floodways

Does the proposed project encroach in the floodplain?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acreage <u>1.5 acres</u>
			Volume <u>280 cubic yards</u>
Does the proposed project encroach in the floodway?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Acreage _____
			Volume _____
Does the proposed project cause an increase in base flood elevation?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

A review of the National Flood Insurance Program’s (NFIP) Flood Insurance Rate Maps (FIRMs) (Strafford County Map Panel 320 of 405, dated May 17, 2005) indicated that the project will involve work within or adjacent to the extensive floodplain (A Zone, areas subject to inundation by the 1-percent-annual-chance flood event determined without base flood elevations) and regulatory floodway of the Oyster River (AE Zone, areas subject to inundation by the 1-percent-annual-chance flood event determined with detailed methods).

NH Office of Energy and Planning’s (NHOEP) NH Floodplain Management Coordinator reviewed the current FIRM for the project area (*Exhibit 7, OEP Floodplain Correspondence*). The Coordinator concluded that the proposed project is located in a special flood hazard area (Zone A). As a result of that determination, the following floodplain regulation applies according to the minimum requirements of Section 60.3(b) of the NFIP Regulations:

“No encroachments, including fill, new construction, substantial improvements, and other development are allowed within the floodway that would result in any increase in flood levels within the community during the base flood discharge.”

The proposed project will create a wider clear span over Bunker Creek that will help to reduce flooding potential at the site. Based on these design considerations, it has been determined that the proposed project

will not increase flood levels within the community of Durham. Although it is not possible to quantify the change in hydraulic capacity at this stage in design, it is expected that there will be a net increase in capacity and no increase in the base flood elevation.

5. Noise

Is project a Type I Highway Project? Yes No
 Are There Receptors Present? Yes No # of Residential 5 # Of Commercial 0.
 Will completed project increase noise levels 3 dBA or more? Yes No
 15 dBA or More? Yes No
 Are mitigation measures included in project? Yes No

The Federal Highway Administration (FHWA) regulations for assessment and abatement of highway traffic noise in the planning and design of federally-aided highway projects are contained in Title 23 of the United States Code of Federal Regulations Part 772 (23 CFR 772). These regulations state that a “Type I” traffic noise impact analysis is required when there is a substantial alteration of the vertical or horizontal alignment of a roadway. As the proposed action involves changes in the vertical alignment, a Type I traffic noise impact assessment was conducted (Noise Analysis Technical Report, Durham 16236 - HMMH, June 2014).

The proposed project includes a vertical shift in the roadway of up to 4.5 feet and a slight widening of the US Route 4 approach roads and bridge over Bunker Creek. The proposed improvement and roadway widening work is located in proximity to noise-sensitive residential and institutional land use, and the potential exists for increased noise levels and impact in these areas due to the increased roadway elevation and reduced noise shielding that will result. As a result, this project qualifies as a Type I project under 23 CFR 772. This noise analysis was conducted in accordance with FHWA and NHDOT noise assessment regulations and guidelines.

The noise impact assessment compares Existing (2017) and design-year (2037) conditions for the No-Build and Build Alternatives. The table below summarizes the projected number of dwelling units potentially exposed to noise impacts by the Build and No-build alternatives. Four residential properties (Noise Abatement Criteria Activity Category B) are currently exposed to noise impact in the Existing 2017 case. The 2037 No-Build conditions are predicted to impact the same receptors and one additional residence. Results for the 2037 Build Alternative are identical to that for the No-Build Alternative. Because future noise impacts are predicted under the Build Alternative for this Type I project, noise abatement measures must be considered, in accordance with FHWA guidelines.

Noise Impact Summary

Land Use	Projected Number of Impacted Receptors by Alternative		
	2017 Existing	2037 No-Build	2037 Build
Residential	4	5	5
Institutional	0	0	0
Total	4	5	5

Source: HMMH, 2014

Noise abatement by barriers was evaluated for all of the impacted residential noise sensitive land use in the study area along US Route 4. For the 2037 Build Alternative, this study made a preliminary determination of barrier feasibility and reasonableness to provide appropriate noise reduction for the impacted areas. Noise barriers could

reduce noise at four of the five impacted residences. However, none of the barriers was found to be reasonable according to NHDOT criteria.

Construction activity may cause intermittent fluctuations in noise levels. Effective control of highway construction noise will be achieved by design considerations, sequence of operations, source control, site control, time and activity constraints, and community awareness, as practicable.

Has the municipality received a copy of the traffic noise assessment? Yes No

6. Right-of-Way

Is additional ROW required? Yes No Acreage 0.40

Are improved properties acquired? Yes No Acreage 0

Displacement: Rental Units 0 Private Homes 0 Businesses 0

Relocation Report received from the Bureau of Right-of-Way? Yes No

Public Land (Federal State, or Municipal) Involvement? Yes No . (See Section 7 below.)

Additional right-of-way will need to be acquired on the south side of US Route 4 to accommodate the widening of the bridge and for future maintenance. The areas to be acquired are undeveloped and account for approximately 0.4 acres. No more than 7.2 % of any individual property will be impacted by these acquisitions.

7. Section 4(f) Resources

Public Parkland Impacts? Yes No Temporary Permanent

Public Recreational Area Impacts? Yes No Temporary Permanent

Public Wildlife/Waterfowl Refuge Impacts? Yes No Temporary Permanent

Historic Properties Impacted? Yes No Temporary Permanent

LCIP Recreational Land? Yes No Temporary Permanent

Acquisition required?* Yes No Area

**Note: permanent acquisitions and impacts to conservation areas may occur if stormwater quality areas are to be implemented.*

It was determined that the bridge is not eligible for the National Register of Historic Places, and there will be no impacts to historic Section 4(f) properties (*Exhibit 5, No Historic Properties Affected Memo*).

The conservation land on the northeast side of the project area is owned by the Town of Durham as preserved open space, and the parcel on the northwest side is currently owned by New Hampshire Fish and Game. The Fish and Game parcel is identified, according to NH GRANIT data, as part of the Great Bay Wildlife Management Area. If the on-site diversion is used, traffic control Alternative 2, the Town of Durham Conservation Parcel will have temporary construction impacts. The property will be restored to existing conditions after removal of the detour. All permanent impacts on the north side of the project area fall entirely within the right-of-way, and there are no anticipated permanent impacts to either of these parcels as a result of the bridge construction. 23 CFR 774.13 exempts temporary construction impacts from Section 4(f) with the approval of the necessary agencies. During a November 20, 2013 meeting, the natural resource agencies expressed support for the project, and believed that the increased span would be beneficial to area resources. In the event that the Alternative 1 traffic control alternative is chosen (project detour), written documentation confirming the approval of the temporary use of the parcel will be obtained from the Town of Durham, as appropriate.

Stormwater quality areas are under consideration on both of the conservation parcels described above. If NHDOT opts to move forward with these proposed areas to for stormwater treatment , both parcels would be permanently impacted. The areas are shown on Exhibit 2, and further described in Section 9.

8. Section 6(f) Resources

Are there impacts to any properties acquired or improved with funds made available through Section 6(f) of the Federal Land and Water Conservation Fund Act? Yes No Temporary Permanent

Recommendation received from State Liaison Officer (NH Div of Parks & Recreation)? Yes No
 Coordination with the US Department of the Interior necessary? Yes No

The Land and Water Conservation Fund (LWCF) Act allocates funds to protect land for public outdoor recreation. Section 6(f) restricts conversion of these lands for non-recreation purposes. No LWCF properties are located within the project area.

9. Water Quality/Streams, Rivers, and Lakes

Aquifer present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Drinking Water Source Protection Area present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wellhead Protection Area present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Public Water Supply present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Groundwater Impacts?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Surface Water Impacts?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Surface Water Impairments?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Outstanding Resource Waters present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Water Quality Certificate Required?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Will the project disturb >100,000 sq. ft. of land (50,000 sq. ft. if within protected shoreland), or any land with a grade of 25% or greater within 50' of a surface water? Yes No

If yes, project must comply with the NHDES Alteration of Terrain regulations. Describe compliance:

An Alteration of Terrain permit is not required for NH DOT projects, however all the appropriate erosion and sediment control measures will be taken during and after construction in accordance with the Memorandum of Agreement for Alteration of Terrain permits between NHDOT and NHDES. A Stormwater Pollution Prevention Plan will be developed as part of this project.

Will the project disturb greater than 1 acre of land? Yes No

If yes, project must comply with the EPA NPDES Construction General Permit, which requires preparation of a SWPPP.

Existing Impervious Surface in project area: 62,100 sf

Proposed Impervious Surface in project area: 65,875 sf

Will permanent Best Management Practices be installed for treatment of stormwater runoff? Yes No

Coordination Required on:

Public Waters Access?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Shoreland Protection?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Lakes Management?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wild and Scenic River?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
NH Designated River?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Stormwater Treatment

The proposed action includes reconstruction of the existing drainage system through the project corridor, with new stream crossing structures and improved stormwater conveyance and treatment measures. The planned increase in impervious area is 3,775 SF, or roughly a 6% increase of the overall impervious area. It is anticipated that a majority of the stormwater runoff will sheet flow from the paved surfaces to proposed vegetated or stone slopes as it does currently. A small amount of stormwater will be collected with catch basins proposed to the east of the bridge to eliminate water flowing across the bridge. Additional catch basins with flankers are proposed at the low point and the “0” section for the winter snow curb effect. These structures will outlet to the adjacent slope. Deep sump catch basins are proposed to aid in the removal of sediment from the stormwater runoff. This will be an improvement, as the existing paved swales discharge directly to Bunker Creek.

Stormwater treatment measures have not yet been designed, and options are still under discussion. Under consideration are two water quality enhancement areas. One would be on the New Hampshire Fish and Game owned conservation parcel on the northwest project quadrant, the other would be on the Town of Durham conservation parcel on the northeast project quadrant (depicted on *Exhibit 2, Public Hearing Plan*). Based on preliminary analysis, either location could provide stormwater treatment for the proposed action’s increased impervious area. However, both of these parcels are protected by conservation measures, and the New Hampshire Fish and Game parcel has specific deed restrictions relative to use. As design proceeds, the impacts to deed-restricted conservation parcels will be weighed against the amount of stormwater treatment that could be achieved.

The existing wetland swale on the north side of US Route 4, just east of the bridge, will continue to provide water quality improvement. Two proposed 24-inch reinforced concrete pipes (RCPs) crossing US Route 4 just west of Morgan Way will replace the existing deteriorating, mismatched pipes in the same location.

Best Management Practices

Proper best management practices will be used during the construction of the project to prevent water quality degradation. The preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) is anticipated to ensure erosion, scouring or general water quality degradation does not occur with this project. Best management practices such as sediment fencing and/or silt booms would help protect water quality within the Oyster River, Bunker Creek and adjacent wetlands. Prior to the commencement of construction, the Project Contractor would be responsible for providing and implementing a professionally prepared SWPPP.

Designated Rivers

The Oyster River through this area is a fourth-order stream or greater and a NH Designated River, pursuant to RSA 483. As such, the river falls under the NHDES Shoreland Water Quality Protection Act (SWQPA) and is protected by the NHDES Rivers Management and Protection Program.

The Oyster River Local Advisory Committee was provided the opportunity to review the proposed project. No comments were received for the project. The LAC will be provided an opportunity to comment on the NHDES wetland application and SWQPA application.

Impaired Waters

Every two years, New Hampshire DES publishes a list of surface waters that are impaired or threatened by pollutants, a requirement of Section 303(d) of the Clean Water Act. The “303(d) list” assesses water bodies by dividing them into “Assessment Units” for the purpose of reporting impairments or threats to that waterbody. The Route 4 Bridge is the dividing line between two Estuarine Assessment units: NHEST600030902-01-02, Oyster River (Bunker Creek), to the north of the bridge, and NHEST600030902-01-03, Oyster River, to the south. Listed impairments in the 2012 303(d) list are the same for both Assessment Units:

Use Description	Impairment
Aquatic Life	Chlorophyll-a*
	Dissolved oxygen saturation*
	Estuarine Bioassessments*
	Light Attenuation
	Nitrogen (Total)*
	Oxygen, dissolved
Fish Consumption	Polychlorinated biphenyls
	Mercury
Shellfishing	Dioxin
	Mercury
	Polychlorinated biphenyls

**Development impairments associated with road runoff*

All pollutant sources are listed as unknown except for mercury, which accumulates through atmospheric deposition. Impairments listed as “development impairments” have the potential to increase because of proposed increased impervious area and will be taken into consideration as stormwater treatment design proceeds.

10. Wetlands

Will this project impact lands under the jurisdiction of the NH Wetlands Bureau? Yes No

Type of permit required: Expedited Minimum Minor Major

Will the project impact Prime Wetlands? Yes No

Does this project qualify under the ACOE Programmatic General Permit? Yes No

ACOE Individual Permit required? Yes No

Estimated volume of impacts in Public Waters 3450 cu. yd.

If a channel is to be constructed, or a culvert or a bridge is to be installed, give the distance the flow of water is to be rerouted 0 ft.

If waterfront project, indicate total length of shoreline frontage 875 ft.

If wall, riprap, beach, or similar project, indicate length of proposed shoreline impact 825 ft.

Criteria/Classification

There are several wetland types that would be impacted by the proposed project. Jurisdictional freshwater wetland boundaries were established utilizing the criteria outlined in Env- Wt 301.01, the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, January 1987 (Routine Determination Method) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, January 2012, Version 2.0. The following wetlands were identified within the proposed project area: palustrine emergent (PEM), palustrine scrub-shrub (PSS), estuarine intertidal emergent (E2EM), tidal waters (E2RS) and intermittent stream (R4US).

