STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: May 13, 2024

FROM: Joshua Brown
Wetlands Program Specialist

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Shoreland Application
Andover, 40392

TO Calvin Diessner, Shoreland Section Supervisor,
Land Resources Management Water Division,
NH Department of Environmental Services
P.O. Box 95 Concord, NH 03302-0095

Forwarded herewith is the Shoreland application package prepared by NH DOT Bureau of Bridge Design. The proposed project involves the replacement of the existing bridge (Bridge No. 143/077) that carries US Route 4 over the Blackwater River in the Town of Andover. Proposed work includes the replacement of the existing 70-foot span bridge with a 104-foot span bridge (100.5-foot clear span). The new abutments will be constructed behind the existing abutments. The bridge will be widened 8 feet and approximately 500 feet of roadway widening will occur at each end of the bridge. The roadway will also be raised 4.5 feet near the bridge. In addition, an existing farm access driveway will be relocated further west and a stormwater treatment swale is proposed in the northwest bridge quadrant.

This project also has a pending Standard Dredge and Fill Wetlands Application that was submitted to NHDES on 5/3/2024.

The lead people to contact for this project are Jason Tremblay, Bureau of Bridge Design (271-2731 or jason.a.tremblay@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-3226 or Andrew.O'Sullivan@dot.nh.gov).

A payment voucher has been processed for this application (Voucher # 756038) in the amount of $3,750.00.

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

JRB;
cc:
BOE Original
Town of Andover (4 copies via certified mail)
Kevin Nyhan, BOE (via electronic notification)
Karl Benedict, NHDES (via electronic notification)

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US Route 4 over the Blackwater River

Bridge Replacement

Andover 40392

NHDES SHORELAND PERMIT APPLICATION

Submitted for:

NH Department of Transportation
7 Hazen Drive
Concord, NH 03302

Prepared by:

GM2 Associates, Inc.
197 Loudon Road, Suite 310
Concord, NH 03301

May 2024

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SHORELAND PERMIT APPLICATION

Water Division / Wetlands Bureau

Check Application Status

RSA / Rule: RSA 483-B, Env-Wq 1400

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

This is an application for a permit to excavate, fill, construct new structures, or remove structures within the protected shoreland regulated under RSA 483-B. By providing your email address, you authorize NHDES to communicate all matters relative to this filing electronically, using your email address.

SECTION 1 - PROJECT DESCRIPTION (Env-Wq 1406.07)

Please concisely describe your proposed project:

The proposed project involves the replacement of the existing bridge (Bridge No. 143/077) that carries US Route 4 over the Blackwater River in the Town of Andover. Proposed work includes the replacement of the existing 70-foot span bridge with a 104-foot span bridge. The bridge will be widened 8 feet and approximately 500 feet of roadway widening will occur at each end of the bridge. The roadway will also be raised 4.5 feet near the bridge. In addition, an existing farm access driveway will be relocated further west and a stormwater treatment swale is proposed in the northwest bridge quadrant. The bridge will be closed during construction and traffic will be detoured. Additional project information is attached.

SECTION 2 - PROJECT LOCATION (Env-Wq 1406.07)

ADDRESS: US Route 4 over the Blackwater River	TOWN/CITY: Andover	STATE:NH	ZIP CODE: 03216
WATERBODY NAME: Blackwater River	TAX MAP/ BLOCK/LOT NUMBER: N/A (right-of-way)		

SECTION 3 - PROPERTY OWNER AND DEED INFORMATION (Env-Wq 1406.07)

The legal name of each property owner must be as it appears on the deed of record. If the owner is a trust or a company, write the name of the trust or company as the owner's name.

LAST NAME, FIRST NAME, M.I: NH Department of Transportation (Contact: Jason Tremblay, PE)			
MAILING ADDRESS: PO Box 483	TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03302
PHONE: 603-271-2731	EMAIL (if available): jason.a.tremblay@dot.nh.gov		
REGISTRY OF DEED COUNTY	BOOK NUMBER	PAGE NUMBER	

SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER), IF DIFFERENT THAN OWNER (Env-Wq 1406.07)

If the applicant is a trust or a company, write the name of the trust or company as the applicant's name. If the applicant is the owner, please leave blank and check the following box: ■

LAST NAME, FIRST NAME, M.I:			
MAILING ADDRESS:	TOWN/CITY:	STATE:	ZIP CODE:
PHONE:	EMAIL (if available):		

SECTION 5 - CONTRACTOR OR AGENT (OPTIONAL)

LAST NAME, FIRST NAME, M.I: Riordan, Jennifer, M			
ADDRESS: 197 Loudon Road, Suite 310	TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03301
PHONE: 603-856-7854	EMAIL (if available): jriordan@gm2inc.com		

SECTION 6 - CRITERIA (Env-Wq 1406.07)

Please check at least one of the following:

☐ This shoreland permit application requires neither a proposal to make the property more nearly conforming nor a request for a waiver of a minimum standard.

☐ This shoreland permit application includes a proposal to make the structures and/or the property more nearly conforming in accordance with RSA 483-B:11.

■ This shoreland permit application includes a request for a waiver of the following minimum standard(s): RSA 483-B:9, V.

SECTION 7 - RELATED PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT (Env-Wq 1406.14)

Please indicate if you also require the following permits. If so, please indicate the status of your permit application.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain per RSA 485-A:17	☐ YES ☑ NO		☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:29	☐ YES ■ NO		☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval per RSA 485-A:29	☐ YES ■ NO		☐ APPROVED ☐ PENDING ☐ DENIED
Wetlands Permit per RSA 482-A	■ YES ☐ NO		☐ APPROVED ■ PENDING ☐ DENIED

SECTION 8 - REFERENCE LINE ELEVATION (Env-Wq 1406.07)

Required for projects located on the protected shoreland of lakes or ponds. The reference line elevations for most lakes, ponds, and artificial impoundments greater than 10 acres are listed in the Consolidated List of Waterbodies Subject to the Shoreland Water Quality Protection Act. See RSA 483-B:4, XVII for the definition of reference line.

REFERENCE LINE ELEVATION (feet above sea level):

SECTION 9 - APPLICATION FEE & SUBMITTAL (RSA 483-B:5-b, I(b); RSA 483-B:5-b, X)

A nonrefundable permit application fee of $200 plus $0.20 per total square feet of impact for restoration of water quality improvement projects, or $400 plus $0.20 per total square feet of impact for all other projects is required at the time the application is submitted. *Applications for projects solely funded by municipal, county, state, or federal entities shall incur a permitting fee no greater than $3,750.*

To mail or hand deliver this application and all required attachments to the NHDES Wetlands Bureau, please use PO Box 95, Concord, NH 03302-0095. Missing information may delay your shoreland permit application and may result in denial. *If paying by check or money order, please make payable to the Treasurer, State of New Hampshire.*

SECTION 10 - CALCULATING TOTAL IMPACT AREA / PERMIT APPLICATION FEE (RSA 483-B:5-b, I(b); RSA 483-B:5-b, X)

Calculate total impact area by determining the sum of all areas disturbed by regrading, excavating, filling, construction or structure removal. Impacts often include, but are not limited to constructing new driveways, constructing new structures, areas disturbed when installing septic systems and foundations, creating temporary access roads to drill a new well and regrading associated with landscaping activities.

TOTAL AREA IMPACTED WITHIN THE PROTECTED SHORELAND = 41,804 **(A) square feet**

- *For restoration of water quality improvement projects:*
  Multiply line (A) by $0.20 **and** add $200. **[(A) × $0.20 + $200]** = $ **Permit fee**[1]
- *For all other projects:*
  Multiply line (A) by $0.20 **and** add $400. **[(A) × $0.20 + $400]** = $3,750 **Permit fee**

SECTION 11 - REQUIRED CERTIFICATIONS (Env-Wq 1406.08; Env-Wq 1406.10(a))

By initialing each of the following statements, and signing below, you are certifying that:

Initials: JAT	The information provided is true, complete, and not misleading to my knowledge and belief.
Initials: JAT	I understand that: • Any permit or waiver granted based on false, incomplete, or misleading information shall be subject to revocation. • I am subject to the applicable penalties in RSA 641, Falsification in Official Matters. • Obtaining a shoreland permit shall not exempt the work proposed from other state, local, or federal approvals.
Initials: JAT	I have notified the governing body of the municipality or municipalities in which the property is located by certified mail, in accordance with Env-Wq 1406.13.
Initials: N/A	I have notified all abutters[2] of the proposed impacts via certified mail, in accordance with Env-Wq 1406.13.
Initials: N/A	☐ This project is within one-quarter mile of a designated river, and I have provided the Local River Management Advisory Committee (LAC) with a copy of my complete application, including all supporting materials, via certified mail, in accordance with Env-Wq 1406.13. ☒ This project is *not* within one-quarter mile of a designated river.
Initials: N/A	For any project proposing that the impervious area be at least 15% but not more than 20% within the protected shoreland, I certify that the impervious area is not more than 20%. ☒ N/A

SECTION 12 - REQUIRED SIGNATURES (Env-Wq 1406.08)

Both the property owner and applicant must sign.

SIGNATURE (OWNER):	PRINT NAME LEGIBLY:	DATE:
Jason A. Tremblay	Jason Tremblay	05/06/2024
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER):	PRINT NAME LEGIBLY:	DATE:

[1] Projects solely funded by municipal, county, state, or federal entities shall incur a permit application fee no greater than $3,750.

[2] "Abutter" means any person who owns property immediately contiguous to the property on which the proposed work will take place, or who owns flowage rights on such property. The term does not include properties separated by a public road or located more than ¼ mile from the limits of the proposed work. If contiguous properties are owned by the person who is proposing the work, then the term includes the person owning the next contiguous property, subject to the ¼ mile limitation.

SHORELAND PERMIT APPLICATION WORKSHEET

You must include this worksheet with every shoreland permit application. Include a separate worksheet for each individual lot of record where impacts are proposed.

In this worksheet, "pre-construction" impervious surface area[3] means all human-made impervious surfaces[4] currently present within the protected shoreland of a lot, whether to be removed or to remain after the project is completed. "Post-construction" impervious area means all impervious surfaces that will exist within the protected shoreland of a lot upon completion of the project, including both new and any remaining pre-construction impervious surfaces. All answers must be in square feet.

