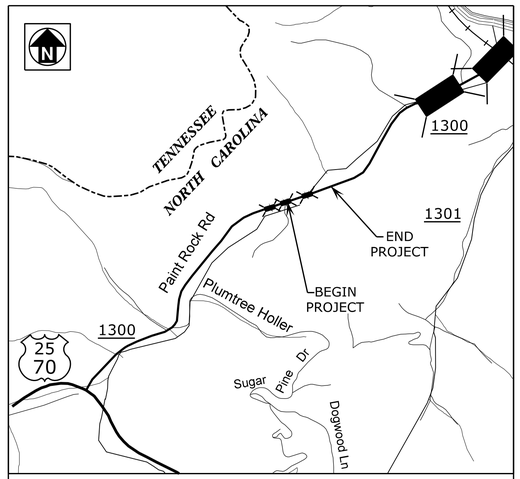
PROJECT: 17BP.13.R.164

CONTRACT: DM00350

See Sheet 1-A For Index of Sheets
See Sheet 1-B for Conventional Symbols



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

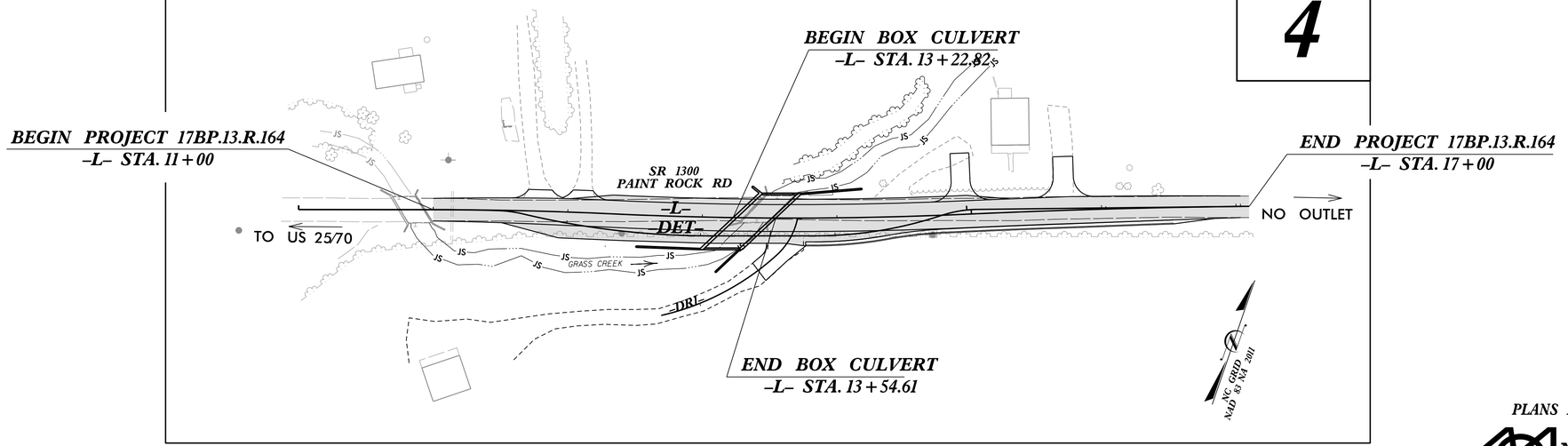
MADISON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.164	1	

STATE PROJECT NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.13.PE.164	N/A	P.E.
17BP.13.ROW.164	N/A	R/W & UTIL
17BP.13.R.164	N/A	CONST

LOCATION: BRIDGE NO. 134 OVER GRASS CREEK ON SR 1300 (PAINT ROCK ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND CULVERT



4

PLANS PREPARED BY:

Mattern & Craig
ENGINEERS & SURVEYORS
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FAX (828) 254-4562
NC LIC. NO. C-1154

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

30 15 0 30 60
PLANS

30 15 0 30 60
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2015 = 170

V = 55 MPH

FUNC CLASS =
RURAL LOCAL

SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.13.R.164 = 0.108 MILES

LENGTH STRUCTURE PROJECT 17BP.13.R.164 = 0.006 MILES

TOTAL LENGTH PROJECT 17BP.13.R.164 = 0.114 MILES

Prepared In the Office of:
MATTERN & CRAIG
12 BROAD ST.
ASHEVILLE, NC 28801
FOR NCDOT DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 18, 2021

LETTING DATE:
MARCH 16, 2022

AARON CARVER, PE
PROJECT ENGINEER

MENG YANG, EI
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
MIKE CALLOWAY
DIVISION 13 BRIDGE PROGRAM MANAGER

ROADWAY DESIGN ENGINEER

1/25/2022

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

DocuSigned by: Aaron Carver 8250B42A220F49C...

SIGNATURE: *P.E.*

HYDRAULICS ENGINEER

1/25/2022

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

DocuSigned by: Aaron Carver 8250B42A220F49C...

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PROJECT REFERENCE NO.	SHEET NO.
17BP13.R.164	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C CARTER
12/16/2021

INDEX OF SHEETS

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
POWER - FRENCH BROAD ELECTRIC MEMBERSHIP CORP.
PHONE - FRONTIER COMMUNICATIONS
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.
EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

ROCK:

ROCK IS ANTICIPATED BETWEEN -DR1 STA 10+10 AND 10+50. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

STANDARD DRAWINGS

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain840.29 Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

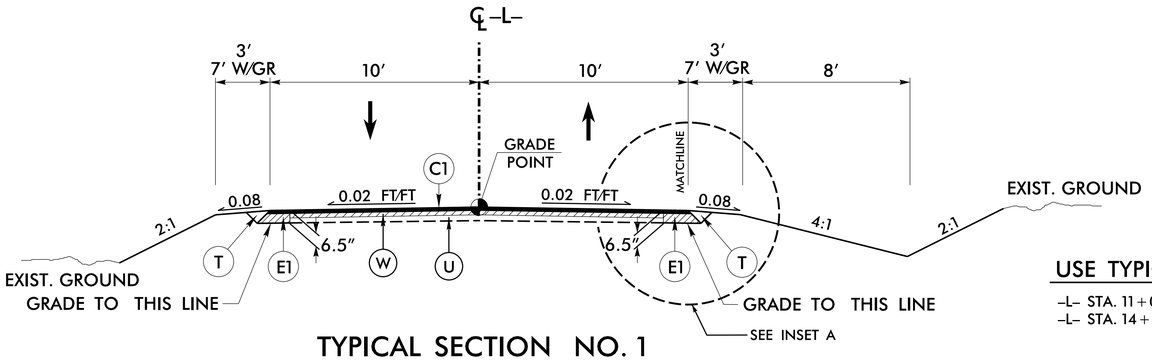
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

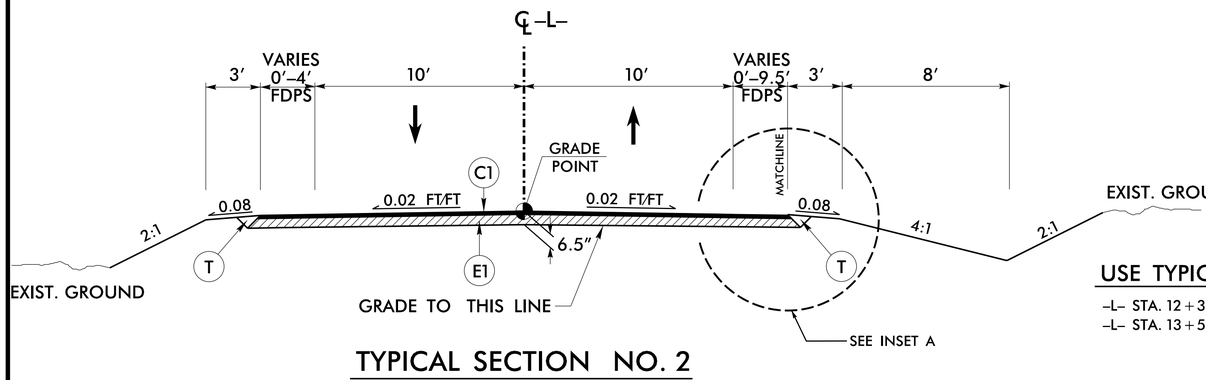
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

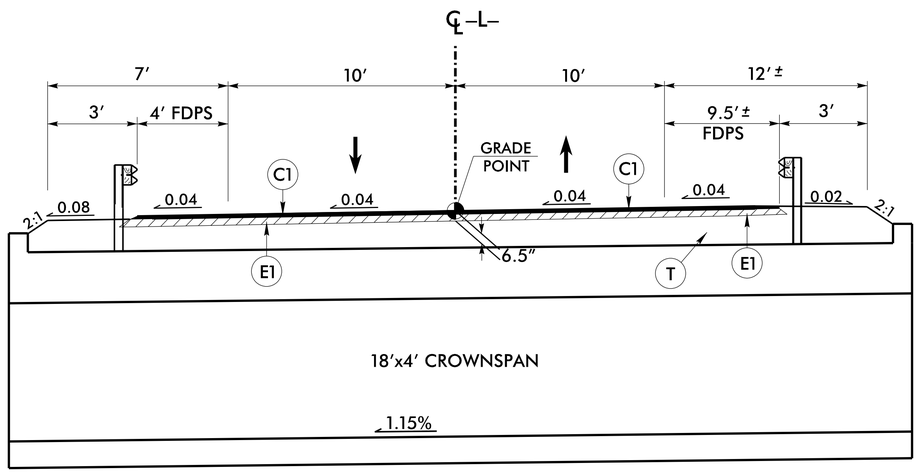
–L– STA. 11+00 TO –L– STA. 12+30
–L– STA. 14+30 TO –L– STA. 17+00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

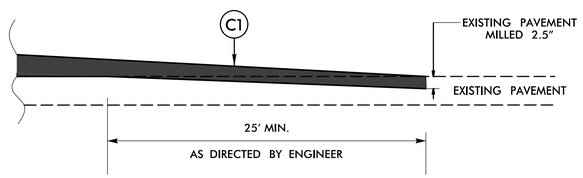
–L– STA. 12+30 TO –L– STA. 13+22.82 (BEGIN CULVERT)
–L– STA. 13+54.61 (END CULVERT) TO –L– STA. 14+30



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–L– STA. 13+22.82 (BEGIN CULVERT) TO –L– STA. 13+54.61 (END CULVERT)



INCIDENTAL MILLING EXISTING PAVEMENT

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NC LIC. NO. C-1154

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER CARL C. CARVER
Carl C. Carver
12/17/2021

PAVEMENT DESIGN ENGINEER

12/17/2021
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
Clark S. Morrison
B0A110DD1E004C4...

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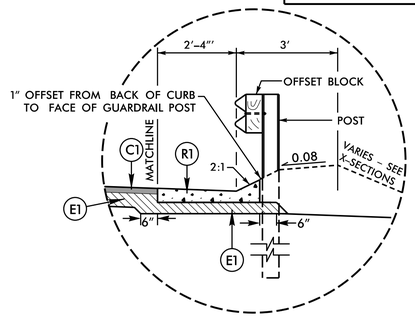
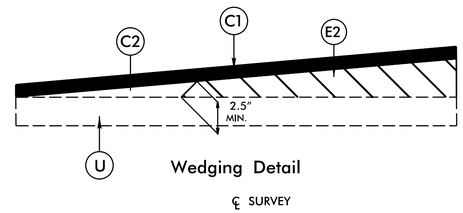
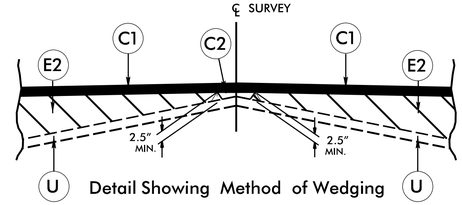


INSET A

SBG –L– STA. 13+77 RT TO –L– STA. 16+50 RT



Wedging Detail



Detail Showing Method of Wedging

	PAVEMENT SCHEDULE
C1	PROP. APPROX. 2.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
R1	SHOULDER BERM GUTTER (NCDOT STANDARD DRAWING NO. 846.01)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	PROPOSED WEDGING (SEE APPROPRIATE DETAILS)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

SEAL 030453 — NORTH CAROLINA PROFESSIONAL ENGINEER — JASON C. CARVER

12/16/2021

HYDRAULICS ENGINEER

SEAL 030453 — NORTH CAROLINA PROFESSIONAL ENGINEER — JASON C. CARVER

12/16/2021

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ON–SITE DETOUR

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REVISIONS

CLINT SPIEGEL
DB 646 PG 734
TRACT TWO

CHARLENE HOLT
DB 676 PG 41
DB 72 PG 317
(DB 13 PG 549)
PB 8 PG 975
GREEN TRACT

BILLY M. WARD
DB 341PG 271

DONALD HOLT & SHIRLEY HOLT
DB 676 PG 41
DB 683 PG 138
PB 8 PG 975
YELLOW TRACT

HAROLD ANTHONY HOLT
BRIDGET HOLT PATTERSON
DB 676 PG 41
DB 72 PG 317
PB 8 PG 975
ORANGE TRACT

CHARLES KENNETH RICKER
DB 152 PG 517
TRACT 1

BILL HOLT & BRENDA HOLT
DB 676 PG 41
PB 8 PG 975
PINK TRACT

BEGIN DETOUR
17BP.13.R.164
–DET– STA 21+94.23
–L– STA 11+93.68

BEGIN TEMP GUARDRAIL
–DET– STA 22+17.41 LT

BEGIN PCB
–DET– STA 22+21.85 LT

TEMP SHORING
–DET– STA 22+34.71 LT

TEMP SHORING
–DET– STA 24+28.34 LT

END TEMP GUARDRAIL
–DET– STA 24+39.32 LT

END PCB
–DET– STA 24+50.96 LT

END SBG
–L– STA 16+50
–DET– STA 26+53.45

END DETOUR
17BP.13.R.164
–DET– STA 24+67.56
–L– STA 14+65.00

BEGIN SBG
–L– STA 13+77
–DET– STA 23+78.14

1 TONS CLASS II RIP RAP
1 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

2 TONS CLASS II RIP RAP
2 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

0403 EST. 2 TONS CLASS B RIP-RAP 7 S.Y. GEOTEXTILE

INSTALL TEMPORARY OBJECT MARKER SIGN

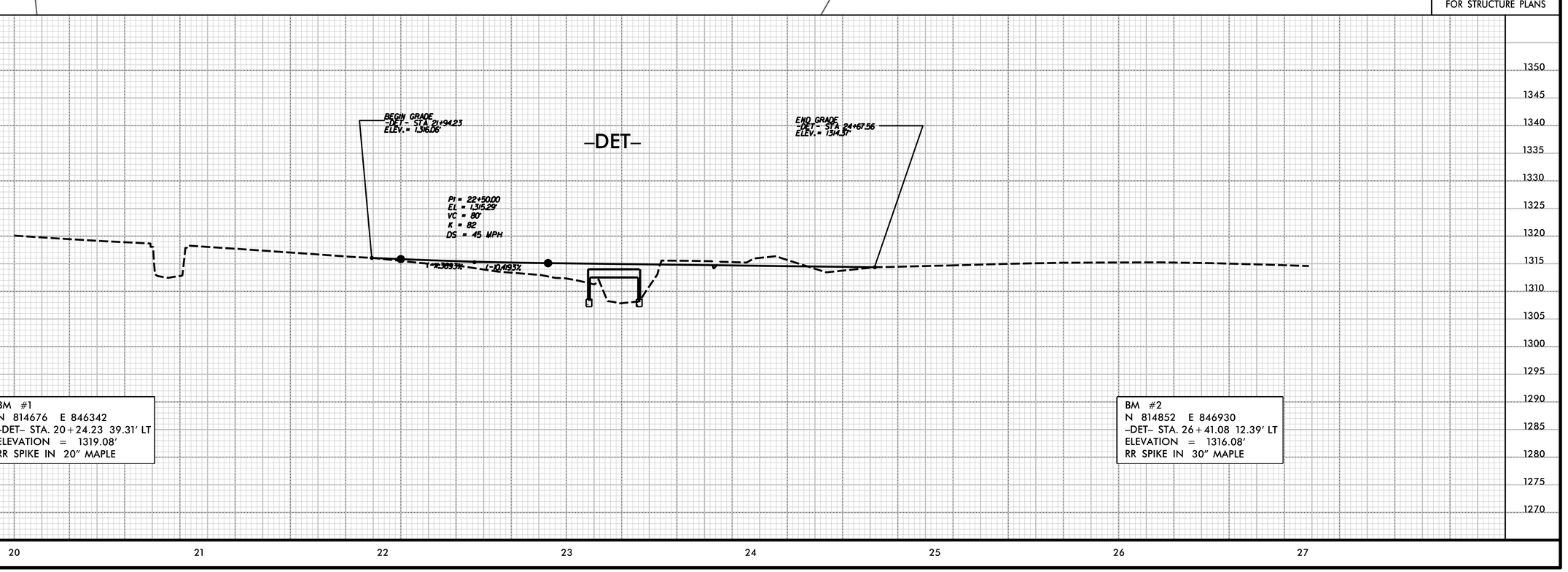
125' TAPER LT & RT

NC GRID NAD 83 NA 2011

-DET- CURVE DATA

PI Sta 21+24.24	PI Sta 21+57.64	PI Sta 22+37.13	PI Sta 24+33.21	PI Sta 24+94.56
Δ = 1°44'08.8" (RT)	Δ = 11°38'03.6" (RT)	Δ = 13°22'54.7" (LT)	Δ = 18°15'47.2" (LT)	Δ = 11°37'24.1" (RT)
D = 3°34'51.6"	D = 63°39'43.1"	D = 9°32'57.5"	D = 19°05'54.9"	D = 63°39'43.1"
L = 48.47'	L = 18.28'	L = 140.13'	L = 95.63'	L = 27.68'
T = 24.24'	T = 9.17'	T = 70.39'	T = 48.22'	T = 13.95'
R = 1,600.00'	R = 90.00'	R = 600.00'	R = 300.00'	R = 90.00'

SEE SHEETS C–1 THRU C–7 FOR STRUCTURE PLANS



BM #1
N 814676 E 846342
–DET– STA. 20+24.23 39.31' LT
ELEVATION = 1319.08'
RR SPIKE IN 20" MAPLE

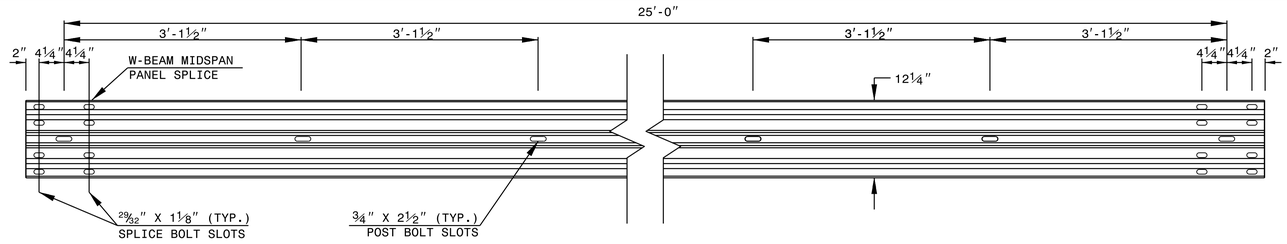
BM #2
N 814852 E 846930
–DET– STA. 26+41.08 12.39' LT
ELEVATION = 1316.08'
RR SPIKE IN 30" MAPLE

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.164	2C-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

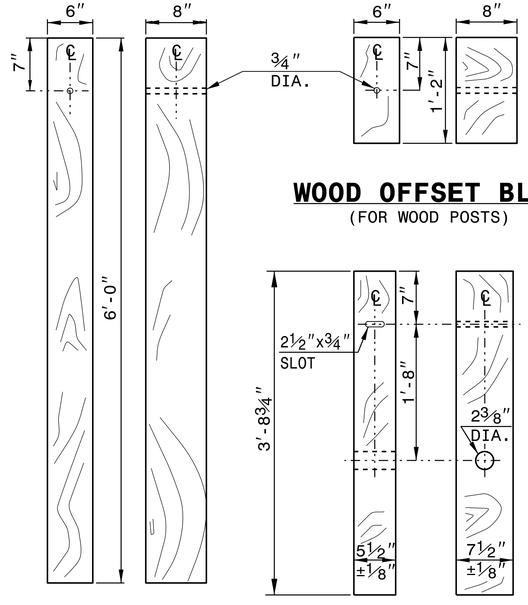
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



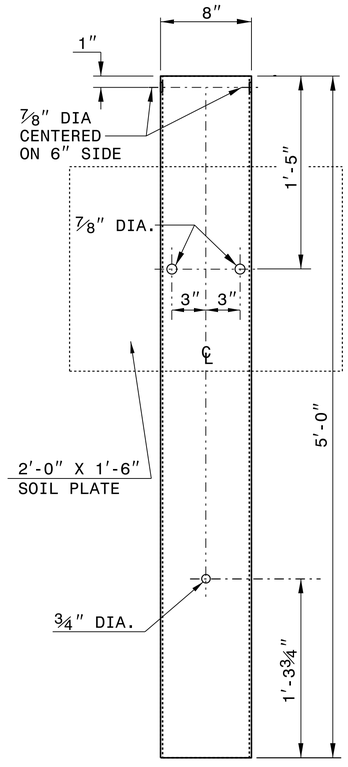
STANDARD W-BEAM GUARDRAIL



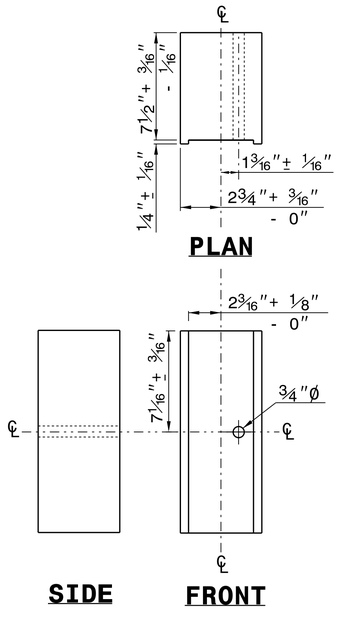
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

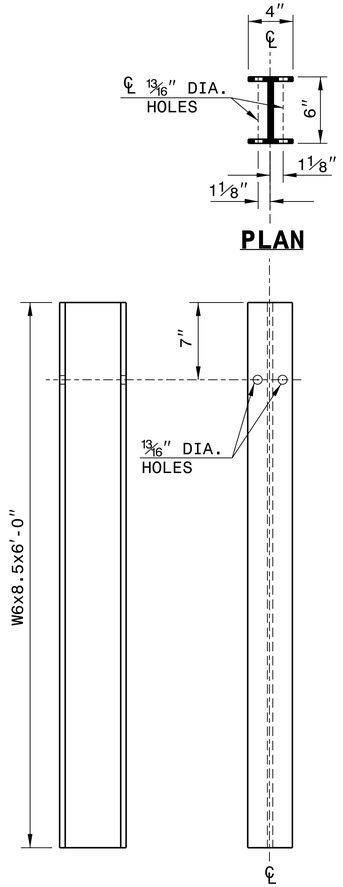
SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



ROUTED OFFSET BLOCK



"W6" STEEL POST

SYSTEM PARTS

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOWERTON

DocuSigned by:
873F3D17DCDC45F...

