

CLIENT

ROXWIND LLC
 13 ELM STREET, SUITE 200
 COHASSET, MASSACHUSETTS 02025
 ATTN: LINDSAY DEANE-MAYER

ROXBURY WIND PROJECT

ROXBURY TOWNSHIP, MAINE

PERMIT DOCUMENTS - MAY 2018



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PREPARED BY

STANTEC
 482 PAYNE ROAD
 SCARBOROUGH COURT
 SCARBOROUGH, MAINE 04074
 207.883.3355
 ATTN: STEVE BUSHEY
 KRISTA REINHART
 BROOKE BARNES

DATA SOURCE

TOPOGRAPHIC INFORMATION:

AERIAL SURVEY AND PHOTO, INC.
 546 AIRPORT ROAD
 P.O. BOX 659
 NORRIDGEWOCK, MAINE 04957
 207.634.2006

HORIZONTAL DATUM: 1983 NAD (1996adj.) UTM ZONE 19 US FEET

VERTICAL DATUM: 1988 NAVD US FEET

BOUNDARY INFORMATION:

CURRENTLY BASED ON TAX MAP INFO

TOWER LOCATIONS:

BY OWNER

WETLANDS / NATURAL RESOURCES:

KLEINSCHMIDT
 141 MAIN STREET
 P.O. BOX 650
 PITTSFIELD, ME 04967
 207.487.3328

ELECTRICAL DESIGN:

TBD

SOIL SURVEY:

STANTEC
 482 PAYNE ROAD
 SCARBOROUGH COURT
 SCARBOROUGH, MAINE 04074
 207.883.3355
 ATTN: RODNEY KELSHAW

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- C-N1.3 CRANE ROAD PLAN AND PROFILE (STA 184+00 TO 189+98)
- C-N1.4 CRANE ROAD PLAN AND PROFILE (STA 200+00 TO 204+77)

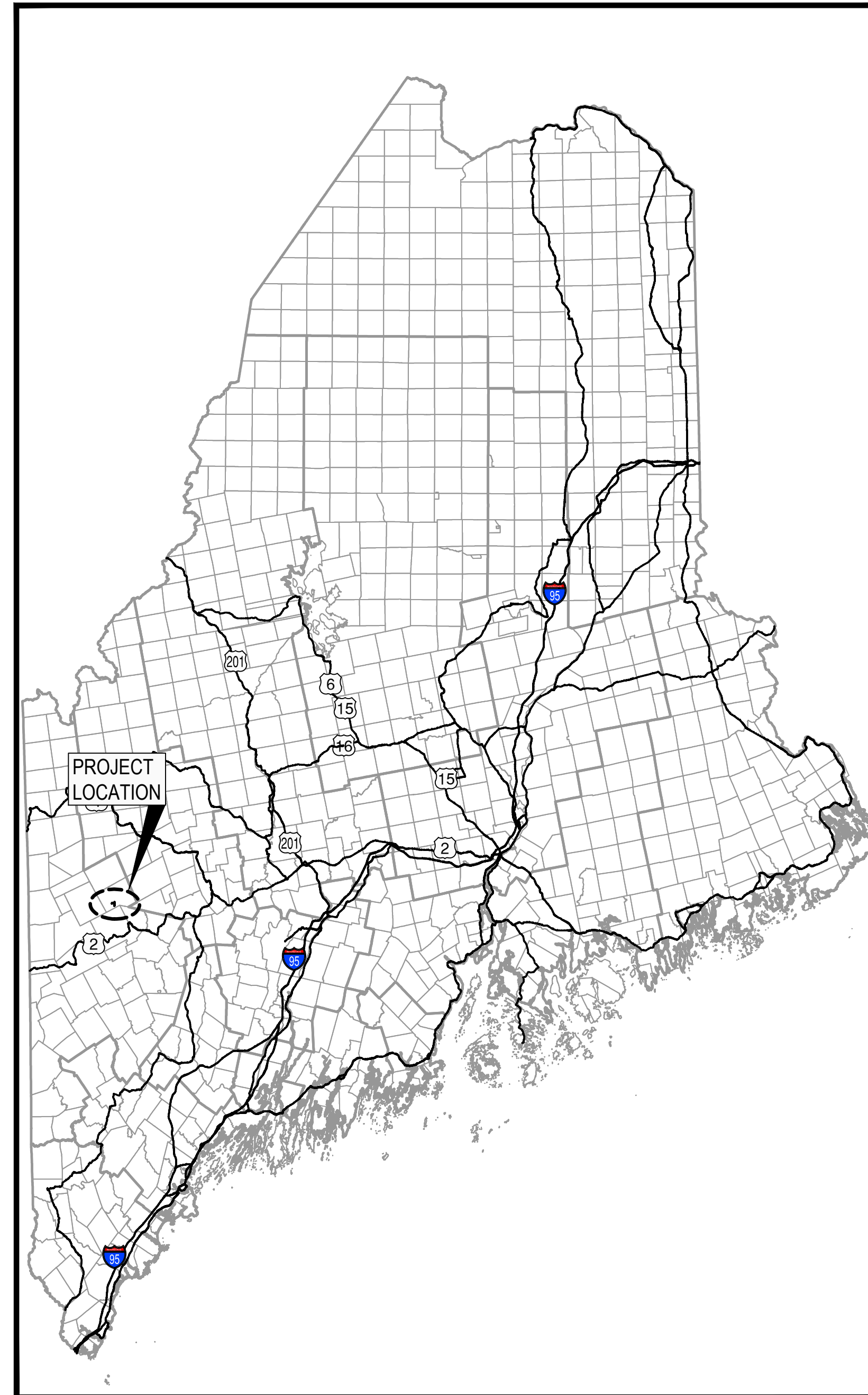
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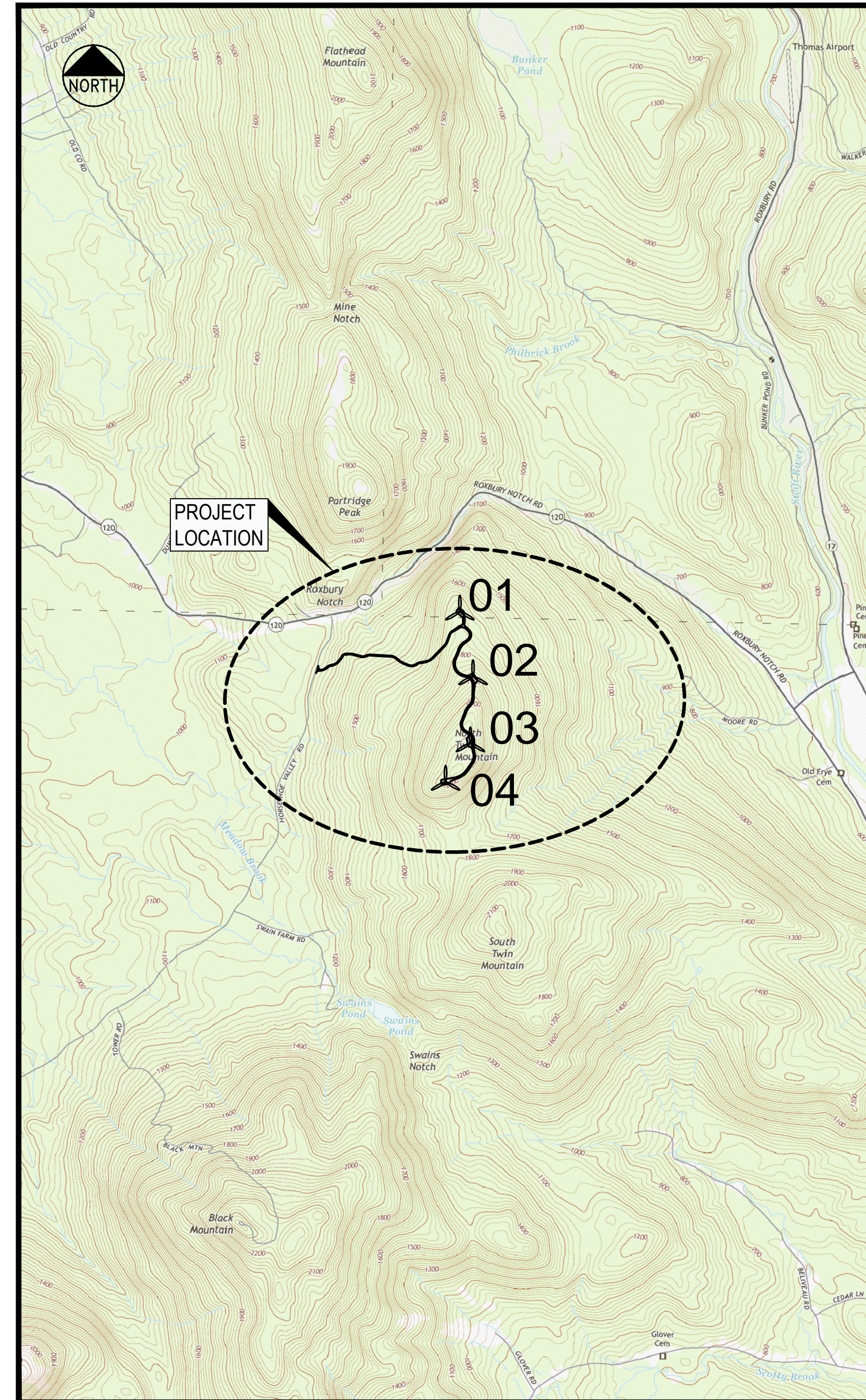
Consultants

Legend

Notes



LOCATION MAP
 SCALE: 1" = 24 MILES



VICINITY MAP
 SCALE: 1" = 2500'

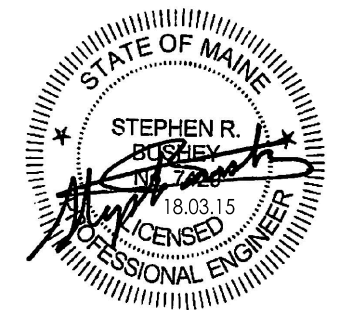
NOTE:
 THESE PLANS REPRESENT ONLY THE TURBINE ACCESS AND CRANE PATH ROADS FOR GENERAL DELIVERY AND ERECTION OF THE WTG. SEE ADDITIONAL PLANS BY (TBD) FOR THE TRANSMISSION SYSTEM.

STORMWATER PERMIT APPLICATION	KAB	SRB	18.05.09
PERMIT DRAWINGS SUBMITTED FOR PROJECT TEAM REVIEW	EPL	SRB	18.03.09
Revision	By	Appd.	YY.MM.DD

Issued _____ By _____ Appd. _____ YY.MM.DD

File Name: 195601220_COVER	KAB	SRB	SRB	18.03.04
P.E. STEPHEN R. BUSHEY	Dwn.	Chkd.	Dsgn.	YY.MM.DD

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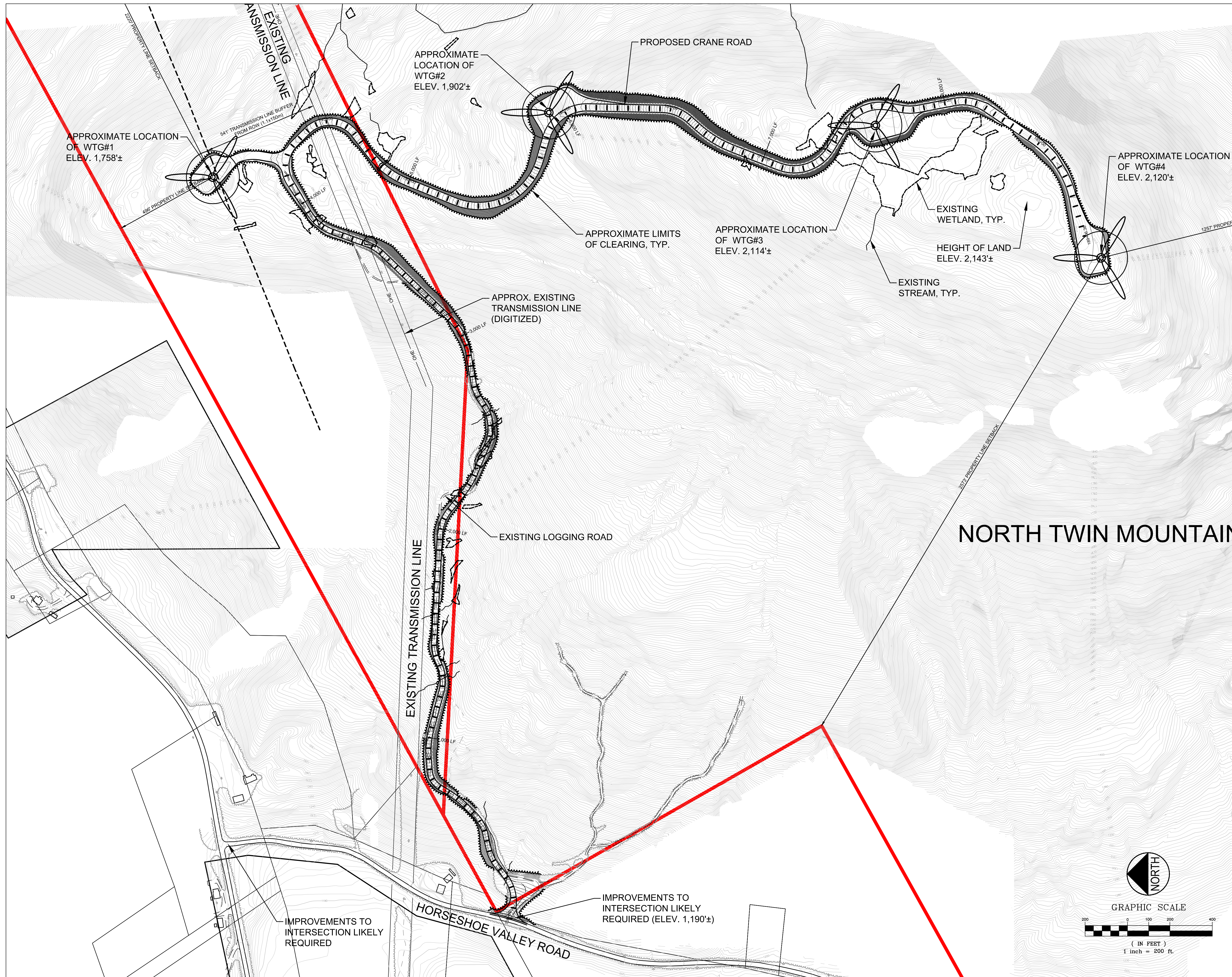
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 ROXBURY WIND PROJECT

 ROXBURY TOWNSHIP, MAINE

Title
CIVIL COVER SHEET FOR ACCESS AND CRANE ROADS

Project No. 195601220	Scale AS NOTED
Drawing No.	Sheet Revision

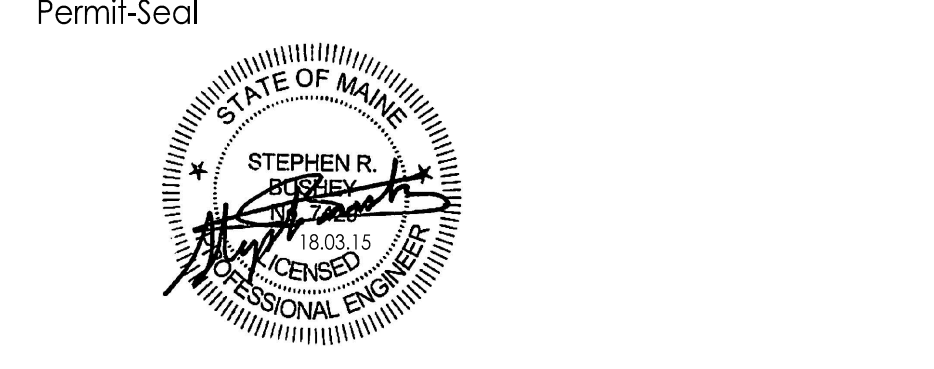


NORTH TWIN MOUNTAIN

STORMWATER PERMIT APPLICATION	KAB	SRB	18.05.09
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File Name:	2830-OVERALL BASE	KAB	SRB	SRB	18.03.15
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 ROXWIND LLC
 ROXBURY WIND PROJECT
 ROXBURY TOWNSHIP, MAINE

