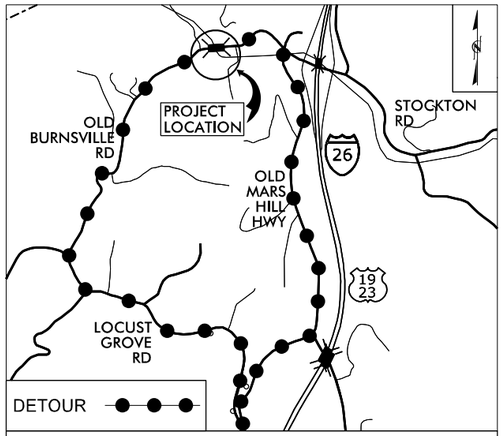
09/08/99

TIP PROJECT: BP13–R013

CONTRACT: DM00393

See Sheet 1A For Index of Sheets
See Sheet 1B For Symbology Sheet



VICINITY MAP N.T.S.

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

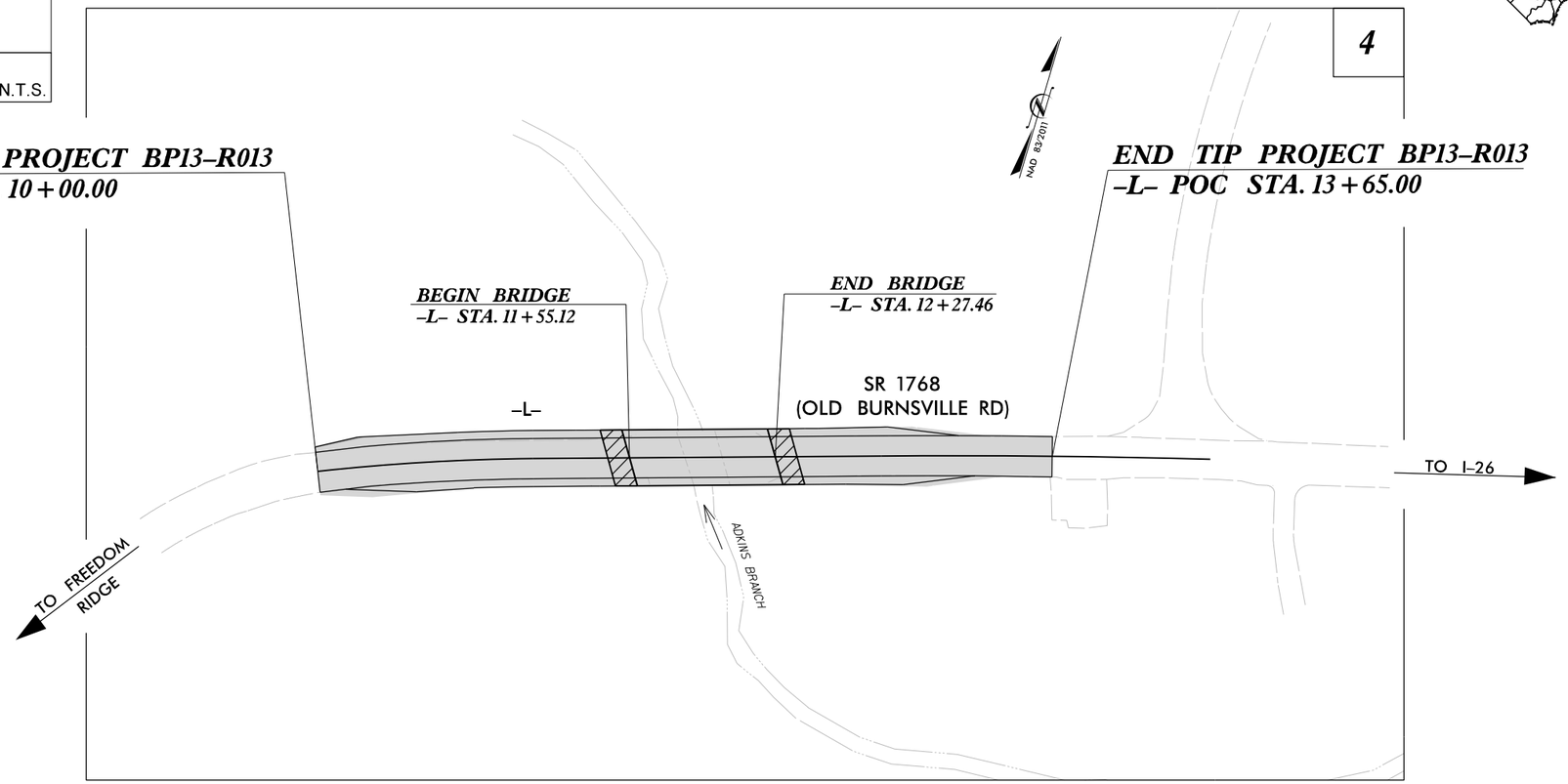
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13–R013	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP13.R013.1	N/A	PE
BP13.R013.2	N/A	R/W
BP13.R013.2	N/A	UTIL
BP13.R013.3	N/A	CONST

LOCATION: *REPLACEMENT OF BRIDGE NO. 692 OVER ADKINS BRANCH ON SR 1768 (OLD BURNSVILLE ROAD)*

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

DIVISION 13



A DESIGN EXCEPTION FOR DESIGN SPEED IS APPROVED FOR THIS PROJECT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2022 = 380
ADT 2042 = 760
V = 30 MPH*

FUNC CLASS = LOCAL SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BP13–R013	=	0.055 MI
LENGTH STRUCTURES PROJECT BP13–R013	=	0.014 MI
TOTAL LENGTH PROJECT BP13–R013	=	0.069 MI

Prepared In the Office of:
GANNETT FLEMING
One Glenwood Avenue Suite 900 Raleigh, NC 27603 919-420-7660 NC Lic. No. F-0270

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 4, 2023

LETTING DATE: FEBRUARY 18, 2026

RICKY A. TIPTON,PE,PLS
PROJECT ENGINEER

ANGELA B. PRIDGEN, PE
PROJECT DESIGN ENGINEER

JOEL M. DAVIS
NCDOT DIVISION PROJECT MANAGER

HYDRAULICS ENGINEER

Signed by: B995845A2817406...
1/16/2026 *P.E.*
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 040302 ENGINEER JULIAN K. JERNIGAN, JR.

ROADWAY DESIGN ENGINEER

DocuSigned by: 75A410DDAF7A489...
1/15/2026 *P.E.*
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 032579 ENGINEER ANGELA B PRIDGEN

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

1/15/2026
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apridgen

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	1A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032579 ENGINEER B. PRIDGEN
12/2/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 AND TYPICAL SECTIONS
2C-1 THRU 2C-3	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN AND PROFILE SHEET
RW-01 THRU RW-04	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
X-1	CROSS SECTION INDEX
X-1A	CROSS SECTION SUMMARY
X-2 THRU X-7	CROSS SECTIONS
TITLE SHEET S-01 THRU S-15 STANDARD NOTES	STRUCTURE PLANS

GENERAL NOTES

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 CONSTRICTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

END BENTS:

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

UTILITIES:

UTILLITY OWNERS ON THIS PROJECT ARE: TOWN OF WEAVERSVILLE WATER

RIGHT-OF-WAY MARKERS:

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

STANDARD DRAWINGS

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	METHOD OF CLEARING – METHOD II
225.02	GUIDE FOR GRADING SUBGRADE – SECONDARY AND LOCAL
225.04	METHOD OF OBTAINING SUPERELEVATION – TWO LANE PAVEMENT
DIVISION 4 – MAJOR STRUCTURES	
423.01	BRIDGE APPROACH FILLS – TYPE I 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 DRAINS
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.25	ANCHORAGE FOR FRAMES – BRICK OR CONCRETE OR PRECAST
840.29	FRAMES AND NARROW SLOT FLAT GRATES
840.35	TRAFFIC BEARING GRATED DROP INLET
840.46	TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE
846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
846.04	DROP INLET INSTALLATION IN SHOULDER BERM GUTTER
862.02	GUARDRAIL INSTALLATION
862.03	STRUCTURE ANCHOR UNITS
876.01	RIP RAP IN CHANNELS AND DITCHES
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS

8/17/99
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7/1/2025
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9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

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

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole (HH)
- H-Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* (P)
- U/G Power Line (SUE – LOS C)* (P)
- U/G Power Line (SUE – LOS D)* (P)

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

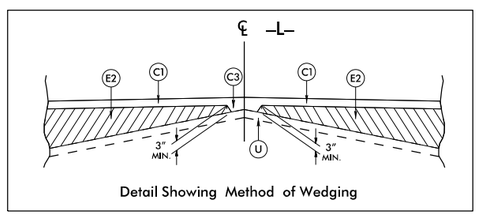
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line (SUE – LOS B)* (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to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

8/17/99

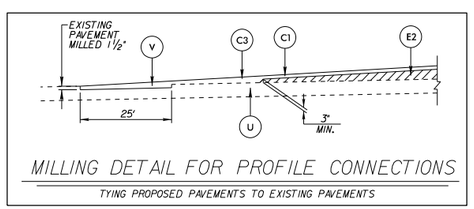
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 ½" 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 1½" 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 GREATER THAN 5½" IN DEPTH OR LESS THAN 3" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

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

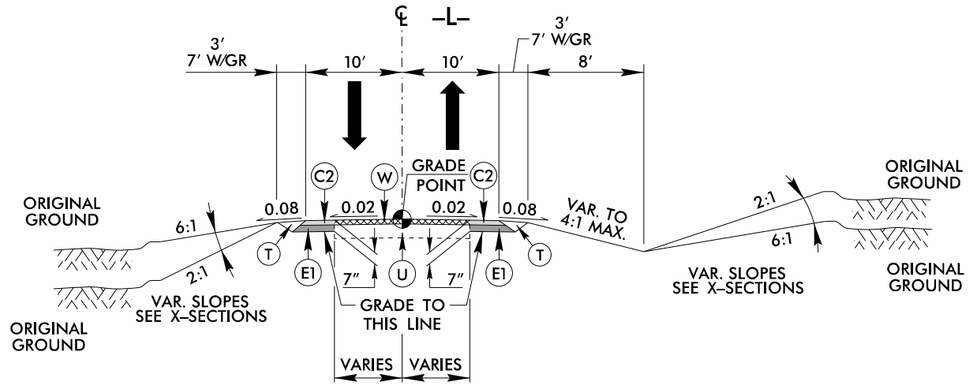


Detail Showing Method of Wedging



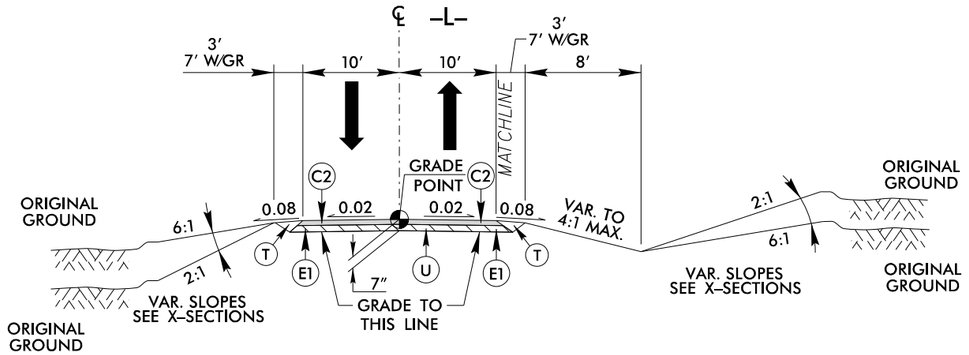
MILLING DETAIL FOR PROFILE CONNECTIONS

TYING PROPOSED PAVEMENTS TO EXISTING PAVEMENTS



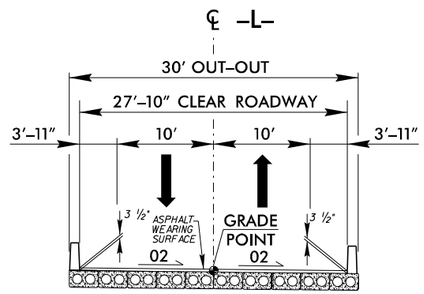
TYPICAL SECTION NO. 1

–L– STA. 10+00.00 TO STA. 11+11.00
–L– STA. 12+92.00 TO STA. 13+65.00



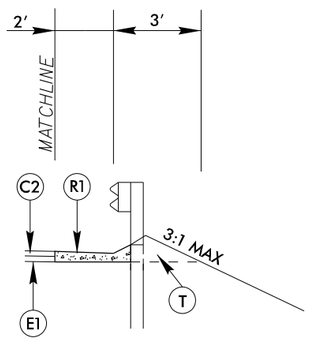
TYPICAL SECTION NO. 2

–L– STA. 11+11.00 TO STA. 11+55.12 (BEGIN BRIDGE)
–L– STA. 12+27.46 (END BRIDGE) TO STA. 12+92.00



BRIDGE TYPICAL SECTION

–L– STA. 11+55.12 (BEGIN BRIDGE) TO STA. 12+27.46 (END BRIDGE)
(SEE STRUCTURE PLANS)



SHOULDER BERM GUTTER DETAIL

DETAIL SHOWING SHOULDER BERM GUTTER
(USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2)
–L– STA. 11+30.00 TO STA. 11+47.40 RT

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7060
NC Lic. No. F-0270

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032579 ENGINEER ANGELA B. PRIDGEN
DocuSigned by: 75A410DDAF7A489...
1/16/2026

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 038176 ENGINEER SHIHLAI ZHANG
DocuSigned by: 245D67F41811435...
1/16/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

apridgen
1/16/2026
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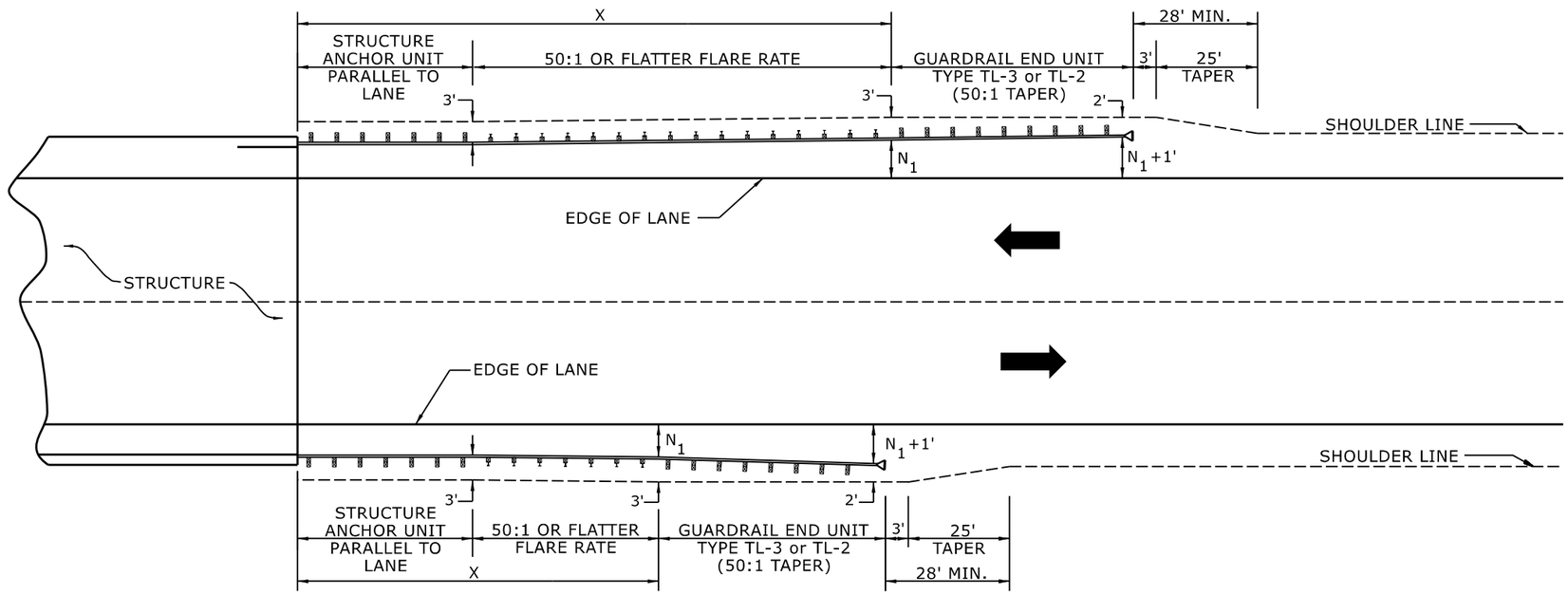
PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	2C-1



USE FLARE RATE AS THE CONTROL IF THE "N_1" DISTANCE IS NOT OBTAINED.
("N_1" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS ≥ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45MPH USE GREU TYPE TL-2

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

NICOLE M. ACKLER
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 033144
Signed by: Nicole M. Ackler 12/[illegible]/2025

SHEET 4 OF 15
862D01

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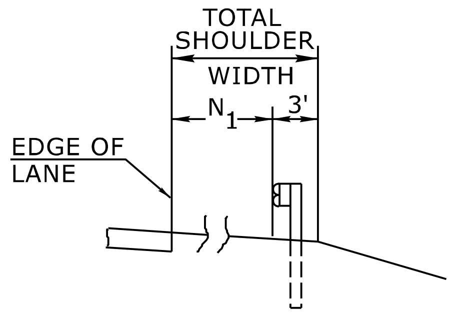
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

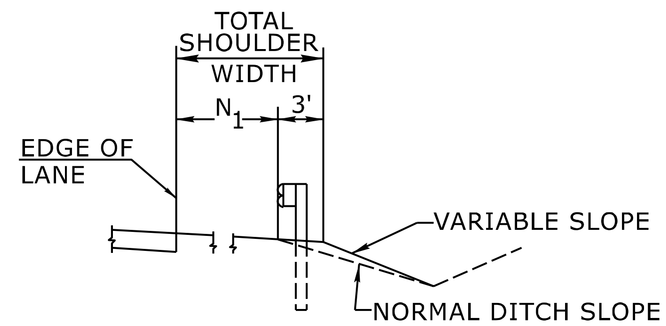
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	2C-2

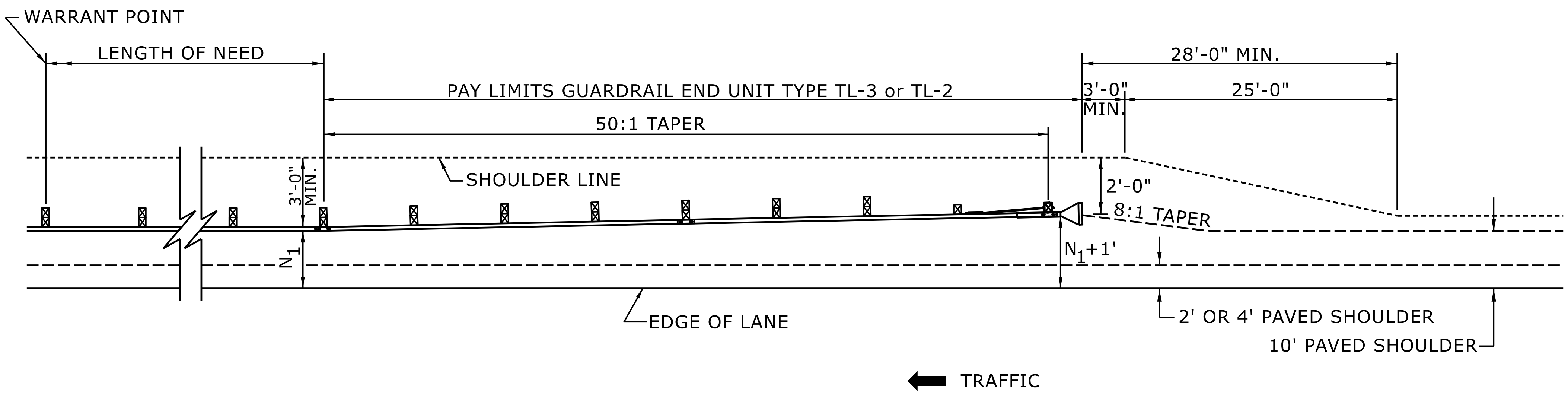


FILL SECTION



CUT SECTION

"N_1"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

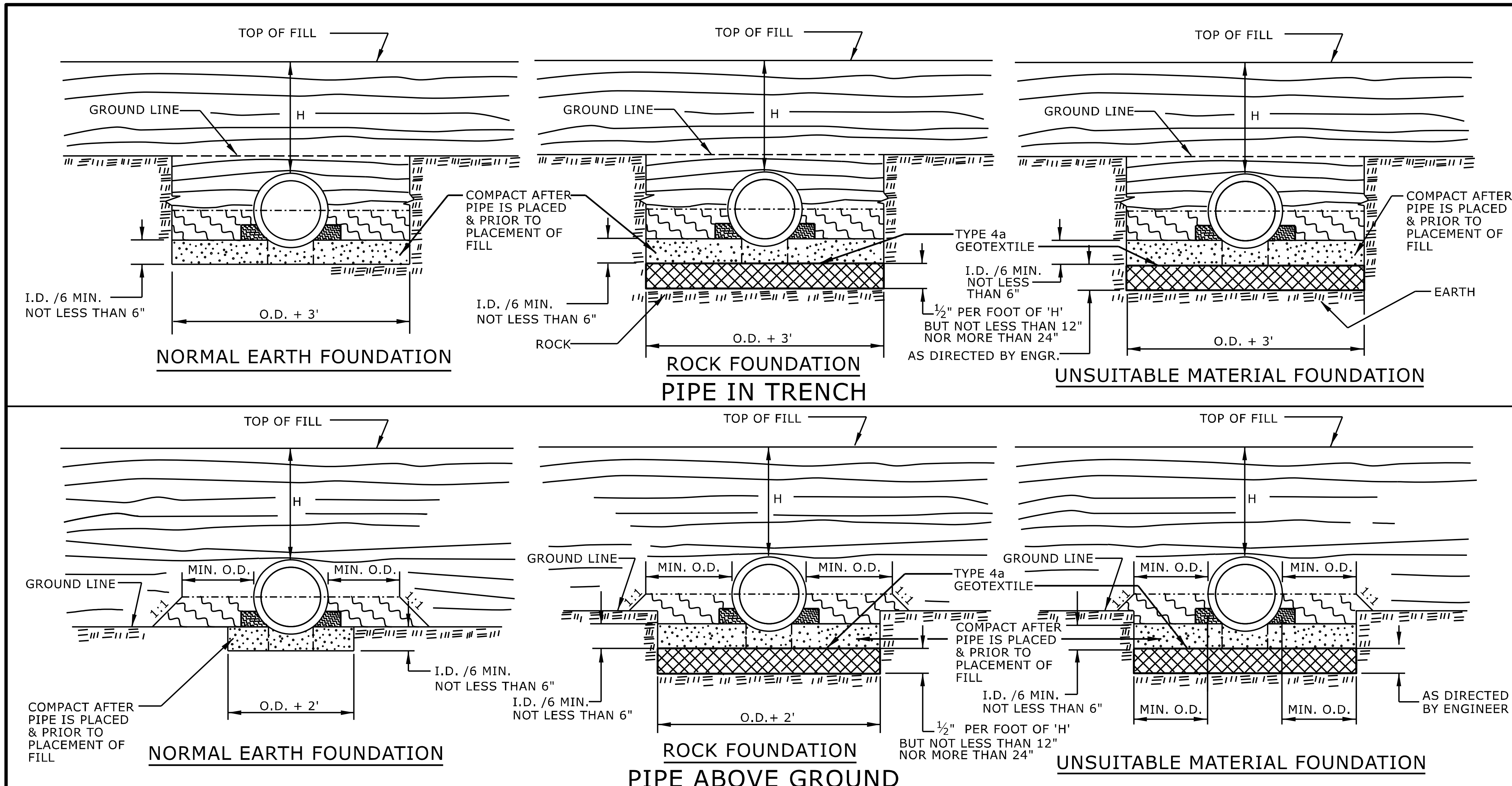
SHEET 6 OF 15
862D01

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE ... ECKLER
Signed by: Nicole M. Heckler 12/2/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

12/06/07

COMPUTED BY: AMG DATE: 5/1/2022
CHECKED BY: ELM DATE: 5/30/2025

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GANNETT FLEMING One Glenwood Avenue Suite900 Raleigh, NC 27603 919-420-7660 NC Lic. No. P-0270

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
10+00.00	11+55.12 (BEGIN BRIDGE)	5	394	389	
SUBTOTALS:		5	394	389	
12+27.46 (END BRIDGE)	13+65.00	501	167		334
SUBTOTALS:		501	167		334
TOTALS:		506	561	389	334
MATERIALS FOR SHOULDER CONSTRUCTION			7	7	
WASTE IN LIEU OF BORROW				-334	-334
PROJECT TOTALS:		506	568	62	
5% TO REPLACE TOPSOIL				3	
GRAND TOTALS:		506	568	65	
SAY:		520		70	

DRAINAGE DITCH EXCAVATION = 33 CY
ADDITIONAL UNDERCUT = 450 CY TO BE USED AT THE DISCRETION OF THE ENGINEER
GEOTEXTILE FOR SOIL STABILIZATION = 400 SY TO BE USED AT THE DISCRETION OF THE ENGINEER
SELECT GRANULAR MATERIAL = 400 CY TO BE USED AT THE DISCRETION OF THE ENGINEER
SEE GEOTECHNICAL SUMMARIES ON SHEET 3G-1 AND GEOTECHNICAL REPORT FOR FURTHER INFORMATION

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

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	STA. 11+11	11+56 (EXIST BRIDGE)	CL	112
-L-	12+26 (EXIST BRIDGE)	STA. 12+72	CL	112
			TOTAL:	224
			SAY:	225

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	11+30.00	11+47.40 (BEGIN APP SLAB)	17.40 LF
		TOTAL:	17.40 LF
		SAY:	18 LF

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	TYPE III	GREU TL-2	M-350	TYPE XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	10+21.28	11+52.53 (BRIDGE)	LT	131.25'				11+52.53 (BRIDGE)	3'-11"	6'-11"		25'		0.5'		1	1												
-L-	10+40.89	11+59.64 (BRIDGE)	RT	118.75'			11+59.64 (BRIDGE)		3'-11"	6'-11"	25'		0.5'			1	1												
-L-	12+23.32 (BRIDGE)	12+79.57	LT	56.25'			12+23.32 (BRIDGE)		3'-11"	6'-11"	25'		0.5'			1	1												
-L-	12+30.42 (BRIDGE)	12+86.67	RT	56.25'				12+30.42 (BRIDGE)	3'-11"	6'-11"		25'		0.5'		1	1												
			SUBTOTALS	362.50'												4	4												
ANCHOR UNIT DEDUCTIONS:			GREU TL-2 (25' EACH)	-100'																									
			TYPE III (18.75' EACH)	-75'																									
			TOTALS	187.50'			ADDITIONAL GUARDRAIL POST = 5									4	4												
			SAY	187.50'												4	4												

1/16/2026
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apridgen

12/06/07

COMPUTED BY:	AMG	DATE:	5/31/2022
CHECKED BY:	ELM	DATE:	5/30/2025

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	3D-1

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

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)											
SIZE								12"	15"	18"	24"	30"	36"	42"	48"				
THICKNESS OR GAUGE		FROM	TO													DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- 11+35.81	RT	0401		2022.4															
		0401	0402		2016.5	2014.5													
-L- 12+50.00	RT																		
TOTAL																			
SAY																			

STATION	C.S. PIPE							R.C. PIPE (CLASS III)							R.C. PIPE (CLASS IV)							
SIZE	12"	15"	18"	24"	36"	42"	48"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.109	.109															
-L- 11+35.81																						
									20'													
-L- 12+50.00																						
TOTAL									20'													
SAY									20'													

STATION	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS.		QUANTITIES FOR DRAINAGE STRUCTURES	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT.		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE				CONCRETE TRANSITIONAL SECTION		T.B.D.I.FOR STEEL GRATES STD. 840.36	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (N.S. FLAT) FRAME W/2 GRATES STD. 840.29	T.B.D.I. STD. 840.35			PIPE REMOVAL (LF)	CONCRETE COLLARS CL. "B" STD. 840.72	REMARKS
						R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE		E	F	G		D.I. STD. 852.04 OR STD. 852.06	DROP INLET										CY	
-L- 11+35.81								1	0.7													1	1					
-L- 12+50.00																										20		
TOTAL								1	0.7													1	1			20		
SAY								1	1													1	1			20		

ABBREVIATIONS

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

7/18/2025
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apridgen

COMPUTED BY: __Crystal D. Johnson DATE: _06/22/2023
CHECKED BY: _Michael H. Stephens_ DATE: __06/22/2023

(2-3-23)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
BP13.R013	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				12	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.