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

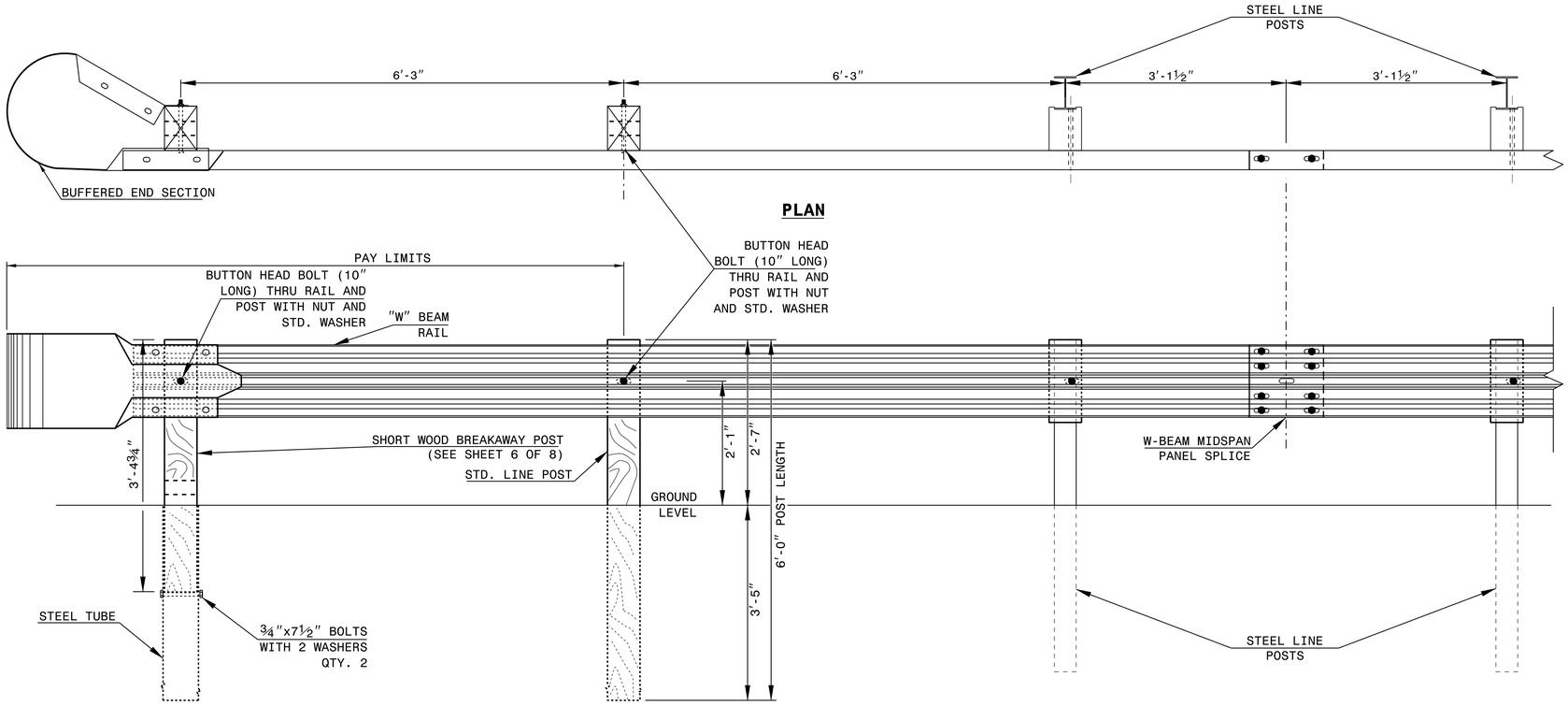
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.164	2C-2

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY

A.T.-1 SYSTEM

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER DAVID S. HOWERTON
Digitally signed by:
673F3D1705C0C45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

A.T.-1 SYSTEM

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

6/21/00

COMPUTED BY: MY	DATE: 11-20-18
CHECKED BY: ACC	DATE: 11-20-18

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.164	3B-1

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS					
LINE	LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	3"ASPHALT MILLING	
-L-	12+35 TO 13+31	171			
-L-	13+55 TO 14+35	51			
-L-	13+55 TO 14+35	142			
	TOTAL	364			
	SAY	370			

SUMMARY OF EARTHWORK

IN CUBIC YARDS					
LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY NO.1					
-L- STA. 11+00 TO -L- STA. 17+00	829		503		326
-DR1- STA 10+19.18 TO -DR1- STA 10+50	152				152
SUBTOTAL SUMMARY NO.1	981		503		478
PROJECT SUBTOTAL	981		503		478
LOSS DUE TO CLEARING & GRUBBING	-15				-15
GRAND TOTAL	966		503		463
SAY	1000				

CONTINGENCY ITEMS:
INCIDENTAL STONE = 50 TONS
UNDERCUT EXCAVATION = 450 CY
SELECT GRANULAR MATERIAL = 400 CY
CLASS IV SUBGRADE STABILIZATION = 200 TONS
GEOTEXTILE FOR SOIL STABILIZATION = 700 SY

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the contract lump sum price for "grading".

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-L- 13+73	RT	401		1314.33	1313.08		
	RT	401	402		1313.08	1311.26	
-L- 14+26	RT	402		1315.07	1311.26		
	RT	402	403		1311.26	1311.09	
-L- 15+17	RT	404		1314.82	1311.71		
	RT	404	402		1311.71	1311.26	
-L- 15+52	RT	405		1314.89	1311.89		
	RT	405	404		1311.89	1311.71	
-L- 16+62.72	RT						
TOTAL							

FROM	TO	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109
401																				
401	402																			
402																				
402	403																			
404																				
404	402																			
405																				
405	404																			
TOTAL																				

FROM	TO	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
401																
401	402	56														
402																
402	403										36					
404																
404	402	88														
405																
405	404	32														
TOTAL		176									36					

STATION	FROM	TO	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL.'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	TBDI STD 840.35 OR STD 840.46	TBDI FRAME WITH TWO GRATES 840.29	J.B. STD. 840.31 OR 840.32	M.H. FRAME & COVER STD. 840.54	MODIFIED CONCRETE FLUME		CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- 13+73	401																														
	401	402																													
-L- 14+26	402									1										1	1										
	402	403																													
-L- 15+17	404									1										1	1										
	404	402																													
-L- 15+52	405									1										1	1										
	405	404																													
-L- 16+62.72																								1							
TOTAL										3										3	3			1							

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I. (N.S.) GRATED DROP INLET (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.G.I. TRAFFIC BEARING GRATE INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS XI MOD	XI	GREU 350 TL-2	GREU 350 TL-3	IA-350 TL-2	TYPE III	TYPE III SHOP CURVED	B-77	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	11+90	13+44	RT	156.25			N/A	N/A	4	7	50		1					1					1							
-L-	12+34	14+72	LT	237.5			14+20	13+40	4	7	50	50	1	1				2												
-DET-	22+17	23+89	LT	212.5			23+30	23+50	4	7	25	25	1	1			2													TEMPORARY GUARDRAIL
				606.25																										
		LESS DEDUCTIONS FOR ANCHORS																												
		GREU 350 TL-3 3 @ 50'=		-150																										
		TEMPORARY GREU 350 TL-2 2 @ 25'=		-50																										
		AT-I 1 @ 6.25'=		-6.25																										
		PROJECT TOTALS:		400													2	3					1							
		ADDITIONAL GUARDRAIL POSTS=5 EA.																												

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030457 ENGINEER AARON C. CARVER

12/16/2021

HYDRAULICS ENGINEER

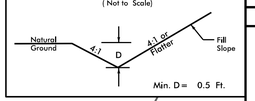
NORTH CAROLINA PROFESSIONAL SEAL 030453 ENGINEER AARON C. CARVER

12/16/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS•SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 12+50 LT TO STA. 13+25 LT

REVISIONS

BM #1
N 814676 E 846342
-L- STA. 10+24.23 39.31' LT
ELEVATION = 1319.08'
RR SPIKE IN 20" MAPLE

BM #2
N 814852 E 846930
-L- STA. 16+37.87 12.71' LT
ELEVATION = 1316.08'
RR SPIKE IN 30" MAPLE

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 600 CFS
DESIGN FREQUENCY	= 10 YRS
DESIGN HW ELEVATION	= 1,313.5 FT
BASE DISCHARGE	= 1,200 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1,316.0 FT
OVERTOPPING DISCHARGE	= 850 CFS
OVERTOPPING FREQUENCY	= 25 YRS
OVERTOPPING ELEVATION	= 1,314.8 FT
W.S. ELEVATION AT DATE OF SURVEY (APRIL 2018)	= 1,309.4 FT

09/08/99

TIP PROJECT: 17BP.13.R.164

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.164	RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

MADISON COUNTY

LOCATION: BRIDGE NO. 134 OVER GRASS CREEK ON SR 1300 (PAINT ROCK ROAD)

I, R.L. Zietlow, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

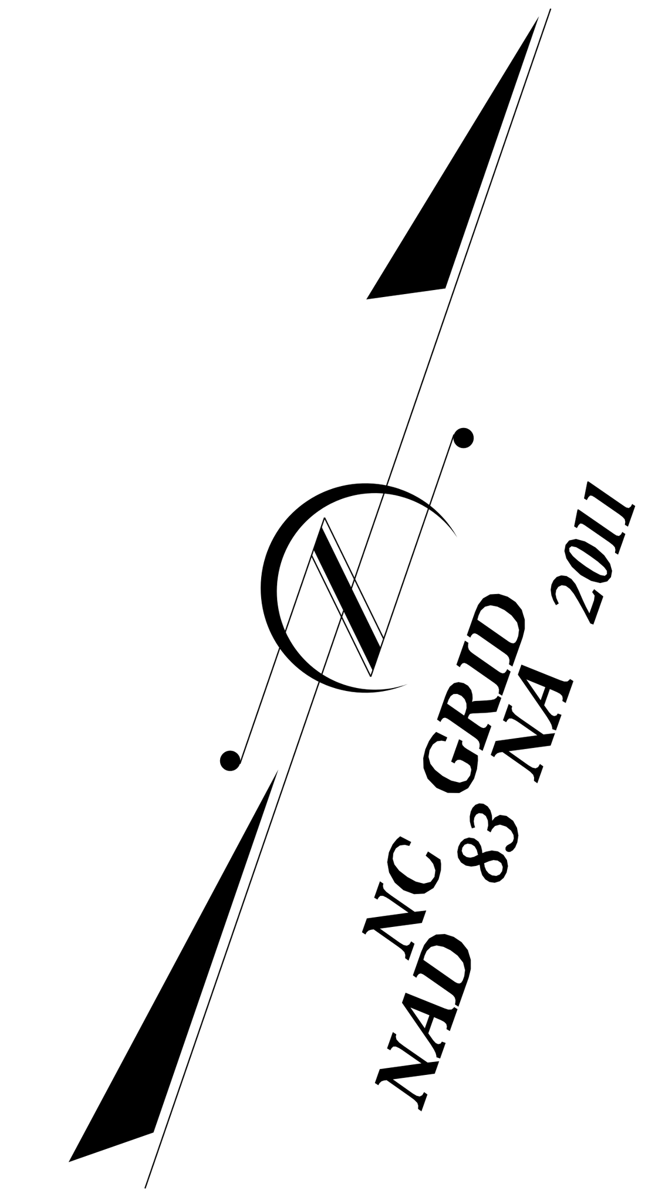
I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

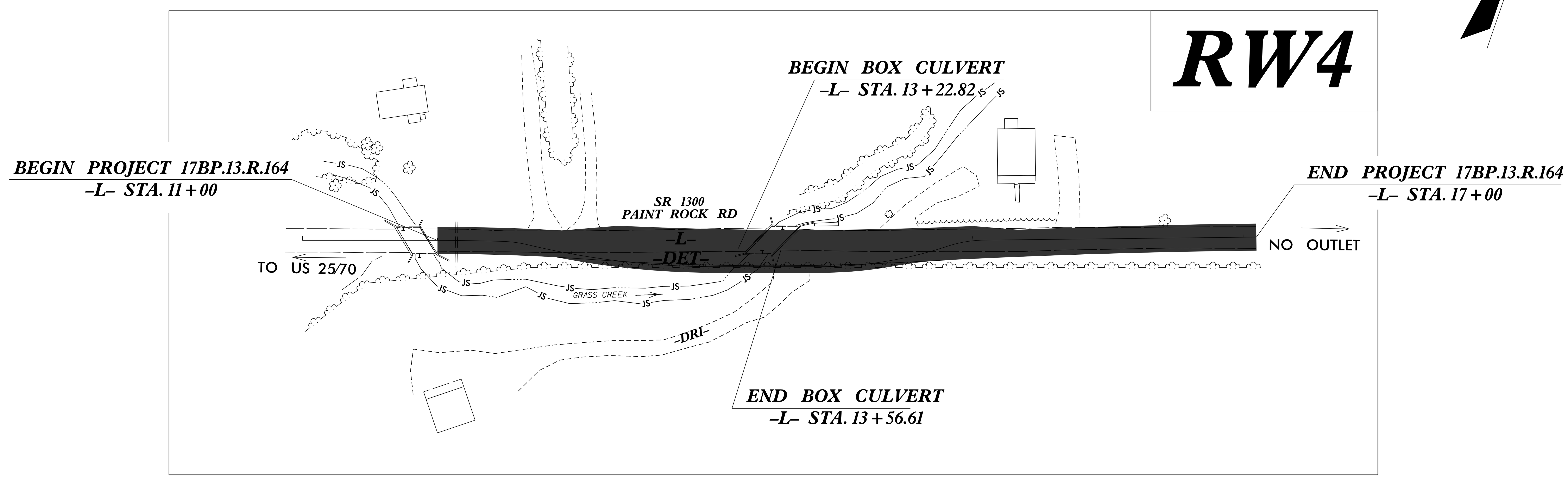
Witness my original signature, registration number and seal this 16th day of February, 2021.

DocuSigned by:
Ron Zietlow
84E55C984005472...

Professional Land Surveyor — L-5235 PLS # — Seal

NORTH CAROLINA PROFESSIONAL SEAL L-5235 LAND SURVEYOR RON L. ZIETLOW





GRAPHIC SCALE

30 15 0 30 60

PLANS

DATUM DESCRIPTION

**THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY MATTERN AND CRAIG FOR MONUMENT "GPS2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 814753.0620 (ft) EASTING: 846641.3627 (ft) ELEVATION: 1314.01 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999862523
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS2" TO -L- STATION 10+00 IS S 68°31'03.4" W 332.90 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88**

Prepared in the Office of:

Mattern & Craig
ENGINEERS • SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: TO BE DETERMINED

LETTING DATE: SEPTEMBER 15, 2021

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5235 LAND SURVEYOR RON L. ZIETLOW

DocuSigned by:
Ron Zietlow
84E55C984005472...

2/18/2021

SIGNATURE: *Date:*

STATE OF NORTH CAROLINA ★ DEPARTMENT OF TRANSPORTATION ★

$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

SEE SHEET 2C-2 FOR FURTHER ALIGNMENT DETAILS

PROJECT REFERENCE NO.	SHEET NO.
17BP13R164	RW02C-1

Location and Surveys

MATTERN & CRAIG
ENGINEERS & SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5235 LAND SURVEYOR RON L ZIETLOW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, R.L.ZIETLOW, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: 1/4/18
Datum/Epoch:NAD83/NA 2011 NAVD 88
Published/Fixed-control use: N/A
Localized around: GPS 2
Northing:814753.0620
Easting:846641.3627
Combined grid factor:0.999862523
Geoid model:12USB
Units:US SURVEY FEET

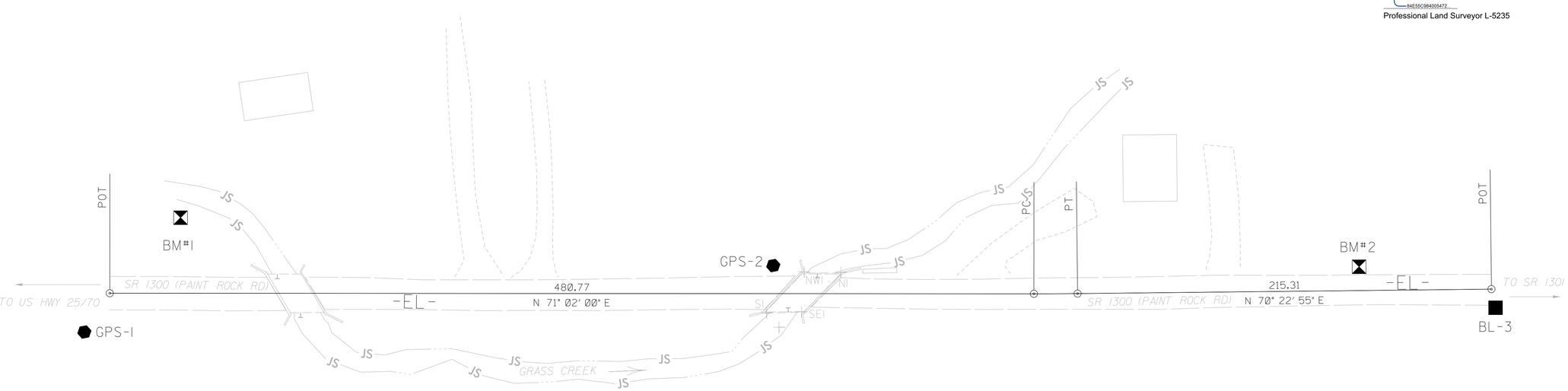
I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 1/16/18 to 3/16/18 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 16th day of February, 2021.

DocuSigned by:
Ron Zietlow
84E55C9840054 72

Professional Land Surveyor L-5235

NC GRID NAD 83 NA 2011



NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

6/2/99

18-FEB-2021 15:06
I:\3921_NCDOT_Survey\3921H_Div_13_R_W_Stake\06_Working_Folders\Survey\Deliverables\17BP13R164_RW_E_SERIES\210217_SIGNED_RLZ\17bp13r164_ls_rw02c_1.dgn
rzietlow AT MC-ACARVER01-NB

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	814627.056	846319.680							
LINE			N 71°02'00" E	480.77					
PC	814783.313	846774.344							
CURVE			N 70°42'28" E	22.74	00°39'06"(LT)	02°51'53"	22.74	11.37	2000.00
PT	814790.826	846795.809							
LINE			N 70°22'55" E	215.31					
POT	814863.117	846998.623							

BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	GPS1	814603.6734	846313.7569	1322.43
2	GPS2	814753.0620	846641.3627	1314.01
3	BL3	814854.6720	847003.7580	1313.69

* *

BM1 ELEVATION = 1319.08

N 814676 E 846342

BM1 IS RR SPIKE SET IN BASE OF 20"WALNUT

* *

* *

BM2 ELEVATION = 1316.08

N 814852 E 846930

BM2 IS RR SPIKE SET IN BASE OF 30"WALNUT

* *

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROJECT REFERENCE NO.	SHEET NO.
17BP13R164	RW02C-2

Location and Surveys

MATTERN & CRAIG
ENGINEERS & SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5235 LAND SURVEYOR RON L ZIETLOW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, R.L.ZIETLOW, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: 1/4/18
Datum/Epoch:NAD83/NA 2011 NAVD 88
Published/Fixed-control use: N/A
Localized around: GPS 2
Northing:814753.0620
Easting:846641.3627
Combined grid factor:0.999862523
Geoid model:12USB
Units:US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 1/16/18 to 3/16/18 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 16th day of February, 2021.

DocuSigned by:
Ron Zietlow
84E55C984005472...

Professional Land Surveyor L-5235

REVISIONS

6/2/99

18-FEB-2021 14:48
I:\3921-NCDOT_Survey\392IH_Div.13 R.W Stake\06 Working Folders\Survey\Deliverables\17BP13R164 RW E SERIES\17bp13r164_1s_rw02c_2.dgn
rzietlow AT MC-ACARVER01-NB

6/2/99

REVISIONS

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP13R164	RW02D-1

Location and Surveys

MATTERN AND CRAIG
ENGINEERS & SURVEYORS
12 BROAD STREET
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(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5235 LAND SURVEYOR RON L. ZIETLOW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, R.L. Zietlow, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 18th day of February, 2021.

DocuSigned by:
Ron Zietlow
84E15C3964005472...

Professional Land Surveyor L-5235

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	814631.1485	846331.5881
PC	11+00.00	814663.6502	846426.1589
PRC	12+33.44	814704.0618	846553.3221
PRC	14+96.99	814789.5420	846802.5195
PT	16+99.99	814860.9502	846992.5431
POT	17+06.45	814863.1172	846998.6226

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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rlzietlow
AT MC-ACARVER01-NB

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP13R164	RW03E-1

Location and Surveys

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NC LIC. NO. C-1154

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5235 LAND SURVEYOR RON L. ZIETLOW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I , R.L. Zietlow , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/22/19 to 3/27/21, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 30th day of March, 2021.

