



WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management



Check the status of your application: 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: Initial:
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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: 10 Day: 16 Year: 2019

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: **NH Route 106** TOWN/CITY: **Loudon/ Canterbury**

TAX MAP: BLOCK: LOT: UNIT:

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

LOCATION COORDINATES (If known): 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.

Widen 1.4 miles of NH 106 (from 48' wide to 60' wide), from ~ 970' South of Soucook Lane to ~570' South of Mudgette Hill Road, and from ~1280' North of the NH Motor Speedway's south entrance to ~2670' South of the NH Motor Speedway's north entrance. In addition to the widening, the project includes guardrail replacement, drainage replacement and/or rehabilitation, addition of curb and a 6' grass panel on the right of NH 106, north of the NH Motor Speedway's north entrance to ~430' south of Ames Road.

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 - 2789

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.

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

8. APPLICANT INFORMATION (Desired permit holder)LAST NAME, FIRST NAME, M.I.: **NH Dept. of Transportation**TRUST / COMPANY NAME: **NH Dept. of Transportation**MAILING ADDRESS: **PO Box 483**TOWN/CITY: **Concord**STATE: **NH**ZIP CODE: **03302**EMAIL or FAX: **Andrew.O'Sullivan@dot.nh.gov**PHONE: **603-271-3226**ELECTRONIC COMMUNICATION: By initialing here: **AMO**, 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 Dept. of Transportation**TRUST / COMPANY NAME: **NH Dept. of Transportation**MAILING ADDRESS: **PO Box 483**TOWN/CITY: **Concord**STATE: **NH**ZIP CODE: **03302**EMAIL or FAX: **Keith.Cota@dot.nh.gov**PHONE: **603-271-1615**ELECTRONIC COMMUNICATION: By initialing here **KC**, 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) 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

KEITH A. COTA

Print name legibly

12/2/2019

Date
irm@des.nh.gov or (603) 271-2147

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

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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 or (603) 271-2147

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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	18,312	<input type="checkbox"/> ATF	7,657	<input type="checkbox"/> ATF
Scrub-shrub wetland	425	<input type="checkbox"/> ATF	494	<input type="checkbox"/> ATF
Emergent wetland	5,403	<input type="checkbox"/> ATF	2,685	<input type="checkbox"/> ATF
Wet meadow		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Intermittent stream channel	266 / 41	<input type="checkbox"/> ATF	288 /	<input type="checkbox"/> ATF
Perennial Stream / River channel	/	<input type="checkbox"/> ATF	121 / 20	<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
TOTAL	24,406 / 41		11,245 / 20	

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) 35,651 sq. ft. X \$0.40 = \$ 14,260.40

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 = \$ 14,260.40

The Application Fee is the above calculated Total or \$400, whichever is greater = \$ 14,260.40

Loudon-Canterbury, #29613A (A004(458))



NH DEPARTMENT OF TRANSPORTATION LOUDON-CANTERBURY 29613	
LOCATION	
Scale: 1 inch = 2,000 feet	Date: SEPTEMBER 2011

Project Limits

- Phase One
- Phase Two



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**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

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 purpose and need of this project is to address both safety and operational concerns related to the high density of side roads, commercial drives and the location of the New Hampshire Motor Speedway. There is an existing hazard in which left turning vehicles are waiting in the path of through traffic throughout the corridor, resulting in a higher probability of collisions between stopped and moving vehicles. Operational concerns consist of traffic counts during events hosted by New Hampshire Motor Speedway, where average daily traffic increases significantly.

Prior to the event, ADT increases from approximately 11,000 vehicles per day to approximately 17,000 vehicles per day during the morning hours traveling northbound prior to the event, and up to approximately 25,300 vehicles traveling southbound in the evening proceeding the event. While lane useage is modified during this period of time to allow for relatively smoother traffic flow for the increase in ADT, emergency services, pedestrian access and local traffic flow is severely constricted during this period of time.

To address these concerns, this project proposes to widen the existing travel way to include a 12' center turn lane and 6' wide grass panels adjacent to sections of NH 106. The proposed impacts are due to the slope fills/cuts and culvert extensions necessary to extend the existing width of the roadway.

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

The proposed widening is the minimum improvement needed to meet the project need. The proposed roadway centerline has been shifted away from jurisdictional resources where practical. Fill slopes and cut slopes have been minimized where it was practical to do so by installing guardrail and constructing 2:1 slopes instead of 4:1 slopes. This can be seen primarily on the northern section of the project where a proposed 6' grassed panel is located. Where slopes are in proximity to intermittent stream crossings, the fill slopes are steepened to 1.5:1 with stone to further minimize impacts in the present and future. Stream impacts are minimized by replacing, extending, modifying and/or upsizing existing structures where needed to meet hydraulic design requirements and stream crossing requirements to the maximum extent practical.

3. The type and classification of the wetlands involved.

PFO1E - PALUSTRINE FORESTED BROAD-LEAVED SEASONALLY FLOODED/SATURATED

PSS1E - PALUSTRINE SCRUB-SHRUB BROADLEAVED DECIDUOUS SEASONALLY FLOODED/SATURATED

R4SB3J - RIVERINE INTERMITTENT STREAMBED COBBLE GRAVEL INTERMITTENTLY FLOODED

R2UB1H - RIVERINE LOWER PERENNIAL UNCONSOLIDATED BOTTOM COBBLE-GRAVEL PERMANENTLY FLOODED

PEM1E - PALUSTRINE EMERGENT BROADLEAVED DECIDUOUS SEASONALLY FLOODED/SATURATED

PEM1Ex - PALUSTRINE EMERGENT BROAD LEAVED DECIDUOUS SEASONALLY FLOODED/SATURATED EXCAVATED

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

Several intermittent streams flow through existing cross pipes on NH 106 within the project limits. These intermittent streams eventually feed into Gues Meadow Brook and Soucook River

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

The classificaiton type of wetlands found within the project area are not considered rare. They area all common wetlands in NH.

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

The area of permanent impacts to wetlands are 16,879 SF for the town of Loudon and 7,527 SF for the town of Canterbury, with a total of 24,406 SF of permanent impacts.

The area of temporary impacts to wetlands are 7,527 SF for the town of Loudon and 3,613 SF for the town of Canterbury, with a total of 35,651 SF of temporary impacts.

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.

a & b. The Natural Heritage Bureau identified two records for species of concern near the project limits: American Eel and Wood Turtle and one record for a State threatened species: the Bridle Shiner. Carol Henderson of NH Fish & Game was consulted (see correspondance); since the Department was addressing the perched crossings and works under the terms of minimization of impacts Carol did not have any concerns. Through a US Fish & Wildlife Service IPaC search two Federally listed threatened species were listed: Small Whorled pogonia and the Northern long-eared bat. A survey for small whorled pogonia was performed in July 2016 in the identified location by NHB and surrounding forested habitat; the plant was not found. (See Natural Resource Agency Meeting minutes and coordination with Suzi von Oettingen). In regards to the Northern long-eared bat, an acoustic bat survey was completed to assess the potential presence. It was determined that this species is not likely to be present. The US Fish & Wildlife Service has reviewed the survey results and concurs that the projec tis not likely to adversely affect the Northern long-eared bat. (see copy of the Range-Wide Programmatic Consultation sent to US F&W and email coordination).

- c. No species at the extremities of their ranges were identified through the NHB or IPaC searches.**
- d. No migratory fish and wildlife species were identified through the NHB or IPaC searches.**
- e. No exemplary natural communities were identified by NHB.**
- f. No vernal pools were identified within the project limits.**

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

The proposed project will improve opportunities for public commerce and recreation by improving safety and operational characteristics of NH Route 106.

The project will have no effect on navigation.

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 project will not significantly alter the aesthetic characteristics of the NH 106 Corridor.

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.

The project will not interfere with or obstruct public rights of way or access.

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.

The project will not have a significant impact to the majority of abutters.

Parcel 3 (along the East side of NH 106, just north of Soucook Lane) will be impacted by the construction of a stormwater treatment pond. The owner will be compensated for property acquired and for impact to the overall value of the parcel, if any.

Parcel 46 (along the west side of NH 106 around the vfw building) will be impacted by the construction of a stormwater treatment pond, as well as a relocated drive access. The owner will be compensated for property acquired and for impact to the overall value of the parcel, if any.

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

The proposed project will improve the safety and operational characteristics of NH Route 106, resulting in an overall benefit to the public.

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.

Two stormwater basins will be constructed for this project. The increased impervious surface is approximately 152,200sf. The stormwater basins will treat runoff from approximately 351,000 sf (230% of increased impervious surfaces).

Fill in wetlands is relatively small in comparison to total wetland area. The minor loss in storage will not be affected by runoff volume.

All appropriate erosion and sediment control measures will be implemented to avoid adverse impacts to water quality during construction.

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

Stream crossings and drainage outlets are designed to maintain or improve high flow capacity, with sufficient slope to preserve low flows and prevent sedimentation, and include stone aprons as needed to dissipate energy and prevent erosion. BMP ponds are designed to handle high flow conditions and act as a means of storing storm water runoff as needed and acting as a means to prevent sedimentation in outletting wetlands and/or streams.

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.

The project will not redirect current or wave energy.

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.

Not applicable. The project is to construct public infrastructure, which is unlikely to be proposed by abutters.

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

There will be minor impacts to the overall functions and values of several forested and scrub-shrub wetlands, due the proposed fill slopes and to Gues Meadow Brook and an un-named intermittent stream, due to the proposed fill slopes, pipe extensions and stone outlet protection.

Avoidance and minimization measures incorporated in the design of the project have reduced the magnitude of these impacts to the extent practical. Concurrence was reached that the project's impacts can be properly addressed through mitigation in the form of an in-lieu fee payment to the NHDES Aquatic Resource Mitigation (ARM) Fund.

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.

None.

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.

N/A

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

The project will maintain existing drainage patterns, except as follows:

The project will redirect 24.6 Acres from two existing culverts located at Sta. 5499+64 and Sta. 5502+54 to the proposed BMP pond located at Sta. 5488+00. The pond, after treating the water, will direct outflow to Gues Meadow Brook via a proposed culvert from Sta. 5485+00 to Sta. 5487+50. This redirection will allow the treatment of additional impervious area and removes the need for culverts under the roadway and outletting onto the New Hampshire Motor Speedway parking area.

Additional comments

lm@des.nh.gov or (603) 271-2147

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Ron Crickard started the presentation by explaining that this project has been presented to the Natural Resource Agencies prior to today and that this was to update the agencies as to the wetland impacts as we approach advertising.

Trent Zanes briefly described the premise of this project: widening from two 12' lanes with 12' shoulders to 12' lanes with a 12' center turn lane and 12' shoulders. This project is the second phase of the project finalizing construction this year.

Anthony King described the wetland impacts as being mostly Palustrine (forested, scrub/shrub, and some marsh) with a few riverine (only one permanent stream (Gues Meadow Brook). Gues Meadow Brook has 238 sf of temporary impacts and the bank adjacent to the brook has 57 sf of temporary impacts (bank impacts erroneously described as permanent during meeting, all impacts related to Gues Meadow Brook are temporary).

The roadway runoff first flush (Water Quality Volume) between the intersection with Hollow Root Road and the VFW building will be treated in a BMP pond adjacent to the VFW parcel (no wetlands impacted with this BMP). The higher order storms (Q2, Q10, and Q50) will bypass some runoff around the BMP with a flow splitter structure. There is a bypass pipe system that catches and transports some offsite runoff around the BMP. The BMP pond and bypass flows combine and outlet to Gues Meadow Brook via a stone lined swale south of the VFW parcel. Mark Kern (EPA) asked about wetlands in the BMP area. This is an upland/hill area with no wetlands.

At Soucook Lane there is a proposed BMP adjacent to the roadway between Soucook Lane and the drive for Fillmore Industries. This BMP treats runoff from north of the Beanstock store to Soucook Lane. The BMP outlets adjacent to an existing wetland with very little distance between the BMP outlet and the wetland due to topography limitations. Amy Lamb asked about locating this BMP in an adjacent cleared site. The BMP treats runoff from the inside of a roadway curve and the location chosen appears to be the best compromise between ROW costs and other wetland impacts.

Lori Sommer asked about the project mitigation. Ron Crickard explained that this project has a separate permit with separate mitigation.

The total impacts to wetlands are as follows:

Loudon:	16,879 sf permanent
	7,515 sf temporary
Canterbury:	7,527 sf permanent

3,435 sf temporary

Totals: 35,356 sf total impact
24,406 total permanent
10,950 sf temporary

ALK/alk

DRAFT

There may be other alternatives that will be evaluated. Some alternative may have greater environmental impacts that will need to be reviewed by the agencies. The project is on an aggressive schedule with anticipated fall 2018 completion of the SEIS.

Mike Hicks stated that he will check to see if there will be a Section 408 requirement. Carol Henderson inquired about the coordination with NHDHR. K. Cota replied that coordination is ongoing with NHDHR and there is strong interest in the GSB from them, other historical groups, the general public and politicians, especially on the estimated cost (\$30 M or more) to maintain pedestrian/bicycle access. Mark Kern wanted confirmation that the reason Natural Agencies will be asked to participate, is that this is still part of the old EIS in which agencies were previously involved. K. Cota replied that was correct and it is a means of letting the agencies know the status of the SEIS. Gino Infascelli inquired as to the past discussions of maintaining the GSB for emergency access. K. Cota replied that these will be a factor of the loading design evaluation, though access will only be from the Newington side. The loading will need to accommodate inspection vehicles also. Though he stated that in actually AASHTO loading for pedestrian/bicycle access may be greater than for vehicles. Matt Urban stated that the US Coast Guard will need to be kept in the loop. A Public Informational meeting will be scheduled by Keith Cota to be held at the end of January in Dover that will inform the general public on the SEIS process and solicit for Section 106 consultant party interest.

This project has been previously discussed at the 4/16/2003, 7/16/2003, 4/21/2004, 1/19/2005, 4/20/2005, 7/20/2005, 8/17/2005, 11/2/2005, 12/14/2005, 2/21/2006, 3/21/2007, 10/15/2008, 8/19/2009, 8/17/2011, 3/21/2012, 3/19/2014, 6/18/2014, 8/20/2017 Monthly Natural Resource Agency Coordination Meetings.

Loudon-Canterbury, #29613 (X-A004(201))

Christine Perron provided an update on the project, which will involve widening approximately 3.5 miles of NH Route 106 to accommodate a 12-foot center two-way left-turn lane. The project was last reviewed at the January 2017 Natural Resource Agency Coordination Meeting, at which time preliminary wetland impacts were reviewed. A Public Hearing was held on October 23, 2017. As discussed at previous meetings, the project will be divided into two phases for final design and construction. One NEPA document was completed for both phases. Phase I of the project is a 0.9-mile section located just south of the NH Motor Speedway. Phase II consists of one segment to the south and two segments to the north of Phase I.

In January, it was agreed that separate permit applications could be submitted for each phase, with the understanding that mitigation would be provided for the overall project. Final design for Phase I of the project is now underway and wetland impacts are nearly finalized. The purpose of today's discussion is to review Phase I impacts and the need for mitigation prior to submitting the permit application for Phase I.

The existing roadway consists of two 12' shoulders and two 12' travel lanes for a pavement width of 48'. The project proposes to widen the roadway to accommodate an additional 12' lane to serve as a two-way left-turn lane. The travel lanes and shoulders would remain 12'. Overall widening would be approximately 12', resulting in a pavement width of 60', with 6' of widening on each side of the road in most locations. The roadway typical will be wider along one section of NH Route 106 within the limits of Phase I between Clough Hill Road and the south entrance of the speedway, a distance of approximately 1,600 linear feet (LF). This area experiences heavy pedestrian use during race events. In order to address safety concerns associated with large numbers of pedestrians and vehicles on the road at the same time, there will be an additional 6' offset to guardrail, resulting in a grass panel between the paved shoulder and guardrail. The only change in the project since it was discussed at the January meeting is the addition of a 2,000' segment north of the speedway's north entrance where a 6' offset to guardrail will be provided on the east side of

NH 106 to improve pedestrian safety during events at the speedway. The preliminary Phase 2 impacts below include this additional work.

Impacts along the overall project are as follows:

Phase I:

Temporary – 16, 092 sq. ft.

Permanent – 9,049 sq. ft.

Phase II (Preliminary)

Temporary – 10,411 sq. ft.

Permanent – 35,265 sq. ft.

Cumulative Totals (Preliminary)

Temporary – 26,503 sq. ft.

Permanent – 44,314 sq. ft.

Impacts for Phase I, which are nearly final, were provided in more detail:

	Permanent (sq ft)	Permanent (Linear Ft)	Temporary (sq ft)	Temporary (Linear Ft)
Wetland	3,803		6,121	
Channel	4,455	555	8,713	622
Bank	1,737	204	1,258	102
Totals:	9,994	759	16,092	724

Phase I impacts occur in five general locations along the one-mile segment. C. Perron and Chris Carucci described the proposed work and resulting impacts for each location.

Wet ditch (Sta 5439+25 to Sta 5441+25 Lt): The entire ditch will be impacted by the widened roadway slope, resulting in 812 sq ft of impact. The ditch line will be recreated at the new toe of slope.

Lori Sommer commented that impacts to this ditch do not require mitigation since a new ditch line will be constructed.

Tier 1 Stream Crossing (Sta 5453+80) and 15” drainage pipe (Sta 5456+75): These pipes outlet into the same wetland system. The stream crossing is a 24” rcp carrying an intermittent stream. The pipe outlets onto a stone berm before the stream enters a large open water wetland with a scrub-shrub border. The culvert will be replaced with a 42” concrete pipe, the berm at the outlet will be removed, and a new stream channel will be reconstructed at a constant slope to the wetland. The new channel will be stone lined and intermixed with streambed material on the bottom. This work will result in 53 LF of permanent impact to the stream.

The 15” drainage pipe carries non-jurisdictional drainage. The pipe will be sliplined, which will result in a small amount of temporary impact to the wetland at the outlet.

Gues Meadow Brook (5464+50 to 5467+50 Rt): This location is an area where Gues Meadow Brook is parallel to the roadway and is in the section that will have a wider typical with the 6’ grass panel. The

widened roadway slope in this area has been steepened to 1.5:1 to minimize impacts to the stream. This slope is as steep as practical for a conventional earth slope. Stone will be used to stabilize the slope, and humus can be mixed with the stone to establish grass along the slope. The new slope will require removing existing trees and shrubs along the slope and stream bank, and some excavation along the OHW line will be required to match the new slope into the existing channel. The delineated TOB/OHW line does not match exactly match the existing topography, so impacts in plan view appear greater than in cross section view. The proposed toe of slope will match the existing edge of the channel bed. As shown on the plans, permanent impacts along the edge of the stream will be 201 LF. Permanent impact along the edge of the adjacent forested wetland will be 556 sq ft.

Gues Meadow Brook Crossing (Sta 5472+50): This is the first crossing of Gues Meadow Brook in the project area. The crossing consists of twin 72" concrete pipes. Since the pipes are in good condition and have adequate capacity, extension is proposed rather than replacement. Each end will be extended 12 feet and new headwalls will be constructed. This will accommodate the wider roadway and proposed 6-foot grass panel adjacent to the shoulder. The grass panel will allow for the removal of a pedestrian/snowmobile bridge that is located at the inlet. The pipes have no history of flooding and have the capacity to carry the Q50 storm. The pipes also carry the majority of the Q100 storm, with headwater a few inches higher than the edge of pavement. Some flow would divert through the roadside ditch to the south and drain through an existing 18" culvert about 600' south of the twin 72" pipe inlet. Since the project will result in raising the grade of the roadway by approximately 6 inches, the Q100 headwater would not reach the edge of pavement. The outlet of the pipes is slightly perched, and construction of a rock weir is proposed to raise the water level to alleviate the perch. Total permanent impacts to the stream at this location will be 49 LF, and there will be 963 sq ft of permanent impact to an adjacent forested wetland.

Carol Henderson asked if the local snowmobile club has been notified about the removal of the snowmobile bridge. Keith Cota responded that the club would be notified. He explained that the structure was put into place by an abutter who was trying to provide a crossing for pedestrians during race events, and the abutter then allowed the structure to be used by snowmobiles. The proposed grass panel will provide the space needed for pedestrians during race events as well as snowmobiles in the winter.