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	4
R/W SHEET NO.	

GANNETT FLEMING

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032579 ANGELA B. PRIDGEN 12/2/2025	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040302 W. JERNIGAN, JR. 12/2/2025

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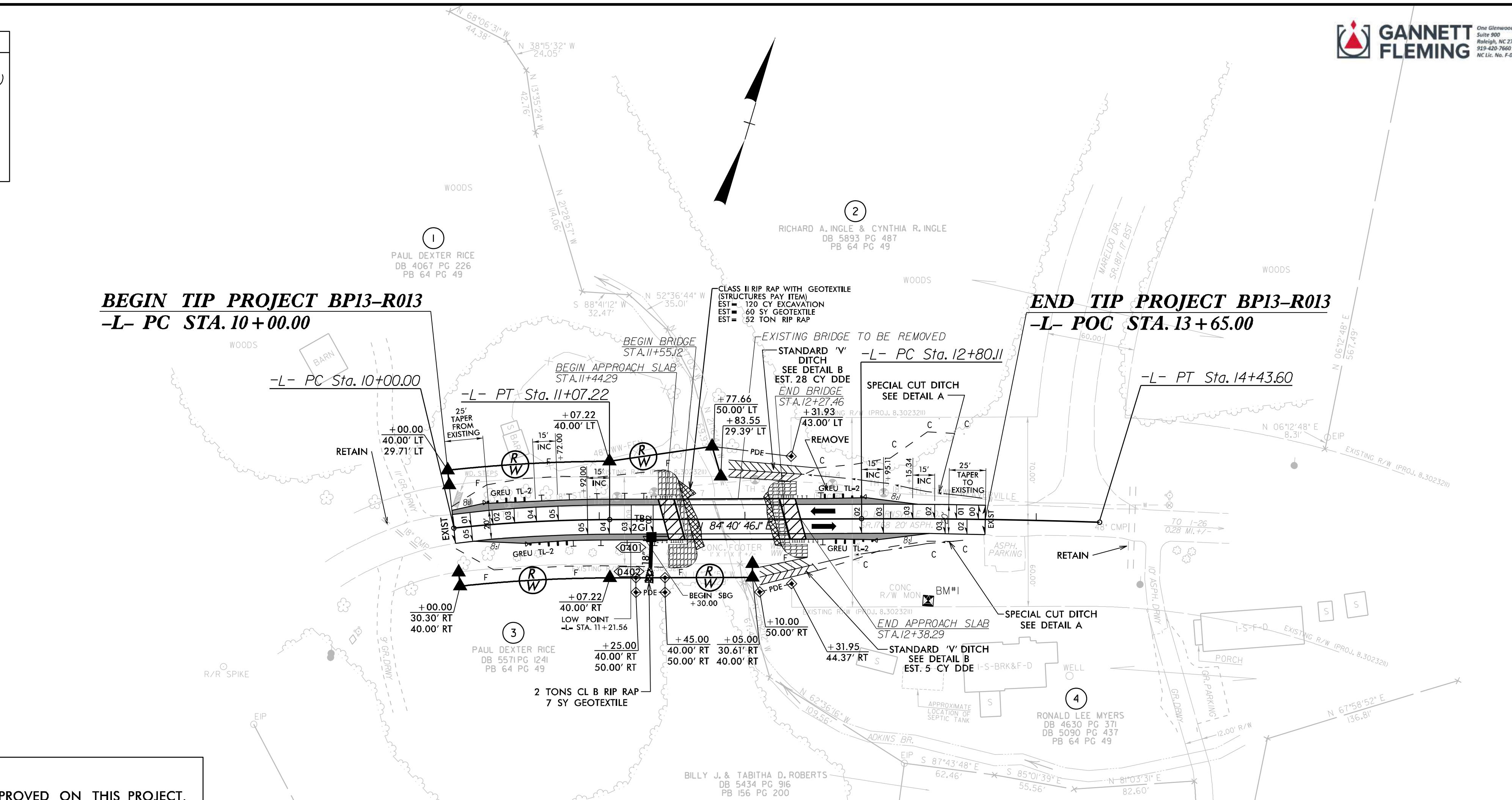
-L-

PI Sta 10+53.66	PI Sta 13+61.87
△ = 5° 54' 58.9" (RT)	△ = 2° 04' 53.8" (RT)
D = 5° 31' 04.1"	D = 1° 16' 23.7"
L = 107.22'	L = 163.49'
T = 53.66'	T = 81.75'
R = 1,038.38'	R = 4,500.00'
RO = SEE PLANS	RO = SEE PLANS
SE = SEE PLANS	SE = SEE PLANS



DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Min. D = 0.73 Ft.
Max. d = 2 Ft.
Type of Liner (RT) = Grass
Type of Liner (LT) = 109 Tons of Class II Rip-Rap, 184SY Geotextile Fabric

FROM STA. 12+50 TO STA. 13+75 (LT)
FROM STA. 12+75 TO STA. 13+50 (RT)

DETAIL B
STANDARD 'V' DITCH
(Not to Scale)

Min. D = 0.25 Ft.
Max. d = 2 Ft.
Type of Liner (RT) = Grass
Type of Liner (LT) = 54 Tons Class II Rip-Rap, 90SY Geotextile Fabric

FROM STA. 11+89 TO STA. 12+50 (LT)
FROM STA. 12+10 TO STA. 12+75 (RT)

PAVED SHOULDER

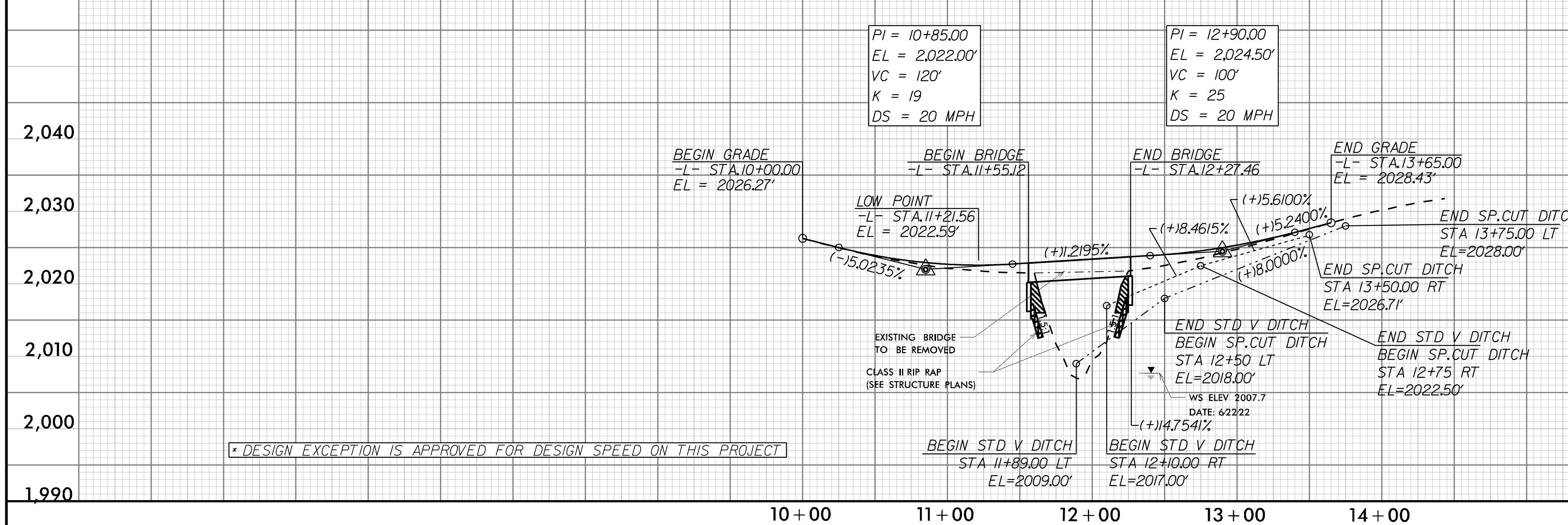
NOTES:
ALL STRUCTURE ANCHOR UNITS ARE TYPE-III
A DESIGN EXCEPTION FOR DESIGN SPEED IS APPROVED ON THIS PROJECT.

-L-

BM N 948865.1760 E 759053.3150
TOP OF R/W MARKER
-L- STA. 13+26.23 OFF 56.183797 RT

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 950	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2014.9	FT
BASE DISCHARGE	= 1300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2016.1	FT
OVERTOPPING DISCHARGE	= 6900	CFS
OVERTOPPING FREQUENCY	= 1000+	YRS
OVERTOPPING ELEVATION	= 2025.7	FT
DATE OF SURVEY	= 6/22/2022	
W.S. ELEVATION AT DATE OF SURVEY	= 2007.7	FT



REVISIONS

8/17/99

emorrison
6/20/2025
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09/08/99

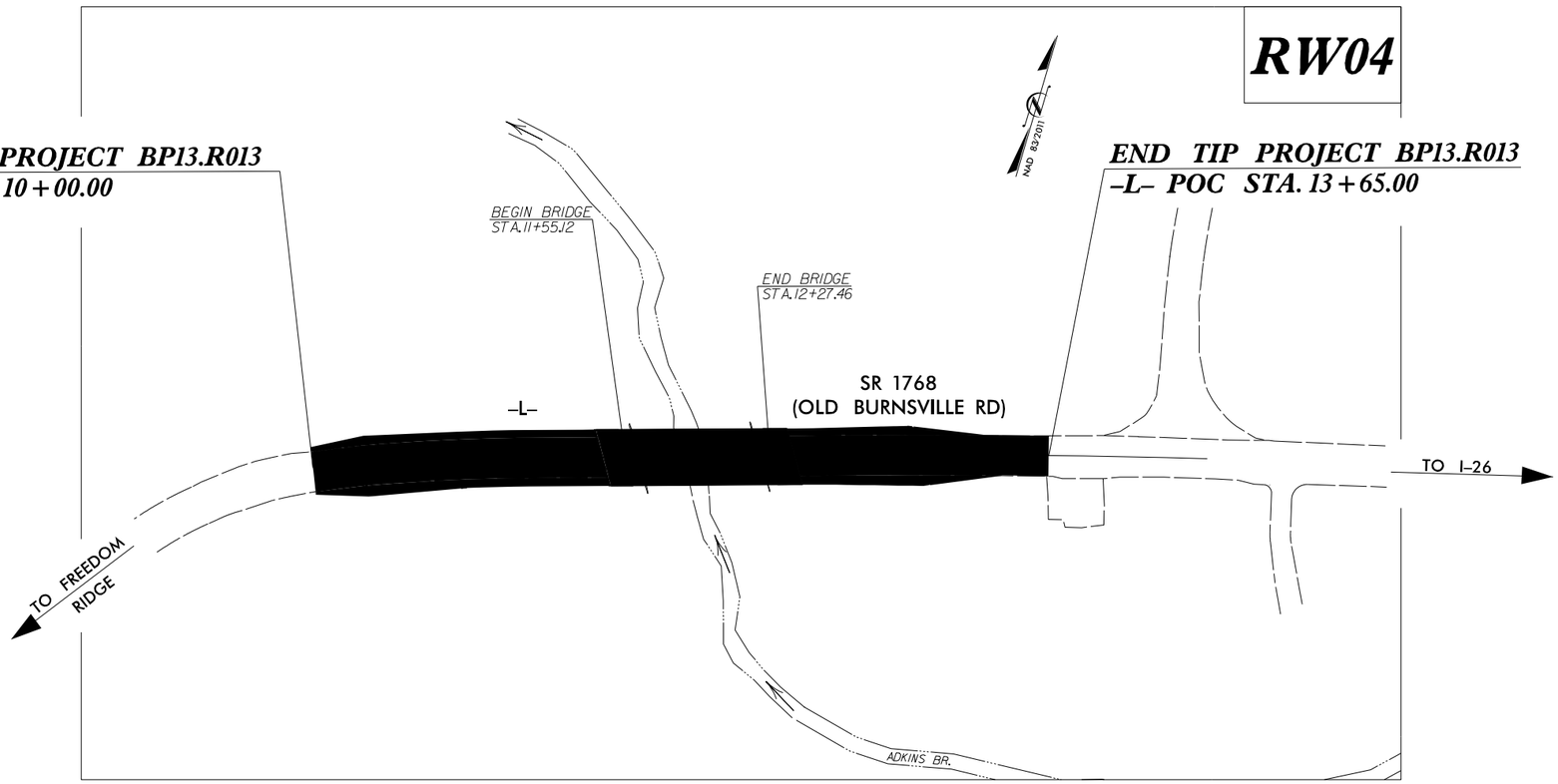
TIP PROJECT: BP13-R013

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13-R013	RW01	6

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

BUNCOMBE COUNTY



GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "100692-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 759,088.175(ft) EASTING: 948,769.291(ft)
ELEVATION: 2,021.37(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9998236925
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"100692-2" TO -L- STATION 10+00 IS
S 86-28'07.0" W 233.34(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared In the Office of:

NC FIRM LICENSE # C-3097
1318-F PATTON AVENUE
Asheville, NC 28806
828-252-2796

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
JANUARY 4, 2023	*FEBRUARY 18, 2026*

PROFESSIONAL LAND SURVEYOR

DocuSigned by:
Mark A Parris
F1570CB85C7248A...
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A PARRIS

7/1/2025 | 11:33:23 AM PDT
Date:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

01-JUL-2025 13:19
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jrthomas AT MYPC-VDI-01

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	RW02C-1

Location and Surveys

NC FIRM LICENSE # C-3097
1356-F PATTON AVENUE
Asheville, NC 28806
828-255-2196

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

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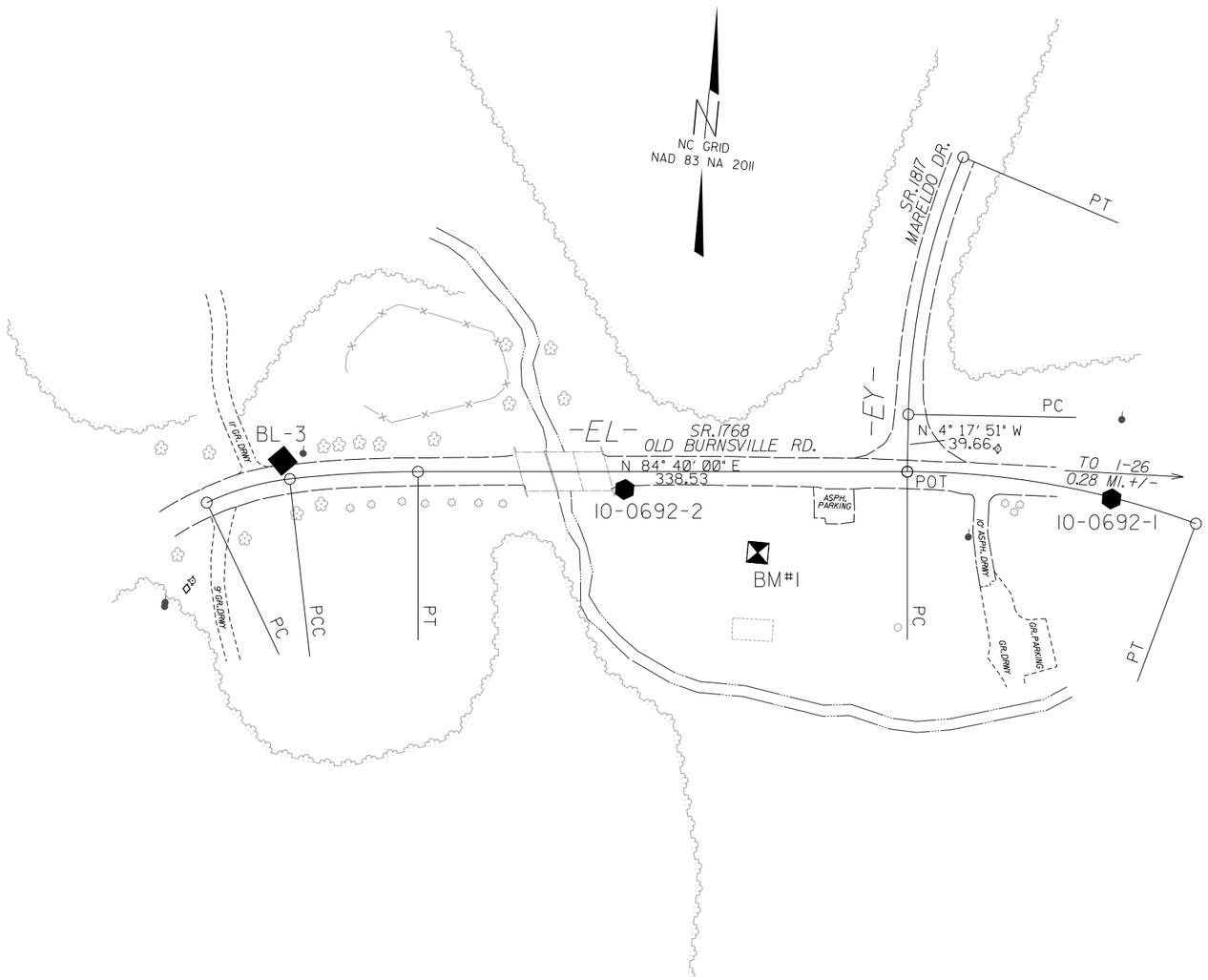

NOTES:

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.

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

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	RW02C-2

Location and Surveys

NC FIRM LICENSE # C-3097
1318-F PATTON AVENUE
Asheville, NC 28806
828-253-2796

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BL

POINT	DESC.	NORTH	EAST	ELEVATION
3	BL-3	759085.8470	948531.9230	2026.07
2	10-0692-2	759088.1750	948769.2910	2021.37
1	10-0692-1	759112.9160	949105.1900	2037.21

****

BM1 ELEVATION = 2027.13
N 759053 E 948865
TOP OF R/W MON.

****

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	759052.142	948482.350							
CURVE			N 68°41'55.9" E	59.75	19°03'35.6"(RT)	31°45'00.0"	60.03	30.30	180.46
PCC	759073.849	948538.022							
CURVE			N 81°26'51.9" E	88.75	06°26'16.4"(RT)	07°15'00.0"	88.80	44.45	790.29
PT	759087.047	948625.787							
LINE			N 84°40'00.1" E	338.53					
PC	759118.513	948962.853							
CURVE			S 85°08'13.5" E	202.85	20°23'32.8"(RT)	10°00'00.0"	203.92	103.05	572.96
PT	759101.317	949164.973							

EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	759118.513	948962.853							
LINE			N 04°17'50.6" W	39.66					
PC	759158.058	948959.882							
CURVE			N 06°41'07.2" E	181.93	21°57'55.7"(RT)	12°00'00.0"	183.05	92.66	477.46
PT	759338.748	948981.061							

I, Mark A. Parris, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made by NCDOT and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: June 2021
Datum/Epoch:NAD83/NA 2011
Published/Fixed-control use: N/A
Localized around: 10-0692-2
Northing:759088.1750
Easting:948769.2910
Combined grid factor:0.9998236925
Geoid model:12BNC
Units:US Survey Ft.

I also certify that the Baseline Control for this project was verified under my direct and responsible charge from an actual survey made by NCDOT; 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 April 26, 2021 to April 27, 2021 , and all coordinates are based on NAD 83/NA 2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of July, 2025.

DocuSigned by:
Mark A. Parris
F1570CB85C7248A...
Professional Land Surveyor L-4529

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.

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	RW02D-1

Location and Surveys

NC FIRM LICENSE # C-3097
1318-F PATTON AVENUE
Asheville, NC 28806
828-253-2796

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Mark A. Parris, 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 1st day of July, 2025.

DocuSigned by:
Mark A. Parris
F1570CB85C7248A...
Professional Land Surveyor L-4529

REVISIONS

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	759073.8024	948536.3950
PT	11+07.22	759089.2345	948642.4537
PC	12+80.11	759105.2661	948814.5987
PT	14+43.60	759117.4660	948977.6231

NOTES:

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

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

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	RW03E-1

Location and Surveys

NC FIRM LICENSE # C-3097
1318-F PATTON AVENUE
Asheville, NC 28806
828-253-2796

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4529 LAND SURVEYOR MARK A. PARRIS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I , Mark A. Parris , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 5/6/24 to 5/7/24, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of July, 2025.

DocuSigned by: F1570CB85C7248A...

Professional Land Surveyor L-4529

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST	
L	10+00.00	-40.00	759113.0356	948528.6004	
L	10+00.00	40.00	759034.5692	948544.1897	
L	10+00.00	30.30	759044.0834	948542.2994	
L	10+00.00	-29.71	759102.9433	948530.6055	
L	11+07.22	-40.00	759129.0621	948638.7446	
L	11+07.22	40.00	759049.4068	948646.1628	
L	11+77.66	-50.00	759145.5503	948707.9492	
L	11+83.55	-29.39	759125.5738	948715.7292	NOT SET IN CREEK
L	12+05.00	30.61	759067.8258	948742.6474	
L	12+05.00	40.00	759058.4734	948743.5184	

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+25.00	50.00	759041.0983	948664.7904
L	11+25.00	40.00	759051.0552	948663.8631
L	11+45.00	50.00	759042.9528	948684.7042
L	11+45.00	40.00	759052.9098	948683.7769
L	12+10.00	50.00	759048.9801	948749.4241
L	12+31.93	-43.00	759143.6131	948762.6372
L	12+31.95	44.37	759056.6227	948770.7581

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 5/6/24 TO 5/7/24 .

REVISIONS

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	RW04

Location and Surveys

PROJECT SURVEYOR

SEAL L-4529 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR MARK A. PARRIS

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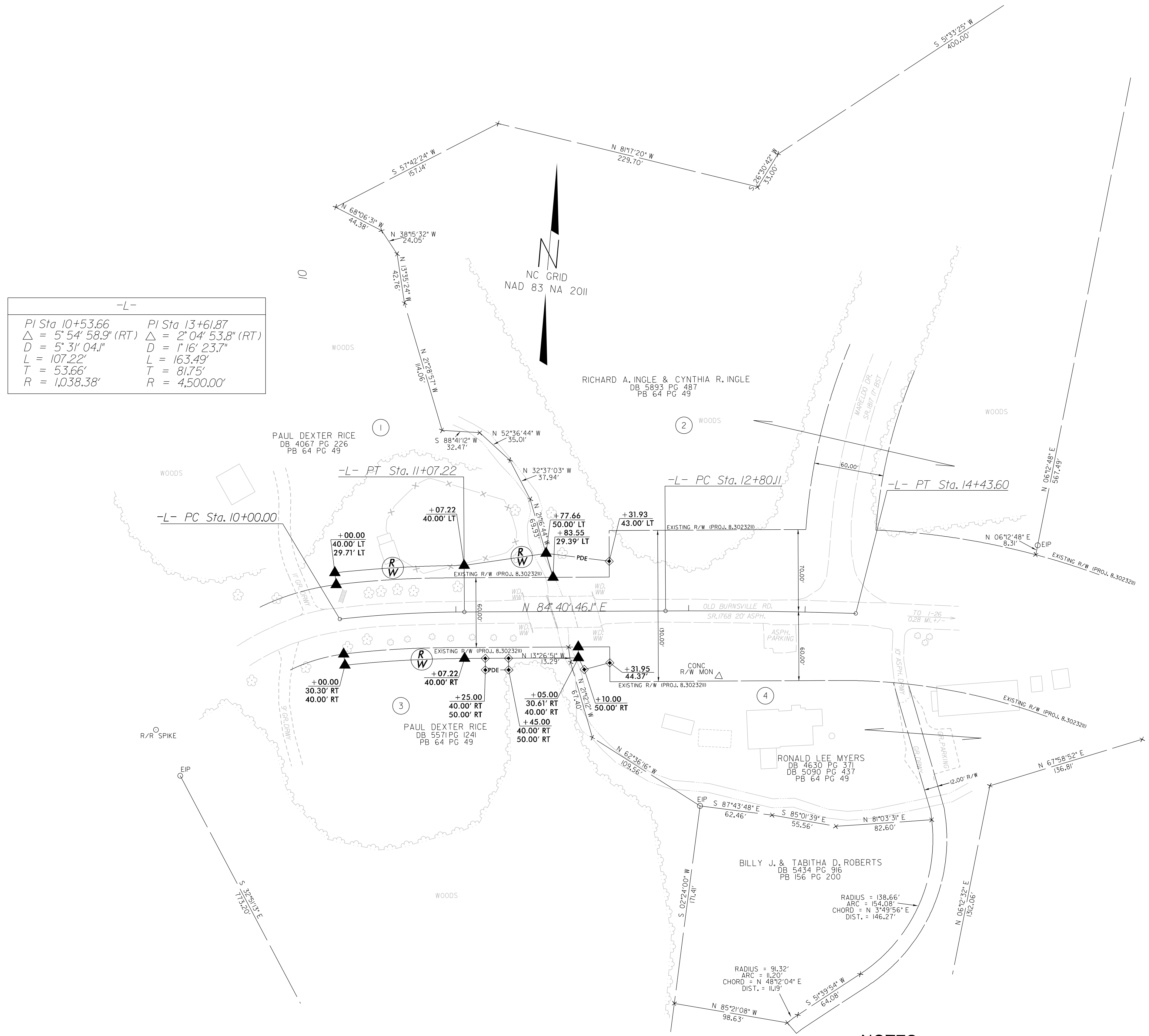
I , Mark A. Parris , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 5/6/24 to 5/7/24, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of July, 2025.

DocuSigned by: F1570CB85C7248A...

