


# STATE OF NEW HAMPSHIRE INTER-DEPARTMENT COMMUNICATION

**DATE:** December 10, 2019

**FROM:**  Andrew O'Sullivan  
Wetlands Program Manager

**AT (OFFICE):** Department of  
Transportation

**SUBJECT:** Dredge & Fill Application  
Danbury, 16303

Bureau of  
Environment

**TO:** Karl Benedict, Public Works Permitting Officer  
New Hampshire Wetlands Bureau  
29 Hazen Drive, P.O. Box 95  
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(c). The project is located on US Route 4 in the Town of Danbury, NH. The intent of the project is to correct structural and safety deficiencies associated with the aging bridge while continuing to accommodate the multimodal use of the Northern Rail Trail by shifting the horizontal roadway geometry to the west while making the vertical geometry less dramatic.

This project was reviewed at the Natural Resource Agency Coordination Meeting on November 19, 2014 AND November 21, 2018. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: <http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm>

Mitigation is required for the project as there are permanent impacts to wetlands associated with the construction of the bridge. An in-lieu fee payment of \$88,738.86 will be made to the NHDES ARM fund.

The lead people to contact for this project are David Scott, Project Manager, Bureau of Bridge Design (271-2731 or david.scott@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-3226 or andrew.o'sullivan@dot.nh.gov).

A payment voucher has been processed for this application (Voucher # 591396) in the amount of \$10,798.00.

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

AMO:amo  
Enclosures

cc:  
BOE Original  
Town of Danbury (4 copies via certified mail)  
David Trubey, NH Division of Historic Resources (Cultural Review Within)  
Bureau of Construction  
Carol Henderson, NH Fish & Game (via electronic notification)  
Maria Tur, US Fish & Wildlife (via electronic notification)  
Mark Kern, US Environmental Protection Agency (via electronic notification)  
Michael Hicks, US Army Corp of Engineers (via electronic notification)  
Kevin Nyhan, BOE (via electronic notification)





# WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau

Land Resources Management

Check the status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)



RSA/Rule: [RSA 482-A/ Env-Wt 100-900](#)

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

**1. REVIEW TIME:** Indicate your Review Time below. To determine review time, refer to [Guidance Document A](#) for instructions.

Standard Review (Minimum, Minor or Major Impact)  Expedited Review (Minimum Impact only)

**2. MITIGATION REQUIREMENT:**

If mitigation is required, a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if mitigation is required, please refer to the [Determine if Mitigation is Required Frequently Asked Questions](#).

Mitigation Pre-Application Meeting Date: Month: 11 Day: 21 Year: 2018  
 N/A - Mitigation is not required

**3. PROJECT LOCATION:**

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

ADDRESS: **US Route 4** TOWN/CITY: **Danbury**

TAX MAP: \_\_\_\_\_ BLOCK: \_\_\_\_\_ LOT: \_\_\_\_\_ UNIT: \_\_\_\_\_

USGS TOPO MAP WATERBODY NAME: \_\_\_\_\_  NA STREAM WATERSHED SIZE: \_\_\_\_\_  NA

LOCATION COORDINATES (if known): **43.519449, -71.864194**  Latitude/Longitude  UTM  State Plane

**4. PROJECT DESCRIPTION:**

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

**Replacement of a red list bridge carrying US Route 4 over abandoned NHRR (Br. No. 156/104) in Danbury, NH just south of the town center. The intent of the project is to correct structural and safety deficiencies associated with the aging bridge while continuing to accommodate the multimodal use of the Northern Rail Trail by shifting the horizontal roadway geometry to the west while making the vertical geometry less dramatic. The new bridge will be a concrete fill over structure, acting as a tunnel for the trail users.**

**5. SHORELINE FRONTAGE:**

N/A This does not have shoreline frontage. SHORELINE FRONTAGE: \_\_\_\_\_

Shoreline Frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line ([Env-Wt 101.89](#)).

**6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:**

Please indicate if any of the following permit applications are required and, if required, the status of the application. To determine if other Land Resources Management Permits are required, refer to the [Land Resources Management Webpage](#).

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Individual Sewerage Disposal per RSA 485-A:2	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Subdivision Approval Per RSA 485-A	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Shoreland Permit Per RSA 483-B	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED

**7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:**

See the [Instructions & Required Attachments](#) document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB 19 - 3576

b.  This project is within a [Designated River](#) corridor. The project is within ¼ mile of: \_\_\_\_\_; and date a copy of the application was sent to the [Local River Management Advisory Committee](#): Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

N/A – This project is not within a Designated River corridor.

**8. APPLICANT INFORMATION (Desired permit holder)**

LAST NAME, FIRST NAME, M.I.: **Scott, David L.**

TRUST / COMPANY NAME: **Nh Department of Transportation**

MAILING ADDRESS: **7 Hazen Drive**

TOWN/CITY: **Concord**

STATE: **NH**

ZIP CODE: **03302**

EMAIL or FAX: **David.Scott@dot.nh.gov**

PHONE: **603-271-2731**

ELECTRONIC COMMUNICATION: By initialing here: \_\_\_\_\_, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**9. PROPERTY OWNER INFORMATION (If different than applicant)**

LAST NAME, FIRST NAME, M.I.: **NH Department of Transportation**

TRUST / COMPANY NAME: **NH Department of Transportation**

MAILING ADDRESS: **P.O. Box 438**

TOWN/CITY: **Concord**

STATE: **NH**

ZIP CODE: **03302**

EMAIL or FAX:

PHONE:

ELECTRONIC COMMUNICATION: By initialing here **HSW**, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**10. AUTHORIZED AGENT INFORMATION**

LAST NAME, FIRST NAME, M.I.:

COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY:

STATE:

ZIP CODE:

EMAIL or FAX:

PHONE:

ELECTRONIC COMMUNICATION: By initialing here \_\_\_\_\_, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**11. PROPERTY OWNER SIGNATURE:**

See the [Instructions & Required Attachments](#) document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the [Instructions and Required Attachment](#) document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form ([www.nh.gov/nhdhr/review](http://www.nh.gov/nhdhr/review)) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for National Historic Preservation Act (NHPA) 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the NHDES is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

  
Property Owner Signature

**David L Scott**  
Print name legibly

**12/6/19**  
Date

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095


[www.des.nh.gov](http://www.des.nh.gov)

**MUNICIPAL SIGNATURES**

**12. CONSERVATION COMMISSION SIGNATURE**

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.


	Print name legibly	Date
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**DIRECTIONS FOR CONSERVATION COMMISSION**

1. Expedited review **ONLY** requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

**13. TOWN / CITY CLERK SIGNATURE**

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

	Print name legibly	Town/City	Date
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**DIRECTIONS FOR TOWN/CITY CLERK:**

Per RSA 482-A:3, I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. **IMMEDIATELY** sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. **IMMEDIATELY** distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

**DIRECTIONS FOR APPLICANT:**

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

**14. IMPACT AREA:**

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact.

**Permanent:** impacts that will remain after the project is complete.

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

**Intermittent Streams:** linear footage distance of disturbance is measured along the thread of the channel.

**Perennial Streams/ Rivers:** the total linear footage distance is calculated by summing the lengths of disturbance to the channel and each bank.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland	12734.5	<input type="checkbox"/> ATF	2441	<input type="checkbox"/> ATF
Scrub-shrub wetland	4417.5	<input type="checkbox"/> ATF	1368.5	<input type="checkbox"/> ATF
Emergent wetland	5516	<input type="checkbox"/> ATF	517.5	<input type="checkbox"/> ATF
Wet meadow		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Intermittent stream channel	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Perennial Stream / River channel	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Lake / Pond	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Bank - Intermittent stream	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Bank - Perennial stream / River	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Bank - Lake / Pond	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Tidal water	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Salt marsh		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Sand dune		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Prime wetland		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Prime wetland buffer		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Undeveloped Tidal Buffer Zone (TBZ)		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Previously-developed upland in TBZ		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Docking - Lake / Pond		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Docking - River		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Docking - Tidal Water		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Vernal Pool		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
<b>TOTAL</b>	<b>22668 / 0</b>		<b>4327 / 0</b>	

**15. APPLICATION FEE:** See the [Instructions & Required Attachments](#) document for further instruction

Minimum Impact Fee or Fee for Non-enforcement related, publicly-funded and supervised restoration projects, regardless of impact classification (see RSA 482-A:3, 1(c)): Flat fee of \$ 400

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

Permanent and Temporary (non-docking) 26995 sq. ft. X \$0.40 = \$ 10,798.00

Temporary (seasonal) docking structure: \_\_\_\_\_ sq. ft. X \$2.00 = \$ \_\_\_\_\_

Permanent docking structure: \_\_\_\_\_ sq. ft. X \$4.00 = \$ \_\_\_\_\_

**Projects proposing shoreline structures (including docks) add \$400 = \$ \_\_\_\_\_**

Total = \$ 10,798.00

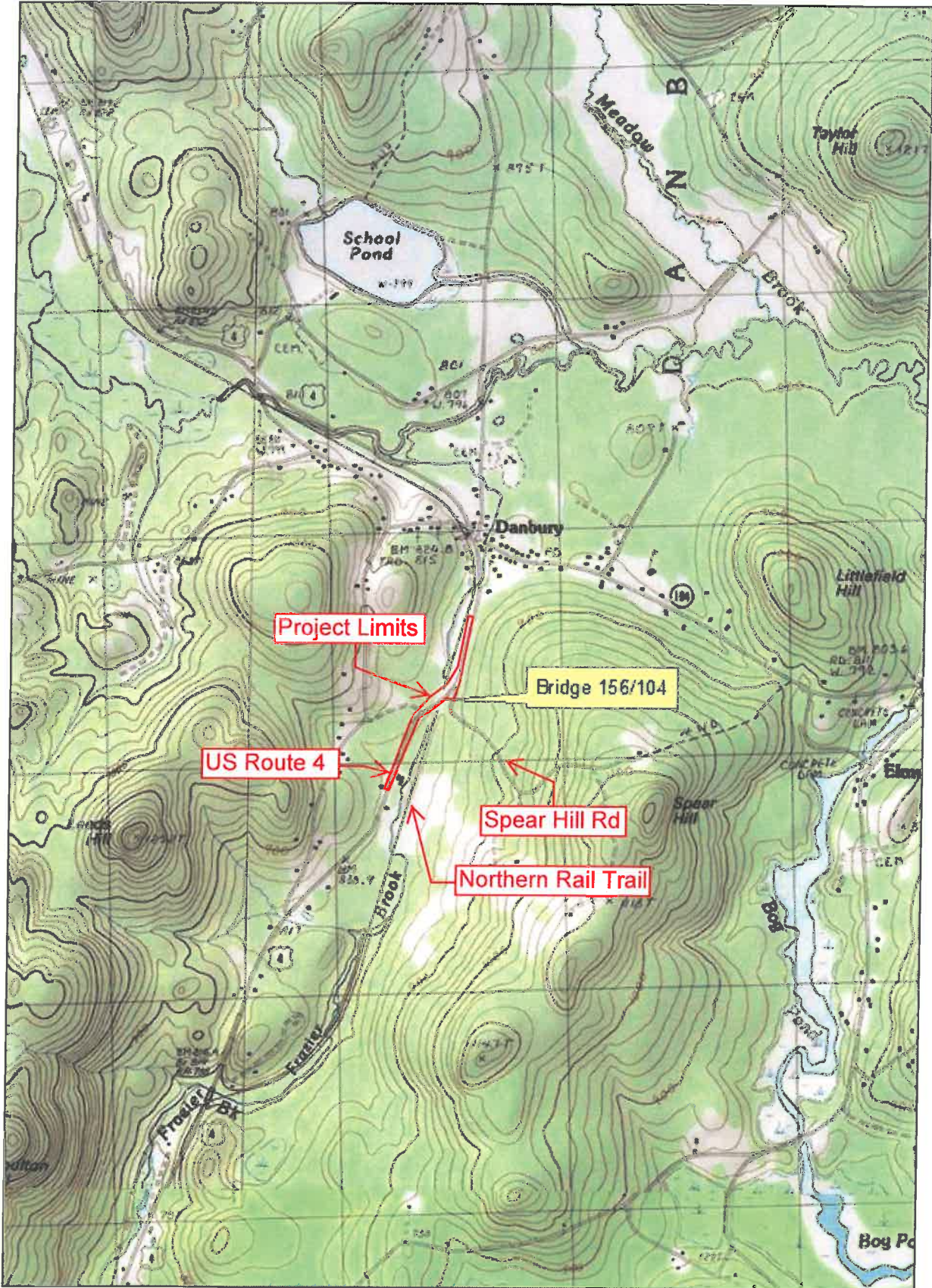
The Application Fee is the above calculated Total or \$400, whichever is greater = \$ 10,798.00

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)





1 inch = 2,000 feet





**WETLANDS PERMIT APPLICATION – ATTACHMENT A**  
**MINOR AND MAJOR - 20 QUESTIONS**  
 Land Resources Management  
 Wetlands Bureau



Check the Status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)

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

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

1. The need for the proposed impact.

The intent of the project is to correct structural and safety deficiencies associated with the aging red list bridge carrying US Route 4 over abandoned NHRR (Br. No. 156/104) in Danbury, NH just south of the town center. The work will improve corridor safety while accommodating the multimodal use of the Northern Rail Trail by shifting the horizontal roadway geometry to the west while making the vertical geometry less dramatic than the existing condition, as well as widening the roadway width. The new bridge will be a pre-cast concrete fill-over structure, acting as a tunnel for the trail users.

The project includes replacement of the existing 3 span riveted steel girder bridge over the existing Railroad Corridor with a fill-over precast concrete arched frame on knee wall abutments, to be located west of the existing bridge. The proposed work will maintain the accessibility of the railroad corridor, and will incorporate geometric improvements to the vertical profile and horizontal alignment of US 4 to improve sight distance. Due to Spear Hill Road's poor existing skew where it meets US 4 north of the existing bridge, the work will include realigning and raising the grade of the side road approach to improve sight distance and accessibility.

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

The project area is constrained by a limited 66' right-of-way and Spear Hill Road on the northern side of the bridge. Shifting the roadway westward has been deemed the most appropriate option, as the ROW impacts will be lesser to the affected properties; this does move the roadway towards existing wetland, but avoids the need to acquire an entire parcel. To minimize wetland impacts 1.5:1 slopes will be used when appropriate.

The no-build or bridge rehabilitation options would fail to address the existing horizontal and vertical deficiencies along the roadway to either side of the bridge. Without the proposed roadway widening and the smoothing of the roadway geometry, the corridor will remain a dangerous high-speed affair for traveling vehicles and recreational pedestrians.

Shifting the roadway easterly was explored early in the design process, but was found to significantly impact properties along the east side of the road and potentially would require a total property acquisition. This would also require wetland impacts and substantial reconstruction to Spear Hill Road. This option was not selected.

An At-Grade crossing was evaluated, however the introduction of a rail trail crossing of US 4 in this location raises some safety concerns. The area is very wet; this would make it difficult to drain the road properly and would become a maintenance issue in the future. The extensive earthwork that would be required and future train accommodations, should the RR corridor ever revert to an active line, were also considerations. This option was not selected.

3. The type and classification of the wetlands involved.

The wetlands identified near the project limits are PF01E, PSS1E, PF01F, PEM1F, PEM1E, PF01Ex, PSS1F, and PEM1Ex.