Gues Meadow Brook Crossing (5482+50 to 5484+60): This is the second crossing of Gues Meadow Brook in the project area and also consists of twin 72" concrete pipes. These pipes are also in good condition with no history of flooding. Proposed work involves constructing new headers in front of the existing headers and constructing new wingwalls. The larger headwalls will contain the new fill for the widened slopes, so the pipes do not need to be extended. The pipes have the capacity to carry both the Q50 and Q100 storms. The stream at the outlet of the crossing is influenced by beaver activity, resulting in a much wider channel where an adjacent wetland is now permanently flooded. Ordinary High Water (OHW) was delineated along the back edge of this flooded wetland, placing a section of OHW adjacent to the existing toe of the roadway slope. This means that the widened slopes will impact the edge of OHW, although the proposed slope has been steepened to 1.5:1 to minimize impacts. As currently delineated, the proposed work will result in 291 LF of permanent stream impact at the outlet and 43 LF of permanent stream impact at the inlet.

Matt Urban commented that the way linear impacts were calculated at the outlet (along the edge of OHW) is not consistent with the way linear stream impacts are typically calculated (along the thread of the channel), so this should be discussed further before finalizing the impact plans.

Gino Infascelli asked if the location of OHW should instead follow the primary stream channel. C. Perron said that she would discuss this further with him. L. Sommer commented that it would be helpful to see the impact areas in the field in the spring.

Amy Lamb asked if plantings could be provided along the toe of slopes adjacent to Gues Meadow Brook. K. Cota replied that plantings would be costly since they would require a lot of hand work for placing stone and putting in plantings. L. Sommer commented that adding plantings would be considered a self-mitigating element of the project and credit could be given toward overall mitigation.

C. Perron provided a summary of the preliminary in-lieu fee for mitigation. The preliminary fee for Phase I is based on the impact totals as presented and will change following resolution of items that require further discussion. The fee for Phase II is based only on preliminary impacts and will change once final design of that phase gets underway.

Phase 1 In-Lieu Fee:

Permanent wetland impacts 3,803 sq ft +/-

Permanent stream impacts 759 linear ft +/-

In-Lieu Fee = \$200,573.34 +/-

Phase 2 In-Lieu Fee:

Permanent wetland impacts 27,700 sq ft +/-

Permanent stream impacts 70 linear ft +/-

In-Lieu Fee = \$123,000 +/-

C. Carucci noted that the Department hopes to submit the Phase I permit application in the next few weeks in order to obtain the permit before the late-May advertising date. L. Sommer said that the final mitigation package could be further discussed after submittal of the application, after a spring field review is completed and self-mitigation elements are finalized. DES could issue an approval letter, that includes draft permit conditions, for the Department's use in advertising the project, and the final permit would be issued as soon as mitigation is agreed upon.

C. Perron reviewed additional resource considerations. The project overall will result in approximately 200,000 sq ft of additional impervious surface area (about 48,000 sf in Phase 1 and 150,000 sf in Phase 2). Three treatment areas are proposed for Phase 1 and three areas are available for Phase 2, resulting in the treatment of runoff from approximately 687,430 sq ft of impervious area. This equates to treatment for well over twice the area of proposed new pavement, which is the typical target.

C. Carucci elaborated on proposed treatment. He noted that it is not common to exceed the treatment target by so much. The topography within the project area just happened to be conducive to capturing a large amount of runoff. For Phase 1, a treatment pond is proposed on a DOT owned parcel between Mudgett Hill Road and NH 106, a grass swale is proposed adjacent to the Speedway south entrance, and a pond is proposed on the south side of Clough Hill Road adjacent to the Soucook River. At the two pond sites, the proposed design requires shifting flows from existing cross culverts to treatment areas. Where practical, diversion structures will be used to direct low flows to the treatment areas and allow high flows to continue outletting at existing locations. All outlets eventually flow to the same wetland systems and to the Soucook River.

The project will not impact floodplains. There are records of state listed aquatic wildlife species in the area. Impacts to these species are not anticipated since existing conditions at stream crossings will be improved upon. C. Henderson concurred.

Potential federally-listed species in the project area consist of the northern long-eared bat and small whorled pogonia. An acoustic survey was completed last summer and no northern long-eared bat calls were recorded. A formal survey was completed for small whorled pogonia in the location where it had

been identified in 2012. This species was not found at that location or in any other location reviewed during other field work. Habitat within clearing limits along the project was assessed and USFWS concurred that no further surveys were warranted.

Two NHFG properties will be impacted by slope work and the Department has been coordinating with Rich Cook. An existing 15" culvert outlets into the conservation land at Sta 5444+50. Discussion with NHFG indicated the easement language does not allow for extending the pipe, so it will be abandoned and the drainage will be shifted to the Mudgett Hill Road treatment area. The easement language does allow for slope impacts.

This project has been previously discussed at the 1/18/2017 and 8/17/2016 Monthly Natural Resource Agency Coordination Meetings.

Dummer, #16304A (X-A003(835))

Mark Hemmerlein opened the meeting by noting the last review was in Oct 2017. The Department had a public hearing and a few issues were raised by the public. The issues included a trail that runs along the river, the location of a few Osprey nests in the area, and their desire to maintain the view of the river from the roadway. The proposed design now impacts 6.85 acres of wetlands. At the last meeting there was a request for more information regarding the replacement of the 60" pipe that carries Robbins Brook under NH Route 16 within the project area with a larger more wildlife friendly bridge. Jennifer stated the estimate for the 12 foot span bridge was approximately \$780K which included a natural bottom and wildlife shelf. Lori noted that cost estimates were previously requested for use during the site walk. Carol inquired about what other mitigation was considered. While in the field only the Robbins Brook crossing was investigated but in prior meetings about mitigation other alternatives were discussed. While in the field Gino Infascelli recommended that soil and vegetation from the wetland side could be used to re-vegetate the river shoreline. Mark described a proposed method of moving soil around the project while maintaining the mulch of the native root stock and existing seed stock in the soil to use for enhancing a water quality buffer and shoreline to the river. Lori and Gino both indicated that a construction sequence would be needed in the application to provide mitigation credit for the proposed river/vegetated buffer along the Androscoggin River. They also indicated it would only be 12% based on the proposed Total Suspended Solids removal. Mark indicated the project will also require a water quality certificate. Mark Kern noted the impact areas are to wooded wetlands and questioned how the cost of a bridge was thought to be mitigation. Gino indicated the replacement value for Robbins Brook culvert was questioned by the NHF&G field reviewers since there is an upstream constriction on NH Route 110A. Matt closed the meeting by indicating the mitigation would likely take the form of a \$1.2M ARM fund payment and applications will be submitted in February 2018.

This project has been previously discussed at the 10/15/2014, 7/19/2017, and 10/18/2017 Monthly Natural Resource Agency Coordination Meetings.

Nashua-Merrimack-Bedford, #13761

The proposed project is anticipated to involve widening three segments of the Everett Turnpike, totaling approximately 8 miles, from two lanes to three in each direction. The purpose of this agenda item was to: present the preferred alternative of the Naticook Brook crossing; discuss preliminary wetland impacts with

Mitigation Narrative

The 10,000 SF trigger of permanent impacts to palustrine wetlands has been met! However, the project does not propose to permanently impact perennial streams, therefore stream mitigation is not required.

Total Permanent Palustrine Wetland Impacts for Loudon-Canterbury 29613A = 24,140 SF

Loudon = 16,613 SF of palustrine wetland impacts Canterbury = 7,527 SF of palustrine wetland impacts

Resulting in a one time in-lieu fee payment of \$98,984.80 into the NHDES ARM Fund.

Loudon

DES AQUATIC RESOURCE MITIGATION FUND WETLAND PAYMENT CALCULATION ***INSERT AMOUNTS IN YELLOW CELLS***			
1 Convert square feet of impact to acres:			
INSERT SQ FT OF IMPACT	Square feet of impact =	16613.00	
		43560.00	
	Acres of impact =	0.3814	
2 Determine acreage of wetland construction:			
	Forested wetlands:	0.5721	
	Tidal wetlands:	1.1441	
	All other areas:	0.5721	
3 Wetland construction cost:			
	Forested wetlands:	\$53,229.33	
	Tidal Wetlands:	\$106,458.66	
	All other areas:	\$53,229.33	
4 Land acquisition cost (See land value table):			
INSERT LAND VALUE FROM TABLE WHICH APPEARS TO THE LEFT. (Insert the amount do not copy and paste.)	Town land value:	7,336	
	Forested wetlands:	\$4,196.50	
	Tidal wetlands:	\$8,393.00	
	All other areas:	\$4,196.50	
5 Construction + land costs:			
	Forested wetland:	\$57,425.83	
	Tidal wetlands:	\$114,851.66	
	All other areas:	\$57,425.83	
6 DES Administrative cost:			
	Forested wetlands:	\$11,485.17	
	Tidal wetlands:	\$22,970.33	
	All other areas:	\$11,485.17	
***** TOTAL ARM PAYMENT *****			
	Forested wetlands:	\$68,910.99	
	Tidal wetlands:	\$137,821.99	
	All other areas:	\$68,910.99	

Canterbury

DES AQUATIC RESOURCE MITIGATION FUND WETLAND PAYMENT CALCULATION ***INSERT AMOUNTS IN YELLOW CELLS***			
1 Convert square feet of impact to acres:			
INSERT SQ FT OF IMPACT	Square feet of impact =	7527.00	
		43560.00	
	Acres of impact =	0.1728	
2 Determine acreage of wetland construction:			
	Forested wetlands:	0.2592	
	Tidal wetlands:	0.5184	
	All other areas:	0.2592	
3 Wetland construction cost:			
	Forested wetlands:	\$24,117.09	
	Tidal Wetlands:	\$48,234.17	
	All other areas:	\$24,117.09	
4 Land acquisition cost (See land value table):			
INSERT LAND VALUE FROM TABLE WHICH APPEARS TO THE LEFT. (Insert the amount do not copy and paste.)	Town land value:	3,644	
	Forested wetlands:	\$944.42	
	Tidal wetlands:	\$1,888.85	
	All other areas:	\$944.42	
5 Construction + land costs:			
	Forested wetland:	\$25,061.51	
	Tidal wetlands:	\$50,123.02	
	All other areas:	\$25,061.51	
6 DES Administrative cost:			
	Forested wetlands:	\$5,012.30	
	Tidal wetlands:	\$10,024.60	
	All other areas:	\$5,012.30	
***** TOTAL ARM PAYMENT *****			
	Forested wetlands:	\$30,073.81	
	Tidal wetlands:	\$60,147.63	
	All other areas:	\$30,073.81	

Sta. 5398+50 Crossing

Region ID:
 Workspace ID:
 Clicked Point (Latitude, Longitude):
 Time:

NH
 NH20191024152532664000
 43.32721, -71.47712
 2019-10-24 11:25:48 -0400



Tier 1 crossing

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.1	square miles
CONIF	Percentage of land surface covered by coniferous forest	10.4632	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	6.65	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	4.615	percent
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	28.6038	percent
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	7.9	inches
TEMP	Mean Annual Temperature	44.722	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	61.065	degrees F
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	16.7	inches
ELEVMAX	Maximum basin elevation	558.234	feet
APRAVPRE	Mean April Precipitation	3.514	inches
WETLAND	Percentage of Wetlands	6.0577	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	150	feet per mi

Seasonal Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.1	square miles	3.26	689
CONIF	Percent Coniferous Forest	10.4632	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	6.65	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	4.615	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	28.6038	percent	6.21	46.1

**NH Department of Transportation
Bureau of Highway Design
Project, 29613A**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

- In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding? *None indicated*
- The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project. *The pipe crossing at 5398+00 will be extended westerly only (outlet end) by 8 ft to accommodate lane widening which shifts the shoulder/edge of pavement location. The pipe size and grade will not change. The proposed topography will be similar to existing (minor temporary work at the pipe inlet to remove sediment for positive flow into pipe which carries the flow to a wetland on the westerly side of the roadway).*

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a **minimum** impact project if:

The crossing does not diminish the hydraulic capacity of the crossing. *Pipe crossing is the same size and grade.*

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage. *If wildlife was using this pipe as a crossing prior to construction, they would be able to do so post construction.*

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

There is positive flow through the drainage culvert and has no perched inverts. There are no barriers to sediment transport. Sediment will continue to be transported through the drainage system.

(b) Prevent the restriction of high flows and maintain existing low flows;

The pipe extensions will be the same size and grade as the existing pipe. Flow characteristics will be similar and the outlet elevation will be 0.13 ft lower (about an inch and a half: 1" = 0.083') than existing in order to match the streambed elevation. Post construction high and low flow conditions will continue similarly to existing conditions.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;

If wildlife was using this pipe as a crossing prior to construction, organisms will continue to do so post-construction.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;

No existing flooding issues have been indicated and the flow characteristics will be similar to existing.

(e) Preserve watercourse connectivity where it currently exists;

The culvert will continue to connect wetlands on opposite sides on NH Route 106.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

The watercourse connectivity for the proposed condition will be similar to existing connectivity.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and
No existing erosion, aggradation, or scouring issues have been indicated and the flow characteristics will be similar to existing.

(h) Not cause water quality degradation.

This area is downhill from a superelevated section of roadway. There will be a short length of additional pavement width that will drain towards the inlet of this culvert (a small wedge that will start approximately 100 ft north of the culvert and widen to approximately 2 ft wide at International Drive). The proposed runoff characteristics will be relatively equal to the existing runoff.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a **minor** impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. *No stream bank stability issues have been indicated and the flow characteristics will be similar to existing.*

The crossing does not cause an increase in the frequency of flooding or overtopping of banks. *No existing flooding issues have been indicated and the flow characteristics will be similar to existing.*

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

Sta. 5555 Wetland Crossing

Region ID:
 Workspace ID:
 Clicked Point (Latitude, Longitude):
 Time:

NH
 NH20191024153612439000
 43.36776, -71.46325
 2019-10-24 11:36:28 -0400



Tier 1 Crossing

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.15	square miles
CONIF	Percentage of land surface covered by coniferous forest	13.2717	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	6.65	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	7.198	percent
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	40.0086	percent
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	8	inches
TEMP	Mean Annual Temperature	44.425	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	60.853	degrees F
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	16.9	inches
ELEVMAX	Maximum basin elevation	674.501	feet

Seasonal Flow Statistics Parameters[Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.15	square miles	3.26	689
CONIF	Percent Coniferous Forest	13.2717	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	6.65	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	7.198	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	40.0086	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	8	inches	6.83	11.5
TEMP	Mean Annual Temperature	44.425	degrees F	36	48.7
TEMP_06_10	Jun to Oct Mean Basinwide Temp	60.853	degrees F	52.9	64.4
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.5	23.1
ELEVMAX	Maximum Basin Elevation	674.501	feet	260	6290

**NH Department of Transportation
Bureau of Highway Design
Project, 29613A**

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

- In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding? *None indicated*
- The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project. *The pipe crossing at Station 5555+21 will be extended from both sides (the westerly invert, the inlet, will be extended 19 ft; the easterly invert, the outlet, will be extended 10 ft) to accommodate lane widening which shifts the shoulder/edge of pavement location. The pipe size and grade will not change. The proposed topography will be similar to existing (wetland will trap water along the roadway slope and pass into the extended pipe and outlet to a ditch which carries the flow to a wetland on the opposite side of the roadway).*

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a **minimum** impact project if:

The crossing does not diminish the hydraulic capacity of the crossing. *Pipe crossing is the same size and grade.*

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage. *If wildlife was using this pipe as a crossing prior to construction, they would be able to do so post construction.*

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01

(a) Not be a barrier to sediment transport;

There is positive flow through the drainage culvert and has no perched inverts. There are no barriers to sediment transport. Sediment will continue to be transported through the drainage system.

(b) Prevent the restriction of high flows and maintain existing low flows;

The pipe extensions will be the same size and grade as the existing pipe. Flow characteristics will be similar (the inlet elevation will be 0.07 ft (less than an inch: 1" = 0.083') and the outlet elevation will be 0.06 ft lower than existing in order to match the streambed elevation. Post construction high and low flow conditions will continue similarly to existing conditions. The wetland at the inlet will pond to this marginally higher elevation prior to flowing into the culvert.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;

If wildlife was using this pipe as a crossing prior to construction, organisms will continue to do so post-construction.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;

No existing flooding issues have been indicated and the flow characteristics will be similar to existing.

(e) Preserve watercourse connectivity where it currently exists;

The culvert will continue to connect wetlands on opposite sides on NH Route 106.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

The watercourse connectivity for the proposed condition will be similar to existing connectivity.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and

No existing erosion, aggradation, or scouring issues have been indicated and the flow characteristics will be similar to existing.

(h) Not cause water quality degradation.

This area is beside a superelevated section of roadway. The proposed shoulder is relatively equal to the existing shoulder (12 ft wide by approximately 600 ft long) that will runoff to the inlet side of the culvert crossing. The proposed runoff characteristics will be relatively equal to the existing runoff.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a **minor** impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. *No stream bank stability issues have been indicated and the flow characteristics will be similar to existing.*

The crossing does not cause an increase in the frequency of flooding or overtopping of banks. *No existing flooding issues have been indicated and the flow characteristics will be similar to existing.*

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

CONFIDENTIAL – NH Dept. of Environmental Services review



NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

Memo

To: Kerry Ryan, NHDOT
7 Hazen Drive
Concord, NH 03301

From: Amy Lamb, NH Natural Heritage Bureau
Date: 8/29/2019 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB19-2789

Town: Loudon, Canterbury

Location: The project begins just south of Shaker Road at the State Maintenance Shed in Loudon and continues north for approximately 3.5 miles.

Description: The project proposes to widen NH 106 to improve highway safety and mobility. The widened highway will provide two 12' wide travel lanes, two 12' wide shoulders, and a 12' wide center two way left turn lane. This project was originally reviewed as NHB17-1748 on 6/7/17.

cc: Kim Tuttle

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

Comments: Coordination with NHB and NH Fish & Game is ongoing. Please contact the agencies if the proposed project has changed.

Plant species	State ¹	Federal	Notes
Sensitive species	T	--	Please contact NH Natural Heritage (271-2834) if project impacts could occur in the area shown on the map.
small whorled pogonia (<i>Isotria medeoloides</i>)	T	T	Primary threat is habitat destruction for residential or commercial development or forestry; other threats such as herbivory, recreational use of habitat, and inadvertent damage from researcher activities have also been identified. At the present time "natural" factors such as slug damage, mammal grazing, or forest succession do not appear to be significant threats to the larger populations. US Fish & Wildlife Service (see below).

Vertebrate species

American Eel (<i>Anguilla rostrata</i>)	State ¹	Federal	Notes
Bridle Shiner (<i>Notropis bifrenatus</i>)	SC	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (<i>Glyptemys insculpta</i>)	T	--	Contact the NH Fish & Game Dept (see below).
	SC	--	Contact the NH Fish & Game Dept (see below).

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

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo



NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

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

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

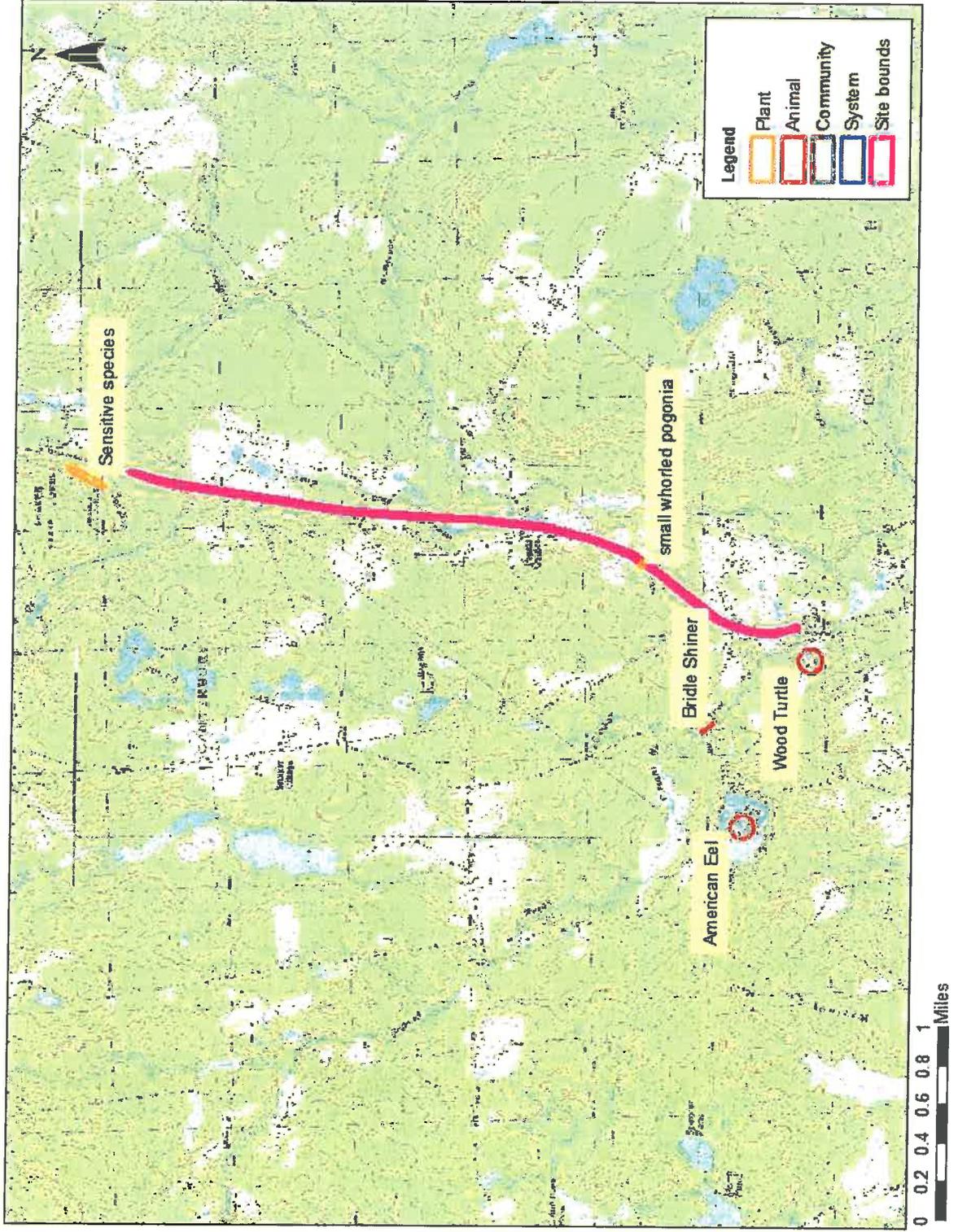
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed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



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

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

NHB19-2789



New Hampshire Natural Heritage Bureau - Plant Record

small whorled pogonia (*Isotria medeoloides*)**Legal Status**

Federal: Listed Threatened
 State: Listed Threatened

Conservation Status

Global: Imperiled due to rarity or vulnerability
 State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
 Comments on Rank:

Detailed Description: 2011: 1 plant observed with 2 capsules.

