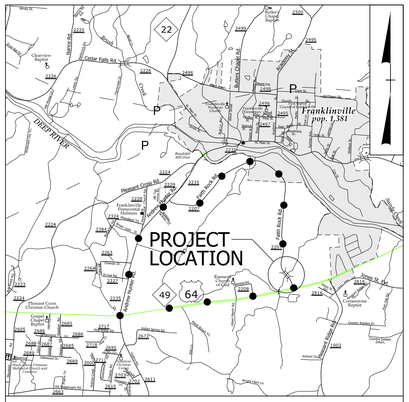
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09/08/99

TIP PROJECT: HB-0071

CONTRACT: DH00604

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

OFFSITE DETOUR

FRANKLINVILLE TOWN LIMITS

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

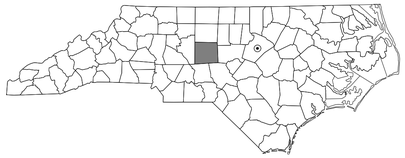
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0071	1	

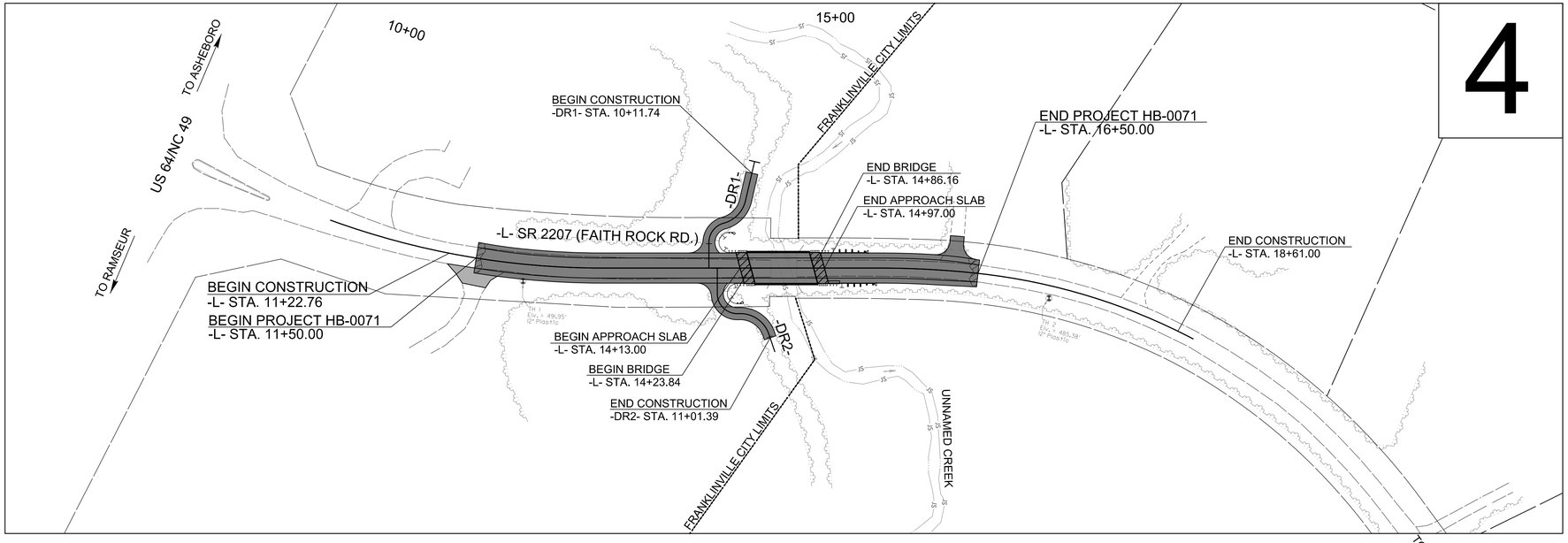
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP8.R026.1	N/A	P.E.
51608.2.1	5160801	ROW
BP8.R026.2	N/A	UTIL.
51608.3.1	5160801	CONST.

LOCATION: *BRIDGE 750176 ON SR 2207 (FAITH ROCK RD) OVER UNNAMED CREEK*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, & STRUCTURE*

NAD 83/ 2011





4

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF FRANKLINVILLE.
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 300
T = 6 %
V = 40 MPH
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT HB-0071 = 0.083 MILES
LENGTH STRUCTURES TIP PROJECT HB-0071 = 0.012 MILES
TOTAL LENGTH TIP PROJECT HB-0071 = 0.095 MILES

PLANS PREPARED BY:
WSP
434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-0165

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 26, 2025

LETTING DATE:
NOVEMBER 10, 2026

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
DIVISION 8
121 DOT DRIVE
CARTHAGE, NC 28327

SIERRA WOLF, PE
PROJECT ENGINEER

TIM WELCH, PE
NCDOT CONTACT:
DIVISION 8 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER

10/13/2026

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052432 JAMES O. BRITT

Signed by: James O. Britt
DACF7C127882418...
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

10/13/2026

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 039867 SIERRA WOLF

Signed by: Sierra Wolf
5E1B1515F6144487...
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

5/26/20

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE,TYPICAL SECTIONS, AND DETAILS FOR WEDGING, SHOULDER BERM GUTTER, AND MILLING.
2B-1	DRIVEWAY DETAILS
3B-1	SUMMARIES OF DRAINAGE, PAVEMENT REMOVAL, EARTHWORK, AND GUARDRAIL
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN AND PROFILE SHEET
RW-1 THRU RW-4	RIGHT OF WAY
TMP-1 THRU TMP -5	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UC-1 THRU UC-4	UTILITY CONSTRUCTION PLANS
X-1	CROSS SECTION INDEX
X-2 THRU X-9	CROSS-SECTIONS
S-1 THRU S-15	STRUCTURE PLANS

GENERAL NOTES: 2024 SPECIFICATIONS

EFFECTIVE: 01-16-2024

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. 848.02 USING A 3 FOOT RADIUS OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVEWAYS ARE AS SHOWN ON THE 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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS “EXTRA WORK” IN ACCORDANCE WITH SECTION 104-7.

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 BENT.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
FRENCH BROAD ELECTRIC MEMBERSHIP CORP.
FRONTIER COMMUNICATIONS
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

EFFECTIVE: 01-16-2024

REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as proper in “Roadway Standard Drawings” Contracts Standards and Development Unit N.C. Department of Transportation Raleigh, N.C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO. TITLE

DIVISION 2 EARTHWORK
200.03 Method of Clearing Method III
225.02 Guide for Grading Subgrade Secondary and Local
225.04 Method of Obtaining Superelevation Two Lane Pavement

DIVISION 3 PIPE CULVERTS
300.01 Method of Pipe Installation
310.10 Driveway Pipe Construction

DIVISION 4 MAJOR STRUCTURES
423.01 Bridge Approach Fills Type 1 Approach Fill for Bridge Abutment

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
840.29 Frames and Narrow Slot Flat Grates
840.35 Traffic Bearing Grated Drop Inlet for Cast Iron Double Frame and Grates
840.46 Traffic Bearing Precast Drainage Structure
846.01 Concrete Curb, Gutter and Curb & Gutter
846.04 Drop Inlet Installation in Shoulder Berm Gutter
862.01 Guardrail Placement
862.02 Guardrail Installations
862.03 Structure Anchor Units
876.01 Rip Rap in Channels and Ditches
876.02 Guide for Rip Rap at Pipe Outlets

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05/20/24

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

HB-0071 | 1B

Note: Not to Scale

BOUNDARIES AND PROPERTY:
- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel / Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:
- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

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

RAILROADS:
- Standard Gauge
- RR Signal Milepost
- 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
- Existing Control of Access Line
- Proposed Control of Access Line
- Proposed ROW and CA Line
- Existing Easement Line
- Proposed Temporary Construction Easement
- Proposed Temporary Drainage Easement
- Proposed Permanent Drainage Easement
- Proposed Permanent Drainage/Utility Easement
- Proposed Permanent Utility Easement
- Proposed Temporary Utility Easement
- Proposed Aerial Utility Easement

ROADS AND RELATED FEATURES:
- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- Proposed Curb Ramp
- 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

EXISTING STRUCTURES:
MAJOR:
- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:
- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

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
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line Test Hole (SUE - LOS A)*
- U/G Power Line (SUE - LOS B)*
- U/G Power Line (SUE - LOS C)*
- U/G Power Line (SUE - LOS D)*

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Test Hole (SUE - LOS A)*
- U/G Telephone Cable (SUE - LOS B)*
- U/G Telephone Cable (SUE - LOS C)*
- U/G Telephone Cable (SUE - LOS D)*
- U/G Telephone Conduit (SUE - LOS B)*
- U/G Telephone Conduit (SUE - LOS C)*
- U/G Telephone Conduit (SUE - LOS D)*
- U/G Fiber Optics Cable (SUE - LOS B)*
- U/G Fiber Optics Cable (SUE - LOS C)*
- U/G Fiber Optics Cable (SUE - LOS D)*

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

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

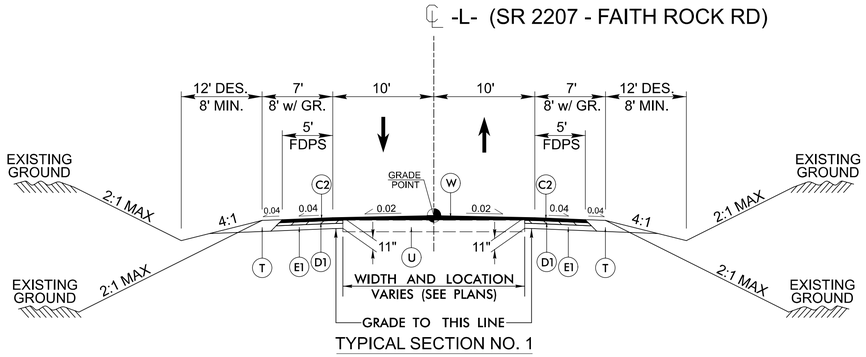
GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE - LOS A)*
- U/G Gas Line (SUE - LOS B)*
- U/G Gas Line (SUE - LOS C)*
- U/G Gas Line (SUE - LOS D)*
- Above Ground Gas Line

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line
- Above Ground Sanitary Sewer
- SS Force Main Line Test Hole (SUE - LOS A)*
- SS Force Main Line (SUE - LOS B)*
- SS Force Main Line (SUE - LOS C)*
- SS Force Main Line (SUE - LOS D)*

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box
- Utility Unknown U/G Line (SUE - LOS B)*
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records
- End of Information

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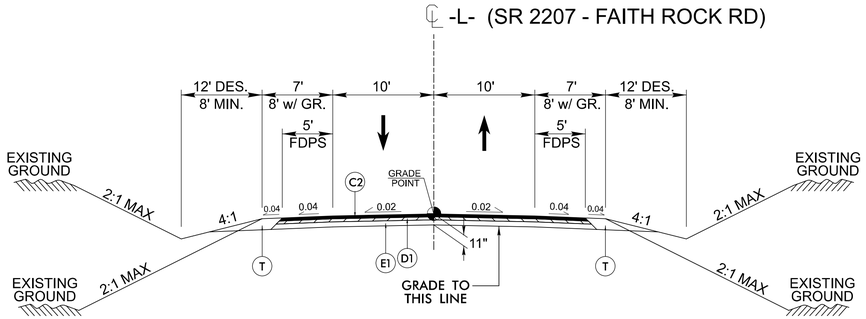
5/26/20



TYPICAL SECTION NO. 1

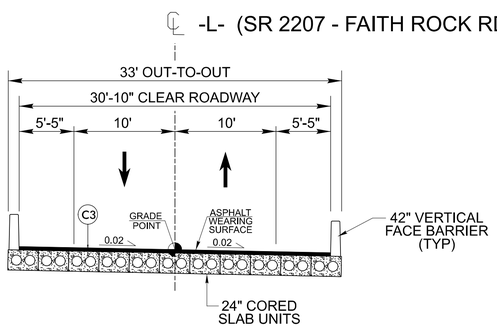
USE TYPICAL SECTION NO. 1 AS FOLLOWS:
-L- STA. 11+50.00 TO 12+25.00
-L- STA. 15+75.00 TO 16+70.00

NOTE: SHOULDER WORK ONLY
-L- STA 16+50.00 TO 16+70.00



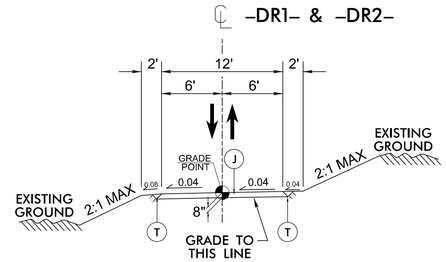
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
-L- 12+25.00 TO 14+23.84 (BEGIN BRIDGE)
-L- STA. 14+86.16 (END BRIDGE) TO 15+75.00



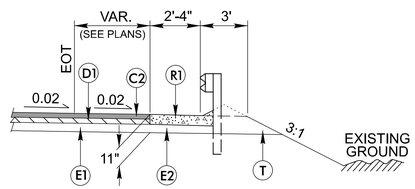
BRIDGE SKETCH NO. 1

USE BRIDGE TYPICAL SECTION AS FOLLOWS:
-L- STA. 14+23.84 (BEGIN BRIDGE) TO
-L- STA. 14+86.16 (END BRIDGE)
SEE STRUCTURES PLANS FOR STRUCTURE CONSTRUCTION DETAILS



TYPICAL SECTION NO. 3

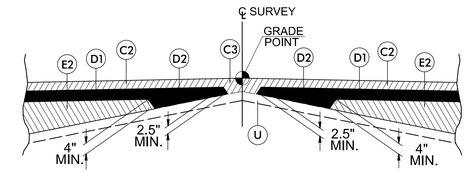
USE TYPICAL SECTION NO. 3 AS FOLLOWS:
-DR1- STA. 10+00.00 TO 10+84.66
-DR2- STA. 10+15.00 TO 10+84.00



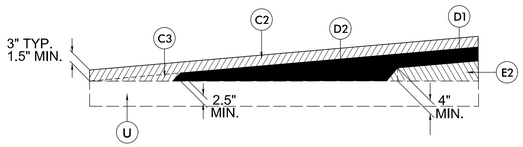
TYPICAL SECTION FOR SHOULDER BERM GUTTER
-L- STA 15+00.81 TO -L- STA 15+12.00 RT

PAVEMENT SCHEDULE (FINAL)	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
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" OR GREATER THAN 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 4" OR GREATER THAN 5.5" IN DEPTH.
J	8" AGGREGATE BASE COURSE
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING BITUMINOUS PAVEMENT (1.5" MAX. DEPTH). SEE MILLING DETAIL.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS).

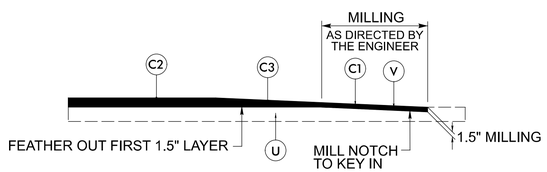
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL SHOWING METHOD OF WEDGING NO. 1



WEDGING DETAIL FOR RESURFACING



MILLING OF EXISTING ASPHALT PAVEMENT AS DIRECTED BY ENGINEER

-L- STA 11+50.00 TO -L- STA 12+00.00
-L- STA 16+00.00 TO -L- STA 16+50.00

HB-0071
2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039867 ENGINEER SIERRA HAYNES HOLDEN

Signed by: Sierra Holden
5E18151F61494B7...

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STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

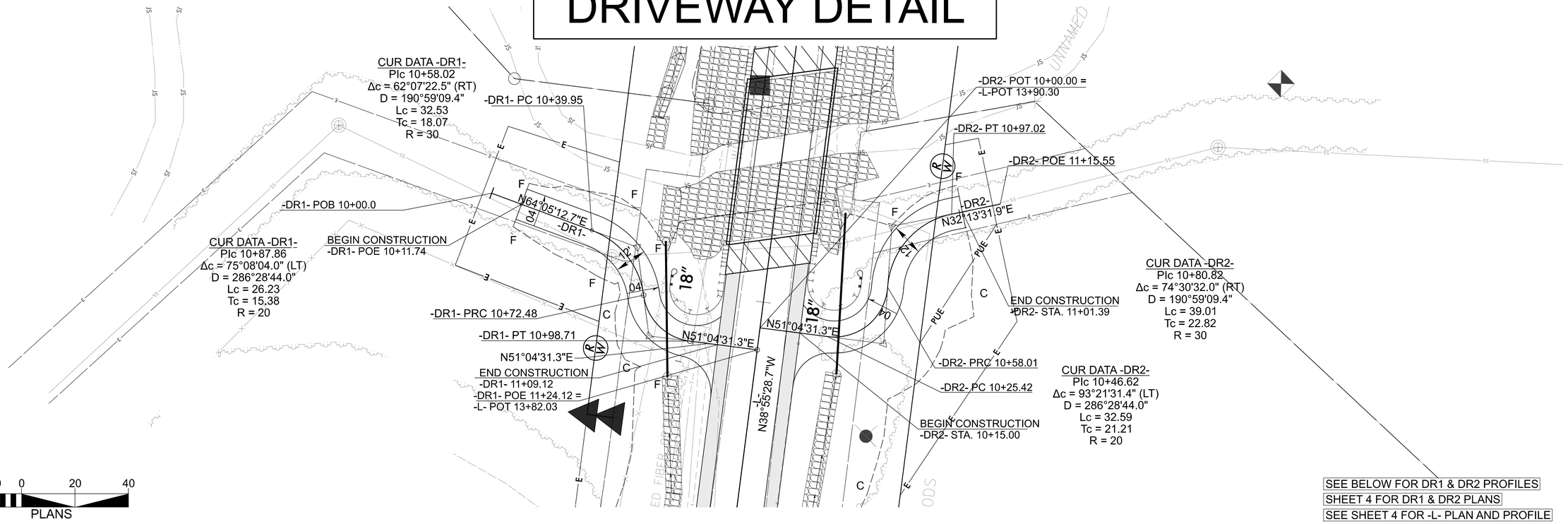
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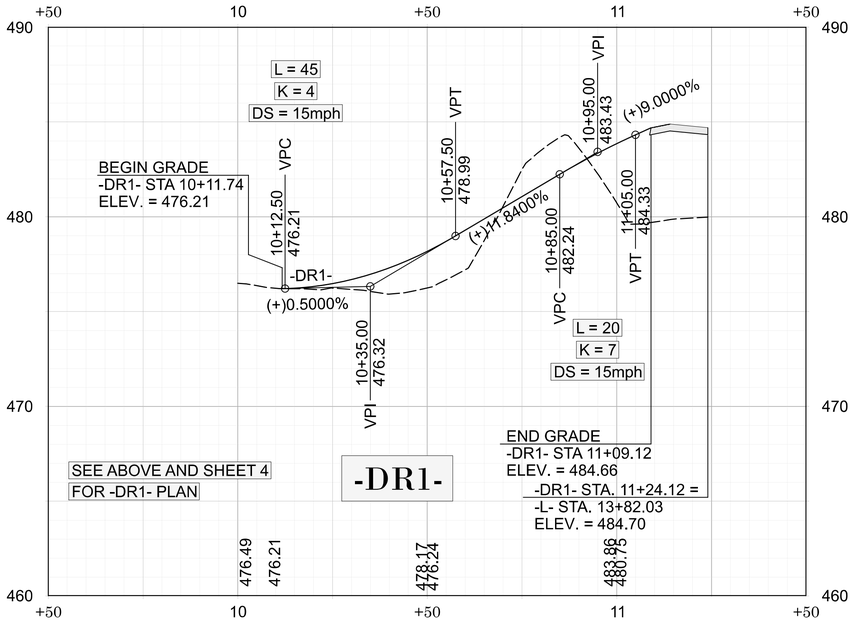
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434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
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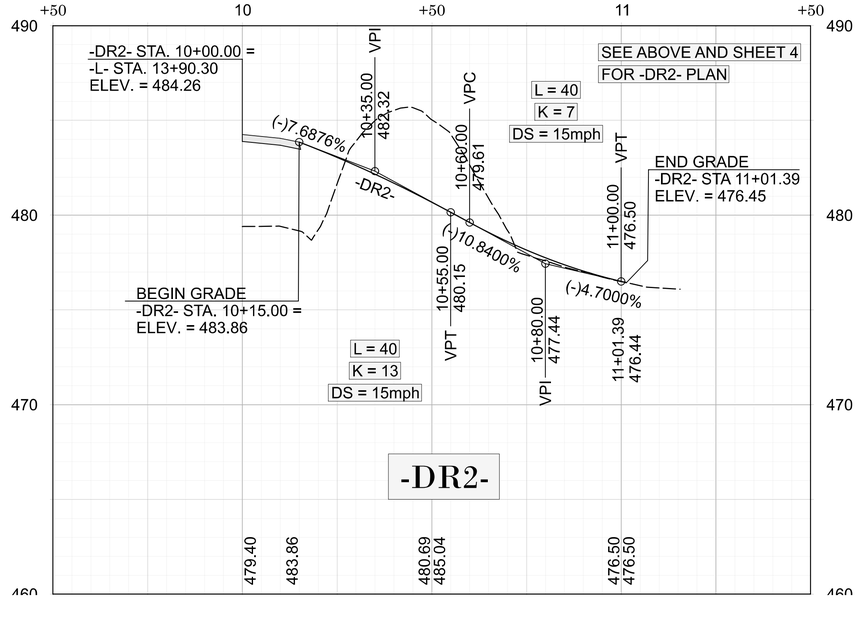
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5/26/20

DRIVEWAY DETAIL







HB-0071

2B-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039867 ENGINEER SIERRA L. HAYNES

Signed by: Sierra Haynes
5E1815152F6149B7...

HYDRAULIC DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052432 ENGINEER JAMES O. BRITT

Signed by: James O Britt
DocuSigned by:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY

wsp

434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-1253

NORTH

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5/26/20

COMPUTED BY: DREW DAACK, EI DATE: 2/152025
CHECKED BY: SIERRA WOLF, PE DATE: 2/18/2025

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

HB-0071
3B-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039867 ENGINEER SIERRA WOLF HAYNES

Signed by: Sierra Haynes
5E1815EF614D4B7...

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STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY

wsp
434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-0165

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | DRAINAGE PIPE THICKNESS OR GAUGE DO NOT USE CSP | C.S. PIPE (UNLESS NOTED OTHRWISE) SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE THICKNESS OR GAUGE .064 | .064 | .064 | .064 | .079 | .079 | .109 | .109 | CLASS IV R.C. PIPE (UNLESS OTHERWISE NOTED) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P. | CU. YDS. C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. A + (1.3 X COL. B) LIN. *FT. A | LIN. *FT. B | PER EACH (0' THRU 5.0') | 5.0' THRU 10.0' | 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 | | D.I. STD. 840.13 | D.I. FRAME & GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.22 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | J.B. STD. 840.31 OR 840.32 | G.D.I. (N.S. FLAT) FRAME WITH TWO GRATES STD. 840.29 | T.B.D.I. STD. 840.35 | | | | 15" ELBOWS | CORR. HDPE OR ALUMINUM ELBOWS | 15" CORR. STEEL ELBOWS | CONC. COLLARS CL. "B" C.Y. STD 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---

Docusign Envelope ID: 1CB51092-DAB5-8F33-80B5-8B114A1F49BF

COMPUTED BY: __C.T. Tang DATE: 01/04/2024
CHECKED BY: _S. Wood__ DATE: _01/05/2024

(2-3-23)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
HB-0071	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

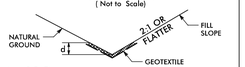
LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		100	200	300		
			TOTAL CY/TONS/SY: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

Docusign Envelope ID: 1CB51092-DAB5-8F33-80B5-8B114A1F49BF

5/26/20

DETAIL 1
TOE PROTECTION
(Not to Scale)

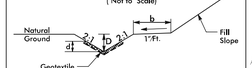


d = 1.0 Ft.

Type of Liner = CLASS I Rip-Rap

FROM STA. 15+93 TO STA. 16+68 RT –L–

DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)

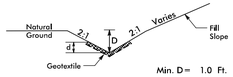


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 0–5 Ft.

Type of Liner = CLASS I Rip-Rap

FROM STA. 14+64 TO STA. 15+50 LT –L–

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

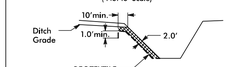


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = CLASS I Rip-Rap

FROM STA. 15+50 TO STA. 16+11 LT –L–

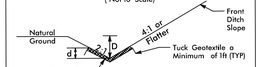
DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CLASS II Rip-Rap

FROM STA. 14+33 TO STA. 14+41 LT –L–
FROM STA. 14+50 TO STA. 14+58 LT –L–
FROM STA. 14+60 TO STA. 14+71 RT –L–

DETAIL 5
SPECIAL 'V' DITCH
(Not to Scale)

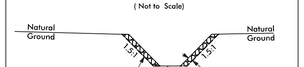


Min. D = 1.5 Ft.

Type of Liner = Class I Rip-Rap, Keyed-In d = 1.0 Ft.

FROM STA. 12+50 TO STA. 13+77 RT –L–
FROM STA. 13+25 TO STA. 13+68 LT –L–

DETAIL 6
ARMOR STREAM BANK
(Not to Scale)



Type of Liner = 144 TONS,CL II Rip-Rap
Geotextile = 160 sy

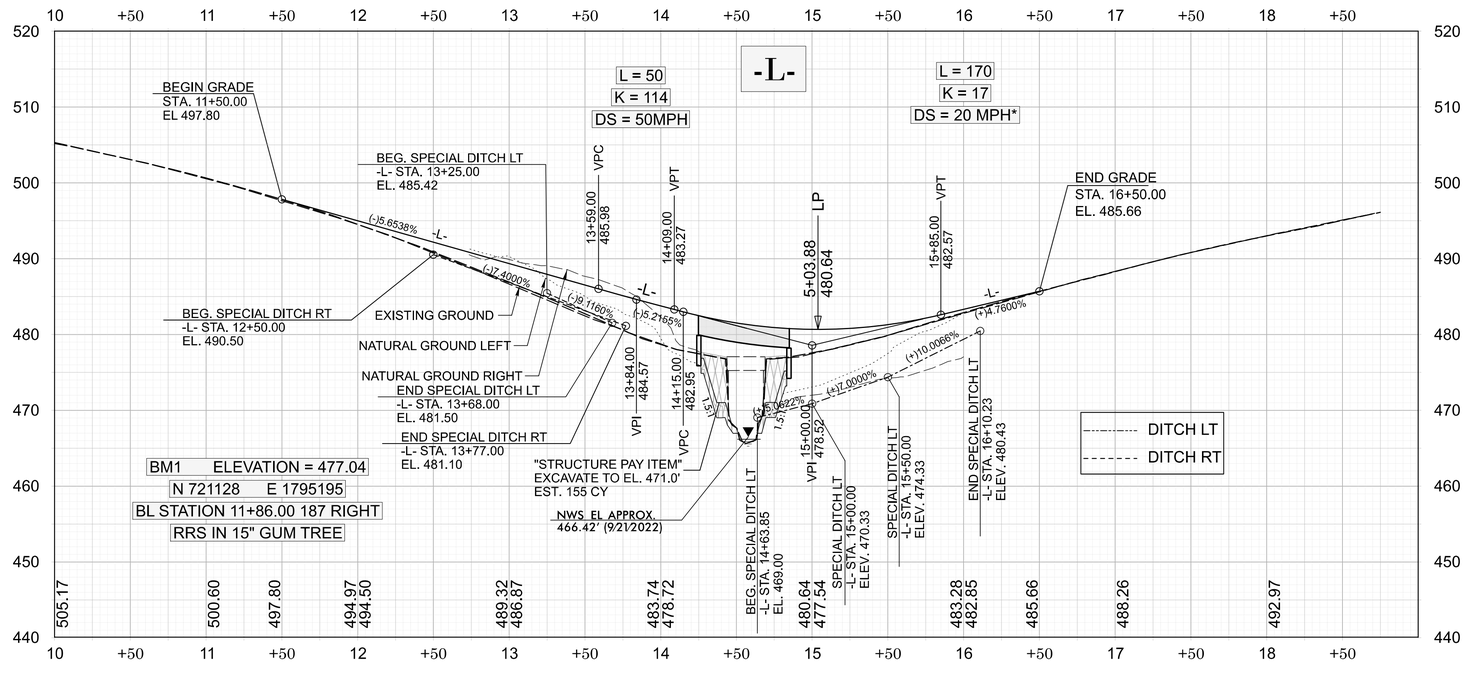
FROM STA. 14+45 TO STA. 14+75 –L–

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE =	1,000 CFS
DESIGN FREQUENCY =	25 YRS
DESIGN HW ELEVATION =	472.5 FT
BASE DISCHARGE =	1,300 CFS
BASE FREQUENCY =	100 YRS
BASE HW ELEVATION =	473.4 FT
OVERTOPPING DISCHARGE =	3,800 CFS
OVERTOPPING FREQUENCY =	500+ YRS
OVERTOPPING ELEVATION =	480.8 FT

DATE OF SURVEY = 09/21/2023

W.S. ELEVATION AT DATE OF SURVEY = 466.42'



HB-0071
4

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039867 ENGINEER SIERRA HAYNES

Signed by: Sierra Haynes
5E1815EF614D4B7...

