SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1, Piles 1-8	8	270	See Substructure Plans	50		-12.4	360	4	19.6	-9.0	12			
Bent 1, Piles 1-7	7	550	See Substructure Plans	40	-5.9	-27.7	735	4	38.3	-27.0	24			
End Bent 2, Piles 1-8	8	270	See Substructure Plans	25		-8.2	360	4	21.0	-8.2	12			
TOTAL QUANTITY:								12	592.9					

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

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

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-8	261			0.75		
Bent 1, Piles 1-7	546			0.75		
End Bent 2, Piles 1-8	261			0.75		

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent 1, Piles 1-8				8
Bent 1, Piles 1-7		7		
End Bent 2, Piles 1-8				8
TOTAL QUANTITY:		7		16

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1	55	
Bent 1	45	1
End Bent 2	30	1
TOTAL QUANTITY:		2

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

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

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Jeremy R. Hamm, #039779) on 03/09/2025.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: EA6ED470764646B...

5/5/2025

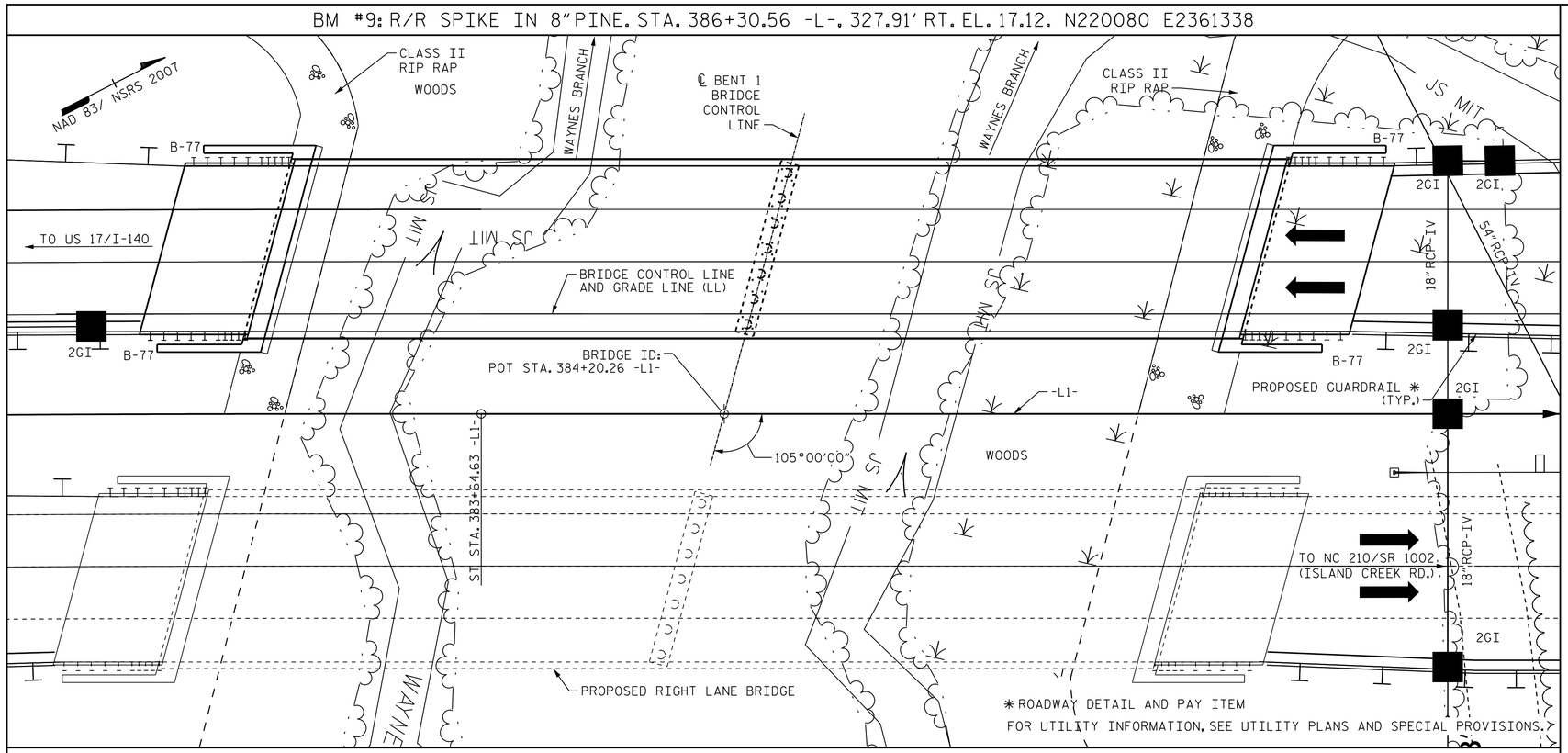
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-03
1			3			TOTAL SHEETS
2			4			37



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.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

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

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.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER

ALL METALIZED SURFACES SHALL RECEIVE A SEAL COATING AS SPECIFIED IN THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS, PILE CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE ARTICLE 1000-3(J) OF THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE BENT CAPS, AND PILE CAPS OF ALL BENTS SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL PARAPET, DECK, BENT CAPS, PILE CAPS, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

THE SCOUR CRITICAL ELEVATION FOR BENT(S) NO. 1 IS ELEVATION -5.9 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS AT STATION 384+20.26 -L1-, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA 384+20.26 -L1-	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONC. GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 24 X 0.75 GALVANIZED STEEL PILES	HP 14x73 STEEL PILES		PP 24 X 0.75 GALVANIZED STEEL PILES	
	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	EA.	EA.	NO.	LIN.FT.	NO.	LIN.FT.
SUPERSTRUCTURE		9,436	9,727		LUMP SUM		10	1,128.75						
END BENT NO.1				49.6		7,508			8		8	400		
BENT NO.1				26.7		4,144				7			7	280
END BENT NO.2				49.9		7,508			8		8	200		
TOTAL	LUMP SUM	9,436	9,727	126.2	LUMP SUM	19,160	10	1,128.75	16	7	16	600	7	280

-TOTAL BILL OF MATERIAL CONT.-

STEEL PILE POINTS	PRE-DRILLING FOR PILES	PILE REDRIVES	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICKNESS)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
EA.	LF	EACH	EACH	LIN.FT.	TON	SQ.YDS.	LUMP SUM
				456.5			LUMP SUM
8	156.8	4			205	228	
7	268.1	4	1				
8	168.0	4	1		238	316	
23	592.9	12	2	456.5	443	544	LUMP SUM

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER WAYNES BRANCH ON US 17 BYPASS (HAMPSTEAD BYPASS) BETWEEN SR 1336 (SIDBURY RD) & SR 1573 (HARRISON CREEK RD)

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-04
1			3			TOTAL SHEETS
2			4			37

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025
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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

LOAD AND RESISTANCE FACTOR RATING (LRFR) 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
							LIVE-LOAD FACTORS (γ_{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ_{LL})	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 (INVENTORY)	N/A	1	1.63	-	1.75	0.78	1.67	A	EL	55.70	0.89	2.19	A	I	10.60	0.80	0.78	1.63	A	EL	55.70	
		HL-93 (OPERATING)	N/A		2.17	-	1.35	0.78	2.17	A	EL	55.70	0.89	2.88	A	I	10.60	N/A	-	-	-	-	-	
		HS-20 (INVENTORY)	36.000	2	2.31	83.16	1.75	0.78	2.41	A	EL	55.70	0.89	3.07	A	I	10.60	0.80	0.78	2.31	A	EL	55.70	
		HS-20 (OPERATING)	36.000		3.12	112.32	1.35	0.78	3.12	A	EL	55.70	0.89	4.02	A	I	10.60	N/A	-	-	-	-	-	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.29	30.92	1.40	0.78	2.93	A	EL	55.70	0.89	3.88	A	I	10.60	0.80	0.78	2.29	A	EL	55.70	
		SNGARBS2	20.000		2.24	44.80	1.40	0.78	2.87	A	EL	55.70	0.89	3.88	A	I	10.60	0.80	0.78	2.24	A	EL	55.70	
		SNAGRIS2	22.000		1.93	42.46	1.40	0.78	2.47	A	EL	55.70	0.89	3.39	A	I	10.60	0.80	0.78	1.93	A	EL	55.70	
		SNCOTTS3	27.250		2.03	55.32	1.40	0.78	2.60	A	EL	55.70	0.89	3.50	A	I	10.60	0.80	0.78	2.03	A	EL	55.70	
		SNAGGRS4	34.925		5.69	198.72	1.40	0.78	7.28	A	EL	55.70	0.89	9.82	A	I	10.60	0.80	0.78	5.69	A	EL	55.70	
		SNS5A	35.550		4.07	144.69	1.40	0.78	5.21	A	EL	55.70	0.89	6.81	A	I	10.60	0.80	0.78	4.07	A	EL	55.70	
		SNS6A	39.950		2.81	112.26	1.40	0.78	3.60	A	EL	55.70	0.89	4.82	A	I	10.60	0.80	0.78	2.81	A	EL	55.70	
		SNS7B	42.000		3.77	158.34	1.40	0.78	4.83	A	EL	55.70	0.89	6.26	A	I	10.60	0.80	0.78	3.77	A	EL	55.70	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.48	81.84	1.40	0.78	3.17	A	EL	55.70	0.89	4.22	A	I	10.60	0.80	0.78	2.48	A	EL	55.70	
		TNT4A	33.075		2.48	82.03	1.40	0.78	3.18	A	EL	55.70	0.89	4.14	A	I	10.60	0.80	0.78	2.48	A	EL	55.70	
		TNT6A	41.600		2.00	83.20	1.40	0.78	2.56	A	EL	55.70	0.89	3.53	A	I	10.60	0.80	0.78	2.00	A	EL	55.70	
		TNT7A	42.000		2.00	84.00	1.40	0.78	2.56	A	EL	55.70	0.89	3.47	A	I	10.60	0.80	0.78	2.00	A	EL	55.70	
		TNT7B	42.000		2.04	85.68	1.40	0.78	2.61	A	EL	55.70	0.89	3.33	A	I	10.60	0.80	0.78	2.04	A	EL	55.70	
		TNAGRIT4	43.000		1.96	84.28	1.40	0.78	2.51	A	EL	55.70	0.89	3.24	A	I	10.60	0.80	0.78	1.96	A	EL	55.70	
		TNAGT5A	45.000		1.86	83.70	1.40	0.78	2.38	A	EL	55.70	0.89	3.16	A	I	10.60	0.80	0.78	1.86	A	EL	55.70	
		TNAGT5B	45.000	3	1.85	83.25	1.40	0.78	2.36	A	EL	55.70	0.89	3.08	A	I	10.60	0.80	0.78	1.85	A	EL	55.70	
EMERGENCY VEHICLE (EV)		EV2	28.750	4	2.86	82.23	1.30	0.78	3.66	A	EL	55.70	0.89	4.72	A	I	10.60	0.80	0.78	2.86	A	EL	55.70	
		EV3	43.000		1.88	80.84	1.30	0.78	2.41	A	EL	55.70	0.89	3.12	A	I	10.60	0.80	0.78	1.88	A	EL	55.70	

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. SPANS SHOWN IN LRFR SUMMARY CORRESPONDS TO COMPOSITE DEAD LOAD AND LIVE LOAD MODEL USED FOR ANALYSIS AND DESIGN.

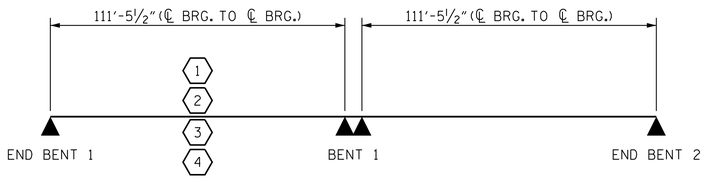
(#) CONTROLLING LOAD RATING

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

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

Stantec
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License No. F-0672

ASSEMBLED BY :	J. GUERRERO	DATE :	10/24/18
CHECKED BY :	S. S. POOLE	DATE :	12/20/24
DRAWN BY :	MAA	I/08	
CHECKED BY :	GM/DI	2/08	
REV. 11/12/08RR	MAA/GM		
REV. 10/1/11	MAA/GM		
REV. 04/23	BNB/AAI		

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025
EA6ED4707644469...

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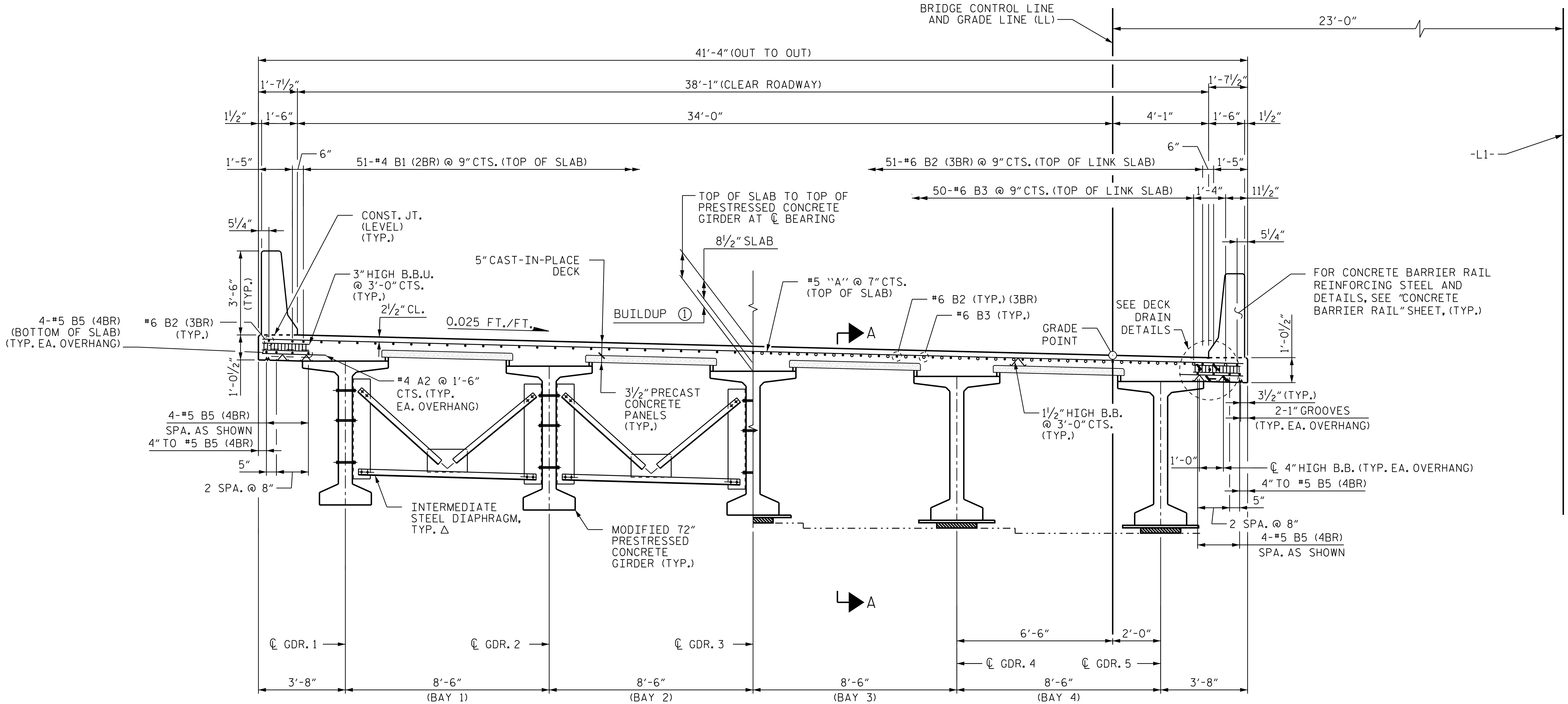
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-05
1			3			TOTAL SHEETS
2			4			37

STD. NO. LRFR1



HALF-SECTION AT INTERMEDIATE DIAPHRAGMS

HALF-SECTION AT INTERIOR BENT

TYPICAL SECTION

NOTES

SEE "TYPICAL SECTION DETAILS", SHEET 4 OF 4 FOR NOTES.

SEE "TYPICAL SECTION DETAILS", SHEET 4 OF 4 FOR OPTIONAL CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM.

(2BR) DENOTES 2 BAR RUN.

(3BR) DENOTES 3 BAR RUN.

(4BR) DENOTES 4 BAR RUN.

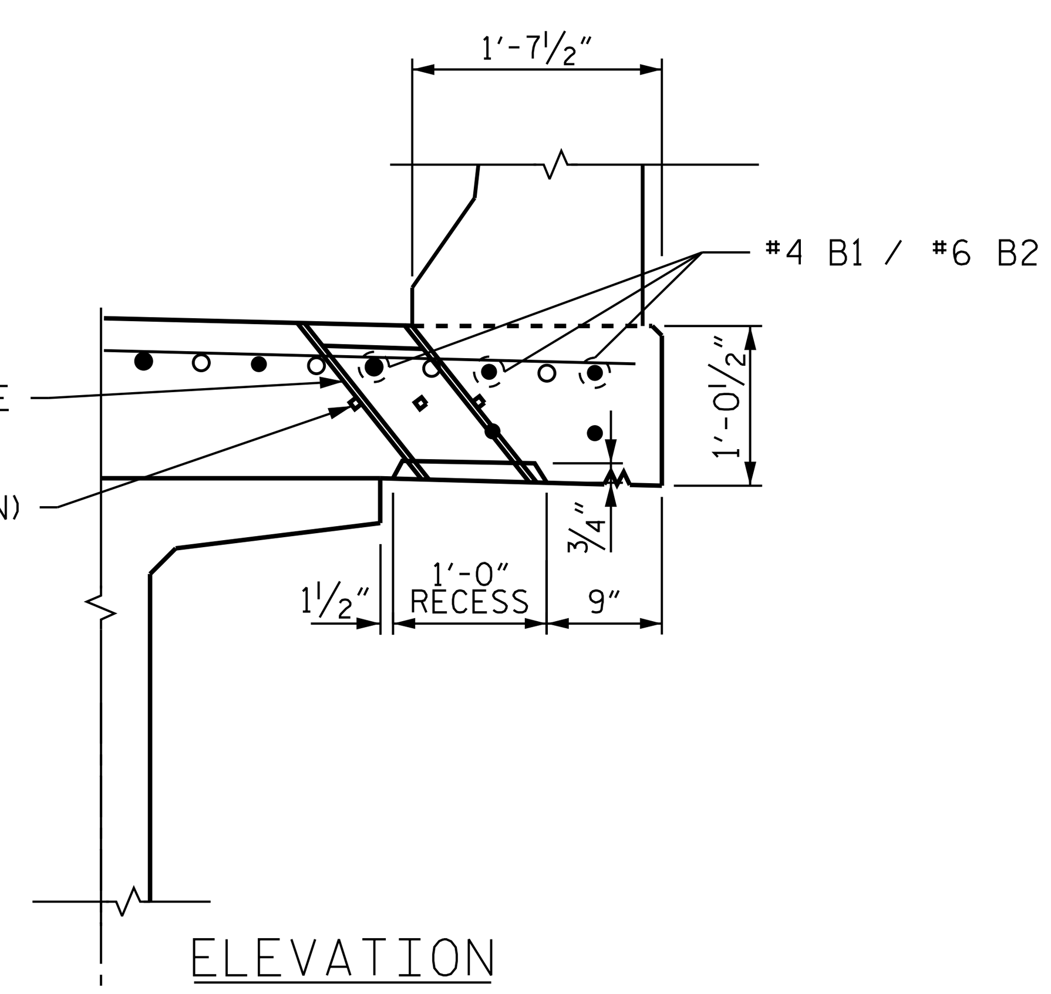
△ FOR INTERMEDIATE STEEL DIAPHRAGM, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 72" MOD. BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

△ △ DENOTES MEASURED ALONG BENT CENTER LINE, SEE BENT SHEET.

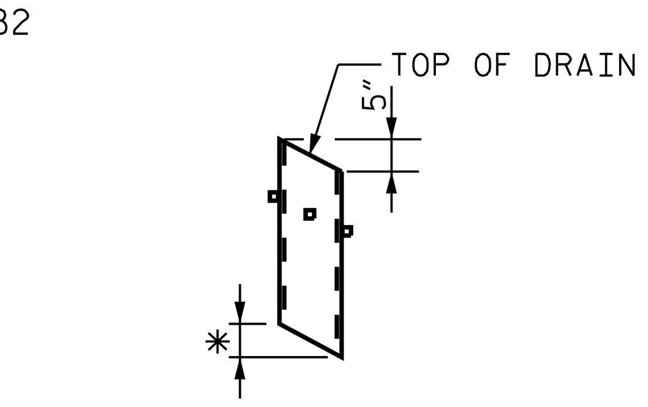
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

① 4" @ ℄ BEARING
✱ 2³⁄₁₆" MAX. @ MID-SPAN (SPAN A, GIRDER #1) (SPAN B, SIMILAR)

✱ BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

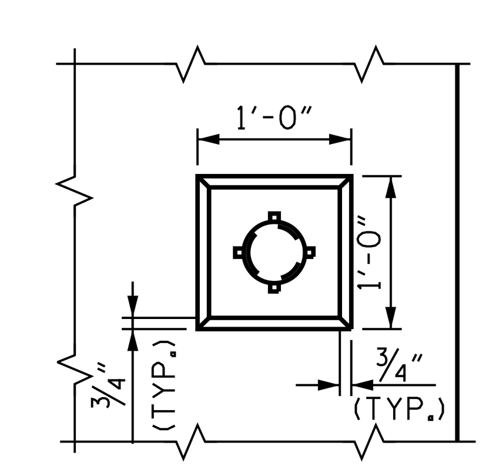


ELEVATION



✱ TO BE SET TO MATCH SLOPE OF BOTTOM OF OVERHANG (12 DRAINS REQUIRED)

PIPE DETAIL



PLAN OF RECESS

DRAIN DETAILS

NOTE:

TRANSVERSE AND LONGITUDINAL REINFORCING MAY BE ADJUSTED HORIZONTALLY IN THE VICINITY OF THE DRAIN PIPE. ONLY LONGITUDINAL REINFORCING IS PERMITTED TO BE FIELD CUT IN THE VICINITY OF THE DRAIN PIPE.

NOTES:

TOP OF FLOOR DRAIN TO BE SET ⅜" BELOW SURFACE OF SLAB.

4 - ½" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF PIPE.

THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 54498 SETH S. POOLE
Signed by: 5/5/2025
EA6ED47076464B6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION

(LEFT LANE)

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

SHEET NO. S06-06
TOTAL SHEETS 37

NOTES

SEE "TYPICAL SECTION DETAILS", SHEET 4 OF 4 FOR NOTES.

(2BR) DENOTES 2 BAR RUN.

(4BR) DENOTES 4 BAR RUN.

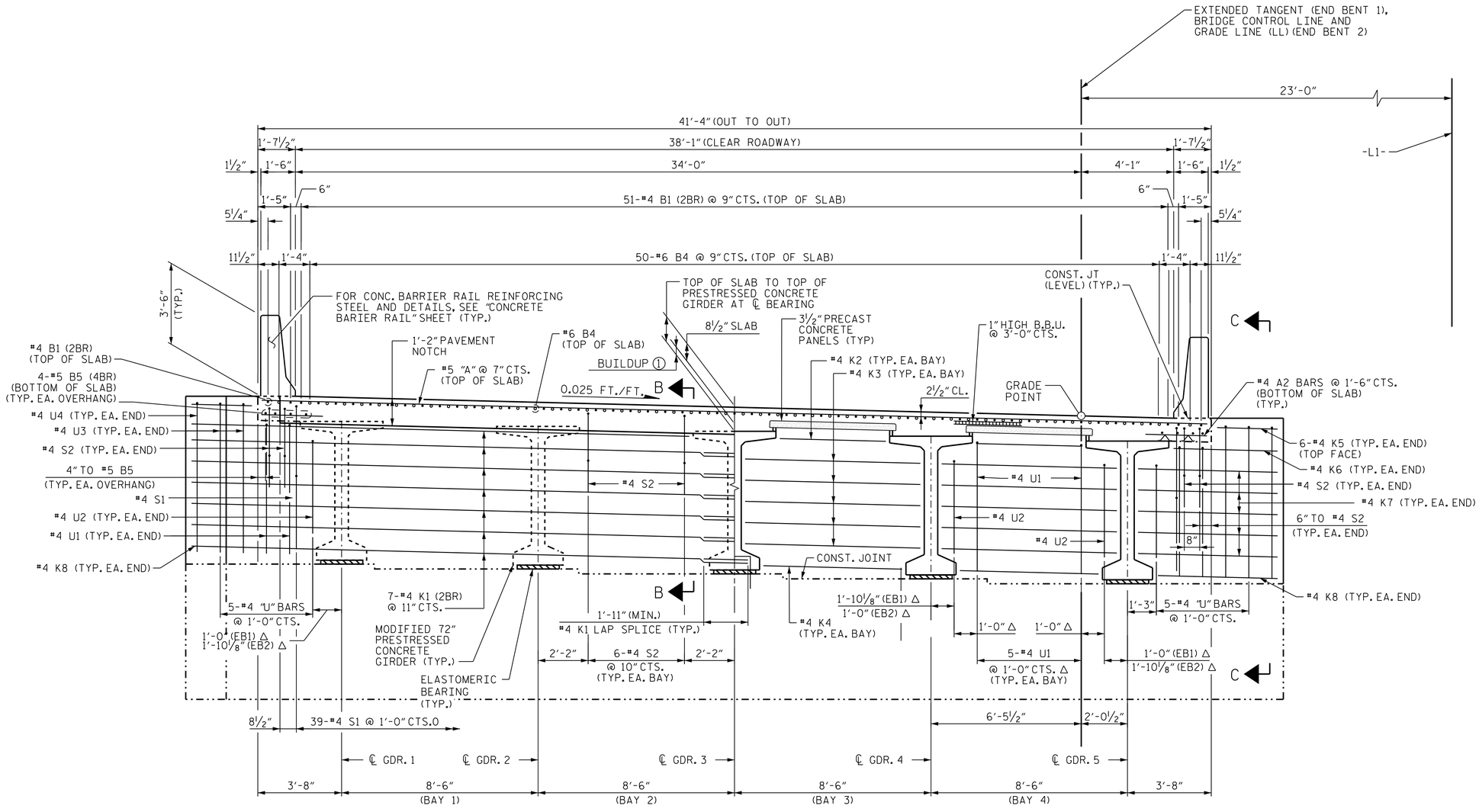
EB1 DENOTES END BENT 1
EB2 DENOTES END BENT 2.

△ DENOTES MEASURED ALONG FRONT FACE OF END BENT, SEE END BENT SHEETS.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

① 4" @ ℄ BEARING
✳ 2" MAX. @ MID-SPAN
(SPAN A, GIRDER #1)
(SPAN B, SIMILAR)

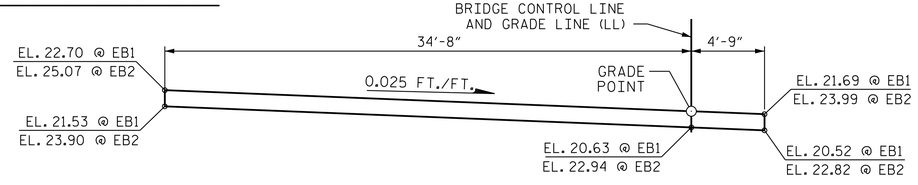
✳ BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.



INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FILL FACE

INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FRONT FACE

TYPICAL SECTION



INTEGRAL DIAPHRAGM
APPROACH SLAB BLOCKOUT
(ALONG FILL FACE)

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025
EA6ED4707664408...

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PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 2 OF 4

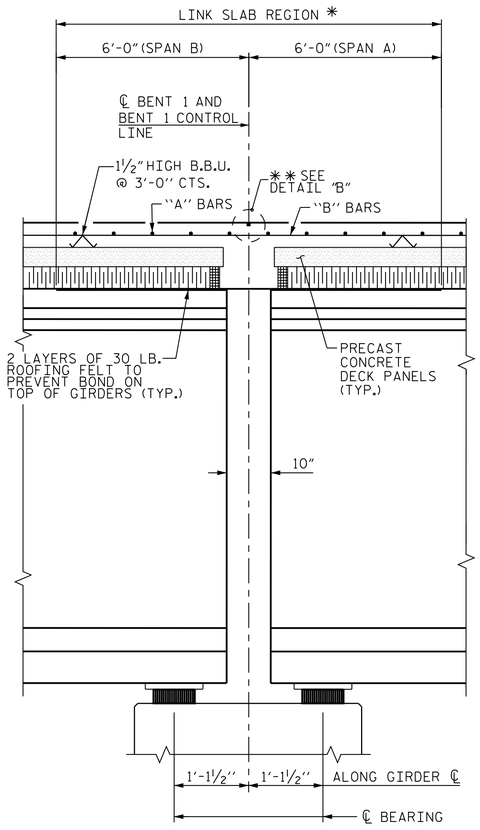
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

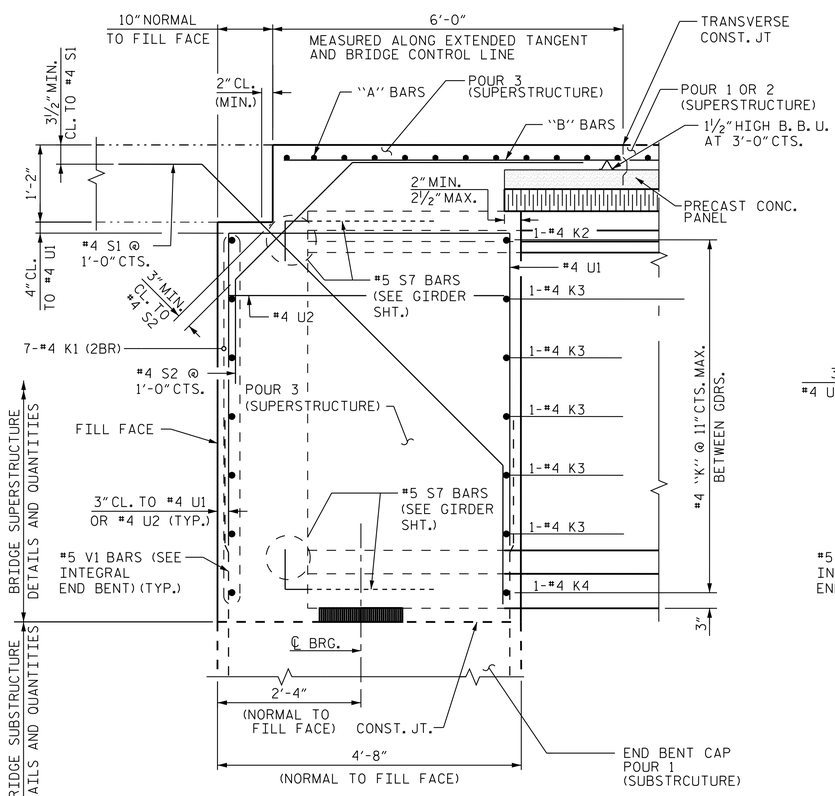
TYPICAL SECTION

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-07
1			3			TOTAL SHEETS
2			4			37

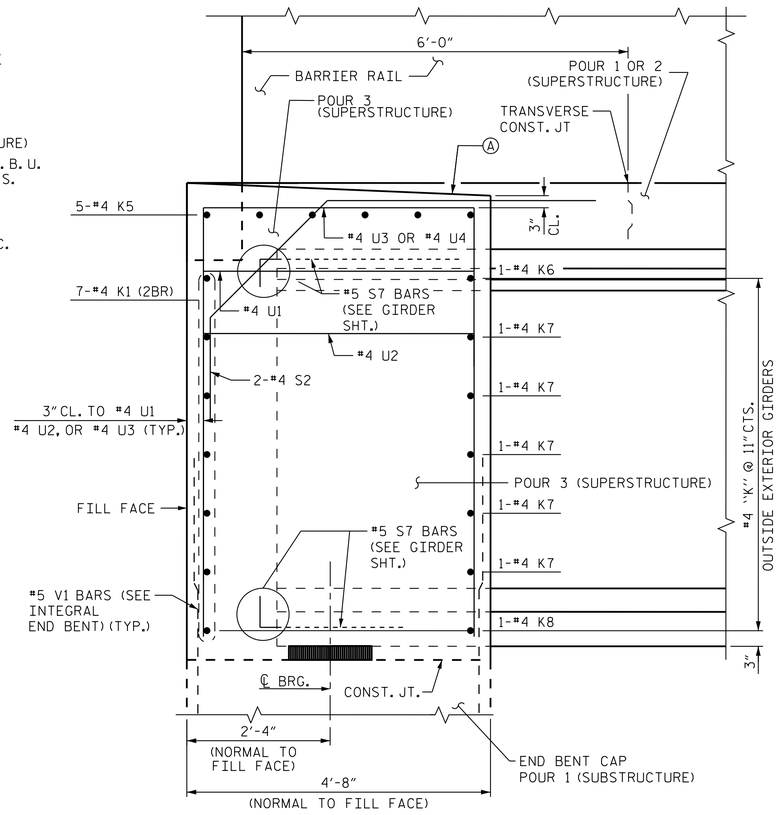


SECTION A-A AT LINK SLAB



SECTION B-B

SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 3 OF 5



SECTION C-C

SECTION THRU INTEGRAL END BENT DIAPHRAGM BEYOND EXTERIOR GIRDER
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 3 OF 5

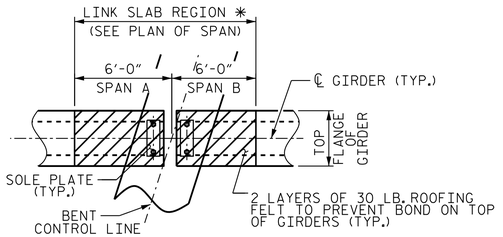
NOTES

(2BR) DENOTES 2 BAR RUN.

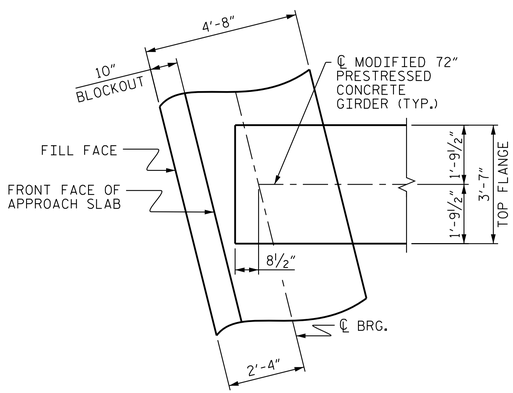
Ⓐ SLOPE TOP SURFACE OF DIAPHRAGM BETWEEN OUTSIDE EDGE OF SUPERSTRUCTURE AND OUTSIDE EDGE OF WINGWALL AT A RATE OF 2% TO DRAIN AWAY FROM THE FILL FACE.

* THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

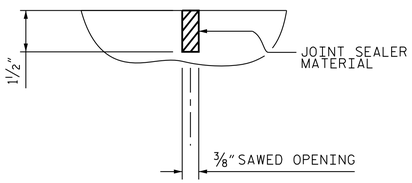
** A 1½" DEEP, ⅜" WIDE CONTRACTION JOINT AT BENT CONTROL LINE SHALL BE SAWED WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



PLAN OF GIRDERS AT LINK SLAB BENT



PLAN OF INTEGRAL END BENT



DETAIL "B"

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION (DETAILS)

(LEFT LANE)

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: E46E04737B44469 5/5/2025

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NOTES

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDUPS.

PREVIOUSLY CAST CONCRETE IN THE UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT EXCEPT AS NOTED IN THE PLANS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED. IF OPTIONAL CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM IS USED, #3 BAR GRID SHALL NOT BE EPOXY COATED.

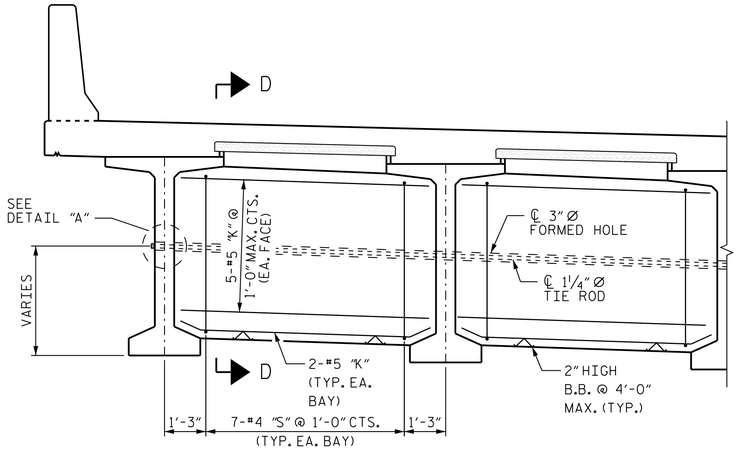
PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRE-COMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE (GIRDERS, PRECAST DECK PANELS) SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE ARTICLE 1078-4(H) OF STANDARD SPECIFICATIONS FOR CALCIUM NITRITE CORROSION INHIBITOR.

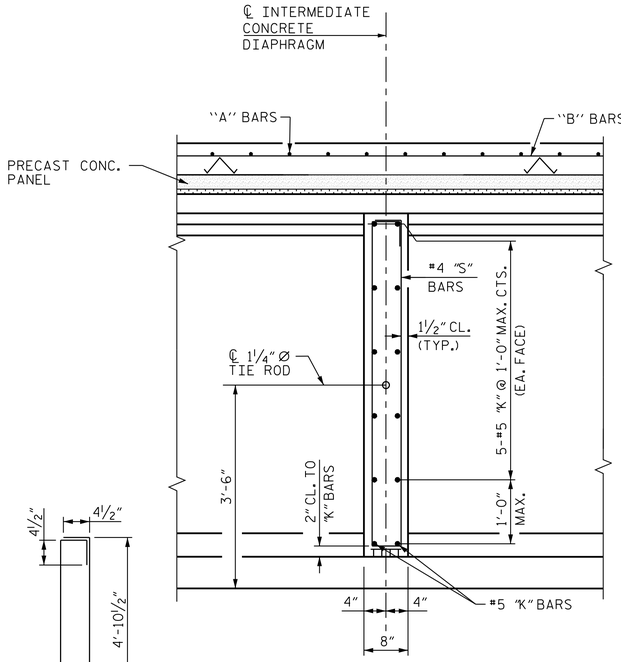
OPTIONAL CONCRETE INTERMEDIATE DIAPHRAGMS

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 11-#4" Ø TIE RODS SHALL BE FULLY TIGHTENED BEFORE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN INTERMEDIATE DIAPHRAGMS MAY BE CLASS A IN LIEU OF CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.



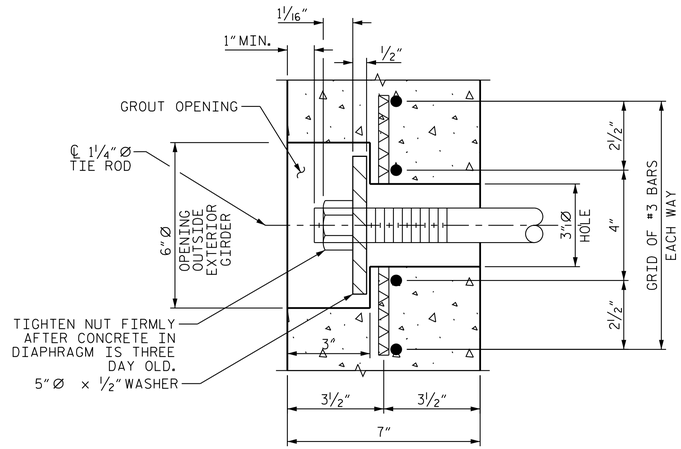
PART - SECTION AT OPTIONAL CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM



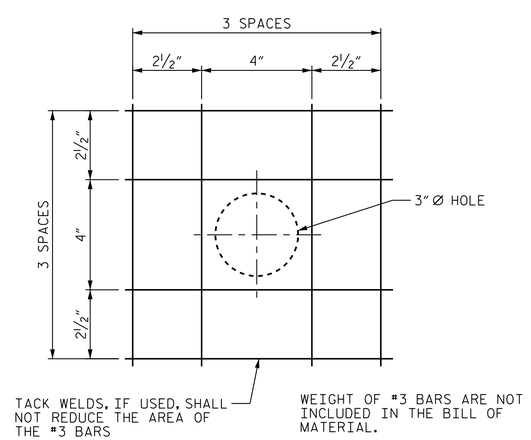
#4 "S" BAR

SECTION D-D

SECTION THRU CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM



DETAIL "A"



TACK WELDS, IF USED, SHALL NOT REDUCE THE AREA OF THE #3 BARS

WEIGHT OF #3 BARS ARE NOT INCLUDED IN THE BILL OF MATERIAL.

#3 BAR GRID

GROUTED RECESS FOR END OF TIE ROD

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION (DETAILS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-09
1			3			TOTAL SHEETS
2			4			37

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S POOLE

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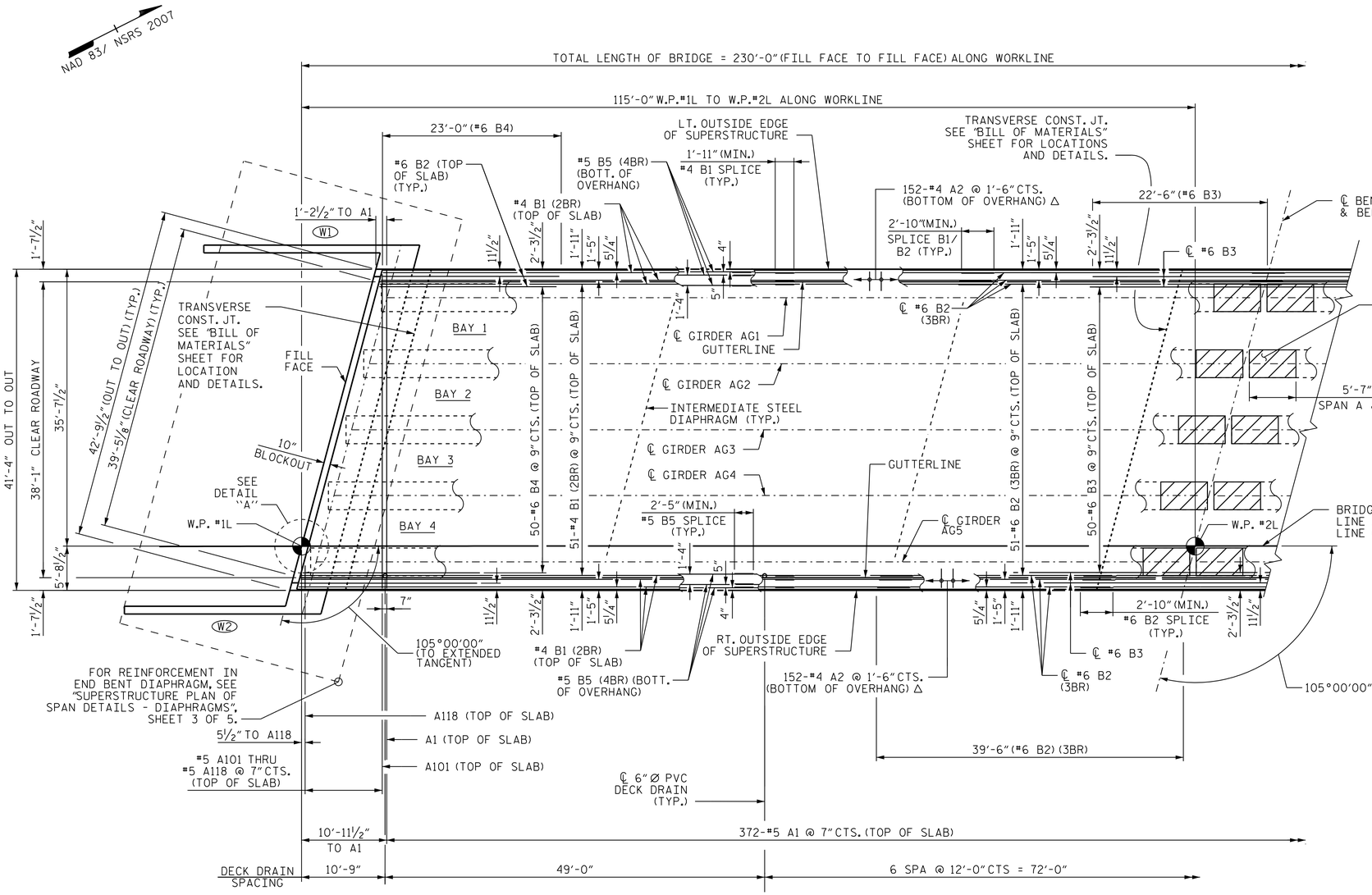
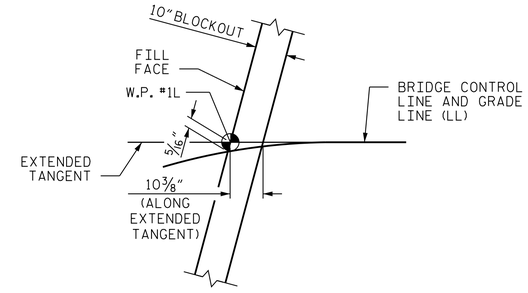


PLAN OF SPAN
SPAN A

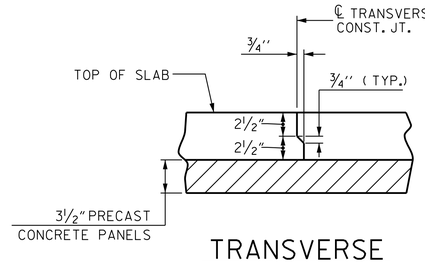
NOTE: (2BR) DENOTES TWO BAR RUN
(3BR) DENOTES THREE BAR RUN
(4BR) DENOTES FOUR BAR RUN

✱ THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

△ #5 B5 BARS NOT SHOWN FOR CLARITY.



