STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: July 29, 2020

FROM: SL on behalf of Andrew O'Sullivan
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Stratford, 42555

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

Forwarded herewith is the application package prepared by NH DOT Bureau of Highway Design for the subject minimum impact project. This project is classified as minimum per Env-Wt 407.03(a); impacting < 3,000 SF of palustrine wetlands. The project is located along Hog Back Road in the Town of Stratford, NH. The proposed work consists of re-establishing the roadway embankment that failed by re-constructing a 2:1 slope with gravel blanket/ stone toe of slope to address seepage and water infiltration within the embankment in the future. The project also includes installing a closed drainage system.

This project was reviewed at the Natural Resource Agency Coordination Meeting on February 19, 2020. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm. NHDOT also met with Karl Benedict on January 24, 2020 to discuss the resources in the area. After both of these meetings, the design team was able to minimize the impacts even further and was able to avoid impacting the 100-year floodplain of the Connecticut River.

NHDOT anticipates that this project will be reviewed by the Army Corp of Engineers through the State Programmatic General Permit process. A copy of the application has been sent to the Army Corp of Engineers.

Mitigation was determined to not be triggered by the proposed impacts and therefore is not required.

The lead people to contact for this project are Tobey Reynolds, Bureau of Highway Design (271-2731 or Tobey.Reynolds@dot.nh.gov) or Sarah Large, Wetlands Program Analyst, Bureau of Environment (271-3226 or Sarah.Large@dot.nh.gov).

A payment voucher has been processed for this application (Voucher # 617941) in the amount of $400.

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

AMO:sel
cc:
BOE Original
Town of Stratford (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
Bureau of Construction
Carol Henderson, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Beth Alafat & Jeanie Brochi, US Environmental Protection Agency (via electronic notification)
Michael Hicks & Rick Kristoff, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)

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STANDARD DREDGE AND FILL WETLANDS PERMIT APPLICATION

Water Division/Land Resources Management

Wetlands Bureau

Check the Status of your Application

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

APPLICANT'S NAME: NH Department of Transportation **TOWN NAME:** Stratford

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

A person may request a waiver to requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interests of the public or the environment. A person may also request a waiver of standard for existing dwellings over water pursuant to RSA 482-A:26, III (b). For more information, please consult the request form.

SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))

Please use the Wetland Permit Planning Tool (WPPT), the Natural Heritage Bureau (NHB) DataCheck Tool, the Aquatic Resource Mapper, or other sources to assist in identifying key features such as: priority resource areas (PRAs), protected species or habitats, coastal areas, designated rivers, or designated prime wetlands.

Has the required planning been completed? ☒ Yes ☐ No

Does the property contain a PRA? ☐ Yes ☒ No. If yes, provide the following information:

- Does the project qualify for an Impact Classification Adjustment or a Project-Type Exception (See Env-Wt 407.02 and Env-Wt 407.04)? ☒ Yes ☐ No
- Protected species or habitat? ☐ Yes ☒ No. If yes, species or habitat name(s):
- NHB Project ID #: NHB20-1722
- Bog? ☐ Yes ☒ No
- Floodplain wetland contiguous to a tier 3 or higher watercourse? ☐ Yes ☒ No
- Designated Prime Wetland or duly-established 100-foot buffer? ☐ Yes ☒ No
- Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone? ☐ Yes ☒ No

Is the property within a Designated River corridor? ☐ Yes ☒ No. If yes, provide the following information:

- Name of Local River Management Advisory Committee (LAC):
- A copy of the application was sent to the LAC on Month: Day: Year:

For stream crossing projects, provide watershed size: N/A

For dredging projects, is the subject property contaminated? ☐ Yes ☒ No
If yes, list contaminant:

Is there potential to impact impaired waters, class A waters, or outstanding resource waters? ☐ Yes ☒ No

SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))

Provide a brief description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached" in the space provided below.

The failure is believed to be primarily the result of natural groundwater seepage along the slope, causing the adjacent slope to erode. Slope improvements will include installation of gravel underdrain at the toe of the slope, with a seeded embankment slope overtop. This will allow the groundwater to continue to flow through the embankment, while repairing and stabilizing the slope from continued erosion. Associated work will include installation of a closed drainage system along the south side of Hogback Rd to improve stormwater runoff conditions. Drainage improvements will better manage the existing stormwater flow as to not contribute to further erosion and destabilization.

Permanent impacts 159 sq. ft., temporary impacts of 790 sq. ft., with no impacts to floodplains. Permanent impacts are for the drainage outlet and keying in the gravel blanket at the bottom of the slope. Temporary impacts are needed for site access and will be limited as much as possible.

SECTION 3 - PROJECT LOCATION

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

ADDRESS: Hogback Rd	TOWN/CITY: Stratford
TAX MAP/BLOCK/LOT/UNIT: 230-49 & 230-48 & NHDOT ROW	
US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: ☒ N/A	
(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places):	44.67976° North -71.58239° West

SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a))

If the applicant is a trust or a company, then complete with the trust or company information.

NAME: Tobey Reynolds, NH Department of Transportation		
MAILING ADDRESS: 7 Hazen Drive, PO Box 483		
TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03302
EMAIL ADDRESS: Tobey.Reynolds@dot.nh.gov	FAX: 271-7025	PHONE: 271-7421

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

SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c))

☒ N/A

LAST NAME, FIRST NAME, M.I.:		
COMPANY NAME:	MAILING ADDRESS:	
TOWN/CITY:	STATE:	ZIP CODE:
EMAIL ADDRESS:	FAX:	PHONE:

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

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SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c))

☒ N/A

LAST NAME, FIRST NAME, M.I.:		
COMPANY NAME:	MAILING ADDRESS:	
TOWN/CITY:	STATE:	ZIP CODE:
EMAIL ADDRESS:	FAX:	PHONE:

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

SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)

If unavoidable jurisdictional impacts require mitigation, a mitigation pre-application meeting must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month: Day: Year:

(☒ N/A - Mitigation is not required)

SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c).

Have you submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent impacts that will remain after avoidance and minimization demonstration? ☐ Yes ☐ No

(☒ N/A - Mitigation is not required)

SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without required permitting).

For intermittent and ephemeral* streams, the linear footage of impact is measured along the thread of the channel. **Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/rivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

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

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland	159		☐	790		☐
	Scrub-shrub Wetland			☐			☐
	Emergent Wetland			☐			☐
	Wet Meadow			☐			☐
	Vernal Pool			☐			☐
	Designated Prime Wetland			☐			☐
	Duly-established 100-foot Prime Wetland Buffer			☐			☐
Surface Water	Intermittent / Ephemeral* Stream			☐			☐
	Perennial Stream or River			☐			☐
	Lake / Pond			☐			☐
	Docking - Lake / Pond			☐			☐
	Docking – River			☐			☐
Banks	Bank - Intermittent Stream			☐			☐
	Bank - Perennial Stream / River			☐			☐
	Bank/shoreline - Lake / Pond			☐			☐
Tidal	Tidal Waters			☐			☐
	Tidal Marsh			☐			☐
	Sand Dune			☐			☐
	Undeveloped Tidal Buffer Zone (TBZ)			☐			☐
	Previously-developed TBZ			☐			☐
	Docking - Tidal Water			☐			☐
TOTAL		**159**			**790**		

SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)				
☒ **MINIMUM IMPACT FEE:** Flat fee of $400				
☐ **NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION:** Flat fee of $400 (refer to RSA 482-A:3, 1(c) for restrictions)				
☐ **MINOR OR MAJOR IMPACT FEE:** Calculate using the table below:				
Permanent and temporary (non-docking):		SF	× $0.40 =	$
Seasonal docking structure:		SF	× $2.00 =	$
Permanent docking structure:		SF	× $4.00 =	$
Projects proposing shoreline structures (including docks) add $400 =				$
Total =				$
The application fee for minor or major impact is the above calculated total or $400, whichever is greater =				$

SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05) Indicate the project classification.		
☒ Minimum Impact Project	☐ Minor Project	☐ Major Project

SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)	
Initial each box below to certify:	
Initials: TR	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials: TR	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.
Initials: TR	The signer understands that: • The submission of false, incomplete, or misleading information constitutes grounds for NHDES to: 1. Deny the application. 2. Revoke any approval that is granted based on the information. And 3. If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1. • The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641. • The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.
Initials: TR	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.

SECTION 15 - REQUIRED SIGNATURE (Env-Wt 311.04(d); Env-Wt 311.11)		
SIGNATURE (OWNER): Tobey Reynolds	PRINT NAME LEGIBLY: Tobey Reynolds	DATE: 8/11/2020
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER):	PRINT NAME LEGIBLY:	DATE:
SIGNATURE (AGENT, IF APPLICABLE):	PRINT NAME LEGIBLY:	DATE:

SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))	
As required by RSA 482-A:3, I(a),(1), 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.	
TOWN/CITY CLERK SIGNATURE: _____	PRINT NAME LEGIBLY:
TOWN/CITY:	DATE:

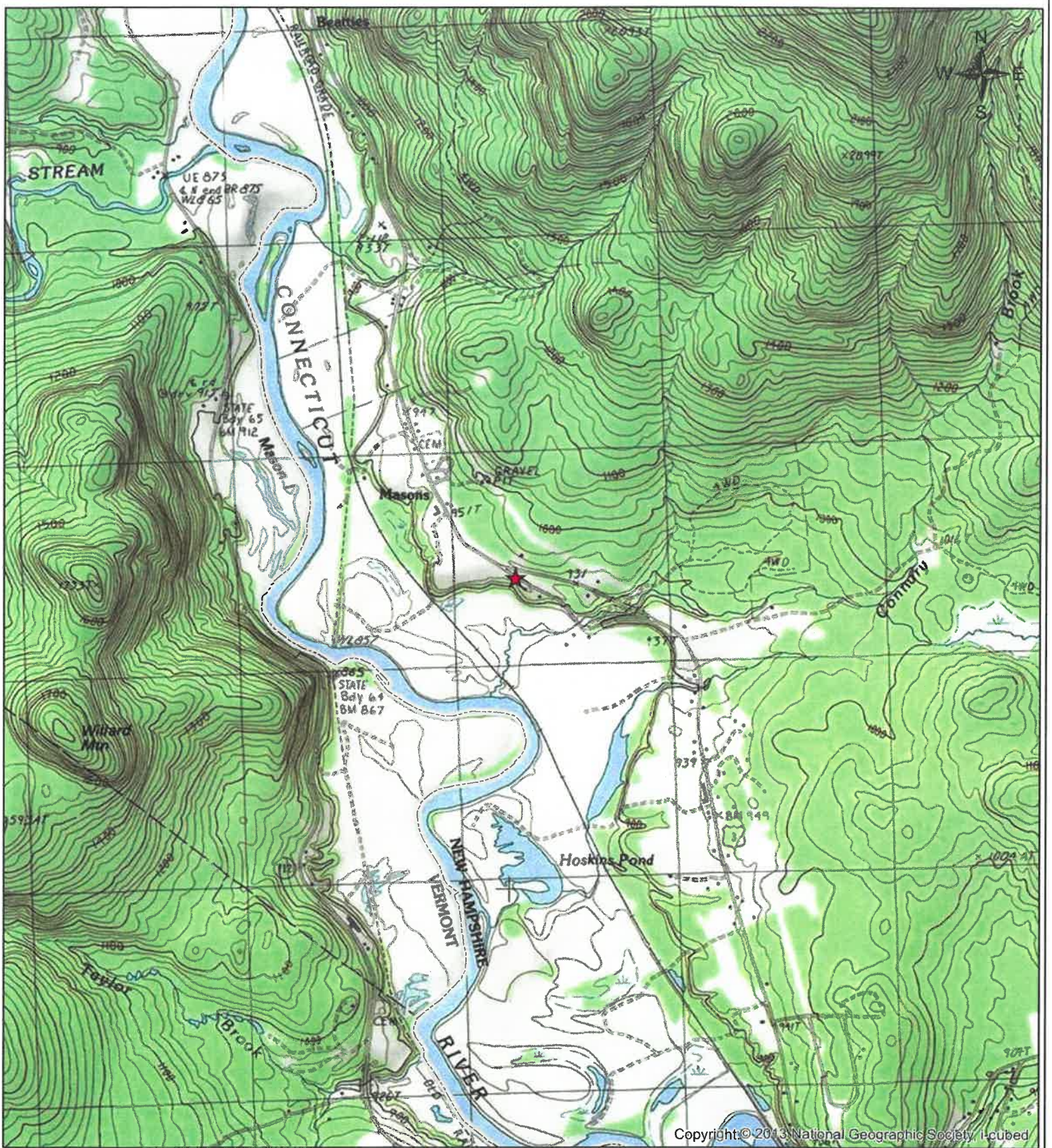
DIRECTIONS FOR TOWN/CITY CLERK:
Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. 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.
3. 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
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:
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 at the address at the bottom of this page.

Please refer to Env-wt 311.05(a)(14) & RSA 482-A:3I(a)(1)
The four (4) town copies have been sent via certified mail and filed directly with the town in accordance with the above rule and regulation.

Stratford, Project #42555



0 0.5 1 Miles

Legend

★ Project Location

Map depicting Hog Back Rd slope failure in Stratford.

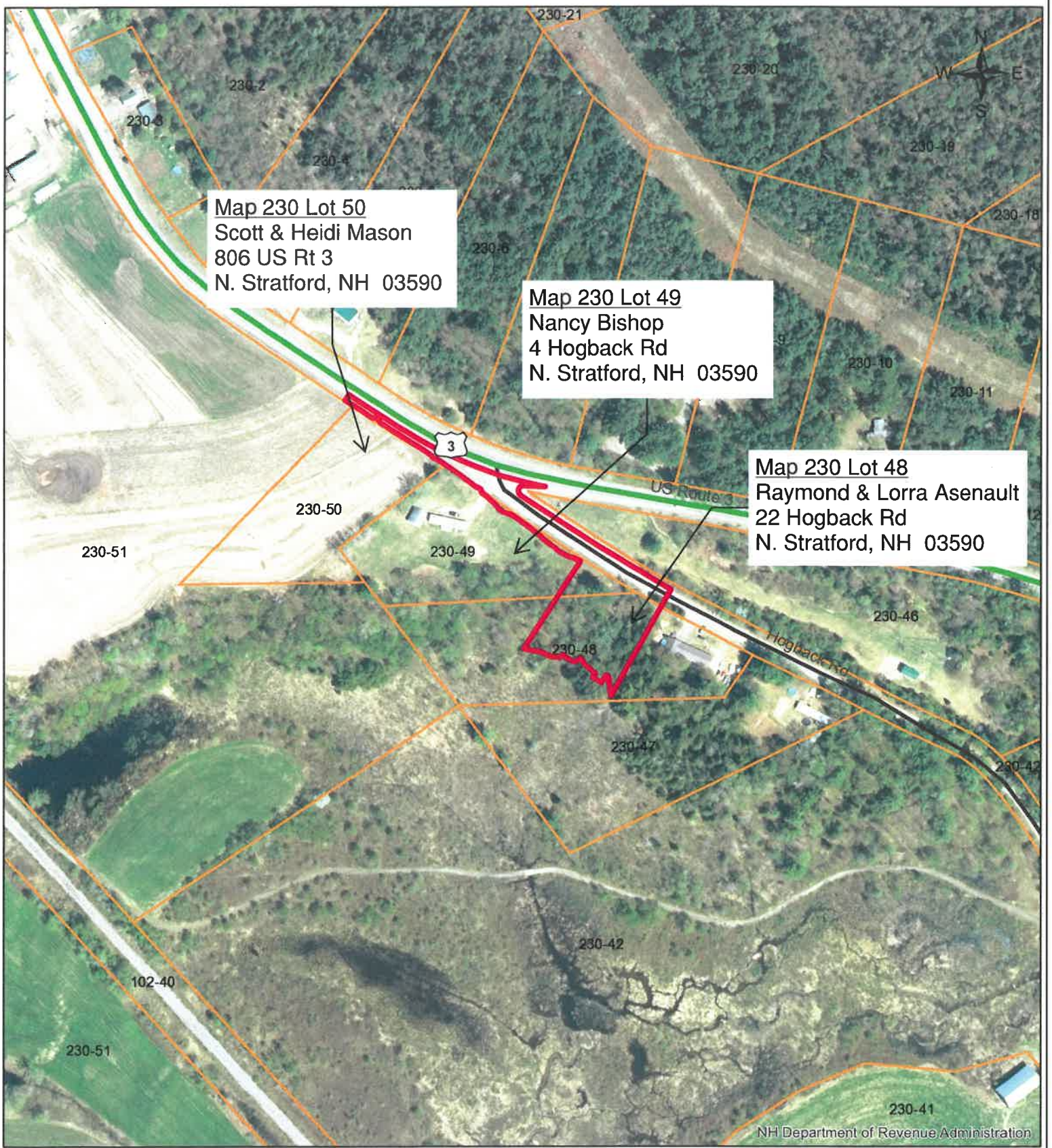
Map created by: Arin Mills on 1/17/2020

Source: S:\Environment\PROJECTS\STRATFORD\42555

1:24,000

New Hampshire DOT Department of Transportation

Stratford, Project #42555



0 250 500 Feet

1:3,000

Legend

Project Boundary

Map depicting Hog Back Rd slope failure in Stratford.

Map created by: Arin Mills on 1/22/2020

Source: S:\Environment\PROJECTS\STRATFORD\42555

New Hampshire DOT Department of Transportation

AVOIDANCE AND MINIMIZATION CHECKLIST

Water Division/Land Resources Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A/ Env-Wt 311.07(d)

This checklist can be used in lieu of the written narrative required by Env-Wt 311.07(a) to demonstrate compliance with requirements for Avoidance and Minimization (A/M), pursuant to RSA 482-A:1 and Env-Wt 311.07(d).

"A/M BMPs" stands for *Wetlands Best Management Practice Techniques for Avoidance and Minimization* dated 2019, published by the New England Interstate Water Pollution Control Commission (Env-Wt 102.18).

"Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (Env-Wt 103.62).

SECTION 1 – CONTACT/LOCATION INFORMATION		
APPLICANT LAST NAME, FIRST NAME, M.I.: NH Department of Transportation		
PROJECT STREET ADDRESS: Hogback Rd	PROJECT TOWN: Stratford	
TAX MAP/LOT NUMBER: 230-49 & 230-48		
SECTION 2 - PRIMARY PURPOSE OF THE PROJECT		
Env-Wt 311.07(b)(1)	Indicate whether the primary purpose of the project is to construct a water-access structure or requires access through wetlands to reach a buildable lot or the buildable portion thereof.	☐ Yes ☒ No
If you answered "no" to this question, describe the purpose of the "non-access" project type you have proposed. Bank stabilization and roadway reconstruction resulting from groundwater seepage.		

SECTION 3 - AVOIDANCE PROJECT DESIGN TECHNIQUES Check the appropriate boxes below in order to demonstrate that these items have been considered in the planning of the project. Use N/A (not applicable) for each technique that is not applicable to your project.		
Env-Wt 311.07(b)(2)	For any project that proposes permanent impacts of more than one acre or that proposes permanent impacts to a Priority Resource Area (PRA), or both, whether any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs.	☒ Check ☐ N/A

Env-Wt 311.07(b)(3)	Whether alternative designs or techniques, such as different layouts, construction sequencing, or alternative technologies could be used to avoid impacts to jurisdictional areas or their functions and values on the subject property or on another property reasonably available to the applicant.	☒ Check ☐ N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(1)	The results of the functional assessment required by Env-Wt 311.03(b)(10) were used to select the location of the proposed project having the least impact to wetland functions.	☐ Check ☒ N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(2)	The proposed project has been designed to have the least impact to wetland functions.	☒ Check ☐ N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(3)	Where impact to wetland functions is unavoidable, the proposed impacts are limited to the wetlands with the least valuable functions on the site while avoiding and minimizing impacts to the wetlands with the highest and most valuable functions.	☒ Check ☐ N/A
Env-Wt 313.01(c)(1)-(2) Env-Wt 313.03(b)(1)	No practicable alternative would reduce adverse impact on the area and environments and the project will not cause random or unnecessary destruction of wetlands.	☒ Check ☐ N/A
Env-Wt 313.01(c)(3)	The project would not cause or contribute to the significant degradation of waters of the state or the loss of any PRAs.	☒ Check ☐ N/A
Env-Wt 313.03(b)(2)	The project avoids impacts to marshes that are documented to provide sources of nutrients for finfish, crustacea, shellfish, and wildlife of significant value.	☐ Check ☒ N/A
Env-Wt 313.03(b)(3) Env-Wt 904.07(c)(8)	The project maintains hydrologic connectivity between adjacent wetlands or stream systems.	☐ Check ☒ N/A
Env-Wt 311.01(b) Env-Wt 313.03(b)(4)	The project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern.	☒ Check ☐ N/A
Env-Wt 313.03(b)(5)	The project avoids and minimizes impacts that eliminate, depreciate, or obstruct public commerce, navigation, or recreation.	☐ Check ☒ N/A
Env-Wt 311.10 A/M BMPs	Buildings and/or access are positioned away from high function wetlands or surface waters to avoid impact.	☐ Check ☒ N/A
Env-Wt 311.10 A/M BMPs	The project clusters structures to avoid wetland impacts.	☐ Check ☒ N/A
Env-Wt 311.10 A/M BMPs	The placement of roads and utility corridors avoids wetlands and their associated streams.	☐ Check ☒ N/A

A/M BMPs	Proposed utilities are suspended from bridges to avoid trenching through wetlands.	☐ Check ☒ N/A
A/M BMPs	The width of access roads or driveways is reduced to avoid and minimize impacts. Pullouts are incorporated in the design as needed.	☐ Check ☒ N/A
A/M BMPs	Retaining walls are proposed to avoid placing fill in wetlands. The retaining walls would not block hydrology or wildlife corridors.	☐ Check ☒ N/A
A/M BMPs	The project proposes bridges or spans instead of roads/driveways/trails with culverts.	☐ Check ☒ N/A
A/M BMPs	Natural topography is incorporated in the design to avoid grading.	☒ Check ☐ N/A
SECTION 4 - MINIMIZATION DESIGN TECHNIQUES		
Env-Wt 311.10	The project was designed to minimize impacts to higher-quality wetlands.	☒ Check ☐ N/A
Env-Wt 311.01(b) Env-Wt 313.03(b)	The project was designed to minimize impacts to habitat, reproduction areas, fishery, vernal pools, or protected species or habitat.	☒ Check ☐ N/A
A/M BMPs	The project was designed to minimize the number of crossings and their size.	☐ Check ☒ N/A
A/M BMPs	Wetlands and streams are proposed to be crossed at their narrowest point.	☐ Check ☒ N/A
Env-Wt 500 Env-Wt 600 Env-Wt 900	Wetland and stream crossings include features that accommodate aquatic organism passage and wildlife passage.	☐ Check ☒ N/A
Env-Wt 313.01(c)(1) Env-Wt 313.03(b)(6)	The project was designed to avoid and minimize impacts to floodplain wetlands that provide flood storage.	☒ Check ☐ N/A
Env-Wt 313.01(c)(1) Env-Wt 313.03(b)(7)	Impacts to natural riverine forested wetlands systems and scrub-shrub marsh complexes of high ecologic integrity are avoided and minimized.	☒ Check ☐ N/A
Env-Wt 313.01(c)(1) Env-Wt 313.03(b)(8)	Impacts to wetlands that would be detrimental to drinking water supply and groundwater aquifer levels are avoided and minimized.	☒ Check ☐ N/A
Env-Wt 313.01(c)(1) Env-Wt 313.03(b)(9)	Adverse impacts to stream channels and their ability to handle stormwater runoff are avoided and minimized.	☐ Check ☒ N/A
Env-Wt 900	Stream crossings are sized to address hydraulic capacity and geomorphic compatibility.	☐ Check ☒ N/A

A/M BMPs	Disturbed areas are used for crossings wherever practicable, including existing roadways, paths, or trails upgraded with new culverts or bridges.	☐ Check ☒ N/A
RSA 482-A:11, II	Project is designed to minimize impacts to abutting properties.	☒ Check ☐ N/A
Env-Wt 307.13	Setbacks from property lines required by Env-Wt 307.13 are maintained.	☐ Check ☒ N/A
SECTION 5 - RESOURCE-SPECIFIC DESIGN TECHNIQUES		
Env-Wt 500	The project is designed to address resource-specific avoidance and minimization criteria for non-tidal jurisdictional areas.	☒ Check ☐ N/A
Env-Wt 600	The project is designed to address resource-specific avoidance and minimization criteria for coastal lands and tidal waters/wetlands.	☐ Check ☒ N/A
Env-Wt 307.08 Env-Wt 700	The project is designed to address resource-specific avoidance and minimization criteria for designated prime wetlands.	☐ Check ☒ N/A
SECTION 6 - PROJECT-SPECIFIC DESIGN TECHNIQUES		
Env-Wt 500	The project is designed to use techniques outlined in Env-Wt 500 for projects in non-tidal jurisdictional areas.	☒ Check ☐ N/A
Env-Wt 600	The project is designed to use techniques outlined in Env-Wt 600 for projects in coastal lands and tidal waters/wetlands.	☐ Check ☒ N/A
Env-Wt 900	The project is designed to use stream crossing techniques outlined in Env-Wt 900 for stream crossing projects.	☐ Check ☒ N/A

Wetland Function-Value Evaluation Form

Total area of wetland > 50 acres Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"?