HYDRAULIC DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052432 ENGINEER JAMES O'KANE

Signed by: James O'Kane
0AC07D4207BB2416...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA



ROADWAY DESIGN UNIT

PREPARED BY

wsp
434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-0165

03-25-2025: REVISED R/W ON PARCEL #2 TO REDUCE R/W AREA TAKE AROUND NEW BUILDING.
04-16-2025: REVISED R/W AND EASEMENT ON PARCEL 1.

09/08/99

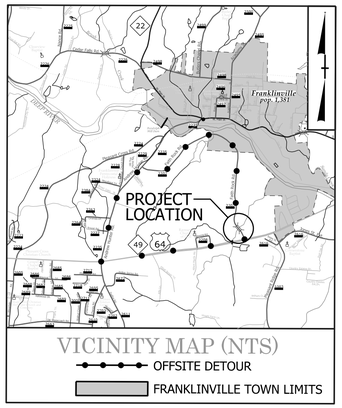
TIP PROJECT: *BP8-R026*

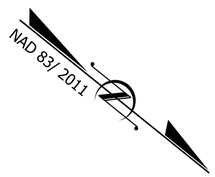
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP8-R026	RW01	7

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

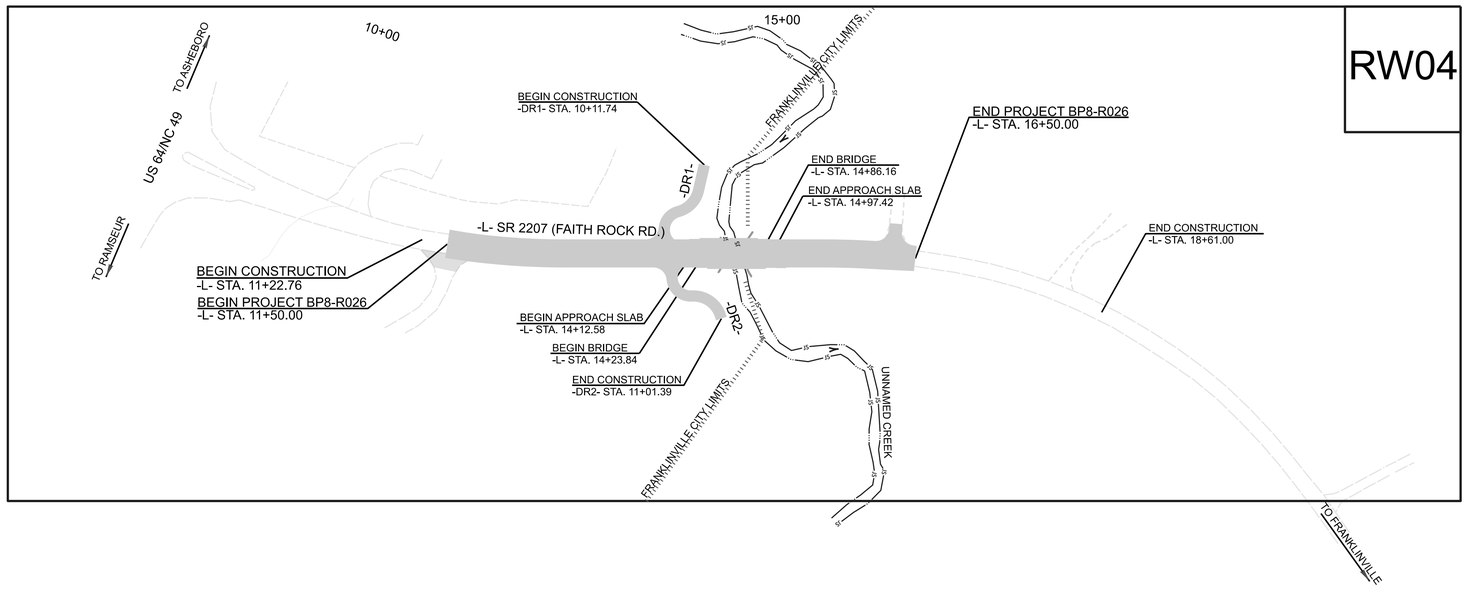
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

RANDOLPH COUNTY









DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

100' 50' 0' 100' 200'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT 750176-1
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 720261.072' EASTING: 1794642.939'
ELEVATION: 495.769'
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998879474
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88 (GEOID 12B)

Prepared in the Office of:

NV5

NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # F-1333

2024 STANDARD SPECIFICATIONS

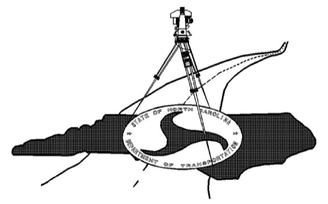
RIGHT OF WAY DATE: *AUGUST 26, 2025*

LETTING DATE: *OCTOBER 28, 2025*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3816 LAND SURVEYOR G. SCOTT CRAWFORD

Signed by: G. Scott Crawford
B362C2E707DB4DE...
SIGNATURE: *04/07/2025* *DATE:*



6/2/99

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

I, C. ANDREW HEATH, JR., 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: 03/01/22
Datum/Epoch:NAD83/NA 2011
Published/Fixed-control use: N/A
Localized around: 750176-1
Northing:720261.072
Easting:1794642.939
Combined grid factor:0.9998879474
Geoid model:GEOID 12B
Units:US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 03/08/22 to 03/18/22 , 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 25th day of March, 2022.

DocuSigned by:
C. Andrew Heath Jr.
2CC014B3929747F...

Professional Land Surveyor L-3281

PROJECT REFERENCE NO.	SHEET NO.
BP8.R026.1	RW02C-1

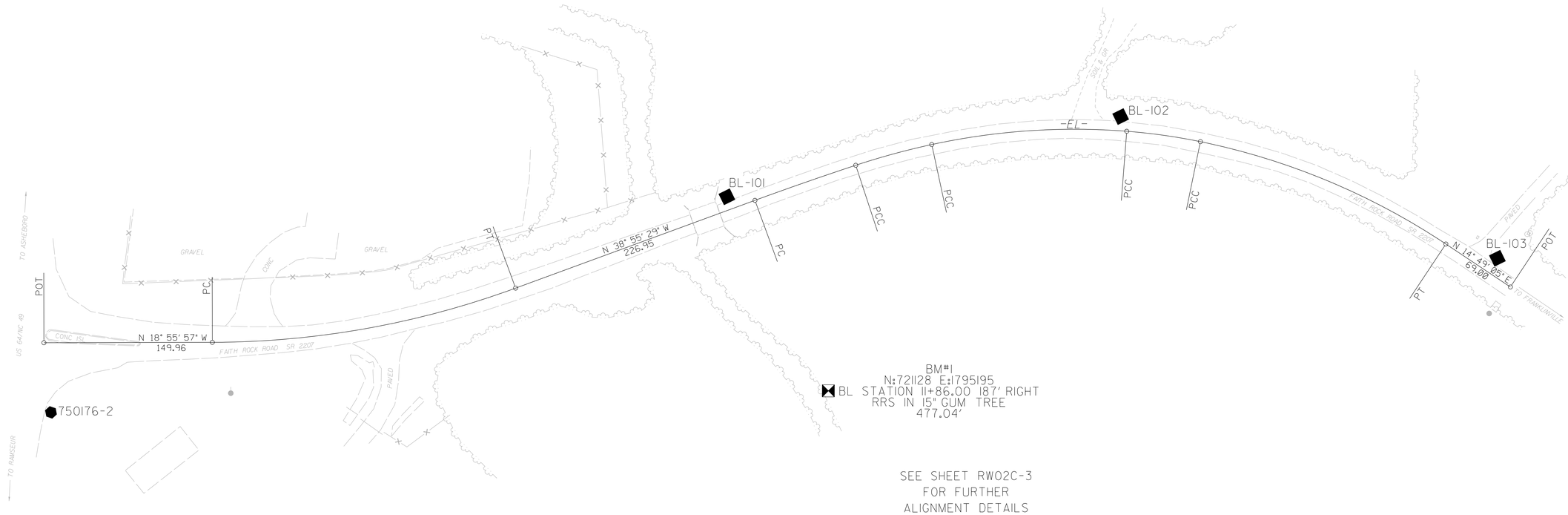
Location and Surveys

NV5
NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # P-1103
formerly DALY-H Engineers & Consultants

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3281 LAND SURVEYOR C. ANDREW HEATH, JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEET RW02C-3
FOR FURTHER
ALIGNMENT DETAILS

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.

24-MAR-2022 14:11
C:\Projects\2022\2022014.13\SUR\750176 - R026\SUBMITTAL\2nd submittal\750176_rw02c-1.dgn
scott.cranford AT NCCAR-CRANS100

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BL

POINT	DESC.	NORTH	EAST	ELEVATION
2	750176-2	720479.2670	1795435.9050	511.27
101	BL-101	720987.0920	1795060.3810	476.56
102	BL-102	721295.9790	1794879.8650	494.64
103	BL-103	721654.1010	1794891.0600	505.44

****

BM1 ELEVATION = 477.04
N 721128 E 1795195
BL STATION 11+86.00 187 RIGHT
RRS IN 15" GUM TREE

****

I, C. ANDREW HEATH, JR., 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: 03/01/22
Datum/Epoch:NAD83/NA 2011
Published/Fixed-control use: N/A
Localized around: 750176-1
Northing:720261.072
Easting:1794642.939
Combined grid factor:0.9998879474
Geoid model:GEOID 12B
Units:US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 03/08/22 to 03/18/22 , 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 25th day of March, 2022.

DocuSigned by:
C. Andrew Heath Jr.
2CC0148392674F1...

Professional Land Surveyor L-3281

PROJECT REFERENCE NO.	SHEET NO.
BP8.R026.1	RW02C-2

Location and Surveys

NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # F-1333
formerly CALYX Engineers & Consultants

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3281 LAND SURVEYOR C. ANDREW HEATH, JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

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REVISIONS

6/2/99

24-MAR-2022 14:06
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scott.crawford AT NCCAR-CRANS10D

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	720453.353	1795379.286							
LINE			N 18°55'57.1" W	149.96					
PC	720595.196	1795330.633							
CURVE			N 28°55'42.9" W	274.26	19°59'31.6"(LT)	07°15'09.5"	275.65	139.24	790.00
PT	720835.232	1795197.969							
LINE			N 38°55'28.7" W	226.95					
PC	721011.790	1795055.380							
CURVE			N 37°58'46.6" W	95.00	01°53'24.3"(RT)	01°59'22.0"	95.01	47.51	2880.00
PCC	721086.673	1794996.918							
CURVE			N 34°02'01.4" W	70.15	06°00'06.2"(RT)	08°33'05.8"	70.18	35.12	670.00
PCC	721144.807	1794957.656							
CURVE			N 22°41'44.3" W	174.00	16°40'27.9"(RT)	09°32'57.5"	174.61	87.93	600.00
PCC	721305.333	1794890.521							
CURVE			N 10°46'36.5" W	66.22	07°09'47.8"(RT)	10°48'37.9"	66.26	33.17	530.00
PCC	721370.384	1794878.139							
CURVE			N 03°48'41.1" E	236.74	22°00'47.4"(RT)	09°14'28.5"	238.21	120.59	620.00
PT	721606.603	1794893.876							
LINE			N 14°49'04.8" E	69.00					
POT	721673.312	1794911.524							

I, C. ANDREW HEATH, JR., 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: 03/01/22
Datum/Epoch:NAD83/NA 2011
Published/Fixed-control use: N/A
Localized around: 750176-1
Northing:720261.072
Easting:1794642.939
Combined grid factor:0.9998879474
Geoid model:GEOID 12B
Units:US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 03/08/22 to 03/18/22 , 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 25th day of March, 2022.

DocuSigned by:
C. Andrew Heath Jr.
2CC01483992974...

Professional Land Surveyor L-3281

PROJECT REFERENCE NO.	SHEET NO.
BP8.R026.1	RW02C-3

Location and Surveys

NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P:919.851.1912 www.NV5.com
NC License # F-1333
formerly CALYX Engineers & Consultants

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3281 LAND SURVEYOR C. ANDREW HEATH, JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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.

24-MAR-2022 14:08
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scott.crawford AT NCCAR-CRANS10D

5/26/20

PROPOSED ALIGNMENT CONTROL SHEET

PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
PC	10+00.00	720595.1962	1795330.633	N28°55'42.9""W	274.257	19°59'31.6""	07°15'09.5""	275.653	139.242	790		
PT	12+75.65	720835.2325	1795197.969	N38°55'28.7""W	276.045							
PC	15+51.70	721049.988	1795024.531	N35°43'42.0""W	100.364	06°23'33.6""	06°21'58.3""	100.416	50.26	900		
PCC	16+52.11	721131.4626	1794965.924	N21°53'24.4""W	221.604	21°17'01.6""	09°32'57.5""	222.883	112.741	600		
END	18+75.00	721131.4626	1794965.924									

I, G. SCOTT CRANFORD, PLS, CERTIFY THAT THE DATA COMPILED CAME FROM AVAILABLE SURVEYS/MAPPING PERFORMED BY OTHERS AND PROVIDED TO ME BY NCDOT AND DO NOT CERTIFY TO THE ACCURACY OR QUALITY OF THE INDIVIDUAL DATA SOURCES.

THIS 7TH DAY OF APRIL, 2025.

Signed by:
G. Scott Cranford
B362C2E707DB4DE...

PROFESSIONAL LAND SURVEYOR L-3816

NOTES:

1. 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.

BP8-R026

R/W | RW02D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3816 LAND SURVEYOR G. SCOTT CRANFORD

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP8-R026

County: Randolph

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

NV5

NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # P-1333

5/26/20

RIGHT OF WAY CONTROL SHEET

PERMANENT ROW MARKER IRON PIN AND CAP: L				
STATION	OFFSET	NORTH	EAST	
11+25.00	60.00	720737.9059	1795333.888	NOT SET, IN RIPRAP, UNSTEADY
11+25.00	44.15	720730.4651	1795319.893	
12+75.65	60.00	720872.9323	1795244.65	
13+50.00	-50.19	720861.5394	1795112.213	
13+50.00	-60.00	720855.3742	1795104.579	
15+51.70	60.00	721087.6878	1795071.212	
15+51.70	-60.00	721012.2881	1794977.85	
16+52.11	60.00	721163.7305	1795016.512	
16+70.00	30.00	721162.0569	1794982.297	
16+70.00	60.00	721177.429	1795008.059	
16+70.00	-30.00	721131.3096	1794930.767	

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
12+34.00	68.00	720842.0293	1795278.3540
12+35.00	60.00	720838.2091	1795271.2430
12+52.00	73.00	720860.7561	1795270.6930
12+55.00	60.00	720855.4617	1795258.3820
13+92.26	60.00	720963.6457	1795171.3850
14+40.00	82.77	721015.0954	1795159.1050
16+47.00	60.00	721159.7120	1795019.0880
16+49.00	71.00	721167.2287	1795027.3300
16+70.00	53.00	721173.8406	1795002.0450
16+72.00	68.00	721183.0510	1795014.0200
17+55.00	30.00	721234.0932	1794945.9600
18+19.00	-30.00	721274.1880	1794868.0220
18+40.00	-60.00	721287.8683	1794833.0630
18+41.00	-42.00	721293.4383	1794850.2130
18+58.00	-63.00	721306.4334	1794825.4380
18+61.00	-29.96	721316.8654	1794856.9520

I , G. SCOTT CRANFORD , PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED APRIL 3RD AND MAY 5th, 2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 6TH DAY OF MAY, 2025.

G. Scott Cranford

PROFESSIONAL LAND SURVEYOR L-3816

NOTES:

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

BP8-R026

R/W | RW03E-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3816 LAND SURVEYOR SCOTT CRANFORD

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP8-R026

County: Randolph

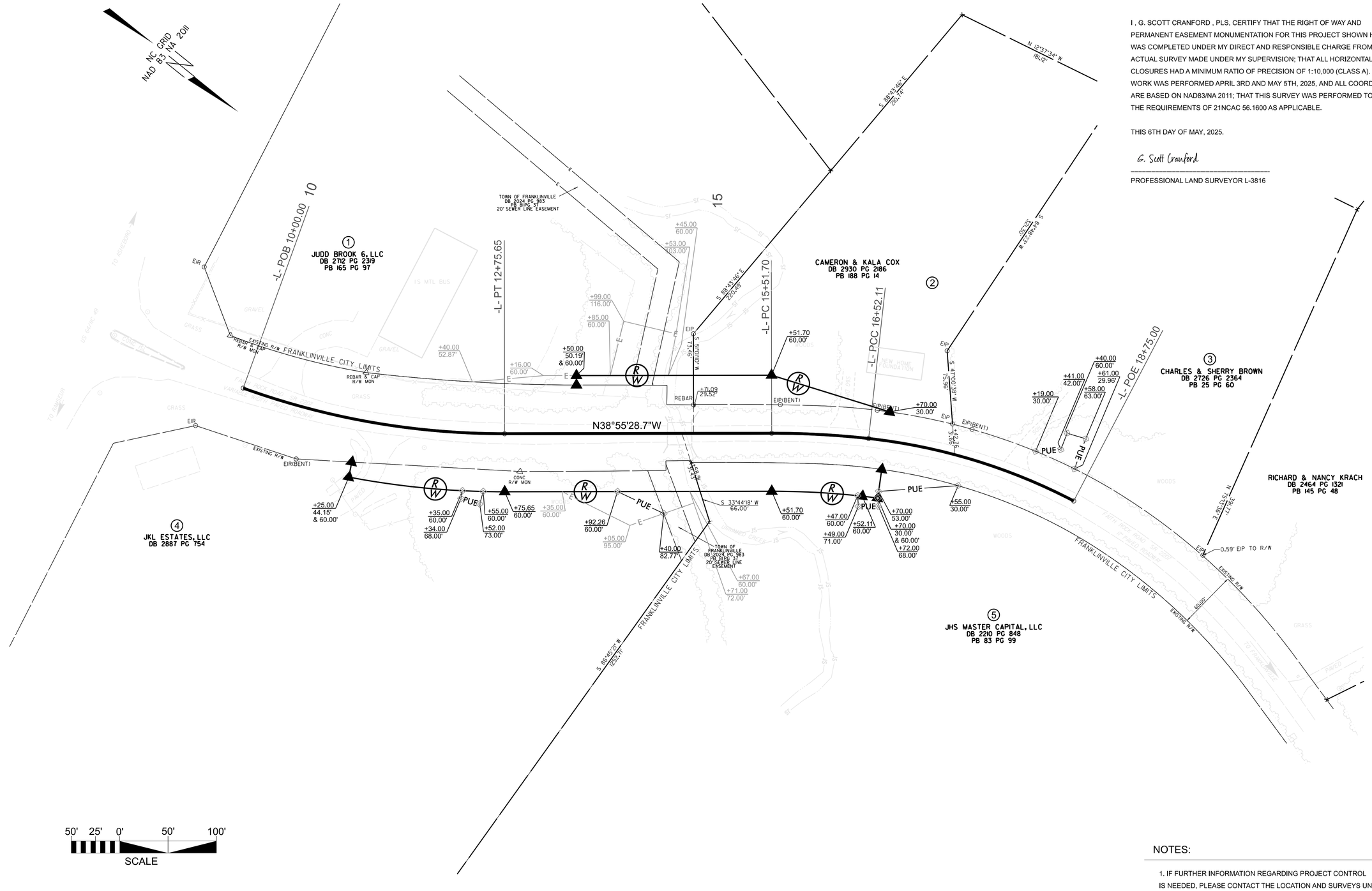
PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # F-1333

5/26/20



I , G. SCOTT CRANFORD , PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED APRIL 3RD AND MAY 5TH, 2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

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G. Scott Cranford

PROFESSIONAL LAND SURVEYOR L-3816

NOTES:

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BP8.2026

R/W | RW04

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

SEAL L-3816 SCOTT CRANFORD

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP8-R026

County: Randolph

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

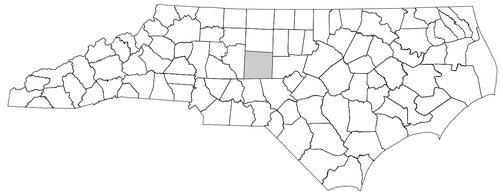
NV5 ENGINEERS & CONSULTANTS, INC.
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

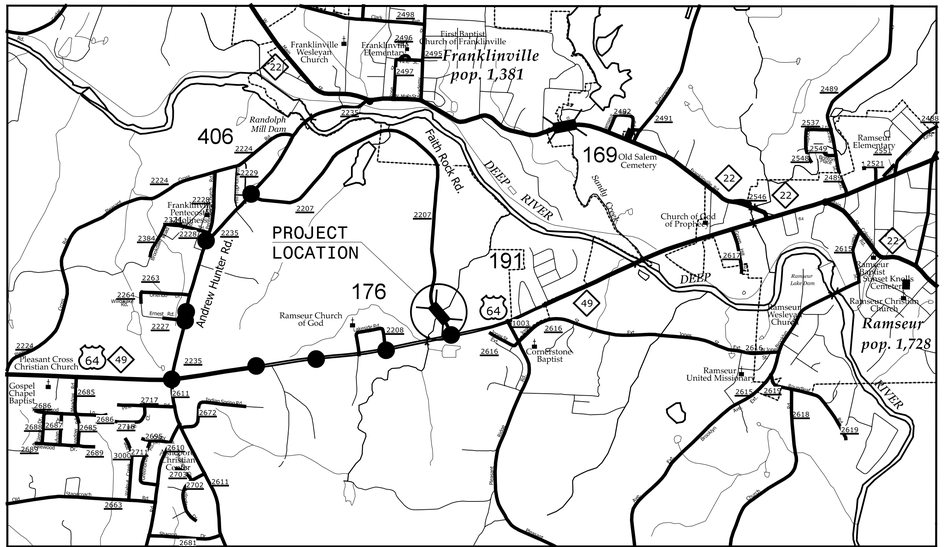
TRANSPORTATION MANAGEMENT PLAN

RANDOLPH COUNTY

DIVISION 8



LOCATION: BRIDGE 750176 ON SR 2207 (FAITH ROCK RD) OVER A UNNAMED CREEK



VICINITY MAP

OFF SITE DETOUR ROUTE

N.T.S.

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



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

PLANS PREPARED BY:

ZACHARY THORNTON, PE
PROJECT ENGINEER

TAFADZWA MAZARURA
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

TIM WELCH, PE
NCDOT CONTACT
DIVISION 8 BRIDGE PROGRAM MANAGER

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

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES PHASING, LOCAL NOTES, AND MANAGEMENT STRATEGIES)
TMP-2	SR 2207 (FAITH ROCK ROAD) DETOUR ROUTE
TMP-3	ROAD CLOSURE, AND SIGN AND DEVICE LEGEND
TMP-4	SPECIAL SIGN DESIGN

SHEET NO.
TMP-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:

VOLKERT
5430 Wade Park Blvd., Suite 410
Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

APPROVED: Signed by: Zachary Thornton E4D10EEB0CBB48A...

DATE: 4/16/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 047243 ENGINEER ZACHARY J. THORNTON

TIP PROJECT: HB-0071

4/14/2026
BRB.R026 TMP_01TSH.dgn
zachary.thornton

PROJ. REFERENCE NO.	SHEET NO.
HB-0071	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED J ANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

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

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

VOLKERT
5430 Wade Park Blvd., Suite 410
Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

APPROVED: Zachary Thornton
E4D1EEB0CBB46A...

DATE: 4/16/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 047243 ENGINEER ZACHARY J. THORNTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND

4/14/2026
B68.R026_TMP_01A Randolph Standards.dgn
zachary.thornton

PROJ. REFERENCE NO.	SHEET NO.
HB-0071	TMP-1B

GENERAL NOTES

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

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

REFER TO THE NCDOT 2024 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR ADDITIONAL REQUIREMENTS.

TRAFFIC PATTERN ALTERATIONS

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

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

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

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

F) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON SR 2207.

G) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

SIGNING

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

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

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

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS

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

ROAD NAME	MARKING	MARKER
FAITH ROCK ROAD	PAINT	NONE
BRIDGE	PAINT	NONE

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

PHASING

STEP 1:

INSTALL CMS 2 BOARDS, ACCORDING TO SHEET TMP-2 AND TMP-3, 14 DAYS BEFORE ROAD CLOSURE.

STEP 2:

USING RSD NO. 1101.03 SHEET 1 OF 9, TMP-2 AND TMP-3 INSTALL OFFSITE DETOUR SIGNS AND TRAFFIC CONTROL DEVICES AND CLOSE FAITH ROCK RD (SR 2207) TO THROUGH TRAFFIC.

STEP 3:

REMOVE CMS BOARDS 14 DAYS AFTER STEP 2 IS COMPLETE.

MAINTAIN ACCESS TO ALL DRIVEWAYS DURING ROAD CLOSURE.

COMPLETE THE FOLLOWING WITHIN THE ROAD CLOSURE:

A) REMOVE EXISTING BRIDGE AND REMOVE/RELOCATE/ REPLACE ANY SIGNS WITHIN PROJECT LIMITS AS DIRECTED BY ENGINEER.
B) CONSTRUCT THE PROPOSED BRIDGE AND ROADWAY APPROACHES INCLUDING THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS

STEP 4:

REMOVE ALL TRAFFIC CONTROL DEVICES AND DETOUR SIGNS, AND OPEN FAITH ROCK RD (SR 2207) TO THROUGH TRAFFIC.