Project Wetland Impacts

Wetland impacts for Traffic Control Alternative 1, detour option, and Traffic Control Alternative 2, the on-site diversion, are calculated and provided below. The freshwater wetlands impacted by the proposed project are common throughout New England. Roadside ditches are entirely man-made and do not perform a valuable ecological function. The saltmarsh community is less common and occupies a limited area in coastal New Hampshire. Impacts to this community would be kept to the smallest extent required to perform the work, the majority of which would be temporary. There are no vernal pools located within the project area.

Both alternatives would permanently impact 30,194 square feet of wetlands and 152 linear feet of intermittent stream. All non-wetland bank falls within the tidal buffer zone.

Durham 16236 Wetland Impacts (Square Feet)				
Resource Type	Traffic Control Alternative 1 Detour Option		Traffic Control Alternative 2 On-Site Diversion	
	Permanent Impacts	Temporary Impacts	Permanent Impacts	Temporary Impacts
Scrub-shrub wetland	263	0	263	167
Palustrine Emergent wetland	263	0	263	167
Intermittent stream	403	2,879	403	2,879
Tidal Buffer Zone (Upland within 100' of the highest observable tide line)	19,070	25,009	19,070	28,385
Tidal Waters / Estuarine Emergent Wetland	10,196	1,937	10,196	13,653
Total	30,195	29,825	30,195	45,251

Appropriate erosion and siltation control measures would be utilized during construction to protect the integrity of Bunker Creek and the Oyster River. The Project Contractor would be required to submit a professionally prepared Stormwater Pollution Prevention Plan (SWPPP) prior to the commencement of construction. Upon review by NHDES, the Project Contractor would be required to adhere to all conditions outlined in the SWPPP.

11. Conservation Lands

- Will land or easements obtained through the LCIP be impacted?
(Contact the LCIP Coordinator at the NH Office of State Planning) Yes No
- Has an application been made to CORD demonstrating compliance with RSA 162-C:6? Yes No
- Has the Land & Community Heritage Investment Program (LCHIP) been contacted about the project? Yes No
- Will any LCHIP property be impacted by the project? Yes No
- Does any other conservation land exist in the project area? Yes No

The NH Office of Energy and Planning’s Conservation Land Stewardship (CLS) Program has indicated that the project would not impact any CLS-related lands (see *Exhibit 8, LCIP Response*). There are other conservation lands on either side of the bridge that are affected by the proposed project (see *Exhibit 9, Conservation Lands*). The conservation land on the east side of the project area is owned by the Town of Durham as preserved open space, and the parcel on the west side is currently owned by New Hampshire Fish and Game. This parcel is identified, according to NH GRANIT data, as part of the Great Bay Wildlife Management Area. There are no anticipated permanent impacts to either of these parcels as a result of the bridge or roadway construction. There would be temporary right-of-way impacts to the Town of Durham parcels as a result of the on-site diversion traffic control (Alternative 2) if it were selected. 23 CFR 774.13 exempts temporary construction impacts from Section 4(f) with the approval of the necessary agencies. As previously discussed in Section 7, written documentation confirming the approval of the temporary use of these parcels will be obtained from the Town of Durham and/or the New Hampshire Fish and Game Department if Alternative 2 is pursued. Stormwater treatment measures discussed in Section 9 would constitute a permanent use of Section 4(f) properties, and would require Section 4(f) clearance.

12. Wildlife and Fisheries

- Does the project impact Highest Ranked Habitat as identified by the Wildlife Action Plan? Yes No

A review of the state’s Wildlife Action Plan shows that the project area would impact land identified as Highest Ranked Habitat on the north side of the bridge if the on-site diversion (Alternative 2) were the selected traffic control alternative. Should this alternative be selected, all impacts would be minimized to the extent possible and the area would be restored to its previous condition upon completion of the project. (*Exhibit 10, Wildlife Action Plan*).

- Does the project impact Essential Fish Habitat? Yes No

An Essential Fish Habitat (EFH) assessment was completed in May, 2015 by a Normandeau Associates Fisheries Biologist. Construction activities related to the proposed bridge replacement may result in temporary alterations to the currently available EFH both upstream and downstream from the project location. Sediment mobilization and water turbidity will be minimized through the use of Best Management Practices (BMPs) but may temporarily increase downstream from the project location due to removal of existing structures, installation of new structures, and alterations to the Bunker Creek channel. Noise generated during construction activities may temporarily result in avoidance of the project location by EFH species. These impacts could potentially restrict movement of fish beneath the bridge and decrease accessibility of waters upstream or downstream in Bunker Creek from the project location, particularly during low tide.

The new bridge is proposed to match the existing lane widths (two at 12 feet each) and have a 5-foot wide shoulder (currently 2 to 3 feet) on each side for a total width of 34 feet. The new bridge will have a clear span of 61 feet. Any increase to the existing channel width (15 feet) would permanently increase tidal zone habitat for fish species in the Bunker Creek channel flowing under the new bridge.

Temporary impacts to water quality (e.g. increased turbidity) during construction of the replacement bridge can be minimized with the use of silt curtains during in-water work. Because adult and juvenile Bluefish occur in North Atlantic estuaries from June through October, construction activities would ideally occur outside of this time frame. Because it is not feasible to restrict construction activities during this time frame, flow within the Bunker Creek channel will be maintained to allow accessibility into and out of Bunker Creek from the nearby Oyster River. Any impacts to water quality and habitat accessibility can be reasonably anticipated to resolve upon project completion when Bunker Creek flow is resumed.

Following completion of the new bridge, the Bunker Creek channel is assumed to resume its pre-construction tidal regime. Although permanent negative impacts to EFH at the project location are not expected, post-construction monitoring of water quality and flow beneath the bridge could be used to identify unanticipated impacts.

An adverse effect is any impact that reduces the quality and/or quantity of EFH, and may include direct or indirect physical, chemical, or biological alterations of the water or substrate. The proposed project may have temporary adverse effects on water quality and habitat availability during construction activities. However, the amount of habitat temporarily affected is minor given the amount of mixing zone EFH available within the entire Great Bay estuary. Additionally, the widening of Bunker Creek channel may allow increased accessibility to habitat upstream of the project location, potentially resulting in a permanent positive effect on EFH.

EFH consultation with the National Marine Fisheries Service (NMFS) is ongoing, and results of the consultation will be provided when available.

Does the project involve stream crossings? (Env-Wt PART 900) Yes No

The project area lies within the Designated River corridor of the Oyster River and as a result, the crossing of Bunker Creek is classified as a Tier 3 stream crossing. Env-Wt 904 governs the design considerations for Tier 3 stream crossings. The replacement bridge must be designed:

(a) In accordance with the NH Stream Crossing Guidelines, University of New Hampshire, May 2009, (http://www.unh.edu/erg/stream_restoration/);

http://www.streamcontinuity.org/pdf_files/nh_stream_crossing_guidelines_unh_web_rev_2.pdf

(b) With the bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing;

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage;

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain;

(e) To accommodate the 100-year frequency flood, to ensure that:

(1) There is no increase in flood stages on abutting properties; and

(2) Flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability;

(f) To simulate a natural stream channel; and

(g) So as not to alter sediment transport competence.

The replacement crossing will increase the width of the opening from 15 feet to a width of 61 feet, which will better accommodate a 100-year flood and will reduce flood stages on abutting properties. A hydraulic investigation conducted in 1998 (US Route 4 over Bunker Creek & US Route 4 over Johnson Creek, McFarland Johnson Inc., 1998) suggested that increasing the span of the bridge to 60 feet would reduce headloss to 0.05 feet during tidal fluctuations. An updated hydraulic investigation will be conducted once the bridge design has been finalized.

13. Agricultural Land

Does the project impact agricultural land? Yes No Active farmland? Yes No
 Does project area contain prime, unique, statewide or locally important farmland soils? Yes No
 Completion of Form AD-1006 or Form CPA-106 Required? Yes No

The area surrounding the bridge construction is a mix of undeveloped conservation land and residential areas. The proposed new bridge would not significantly impact land use in the area. The upland soils west of the project area are classified as prime farmland (*Exhibit 11, Farmland Soils*); however, this area is not actively farmed and there are no permanent impacts to these soils proposed.

14. Coast Guard

Does the project involve work in navigable waters? Yes No
 Does the project impact a historic bridge? Yes No
 Does the project require a Coast Guard Permit? Yes No

The United States Coast Guard (USCG) requires a permit for construction or reconstruction of bridges over navigable waters of the United States, including tidally influenced water bodies such as Bunker Creek. A navigability questionnaire has been completed and submitted to the USCG. It was determined that the new bridge will facilitate boat access by canoes and kayaks to Bunker Creek by increasing clearance at high tide by approximately four feet. A response from the USCG dated February 5, 2014 indicated that the need for a bridge permit would be determined by FHWA (*Exhibit 12, Navigability Response*). No determination has been made by FHWA at this time, but it is not anticipated that a bridge permit will be required. The NHDOT Bureau of Environment will coordinate with FHWA to receive their determination.

15. Hazardous/Contaminated Materials

Does the project area include sites from NHDES OneStop GIS Database? Yes No
 ISA completed and attached? Yes No Additional investigation required? Yes No
 Remediation required? Yes No

As part of the Initial Site Assessment (ISA) for the Bunker Creek Bridge project, we have completed a review of the New Hampshire Department of Environmental Services (NHDES) OneStop database and a review of environmental databases using an online environmental database search provider (Environmental Data Resources, Inc.). The results of the data reviews are summarized below.

NHDES OneStop Database Review

The review of the NHDES OneStop database was conducted using the NHDES OneStop WEB GIS system. The following databases were reviewed using a 0.5-mile search radius from the Bunker Creek bridge crossing:

- Air Stationary Sources
- Asbestos Disposal Sites
- Aboveground Storage Tank Facilities
- Automobile Salvage Yards
- Hazardous Waste Generators
- Non-Point Sources
- National Pollutant Discharge Elimination System Outfalls
- Remediation Sites
- Underground Storage Tank Facilities

The results of the OneStop database search are included in the summary table below. The summary table includes three database listings, although one of the listings appears to be a duplicate. The two sites that were identified include:

- the Haney Property located at 4 Tirrell Place on the east side of the project area and north of US Route 4, and
- the Terry Sharbaugh property located at 25 Riverview Road on the west side of the project area and south of US Route 4.

MASTER ID	SITE ID	SITE NAME	ADDRESS	TOWN	PROJECT TYPE	PROJECT MANAGER	WORKLOAD PRIORITY	RISK	PERMIT#	TAX MAP	TAX LOT
61696	200609067	HANEY PROPERTY	4 TIRRELLPLACE	DURHAM	ETHER	CLOSED	3	8	NA		
57861	200302012	TERRY SHARBAUGH	25 RIVERVIEW RD	DURHAM	OPUF	CLOSED	3	8	NA		
57861	200302012	TERRY SHARBAUGH	25 RIVERVIEW RD	DURHAM	OPUF	CLOSED	3	8	NA		

Normandeau reviewed the files available in the OneStop database for each property. Neither of the properties appears to be of environmental concern relative to the project area.

The Haney property was listed on the ether contaminated site database. Information in the project file for the property indicated that sampling of an on-site water supply well was performed in 2006 and that no contamination was detected in the samples. The site was listed as closed.

The Sharbaugh property was listed on the On-Premise Use Facility (OPUF) database for a spill from an on-site heating oil aboveground storage tank (AST). A Certificate of No Further Action letter was issued for the property on August 6, 2013 and the property was also listed as closed.

Several initial response spills were also identified on the OneStop database for locations along US Route 4 although none of the listed spills were determined to be located in the project area. All of the initial response spill listings were reported to have been immediately cleaned up and the project status was listed as closed.

Environmental Data Resources (EDR) Database Review

Normandeau completed an EDR environmental database search for the project area using the search radii from the American Society of Testing and Materials (ASTM) Phase I Environmental Site Assessment standards. The following sites were identified in the EDR report (*Exhibit 13, Detail Map EDR Report*):

- Bunker Creek on US Route 4, which was listed on the Spills 90 database,
- The Lundholm Residence located at 104 Piscataqua Road (south side of Route 4) on the west side of the project area,
- The Haney Property located at 4 Tirrell Place on the east side of the project area and north of US Route 4,
- Two listings for the Terry Sharbaugh property located at 25 Riverview Road on the west side of the project area and south of US Route 4, and
- A listing for the 24 Riverview Road property located on the west side of the project area and south of US Route 4.

No additional information could be found on the SPILLS 90 database listing for the Bunker Creek listing. However, Normandeau believes the spills listing is likely associated with a localized automobile spill along US Route 4.

The Lundholm property is listed on the ALLSITES database associated with an OPUF tank containing fuel oil. The NHDES files contain a tank closure report for the removal of a 500 gallon UST at the property in August 2012. Based on results of laboratory analyses for soil samples collected during the tank excavation, no further action was required at the property.

The Haney property is listed in the EDR report on the ALLSITES database as an ether contaminated site that was closed and required no further action.

The Sharbaugh property is listed in the EDR report on the ALLSITES database and the RCRA NonGen/No Longer Regulated (NLR) database. The ALLSITES database was associated with an OPUF fuel oil listing. The property was listed as closed and required no further action.

The 24 Riverview Road property is listed on the EDR Historical Auto Station database. The property is identified as being occupied by Atlantic Auto Body Repair in 2005 to 2009. Online research indicated that Atlantic Auto Body Repair was founded in 1992 and was an automotive body repair shop. No reported spills or releases were identified for this address or business name.