Professional Land Surveyor L-4529

REVISIONS



NOTES:

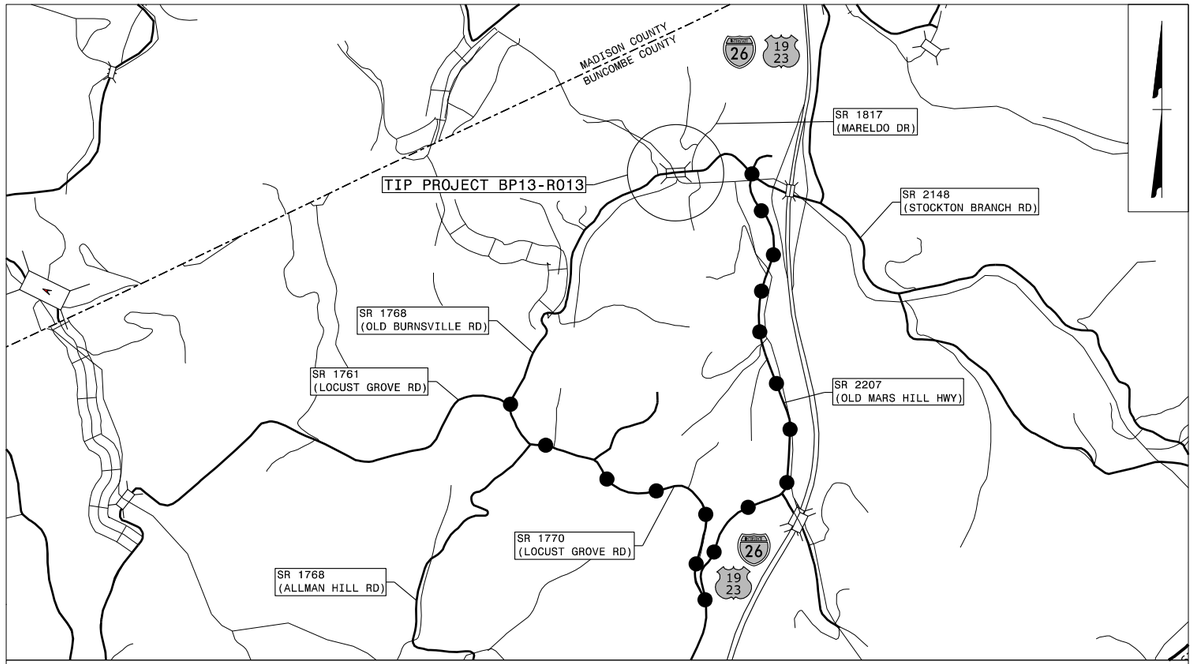
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 5/6/24 TO 5/7/24.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BUNCOMBE COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 692 OVER ADKINS BRANCH ON SR 1768 (OLD BURNSVILLE ROAD)



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN
TMP-2	SPECIAL SIGN DESIGN - OLD BURNSVILLE ROAD
TMP-3	OFFSITE DETOUR ROUTE - OLD BURNSVILLE ROAD

SHEET NO.
TMP-1

TIP PROJECT: BP13-R013

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

PLANS PREPARED BY:

RICKY A. TIPTON, PE
PROJECT ENGINEER

BENJAMIN A. WHITE, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

JOEL M. DAVIS
NCDOT DIVISION PROJECT MANAGER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GANNETT FLEMING
One Glenwood Avenue
Suite 800
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

APPROVED: DocuSigned by: Benjamin A. White 08F776221617443...

DATE: 12/3/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044594 ENGINEER BENJAMIN A. WHITE

PROJ. REFERENCE NO.	SHEET NO.
BP13-R013	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES - TYPE-III

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 | PORTABLE

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

APPROVED: DocuSigned by: Benjamin A. White 68F776221617443...

DATE: 12/3/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044594 ENGINEER BENJAMIN A. WHITE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

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Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

PROJ. REFERENCE NO.	SHEET NO.
BP13-R013	TMP-1B

MANAGEMENT STRATEGIES

1) CLOSE SR 1768 (OLD BURNSVILLE RD) TO TRAFFIC AND DETOUR TRAFFIC OFF-SITE.

2) LOCAL ACCESS TO ALL OTHER ROADS AND RESIDENCES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

C) 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.

D) 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.

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

TRAFFIC CONTROL DEVICES

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

PHASING

PHASE I

STEP 1: USING SHEET TMP-3 AND ROADWAY STANDARD DRAWING 1101.03 SHEET 1 OF 9, INSTALL DETOUR ROUTE SIGNING TO CLOSE SR 1768 (OLD BURNSVILLE RD).

STEP 2: AWAY FROM TRAFFIC, COMPLETE PROPOSED BRIDGE AND ROADWAY CONSTRUCTION ALONG -L- (OLD BURNSVILLE RD) FROM -L- STA. 10+00.00 TO STA. 13+65.00, INCLUDING DRAINAGE, GUARDRAIL AND FINAL PAVEMENT MARKINGS.

STEP 3: REMOVE TEMPORARY TRAFFIC CONTROL DEVICES AND OPEN -L- (OLD BURNSVILLE RD) TO PROPOSED TRAFFIC PATTERN.

LOCAL NOTES

1) NOTIFY BUNCOMBE COUNTY EMERGENCY SERVICES AND PUBLIC SCHOOLS AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.

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DATE: 12/3/2025

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044594 BENJAMIN A. WHITE

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

PROJ. REFERENCE NO.	SHEET NO.
BP13-R013	TMP-2

SIGN NUMBER: 01
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 23′-6″
HEIGHT: 6′-6″
TOTAL AREA: 152.8 Sq.Ft.

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

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black
MAJ. COPY SERIES: Ground
ROUTE MARKERS: N/A

SYMBOL	X	Y	WID	HT

MAT′L: 0.080″ (2.0 mm) ALUMINUM

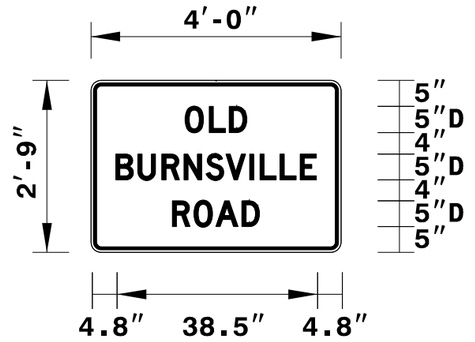
NOTES:

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

DESIGN BY: DH
PROJECT ID: BP13-R013

CHECKED BY: RT
LOCATION:

DATE: July 2025
DIV: 13



BORDER
R=1.5 in
TH=0.63 in
IN=0.38 in

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacing are to start of next letter																													Series/Size Text Length
O	L	D																											5″ D 2000
18.1	22.5	26.6																											11.9
B	U	R	N	S	V	I	L	L	E																				5″ D 2000
4.8	9.0	13.2	17.5	21.7	26.0	30.6	32.3	36.2	40.2																				38.5
R	O	A	D																										5″ D 2000
15.6	19.8	24.0	29.0																										16.8

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919-420-7660
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APPROVED: DocuSigned by: Benjamin A. White 68F7762216174 43...
DATE: 12/3/2025
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044594 ENGINEER BENJAMIN A. WHITE

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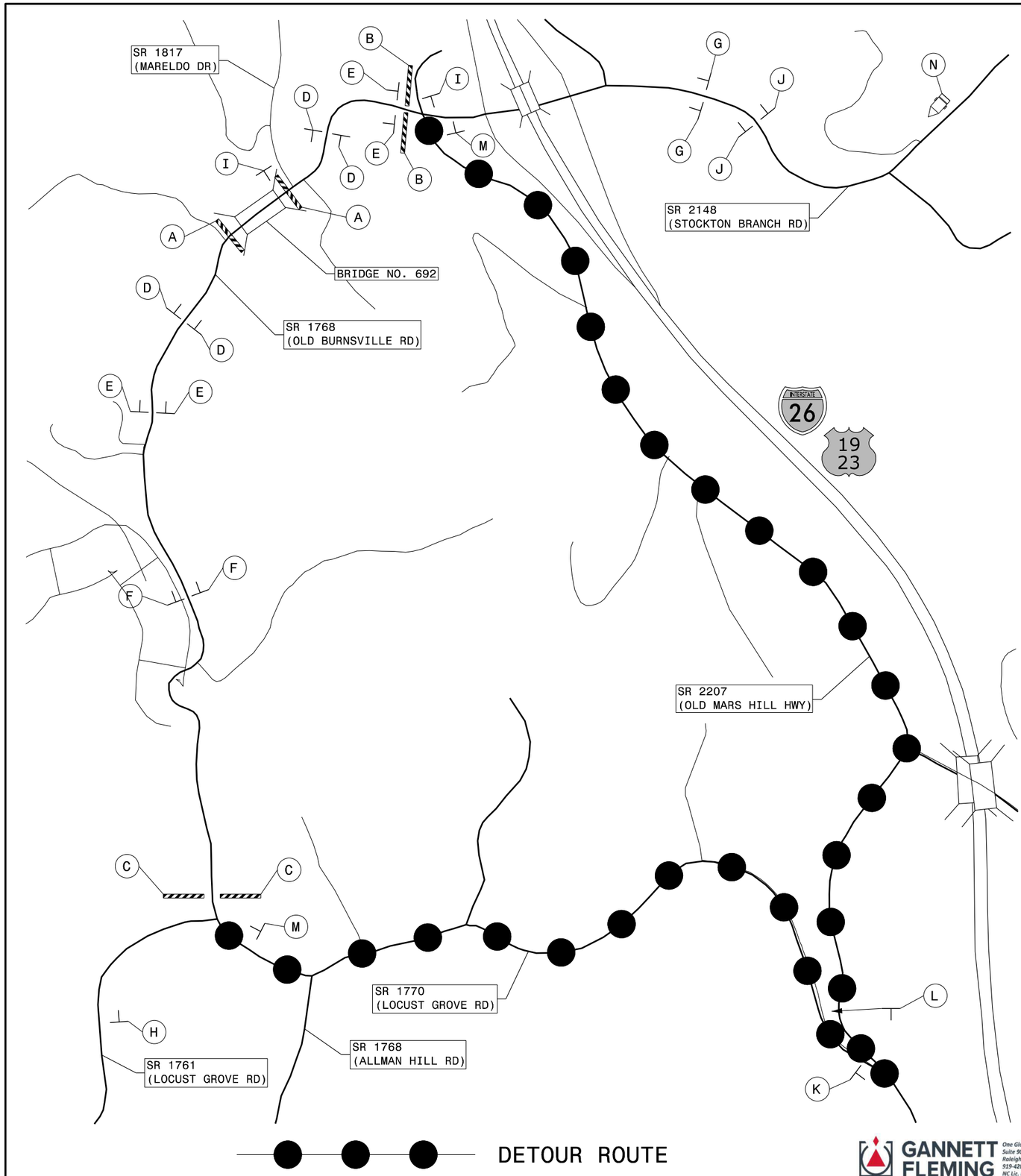
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

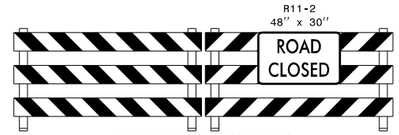
SPECIAL
SIGN
DESIGN

PROJ. REFERENCE NO.	SHEET NO.
BP13-R013	TMP-3



DETOUR ROUTE

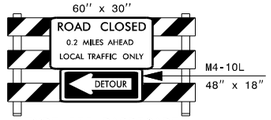
R11-2
48" x 30"



TYPE III BARRICADE(S)

A

R11-3
60" x 30"

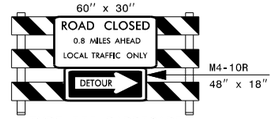


M4-10L
48" x 18"

TYPE III BARRICADE

B

R11-3
60" x 30"



M4-10R
48" x 18"

TYPE III BARRICADE

C

W20-3
48" x 48"

D

W20-3
48" x 48"

E

W20-3
48" x 48"

F

W20-2
48" x 48"

G

W20-3
48" x 48"

NEXT LEFT SP-4L
42" X 12"

H

W20-3
48" x 48"

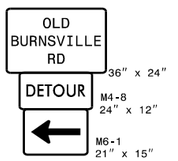
NEXT RIGHT SP-4R
42" X 12"

I

W20-3
48" x 48"

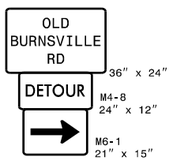
0.6 MILES W16-3P
24" X 24"

J



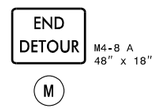
36" x 24"
M4-8
24" x 12"
M6-1
21" x 15"

K



36" x 24"
M4-8
24" x 12"
M6-1
21" x 15"

L



M4-8 A
48" x 18"

M

MESSAGE NO. 1	MESSAGE NO. 2
ROAD CLOSED AHEAD	STARTING (DAY) TIME

CHANGEABLE MESSAGE SIGN

MESSAGE NO. 1	MESSAGE NO. 2
ROAD CLOSED 1 MILE	FOLLOW POSTED DETOUR

CHANGEABLE MESSAGE SIGN

N

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APPROVED: DocuSigned by: Benjamin A. White 68F776221617443...

DATE: 12/3/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044594 ENGINEER BENJAMIN A. WHITE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

OFFSITE DETOUR ROUTE

PROJECT: BP13-R013

TIP NO. BP13-R013 | SHEET NO. PMP-1

APPROVED: DocuSigned by: Benjamin A. White 68F7762216174443... DATE: 12/3/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044594 ENGINEER BENJAMIN A. WHITE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
BUNCOMBE COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 692 OVER ADKINS BRANCH ON SR 1768 (OLD BURNSVILLE RD)

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN INDEX, GENERAL NOTES, ROADWAY STANDARD DRAWINGS, AND PAVEMENT MARKING SCHEDULE
PMP-2	PAVEMENT MARKING DETAILS

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
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 AND DELINEATION

GENERAL NOTES

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

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

ROAD NAME	MARKING
(-L-) SR 1768 (OLD BURNSVILLE RD)	THERMOPLASTIC

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

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

PAVEMENT MARKING AND MARKER SCHEDULE

SYMBOL	DESCRIPTION
T1	THERMOPLASTIC WHITE EDGELINE (4", 90 MIL)
T13	THERMOPLASTIC YELLOW DOUBLE CENTER (4", 90 MIL)

PLAN PREPARED BY:

GANNETT FLEMING — One Glenwood Avenue Suite 900 Raleigh, NC 27603 919-420-7660 NC Lic. No. F-0270

RICKY A. TIPTON, PE — PROJECT ENGINEER

BENJAMIN A. WHITE, PE — PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
BP13-R013	PMP-2

APPROVED: DocuSigned by: Benjamin A. White 69F7822161744... 12/3/2025

DATE:

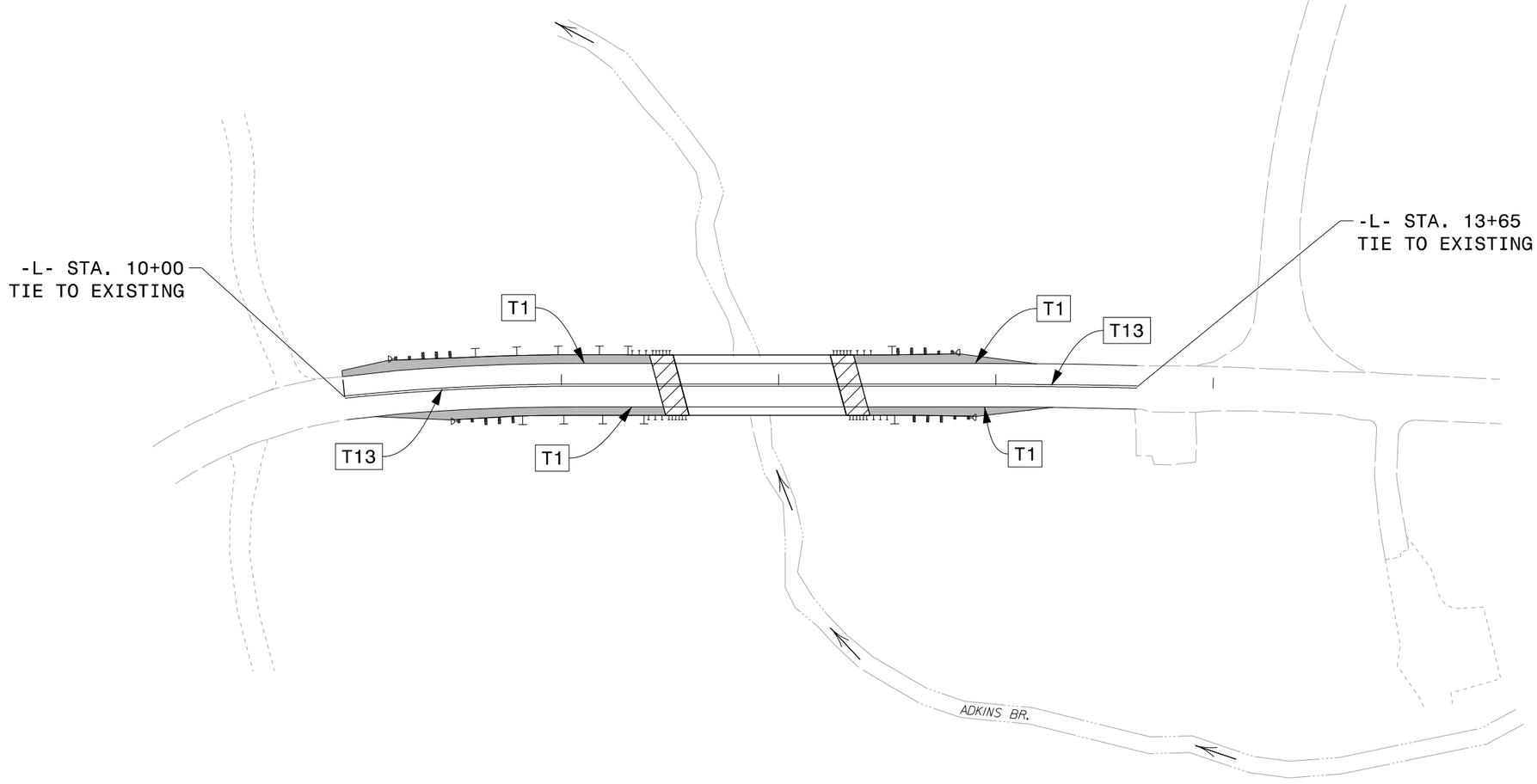
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 044594 ENGINEER BENJAMIN A. WHITE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

30′ 0′ 30′ 60′

15′



NOTE: ALL LANE WIDTHS ARE 10′ UNLESS OTHERWISE SHOWN

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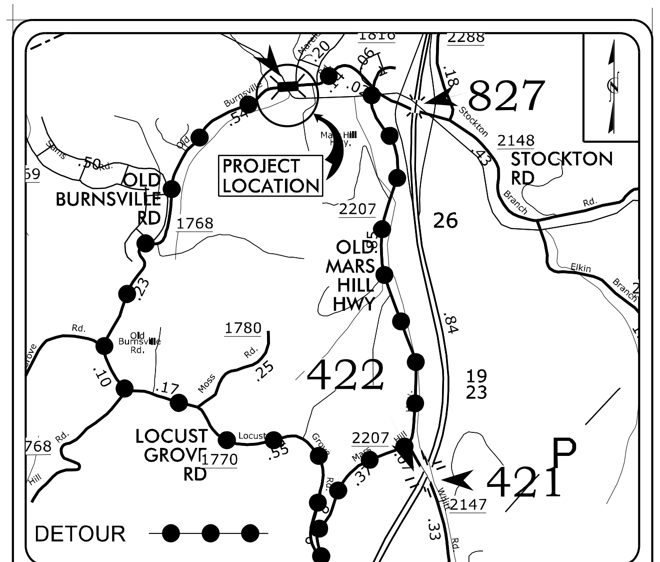
PAVEMENT MARKING DETAIL

TIP PROJECT: BP13–R013

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13-R013	EC-1	

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



VICINITY MAP

NOT TO SCALE

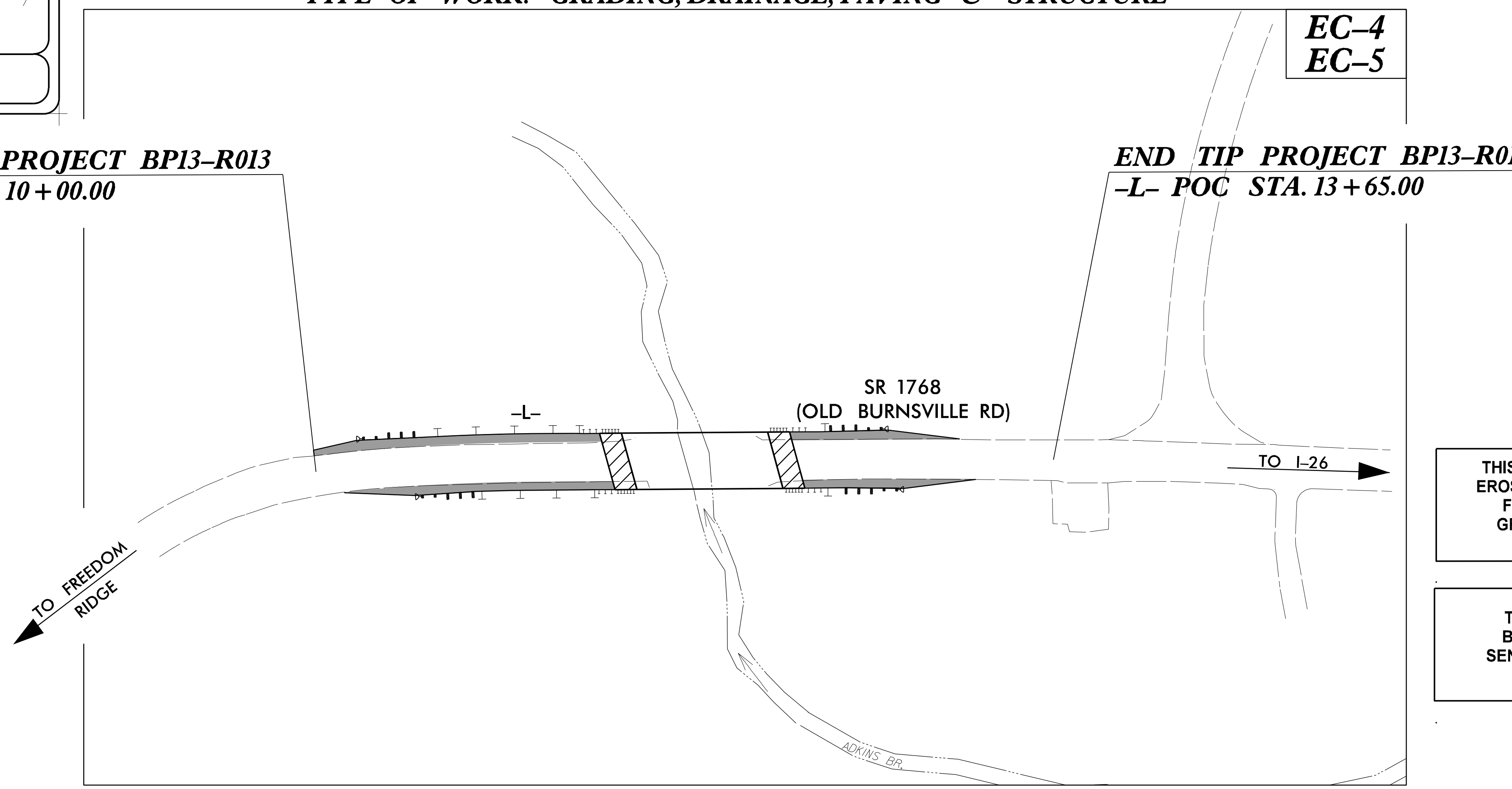
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

BUNCOMBE COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 692 OVER ADKINS BRANCH ON SR 1768 (OLD BURNSVILLE ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. BEGIN
to Sta. END
Refer To E. C. Special Provisions for Special Considerations.

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

GRAPHIC SCALE

50 25 0 50 100

PLANS

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

Prepared In the Office of:

GANNETT FLEMING
ONE GLENWOOD AVENUE
SUITE 900
RALEIGH, NC 27603

2024 STANDARD SPECIFICATIONS

Designed by:

NAME	LEVEL III CERTIFICATION NO.
Hannah Arey	4651

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.

30-MAY-2025 16:03

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

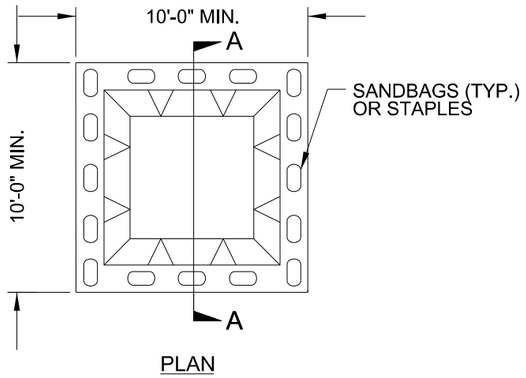
EROSION & SEDIMENT CONTROL LEGEND

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

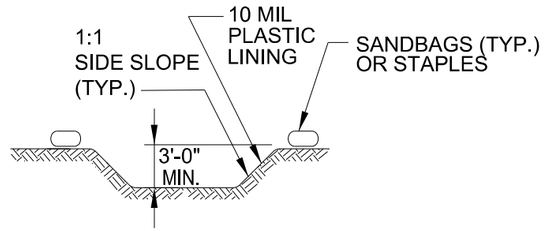
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet 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.
BP13-R013	EC-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

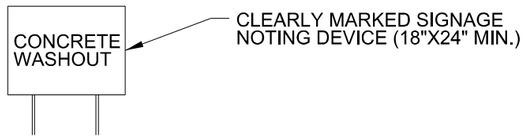
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A



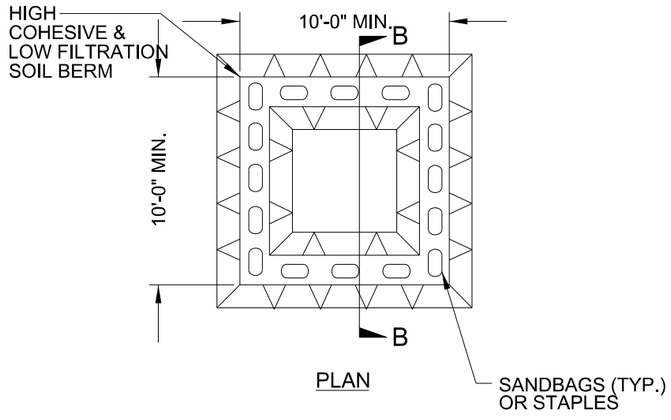
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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.

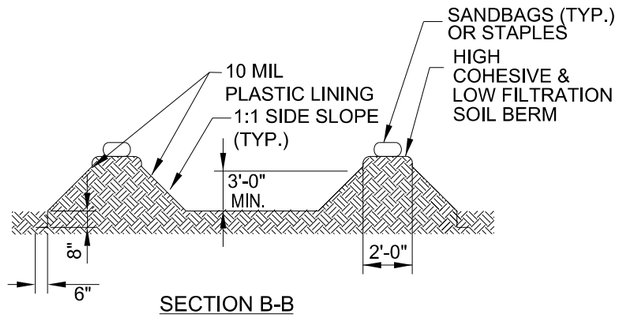
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

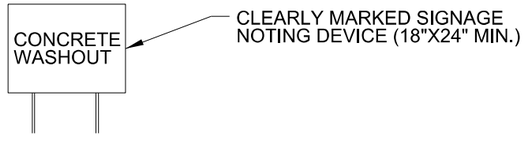
NOT TO SCALE



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.
BP13-R013	EC-3A
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 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
	EXCELSIOR MATTING				
4	-L-	10+00	11+50	LT	345
4	-L-	10+25	11+50	RT	285
4	-L-	13+00	13+50	LT	260
4	-L-	12+10	12+75	RT	10
4	-L-	12+50	13+75	LT	75
			SUBTOTAL		975
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					8,865
				TOTAL	8950
				SAY	10,900

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	11+90	12+50	LT	10
				SUBTOTAL	10
		ADDITIONAL PSRM TO BE INSTALLED			10
				TOTAL	20
				SAY	30

8/17/99

REVISIONS

SSSSUSERNAMESSSSS
SSSSSSSSYSTIMESSSSS
SSSSSSSSSSSSSSSSSSDGNSSSSSSSSSSSSSSSSSSS

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

GANNETT FLEMING — One Glenwood Avenue Suite 900 Raleigh, NC 27603 919-420-7660 NC Lic. No. F-0370

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

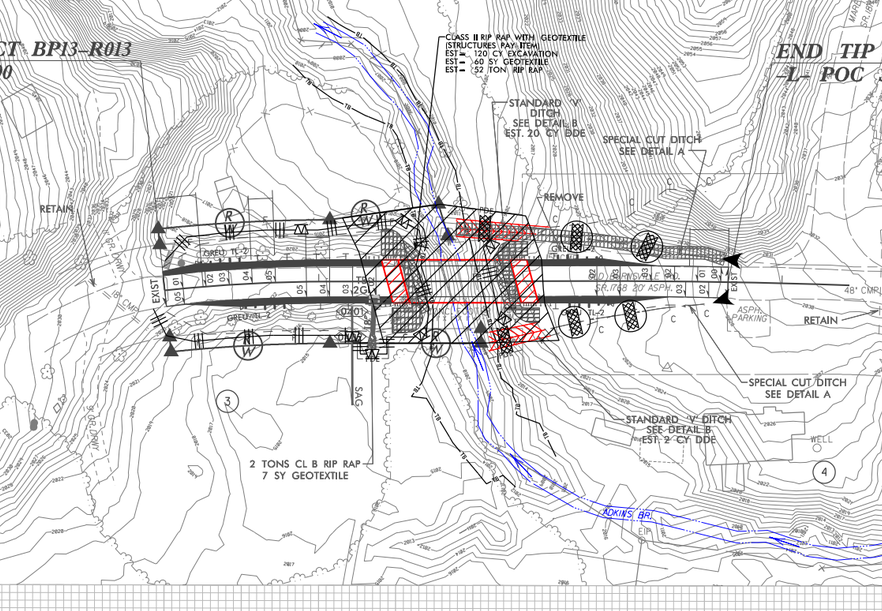
NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

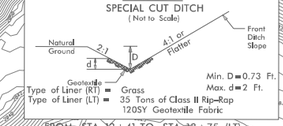
NOTES:
ALL STRUCTURE ANCHOR UNITS ARE TYPE-III
A DESIGN EXCEPTION FOR DESIGN SPEED IS APPROVED ON THIS PROJECT.