General Area: 2011: Power line right-of-way that had recently been disturbed - felled trees were lying in power line.

General Comments:
 Management
 Comments:

Location

Survey Site Name: Pearls Corner
 Managed By:

County: Merrimack
 Town(s): Loudon
 Size: .4 acres

Elevation:

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

Directions: 2011: On the west side of Route 106, about 0.6 miles north of the intersection of Route 106 and Shaker Road. The plant was found in a power line swath, approximately 100 feet west of the roadway. The telephone pole on the west side of 106 that leads to the plant location is labelled 63E.

Dates documented

First reported: 2011-09-13 Last reported: 2011-09-13

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

New Hampshire Natural Heritage Bureau - Animal Record

American Eel (*Anguilla rostrata*)

Legal Status

Federal: Not listed
State: Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2008: Area 13330 Not enumerated.

General Area:

General Comments:

Management

Comments:

Location

Survey Site Name: Soucook River
Managed By:

County: Merrimack

Town(s): Loudon

Size: 7.7 acres

Elevation:

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

Directions: 2008: Clough Pond

Dates documented

First reported: 2008-10-01

Last reported: 2008-10-01

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

Memo



NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Christine Perron, McFarland Johnson
53 Regional Drive
Concord, NH 03301

From: Amy Lamb, NH Natural Heritage Bureau
Date: 6/7/2017 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB17-1748
Town: Loudon, Canterbury

Location: The project begins just south of Shaker Road at the State Maintenance Shed in Loudon and continues north for approximately 3.5 miles

Description: The project proposes to widen NH 106 to improve highway safety and mobility. The widened highway will provide two 12' wide travel lanes, two 12' wide shoulders, and a 12' wide center two way left turn lane.
cc: Kim Tuttle

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

Comments: Please continue to coordinate with NHB and NH Fish & Game.

Plant species	State ¹	Federal	Notes
Sensitive species	T	--	Please contact NH Natural Heritage (271-2215 x 323) if project impacts could occur in the area shown on the map.
Sensitive species	T	T	Please contact NH Natural Heritage (271-2215 x 323) if project impacts could occur in the area shown on the map.
Vertebrate species	State ¹	Federal	Notes
American Eel (<i>Anguilla rostrata</i>)	SC	--	Contact the NH Fish & Game Dept (see below).
Bridle Shiner (<i>Notropis bifenatus</i>)	T	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (<i>Glyptemys insculpta</i>)	SC	--	Contact the NH Fish & Game Dept (see below).

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

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

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on

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

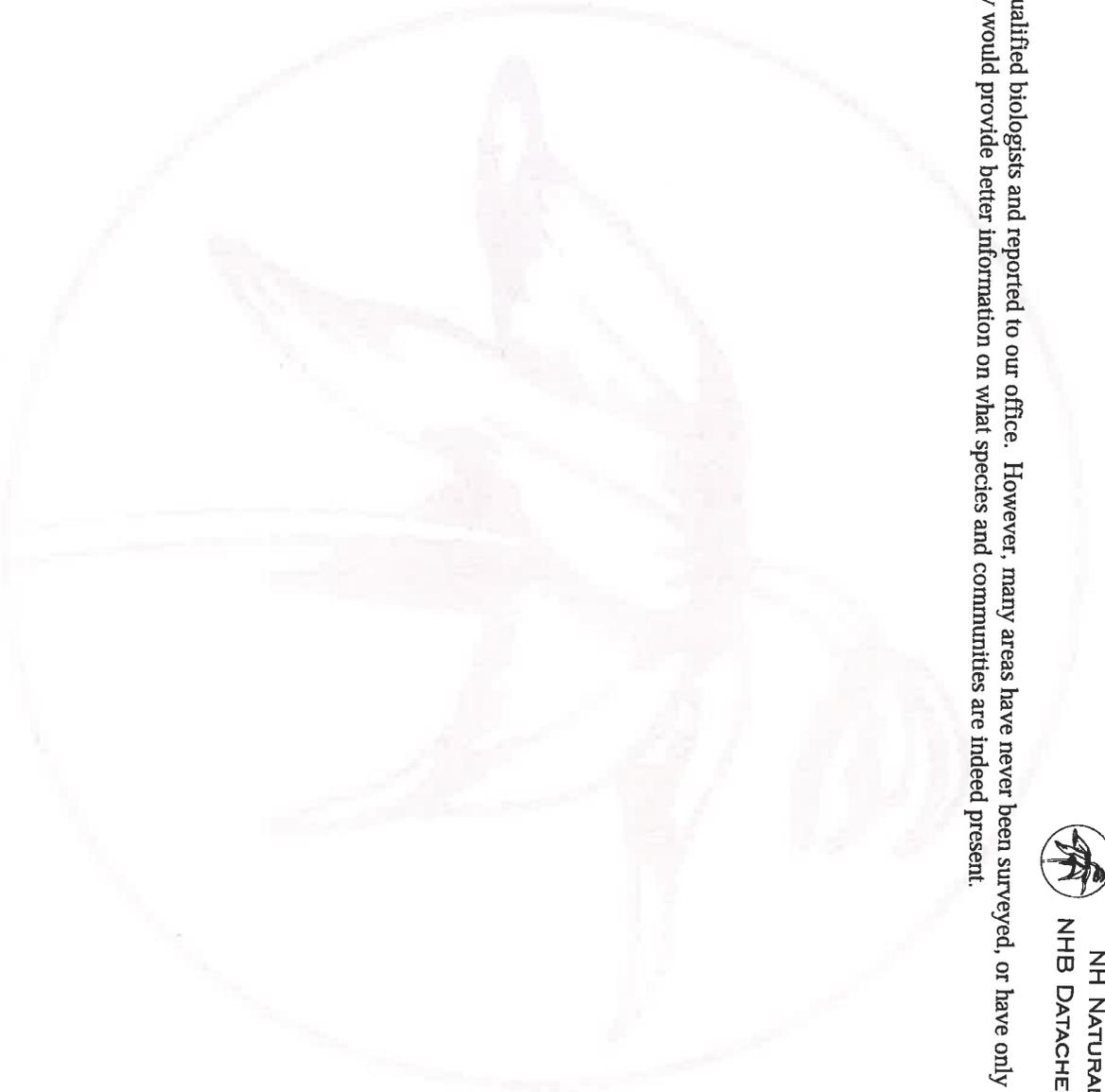
DRED/NHB
172 Pembroke Rd.
Concord, NH 03301

Memo

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.



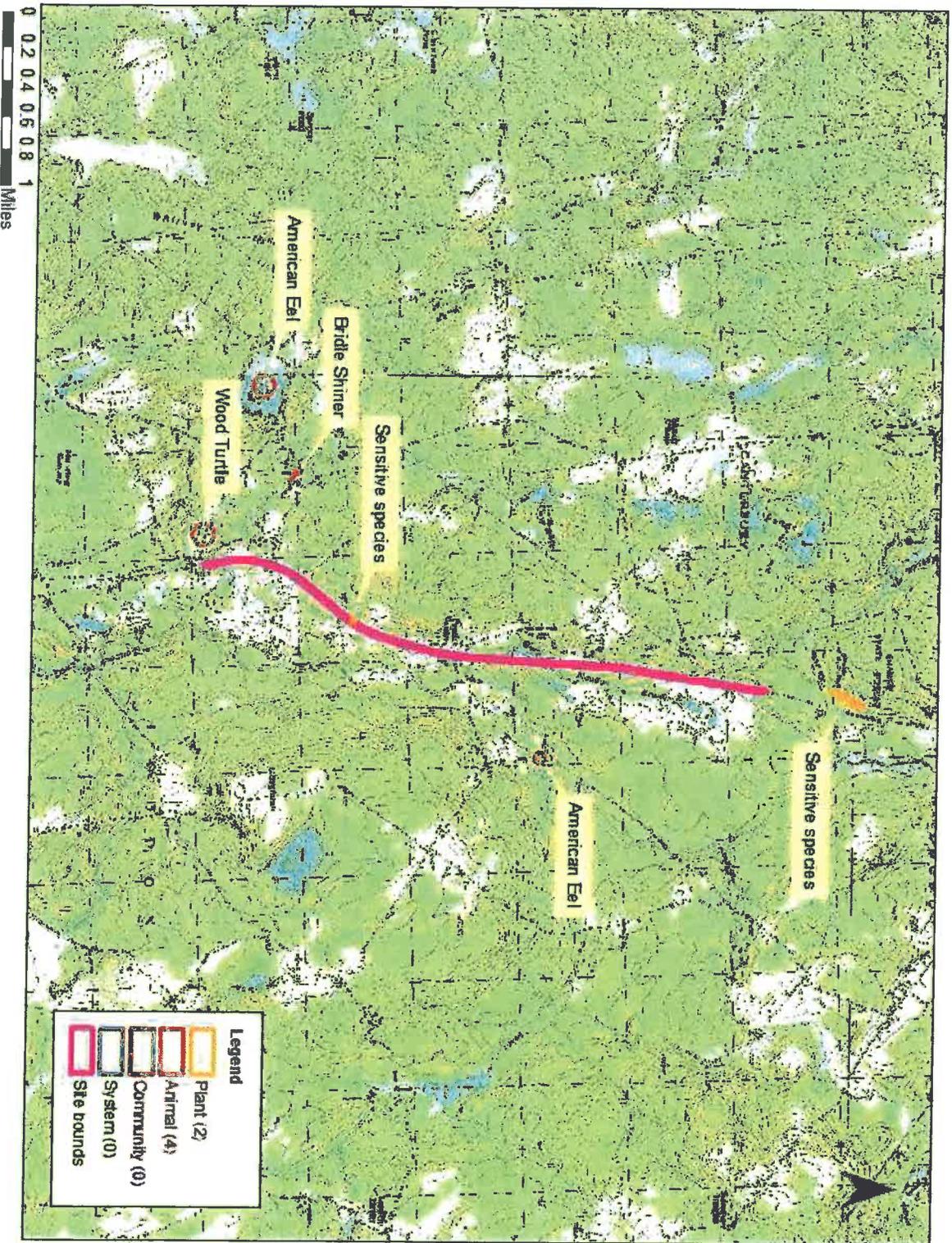
NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER



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

DRED/NHB
172 Pembroke Rd.
Concord, NH 03301

NHB17-1748



New Hampshire Natural Heritage Bureau - Animal Record

American Eel (*Anguilla rostrata*)

Legal Status

Federal: Not listed
State: Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2008: Area 13330 Not enumerated.

General Area:

General Comments:

Management

Comments:

Location

Survey Site Name: Soucook River
Managed By:

County: Merrimack

Town(s): Loudon

Size: 7.7 acres

Elevation:

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

Directions: 2008: Clough Pond

Dates documented

First reported: 2008-10-01

Last reported: 2008-10-01

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

New Hampshire Natural Heritage Bureau - Animal Record

American Eel (*Anguilla rostrata*)

Legal Status

Federal: Not listed
State: Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 1999: Area 13397: Not enumerated.

General Area:

General Comments:

Management

Comments:

Location

Survey Site Name: Gues Meadow Brook
Managed By: Soucook River WMA

County: Merrimack

Town(s): Loudon

Size: 1.9 acres

Elevation:

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

Directions: 1999: Bumfagon Brook

Dates documented

First reported: 1999

Last reported: 1999

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

Christine J. Perron

From: vonOettingen, Susi <susi_vonoettingen@fws.gov>
Sent: Friday, February 24, 2017 1:36 PM
To: Christine J. Perron
Subject: Fwd: Loudon-Canterbury 29613 NLEB

I thought this was put to rest? NHDOT also asked. No, I don't think further surveys are warranted.

Susi von Oettingen
Endangered Species Biologist
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(W) 603-223-2541 ext. 6418

www.fws.gov/newengland

----- Forwarded message -----

From: vonOettingen, Susi <susi_vonoettingen@fws.gov>
Date: Tue, Feb 7, 2017 at 10:03 AM
Subject: Re: Loudon-Canterbury 29613 NLEB
To: "Crickard, Ronald" <Ronald.Crickard@dot.nh.gov>
Cc: "Martin, Rebecca" <Rebecca.Martin@dot.nh.gov>, "Christine Perron (CPerron@mjinc.com)" <CPerron@mjinc.com>

Thanks Ron.

Is this the project that Rebecca will check in June for small whorled pogonia? I spoke with a few NH experts and we all feel that one plant in the transmission line was a stray. Most likely no more will be found.

Susi

Susi von Oettingen
Endangered Species Biologist
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(W) 603-223-2541 ext. 6418

www.fws.gov/newengland

On Tue, Feb 7, 2017 at 9:43 AM, Crickard, Ronald <Ronald.Crickard@dot.nh.gov> wrote:

Good morning Susi, attached is the Project submittal form, location map, and the IPaC official species list for the referenced FHWA project. An Acoustic Survey was completed for the project area in accordance with the 2016 Indiana Bat Summer Survey Guidelines. Neither EchoClass nor SonoBat reported an MLE of <0.05 for MYSE for any site and survey night. Based on the results of this survey, probable absence of MYSE during the summer is assumed and no further surveys are required for this project. Based on these results, the Department/FHWA will be making a Not Likely to Adversely Affect determination for the NLEB.

Also, You will also notice on the IPaC official species list that small whorled Pogonia came up. The coordination is ongoing to determine if the Pogonia is in the project area.

Please let me know if you need anything else, or have any questions.

Thank you,
Ron

Ronald Crickard
Chief, Project Management
NH Department of Transportation
Bureau of Environment
7 Hazen Drive, Concord, NH 03302
Ph: (603) 271-7966
Fax: (603) 271-7199
rcrickard@dot.state.nh.us



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:

August 28, 2019

Consultation Code: 05E1NE00-2017-SLI-0584

Event Code: 05E1NE00-2019-E-07072

Project Name: Loudon-Canterbury 29613

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). 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: 05E1NE00-2017-SLI-0584

Event Code: 05E1NE00-2019-E-07072

Project Name: Loudon-Canterbury 29613

Project Type: TRANSPORTATION

Project Description: Roadway Improvement Project

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.35384181077788N71.4666504094053W>



Counties: Merrimack, NH

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, 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: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Northeastern Bulrush <i>Scirpus ancistrochaetus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6715	Endangered
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

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

Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and Federal Transit Administration (FTA)

Range-wide Programmatic Consultation for
Indiana Bat and Northern Long-eared Bat

Project Submittal Form

Updated December 2016

If not using the Assisted Determination Key in the U.S. Fish and Wildlife Service (Service) Information for Planning and Conservation (IPaC) System, transportation agencies must provide this submittal form (or a comparable Service approved form) with provide project-level information for use of the range-wide programmatic consultation covering actions that may affect the Indiana bat and/or northern long-eared bat (NLEB). The completed form should be submitted to the appropriate Service Field Office prior to project commencement. For more information, see the Standard Operating Procedure for Site Specific Project(s) Submission in the User's Guide.

By submitting this form, the transportation agency ensures that the proposed project(s) adhere to the criteria and conditions of the range-wide programmatic consultation, as outlined in the biological assessment (BA) and biological opinion (BO). Upon submittal of this form, the appropriate Service Field Office may review the project-specific information provided and request additional information. For projects that may affect, but are not likely to adversely affect (NLAA) the Indiana bat and/or NLEB, if the applying transportation agency is **not** contacted by the Service with any questions or concerns within 14 calendar days of form submittal, it may proceed under the range-wide programmatic consultation and assume concurrence of the NLAA determination made by the Service in the BO. For projects that may affect, and are likely to adversely affect (LAA) the Indiana bat and/or the NLEB, the appropriate Service Field Office will respond (see recommended response letter template) within 30 calendar days of receiving a complete project-level submission, which includes, but may not be limited to this completed form.

Further instructions on completing the submittal form can be found by hovering your cursor over each text box.

1. Date: February 2, 2017FHWA

2. Lead agency: FHWA

This refers to the Federal governmental lead action agency initiating consultation; select FHWA, FRA or FTA as appropriate.

3. Requesting agency: NHDOT

This refers to the transportation agency completing the form (it may or may not be the same as the Lead Agency).

Name: Ronald crickard

Title: Chief, Project Management

Phone: 603-271-3226

Email: Ronald.Crickard@dot.nh.gov

4. Consultation code¹: 05E1NE00-2017-SLI-0584

5. Project name(s): Loudon-Canterbury 29613

6. Project description:

Please attach additional documentation or explanatory text if necessary

This project begins just south of Soucook Lane in Loudon NH and continues north for approximately 3.5 miles on NH Route 106 to just north of the Canterbury NH town line. The project proposes to widen the roadway to accommodate an additional 12' lane to serve as a two-way left-turn lane.

7. Project location (county, state): Merrimack County, NH

If not delineated in IPaC, attach shape files

8. For species other than Indiana bat and NLEB (from IPaC official species list):

No effect – project(s) are inside the range, but no suitable habitat (see additional information attached).

May affect – see additional information provided for those species (see attached or forthcoming).

Please confirm and identify how the proposed project(s) adhere to the criteria of the BO by completing the following (see User Guide Section 2.0):

¹ Available through IPaC System Official Species List: <https://ecos.fws.gov/ipac/>

NO EFFECT

9. For Indiana bat/NLEB, if applicable, select your no effect determination:

- No effect – project(s) are outside the species’ range. *submittal form complete*
- No effect – project(s) are inside the species range with no suitable summer habitat; project(s) must also be greater than 0.5 miles from any hibernaculum unless meeting exceptions listed below. *submittal form complete*
- No effect – project(s) do not involve any construction activities (e.g., bridge/~~abandoned structure~~ assessments, property inspections, planning and technical studies, property sales, property easements, and equipment purchases). *submittal form complete*
- No effect – project(s) are completely within existing road/rail surface and do not involve percussive or other activities that increase noise above existing traffic/background levels (e.g., road line painting). *submittal form complete*
- No effect - project(s) are outside suitable summer bat habitat and limited to the maintenance of existing facilities (e.g., rest areas, stormwater detention basins) with no new ground disturbance.
- No effect – project(s) includes maintenance, alteration, or removal of bridge(s)/structure(s) and indicate(s) no signs of bats from results of a bridge/~~abandoned structure~~ assessment. *submittal form complete*
Otherwise, please continue below.