Adjacent land use transportation, commercial, residential Distance to nearest roadway or other development adjacent

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 1 - CT River Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland 1

Latitude Longitude

Prepared by: s.large Date 06/27/2019

Wetland Impact:
Type temporary & permanent Area see impact plans

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		4, 7*, 12, 13*, 15		spring/ seep from embankment sign of groundwater present
Floodflow Alteration	Y	1, 2, 5, 6*, 7, 8*, 9, 10*, 11, 13, 14, 17, 18	P	
Fish and Shellfish Habitat		1, 2, 4, 6, 7, 14, 15, 16, 17		wetland system is very far away from channel of CT, some answers not able to answer because didn't access river
Sediment/Toxicant Retention	Y	1, 2, 3, 4*, 5, 7, 8, 9, 10, 12*,14, 15, 16	P	12- seep from embankment is identified erosive force
Nutrient Removal		1, 3, 4, 6, 7, 8, 9, 10, 11,		wetland system is very far away from channel of CT, some answers not able to answer because didn't access river
Production Export		1, 2, 4, 5, 7, 8, 10, 12,		
Sediment/Shoreline Stabilization		1, 3, 4, 5, 7, 9, 12, 14,		wetland system is very far away from channel of CT, some answers not able to answer because didn't access river
Wildlife Habitat		1, 3, 6, 8, 9, 11, 13, 14, 15, 18, 19, 21,		minor degradation to wetland due to human influence/ commercial property abutting the slope failure/ wetland
Recreation		9		
Educational/Scientific Value		1, 2, 5, 6,		
Uniqueness/Heritage		5, 6, 7, 18, 19, 24,		wetland is a common forested wetlands found adjacent to many perennial streams/rivers
Visual Quality/Aesthetics		3, 6,		7- trash and debris from adjacent commercial property within wetland
ES Endangered Species Habitat				reference NHB & USFWS IPaC results
Other				

Notes:

* Refer to backup list of numbered considerations.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: February 19, 2020
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Andrew O'Sullivan
Kerry Ryan
Meli Dube
Chris Carucci
Maggie Baldwin
Jason Abdulla
Arin Mills
Tobey Reynolds
Phil Brogan
Loretta Doughty
Bill Saffian
John Butler
Mike Mozer

ACOE
Rick Kristoff

EPA
Jeannie Brochi

Federal Highway Administration
Jaimie Sikora

NHDES
Lori Sommer
Karl Benedict
Liz Sibson (intern)

NH Fish & Game
Carol Henderson

The Nature Conservancy
Pete Steckler

Consultants/Public Participants
Kimberly Peace
Josif Bicja
Joanne Theriault
Matt Lundsted
Steve Halloran
Ben Lundsted
Taylor Vasquuez
Nick Sceggell
Jennifer Doyle-Breen
Todd Dwyer
Pankaj Saharia
John Wilson
Vicki Chase
Kim Smith

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

(When viewing these minutes online, click on a project to zoom to the minutes for that project.)

Stratford, #42555

Arin Mills, BOE Environmental Manager, described the project location as along Hog Back Rd in the town of Stratford. Hog Back Rd is a state maintained local road near US Route 3, and the slope failure is along the upper terrace along the Connecticut River. The project was described to include drainage improvements as well as slope repair to restore road connection with US Route 3. Drainage improvements were included in the project as the adjacent landowner identified drainage as a possible contributing element to the failure. It is speculated a natural groundwater seep is the primary contributing element to the failure. Arin described the Department was first made aware of the failure in 2013, and in 2016 the barrier was installed. A proposal was made to the landowner to repair the failure at that time and it was found to be unacceptable at that time. Additional attempts for a proposed repair were made in 2019, and they again were not found acceptable to the landowner. {In meeting Arin stated road was closed in 2016, it has been verified the road was closed in 2019} The Department has now scheduled a public hearing in April 2020 to condemn the land in order to make the repair and re-open the road. Construction is anticipated in 2021.

Arin reported the seep is overlaid by 'Adams Sandy loam', identified by NRCS as having a high erosion potential. Photographs taken in fall of 2019 were shown, as well as a short video to help the audience gain perspective of the site and surrounding landscape.

Jason Abdulla, NHDOT Project Designer, presented the project plans. It was explained that the project was designed to limit disturbance and areas shown include both the project area as well site access. Drainage improvements include installation of a closed drainage system to convey stormwater runoff along Hog Back Rd which outlets at the bottom of the slope. An alternative design plan was shown for relocation of the roadway away from the failure with a connection to US Route 3 further south. Jason described that the road relocation alternative was ruled out for a variety of reason, which includes additional impacts to wetlands, ROW land acquisition, impacts and cost for stabilization and re-connection, utility impacts and additional drainage concerns.

Jason described a basic construction sequence which includes mobilization, installation of perimeter sediment controls, tree removal and access road construction. Work will be done from the bottom of the slope up, with installation of stone at bottom of slope as well as underdrain and gravel blanket on the slope. Detail of the drainage was provided which also included an outlet stone apron dissipater where stormwater enters the floodplain.

Arin reviewed the anticipated temporary and permanent wetlands impacts and floodplain. She noted the floodplain drawn on the plans is drawn to the FEMA Base Flood Elevation based on contour elevation. Permanent impacts will be 555 sq. ft., temporary impacts of 1,532 sq. ft., with 322 sq.ft. of temporary impacts to floodplains. Permanent impacts are for the drainage outlet and keying in the gravel blanket at the bottom of slope. Temporary impacts are needed for site access and will be limited as much as possible during construction. Arin described the slope above the gravel blanket will be seeded with a standard slope seed mix. Jason said the impact areas shown is a 'worst case' scenario, and impacts may be able to be pulled back based on the site conditions.

Arin then reviewed the remainder of the findings from the Environmental review. Two wildlife, Wood turtle and Marsh wren, were identified via a NHB database search. Carol Henderson. stated standard BMP's for turtles, to include no plastic welded erosion control matting, would be appropriate. Arin said Amy Lamb of NHB had confirmed via email there were no concerns to plant species, Great St. John's wort, based on habitat conditions in the project area. No impact to federal species, 4(d) consistency letter obtained for Northern long eared bat and no habitat within project area for Canada lynx. No Priority Resource Areas (PRA) were identified within the project area using the Wetland Permit Planning Tool

(WPPT), however through NWI+ data review impacts to Forested Floodplain were expected. Cultural review determined 'No Potential to Cause Effect'. No Alternation of Terrain required due to size, Construction General Permit and Stormwater Pollution Prevention Plan will be required.

Karl Benedict noted the impact to the Floodplain Forest at the toe of slope, which the floodplain of the Connecticut River is considered a PRA, and noted there is allowances within the rules for the temporary impacts proposed within the PRA. NHDOT Wetlands Program, Sarah Large and Andrew O'Sullivan, had previously met with Karl to discuss this topic and received confirmation at that time that DES would allow for classification and kick out allowances pertaining to temporary impacts to the PRA. Karl verified with the project team there is no increase in impervious surface and that stormwater shed and flows overland within the same footprint and direction as it currently does today, however the closed drainage will better manage the flow underground rather than contributing to surface flow and possibly contribution to the erosion and destabilization. Sarah further stated the current drainage will be perpetuated and there will be no redirection of surface water flow. Sarah clarified a standard application will be pursued at this time, although an EXP permit has not been ruled out if circumstances warrant. Lori Sommer confirmed no mitigation is required for the proposed work. Rick Kristoff, ACOE, recommended the permit application highlight there will be 'no net loss' to Floodplains as the Corp will need to have that as a finding.

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

Barrington, #16402 (X-A002(738))

Meli Dube, NHDOT Bureau of Environment, introduced the proposed project which is located at the crossing of US Route 4 over Caldwell Brook in the Town of Barrington approximately 0.3 miles west of the Lee traffic circle. The existing crossing is a 100' long by 54" diameter corrugated metal pipe that has a history of overtopping the roadway and flooding adjacent areas including several private homes and driveways. The flooding concerns are the driving factor for DOT justification for the project, as the current structural integrity of the pipe is ranked as "fair." Further evidence of the existing pipe being undersized include a perched condition and downstream scour pool, bank erosion and upstream sediment deposits. Aquatic organism passage at the existing culvert is ranked as "reduced" and geomorphic compatibility with the stream geomorphology is ranked as "mostly compatible." Caldwell brook at the project area has a 2.1 square mile drainage area and is considered a Tier 3 stream crossing. The average bankful width is 14', with reference reach bankful widths of 13', 16' and 13'. The floodprone width is 60' which results in an entrenchment ratio of 4.6. According to Rosgen stream classifications, Caldwell Brook is considered "slightly entrenched" and an entrenchment ratio of 2.2 should be used as the multiplier when calculating a compliant structure size.

M. Dube showed photos of the inlet and outlet of the existing Caldwell Brook crossing. Carol Henderson, NHFG, noted that a metal grate was shown off to the side of the inlet and asked if this is typically placed in front of the pipe, which would be a barrier to AOP. Tobey Reynolds, NHDOT Bureau of Highway Design, stated that it's not known how frequently or for how long of a duration the grate is in place but it's possible that NHDOT Division of Highway Maintenance uses it during certain times of year. M. Dube noted that none of the pictures from various site visits over the course of several years show the grate in place blocking the structure, but that it is frequently blocked by woody debris deposited during flooding events and must be cleaned out. M. Dube described the known natural resources in the area. The most recent DataCheck performed by the NH Natural Heritage Bureau indicated that known records of American brook lamprey, American eel, banded sunfish, Blanding's turtle and spotted turtle are located in the project area. NHFG has always previously identified Caldwell Brook as a cold water fishery for wild eastern brook trout and spring fed wild brook trout. Caldwell Brook is also included in the 2015 Wildlife Action Plan as a

NEW HAMPSHIRE NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Arin Mills, NH Department of Transportation
John O. Morton Building
7 Hazen Drive
Concord, NH 03302-0483

From: NH Natural Heritage Bureau

Date: 6/16/2020 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 6/11/2020

NHB File ID: NHB20-1722 **Applicant:** Arin Mills

Location: Stratford
Tax Maps: 230-48 & 230-49 & DOT ROW

Project Description: The proposed project will include reconstruction of the northern end of Hogback Rd, as well as stabilization of the failed embankment and improvements to drainage along the south side of US 3/Hogback Rd.

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program 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.

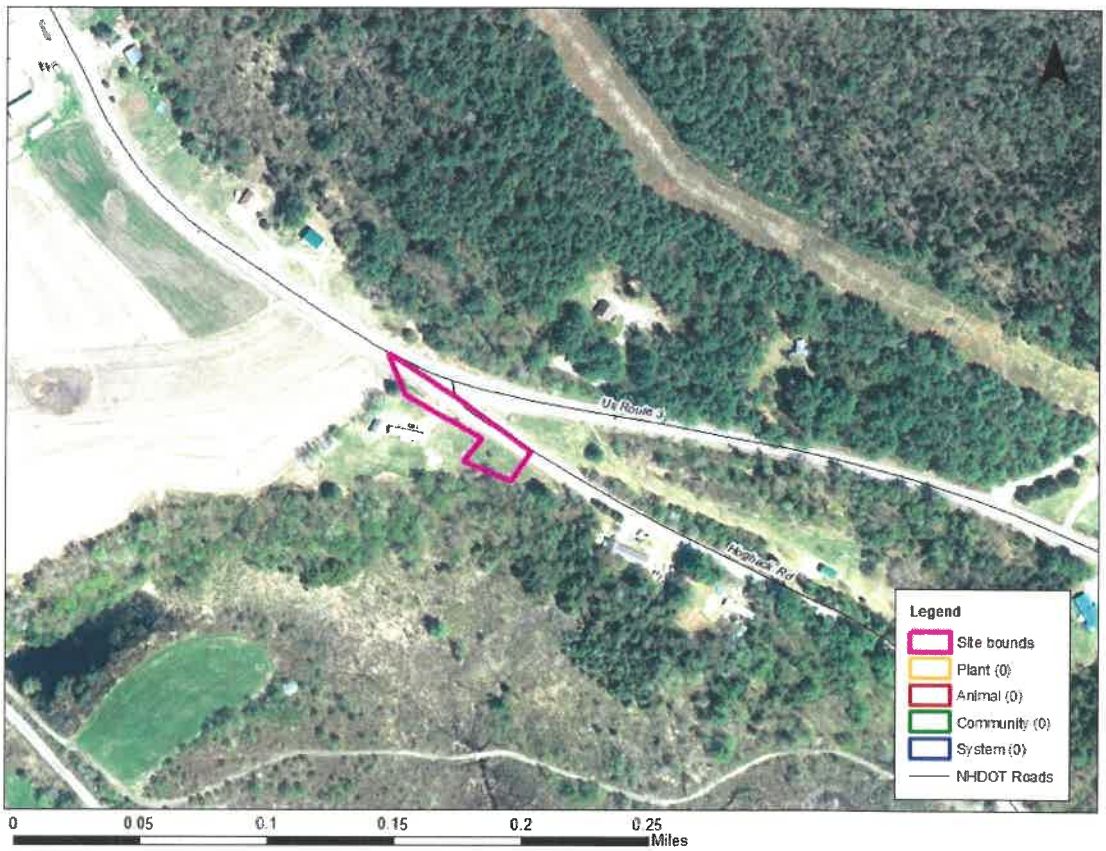
It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 6/11/2020, and cannot be used for any other project.

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

MAP OF PROJECT BOUNDARIES FOR: **NHB20-1722**

NHB20-1722



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

Mills, Arin

From: Lamb, Amy
Sent: Thursday, January 30, 2020 9:21 AM
To: Mills, Arin
Subject: RE: NHB review: NHB19-2017

Hi Arin,

Thank you for the meeting summary and updates. I will be interested to see how the project design develops as a result of discussion at the 2/19/20 Natural Resource Agency meeting. Unfortunately, I am going to be away during the meeting, but I do not expect that **great St. John's-wort** (*Hypericum ascyron ssp. pyramidatum*) would occur within the project area based on the photos and information provided. This species usually occurs on river/streambanks and is strongly associated with the Connecticut River in NH. The project area is quite steep and shaded and does not appear to provide adequate habitat for this species.

Thanks very much,
Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2834
amy.lamb@dncr.nh.gov

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Tuesday, January 28, 2020 2:35 PM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hello Amy,

I wanted to provide you with a basic update based on some information provided at today's meeting as it relates to the wetland permit application. The DOT Wetlands program met with Karl Benedict last Friday to discuss the project and provide some preliminary review. Based on the discussions there is a potential the DOT will pursue a minimum expedited standard dredge and fill permit, pending meeting all the requirements to meet this classification (to include NHB and NHFG review). Temporary impacts to the 100-year floodplain relating to access were discussed and DES did not feel this would disqualify the project for and Expedited review. If we cannot meet the conditions of the EXP we will likely pursue a standard dredge and fill permit.

Over the past week additional communication with the landowner have failed, and it does not appear the Department will be able to gain access through traditional means. This had led to the initiation of an expedited public hearing to gain access for the repair, tentatively planned for March. The Department hopes to construct the repairs this construction season (2020) to both allow the roadway to be re-opened and stabilize the slope from further failure, the primary driver of pursuing expedited for both items.

With that said, we plan to present at the February 19th Natural Resource Agency Meeting. Let me know if have any additional questions that I can help answer.

Arin

From: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Sent: Monday, January 27, 2020 3:37 PM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hi Arin,

I can't think of any additional questions besides those I already raised, but look forward to hearing the summary. Thanks!

Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2834
amy.lamb@dncr.nh.gov

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Monday, January 27, 2020 11:07 AM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hey Amy, She did meet with DES and Sarah has set up an internal meeting for tomorrow with myself and the engineers to give us a summary. Let me get back to you after that meeting to provide you the details. Are there any further questions that you think may be helpful to ask the engineers?

One thing I did want to relay that I misunderstood in our earlier conversation (1/22 at 1:02) is that the newly installed pipe will only be capturing and transporting the stormwater runoff from the road drainage improvements, not the groundwater. The gravel blanket proposed at the bottom of the slope will be installed up to the point where the water is being discharged at the time of the work (based on survey), and the gravel blanket will prevent further erosion and will stabilize the slope.

Thanks for your attention and I will be in touch. Just let me know if you have any questions for anyone that may help with your review, I am happy to ask.

Arin

From: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Sent: Monday, January 27, 2020 10:51 AM

To: Mills, Arin <Arin.Mills@dot.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hi Arin,

Thanks for the additional information. Do you have any updates since the meeting with NHDES?

~Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2834
amy.lamb@dncr.nh.gov

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Friday, January 24, 2020 7:48 AM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hey Amy,

Sarah did do the delineation and coincidentally has a meeting with DES later today to discuss permitting. In talking with Matt he says seeps are not always determined to be jurisdictional and depends on the field review for wetlands jurisdiction (hydrology, vegetation and soils). Sarah is not here now, nor was I with her when she delineated the site (last summer), but she would have tested for all parameters and if they were not observed it would not be considered jurisdictional. She likely would have tested the soils surrounding the outlet/daylight of the water and up the slope for hydric indicators. I have attached a few photos I took June of 2019 to help you see the site and vegetation surrounding the outlet/bottom of slope during the growing season.

There was consideration for relocating Hog Back Rd where this section would be abandoned and the connection would be made a bit further to the south. A few issues came from that alternative considered: safety concerns along Route 3 and creating an unsafe intersection at this new connection point, access concerns with this new alignment for large vehicles (snow plows and customers to the auto repair shop adjacent to the failure), wetlands were also delineated in the area between Hog Back and Route 3 that would require impact as well (shown on the color drawing), access constraints with an additional landowner for the land needed to construct this new alignment, and cost because the slope failure would still need to be addressed in some capacity in addition to the new road construction.

The proposed project will re-establish the slope from the road down the embankment. As seen in the drawings I provided the bottom portion will have a gravel blanket that is not proposed to be covered with humus which is required to maintain the slope and allow water flow without erosion. Engineers have designed this here at DOT so I feel confident that they have engineered this to ensure the slope will not continue to erode. The Department wants to address this issue with this fix and is our best interest to not have this be a continued maintenance issue. There are complications with the adjacent landowner not giving the required permission to address this issue, and that is why the problem has persisted since 2014 despite multiple attempts since the initial failure.

I hope that helps answer your questions and understanding of the project area. Let me know if there is any more info I can provide.

Arin

From: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Sent: Thursday, January 23, 2020 2:30 PM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hi Arin,

It looks like this water feature is excluded from the delineation, and I am trying to understand why that is. I understand that the stream is a seep/daylighted groundwater flow; does DES not consider this a jurisdictional area? I would think that it would be considered a stream based on the presence of continuously flowing water, even if this was not always present. Additionally, there are seep communities that have all three characteristics – hydrology, hydrophytic vegetation, and hydric soils – which would qualify as jurisdictional wetlands. Without seeing growing season vegetation or the soils within the seep itself, I'm not sure if this location qualifies, but I think there needs to be clear justification if it's not being considered a jurisdictional area.

I am not an engineer by any means, but I am concerned that rebuilding the roadway on top of a flowing water feature underlain by highly erodible soils could lead to another erosion event in the future. Was there consideration for moving a section of Hogback Road away from the break in slope?

Thanks for all of your help,
Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2834
amy.lamb@dncr.nh.gov

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Wednesday, January 22, 2020 1:02 PM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: RE: NHB review: NHB19-2017

Amy,

The failed embankment is a result of groundwater eroding the surrounding bank at the point where it 'daylights'. I would classify this as a natural seep which has caused bank destabilization which over time has encroached to the roadway causing the failure. The soils in this area are identified as 'Adams loamy sand, 15 to 60 percent slopes' and identifies the Potential Erosion Hazard as 'Severe'. I did not provide the delineation plan, although a preliminary delineation was done last summer and attached is the draft plan we have developed so far which may help. The reason you are not seeing the drain pipe outlet in the photos is because there is not one existing, that will be installed as part of the proposed project. Proposed work will include drainage improvements along the south side of Hog Back Rd (from

about intersection with Route 3) which will tie in with a newly installed pipe that capture the groundwater and outlet about the bottom of the slope. The slope will be reconstructed of loam with a gravel blanket at the base, as seen on the plan.