DETAIL "A"



TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

NOTE: REINFORCING STEEL IN DECK SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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SUPERSTRUCTURE

PLAN OF SPAN (SPAN A)

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-10
1			3			TOTAL SHEETS
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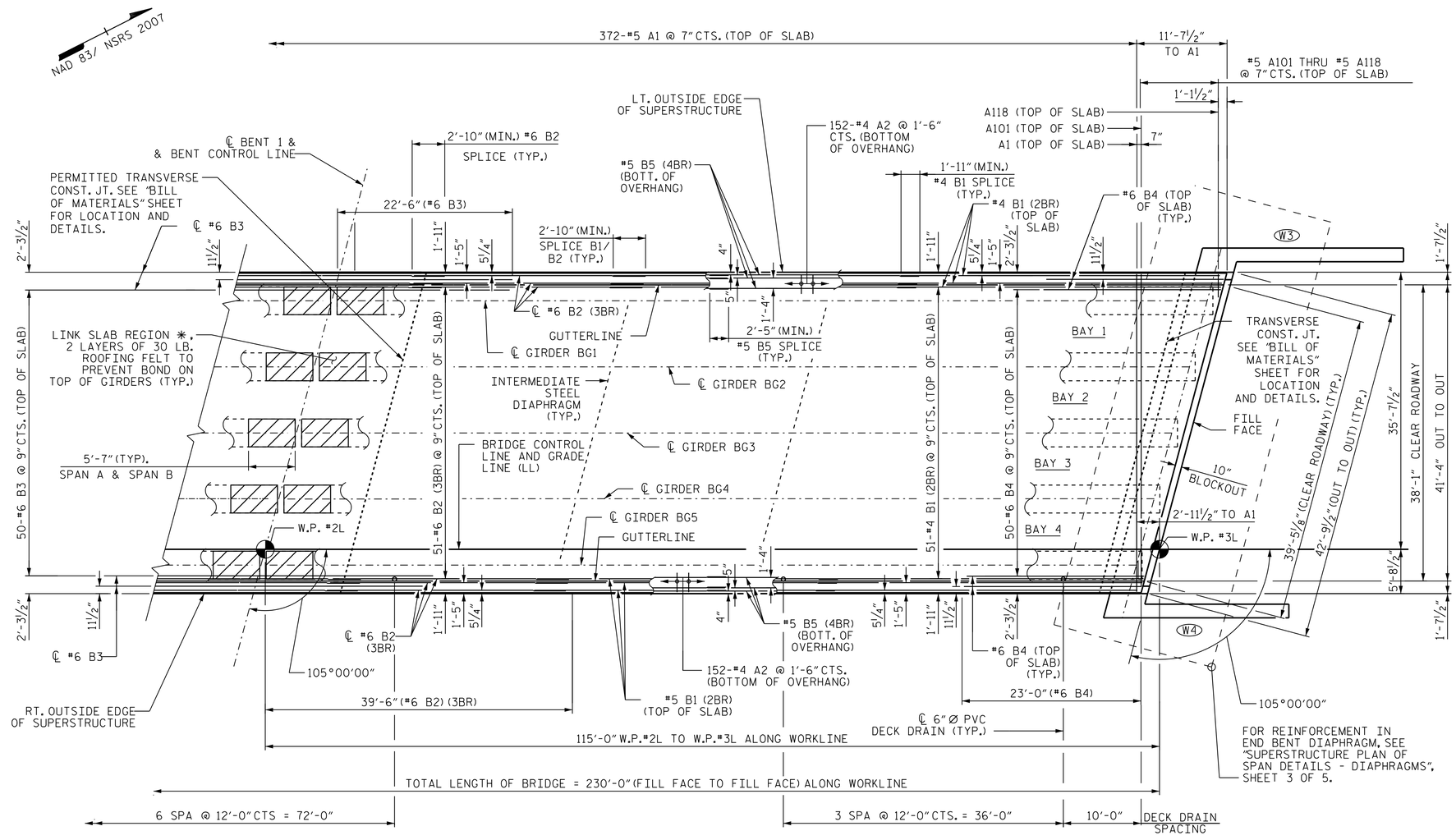

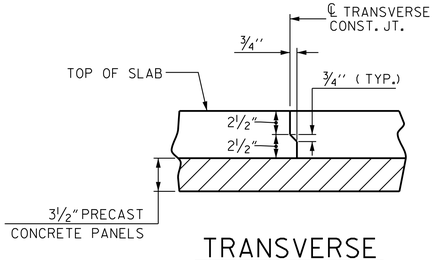

TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

NOTE: REINFORCING STEEL IN DECK SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

PLAN OF SPAN
SPAN B

NOTE: (2BR) DENOTES TWO BAR RUN
(3BR) DENOTES THREE BAR RUN
(4BR) DENOTES FOUR BAR RUN

✳ THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPAN (SPAN B)

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-11
1			3			TOTAL SHEETS
2			4			37

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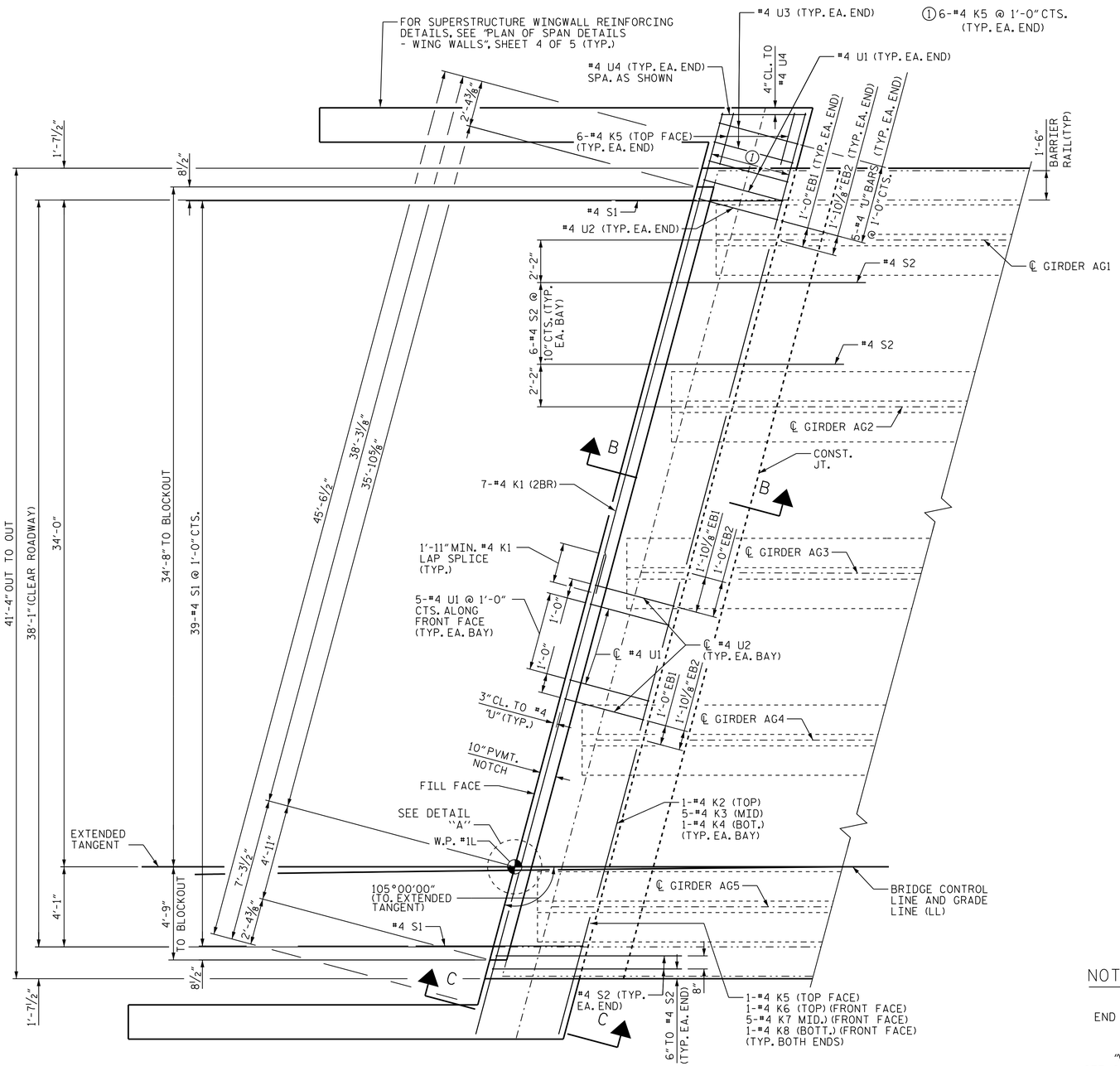
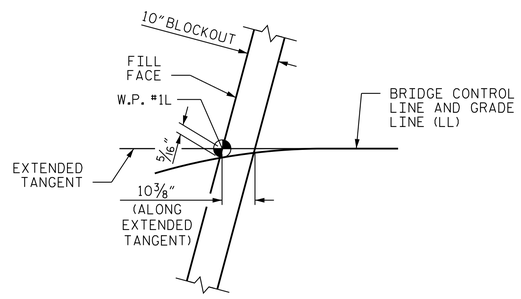


TYPICAL END BENT DIAPHRAGM REINFORCING DETAIL



DETAIL "A"

NOTES:

END BENT 1 (SHOWN) ND BENT 2 (SIMILAR BUT ROTATED / MIRRORED)

"V" BARS NOT SHOWN FOR CLARITY, SEE SHEETS 4 AND 5 OF 5 FOR ADDITIONAL REINFORCING DETAILS.

(2BR) DENOTES 2 BAR RUN.

EB1 DENOTES END BENT 1.

EB2 DENOTES END BENT 2.

#4 S1 BARS MAY BE REPOSITIONED AS NECESSARY TO CLEAR GIRDERS.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
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RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS DETAILS - DIAPHRAGMS

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-12
1			3			TOTAL SHEETS
2			4			37

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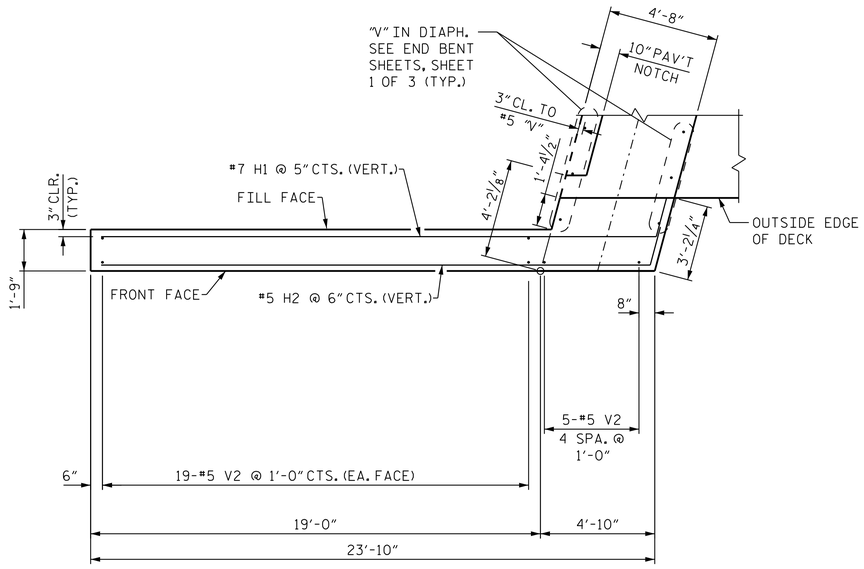
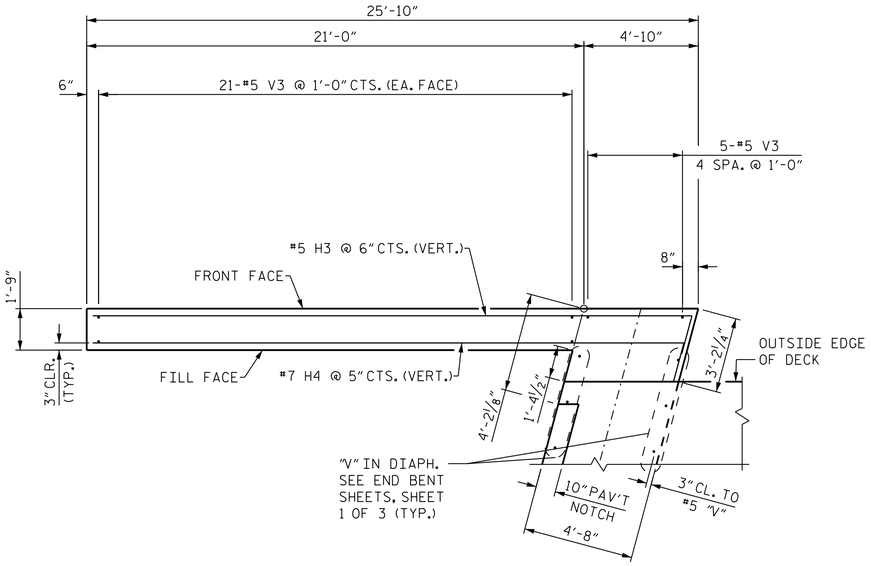
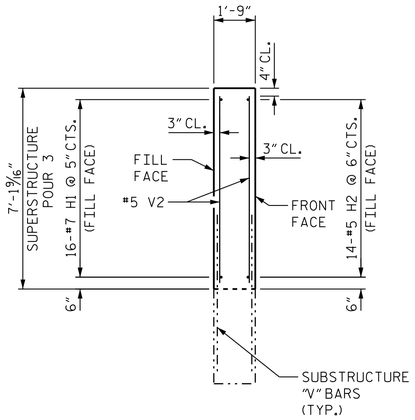


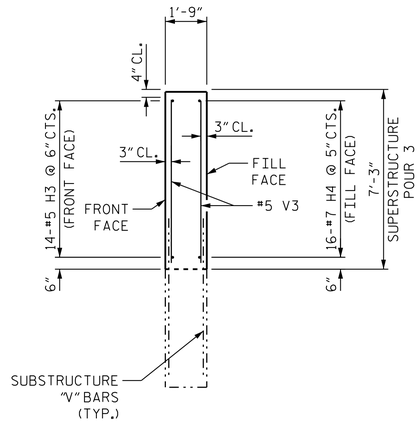
W2 PLAN OF RIGHT WING



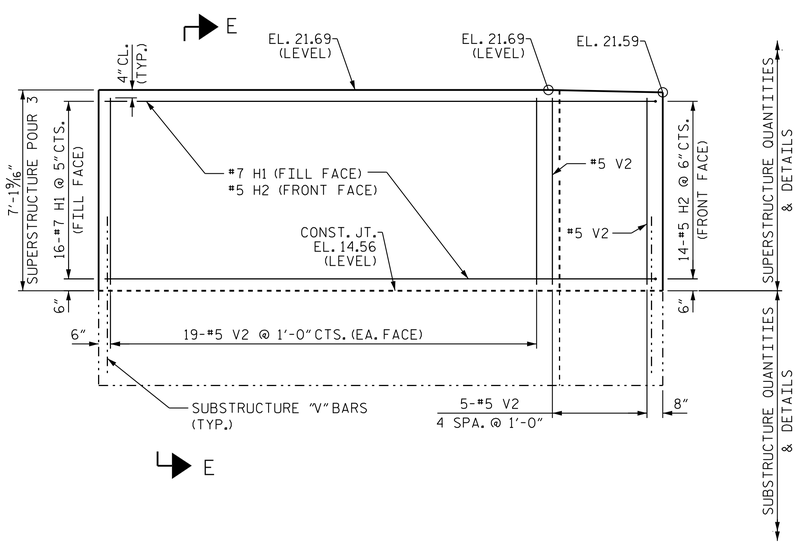
W1 PLAN OF LEFT WING



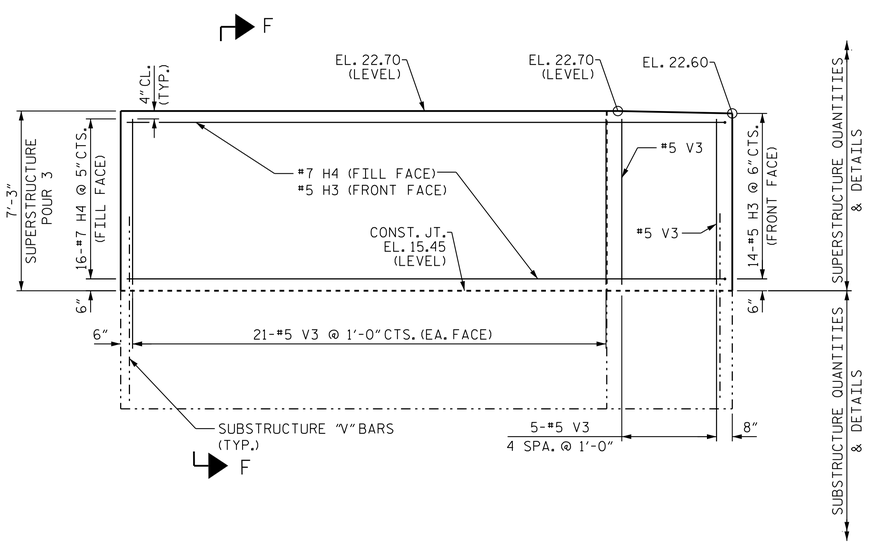
SECTION E-E



SECTION F-F



W2 ELEVATION OF RIGHT WING



W1 ELEVATION OF LEFT WING

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS DETAILS - WING WALLS
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-13
1			3			TOTAL SHEETS
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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

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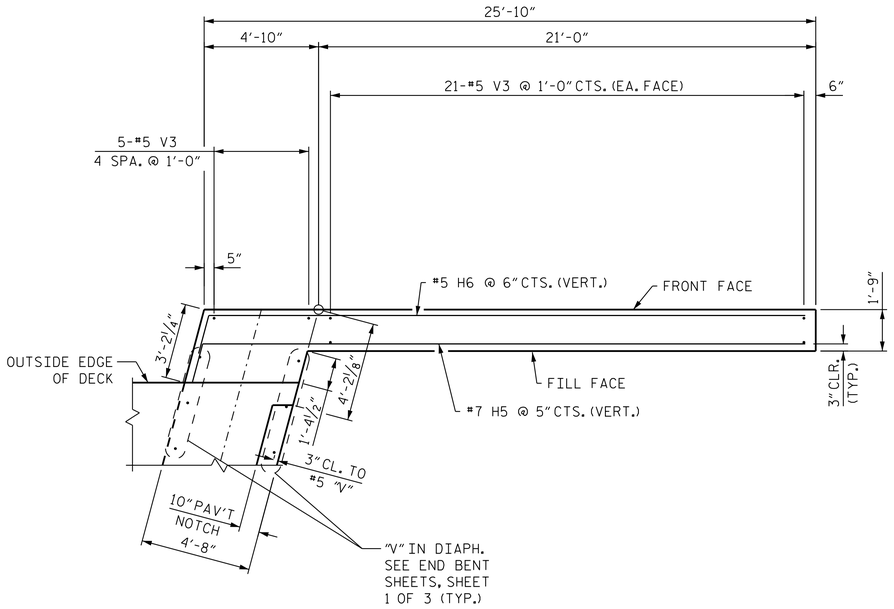
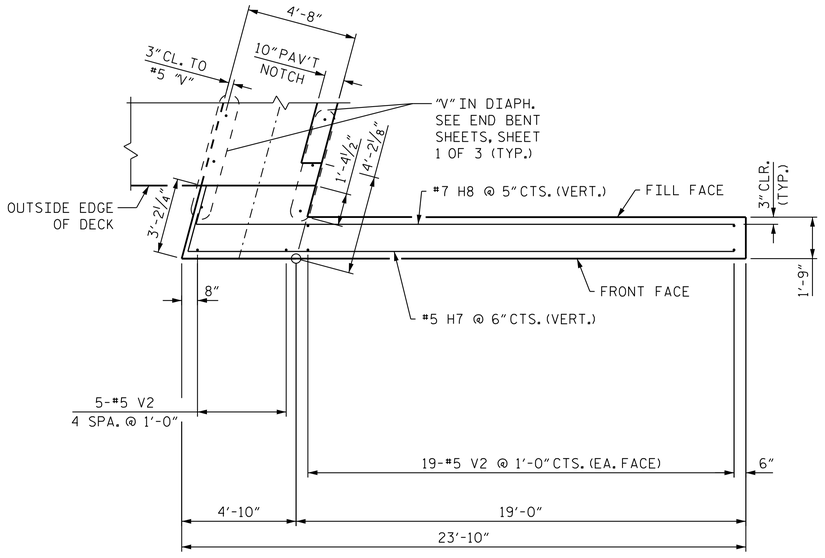
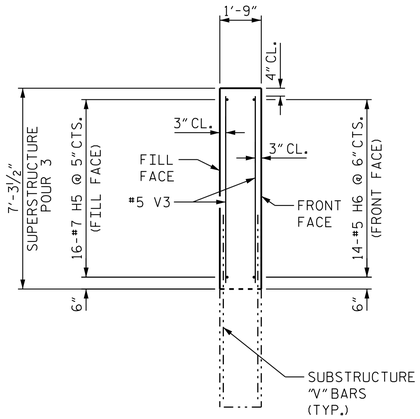


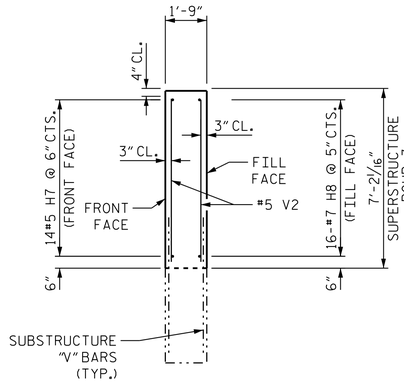
W3 PLAN OF LEFT WING



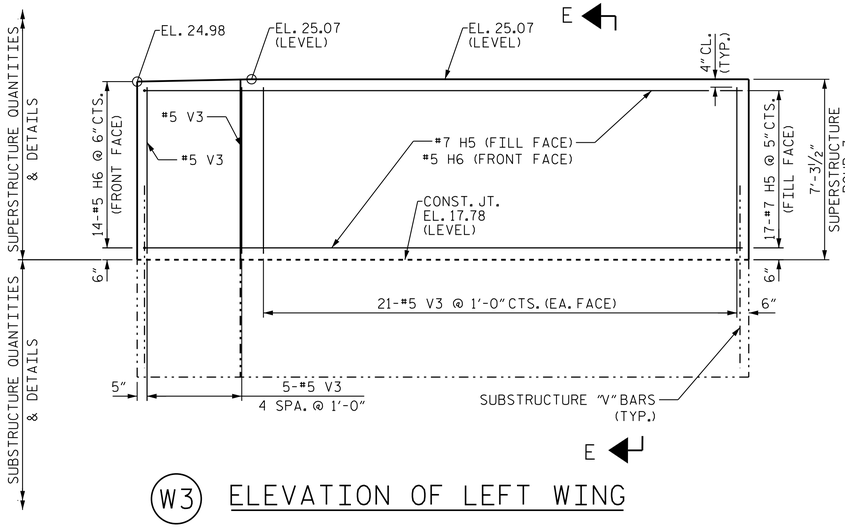
W4 PLAN OF RIGHT WING



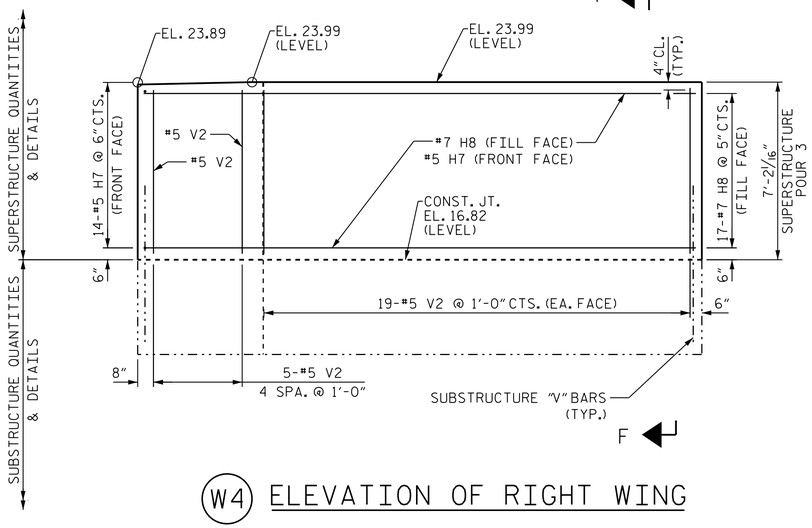
SECTION E-E



SECTION F-F



W3 ELEVATION OF LEFT WING



W4 ELEVATION OF RIGHT WING

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPANS DETAILS - WING WALLS
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-14
1			3			TOTAL SHEETS
2			4			37

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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: EA9E0A7D7A6A4BB...
5/5/2025

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

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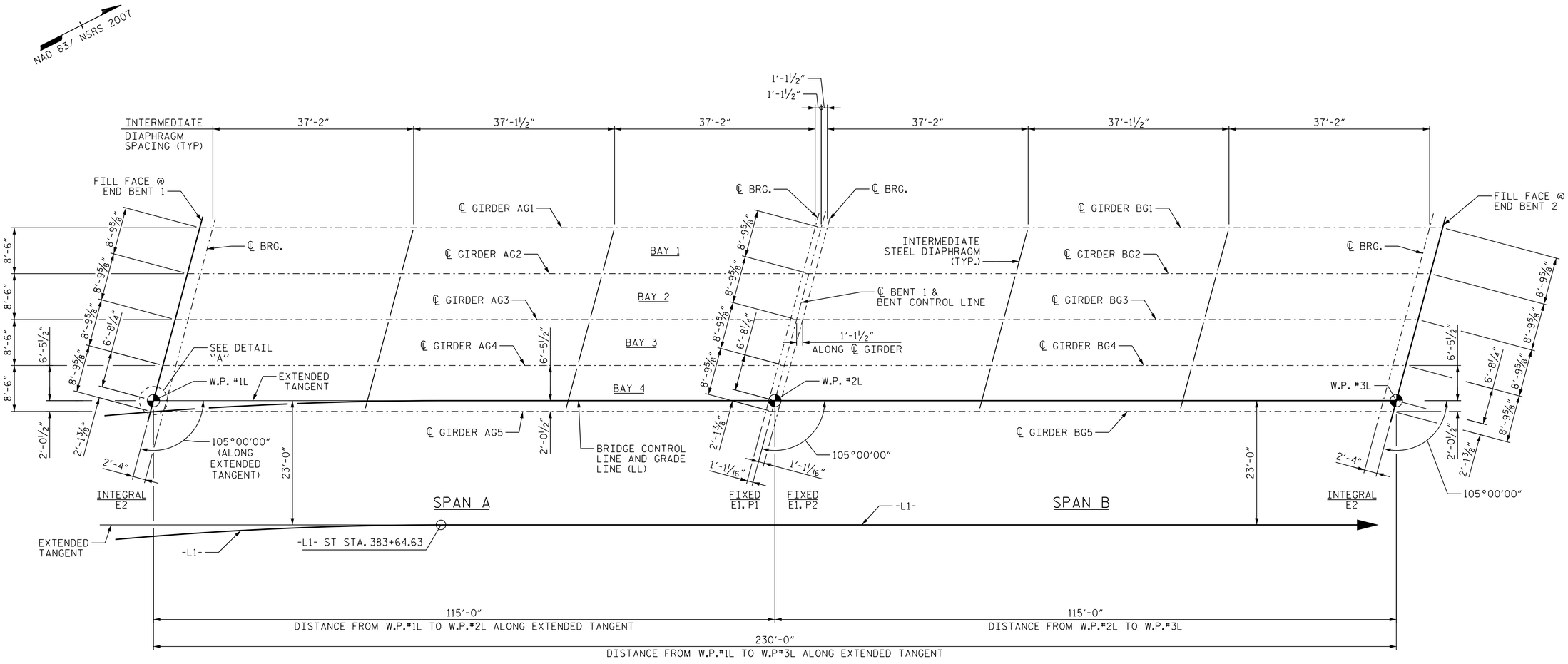
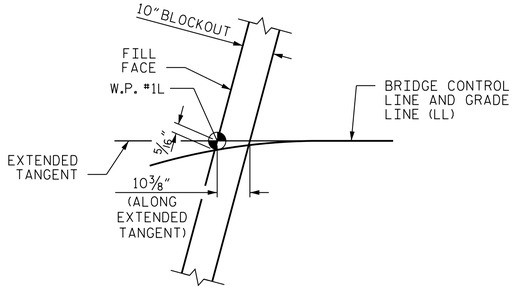


FRAMING PLAN



DETAIL "A"

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE FRAMING PLAN

(LEFT LANE)

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Signed by: 5/5/2025
EA6ED4707644468

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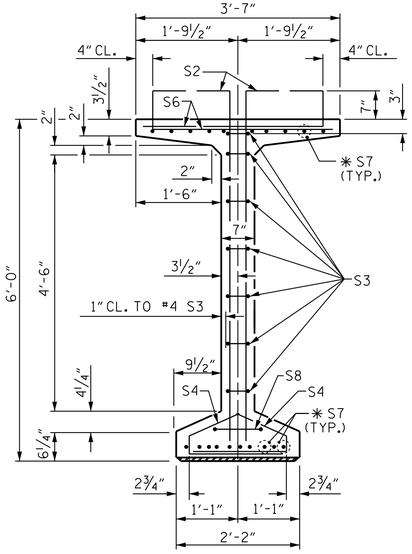
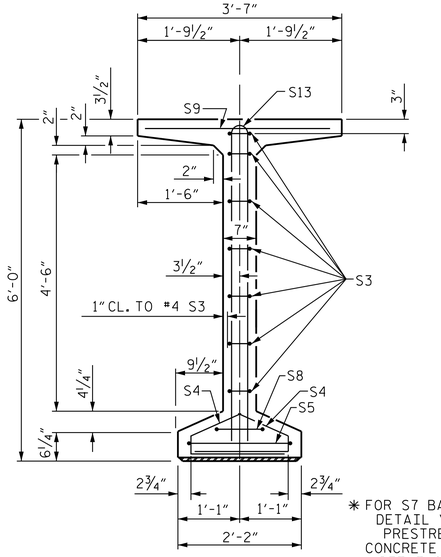
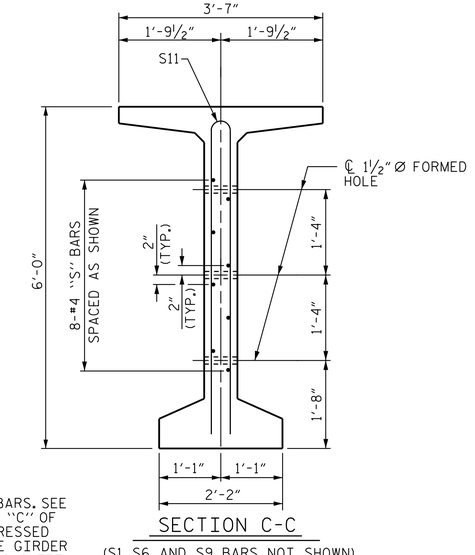


SECTION A-A



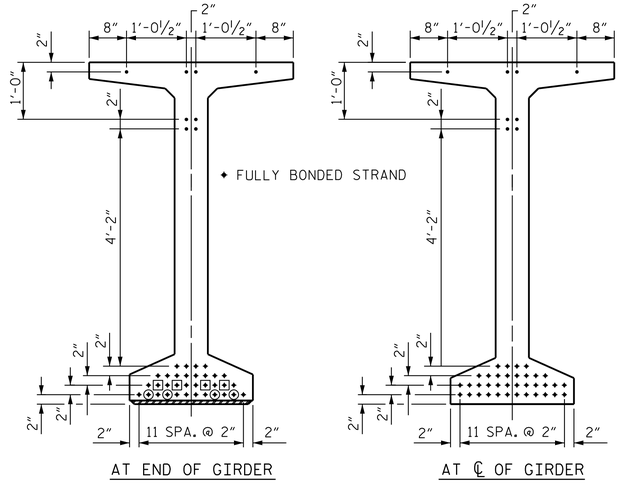
SECTION B-B

✱ FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER DETAILS SHEET



SECTION C-C

(S1, S6 AND S9 BARS NOT SHOWN)



0.6" Ø LOW RELAXATION STRAND LAYOUT

✱ THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

DEBONDING LEGEND

- ● FULLY BONDED STRANDS
- ◘ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONDED FOR 16'-0" FROM END OF GIRDER

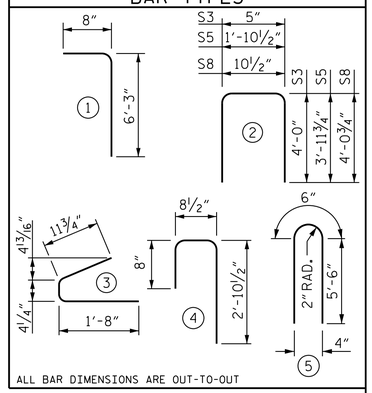
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	186	#5	1	6'-11"	1,342
S2	14	#6	1	6'-11"	146
S3	14	#4	2	8'-5"	79
S4	88	#4	3	3'-0"	177
S5	1	#4	2	9'-10"	11
S6	200	#5	4	4'-3"	887
✱ S7	20	#5	STR	3'-8"	77
S8	2	#5	2	9'-0"	19
S9	60	#5	STR	3'-3"	204
S10	1	#3	STR	1'-10"	1
S11	15	#5	5	11'-6"	180
S12	16	#4	STR	8'-0"	86
S13	14	#6	5	11'-6"	242

✱ NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	9,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
	3,451	24.2	42

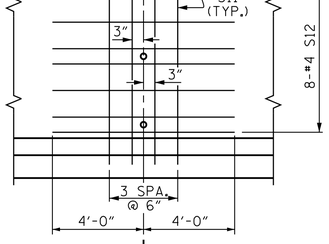
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
10	112'-10½"	1128'-9"

PROJECT NO. R-3300A

NEW HANOVER COUNTY

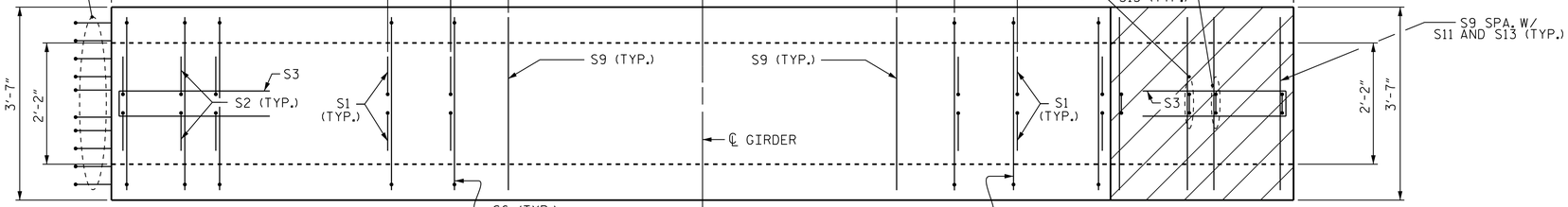
STATION: 384+20.26 -L1-

SHEET 1 OF 3

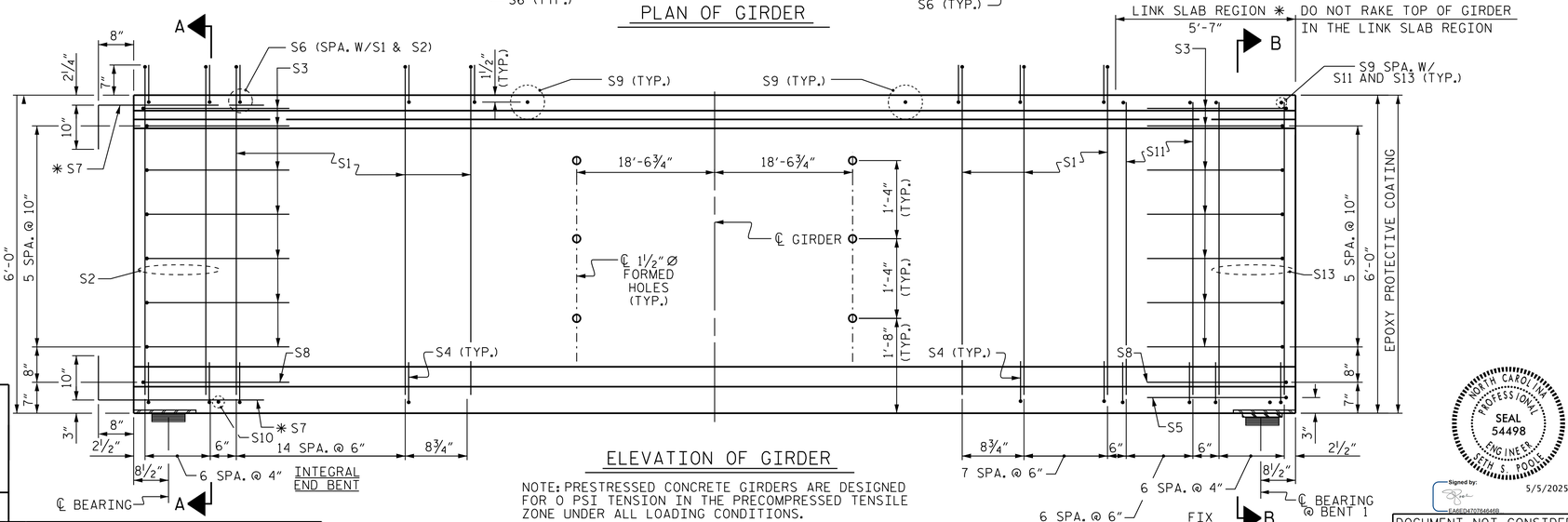


PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS AG1-AG5 AND BG1-BG5



PLAN OF GIRDER



ELEVATION OF GIRDER

NOTE: PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

SPAN A SHOWN SPAN B OPPOSITE HAND.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
MODIFIED 72" PRESTRESSED CONCRETE GIRDER

SPAN A & SPAN B

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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER KEITH S. POOLE

Signed by: EA6ED4707B66498...
5/5/2025

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ASSEMBLED BY : J. GUERRERO	DATE : 10/24/18	
CHECKED BY : S. S. POOLE	DATE : 12/20/24	
DRAWN BY : EEM 2/6/97	REV. 6/13	MAA/GM
CHECKED BY : VAP 2/6/97	REV. 1/15	MAA/TMG
	REV. 12/17	MAA/THC

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

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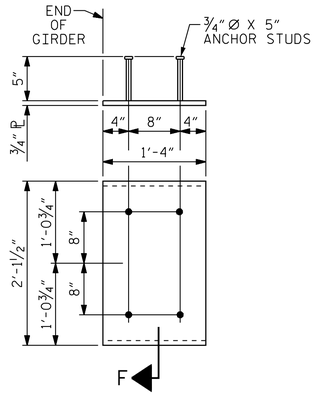
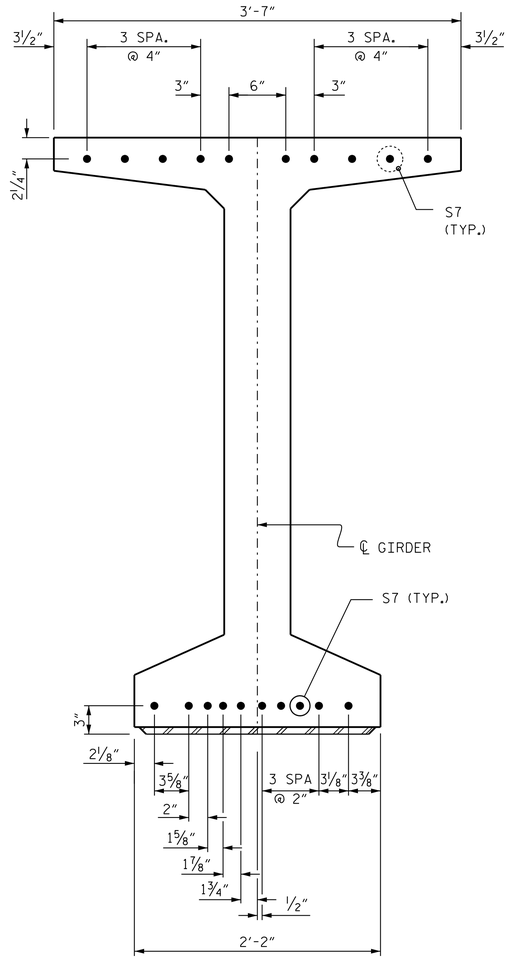


EMBEDDED PLATE "B-1" DETAILS FOR MODIFIED 72" PRESTRESSED CONCRETE GIRDERS

(2 REQ'D PER GIRDER)



DETAIL "C"

(AT END BENT 1 AND END BENT 2 ONLY)

SECTION "F"

(SEE NOTES)

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 SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7,000 PSI.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4", EXCEPT IN THE LINK SLAB REGION.

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 72" MODIFIED BULB TEES ONLY.

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 PSI TENSION IN THE PRE-COMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE (GIRDERS, PRECAST DECK PANELS) SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE ARTICLE 1078-4(H) OF STANDARD SPECIFICATIONS FOR CALCIUM NITRITE CORROSION INHIBITOR..

