

## NHDOT-NHDES-NH Fish & Game Conservation Squamscott Road Culverts, Stratham

Council on Resources & Development (CORD), Oct. 9, 2025

The New Hampshire Department of Transportation (NHDOT), in conjunction with the Nature Conservancy and NH Department of Environmental Services, is proposing to replace two existing 18" diameter concrete tidal culverts on Squamscott Road between Route 108 and Chisholm Farm Drive in Stratham. The proposed project is adjacent to the Wiggin LCIP conservation easement assigned to Fish and Game. The project involves placing permanent and temporary easements on both sides of Squamscott Road, including on the Wiggin parcel to the north. Total impacts of the 2 culverts on the Wiggin parcel are listed in the color-coded table on page 23 of the attached Culvert design plans.

The proposed culvert construction would involve removal of the existing structures, grading or modifying side slopes; replacing existing culverts with 8 ft wide concrete box culverts; reconstructing roadway shoulders; and coordinating with existing utilities. The purpose of the project is to improve salt marsh migration potential upstream of the crossings and improve aquatic organism passage through the crossings. The need for this work is demonstrated by the crossings' inadequate size compared to bankfull width of the upstream and downstream reaches. The two existing 18" culverts are undersized and in fair to poor condition, with limited hydraulic capacity and poor aquatic organism passage under current and future conditions. The concrete box culverts are sized to convey the bankfull channel width and improve tidal exchange.

The Department collaborated with NHDES to engage CMA Engineers, Inc and Streamworks, PLLC for the concrete box culvert designs that will increase connectivity with conservation lands (Wiggin Easement) under Fish and Game stewardship. Benefits include better shoulders in the vicinity of the culverts for bicycle use. The Rockingham Planning Commission has preliminarily considered a bicycle path along the popular Squamscott Road route. Roadway improvements include new pavement at the crossings and wood beam guard rails requested by the Town of Stratham to help preserve sight views.

The improved flood resilience is a benefit to the surrounding property owners and the traveling public. Reduction of potential flood damage to the road and limiting access interruption through the area and minimizing costly emergency repairs are project benefits. The new crossings would be constructed with erosion and sediment controls that prevent water quality degradation during construction. The larger structures would accommodate bankfull width which can minimize channel erosion and promote stream stability. Reduced erosion and sedimentation improve water quality and benefits stream and wetland functions and values in and near the project area. Salt marsh migration helps ecological adaptation for sea levels rise, and Important ecological functions including tidal sediment capture that promote "living shores" for flood resistance.

### **Requested Action of CORD:**

At this time, the NHDOT requests CORD review and preliminarily approve the project as described above and depicted in the attached design plans. Potential project changes or unanticipated impacts to the conservation easement will be brought to CORD for additional review, if needed.



April 1, 2021

Mr. Steve Walker, Stewardship Specialist  
Conservation Land Stewardship Program  
107 Pleasant Street  
Johnson Hall  
Concord, NH 03301

**Re: Stratham 43001 – Tidal Culverts under Squamscott Road  
Resource Agency Coordination (Response Requested by 4/15/2021)  
CMA #1192**

Dear Mr. Walker,

The Nature Conservancy, in conjunction with the New Hampshire Department of Transportation (NHDOT), is planning proposed replacement crossing structures for existing tidal culverts on Squamscott Road between Route 108 and Chisholm Farm Drive. The project goal is to complete hydrologic evaluation of the watershed, hydraulic evaluation of two existing culverts within the watershed, an alternatives analysis, and selection of the preferred alternative. The preferred alternative will be guided by Tier 4 stream crossing standards (Env-Wt 900), coastal lands and tidal wetlands/water standards (Env-Wt 600), and New Hampshire Coastal Flood Risk Guidance (2020).

Culvert construction will involve removal of existing features; grading or modifying side slopes; replacing existing culverts; constructing or reconstructing roadway shoulders; and coordinating with existing utilities, as may be required. It is anticipated that all work will fall within previously disturbed areas. See attached Locus Map for extent of culvert replacement.

The proposed project is being funded by NHDOT. We are in the process of preparing the necessary environmental documentation for the project and any comments or pertinent information that you or your staff can provide relative to potential impacts to environmental, social, economic, or cultural resources would be appreciated. Please feel free to contact Kirk Mudgett, P.E., New Hampshire Department of Transportation, Project Manager (603-271-1598 or [kirk.o.mudgett@dot.nh.gov](mailto:kirk.o.mudgett@dot.nh.gov)), or myself (207-615-7116 or [wbouchard@cmaengineers.com](mailto:wbouchard@cmaengineers.com)) should you have any questions or need any additional information.

Very truly yours,

CMA ENGINEERS, INC.

Whitney A. Bouchard, P.E.  
Project Engineer

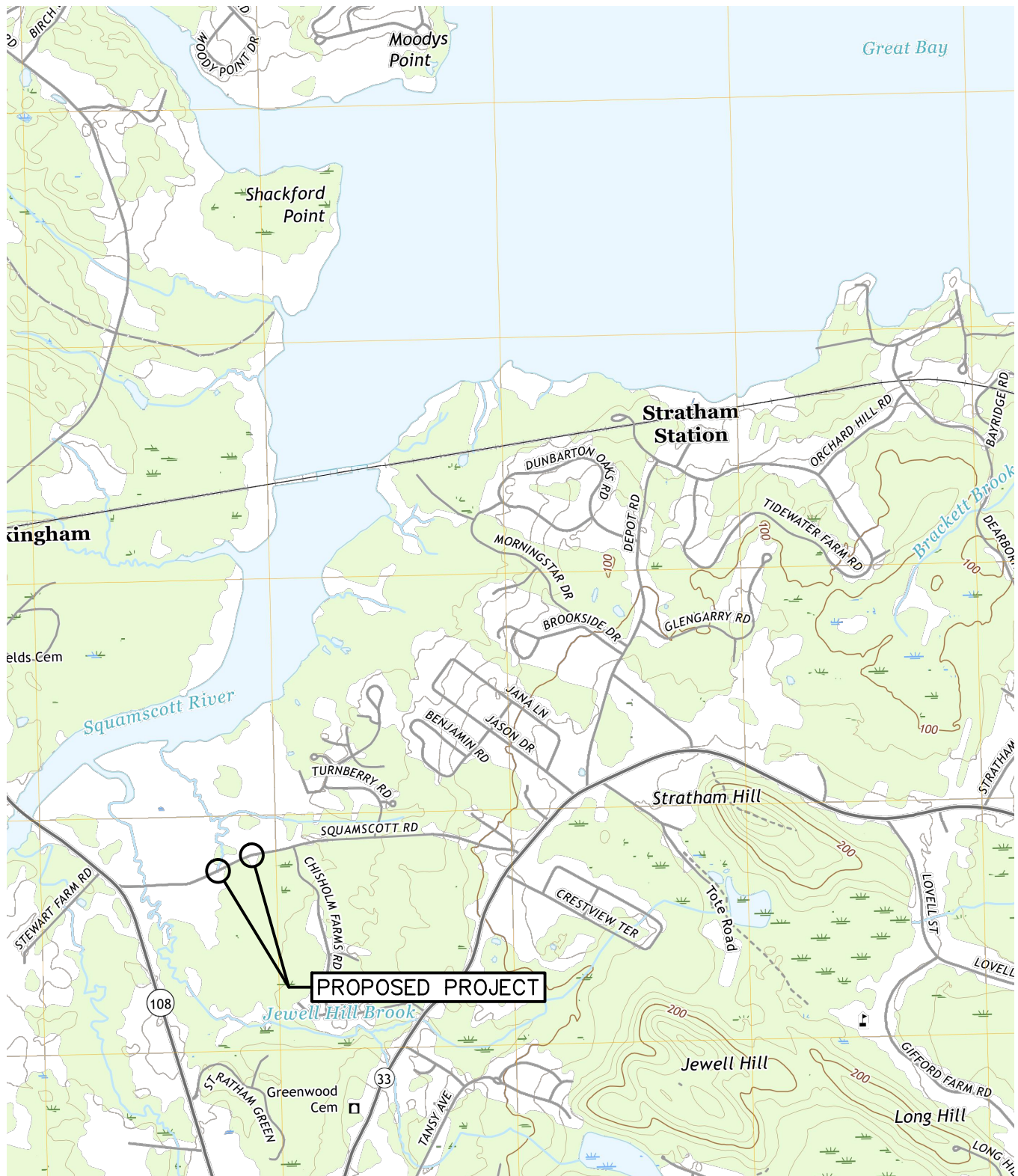
WAB/WAS/ams

Enclosed:

- Locus Map
- Conceptual Plans

Cc: David Moore, Town of Stratham  
Pete Steckler, The Nature Conservancy  
Kirk Mudgett, P.E., NHDOT

1192-TNC Tidal Culverts-Stratham-DL-210401-Env Coordination-WAB



**CMA**  
ENGINEERS

CIVIL/ENVIRONMENTAL/STRUCTURAL

Portsmouth, NH • Manchester, NH • Portland, ME  
603/431-6196 • 603/627-0708 • 207/541-4223  
cmaengineers.com

The New Hampshire Department of Transportation  
Concord, New Hampshire  
Tidal Culverts under Squamscott Road in Stratham  
USGS Map

March 2021


Scale: 1" = 2,000'



# Wiggin LCIP CE

Culvert replacement easements:  
Permanent (yellow)  
Temp (blue)

Legend

 Wiggin bound



Google Earth

Image © 2025 Airbus

200 ft



# Wiggin LCIP CE

Culvert replacement easements

## Legend

Wiggin bound



Google Earth

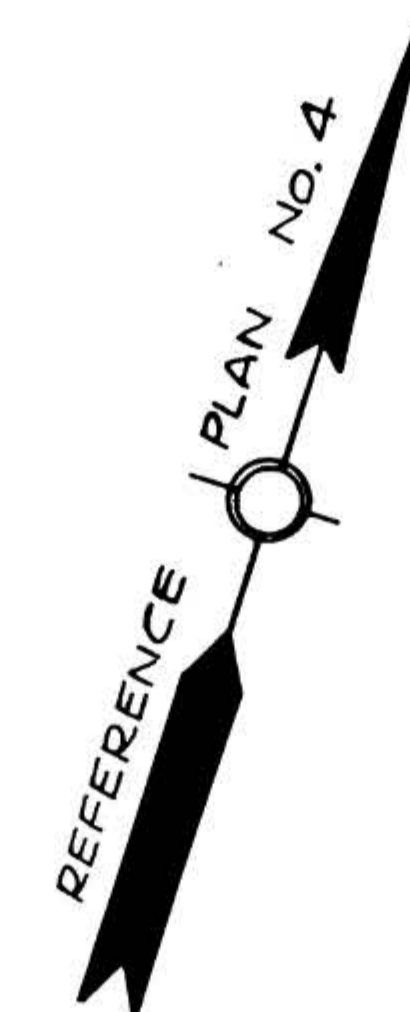
Image © 2025 Airbus

Squamscott Rd

Squamscott Rd

700 ft

N



3/40  
GEORGE GOWEN

3/43  
FLORENCE BARKER

5/3  
GLENGBARRY REALTY TRUST  
2654/527

3/28  
CHARLES W. & BEATRICE  
KNIBBS  
2310/39

JOSEPH J. &  
MARIA G. DOWNEY  
2256/1549

3/26  
RICHARD H. &  
PHYLLIS L. GIBSON  
2443/1991

3/45  
TOTAL AREA: 37.50 ACRES  
PROPOSED EASEMENT AREA: 30.00 ACRES

3/44

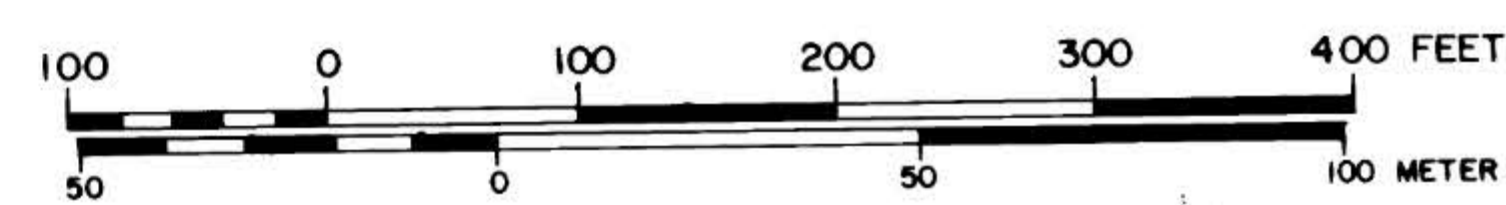
5/3  
GLENGBARRY REALTY TRUST  
2654/527

I CERTIFY THAT THIS SURVEY PLAT SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIP AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC AND PRIVATE STREETS AND WAYS ALREADY ESTABLISHED AND THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

*Francis J. Gannon* 3/3/89  
FRANCIS J. GANNON, L.L.S. DATE

THE CERTIFICATION SHOWN HEREON IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN OR OWNERS OF ADJOINING PROPERTIES.

REV. NO.	DATE	APPR'D	DESCRIPTION	BY
<b>PLAT OF LAND</b> <b>SQUAMSCOTT ROAD</b> <b>STRATHAM, N.H.</b> <b>for</b> <b>FLORENCE WIGGIN</b>				
<b>DURGIN - SCHOFIELD ASSOCIATES</b> ENGINEERING - SURVEYING - PLANNING A Division of Schofield Brothers, Inc. 445 U.S. ROUTE 1 BY-PASS PORTSMOUTH, N.H. 03801 (603) 436-3557				3/3/89 DATE 1"=100' SCALE 10071 JOB NO. P-10071 PLAN SHEET 1 OF 1
PROJ. MGR.	J.E.S.	CHECKED BY	J.E.S.	
APPROVED BY	F. J. G.	DRAWN BY	<i>Francis J. Gannon</i>	
COPYRIGHT (c) 1989 BY SCHOFIELD BROTHERS, INC.				



D-19372

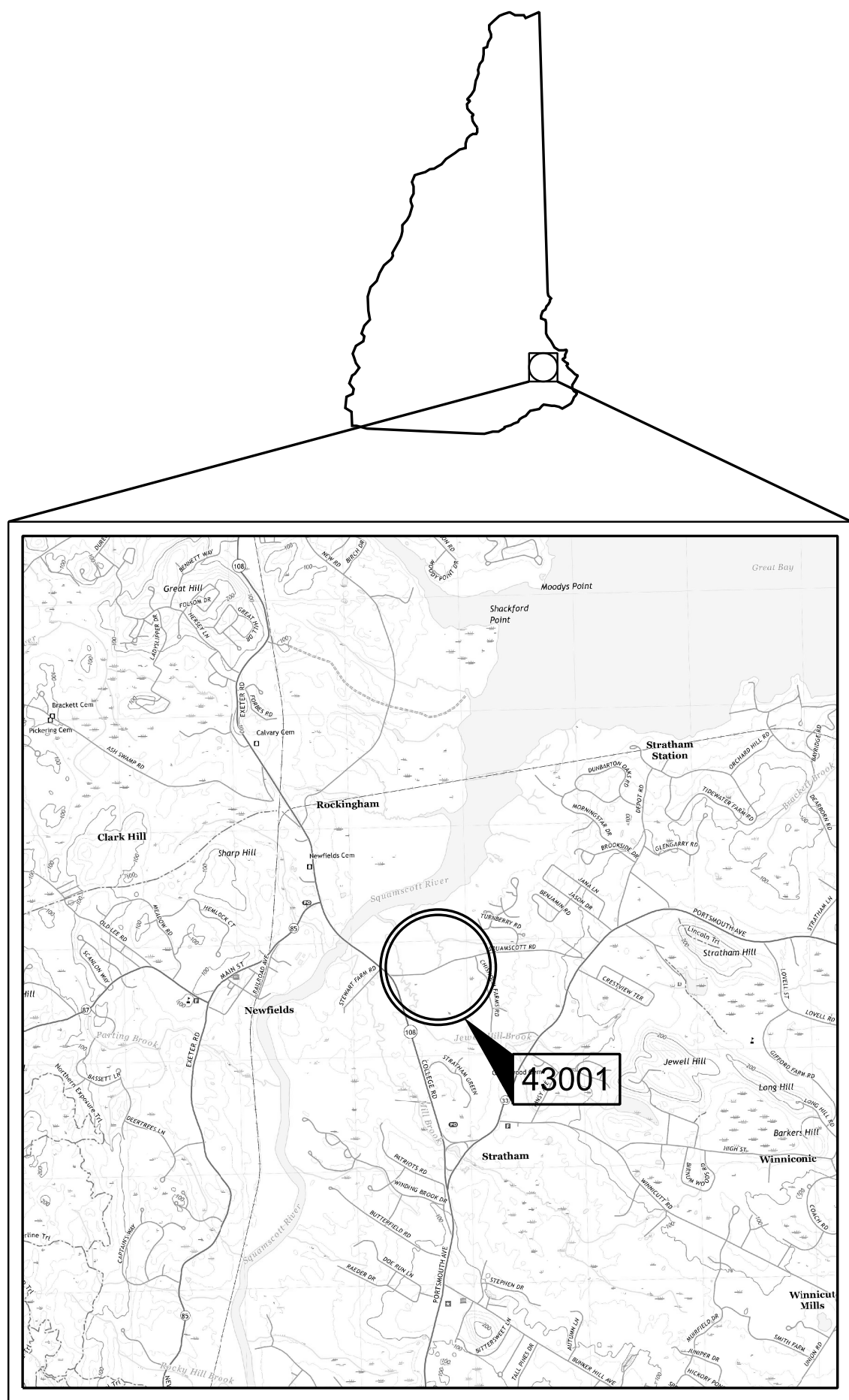
STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION

FINAL PLANS  
FEDERAL AID PROJECT

N.H. PROJECT NO. 43001  
SQUAMSCOTT ROAD

DESIGN DATA

AVERAGE DAILY TRAFFIC 20_22	6179
AVERAGE DAILY TRAFFIC 20_44	7790
PERCENT OF TRUCKS	7.0%
DESIGN SPEED	40 mph
LENGTH OF PROJECT	204 ft



LOCATION MAP

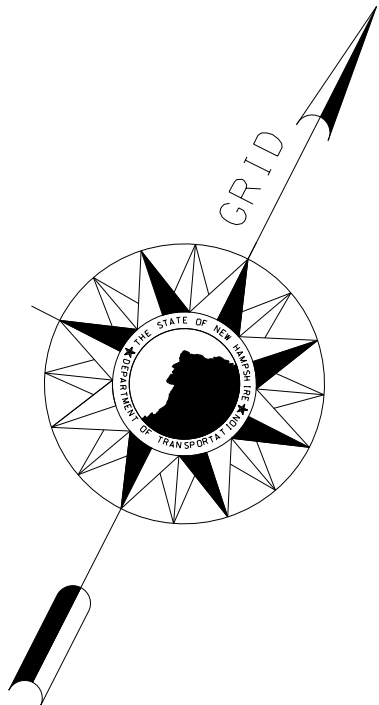
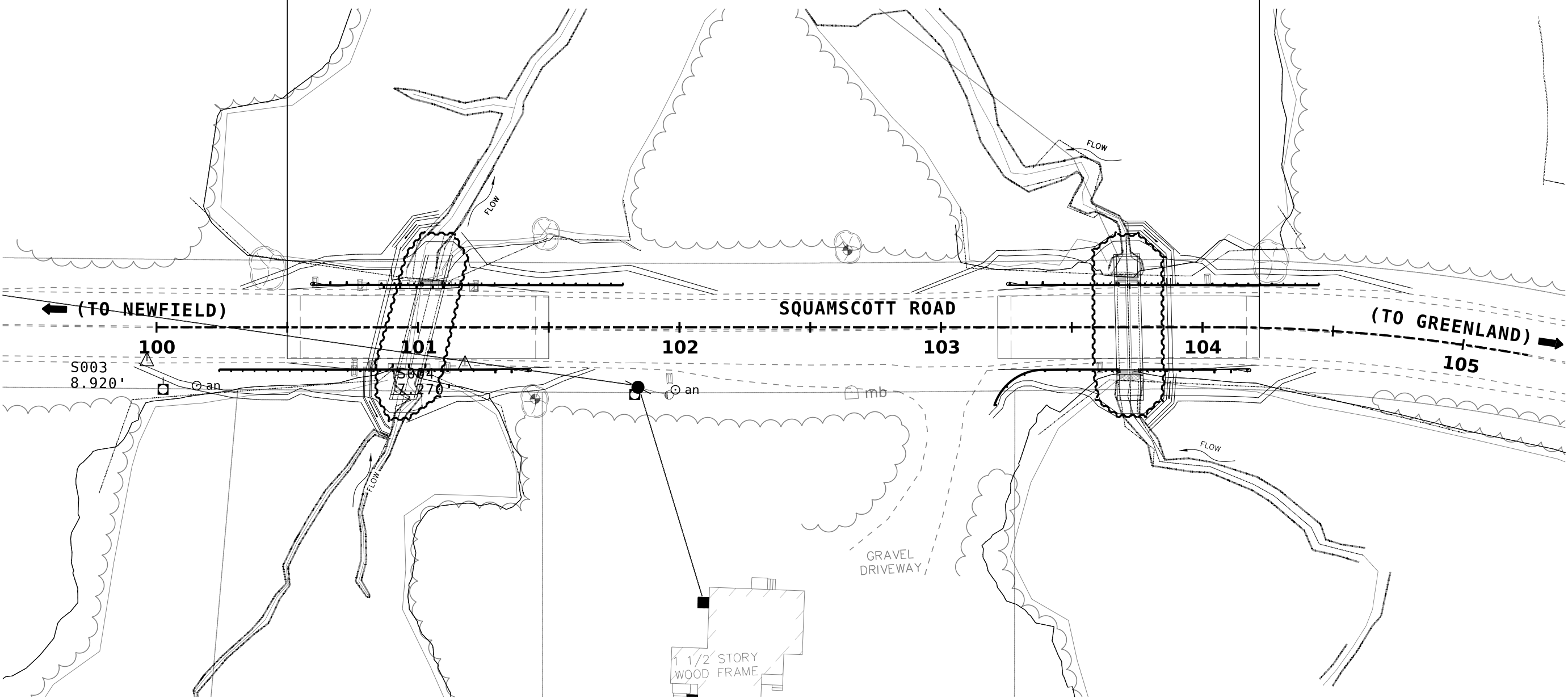


CROSSING 114

CROSSING 113

BEGIN CONSTRUCTION  
STA. 100+50

END CONSTRUCTION  
STA. 104+22

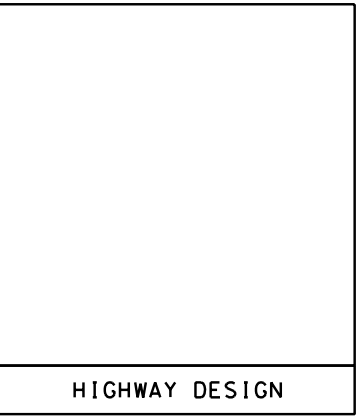


New Hampshire Department of Transportation

TOWN OF STRATHAM

ROCKINGHAM COUNTY

SCALE: 1" = 50'



HIGHWAY DESIGN

**NH DOT**

THE STATE OF  
NEW HAMPSHIRE  
DEPARTMENT OF  
TRANSPORTATION

RECOMMENDED FOR APPROVAL:

DIRECTOR OF PROJECT DEVELOPMENT

DATE

APPROVED:

ASSISTANT COMMISSIONER AND CHIEF ENGINEER

DATE

**CMA**  
ENGINEERS

FINAL DESIGN SUBMISSION	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
MARCH 2025		43001	1	26

DRAWN BY NJM  
DATE NOVEMBER 2024

CHECKED BY WAS  
DATE NOVEMBER 2024

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	TITLE PAGE
2,3	INDEX OF SHEETS AND GENERAL NOTES
4,5	STANDARD SYMBOLS
6	TYPICAL SECTION OF IMPROVEMENTS
7	SUMMARY OF QUANTITIES
8	MICELLANEOUS DETAILS
9	CULVERT LAYOUT AND LONGITUDINAL SECTION
10	CULVERT NOTES
11-18	GUARDRAIL DETAILS
19	BORING LOGS
ROADWAY PLANS	
20	GENERAL PLANS
21	SQUAMSCOTT ROAD PROFILE PLANS
22	PAVEMENT MARKING PLANS
23	ROW PLAN
TRAFFIC CONTROL PLANS	
24	DETOUR PLAN
CROSS SECTIONS	
25-26	CROSS SECTIONS

GENERAL NOTES

- 1

FOR STANDARD PLANS, SEE DEPARTMENT OF TRANSPORTATION WEBSITE AT: [HTTPS://WWW.DOT.NH.GOV/DOING-BUSINESS-NHDOT/CONTRACTORS/STANDARD-PLANS-ROAD-CONSTRUCTION](https://www.dot.nh.gov/doing-business-nhdot/contractors/standard-plans-road-construction)
- 2

HIGH TENSION OVERHEAD TRANSMISSION LINES ARE LOCATED THROUGHOUT THE PROJECT WITH CROSSINGS AT VARIOUS LOCATIONS AND RUNNING ALONG THE ROAD THROUGHOUT THE PROJECT EVEN ON REGULAR POLES. THE CONTRACTOR IS ADVISED THAT EXTREME CAUTION WILL BE REQUIRED IN THE OPERATION OF EQUIPMENT, ESPECIALLY CRANES AND PILE DRIVING EQUIPMENT.
- 3

MODIFY SUPERELEVATION ON EXISTING CURVES BY THE USE OF A LEVELING COURSE TO THE RATES INDICATED ON THE PLANS OR AS ORDERED.
- 4

EXISTING DELINEATORS AND WITNESS MARKERS THAT ARE REMOVED AND DETERMINED BY THE ENGINEER TO BE IN ACCEPTABLE CONDITION SHALL BE RESET (SUBSIDIARY). ADDITIONAL DELINEATORS AND WITNESS MARKERS ORDERED WILL BE PAID UNDER THE APPROPRIATE ITEMS OF THE CONTRACT.
- 5

NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.
- 6

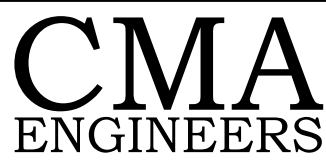
PERFORM ALL WORK WITHIN THE EXISTING RIGHT-OF-WAY, UNLESS OTHERWISE SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER.
- 7

REMOVE UNPROTECTED PROJECT MARKERS (SUBSIDIARY).
- 8

SURVEY DATA FOR THIS PROJECT WAS COLLECTED BY SDR AND THE FIELD NOTES CAN BE FOUND IN THE FIELD BOOK(S) \_\_\_\_\_. COORDINATES ARE NEW HAMPSHIRE STATE PLANE COORDINATES OF NAD83, \_\_\_\_ ADJUSTMENT AND THE BEARINGS ARE GRID. ELEVATIONS ARE REFERENCED TO \_\_\_\_ \_\_\_\_\_.
- 9

QUANTITIES FOR EMBANKMENT AND EXCAVATION FOR SLOPE ROUNDINGS AS SHOWN ON THE TYPICALS HAVE NOT BEEN CALCULATED AND ARE NOT INCLUDED IN THE QUANTITY SUMMARIES, AND ARE CONSIDERED SUBSIDIARY TO THE APPROPRIATE 203 ITEMS.

THE FOLLOWING GENERAL NOTES WILL BE USED ON THIS PROJECT:											
1	2		4	5	6	7	8	9			



		STATE OF NEW HAMPSHIRE			
		Stratham			
		DEPARTMENT OF TRANSPORTATION		o	BUREAU OF HIGHWAY DESIGN
		INDEX OF SHEETS AND GENERAL NOTES			
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS	
Index of Sheets	-	1309-index-sheet-ce	43001	2	26

CONSTRUCTION NOTES

- 1) ALL WORK SHALL BE IN CONFORMANCE WITH CURRENT NHDOT STANDARD SPECIFICATIONS AND DETAILS.
- 2) FOR STANDARD PLANS, SEE CURRENT NHDOT "STANDARD PLANS FOR ROAD CONSTRUCTION".
- 3) THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS, PUBLIC OR PRIVATE, SHOWN OR NOT SHOWN, ON THESE PLANS PRIOR TO CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL NOTIFY DIG-SAFE PRIOR TO CONSTRUCTION.
- 4) OVERHEAD UTILITY LINES ARE LOCATED THROUGHOUT THE PROJECT WITH CROSSINGS AT VARIOUS LOCATIONS AND RUNNING ALONG THE ROAD. THE CONTRACTOR IS ADVISED THAT EXTREME CAUTION WILL BE REQUIRED IN THE OPERATION OF EQUIPMENT, ESPECIALLY CRANES.
- 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING THE HORIZONTAL AND VERTICAL CONTROL THROUGHOUT THE PROJECT.
- 6) THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING RESIDENTS OF ANY WORK RESTRICTING ACCESS TO ANY DRIVEWAY 24 HOURS IN ADVANCE.
- 7) CONTRACTOR SHALL PROTECT PRIVATE PROPERTY AND SHALL TAKE ALL NECESSARY MEASURES AND PRECAUTIONS TO AVOID DAMAGE TO EXISTING TREES, SHRUBS, LAWNS, PLANTINGS, ETC. THAT ARE OUTSIDE OF THE PROJECT'S WORK LIMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS/REPLACEMENT OF ALL DAMAGED ITEMS.
- 8) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL METHODS AND MATERIALS FOR CONSTRUCTION OF THIS PROJECT, INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA REGULATIONS. THE OWNER AND ENGINEER WILL PERIODICALLY REVIEW CONSTRUCTION FOR COMPLIANCE WITH THE PLANS AND SPECIFICATIONS. SUCH REVIEW DOES NOT IMPLY APPROVAL OF METHODS OF CONSTRUCTION.
- 9) THE CONTRACTOR SHALL NOTIFY DIG-SAFE AT 1-800-225-4977 AT LEAST 72 HOURS PRIOR TO BEGINNING WORK TO CONFIRM THE LOCATION OF UNDERGROUND UTILITIES.
- 10) THE CONTRACTOR SHALL EXERCISE CAUTION AND COMPLY WITH ALL APPLICABLE TRAFFIC LAWS AND REGULATIONS IN THE EXECUTION OF WORK. THE CONTRACTOR SHALL COORDINATE ACTIVITIES WITH THE TOWN'S POLICE AND FIRE DEPARTMENTS TO ENSURE ACCESS DURING CONSTRUCTION. THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN BARRICADES, WARNING SIGNS, DELINEATORS, STRIPING, AND FLAGGERS IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE SPECIFICATIONS.
- 11) THE CONTRACTOR SHALL BEAR ALL EXPENSE OF MAINTAINING THE SECTION OF ROAD UNDERGOING IMPROVEMENT INCLUDING ALL TEMPORARY APPROACHES OR CROSSINGS AND INTERSECTIONS WITH TRAILS, ROADS, STREETS, BUSINESSES, PARKING LOTS, RESIDENCES, GARAGES, FARMS, AND OTHER FEATURES AS MAY BE NECESSARY. THE CONTRACTOR SHALL USE ALL NECESSARY MEANS TO CONTROL DUST DURING THE CONSTRUCTION PERIOD.
- 12) ALL EXISTING SIGNS THAT ARE REMOVED ARE TO BE STORED BY THE CONTRACTOR AND RESET AS DIRECTED. ANY EXISTING SIGNS TO BE RESET THAT ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS ARE TO BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO NHDOT.
- 13) PROPERTY MONUMENTATION DISTURBED BY THE CONTRACTOR SHALL BE REPLACED BY A NH LICENSED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
- 14) RELOCATION OF EXISTING UTILITIES IS NOT ANTICIPATED TO COMPLETE THE PROJECT; HOWEVER, IF THE CONTRACTOR DOES REQUIRE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO ALLOW FOR COORDINATION WITH THE UTILITY COMPANIES AND COMPLETION OF THEIR WORK. COSTS ASSOCIATED WITH RELOCATING NECESSARY UTILITIES WILL NOT BE BORNE BY THE CONTRACTOR.