Does that help? It is a pretty complicated site so feel free to ask if you have additional questions.

Thanks!
Arin

From: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Sent: Wednesday, January 22, 2020 12:32 PM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hi Arin,

Thanks for sending the photos. Can you explain why the daylighted groundwater or stream is not included in the delineation on the plans? The plan does show a drainage pipe outlet though, which I am not seeing in photos. Can you please clarify?

Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2834
amy.lamb@dncr.nh.gov

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Wednesday, January 22, 2020 9:54 AM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: RE: NHB review: NHB19-2017

Amy, Here is a photo sheet I have developed which shows the area. Photos #9 & 10 best depict the wetland area which will be impacted at the bottom of the slope and in the forested floodplain wetland. Let me know if this helps or you would like additional photos.

Arin

From: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Sent: Wednesday, January 22, 2020 9:50 AM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Subject: RE: NHB review: NHB19-2017

Hi Arin,

Thank you for following up. NHB's records for great St. John's-wort (*Hypericum ascyron* ssp. *pyramidatum*) are primarily associated with the Connecticut River, where it occurs on riverbanks, herbaceous and shrub floodplains, and island shorelines. More generally, this species can occur in moist soils of wet meadows, floodplains, river shores and banks, and riparian forests; it flowers from about June-August. Since this species is pretty strongly associated with the CT River in NH, it is somewhat unlikely that it would occur within the project area. However, since the project will impact wetlands that are loosely associated with the River through hydrology, I would like to review site photos just to be completely certain that habitat for the species would not be impacted. Could you please send the site photos that you mentioned?

Thanks very much,
Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2834
amy.lamb@dncr.nh.gov

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Wednesday, January 22, 2020 9:22 AM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: RE: NHB review: NHB19-2017

Amy,

The Department has now developed a proposed plan to repair this slope destabilization that has occurred along Hog Back Rd in Stratford, a state maintained road. The Department will pursue a wetland permit from DES in the coming months, with the intent of constructing the repair in 2020. Below is a revised description of the proposed work as well as a draft repair plan which I have included to assist with your review.

Project Narrative: The project is located on Hogback Road, approximately 400 feet south of the northern intersection with US Route 3 (US 3), in Stratford. Hogback Road is the old alignment of US 3, which has been kept in service as an unnumbered state maintained roadway. The intent of this project is to restore an appropriate connection between Hogback Road and US 3. A slope failure, which first occurred in 2014 along the western roadway embankment between Hogback Road and the Connecticut River valley, has increased in size, resulting in encroachment into the southbound lane and necessitating full closure of the northern portion of Hogback Road. The proposed improvement includes reconstruction of the northern end of Hogback Road, as well as stabilization of the failed embankment and improvements to drainage.

The NHB Datacheck (NHB19-2017) has identified great St. John's-wort adjacent to the project area and now that we have a better defined repair plan I request a review of the project as it relates to this species. In looking at the provided Plant Record it appears the nearby population is on the bank of the Connecticut River. The proposed action is more than 3,000 feet from this location and will not impact the bank of the river. The wetland area to be impacted has been identified as a Palustrine Forested Broad-Leaved Deciduous, Seasonally flooded wetland (PFO1E).

Can you please review the information provided and let me know if you have any concerns for impacts to the species from the proposed action. I am happy to assist if you have any further questions. I have also been to the site and can provide photographs if that would be helpful.

Thanks!

Arin Mills
Environmental Manager, Operations Management
NH Department of Transportation
Bureau of Environment
7 Hazen Drive, Concord, NH 03302
Ph: (603)271-0187
Arin.mills@dot.nh.gov

From: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Sent: Friday, June 28, 2019 2:42 PM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Cc: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Subject: NHB review: NHB19-2017

Attached, please find the review we have completed. If your review memo includes potential impacts to plants or natural communities please contact me for further information. If your project had potential impacts to wildlife, please contact NH Fish and Game at the phone number listed on the review.

Best,
Amy

Amy Lamb
Ecological Information Specialist

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301
603-271-2834

Mills, Arin

From: Tuttle, Kim
Sent: Wednesday, March 25, 2020 2:19 PM
To: Mills, Arin
Subject: RE: Stratford Project Review, NHB19-2017

Sounds good!

Kim

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Wednesday, March 25, 2020 2:17 PM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Cc: Henderson, Carol <Carol.Henderson@wildlife.nh.gov>; Megyesy, Joshua <Joshua.Megyesy@wildlife.nh.gov>; Doperalski, Melissa <Melissa.Doperalski@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Thanks Kim! I will likely include this email chain with the permit application to DES, so thank you for responding. I can make a point to get out to the site this season to survey. I will reach out if I have any additional questions.

Thanks again!

Arin

From: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Sent: Wednesday, March 25, 2020 1:16 PM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Cc: Henderson, Carol <Carol.Henderson@wildlife.nh.gov>; Megyesy, Joshua <Joshua.Megyesy@wildlife.nh.gov>; Doperalski, Melissa <Melissa.Doperalski@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Hi Erin,

You don't need to wait to do a survey before submitting your permit to NHDES. As long as there is a commitment to check the area sometime in mid to late June/ early July for evidence of wood turtle nesting along the sides of the road where work will be done or equipment will be staged, that would be good.

Thanks,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Monday, March 23, 2020 12:57 PM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Cc: Henderson, Carol <Carol.Henderson@wildlife.nh.gov>; Megyesy, Joshua <Joshua.Megyesy@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Kim,

Thanks for the response. I am familiar with Wood turtle nesting from my previous work with the species. I can tell you in the few times I have been to the site my initial assessment is that it is not suitable nesting habitat within the project area as the slope is primarily heavily forested with mature trees, with the exception of the active failure area. My judgment is that this would not be preferred given the active erosion that is taking place in this area, and it historically was not loose sand prior to the failure. I attached a picture I took last fall of the area at the site of the failure.

We are attempting to submit our wetland application package by June 1st so that we may have the permit prior to advertising in late October. With that said, we would like to have a complete wetland permit application to submit to DES that includes F&G coordination. Do you feel we will need to wait for this survey to be conducted to conclude our coordination with F&G?

Thanks!

Arin

From: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Sent: Thursday, March 19, 2020 11:33 AM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Cc: Henderson, Carol <Carol.Henderson@wildlife.nh.gov>; Megyesy, Joshua <Joshua.Megyesy@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Hello Arin,

Since the anticipated construction isn't scheduled until 2021, someone should check to see if there is any evidence of turtle nesting this season in areas that will be disturbed by construction or where equipment will be staged. You are familiar with what potential nesting areas would look like – good southerly sun exposure with exposed, well- drained mineral soils. If evidence of nesting is found this season, it would be a good idea to silt fence the area(s) off before May 1 next year to prevent wood turtles from nesting in these areas to prevent construct delays.

Thanks,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Thursday, February 27, 2020 9:12 AM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>

Cc: Henderson, Carol <Carol.Henderson@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Hello Kim,

I just wanted to 'close the loop' on our coordination for this project as it relates to wildlife to be sure all concerns were addressed. The project was discussed at the February Natural Resource agency meeting last week (February 19, 2020) and Carol mentioned that BMP's for turtles, including no plastic welded erosion control netting, would be appropriate for protection of the Wood turtle occurrence identified in the area. I intend to include the following Environmental Commitments in my review document:

- Turtle species of concern are known to occur in the vicinity of the project. During the turtle nesting season from May 15th through July 1st, the Contractor shall review any areas with exposed soils that will experience truck traffic or equipment staging for turtle nesting activity. If turtles are found laying eggs in an area that will be disturbed, the Contractor shall cease work immediately to avoid disturbing the turtle, and contact the Bureau of Environment Arin Mills, 271-3226) for further instructions and coordination with NH Fish & Game.

- The NHFG Turtle Flyer shall be shared with all operators, employees and contractors working on the project. All observations of wood turtles, spotted turtles, box turtles or Blanding's turtles shall be immediately reported to NHFG (Melissa Doperalski 603-271-1738 or Josh Megysey 603-271-0463).

- Use wildlife friendly erosion control matting and avoid the use of welded plastic or 'biodegradable plastic' netting or thread in erosion control matting.

Let me know if you have any additional questions or concerns as it relates to this project. At this time the Department continues to work with the landowner and town as it relates to access for the repair work, with anticipated construction in 2021. Thanks for your help!

Arin

From: Mills, Arin
Sent: Tuesday, January 28, 2020 2:42 PM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Hello Kim, I just wanted to follow-up with you on this project. I have also been coordinating with Amy lamb so I also wanted to pass along some information that I provided her as it relates to the project.

The DOT Wetlands program met with Karl Benedict last Friday to discuss the project and provide some preliminary review. Based on the discussions there is a potential the DOT will pursue a minimum expedited standard dredge and fill permit, pending meeting all the requirements to meet this classification (to include NHB and NHFG review). Temporary impacts to the 100-year floodplain relating to access were discussed and DES did not feel this would disqualify the project for and Expedited review. If we cannot meet the conditions of the EXP we will likely pursue a standard dredge and fill permit.

Over the past week additional communication with the landowner have failed, and it does not appear the Department will be able to gain access through traditional means. This had led to the initiation of an expedited public hearing to gain access for the repair, tentatively planned for March. The Department hopes to construct the repairs this construction season (2020) to both allow the roadway to be re-opened and stabilize the slope from further failure, the primary driver of pursuing expedited for both items.

With that said, we plan to present at the February 19th Natural Resource Agency Meeting. Let me know if have any additional questions that I can help answer.

Arin

From: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Sent: Thursday, January 23, 2020 9:58 AM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Thanks Arin. This is helpful.

From: Mills, Arin
Sent: Thursday, January 23, 2020 9:50 AM
To: Tuttle, Kim
Cc: Magee, John
Subject: RE: Stratford Project Review, NHB19-2017

Hello Kim,

The failed embankment is a result of groundwater eroding the surrounding bank at the point where it 'daylights' and is not a stream. I would classify this as a natural seep which has caused bank destabilization which over time has encroached to the roadway causing the failure. The soils in this area are identified as 'Adams loamy sand, 15 to 60 percent slopes' and identifies the Potential Erosion Hazard as 'Severe'. I did not provide the delineation plan, although a preliminary delineation was done last summer and attached is the draft plan we have developed so far which may help.

I think what you have identified is Connary Brook which drains to the Connecticut but is not directly connected to this failure. I also attached a map depicting this Brook in relation to the project.

Hope this helps!

Arin

From: Tuttle, Kim
Sent: Thursday, January 23, 2020 8:39 AM
To: Mills, Arin
Cc: Magee, John
Subject: FW: Stratford Project Review, NHB19-2017

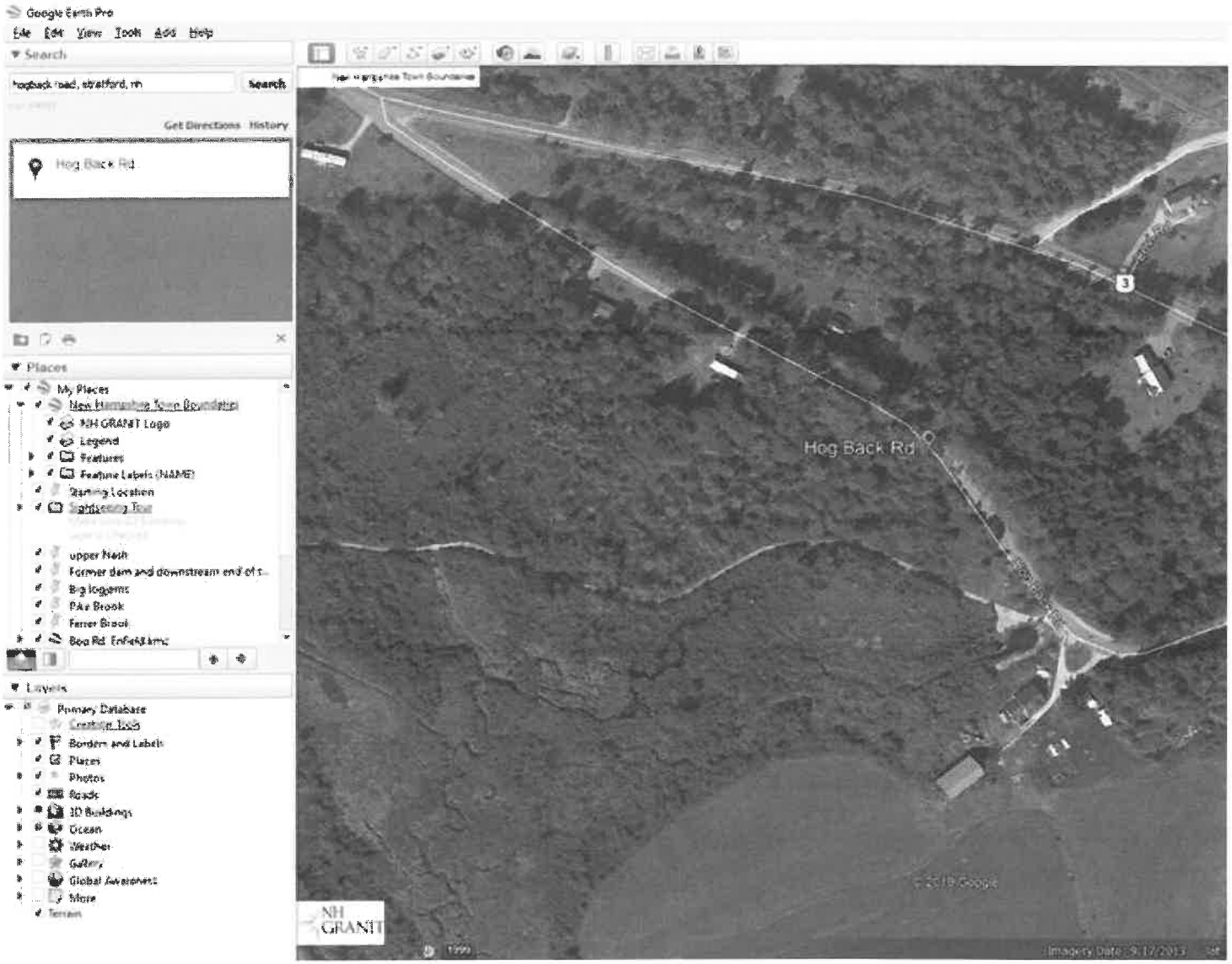
Hi Arin,

Do you know the cause of the slope failure? Could it be hydrologically related to what sounds like an undersized culvert about 1,000 ft. to the SE?

Kim

From: Magee, John <john.magee@wildlife.nh.gov>
Sent: Wednesday, January 22, 2020 2:00 PM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Looks like there is no stream there...but about 1,000 ft to the southeast, there is a HUGE scour pool downstream of a culvert on a stream.



John Magee, M.S., Certified Fisheries Professional
Past President, Northeastern Division of the American Fisheries Society
Fisheries Habitat Research and Management Programs Coordinator
New Hampshire Fish and Game Department
11 Hazen Drive, Concord, NH 03301
Phone 603-271-2744
Fax 603-271-5829

Did you know? New Hampshire Fish and Game protects, conserves and manages more than 500 species of wildlife, including 63 mammals, 18 reptiles, 22 amphibians, 313 birds and 122 kinds of fish as well as thousands of invertebrates!

From: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Sent: Wednesday, January 22, 2020 11:11 AM
To: Magee, John <john.magee@wildlife.nh.gov>
Subject: FW: Stratford Project Review, NHB19-2017

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Wednesday, January 22, 2020 10:58 AM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Kim,

Here is a photo sheet I made to show the area. Photo # 9 & 10 best show the forested floodplain wetland at the bottom of the slope. Let me know if you would like additional photos to help with your review.

Thanks!

Arin

From: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Sent: Wednesday, January 22, 2020 10:55 AM
To: Mills, Arin <Arin.Mills@dot.nh.gov>
Subject: RE: Stratford Project Review, NHB19-2017

Arin,

Do you have a photo or two of the slope failure?

Kim

From: Mills, Arin <Arin.Mills@dot.nh.gov>
Sent: Wednesday, January 22, 2020 9:35 AM
To: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Subject: Stratford Project Review, NHB19-2017

Hello Kim,

The Department has now developed a proposed plan to repair this slope destabilization that has occurred along Hog Back Rd in Stratford, a state maintained road. The Department will pursue a wetland permit from DES in the coming months, with the intent of constructing the repair in 2020. Below is a revised description of the proposed work as well as a draft repair plan which I have included to assist with your review.

Project Narrative: The project is located on Hogback Road, approximately 400 feet south of the northern intersection with US Route 3 (US 3), in Stratford. Hogback Road is the old alignment of US 3, which has been kept in service as an unnumbered state maintained roadway. The intent of this project is to restore an appropriate connection between Hogback Road and US 3. A slope failure, which first occurred in 2014 along the western roadway embankment between Hogback Road and the Connecticut River valley, has increased in size, resulting in encroachment into the southbound lane and necessitating full closure of the northern portion of Hogback Road. The proposed improvement includes reconstruction of the northern end of Hogback Road, as well as stabilization of the failed embankment and improvements to drainage.

The NHB Datacheck (NHB19-2017) has identified Marsh Wren and Wood Turtle adjacent to the project area. The review also identified the proposed project near the Dwarf Wedge Mussel Zone associated with the Connecticut River. The

proposed repair work is over 3,000 feet from the banks of the Connecticut River at its closest point. The wetland area to be impacted has been identified as a Palustrine Forested Broad-Leaved Deciduous, Seasonally flooded wetland (PFO1E).

Can you please review the information provided and let me know if you have any concerns for impacts to the species from the proposed action. I am happy to assist if you have any further questions. I have also been to the site and can provide photographs if that would be helpful.

Thanks!

Arin Mills
Environmental Manager, Operations Management
NH Department of Transportation
Bureau of Environment
7 Hazen Drive, Concord, NH 03302
Ph: (603)271-0187
Arin.mills@dot.nh.gov

United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 05E1NE00-2020-SLI-1063
Event Code: 05E1NE00-2020-E-02990
Project Name: Statford Slope Failure, #42555

January 22, 2020

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: 05E1NE00-2020-SLI-1063

Event Code: 05E1NE00-2020-E-02990

Project Name: Statford Slope Failure, #42555

Project Type: TRANSPORTATION

Project Description: Proposed improvement includes reconstruction of the northern end of Hogback Road, as well as stabilization of the failed embankment and improvements to drainage.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.67993862079878N71.5826775787976W

Counties: Coos, NH

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], 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
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

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

United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 05E1NE00-2020-TA-1063
Event Code: 05E1NE00-2020-E-02993
Project Name: Statford Slope Failure, #42555

January 22, 2020

Subject: Verification letter for the 'Statford Slope Failure, #42555' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Arin Mills:

The U.S. Fish and Wildlife Service (Service) received on January 22, 2020 your effects determination for the 'Statford Slope Failure, #42555' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Canada Lynx, *Lynx canadensis* (Threatened)

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

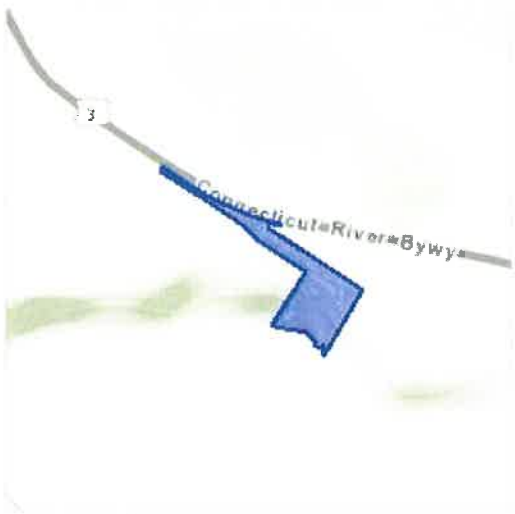
Statford Slope Failure, #42555

2. Description

The following description was provided for the project 'Statford Slope Failure, #42555':

> Proposed improvement includes reconstruction of the northern end of Hogback Road, as well as stabilization of the failed embankment and improvements to drainage.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.67993862079878N71.5826775787976W



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

   No

3. Will your activity purposefully **Take** northern long-eared bats?

   No

4. Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

7. Will the action involve Tree Removal?

   Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

   No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

    No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

0.75

2. If known, estimated acres of forest conversion from April 1 to October 31

0.75

3. If known, estimated acres of forest conversion from June 1 to July 31

0.75

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENT

NOTE TO FILE

Date: March 9, 2020

From: Arin Mills
Environmental Manager
Bureau of Environment

Project: Stratford
42555

RE: Canada Lynx Project Evaluation

The subject project is located on Hogback Rd, a State maintained road, within the town of Stratford. Work will repair the existing slope failure to stabilize the slope and allow the road to be re-opened to the public. The project will include the installation of a gravel underdrain at the toe of the slope, with a seeded embankment slope above. Associated work will include installation of a closed drainage system along the south side of Hogback Rd to improve stormwater runoff.

A species list was obtained from the US Fish & Wildlife Service (Consultation Code 05E1NE00-2020-SLI-1063) on January 22, 2020 using the online Information for Planning and Consultation (IPaC) project review website. Based on the project location both the Northern Long-eared bat and Canada lynx were listed as having potential to be in the project area. The IPaC site was further used to determine the project is not prohibited under the Endangered Species Act (ESA) Section 4(d) rule for impacts to the Northern Long-eared bat (Consultation Code: 05E1NE00-2020-TA-1063). To date no additional communication from the USFWS has been received.

A review of species information for the Canada lynx on the USFWS website, including the species Fact Sheet, found habitat for the species includes landscapes with high snowshoe hare densities, associated with boreal spruce-fir forest. Based on a field review no suitable habitat occurs within the project area for the species or its primary food source. The project area is primarily a steep sloped mature deciduous forest with a forested floodplain wetland at the toe of the slope. It is determined the project will have no effect on the Canada lynx. A 'No Species Present' letter is attached and no further coordination with the USFWS is required.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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

January 22, 2020

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

https://www.fws.gov/newengland/endangeredspecies/index.html (accessed January 2020)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

Date Reviewed: (Desktop or Field Review Date)	1/29/2020	☒ This Project uses only State funding; however project activities listed below comply with the PA.	
Project Name:	Stratford Slope Stabilization		
State Number:	42555	**FHWA Number:**	N/A
Environmental Contact:	Arin Mills	**DOT Project Manager:**	Toby Reynolds
Email Address:	Arin.mills@dot.nh.gov		

Project Description: The project is located on Hogback Road, approximately 400 feet south of the northern intersection with US Route 3 (US 3), in Stratford. Hogback Road is the old alignment of US 3, which has been kept in service as an unnumbered state maintained roadway. The intent of this project is to restore an appropriate connection between Hogback Road and US 3. A slope failure, which first occurred in 2014 along the western roadway embankment between Hogback Road and the Connecticut River valley, has increased in size, resulting in encroachment into the southbound lane and necessitating full closure of the northern portion of Hogback Road. The proposed improvement includes reconstruction of the northern end of Hogback Road, as well as stabilization of the failed embankment and improvements to drainage. This work will include installation of a closed drainage system along the southern side of Hog Back Rd which will accept stormwater runoff via catch basins to a corrugated pipe which will outlet at a stone apron at the base of the slope. The slope improvement will consist of a vegetated slope from the top of the bank which will transition into a gravel blanket from the point of the seepage to the bottom of the slope to allow continued natural groundwater flow.