BEGIN TIP PROJECT BP13-R013
-L- PC STA. 10+00.00

END TIP PROJECT BP13-R013
-L- POC STA. 13+65.00

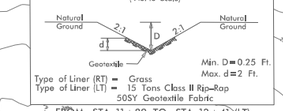


DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D=0.73 Ft.
Max. d=2 Ft.
Type of Liner (RT) = Grass
Type of Liner (LT) = 35 Tons of Class II Rip-Rap
120SY Geotextile Fabric
FROM STA. 12+41 TO STA. 13+75 (LT)
FROM STA. 12+47 TO STA. 13+50 (RT)

DETAIL B
STANDARD 'V' DITCH
(Not to Scale)

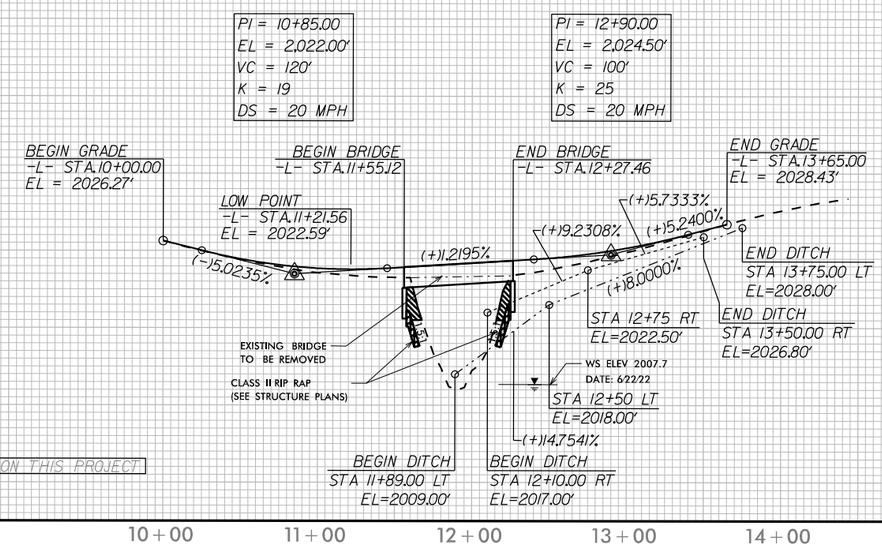


Min. D=0.25 Ft.
Max. d=2 Ft.
Type of Liner (RT) = Grass
Type of Liner (LT) = 15 Tons Class II Rip-Rap
50SY Geotextile Fabric
FROM STA. 11+89 TO STA. 12+41 (LT)
FROM STA. 12+10 TO STA. 12+47 (RT)

PAVED SHOULDER

-L-

BM N 948865.1760 E 759053.3150
TOP OF R/W MARKER
-L- STA. 13+26.23 OFF 56.183797 RT



* DESIGN EXCEPTION IS APPROVED FOR DESIGN SPEED ON THIS PROJECT.

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 950	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2014.9	FT
BASE DISCHARGE	= 1300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2016.1	FT
OVERTOPPING DISCHARGE	= 6900	CFS
OVERTOPPING FREQUENCY	= 1000+	YRS
OVERTOPPING ELEVATION	= 2025.7	FT
DATE OF SURVEY	= 6/22/2022	
W.S.ELEVATION AT DATE OF SURVEY	= 2007.7	FT

8/17/99

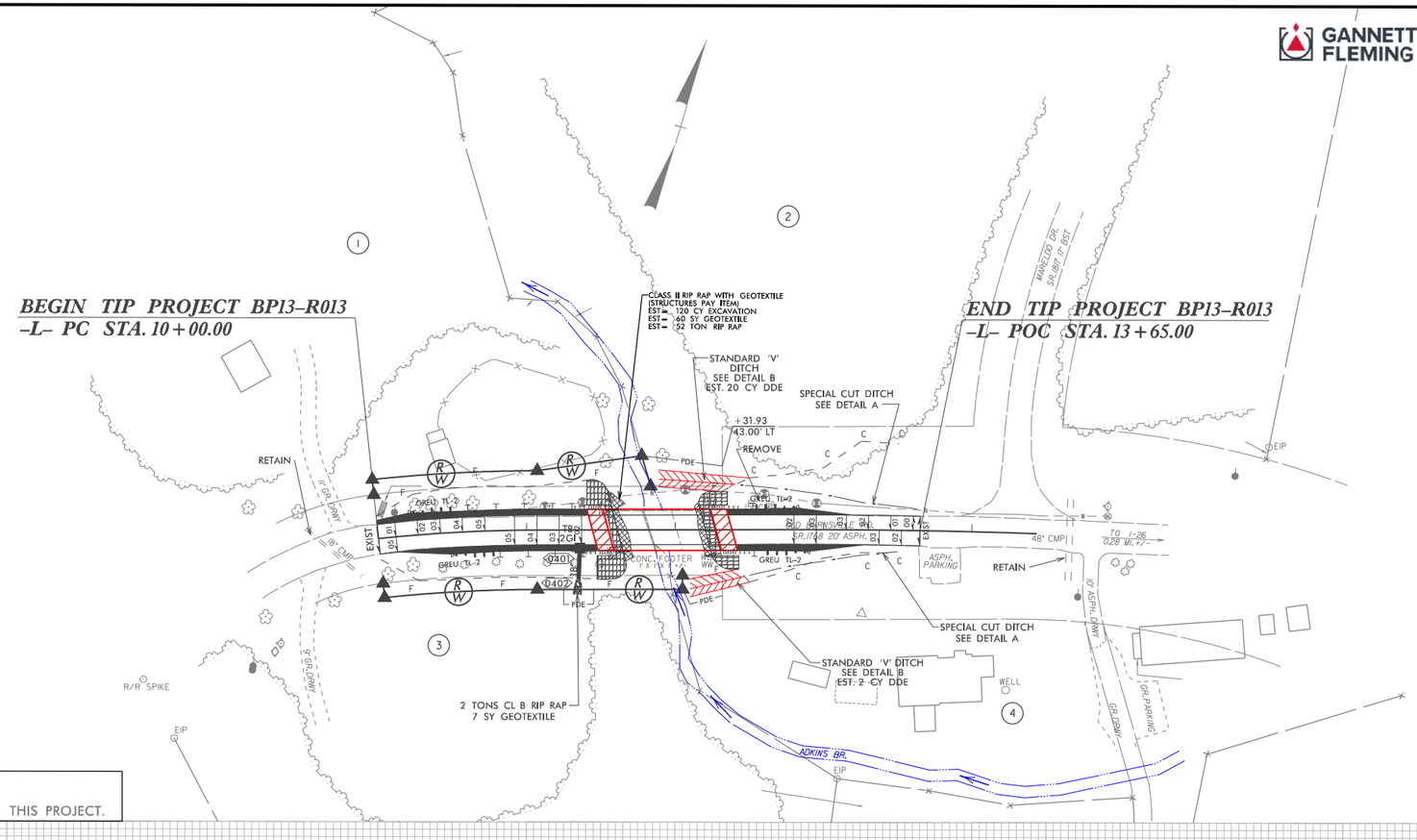
REVISIONS

INSTALL PSRM IN THE PROPOSED DITCH LINE.
–L– Sta. 11+90 to Sta. 12+50 LT

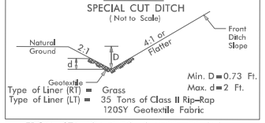
Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 10+00 to Sta. 11+50 LT
–L– Sta. 10+25 to Sta. 11+50 RT
–L– Sta. 13+00 to Sta. 13+50 LT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
–L– Sta. 12+50 to Sta. 13+75 LT
–L– Sta. 12+10 to Sta. 12+75 RT

NOTES:
ALL STRUCTURE ANCHOR UNITS ARE TYPE–III
A DESIGN EXCEPTION FOR DESIGN SPEED IS APPROVED ON THIS PROJECT.



DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 0.73 Ft.
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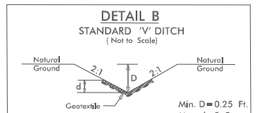
Type of Liner (LT) = 35 Tons of Class II Rip-Rap
120SY Geotextile Fabric

FROM STA. 12+41 TO STA. 13+75 (LT)
FROM STA. 12+47 TO STA. 13+50 (RT)

DETAIL B
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 0.25 Ft.
Max. d = 2 Ft.
Type of Liner (RT) = Grass
Type of Liner (LT) = 15 Tons Class II Rip-Rap
50SY Geotextile Fabric

FROM STA. 11+89 TO STA. 12+41 (LT)
FROM STA. 12+10 TO STA. 12+47 (RT)

PAVED SHOULDER

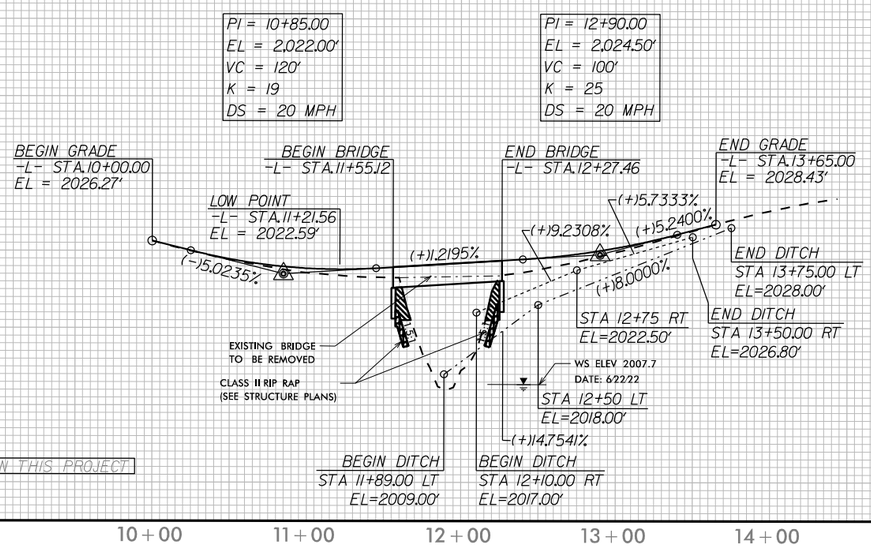
PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GANNETT FLEMING One Glenwood Avenue Suite 900 Raleigh, NC 27603 919-420-7660 NC Lic. No. F-0370

–L–

BM N 948865.1760 E 759053.3150
TOP OF RW MARKER
–L– STA. 13+26.23 OFF 56.183797 RT



* DESIGN EXCEPTION IS APPROVED FOR DESIGN SPEED ON THIS PROJECT.

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 950	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2014.9	FT
BASE DISCHARGE	= 1300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2016.1	FT
OVERTOPPING DISCHARGE	= 6900	CFS
OVERTOPPING FREQUENCY	= 1000+	YRS
OVERTOPPING ELEVATION	= 2025.7	FT
DATE OF SURVEY	= 6/22/2022	
W.S.ELEVATION AT DATE OF SURVEY	= 2007.7	FT

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

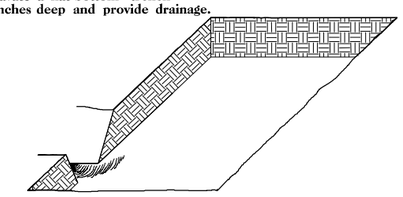
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13-R013	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

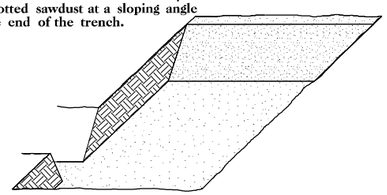
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

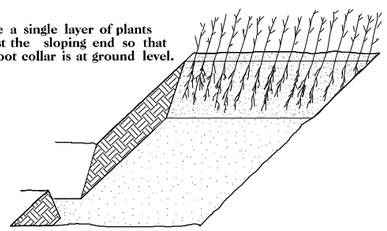
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



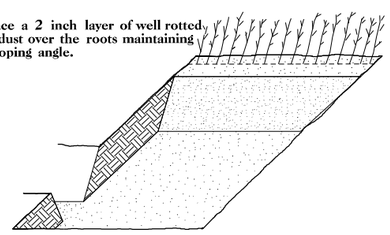
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

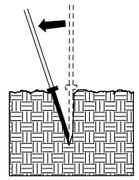


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

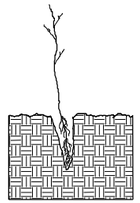


6. Repeat layers of plants and sawdust as neeessary and water thoroughly.

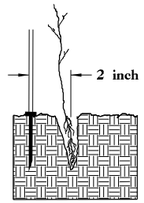
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



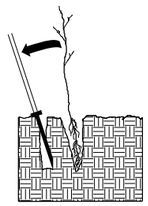
1. Insert planting bar as shown and pull handle toward planter.



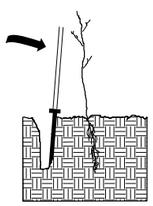
2. Remove planting bar and place seedling at correct depth.



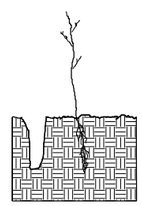
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
BP13-R013	X-1

CROSS SECTION INDEX

CROSS SECTION INDEX X–1

CROSS SECTION SUMMARY X–1A

ROADWAY	STATION	TO	STATION	SHEET NO.
–L– SR 1768 (OLD BURNSVILLE RD)	10 + 00.00		13 + 75.00	X–2 TO X–7

PROJ. REFERENCE NO.	SHEET NO.
BP13-R013	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDES BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+00.00	0	0
10+25.00	2	23
10+50.00	1	52
10+75.00	1	64
11+00.00	1	64
11+25.00	0	53
11+50.00	0	69
11+55.12	0	18

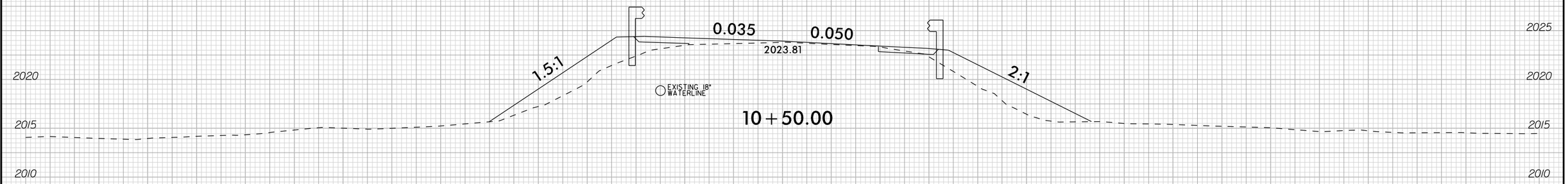
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+27.46	0	0
12+50.00	10	54
12+75.00	27	52
13+00.00	50	28
13+25.00	142	7
13+50.00	211	3
13+65.00	61	1

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

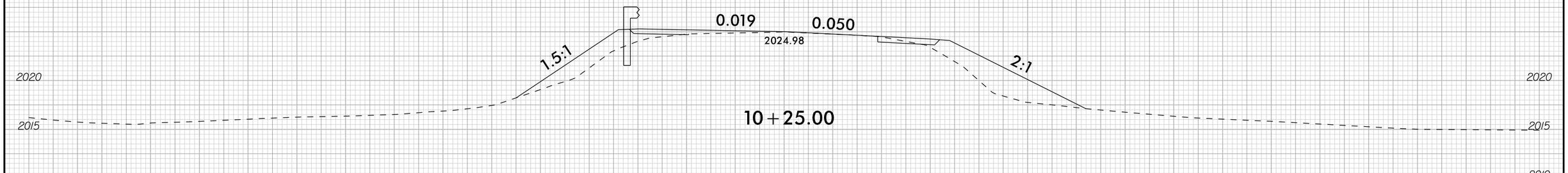
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP13-R013	X-2

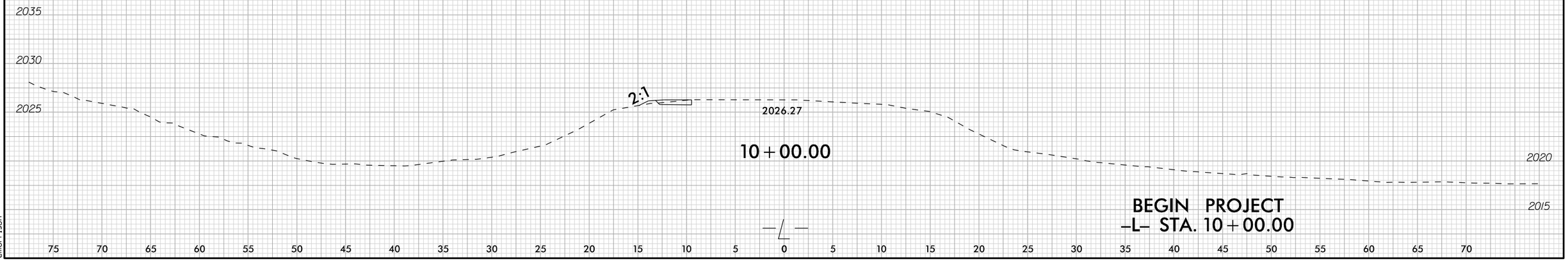
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



10+50.00



10+25.00



10+00.00

BEGIN PROJECT
-L- STA. 10+00.00

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

6/30/2025
c:\pwworking\gfpw01\emorrison@gfnet.com\d0990940\l00692_rdy_xpl.dgn
emorrison

6/23/16

0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP13-R013	X-3

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

2025
2020
2015
2010

0.028 0.028
2021.74
2:1
2:1
11+25.00
EXISTING 18" WATERLINE

0.045 0.045
2022.15
1.5:1
2:1
11+00.00
EXISTING 18" WATERLINE

0.050 0.050
2022.91
1.5:1
2:1
10+75.00
EXISTING 18" WATERLINE

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

6/6/2025
c:\pwworking\gfpw01\emorrison@gfnet.com\d0990940\100692_rdy_xpl.dgn
emorrison

6/23/16

0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP13-R013	X-4

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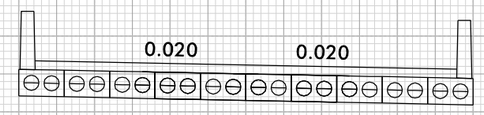


2020 2020

2015 2015

2010 2010

2005 2005

2000

2011.67

EXISTING 18" WATERLINE

11+75.00

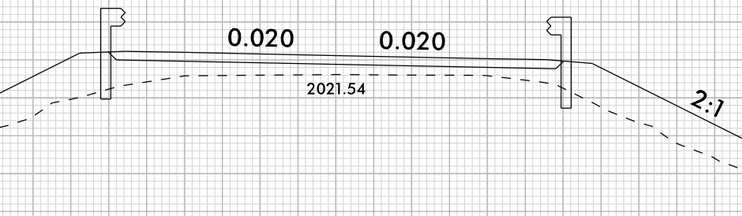
BEGIN BRIDGE
–L– STA. 11+55.12

2025

2020 2020

2015 2015

2010 2010



EXISTING 18" WATERLINE

11+50.00

–L–

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

6/6/2025
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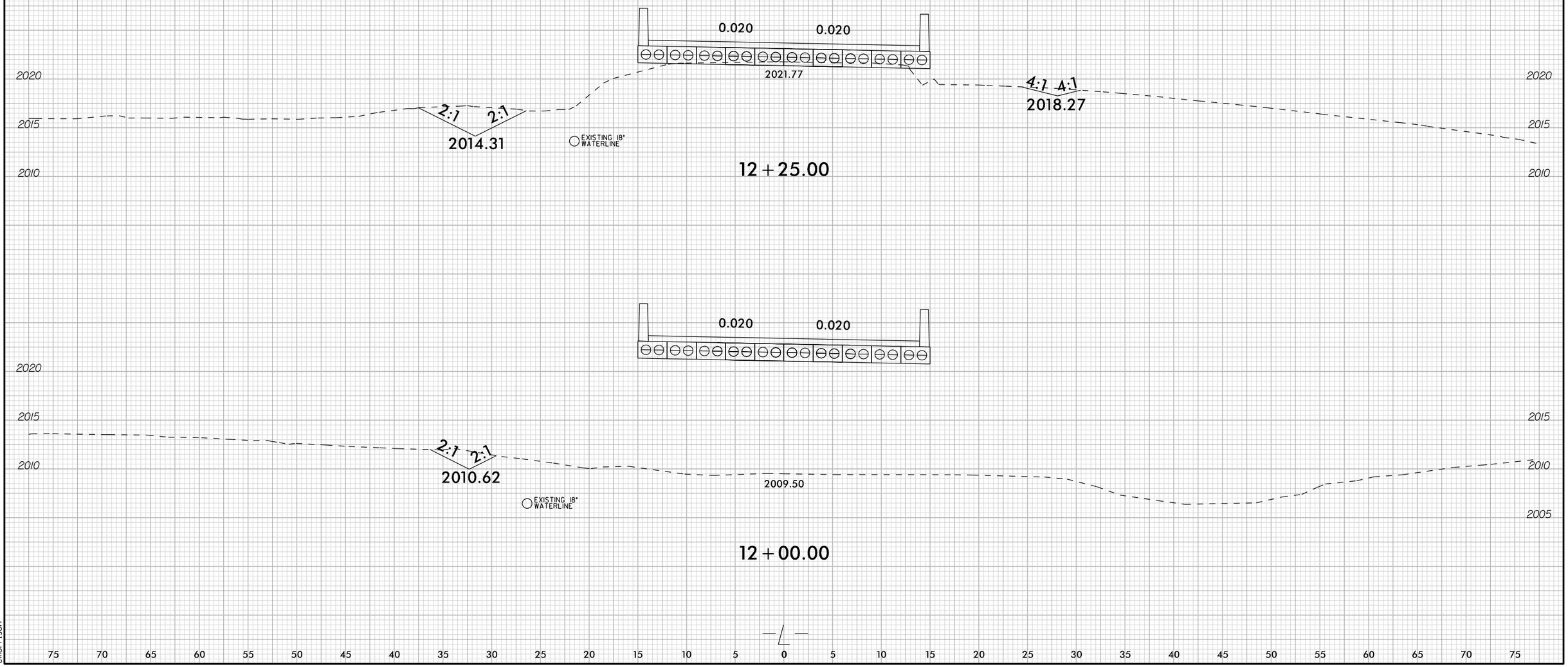
emorrison

6/23/16

0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP13-R013	X-5

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

END BRIDGE
–L– STA. 12+27.46



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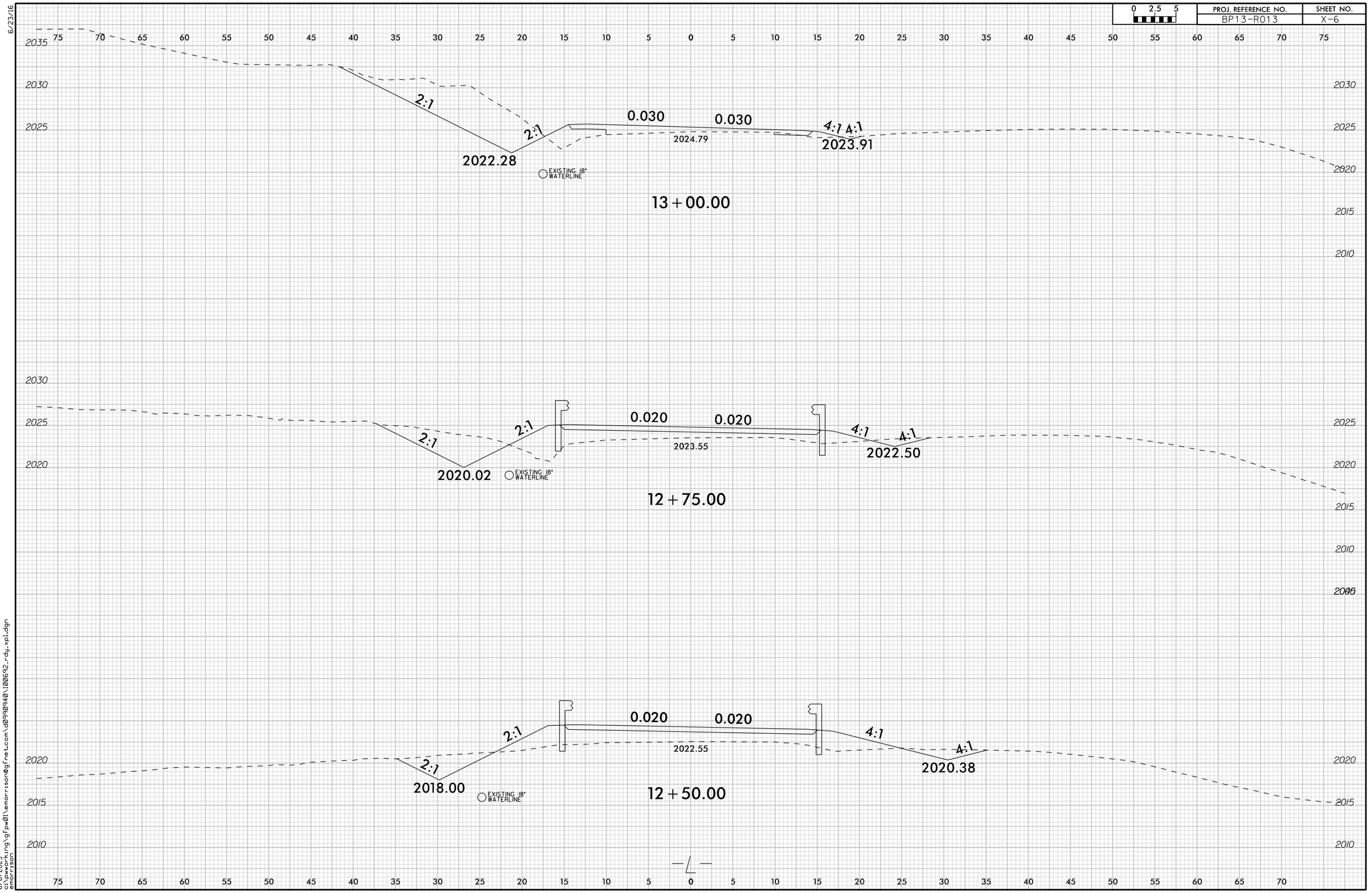
emorrison