CONSTRUCTION SEQUENCE:

- 1) THE CULVERT SHOWN ON THESE DRAWINGS IS A GRAPHIC REPRESENTATION OF THE PROPOSED CULVERT LAYOUT. A SPECIAL PROVISION WILL BE INCLUDED IN THE PROJECT FINAL SPECIFICATIONS THAT INCLUDE PROJECT DESIGN REQUIREMENTS TO BE COMPLETED BY THE CONTRACTOR.
- 2) CONTRACTOR SHALL ENGAGE A QUALIFIED PRECAST CONCRETE SUPPLIER TO COMPLETE FINAL DESIGN, FABRICATION, DELIVERY, AND INSTALLATION OF PRECAST CULVERTS, HEADWALLS, WINGWALLS, AND FOUNDATION SYSTEMS.
- 3) DESIGN OF THE CULVERT AND COMPONENTS SHALL BE COMPLETED AND STAMPED BY A NH LICENSED ENGINEER ON BEHALF OF THE CONTRACTOR AND/OR CONTRACTOR'S PRECAST SUPPLIER.
- 4) THE ENGINEER REPRESENTING THE OWNER (NHDOT) WILL REVIEW SUBMITTALS OF SHOP DRAWINGS, CALCULATIONS, MATERIAL SPECIFICATIONS, AND ASSOCIATED INFORMATION FOR CONFORMANCE WITH FINAL PROJECT SPECIFICATIONS AND SPECIAL PROVISIONS.
- 5) THE SPECIAL PROVISION WILL INCLUDE THE FOLLOWING SPECIFICATIONS:  
DESIGN LIVE LOAD: HL-93  
DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN (LRFD)  
SPECIFICATIONS: AASHTO LRF1) INSTALL ALL EROSION CONTROL DEVICES.
- 6) VERIFY HORIZONTAL AND VERTICAL DATUM.
- 7) INSTALL TRAFFIC CONTROL SIGNS AND BARRIERS, TEMPORARY WATER DIVERSION DEVICE(S), AND EROSION CONTROL.
- 8) CROSSING 114

1. EXCAVATE FOR THE PROPOSED CULVERT AND REMOVE THE EXISTING CULVERT.

2. EXCAVATE DOWNSTREAM OF CROSSING 113 AND REMOVE LOG.

3. INSTALL PROPOSED CULVERT, STREAM BED MATERIAL, AND BACKFILL.

4. INSTALL INLET AND OUTLET PROTECTION.

5. INSTALL SLOPE PROTECTION.

6. REMOVE TEMPORARY WATER DIVERSION DEVICES.

7. CONSTRUCT ROAD AS SHOWN IN PLANS.
- 9) CROSSING 114

1. EXCAVATE FOR THE PROPOSED CULVERT AND REMOVE THE EXISTING CULVERT.

2. EXCAVATE DOWNSTREAM OF CROSSING 113 AND REMOVE LOG.

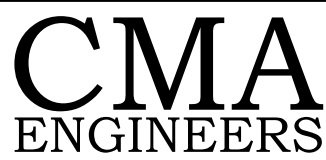
3. INSTALL PROPOSED CULVERT, STREAM BED MATERIAL, AND BACKFILL.

4. INSTALL INLET AND OUTLET PROTECTION.

5. INSTALL SLOPE PROTECTION.

6. REMOVE TEMPORARY WATER DIVERSION DEVICES.

7. CONSTRUCT ROAD AS SHOWN IN PLANS.
- 10) INSTALL GUARDRAIL IN LOCATIONS SHOWN IN PLANS.
- 11) INSTALL FINAL PAVING AND PAVEMENT MARKINGS.
- 12) INSTALL LOAM AND SEED OVER ALL DISTURBED AREAS.
- 13) REMOVE ALL EROSION CONTROL DEVICES.D 9TH ED., 2014  
NHDOT 2016 STANDARD SPECIFICATIONS, AS AMENDED  
FOUNDATION DATA: SPREAD FOOTINGS ON STRUCTURAL FILL  
REINFORCING STEEL: AASHTO M 31 (ASTM A 615) GRADE 60  
PRECAST: EPOXY COATED  
CAST-IN-PLACE: EPOXY COATED  
CURB: EPOXY COATED  
CONCRETE: PRECAST CONCRETE = 5000 PSI (CLASS AAA)  
CAST-IN-PLACE CONCRETE = 4000 PSI (CLASS AA)  
SEE SITE PLAN SHEET FOR SURVEY LAYOUT



STATE OF NEW HAMPSHIRE Stratham			
DEPARTMENT OF TRANSPORTATION		BUREAU OF HIGHWAY DESIGN	
<div>INDEX OF SHEETS AND GENERAL NOTES</div>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
1309-Index-sheet-ce	43001	3	26

MODEL:

Notes

GENERAL

EDGE OF PAVEMENT

TRAVELED WAY

PROPOSED ROADWAY

existing roadway

(pavement removed outside slope lines)

DRIVEWAYS

(label surface type)

BUILDINGS

(label house or type of building)

(building to be removed)

FOUNDATION

(label type)

LEACH FIELD

leach field

BRIDGE CROSSINGS

STREAM

OVERPASS

STEPS AND WALK

(label type)

DITCH LINE

INTERMITTENT WATER COURSE/STREAM

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

WELL

FLAG POLE

fp

ORIGINAL GROUND (TYPICALS)

MUCK LAYER (SECTIONS/REMOVAL)

ROCK OUTCROP

ROCK LINE (TYPICALS & SECTIONS ONLY)

GUARDRAIL

(label type)

bgr

JERSEY BARRIER

(label type)

cgr

CURB

(label type)

STONE WALL

SHEET PILE \ COFFERDAM

RETAINING WALL

(label type)

(points toward retained ground)

FENCE

(label type)

SIGNS

(single post)

(double post)

OVERHEAD SIGN STRUCTURE

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

TEST PIT

INTERSTATE NUMBERED HIGHWAY

93

UNITED STATES NUMBERED HIGHWAY

3

STATE NUMBERED HIGHWAY

102

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE

DELINEATED WETLAND

ORDINARY HIGH WATER

TOP OF BANK

TOP OF BANK & ORDINARY HIGH WATER

NORMAL HIGH WATER

WIDTH AT BANK FULL

PRIME WETLAND

PRIME WETLAND 100' BUFFER

NON-JURISDICTIONAL DRAINAGE AREA

COWARDIN DISTINCTION LINE

TIDAL BUFFER ZONE

DEVELOPED TIDAL BUFFER ZONE

HIGHEST OBSERVABLE TIDE LINE

MEAN HIGH WATER

MEAN LOW WATER

VERNAL POOL

SPECIAL AQUATIC SITE

REFERENCE LINE

WATER FRONT BUFFER

NATURAL WOODLAND BUFFER

PROTECTED SHORELAND

INVASIVE SPECIES LABEL

INVASIVE SPECIES

2

PUB2E

—D W—

—O H W—

—T O B—

—T O B O H W—

—N H W—

—W B F—

—P W E T—

—P W E T 100—

—N J D A—

—C D L—

—T B Z—

—D T B Z—

—H O T L—

—M H W—

—M L W—

—V P—

—S A S—

—R E F—

—O—

—N W B 150—

—P S 250—

I.S.

1

I.S.

II

—I N V—

FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY

100 YEAR FLOODPLAIN BOUNDARY

FLOODWAY

—F P 500—

—F P 100—

—F W—

ENGINEERING

CONSTRUCTION BASELINE

PC, PT, POT (ON CONST BASELINE)

PI (IN CONSTRUCTION BASELINES)

INTERSECTION OR EQUATION OF TWO LINES

ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)

PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)

CLEARING LINE

SLOPE LINE

SLOPE LINE (FILL)

SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:

ORIGINAL GROUND ELEVATION (LEFT)

FINISHED GRADE ELEVATION (RIGHT)

30

31

32

SLOPE LINE

CLEARING LINE

—

—

72.5

79.14

72.5

79.14

DRAINAGE

MANHOLE		
CATCH BASIN		cb
DROP INLET		di
DRAINAGE PIPE (existing)		DP
DRAINAGE PIPE (PROPOSED)		PDP
UNDERDRAIN (existing) W/ FLUSHING BASIN		fb
UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN		PDP
HEADER (existing & PROPOSED)		DP
END SECTION (existing & PROPOSED)		DP
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		
TOWN/COUNTY/STATE LINE		EASTON BENTON COOS GRAFTON
EASEMENT		(label type)
BENCH MARK / SURVEY DISK		
BOUND CONCRETE		cnb
BOUND STONE		snb
BOUND NH HIGHWAY		nhb
NHDOT PROJECT MARKER		
IRON PIPE		ip
IRON ROD		ir
REBAR		rb
DRILL HOLE IN ROCK		dh
MISCELLANEOUS BOUNDARY MOUNMENT		mb
TAX MAP AND LOT NUMBER		TM 156 Lot 1642/341 Bk. 32 Pg. 14 6.80 Ac.± Plan 5
PROPERTY PARCEL NUMBER		12

UTILITIES

TELEPHONE POLE		
POWER POLE		
JOINT OCCUPANCY		
MISCELLANEOUS/UNKNOWN POLE		
GUY POLE OR PUSH BRACE		
LIGHT POLE		
LIGHT ON POWER POLE		
LIGHT ON JOINT POLE		
POLE STATUS: REMOVE, LEAVE, PROPOSED, OR TEMPORARY AS APPLICABLE e.g.:		
RAILROAD		(label ownership)
RAILROAD SIGN		
RAILROAD SIGNAL		
UTILITY JUNCTION BOX		jb
OVERHEAD WIRE		(label type)
UNDERGROUND UTILITIES		
WATER		(on existing lines label size, type and note if abandoned)
SEWER		
TELEPHONE		
ELECTRIC		
GAS		
LIGHTING		
INTELLIGENT TRANSPORTATION SYSTEM		
FIBER OPTIC		
WATER SHUT OFF		
GAS SHUT OFF		
HYDRANT		
MANHOLES		
SEWER		
TELEPHONE		
ELECTRICAL		
GAS		
UNKNOWN		
WATER		

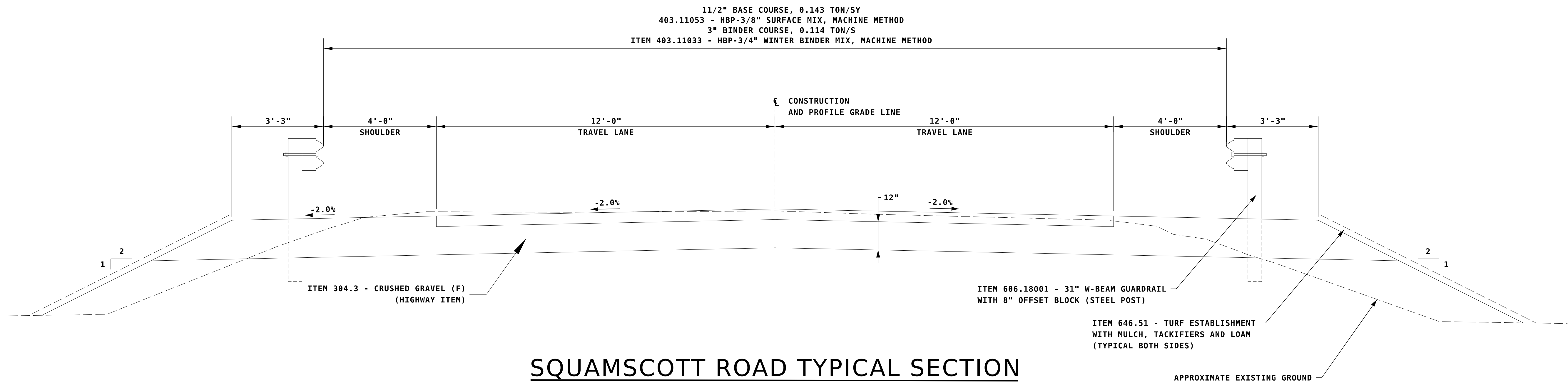
TRAFFIC SIGNALS / ITS

MAST ARM		
OPTICOM RECEIVER		
OPTICOM STROBE		
TRAFFIC SIGNAL		
PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT		
SIGNAL CONDUIT		
CONTROLLER CABINET		CC
METER PEDESTAL		mp
PULL BOX		pb
LOOP DETECTOR (QUADRUPOLE)		(label size)
LOOP DETECTOR (RECTANGULAR)		(label size)
CAMERA POLE (CCTV)		
FIBER OPTIC DELINEATOR		fod
FIBER OPTIC SPLICE VAULT		S V F
ITS EQUIPMENT CABINET		ITS
MOTOR VEHICLE DETECTION SYSTEM (MVDS)		
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

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
-	1309-symblos	43001	5	26

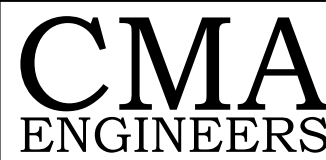


SQUAMSCOTT ROAD TYPICAL SECTION

1/2" = 1'

STA. 100+50 TO STA. 100+75 TAPER  
STA. 100+75 TO STA. 101+25 FULL WIDTH  
STA. 101+25 TO STA. 101+50 TAPER

STA. 103+22 TO STA. 103+47 TAPER  
STA. 103+47 TO STA. 103+97 FULL WIDTH  
STA. 103+97 TO STA. 104+22 TAPER



STATE OF NEW HAMPSHIRE			
Stratham			
DEPARTMENT OF TRANSPORTATION		BUREAU OF HIGHWAY DESIGN	
<div>TYPICAL SECTION OF IMPROVEMENTS</div>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
1309-Details	43001	6	26

MODEL: Detail 2

CROSSING 113

EARTHWORK			
Item #	Item Description	Unit	Quantity
202.41	REMOVAL OF EXISTING PIPE 0-24" DIAMETER	LF	45
203.6	EMBANKMENT-IN-PLACE (F)	CY	70
207.1	COMMON CHANNEL EXCAVATION	CY	5
214	FINE GRADING	U	1
645.531	SILT FENCE	LF	180
646.51	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	280

STRUCTURE			
Item #	Item Description	Unit	Quantity
Structure			
503.1	WATER DIVERSION STRUCTURES	U	1
503.201	COFFERDAMS	U	2
520.7002	CONCRETE BRIDGE DECK (QC/QA) (F)	CY	15
529.00101	PRECAST CONCRETE BOX CULVERT (HIGHWAY)	U	1
585.2	STONE FILL, CLASS B	CY	75
585.3401	SIMULATED STREAMBED MATERIAL	CY	25
593.411	GEOTEXTILE; PERM CONTROL CL.1, NON-WOVEN	SY	55

ROADWAY			
Item #	Item Description	Unit	Quantity
202.7	REMOVAL OF GUARDRAIL	LF	40
203.1	COMMON EXCAVATION	CY	260
203.11	COMMON EXCAVATION - LRS	CY	10
304.201	GRAVEL	CY	130
304.301	CRUSHED GRAVEL	CY	60
403.11023	HBP-3/4" BINDER MIX, MACHINE METHOD	TON	75
403.11053	HBP-3/8" SURFACE MIX, MACHINE METHOD	TON	20
403.12	HOT BITUMINOUS PAVEMENT, HAND METHOD	TON	5
403.19	HBP-TEMPORARY	TON	55
403.6	PAVEMENT JOINT ADHESIVE	LF	200
410.22	ASPHALT EMULSION FOR TACK COAT	GAL	20
417	COLD PLANING BITUMINOUS SURFACES	SY	60
606.1258	STEEL-BACKED TIMBER GUARDRAIL TL-2 END TERMINAL	U	3
606.5669	STEEL-BACKED TIMBER GUARDRAIL TYPE A	LF	65
606.5685	STEEL-BACKED TIMBER GUARDRAIL CONNECTION TO TUBULAR STEEL-BACK TIMBER BRIDGE RAIL	U	4
606.5694	TUBULAR STEEL-BACKED TIMBER BRIDGE RAIL	LF	20
622.1	STEEL WITNESS MARKERS	EA	4
628.2	SAWED BITUMINOUS PAVEMENT	LF	45
632.0104	RETROREFLECTIVE PAINT PAVE, MARKING, 4" LINE	LF	400

INCIDENTALS			
Item #	Item Description	Unit	Quantity
618.61	UNIFORMED OFFICERS WITH VEHICLE	\$	2500
618.7	FLAGGERS	HR	180
619.1	MAINTENANCE OF TRAFFIC	U	0.5
619.25	PORTABLE CHANGEABLE MESSAGE SIGN	U	1.0
645.7	STORM WATER POLLUTION PREVENTION PLAN	U	0.5
645.71	MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS	HR	50
645.73	STREAM DIVERSION PLAN	U	0.5
645.74	EROSION CONTROL PLAN	U	0.5
645.75	COLD WEATHER STABILIZATION PLAN	U	0.5
692	MOBILIZATION	U	0.5
698.13	FIELD OFFICE TYPE C	MON	0.5
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	10000.0
1010.15	FUEL ADJUSTMENT	\$	10000.0

CROSSING 114

EARTHWORK			
Item #	Item Description	Unit	Quantity
202.41	REMOVAL OF EXISTING PIPE 0-24" DIAMETER	LF	35
203.6	EMBANKMENT-IN-PLACE (F)	CY	80
214	FINE GRADING	U	1
645.531	SILT FENCE	LF	180
646.51	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM	SY	300

STRUCTURE			
Item #	Item Description	Unit	Quantity
503.1	WATER DIVERSION STRUCTURES	U	1
503.201	COFFERDAMS	U	2
520.7002	CONCRETE BRIDGE DECK (QC/QA) (F)	CY	15
529.00101	PRECAST CONCRETE BOX CULVERT (HIGHWAY)	U	1
585.2	STONE FILL, CLASS B	CY	60
585.3401	SIMULATED STREAMBED MATERIAL	CY	20
593.411	GEOTEXTILE; PERM CONTROL CL.1, NON-WOVEN	SY	45

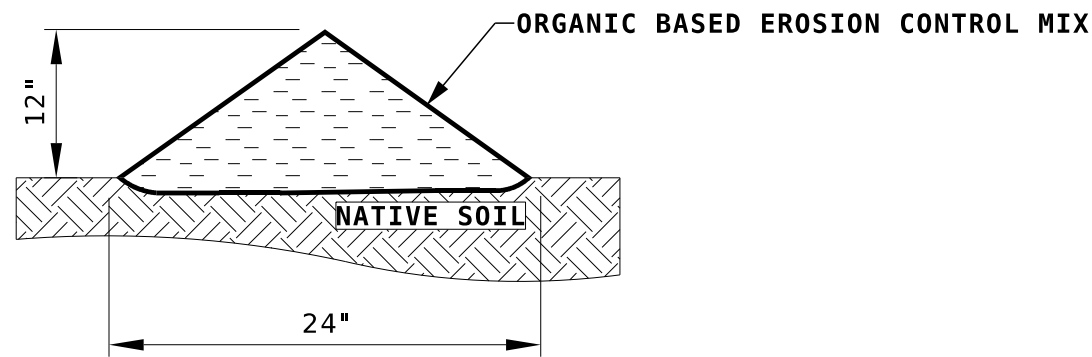
ROADWAY			
Item #	Item Description	Unit	Quantity
202.7	REMOVAL OF GUARDRAIL	LF	100
203.1	COMMON EXCAVATION	CY	270
203.11	COMMON EXCAVATION - LRS	CY	10
304.201	GRAVEL	CY	130
304.301	CRUSHED GRAVEL	CY	60
403.11023	HBP-3/4" BINDER MIX, MACHINE METHOD	TON	75
403.11053	HBP-3/8" SURFACE MIX, MACHINE METHOD	TON	20
403.12	HOT BITUMINOUS PAVEMENT, HAND METHOD	TON	5
403.19	HBP-TEMPORARY	TON	55
403.6	PAVEMENT JOINT ADHESIVE	LF	200
410.22	ASPHALT EMULSION FOR TACK COAT	GAL	20
417	COLD PLANING BITUMINOUS SURFACES	SY	60
606.1258	STEEL-BACKED TIMBER GUARDRAIL TL-2 END TERMINAL	U	4
606.5669	STEEL-BACKED TIMBER GUARDRAIL TYPE A	LF	40
606.5685	STEEL-BACKED TIMBER GUARDRAIL CONNECTION TO TUBULAR STEEL-BACK TIMBER BRIDGE RAIL	U	4
606.5694	TUBULAR STEEL-BACKED TIMBER BRIDGE RAIL	LF	20
622.1	STEEL WITNESS MARKERS	EA	4
628.2	SAWED BITUMINOUS PAVEMENT	LF	45
632.0104	RETROREFLECTIVE PAINT PAVE, MARKING, 4" LINE	LF	400

INCIDENTALS			
Item #	Item Description	Unit	Quantity
618.61	UNIFORMED OFFICERS WITH VEHICLE	\$	2500
618.7	FLAGGERS	HR	180
619.1	MAINTENANCE OF TRAFFIC	U	0.5
619.25	PORTABLE CGANGEABLE MESSAGE SIGN	U	1.0
645.7	STORM WATER POLLUTION PREVENTION PLAN	U	0.5
645.71	MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS	HR	50
645.73	STREAM DIVERSION PLAN	U	0.5
645.74	EROSION CONTROL PLAN	U	0.5
645.75	COLD WEATHER STABILIZATION PLAN	U	0.5
692	MOBILIZATION	U	0.5
698.13	FIELD OFFICE TYPE C	MON	0.5
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	10000.0
1010.15	FUEL ADJUSTMENT	\$	10000.0

GUARDRAIL					
		606.5694	606.5685	606.5669	606.1285
REF. NO.	LOCATION	TUBULAR STEEL-BACKED TIMBER BRIDGE RAIL	STEEL-BACKED TIMBER GUARDRAIL CONNECTION TO TUBULAR STEEL-BACK TIMBER BRIDGE RAIL	STEEL-BACKED TIMBER GUARDRAIL TYPE A	STEEL-BACKED TIMBER GUARDRAIL TL-2 END TERMINAL
	UNIT	LF	U	LF	U
	Crossing 114				
1	STA. 100+22.5 RT. - STA. 101+71.5 RT.	8.33	2	19.5	2
2	STA. 100+30.5 LT. - STA. 101+79.5 LT.	8.33	2	19.5	2
	Crossing 113				
3	STA. 103+19.5 RT. - STA. 104+47.5 RT.	8.33	2	43	1
4	STA. 102+97.0 LT. - STA. 104+45.0 LT.	8.33	2	19.5	2
	SUBTOTAL	33.32	8	101.5	7
	ROUNDING	6.68	0	3.5	0
	TOTAL	40	8	105	7



STATE OF NEW HAMPSHIRE Stratham			
DEPARTMENT OF TRANSPORTATION		o	BUREAU OF BRIDGE DESIGN
SUMMARY OF QUANTITIES			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
1309-Summary	43001	7	26

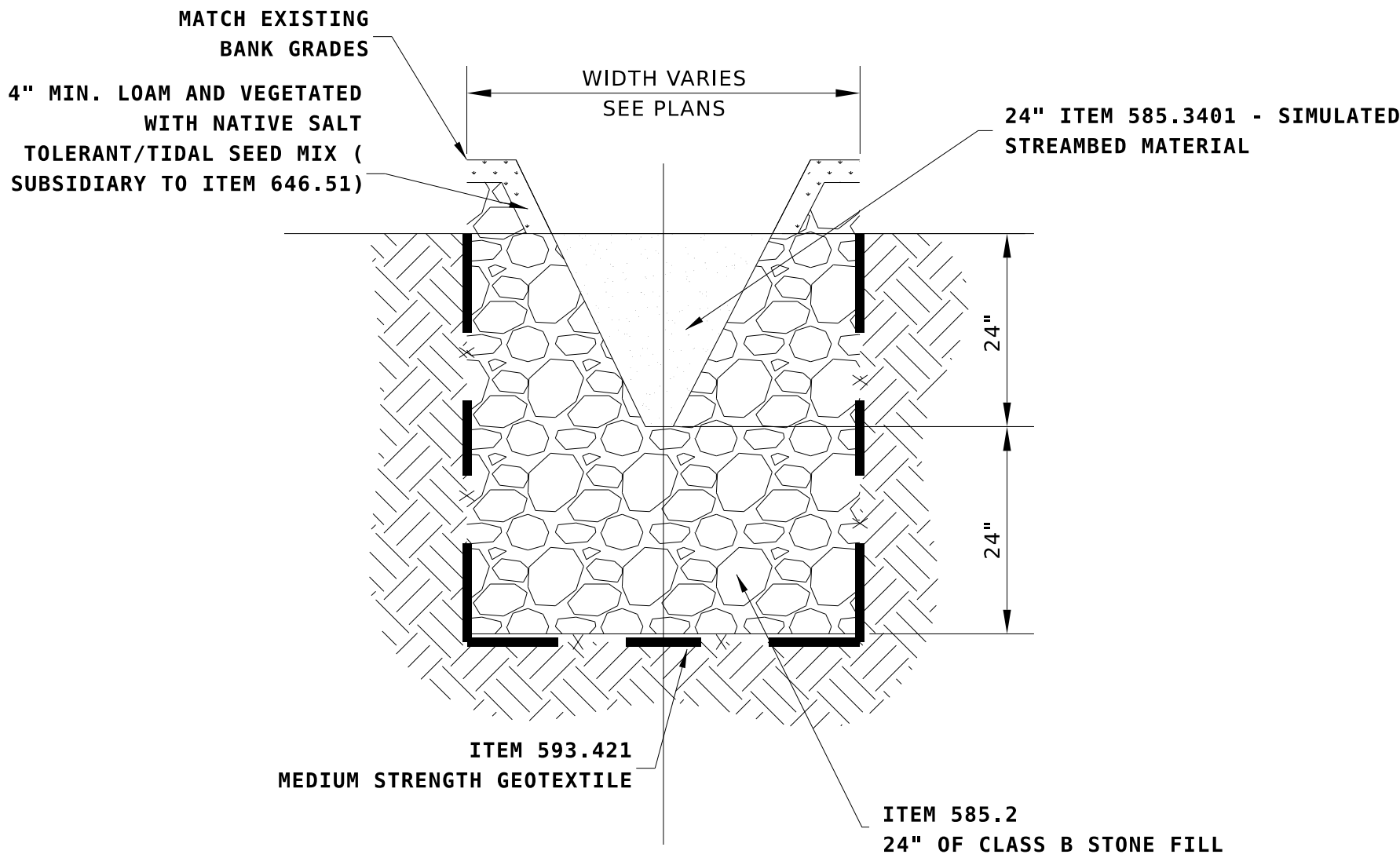


- COMPOSITION:
1. EROSION CONTROL MIX SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH THE NHDES STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION, LAST REVISED 12/2008 OR LATER. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE; SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
  2. EROSION CONTROL MIX SHOULD CONTAIN A WELL GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX SHOULD BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH SUCH AS FLY ASH OR YARD SCRAPING. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.

- INSTALLATION:
1. THE BARRIER MUST BE PLACED ACROSS THE SLOPE, ALONG THE CONTOUR.
  2. EXISTING GROUND SHALL BE PREPARED SUCH THAT THE BARRIER MAY LIE NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
  3. THE BARRIER SHALL BE A MINIMUM OF 1 FOOT HIGH (AS MEASURED ON THE UPHILL SIDE) AND 2 FEET WIDE FOR SLOPES LESS THAN 5% IN GRADE AND SHALL BE WIDER TO ACCOMMODATE THE ADDITIONAL RUNOFF.
  4. EROSION CONTROL MIX CAN BE INSTALLED WHERE SILT FENCE OR FIBER ROLL IS ILLUSTRATED ON THE DESIGN PLANS IN AREAS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM.