Title
 OVERALL ORIENTATION MAP

Project No.	Scale	
195601220	1" = 200'	
Drawing No.	Sheet	Revision

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Legend

Notes

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File Name:	195601220_DETAILS	KAB	SRB	SRB	18.03.04
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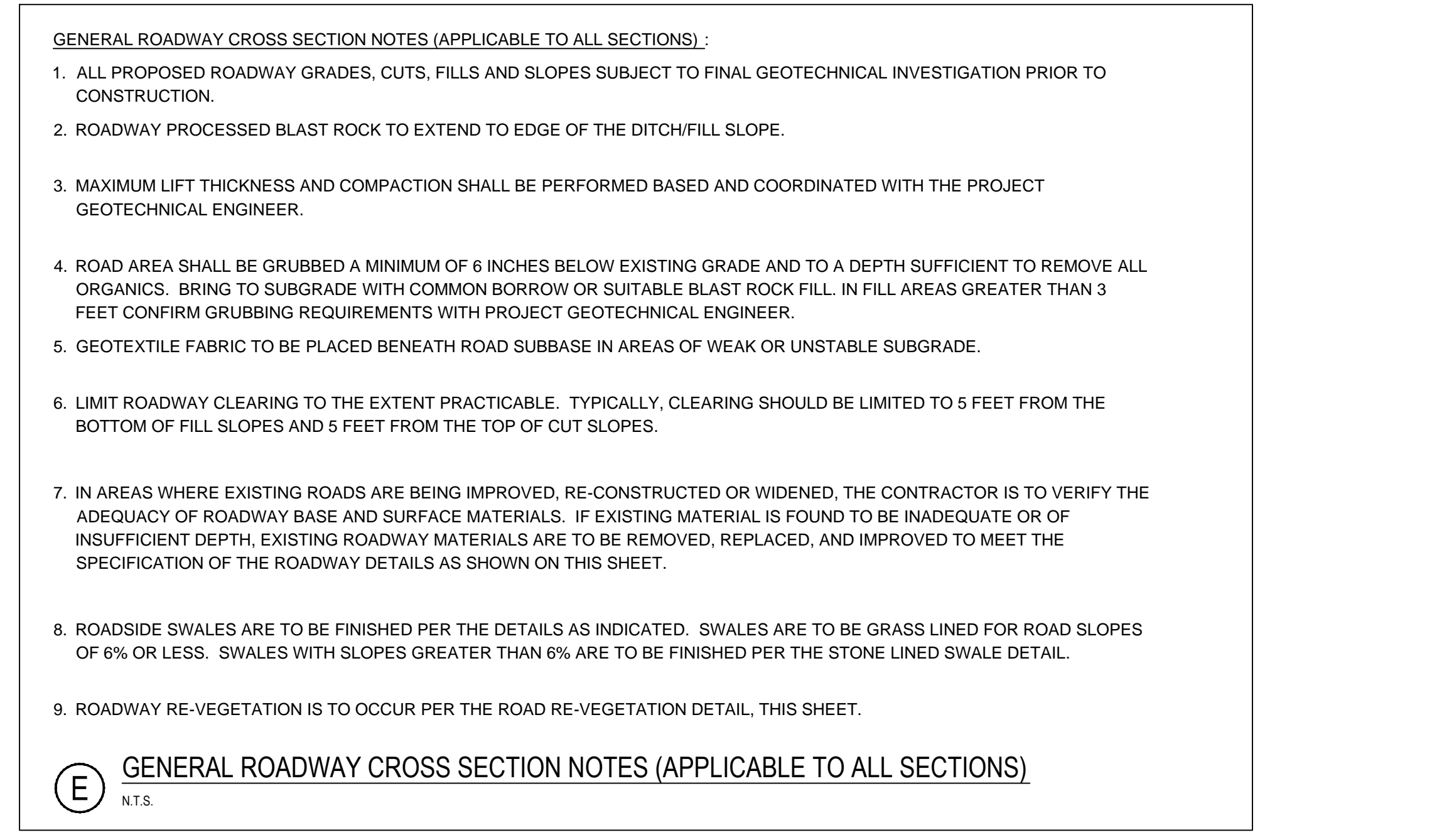
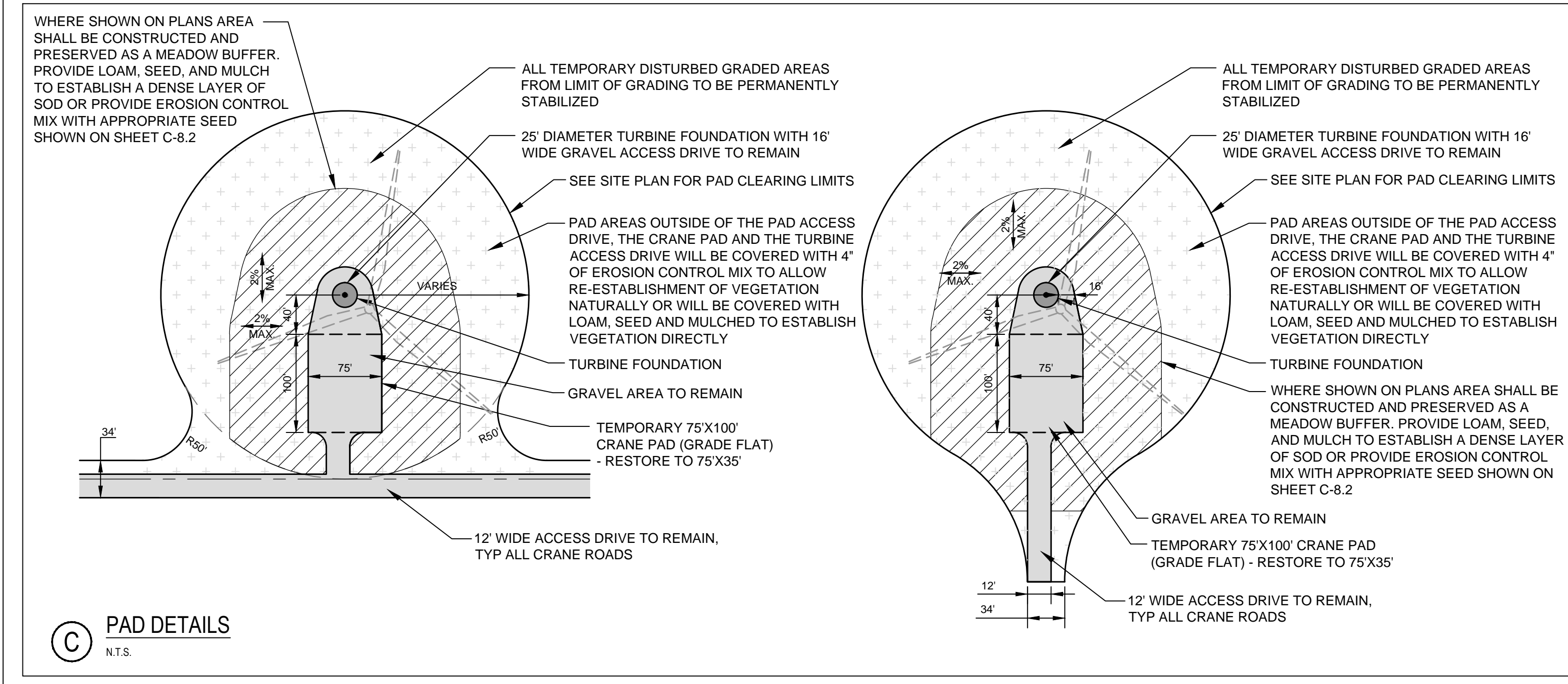
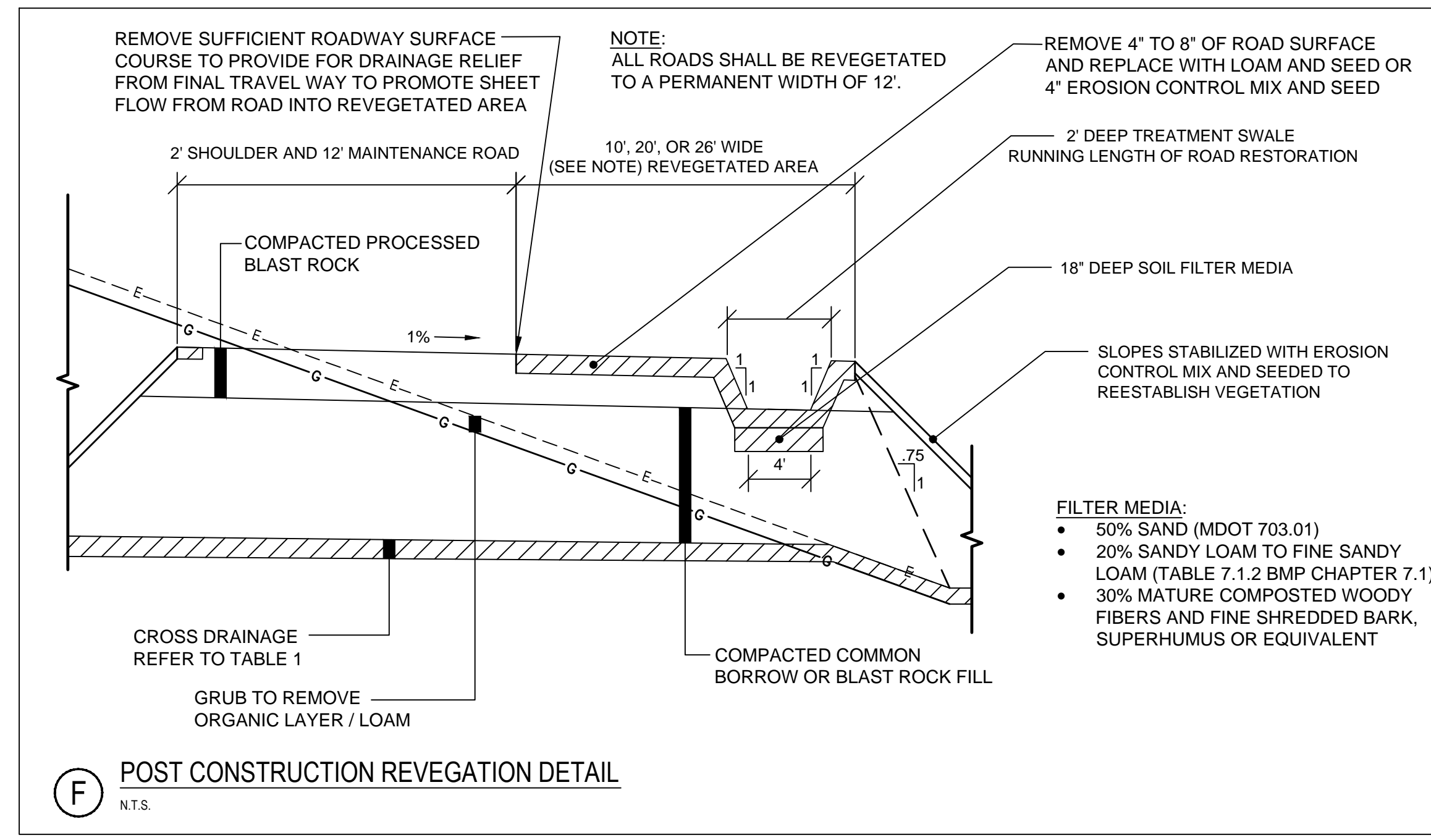
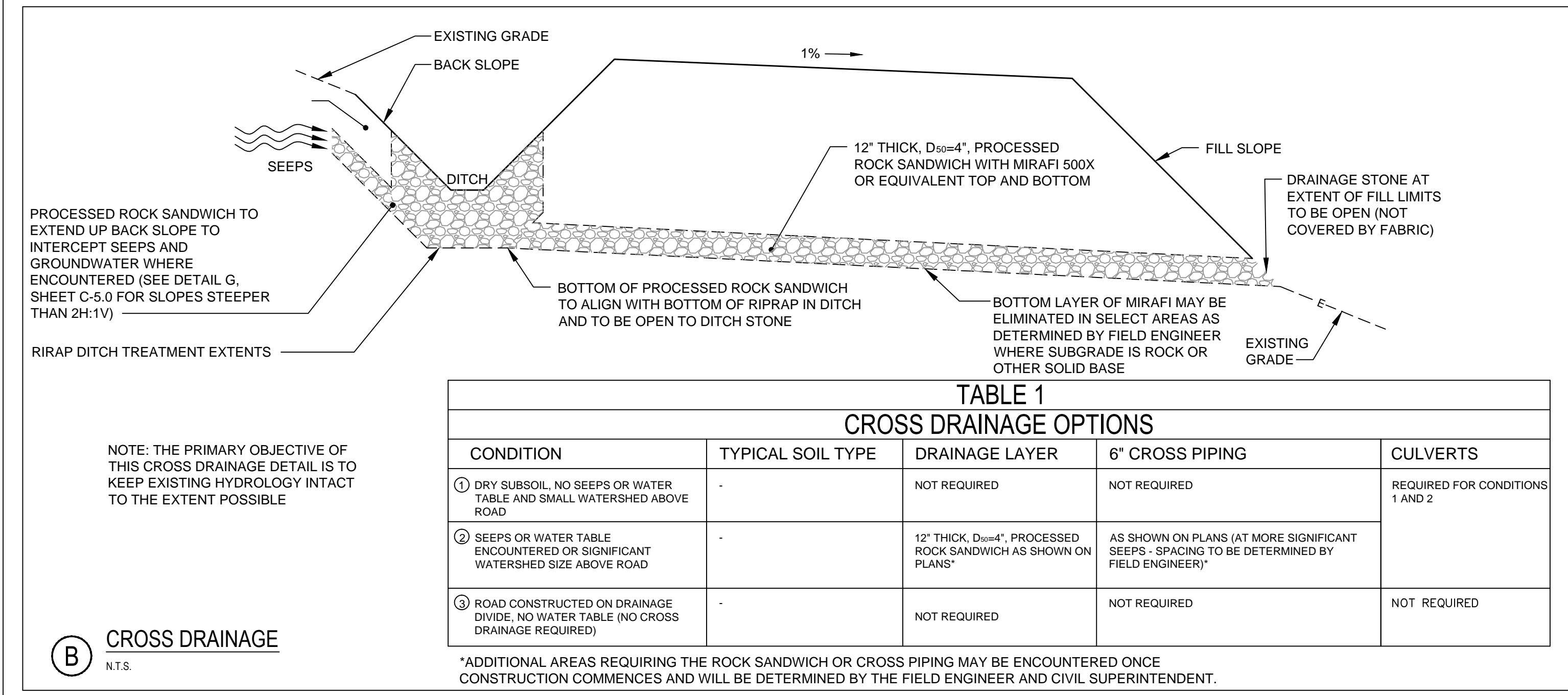
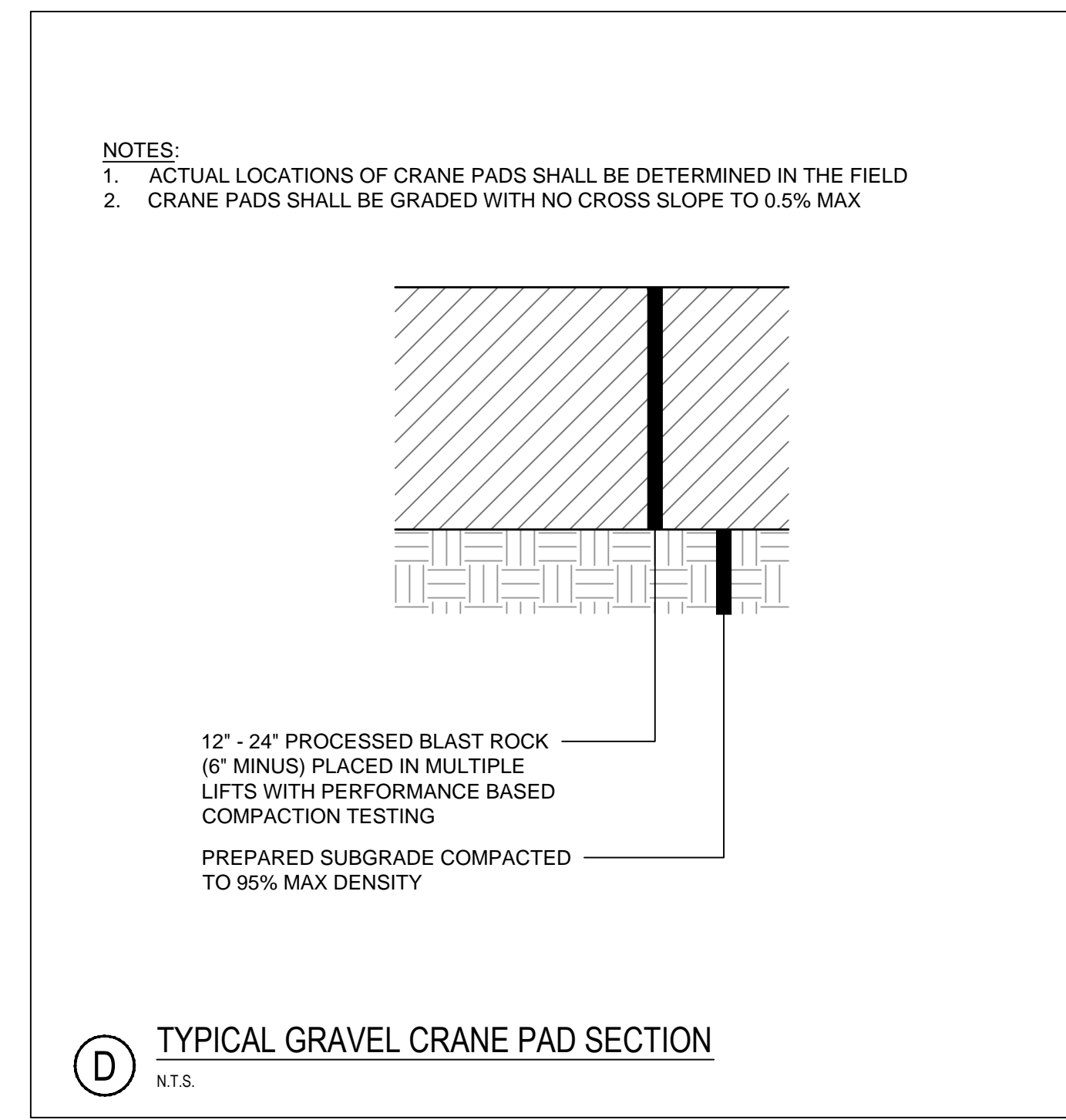
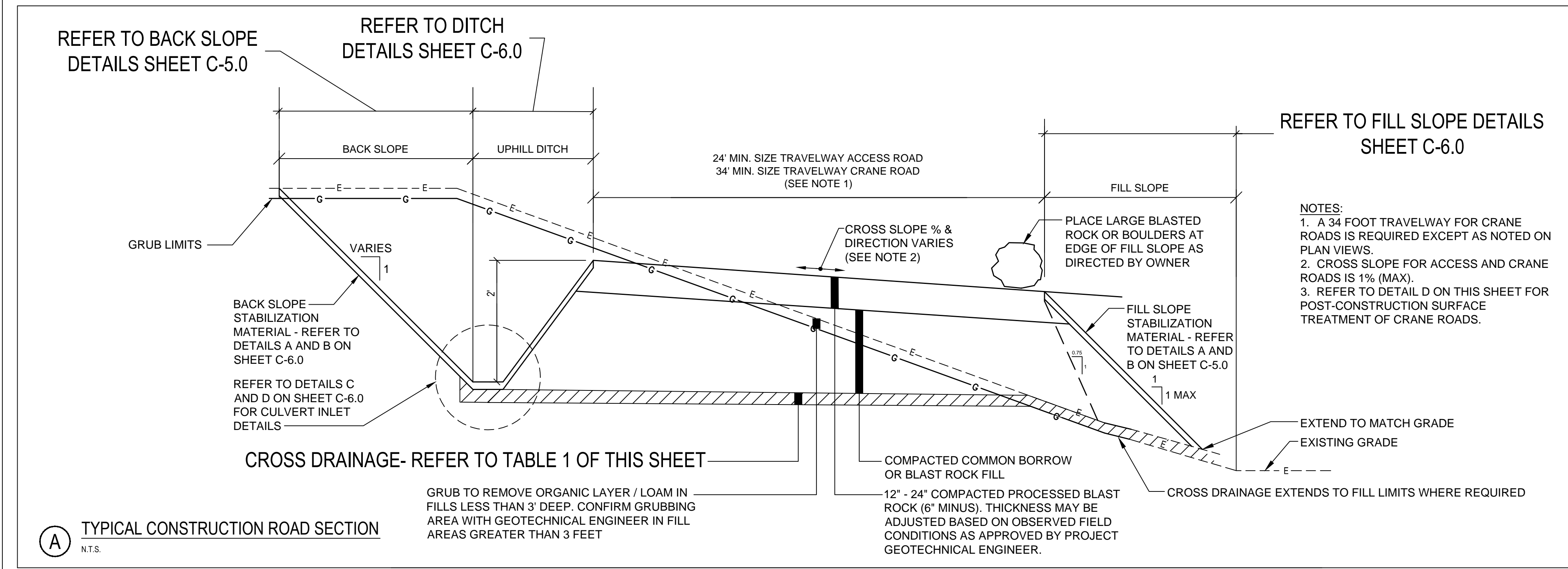
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Title
ROADWAY AND PAD SECTION DETAILS

Project No. 195601220 Scale AS NOTED
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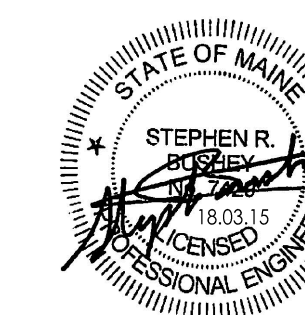
Notes