The EDR report also identified 26 unmappable sites with a total of 30 database listings. Unmappable sites are properties that cannot be located due to insufficient information listed for their addresses. Normandeau reviewed the unmappable sites and determined that none of them are located within the minimum search radii for the individual databases and therefore are not of environmental concern relative to the project area.

Conclusions

Normandeau conducted a review of environmental databases for the project area using both the NHDES OneStop database and files reviewed by EDR. A listing was reported for the project area at Bunker Creek and US Route 4. However, since a remediation site was not identified for the location, Normandeau believes the spill listing was associated with a roadway spill or release that was immediately cleaned up and did not require any further action; therefore, the listing is not likely to be of environmental concern relative to the project area. Three residential properties located in the vicinity of the project area were identified as having past releases. However, all three properties were listed as closed, requiring no further action. The property located at 24 Riverview Road was identified as a potential former auto body repair shop. No reported spills or

releases were identified for the address and therefore Normandeau believes the property is not of environmental concern relative to the project area.

16. Public Participation

Initial Contact Letters sent to local officials?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Date	1/29/2014
Public Informational Meeting?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Date	10/17/2013
Public Hearing Required?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Date	5/4/2015

A public informational meeting was held on October 17, 2013. The public was generally supportive of the project. During the meeting, neighboring property owners expressed a preference for a road closure and detour rather than longer construction. Based on the results of this meeting, a public hearing is scheduled for May 28, 2015. Responses to contact letters are attached to this document:

- Exhibit 14, CZM Response*
- Exhibit 15, Dover Police Department Response*
- Exhibit 16, Town Administrator Response*
- Exhibit 17, Durham Integrated Waste Management Response*
- Exhibit 18, Zoning Administrator Response*

17. Social and Economic Impacts

Is the project consistent with local and regional land use plans? Yes No

Letters were sent to local and regional planning commissions, as well as town councils requesting input on the project.

Neighborhood and community impacts? Yes No

<input type="checkbox"/> Churches	<input type="checkbox"/> Handicapped
<input type="checkbox"/> Schools	<input type="checkbox"/> Low Income Housing
<input type="checkbox"/> Elderly	<input type="checkbox"/> Emergency Service Facilities/Vehicles
<input type="checkbox"/> Minorities	<input type="checkbox"/> Environmental Justice (Executive Order 12898)

The project would not have permanent adverse impacts on community resources. The replacement of the bridge and reconstruction of the roadway would make travel safer for the general public. In the detour traffic control alternative (*Exhibit 3, Traffic Control Alternative 1*), traffic would be routed through a detour but all properties would remain accessible. The detour as planned would be 18.2 miles long and would pass through a toll booth. Routing is from and to residences on US Route 4.

Westbound traffic on the east side of the bridge would be routed as follows:

- East on US Route 4 to the Spaulding Turnpike, (2.2 miles from western most residence on east side of bridge)
- Spaulding Turnpike south to Exit 1, reverse direction at Exit 1, north on Spaulding Tpk (US Route 4) (6.6 miles)
- Spaulding Turnpike north to Exit 7 (5 miles)
- NH Route 108 south to US Route 4 (3.2 miles)
- East on US Route 4 (1.2 miles to Bunker Lane)
- Total detour = 18.2 miles**

Eastbound traffic on the west side of the bridge would be routed as follows:

West on US Route 4 to NH Route 108 (1.2 miles from Bunker Lane)

North of NH Route 108 to the Spaulding Turnpike (3.2 miles)

South on the Spaulding Turnpike to US Route 4 (5 miles)

West on US Route 4 to bridge (2.2 miles to western most residence on east side of bridge)

Total detour = 11.6 miles

In the event that the detour alternative is chosen, toll relief would be considered by NH DOT. The functionality of the affected interchanges and intersections would be studied further during final design. Traffic flow patterns would return to normal upon completion of the project.

Impacts to local businesses? Yes No Temporary Permanent

There are no businesses within the immediate project area. Access to all nearby businesses and residences would be maintained during construction. Traffic Control Alternative 1 (*Exhibit 3*), would temporarily inconvenience commuters between Portsmouth and Concord that must cross the bridge to access their homes and businesses, but at no time would adjacent landowners be denied access to their properties.

18. Environmental Justice

Does the area affected by the proposed action contain EJ (minority, elderly, limited English proficiency, and/or low-income) populations? Yes No

Are the anticipated project impacts resulting from the proposed action likely to fall disproportionately on EJ populations? Yes No

Executive Orders 12898 and 13166, signed in 1994 and 2000 respectively, require that an environmental justice evaluation be conducted for all transportation projects that are undertaken, funded, or approved by the Federal Highway Administration to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, and social and economic effects on minority populations and low income populations. NHDOT provided an Environmental Justice Population Analysis for the project that shows higher-than-average low-income population in the surrounding area. However, the Analysis found that this is due to the student population levels at the University of New Hampshire within the census tract. The Analysis provided contact information for community outreach agencies to be included in notification or public outreach that might be undertaken for the project. (*Exhibit 19, Environmental Justice Population Analysis*).

19. Traffic Patterns

Temporary detour required? Yes No Length 18.2 miles
 Temporary bridge required? Yes No Impacts? Yes No
 Permanent changes to traffic patterns? Yes No

The project would have no permanent adverse impacts on community resources. Rehabilitation of the road would make travel safer for the general public and improve the safety of the approach from Morgan Way. The detour traffic control alternative (Alternative 1) would result in a temporary road closure and detour expected to last approximately two to three weeks. The on-site traffic control alternative (Alternative 2) would result in the use of a temporary bridge. Residents indicated a preference for the detour instead of a temporary bridge. If the closure of US Route 4 is employed during construction, a detailed traffic study and evaluation the operation of the intersections along the detour route will be completed. It is expected that during a short term closure, some of the intersections may require modifications or signal timing adjustments. A public outreach program would be required to notify all users of the closure, and seeking alternative routes would be encouraged to reduce the proposed detour route volumes. Significant coordination with facility users and affected communities would be required. Traffic flow patterns in the community would return to normal upon completion of the project.

20. Construction Impacts

A series of potential construction-related impacts may occur as a result of the project. These impacts are noted below:

- If Traffic Control Alternative 1 is selected, through traffic is anticipated to be detoured along NH 108 and the Spaulding Turnpike during a short term closure of two to three weeks. Apart from this period, two lanes of traffic would be maintained within the project area, although temporary alternating one-way traffic under flagmen control may be required during certain phases of construction.
- Appropriate measures will be taken to control and minimize disturbances to adjacent wetland and surface water resources, with the implementation of a SWPPP during construction.
- Standard pollution prevention measures will be employed to assure all negative impacts are minimized and restricted to the construction phase of the project to the extent practicable.
- Any spillage of oil or oil-based products during construction must be promptly reported to NHDES Spill Response at (603) 223-4381.
- Heavy equipment operation will cause temporary increases in noise and dust levels during construction. All standard measures would be used to ensure that these increases are minimized to the extent practicable. Noise and dust levels should return to normal shortly after completion of construction, with no future implications.
- There are several utilities located within the project area, including Comcast, Fairpoint, and Eversource. In the event that a disruption to services occurs, coordination with appropriate utility companies will be undertaken to ensure that disruptions to services are kept to a minimum.
- The proposed action will inconvenience and disrupt motorists and pedestrians, as well as those people living and working in the area.

21. Invasive Species

Does the project area contain invasive species prohibited under RSA 430:55 or RSA 487:16-a? Yes No

If yes, will an Invasive Species Control and Management Plan be required during construction? Yes No

Disturbance and increased sunlight associated with maintained roadsides provide non-native species with ideal habitat and act as corridors for propagule transport (NHDOT 2008). Prohibited invasive plants found within the project area include multiflora rose (*Rosa multiflora*), in the mown ROW, and European buckthorn (*Rhamnus cathartica*) in the adjacent upland along the forested edge and extending inland. None of the five NHDOT priority species (Japanese knotweed [*Fallopia japonica*], common reed [*Phragmites australis*], spotted knapweed [*Centaurea stoebe* ssp. *micranthos*], Asian bittersweet [*Celastrus orbiculatus*] or purple loosestrife [*Lythrum salicaria*]) were found within the project area. Depending on the ultimate project footprint, impacts may occur to these invasive species. If these are impacted the Contractor may be directed to prepare an Invasive Species Control and Management Plan.

22. Coastal Zone

Is the project located in the Coastal Zone? Yes No

Has an Intergovernmental Consistency Review been completed to determine consistency with the Coastal Zone Management Act? (16 U.S.C. 1451-1464) Yes No

A letter was sent to the NHDES Coastal Program on January 15, 2014 seeking input on the need for an Intergovernmental Consistency Review. A telephone follow-up was conducted and documented (Exhibit 13). The Coastal Program supports the potential for increased tidal flow as a result of the wider span. The Coastal

Program coordinator recommended a pre-construction vegetation assessment and pore water sampling be completed to document existing conditions in upstream salt and brackish marshes. Coordination with the NHDES Coastal Program is ongoing as to whether an Intergovernmental Consistency Review is necessary.

23. Field Inspection Comments:

At the crossing, Bunker Creek is tidally influenced, and has a broad brackish marsh fringe associated with it. There are two constructed ditches along the north side of US Route 4 that drain into Bunker Creek and now function as freshwater wetlands. Catch basins placed west of Morgan Way provide additional drainage directly into the Oyster River. Upland portions of the site consist of exurban residential development, with narrow wooded buffers occurring between the residences and the highway.

24. Coordination**Contact Letters Sent & Replies Received**

AGENCY/ORGANIZATION	CONTACT	LETTER SENT	REPLY RECV'D
Dover Fire Department	Richard Driscoll	1/29/14	No Reply Received
Dover Police Department	Anthony F Colarusso, Jr	1/29/14	2/3/2014 (Exhibit 15)
Durham Conservation Commission	John Parry	1/29/14	No Reply Received
Durham Department of Public Works	Michael Lynch	1/29/14	No Reply Received
Durham Fire Department	Corey Landry	1/29/14	No Reply Received
Durham Historic District Commission	Peter Stanhope	1/29/14	No Reply Received
Durham Planning and Zoning Boards	Karen Edwards	1/29/14	No Reply Received
Durham Police Department	David Kurz	1/29/14	No Reply Received
Durham Town Administration	Todd Selig	1/29/14	2/11/13 via phone (Exhibit 16)
Durham Town Council	James Lawson	1/29/14	No Reply Received
Durham Waste Management Department	Mike Everngam	1/29/14	2/10/14 (Exhibit 17)
Durham Wastewater Department	Dan Peterson	1/29/14	No Reply Received
Durham Water Division		1/29/14	No Reply Received
Durham Zoning Administration	Thomas F. Johnson	1/29/14	2/25/2014 (Exhibit 18)
McGregor Memorial EMS	Bill Cote	1/29/14	No Reply Received
NHDES Coastal Program	Christian Williams	1/15/14	1/21/14 via phone (Exhibit 13)
NH Land and Community Heritage Investment Program	Jess Charpentier	1/29/14	No Reply Received
NHOEP Conservation Land Stewardship	Steve Walker	1/29/14	2/3/14 (Exhibit 8)
NHOEP Floodplain Management Program	Jennifer Gilbert	1/29/14	2/14/2014 (Exhibit 7)
Oyster River Local Advisory Committee	Eric Fiegenbaum	1/29/14	No Reply Received
Strafford Regional Planning Commission	Cynthia Copeland	2/11/13	No Reply Received

Meeting	Date	Comments
Public Informational Meeting	10/17/13	Presentation to receive initial public input.
Natural Resource Agency Meeting	11/20/13	Presentation to receive initial input from agencies
Natural Resource Agency Meeting	2/18/15	Presentation to receive further design input from agencies
Public Hearing	5/28/15	Public hearing for formal comment

25. Environmental Mitigation and/or Commitments:

1. A Major Impact wetland permit from the NH Wetlands Bureau and an Individual Permit from the US Army Corps of Engineers will be required.
2. Wetland impact mitigation is anticipated to be in the form of an in-lieu fee payment to the Aquatic Resource Mitigation Fund.
3. If Conservation lands are impacted by the project, mitigation will be coordinated with the NH Fish and Game Department and/or the Town of Durham.
4. If work is to occur within 25 feet of the Twombly Cemetery, a certified archeologist monitor will be present during excavation to comply with NH RSA 289:3(111). A temporary construction fence will be installed around the cemetery to avoid inadvertent encroachment on the site.
5. If Traffic Control Alternative 1 is selected, through traffic would be detoured along NH 108 and the Spaulding Turnpike during a two to three week period. Apart from this period, two lanes of traffic will be maintained within the project area, although temporary alternating one-way traffic under flagmen control may be required during certain phases of construction.
6. Strict erosion and siltation control measures shall be utilized during construction to protect the integrity of Bunker Creek and the Oyster River. The Project Contractor shall be required to submit a professionally prepared Stormwater Pollution Prevention Plan (SWPPP) prior to the commencement of construction. Standard pollution prevention measures will be employed to assure that all negative impacts are avoided and/or minimized to the maximum extent practicable. The Project Contractor shall be required to adhere to all conditions posted in the SWPPP.
7. If necessary, the Contractor shall prepare an Invasive Species Control and Management Plan.
8. Construction vehicles shall not be stored, serviced, washed or flushed in a location where leaks, spills, waste materials or cleaners would be introduced into wetlands or watercourses.
9. Maintenance or refueling of equipment and vehicles shall occur at least 150 feet from wetlands or watercourses at a location where drainage is directed away from the river.
10. Absorbent material shall be placed on the ground prior to refueling to catch spills that may occur, and would be removed after construction is completed.
11. Heavy equipment operation will cause temporary increases in noise and dust levels during construction. All standard measures shall be used to ensure that these increases are minimized to the extent practicable.
12. Access to all properties shall be maintained throughout construction.

