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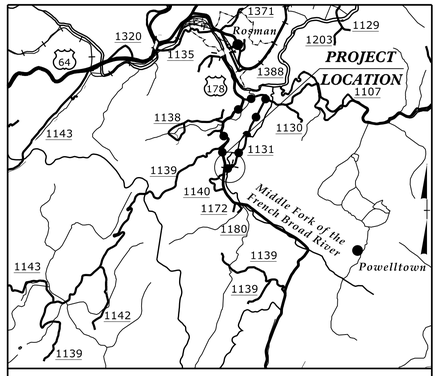
This file or an individual page shall not be considered a certified document.

09/08/99

WBS: 17BP.14.R.182

CONTRACT: DN00501

See Sheet 1A For Index of Sheets
See Sheet 1B for Conventional Symbols
See Sheets 1C-1 thru 1C-3 for Survey Control Sheets



DETOUR

VICINITY MAP N.T.S.

100% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

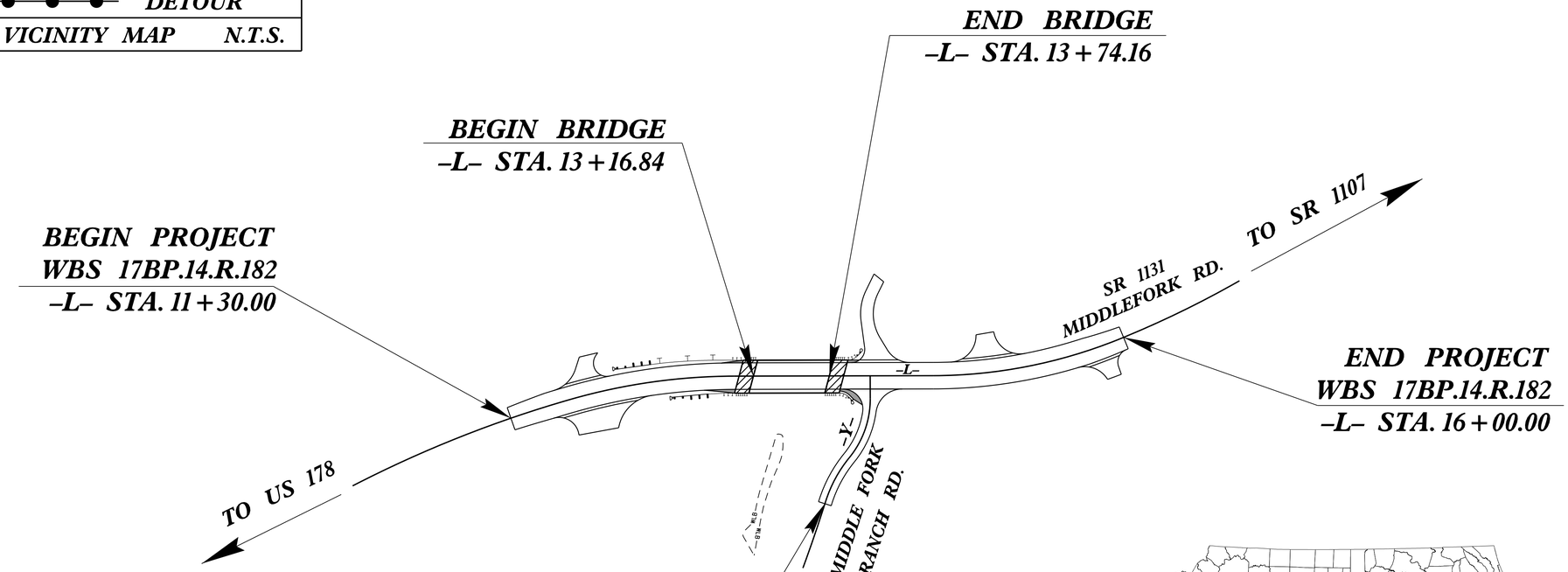
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.182	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.PE.182	N/A	PE
17BP.14.ROW.182	N/A	ROW, UTL.
17BP.14.R.182	N/A	CONST.

LOCATION: BRIDGE 870108 OVER MIDDLE FORK OF THE FRENCH BROAD RIVER ON SR 1131 (MIDDLEFORK ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

NAD 83
NA 2011



RS&H

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = 310

T = 6 %
V = 35 MPH

FUNC CLASS =
LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY WBS PROJECT 17BP.14.R.182 = 0.079 MILES
LENGTH STRUCTURE WBS PROJECT 17BP.14.R.182 = 0.010 MILES
TOTAL LENGTH WBS PROJECT 17BP.14.R.182 = 0.089 MILES

PREPARED IN THE OFFICE OF:
RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
TBD

LETTING DATE:
SEPTEMBER 28, 2021

JENNIFER FARINO, PE
PROJECT ENGINEER

ALLISON DRAKE, PE
PROJECT DESIGN ENGINEER

GARRETT HIGDON
NCDOT CONTACT

NORTH CAROLINA PROFESSIONAL SEAL 048313 ENGINEER COLE M BENJAMIN

HYDRAULICS ENGINEER

DocuSigned by: Cole M. Benjamin E40C618BD04D4E7...

P.E. 8/10/2021

SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D FARINO

ROADWAY DESIGN ENGINEER

DocuSigned by: 679D1E857D98415...

P.E. 8/10/2021

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10-AUG-2021 2:00
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I7BPJ4.RJ82	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D. FARINO

8/10/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-3	SURVEY CONTROL SHEETS
1D-1	PROPOSED ALIGNMENT CONTROL SHEET
1E-1	RIGHT OF WAY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS
2C-1	TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT
2C-2	GUARDRAIL INSTALLATION SPECIAL DETAIL
2C-3	TYPE III - STRUCTURE ANCHOR UNIT
2C-4	AT-1 GUARDRAIL DETAIL
3B-1	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, SHOULDER BERM GUTTER SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLAN
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1A	CROSS-SECTION SUMMARY SHEET AND CROSS SECTION INDEX
X-1 THRU X-6	CROSS-SECTIONS
S-1 THRU S-13	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES SHEET

GENERAL NOTES

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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.

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.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

Haywood EMC

Comporium 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 CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS — EFF. 01-16-2018
REV.

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
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	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
840.66	Drainage Structure Steps
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 (Special Detail for Sheet 6 of 8)
862.03	Structure Anchor Units (Special Detail for Type III Anchor Units Sheets 1 of 7 and 2 of 7)
876.01	Rip Rap in Channels
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.
17BPJ4RJ82	1B

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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	1C-1
Location and Surveys	

PROJECT SURVEYOR

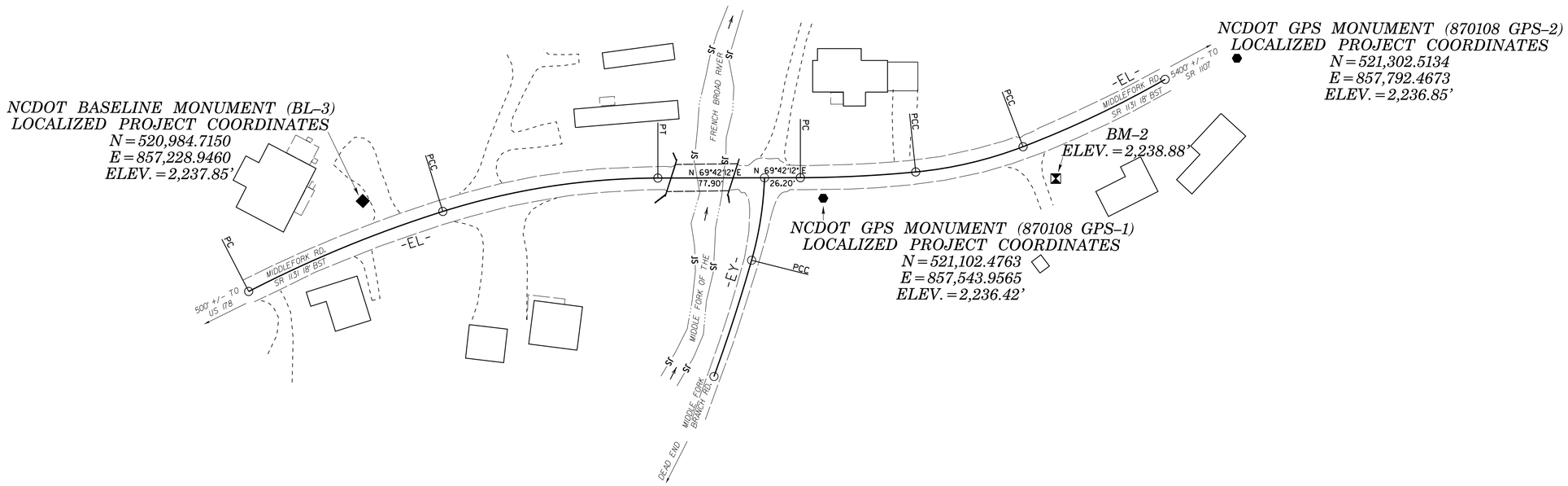
SEE SHEET 1C-3 FOR FURTHER ALIGNMENT DETAILS

SURVEY CONTROL SHEET 87-0108

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

NC GRID
NAD 83/NA 2011

BM-1
ELEV. = 2,230.53'



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CALYX FOR MONUMENT "87-0108 GPS-1" WITH NAD NAD83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 521102.4763(ft) EASTING: 857543.9565(ft) ELEVATION: 2236.42 (ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977303

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "87-0108 GPS-1" TO -L- STATION 11+30.00 IS S 66°36'50.2" W 300.66'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

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.

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	1C-2
Location and Surveys	

PROJECT SURVEYOR

SURVEY CONTROL SHEET 87-0108

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE

POINT	DESC.	NORTH	EAST	ELEVATION
1	87-0108-GPS 1	521102.4763	857543.9565	2236.42
2	87-0108-GPS 2	521302.5134	857792.4673	2236.85
3	BL-3	520984.7150	857228.9460	2237.85

****

BM1 ELEVATION = 2230.53'
N 521339 E 857497
-BL- STA. 9+47.68 213.85' LT
RR SPIKE IN BASE OF 24" POPLAR

****

****

BM2 ELEVATION = 2238.88'
N 521174 E 857699
-BL- STA. 10+01.84 40.82' RT
RR SPIKE IN BASE OF 52" POPLAR

****

NOTE: DRAWING NOT TO SCALE

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.

6/2/69

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	1C-3
Location and Surveys	

PROJECT SURVEYOR

SURVEY CONTROL SHEET 87-0108

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	520894.079	857173.448							
CURVE			N 47°27'41.8" E	153.34	09°46'26.2"(RT)	06°21'58.3"	153.53	76.95	900.00
PCC	520997.752	857286.434							
CURVE			N 61°01'33.7" E	158.95	17°21'17.5"(RT)	10°52'36.2"	159.56	80.40	526.77
PT	521074.749	857425.490							
LINE			N 69°42'12.5" E	104.10					
PC	521110.858	857523.124							
CURVE			N 67°01'04.2" E	84.34	05°22'16.6"(LT)	06°21'58.3"	84.37	42.22	900.00
PCC	521143.789	857600.770							
CURVE			N 56°36'58.6" E	80.56	15°25'54.6"(LT)	19°05'54.9"	80.80	40.65	300.00
PCC	521188.114	857668.036							
CURVE			N 44°30'44.1" E	114.77	08°46'34.5"(LT)	07°38'22.0"	114.88	57.55	750.00
PT	521188.114	857668.036							

EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	521101.771	857498.555							
CURVE			S 11°15'38.9" E	60.94	14°00'03.6"(RT)	22°55'05.9"	61.09	30.70	250.00
PCC	521042.006	857510.454							
CURVE			S 02°10'53.0" E	89.15	04°09'28.2"(RT)	04°39'45.5"	89.17	44.61	1228.83
PT	521042.006	857510.454							

NOTE: DRAWING NOT TO SCALE

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.

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	1D-1
Location and Surveys	

PROJECT SURVEYOR

PROPOSED ALIGNMENT CONTROL SHEET 87-0108

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	520894.0790	857173.4475
PCC	11+78.03	521012.4544	857306.0369
PT	13+02.09	521070.8786	857415.0251
PC	14+52.66	521123.1094	857556.2498
PCC	15+95.03	521196.3613	857677.3326
PT	16+97.48	521269.9569	857748.4962
POT	16+97.49	521269.9569	857748.4962

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	521106.5773	857511.5493
PC	10+17.26	521090.3919	857517.5353
PRC	10+65.41	521043.1866	857518.0216
PRC	11+03.27	521005.9441	857512.6084
PT	11+56.31	520952.9160	857513.8480

NOTE: DRAWING NOT TO SCALE

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.

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	1E-1
Location and Surveys	

PROJECT SURVEYOR

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RIGHT OF WAY CONTROL SHEET 87-0108

I, _____, 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) (Base map Compilation, 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 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.

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 ____ day of _____, 20__.

_____ L-_____

Professional Land Surveyor PLS # Seal

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+80.94	35.00	521065.4046	857501.1241
L	13+02.09	35.00	521038.0517	857427.1659
L	13+02.09	30.13	521042.6237	857425.4749

PUE

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+26.30	29.96	521085.8703	857541.9217

PUE

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	11+05.00	-15.00	521004.8668	857527.6708
Y	11+05.00	6.42	521003.9341	857506.2661

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.

5/14/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 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 LESS THAN 1″ OR GREATER THAN 1½″ IN DEPTH.
E1	PROP. APPROX. 5½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL

NOTE: ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE.