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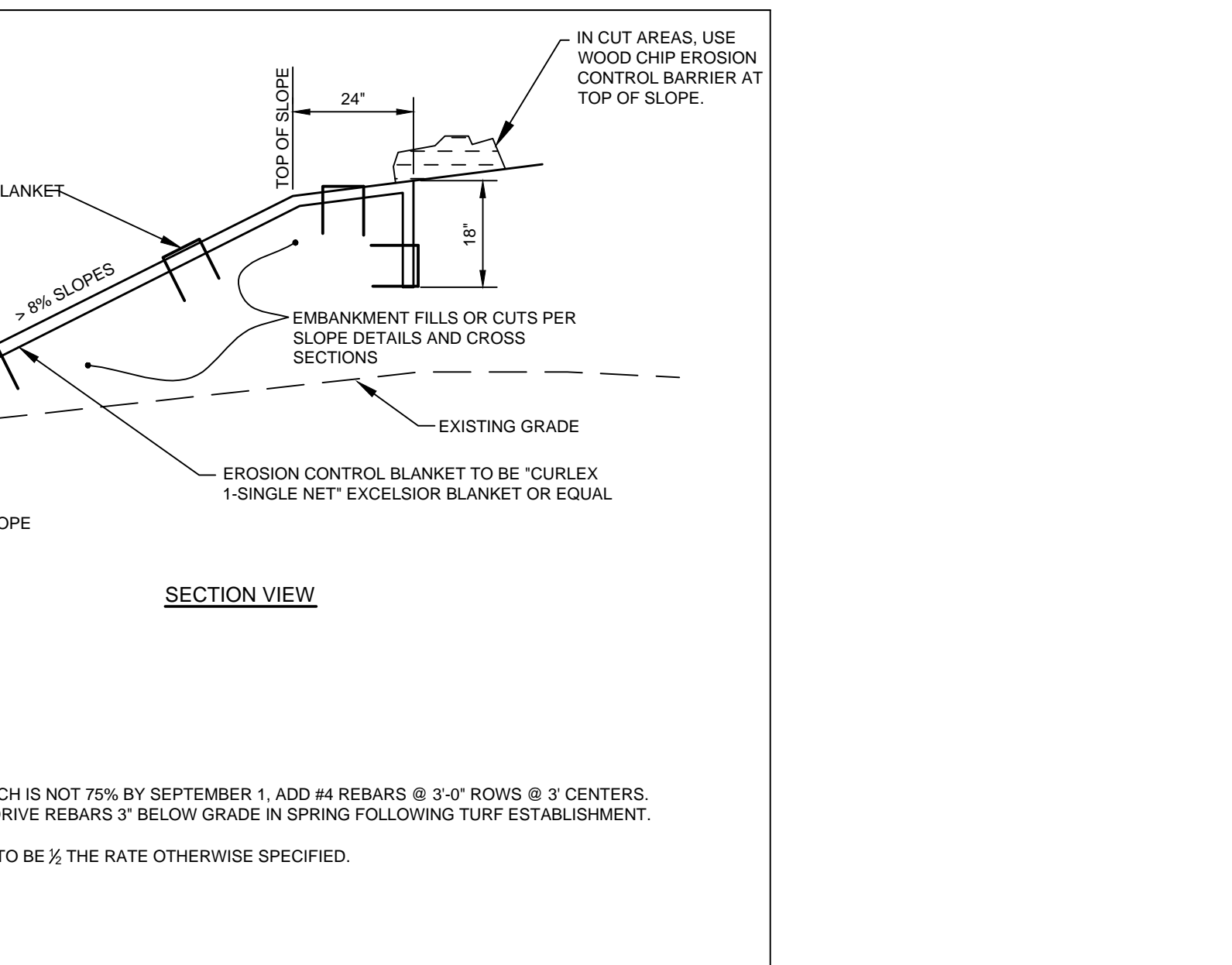
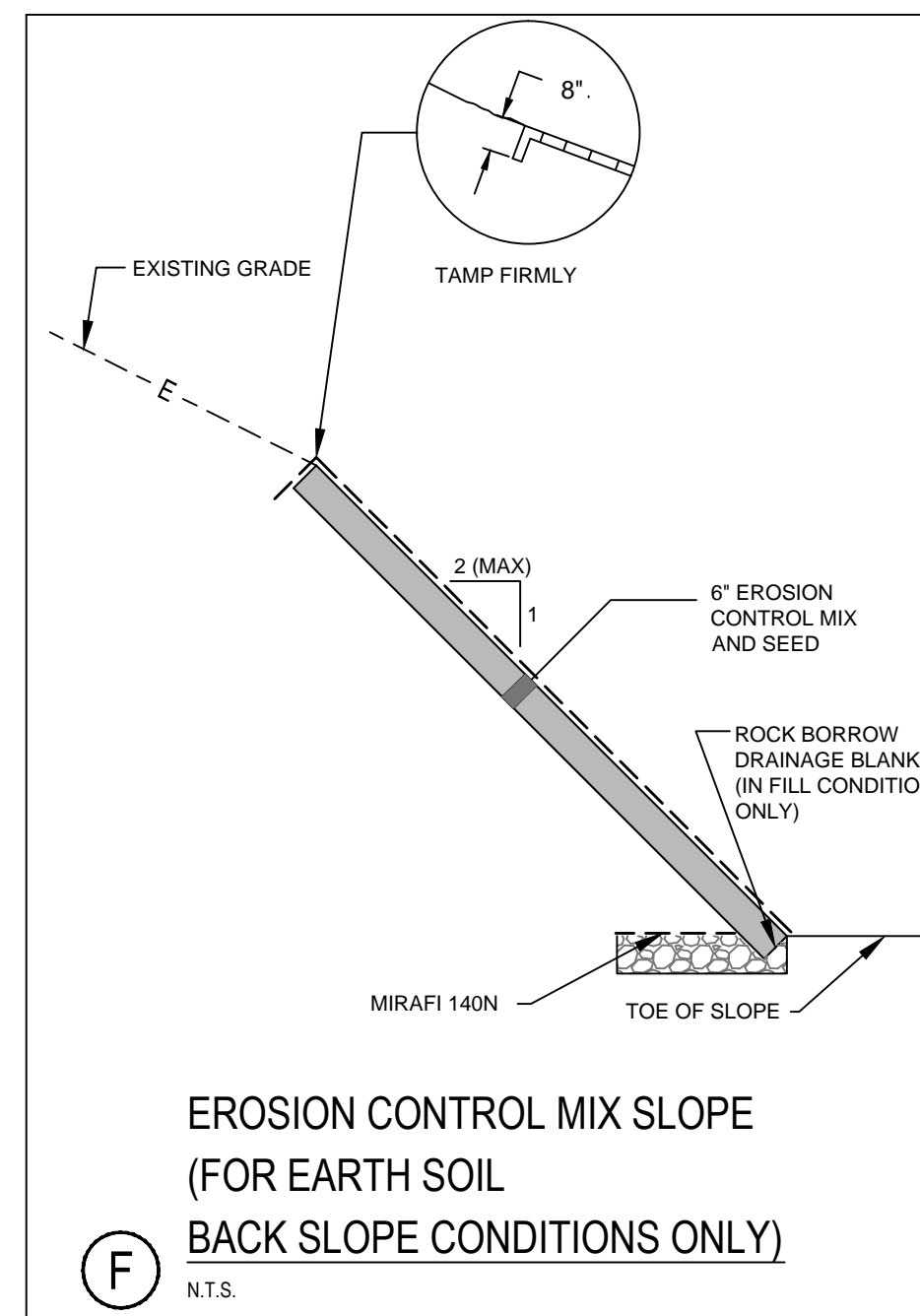
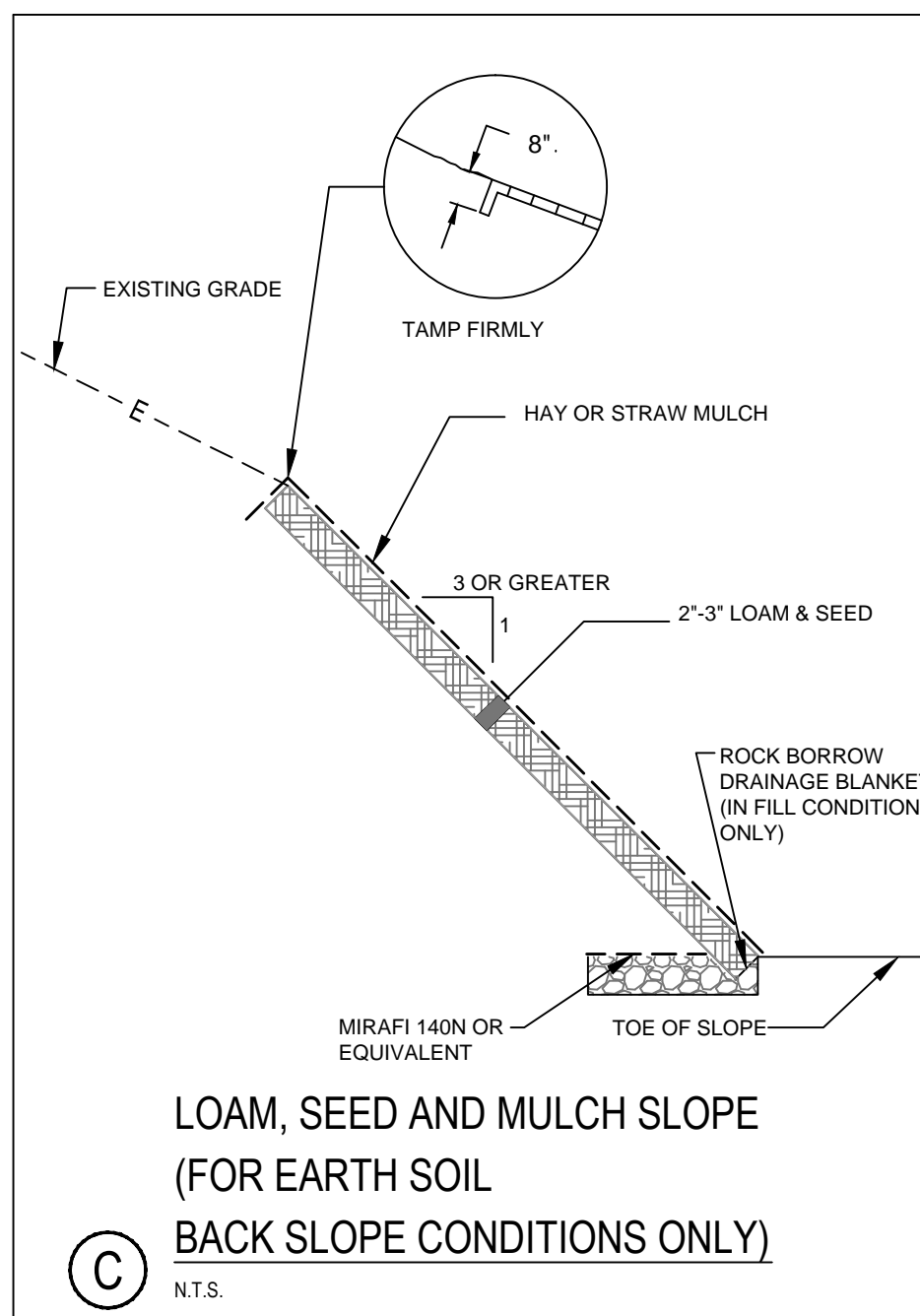
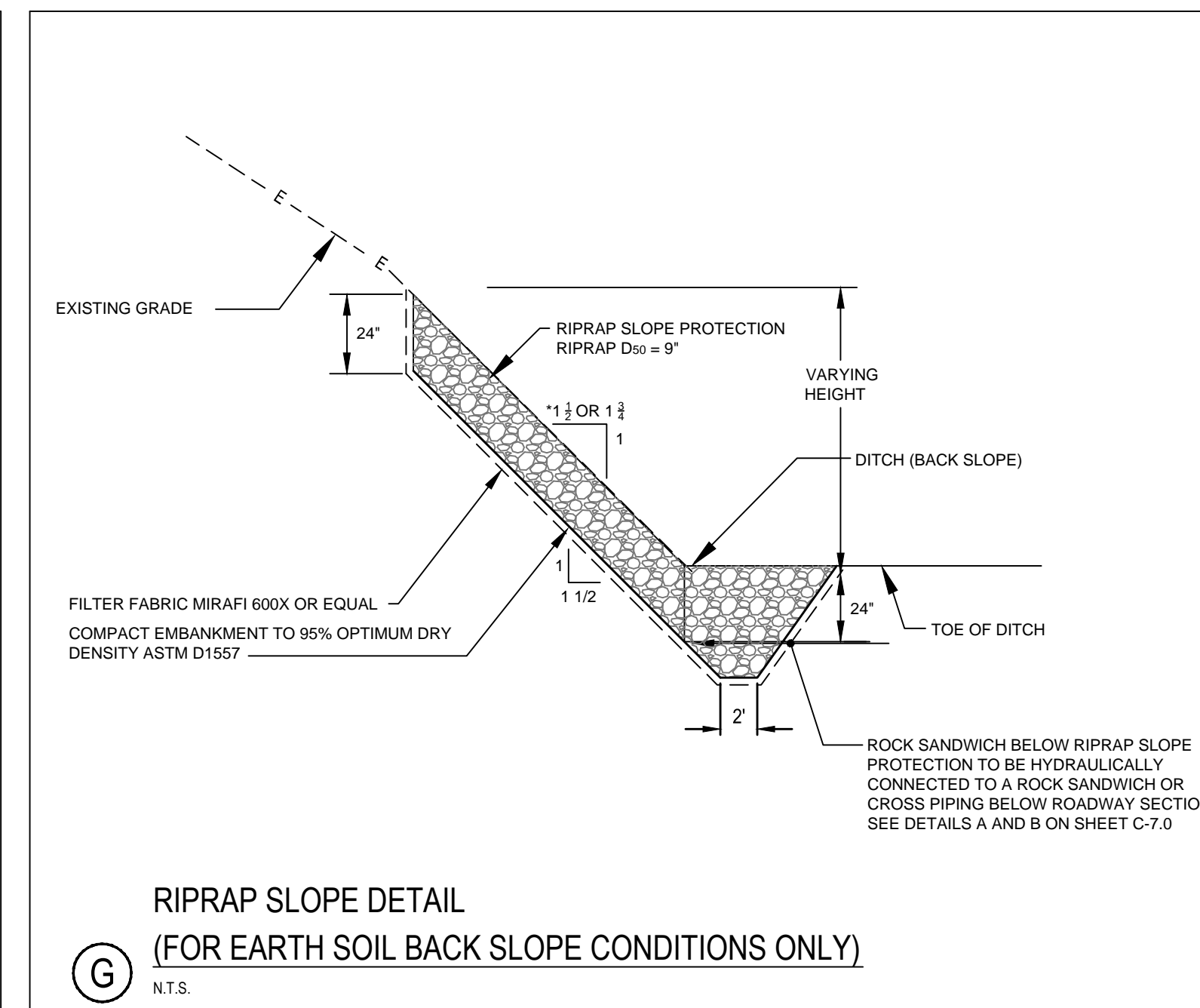
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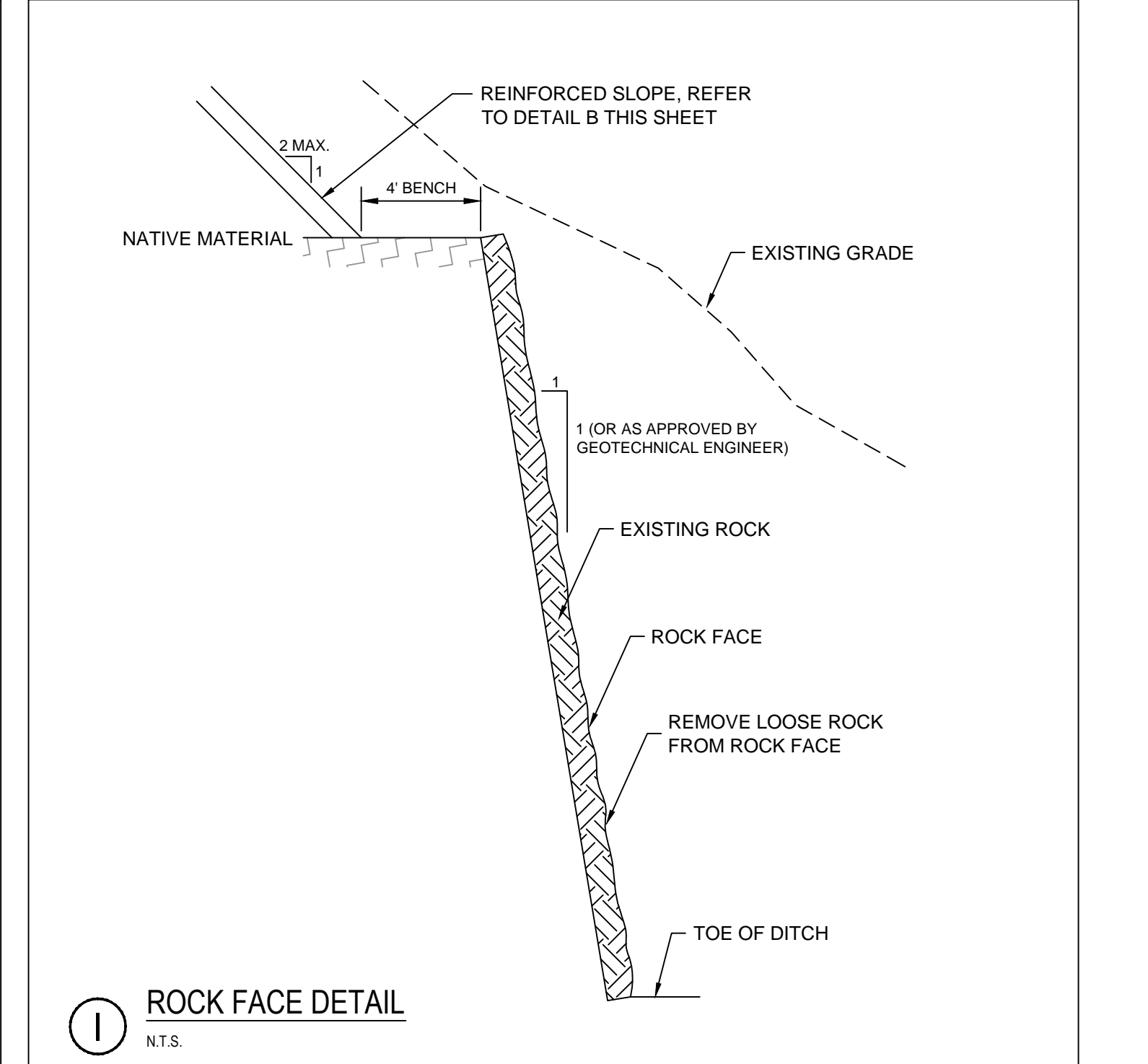
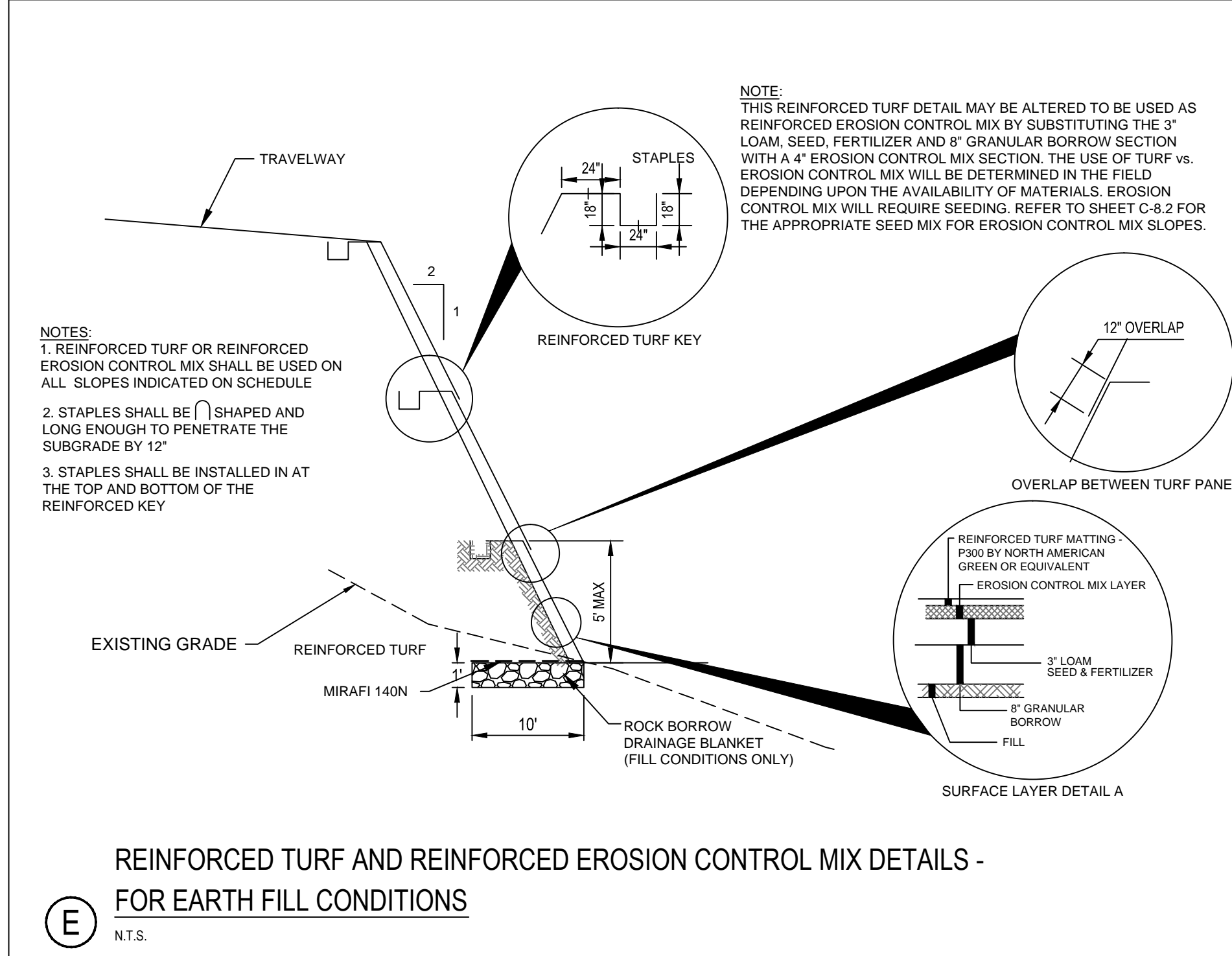
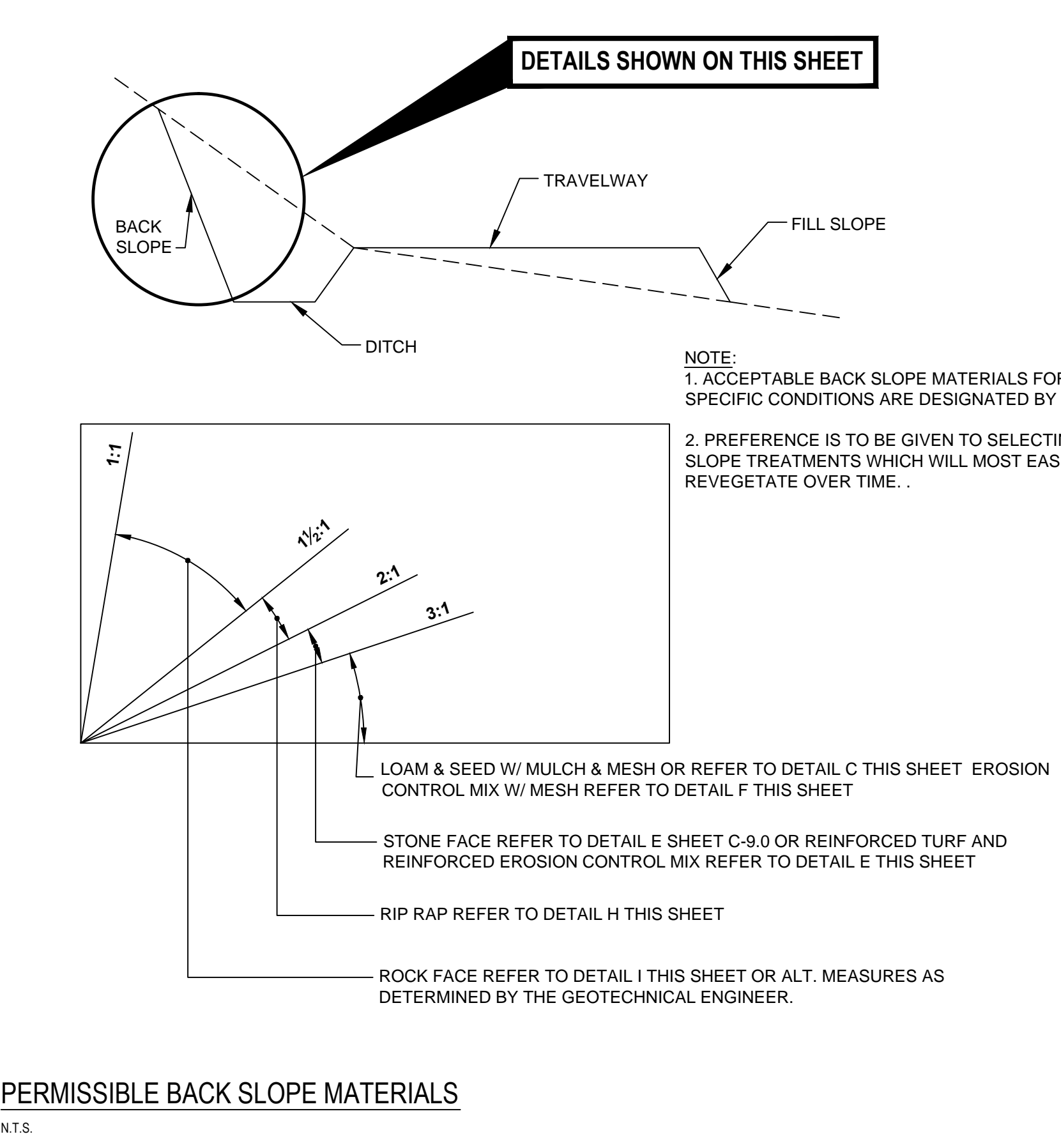
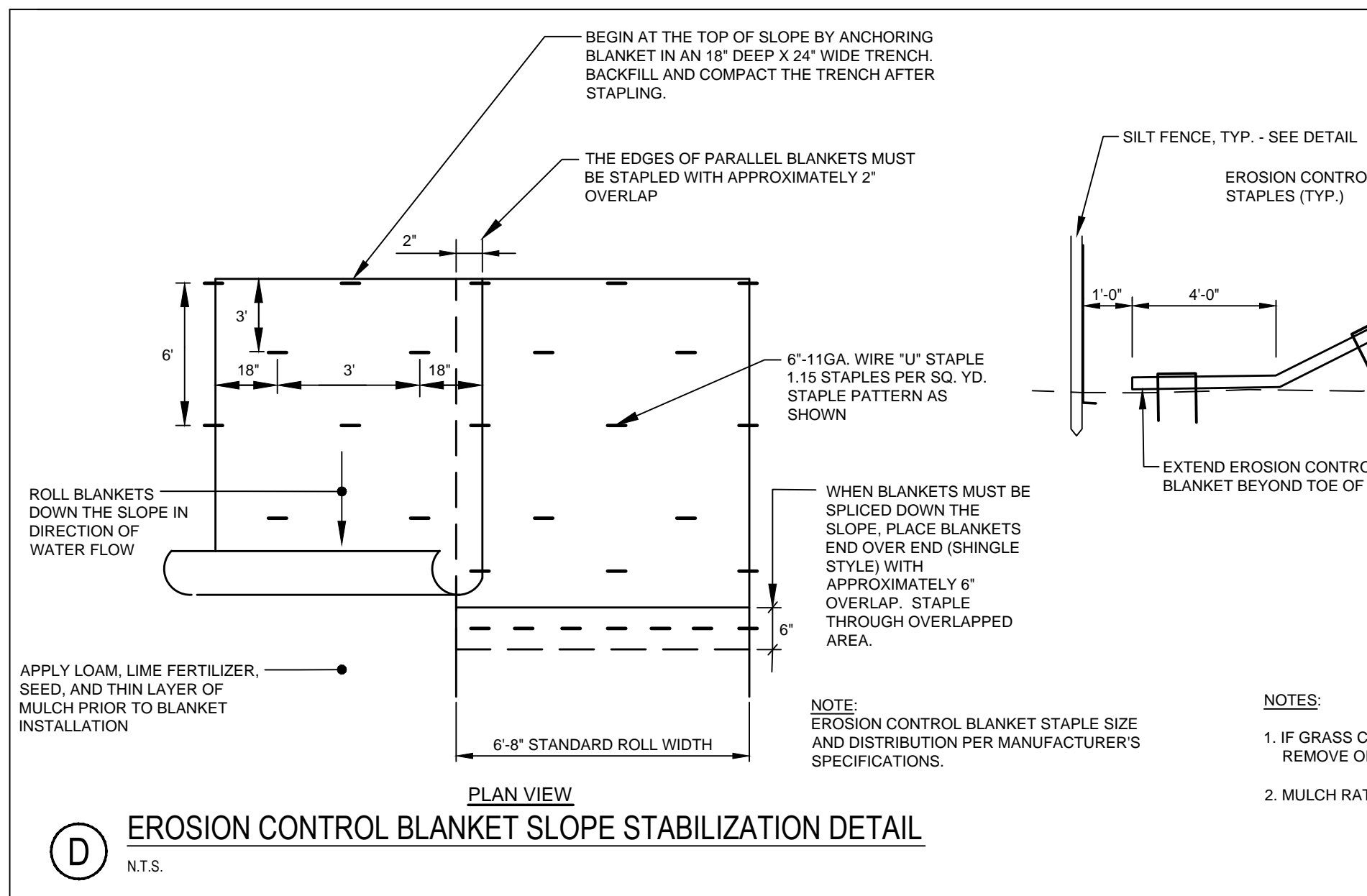
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ROXBURY WIND PROJECT
ROXBURY TOWNSHIP, MAINE

Title
BACK SLOPE DETAILS

Project No.	195601220	Scale	AS NOTED
Drawing No.	Sheet	Revision	



CONDITION	Sr	Sw	S	LOAM SEED AND MULCH	EROSION CONTROL MIX	STONE FACE	RIPRAP	EXPOSED ROCK	ALT. MEASURES TO BE DETERMINED BY GEOTECHNICAL ENGINEER
ABOVE WATER TABLE	N/A	N/A	<1:1	--	--	--	--	--	X
ABOVE ROCK	N/A	N/A	1.75:1	--	--	--	X	--	--
ABOVE WATER TABLE W/ ROCK	1:1	N/A	1:1	--	--	--	--	X	--
BELOW WATER TABLE; ABOVE ROCK	N/A	Varies	1:1	--	--	--	--	--	X
(DRAINAGE LAYER OR PIPING REQUIRED)	N/A	Varies	1.5 to 1.75:1	--	--	--	X	--	--
BELOW WATER TABLE WITH ROCK	1:1	Varies	1.5 to 1.75:1	--	--	--	--	X	--
	1:1	Varies	2:1	--	--	--	--	X	--
	1:1	Varies	3:1	--	--	--	--	X	--
	1:1	Varies	>3:1	--	--	--	--	X	--

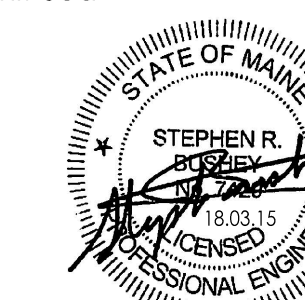


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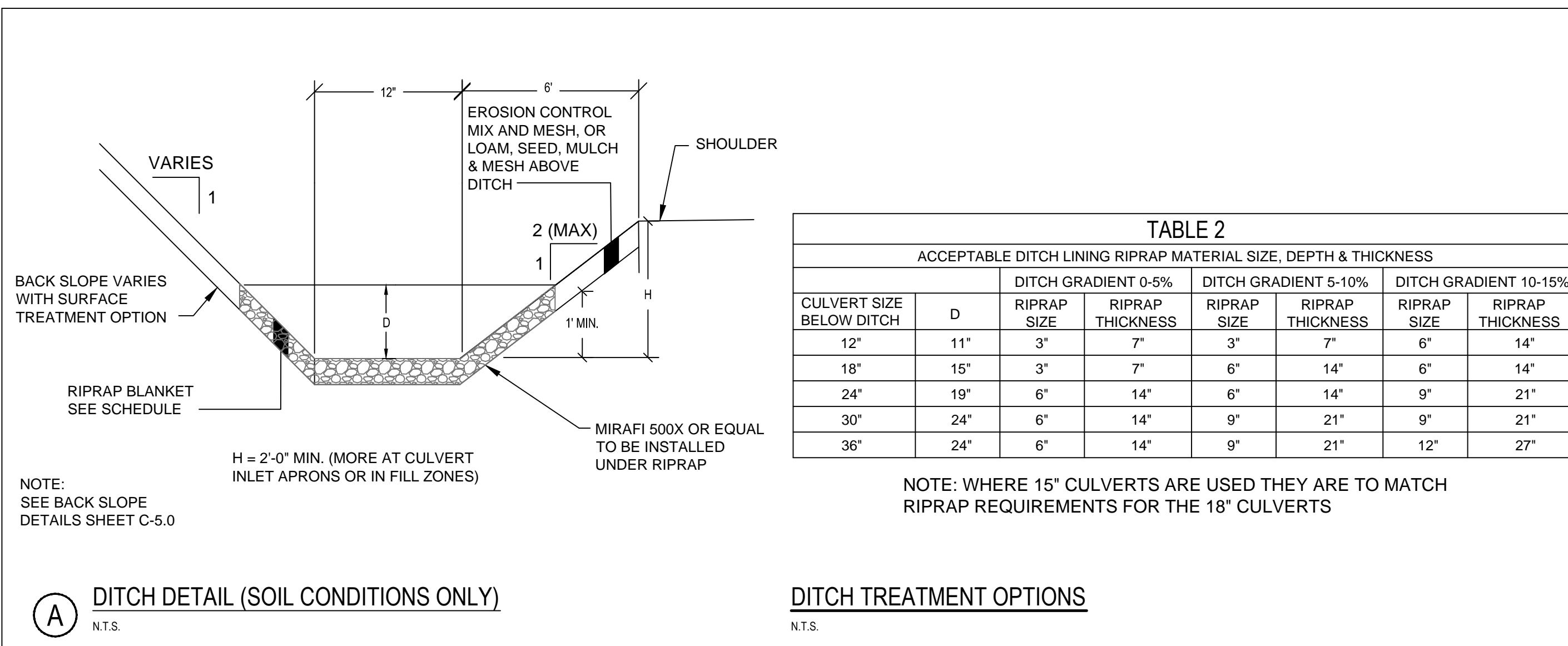
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ROXBURY TOWNSHIP, MAINE

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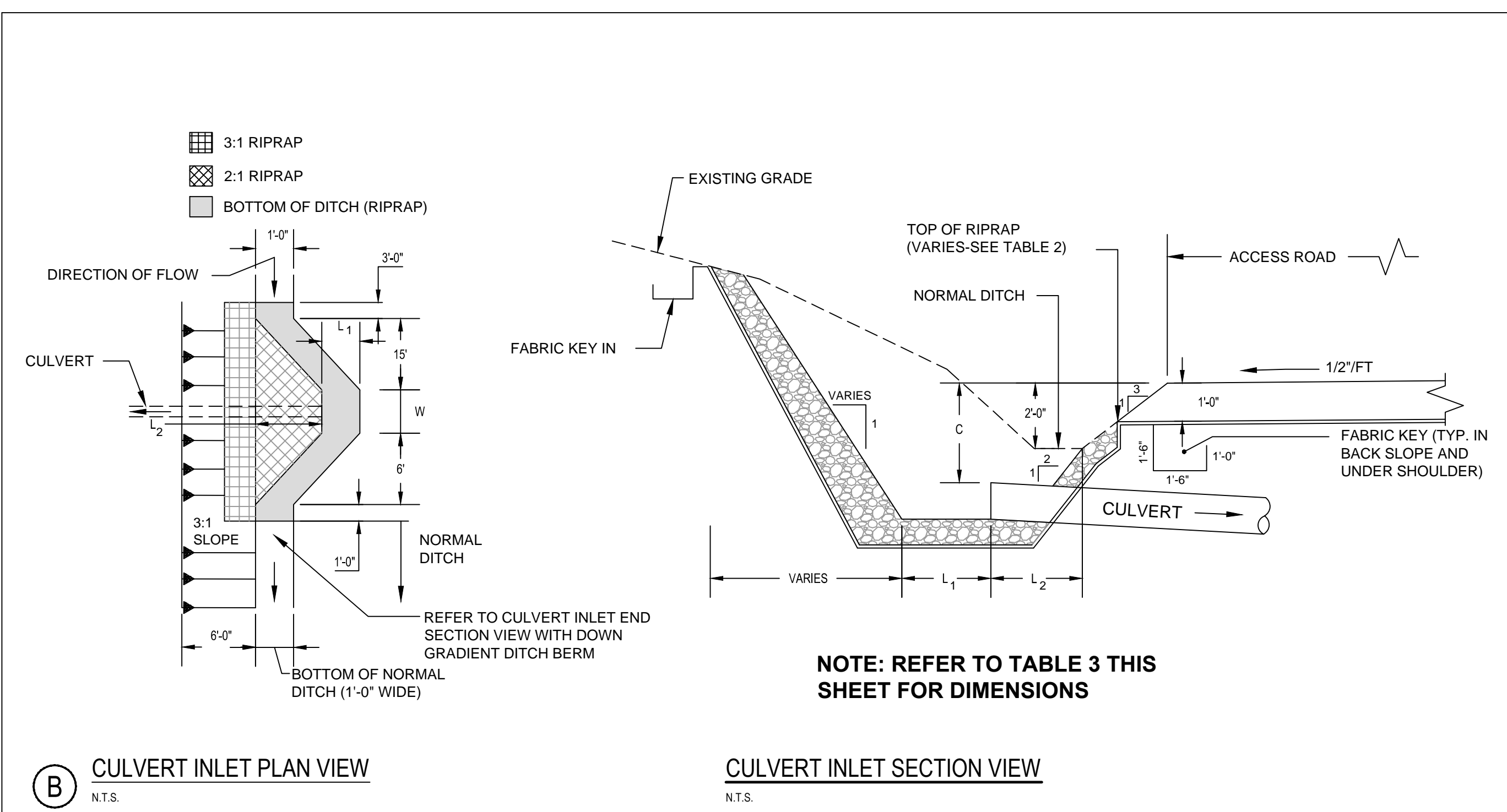
DITCH AND CULVERT DETAILS