## EROSION CONTROL MIX BERM

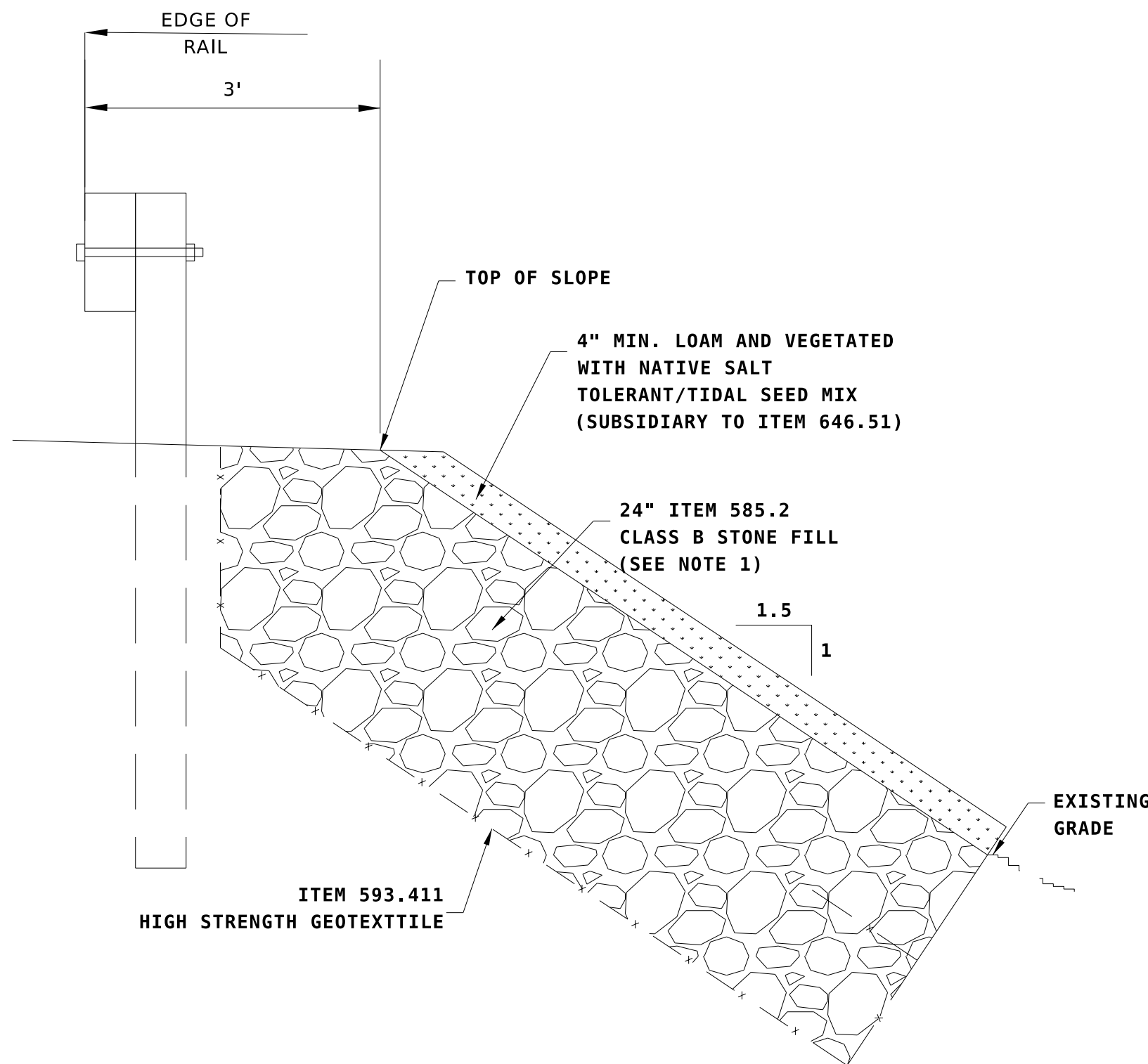
NOT TO SCALE



- NOTE:
1. LOAM SHALL BE WORKED INTO THE TOP 1'-0" FILLING INTERSTITIAL VOIDS.

## CHANNEL BOTTOM DETAIL

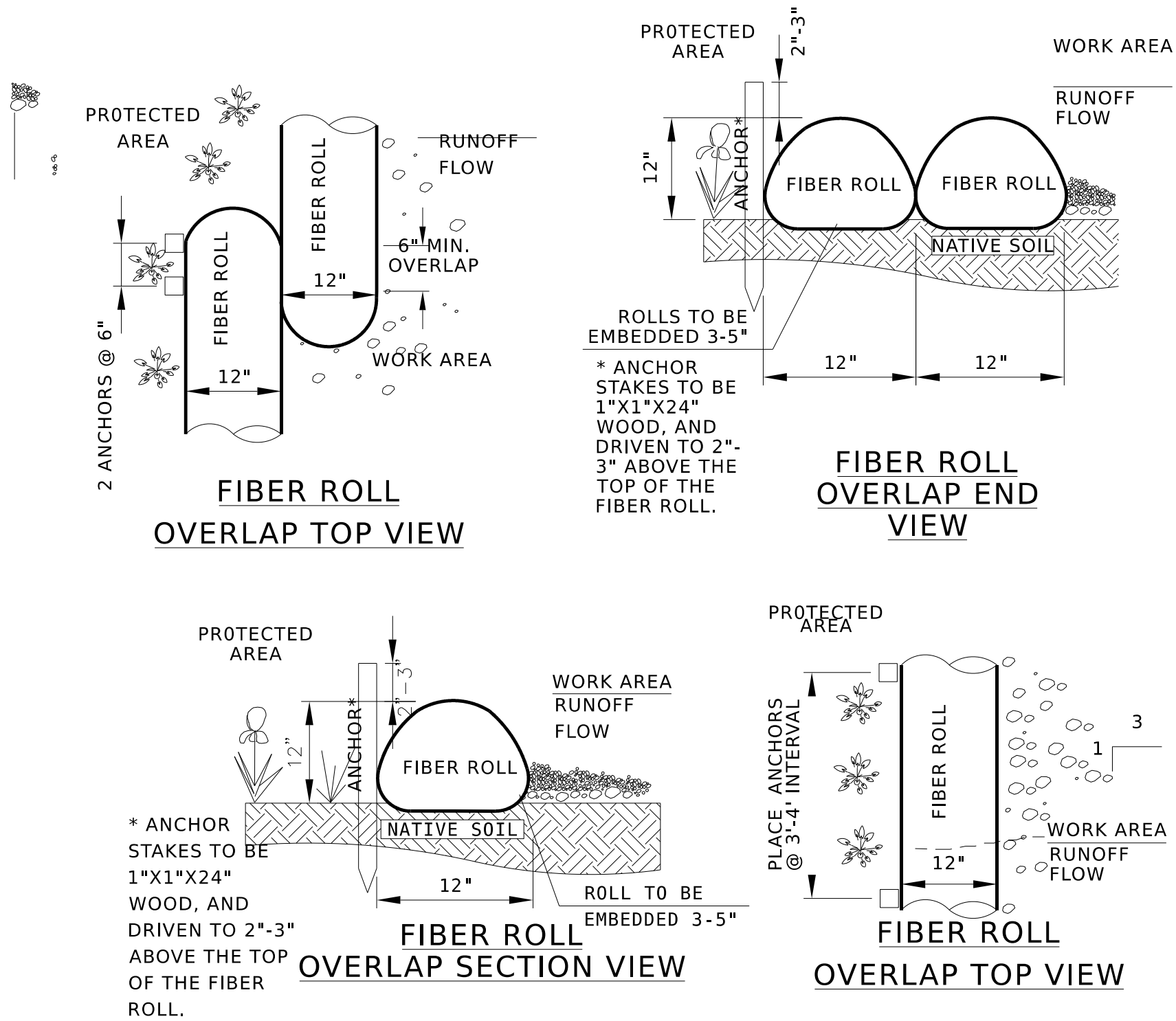
NOT TO SCALE



- NOTE:
1. LOAM SHALL BE WORKED INTO THE TOP 1'-0" FILLING INTERSTITIAL VOIDS.

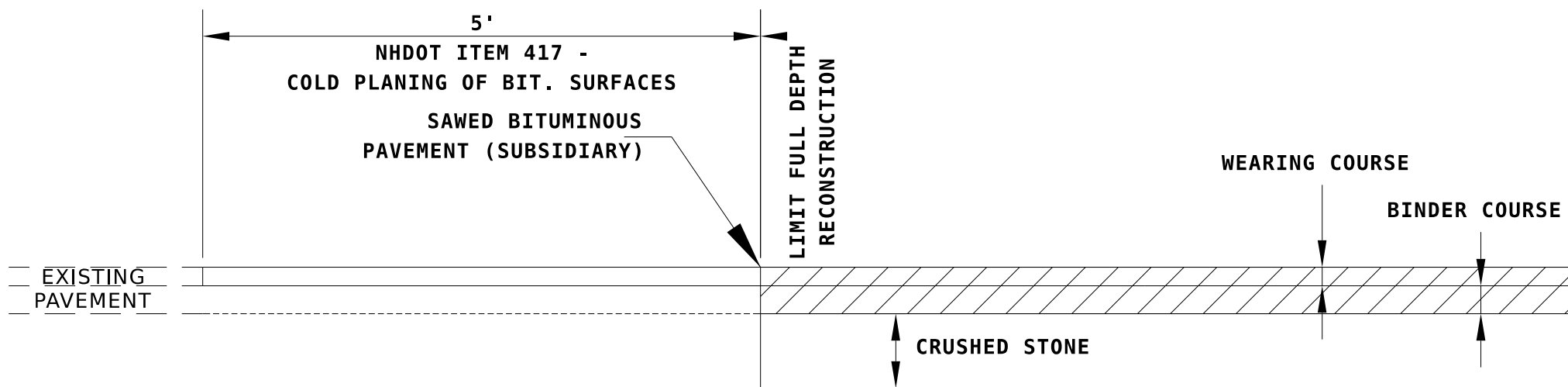
## SLOPE PROTECTION DETAIL

NOT TO SCALE



## EROSION CONTROL FIBER ROLL

NOT TO SCALE



- NOTES:
1. CRUSHED GRAVEL SHIM MAY BE NEEDED IN PAVEMENT REMOVAL AREAS.
  2. SEE TYPICALS FOR WEARING AND BINDER DEPTHS.

## PAVEMENT AND BASE COURSE TRANSITIONS

NOT TO SCALE

**CMA**  
ENGINEERS

STATE OF NEW HAMPSHIRE			
Stratham			
DEPARTMENT OF TRANSPORTATION		o	BUREAU OF HIGHWAY DESIGN
MICELLANEOUS DETAILS			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
1309-Details	43001	8	26

MODEL: Detail 1

[illegible][illegible]

CROSSING #113

$$3/16'' = 1'$$

$$1'' = 5'-0''$$

HYDRAULIC DATA SUMMARY:

CROSSING 113  
DRAINAGE AREA: 107 ACRES  
DESIGN FLOOD (Q50): 76 CFS (RIVERINE) / 86 CFS (TIDAL)  
DESIGN VELOCITY: 3.0 FPS (RIVERINE) / 2.8 FPS (TIDAL)  
DESIGN FLOOD ELEVATION: 4.74 FT (RIVERINE) / 6.90 FT (TIDAL)  
Q100 FLOOD ELEVATION: 5.07 FT (RIVERINE) / 7.22 FT (TIDAL)  
Q100 FLOOD DISCHARGE: 88 CFS (RIVERINE) / 89 CFS (TIDAL)  
DESIGN TEMPORARY BYPASS DISCHARGE (Q2): 20 CFS

CROSSING 114  
DRAINAGE AREA: 77 ACRES  
DESIGN FLOOD (Q50): 54 CFS (RIVERINE) / 147 CFS (TIDAL)  
DESIGN VELOCITY: 3.3 FPS (RIVERINE) / 5.2 FPS (TIDAL)  
DESIGN FLOOD ELEVATION: 4.65 FT (RIVERINE) / 6.90 FT (TIDAL)  
Q100 FLOOD ELEVATION: 4.96 FT (RIVERINE) / 7.22 FT (TIDAL)  
Q100 FLOOD DISCHARGE: 67 CFS (RIVERINE) / 153 CFS (TIDAL)  
Q2 TEMPORARY FLOOD DISCHARGE: 23 CFS (RIVERINE)  
DESIGN TEMPORARY BYPASS DISCHARGE (Q2): 23 CFS

WATER DIVERSION STRUCTURE NOTES:

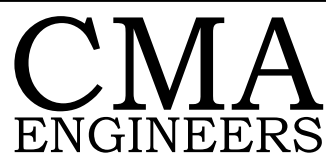
- 1) ITEM 503.1-WATER DIVERSION STRUCTURES SHALL BE REQUIRED TO CONSTRUCT THE CULVERT. THE CONTRACTOR SHALL SUBMIT THE DIVERSION STRUCTURE TYPE, DESIGN, AND PROPOSED METHOD OF CONSTRUCTION TO THE ENGINEER IN ACCORDANCE WITH SECTION 105.02 OF THE NHDOT STANDARD SPECIFICATIONS.
- 2) THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY ENGINEER A WATER DIVERSION PLAN PREPARED AND STAMPED BY A NH LICENSED PROFESSIONAL ENGINEER.
- 3) THE CONTRACTOR SHALL DETERMINE THE REQUIRED LIMITS TO MAINTAIN A DEWATERED AND ADEQUATELY SUPPORTED EXCAVATION DURING CONSTRUCTION.
- 4) ALL WATER DIVERSION STRUCTURES ARE TO BE INSTALLED DURING PERIODS OF LOW FLOW. THE CONTRACTOR SHALL PUMP/DIVERT STREAM FLOW AROUND WORK AREA TO MINIMIZE SILTATION OF STREAM WATERS. THE CONTRACTOR SHALL BE PREPARED FOR, AND MAKE PROVISIONS FOR, HIGH FLOW EVENTS THAT MAY OCCUR EVEN DURING TYPICAL LOW FLOW PERIODS.
- 5) THE CHANNEL BYPASS SYSTEM SHALL HAVE COMPARABLE HYDRAULIC CAPACITY TO THE EXISTING CULVERT CROSSING TO MAINTAIN THE DAILY TIDE RANGE OBSERVED UPSTREAM OF THE CULVERT CROSSING.
- 6) ALL COSTS FOR DESIGN, INSTALLATION, AND REMOVAL OF THE WATER DIVERSION STRUCTURES SHALL BE INCLUDED IN THE WATER DIVERSION STRUCTURES ITEM.

STRUCTURE NOTES:

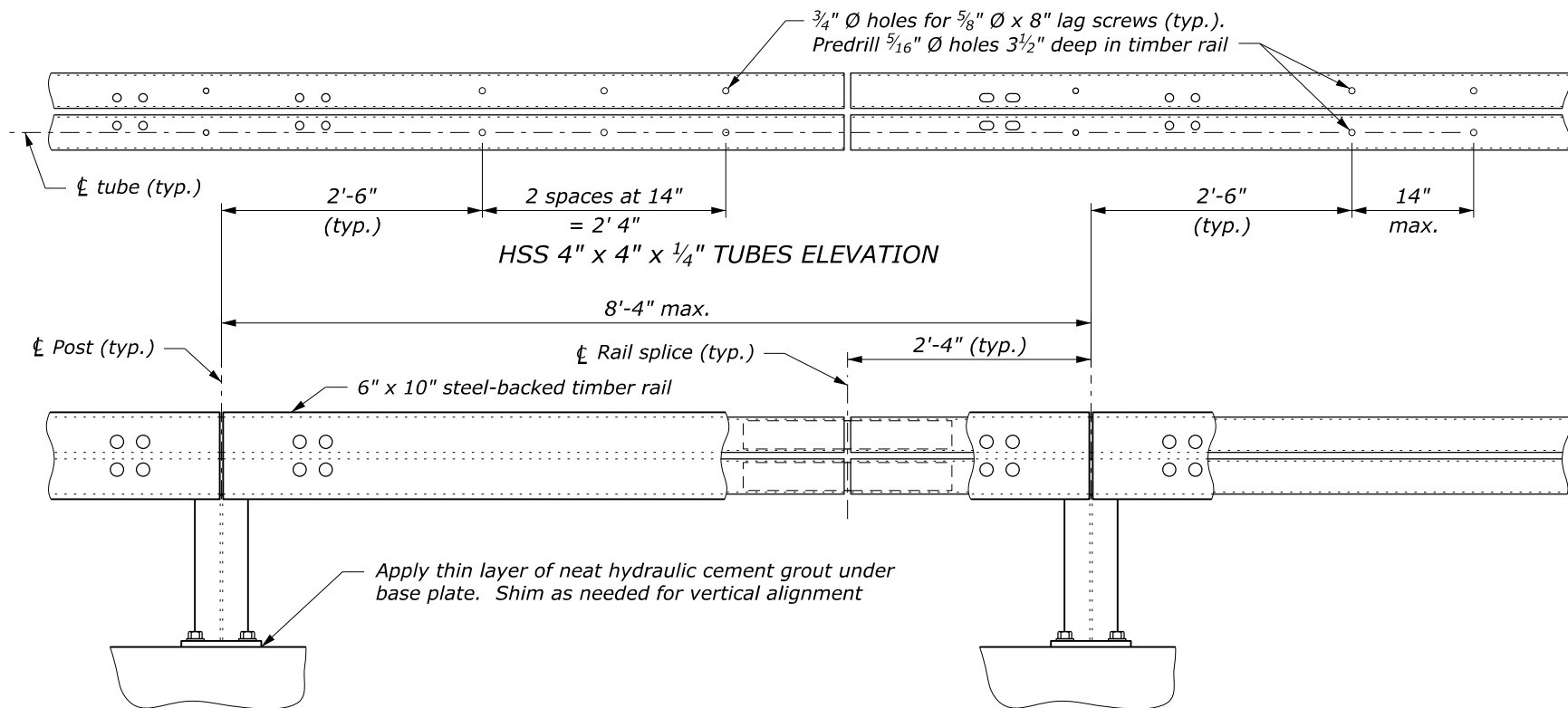
- 1) THE CULVERT SHOWN ON THESE DRAWINGS IS A GRAPHIC REPRESENTATION OF THE PROPOSED CULVERT LAYOUT. A SPECIAL PROVISION WILL BE INCLUDED IN THE PROJECT FINAL SPECIFICATIONS THAT INCLUDE PROJECT DESIGN REQUIREMENTS TO BE COMPLETED BY THE CONTRACTOR.
- 2) CONTRACTOR SHALL ENGAGE A QUALIFIED PRECAST CONCRETE SUPPLIER TO COMPLETE FINAL DESIGN, FABRICATION, DELIVERY, AND INSTALLATION OF PRECAST CULVERTS, HEADWALLS, WINGWALLS, AND FOUNDATION SYSTEMS.
- 3) DESIGN OF THE CULVERT AND COMPONENTS SHALL BE COMPLETED AND STAMPED BY A NH LICENSED ENGINEER ON BEHALF OF THE CONTRACTOR AND/OR CONTRACTOR'S PRECAST SUPPLIER.
- 4) THE ENGINEER REPRESENTING THE OWNER (NHDOT) WILL REVIEW SUBMITTALS OF SHOP DRAWINGS, CALCULATIONS, MATERIAL SPECIFICATIONS, AND ASSOCIATED INFORMATION FOR CONFORMANCE WITH FINAL PROJECT SPECIFICATIONS AND SPECIAL PROVISIONS.
- 5) THE SPECIAL PROVISION WILL INCLUDE THE FOLLOWING SPECIFICATIONS:  
DESIGN LIVE LOAD: HL-93  
DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN (LRFD)  
SPECIFICATIONS: AASHTO LRFD 9TH ED., 2014  
NHDOT 2016 STANDARD SPECIFICATIONS, AS AMENDED  
FOUNDATION DATA: SPREAD FOOTINGS ON STRUCTURAL FILL  
REINFORCING STEEL: AASHTO M 31 (ASTM A 615) GRADE 60  
PRECAST: EPOXY COATED  
CAST-IN-PLACE: EPOXY COATED  
CURB: EPOXY COATED  
CONCRETE: PRECAST CONCRETE = 5000 PSI (CLASS AAA)  
CAST-IN-PLACE CONCRETE = 4000 PSI (CLASS AA)  
SEE SITE PLAN SHEET FOR SURVEY LAYOUT

SIMULATED STREAMBED MATERIAL NOTES:

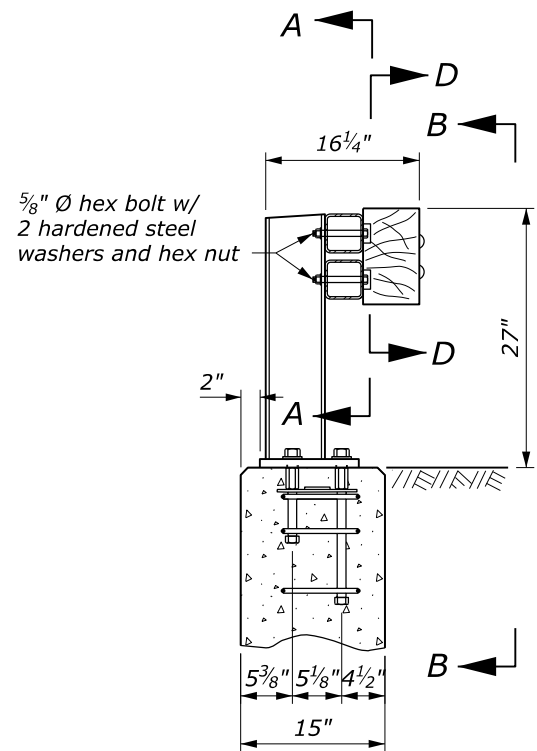
- 1) TO SIMULATE THE SURFACE CONDITION OF THE EXISTING TIDAL CHANNEL,, DOWNSTREAM OF CROSSING 114, PROVIDE ROUNDED, SUBROUNDED, OR SUBANGULAR SEDIMENTS MEETING THE FOLLOWING GRADATION:
- |               |                 |
|---------------|-----------------|
| US SIEVE SIZE | PERCENT PASSING |
| 5"            | 95 TO 100       |
| 2"            | 45 TO 55        |
| NO. 4         | 25 TO 35        |
| NO. 60        | 0 TO 5          |
- SPECIFIED GRADATION MAY BE APPRXOIMATED BY BLENDING THREE PARTS NHDOT ITEM 304.2, TWO PARTS NHDOT ITEM 304.6, AND TWO PARTS NHDOT ITEM 585.3 INTO WELL-GRADED, HOMOGENEOUS MIXTURE.
- 2) SALVAGED ON-SITE MATERIALS MEETING THE SPECIFICATION OF NOTE 1 MAY BE USED AS NATURAL STREAMBED MATERIAL



	STATE OF NEW HAMPSHIRE				
	Stratham				
	DEPARTMENT OF TRANSPORTATION		o BUREAU OF HIGHWAY DESIGN		
CULVERT NOTES					
REVISION DATE	DGN		STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
Culvert Notes	-	1309-Culvert Notes	43001	10	26

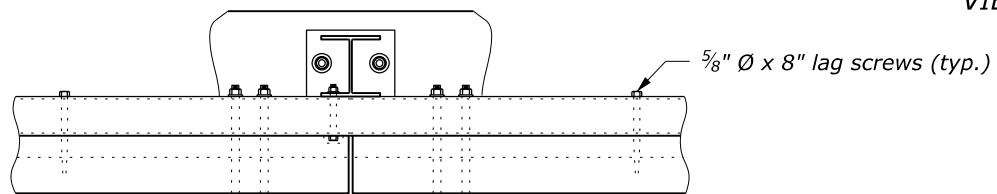
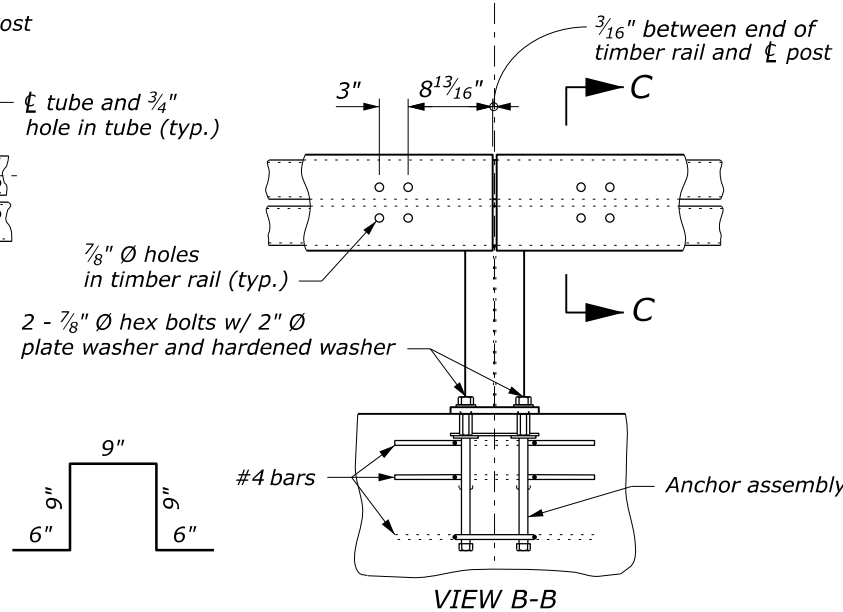
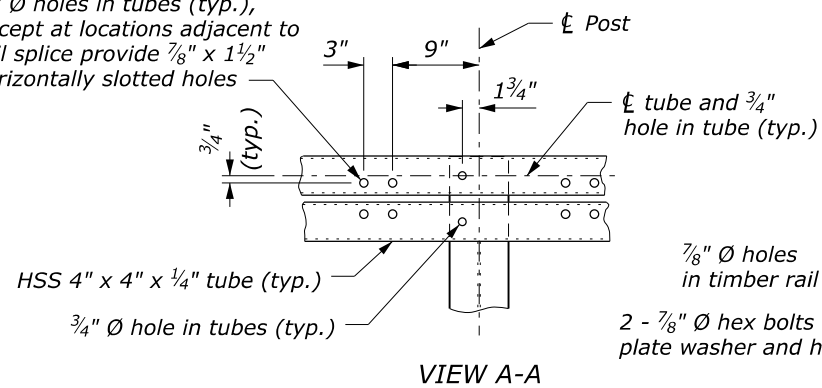


BRIDGE RAIL ELEVATION



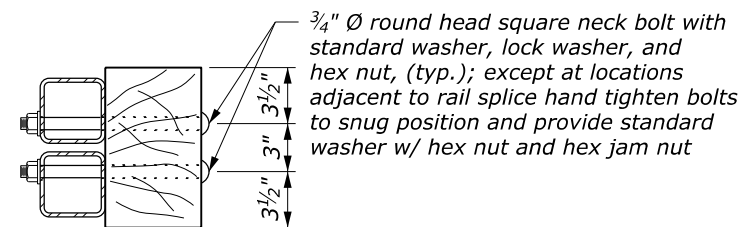
TYPICAL SECTION @ POST

7/8" Ø holes in tubes (typ.), except at locations adjacent to rail splice provide 7/8" x 1 1/2" horizontally slotted holes

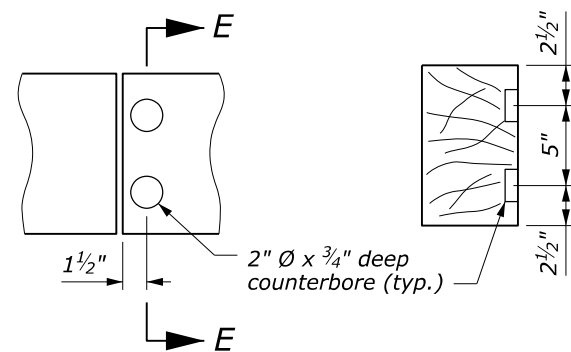


## NOTE:

1. Furnish steel for rail posts, base plates, shims, splice sleeves, and anchor assembly plates conforming to ASTM A36. Furnish structural tubing for rails conforming to ASTM A500, Grade B. Paint all metal components of the bridge rail except post base shims, anchor assemblies, and rail splice sleeves. Galvanize post base shims, anchor assemblies, and rail splice sleeves. Furnish hex bolts conforming to ASTM A325. Furnish hex coupling nuts with a center stop conforming to ASTM A563, Grade C, D, or DH. For all other fasteners conform to ASTM A307.
2. Submit fabrication drawings according to Section 555 and show rail section lengths, splice locations, rail post spacing, and fastener lengths. Fabricate steel according to Section 555 before galvanizing or painting. Weld according to Section 555.
3. Connect each HSS 4" x 4" x 1/4" tube to at least three posts between splices.
4. Erect the rail parallel to grade.