LOCAL NOTES

A) NOTIFY THE FOLLOWING AUTHORITIES ONE MONTH PRIOR TO ANY TRAFFIC PATTERN ALTERATION:

LOCAL NC CONTACTS:
MATTHEW W. KITCHEN
DIVISION MAINTENANCE ENGINEER
OFFICE: 910-773-8008

ZACHARY HUSSEY
DIVISION TRAFFIC ENGINEER
OFFICE: 910-947-3930

LARRY CHILTON
RANDOLPH COUNTY SCHOOL TRANSPORTATION SERVICES EXECUTIVE DIRECTOR
OFFICE: 336-633-5183

CHRISTIE MCCORQUODALE
RANDOLPH COUNTY EMERGENCY MANAGEMENT DIRECTOR
OFFICE: 336-318-6944

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
- FULL ROADWAY CLOSURES
- LANE SHIFTS OR CLOSURES
- ONE-LANE, TWO WAY OPERATION (FLAGGING)
- OFF-SITE DETOURS / USE OF ALTERNATIVE ROUTES

TRAFFIC / INCIDENT MANAGEMENT & SPEED ENFORCEMENT STRATEGIES:
- LOCAL DETOUR ROUTES

VOLKERT
5430 Wade Park Blvd., Suite 410
Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

APPROVED: Signed by: Zachary Thornton E4D10EEE60CB848A...

DATE: 4/16/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 047243 ENGINEER ZACHARY J. THORNTON

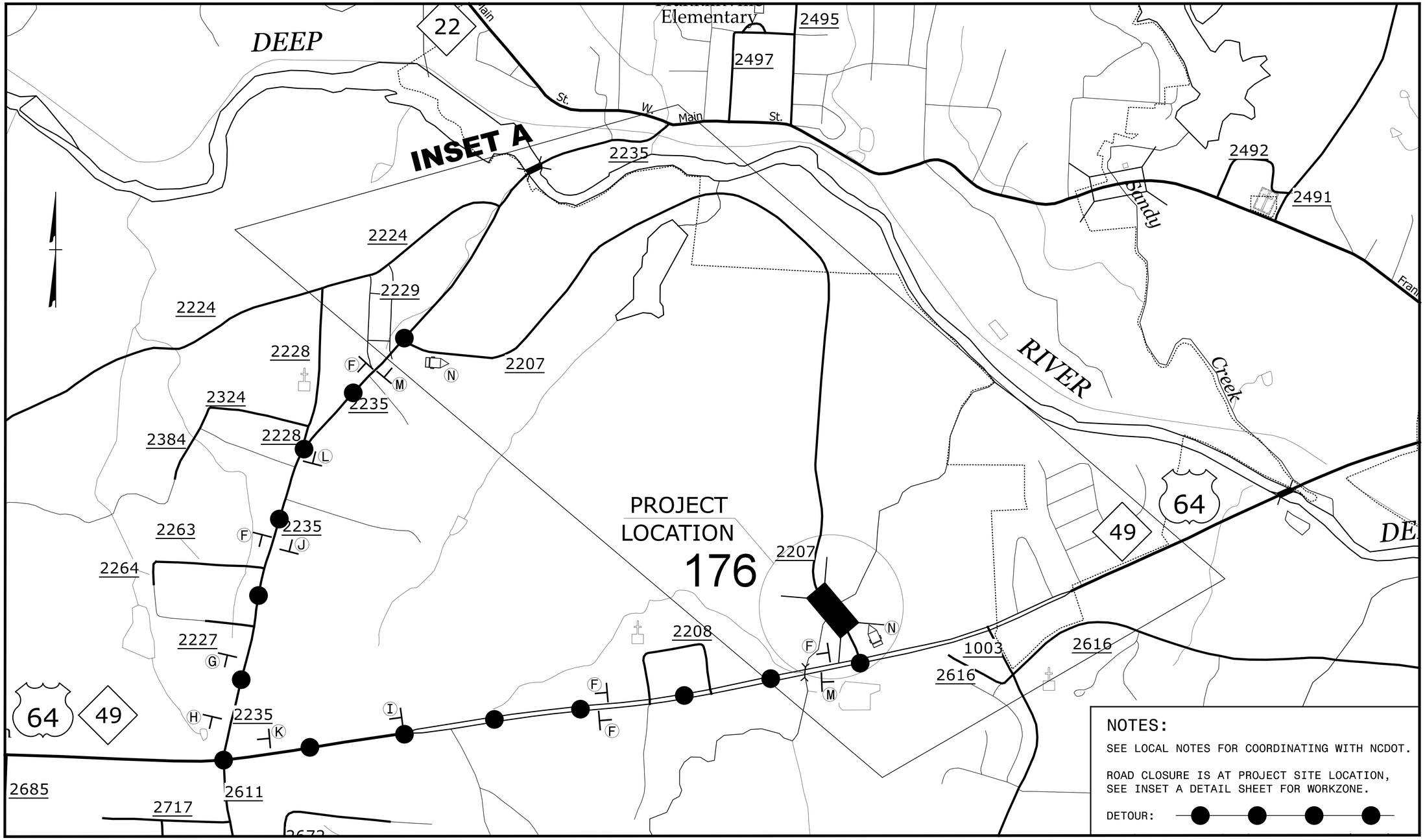
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN:(GENERAL NOTES, PHASING,LOCAL NOTES, AND MANAGEMENT STRATEGIES)

4/15/2026
BRB_RD26 TMP 01B Randolph GeneralNotes.dgn
zachary.thornton

PROJ. REFERENCE NO.	SHEET NO.
HB-0071	TMP-2



LOCATION: REPLACE BRIDGE NO. 273 ON FAITH ROCK RD (SR 2207) OVER UNNAMED CREEK

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Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

APPROVED: Signed by: Zachary Thornton E4D10EEB0CBB48A...

DATE: 4/16/2026

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NORTH CAROLINA PROFESSIONAL SEAL 047243 ENGINEER ZACHARY J. THORNTON

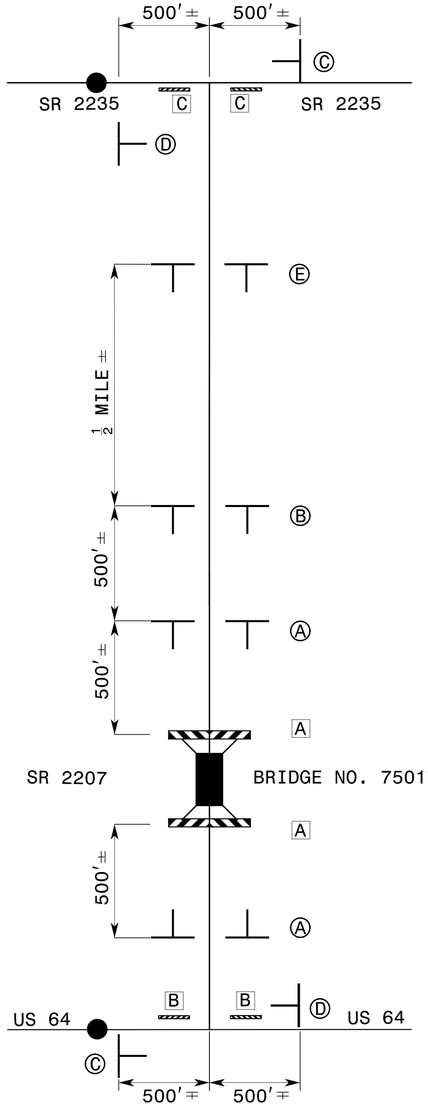
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SR 2207
(FAITH ROCK ROAD)
DETOUR ROUTE

4/6/2026
BRB.RG26_TMP_02_Randolph_Detour_Map.dgn
zachary.thornton

PROJ. REFERENCE NO.	SHEET NO.
HB-0071	TMP-3

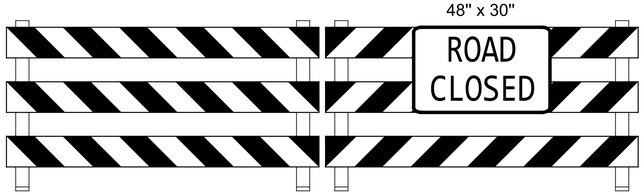


INSET "A"

REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9 FOR APPLICABLE NOTES.

* CONTRACTOR SHALL INSTALL TURNAROUNDS AS DIRECTED BY ENGINEER

R11-2
48" x 30"



TYPE III BARRICADE(S)

A

R11-3
60" x 30"



M4-10L
48" x 18"

TYPE III BARRICADE

B

R11-3
60" x 30"



M4-10R
48" x 18"

TYPE III BARRICADE

C



W20-3
48" X 48"

A



W20-3
48" X 48"

B



W20-3
48" X 48"

SP-4L
42" X 12"

C



W20-3
48" X 48"

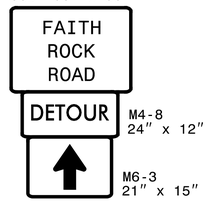
SP-4R
42" X 12"

D



W20-3
48" X 48"

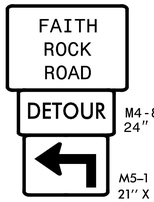
E



M4-8
24" x 12"

M6-3
21" x 15"

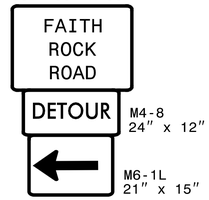
F



M4-8
24" x 12"

M5-1
21" X 15"

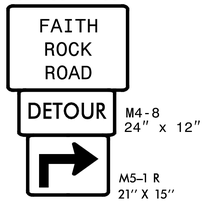
G



M4-8
24" x 12"

M6-1L
21" x 15"

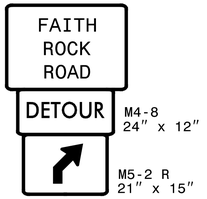
H



M4-8
24" x 12"

M5-1 R
21" X 15"

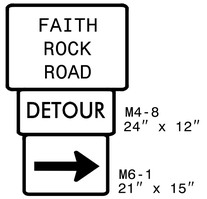
I



M4-8
24" x 12"

M5-2 R
21" x 15"

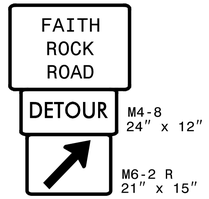
J



M4-8
24" x 12"

M6-1
21" x 15"

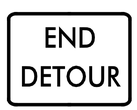
K



M4-8
24" x 12"

M6-2 R
21" x 15"

L



M4-8 A
24" X 18"

M

14 DAYS PRIOR TO CLOSURE

MESSAGE NO. 1	MESSAGE NO. 2
FAITH ROCK RD TO CLOSE	STARTING (DAY) (TIME)

CHANGEABLE MESSAGE SIGN

N

(SHORT TERM)

VOLKERT
5430 Wade Park Blvd., Suite 410
Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

APPROVED: Zachary Thornton
E4D10EEB0CBB48A...

DATE: 4/16/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 047243 ENGINEER ZACHARY J. THORNTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROAD CLOSURE, AND SIGN AND DEVICE LEGEND

4/16/2026
BR8.R026 TMP_03 Inset A.dgn
zachary.thornton

PROJ. REFERENCE NO.	SHEET NO.
HB-0071	TMP-4

SIGN NUMBER: SP-1
TYPE: D
QUANTITY: SEE PLANS

SIGN WIDTH: 2'-6"
HEIGHT: 3'-0"
TOTAL AREA: 7.5 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0"
WIDTH: 0.75"
RADII: 2.25"

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

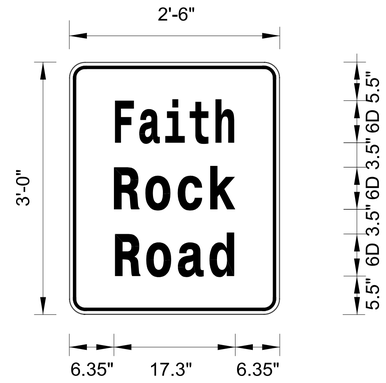
SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

USE NOTES:

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.
3. To be mounted with Detour Signing.

DESIGN BY: TAFADZWA MAZARURA
PROJECT ID: HB-0071
CHECKED BY: ZACHARY THORNTON
LOCATION: OFFSITE DETOUR
January 1st, 2026
DIV: 8



BORDER

R=2.25"
TH=0.67"
IN=1.50"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner																										Series/Size Text Length
	F	a	i	t	h																					D 2000
	6.5	10.7	15.3	16.9	19.9																					17.0"
	R	o	c	k																						D 2000
	6.35	11.1	15.5	20.1																						17.3"
	R	o	a	d																						D 2000
	6.5	11.2	15.6	19.9																						17.0"

FILENAME: BP8.R026 TMP 04 Special sign

NORTH CAROLINA D.O.T. SIGN DETAIL

VOLKERT
5430 Wade Park Blvd., Suite 410
Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

APPROVED: Zachary Thornton
E4D10EEB0CBB48A...
DATE: 4/16/2026
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 047243 ENGINEER ZACHARY J. THORNTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

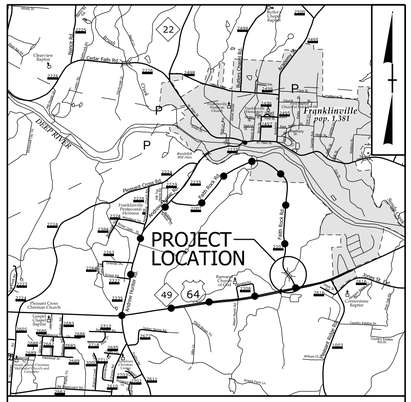
SPECIAL
SIGN DESIGN

4/14/2026
BP8.R026 TMP 04 Special sign.dgn
zachary.thornton

09/08/99

TIP PROJECT: HB-0071

CONTRACT: DH00604



VICINITY MAP (NTS)

OFFSITE DETOUR

FRANKLINVILLE TOWN LIMITS

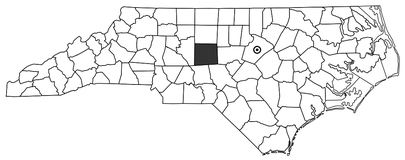
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

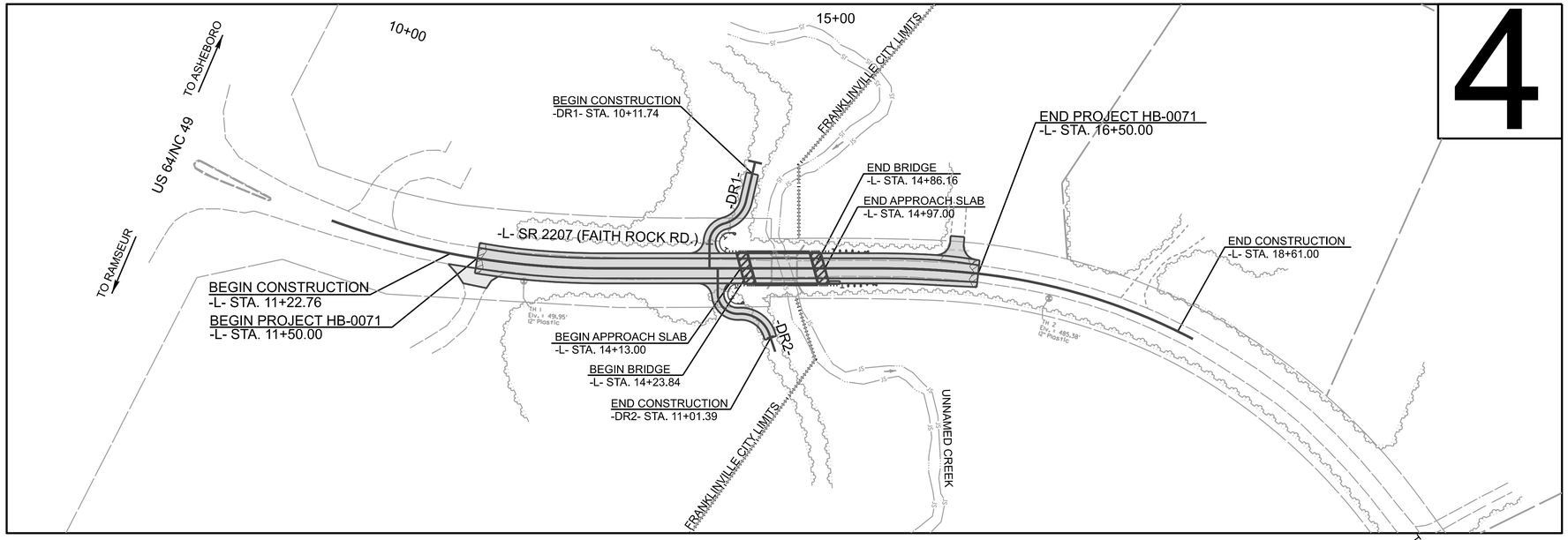
LOCATION: *BRIDGE 750176 ON SR 2207 (FAITH ROCK RD) OVER UNNAMED CREEK*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, & STRUCTURE*



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0071	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP8.R026.1	N/A	P.E.
51608.2.1	5160801	ROW
BP8.R026.2	N/A	UTIL.
51608.3.1	5160801	CONST.



4

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

CLEARING ON THIS PROJECT WILL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF FRANKLINVILLE.
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

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 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL AND LAND RESOURCES.

wsp

Prepared In the Office of:

wsp

434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-1253

Designed by:

James Owen Britt, PE *4228*

NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

PROJECT REFERENCE NO.	SHEET NO.
HB-0071	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

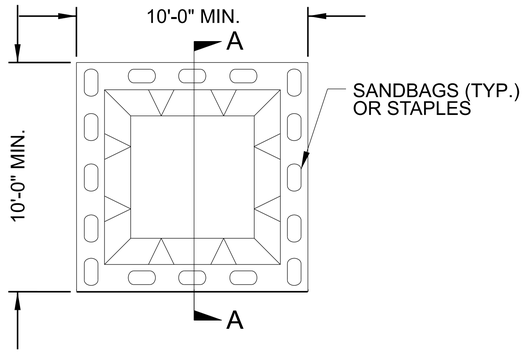
EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

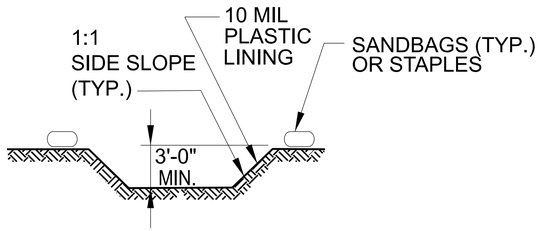
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet Sediment Trap Type A	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

PROJECT REFERENCE NO.	SHEET NO.
HB-0071	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A



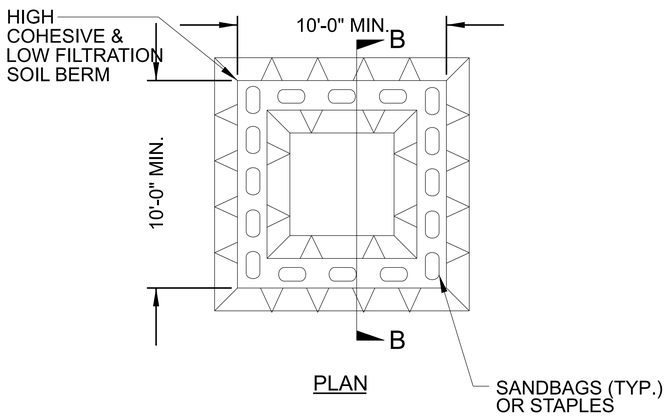
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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.

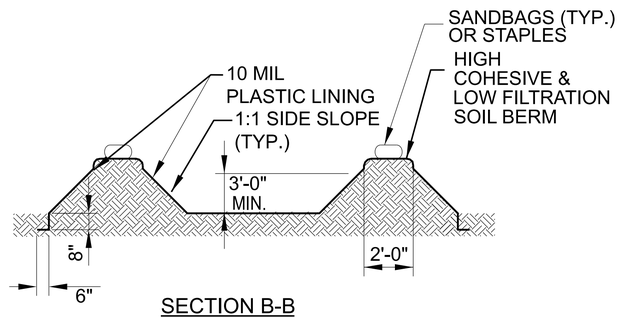
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



SECTION B-B



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

PROJECT REFERENCE NO.	SHEET NO.
HB-0071	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

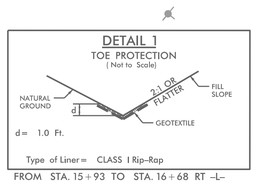
SOIL STABILIZATION TIMEFRAMES

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 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

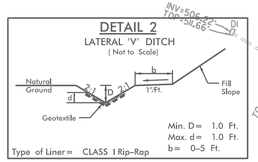
5/26/20

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

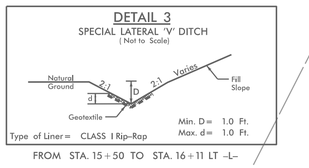
CLEARING AND GRUBBING
EROSION CONTROL FOR CONSTRUCTION SHEET 4



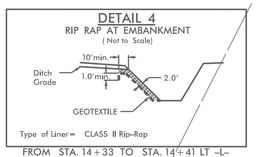
FROM STA. 15+93 TO STA. 16+68 RT –L–



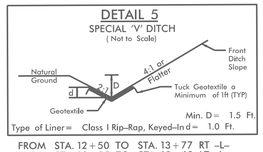
FROM STA. 14+64 TO STA. 15+50 LT –L–



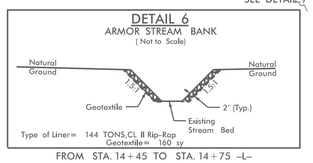
FROM STA. 15+50 TO STA. 16+11 LT –L–



FROM STA. 14+33 TO STA. 14+41 LT –L–
FROM STA. 14+50 TO STA. 14+58 LT –L–
FROM STA. 14+60 TO STA. 14+71 RT –L–



FROM STA. 12+50 TO STA. 13+77 RT –L–
FROM STA. 13+25 TO STA. 13+68 LT –L–



FROM STA. 14+45 TO STA. 14+75 –L–



FROM STA. 11+50 TO STA. 13+25 LT –L–
FROM STA. 11+50 TO STA. 12+50 RT –L–

HB-0071
EC-4 | CONST.4

ROADWAY DESIGN ENGINEER

HYDRAULIC DESIGN ENGINEER

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY
wsp
434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-1253

5/26/20

HB-0071

EC-5 | CONST.4

ROADWAY DESIGN ENGINEER

HYDRAULIC DESIGN ENGINEER

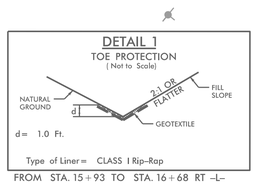
STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY

wsp

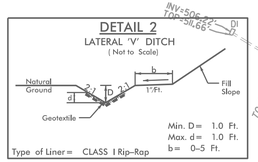
434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-1253



d= 1.0 Ft.

Type of Liner= CLASS I Rip-Rap

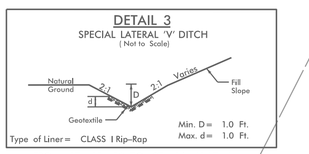
FROM STA. 15+93 TO STA. 16+68 RT –L–



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
b= 0–5 Ft.

Type of Liner= CLASS I Rip-Rap

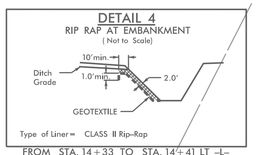
FROM STA. 14+64 TO STA. 15+50 LT –L–



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.

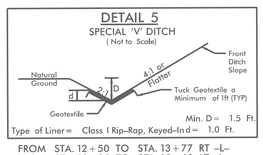
Type of Liner= CLASS I Rip-Rap

FROM STA. 15+50 TO STA. 16+11 LT –L–



Type of Liner= CLASS II Rip-Rap

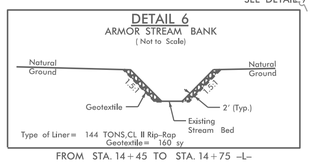
FROM STA. 14+33 TO STA. 14+41 LT –L–
FROM STA. 14+50 TO STA. 14+58 LT –L–
FROM STA. 14+60 TO STA. 14+71 RT –L–



Min. D= 1.5 Ft.

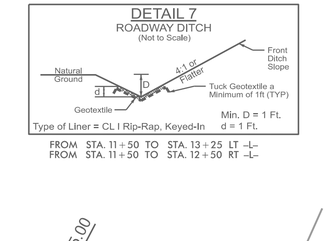
Type of Liner= Class I Rip-Rap, Keyed-In d= 1.0 Ft.

FROM STA. 12+50 TO STA. 13+77 RT –L–
FROM STA. 13+25 TO STA. 13+68 LT –L–



Type of Liner= 144 TONS,CL II Rip-Rap
Geotextile= 160 sy

FROM STA. 14+45 TO STA. 14+75 –L–



Min, D = 1 Ft.

Type of Liner = CL I Rip-Rap, Keyed-In d = 1 Ft.

FROM STA. 11+50 TO STA. 13+25 LT –L–
FROM STA. 11+50 TO STA. 12+50 RT –L–

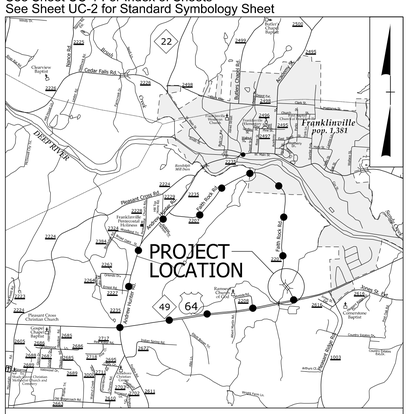
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09/08/99

TIP PROJECT: HB-0071

CONTRACT:

See Sheet UC-1 For Index of Sheets
See Sheet UC-2 for Standard Symbology Sheet


Franklinville
pop. 1,381
GULF RIVER
PROJECT LOCATION
22
49
64
Faith Rock Rd
Old Mack Rd
Mack Rd
Liberty Rd
Liberty Church
Crescent Cross Christian Church
Franklinville Baptist Tabernacle
Franklinville Seventh-day Adventist Church
Franklinville Church of God
Franklinville Cemetery
Franklinville Baptist
Cheeks Mobile Home Park
Cheeks Welding
Asbury Rd
Asbury Church
Asbury Cemetery
Mount Olivet Church
Mount Olivet Cemetery
Mount Olivet Christian Church
Mount Olivet Baptist Church
Mount Olivet Rd
Mount Olivet Church Rd
Mount Olivet Cemetery
Mount Olivet Baptist
Mount Olivet Church
Mount Olivet Christian

Docusign Envelope ID: 7A5AB563-259A-8DF2-8179-8AB350F356CD

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
HB-0071	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

NORTH CAROLINA PROFESSIONAL SEAL 032377 ENGINEER CHARLES W HEATHCOCK

10/19/2026

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown)
- Force Main Sewer Line (Sized as Shown)
- Manhole (Sized per Note)
- Sewer Pump Station — PST(SS)
- Sanitary Sewer Clean Out — SSCO

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown)
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- Plug
- Tee
- Reducer
- Gate Valve — GV
- Blow Off — BO
- Fire Hydrant — PFH

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL_PED
- Utility Line by Others (Type as Shown)
- Encasement by Open Cut
- 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
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Located Miscellaneous Utility Object
- *Underground Power Line
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable
- *Underground TV Cable
- *Underground Fiber Optics TV Cable
- *Underground Water Line
- *Underground Gravity Sanitary Sewer Line
- *Underground SS Forced Main Line
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

5/16/2025 11:39 AM
C:\Users\...\Desktop\...\UC_RAV6_util_TSH_01.dgn

REV: 2/1/2012

Docusign Envelope ID: 7A5AB563-259A-8DF2-8179-8AB350F356CD

5/26/20

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S 2024 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

2. THE EXISTING UTILITIES BELONG TO THE TOWN OF FRANKLINVILLE.

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. PROPOSED 8" SEWER LINE SHALL BE SDR 35 PVC.