Project No. 195601220 Scale AS NOTED
Drawing No. Sheet Revision



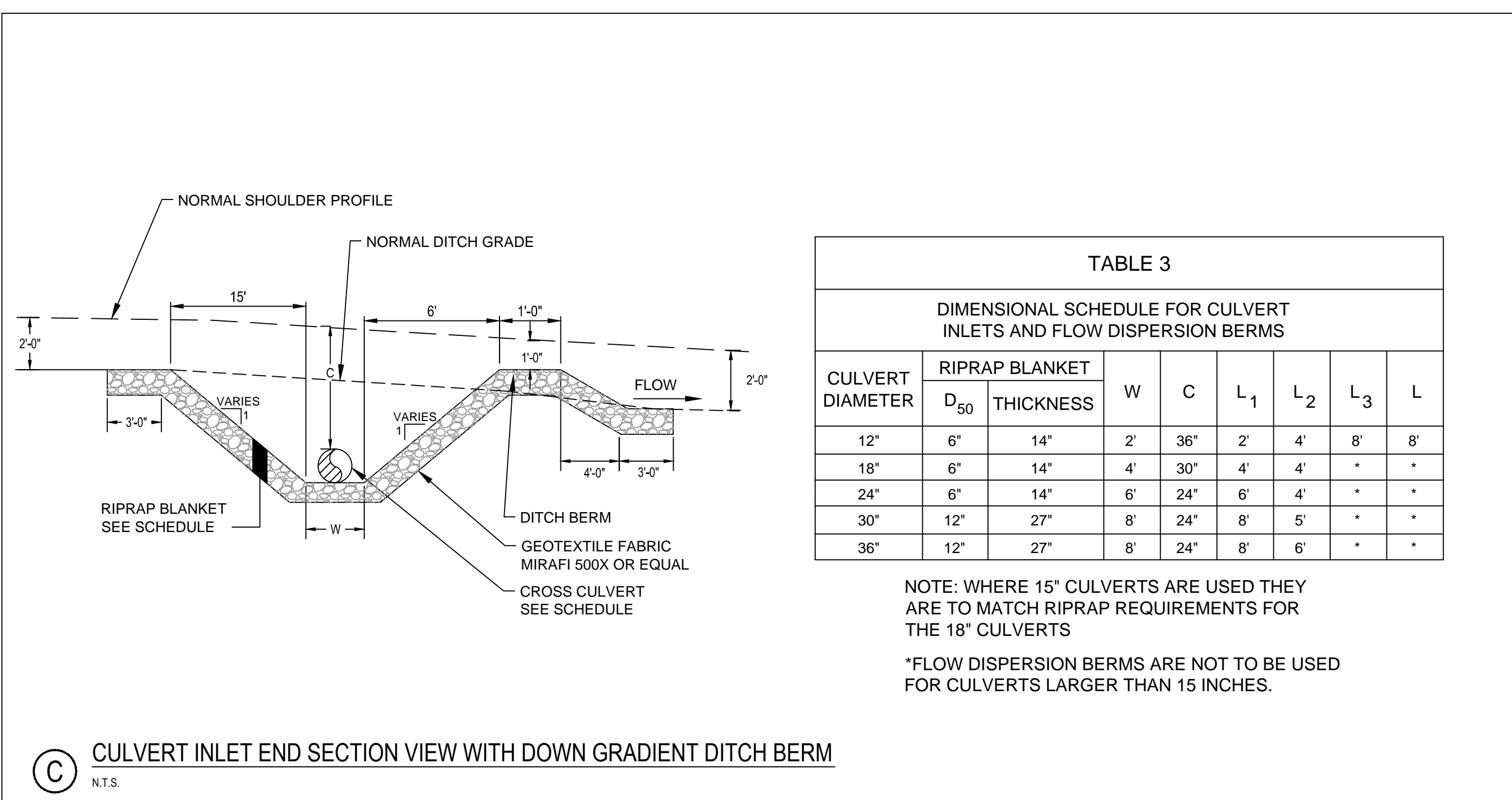
A DITCH DETAIL (SOIL CONDITIONS ONLY)
N.T.S.

DITCH TREATMENT OPTIONS
N.T.S.

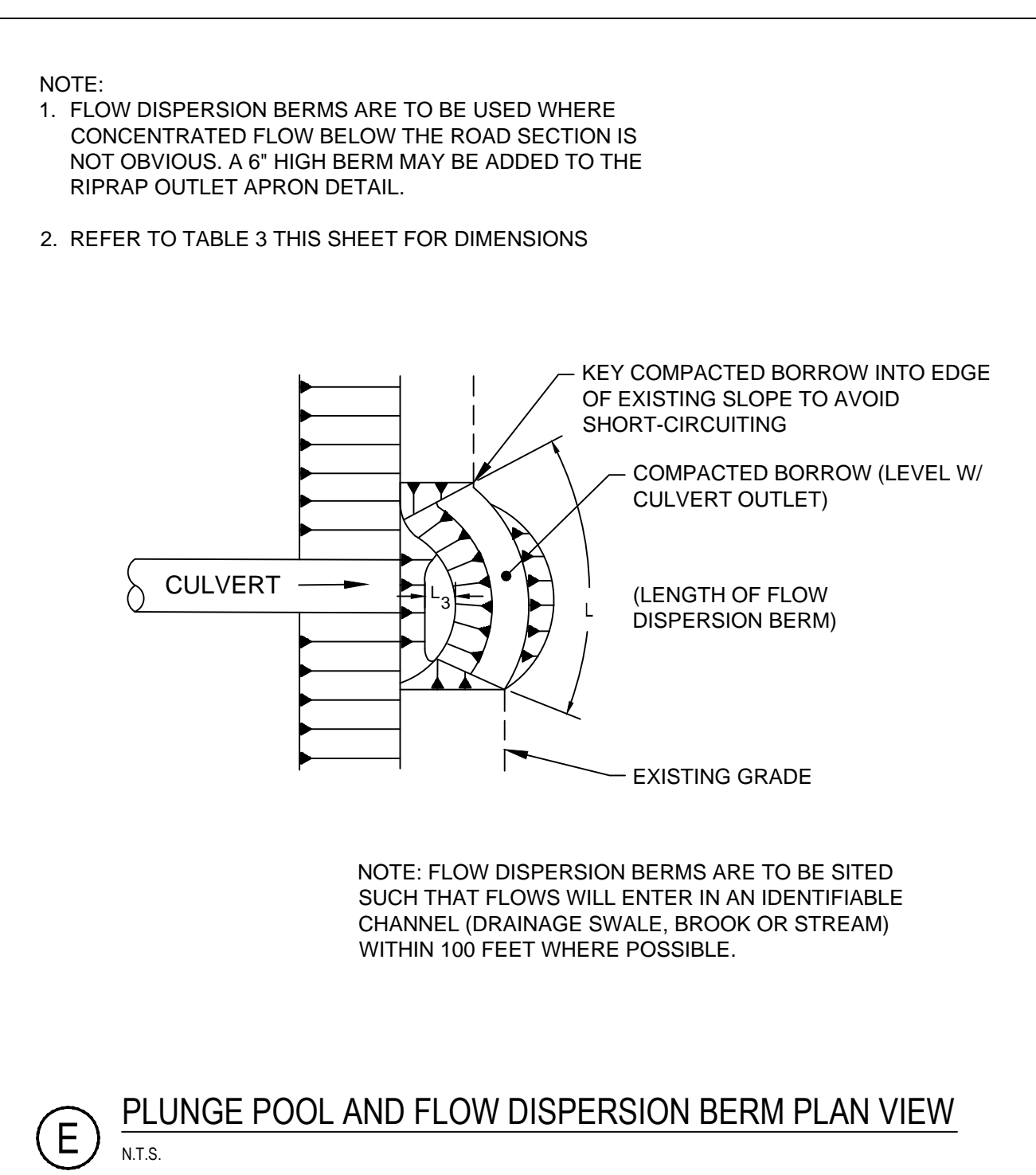


B CULVERT INLET PLAN VIEW
N.T.S.

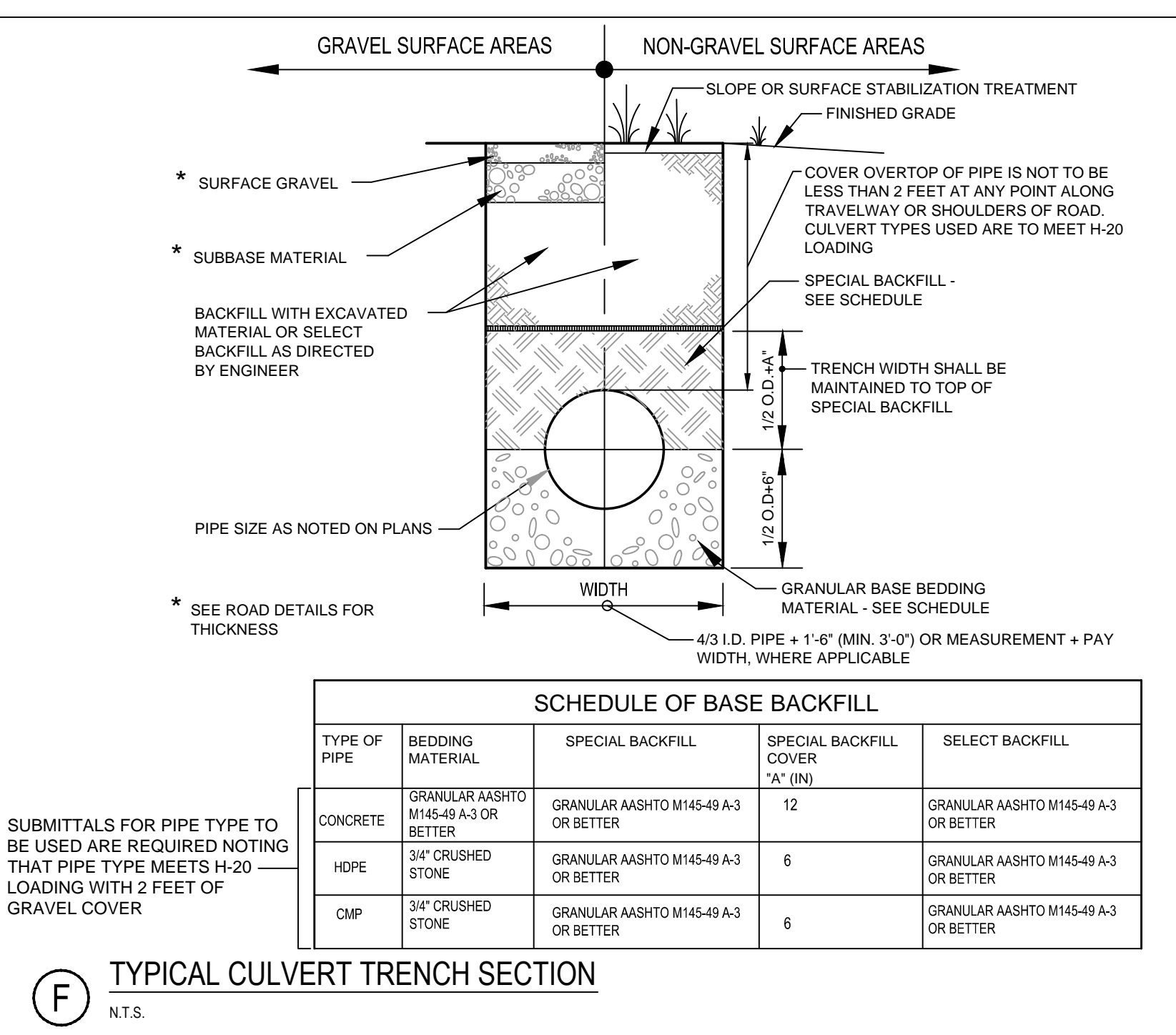
CULVERT INLET SECTION VIEW
N.T.S.



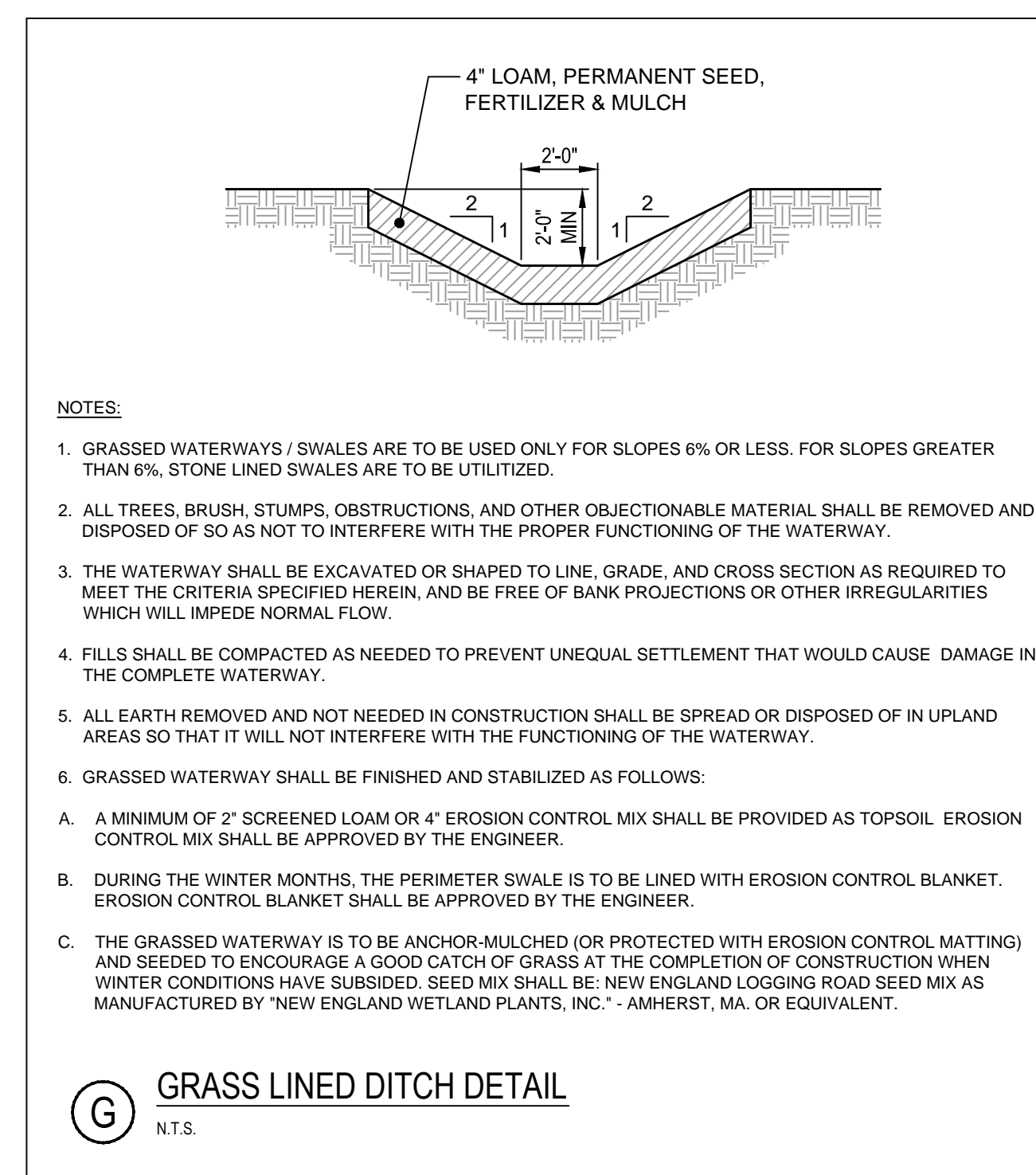
C CULVERT INLET END SECTION VIEW WITH DOWN GRADIENT DITCH BERM
N.T.S.



E PLUNGE POOL AND FLOW DISPERSION BERM PLAN VIEW
N.T.S.



F TYPICAL CULVERT TRENCH SECTION
N.T.S.



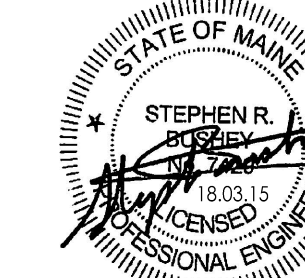
G GRASS LINED DITCH DETAIL
N.T.S.

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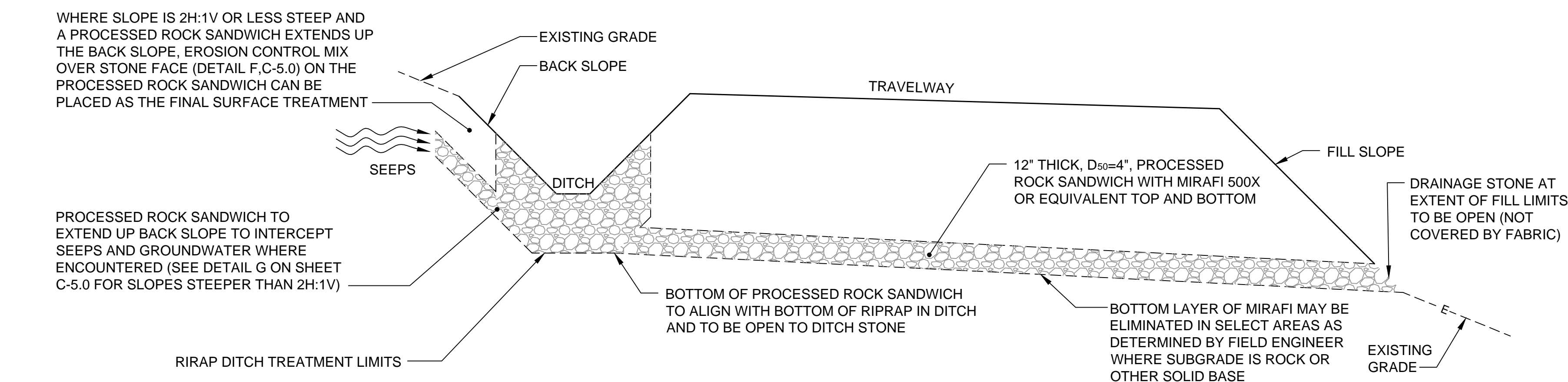
Client/Project
ROXWIND LLC

ROXBURY WIND PROJECT

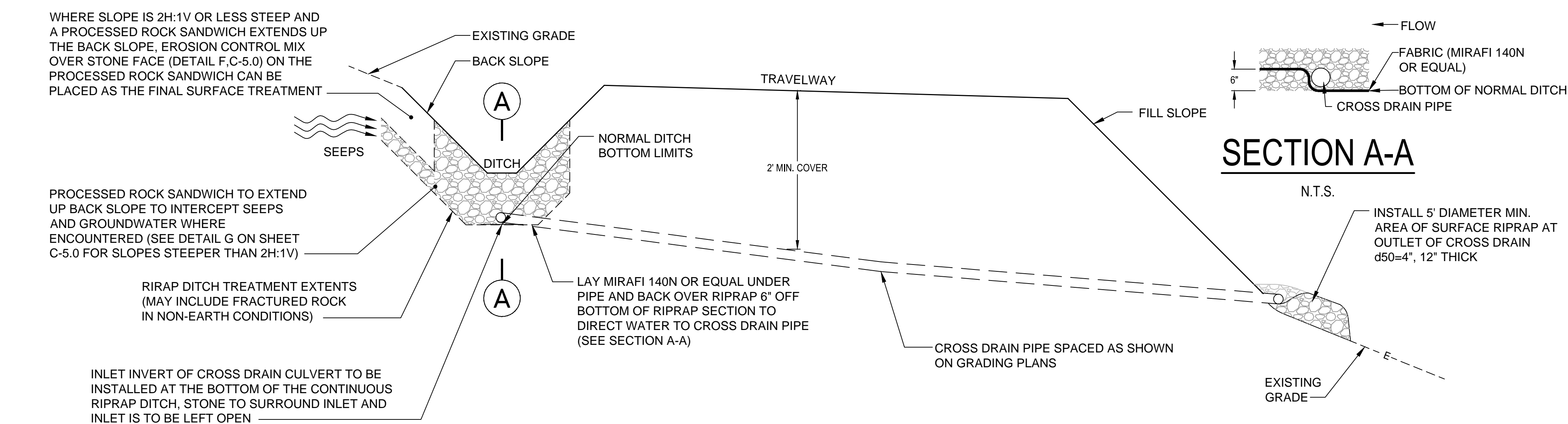
ROXBURY TOWNSHIP, MAINE

Title
**SOIL HYDROLOGY
PRESERVATION DETAILS**

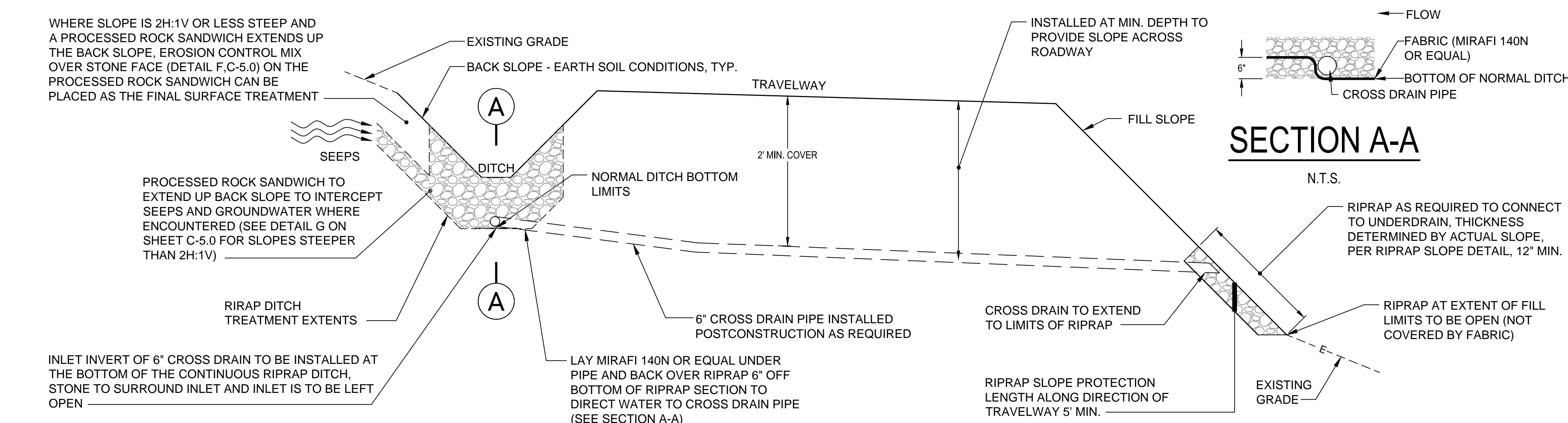
Project No.	Scale
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	Revision



A PROCESSED ROCK SANDWICH CROSS DRAINAGE DETAIL
N.T.S.



B PIPED CROSS DRAINAGE OPTION DETAIL
N.T.S.



C POST CONSTRUCTION PIPED CROSS DRAINAGE DETAIL
N.T.S.

NOTES:

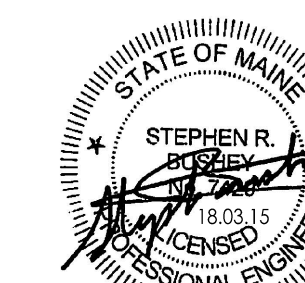
1. THE PRIMARY OBJECTIVE OF THESE CROSS DRAINAGE DETAILS IS TO KEEP EXISTING HYDROLOGY INTACT TO THE EXTENT POSSIBLE BY MAINTAINING SEEP AND SHALLOW PERCHED GROUND WATER FLOW.
2. THESE CROSS DRAINAGE DETAILS DO NOT REPLACE REQUIRED CULVERTING FOR STORMWATER CONVEYANCE. SEE OTHER DETAILS FOR STORMWATER FLOW CONTROL VIA DITCH AND CULVERTING.
3. THE POST CONSTRUCTION CROSS DRAINAGE DETAIL WILL BE INSTALLED WHERE SEEPS ARE OBSERVED AFTER CONSTRUCTION OF THE ROADWAYS AND DETAIL A OR B CONSTRUCTION WAS NOT PROVIDED.
4. ROCK SANDWICHES MAY NOT BE REQUIRED IF ROADWAY IS CONSTRUCTED WITH BLAST ROCK. COORDINATE WITH FIELD ENGINEER AND THIRD PARTY INSPECTOR.