BRIDGE NO. 870108

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030952 ENGINEER JENNIFER D FARRING

8/10/2021

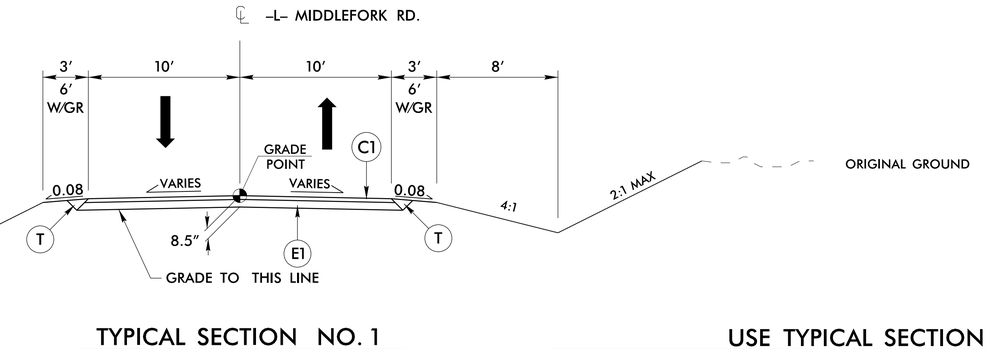
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033717 ENGINEER WESLEY A TAMLYN

8/10/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

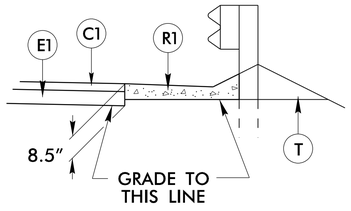
RS&H
NC FIRM LICENSE No: F-0493



TYPICAL SECTION NO. 1

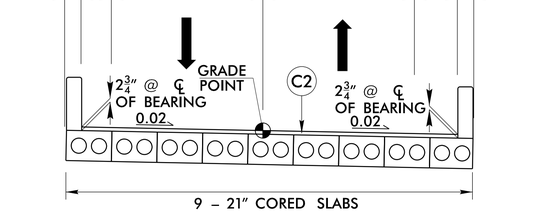
USE TYPICAL SECTION NO. 1

–L– STA. 11+30.00 TO –L– STA. 13+16.84 BEGIN BRIDGE
–L– STA. 13+74.16 END BRIDGE TO –L– STA. 16+00.00



SHOULDER BERM GUTTER DETAIL

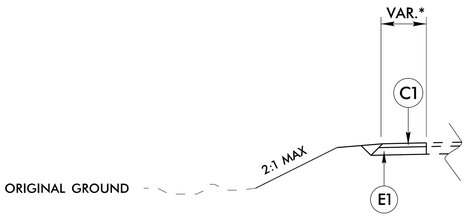
–L– STA. 13+81.96 TO –L– STA. 13+91.72 RT



TYPICAL SECTION NO. 2

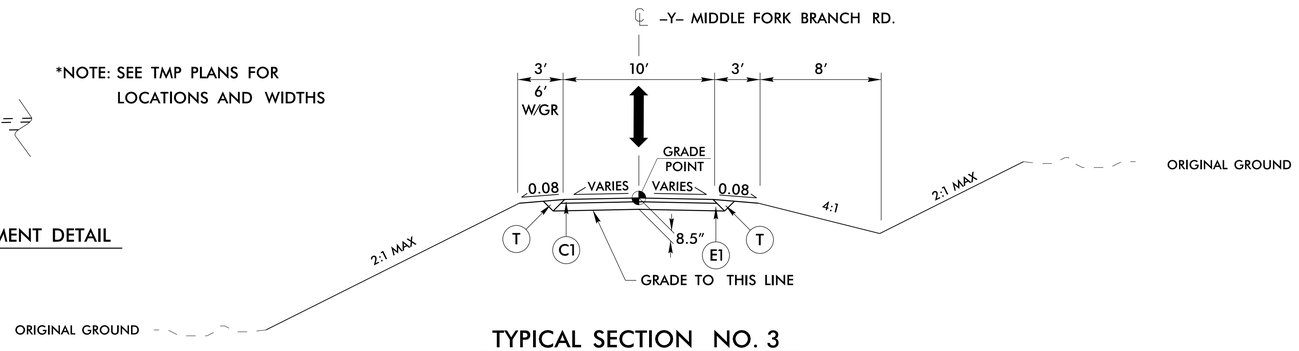
USE TYPICAL SECTION NO. 2

–L– STA. 13+16.84 TO –L– STA. 13+74.16



*NOTE: SEE TMP PLANS FOR LOCATIONS AND WIDTHS

TEMPORARY PAVEMENT DETAIL



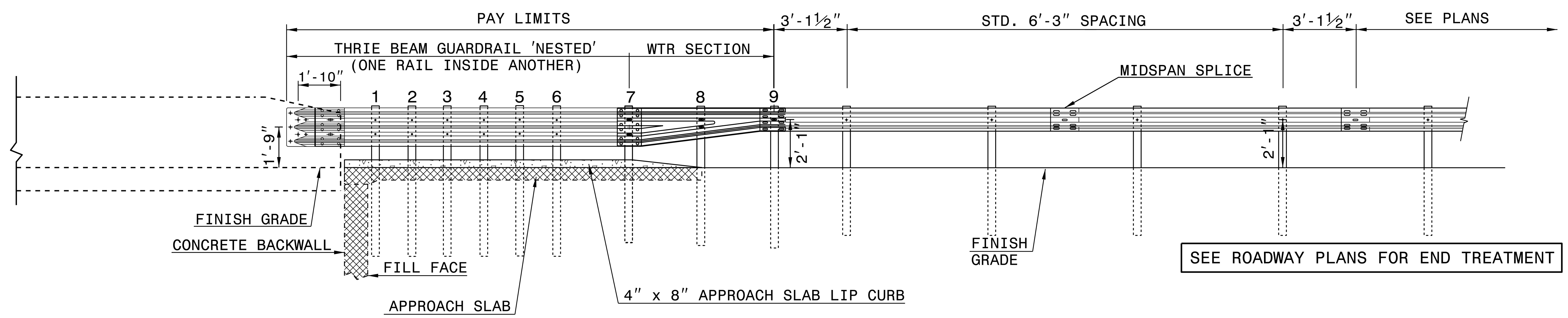
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–Y– STA. 10+10.00 TO –Y– STA. 11+05.00

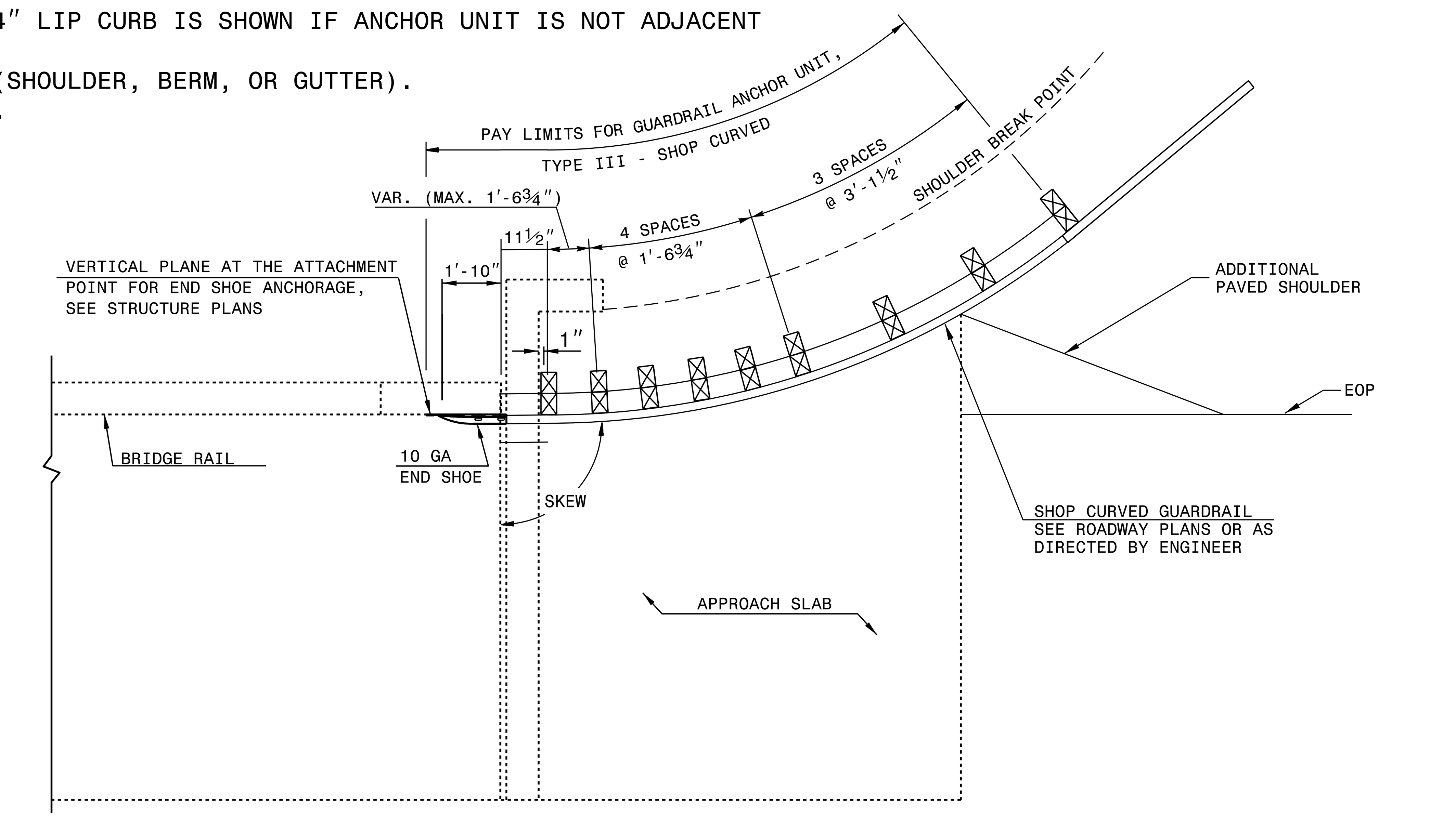
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 1
TYPE III SC

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

ENGLISH DETAIL DRAWING FOR
TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1
TYPE III SC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
4/15/2019

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward DATE: 4-4-02
MODIFIED BY: T.S.Spell DATE: 2-01-18
CHECKED BY: DATE:
FILE SPEC.: \jhowerton\guardrail\31inguardrail\typeiiisc.dgn

5/14/99

01-FEB-2018 09:49
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jhowerton AT CSD-29259S

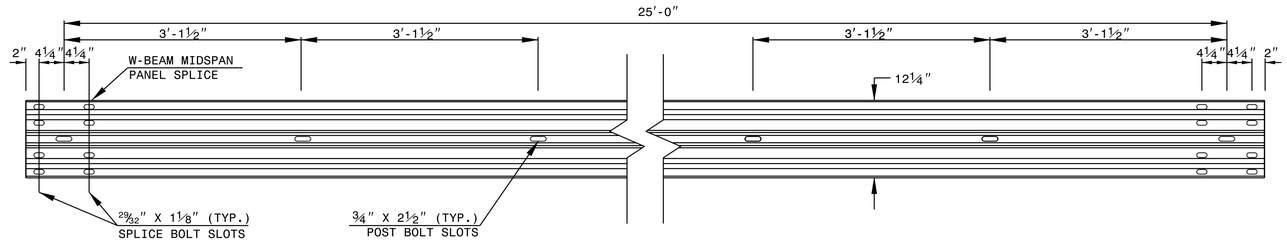
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	2C-2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

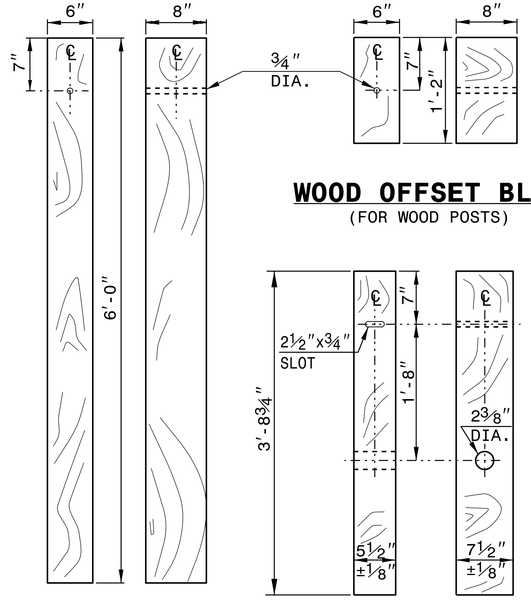
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



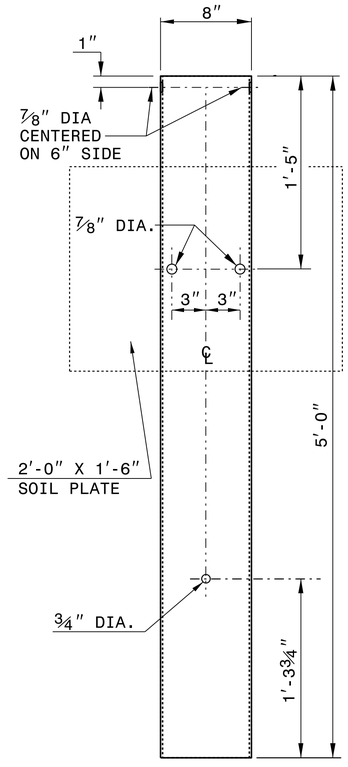
STANDARD W-BEAM GUARDRAIL



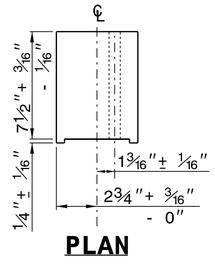
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

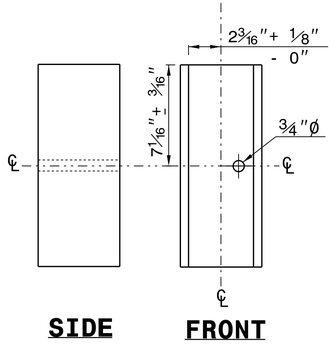
SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"

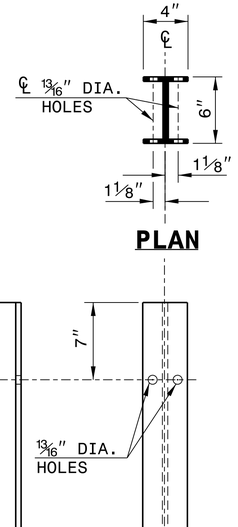


PLAN

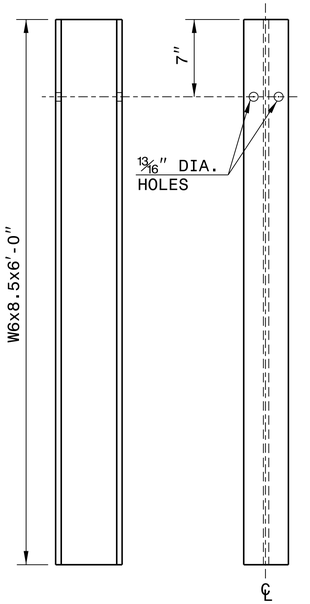


SIDE **FRONT**

ROUTED OFFSET BLOCK



PLAN



SIDE **FRONT**

"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 ENGINEER SEAL 022945 DAVID S. HOWERTON
DocuSigned by: 4/15/2019

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

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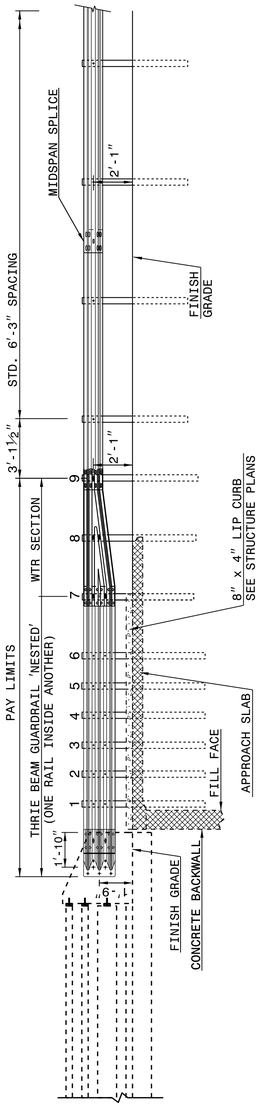
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	2C-3