Professional Land Surveyor L-5235

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+09.79	17.98	814649.7905	846441.2130
L	11+35.00	-11.21	814685.4729	846455.8125
L	13+50.00	-45.00	814781.6754	846650.1273
L	14+05.00	80.00	814681.7980	846743.4553
L	14+80.00	-27.71	814809.1714	846776.6700
L	14+96.99	25.00	814766.2932	846811.7116
L	15+10.00	-25.00	814817.5827	846805.4859
L	16+99.99	25.00	814837.4014	847000.9368
L	16+99.99	-25.00	814884.4990	846984.1493
L	16+99.99	-11.00	814871.3117	846988.8498
L	16+99.99	11.00	814850.5854	846996.2375

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 3/22/19 TO 3/27/19 .

REVISIONS

6/2/99

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rzietlow AT MC-ACADVER01-NB

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.164	RW04

Location and Surveys

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PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5235 LAND SURVEYOR RON L. ZIETLOW

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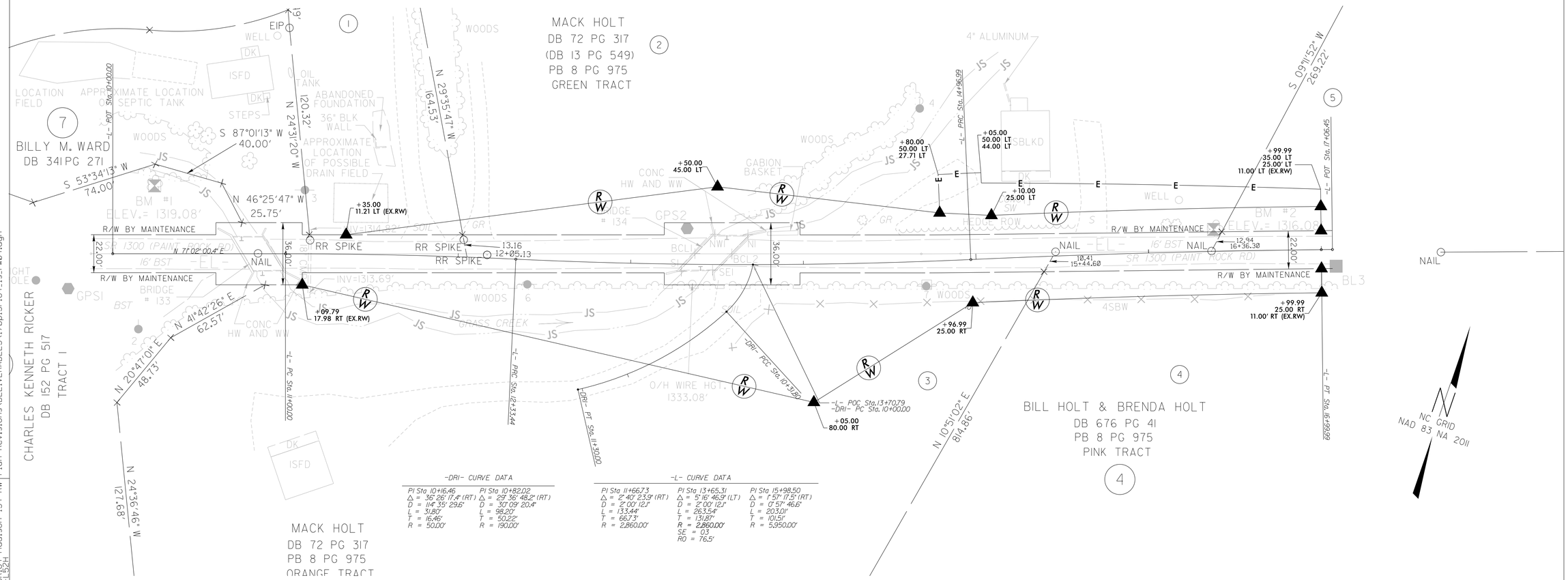
I , R.L. Zietlow , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/22/2019 to 3/27/19, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 18th day of February, 2021.

Professional Land Surveyor L-5235

REVISIONS

6/27/19



-DRI- CURVE DATA

PI Sta 10+16.46	PI Sta 10+82.02
Δ = 36°26'17.4" (RT)	Δ = 29°36'48.2" (RT)
D = 114°35'29.6"	D = 30°09'20.4"
L = 31.80'	L = 98.20'
T = 16.46'	T = 50.22'
R = 50.00'	R = 190.00'

-L- CURVE DATA

PI Sta 11+66.73	PI Sta 13+65.31	PI Sta 15+98.50
Δ = 2°40'23.9" (RT)	Δ = 5°16'46.9" (LT)	Δ = 1°57'17.5" (RT)
D = 2°00'12.1"	D = 2°00'12.1"	D = 0°57'46.6"
L = 133.44'	L = 263.54'	L = 203.01'
T = 66.73'	T = 131.87'	T = 101.51'
R = 2,860.00'	R = 2,860.00'	R = 5,950.00'
	SE = 03	
	R0 = 76.5'	

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 3/22/19 TO 3/27/19.

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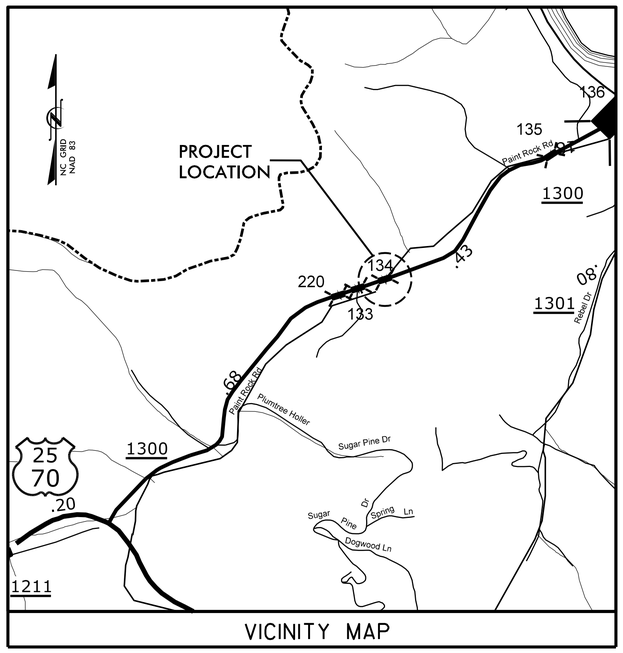
rzietlow
ATS MC-ASH-WKS-152H

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MADISON COUNTY

LOCATION: BRIDGE NO. 134 OVER GRASS CREEK ON SR 1300 (PAINT ROCK ROAD)



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS - STANDARD DETAIL
TMP-3	PROJECT PHASING NOTES
TMP-4	TEMPORARY TRAFFIC CONTROL, PHASE I DETAILS
TMP-5	TEMPORARY TRAFFIC CONTROL, PHASE II DETAILS
PM-1	PAVEMENT MARKING PLAN

SHEET NO.
TMP-1

17BP.13.R.164

TIP PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:

JAMES B. VOSO, PE

MENG YANG, EI

NCDOT CONTACTS:

MIKE CALLOWAY
PROJECT ENGINEER

PROJECT DESIGN ENGINEER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

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NC LIC. NO. C-1154

APPROVED: DocuSigned by: James B. Voso, PE 140FD60379E041F...

DATE: 12/16/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSO

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.164	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.12	PAVEMENT MARKINGS - BRIDGES
1251.01	RAISED PAVEMENT MARKERS
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

- TEMP — TEMPORARY
- PORTABLE TRAFFIC SIGNAL

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

- YELLOW/YELLOW
- TEMPORARY WHITE/WHITE

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
	PAINT
PA	WHITE EDGE LINE (4")
PI	YELLOW DOUBLE CENTER (4")
P2	STOP BAR (24" WHITE)

TEMPORARY RAISED MARKERS

MF	CRYSTAL & CRYSTAL

APPROVED: DocuSigned by: James B. Vosa, PE DATE: 12/16/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSA

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.164	TMP-1B

GENERAL NOTES / LOCAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
PAINT ROCK ROAD (SR 1300)	JUNE 15TH - AUGUST 14TH 6:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
PAINT ROCK ROAD (SR 1300)	AUGUST 15TH - JUNE 14TH 6:00 AM TO 9:00 AM AND 2:00 PM TO 6:00 PM

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

I) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 ft IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

N) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

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TRAFFIC CONTROL DEVICES

O) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKING & MARKERS

Q) INSTALL TEMPORARY PAVEMENT MARKINGS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1300 (PAINT ROCK ROAD)	PAINT	RAISED

R) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

S) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

U) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 100 ft AND 200 ft RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

LOCAL NOTES:

1) EMERGENCY VEHICLE ACCESS MUST BE MAINTAINED AT ALL TIMES.

2) NOTIFY THE MADISON COUNTY SCHOOL BOARD 30 DAYS PRIOR TO ANY LANE CLOSURES.

3) MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION

MANAGEMENT STRATEGIES

PHASE I SHOWS TRAFFIC TO BE MAINTAINED ON THE EXISTING ROAD, BUT REDUCED TO ONE LANE USING TEMPORARY SIGNALS AND PAVEMENT MARKINGS AS NEW ALIGNMENT IS CONSTRUCTED.

PHASE 2 SHOWS TRAFFIC SHIFTED TO ONE LANE ON THE NEW ALIGNMENT USING TEMPORARY SIGNALS AND PAVEMENT MARKINGS WHILE THE REMAINDER IS CONSTRUCTED. A FLAGGING OPERATION WILL BE USED TO CONSTRUCT THE NEW TIE-INS.

APPROVED: DocuSigned by: James B. Vosa, PE DATE: 12/16/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSO

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN
(MANAGEMENT STRATEGIES & GENERAL NOTES/ LOCAL NOTES)

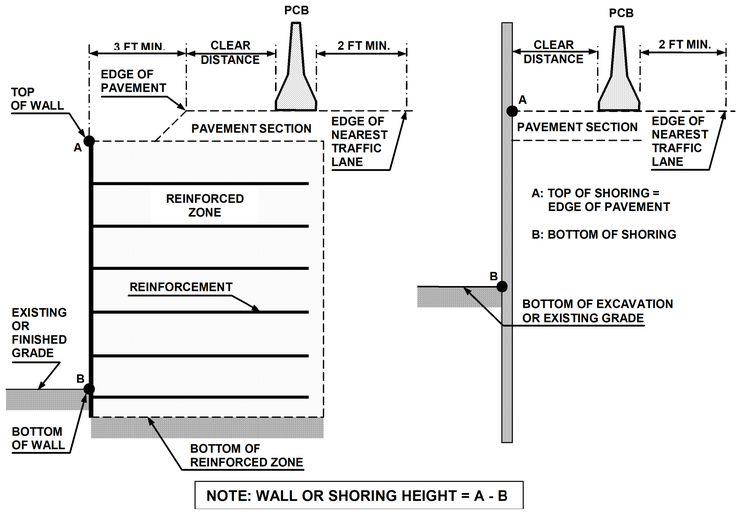

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.

9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.164	TMP-2

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

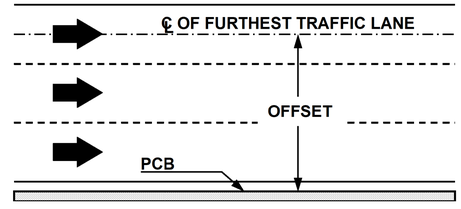

FIGURE B

Mattern & Craig
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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.164	TMP-3

PROJECT PHASING

PHASE I

STEP 1: - ERECT WORK ZONE ADVANCED WARNING SIGNS USING DETAIL DRAWINGS FOR WORK ZONE SIGNS. (SEE RDWY STD. 1101.01)

- INSTALL PORTABLE TRAFFIC SIGNALS AS REQUIRED IN APPROVED TRAFFIC SIGNAL TIMING PLANS (SEE RDWY STD. 1101.02 SHEET 14 OF 14)

NOTE: STEP 2 SHALL BE COMPLETED IN A CONTINUOUS OPERATION.

STEP 2: USING RDWY STD 1101.02 SHEET 1 OF 14 AND FLAGGERS, PERFORM THE FOLLOWING ON SR 1300:

- REMOVE AS NECESSARY EXISTING PAVEMENT MARKINGS, AND PLACE TEMPORARY PAVEMENT MARKINGS (PAINT), AND MARKERS FROM -L- STA. 9+50 +/- TO -L- STA. 18+50 +/-. (SEE TMP-4)

- ACTIVATE PORTABLE TRAFFIC SIGNALS AND DIRECT SR 1300 (PAINT ROCK ROAD) TRAFFIC INTO A ONE LANE, TWO WAY PATTERN IN THE EXISTING WESTBOUND LANE OF SR 1300 (PAINT ROCK ROAD). SEE (TMP-4)

- INSTALL TEMPORARY CONCRETE BARRIER FROM -L- STA. 12+22 +/- TO -L- STA. 14+47 +/-. (SEE TMP-4) REMOVE EXISTING BRIDGE RAIL (RIGHT SIDE) ON BRIDGE 134, SAWCUT AND REMOVE RIGHT SIDE OF EXISTING BRIDGE TO LIMIT SHOWN. (SEE SECTION B-B, TMP-4)

STEP 3: - INSTALL TEMPORARY SHORING BEHIND TEMPORARY CONCRETE BARRIER FROM -L- STA. 12+35 +/- TO -L- STA. 13+31 +/- AND FROM -L- STA. 13+51+/- TO -L- STA. 14+25 +/-. (SEE TMP-4)

STEP 4: - REMOVE EXISTING BRIDGE RAIL (RIGHT SIDE) ON BRIDGE 134, SAWCUT AND REMOVE RIGHT SIDE OF EXISTING BRIDGE TO LIMIT SHOWN. (SEE SECTION B-B, TMP-4)

- CONSTRUCT STRUCTURES PER THE STRUCTURE PLANS STAGE 1.

- CONSTRUCT PROPOSED STORM DRAINAGE.

- CONSTRUCT -L- (SR 1300 PAINT ROCK ROAD) FROM -L- STA 11+00 TO -L- STA 17+00 EASTBOUND LANE (RIGHT SIDE) EXCLUDING FINAL PAVEMENT LAYER.

- INSTALL GUARDRAIL FROM -L- STA. 11+89 +/- TO -L- STA. 13+44 +/- RT (SEE RDY PLANS 2B-1 AND TMP-5.

- INSTALL TEMPORARY GUARDRAIL FROM -L- STA. 12+17 +/- TO -L- STA. 14+36 +/- (SEE RDY PLANS 2B-1 AND TMP-5).

PHASE II

NOTE: STEP 1 SHALL BE COMPLETED IN A CONTINUOUS OPERATION.

STEP 1: USING RDWY STD 1101.02 SHEET 1 OF 14 AND FLAGGERS, PERFORM THE FOLLOWING ON SR 1300:

- PLACE TEMPORARY PAVEMENT (PAINT) AND MARKERS FROM -L- STA. 10+00 +/- TO -L- STA. 18+00 +/-. (SEE TMP-5) REMOVE AS NECESSARY, PAVEMENT MARKINGS AND MARKERS PLACED IN STEP 2, PHASE I.

- ACTIVATE PORTABLE TRAFFIC SIGNALS AND DIRECT SR 1300 (PAINT ROCK ROAD) TRAFFIC INTO A ONE LANE, TWO-WAY PATTERN IN THE EASTBOUND LANE OF SR 1300 (PAINT ROCK ROAD). (SEE TMP-5)

STEP 2: - RETAIN TEMPORARY SHORING CONSTRUCTED IN PHASE 1. REMOVE PORTIONS, AS NECESSARY TO CONSTRUCT PHASE 2 OF THE PROPOSED CULVERT.

- REMOVE TEMPORARY CONCRETE BARRIER FROM PHASE I, STEP 2.

- REMOVE WESTBOUND SIDE (LEFT SIDE) OF EXISTING STRUCTURE (SEE STRUCTURE PLANS).

STEP 3: - CONSTRUCT STRUCTURE PER THE STRUCTURE PLANS STAGE 2.

- CONSTRUCT -L- SR 1300 (PAINT ROCK RD) FROM STA 11+00 TO STA 17+00 WESTBOUND LANE (LEFT SIDE) EXCLUDING FINAL PAVEMENT LAYER.

- USING RDWY STD 1101.02 SHEET 1 OF 14 AND FLAGGERS, CONSTRUCT GUARDRAIL, REMOVE TEMPORARY GUARDRAIL PLACED IN PHASE 1, STEP 4, AND REMOVE TEMPORARY SHORING.

STEP 4: - USING RDWY STD 1101.02 SHEET 1 OF 14 AND FLAGGERS, PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS (PAINT). (SEE PM-1)

STEP 5: - REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SIGNALS.

- OPEN SR 1300 (PAINT ROCK RD) TO 2-LANE, 2-WAY TRAFFIC.

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APPROVED: DocuSigned by: James B. Vose, PE 140FD60378ED41F...

DATE: 12/16/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSO

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

PHASING

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.164	TMP-4

END ROAD WORK
G20-2 A
48" X 24"
PLACE SIGN (LEFT)
AT -L- STA 0+00

R11-2
48" x 30"
ROAD CLOSED
W1-6L
48" x 24"
TYPE III BARRICADE

R11-2
48" x 30"
ROAD CLOSED
W1-6R
48" x 24"
TYPE III BARRICADE

W3-3
48" X 48"
PLACE SIGN (LEFT)
AT -L- STA 22+00

BE PREPARED TO STOP
W3-4
48" X 48"
PLACE SIGN (LEFT)
AT -L- STA 25+50

ONE LANE ROAD AHEAD
W20-4
48" X 48"
20 M.P.H.
W13-1
24" X 24"
PLACE SIGN (LEFT)
AT -L- STA 28+00

NC GRID
NAD 83 NA 2011

DRUM
20' SPACING

BEGIN PROJECT
17BP.13.R.164
-L- STA 11+00

DRUM
10' SPACING MAX
IN TAPER

PA

BEGIN TEMP. CONC. BARRIER
W/CRASH CUSHION
-L- STA 12+22 +/-

CRYSTAL/CRYSTAL
@ 40' SPACING

MF

END TEMP. CONC. BARRIER
W/Crash cushion
-L- STA 14+47 +/-

A A
B B
C C

SR 1300 (PAINT ROCK RD)

P2

STOP HERE ON RED
@ -L-
STA 9+50
R10-6
24" X 36"

50'
60' TAPER
40'
BUFFER SPACE
40'

TEMP

BEGIN TEMP. GUARDRAIL
-L- STA 12+17 +/-

INSTALL TEMP.SHORING FROM
-L- STA 12+35 +/- TO
-L- STA 13+31 +/-

INSTALL TEMPORARY
OBJECT MARKER SIGN

INSTALL TEMP.SHORING FROM
-L- STA 13+51+/- TO
-L- STA 14+25 +/-

END TEMP. GUARDRAIL
-L- STA 14+36 +/-

GREU TL-2
GREU TL-3
TB2GI
AT-1
MCF
GRASS CREEK
JS

40'
BUFFER SPACE
60' TAPER
50'
40'

TEMP

STOP HERE ON RED
@ -L-
STA 18+50
R10-6
24" X 36"

P2

SR 1300 (PAINT ROCK RD)

DRUM
20' SPACING

END PROJECT
17BP.13.R.164
-L- STA 17+00

DRUM
10' SPACING MAX
IN TAPER

ONE LANE ROAD AHEAD
W20-4
48" X 48"
20 M.P.H.
W13-1
24" X 24"
PLACE SIGN (RIGHT)
AT -L- STA 0+00

BE PREPARED TO STOP
W3-4
48" X 48"
PLACE SIGN (RIGHT)
AT -L- STA 2+50

W3-3
48" X 48"
PLACE SIGN (RIGHT)
AT -L- STA 6+00

TEMP.SHORING
FROM -L- STA 13+92 +/-
TO -L- STA 14+25 +/-
NEEDED IN PHASE 2

MAINTAIN ACCESS TO DRIVEWAYS
DURING CONSTRUCTION

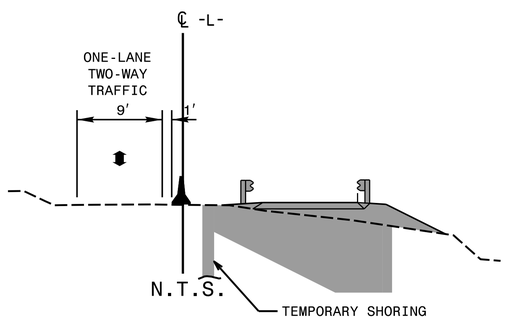
SEE SHEET PM-1 FOR TEMPORARY
PAVEMENT MARKING SCHEDULE

40 20 0 40 80
SCALE 1"=40'

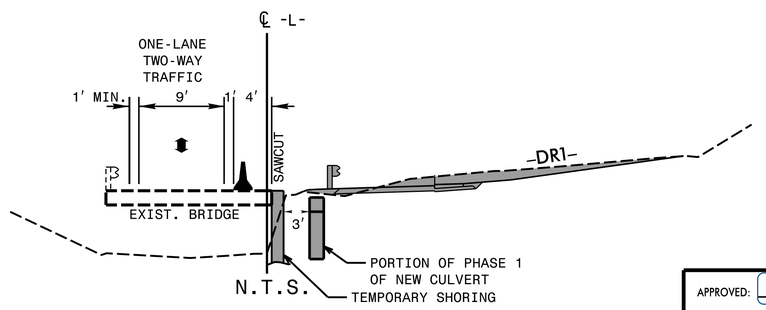
END ROAD WORK
G20-2 A
48" X 24"
PLACE SIGN (RIGHT)
AT -L- STA 28+00