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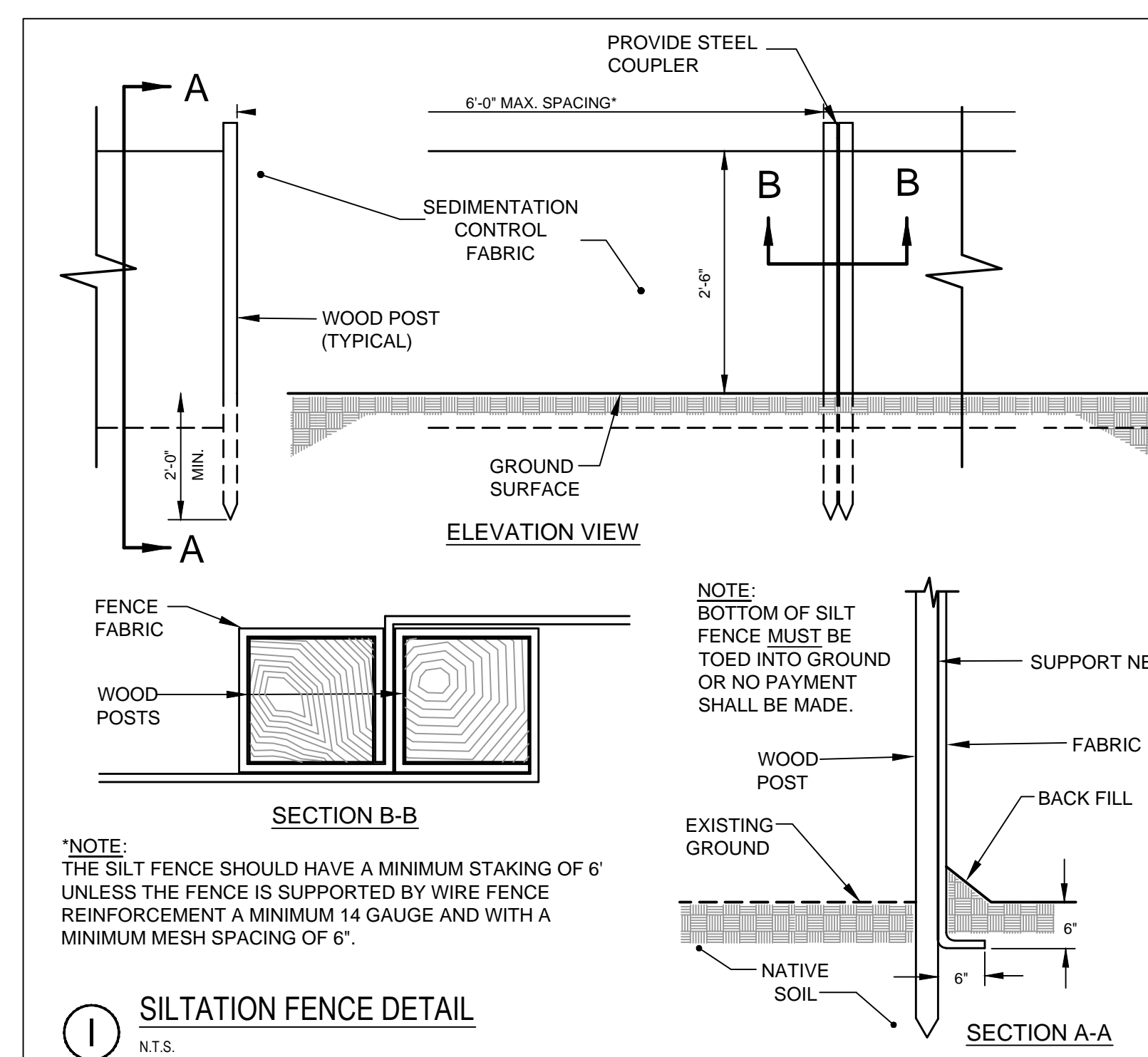
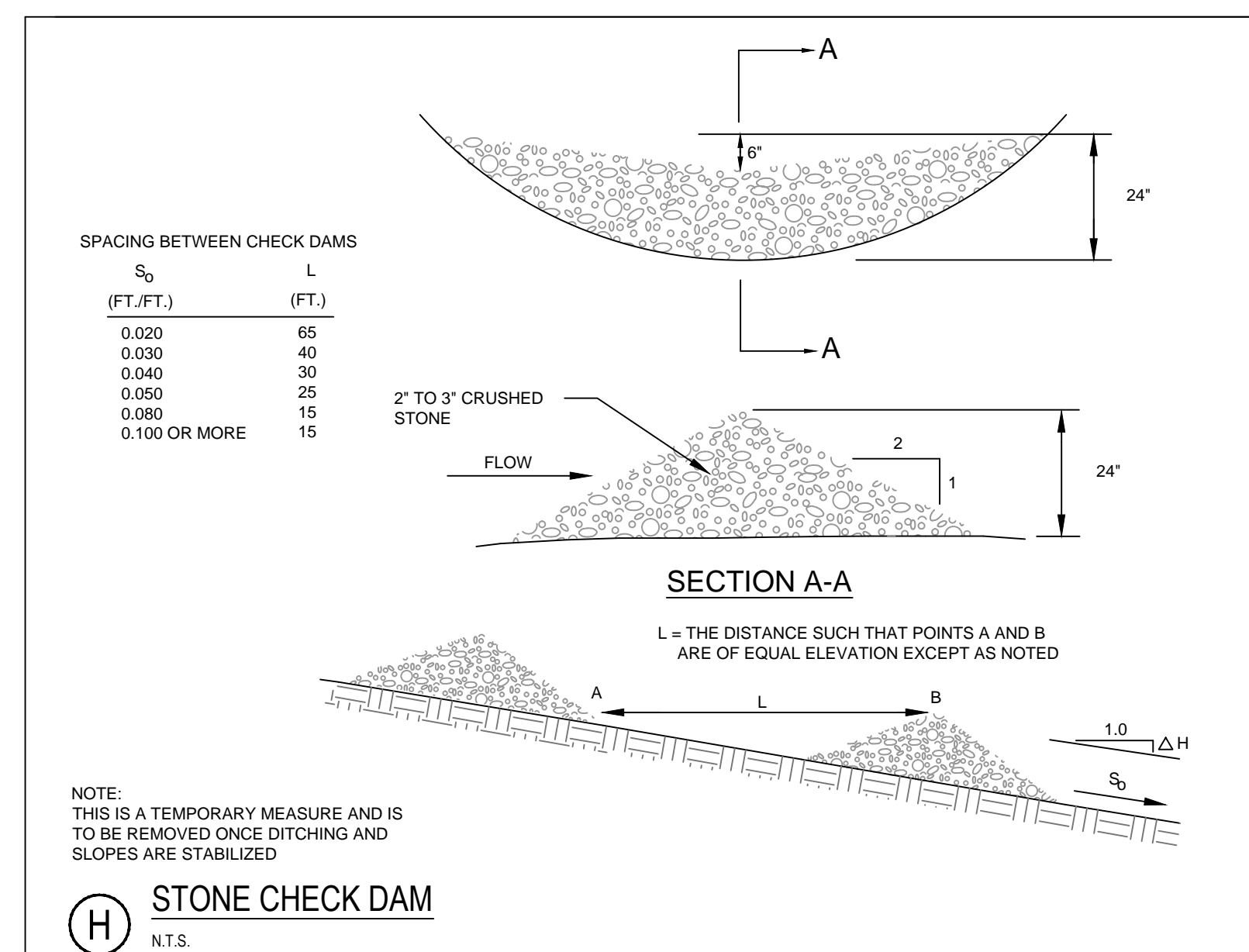
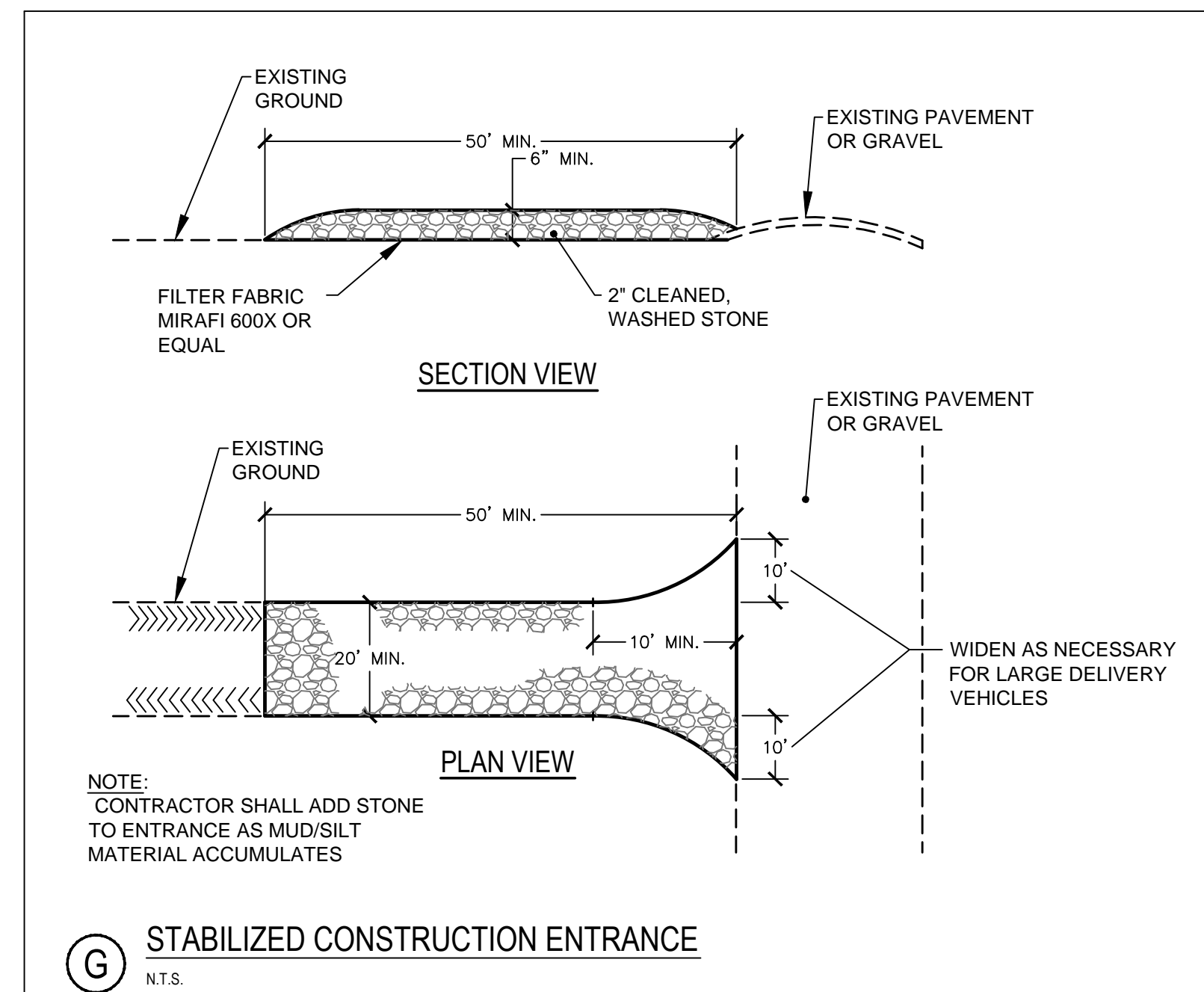
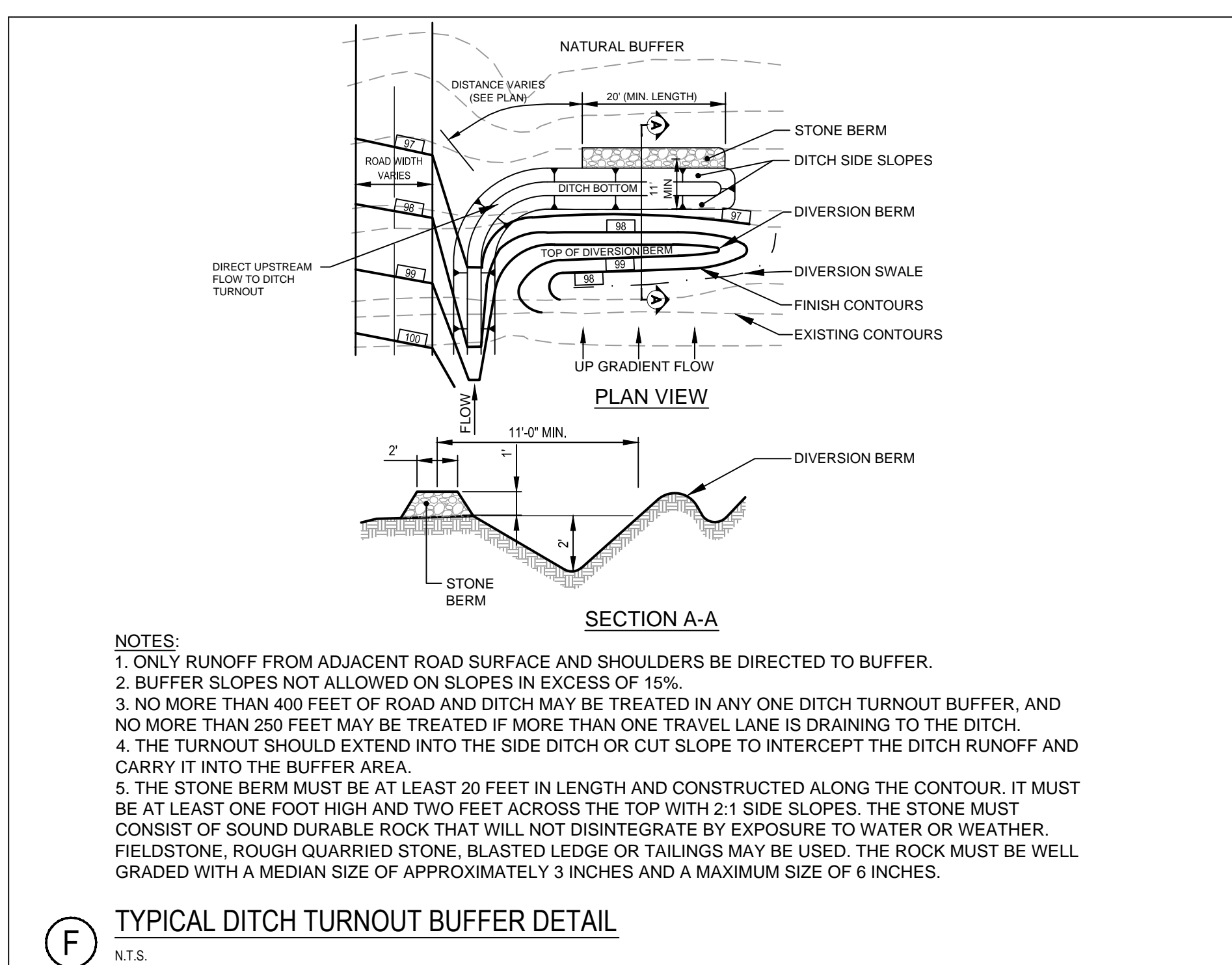
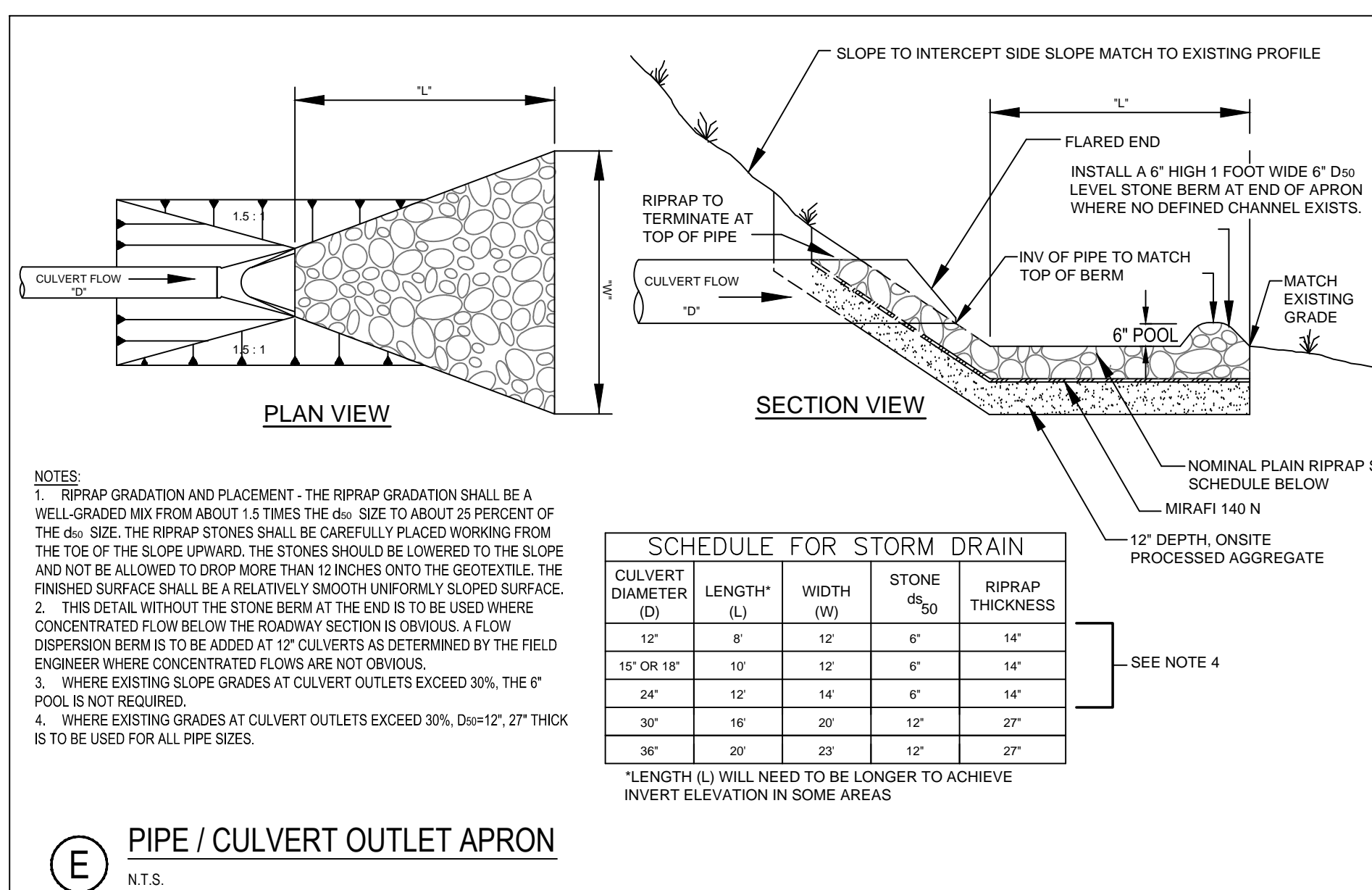
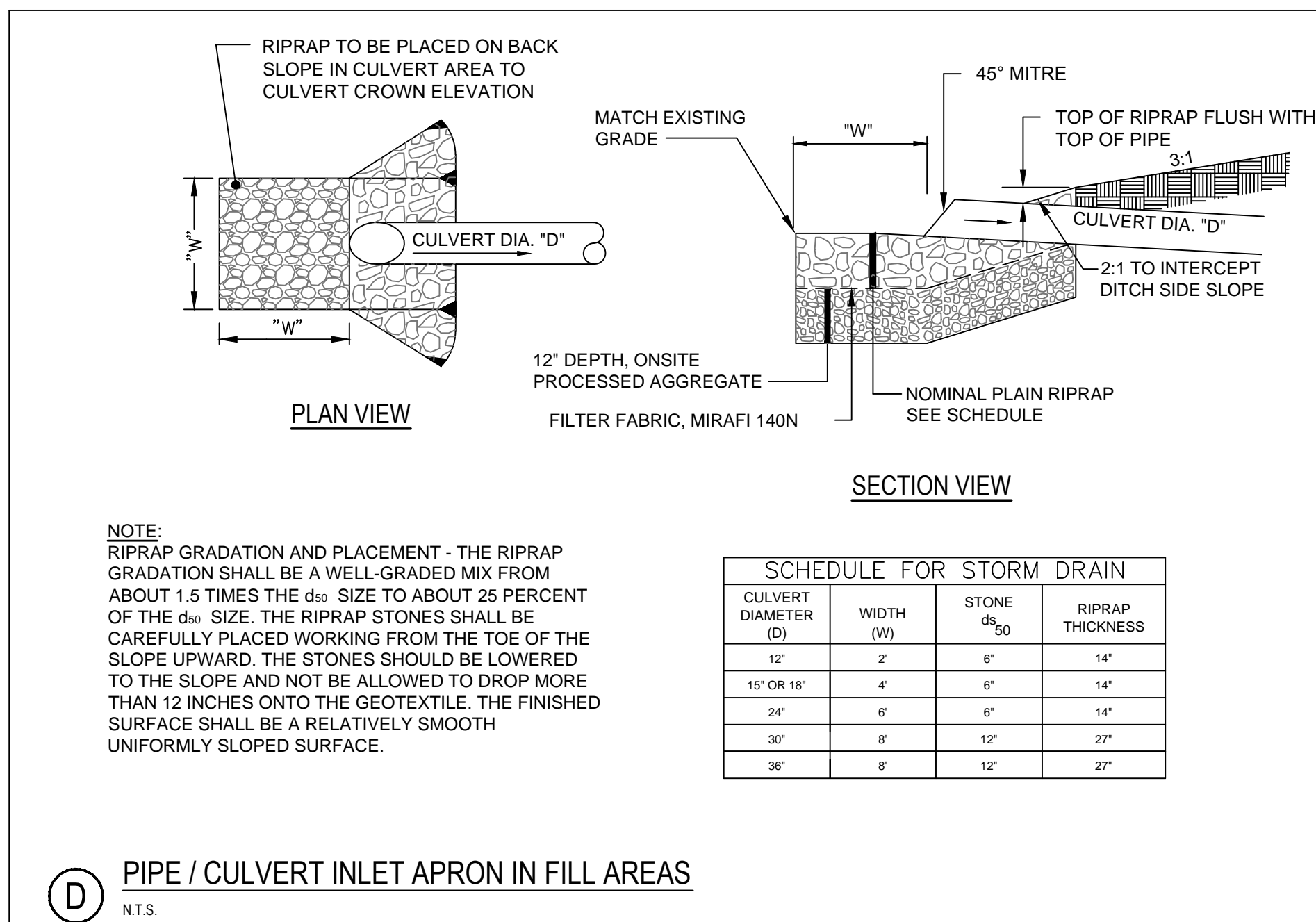
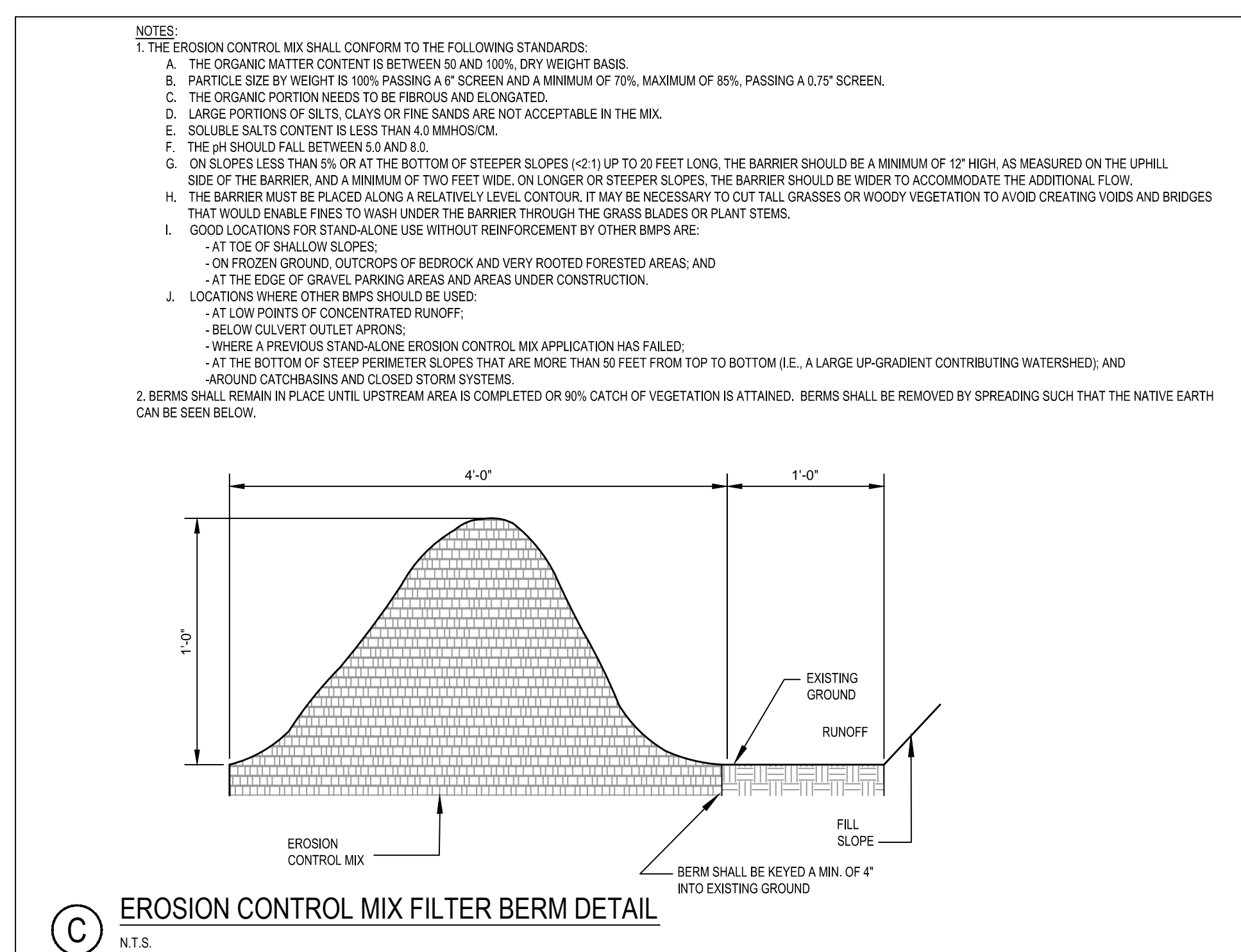
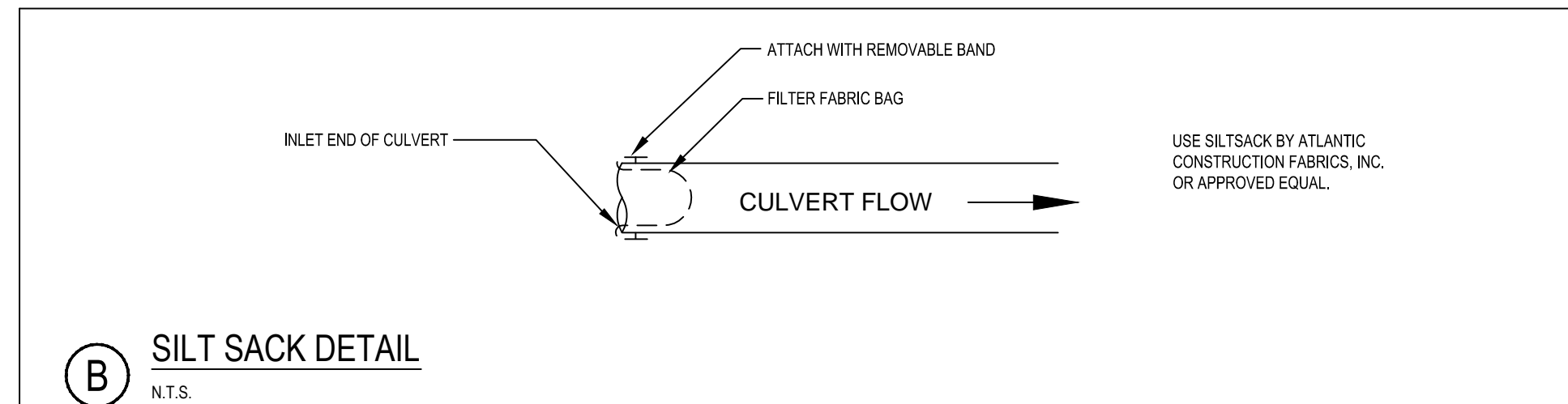
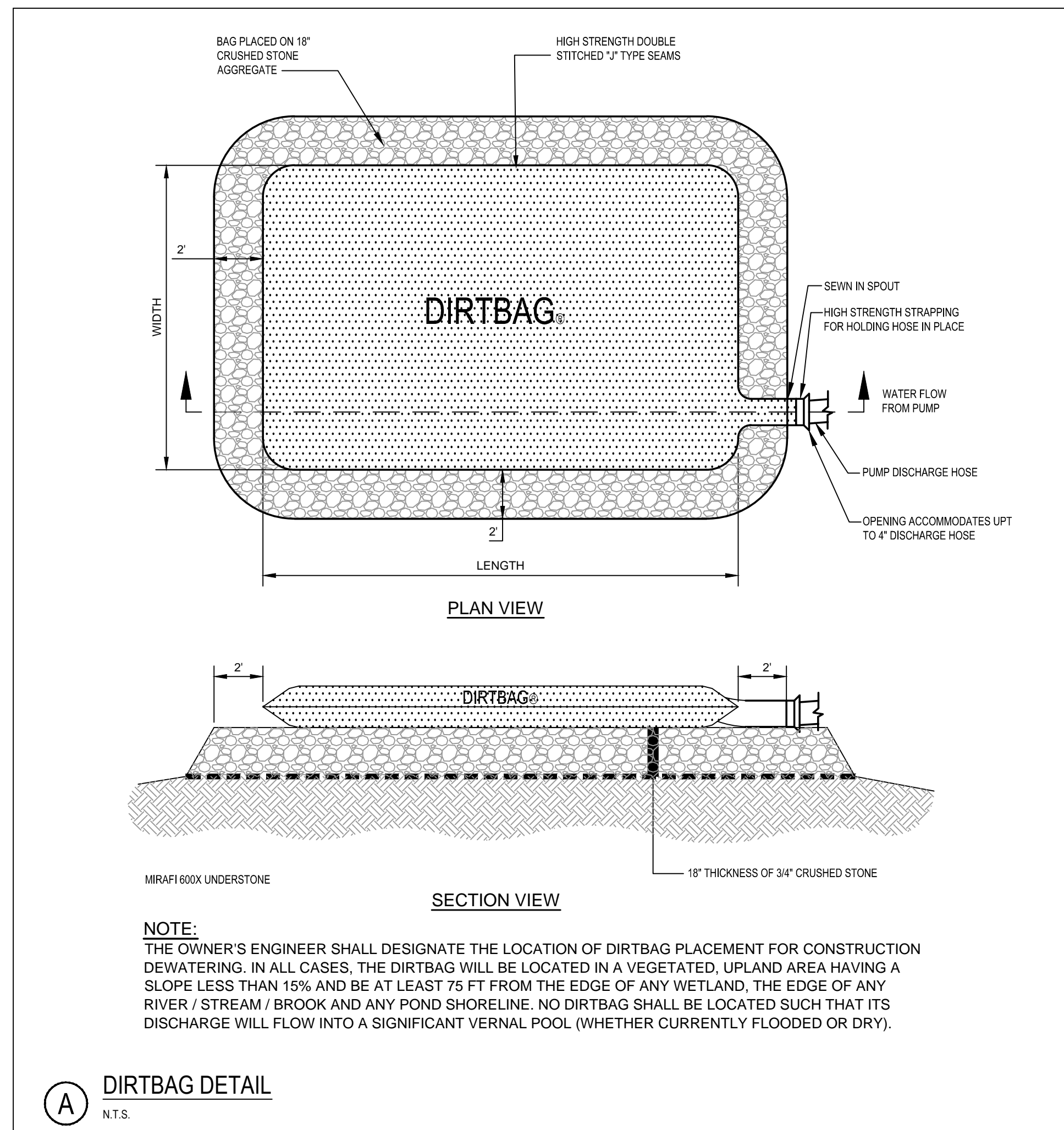
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Client/Project
ROXWIND LLC
ROXBURY WIND PROJECT
ROXBURY TOWNSHIP, MAINE