Please select the applicable activity/activities:

Highway and Roadway Improvements	
☐	1. Modernization and general highway maintenance **that may require additional highway right-of-way or easement**, including: Choose an item. Choose an item.
☐	2. Installation of rumble strips or rumble stripes
☐	3. Installation or replacement of pole-mounted signs
☐	4. Guardrail replacement, provided any extension does not connect to a bridge older than 50 years old (unless it does already), and there is no change in access associated with the extension
Bridge and Culvert Improvements	
☐	5. Culvert replacement (excluding stone box culverts), when the culvert is less than 60" in diameter and excavation for replacement is limited to previously disturbed areas
☐	6. Bridge deck preservation and replacement, as long as no character defining features are impacted
☐	7. Non-historic bridge and culvert maintenance, renovation, or total replacement, **that may require minor additional right-of-way or easement**, including: Choose an item. Choose an item.
☐	8. Historic bridge maintenance activities within the limits of existing right-of-way, including: Choose an item. Choose an item.
☒	9. Stream and/or slope stabilization and restoration activities (including removal of debris or sediment obstructing the natural waterway, or any non-invasive action to restore natural conditions)

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

Bicycle and Pedestrian Improvements	
☐	10. Construction of pedestrian walkways, sidewalks, sidewalk tip-downs, small passenger shelters, and alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons
☐	11. Installation of bicycle racks
☐	12. Recreational trail construction
☐	13. Recreational trail maintenance when done on existing alignment
☐	14. Construction of bicycle lanes and shared use paths and facilities within the existing right-of-way
Railroad Improvements	
☐	15. Modernization, maintenance, and safety improvements of railroad facilities within the existing railroad or highway right-of-way, **provided no historic railroad features are impacted,** including, but not limited to: Choose an item. Choose an item.
☐	16. In-kind replacement of modern railroad features (i.e. those features that are less than 50 years old)
☐	17. Modernization/modification of railroad/roadway crossings provided that all work is undertaken within the limits of the roadway structure (edge of roadway fill to edge of roadway fill) and no associated character defining features are impacted
Other Improvements	
☐	18. Installation of Intelligent Transportation Systems
☐	19. Acquisition or renewal of scenic, conservation, habitat, or other land preservation easements where no construction will occur
☐	20. Rehabilitation or replacement of existing storm drains.
☐	21. Maintenance of stormwater treatment features and related infrastructure

Please describe how this project is applicable under Appendix B of the Programmatic Agreement.

The project will restore and stabilize a slope and roadway failure that is a result of assumed natural groundwater discharge. The proposed project will restore the slope in a way which will prevent future erosion and maintenance in the area. See the CR review attached that was completed 7/9/2019.

Please submit this Certification Form along with the Transportation RPR, including photographs, USGS maps, design plans and as-built plans, if available, for review. Note: The RPR can be waived for in-house projects, please consult Cultural Resources Program Staff.

Coordination Efforts:

Has an RPR been submitted to NHDOT for this project?	Not Applicable	NHDHR R&C # assigned?	Click here to enter text.
Please identify public outreach effort contacts; method of outreach and date:	Highway design has met with the Selectmen on 12/9/2019. BOE send initial contact letters to town officials on 1/22/2020.		

Finding: (To be filled out by NHDOT Cultural Resources Staff)

☒	**No Potential to Cause Effects**	☐	**No Historic Properties Affected**
This finding serves as the Section 106 Memorandum of Effect. No further coordination is necessary.			
☐	**This project does *not* comply with Appendix B. Review will continue under Stipulation VII of the Programmatic Agreement. Please contact NHDOT Cultural Resources Staff to determine next steps.**		

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

NHDOT comments:

NHDOT Cultural Resources Staff	1/29/2020 Date

Coordination of the Section 106 process should begin as early as possible in the planning phase of the project (undertaking) so as not to cause a delay.

Project sponsors should not predetermine a Section 106 finding under the assumption a project is limited to the activities listed in Appendix B until this form is signed by the NHDOT Bureau of Environment Cultural Resources Program staff.

Every project shall be coordinated with, and reviewed by the NHDOT-BOE Cultural Resources Program in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the New Hampshire State Historic Preservation Office, the Army Corps of Engineers, New England District, the Advisory Council on Historic Preservation, and the New Hampshire Department of Transportation Regarding the Federal Aid Highway Program in New Hampshire*. In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

NHDOT and the State Historic Preservation Office may use provisions of the Programmatic Agreement to address the applicable requirements of NH RSA 227-C:9 in the location, identification, evaluation and management of historic resources, for projects funded by State funds.

If any portion of the project is not entirely limited to any one or a combination of the activities specified in Appendix B (with, or without the inclusion of any activities listed in Appendix A), please continue discussions with NHDOT Cultural Resources staff.

This No Potential to Cause Effect or No Historic Properties Affected project determination is your Section 106 finding, as defined in the Programmatic Agreement.

Should project plans change, please inform the NHDOT Cultural Resources staff in accordance with Stipulation VII of the Programmatic Agreement.

NHDOT Cultural Resources Review

For the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C*, and/or state regulation RSA 227-C:9, *Directive for Cooperation in the Protection of Historic Resources*, the NHDOT Cultural Resources Program has reviewed the proposed project for potential impacts to historic properties.

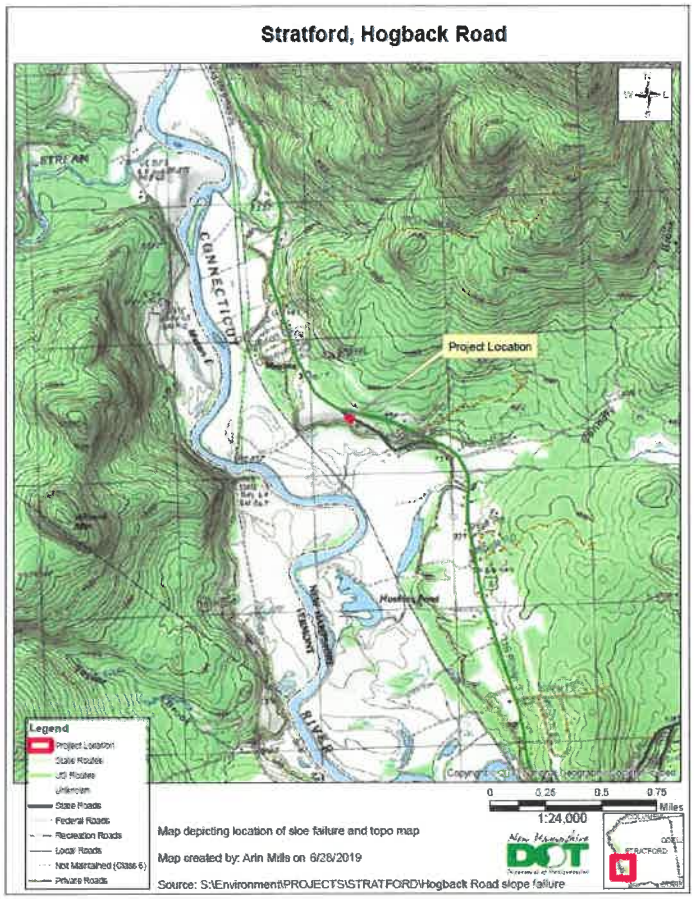
Proposed Project: This District 1 project addresses the slope failure on the west side of Hogback Road in Stratford, NH. Hogback Road generally has a southeast to northwest alignment and is located just westerly of US RT 3. The road appears to have been an old alignment of US RT 3, which has been kept in service as an unnumbered state maintained roadway (Interdepartmental Communication from Charles Dusseault to Brian Schutt September 11, 2014).

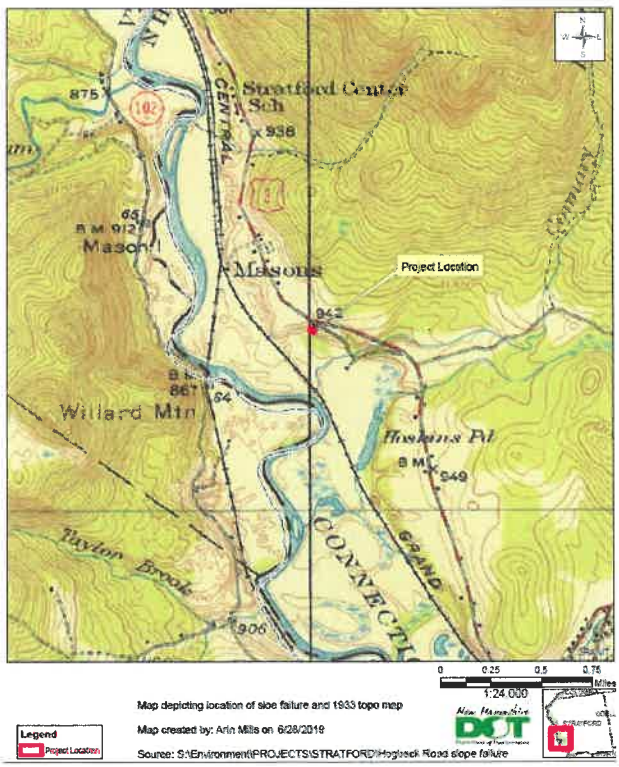
Hogback Road is situated near the top edge of a high escarpment bordering the Connecticut River Valley, which lies to the west. The escarpment is cut by a narrow ravine that extends from the edge of the roadway to the valley floor, and within the ravine is a drainage channel, that is likely groundwater. This ravine is strewn with man-made debris, including asphalt roofing shingles. Trees and other vegetation on the failed slope have collapsed into the ravine, filling the drainage channel. The exposed soil in the nearly vertical failure surface of the slope consists of dry, light colored sands (Interdepartmental Communication from Charles Dusseault to Brian Schutt September 11, 2014).

Hogback Road is currently closed due to a slope failure that occurred in 2019, which had been preceded by slope failures in 2005. These failures are interpreted to be wasting failures, where a mass of soil failed due to an instability caused by soil erosion undermining. To date, the abutting landowner, Nancy Bishop has not agreed to sign the entry and agreement form to enable the slope repair, although it is unlikely that working solely within the ROW would last given the unstable sand (Email from Philip Beaulieu April 15, 2019).

Due to the costly repair to return the ravine slope to its original condition, the following solutions are recommended:

- fixing the slope and opening the road or
- relocating the road (or dead ending it) and shoring up the slope. This alternative would likely realign Hogback Road to the north.





1933 USGS Topographic Quadrangle

Above Ground Review

Known/approximate age of structure:
No standing structures in project area

EMMIT review was undertaken by Sheila Charles on July 9, 2019 and revealed there are no historic or Project areas, no historical properties documented in the project area.

☒ **No Potential to Cause Effect/No Concerns**

I don't have any aboveground concerns with the area. The houses all appear modern in the area of the failure (built ca. 1989 and 1986) (Jill Edelmann, Cultural Resources Manager, NHDOT).

☐ Concerns:

Below Ground Review

Recorded Archaeological site: ☐Yes ☒No

Nearest Recorded Archaeological Site Name & Number: 27-CO-0132 Front Yard Foundation
☐Pre-Contact ☒Post-Contact (mortared fieldstone foundation)

Distance from Project Area:

8,171.11 north of project area; identified during Phase IA for Northern Pass Project (J. Fish, SEARCH 2014)

☒ **No Potential to Cause Effect/No Concerns**

EMMIT review was undertaken by Sheila Charles on July 9, 2019 and revealed there are no archaeological reports or sites documented in the project area.

Review also included photographs taken on June 14, 2019 by Arin Mills.

Due to the substantial slope, the project area has low to no archaeological sensitivity and there are no archaeological concerns.

Photographs taken on June 14, 2019 by Arin Mills.

Reviewed by:

Sheila Charles

7/9/2019

NHDOT Cultural Resources Staff

Date:

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.*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?		X
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.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	N/A	
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.)	X	
2.5 The overall project site is more than 40 acres?		X
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	X	

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: • PDF: https://wildlife.state.nh.us/wildlife/wap-high-rank.html. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		X
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)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the GC 21?	N/A	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		N/A
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**	X	

*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.

1.1: Impaired for E-coli

2.4: Both temporary and permanent impacts to forested wetland. Temporary (790 s.f.) for site access and permanent (159 s.f.) for portion of gravel blanket and drainage structure.

3.1: NHB Datacheck NHB19-2017. NHB determined no impact. NH Fish & Game said standard BMP's for turtles, including no plastic welded erosion control netting. 4(d) consistency letter for Northern long eared bat and no habitat for Canada lynx within project area.

Photo 1: Looking NW along Hogback Rd

Photo 2: Looking SE along Hogback Rd

Photo 3: Looking SE at top of slope and road failure

Photo 4: Looking NW at top of slope and road failure

Photo 5: Looking NE from western bank toward Hogback Rd

Photo 6: Looking NE from mid-slope of western bank

Photo 7: Looking North from bottom of failure, location of groundwater 'daylight'

Photo 8: Looking South from bottom of failure

Photo 9: Looking SW toward forested floodplain wetland at toe of slope

Photo 10: Looking SW toward forested floodplain wetland (further SW from Photo 9)

Photo 11: Looking NW at intersection of Route 3 and Hogback Rd

Photo 12: Looking SE at intersection of Route 3 and Hogback Rd

Construction Sequence

Stratford, #42555

- Begin work – Spring 2021 Mobilization
- Install perimeter sediment controls including necessary dewatering methods as described in the SWPPP documentation.
- Clean up debris and solid waste from the site. Remove trees and grub the slope.
- Once the slope is clear, reassess existing slope seepage conditions. If necessary, update SWPPP and dewatering methods.
- Excavate/grade for access to the base of the slope.
- Excavate and install Class B Stone (Key) at toe of proposed slope.
- Install slope pipe outlet and stone apron, headwall, and gravel blanket/underdrain system on slope.
- Install Class B stone on top of gravel blanket/underdrain system, while constructing slope drain system/drainage structures.
- Construct 2:1 vegetated slope using embankment in-place and humus, while constructing the slope drain system/drainage structures. Stabilize the slope using slope seed and wildlife friendly erosion control.
- Excavate and reconstruct roadway through final paving.
- Perform final site stabilization.
- Remove perimeter and sediment controls once site is fully stable.
- Open road to traffic.

Dewatering Narrative

Since there is no existing pipe outlet, dewatering will be limited to diverting any flows within the existing ditchline along the west side of Hog Back Road, and for controlling seepage that occurs within the slope itself. Anecdotal information implies that the ditch only sees flow during the spring snow melt. It is anticipated that work will not start at this location until the majority of spring snow melt has occurred, so there will likely be limited amounts of water to manage during construction. In the event there is still runoff in the ditchline, dewatering will include collection of the existing ditchline flow in a system of either temporary or permanent drainage structures (with sumps), conveyance down the slope in a temporary closed pipe system, and discharge at the base of the slope. Any seepage that needs to be dewatered during construction will likely also be collected in a temporary structure (basin, berm, swale), conveyed and outlet in a similar manner, if not through the same system, as the ditchline. It is anticipated that temporary erosion and sediment controls will be required at the base of the dewatering system, until the permanent drainage outlet is installed and stabilized. All components for temporary dewatering will occur within the permitted impact areas.

Drainage Narrative

Stratford, #42555

The original scope of the slope repair included reconstructing the lower portion of the slope, within the seepage area, with a gravel blanket and underdrain system, which would be covered in Class B stone to help stabilize the slope. The underdrain would outlet through a headwall at the base of the slope, and dissipate into the wetlands. The upper portion of the slope was proposed as a 2:1 vegetated slope, designed to mimic the conditions of the slope prior to the slope failure.

The proposal of a closed drainage system was in response to comments made by the project abutters during the Public Officials/Public Informational Meeting held on December 9, 2020. Specifically, the adjacent property owners Arsenault and Prive, located on the map below, indicated a pattern where substantial overland flow from spring snow melt would run from the farm north of the Bishop property, into the ditchline, and ultimately discharge down the slope at the location of the slope failure.

A photo of the roadside ditch, taken during the June 27, 2019 site visit, is included below. The photo is taken looking north along the west side of Hog Back Road, just north of the slope failure area.

Up until that point, the design team was unaware of this condition, since each site visit indicated an extremely dry ditchline. According to the abutters, at some point in the recent past, the farm was regraded, and drainage issues have occurred since. Although this was not considered as the sole reason for the slope failure, it seemed a likely component of the slope instability. As a result, the design team thought it was appropriate to try to capture some of the runoff prior to reaching the slope failure area to keep the slope as dry as possible.

The closed system is designed to meet the Department standards, including size of pipes, locations of drainage structures, and so forth. To minimize maintenance burdens, the closed system was designed to run down the hill and outlet in the same location as the gravel blanket/underdrain system. The increase in estimated flows at the system outlet did result in the need to stabilize the outlet with stone fill.

In summary, the closed system did not significantly alter the drainage pattern along this section of Hog Back Road, but offered a more controlled route to mitigate the potential for further slope failure, as well as the impacts and costs associated with addressing them.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENT

NOTE TO FILE

Date: July 27, 2020

From: Arin Mills AJM
Environmental Manager
Bureau of Environment

Project: Stratford Slope Failure
42555

RE: Public Coordination

The subject project is located on the northern end of Hogback Road in the town of Stratford. The project will reconstruct the failed slope and improve drainage, allowing the re-establishment of the roadway connection between Hogback Rd and US Route 3.

A letter dated January 22, 2020 was sent to town officials and departments, to include the Stratford Conservation Commission. The letter requested the town notify the Department of any known resources or environmental concerns they feel may be pertinent to the project. To date no contact has been made by the town to the Department from this correspondence.

A presentation was made by the Department to the Board of the Selectmen on December 9, 2020. No comments relating to the natural or cultural resources was received at the meeting.

A public hearing was held on July 1, 2020 relating the proposed reconstruction of the failed slope. Due to the COVID-19 pandemic the meeting will be help remotely and was properly noticed. The intent of this meeting is to allow the Department to acquire necessary right-of-way. A presentation was given by myself summarizing the findings of the environmental review. No comments were received during the meeting regarding natural or cultural resources.

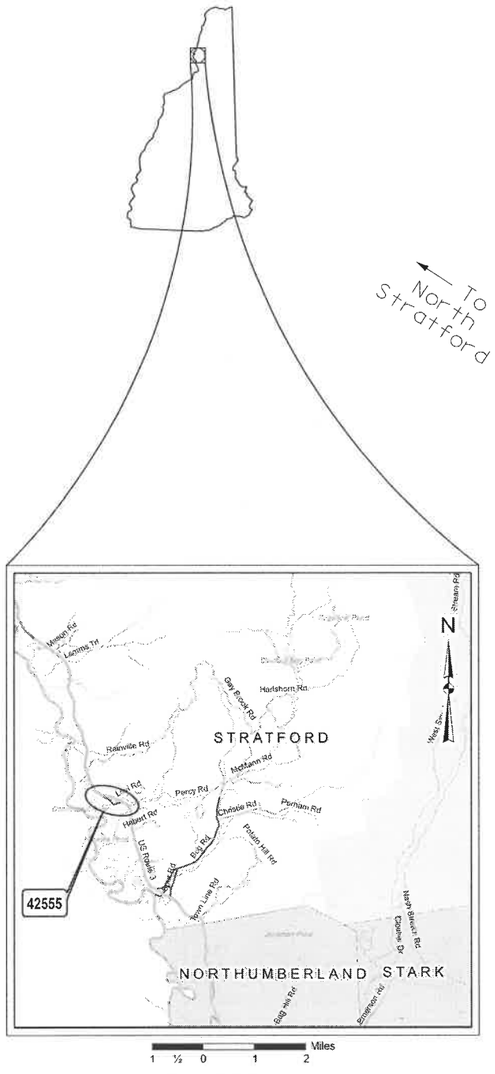
No additional correspondence from the Stratford Conservation Commission has been received to date as it relates to this project.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

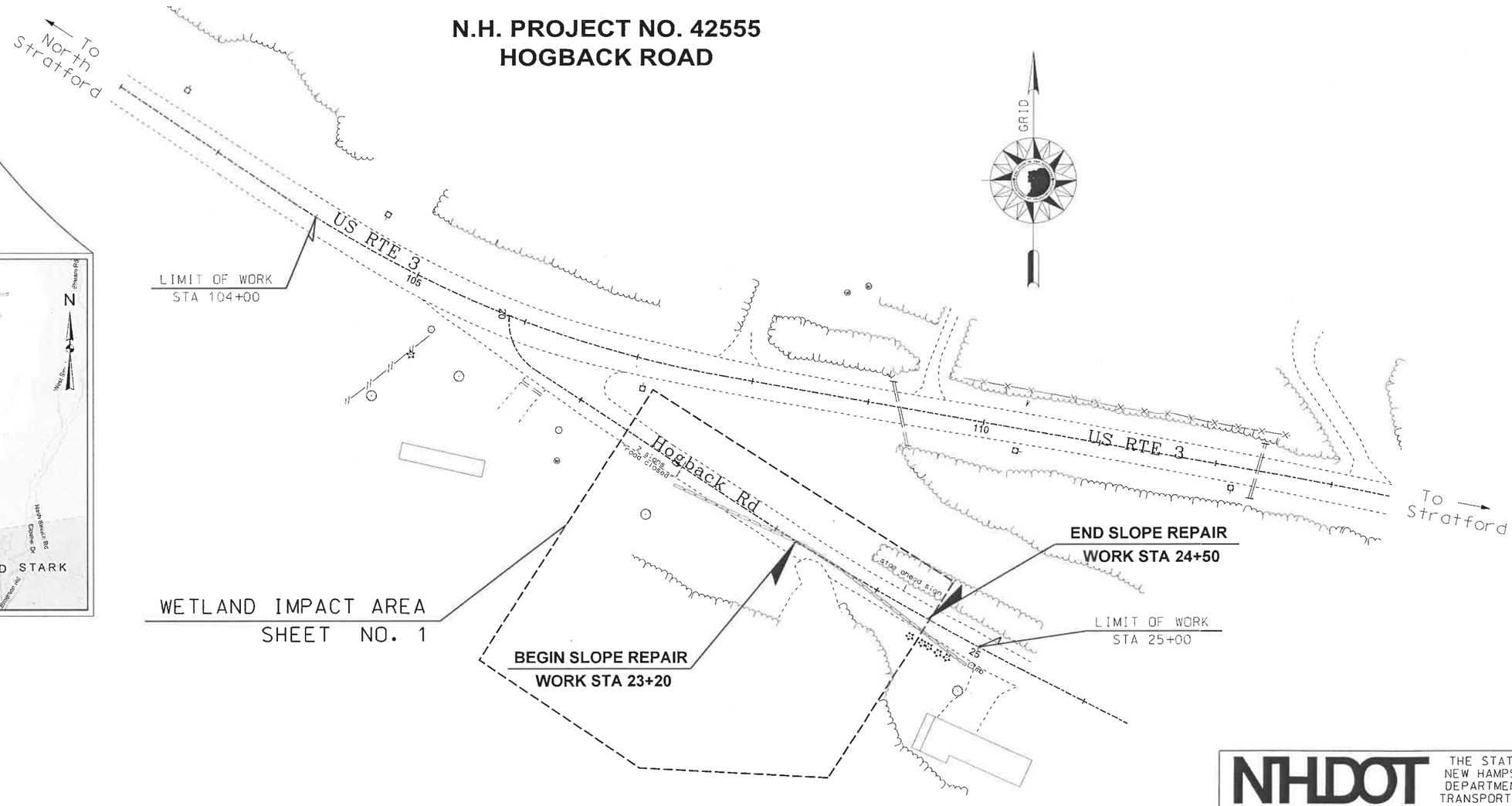
WETLANDS PLANS
BETTERMENT PROJECT

N.H. PROJECT NO. 42555
HOGBACK ROAD

DESIGN DATA	
AVERAGE DAILY TRAFFIC 2018 (US ROUTE 3)	2943
AVERAGE DAILY TRAFFIC 2018 (HOGBACK RD)	92
PERCENT OF TRUCKS	N/A
DESIGN SPEED	35
LENGTH OF PROJECT	700 FT