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

A railroad bed recreational trail traverses the project site, separating two wetland systems on the west side of US Route 4. The wetlands between US 4 and the RR corridor to the north of the bridge location will be more significantly impacted than the wetlands on the western side of the recreational trail. The less impacted side has a stream running through it that eventually flows under the recreational trail via a culvert north of the project limits, connecting with the other wetland system and continuing towards the Smith River north of the Town center. The distance between these wetland bodies and the Smith River is significant enough (and the impact of the work insignificant enough) that the impact on the Smith River will be negligible.

South of the bridge, stormwater runoff from the proposed roadway is largely similar to the existing condition. There exists Frazier Brook, but it is far enough away so as to not be impacted by the work of the project.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

Neither Frazier Brook, Smith River nor the impacted wetlands have been identified as rare.

6. The surface area of the wetlands that will be impacted.

22668 sq. ft. of permanent and 4327 sq. ft. of temporary impacts to palustrine wetlands (see Item 3 for wetland classifications).



7. The impact on plants, fish and wildlife including, but not limited to:
  - a. Rare, special concern species;
  - b. State and federally listed threatened and endangered species;
  - c. Species at the extremities of their ranges;
  - d. Migratory fish and wildlife;
  - e. Exemplary natural communities identified by the DRED-NHB; and
  - f. Vernal pools.

The proposed project has been reviewed by the NH Natural Heritage Bureau (NHNHB), NH Fish and Game and the US Fish and Wildlife Service. The following findings are based on coordination with these agencies.

- a) NHNHB did not identify any rare or special concern species in the project area.
- b) NHNHB did not identify any State listed threatened or endangered species in the project area. The US Fish and Wildlife Services IPaC web tool identified the Northern Long-eared Bat (NLEB), a Federally-listed threatened species, as a species that may occur within the proposed project. In accordance with the December 15, 2016 FHWA, FRA, FTA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat, a determination was made and concurred in by the US Fish and Wildlife Services that the project may affect, is likely to adversely affect the NLEB. The USFWS has determined that the project may rely on the Programmatic Biological Opinion to comply with Section 7(a)(2) of the Endangered Species Act.
- c) There were no species at the extremities of their ranges identified in the project area by NHNHB or by the USFWS.
- d) There were no migratory birds, fish or wildlife identified in the project area by NHNHB or by the USFWS.
- e) NHNHB did not identify any exemplary natural communities in the project area.
- f) Streams and surrounding wetlands were delineated by Stoney Ridge Environmental LLC on November 5, 2019. Several wetland systems were identified in the project area, however, no vernal pools were observed. Project impacts are limited to 26995 sq. ft.

8. The impact of the proposed project on public commerce, navigation and recreation.

None of the impacted wetland areas are large enough to constitute a traversible waterway. Therefore, the roadway shift towards these wetlands will not impact public navigation or recreation. Some of the wetland area is fed via a stream that comes from a nearby pasture, though the project will remain far enough away from this area so as not to impact any livestock that may be using the pasture.

Coordination has occurred and is ongoing with the NH Bureau of Trails, and the Friends of the Northern Rail Trail regarding the continued use of and minimization of impacts to the recreational trail. In particular, they have expressed concerns about not impeding snowmobile traffic during the winter months; the intent of the project is to not construct during the winter, and to minimize the need to close the trail and to provide a detour when needed during the construction period. Temporary closures of the trail shall be for up to one week at a time.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The proposed concrete fill-over structure will appear to the driver as a continuous road with guardrail along US 4, as opposed to the existing condition with an apparent bridge. Recreational users of the rail trail will pass through the structure, which will have a different feel than the existing condition. While the existing bridge is in fair condition structurally, it is aesthetically unappealing with noticeable visual deterioration. The new concrete structure will blend into the existing and proposed embankments.

At the Public Hearing, an abutting property owner voiced concerns about being able to see the bridge structure once construction is complete. The new bridge structure will be less visible and blend in better with the surroundings than the existing bridge. Additionally, DOT is evaluating the placing of humus and matting over any 1.5:1 structural stone slopes, so as to provide a more aesthetically pleasing façade.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

**There are no traversible water bodies within the project limits. The current roadway condition makes US Route 4 unappealing and unsafe for bicycle and pedestrian travel, but the proposed widening and smoothing of the roadway geometries will improve the situation for non-vehicular users. While the Rail Trail may experience infrequent shutdowns throughout the construction phase of the project, temporary detours will be marked and accommodated; the end result of the project will leave an improved and well-draining Rail Trail underneath the new concrete fill-over structure.**

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

**Aside from general ROW concerns, the abutting property owners will not experience any impact from the proposed wetland encroachment. While there are wetland impacts, the proposed drainage layout emulates the existing drainage condition, with the addition of stormwater collection and treatment in the form of two grassed treatment swales.**

12. The benefit of a project to the health, safety, and well being of the general public.

**The current roadway and bridge construction was completed in 1929. The existing geometry has a poor vertical and horizontal relationship resulting in poor sight distance for the traveling speed. Vehicles traveling the roadway today are often driving at a greater speed than the posted and designed limit of 35 MPH, and coupled with narrow roadway widths, leads to an unsafe roadway condition. The proposed project seeks to address all of these issues by smoothing the horizontal and vertical curves to meet a 50 MPH design speed, and by widening the roadway to provide two 12 foot travel lanes with 5 foot shoulders.**

**Also of note is the condition of the existing bridge, originally constructed in 1929 and on the State's Red List. It was last rehabilitated in 1964. Due to the design and age of the structure it was deemed unsuitable for widening, which is why the proposed work involves the replacement of the structure and not another rehabilitation effort.**



13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

The proposed work will emulate the existing site conditions today, though with added stormwater treatment measures to counteract the increase in impervious area resulting from the realignment and widening. With these design goals having been considered and met, the drainage entering and exiting the site will be similar in method and mode to the existing conditions. Additionally, 0.86 acres of the site's 1.74 acres of impervious surfaces will be captured for treatment in two grassed treatment swales. This proposed work is in accordance with the Alteration of Terrain guidelines. Prior to commencement of construction a storm water pollution prevention plan will be submitted by the contractor that will detail the Best Management Practices to be used to prevent adverse effects on water quality during construction. The plan shall be approved by DOT and implemented and monitored as noted.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

The FEMA Flood Map Service identifies the project area as an "Area of Minimal Flood Hazard", a characterization that is not anticipated to change as a result of the project impacts.

While there is an increase in impervious area of approximately 0.43 acres, the introduction of a closed drainage system with sumped catch basins that ultimately deliver stormwater to grassed treatment swales will serve to reduce sedimentation and improve water quality from the existing condition. In the existing condition, all stormwater runoff sheet flows off of the pavement and into ditchlines or wetland areas.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

N/A

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

The majority of impacted wetlands are those located northwest of the bridge between US Route 4 and the railroad corridor, which is State Right-Of-Way. The wetland areas to the west of the railroad corridor have been documented as having six principal functions: groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, wildlife habitat, and uniqueness/heritage. This wetland is split between State ROW, property owned by the Ladds, and property owned by the Martins. A channelized stream emerges from this wetland area as it travels north-west along the RR corridor, and has historically aided in farming/pasturing efforts on the Martin property. If both Ladd and Martin endeavored to alter the wetland that falls within their property rights, there might be some negative effect felt downstream.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

The value of the wetlands will not be altered due to the proposed work. The majority of impacted wetlands are those located northwest of the bridge between US Route 4 and the railroad corridor. These wetlands act as a storage area along the roadside that contribute to more natural and established waterways north of the project limits during rain events. The identified principal function of the system is sediment/toxicant retention, which will be improved upon with the inclusion of the grassed treatment swale in the proposed condition.



18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

**This project is not located in or near any Natural Landmarks listed on the National Register.**

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

**There are no such areas that will be impacted as a result of this project.**

20. The degree to which a project redirects water from one watershed to another.

**The project as proposed will not redirect water from one watershed to another.**

Additional comments



# BUREAU OF ENVIRONMENT CONFERENCE REPORT

**SUBJECT:** NHDOT Monthly Natural Resource Agency Coordination Meeting

**DATE OF CONFERENCE:** November 19, 2014

**LOCATION OF CONFERENCE:** John O. Morton Building

**ATTENDED BY:**

**NHDOT**

Christine Perron  
Ron Crickard  
Mark Richardson  
Kevin Nyhan  
Kathleen Corliss  
Cheryl Rasmussen  
Jonathan Hebert  
Trent Zanes  
Marc Laurin  
Mike Dugas  
David Scott  
Tony Weatherbee  
Jennifer Reczek  
Peter Salo  
Joe Adams

**Army Corps of Engineers**

Michael Hicks

**EPA**

Mark Kern

**NHDES**

Lori Sommer

**NH Fish & Game**

Carol Henderson

**NH Natural Heritage  
Bureau**

Melissa Coppola

**Federal Highway  
Administration**

Leigh Levine

**The Smart Associates**

Jennifer Riordan

**GM2 Associates**

Tom Levins

**McFarland Johnson**

Jed Merrow

Brian Colburn

**CLD Engineers**

Shannon Beaumont

John Byatt

**Danbury, X-A001(230), 16303**

Jon Hebert provided an overview of the project. The project will address the bridge that carries US Route 4 over the Northern Rail Trail. The bridge was constructed in 1929 and rehabilitated in the 1950s and is now considered functionally obsolete. There is also an accident history within the project area. The existing profile has a 30 mph design speed. The speed limit through the project area is posted at 35 mph, but traffic commonly travels up to 50 mph. Various design alternatives have been considered to address the bridge and the geometric deficiencies of the roadway. Rehabilitation of the existing bridge would require replacing much of the existing superstructure and deck, and would not address the majority of the conditions that make the bridge deficient. Both the rehabilitation alternative and bridge replacement on the same alignment would require a temporary detour bridge. For this reason, bridge replacement on new alignment is being considered so that the existing bridge can be used to maintain traffic during construction and the roadway deficiencies can be more fully addressed. An at-grade crossing of the rail trail was considered but the area is very wet and an at-grade crossing would put the roadway into the water table, causing future maintenance issues.

The project also proposes to flatten the vertical geometry to accommodate a 45 mph design speed at the crest to allow for greater sight distance on US Route 4. A 12' travel way and 4' shoulder, combined with greater separation between the horizontal curves and better sight distance, will improve drivability. This project will also address the Spear Hill Road intersection, located just to the east of the bridge. The Spear Hill Road approach at US Route 4 is severely skewed, and sight distance is limited by the crest on

US Route 4. This project would realign Spear Hill Road to create a 90 degree intersection to improve sight distance.

The existing roadway drainage sheet flows down slopes and in roadway ditches and culverts. There is no existing closed drainage on the project. Two 15" concrete pipes are in the project area. The project will maintain existing drainage patterns.

A wider roadway is proposed, from an 11-1 typical (24' wide roadway) to a 12-4 typical (32' wide roadway), resulting in an increase of 12,000 sq. ft. in impervious surface area. The feasibility of providing stormwater treatment is under investigation but options are limited due to slopes and wetlands. There are some areas where spot treatment may be possible. A closed drainage system is not anticipated although some slope pipes will be needed where guardrail is installed.

A preliminary estimate of wetland impacts is 12,000 sq. ft.

Mike Hicks asked if there would be any floodplain impacts. Christine Perron replied that floodplain impacts are not anticipated.

Lori Sommer noted that mitigation would be required for the wetland impacts as proposed, and asked if an in-lieu fee would be provided as mitigation. C. Perron replied that it was still early in the design process and the Conservation Commission still needs to be contacted for input on mitigation once impacts are finalized, but the Department's preference would likely be an in-lieu fee.

Christine Perron noted that the bridge is eligible for listing on the National Register of Historic Places and that Section 106 consultation would need to occur prior to formally selecting a preferred alternative.

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

### **Andover, X-A002(084), 20650**

Trent Zanes provided an overview of the project. The project will address the bridge that carries NH Route 11 over the Northern Rail Trail.

The project proposes to replace the bridge on new alignment to the north of the existing roadway. The pavement width would remain the same with a 12-4 typical. Curves would be flattened slightly to provide a 50 mph design speed. The profile of the new roadway would be similar to existing. A new bridge would provide 20' vertical of clearance for pedestrians and trail groomers on the rail trail. An at-grade crossing was considered but would not work with existing topography.

The total area of impervious surface within the project area would actually decrease from 48,570 sq. ft. to 47,425 sq. ft. because there are currently some areas that have a slightly wider pavement width than what is proposed.

The proposed slopes would be 2:1 with guardrail in order to minimize disturbance. The preliminary estimate of wetland impact is approximately 13,450 sq. ft (0.31 ac). Sucker Brook is located to the east of the bridge. The alignment shift would necessitate extending the box culvert that carries Sucker Brook.

Christine Perron noted that there is a floodplain associated with Sucker Brook and potential impacts still need to be assessed. She also noted that the railroad bridge is eligible for listing on the National Register



of Historic Places and that Section 106 consultation will occur prior to the formal selection of a preferred alternative.

Lori Sommer noted that mitigation would be required for wetland impacts as proposed.

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

# BUREAU OF ENVIRONMENT CONFERENCE REPORT

**SUBJECT:** NHDOT Monthly Natural Resource Agency Coordination Meeting

**DATE OF CONFERENCE:** November 21, 2018

**LOCATION OF CONFERENCE:** John O. Morton Building

**ATTENDED BY:**

**NHDOT**

Matt Urban  
Sarah Large  
Ron Crickard  
Tim Boodey  
James McMahon III  
Rebecca Martin  
Meli Dube  
Chris Carucci  
Julius Nemeth  
Don Lyford  
Bill Saffian  
Tony King  
Trent Zanes  
Wendy Johnson  
Marc Laurin  
Jason Tremblay  
Jon Hebert

Kevin Nyhan  
Hans Weber  
Ron Kleiner

**ACOE**

Mike Hicks

**EPA**

Mark Kern

**NHDES**

Gino Infascelli  
Lori Sommer  
Dale Keirstead

**NHF&G**

Carol Henderson  
John Magee

**NHB**

Amy Lamb

**The Nature Conservancy**

Pete Steckler

**Consultants/Public**

**Participants**

Christine Perron  
Pete Walker  
Lindsay Matras  
Jason Hilton  
Chris Fournier

**NOTES ON CONFERENCE:**

**Danbury, #16303 (X-A001(230))**

Jon Hebert provided an overview of the project to replace the Route 4 bridge over the Northern Rail Trail. He mentioned that the evaluation of at-grade or rehab alternatives were determined to not be viable options. The proposed action is to replace the existing bridge. US Route 4 will be realigned to the northwest to alleviate the sight issues with the intersection of Spear Hill Road and improve the geometry of the existing roadway. The project limits are about one-third of mile in length. The roadway will be designed for 50 mph and will consist of two 12 foot lanes with 5 foot shoulders added to increase safety of the crossing. Existing drainage will be maintained and DOT is evaluating treatment options to accommodate the additional 12,000 square feet of impervious pavement. Treatment measures will likely be through swales or a small detention pond. There are about 18,000 square feet of wetland impacts.

Marc Laurin described the adjacent wetland system that were delineated by Stoney Ridge Environmental. The impacts are to a Forested/Shrub-Scrub/Emergent system located along the existing rail trail. The main function and value of the wetlands are for sediment and toxin removal. The wetland impacts are proposed to be mitigated through an in-lieu fee payment to the ARM fund.

The project will likely have a hearing at the end of January 2019. The wetland permit application is anticipated to be submitted in May 2019. The advertising date for the project is June 2020.

Matt Urban inquired if the slopes could be pulled in tighter to reduce impacts to the delineated wetlands. Jon H. responded that the slopes are already at 1½ to 1 in those locations. Lori Sommer inquired if

Danbury has a Conservation Commission, if they do, coordination with them on mitigation options must be made and documentation from conversation on mitigation must be provided. Marc L. stated that he would pursue coordination as needed (*a subsequent review of the Town's web site indicates that the Town has no Conservation Commission*).