ELEVATION

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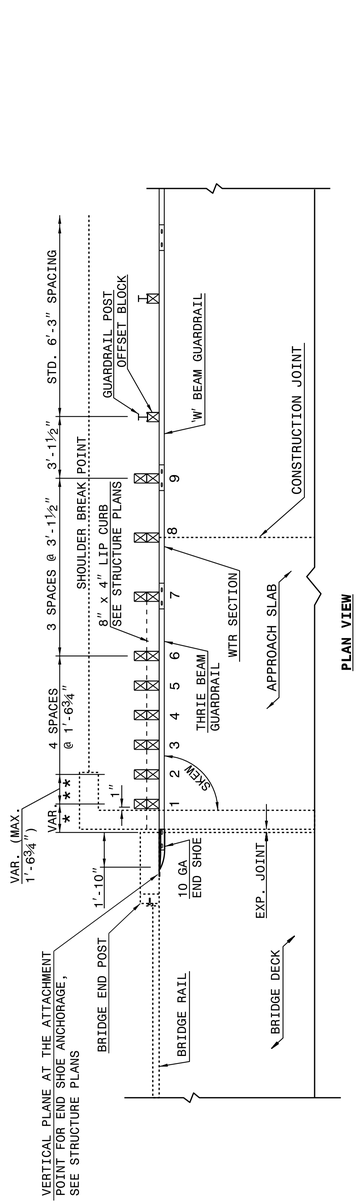
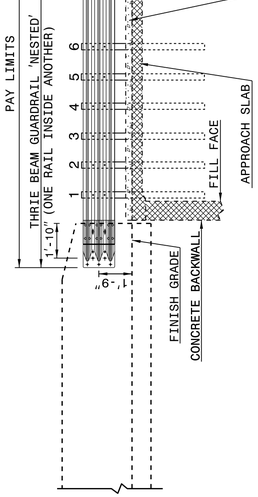
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER



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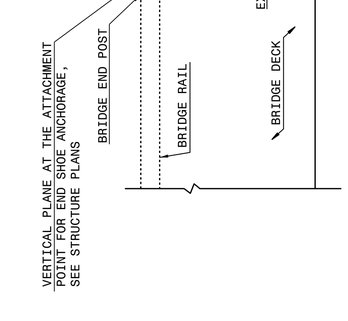

PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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ORIGINAL BY:	J HOWERTON	DATE: 06-22-12
MODIFIED BY:		DATE:
CHECKED BY:		DATE:
FILE SPEC.:		

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7 — **862D03**

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7 — **862D03**

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7 — **862D03**

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

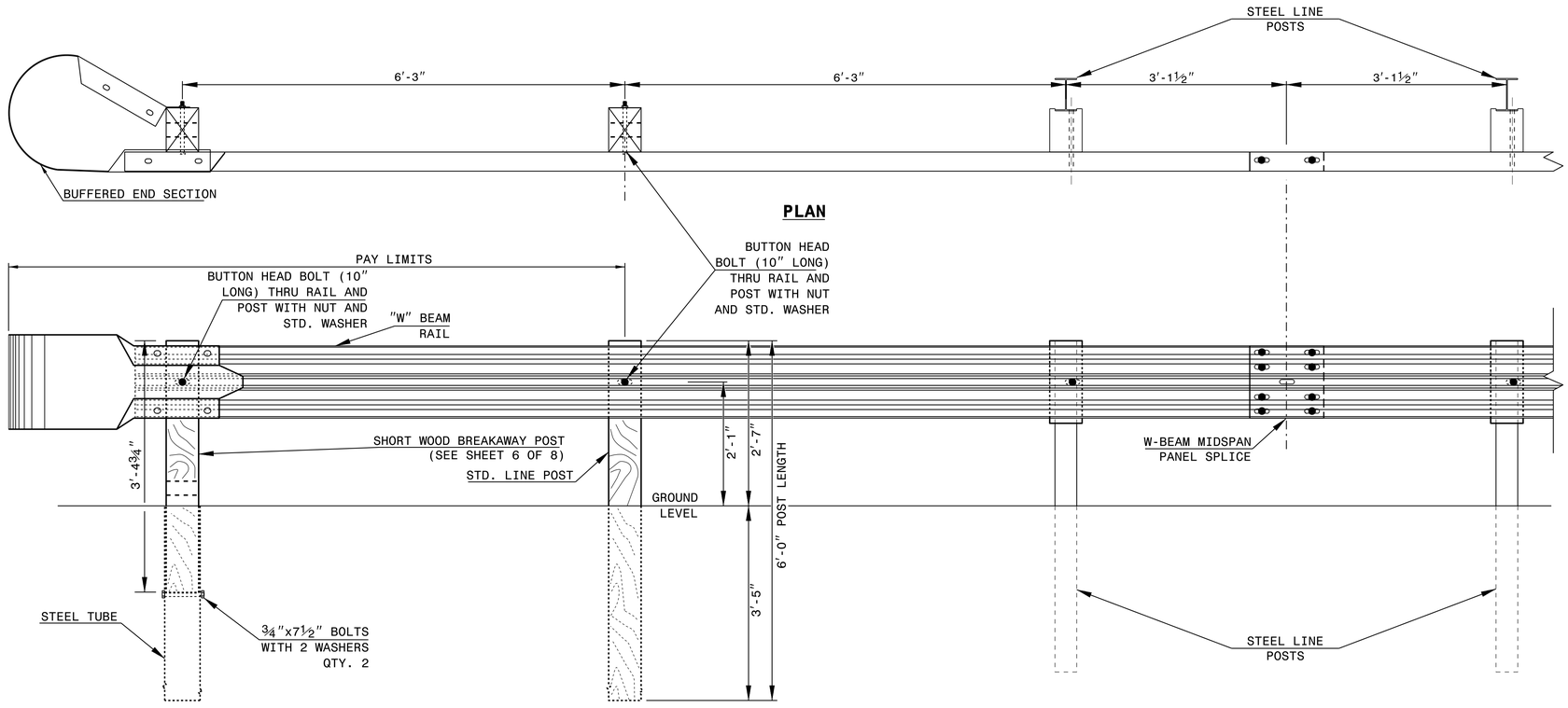
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7 — **862D03**

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	2C-4

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION



TRAILING END UNIT ASSEMBLY

A.T.-1 SYSTEM

SHEET OF

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 DAVID S. HOWERTON

8/10/2021

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.: _____

12/06/07

COMPUTED BY: ANK DATE: 9/19/2017
CHECKED BY: JMB DATE: 9/19/2017

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. + %	BORROW	WASTE
–L– 11+30.00	–L– 13+13.40 (BR)	74	150	76	
–L– 13+77.38 (BR)	–L– 16+00.00	70	48		22
SUBTOTALS:		144	198	76	22
–Y– 10+10.00	–Y– 11+05.00	26	60	34	
SUBTOTALS:		26	60	34	
PROJECT TOTALS:		170	258	110	22
WASTE IN LIEU OF BORROW:				–22	
GRAND TOTALS:		170	258	88	
SAY:		190		100	

EST. UNDERCUT = 50 CY (CONTINGENCY)
EST. SELECT GRANULAR MATERIAL = 50 CY (CONTINGENCY)
EST. GEOTEXTILE FOR SOIL STABILIZATION = 50 SY (CONTINGENCY)

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	11+30	13+26	CL	373.48
–L–	13+65	16+00	CL	471.97
–Y–	10+10	11+05	RT	130.96
REMOVAL OF TEMPORARY PAVEMENT				
–L–	10+50	11+72	RT	42.83
–L–	14+29	15+70	RT	47.03
–L–	15+91	16+32	RT	7.32
–Y–	10+10	11+43	LT	70.19
			TOTAL:	1,143.78
			SAY:	1,150

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
–L– RT	13+81.96	13+92.38	12.50
		TOTAL:	12.50
		SAY:	13

NOTE:
INVERT ELEVATIONS INDICATED ARE FOR BID PURPOSES ONLY AND SALL NOT BE USED FOR PROJECT CONSTRUCTION STAKE OUT.
SEE "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 300–5".

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	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
–L– 11+77	LT																		
–L– 11+92	LT																		
–L– 13+87	13RT	0401		2236.63															
		0401	0402	2232.40	2232.30														
TOTAL																			

STATION / SIZE / THICKNESS OR GAUGE	C.S. PIPE: 12"	15"	18"	24"	36"	42"	48"	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"
–L– 11+77																						
–L– 11+92																						
–L– 13+87																						
		8																				
TOTAL		8																				

STATION / SIZE / THICKNESS OR GAUGE	ENDWALLS: *** 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 * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL. "B") LIN. *FT. PER EACH (0' THRU 5.0')	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	FRAMES AND NARROW SLOT FLAT GRATES STD. 840.29	T.B.G.D.I. STD. 840.35	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	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– 11+77																						REMOVE EXIST. 18" CMP
–L– 11+92					20																	DRIVEWAY PIPE
–L– 13+87								1					1	1								
TOTAL					20			1					1	1								26

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.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: TYPE III	GREU, TL–2	TYPE III SHOP CURVE	AT–1	IMPACT ATTENUATOR TYPE 350: EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	12+52.28	13+13.40 (BR)	RT.	56.25			13+14.56 (BR)		3	6	25'		0.5		1	1									GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
–L–	13+70.72 (BR)	13+92.32	RT.	6.25	18.75			13+69.56 (BR)	3	6							1	1							GUARDRAIL LENGTH CONTROLLED BY PROXIMITY TO DRIVEWAY, 10' RADIUS W–BEAM FOR SHOP CURVED SECTION
–L–	12+12.89	13+20.06 (BR)	LT.	106.25				13+21.22 (BR)	3	6		50'		1.0	1	1									FILL WARRANT –L– STA. 13+00.00 LT
–L–	13+77.38 (BR)	13+98.97	LT.	6.25	18.75		13+76.22 (BR)		3	6							1	1							GUARDRAIL LENGTH CONTROLLED BY PROXIMITY TO DRIVEWAY, 10' RADIUS W–BEAM FOR SHOP CURVED SECTION
			SUBTOTALS	175.00	37.50																				
			ANCHOR DEDUCTION	100.00	37.50																				
			TOTAL	75.00	0																				
			SAY	100.00	0																				NOTE: ALL GUARDRAIL IS TO BE POWDER COATED

ANCHOR DEDUCTION
AT–1: 2 @ 6.25' = 12.50'
TYPE III: 2 @ 18.75' = 37.50'
TYPE III SHOP CURVE: 2 @ 18.75' = 37.50'
TYPE GREU, TL–2: 2 @ 25' = 50.00'
GRAND TOTAL = 137.50'
ADDITIONAL GUARDRAIL POSTS = 5

10 AUG 2021 12:14
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$$$$USERNAME$$$$

BRIDGE NO. 870108

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030952 JENNIFER D. FARING — 8/10/2021

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048313 COLE M. BENJAMIN — 8/10/2021

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RS&H
NC FIRM LICENSE No: F-0493

NAD 83/NA 2011

8/17/99

REVISIONS

ROW REV. - 05-13-21 - TCE WAS REMOVED FROM PARCELS 4 AND 6.(CLR)
ROW REV. - 08-06-21 - PUE WAS CHANGED TO ROW ON PARCEL 4.(ACD)

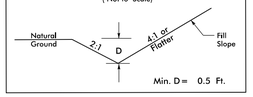
-L- CURVE DATA

PI Sta 10+89.31	PI Sta 12+40.46	PI Sta 15+24.71	PI Sta 16+46.34
△ = 11° 20' 02.3" (RT)	△ = 15° 47' 41.5" (RT)	△ = 21° 45' 09.0" (LT)	△ = 7° 49' 37.0" (LT)
D = 6° 21' 58.3"	D = 12° 43' 56.6"	D = 15° 16' 43.9"	D = 7° 38' 22.0"
L = 178.03'	L = 124.05'	L = 142.37'	L = 102.45'
T = 89.31'	T = 62.42'	T = 72.05'	T = 51.31'
R = 900.00'	R = 450.00'	R = 375.00'	R = 750.00'
SE = N/A	SE = 5.7	SE = 5.9	SE = N/A

-Y- CURVE DATA

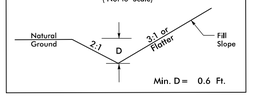
PI Sta 10+42.33	PI Sta 10+84.57	PI Sta 11+29.80
△ = 39° 24' 45.2" (RT)	△ = 21° 41' 30.9" (LT)	△ = 2° 28' 24.2" (RT)
D = 81° 51' 04.0"	D = 57° 17' 44.8"	D = 4° 39' 45.5"
L = 48.15'	L = 37.86'	L = 53.05'
T = 25.07'	T = 19.16'	T = 26.53'
R = 70.00'	R = 100.00'	R = 1,228.83'
SE = N/A	SE = N/A	SE = N/A

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



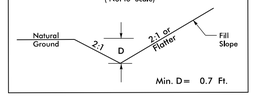
FROM -L- STA. 11+30 TO STA. 11+83 LT
FROM -Y- STA. 10+40 TO STA. 10+84 RT

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



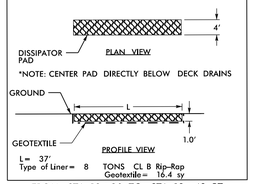
FROM -L- STA. 12+00 TO STA. 12+50 LT

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



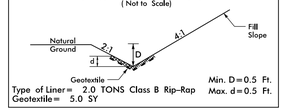
FROM -L- STA. 12+50 TO STA. 13+22 LT
FROM -L- STA. 13+65 TO STA. 13+83 RT

DETAIL D
DECK DRAIN DISSIPATOR PAD
(Not to Scale)



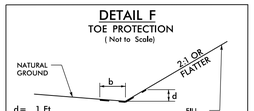
FROM STA. 13+20 TO STA. 13+43 RT
FROM STA. 13+61 TO STA. 13+70 RT

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



FROM -Y- STA. 10+84 TO STA. 10+89 RT

DETAIL F
TOE PROTECTION
(Not to Scale)



FROM -L- STA. 13+00 TO STA. 13+18 RT

BRIDGE SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP N.T.S.