SECTION C-C



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
OFFICE OF FEDERAL LANDS HIGHWAY

FLH STANDARD

**TUBULAR STEEL-BACKED  
TIMBER BRIDGE RAIL**

Sheet 1 of 2

STANDARD APPROVED FOR USE --/----  
REVISED: 8/2016

STANDARD  
556-1

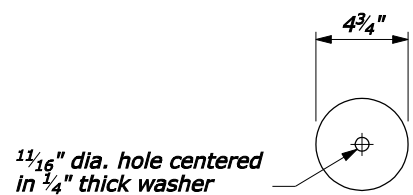
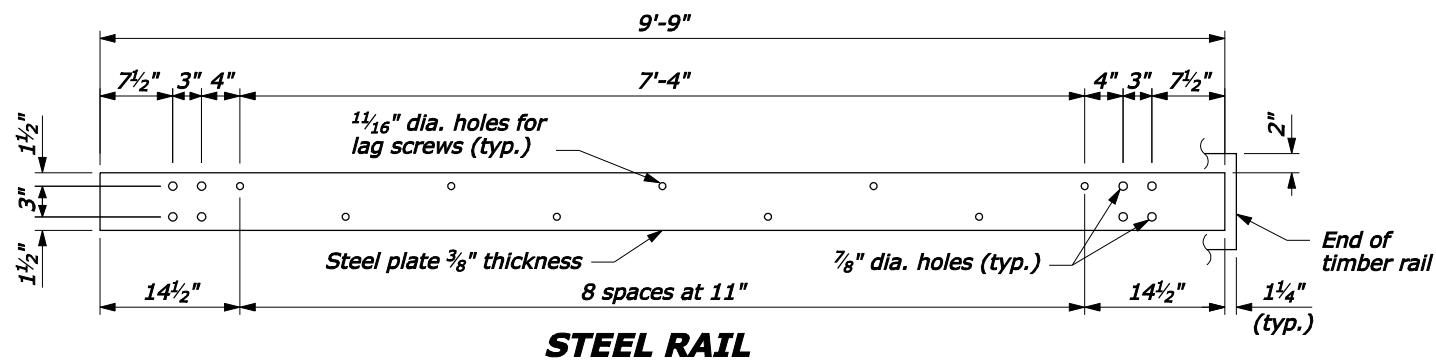
NO SCALE



## ANCHOR ASSEMBLY

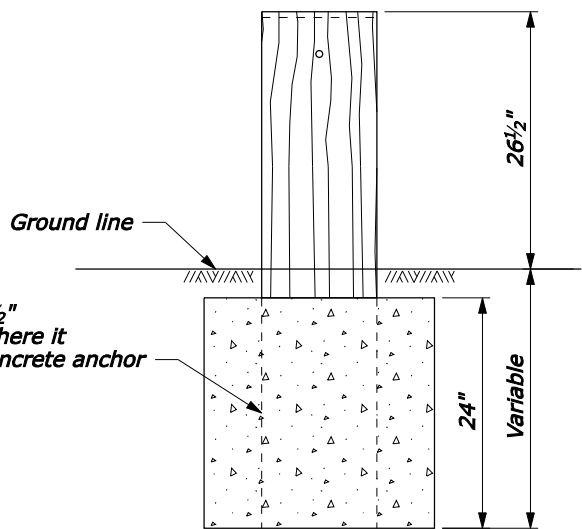
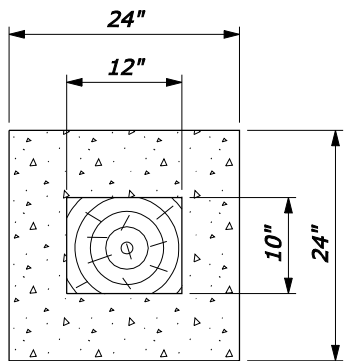
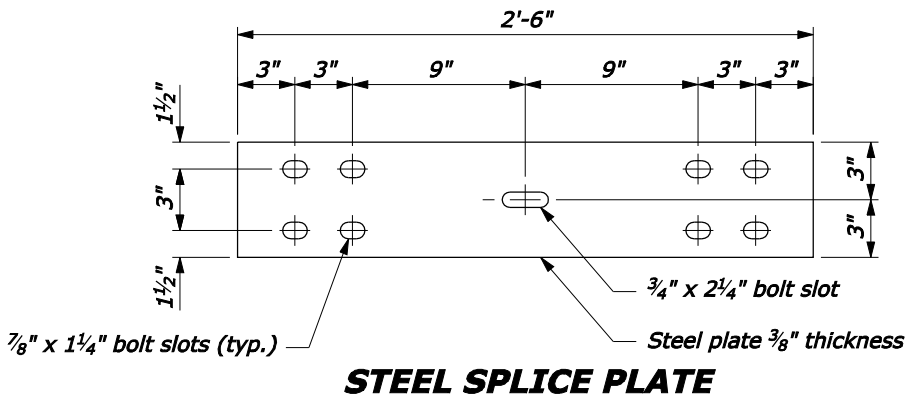
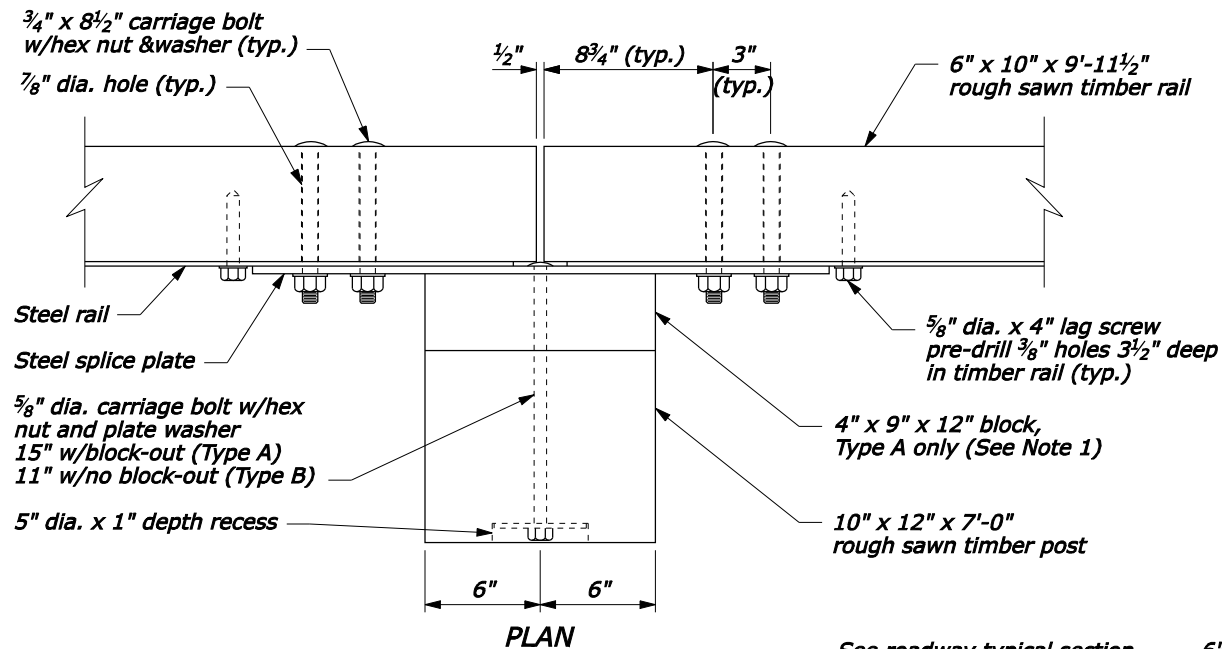


*NO SCALE*



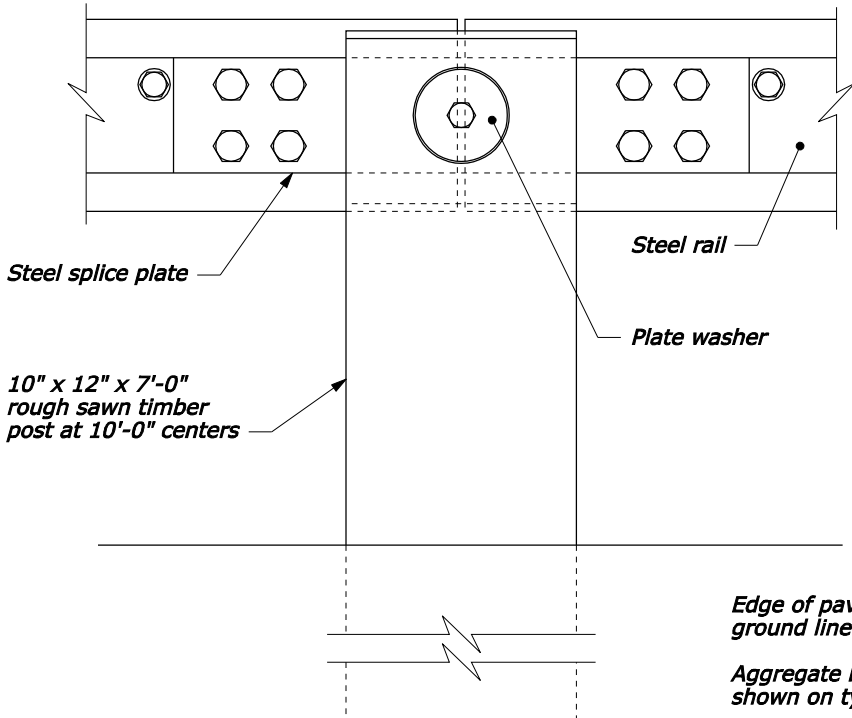
NOTE:

1. Use the Type A, blocked-out, system or the Type B, non-blocked-out, system as specified in the plans.
2. Use weathering steel for all structural steel and fastener hardware as specified.
3. Place a terminal section (See Standards 617-61 and 617-62) on both approach and trailing ends of barrier installations.

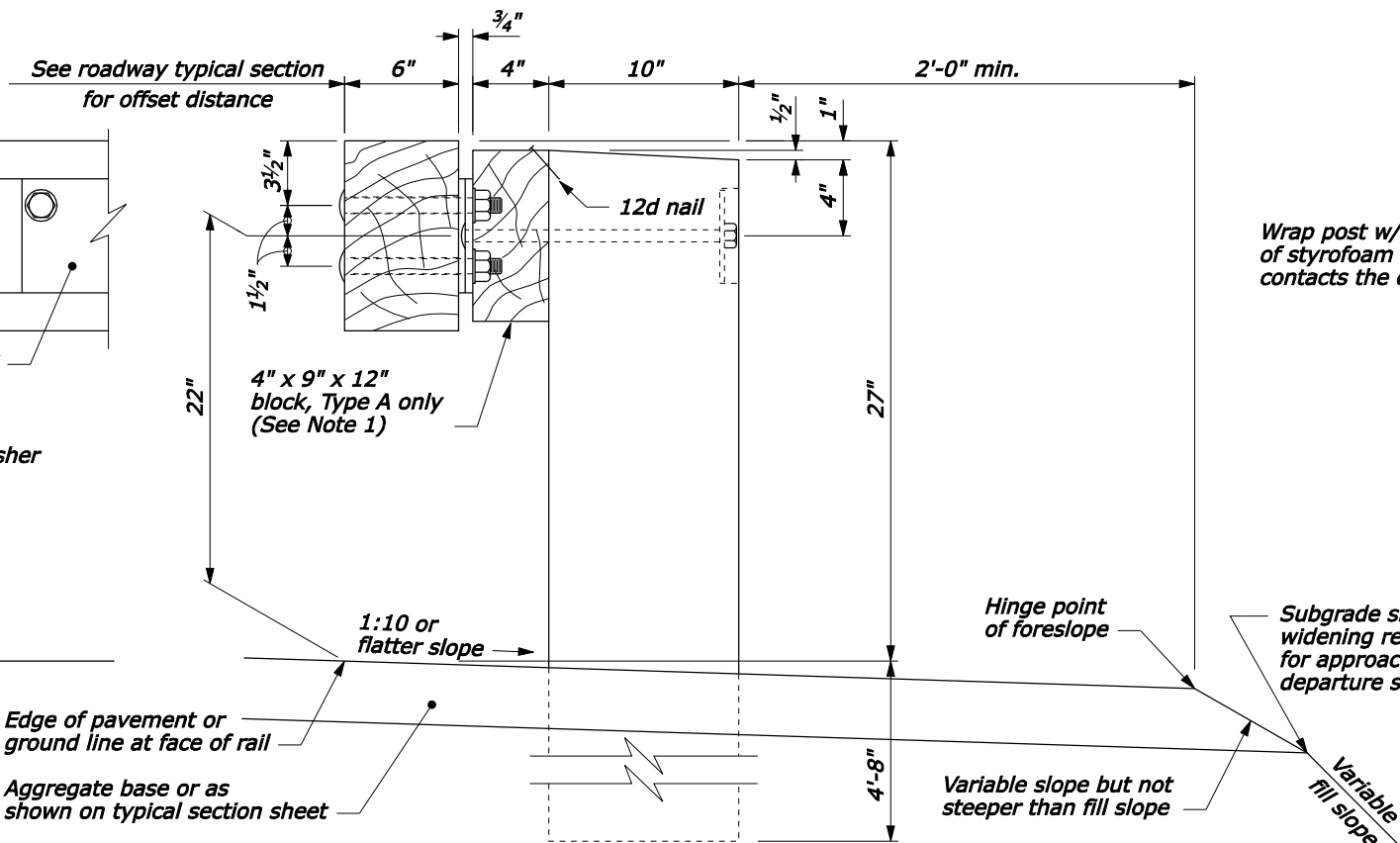


24" dia. round anchor is an acceptable alternative. Reduced size acceptable in solid rock.

CONCRETE ANCHOR FOR SHORT GUARDRAIL POST



POST CONNECTION

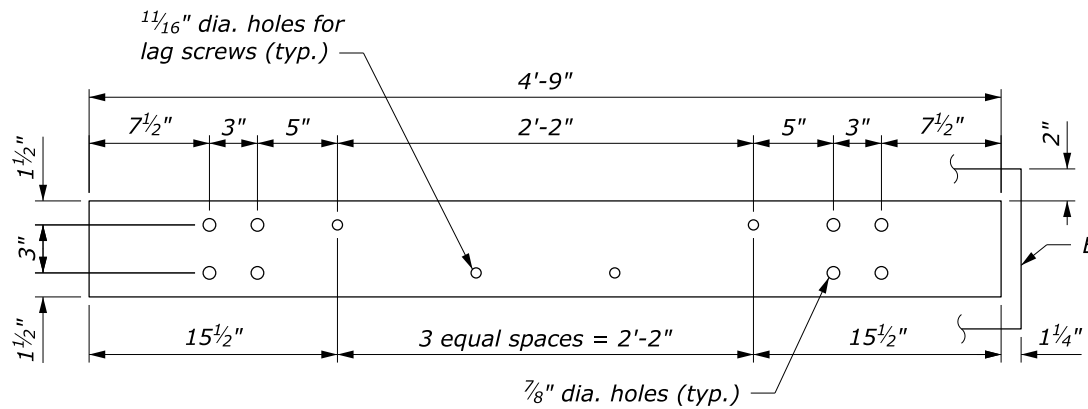


NO SCALE

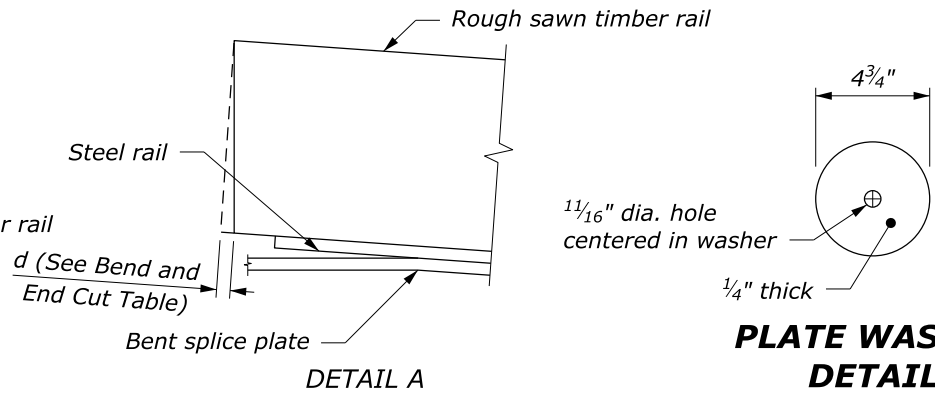
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>STEEL-BACKED TIMBER GUARDRAIL TYPE A &amp; TYPE B</b>	
STANDARD APPROVED FOR USE 3/1990 REVISED: 4/1994 6/2005	STANDARD 617-60

c:\pw-work\0419223\Std617-63.dgn [Std 617-63a]  
24 June 2024 8:24 AM

PROJECT	SHEET NUMBER



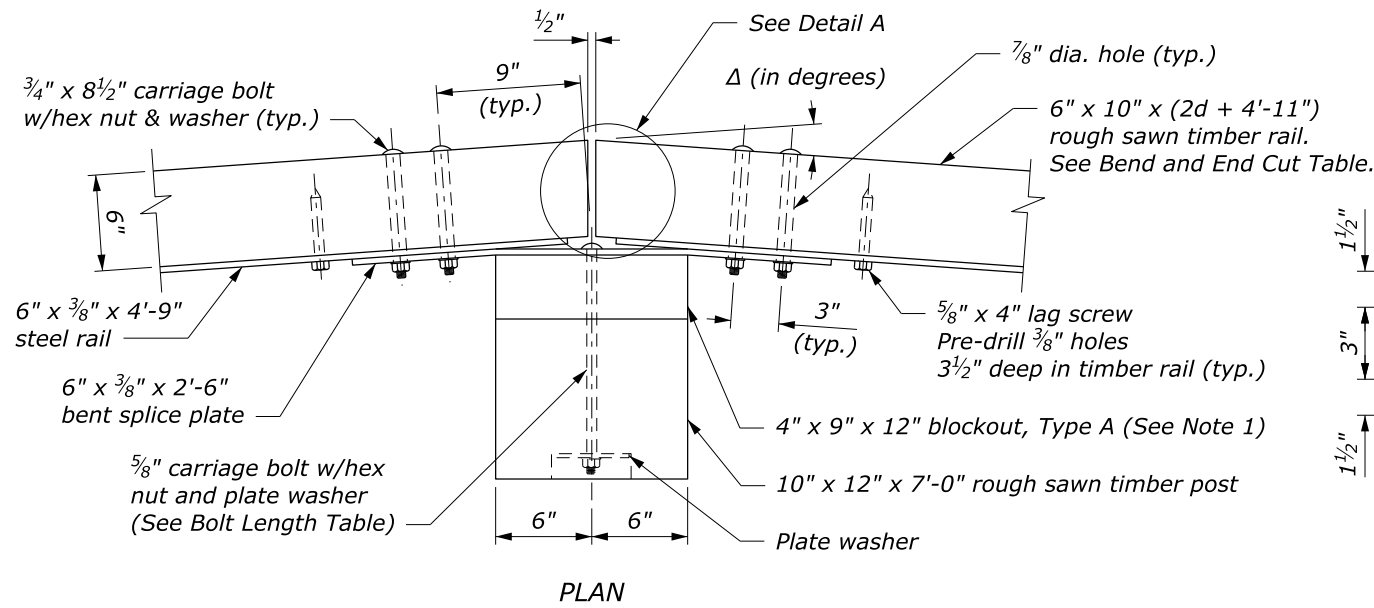
**STEEL RAIL**  
6" x 3/8" x 4'-9"



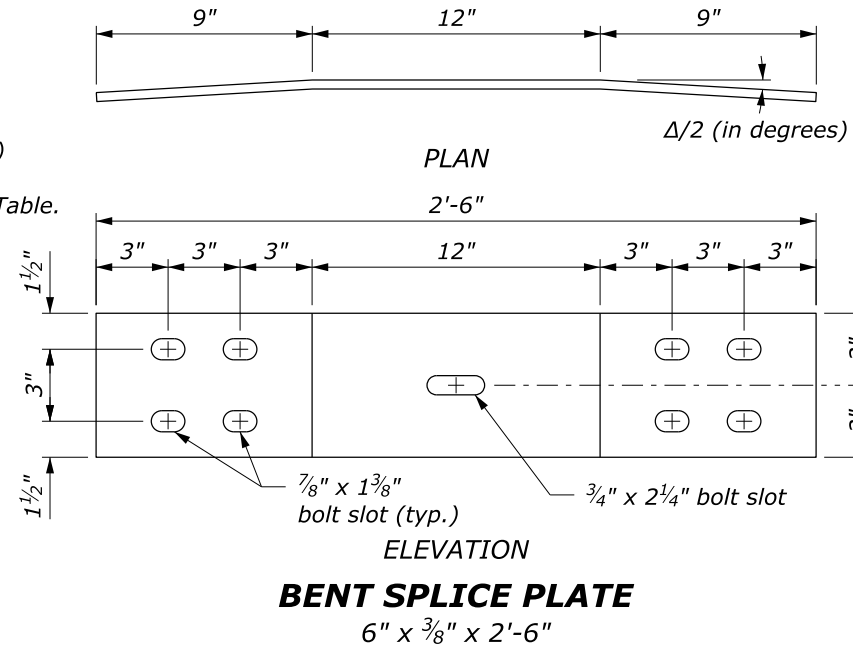
**PLATE WASHER DETAIL**

**NOTE:**

1. Use the Type A, blocked-out, system or the Type B, non-blocked-out, system as specified.
2. Use the weathering steel for all structural steel and fastener hardware.
3. Furnish shop bent splice plates. Use the minimum bend angle shown in the table below.
4. See Sheet 2 of 2 for Plan View Layout.



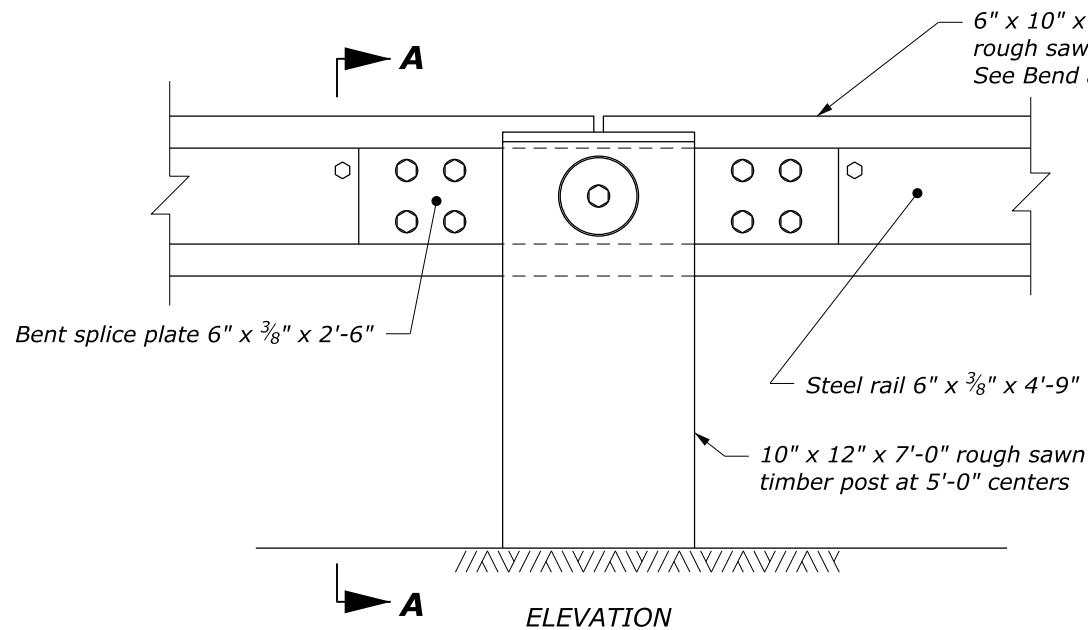
**PLAN**



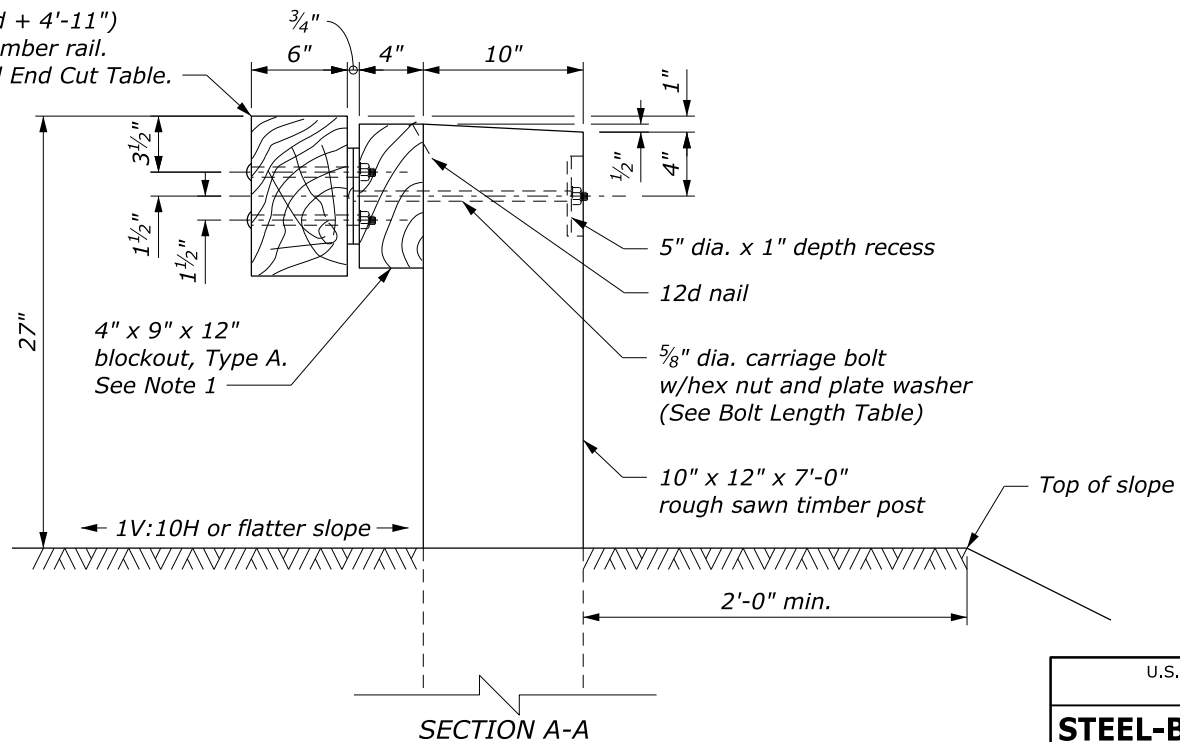
**BENT SPLICE PLATE**  
6" x 3/8" x 2'-6"

BEND AND END CUT TABLE		
Radius R feet	Δ/2 degrees	d inch
20	7.18	3/4
25	5.74	5/8
30	4.78	1/2
35	4.10	7/16
40	3.58	3/8
45	3.18	1/3
50	2.87	5/16
55	2.61	1/4
60	2.39	1/4
65	2.20	1/4
70	2.05	1/4
over 70	flat	0

BOLT LENGTH TABLE	
Type A (Blockout)	Type B (No Blockout)
15"	11"



**ELEVATION**



**SECTION A-A**

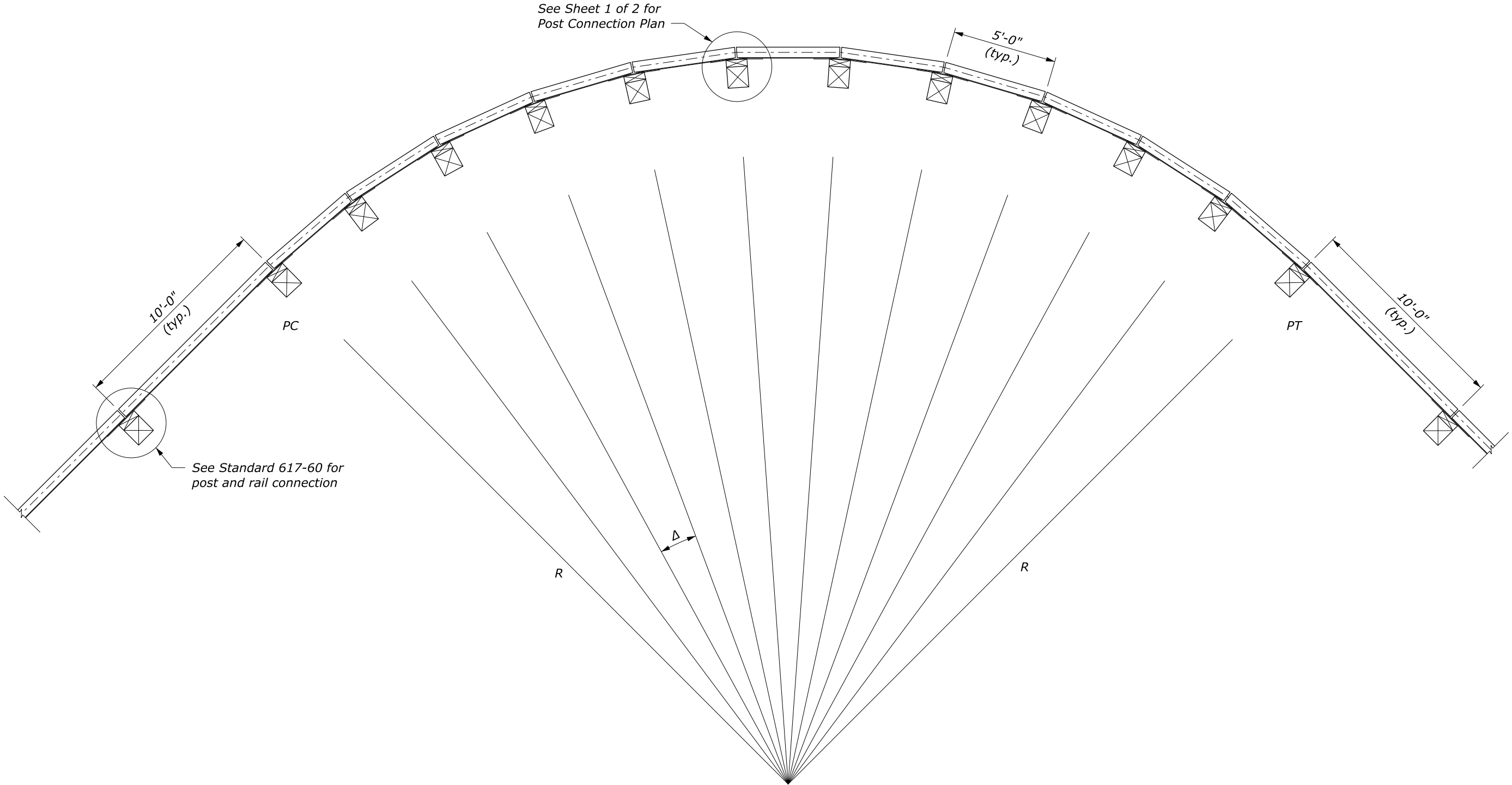
**POST CONNECTION**

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD 617-63
<b>STEEL-BACKED TIMBER GUARDRAIL AROUND CIRCULAR CURVES 70 FOOT RADIUS AND BELOW</b>	SPECIFICATION FP-24, FP-14
Sheet 1 of 2	APPROVED FOR USE 2/2024

NOTE:

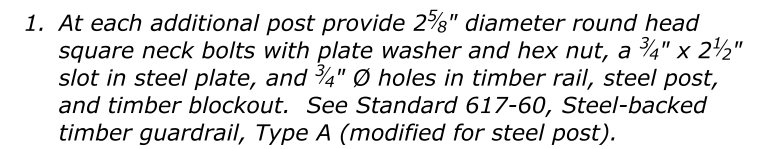
- 1.  $\Delta$  is the central angle which subtends a 5 foot chord.
- 2.  $R$  is measured from the center of the circle to the back surface of the rough sawn timber rail.



