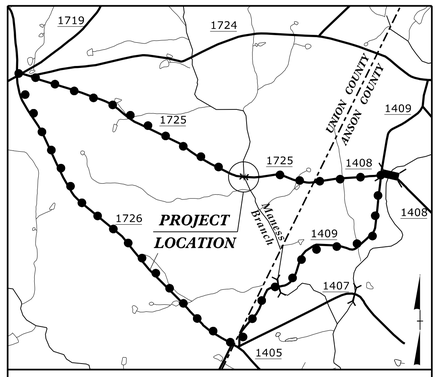
09/08/99

PROJECT WBS: BP10.R003.3

CONTRACT: DJ00464

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



DETOUR

VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10.R003.3	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP10.R003.1	N/A	PE
BP10.R003.2	N/A	ROW, UTIL
BP10.R003.3	N/A	CONST

LOCATION: BRIDGE 890052 OVER MANESS BRANCH ON SR 1725 (DEEP SPRINGS ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE (BRIDGE)

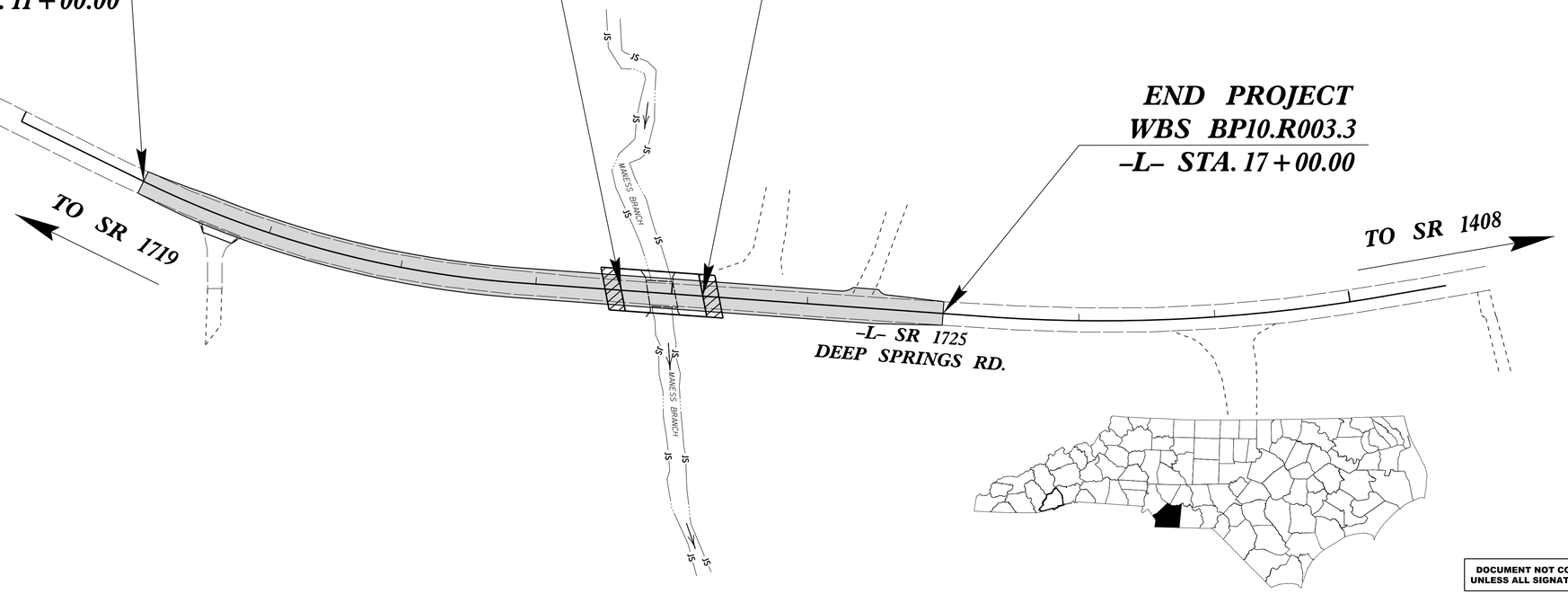
NAD 83/NA 2011

BEGIN PROJECT WBS BP10.R003.3 –L– STA. 11+00.00

BEGIN BRIDGE –L– STA. 14+63.00

END BRIDGE –L– STA. 15+23.00

END PROJECT WBS BP10.R003.3 –L– STA. 17+00.00



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2023 = 367
ADT 2043 = 700

T = 6 %
V = 50 MPH

FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY WBS PROJECT BP10.R003.3 = 0.103 MILES
LENGTH STRUCTURE WBS PROJECT BP10.R003.3 = 0.011 MILES
TOTAL LENGTH WBS PROJECT BP10.R003.3 = 0.114 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: MARCH 24, 2022

LETTING DATE: SEPTEMBER 6, 2023

ALLISON DRAKE, PE
PROJECT ENGINEER

CASSIE ROBINSON, PE
PROJECT DESIGN ENGINEER

GARLAND HAYWOOD, PE
NCDOT CONTACT

NORTH CAROLINA PROFESSIONAL SEAL 049764 ENGINEER ALEXANDER R WINSON
SIGNATURE:
HYDRAULICS ENGINEER
6/14/2023
P.E.

NORTH CAROLINA PROFESSIONAL SEAL 042337 ENGINEER ALLISON C DRAKE
SIGNATURE:
ROADWAY DESIGN ENGINEER
6/15/2023
P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042897 WILSON C. DRAKE

Docusigned by: Wilson Drake 7F8B9AC2E8A42E...

7/6/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

INDEX OF SHEETS

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.

SUBSURFACE DRAINS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS 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.

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 PEE DEE ELECTRIC, ANSON

COUNTY WATER & SEWER, WINDSTREAM.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modiefied Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
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
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.03	Driveway Turnout - Drop Curb Type
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP) — EIP
- Computed Property Corner
- Existing Concrete Monument (ECM) — 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:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage/Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed 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:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

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 — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — 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 Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)* — T
- U/G Telephone Cable (SUE – LOS C)* — T
- U/G Telephone Cable (SUE – LOS D)* — T
- U/G Telephone Conduit (SUE – LOS B)* — TC
- U/G Telephone Conduit (SUE – LOS C)* — TC
- U/G Telephone Conduit (SUE – LOS D)* — TC
- U/G Fiber Optics Cable (SUE – LOS B)* — T FO
- U/G Fiber Optics Cable (SUE – LOS C)* — T FO
- U/G Fiber Optics Cable (SUE – LOS D)* — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)* — W
- U/G Water Line (SUE – LOS C)* — W
- U/G Water Line (SUE – LOS D)* — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)* — TV
- U/G TV Cable (SUE – LOS C)* — TV
- U/G TV Cable (SUE – LOS D)* — TV
- U/G Fiber Optic Cable (SUE – LOS B)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS C)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS D)* — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — 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 Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

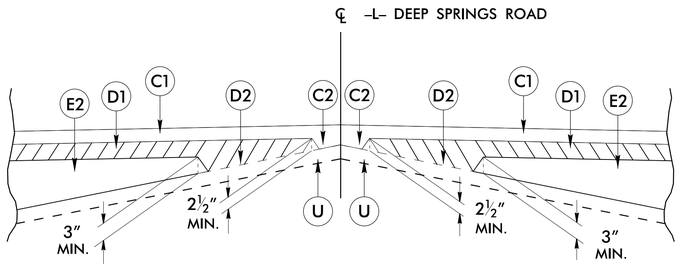
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE – LOS B)* — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to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

5/14/99

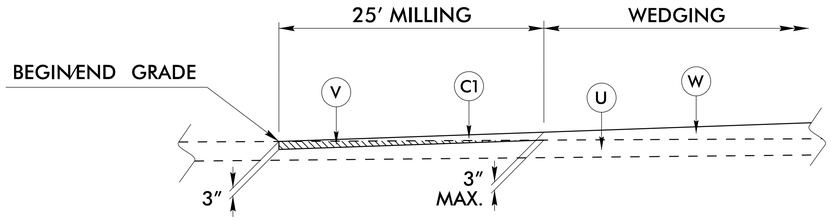
PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ IN DEPTH OR GREATER THAT 4″ 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 THAT 5.5″ IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	1.5″ INCIDENTAL MILLING
W	PAVEMENT WEDGING

NOTE: ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

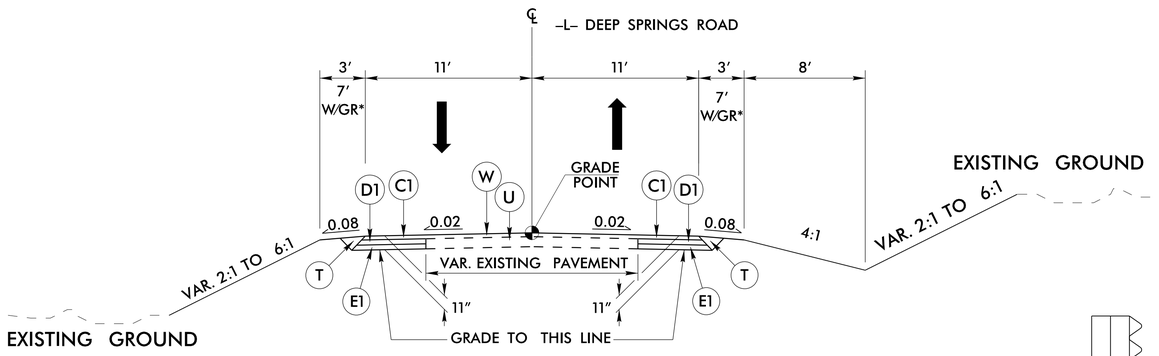


WEDGING DETAIL



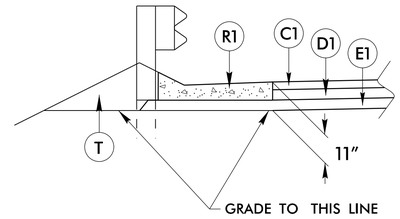
Detail of 3.0″ Incidental Milling at Pavement Tie–ins

BRIDGE NO. 890052



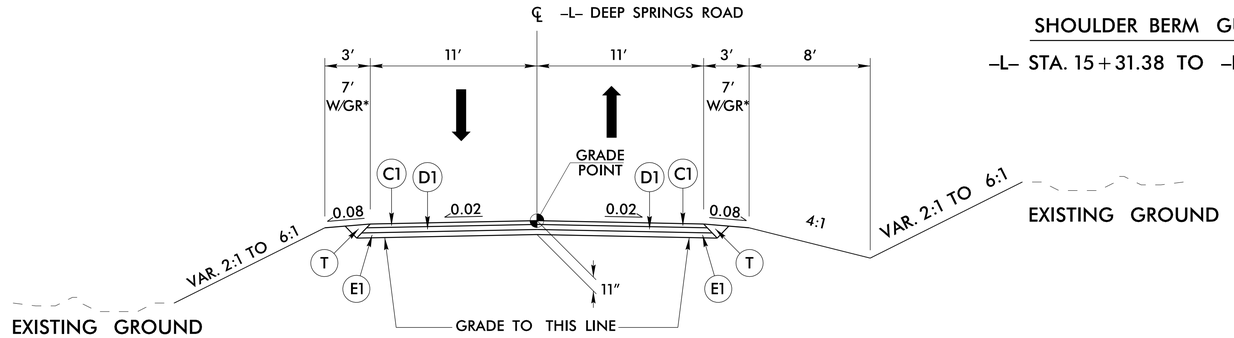
TYPICAL SECTION NO. 1

–L– STA. 11+00.00 TO –L– STA. 12+25.00
–L– STA. 15+85.00 TO –L– STA. 17+00.00



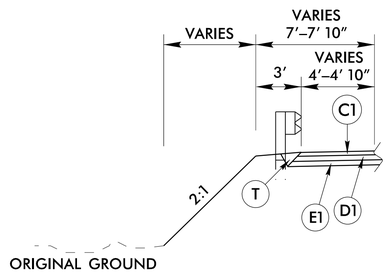
SHOULDER BERM GUTTER DETAIL

–L– STA. 15+31.38 TO –L– STA. 15+62.51

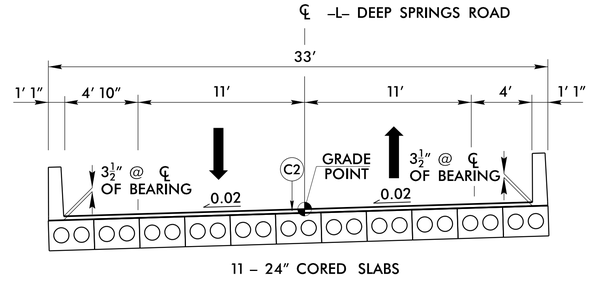


TYPICAL SECTION NO. 2

–L– STA. 12+25.00 TO –L– STA. 14+63.00 (BEGIN BRIDGE)
(END BRIDGE) –L– STA. 15+23.00 TO –L– STA. 15+85.00



*SHOULDER DETAIL
USE IN CONJUNCTION WITH GUARDRAIL ON –L–
SEE CROSS SECTIONS



11 – 24″ CORED SLABS

TYPICAL SECTION NO. 3

–L– STA. 14+63.00 TO –L– STA. 15+23.00

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
Digitally signed by Allison C. Drake
NORTH CAROLINA PROFESSIONAL SEAL 042359 ENGINEER ALLISON C. DRAKE
6/15/2023

PAVEMENT DESIGN ENGINEER
Digitally signed by Gerard Raymond
NORTH CAROLINA PROFESSIONAL SEAL 23005 ENGINEER GERARD RAYMOND HAYNES
6/14/2023

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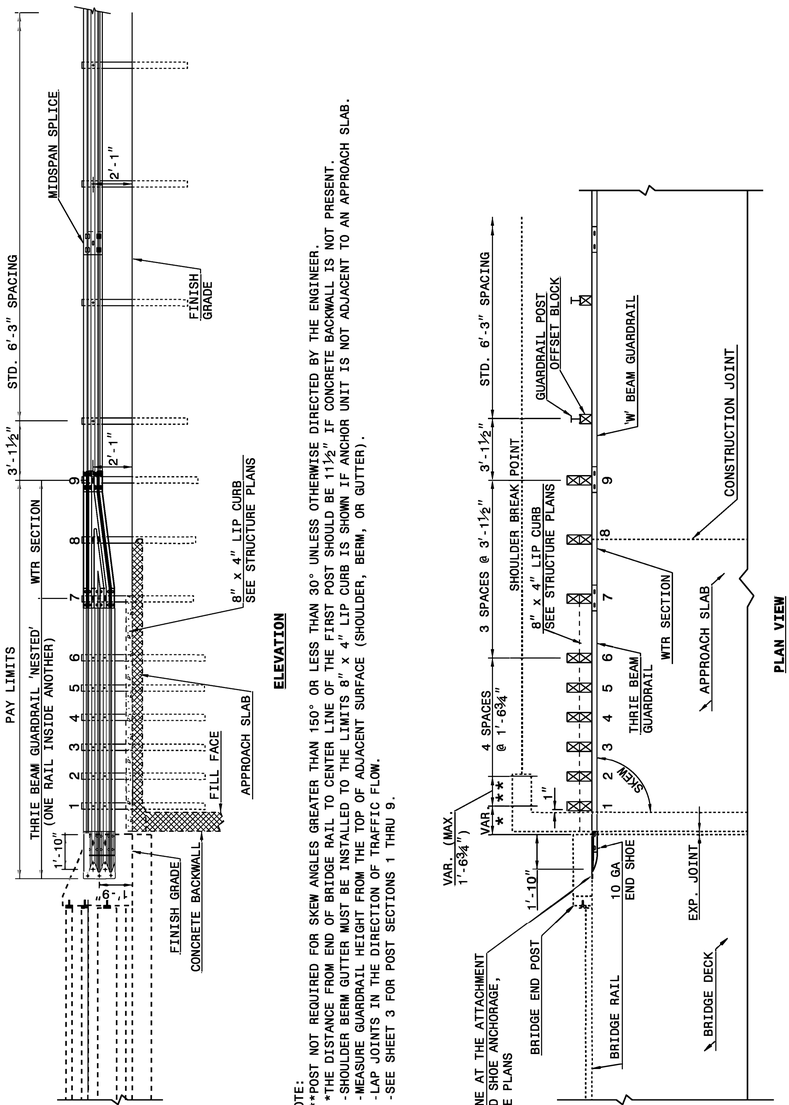
RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	2C-1

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

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



ELEVATION

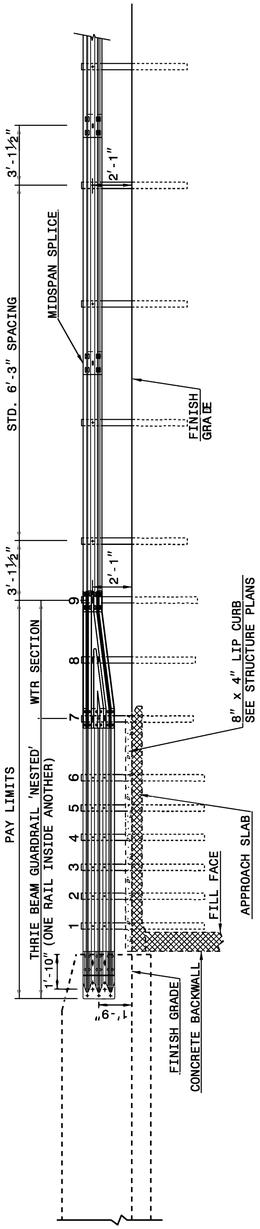
NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 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).
-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

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

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



ELEVATION

NOTE:
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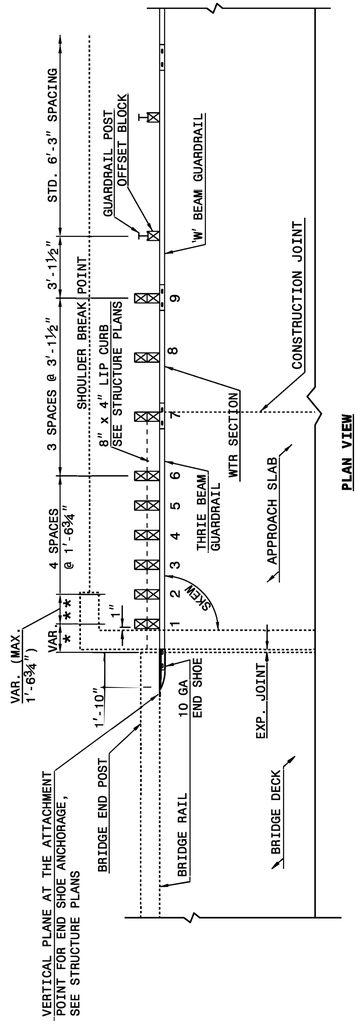
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

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

Digitally signed by Nicole M Hackler
SEAL 33147
Date: 2023.06.14 10:30:34 -04'00'

6/14/2023

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

SEE TITLE BLOCK

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

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jhowerton AT CSD-2925955

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	2C-2

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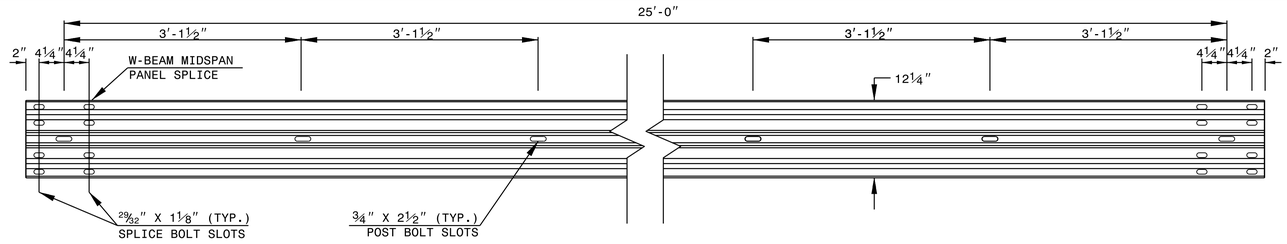
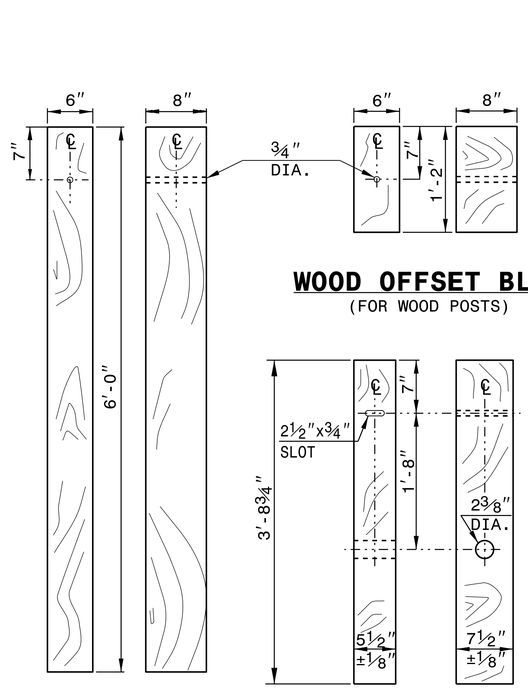
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



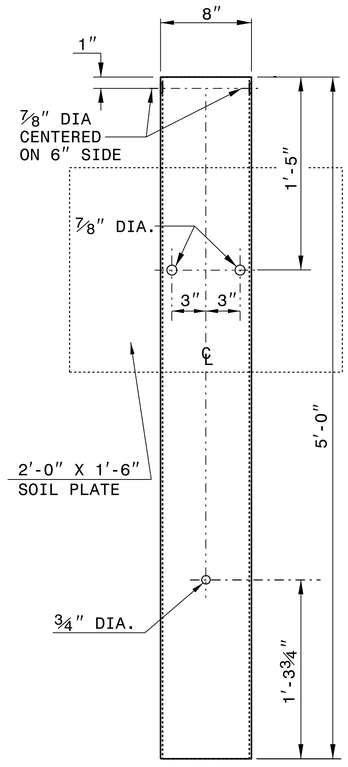
STANDARD W-BEAM GUARDRAIL



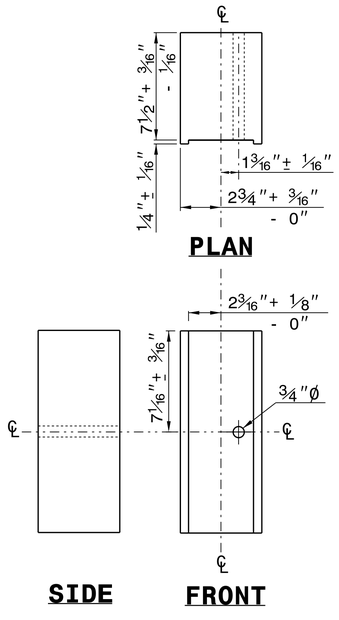
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

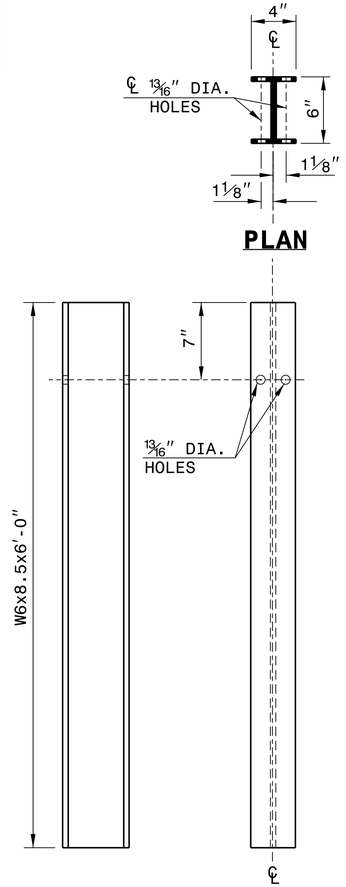
SHORT WOOD BREAKAWAY POST



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 ENGINEER SEAL 33447 NICOLE M. HOWERTON
Digitally signed by:
6/14/2023

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.:

TIP NO.	SHEET NO.
BP10.R003.3	2C-3

APPROVED: Matthew V. Springer
DATE: 8/30/2019
DocuSigned by: BC60F0E8B584403...

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042546 ENGINEER MATTHEW V. SPRINGER

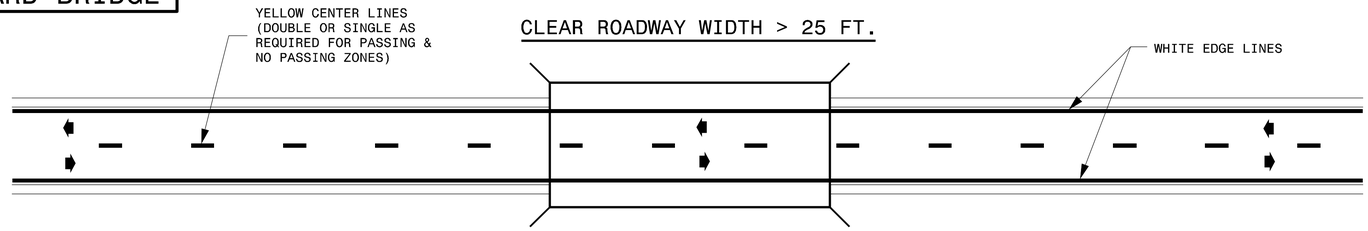
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

8-19

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
BRIDGES

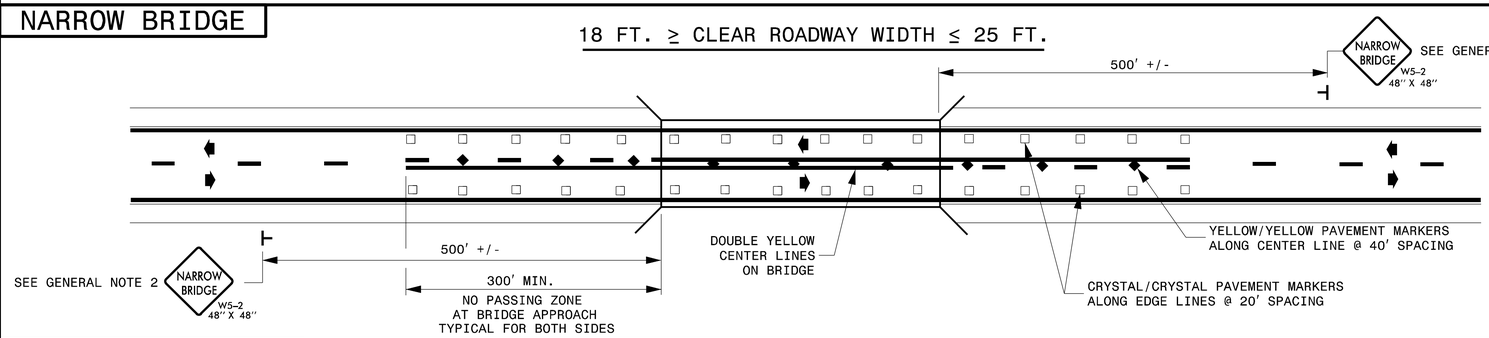
STANDARD BRIDGE

CLEAR ROADWAY WIDTH > 25 FT.



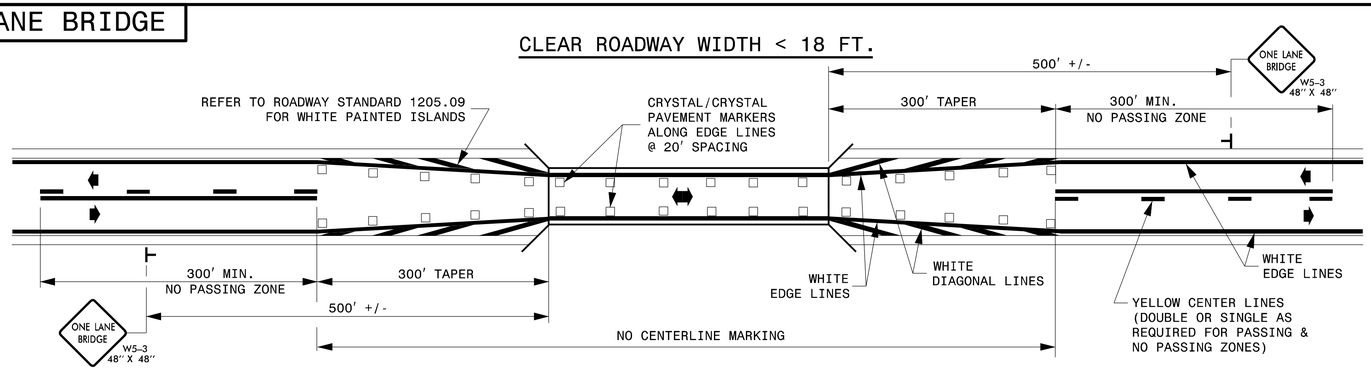
NARROW BRIDGE

18 FT. ≥ CLEAR ROADWAY WIDTH ≤ 25 FT.



ONE-LANE BRIDGE

CLEAR ROADWAY WIDTH < 18 FT.