6/23/16

0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP13-R013	X-6



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emorrison

6/23/16

0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	BP13-R013	X-7

2028.43

13+75.00

END PROJECT
–L– STA. 13+65.00

2:1

0.007

0.022

4:1

4:1

2027.57

2025.84

EXISTING 18" WATERLINE

13+50.00

2:1

0.024

0.030

4:1

2026.15

2024.23

EXISTING 18" WATERLINE

13+25.00

–L–

6/6/2025
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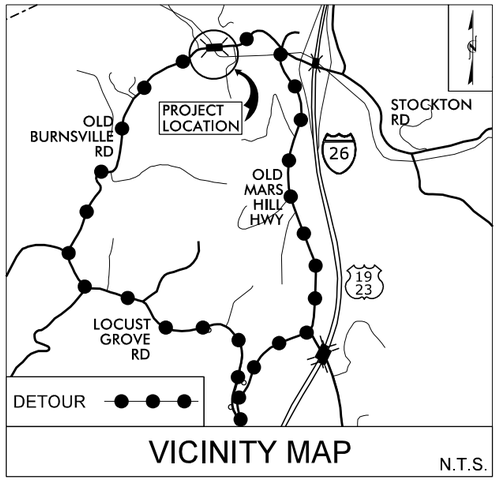
emorrison

TIP PROJECT: BP13-R013

CONTRACT NO: DM00393



VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

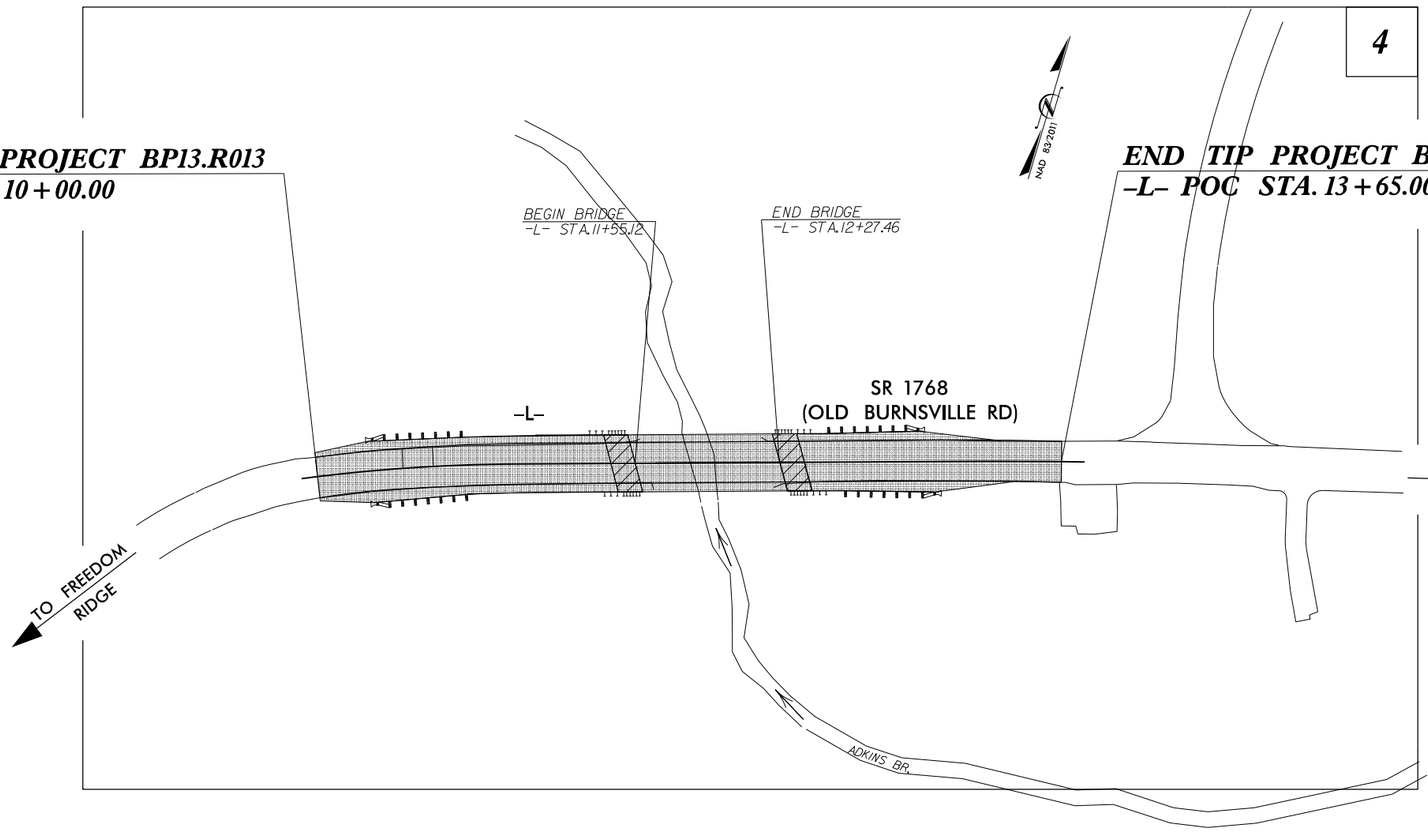
STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP13.R013	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP13.R013.1	N/A	P.E.
BP13.R013.2	N/A	ROW, UTIL.
BP13.R013.3	N/A	CONST.

LOCATION: ***REPLACEMENT OF BRIDGE NO. 692 OVER ADKINS BRANCH ON SR 1768 (OLD BURNSVILLE ROAD)***

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



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DESIGN DATA

BUNCOMBE COUNTY

ADT 2022 = 380
ADT 2042 = 760

V = 30 MPH

FUNC CLASS = LOCAL SUB-REGIONAL TIER

PROJECT LENGTH

BUNCOMBE COUNTY

LENGTH ROADWAY PROJECT BP13.R013	=	0.055 MILES
LENGTH STRUCTURES PROJECT BP13.R013	=	0.014 MILES
TOTAL LENGTH PROJECT BP13.R013	=	0.069 MILES

NCDOT CONTACT: MARK HILL
DIVISION 13 CONTACT

GANNETT FLEMING
One Glenwood avenue
Suite 900
Raleigh, NC 27603
919-4207660
NC Lic. No. F-0270

TOM FORD, P.E.
STRUCTURES DESIGN ENGINEER

2024 STANDARD SPECIFICATIONS

LETTING DATE: FEBRUARY 18, 2026

DocuSigned by: Tom M Ford
381F69D0AD9743D...
12/2/2025

NORTH CAROLINA PROFESSIONAL SEAL 052027 ENGINEER TOM M. FORD

TOM FORD, P.E.
STRUCTURES DESIGN ENGINEER

11+50 12+00 12+50

(-)5.0235% (+)1.2195%

P.V.I. STA. 10+85.00
EL. = 2,022.00
V.C. = 120.00'

GRADE DATA -L-

(+)1.2195% (+)5.2400%

P.V.I. STA. 12+90.00
EL. = 2,024.50
V.C. = 100.00'

GRADE DATA -L-

2035 2030 2025 2020 2015 2010 2005 2000

FILL FACE @ END BENT 1
STA. 11+55.12 -L-
GRADE POINT EL. 2,022.86

LOW CHORD
EL. 2,020.35

BEGIN FRONT SLOPE
STA. 11+47.78 -L-
GRADE POINT EL. 2,022.77

1'-7" BERM (TYP.)

FIX.

EL. 2,022±

EL. 2,021±

EL. 2,017±

EL. 2,016±

1'-0" (TYP.)

℄ HP 12X53 STEEL PILES (TYP.)

CLASS II RIP RAP (TYP.)

EL. 2,012±

EL. 2,010±

EL. 2,007±

SPAN A

Q100
EL. = 2,016.1

Q25
EL. = 2,014.9

N.W.S.
EL. 2,007.7
6-22-2022

EXISTING SUBSTRUCTURE (TYP.)

EL. 2,007±

EL. 2,009±

EL. 2,010±

EL. 2,012±

EL. 2,015±

LIMITS OF UNCLASSIFIED STRUCTURE EXCAVATION (TYP.)

1'-6" (TYP.)

FILL FACE @ END BENT 2
STA. 12+27.46 -L-
GRADE POINT EL. 2,023.74

LOW CHORD
EL. 2,021.16

FIX.

EL. 2,022±

BEGIN FRONT SLOPE
STA. 12+34.24 -L-
GRADE POINT EL. 2,023.83

APPROXIMATE EXISTING GROUND LINE

EL. 2,023±

1'-0" EARTH BERM (TYP.)

FLOODPLAIN BENCH
EL. 2,016.00± (TYP.)

1½:1 SLOPE NORMAL TO CAP (TYP.)

UNCLASSIFIED STRUCTURE EXCAVATION

END BENT 1

END BENT 2

SECTION ALONG -L-

(SECTIONS @ END BENTS ARE @ RIGHT ANGLES)

72'-4" TOTAL LENGTH OF BRIDGE
(FILL FACE TO FILL FACE)

36'-2" 36'-2"

CLASS II RIP RAP (TYP.)

1'-0" EARTH BERM
EL. 2015.79

ADKINS BRANCH

1'-7" BERM (TYP.)

1'-0" EARTH BERM
EL. 2016.65

TO FREEDOM RIDGE

-L-

W.P. 2
STA. 12+27.46 -L-

BEGIN FRONT SLOPE
STA. 12+34.24 -L-

END APPROACH SLOPE
STA. 12+38.29 -L-

BEGIN APPROACH SLOPE
STA. 11+44.29 -L-

BEGIN FRONT SLOPE
STA. 11+47.78 -L-

W.P. 1
STA. 11+55.12 -L-

75°-00'-00" (TYP.)

FILL FACE @ END BENT 2

TO I-26

BRIDGE ID
STA. 11+91.29 -L-

FILL FACE @ END BENT 1

EXISTING STRUCTURE

1'-0" EARTH BERM
EL. 2015.19

1'-0" EARTH BERM
EL. 2016.05

PLAN

(PILES NOT SHOWN FOR CLARITY)

DocuSigned by:
[redacted]
SEAL 052027 ENGINEER TOM M. FORD
5/29/2025

PROJECT NO. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 100692

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON
SR 1768 (OLD BURNSVILLE RD.)
OVER ADKINS BRANCH

DRAWN BY : M. SPENCER DATE : 01/2023
CHECKED BY : T. FORD DATE : 01/2023
DESIGN ENGINEER OF RECORD: T. FORD DATE : 04/2024

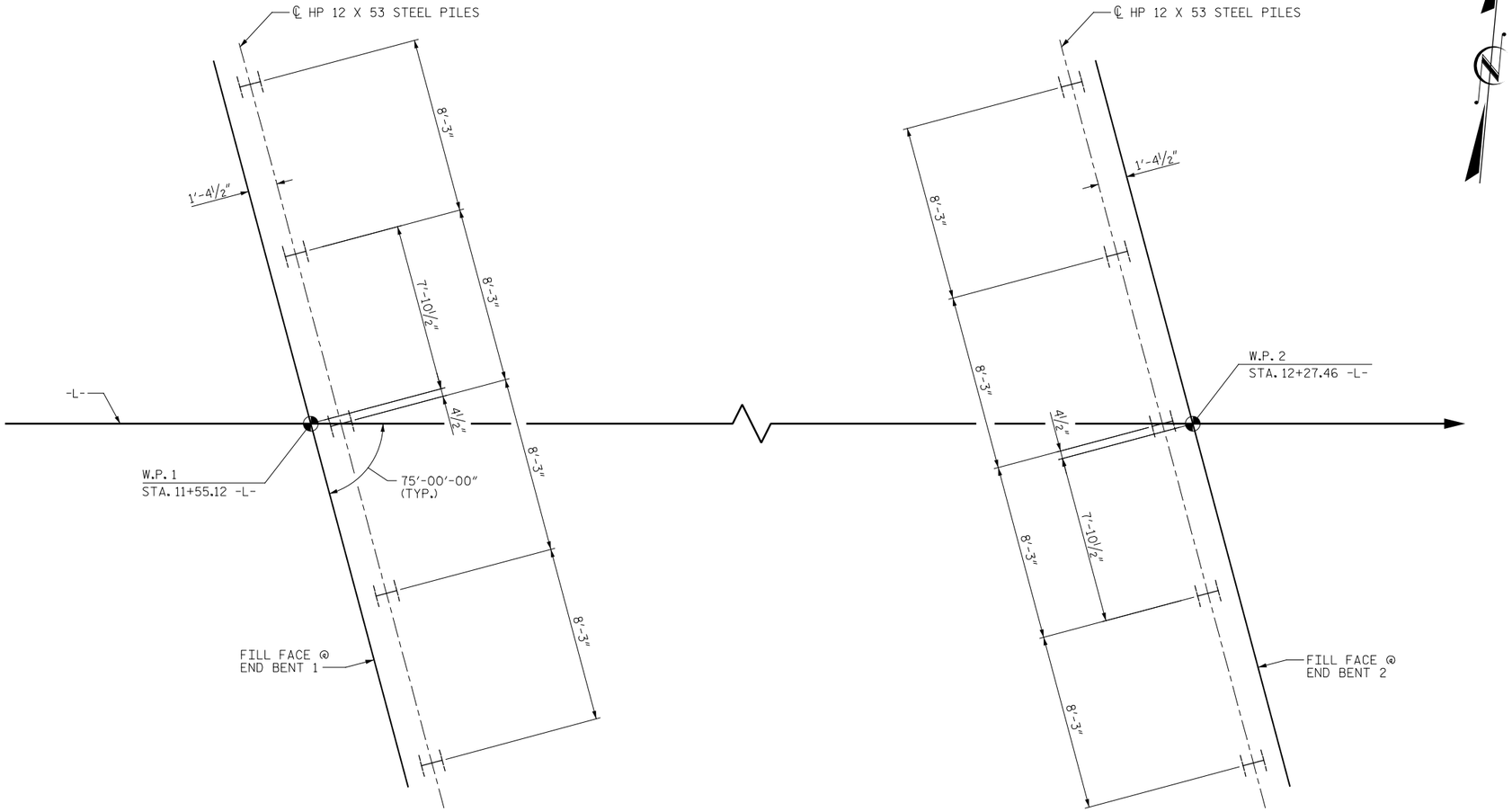
GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			15

NOTES:

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



END BENT 1

END BENT 2

HP 12 X 53 STEEL VERTICAL PILE

FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE TO THE PILE CENTERLINES)

PROJECT NO. BP13.R013

BUNCOMBE COUNTY

STATION: 11+91.29 -L-

SHEET 2 OF 4

DocuSigned by:
NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL
052027
ENGINEER
TOM M. FORD
5/29/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON
SR 1768 (OLD BURNSVILLE RD.)
OVER ADKINS BRANCH

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : M. SPENCER DATE : 01/2023
CHECKED BY : T. FORD DATE : 01/2023
DESIGN ENGINEER OF RECORD: T. FORD DATE : 04/2024

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

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SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles: Min Pile Tip (Tip No Higher Than) Elev FT	Driven Piles: Required Driving Resistance (RDR)** per Pile TONS	Driven Piles: Total Pile Redrives Quantity EACH	Predrilling for Piles*: Predrilling Length per Pile Lin FT	Predrilling for Piles*: Predrilling Elevation (Elev Not To Predrill Below) FT	Predrilling for Piles*: Maximum Predrilling Dia INCHES	Drilled-In Piles: Pile Excavation (Bottom of Hole) Elev FT	Drilled-In Piles: Pile Exc Not In Soil per Pile Lin FT	Drilled-In Piles: Pile Exc In Soil per Pile Lin FT
End Bent No. 1, Piles 1-2	99	See Structure Drawings	20			165							
End Bent No. 1, Piles 3-5	99		30			165							
End Bent No. 2, Piles 1-5	99		30			165							

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

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

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 Required? YES or MAYBE	Steel Pile Points: Pipe Pile Cutting Shoes Required? YES	Steel Pile Points: Pipe Pile Conical Points Required? YES	Steel Pile Points: H-Pile Points Required? YES	Steel Pile Tips Required? YES
End No. 1, Piles 1-5				Yes	
TOTAL QTY:				5	

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 TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent No. 1, Piles 1-5	97			0.60			1.00
End Bent No. 2, Piles 1-5	97			0.60			1.00

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

SUMMARY OF PDA

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	PDA Testing Required? YES or MAYBE	Total PDA Testing Quantity EACH
End Bent No. 1	Maybe	1

NOTES

1. The Pile and Drilled Pier Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer Michael H. Stephens (PE No. 028893) on ___________.
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 will determine the need for PDA Testing, Pipe Pile Plates, Permanent Steel Casing, SPTs, CSL Testing, SID Inspections and PITs when these items may be required.

FOUNDATION NOTES

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

PROJECT NO. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-
SHEET 3 OF 4

DocuSigned by:
381F69D0AD87436...
NORTH CAROLINA PROFESSIONAL SEAL 052027 ENGINEER TOM M. FORD
5/29/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON
SR 1768 (OLD BURNSVILLE RD.)
OVER ADKINS BRANCH

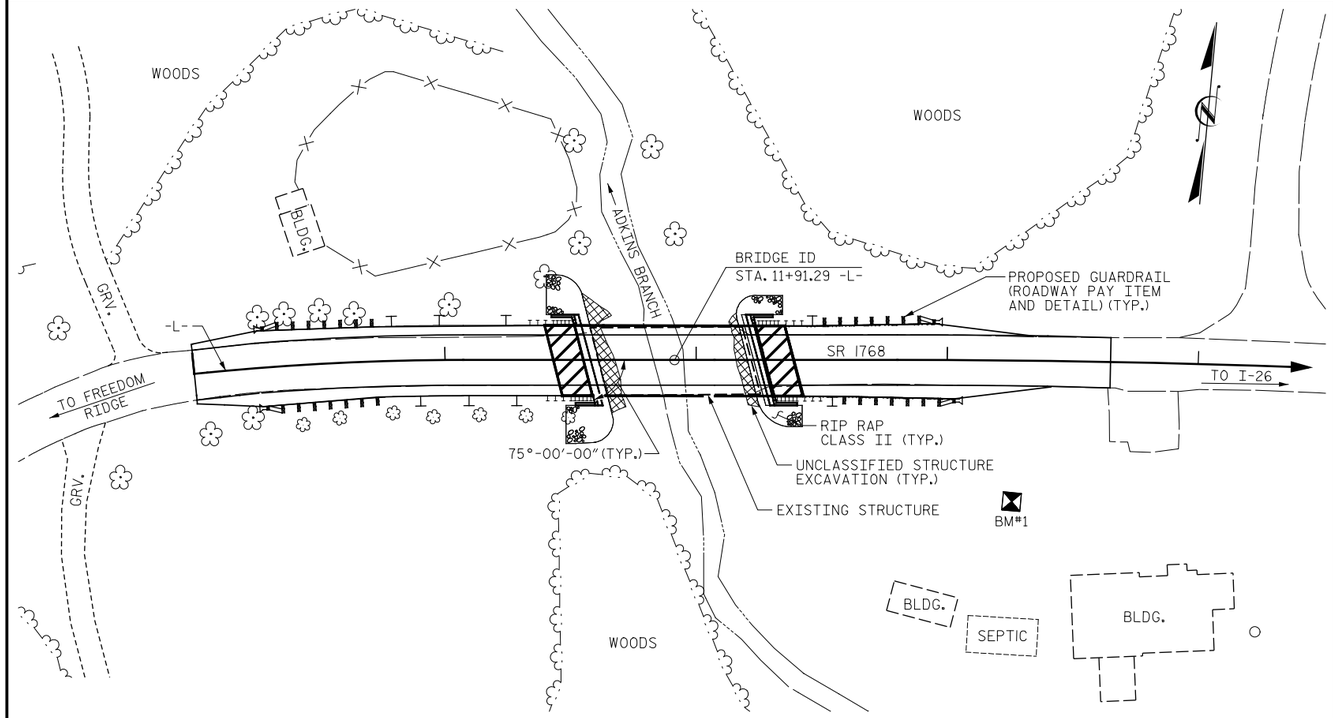
REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-3
1			3					TOTAL SHEETS
2			4					15

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

DRAWN BY : M. SPENCER DATE : 01/2023
CHECKED BY : T. FORD DATE : 01/2023
DESIGN ENGINEER OF RECORD: T. FORD DATE : 04/2024

BENCHMARK: BM#1; TOP OF R/W MON.; STA. 13+26.23 -L-, OFFSET 56.18' RT., EL. 2027.13



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (1 @ 20'-6", 1 @ 19'-8", 1 @ 20'-6") STEEL I-BEAMS ON TIMBER END BENTS AND INTERIOR BENTS WITH A CLEAR ROADWAY WIDTH OF 25'-0" LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED SV: 24TONS, TTST: 38TONS. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A REDUCED LOAD LIMIT MAY BE POSTED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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 COST 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".

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THE 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.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT (LEFT) AND 20 FT (RIGHT) AT END BENT No. 1 AND 20 FT (LEFT) AND 20 FT (RIGHT) AT END BENT No. 2 OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

HYDRAULIC DATA:

DESIGN DISCHARGE	= 950 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YEARS
DESIGN HIGH WATER ELEVATION	= 2,014.9
DRAINAGE AREA	= 3.2 SQ. MI.
BASE DISCHARGE (Q100)	= 1,300 C.F.S.
BASE HIGH WATER ELEVATION	= 2,016.1

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	= 6,900 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 1,000+ YEARS
OVERTOPPING FLOOD ELEVATION	= 2,025.7± ✳

✳ LOCATION OF OVERTOPPING AT STATION 11+65 -L-

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	DYNAMIC PILE TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SET UP FOR HP 12x53 STEEL PILES	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	ELASTOMERIC BEARINGS	PLAIN RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS		ASBESTOS ASSESSMENT
	LUMP SUM	EA.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	NO.	LIN.FT.	NO.	LIN.FT.	LUMP SUM	TONS	SQ. YDS.	NO.	LIN.FT.	LUMP SUM
SUPERSTRUCTURE					LUMP SUM						140.00	LUMP SUM			10	700	
END BENT NO. 1		1	LUMP SUM	20.9		2,528	5	5	130	5			50	56			
END BENT NO. 2			LUMP SUM	20.9		2,528	5	5	150				35	39			
TOTAL	LUMP SUM	1	LUMP SUM	41.8	LUMP SUM	5,056	10	10	280	5	140.00	LUMP SUM	85	95	10	700	LUMP SUM

PROJECT NO. BP13.R013

BUNCOMBE COUNTY

STATION: 11+91.29 -L-

SHEET 4 OF 4

DocuSigned by:
381F88D0AD57431...
5/29/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON
SR 1768 (OLD BURNSVILLE RD.)
OVER ADKINS BRANCH

DRAWN BY : M. SPENCER DATE : 01/2023
CHECKED BY : T. FORD DATE : 01/2023
DESIGN ENGINEER OF RECORD: T. FORD DATE : 04/2024

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
							LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT					
								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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	**1**	1.014	--	1.75	0.269	1.04	70′	EL	34.482	0.608	1.1	70′	EL	3.448	0.80	0.269	**1.01**	70′	EL	**34.482**	
		HL-93(Opr)	N/A	--	1.355	--	1.35	0.269	1.35	70′	EL	34.482	0.608	1.43	70′	EL	3.448	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.315	47.356	1.75	0.269	1.36	70′	EL	34.482	0.608	1.38	70′	EL	3.448	0.80	0.269	**1.32**	70′	EL	**34.482**	
		HS-20(Opr)	36.000	--	1.757	63.236	1.35	0.269	1.76	70′	EL	34.482	0.608	1.79	70′	EL	3.448	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.938	39.656	1.4	0.269	3.78	70′	EL	34.482	0.608	4.12	70′	EL	3.448	0.80	0.269	2.94	70′	EL	34.482	
		SNGARBS2	20.000	--	2.203	44.052	1.4	0.269	2.84	70′	EL	34.482	0.608	2.93	70′	EL	3.448	0.80	0.269	2.20	70′	EL	34.482	
		SNAGRIS2	22.000	--	2.092	46.016	1.4	0.269	2.69	70′	EL	34.482	0.608	2.72	70′	EL	3.448	0.80	0.269	2.09	70′	EL	34.482	
		SNCOTTS3	27.250	--	1.462	39.844	1.4	0.269	1.88	70′	EL	34.482	0.608	2.06	70′	EL	3.448	0.80	0.269	1.46	70′	EL	34.482	
		SNAGGRS4	34.925	--	1.227	42.856	1.4	0.269	1.58	70′	EL	34.482	0.608	1.71	70′	EL	3.448	0.80	0.269	1.23	70′	EL	34.482	
		SNS5A	35.550	--	1.2	42.646	1.4	0.269	1.54	70′	EL	34.482	0.608	1.73	70′	EL	3.448	0.80	0.269	1.20	70′	EL	34.482	
		SNS6A	39.950	--	1.103	44.058	1.4	0.269	1.42	70′	EL	34.482	0.608	1.58	70′	EL	3.448	0.80	0.269	1.10	70′	EL	34.482	
		SNS7B	42.000	--	1.05	44.113	1.4	0.269	1.35	70′	EL	34.482	0.608	1.55	70′	EL	3.448	0.80	0.269	1.05	70′	EL	34.482	
	TTST	TNAGRIT3	33.000	--	1.345	44.401	1.4	0.269	1.73	70′	EL	34.482	0.608	1.88	70′	EL	3.448	0.80	0.269	1.35	70′	EL	34.482	
		TNT4A	33.075	--	1.352	44.717	1.4	0.269	1.74	70′	EL	34.482	0.608	1.83	70′	EL	3.448	0.80	0.269	1.35	70′	EL	34.482	
		TNT6A	41.600	--	1.108	46.073	1.4	0.269	1.43	70′	EL	34.482	0.608	1.65	70′	EL	3.448	0.80	0.269	1.11	70′	EL	34.482	
		TNT7A	42.000	--	1.114	46.794	1.4	0.269	1.43	70′	EL	34.482	0.608	1.62	70′	EL	3.448	0.80	0.269	1.11	70′	EL	34.482	
		TNT7B	42.000	--	1.155	48.526	1.4	0.269	1.49	70′	EL	34.482	0.608	1.51	70′	EL	3.448	0.80	0.269	1.16	70′	EL	34.482	
		TNAGRIT4	43.000	--	1.097	47.174	1.4	0.269	1.41	70′	EL	34.482	0.608	1.46	70′	EL	3.448	0.80	0.269	1.10	70′	EL	34.482	
		TNAGT5A	45.000	--	1.033	46.505	1.4	0.269	1.33	70′	EL	34.482	0.608	1.45	70′	EL	3.448	0.80	0.269	1.03	70′	EL	34.482	
		TNAGT5B	45.000	**3**	1.02	45.905	1.4	0.269	1.31	70′	EL	34.482	0.608	1.39	70′	EL	3.448	0.80	0.269	**1.02**	70′	EL	**34.482**	
EMERGENCY VEHICLE (EV)		EV2	28.750	--	1.829	52.587	1.3	0.269	2.13	70′	EL	34.482	0.608	2.20	70′	EL	3.448	0.80	0.269	1.83	70′	EL	34.482	
		EV3	43.000	**4**	1.196	51.434	1.3	0.269	1.39	70′	EL	34.482	0.608	1.48	70′	EL	3.448	0.80	0.269	1.20	70′	EL	34.482	

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:

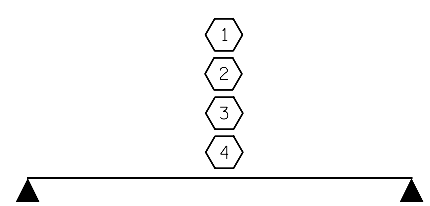
1.
2.
3.
4.