Title
EROSION CONTROL DETAILS

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Consultants
Legend
Notes

- Permanent seeding shall not be attempted during the fall or winter seasons unless otherwise approved by the Engineer. Should seeding be approved by the Engineer during fall or winter seasons, the Contractor shall follow procedures for dormant seeding. See *Permanent Seeding and Mulching Plan* above for dormant seeding requirements. However, vegetation must be inspected and reseeded by Contractor as necessary in the following spring to ensure good vegetative cover. Acceptance of dormant seeding shall not occur until after May 1, in the following spring.
- Temporary seeding and mulch shall be inspected and maintained or repaired weekly. At a minimum, 75 percent of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (e.g., mulch, filter barriers, check dams, bales). Mulch shall be reapplied as necessary to completely cover soil.
- Areas within 75 feet of a protected natural resource shall be stabilized with temporary mulching or temporary seeding with mulching and have a sediment barrier installed between the area and resource within 48 hours or prior to any storm event, whichever occurs first.

Ditch Stabilization Plan - Any section of rough-graded ditch will have stone check dams installed in the ditch within 24 hours to prevent ditch scouring. Any section of finish-graded ditch will be stabilized with permanent lining of grass and or riprap within 7 days for ditches in non-critical areas and within 48 hours or prior to any storm event, whichever occurs first, for culverts in critical areas.

Inlet and Outlet Stabilization Plan - Any drainage structure installed on the project shall have the appropriate inlet and outlet protection installed within 7 days in non-critical areas and within 48 hours or prior to any storm event, whichever occurs first, in critical areas.

STABILIZATION SCHEDULE		
Maximum Expected Interim Period* - (Days)	Temporary Mulching (Hay)	Temporary Seeding
0-7 (0-2)	None	None
7-30 (2-14)	2-bales/1,000 sq.ft	None
30-60 (14-30)	2-bales/1,000 sq.ft.	(per Table 14-2: Temporary Seeding Schedule)
More than 7 days during winter season	4-bales/1,000 sq.ft.	Dormant seeding only

* Values in parentheses indicates interim period for sensitive and critical areas.
 ** Mulch application rates shall be doubled for winter construction.

TEMPORARY SEEDING SCHEDULE			
Seed	Seeding Rate (lbs/1,000 sq. ft.)	Seeding Depth (Inches)	Recommended Seeding Dates
Annual Rye Grass	0.9	1/4	4/1 to 7/1
Sudan Grass	0.9	1/2	7/1 to 8/15
Perennial Rye Grass	1.8	1/4	8/15 to 9/15
Winter Rye Grass	2.6	1	9/15 to 10/15
Dormant Seeding 50% Winter Rye 50% Annual Rye	3.5 (2.6) (0.9)	1	10/15 to 3/31

PERMANENT SEEDING SCHEDULE		
	SEED	PERCENT BY WEIGHT
Upland Areas with Loam Cover	Tall Fescue	35%
	Creeping Red Fescue	30%
	Perennial Ryegrass	20%
	Annual Ryegrass	15%
Upland Areas with Erosion Control Mix Cover	Crown Vetch	50%
	Perennial Lupine	25%
	Crimson Clover	15%
	Annual Rye	10%
Slopes and Ditches Below Water Table or Line of Seepage	Creeping Red Fescue	47%
	Red Top	6%
	Tall Fescue	47%

Topsail - Topsail will be stockpiled on-site when necessary in areas that have minimum potential for erosion, such as flat slopes or on-site borrow pits, and will be kept as far as possible from existing drainage areas. Stockpiles expected to remain longer than 15 days shall be encircled with bales, erosion control mix berms, or silt fence at the down gradient sides of the stockpile and mulched with a second application of hay mulch and anchored with biodegradable netting if deemed necessary by the Engineer (Maine Construction General Permit, Appendix A (6) a-d).

Winter Construction - For any work proposed during the winter season, the Contractor shall adhere to the following practices.

- Limit the exposed area to those areas in which work is to occur during the following 15 days and that can be mulched in one day prior to any snow event.
- Where required and approved by the Engineer, installation of silt fence may be modified from detail on design plans to substitute six inches of suitable non-organic material over the bottom of the silt fence in lieu of trenching and backfilling fabric or erosion control mix berm/barrier.
- Mulching and seeding rates shall adhere to the *Temporary Seeding and Mulching Schedule* above. Note that all mulching rates shall be doubled as shown in the above table and shall follow the sensitive area schedule during winter construction.
- Permanent seeding shall not be attempted by the Contractor during winter season unless otherwise approved by the Engineer.

5.2 Erosion Control Removal

Removal of temporary erosion control measures shall be the responsibility of the Contractor. Erosion controls shall remain in place and will be maintained by the Contractor until all related construction is complete and the area has been stabilized. Erosion control mix will be used to revegetate roads/pads and should be left in place.

An area is considered stable if a 90 percent cover of vegetation has been established or riprap or other permanent measures are in place and functioning properly.

Bales and silt fence shall be removed within 30 days of final stabilization. The bales and silt fence shall be disposed of legally and properly off-site. Sediment trapped behind these controls shall be distributed to an area undergoing final grading and graded in an aesthetic manner to conform to the topography, and fertilized, seeded and mulched, or otherwise stabilized, in accordance with the rates previously stated.

The sediment trapped behind/around/in stone check dams, perforated risers, and sedimentation basins, shall be removed and transported off-site, or to an upslope area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways.

The rip-rap and stone from the check dams and risers may be either removed or regraded in an aesthetic manner that does not inhibit flow or create the potential for erosion.

Once the trapped sediments have been removed from the temporary sedimentation devices, the disturbed areas will be loamed (if necessary), fertilized, seeded and mulched, or otherwise stabilized, in accordance with the rates previously stated.

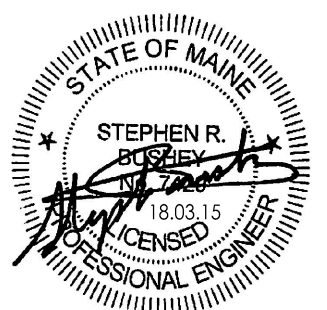
6.0 Conclusion

If constructed in conformance with the project design plans and these basic standards, the project is not expected to result in any significant erosion or sedimentation either on or off the site.

STORMWATER PERMIT APPLICATION	KAB	SRB	18.05.09
PERMIT DRAWINGS SUBMITTED FOR PROJECT TEAM REVIEW	EPJ	SRB	18.03.09
Revision	By	Appd.	YY.MM.DD
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File Name:	195601220_DETAILS	KAB	SRB	SRB	18.03.04
P.E.	STEPHEN R. BUSHEY	Dwn.	Chkd.	Dsgn.	YY.MM.DD

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Client/Project

ROXWIND LLC

ROXBURY WIND PROJECT

ROXBURY TOWNSHIP, MAINE

Title

EROSION CONTROL NOTES

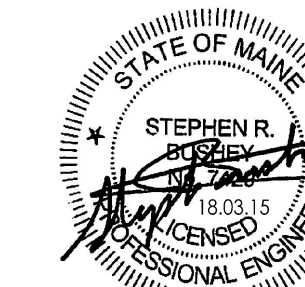
Project No. 195601220	Scale AS NOTED
Drawing No.	Sheet Revision

STORMWATER PERMIT APPLICATION	KAB	SRB	18.05.09
PERMIT DRAWINGS SUBMITTED FOR PROJECT TEAM REVIEW	EPL	SRB	18.03.09
Revision	By	Appd.	YY.MM.DD

Issued By Appd. YY.MM.DD

File Name: 195601220_DETAILS	KAB	SRB	SRB	18.03.04
P.E. STEPHEN R. BUSHHEY	Don.	Chkd.	Dign.	YY.MM.DD

Permit-Seal

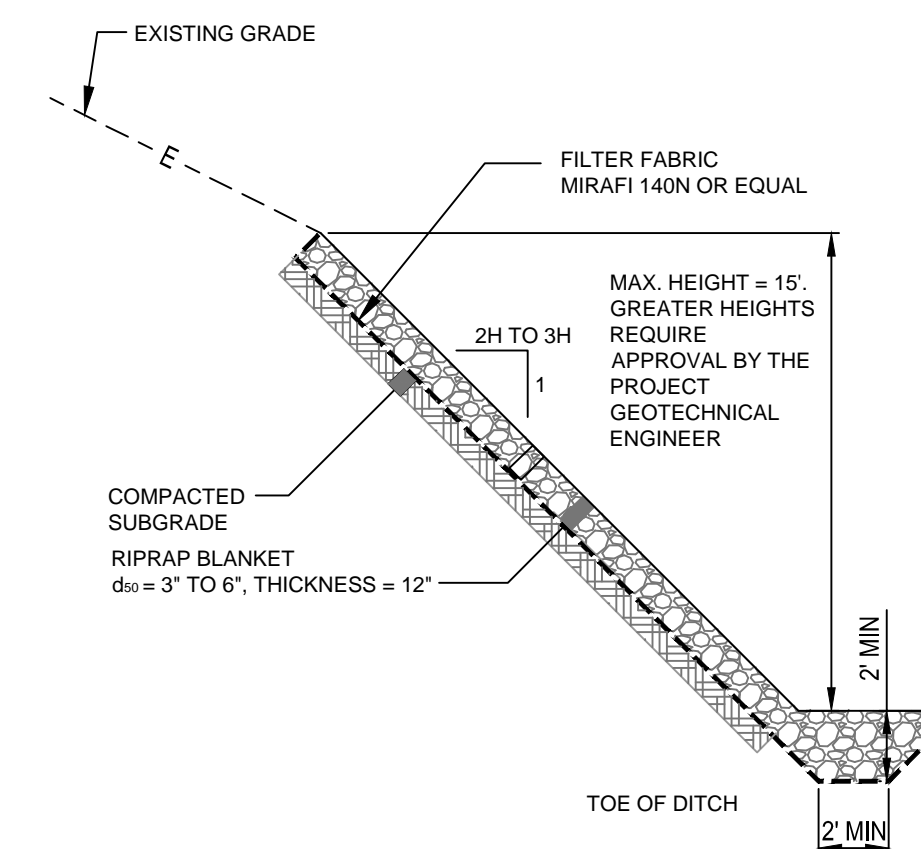


Client/Project
 ROXWIND LLC
 ROXBURY WIND PROJECT
 ROXBURY TOWNSHIP, MAINE

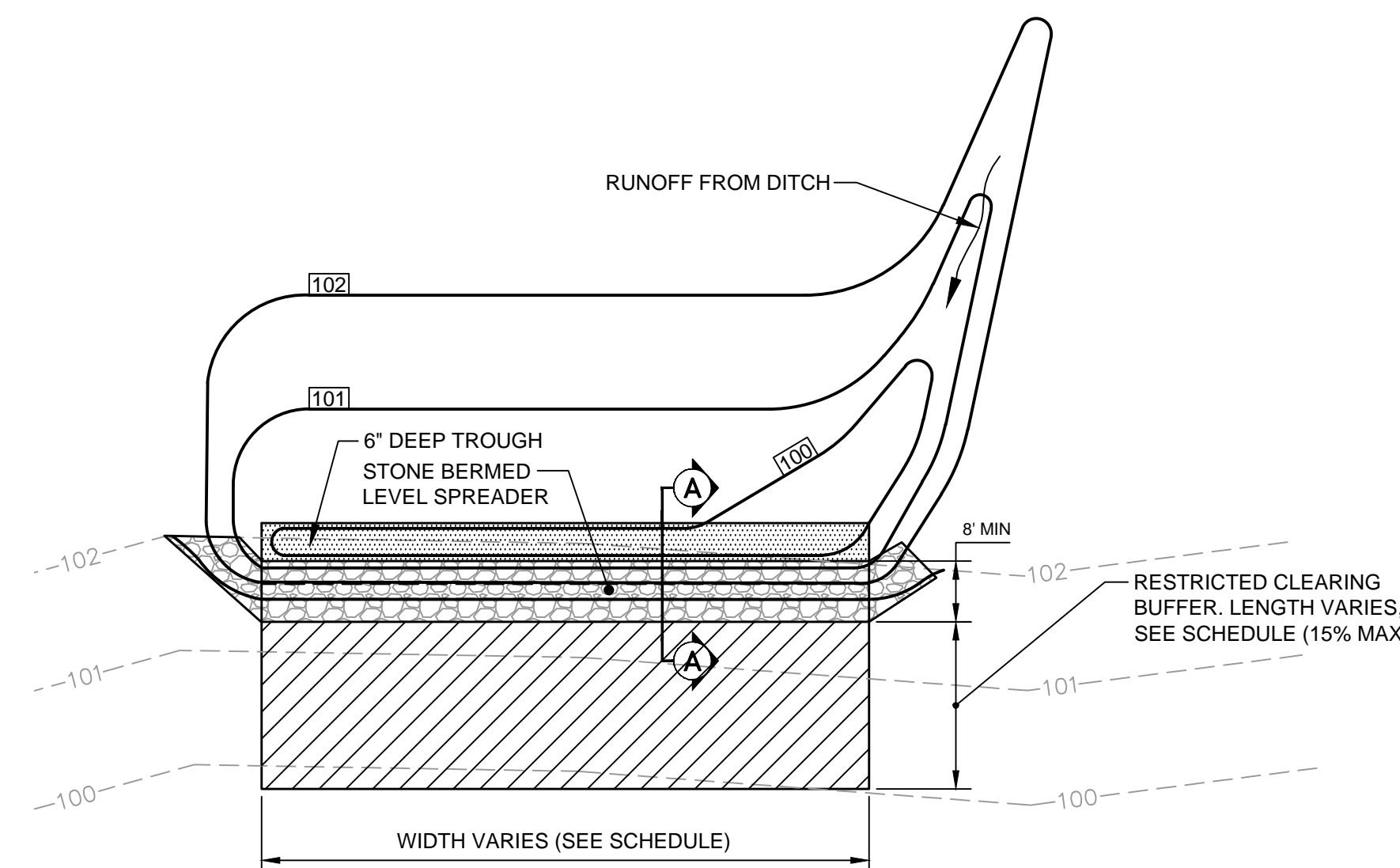
Title

MISCELLANEOUS DETAILS

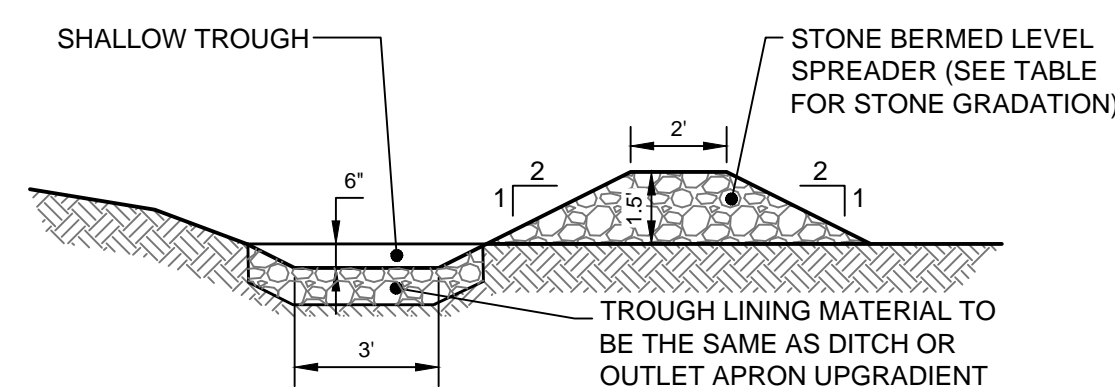
Project No. 195601220	Scale AS NOTED
Drawing No.	Sheet Revision



E STONE FACE DETAIL
N.T.S.



D STONE BERMED LEVEL SPREADER DETAIL
N.T.S.