GENERAL NOTES:

1- NO PASSING ZONES SHOWN ARE MINIMUMS. APPLY MINIMUM PASSING AND STOPPING SIGHT DISTANCES AS DETERMINED BY THE ENGINEER.

2- FOR BRIDGES WITH 18 TO 25 FEET CLEAR ROADWAY WIDTH, SIGNS MUST BE USED WHEN THE APPROACH PAVEMENT WIDTH IS 2 FOOT OR GREATER THAN THE CLEAR ROADWAY WIDTH.

LEGEND

DIRECTION OF TRAFFIC FLOW	YELLOW/YELLOW PAVEMENT MARKER
STATIONARY SIGN	CRYSTAL/CRYSTAL PAVEMENT MARKER

SHEET 1 OF 1
1205D12

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

8-19

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
BRIDGES

SHEET 1 OF 1
1205D12

REVISED PAVEMENT MARKING ROADWAY STANDARD DRAWING

8-29-19

COMPUTED BY: CLR	DATE: 01/11/2023
CHECKED BY: BP	DATE: 01/17/2023

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	3B-1

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
-L- 11+00.00	-L- 14+63.00 (BRIDGE)	48		546	498	
-L- 15+23.00 (BRIDGE)	-L- 17+00.00	85		176	91	
SUBTOTALS:		133		722	589	
PROJECT TOTALS:		133		722	589	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					29	
GRAND TOTALS:		133		722	618	
SAY:		150			650	

TOTAL SHALLOW UNDERCUT = 100 CY

CLASS IV SUBGRADE STABILIZATION = 200 TON

PER GEOTECH RECOMMENDATION, ESTIMATED 450 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER

Earthwork quantities are calculated by the Roadway Designer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Note: 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.

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L- LT	15+31.38	15+62.51	31.1
TOTAL:			31.1
SAY:			32

ASPHALT PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	12+25	15+85	CL	682.10
			TOTAL:	682.10
			SAY:	690

NOTE:
INVERT ELEVATIONS INDICATED ARE FOR BID PURPOSES ONLY AND SHALL 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
-L- 15+51	16LT	0401		458.00			
		0401	0402		455.25	455.00	
TOTAL							

STATION	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- 15+51												
TOTAL												

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	36" (.079)	42" (.109)	48" (.109)
-L- 15+51							
TOTAL							

STATION	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"
-L- 15+51							
	8						
TOTAL	8						

STATION	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
-L- 15+51								
TOTAL								

STATION	**" 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.
-L- 15+51							
TOTAL							

STATION	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	T.B.G.D.I. STD. 840.35	T.B.G.D.I. (W.S. FLAT) FRAME W/2 GRATES STD. 840.29									PIPE REMOVAL LIN.FT.	REMARKS
-L- 15+51	1										1	1										
TOTAL	1										1	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.D.I.	TRAFFIC BEARING GRATED 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	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	ANCHORS GREU, TL-3	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	13+73.61	14+67.02 (BR)	RT.	93.75			14+67.02 (BR)		4	7	50'		1.0		1	1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-L-	15+27.02 (BR)	16+20.76	RT.	93.75				15+27.02 (BR)	4	7		50'		1.0	1	1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-L-	13+64.45	14+58.76 (BR)	LT.	93.75				14+58.76 (BR)	4'10"	7'10"		50'		1.0	1	1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-L-	15+18.76 (BR)	16+12.50	LT.	93.75			15+18.76 (BR)		4'10"	7'10"	50'		1.0		1	1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
			SUBTOTALS	375																			
			ANCHOR DEDUCTION	275																			
			TOTAL	100																			
			SAY	112.5																			

ANCHOR DEDUCTION
GREU TL-3: 4 @ 50' = 200'
TYPE III: 4 @ 18.75' = 75'
GRAND TOTAL = 275'
ADDITIONAL GUARDRAIL POSTS = 5

12/06/07
27-JUN-2023 11:59
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COMPUTED BY: __ C.R. Lavender	6/19/2023
CHECKED BY: ___ S.C. Clark	6/19/2023

(2-3-23)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
BP10.R003.3	3G-1

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY					100	200	300		
			TOTAL CY/TONS/SY:		100	200**	300**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	3P-1
R/W SHEET NO.	

RS&H 1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	LINDSEY CARL AUSTIN
2	4	LINDSEY CARL & KIMBERLY RENEE AUSTIN
3	4	C LINDSEY & KIMBERLY RENEE AUSTIN
4	4	CURTIS F. AUSTIN HEIRS

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042357 ALISON C. DRAKE
Docusigned by: Alison Drake
6/15/2023

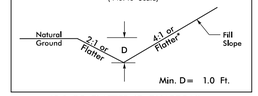
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049764 ALEXANDER B. VINSON
Docusigned by: Alexander Vinson
6/14/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

NAD 83/NA 2011

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



*2:1 OR FLATTER IF GUARDRAIL
FROM –L– STA. 11+00 TO STA. 13+30 LT
FROM –L– STA. 15+00 TO STA. 16+36 LT

E.B. PHIFER & E.H. SHREIBER
DB 6514 PG 128

–L– POT Sta. 10+00.00
S 84° 03' 14.9" E

BEGIN PROJECT
–L– STA. 11+00.00

–L– PC Sta. 11+00.00

BM1 ELEVATION = 478.38' N 468993.436 E 1609129.140 SET R/R SPIKE IN 18" WHITE OAK

Anson County Public Works EXISTING 60' RIGHT OF WAY 25 PR

4" ELECTRIC STRAND

DEEP SPRINGS ROAD (SR2125) 175' BST

89-0052-2

MILL AND RESURFACE 25'

RETAIN

–L– CURVE DATA

PI Sta 12+45.50	PI Sta 18+76.61
△ = 21° 57' 27.7" (LT)	△ = 13° 54' 31.8" (LT)
D = 7° 38' 22.0"	D = 4° 46' 28.7"
L = 287.43'	L = 291.31'
T = 145.50'	T = 146.37'
R = 750.00'	R = 1,200.00'
SE = 06	SE = EXIST
RO = 144	

SPECIAL LATERAL 'V' DITCH SEE DETAIL A

–L– +30.00 39.00' LT 29.26' LT
–L– +50.00 39.00' LT 35.00' LT
–L– +32.73 35.00' LT
–L– +22.00 29.23' LT

BM2 ELEVATION = 454.06' N 469031.599 E 1610120.182 SET R/R SPIKE IN 42" RED OAK

LINDSAY CARL AUSTIN
DB 5083 PG 716
1

–L– PT Sta. 13+87.43
–L– +92.00 63.00' LT

EXCAVATION LIMITS
EXCAVATE TO ELEV. 452'
REMOVE EXISTING BRIDGE

◇402 EST 2 TON CL B RIP RAP
EST 7 SY GEOTEXTILE
15" RCP-III
–L– +74.00 63.00' LT
–L– +00.34 45.00' LT
SPECIAL LATERAL 'V' DITCH SEE DETAIL A
–L– +40.00 45.00' LT 28.84' LT
–L– +24.00 28.84' LT

4' I.D. FDPS

–L– +50.00 35.00' RT 29.29' RT
–L– +66.16 29.07' RT
–L– +77.28 35.00' RT
–L– +18.67 57.45' RT
–L– +50.00 50.00' RT 28.84' RT

24" INC (TYP.) +87.43
PUE
◇401 TB2GI
–L– +50.00 50.00' RT 28.84' RT
RESET EXIST 4' WOOD FENCE
CLASS "II" RIP RAP 49 TONS
CLASS "II" RIP RAP 29 TONS
EXCAVATION LIMITS EXCAVATE TO ELEV. 452'

S 18° 10' 40" E 71.10'
S 39° 46' 07" E 71.36'
S 00° 21' 40" E 100.34'

–L– POT Sta. 20+71.55

END PROJECT
–L– STA. 17+00.00

CURTIS F. AUSTIN HEIRS
DB 126 PG 700
4

–L– PT Sta. 20+21.55
–L– PC Sta. 17+30.24

N 60° 04' 45.7" E

RETAIN

–L– +37.50 55.86' RT 29.01' RT

MILL AND RESURFACE 25'

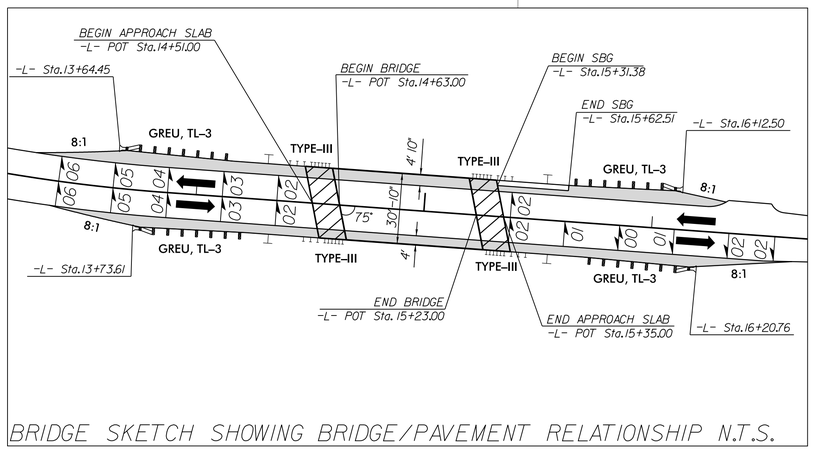
N 73° 59' 17.5" E
3

C LINDSEY & KIMBERLY RENEE AUSTIN
DB 6293 PG 661

ALICIA ROBINSON & JANE DEVONNE BROWN
DB 141PG 718

S 17° 20' 51" E 215.53'

LINDSEY CARL & KIMBERLY RENEE AUSTIN
DB 6544 PG 518
2



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

SEE SHEET NO. 5 FOR PROFILE

FOR STRUCTURE PLANS, SEE SHEET S–1 THRU S–14

BRIDGE APPROACH SLAB

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042357 ENGINEER ALLISON C. DANE

DocuSigned by: Allison Dane

6/15/2023

HYDRAULICS ENGINEER

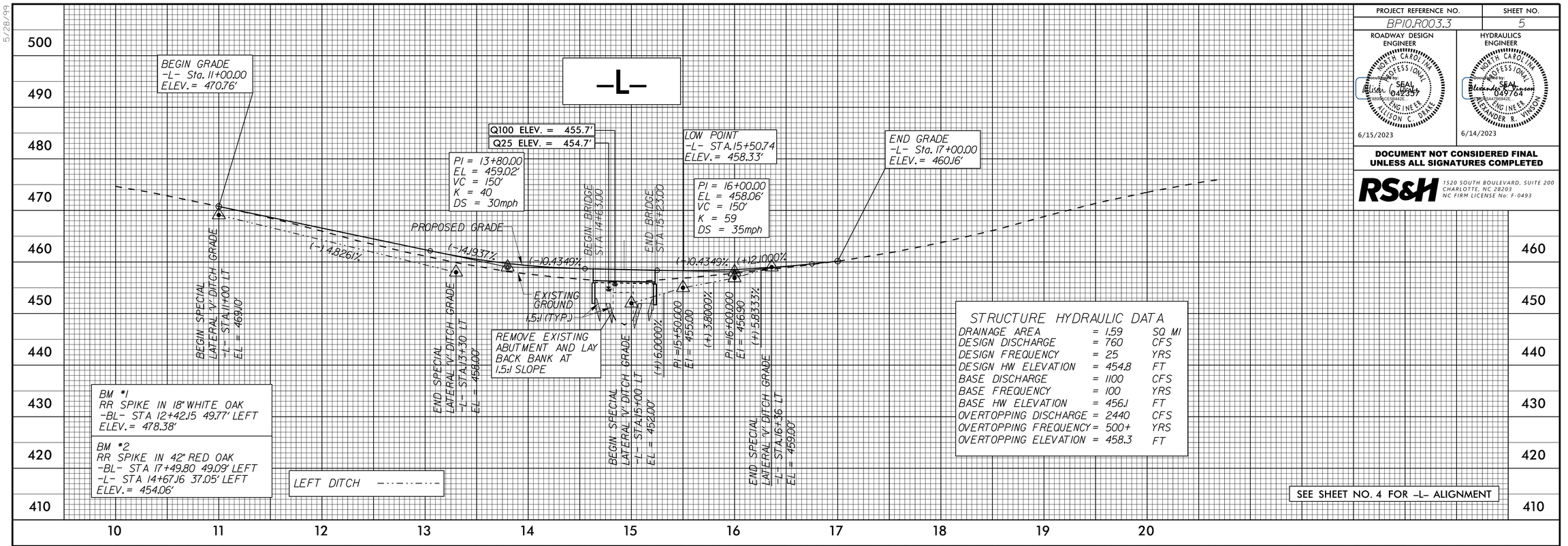
NORTH CAROLINA PROFESSIONAL SEAL 049764 ENGINEER ALEXANDER R. VINSON

DocuSigned by: Alexander Vinson

6/14/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H 1520 SOUTH BOULEVARD, SUITE 200 CHARLOTTE, NC 28203 NC FIRM LICENSE No: F-0493



STRUCTURE HYDRAULIC DATA		
DRAINAGE AREA	= 1.59	SQ MI
DESIGN DISCHARGE	= 760	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 454.8	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 456.1	FT
OVERTOPPING DISCHARGE	= 2440	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 458.3	FT

SEE SHEET NO. 4 FOR -L- ALIGNMENT

17-MAY-2023 10:21
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09/08/99

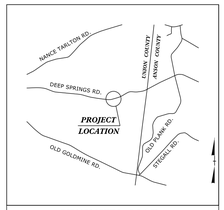
TIP PROJECT: 89-0052

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	89-0052	RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

UNION COUNTY

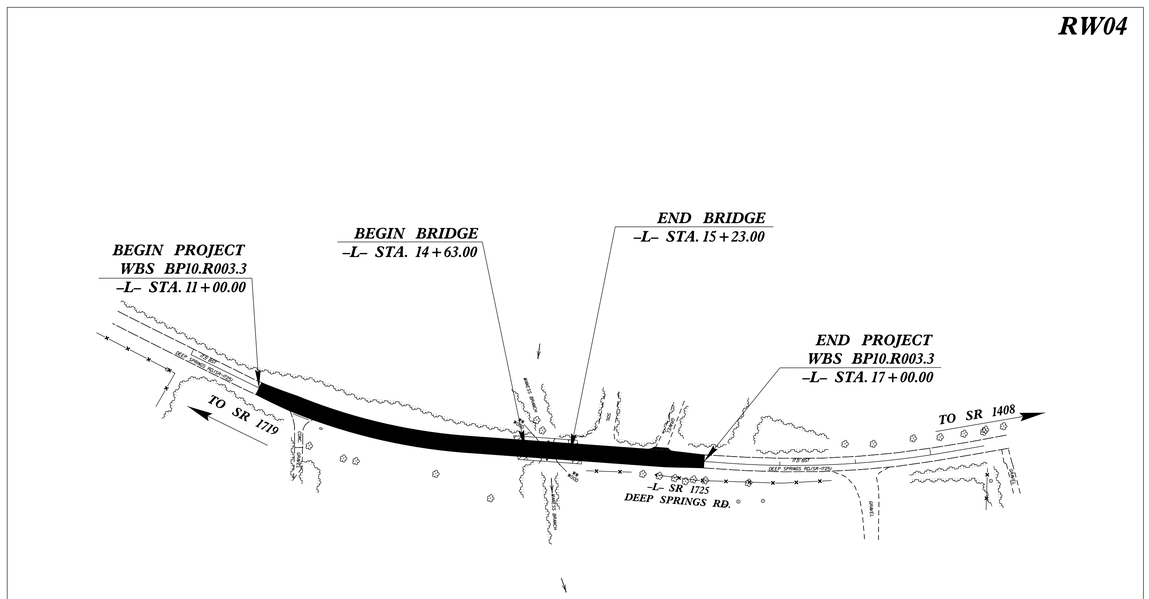


VICINITY MAP
NOT TO SCALE

NC GRID
NAD 83 NA 2011

NOT TO SCALE

RW04



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "89-0052-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 469,080.4672 (ft) EASTING: 1,608,890.435(ft) ELEVATION: 491.106(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985121 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "89-0052-1" TO -L- STATION 11+00.00 IS S 81°-29'23" E 888.85 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

GRAPHIC SCALE

50 25 0 50 100

PLANS

Prepared In the Office of:

Dewberry

Dewberry Engineers Inc.
8000 Harris Corners Pkwy - Suite 220
Charlotte, NC 28269
Phone: 704.509.9918
Fax: 704.509.9937
www.dewberry.com
NCBELS #F-0929

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
3/25/2022	*05/5/2023*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5298 LAND SURVEYOR GAVIN D PROFFITT

DocuSigned by:
Gavin Proffitt, PLS
AD4B83C38ff4AC7...
7/19/2022

SIGNATURE: *Date:*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

19-JUL-2022 11:21
P:\5052148\CAD\Survey\RW Sheets\89052_ls_rw01.dgn
GProffit AT PF14B7A

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
89-0052	RW02C-1

Location and Surveys

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5413 LAND SURVEYOR ANTHONY A. EDWARDS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Anthony A. Edwards, 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: 2021.05.20
Datum/Epoch:NAD 83/2011
Published/Fixed-control use:
Localized around: 89-0052-1
Northing:469080.4672
Easting: 1608890.4351
Combined grid factor:0.999851211
Geoid model:GEIOD12B
Units:USSF

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 2021.05.10 to 2021.05.28 , 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 1st day of June, 2021.

Anthony A. Edwards
Professional Land Surveyor L-5413

N
NC GRID
NAD 83 NA 2011

89-0052-4
N = 469306.248
E = 1610834.652
ELEVATION = 476.93'

****
BM1 ELEVATION = 478.38'
N 468993.436 E 1609629.140
SET R/R SPIKE IN 18" WHITE OAK
****

89-0052-1
N = 469080.467
E = 1608890.435
ELEVATION = 491.11'

BM-1

DEEP SPRINGS RD.(SR-1725)

89-0052-2
N = 468938.502
E = 1609652.243
ELEVATION = 474.11'

BL-5
N = 468984.244
E = 1610141.273
ELEVATION = 455.78'

BM-2

89-0052-3
N = 469083.759
E = 1610476.854
ELEVATION = 464.31'

****
BM2 ELEVATION = 454.06'
N 469031.599 E 1610120.487
SET R/R SPIKE IN 42" RED OAK
****

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.

6/2/99

REVISIONS

13-DEC-2021 13:58
C:\Projects\BP10_R003.1 (89-0052)\LS10-21-021_Full Surveys\17BP.10.R003.1_89-0052\C Series\890052_ls_rw2c-1.dgn
aaedwards AT_LS010-299080

6/2/99

REVISIONS

PROPOSED ALIGNMENT CONTROL SHEET
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
89-0052	RWD2-1

Location and Surveys

Dewberry

Dewberry Engineers Inc.
8000 Harris Corners Pkwy - Suite 220
Charlotte, NC 28269
Phone: 704.509.9919
Fax: 704.509.9937
www.dewberry.com
NCBELS #P-0809

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5298 LAND SURVEYOR GAVIN D PROFFIT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	468959.2861	1609670.0387
PC	11+00.00	468948.9272	1609769.5008
PT	13+87.43	468973.9887	1610054.0691
PC	17+30.24	469068.5490	1610383.5835
PT	20+21.55	469181.9343	1610651.1409
POT	20+71.55	469206.8743	1610694.4768

I, Gavin D. Proffit, PLS, Certify that the data compiled came from available survey/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

Witness my original signature, registration number and seal this 15th day of June, 2022.

DocuSigned by:
Gavin Proffit, PLS
ADABB3C3B86A4C7...

Professional Land Surveyor — L-5298 PLS

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 INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

D:\Jul-2022\20\Survey\RW Sheets\8900052_ls_rwd2D-1.dgn
GP-coffit AT PF14B77A

6/2/99

REVISIONS

RIGHT OF WAY CONTROL SHEET
NOT TO SCALE

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+22.00	-29.23	468987.3983	1609984.8906
L	13+92.00	-63.00	469035.8064	1610041.0885
L	14+50.00	28.84	468963.5315	1610122.1701
L	14+50.00	50.00	468943.1887	1610128.0078
L	15+50.00	50.00	468970.7723	1610224.1283
L	15+50.00	28.84	468991.1151	1610218.2906
L	15+74.00	-63.00	469086.0085	1610216.0278
L	16+24.00	-28.84	469066.9618	1610273.5117

I, GAVIN D PROFFIT, 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 15th day of June, 2022.

DocuSigned by:
Gavin Proffit, PLS
A3ABB3C3886AAC7...

Professional Land Surveyor — L-5298 PLS #

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 INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROJECT REFERENCE NO.	SHEET NO.
89-0052	RW03E-1

Location and Surveys

Dewberry

Dewberry Engineers Inc.
8000 Norman Center Pkwy - Suite 220
Charlotte, NC 28269
Phone: 704.509.9919
Fax: 704.509.9907
www.dewberry.com
NCBELS #P-0809

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5298 LAND SURVEYOR GAVIN D PROFFIT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

13-JUN-2022 11:21
P:\5147\Survey\ROD\Survey\RW Sheets\890052_ls_rw03E-1.dgn
GP-offPLS AT PF14B77A

6/2/99

REVISIONS

PERMANENT EASEMENT CONTROL SHEET
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
89-0052	RW03E-2

Location and Surveys

Dewberry

Dewberry Engineers Inc.
8000 Norman Corners Pkwy - Suite 220
Charlotte, NC 28269
Phone: 704.509.3919
Fax: 704.509.9607
www.dewberry.com
NCBELS #P-0809

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5298 LAND SURVEYOR GAVIN D PROFFIT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST	
L	13+66.16	29.07	468940.2534	1610040.7723	
L	14+18.67	57.45	468927.3837	1610099.9491	
L	17+37.50	55.86	469016.9734	1610406.2893	
L	17+37.50	29.01	469042.7401	1610398.7260	NOT SET DUE TO FENCE

I, GAVIN D PROFFIT, 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 15th day of June, 2022.

DocuSigned by:
Gavin Proffit, PLS
ADABB3C3B86A4C7...

Professional Land Surveyor — L-5298 PLS #

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 INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

13-JUN-2022 11:21
GP:offfit AT: PF14B77A
J:\89052\24DLS\Survey\RW Sheets\890052_ls_rw03E-2.dgn

6/2/99

REVISIONS

I, Gavin D Proffit, 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 15th day of June, 2022.

DocuSigned by:
Gavin Proffit, PLS
ADABB3C3B86A4C7...

Professional Land Surveyor — L-5298 PLS #

PROJECT REFERENCE NO.	SHEET NO.
89-0052	RW04

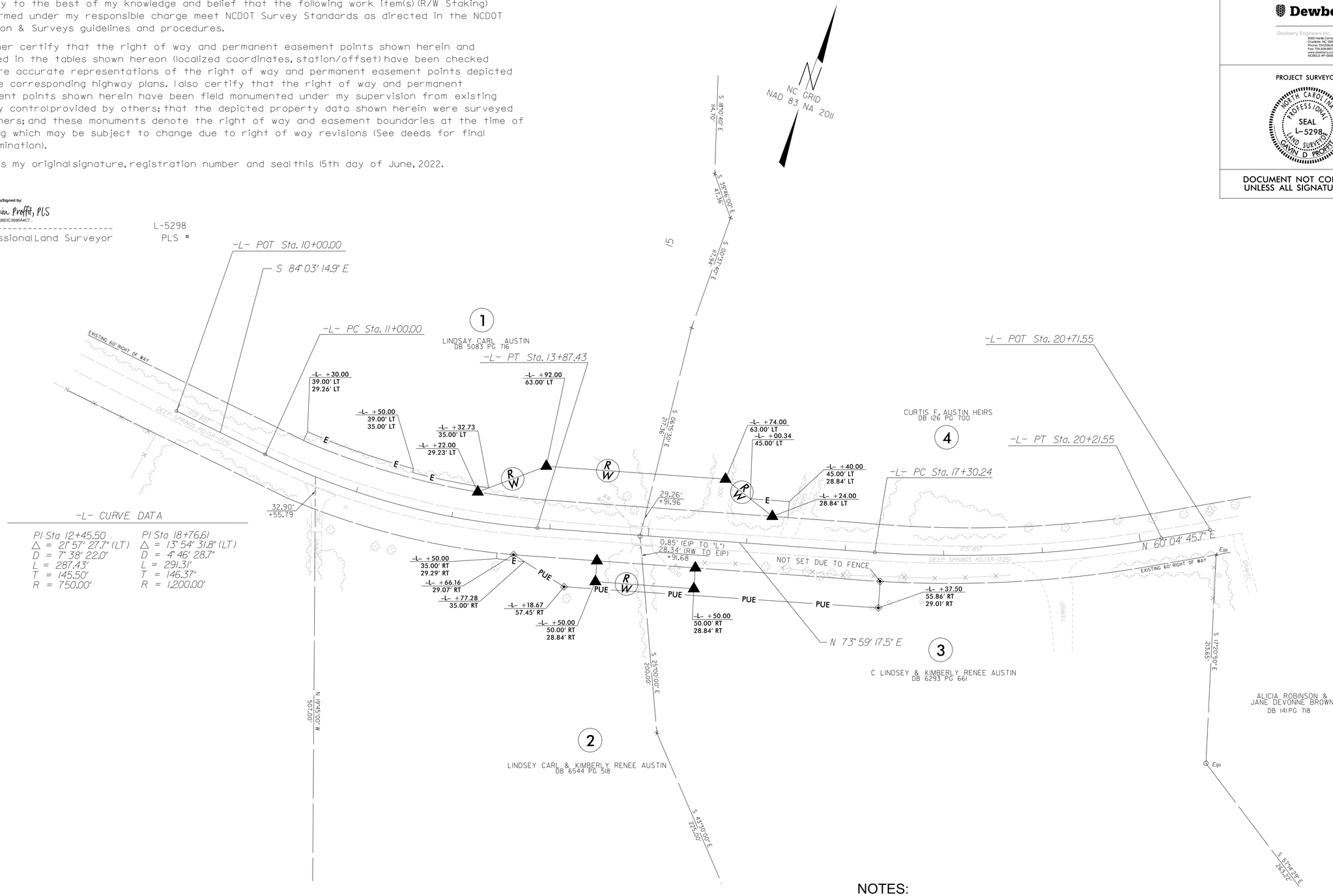
Location and Surveys

Dewberry
Dewberry Engineers Inc.
9300 Harris Corners Pkwy - Suite 220
Charlotte, NC 28269
Phone: 704.509.9918
Fax: 704.509.9907
www.dewberry.com
NCBELS #F-0929

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5298 LAND SURVEYOR GAVIN D PROFFIT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L- CURVE DATA

PI Sta 12+45.50	PI Sta 18+76.61
△ = 21° 57' 27.7" (LT)	△ = 13° 54' 31.8" (LT)
D = 7° 38' 22.0"	D = 4° 46' 28.7"
L = 287.43'	L = 291.31'
T = 145.50'	T = 146.37'
R = 750.00'	R = 1,200.00'

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 06/2022 TO 06/2022 .

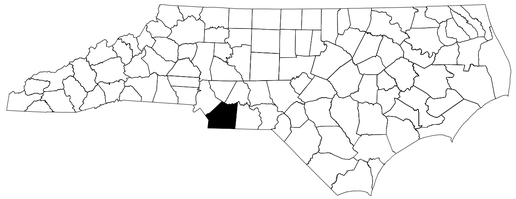
8-JUL-2022 14:21
P:\89\0052\LS\RW Sheets\890052_ls_rw04.dgn
GP-offPLS AI_PPE14B7A

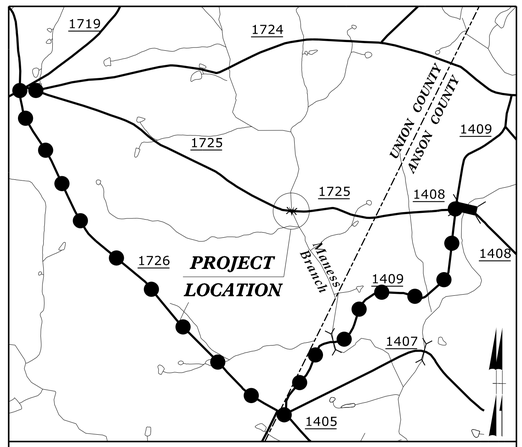
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

UNION COUNTY

LOCATION: BRIDGE 890052 OVER MANESS BRANCH ON SR 1725 (DEEP SPRINGS ROAD)





DETOUR

VICINITY MAP N.T.S.