LIST OF EXHIBITS

- Exhibit 1, Project Location*
- Exhibit 2, Public Hearing Plan*
- Exhibit 3, Traffic Control Alternative 1*
- Exhibit 4, Traffic Control Alternative 2*
- Exhibit 5, No Historic Properties Affected Memo*
- Exhibit 6, Natural Heritage Bureau Response*
- Exhibit 7, OEP Floodplain Correspondence*
- Exhibit 8, LCIP Response*
- Exhibit 9, Conservation Lands*
- Exhibit 10, Wildlife Action Plan*
- Exhibit 11, Farmland Soils*
- Exhibit 12, Navigability Response*
- Exhibit 13, Detail Map EDR Report*
- Exhibit 14, CZM Response*
- Exhibit 15, Dover Police Department Response*
- Exhibit 16, Town Administrator Response*
- Exhibit 17, Durham Integrated Waste Management Response*
- Exhibit 18, Zoning Administrator Response*
- Exhibit 19, Environmental Justice Population Analysis*
- Exhibit 20, Photographs*

Prepared by: _____ Date _____
Vicki Chase
Environmental Analyst
Normandeau Associates, Inc.

Reviewed by: _____ Date _____
Project Management Section Chief
NHDOT Bureau of Environment

Accepted by: _____ Date _____
Administrator
NHDOT Bureau of Environment

References

New Hampshire Department of Transportation. 2008. Best Management Practices for Roadside Invasive Plants. Accessed on July 3, 2014. Found at:
<http://www.nh.gov/dot/bureaus/environment/documents.htm>.

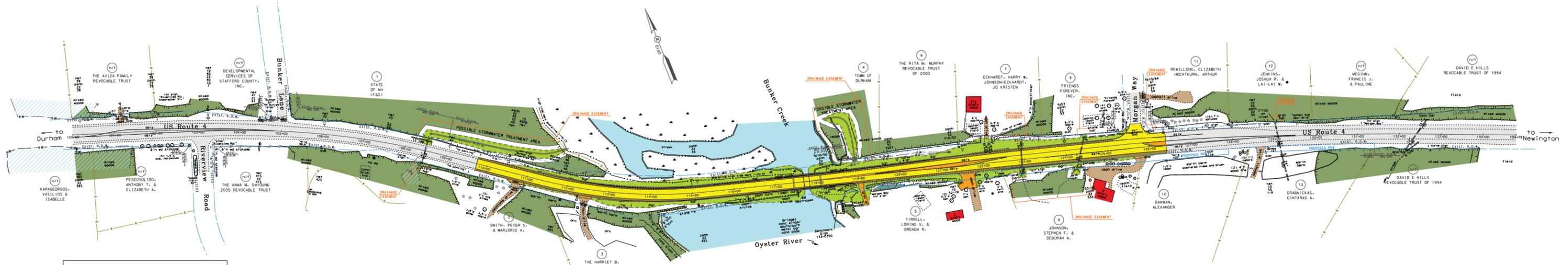
ABBREVIATIONS/ACRONYMS USED IN THIS DOCUMENT

ACOE	Army Corps of Engineers
CE	Categorical Exclusion
CLS	Conservation Land Stewardship
CMAQ	Congestions Mitigation & Air Quality
CO	Carbon Monoxide
CORD	Council on Resources and Economic Development
dBA	Decibels
EJ	Environmental Justice
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
ISA	Initial Site Assessment
LCHIP	Land & Community Heritage Investment Program
LCIP	Land Conservation Investment Program
LWCF	Land & Water Conservation Fund
NEPA	National Environmental Policy Act
NHDES	New Hampshire Department of Environmental Services
NHF&G	New Hampshire Fish and Game Department
NHNHB	New Hampshire Natural Heritage Bureau
NHOEP	NH Office of Energy and Planning
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
ROW	Right-of-Way
SWPPP	Storm Water Pollution Prevention Plan
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service



Date: 4/28/2015 Drawn By: vdase Project No: 86753.09		N 	
	NHDOT DURHAM, NEW HAMPSHIRE 16236		
	EXHIBIT 1 - LOCATION		
SCALE: 1:24,000		 <small>25 Nashua Road Bedford, NH 03110 (603) 472-5191 www.normandeau.com</small>	APRIL, 2015

HEARING PLAN



LEGEND

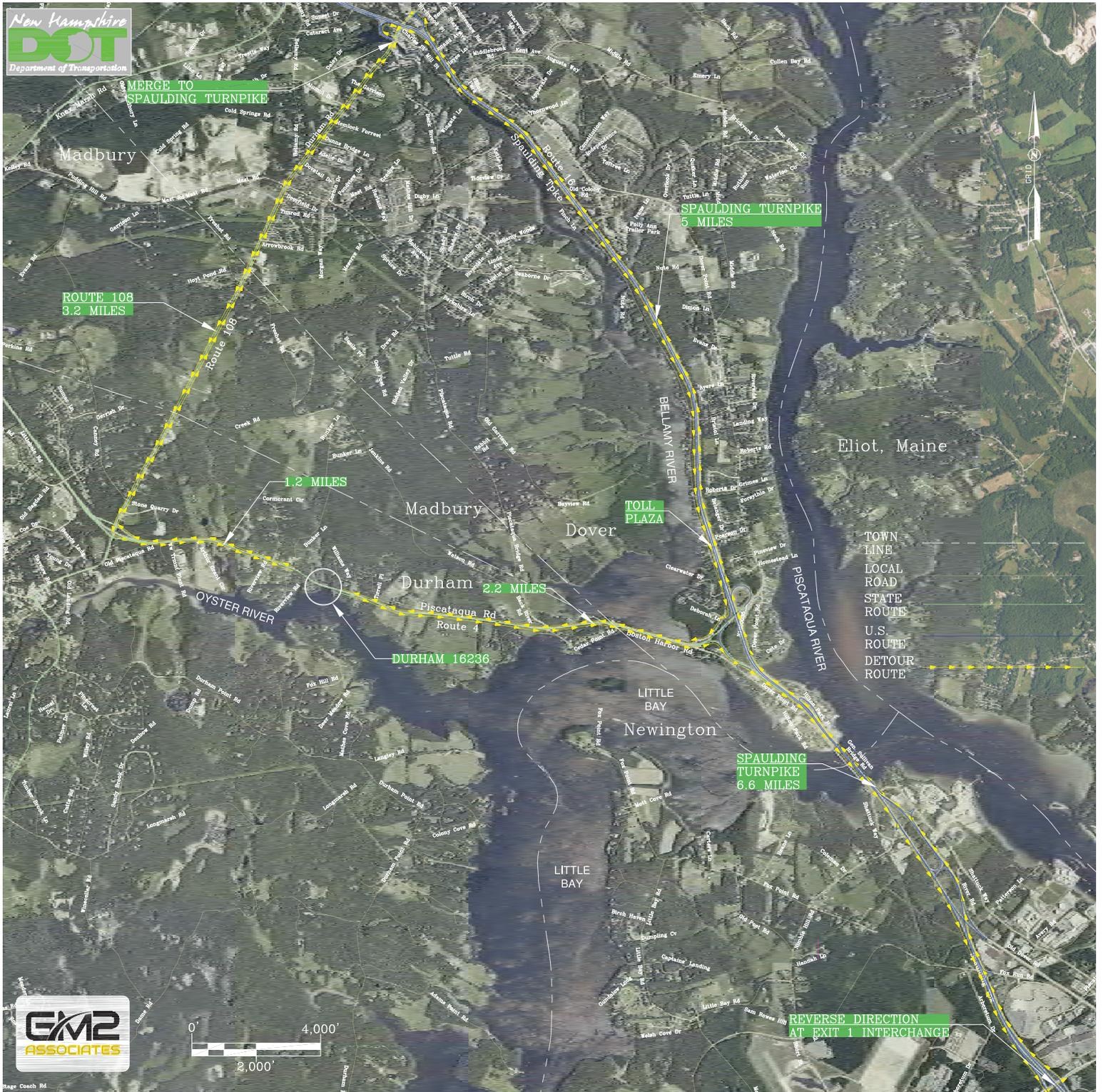
- Travel Way of Proposed Roadway
- Shoulder of Proposed Roadway
- Proposed Raised Traffic Islands
- Proposed Sidewalk
- Access Points to Proposed Roadway (Drives, etc.)
- Approximate Limit of Slope Work and Landscaping
- Removal of Existing Pavement Outside of Slope Work
- Existing Pavement (Roadways, Drives, Sidewalks, etc.)
- Existing Gravel Surface (Drives, Paths, etc.)
- Existing Tree and/or Brush Line
- Water (Rivers, Streams, Lakes, Ponds, Swamps, etc.)
- Buildings
- Buildings To Be Removed
- Bridge Removal
- Wetlands
- Property Lines
- State, County, City and Town Lines
- Existing Easement Lines
- Proposed Easement Lines
- Existing R.O.W. (Right-of-Way)
- Proposed R.O.W.
- Existing C.A.R.O.W. (Controlled Access)
- Proposed C.A.R.O.W.
- Existing L.A.R.O.W. (Limited Access)
- Proposed L.A.R.O.W.

Prepared by:
New Hampshire Department of Transportation
Highway Design Bureau

PRELIMINARY PLANS
SUBJECT TO CHANGE
DATE 02/20/2013

GMP
ASSOCIATES
SCALE: 1" = 50'

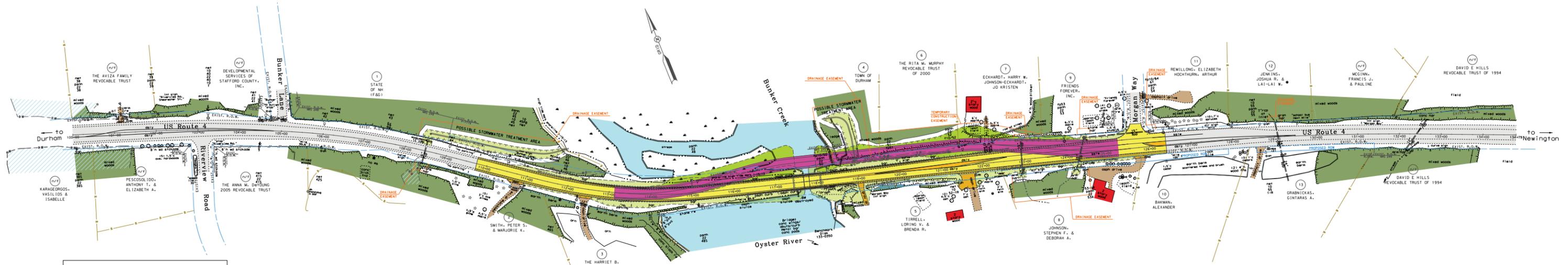
DURHAM 16236
X-A001(202)
BRIDGE REPLACEMENT PROJECT



Durham 16236
Traffic Control Alternative 1
Detour Option

HEARING PLAN

POSSIBLE TEMPORARY ON-SITE DIVERSION



LEGEND

- Travel Way of Proposed Roadway
- Shoulder of Proposed Roadway
- Proposed Raised Traffic Islands
- Proposed Sidewalk
- Access Points to Proposed Roadway (Drives, etc.)
- Approximate Limit of Slope Work and Landscaping
- Removal of Existing Pavement Outside of Slope Work
- Existing Pavement (Roadways, Drives, Sidewalks, etc.)
- Existing Gravel Surface (Drives, Paths, etc.)
- Existing Tree and/or Brush Line
- Water (Rivers, Streams, Lakes, Ponds, Swamps, etc.)
- Buildings To Be Removed
- Bridge Removal
- Wetlands
- Property Lines
- State, County, City and Town Lines
- Existing Easement Lines
- Proposed Easement Lines
- Existing R.O.W. (Right-of-Way)
- Proposed R.O.W.
- Existing C.A.R.O.W. (Controlled Access)
- Proposed C.A.R.O.W.
- Existing L.A.R.O.W. (Limited Access)
- Proposed L.A.R.O.W.
- Possible Temporary On-Site Diversion

Prepared by:
New Hampshire Department of Transportation
Highway Design Bureau

PRELIMINARY PLANS
SUBJECT TO CHANGE
DATE 02/20/2013



SCALE: 1" = 50'

DURHAM 16236

X-A001(202)
BRIDGE REPLACEMENT PROJECT



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



RECEIVED

MAR 31 2015

JEFF BRILLHART, P.E.
ACTING COMMISSIONER

DURHAM
X-A001(202)
16236
RPR5350

No Historic Properties Affected Memo

Pursuant to the Request for Project Review signed January 17, 2014, and for the purpose of compliance with regulations of the National Historic Preservation Act 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 Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historical and archaeological resources with plans to replace the bridge carrying NH Route 4 (Piscataqua Road) over Bunker Creek (145/116) in the Town of Durham, New Hampshire.

Based on a review pursuant to 36 CFR 800.4, we agree that no historic or archaeological resources will be impacted by the undertaking and that no further survey work is needed. A Project Area Form was completed on the above ground resources and identified that the area has been significantly altered over the years, including the 1933 concrete slab bridge, which no longer retains integrity. A Phase IB archaeological investigation occurred along the project area and identified two cemeteries, the Bunker Family Cemetery and the Twombly Family Burial Ground, that will be monitored during construction should impacts occur within 25' of the resource boundaries.