MAY AFFECT, NOT LIKELY TO ADVERSELY EFFECT – W/O AMMS

10. For Indiana bat/NLEB, if applicable, select your may affect, NLAA determination (without implementation of AMMs):

- NLAA – project(s) are inside the species range and within suitable bat habitat, but **negative** bat presence/absence (P/A) surveys; must also be greater than 0.5 miles from any hibernaculum. *submittal form complete*
- NLAA – project(s) are within 300 feet of the existing road/rail surface and in area that contain suitable habitat (but no documented habitat) that do not involve tree removal, but include percussives or other activities that increase noise above existing traffic/background levels (must also be greater than 0.5 miles of a hibernaculum). *submittal form complete*
- NLAA – project(s) are limited to slash pile burning (must also be greater than 0.5 miles from any hibernaculum). *submittal form complete*
- NLAA – project(s) are limited to wetland or stream protection activities associated

with compensatory wetland mitigation that do not clear suitable habitat (must also be greater than 0.5 miles from any hibernaculum). *submittal form complete*

- NLAA – project(s) *anywhere*, including within 0.5 mile of hibernacula, with suitable summer bat habitat present that are limited to the maintenance of existing facilities (e.g., rest areas, stormwater detention basins) with no new ground disturbance or tree removal/trimming. *submittal form complete*

Otherwise, please continue below.

MAY EFFECT, NOT LIKELY TO ADVERSELY AFFECT – WITH AMMs

11. For Indiana bat/NLEB, if applicable, document your may affect, NLAA determination by completing the following section (**with implementation of AMMs**; use #13 to document AMMs).

Affected Resource/Habitat Type:

a. Trees

- Verify that all tree removal occurs greater than 0.5 mile from any hibernaculum
- Verify that the project is within 100 feet of existing road/rail surfaces
- Verify that no documented Indiana bat and/or NLEB roosts and/or surrounding summer habitat within 0.25 mile of documented roosts will be impacted

Verify that all tree removal will occur outside the active season (i.e., will occur in winter)²:

Acres of trees proposed for removal:

b. Bridge/Structure Work Projects

Proposed work:

Timing of work:

Evidence of bat activity on/in bridge/structure? Yes: No:

- Verify that work will be conducted outside the active season, or if during the active season, verify that no roosting bats will be harmed or disturbed in any way
- Verify that work will not alter roosting potential in any way

² Coordinate with the local Service Field Office for appropriate dates

Verify that all applicable lighting minimization measures will be implemented

MAY AFFECT, LIKELY TO ADVERSELY AFFECT

12. For Indiana bat/NLEB, if applicable, document your may affect, LAA determination by completing the following section (use #13 to document AMMs).

Affected Resource/Habitat Type:

a. Trees

Verify that all tree removal occurs greater than 0.5 mile from any hibernaculum

Project Location:

0-100 feet from edge of existing road/rail surface

100-300 feet from edge of existing road/rail surface

Verify that no documented Indiana bat roosts or surrounding summer habitat within 0.25 mile of documented roosts will be impacted between May 1 and July 31

Verify that no documented NLEB roosts or surrounding summer habitat within 150 feet of documented roosts will be impacted between June 1 and July 31

Timing of tree removal:

Acres of trees proposed for removal:

b. Bridge/Structure Work Projects

Proposed work:

Timing of work:

Verify no signs of a colony

Verify that work will not alter roosting potential in any way

13. For Indiana bat/NLEB, **if applicable to the action type**, the following AMMs will be implemented³ unless P/A surveys and/or bridge/~~abandoned~~ structure assessments⁴ have occurred to document that the species are not likely to be present:

General AMM 1 (required for all projects):

³ See AMMs Fact Sheet (Appendix C) for more information on AMMs

⁴ Structure assessment for occupied buildings means a cursory inspection for bat use. For abandoned buildings a more thorough evaluation is required (See User Guide Appendix D for bridge/~~abandoned~~ structure assessment guidance).

- Tree Removal AMM 1
- Tree Removal AMM 2 (required for NLAA)
- Tree Removal AMM 3 (required for all projects)
- Tree Removal AMM 4 (required for NLAA)
- Tree Removal AMM 5 (required for LAA)
- Tree Removal AMM 6 (required for LAA)
- Tree Removal AMM 7 (required for LAA)

- Bridge AMM 1
- Bridge AMM 2 (required for all projects during active season)
- Bridge AMM 3 (required for NLAA during active season)
- Bridge AMM 4 (required for NLAA during active season)
- Bridge AMM 5 (required for all projects)

Structure AMMs are required for all Indiana bat projects, required for NLAA NLEB projects.

- Structure AMM 1
- Structure AMM 2
- Structure AMM 3
- Structure AMM 4

- Lighting AMM 1 (required for all projects during the active season)
- Lighting AMM 2 (required for all projects)

- Hibernacula AMM 1 (required for all projects)

14. For Indiana bat, if applicable, compensatory mitigation measures will also be required to offset adverse effects on the species (see Section 2.10 of the BA). Please verify the mechanism in which compensatory mitigation will be implemented and that sufficient information is provided to the Service.

Range-wide In-Lieu Fee Program, The Conservation Fund

State, Regional, Recovery Unit-Specific In-Lieu Fee Program
Name:

Conservation Bank
Name:
Location:

Local Conservation Site(s)
Name:
Location:
Description:



Victoria F. Sheehan
Commissioner

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



William Cass, P.E.
Assistant Commissioner

LOUDON-CANTERBURY 29613
X-A004(201)
29613
RPR 7985

No Historic Properties Affected Memo

Pursuant to the Request for Project Review signed August 12, 2016, and for the purpose of compliance with regulations of the National Historic Preservation Act and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historical and archaeological resources with plans to widen and rehabilitate NH Route 106 from just south of Soucook Lane in Loudon to just north of the Canterbury town line.

Project Description

This project begins just south of Soucook Lane in Loudon and continues north for approximately 3.5 miles to just north of the Canterbury town line. The purpose of this project is to respond to increasing development in the Loudon-Canterbury region as it relates to traffic demands imposed on NH Route 106. The existing roadway consists of two 12' shoulders and two 12' travel lanes for a pavement width of 48'. The project proposes to widen the roadway to accommodate an additional 12' lane to serve as a two-way left-turn lane. The travel lanes and shoulders would remain 12'. Overall widening would be approximately 12', resulting in a pavement width of 60', with 6' of widening on each side of the road in most locations. The roadway typical will be wider along one section of NH Route 106 between Clough Hill Road and the south entrance of the speedway, a distance of approximately 1,600 linear feet. This area experiences heavy pedestrian use during events at the NH Motor Speedway. In order to address safety concerns associated with large numbers of pedestrians and vehicles on the road at the same time, there will be an additional 6' offset to guardrail, resulting in a grass panel between the paved shoulder and guardrail.

Analysis

Based on a review pursuant to 36 CFR 800.4 of the architectural and/or archaeological significance of resources in the APE, we agree on the following:

- A Phase I archaeological survey was completed in the project area in 1995. There are three known archaeological sites located near but outside the APE the French site, the Parker site, and the Lovering Mill site. None of these resources will be impacted.
- There are three un-inventoried properties in the APE: Parcel 49-63 (house constructed 1964); Parcel 50-13 (commercial building constructed 1963); and Parcel 60-30 (commercial building constructed 1950). Minimal clearing, slope widening, and/or drainage work is proposed along the frontage of these parcels with NH Route 106.
- There are twelve previously inventoried properties in the APE. Ten of these were surveyed in 1993 and two were surveyed in 2011. All twelve properties were determined ineligible. Seven of these properties no longer contain extant structures (Parcels 50-18; 50-5; 50-6; 50-10; 50-14; 50-20; 60-45). On the remaining five parcels, there will be either no work or only minimal clearing, slope widening, and/or drainage work along the frontage of these parcels.

Public Consultation

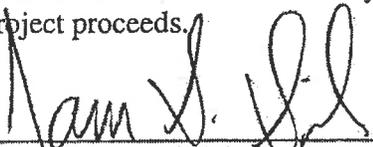
A public information meeting was held on November 30, 2016. Letters seeking input on the project were sent to town officials and the Historical Society in Loudon and Canterbury. There are no consulting parties.

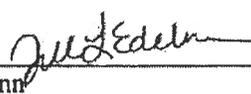
Determination of Effect

Based on a review pursuant to 36 CFR 800.4, we agree that work as proposed will not change the setting or viewshed near the parcels listed above and that no further survey work is needed. Should project plans change and any of the above mentioned sites be impacted, NHDOT will notify FHWA and NHDHR and complete all necessary surveys.

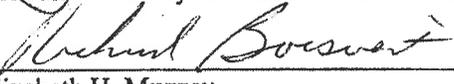
Section 4(f) (to be completed by FHWA)	There Will Be:	<input checked="" type="checkbox"/> No 4(f);	<input type="checkbox"/> Programmatic 4(f);	<input type="checkbox"/> Full 4 (f); or
	<input type="checkbox"/> A finding of <i>de minimis</i> 4(f) impact as stated: In addition, with NHDHR concurrence of 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, we will continue to consult, as appropriate, as this project proceeds.

 5/11/17
 Patrick Bauer, Administrator
 Federal Highway Administration

 5/10/17
 Jill Edelmann
 Cultural Resources Manager

Concurred with by the NH State Historic Preservation Officer:

 5-11-17
 Elizabeth H. Muzzey
 State Historic Preservation Officer
 NH Division of Historical Resources

- c.c. Chris St. Louis, NHDHR
- Jamie Sikora, FHWA
- Ron Crickard, NHDOT
- Christine Perron, MJ
- Keith Cota, NHDOT



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

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

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

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	✓	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	✓	
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/ . The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.		✓
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	✓	
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.)		✓
2.5 The overall project site is more than 40 acres?		✓
2.6 What is the area of the previously filled wetlands?		
2.7 What is the area of the proposed fill in wetlands?		
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: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index	✓	

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"> • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html. 	✓	
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)?		✓
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		✓
3.5 Are stream crossings designed in accordance with the GC 21?	✓	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	✓	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	✓	

*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.



Fillmore Industries Frontage, North (Sta. 5379+50 ±)



Wetland Area, A & B, North (Sta. 12+00 ±)



Wetland Area A&B (Drain Pipe Outlet) (Sta. 11+81, LT. 30.6')



Wetland Area C, East (Sta. 5398+60 ±, RT.)



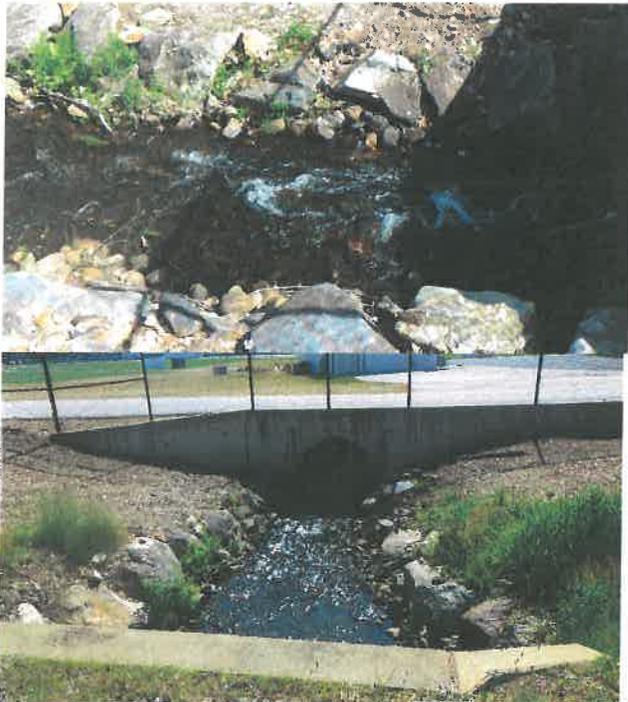
Wetland Area C, East (Drain Pipe Outlet) (Sta. 5398+59, RT. 42.6')



Wetland Area D, West (Drain Pipe Outlet) (Sta. 5422+17, RT. 51.9')



Wetland Area D, East (Sta. 5422+17, RT. 51.9')



Wetland Area Q, (Sta. 5541+90, RT. 60')

Top Left Image: North, Between Headwalls

Top Right Image: East

Left Image: West



Wetland Area S, (Sta. 5552+00 ± – Sta. 5554+00 ±, RT.)

Top Left Image: East

Top Right & Left Images: South



Wetland Area T, North (Sta. 5557+00 ± - Sta. 5558+50 ±, RT.)



Wetland Area HHH, (Sta. 5398+00 ± - Sta. 5398+75 ±, LT.)

Top Left Image: Southwest

Top Right Image: Northwest



Wetland Area GGG, (Sta. 5400+00 ± - Sta. 5403+00 ±, LT.)

Top Left Image: South (Sta. 5403+00 ± LT.)

Top Right Image: North (Sta. 5403+00 ± LT.)

Bottom Left Image: South (Sta. 5400+00 ± LT.)

Bottom Right Image: North (Sta. 5400+00 ± LT.)



Wetland Area FFF (1st half), (Sta. 5403+50 ± - Sta. 5405+50 ±, LT.)



Wetland Area FFF (2nd Half), (Sta. 5405+50 ± - Sta. 5410+00 ±, LT.)



Wetland Area FFF (Drive Culvert Outlet) (Sta. 5412+84, LT. 68.9')



Wetland Area CCC (Drain Pipe Inlet) (Sta. 5422+34, LT. 43.9')



Wetland Area CCC, (Sta. 5422+33 – Sta. 5424+45, LT.)



Wetland Area 1, (Sta. 5439+25 ± - Sta. 5541+10 ±, LT.)

Left Image: North

Right Image: South



Wetland Area VV, (48" Drain Pipe Inlet) (Sta. 5513+76, LT. 48.8')



Wetland Area VV, West (Sta. 5513+75 ± - Sta. 5515+25 ±, LT.)



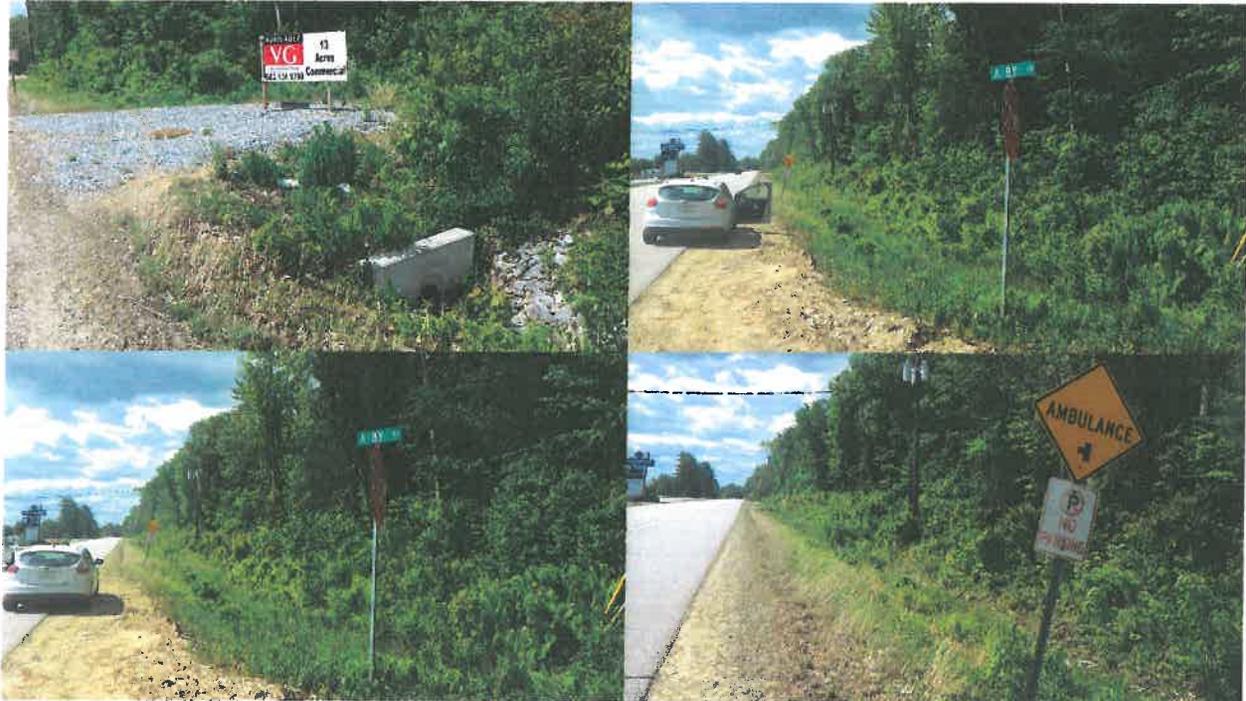
Wetland Area P, East (48" Drain Pipe Outlet) (Sta. 5513+65, RT. 52.8')



Drive between Wetland Areas UU and TT (Sta. 5526+75, LT.)



Wetland Area UU, West (Sta. 5524+25 ± - Sta. 5526+75 ±, LT.)





Wetland Area UU, (Sta. 5524+25 ± - Sta. 5526+75 ±, LT.)



Wetland Area SS, (South impacts) (Sta. 5536+25 ± - Sta. 5537+50 ±, LT.)



Wetland Area SS, (North Impacts) (Sta. 5539+50 ± - Sta. 5539+75 ±, LT.)



Wetland Areas PP, QQ and RR, (Sta. 5542+00, LT.)

Left Image: West

Right Image: East, under culvert



Wetland Area OO (Sta. 5546+00, LT.)

Left Image: West, Drain Pipe Inlet

Right Image: Northwest



Wetland Area MM, (Sta. 5548+50 ± LT.)



Wetland Area NN, (Sta. 5550+00 ± - Sta. 5552+50 ±, LT.)



Wetland Area LL, (Sta. 5555+32, LT.)



Wetland Area Z, (South End) (Sta. 5593+00 ±, RT.)



Wetland Area Z, (Sign Structure) (Sta. 5598+50 ±, RT.)



Wetland Area Z, (Sta. 5607+50 ±, RT)



Wetland Area Z, (Drop Inlet and Drain Pipe Outlet) (Sta. 5606+87, RT. 22')



Wetland Area Z, (Sta. 5607+50 ±, RT.)



Wetland Area Z, (Sta. 5609+00 ±, RT.)

PHASE 1A - PRIOR TO JULY 2020 RACE:

NH ROUTE 106

STA. 5370+00 - STA. 5486+00

- CLEAR AND GRUB AREAS ALONG NH 106 FROM THE SOUTHERN CONTRACT LIMIT TO STA. 5442+00. (A-Y)
- RELOCATE UTILITIES BETWEEN THE NH 106 SOUTHERN CONTRACT LIMIT TO STA. 5442+00.
- EXTEND EXISTING DRAINAGE CULVERTS AND ADJUST EXISTING CB GRATES FROM THE SOUTHERN CONTRACT LIMIT TO STA. 5442+00
- REPLACE EXISTING SIGNAL MAST ARMS AT THE INTERSECTION OF NH ROUTE 106 AND SHAKER ROAD.
- REMOVE SIGN STRUCTURE LOCATED AT STA. 5372+20.
- REMOVE SIGN STRUCTURE LOCATED AT STA. 5464+79, AND CONSTRUCT NEW SIGN STRUCTURE AT STA. 5460+90.

PHASE 1B - AFTER JULY 2020 RACE/PRIOR TO WINTER SHUTDOWN:

NH ROUTE 106

STA. 5370+00 - STA. 5486+00

- PLACE PCB FROM STA. 5380+00 TO STA. 5386+00
- CONSTRUCT BMP POND 5381
- CONSTRUCT NEW GUARDRAIL FROM STA. 5379+75 TO STA. 5382+07.