2. PROPOSED 12" WATER LINE SHALL BE RESTRAINED JOINT DUCTILE IRON (PC 350) AS INDICATED ON THE CONSTRUCTION DRAWINGS. PROPOSED 12" WATER LINE INSTALLED BY HORIZONTAL DIRECTIONAL DRILL SHALL BE FUSIBLE C900 PVC, DR 18.

3. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION ON THIS PROJECT. IT IS CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION. THE DESIGN SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS. NO DAMAGE IS ALLOWED TO RIVER, STREAM, CREEK, WETLANDS, OR BUFFER ZONES.

4. FUSED PVC PIPE LENGTHS THAT HAVE BEEN INSTALLED IN THE TRENCH SHALL NOT BE BENT OR JOCKEYED INTO POSITION WITH HEAVY EQUIPMENT IN ORDER TO CONNECT TO FITTINGS. ALL ALIGNMENT CORRECTIONS SHALL TAKE PLACE IN THE DIP FITTINGS.

HB-0071
2RD2 | UC-3

UTILITIES DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032312 ENGINEER CHARLES W HEATH

10/19/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

PREPARED BY

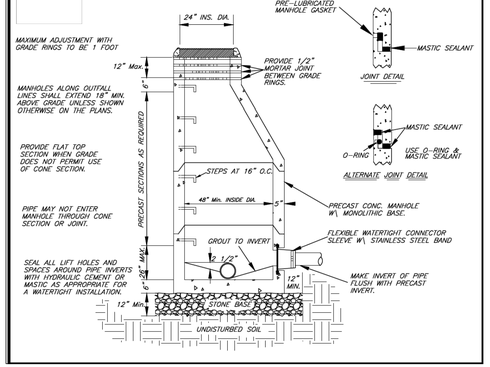
wsp

434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-1253

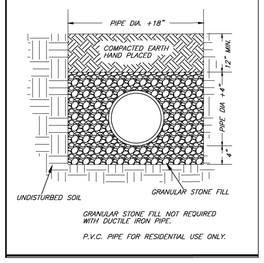
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5/26/20

STANDARD PRECAST CONCRETE MANHOLE



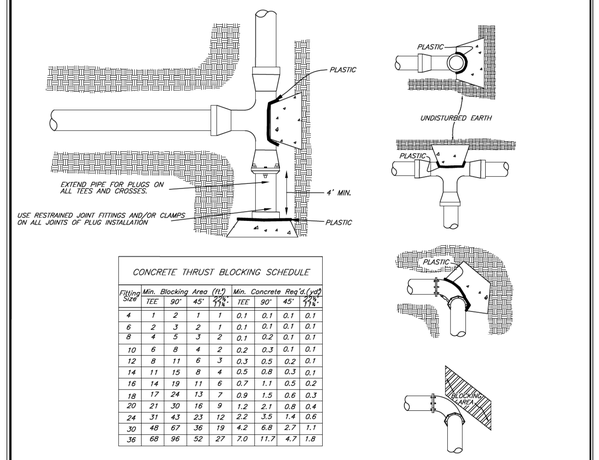
SINGLE WALL(SDR 35) PVC PIPE BEDDING



GRANULAR STONE FILL NOT REQUIRED WITH DUCTILE IRON PIPE.

P.V.C. PIPE FOR RESIDENTIAL USE ONLY.

CONCRETE THRUST BLOCKING



CONCRETE THRUST BLOCKING SCHEDULE

Fitting Size	Min. Blocking Area (ft²) TEE	90°	45°	22½° 11¼°	Min. Concrete Req'd (yd³) TEE	90°	45°	22½° 11¼°
4	1	2	1	1	0.1	0.1	0.1	0.1
6	2	3	2	1	0.1	0.1	0.1	0.1
8	4	5	3	2	0.1	0.2	0.1	0.1
10	6	8	4	2	0.2	0.3	0.1	0.1
12	8	11	6	3	0.3	0.5	0.2	0.1
14	11	15	8	4	0.5	0.8	0.3	0.1
16	14	19	11	6	0.7	1.1	0.5	0.2
18	17	24	13	7	0.9	1.5	0.6	0.3
20	21	30	16	9	1.2	2.1	0.8	0.4
24	31	43	23	12	2.2	3.5	1.4	0.6
30	48	67	36	19	4.2	6.8	2.7	1.1
36	68	96	52	27	7.0	11.7	4.7	1.8

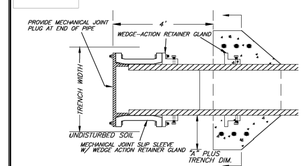
INCREASE BLOCKING AREA AND CONCRETE QUANTITY FOR PRESSURES ABOVE 200 P.S.I. OR POOR SOIL CONDITIONS.

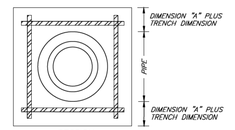
KEEP CONCRETE AWAY FROM JOINTS. PLACE CONCRETE FAIRLY DRY AND TORM IF REQUIRED FOR MAXIMUM AREA AGAINST UNDISTURBED SOIL.

ALL FITTINGS AND ACCESSORIES TO BE WRAPPED WITH 10 MIL POLYETHYLENE PRIOR TO POURING BLOCKING.

USE 3000 P.S.I. CONCRETE.

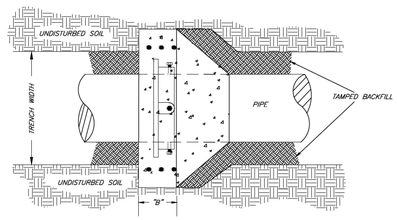
THRUST COLLAR INSTALLATION





SECTION

REINFORCING : 6"-16" PIPE, 12 #7 BARS, 24"-36" PIPE, 12 #8 BARS, 3 ON EACH SIDE

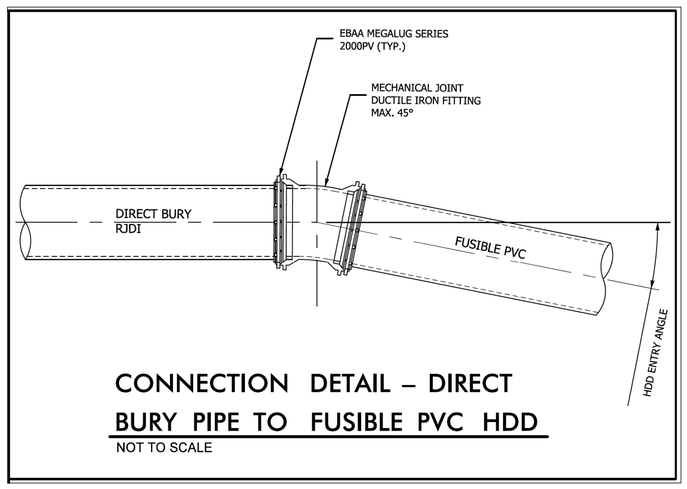


SCHEDULE

PIPE DIA.	CONC.	THRUST BLOCK
	"c"	"b"
3"•4"•6"•8"•12"	12"	12"
16"	16"	12"
20"	16"	12"
24"	16"	12"
30"	16"	14"
36"	16"	16"

SIZE OF CONC. THRUST BLOCK AROUND PIPE TO BE DETERMINED BY DITCH (TRENCH) DIMENSION PLUS EXTENSION "A" INTO SIDES AND BOTTOM AS SHOWN IN SCHEDULE. CONC. INTO SIDES OF DITCH TO BE POURED AGAINST FIRM, UNDISTURBED GROUND. FILL AGAINST CONC. BLOCKING TO BE COMPACTED TO 95% PROCTOR FOR LENGTH ALONG PIPE OF AT LEAST 6'-0" EACH SIDE.

WHERE THRUST BLOCKING OCCURS, THE TRENCH SHOULD BE AT MINIMUM WIDTH.



CONNECTION DETAIL – DIRECT BURY PIPE TO FUSIBLE PVC HDD

NOT TO SCALE

HB-0071

2RD2 | UC-3A

UTILITIES DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032312 ENGINEER CHARLES W HERNDON

Docusigned by: Charles W Herndon

10/19/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

ROADWAY DESIGN UNIT

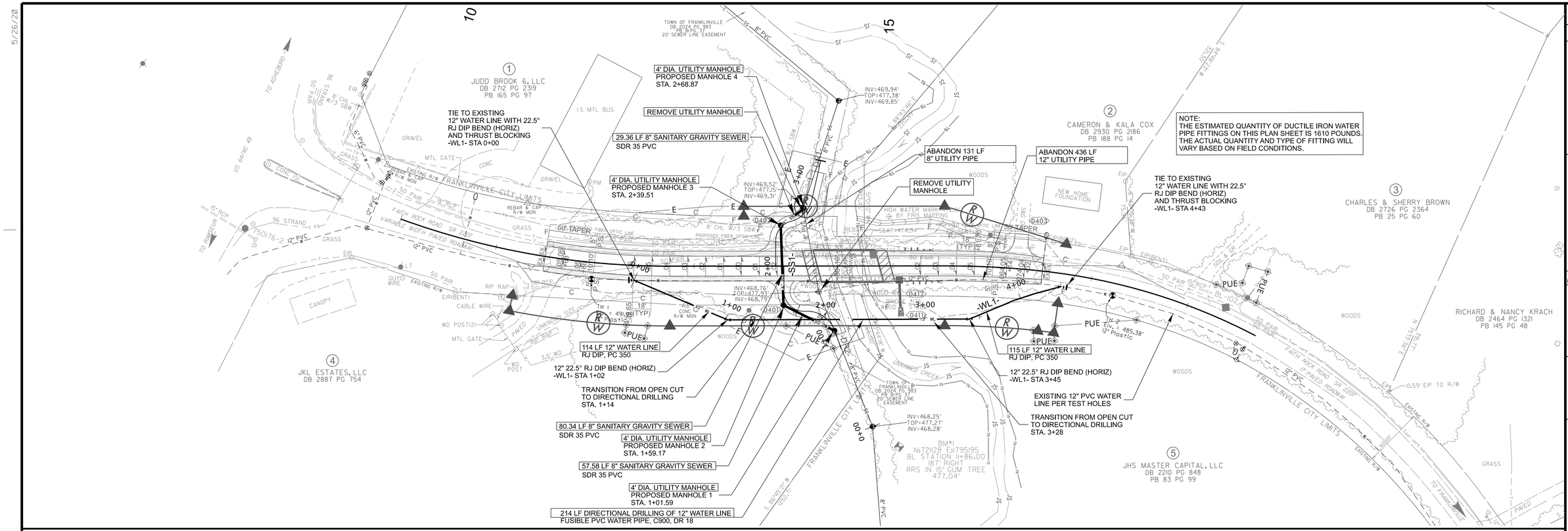
PREPARED BY

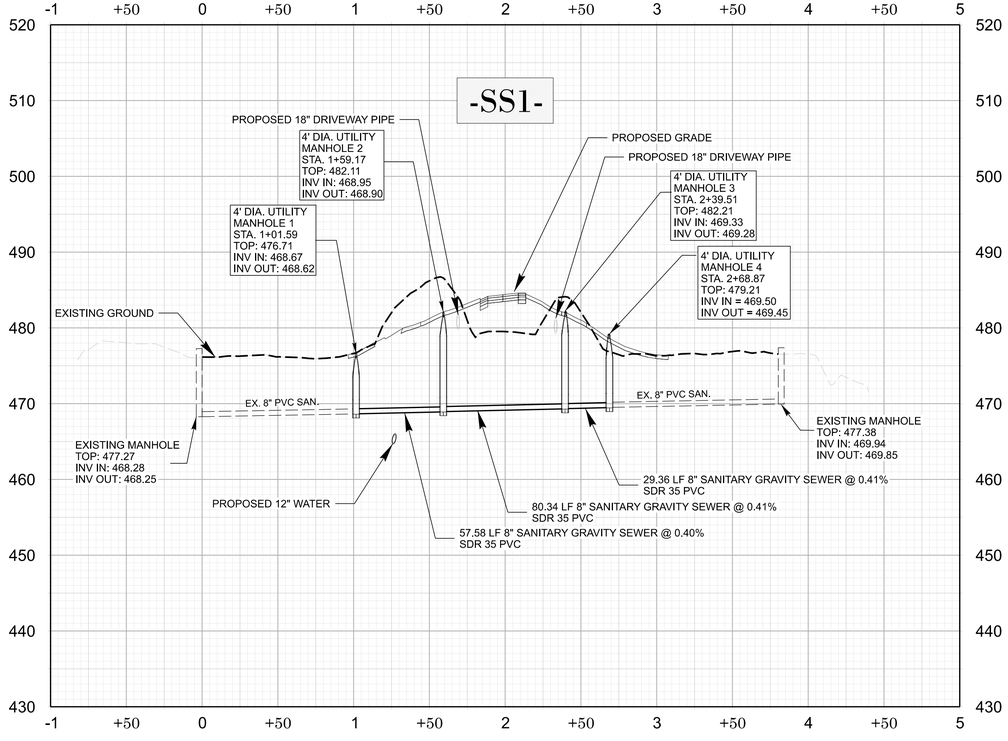
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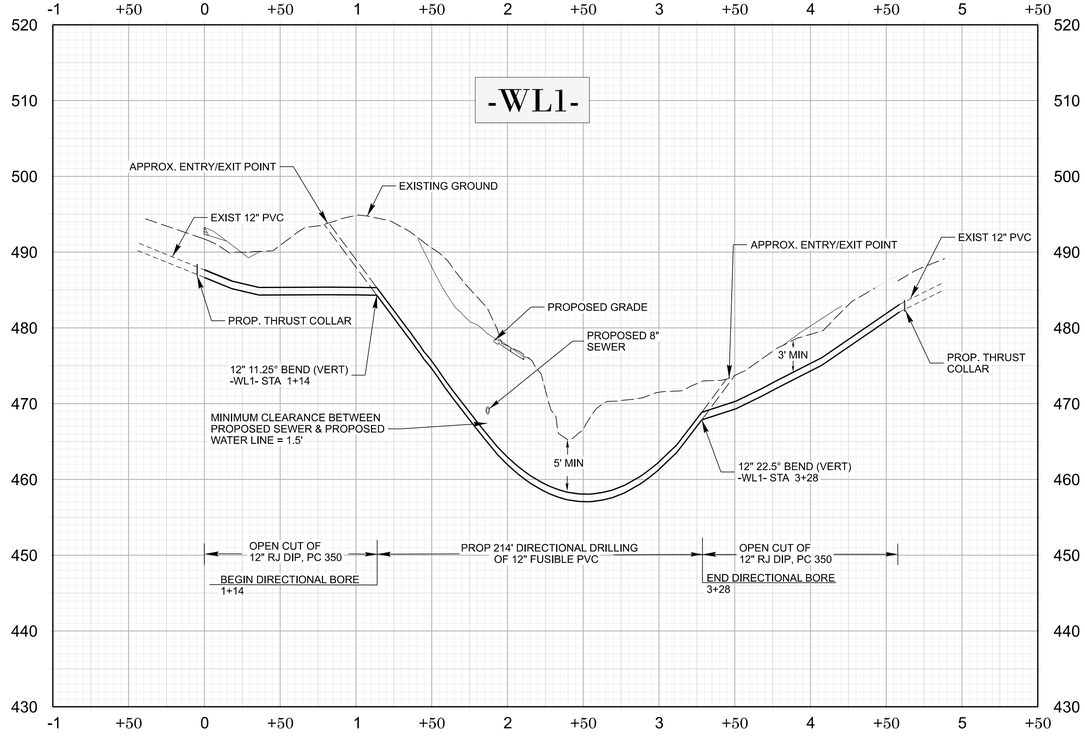
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HB-0071
2RD2 | UC-4
UTILITIES DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032312 ENGINEER CHARLES W HEARNE
10/19/2026
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STATE OF NORTH CAROLINA
ROADWAY DESIGN UNIT
PREPARED BY
wsp
434 FAYETTEVILLE ST. #1500
RALEIGH, N.C. 27601
NC ENG F-1253

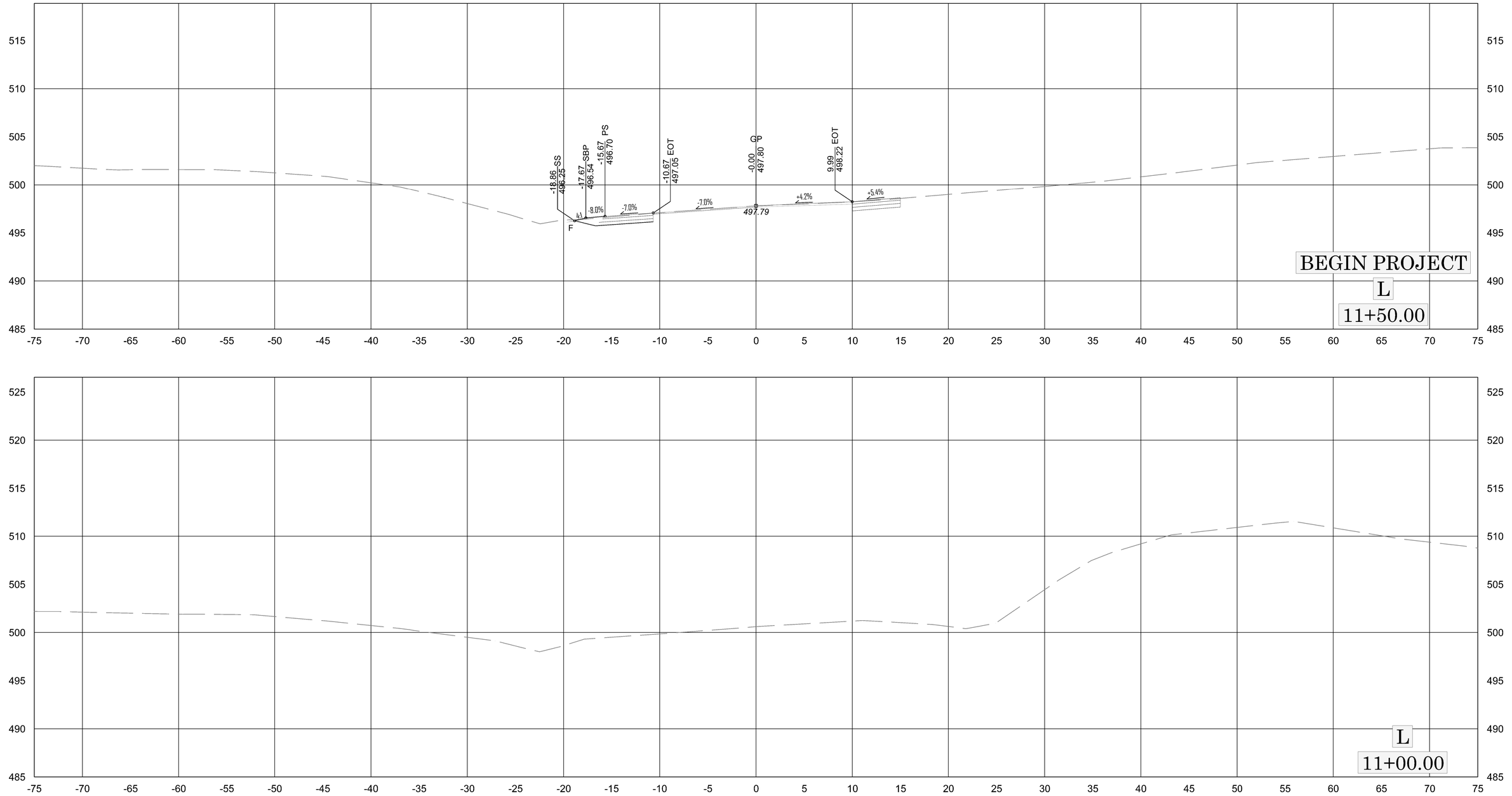
5/26/20

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF CROSS SECTION SHEETS

DESCRIPTION	SHEET NO.
CROSS-SECTION INDEX	X-1
-L-	X-2 THRU X-9
-DR1-	X-10 AND X-11
-DR2-	X-12 AND X-14

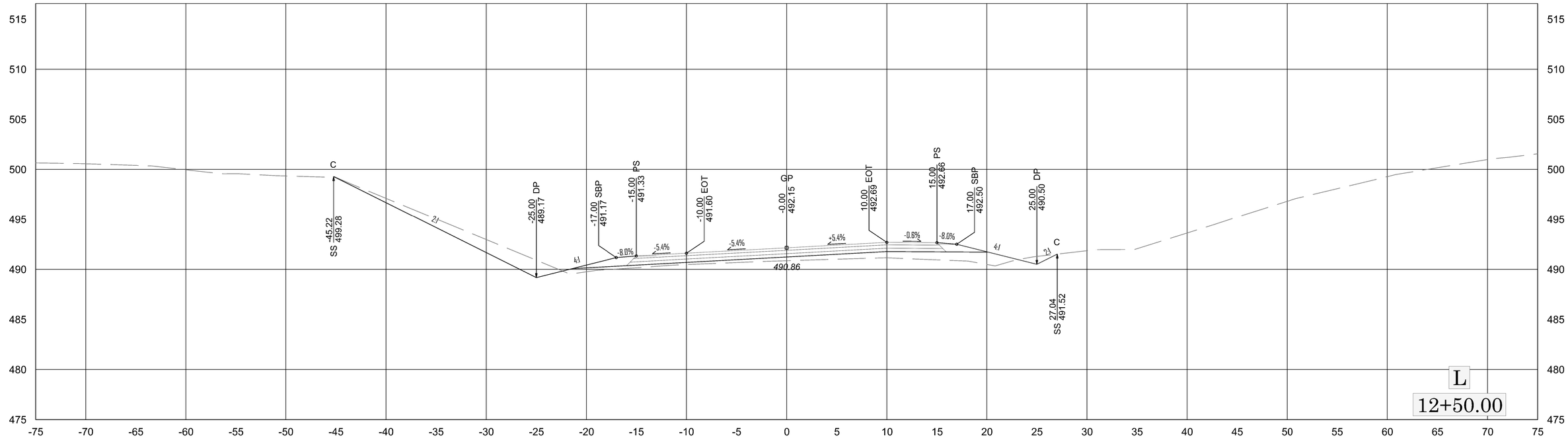
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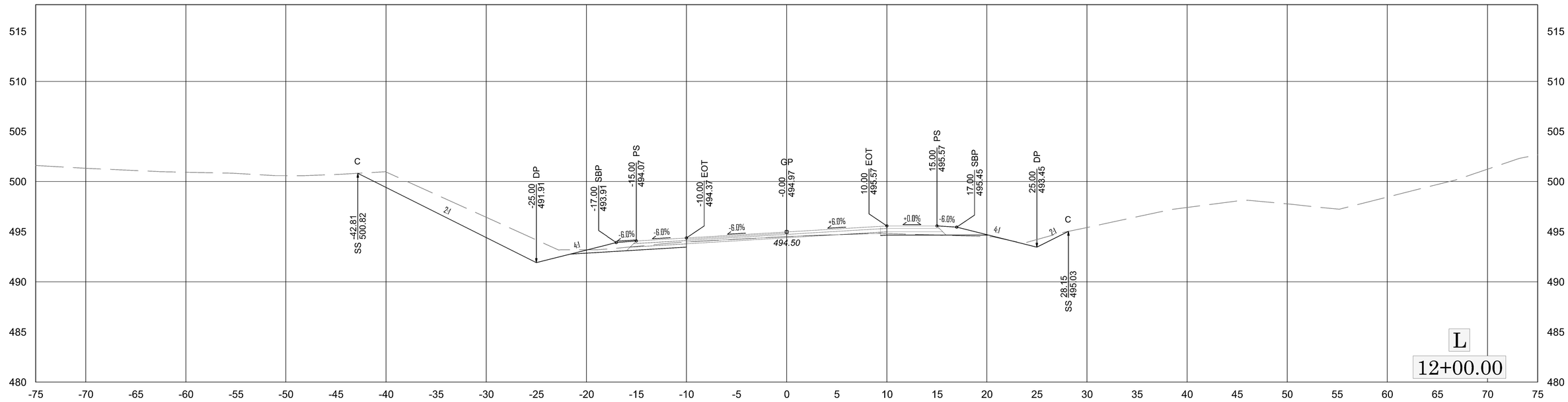

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-10.67 EOT 497.05
-0.00 GP 497.80
9.99 EOT 498.22
-8.0%
-7.0%
-7.0%
+4.2%
+5.4%
497.79
F
BEGIN PROJECT
L
11+50.00
L
11+00.00