Calculating Impervious Area

CALCULATING THE IMPERVIOUS AREA OF A LOT WITHIN 250 FEET OF THE REFERENCE LINE (Env-Wq 1406.12)			
	STRUCTURE DESCRIPTION	**PRE-CONSTRUCTION IMPERVIOUS AREAS**	**POST-CONSTRUCTION IMPERVIOUS AREAS**
PRIMARY STRUCTURE(S) House and all attached decks and porches.	N/A	0 FT^2	0 FT^2
ACCESSORY STRUCTURES All other impervious surfaces excluding lawn furniture, well heads, and fences. Common accessory structures may include driveways, walkways, patios and sheds.	Roadway	13,019 FT^2	16,110 FT^2
	Farm access driveway	0 FT^2	2,695 FT^2
		FT^2	FT^2
		FT^2	FT^2
		FT^2	FT^2
		FT^2	FT^2
	TOTAL:	**(A)** FT^2 013,019	**(B)** FT^2 18,805
Area of the lot located within 250 feet of reference line:			**(C)** FT^2 57,090
Percentage of lot covered by pre-construction impervious area within 250 feet of the reference line: *[divide (A) by (C) x 100]*			**(D) %** 23
Percentage of lot to be covered by post-construction impervious area within 250 feet of the reference line upon completion of the project: *[divide (B) by (C) x 100]*			33 **(E) %**

[3] **"Impervious surface area"** as defined in Env-Wq 1402.13 means, for purposes of the impervious surface limitation specified in RSA 483-B:9, V(g), the total footprint of each impervious surface that is located within the protected shoreland.

[4] **"Impervious surface"** as defined in RSA 483-B:4, VII-b means any modified surface that cannot effectively absorb or infiltrate water. Examples may include roofs, and unless designed to effectively absorb or infiltrate water, decks, patios, and paved, gravel, or crushed stone driveways, parking areas, and walkways.

Stormwater Management Requirements

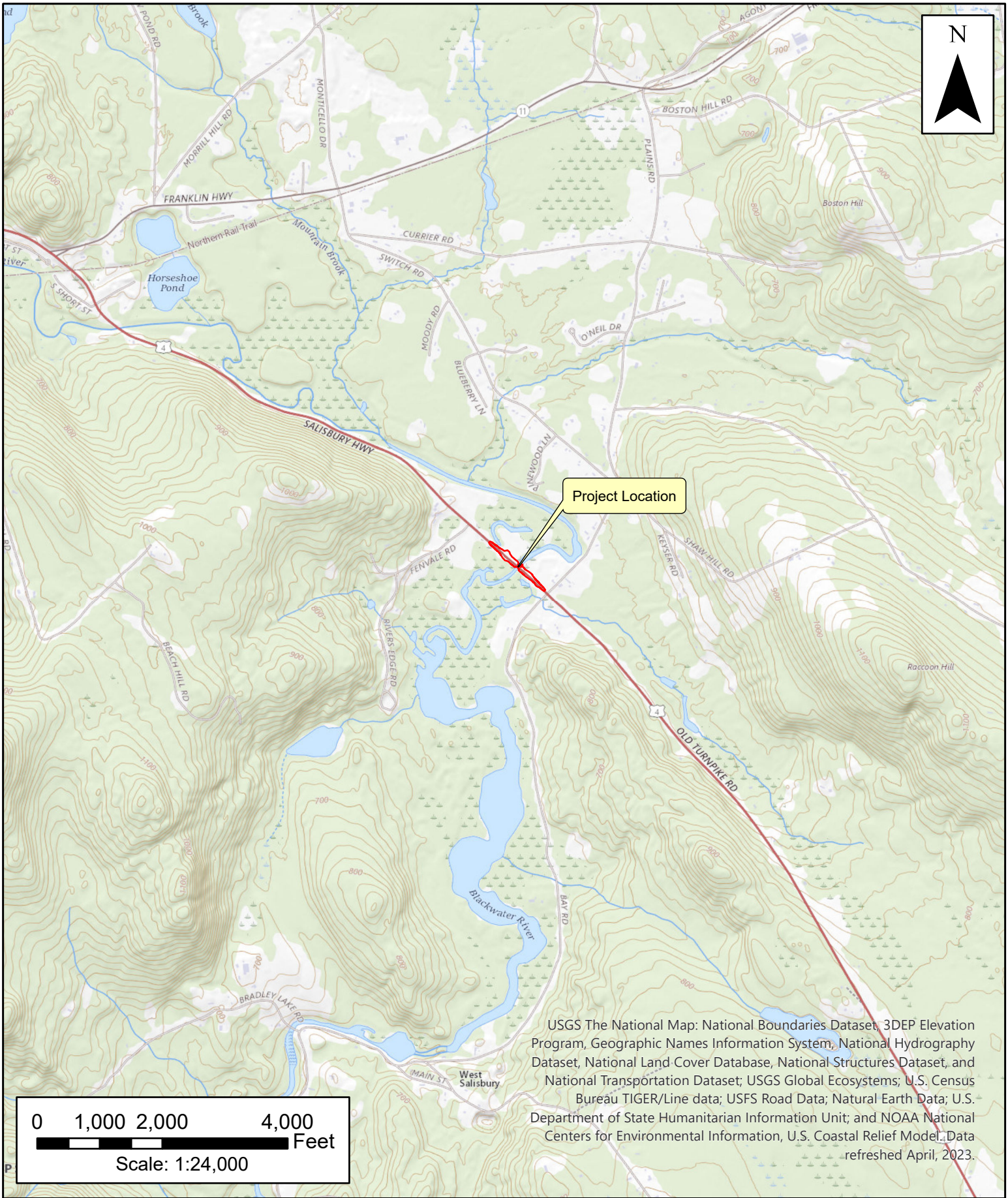
IMPERVIOUS AREA THRESHOLDS (RSA 483-B:9, V(g))
☐ A net decrease or no net increase in impervious area is proposed (If **line E** is less than or equal to **line D**).
☐ The percentage of post-construction impervious area **(line E)** is less than or equal to 20%. This project *does not require* a stormwater management plan and *does not require* a plan demonstrating that each waterfront buffer grid segment at least meets the minimum required tree and sapling point score.
☐ A net increase in impervious area is proposed and the percentage of post-construction impervious area **(line E)** is greater than 20%, but less than 30%. This project *requires* a stormwater management but *does not require* a plan demonstrating that each waterfront buffer grid segment at least meets the minimum required tree and sapling point score. *See details on Application Checklist*
■ A net increase in impervious area is proposed and the percentage of post-construction impervious area **(line E)** is greater than 30%. This project *requires* a stormwater management plan designed and certified by a professional engineer *and requires* plans demonstrating that each waterfront buffer grid segment meets at least the minimum required tree and sapling point score. *See details on Application Checklist*

Natural Woodland Area Requirements

DETERMINING THE AREA TO REMAIN AS NATURAL WOODLAND	
Total area of the lot between 50 feet and 150 feet of the reference line within which the vegetation currently exists as natural woodland[5] *(see definition below).*	**(F)** FT^2 4,473
Total area of the lot between 50 feet and 150 feet from the reference line.	**(G)** FT^2 18,323
At least 25% of area **(G)** must remain in as natural woodland. *[0.25 x G]*	**(H)** FT^2 4,581
Place the lesser of area **(F)** and calculation **(H)** on this line. To comply with the *natural woodland area requirement*, this is the minimum area that must remain as natural woodland between 50 feet and 150 feet from the reference line. This area must be represented on all plans and this area, exclusive of existing lawn, must remain in an unaltered state[6].	4,473 **(I)** FT^2
Name of person who prepared this worksheet: Jennifer Riordan	
Name and date of the plan associated with this worksheet: Shoreland Plans, NH Project No. 40392, 4/23/2024	

[5] **"Natural Woodland"** means a forested area consisting of various species of trees, saplings, shrubs, and ground covers in any combination and at any stage of growth (483-B:4, XI).

[6] **"Unaltered State"** means native vegetation allowed to grow without cutting, limbing, trimming, pruning, mowing, or other similar activities except as needed for renewal or to maintain or improve plant health (483-B:4, XXIV-b).



USGS Location Map

Andover 40392
US Route 4 over Blackwater River
Andover, NH

New Hampshire DOT
Department of Transportation

Supplemental Narrative

Project Description

The proposed project involves the replacement of the existing bridge (Bridge No. 143/077) that carries US Route 4 over the Blackwater River in the Town of Andover, NH. The existing structure is a through-plate girder, 70-foot single-span bridge (67-foot clear span). The substructure consists of concrete gravity-type abutments and U-back wingwalls. The bridge was built in 1933 and is currently on the State Red List due to its deteriorated condition.

Proposed work includes the replacement of the existing bridge with a 104-foot span bridge (100.5-foot clear span). The new abutments will be constructed behind the existing abutments. The existing abutments will be cut at the ground level and stone will be placed at the edges of the channel for scour protection. The flatter areas of riprap near the abutments will be backfilled with finer material to create wildlife crossing shelves. The bridge will be widened 8 feet and approximately 500 feet of roadway widening will occur at each end of the bridge to match the existing roadway pavement to the wider bridge. The roadway will also be raised 4.5 feet near the bridge.

Since the project is altering the roadway near the agricultural field in the northwest bridge quadrant, an existing farm access driveway is being relocated further west. This relocation was requested by the property owner to accommodate the turning radius of the farm equipment in the southern corner of the field and to allow for safe access to and from US Route 4.

The bridge will be closed during construction and traffic will be detoured. Temporary and permanent easements will be required. Permanent easements are proposed in all four bridge quadrants to allow for long-term access and maintenance with additional area required in the northwest quadrant for the construction and maintenance of the proposed stormwater treatment swale. Temporary construction easements are required along the roadway where the proposed slopes extend beyond the existing NHDOT right-of-way. A utility construction easement is also proposed for utility pole relocation.

The purpose of the project is to improve safety by replacing a deteriorated bridge. Rehabilitation of the existing bridge is not feasible due to the poor condition of the existing substructure. In addition, the existing bridge is undersized and does not convey the 100-year storm. During major storms, water overtops the banks of the Blackwater River and floods the section of US Route 4 near the bridge. The new bridge will convey the 100-year storm with 1-foot of freeboard and will also accommodate the 500-year storm, however the roadway approaches will still experience flooding during major storm events. US Route 4 near the bridge is relatively flat and is below the 100-year floodplain elevation. To prevent overtopping of the roadway, approximately ½-mile of US Route 4 would need to be raised. This was determined to be beyond the scope of the project and would result in additional impacts to adjacent wetland resources.

Since the project involves greater than 50,000 square feet of disturbance and is subject to NHDES Alteration of Terrain rules, a stormwater treatment swale is proposed northwest of the bridge. Erosion and sediment controls will be used to avoid water quality impacts during construction.

The proposed project will result in permanent and temporary impacts to the Blackwater River channel and adjacent floodplain wetlands. Permanent wetland impacts will result from roadway widening, slope work, and relocation of a farm access driveway. Permanent watercourse impacts will result from the construction of the new bridge abutments and placement of stone for scour protection. Temporary watercourse impacts will result from the removal of the existing bridge abutments, dewatering, and construction access. A NHDES Wetlands Permit application is being submitted for the proposed temporary and permanent impacts within floodplain wetlands and the Blackwater River channel.