PAVEMENT REMOVAL
BRIDGE APPROACH SLAB
FOR -L- PROFILE SEE SHEET 5
FOR -Y- PROFILE SEE SHEET 5
FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-13

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PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R182	5

ROADWAY DESIGN ENGINEER — SEAL 030952, JENNIFER D. FARINO, 8/10/2021

HYDRAULICS ENGINEER — SEAL 048313, COLE M. BENJAMIN, 8/10/2021

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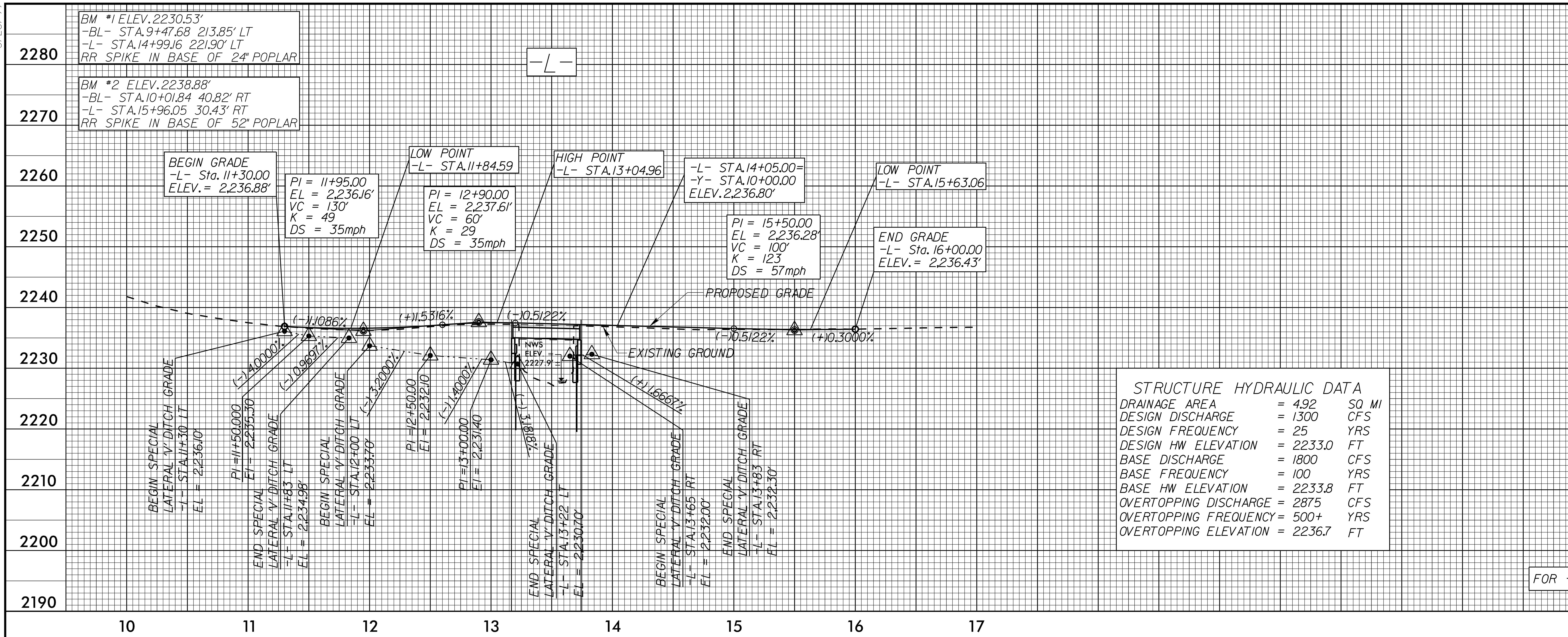
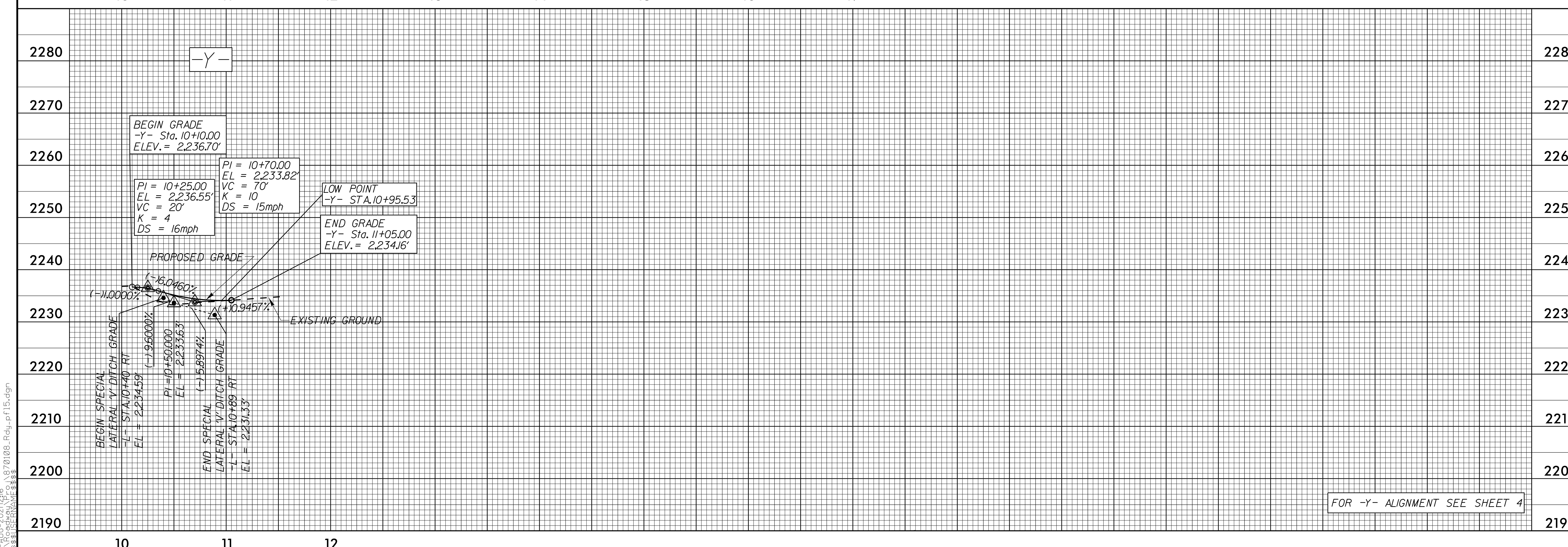


STRUCTURE HYDRAULIC DATA

DRAINAGE AREA	= 4.92	SQ MI
DESIGN DISCHARGE	= 1300	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2233.0	FT
BASE DISCHARGE	= 1800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2233.8	FT
OVERTOPPING DISCHARGE	= 2875	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 2236.7	FT



5/28/99

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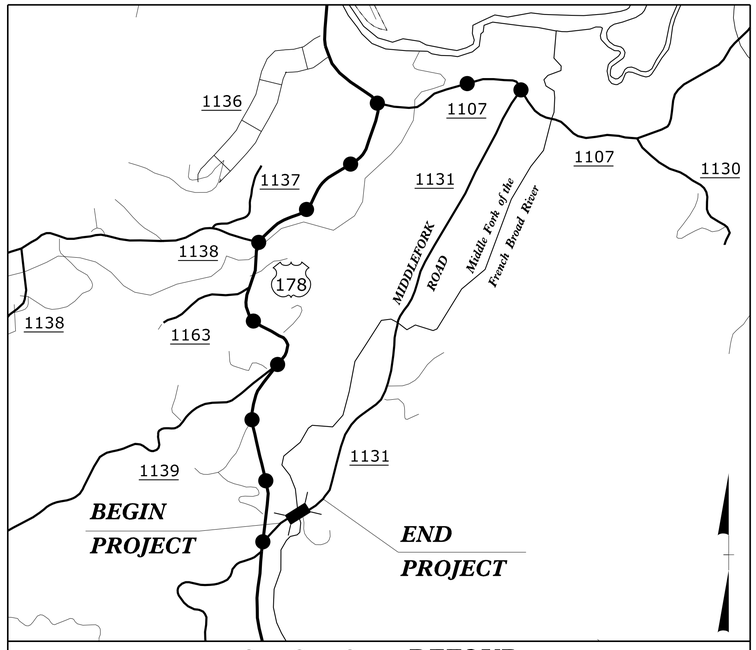
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

TRANSYLVANIA COUNTY

LOCATION: BRIDGE NO. 870108 OVER MIDDLE FORK OF FRENCH BROAD RIVER ON SR 1131 (MIDDLEFORK ROAD)



SKETCH MAP SHOWING THE VICINITY OF DIVISION PROJECT 17BP.14.R.182

INDEX OF SHEETS

SHEET NO.
TMP-1

TIP PROJECT: 17BP.14.R.182

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

PLANS PREPARED BY:

JASON TALLEY, P.E.
PROJECT ENGINEER

REBECCA E. MCLAUGHLIN
PROJECT DESIGNER

NCDOT CONTACTS:

GARRETT HIGDON, EI
DIVISION 14
ASSISTANT BRIDGE MANAGEMENT ENGINEER

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

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RS&H
NC FIRM LICENSE No: F-0493

APPROVED: DocuSigned by: Jason M. Talley 0F5F8B8859E8434...

DATE: 8/10/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

7/23/2021
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User:McLaughR

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.182	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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1130.01	DRUM
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- CONTINUED WORK AREA
- TEMPORARY PAVEMENT
- REMOVAL

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE TRAFFIC SIGNAL SYSTEM

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

TEMPORARY PAVEMENT MARKINGS

P1	WHITE EDGELINE (4")
P61	WHITE STOPBAR (24")

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APPROVED: Jason M. Talley (DocuSigned by: 0F5FBB8859E8434...)

DATE: 8/10/2021

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

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

LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND

7/23/2021
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User:McLaughR

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.182	TMP-1B

MANAGEMENT STRATEGY

BRIDGE NO. 870108 OVER MIDDLE FORK OF FRENCH BROAD RIVER WILL BE CONSTRUCTED USING AN OFF-SITE DETOUR.

LOCAL TRAFFIC WILL BE MAINTAINED USING A TWO-WAY, ONE-LANE PATTERN DURING PHASED CONSTRUCTION.

GENERAL 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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) 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.

B) 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.

C) 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.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 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.

D) 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.

E) 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

F) 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.

G) 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) 100 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

I) 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.

J) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

K) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

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

TRAFFIC CONTROL DEVICES

N) 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.

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

PAVEMENT MARKINGS AND MARKERS

P) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
MIDDLEFORK RD (-L-)	PAINT	N/A

Q) 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.

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

S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

T) 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) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

U) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER

RS&H
NC FIRM LICENSE No: F-0493

APPROVED: DocuSigned by: Jason M. Talley -0F5F8B8859E8434...
DATE: 8/10/2021

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

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

MANAGEMENT STRATEGY AND GENERAL NOTES

7/23/2021
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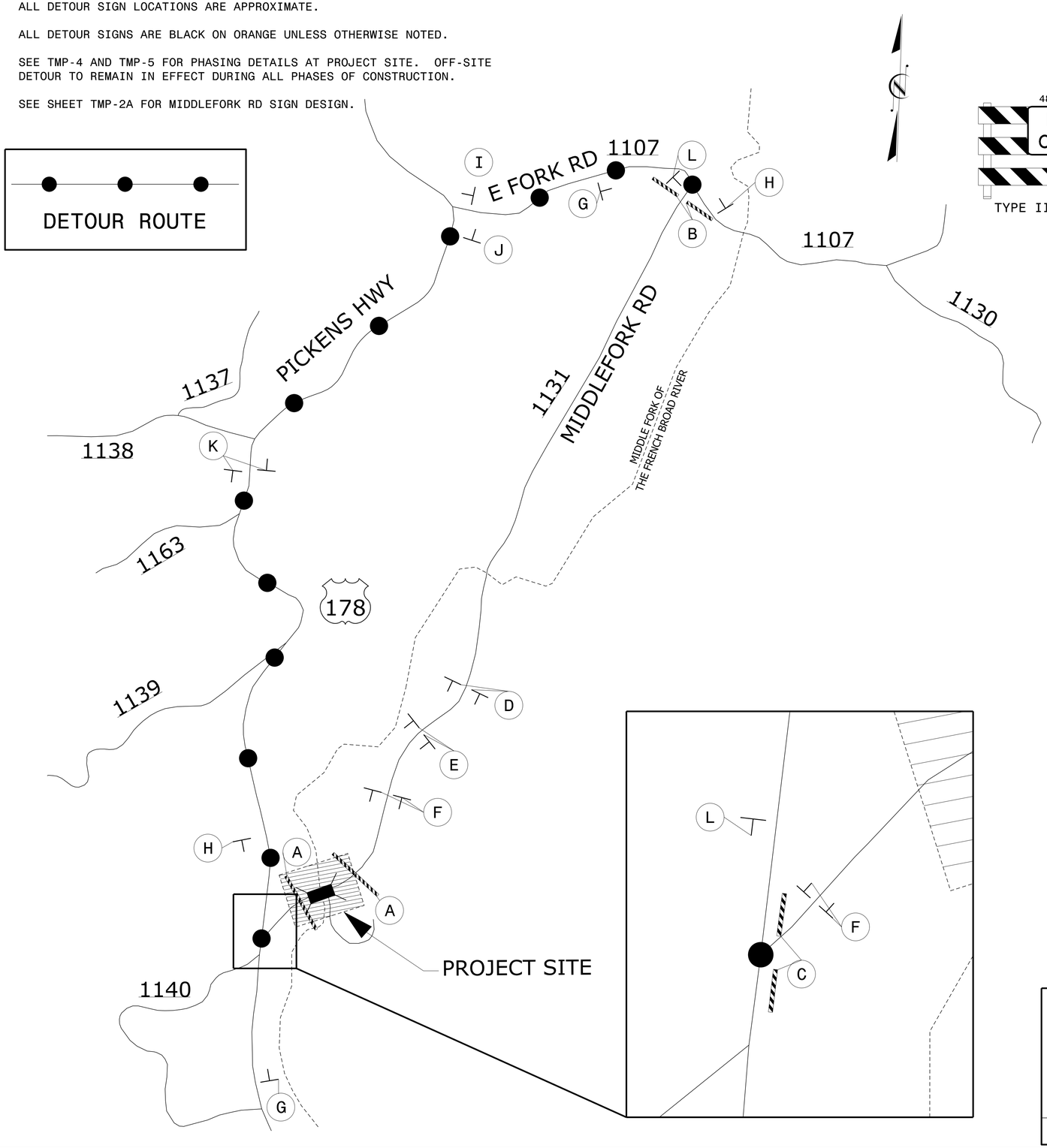
User:McLaughR

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.182	TMP-2

NOTES:

- ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.
- ALL DETOUR SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE NOTED.
- SEE TMP-4 AND TMP-5 FOR PHASING DETAILS AT PROJECT SITE. OFF-SITE DETOUR TO REMAIN IN EFFECT DURING ALL PHASES OF CONSTRUCTION.
- SEE SHEET TMP-2A FOR MIDDLEFORK RD SIGN DESIGN.



R11-2
48″ x 30″
ROAD CLOSED
TYPE III BARRICADE TYPE III BARRICADE
A

ROAD CLOSED 1000 FT
W20-3
48″ X 48″
E

Middlefork Rd
DETOUR
M4-8
24″ x 12″
M6-1
21″ x 15″
30″ x 24″
I

R11-3
60″ x 30″
ROAD CLOSED
1 MILE AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10R
48″ x 18″
TYPE III BARRICADE
B

ROAD CLOSED 500 FT
W20-3
48″ X 48″
F

Middlefork Rd
DETOUR
M4-8
24″ x 12″
M6-1
21″ x 15″
30″ x 24″
J

R11-4
60″ x 30″
ROAD CLOSED TO THRU TRAFFIC
DETOUR
M4-10L
48″ x 18″
TYPE III BARRICADE
C

ROAD CLOSED AHEAD
W20-3
48″ X 48″
NEXT RIGHT
SP-4R
42″ X 12″
G

Middlefork Rd
DETOUR
M4-8
24″ x 12″
M6-3
21″ x 15″
30″ x 24″
K

ROAD CLOSED AHEAD
W20-3
48″ X 48″
D

ROAD CLOSED AHEAD
W20-3
48″ X 48″
NEXT LEFT
SP-4L
42″ X 12″
H

Middlefolk Rd
END DETOUR
M4-8 A
24″ x 18″
30″ x 24″
L

RS&H
NC FIRM LICENSE No: F-0493

APPROVED: DocuSigned by: Jason M. Talley 0F5FBB8859E8434...
DATE: 8/10/2021

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

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

MIDDLEFORK ROAD DETOUR

7/30/2021
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User:AvgerinN

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.182	TMP-2A

SIGN NUMBER: Middlefork Rd BACKG COLOR: Fluorescent Orange
TYPE: D COPY COLOR: Black
QUANTITY: SEE PLANS

SIGN WIDTH: 2′-6″
HEIGHT: 2′-0″
TOTAL AREA: 5.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.375″
WIDTH: 0.63″
RADII: 1.5″

NO. Z BARS:
LENGTH:

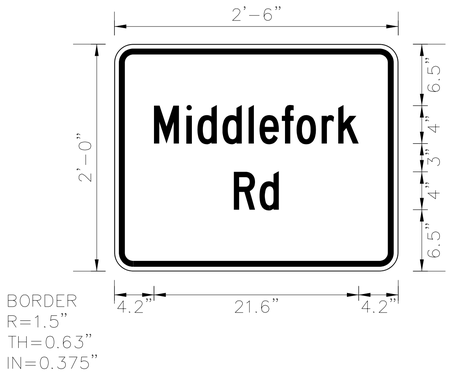
SYMBOL	X	Y	WID	HT

MAT′L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

DESIGN BY: REM CHECKED BY: TEH JUL 23, 2021
PROJECT ID: 17BP.14.R.182 LOCATION: TRANSYLVANIA COUNTY DIV: 14



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter — Series/Size: C 2000

		M	i	d	d	l	e	f	o	r	k															
	4.2	3.4	1.2	2.6	2.8	1.2	2.4	1.6	2.6	1.8	2.2	4.2														21.6
		R	d																							C 2000
	12.6	2.7	2	12.6																						4.8

FILENAME: 870108_tmp_signdesign

NORTH CAROLINA D.O.T. SIGN DETAIL

RS&H
NC FIRM LICENSE No: F-0493

APPROVED: DocuSigned by: Tom Hildebrand E8B36EC997BE434...
DATE: 8/10/2021

NORTH CAROLINA PROFESSIONAL SEAL 038501 ENGINEER THOMAS E. HILDEBRAND

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MIDDLE FORK ROAD SIGN DESIGN

7/23/2021
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User:McLaughR

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.182	TMP-3

PHASING NOTES

PHASE I

STEP 1: - USING RSD 1101.01 (SHEET 1 OF 3), INSTALL ALL ADVANCED WARNING SIGNS.