LOCATION MAP



INDEX OF SHEETS

TOWN OF STRATFORD

COUNTY OF COOS

SCALE: 1" = 50'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

DRAWN BY	j.abdulla	DATE	05/2020
CHECKED BY	XX	DATE	XX

NHDOT — 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
42555fsw		42555	1	6

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)
(show station, circumference in feet & type)

TREE OR STUMP (CROSS-SECTIONS)

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 — 293

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)

SLOPE LINE — CLEARING LINE

CLEARING 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	stdsymb1_2	42555	2	6

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

UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN

show direction of flow (label size & type)

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

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 —

FIBER OPTIC — FO — FO — PFO — PFO

WATER SHUT OFF

GAS SHUT OFF

HYDRANT

MANHOLES

SEWER — MHS

TELEPHONE — MHT

ELECTRICAL — MHE

GAS — MHG

UNKNOWN

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

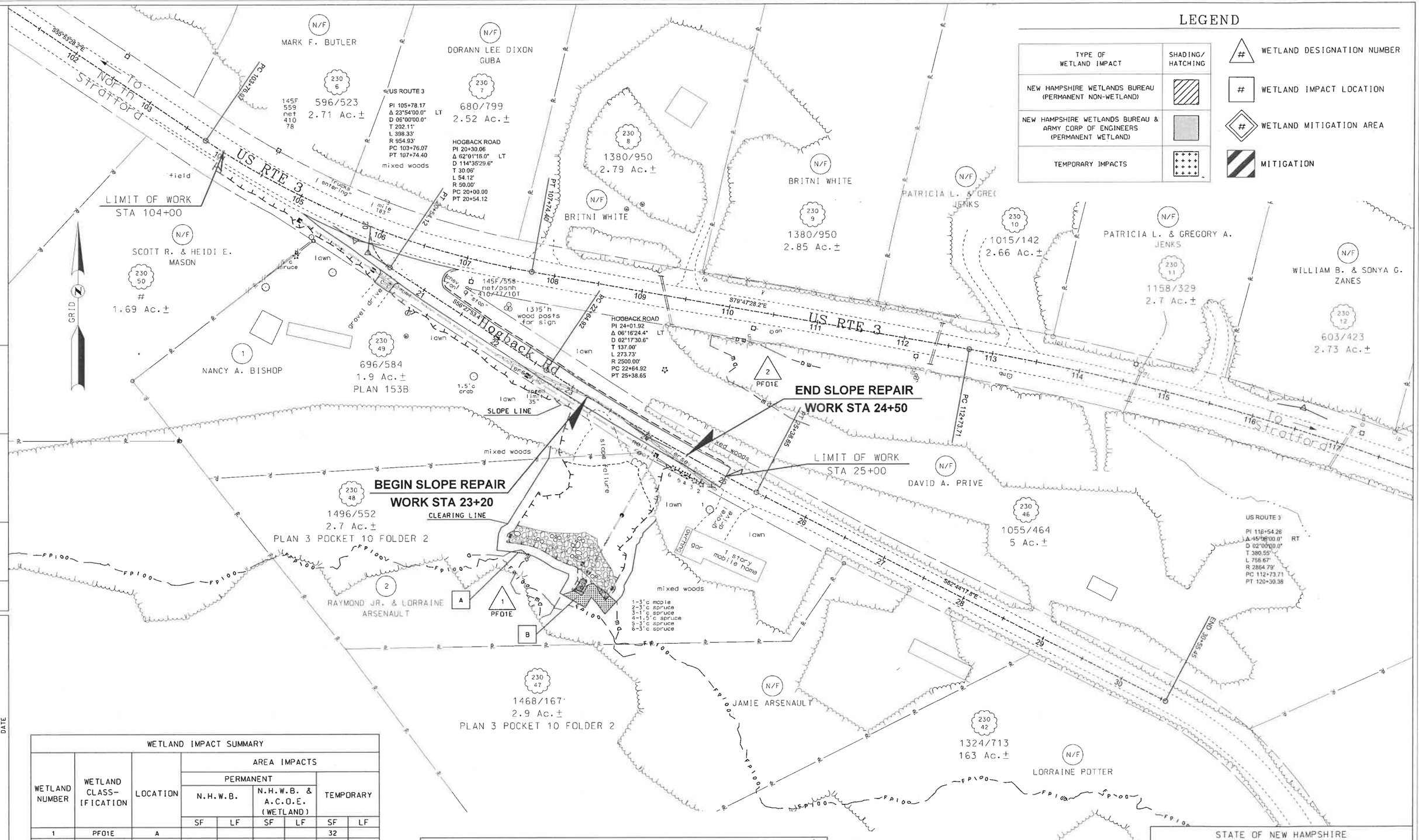
TRAFFIC SIGNAL NOTE — 1

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	stdsymb1_2	42555	3	6



WETLAND IMPACT SUMMARY								
WETLAND NUMBER	WETLAND CLASS-IFICATION	LOCATION	AREA IMPACTS					
			PERMANENT				TEMPORARY	
			N.H.W.B.		N.H.W.B. & A.C.O.E. (WETLAND)			
			SF	LF	SF	LF	SF	LF
1	PFO1E	A					32	
1	PFO1E	B			159		758	
		TOTAL			159		790	

PERMANENT IMPACTS: 159 SF
TEMPORARY IMPACTS: 790 SF
TOTAL IMPACTS: 949 SF

WETLAND CLASSIFICATION CODES	
PFO1E	PALUSTRINE FORESTED BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED

WETLANDS DELINEATED BY SARAH LARGE, NHDOT WETLANDS ANALYIST, JUNE 27, 2019 IN ACCORDANCE WITH ENV-WT 406.

50 0 50 100
SCALE IN FEET

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	DATE

SDR PROCESSED S.E.L. DATE DATE1
NEW DESIGN J. Abdulla DATE 06/2020
SHEET CHECKED NAME3 DATE DATE3
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE
STRATFORD

WETLAND IMPACT PLANS

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555wetplan	42555	4	6

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-WQ 1500 REQUIREMENTS (HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM)
   - 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.

2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
   - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
   - 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
   - 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
   - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
     - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
     - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
     - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
     - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
   - 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
   - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
   - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
   - 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30" AND MAY 1" OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
     - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
     - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
     - (C) AFTER NOVEMBER 30" 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-WQ 1505.02 AND ENV-WQ 1505.05.
     - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30".

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
   - 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
   - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
   - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
   - 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
   - 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.

4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
   - 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
   - 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
   - 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1" THROUGH NOVEMBER 30", 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-WQ 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-WQ 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-WQ 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-WQ 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-WQ 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	DNSCB	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	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. 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
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN
EROSION CONTROL STRATEGIES

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	erosstrat	42580	5	8

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

WETLAND DESIGNATION NUMBER
WETLAND IMPACT LOCATION
WETLAND MITIGATION AREA
MITIGATION

US RTE 3
To North Stratford
To Stratford
Hogback Rd
LIMIT OF WORK STA 104+00
LIMIT OF WORK STA 25+00
BEGIN SLOPE REPAIR WORK STA 23+20
END SLOPE REPAIR WORK STA 24+50
CLEARING LINE
SLOPE LINE
GRID
MARK F. BUTLER
DORANN LEE DIXON GUBA
BRITNI WHITE
PATRICIA L. & GREGORY A. JENKS
WILLIAM B. & SONYA G. ZANES
SCOTT R. & HEIDI E. MASON
NANCY A. BISHOP
DAVID A. PRIVE
RAYMOND JR. & LORRAINE ARSENAULT
JAMIE ARSENAULT
LORRAINE POTTER
230/6 596/523 2.71 Ac.±
230/7 680/799 2.52 Ac.±
230/8 1380/950 2.79 Ac.±
230/9 1380/950 2.85 Ac.±
230/10 1015/142 2.66 Ac.±
230/11 1158/329 2.7 Ac.±
230/12 603/423 0.73 Ac.±
230/50 # 1.69 Ac.±
230/49 696/584 1.9 Ac.± PLAN 153B
230/48 1496/552 2.7 Ac.± PLAN 3 POCKET 10 FOLDER 2
230/47 1468/167 2.9 Ac.± PLAN 3 POCKET 10 FOLDER 2
230/46 1055/464 5 Ac.±
230/42 1324/713 163 Ac.±
US ROUTE 3 PI 105+78.17 Δ 23°54'00.0" LT D 06°00'00.0" T 202.11' L 398.33' R 954.93' PC 103+76.07 PT 107+74.40
HOGBACK ROAD PI 20+30.06 Δ 62°01'16.0" LT D 114°35'29.6" T 30.06' L 54.12' R 50.00' PC 20+00.00 PT 20+54.12
HOGBACK ROAD PI 24+01.92 Δ 06°16'24.4" LT D 02°17'30.6" T 137.00' L 273.73' R 2500.00' PC 22+64.92 PT 25+38.65
US ROUTE 3 PI 116+54.26 Δ 15°06'00.0" RT D 02°00'00.0" T 380.55' L 756.67' R 2864.79' PC 112+73.71 PT 120+30.38
PFO1E
mixed woods
lawn
gravel drive
1 story mobile home
garage
shrubs
1-3"c mable
2-3"c spruce
3-1"c spruce
4-1.5"c spruce
5-3"c spruce
6-3"c spruce
FP100
S79°47'28.2"E
S62°44'17.8"E
S56°27'53.4"E

EROSION CONTROL PLAN LEGEND

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

50 0 50 100
SCALE IN FEET

REVISIONS AFTER PROPOSAL

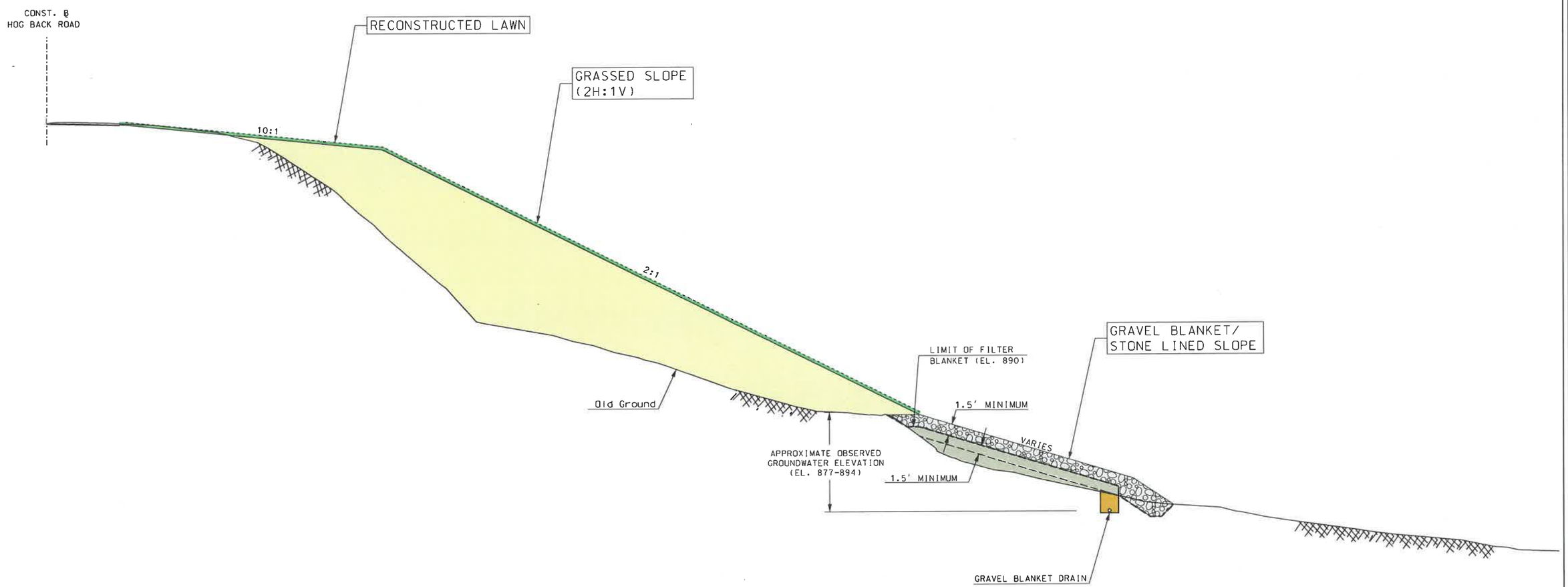
NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCESSED S.E.L. DATE DATE1
NEW DESIGN J. Aquilio DATE 06/2020
SHEET CHECKED NAME3 DATE DATE3
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE
STRATFORD

EROSION CONTROL PLAN

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555wetplan	42555	6	6



SLOPE REPAIR DETAIL
STA. 23+10 - 24+50

INFORMATION ONLY

Not To Scale

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

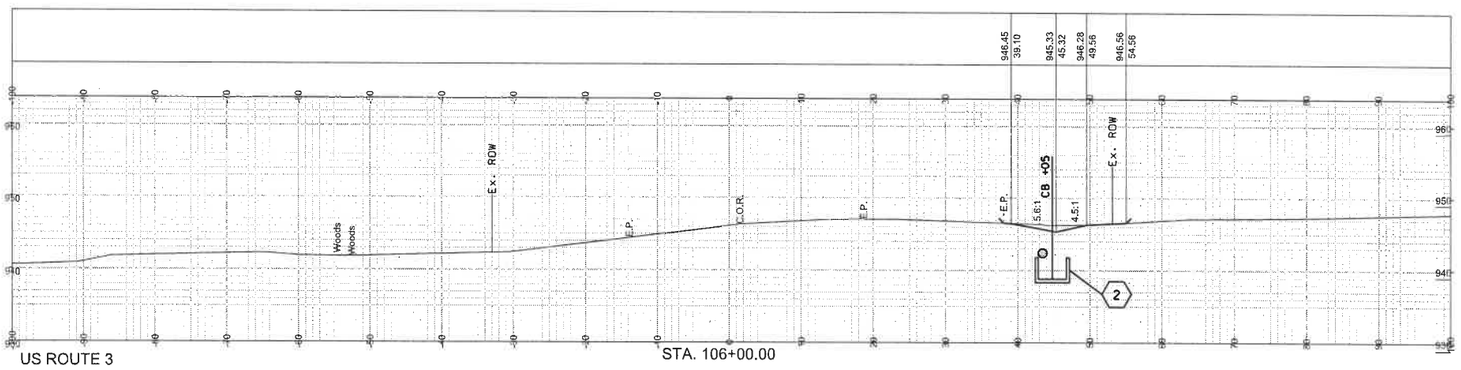
HOG BACK ROAD
TYPICAL SECTION

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555typ	42580	1	1

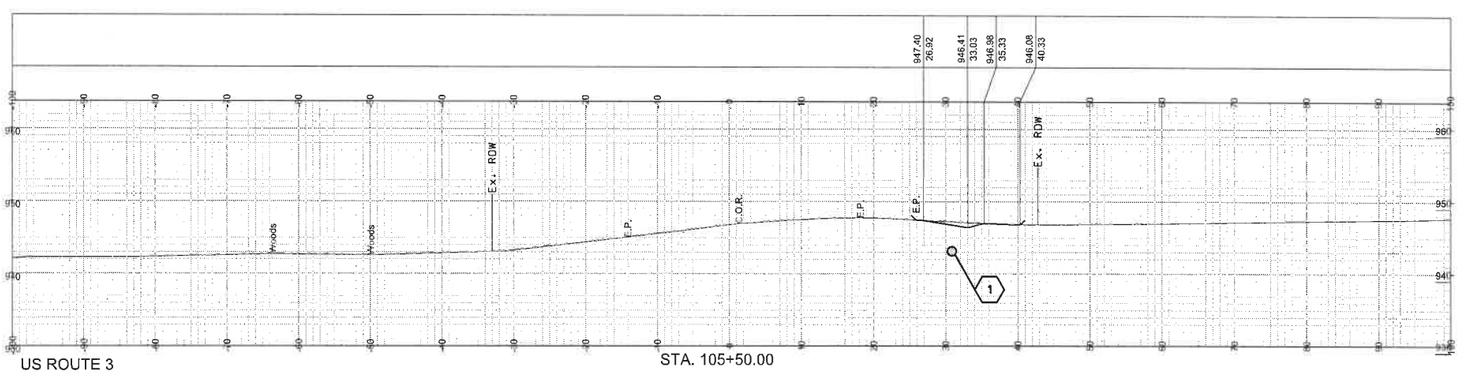
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