SEE SHEET 2B-1 FOR DETOUR ALIGNMENT

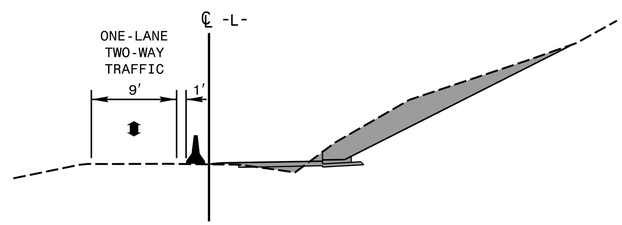
SECTION A-A
-L- STA 12+50
NOT TO SCALE



SECTION B-B
-L- STA 13+50
NOT TO SCALE



SECTION C-C
-L- STA 14+50
NOT TO SCALE



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NORTH CAROLINA PROFESSIONAL SEAL 022599 ENGINEER JAMES B. VOSCO

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASE I DETAILS

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.164	TMP-5

END ROAD WORK
G20-2 A
48" X 24"
PLACE SIGN (LEFT)
AT -L- STA 0+00

R11-2
48" x 30"
ROAD CLOSED
W1-6R
48" x 24"
TYPE III BARRICADE

R11-2
48" x 30"
ROAD CLOSED
W1-6L
48" x 24"
TYPE III BARRICADE

W24-1L
48" X 48"
20 M.P.H.
W13-1
24" X 24"
PLACE SIGN (LEFT)
AT -L- STA 17+10

W3-3
48" X 48"
PLACE SIGN (LEFT)
AT -L- STA 22+00

BE PREPARED TO STOP
W3-4
48" X 48"
PLACE SIGN (LEFT)
AT -L- STA 25+50

ONE LANE ROAD AHEAD
W20-4
48" X 48"
20 M.P.H.
W13-1
24" X 24"
PLACE SIGN (LEFT)
AT -L- STA 28+00

NC GRID
NAD 83 NA 2011

DRUM
10' SPACING MAX
IN TAPER

PORTION OF TEMP.SHORING TO BE REMOVED
TO ALLOW FOR PHASE 2 CULVERT CONSTRUCTION

TEMPORARY SHORING
FROM -L- STA 12+35
TO -L- STA 12+95
NOT NEEDED IN PHASE 2

TEMPORARY SHORING NO. 1
-L- STA 12+35 TO -L- STA 13+31

TEMPORARY SHORING NO. 2
-L- STA 13+51 TO -L- STA 14+25

P2
PA
50'
60' TAPER
40'
BUFFER
SPACE
16'
9'
SR 1300 (PAINT ROCK RD)
JS
GRASS CREEK
TBGI
TB2GI
MCF
15'
A A
B B
C C
TEMP
40'
STOP HERE ON RED
R10-6
24" X 36"
@ -L-
STA 9+50
BEGIN PROJECT
17BP.13.R.164
-L- STA 11+00
TEMPORARY
OBJECT MARKER SIGN
CRYSTAL/CRYSTAL
@ 40' SPACING
MF
END PROJECT
17BP.13.R.164
-L- STA 17+00
DRUM
20' SPACING
DRUM
10' SPACING MAX
IN TAPER
@ -L-
STA 18+50

ONE LANE ROAD AHEAD
W20-4
48" X 48"
20 M.P.H.
W13-1
24" X 24"
PLACE SIGN (RIGHT)
AT -L- STA 0+00

BE PREPARED TO STOP
W3-4
48" X 48"
PLACE SIGN (RIGHT)
AT -L- STA 2+50

W3-3
48" X 48"
PLACE SIGN (RIGHT)
AT -L- STA 6+00

W24-1R
48" X 48"
20 M.P.H.
W13-1
24" X 24"
PLACE SIGN (RIGHT)
AT -L- STA 8+50

END ROAD WORK
G20-2 A
48" X 24"
PLACE SIGN (RIGHT)
AT -L- STA 28+00

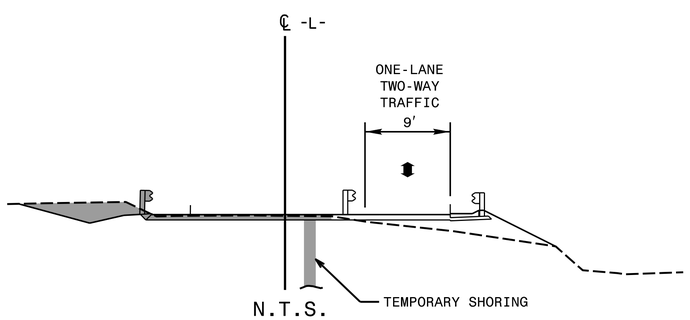
MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION

SEE SHEET PM-1 FOR TEMPORARY PAVEMENT MARKING SCHEDULE

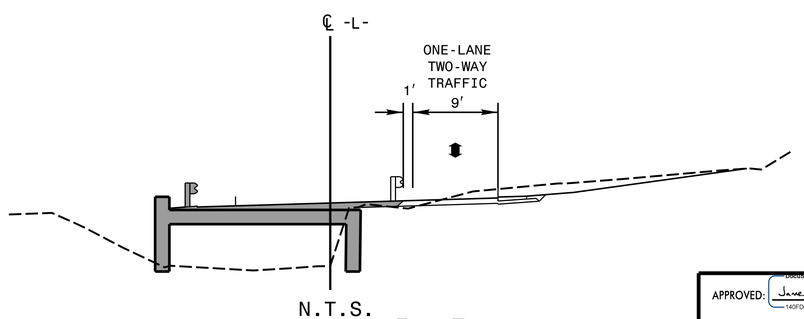
40 20 0 40 80
SCALE 1"= 40'

SEE SHEET 2B-1 FOR DETOUR ALIGNMENT

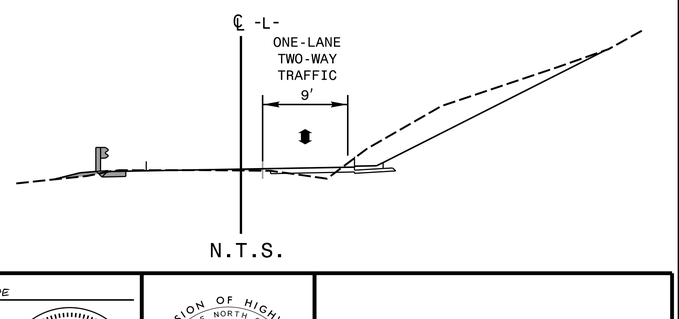
SECTION A-A
-L- STA 12+50
NOT TO SCALE



SECTION B-B
-L- STA 13+50
NOT TO SCALE



SECTION C-C
-L- STA 14+50
NOT TO SCALE



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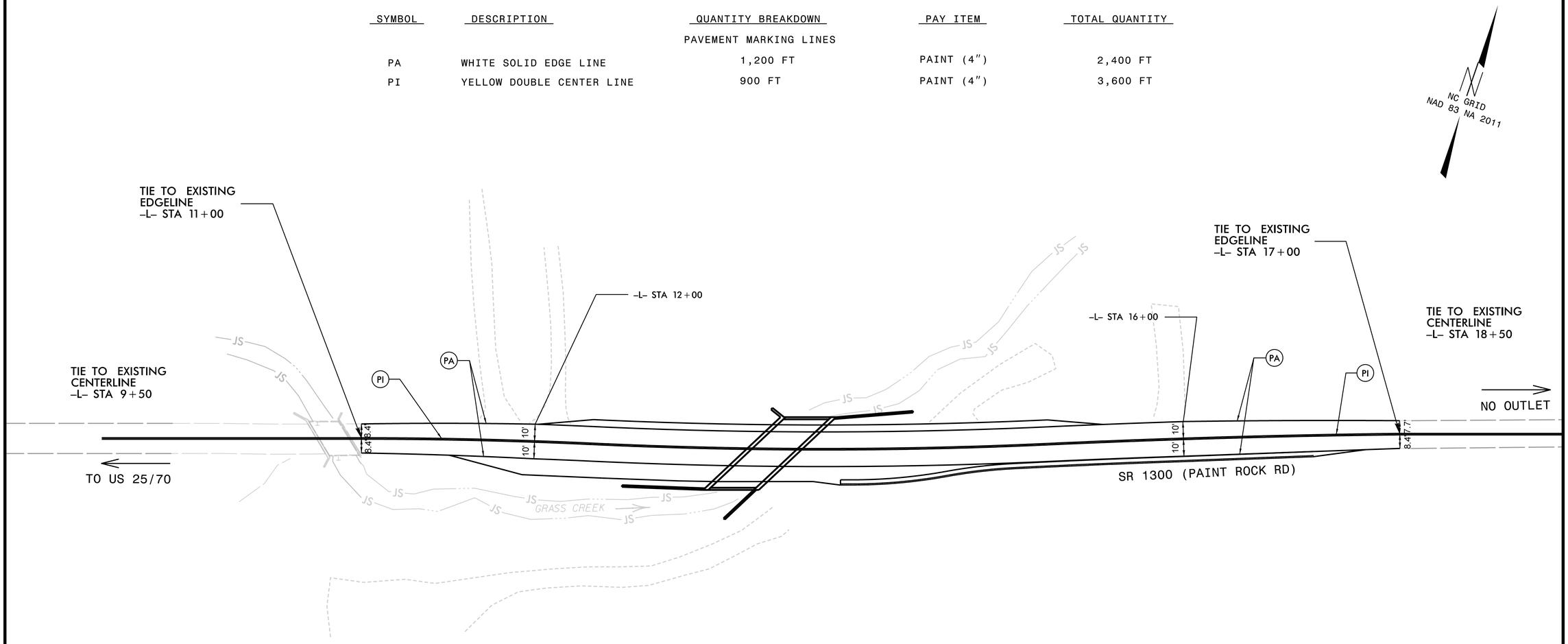
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASE II DETAILS

PROJ. REFERENCE NO.	SHEET NO.
17BP.13.R.164	PM-1

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	PAY ITEM	TOTAL QUANTITY
		PAVEMENT MARKING LINES		
PA	WHITE SOLID EDGE LINE	1,200 FT	PAINT (4")	2,400 FT
PI	YELLOW DOUBLE CENTER LINE	900 FT	PAINT (4")	3,600 FT



30 15 0 30 60

SCALE 1"=30'

NOTE: FINAL PAVEMENT MARKINGS = 2 COATS OF PAINT

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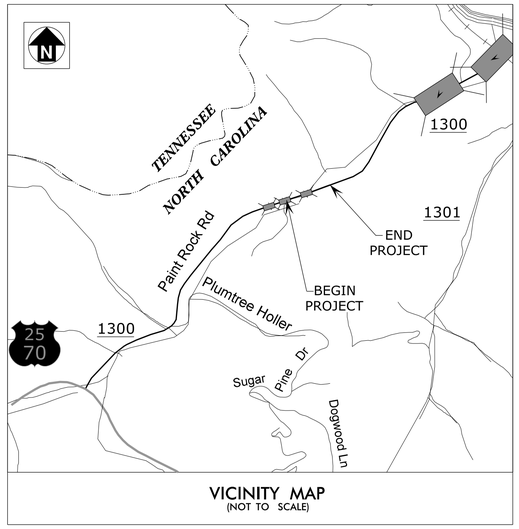
PERMANENT PAVEMENT MARKING PLAN

TIP PROJECT: 17BP.13.R.164



VICINITY MAP
(NOT TO SCALE)

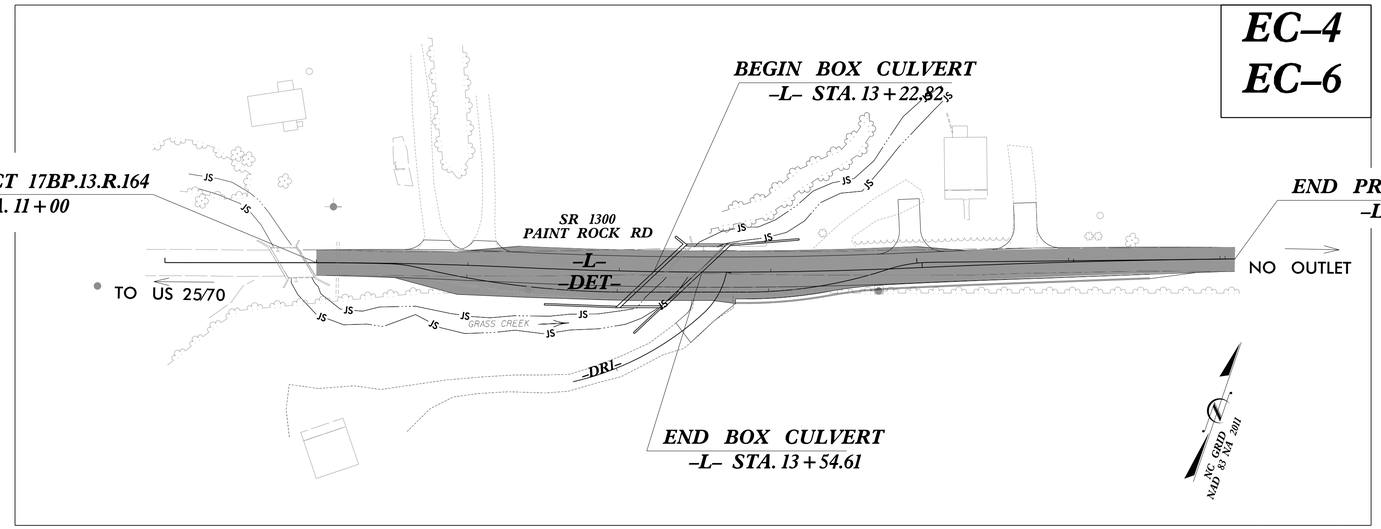
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

MADISON COUNTY

LOCATION: BRIDGE NO. 134 OVER GRASS CREEK ON SR 1300 (PAINT ROCK ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND CULVERT



EC–4
EC–6

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.R.164	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.13.PE.164	N/A	P.E.
17BP.13.ROW.164	N/A	R/W & UTIL
17BP.13.R.164	N/A	CONST

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

PLANS PREPARED BY:

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GRAPHIC SCALE

30 15 0 30 60

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.13.R.164 = 0.108 MILES

LENGTH OF STRUCTURE PROJECT 17BP.13.R.164 = 0.006 MILES

TOTAL LENGTH OF PROJECT 17BP.13.R.164 = 0.114 MILES

Prepared In the Office of:
MATTERN & CRAIG
12 BROAD ST.
ASHEVILLE, NC 28801
FOR NCDOT DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS	*Designed by:*
RIGHT OF WAY DATE: DECEMBER 18, 2018	NICK WOODS *NAME*
LETTING DATE: DECEMBER 18, 2019	4289 *LEVEL III CERTIFICATION NO.*
	MIKE CALLOWAY *NCDOT DIVISION 13 CONTACT*

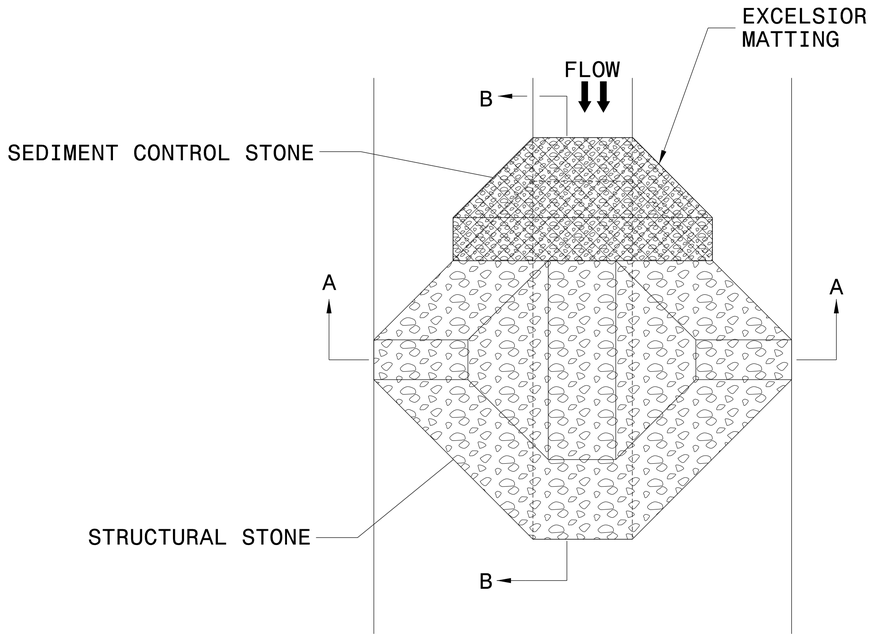
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

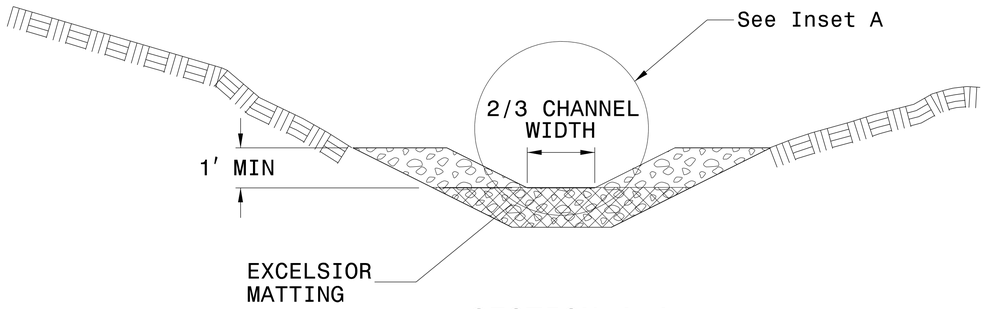
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

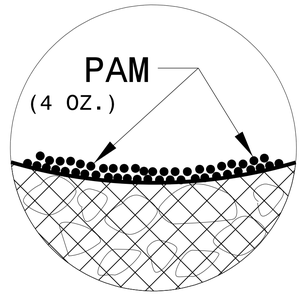
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

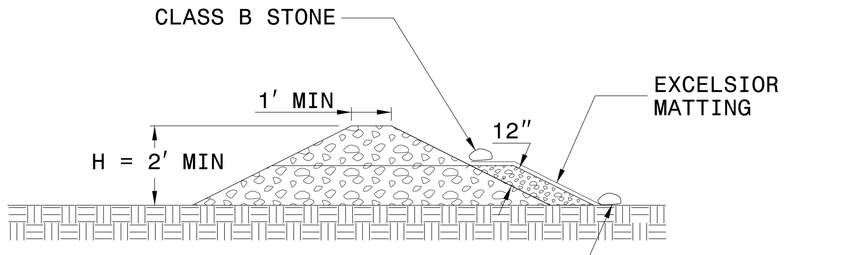
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A

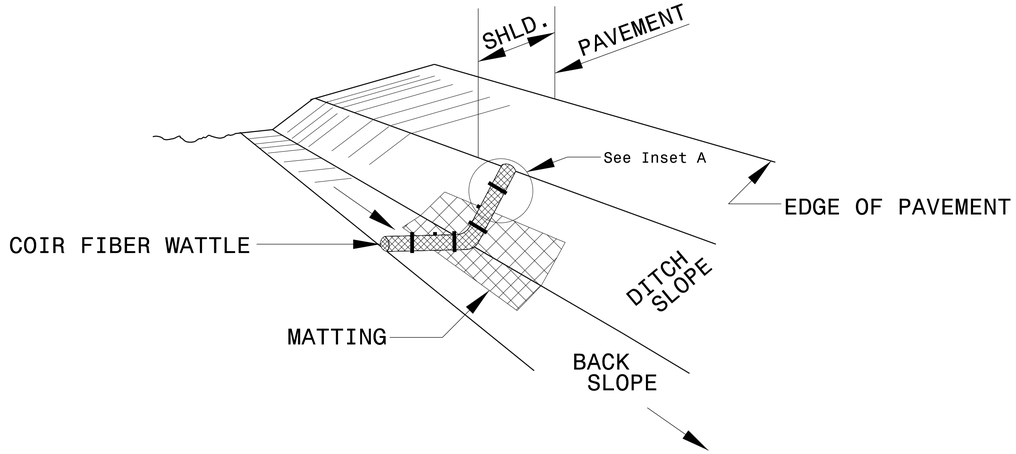


SECTION B-B

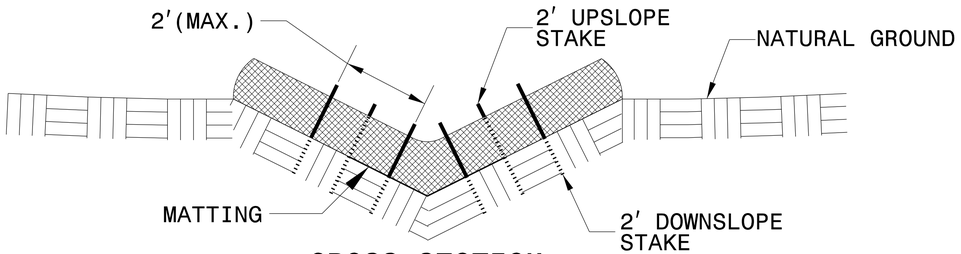
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3,R,164	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

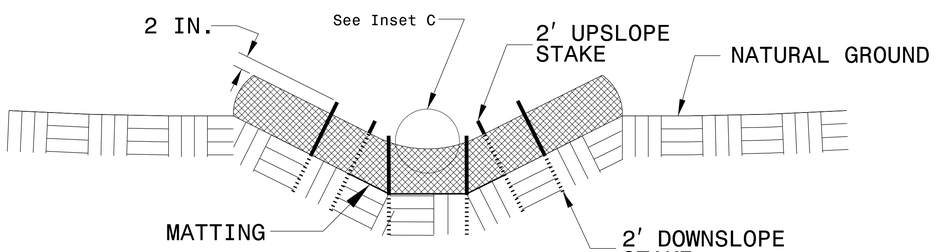
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

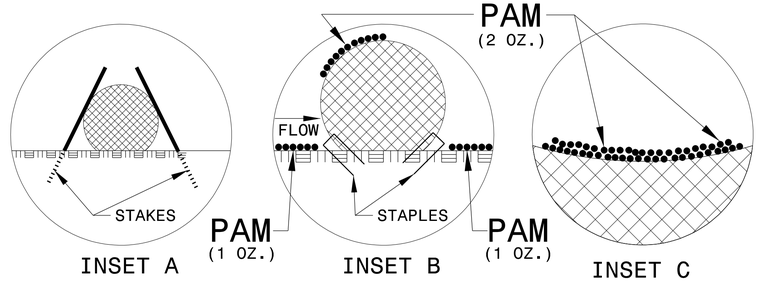
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