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ASSEMBLED BY : J. GUERRERO	DATE : 10/24/18		
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DRAWN BY : ELR 11/91	REV. 1/15	MAA/TMG	DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25
CHECKED BY : GRP 11/91	REV. 2/15	MAA/TMG	
	REV. 12/17	MAA/THC	

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: S. S. Poole 5/5/2025
EA6ED4707644468

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PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
MODIFIED 72"
PRESTRESSED CONCRETE
GIRDER DETAILS

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-17
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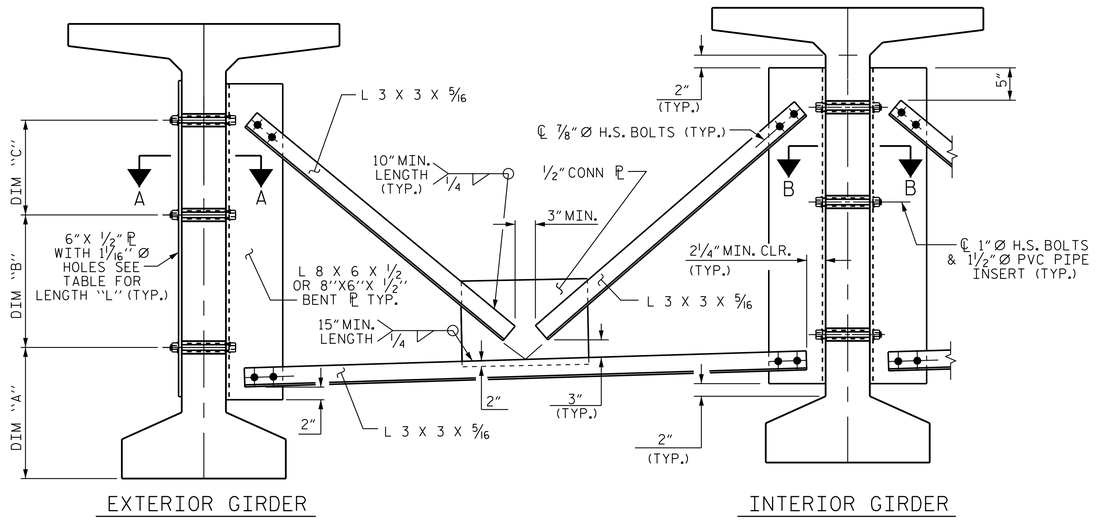
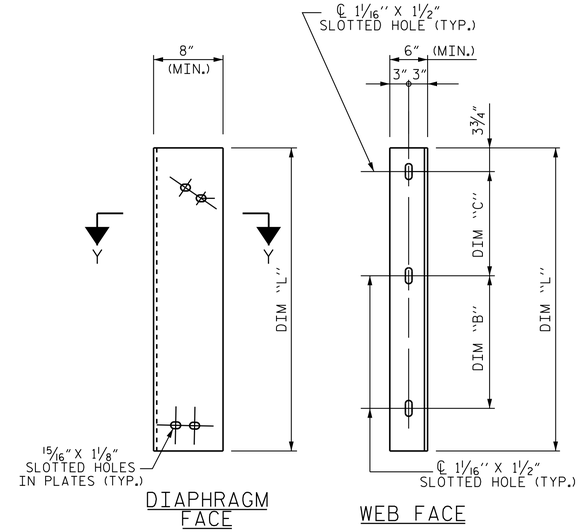


EXTERIOR GIRDER

INTERIOR GIRDER

PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE

WEB FACE

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, AND ANGLES SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM. THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

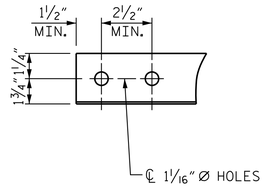
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

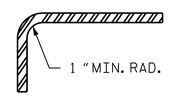
TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
MODIFIED 72" PRESTRESSED CONCRETE GIRDER	1'-8"	1'-4"	1'-4"	4'-2"



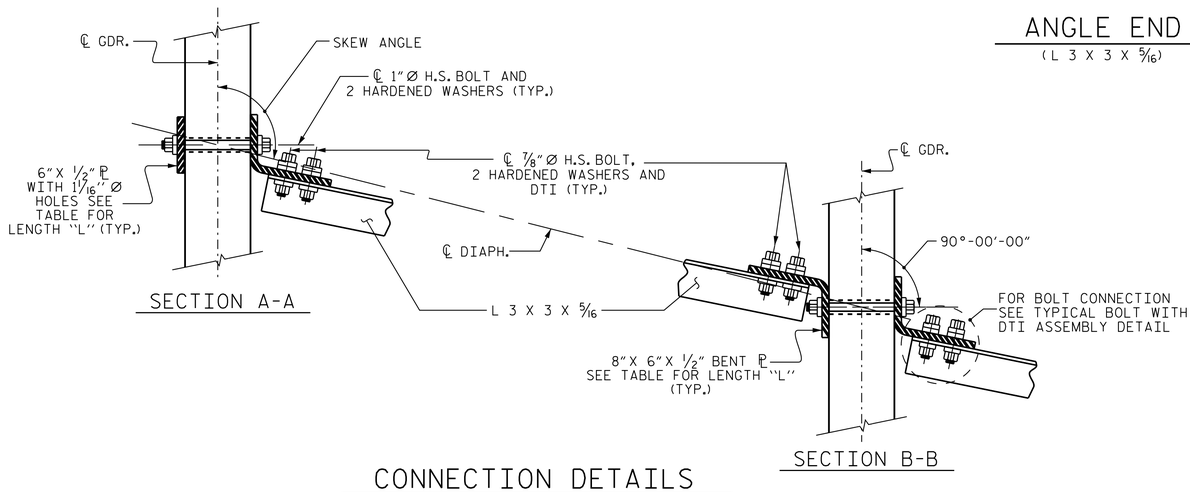
ANGLE END

(L 3 X 3 X 5/16)



SECTION Y-Y

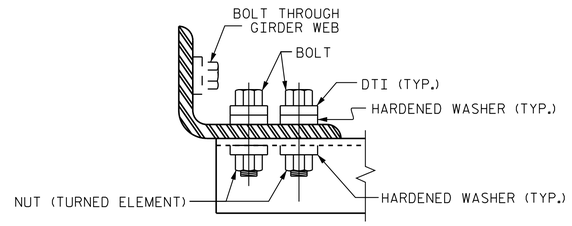
CONNECTOR PLATE DETAIL



SECTION A-A

SECTION B-B

CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED 72" PRESTRESSED CONCRETE GIRDER

REVISIONS						SHEET NO.
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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: S. Poole
5/5/2025
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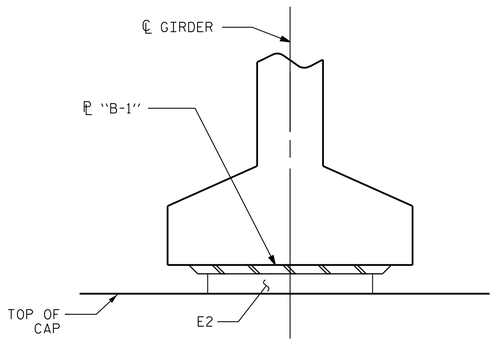
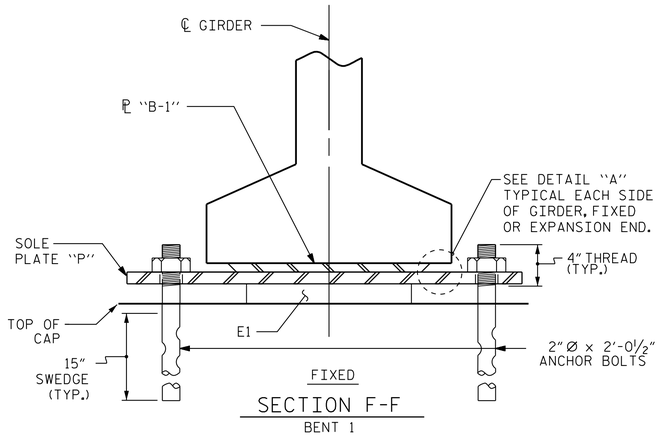
DRAWN BY : RWW 11/09	REV. 10/1/11 MAA/GM	ASSEMBLED BY : J. B. GEILE	DATE : 09/15/21	DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25
CHECKED BY : GM 11/09	REV. 12/17 MAA/THC	CHECKED BY : S. S. POOLE	DATE : 12/20/24	



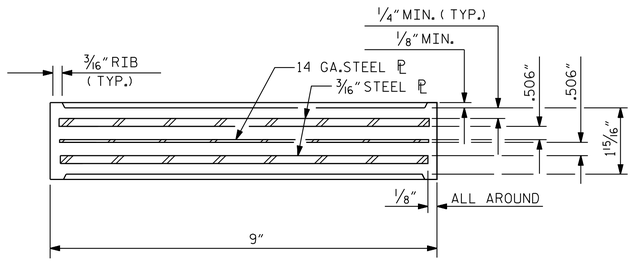
FIXED

SECTION E-E
INTEGRAL END BENTS 1 & 2

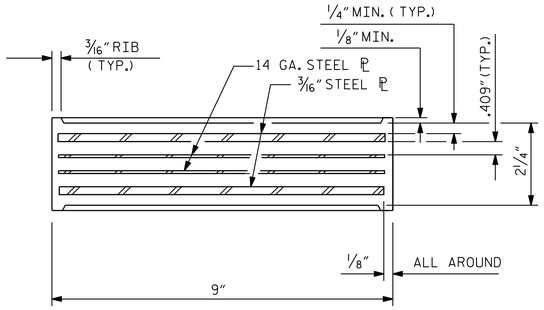


FIXED

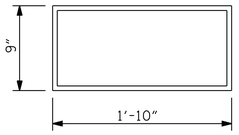
SECTION F-F
BENT 1



TYPICAL SECTION OF ELASTOMERIC BEARINGS

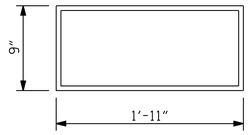


TYPICAL SECTION OF ELASTOMERIC BEARINGS



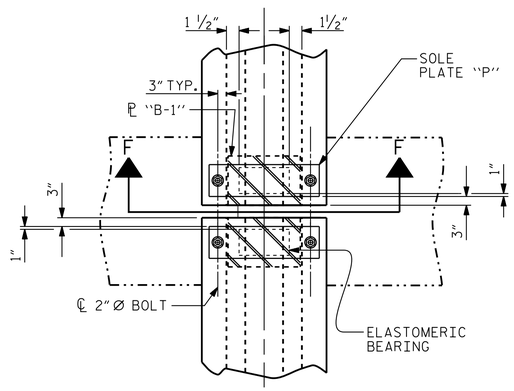
E2 (10 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV

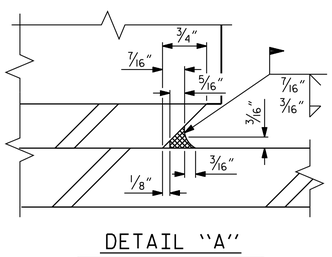


E1 (10 REQ'D)

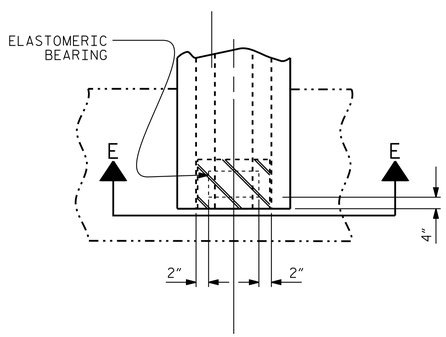
PLAN VIEW OF ELASTOMERIC BEARING
TYPE V



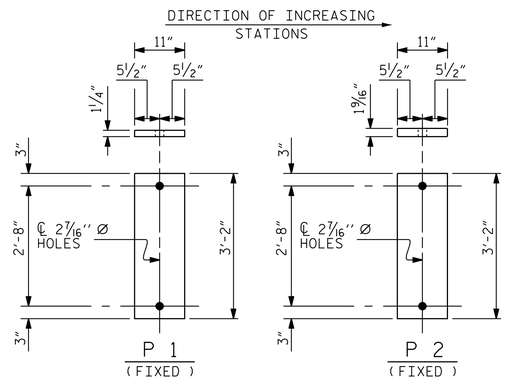
TYPICAL PLAN



DETAIL "A"



TYPICAL PLAN
(SHOWING INTEGRAL END BENT)



P1 (5 REQ'D) P2 (5 REQ'D)

SOLE PLATE DETAILS ("P")

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2"Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, AND NUTS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 K
TYPE V	365 K

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025
EA6E0470744648B...

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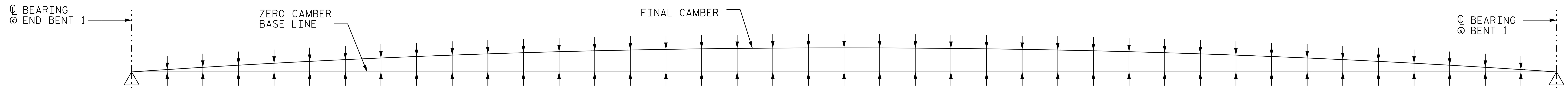
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
ELASTOMERIC BEARING DETAILS PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-19
1			3			TOTAL SHEETS
2			4			37

STD. NO. EB3

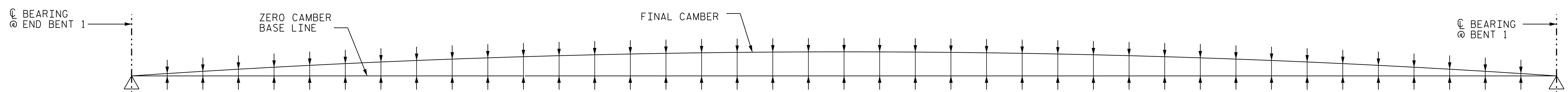


GIRDER AG1

FORTIETH POINTS BETWEEN BRGS.		0.025	.05	0.075	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45	0.475	0.50
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185
DEFLEC. DUE TO SUPERIMPOSED DL * ↓	0.000	0.009	0.017	0.026	0.035	0.043	0.051	0.059	0.067	0.074	0.080	0.087	0.093	0.097	0.102	0.106	0.110	0.111	0.113	0.114	0.116
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/16"	1/8"	3/16"	5/16"	3/8"	7/16"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	3/4"	3/4"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"

FORTIETH POINTS BETWEEN BRGS.	0.525	0.55	0.575	0.60	0.625	0.65	0.675	0.70	0.725	0.75	0.775	0.80	0.825	0.85	0.875	0.90	0.925	0.95	0.975	
CAMBER (GIRDER ALONE IN PLACE) ↑	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↓	0.114	0.113	0.111	0.110	0.106	0.102	0.098	0.094	0.087	0.081	0.074	0.068	0.060	0.052	0.043	0.035	0.026	0.018	0.009	0.000
FINAL CAMBER (OR DEFLECTION) ↑	13/16"	13/16"	13/16"	13/16"	3/4"	3/4"	3/4"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDERS AG2-AG5

FORTIETH POINTS BETWEEN BRGS.		0.025	.05	0.075	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45	0.475	0.50
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185
DEFLEC. DUE TO SUPERIMPOSED DL * ↓	0.000	0.008	0.017	0.025	0.034	0.042	0.050	0.058	0.066	0.072	0.079	0.085	0.091	0.096	0.100	0.104	0.108	0.109	0.111	0.112	0.113
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/16"	1/8"	1/4"	5/16"	3/8"	7/16"	1/2"	1/2"	9/16"	5/8"	11/16"	11/16"	3/4"	13/16"	13/16"	13/16"	7/8"	7/8"	7/8"	7/8"

FORTIETH POINTS BETWEEN BRGS.	0.525	0.55	0.575	0.60	0.625	0.65	0.675	0.70	0.725	0.75	0.775	0.80	0.825	0.85	0.875	0.90	0.925	0.95	0.975	
CAMBER (GIRDER ALONE IN PLACE) ↑	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↓	0.112	0.111	0.109	0.108	0.104	0.100	0.096	0.092	0.086	0.079	0.073	0.067	0.059	0.051	0.043	0.035	0.026	0.017	0.009	0.000
FINAL CAMBER (OR DEFLECTION) ↑	7/8"	7/8"	7/8"	13/16"	13/16"	13/16"	3/4"	11/16"	11/16"	5/8"	9/16"	1/2"	7/16"	7/16"	3/8"	5/16"	3/16"	1/8"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES SPAN A

ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT "FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.

(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS (SPAN A)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 54498 SETH S. POOLE

Signed by: 5/5/2025

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REVISIONS						SHEET NO.
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2			4			37

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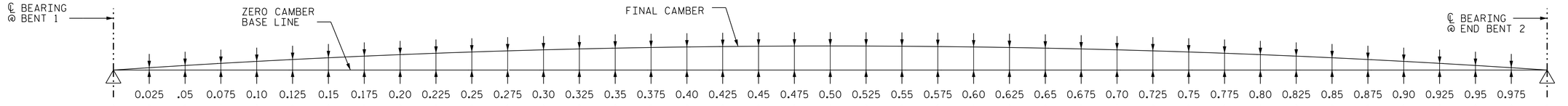
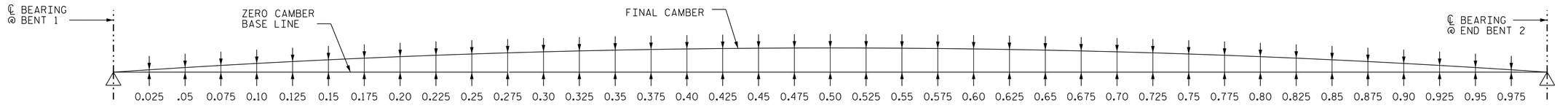


GIRDER BG1

FORTIETH POINTS BETWEEN BRGS.																																								
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↑	0.000	0.009	0.018	0.026	0.035	0.043	0.052	0.060	0.068	0.074	0.081	0.087	0.094	0.098	0.102	0.106	0.110	0.111	0.113	0.114	0.116	0.114	0.113	0.111	0.110	0.106	0.102	0.097	0.093	0.087	0.080	0.074	0.067	0.059	0.051	0.043	0.035	0.026	0.017	0.009	0.000
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	3/4"	3/4"	3/4"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	3/4"	3/4"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	7/16"	3/8"	5/16"	3/16"	1/8"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDERS BG2-BG5

FORTIETH POINTS BETWEEN BRGS.																																								
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↑	0.000	0.009	0.017	0.026	0.035	0.043	0.051	0.059	0.067	0.073	0.079	0.086	0.092	0.096	0.100	0.104	0.108	0.109	0.111	0.112	0.113	0.112	0.111	0.109	0.108	0.104	0.100	0.096	0.091	0.085	0.079	0.072	0.066	0.058	0.050	0.042	0.034	0.025	0.017	0.008	0.000
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/16"	1/8"	3/16"	5/16"	3/8"	7/16"	7/16"	1/2"	9/16"	5/8"	11/16"	11/16"	3/4"	13/16"	13/16"	13/16"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	13/16"	13/16"	13/16"	3/4"	11/16"	11/16"	5/8"	9/16"	1/2"	1/2"	7/16"	3/8"	5/16"	1/4"	1/8"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES SPAN B

ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT "FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.

(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 2 OF 2

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CHECKED BY : S. S. POOLE DATE : 12/20/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S POOLE

Signed by: E44ED4D37B464B0...
5/5/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS (SPAN B)

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

SHEET NO. S06-21

TOTAL SHEETS 37

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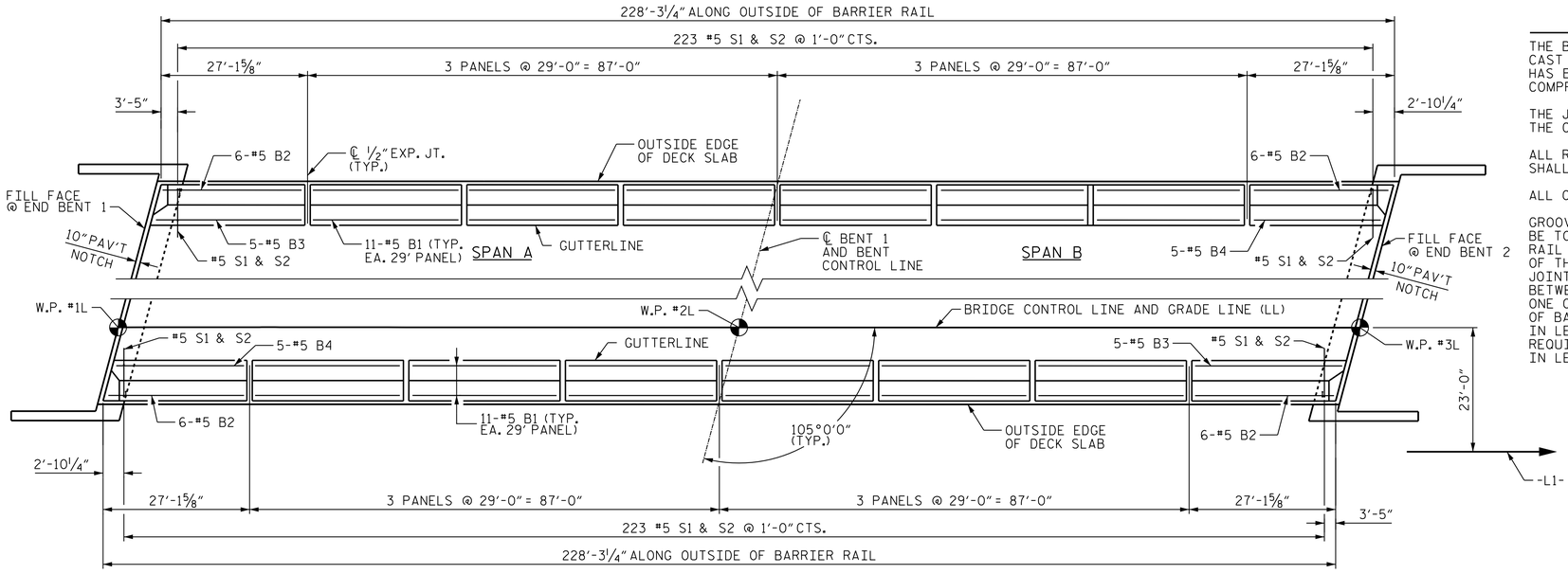


BARRIER RAIL PLAN

NOTES

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

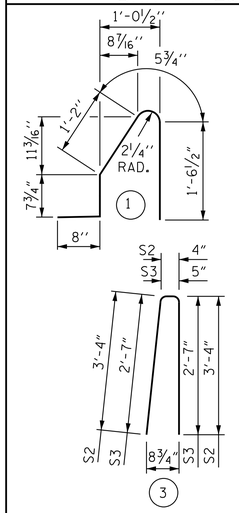
THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

ALL CONCRETE SHALL BE CLASS AA.

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. THE 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.

BAR TYPES



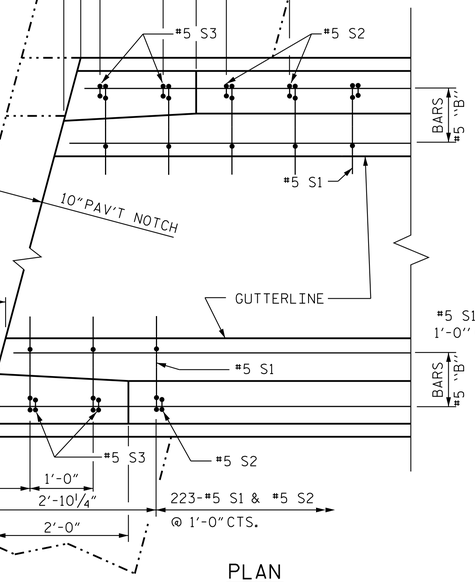
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

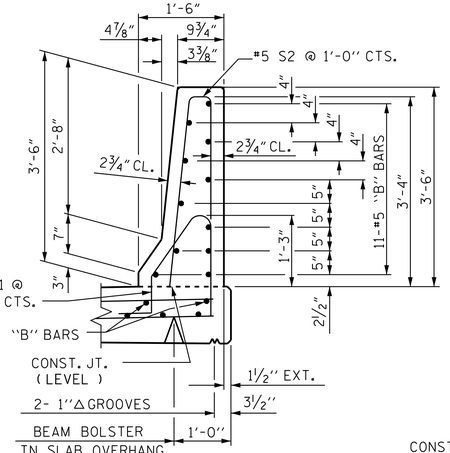
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	132	#5	STR	28'-5"	3,913
✳ B2	24	#5	STR	26'-6"	664
✳ B3	10	#5	STR	26'-10"	280
✳ B4	10	#5	STR	26'-3"	274
✳ S1	456	#5	1	4'-6"	2,141
✳ S2	448	#5	2	7'-0"	3,271
✳ S3	8	#5	2	5'-6"	46

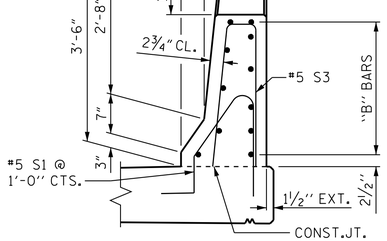
✳ EPOXY COATED REINFORCING STEEL 10,589 LBS.
CLASS AA CONCRETE 62.2 CU. YDS.
CONCRETE BARRIER RAIL 456.5 LIN. FT.



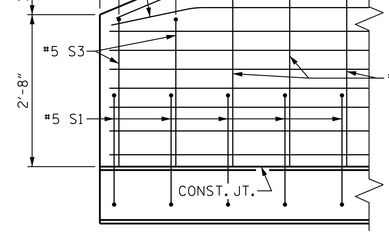
PLAN



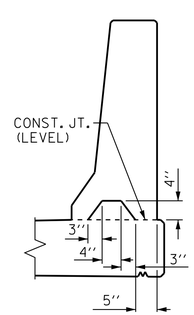
SECTION THRU RAIL



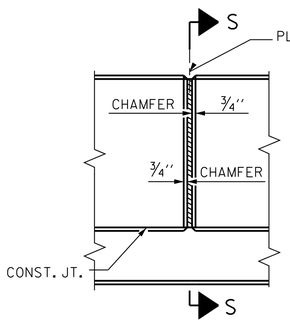
END VIEW



SIDE VIEW



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



ELEVATION AT EXPANSION JOINTS

END OF RAIL DETAILS

END BENT 1 SHOWN END BENT 2 TYP. BY ROTATION

BARRIER RAIL DETAILS

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
CONCRETE BARRIER RAIL
(LEFT LANE)

Stantec
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Fax. (919) 851-7024
www.stantec.com
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ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24

DRAWN BY : ARB 5/87
CHECKED BY : SJD 9/87

REV. 7/12 MAA/GM
REV. 6/13 MAA/GM
REV. 12/17 MAA/GM

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025
EA6ED4707644449...

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2			4			37

STD. NO. CBR1

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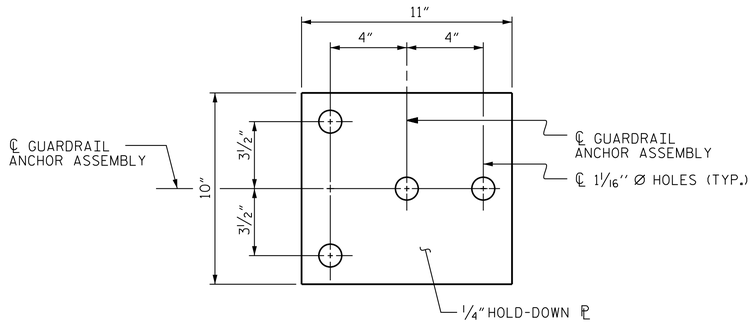
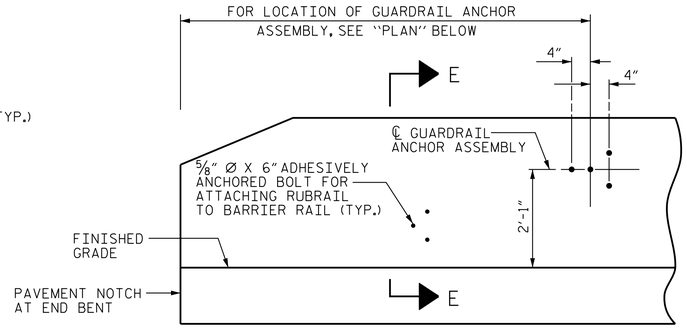
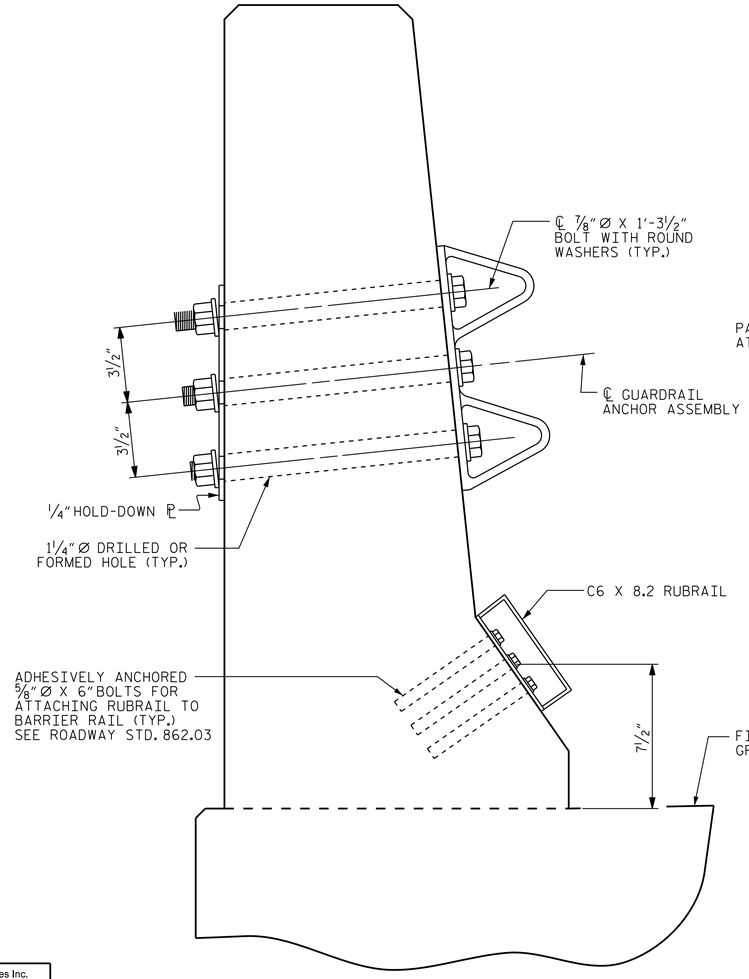


PLAN

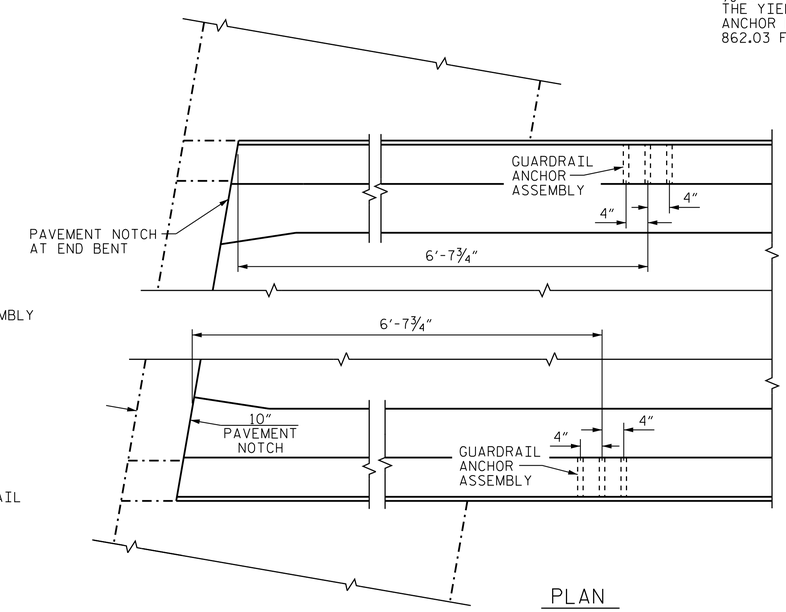


ELEVATION



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 ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

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

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 CONCRETE BARRIER RAIL.

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

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ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24

DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06

REV. 7/12 MAA/GM
REV. 6/13 MAA/GM
REV. 12/17 MAA/THC

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025
EA9ED4707844488...

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE FOR BARRIER RAIL

(LEFT LANE)

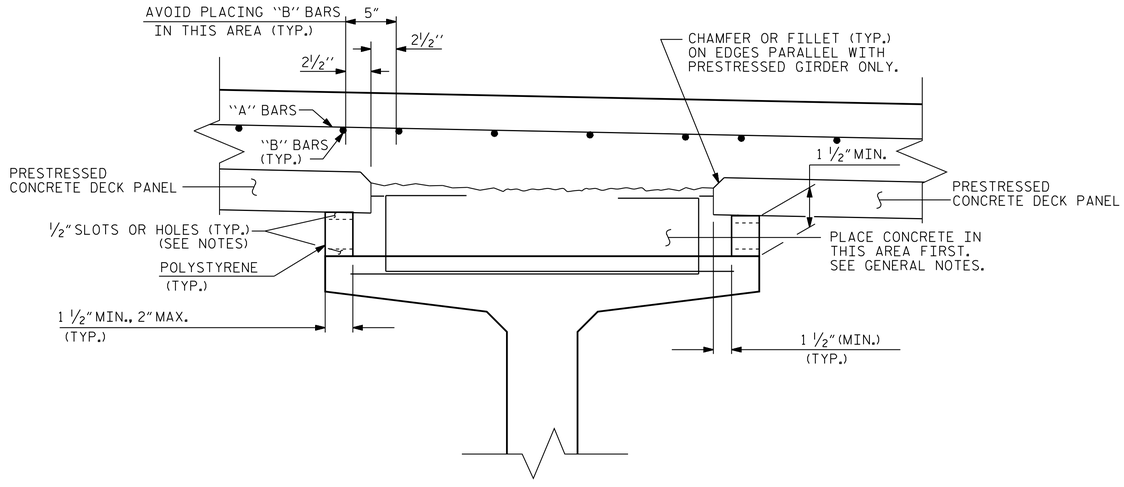
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-23
1			3			TOTAL SHEETS
2			4			37

DECK PANEL SUPPORTS

THE CONTRACTOR SHALL PROVIDE THE DECK PANEL SUPPORT SYSTEM SHOWN OR HE MAY SUBMIT A DECK PANEL SUPPORT SYSTEM OF HIS OWN DESIGN TO THE ENGINEER FOR APPROVAL.

POLYSTYRENE SUPPORT SYSTEM

1. ALL POLYSTYRENE SHALL BE DOW STYROFOAM 60 HIGH-LOAD, UC INDUSTRIES FOAMULAR 600 OR APPROVED EQUAL.
2. THE POLYSTYRENE SUPPORT SYSTEM SHALL CONSIST OF ONE LAYER WITH A MINIMUM WIDTH OF 1½" AND A MAXIMUM WIDTH OF 2". THE POLYSTYRENE SHALL HAVE ½" X ½" WIDE SLOTS OR ½" DIAMETER HOLES AT 4'-0" CENTERS STAGGERED ALONG THE TOP AND BOTTOM.
3. THE POLYSTYRENE MAY BE CUT AND PLACED ON EDGE AS NECESSARY TO MATCH THE REQUIRED BUILDUP PROFILE ALONG THE GIRDER.
4. ADHESIVE, AS APPROVED BY THE ENGINEER, SHALL BE APPLIED TO THE TOP OF THE GIRDER IN A CONTINUOUS BEAD AND IN SUFFICIENT AMOUNT TO PREVENT THE POLYSTYRENE FROM BLOWING OUT AND TO PREVENT GAPS FROM FORMING BETWEEN THE POLYSTYRENE AND THE GIRDER. PRIOR TO PLACEMENT OF THE DECK PANELS, THE ADHESIVE SHALL ALSO BE APPLIED TO THE TOP OF THE POLYSTYRENE.
5. CONCRETE-FILLED BUCKETS, STACKS OF DECK PANELS, BUNDLED REINFORCING BARS OR OTHER HEAVY CONCENTRATED LOADS WILL NOT BE PERMITTED ON THE DECK PANEL ONCE THE PANEL HAS BEEN PLACED ON THE POLYSTYRENE SUPPORT SYSTEM.



POLYSTYRENE SUPPORT

GENERAL NOTES

1. THE DESIGN COMPRESSIVE STRENGTH (f'c) FOR THE CONCRETE IN PRESTRESSED PANELS SHALL BE 5000 PSI MINIMUM AT 28 DAYS. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF RELEASE OF STRANDS SHALL BE 4000 PSI MINIMUM. CONCRETE FOR PRECAST PANELS SHALL BE CLASS AA.
2. THE PRECAST PRESTRESSED PANEL SHALL HAVE A THICKNESS OF 3 ½" WITH THE PRESTRESSED STRANDS LOCATED AT HALF THE DEPTH OF THE PANEL.
3. FOR SKEWED SPANS, TRAPEZOIDAL CLOSURE PANELS SHALL HAVE A MINIMUM WIDTH OF 2 FEET ON THE SHORT SIDE.
4. ALL PRESTRESSING STRANDS SHALL EXTEND 2" BEYOND THE PANEL EDGES.
5. SHEAR REINFORCING OF 0.60 SQ. INCHES OF REINFORCING STEEL PER 10 SQ. FEET OF PANEL SURFACE SHALL BE PROVIDED IN THE PANEL TO ENSURE COMPOSITE ACTION BETWEEN PANEL AND THE CAST-IN-PLACE CONCRETE. SHEAR REINFORCEMENT SHALL BE MADE OF WELDED WIRE HAVING A MINIMUM YIELD STRENGTH OF 60 KSI.
6. SHEAR REINFORCEMENT AND LIFTING DEVICES SHALL BE CONSTRUCTED AND PLACED SO AS TO AVOID ANY INTERFERENCE WITH REINFORCING STEEL IN THE CAST-IN-PLACE DECK SLAB AND TO ALLOW FOR PROPER CONCRETE CONSOLIDATION IN THE DECK PANEL.
7. SHIFT LONGITUDINAL "B" BARS AS NECESSARY TO OBTAIN A MINIMUM CLEAR DISTANCE OF 2 ½" TO THE RIGHT OR LEFT OF THE EDGE OF THE DECK PANEL. IF, IN SHIFTING TO OBTAIN THIS CLEARANCE, THE "B" BAR INTERFERES WITH THE STIRRUP IN THE TOP OF THE GIRDER THE "B" BAR MAY BE ELIMINATED.
8. WHEN CASTING THE DECK, PLACE CONCRETE FIRST OVER THE GIRDERS IN CONTINUOUS STRIPS A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE REST OF THE CONCRETE. CAREFULLY VIBRATE THE CONCRETE OVER THE GIRDERS SO THAT CONCRETE COMPLETELY FILLS THE AREA UNDER THE DECK PANEL OVERHANGS. THEN PLACE AND VIBRATE THE REMAINING DECK CONCRETE.
9. PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

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ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24

DRAWN BY : ELR 1/92
CHECKED BY : GRP 4/92

REV. 5/1/06R
REV. 10/1/11
REV. 12/17

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025
EA6ED4707644468...

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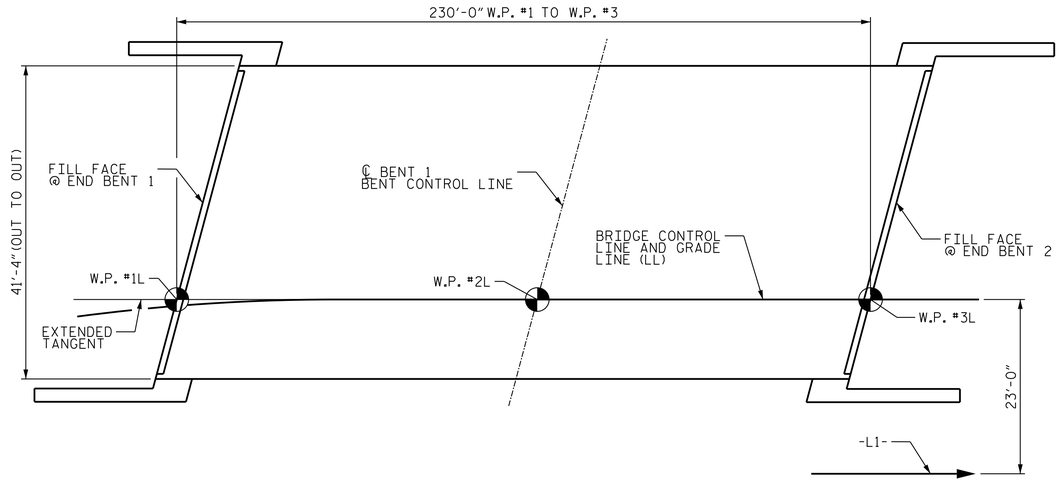
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

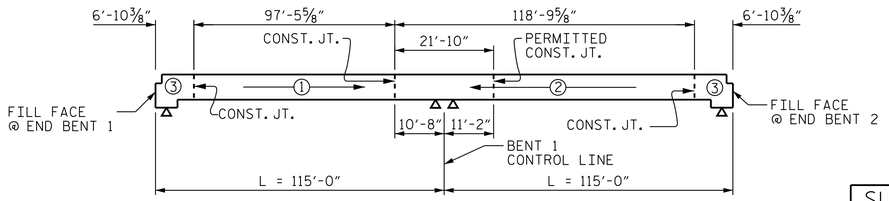
PRECAST PRESTRESSED CONCRETE DECK PANELS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-24
1			3			TOTAL SHEETS
2			4			37

STD. NO. PDP1



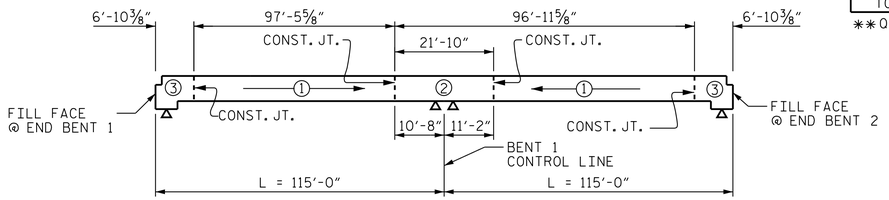
LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 9,436)



POURING SEQUENCE

(LINK SLAB)

= INDICATES POUR NUMBER AND DIRECTION OF POUR



OPTIONAL POURING SEQUENCE

(LINK SLAB)

GROOVING BRIDGE FLOORS	
APPROACH SLABS	1,720 SQ.FT.
BRIDGE DECK	8,007 SQ.FT.
TOTAL	9,727 SQ.FT.

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	84.4	--	47,947
POUR #2	107.7		
POUR #3	166.1		
TOTALS **	358.2		47,947

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			

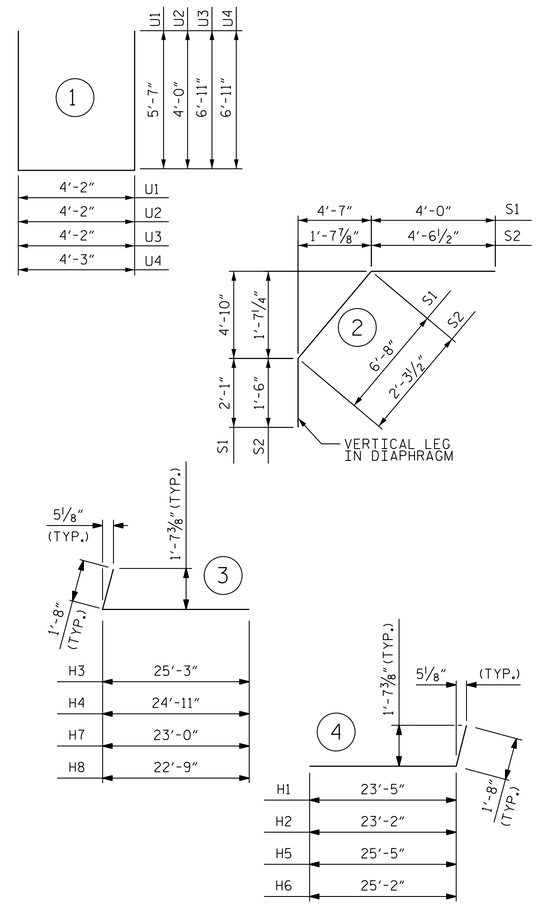
REINF. BAR SCHEDULE

SPANS A & B

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	372	#5	STR	40'-10"	15,844
✳ A101	2	#5	STR	40'-3"	84
✳ A102	2	#5	STR	38'-1"	80
✳ A103	2	#5	STR	35'-11"	75
✳ A104	2	#5	STR	33'-9"	71
✳ A105	2	#5	STR	31'-7"	66
✳ A106	2	#5	STR	29'-5"	62
✳ A107	2	#5	STR	27'-3"	57
✳ A108	2	#5	STR	25'-0"	53
✳ A109	2	#5	STR	22'-10"	48
✳ A110	2	#5	STR	20'-8"	44
✳ A111	2	#5	STR	18'-6"	39
✳ A112	2	#5	STR	16'-4"	35
✳ A113	2	#5	STR	14'-2"	30
✳ A114	2	#5	STR	12'-0"	26
✳ A115	2	#5	STR	9'-3"	20
✳ A116	2	#5	STR	7'-7"	16
✳ A117	2	#5	STR	5'-5"	12
✳ A118	2	#5	STR	2'-11"	7
✳ A2	304	#4	STR	2'-0"	407
✳ B1	220	#4	STR	40'-4"	5,928
✳ B2	165	#6	STR	28'-3"	7,001
✳ B3	52	#6	STR	45'-0"	3,515
✳ B4	104	#6	STR	23'-0"	3,593
✳ B5	32	#5	STR	58'-10"	1,964
✳ H1	16	#7	4	25'-1"	821
✳ H2	14	#5	4	24'-10"	363
✳ H3	14	#5	3	26'-11"	394
✳ H4	16	#7	3	26'-7"	870
✳ H5	16	#7	4	27'-1"	886
✳ H6	14	#5	4	26'-10"	392
✳ H7	14	#5	3	24'-8"	361
✳ H8	16	#7	3	24'-5"	799
✳ K1	28	#4	STR	25'-4"	474
✳ K2	8	#4	STR	4'-8"	25
✳ K3	40	#4	STR	7'-10"	210
✳ K4	8	#4	STR	6'-2"	33
✳ K5	20	#4	STR	2'-9"	37
✳ K6	4	#4	STR	4'-8"	13
✳ K7	20	#4	STR	6'-2"	83
✳ K8	4	#4	STR	5'-5"	15
✳ S1	78	#4	2	12'-9"	665
✳ S2	56	#4	2	8'-4"	312
✳ U1	48	#4	1	15'-4"	492
✳ U2	20	#4	1	12'-2"	163
✳ U3	8	#4	1	18'-0"	97
✳ U4	4	#4	1	18'-1"	49
✳ V2	86	#5	STR	6'-11"	621
✳ V3	94	#5	STR	7'-1"	695

✳ EPOXY COATED REINFORCING STEEL 47,947 LBS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

STATE OF NORTH CAROLINA
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SUPERSTRUCTURE

BILL OF MATERIAL

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: EA6ED4707646468... 5/5/2025

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1			3		
2			4		

SHEET NO. S06-25
TOTAL SHEETS 37

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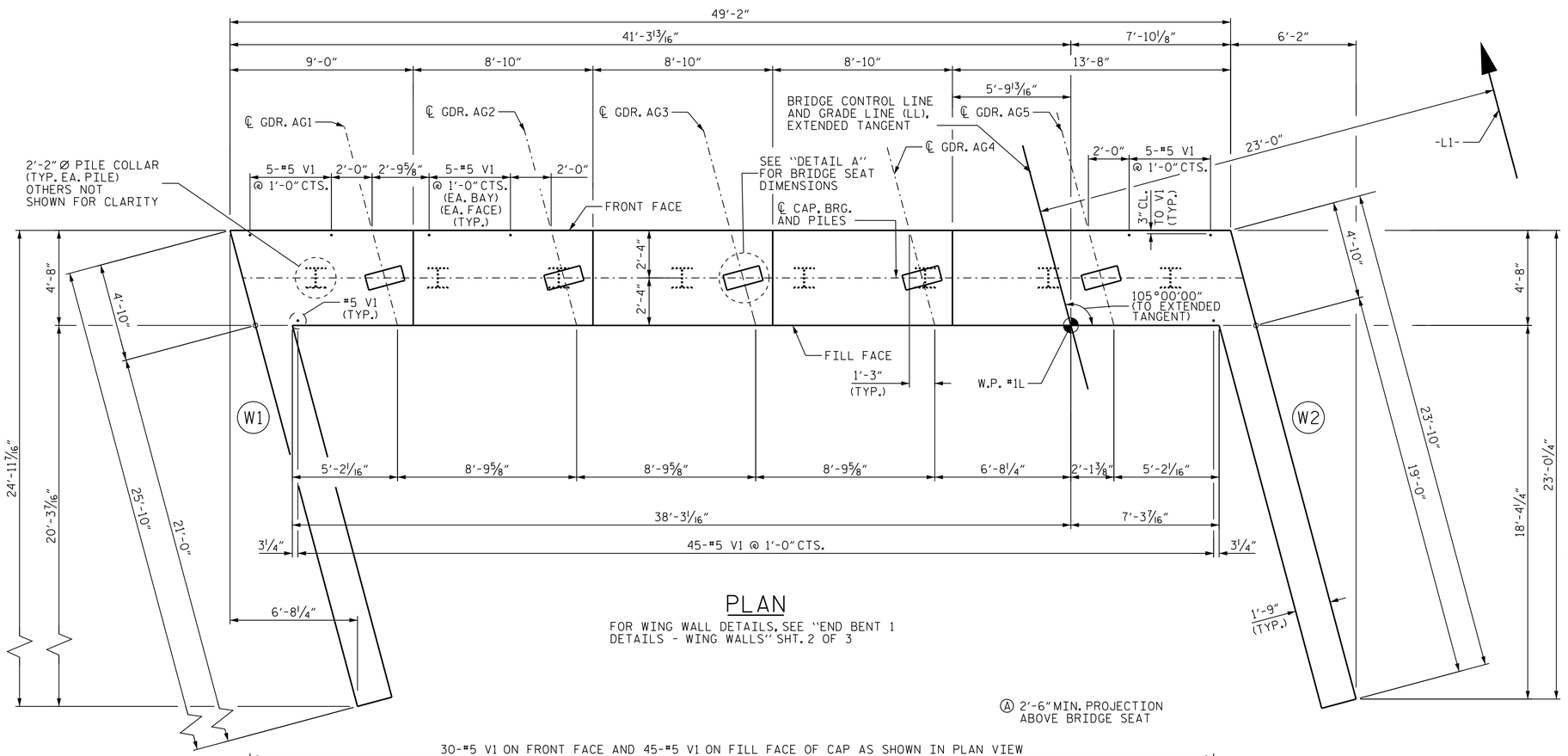


PLAN

FOR WING WALL DETAILS, SEE "END BENT 1 DETAILS - WING WALLS" SHT. 2 OF 3

Ⓐ 2'-6" MIN. PROJECTION ABOVE BRIDGE SEAT

NOTES

2BR DENOTES 2 BAR RUN

(EF) - DENOTES EACH FACE

FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 3.