STEP 2: - USING RSD 1101.03 (SHEET 1 OF 9) AND AN OFFSITE DETOUR, CLOSE -L- (SR 1131 MIDDLEFORK ROAD)TO THRU TRAFFIC (SEE SHEET TMP-2). CONSTRUCT THE PROPOSED STRUCTURE AND APPROACH SLABS FROM -L- STA 13+03± TO -L- STA 13+88± (SEE SHEET TMP-4).

- USING RSD 1101.02 (SHEET 1 OF 15), SHIFT TRAFFIC INTO A ONE-LANE TWO-WAY TEMPORARY PATTERN ON -L- (SR 1131 MIDDLEFORK ROAD) AND -Y- (MIDDLEFORK BRANCH RD). CONSTRUCT THE FOLLOWING (SEE SHEET TMP-4):

  -L- STA 11+30± RT TO -L- STA 13+03± RT
  -L- STA 14+18± RT TO -L- STA 16+00± RT
  -L- STA 11+30± RT TO -L- STA 11+72± RT (TEMPORARY PAVEMENT)
  -L- STA 14+18± RT TO -L- STA 15+70± RT (TEMPORARY PAVEMENT)
  -L- STA 15+91± RT TO -L- STA 16+32± RT (TEMPORARY PAVEMENT)
  -Y- STA 10+00± TO -Y- STA 11+05±
  -Y- STA 10+00± TO -Y- STA 11+43± (TEMPORARY PAVEMENT)

PHASE II

STEP 1: - USING RSD 1101.02 (SHEET 1 OF 15), SHIFT TRAFFIC ONTO NEWLY CONSTRUCTED SECTION OF -L- AND -Y- IN A ONE-LANE, TWO-WAY PATTERN (SEE SHEET TMP-5).

- USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT THE FOLLOWING (SEE SHEET TMP-5):

  -L- STA 11+30± LT TO -L- STA 13+03± LT
  -L- STA 13+88± LT TO -L- STA 16+00± LT
  -L- STA 13+88± RT TO -L- STA 14+18± RT
  -Y- STA 10+10± TO -Y- STA 10+20±
  -Y- STA 10+58± TO -Y- STA 11+05±

STEP 2: - USING RSD 1101.02 (SHEET 1 OF 15), REMOVE TEMPORARY PAVEMENT ON -L- (SR 1131 MIDDLEFORK ROAD) AND -Y- (MIDDLEFORK BRANCH RD.)

- COMPLETE CONSTRUCTION OF THE PROPOSED BRIDGE AND REMOVAL OF EXISTING STRUCTURE BEGUN IN PREVIOUS PHASE (SEE SHEET TMP-5).

STEP 3: - USING RSD 1101.02 (SHEET 1 OF 15), PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS ON -L- AND -Y- (SEE PAVEMENT MARKING PLANS). REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN PROJECT TO FINAL TRAFFIC PATTERN.

RS&H
NC FIRM LICENSE No: F-0493

APPROVED: DocuSigned by: Jason M. Talley -0F5FBB8695E8434...
DATE: 8/10/2021

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASING NOTES

7/23/2021
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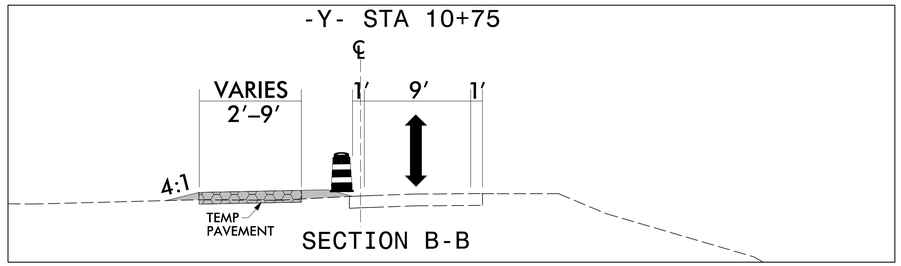
User:McLaughR

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.182	TMP-4



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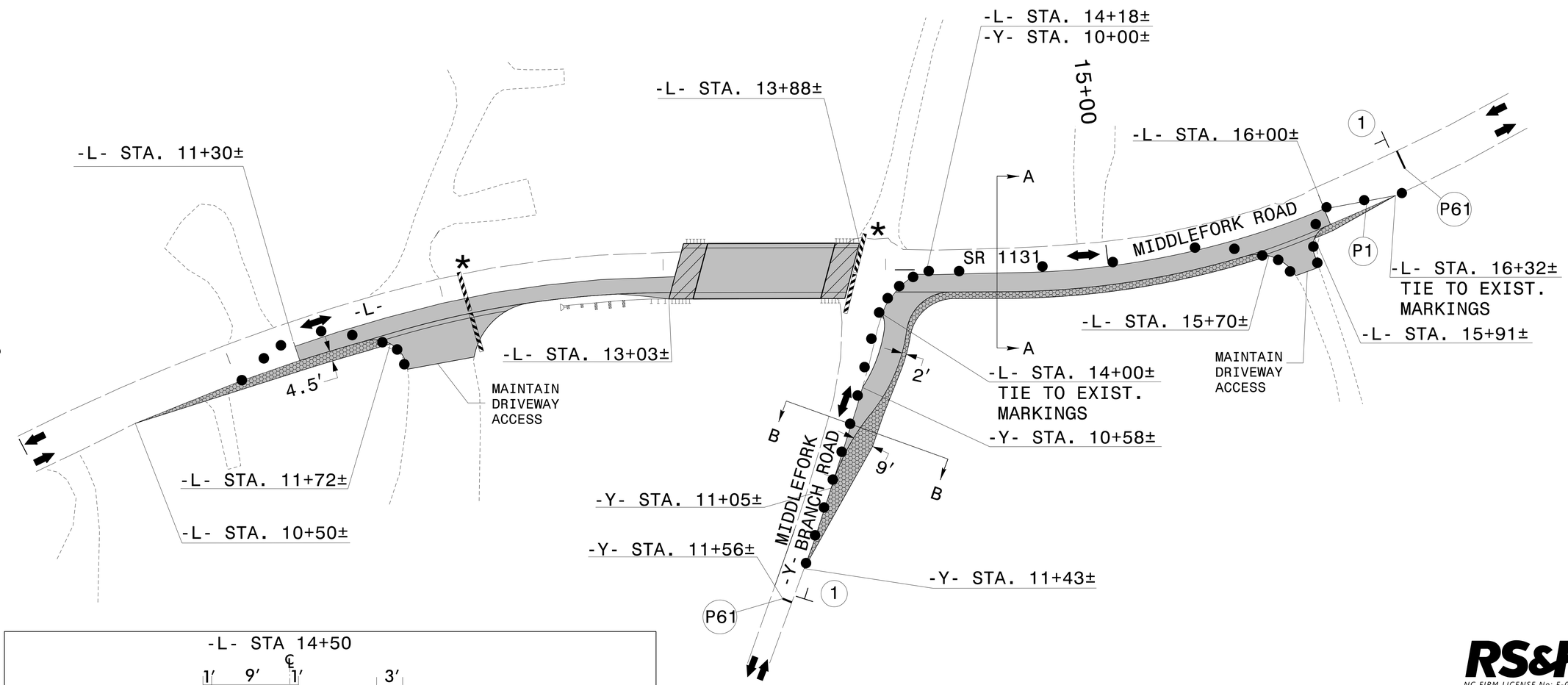
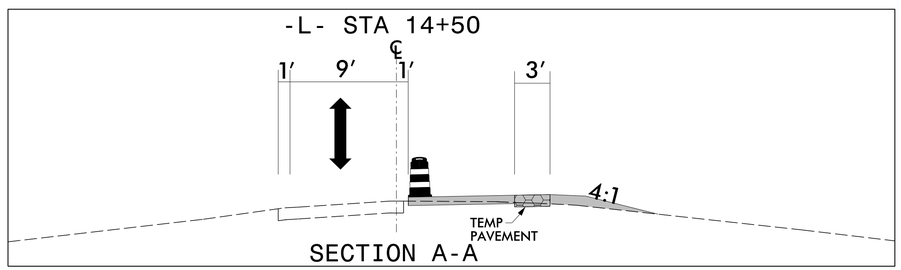
* ROAD CLOSURE. SEE SHEET TMP-2 FOR OFF-SITE DETOUR.

NAD 83/NA 2011





RS&H
NC FIRM LICENSE No: F-0493

APPROVED: DocuSigned by: Jason M. Talley 0F5FBB8859E8434...
DATE: 8/10/2021

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

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

PHASE I DETAIL

7/23/2021
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PROJ. REFERENCE NO.	SHEET NO.
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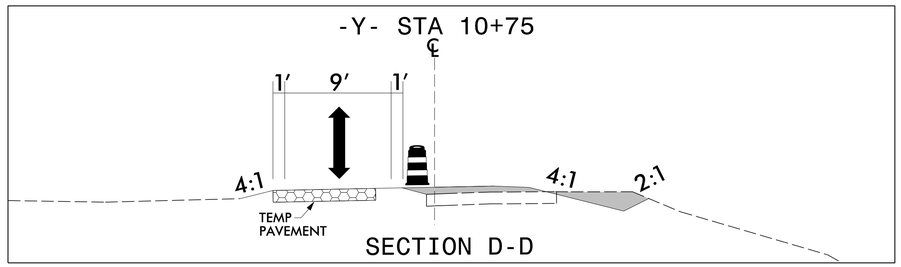

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* ROAD CLOSURE. SEE SHEET TMP-2 FOR OFF-SITE DETOUR.

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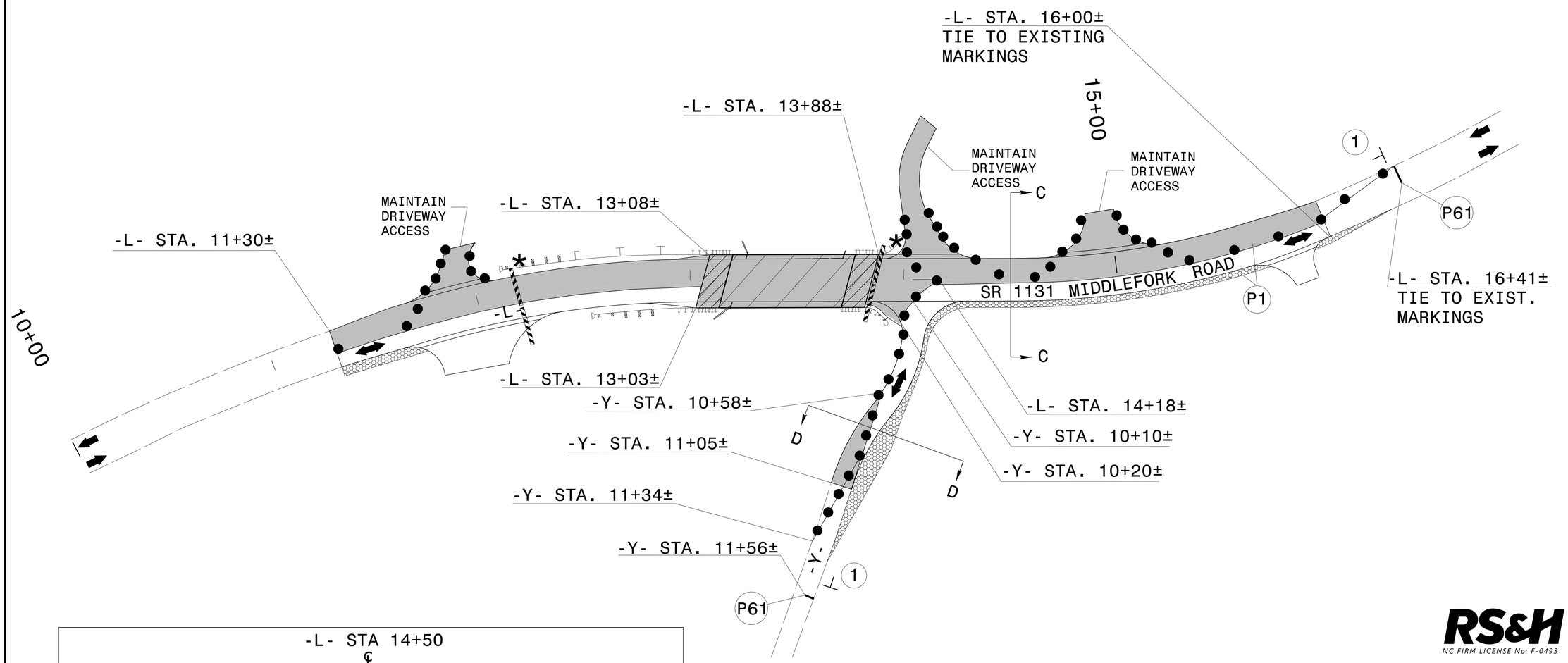

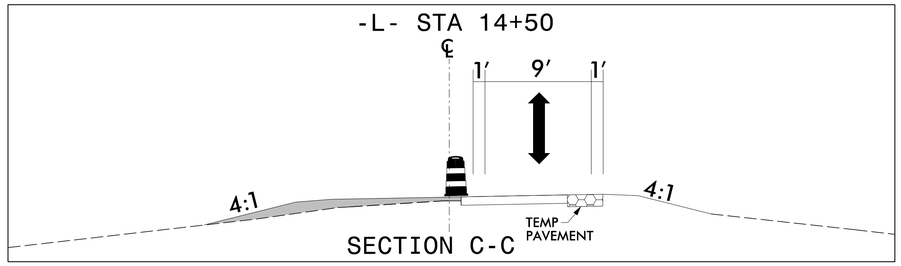

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NC FIRM LICENSE No: F-0493

APPROVED: Jason M. Talley
DocuSigned by: 0F5FBB8659E8434...
DATE: 8/10/2021

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

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

PHASE II DETAIL

7/23/2021
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User:McLaughR

T.I.P.: 17BP.14.R.182

CONTRACT: DN00501

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
TRANSYLVANIA COUNTY

TIP NO.	SHEET NO.
17BP.14.R.182	PMP-1

APPROVED: DocuSigned by: Jason M. Talley 0F5F8B8859E8434...