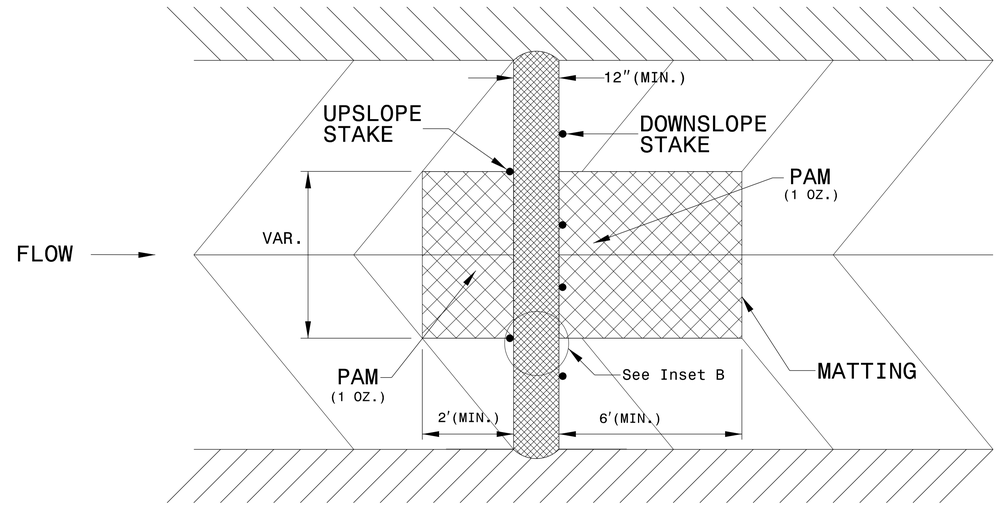
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

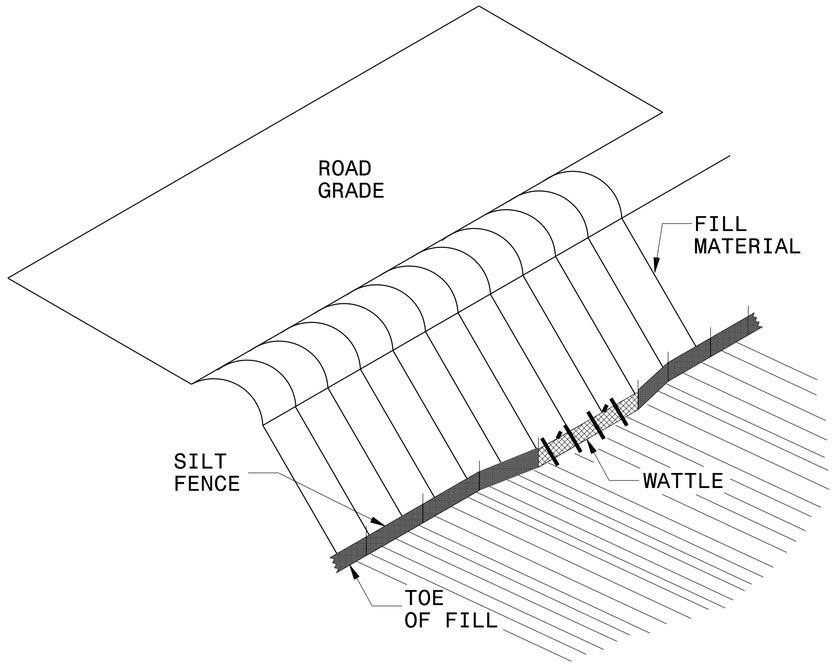




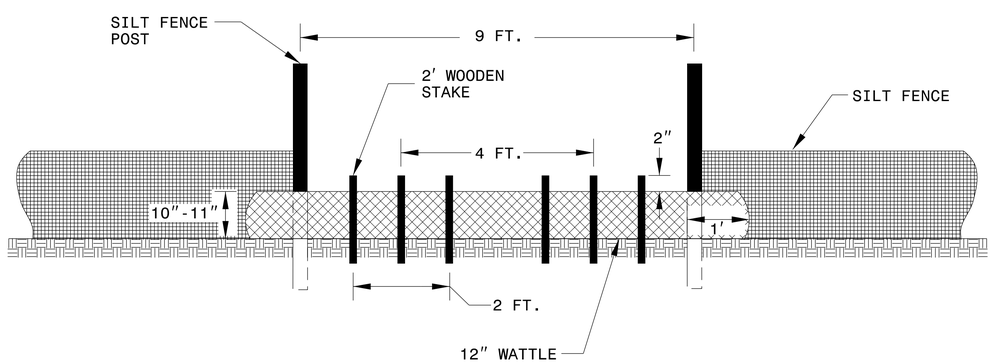
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

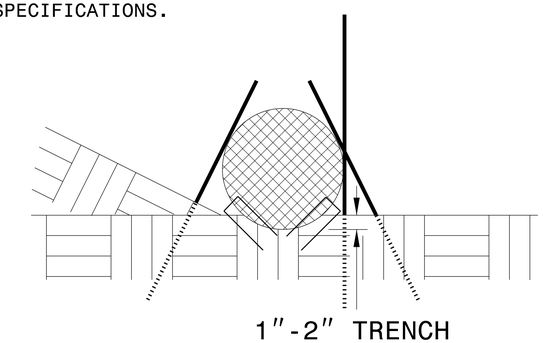
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

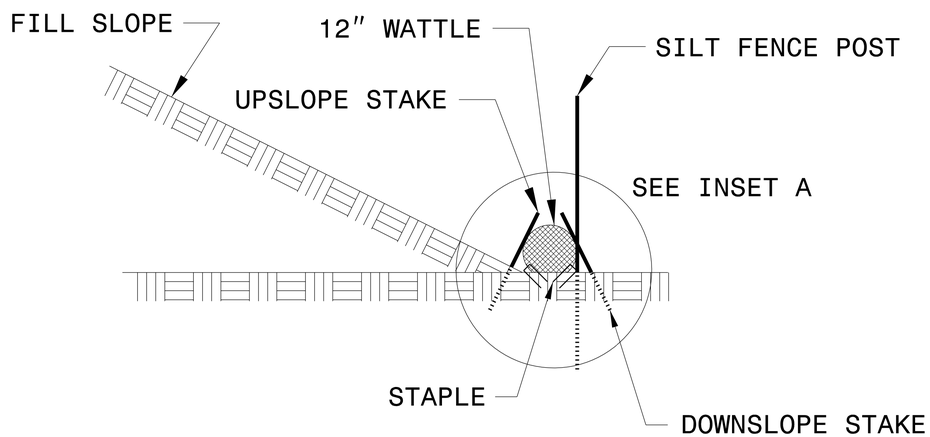
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A

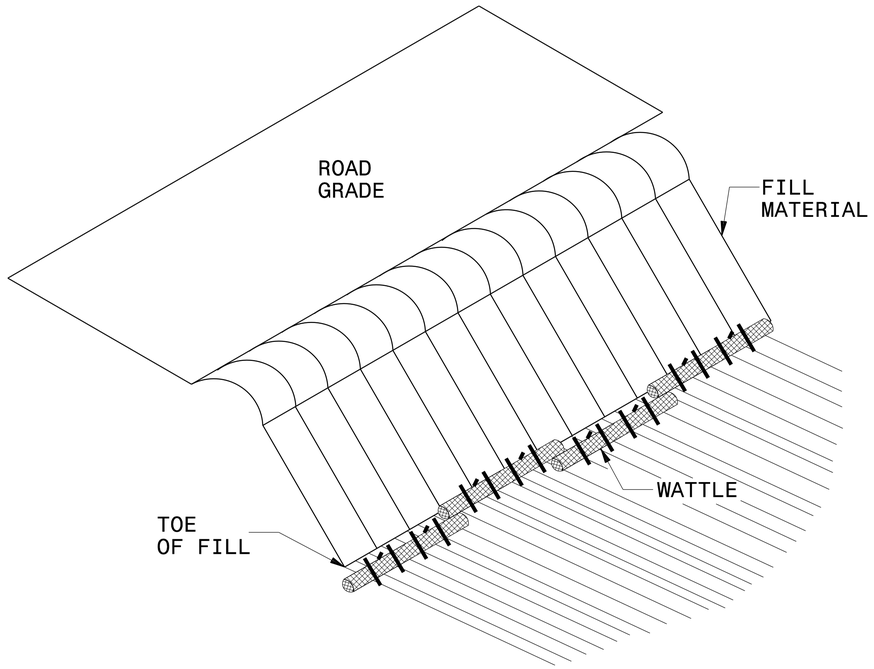




SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

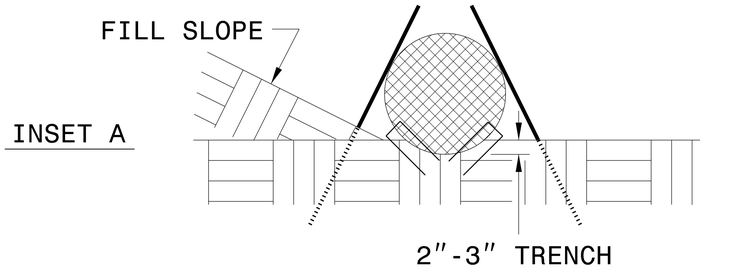
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

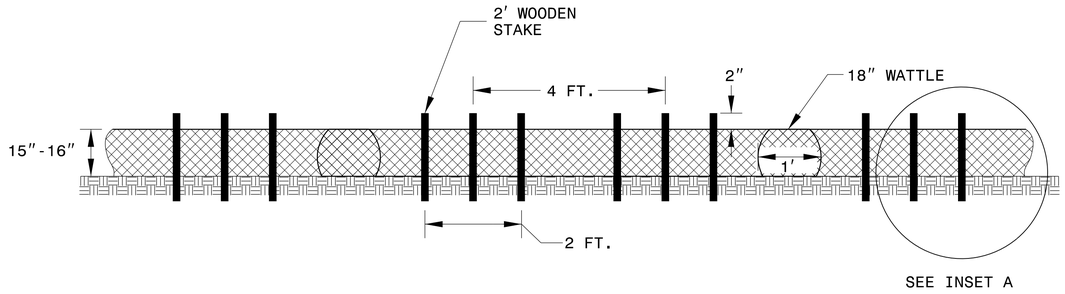
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

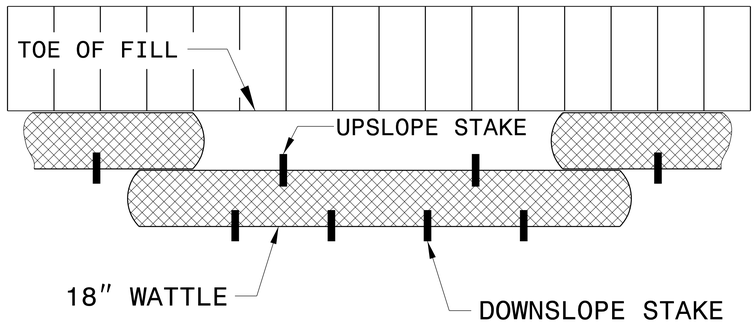
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.





FRONT VIEW



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.164	EC-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+50	13+40	LT	45
				SUBTOTAL	45
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					2255
				TOTAL	2300
				SAY	2300

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	
		ADDITIONAL PSRM TO BE INSTALLED			
				TOTAL	
				SAY	

PROJECT REFERENCE NO.	SHEET NO.
17.BP.13.164	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS • SURVEYORS

REVISIONS

CLASS II RIPRAP EST 16 TON
FILTER FABRIC 13 SY

BEGIN CULVERT
–L– STA 13+22.82

8" ABC

PROPOSED EXCAVATION AND
FLOODPLAIN BENCH (TYP.)

END CULVERT
–L– STA 13+54.61

+80.00
50.00 LT
27.71 LT

28 TONS
8" ABC

+05.00
50.00 LT
44.00 LT

8" ABC

DO NOT
DISTURB WELL

END SBG
–L– STA 16+50

125' TAPER
LT & RT

END PROJECT
17BP.13.R.164
–L– STA 17+00.00

BEGIN SBG
–L– STA 13+77

CLASS II RIPRAP EST= 2 TON
FILTER FABRIC EST= 2 SY

BEGIN PROJECT
17BP.13.R.164
–L– STA 11+00.00

100' TAPER
LT & RT

CLASS II RIPRAP EST 1 TON
FILTER FABRIC 1 SY

26 TONS
8" ABC

END CONSTRUCTION
–DR1– STA 10+50

SR 1300 (PAINT ROCK RD)

GRASS CREEK

GREU TL-3

4' FDPS

FDPS

AT-1

SHOULDER BERM GUTTER

-DR1- CURVE DATA

PI Sta 10+16.46	PI Sta 10+82.02
Δ = 35°26'17.4" (RT)	Δ = 28°36'48.2" (RT)
D = 114°35'29.6"	D = 30°09'20.4"
L = 31.80'	L = 98.20'
T = 16.46'	T = 50.22'
R = 50.00'	R = 190.00'

PI Sta 11+66.73	PI Sta 13+65.31	PI Sta 15+98.50
Δ = 2°40'23.9" (RT)	Δ = 51°16'46.9" (LT)	Δ = 1°57'17.5" (RT)
D = 2°00'12.1"	D = 2°00'12.0"	D = 0°57'46.6"
L = 133.44'	L = 263.54'	L = 203.01'
T = 66.73'	T = 131.87'	T = 101.51'
R = 2,860.00'	R = 2,860.00'	R = 5,950.00'
	SE = .03	
	RO = 7.6.5'	

-L- CURVE DATA

NC GRID
NAD 83
NA 2011

CLEARING AND GRUBBING PHASE NOTE:
1. INSTALL PERIMETER EROSION CONTROL DEVICES PRIOR TO CONSTRUCTION.
2. INSTALL IMPERVIOUS DIKES AND TEMPORARY 24" HDPE PIPE. TOP OF DIKE SHOULD BE 1' ABOVE SOFFIT.
3. IMPERVIOUS DIKE SHALL BE INSTALLED PRIOR TO BRIDGE REMOVAL UPSTREAM AND DOWNSTREAM OF CONSTRUCTION TO CONTAIN THE WORK SITE AND SHALL BE DE-WATERED WITH SPECIAL STILLING BASINS. PLACEMENT SHALL BE APPROVED BY THE ENGINEER.

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.R.164	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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CULVERT CONSTRUCTION SEQUENCE STA. 13+38.70 –L–

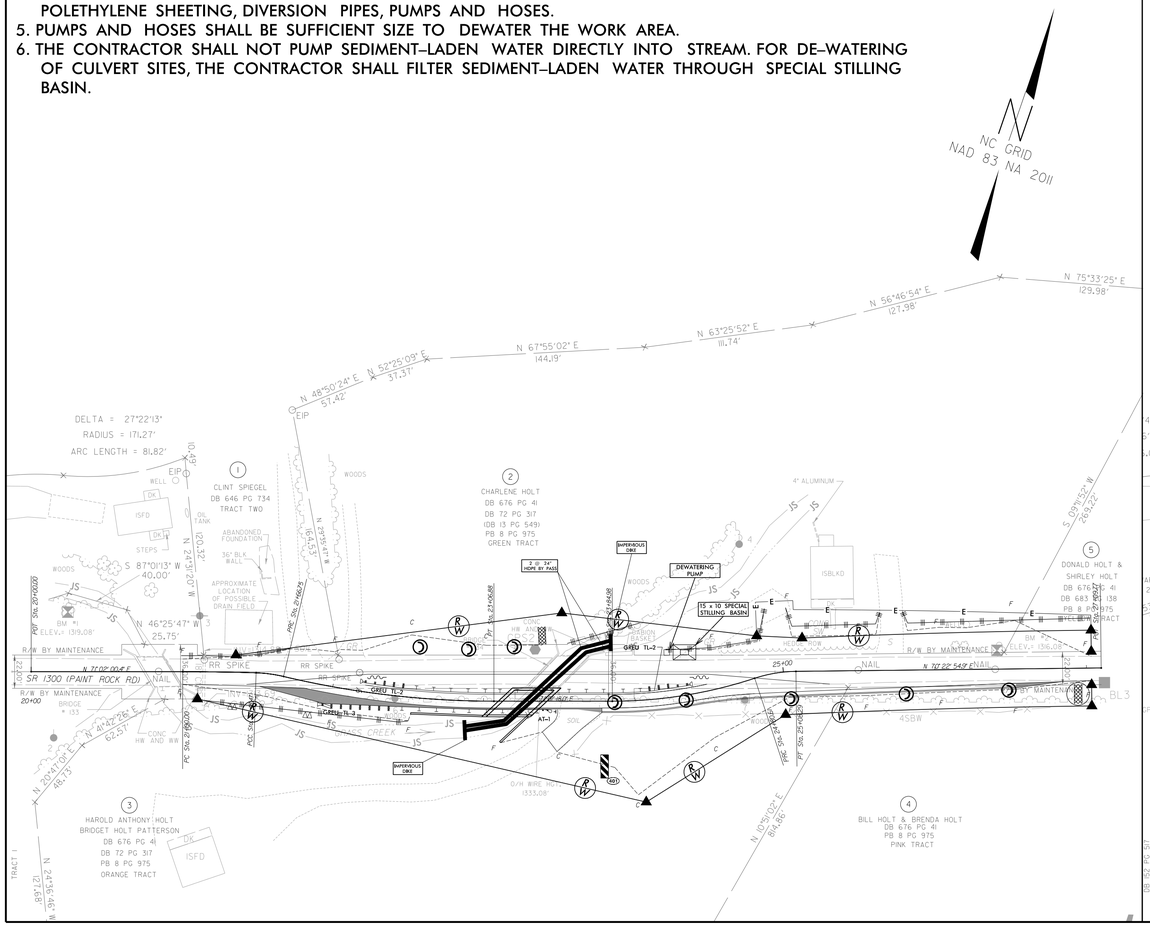
PHASE I

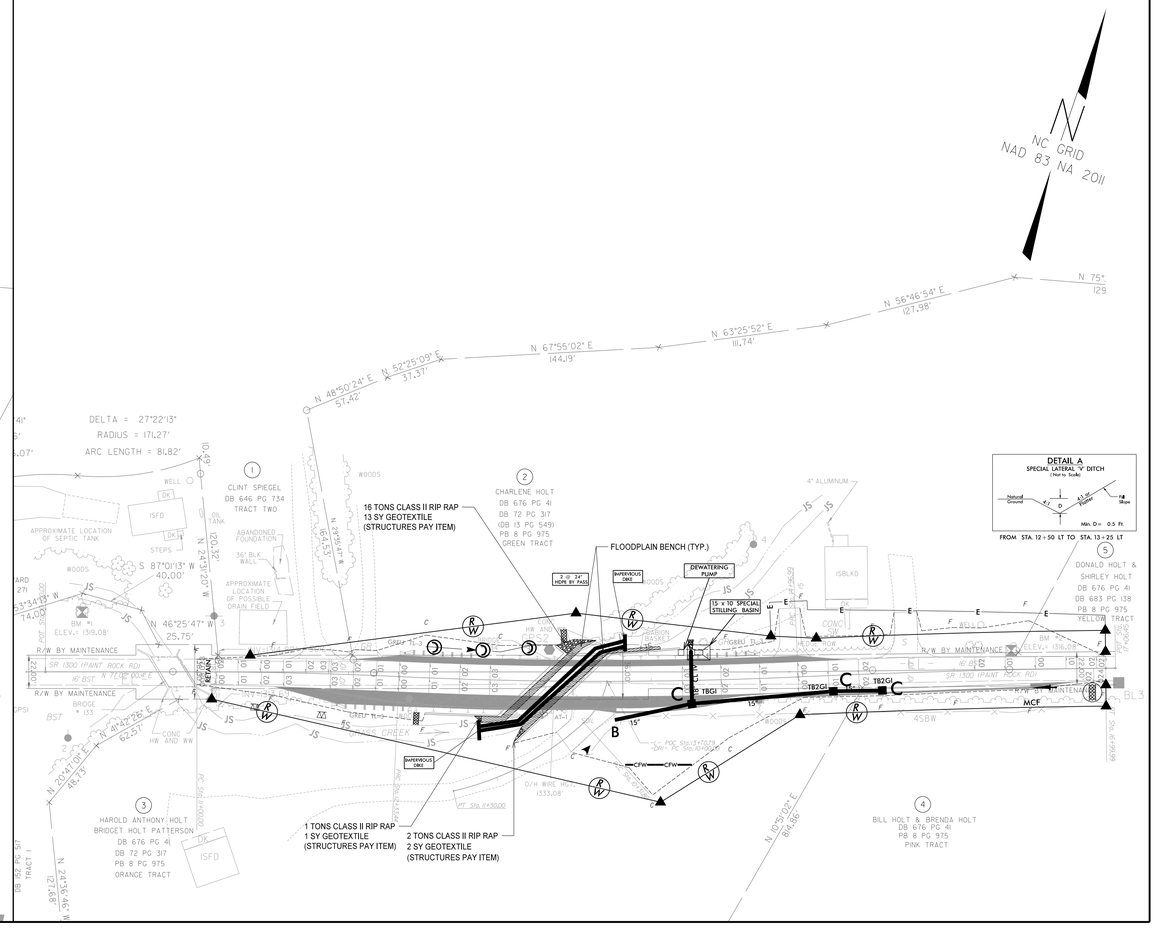
1. INSTALL PERIMETER EROSION CONTROL DEVICES PRIOR TO CONSTRUCTION AS SHOWN IN THE CLEARING AND GRUBBING PHASE
2. INSTALL IMPERVIOUS DIKES AND TEMPORARY 24" HDPE PIPE. TOP OF DIKE SHOULD BE 1' ABOVE SOFFITT.
3. INSTALL DEWATERING PUMP AND SILT BAG AS DIRECTED BY THE ENGINEER.
4. CONSTRUCT UPSTREAM SECTION (STAGED CONSTRUCTION) OF PROPOSED 3–SIDED CULVERT.
5. CONSTRUCT A PORTION OF THE PROPOSED ROADWAY SUFFIECIENT TO ALLOW TRAFFIC THROUGH THE SITE AS DESCRIBED IN TRAFFIC MANAGEMENT PLANS.