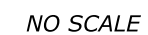
PLAN VIEW LAYOUT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD 617-63
<b>STEEL-BACKED TIMBER GUARDRAIL AROUND CIRCULAR CURVES 70 FOOT RADIUS AND BELOW</b>	SPECIFICATION FP-24, FP-14
Sheet 2 of 2	APPROVED FOR USE 2/2024

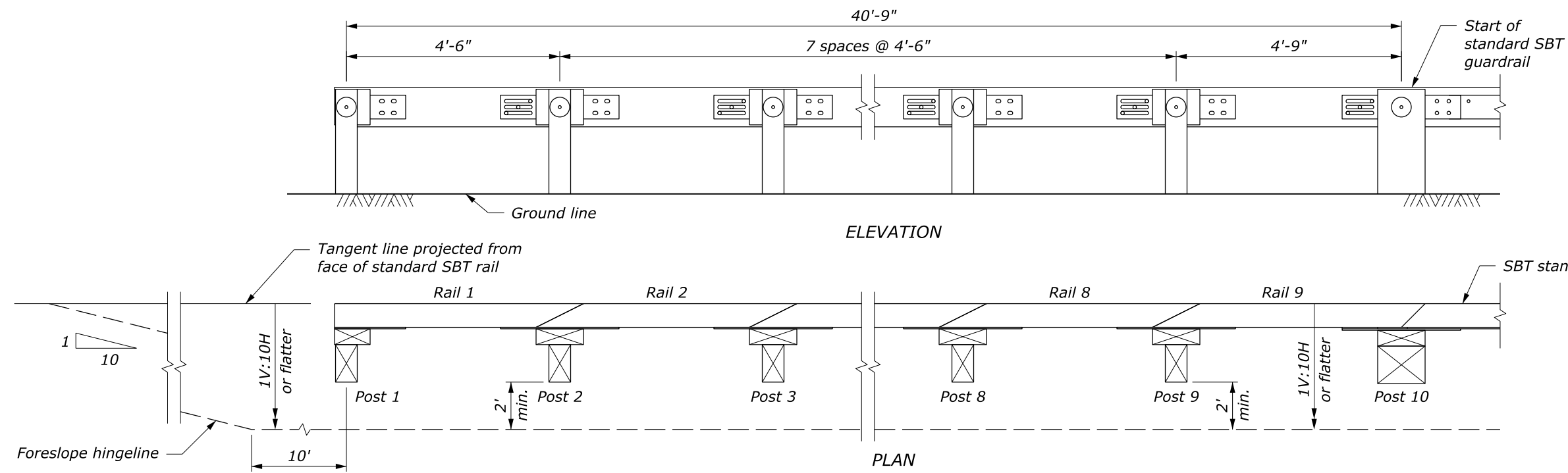


## RAIL TRANSITION ELEVATION



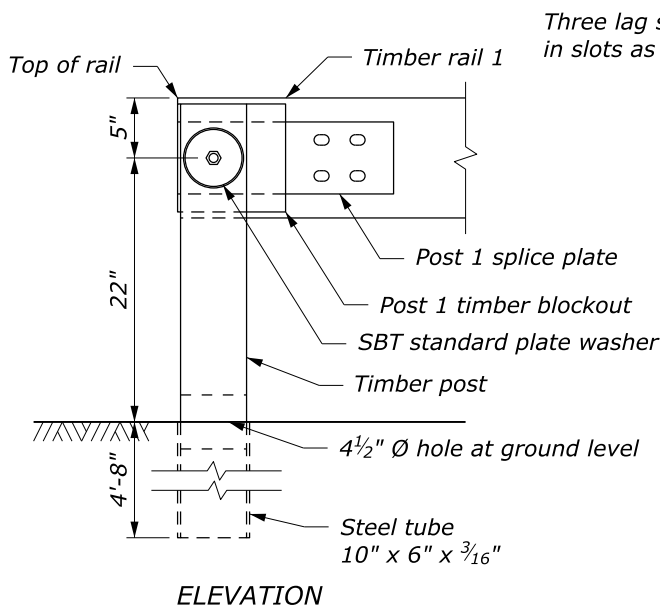
c:\pwwork\0419223\Std617-69.dgn [Std 617-69a] 21 June 2024 2:23 PM

PROJECT	SHEET NUMBER

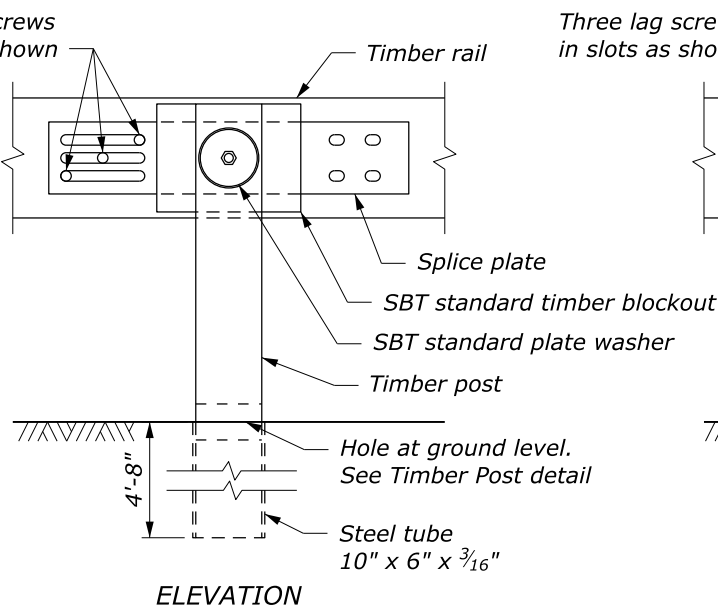


- NOTE:**
1. See Standard 617-60 for standard SBT guardrail details.
  2. Use weathering steel for all structural steel and fastener hardware.

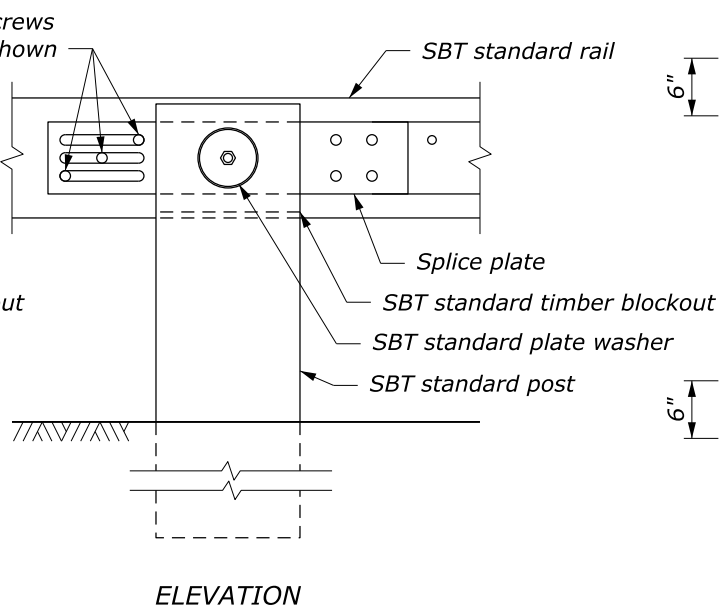
**TERMINAL LAYOUT**



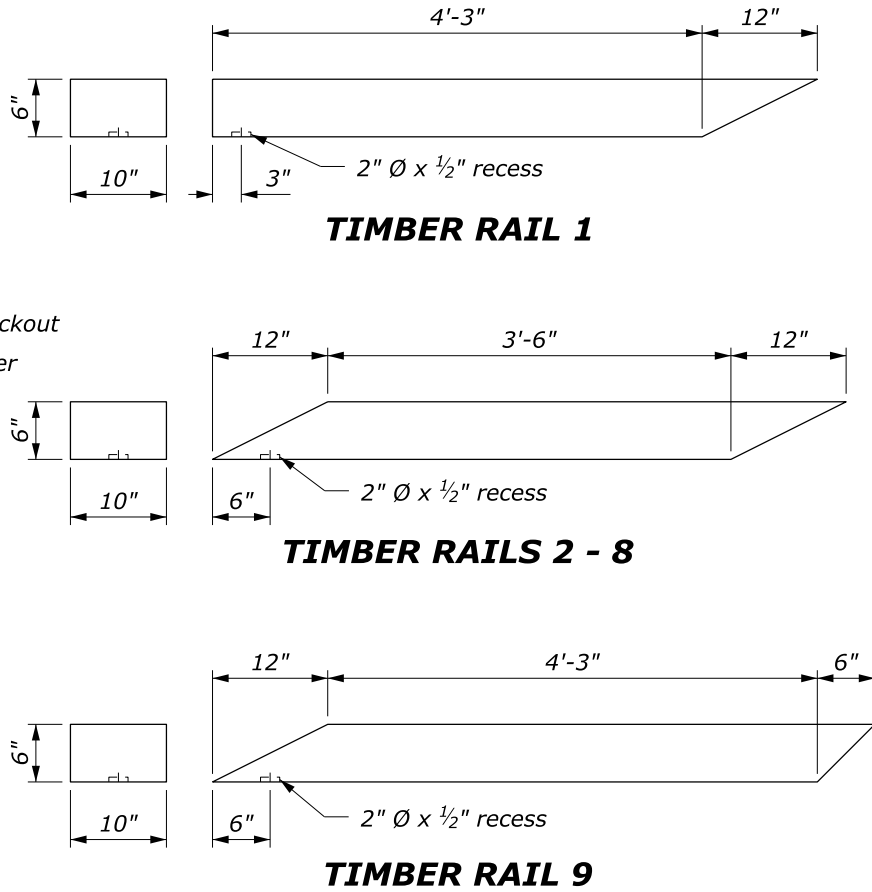
**POST 1/RAIL CONNECTION**



**POSTS 2-9/RAIL CONNECTION**



**POST 10/RAIL CONNECTION**

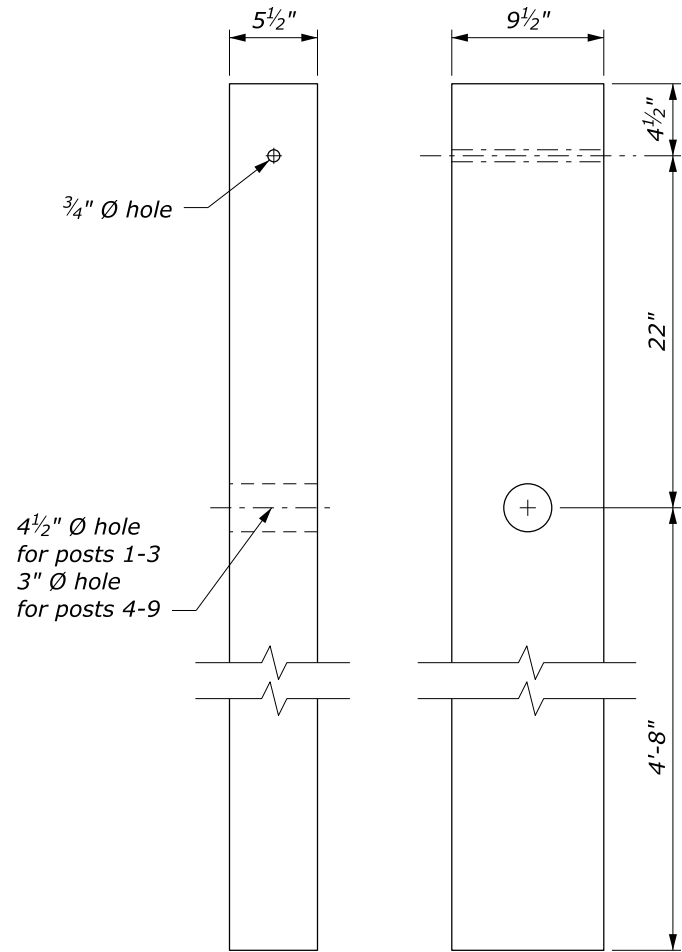


NO SCALE

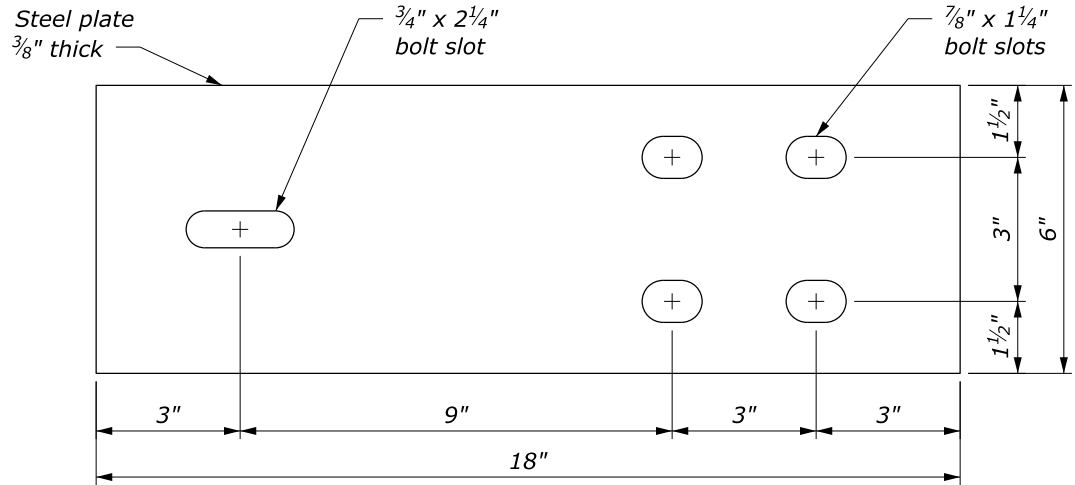
U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD 617-69
<b>STEEL-BACKED TIMBER GUARDRAIL TL-2 END TERMINAL</b>	SPECIFICATION FP-24, FP-14
Sheet 1 of 2	APPROVED FOR USE 2/2024

c:\pw-work\00419223\Std617-69.dgn (Std 617-69b) 21 June 2024 1:39 PM

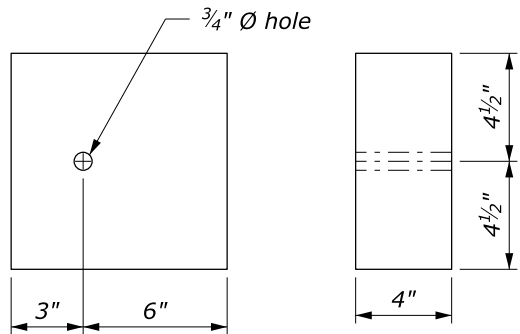
PROJECT	SHEET NUMBER



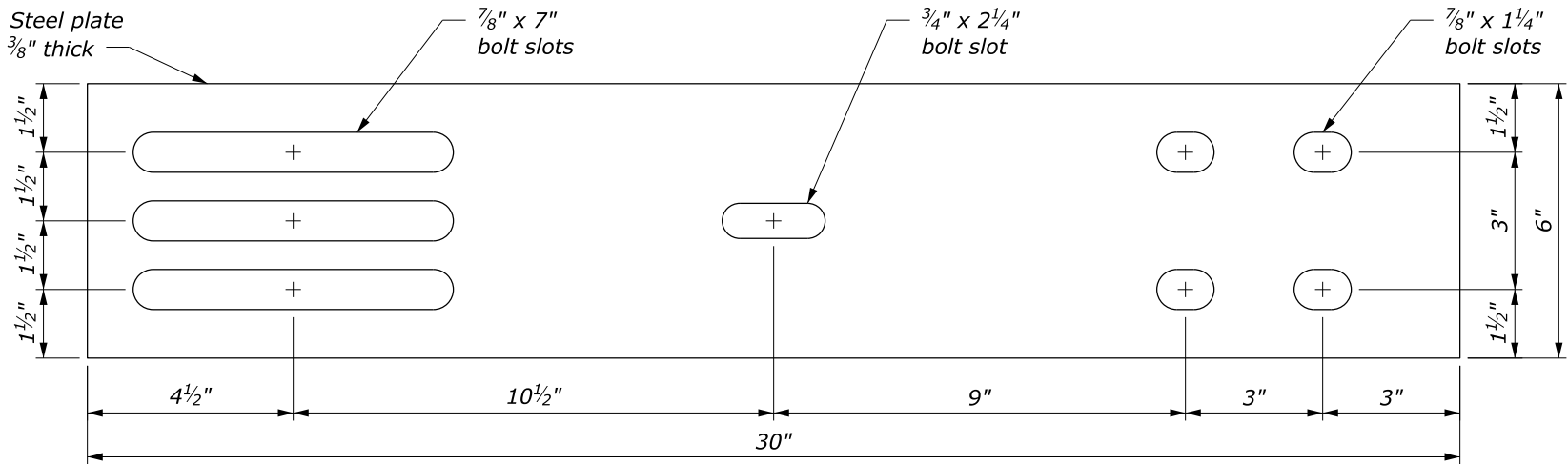
**TIMBER POSTS**  
Posts 1 to 9



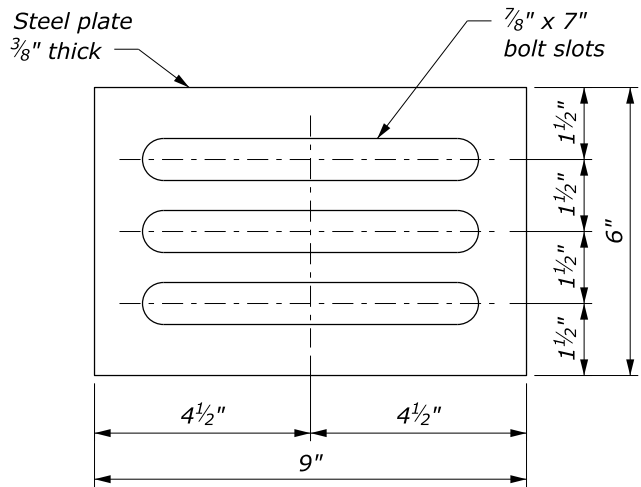
**POST 1 SPLICE PLATE**



**POST 1 TIMBER BLOCKOUT**



**SPLICE PLATE**  
Posts 2 to 10



**FILLER PLATE**  
Post 10

U.S. DEPARTMENT OF TRANSPORTATION, FHWA OFFICE OF FEDERAL LANDS HIGHWAY	FLH STANDARD 617-69
<b>STEEL-BACKED TIMBER GUARDRAIL TL-2 END TERMINAL</b>	SPECIFICATION FP-24, FP-14
Sheet 2 of 2	APPROVED FOR USE 2/2024

BORING / WELL 21-0553.GPJ SWICE TEMPLATE GDT 5/27/21

BORING LOG

CLIENT:	CMA Engineers
PROJECT:	Tidal Culvert Assessment Project
LOCATION:	, Stratham and Rye, NH

BORING NO.:	B-SQ1
SHEET:	1 of 1
PROJECT NO.	21-0553
DATE START:	5/12/2021
DATE FINISH:	5/12/2021

Drilling Information

LOCATION:	See Exploration Location Plan	ELEVATION (FT):	5.5' Estimated	TOTAL DEPTH (FT):	22.0	LOGGED BY:	Chad Michael
DRILLING CO.:	S. W. Cole Explorations, LLC	DRILLER:	Jeff Lee	DRILLING METHOD:	Hollow Stem Auger		
RIG TYPE:	Track Mounted CME 850	AUGER ID/OD:	N/A / N/A	SAMPLER:	Standard Split-Spoon		
HAMMER TYPE:	Automatic	HAMMER WEIGHT (lbs):	140	CASING ID/OD:	N/A/N/A	CORE BARREL:	
HAMMER EFFICIENCY FACTOR:		HAMMER DROP (inch):	.30				
WATER LEVEL DEPTHS (ft): _____							
GENERAL NOTES: _____							

KEY TO NOTES AND SYMBOLS:  

Water Level  
At time of Drilling  
At Completion of Drilling  
After Drilling

D = Split Spoon Sample  
U = Thin Walled Tube Sample  
R = Rock Core Sample  
V = Field Vane Shear

Pen. = Penetration Length  
Rec. = Recovery Length  
bpf = Blows per Foot  
mpf = Minute per Foot

WOR = Weight of Rods  
WOH = Weight of Hammer  
RQD = Rock Quality Designation  
PID = Photoionization Detector

S<sub>v</sub> = Field Vane Shear Strength, kips/sq.ft.  
q<sub>u</sub> = Unconfined Compressive Strength, kips/sq.ft.  
Ø = Friction Angle (Estimated)  
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (apf)	SAMPLE INFORMATION					Graphic Log	Sample Description & Classification	H <sub>2</sub> O Depth	Remarks
			Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD				
5			1D	X	0-2	24/3	1-1-1-1		organic topsoil		
			2D	X	2-4	24/16	2-1-1-WOH		2.0 loose/soft, organic silty CLAY		
				X					3.0 loose/soft, organic fibrous PEAT		
				X					4.0 soft, organic silty CLAY with intermixed peat		
0	5		3D	X	5-7	24/24	WOH-WOH-WOH-WOH	w=13.2 % O=127.5 %			
-5	10		4D	X	10-12	24/24	1-1-1-3	qp=1.5 ksf	11.0 stiff becoming medium with depth, gray fine sandy silty CLAY with silt/sand seams		
-10	15		5D	X	15-17	24/24	3-6-9-9	qp=4.0 ksf			
-15	20		6D	X	20-22	24/24	WOH-WOH-WOH-WOH	qp=0.5 ksf			
Bottom of Exploration at 22.0 feet											

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-SQ1

	BORING LOG				BORING NO.: B-SQ2	
					SHEET: 1 of 1	
	CLIENT: CMA Engineers				PROJECT NO. 21-0553	
	PROJECT: Tidal Culvert Assessment Project				DATE START: 5/12/2021	
LOCATION: Stratham and Rye, NH				DATE FINISH: 5/12/2021		

Drilling Information							
LOCATION: See Exploration Location Plan		ELEVATION (FT): 5.5' Estimated		TOTAL DEPTH (FT): 22.0	LOGGED BY: Chad Michaud		
DRILLING CO.: S. W. Cole Explorations, LLC		DRILLER: Jeff Lee		DRILLING METHOD: Hollow Stem Auger			
RIG TYPE: Track Mounted CME 850		AUGER ID/OD: N/A / N/A		SAMPLER: Standard Split-Spoon			
HAMMER TYPE: Automatic		HAMMER WEIGHT (lbs): 140		CASING ID/OD: N/A /N/A		CORE BARREL:	
HAMMER EFFICIENCY FACTOR:		HAMMER DROP (inch): 30					
WATER LEVEL DEPTHS (ft):							
GENERAL NOTES:							
<b>KEY TO NOTES AND SYMBOLS:</b> Water Level At time of Drilling At Completion of Drilling After Drilling		D = Split Spoon Sample U = Thin Walled Tube Sample R = Rock Core Sample V = Field Vane Shear		Pen. = Penetration Length Rec. = Recovery Length bpf = Blows per Foot mpf = Minute per Foot		WOR = Weight of Rods WOH = Weight of Hammer RQD = Rock Quality Designation PID = Photoionization Detector	
		$S_v$ = Field Vane Shear Strength, kips/sq.ft. $q_u$ = Unconfined Compressive Strength, kips/sq. $\phi$ = Friction Angle (Estimated) N/A = Not Applicable					

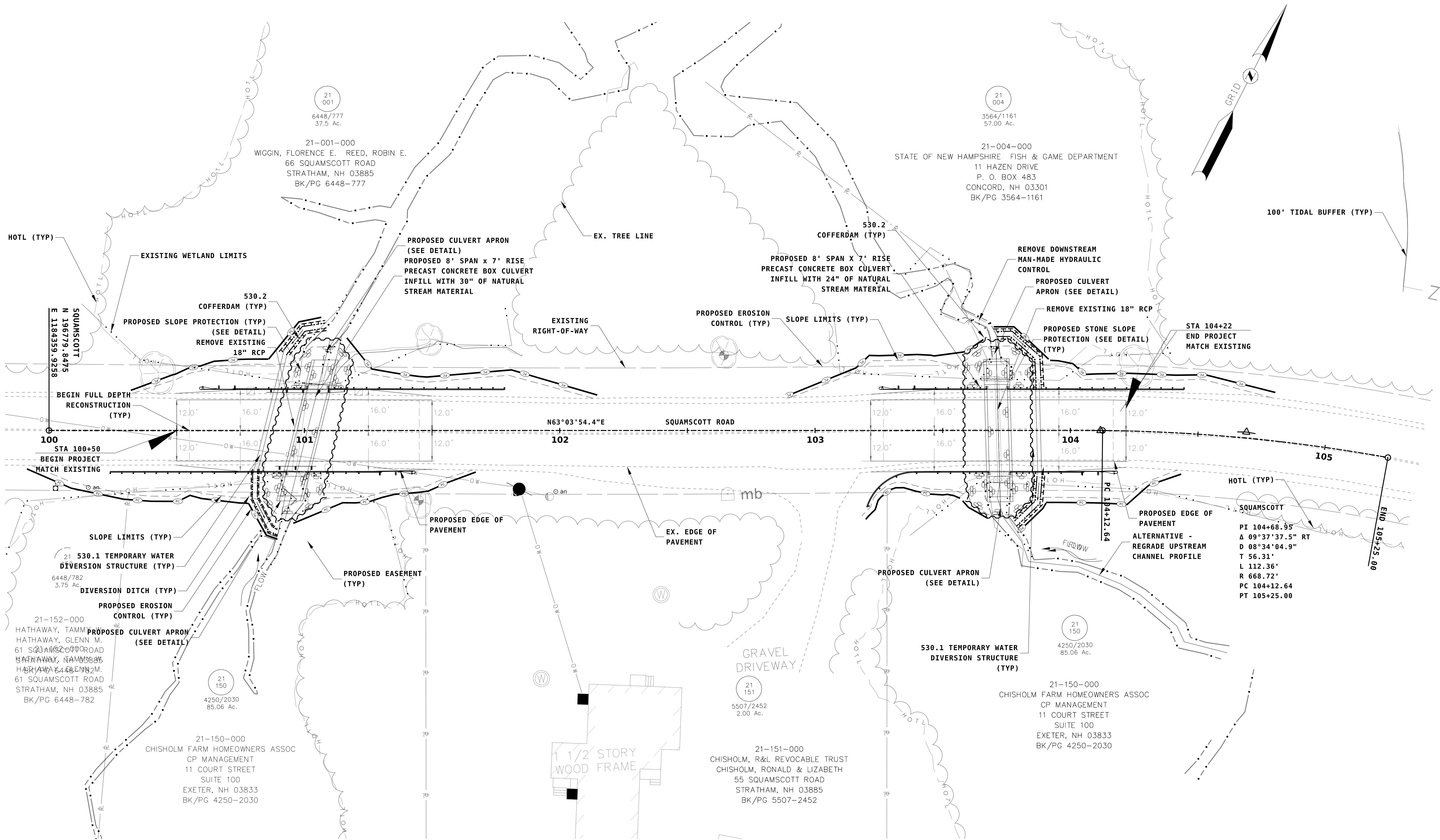
SAMPLE INFORMATION							Graphic Log		Sample Description & Classification	H <sub>2</sub> O Depth	Remarks	
Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)						Blow Count or RQD
5			1D		0-2	24/12	2-1-1-1			4.0	loose, brown gravelly silty sand with some organics (fill)	
			2D		2-4	24/15	3-2-5-7					
0	5		3D		5-7	24/24	WOH-WOH-WOH-WOH	w = 207.8 % O = 24 %		10.5	stiff becoming medium with depth, gray silty CLAY with silt/sand seams	
			4D		10-12	24/24	2-3-4-4					
-10	15		5D		15-17	24/24	3-4-5-5	qp=2.5 ksf				
			6D		20-22	24/24	WOH-WOH-WOH-WOH					
-15	20							qp=4.0 ksf				

Bottom of Exploration at 22.0 feet

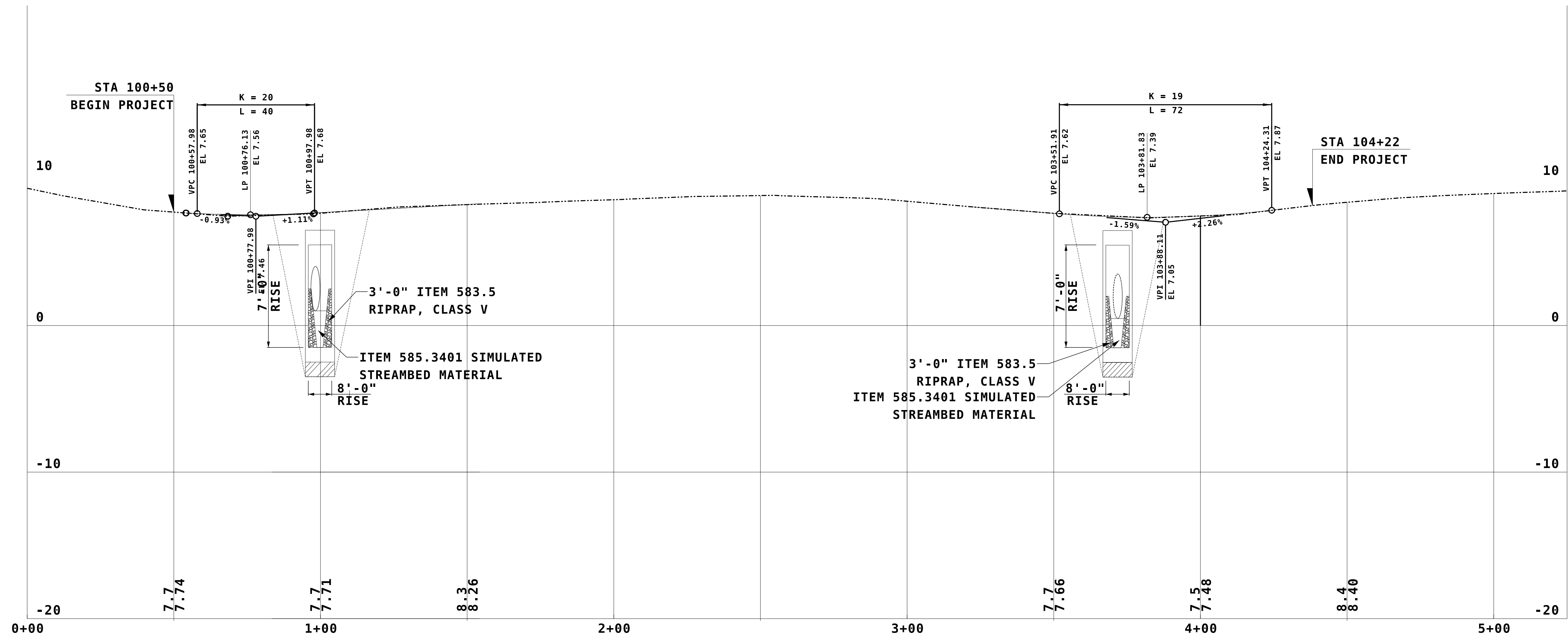
  

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.	BORING NO.: B-SQ2
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------

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



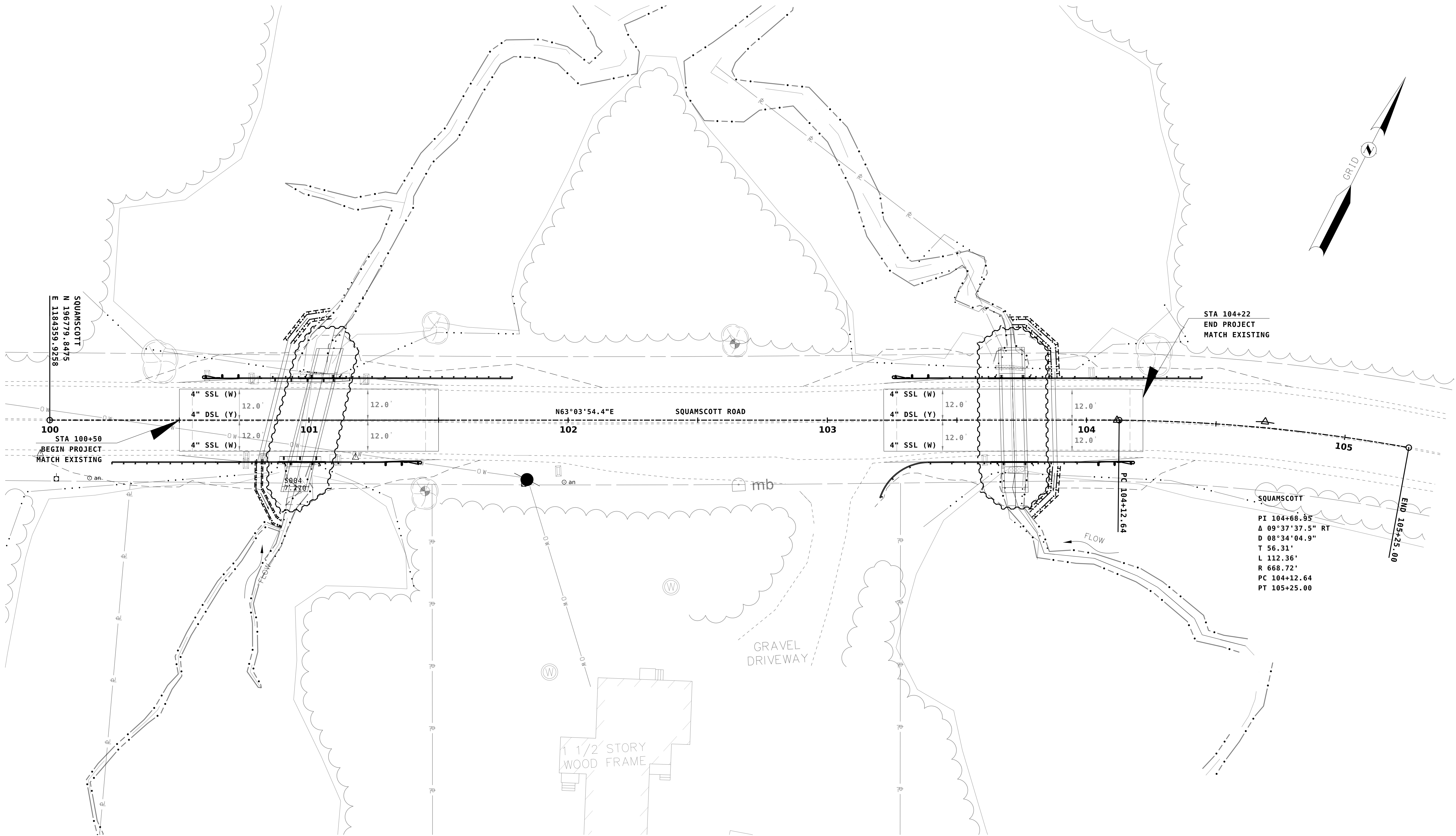
STATE OF NEW HAMPSHIRE Stratham			
DEPARTMENT OF TRANSPORTATION		o BUREAU OF HIGHWAY DESIGN	
<div>GENERAL PLANS</div>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
1309-GEN-PLANS	43001	20	26



SCALE:  
1"= 50' HORIZ.  
1"= 10' VERT.