5/26/20

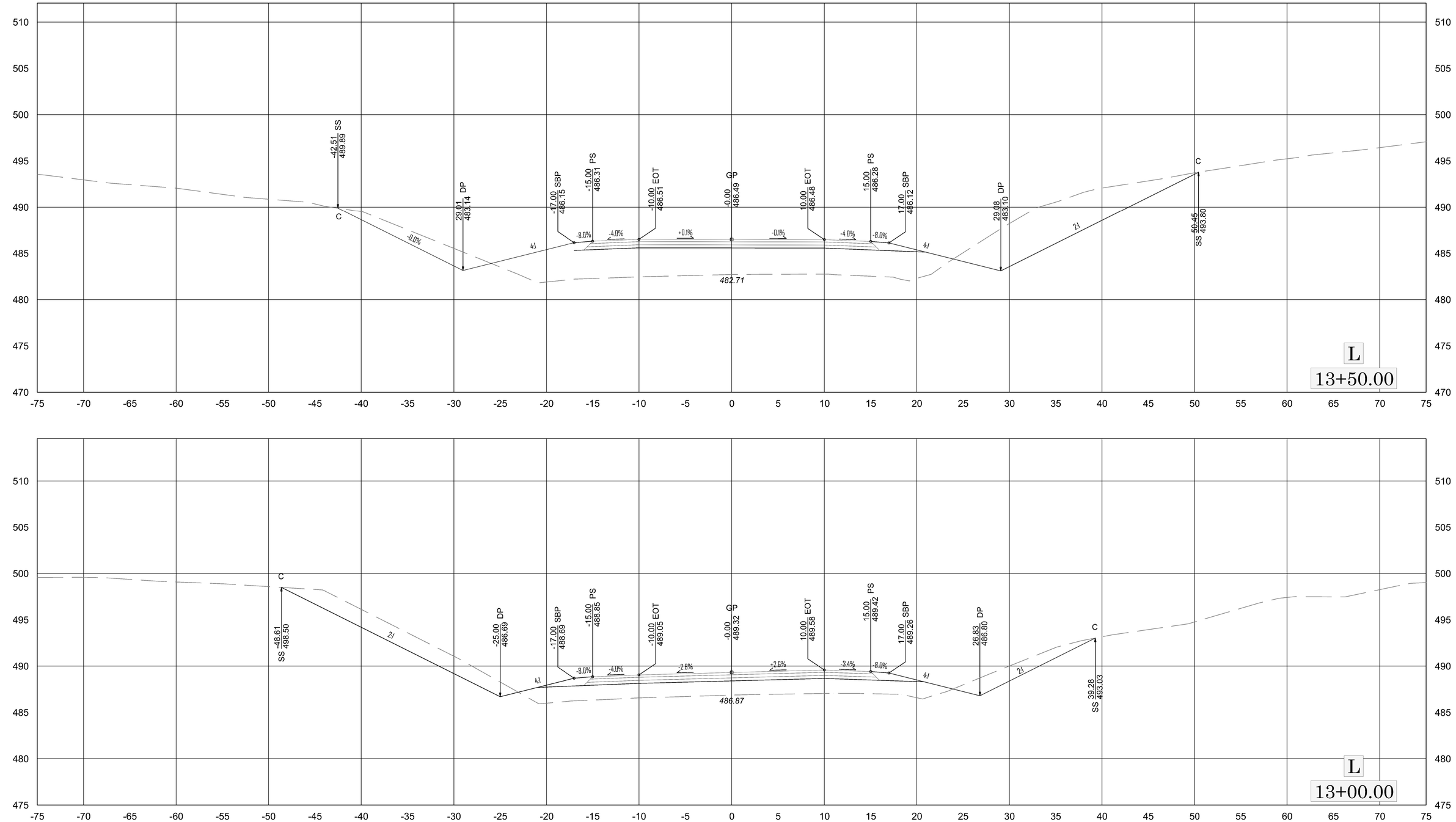
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HB-0071
X-3

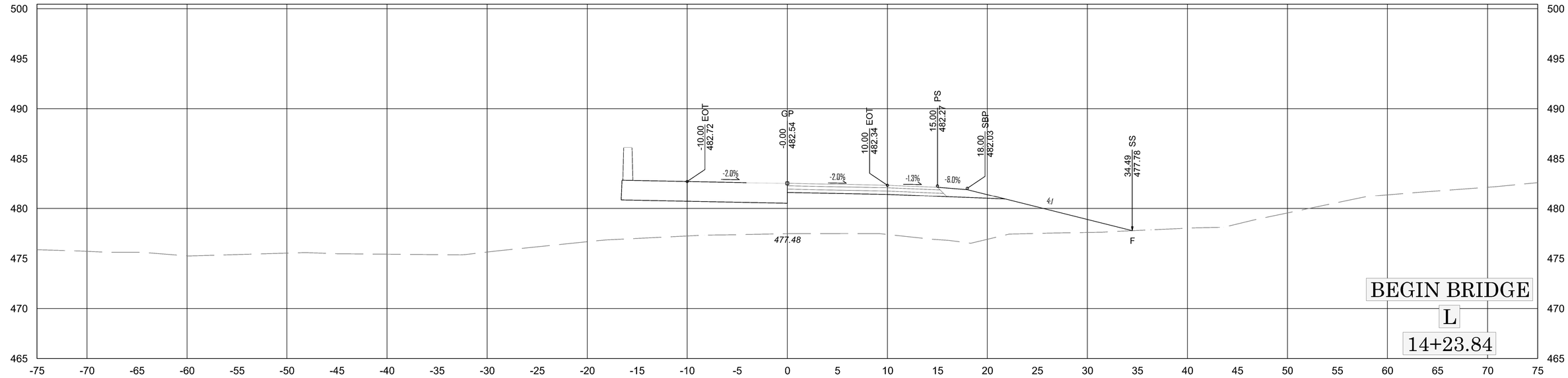


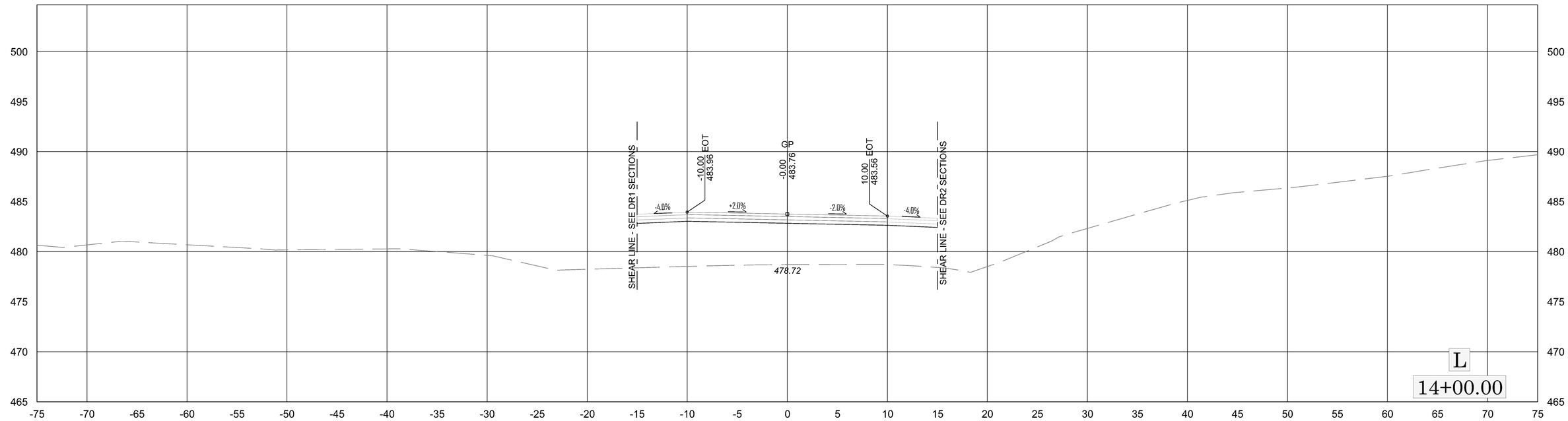


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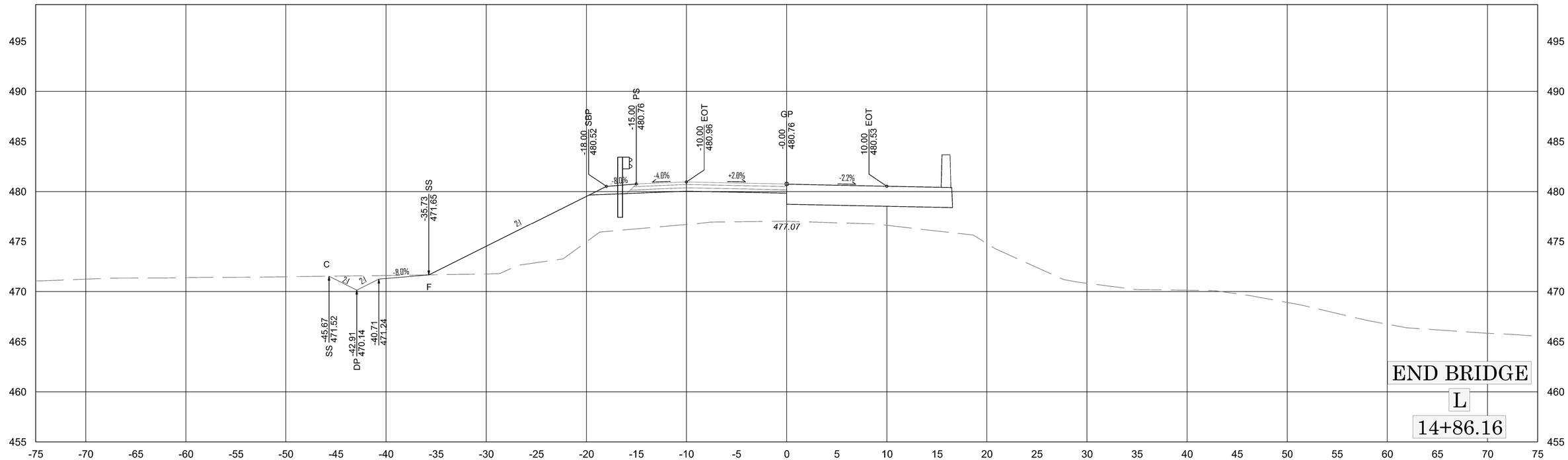

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C
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4:1
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-4.0%
-10.00 EOT 486.51
+0.1%
-0.00 G 486.49
-0.1%
10.00 EOT 486.48
-4.0%
15.00 PS 486.28
-8.0%
17.00 SBP 486.12
4:1
29.08 DP 483.10
2:1
C
50.45 SS 493.80
482.71
L
13+50.00
-48.61 SS 498.50
C
2:1
-25.00 DP 486.69
4:1
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-15.00 PS 488.85
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-4.0%
-10.00 EOT 489.05
-2.6%
-0.00 G 489.32
+2.6%
10.00 EOT 489.58
-3.4%
15.00 PS 489.42
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486.87
L
13+00.00

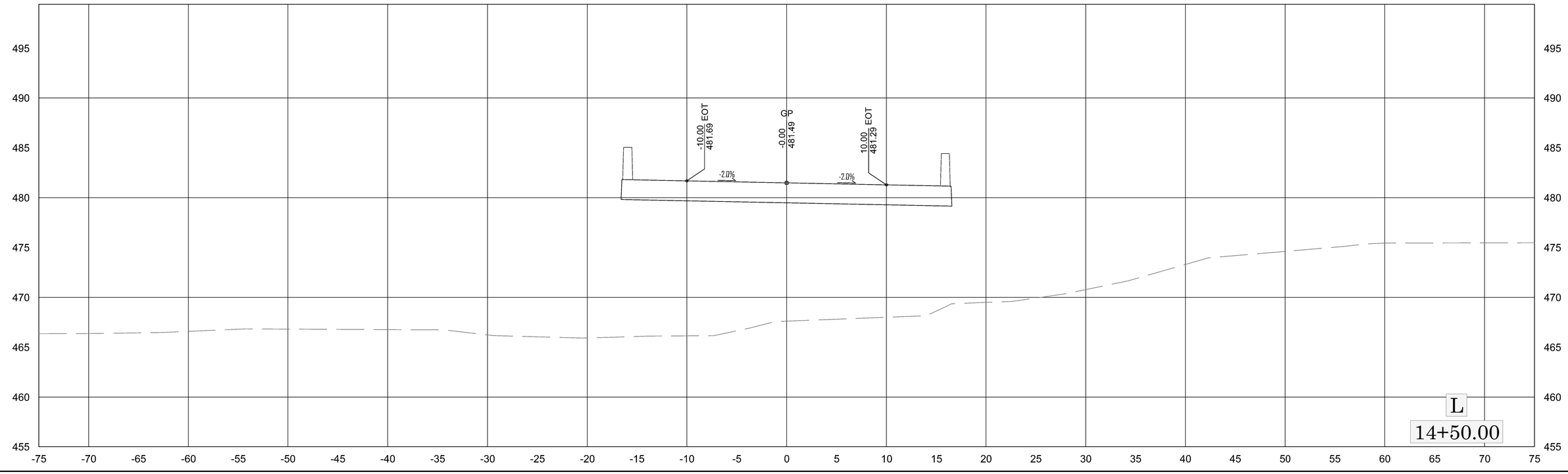
0 5 10


-10.00 EOT
482.72
-0.00 GP
482.54
10.00 EOT
482.34
15.00 PS
482.27
18.00 SBP
482.03
34.49 SS
477.78
-2.0%
-2.0%
-1.3%
-8.0%
4:1
F
477.48
BEGIN BRIDGE
L
14+23.84

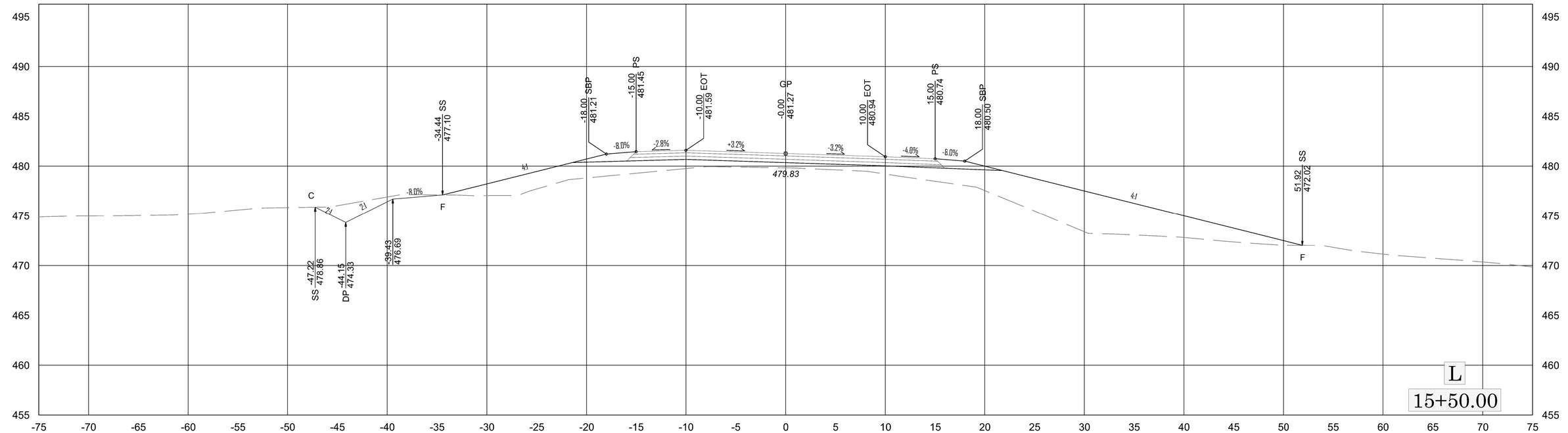

SHEAR LINE - SEE DR1 SECTIONS
SHEAR LINE - SEE DR2 SECTIONS
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483.96
-0.00 GP
483.76
10.00 EOT
483.56
-4.0%
+2.0%
-2.0%
-4.0%
478.72
L
14+00.00

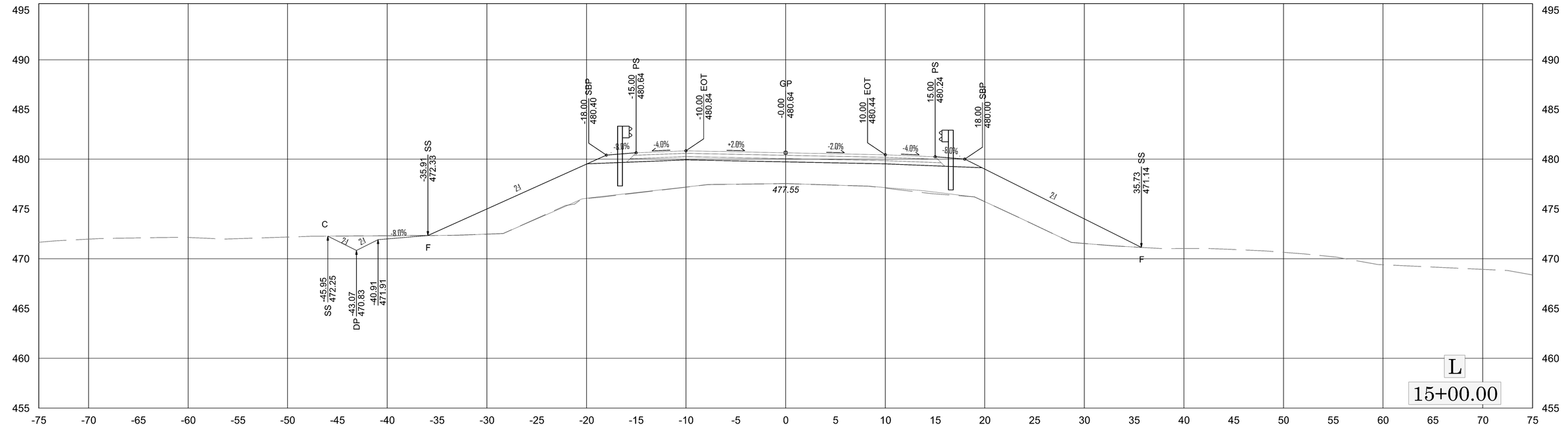
0 5 10


-18.00 SBP 480.52
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-10.00 EOT 480.96
-0.00 GP 480.76
10.00 EOT 480.53
-8.0%
-4.0%
+2.0%
-2.2%
-35.73 SS 471.65
2:1
477.07
C
2:1
2:1
-8.0%
F
SS -45.67 471.52
DP -42.91 470.14
-40.71 471.24
END BRIDGE
L
14+86.16


-10.00 EOT 481.69
-0.00 GP 481.49
10.00 EOT 481.29
-2.0%
-2.0%
L
14+50.00

0 5 10

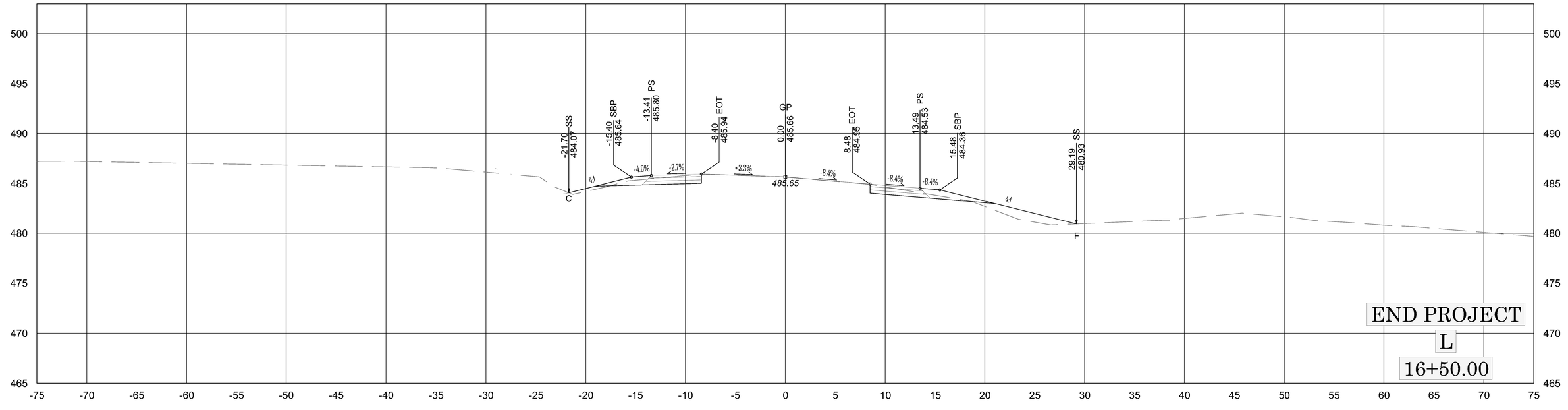

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18.00 SBP 480.50
-34.44 SS 477.10
51.92 SS 472.02
-47.22 SS 478.86
-44.15 DP 474.33
-39.43 476.69
-8.0%
-2.8%
+3.2%
-3.2%
-4.0%
4:1
2:1
479.83
C
F
L
15+50.00

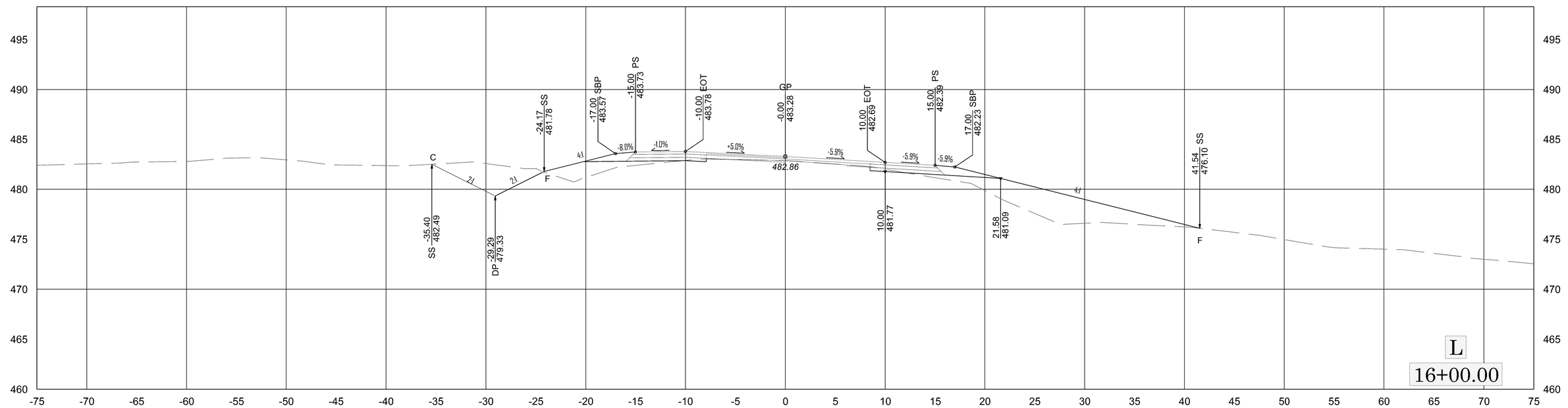

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18.00 SBP 480.00
-35.91 SS 472.33
35.73 SS 471.14
-45.95 SS 472.25
-43.07 DP 470.83
-40.91 471.91
-8.0%
-4.0%
+2.0%
-2.0%
2:1
477.55
C
F
L
15+00.00

5/26/20

0 5 10

HB-0071
X-8



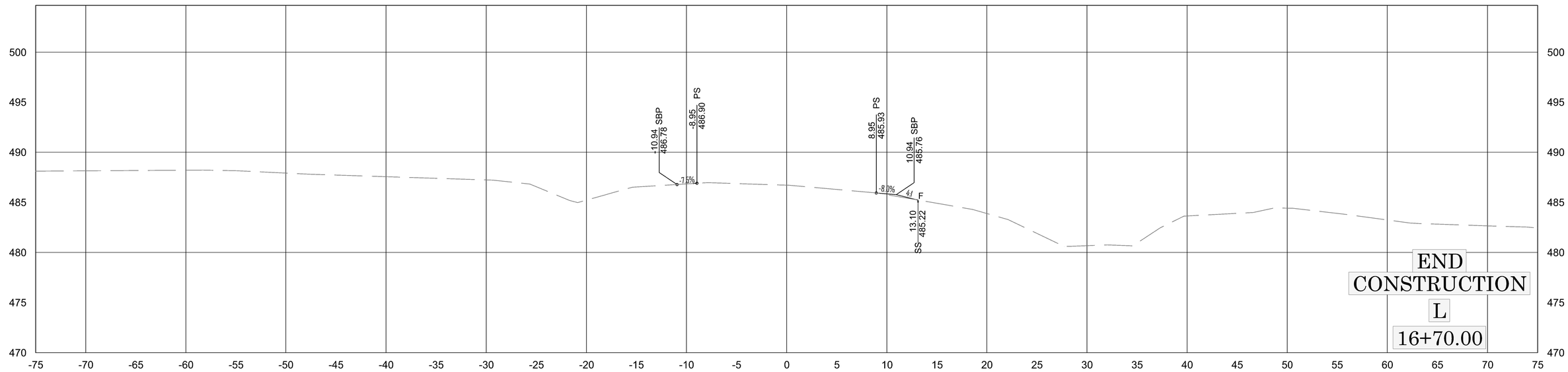


5/26/20

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HB-0071

X-9



09/08/99

TIP PROJECT: HB-0071

CONTRACT: DH00604

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

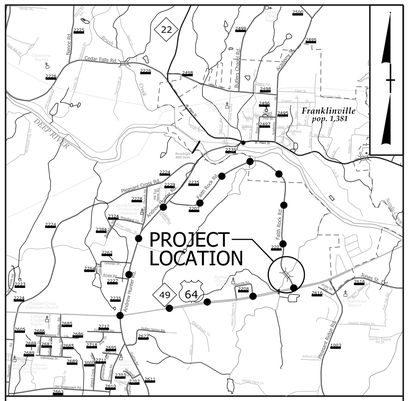
RANDOLPH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0071	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP8.R026.1	N/A	P.E.
51608.2.1	5160801	ROW
BP8.R026.2	N/A	UTIL.
51608.3.1	5160801	CONST.