INDEX OF SHEETS

SHEET NO.
TMP-1

BP10.R003.3

TIP PROJECT:

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

PLANS PREPARED BY:

ALLISON DRAKE, P.E.
PROJECT ENGINEER

NIKI AVGERINOS, E.I.
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

GARLAND HAYWOOD, P.E.
NCDOT PROJECT CONTACT

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

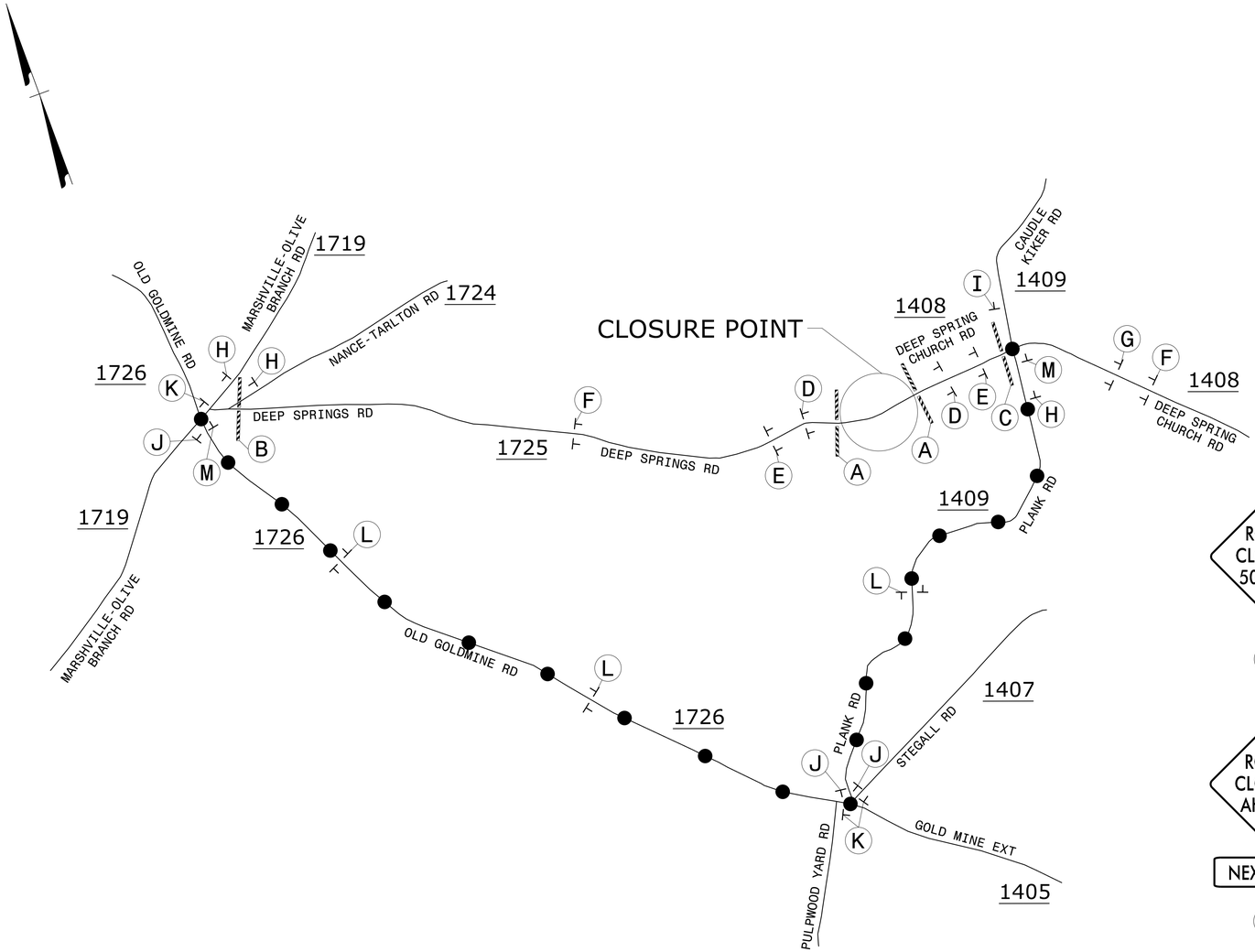
RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

APPROVED: DocuSigned by: Allison C. Drake 7F8899ACE5B442E...

DATE: 6/15/2023

NORTH CAROLINA PROFESSIONAL SEAL 042357 ENGINEER ALLISON C. DRAKE

PROJ. REFERENCE NO.	SHEET NO.
BP10.R003.3	TMP-2



R11-2
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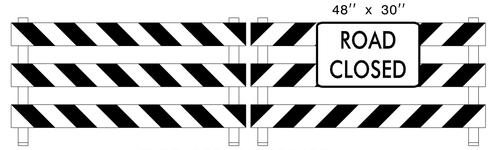
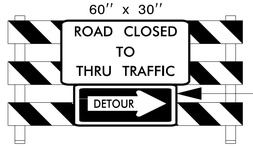


TYPE III BARRICADE(S)

A

R11-4
60″ x 30″



M4-10R
48″ x 18″

TYPE III BARRICADE

B

R11-4
60″ x 30″

M4-10L
48″ x 18″

TYPE III BARRICADE

C

W20-3
48″ X 48″

D

W20-3
48″ X 48″

E

W20-3
48″ X 48″

F

W20-2
48″ X 48″

G

W20-3
48″ X 48″

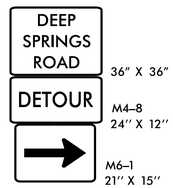
SP-4L
42″ X 12″

H

W20-3
48″ X 48″

SP-4R
42″ X 12″

I

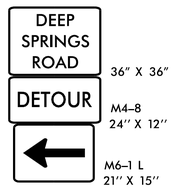


36″ X 36″

M4-8
24″ X 12″

M6-1
21″ X 15″

J

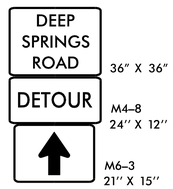


36″ X 36″

M4-8
24″ X 12″

M6-1 L
21″ X 15″

K

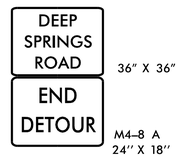


36″ X 36″

M4-8
24″ X 12″

M6-3
21″ X 15″

L



36″ X 36″

M4-8 A
24″ X 18″

M

LEGEND

DETOUR ROUTE

RS&H
NC FIRM LICENSE No: F-0493
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203

APPROVED: DocuSigned by: Allison C. Drake F8899ACE5B442E...

DATE: 6/15/2023

NORTH CAROLINA PROFESSIONAL SEAL 042357 ENGINEER ALLISON C. DRAKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DEEP SPRINGS ROAD DETOUR

1/20/2023
R:\Traffic\TrafficControl\BP10.R003.1_tmp_detour.dgn
User:McLaughR

PROJ. REFERENCE NO.	SHEET NO.
BP10.R003.3	TMP-2A

SIGN NUMBER: Deep Springs Road BACKG COLOR: Orange
TYPE: D COPY COLOR: Black
QUANTITY: SEE PLANS

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 3′-0″
HEIGHT: 3′-0″
TOTAL AREA: 9.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0.38″
WIDTH: 0.63″
RADII: 1.5″

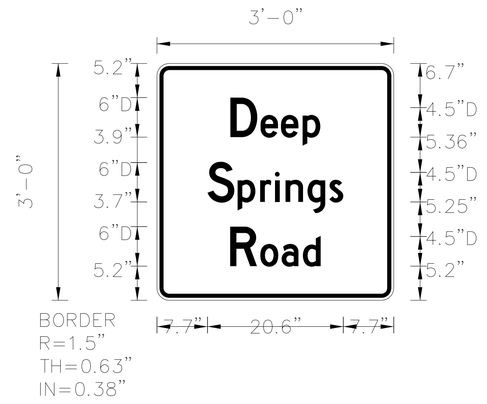
NO. Z BARS:
LENGTH:

MAT'L: 0.063″ (1.6 mm) ALUMINUM
0.080″ (2.0 mm) ALUMINUM
0.125″ (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade A, B, or C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032″ (0.8mm) aluminum with Grade C reflective sheeting and demountable.

DESIGN BY: REM CHECKED BY: SMK Mar 08, 2022
PROJECT ID: BP10.R003.1 LOCATION: UNION COUNTY DIV: 10



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																									Series/Size Text Length
		D		e	e	p																			D 2000
	11.2	4.1	0.5	3.1	3.3	2.7	11.2																		13.7
		S		p	r	i	n	g	s																D 2000
	7.7	4.1	0.5	3.4	2.3	1.6	3.3	3.3	2.1	7.7															20.6
		R		o	a	d																			D 2000
	11.1	4.1	0.5	3.2	3.2	2.7	11.1																		13.8

FILENAME: BP10.R003.1_tmp_detour_signdesign

NORTH CAROLINA D.O.T. SIGN DETAIL

RS&H
NC FIRM LICENSE No: F-0493
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203

APPROVED: DocuSigned by: Allison C. Drake 7F8809ACE5B442E
DATE: 6/15/2023

NORTH CAROLINA PROFESSIONAL SEAL 042357 ENGINEER ALLISON C. DRAKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DEEP SPRINGS RD
SIGN DESIGN

CONTRACT: DJ00464 PROJECT WBS: BP10.R003.3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
UNION COUNTY

TIP NO.	SHEET NO.
BP10.R003.3	PMP-1

APPROVED: Allison C. Drake (DocuSigned by: 7F8899ACE5B442E...)

DATE: 6/15/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042357 ENGINEER ALLISON C. DRAKE

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
1205D12	PAVEMENT MARKINGS - BRIDGES
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
DEEP SPRINGS RD	HOT SPRAY THERMOPLASTIC	N/A

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

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

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

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

PAVEMENT MARKING SCHEDULE

T1	WHITE EDGELINE	HOT SPRAY THERMOPLASTIC (4", 90 MIL)
T13	YELLOW DOUBLE CENTER	HOT SPRAY THERMOPLASTIC (4", 90 MIL)

PLAN SUBMITTED TO: *NCDOT DIVISION 10*

GARLAND HAYWOOD, PE NCDOT CONTACT

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

PLAN PREPARED BY: RS&H

ALLISON DRAKE, PE PROJECT ENGINEER

REBECCA MCLAUGHLIN, EI PROJECT DESIGNER

RS&H

1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

08-JUN-2023 14:40
R:\Traffic\Delineation\090052_PMP_tsh.dgn
$$$$USERNAME$$$$

TIP NO.	SHEET NO.
BP10.R003.3	PMP-2

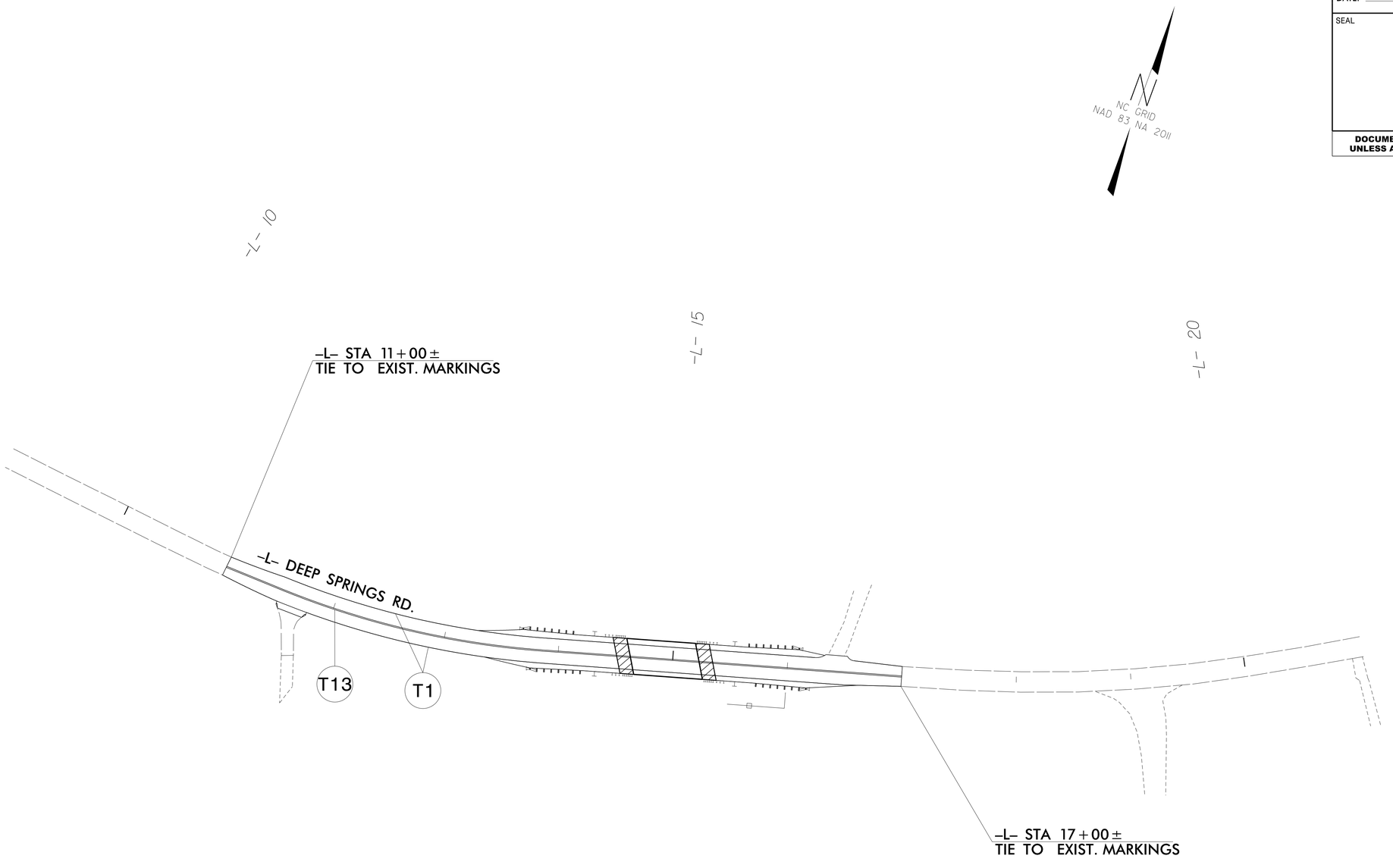
APPROVED: DocuSigned by: Allison C. Drake 7F8899ACE5B442E

DATE: 6/15/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 042357 ENGINEER ALLISON C. DRAKE

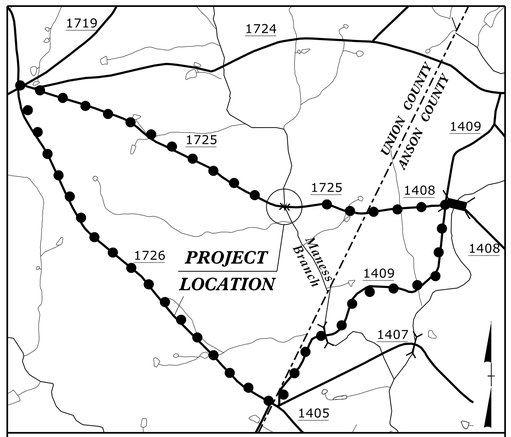
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

PAVEMENT MARKING DETAIL

PROJECT WBS: BP10.R003.3



VICINITY MAP N.T.S.

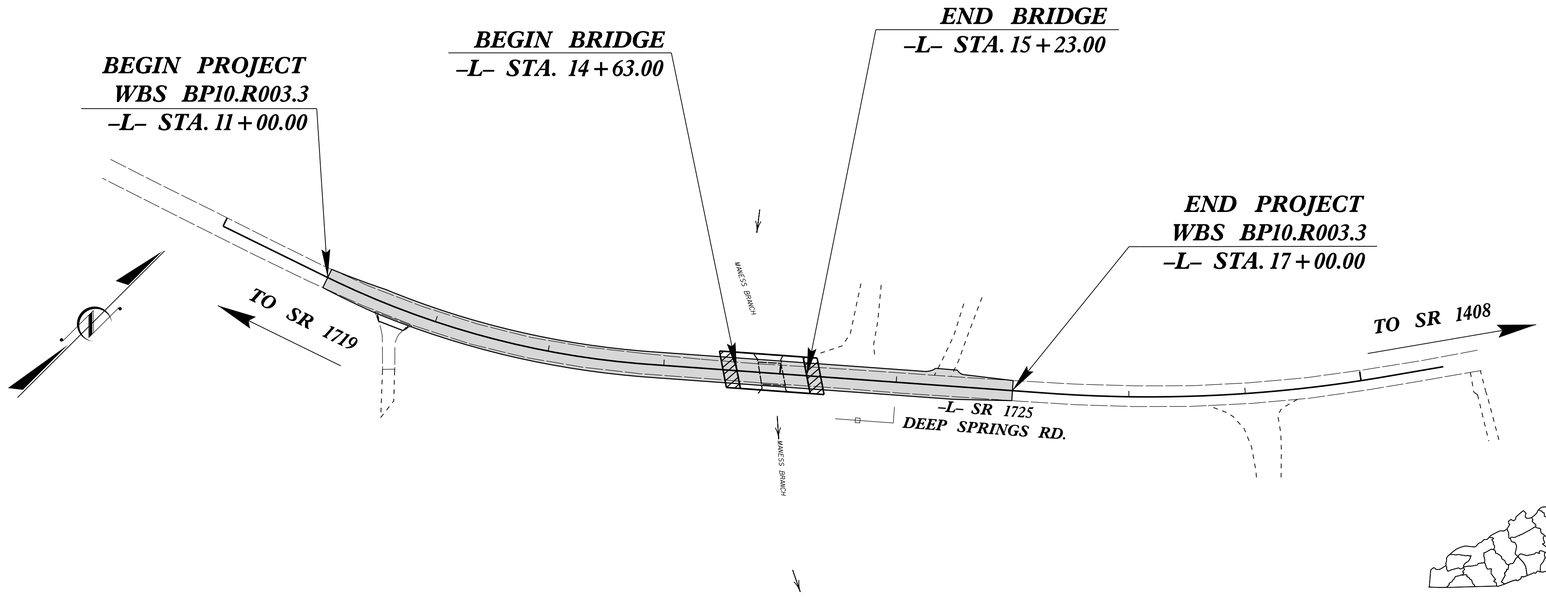
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

UNION COUNTY

LOCATION: BRIDGE 890052 OVER MANESS BRANCH ON SR 1725 (DEEP SPRINGS ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE (BRIDGE)



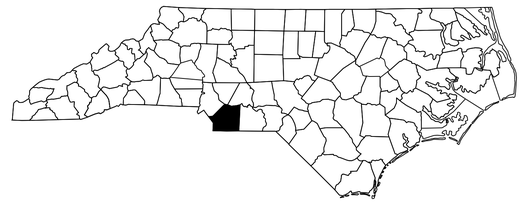
THIS PROJECT IS NOT WITHIN MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10.R003.3	EC-1	10
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
BP10.R003.3	N/A	PE	

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.



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:

ALEX VINSON, P.E. ***3909***

NAME *LEVEL III CERTIFICATION NO.*

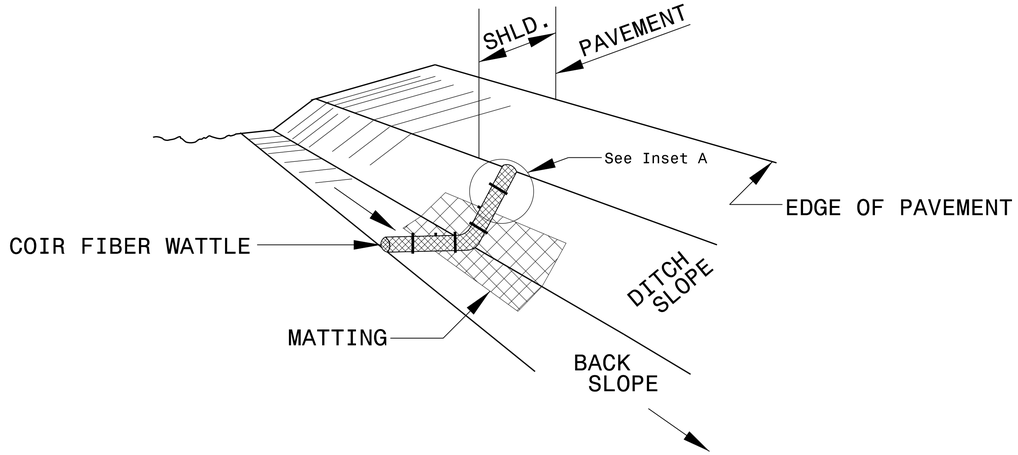
Roadway Standard Drawings

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.

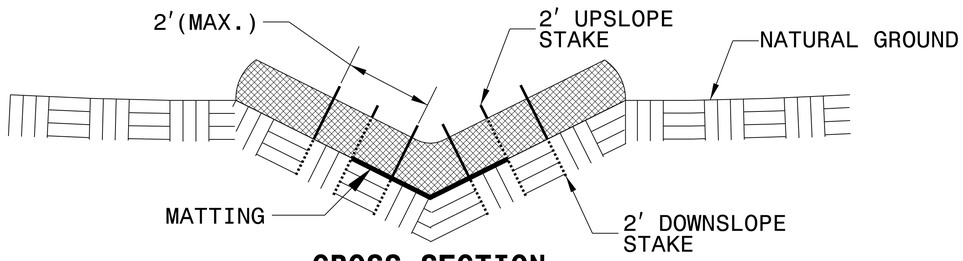
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type 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		

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-2

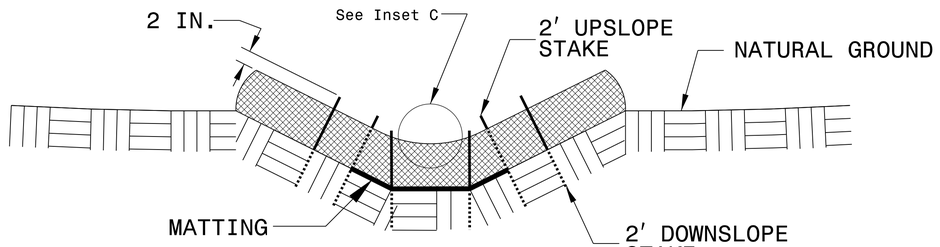
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

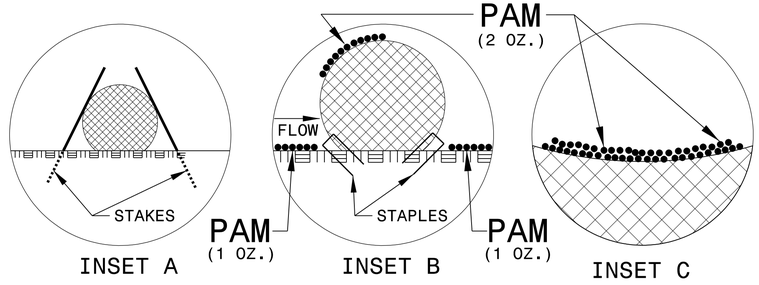
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

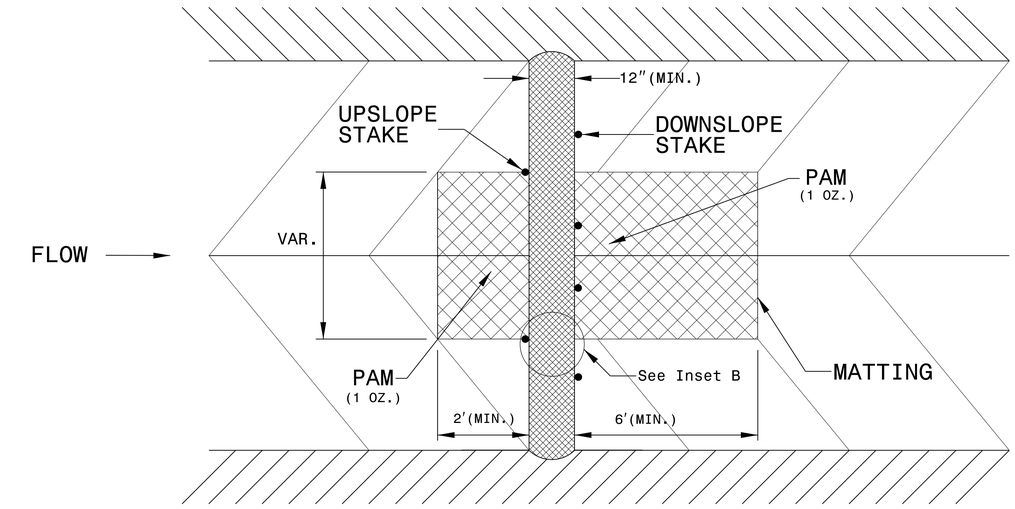
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

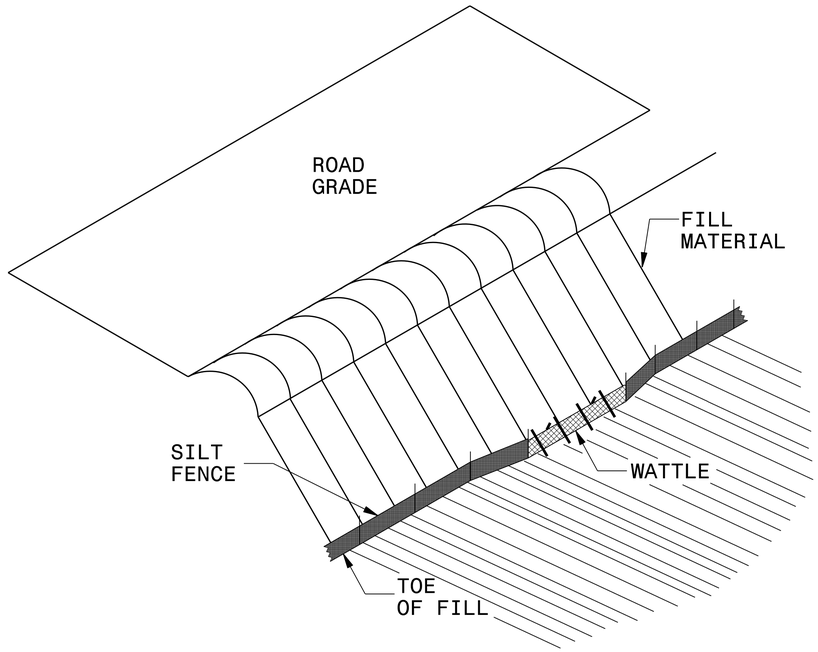




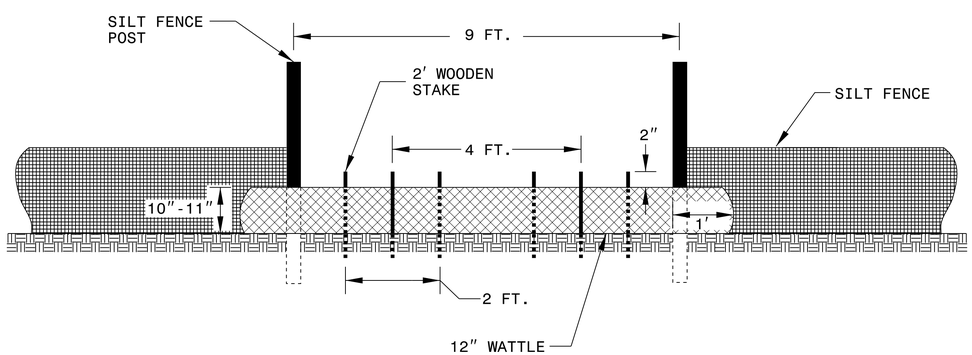
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-2A

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.