STATE OF NEW HAMPSHIRE			
Stratham			
DEPARTMENT OF TRANSPORTATION		BUREAU OF HIGHWAY DESIGN	
SQUAMSCOTT ROAD PROFILE			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
1309-PROFILES	43001	21	26

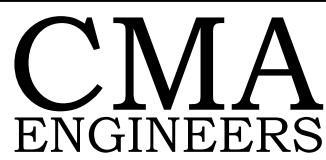


**PAVEMENT MARKING NOTES:**

PLACEMENT AND COLOR OF PAVEMENT MARKING LINES, SYMBOLS, AND WORDS SHALL CONFORM TO THE LATEST EDITION OF MUTCD, SECTION 632 OF NHDOT STANDARD SPECIFICATIONS CONTRACT SUPPLEMENTAL SPECIFICATIONS, NHDOT STANDARD PLANS FOR ROAD CONSTRUCTION (2010).

**RETROREFLECTIVE PAINT PAVEMENT MARKING KEY:**

{ }SSL()={SIZE IN INCHES} SINGLE SOLID LINE (COLOR)  
{ }DSL()={SIZE IN INCHES} DOUBLE SOLID LINE (COLOR)  
{ }SSBL()={SIZE IN INCHES} SINGLE SOLID W/BROKEN LINE (COLOR)  
{ }SBL()={SIZE IN INCHES} SINGLE BROKEN LINE (COLOR)  
{ }DBL()={SIZE IN INCHES} DOUBLE BROKEN LINE (COLOR)  
(W) = WHITE  
(Y) = YELLOW

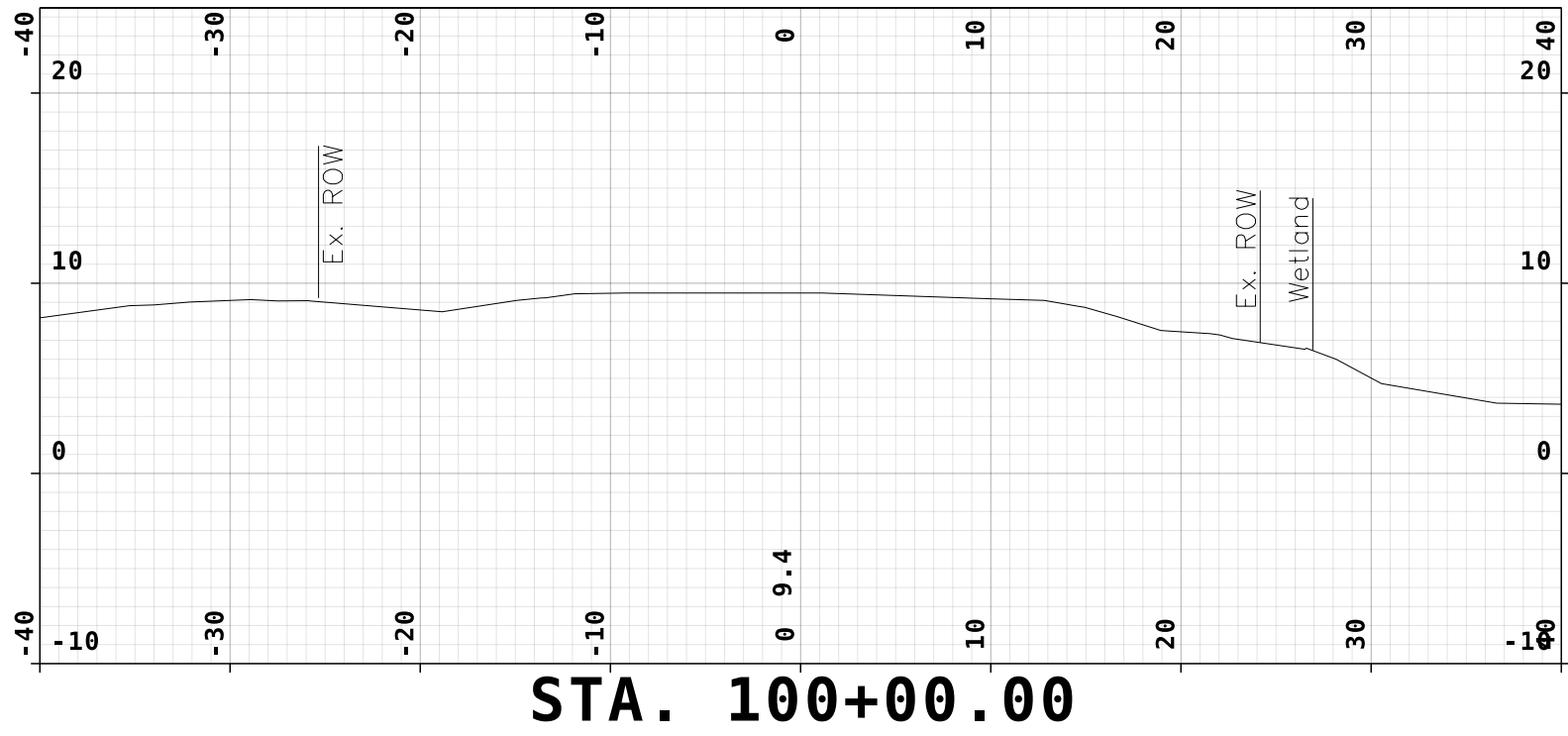


STATE OF NEW HAMPSHIRE Stratham			
DEPARTMENT OF TRANSPORTATION		o	BUREAU OF HIGHWAY DESIGN
<i><b>PAVEMENT MARKING PLANS</b></i>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
1309-PM-PLANS	43001	22	26

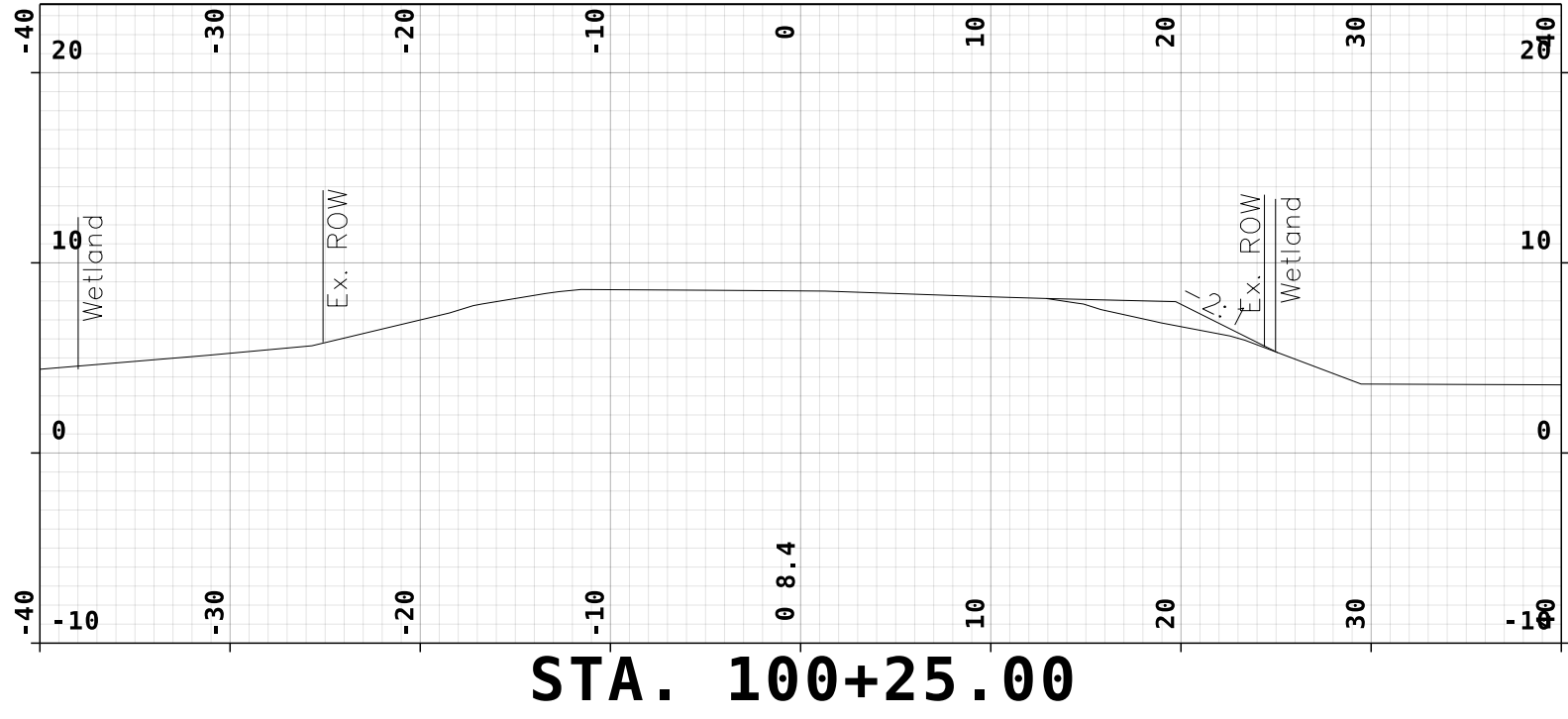
SDR PROCESSED				DATE		DATE1		DATE2		DATE3	
NEW DESIGN				DATE		DATE1		DATE2		DATE3	
SHEET CHECKED				DATE		DATE1		DATE2		DATE3	



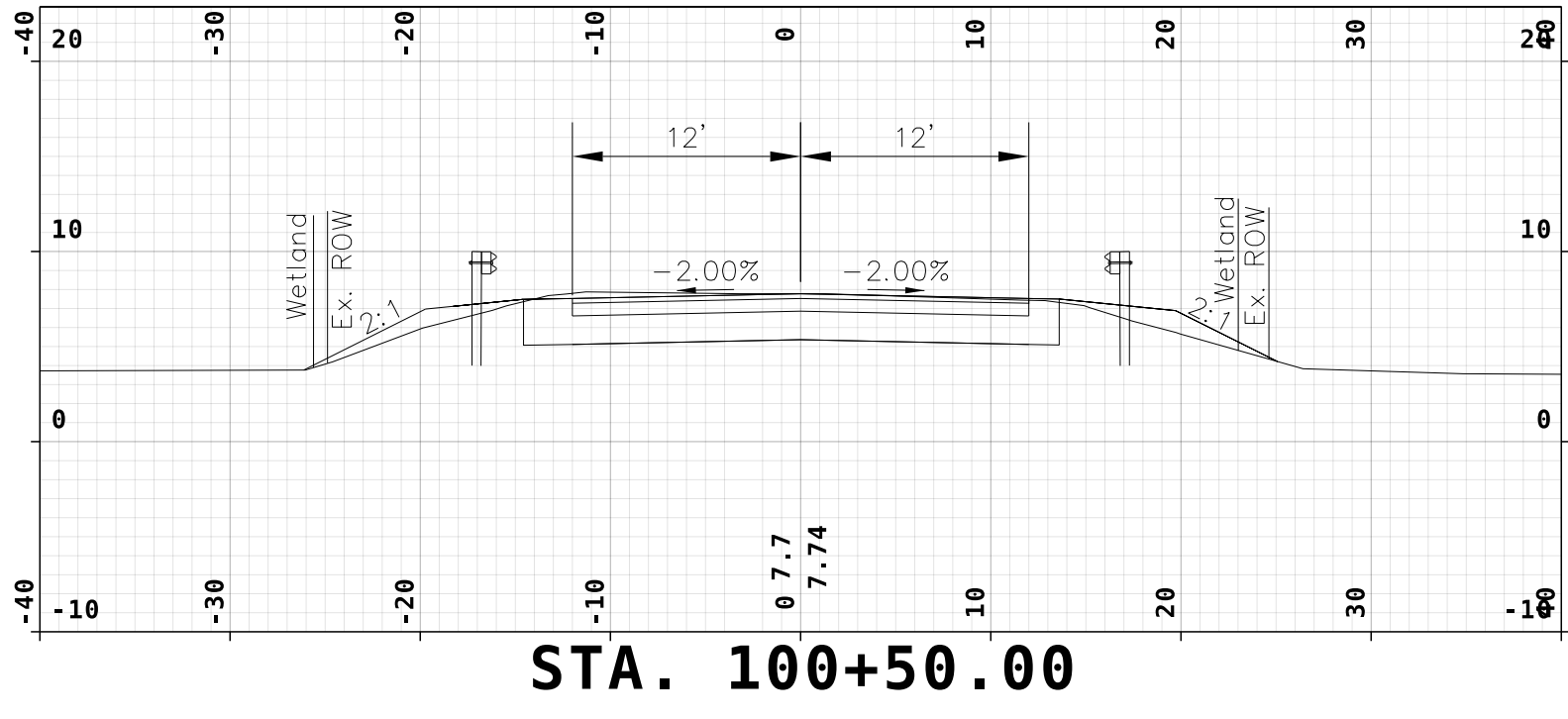
SDR PROCESSED		NAME1		DATE	DATE1	REVISIONS AFTER PROPOSAL	
NEW DESIGN		NAME2	NAME3	DATE	DATE2	STATION	DESCRIPTION
SHEET CHECKED				DATE	DATE3		
				DATE			