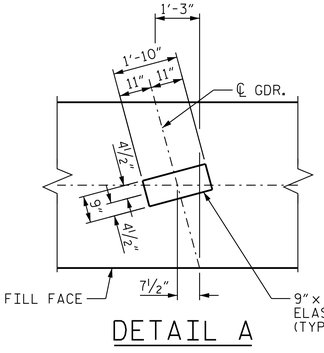
3" CL. TO ALL V1 BARS.

INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALLS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECCESSARY TO CLEAR THE DRAIN PIPE.

SEE SUPERSTRUCTURE SHEETS FOR UPPER PART OF INTEGRAL END BENT DETAILS.

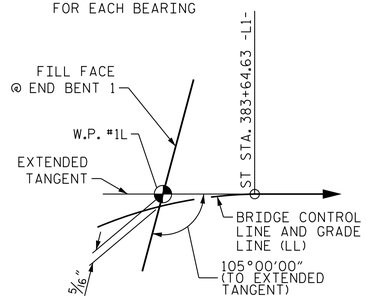
U.N.O. DENOTES UNLESS NOTED OTHERWISE.

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.



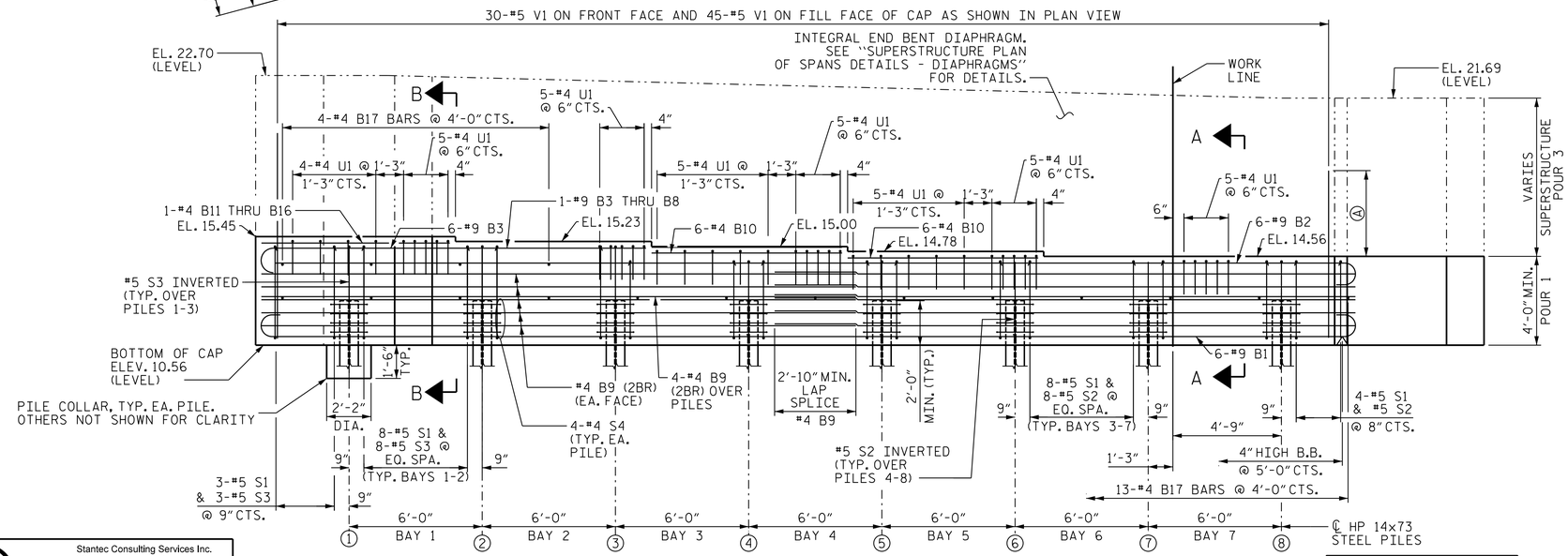
DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING



EXTENDED TANGENT DETAIL

(AT END BENT 1)



ELEVATION

WING REINFORCING NOT SHOWN FOR CLARITY.

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
ALL	12.56

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
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RALEIGH

SUBSTRUCTURE

END BENT 1

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2			4			37

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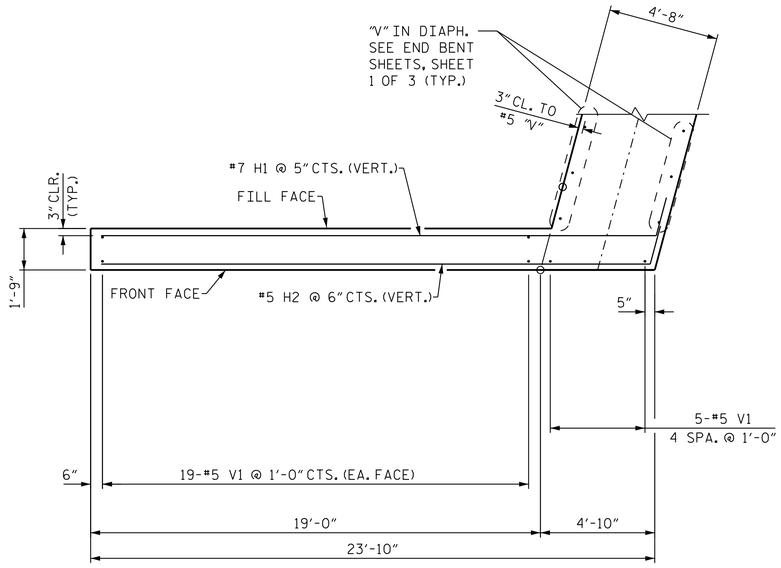
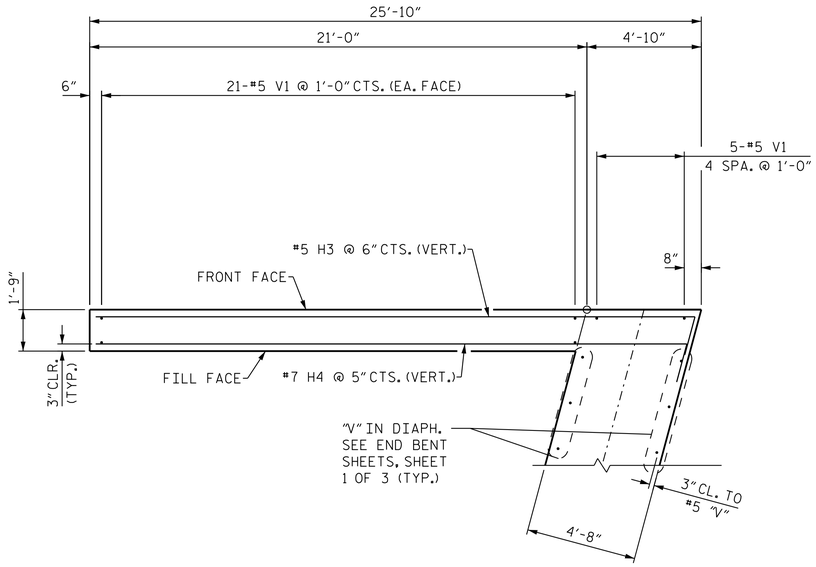
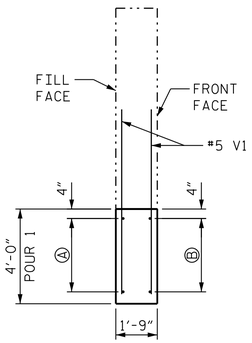


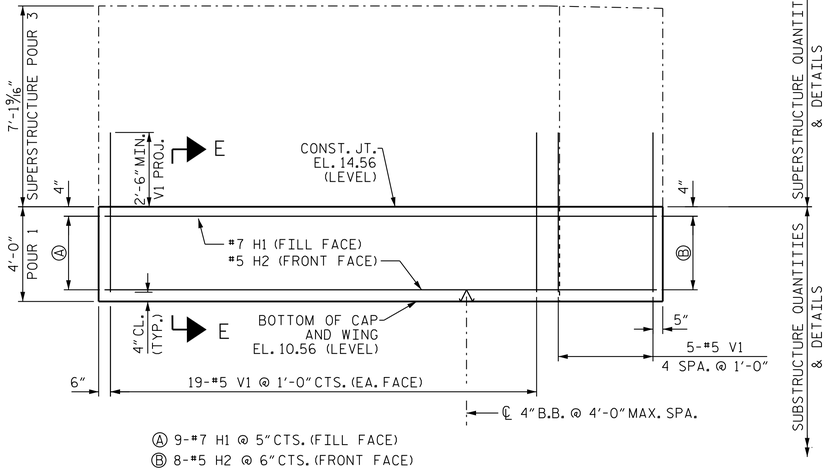
W2 PLAN OF RIGHT WING



W1 PLAN OF LEFT WING

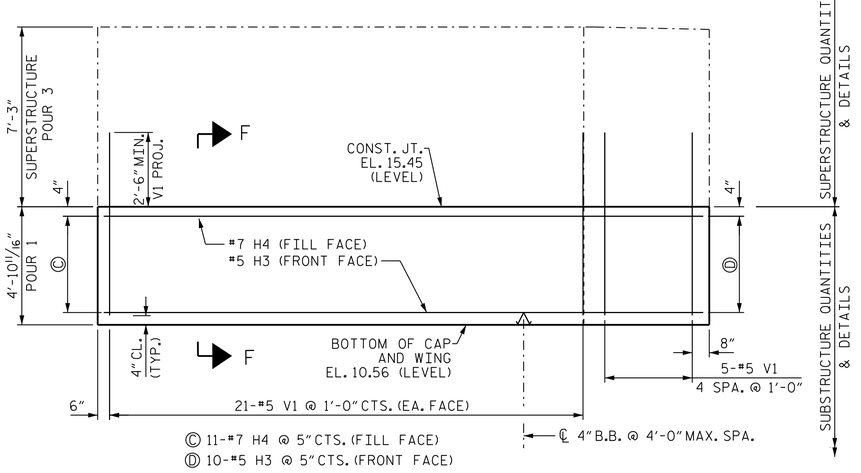


SECTION E-E



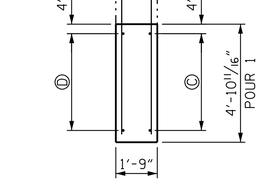
Ⓐ 9-#7 H1 @ 5" CTS. (FILL FACE)
Ⓑ 8-#5 H2 @ 6" CTS. (FRONT FACE)

W2 ELEVATION OF RIGHT WING



Ⓒ 11-#7 H4 @ 5" CTS. (FILL FACE)
Ⓓ 10-#5 H3 @ 5" CTS. (FRONT FACE)

W1 ELEVATION OF LEFT WING



SECTION F-F

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 DETAILS
WING WALLS

REVISIONS						SHEET NO.
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DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

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EA6ED4707644408...

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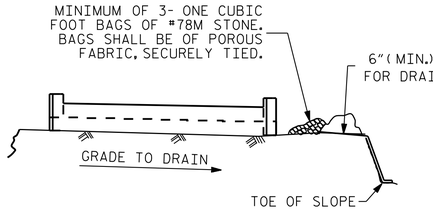
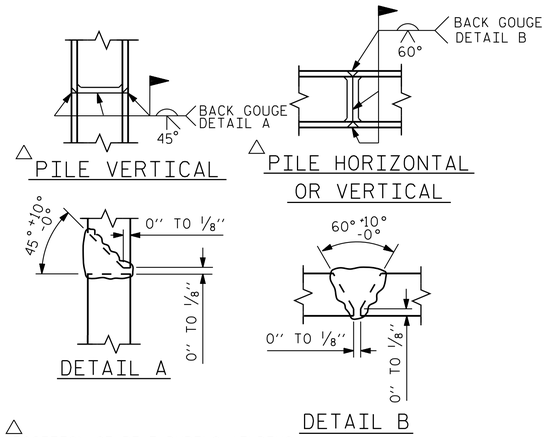


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

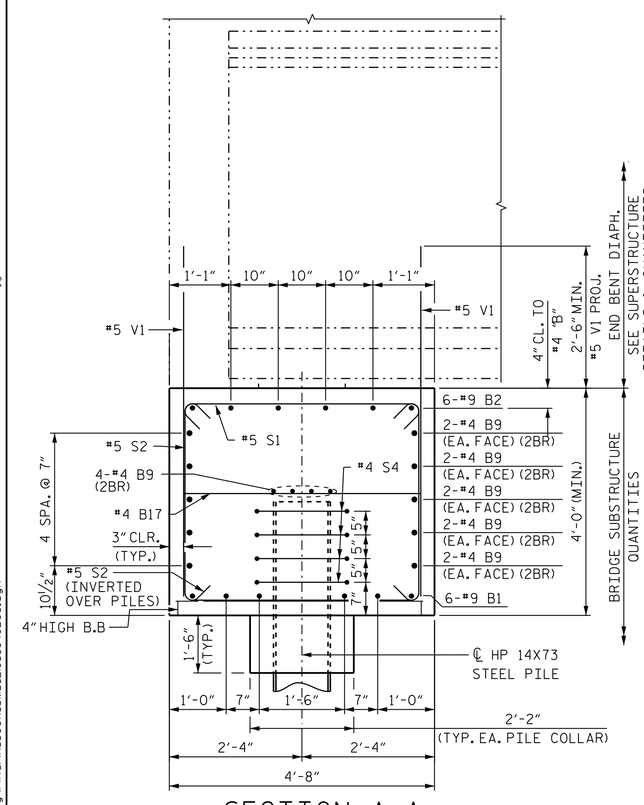
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



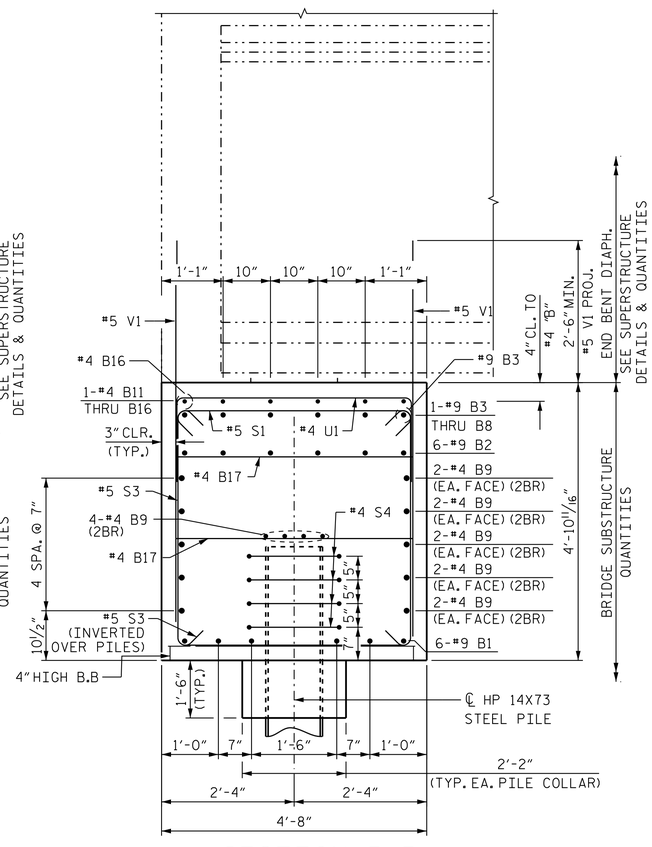
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



SECTION A-A

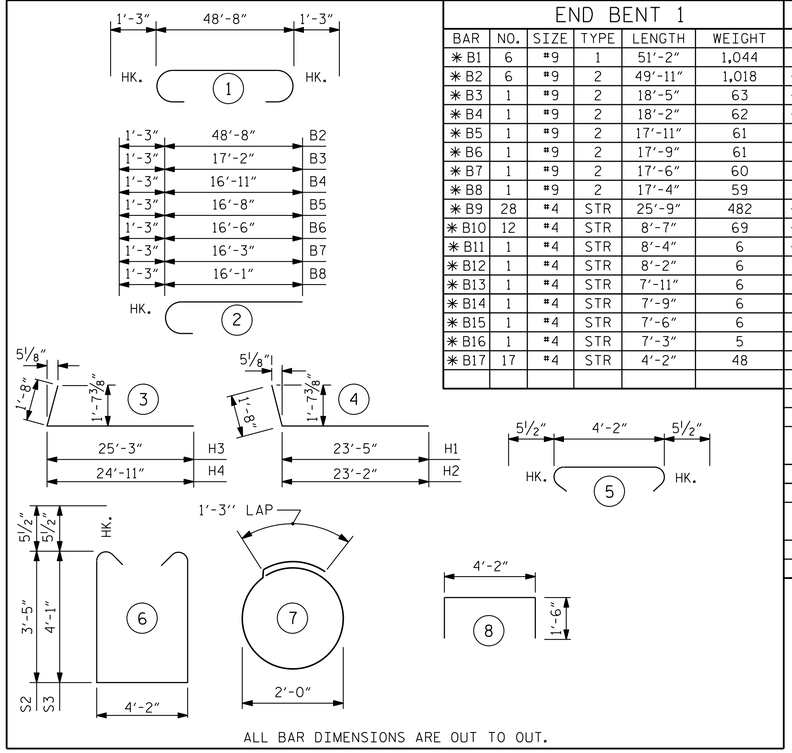
SEE "BENT 1" SHEET 1 OF 3.



SECTION B-B

SEE "BENT 1" SHEET 1 OF 3.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL — END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B1	6	#9	1	51'-2"	1,044
✳B2	6	#9	2	49'-11"	1,018
✳B3	1	#9	2	18'-5"	63
✳B4	1	#9	2	18'-2"	62
✳B5	1	#9	2	17'-11"	61
✳B6	1	#9	2	17'-9"	61
✳B7	1	#9	2	17'-6"	60
✳B8	1	#9	2	17'-4"	59
✳B9	28	#4	STR	25'-9"	482
✳B10	12	#4	STR	8'-7"	69
✳B11	1	#4	STR	8'-4"	6
✳B12	1	#4	STR	8'-2"	6
✳B13	1	#4	STR	7'-11"	6
✳B14	1	#4	STR	7'-9"	6
✳B15	1	#4	STR	7'-6"	6
✳B16	1	#4	STR	7'-3"	5
✳B17	17	#4	STR	4'-2"	48

BILL OF MATERIAL — END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳H1	9	#7	4	25'-1"	462
✳H2	8	#5	4	24'-10"	208
✳H3	10	#5	3	26'-11"	281
✳H4	11	#7	3	26'-7"	598
✳S1	63	#5	5	5'-1"	355
✳S2	49	#5	6	11'-11"	610
✳S3	22	#5	6	13'-3"	305
✳S4	32	#5	7	7'-7"	254
✳U1	39	#4	8	7'-2"	187
✳V1	165	#4	STR	7'-0"	1,205

✳EPOXY COATED REINFORCING STEEL LBS. 7,508

CLASS AA CONCRETE BREAKDOWN:

POUR #1: CAP, COLLARS, LOWER WINGS, ETC.	C.Y. 49.6
CLASS AA CONCRETE TOTAL	C.Y. 49.6

NOTES

TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4". EXCEPT UNDER BEARING AREAS.

2BR DENOTES 2 BAR RUN.

SET #5 V1 BAR 4" CLEAR (MIN.) FROM BOTTOM OF CAP.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
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SUBSTRUCTURE

END BENT 1 DETAILS

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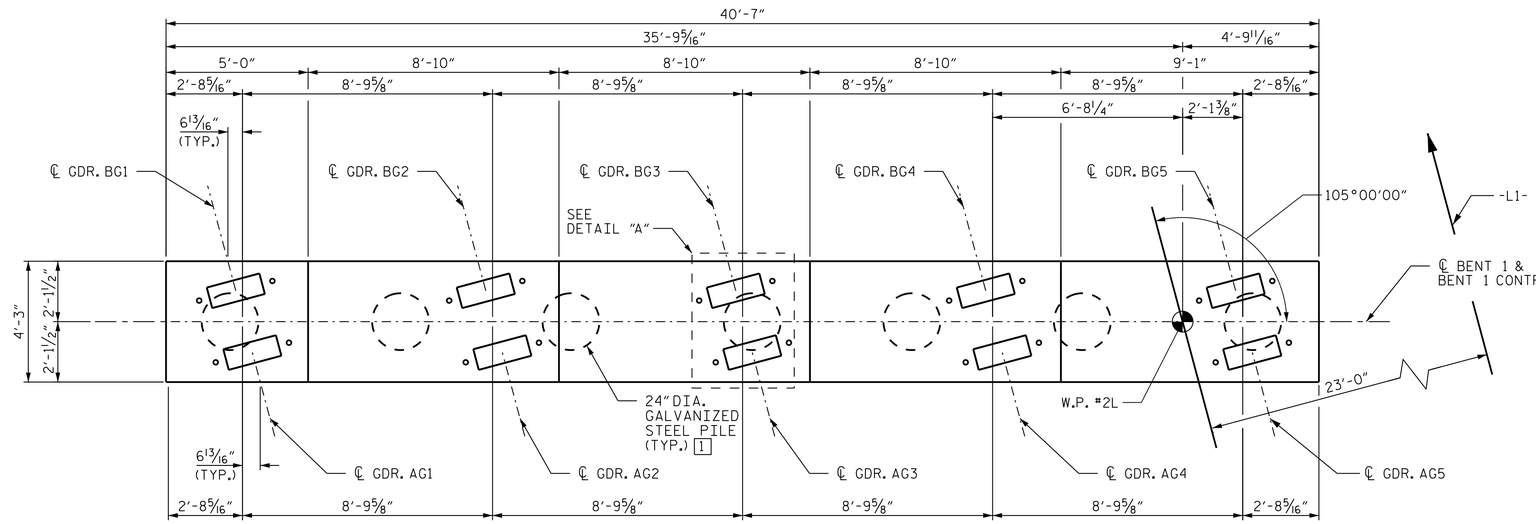
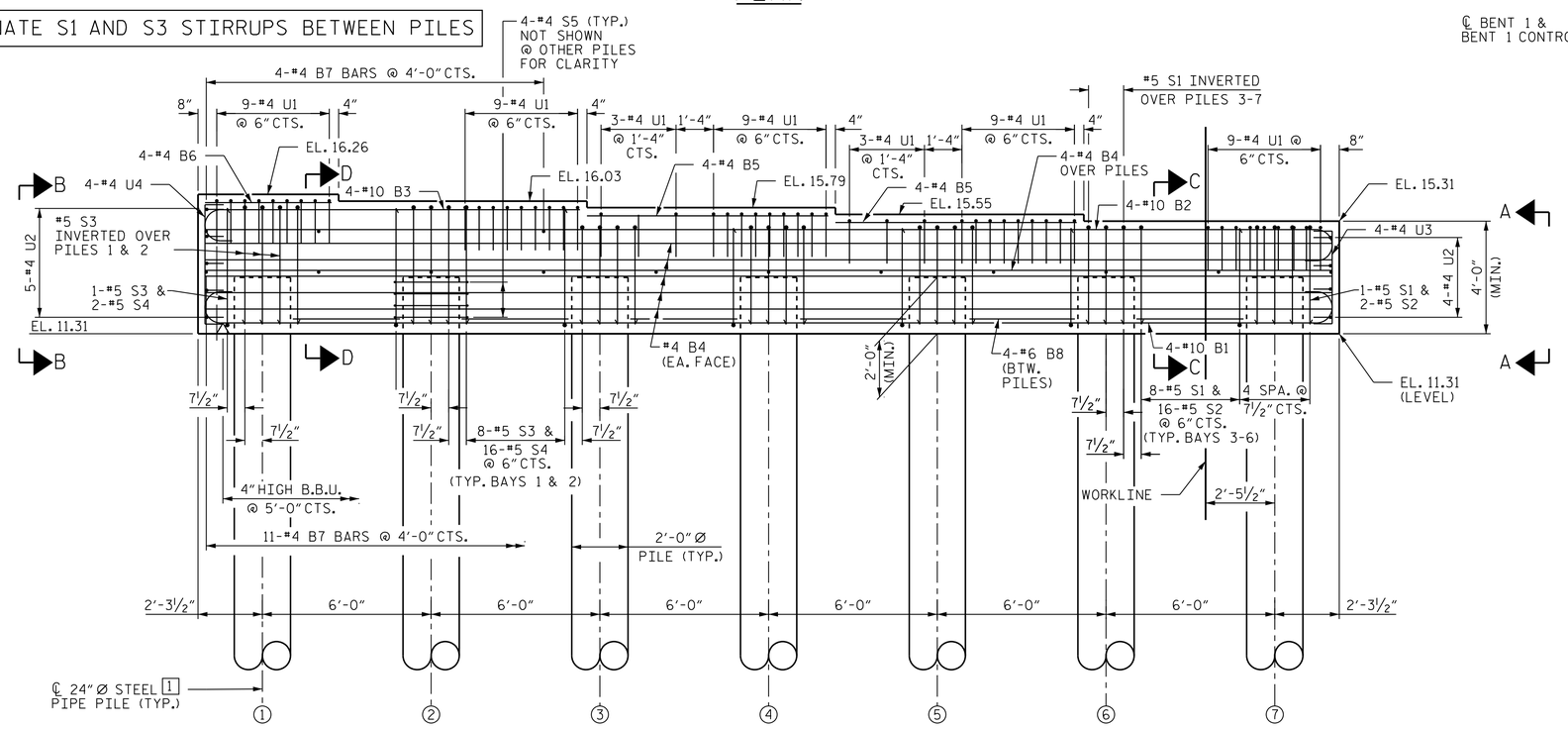


PLAN

INVERT ALTERNATE S1 AND S3 STIRRUPS BETWEEN PILES



ELEVATION

PILE PLUG REINFORCING NOT SHOWN FOR CLARITY. SEE "24" STEEL PIPE PILE" SHEET 2 OF 3 FOR DETAILS.

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
ALL	13.31

NOTES:

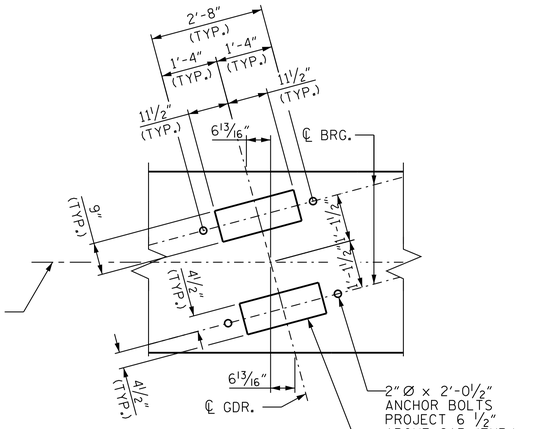
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINF. STEEL.

FOR VIEW A-A, VIEW B-B, SECTION C-C, AND SECTION D-D, SEE "BENT 1 DETAILS" SHEET 3 OF 3.

GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

1 SEE 24" STEEL PIPE PILE SHEET 2 OF 3.



DETAIL "A"

DIMENSIONS TYPICAL FOR EACH BEARING

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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SUBSTRUCTURE

BENT 1

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Signed by: E46ED4707644468...
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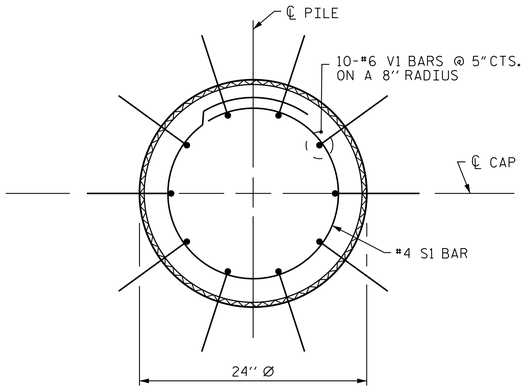
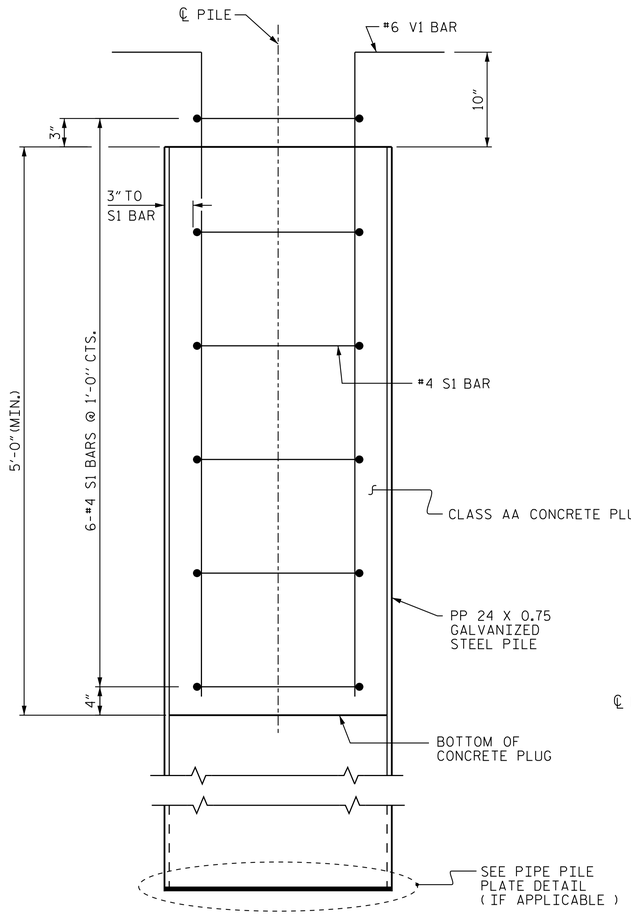


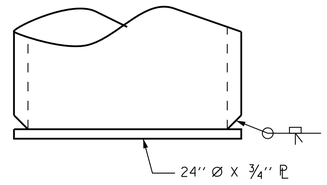
PLAN



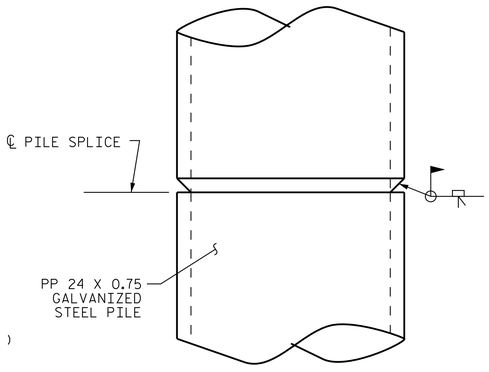
ELEVATION

PP 24 X 0.75 GALVANIZED STEEL PILE

(OPEN OR CLOSED END)



PIPE PILE PLATE DETAIL
(IF APPLICABLE)



PIPE PILE SPLICE DETAIL

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS AA CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 24 X 0.75 GALVANIZED STEEL PILES.

APPLY AN 8 MIL THICK 1350 ALUMINUM (W-A1-1350) THERMAL SPRAY COATING WITH A 0.5 MIL THICK SEAL COAT TO THE PILES, IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

AFTER DRIVING THE PILES, APPLY 1 COAT EACH OF 1080-9 BROWN AND 1080-9 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

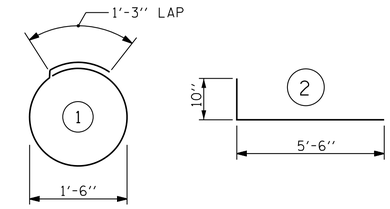
BILL OF MATERIAL FOR ONE PP 24 X 0.75 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ S1	6	#4	1	6′-0″	24
✳ V1	10	#6	2	6′-4″	95

✳ EPOXY COATED REINFORCING STEEL = 119 LBS

CLASS AA CONCRETE
5′-0″ MINIMUM PLUG 0.5 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

24″ STEEL PIPE PILE BENT 1

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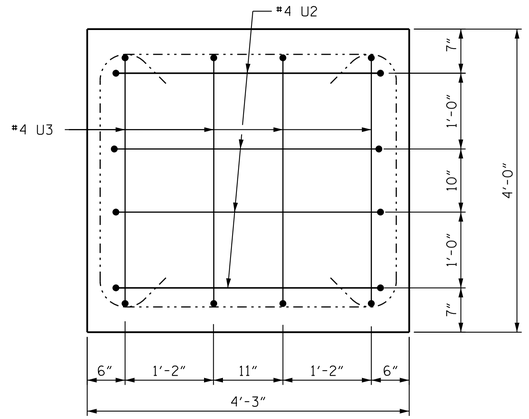
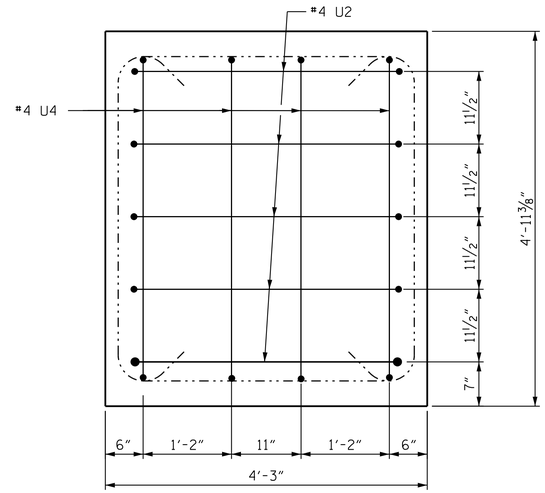
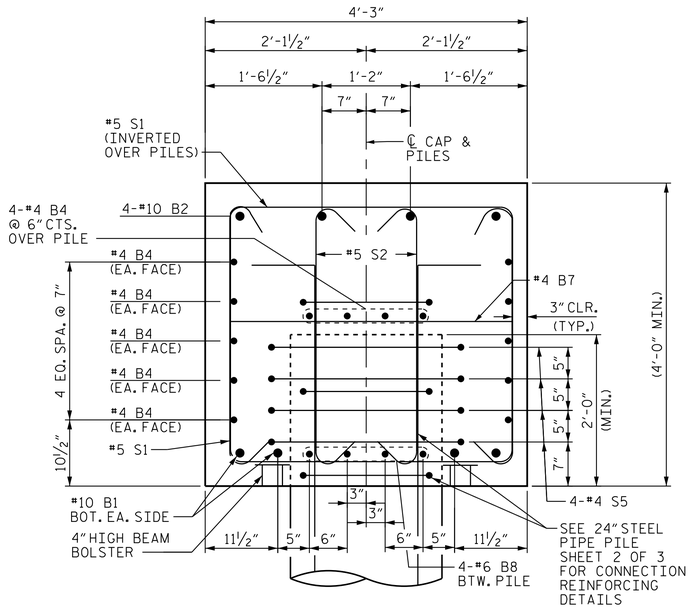


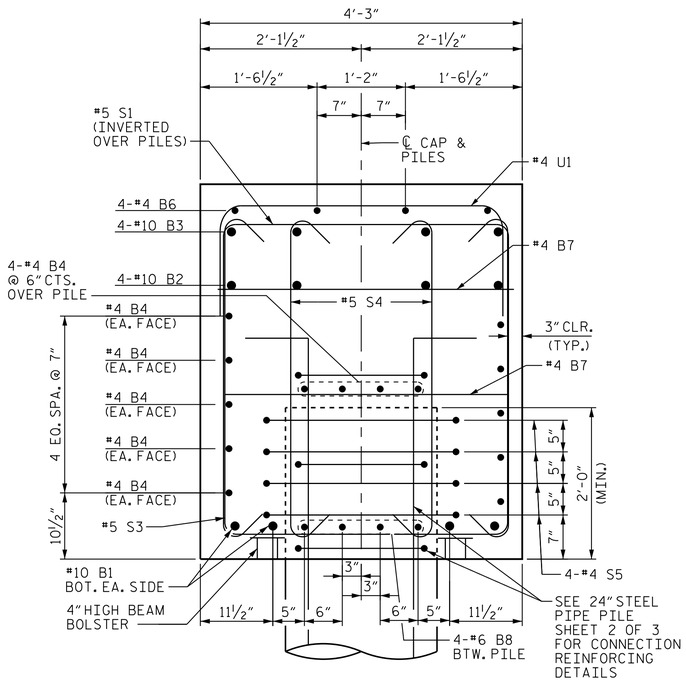
VIEW A-A



VIEW B-B

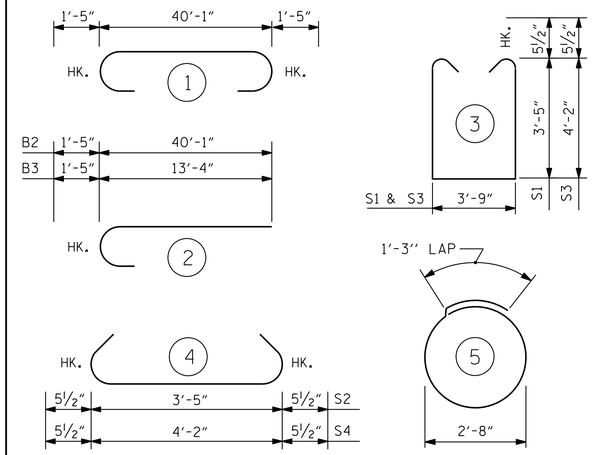


SECTION C-C



SECTION D-D

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B1	4	#10	1	42'-11"	739
✳B2	4	#10	2	41'-6"	715
✳B3	4	#10	2	14'-9"	254
✳B4	14	#4	STR	40'-0"	375
✳B5	8	#4	STR	8'-7"	46
✳B6	4	#4	STR	4'-6"	13
✳B7	15	#4	STR	3'-9"	38
✳B8	24	#6	STR	3'-6"	127
✳S1	48	#5	3	11'-6"	576
✳S2	66	#5	4	4'-4"	299
✳S3	23	#5	3	13'-0"	312
✳S4	34	#5	4	5'-1"	181
✳S5	28	#4	5	9'-8"	181
✳U1	51	#4	6	6'-9"	230
✳U2	9	#4	6	4'-11"	30
✳U3	4	#4	6	4'-8"	13
✳U4	4	#4	6	5'-4"	15

✳EPOXY COATED REINFORCING STEEL LBS. 4,144

CLASS AA CONCRETE BREAKDOWN

CAP C.Y. 26.7

✳✳TOTAL CLASS AA CONC. C.Y. 26.7

✳✳CONCRETE DISPLACED BY THE 24"STEEL PIPE PILE HAS BEEN DEDUCTED FROM THE CONCRETE TOTAL.

CONCRETE AND STEEL FOR CONCRETE PLUGS ARE INCLUDED IN PP 24X0.75 PILE QUANTITY.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

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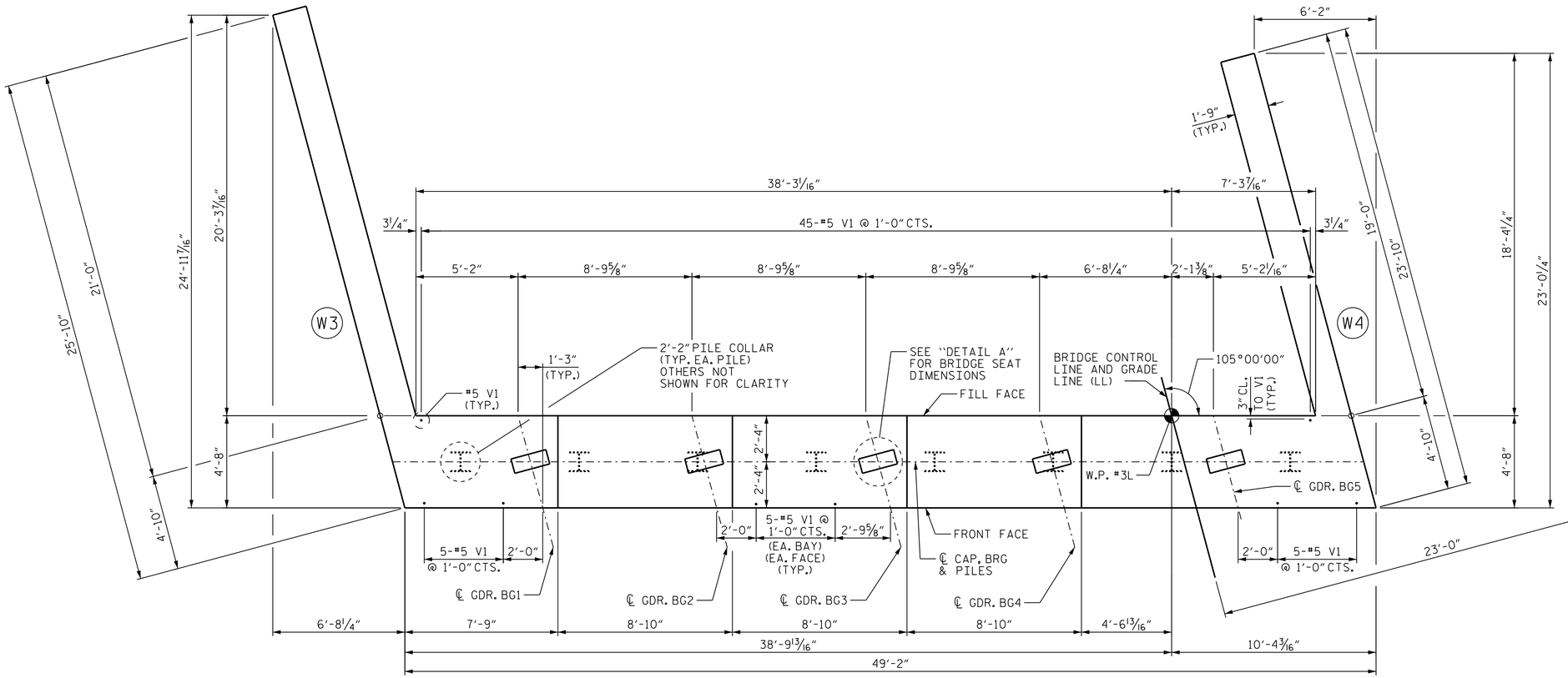


NOTES

2BR DENOTES 2 BAR RUN

(EF) - DENOTES EACH FACE

FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 3.

3" CL. TO ALL V1 BARS.

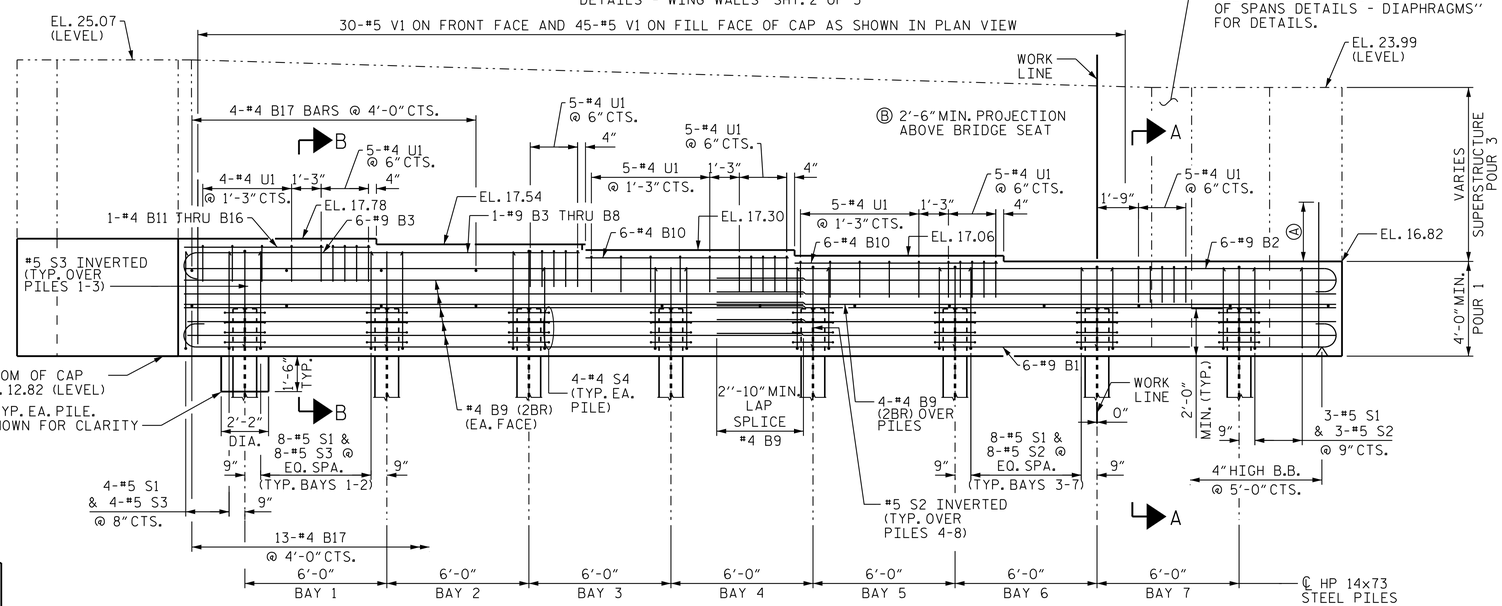
INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALLS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECCESSARY TO CLEAR THE DRAIN PIPE.

SEE SUPERSTRUCTURE SHEETS FOR THE UPPER PART OF INTEGRAL END BENT DETAILS.

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS

PLAN

FOR WING WALL DETAILS, SEE "END BENT 2 DETAILS - WING WALLS" SHT. 2 OF 3



ELEVATION

WING REINFORCING NOT SHOWN FOR CLARITY.