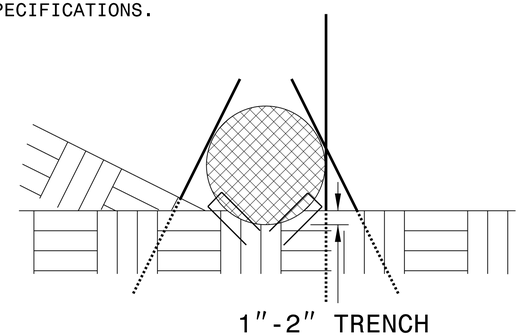
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

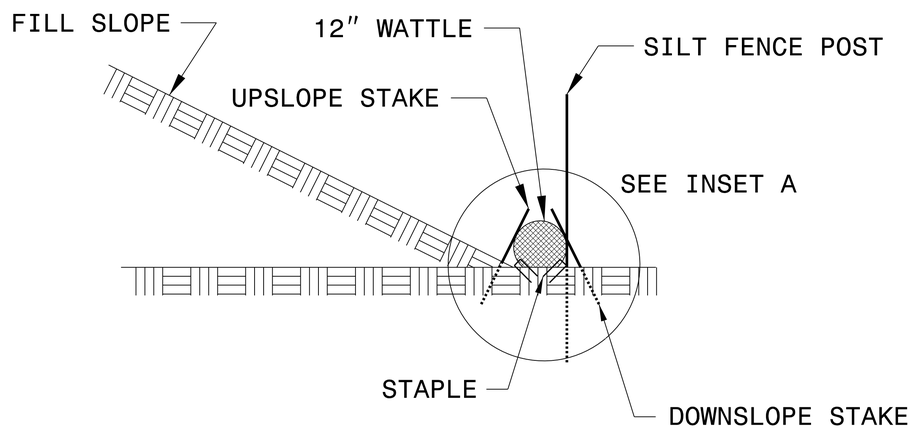
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

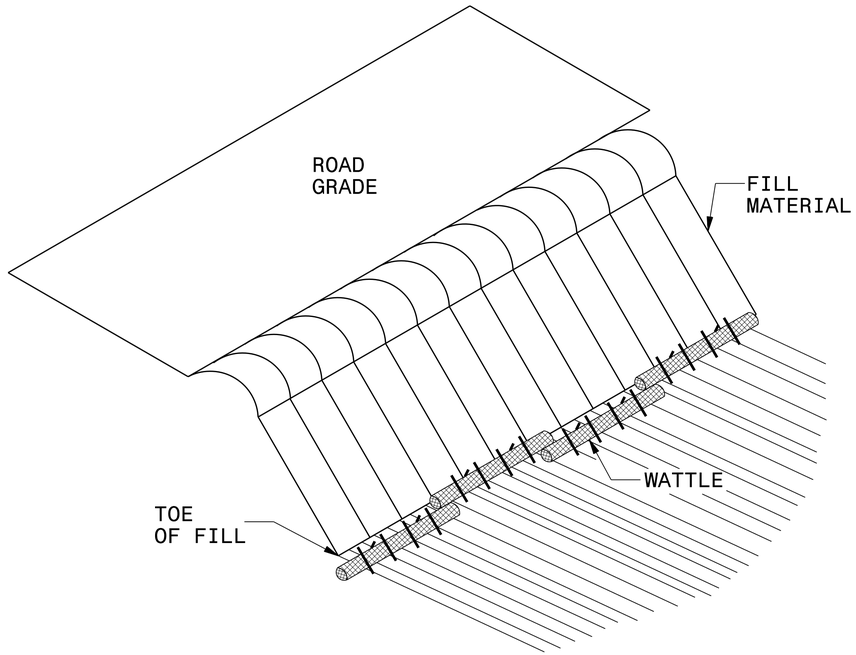




SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-2B

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.

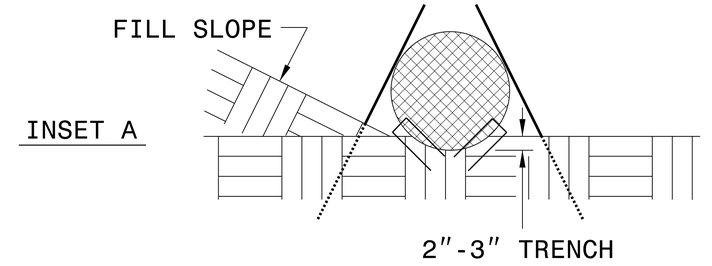
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

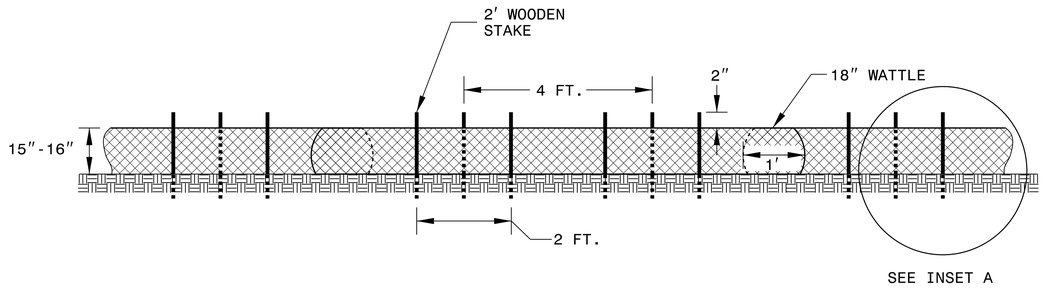
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

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

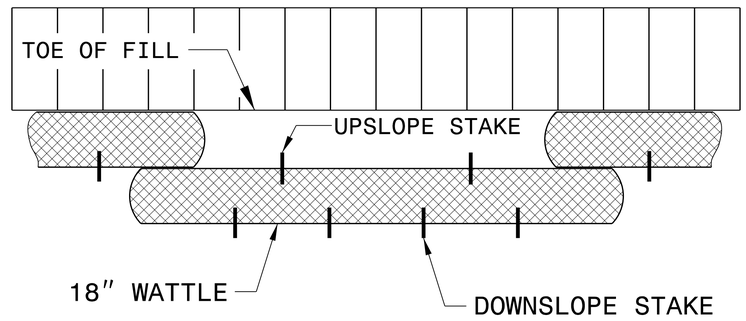
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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





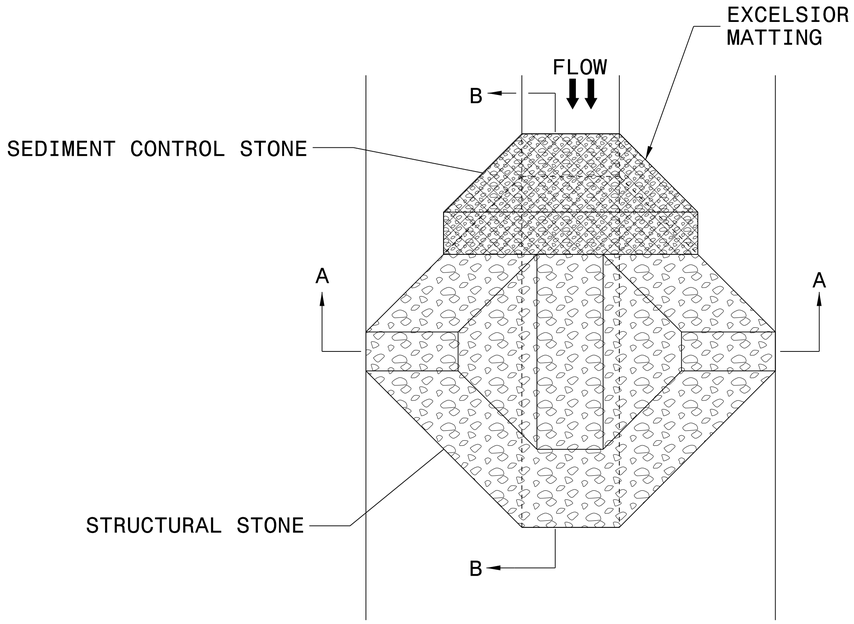
FRONT VIEW



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-2C

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



PLAN

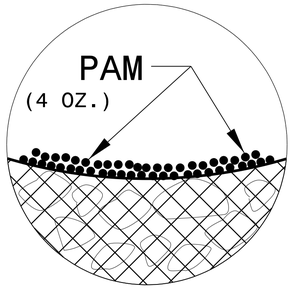
NOTES:

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

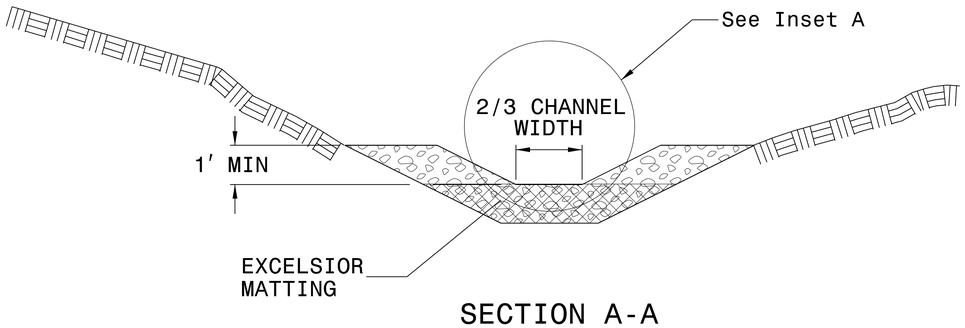
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

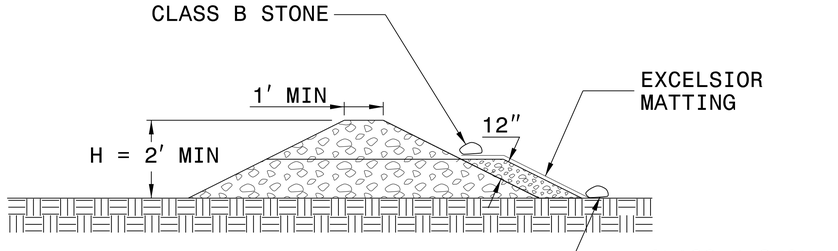
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

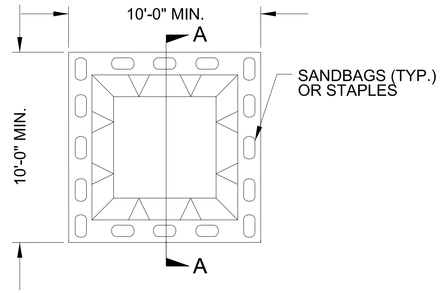


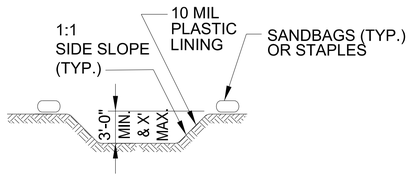
SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-2D

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER





SECTION A-A

PLAN

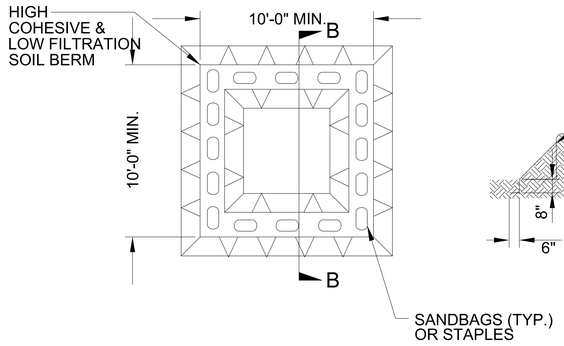
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

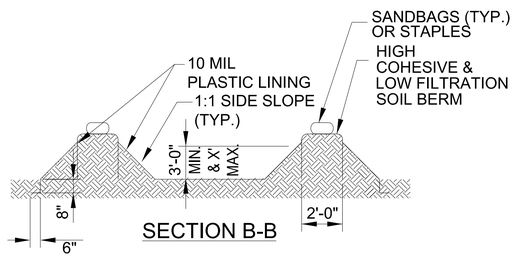
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE





SECTION B-B

PLAN

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

EXCELSIOR MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	11+00	13+30	LT	165
			SUBTOTAL		165
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					17
				TOTAL	182
				SAY	190

STRAW MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	15+00	16+36	LT	80
			SUBTOTAL		80
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					8
				TOTAL	88
				SAY	90

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	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.

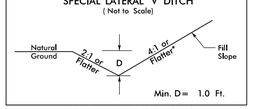
PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-4/CONST.4

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

8/17/99

NAD 83/NA 2011

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



*2:1 OR FLATTER IF GUARDRAIL
FROM –L– STA. 11+00 TO STA. 13+30 LT
FROM –L– STA. 15+00 TO STA. 16+36 LT

E.B. PHIFER & E.H. SHREIBER
DB 6514 PG 128

–L– POT Sta. 10+00.00

S 84° 03' 14.9" E

BEGIN PROJECT
–L– STA. 11+00.00

–L– PC Sta. 11+00.00

–L– PT Sta. 13+87.43

S 18° 10' 40" E 71.70'

S 39° 46' 00" E 77.36'

S 00° 14' 00" E 111.34'

NOTE:
THE EXISTING DRAINAGE DITCHES ARE ALL STABLE AND HAVE NO SIGNS OF EROSION. THE EXISTING 24" CROSS PIPE APPEARS TO BE IN GOOD CONDITION AND DOES NOT HAVE SIGNIFICANT SEDIMENT ACCUMULATION. THERE ARE NO SIGNS OF EROSION UPSTREAM OR DOWNSTREAM OF THE EXISTING 24" CROSS PIPE AND THE INLET AND OUTLET ARE HEAVILY VEGETATED. THE CRANE CREEK STREAM BANKS ARE STEEP (1.5 TO VERT.) BUT DO NOT HAVE SIGNS OF SCOUR AND APPEAR STABLE. THE DRIVEWAY PIPES IN THE VICINITY OR THE PROJECT ARE IN FAIR CONDITION.

–L– POT Sta. 20+71.55

END PROJECT
–L– STA. 17+00.00

–L– PT Sta. 20+21.55

–L– PC Sta. 17+30.24

N 60° 04' 45.7" E

N 73° 59' 17.5" E

S 17° 20' 50" E 283.83'

S 43° 30' 00" E 245.00'

1 LINDSAY CARL AUSTIN
DB 5083 PG 716

2 LINDSEY CARL & KIMBERLY RENEE AUSTIN
DB 6544 PG 518

3 C LINDSEY & KIMBERLY RENEE AUSTIN
DB 6293 PG 661

4 CURTIS F. AUSTIN HEIRS
DB 126 PG 700

ALICIA ROBINSON &
JANE DEVONNE BROWN
DB 141 PG 718

EXCAVATION LIMITS
EXCAVATE TO ELEV. 452'

REMOVE EXISTING BRIDGE

SPECIAL LATERAL 'V' DITCH
SEE DETAIL A

IMPERVIOUS DIKE

EST 2 TON CL B RIP RAP
EST 7 SY GEOTEXTILE

15" RCP-III

SPECIAL LATERAL 'V' DITCH
SEE DETAIL A

IMPERVIOUS DIKE

EXCAVATION LIMITS
EXCAVATE TO ELEV. 452'

Anson County Public Works
EXISTING 60' RIGHT OF WAY
DEEP SPRINGS RD.(SR-1725)
25 PR
17.5' BST
4" WOOD
6" PLASTIC
15" HDPE
GRAVEL
RETAIN
PUE
TB2GI
INV-454.26'
INV-454.45'

-L- CURVE DATA

PI Sta 12+45.50	PI Sta 18+76.61
Δ = 21° 57' 27.7" (LT)	Δ = 13° 54' 31.8" (LT)
D = 7° 38' 22.0"	D = 4° 46' 28.7"
L = 287.43'	L = 291.31'
T = 145.50'	T = 146.37'
R = 750.00'	R = 1,200.00'
SE = 06	SE = EXIST
R0 = 144	

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

NOTE:
UTILIZE IMPERVIOUS DIKES DURING BRIDGE REMOVAL WHERE APPLICABLE.

NOTE:
STABILIZE STREAM BANKS AND FLOODPLAIN WITH PERMANENT GROUND COVER UPON REMOVAL OF EXISTING STRUCTURE

NOTE:
STABILIZE PROPOSED EXCAVATION LIMITS WITH COIR FIBER MATTING AND NATIVE SEED UPON COMPLETION OF THE EXCAVATION.

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.

BRIDGE APPROACH SLAB

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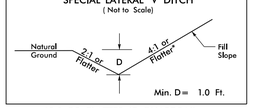
PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	EC-5/CONST.4

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

8/17/99

NAD 83/NA 2011

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



*2:1 OR FLATTER IF GUARDRAIL
FROM –L– STA. 11+00 TO STA. 13+30 LT
FROM –L– STA. 15+00 TO STA. 16+36 LT

E.B. PHIFER & E.H. SHREIBER
DB 6514 PG 128

10

15

20

–L– POT Sta. 10+00.00

S 84° 03' 14.9" E

BEGIN PROJECT
–L– STA. 11+00.00

–L– PC Sta. 11+00.00

SPECIAL LATERAL 'V' DITCH
SEE DETAIL A

1
LINDSAY CARL AUSTIN
DB 5083 PG 716

–L– PT Sta. 13+87.43

EXCAVATION LIMITS
EXCAVATE TO ELEV. 452'

REMOVE EXISTING BRIDGE

EST 2 TON CL B RIP RAP
EST 7 SY GEOTEXTILE

15" RCP-III

SPECIAL LATERAL 'V' DITCH
SEE DETAIL A

S 18°10'40" E
111.70'

S 39°46'00" E
117.36'

S 00°21'40" E
111.34'

NOTE:
THE EXISTING DRAINAGE DITCHES ARE ALL STABLE AND HAVE NO SIGNS OF EROSION. THE EXISTING 24" CROSS PIPE APPEARS TO BE IN GOOD CONDITION AND DOES NOT HAVE SIGNIFICANT SEDIMENT ACCUMULATION. THERE ARE NO SIGNS OF EROSION UPSTREAM OR DOWNSTREAM OF THE EXISTING 24" CROSS PIPE AND THE INLET AND OUTLET ARE HEAVILY VEGETATED. THE CRANE CREEK STREAM BANKS ARE STEEP (1.5 TO VERT.) BUT DO NOT HAVE SIGNS OF SCOUR AND APPEAR STABLE. THE DRIVEWAY PIPES IN THE VICINITY OR THE PROJECT ARE IN FAIR CONDITION.

–L– POT Sta. 20+71.55

END PROJECT
–L– STA. 17+00.00

CURTIS F. AUSTIN HEIRS
DB 126 PG 700

4

–L– PT Sta. 20+21.55

–L– PC Sta. 17+30.24

Anson County Public Works

EXISTING 60' RIGHT OF WAY

POWER WORKS

25 PR

4" ELECTRIC STRAND

DEEP SPRINGS RD.(SR-1725)

17.5' BST

E

F

RETAIN

18" RCP

BRICK MAIL BOX

PUE

TB2GI

MINESS BRANCH

BM#1

CRANE CREEK

EOFW

EOFW

N 73° 59' 17.5" E

3
C LINDSEY & KIMBERLY RENEE AUSTIN
DB 6293 PG 661

N 60° 04' 45.7" E

INV=454.26'

4" WOOD

15" HDPE

INV=451.83'
6" PLASTIC

GRAVEL

S 17°20'50" E
213.83'

ALICIA ROBINSON &
JANE DEVONNE BROWN
DB 141 PG 718

EXCAVATION LIMITS
EXCAVATE TO ELEV. 452'

2
LINDSEY CARL & KIMBERLY RENEE AUSTIN
DB 6544 PG 518

S 43°30'00" E
245.00'

S 57°W

–L– CURVE DATA

PI Sta 12+45.50	PI Sta 18+76.61
Δ = 21° 57' 27.7" (LT)	Δ = 13° 54' 31.8" (LT)
D = 7° 38' 22.0"	D = 4° 46' 28.7"
L = 287.43'	L = 291.31'
T = 145.50'	T = 146.37'
R = 750.00'	R = 1,200.00'
SE = 06	SE = EXIST
R0 = 144	

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

NOTE:
UTILIZE IMPERVIOUS DIKES DURING BRIDGE REMOVAL WHERE APPLICABLE.

NOTE:
STABILIZE STREAM BANKS AND FLOODPLAIN WITH PERMANENT GROUND COVER UPON REMOVAL OF EXISTING STRUCTURE

NOTE:
STABILIZE PROPOSED EXCAVATION LIMITS WITH COIR FIBER MATTING AND NATIVE SEED UPON COMPLETION OF THE EXCAVATION.

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.

PLACE MATTING FOR EROSION CONTROL ON SLOPES AS WORK ALLOWS.

NOTE:
UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK INLET SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC.

BRIDGE APPROACH SLAB

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05/02/22

PROJECT WBS: BP10.R003.3

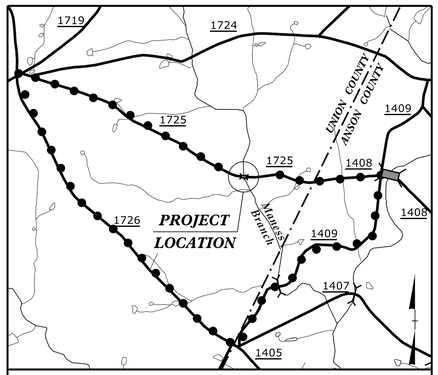
T.I.P. NO.	SHEET NO.
BP10.R003.3	UC–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
UNION COUNTY

LOCATION: BRIDGE 890052 OVER MANESS BRANCH ON SR 1725 (DEEP SPRINGS ROAD)

TYPE OF WORK: WATER LINE CONSTRUCTION

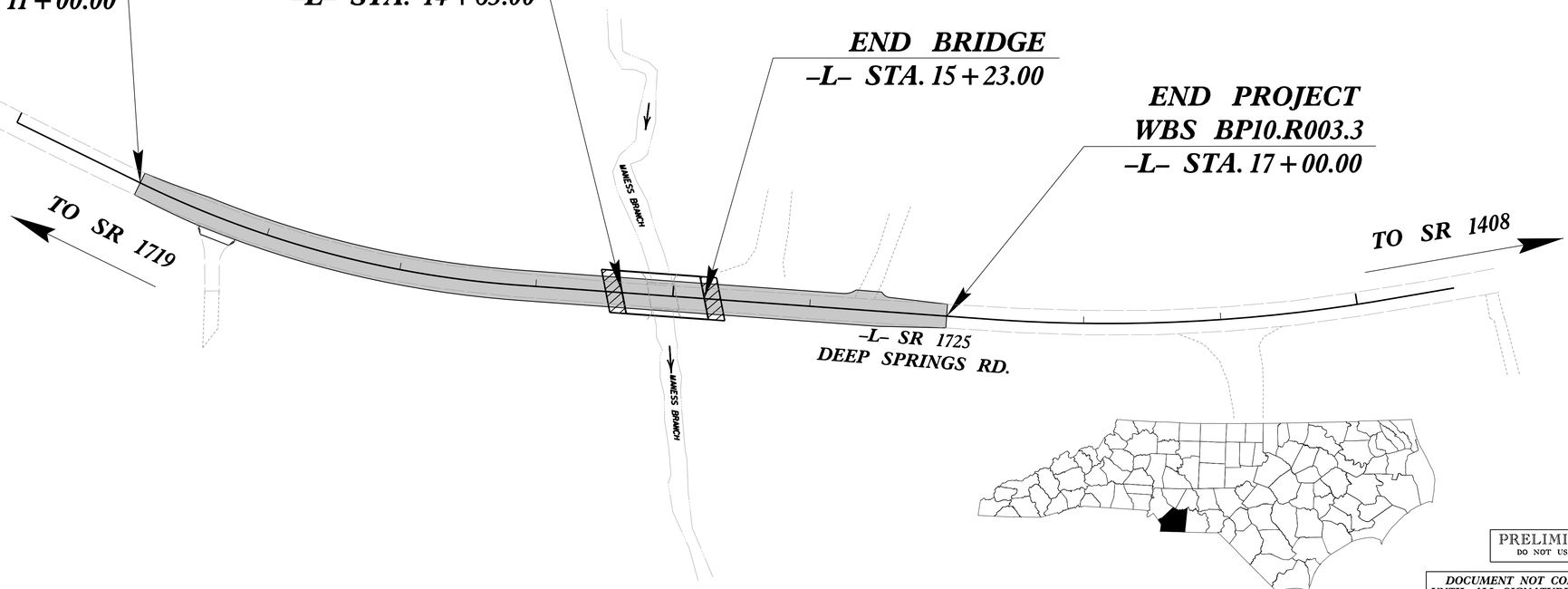


BEGIN PROJECT
WBS BP10.R003.3
–L– STA. 11+00.00

BEGIN BRIDGE
–L– STA. 14+63.00

END BRIDGE
–L– STA. 15+23.00

END PROJECT
WBS BP10.R003.3
–L– STA. 17+00.00



NAD 83
NA 2011

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UC–1	*TITLE SHEET*
UC–2	*UTILITY SYMBOLOGY*
UC–3	*NOTES*
UC–3A – UC–3B	*DETAILS*
UC–4	*UTILITY CONSTRUCTION SHEETS*

WATER AND SEWER OWNERS ON PROJECT

(A) WATER – ANSON COUNTY WATER & SEWER

PREPARED IN THE OFFICE OF

V&M Vaughn & Melton Consulting Engineers

VAUGHN & MELTON CONSULTING ENGINEERS
1318 F. PATTON AVENUE
ASHEVILLE, NC 28806
828.253.2796

Jamie D. Noe, PE	*PROJECT ENGINEER*
Nick Asaro, PLS	*PROJECT UTILITY MANAGER*
Nick Asaro, PLS	*PROJECT UTILITY COORDINATOR*

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047349 Disclaimed by Jamie D. Noe
7/28/2023 | 8:37:56 AM EDT

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

Michael Bright	*Western Utilities Manager*
Donald Hampton	*Regional Utilities Engineer*
Lynn Basinger	*Division Utility Engineer*
Adam Preslar	*Division Utility Coordinator*

6/13/2023 9:55:53 AM
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User:srwidner

5/02/22

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PUMP
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PREP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RREP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PSTSS

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown)
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal — T
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REV: 2/1/2012

5/02/22

UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	UC-3
DESIGNED BY: SRW	
DRAWN BY: SRW	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047349 Digitally signed by Jamie T. Nee 7/28/2023 | 8:37:56 AM EDT

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING UTILITIES BELONG TO ANSON COUNTY WATER. PLEASE CONTACT MR. CHRISTOPHER HARRINGTON 907 N. WASHINGTON ST, WADESBORO, NC, 28170 (704) 694-5208

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. THRUST COLLARS ARE REQUIRED AT EACH END OF HDPE PIPE, IF USED ON DIRECTIONAL DRILL PIPE MATERIAL.

2. ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT USING GRIP RINGS. NO GLUE OR PUSH-ON FITTINGS ARE ALLOWED. THRUST BLOCKING IS REQUIRED.

3. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107 AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCH LESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE SHALL BE ALLOWED TO RIVER, WETLANDS OR BUFFER ZONES.

4. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTING FOR ONE WEEK FROM THE TIME OF INSTALLATION.

5. NEW WATER LINES MUST BE PRESSURE TESTED AT 200 PSI FOR 3 HOURS. TEST TO OBSERVED BY AN ANSON COUNTY WATER DEPARTMENT REPRESENTATIVE.

6. SERVICE INTERRUPTIONS SHALL BE SCHEDULED WITH THE ANSON COUNTY WATER DEPARTMENT.

7. ALL NC DEQ-DWR-PWS AND LOCAL TESTING MUST BE COMPLETED AND APPROVED PRIOR TO CONNECTING THE NEW CONSTRUCTION TO THE EXISTING WATER LINES.

8. HDPE PRESSURE PIPE FOR POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF 61.

9. ANY NECESSARY CONNECTIONS FOR TESTING AND FILLING THE INSTALLED WATER MAIN WILL BE REQUIRED AND CONSIDERED INCIDENTAL TO THE WATER MAIN.

10. THE UTILITY CONTRACTOR SHALL INSTALL A 4"X4" CONCRETE VALVE MARKER AT THE EDGE OF THE RIGHT-OF-WAY TO IDENTIFY THE LOCATION OF EACH GATE VALVE INSTALLED IN THE NEW WATER SYSTEM EXCEPT FOR THE FIRE HYDRANT ISOLATION VALVES. THE CONTRACTOR SHALL MEASURE THE DISTANCE FROM THE CENTER OF THE CONCRETE MARKER TO THE CENTER OF OF THE VALVE BOX. THIS DISTANCE (IN LINEAR FEET) SHALL BE STAMPED ON THE BRASS PLATE LOCATED ON THE TOP OF THE CONCRETE VALVE MARKER. IN LIEU OF INSTALLING THE CONCRETE VALVE MARKERS, THE UTILITY CONTRACTOR MAY PROVIDE AT LEAST TWO MEASUREMENTS FROM TWO INDEPENDENT PERMANENT ABOVE GROUND STRUCTURES TO THE PROFESSIONAL ENGINEER (PE) IN THE RED LINE DRAWINGS TO IDENTIFY THE VALVE LOCATIONS. THE PROFESSIONAL ENGINEER (PE) MUST INCLUDE THESE MEASUREMENTS IN THE AS-BUILT RECORD DRAWINGS SUBMITTED TO THE ANSON COUNTY WATER DEPARTMENT AND ENGINEER OF RECORD.

11. REGULAR AND PROPER INSPECTION AND MAINTENANCE OF THE AERIAL CROSSING SHALL BE PROVIDED TO INSURE THAT THE CREEK/STREAM FLOW IS NOT IMPEDED AND THAT NO DAMAGE WILL BE CAUSED TO UPSTREAM OR ADJACENT PROPERTIES.