Dale Keirstead asked about the historic nature of the bridge. Marc L. replied that the rail corridor is historic and the bridge contributes to the corridor. The project impacts to the historic resources have been reviewed with FHWA and DHR. A MOA will be developed to address the historic concerns and mitigation. A Section 4(f) Evaluation will be completed as part of the environmental documentation.

Amy Lamb stated that there are no hits on the NHB database for species or natural communities of concern.

*This project has been previously discussed at the 11/19/2014 Monthly Natural Resource Agency Coordination Meeting.*



# Danbury, 16236

## US Route 4 over Northern Rail Trail

### Mitigation Narrative

Impacts to jurisdictional areas have been minimized to the extent practicable while still accomplishing the purpose and need of the project. The project requires compensatory mitigation for unavoidable permanent impacts to wetlands associated with the construction of a new bridge over the Northern Rail Trail and improvements to the US Route 4 approaches and alignment.

Permanent impacts from the proposed bridge are as follows:

Forested Wetlands: 12,734.5 sq. ft.

Scrub-Shrub Wetlands: 4417.5 sq. ft.

Emergent Wetlands 5,516 sq. ft.

Total permanent wetland impacts: 22,668 sq. ft.

Coordination with stakeholders has occurred since January 2014. Not all of this coordination was directly applicable to seeking mitigation opportunities, especially early in the project's development; however, there have been opportunities for stakeholders to discuss concerns with proposed impacts and inquire about mitigation. A list of more recent public meetings is on the project website at: <https://www.nh.gov/dot/projects/danbury16303/index.htm>.

No opportunities for land preservation have been brought forward during the project's development. As the Town of Danbury does not have a Conservation Commission, NHDOT contacted the Town of Danbury officials in December 2018 to inquire about a list of local mitigation projects. No reply was received from the Town.

Due to the lack of information provided on local mitigation priorities, DOT determined that the best course of action was to mitigate via an in-lieu fee payment.

The 2019 NHDES Aquatic Resource Mitigation Fund Stream Payment Calculator was utilized to determine the total ARM Fund stream payment of \$88,738.86 for the total impacts described above.

**DES AQUATIC RESOURCE MITIGATION FUND  
WETLAND PAYMENT CALCULATION  
\*\*\*INSERT AMOUNTS IN YELLOW CELLS\*\*\***

<b>1 Convert square feet of impact to acres:</b>		
<b>INSERT SQ FT OF IMPACT</b>	Square feet of impact =	22668.00
		43560.00
	Acres of impact =	0.5204
<b>2 Determine acreage of wetland construction:</b>		
	Forested wetlands:	0.7806
	Tidal wetlands:	1.5612
	All other areas:	0.7806
<b>3 Wetland construction cost:</b>		
	Forested wetlands:	\$72,630.01
	Tidal Wetlands:	\$145,260.03
	All other areas:	\$72,630.01
<b>4 Land acquisition cost (See land value table):</b>		
<b>INSERT LAND VALUE FROM TABLE WHICH APPEARS TO THE LEFT. (Insert the amount do not copy and paste.)</b>	Town land value:	1,690
	Forested wetlands:	\$1,319.04
	Tidal wetlands:	\$2,638.08
	All other areas:	\$1,319.04
<b>5 Construction + land costs:</b>		
	Forested wetland:	\$73,949.05
	Tidal wetlands:	\$147,898.10
	All other areas:	\$73,949.05
<b>6 DES Administrative cost:</b>		
	Forested wetlands:	\$14,789.81
	Tidal wetlands:	\$29,579.62
	All other areas:	\$14,789.81
<b>***** TOTAL ARM PAYMENT*****</b>		
	Forested wetlands:	\$88,738.86
	Tidal wetlands:	\$177,477.72
	All other areas:	\$88,738.86



## New Hampshire Natural Heritage Bureau

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**To:** Marc Laurin  
7 Hazen Drive  
Concord, NH 03301

**Date:** 11/5/2019

**From:** NH Natural Heritage Bureau

**Re:** Review by NH Natural Heritage Bureau of request dated 11/5/2019  
NHB File ID: NHB19-3576

**Applicant:** NHDOT

**Location:** Tax Map(s)/Lot(s):  
Danbury

**Project Description:** Replacement of existing bridge with a Concrete Arch.  
Horizontal and vertical realignment of US Route 4 to the west of existing alignment to improve sight distance and accessibility of the intersecting Spear Hill Road.

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

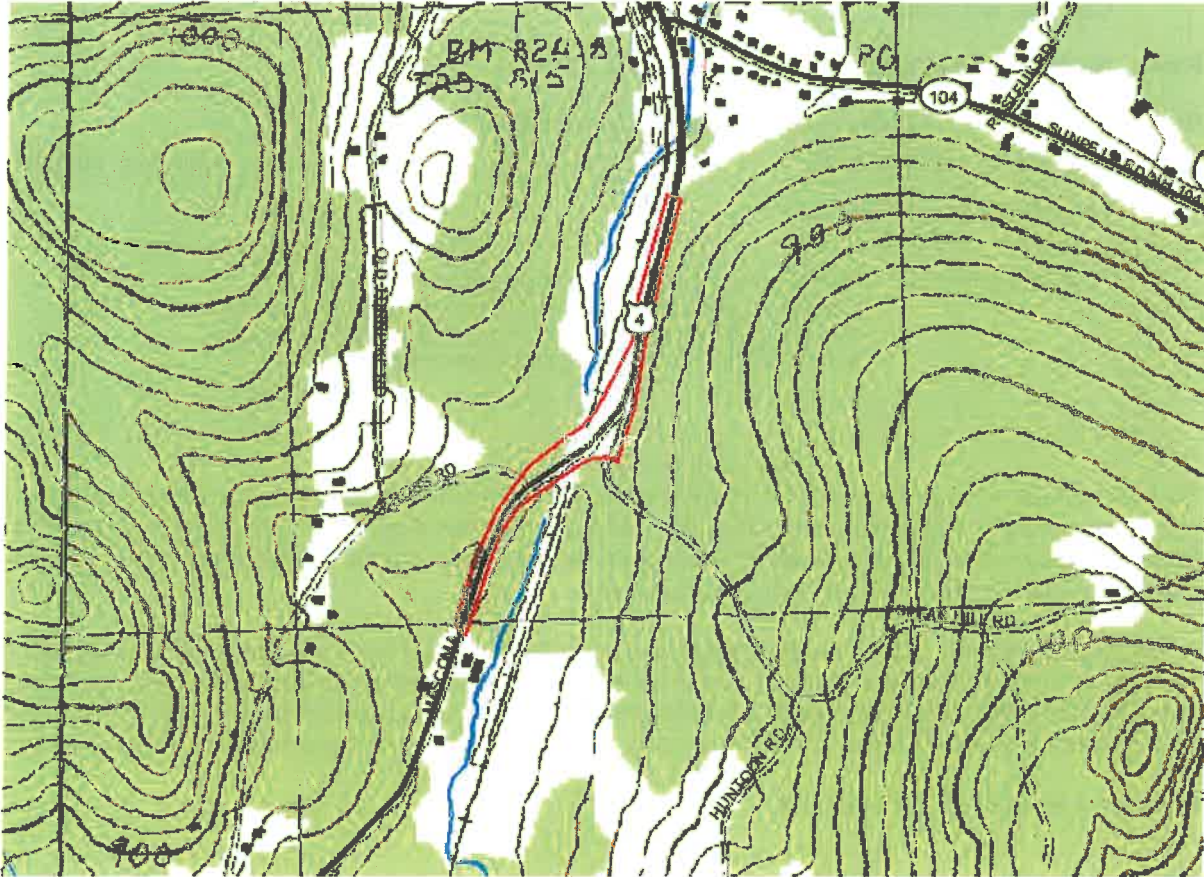
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed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

This report is valid through 11/4/2020.





MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB19-3576





## United States Department of the Interior



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

In Reply Refer To:  
Consultation Code: 05E1NE00-2019-SLI-0559  
Event Code: 05E1NE00-2019-E-01270  
Project Name: Danbury, 16303

December 18, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List



## **Official Species List**

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

This species list is provided by:

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

## Project Summary

Consultation Code: 05E1NE00-2019-SLI-0559

Event Code: 05E1NE00-2019-E-01270

Project Name: Danbury, 16303

Project Type: TRANSPORTATION

**Project Description:** The project consists of the replacement of the US Route 4 Bridge over the Northern Rail Trail (156/104) in Danbury, NH. US Route 4 and the proposed bridge will be relocated to the west of the existing facility. The existing bridge will be demolished and excavation to remove the existing bridge abutments will occur.

The proposed bridge has been designed to accommodate railroad use in the future with the design of a precast concrete arched frame with cast-in-place concrete footings and walls. The area between the railroad embankments will be filled and precast wingwalls will be installed. Construction activities will be located immediately adjacent to the rail trail and some minor work to the trail itself is anticipated. The roadway approaches to the bridge will be tapered to match into Cross Street and Spear Hill Road.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.51895978704164N71.8651036601801W>



Counties: Merrimack, NH

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## Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

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

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

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

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

## Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## Critical habitats

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





## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

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

February 15, 2019

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

Re: NH DOT Project 16303 Danbury, NH  
TAILS: 05E1NE00- 2019-F-0559

Dear Mr. Laurin:

The U.S. Fish and Wildlife Service (Service) is responding to your request, dated January 25, 2019, to verify that the New Hampshire Department of Transportation (NHDOT) Project 16303, the proposed U.S. Route 4 bridge replacement over the Northern Rail Trail (Project) in Danbury, New Hampshire may rely on the December 15, 2016, Programmatic Biological Opinion (BO) for federally funded or approved transportation projects that may affect the northern long-eared bat (*Myotis septentrionalis*) (NLEB). We received your request and the associated LAA Consistency Letter on January 29, 2019. This letter provides the Service's response as to whether the Federal Highway Administration may rely on the BO to comply with section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; U.S.C. 1531 *et seq.*) for the Project's effects to the NLEB.

The NHDOT, as the non-Federal agency representative for the Federal Transportation Agency, has determined that the Project may affect, and is likely to adversely affect the NLEB. The Project consists of the replacement of an existing U.S. Route 4 bridge over the Northern Rail Trail with a new bridge on a new alignment. Approximately 1.6 acres of tree clearing will occur which may be implemented during the bat active season.

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

## Conclusion

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

## Incidental Take of the Northern Long-eared Bat

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

## Reporting Dead or Injured Bats

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

## Reinitiation Notice

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

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


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

Marc G. Laurin  
February 15, 2019

3

We appreciate your continued efforts to ensure that this Project is fully consistent with all applicable provisions of the BO. If you have any questions regarding our response, or if you need additional information, please contact Susi von Oettingen of this office at 603-227-6418.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'T. Chapman', with a long horizontal flourish extending to the right.

Thomas R. Chapman  
Supervisor  
New England Field Office

RECEIVED  
BUREAU OF ENVIRONMENT

DEC 26 2018



Victoria F. Sheehan  
Commissioner

THE STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION



William Cass, P.E.  
Assistant Commissioner

DANBURY  
X-A001(230)  
16303  
RPR 5435

### Adverse Effect Memo

Pursuant to meetings and discussions on September 13, 2018, and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of the Federal Highway Administration and the NH Division of Historical Resources have coordinated the identification and evaluation of historic and archeological properties with plans to replace the bridge that carries US Route 4 over the Northern Rail Trail in the Town of Danbury, New Hampshire.

#### Project Description:

The project consists of the replacement of the US Route 4 Bridge over the Northern Rail Trail (156/104) in Danbury. The undertaking involves the existing bridge being demolished and excavation to remove the existing bridge abutments. The proposed bridge will be a precast concrete arched frame with cast-in-place concrete footings and walls. The proposed bridge has been designed to accommodate railroad use in the future. The area between the railroad embankments will be filled and precast wingwalls will be installed. The roadway approaches will be tapered to match into Cross Street and Spear Hill Road.

The bridge will remain open during construction of the new bridge, though temporary closures may be required during the shift. The Northern Rail Trail will be closed within the work zone during the bridge work due to safety and liability concerns from demolition of the existing bridge, construction of the new bridge and difficulties in accommodating trail traffic through an active work zone. Accommodation of trail users through the work zone would require phasing of the construction, and would add unnecessary costs and delays to the project. It is anticipated that pedestrian, bicycles and equestrians using the rail trail will be diverted to Spear Hill Road and US 4. Signage will be provided to direct rail trail users around the work zone from the trail, at and prior to closure points.

#### Analysis:

Based on a review pursuant to 36 CFR 800.4 of the architectural and/or historical significance of resources in the project area, we agree that the Route 4 Bridge (156/104) is eligible for listing on the National Register of Historic Places as a contributing resource to the Northern Railroad Historic District. A detailed description of the bridge (Individual Inventory form, DNB0005) is on file at the New Hampshire Division of Historical Resources in Concord, New Hampshire.

Based on the proposed impacts, there are no archaeological concerns at this location. Should project plans change NHDOT will continue consultation with FHWA and NHDHR to determine if any archaeological investigations are necessary.



**Public Consultation:**

Outreach letters were sent by the NHDOT to the Town, including the Danbury Heritage Commission and Conservation Commission, Friends of the Northern Rail Trail, and NH Bureau of Trails

One consulting parties has been identified, Friends of the Northern Rail Trail in Merrimack County.

A public informational meeting was held on May 2, 2018.

**Determination of Effect:**

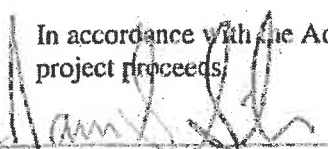
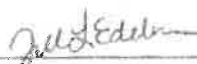
Applying the criteria of effect at 36 CFR 800.5, we have determined that the project will have an adverse effect on the Northern Railroad Historic District due to the removal of the bridge, a contributing structure.

**Mitigation Measures:**


Appropriate mitigation for the removal of the contributing bridge will be recorded in a Memorandum of Agreement. Proposed mitigation includes the installation of an interpretive sign discussing the ancillary features within the historic district and stamping "Northern Railroad" above the new trail opening on the new bridge. Minimization efforts will include not impaciating the existing telltale located south of the existing bridge, relocating the north telltale at an appropriate distance to the north of the new bridge, retaining the grade separation, and ensuring proper drainage throughout the project area.

Section 4(f) (to be completed by FHWA)	There Will Be:	<input type="checkbox"/> No 4(f);	<input type="checkbox"/> Programmatic 4(f);	<input checked="" type="checkbox"/> Full 4 (f); or
	<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.

	12/20/18		12/18/2018
Patrick Bauer, Administrator Federal Highway Administrator	Date	Jill Edelman Cultural Resources Manager	Date

Concurred with by the NH State Historic Preservation Officer:

	12/24/18
Elizabeth H. Muzzey State Historic Preservation Officer NH Division of Historical Resources	Date

c.c. Jamie Sikora, FHWA                      Marc Laurin, NHDOT                      David Scott, NHDOT  
Christine St. Louis, NHDHR



**US Army Corps  
of Engineers**®  
New England District

## Appendix B

### Regional General Permits (GPs) Required Information and Corps Secondary Impacts Checklist

In order for the Corps of Engineers to properly evaluate your application, applicants must submit the following information along with the New Hampshire DES Wetlands Bureau application or permit notification forms. Some projects may require more information. For a more comprehensive checklist, go to [www.nae.usace.army.mil/regulatory](http://www.nae.usace.army.mil/regulatory), “Forms/Publications” and then “Application and Plan Guideline Checklist.” Check with the Corps at (978) 318-8832 for project-specific requirements. For your convenience, this Appendix B is also attached to the State of New Hampshire DES Wetlands Bureau application and Permit by Notification forms.