LOCATION: *BRIDGE 750176 ON SR 2207 (FAITH ROCK RD) OVER UNNAMED CREEK*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, & STRUCTURE*

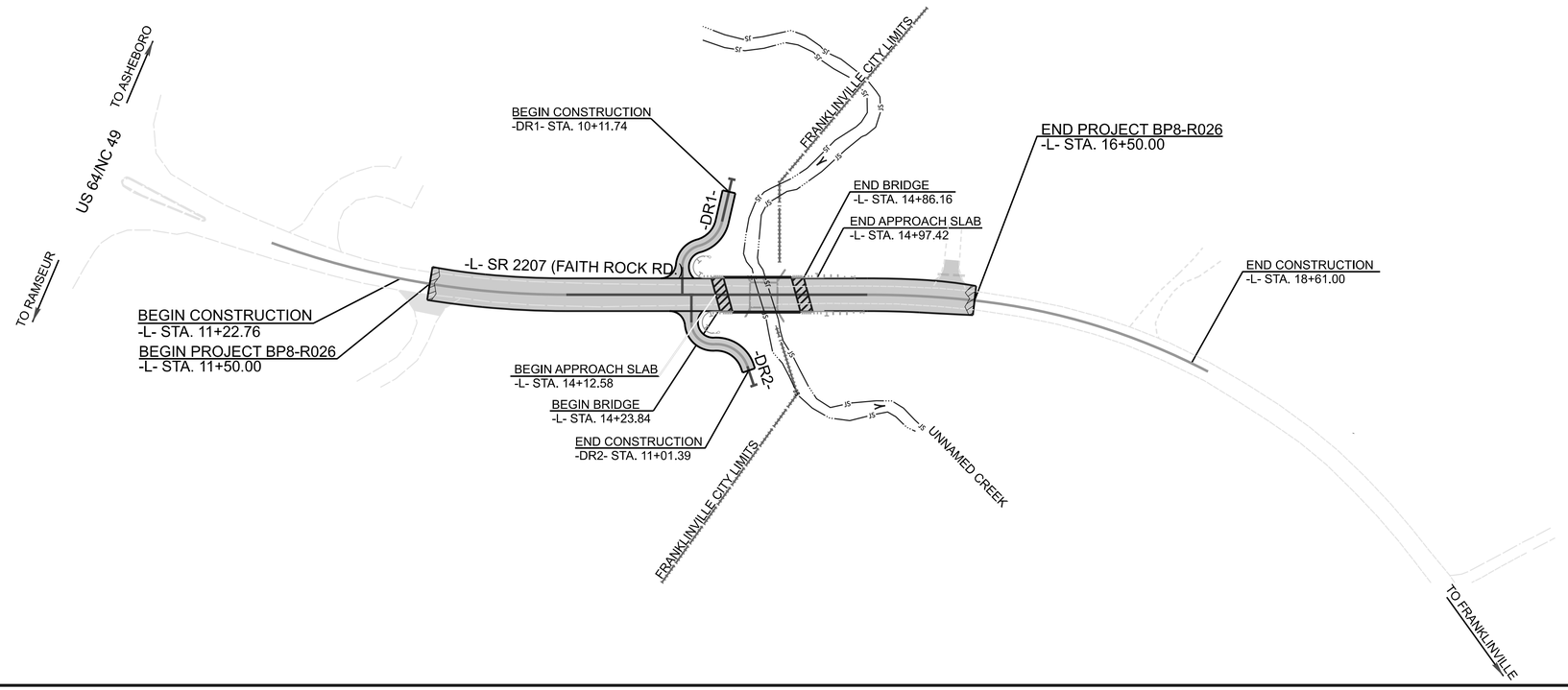


VICINITY MAP (NTS)

OFFSITE DETOUR

NAD 83/ 2011





STRUCTURE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2022 = 300
T = 6%
V = 40 MPH
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BP8.R026 = 0.083 MILES

LENGTH STRUCTURES TIP PROJECT BP8.R026 = 0.012 MILES

TOTAL LENGTH TIP PROJECT BP8.R026 = 0.095 MILES

Prepared for:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2024 STANDARD SPECIFICATIONS

LETTING DATE:
NOVEMBER 10, 2026

EMILY E. MURRAY, PE
PROJECT ENGINEER

PATRICK N. HOLDER, PE
PROJECT DESIGN ENGINEER

TIM WELCH, PE
NCDOT CONTACT

Prepared in the Office of:

VOLKERT
5430 Wade Park Blvd., Suite 410
Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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8/26/21

14+00 14+50 15+00 15+50

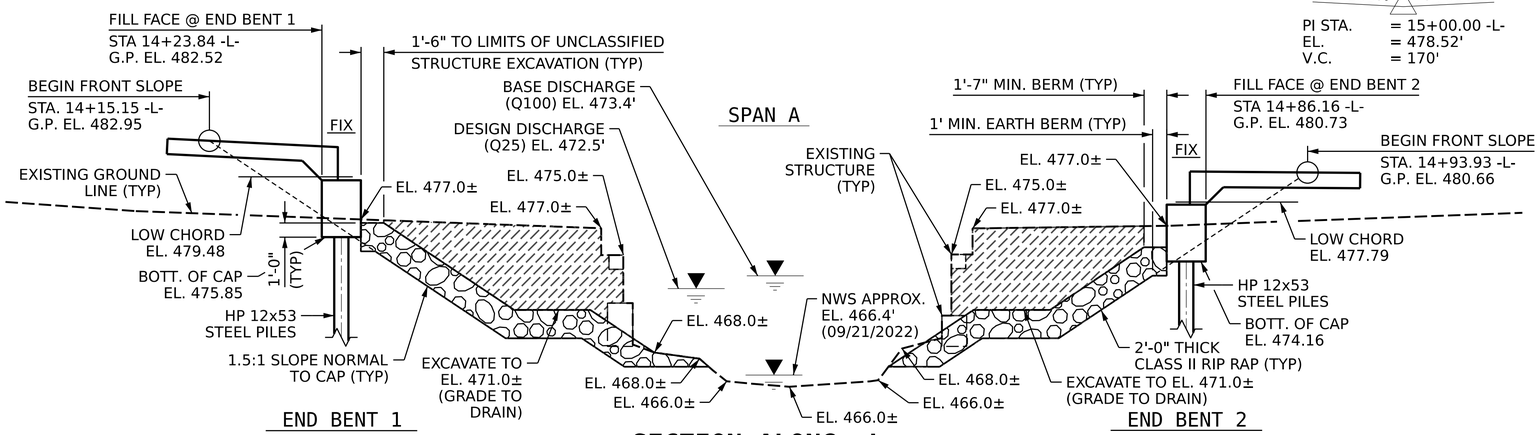
490 480 470 460

GRADE DATA

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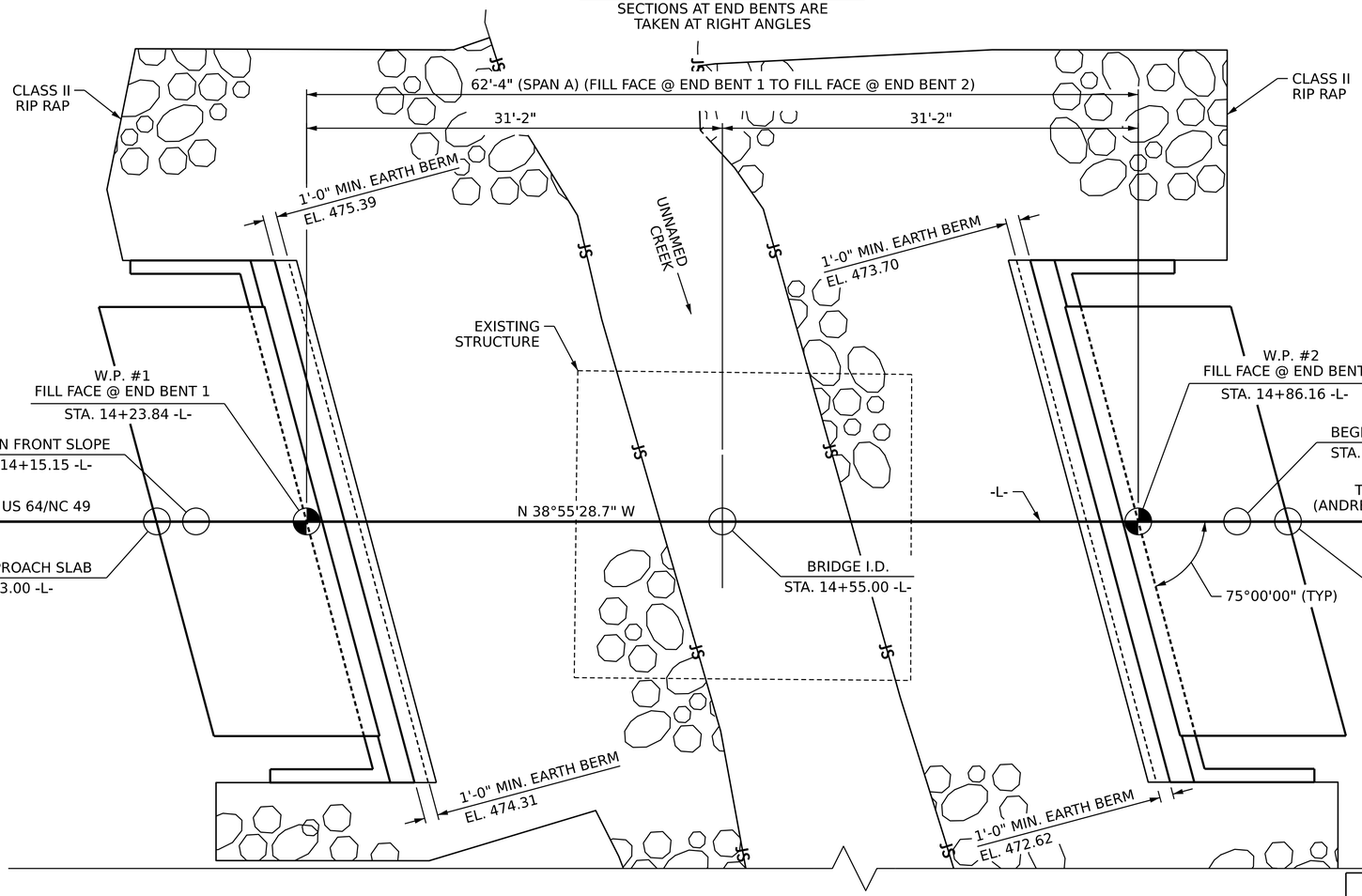
PI STA. = 15+00.00 -L-
EL. = 478.52'
V.C. = 170'

UNCLASSIFIED STRUCTURE EXCAVATION



SECTION ALONG -L-

SECTIONS AT END BENTS ARE TAKEN AT RIGHT ANGLES



PLAN

(PILES NOT SHOWN FOR CLARITY)

NAD 83/ 2011

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. **HB-0071**

RANDOLPH COUNTY

STATION: **14+55.00 -L-**

SHEET 1 OF 4 REPLACES BRIDGE NO. 750176

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR-2207
OVER UNNAMED CREEK
BETWEEN US-64/NC-49 AND
SR 2235 ANDREW HUNTER RD.

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
A68BFE3FD9D74F9...
4/17/2026

VOLKERT
5430 Wade Park Blvd., Suite 410
Raleigh, NC 27607
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

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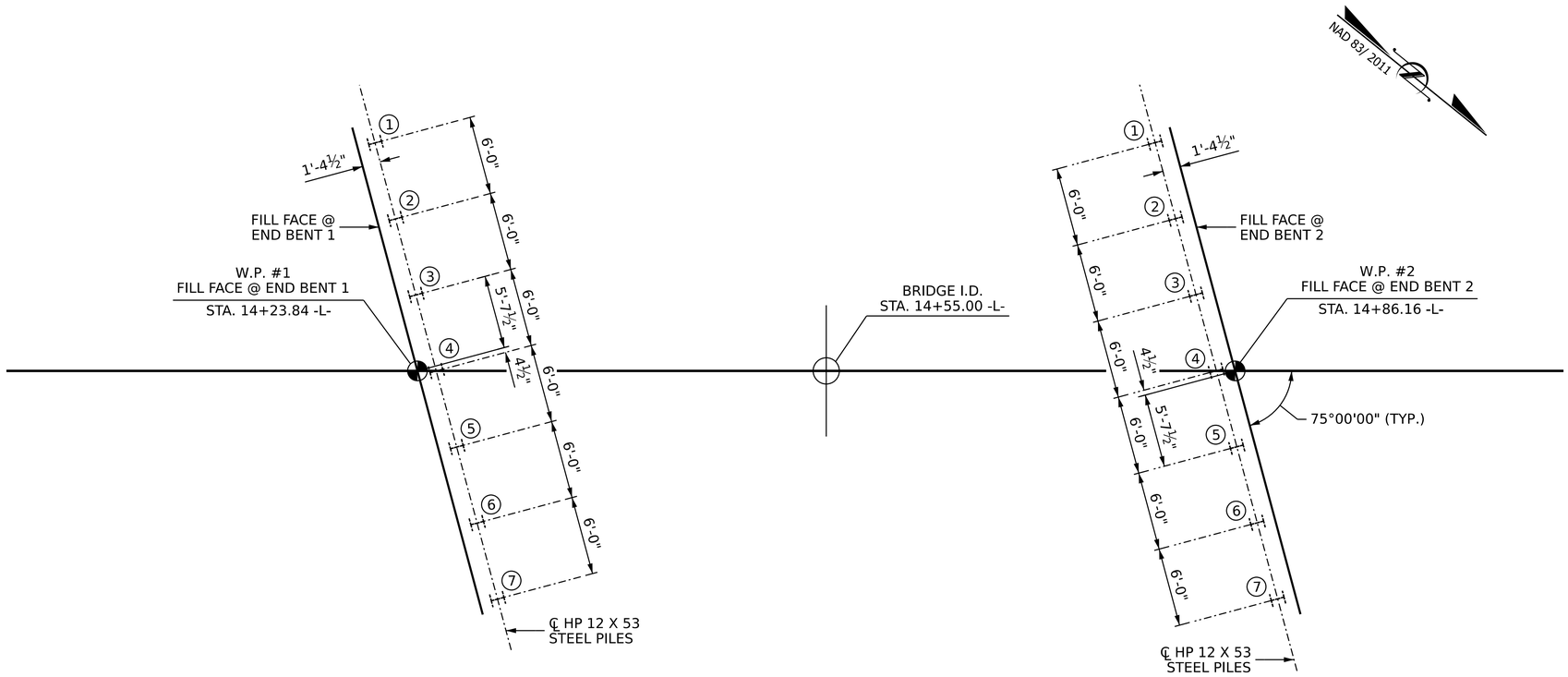
DRAWN BY :	B.H. BARNHILL	DATE :	02/2024
CHECKED BY :	D.A. GLADDEN	DATE :	09/2025
DESIGN ENGINEER OF RECORD:	E. E. MURRAY	DATE :	10/2025

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3/15/2026
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emily.murray

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5/26/20



PLAN

DIMENSIONS LOCATING STEEL PILES ARE SHOWN TO STEEL PILE CENTERLINES.

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FILL HOLES FOR PILE EXCAVATION AT END BENT NO. 1 AND END BENT NO. 2 WITH CONCRETE OR GROUT.

PROJECT NO. HB-0071

RANDOLPH COUNTY

STATION: 14+55.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR-2207
OVER UNNAMED CREEK
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DRAWN BY : A. W. CHAND DATE : 05/2025
CHECKED BY : E. E. MURRAY DATE : 09/2025
DESIGN ENGINEER OF RECORD: E. E. MURRAY DATE : 10/2025

1/12/2026
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annie.wu

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Docusign Envelope ID: 9157C159-2011-4D76-B75C-52C599B89FF8

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")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent No. 1, Piles 1-7	7	150	478.10	15								465.85	2	8
End Bent No. 2, Piles 1-7	7	150	476.40	15								462.16	3	9
TOTAL QUANTITY:													35	119

$$^{*}\,RDR = \frac{Factored\ Resistance\ +Factored\ Drag\ Load\ +\ Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + \ Nominal\ Resistance\ from\ Scourable\ Material$$

** 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.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent No. 1, Piles 1-7	150					
End Bent No. 2, Piles 1-7	150					

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent No. 1, Piles 1-7				
End Bent No. 2, Piles 1-7				
TOTAL QUANTITY:				

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent No. 1, Piles 1-7		
End Bent No. 2, Piles 1-7		
TOTAL QUANTITY:		

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

PROJECT NO. HB-0071

RANDOLPH COUNTY

STATION: 14+55.00 -L-

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Chien-Ting Tang, #047389) on 02/18/2025.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY C. MURRAY

Emily C. Murray

ADOBE ESIGN DATE: 4/17/2026

SIGNATURE DATE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

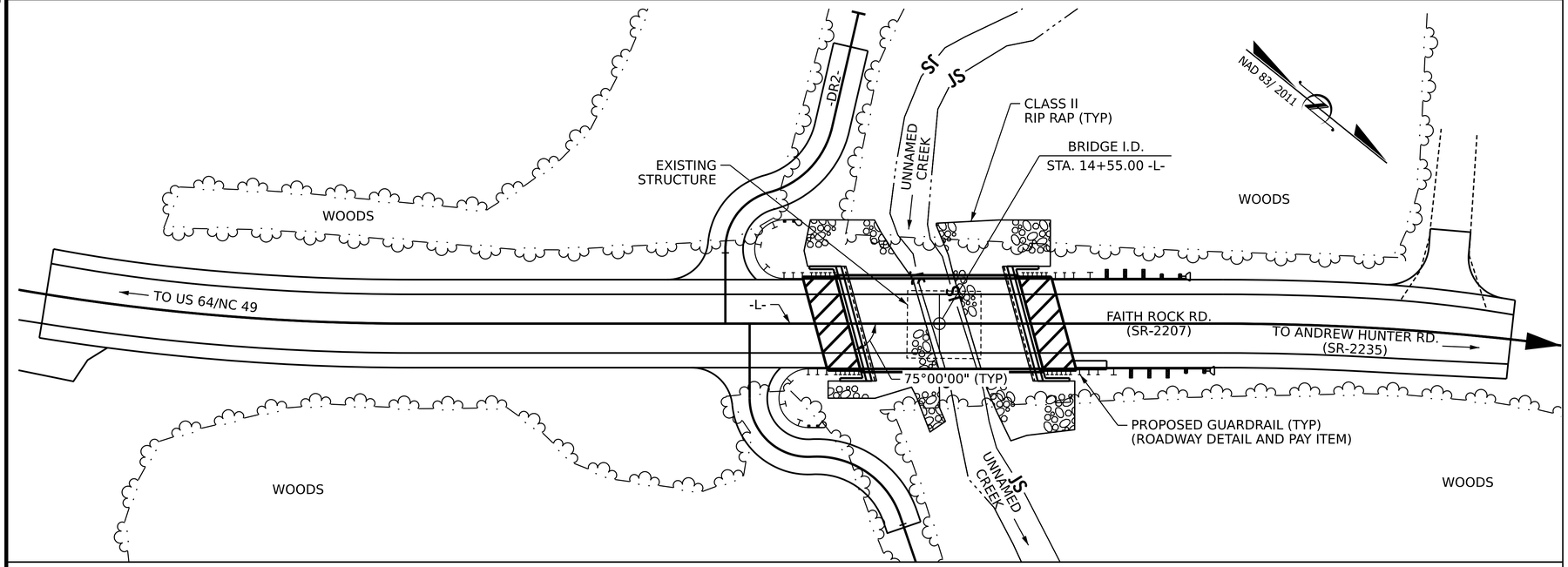
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5/26/20

BM #1: RR SPIKE IN 15' GUM TREE, STA. 15+05.68 -L-, ELEV. = 477.04', OFFSET = 187' RT



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

GENERAL 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 IN SEISMIC ZONE 1.

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

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

THE EXISTING STRUCTURE CONSISTING OF A SINGLE 25'-6" SPAN WITH AN ASPHALT WEARING SURFACE ON TIMBER DECK ON STEEL I BEAMS, HAVING A CLEAR ROADWAY WIDTH OF 23'-1" SUPPORTED ON A SUBSTRUCTURE OF TIMBER CAPS AND TIMBER PILES SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE DURING THE CONSTRUCTION OF THE PROPOSED BRIDGE, LOAD LIMIT 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 CONDITIONS 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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 14+55.00 -L-".

FOR CORED SLAB AND BOX BEAM POST TENSIONING, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 37 FT LEFT AND 45 FT RIGHT OF 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 CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 1000 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 472.5 FT.
DRAINAGE AREA	= 1.58 SQ. MI.
BASE DISCHARGE (Q100)	= 1300 C.F.S.
BASE HIGH WATER ELEVATION	= 473.4 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 3800 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING FLOOD ELEVATION	= 480.8 FT.
OVERTOPPING FLOOD STATION	= 15+03 -L-

SAMPLE BAR REPLACEMENT

SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND f_y = 60ksi.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 14+55.00 -L-	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 14+55.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STA. 14+55.00 -L-	REINFORCING STEEL	HP 12 X 73 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	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							LUMP SUM				120.26			LUMP SUM	11	660
END BENT 1			56	14	LUMP SUM	22.4		2714	7	105		200	222			
END BENT 2			63	21	LUMP SUM	22.4		2714	7	105		210	233			
TOTAL	LUMP SUM	LUMP SUM	119	35	LUMP SUM	44.8	LUMP SUM	5428	14	210	120.26	410	455	LUMP SUM	11	660

PROJECT NO. HB-0071
RANDOLPH COUNTY
STATION: 14+55.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

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BETWEEN US-64/NC-49 AND
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emily.murray

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8/26/21

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

LOAD TYPE		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						
							LIVE-LOAD FACTORS (γ LL)	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)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD		HL-93 (INVENTORY)	N/A	1	1.128	--	1.75	0.270	1.35	60'	EL	29.482	0.608	1.13	60'	EL	2.948	0.80	0.270	1.39	60'	EL	29.482	
		HL-93 (OPERATING)	N/A		1.463	--	1.35	0.270	1.76	60'	EL	29.482	0.608	1.46	60'	EL	2.948	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.381	49.722	1.75	0.270	1.72	60'	EL	29.482	0.608	1.38	60'	EL	2.948	0.80	0.270	1.76	60'	EL	29.482	
		HS-20 (OPERATING)	36.000		1.790	64.455	1.35	0.270	2.22	60'	EL	29.482	0.608	1.79	60'	EL	2.948	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.791	51.185	1.4	0.270	4.62	60'	EL	29.482	0.608	4.02	60'	EL	2.948	0.80	0.270	3.79	60'	EL	29.482	
		SNGARBS2	20.000		2.888	57.751	1.4	0.270	3.53	60'	EL	29.482	0.608	2.89	60'	EL	2.948	0.80	0.270	2.90	60'	EL	29.482	
		SNAGRIS2	22.000		2.691	59.194	1.4	0.270	3.39	60'	EL	29.482	0.608	2.69	60'	EL	2.948	0.80	0.270	2.78	60'	EL	29.482	
		SNCOTTS3	27.250		1.889	51.473	1.4	0.270	2.30	60'	EL	29.482	0.608	2.01	60'	EL	2.948	0.80	0.270	1.89	60'	EL	29.482	
		SNAGGRS4	34.925		1.608	56.157	1.4	0.270	1.96	60'	EL	29.482	0.608	1.69	60'	EL	2.948	0.80	0.270	1.61	60'	EL	29.482	
		SNS5A	35.550		1.570	55.826	1.4	0.270	1.91	60'	EL	29.482	0.608	1.72	60'	EL	2.948	0.80	0.270	1.57	60'	EL	29.482	
		SNS6A	39.950		1.453	58.064	1.4	0.270	1.77	60'	EL	29.482	0.608	1.58	60'	EL	2.948	0.80	0.270	1.45	60'	EL	29.482	
		SNS7B	42.000		1.385	58.152	1.4	0.270	1.69	60'	EL	29.482	0.608	1.56	60'	EL	2.948	0.80	0.270	1.38	60'	EL	29.482	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.776	58.612	1.4	0.270	2.16	60'	EL	29.482	0.608	1.87	60'	EL	2.948	0.80	0.270	1.78	60'	EL	29.482	
		TNT4A	33.075		1.787	59.120	1.4	0.270	2.18	60'	EL	29.482	0.608	1.81	60'	EL	2.948	0.80	0.270	1.79	60'	EL	29.482	
		TNT6A	41.600		1.474	61.310	1.4	0.270	1.79	60'	EL	29.482	0.608	1.68	60'	EL	2.948	0.80	0.270	1.47	60'	EL	29.482	
		TNT7A	42.000		1.488	62.489	1.4	0.270	1.81	60'	EL	29.482	0.608	1.62	60'	EL	2.948	0.80	0.270	1.49	60'	EL	29.482	
		TNT7B	42.000		1.515	63.636	1.4	0.270	1.89	60'	EL	29.482	0.608	1.52	60'	EL	2.948	0.80	0.270	1.55	60'	EL	29.482	
		TNAGRIT4	43.000		1.464	62.958	1.4	0.270	1.79	60'	EL	29.482	0.608	1.46	60'	EL	2.948	0.80	0.270	1.47	60'	EL	29.482	
		TNAGT5A	45.000		1.378	62.016	1.4	0.270	1.68	60'	EL	29.482	0.608	1.47	60'	EL	2.948	0.80	0.270	1.38	60'	EL	29.482	
		TNAGT5B	45.000	3	1.356	61.038	1.4	0.270	1.65	60'	EL	29.482	0.608	1.39	60'	EL	2.948	0.80	0.270	1.36	60'	EL	29.482	
EMERGENCY VEHICLE (EV)		EV2	28.750		2.180	62.615	1.3	0.270	2.69	60'	EL	29.482	0.608	2.18	60'	EL	2.948	0.80	0.270	2.25	60'	EL	29.482	
		EV3	43.000	4	1.464	62.958	1.3	0.270	1.75	60'	EL	29.482	0.608	1.47	60'	EL	2.948	0.80	0.270	1.46	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 * *

(4) EMERGENCY VEHICLE LOAD RATING **

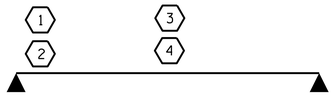
* * SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER

EL - EXTERIOR LEFT GIRDER

ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN "A"

PROJECT NO. HB-0071

RANDOLPH COUNTY

STATION: 14+55.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY

Emily E. Murray
4/17/2026

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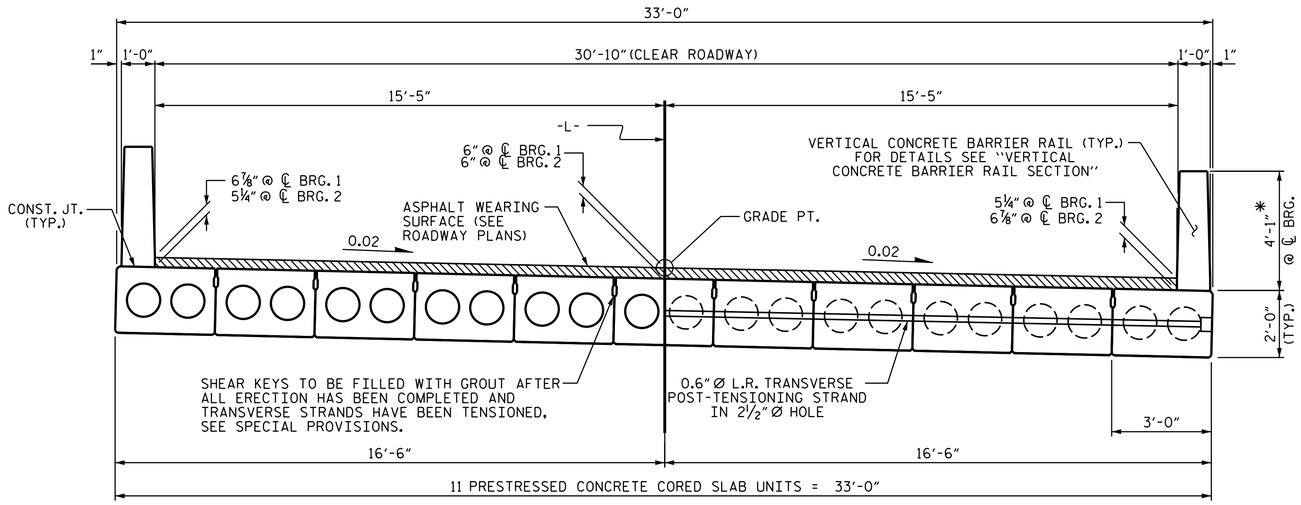
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2			4			15

ASSEMBLED BY:	D. A. GLADDEN	DATE :	12/24
CHECKED BY :	E. E. MURRAY	DATE :	10/25
DRAWN BY : CVC	6/10	REV. BY : BNB/AKP	06/23
CHECKED BY : DNS	6/10		

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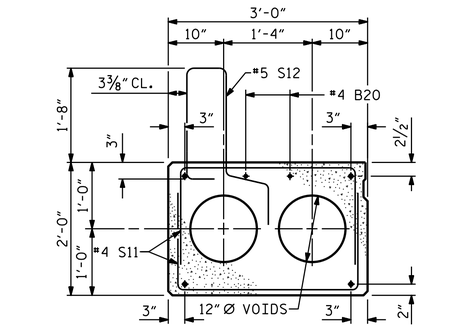


HALF SECTION THROUGH VOIDS

HALF SECTION AT INTERMEDIATE DIAPHRAGMS

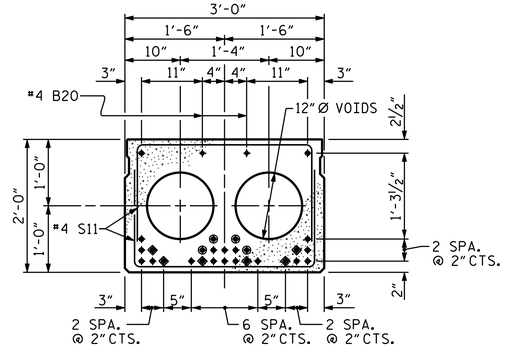
TYPICAL SECTION

* - 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.