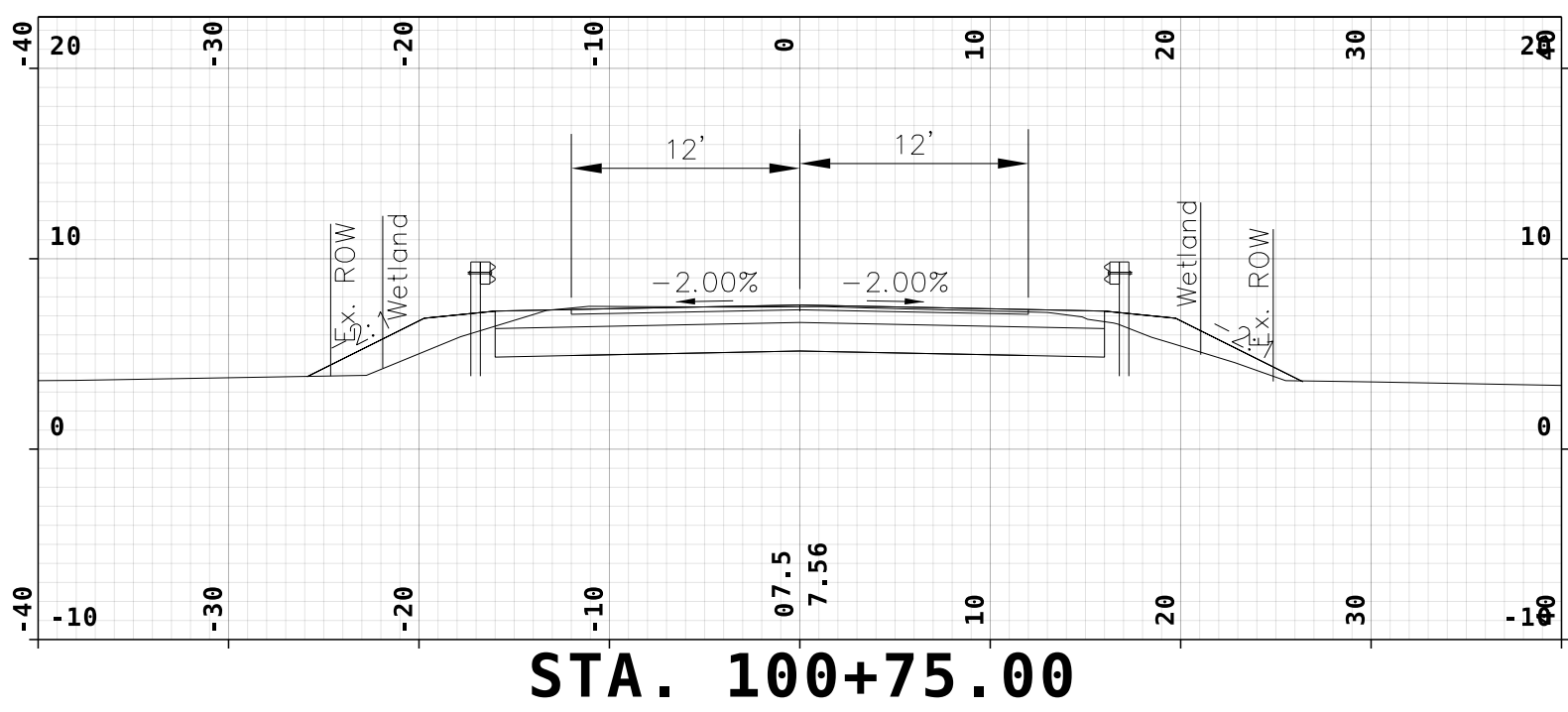
STA. 100+00.00



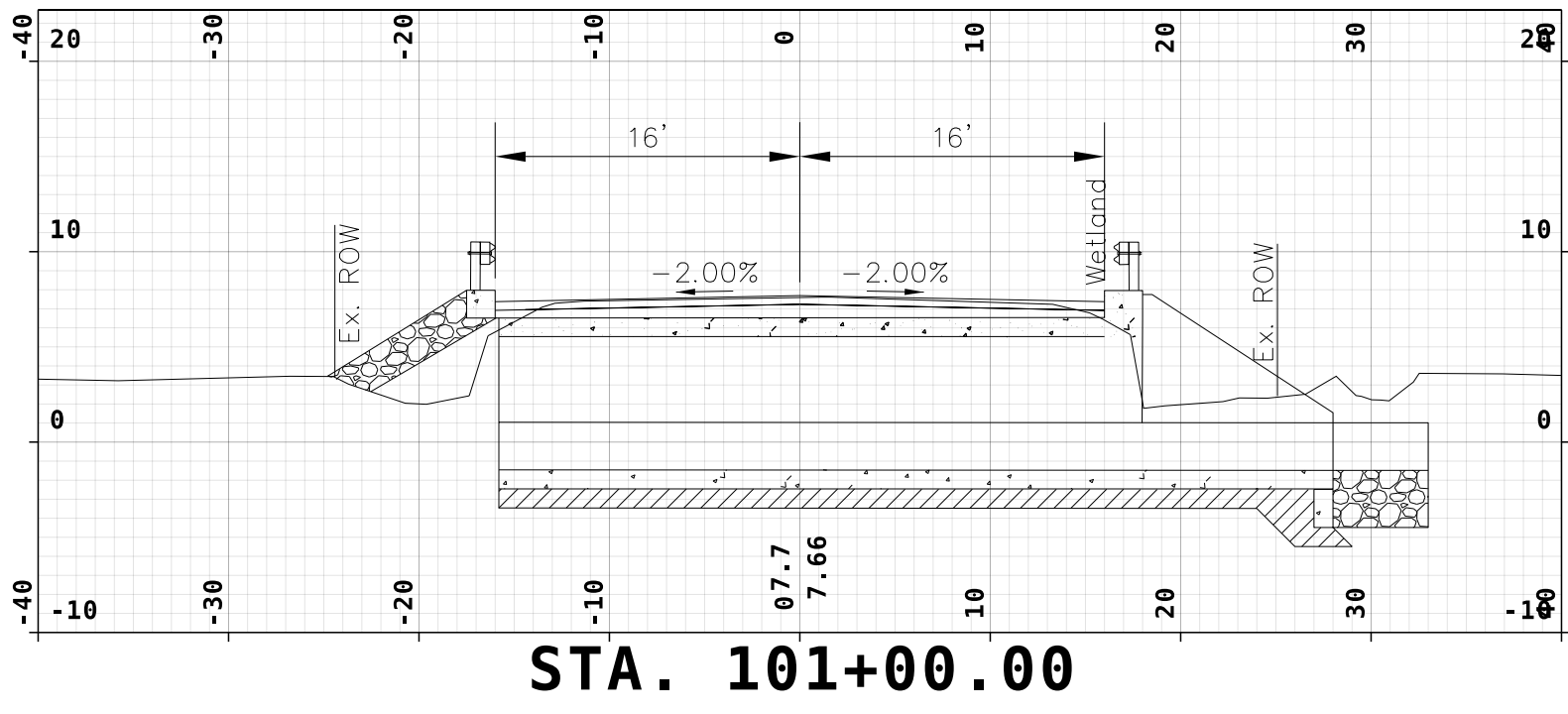
STA. 100+25.00



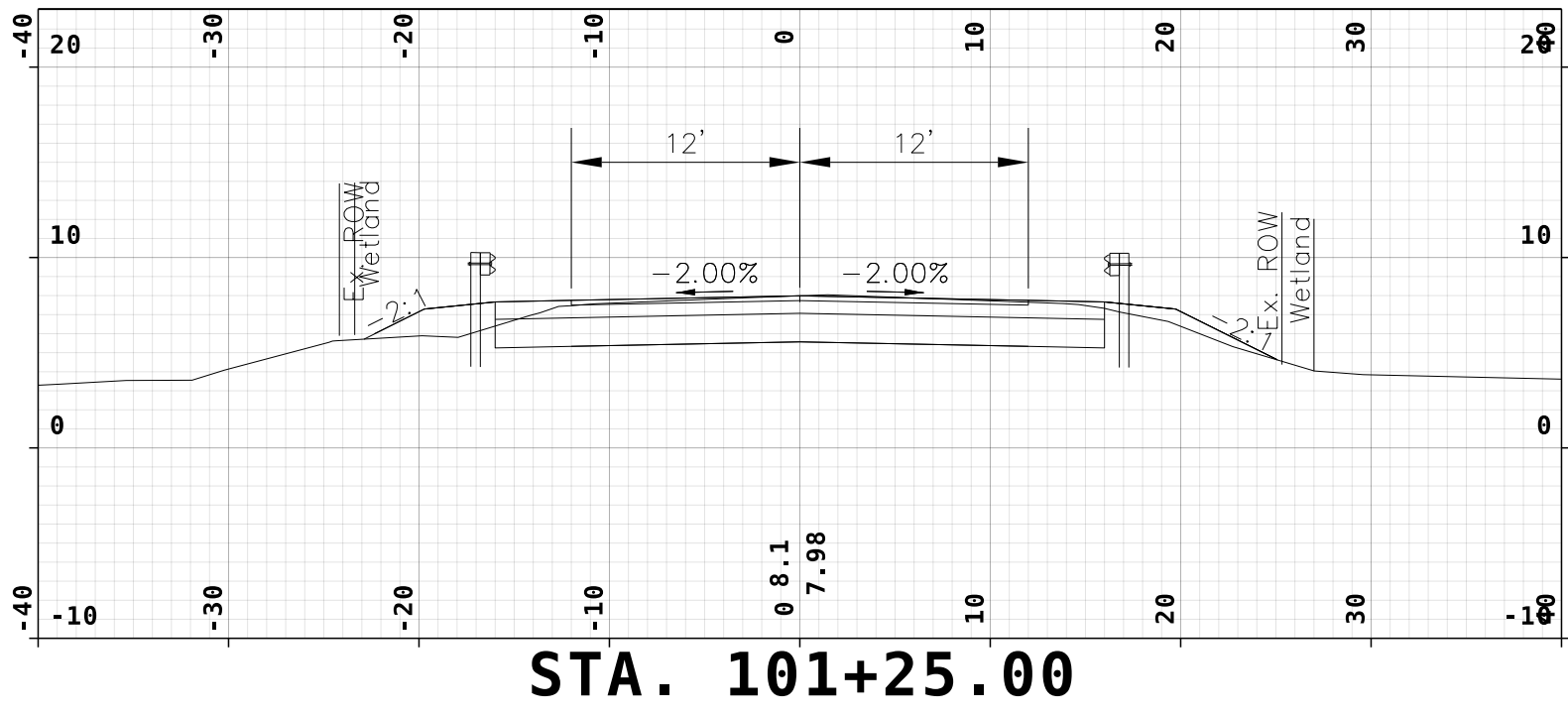
STA. 100+50.00



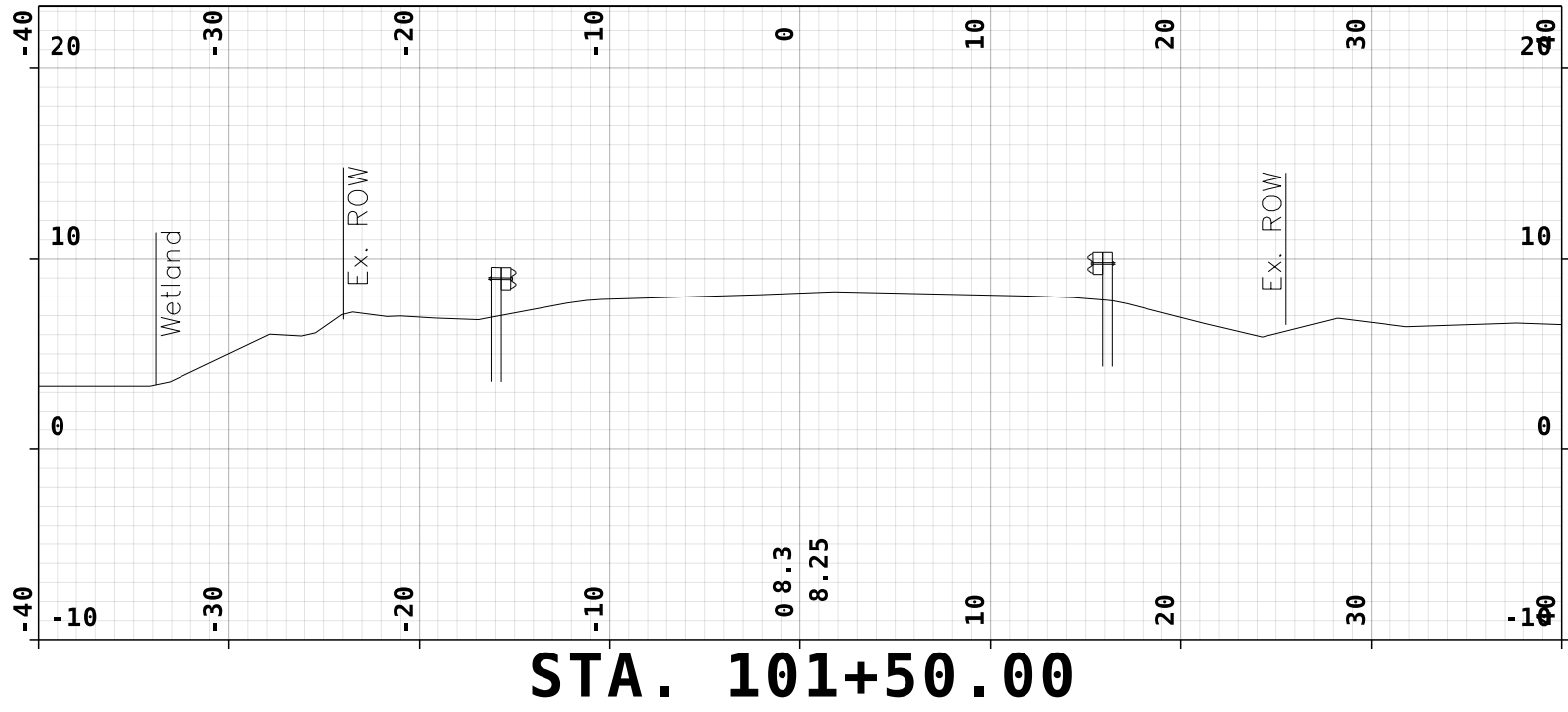
STA. 100+75.00



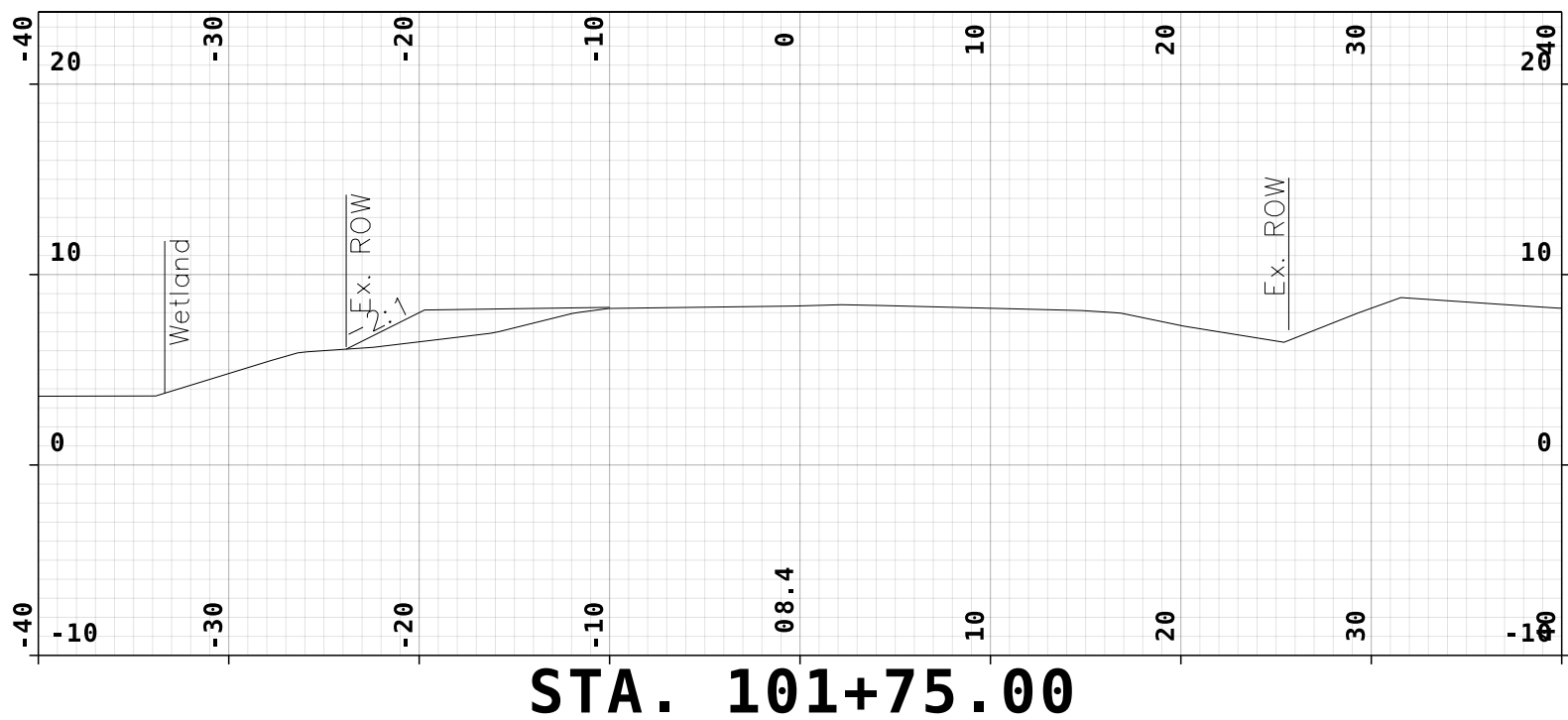
STA. 101+00.00



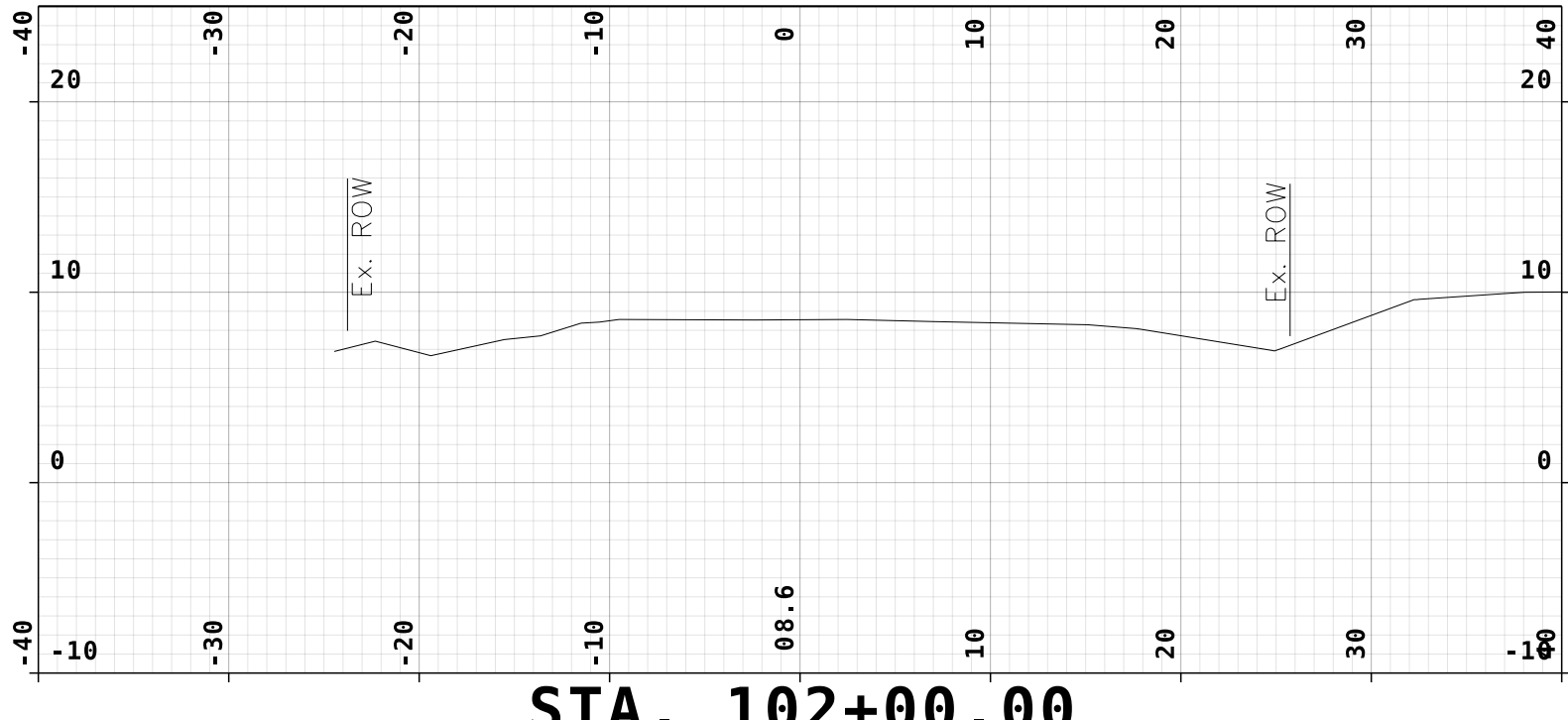
STA. 101+25.00



STA. 101+50.00

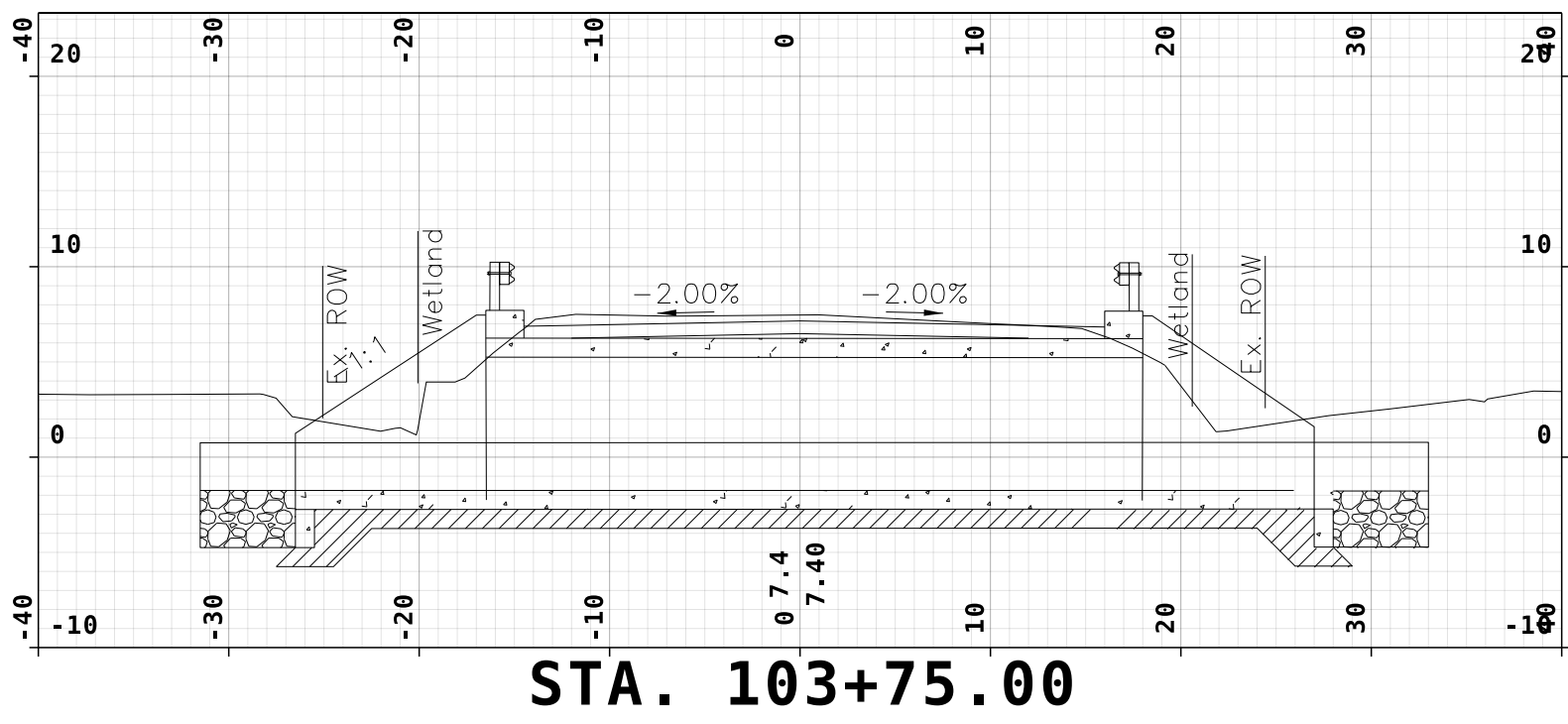
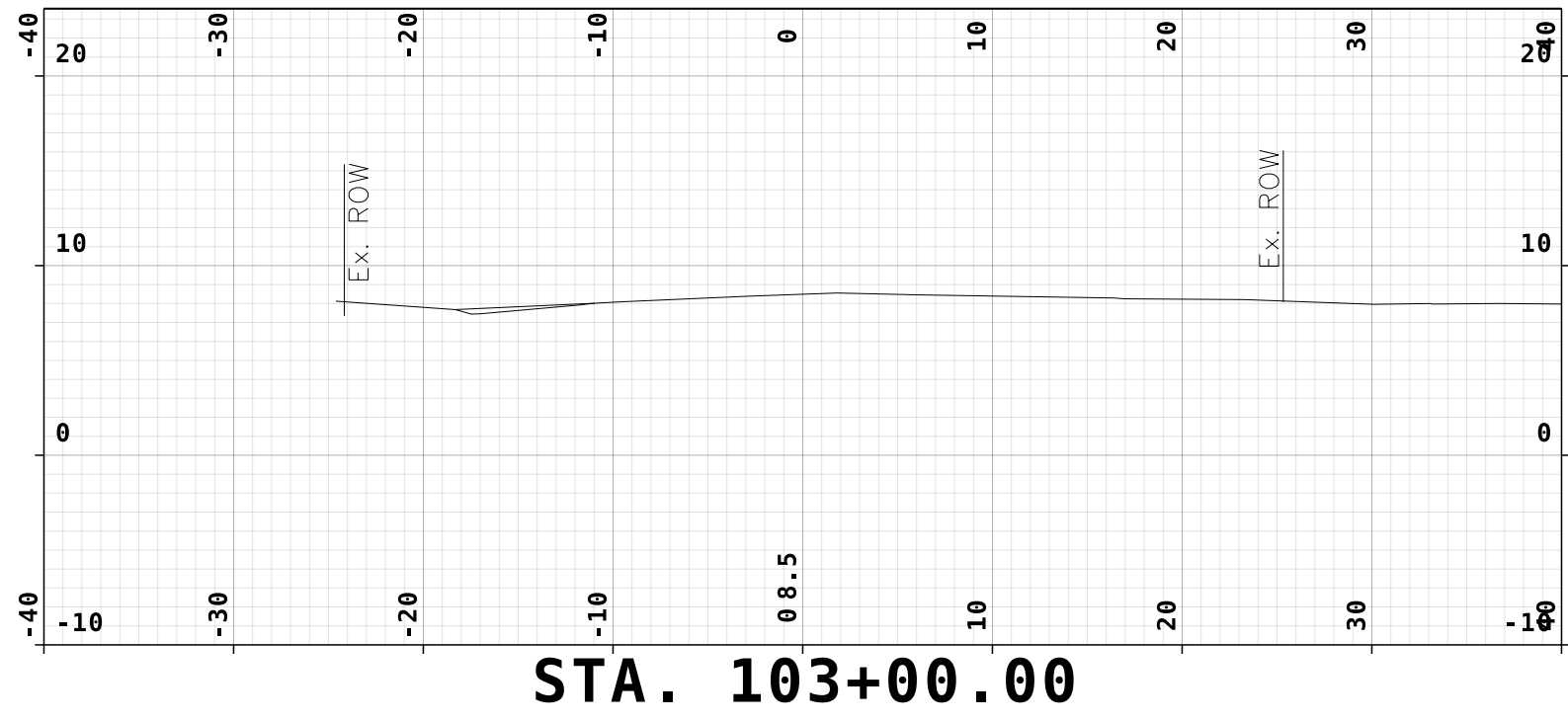
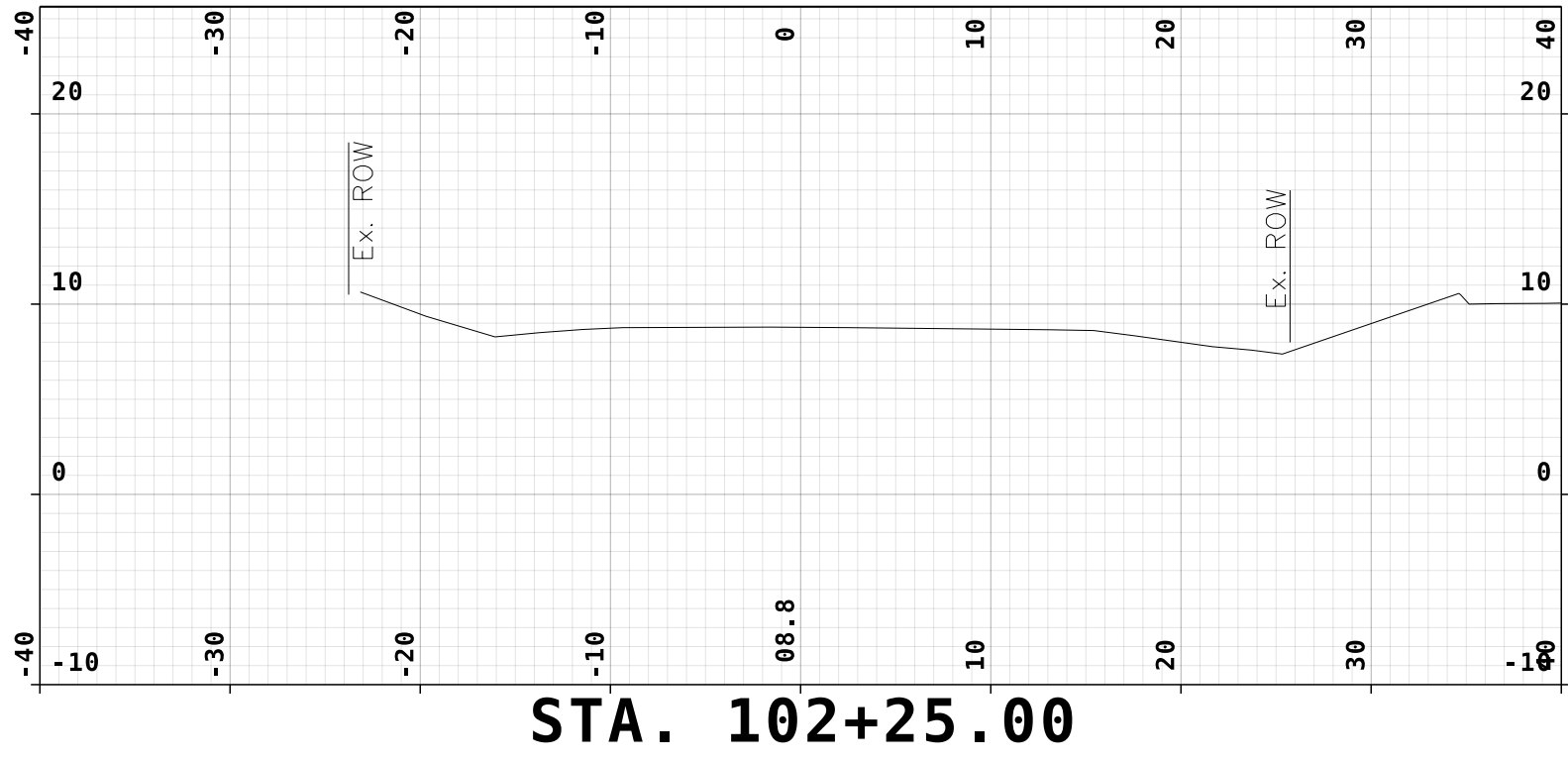
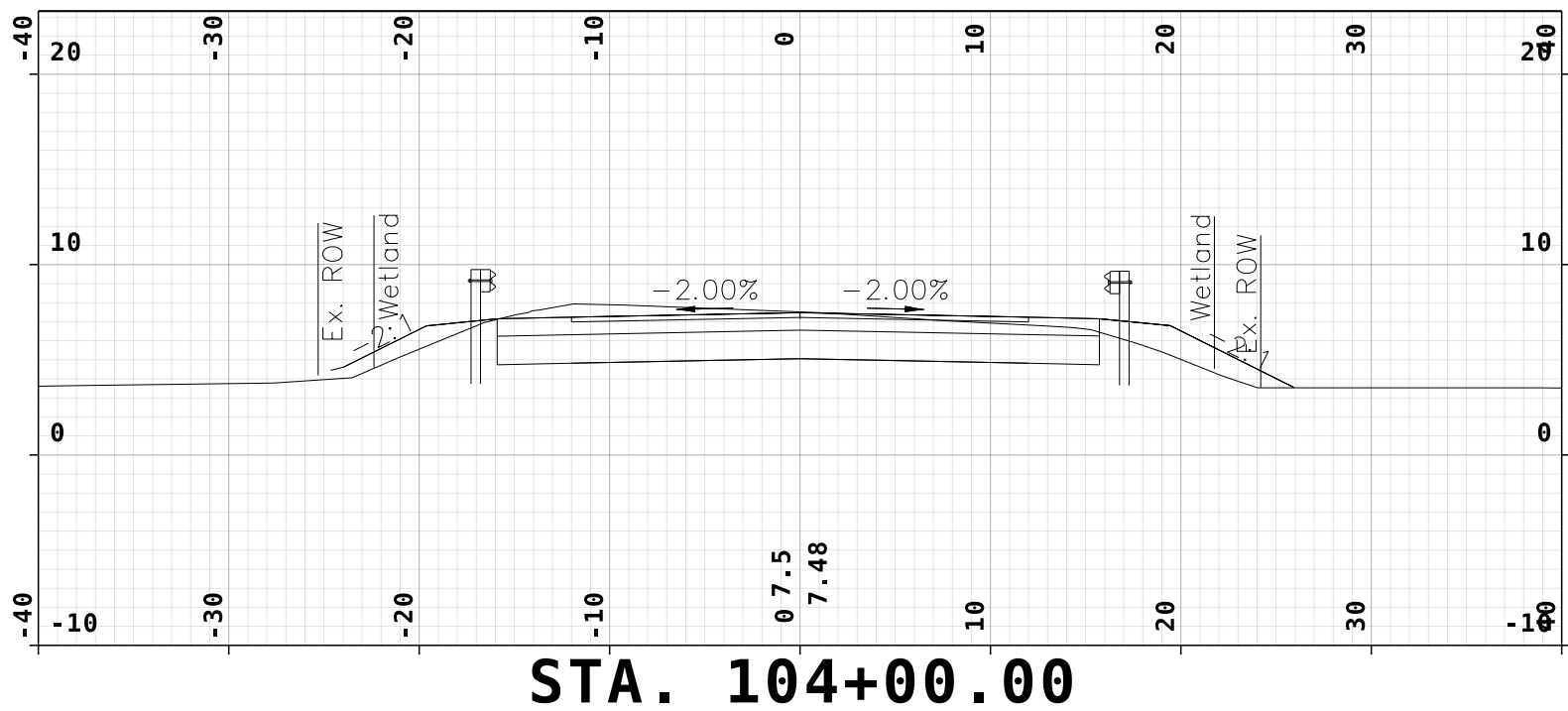
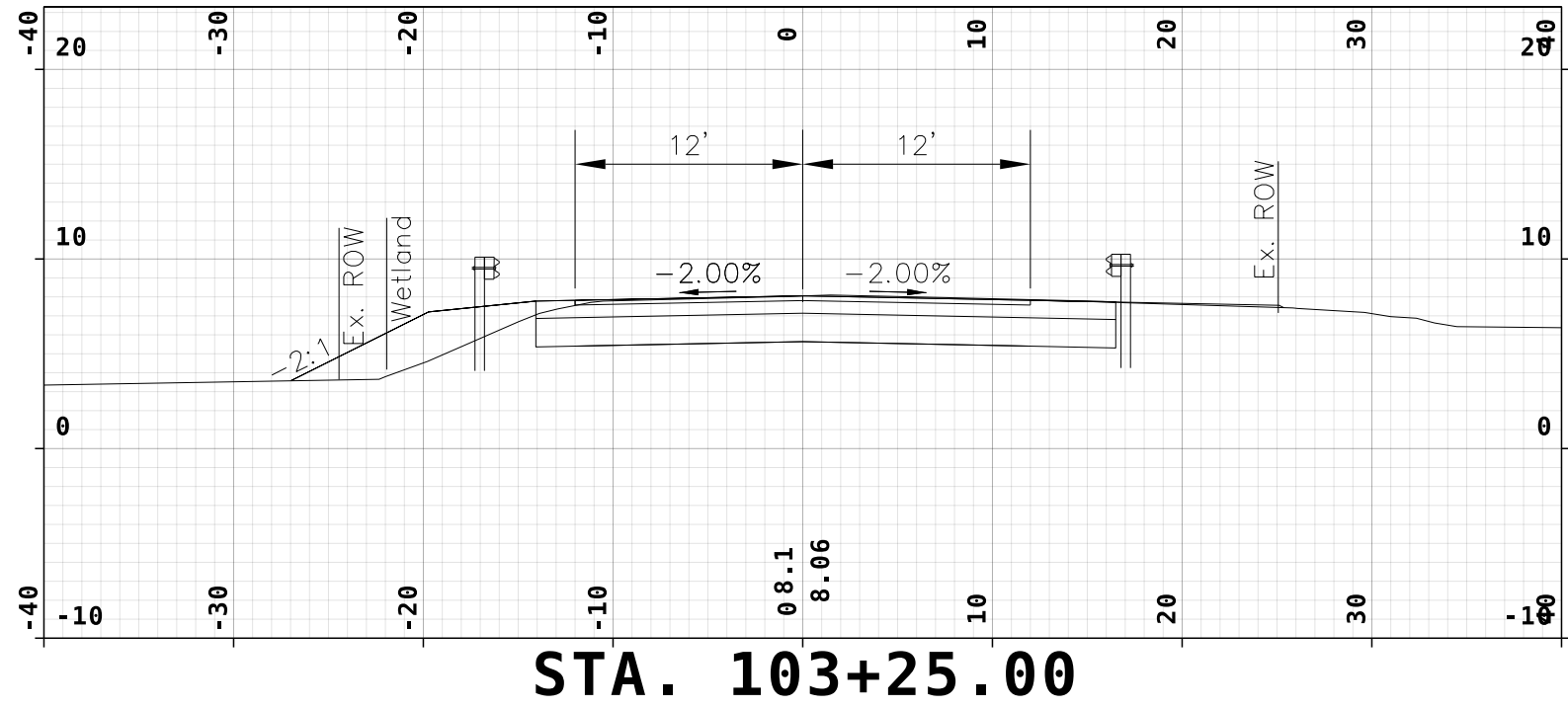
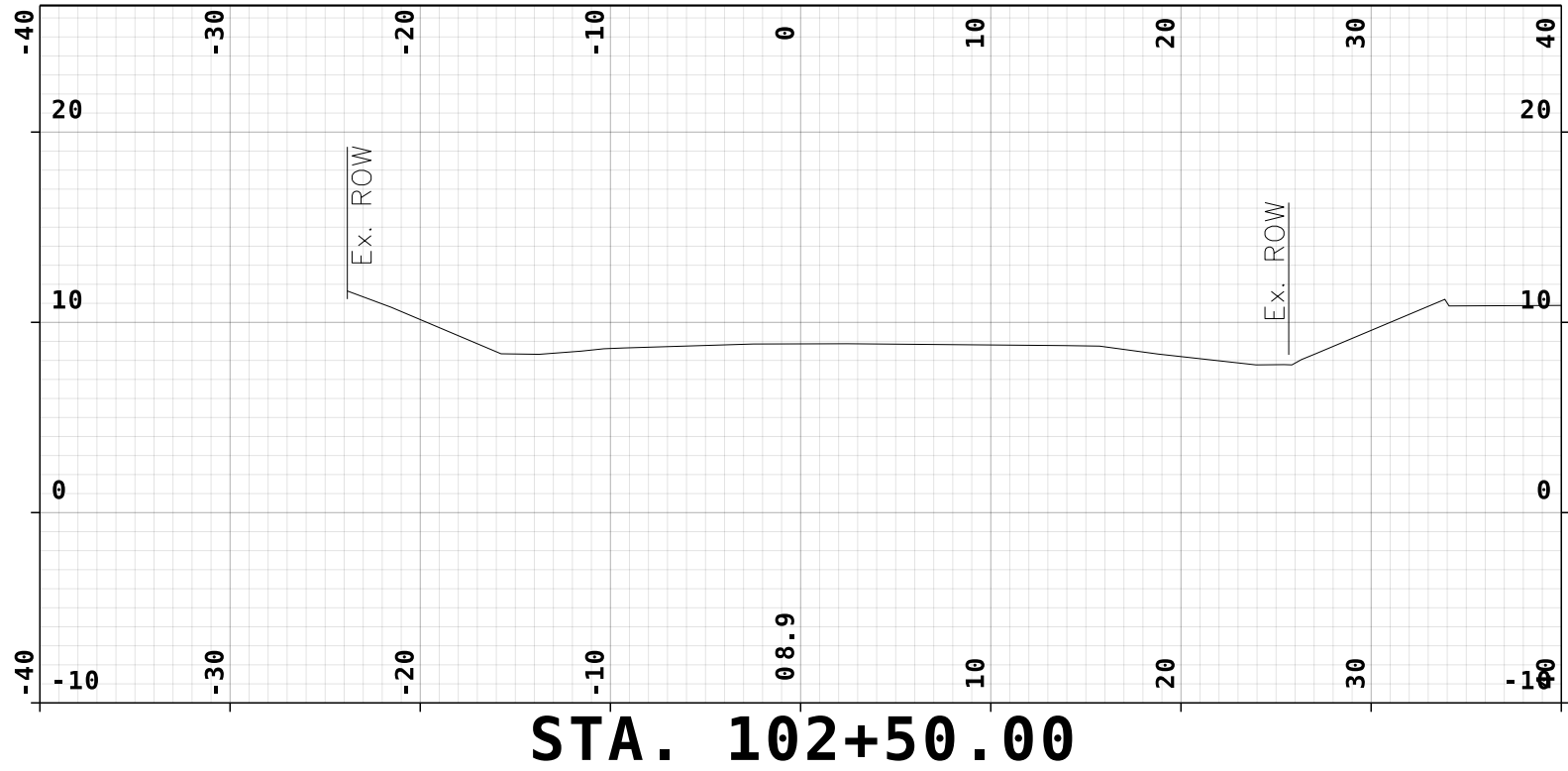
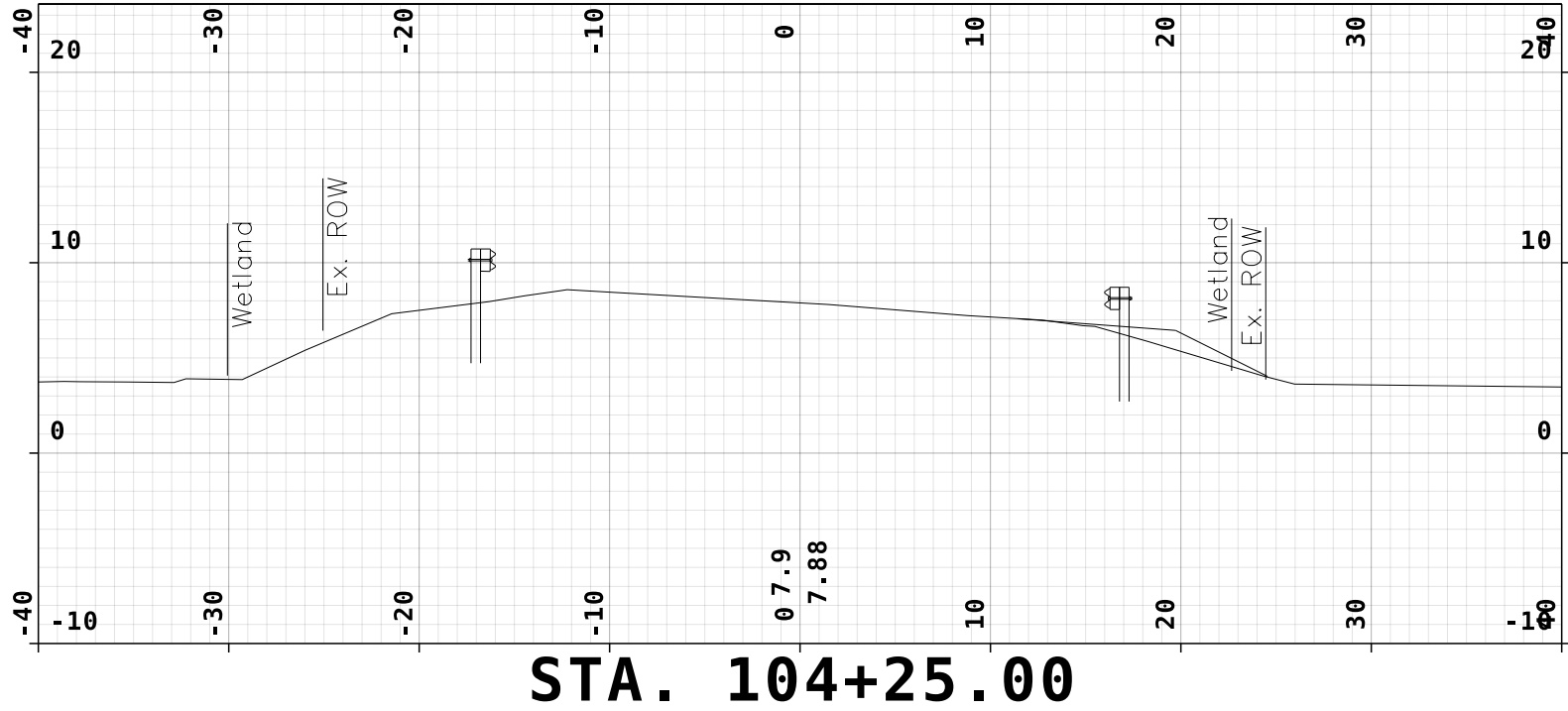
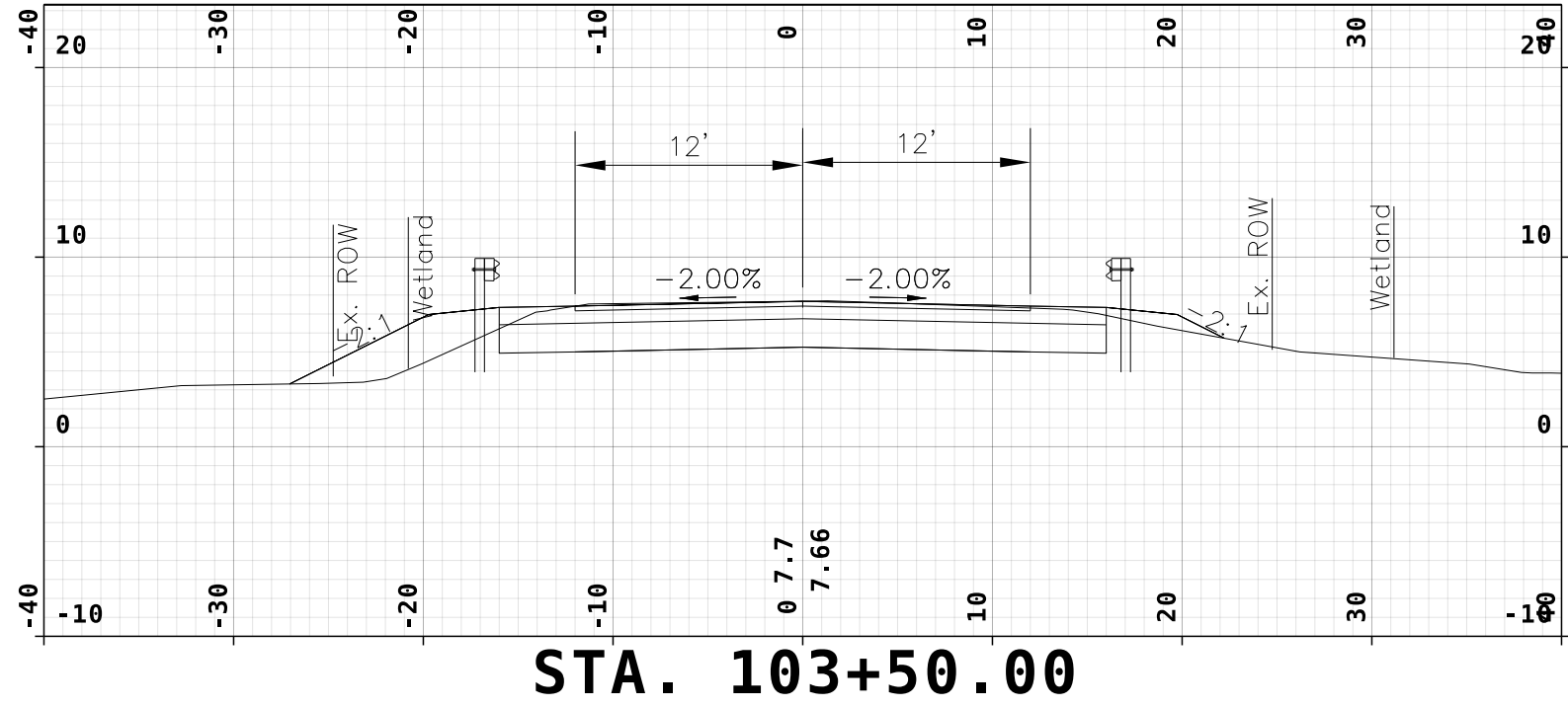
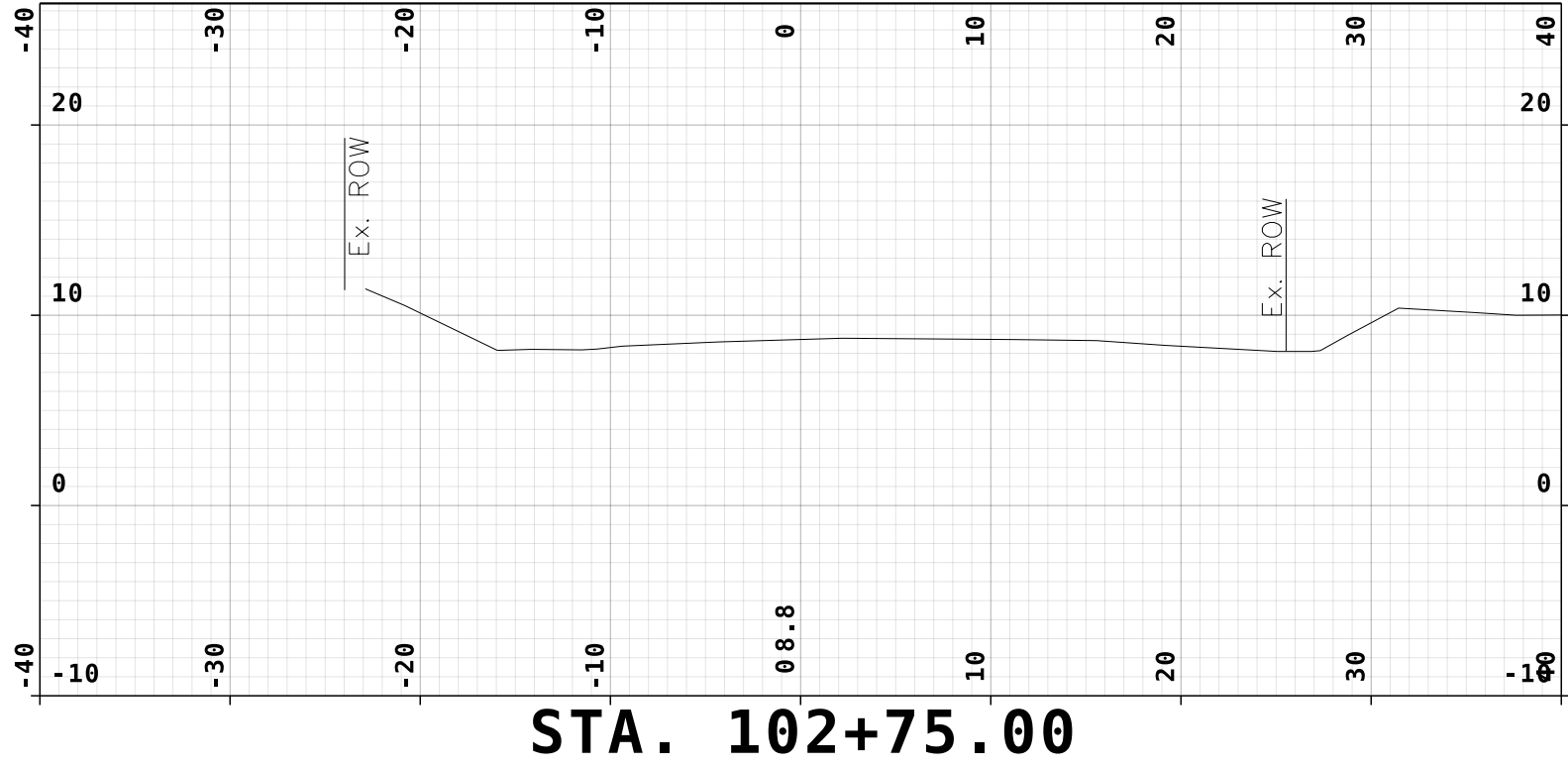