#### All Projects:

- Corps application form ([ENG Form 4345](#)) as appropriate.
- Photographs of wetland/waterway to be impacted.
- Purpose of the project.
- Legible, reproducible black and white (no color) plans no larger than 11”x17” with bar scale. Provide locus map and plan views of the entire property.
- Typical cross-section views of all wetland and waterway fill areas and wetland replication areas.
- In navigable waters, show mean low water (MLW) and mean high water (MHW) elevations. Show the high tide line (HTL) elevations when fill is involved. In other waters, show ordinary high water (OHW) elevation.
- On each plan, show the following for the project:
  - Vertical datum and the NAVD 1988 equivalent with the vertical units as U.S. feet. Don’t use local datum. In coastal waters this may be mean higher high water (MHHW), mean high water (MHW), mean low water (MLW), mean lower low water (MLLW) or other tidal datum with the vertical units as U.S. feet. MLLW and MHHW are preferred. Provide the correction factor detailing how the vertical datum (e.g., MLLW) was derived using the latest National Tidal Datum Epoch for that area, typically 1983-2001.
  - Horizontal state plane coordinates in U.S. survey feet based on the Traverse Mercator Grid system for the State of New Hampshire (Zone 2800) NAD 83.
- Show project limits with existing and proposed conditions.
- Limits of any Federal Navigation Project in the vicinity of the project area and horizontal State Plane Coordinates in U.S. survey feet for the limits of the proposed work closest to the Federal Navigation Project;
- Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below the ordinary high water in inland waters and below the high tide line in coastal waters.
- Delineation of all waterways and wetlands on the project site,:
- Use Federal delineation methods and include Corps wetland delineation data sheets. See GC 2 and [www.nero.noaa.gov/hcd](http://www.nero.noaa.gov/hcd) for eelgrass survey guidance.
- GP 3, Moorings, contains eelgrass survey requirements for the placement of moorings.
- For activities involving discharges of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized, and either a statement describing how impacts to waters of the U.S. are to be compensated for (or a conceptual or detailed mitigation plan) or a statement explaining why compensatory mitigation should not be required for the proposed impacts. Please contact the Corps for guidance.



**US Army Corps  
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New England District

**New Hampshire General Permits (GPs)  
Appendix B - Corps Secondary Impacts Checklist  
(for inland wetland/waterway fill projects in New Hampshire)**

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

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See <a href="http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm">http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm</a> to determine if there is an impaired water in the vicinity of your work area.*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at <a href="https://www2.des.state.nh.us/nhb_datacheck/">https://www2.des.state.nh.us/nhb_datacheck/</a> . The book <a href="#">Natural Community Systems of New Hampshire</a> also contains specific information about the natural communities found in NH.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
2.5 The overall project site is more than 40 acres?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.6 What is the area of the previously filled wetlands?	Unknown	
2.7 What is the area of the proposed fill in wetlands?	22668 SF	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?		
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: <a href="https://www2.des.state.nh.us/nhb_datacheck/">https://www2.des.state.nh.us/nhb_datacheck/</a> USFWS IPAC website: <a href="https://ecos.fws.gov/ipac/location/index">https://ecos.fws.gov/ipac/location/index</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at: <ul style="list-style-type: none"> <li>• PDF: <a href="http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm">www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm</a>.</li> <li>• Data Mapper: <a href="http://www.granit.unh.edu">www.granit.unh.edu</a>.</li> <li>• GIS: <a href="http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html">www.granit.unh.edu/data/downloadfreedata/category/databycategory.html</a>.</li> </ul>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.5 Are stream crossings designed in accordance with the GC 21?	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
<b>4. Flooding/Floodplain Values</b>	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
<b>5. Historic/Archaeological Resources</b>		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form ( <a href="http://www.nh.gov/nhdhr/review">www.nh.gov/nhdhr/review</a> ) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	<input checked="" type="checkbox"/>	<input type="checkbox"/>

\*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

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



**PHOTO LOG**

**NH ROUTE 4  
NHDOT Project #:16303  
Danbury, New Hampshire  
Photos Taken: September 2014**

**PHOTO 1:**

This is a view of the recreational trail (abandoned railroad track) that separates Wetland System 1 and Wetland System 2. Photo taken near flag G10.



**PHOTO 2:**

This is a view of the southern end of the swale wetland on the east side of the recreational trail. Here it is an emergent, persistent wetland that is seasonally flooded or saturated (PEM1E). This wetland is identified by the A and C flag lines. Photo taken near flag A46.



**PHOTO LOG**

**NH ROUTE 4  
NHDOT Project #:16303  
Danbury, New Hampshire  
Photos Taken: September 2014**

**PHOTO 3:**

This is one of the intermittent drainages on the east side of Route 4 that supplies water to Wetland System 1. Photo taken from east side of Route 4 at flags M1 and N5.



**PHOTO 4:**

This is a view of the Wetland System 1 swale showing dense emergent and scrub shrub vegetation interspersed with impounded water. Photo taken near flag C12.





**PHOTO LOG**

**NH ROUTE 4  
NHDOT Project #:16303  
Danbury, New Hampshire  
Photos Taken: September 2014**

**PHOTO 5:**

This photo shows the northern end of Wetland System 2 where it is classified as a palustrine, forested, dead, semi-permanently flooded wetland combined with a palustrine, emergent, persistent, semi-permanently flooded wetland (PFO5F/PEM1F). Photo taken near flag G5.

**PHOTO 6:**

This is another view of the northern end of Wetland System 2, commonly called a marsh. The standing dead trees provide breeding habitat for insects, providing food for birds. Also, the dead trees serve as nesting and perching sites. Photo taken near flag G5.



**PHOTO LOG**

**NH ROUTE 4  
NHDOT Project #:16303  
Danbury, New Hampshire  
Photos Taken: September 2014**

**PHOTO 7:**

This photo shows the northern end of Wetland System 2 where it transitions from a marsh to a wooded swamp. This is part of the wetland identified by the G and H flag lines. Photo taken near flag G8.



**PHOTO 8:**

This is a view of Wetland System 2 where it is identified by the D flag line. An upland island identified by the I flag line is within the D line wetland. Photo taken near flag I4.





**PHOTO LOG**

**NH ROUTE 4  
NHDOT Project #:16303  
Danbury, New Hampshire  
Photos Taken: September 2014**

**PHOTO 9:**

This photo shows where an old asphalt road separates part of the wetland identified by the D flag line. It has become overgrown and now part of it is jurisdictional wetland.



**PHOTO 10:**

Some of Wetland System 2 is being grazed by cattle. Dense vegetation in Wetland System 2 removes nutrients that enter the water via cow feces and urine. Photo taken near flag I1.





**PHOTO LOG**

**NH ROUTE 4  
NHDOT Project #:16303  
Danbury, New Hampshire  
Photos Taken: September 2014**

**PHOTO 11:**

This photo shows the stream that traverses Wetland System 2. Here it is in the wetland identified by the D flag line. Photo taken from flag I1.



**PHOTO 12:**

This is the channel that carries the brook from the wetland being grazed by cattle to the wetland that is identified by the G and H flag lines. Photo taken near flag I1.



**PHOTO LOG**

**NH ROUTE 4  
NHDOT Project #:16303  
Danbury, New Hampshire  
Photos Taken: September 2014**

**PHOTO 13:**

This photo shows the wetland in Wetland System 2 that is identified by the F flag line. Note the posted sign. Access to Wetland System 2 is controlled and limits some of the functions associated with the wetlands of this system. Photo taken near flag D24.



**PHOTO 14:**

This is a view of the wetland that is identified by the L flag line. It connects with the wetland identified by the P flag line via a culvert. They are on the east side of Route 4. Photo taken near flag L7.



## Danbury 16303

### Construction Sequence

#### Fall 2020

1. The contractor shall install any necessary temporary erosion control measures prior to construction.
2. Perform necessary tree clearing for project work.
3. Utilities will temporarily relocate existing poles to accommodate proposed work.
4. Begin drainage installation at Spear Hill Road.
  - a. The culvert system crossing under Spear Hill Road (~Sta. 202+50) and under the existing and proposed US Route 4 (~Sta. 113+00) needs to be addressed early in the scope of work. A combination of the existing pipe and the proposed pipe will be used to maintain flow during construction.
5. Start offline fill work in the proposed bridge location west of existing US Route 4.

#### Spring/Summer 2021

6. Install a cofferdam from ~Sta. 109+50 RT to ~Sta. 111+00 RT to construct the westerly abutment. The existing structure wing wall will need to be removed.
7. Construct the offline section from ~Sta. 108+50 to ~Sta. 113+00 including the pre-cast concrete arched frame fill-over bridge structure and associated fill. The south-east wingwall of the structure will not be constructed in this phase, due to the continued use of the existing bridge for traffic.
8. Begin drainage installation on US 4.
  - a. Install the proposed closed system drainage in the new roadway.
  - b. Extend the existing cross culverts north of Spear Hill Road (~Sta. 115+00 and ~Sta. 119+00) as needed to facilitate roadway widening and construction while maintaining storm water passage.

#### Summer/Fall 2021

9. Widen the existing roadway from ~Sta. 104+00 RT to ~Sta. 108+50 RT and ~Sta. 113+00 RT to ~Sta. 119+00 RT to allow for a shift of traffic away from the proposed work.
10. Construct the west side of the permanent roadway through the project limits, shifting traffic onto the east side widened area as needed to tie the new roadway into the existing alignment.
11. Construct proposed drainage crossings on US Route 4 (Sta. 115+00 and Sta. 119+00) to the extent practicable and stub what cannot be finished at this time. Proposed culverts will have concrete headwalls and end sections. Proposed crossings to be constructed in low or no flow conditions.
12. Construct the northern approach using two directional alternating one-way traffic from ~Sta. 119+00 to ~Sta. 122+00.
13. Construct the southern approach using two directional alternating one-way traffic from ~Sta. 102+00 to ~Sta. 104+00.



14. Shift traffic onto the new roadway and bridge, utilizing the constructed west side of the roadway for two directional alternating one-way traffic.
15. Complete full box work and finish constructing the culverts along the east side of US Route 4 (Sta. 115+00 and Sta. 119+00), tying into the newly constructed bridge approaches.
16. Maintain access to Spear Hill Road during construction to the extent practicable while raising the grade and tying it into the new US Route 4 roadway.
17. Construct the water quality treatment swale at ~Sta. 107+00.
18. Construct the water quality treatment swale at ~Sta. 118+00.
19. Complete construction of the proposed bridge, namely the south-eastern wingwall. Begin removal of the existing structure as needed to accomplish this task.

Spring 2022

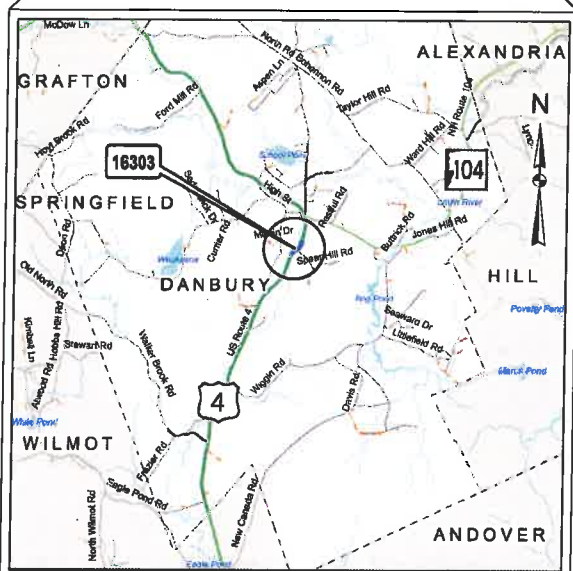
1. Final paving through the project limits, including the coldplane match on either end of the project limit.
2. Remove the remaining bridge structure and retaining walls.
3. Utilities will come through for final pole placement and/or relocation.

Note: Wildlife friendly erosion controls such as erosion control berms and woven organic materials will be utilized.

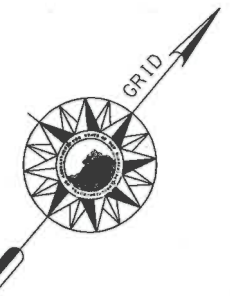
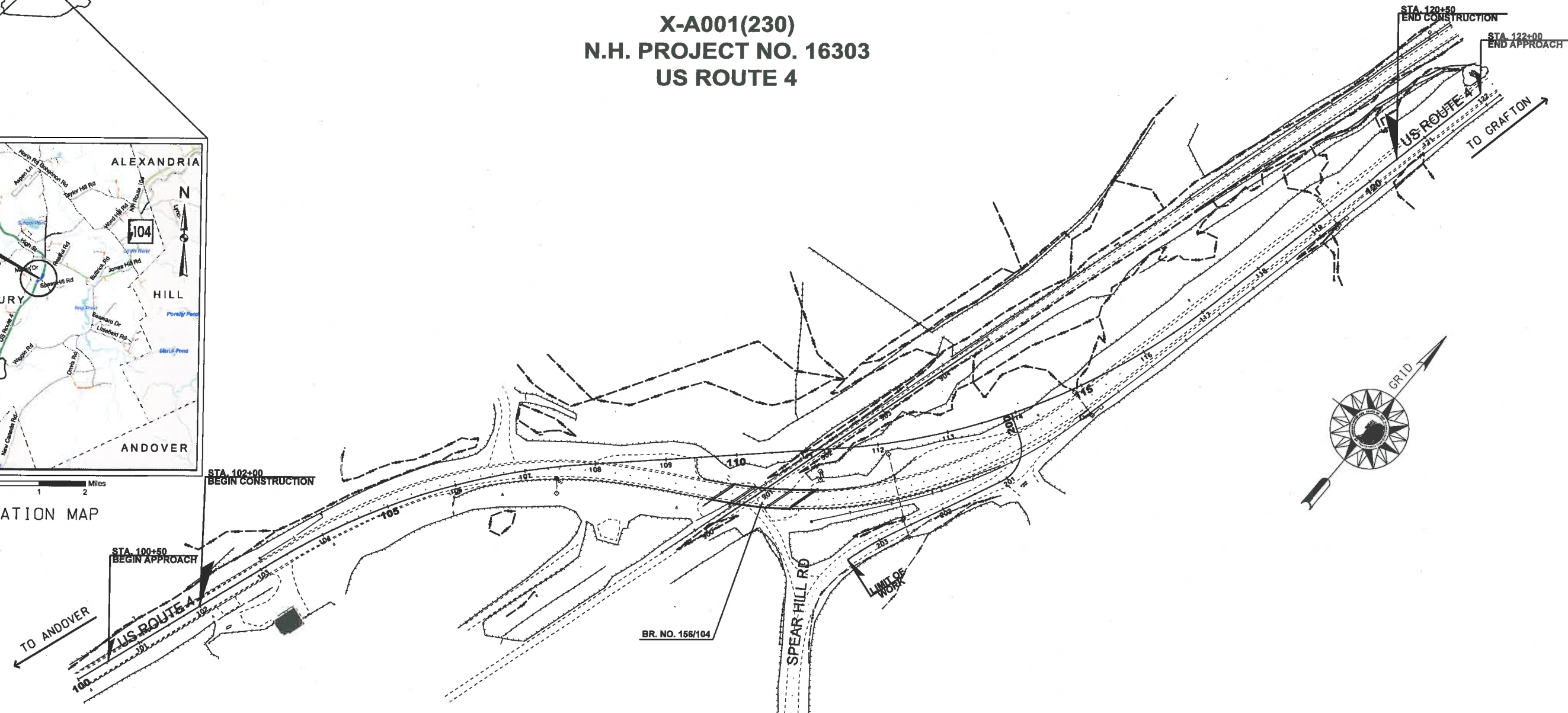
STATE OF NEW HAMPSHIRE  
 DEPARTMENT OF TRANSPORTATION  
**WETLAND IMPACT PLANS**  
**FEDERAL AID PROJECT**