EXTERIOR SLAB SECTION

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



INTERIOR SLAB SECTION (60' UNIT)

(24 STRANDS REQUIRED)

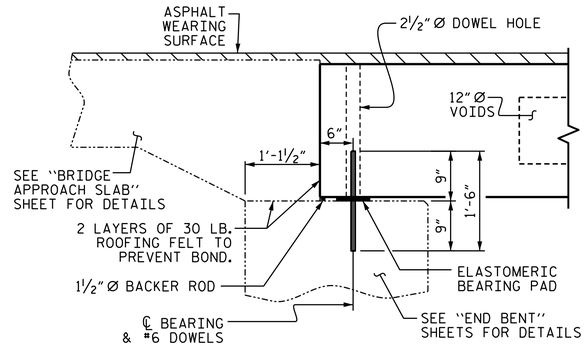
0.6'' Ø LOW RELAXATION STRAND LAYOUT

◈ 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.

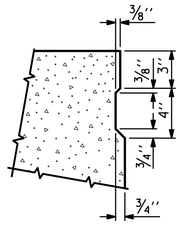
◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

FIXED END



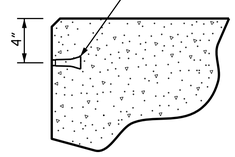
SECTION AT END BENT



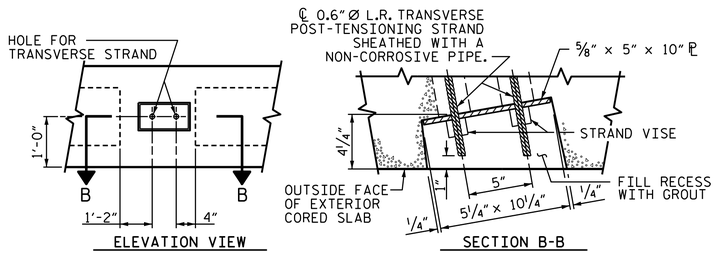
SHEAR KEY DETAIL

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

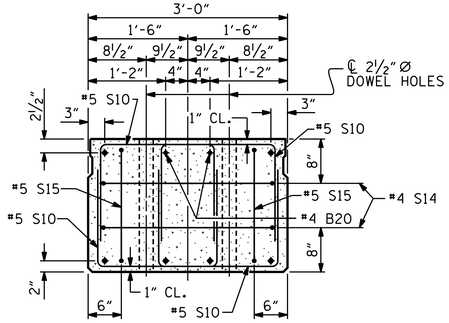
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED ⅜". SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



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.

ASSEMBLED BY : D. A. GLADDEN	DATE : 12/24		
CHECKED BY : E. E. MURRAY	DATE : 10/25		
DRAWN BY : MAA	6/10	REV. 9/14	MAA/TMG
CHECKED BY : MKT	7/10		

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NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
ASSISTANT SECRETARY
1/7/2026

PROJECT NO. HB-0071
RANDOLPH COUNTY
STATION: 14+55.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

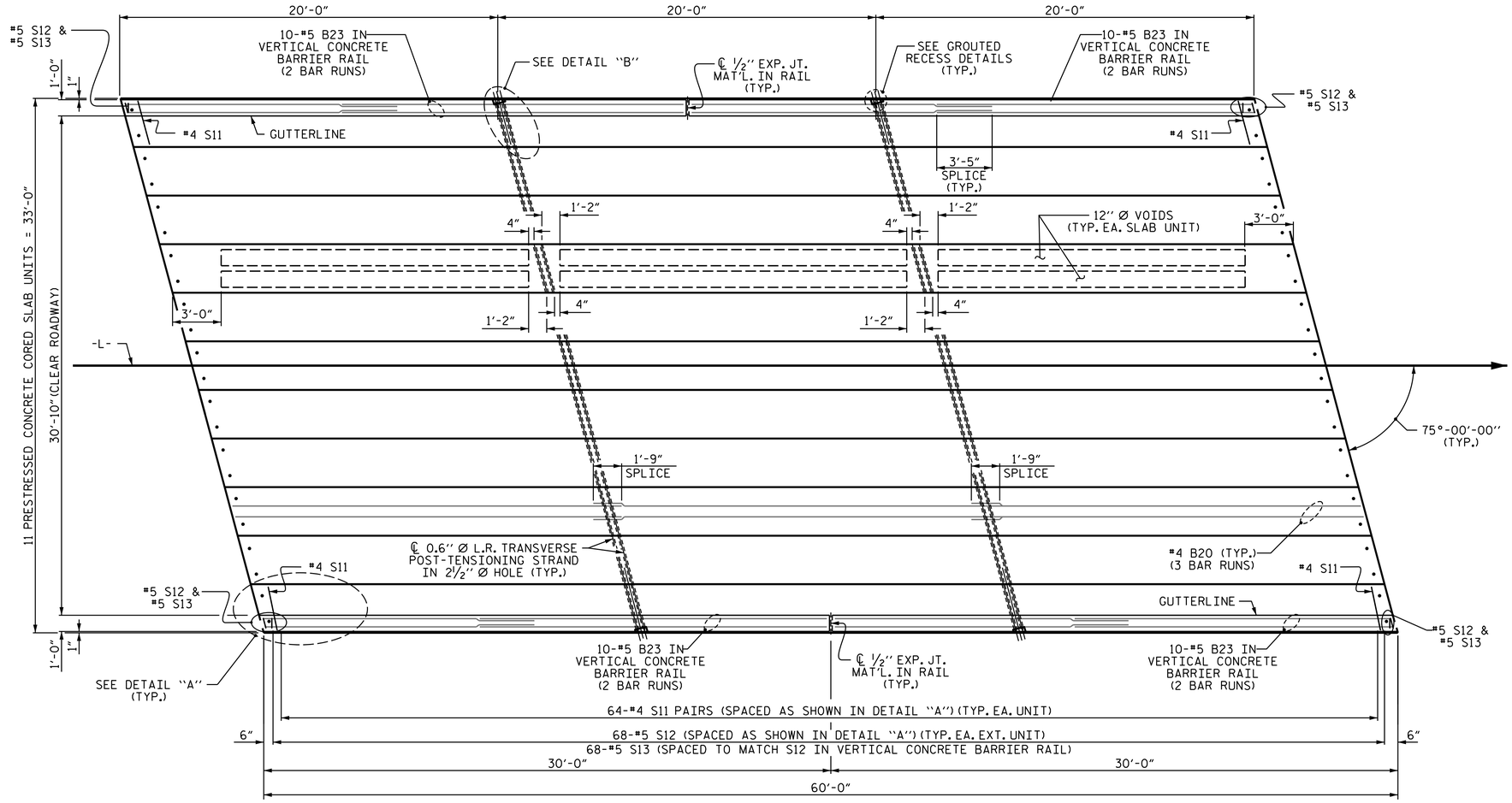
3'-0'' X 2'-0'' PRESTRESSED CONCRETE CORED SLAB UNIT

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1			3			TOTAL SHEETS
2			4			15

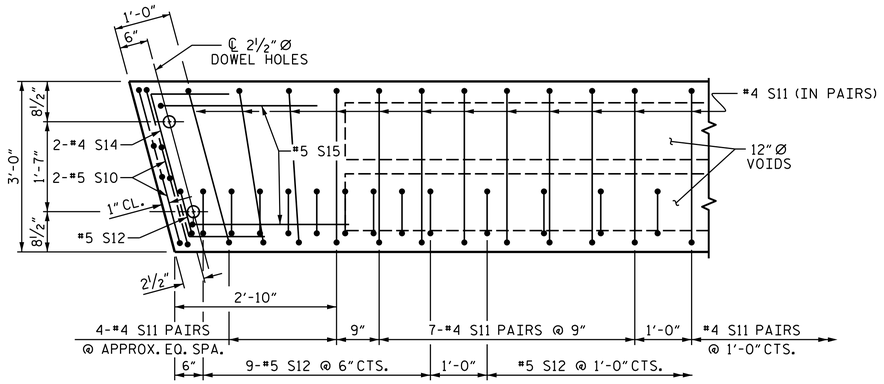
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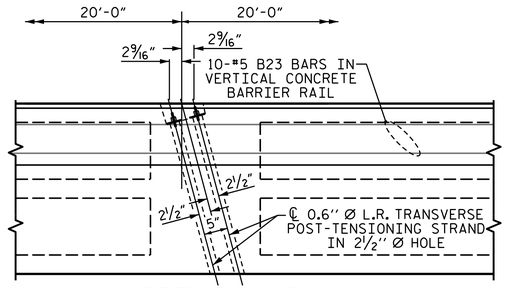


PLAN OF UNIT



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

ASSEMBLED BY :	D. A. GLADDEN	DATE :	12/24
CHECKED BY :	E. E. MURRAY	DATE :	10/25
DRAWN BY :	MAA		6/10
CHECKED BY :	MKT		7/10
REV.	12/5/11		MAA/AAC
REV.	8/14		MAA/TMG

11/25/2025
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NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
4/17/2026

PROJECT NO. HB-0071
RANDOLPH COUNTY
STATION: 14+55.00 -L-

SHEET 2 OF 3

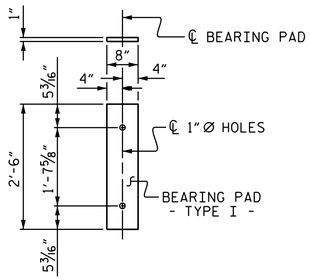
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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2			4			15

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FIXED END
(TYPE I - 22 REQ'D)

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.		16.8
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		120.26

CORED SLABS REQUIRED

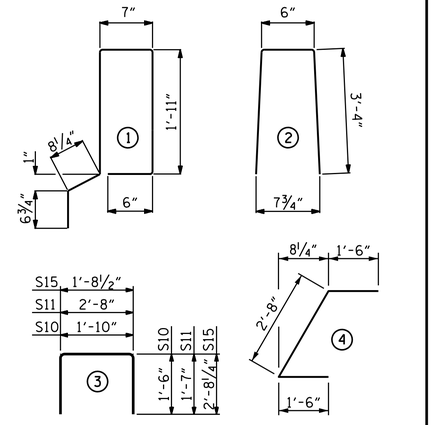
	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	9	60'-0"	540'-0"
TOTAL	11	60'-0"	660'-0"

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

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 2½"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, ½" 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 REQUIREDFOR 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.

FOR CORED SLAB AND BOX BEAM POST TENSIONING, SEE SPECIAL PROVISIONS.

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

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	6'-2"	452		
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.		452			
6000 P.S.I. CONCRETE		CU. YDS.		10.3		10.3	
0.6"Ø L.R. STRANDS		No.		24		24	

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
60' UNITS	1½"	3'-7½"

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

END VIEW

SIDE VIEW

VERTICAL CONCRETE BARRIER RAIL DETAILS

END OF RAIL DETAILS

CONCRETE RELEASE STRENGTH

UNIT	PSI
60' UNITS	4800

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

PROJECT NO. HB-0071
RANDOLPH COUNTY
STATION: 14+55.00 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0"X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

ASSEMBLED BY : D. A. GLADDEN	DATE : 12/24
CHECKED BY : E. E. MURRAY	DATE : 10/25
DRAWN BY : MAA	6/10
CHECKED BY : MKT	7/10
REV. 5/18 MAA/THC	

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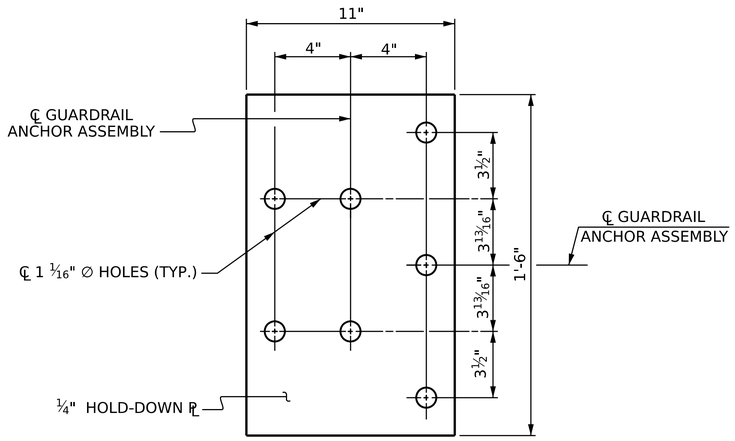
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1			3			TOTAL SHEETS
2			4			15

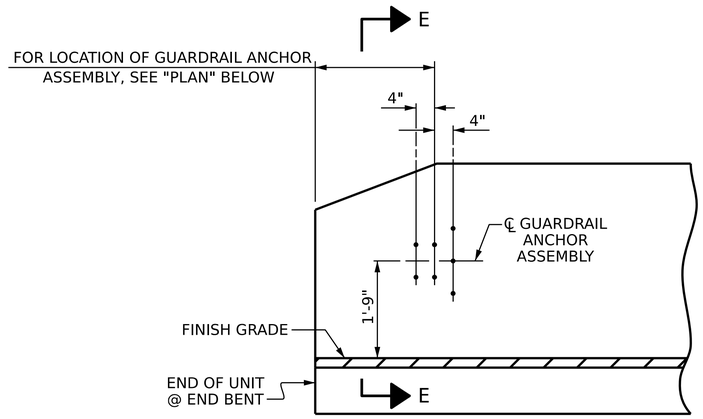
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PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼'' HOLD DOWN PLATE AND 7 - ⅞'' ∅ 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 ⅞'' ∅ 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.)

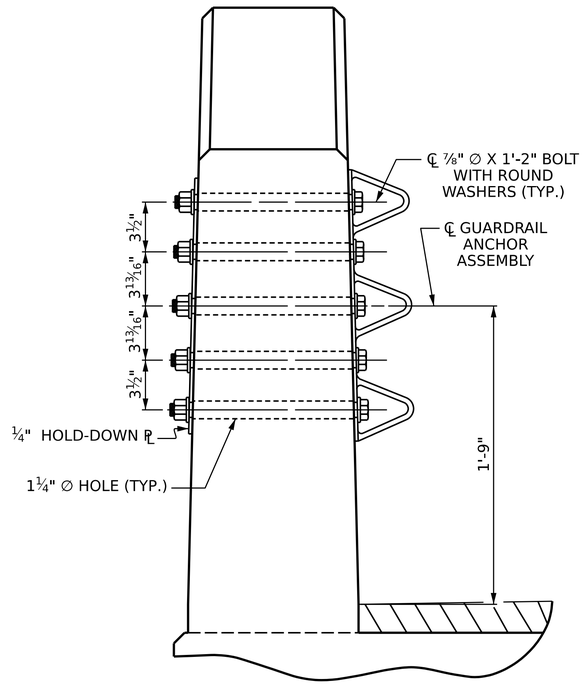
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 ¼'' ∅ 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

GUARDRAIL ANCHOR ASSEMBLY DETAILS

PLAN



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

LOCATION OF ANCHORS FOR GUARDRAIL

PROJECT NO. HB-0071

RANDOLPH COUNTY

STATION: 14+55.00 -L-

ASSEMBLED BY : A. W. CHAND	DATE : 09/25		
CHECKED BY : E. E. MURRAY	DATE : 10/25		
DRAWN BY : MAA 5/10	REV. 1/15	MAA/TMG	
CHECKED BY : GM 5/10	REV. 12/17	MAA/THC	
	REV. 5/18	MAA/THC	

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Emily E. Murray
1/7/2026

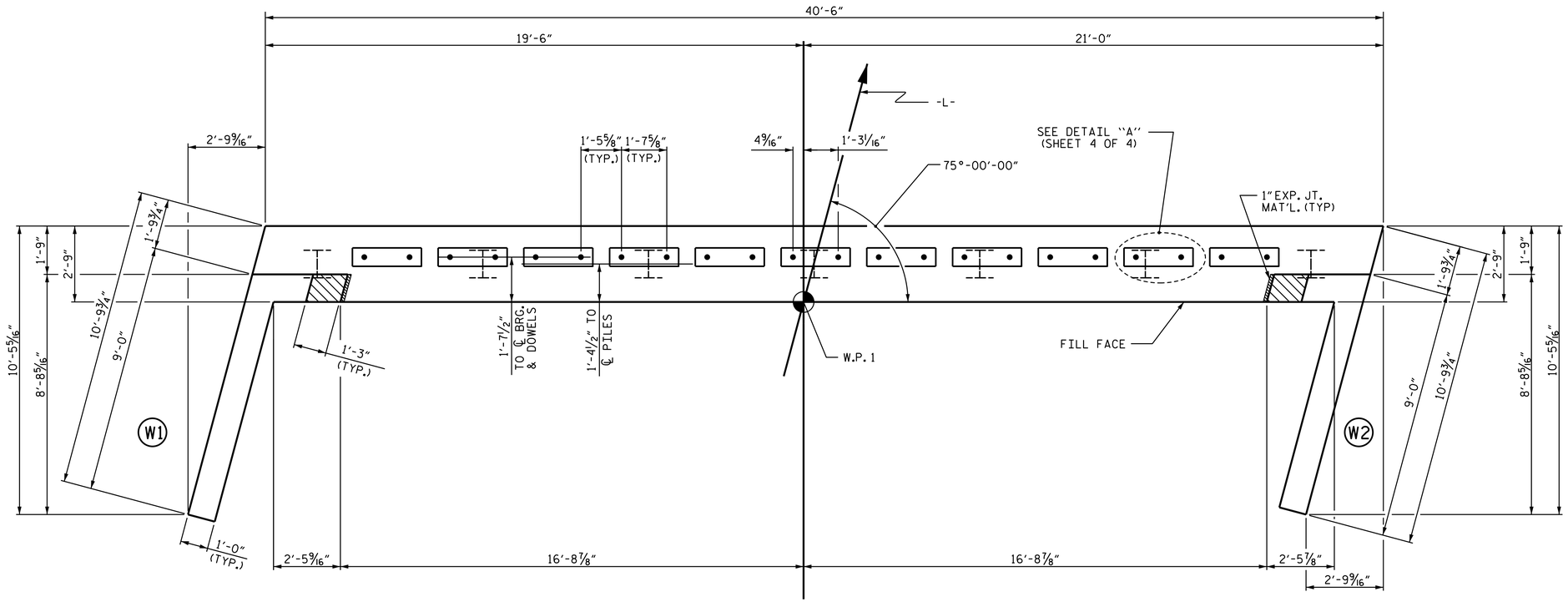
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RALEIGH
STANDARD

GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

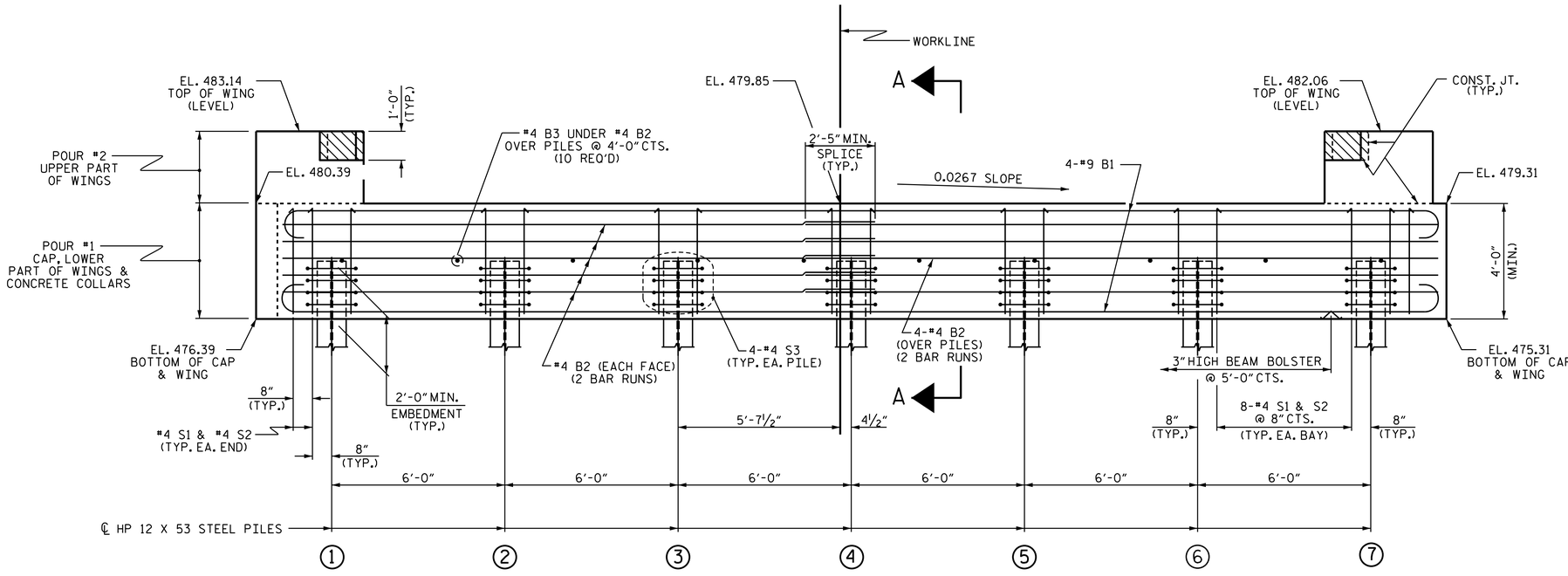
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PLAN



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	478.33
2	478.17
3	478.01
4	477.85
5	477.69
6	477.53
7	477.37

PROJECT NO. HB-0071
RANDOLPH COUNTY
STATION: 14+55.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

ASSEMBLED BY :	D. A. GLADDEN DATE : 12/24
CHECKED BY :	E. E. MURRAY DATE : 10/25
DRAWN BY :	WJH 12/11
CHECKED BY :	AAC 12/11
REV. 4/15	MAA/TMG

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NC License No. F-0765

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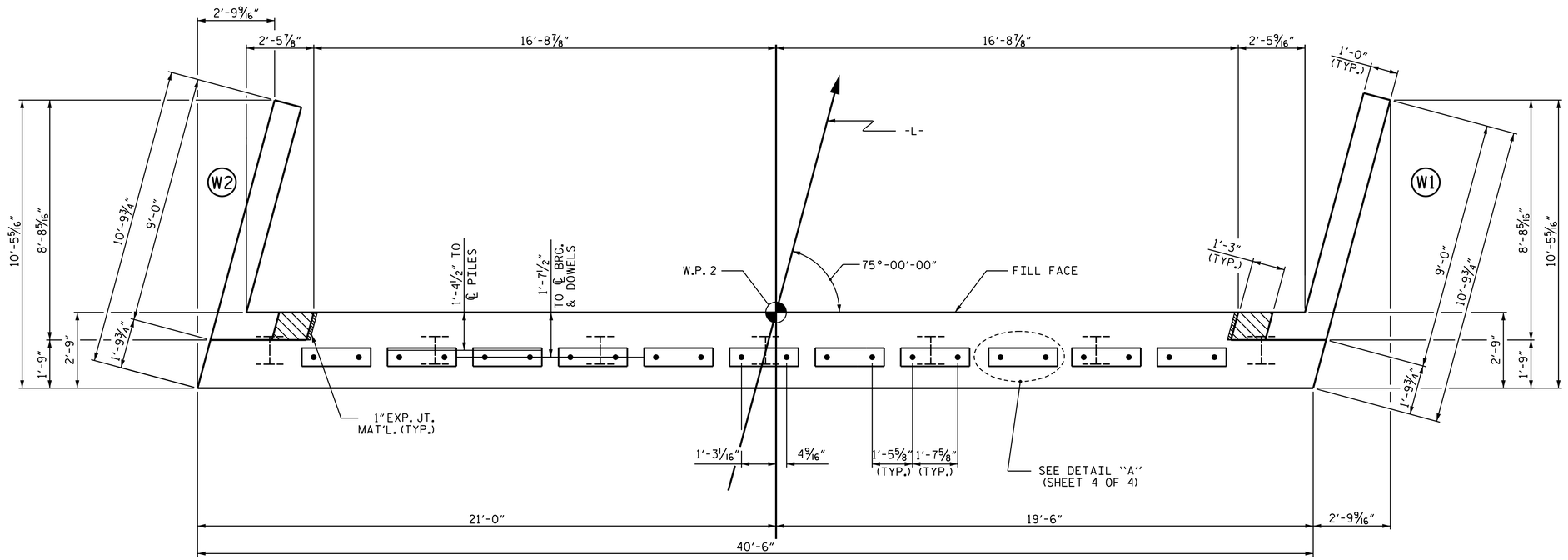
NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
ASSISTANT DIRECTOR 1/9/2026

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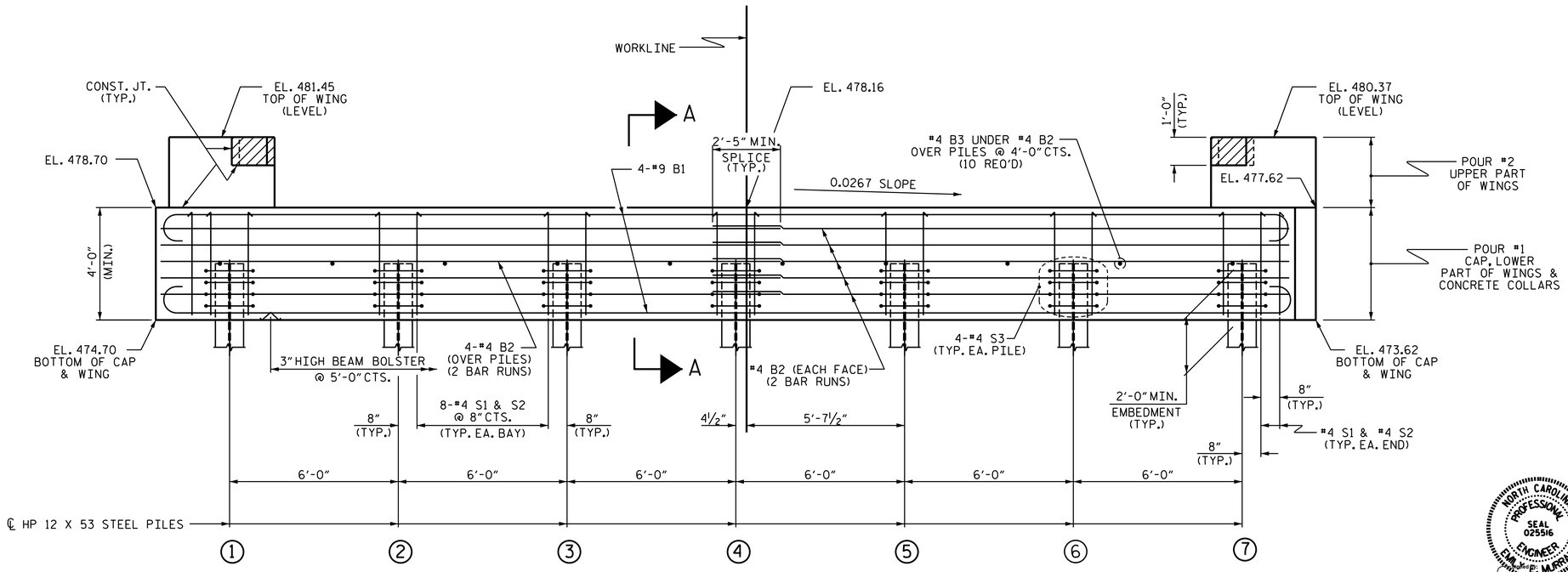
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PLAN