Protected Shoreland Impacts

The project proposes approximately 41,804 square feet of impact within the Protected Shoreland (refer to the following table for a summary of the impacts). These impacts will result from the driveway relocation, roadway reconstruction/widening, and bridge replacement.

Protected Shoreland Impacts

	Proposed Impact
Reference line to Waterfront Buffer (0 feet to 50 feet)	8,641 square feet
Waterfront Buffer to Natural Woodland Buffer (50 feet to 150 feet)	17,011 square feet
Natural Woodland Buffer to Protected Shoreland (150 feet to 250 feet)	16,152 square feet

*Areas shown are within the project limits (NHDOT existing right-of-way and proposed easements) and the 250-foot Protected Shoreland Zone.

The project proposes impacts within the Natural Woodland Buffer (NWB) Zone. There is currently only a small amount of natural woodland within the project area (includes the existing NHDOT right-of-way and the proposed easements). Approximately 2.3% of the NWB area within the project limits will be maintained as natural woodland. Compliance with the minimum standard of 25% of the NWB to be maintained is not able to be achieved since the project is a linear bridge/roadway project. The existing NHDOT right-of-way is narrow within the project area and contains very little natural woodland. Clearing of natural woodland buffer beyond the existing right-of-way is required for roadway slope work.

Natural Woodland Buffer Summary

Total NWB Area within Project Limits	18,323 square feet
Existing NWB within Project Limits	4,473 square feet
Area to Remain as natural woodland	423 square feet (2.3% of Total NWB Area)

*The limits of the project include the area within the existing NHDOT right-of-way and proposed easements.

The project will result in new impervious surface within the Protected Shoreland from bridge and roadway widening and from construction of a gravel farm access driveway. The bridge will be widened 8 feet and 500 feet of roadway widening is proposed at the approach to match the existing pavement to the widened bridge. The proposed gravel farm access driveway will replace an existing dirt driveway. These changes will result in a net increase in impervious surface of approximately 5,786 square feet. The bridge and roadway widening will be within the existing NHDOT right-of-way while the proposed driveway will extend beyond the right-of-way.

Existing and Proposed Impervious*

Existing Impervious Area	13,019 square feet
Proposed Impervious Area	
Permanent	5,786 square feet
Temporary	0 square feet
Post-Construction Impervious Area	18,805 square feet
Total Area within Protected Shoreland	57,090 square feet
Percentage of Existing Impervious	23%
Percentage of Total Post-Construction Impervious	33%

*Areas shown are within the project limits (NHDOT existing right-of-way and proposed easements) and the 250-foot Protected Shoreland Zone

The percentage of the proposed impervious surface within the project is greater than 30%. Since the project is a linear roadway/bridge project, a large portion of the area within NHDOT right-of-way is existing roadway pavement. As described above, a stormwater treatment swale is proposed northwest of the bridge.

Stormwater runoff will be collected via two curb line catch basins at Sta. 100+17 and Sta. 101+17. Two additional drainage structures are proposed to convey the runoff to the swale for treatment. Approximately 6,224 square feet of pavement will be treated by the proposed swale. Although this is less than the NHDES Alteration of Terrain (AoT) treatment goal, it is anticipated to result in water quality improvements since stormwater runoff from the project area is currently untreated. There are limited options for stormwater treatment at the site due to the extensive wetlands. Construction of additional treatment areas would have resulted in increased wetland impacts.

Clearing within the Waterfront Buffer

Tree clearing within the Protected Shoreland is proposed on the western and eastern side of the Blackwater River for construction access, relocation of the farm access driveway, construction of a stormwater treatment swale, and slope work from roadway widening. A portion of the clearing will occur within the Waterfront Buffer on both sides of the river.

Tree grid counts were completed to determine if each impacted grid segment will maintain at least 25 points (refer to enclosed Waterfront Buffer Grid Segment Plan and Table). Six grid segments were used along the west side of the Blackwater River and six were used along the east side. Of these, 5 grids (Grids 4, 5, 9, 10, and 11) do not contain any trees and/or do not currently meet the 25-point minimum. These grids are located within and adjacent to US Route 4 at the crossing. Plantings are not proposed in these segments since Grids 4 and 10 include the roadway, Grids 5 and 11 are regularly cleared for the existing overhead utility lines, and Grid 9 only includes 1 tree that will be removed.

Grids 1, 2, 3, 6, 7, 8, and 12 currently have tree cover that meets the 25-point minimum requirement. No clearing is proposed in Grid 7. Some tree clearing is proposed within Grids 6 and 12, but the remaining trees will meet the 25-point minimum requirement. Grids 1, 2, 3, and 8 currently have over 25 points but the 25-point minimum will not be met post-construction. These areas will be cleared for construction access, slope work, and the placement of stone along the bridge abutments. Plantings are not proposed since the area will remain cleared to allow for long-term access and future maintenance. The areas cleared for the slope work will be seeded post-construction.

REQUEST WAIVER OF MINIMUM STANDARDS

Water Division / Land Resources Management Shoreland Program

Check the status of your application.

RSA/ Rule: RSA 483-B:9, V(i) / Env-Wq 1409

You may use this form to request a waiver of the Minimum Standards of RSA 483-B:9, V of the Shoreland Water Quality Protection Act.

Waivers may only be granted if strict compliance with the minimum standards will provide no material benefit to the public and have no material adverse effect on the environment or the natural resources of the state.

To be eligible, applicants must clearly demonstrate how these criteria are satisfied (as described in Sections 1-3). Alternatively, you may request a waiver to accommodate the reasonable needs of persons with disabilities (as described in Sections 1 and 4).

SECTION 1 - MINIMUM STANDARD(S) REQUESTED TO BE WAIVED (Env-Wq 1409.01)

RSA 483-B:9, V(i)

483-B:9,V.(b)(2)(A) - Natural Woodland Buffer - At least 25% of the natural woodland buffer area must be maintained as natural woodland.

RSA 483-B:9, V.(a)(2)(D)(v) - Maintenance of a Waterfront Buffer - The department shall not approve any application that would result in a combined vegetation score of less than the minimum score required where the segment initially meets the minimum score or would result in any reduction of the point score where the segment does not initially meet the minimum score.

SECTION 2 - EXPLAIN HOW STRICT COMPLIANCE WITH THE MINIMUM STANDARD(S) WOULD PROVIDE NO MATERIAL BENEFIT TO THE PUBLIC (Env-Wq 1409.01; RSA 483-B:9, V(i)

483-B:9,V.(b)(2)(A) - Natural Woodland Buffer - Approximately 2.3% of the natural woodland buffer will be maintained within the project area post-construction. Strict compliance with the minimum standard of 25% is not able to be achieved due to the linear nature of the project and the small amount of existing natural woodland buffer within the project area (approximately 4,473 square feet). Since the project area consists of the existing roadway right-of-way and proposed easements, the majority of the natural woodland buffer area includes existing pavement. Clearing within the natural woodland is required for the widening and raising of the roadway. Strict compliance with this standard would provide no material benefit to the public since only a minimal amount of clearing is proposed within the natural woodland buffer. The project will have an overall benefit to the public by replacing a deteriorated bridge and improving safety along US Route 4.

RSA 483-B:9, V.(a)(2)(D)(v) - Maintenance of a Waterfront Buffer - Four grid segments near the bridge (Grid 1, Grid 2, Grid 3, and Grid 8) currently have over 25 points but the 25-point minimum will not be met post-construction. One grid segment (Grid 9) does not currently meet the 25-point minimum, but the existing point score of 10 will be reduced to 0 post-construction. Plantings are not proposed since the area will remain cleared for future access and maintenance. Stone will be placed along the bridge abutments and the cleared areas beyond the bank will be seeded post-construction within the areas of slope work. The other grids within the project area will either maintain the minimum score or do not require any tree clearing. Strict compliance with the minimum standard would provide no material benefit to the public since the impacts are on a small segment of the shoreline and the waterfront buffer will be stabilized post-construction.

shoreland@des.nh.gov or (603) 271-2147
29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
des.nh.gov

SECTION 3 - EXPLAIN HOW GRANTING A WAIVER OF THE MINIMUM STANDARDS WOULD HAVE NO MATERIAL ADVERSE EFFECT ON THE ENVIRONMENT OR NATURAL RESOURCES OF THE STATE (Env-Wq 1409.01; RSA 483-B:9, V(i)

483-B:9,V.(b)(2)(A) - Natural Woodland Buffer- Granting a waiver of minimum standards will have no adverse effect on the natural resources of the state since the proposed clearing within the natural woodland (4,050 square feet) will only occur at the edge of larger forested areas and the overall condition of the natural woodland buffer will not be substantially changed. The clearing within the natural woodland buffer area will result from the roadway widening and raising to match the width and height of the replacement bridge. Since the project is a linear roadway project and the right-of-way is narrow within the project area, clearing for the roadway widening is required within the natural woodland buffer.

RSA 483-B:9, V.(a)(2)(D)(v) - Maintenance of a Waterfront Buffer - Granting a waiver of minimum standards is not anticipated to have an adverse effect on the environment or natural resources. The cleared areas for the slope work will be seeded once construction is complete to stabilize the area and re-establish groundcover. The other grids within the project area will either maintain the minimum score or do not require any tree clearing. Since the impacts will occur only on a small segment of the shoreline adjacent to the bridge and the waterfront buffer will be stabilized post-construction, no overall adverse impacts are anticipated.