DATE: 8/10/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1131 (-L-)	PAINT	N/A

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKING ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

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

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING PAVEMENT MARKING MATERIAL.

PAVEMENT MARKING SCHEDULE

		FINAL PAVEMENT MARKINGS
P1	WHITE EDGELINE	PAINT (4")
P13	YELLOW DOUBLE CENTER	PAINT (4")

Prepared In the Office of:
RS&H
ARCHITECTS–ENGINEERS–PLANNERS, INC.

JASON TALLEY, PE — PROJECT ENGINEER

CHARLES YOUNG, PE — DESIGN ENGINEER

RS&H NC FIRM LICENSE No: F-0493

TIP NO.	SHEET NO.
17BP.14.R.182	PMP-2

APPROVED: DocuSigned by: Jason M. Talley DF5F8B8859E8434...

DATE: 8/10/2021

SEAL

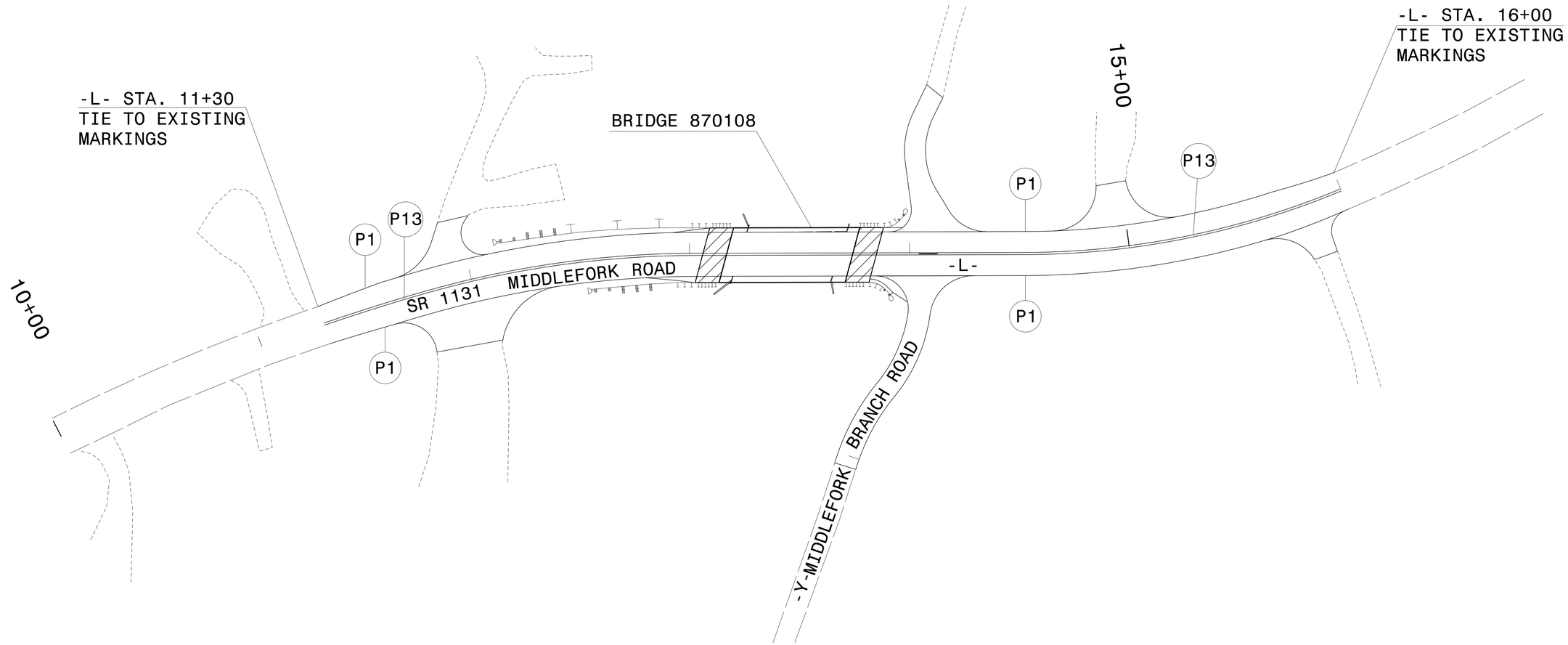
NORTH CAROLINA PROFESSIONAL SEAL 029473 ENGINEER JASON M. TALLEY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

NC FIRM LICENSE No: F-0493

NAD 83/NA 2011



PAVEMENT MARKING DETAIL

7/21/2021
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User:McLaughR

WBS PROJECT: 17BP.14.R.182

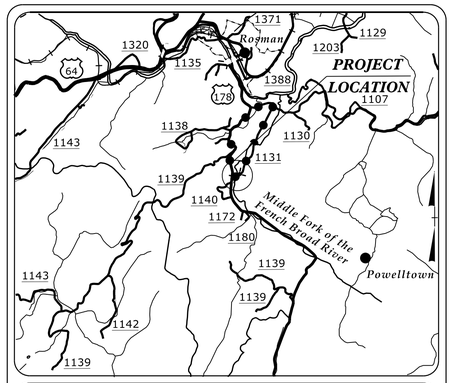
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

TRANSYLVANIA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.182	EC-1	7

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION



DETOUR

VICINITY MAP N.T.S.

LOCATION: BRIDGE 870108 OVER MIDDLE FORK OF THE FRENCH BROAD RIVER ON SR 1131 (MIDDLEFORK ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

END BRIDGE
–L– STA. 13+74.16

BEGIN BRIDGE
–L– STA. 13+16.84

NAD 83/ NA 2011

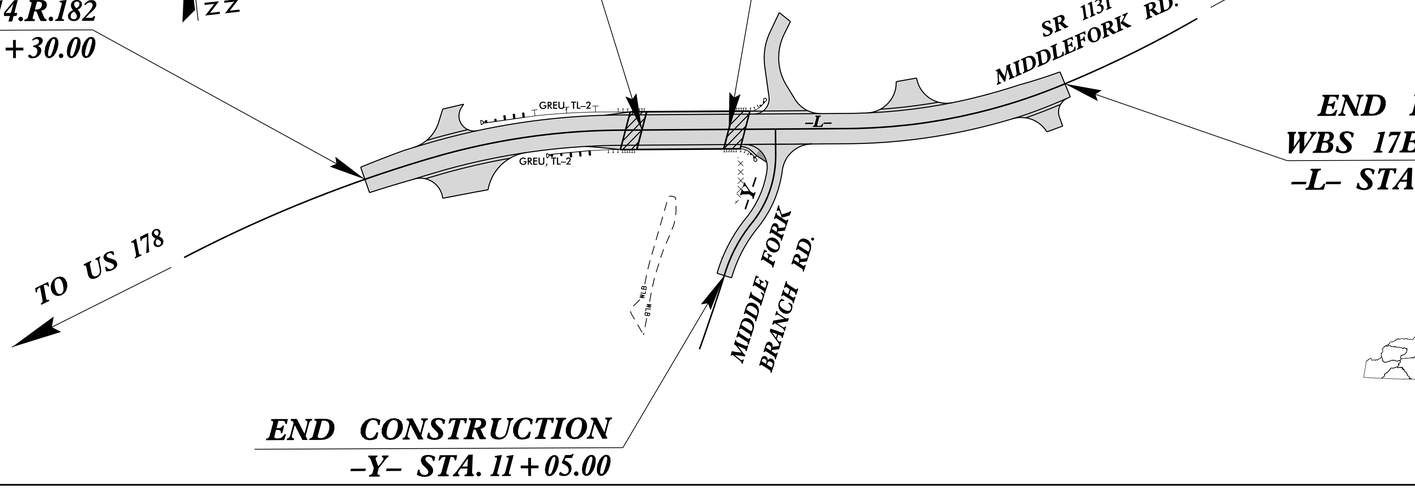
BEGIN PROJECT
WBS 17BP.14.R.182
–L– STA. 11+30.00

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

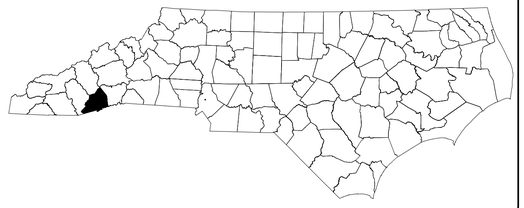


END CONSTRUCTION
–Y– STA. 11+05.00

END PROJECT
WBS 17BP.14.R.182
–L– STA. 16+00.00

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	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	



GRAPHIC SCALE

50 25 0 50 100

PLANS

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

RS&H

Prepared In the Office of:

RS&H

8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE NO: F–0493

Designed by:

COLE BENJAMIN, PE *3977*

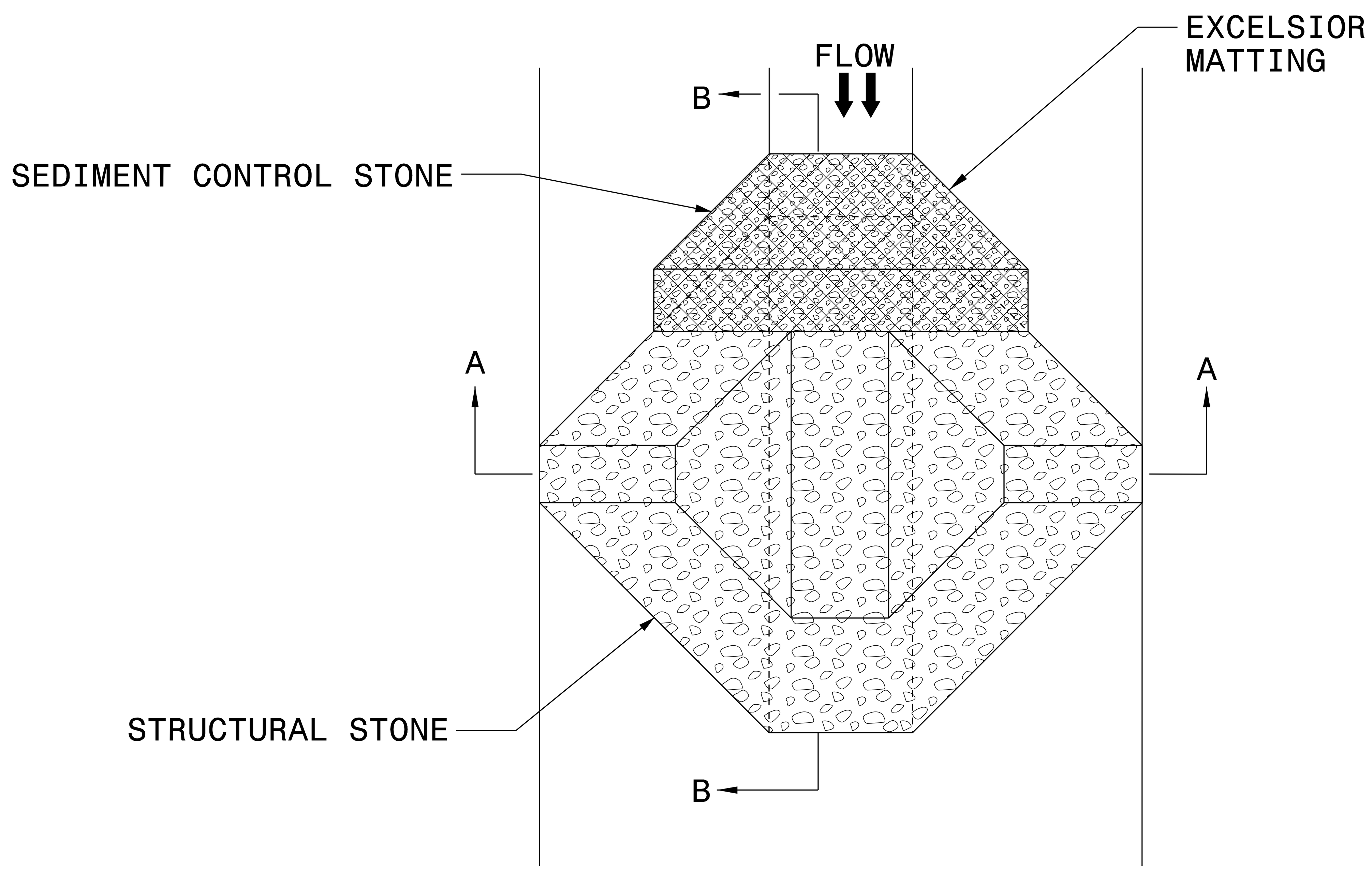
NAME *LEVEL III CERTIFICATION NO.*

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		

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



PLAN

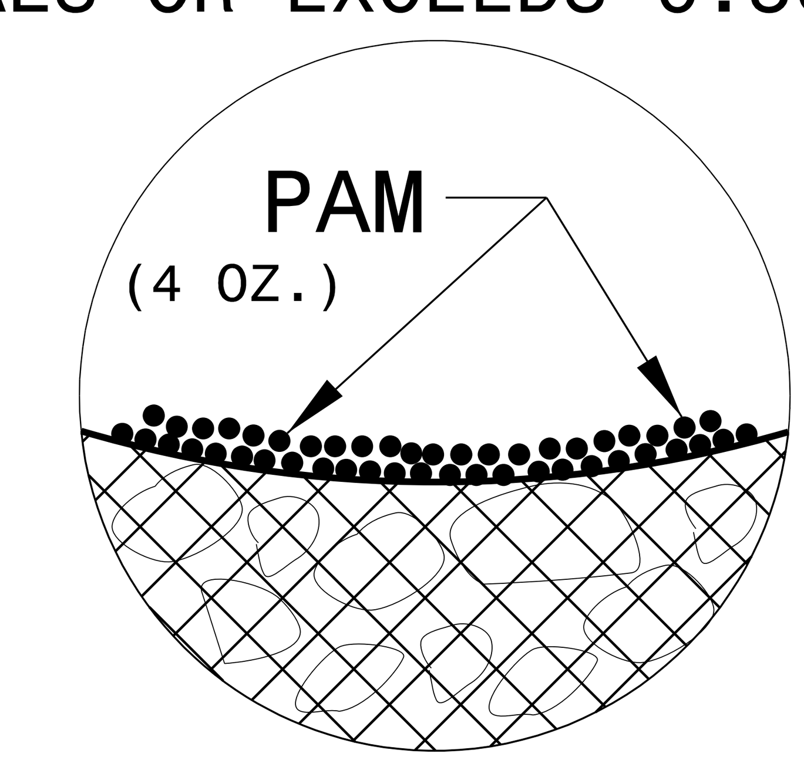
NOTES:

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

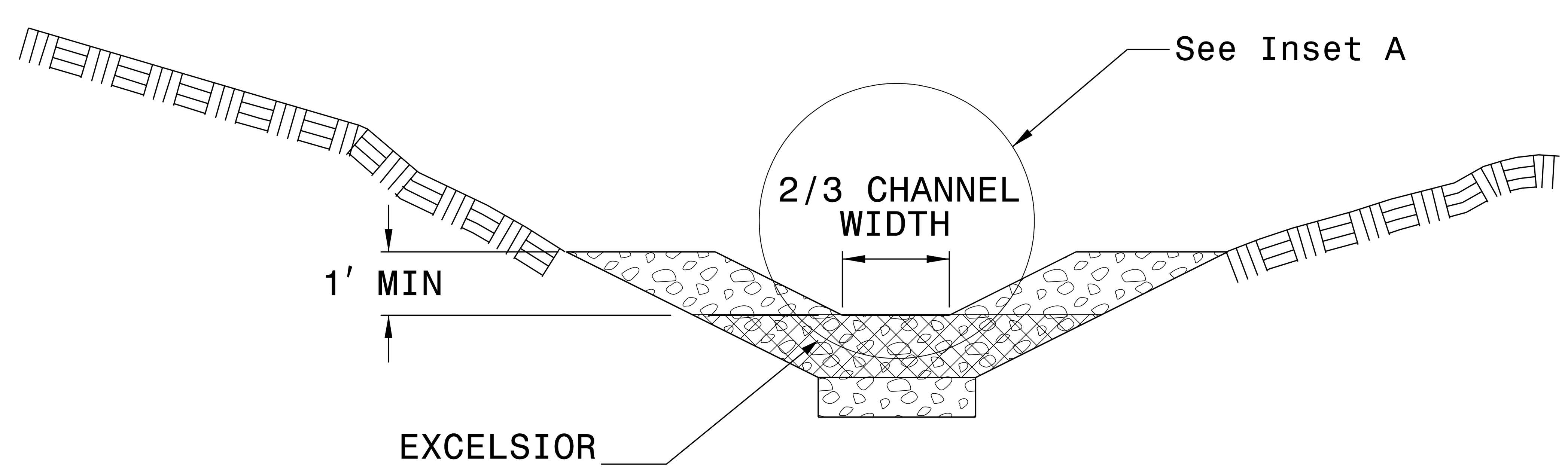
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

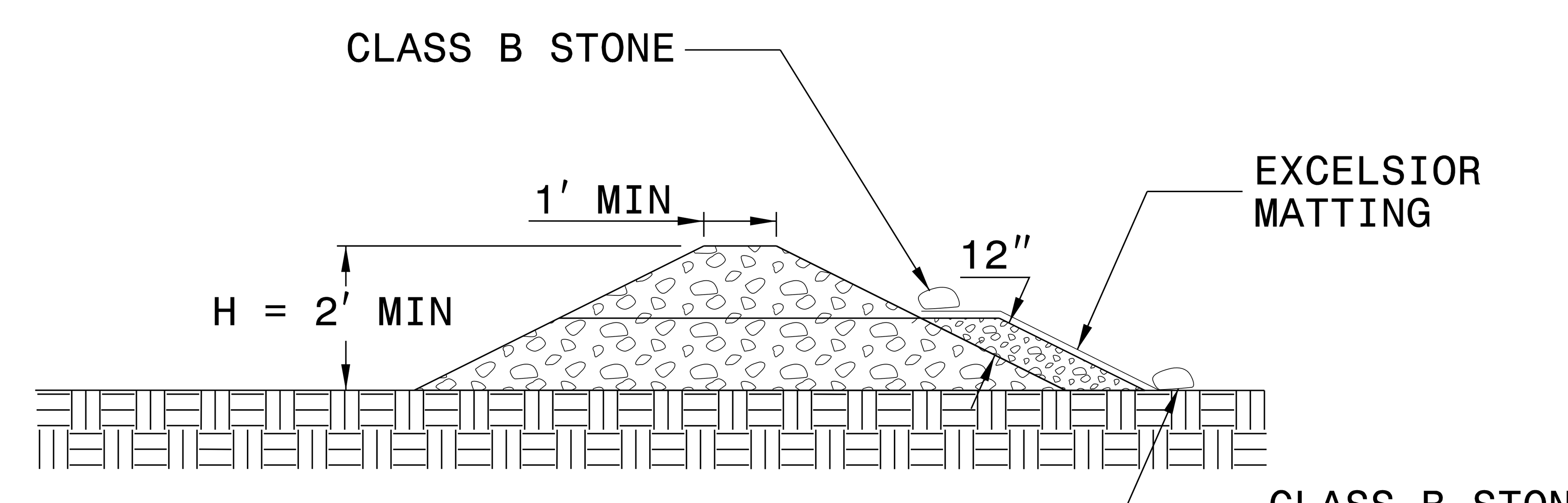
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

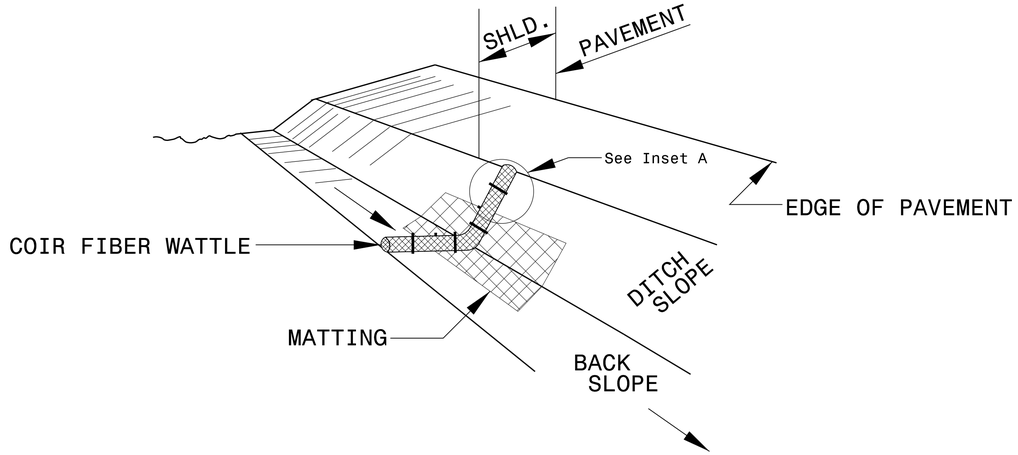


SECTION B-B

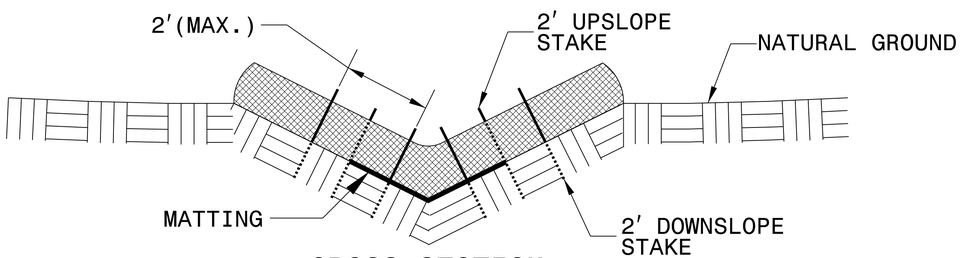
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4RJ82	EC-2A

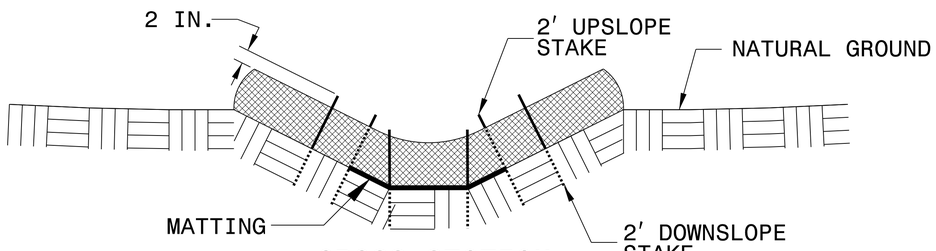
COIR FIBER WATTLE DETAIL



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.

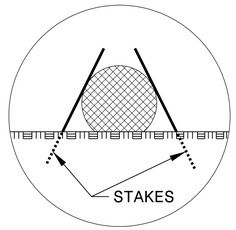
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.



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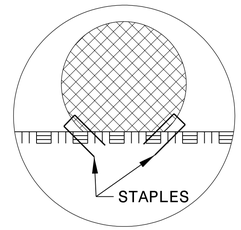

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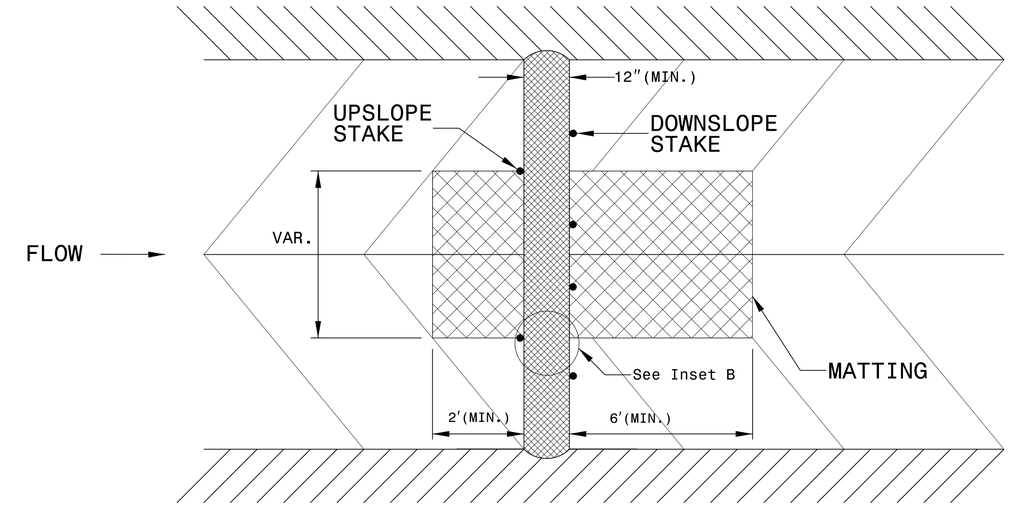


TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	EC-3

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)
EC-4	-L-	11+30	11+83	LT	40
EC-4	-L-	12+00	13+22	LT	100
EC-4	-L-	13+83	13+65	RT	30
EC-4	-Y-	10+40	10+89	RT	25
				TOTAL	195
				SAY	200

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	EC-3A

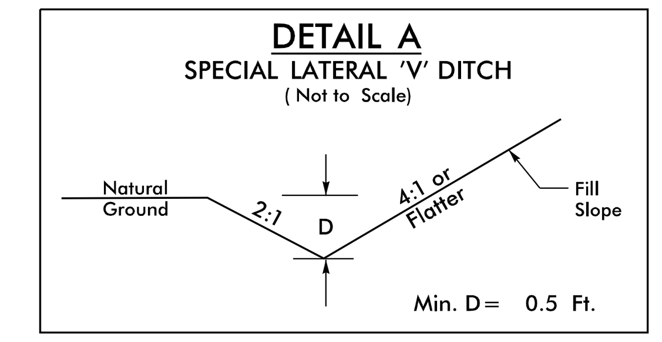
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

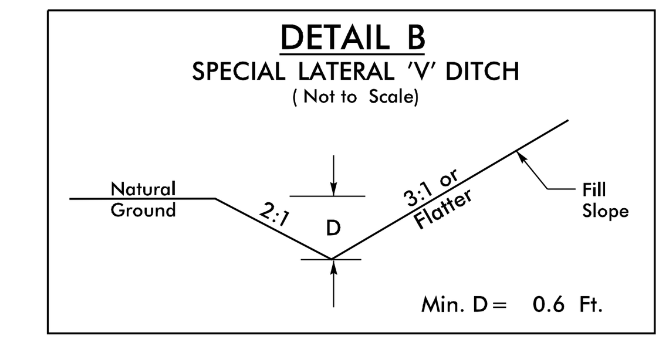
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.RJ82	EC-4/CONST.4

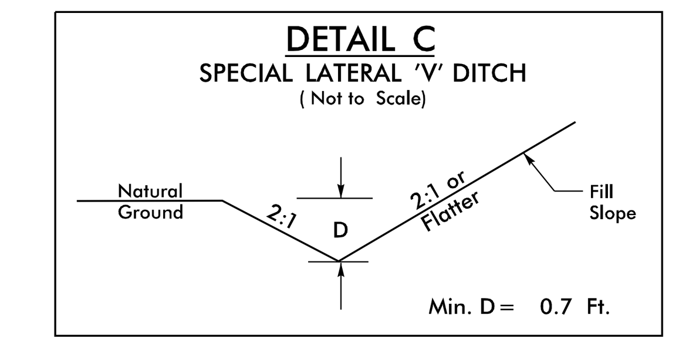
RS&H
NC FIRM LICENSE No: F-0493



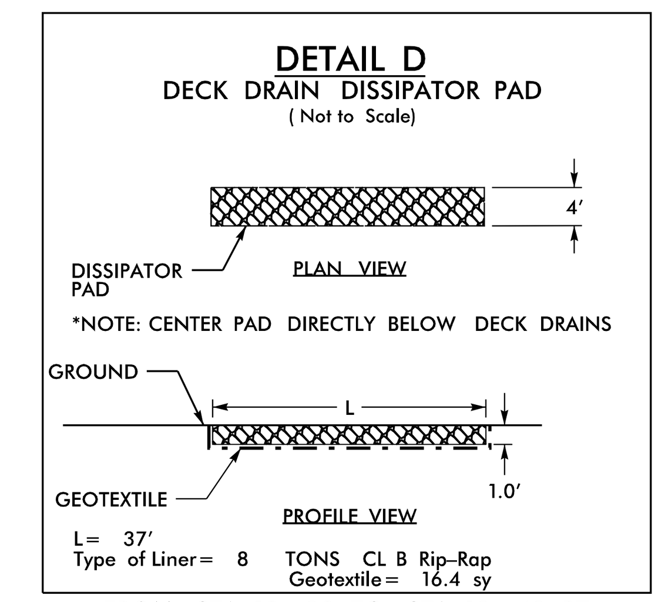
FROM -L- STA. 11+30 TO STA. 11+83 LT
FROM -Y- STA. 10+40 TO STA. 10+84 RT



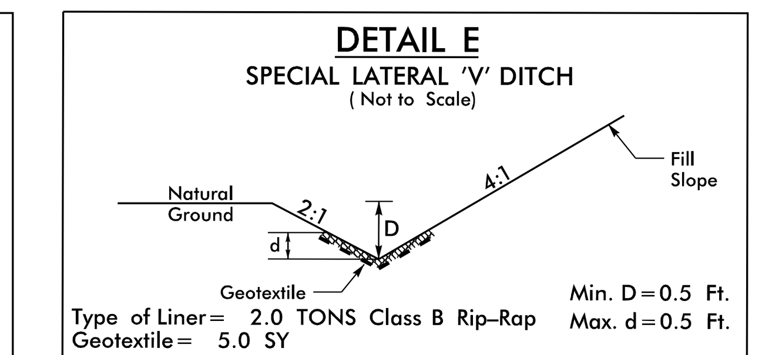
FROM -L- STA. 12+00 TO STA. 12+50 LT



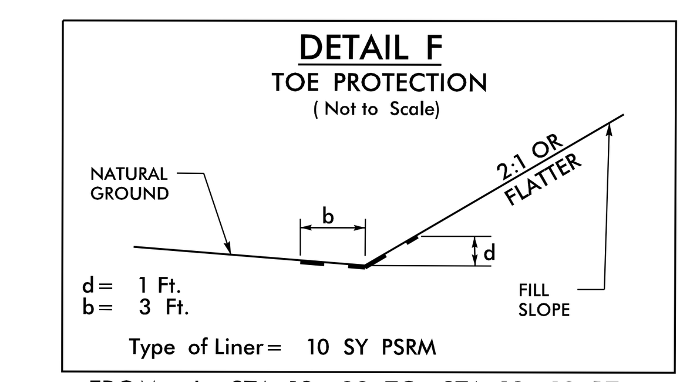
FROM -L- STA. 12+50 TO STA. 13+22 LT
FROM -L- STA. 13+65 TO STA. 13+83 RT