STA. 5370+00 - STA. 5442+00

- TYPICAL SEQUENCE FOR RECLAIM SEGMENTS:
 - CONSTRUCT CLOSED DRAINAGE AND ROADWAY WIDENING
 - WORK ON ONE SIDE AT A TIME
 - PLACE PCB ALONG GUARDRAIL SEGMENTS & REMOVE EXISTING GUARDRAIL
 - PLACE WEDGE OF CRUSHED GRAVEL ALONG EXISTING EP
 - RECLAIM FULL WIDTH OF ROADWAY, FINE GRADE (SEGMENTS XX-XX)
 - PAVE 2.5" OF BINDER COURSE (MAINLINE TRAVELWAY, 36' WIDE)
 - FINISH SHOULDER SUBGRADE (2.5" OF CRUSHED GRAVEL SHOULDERS, 12' WIDE EACH)
- AFTER ONE OR MORE RECLAIM SEGMENTS ARE COMPLETE:
 - PAVE 2.5" OF BINDER COURSE (MAINLINE, FULL WIDTH)
 - PAVE 2.5" OF BINDER ON SIDE ROADS AND PAVED DRIVES
 - INSTALL NEW GUARDRAIL

STA. 5370+00 - 5486+00

- AFTER PAVING 2 LAYERS OF 2.5" BINDER COURSE ARE COMPLETE:
 - PAVE 1.5" OF WEARING COURSE (MAINLINE, FULL WIDTH)
 - PAVE 1.5" OF WEARING COURSE ON SIDE ROADS AND PAVED DRIVES
 - MATCH WEARING COURSE INTO EXISTING PAVEMENT AT PROJECT 29613 SOUTHERN CONTRACT LIMIT
 - PERMANENT SIGNING AND MARKINGS

PHASE 2A - PRIOR TO JULY 2021 RACE:

NH ROUTE 106

STA. 5486+00 - STA. 5562+50

- CLEAR AND GRUB AREAS ALONG NH 106 FROM STA. 5486+00 TO STA. 5562+50 (Z - BI)
- RELOCATE UTILITIES BETWEEN STA. 5486+00 TO THE NORTHERN CONTRACT LIMIT.
- EXTEND EXISTING DRAINAGE CULVERTS AND ADJUST EXISTING CB GRATES FROM STA. 5486+00 TO NORTHERN CONTRACT LIMIT
- CONSTRUCT BMP POND 5488

SDR PROCESSED NAME1 DATE DATE1
 NEW DESIGN NAME2 DATE DATE2
 SHEET CHECKED NAME3 DATE DATE3
 AS BUILT DETAILS DATE

REVISIONS AFTER PROPOSAL
 NUMBER DATE STATION DESCRIPTION

STATE OF NEW HAMPSHIRE LONDON			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
TRAFFIC CONTROL SEQUENCING			
DGN TCP	STATE PROJECT NO. 29613A	SHEET NO. 1	TOTAL SHEETS 2

PHASE 2B - AFTER JULY 2021 RACE/PRIOR TO WINTER SHUTDOWN:

NH ROUTE 106

STA. 5486+00 - STA. 5562+50:

- TYPICAL SEQUENCE FOR RECLAIM SEGMENTS:
 - CONSTRUCT CLOSED DRAINAGE AND SELECTS WIDENING
 - WORK ON ONE SIDE AT A TIME
 - PLACE PCB ALONG GUARDRAIL SEGMENTS & REMOVE EXISTING GUARDRAIL
 - PLACE WEDGE OF CRUSHED GRAVEL ALONG EXISTING EP
- RECLAIM FULL WIDTH OF ROADWAY, FINE GRADE (SEGMENTS XX-XX)
- PAVE 2.5" OF BINDER COURSE (MAINLINE TRAVELWAY, 36' WIDE)
- FINISH SHOULDER SUBGRADE (2.5" OF CRUSHED GRAVEL SHOULDERS, 12' WIDE EACH)
- AFTER ONE OR MORE RECLAIM SEGMENTS ARE COMPLETE:
 - PAVE 2.5" OF BINDER COURSE (MAINLINE, FULL WIDTH)
 - PAVE 2.5" OF BINDER ON SIDE ROADS AND PAVED DRIVES
 - INSTALL NEW GUARDRAIL

STA. 5486+00 - STA. 5562+50

- AFTER PAVING 2 LAYERS OF 2.5" BINDER COURSE ARE COMPLETE:
 - PAVE 1.5" OF WEARING COURSE (MAINLINE, FULL WIDTH)
 - PAVE 1.5" OF WEARING COURSE ON SIDE ROADS AND PAVED DRIVES
 - MATCH WEARING COURSE INTO EXISTING PAVEMENT AT PROJECT 29613 NORTHERN CONTRACT LIMIT
 - PERMANENT SIGNING AND MARKINGS

PHASE 3* :

* WORK MAY BE STARTED ANY TIME, YET MUST BE CARRIED TO COMPLETION ONCE STARTED.

NH ROUTE 106

STA. 5590+00 - 5612+00

- PRIOR TO CONSTRUCTION:
 - CLEAR AND GRUB AREAS ALONG NH 106 FROM STA. 5592+00 TO STA. 5610+50. (BJ - BL)
- PLACE PCB FROM STA. 5593+25 TO STA. 5611+40.
- REMOVE EXISTING GUARDRAIL FROM STA. 5596+00 TO STA. 5611+00.
- EXCAVATE LRS AND STORE ON SITE WITHIN NHDOT OWNED PROPERTY.
- CONSTRUCT GRANITE SLOPED CURB FROM STA. 5590+75 TO STA. 5611+00.
- CONSTRUCT 6' PANEL AND 2:1 SLOPES.
- CONSTRUCT NEW NU-GUARD 31 GUARDRAIL FROM STA. 5596+00 TO STA. 5611+00.
- REMOVE PCB AND OTHER TRAFFIC CONTROL PRIOR TO JULY 202X RACE.

SDR PROCESSED	NAME1	DATE	DATE	DATE	DATE	AS BUILT DETAILS
	NAME2	DATE	DATE	DATE	DATE	
	NAME3	DATE	DATE	DATE	DATE	
	NAME4	DATE	DATE	DATE	DATE	
REVISIONS AFTER PROPOSAL	NUMBER	DATE	STATION	STATION	DESCRIPTION	

STATE OF NEW HAMPSHIRE LOUDON			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
TRAFFIC CONTROL SEQUENCING			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
TCP	29613A	2	2

PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

Env-Wt 404.01 Least Intrusive Method. Shoreline stabilization shall be by the least intrusive but practical method.

Env-Wt 404.02 Diversion of Water. Diversion of stormwater run-off often provides effective and low maintenance erosion protection, and shall be used to the maximum extent practical.

Env-Wt 404.03 Vegetative Stabilization.

(a) Natural vegetation shall be left intact to the maximum extent possible. If space and soil conditions allow, unstable banks shall be cut back to a flatter slope, seeded, and replanted with native, non-invasive trees and shrubs.

(b) If space relative to the highest observable tide line, water turbulence, and soil conditions allow, the project shall include vegetation of existing sand beach or dunes or construction of vegetated sand dunes.

Env-Wt 404.04 Rip-rap.

(a) Rip-rap applications shall be considered only where the applicant demonstrates that anticipated turbulence, flows, restricted space, or similar factors render vegetative and diversion methods physically impractical.

(b) Applications for rip-rap shall include:

- (1) Designation of a minimum and maximum stone size;
- (2) Gradation;
- (3) Minimum rip-rap thickness;
- (4) Type of bedding for stone;
- (5) Cross-section and plan views of the proposed installation;
- (6) Sufficient plans to clearly indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline; and
- (7) A description of anticipated turbulence, flows, restricted space, or similar factors that would render vegetative and diversion methods physically impractical.

(c) Applications to use rip-rap adjacent to great ponds or water bodies where the state holds fee simple ownership shall include a stamped surveyed plan showing the location of the normal high water shoreline and the footprint of the proposed project.

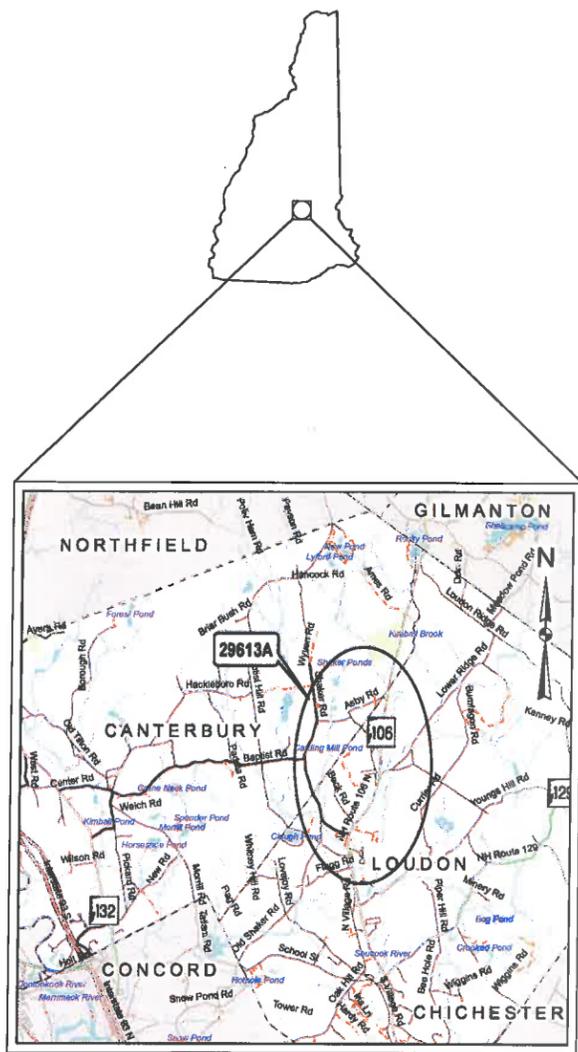
(d) Rip-rap shall be located shoreward of the normal high water shoreline, where practical, and shall not extend more than 2 feet lakeward of that line at any point.

(e) Stamped engineering plans shall be provided as part of any application for rip-rap in excess of 100 linear feet along the bank of a stream or river.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
WETLANDS PLANS
FEDERAL AID PROJECT

A004(458)
N.H. PROJECT NO. 29613A
NH ROUTE 106

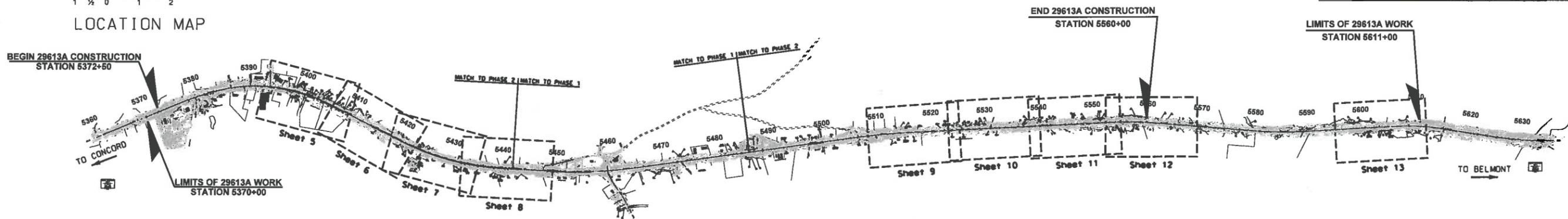
DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 15	17,200
AVERAGE DAILY TRAFFIC 20 35	20,700
PERCENT OF TRUCKS	8.5%
DESIGN SPEED	45
LENGTH OF PROJECT	3.6 MI



LOCATION MAP



	WETLANDS DELINEATED
	BY
	CHRISTINE PERRON
	OF McFARLAND JOHNSON JUNE-JULY 2016



INDEX OF SHEETS

- 1 FRONT SHEET
- 2-3 STANDARD SYMBOLS SHEETS
- 4-13 WETLAND IMPACT PLANS
- 14-28 EROSION CONTROL PLANS

TOWN OF LOUDON
COUNTY OF MERRIMACK

SCALE: 1" = 1,000'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

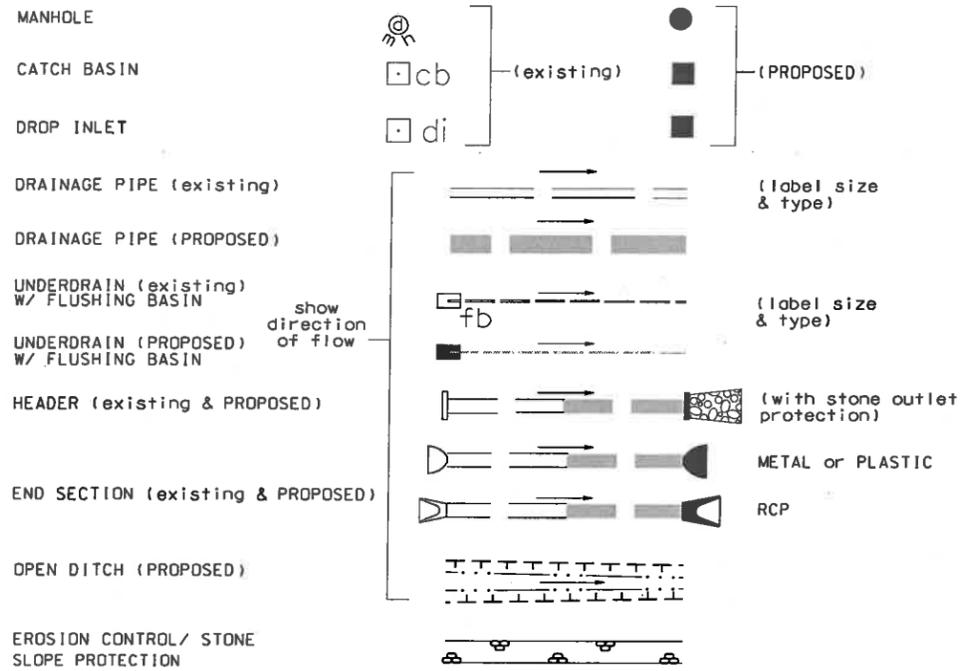
NH DOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:	
_____ DIRECTOR OF PROJECT DEVELOPMENT	_____ DATE
APPROVED:	
_____ ASSISTANT COMMISSIONER AND CHIEF ENGINEER	_____ DATE

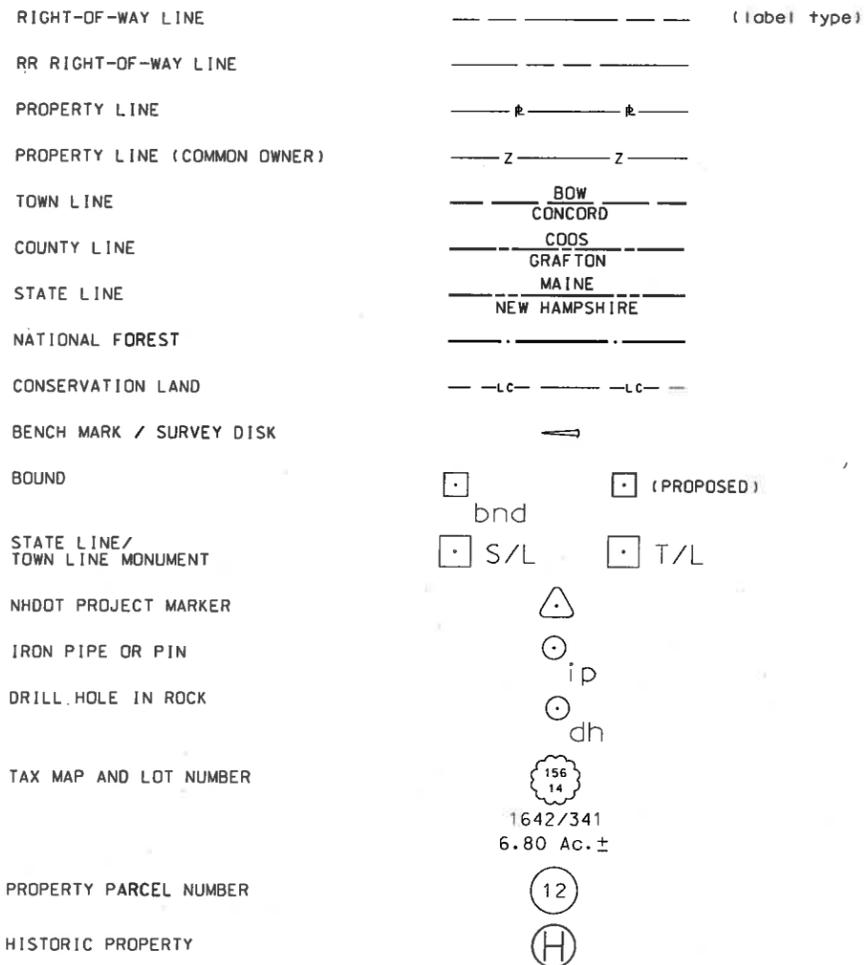
DRAWING NAME	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
29613Afsw	A004(458)	29613A	1	28

DRAWN BY: XX
 CHECKED BY: XX
 DATE: XX
 DATE: XX

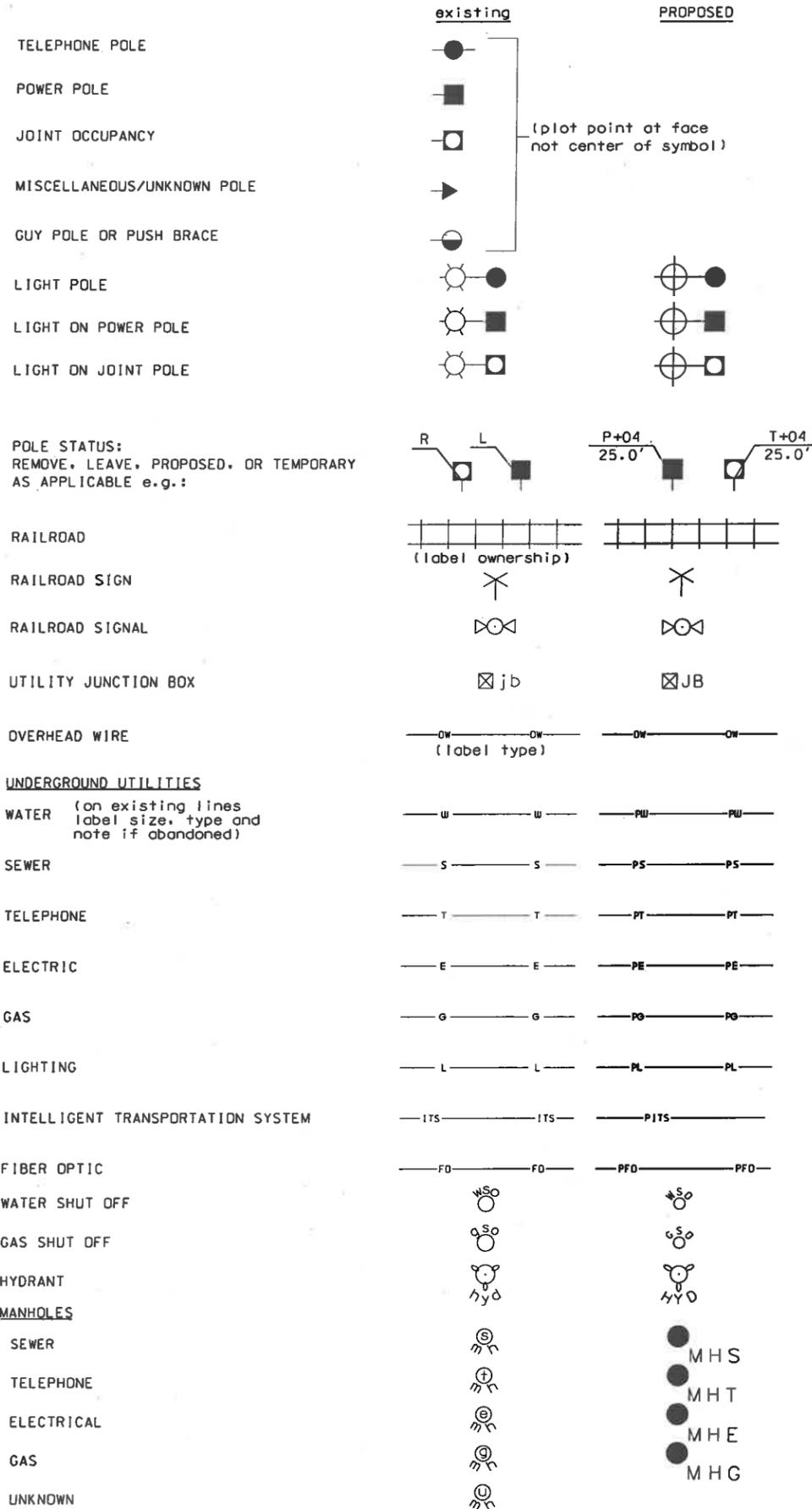
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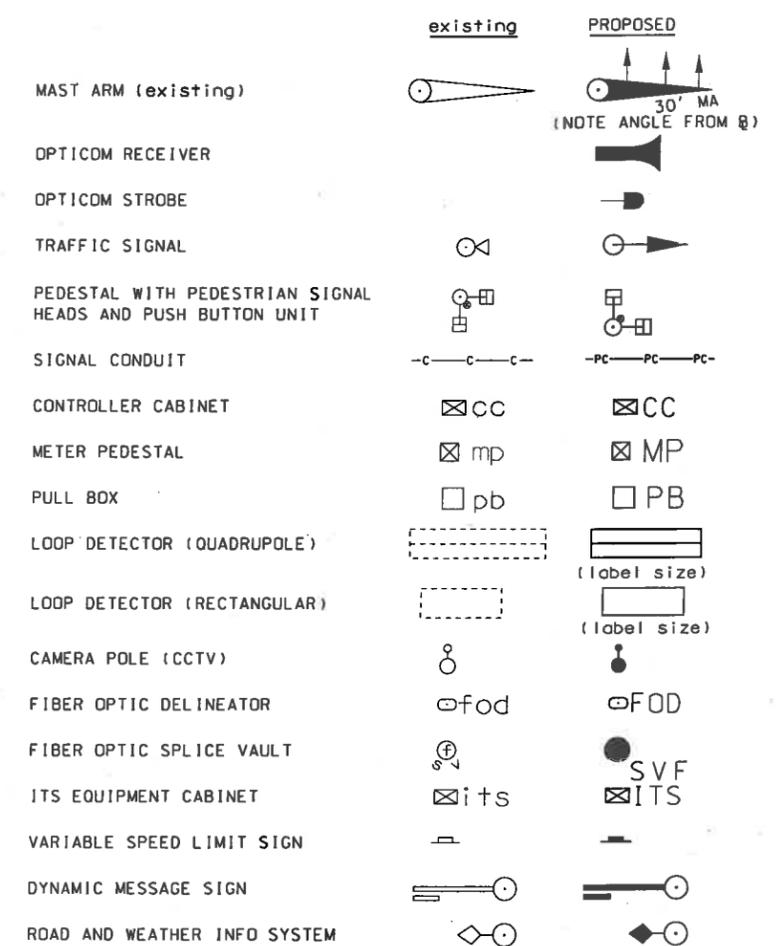
BOUNDARIES / RIGHT-OF-WAY