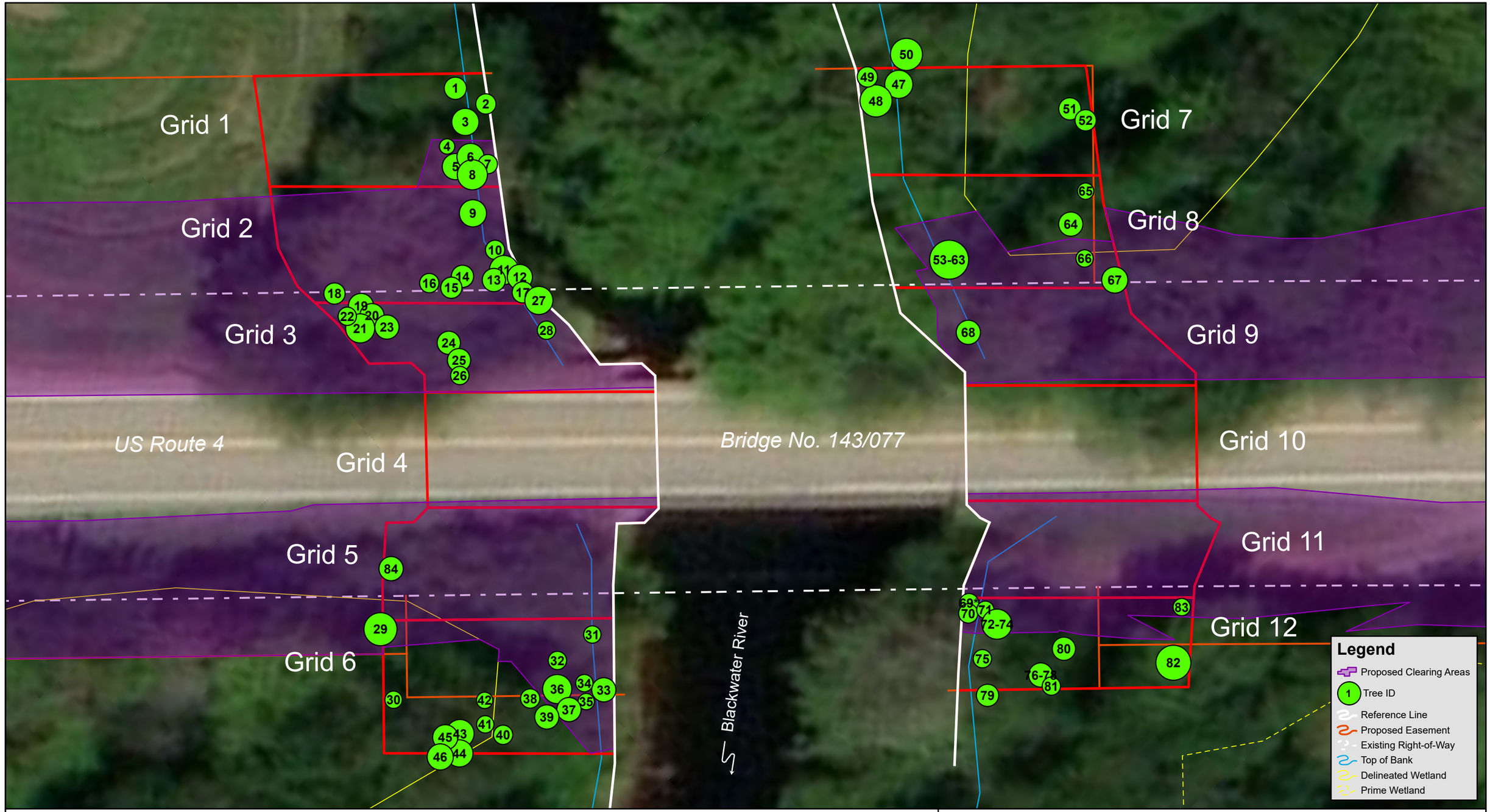
SECTION 4 - PERSONS WITH DISABILITIES (Env-Wq 1409.01; Env-Wq 1409.02(b); RSA 483-B:9, V(i)

Please provide an explanation of how the proposal is adequate to ensure that the intent of RSA 483-B is met. Please explain why granting a waiver is necessary to accommodate the individual's disability**.** Please note that medical details are not being requested. Please only describe the limitations faced by the individual(s) for whom the waiver is being requested.

N/A

Please also submit a statement signed by the physician attending the individual for the disability or disabilities certifying that the impacts or structures for which the waiver is being requested are necessary to accommodate the individual's disability or disabilities. Please note, details specific to the nature of the disability are not requested. Only specify that the project is necessary to meet the needs specific to the individual for whom the waiver is being requested.

☐ Statement submitted.



Waterfront Buffer
Grid Segment Plan

N

0 10 20 40 60 Feet

Scale: 1:240

US Route 4 over the Blackwater River
Bridge Replacement
Andover 40392

New Hampshire DOT
Department of Transportation

WATERFRONT BUFFER
GRID SEGMENTS
WEST OF BRIDGE NO. 143/077

Grid #1					
Map ID	**Tree Species**	**Diameter (inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
1	black cherry (*Prunus serotina*)	7	5	N	5
2	red maple (*Acer rubrum*)	5	5	N	5
3	shrubs	36 x 48	-	N	
4	red maple (*Acer rubrum*)	10	10	Y	
5	red maple (*Acer rubrum*)	11	10	Y	
6	red maple (*Acer rubrum*)	12	10	Y	
7	red maple (*Acer rubrum*)	4	5	Y	
8	red maple (*Acer rubrum*)	15	15	Y	
		Total	**60**		**10**
Grid #2					
Map ID	**Tree Species**	**Diameter (inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
9	red maple (*Acer rubrum*)	12	10	Y	
10	red maple (*Acer rubrum*)	4	5	Y	
11	red maple (*Acer rubrum*)	14	15	Y	
12	red maple (*Acer rubrum*)	10	10	Y	
13	red maple (*Acer rubrum*)	8	10	Y	
14	red maple (*Acer rubrum*)	7	10	Y	
15	red maple (*Acer rubrum*)	6	5	Y	
16	red maple (*Acer rubrum*)	4	5	Y	
17	slippery elm (*Ulmus rubra*)	6	5	Y	
18	shrubs	24 x 36	-	Y	
		Total	**75**		**0**

Grid #3					
Map ID	**Tree Species**	**Diameter (inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
19	red maple (*Acer rubrum*)	10	10	Y	
20	red maple (*Acer rubrum*)	9	10	Y	
21	red maple (*Acer rubrum*)	14	15	Y	
22	red maple (*Acer rubrum*)	3	1	Y	
23	slippery elm (*Ulmus rubra*)	9	10	Y	
24	red maple (*Acer rubrum*)	8	10	Y	
25	red maple (*Acer rubrum*)	8	10	Y	
26	red maple (*Acer rubrum*)	3	1	Y	
27	red maple (*Acer rubrum*)	13	15	Y	
28	red maple (*Acer rubrum*)	3	1	Y	
		Total	**83**		**0**
Grid #4					
Map ID	**Tree Species**	**Diameter (inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
Grid #4 does not contain any trees. It includes the travel way and shoulders of US Route 4, west of Bridge No. 143/077. A minimal amount of clearing within Grid #4 is proposed.					
Grid #5* ***The majority of Grid #5 includes the cleared area beneath overhead utility lines adjacent to US Route 4.					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
84	shrubs	36 x 36	**-**	Y	
		Total	**-**		
Grid #6					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
29	red maple (*Acer rubrum*)	18	15	Y	

Grid #6 (continued)					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
30	red maple (*Acer rubrum*)	2	1	N	1
31	slippery elm (*Ulmus rubra*)	2	1	Y	
32	black cherry (*Prunus serotina*)	2.5	1	Y	
33	red maple (*Acer rubrum*)	9	10	Y	
34	unknown birch (*Betula sp.*)	1.5	1	Y	
35	unknown birch (*Betula sp.*)	1	1	Y	
36	red maple (*Acer rubrum*)	14	15	Y	
37	red maple (*Acer rubrum*)	9	10	Y	
38	red maple (*Acer rubrum*)	4	5	N	5
39	red maple (*Acer rubrum*)	9	10	N	10
40	red maple (*Acer rubrum*)	4	5	N	5
41	red maple (*Acer rubrum*)	2	1	N	1
42	red maple (*Acer rubrum*)	1	1	N	1
43	red maple (*Acer rubrum*)	13	15	N	15
44	red maple (*Acer rubrum*)	12	10	N	10
45	red maple (*Acer rubrum*)	10	10	N	10
46	red maple (*Acer rubrum*)	11	10	N	10
		Total	**122**		**68**

WATERFRONT BUFFER
GRID SEGMENTS
EAST OF BRIDGE NO. 143/077

Grid #7					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
47	red maple (*Acer rubrum*)	13	15	N	15
48	red maple (*Acer rubrum*)	17	15	N	15
49	red maple (*Acer rubrum*)	5	5	N	5
50	red maple (*Acer rubrum*)	17	15	N	15
51	red maple (*Acer rubrum*)	7	10	N	10
52	red maple (*Acer rubrum*)	6	5	N	5
		Total	**65**		**65**
Grid #8					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
53	red maple (*Acer rubrum*)	14	15	Y	
54	red maple (*Acer rubrum*)	7	10	Y	
55	red maple (*Acer rubrum*)	11	10	Y	
56	red maple (*Acer rubrum*)	14	15	Y	
57	red maple (*Acer rubrum*)	12	10	Y	
58	red maple (*Acer rubrum*)	15	15	Y	
59	red maple (*Acer rubrum*)	24	15	Y	
60	red maple (*Acer rubrum*)	5	5	Y	
61	red maple (*Acer rubrum*)	8	10	Y	
62	red maple (*Acer rubrum*)	18	15	Y	
63	red maple (*Acer rubrum*)	17	15	Y	
64	slippery elm (*Ulmus rubra*)	9	10	N	10
65	slippery elm (*Ulmus rubra*)	1	1	N	1
66	shrubs	12 x 12	-	Y	

Grid #8 (continued)					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
67	red maple (*Acer rubrum*)	11	10	Y	
		Total	**156**		**11**
Grid #9					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
68	red maple (*Acer rubrum*)	9	10	Y	
		Total	**10**		**0**
Grid #10					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
Grid #10 does not contain any trees. It includes the travel way and shoulders of US Route 4, east of Bridge No. 143/077. A minimal amount of clearing within Grid #10 is proposed.					
Grid #11					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
Grid #11 does not contain any trees. The majority of the grid includes the cleared area beneath overhead utility lines adjacent to US Route 4. A small amount of clearing is proposed in Grid #11.					
Grid #12					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
69*	red maple (*Acer rubrum*)	4	5	N - *to be saved	5
70	red maple (*Acer rubrum*)	4	5	Y	
71	red maple (*Acer rubrum*)	2	1	Y	
72	red maple (*Acer rubrum*)	15	15	Y	
73	red maple (*Acer rubrum*)	11	10	Y	
74	red maple (*Acer rubrum*)	7	10	Y	
75	slippery elm (*Ulmus rubra*)	3	1	N	1

Grid #12 (continued)					
Map ID	**Tree Species**	**Diameter (Inches)**	**Point Score (Existing)**	**Cut?**	**Points Score (Proposed)**
76	American hornbeam (*Carpinus caroliniana*)	4	5	N	5
77	American hornbeam (*Carpinus caroliniana*)	4	5	N	5
78	American hornbeam (*Carpinus caroliniana*)	5	5	N	5
79	red maple (*Acer rubrum*)	7	10	N	10
80	black cherry (*Prunus serotina*)	8	10	N	10
81	red maple (*Acer rubrum*)	2.5	1	N	1
82	shrubs	96x72	-	N	
83	unknown oak (*Quercus sp.*)	2	1	Y	
		Total	**84**		**42**

Photo 1. View southwest toward US Route 4 from the northwest bridge quadrant. Photo taken on 4/15/2024.

Photo 2. Blackwater River and bank in the northwest bridge quadrant, view northeast. Photo taken on 4/15/2024.

Photo 3. View northeast toward US Route 4 from the southwest bridge quadrant. Photo taken on 4/15/2024.