STA. 101+75.00



STA. 102+00.00

SDR PROCESSED				REVISIONS AFTER PROPOSAL			
NAME1	DATE	DATE	DATE	NUMBER	DATE	STATION	DESCRIPTION
NEW DESIGN	NAME2	DATE	DATE				
SHEET CHECKED	NAME3	DATE	DATE				
-							



BK2794 P0245

## CONSERVATION EASEMENT DEED

22 211  
MAY 26 11 34 AM '89

I, Florence Wiggin, single, of Squamscott Road, Town of Stratham, County of Rockingham, State of New Hampshire, (hereinafter sometimes referred to as the "Grantor" which word where the context requires includes the plural and shall, unless the context clearly indicates otherwise, include the Grantor's executors, administrators, legal representatives, devisees, heirs and/or assigns), for consideration paid, grant to the State of New Hampshire, acting through the Land Conservation Investment Program, 2 1/2 Beacon Street, Concord, New Hampshire (hereinafter sometimes referred to as the "Grantee" which word shall, unless the context clearly indicates otherwise, include the Grantee's successors and/or assigns), contributions to which are deductible for Federal income tax purposes pursuant to Section 501 (c) (3) of the United States Internal Revenue Code of 1954, as amended, with WARRANTY covenants, in perpetuity the following described Conservation Easement on land in Stratham, New Hampshire, pursuant to New Hampshire RSA 477:45-47 and RSA 221-A, exclusively for conservation purposes, namely:

1. To preserve the Great Bay Estuary to which the land subject to this Conservation Easement provides access;
2. To protect the natural habitat of waterfowl and aquatic life of the Great Bay Estuary;
3. To preserve open spaces in a rapidly developing area, particularly the outstanding forest land, shorelands and tidal marshes of which the land subject to this Conservation Easement consists, for the scenic enjoyment of the general public;
4. To conserve the land subject to this Conservation Easement consistent with the goals and policies of New Hampshire RSA Chapter 79-A which states: "It is hereby declared to be in the public interest to encourage the preservation of open space in the state by providing a healthful and attractive outdoor environment for work and recreation of the state's citizens, by maintaining the character of the state's landscape, and by conserving the land, water, forest, and wildlife resources", to yield a significant public benefit in connection therewith; and with NH RSA Chapter 221-A, which states: "The intent of the program is to preserve the natural beauty, landscape, rural character, natural resources, and high quality of life in New Hampshire by acquiring lands and interests in lands of statewide, regional, and local conservation and recreation importance."

ROCKINGHAM COUNTY  
REGISTRY OF DEEDS

The grant of this Conservation Easement is being made with the intention and understanding of both the Grantor and Grantee that the land subject to this Conservation Easement shall be included as part of the Squamscott River key land and water area of the Great Bay National Estuarine Research Reserve. This Conservation Easement is hereby granted with respect to that certain parcel of land (herein referred to

as the "Property") being unimproved land situated in the Town of Stratham, County of Rockingham, the State of New Hampshire, more particularly bounded and described as set forth in Appendix "A" attached hereto and made a part hereof.

The Conservation Easement hereby granted with respect to the Property is as follows:

1. USE LIMITATIONS/MANAGEMENT OBJECTIVES

- A. The Property shall be maintained in perpetuity as open space, wildlife habitat and passive recreation land, without there being conducted thereon any industrial or commercial activities, except that the Grantor may sell timber and other wood products derived from forest management activities conducted pursuant to the provisions of paragraph E below, and the Grantor may grow commercial agricultural crops in the manner and in the fields existing on the date of execution of this Conservation Easement Deed.
- B. Wildlife management activities on the Property shall be limited to management of the existing habitat and minor improvements (such as tree thinning to improve understory vegetation, or opening of small areas to provide a greater diversity of habitats). Any wildlife management activities shall be carried out under the guidance of the Wildlife Biologist for the US Soil Conservation Service and the District Conservationist for the County.
- C. Mowing of hay in fields existing on the date of execution of this Conservation Easement Deed, clearing of brush, and noncommercial gardening shall be allowed.
- D. There shall be no hunting on the property.
- E. Forest management activities on the Property shall be limited to selective cutting of trees to improve the overall health of the stand and thinning for wildlife. In addition, forest management activities shall be in accordance with currently acceptable practices, as promulgated by the US Forest Service and as further defined by the Cooperative Extension Service and/or the County Forester. Management activities shall not materially impair the scenic quality of the property as viewed from public waterways, great ponds, public roads, or public trails.
- F. The Grantor may cut fuel wood for the Grantor's personal use. Such activity shall be conducted in accordance with currently acceptable practices, as promulgated by the US Forest Service and as further defined by the Cooperative Extension Service and/or the County Forester.

- G. Research and education activities associated with the Great Bay National Estuarine Research Reserve (GBNERR) shall be allowed on the Property. Other research and education activities shall be allowed if the prior approval of both the Grantor and Grantee is obtained. Such prior approval shall not be unreasonably withheld. Other research or education organizations shall coordinate their activities with GBNERR staff prior to any use of the Property.
- H. The Property shall not be subdivided.
- I. No structure or improvement such as, but not limited to, a dwelling, tennis court, swimming pool, road, dam, fence, bridge, aircraft landing strip, asphalt, culvert, tower, mobile home, or shed shall be constructed, placed or introduced onto the Property except as necessary and desirable in the conduct of any activity pursuant to the provisions of paragraph A,B,C,E,F, or G above. Any such structure or improvement must receive prior approval of the Grantor and Grantee.
- J. No changes in topography, surface or subsurface water systems, wetlands, wildlife habitat, or other such characteristics shall be allowed that would harm State or Federally recognized rare or endangered species. In addition, none of the aforementioned shall be allowed except as necessary and desirable in the conduct of any activity pursuant to the provisions of paragraph A,B,C,E,F, or G above. Any such change must receive prior approval of the Grantor and Grantee.
- K. No outdoor advertising structures such as signs and billboards shall be displayed on the Property except as necessary and desirable in the conduct of any activity pursuant to the provisions of paragraphs A,B,C,E,F, or G above. Any such structure must receive prior approval of the Grantor and Grantee.
- L. There shall be no mining, quarrying, excavation or removal of rocks, minerals, gravel, sand, top soil or other similar materials on the Property, except in connection with any activity conducted pursuant to the provisions of paragraphs A,B,C,E,F,G,I, or J above.
- No such rocks, minerals, gravel, sand, topsoil, or other similar materials shall be removed from the Property.
- M. There shall be no dumping, injection, or burial of materials then known to be environmentally hazardous, including vehicle bodies or parts.

2. RESERVED RIGHTS

- A. Grantor reserves the right to maintain, repair or replace utilities on the Property that serve the Property or unrestricted land of the Grantor.
- B. Grantor reserves the right to post against vehicles, motorized or otherwise.
- C. Grantor reserves the right to grow commercial agricultural crops in the manner and in the fields existing on the date of execution of this Conservation Easement Deed.
- D. Grantor reserves the right to construct, maintain, and use a boathouse. The use, size and location of the boathouse must receive prior approval of the Grantee, which approval shall not be unreasonably delayed or withheld.
- E. The Grantor must notify the Grantee in writing before exercising the aforesaid reserved rights provided for in this Easement.

3. AFFIRMATIVE RIGHTS OF GRANTEE

- A. With reasonable notice to the Grantor, the Grantee shall have reasonable access to the Property and all of its parts for such inspection as is necessary to maintain boundaries, to determine compliance and to enforce the terms of this Conservation Easement Deed and exercise the rights conveyed hereby and fulfill the responsibilities and carry out the duties assumed by the acceptance of this Conservation Easement Deed.
- B. There is hereby conveyed pedestrian access to, on and across the Property for fishing and transitory passive recreational purposes, but not camping, by members of the public; however, the Property may be posted against such access or otherwise restricted by the Grantee in the public interest.

4. NOTIFICATION OF TRANSFER, TAXES, MAINTENANCE

- A. Grantor agrees to notify the Grantee in writing within 10 days after the transfer of title of the Property.
- B. Grantee shall be under no obligation to maintain the Property or pay any taxes or assessments thereon.

5. BENEFITS AND BURDENS

- A. The burden of the Easement conveyed hereby shall run with the Property and shall be enforceable against all future owners and tenants in perpetuity; the benefits of said easement shall not be appurtenant to any particular parcel of land but shall be in gross. Once the GBNERR is designated, the Grantee shall hold the

Easement subject to the conditions that the GBNERR's designation is not withdrawn and the Property remains part of the GBNERR. In the event the Property is no longer included as part of the GBNERR or the GBNERR's designation is withdrawn, the Grantee shall compensate the Federal Government in an amount computed by applying the Federal percentage of participation in the cost of the original project to the current fair market value of the Easement. Upon such compensation, the Grantee shall unconditionally hold the Easement. The current fair market value of the Easement is the amount by which the current fair market value of the Property is reduced by the use limitations imposed.

(Note: Fair market value must be determined by an independent appraiser and certified by a responsible official of the State, as provided by OMB Circular A-102, Revised, Attachment F.)

The Easement shall then be assignable or transferrable but only to the Federal Government, or any subdivision of the Federal Government or the State of New Hampshire, consistently with Section 170 (c) (1) of the U.S. Internal Revenue Code of 1954, as amended, which government unit has among its purposes the conservation and preservation of land and water areas and agrees to and is capable of enforcing the conservation purposes of this Easement. Any such assignee or transferee shall have like power of assignment or transfer. In accordance with RSA 221-A, under which this Conservation Easement Deed is acquired, "The sale, transfer, conveyance, or release of any such land or interest in land from public trust is prohibited." (RSA 221-A:11)

6. ENFORCEMENT OF EASEMENT

- A. The Grantor (including any heirs, successors or assigns) and the Grantee (including any heirs, successors, assigns or any official designee for the purpose of carrying out this section of the Conservation Easement Deed) shall meet at least annually to review the provisions and enforcement of this Conservation Easement.
- B. When a breach of this Easement comes to the attention of the Grantee, it shall notify the then owner (Grantor) of the Property in writing of such breach, delivered in hand or by certified mail, return receipt requested.
- C. Said Grantor shall have 30 days after receipt of such notice to undertake those actions, including restoration, which are reasonably calculated to swiftly cure the conditions constituting said breach and to notify the Grantee thereof.
- D. If said Grantor fails to take such curative action, the Grantee, its successors or assigns, may undertake any actions that are reasonably necessary to cure such breach, and the cost thereof, including the Grantee's expenses, court costs and legal fees shall

be paid by the said Grantor, provided the said Grantor is determined to be directly or indirectly responsible for the breach.

7. CONDEMNATION

- A. Whenever all or part of the Property is taken in exercise of eminent domain by public, corporate, or other authority so as to abrogate in whole or in part the Easement conveyed hereby, the Grantor and the Grantee shall thereupon act jointly to recover the full damages resulting from such taking with all incidental or direct damages and expenses incurred by them thereby to be paid out of the damages recovered.
- B. The balance of the damages recovered (including, for purposes of this subparagraph, proceeds from any lawful sale of the property unencumbered by the restrictions hereunder) shall be divided between them in proportion to the fair market value of their respective interests in that part of the Property condemned on the date of the execution of this Conservation Easement Deed. For this purpose, the Grantee's interest shall be the amount by which the fair market value of the Property immediately prior to the execution of this Conservation Easement Deed is reduced by the use limitations imposed. The Grantee shall compensate the Federal Government in an amount computed by applying the Federal percentage of participation in the cost of the original project to the Grantee's share of the proceeds; the Grantee shall use the remainder of its share of the proceeds in a manner consistent with the conservation purposes set forth herein.

8. ADDITIONAL EASEMENT

- A. Should the Grantor decide that the expressed purposes of this Conservation Easement Deed could better be effectuated by the conveyance of an additional easement or other interest in the Property to the Grantee, such conveyance may be made provided the Grantee will accept delivery thereof.

9. ARBITRATION OF DISPUTES

- A. Any dispute arising under this Conservation Easement Deed shall be submitted to arbitration in accordance with RSA 542.
- B. The Grantor and the Grantee shall each choose an arbitrator and the arbitrators so chosen shall choose a third arbitrator.
- C. A decision with respect to any such dispute by two or the three arbitrators shall be binding upon the parties and shall be enforceable as part of this Conservation Easement Deed.

BK2794 P0251

The Grantee by accepting and recording this Conservation Easement Deed for itself, its successors and assigns, agrees to be bound by and to observe and enforce the provisions hereof and assumes the rights and responsibilities herein provided for and incumbent upon the Grantee, all in the furtherance of the conservation purposes for which this Conservation Easement Deed is delivered.

BK2794 P0252

IN WITNESS WHEREOF, I have hereunto set my hand this 26 day of May, 1989.

*Charles J. Blane*  
Witness

*Florence W. Wiggin*  
Florence Wiggin, Grantor

The State of New Hampshire  
Rockingham, ss.

Personally appeared Florence Wiggin who acknowledged the foregoing to be her voluntary act and deed.

Before me,

*Roberta J. Jordan*  
Justice of the Peace/Notary Public  
My commission expires 2-25-93

ACCEPTED: STATE OF NEW HAMPSHIRE

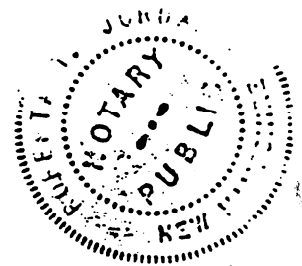
By:

Title:

*William A. Blane*

EXECUTIVE DIRECTOR LCIP

Duly Authorized



## APPENDIX A

Meaning and intending to describe a parcel of land situated in Stratham, NH, as shown on a "Plat of Land, Squamscott Road, Stratham, NH for Florence Wiggin" prepared by Durgin-Schofield Associates dated March 3, 1989 recorded as Plan # D-19372 on May 22, 1989, at the Rockingham County Registry of Deeds and being parcel I as described in the Warranty Deed from Florence E. Wiggin individually and as executrix under the will of Donald C. Wiggin to Florence E. Wiggin and recorded in the said Registry in Book 2749, Page 2413 on July 13, 1988, and part of the premises conveyed by Florence E. Wiggin to Florence E. Wiggin and Donald C. Wiggin by deed dated June 19, 1986, and recorded in said Registry at Book 2611, Page 852, further bounded and described as follows:

Beginning at a point on the northwest sideline of Squamscott Road, so-called, in Stratham, NH, said point being the southeast corner of the property; thence along said Road the following bearings and distances:

South 63° 26' 50" West two hundred fifty-three and seventy-three hundredths (253.73) feet to an iron rod set;

South 64° 21' 45" West two hundred twenty-eight and ninety-eight hundredths (228.98) feet to a point;

South 64° 21' 45" West two hundred six and nine hundredths (206.09) feet to an iron rod set; thence on a chord

South 76° 56' 39" West one hundred eighty-five and twenty-seven hundredths (185.27) feet as said Road curves more westerly to a point;

South 89° 31' 35" West two hundred seventeen and thirty-three hundredths (217.33) feet to a point;

South 86° 23' 20" West eighty-nine and ninety-one hundredths (89.91) feet to a point;

South 86° 23' 20" West approximately two hundred twenty-eight (228) feet to the mean high water mark of Jewel Hill Brook, so-called, on the easterly bank of said Brook;

thence in a northerly direction along the mean high water mark of said Brook to an iron pin set twenty eight and sixty-four hundredths (28.64) feet on a bearing of

South 07° 35' 00" East from the centerline of said Brook and at land now of formerly of Florence Barker; thence along land of said Barker and along an existing ditch line the following bearings and distances:

South 81° 25' 00" East one hundred fifty-three and seventy-eight hundredths (153.78) feet to a point;

North 14° 36' 20" East one hundred fifty-eight and thirty-seven hundredths (158.37) feet to a point;

North 25° 01' 25" East one hundred seventy-one and sixty-six hundredths (171.66) feet to a point;

North 19° 51' 20" East ninety-five and fifty-three hundredths (95.53) feet to a point;

North 41° 39' 55" East forty-three and seventy-eight hundredths (43.78) feet to a point;

North 80° 28' 25" East sixty-eight and eleven hundredths (68.11) feet to a point;

South  $81^{\circ} 36' 50''$  East one hundred fifty-five and fifty-nine hundredths (155.59) feet to a point;  
 South  $77^{\circ} 00' 00''$  East two hundred fifty-six and ninety-one hundredths (256.91) feet to an iron rod set; thence  
 North  $17^{\circ} 00' 00''$  East approximately thirty-three (33) feet to the mean high water mark on the westerly bank of Squamscott House Creek, so-called;  
 thence along the high water mark of said Creek in generally a southeasterly direction to the point of beginning, containing a total of 37.50 acres.

Excluding from this above described area the following houselot parcel bounded and described as follows:

Beginning at a point on the northwest sideline of Squamscott Road, so-called, in Stratham, NH, said point being approximately four hundred eighty-two and seventy-one hundredths (482.71) feet southwest of the westerly edge of Squamscott House Creek, so-called; thence along said Road the following bearings and distances:

South  $64^{\circ} 21' 45''$  West two hundred six and nine hundredths (206.09) feet to an iron rod set; thence on a chord of  
 South  $76^{\circ} 56' 39''$  West as said Road curves more westerly a distance of one hundred eighty-five and twenty-seven hundredths (185.27) feet to a point;  
 South  $89^{\circ} 31' 35''$  West two hundred seventeen and thirty-three hundredths (217.33) feet to a point;  
 South  $86^{\circ} 23' 20''$  West eighty-nine and eighty-one hundredths (89.81) feet to a point and at other land of Wiggin; thence along other land of Wiggin the following bearings and distances:  
 North  $9^{\circ} 57' 23''$  East one hundred twelve and sixty-eight hundredths (112.68) feet to a point;  
 North  $87^{\circ} 38' 01''$  East sixty-three and twenty-nine hundredths (63.29) feet to a point;  
 North  $32^{\circ} 03' 51''$  East forty-seven and fifty-three hundredths (47.53) feet to a point;  
 North  $55^{\circ} 21' 09''$  West one hundred fifty-two and fifty-nine hundredths (152.59) feet to a point;  
 North  $00^{\circ} 53' 49''$  West thirty-seven and twenty-three hundredths (37.23) feet to a point;  
 North  $17^{\circ} 09' 15''$  East forty-three and fifty-eight hundredths (43.58) feet to a point;  
 North  $50^{\circ} 03' 23''$  East sixty-four and eight hundredths (64.08) feet to a point;  
 North  $52^{\circ} 50' 43''$  East thirty-eight and fifty-three hundredths (38.53) feet to a point;  
 North  $19^{\circ} 03' 18''$  West nineteen and twenty-one hundredths (19.21) feet to a point;  
 North  $81^{\circ} 37' 11''$  West forty and eleven hundredths (40.11) feet to a point;  
 North  $65^{\circ} 42' 57''$  West eighty-two and eighty-seven hundredths (82.87) feet to a point;

BK2794 P0255

North  $22^{\circ} 57' 09''$  West twelve and forty-nine hundredths (12.49) feet to a point;

North  $74^{\circ} 40' 29''$  East six hundred eighty-three and twenty-seven hundredths (683.27) feet to a point;

South  $07^{\circ} 35' 59''$  East five hundred (500) feet to the point of beginning containing 7.50 acres.

The Conservation Easement area is 30.0 acres.