LIST OF STANDARD DRAWINGS

TYPICAL THRUST COLLAR

TYPICAL VALVE BOX

TYPICAL THRUST BLOCK

TYPICAL VALVE MARKER

1515.02 FIRE HYDRANT

1515.01 WATER METER

TYPICAL TRACER WIRE INSTALLATION

1525.06 PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

V&M Vaughn & Melton
Consulting Engineers
Asheville, North Carolina
828 253 2796
Boone, NC 828·355·9933
Tri-Cities, TN 423·467·8401
Knoxville, TN 865·546·5800
Spartanburg, SC 864·574·4775
Charleston, SC 843·974·5650
Middlesboro, KY 606·248·6600
Raleigh, NC 919·977·9455
Charlotte, NC 704·357·0488
Atlanta, GA 770·627·3509

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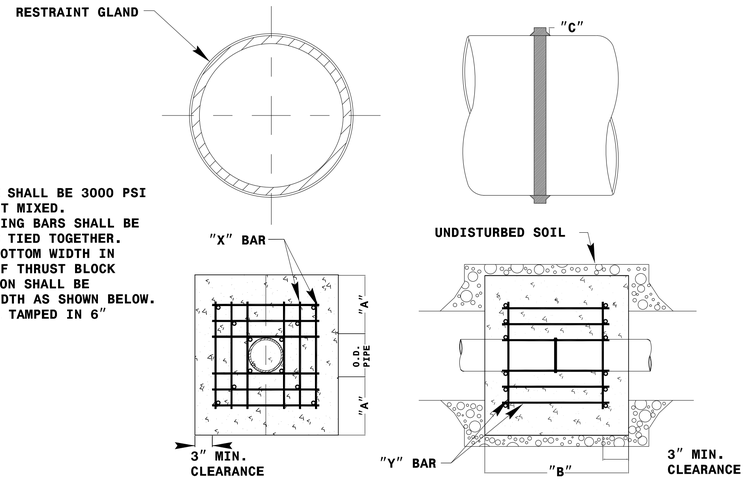
05/02/22



NOTES:

1. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
2. REINFORCING BARS SHALL BE FORMED AND TIED TOGETHER.
3. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE MINIMUM WIDTH AS SHOWN BELOW.
4. BACKFILL TAMPED IN 6" LIFTS.

REINFORCING REQUIREMENTS

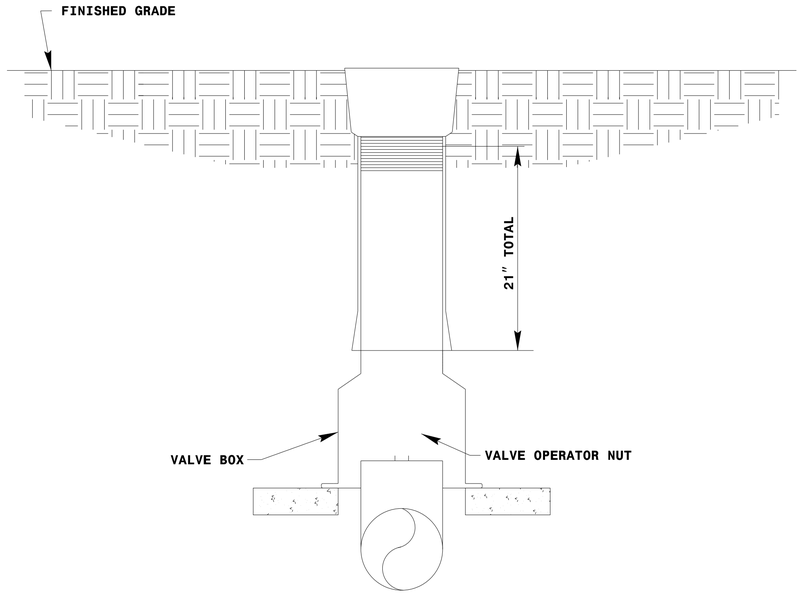
I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 16"	#7	2'-2"+ O.D. PIPE	2.044 LBS/FT	1'-1"	2.214 LBS. EACH	X-24, Y-12
20"- 36"	#8	3'-0"+ O.D. PIPE	2.67 LBS/FT	1'-3"	2.89 LBS. EACH	X-24, Y-12

THRUST COLLAR, AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C-6"-16", 20"-24", 30"-36", 48"
6" - 36"	1'-4"	1'-7"	2" 3" 4"
48" & greater	1'-8"	1'-9"	6"

TYPICAL THRUST COLLAR DETAIL

NO SCALE

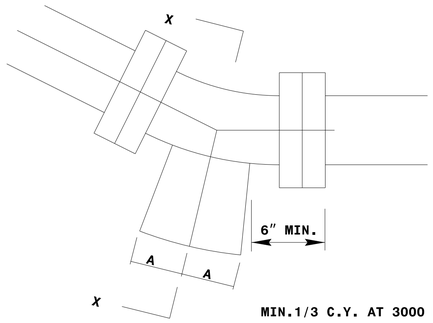


TYPICAL VALVE BOX DETAIL

NO SCALE

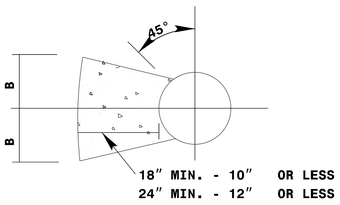
NOTES:

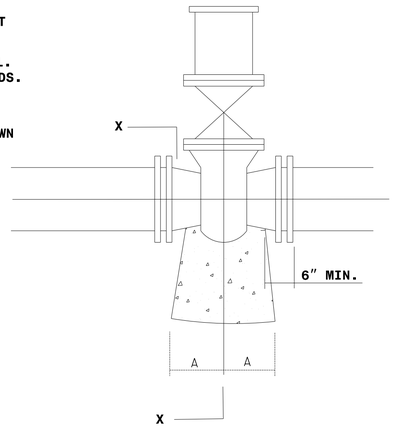
1. CONCRETE SHALL BE 3,000 PSI MIN.
2. CONCRETE FOR THRUST BLOCKING SHALL BE KEPT FAIRLY DRY, THUS MAKING THE CONCRETE WEDGE SHAPE MORE EASILY FORMED WITH THE WIDEST PART (BLOCKING AREA) AGAINST UNDISTURBED SOIL.
3. NO CONCRETE SHALL COVER ANY BOLTS OR GLANDS.
4. ALL PIPING AND ACCESSORIES TO BE WRAPPED WITH 10 MIL. POLYETHYLENE PRIOR TO POURING BLOCKING.
5. VOLUME OF THRUST BLOCKING SHALL BE AS SHOWN ON THE THRUST BLOCKING SCHEDULE.



MIN.1/3 C.Y. AT 3000 P.S.I.

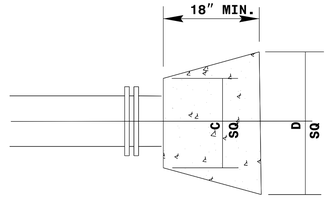
PLAN BENDS





HYDRANT TEE

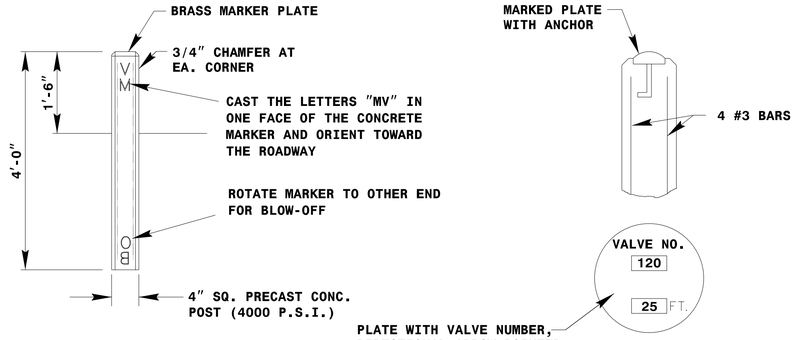
PLAN TEES



PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	8"	9"	10"	16"
6"	10"	12"	8"	10"	8"	8"	8"	8"	10"	10"	12"	18"
8"	15"	13"	10"	10"	8"	8"	8"	8"	10"	12"	12"	24"
10"	16"	14"	10"	12"	6"	10"	6"	10"	11"	14"	14"	25"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
14"	22"	18"	14"	16"	10"	14"	10"	14"	16"	18"	18"	34"
16"	26"	20"	16"	18"	12"	16"	12"	16"	18"	20"	20"	36"

TYPICAL THRUST BLOCK DETAIL

NO SCALE



NOTES:
PAINT MARKER BLUE AFTER INSTALLATION

TYPICAL VALVE MARKER DETAIL

NO SCALE

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	UC-3A

DESIGNED BY: SRW
DRAWN BY: SRW
CHECKED BY: JDN
APPROVED BY: JDN
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

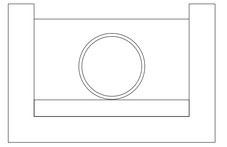
SEAL 047349 ENGINEER — Digitally signed by Jamie D. Kee — 7/28/2023 | 8:37:56 AM EDT

UTILITY CONSTRUCTION PLANS ONLY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION

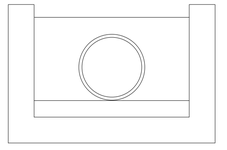
ALL DUCTILE IRON



TYPE 3

PIPE BEDDED IN 4" MININUM JOB EXCAVATED MATERIAL. COMPACTED TO 4" ABOVE TOP OF PIPE, (APPROX. 95% STANDARD PROCTOR, AASHTO T-99)

ALL PVC WATER LINE AND PVC FORCE MAIN



TYPE 4

PIPE BEDDED IN SAND, GRANULAR MATERIAL OR GRADED GRAVEL TO THE DEPTH OF 1/8 PIPE DIAMETER, 4" MIN. JOB EXCAVATED MATERIAL (APPROX. 95% STANDARD PROCTOR, AASHTO T-99)

TYPICAL LAYING CONDITIONS DETAIL

NO SCALE

Vaughn & Melton
Consulting Engineers
Asheville, North Carolina
828-253-2796
Tri-Cities, TN 423-467-8401
Knoxville, TN 865-546-5800
Spartanburg, SC 864-574-4775
Charleston, SC 843-974-5650
Middlesboro, KY 606-248-6600
Charlotte, NC 704-357-0488
Boone, NC 828-355-9933
Kennesaw, GA 770-627-3590

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jdavis

05/02/22

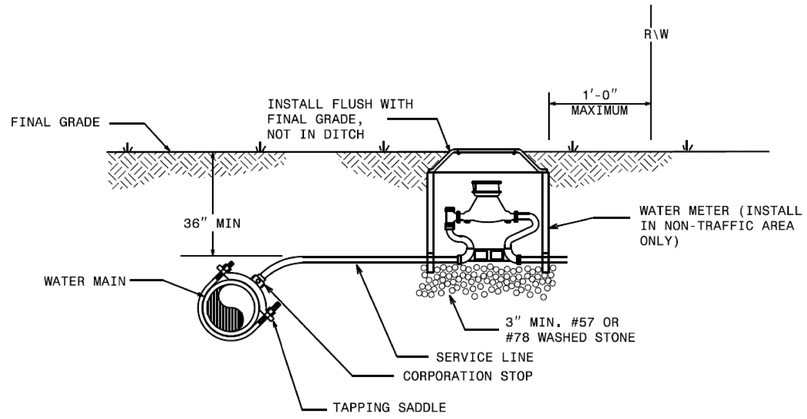
PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	UC-3B
DESIGNED BY: SRW	
DRAWN BY: SRW	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA SEAL 047349 ENGINEER Digitally signed by [redacted] 7/28/2023 | 8:37:56 AM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION

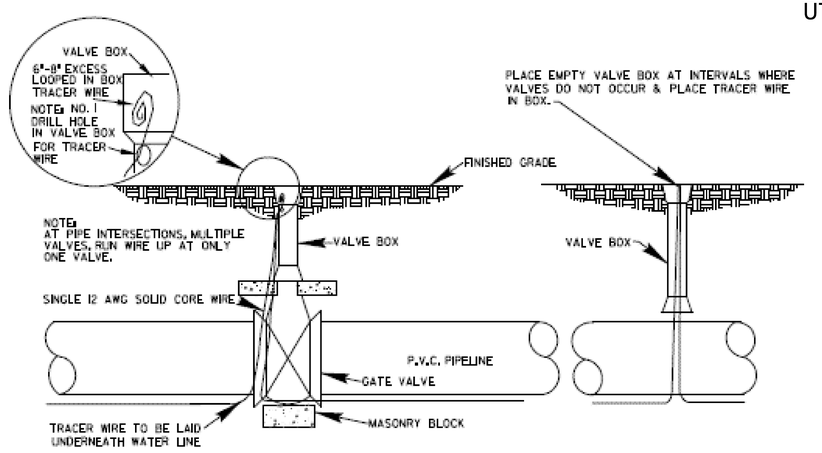
PROJECT TYPICAL DETAILS



NOTES:

1. THIS DETAIL SHOWS THE TYPICAL FINAL WATER METER CONFIGURATION AFTER INSTALLATION OF A PROPOSED WATER METER, RECONNECTION OF AN EXISTING WATER METER, OR RELOCATION OF A WATER METER.

WATER METER
NO SCALE

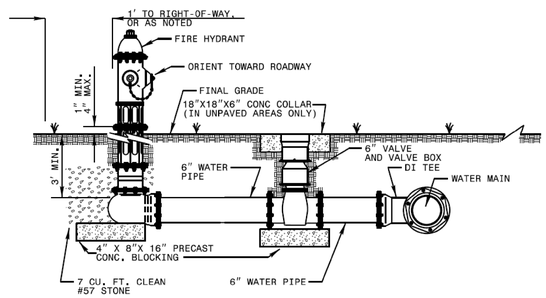


NOTES:
1. DRILL HOLE IN VALVE BOX TO INSERT TRACER WIRE. BRING UP TO INSIDE AND ROLL UP AT LEAST 6"-8" EXCESS
2. PLACE TRACER WIRE IN VALVE BOX.
3. DO NOT SPLICE WIRE WHEN BEGINNING A NEW SPOOL. INSTEAD INSTALL A VALVE BOX AND ATTACH EACH WIRE WITH A BRASS SCREW TO THE VALVE BOX.

TYPICAL TRACER WIRE INSTALLATION DETAIL
NO SCALE

NOTES:

1. THIS DETAIL SHOWS THE TYPICAL FINAL FIRE HYDRANT CONFIGURATION AFTER INSTALLATION OF A PROPOSED FIRE HYDRANT, RECONNECTION OF AN EXISTING FIRE HYDRANT, OR RELOCATION OF A FIRE HYDRANT.
2. KEEP DRAIN PORTS FREE FROM OBSTRUCTION.
3. RESTRAIN ALL PIPE JOINTS AND FITTINGS. ACCEPTABLE TYPES OF RESTRAINT INCLUDE RESTRAINING GLANDS; RESTRAINED, PUSH-ON JOINTS; AND 3/4" BITUMINOUS COATED, ALL-THREAD RESTRAINING RODS. THRUST BLOCKS ARE NOT AN ACCEPTABLE TYPE OF RESTRAINT.
4. FOR RELOCATED OR RECONNECTED FIRE HYDRANTS,VERIFY THE VALVE IS RESTRAINED TO THE MAIN. PROVIDE APPROPRIATE RESTRAINT.
5. HYDRANT LOCATION APPLIES TO PROPOSED AND RELOCATED FIRE HYDRANTS.
6. LOCATE FIRE HYDRANT WITH 3' HORIZONTAL CLEARANCE FROM ABOVE GROUND OBJECTS.
7. PROVIDE A MINIMUM OF 3' COVER OVER ALL SECTIONS OF HORIZONTAL PIPE. USE FITTINGS AS NECESSARY.
8. TAPPING SLEEVES MAY BE USED ON EXISTING MAINS IN LIEU OF DI TEES.
9. LOCATE FIRE HYDRANT OUTSIDE OF THE VEHICLE RECOVERY AREA, ADJACENT TO THE R/W LINE, OR IN A PROTECTED AREA.



TYPICAL FIRE HYDRANT ASSEMBLY
NO SCALE

Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Tri-Cities, TN 423-467-8401
Knoxville, TN 865-546-5800
Spartanburg, SC 864-574-4775
Charleston, SC 843-974-5650
Middlesboro, KY 606-248-6600
Charlotte, NC 704-357-0488
Boone, NC 828-355-9933
Kennesaw, GA 770-627-3590

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PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	UC-4
DESIGNED BY: SRW	
DRAWN BY: SRW	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	7/28/2023 | 8:37:56 AM EDT
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047349 Digitally Signed by James D. Nye, PE

UTILITY CONSTRUCTION

5/02/22

REVISIONS

6" 45° BENDS (ROTATED)
-WL-1- STA. 10+04.44
-WL-1- STA. 10+76.35

66 LF 12" OPEN CUT STEEL ENCASEMENT 0.25" MIN THICKNESS

TAPPING SLEEVE & VALVE

LINE STOP

322 LF 6" WATER LINE
PVC, C900 DR11

6" 45° BENDS (ROTATED)
-WL-1- STA. 12+55.82
-WL-1- STA. 13+17.31

LINE STOP

TAPPING SLEEVE & VALVE

BEGIN 6" WL CONSTRUCTION
-WL-1- STA. 10+00
CONNECT TO EXISTING
W/TAPPING SLEEVE & VALVE

END 6" WL CONSTRUCTION
-WL-1- STA. 13+22.16
CONNECT TO EXISTING
W/TAPPING SLEEVE & VALVE

BEGIN PROJECT -L- STA. 11+00.00

END PROJECT -L- STA. 17+00.00

45° IN SERVICE LINE
82 LF WATER SERVICE LINE

45° IN SERVICE LINE
RECONNECT WATER METER

CONTRACTOR TO TIE IN WATER LINES OUTSIDE OF PAVED/GRAVEL AREA

ABANDON 300' LF 6" UTILITY PIPE

LINDSAY CARL AUSTIN DB 3083 PG 716

CURTIS F. AUSTIN HEIRS DB 126 PG 700

LINDSEY CARL & KIMBERLY RENEE AUSTIN DB 6544 PG 518

C LINDSEY & KIMBERLY RENEE AUSTIN DB 6293 PG 661

Anson County Public Works

DEER SPRINGS RD.(SR-1725)

REMOVE EXISTING BRIDGE

15" RCP-III

6" PLASTIC

PROP O/H POW & TEL LINES

ABANDON 6" UTILITY PIPE

MANESS BRANCH

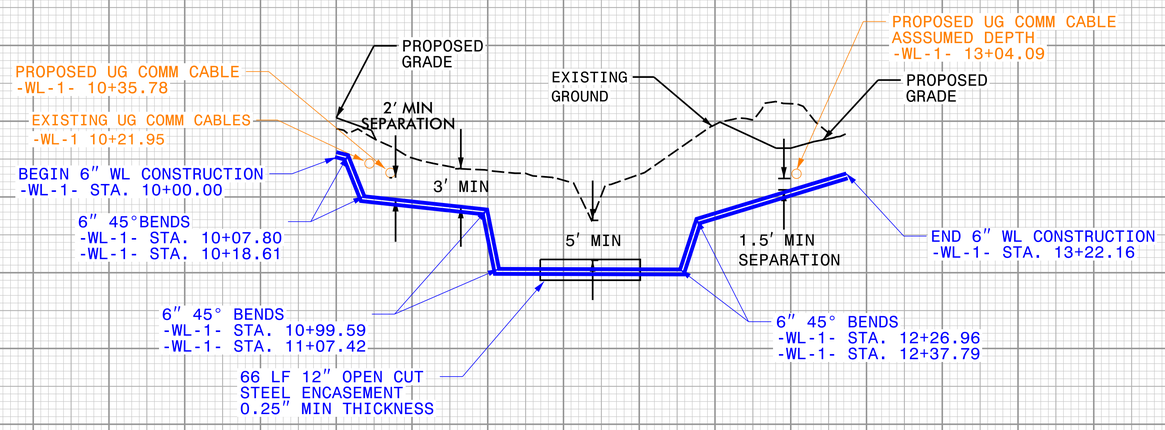
NAD 83

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 750 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

50 25 0 50 100

10 5 0 10 20

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



02/23/22

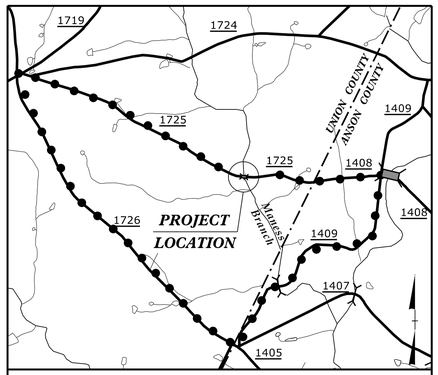
PROJECT WBS: BP10.R003.3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
UNION COUNTY

T.I.P. NO.	SHEET NO.
BP10.R003.3	UO–1

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



VICINITY MAP N.T.S.

LOCATION: BRIDGE 890052 OVER MANESS BRANCH ON SR 1725 (DEEP SPRINGS ROAD)

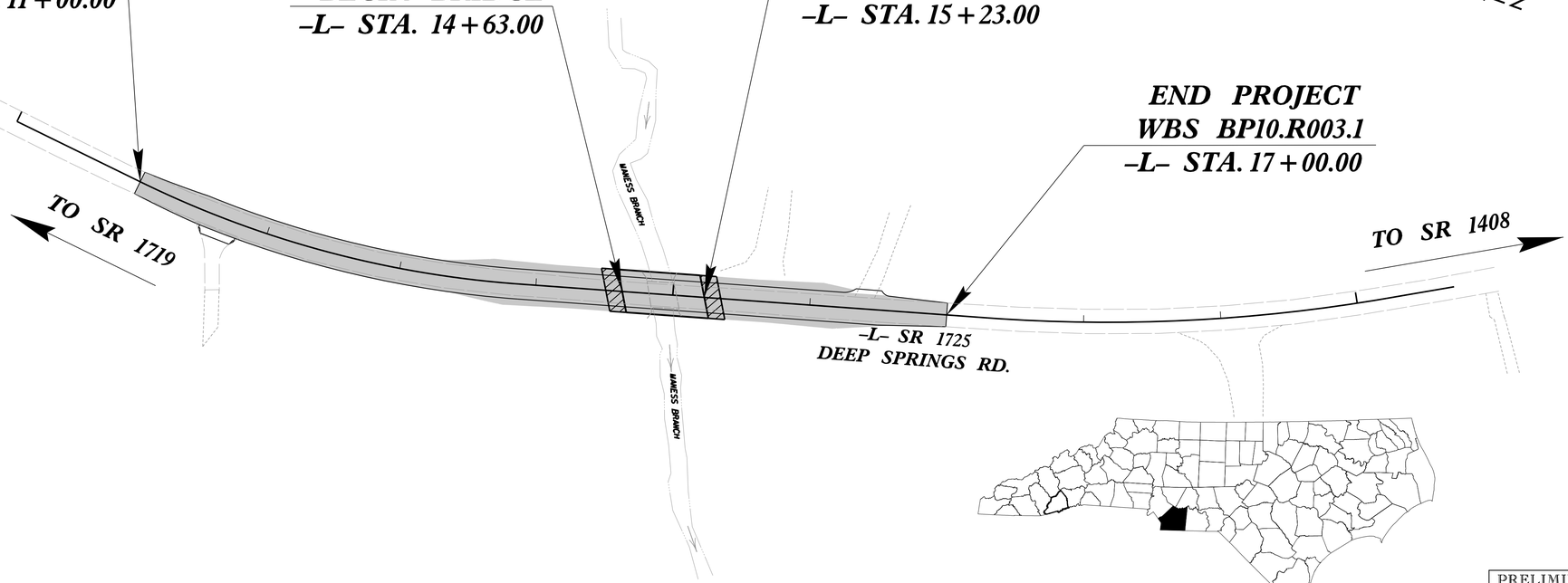
TYPE OF WORK: RELOCATION OF POWER, FIBER, AND WATER UTILITIES

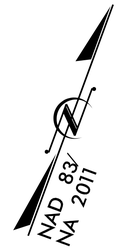
BEGIN PROJECT
WBS BP10.R003.1
–L– STA. 11+00.00

BEGIN BRIDGE
–L– STA. 14+63.00

END BRIDGE
–L– STA. 15+23.00

END PROJECT
WBS BP10.R003.1
–L– STA. 17+00.00





PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

30 15 0 30 60
PLANS

INDEX OF SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER – PEE DEE ELECTRIC
(B) WATER – ANSON COUNTY WATER & SEWER
(C) FIBER – WINDSTREAM

PREPARED IN THE OFFICE OF:
Vaughn & Melton
Consulting Engineers
Charlotte, North Carolina
704 357 0488
FIRM LIC #F-1088

Nick Asaro, PLS — UTILITY PROJECT MANAGER & PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
DIVISION 10
DIV ADDRESS
716 W MAIN ST
ALBEMARLE, NC 28001

ADAM PRESLAR, EI — SENIOR DIVISION UTILITY COORDINATOR

LYNN BASINGER — DIVISION UTILITY ENGINEER

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User:nvasaro

02/23/22

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	U0-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — REH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REV: 2/1/2012

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	U0-3

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 — C/A
- Existing Control of Access — C/A
- New Control of Access — C/A
- 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.

V:\ASHEVILLE\SURVEYS\2016\3161\0-01 C-5621\UTILITIES\290_010_C5621_UBO_FP_U0-3

02/23/22

PROJECT REFERENCE NO.	SHEET NO.
BP10.R003.3	UO-4
THIS SHEET CORRESPONDS TO RDY-4	

UTILITIES BY OTHERS

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.