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
ALL	14.82

DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 1 OF 3

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SUBSTRUCTURE

END BENT 2

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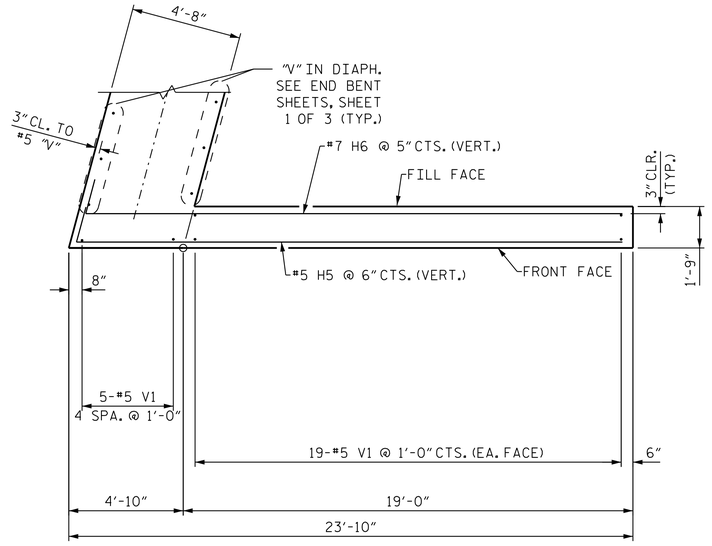
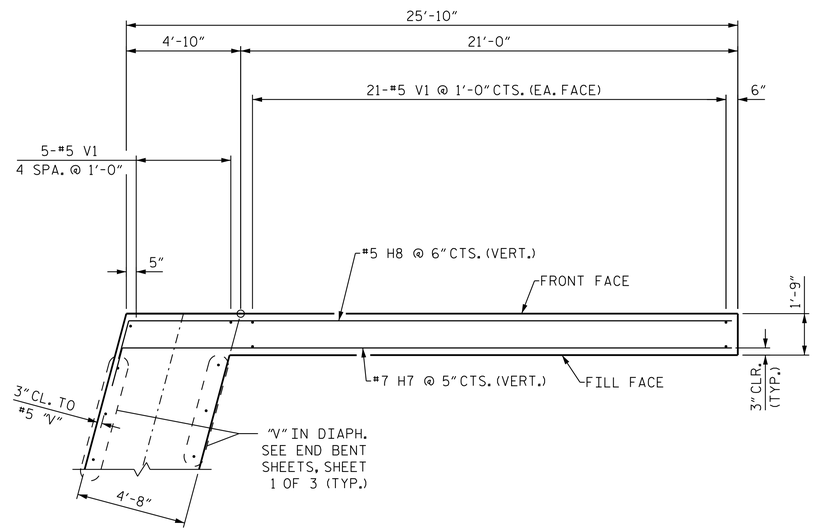
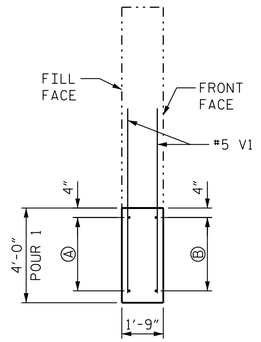


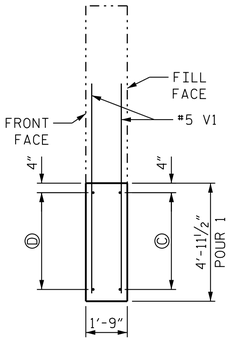
PLAN OF RIGHT WING (W4)



(W3) PLAN OF LEFT WING



SECTION E-E



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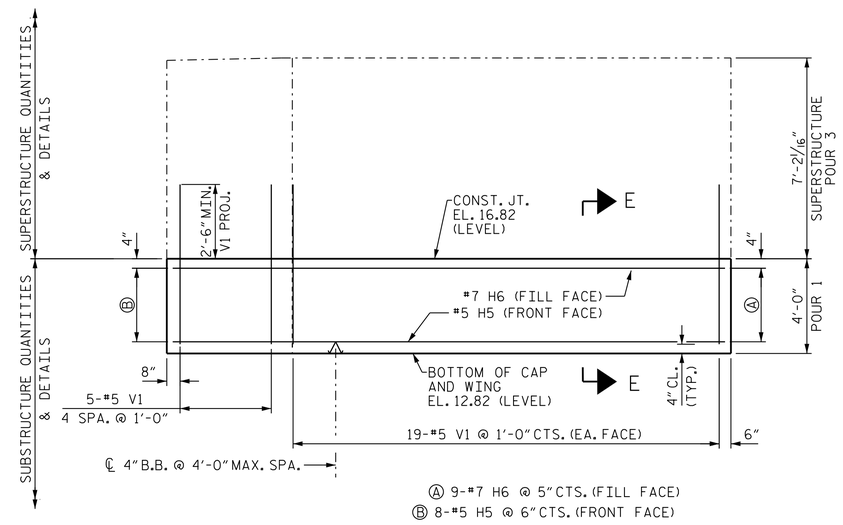
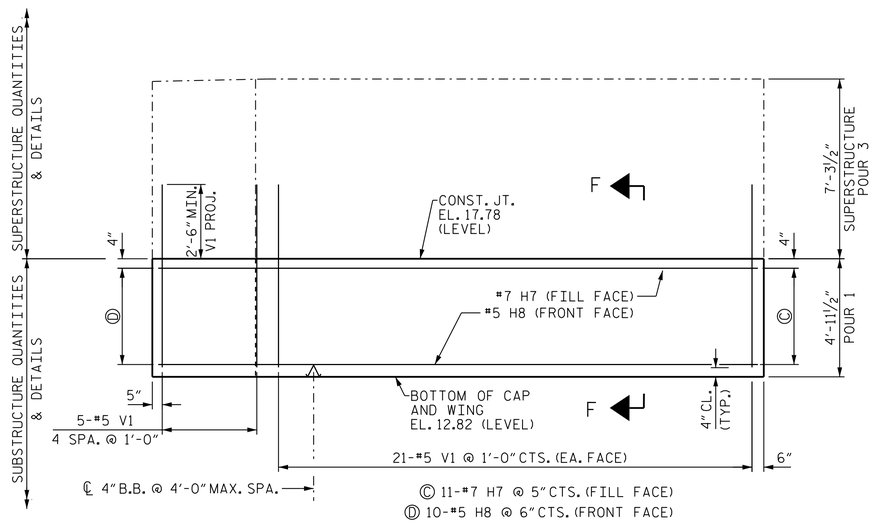


(W4) ELEVATION OF RIGHT WING



(W3) ELEVATION OF LEFT WING

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025
EA6ED4707646408...

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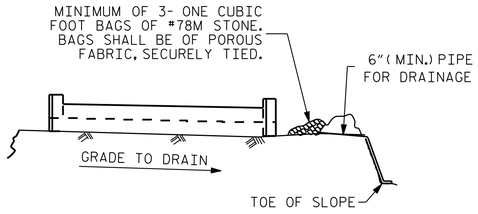
PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.26 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2 DETAILS WING WALLS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S06-33
1			3			TOTAL SHEETS
2			4			37

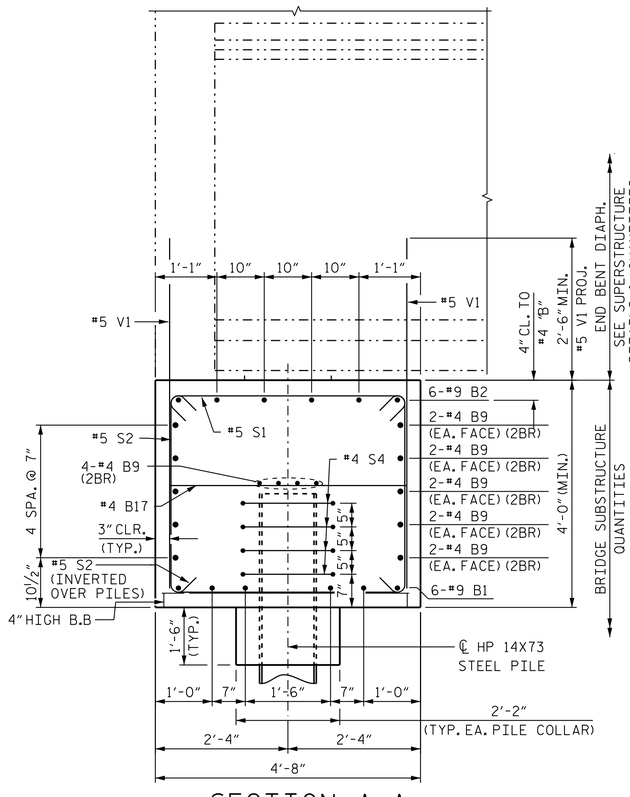


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

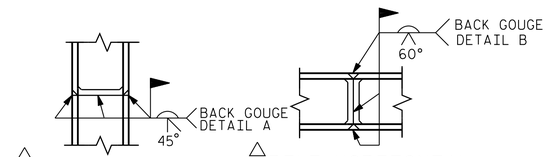
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



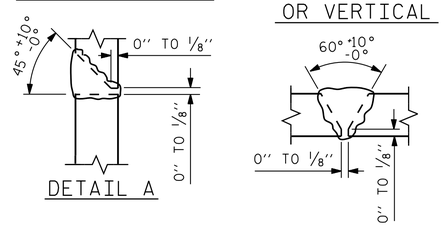
SECTION A-A

SEE "END BENT 2" SHEET 1 OF 3.



△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL

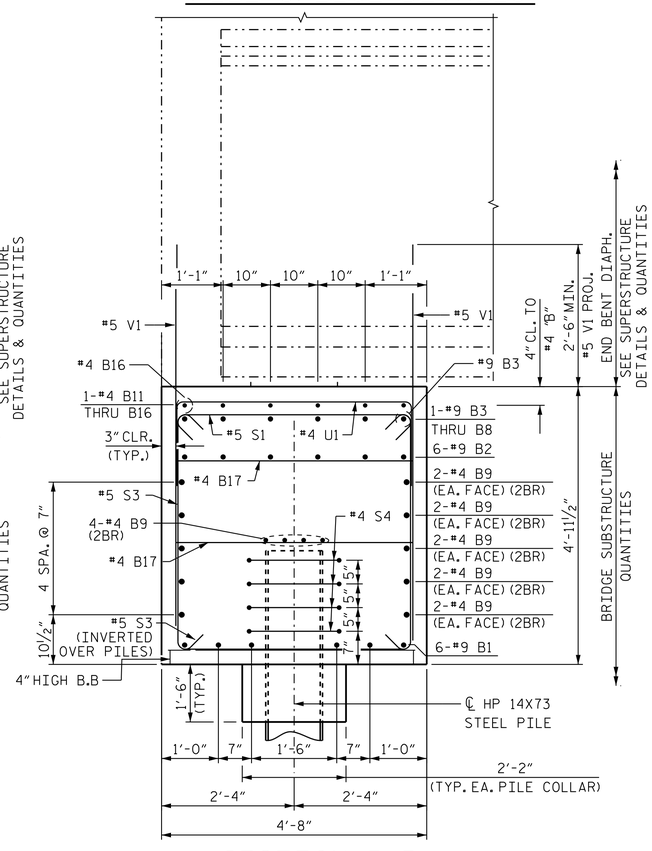


DETAIL A

DETAIL B

△ POSITION OF PILE DURING WELDING.

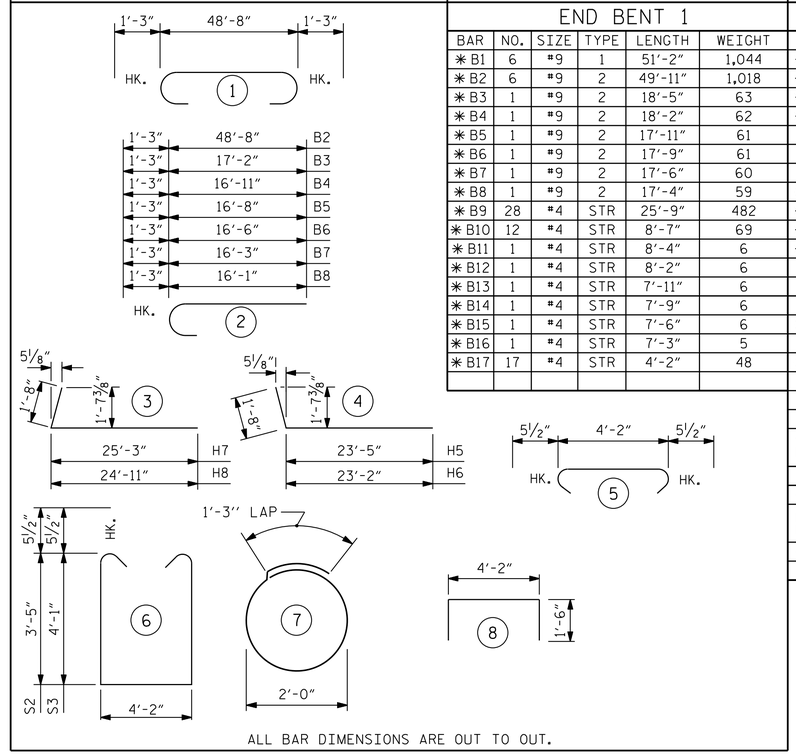
PILE SPLICE DETAILS



SECTION B-B

SEE "END BENT 2" SHEET 1 OF 3.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	6	#9	1	51'-2"	1,044
✳ B2	6	#9	2	49'-11"	1,018
✳ B3	1	#9	2	18'-5"	63
✳ B4	1	#9	2	18'-2"	62
✳ B5	1	#9	2	17'-11"	61
✳ B6	1	#9	2	17'-9"	61
✳ B7	1	#9	2	17'-6"	60
✳ B8	1	#9	2	17'-4"	59
✳ B9	28	#4	STR	25'-9"	482
✳ B10	12	#4	STR	8'-7"	69
✳ B11	1	#4	STR	8'-4"	6
✳ B12	1	#4	STR	8'-2"	6
✳ B13	1	#4	STR	7'-11"	6
✳ B14	1	#4	STR	7'-9"	6
✳ B15	1	#4	STR	7'-6"	6
✳ B16	1	#4	STR	7'-3"	5
✳ B17	17	#4	STR	4'-2"	48

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ H5	9	#7	4	25'-1"	462
✳ H6	8	#5	4	24'-10"	208
✳ H7	10	#5	3	26'-11"	281
✳ H8	11	#7	3	26'-7"	598
✳ S1	63	#5	5	5'-1"	355
✳ S2	49	#5	6	11'-11"	610
✳ S3	22	#5	6	13'-3"	305
✳ S4	32	#5	7	7'-7"	254
✳ U1	39	#4	8	7'-2"	187
✳ V1	165	#4	STR	7'-0"	1,205

✳ EPOXY COATED REINFORCING STEEL LBS. 7,508

CLASS AA CONCRETE BREAKDOWN:

POUR #1: CAP, COLLARS, LOWER WINGS, ETC.	C.Y. 49.9
CLASS AA CONCRETE TOTAL	C.Y. 49.9

NOTES

TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4". EXCEPT UNDER BEARING AREAS.

2BR DENOTES 2 BAR RUN.

SET #5 V1 BAR 4" CLEAR (MIN.) FROM BOTTOM OF CAP.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2 DETAILS

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CHECKED BY : S. S. POOLE DATE : 12/20/24

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: E46ED4707644468...
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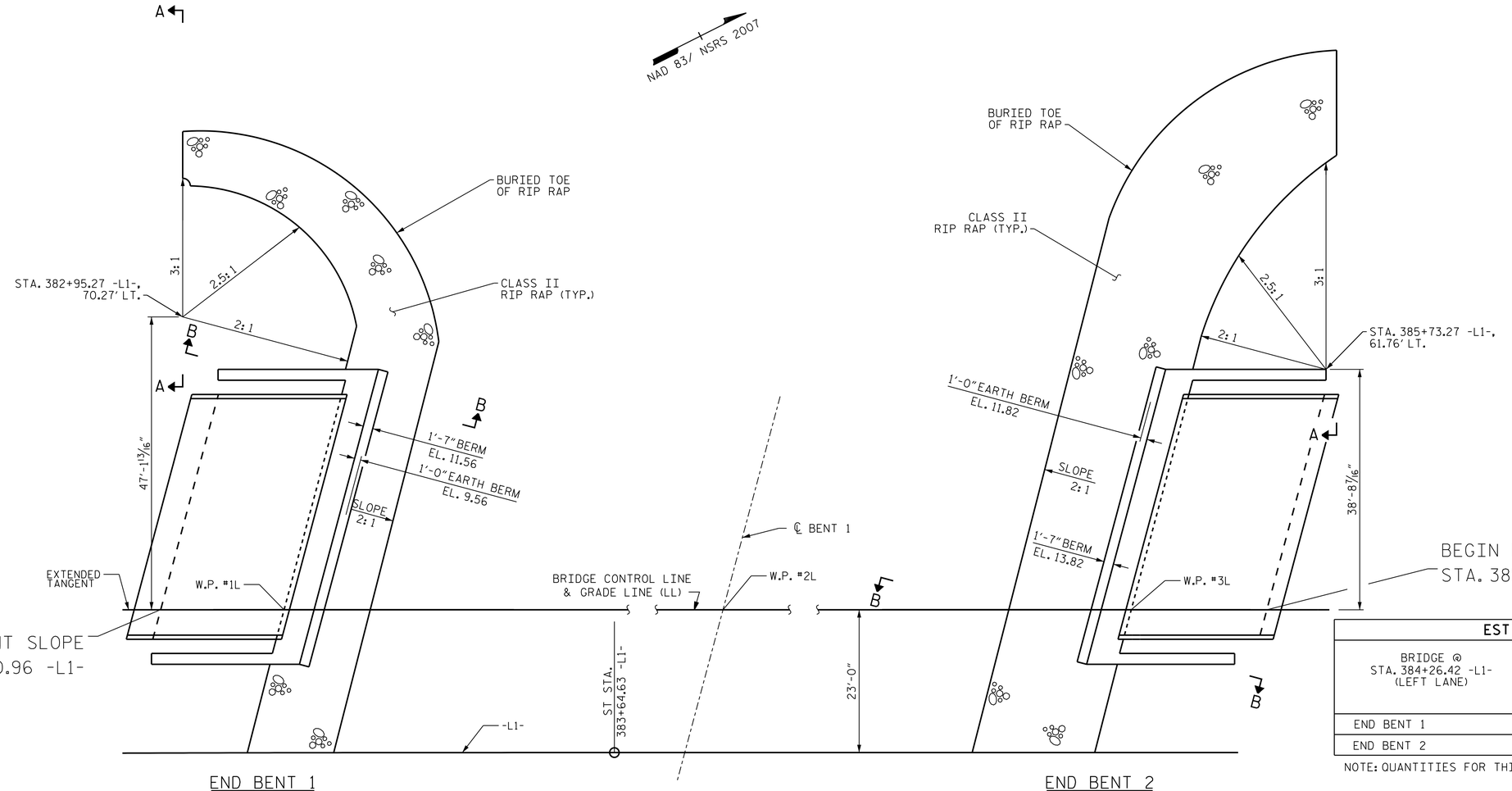
NAD 83/ NSRS 2007

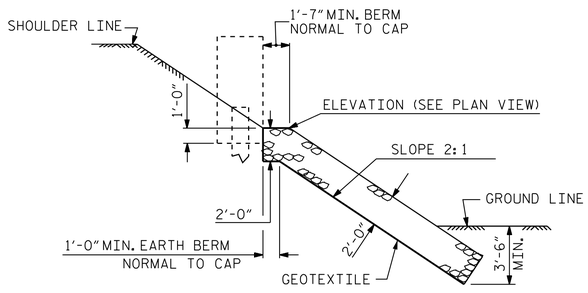


END BENT 1

END BENT 2

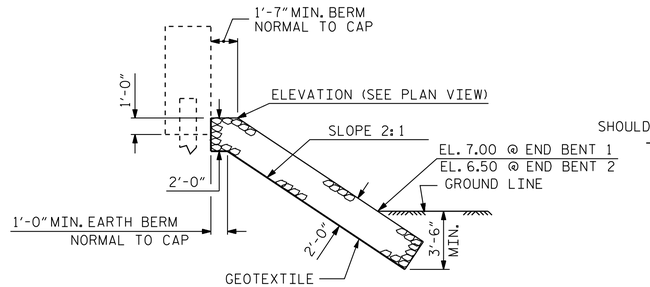
ESTIMATED QUANTITIES		
BRIDGE @ STA. 384+26.42 -L1- (LEFT LANE)	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	205	228
END BENT 2	238	316

NOTE: QUANTITIES FOR THIS BRIDGE IS TO -L1- LINE.



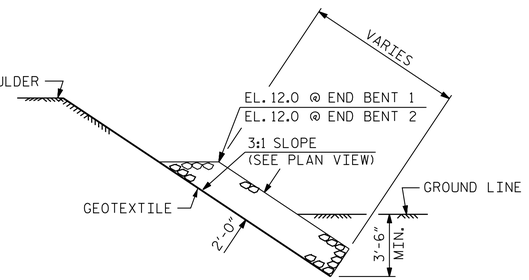
SECTION B-B

PLAN



SECTION IN FRONT OF END BENT

BERM RIP RAPPED



SECTION A-A

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

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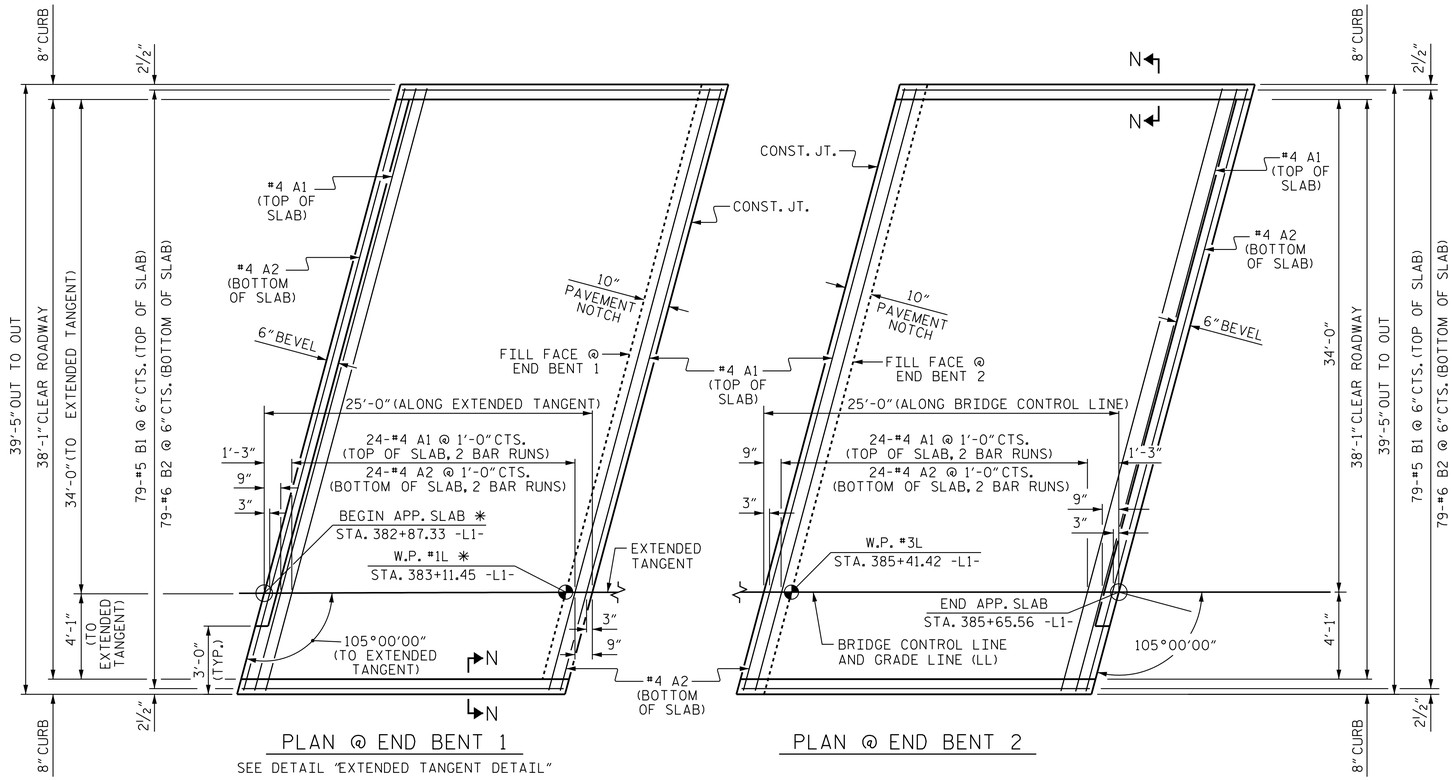
STD. NO. RP1



NOTES

FOR APPROACH FILL DETAILS AND NOTES, SEE SHEET 2 OF 2.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

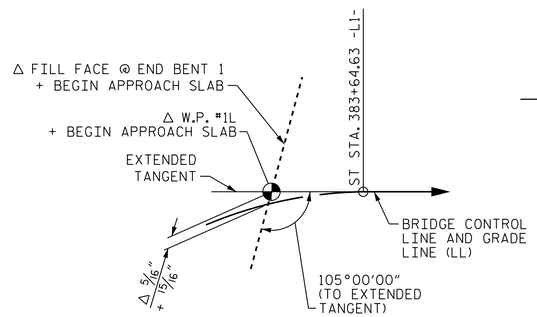
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	52	#4	STR	21'-3"	738
✳ A2	52	#4	STR	21'-3"	738
✳ B1	79	#5	STR	24'-1"	1,984
✳ B2	79	#6	STR	24'-7"	2,917
✳ EPOXY COATED REINFORCING STEEL				LBS.	6,377
CLASS AA CONCRETE				C.Y.	42.6

SPLICE LENGTHS

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

END OF CURB WITHOUT SHOULDER BERM GUTTER

SECTION N-N



EXTENDED TANGENT DETAIL

(△ AT FILL FACE OF END BENT 1)
(+ AT BEGIN APPROACH SLAB)

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR INTEGRAL ABUTMENT WITH FLEXIBLE PAVEMENT

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ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/20/24

DRAWN BY : TLA 10/05
CHECKED BY : GM 5/06

REV. 12/21/11 MAA/GM
REV. 6/13 MAA/GM
REV. 12/17 MAA/THC

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

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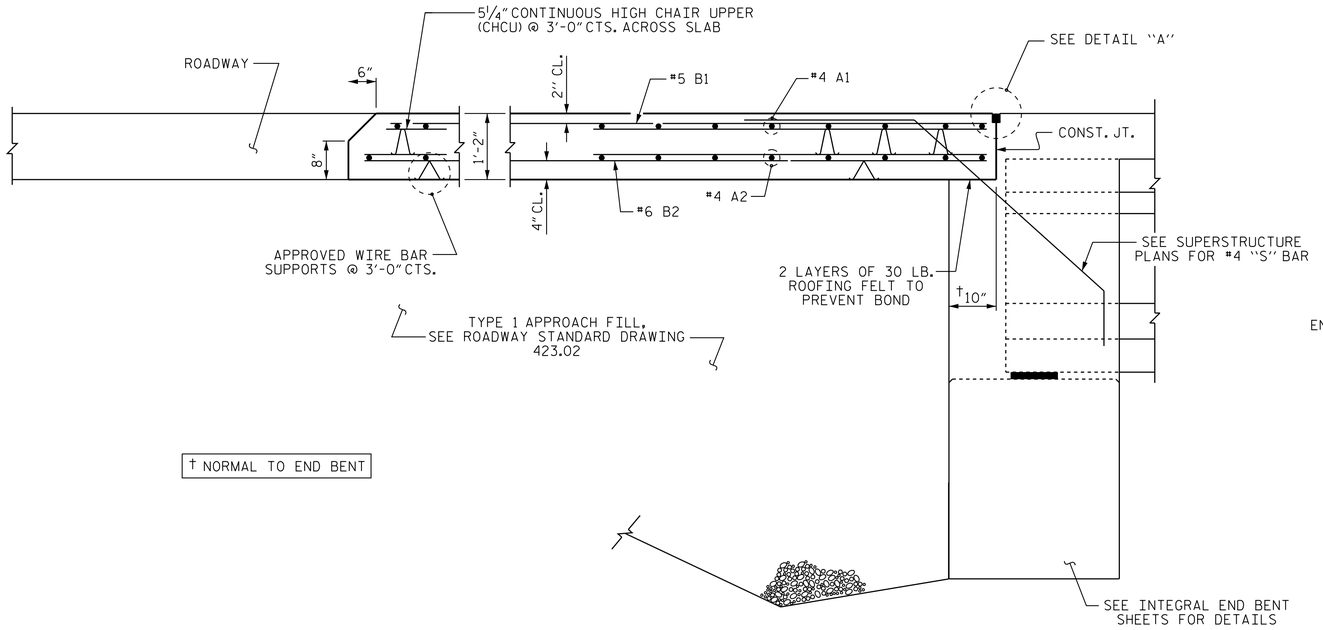
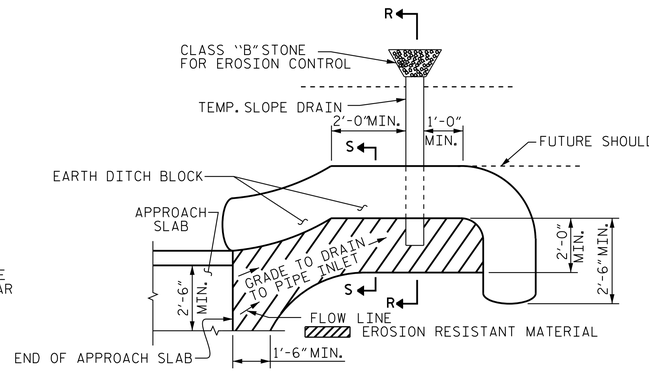
STD. NO. BAS5

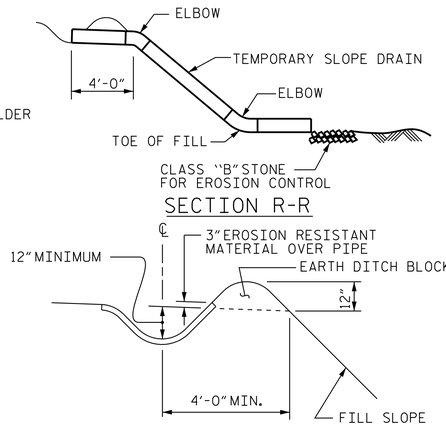


SECTION THRU SLAB



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.

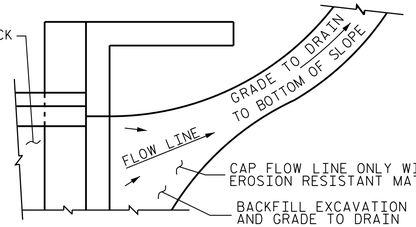
PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS 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

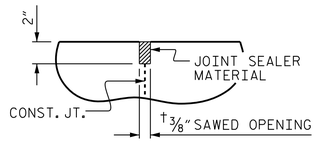
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF BRIDGE DECK.

AREA BETWEEN 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.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER HTE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



DETAIL "A"

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.26 -L1-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB DETAILS

REVISIONS						SHEET NO.
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STD. NO. BAS5

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CHECKED BY : S. S. POOLE	DATE : 12/20/24		
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CHECKED BY : GM 5/06	REV. 6/13	MAA/GM	
	REV. 12/17		

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025
EA6E0470746648...

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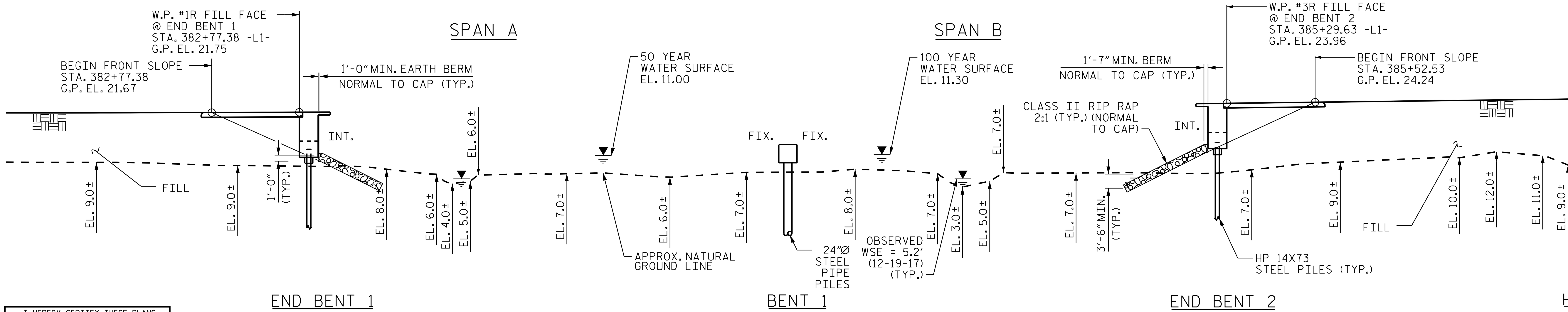
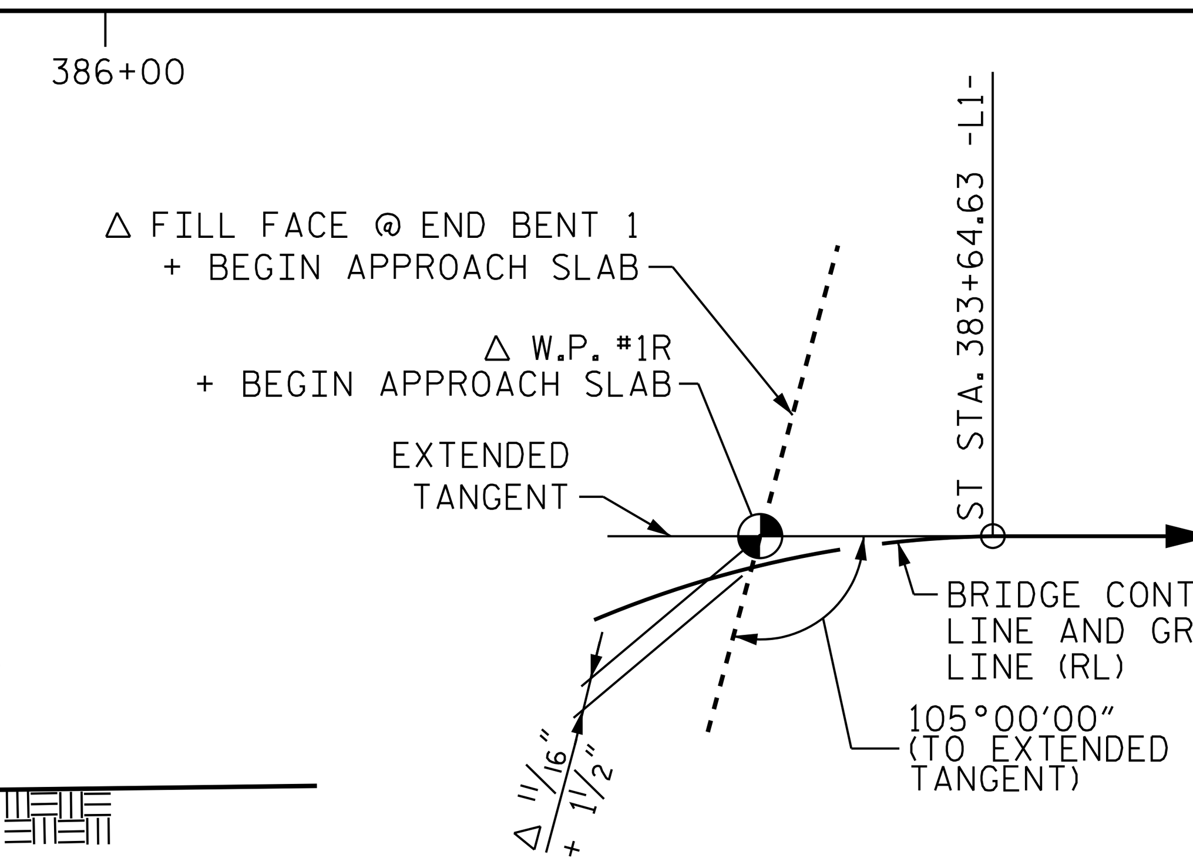
-1.4286% △ +1.2236%

PI STA. = 382+00.00 -L1-
EL. = 19.93
L = 500'

GRADE DATA -L1-





EXTENDED TANGENT DETAIL

(△ AT FILL FACE OF END BENT 1)
(+ AT BEGIN APPROACH SLAB)

PIs STA. = 382+74.64
Θs = 0°32'30.0"
Ls = 135.00'
LT = 90.00'
ST = 45.00'

HORIZONTAL CURVE DATA -L1-

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

SECTION ALONG -L1-

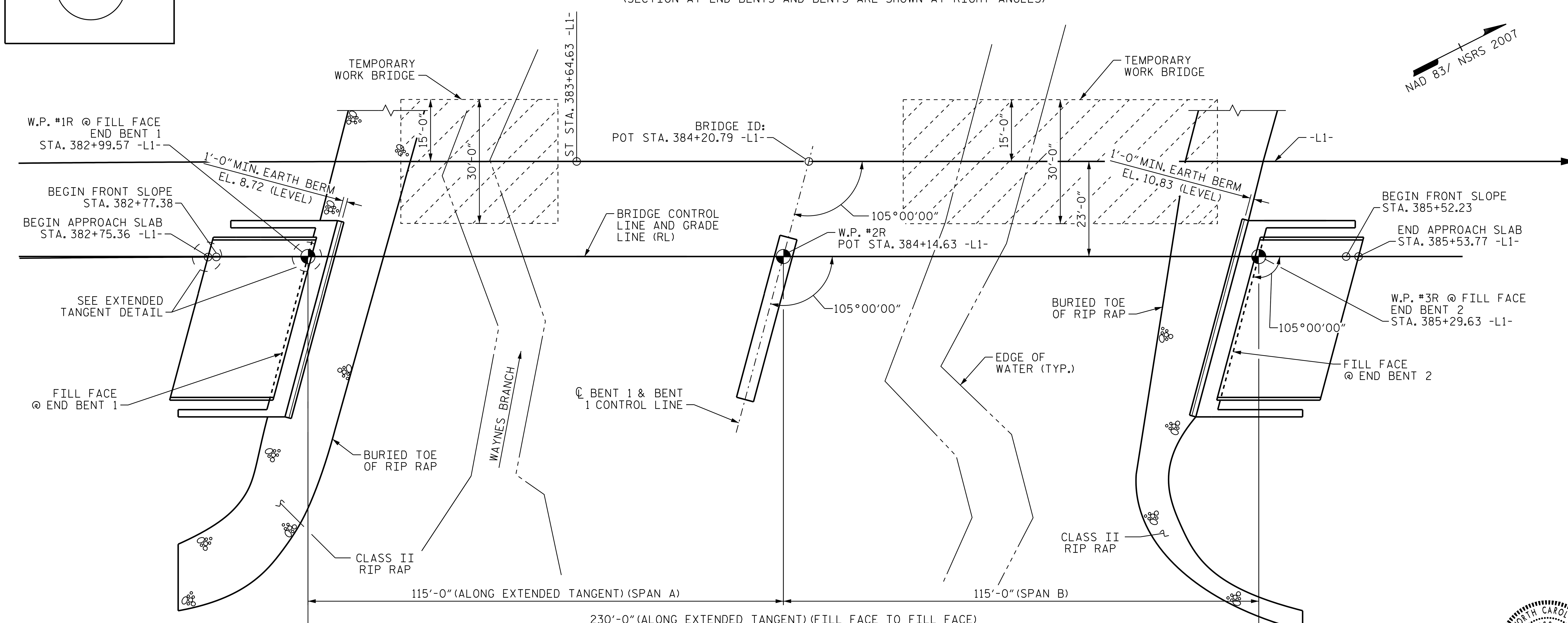
(SECTION AT END BENTS AND BENTS ARE SHOWN AT RIGHT ANGLES)

DESIGN DISCHARGE	1,470 C.F.S
FREQUENCY	50 YR.
DESIGN HIGH WATER EL.	11.00
DRAINAGE AREA	3.69 SQ. MI
BASE DISCHARGE (Q100)	1,660 C.F.S
BASE HIGH WATER EL.	11.30

HYDRAULIC DESIGN DATA

OVERTOPPING DISCHARGE	15,900 C.F.S
FREQUENCY	500+ YR.
OVERTOPPING EL.	21.60
STATION	382+19.32 SAG POINT

OVERTOPPING FLOOD DATA



PLAN

(PILES NOT SHOWN FOR CLARITY)

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 4

BRIDGE NO. 640214

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER WAYNES BRANCH ON US 17 BYPASS (HAMPSTEAD BYPASS) BETWEEN SR 1336 (SIDBURY RD) & SR 1573 (HARRISON CREEK RD)

(RIGHT LANE)

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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CHECKED BY : S. S. POOLE DATE : 01/12/25

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

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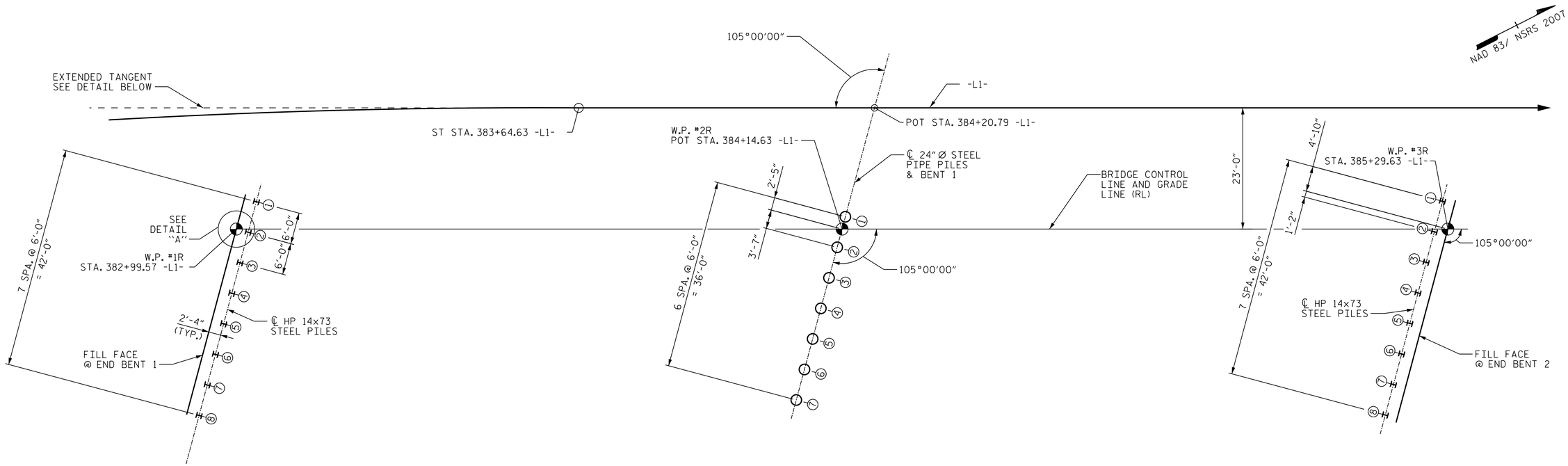
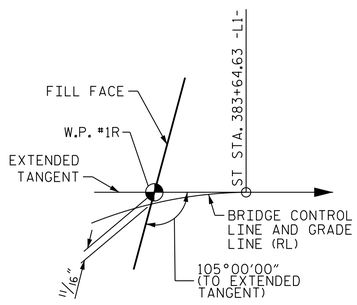


END BENT 1 | BENT 1 | END BENT 2

FOUNDATION LAYOUT



EXTENDED TANGENT DETAIL "A"
(AT END BENT 1)

NOTES:

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES REQUIRED AT END BENTS NO. 1 AND 2.
3. OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO. 1. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
4. OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO. 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
5. IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 65 TO 125 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES BENT NO. 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.79 -L1-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER WAYNES BRANCH
ON US 17 BYPASS (HAMPSTEAD BYPASS)
BETWEEN SR 1336 (SIDBURY RD) & SR 1573 (HARRISON CREEK RD)

(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-02
1			3			TOTAL SHEETS
2			4			37

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1, Piles 1-8	8	270	See Substructure Plans	30		-10.4	360	4						
Bent 1, Piles 1-7	7	550	See Substructure Plans	50	-5.9	-29.7	735	4	41.0	-29.7	24			
End Bent 2, Piles 1-8	8	270	See Substructure Plans	25		-8.2	360	4	21.0	-8.2	12			
TOTAL QUANTITY:								12	455					

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

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

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-8	261			0.75		
Bent 1, Piles 1-7	546			0.75		
End Bent 2, Piles 1-8	261			0.75		

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent 1, Piles 1-8				8
Bent 1, Piles 1-7		7		
End Bent 2, Piles 1-8				8
TOTAL QUANTITY:		7		16

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1	35	
Bent 1	55	1
End Bent 2	30	1
TOTAL QUANTITY:		2

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

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

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Jeremy R. Hamm, #039779) on 03/09/2025.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S POOLE