X-A001(230)  
 N.H. PROJECT NO. 16303  
 US ROUTE 4

DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 16	2200
AVERAGE DAILY TRAFFIC 20 40	2800
PERCENT OF TRUCKS	8.4%
DESIGN SPEED	50
LENGTH OF PROJECT	0.41 MILES



LOCATION MAP



DRAWN BY HSW  
 CHECKED BY JAH  
 DATE 11/15/19  
 DATE 11/18/19

INDEX OF SHEETS

1	FRONT SHEET
2-3	STANDARD SYMBOLS SHEETS
4-9	WETLAND IMPACT PLANS
10-15	EROSION CONTROL PLANS

WETLANDS DELINEATED BY STONEY RIDGE ENVIRONMENTAL LLC ON NOVEMBER 5, 2019

**TOWN OF DANBURY**  
 COUNTY OF MERRIMACK  
 SCALE: 1" = 50'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

**NHDOT** THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:

\_\_\_\_\_  
 DIRECTOR OF PROJECT DEVELOPMENT      DATE

APPROVED:

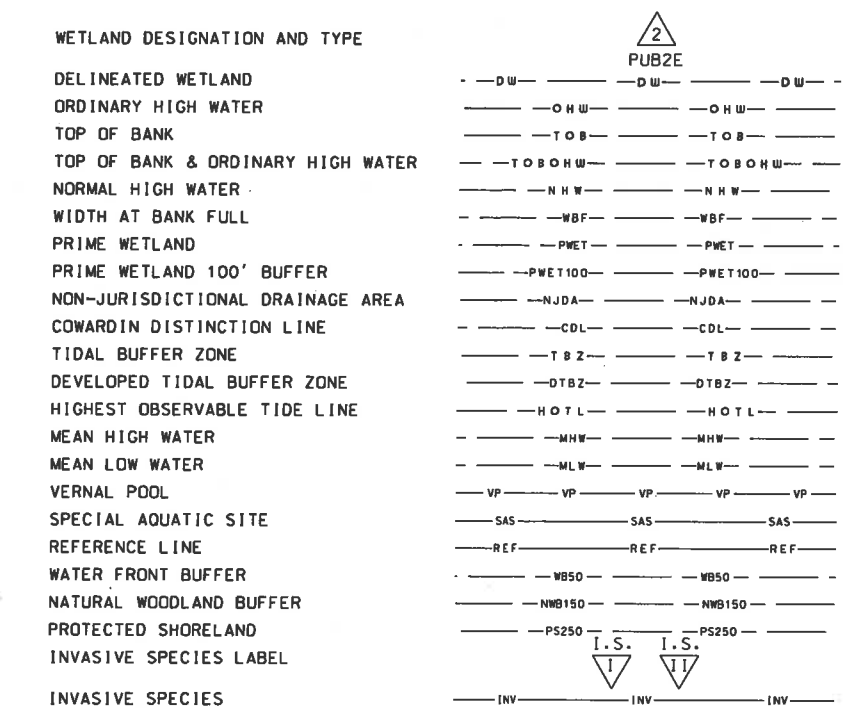
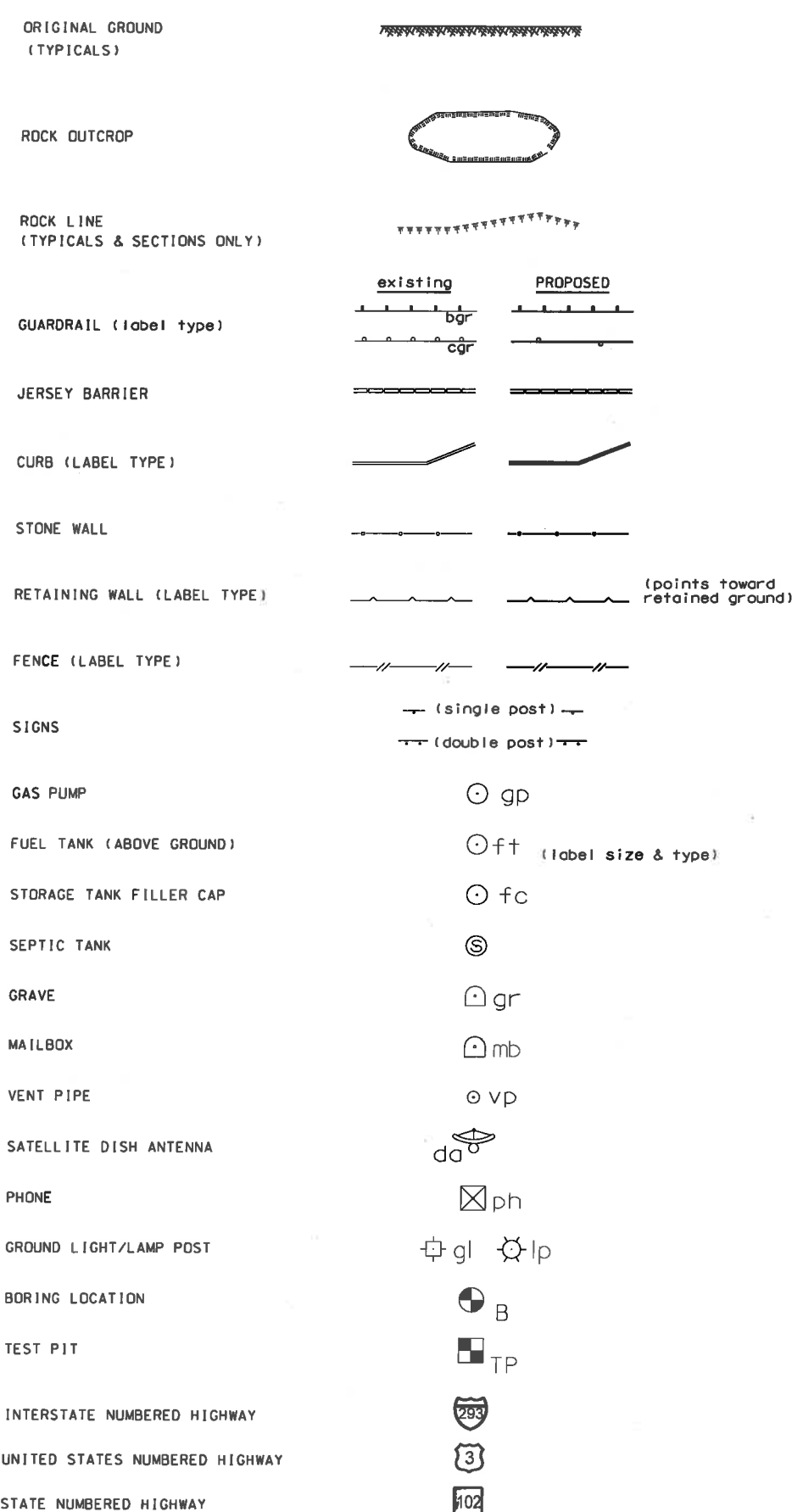
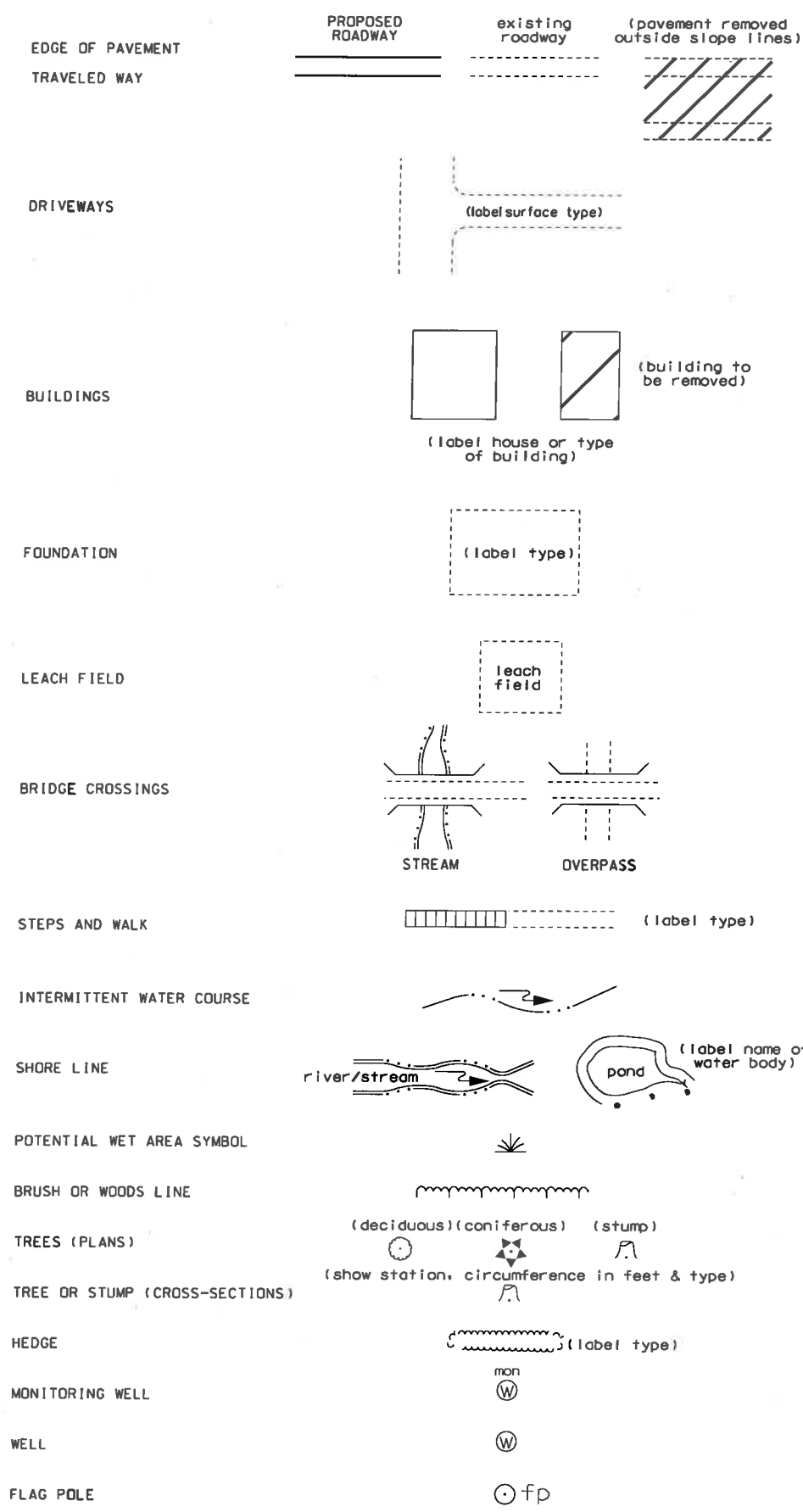
\_\_\_\_\_  
 ASSISTANT COMMISSIONER AND CHIEF ENGINEER      DATE

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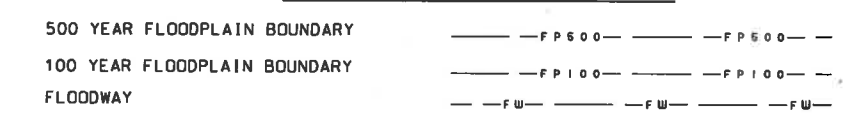