Photo 4. View east from the southwest bridge quadrant. Photo taken on 4/15/2024.

Photo 5. View northwest toward the Blackwater River from the northeast bridge quadrant. Photo taken on 4/15/2024.

Photo 6. View northeast of the northeast bridge quadrant. Photo taken on 4/15/2024.

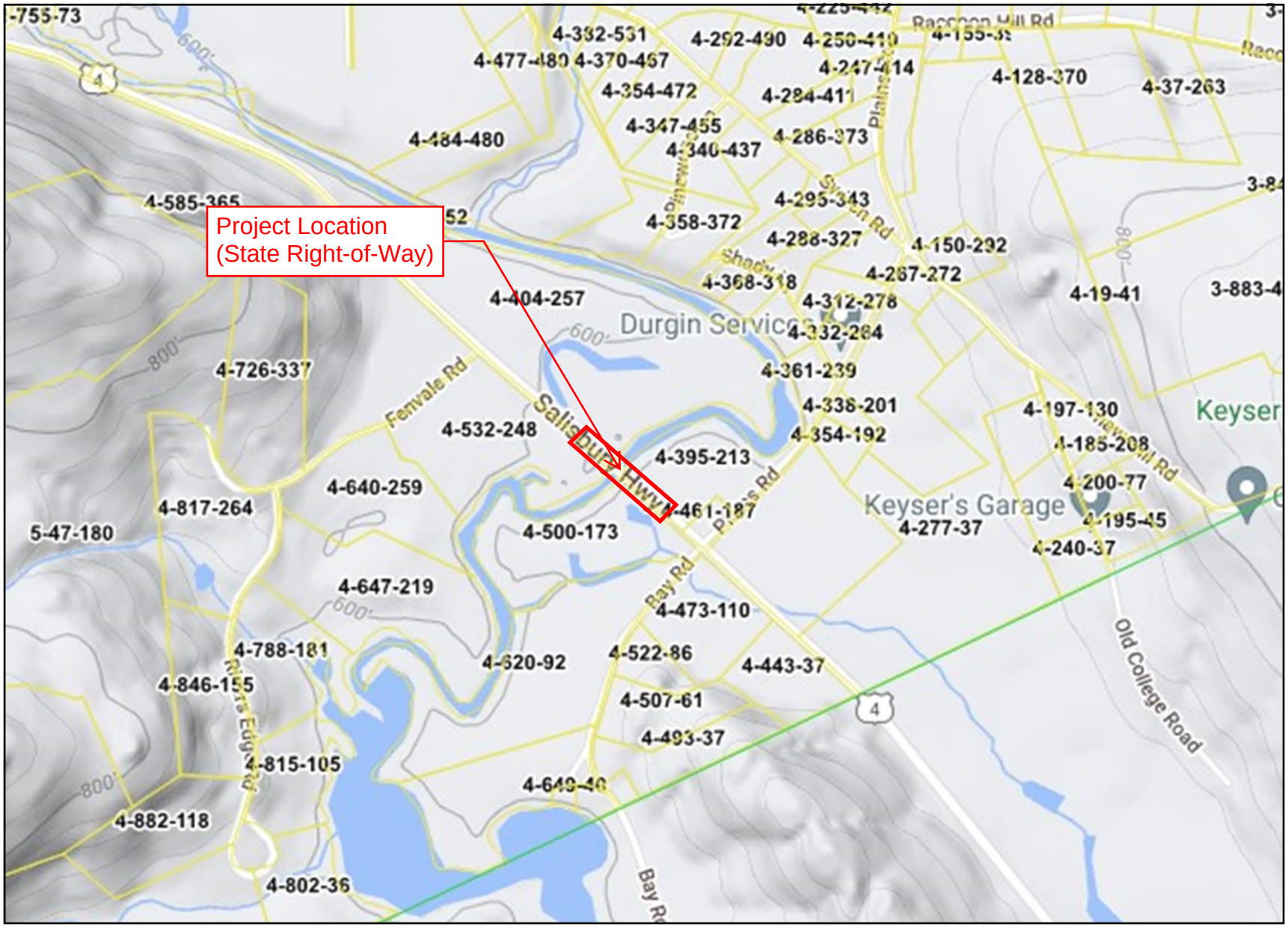
Photo 7. View northwest of the cleared area in the southeast bridge quadrant. Photo taken on 4/15/2024.

Photo 8. View west of the southeast bridge quadrant. Photo taken on 4/15/2024.

Photo 9. View northwest toward Bridge No. 143/077. Photo taken on 6/10/2022.

Photo 10. View southeast toward Bridge No. 143/077. Photo taken on 7/19/2019.

Tax Map - Andover, NH



New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

To: New Hampshire DOT
7 Hazen Dr
Concord, NH 03302

From: NH Natural Heritage Bureau

Date: 12/27/2023 (This letter is valid through 12/27/2024)

Re: Review by NH Natural Heritage Bureau of request dated 12/27/2023

Permit Types: Shoreland Standard Permit
Wetland Standard Dredge & Fill - Major
Federal: NEPA Review

NHB ID: NHB23-3680

Applicant: New Hampshire DOT

Location: Andover
Tax Map: N/A, Tax Lot: N/A
Address: US Route 4 over the Blackwater River

Proj. Description: The project involves the replacement of the existing bridge that carries US Route 4 over the Blackwater River in Andover (NHDOT Project 40392). Proposed work includes replacement of the existing bridge structure, construction of new abutments behind the existing abutments, and roadway approach work extending from approximately 500 feet on each end of the bridge. The existing bridge abutments will be cut at ground level and stone riprap will be placed at the edge of the river channel for scour protection. The bridge will be closed to traffic during construction and construction of a temporary detour bridge is not proposed. Previous NHB numbers: NHB18-3627, NHB20-3503, and NHB22-0947.

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

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

Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

MAP OF PROJECT BOUNDARIES FOR: NHB23-3680

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

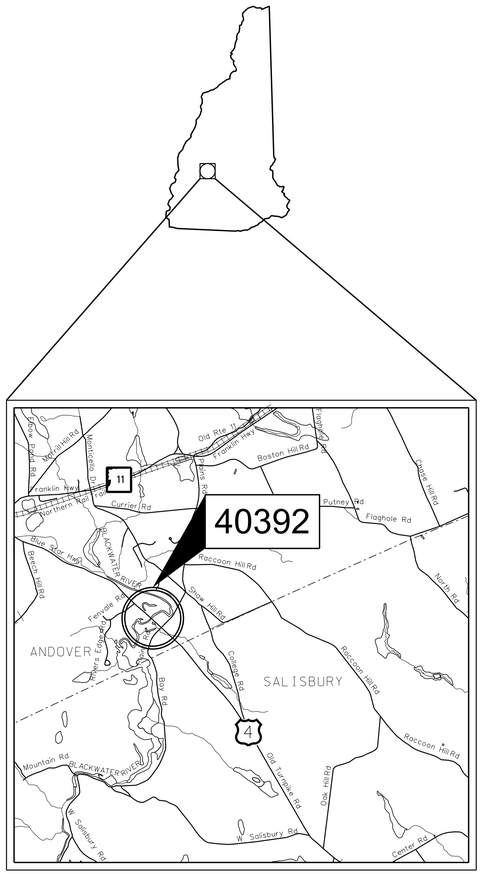
DNCR/NHB
172 Pembroke Rd.
Concord NH 03301

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

SHORELAND PLANS
BRIDGE REPLACEMENT PROJECT

X-A004(384)
N.H. PROJECT NO. 40392
US ROUTE 4 OVER BLACKWATER RIVER
BRIDGE NO. 143/077

DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 22	2211
AVERAGE DAILY TRAFFIC 20 __	-
PERCENT OF TRUCKS	-
DESIGN SPEED	50 MPH
LENGTH OF PROJECT	1175 FT



LOCATION MAP

1/2 1/4 0 1/2 1 mi.

GRAPHIC SCALE

INDEX OF SHEETS

DESIGN

DRAWN BY C. SWEET DATE 4/30/2024
CHECKED BY J. MERCER DATE 4/30/2024

TOWN OF ANDOVER
COUNTY OF MERRIMACK
SCALE: 1" = 40'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

GM2 Associates, Inc.
197 Loudon Road, Suite 310
Concord, NH 03301
Tel: 603-856-7854
Fax: 603-856-7855

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:

DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:

ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A004(384)	40392	1	9

GENERAL

EDGE OF PAVEMENT — PROPOSED ROADWAY
TRAVELED WAY — existing roadway — (pavement removed outside slope lines)

DRIVEWAYS — (label surface type)

BUILDINGS — (building to be removed)
(label house or type of building)

FOUNDATION — (label type)

LEACH FIELD — leach field

BRIDGE CROSSINGS — STREAM — OVERPASS

STEPS AND WALK — (label type)

INTERMITTENT WATER COURSE

SHORE LINE — river/stream — pond — (label name of water body)

POTENTIAL WET AREA SYMBOL

BRUSH OR WOODS LINE

TREES (PLANS) — (deciduous) (coniferous) (stump)

TREE OR STUMP (CROSS-SECTIONS) — (show station, circumference in feet & type)

HEDGE — (label type)

MONITORING WELL — mon W

WELL — W

FLAG POLE — fp

ORIGINAL GROUND (TYPICALS)

ROCK OUTCROP

ROCK LINE (TYPICALS & SECTIONS ONLY)

GUARDRAIL (label type) — existing — PROPOSED — bgr — cgr

JERSEY BARRIER

CURB (LABEL TYPE)

STONE WALL

RETAINING WALL (LABEL TYPE) — (points toward retained ground)

FENCE (LABEL TYPE)

SIGNS — (single post) — (double post)

GAS PUMP — gp

FUEL TANK (ABOVE GROUND) — ft — (label size & type)

STORAGE TANK FILLER CAP — fc

SEPTIC TANK — S

GRAVE — gr

MAILBOX — mb

VENT PIPE — vp

SATELLITE DISH ANTENNA — da

PHONE — ph

GROUND LIGHT/LAMP POST — gl — lp

BORING LOCATION — B

TEST PIT — TP

INTERSTATE NUMBERED HIGHWAY — 291

UNITED STATES NUMBERED HIGHWAY — 3

STATE NUMBERED HIGHWAY — 102

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE — 2 PUB2E

DELINEATED WETLAND — DW
ORDINARY HIGH WATER — OHW
TOP OF BANK — TOB
TOP OF BANK & ORDINARY HIGH WATER — TOBOHW
NORMAL HIGH WATER — NHW
WIDTH AT BANK FULL — WBF
PRIME WETLAND — PWET
PRIME WETLAND 100' BUFFER — PWET100
NON-JURISDICTIONAL DRAINAGE AREA — NJDA
COWARDIN DISTINCTION LINE — CDL
TIDAL BUFFER ZONE — TBZ
DEVELOPED TIDAL BUFFER ZONE — DTBZ
HIGHEST OBSERVABLE TIDE LINE — HOTL
MEAN HIGH WATER — MHW
MEAN LOW WATER — MLW
VERNAL POOL — VP
SPECIAL AQUATIC SITE — SAS
REFERENCE LINE — REF
WATER FRONT BUFFER — WB50
NATURAL WOODLAND BUFFER — NWB150
PROTECTED SHORELAND — PS250
INVASIVE SPECIES LABEL — I.S. I — I.S. II
INVASIVE SPECIES — INV

FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY — FP500
100 YEAR FLOODPLAIN BOUNDARY — FP100
FLOODWAY — FW

ENGINEERING

CONSTRUCTION BASELINE — 30 — 31 — 32

PC, PT, POT (ON CONST BASELINE)

PI (IN CONSTRUCTION BASELINES)

INTERSECTION OR EQUATION OF TWO LINES

ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)

PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)

CLEARING LINE — SLOPE LINE

SLOPE LINE

SLOPE LINE (FILL)

SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:
ORIGINAL GROUND ELEVATION (LEFT) — 72.5
FINISHED GRADE ELEVATION (RIGHT) — 79.14

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

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	40392STDSYMB 1	40392	2	9

DRAINAGE

MANHOLE

CATCH BASIN — cb

DROP INLET — di

(existing) (PROPOSED)

DRAINAGE PIPE (existing) — (label size & type)

DRAINAGE PIPE (PROPOSED)

UNDERDRAIN (existing) W/ FLUSHING BASIN — fb — (label size & type)

UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN

show direction of flow

HEADER (existing & PROPOSED) — (with stone outlet protection)

END SECTION (existing & PROPOSED) — METAL or PLASTIC; RCP

OPEN DITCH (PROPOSED)

EROSION CONTROL/ STONE SLOPE PROTECTION

BOUNDARIES / RIGHT-OF-WAY

RIGHT-OF-WAY LINE — (label type)

RR RIGHT-OF-WAY LINE

PROPERTY LINE — PL — PL

PROPERTY LINE (COMMON OWNER) — Z — Z

TOWN LINE — BOW / CONCORD

COUNTY LINE — COOS / GRAFTON

STATE LINE — MAINE / NEW HAMPSHIRE

NATIONAL FOREST

CONSERVATION LAND — LC — LC

BENCH MARK / SURVEY DISK

BOUND — bnd — (PROPOSED)

STATE LINE/ TOWN LINE MONUMENT — S/L — T/L

NHDOT PROJECT MARKER

IRON PIPE OR PIN — ip

DRILL HOLE IN ROCK — dh

TAX MAP AND LOT NUMBER — 156 / 14 — 1642/341 — 6.80 Ac.±

PROPERTY PARCEL NUMBER — 12

HISTORIC PROPERTY — H

UTILITIES

existing PROPOSED

TELEPHONE POLE

POWER POLE

JOINT OCCUPANCY

MISCELLANEOUS/UNKNOWN POLE

GUY POLE OR PUSH BRACE

(plot point at face not center of symbol)

LIGHT POLE

LIGHT ON POWER POLE

LIGHT ON JOINT POLE

POLE STATUS:
REMOVE, LEAVE, PROPOSED, OR TEMPORARY
AS APPLICABLE e.g.:

R L — P+04 25.0' — T+04 25.0'

RAILROAD — (label ownership)

RAILROAD SIGN

RAILROAD SIGNAL

UTILITY JUNCTION BOX — jb — JB

OVERHEAD WIRE — OW — OW — (label type)

UNDERGROUND UTILITIES

WATER (on existing lines label size, type and note if abandoned) — W — W — PW — PW

SEWER — S — S — PS — PS

TELEPHONE — T — T — PT — PT

ELECTRIC — E — E — PE — PE

GAS — G — G — PG — PG

LIGHTING — L — L — PL — PL

INTELLIGENT TRANSPORTATION SYSTEM — ITS — ITS — PITS — PITS

FIBER OPTIC — FO — FO — PFO — PFO

WATER SHUT OFF — WSO — WS

GAS SHUT OFF — GSO — GS

HYDRANT — HYD

MANHOLES

SEWER — MHS

TELEPHONE — MHT

ELECTRICAL — MHE

GAS — MHG

UNKNOWN — U

TRAFFIC SIGNALS / ITS

	existing	PROPOSED
MAST ARM (existing)		30' MA (NOTE ANGLE FROM ℄)
OPTICOM RECEIVER		
OPTICOM STROBE		
TRAFFIC SIGNAL		
PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT		
SIGNAL CONDUIT	C — C — C	PC — PC — PC
CONTROLLER CABINET	cc	CC
METER PEDESTAL	mp	MP
PULL BOX	pb	PB
LOOP DETECTOR (QUADRUPOLE)		(label size)
LOOP DETECTOR (RECTANGULAR)		(label size)
CAMERA POLE (CCTV)		
FIBER OPTIC DELINEATOR	fod	FOD
FIBER OPTIC SPLICE VAULT		SVF
ITS EQUIPMENT CABINET	its	ITS
VARIABLE SPEED LIMIT SIGN		
DYNAMIC MESSAGE SIGN		
ROAD AND WEATHER INFO SYSTEM		

CONSTRUCTION NOTES

CURB MARK NUMBER - BITUMINOUS	B-1
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

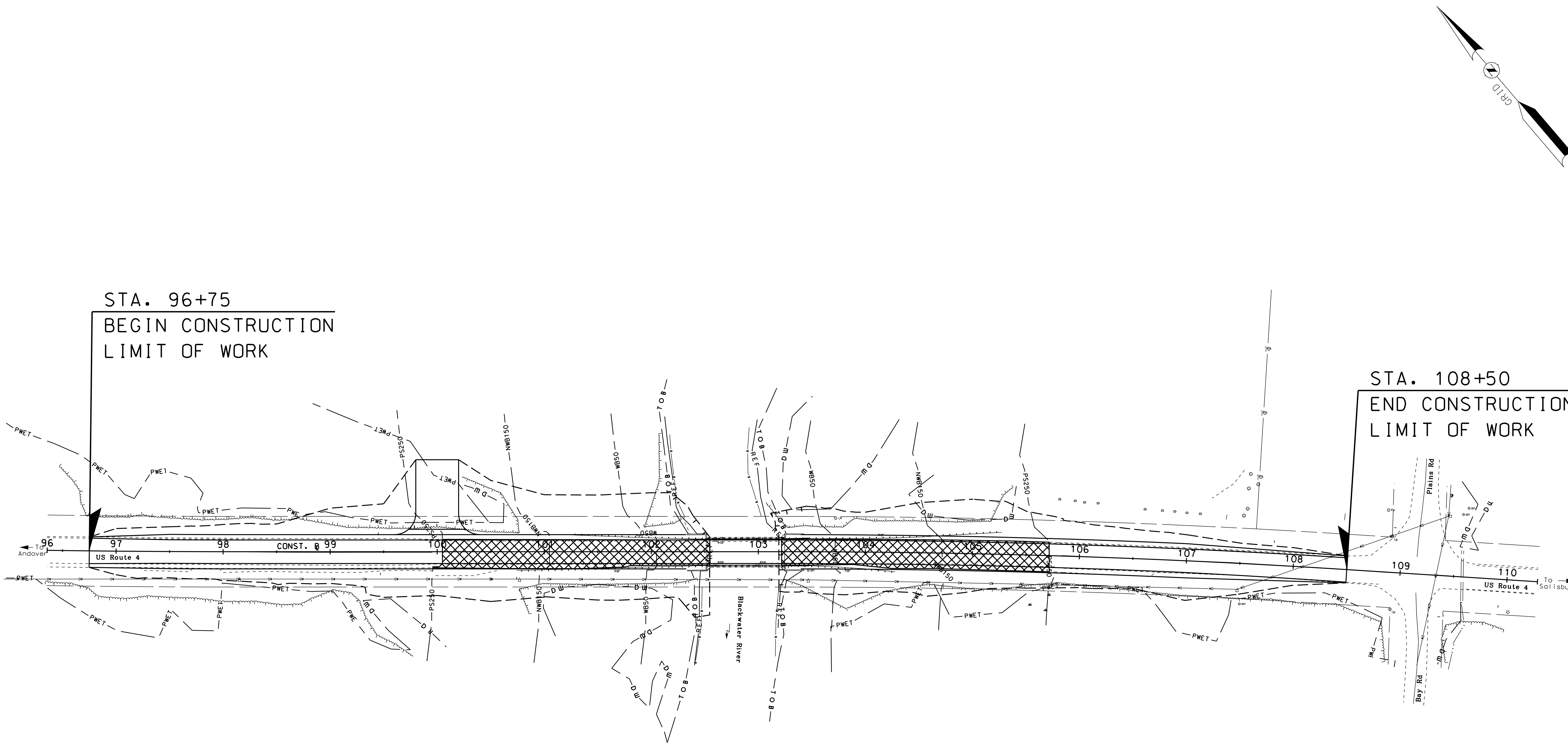
STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	40392STDSYMB 2	40392	3	9

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	STATION	DESCRIPTION



LEGEND

TYPE OF SHORELAND IMPACT	SHADING/ HATCHING
EXISTING IMPERVIOUS AREA WITHIN PROTECTED SHORELAND AND PROJECT LIMITS	(cross-hatching)

NOTES:

TOTAL EXISTING IMPERVIOUS AREA WITHIN PROTECTED AND SHORELAND LIMITS = 13019 SF

50 0 50 100

SCALE IN FEET

SDR PROCESSED C. SWEET	DATE 4/30/2024
NEW DESIGN S. HILL	DATE 4/30/2024
SHEET CHECKED J. MERCER	DATE 4/30/2024
AS BUILT DETAILS	DATE