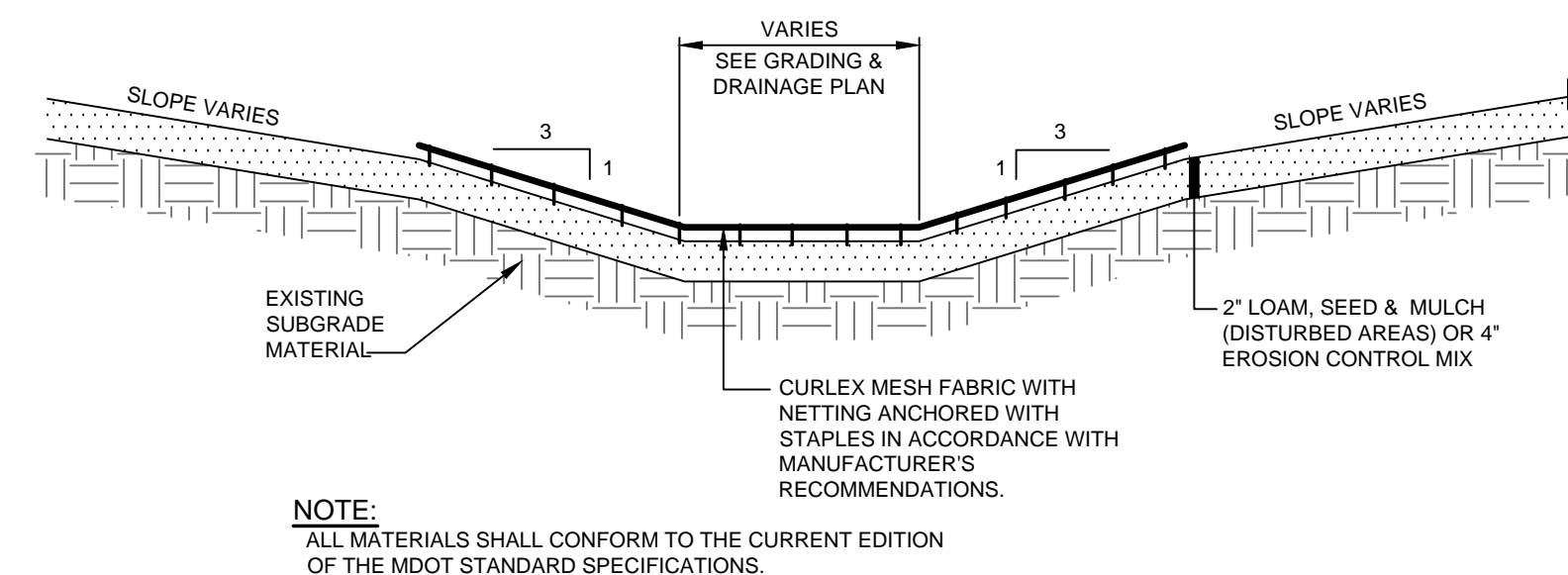
SECTION A-A

BERM STONE SIZE	
SIEVE DESIGNATION (US CUSTOMARY)	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVE
12 IN	100
6 IN	84-100
3 IN	68-83
1 IN	42-55
NO. 4	8-12

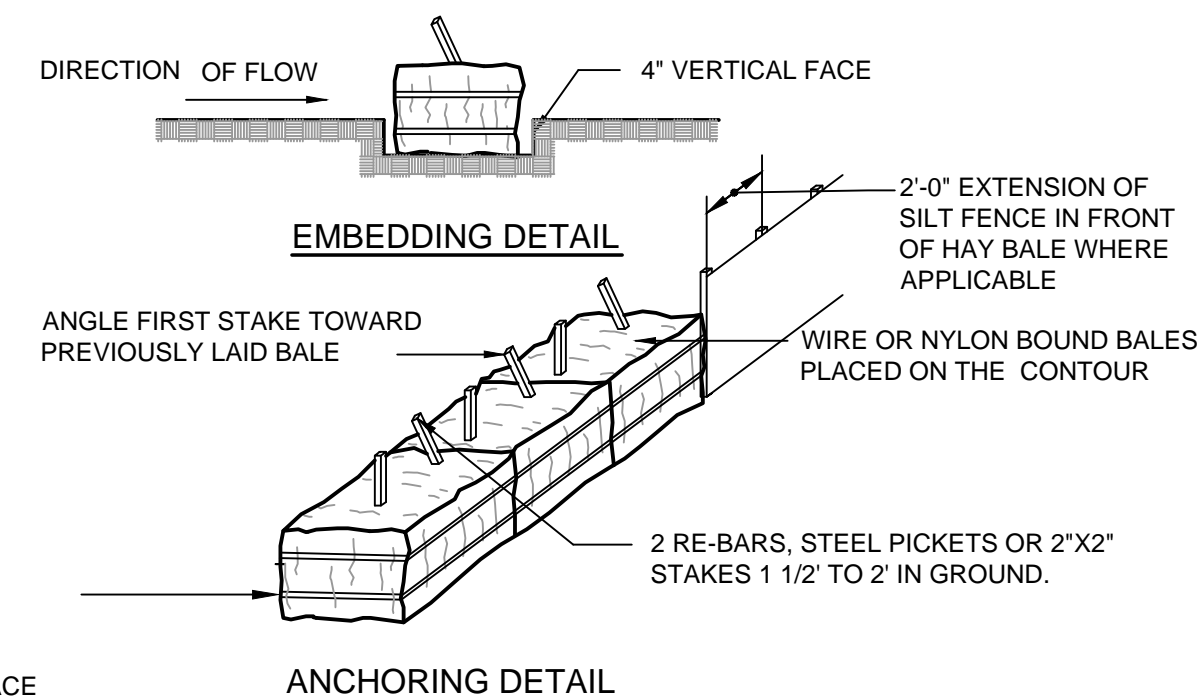
NOTE:
 LEVEL SPREADER SHALL BE ORIENTATED PARALLEL TO THE EXISTING CONTOUR. SHOULD FIELD CONDITIONS CHANGE ROTATE LAYOUT OF BERM TO DIRECT SHEET FLOW ALONG EXISTING CONTOUR.

F VACANT
N.T.S.

G VACANT
N.T.S.



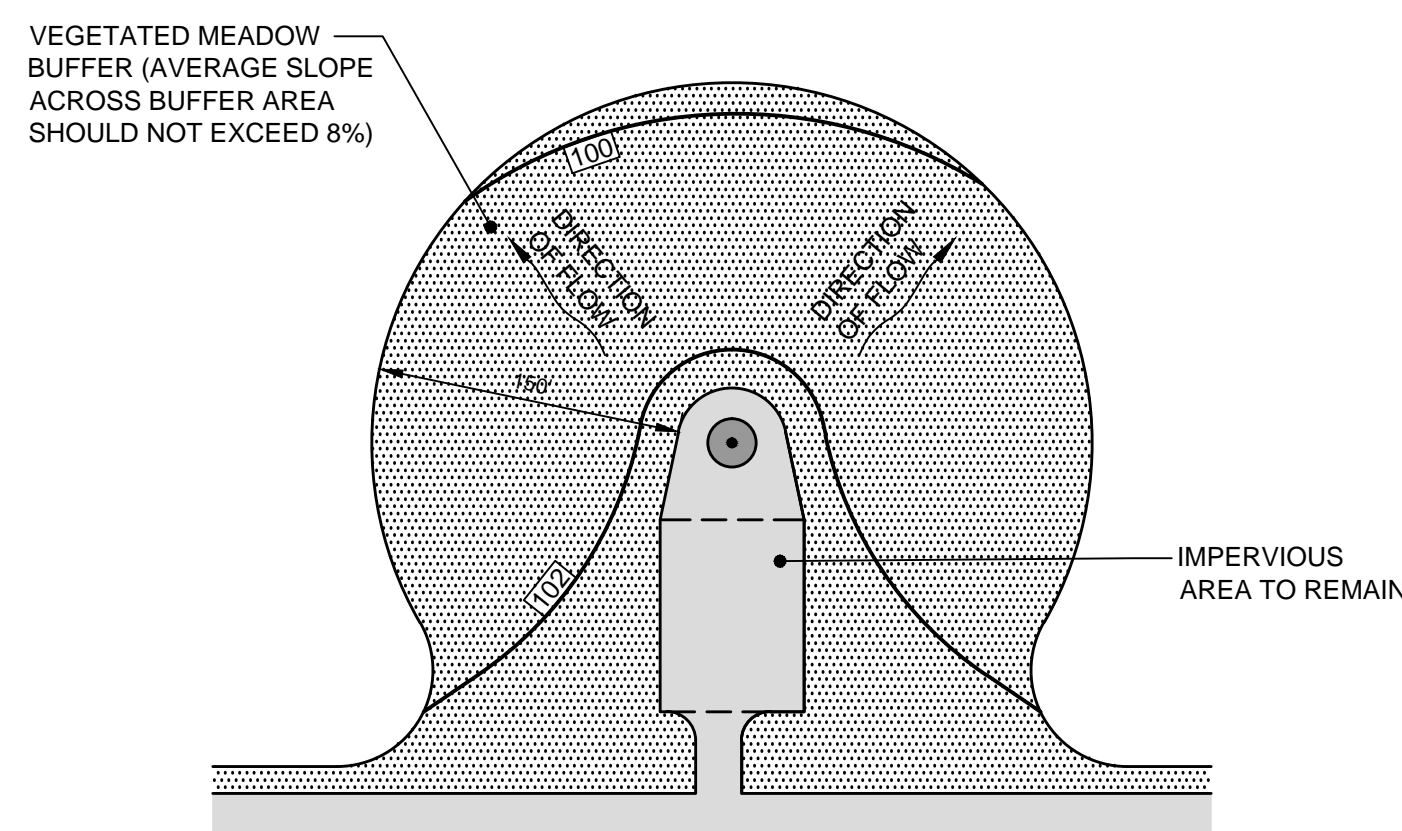
A VEGETATED SWALE DETAIL
N.T.S.



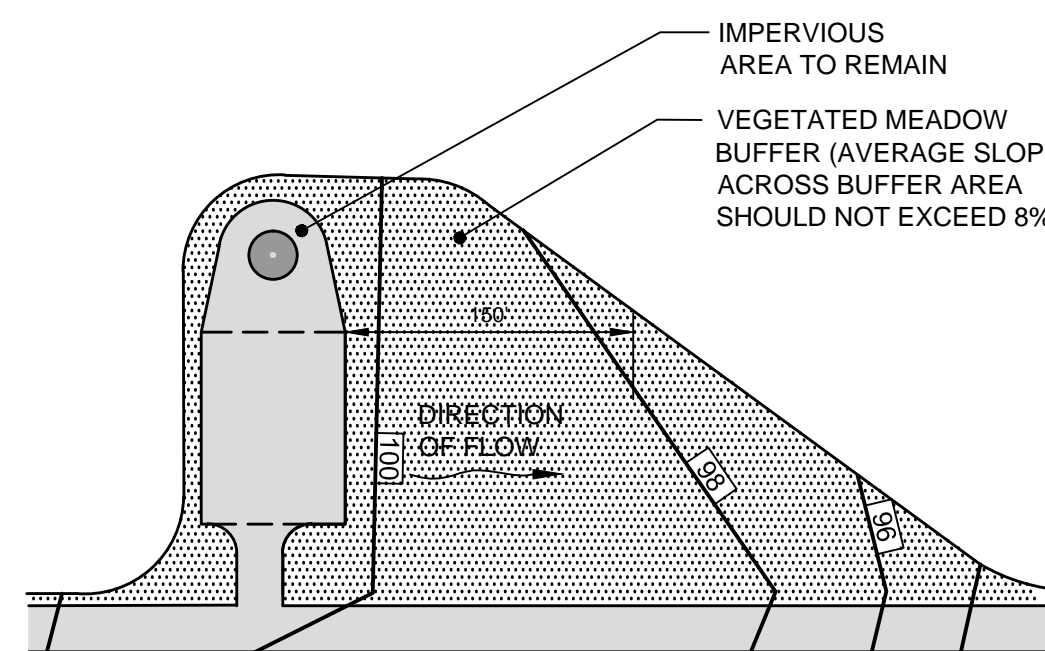
CONSTRUCTION SPECIFICATIONS

- BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
- INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

B STRAW OR HAY BALE BARRIER
N.T.S.



SCENARIO #1



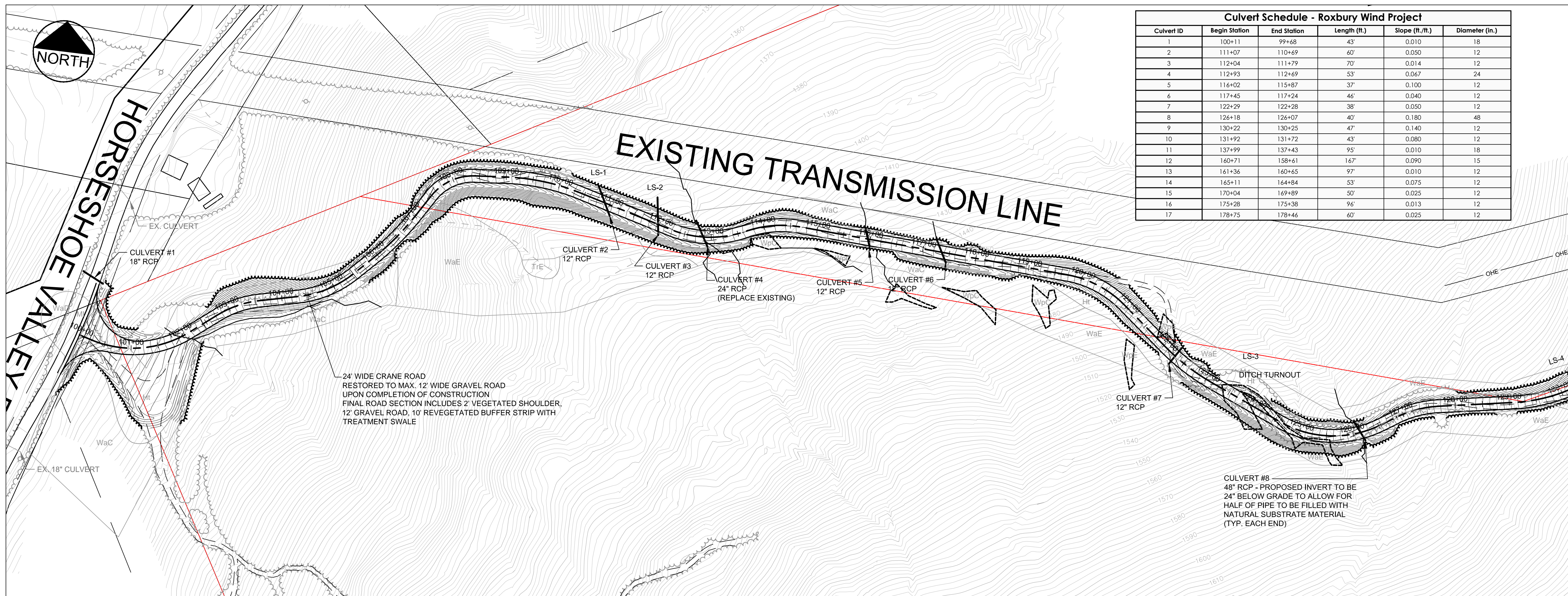
SCENARIO #2

NOTES:

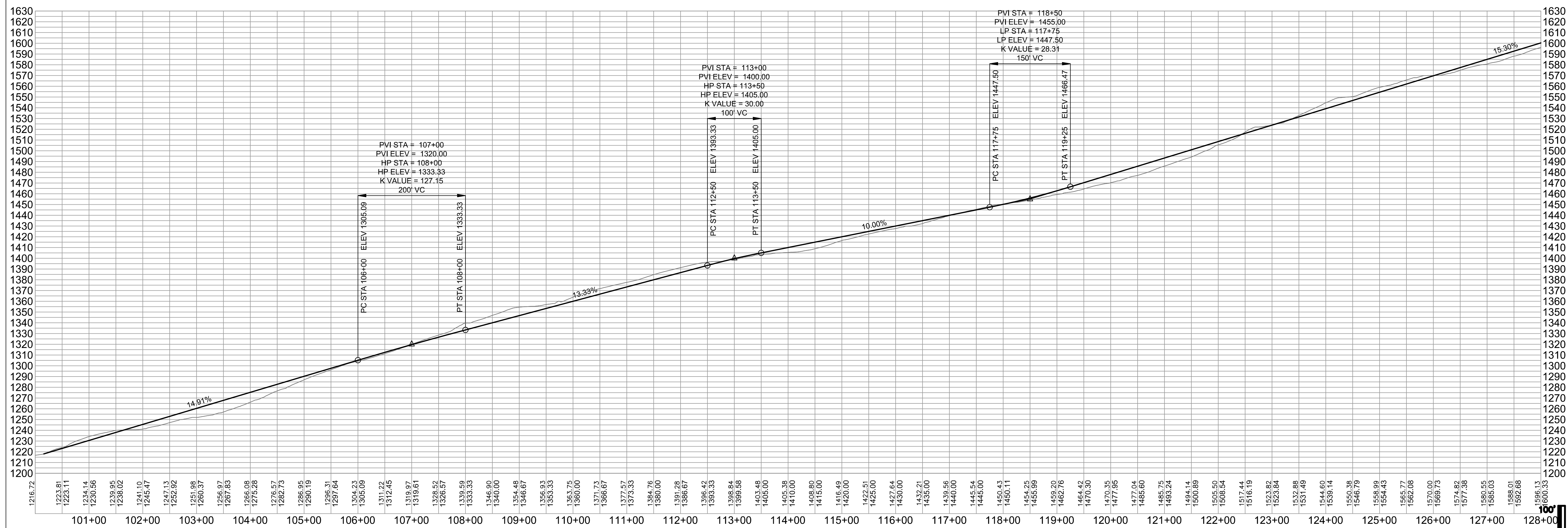
- VEGETATED BUFFERS SHALL BE EITHER LOAMED AND SEEDED OR COVERED WITH EROSION CONTROL MIX AND SEEDED WITH AN APPROPRIATE SEED MIX. REFER TO DRAWING C-8.2 FOR APPROPRIATE SEED MIXES.
- SHOULD TURBINE PAD AREAS BE REDUCED DURING CONSTRUCTION, REMAINING FORESTED AREAS MAY BE COUNTED AS BUFFER AREA.

C TYPICAL TURBINE PAD BUFFER
N.T.S.

Culvert Schedule - Roxbury Wind Project					
Culvert ID	Begin Station	End Station	Length (ft.)	Slope (ft./ft.)	Diameter (in.)
1	100+11	99+68	43'	0.010	18
2	111+07	110+69	60'	0.050	12
3	112+04	111+79	70'	0.014	12
4	112+93	112+69	53'	0.067	24
5	116+02	115+87	37'	0.100	12
6	117+45	117+24	46'	0.040	12
7	122+29	122+28	38'	0.050	12
8	126+18	126+07	40'	0.180	48
9	130+22	130+25	47'	0.140	12
10	131+92	131+72	43'	0.080	12
11	137+99	137+43	95'	0.010	18
12	160+71	158+61	167'	0.090	15
13	161+36	160+65	97'	0.010	12
14	165+11	164+84	53'	0.075	12
15	170+04	169+89	50'	0.025	12
16	175+28	175+38	96'	0.013	12
17	178+75	178+46	60'	0.025	12



PLAN
SCALE: 1"=100'



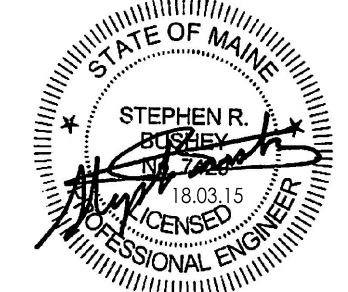
PROFILE
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=50'

Revision	By	Appd.	YY.MM.DD
1	KAB	SRB	18.05.09
2	EPL	SRB	18.03.09

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File Name: P.E. STEPHEN R. BUSHEY Dwn. Chkd. Dgn. YY.MM.DD

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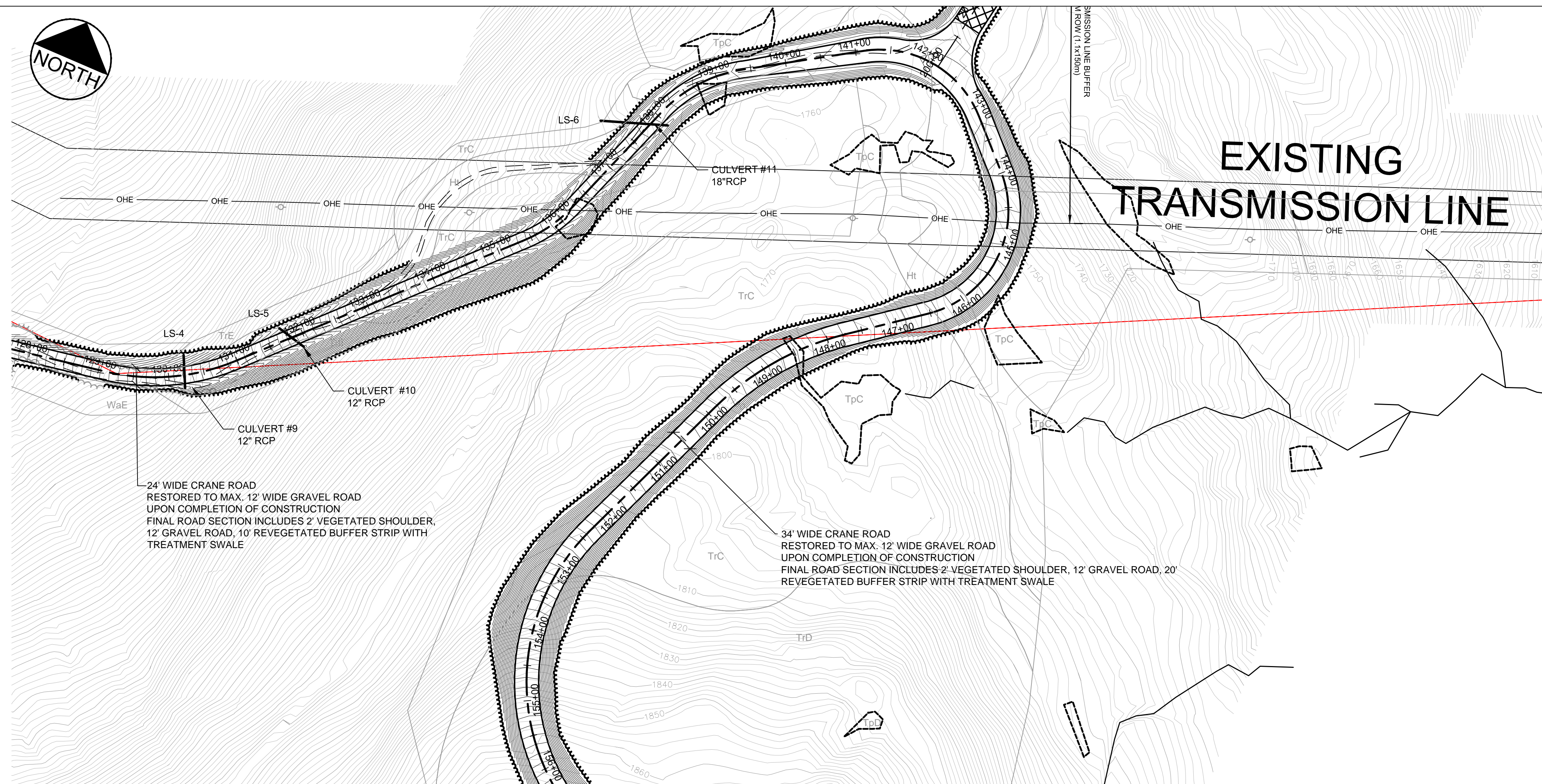


Client/Project
 ROXWIND LLC
 ROXBURY WIND PROJECT
 ROXBURY TOWNSHIP, MAINE

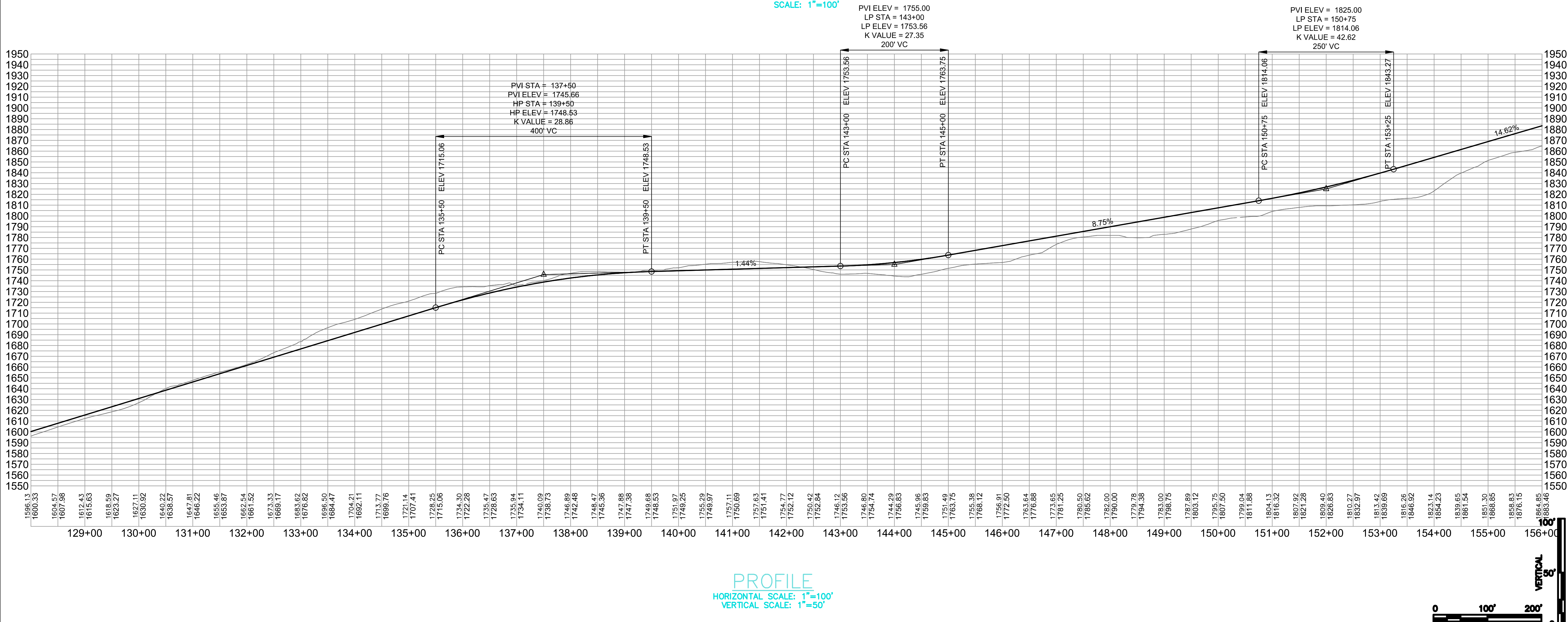
Title
ACCESS ROAD PLAN AND PROFILE (STA 100+00 TO 128+00)

Project No.	Scale	
195601220	AS NOTED	
Drawing No.	Sheet	Revision

C-N1.0



PLAN
SCALE: 1"=100'



PROFILE
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=50'



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Legend

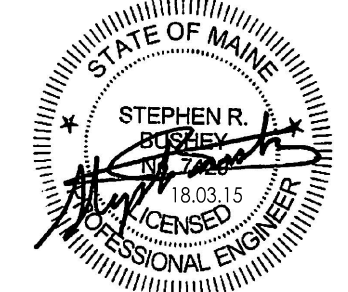
Notes

STORMWATER PERMIT APPLICATION	KAB	SRB	18.03.09
PERMIT DRAWINGS SUBMITTED FOR PROJECT TEAM REVIEW	EPL	SRB	18.03.09
Revision	By	Appd.	YY.MM.DD