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

Section 4(f) (to be completed by FHWA)	There Will Be:	<input checked="" type="checkbox"/> No 4(f);	<input type="checkbox"/> Programmatic 4(f);	<input type="checkbox"/> Full 4 (f); <u>or</u>
	<input type="checkbox"/> A finding of <i>de minimis</i> 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 <i>de minimis</i> impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the <i>de minimis</i> 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.

for Patrick Bauer 3/30/15
Patrick Bauer, Administrator
Federal Highway Administrator

Jill Edelmnn 3/16/2015
Jill Edelmnn
Cultural Resources Manager

Concurred with by the NH State Historic Preservation Officer:

fn Elizabeth H. Muzzey 4-6-15
Elizabeth H. Muzzey
State Historic Preservation Officer
NH Division of Historical Resources

Memo



NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Benjamin Griffith, Normandeau Associates
25 Nashua Road
Bedford, NH 03110

From: Melissa Coppola, NH Natural Heritage Bureau

Date: 1/14/2015 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB15-0235

Town: Durham

Location: Route 4, Durham

Description: Normandeau Associates, Inc. is developing environmental coordination for a NHDOT Bridge Project to replace the existing bridge carrying NH Route 4 over Bunker Creek in Durham, NH. This bridge was built in 1933 and is a single span 15ft structure; it is not eligible for listing on the National Register of Historic Places.

cc: Kim Tuttle

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

Natural Community	State ¹	Federal	Notes
Brackish marsh	--	--	Threats to these communities are primarily alterations to the hydrology of the wetland (such as ditching or tidal restrictions that might affect the sheet flow of tidal waters across the intertidal flat) and increased input of nutrients and pollutants in storm runoff.
High salt marsh	--	--	
Rich Appalachian oak rocky woods	--	--	The primary threat to this natural community is logging.
Sparsely vegetated intertidal system	--	--	Threats to these communities are primarily alterations to the hydrology of the wetland (such as alterations that might affect the sheet flow of tidal waters across the intertidal flat) and increased input of nutrients and pollutants in storm runoff.
Subtidal system	--	--	Threats to these communities are primarily alterations to the hydrology of the wetland (such as alterations that might affect the sheet flow of tidal waters across the intertidal flat) and increased input of nutrients and pollutants in storm runoff.
Plant species	State ¹	Federal	Notes
crested sedge (<i>Carex cristatella</i>)*	E	--	This wetland species, which occurs in bogs, fens, seeps, and wet meadows, would be threatened by changes to local hydrology, including increased nutrient input from stormwater runoff, and sedimentation from nearby disturbance.
Downy False Foxglove (<i>Aureolaria virginica</i>)*	E	--	This species occurs in rocky ridges and woodlands, dry forests, and thin woods.

Memo



NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

green rockcress (<i>Boechera missouriensis</i>)	T	--	Threats would include development of its habitat or recreational use that directly impacted the plants. This species occurs in rocky ridges and woodlands, dry forests, and thin woods. Threats would include development of its habitat or recreational use that directly impacted the plants.
---	---	----	--

Vertebrate species

	State ¹	Federal	Notes
New England Cottontail (<i>Sylvilagus transitionalis</i>)	E	--	Contact the NH Fish & Game Dept (see below).

¹Codes: "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.

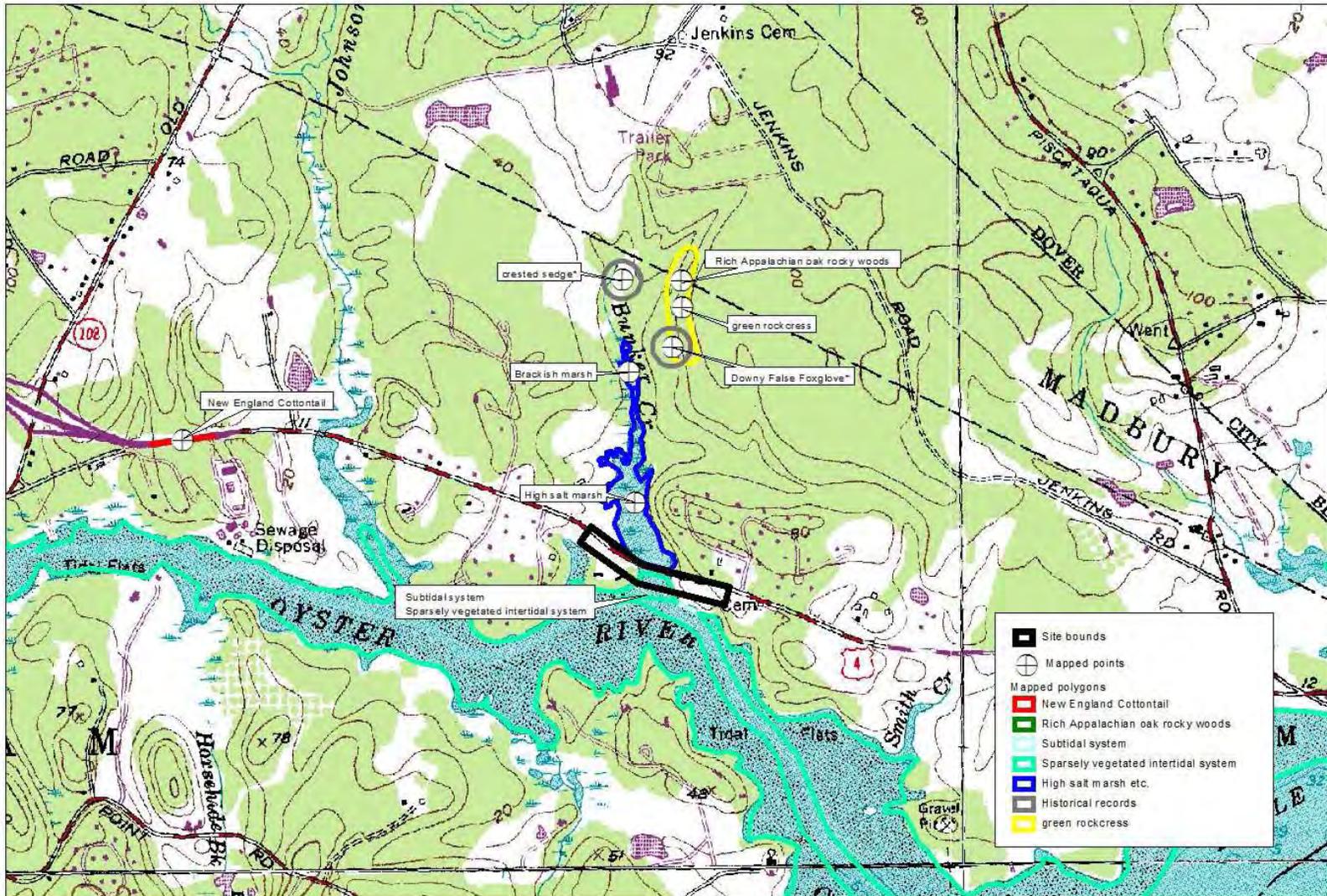
Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

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.



Known locations of rare species and exemplary natural communities

Note: Mapped locations are not always exact. Occurrences that are not in the vicinity of the project are not shown.



*Historical record

New Hampshire Natural Heritage Bureau - Community Record

Brackish marsh

Legal Status

Federal: Not listed
State: Not listed

Conservation Status

Global: Not ranked (need more information)
State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:

Detailed Description: 1996: Robust stands of both *Carex palleacea* (salt marsh sedge) and *Typha angustifolia* (narrow-leaved cattail) were found here, along with lesser quantities of *Spartina pectinata* (salt slough grass), *Aster novi-belgii* (New York aster), and *Scirpus maritimus* (salt marsh bulrush).

General Area: 1996: Bunker Creek drains a small tributary watershed of the tidal portion of the Oyster River. The **brackish marsh** is bordered by a moderately sized tidal salt marsh downstream. Immediately behind the **brackish marsh** an extensive stand of *Scirpus expansus* (expansive bulrush) was observed. This sedge is typically found in somewhat enriched conditions.

General Comments:
Management
Comments:

Location

Survey Site Name: Bunker Creek
Managed By: Johnson and Bunker Creeks

County: Strafford USGS quad(s): Dover West (4307028)
Town(s): Durham Lat, Long: 430823N, 0705315W
Size: .9 acres Elevation: 14 feet

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

Directions: From the intersection of Rte. 4 and Rte. 108 near Durham, proceed east ca. 1.25 miles to Bunker Creek. Site is ca. 0.5 miles north of the road, at the head of the creek at the fresh-salt water interface.

Dates documented

First reported: 1996-09-19 Last reported: 1996-09-19

New Hampshire Natural Heritage Bureau - Community Record

High salt marsh

Legal Status

Federal: Not listed
State: Not listed

Conservation Status

Global: Not ranked (need more information)
State: Rare or uncommon

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank: Moderately small relative to other examples in Great Bay, but in good condition and largely bordered by undeveloped land.

Detailed Description: 1996: Typical **high** and **low salt marsh** species (e.g., *Spartina alterniflora* (cordgrass) and *Spartina patens* (salt meadow-grass)) are found here, although a thorough botanical survey was not undertaken.

General Area: 1996: Bunker Creek drains a small tributary watershed of the tidal portion of the Oyster River. The western shore is bordered primarily by abandoned farm fields of the Bunker family farm, with some early successional forest towards the northern end of the salt portion of the creek. The eastern side has a few houses set back approximately 100 m (several hundred feet) from the marsh edge. A dry oak forest with small ledges on an abrupt slope borders this side of the creek. At the head of the creek there is a fresh-salt water interface with a well developed **brackish marsh**.

General Comments:
Management
Comments:

Location

Survey Site Name: Bunker Creek
Managed By: Palmer Tract

County: Strafford USGS quad(s): Dover West (4307028)
Town(s): Durham Lat, Long: 430811N, 0705314W
Size: 11.3 acres Elevation: 14 feet

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

Directions: From the intersection of Rte. 4 and Rte. 108 near Durham, proceed east ca. 1.25 miles. Site extends north from the confluence of Bunker Creek and the Oyster River for ca. 0.3 miles.

Dates documented

First reported: 1996-09-19 Last reported: 1996-09-19

New Hampshire Natural Heritage Bureau - Community Record

Rich Appalachian oak rocky woods

Legal Status

Federal: Not listed
State: Not listed

Conservation Status

Global: Not ranked (need more information)
State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:

Detailed Description: 1996: *Fraxinus americana* (white ash) is abundant, along with lesser quantities of *Betula lenta* (black birch), *Quercus rubra* (red oak), and *Carya ovata* (shagbark hickory). Species common on most types of talus slopes include *Smilacina racemosa* (false-solomon's seal) and *Dryopteris marginalis* (marginal woodfern). In addition to white ash, other species indicative of the enriched conditions include the rare *Arabis laevigata* (smooth rock-cress), *Hepatica americana* (blunt-lobed hepatica), *Carex radiata* (stellate sedge), *Desmodium glutinosum* (naked tickseed), and the uncommon sedge *Carex hirtifolia* (hairy-leaved sedge). *Hedeoma pulegiodes* (false pennyroyal), an uncommon plant of dry-ish habitats in southern and central NH, and *Muhlenbergia mexicana* (Mexican muhly) were also found among the talus boulders and small ledges.

General Area: 1996: The pH of the bedrock here is presumably intermediate, or circumneutral, and contributes to the enriched character of the site.

General Comments: 1996: Further exploration of this talus slope in spring and early to late summer would be worthwhile.

Management
Comments:

Location

Survey Site Name: Bunker Creek
Managed By: Johnson and Bunker Creeks

County: Strafford
Town(s): Madbury
Size: 3.3 acres

USGS quad(s): Dover West (4307028)
Lat, Long: 430831N, 0705308W
Elevation: 60 feet

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

Directions: From the intersection of Rte. 4 and Rte. 108 near Durham, proceed east ca. 1.25 miles to Bunker Creek. Site is ca. 0.5 miles to the north of the road.

Dates documented

First reported: 1996-09-19
Last reported: 1996-09-19

New Hampshire Natural Heritage Bureau - System Record

Sparsely vegetated intertidal system

Legal Status

Federal: Not listed
State: Not listed

Conservation Status

Global: Not ranked (need more information)
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: Extensive *intertidal flats* that are exposed daily at low tide, bordered in places by *intertidal rocky shore* and *coastal shoreline strand/swale* communities.

General Area: 2010: Borders **salt marsh system** landward and **subtidal system** seaward.

General Comments:
Management
Comments:

Location

Survey Site Name: Great Bay
Managed By: Moody Point Open Space

County: Rockingham
Town(s): Newington
Size: 3589.5 acres

USGS quad(s): Newmarket (4307018)
Lat, Long: 430651N, 0705032W
Elevation:

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

Directions: Occurs throughout Great Bay from the mouths of its tributaries, through Little Bay, to the confluence with the Piscataqua River.

Dates documented

First reported: 1997-06-23

Last reported: 2010-10-13

New Hampshire Natural Heritage Bureau - System Record

Subtidal system

Legal Status

Federal: Not listed
State: Not listed

Conservation Status

Global: Not ranked (need more information)
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: Channels and bay bottoms that vary in width from a few feet to almost a mile across, covered by water even at low tide. Patches of subtidal *eelgrass bed* occur at the edge of the adjacent **sparsely vegetated intertidal system**.

General Area: 2010: Borders a **sparsely vegetated intertidal system**.

General Comments:
Management
Comments:

Location

Survey Site Name: Great Bay
Managed By: Portsmouth Country Club

County: Rockingham	USGS quad(s): Portsmouth (4307017)
Town(s): Newington	Lat, Long: 430431N, 0705256W
Size: 3207.7 acres	Elevation:

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

Directions: Occurs throughout the Great Bay estuary, from the upper total reaches of tributary streams to the confluence of the bay with the Piscataqua River.