UTILITIES



TRAFFIC SIGNALS / ITS



CONSTRUCTION NOTES

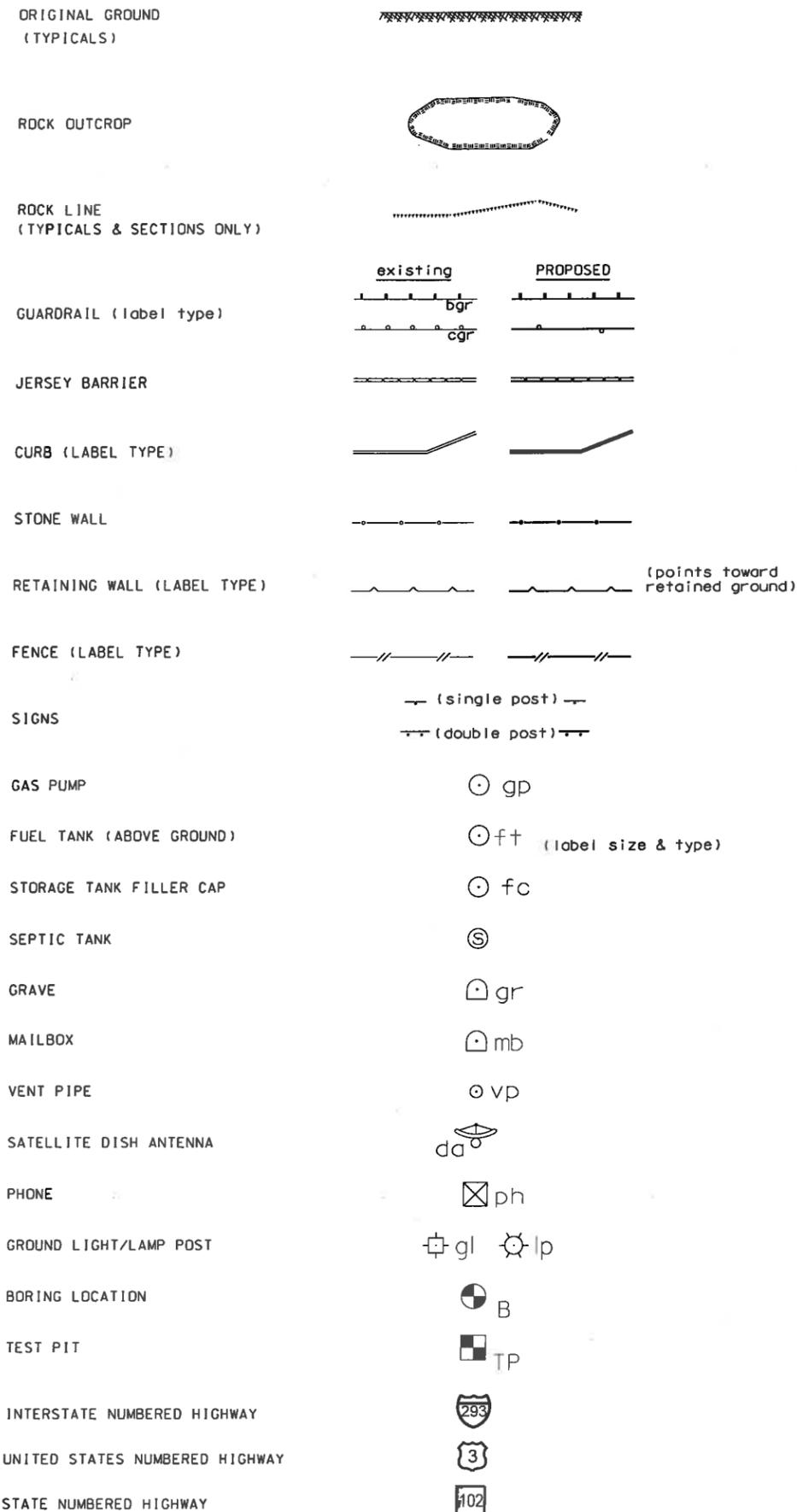
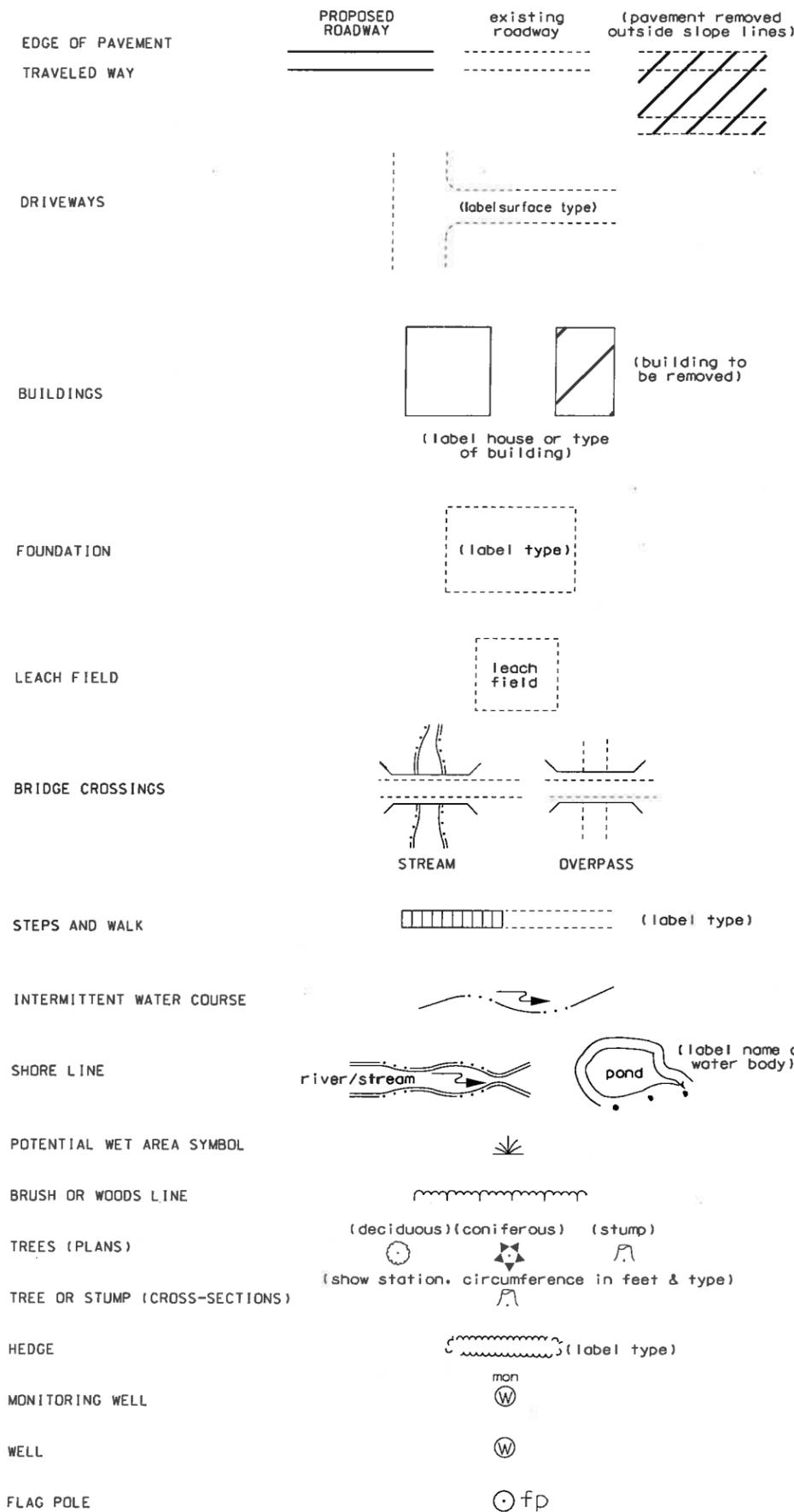
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- CURB MARK NUMBER - GRANITE G-1
- CLEARING AND GRUBBING AREA A
- DRAINAGE NOTE 1
- EROSION CONTROL NOTE A
- FENCING NOTE A
- GUARDRAIL NOTE 1
- ITS NOTE 1
- LIGHTING NOTE A
- TRAFFIC SIGNAL NOTE 1

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

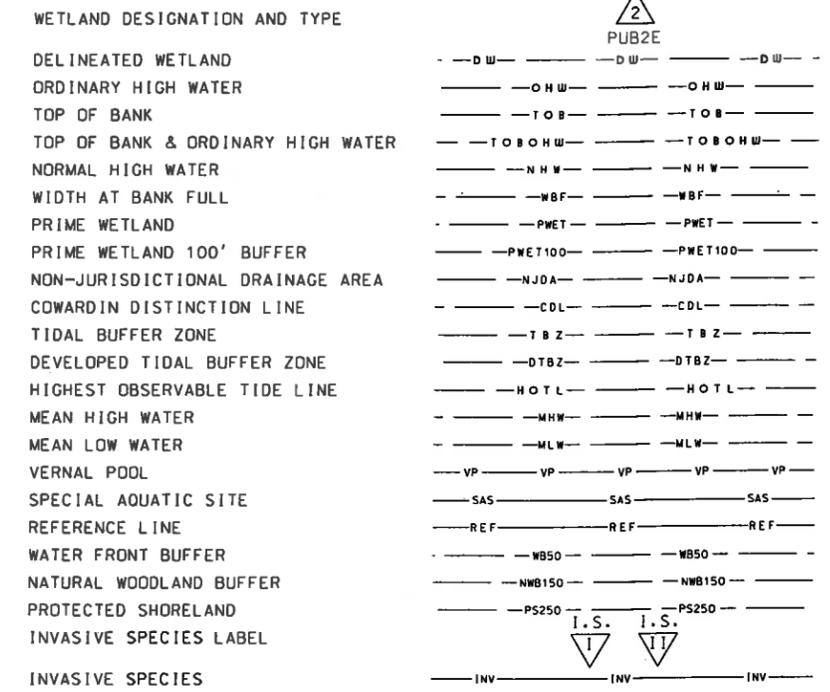
STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	s+dsymb1_2	29613A	2	28