GM2

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

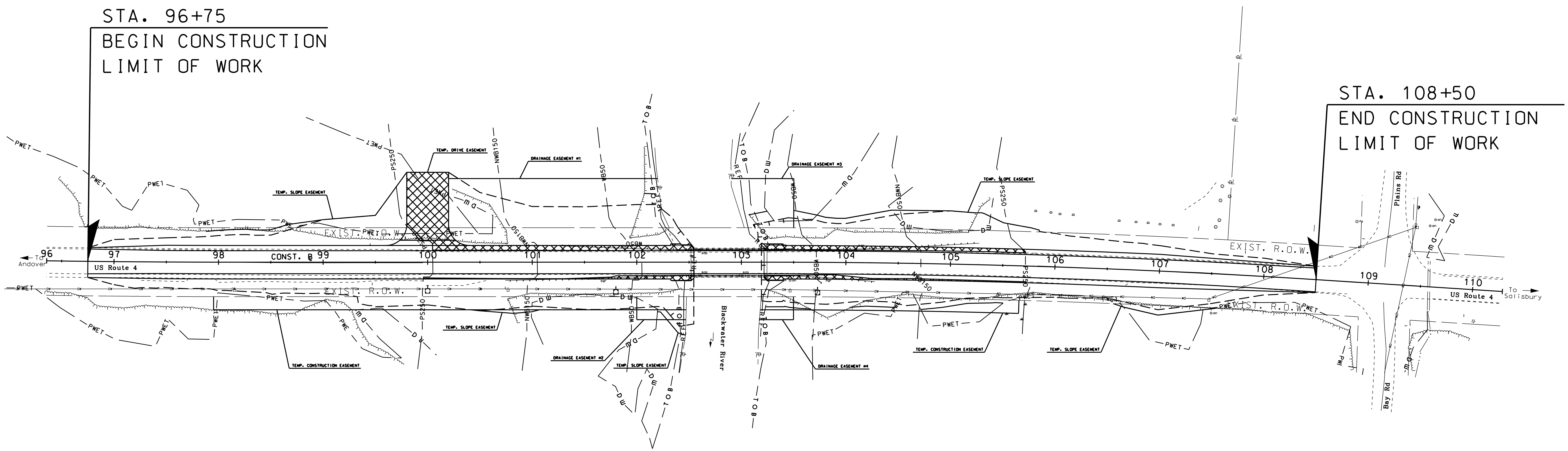
SHORELAND IMPACT PLAN
EXISTING IMPERVIOUS

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40392_SP01	40392	4	9

LEGEND

TYPE OF SHORELAND IMPACT	SHADING/ HATCHING
PROPOSED ADDITIONAL PERMANENT IMPERVIOUS AREA WITHIN PROTECTED SHORELAND AND PROJECT LIMITS	(cross-hatch)
PROPOSED REMOVED PERMANENT IMPERVIOUS AREA WITHIN PROTECTED SHORELAND AND PROJECT LIMITS	(diagonal hatch)
PROPOSED TEMPORARY IMPERVIOUS AREA WITHIN PROTECTED SHORELAND AND PROJECT LIMITS	(reverse diagonal hatch)

SHORELAND PROPOSED IMPERVIOUS SURFACE SUMMARY		
AREA (SF)		
PERMANENT		TEMPORARY
ADDED	REMOVED	
5786	0	0
TOTAL NET ADDITIONAL	5786	



50 0 50 100
SCALE IN FEET

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED	C. SWEET	DATE	4/30/2024
NEW DESIGN	S. HILL	DATE	4/30/2024
SHEET CHECKED	J. MERCER	DATE	4/30/2024
AS BUILT DETAILS		DATE	

GM2

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

SHORELAND IMPACT PLAN
PROPOSED IMPERVIOUS

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40392_SP02	40392	5	9

LEGEND

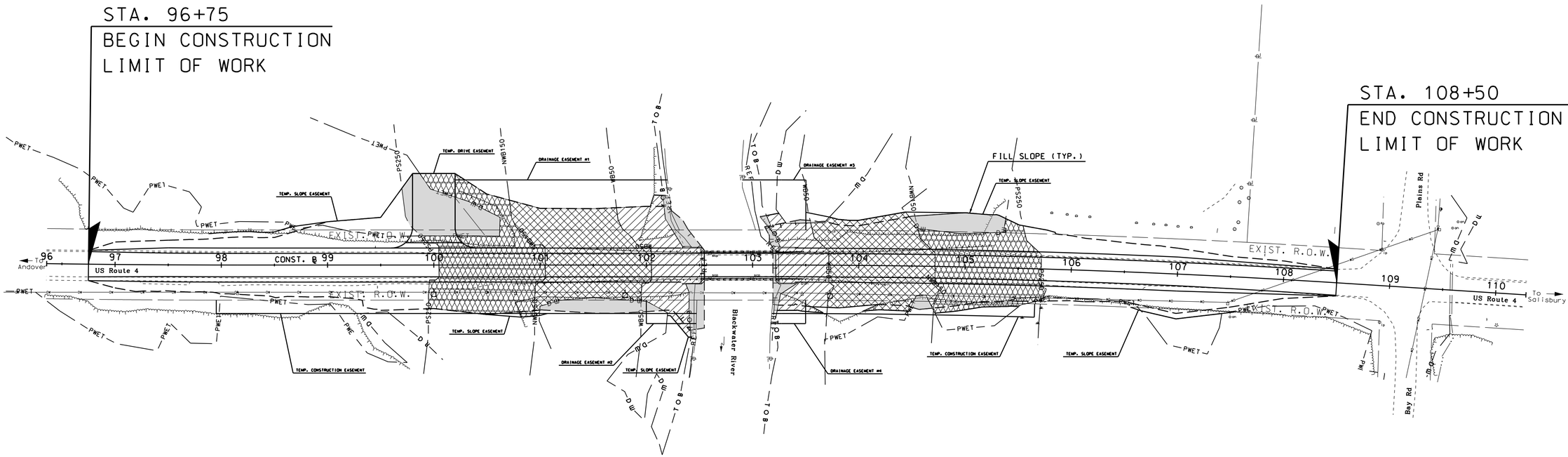
TYPE OF SHORELAND IMPACT	SHADING/ HATCHING
REF TO WB50	
WB50 TO NWB150	
NWB150 TO PS250	
WETLANDS JURISDICTION IMPACT	

SHORELAND IMPACT SUMMARY		
AREA (SF)		
REF TO WB50	WB50 TO NWB150	NWB150 TO PS250
8641	17011	16152
TOTAL (REF TO PS250)		41804

GRID

STA. 96+75
BEGIN CONSTRUCTION
LIMIT OF WORK

STA. 108+50
END CONSTRUCTION
LIMIT OF WORK



50 0 50 100
SCALE IN FEET

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

SHORELAND IMPACT PLAN
PROPOSED IMPACTS

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40392_SP03	40392	6	9

NUMBER	DATE	STATION	DESCRIPTION

REVISIONS AFTER PROPOSAL

SDR PROCESSED	C. SWEET	DATE 4/30/2024
NEW DESIGN	S. HILL	DATE 4/30/2024
SHEET CHECKED	J. MERCER	DATE 4/30/2024
AS BUILT DETAILS		DATE

LEGEND

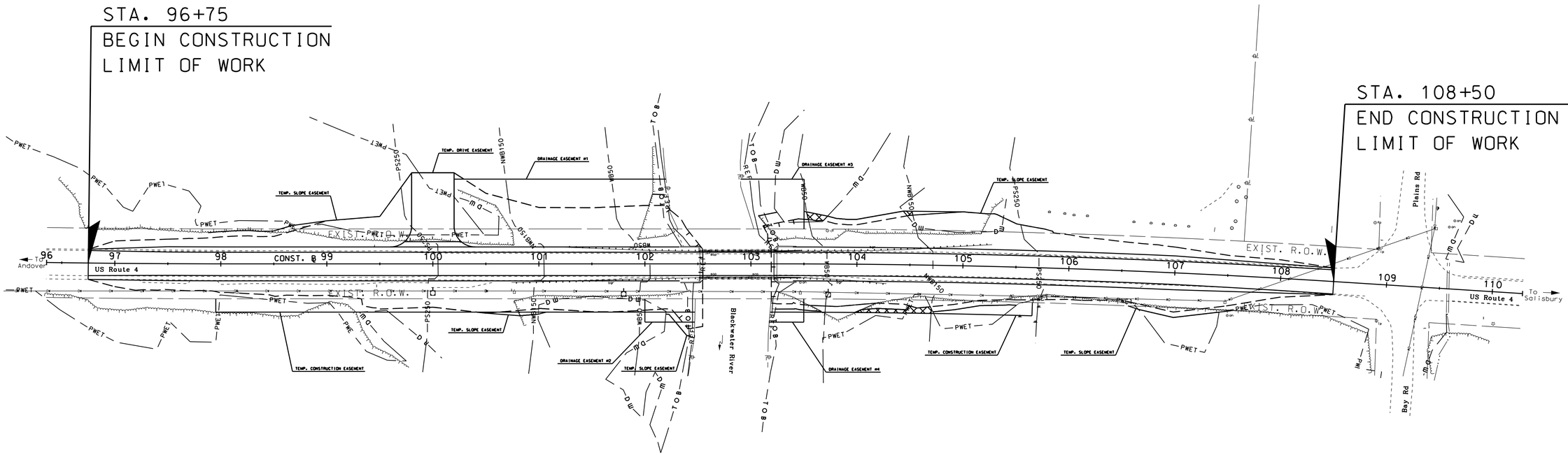
TYPE OF SHORELAND IMPACT	SHADING/ HATCHING
AREA TO REMAIN AS NATURAL WOODLAND	

NATURAL WOODLAND BUFFER SUMMARY	
AREA (SF)	
TOTAL AREA BETWEEN WB50 AND NWB150 WITHIN PROJECT LIMITS	18323
EXISTING NATURAL WOODLAND BUFFER WITHIN PROJECT LIMITS	4473
AREA TO REMAIN AS NATURAL WOODLAND BUFFER	423

GRID

STA. 96+75
BEGIN CONSTRUCTION
LIMIT OF WORK

STA. 108+50
END CONSTRUCTION
LIMIT OF WORK



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SCALE IN FEET

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

SHORELAND IMPACT PLAN
NATURAL WOODLAND BUFFER

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40392_SP04	40392	7	9

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	DATE	STATION

SDR PROCESSED	C. SWEET	DATE 4/30/2024
NEW DESIGN	S. HILL	DATE 4/30/2024
SHEET CHECKED	J. MERCER	DATE 4/30/2024
AS BUILT DETAILS		DATE