NC GRID NAD 83 NA 2011

10

15

BEGIN PROJECT
–L– STA. 11+00.00

1

LINDSAY CARL AUSTIN
DB 5083 PG 716

SBG: END BRIDGE TO –L– 15+62 LT

END PROJECT
–L– STA. 17+00.00

CURTIS F. AUSTIN HEIRS
DB 126 PG 700

4

REMOVE EXISTING BRIDGE

WINDSTREAM TO INSTALL NEW PED

SEE UCO PLANS FOR WATER MAIN CONSTRUCTION DETAILS

0402

DEEP SPRINGS RD.(SR-1725)

–L–

RETAIN

WINDSTREAM TO ABANDON LINES

PROP O/H POW & TEL LINES

ABANDON 6" UTILITY PIPE

6" WL

ENCAS BY OC

REM

PUE

–L– +66.16
29.07' RT

JOINT USE POLE

–L– +18.67
57.45' RT

LINDSEY CARL & KIMBERLY RENEE AUSTIN
DB 6544 PG 518

2

MANESS BRANCH

WINDSTREAM TO ABANDON LINES

PEE DEE EMC TO REMOVE EXISTING O/H LINE

0401

–L– +37.50
55.86' RT
29.01' RT

JOINT USE POLE

3

C LINDSEY & KIMBERLY RENEE AUSTIN
DB 6293 PG 661

PROJ. REFERENCE NO.	SHEET NO.
BP10.R003.3	X-1A

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

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+00.00	0	0
11+50.00	5	4
12+00.00	11	13
12+50.00	15	28
13+00.00	13	47
13+50.00	4	69
14+00.00	0	107
14+50.00	0	144
14+63.00	0	43

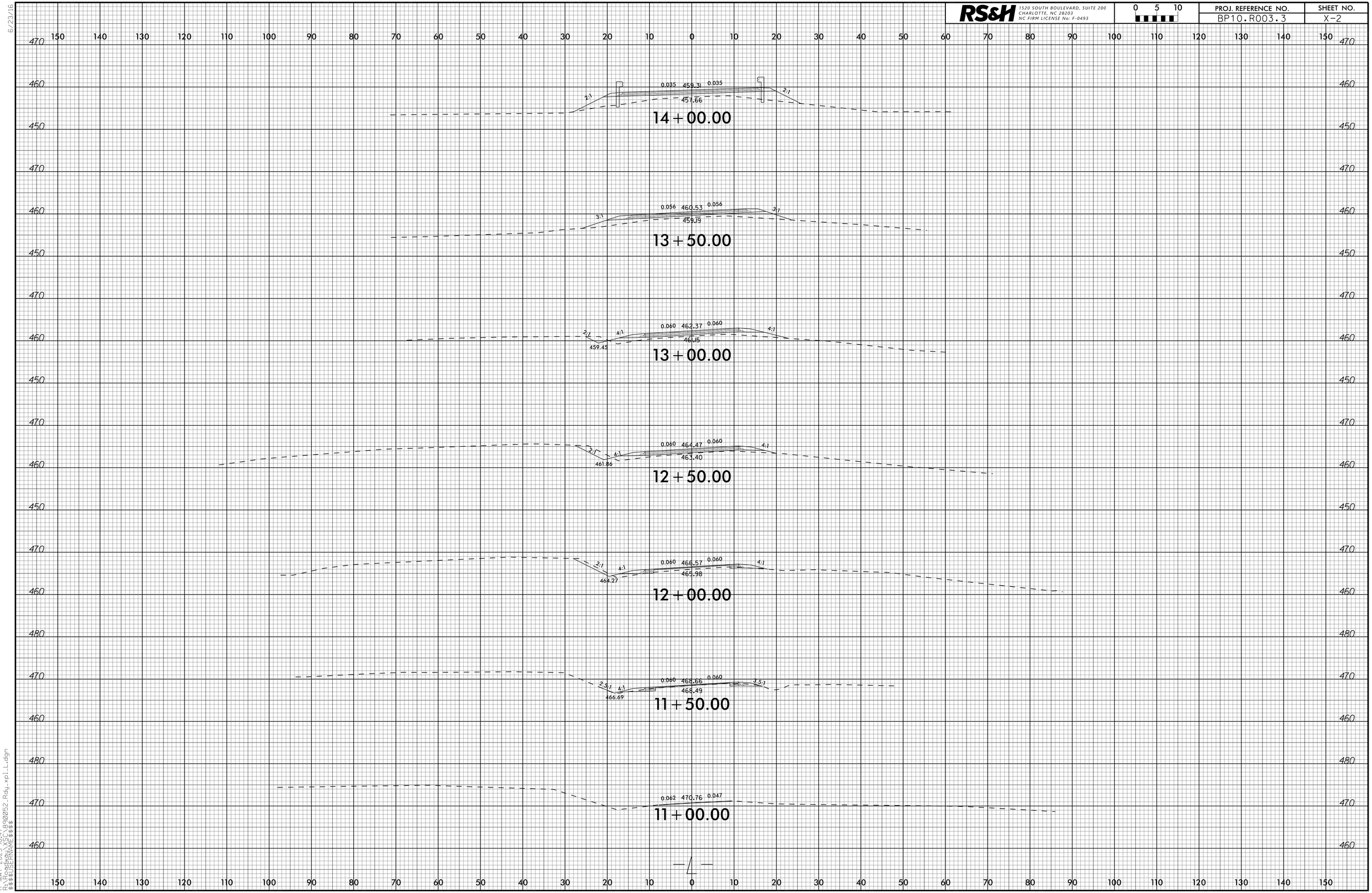
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+23.00	0	0
15+50.00	5	72
16+00.00	38	62
16+50.00	37	11
17+00.00	5	2

INDEX OF SHEETS

RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
BP10.R003.3	X-2



6/23/16

17-MAY-2023 10:47
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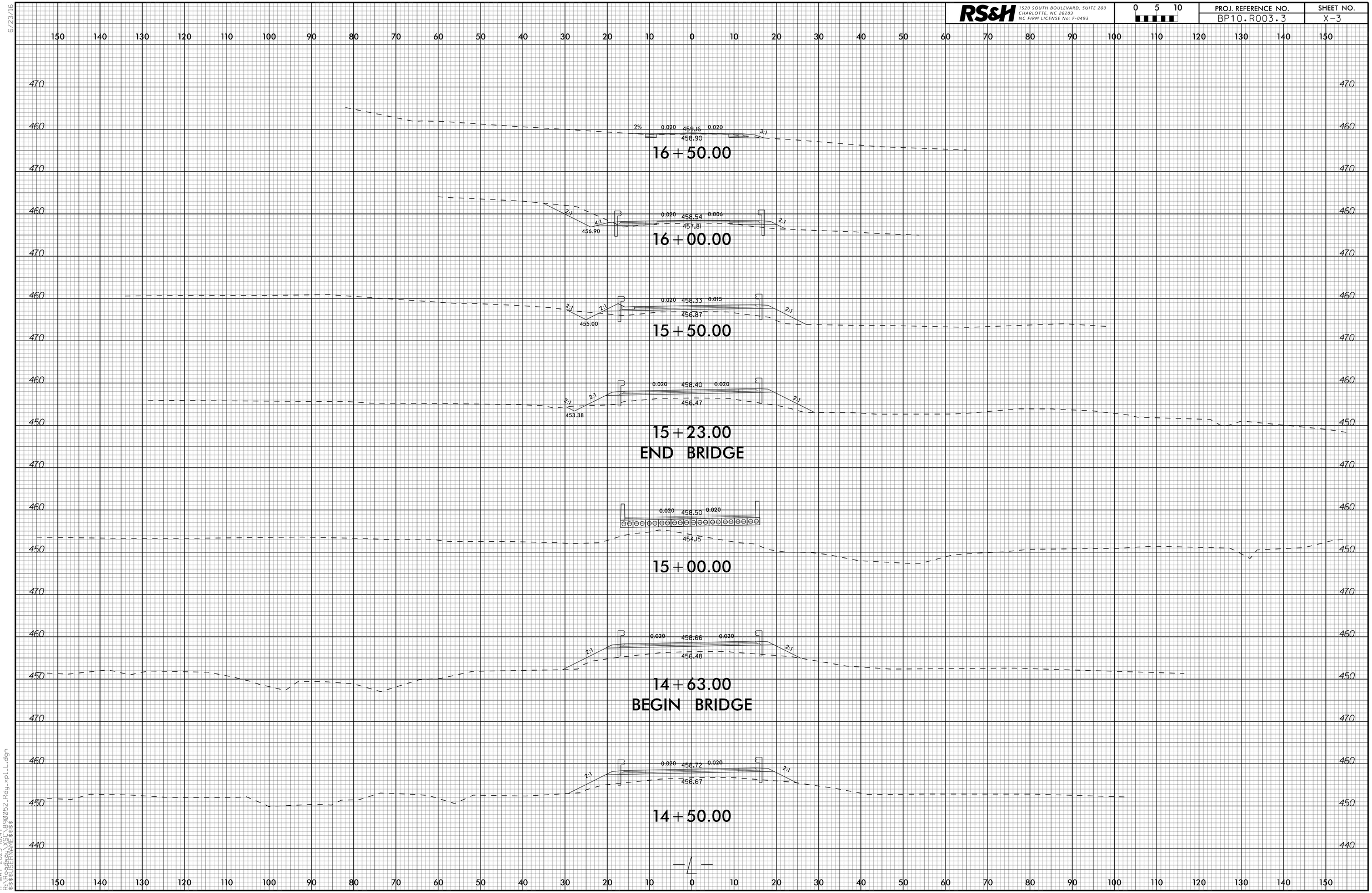
RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
BP10.R003.3	X-3



6/23/16

RS&H
1520 SOUTH BOULEVARD, SUITE 200
CHARLOTTE, NC 28203
NC FIRM LICENSE No: F-0493

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
BP10.R003.3	X-4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

470
460
450

0.026 460.16 0.001

17+00.00

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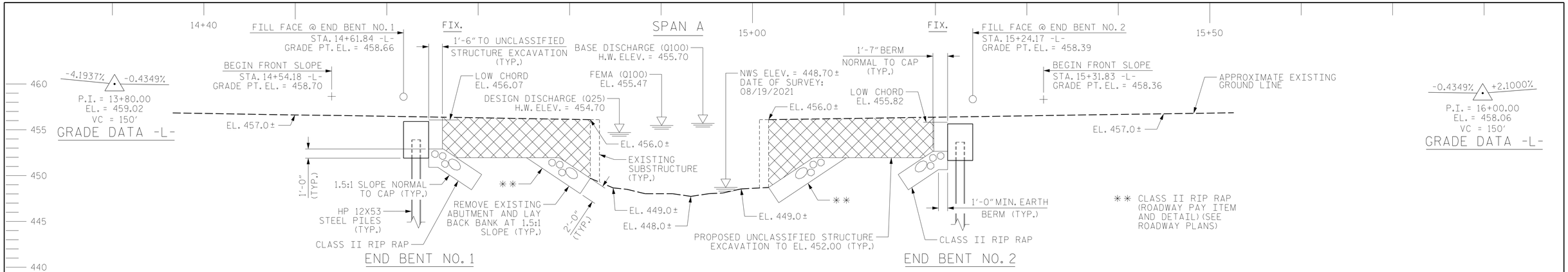
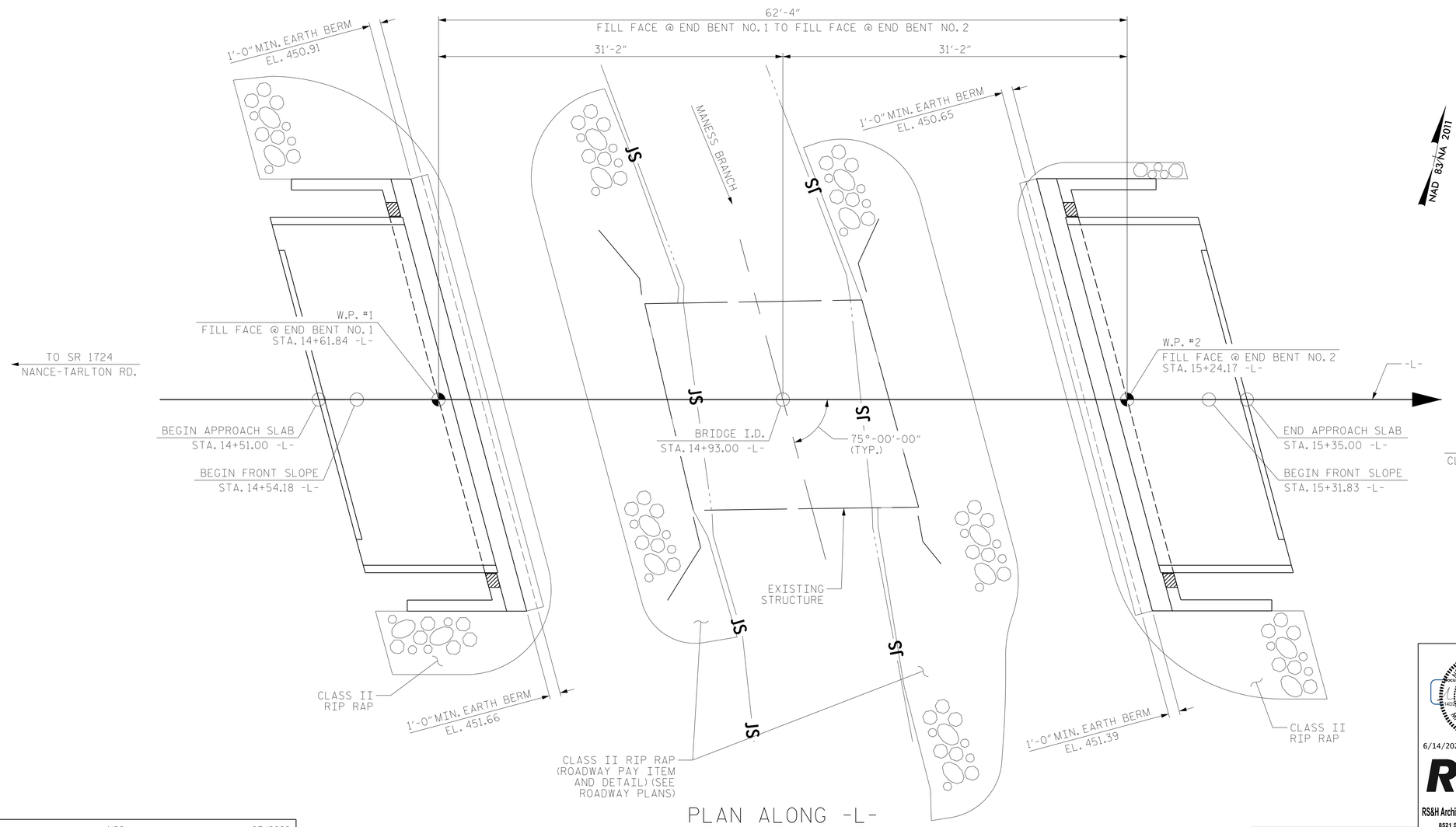


SECTION ALONG -L-

UNCLASSIFIED STRUCTURE EXCAVATION



PLAN ALONG -L-

PILES NOT SHOWN FOR CLARITY

NAD 83/NA 2011

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. BP10.R003.3

UNION COUNTY

STATION: 14+93.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE 890052

DRAWN BY : NSC DATE : 07/2022
CHECKED BY : MRA DATE : 07/2022
DESIGN ENGINEER OF RECORD: MRA DATE : 04/2023

4/19/2023
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AcostaM

NORTH CAROLINA PROFESSIONAL SEAL 032672 ENGINEER MATTHEW R. ACOSTA
6/14/2023

RS&H

RS&H Architects-Engineers-Planners, Inc.
8521 Six Forks Road, Suite 400
Raleigh, NC 27615
919-926-4100 FAX 919-846-9080
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North Carolina License Nos. 50073 * F-0493 * C-28

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1725 OVER MANESS BRANCH BETWEEN SR 1724 AND SR 1409

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			14

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elev FT	Estimated Pile Lenth per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elev (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-7	75	See Structure Drawings	10								443.1	3.0	5.8
End Bent 2, Piles 1-7	75		10								445.2	3.0	3.4

**Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$^{**}RDR = \frac{Factored\ Resistance + Factored\ Downdrag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Downdrag\ Resistance + \frac{Nominal\ Scour\ Resistance}{Scour\ Resistance\ Factor}$$

NOTES

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer Michael H. Stephens, P.E., License No. 028893 on 07-18-2022.
2. Pile driving is not required.

FOUNDATION NOTES

1) FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

2) PILE EXCAVATION IS REQUIRED FOR END BENT NOS. 1 AND 2. DRILL PILE EXCAVATION HOLES WITH A MINIMUM EMBEDMENT OF 3 FT INTO ROCK, AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

3) FILL HOLES FOR PILE EXCAVATION AT BENT NOS. 1 AND 2 WITH CONCRETE.

PROJECT NO. BP10.R003.1(SF-890052)

UNION COUNTY

STATION: 14+93.00 -L-

SHEET 1 OF 1 BRIDGE NO. 52

NORTH CAROLINA PROFESSIONAL SEAL 052672 ENGINEER MATTHEW R. ACOSTA

DocuSigned by:
SIGNATURE 6/14/2023 DATE

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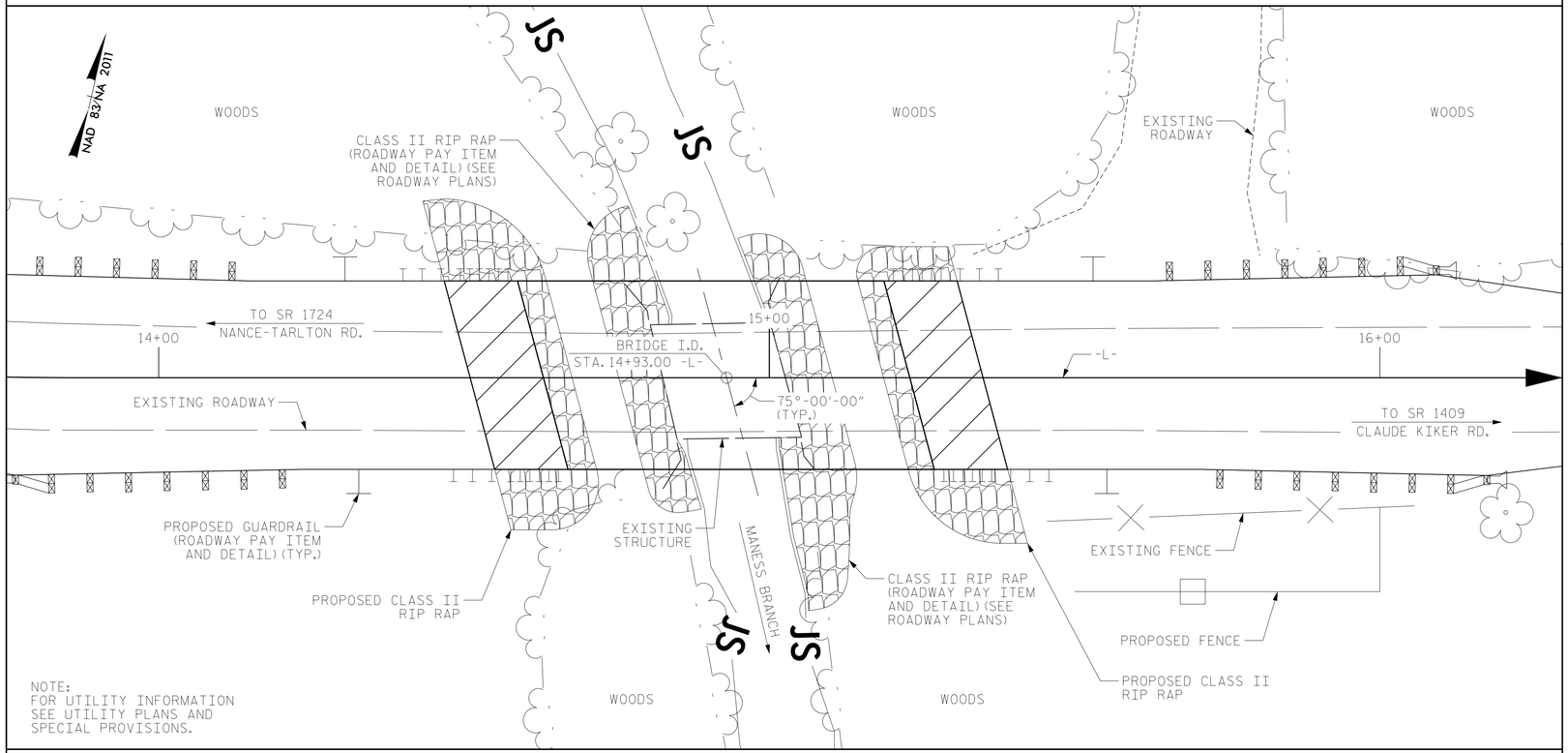
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			14

BM#1: RR SPIKE IN 18" WHITE OAK TREE, 44' BACKSTATION AND 30' LT. OF STA. 10+00 -L-, EL. 478.38



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 2 SHALL BE EXCAVATED FOR A DISTANCE OF 47 FT LEFT AND 43 FT RIGHT FOR END BENT NO. 1 AND 43 FT LEFT AND 43 FT RIGHT FOR END BENT NO. 2 OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTS OF 1 SPAN @ 20'-4" WITH TIMBER DECK ON STEEL I-BEAMS WITH A CLEAR ROADWAY OF 19'-1½" ON TIMBER CAP, POSTS, AND SILLS WITH TIMBER BULKHEAD AT END BENT NO. 1 AND NO. 2 LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITION AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

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 THE COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO THE HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STA. 14+93.00 -L-".

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

ASPHALT WEARING SURFACE IS INCLUDED IN THE ROADWAY QUANTITY ON ROADWAY PLANS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

TOTAL BILL OF MATERIALS

	REMOVAL OF EXISTING STRUCTURE @ STA. 14+93.00 -L-	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION @ STA. 14+93.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE											120.26				11	660
END BENT NO. 1			5.8	3.0		22.4		2,714	7	70		50	55			
END BENT NO. 2			3.4	3.0		22.4		2,714	7	70		40	40			
TOTAL	LUMP SUM	LUMP SUM	9.2	6.0	LUMP SUM	44.8	LUMP SUM	5,428	14	140	120.26	90	95	LUMP SUM	11	660

HYDRAULIC DATA

DESIGN DISCHARGE	= 760 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 454.7'
DRAINAGE AREA	= 1.59 SQ. MI.
BASE DISCHARGE (Q100)	= 1100 CFS
BASE HIGH WATER ELEVATION	= 455.7'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 2440 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS
* OVERTOPPING FLOOD ELEVATION	= 458.3'
* SAG @ STA. 15+50.74 -L-	

PROJECT NO. BP10.R003.3

UNION COUNTY

STATION: 14+93.00 -L-

SHEET 2 OF 2

DRAWN BY : NSC DATE : 07/2022

CHECKED BY : MRA DATE : 07/2022

DESIGN ENGINEER OF RECORD: MRA DATE : 04/2023

4/19/2023
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AcostaM

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052672 MATTHEW R. ACOSTA

6/14/2023

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1725 OVER MANESS BRANCH BETWEEN SR 1724 AND SR 1409

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			14

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.128	--	1.75	0.27	1.35	60′	EL	29.482	0.608	1.13	60′	EL	2.948	0.80	0.27	1.39	60′	EL	29.482	
		HL-93(Opr)	N/A	--	1.463	--	1.35	0.27	1.76	60′	EL	29.482	0.608	1.46	60′	EL	2.948	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.381	49.722	1.75	0.27	1.72	60′	EL	29.482	0.608	1.38	60′	EL	2.948	0.80	0.27	1.76	60′	EL	29.482	
		HS-20(Opr)	36.000	--	1.79	64.455	1.35	0.27	2.22	60′	EL	29.482	0.608	1.79	60′	EL	2.948	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.791	51.185	1.4	0.27	4.62	60′	EL	29.482	0.608	4.02	60′	EL	2.948	0.80	0.27	3.79	60′	EL	29.482	
		SNGARBS2	20.000	--	2.888	57.751	1.4	0.27	3.53	60′	EL	29.482	0.608	2.89	60′	EL	2.948	0.80	0.27	2.90	60′	EL	29.482	
		SNAGRIS2	22.000	--	2.691	59.194	1.4	0.27	3.39	60′	EL	29.482	0.608	2.69	60′	EL	2.948	0.80	0.27	2.78	60′	EL	29.482	
		SNCOTTS3	27.250	--	1.889	51.473	1.4	0.27	2.3	60′	EL	29.482	0.608	2.01	60′	EL	2.948	0.80	0.27	1.89	60′	EL	29.482	
		SNAGGRS4	34.925	--	1.608	56.157	1.4	0.27	1.96	60′	EL	29.482	0.608	1.69	60′	EL	2.948	0.80	0.27	1.61	60′	EL	29.482	
		SNS5A	35.550	--	1.57	55.826	1.4	0.27	1.91	60′	EL	29.482	0.608	1.72	60′	EL	2.948	0.80	0.27	1.57	60′	EL	29.482	
		SNS6A	39.950	--	1.453	58.064	1.4	0.27	1.77	60′	EL	29.482	0.608	1.58	60′	EL	2.948	0.80	0.27	1.45	60′	EL	29.482	
		SNS7B	42.000	--	1.385	58.152	1.4	0.27	1.69	60′	EL	29.482	0.608	1.56	60′	EL	2.948	0.80	0.27	1.38	60′	EL	29.482	
	TTST	TNAGRIT3	33.000	--	1.776	58.612	1.4	0.27	2.16	60′	EL	29.482	0.608	1.87	60′	EL	2.948	0.80	0.27	1.78	60′	EL	29.482	
		TNT4A	33.075	--	1.787	59.12	1.4	0.27	2.18	60′	EL	29.482	0.608	1.81	60′	EL	2.948	0.80	0.27	1.79	60′	EL	29.482	
		TNT6A	41.600	--	1.474	61.31	1.4	0.27	1.79	60′	EL	29.482	0.608	1.68	60′	EL	2.948	0.80	0.27	1.47	60′	EL	29.482	
		TNT7A	42.000	--	1.488	62.489	1.4	0.27	1.81	60′	EL	29.482	0.608	1.62	60′	EL	2.948	0.80	0.27	1.49	60′	EL	29.482	
		TNT7B	42.000	--	1.515	63.636	1.4	0.27	1.89	60′	EL	29.482	0.608	1.52	60′	EL	2.948	0.80	0.27	1.55	60′	EL	29.482	
		TNAGRIT4	43.000	--	1.464	62.958	1.4	0.27	1.79	60′	EL	29.482	0.608	1.46	60′	EL	2.948	0.80	0.27	1.47	60′	EL	29.482	
		TNAGT5A	45.000	--	1.378	62.016	1.4	0.27	1.68	60′	EL	29.482	0.608	1.47	60′	EL	2.948	0.80	0.27	1.38	60′	EL	29.482	
		TNAGT5B	45.000	3	1.356	61.038	1.4	0.27	1.65	60′	EL	29.482	0.608	1.39	60′	EL	2.948	0.80	0.27	1.36	60′	EL	29.482	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

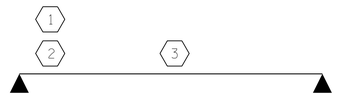
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. BP10.R003.3

UNION COUNTY

STATION: 14+93.00 -L-

6/14/2023

RS&H

RS&H Architects-Engineers-Planners, Inc.
8521 Six Forks Road, Suite 400
Raleigh, NC 27615
919-926-4100 FAX 919-846-9080
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North Carolina License Nos. 50073 * F-0493 * C-28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 60′ CORED SLAB UNIT 75° SKEW & 105° SKEW

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : NSC	DATE : 07/2022
CHECKED BY : MRA	DATE : 07/2022
DRAWN BY : CVC 6/10	
CHECKED BY : DNS 6/10	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

4/19/2023
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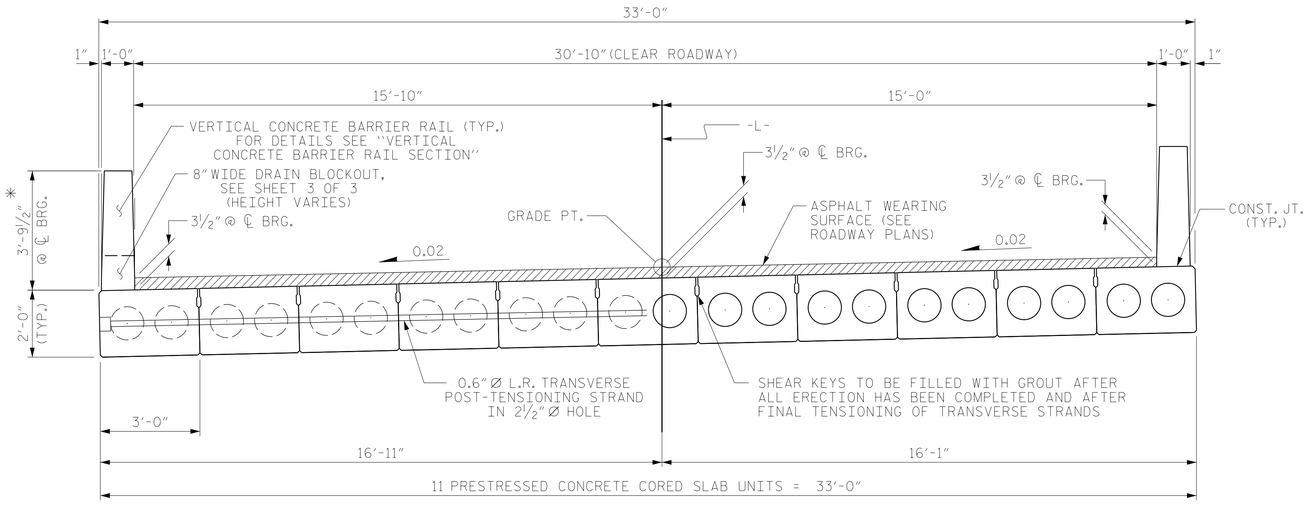
AcostaM

STD. NO. 24LRFR1_75&105S_60L



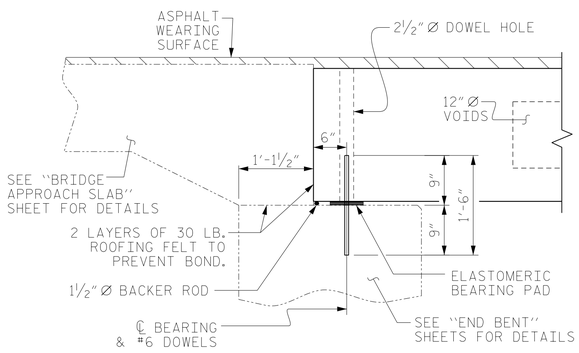
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

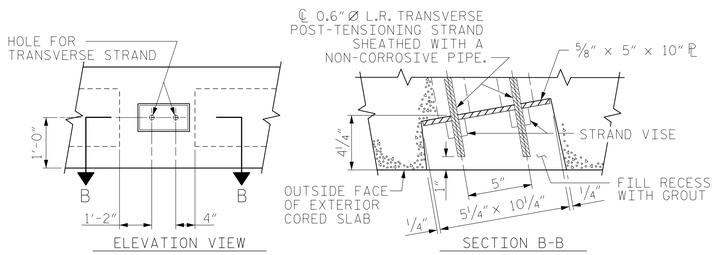
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE ''VERTICAL CONCRETE BARRIER RAIL SECTION'' DETAIL.