Signed by: EA6ED47076646B... 5/5/2025

SIGNATURE DATE

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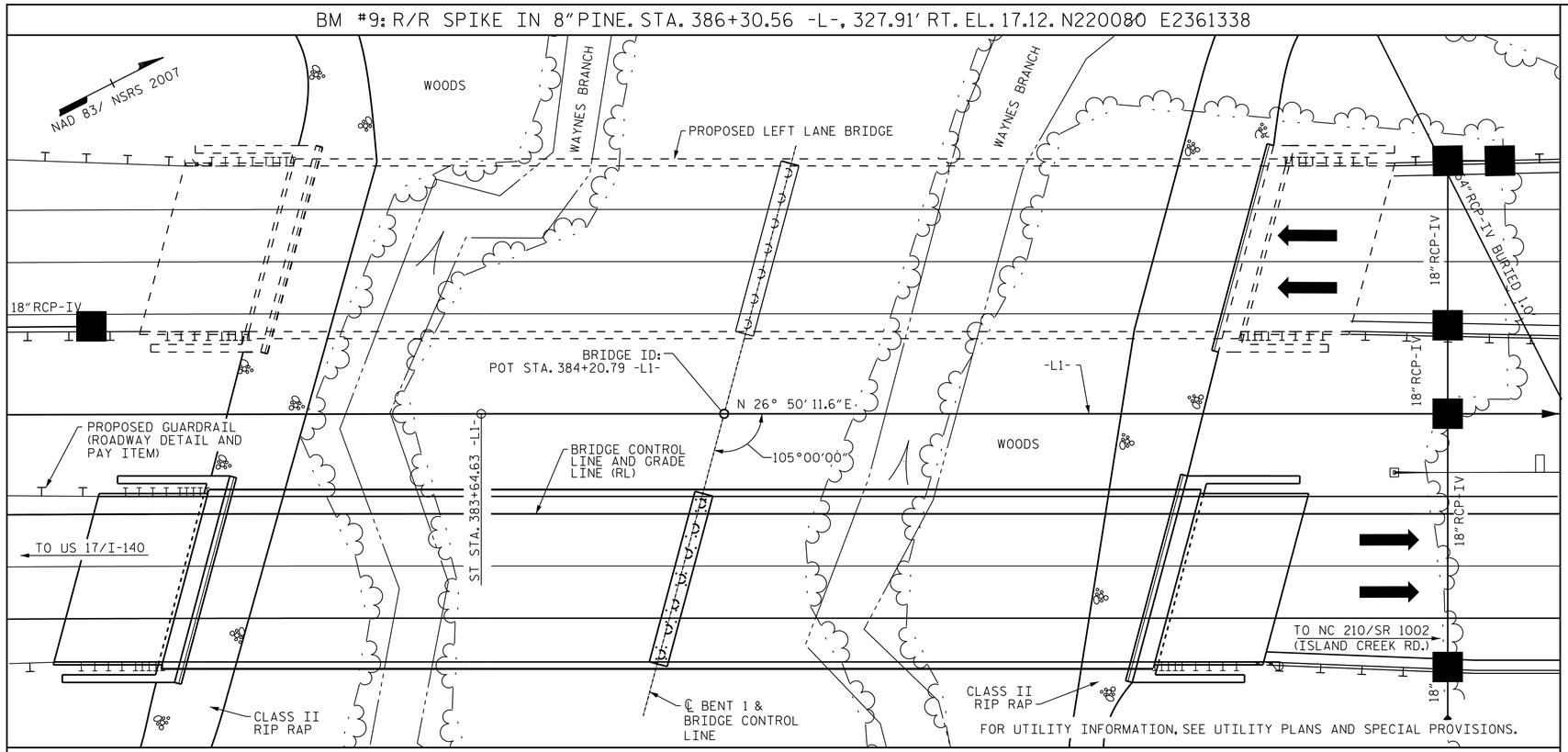
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

SHEET NO. S07-03

TOTAL SHEETS 37

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



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.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

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

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.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

ALL METALIZED SURFACES SHALL RECEIVE A SEAL COATING AS SPECIFIED IN THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS, PILE CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE ARTICLE 1000-3(J) OF THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE BENT CAPS AND PILE CAPS OF ALL BENTS SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL PARAPET, DECK, BENT CAPS, PILE CAPS, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION -5.9 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TOTAL BILL OF MATERIAL

	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONC. GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 24 X 0.75 GALVANIZED STEEL PIPE PILES	HP 14x73 STEEL PILES		PP 24 X 0.75 GALVANIZED STEEL PILES		STEEL PILE POINTS	PRE-DRILLING FOR PILES	PILE REDRIVES	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICKNESS)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	EA.	EA.	NO.	LIN.FT.	NO.	LIN.FT.	EA.	LF	EACH	EACH	LIN.FT.	TON	SQ.YDS.	LUMP SUM
SUPERSTRUCTURE	9,436	9,727		LUMP SUM		10	1,128.75											456.5			LUMP SUM
END BENT NO.1			49.6		7,480			8		8	240			8		4			190	211	
BENT NO.1			26.7		4,144				7			7	350	7	287	4	1				
END BENT NO.2			49.9		7,508			8		8	200			8	168	4	1		154	171	
TOTAL	9,436	9,727	126.2	LUMP SUM	19,132	10	1,128.75	16	7	16	440	7	350	23	455	12	2	456.5	344	382	LUMP SUM

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER WAYNES BRANCH
ON US 17 BYPASS (HAMPSTEAD BYPASS)
BETWEEN SR 1336 (SIDBURY RD) & SR 1573
(HARRISON CREEK RD)

(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-04
1			3			TOTAL SHEETS
2			4			37

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DRAWN BY : M. B. ISENHOUR DATE : 01/17/18
CHECKED BY : S. S. POOLE DATE : 01/12/25

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	⟨#⟩ CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
							LIVE-LOAD FACTORS (γ_{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ_{LL})	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 (INVENTORY)	N/A	⟨1⟩	1.63	-	1.75	0.78	1.67	A	EL	55.70	0.89	2.19	A	I	10.60	0.80	0.78	1.63	A	EL	55.70	
		HL-93 (OPERATING)	N/A		2.17	-	1.35	0.78	2.17	A	EL	55.70	0.89	2.88	A	I	10.60	N/A	-	-	-	-	-	
		HS-20 (INVENTORY)	36.000	⟨2⟩	2.31	83.16	1.75	0.78	2.41	A	EL	55.70	0.89	3.07	A	I	10.60	0.80	0.78	2.31	A	EL	55.70	
		HS-20 (OPERATING)	36.000		3.12	112.32	1.35	0.78	3.12	A	EL	55.70	0.89	4.02	A	I	10.60	N/A	-	-	-	-	-	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.29	30.92	1.40	0.78	2.93	A	EL	55.70	0.89	3.88	A	I	10.60	0.80	0.78	2.29	A	EL	55.70	
		SNGARBS2	20.000		2.24	44.80	1.40	0.78	2.87	A	EL	55.70	0.89	3.88	A	I	10.60	0.80	0.78	2.24	A	EL	55.70	
		SNAGRIS2	22.000		1.93	42.46	1.40	0.78	2.47	A	EL	55.70	0.89	3.39	A	I	10.60	0.80	0.78	1.93	A	EL	55.70	
		SNCOTTS3	27.250		2.03	55.32	1.40	0.78	2.60	A	EL	55.70	0.89	3.50	A	I	10.60	0.80	0.78	2.03	A	EL	55.70	
		SNAGGRS4	34.925		5.69	198.72	1.40	0.78	7.28	A	EL	55.70	0.89	9.82	A	I	10.60	0.80	0.78	5.69	A	EL	55.70	
		SNS5A	35.550		4.07	144.69	1.40	0.78	5.21	A	EL	55.70	0.89	6.81	A	I	10.60	0.80	0.78	4.07	A	EL	55.70	
		SNS6A	39.950		2.81	112.26	1.40	0.78	3.60	A	EL	55.70	0.89	4.82	A	I	10.60	0.80	0.78	2.81	A	EL	55.70	
		SNS7B	42.000		3.77	158.34	1.40	0.78	4.83	A	EL	55.70	0.89	6.26	A	I	10.60	0.80	0.78	3.77	A	EL	55.70	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.48	81.84	1.40	0.78	3.17	A	EL	55.70	0.89	4.22	A	I	10.60	0.80	0.78	2.48	A	EL	55.70	
		TNT4A	33.075		2.48	82.03	1.40	0.78	3.18	A	EL	55.70	0.89	4.14	A	I	10.60	0.80	0.78	2.48	A	EL	55.70	
		TNT6A	41.600		2.00	83.20	1.40	0.78	2.56	A	EL	55.70	0.89	3.53	A	I	10.60	0.80	0.78	2.00	A	EL	55.70	
		TNT7A	42.000		2.00	84.00	1.40	0.78	2.56	A	EL	55.70	0.89	3.47	A	I	10.60	0.80	0.78	2.00	A	EL	55.70	
		TNT7B	42.000		2.04	85.68	1.40	0.78	2.61	A	EL	55.70	0.89	3.33	A	I	10.60	0.80	0.78	2.04	A	EL	55.70	
		TNAGRIT4	43.000		1.96	84.28	1.40	0.78	2.51	A	EL	55.70	0.89	3.24	A	I	10.60	0.80	0.78	1.96	A	EL	55.70	
		TNAGT5A	45.000		1.86	83.70	1.40	0.78	2.38	A	EL	55.70	0.89	3.16	A	I	10.60	0.80	0.78	1.86	A	EL	55.70	
		TNAGT5B	45.000	⟨3⟩	1.85	83.25	1.40	0.78	2.36	A	EL	55.70	0.89	3.08	A	I	10.60	0.80	0.78	1.85	A	EL	55.70	
EMERGENCY VEHICLE (EV)		EV2	28.750	⟨4⟩	2.86	82.23	1.30	0.78	3.66	A	EL	55.70	0.89	4.72	A	I	10.60	0.80	0.78	2.86	A	EL	55.70	
		EV3	43.000		1.88	80.84	1.30	0.78	2.41	A	EL	55.70	0.89	3.12	A	I	10.60	0.80	0.78	1.88	A	EL	55.70	

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. SPANS SHOWN IN LRFR SUMMARY CORRESPONDS TO COMPOSITE DEAD LOAD AND LIVE LOAD MODEL USED FOR ANALYSIS AND DESIGN.

⟨#⟩ CONTROLLING LOAD RATING

⟨1⟩ DESIGN LOAD RATING (HL-93)

⟨2⟩ DESIGN LOAD RATING (HS-20)

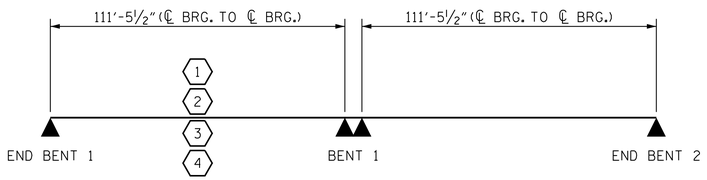
⟨3⟩ LEGAL LOAD RATING **

⟨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

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

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ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25

DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08

REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM
REV. 12/17 MAA/THC

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

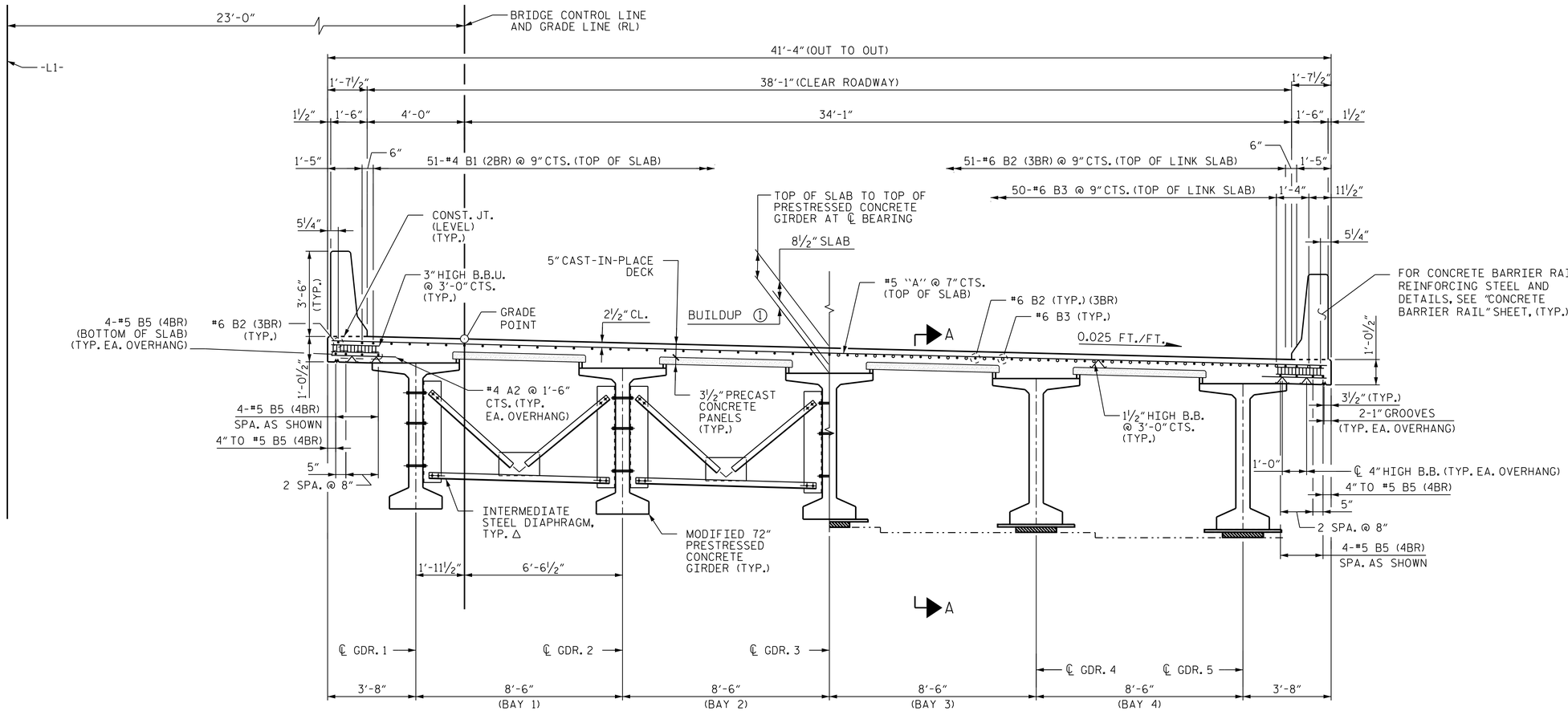
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)
(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-05
1			3			TOTAL SHEETS
2			4			37

STD. NO. LRFR1



HALF-SECTION AT INTERMEDIATE DIAPHRAGMS

HALF-SECTION AT INTERIOR BENT

TYPICAL SECTION

NOTES

SEE "TYPICAL SECTION DETAILS", SHEET 4 OF 4 FOR NOTES.

SEE "TYPICAL SECTION DETAILS", SHEET 4 OF 4 FOR OPTIONAL CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM.

(2BR) DENOTES 2 BAR RUN.

(3BR) DENOTES 3 BAR RUN.

(4BR) DENOTES 4 BAR RUN.

△ FOR INTERMEDIATE STEEL DIAPHRAGM, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 72" MOD. BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

△ △ DENOTES MEASURED ALONG BENT CENTER LINE, SEE BENT SHEET.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

① 4" @ ℄ BEARING
✱ 2 9/16" MAX. @ MID-SPAN (SPAN A, GIRDER #1) (SPAB B, SIMILAR)

✱ BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION

(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-06
1			3			TOTAL SHEETS
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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
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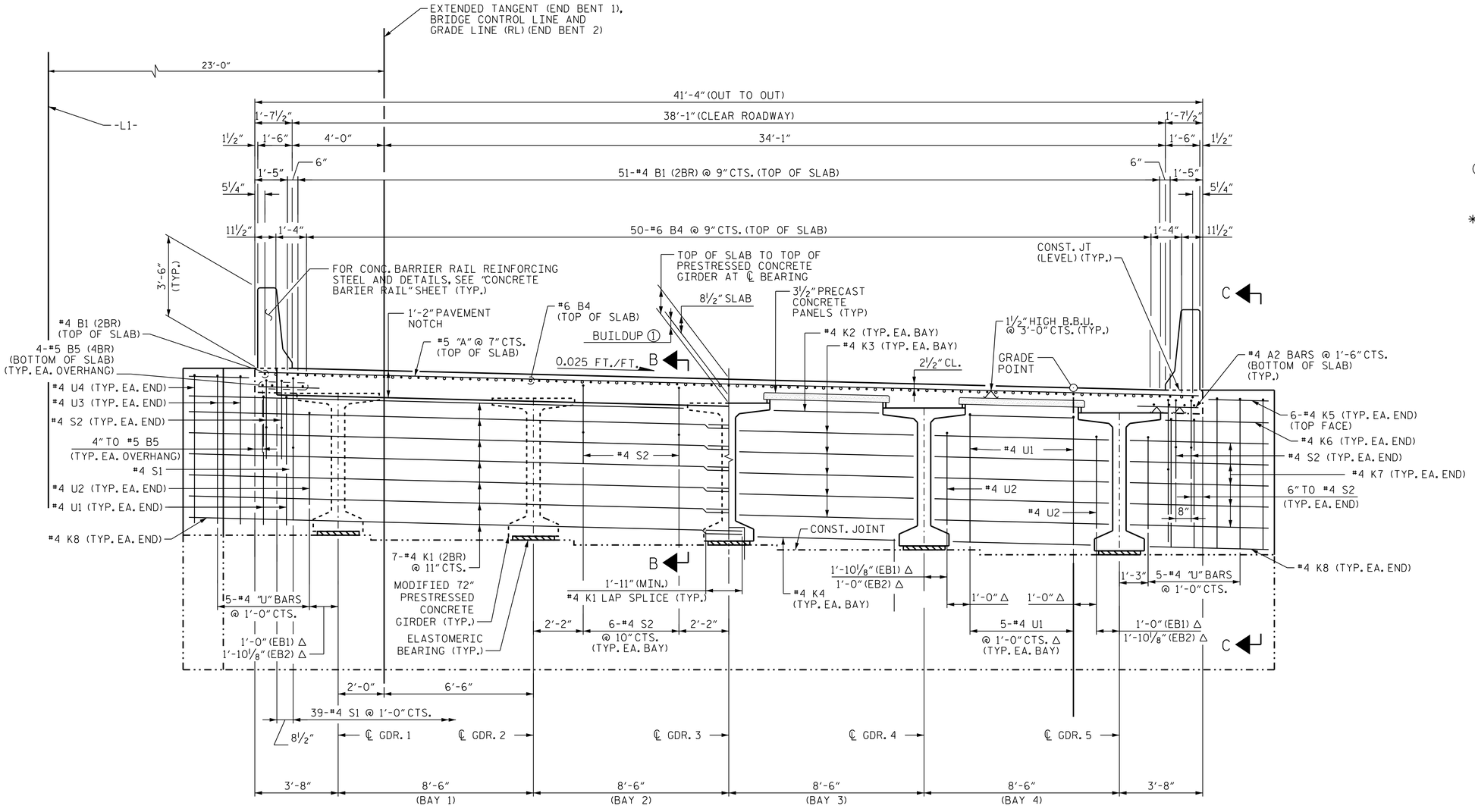
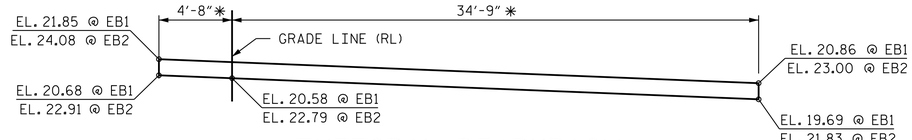


INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FILL FACE

INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FRONT FACE

TYPICAL SECTION



INTEGRAL DIAPHRAGM
APPROACH SLAB BLOCKOUT
ALONG FILL FACE

NOTES

SEE "TYPICAL SECTION DETAILS", SHEET 4 OF 4 FOR NOTES.

(2BR) DENOTES 2 BAR RUN.

(4BR) DENOTES 4 BAR RUN.

EB1 DENOTES END BENT 1
EB2 DENOTES END BENT 2.

Δ DENOTES MEASURED ALONG FRONT FACE OF END BENT, SEE END BENT SHEETS.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

① 4" @ ℄ BEARING
** 2" MAX. @ MID-SPAN
(SPAN A, GIRDER #1)
(SPAN B, SIMILAR)

** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION

(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-07
1			3			TOTAL SHEETS
2			4			37

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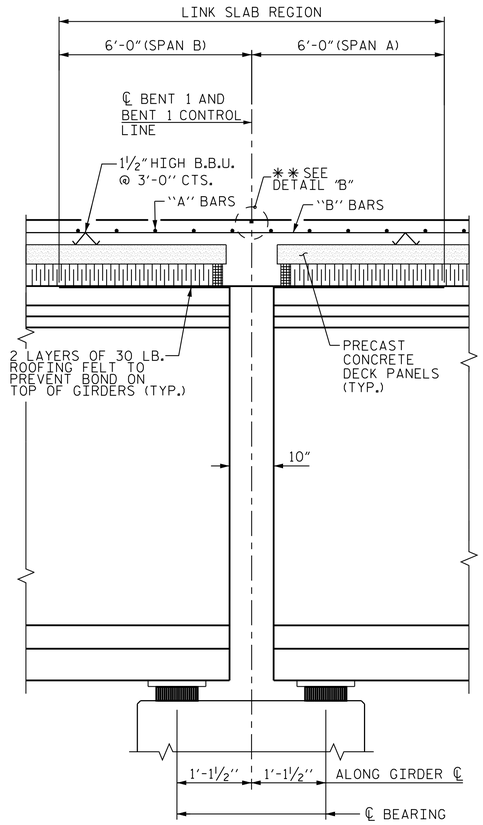
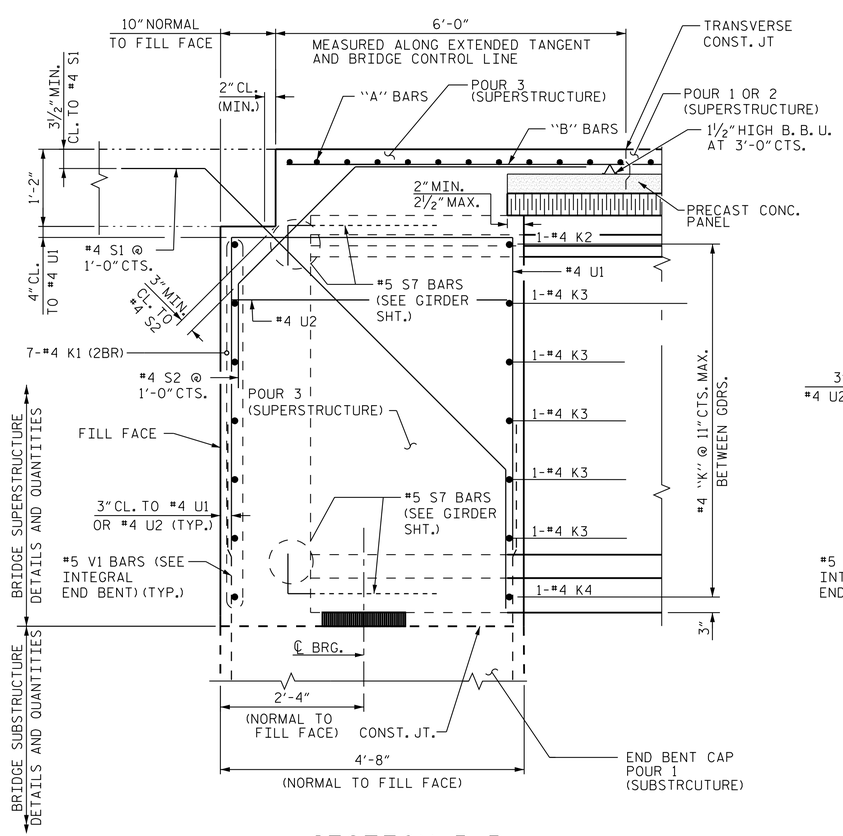
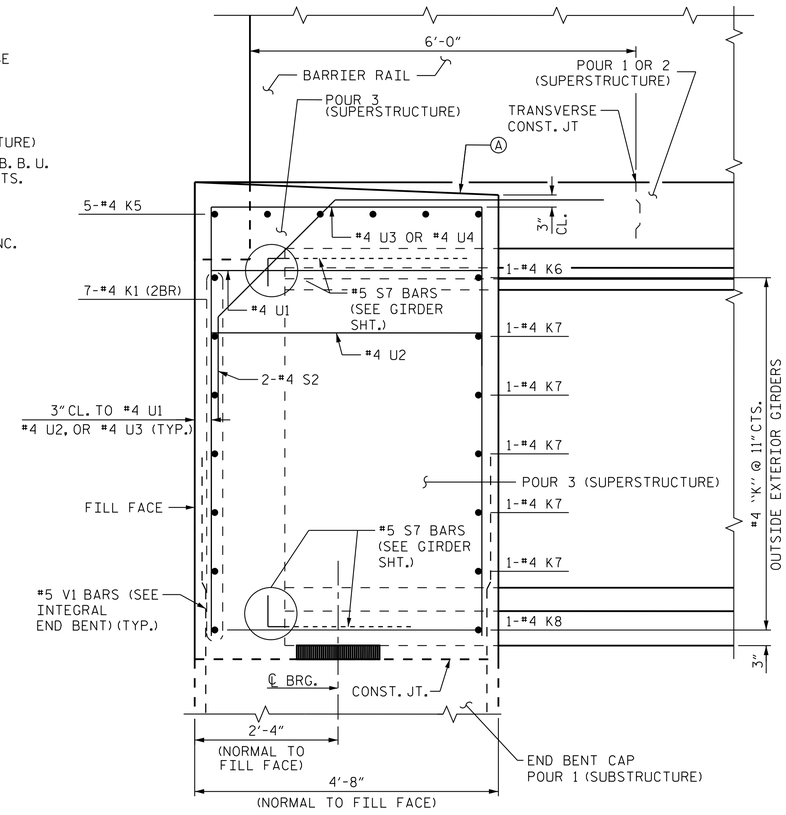


SECTION A-A AT LINK SLAB



SECTION B-B

SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 3 OF 5



SECTION C-C

SECTION THRU INTEGRAL END BENT DIAPHRAGM BEYOND EXTERIOR GIRDER
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 3 OF 5

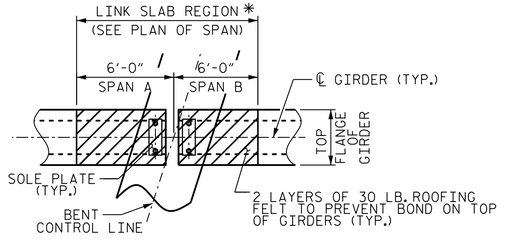
NOTES

(2BR) DENOTES 2 BAR RUN.

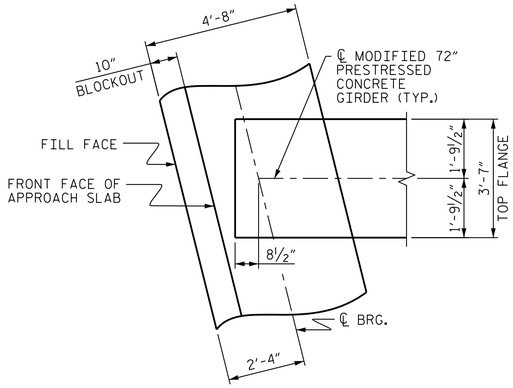
Ⓐ SLOPE TOP SURFACE OF DIAPHRAGM BETWEEN OUTSIDE EDGE OF SUPERSTRUCTURE AND OUTSIDE EDGE OF WINGWALL AT A RATE OF 2% TO DRAIN AWAY FROM THE FILL FACE.

* THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

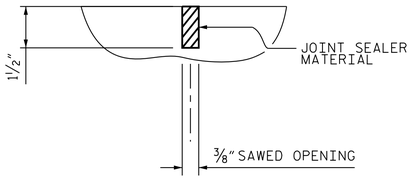
** A 1½" DEEP, ⅜" WIDE CONTRACTION JOINT AT BENT CONTROL LINE SHALL BE SAWED WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



PLAN OF GIRDERS AT LINK SLAB BENT



PLAN OF INTEGRAL END BENT



DETAIL "B"

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.79 -L1-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION (DETAILS)

(RIGHT LANE)

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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
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2			4			37

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NOTES

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDUPS.

PREVIOUSLY CAST CONCRETE IN THE UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT EXCEPT AS NOTED IN THE PLANS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED. IF OPTIONAL CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM IS USED, #3 BAR GRID SHALL NOT BE EPOXY COATED.

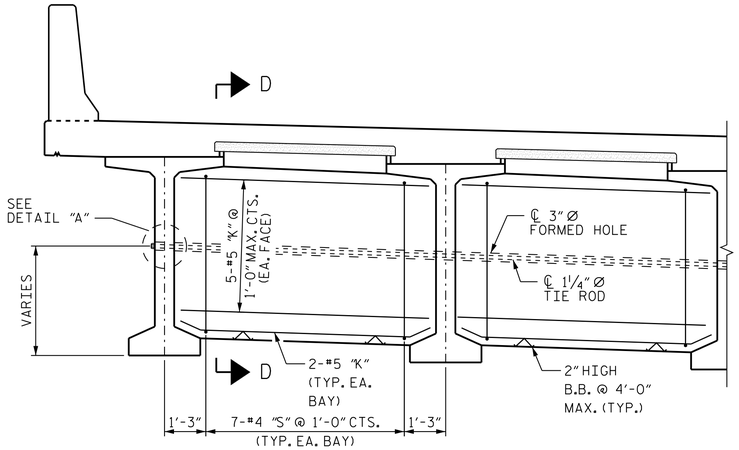
PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRE-COMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE (GIRDERS, PRECAST DECK PANELS) SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE ARTICLE 1078-4(H) OF STANDARD SPECIFICATIONS FOR CALCIUM NITRITE CORROSION INHIBITOR.

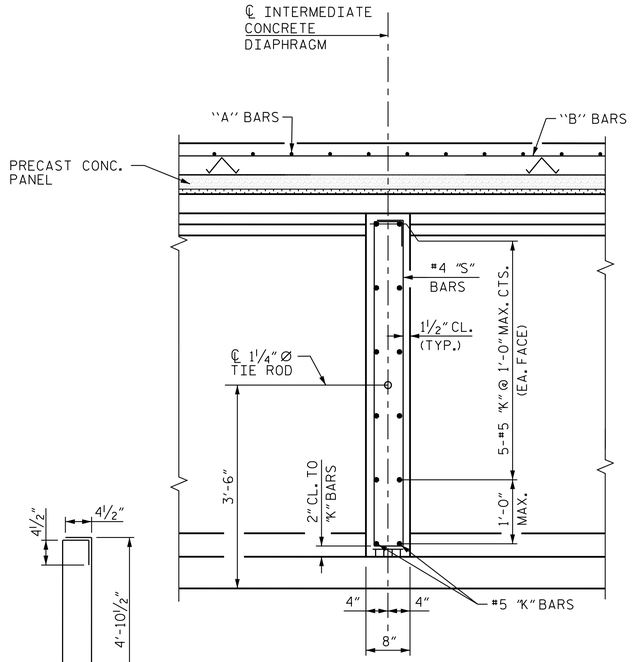
OPTIONAL CONCRETE INTERMEDIATE DIAPHRAGMS

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 11-#4"Ø TIE RODS SHALL BE FULLY TIGHTENED BEFORE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN INTERMEDIATE DIAPHRAGMS MAY BE CLASS A IN LIEU OF CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.



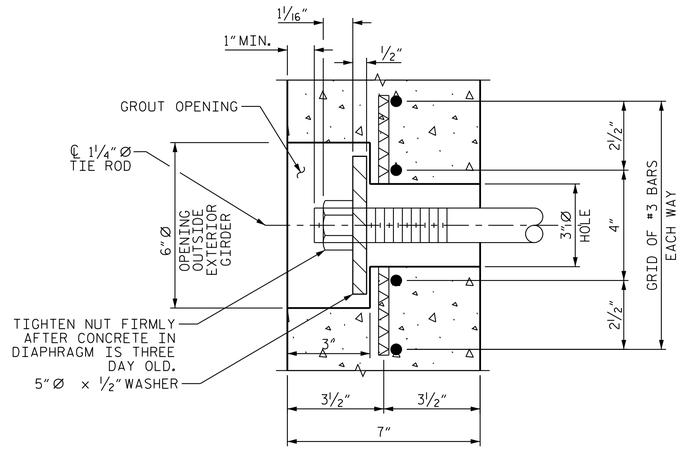
PART - SECTION AT OPTIONAL CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM



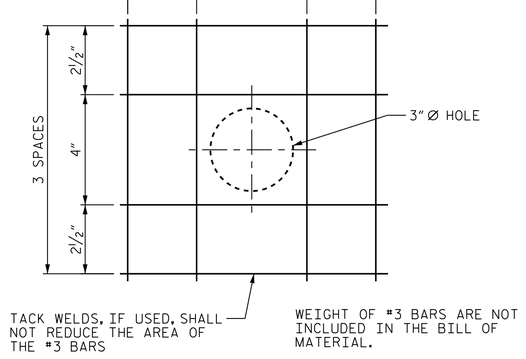
SECTION D-D

SECTION THRU CAST-IN-PLACE CONCRETE INTERMEDIATE DIAPHRAGM

#4 "S" BAR



DETAIL "A"



#3 BAR GRID

GROUTED RECESS FOR END OF TIE ROD

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION (DETAILS)

(RIGHT LANE)

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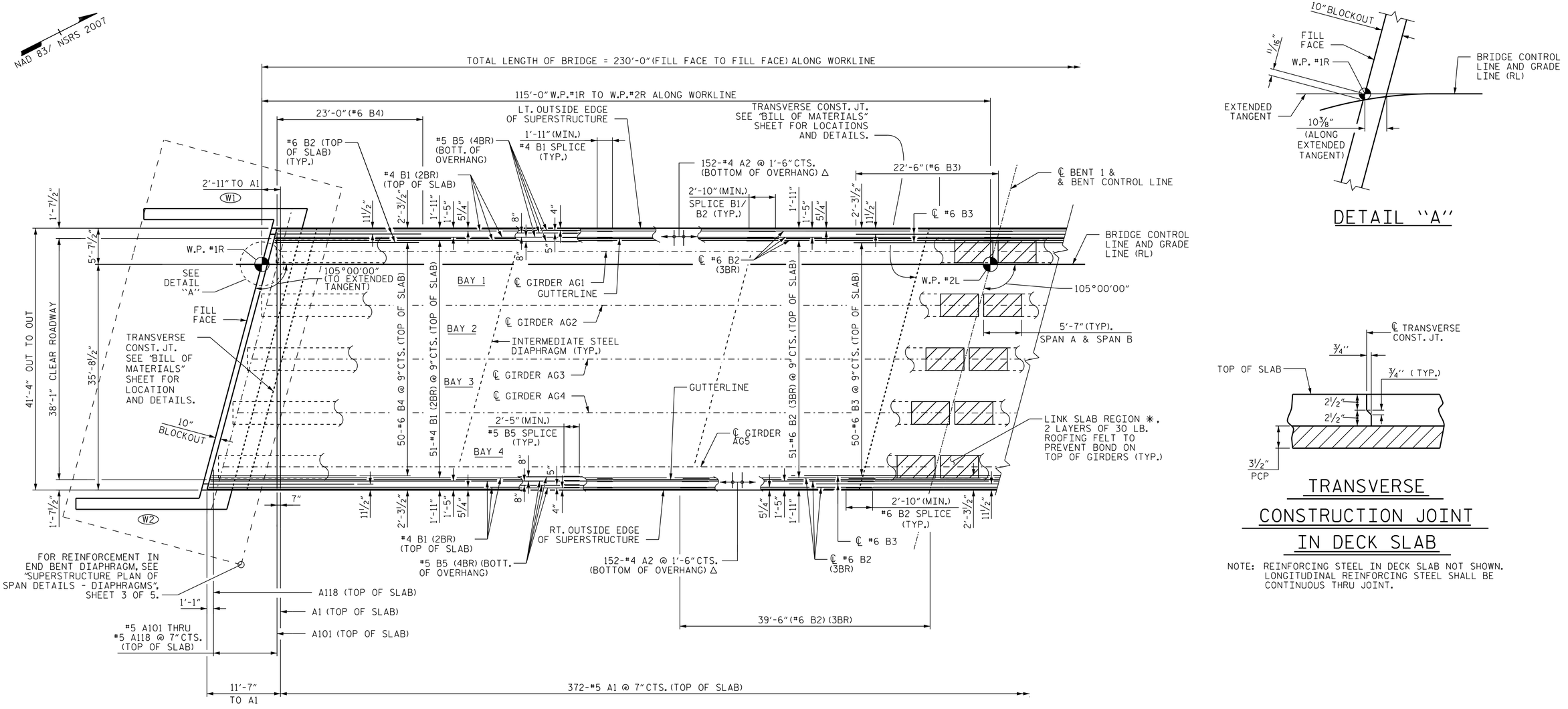

DETAIL "A"

TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

NOTE: REINFORCING STEEL IN DECK SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

PLAN OF SPAN
SPAN A

NOTE: (2BR) DENOTES TWO BAR RUN
(3BR) DENOTES THREE BAR RUN
(4BR) DENOTES FOUR BAR RUN

✳ THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

△ #5 B5 BARS NOW SHOWN FOR CLARITY.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPAN (SPAN A)

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NO.	BY:	DATE:	NO.	BY:	DATE:	S07-10
1			3			TOTAL SHEETS
2			4			37

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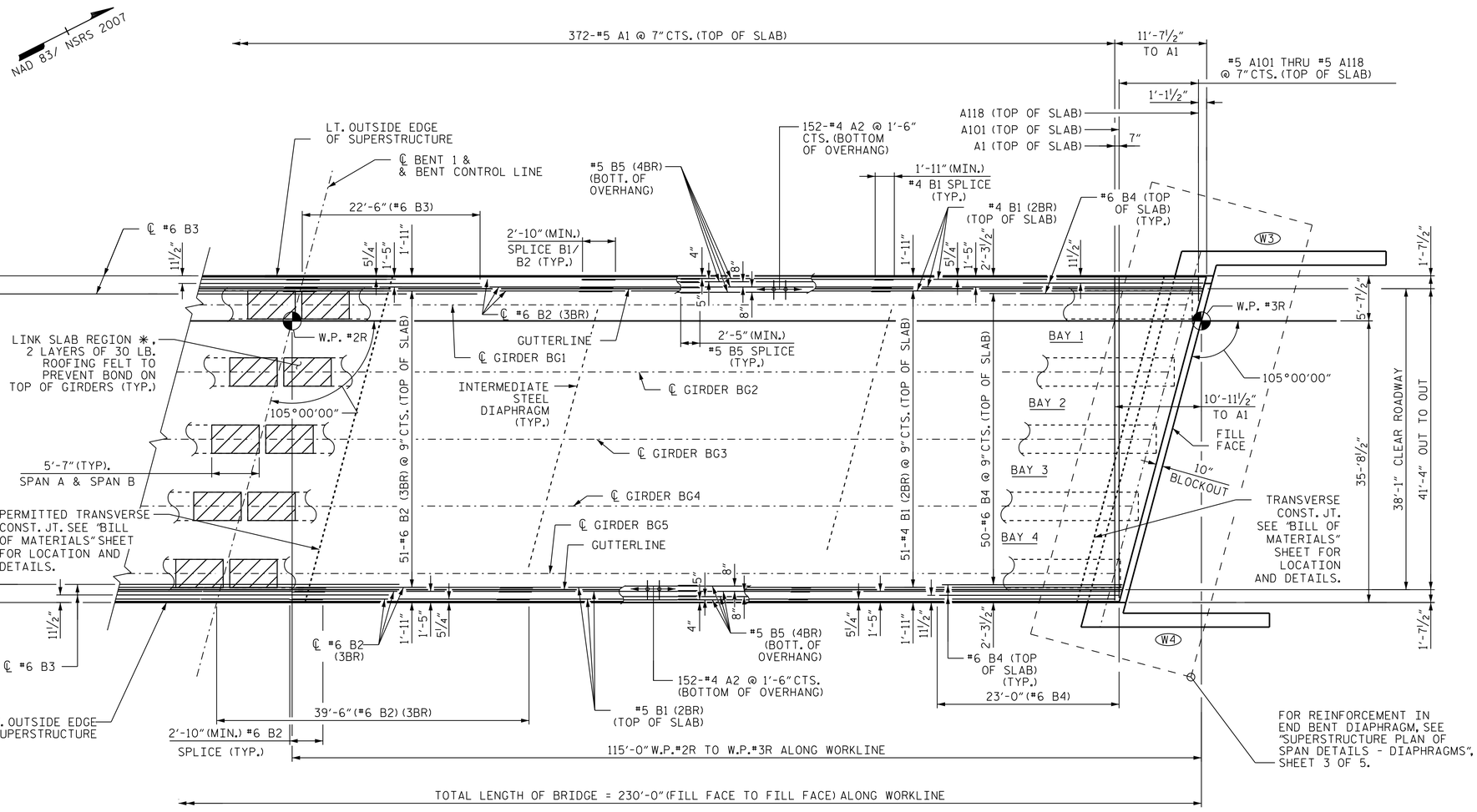

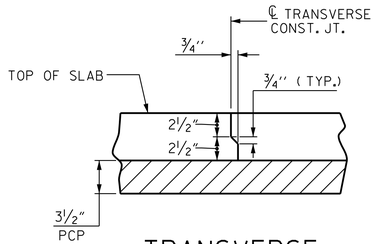

TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

NOTE: REINFORCING STEEL IN DECK SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

PLAN OF SPAN
SPAN B

NOTE: (2BR) DENOTES TWO BAR RUN
(3BR) DENOTES THREE BAR RUN
(4BR) DENOTES FOUR BAR RUN

* THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.79 -L1-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN (SPAN B)

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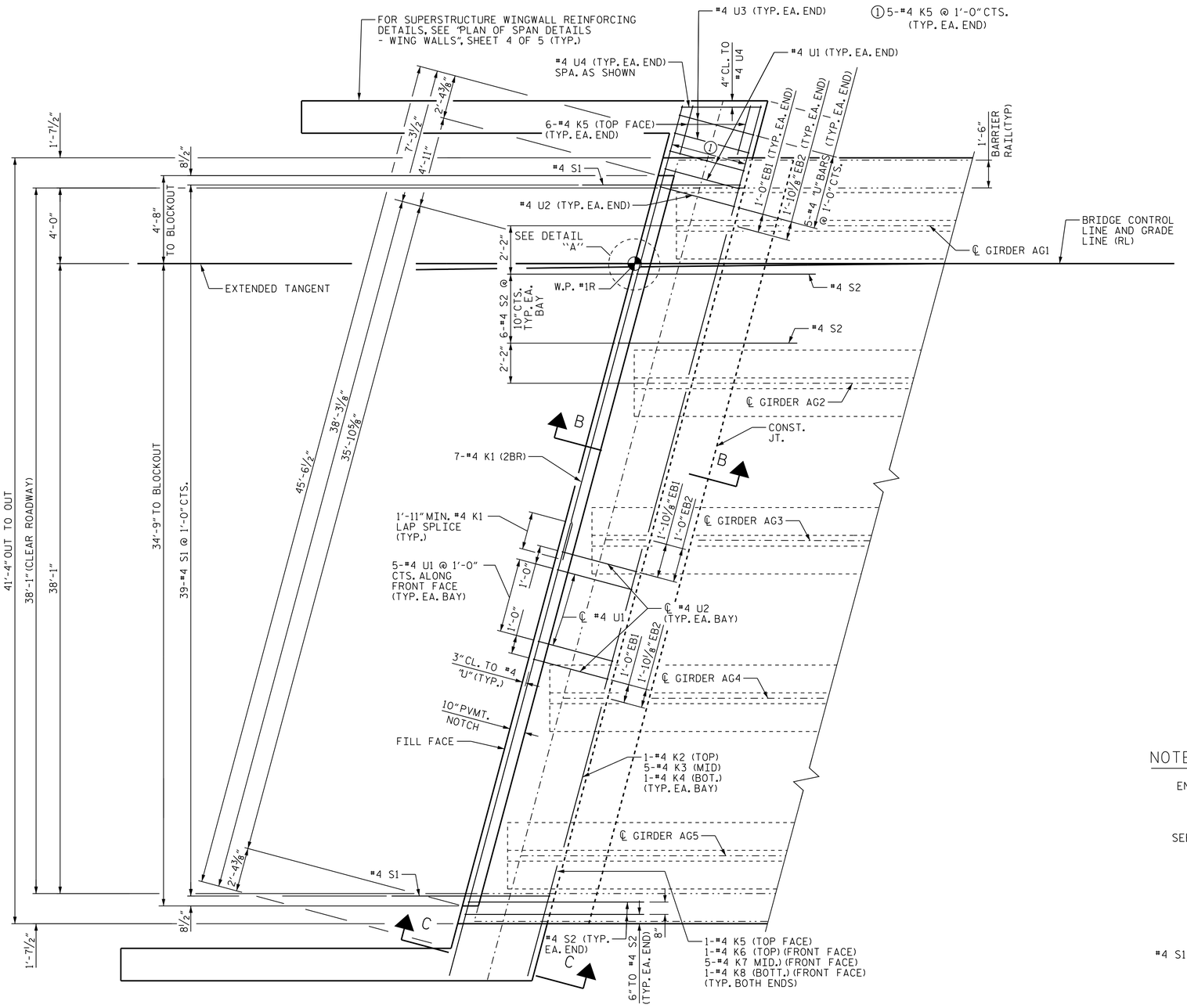
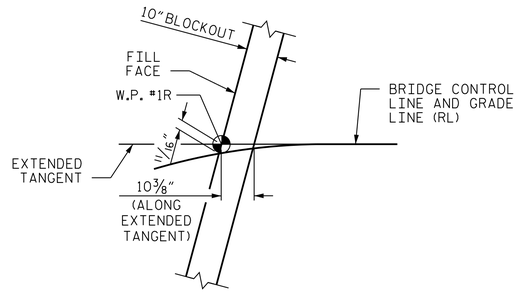


TYPICAL END BENT
DIAPHRAGM REINFORCING DETAIL



DETAIL "A"

NOTES:

END BENT 1 (SHOWN); END BENT 2 (SIMILAR BUT ROTATED / MIRRORED)

"V" BARS NOT SHOWN FOR CLARITY, SEE SHEETS 4 AND 5 OF 5 FOR ADDITIONAL REINFORCING DETAILS.