(#) 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. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-

DocuSigned by:
SEAL 052027 ENGINEER TOM M. FORD
5/29/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 70′ CORED SLAB UNIT 75° SKEW & 105° SKEW
(NON-INTERSTATE TRAFFIC)

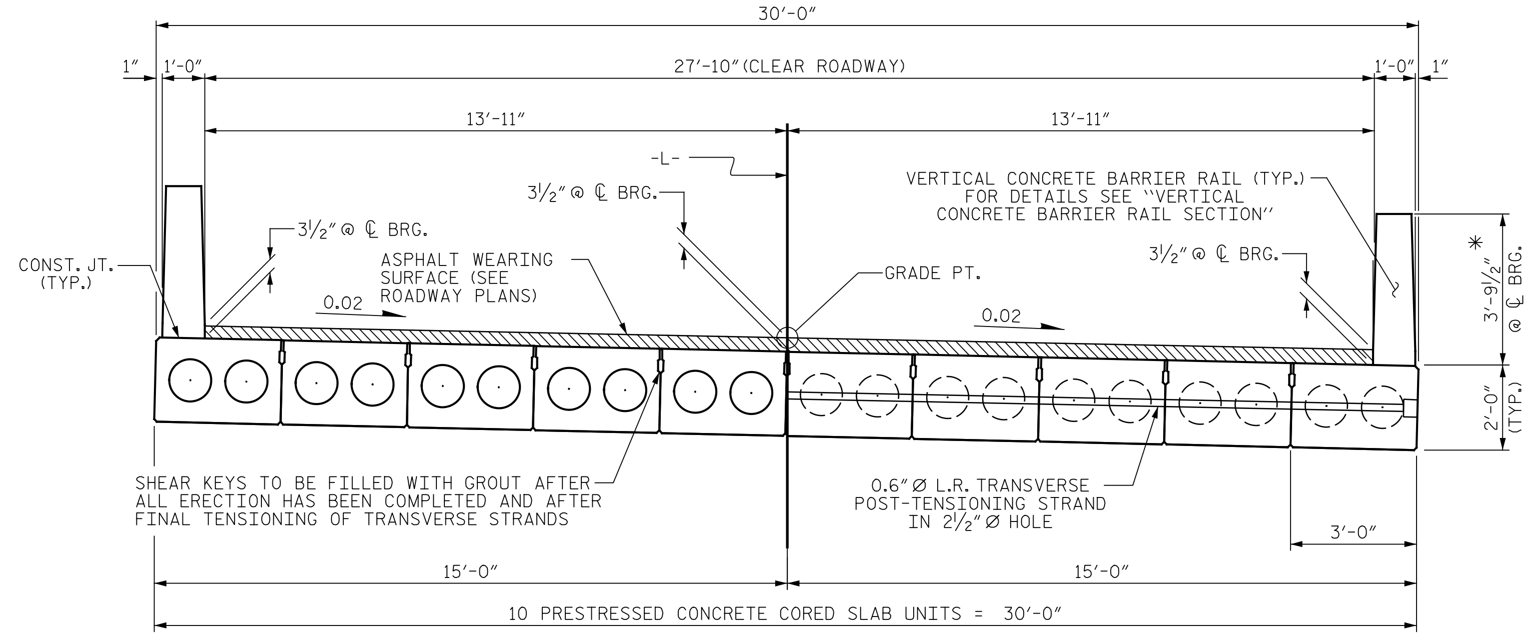
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

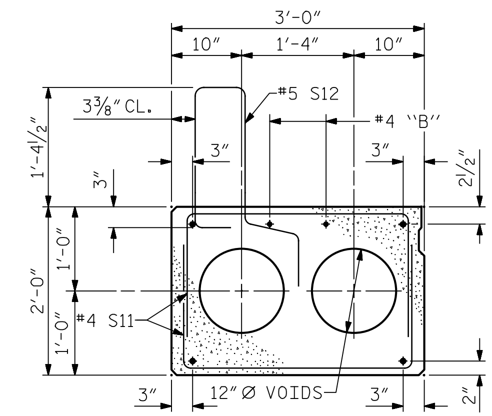
ASSEMBLED BY : M. SPENCER DATE : 06/2023
CHECKED BY : T. FORD DATE : 06/2023
DESIGN ENGINEER OF RECORD: T. FORD DATE : 04/2024
DRAWN BY : CVC DATE : 06/2010 REV. BNB/AKP 06/2023
CHECKED BY : DNS DATE : 06/2010 REV.
REV.

STD. NO. 24LRFR1_75&105S_70L



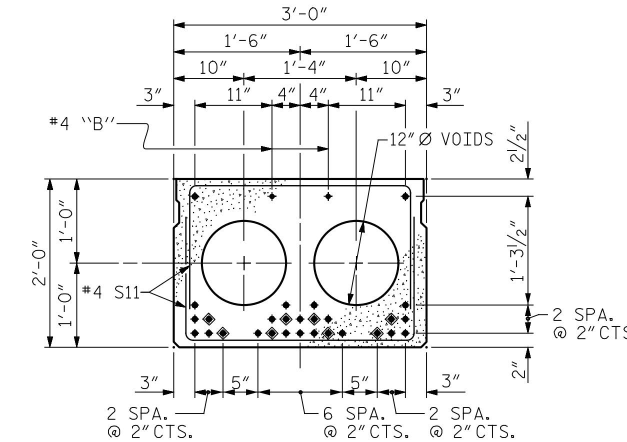
TYPICAL SECTION

✱ - 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.)



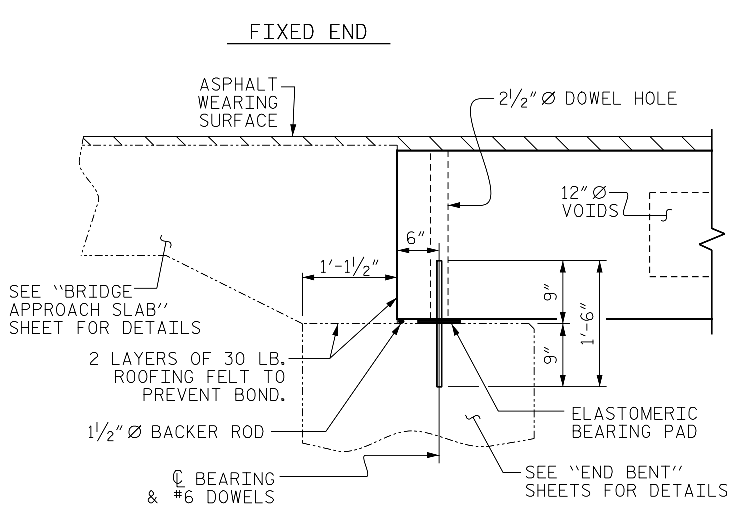
INTERIOR SLAB SECTION (70' UNIT)

(28 STRANDS REQUIRED)

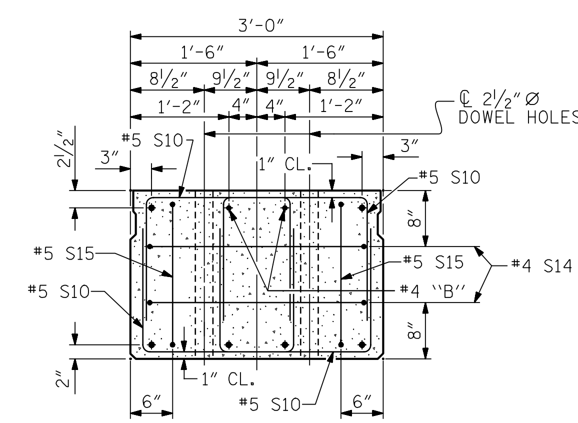
0.6" Ø LOW RELAXATION STRAND LAYOUT

◈ 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.

DEBONDING LEGEND

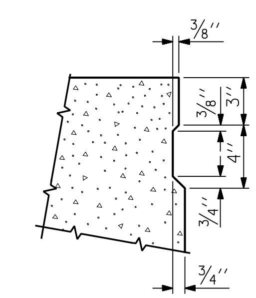


SECTION AT END BENT



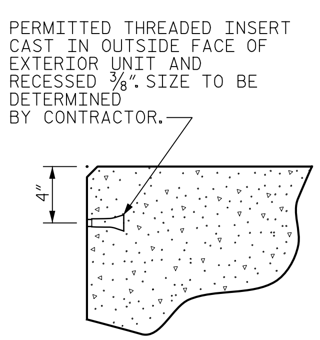
END ELEVATION

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

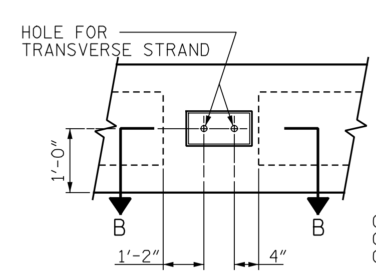


SHEAR KEY DETAIL

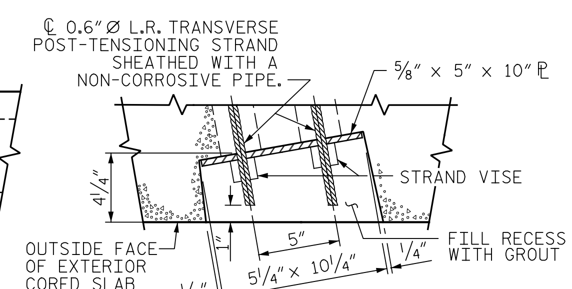
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



THREADED INSERT DETAIL



ELEVATION VIEW



SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND·CORED SLABS

PROJECT NO. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-
SHEET 1 OF 3

DocuSigned by: 391E69D0AD0743D
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052027 TOM M. FORD
5/29/2025

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

ASSEMBLED BY : M. SPENCER	DATE : 06/2023	
CHECKED BY : T. FORD	DATE : 06/2023	
DESIGN ENGINEER OF RECORD: T. FORD	DATE : 04/2024	
DRAWN BY : MAA DATE : 06/2010	REV. MAA/TMG	08/2014
CHECKED BY : MKT DATE : 07/2010	REV.	
	REV.	

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REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-6
TOTAL SHEETS 15

STD. NO. 24PCS4_30_75S

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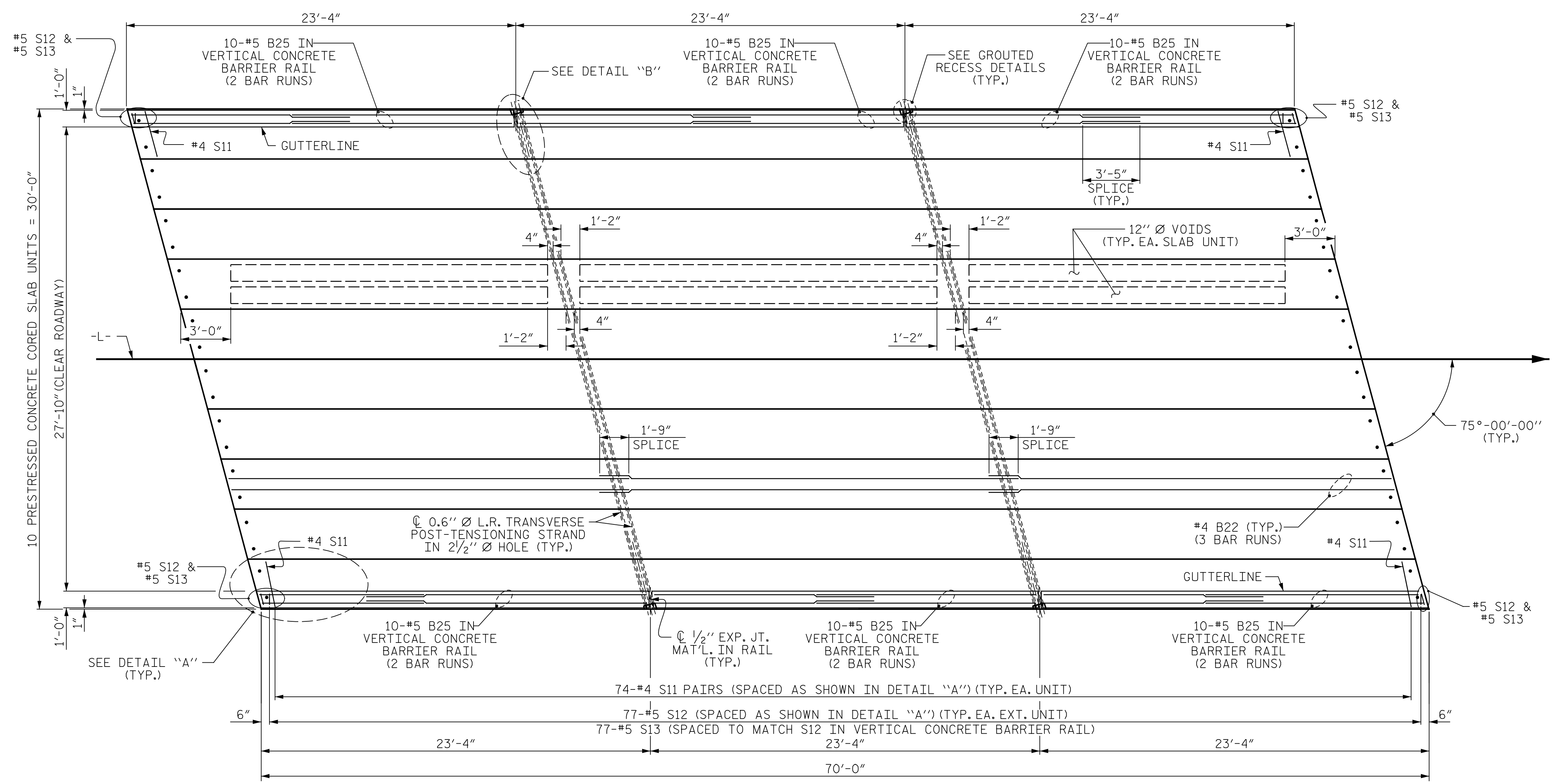
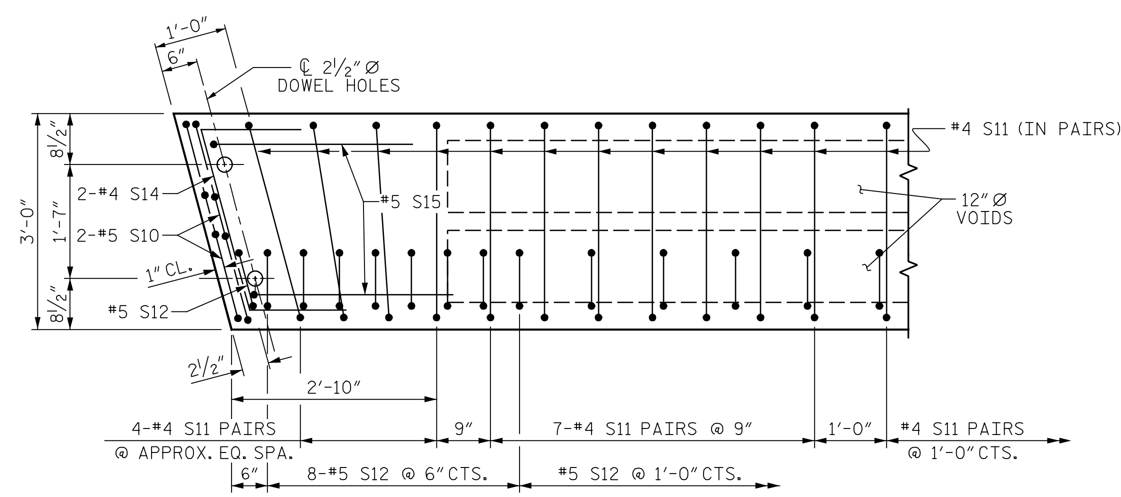
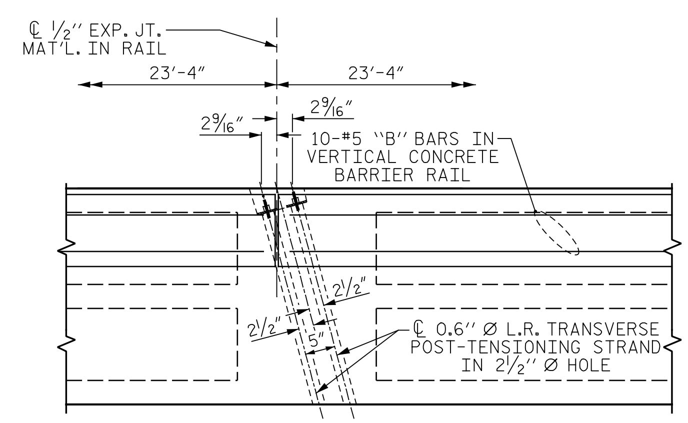


PLAN OF UNIT



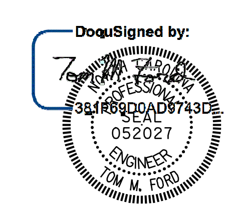
DETAIL "A"

(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 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES



PROJECT NO. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

PLAN OF 70' UNIT
27'-10" CLEAR ROADWAY
75° SKEW

ASSEMBLED BY :	M. SPENCER	DATE :	06/2023
CHECKED BY :	T. FORD	DATE :	06/2023
DESIGN ENGINEER OF RECORD:	T. FORD	DATE :	04/2024

DRAWN BY : MAA	DATE : 06/2010	REV. MAA/AAC	12/2011
CHECKED BY : MKT	DATE : 07/2010	REV. MAA/TMG	08/2014
		REV.	

GANNETT FLEMING
One Glenwood Avenue Suite 900 Raleigh, NC 27603 919-420-7660 NC Lic. No. F-0270

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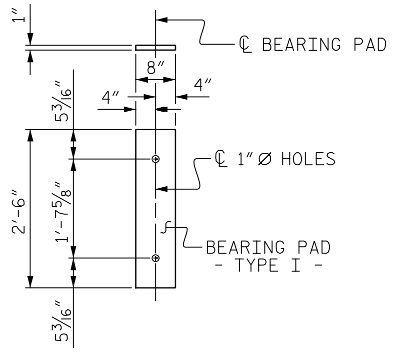
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			15

STD. NO. 24PCS_30_75S_70L

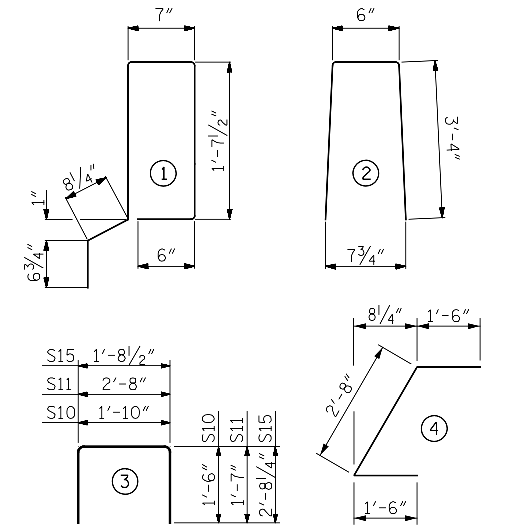


FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-10"	40	4'-10"	40
S11	148	#4	3	5'-10"	577	5'-10"	577
✻S12	79	#5	1	5'-7"	460		
S14	4	#4	4	5'-8"	15	5'-8"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL		LBS.			760		760
✻EPOXY COATED REINFORCING STEEL		LBS.			460		
7000 P.S.I. CONCRETE		CU. YDS.			12.0		12.0
0.6"Ø L.R. STRANDS		No.			28		28

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	70' UNIT					
✻B25	120	120	#5	STR	13'-8"	1711
✻S13	158	158	#5	2	7'-2"	1181
✻EPOXY COATED REINFORCING STEEL				LBS.		2892
CLASS AA CONCRETE				CU.YDS.		18.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		140.26

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
70' UNITS	2"	3'-8"

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
70' UNIT			
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	8	70'-0"	560'-0"
TOTAL	10		700'-0"

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✻✻	¾" ↓
FINAL CAMBER	1½" ↑

✻✻ INCLUDES FUTURE WEARING SURFACE

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 REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

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

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

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

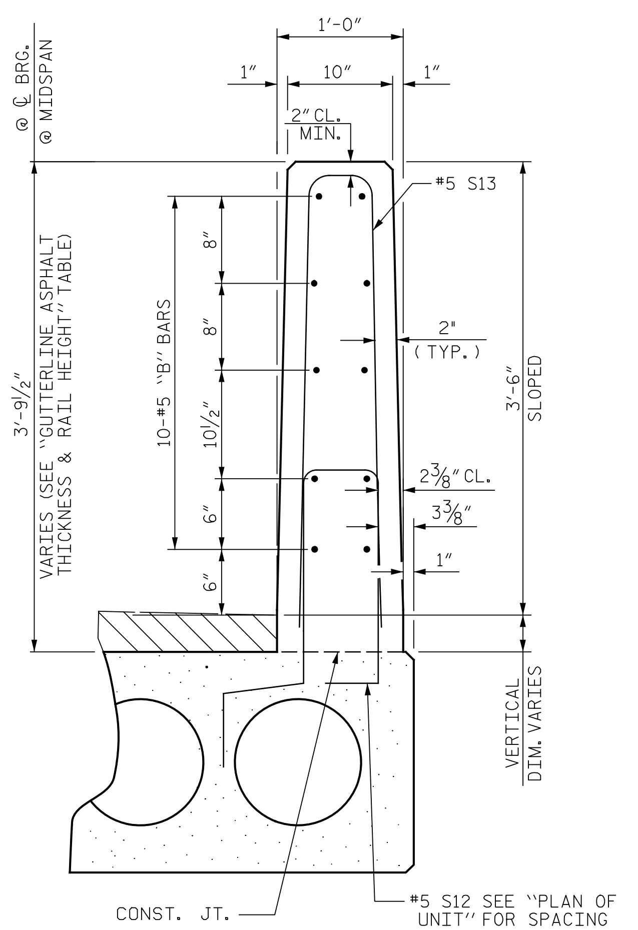
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

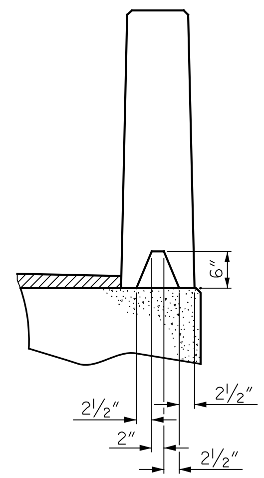
THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

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

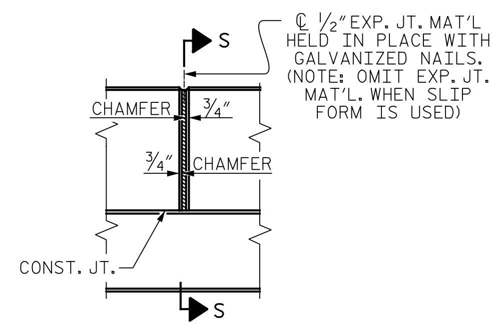
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



SECTION THRU RAIL

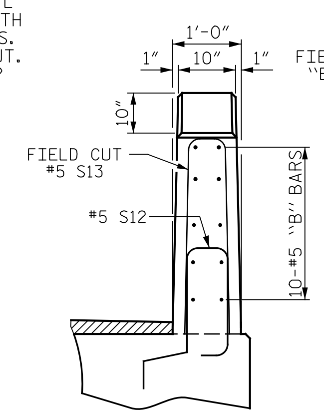


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

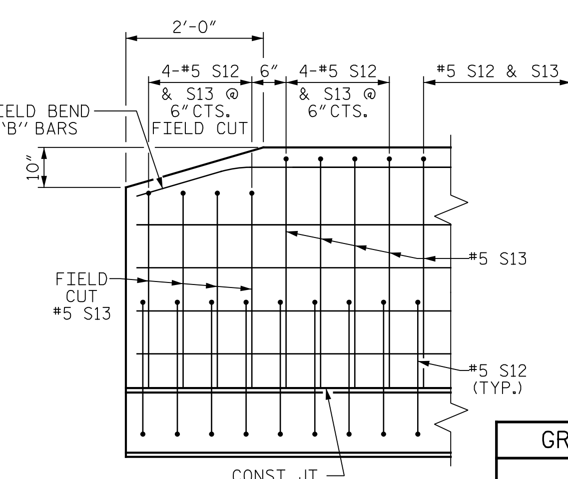


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

CONCRETE RELEASE STRENGTH

UNIT	PSI
70' UNITS	5500

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. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-

SHEET 3 OF 3

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5/29/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

ASSEMBLED BY :	M. SPENCER	DATE :	06/2023
CHECKED BY :	T. FORD	DATE :	06/2023
DESIGN ENGINEER OF RECORD:	T. FORD	DATE :	04/2024

DRAWN BY :	MAA	DATE :	06/2010	REV. MAA/THC 05/2018
CHECKED BY :	MKT	DATE :	07/2010	REV.
				REV.