PHASE II

1. INSTALL FINAL GRADE EROSION CONTROL DEVICES AS REMOVAL OF THE EXISTING ROADWAY AND BRIDGE MAKE THEM NECESSARY.
2. SHIFT TRAFFIC, AS DESCRIBED IN THE TRAFFIC MANAGEMENT PLANS, TO ONE LANE, TWO WAY PATTERN ON THE UPSTREAM SIDE OF THE NEW STRUCTURE STAGED CULVERT AND CONSTRUCT DOWNSTREAM SIDE OF 3–SIDED CULVERT.
3. REMOVE EMBANKMENT AND ROADWAY BEHIND THE WINGWALLS OF THE EXISTING BRIDGE PRIOR TO REMOVAL OF THE BRIDGE ITSELF. THIS WILL PREVENT SEDIMENT FROM BEING DEPOSITED IN THE STREAM BED.
4. CONSTRUCT THE REMAINDER OF THE PROPOSED ROADWAY.
5. ENSURE DISTURBED LAND IS STABILIZED.
6. REMOVE TEMPORARY EROSION CONTROL DEVICES

NOTES:
1. CULVERT CONSTRUCTION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
5. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
6. THE CONTRACTOR SHALL NOT PUMP SEDIMENT–LADEN WATER DIRECTLY INTO STREAM. FOR DE–WATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT–LADEN WATER THROUGH SPECIAL STILLING BASIN.





PROJECT REFERENCE NO.	SHEET NO.
17.BPJ3.164	EC-6/CONST.-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Mattern & Craig
ENGINEERS • SURVEYORS

REVISIONS

N 48°50'24" E
57.42'

N 52°25'09" E
37.37'

N 67°55'02" E
144.19'

N 63°25'52" E
111.74'

N 56°46'54" E
127.98'

N 75°
126

DELTA = 32°05'41"
RADIUS = 189.36'
ARC LENGTH = 106.07'

DELTA = 27°22'13"
RADIUS = 171.27'
ARC LENGTH = 81.82'

16 TONS CLASS II RIP RAP
13 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

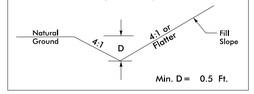
INSTALL MATTING IN THE PROPOSED DITCH LINE
-L- STA 12+50 TO 13+40 LT
EST. 45 SY

FLOODPLAIN BENCH (TYP.)

SPECIAL LATERAL 'V' DITCH
SEE DETAIL A

EST. 2 TONS
CLASS B RIP-RAP
7 S.Y. GEOTEXTILE

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 12+50 LT TO STA. 13+25 LT

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

1 TONS CLASS II RIP RAP
1 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

2 TONS CLASS II RIP RAP
2 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

PLACE COIR FIBER MATTING ALONG THE STREAMBANK AT LOCATIONS WHICH WILL NOT BE PLATED IN CLASS II RIPRAP, BUT WILL BE EXPOSED BY REMOVAL OF END BENTS.
-L- STA 13+18 TO 13+78 RT EST. 100 SY

1 CLINT SPIEGEL
DB 646 PG 734
TRACT TWO

2 CHARLENE HOLT
DB 676 PG 41
DB 72 PG 317
(DB 13 PG 549)
PB 8 PG 975
GREEN TRACT

3 HAROLD ANTHONY HOLT
BRIDGET HOLT PATTERSON
DB 676 PG 41
DB 72 PG 317
PB 8 PG 975
ORANGE TRACT

4 BILL HOLT & BRENDA HOLT
DB 676 PG 41
PB 8 PG 975
PINK TRACT

5 DONALD HOLT & SHIRLEY HOLT
DB 676 PG 41
DB 683 PG 138
PB 8 PG 975
YELLOW TRACT

BILLY M. WARD
DB 341PG 271

CHARLES KENNETH RICKER
DB 652 PG 517
TRACT 1

S 87°01'13" W
40.00'

S 53°34'13" W
74.00'

N 24°31'20" W
120.32'

N 46°25'47" W
25.75'

N 24°36'46" W
121.68'

N 20°47'01" E
48.73'

N 41°42'26" E
62.57'

N 10°51'02" E
84.86'

N 29°35'47" W
164.53'

-DRI- CURVE DATA

PI Sta. 10+16.46	PI Sta. 10+82.02
Δ = 36° 26' 17.4" (RT)	Δ = 29° 36' 48.2" (RT)
D = 114° 35' 29.6"	D = 30° 09' 20.4"
L = 31.80'	L = 98.20'
T = 16.46'	T = 50.22'
R = 50.00'	R = 190.00'

-L- CURVE DATA

PI Sta. 11+66.73	PI Sta. 13+65.31	PI Sta. 15+98.50
Δ = 2° 40' 23.9" (RT)	Δ = 5° 16' 46.9" (LT)	Δ = 1° 51' 17.5" (RT)
D = 2° 00' 12.1"	D = 2° 00' 12.1"	D = 0° 57' 46.6"
L = 133.44'	L = 263.54'	L = 203.01'
T = 66.73'	T = 131.87'	T = 101.51'
R = 2,860.00'	R = 2,860.00'	R = 5,950.00'
	SE = 03	
	RO = 76.5'	

NC GRID
NAD 83
NA 2011

PROJECT REFERENCE NO.	SHEET NO.
17BP.13.RJ.64	U0-1

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

8/17/99

REVISIONS

MOVE O/H CATV LINES

REROUTE AERIAL CATV (FO) TO NEW POLE

NEW POLE

REMOVE POLE

TREE TRIMMING NEEDED DUE TO RELOCATED POLES AND O/H LINES

REMOVE U/G CATV LINES

NEW T PED

REMOVE T PED

REMOVE POLE

NEW POLE
USE TALLER POLE
DUE TO PLACEMENT
IN CUT

NEW POLE

16 TONS CLASS II RIP RAP
13 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

FLOODPLAIN BENCH (TYP.)

SPECIAL LATERAL 'V' DITCH SEE DETAIL A

0403 EST. 2 TONS CLASS B RIP-RAP 7 S.Y. GEOTEXTILE

1 TONS CLASS II RIP RAP
1 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

2 TONS CLASS II RIP RAP
2 SY GEOTEXTILE
(STRUCTURES PAY ITEM)

CLINT SPIEGEL
DB 646 PG 734
TRACT TWO

CHARLENE HOLT
DB 676 PG 41
DB 72 PG 317
(DB 13 PG 549)
PB 8 PG 975
GREEN TRACT

BILLY M. WARD
DB 341 PG 271

HAROLD ANTHONY HOLT
BRIDGET HOLT PATTERSON
DB 676 PG 41
DB 72 PG 317
PB 8 PG 975
ORANGE TRACT

CHARLES KENNETH RICKER
DB 152 PG 517
TRACT 1

DONALD HOLT & SHIRLEY HOLT
DB 676 PG 41
DB 683 PG 138
PB 8 PG 975
YELLOW TRACT

BILL HOLT & BRENDA HOLT
DB 676 PG 41
PB 8 PG 975
PINK TRACT

-DRI- CURVE DATA

PI Sta 10+16.46	PI Sta 10+82.02
Δ = 36° 26' 17.4" (RT)	Δ = 29° 36' 48.2" (RT)
D = 114° 35' 29.6"	D = 30° 09' 20.4"
L = 31.80'	L = 98.20'
T = 16.46'	T = 50.22'
R = 50.00'	R = 190.00'

-L- CURVE DATA

PI Sta 11+66.73	PI Sta 13+65.31	PI Sta 15+98.50
Δ = 2° 40' 23.9" (RT)	Δ = 5° 16' 46.9" (LT)	Δ = 1° 57' 17.5" (RT)
D = 2° 00' 12.1"	D = 2° 00' 12.1"	D = 0° 57' 46.6"
L = 133.44'	L = 263.54'	L = 203.01'
T = 66.73'	T = 131.87'	T = 101.51'
R = 2,860.00'	R = 2,860.00'	R = 5,950.00'
	SE = 03	
	RO = 76.5'	

UTILITY OWNERS

TELEPHONE
FRONTIER COMMUNICATIONS
84 ALLEN STREET
SYLVA, N.C. 28779

FRENCH BROAD ELECTRIC
MEMBERSHIP CORP.
3043 NC-213
MARSHALL, NC 28753

NC GRID
NAD 83 NA 2011

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(828) 254-2201
FAX (828) 254-4562

COMPUTED BY: MY DATE: 11/20/18
CHECKED BY: ACC DATE: 11/20/18

PROJECT REFERENCE NO.	SHEET NO.
17BPJ3.RJ64	X-0

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

CROSS SECTION SUMMARY

IN CUBIC YARDS

–L– LOCATION	UNCLASSIFIED EXCAVATION	EMBT
11+00	0	0
11+50	3	13
12+00	3	21
12+50	26	38
13+00	38	62
13+22.82 (BEGIN CULVERT)	12	36
13+54.61 (END CULVERT)	0	0
14+00	305	121
14+50	358	16
15+00	51	29
15+50	6	28
16+00	8	29
16+50	10	44
17+00	9	48

–DR1– LOCATION	UNCLASSIFIED EXCAVATION	EMBT
10+19.18	0	0
10+25	29	0
10+50	123	0

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the contract lump sum price for "grading".

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.13.R.164	X-1

8/23/99

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A:1 50:1 0.025 1316.27 0.025 2:1

1316.11

S.S. 1314.00

12+00.00

0.005 1317.21 0.025 3:1

1317.04

S.S. 1315.88

11+50.00

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1345 1340 1335 1330 1325 1320 1315 1310 1305

BEGIN CULVERT
–L– STA 13+22.82

1314.96

4:1 4:1

0.025 0.025

1313.96

1314.71

8' W6X9 POSTS

WALL

13+00.00

1315.50

4:1 4:1

0.000 0.000

1314.50

1315.27

2:1

S.S. 1312.20

12+50.00

–L–

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1345 1340 1335 1330 1325 1320 1315 1310 1305

S.S. 1342

2:1

1314.98

1314.39

0.030 0.030

WALL

1314.36

14+00.00

END CULVERT
–L– STA 13+56.61

1315.23

1314.63

–DR1–

S.S. 1318.17

0.030 0.030

1307.91

13+50.00

–L–

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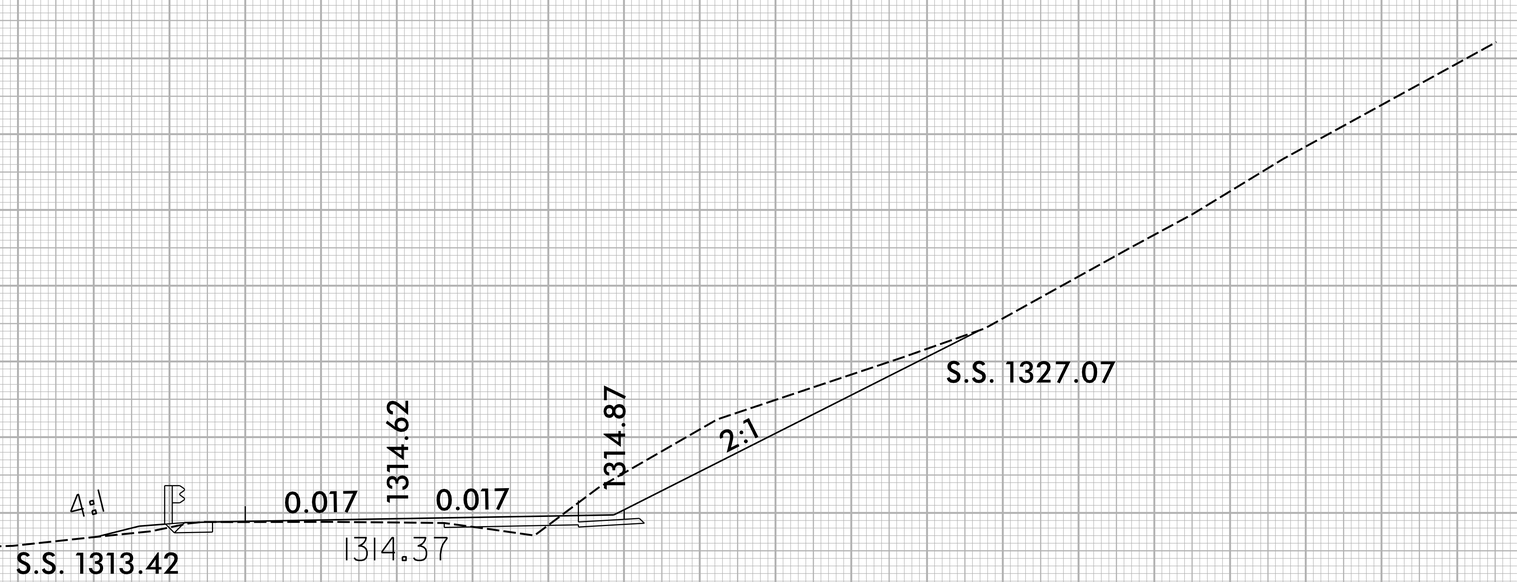

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8/23/99

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15%
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0.004
1314.87
1314.82
1314.61

15+00.00

—℄—

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barross

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8/23/99

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1355 1355

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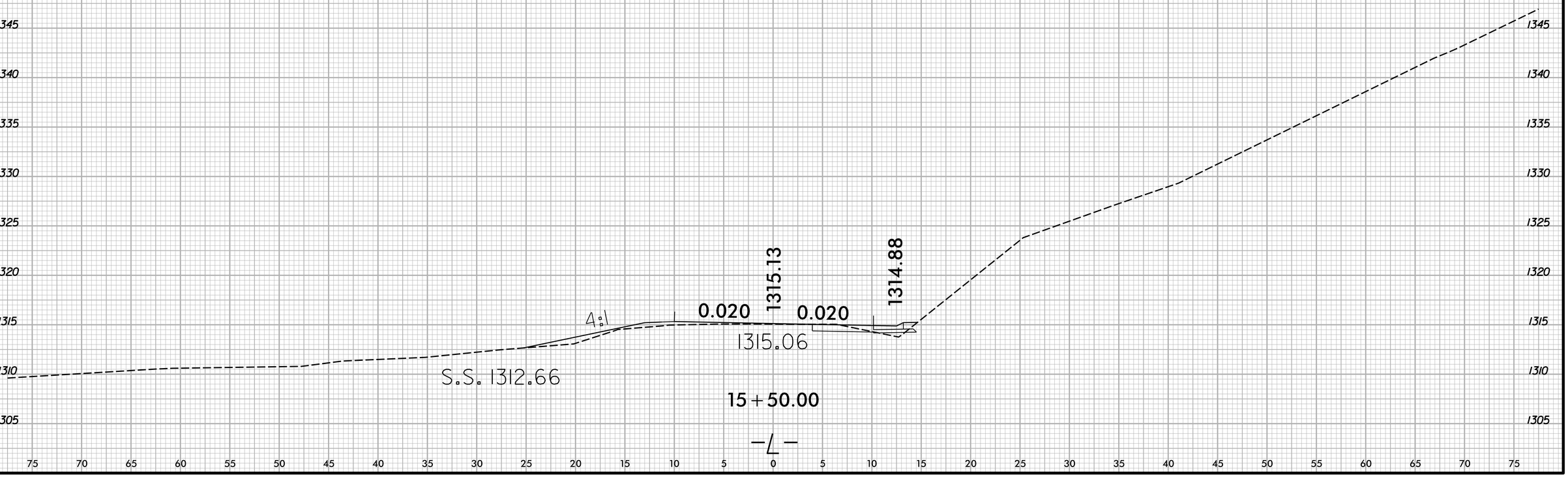

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Bob Ross

8/23/99

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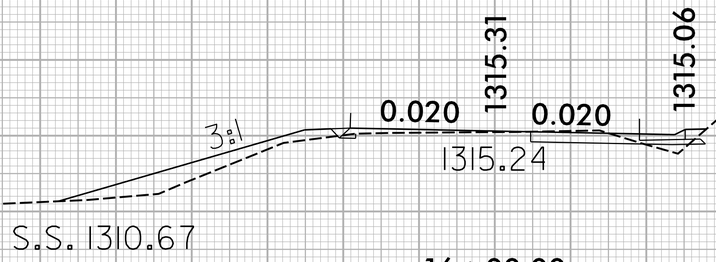

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Barross

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3:1
S.S. 1308.62
16+50.00
℄

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0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
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END PROJECT
–L– STA 17+00.00

1314.58

0.023 0.024

1314.58

17+00.00

–L–

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.13.R.164	X-11

END CONSTRUCTION
–DR1– STA 10+50

EXIST EXIST
1318.49

10+50.00

S.S. 1339.36

CRYSTALLINE GNEISS

2:1

3:1

1315.84

0.030 0.030

1316.41

1315.04

10+25.00

–DR1–

8/23/99

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10+75.00

-DRI-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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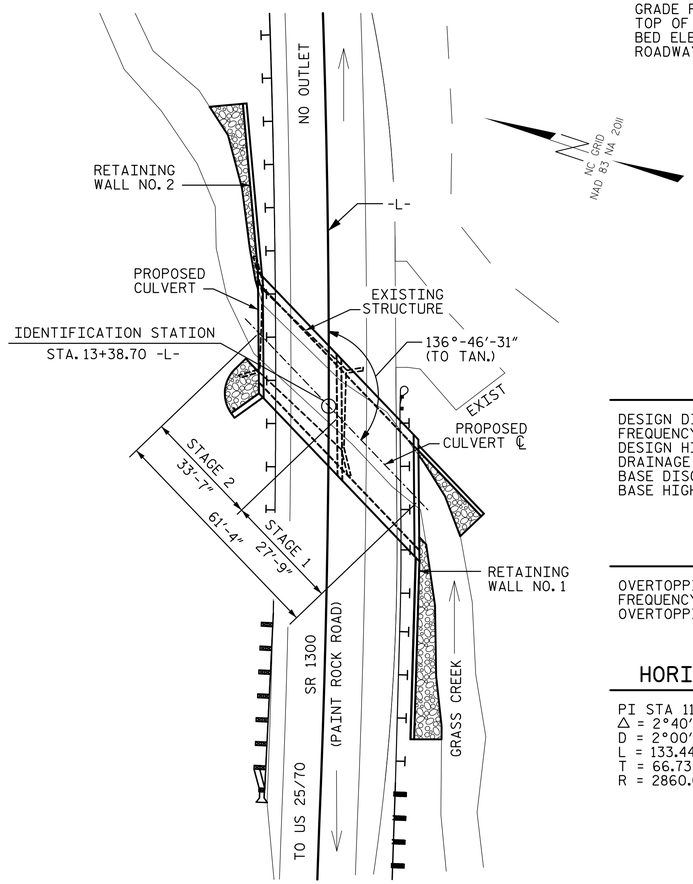
B.M. #1: RR SPIKE SET IN BASE OF 20" WALNUT -L- STA. 10+24.23 39.31' LT., EL. 1319.08' NAVD 88

GRADE POINT ELEV. @ STA. 13+38.70 -L- = 1314.68
TOP OF FOOTING ELEV. @ STA 13+38.70 -L- = 1308.57
BED ELEV. @ STA. 13+38.70 -L- = 1306.83
ROADWAY SLOPES = 2:1



LOCATION SKETCH

NO KNOWN UTILITY CONFLICTS

HYDRAULIC DATA

DESIGN DISCHARGE	600 CFS
FREQUENCY OF DESIGN FLOOD	10 YR.
DESIGN HIGH WATER ELEVATION	1313.5 FT
DRAINAGE AREA	2.8 SQ. MI.
BASE DISCHARGE (Q 100)	1200 CFS
BASE HIGH WATER ELEVATION	1316.0 FT

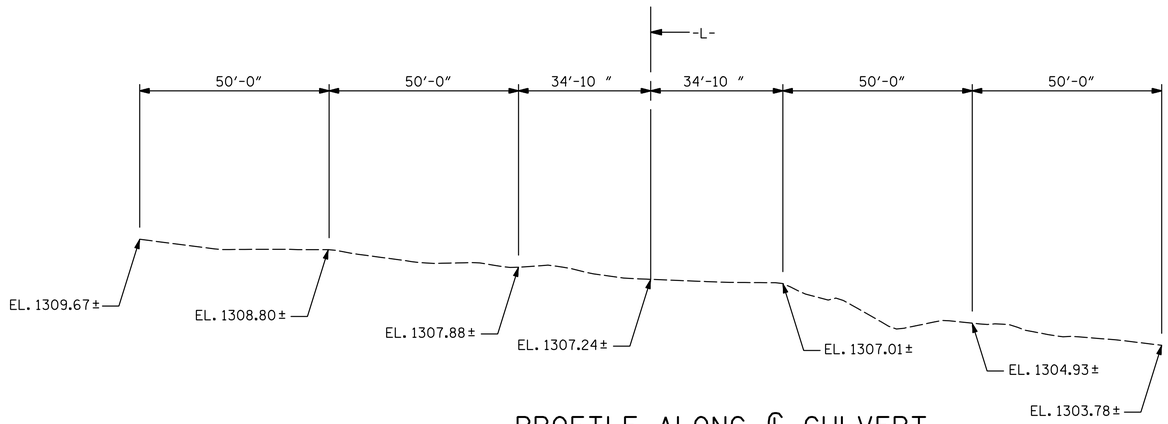
OVERTOPPING DATA

OVERTOPPING DISCHARGE	850 CFS
FREQUENCY OF OVERTOPPING FLOOD	25 YR.
OVERTOPPING FLOOD ELEVATION	1314.8 FT

HORIZONTAL CURVE DATA -L-

PI STA 11+66.73
Δ = 2°40' 23.9" (RT)
D = 2°00' 12.1"
L = 133.44'
T = 66.73'
R = 2860.00'

PI STA 13+65.31
Δ = 5°16' 46.9" (LT)
D = 2°00' 12.1"
L = 263.54'
T = 131.87'
R = 2860.00'
SE = 0.3
RO = 76.5'



PROFILE ALONG ℄ CULVERT

NOTES:

ASSUMED LIVE LOAD = HL-93

MAXIMUM DESIGN FILL---------- 3'-0"

MINIMUM DESIGN FILL---------- 1'-9"

TOP OF FOOTING ELEVATIONS:
UPSTREAM = 1,308.92'
DOWNSTREAM = 1,308.22'

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE, CONSISTING OF (1) 22'-0" TIMBER DECK ON I-BEAMS SPAN WITH A 17'-0" CLEAR ROADWAY WIDTH ON CONCRETE BENT CAPS AND LOCATED AT THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRUTY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING STRUCTURE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR OTHER DESIGN DATA AND NOTES, SEE SHEET SN.

FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PRECAST CULVERT SECTIONS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.