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	476.64
2	476.48
3	476.32
4	476.16
5	476.00
6	475.84
7	475.68

PROJECT NO. HB-0071
RANDOLPH COUNTY
STATION: 14+55.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
A889F83FD9074F8...
4/17/2026

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Tel. 919-854-0344 Fax. 919-854-0355
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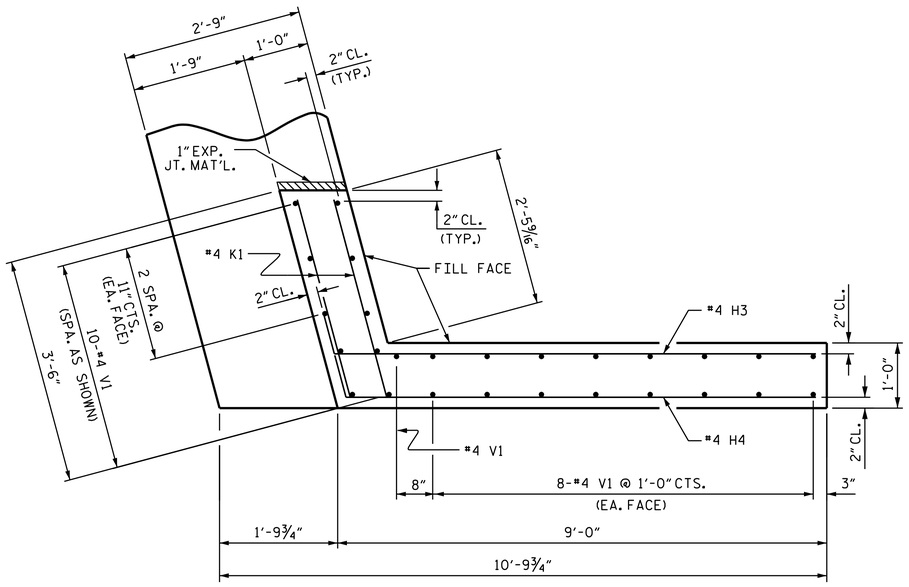
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ASSEMBLED BY : D. A. GLADDEN	DATE : 12/24		
CHECKED BY : E. E. MURRAY	DATE : 10/25		
DRAWN BY : WJH	12/11	REV. 4/15	MAA/TMG
CHECKED BY : AAC	12/11		

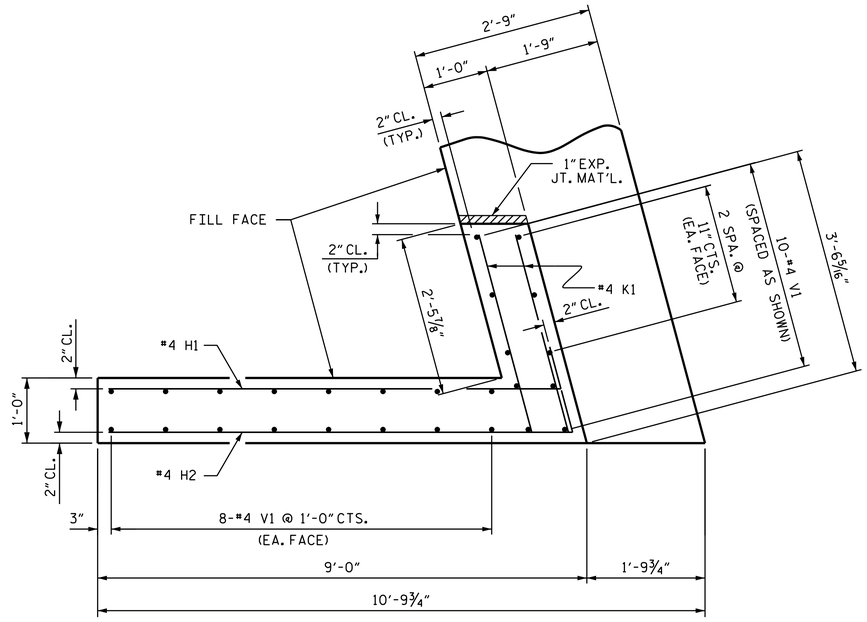
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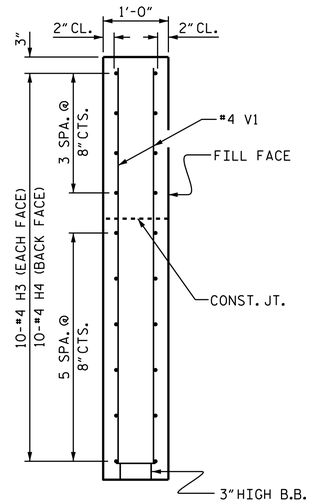
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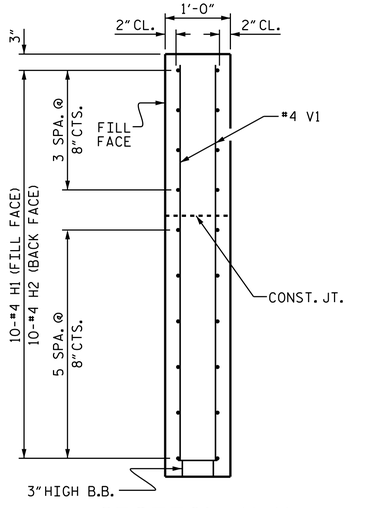
PLAN OF WING (W1)



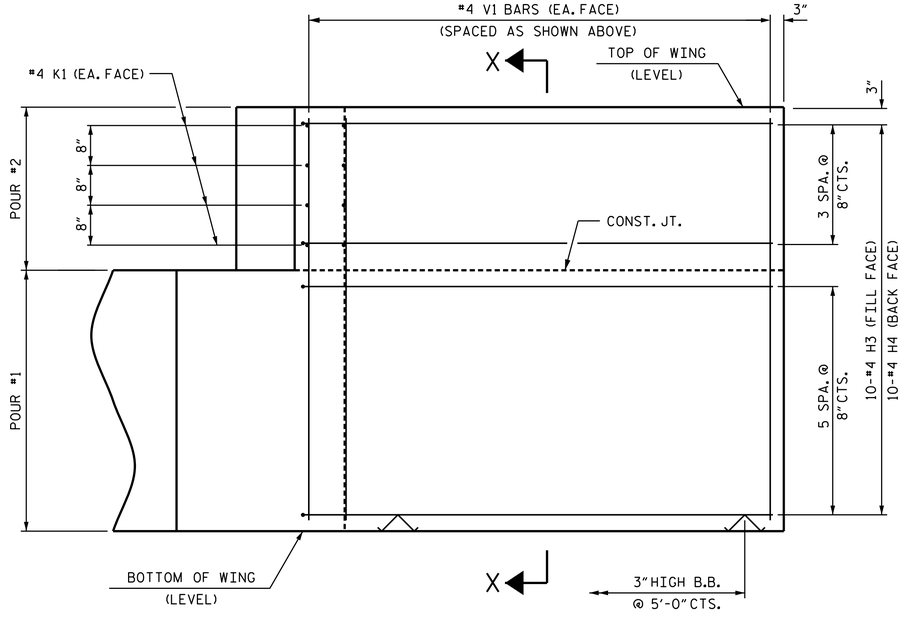
PLAN OF WING (W2)



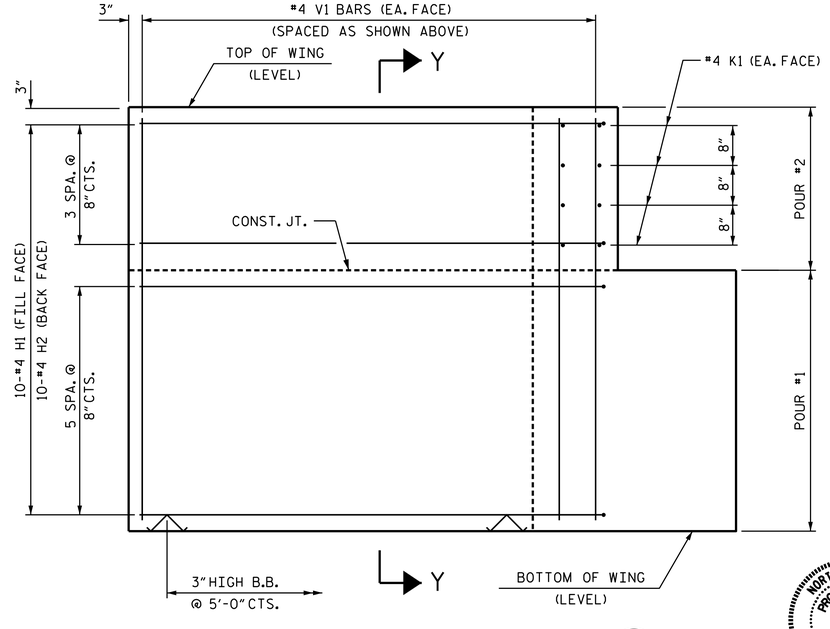
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

ASSEMBLED BY : D. A. GLADDEN	DATE : 12/24
CHECKED BY : E. E. MURRAY	DATE : 10/25
DRAWN BY : WJH 12/11	REV. 4/15 MAA/TMG
CHECKED BY : AAC 12/11	

11/25/2025
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NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
4/17/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

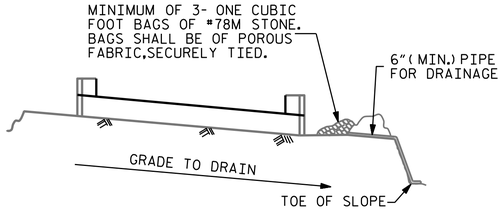
SUBSTRUCTURE
END BENT
WING DETAILS

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RANDOLPH COUNTY
STATION: 14+55.00 -L-
SHEET 3 OF 4

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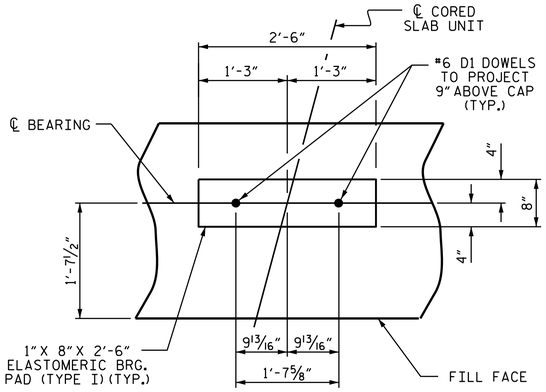


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

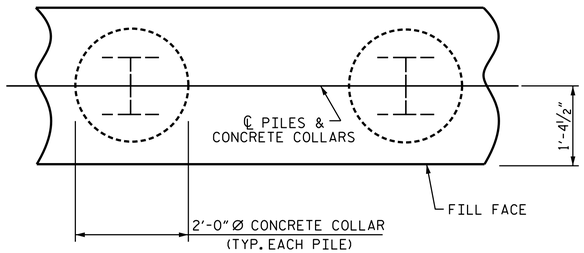
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

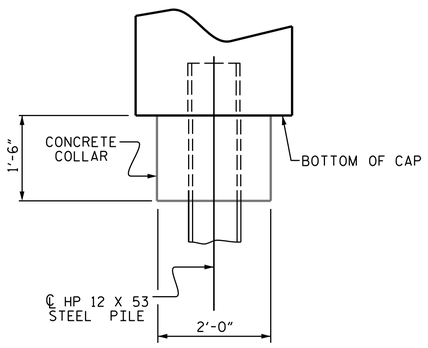


DETAIL "A"

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



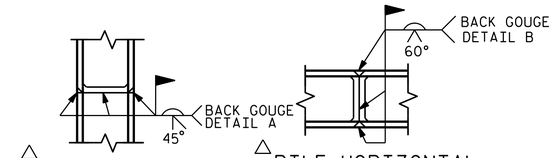
PLAN



ELEVATION

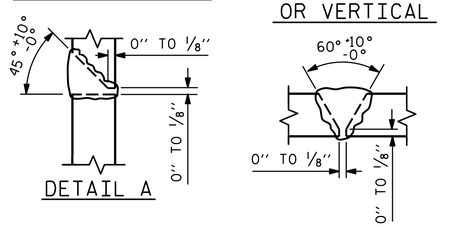
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



△ PILE VERTICAL

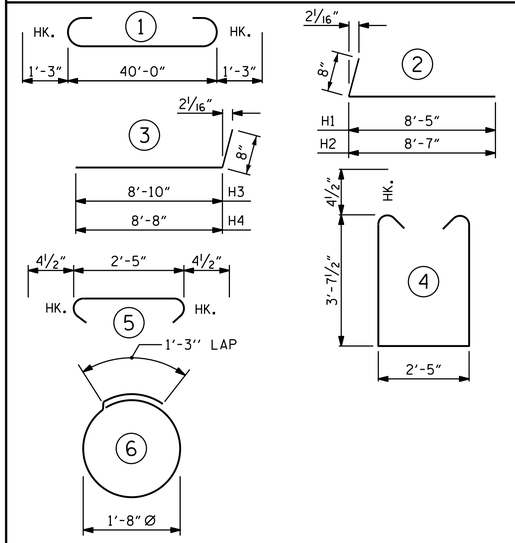
△ PILE HORIZONTAL OR VERTICAL



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

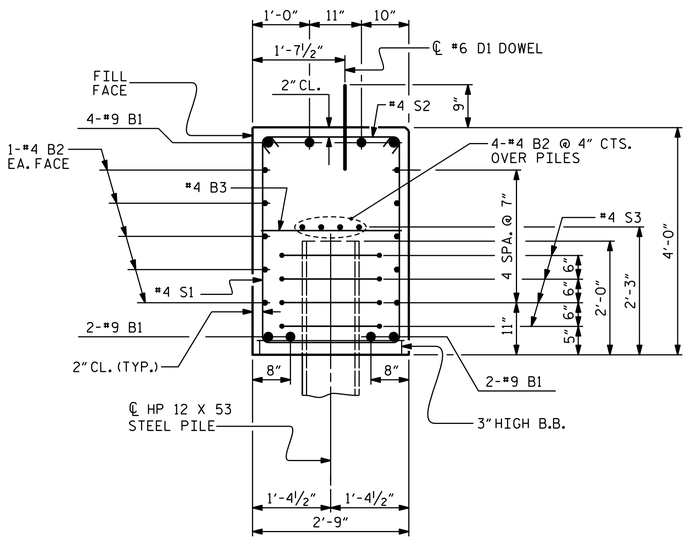
REINFORCING STEEL (FOR ONE END BENT) 2714 LBS.

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. HB-0071

RANDOLPH COUNTY

STATION: 14+55.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
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CHECKED BY : E. E. MURRAY	DATE : 10/25		
DRAWN BY : WJH	12/11	REV. 4/17	MAA/THC
CHECKED BY : AAC	12/11		

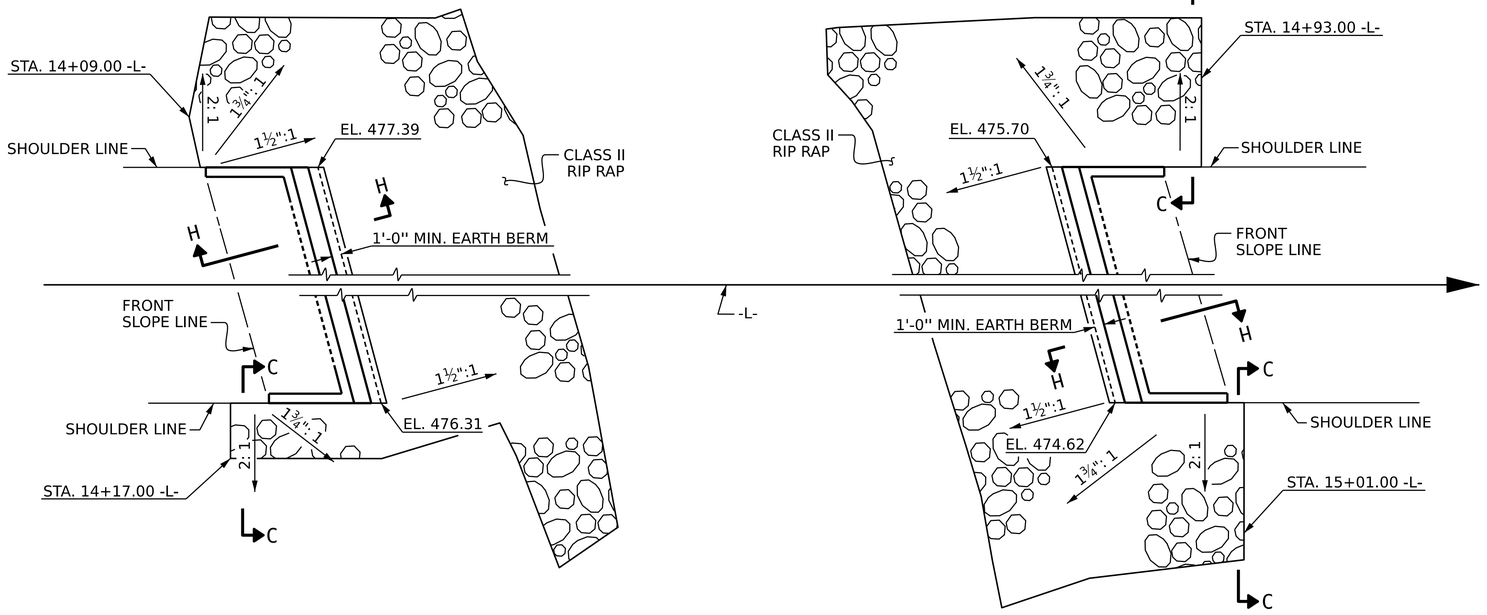
11/25/2025
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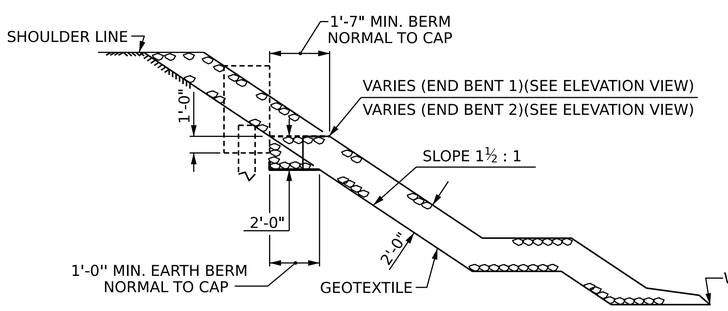
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



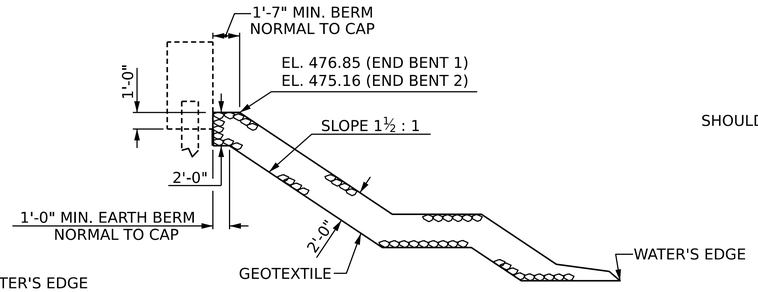
RIP RAP AT END BENT 1

RIP RAP AT END BENT 2

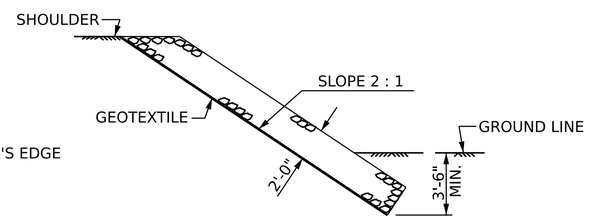
ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+55.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	200	222
END BENT 2	210	233



SECTION H-H



℄ SECTION



SECTION C-C

BERM RIP RAPPED

PROJECT NO. HB-0071

RANDOLPH COUNTY

STATION: 14+55.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
1/7/2026

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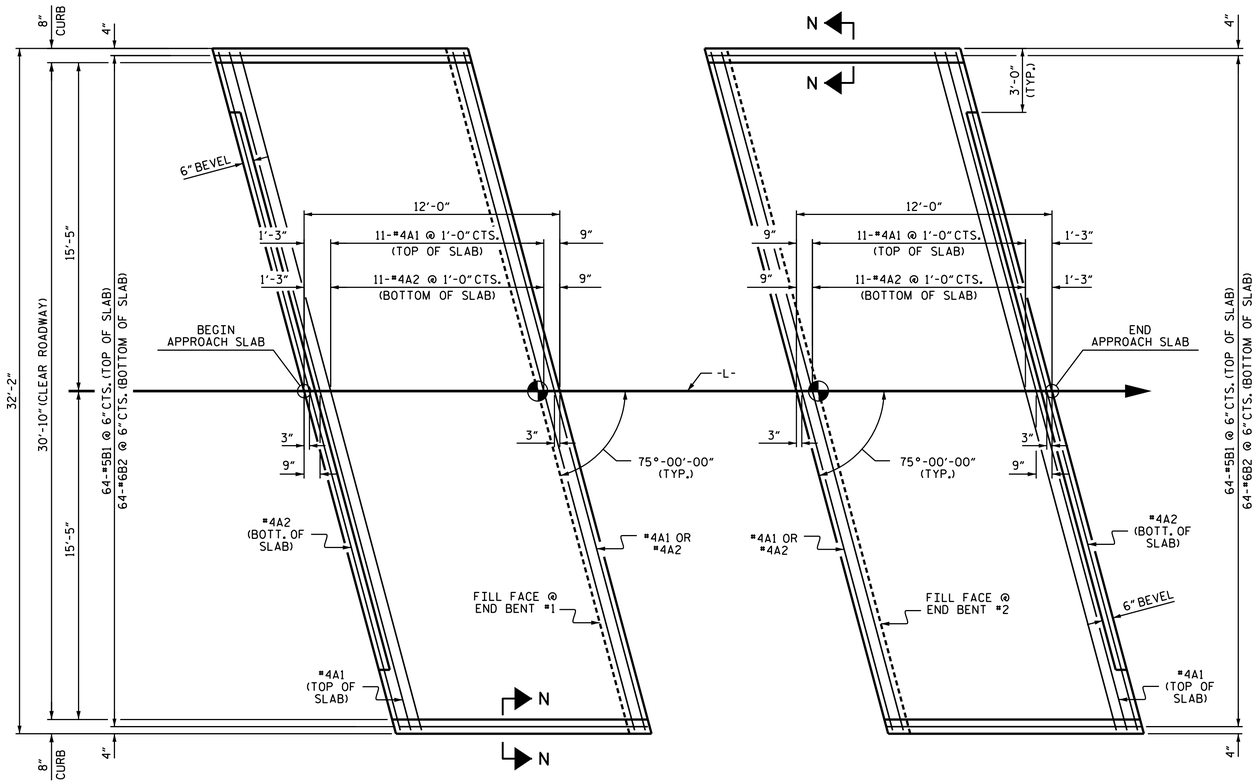
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CHECKED BY : E. E. MURRAY	DATE : 10/25	
DRAWN BY : REK 1/84	REV. 10/1/11	MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11	MAA/GM
	REV. 12/17	MAA/THC

1/15/2026
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annie.wu

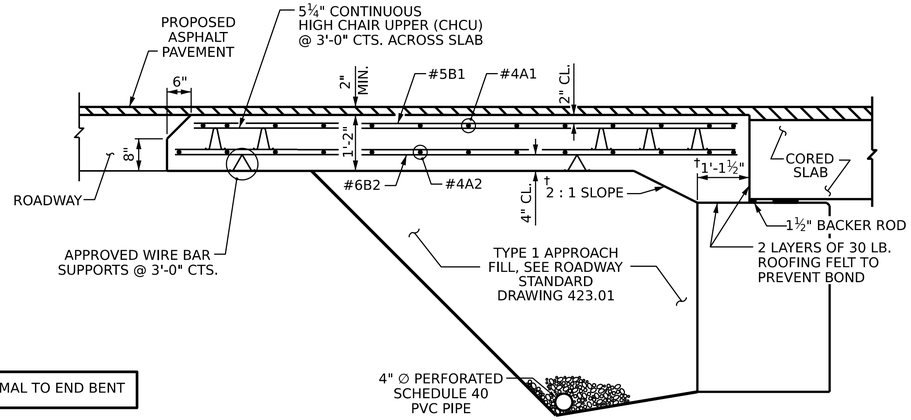
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PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

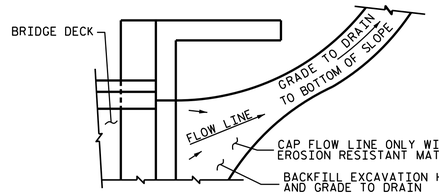
SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

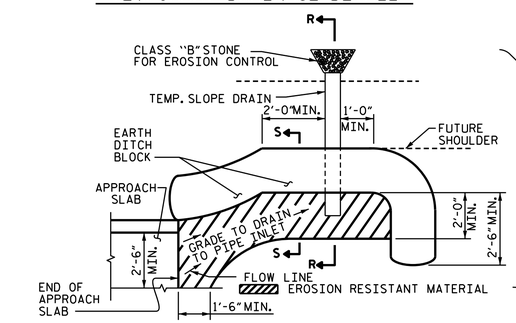
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



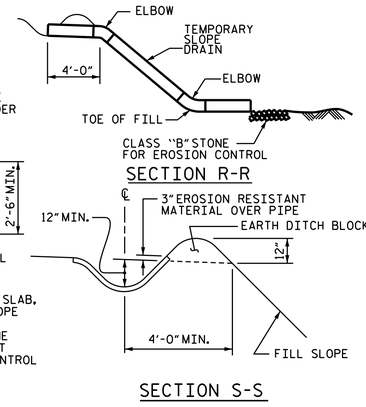
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

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.

PLAN VIEW

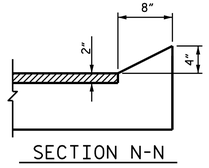


SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N

CURB DETAILS

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

BILL OF MATERIAL					
APPROACH SLAB AT EB #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 #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

PROJECT NO. HB-0071

RANDOLPH COUNTY

STATION: 14+55.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

ASSEMBLED BY : D. A. GLADDEN	DATE : 12/24
CHECKED BY : E. E. MURRAY	DATE : 10/25
DRAWN BY : SHS/MAA 5-09	REV. 12-17 MAA/THC
CHECKED BY : BCH 5-09	REV. 08-19 BNB/THC

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NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
Emily E. Murray
1/15/2026

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1/15/2026
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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
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 AASHTO
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 2024 "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" ∅ SHEAR STUDS FOR THE ¾" ∅ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" ∅ STUDS FOR 4 - ¾" ∅ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" ∅ STUDS ALONG THE BEAM AS SHOWN FOR ¾" ∅ STUDS BASED ON THE RATIO OF 3 - ⅞"∅ STUDS FOR 4 - ¾" ∅ 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" 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.