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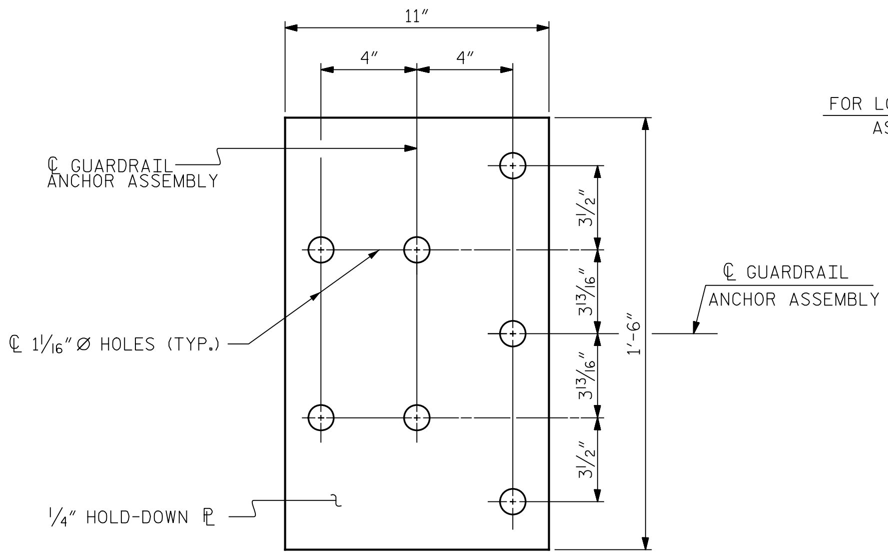
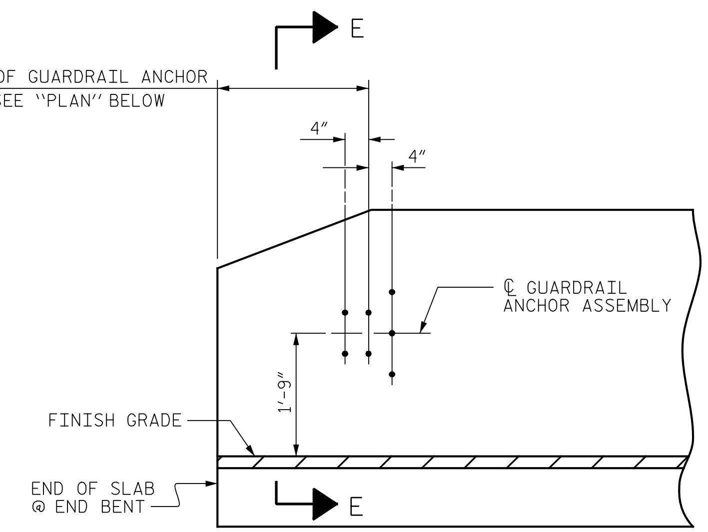


PLAN



ELEVATION

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

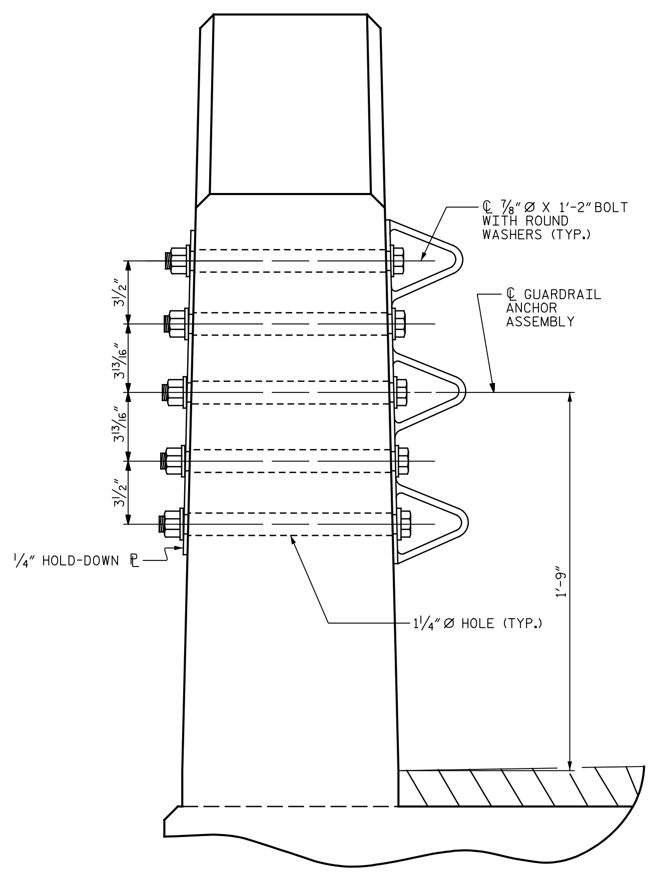
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

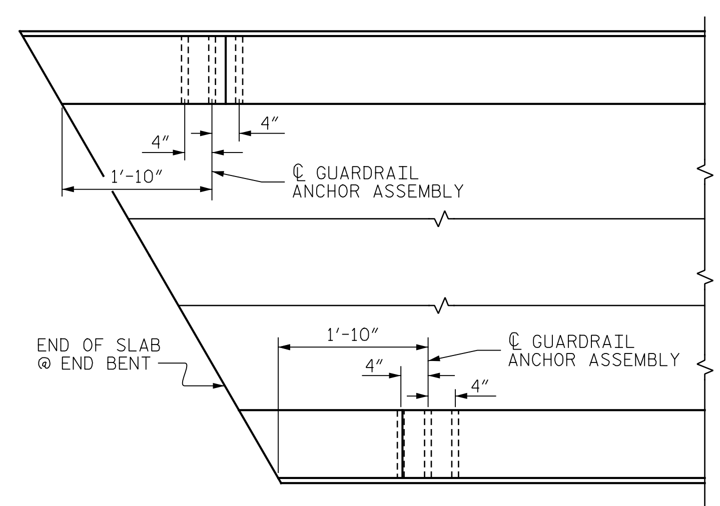
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BP13.R013

BUNCOMBE COUNTY

STATION: 11+91.29 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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STANDARD

GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

DocuSigned by:
381E68D0AD9743D...
SEAL 052027
ENGINEER
TOM M. FORD
5/29/2025

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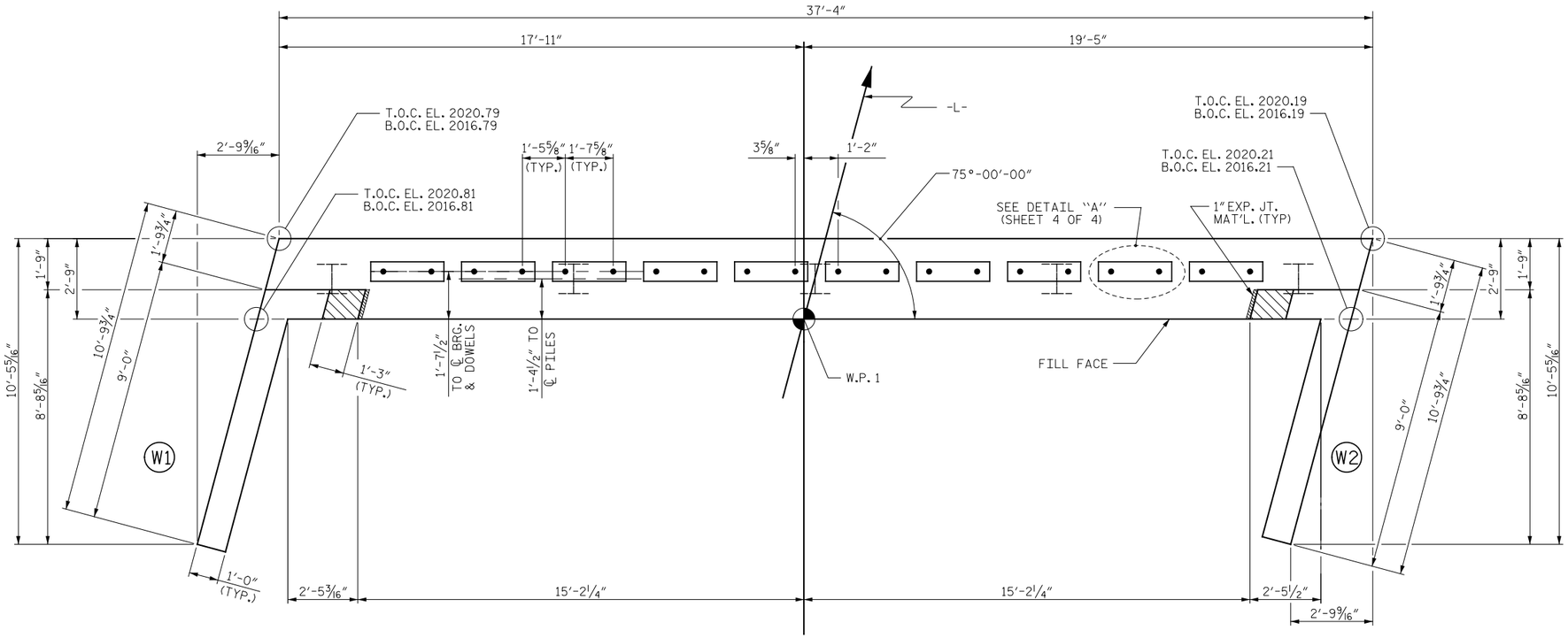
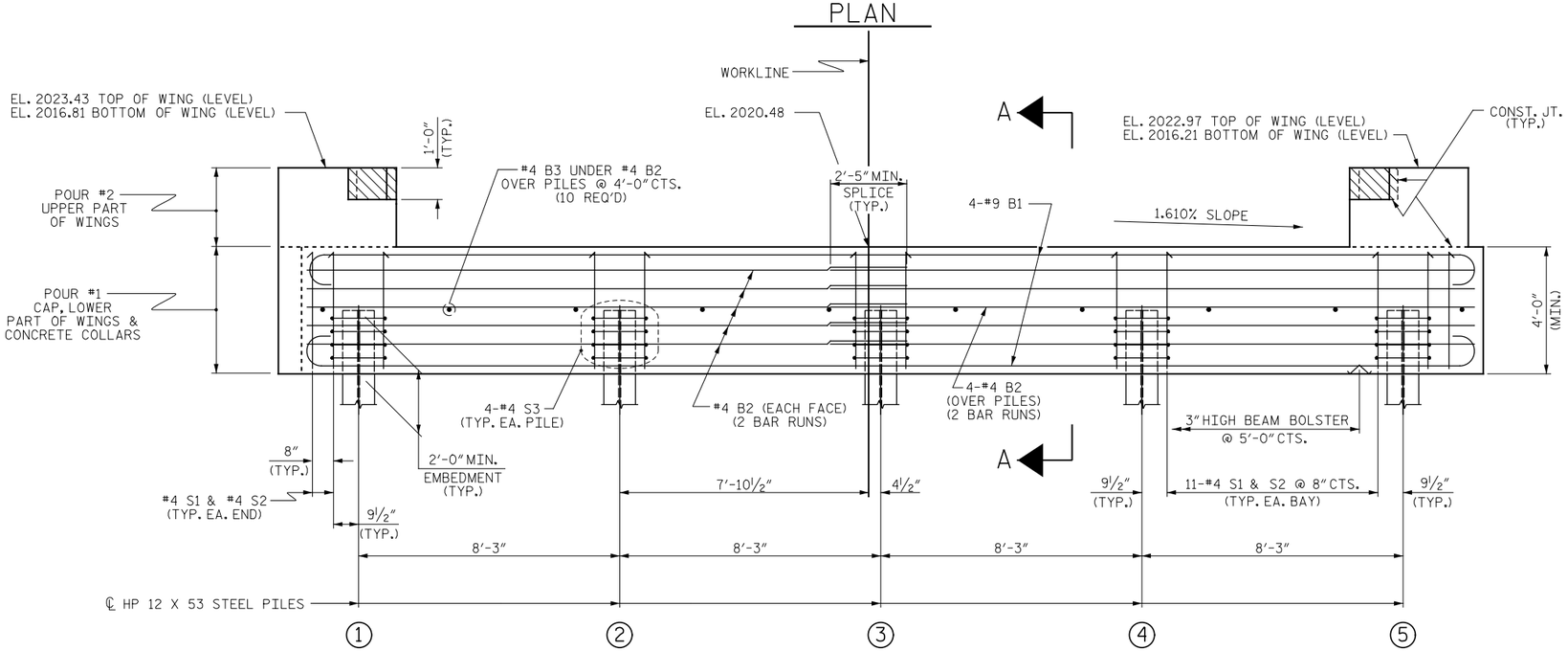
CHECKED BY :	T. FORD	DATE :	06/2023
DESIGN ENGINEER OF RECORD:	T. FORD	DATE :	04/2024

DRAWN BY : MAA	DATE : 05/2010	REV. 01/2015	MAA/TMG
CHECKED BY : GM	DATE : 05/2010	REV. 12/2017	MAA/THC
		REV. 05/2018	MAA/THC

(SHT 1b) STD. NO. GRA3



PLAN



ELEVATION

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

NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
1	2018.77
2	2018.63
3	2018.50
4	2018.37
5	2018.23

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DRAWN BY :	WJH	DATE :	12/2011
CHECKED BY :	AAC	DATE :	12/2011

REV. 04/2015 MAA/TMG
REV.
REV.

PROJECT NO. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-

SHEET 1 OF 4

DocuSigned by:
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5/29/2025

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END BENT 1

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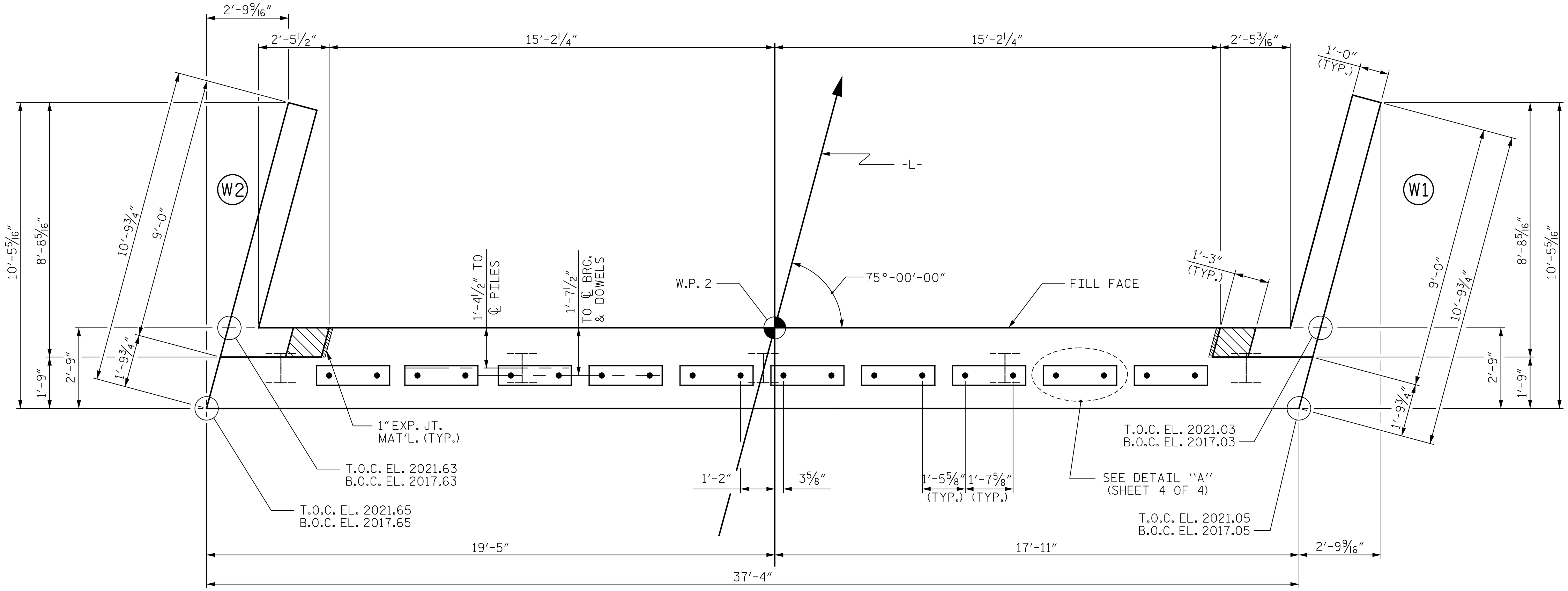
NOTES

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.

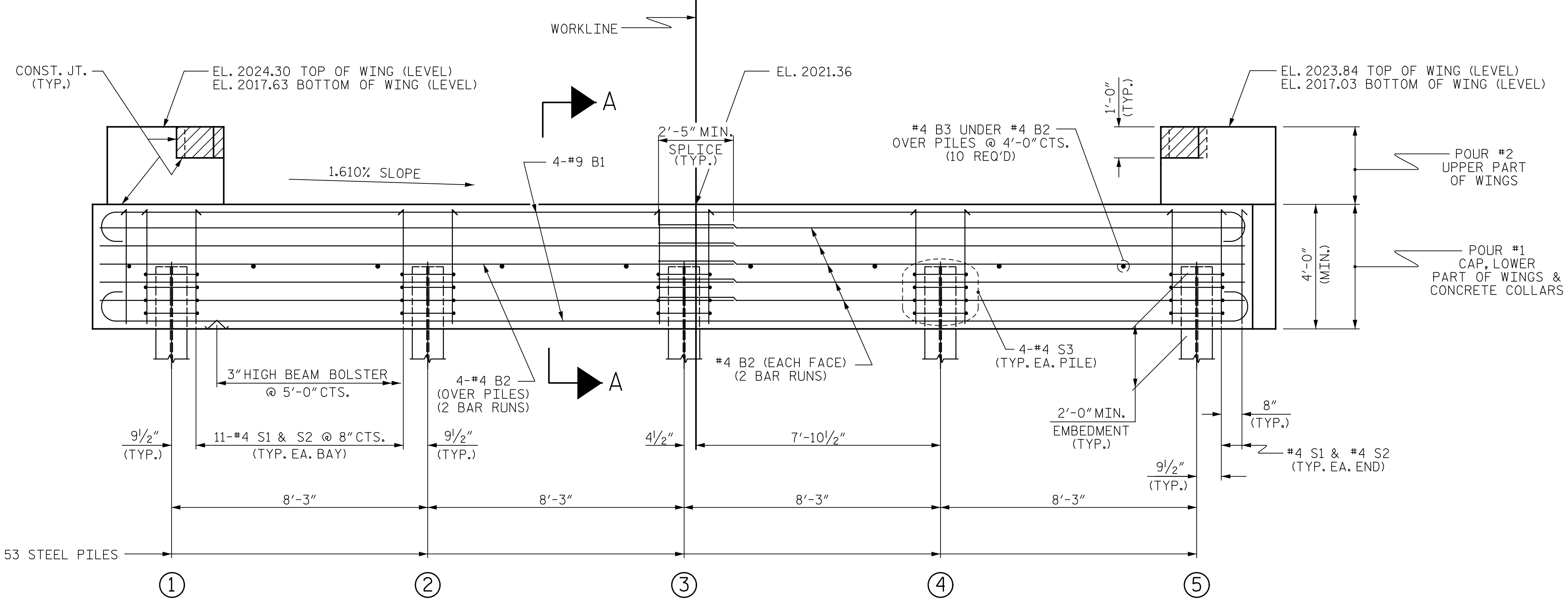
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS	
①	2019.61
②	2019.48
③	2019.34
④	2019.21
⑤	2019.07



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.

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SHEET 2 OF 4

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STATE OF NORTH CAROLINA
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STANDARD

END BENT 2

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CHECKED BY : T. FORD	DATE : 06/2023
DESIGN ENGINEER OF RECORD: T. FORD	DATE : 04/2024
DRAWN BY : WJH DATE : 12/2011	REV. 04/2015 MAA/TMG
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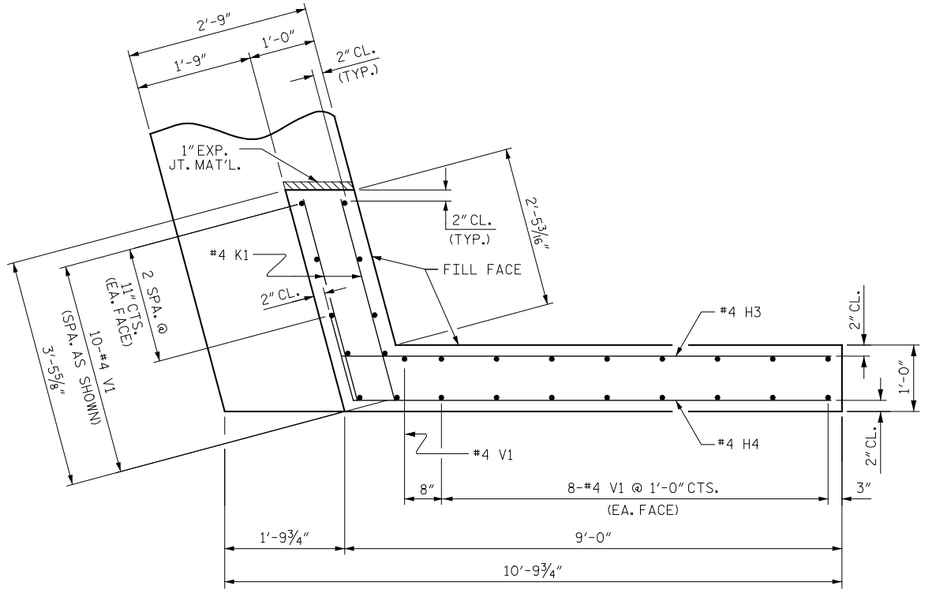
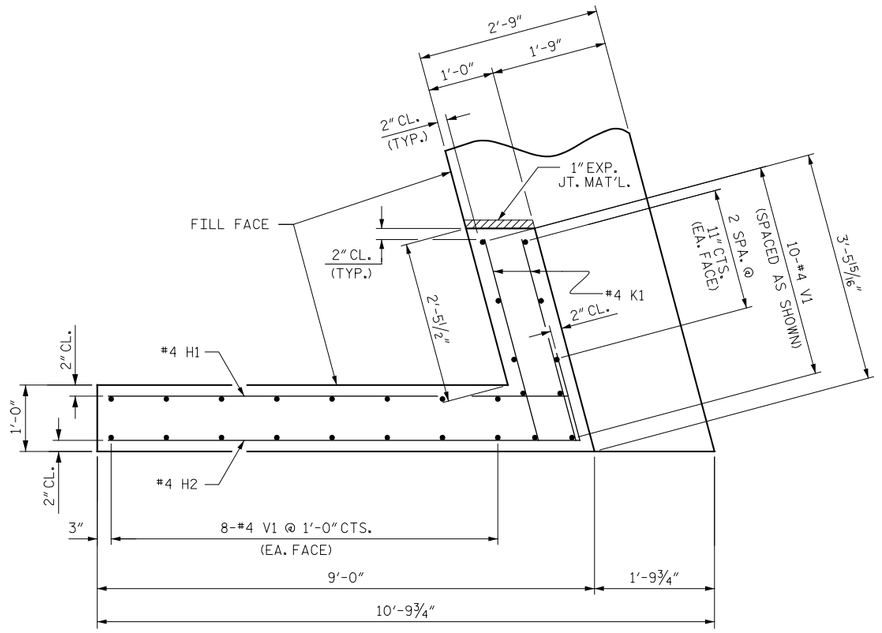
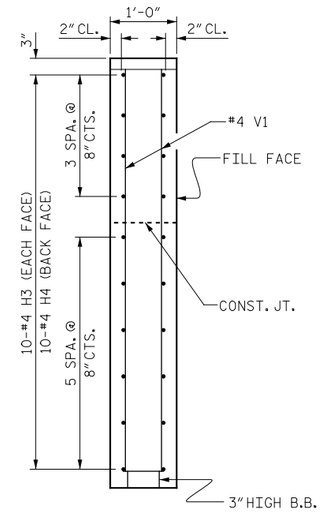


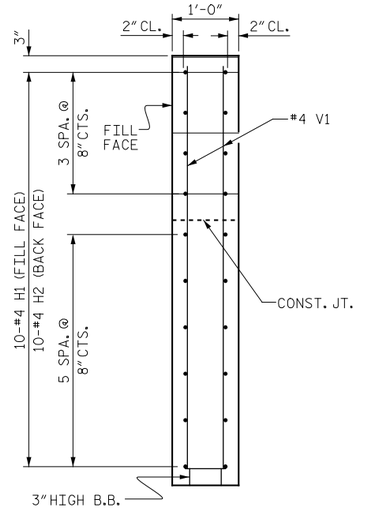
PLAN OF WING (W1)



PLAN OF WING (W2)



SECTION X-X



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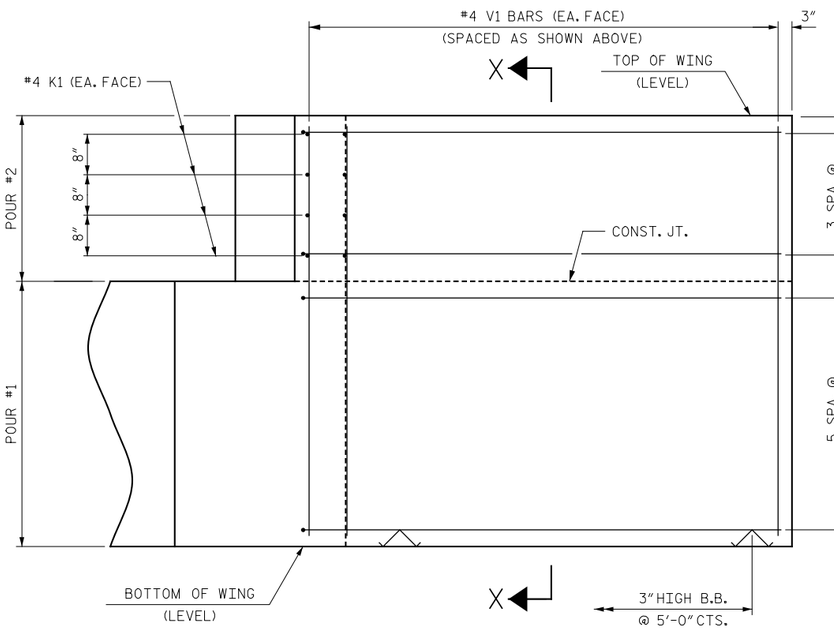
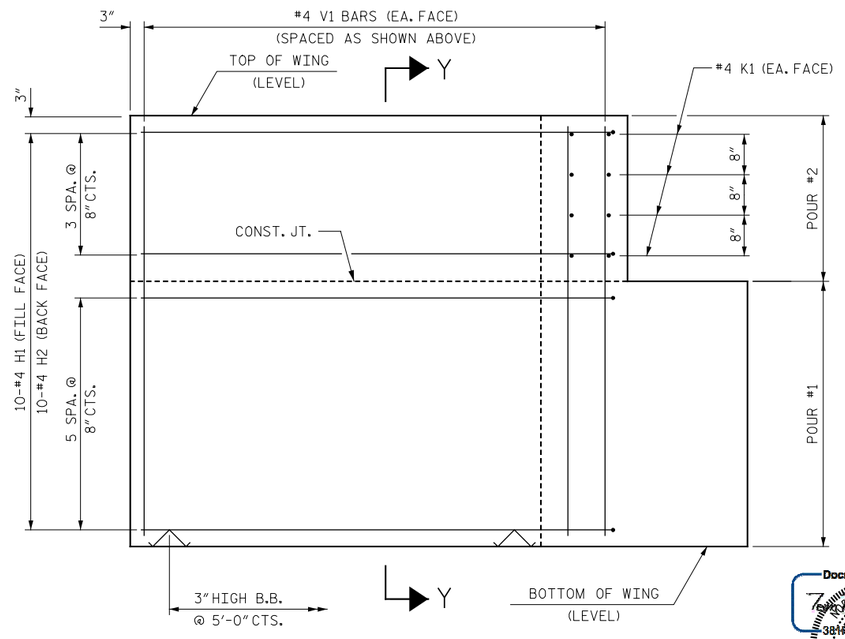


ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

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PROJECT NO. BP13.R013
BUNCOMBE COUNTY
STATION: 11+91.29 -L-

SHEET 3 OF 4

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STANDARD

END BENT
WING DETAILS

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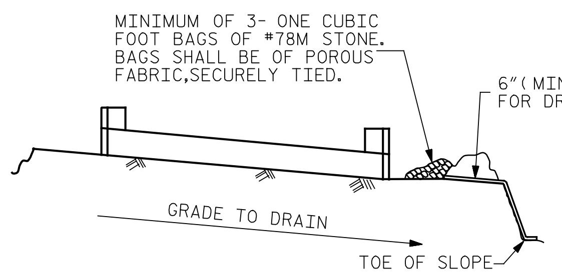
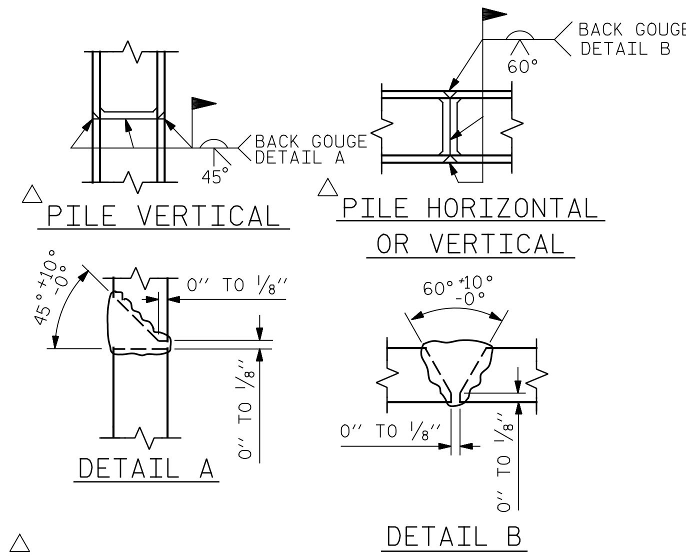


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

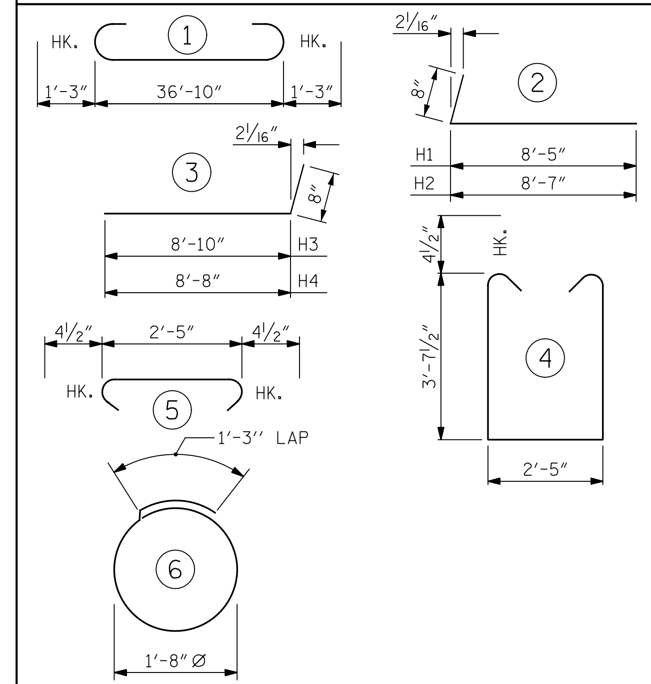
TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 5 LIN. FT.= 130	HP 12 X 53 STEEL PILES NO: 5 LIN. FT.= 150
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 5	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 5

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	39′-4″	1070
B2	28	#4	STR	19′-9″	369
B3	10	#4	STR	2′-5″	16
D1	20	#6	STR	1′-6″	45
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	48	#4	4	10′-5″	334
S2	48	#4	5	3′-2″	102
S3	20	#4	6	6′-6″	87
▲V1	53	#4	STR	6′-4″	224

REINFORCING STEEL (FOR ONE END BENT) 2,528 LBS.