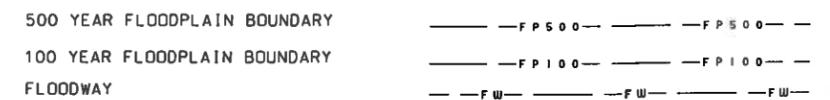
GENERAL



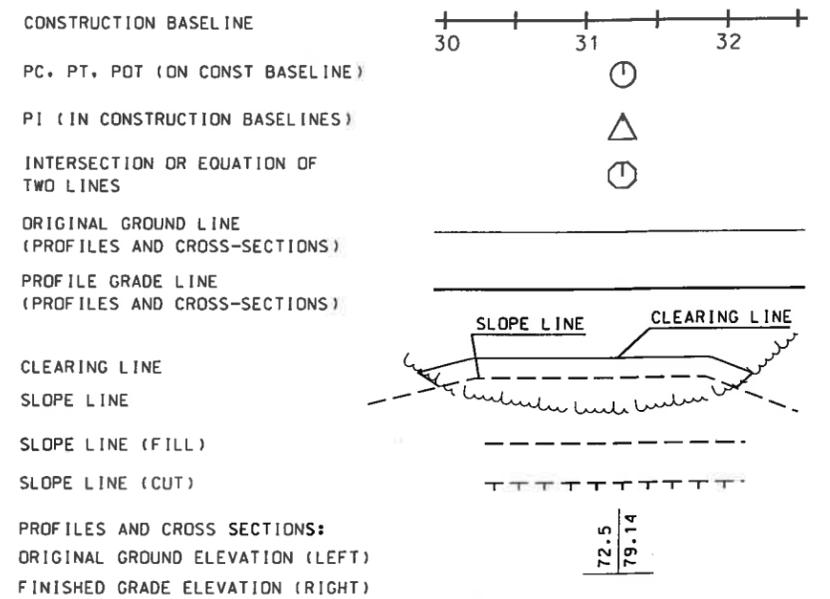
SHORELAND - WETLAND



FLOODPLAIN / FLOODWAY



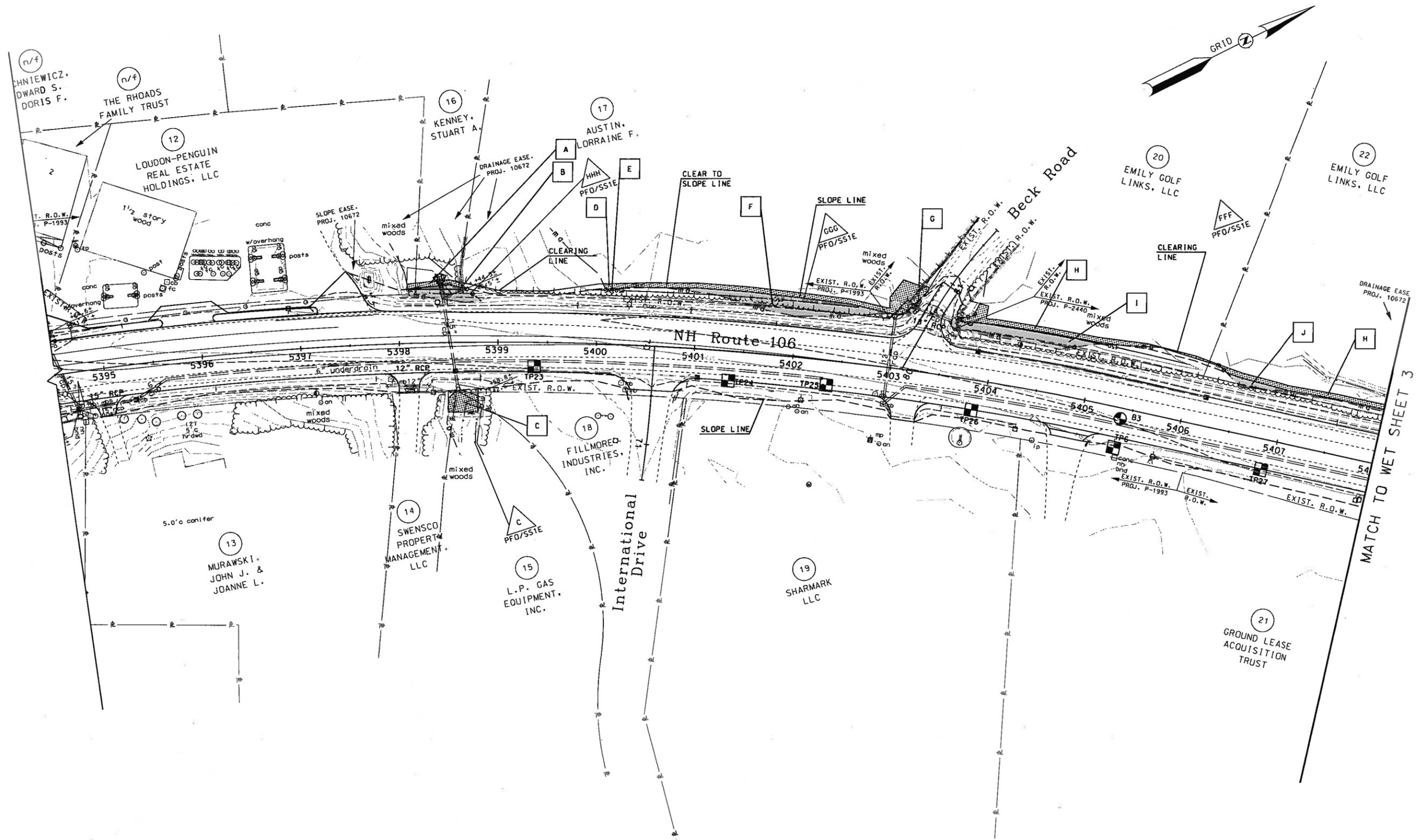
ENGINEERING



STATE OF NEW HAMPSHIRE				
LOUDDON				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
STANDARD SYMBOLS				
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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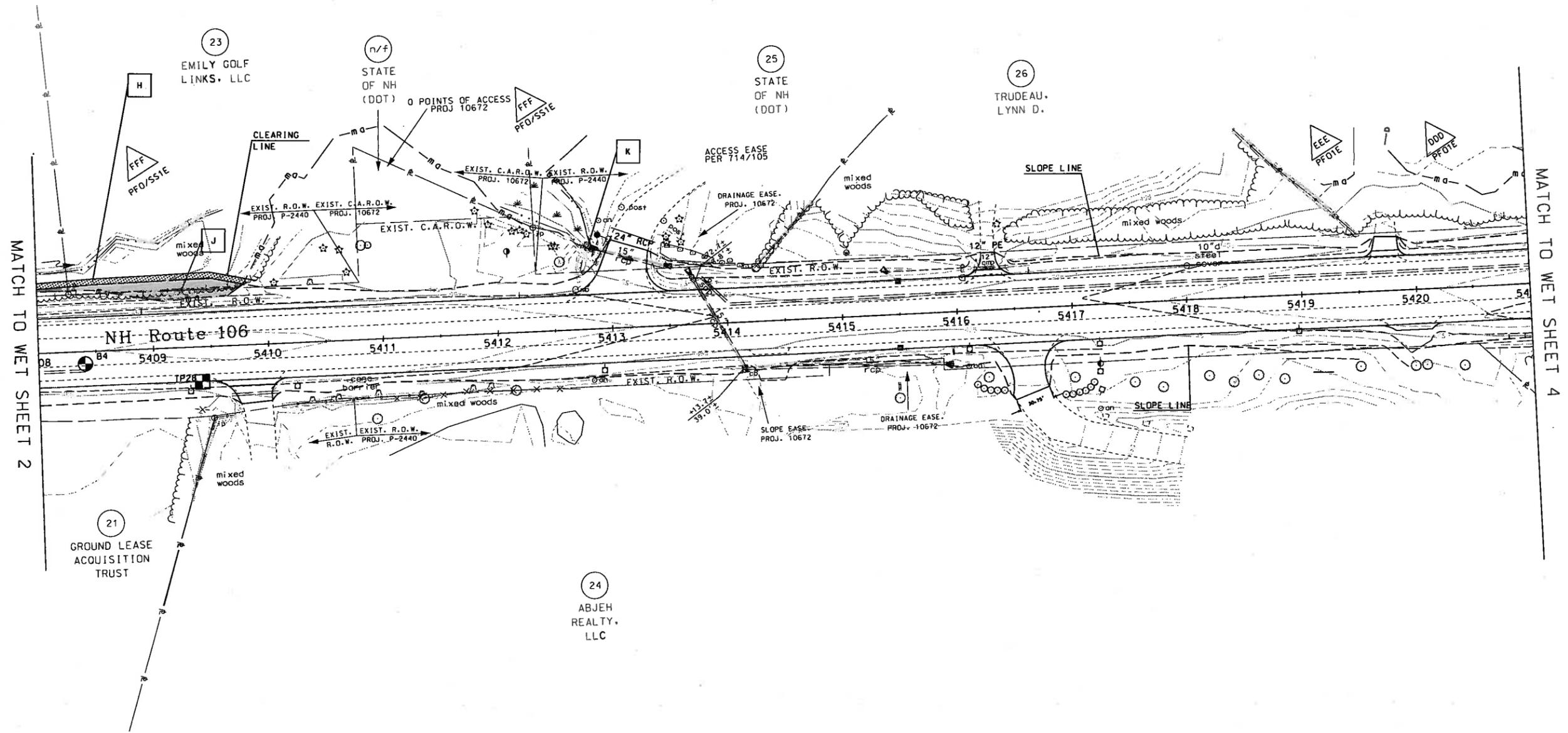
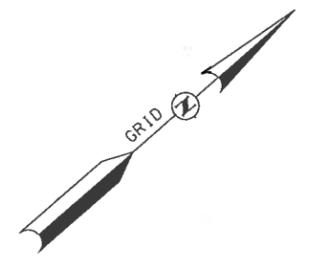
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STATION	
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STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
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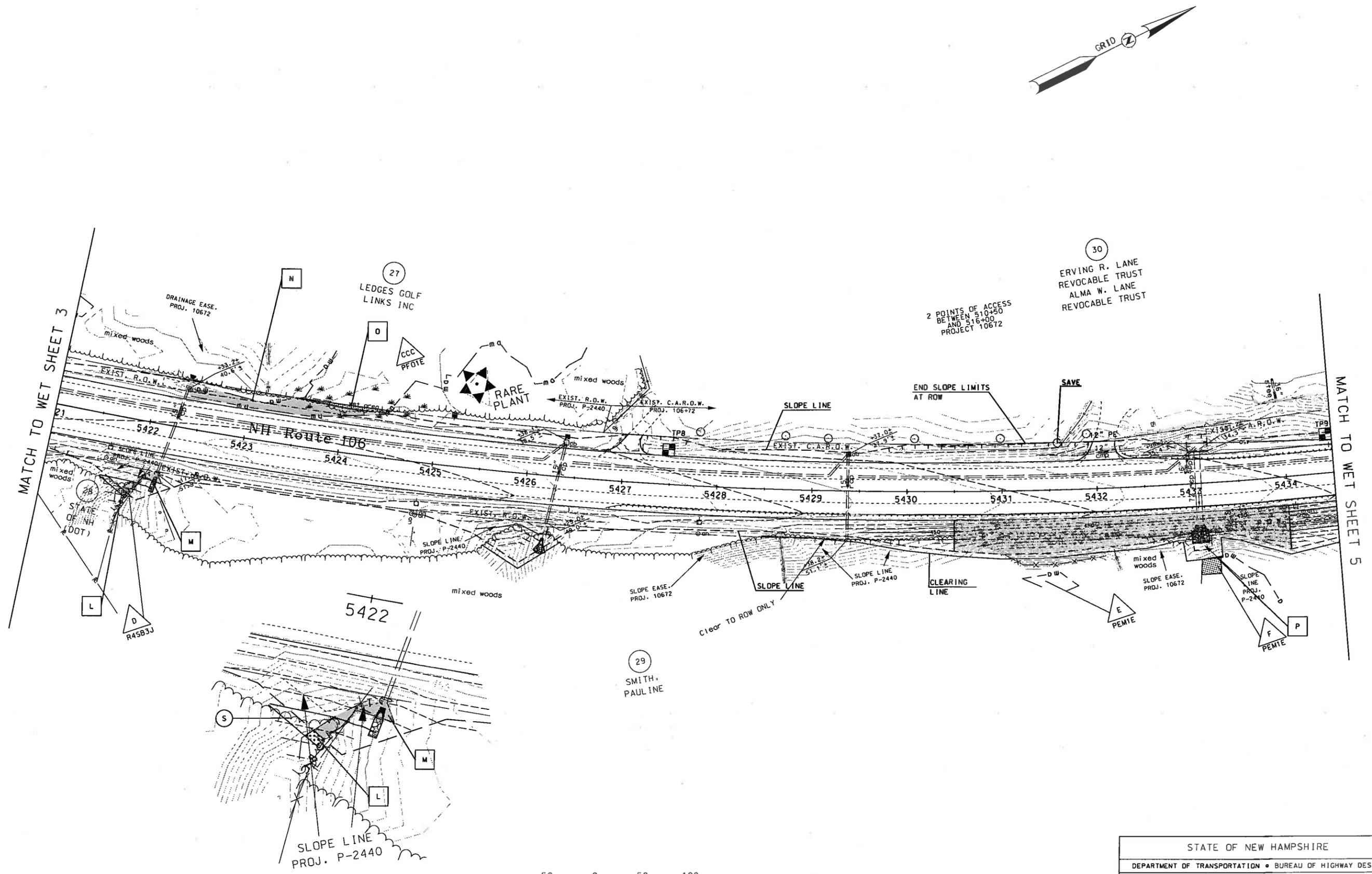
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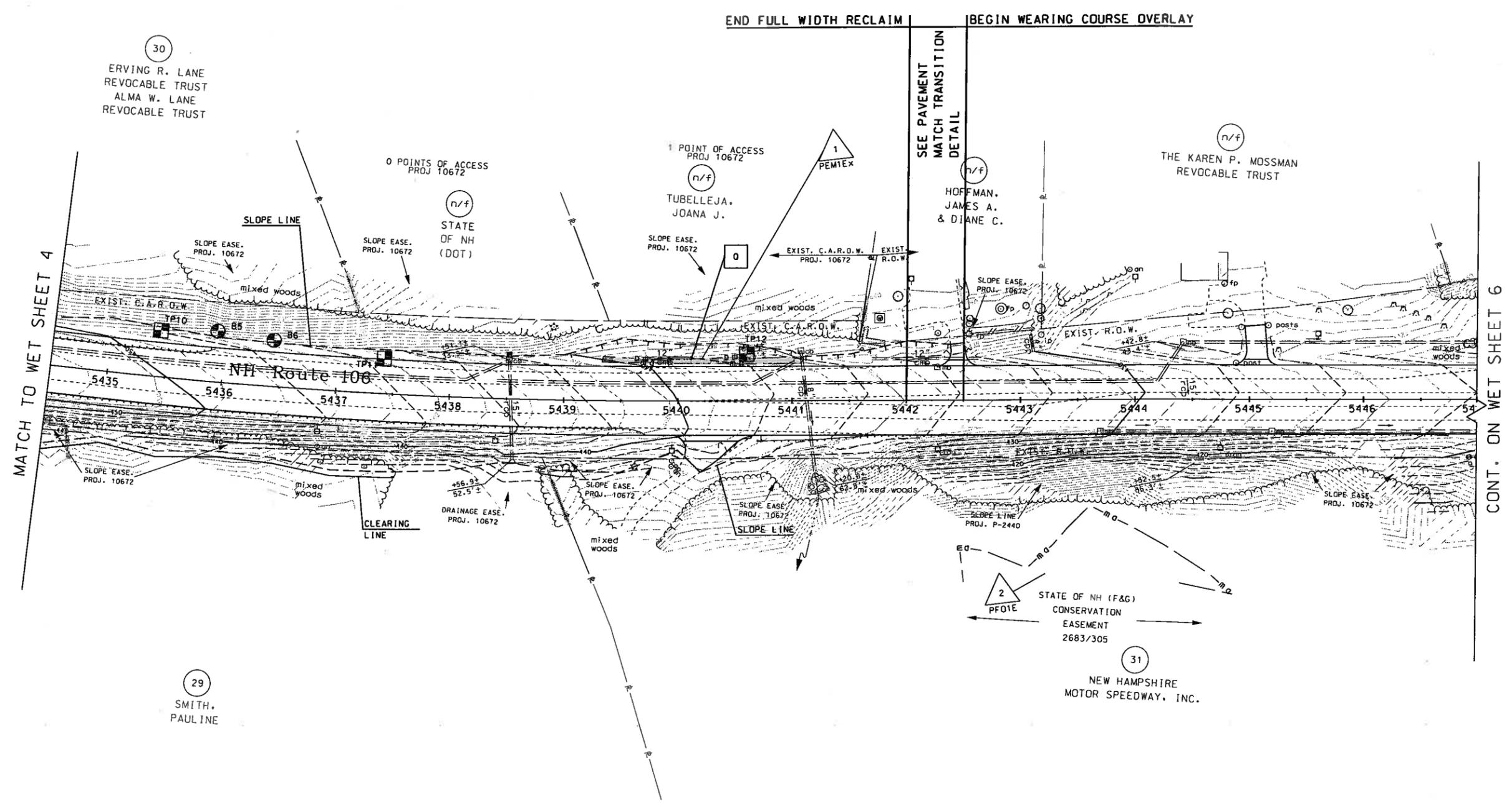
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NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	
REVISIONS AFTER PROPOSAL	STATION	DATE	DESCRIPTION



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
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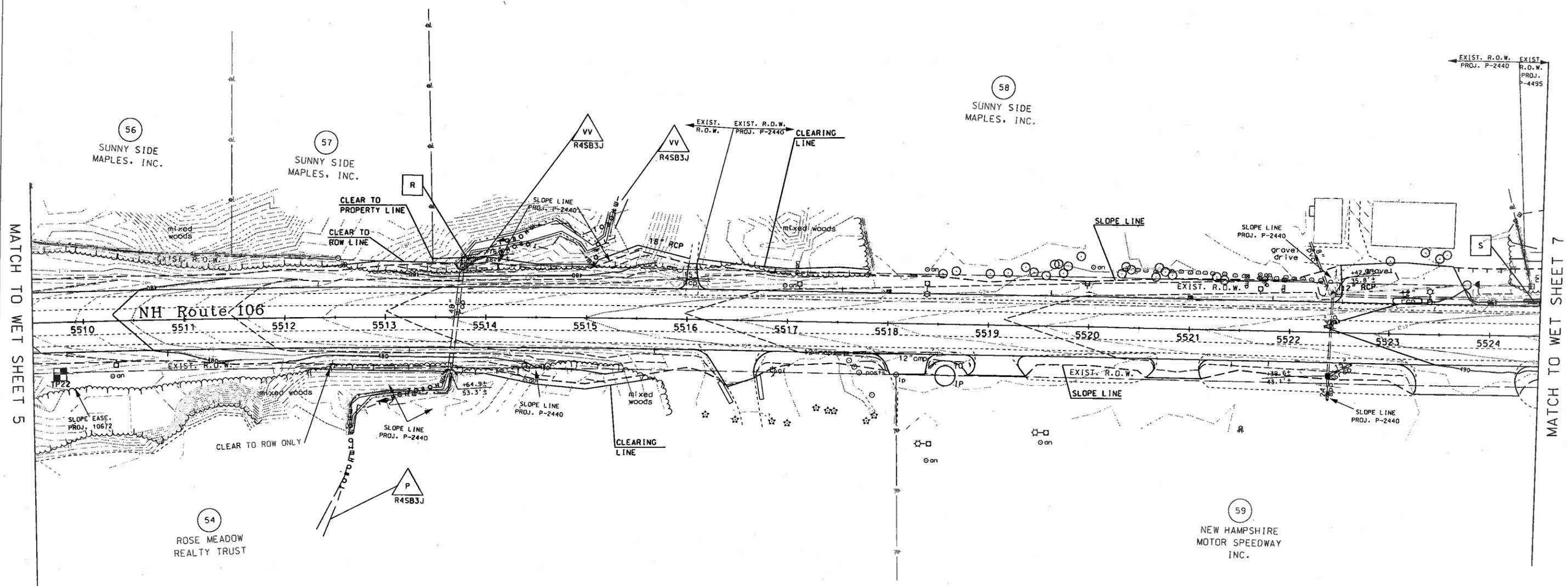
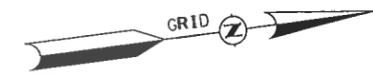
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REVISIONS AFTER PROPOSAL	DESCRIPTION	STATION	DATE



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
WETLAND IMPACT PLANS				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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NEW DESIGN	NAME2	DATE	DATE2
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REVISIONS AFTER PROPOSAL	DESCRIPTION
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STATION	
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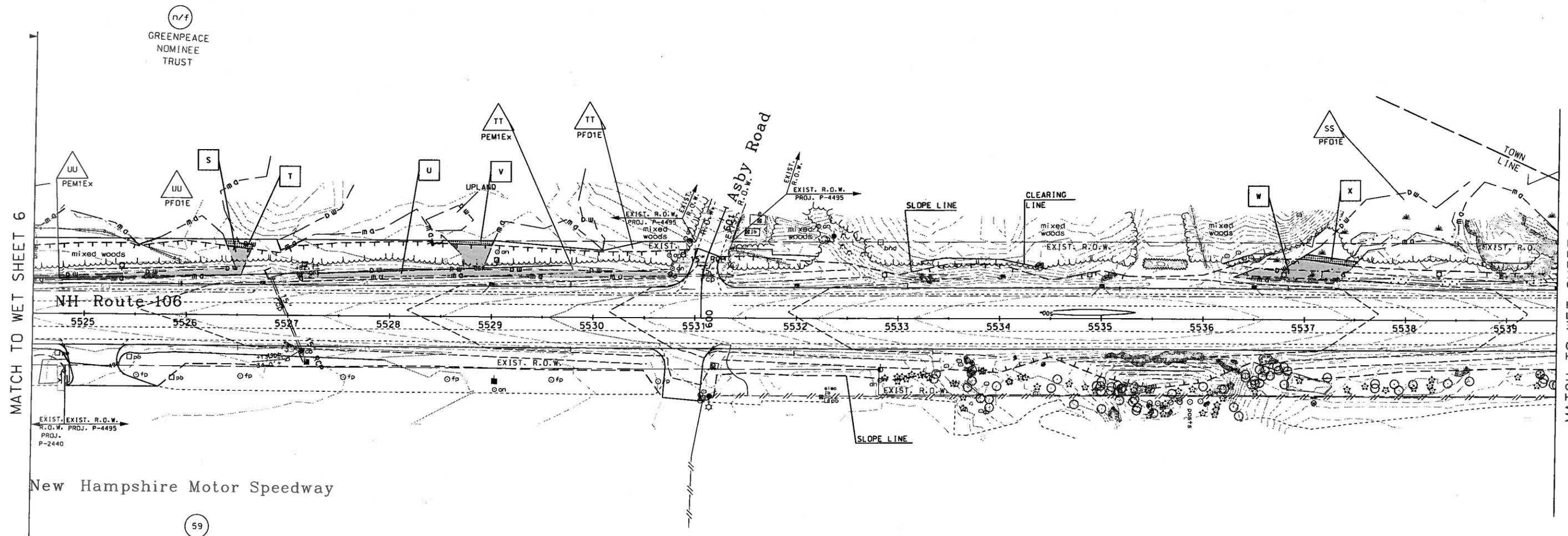
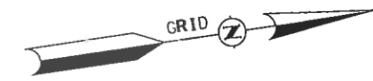
MATCH TO WET SHEET 5

MATCH TO WET SHEET 7



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
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MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
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MATCH TO WET SHEET 6

MATCH TO WET SHEET 8

(n/f)
GREENPEACE
NOMINEE
TRUST

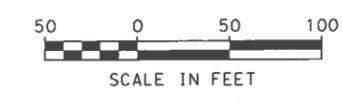
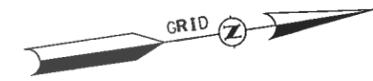
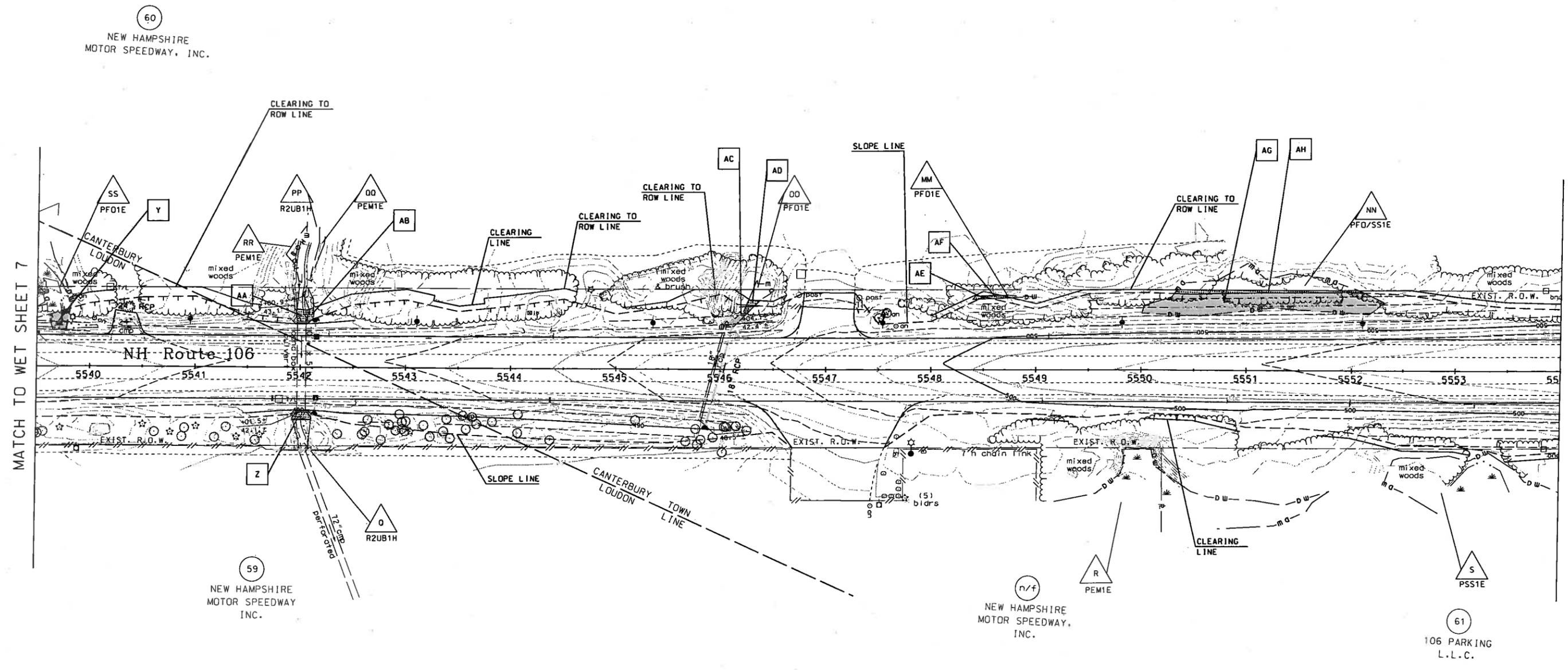
(59)
NEW HAMPSHIRE
MOTOR SPEEDWAY
INC.



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
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MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
WETLAND IMPACT PLANS				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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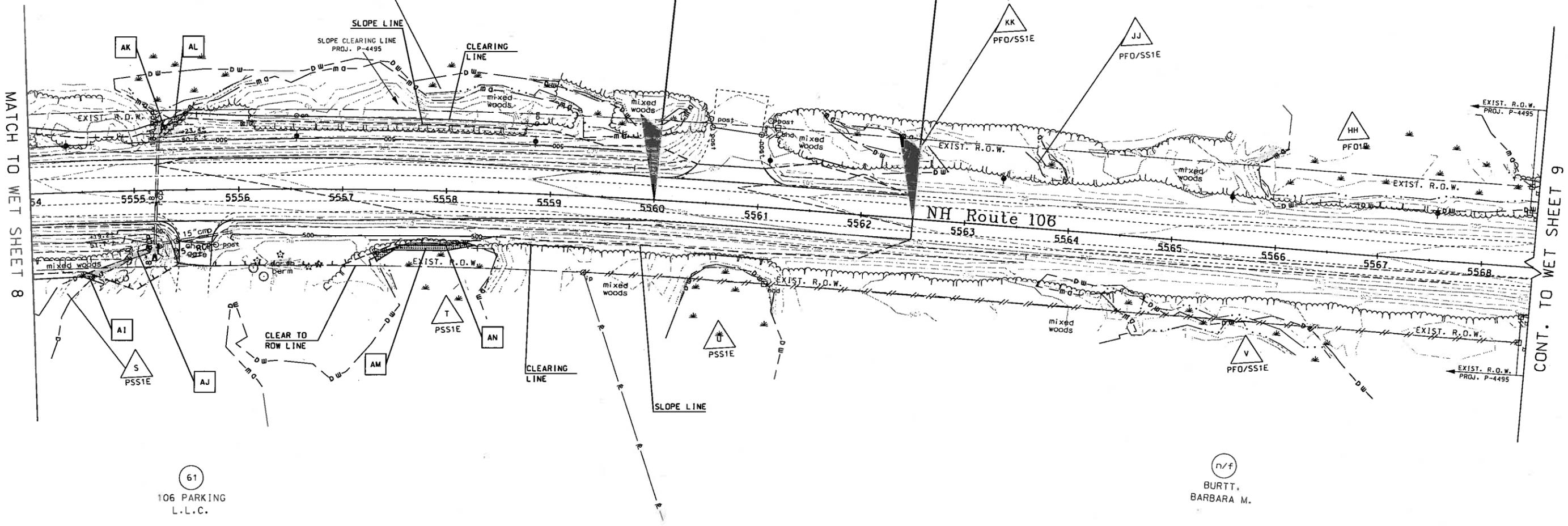
REVISIONS AFTER PROPOSAL	DESCRIPTION
STATION	
STATION	
DATE	
NUMBER	



**END CONSTRUCTION
STATION 5560+00**

**LIMITS OF WORK
STATION 5562+50**

60
NEW HAMPSHIRE
MOTOR SPEEDWAY, INC.



61
106 PARKING
L.L.C.

n/f
BURTT,
BARBARA M.