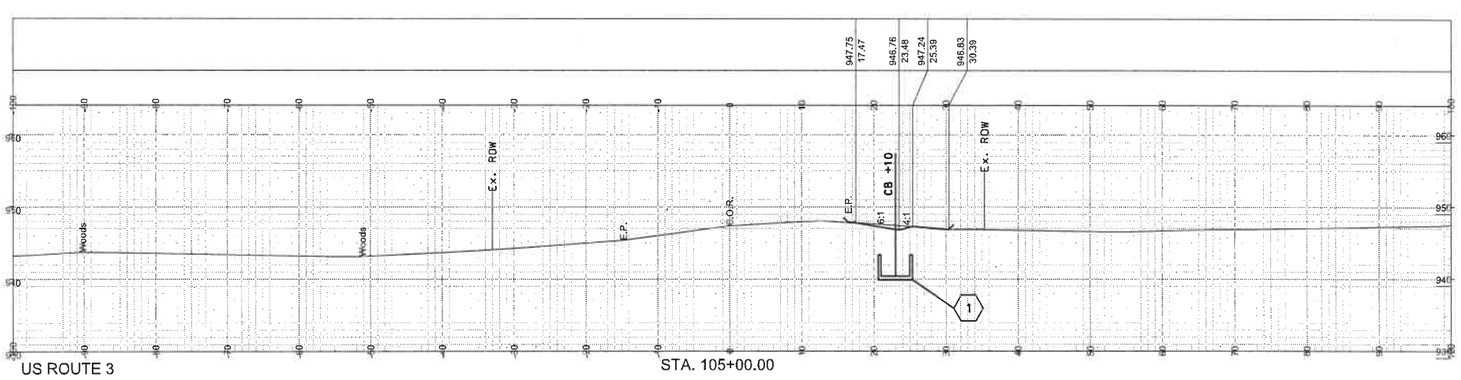
NUMBER	DATE	STATION	STATION	DESCRIPTION



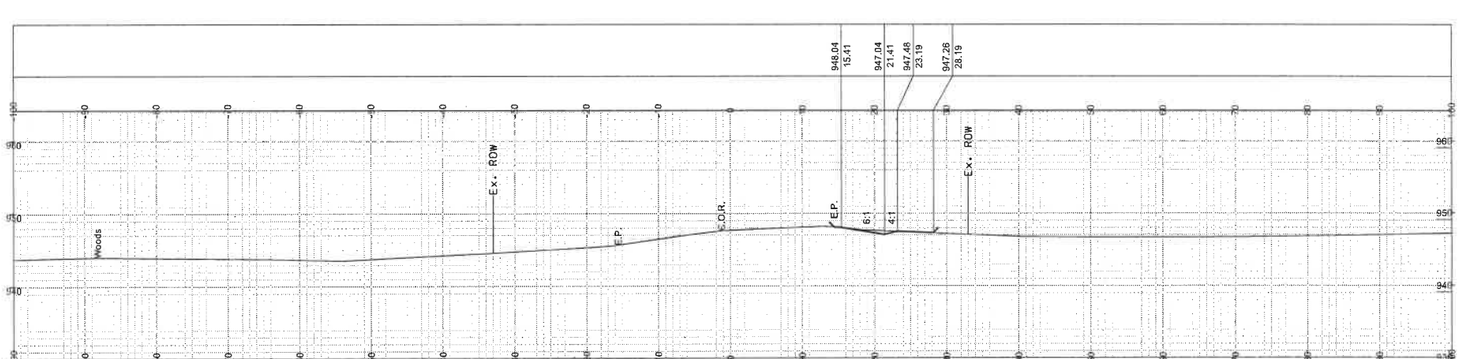
US ROUTE 3 STA. 106+00.00



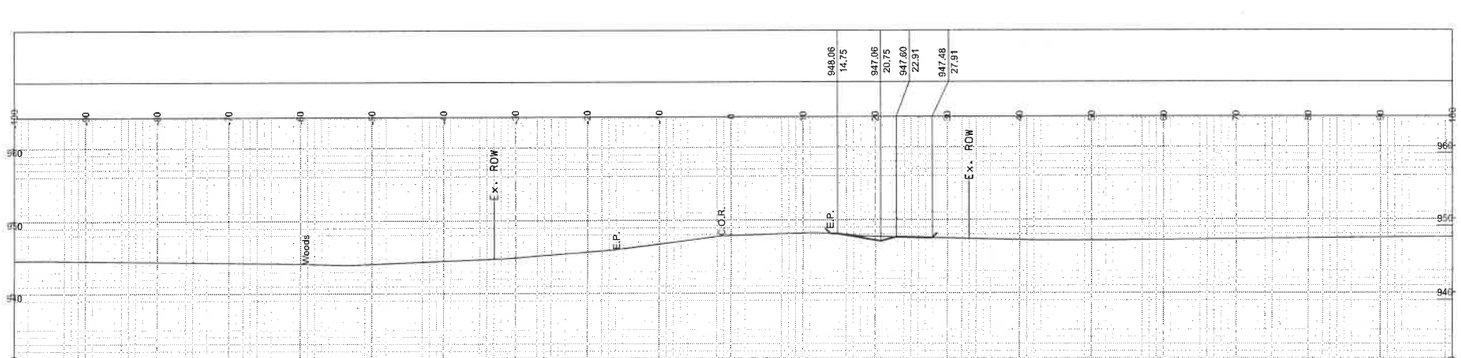
US ROUTE 3 STA. 105+50.00



US ROUTE 3 STA. 105+00.00



US ROUTE 3 STA. 104+50.00



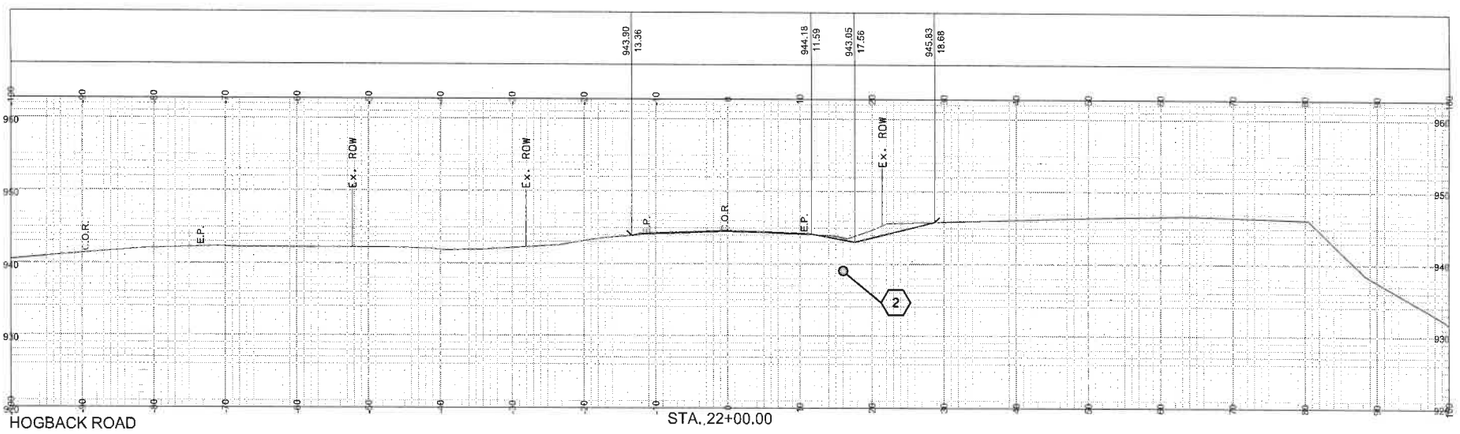
US ROUTE 3 STA. 104+00.00

STRATFORD		SHEET TOTALS			
COMMON EXCAV.	– C.Y.	ROCK EXCAV.	– C.Y.		
FILL	– C.Y.	MUCK EXCAV.	– C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS		
42555_xsect	42555	1	20		

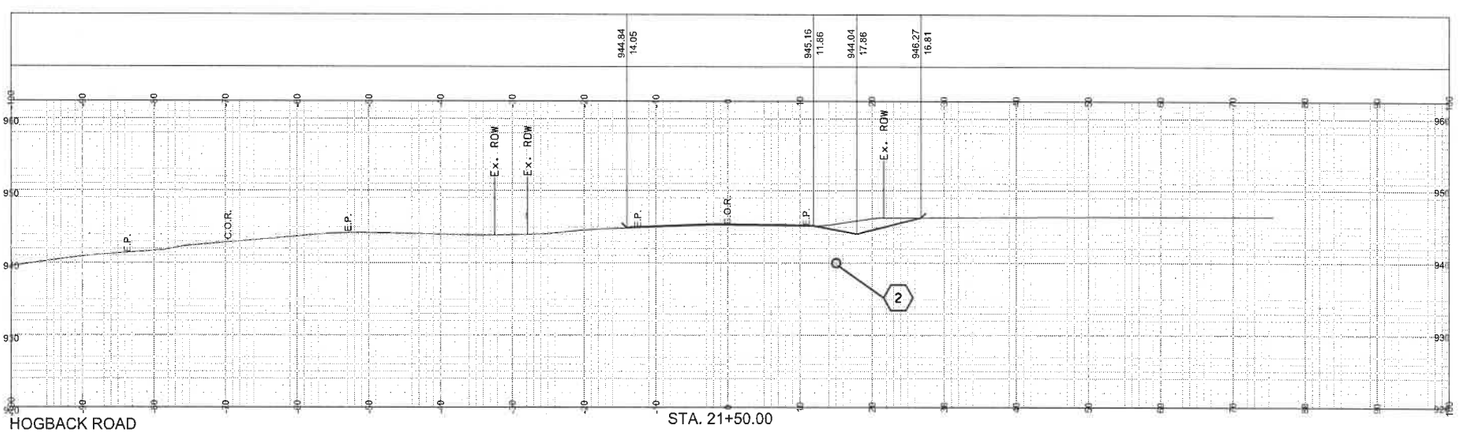
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

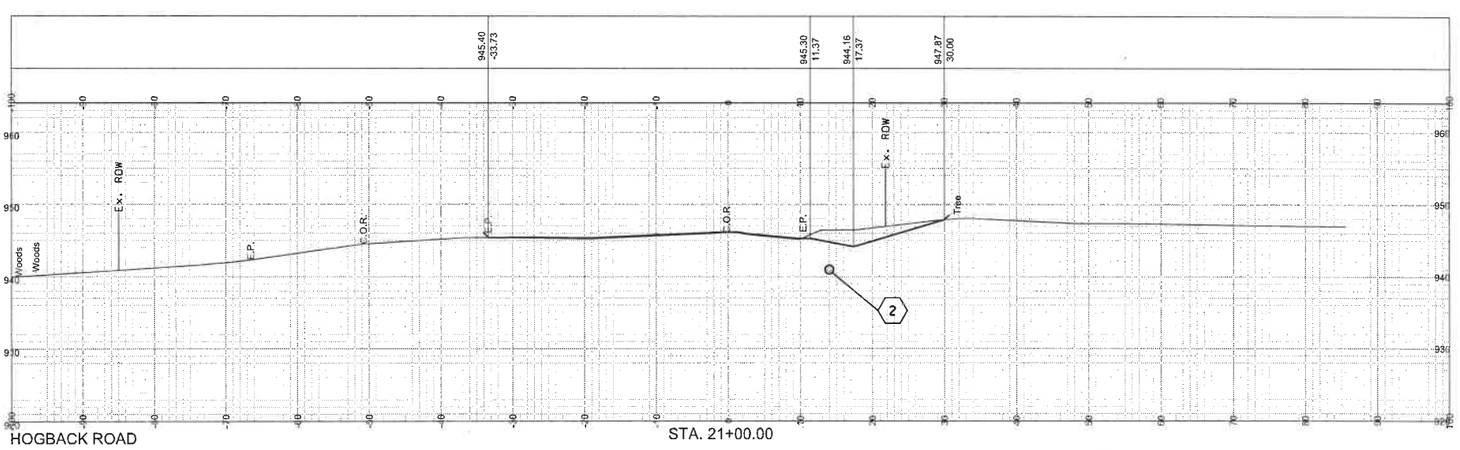
NUMBER	DATE	STATION	STATION	DESCRIPTION



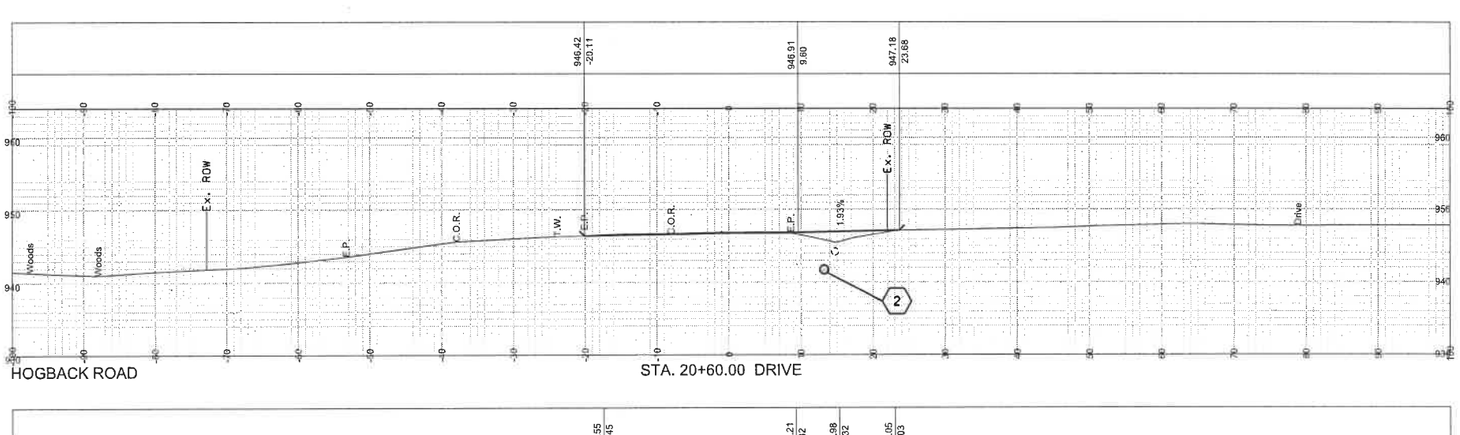
HOGBACK ROAD STA. 22+00.00



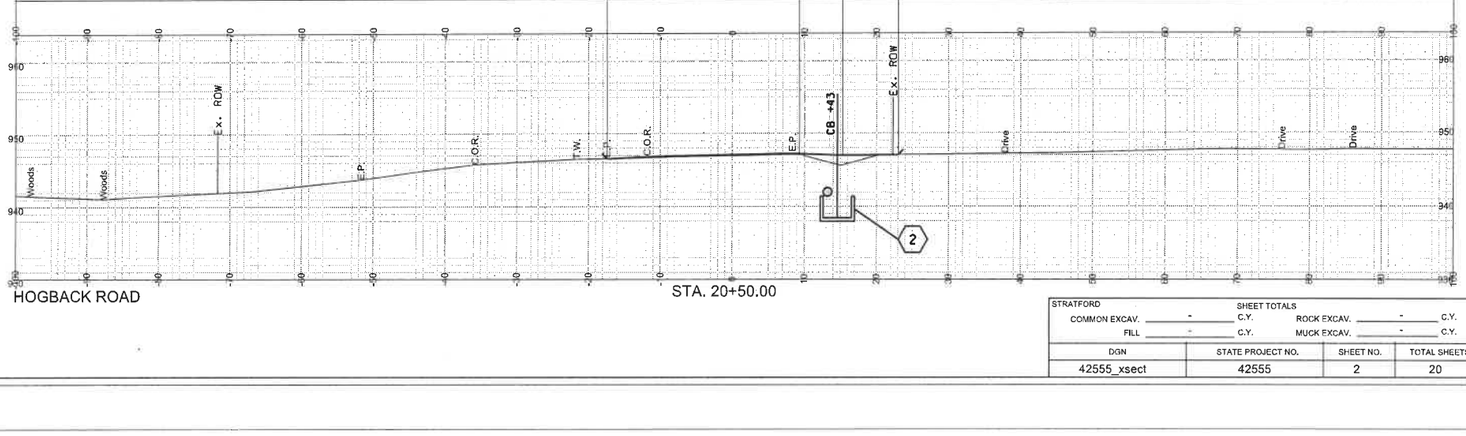
HOGBACK ROAD STA. 21+50.00



HOGBACK ROAD STA. 21+00.00

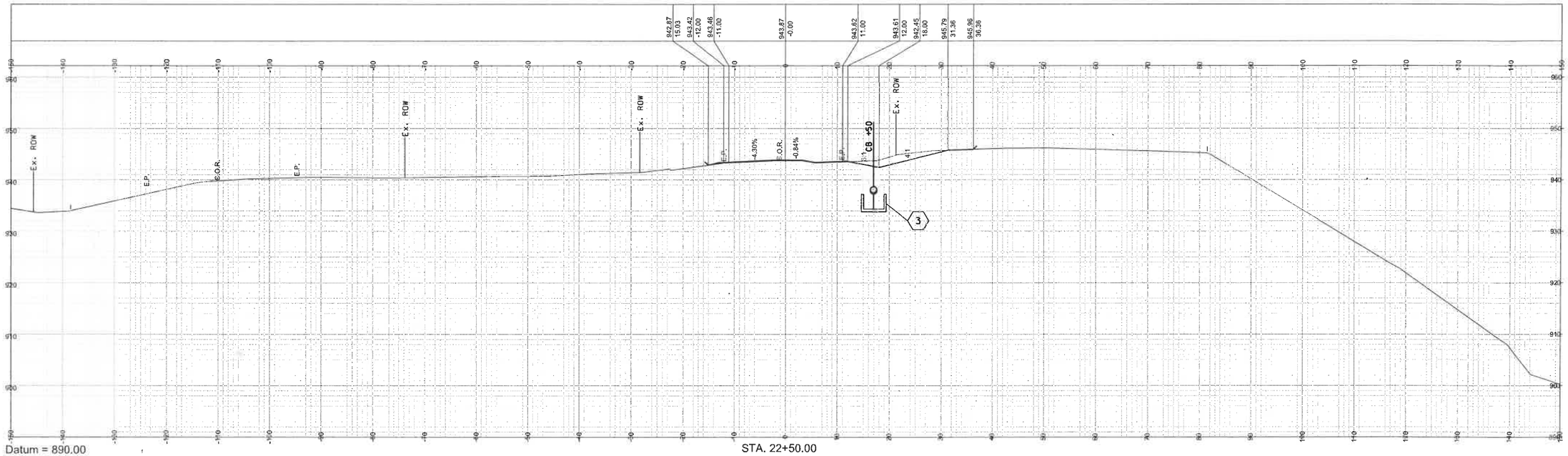


HOGBACK ROAD STA. 20+60.00 DRIVE



HOGBACK ROAD STA. 20+50.00

STRATFORD		SHEET TOTALS			
COMMON EXCAV.	- C.Y.	ROCK EXCAV.	- C.Y.		
FILL	- C.Y.	MUCK EXCAV.	- C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS		
42555_xsect	42555	2	20		



Datum = 890.00

STA. 22+50.00

HOGBACK ROAD

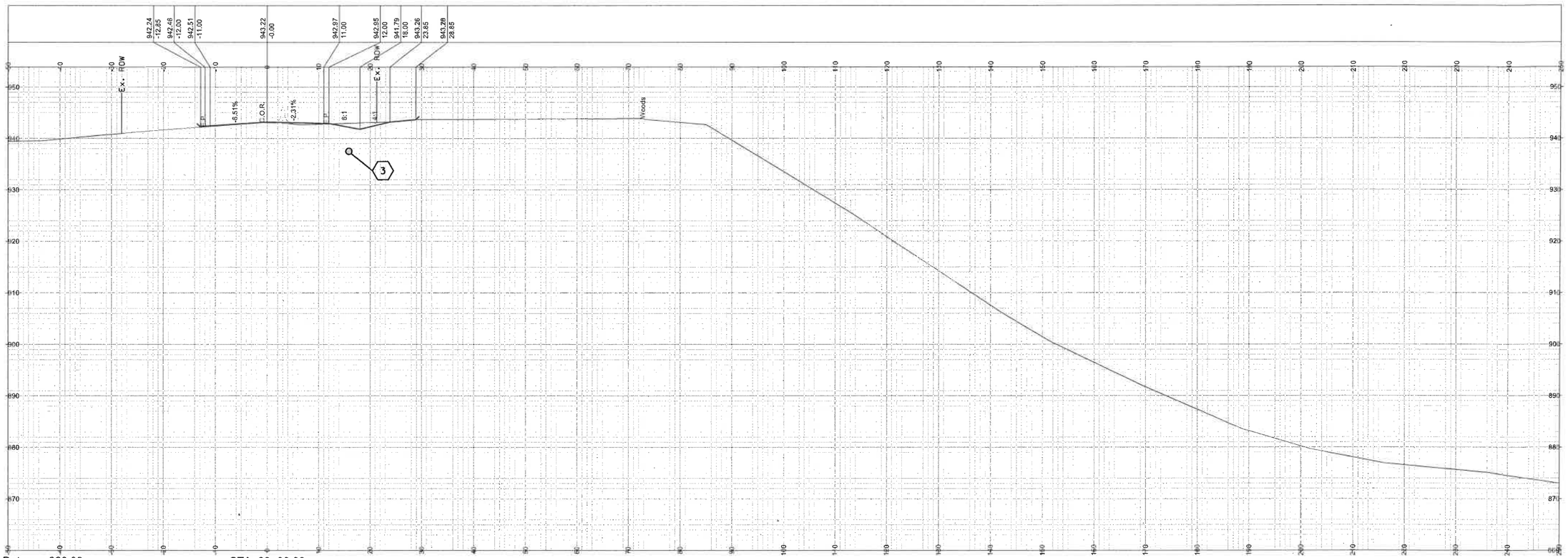
REVISIONS AFTER PROPOSAL

STATION	STATION	DESCRIPTION	NUMBER	DATE

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

STRATFORD	SHEET TOTALS		
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	3	20



Datum = 860.00 STA. 23+00.00

HOGBACK ROAD

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION

STATION	STATION

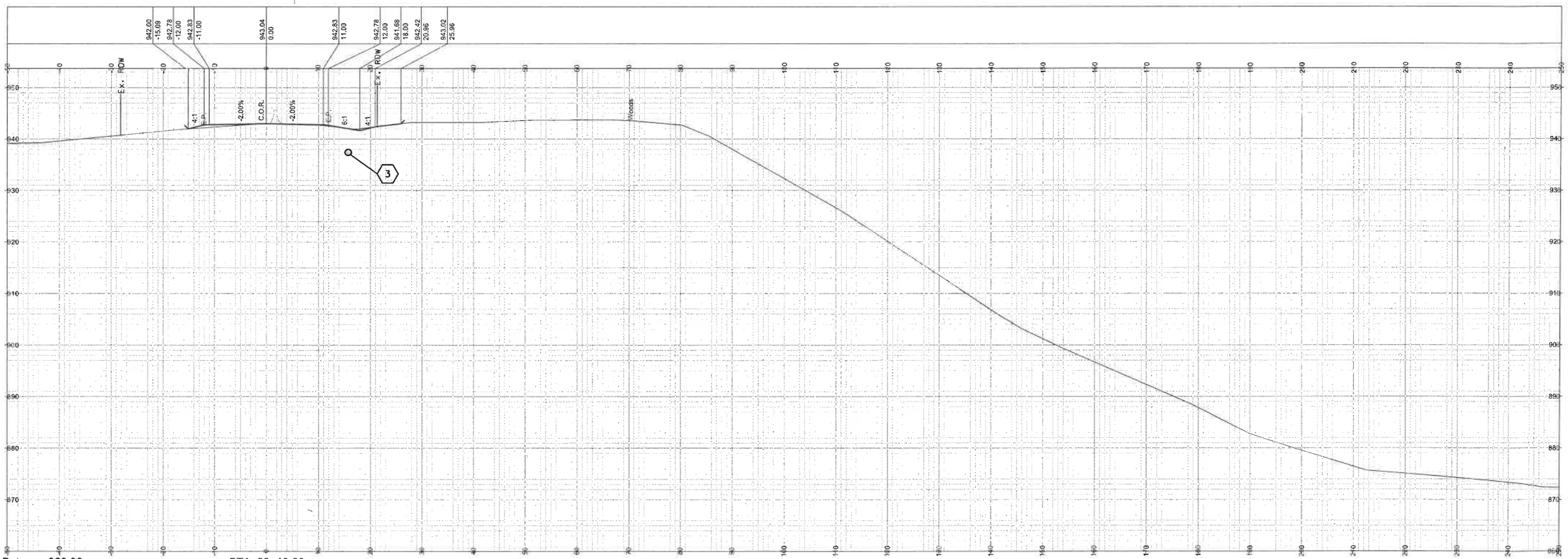
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STRATFORD SHEET TOTALS

COMMON EXCAV. _____ C.Y. ROCK EXCAV. _____ C.Y.

FILL _____ C.Y. MUCK EXCAV. _____ C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	4	20



Datum = 860.00 STA. 23+10.00

HOGBACK ROAD

REVISIONS AFTER PROPOSAL

STATION	DESCRIPTION	STATION	NUMBER	DATE

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

STRATFORD SHEET TOTALS

COMMON EXCAV. - C.Y. ROCK EXCAV. - C.Y.

FILL - C.Y. MUCK EXCAV. - C.Y.