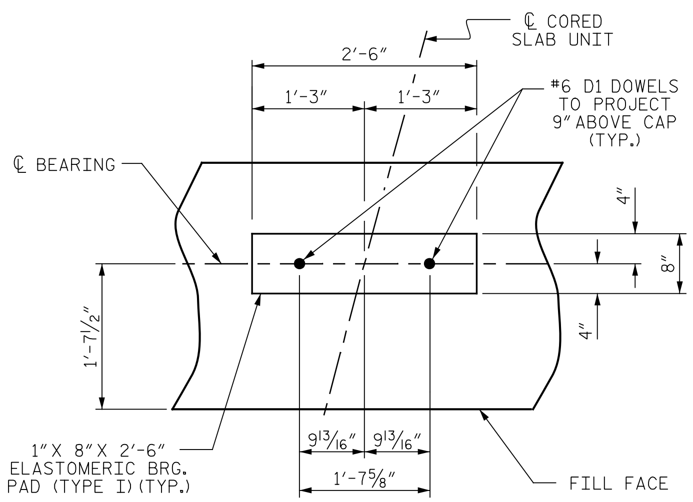
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 18.4 C.Y.

POUR #2 UPPER PART OF WINGS 2.5 C.Y.

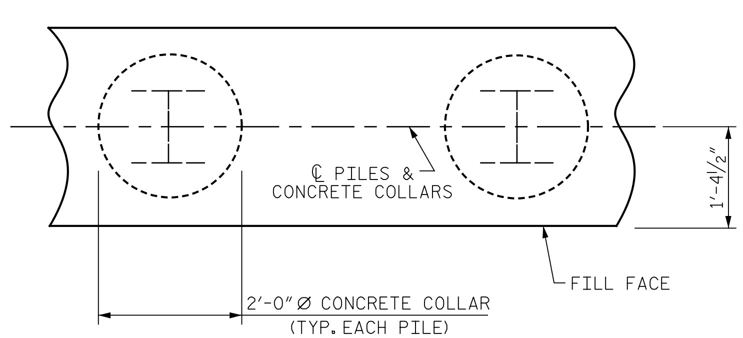
TOTAL CLASS A CONCRETE 20.9 C.Y.

▲ USE 6′-2″ BAR LENGTH FOR END BENT 1 WING W1 AND 6′-3″ BAR LENGTH FOR END BENT 2 WING W2.

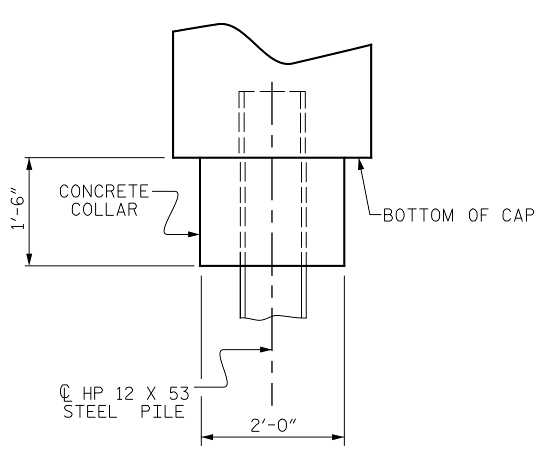


DETAIL "A"

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



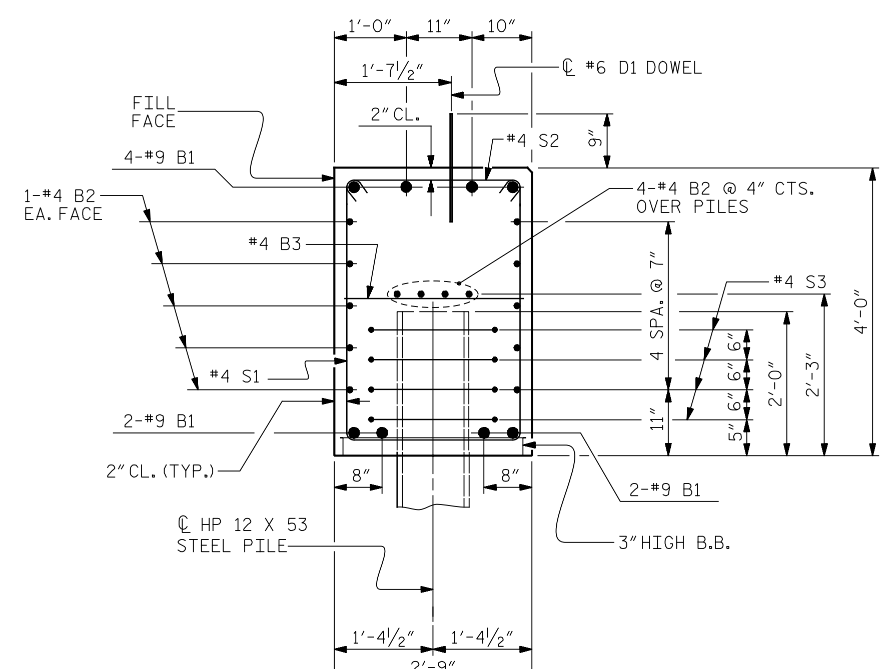
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



SECTION A-A

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

PROJECT NO. BP13.R013

BUNCOMBE COUNTY

STATION: 11+91.29 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
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END BENT No. 1 & 2 DETAILS

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NORTH CAROLINA PROFESSIONAL SEAL 052027 ENGINEER TOM M. FORD
5/29/2025

ASSEMBLED BY : M. SPENCER	DATE : 06/2023
CHECKED BY : T. FORD	DATE : 06/2023
DESIGN ENGINEER OF RECORD: T. FORD	DATE : 04/2024

DRAWN BY : WJH	DATE : 12/2011	REV. 04/2017 MAA/TMG
CHECKED BY : AAC	DATE : 12/2011	REV. REV.

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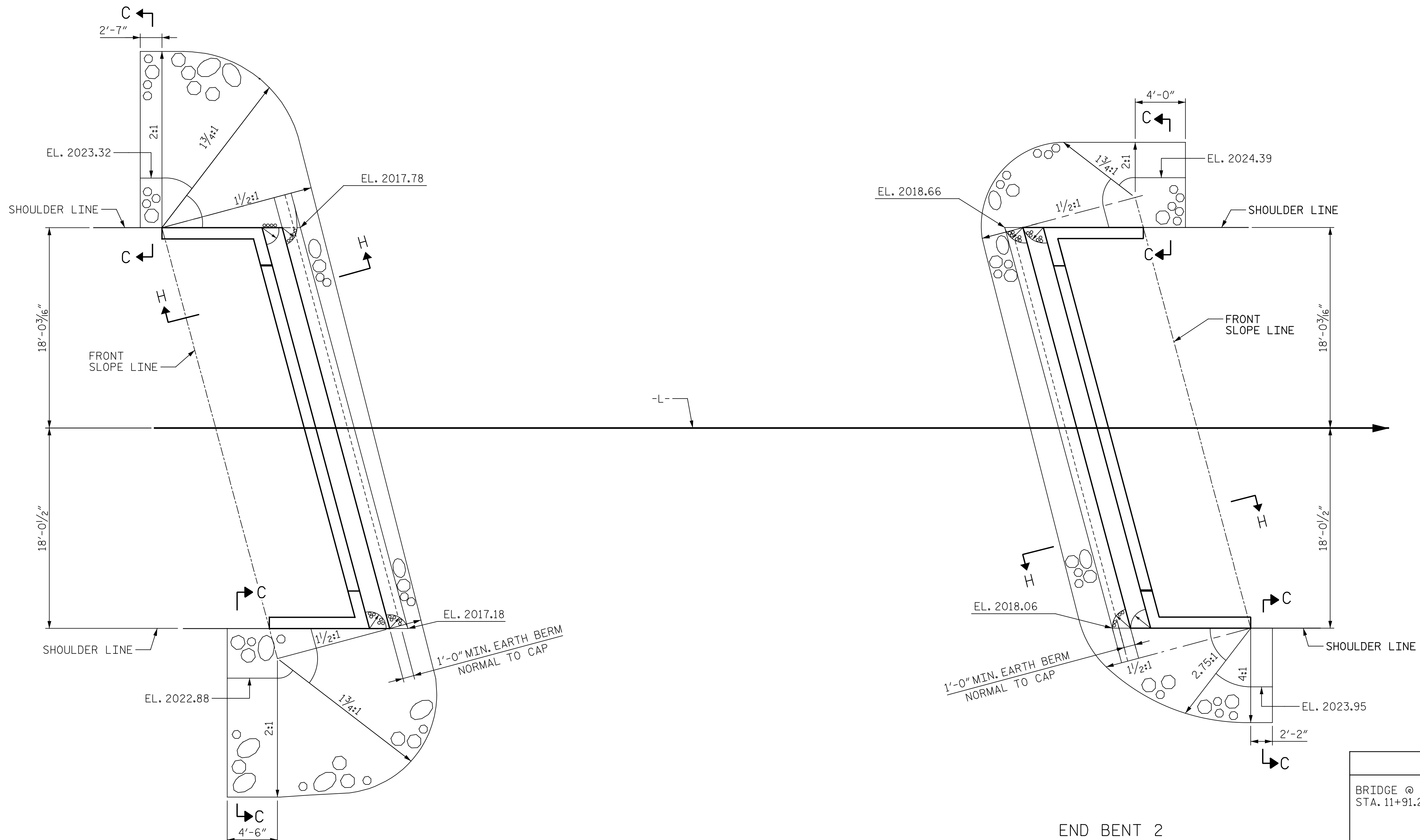
TOTAL SHEETS 15

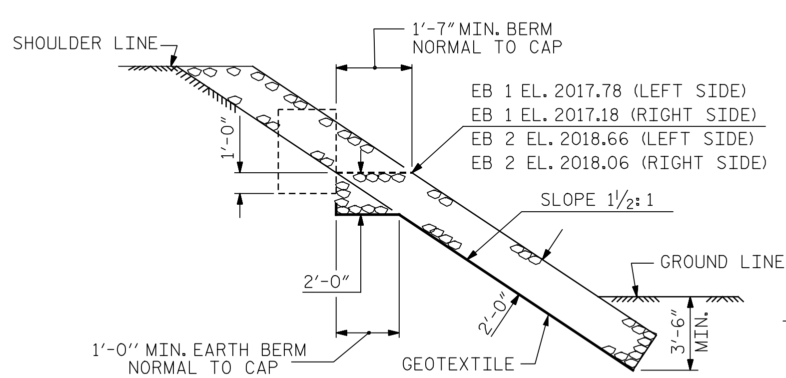
STD. NO. EB_30_75S4

NOTES :

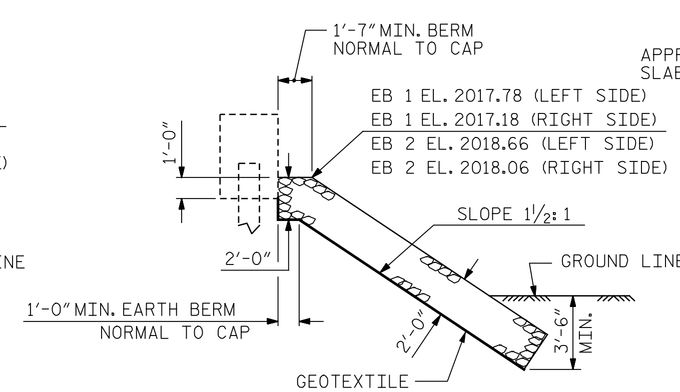
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 11+91.29 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	50	56
END BENT 2	35	39

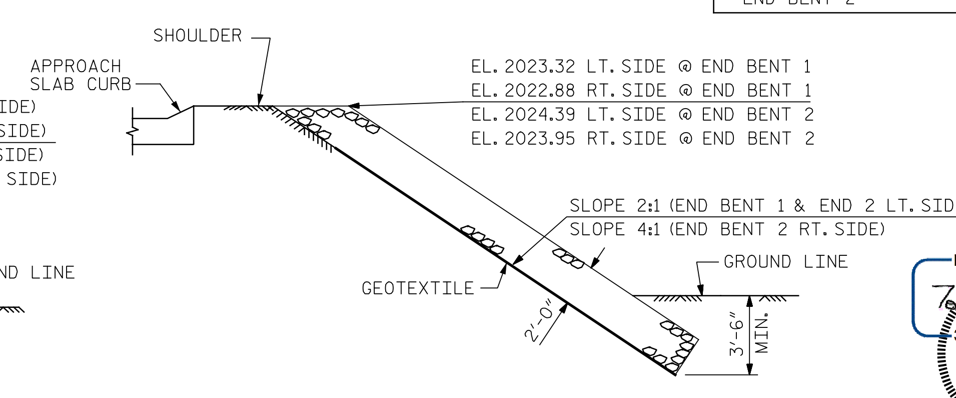


SECTION H-H



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. BP13.R013

BUNCOMBE COUNTY

STATION: 11+91.29 -L-

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SEAL 052027 ENGINEER TOM M. FORD 5/29/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

ASSEMBLED BY : M. SPENCER	DATE : 06/2023
CHECKED BY : T. FORD	DATE : 06/2023
DESIGN ENGINEER OF RECORD: T. FORD	DATE : 04/2024

DRAWN BY : REK	DATE : 01/1984	REV. MAA/GM	10/2011
CHECKED BY : RDU	DATE : 01/1984	REV. MAA/GM	12/2011
		REV. MAA/THC	12/2017

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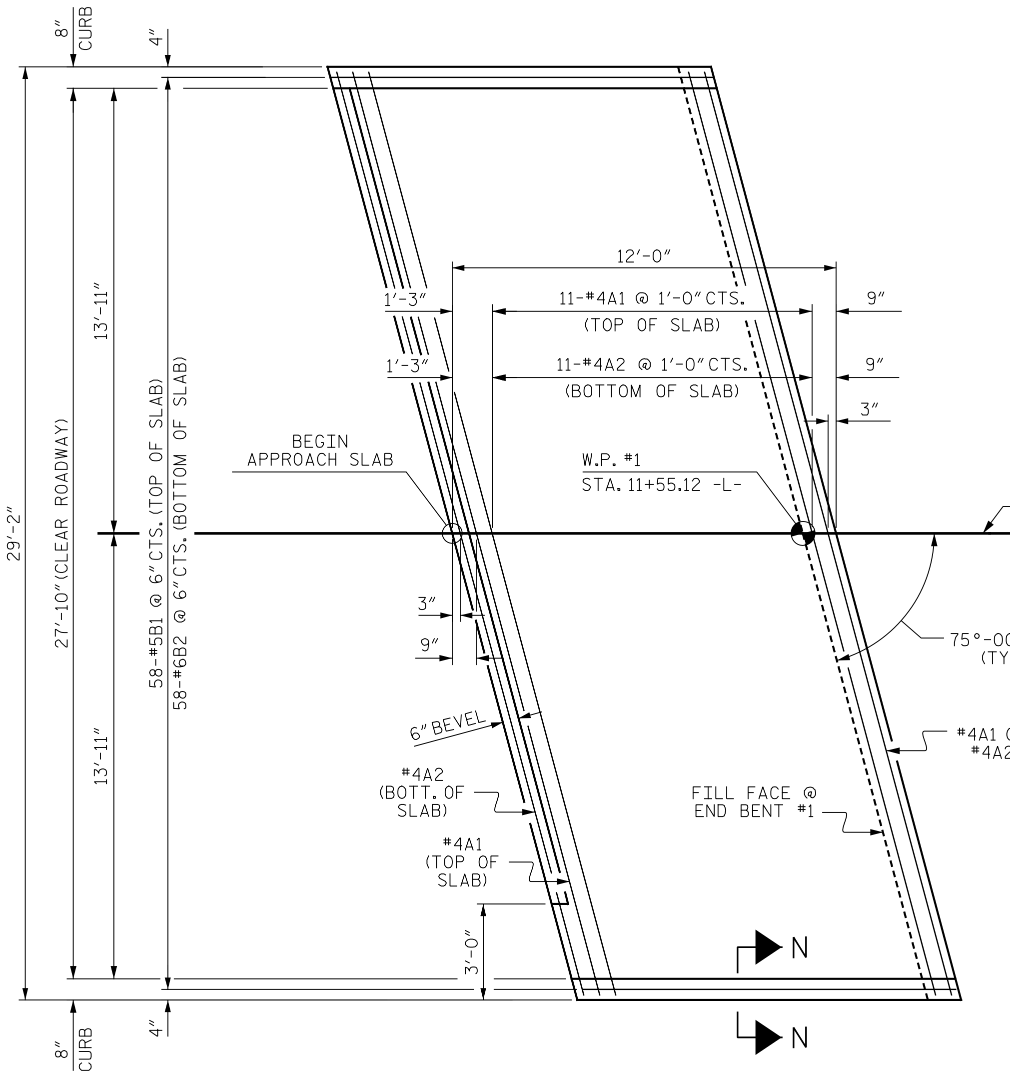
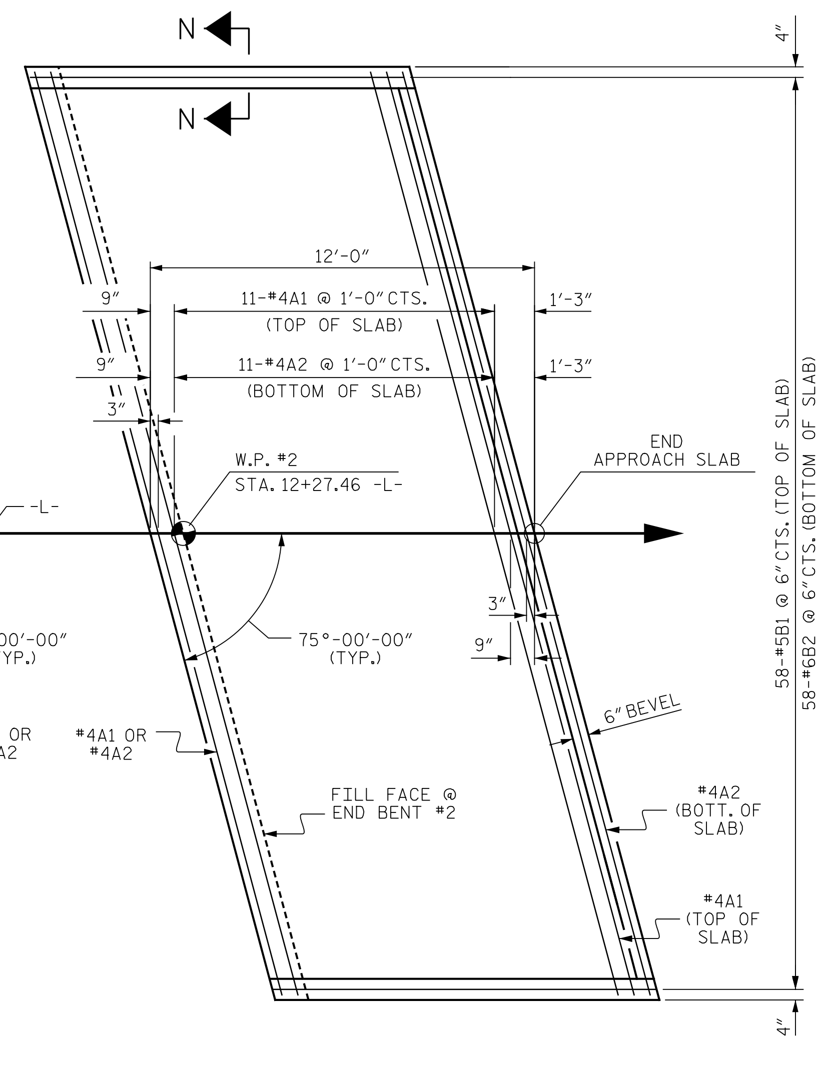
2			4			

SHEET NO. S-14
TOTAL SHEETS 15

STD. NO. RR1 (Sht 1)



PLAN @ END BENT #1



PLAN @ END BENT #2

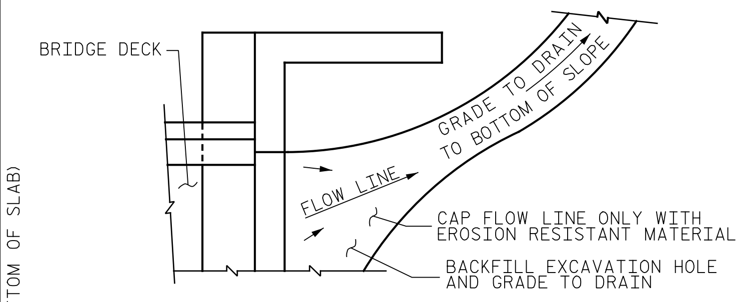
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

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

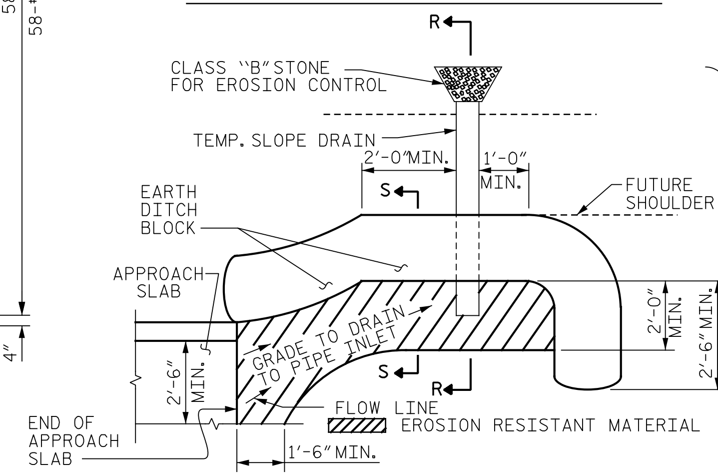
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-10"	259
A2	13	#4	STR	29'-10"	259
* B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1268
* EPOXY COATED REINFORCING STEEL				LBS.	929
CLASS AA CONCRETE				C. Y.	17.7

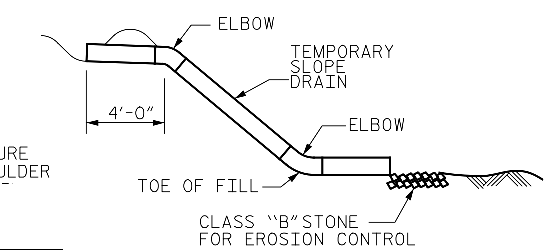
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-10"	259
A2	13	#4	STR	29'-10"	259
* B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1268
* EPOXY COATED REINFORCING STEEL				LBS.	929
CLASS AA CONCRETE				C. Y.	17.7

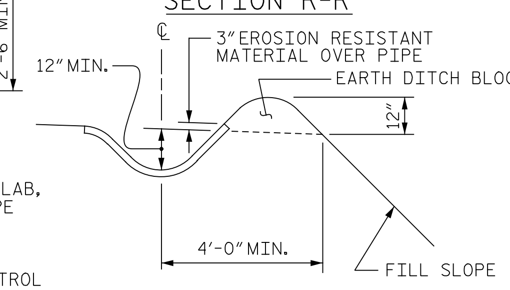


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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



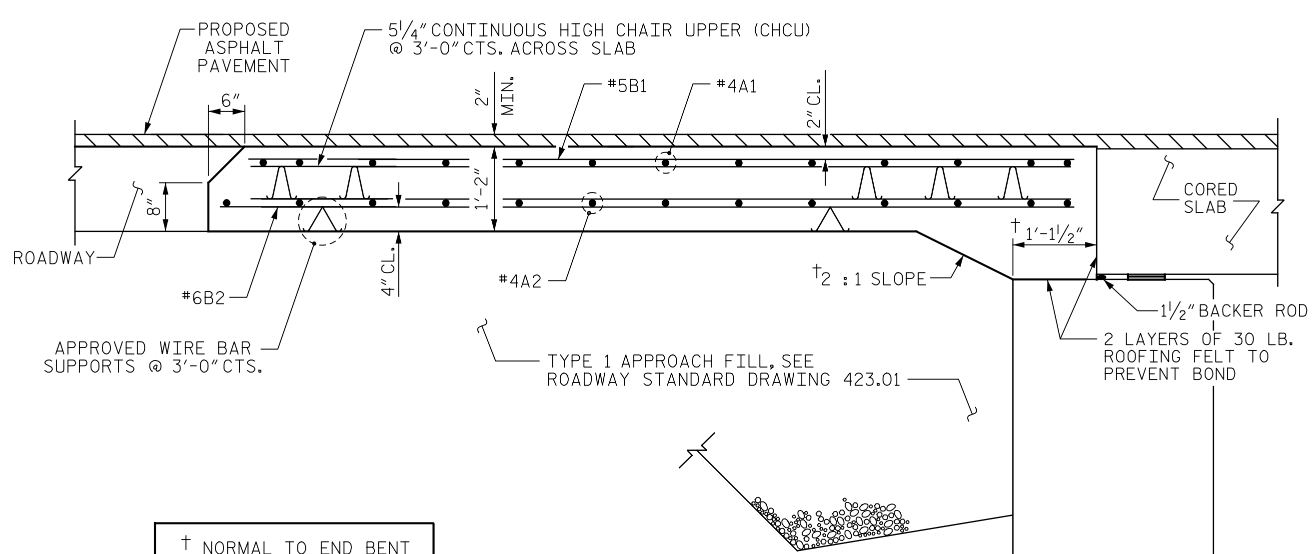
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

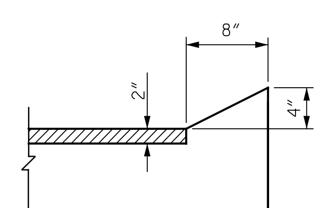


† NORMAL TO END BENT

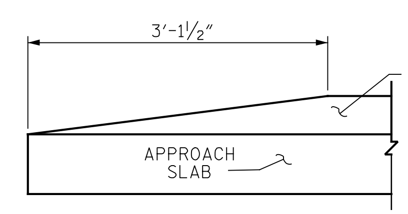
SECTION THRU SLAB

SPLICE LENGTHS

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



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. BP13.R013

BUNCOMBE COUNTY

STATION: 11+91.29 -L-

DocuSigned by:
391F69D0AD9743E...
SEAL 052027 ENGINEER TOM M. FORD
5/29/2025

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 :	M. SPENCER	DATE :	06/2023
CHECKED BY :	T. FORD	DATE :	06/2023
DESIGN ENGINEER OF RECORD:	T. FORD	DATE :	04/2024

DRAWN BY : SHS/MAA	DATE : 05/2009	REV. MAA/THC	12/2017
		REV. BNB/THC	08/2019
CHECKED BY : BCH	DATE : 05/2009	REV. BNB/SNM	07/2023

GANNETT FLEMING
One Glenwood Avenue, Suite 900, Raleigh, NC 27603, 919-420-7660, NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS							
NO.	BY:	DATE:		NO.	BY:	DATE:	
1				3			
2				4			

SHEET NO. S-15
TOTAL SHEETS 15

STD. NO. BAS_30_75S

8/26/21

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 $\frac{5}{16}$" 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 $\frac{1}{16}$" 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.