Dates documented

First reported: 1997-06-17	Last reported: 2010-10-13
----------------------------	---------------------------

New Hampshire Natural Heritage Bureau - Plant Record

crested sedge (*Carex cristatella*)

Legal Status

Federal: Not listed
State: Listed Endangered

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Historical records only - current condition unknown.
Comments on Rank:

Detailed Description: 1950: Specimen collected.
General Area: 1950: Alder thicket.
General Comments:
Management
Comments:

Location

Survey Site Name: Bunker Creek
Managed By:

County: Strafford	USGS quad(s): Dover West (4307028)
Town(s): Durham	Lat, Long: 430831N, 0705316W
Size: 2.8 acres	Elevation: 20 feet

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

Directions: Durham. Head of Bunker Creek.

Dates documented

First reported: 1950-07-12	Last reported: 1950-07-12
----------------------------	---------------------------

New Hampshire Natural Heritage Bureau - Plant Record

green rockcress (*Boechera missouriensis*)

Legal Status

Federal: Not listed
State: Listed Threatened

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2012: estimated 50 plants observed, half were in flower and starting to fruit, about 5% were rosettes only.

General Area: 2012: **Rich Appalachian oak rocky woods**. Associated plants included: marginal wood fern (*Dryopteris marginalis*), white tall windflower (*Anemone virginiana* var. *alba*), spotted crane's-bill (*Geranium maculatum*), Swan's sedge (*Carex swanii*), and broad loose-flowered sedge (*Carex laxiflora*). Trees include a mix of white ash (*Fraxinus americana*), red oak (*Quercus rubra*), and shagbark hickory (*Carya ovata*).

General Comments:
Management
Comments:

Location

Survey Site Name: Bunker Creek
Managed By: Johnson and Bunker Creeks

County: Strafford	USGS quad(s): Dover West (4307028)
Town(s): Durham	Lat, Long: 430829N, 0705307W
Size: 6.3 acres	Elevation:

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

Directions: From Rte. 4 travel 1.1 miles east of the junction of Rte. 4 and Rte. 108. Turn left onto Bunker Lane. Park at Fish and Game barn. From the parking area next to barn, walk north through the Palmer Tract (NHF& and to the northernmost part of the 2012 clearcut. From there, walk east, past a 2012 cut-and-leave wildlife clearcut to a steep rocky cliff. The plants are scattered along the upper and mid-slopes of this steep rocky area.

Dates documented

First reported: 2012-05-25	Last reported: 2012-06-15
----------------------------	---------------------------

New Hampshire Natural Heritage Bureau - Animal Record

New England Cottontail (*Sylvilagus transitionalis*)

Legal Status

Federal: Not listed
State: Listed Endangered

Conservation Status

Global: Rare or uncommon
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: 2008: This is the only verified observation of this species since the early 1990's. Surrounding habitat is marginal.

Detailed Description: 2008: 1 roadkilled cottontail collected.
General Area: 2008: Near historically occupied habitat.
General Comments: 2008: Species identification based on morphometrics and DNA analysis by Dr. John Litvaitis (UNH).

Management
Comments:

Location

Survey Site Name: Route 4 Durham
Managed By:

County: Strafford
Town(s): Durham
Size: .6 acres

USGS quad(s): Dover West (4307028)
Lat, Long: 430815N, 0705419W
Elevation:

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

Directions: 2008: On Rte. 4, ca. 0.5 km east from intersection with Rte. 108.

Dates documented

First reported: 2008-04-27
Last reported: 2008-04-27

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.



MARGARET WOOD HASSAN
GOVERNOR

STATE OF NEW HAMPSHIRE
OFFICE OF ENERGY AND PLANNING
107 Pleasant Street, Johnson Hall
Concord, NH 03301-3834
Telephone: (603) 271-2155
Fax: (603) 271-2615

Exhibit 7



www.nh.gov/oep

MEMORANDUM

TO: Adele Fiorillo
Normandeau Associates

FROM: Jennifer Gilbert
NH Floodplain Management Coordinator
State NFIP Coordinator

DATE: February 14, 2014

SUBJECT: US Route 4 Bridge No. 145/116
NH DOT Project 16236
Durham NH

I am writing in reference to your letter dated January 29, 2014 regarding the above-referenced project. I have reviewed current Flood Insurance Rate Map for the proposed area (see attached GRANITView map). A Zone A area (without base flood elevations and a regulatory floodway) is located in the proposed project area.

Since Durham is a participating community of the NFIP, any development in a special flood hazard area should meet the community's floodplain management regulations. Development is defined under the NFIP as "any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials."

Best judgment should be used in determining if further study is necessary. If the proposed project will not present a new obstruction to flood flows or alter drainage then additional coordination is likely not necessary.

The FEMA Flood Insurance Rate Maps and Flood Insurance Study for Strafford County can be viewed and downloaded from UNH's GRANIT website at <http://www.granit.unh.edu/dfirms/>.

If you need further assistance, please contact me at 271-2155 or jennifer.gilbert@nh.gov.



GRANITView

Map Layers Tools Help

Visit the GRANIT website at www.granit.unh.edu/



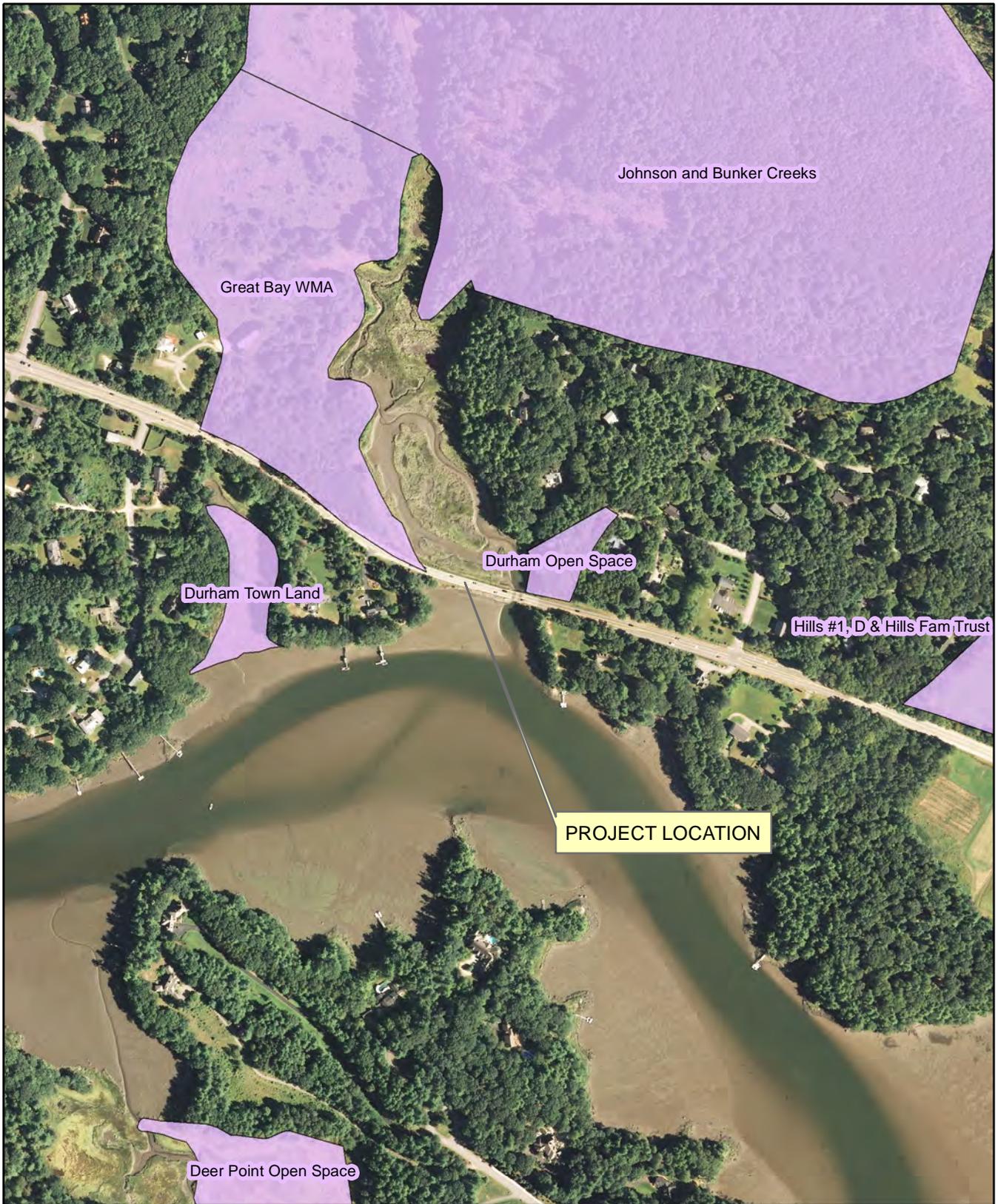
Current Scale = 1:2,257

Latitude: 43.135938 Longitude: 70.883471

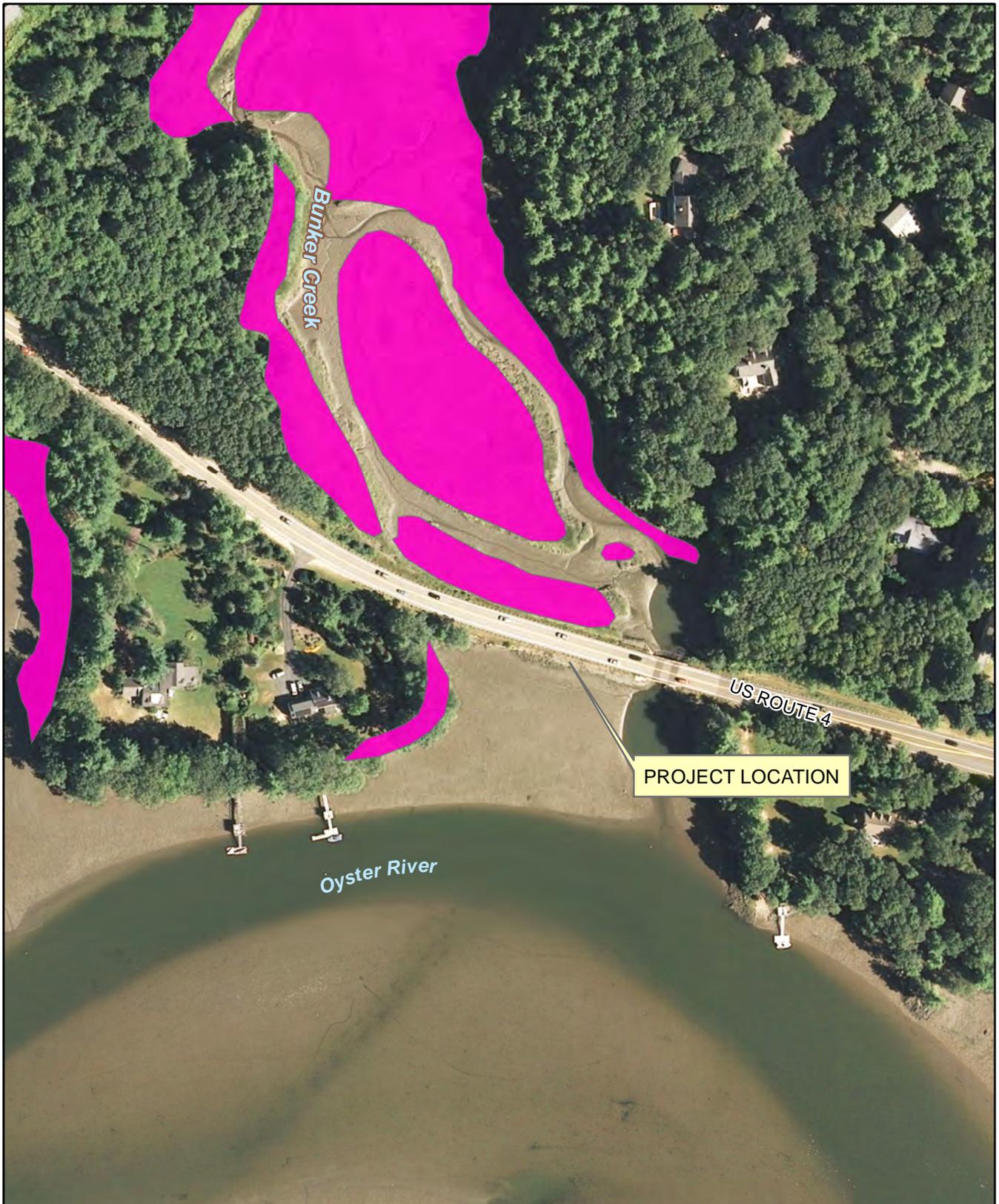
<http://granitview.unh.edu/>

From: Walker, Steve <Steve.Walker@nh.gov>
Sent: Monday, February 03, 2014 7:48 AM
To: Adele Fiorillo
Subject: Durham # 23164