THE CONTRACTOR SHALL SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR CAST-IN-PLACE OR PRECAST HEADWALLS AND WINGWALLS, AND CAST-IN-PLACE FOOTINGS. PLANS AND DESIGN CALCULATIONS SHALL BE CHECKED AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+38.70 -L-".

TRAFFIC ON SR 1300 SHALL BE MAINTAINED. IN ORDER TO MAINTAIN TRAFFIC THE CULVERT SHALL BE CONSTRUCTED IN SECTIONS AS SHOWN IN THE STAGING PLANS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

THE BOTTOM OF FOOTINGS MAY BE LOWERED IF NECESSARY TO ACHIEVE REQUIRED BEARING CAPACITY.

BACKFILL FLOODPLAIN BENCH WITH NATIVE MATERIAL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

THE ENTIRE COST OF WORK REQUIRED TO CONSTRUCT AND BACKFILL THE FLOODPLAIN BENCH AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 13+38.70 -L-

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18 "EVALUATING SCOUR AT BRIDGES"

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

FOR CONSTRUCTION SEQUENCE, SEE EROSION CONTROL PLANS.

FOUNDATION NOTES

FOOTINGS SHALL BE KEYED A MINIMUM OF 12 INCHES INTO WEATHERED OR CRYSTALLINE ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

SCOUR PROTECTION SHALL BE REQUIRED. RIP RAP IS NOT TO BE PLACED ABOVE THE STREAMBED.

THE SCOUR CRITICAL ELEVATION IS THE AS BUILT BOTTOM OF FOOTING ELEVATION. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE CONTRACTOR IS RESPONSIBLE FOR GEOTECHNICAL INVESTIGATION IN ORDER TO DESIGN THE SPREAD FOOTING FOR THE THREE-SIDED CULVERT AND VERIFY THE NOMINAL BEARING CAPACITY FOR THE RETAINING WALLS.

TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, DO NOT CONSTRUCT SPREAD FOOTINGS FOR THE CULVERT AT AN ELEVATION HIGHER THAN SHOWN ON THE PLANS.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE @ STA. 13+38.70 -L-	LUMP SUM
UNCLASSIFIED STRUCTURE EXCAVATION	LUMP SUM
FOUNDATION EXCAVATION	7.5 C.Y.
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 13+38.70 -L-	LUMP SUM
CLASS A CONCRETE	46.0 C.Y.
ASBESTOS ASSESSMENT	LUMP SUM
CLASS A CONCRETE (RETAINING WALL)	55.3 C.Y.
REINFORCING STEEL (RETAINING WALL)	6,000 LBS
RIP RAP, CLASS II	19 TON
GEOTEXTILE FOR DRAINAGE	113.8 S.Y.

PROJECT NO. 17.BP.13.R.164
MADISON COUNTY
STATION: 13+38.70 -L-
SHEET 1 OF 8 REPLACES BRIDGE NO. 134

DRAWN BY : CTB DATE : 12-21
CHECKED BY : TJT DATE : 12-21
DESIGN ENGINEER OF RECORD: T. TOWNSEND DATE : 12-21

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by: Timothy J. Townsend
DEC1B5E1A1E4A4...
NORTH CAROLINA PROFESSIONAL SEAL 34955 ENGINEER TIMOTHY J. TOWNSEND
12/16/2021

Mattern & Craig
ENGINEERS·SURVEYORS
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562
NC LIC. NO. C-1154

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT
136°-46'-31"

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			8

DATE: 12/16/2021 TIME: 9:16:39 AM
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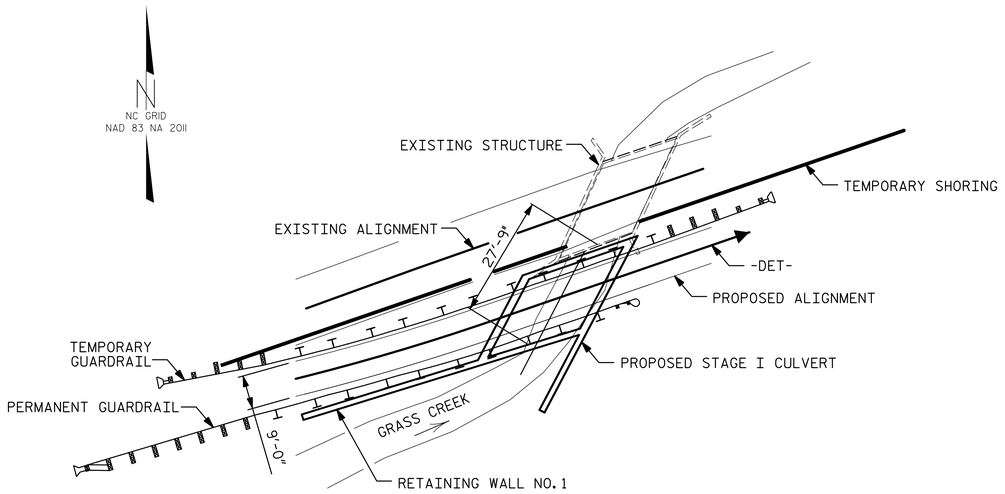
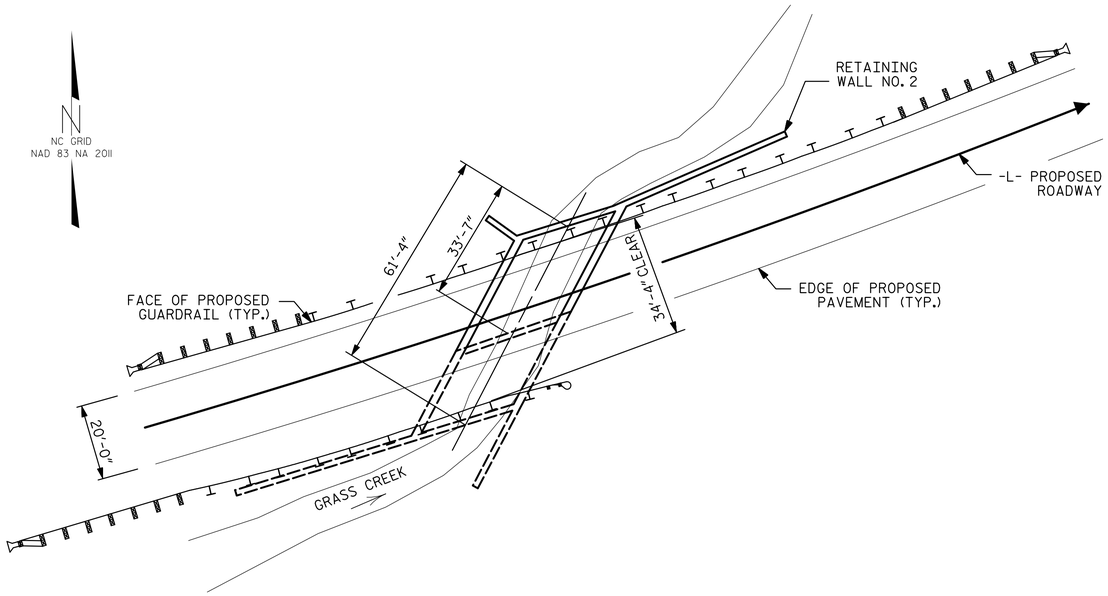


STAGE 1 CONSTRUCTION

1. MAINTAIN THE EXISTING STRUCTURE, ALIGNMENT, AND GUARDRAIL. TRAFFIC SHALL FLOW ON EXISTING STRUCTURE.
2. APPROXIMATELY 27'-9" OF THE PROPOSED STRUCTURE SHALL BE CONSTRUCTED TO THE UPSTREAM SIDE OF THE EXISTING BRIDGE, MEASURED ALONG THE LONGITUDINAL CENTERLINE OF THE CULVERT. THE UPSTREAM WINGWALL AND RETAINING WALL NO. 1, SHALL ALSO BE CONSTRUCTED.
3. SECTIONS OF PRECAST CULVERT SHALL BE CONNECTED PER MANUFACTURER SPECIFICATIONS/RECOMMENDATIONS TO ACT AS ONE UNIT
4. PERMANENT GUARDRAIL SHALL BE INSTALLED ON THE RIGHT SIDE OF THE PROPOSED STRUCTURE.
5. TEMPORARY GUARDRAIL SHALL BE INSTALLED ON THE LEFT SIDE OF THE PROPOSED STRUCTURE STARTING AT -DET- STA. 22+17.41 AND ENDING AT -DET- STA. 23+88.49.
6. TEMPORARY SHORING SHALL BE INSTALLED BETWEEN THE EXISTING AND PROPOSED STRUCTURES STARTING AT -DET- STA. 22+34.71 AND ENDING AT -DET- STA. 24+28.34.
7. TRAFFIC SHALL FLOW SHIFT TO THE PROPOSED STRUCTURE.



STAGE 2 CONSTRUCTION

1. DEMOLISH THE EXISTING STRUCTURE.
2. APPROXIMATELY 33'-7" OF THE PROPOSED STRUCTURE SHALL BE CONSTRUCTED, MEASURED ALONG THE LONGITUDINAL CENTERLINE OF THE CULVERT. THE DOWNSTREAM WINGWALL AND RETAINING WALL NO. 2, SHALL ALSO BE CONSTRUCTED.
3. SECTIONS OF PRECAST CONCRETE CULVERT SHALL BE CONNECTED PER MANUFACTURER SPECIFICATIONS/RECOMMENDATIONS TO ACT AS ONE UNIT.
4. TRAFFIC SHALL FLOW ON THE RIGHT HALF OF THE STRUCTURE UNTIL THE LEFT HALF IS COMPLETED.

NOTE: DIRECTIONS NOTED ON THIS SHEET ARE ORIENTED FACING UPSTATION.

DRAWN BY : CTB	DATE : 12-21	DESIGN ENGINEER OF RECORD: T. TOWNSEND	DATE : 12-21
CHECKED BY : TJT	DATE : 12-21		

PROJECT NO. 17.BP.13.R.164

MADISON COUNTY

STATION: 13+38.70 -L-

SHEET 2 OF 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by: Timothy J. Townsend B6C1B2EFA1E14E8...

NORTH CAROLINA PROFESSIONAL SEAL 34955 ENGINEER TIMOTHY J. TOWNSEND

12/16/2021

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FAX (828) 254-4562
NC LIC. NO. C-1154

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT STAGING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			8

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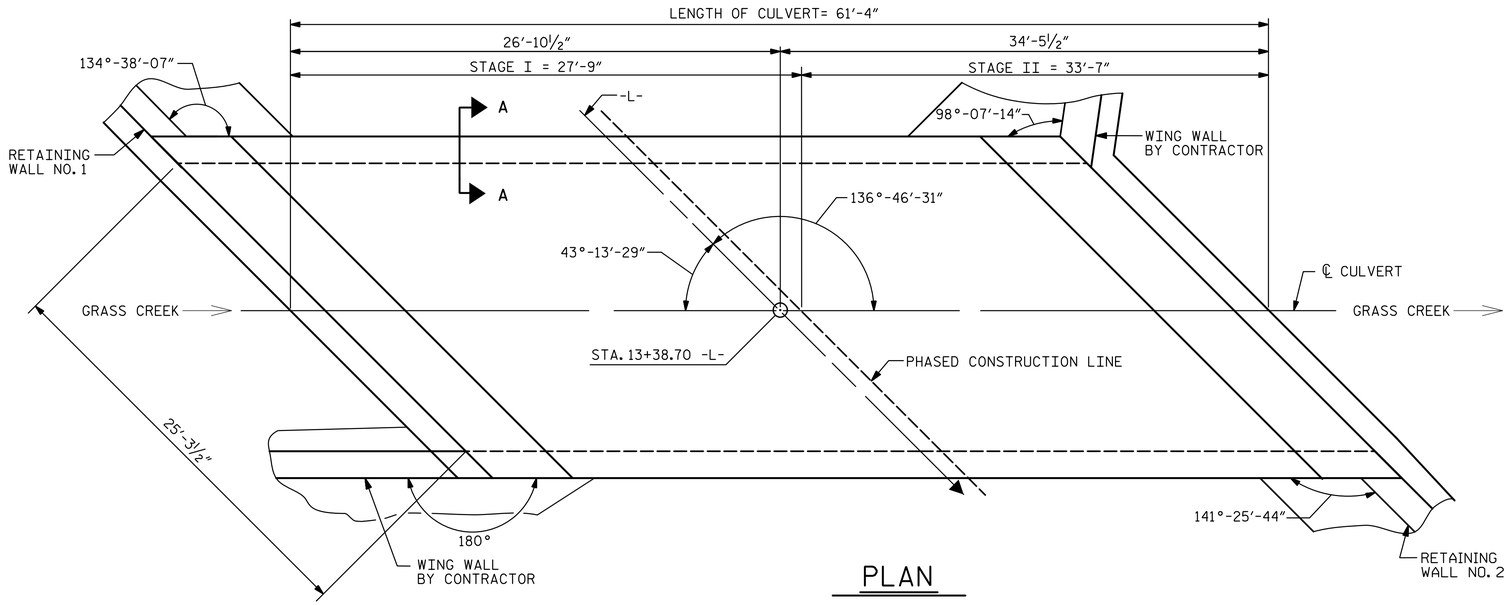
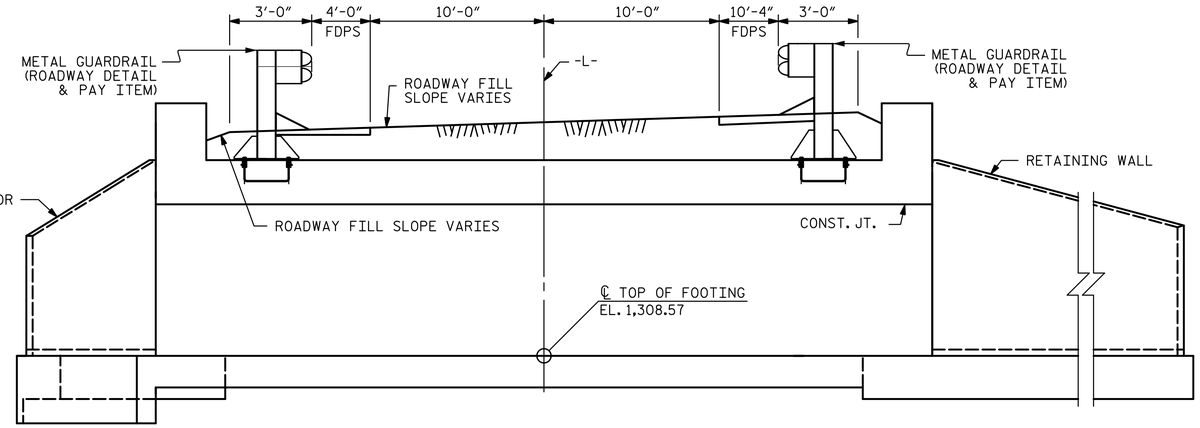
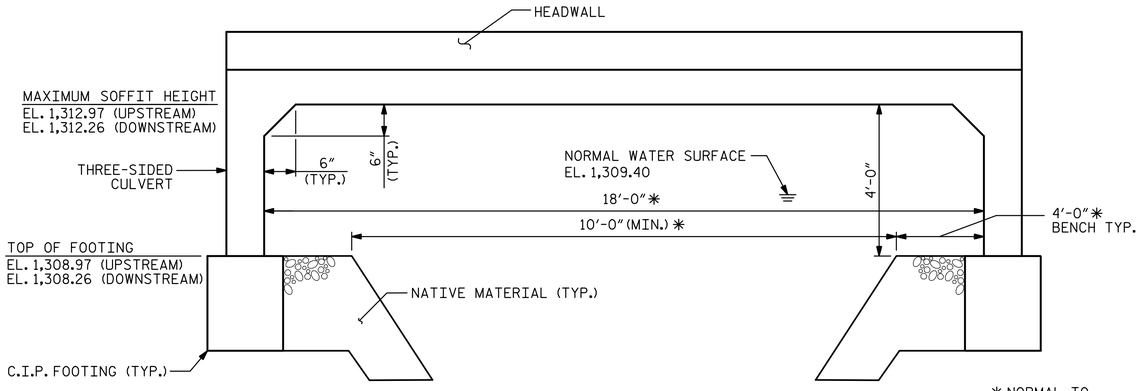


PLAN



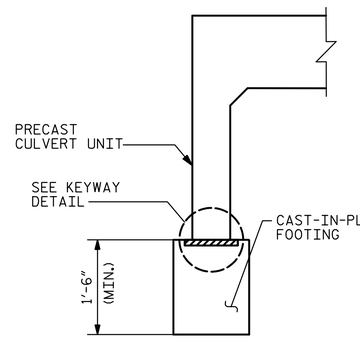
CULVERT SECTION NORMAL TO ROADWAY



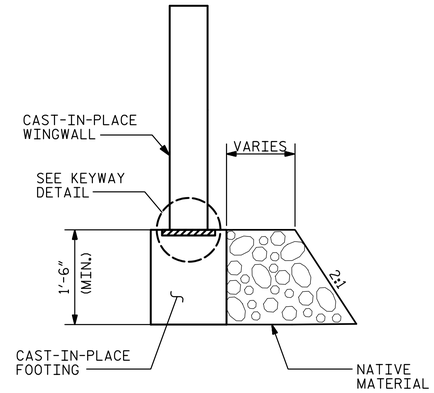
TYPICAL SECTION

MINIMUM HYDRAULIC OPENING = 76.5 SQ. FT.

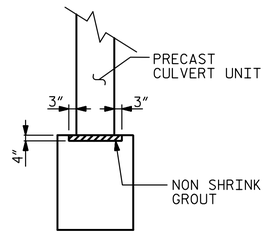
* NORMAL TO CULVERT



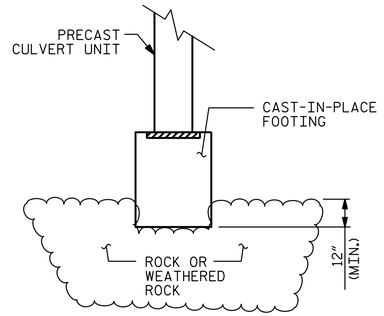
SECTION A-A



SECTION THRU WINGWALL



KEYWAY DETAIL



KEYED FOOTING DETAIL

SIDES OF FOOTING SHALL BE IN CONTACT WITH UNDISTURBED MATERIAL FOR MINIMUM DIMENSION SHOWN.

PROJECT NO. 17.BP.13.R.164

MADISON COUNTY

STATION: 13+38.70 -L-

SHEET 3 OF 8

DRAWN BY : CTB DATE : 12-21

CHECKED BY : TJT DATE : 12-21

DESIGN ENGINEER OF RECORD: T. TOWNSEND DATE : 12-21

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NORTH CAROLINA PROFESSIONAL SEAL 34955 ENGINEER TIMOTHY J. TOWNSEND

12/16/2021

Mattern & Craig ENGINEERS-SURVEYORS
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			8

DATE: 12/16/2021 TIME: 9:16:46 AM
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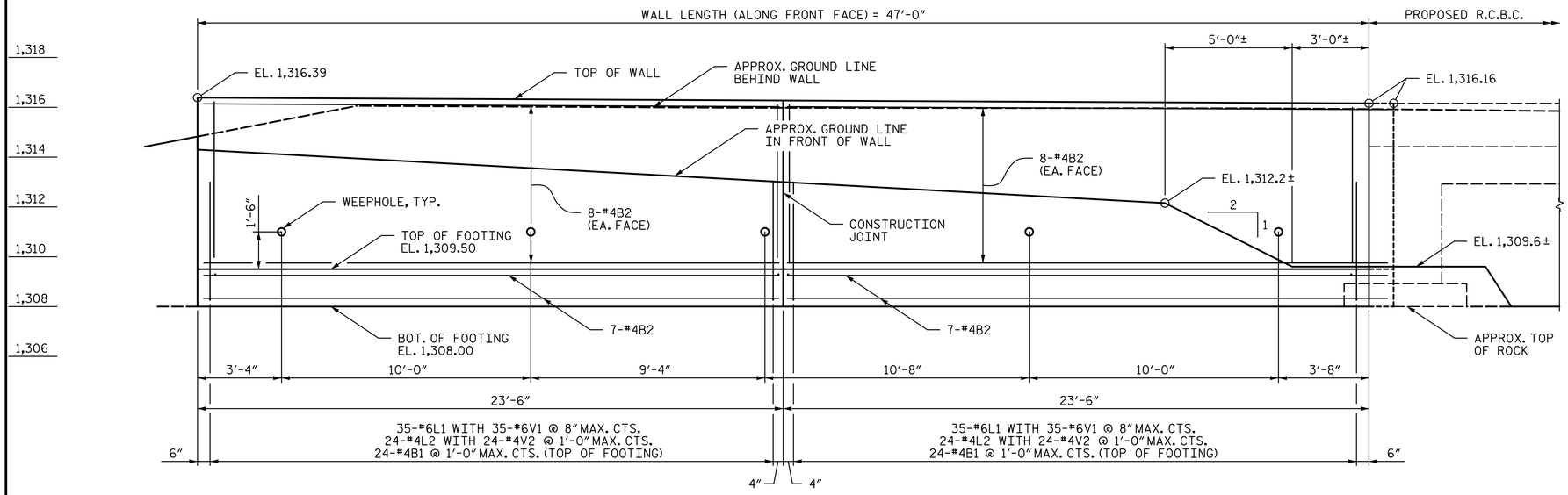
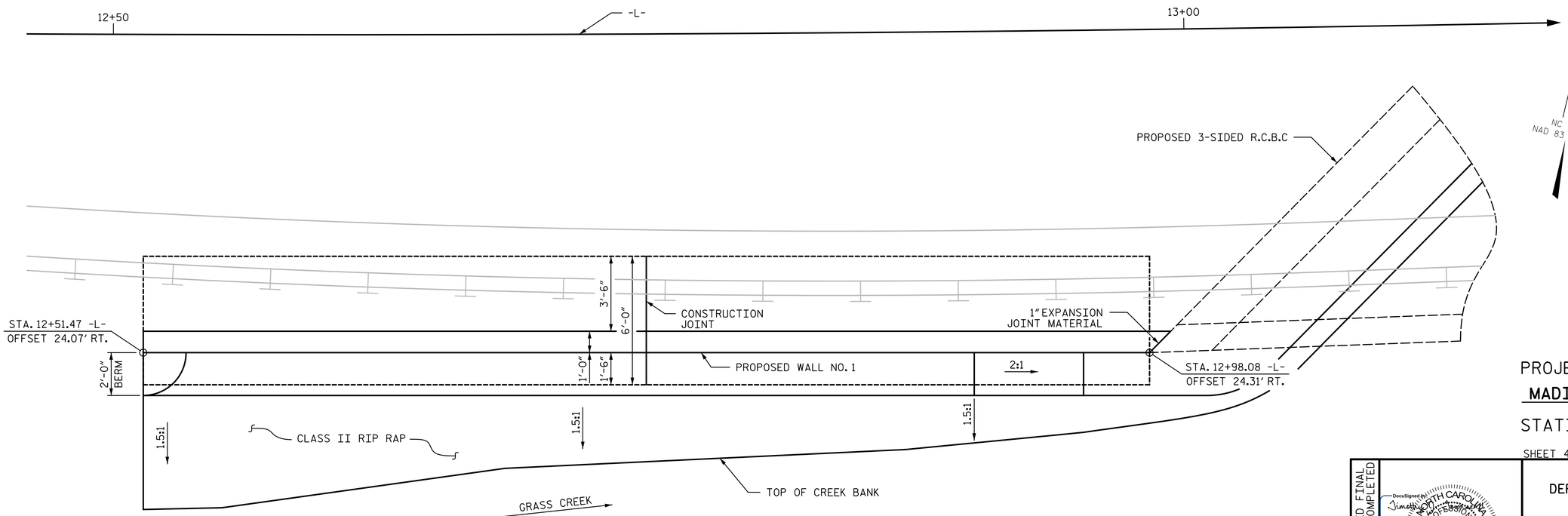
NOTES:

1. SEE SHEET 6 OF 8 FOR NOTES.



WALL PROFILE



WALL PLAN

PROJECT NO. 17.BP.13.R.164

MADISON COUNTY

STATION: 13+38.70 -L-

SHEET 4 OF 8

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12/16/2021

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DEPARTMENT OF TRANSPORTATION
RALEIGH

CAST-IN-PLACE RETAINING WALL NO. 1

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1			3			TOTAL SHEETS
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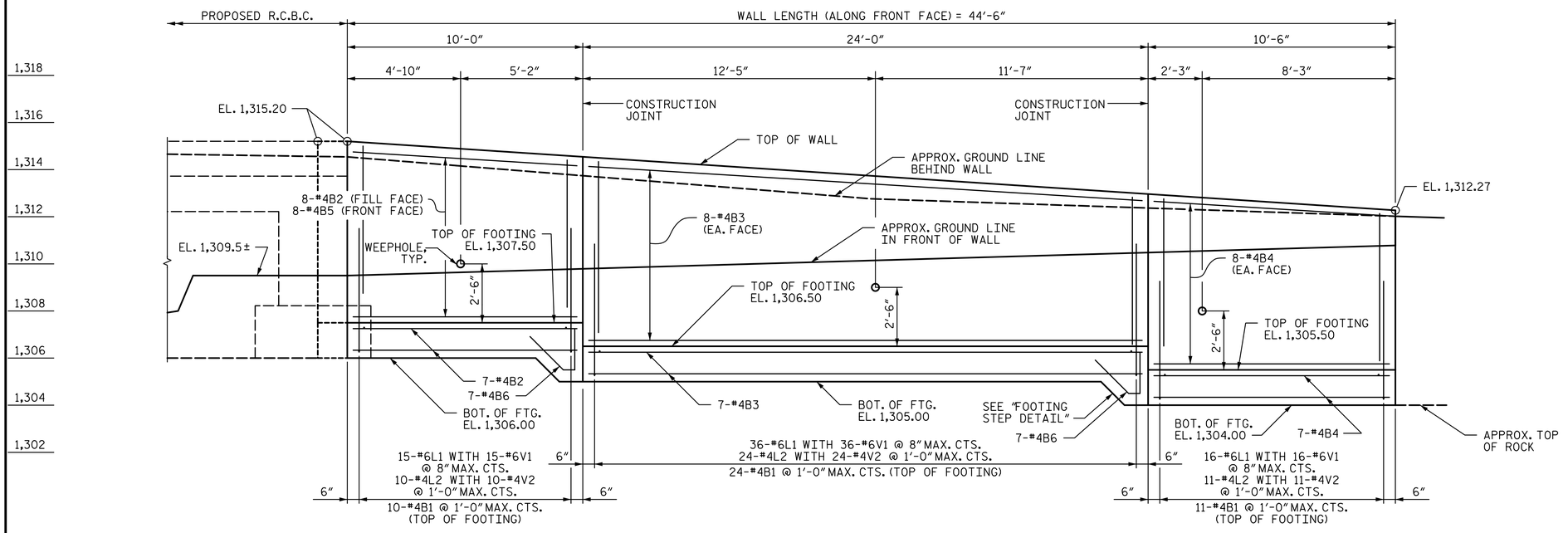
NOTES:
1. SEE SHEET 6 OF 8 FOR NOTES.



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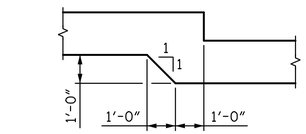
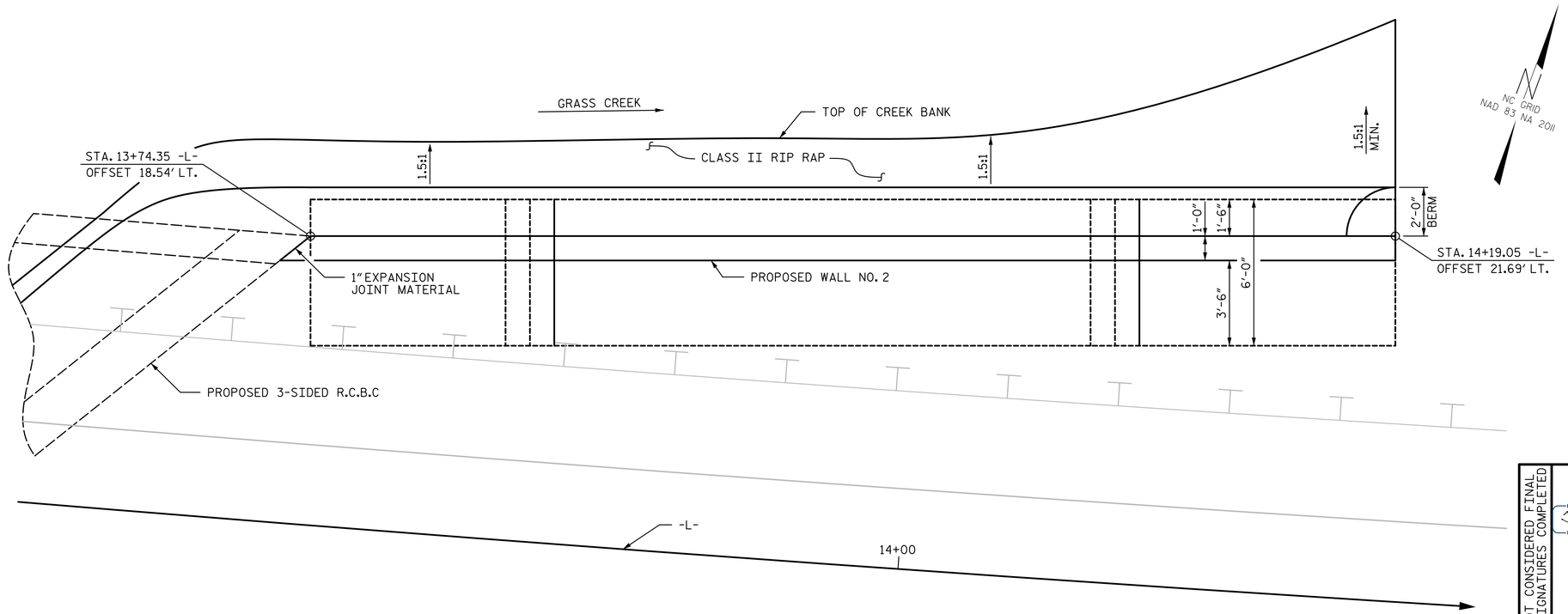


FOOTING STEP DETAIL



WALL PLAN

DRAWN BY : KES DATE : 12-21
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STATE OF NORTH CAROLINA
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RALEIGH

CAST-IN-PLACE RETAINING WALL NO. 2

PROJECT NO. 17.BP.13.R.164
MADISON COUNTY
STATION: 13+38.70 -L-

SHEET 5 OF 8

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
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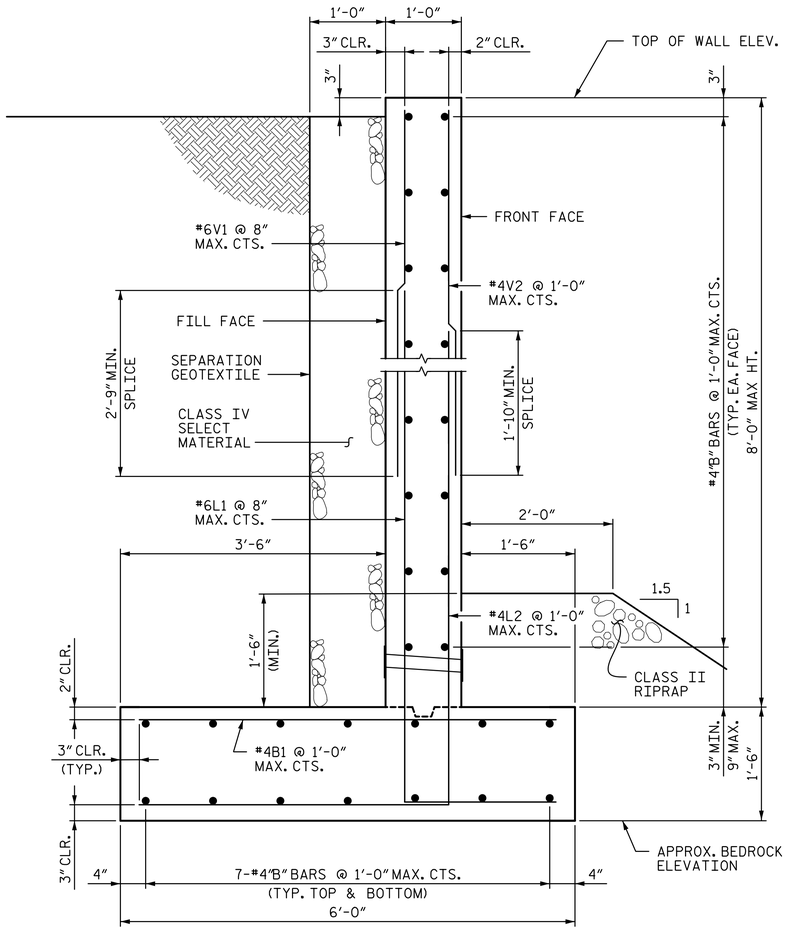
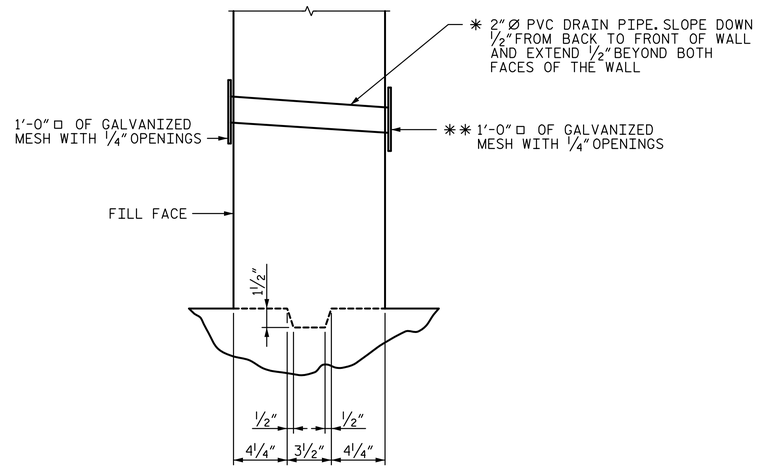


TYPICAL SECTION



WEEP HOLE DETAIL

* DRAIN PIPE TO BE LOCATED 6" ABOVE NORMAL WATER ELEVATION

** USE IF UNDER GROUND ELEVATION

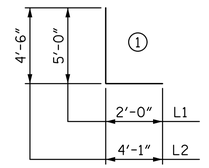
NOTES:

1. DIMENSIONS AND ELEVATIONS ARE BASED ON BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTING THE RETAINING WALLS.
2. THE RETAINING WALLS HAVE BEEN DESIGNED ASSUMING BEDROCK ELEVATIONS AT THE BOTTOM OF FOOTING ELEVATIONS. BEDROCK SHALL HAVE A NOMINAL BEARING CAPACITY OF 5,000 PSF. THE CONTRACTOR SHALL VERIFY THESE PARAMETERS PRIOR TO BEGINNING WALL CONSTRUCTION AND CONTACT THE ENGINEER IMEDIATELY IF OF ANY DISCREPENCIES.
3. CHAMFER ALL EXPOSED CORNERS OF THE RETAINING WALL 3/4".
4. THE CONTRACTOR SHALL PLACE 1" EXPANSION JOINT MATERIAL BETWEEN THE 3 SIDED R.C.B.C. AND THE RETAINING WALLS.
5. WEEP HOLE DRAINAGE PIPES SHALL BE 2"Ø SCHEDULE 40 PVC CONFORMING TO ASTM D1785 AND SHALL HAVE A MAXIMUM SPACING OF 5'-0".

BILL OF MATERIAL
RETAINING WALL NO. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	48	#4	STR	5'-6"	176
B2	60	#4	STR	24'-8"	922
L1	70	#6	1	7'-0"	736
L2	48	#4	1	8'-7"	275
V1	70	#6	STR	6'-3"	657
V2	48	#4	STR	6'-3"	200
REINFORCING STEEL				LBS.	2,966
CLASS A CONCRETE				C.Y.	27.6

BAR TYPES

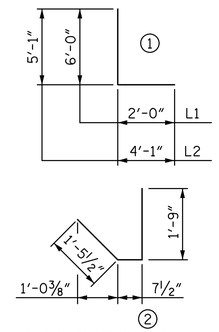


ALL BAR DIMENSIONS ARE OUT-TO-OUT

BILL OF MATERIAL
RETAINING WALL NO. 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	45	#4	STR	5'-6"	165
B2	22	#4	STR	9'-6"	140
B3	30	#4	STR	23'-6"	471
B4	30	#4	STR	10'-0"	200
B5	8	#4	STR	10'-6"	56
B6	14	#4	2	3'-10"	36
L1	67	#6	1	8'-0"	805
L2	45	#4	1	9'-2"	276
V1	67	#6	STR	6'-3"	629
V2	45	#4	STR	6'-3"	188
REINFORCING STEEL				LBS.	2,966
CLASS A CONCRETE				C.Y.	27.7

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

PROJECT NO. 17.BP.13.R.164

MADISON COUNTY

STATION: 13+38.70 -L-

SHEET 6 OF 8

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12/16/2021

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CAST-IN-PLACE RETAINING WALL DETAILS

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TOTAL SHEETS 8

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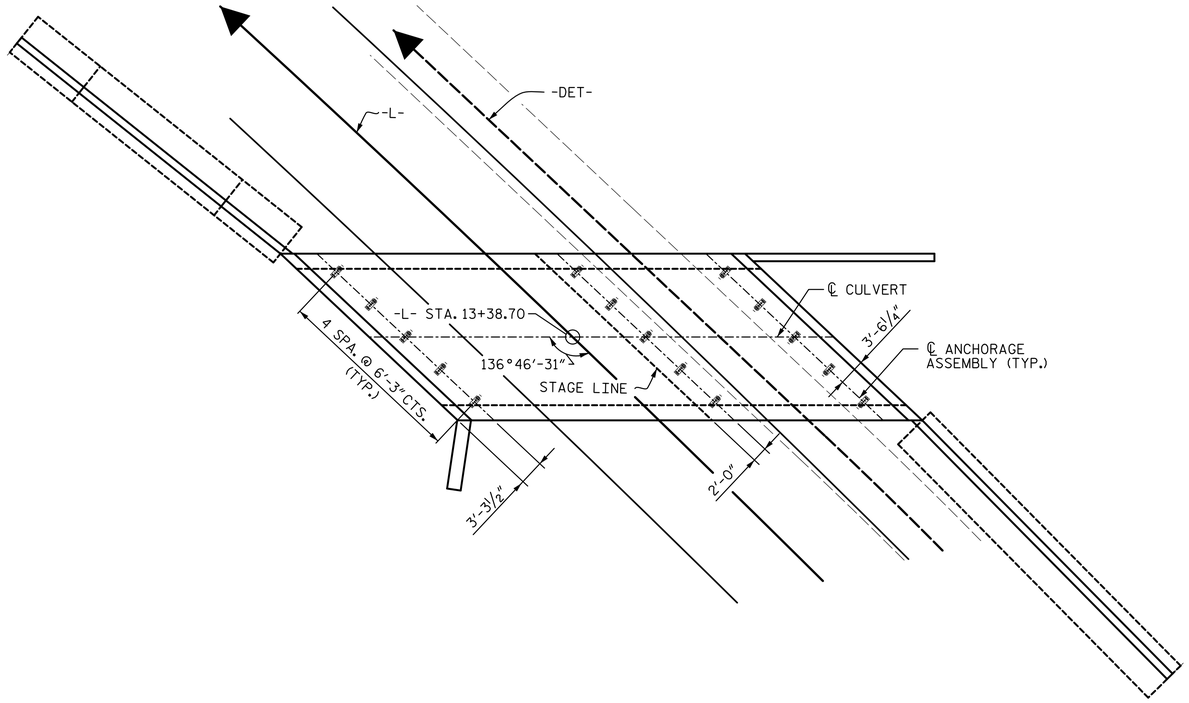


PLAN OF CULVERT GUARDRAIL ANCHOR ASSEMBLY SPACING

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2½".

B. 4 - 1"Ø X 2¼" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1"Ø X 2 ¼" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 7/16"Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 13+38.70 -L-.

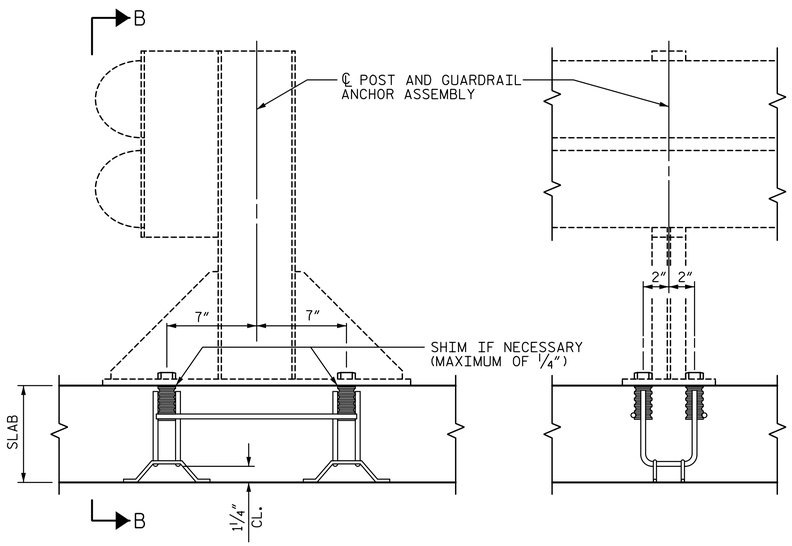
FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

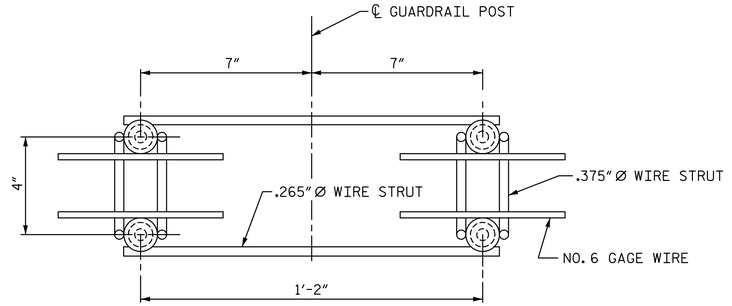
SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1"Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

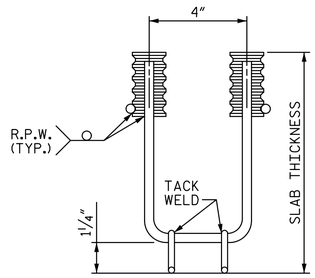


SECTION A-A

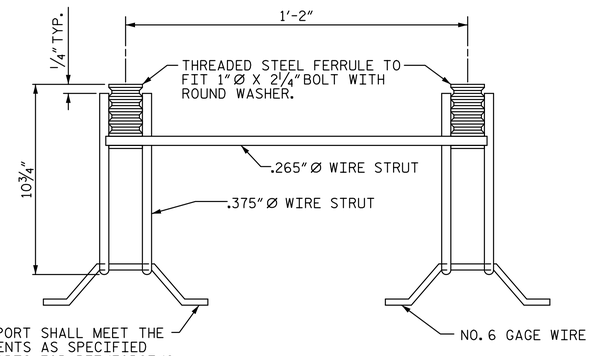
SECTION B-B



PLAN



ELEVATION



THIS SUPPORT SHALL MEET THE REQUIREMENTS AS SPECIFIED FOR SUPPORTS FOR REINFORCING STEEL. SEE SPECIFICATIONS.

SIDE VIEW

GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

DRAWN BY : CTB	DATE : 12-21	DESIGN ENGINEER OF RECORD: T. TOWNSEND	DATE : 12-21
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PROJECT NO. 17.BP.13.R.164

MADISON COUNTY

STATION: 13+38.70 -L-

SHEET 7 OF 8

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

ANCHORAGE DETAILS FOR GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-7
1			3			TOTAL SHEETS
2			4			8

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

PROJECT NO. 17.BP.13.R.164

MADISON COUNTY

STATION: 13+38.70 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

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ENGINEERS-SURVEYORS
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ASHEVILLE, NORTH CAROLINA 28801
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-8
1			3			TOTAL SHEETS
2			4			8

DATE: 12/16/2021 TIME: 9:19:19 AM
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