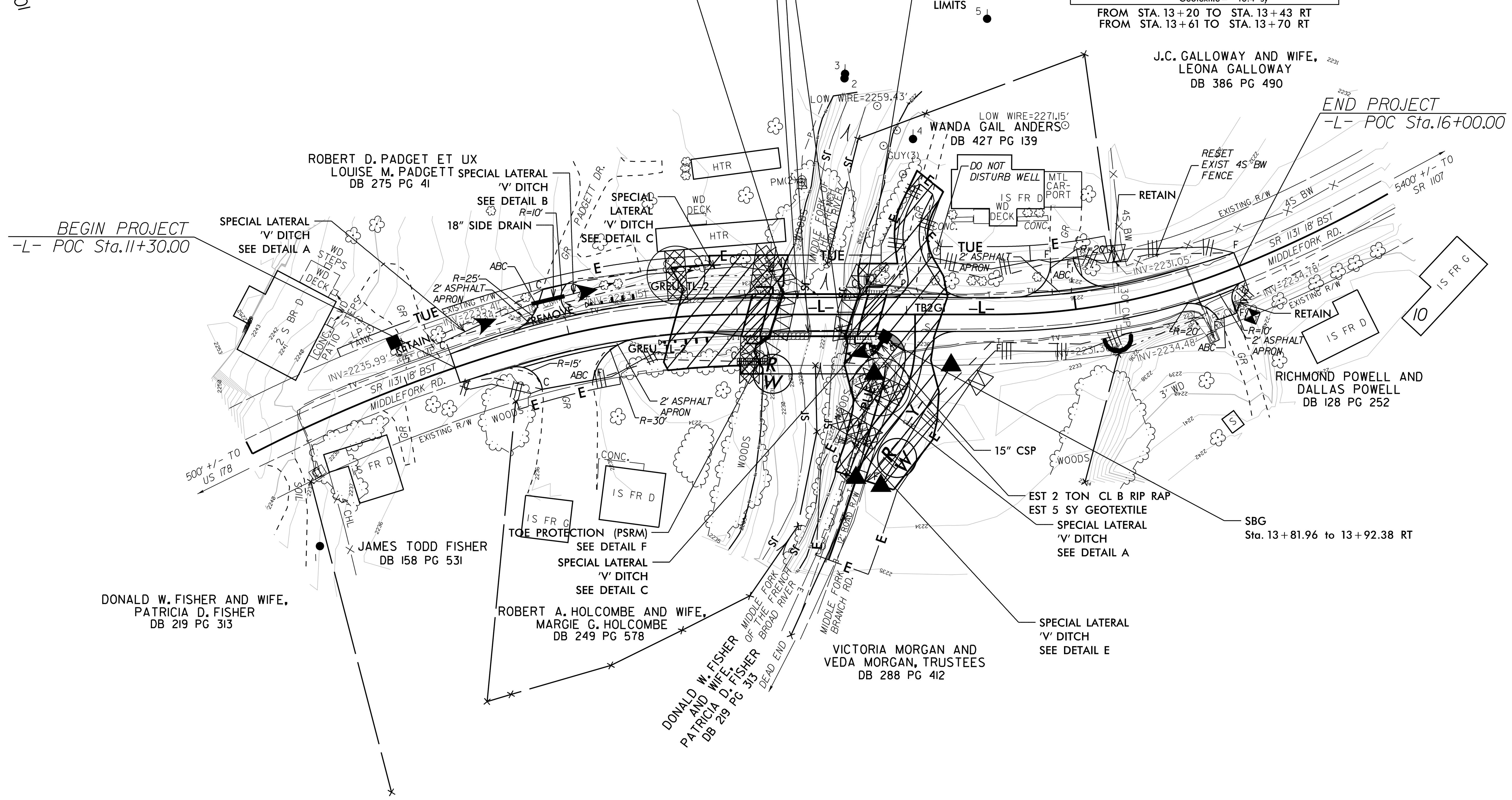
FROM STA. 13+20 TO STA. 13+43 RT
FROM STA. 13+61 TO STA. 13+70 RT



FROM -Y- STA. 10+84 TO STA. 10+89 RT



FROM -L- STA. 13+00 TO STA. 13+18 RT



NOTE: EXCELSIOR OR OTHER MESH TYPE NETTING IS NOT ALLOWED IN OR ON STREAM BANKS.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

8/17/99

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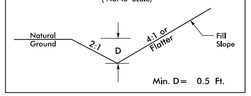
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	EC-5/CONST.4

RS&H
NC FIRM LICENSE No: F-0493

NAD 83/2001

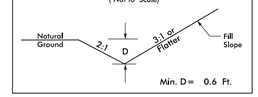
DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 0.5 Ft.

FROM –L– STA. 11+30 TO STA. 11+83 LT
FROM –Y– STA. 10+40 TO STA. 10+84 RT

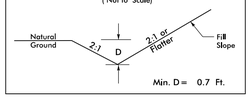
DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 0.6 Ft.

FROM –L– STA. 12+00 TO STA. 12+50 LT

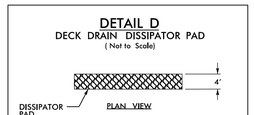
DETAIL C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 0.7 Ft.

FROM –L– STA. 12+50 TO STA. 13+22 LT
FROM –L– STA. 13+65 TO STA. 13+83 RT

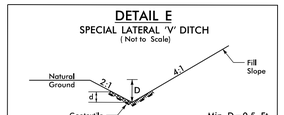
DETAIL D
DECK DRAIN DISSIPATOR PAD
(Not to Scale)



L= 37'
Type of Liner= 8 TONS CL B Rip-Rap
Geotextile= 16.4 sy

FROM STA. 13+20 TO STA. 13+43 RT
FROM STA. 13+61 TO STA. 13+70 RT

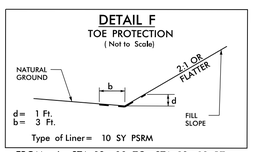
DETAIL E
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= 2.0 TONS Class B Rip-Rap
Geotextile= 5.0 SY
Min. D=0.5 Ft.
Max. d=0.5 Ft.

FROM –Y– STA. 10+84 TO STA. 10+89 RT

DETAIL F
TOE PROTECTION
(Not to Scale)



d= 1 Ft.
b= 3 Ft.
Type of Liner= 10 SY PSRM

FROM –L– STA. 13+00 TO STA. 13+18 RT

NOTE: EXCELSIOR OR OTHER MESH TYPE NETTING IS NOT ALLOWED IN OR ON STREAM BANKS.

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ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

10 AUG 2021 12:54
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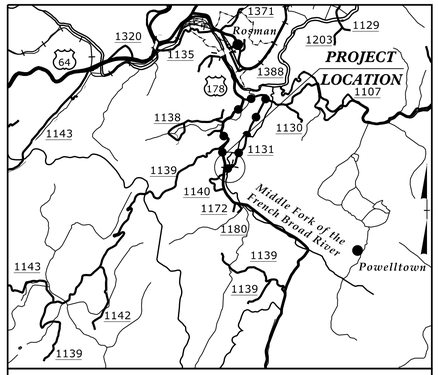
09/08/99

WBS: 17BP.14.R.182



DETOUR

VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
TRANSYLVANIA COUNTY

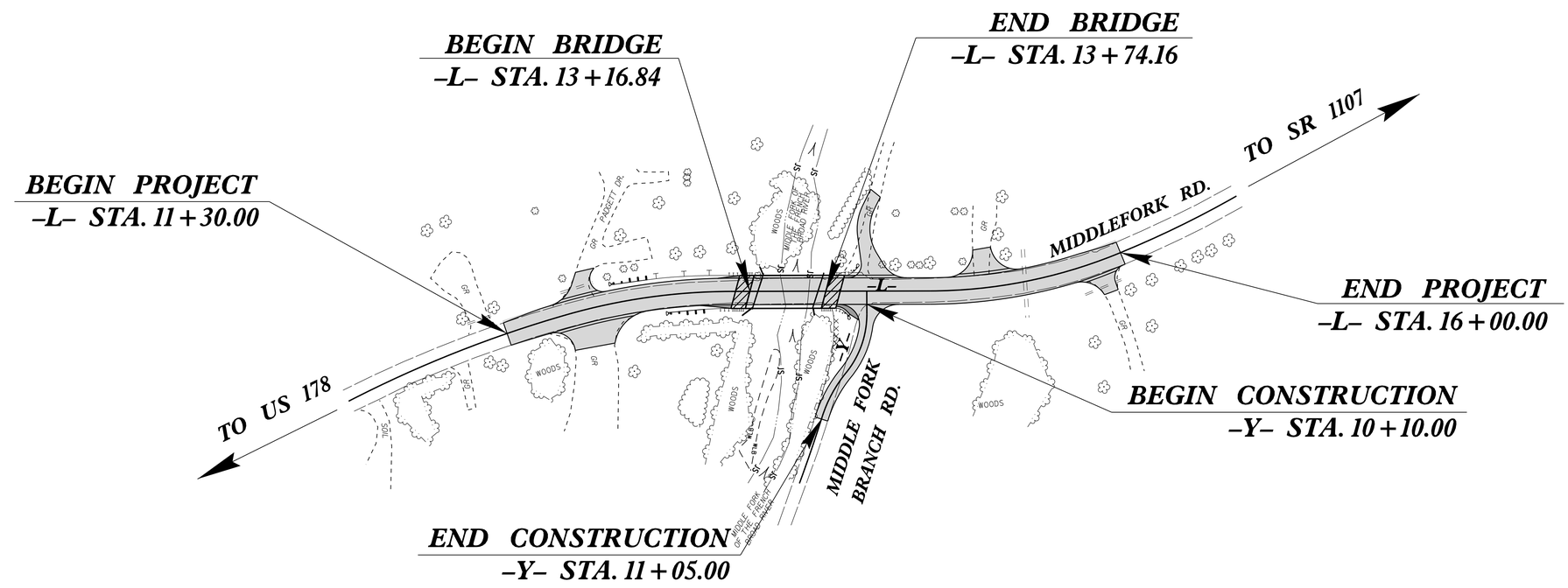
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.182	UO–1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET IS DONE BY OTHERS.
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

NAD 83/NA 2011

LOCATION: BRIDGE 870108 OVER MIDDLE FORK OF THE FRENCH BROAD RIVER ON SR 1131 (MIDDLEFORK ROAD)

TYPE OF WORK: UNDERGROUND TELECOM



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

30 15 0 30 60
PLANS

INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO–1	TITLE SHEET
UO–2	UBO PLAN SHEET

UTILITY OWNERS ON PROJECT

(1) TELECOM – COMPORIUM COMMUNICATIONS

(2) POWER – HAYWOOD EMC

PREPARED IN THE OFFICE OF:
RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

Jennifer Farino, PE — PROJECT ENGINEER
Allison Drake, PE — PROJECT DESIGN ENGINEER

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

Robert Golding — DIVISION 14 UTILITIES ENGINEER

10-AUG-2021 12:47
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$$$$USERNAME$$$$

8/17/99

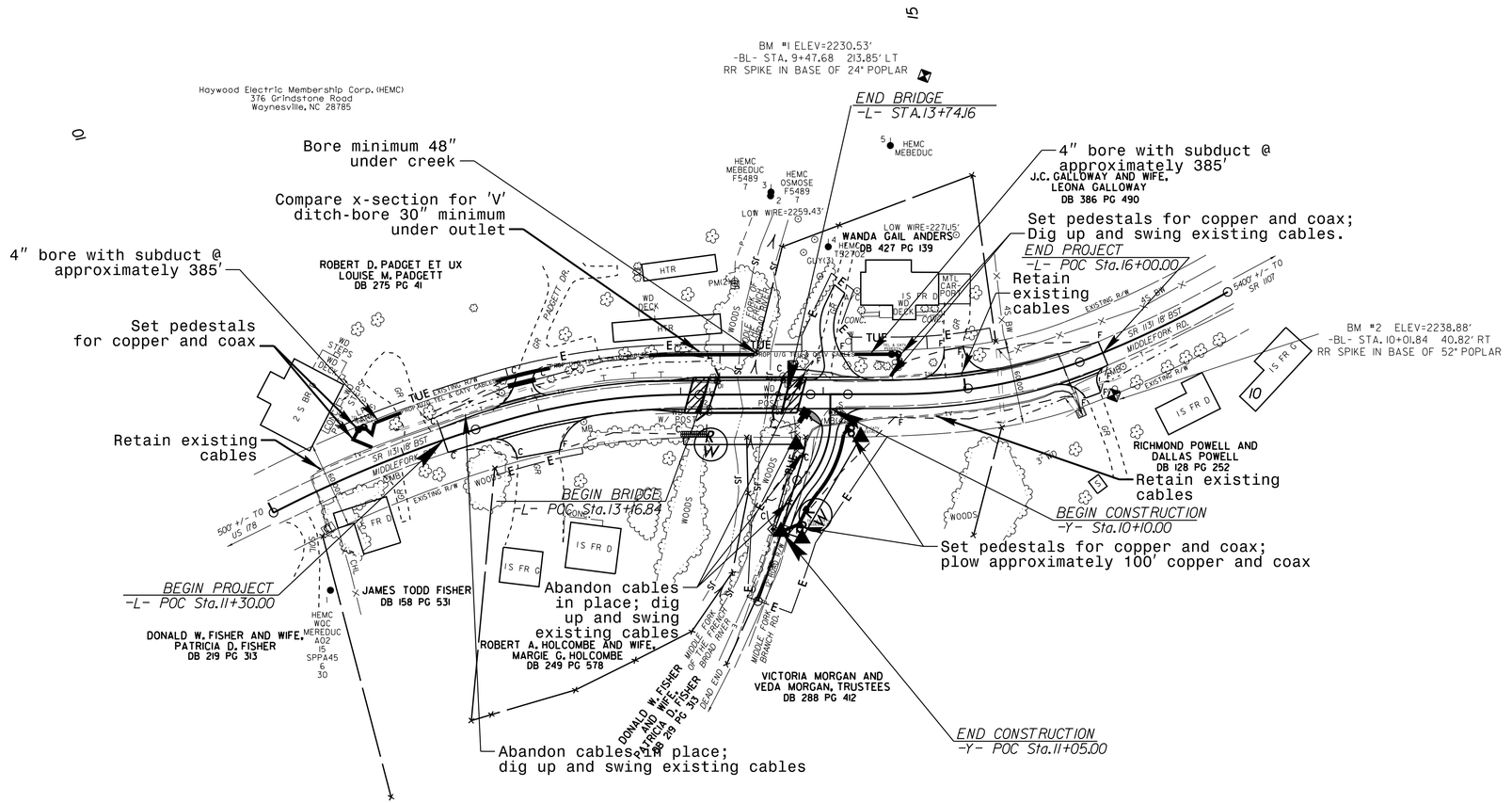
PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.RJ82	U0-2

BRIDGE NO. 870108

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

NAD 83/NA 2011



Note:
Comporium telephone and CATV facilities are located within NCDOT R/W and will require an encroachment agreement for the proposed relocation.