(2BR) DENOTES 2 BAR RUN.

EB1 DENOTES END BENT 1.

EB2 DENOTES END BENT 2.

#4 S1 BARS MAY BE REPOSITIONED AS NECESSARY TO CLEAR GIRDERS.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
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RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS
DETAILS - DIAPHRAGMS

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

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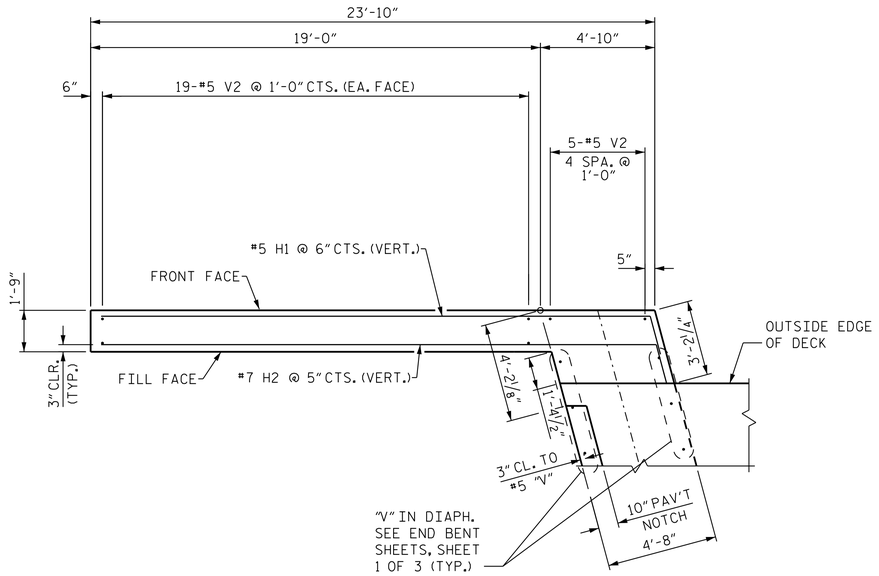
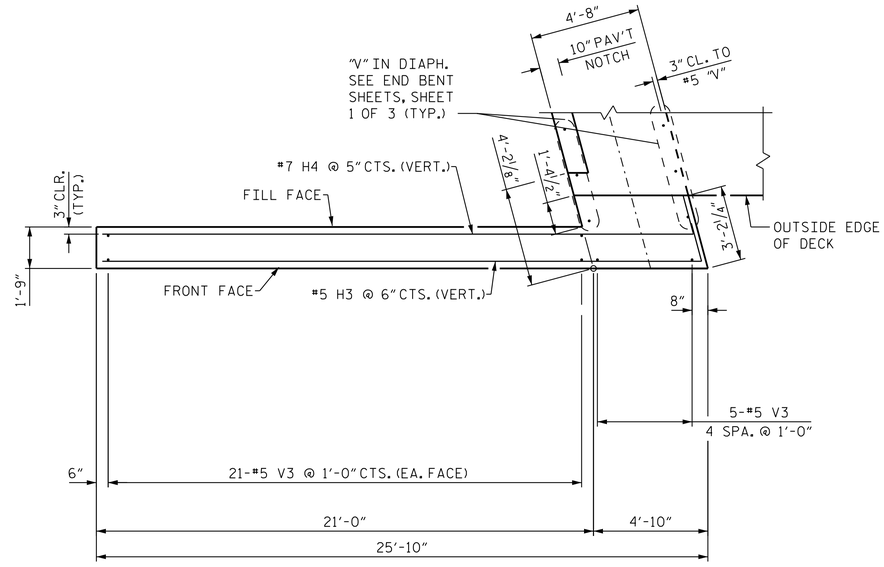
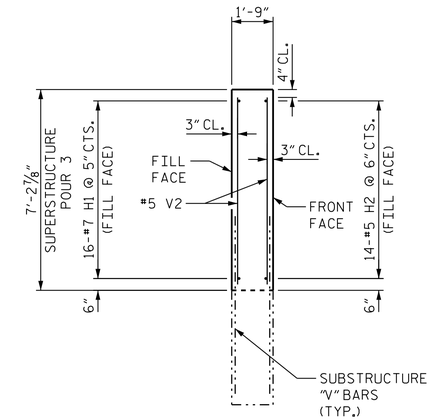


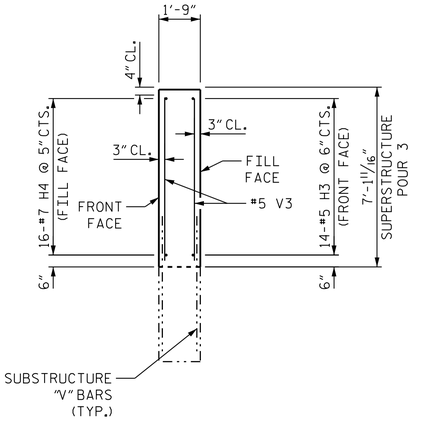
W1 PLAN OF LEFT WING



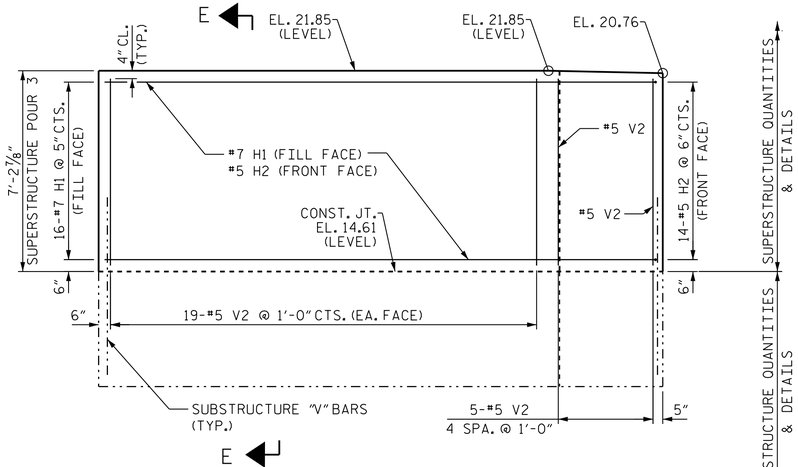
W2 PLAN OF RIGHT WING



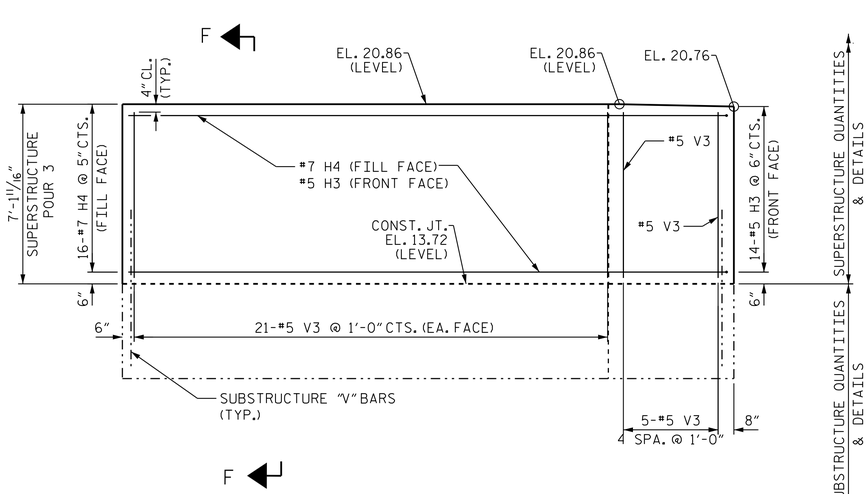
SECTION E-E



SECTION F-F



W1 ELEVATION OF LEFT WING



W2 ELEVATION OF RIGHT WING

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS
DETAILS -
WING WALLS

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

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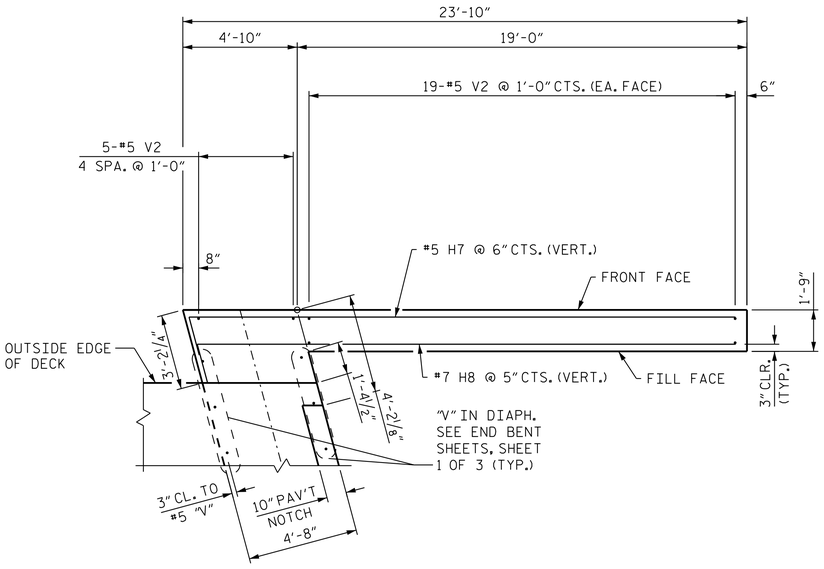
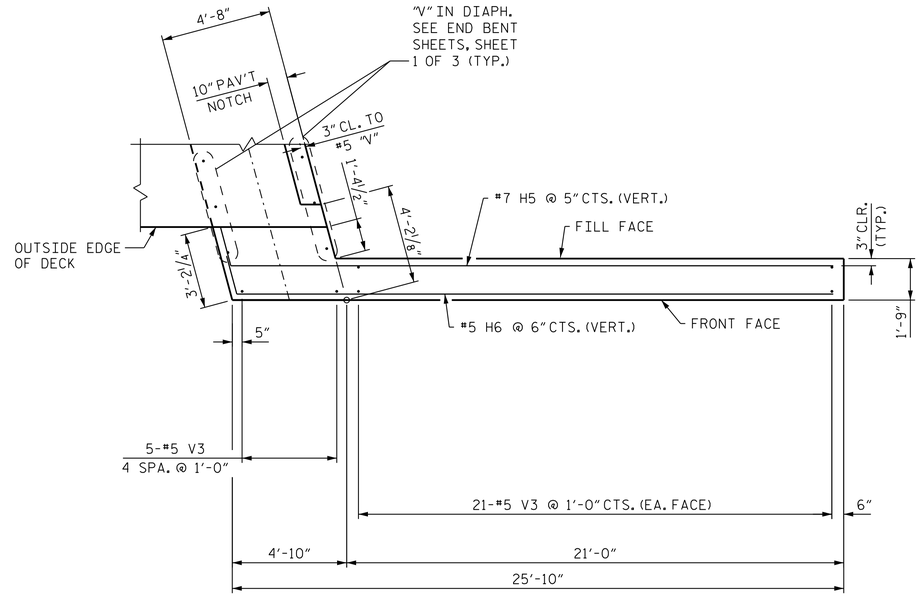
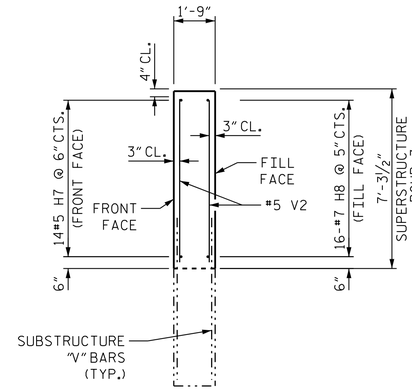


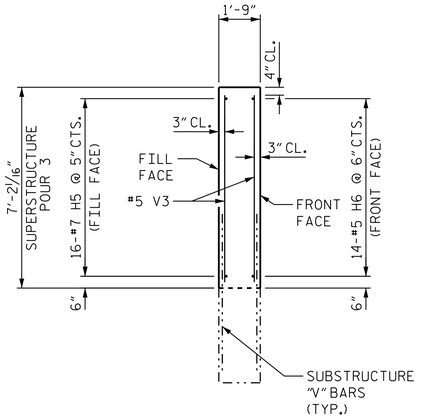
(W3) PLAN OF LEFT WING



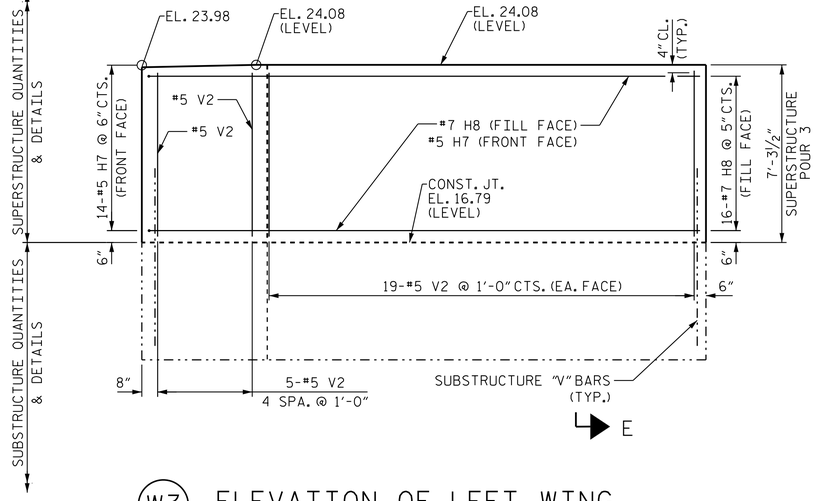
(W4) PLAN OF RIGHT WING



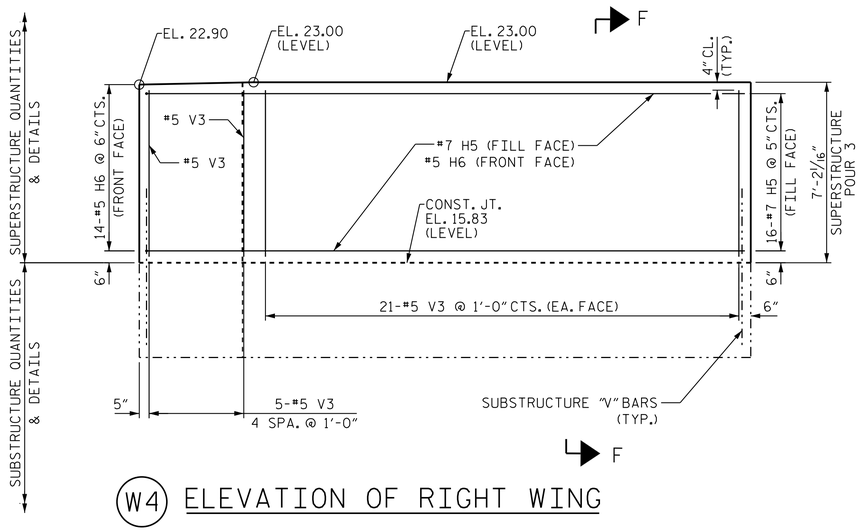
SECTION E-E



SECTION F-F



(W3) ELEVATION OF LEFT WING



(W4) ELEVATION OF RIGHT WING

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS DETAILS - WING WALLS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-14
1			3			TOTAL SHEETS
2			4			37

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

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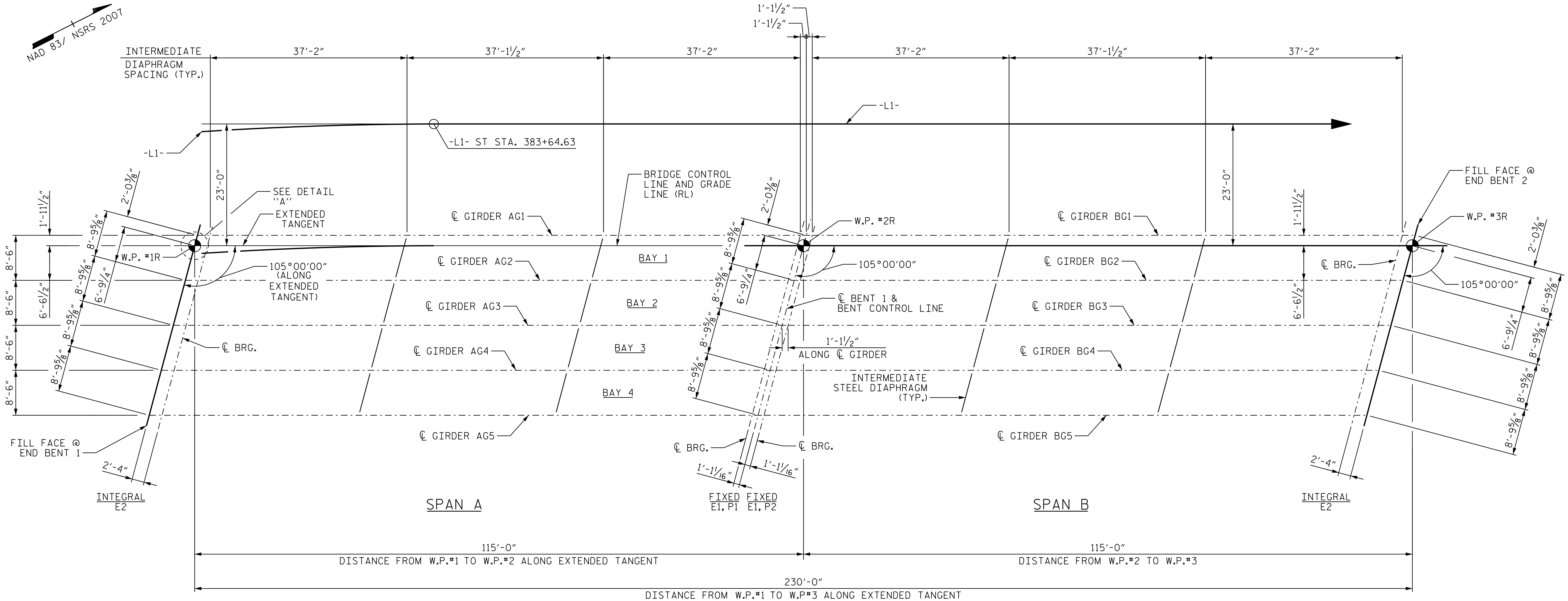
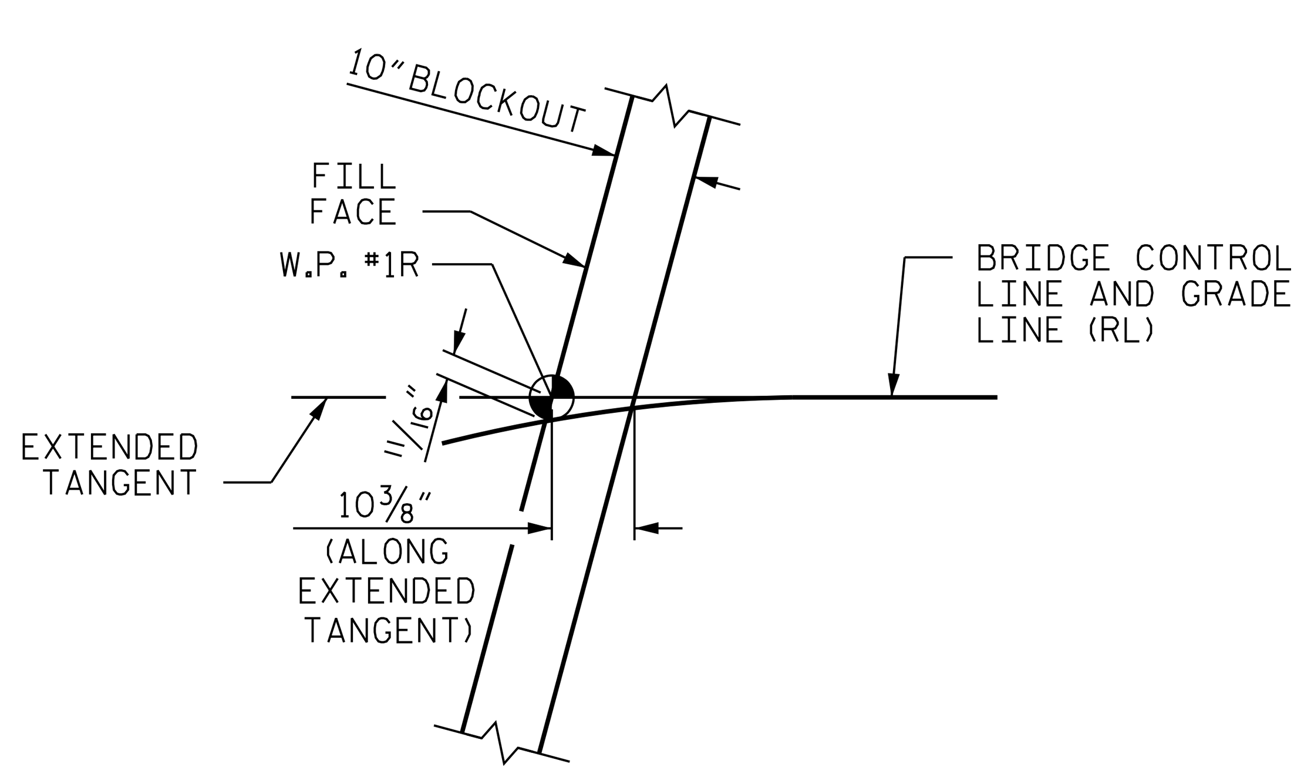


FRAMING PLAN



DETAIL "A"

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE FRAMING PLAN

SEAL 54498 — NORTH CAROLINA PROFESSIONAL ENGINEER — SETH S. POOLE
Signed by: 5/5/2025

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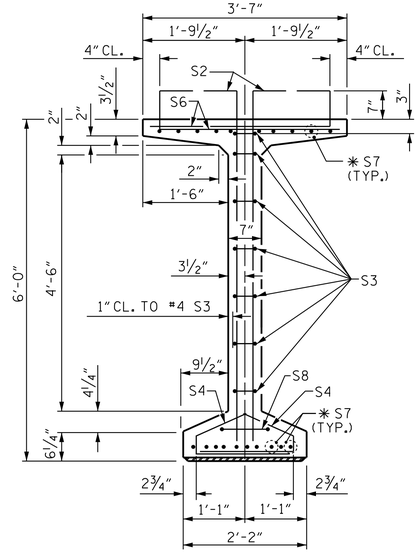
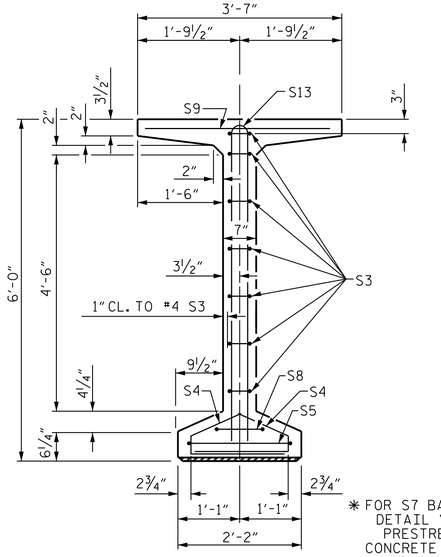
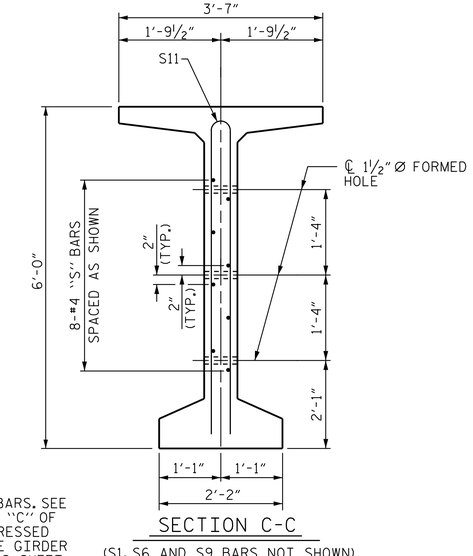


SECTION A-A



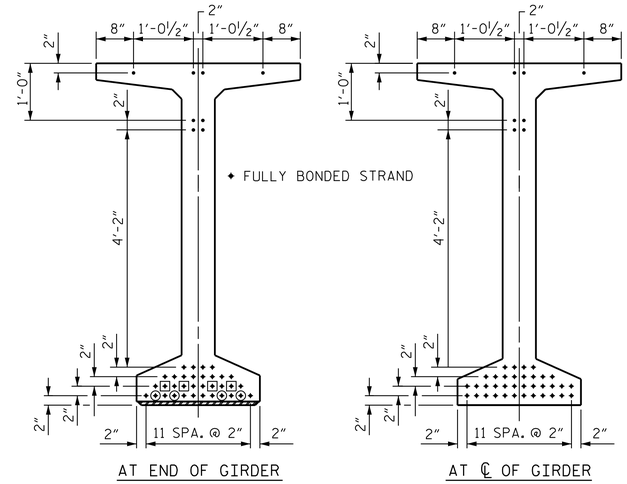
SECTION B-B

✱ FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER DETAILS SHEET



SECTION C-C

(S1, S6 AND S9 BARS NOT SHOWN)



0.6" Ø LOW RELAXATION STRAND LAYOUT

✱ THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

DEBONDING LEGEND

- ● FULLY BONDED STRANDS
- ◘ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ⊙ STRANDS DEBONDED FOR 16'-0" FROM END OF GIRDER

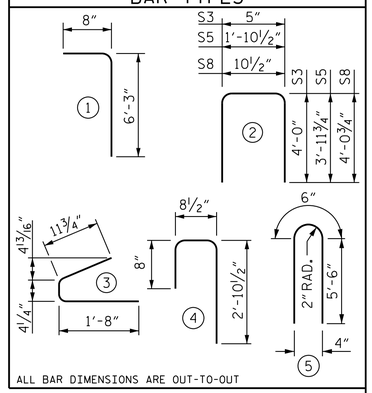
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	186	#5	1	6'-11"	1,426
S2	14	#6	1	6'-11"	146
S3	14	#4	2	8'-5"	79
S4	88	#4	3	3'-0"	177
S5	1	#4	2	9'-10"	11
S6	200	#5	4	4'-3"	887
✱ S7	20	#5	STR	3'-8"	77
S8	2	#5	2	9'-0"	19
S9	60	#5	STR	3'-3"	204
S10	1	#3	STR	1'-10"	1
S11	15	#5	5	11'-6"	180
S12	16	#4	STR	8'-0"	86
S13	14	#6	5	11'-6"	242

✱ NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	9,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
	3,451	24.2	42

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
10	112'-10½"	1128'-9"

PROJECT NO. R-3300A

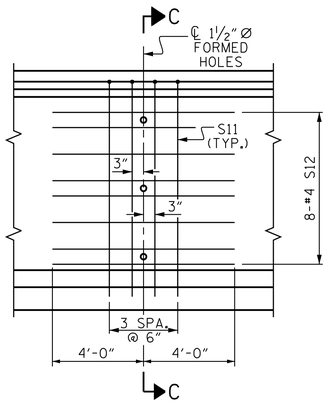
NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 3

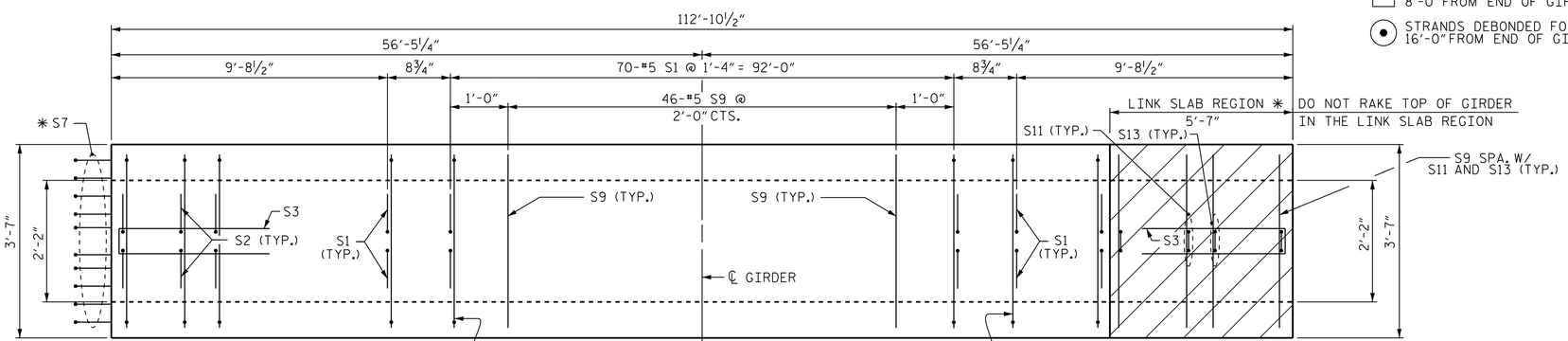
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD SPAN A & SPAN B

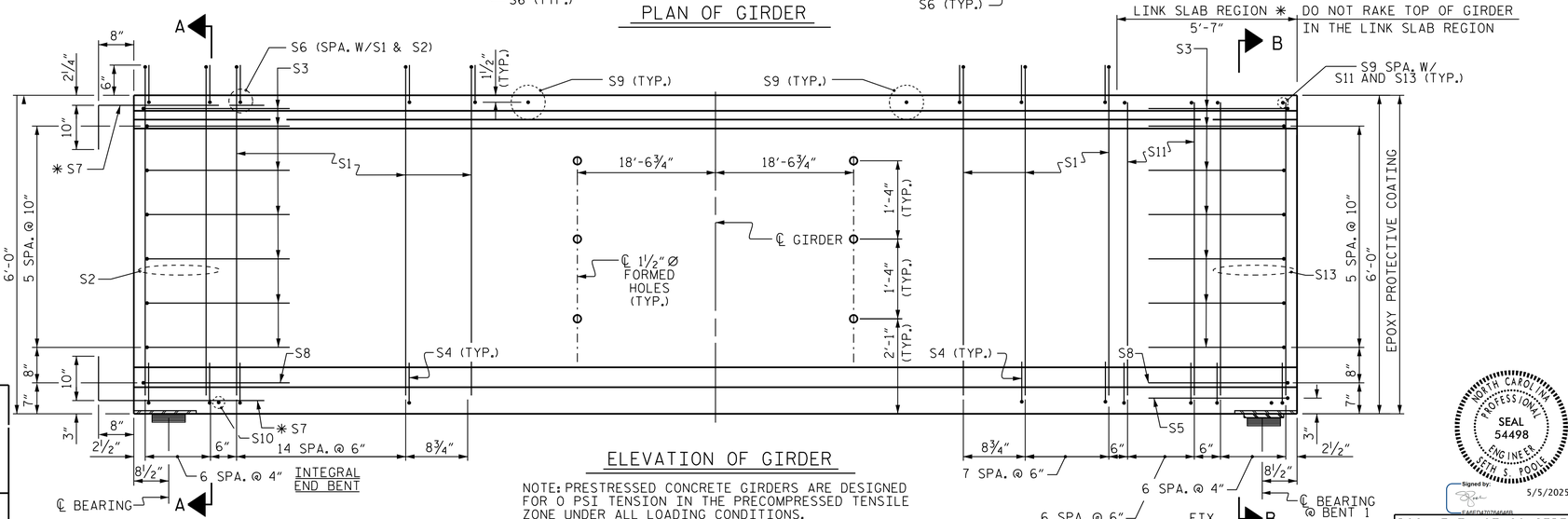


PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDERS AG1-AG5 AND BG1-BG5



PLAN OF GIRDER



ELEVATION OF GIRDER

NOTE: PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

SPAN A SHOWN SPAN B OPPOSITE HAND.

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ASSEMBLED BY : J. GUERRERO	DATE : 10/24/18		
CHECKED BY : T. N. ENNIS	DATE : 10/25/21		
DRAWN BY : EEM 2/6/97	REV. 6/13	MAA/GM	DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25
CHECKED BY : VAP 2/6/97	REV. 1/15	MAA/TMG	
	REV. 12/17	MAA/THC	

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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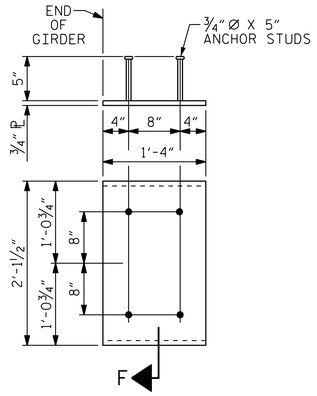
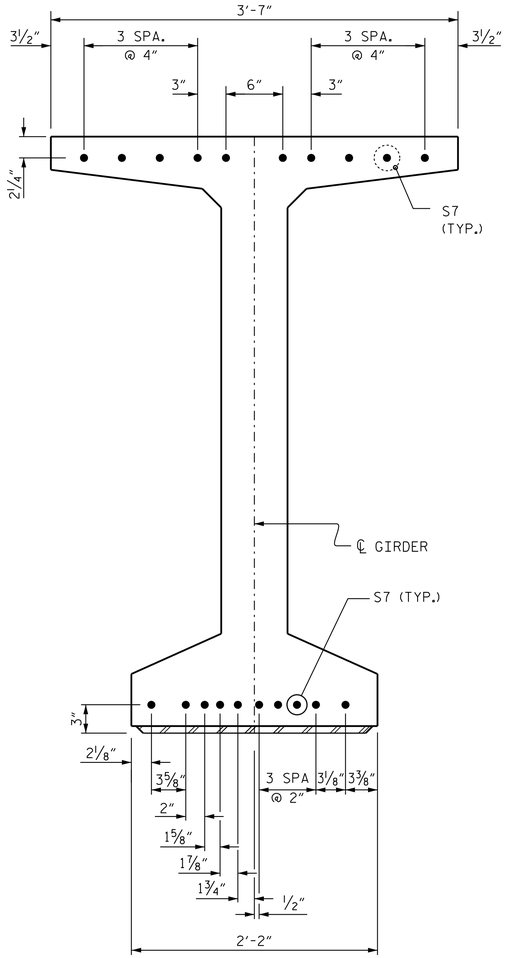


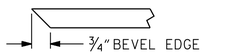
EMBEDDED PLATE "B-1" DETAILS FOR 72" MODIFIED BULB TEES

(2 REQ'D PER GIRDER)



DETAIL "C"

(FOR 72" MODIFIED BULB TEES)



SECTION "F"

(SEE NOTES)

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 SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7,000 PSI.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF ¼".

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN ½" OF THE THEORETICAL LOCATION SHOWN.

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 72" MODIFIED BULB TEES ONLY.

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 PSI TENSION IN THE PRE-COMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE (GIRDERS, PRECAST DECK PANELS) SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE ARTICLE 1078-4(H) OF STANDARD SPECIFICATIONS FOR CALCIUM NITRITE CORROSION INHIBITOR.

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ASSEMBLED BY : J. GUERRERO	DATE : 10/24/18	
CHECKED BY : T. N. ENNIS	DATE : 10/25/21	
DRAWN BY : ELR 11/91	REV. 1/15	MAA/TMG
CHECKED BY : GRP 11/91	REV. 2/15	MAA/TMG
	REV. 12/17	MAA/THC

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
MODIFIED 72"
PRESTRESSED CONCRETE
GIRDER DETAILS

(RIGHT LANE)

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S POOLE

Signed by: 5/5/2025

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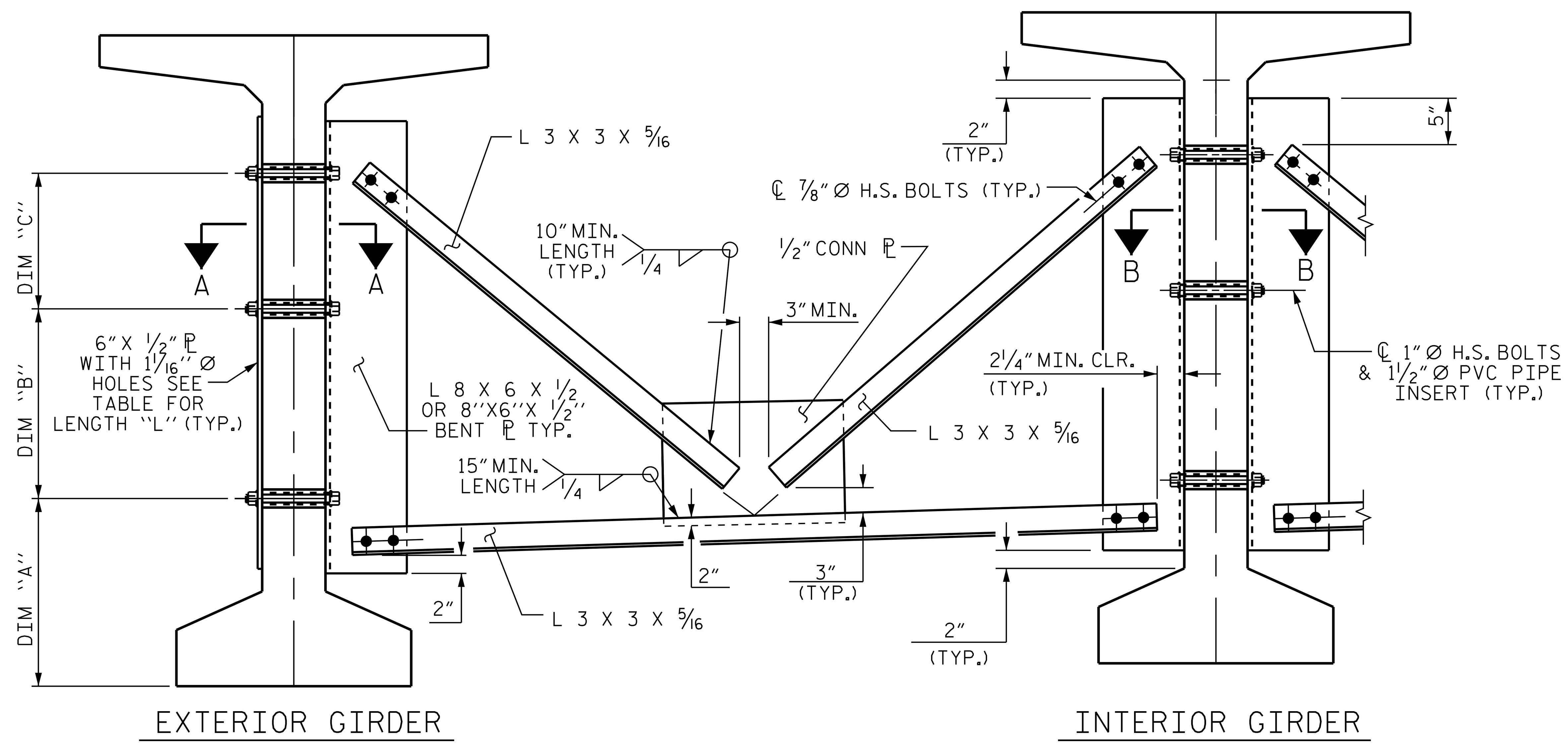
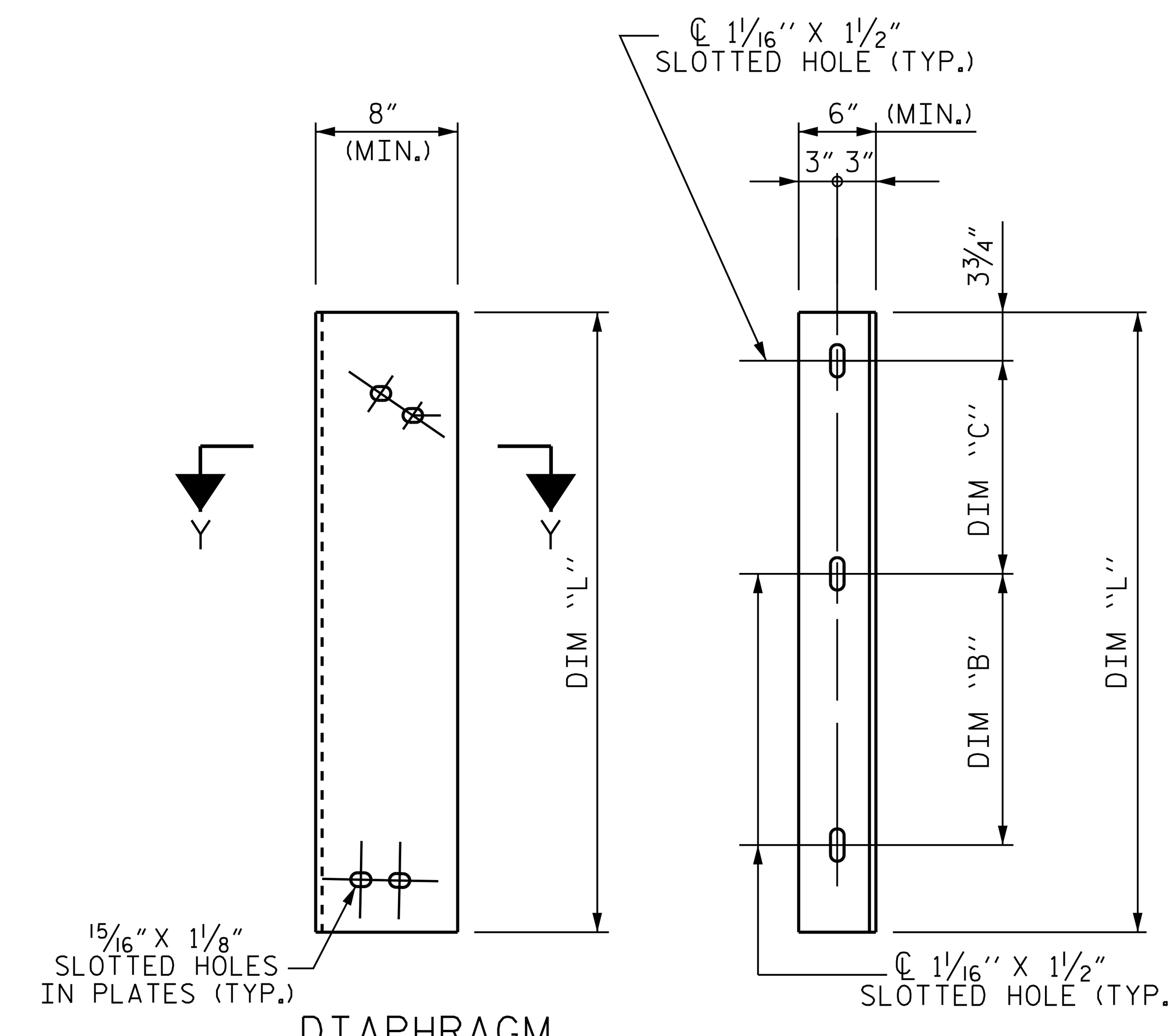
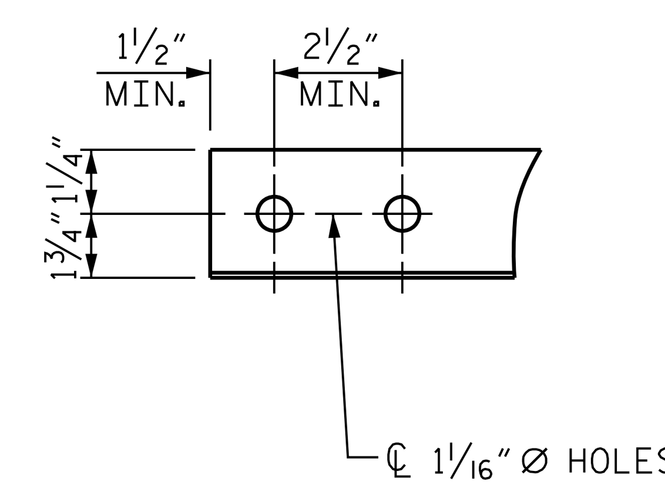


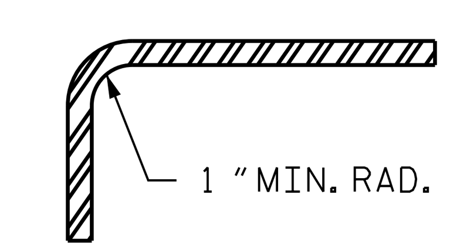
PART SECTION AT INTERMEDIATE DIAPHRAGM





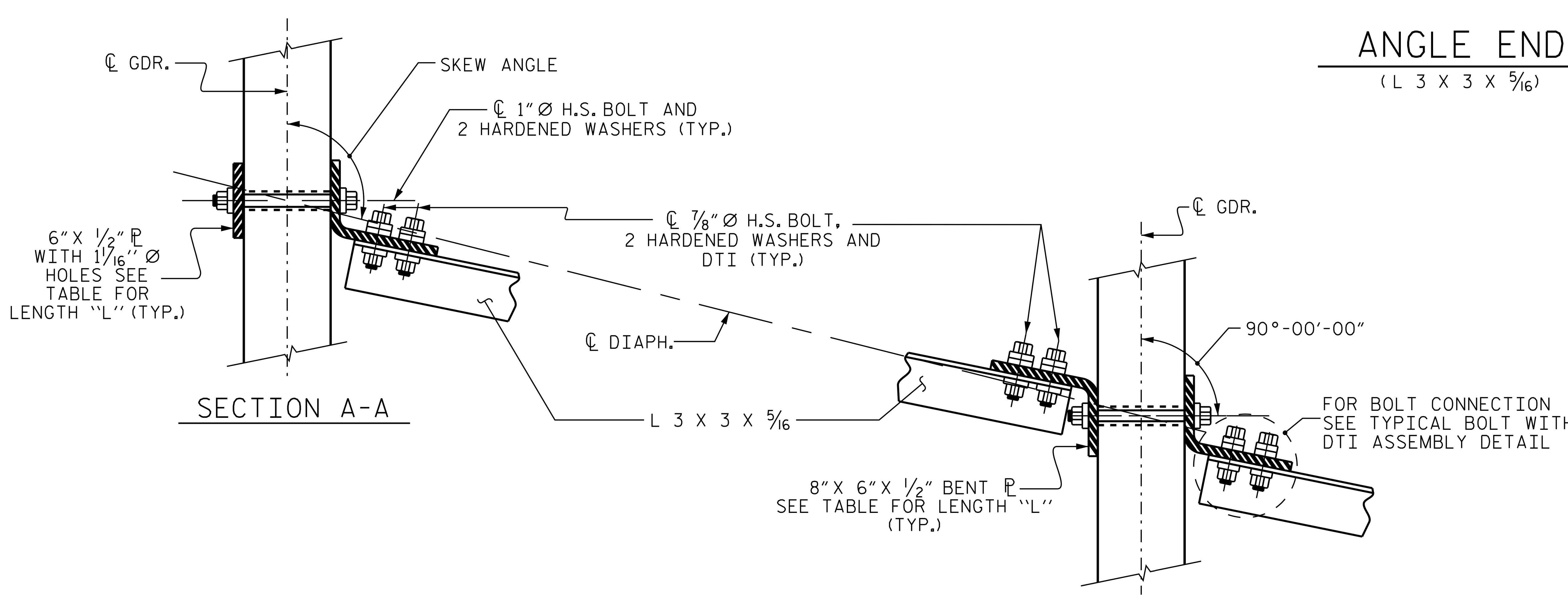
ANGLE END

(L 3 X 3 X 5/16)