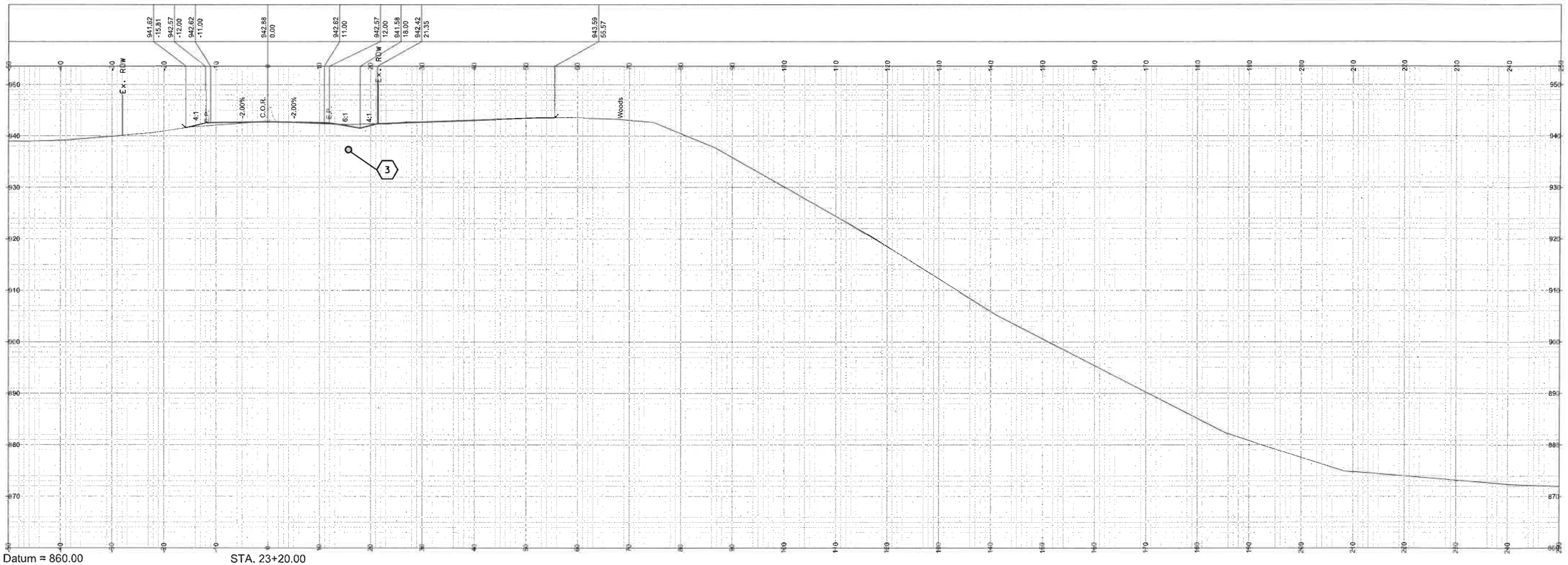
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	5	20

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION	STATION

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

AS BUILT DETAILS DATE



Datum = 860.00 STA. 23+20.00

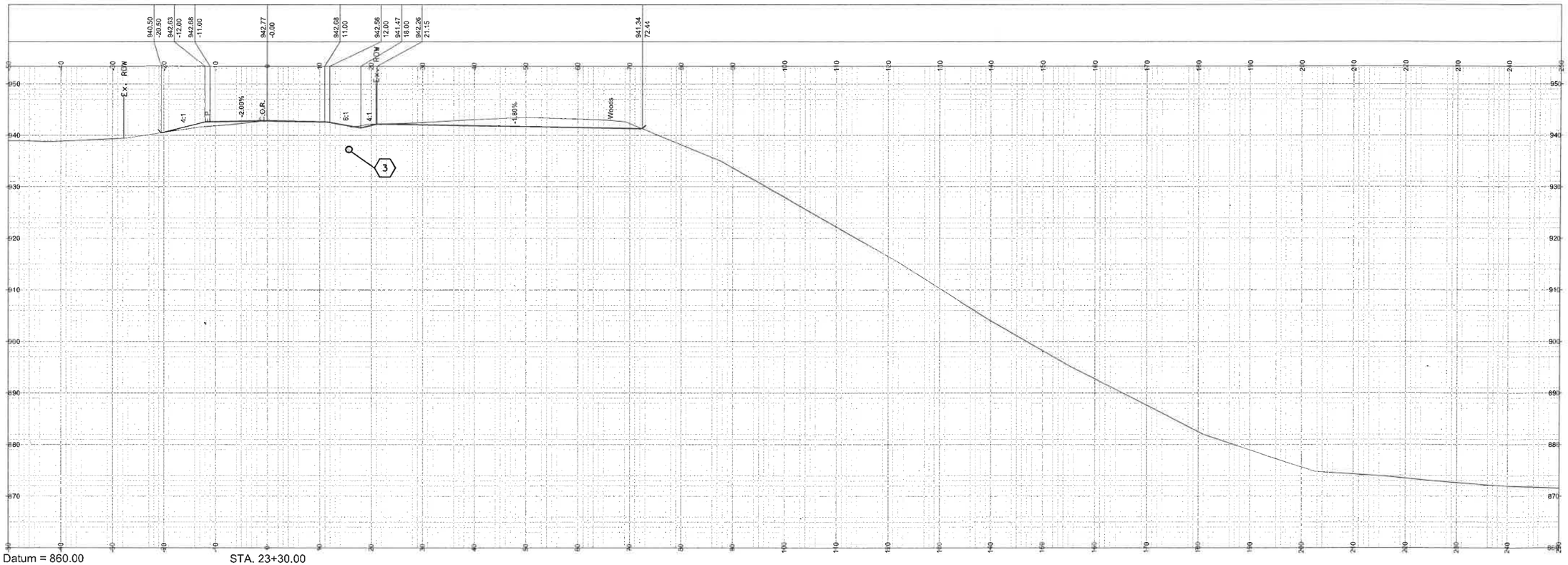
HOGBACK ROAD

STRATFORD	SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.		
FILL – C.Y.		MUCK EXCAV. – C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS	
42555_xsect	42555	6	20	

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	DATE

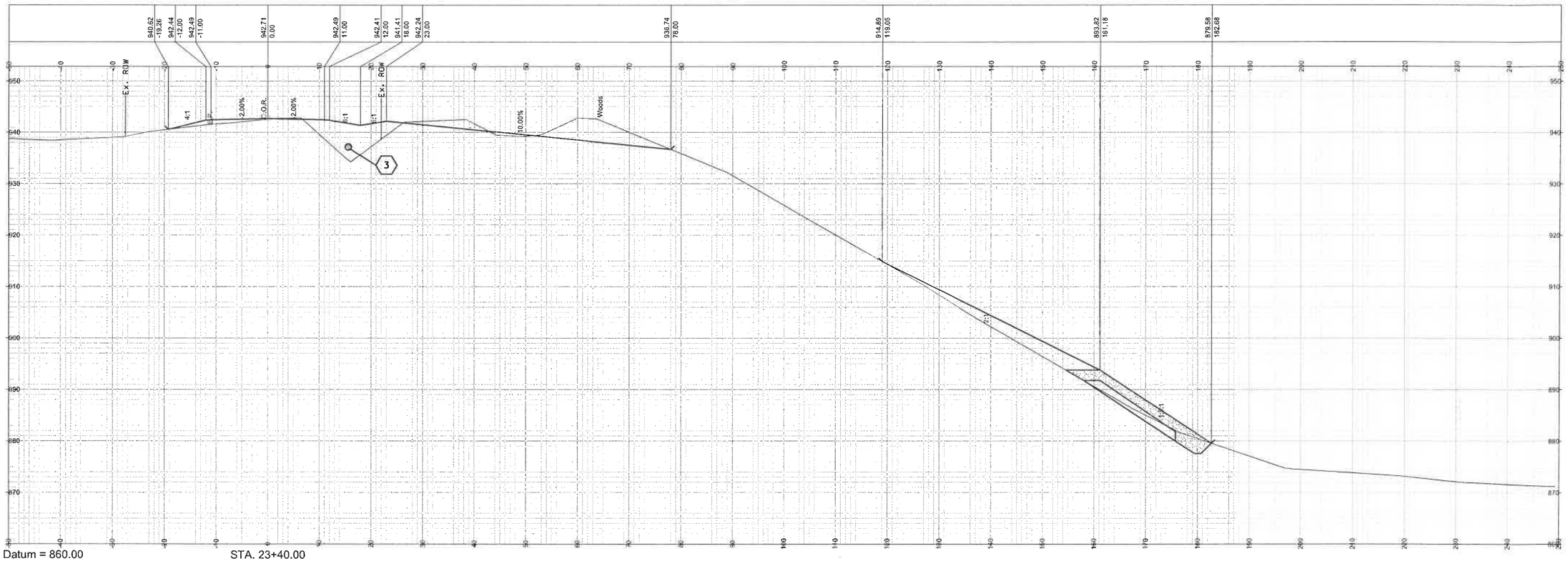
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	



Datum = 860.00 STA. 23+30.00

HOGBACK ROAD

STRATFORD	SHEET TOTALS			
COMMON EXCAV. - C.Y.		ROCK EXCAV. - C.Y.		
FILL - C.Y.		MUCK EXCAV. - C.Y.		
DGN	STATE PROJECT NO.		SHEET NO.	TOTAL SHEETS
42555_xsect	42555		7	20



HOGBACK ROAD

REVISIONS AFTER PROPOSAL

STATION	STATION	DESCRIPTION	NUMBER	DATE

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

STRATFORD — SHEET TOTALS

COMMON EXCAV. – C.Y. ROCK EXCAV. – C.Y.

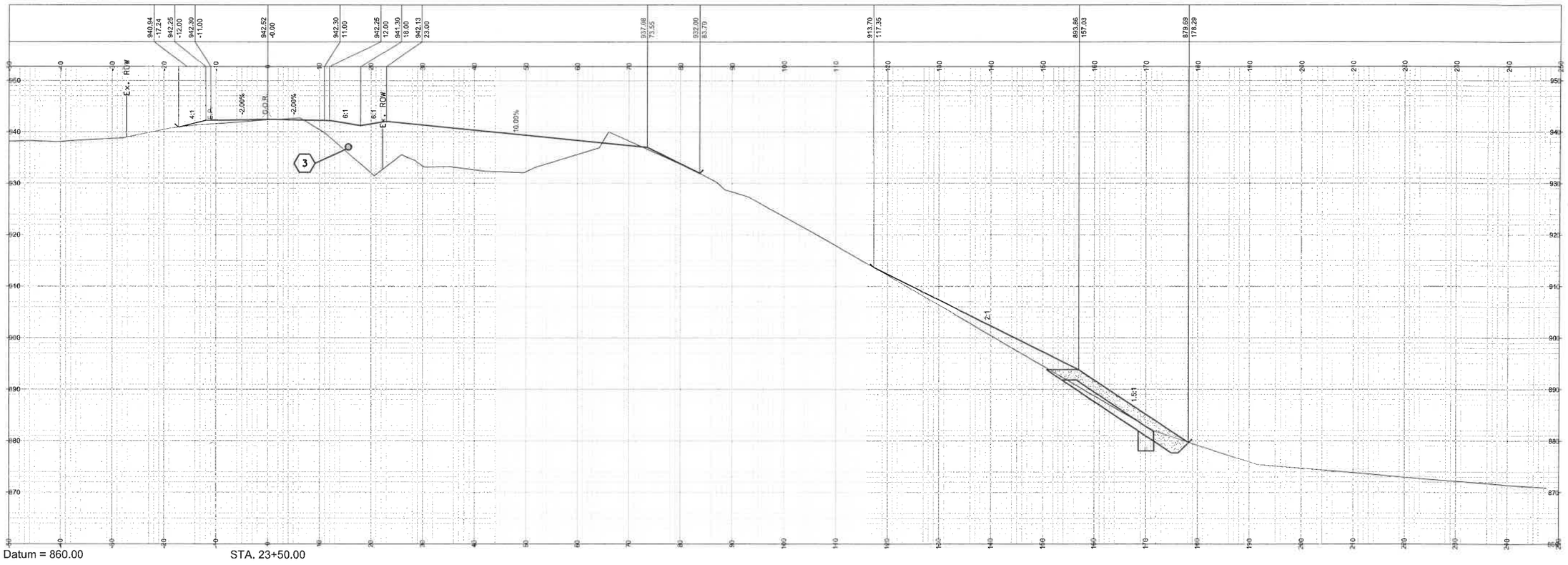
FILL – C.Y. MUCK EXCAV. – C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	8	20

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

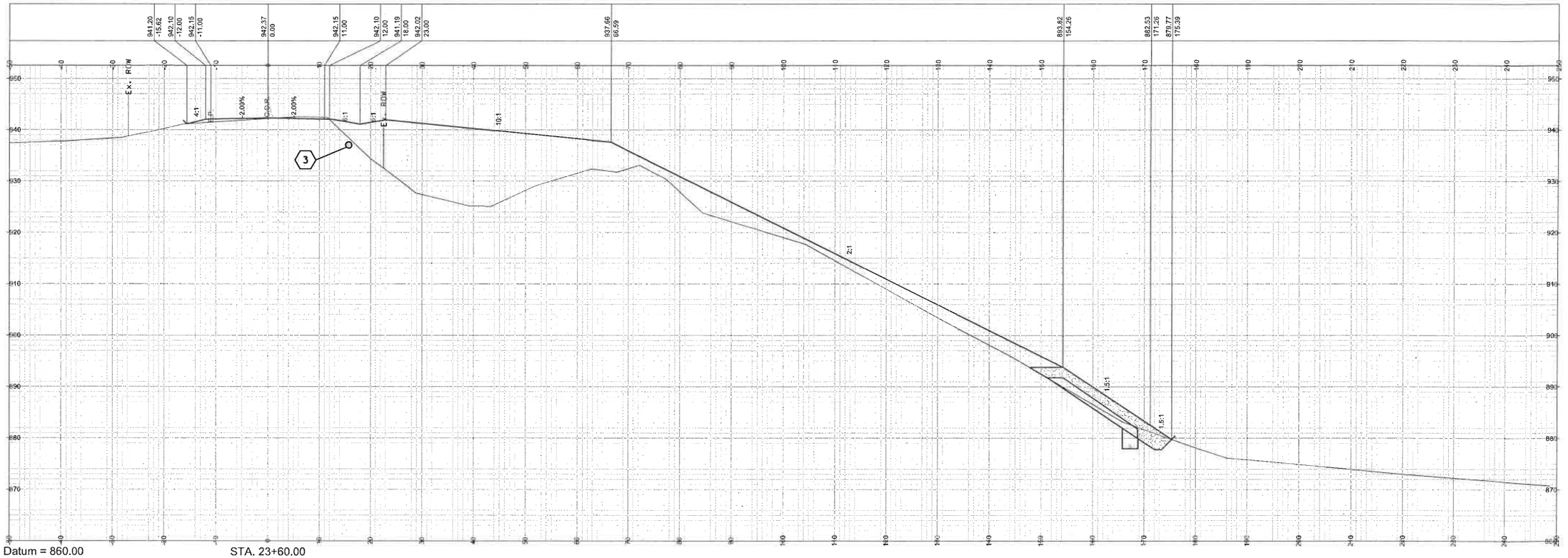
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	



Datum = 860.00 STA. 23+50.00

HOGBACK ROAD

STRATFORD	SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.		
FILL – C.Y.		MUCK EXCAV. – C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS	
42555_xsect	42555	9	20	



HOGBACK ROAD

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	DATE

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

AS BUILT DETAILS DATE

STRATFORD
SHEET TOTALS
COMMON EXCAV. – C.Y. ROCK EXCAV. – C.Y.
FILL – C.Y. MUCK EXCAV. – C.Y.

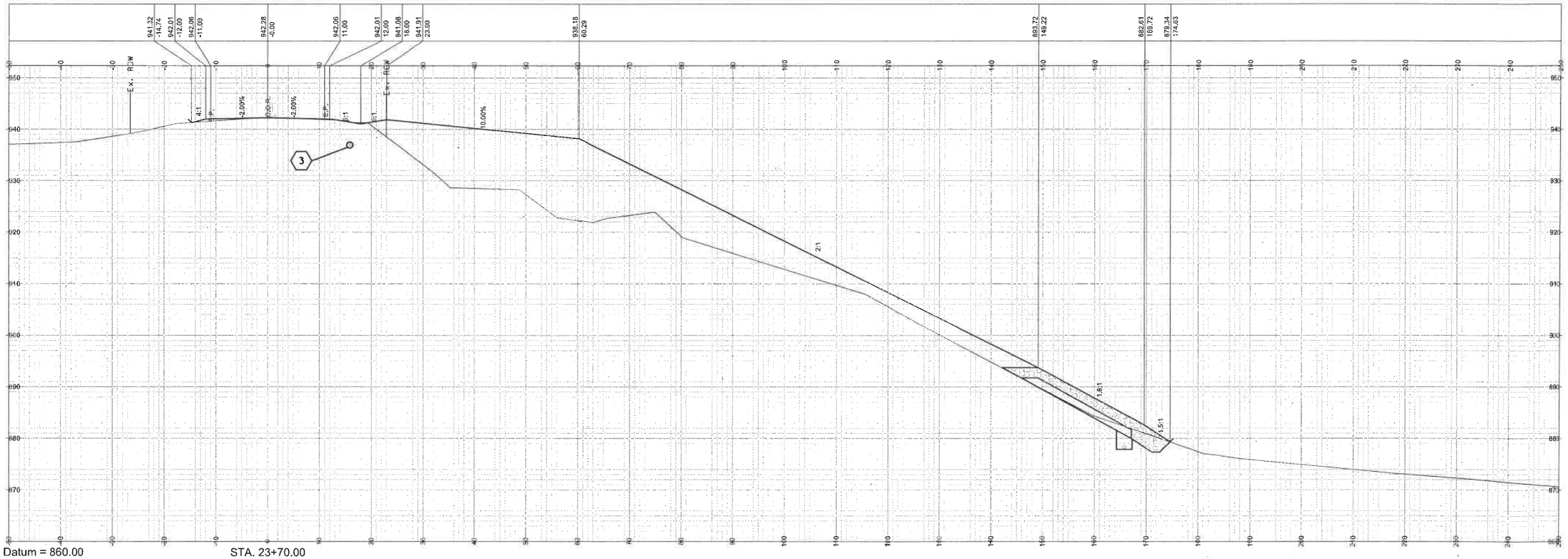
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	10	20

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION

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

AS BUILT DETAILS DATE



Datum = 860.00 STA. 23+70.00

HOGBACK ROAD

STRATFORD	SHEET TOTALS			
COMMON EXCAV.	- C.Y.	ROCK EXCAV.	-	C.Y.
FILL	- C.Y.	MUCK EXCAV.	-	C.Y.

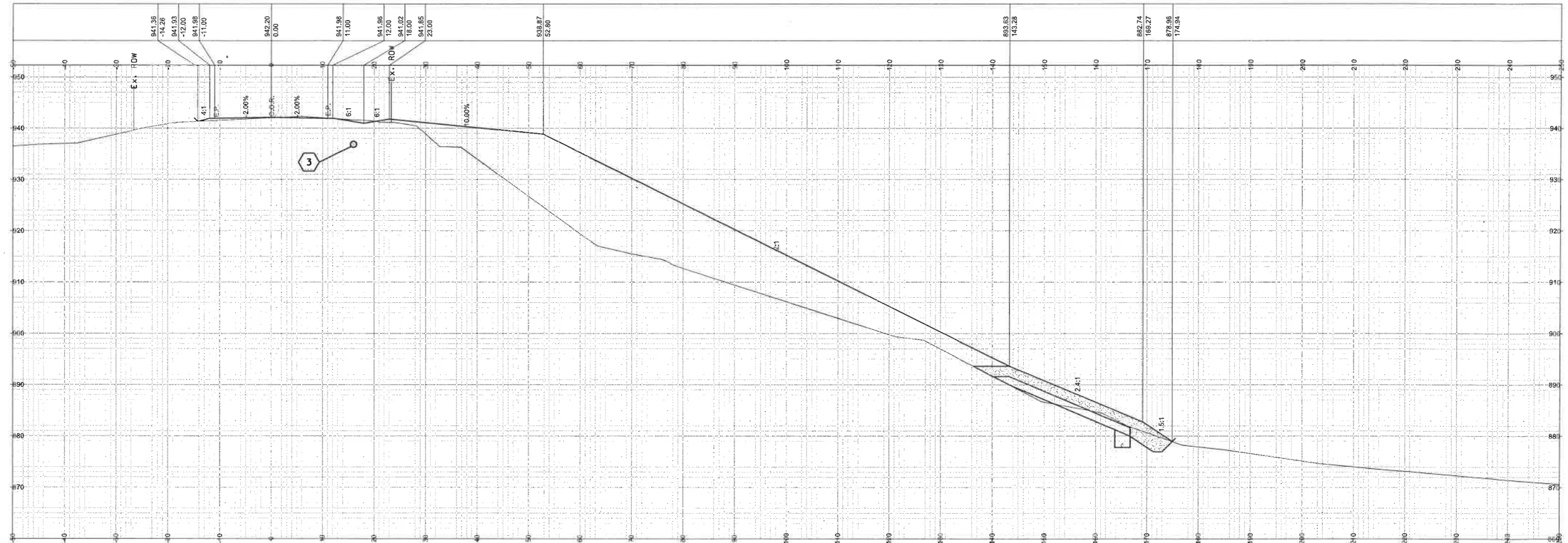
OGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	11	20

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

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

AS BUILT DETAILS DATE

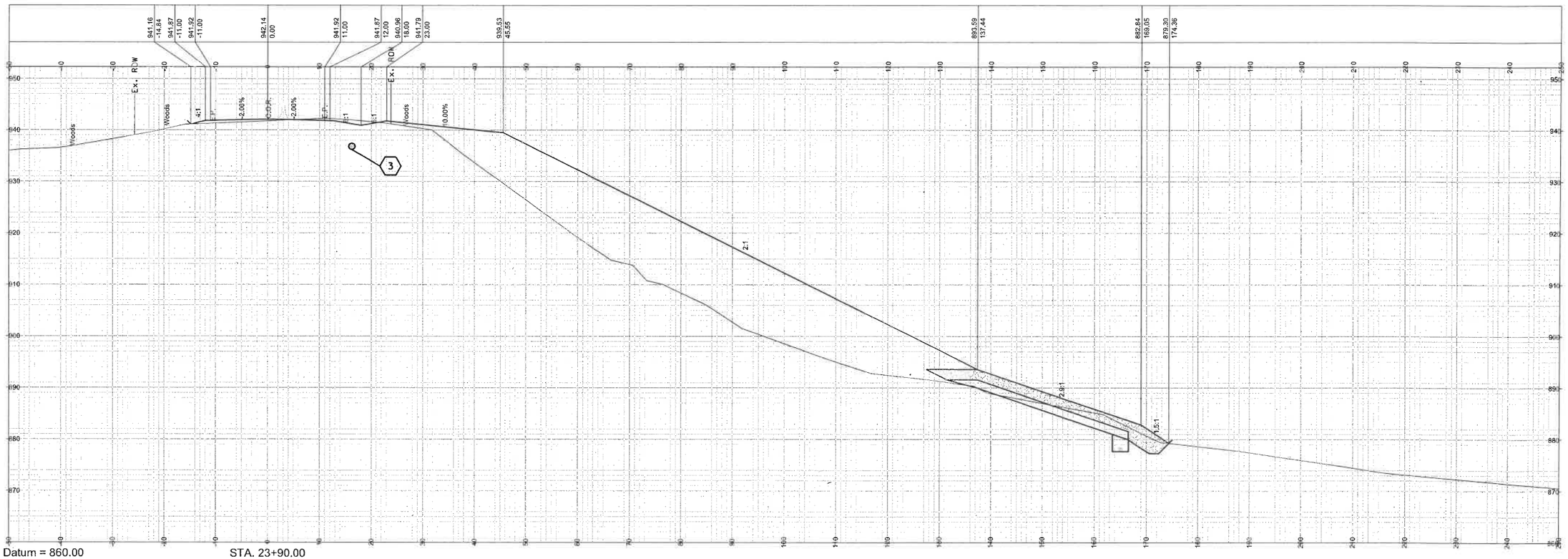


Datum = 860.00 STA. 23+80.00

HOGBACK ROAD

STRATFORD	SHEET TOTALS			
COMMON EXCAV.	- C.Y.	ROCK EXCAV.	-	C.Y.
FILL	- C.Y.	MUCK EXCAV.	-	C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	12	20



Datum = 860.00 STA. 23+90.00

HOGBACK ROAD

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION	STATION

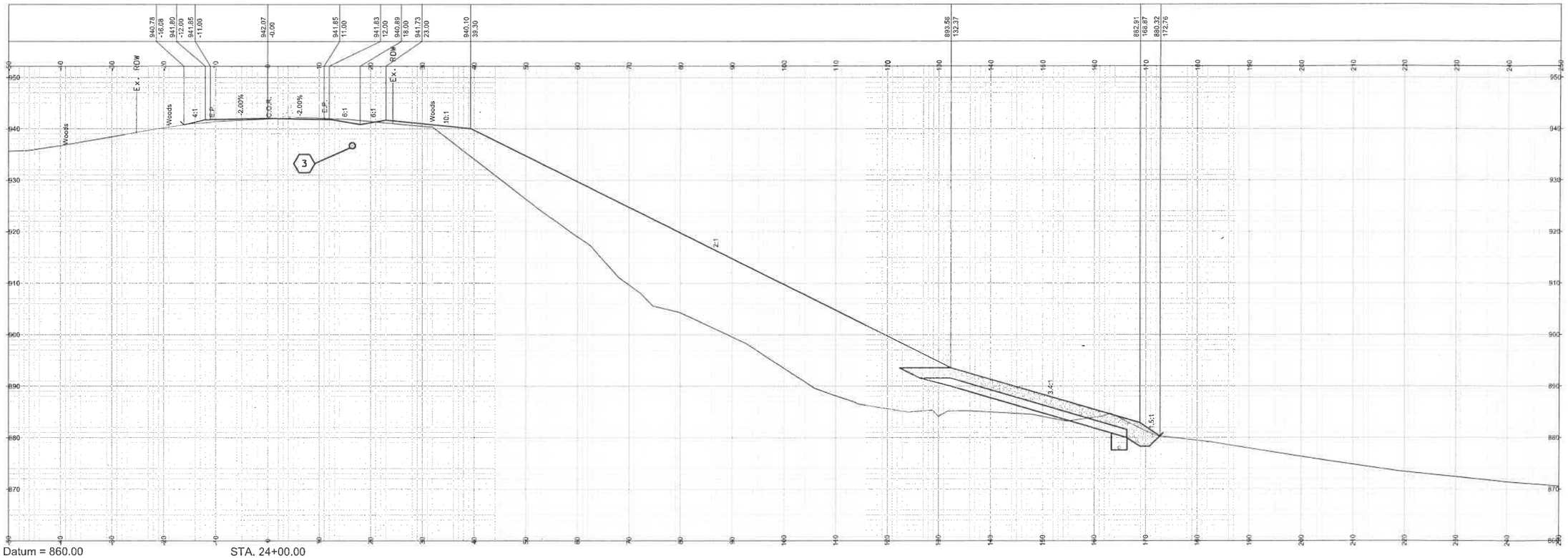
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STRATFORD — SHEET TOTALS

COMMON EXCAV. – C.Y. ROCK EXCAV. – C.Y.