FIXED END



SECTION AT END BENT

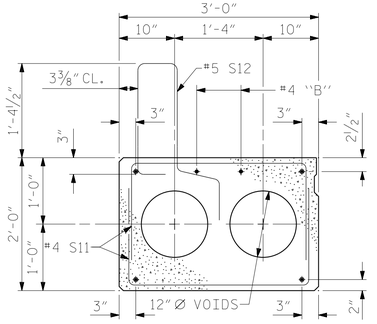
THREADED INSERT DETAIL



ELEVATION VIEW

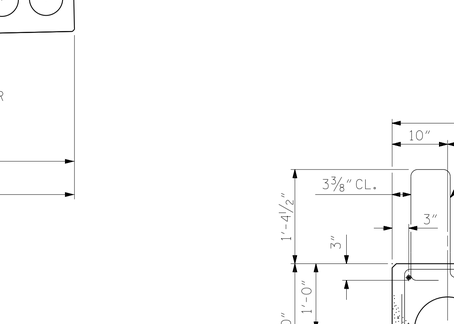
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



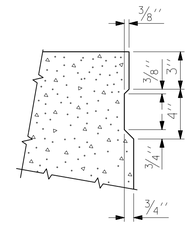
EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



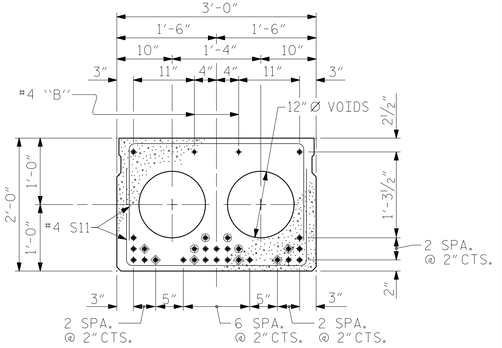
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



INTERIOR SLAB SECTION (60′ UNIT)

(24 STRANDS REQUIRED)

0.6′′ Ø LOW RELAXATION STRAND LAYOUT

◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12′-0″FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. BP10.R003.3

UNION COUNTY

STATION: 14+93.00 -L-

SHEET 1 OF 3

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STATE OF NORTH CAROLINA
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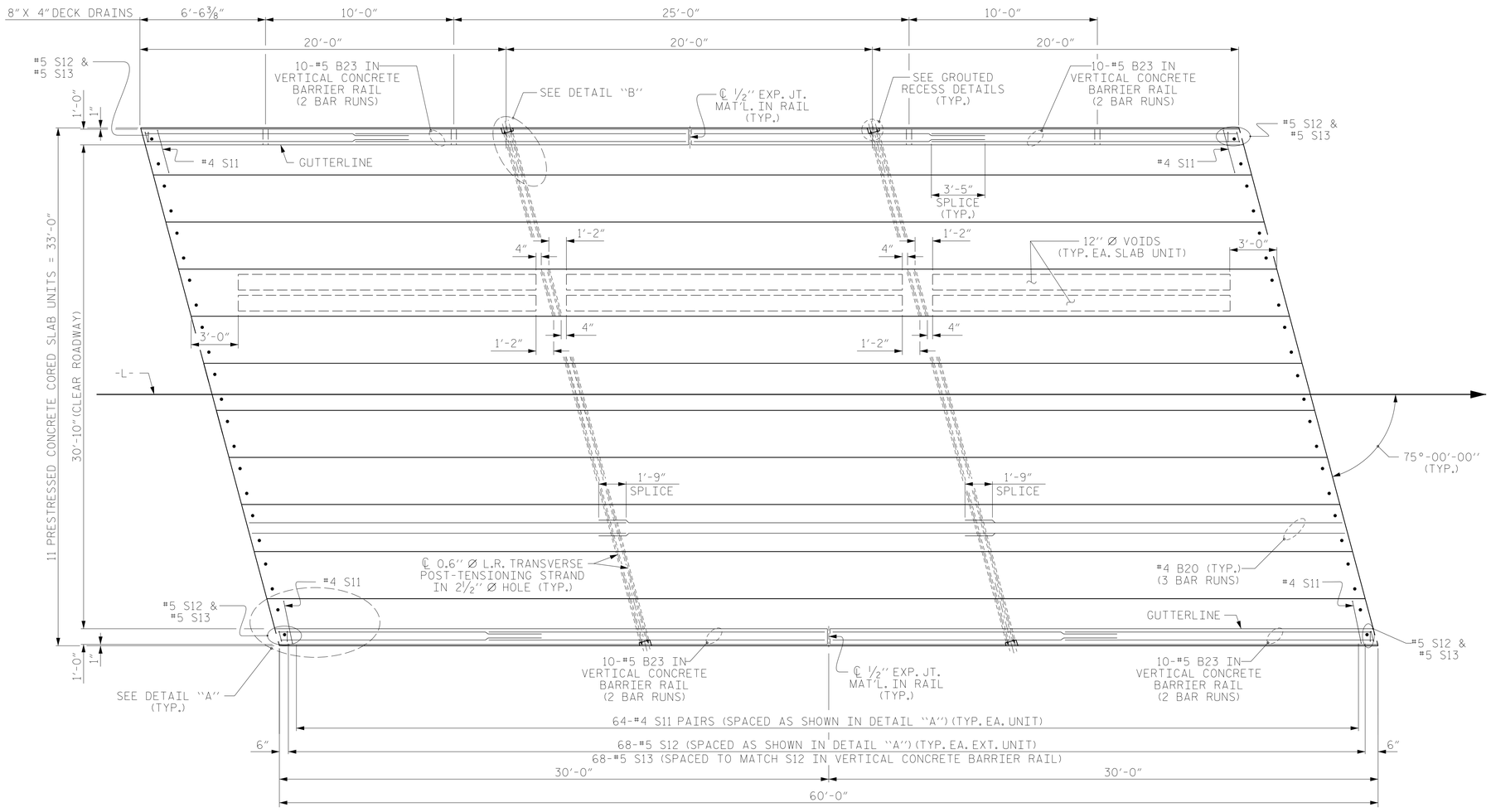
RALEIGH

STANDARD

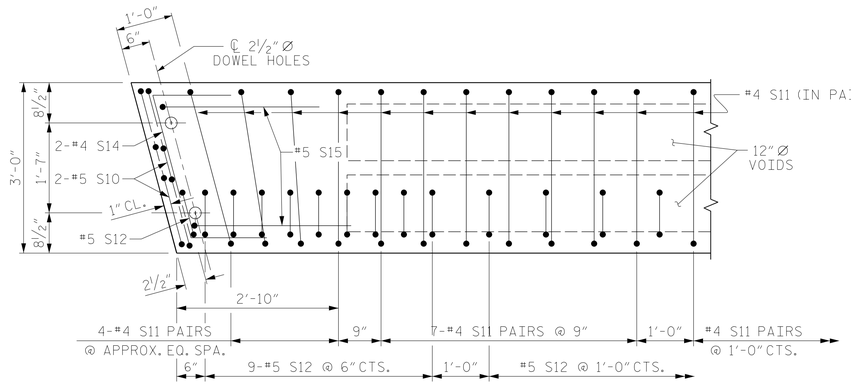
3′-0′′ X 2′-0′′ PRESTRESSED CONCRETE CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			14

STD. NO. 24PCS4_33_75S

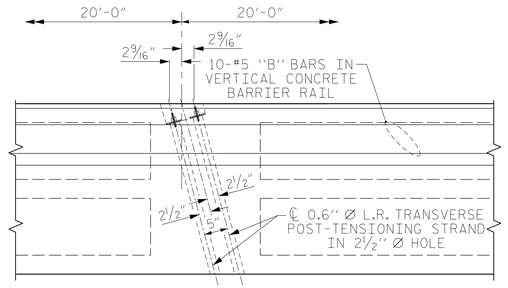


PLAN OF UNIT



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. BP10.R003.3
UNION COUNTY
STATION: 14+93.00 -L-

SHEET 2 OF 3

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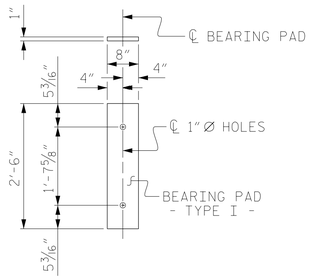
PLAN OF 60' UNIT 30'-10" CLEAR ROADWAY 75° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14

STD. NO. 24PCS_33_75S_60L



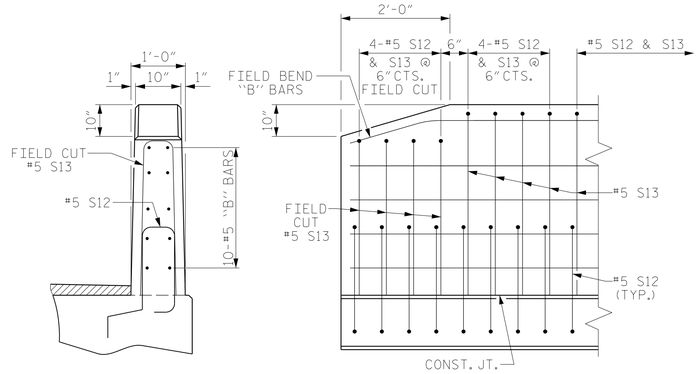
FIXED END
(TYPE I - 22 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-0"
60' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 7/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1 3/8" ↑

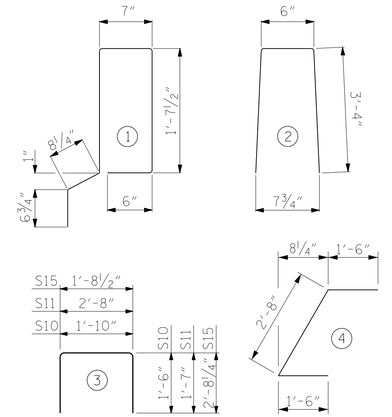
** INCLUDES FUTURE WEARING SURFACE



END VIEW SIDE VIEW

END OF RAIL DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

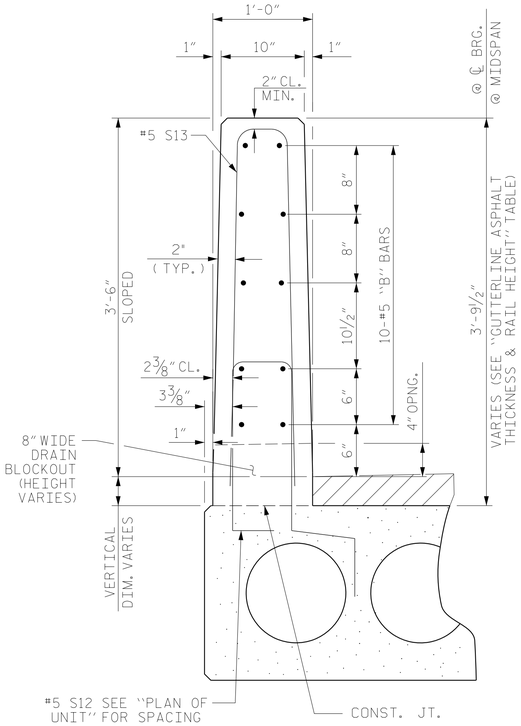
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

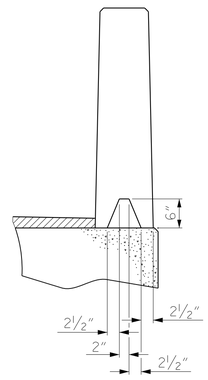
THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR CORED SLAB UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

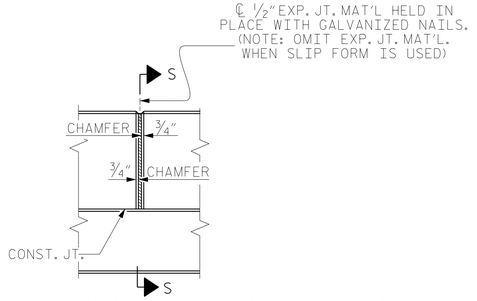
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
60' UNITS	2 1/8"	3'-8 1/8"



SECTION THRU RAIL



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	9	60'-0"	540'-0"
TOTAL	11	60'-0"	660'-0"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
60' UNITS	4800

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B20	6	#4	STR	21'-2"	85	21'-2"	85
S10	8	#5	3	4'-10"	40	4'-10"	40
S11	128	#4	3	5'-10"	499	5'-10"	499
*S12	70	#5	1	5'-7"	408		
S14	4	#4	4	5'-8"	15	5'-8"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		669		669
*EPOXY COATED REINFORCING STEEL			LBS.		408		
6000 P.S.I. CONCRETE			CU. YDS.		10.3		10.3
0.6"Ø L.R. STRANDS			No.		24		24

GRADE 270 STRANDS	
	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	60' UNIT					
*B23	80	80	#5	STR	16'-11"	1412
*S13	140	140	#5	2	7'-2"	1046
*EPOXY COATED REINFORCING STEEL				LBS.		2458
CLASS AA CONCRETE				CU.YDS.		15.5
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		120.26

PROJECT NO. BP10.R003.3
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SHEET 3 OF 3

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DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			14

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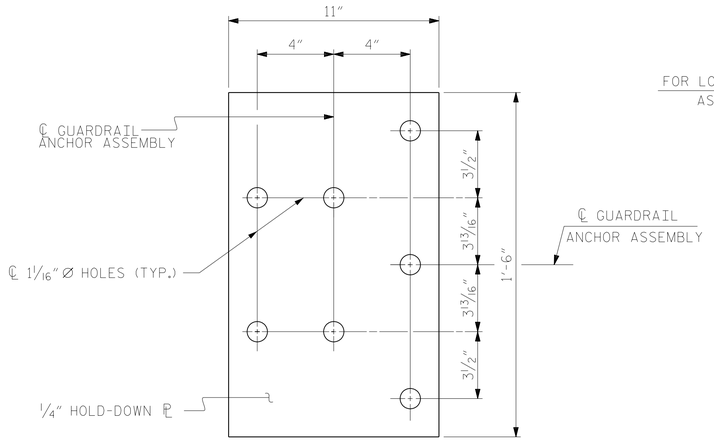
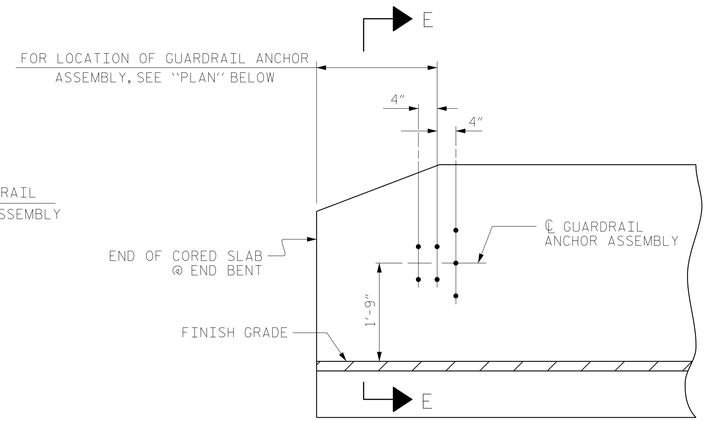
STD. NO. 24PCS3_33_75&105S



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4″ HOLD DOWN PLATE AND 7 - 7/8″ Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8″ Ø GALVANIZED BOLTS, NUTS 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.)

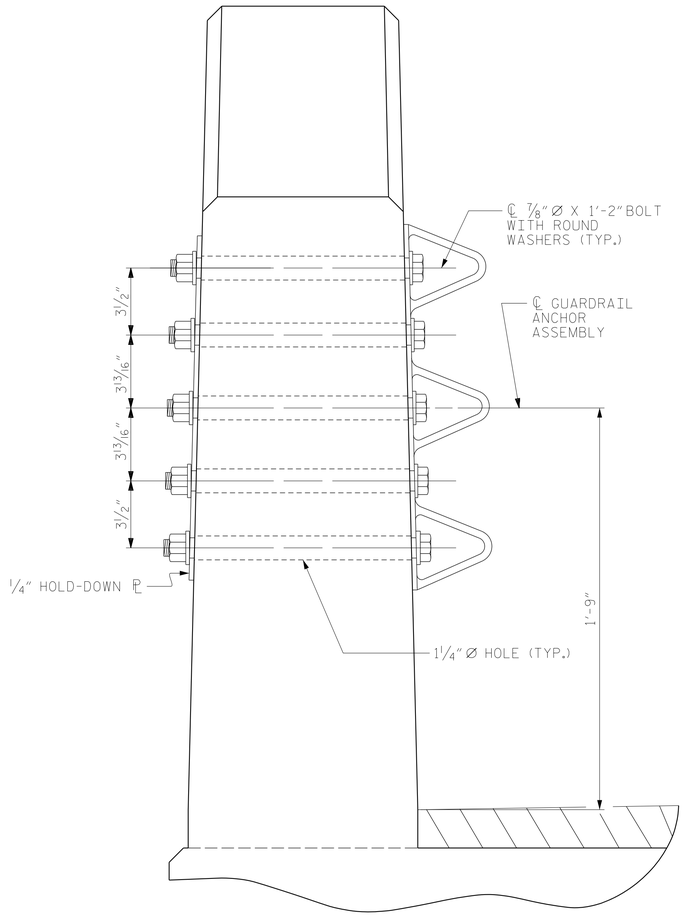
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

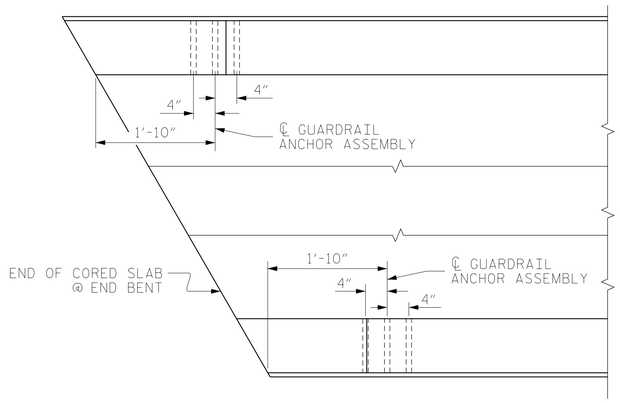
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4″ Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT NO. 1 SHOWN, END BENT NO. 2 SIMILAR.

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BP10.R003.3

UNION COUNTY

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ASSEMBLED BY : NSC		DATE : 07/2022	
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GUARDRAIL ANCHOR ASSEMBLY DETAILS

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STATE OF NORTH CAROLINA
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RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS
FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			14

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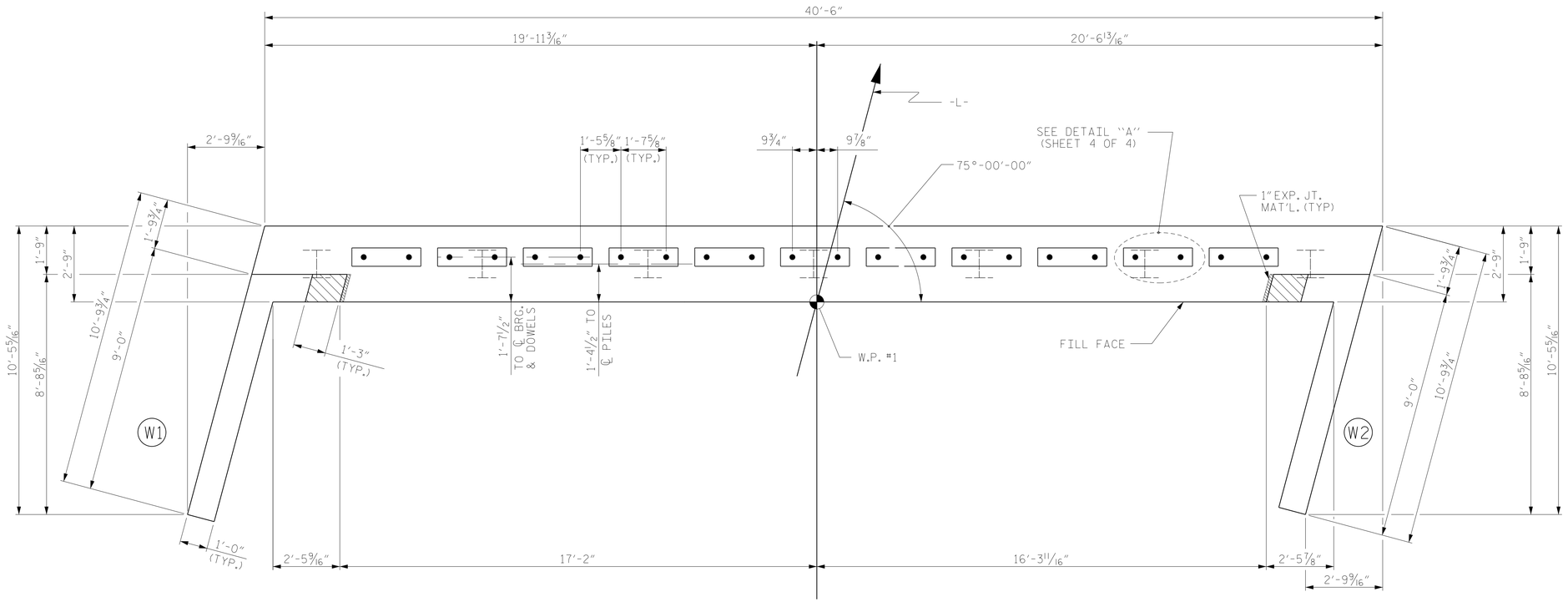
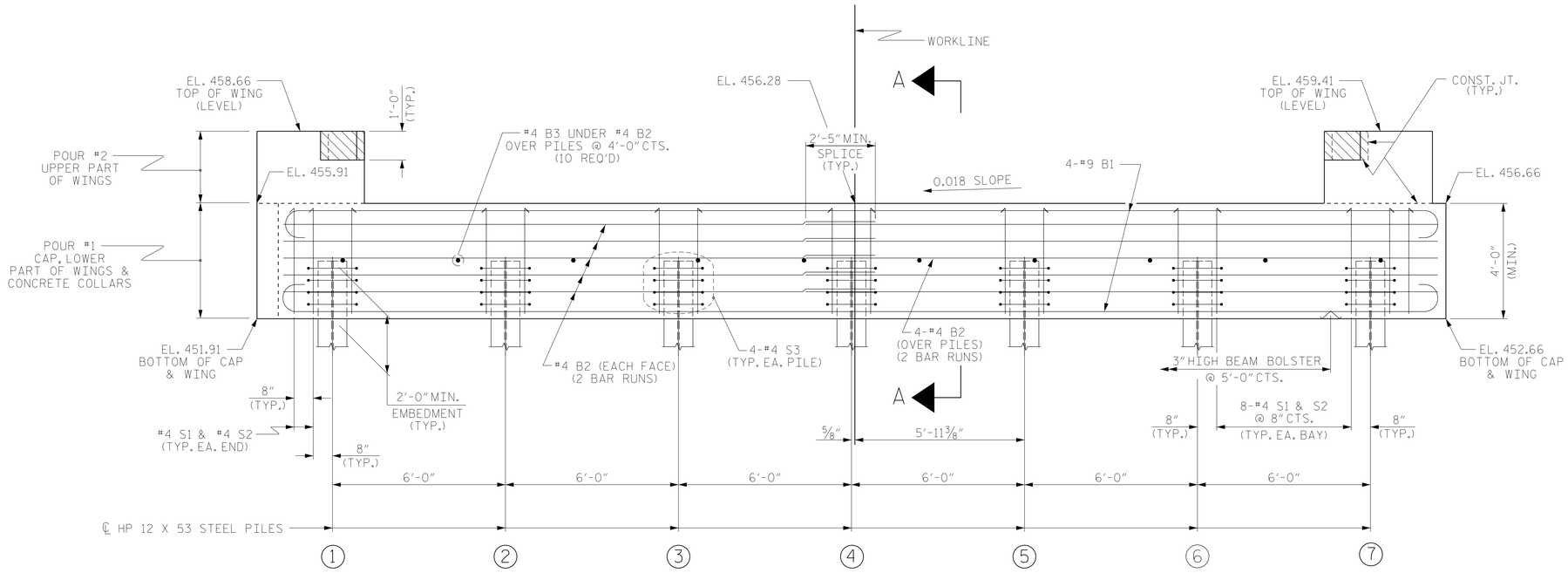
(SHT 1b) STD. NO. GRA3



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS

1	453.95
2	454.06
3	454.17
4	454.28
5	454.39
6	454.50
7	454.61

PROJECT NO. BP10.R003.3
UNION COUNTY
STATION: 14+93.00 -L-

SHEET 1 OF 4

ASSEMBLED BY : NSC	DATE : 07/2022		
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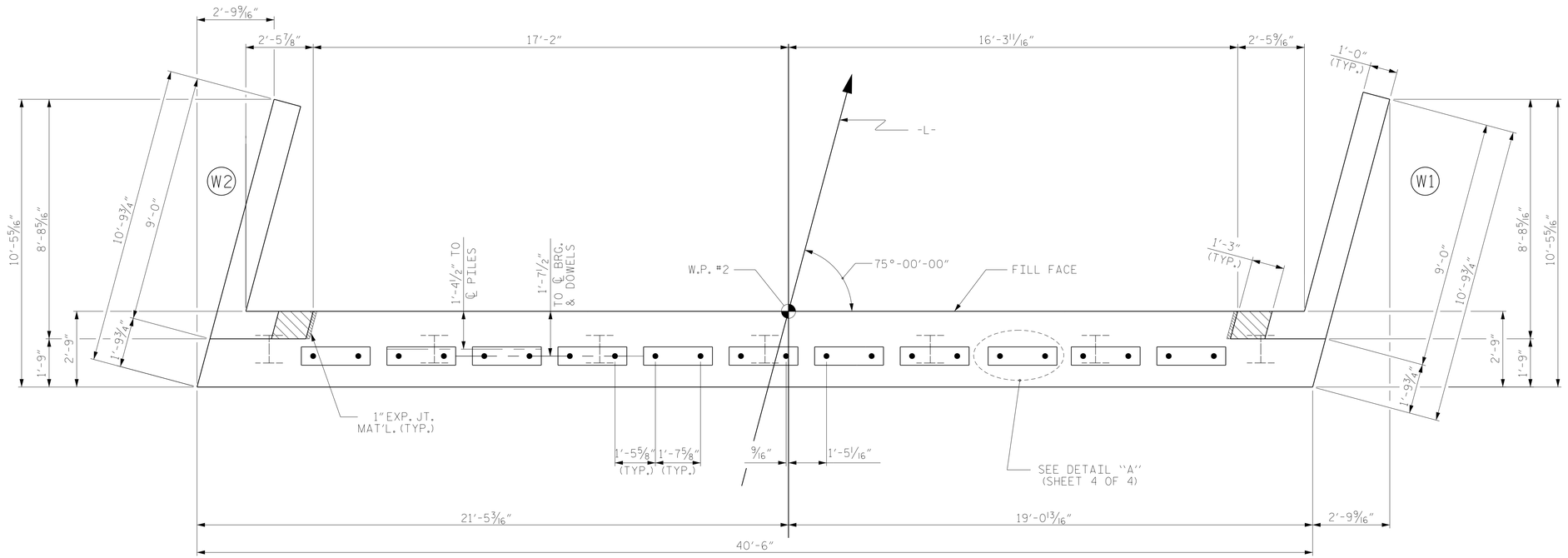
SUBSTRUCTURE

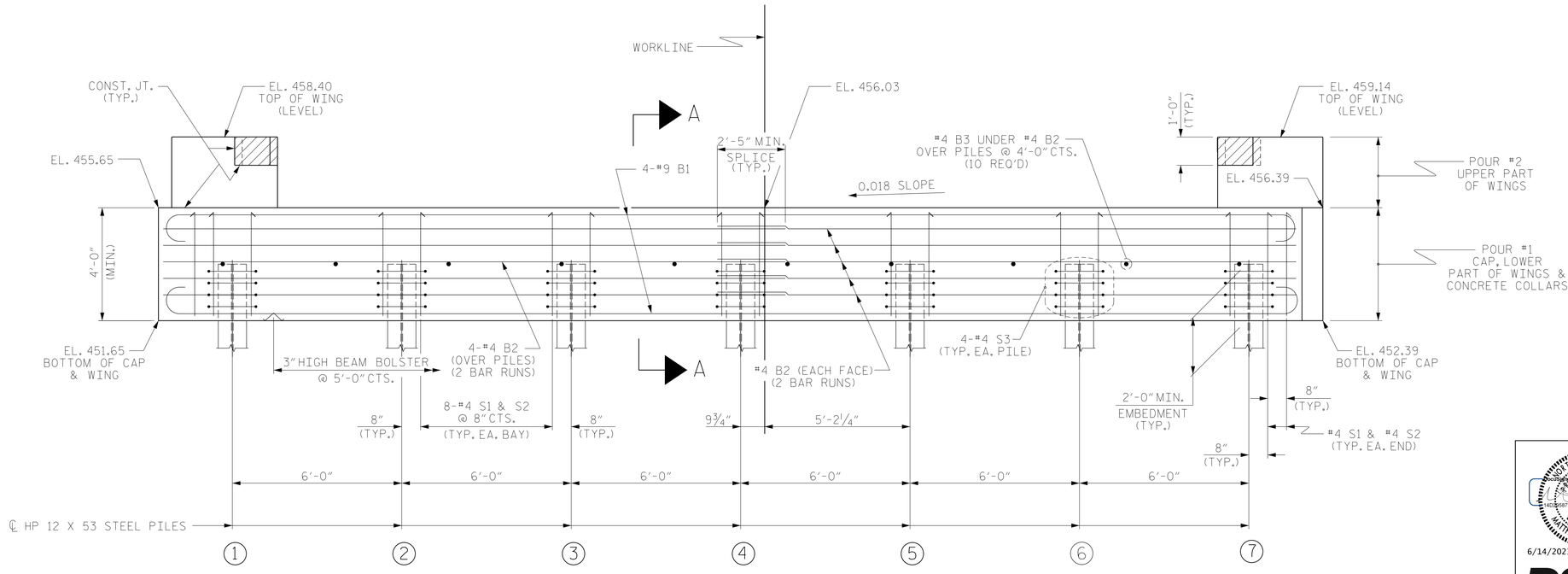
END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			14