EROSION CONTROL NOTES AND STRATEGIES

1. Erosion Control/Stormwater Control Selection, Sequencing and Maintenance
   - 1.1. Comply with RSA 485-A:17 Terrain Alteration.
   - 1.2. Install and maintain all erosion control/stormwater controls in accordance with the New Hampshire Stormwater Management Manual, Volume 3, Erosion and Sediment Controls During Construction, December 2008 (BMP Manual), available from the NH Department of Environmental Services (NHDES).
   - 1.3. Install erosion control/stormwater control measures prior to the start of work and in accordance with the manufacturer's recommendations.
   - 1.4. Select erosion control/stormwater control measures based on the size and nature of the project and physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to jurisdictional areas.
   - 1.5. Install perimeter controls prior to earth disturbing activities.
   - 1.6. Install stormwater treatment ponds and drainage swales before rough grading the site.
   - 1.7. Clean, replace, and augment stormwater control measures and infiltration basins as necessary to prevent sedimentation beyond project limits throughout the project duration.
   - 1.8. Inspect erosion and sediment control measures in accordance with Section 645 of the specifications, weekly, and within 24 hours (during normal work hours), of any storm event greater than 0.25 inches of rain in a 24-hour period.
   - 1.9. Contain stockpiles with temporary perimeter controls. Protect inactive soil stockpiles with soil stabilization measures (temporary erosion control seed mix and mulch, soil binder) or cover them with anchored tarps. If the stockpile is to remain undisturbed for more than 14 days, mulch the stockpile.
   - 1.10. Maintain temporary erosion and stormwater control measures in place until the area has been permanently stabilized.
   - 1.11. An area is considered stable if one of the following has occurred:
     - Base course gravels have been installed in areas to be paved;
     - A minimum of 85% vegetative growth has been established;
     - A minimum of 3”of non-erosive material such as stone or rip-rap has been installed;
     - Temporary slope stabilization has been properly installed (see Table 1).
   - 1.12. Direct runoff to temporary practices until permanent stormwater infrastructure is constructed and stabilized.
   - 1.13. 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.
   - 1.14. Plan activities to account for sensitive site conditions
     - Sequence construction to limit the duration and area of exposed soils.
     - Clearly flag areas to be protected in the field and provide construction barrier to prevent trafficking outside of work areas.
     - Protect and maximize existing native vegetation and natural forest buffers between construction activities and sensitive areas.
     - When work is undertaken in a flowing watercourse, implement stream flow diversion methods prior to any excavation or filling activity.
   - 1.15. Utilize storm drain inlet protection to prevent sediment from entering a storm drainage system prior to the permanent stabilization of the contributing disturbed area.
   - 1.16. Use care to ensure that sediments do not enter any existing catch basins during construction. Place temporary inlet protection at inlets in areas of soil disturbance that are subject to sedimentation.
   - 1.17. Construct, stabilize, and maintain temporary and permanent ditches in a manner that will minimize scour. Direct temporary and permanent ditches to drain to sediment basins or stormwater collection areas.
   - 1.18. Supplement channel protection measures with perimeter control measures when ditch lines occur at the bottom of long fill slopes. Install the perimeter controls on the fill slope to minimize the potential for fill slope sediment deposits in the ditch line.
   - 1.19. Divert sediment laden water away from drainage inlet structures to the extent possible.
   - 1.20. Install sediment barriers and sediment traps at drainage inlets to prevent sediment from entering the drainage system.
   - 1.21. Clean catch basins, drainage pipes, and culverts if significant sediment is deposited.
   - 1.22. Construct and stabilize dewatering infiltration basins prior to any excavation that may require dewatering.
   - 1.23. Place and stabilize temporary sediment basins or traps at locations where concentrated flow (channels and pipes) discharge to the surrounding environment from areas of unstabilized earth disturbing activities.
   - 1.24. Stabilize, to appropriate anticipated velocities, conveyance channels or pumping systems needed to convey construction stormwater to basins and discharge locations prior to use.
   - 1.25. Size temporary sediment basins to contain the 2-year, 24 hour storm event.
   - 1.26. Size temporary sediment traps to contain 3,600 cubic feet of storage for each acre of drainage area.
   - 1.27. Construct detention basins to accommodate the 2-year, 24-hour storm event.

2. Construction Planning
   - 2.1. Divert off site runoff or clean water away from the construction activities to reduce the volume that needs to be treated on site.
   - 2.2. Divert storm runoff from upslope drainage areas away from disturbed areas, slopes and around active work areas to a stabilized outlet location.
   - 2.3. Construct impermeable barriers, as necessary, to collect or divert concentrated flows from work or disturbed areas.
   - 2.4. Locate staging areas and stockpiles outside of wetlands jurisdiction.
   - 2.5. Do not store, maintain, or repair mobile heavy equipment in wetlands, unless equipment cannot be practicably removed and secondary containment is provided.
   - 2.6. Provide a water truck to control excessive dust, at the discretion of the Contract Administrator.

3. Site Stabilization
   - 3.1. Stabilize all areas of unstabilized soil as soon as practicable, but no later than 45 days after initial disturbance.
   - 3.2. Limit unstabilized soil to a maximum of 5 acres unless documentation is provided that demonstrates that cuts and fills are such that 5 acres is unreasonable.
   - 3.3. Use erosion control seed mix 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.
   - 3.4. Apply, and reapply as necessary, soil tackifiers in accordance with the manufacturer’s specifications to minimize soil and mulch loss until permanent vegetation is established.
   - 3.5. Stabilize basins, ditches and swales prior to directing runoff to them.
   - 3.6. Stabilize roadway and parking areas within 72 hours of achieving finished grade.
   - 3.7. Stabilize cut and fill slopes within 72 hours of achieving finished grade.
   - 3.8. When temporarily stabilizing soils and slopes, utilize the techniques outlined in Table 1.
   - 3.9. Stabilize all areas that can be stabilized prior to opening up new areas to construction activities.
   - 3.10. Utilize Table 1 when selecting temporary soil stabilization measures.
   - 3.11. Divert off-site water through the project in an appropriate manner so as not to disturb the upstream or downstream soils, vegetation or hydrology beyond the permitted area.
   - 3.12. Install and maintain construction exits anywhere traffic leaves a construction site onto a public right-of-way.
   - 3.13. Sweep all construction related debris and soil from the adjacent paved roadways, as necessary.

4. Slope Protection
   - 4.1. Intercept and divert storm runoff from upslope drainage areas away from unprotected and newly established areas and slopes to a stabilized outlet or conveyance.
   - 4.2. Consider how groundwater seepage on cut slopes may impact slope stability and incorporate appropriate measures to minimize erosion.
   - 4.3. Convey storm water down the slope in a stabilized channel or slope drain.
   - 4.4. The outer face of the fill slope should be in a loose, ruffled condition prior to turf establishment.

5. Winter Construction
   - 5.1. To minimize erosion and sedimentation impacts, limit the extent and duration of winter excavation and earthwork activities. The maximum amount of disturbed earth shall not exceed a total of 5 acres from May 1" through October 15", 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 contractor’s Critical Path Method (CPM) schedule, and the contractor has adequate resources available to ensure that environmental requirements will be met.
   - 5.2. Construction performed any time between October 15" and May 1" of any year is considered winter construction. During winter construction:
     - Stabilize all proposed vegetation areas which do not exhibit a minimum of 85% vegetative growth by October 15", or which are disturbed after October 15", in accordance with Table 1.
     - Stabilize all ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15", or which are disturbed after October 15", in accordance with Table 1.
     - Protect incomplete road surfaces, where base course gravels have not been installed, and where work has stopped for the season after October 15", in accordance with Table 1.
     - Unless a winter construction plan has been approved by NHDOT, conduct winter excavation and earthwork such that no more than 1 acre of the project is without stabilization an any one time.

6. Wildlife Protection Measures
   - 6.1. Report all observations of threatened and endangered species on the project site to the Department’s Bureau of Environment by phone at 603-271-3226 or by email at Bureau16@dot.nh.gov, indicating in the subject line the project name, number, and that a threatened/endangered species was found.
   - 6.2. Photograph the observed species and nearby elements of habitat or areas of land disturbance and provide them to the Department’s Bureau of Environment at the above email address.
   - 6.3. In the event that a threatened or endangered species is observed on the project during work, the species shall not be disturbed, handled, or harmed prior to receiving direction from the Bureau of Environment.
   - 6.4. Utilize wildlife friendly erosion control methods when:
     - Erosion control blankets are used,
     - A protected species or habitat is documented,
     - The proposed work is in or adjacent to a priority resource area, and/or when specifically requested by NHB or NHF&G

GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES
TABLE 1

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES[2]				ROLLED EROSION CONTROL BLANKETS[3]			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES[1]												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES1	YES[1]	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	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	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. Do not apply products containing polyacrylamide (PAM) directly to, or within 100 feet of any surface water without NHDES approval.
3. Install all methods in Table 1 per the manufacturer’s recommendation for time of year and steepness of slope.

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ○ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS

	REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
erosstrat-ce	02-29-2024	sd-erostrat-02292024	40392	8	9

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

STREAM DIVERSION

GRID

1 MILLER-ORDWAY, JOSEPH P.

2 FENTON FAMILY REVOCABLE TRUST OF 2015 FENTON, PAUL J. & JANE H. TRUSTEES & FENTON, LESLIE P.

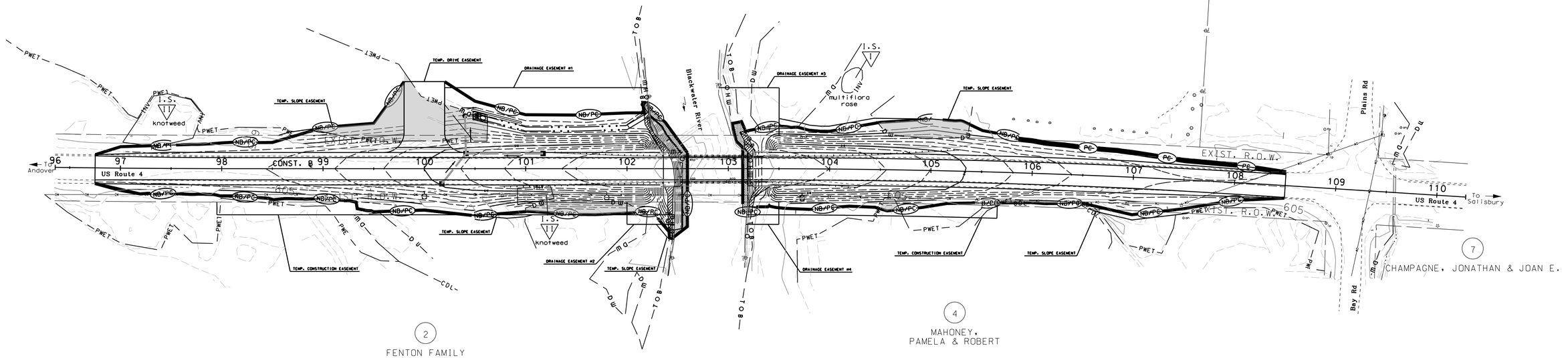
3 GREATWOODS UNITY FOREST LLC

4 MAHONEY, PAMELA & ROBERT

5 GREATWOODS UNITY FOREST LLC

6 GREATWOODS UNITY FOREST LLC

7 CHAMPAGNE, JONATHAN & JOAN E.



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SCALE IN FEET

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

EROSION CONTROL PLAN

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40392EROC_Shore	40392	9	9

NUMBER	DATE	STATION	DESCRIPTION
			REVISIONS AFTER PROPOSAL

SDR PROCESSED	C. SWEET	DATE 4/30/2024
NEW DESIGN	S. HILL	DATE 4/30/2024
SHEET CHECKED	J. MERCER	DATE 4/30/2024
AS BUILT DETAILS		DATE