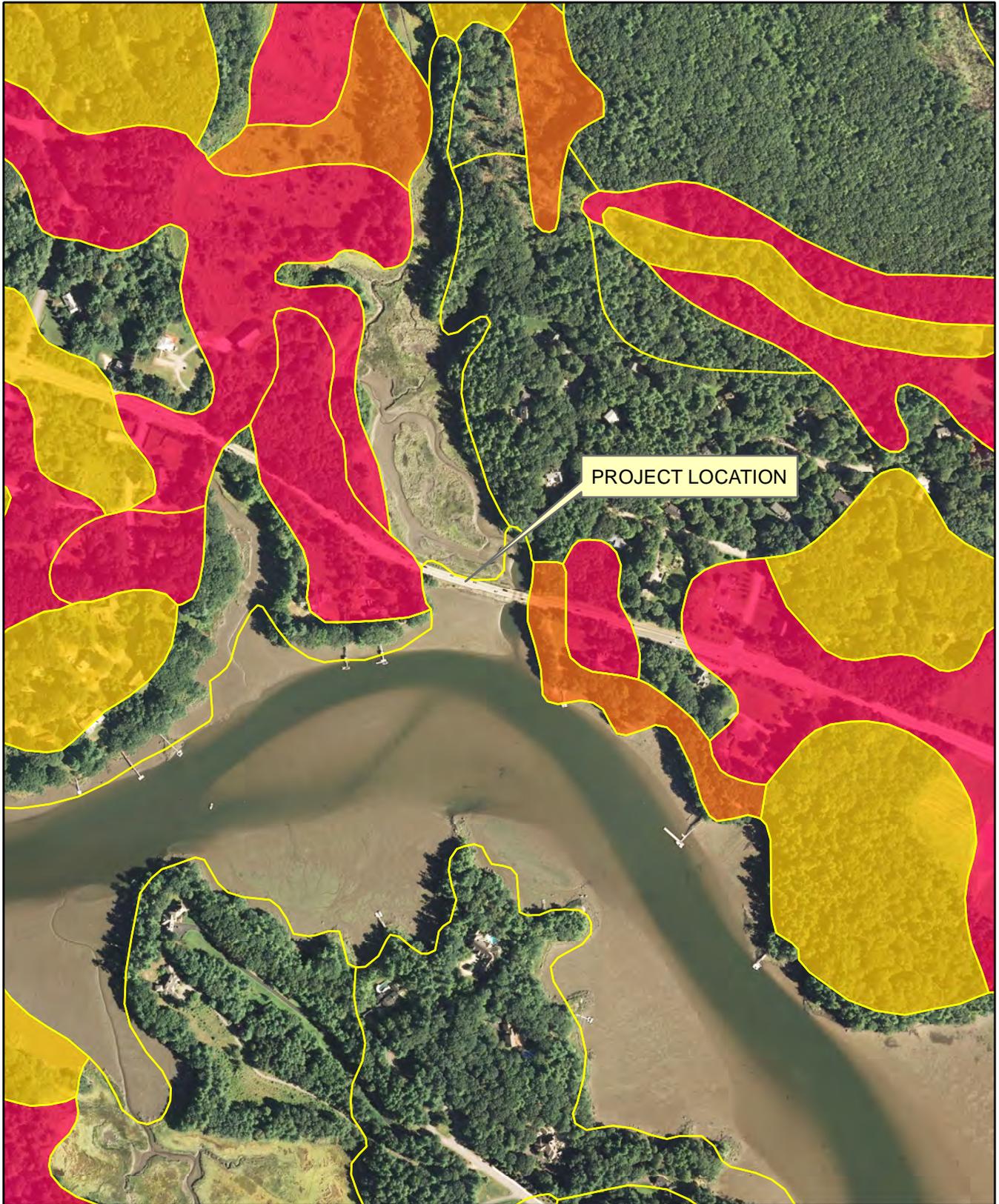
Hi Adele, I was combing through old LCIP data files and saw your name and wondered where you had gotten to. I note from GrantieView that there are conservation properties on either side of the bridge. However, neither are LCIP properties nor do we have any others in the project area. Cheers Steve



Date : 5/20/2015 Drawn By: volase Project No: 8675309	0 250 500 1,000 Feet N 	NHDOT DURHAM, NEW HAMPSHIRE 16236	
	EXHIBIT 9 - CONSERVATION LANDS		
	SCALE: 1:6,000	 25 Nashua Road Bedford, NH 03110 (603) 472-5191 www.normandeau.com	APRIL, 2015



<p>Date : 5/1/2015</p> <p>Drawn By: volase</p> <p>Project No: 8675309</p>	<p>Feet</p>	<p>N</p>		<p>NHDOT DURHAM, NEW HAMPSHIRE 16236</p>	
	<p> Tier 1 Top-ranked in NH Tier 2 Top-ranked in region Tier 3 Supporting Landscape </p> <p>Data Source: 2010 Wildlife Action Plan, NHFG</p>	<p>EXHIBIT 10 - WAP PRIORITY AREAS</p>		<p>SCALE: 1:2,400</p>	<p>25 Nashua Road Bedford, NH 03110 (603) 472-5191 www.normandeaup.com</p>



Date : 4/29/2015
 Drawn By: volase
 Project No: 8675309

Legend

- All areas are prime farmland
- Farmland of statewide importance
- Farmland of local importance

Data Source: NRCS Soil Survey Strafford County

NHDOT DURHAM, NEW HAMPSHIRE 16236		
EXHIBIT 11 - FARMLAND SOILS		
SCALE: 1:6,000		APRIL, 2015

-----Original Message-----

From: Ydania.M.Matos@uscg.mil [<mailto:Ydania.M.Matos@uscg.mil>]
Sent: Wednesday, February 05, 2014 11:37 AM
To: Robert Landry
Cc: Bisignano, Christopher J CIV
Subject: RE: Route 4 Nav Questionnaire

Sir,

If its funded by FHWA. They have the responsibility for the STA Act, the Coast Guard will accept a determination by the FHWA Administrator that a bridge project receiving federal assistance under Title 23, U. S. Code, and is exempted for Coast Guard Bridge Administration purposes.

v/r

LTJG Ydania M. Matos
First Coast Guard District
Bridge Branch
1 South St, Battery Park BLDG
New York, NY 10004
(212) 668-6380

-----Original Message-----

From: RLandry@dot.state.nh.us [<mailto:RLandry@dot.state.nh.us>]
Sent: Wednesday, February 05, 2014 7:33 AM
To: Matos, Ydania M LTJG
Cc: Bisignano, Christopher J CIV
Subject: RE: Route 4 Nav Questionnaire

Yes, it will be federally funded

Bob Landry, Chief of Consultant Section, Bureau of Bridge Design New Hampshire Department of Transportation
603.271.3921 or RLandry@dot.state.nh.us

-----Original Message-----

From: Ydania.M.Matos@uscg.mil [<mailto:Ydania.M.Matos@uscg.mil>]
Sent: Tuesday, February 04, 2014 10:10 AM
To: Robert Landry
Cc: Bisignano, Christopher J CIV
Subject: RE: Route 4 Nav Questionnaire

Good morning Mr. Landry,

I have reviewed the questionnaire we sent you regarding the bridge replacement project over Bunker Creek. Will this project be federally funded?

If so the Surface Transportation Assistance (STA) Act of 1978 may apply. My preliminary determination is that the project will not require a formal Coast Guard Bridge permit based on the information you have provided.

Please provide the funding information so that we can finalized the bridge permit determination.
v/r

LTJG Ydania M. Matos
First Coast Guard District
Bridge Branch
1 South St, Battery Park BLDG
New York, NY 10004
(212) 668-6380

-----Original Message-----

From: RLandry@dot.state.nh.us [<mailto:RLandry@dot.state.nh.us>]
Sent: Thursday, December 26, 2013 2:00 PM
To: Bisignano, Christopher J CIV
Cc: Jamie.Sikora@dot.gov; John Butler; Joe Adams; Marc Laurin
Subject: FW: Route 4 Nav Questionnaire

Chris, attached is the Navigability Questionnaire for a bridge replacement project we are doing in the town of Durham, NH. The existing bridge is a concrete slab bridge 15-foot face of stone abutment to face of stone abutment at the outlet of Bunker Creek into the Oyster River. Upstream of this bridge is mainly conservation land that includes a non-advertised town canoe and kayak boat launch.

I do not believe you will find Bunker Creek as navigable for anything but canoe's and kayak's, but let me know.

I can request FHWA to submit a letter to USCG for an exemption of the bridge permit if needed.

Thank you and have a Happy New Year.

Bob Landry, Chief of Consultant Section, Bureau of Bridge Design New Hampshire Department of Transportation
603.271.3921 or RLandry@dot.state.nh.us

From: Adele Fiorillo [<mailto:afiorillo@normandeau.com>]
Sent: Thursday, December 26, 2013 1:16 PM
To: Robert Landry; Joe Adams; John Butler; Marc Laurin
Cc: Darren Blood (DBlood@GM2INC.COM)

Subject: Route 4 Nav Questionnaire

Hello Everyone: I hope you had a wonderful Christmas Holiday. I just wanted to follow up on my email below and the attached. Did this go out to the USCG or would you like me to send it along? Please let me know. Thank you and Happy New Year!

Adele

ADELE FIORILLO Principal Wetland Scientist

30 International Drive - Suite 6, Portsmouth, NH 03801

603-319-5303 (direct) 603-494-8931 (mobile)

afiorillo@normandean.com <<mailto:afiorillo@normandean.com>> www.normandean.com

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From: Adele Fiorillo

Sent: Friday, December 13, 2013 11:02 AM

To: Robert Landry (RLandry@dot.state.nh.us); JAdams@dot.state.nh.us; JButler@dot.state.nh.us; Marc Laurin (MLaurin@dot.state.nh.us)

Cc: Darren Blood (DBlood@GM2INC.COM)

Subject: Route 4 Nav Questionnaire

Good Morning: attached is the USCG navigability questionnaire for your review and comment. If you have no changes please note that it needs to be signed and dated before sending to the USCG. I assume that you will want to send this from your end but if you would like me to do so please just let me know. Thank you,

Adele

ADELE FIORILLO Principal Wetland Scientist

30 International Drive - Suite 6, Portsmouth, NH 03801

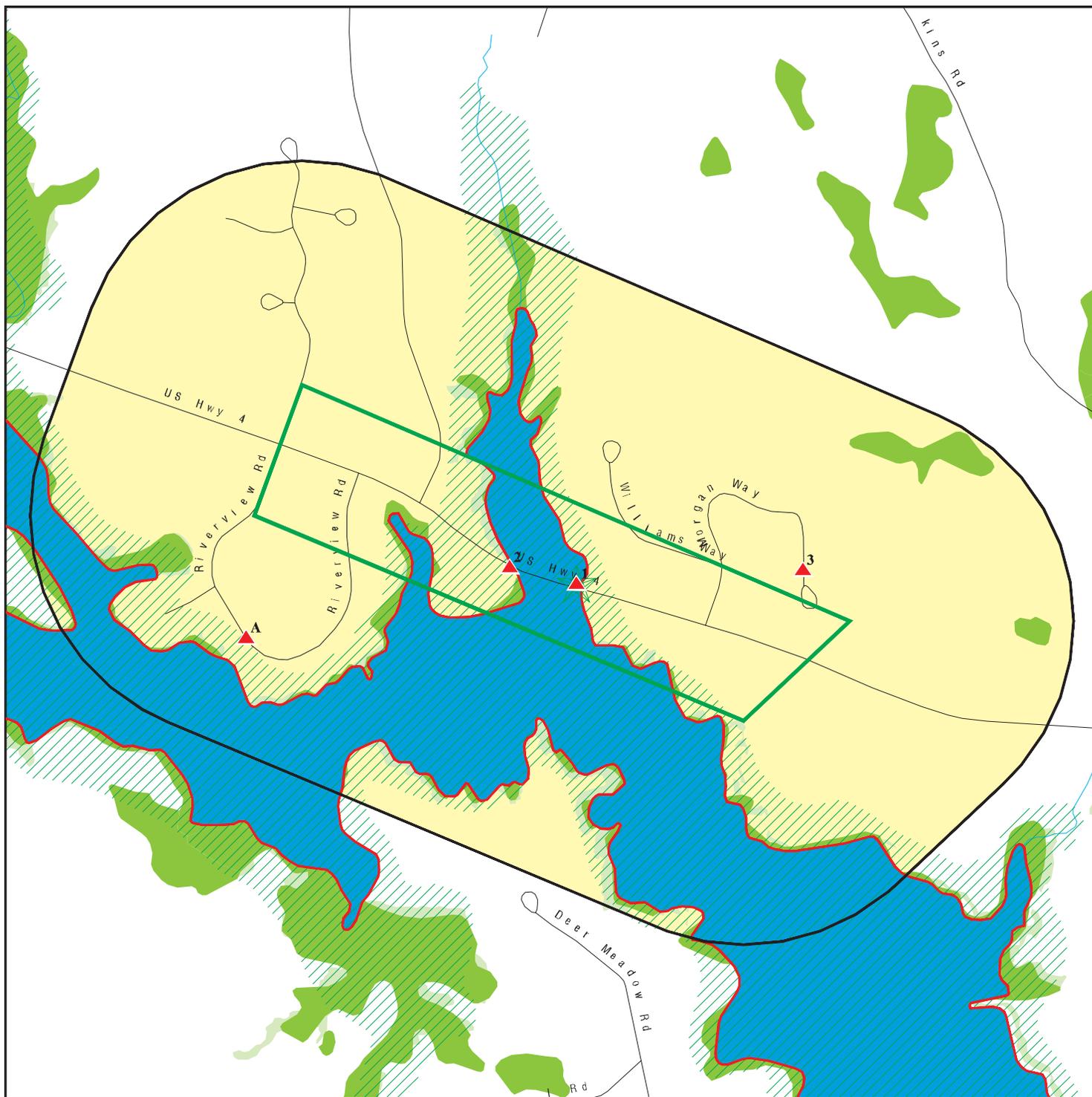
603-319-5303 (direct) 603-494-8931 (mobile)

afiorillo@normandean.com <<mailto:afiorillo@normandean.com>> www.normandean.com

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DETAIL MAP - 3921305.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

County Boundary

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Exhibit 13

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Bunker Creek Project
 ADDRESS: Route 4
 Durham NH 03824
 LAT/LONG: 43.1336 / 70.8861