STD. NO. EB_33_75S4



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS

1	453.69
2	453.80
3	453.91
4	454.02
5	454.13
6	454.23
7	454.34

PROJECT NO. BP10.R003.3
UNION COUNTY
STATION: 14+93.00 -L-

SHEET 2 OF 4

ASSEMBLED BY : NSC		DATE : 07/2022	
CHECKED BY : MRA		DATE : 07/2022	
DRAWN BY : WJH 12/11	REV. 4/15	MAA/TMG	
CHECKED BY : AAC 12/11			

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6/14/2023

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			14

STD. NO. EB_33_75S4

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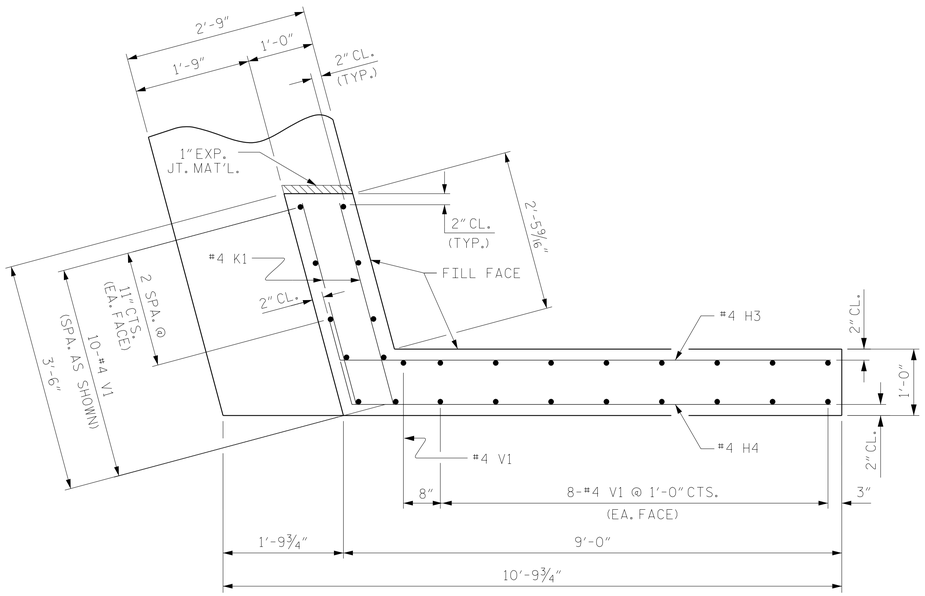
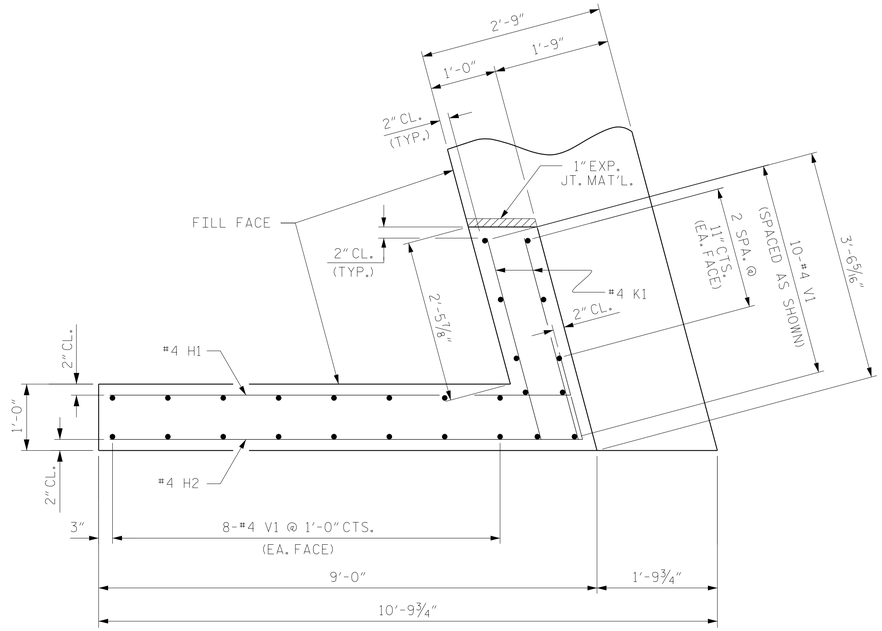
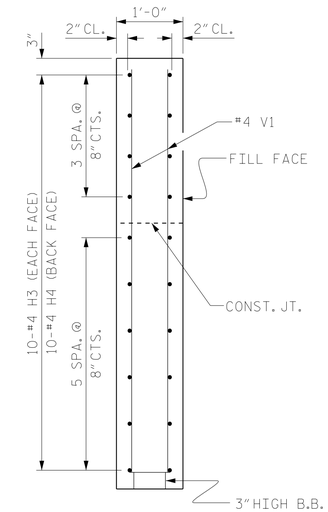


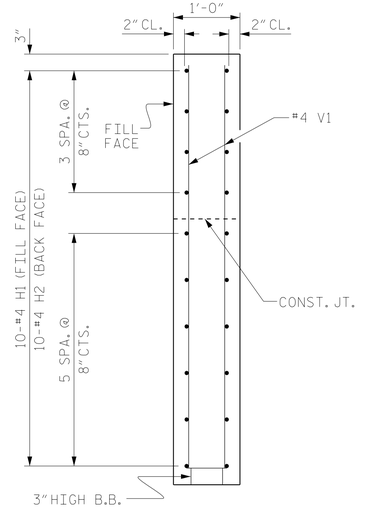
PLAN OF WING (W1)



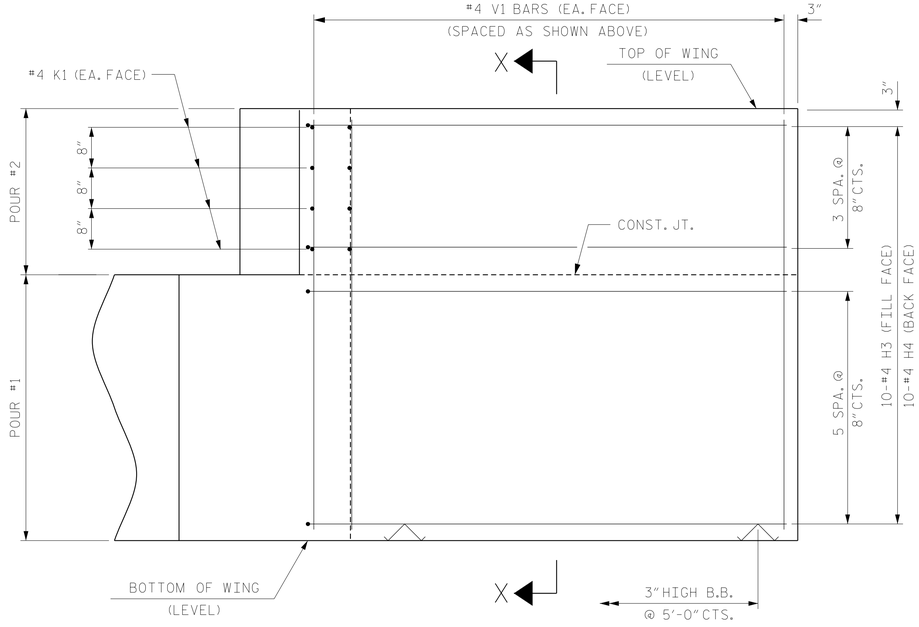
PLAN OF WING (W2)



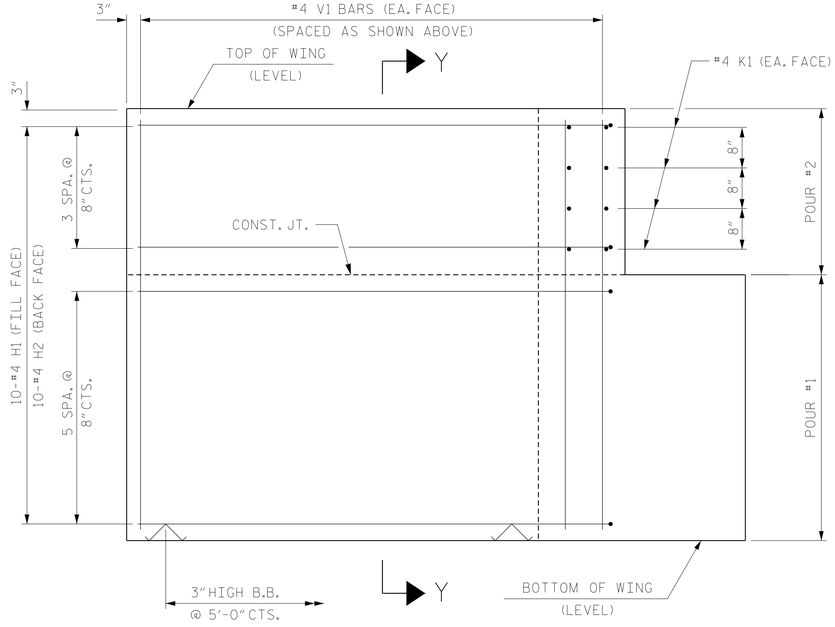
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

ASSEMBLED BY : NSC	DATE : 07/2022		
CHECKED BY : MRA	DATE : 07/2022		
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RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS						SHEET NO.
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SHEET 3 OF 4

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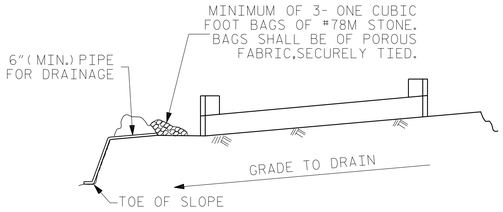
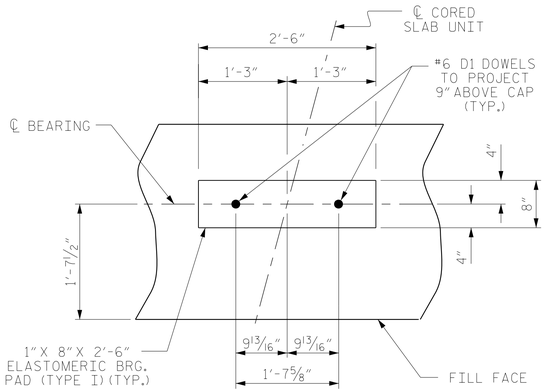


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

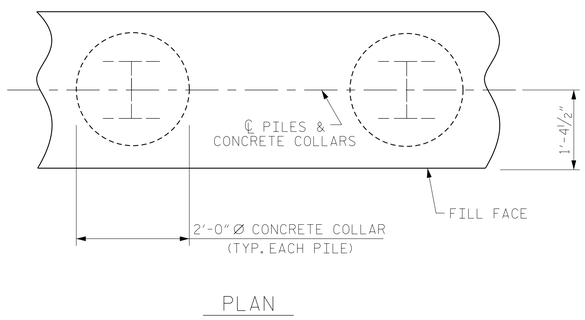
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

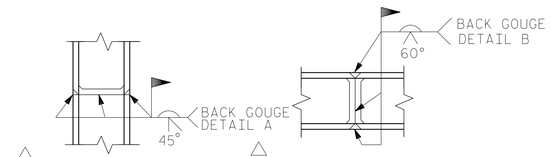
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



PLAN ELEVATION

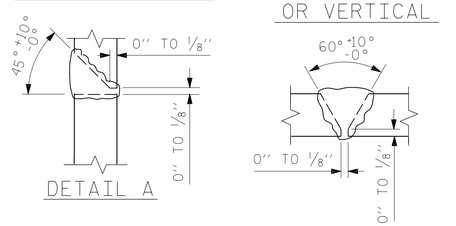
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL

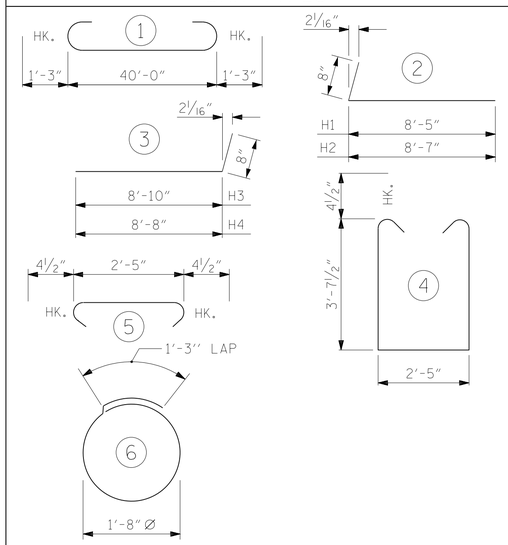


DETAIL A DETAIL B

△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 70.0	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 70.0

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	42'-6"	1156
B2	28	#4	STR	21'-4"	399
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	10	#4	2	9'-1"	61
H2	10	#4	2	9'-3"	62
H3	10	#4	3	9'-6"	63
H4	10	#4	3	9'-4"	62
K1	16	#4	STR	3'-1"	33
S1	52	#4	4	10'-5"	362
S2	52	#4	5	3'-2"	110
S3	28	#4	6	6'-6"	122
V1	53	#4	STR	6'-2"	218

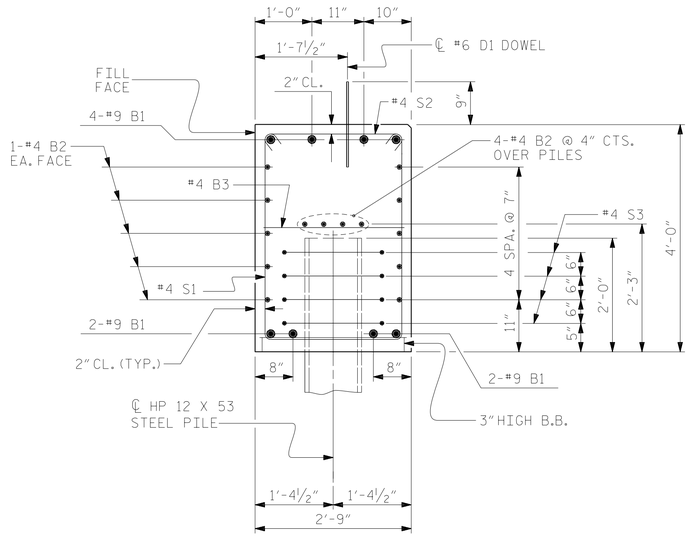
REINFORCING STEEL (FOR ONE END BENT) 2714 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 20.1 C.Y.

POUR #2 UPPER PART OF WINGS 2.3 C.Y.

TOTAL CLASS A CONCRETE 22.4 C.Y.



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL")

PROJECT NO. BP10.R003.3

UNION COUNTY

STATION: 14+93.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052672 MATTHEW R. ACOSTA

6/14/2023

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1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : NSC	DATE : 07/2022	
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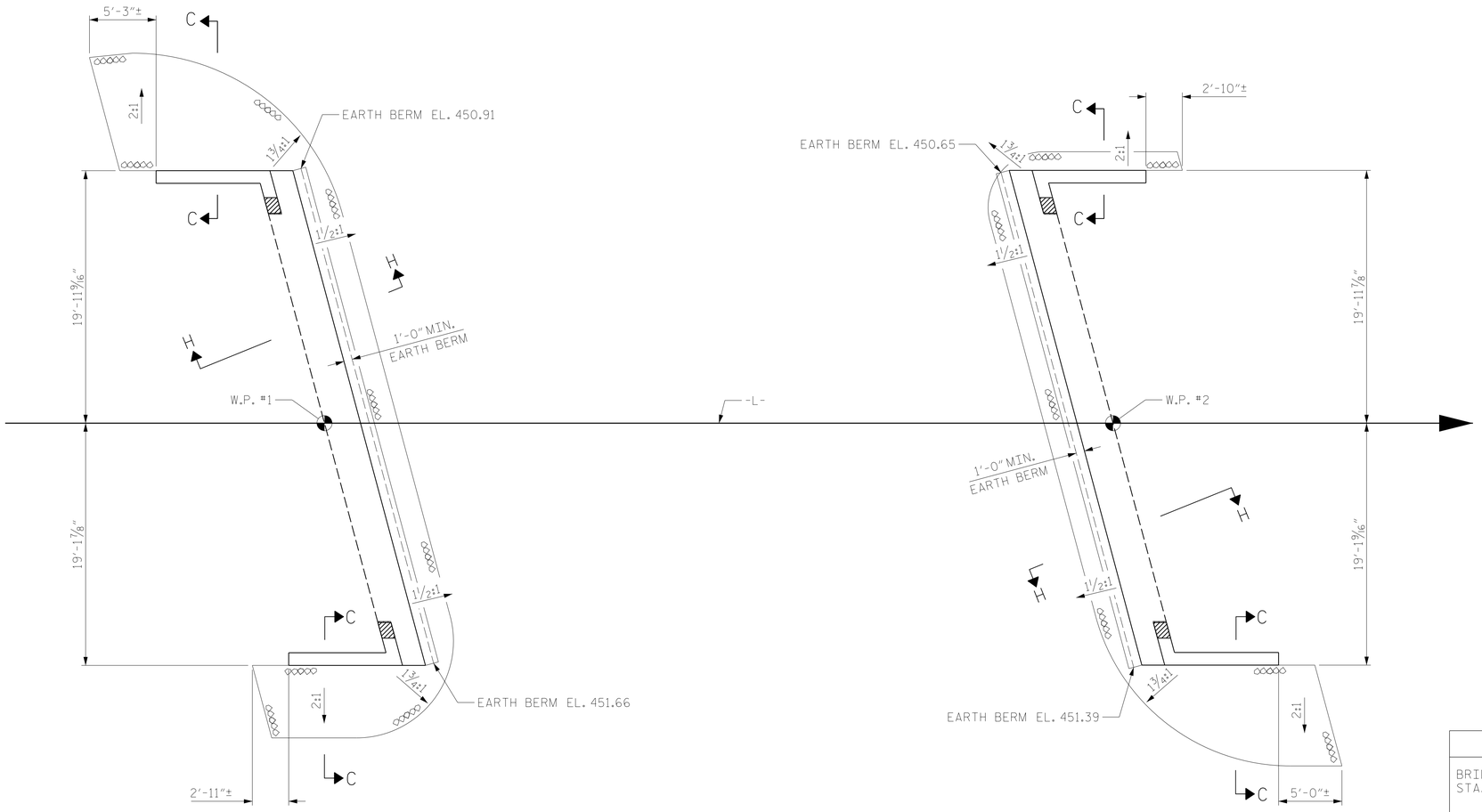
STD. NO. EB_33_75S4

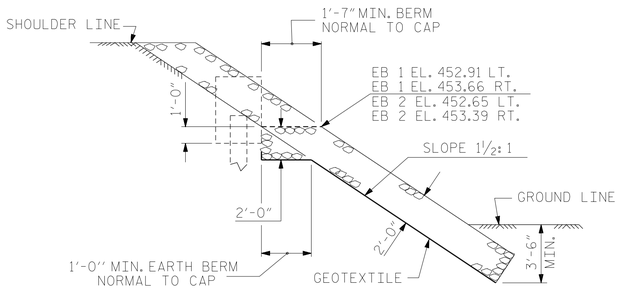
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

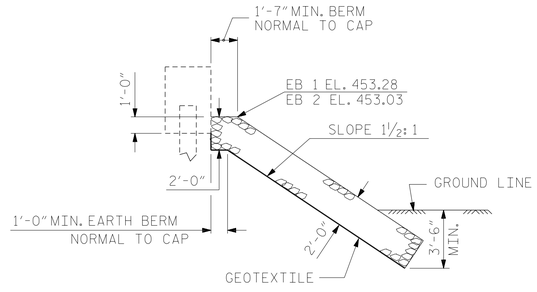


PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+93.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	50	55
END BENT 2	40	40

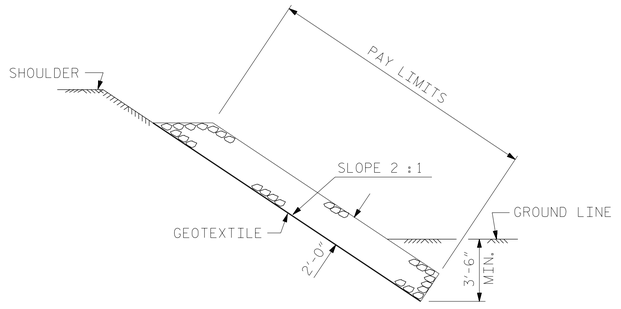


SECTION H-H



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. BP10.R003.3

UNION COUNTY

STATION: 14+93.00 -L-

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RIP RAP DETAILS

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1			3			TOTAL SHEETS
2			4			14

DRAWN BY : NSC DATE : 07/2022
CHECKED BY : MRA DATE : 07/2022
DESIGN ENGINEER OF RECORD: MRA DATE : 04/2023

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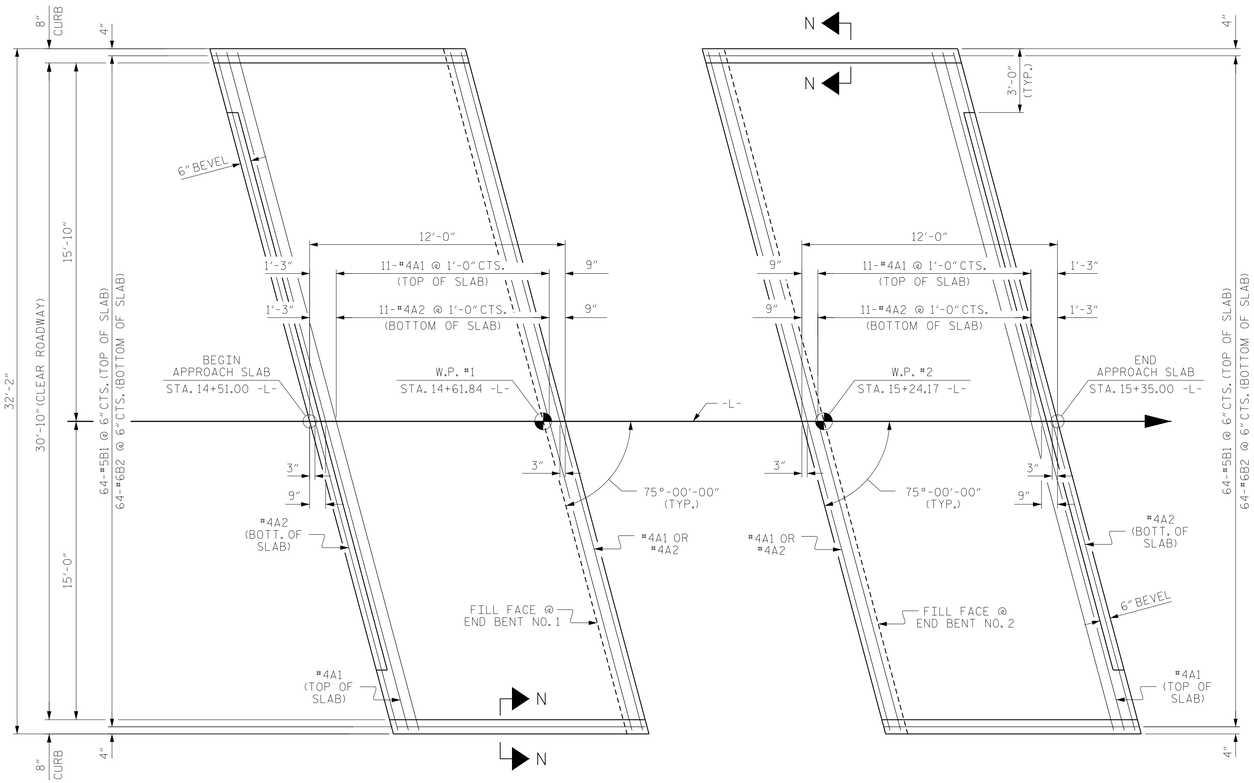


PLAN @ END BENT NO. 1 PLAN @ END BENT NO. 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

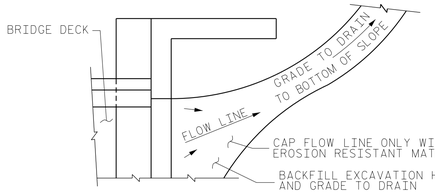
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

BILL OF MATERIAL

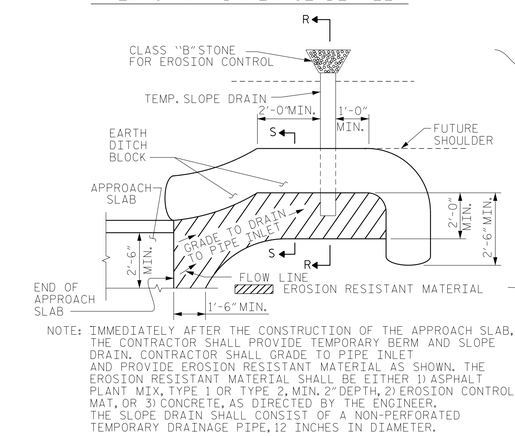
APPROACH SLAB AT EB NO. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	32'-11"	286
A2	13	#4	STR	32'-11"	286
* B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1399
* EPOXY COATED REINFORCING STEEL				LBS.	1026
CLASS AA CONCRETE				C. Y.	19.5

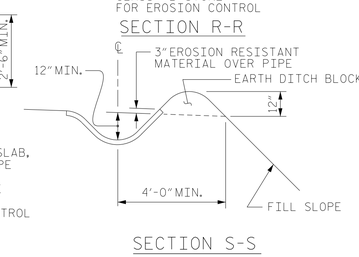
APPROACH SLAB AT EB NO. 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	32'-11"	286
A2	13	#4	STR	32'-11"	286
* B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1113
REINFORCING STEEL				LBS.	1399
* EPOXY COATED REINFORCING STEEL				LBS.	1026
CLASS AA CONCRETE				C. Y.	19.5

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

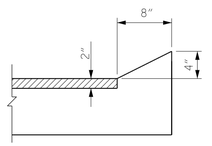


SECTION S-S

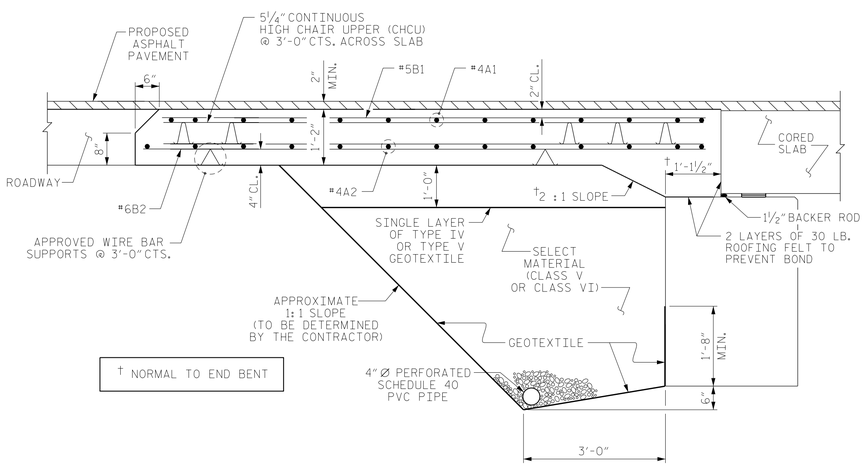
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N



† NORMAL TO END BENT

SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

PROJECT NO. BP10.R003.3

UNION COUNTY

STATION: 14+93.00 -L-

ASSEMBLED BY : NSC	DATE : 07/2022		
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CHECKED BY : BCH 5-09	REV. 08-19	BNB/THC	

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 75° SKEW

REVISIONS						SHEET NO.
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STD. NO. BAS_33_75S

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.

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (√) RGW REV. 5-7-03 RWW (√) JTE REV. 10-1-11 MAA (√) GM
REV. 8-16-99 RWW (√) LES REV. 5-1-06 TLA (√) GM REV. 12-17 MAA (√) THC

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