# GENERAL

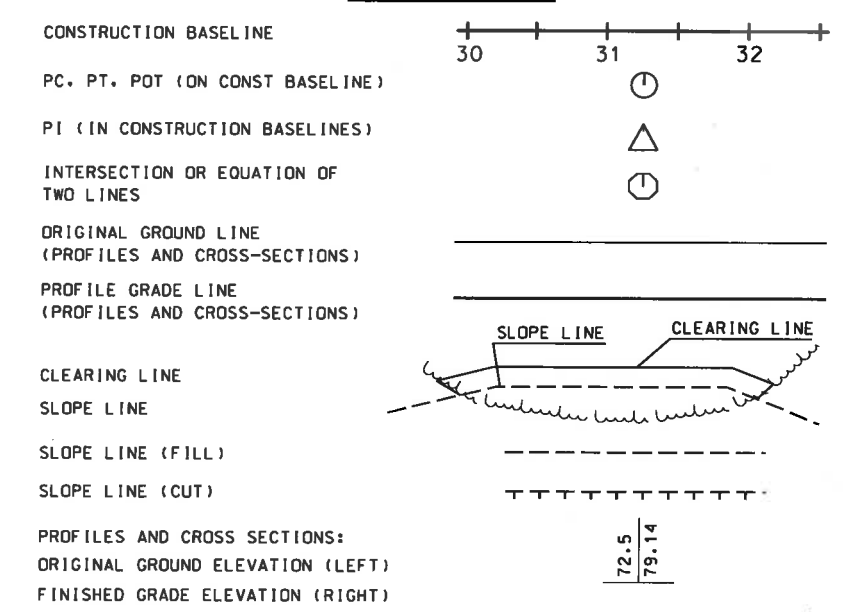
# SHORELAND - WETLAND



# FLOODPLAIN / FLOODWAY



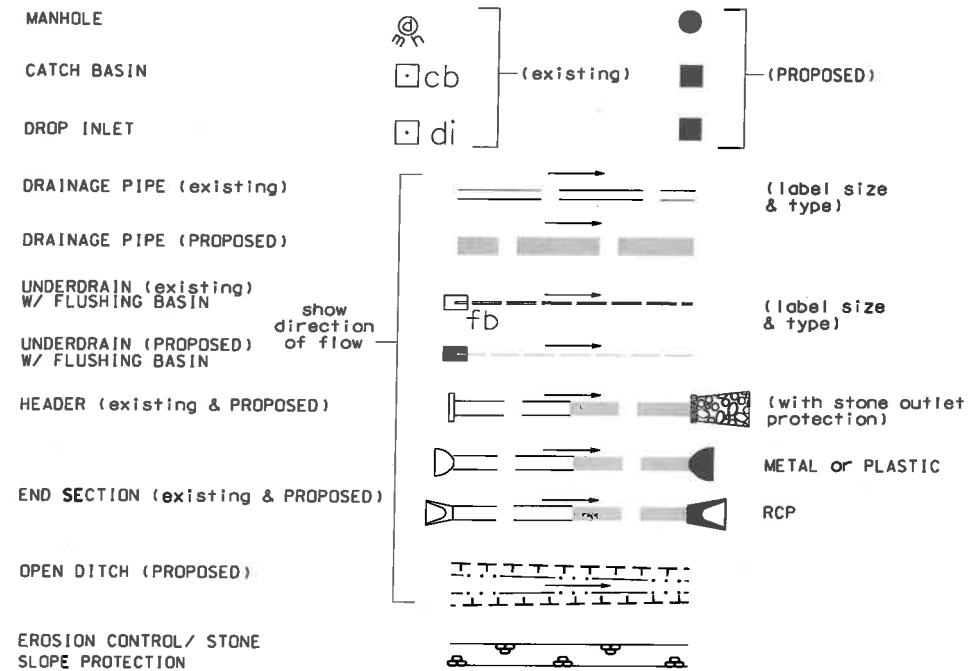
# ENGINEERING



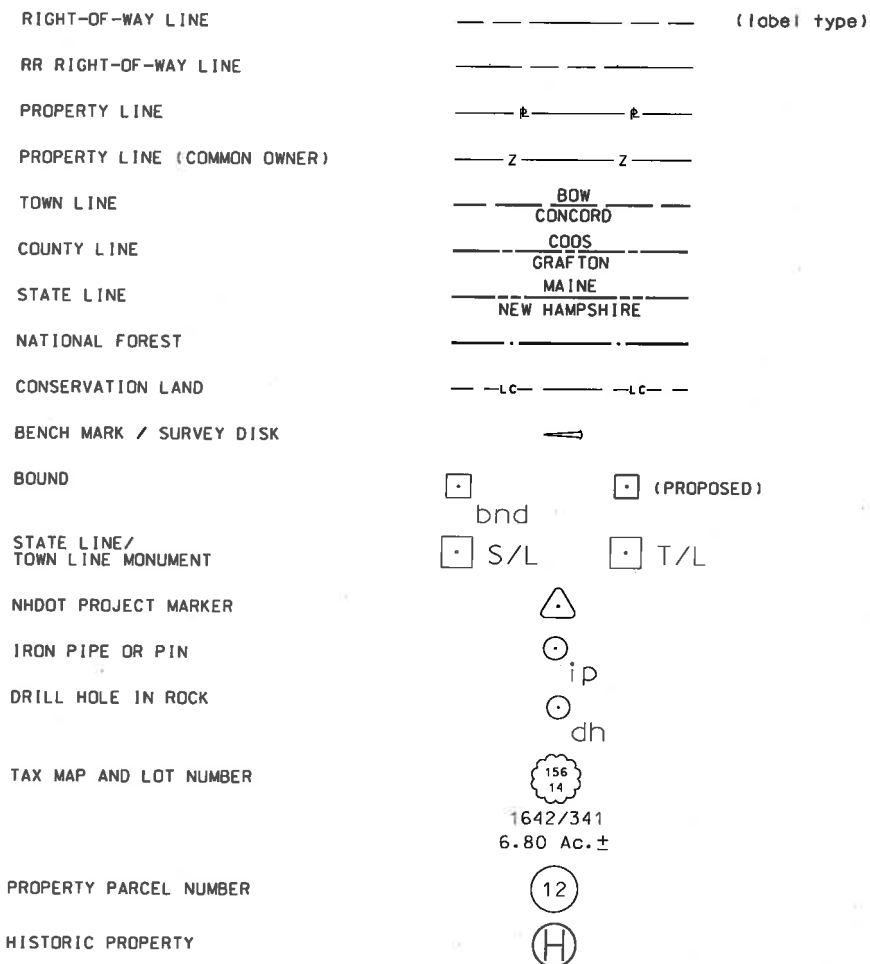
STATE OF NEW HAMPSHIRE  
 DANBURY  
 DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN  
**STANDARD SYMBOLS**

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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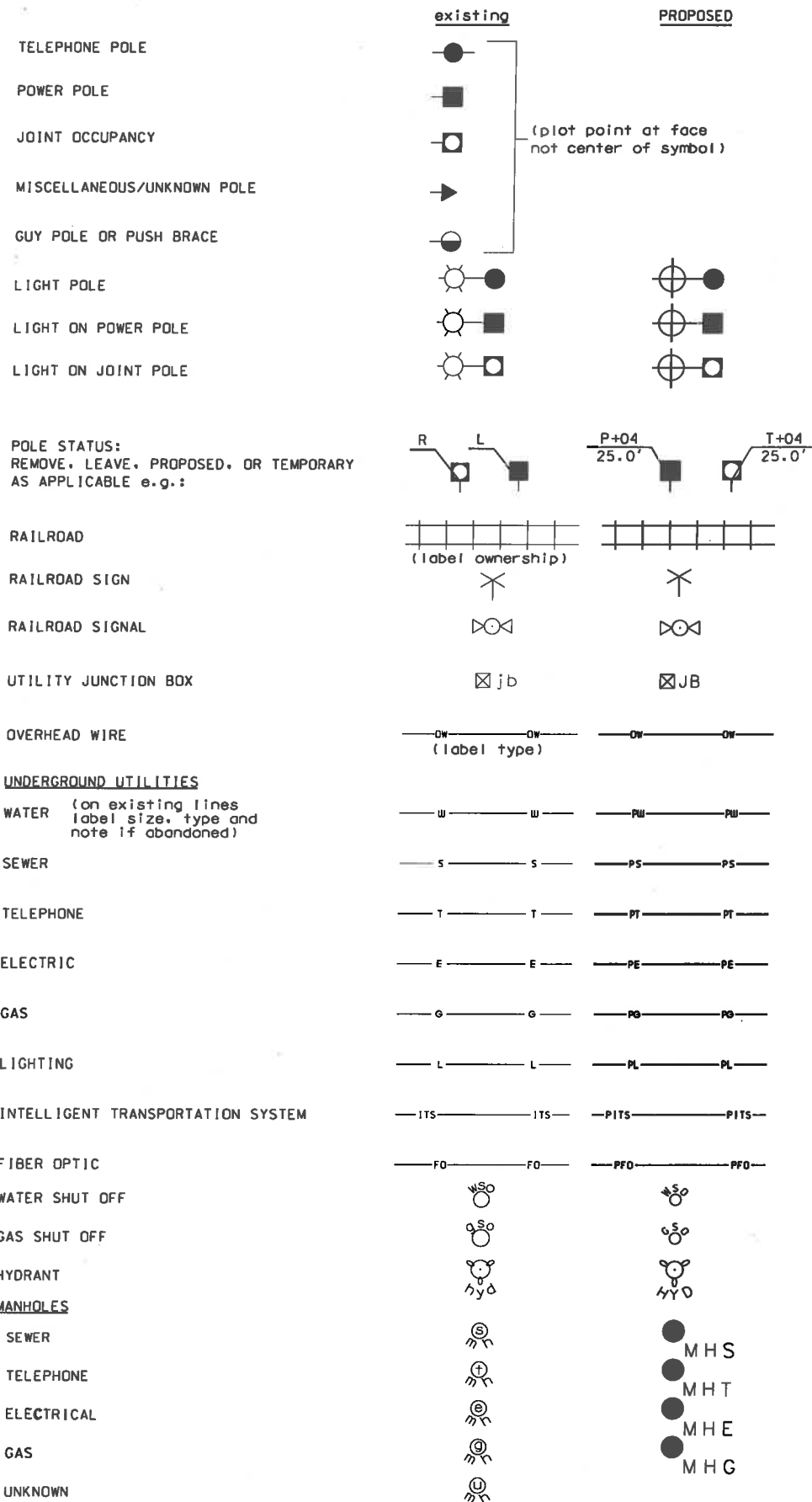
### DRAINAGE



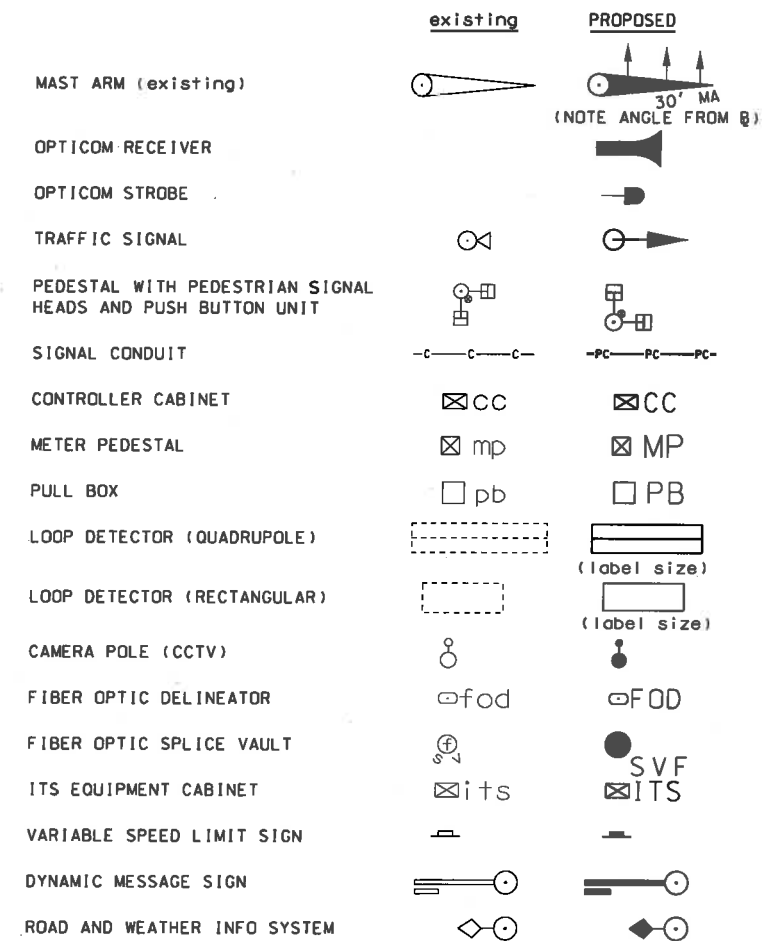
### BOUNDARIES / RIGHT-OF-WAY



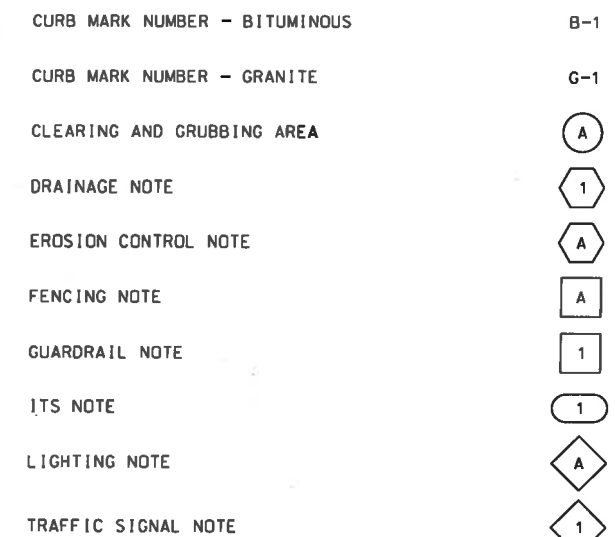
### UTILITIES



### TRAFFIC SIGNALS / ITS



### CONSTRUCTION NOTES



SR PROCESSED NAME1 DATE DATE1 DATE DATE1 DATE DATE1 DATE DATE1  
 NEW DESIGN HSW DATE 11/15/2019  
 SHEET CHECKED NAME3 DATE DATE3  
 AS BUILT DETAILS DATE

REVISIONS AFTER PROPOSAL  
 STATION  
 STATION  
 DATE

WETLAND IMPACT SUMMARY									
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS						
			PERMANENT				TEMPORARY		
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.D.E. (WETLAND)		SF	LF	
SF	LF	SF	LF						
1	PFO1E/PSS1E	A			147				
1	PFO1E/PSS1E	B						335	
2	PF01E	C			4530				
2	PF01E	D						704	
3	PF01E	E			870				
5	PF01E	F			1467				
5	PF01E	G						70	
6	PF01E	H			254				
6	PF01E	I						220	
11	PF01Ex	J			73				
10	PF01F	K			1261				
10	PF01F	L			20				
10	PF01F	M						196	
14	PEM1E	N			4499				
14	PEM1E	O						375	
15	PF01F/PSS1F	P			483				
15	PF01F/PSS1F	Q			4047				
15	PF01F/PSS1F	R						1199	
15	PF01F/PSS1F	S			101				
12	PF01Ex	T			139				
13	PF01F/PSS1F	U			1886				
13	PF01F/PSS1F	V						596	
16	PSS1F/PEM1F	W			1301				
16	PSS1F/PEM1F	X						285	
20	PF01F/PSS1F	Y			870				
20	PF01F/PSS1F	Z						322	
18	PEM1Ex	AA			295				
19	PF01E	AB			404				
19	PF01E	AC						25	
22	PEM1Ex	AD			21				
TOTAL					22668			4327	

PERMANENT IMPACTS: 22668 SF  
 TEMPORARY IMPACTS: 4327 SF  
 TOTAL IMPACTS: 26995 SF

WETLAND CLASSIFICATION CODES	
PF01E	PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
PSS1E	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
PF01F	PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS, SEMIPERMANENTLY FLOODED
PEM1F	PALUSTRINE, EMERGENT, PERSISTENT, SEMIPERMANENTLY FLOODED
PEM1E	PALUSTRINE, EMERGENT, PERSISTENT, SEASONALLY FLOODED/SATURATED
PF01Ex	PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED, EXCAVATED
PSS1F	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEMIPERMANENTLY FLOODED
PEM1Ex	PALUSTRINE, EMERGENT, PERSISTENT, SEASONALLY FLOODED/SATURATED, EXCAVATED

**LEGEND**

TYPE OF WETLAND IMPACT	SHADING/HATCHING	#	WETLAND DESIGNATION NUMBER
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)		#	WETLAND IMPACT LOCATION
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)		#	WETLAND MITIGATION AREA
TEMPORARY IMPACTS			MITIGATION

Jurisdictional Wetlands were delineated by Cynthia M Balcius CWS, CSS, CPESC in November of 2019 utilizing the following standards:

- United States Department of Agriculture, Natural Resources Conservation Service. 2016. *Field Indicators of Hydric Soils in the United States*. Version 8.0. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
- Field Indicators for Identifying Hydric Soils in New England*. Version 4. May 2017. New England Hydric Soils Technical Committee.
- North American Digital Flora: National Wetland Plant List, version 2.1.0* (<http://wetland.plants.usace.army.mil>). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapen Hill.
- The National Wetland Plant List: 2016 wetland ratings*. Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.
- Corps of Engineers Wetlands Delineation Manual*. January 1987. Wetlands Research Program Technical Report Y-87-1.
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*. January 2012, version 2. U.S. Army Corps of Engineers, Environmental Laboratory ERDC/EL TR-12-1.
- Classification of Wetlands and Deepwater Habitats of the United States*. December 1979. L. Cowardin, V. Carter, F. Golet, and E. LaRoe. US Department of the Interior. Fish and Wildlife Service. FWS/OBS-79/31.