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Client/Project
ROXWIND LLC

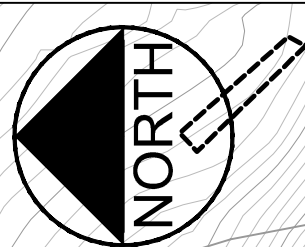
ROXBURY WIND PROJECT

ROXBURY TOWNSHIP, MAINE

Title
ACCESS ROAD PLAN AND PROFILE (STA 128+00 TO 156+00)

Project No. 195601220	Scale AS NOTED
Drawing No.	Sheet Revision

C-N1.1



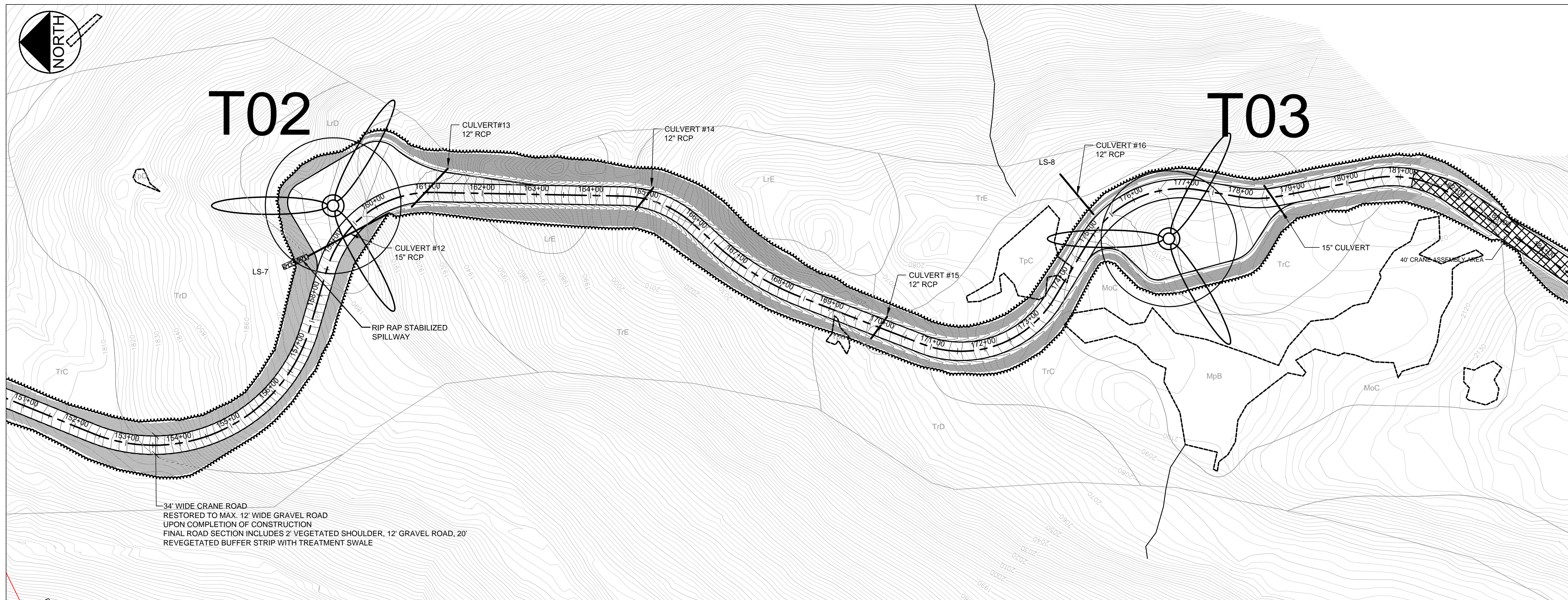
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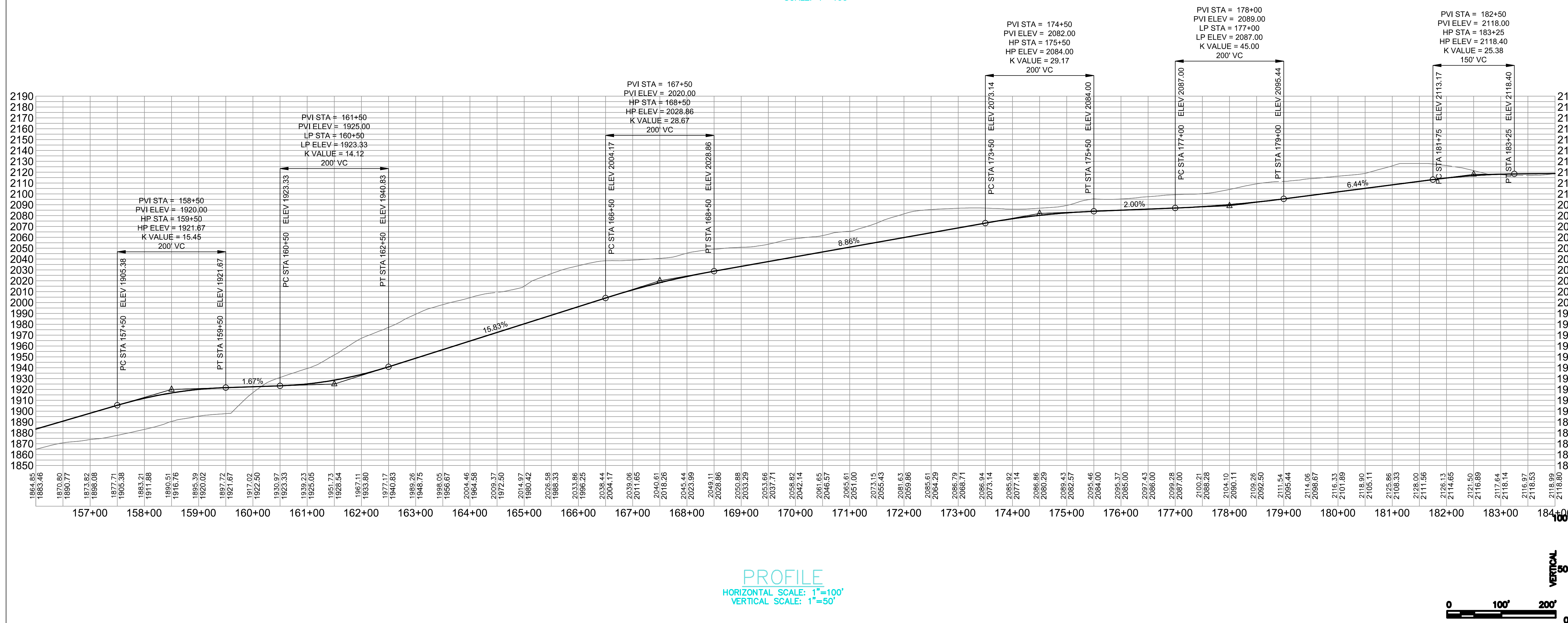
Legend

Notes



34' WIDE CRANE ROAD
 RESTORED TO MAX. 12' WIDE GRAVEL ROAD
 UPON COMPLETION OF CONSTRUCTION
 FINAL ROAD SECTION INCLUDES 2' VEGETATED SHOULDER, 12' GRAVEL ROAD, 20'
 REVEGETATED BUFFER STRIP WITH TREATMENT SWALE

PLAN
 SCALE: 1"=100'

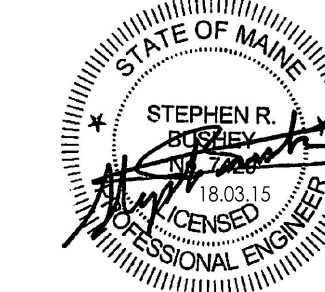


PROFILE
 HORIZONTAL SCALE: 1"=100'
 VERTICAL SCALE: 1"=50'

Revision	By	Appd.	YY/MM/DD
STORMWATER PERMIT APPLICATION	KAB	SRB	18.03.09
PERMIT DRAWINGS SUBMITTED FOR PROJECT TEAM REVIEW	EPL	SRB	18.03.09

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Client/Project
 ROXWIND LLC
 ROXBURY WIND PROJECT
 ROXBURY TOWNSHIP, MAINE

Title
CRANE ROAD PLAN AND PROFILE
 (STA 156+00 TO 184+00)

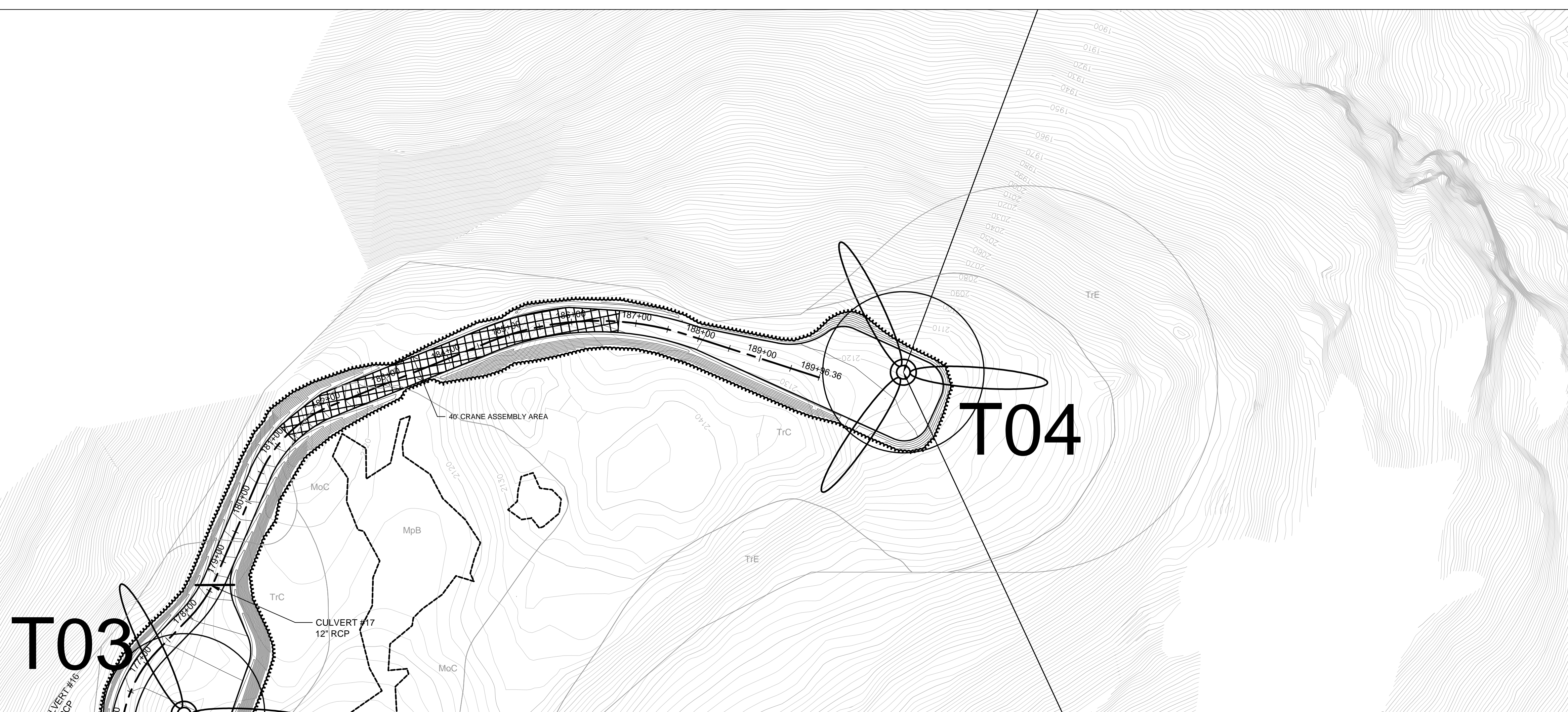
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Drawing No.	Sheet Revision



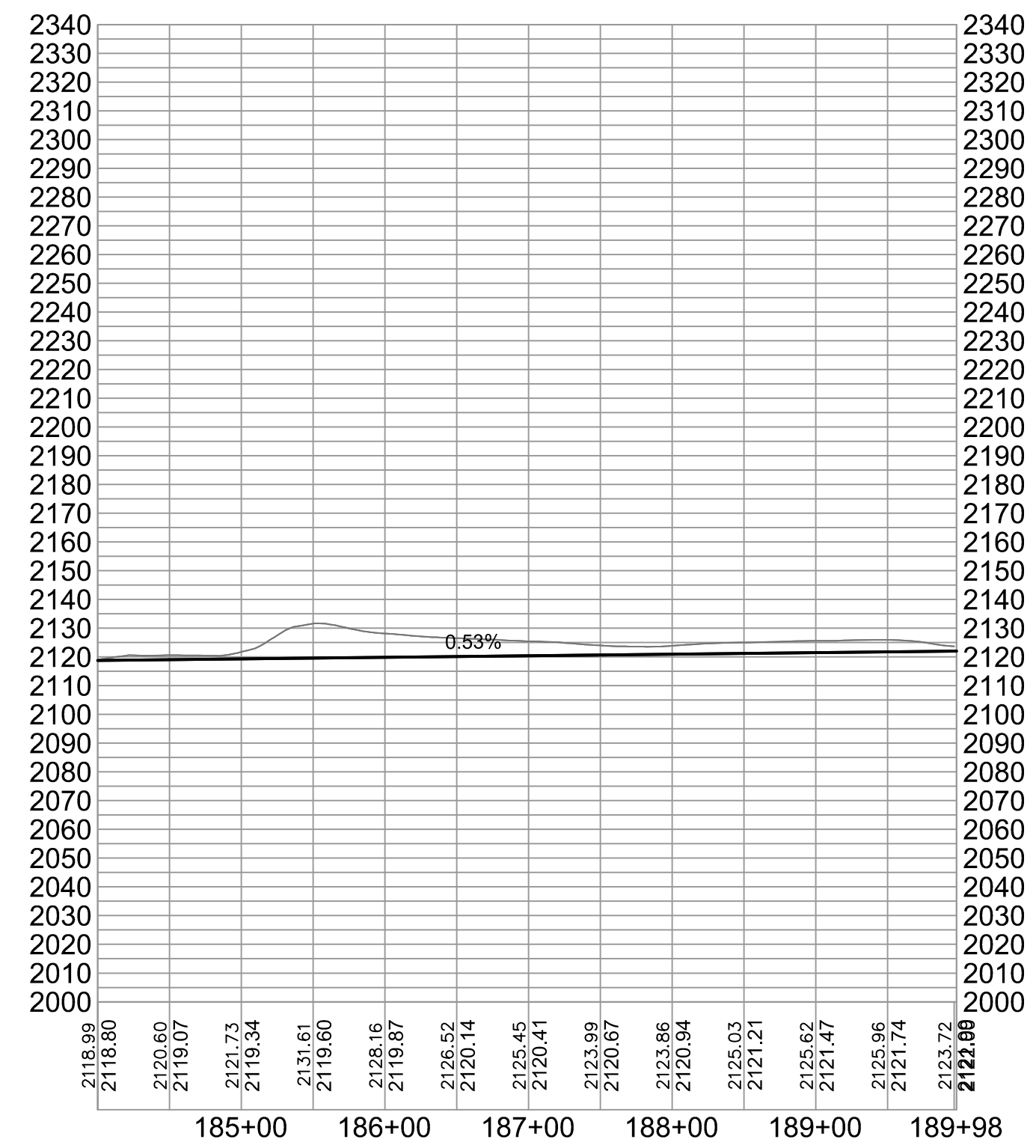
Consultants

Legend

Notes



PLAN
 SCALE: 1"=100'



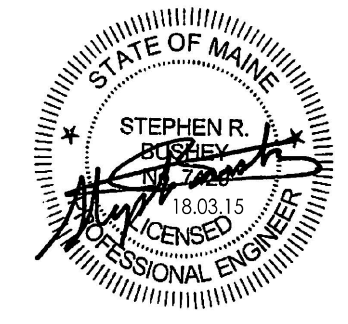
PROFILE
 HORIZONTAL SCALE: 1"=100'
 VERTICAL SCALE: 1"=50'

Revision	By	Appd.	YY.MM.DD
STORMWATER PERMIT APPLICATION	KAB	SRB	18.03.09
PERMIT DRAWINGS SUBMITTED FOR PROJECT TEAM REVIEW	EPL	SRB	18.03.09

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Client/Project
 ROXWIND LLC

ROXBURY WIND PROJECT

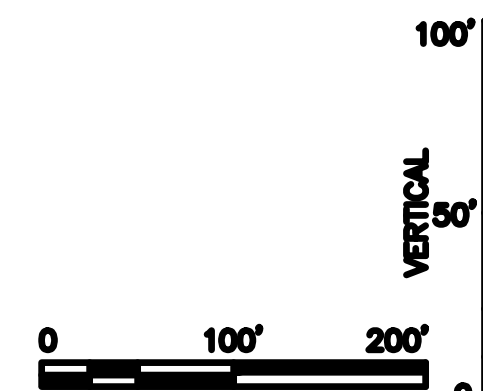
ROXBURY TOWNSHIP, MAINE

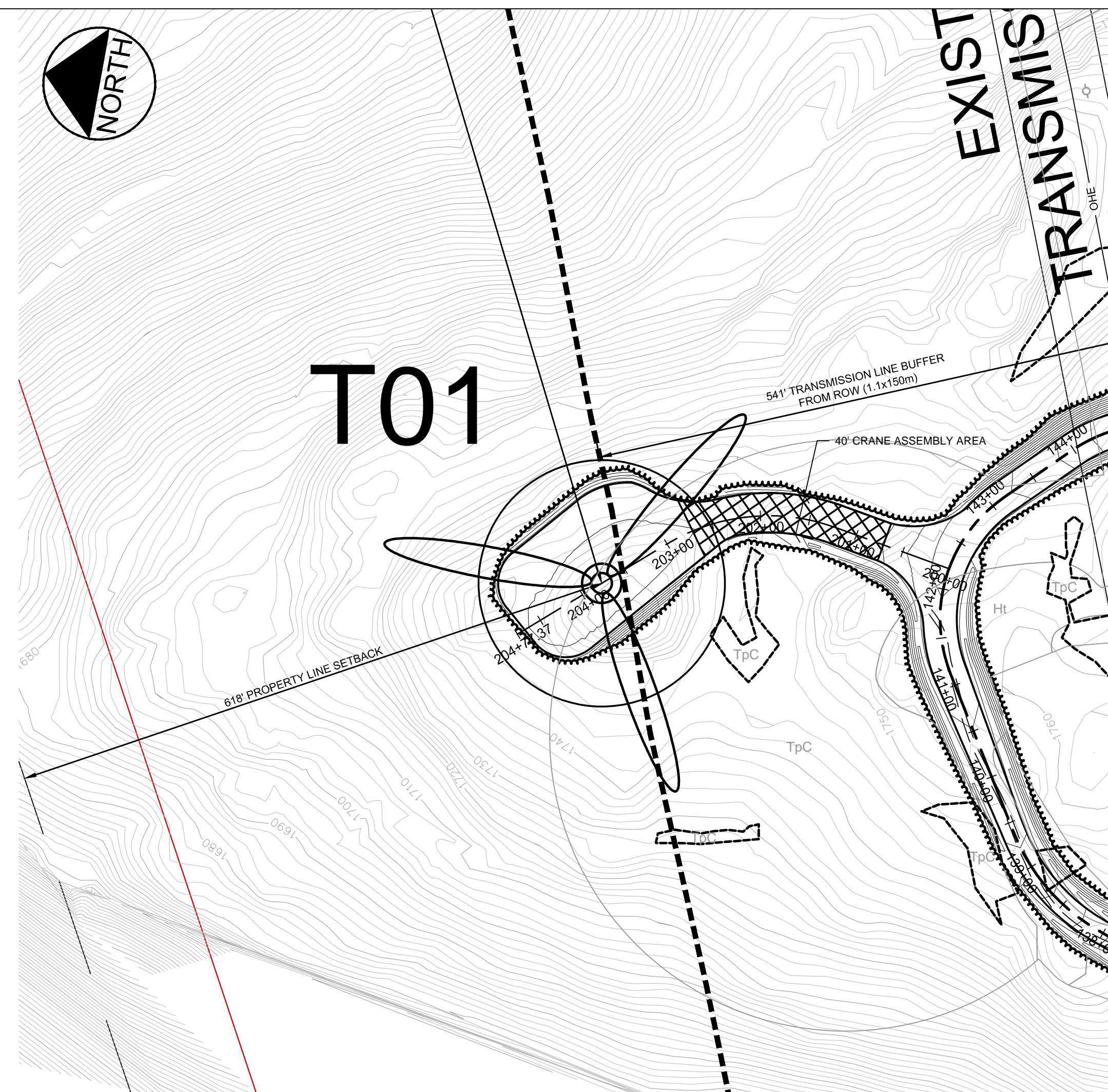
Title
CRANE ROAD PLAN AND PROFILE
 (STA 184+00 TO 189+98)

Project No. 195601220 Scale AS NOTED

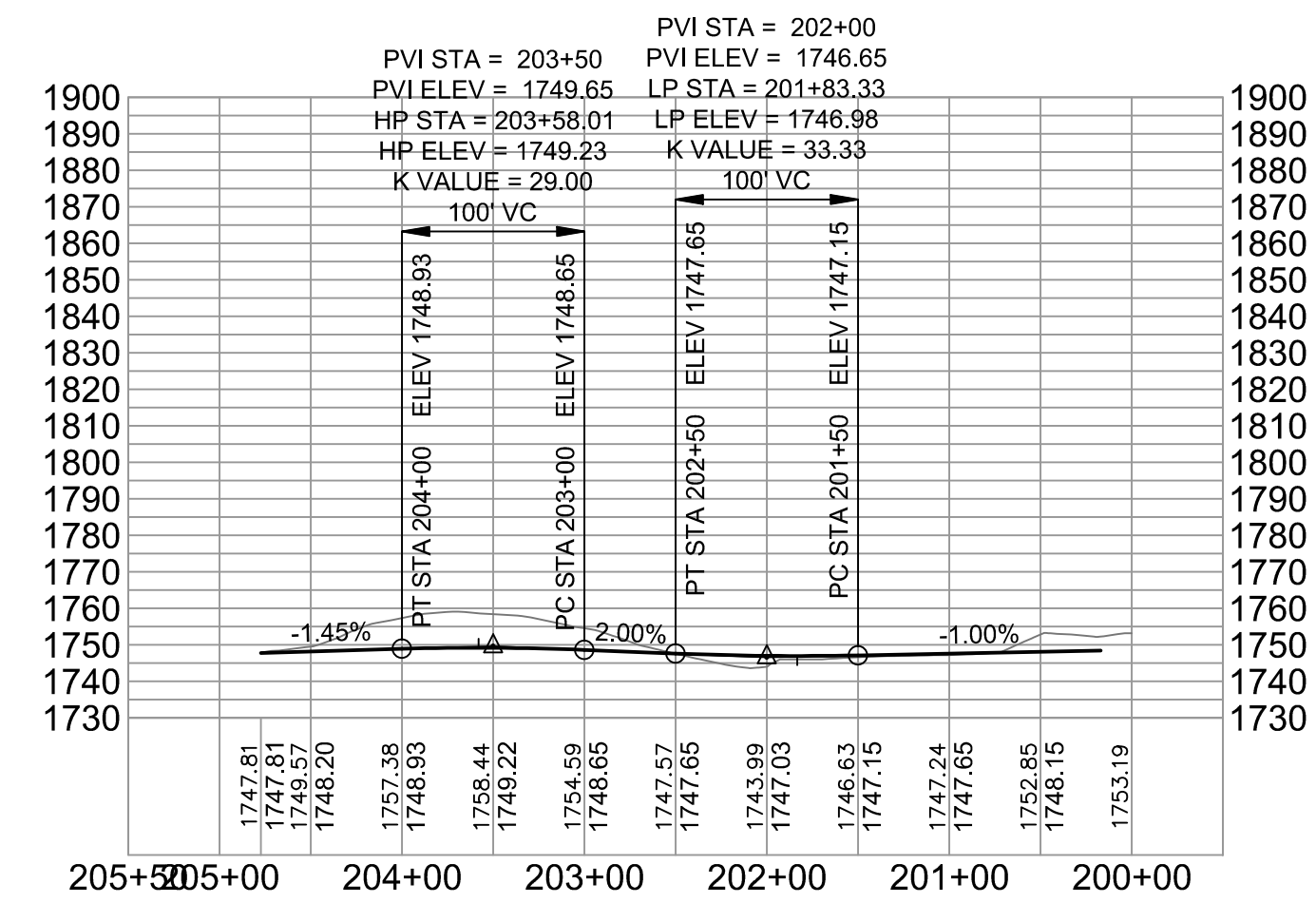
Drawing No. Sheet Revision

C-N1.3





PLAN
SCALE: 1"=100'



PROFILE
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=50'

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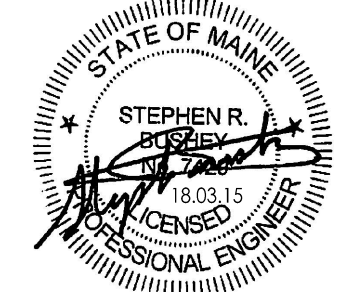
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Notes

Revision	By	Appd.	YY.MM.DD
STORMWATER PERMIT APPLICATION	KAB	SRB	18.05.09
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Client/Project
ROXWIND LLC

ROXBURY WIND PROJECT

ROXBURY TOWNSHIP, MAINE

Title
CRANE ROAD PLAN AND PROFILE
(STA 200+00 TO 204+77)

Project No.	Scale	
195601220	AS NOTED	
Drawing No.	Sheet	Revision

C-N1.4