CLIENT: Normandeau Associates
 CONTACT: Stephen Lee
 INQUIRY #: 3921305.2s
 DATE: April 23, 2014 1:34 pm



TELEPHONE CALL SUMMARY LOG

January 21, 2015

Adele Fiorillo, Normandeau Associates, Inc.
Christian Williams, New Hampshire Coastal Program

Re: Durham Route 4 Bridge Replacement
NH DOT Project Number: NH #16236
Federal Highway Project Number: X-A001(202)

In response to a letter dated January 15, 2015 from Normandeau Associates, Inc., Christian Williams of the New Hampshire Coastal Program telephoned Adele Fiorillo of Normandeau Associates to discuss the New Hampshire Department of Transportation Bridge Project (Durham Project NH #16236) to replace bridge #145/116 over Bunker Creek on US Route 4 in the Town of Durham, NH. The following documents the January 21, 2015 telephone conversation:

1. The proposed bridge span is to be expanded to 64 feet from the current 15 feet to address two geometric deficiencies, the sag vertical curve restricting sight distance on US Route 4 and improving intersection sight distance at Morgan Way. The design will also avoid possible subsurface obstructions (existing bridge footings) and aid in the possible accelerated construction of this crossing. This could potentially avoid the need to install a temporary crossing for construction, thereby reducing construction impacts.
2. Any increase in opening that increases tidal flow is generally supported by the Coastal Program.
3. It is recommended that the basis for the bridge expansion be documented to ensure that the bridge opening is sized appropriately to pass as much tidal flow as possible, or to what extent tidal flow is increased (percentage or other metric).
4. Although the Natural Heritage Bureaus report (Attached) does not indicate the presence of Low Salt Marsh, this is a unique marsh community type in New Hampshire and is present on the upstream side of the bridge.
5. The bridge opening hydraulics should be considered with due regard given to the presence of the Low Salt Marsh.
6. It is recommended that a pre-construction vegetation assessment along with pre-construction pore water sampling be completed to document existing conditions in the upstream salt and brackish marshes. These data can be followed by post construction follow up monitoring by

the University of New Hampshire, the New Hampshire Department of Environmental Services or other such entity to determine how the increased tidal flow affects the marshes.

7. The increased bridge opening may be a benefit to recreation by allowing for upstream access by kayak or canoe. It would be helpful to document the extent to which the proposed bridge may be a benefit.
8. If this project is approved under the Army Corps of Engineers General Permit then a consistency review will not be required unless the project is funded by a federal program subject to federal consistency review.
9. Although federal consistency review may not be required, the Coastal Program works closely with the Wetlands Bureau to review projects once a permit application is filed and may make recommendations such as those listed above.



Adele Fiorillo



Christian Williams

From: Speidel, Marn <M.Speidel@dover.nh.gov>
Sent: Monday, February 03, 2014 3:40 PM
To: Adele Fiorillo
Subject: Normandeu Project No. 23164.000

Good afternoon Ms. Fiorillo,

On behalf of Chief Colarusso and the Dover Police Department, I received and reviewed your January 29, 2014 letter regarding the project to replace the Route 4 bridge over Bunker Creek in Durham, NH. Thank you for the opportunity to review and comment on the project.

We do not have any specific response or comment applicable to any of the 9 questions that you outline in your letter.

The Dover Police Department would have concerns with potential traffic impacts during the construction phase, especially in the event that a full closure of the US Route 4 corridor is necessary at any point. However, it is our understanding that construction-related traffic impacts would not be within the scope of Normandeu's involvement.

Please feel free to contact me at (603) 742-4646 if you need anything further.

Regards,
Marn Speidel

Sgt. Marn E. Speidel
Traffic Bureau
Dover Police Department
46 Locust Street
Dover, NH 03820
(603) 742-4646
E-mail: m.speidel@dover.nh.gov

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From: Todd Selig <tselig@ci.durham.nh.us>
Sent: Tuesday, February 11, 2014 3:40 PM
To: Adele Fiorillo
Cc: Michael Lynch
Subject: Re: Route 4 Bridge over Bunker Creek

Dear Adele,

This is an accurate account of our conversation regarding the Route 4 bridge over Bunker Creek. Thank you very much for taking the time to follow up. It is appreciated.

Todd

Todd I. Selig, Administrator
Town of Durham, NH

T. 603.868.5571 | www.ci.durham.nh.us

From: Adele Fiorillo <afiorillo@normandean.com>

Date: Tuesday, February 4, 2014 at 5:18 PM

To: Todd Selig <tselig@ci.durham.nh.us>

Subject: Route 4 Bridge over Bunker Creek

Hello Todd: Thank you for your call in response to the letter that was sent to you requesting comments on the proposed Route 4 Bridge replacement over Bunker Creek in Durham. As we discussed I am sending you this email to document our telephone conversation and to make sure all of your comments and concerns are noted completely and accurately .

1. You recommended that we contact the Strafford County Regional Planning Commission to see if they have any regional planning initiatives and/or comments on the project. We will certainly take this recommendation and contact them.
2. The main goal of the Town of Durham is to maintain the scenic quality of the roadway.
3. The character of the roadway should be maintained as much as possible (widening and straightening only if warranted for safety). I shared with you the intent of the preferred design which is to stay on the current alignment but to add some width for a bike path and to reduce grades to eliminate sight distance issues associated with entering roadways. The Town of Durham would be in support of a bike path.
4. There are no municipal wells in the area. However, a City of Portsmouth water line may be in the vicinity. You were not sure of the location but know that it comes through Wagon Hill Farm, just to the east of the project site on Route 4. We will look into all potentially affected utilities.
5. You know of no hazardous materials in the project area.
6. You know of no non-native plant species in the project area.
7. Peter and Marjorie Smith, abutters to the project, are very interested in bridge and roadway plans.

I believe this covers everything we discussed. If I have omitted anything or you would like to make any wording changes to better reflect your comments please let me know. Thank you again for your call.

Sincerely,

ADELE FIORILLO *Principal Wetland Scientist*
NORMANDEAU ASSOCIATES, *Inc.*
30 International Drive - Suite 6, Portsmouth, NH 03801
603-319-5303 (direct) 603-494-8931 (mobile)
afiorillo@normandeau.com www.normandeau.com

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TOWN OF DURHAM
15 NEWMARKET ROAD
DURHAM, NH 03824-2898
Tel: 603/868-5571
Fax: 603/868-5572

Exhibit 17

February 10, 2014

Ms. Adele Fiorillo
Normandeau Environmental Consultants
30 International Drive, Suite 6
Pease International Tradeport
Portsmouth, NH 03801

Re: US Route 4 Bridge No. 145/116, NHDOT Project 16236

Dear Ms. Fiorillo:

Thank you for your letter dated January 29, 2014 inviting comments from the Town of Durham Integrated Waste Management Advisory Committee relative to New Hampshire Department of Transportation Project 16236, US Route 4 Bridge No. 145/116.

The Integrated Waste Management Advisory Committee has no objections with this project proceeding as planned.

Again, thank you for taking the time to write and seeking the committee's input relative to this project.

Very truly yours,

Michael H. Everngam
Chair, IWMAC

From: Karen Edwards <kedwards@ci.durham.nh.us>
Sent: Tuesday, February 25, 2014 12:47 PM
To: Adele Fiorillo
Subject: US Route 4 Bridge No. 145/116, NH DOT Project 16236

Dear Adele Fiorillo,

I am writing on behalf of our Zoning Administrator, Thomas Johnson. He received your letter of January 29, 2013. He wanted you to know that there are no significant zoning implications for the above referenced project. If you have any questions, please feel free to contact me.

Karen

Karen Edwards
Town of Durham
15 Newmarket Road
Durham, NH 03824
(603) 868-8064
www.ci.durham.nh.us

MGL high
KTN 1

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
INTER-OFFICE COMMUNICATION

Exhibit 19

DATE: February 20, 2014
FROM: JA Jay Ankenbrock, Chief of Labor Compliance, Executive Office
TO: Michael J. Dugas, P.E., Chief of Preliminary Design
RE: Environmental Justice Population Analysis, Project: **Durham 16236**

The attached analysis and recommendations are provided pursuant to Title VI of the Civil Rights Act of 1964 and Executive Orders 12898 & 13166. The intent of these statutes is to ensure fair and full participation and the equal receipt of benefits under Federally-assisted programs. Your efforts to accommodate and encourage participation by traditionally underserved groups, where significant, will ensure program access and minimize the potential for disproportionate project impacts on protected groups.

The table entitled "EJ Population Analysis" shows the presence of protected groups that might be impacted by the project. Personnel responsible for project planning/design and the coordination of public meetings/hearings should use this analysis to guide their outreach efforts under Title VI and in support of developing a context sensitive solution. Based on the availability of information and where appropriate, we have included specific outreach recommendations to facilitate public comment from underrepresented groups.

Please note that US Census American FactFinder data is used to provide to an EJ Population analysis for the project. If you have questions regarding this analysis, please contact me @ 271-2467.

Encls: EJ Population Analysis

Cc: Peter Crouch, Traffic Systems Engineer, Bureau of Traffic
Kevin Nyhan, Administrator, Bureau of Environment
Keith Cota, Bureau of Highway Design

EJ Population Analysis for Project: Durham 16236

STUDY AREA	AVG% Elderly Population	AVG% Minority Population	AVG% Low-income Population	AVG% LEP
Impacted Area – County Stafford US Census Tract #802.02 Block 2.	4.17%	5.63%	2.46%	0.0%
Surrounding Area – Stafford County, Census Tract # 802.04 Block 1, Census Tract #802.03 Block 2 & Census Tract #805 Block 1.	6.93%	6.93%	22.86%	0.38%
REMARKS: * The population percentage identified is meaningfully greater than the surrounding area and constitutes an EJ population. Characteristics of this particular study area indicate that targeted outreach efforts to solicit public participation should be taken. LEP Definition: Where there is a population of people who speak English as a second language less than well (as indicated by the U.S. Census data). When a particular LEP language group constitutes 5% of the impacted population, the Department is required to translate public information meeting notices and take appropriate measures to ensure language access. If this requirement exists, the Project Manager should contact the Title VI Coordinator for further assistance.				

Impacted Area: The impacted area was defined by the project limits and the area in the immediate vicinity that most closely corresponds to the boundaries of Census Tracts and Block Groups

Surrounding Area: All Census Tracts and Block Groups outside of, and immediately adjacent to, the impacted area.

Special Considerations: Special consideration should be given to any project features that affect pedestrian accessibility. This project constitutes an alteration in accordance with Title II of the Americans with Disabilities Act. As such, minimum ADAAG accessibility requirements apply, unless deemed technically infeasible. For more information, I have provided a link to the Draft Public Rights-of-Way Guidelines (PROWAG). Although these guidelines will not be enforceable until they have been adopted by the US DOJ and US DOT, the FHWA considers them to be the most current recommended best practices in pedestrian facility design: <http://www.access-board.gov/rowdraft.htm#Text>.

Outreach Recommendations: The data used in this study shows higher-than-average low-income population in the surrounding area. However, this is due to the student population levels at the University of New Hampshire within the census tract. Please refer to the figures in *Bold* from the table above. In consideration of this demographic, we are providing contact information for community outreach agencies in the areas of concern. These contacts should be included in your notification list for the project.

<u>Resident/Agency Address</u>	<u>Org/Housing Type</u>	<u>Contact Name/Number</u>
Town of Durham 15 Newmarket Road Durham, NH 03824		Todd Selig 603-868-5571
Durham Public Library Mill Road Durham, NH 03824		Thomas Madden 603-868-6699
DCAT 15 Newmarket Road Durham, NH 03824		Craig Stevens 603-868-5571 x114



Figure 1. Tidal waters from SW side of existing culvert, looking East



Figure 2. Tidal waters from SE side of existing culvert, looking West



Figure 3. Project area from existing culvert, looking East



Figure 4. Project area from existing culvert, looking West



Figure 5. Stream R1 Looking North



Figure 6. Stream R1 Looking South

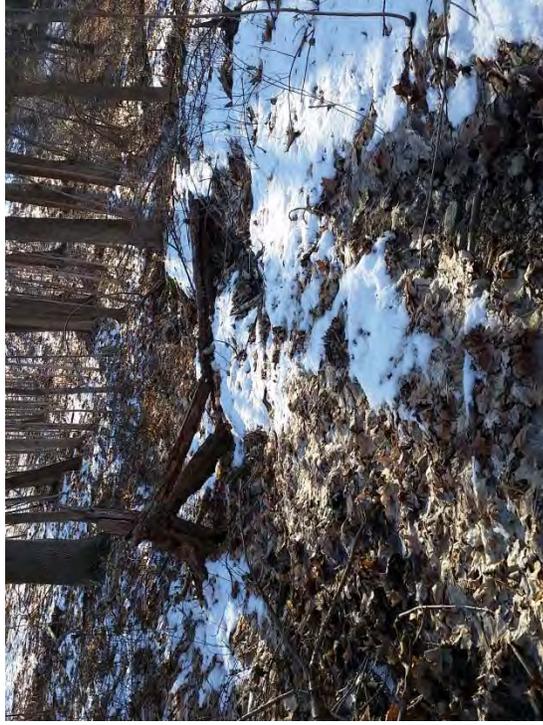


Figure 7. Stream R1 outside drainage easement looking East



Figure 8. Stream R2 Looking North



Figure 9. E2EM1 wetland from NE side of culvert, looking W



Figure 10. Limited sight distance from Morgan Way



Figure 11. Channel Span of Bridge (Low Tide)



Figure 12. Channel span of bridge (High Tide)