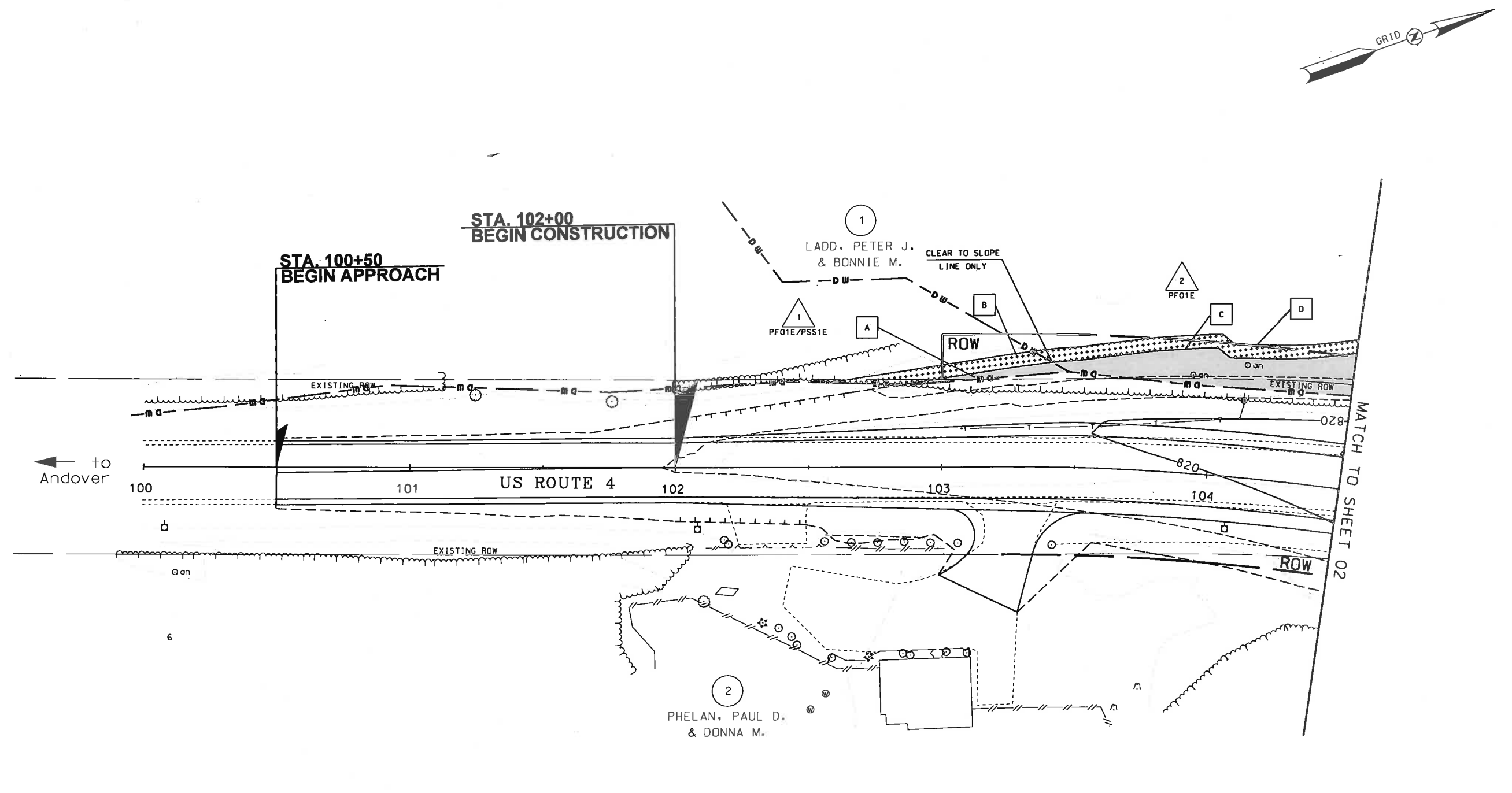
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 (p): 603-776-5825, (f) 603-776-5826, info@stoneyridgeenv.com

STATE OF NEW HAMPSHIRE DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>WETLAND IMPACT SUMMARY</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303wetplons	16303	4	15

SDR PROCESSED	PLAN PREP	DATE	2013/2019
NEW DESIGN	HSW	DATE	11/15/2019
SHEET CHECKED	JAH	DATE	11/18/2019
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION

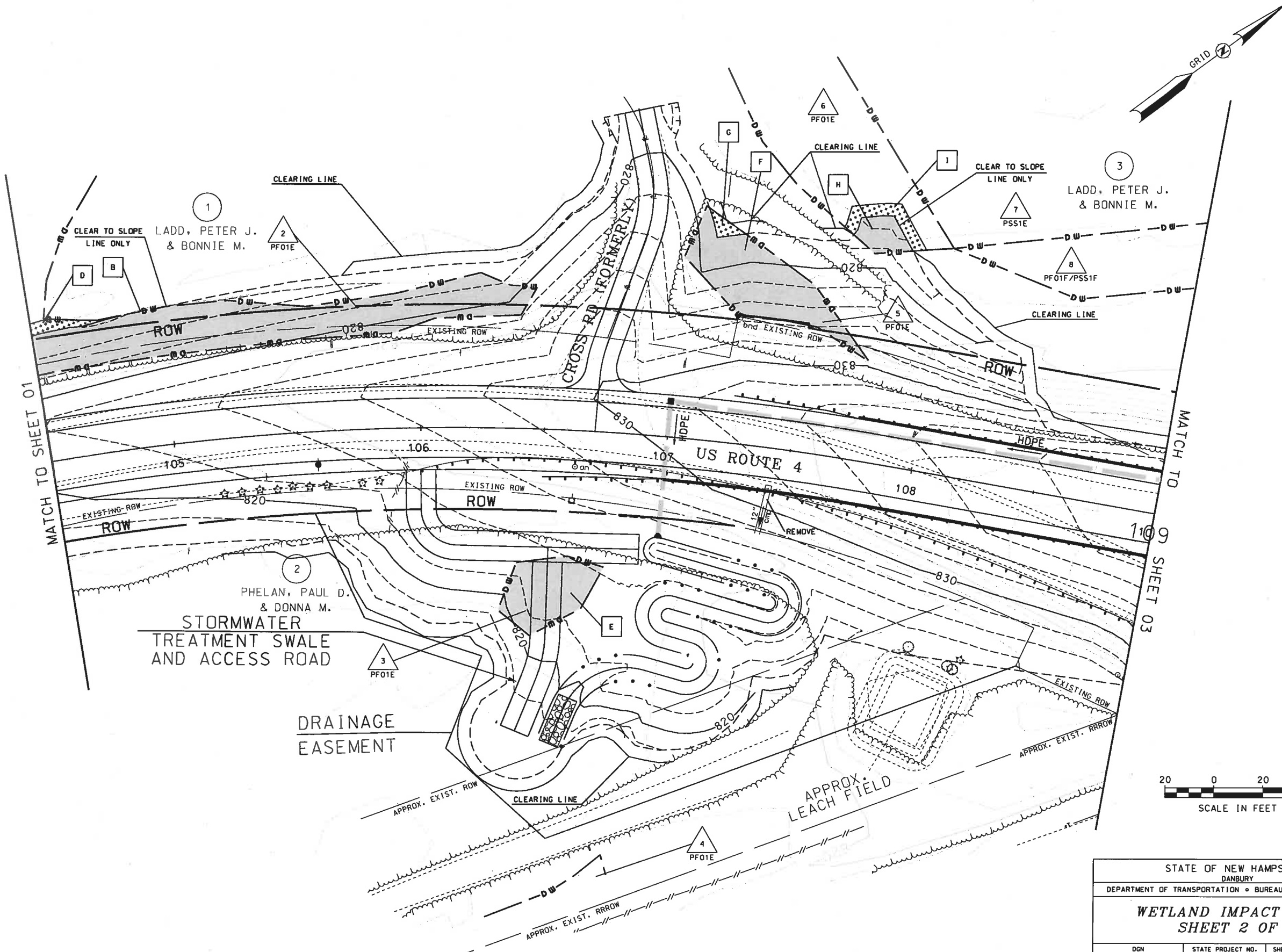


STATE OF NEW HAMPSHIRE			
DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>WETLAND IMPACT PLANS</b>			
<b>SHEET 1 OF 5</b>			
DCN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303wetplans	16303	5	15

SDR PROCESSED	PLAN PREP	DATE	2013/2019
NEW DESIGN	HSW	DATE	11/15/2019
SHEET CHECKED	JAH	DATE	11/18/2019
AS BUILT DETAILS		DATE	

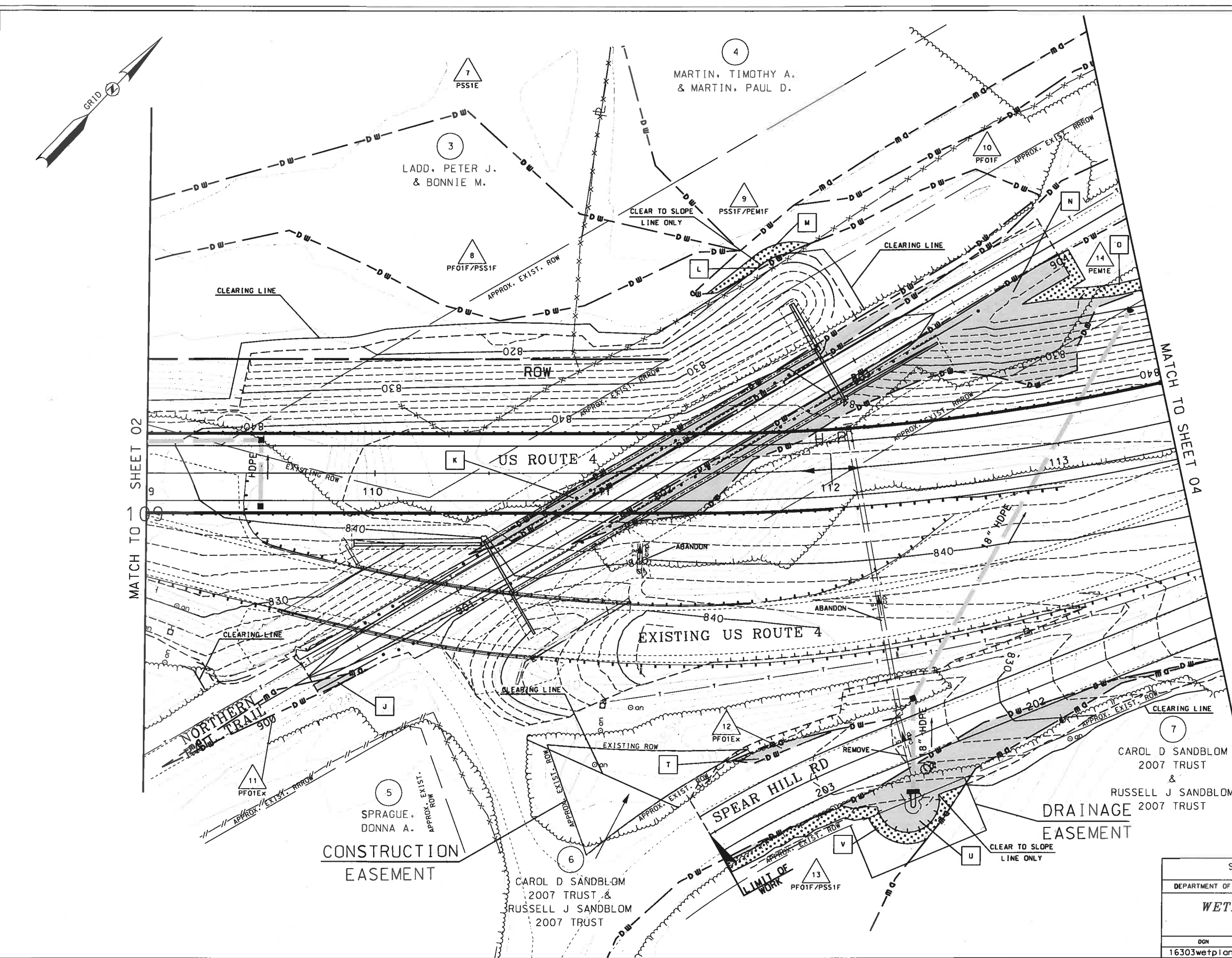
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STATE OF NEW HAMPSHIRE DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>WETLAND IMPACT PLANS</b> <b>SHEET 2 OF 5</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303wetplans	16303	6	15

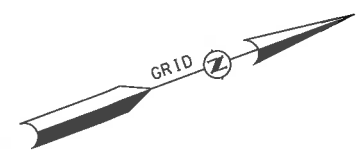
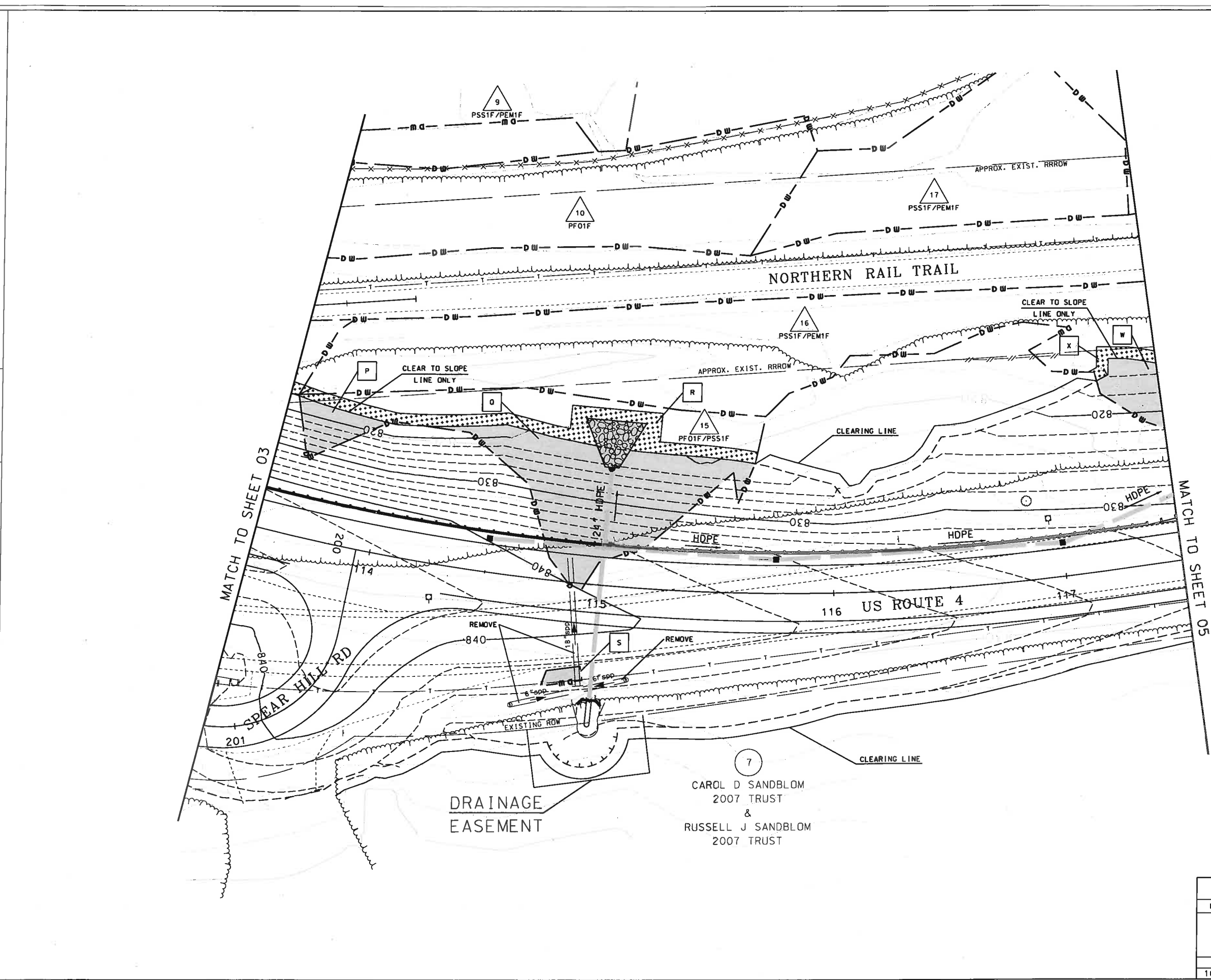


SOR PROCESSED	PLAN PREP	DATE	2013/2019
	NEW DESIGN	DATE	11/15/2019
SHEET CHECKED	HSW	DATE	11/18/2019
	JAH	DATE	
AS BUILT DETAILS		DATE	



STATE OF NEW HAMPSHIRE DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>WETLAND IMPACT PLANS SHEET 3 OF 5</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303wetplans	16303	7	15

SDR PROCESSED	PLAN PREP	DATE	2013/2019
NEW DESIGN	HSW	DATE	11/15/2019
SHEET CHECKED	JAH	DATE	11/18/2019
AS BUILT DETAILS		DATE	



STATE OF NEW HAMPSHIRE DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>WETLAND IMPACT PLANS</b> <b>SHEET 4 OF 5</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303wetplans	16303	8	15



# EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
    - 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
    - 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
    - 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
    - 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
    - 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WO 1500 REQUIREMENTS ([HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM](http://des.nh.gov/organization/commissioner/legal/rules/index.htm))
    - 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.
  2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
    - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
    - 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
    - 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
    - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
      - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
      - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
      - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
      - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
    - 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
    - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
    - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
    - 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30<sup>th</sup> AND MAY 1<sup>st</sup> OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
      - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15<sup>th</sup>, OR WHICH ARE DISTURBED AFTER OCTOBER 15<sup>th</sup>, SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
      - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15<sup>th</sup>, OR WHICH ARE DISTURBED AFTER OCTOBER 15<sup>th</sup>, SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
      - (C) AFTER NOVEMBER 30<sup>th</sup> INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
      - (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER STABILIZATION PLAN HAS BEEN APPROVED BY NHDOT.
      - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WO 1505.05) NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30<sup>th</sup>.
- GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS**
3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
    - 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
    - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
    - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
    - 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
    - 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.
  4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
    - 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
    - 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
    - 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1<sup>st</sup> THROUGH NOVEMBER 30<sup>th</sup>, OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
  5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
    - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
    - 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
    - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
    - 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
    - 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
  6. PROTECT SLOPES:
    - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
    - 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
    - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
    - 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
  7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
    - 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
    - 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
  8. PROTECT STORM DRAIN INLETS:
    - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
    - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
    - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
    - 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
  9. SOIL STABILIZATION:
    - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
    - 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
    - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15<sup>th</sup>, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
    - 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
  10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
    - 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WO 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
    - 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
    - 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

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

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

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
  - 12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500: ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
  - 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
  - 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
  - 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
  - 12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
  - 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
  - 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.
13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
  - 13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
  - 13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
  - 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
  - 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.
14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
  - 14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
  - 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
  - 14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WO 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1  
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES <sup>2</sup>				ROLLED EROSION CONTROL BLANKETS <sup>3</sup>			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNCSB	DNCB
SLOPES <sup>1</sup>												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES	YES	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	NO	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

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

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

STATE OF NEW HAMPSHIRE  
DANBURY  
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

**EROSION CONTROL STRATEGIES**

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-15	16303eroplans	16303	10	15

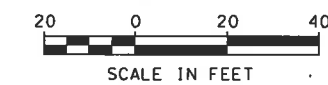
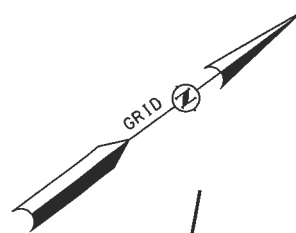
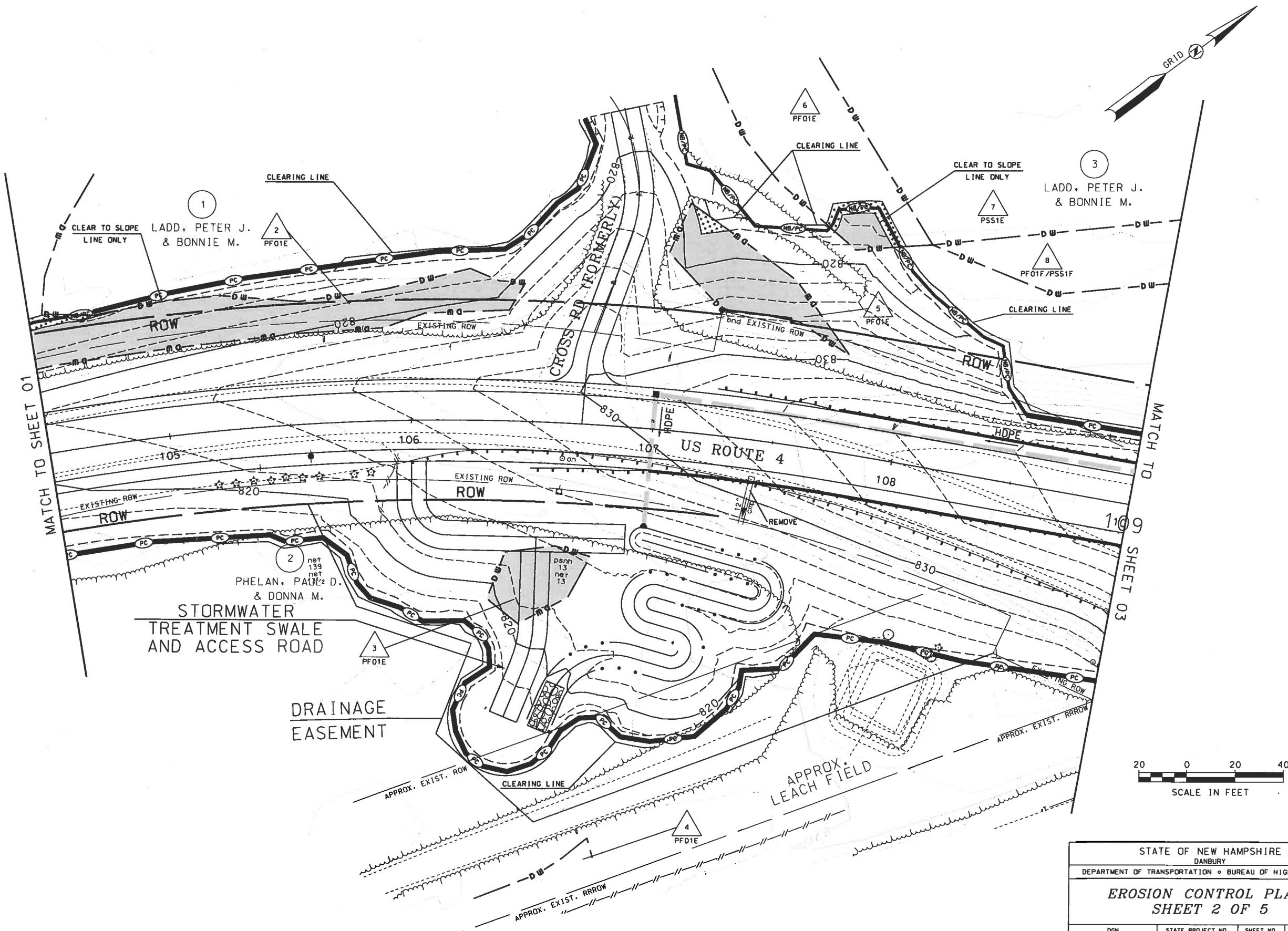




SDR PROCESSED	PLAN PREP	DATE	2013/2019
NEW DESIGN	HSW	DATE	11/15/2019
SHEET CHECKED	JAH	DATE	11/18/2019
AS BUILT DETAILS		DATE	

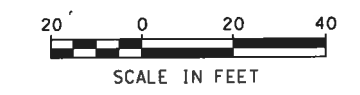
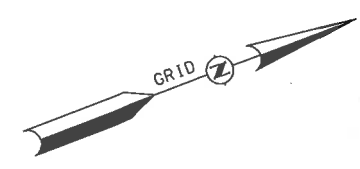
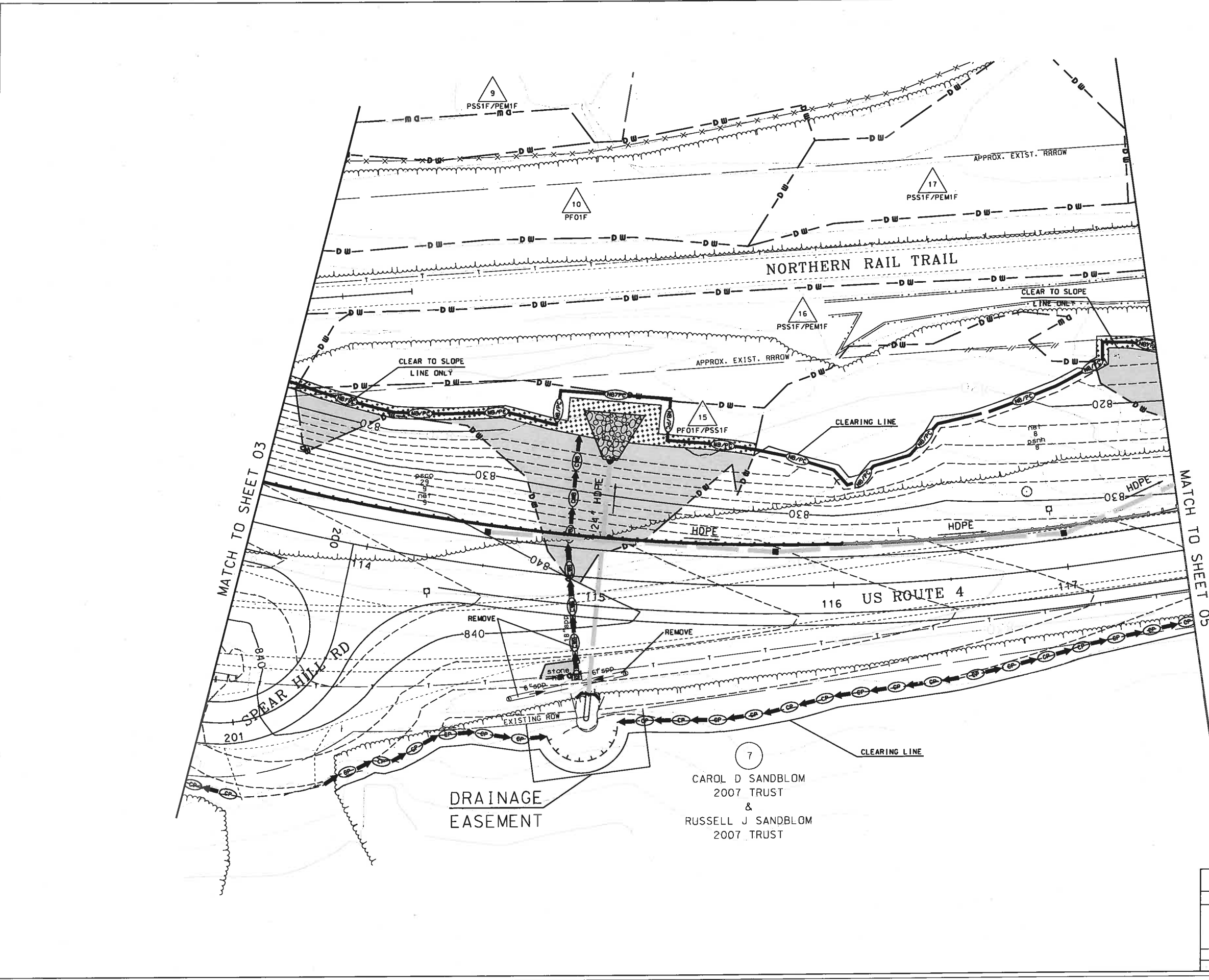
REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION



STATE OF NEW HAMPSHIRE DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>EROSION CONTROL PLANS</b> <b>SHEET 2 OF 5</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303eroplans	16303	12	15

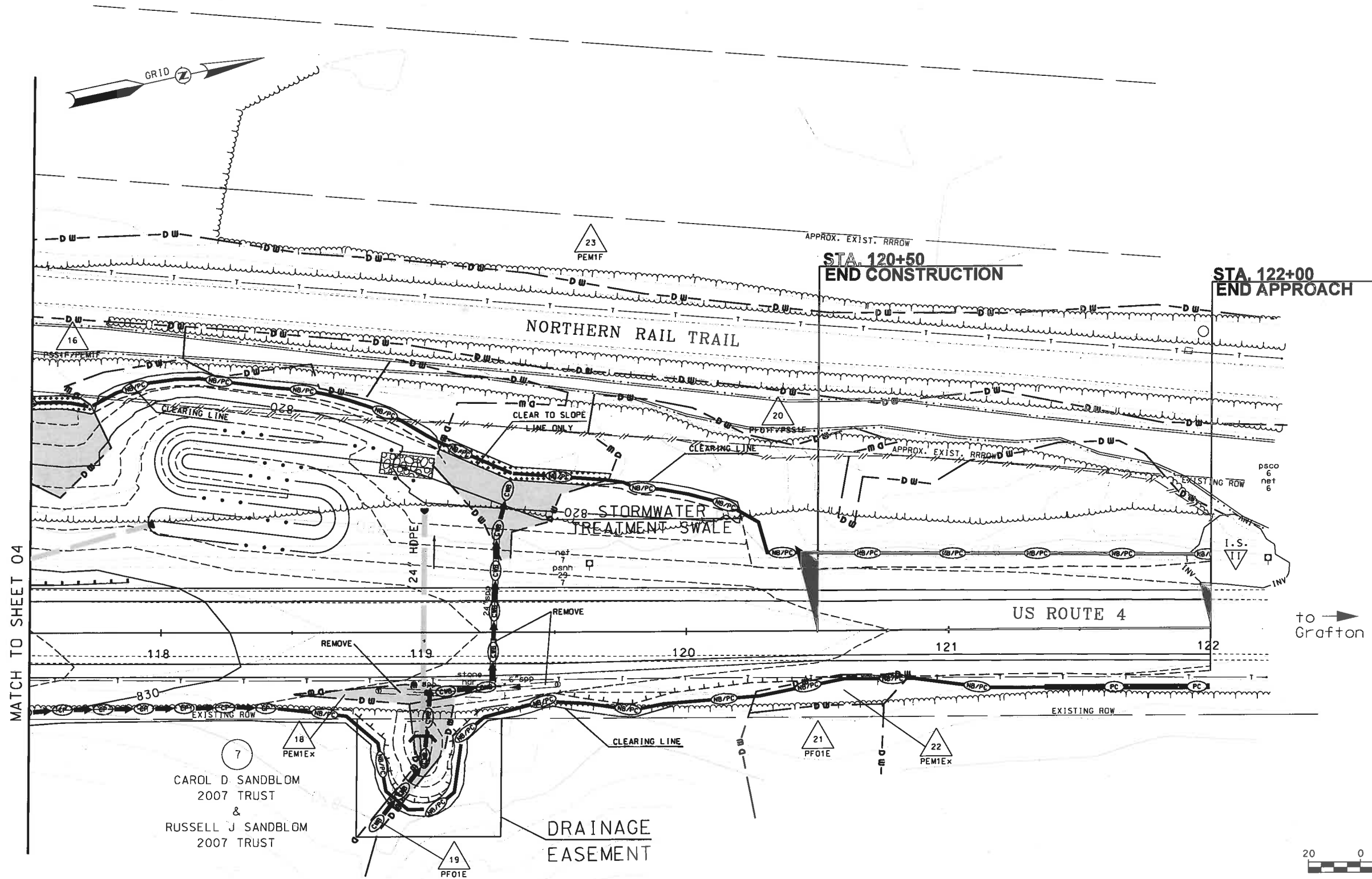


SDR PROCESSED	PLAN PREP	DATE	2013/2019
NEW DESIGN	HSW	DATE	11/15/2019
SHEET CHECKED	JAH	DATE	11/18/2019
AS BUILT DETAILS		DATE	



STATE OF NEW HAMPSHIRE DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>EROSION CONTROL PLANS</b> <b>SHEET 4 OF 5</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303eroplans	16303	14	15

SDR PROCESSED	PLAN PREP	DATE	2013/2019
NEW DESIGN	HSW	DATE	11/15/2019
SHEET CHECKED	JAH	DATE	11/18/2019
AS BUILT DETAILS		DATE	



STATE OF NEW HAMPSHIRE DANBURY			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>EROSION CONTROL PLANS SHEET 5 OF 5</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16303eroplans	16303	15	15