FILL – C.Y. MUCK EXCAV. – C.Y.

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	13	20



Datum = 860.00

STA. 24+00.00

HOGBACK ROAD

REVISIONS AFTER PROPOSAL

STATION	STATION	DESCRIPTION	NUMBER	DATE

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

STRATFORD

SHEET TOTALS

COMMON EXCAV. - C.Y. ROCK EXCAV. - C.Y.

FILL - C.Y. MUCK EXCAV. - C.Y.

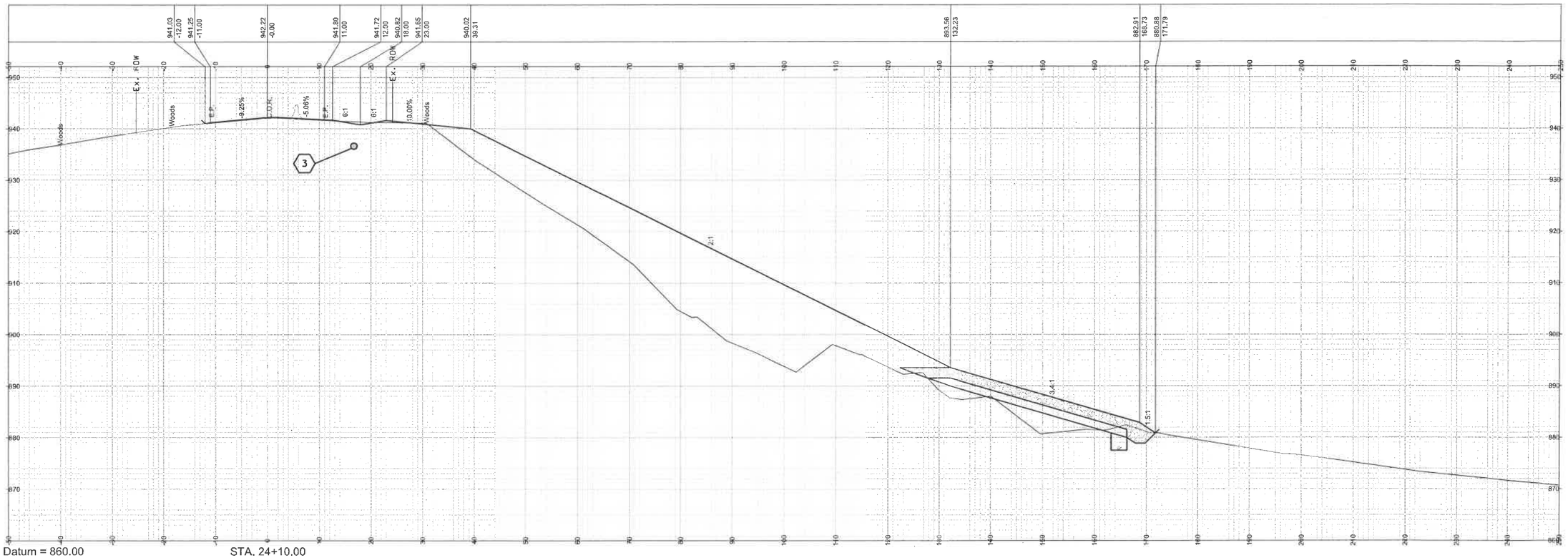
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	14	20

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION
		STATION
		STATION

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

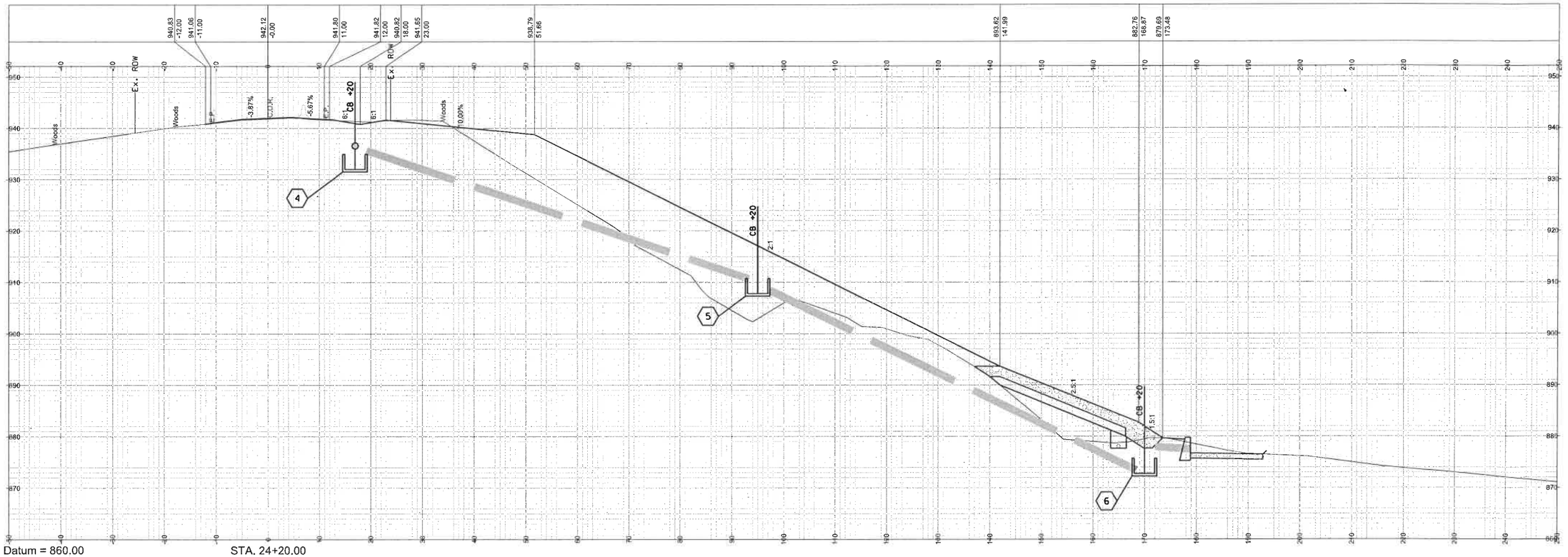
AS BUILT DETAILS DATE



Datum = 860.00 STA. 24+10.00

HOGBACK ROAD

STRATFORD	SHEET TOTALS		
COMMON EXCAV. – C.Y.	ROCK EXCAV. – C.Y.		
FILL – C.Y.	MUCK EXCAV. – C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	15	20



Datum = 860.00 STA. 24+20.00

HOGBACK ROAD

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

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

STRATFORD SHEET TOTALS
COMMON EXCAV. - C.Y. ROCK EXCAV. - C.Y.
FILL - C.Y. MUCK EXCAV. - C.Y.

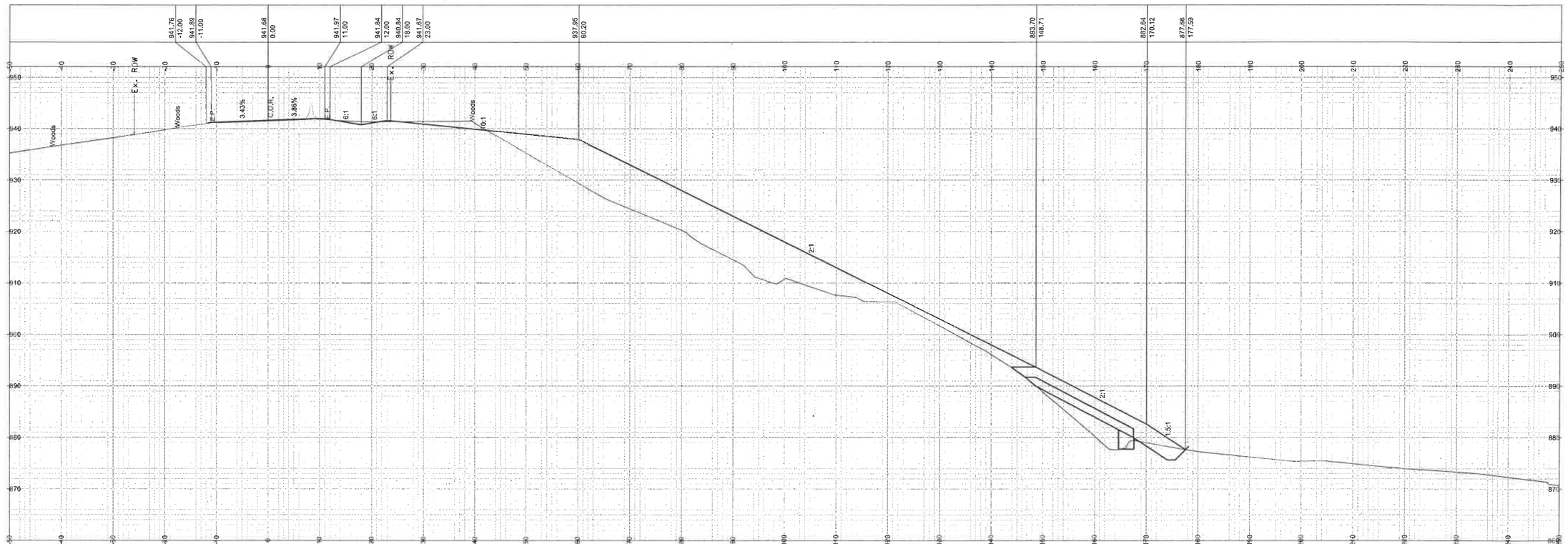
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	16	20

REVISIONS AFTER PROPOSAL

STATION	STATION	DESCRIPTION	NUMBER	DATE

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

AS BUILT DETAILS DATE



Datum = 860.00 STA. 24+30.00

HOGBACK ROAD

STRATFORD SHEET TOTALS

COMMON EXCAV. – C.Y. ROCK EXCAV. – C.Y.

FILL – C.Y. MUCK EXCAV. – C.Y.

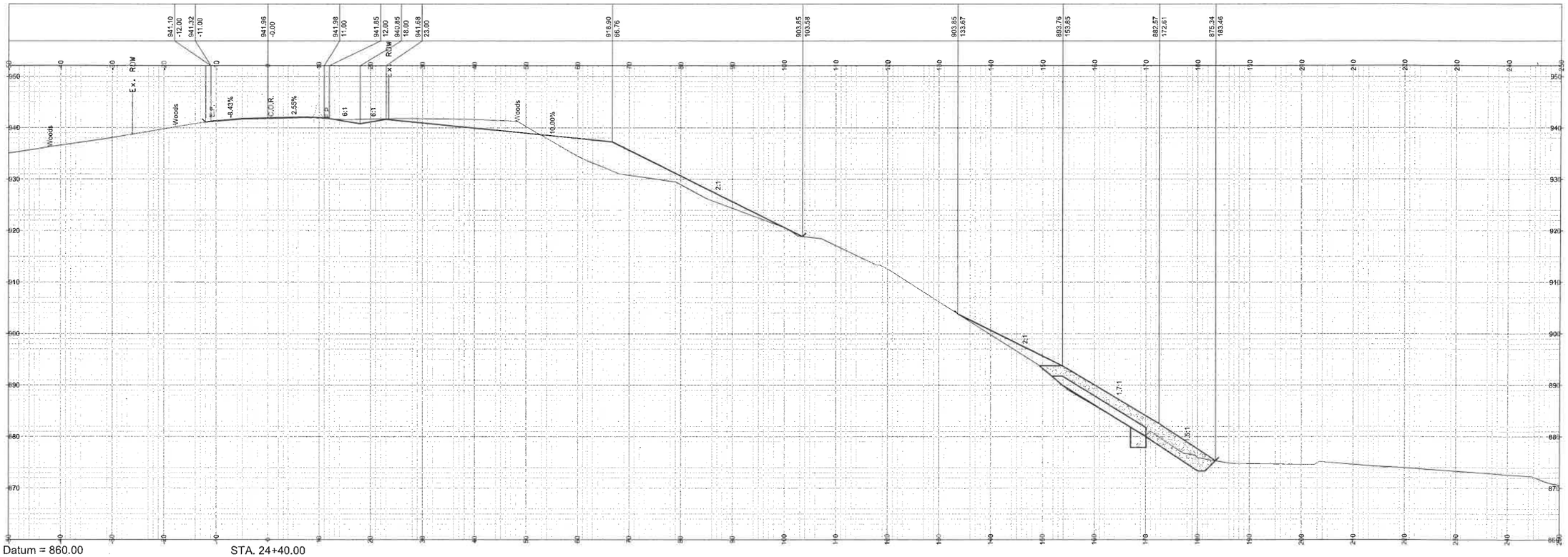
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	17	20

REVISIONS AFTER PROPOSAL

STATION	STATION	DESCRIPTION	NUMBER	DATE

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

AS BUILT DETAILS DATE



Datum = 860.00 STA. 24+40.00

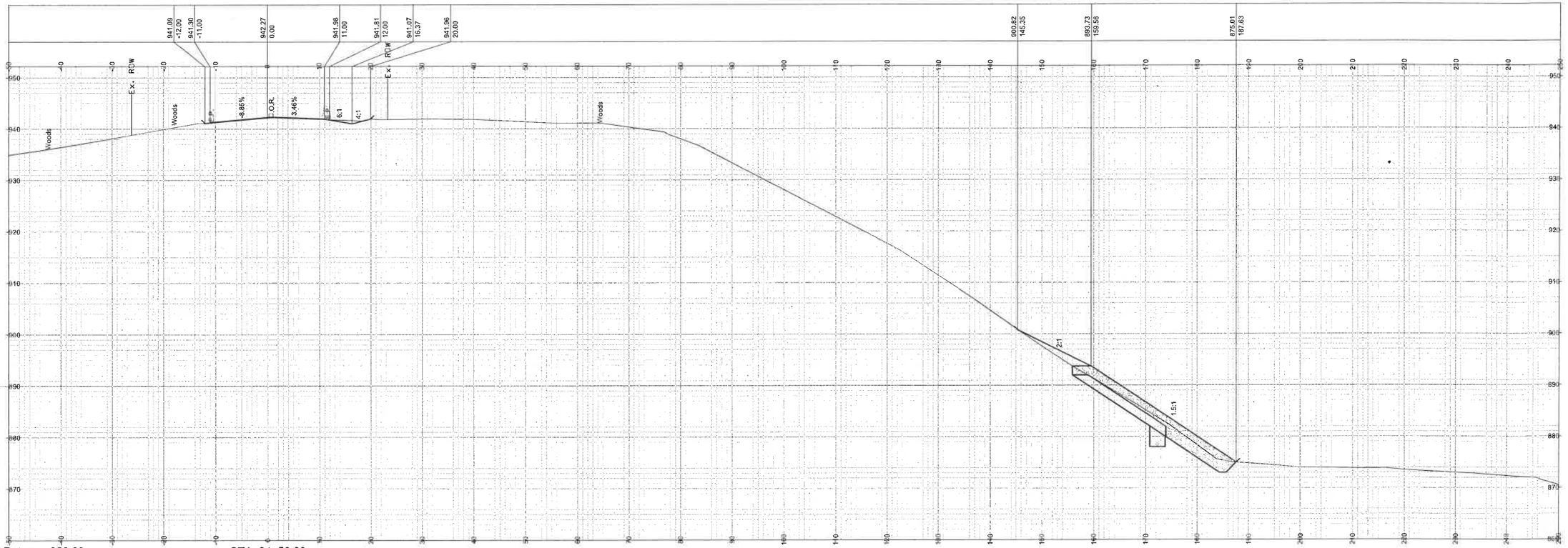
HOGBACK ROAD

STRATFORD	SHEET TOTALS		
COMMON EXCAV. — C.Y.	ROCK EXCAV. — C.Y.		
FILL — C.Y.	MUCK EXCAV. — C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
42555_xsect	42555	18	20

REVISIONS AFTER PROPOSAL

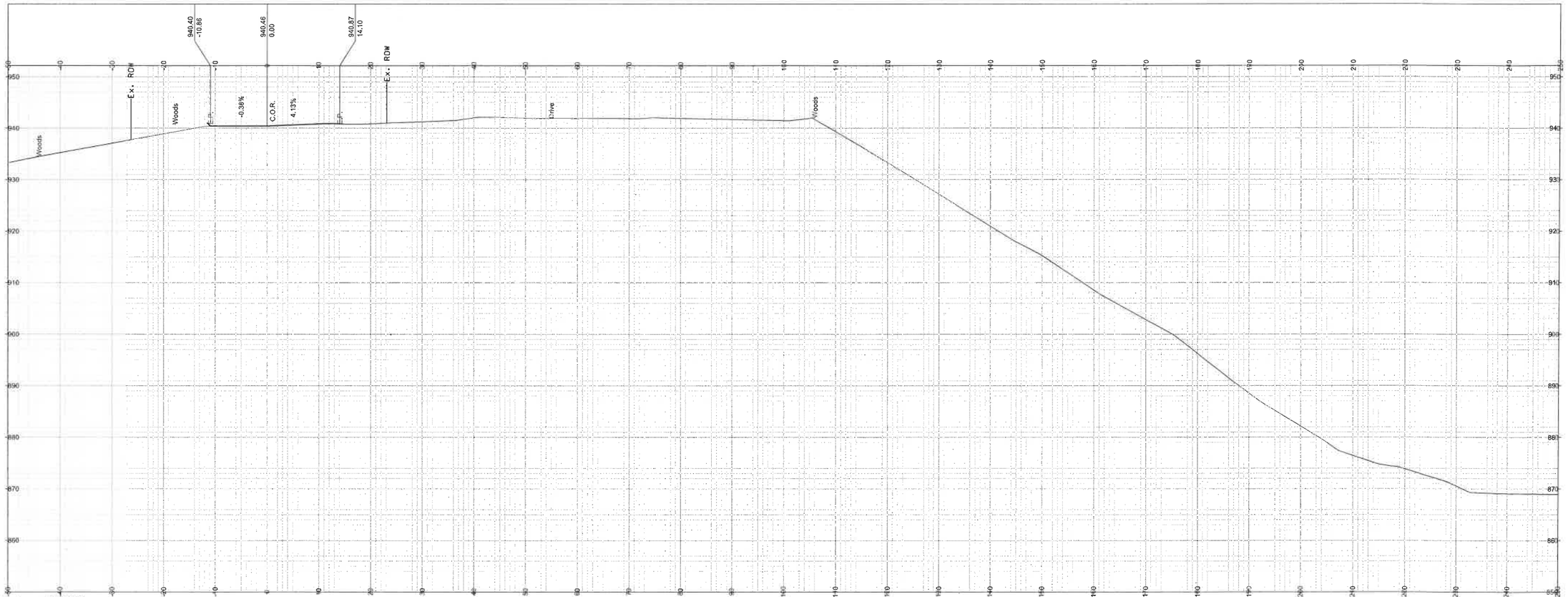
NUMBER	DESCRIPTION	STATION	DATE

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



HOGBACK ROAD

STRATFORD	SHEET TOTALS			
COMMON EXCAV.	– C.Y.	ROCK EXCAV.	– C.Y.	
FILL	– C.Y.	MUCK EXCAV.	– C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS	
42555_xsect	42555	19	20	



Datum = 850.00

STA. 25+00.00

HOGBACK ROAD

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

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

AS BUILT DETAILS DATE

STRATFORD	SHEET TOTALS			
COMMON EXCAV.	- C.Y.	ROCK EXCAV.	- C.Y.	
FILL	- C.Y.	MUCK EXCAV.	- C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS	
42555_xsect	42555	20	20	