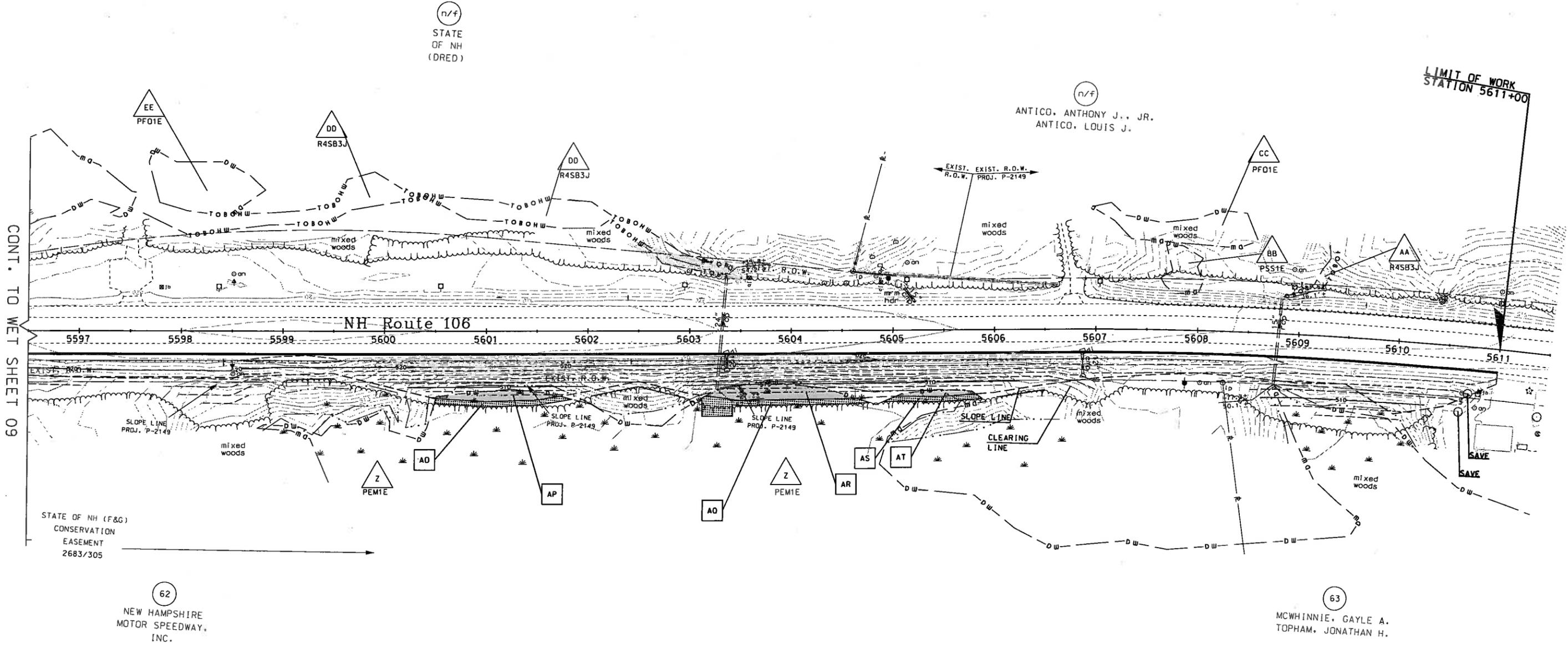


STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
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MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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MATCH TO WET SHEET 8

CONT. TO WET SHEET 9

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	



CONT. TO WET SHEET 09

LIMIT OF WORK
STATION 5611+00



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
WETLAND IMPACT PLANS				
MODEL	DCN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET10	29613Awg†	29613A	13	28

REVISIONS AFTER PROPOSAL	DESCRIPTION
STATION	
STATION	
DATE	
NUMBER	

(n/f)
STATE
OF NH
(DRED)

(n/f)

ANTICO, ANTHONY J., JR.
ANTICO, LOUIS J.

STATE OF NH (F&G)
CONSERVATION
EASEMENT
2683/305

(62)
NEW HAMPSHIRE
MOTOR SPEEDWAY,
INC.

(63)
MCWHINNIE, GAYLE A.
TOPHAM, JONATHAN H.

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 30th AND MAY 1st 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 15th, OR WHICH ARE DISTURBED AFTER OCTOBER 15th, 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 15th, OR WHICH ARE DISTURBED AFTER OCTOBER 15th, SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
 - (C) AFTER NOVEMBER 30th 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 CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WO 1505.02 AND ENV-WO 1505.05.
 - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WO 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30th.

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 1st THROUGH NOVEMBER 30th, OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
 - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
 - 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
 - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
 - 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
 - 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
6. PROTECT SLOPES:
 - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
 - 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
 - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
 - 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
 - 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
 - 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
8. PROTECT STORM DRAIN INLETS:
 - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
 - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
 - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
 - 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
9. SOIL STABILIZATION:
 - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
 - 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
 - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
 - 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
 - 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-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 ²				ROLLED EROSION CONTROL BLANKETS ³			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNCSB	DNCB
SLOPES ¹												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES	YES	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNCSB	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.

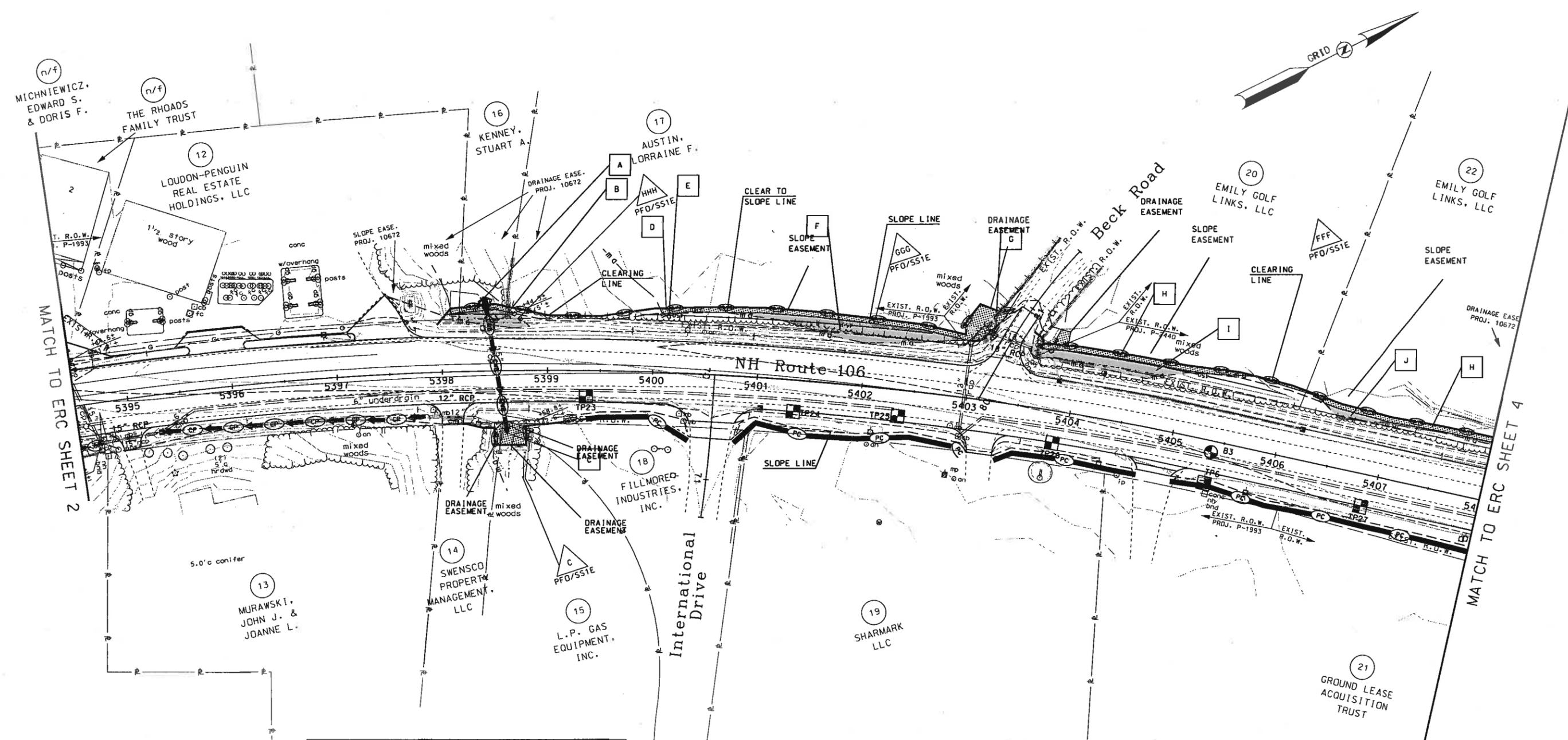
STATE OF NEW HAMPSHIRE
LEDDON
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

EROSION CONTROL STRATEGIES

REVISION DATE	DCN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	29613Aerc	29613A	14	28

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL	DESCRIPTION
STATION	
STATION	
DATE	
NUMBER	

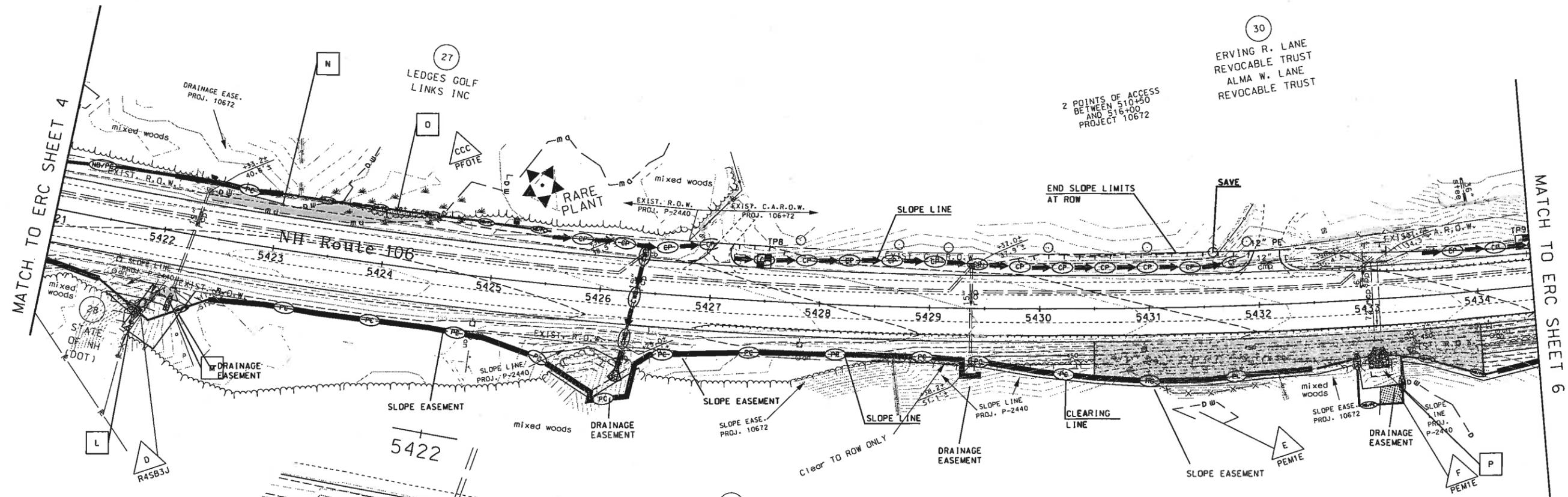
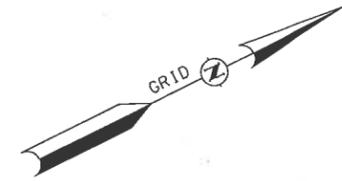


EROSION CONTROL PLAN LEGEND	
	PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	NATURAL BUFFER/PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	CHANNEL PROTECTION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



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
EROSION CONTROL PLANS				
SHEET 3				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC03	29613Aerc	29613A	17	28

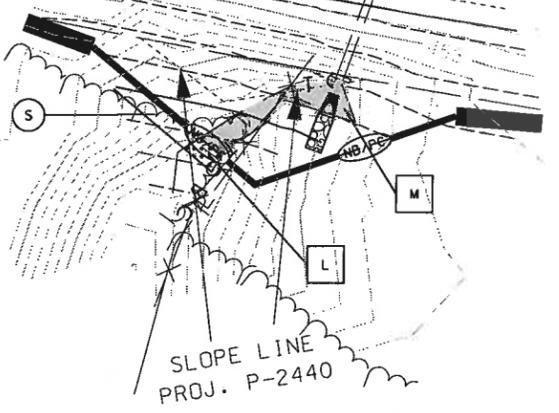
SDR PROCESSED	NAME1	DATE	DATE1	AS BUILT DETAILS
NEW DESIGN	NAME2	DATE	DATE2	
SHEET CHECKED	NAME3	DATE	DATE3	
REVISIONS AFTER PROPOSAL	DESCRIPTION	STATION	STATION	DATE



2 POINTS OF ACCESS
BETWEEN 510+50
AND 516+00
PROJECT 10672

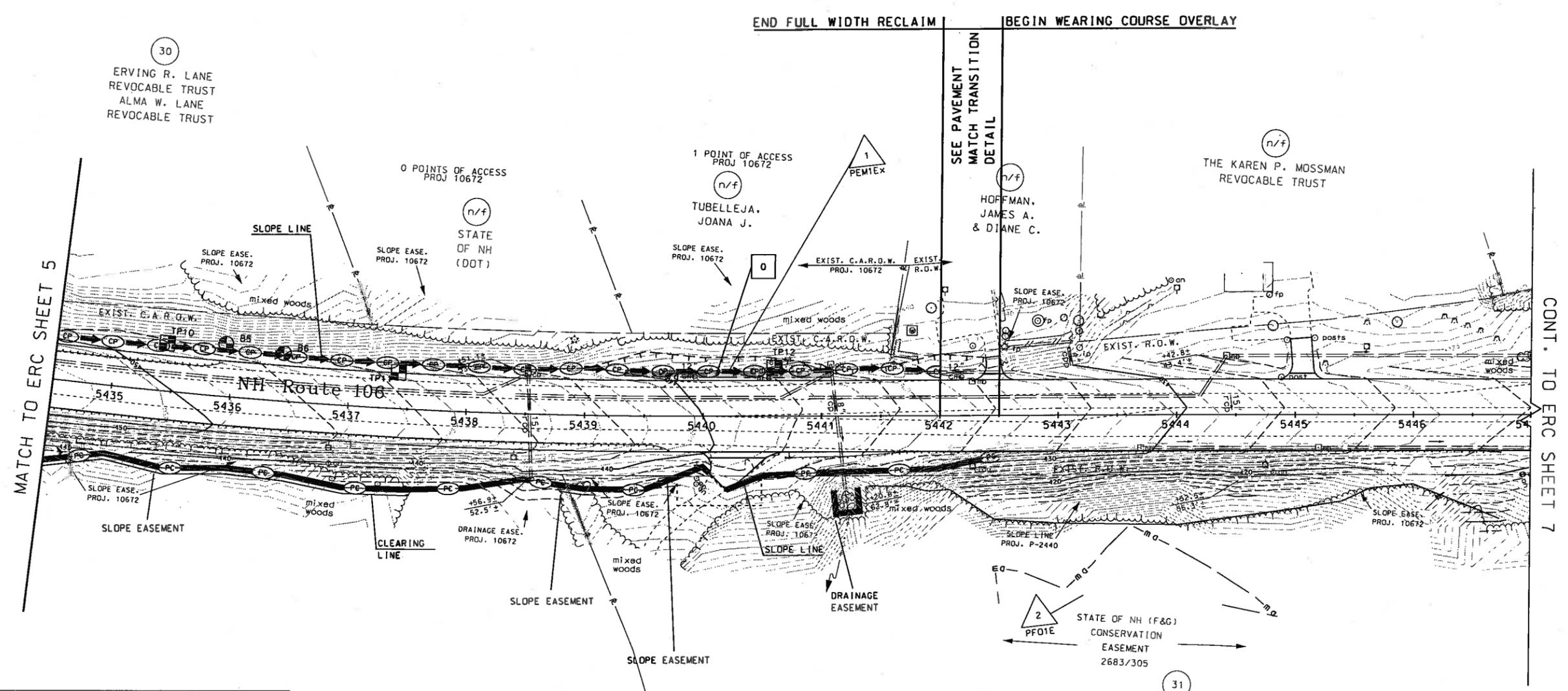
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ERVING R. LANE
REVOCABLE TRUST
ALMA W. LANE
REVOCABLE TRUST

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



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
EROSION CONTROL PLANS				
SHEET 5				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC05	29613Aerc	29613A	19	28

SDR PROCESSED	NAME1	DATE	DATE1	AS BUILT DETAILS
NEW DESIGN	NAME2	DATE	DATE2	
SHEET CHECKED	NAME3	DATE	DATE3	
REVISIONS AFTER PROPOSAL	DESCRIPTION	STATION	STATION	DATE

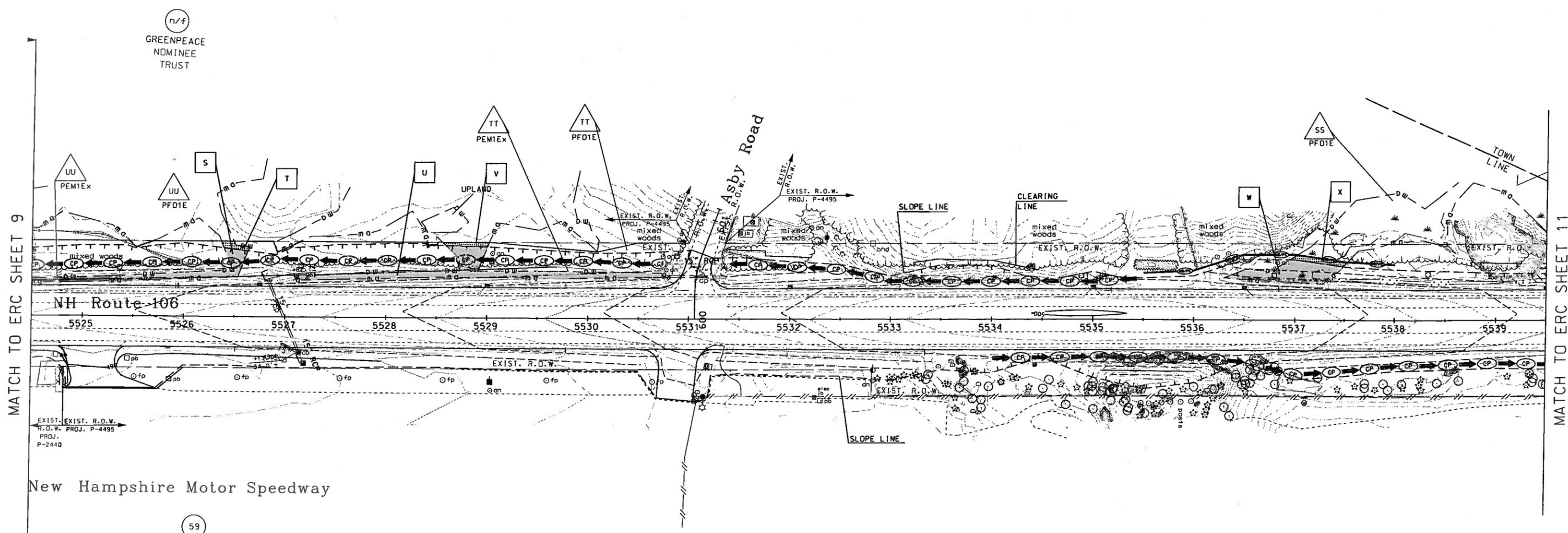
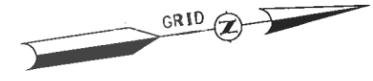


EROSION CONTROL PLAN LEGEND	
	PERIMETER CONTROL SMITH, PAULINE
	NATURAL BUFFER/PERIMETER CONTROL
	CHANNEL PROTECTION STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
	CLEAN WATER BYPASS PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
EROSION CONTROL PLANS				
SHEET 6				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC06	29613Aerc	29613A	20	28

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	



MATCH TO ERC SHEET 9

MATCH TO ERC SHEET 11

New Hampshire Motor Speedway

59
NEW HAMPSHIRE
MOTOR SPEEDWAY
INC.

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



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

**EROSION CONTROL PLANS
SHEET 13**

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC10	29613Aerc	29613A	24	28