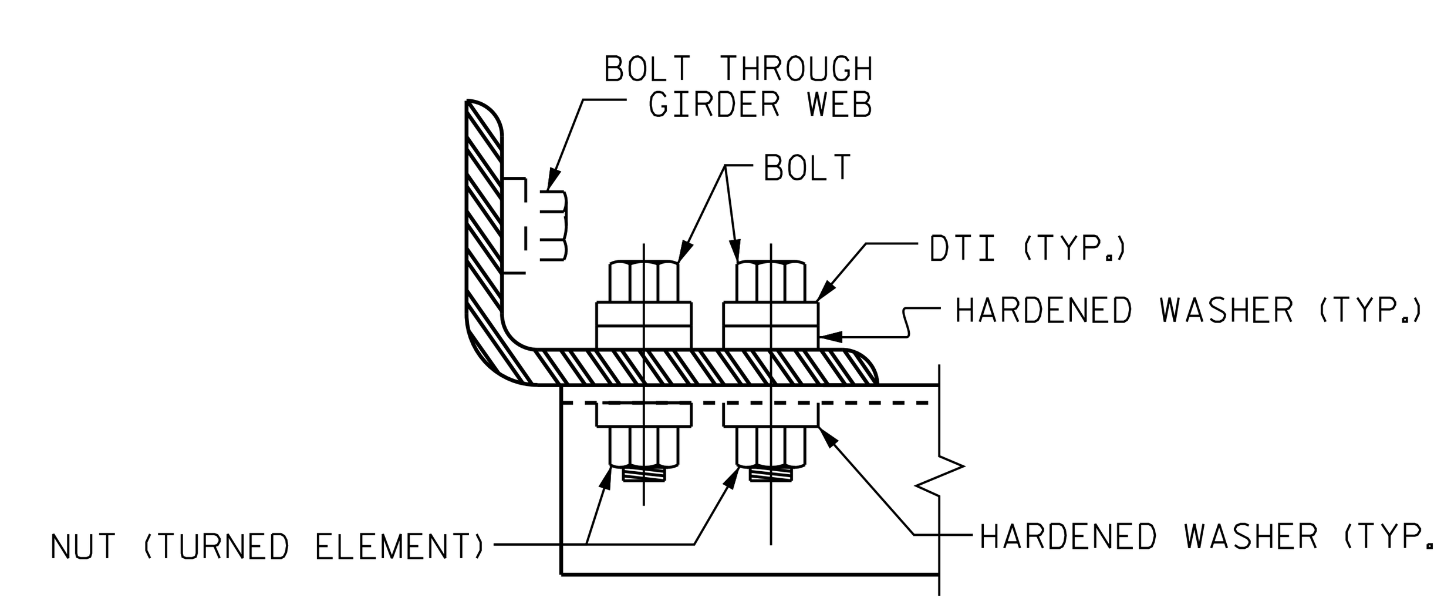


SECTION Y-Y

CONNECTOR PLATE DETAIL



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, AND ANGLES SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
MODIFIED 72" PRESTRESSED CONCRETE GIRDER	1'-8"	1'-4"	1'-4"	4'-2"

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED 72" PRESTRESSED CONCRETE GIRDER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 54498 SETH S. POOLE

Signed by: 5/5/2025

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DRAWN BY : RWW 11/09
CHECKED BY : GM 11/09

REV. 10/1/11 MAA/GM
REV. 12/17 MAA/THC

ASSEMBLED BY : J. B. GEILE DATE : 09/15/21
CHECKED BY : S. S. POOLE DATE : 01/12/25

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

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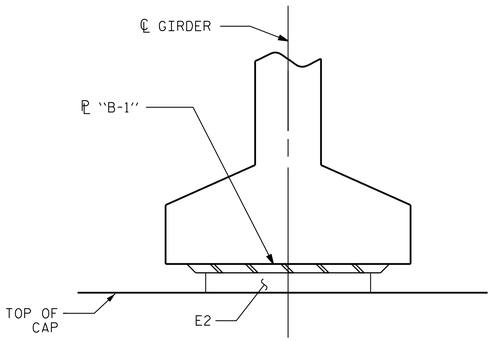
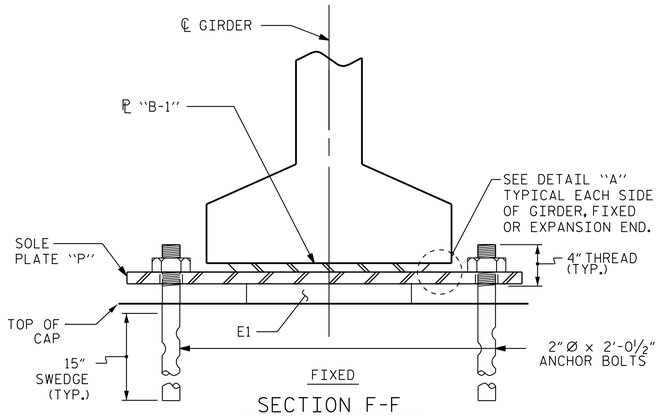


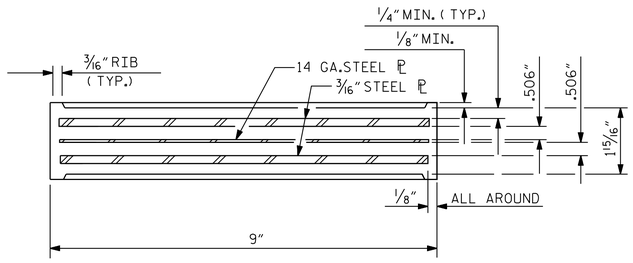
SECTION E-E

INTEGRAL END BENTS 1 & 2

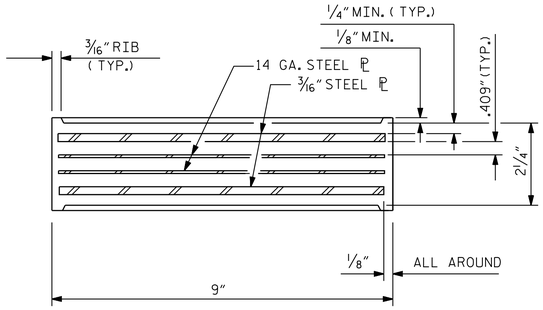


SECTION F-F

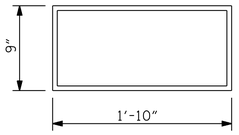
BENT 1



TYPICAL SECTION OF ELASTOMERIC BEARINGS



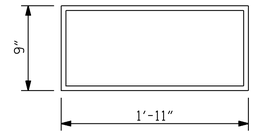
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E2 (10 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

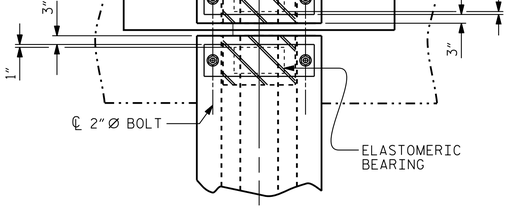
TYPE IV



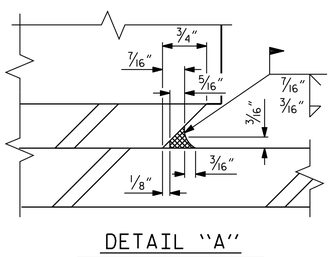
E1 (10 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

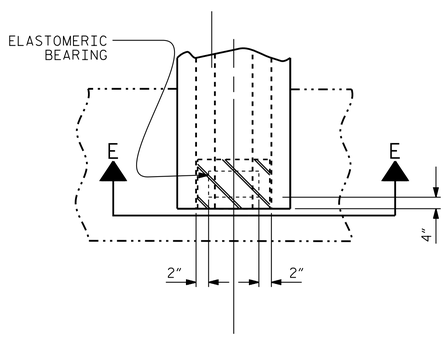
TYPE V



TYPICAL PLAN

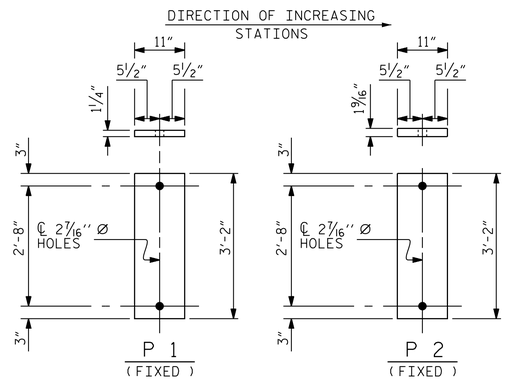


DETAIL "A"



TYPICAL PLAN

(SHOWING INTEGRAL END BENT)



P1 (5 REQ'D)

P2 (5 REQ'D)

SOLE PLATE DETAILS ("P")

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2"Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, AND NUTS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 K
TYPE V	365 K

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

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DRAWN BY : J. GUERRERO DATE : 10/24/18

CHECKED BY : S. S. POOLE DATE : 01/12/25

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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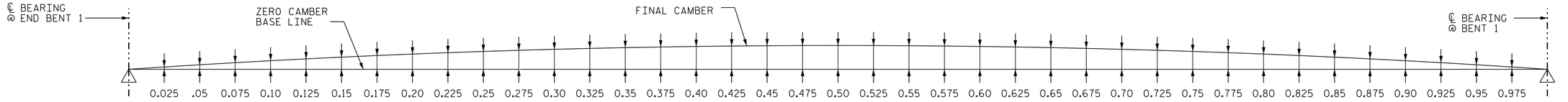
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
ELASTOMERIC BEARING DETAILS
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

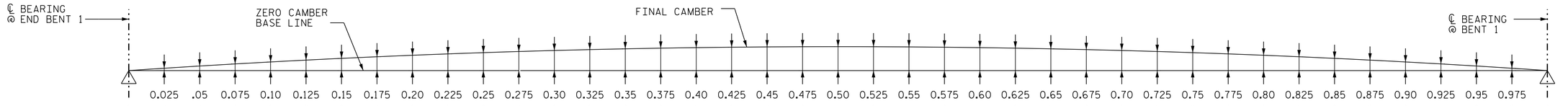
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-19
1			3			TOTAL SHEETS
2			4			37



GIRDER AG1

FORTIETH POINTS BETWEEN BRGS.																																							
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↑	0.000	0.009	0.017	0.026	0.035	0.043	0.051	0.059	0.067	0.074	0.080	0.087	0.093	0.097	0.102	0.106	0.110	0.111	0.113	0.114	0.116	0.114	0.113	0.111	0.110	0.106	0.102	0.098	0.094	0.087	0.081	0.074	0.068	0.060	0.052	0.043	0.035	0.026	0.018	0.009	0.000
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/16"	1/8"	3/16"	5/16"	3/8"	7/16"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	3/4"	3/4"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	3/4"	3/4"	3/4"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDERS AG2-AG5

FORTIETH POINTS BETWEEN BRGS.																																							
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↑	0.000	0.008	0.017	0.025	0.034	0.042	0.050	0.058	0.066	0.072	0.079	0.085	0.091	0.096	0.100	0.104	0.108	0.109	0.111	0.112	0.113	0.112	0.111	0.109	0.108	0.104	0.100	0.096	0.092	0.086	0.079	0.073	0.067	0.059	0.051	0.043	0.035	0.026	0.017	0.009	0.000
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* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES SPAN A

ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT
"FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.

(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD
DEFLECTIONS
(SPAN A)

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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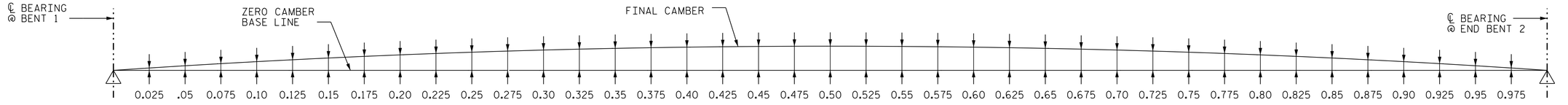
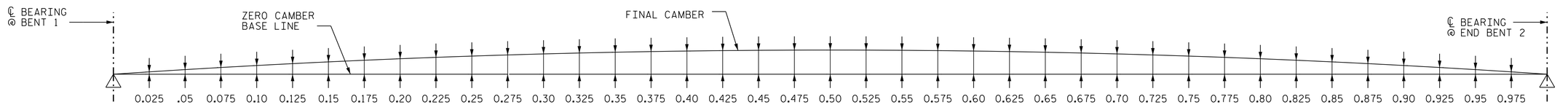


GIRDER BG1

FORTIETH POINTS BETWEEN BRGS.																																									
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↓	0.000	0.009	0.018	0.026	0.035	0.043	0.052	0.060	0.068	0.074	0.081	0.087	0.094	0.098	0.102	0.106	0.110	0.111	0.113	0.114	0.116	0.114	0.113	0.111	0.110	0.106	0.102	0.097	0.093	0.087	0.080	0.074	0.067	0.059	0.051	0.043	0.035	0.026	0.017	0.009	0.000
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	3/4"	3/4"	3/4"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	3/4"	3/4"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	7/16"	3/8"	5/16"	3/16"	1/8"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDERS BG2-BG5

FORTIETH POINTS BETWEEN BRGS.																																									
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.015	0.029	0.044	0.058	0.072	0.085	0.098	0.110	0.121	0.132	0.141	0.151	0.158	0.166	0.171	0.176	0.180	0.183	0.184	0.185	0.184	0.183	0.180	0.176	0.171	0.166	0.158	0.151	0.141	0.132	0.121	0.110	0.098	0.085	0.072	0.058	0.044	0.029	0.015	0.000
DEFLEC. DUE TO SUPERIMPOSED DL * ↓	0.000	0.009	0.017	0.026	0.035	0.043	0.051	0.059	0.067	0.073	0.079	0.086	0.092	0.096	0.100	0.104	0.108	0.109	0.111	0.112	0.113	0.112	0.111	0.109	0.108	0.104	0.100	0.096	0.091	0.085	0.079	0.072	0.066	0.058	0.050	0.042	0.034	0.025	0.017	0.008	0.000
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/16"	1/8"	3/16"	5/16"	3/8"	7/16"	7/16"	1/2"	9/16"	5/8"	11/16"	11/16"	3/4"	13/16"	13/16"	13/16"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	13/16"	13/16"	13/16"	3/4"	11/16"	11/16"	5/8"	9/16"	1/2"	1/2"	7/16"	3/8"	5/16"	1/4"	1/8"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES SPAN B

ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT "FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.

(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS (SPAN B)

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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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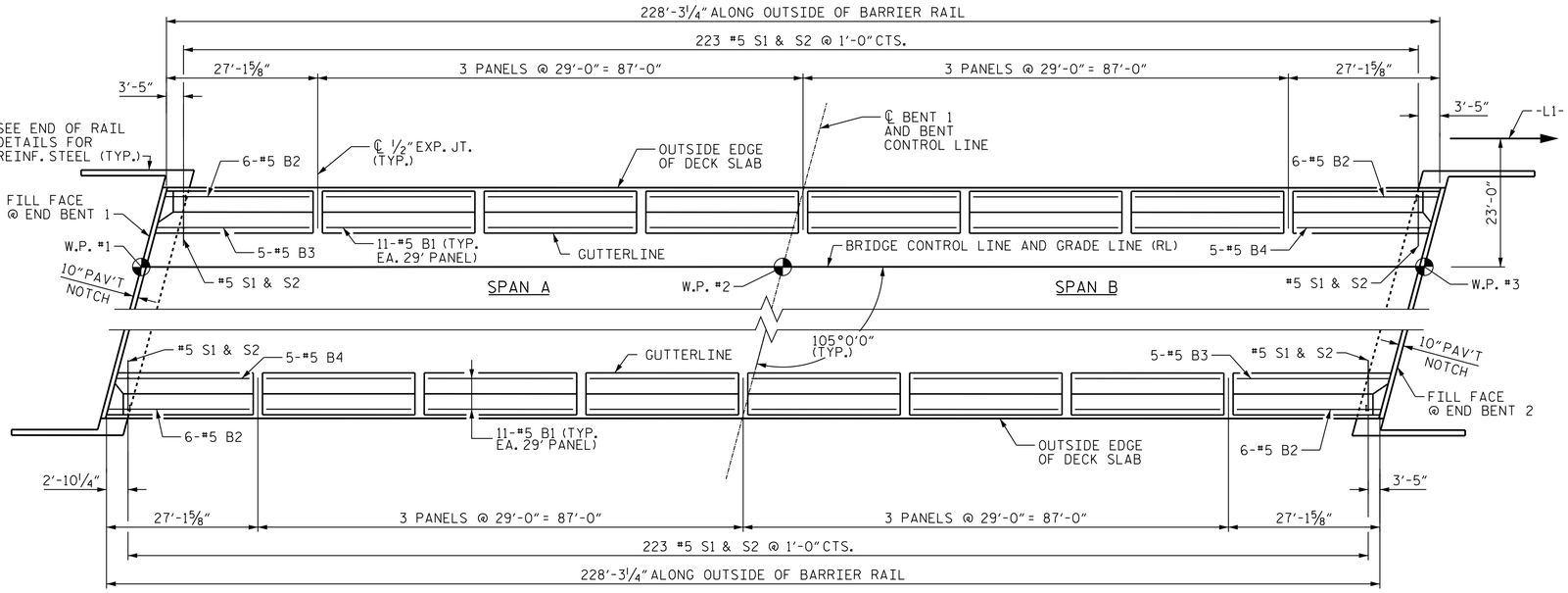
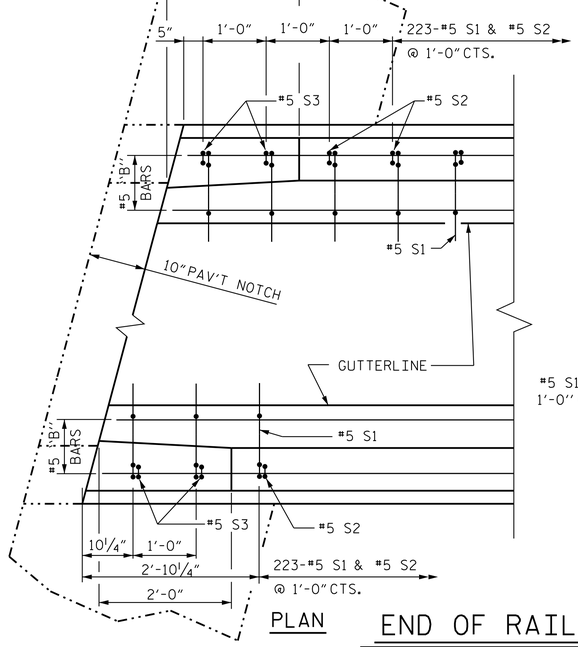
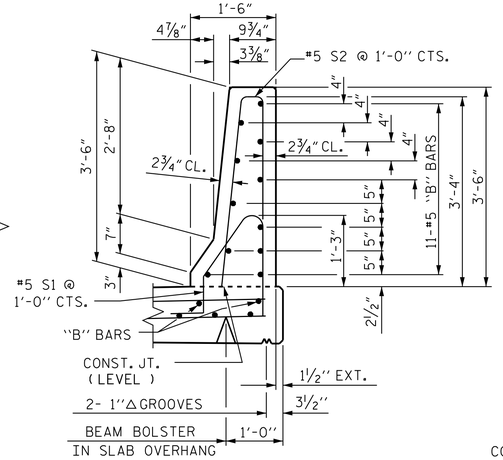
2			4			37



BARRIER RAIL PLAN



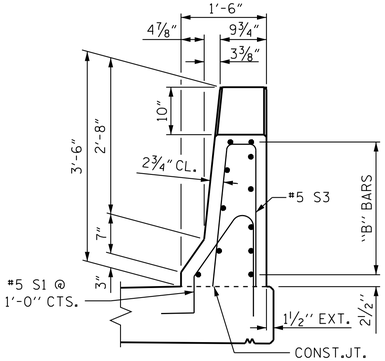
PLAN



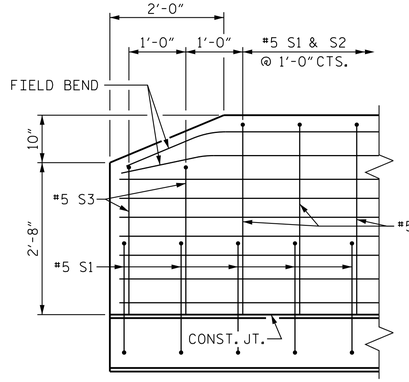
SECTION THRU RAIL

END OF RAIL DETAILS

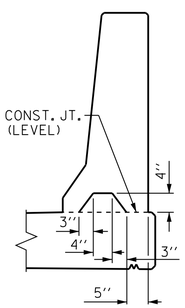
END BENT 1 SHOWN END BENT 2 TYP. BY ROTATION



END VIEW

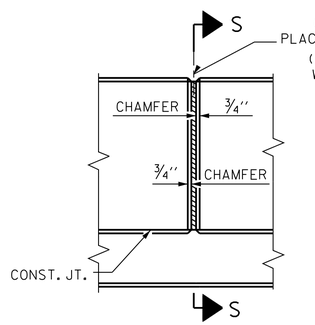


SIDE VIEW



SECTION S-S

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



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

NOTES

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

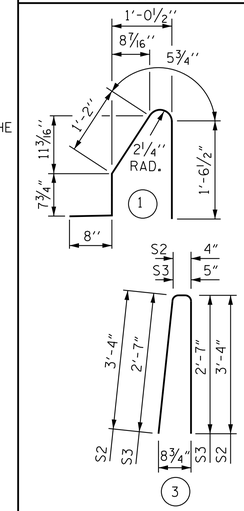
THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

ALL CONCRETE SHALL BE CLASS AA.

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. THE 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.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	132	#5	STR	28'-5"	3,913
✳ B2	24	#5	STR	26'-6"	664
✳ B3	10	#5	STR	26'-10"	280
✳ B4	10	#5	STR	26'-3"	274
✳ S1	456	#5	1	4'-6"	2,141
✳ S2	448	#5	2	7'-0"	3,271
✳ S3	8	#5	2	5'-6"	46

✳ EPOXY COATED REINFORCING STEEL	10,589 LBS.
CLASS AA CONCRETE	62.2 CU. YDS.
CONCRETE BARRIER RAIL	456.5 LIN. FT.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

CONCRETE BARRIER RAIL

Stantec
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Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25

DRAWN BY : ARB 5/87
CHECKED BY : SJD 9/87

REV. 7/12 MAA/GM
REV. 6/13 MAA/GM
REV. 12/17 MAA/GM

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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2			4			37

STD. NO. CBR1

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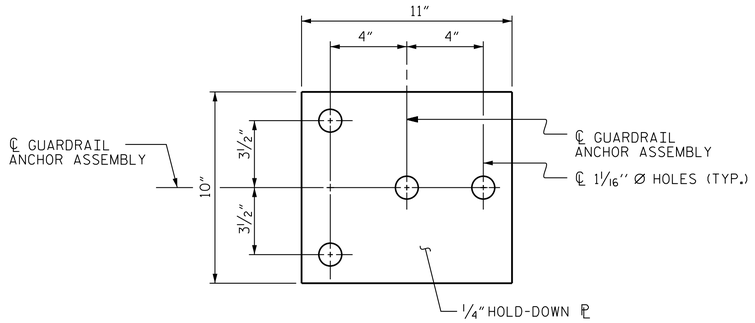
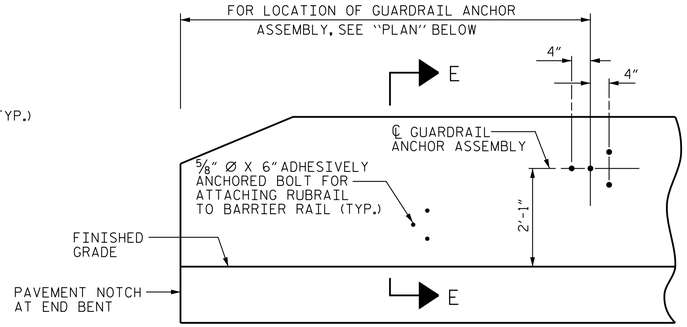
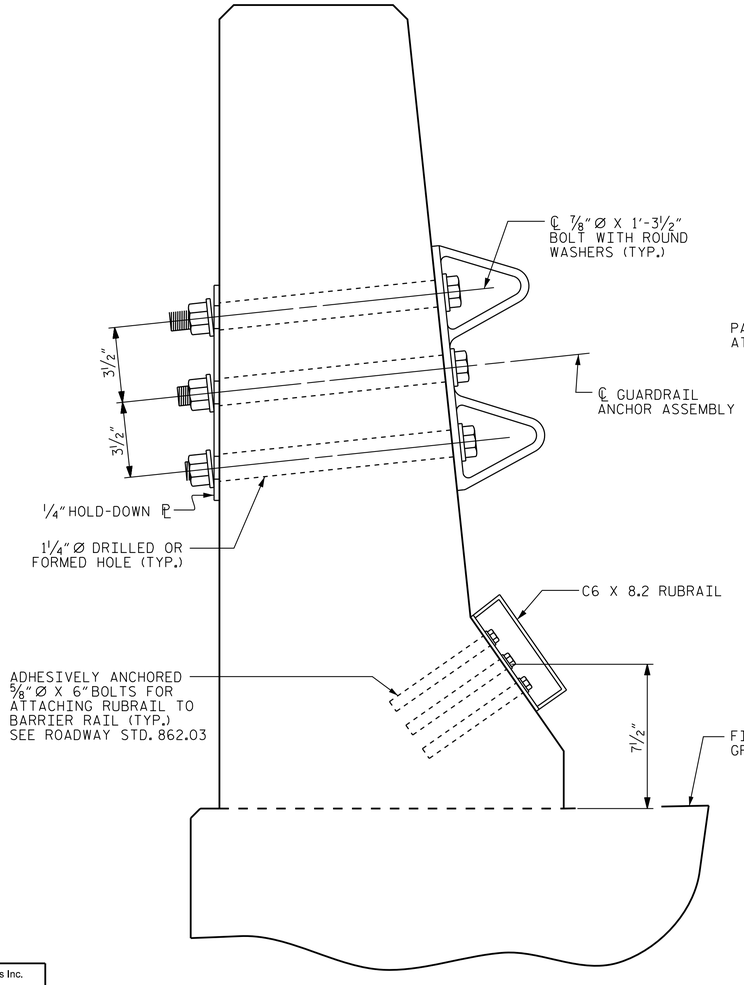


PLAN

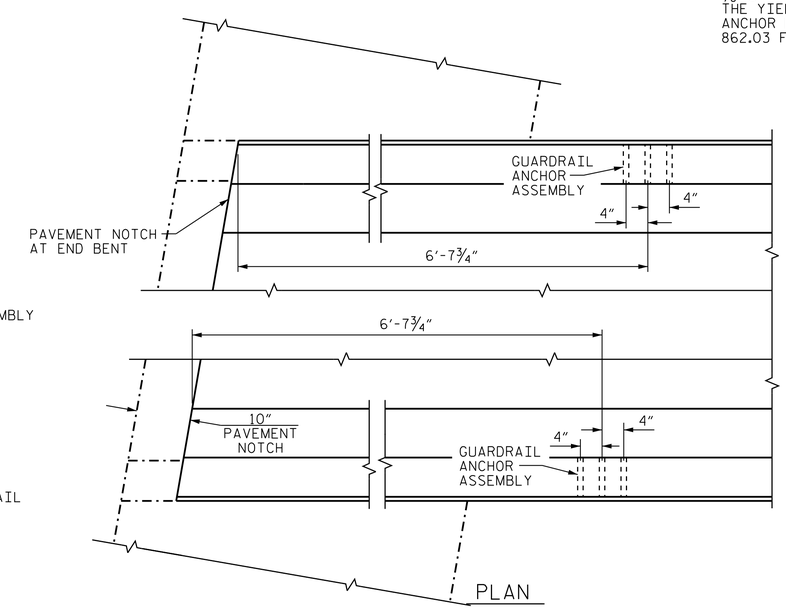


ELEVATION



SECTION E-E

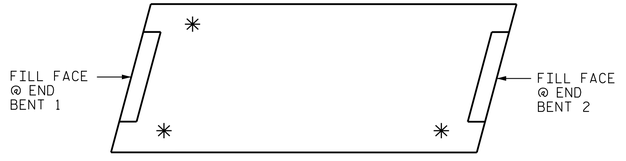
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

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

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 CONCRETE BARRIER RAIL.

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE FOR BARRIER RAIL

(RIGHT LANE)

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ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25

DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06

REV. 7/12 MAA/GM
REV. 6/13 MAA/GM
REV. 12/17 MAA/THC

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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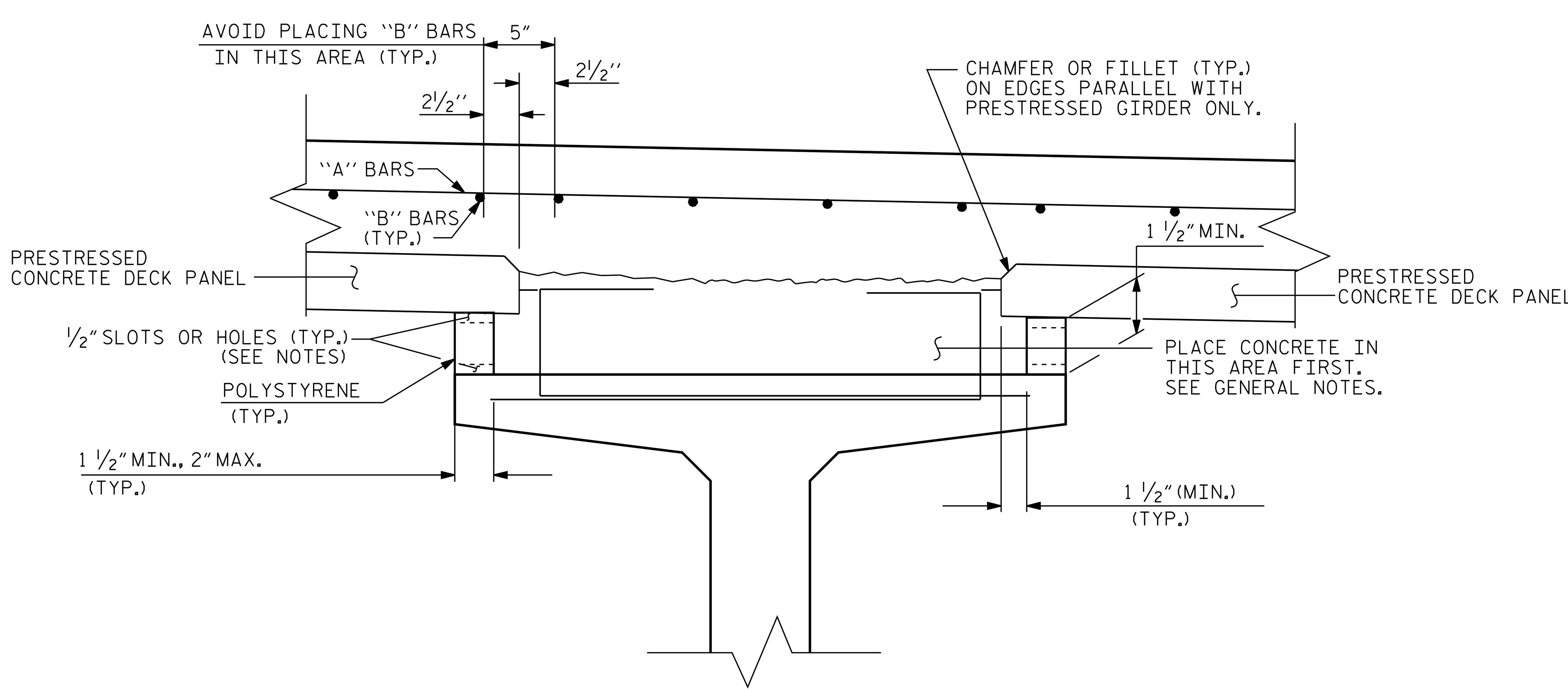
DECK PANEL SUPPORTS

THE CONTRACTOR SHALL PROVIDE THE DECK PANEL SUPPORT SYSTEM SHOWN OR HE MAY SUBMIT A DECK PANEL SUPPORT SYSTEM OF HIS OWN DESIGN TO THE ENGINEER FOR APPROVAL.

POLYSTYRENE SUPPORT SYSTEM

1. ALL POLYSTYRENE SHALL BE DOW STYROFOAM 60 HIGH-LOAD, UC INDUSTRIES FOAMULAR 600 OR APPROVED EQUAL.
2. THE POLYSTYRENE SUPPORT SYSTEM SHALL CONSIST OF ONE LAYER WITH A MINIMUM WIDTH OF 1½" AND A MAXIMUM WIDTH OF 2". THE POLYSTYRENE SHALL HAVE ½" X ½" WIDE SLOTS OR ½" DIAMETER HOLES AT 4'-0" CENTERS STAGGERED ALONG THE TOP AND BOTTOM.
3. THE POLYSTYRENE MAY BE CUT AND PLACED ON EDGE AS NECESSARY TO MATCH THE REQUIRED BUILDUP PROFILE ALONG THE GIRDER.
4. ADHESIVE, AS APPROVED BY THE ENGINEER, SHALL BE APPLIED TO THE TOP OF THE GIRDER IN A CONTINUOUS BEAD AND IN SUFFICIENT AMOUNT TO PREVENT THE POLYSTYRENE FROM BLOWING OUT AND TO PREVENT GAPS FROM FORMING BETWEEN THE POLYSTYRENE AND THE GIRDER. PRIOR TO PLACEMENT OF THE DECK PANELS, THE ADHESIVE SHALL ALSO BE APPLIED TO THE TOP OF THE POLYSTYRENE.
5. CONCRETE-FILLED BUCKETS, STACKS OF DECK PANELS, BUNDLED REINFORCING BARS OR OTHER HEAVY CONCENTRATED LOADS WILL NOT BE PERMITTED ON THE DECK PANEL ONCE THE PANEL HAS BEEN PLACED ON THE POLYSTYRENE SUPPORT SYSTEM.



POLYSTYRENE SUPPORT

GENERAL NOTES

1. THE DESIGN COMPRESSIVE STRENGTH (f'c) FOR THE CONCRETE IN PRESTRESSED PANELS SHALL BE 5000 PSI MINIMUM AT 28 DAYS. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF RELEASE OF STRANDS SHALL BE 4000 PSI MINIMUM. CONCRETE FOR PRECAST PANELS SHALL BE CLASS AA.
2. THE PRECAST PRESTRESSED PANEL SHALL HAVE A THICKNESS OF 3 ½" WITH THE PRESTRESSED STRANDS LOCATED AT HALF THE DEPTH OF THE PANEL.
3. FOR SKEWED SPANS, TRAPEZOIDAL CLOSURE PANELS SHALL HAVE A MINIMUM WIDTH OF 2 FEET ON THE SHORT SIDE.
4. ALL PRESTRESSING STRANDS SHALL EXTEND 2" BEYOND THE PANEL EDGES.
5. SHEAR REINFORCING OF 0.60 SQ. INCHES OF REINFORCING STEEL PER 10 SQ. FEET OF PANEL SURFACE SHALL BE PROVIDED IN THE PANEL TO ENSURE COMPOSITE ACTION BETWEEN PANEL AND THE CAST-IN-PLACE CONCRETE. SHEAR REINFORCEMENT SHALL BE MADE OF WELDED WIRE HAVING A MINIMUM YIELD STRENGTH OF 60 KSI.
6. SHEAR REINFORCEMENT AND LIFTING DEVICES SHALL BE CONSTRUCTED AND PLACED SO AS TO AVOID ANY INTERFERENCE WITH REINFORCING STEEL IN THE CAST-IN-PLACE DECK SLAB AND TO ALLOW FOR PROPER CONCRETE CONSOLIDATION IN THE DECK PANEL.
7. SHIFT LONGITUDINAL "B" BARS AS NECESSARY TO OBTAIN A MINIMUM CLEAR DISTANCE OF 2 ½" TO THE RIGHT OR LEFT OF THE EDGE OF THE DECK PANEL. IF, IN SHIFTING TO OBTAIN THIS CLEARANCE, THE "B" BAR INTERFERES WITH THE STIRRUP IN THE TOP OF THE GIRDER THE "B" BAR MAY BE ELIMINATED.
8. WHEN CASTING THE DECK, PLACE CONCRETE FIRST OVER THE GIRDERS IN CONTINUOUS STRIPS A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE REST OF THE CONCRETE. CAREFULLY VIBRATE THE CONCRETE OVER THE GIRDERS SO THAT CONCRETE COMPLETELY FILLS THE AREA UNDER THE DECK PANEL OVERHANGS. THEN PLACE AND VIBRATE THE REMAINING DECK CONCRETE.
9. PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.79 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

PRECAST PRESTRESSED CONCRETE DECK PANELS

SEAL 54498 NORTH CAROLINA PROFESSIONAL ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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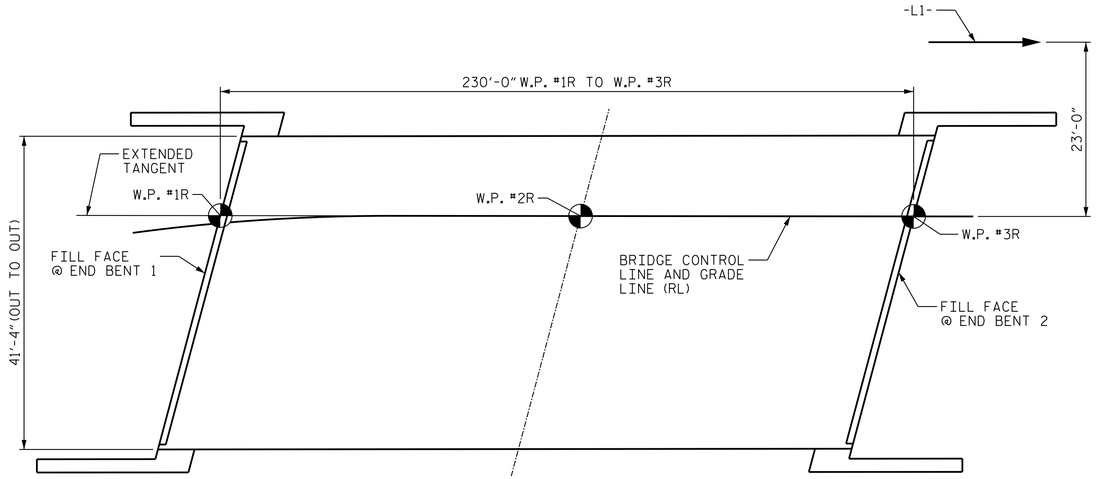
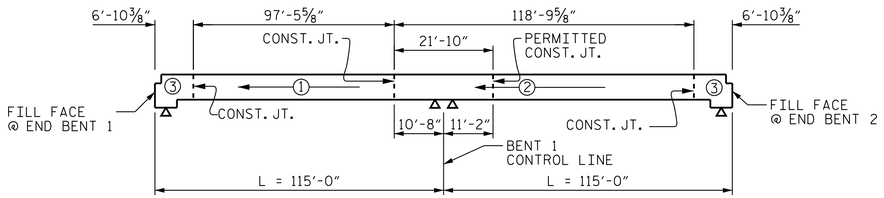
ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25

DRAWN BY : ELR 1/92 | REV. 5/1/06R
CHECKED BY : GRP 4/92 | REV. 10/1/11 | REV. 12/17

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25



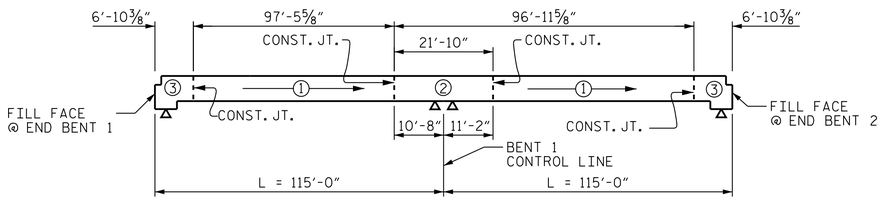
LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 9,436)



POURING SEQUENCE

(LINK SLAB)

(#) = INDICATES POUR NUMBER AND DIRECTION OF POUR



OPTIONAL POURING SEQUENCE

(LINK SLAB)

GROOVING BRIDGE FLOORS	
APPROACH SLABS	1,720 SQ.FT.
BRIDGE DECK	8,007 SQ.FT.
TOTAL	9,727 SQ.FT.

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	84.4	--	47,947
POUR #2	107.7		
POUR #3	166.1		
TOTALS **	358.2		47,947

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			

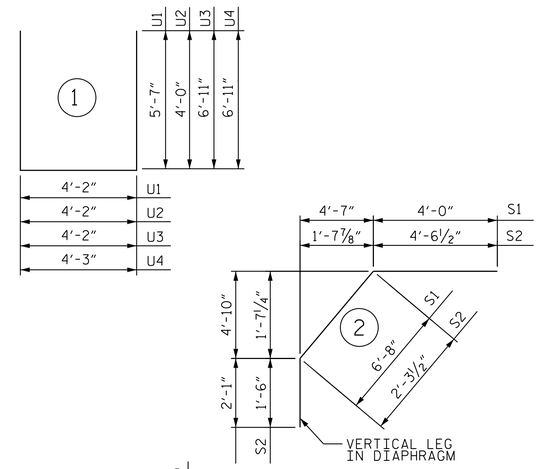
REINF. BAR SCHEDULE

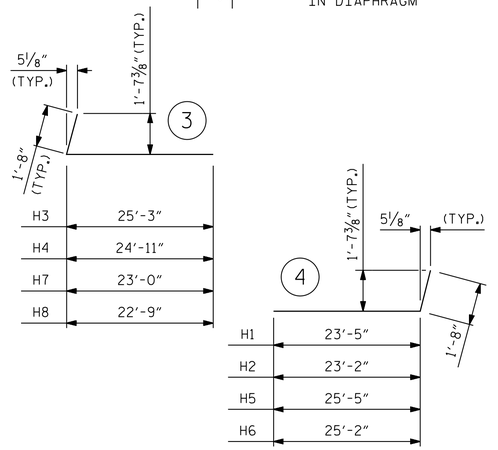
SPANS A & B

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	372	#5	STR	40'-10"	15,844
* A101	2	#5	STR	40'-3"	84
* A102	2	#5	STR	38'-1"	80
* A103	2	#5	STR	35'-11"	75
* A104	2	#5	STR	33'-9"	71
* A105	2	#5	STR	31'-7"	66
* A106	2	#5	STR	29'-5"	62
* A107	2	#5	STR	27'-3"	57
* A108	2	#5	STR	25'-0"	53
* A109	2	#5	STR	22'-10"	48
* A110	2	#5	STR	20'-8"	44
* A111	2	#5	STR	18'-6"	39
* A112	2	#5	STR	16'-4"	35
* A113	2	#5	STR	14'-2"	30
* A114	2	#5	STR	12'-0"	26
* A115	2	#5	STR	9'-3"	20
* A116	2	#5	STR	7'-7"	16
* A117	2	#5	STR	5'-5"	12
* A118	2	#5	STR	2'-11"	7
* A2	304	#4	STR	2'-0"	407
* B1	220	#4	STR	40'-4"	5,928
* B2	165	#6	STR	28'-3"	7,001
* B3	52	#6	STR	45'-0"	3,515
* B4	104	#6	STR	23'-0"	3,593
* B5	32	#5	STR	58'-10"	1,964
* H1	16	#7	4	25'-1"	821
* H2	14	#5	4	24'-10"	363
* H3	14	#5	3	26'-11"	394
* H4	16	#7	3	26'-7"	870
* H5	16	#7	4	27'-1"	886
* H6	14	#5	4	26'-10"	392
* H7	14	#5	3	24'-8"	361
* H8	16	#7	3	24'-5"	799
* K1	28	#4	STR	25'-4"	474
* K2	8	#4	STR	4'-8"	25
* K3	40	#4	STR	7'-10"	210
* K4	8	#4	STR	6'-2"	33
* K5	20	#4	STR	2'-9"	37
* K6	4	#4	STR	4'-8"	13
* K7	20	#4	STR	6'-2"	83
* K8	4	#4	STR	5'-5"	15
* S1	78	#4	2	12'-9"	665
* S2	56	#4	2	8'-4"	312
* U1	48	#4	1	15'-4"	492
* U2	20	#4	1	12'-2"	163
* U3	8	#4	1	18'-0"	97
* U4	4	#4	1	18'-1"	49
* V2	86	#5	STR	6'-11"	621
* V3	94	#5	STR	7'-1"	695

* EPOXY COATED REINFORCING STEEL 47,947 LBS

BAR TYPES





ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

BILL OF MATERIAL

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NOTES

(2BR) DENOTES 2 BAR RUN

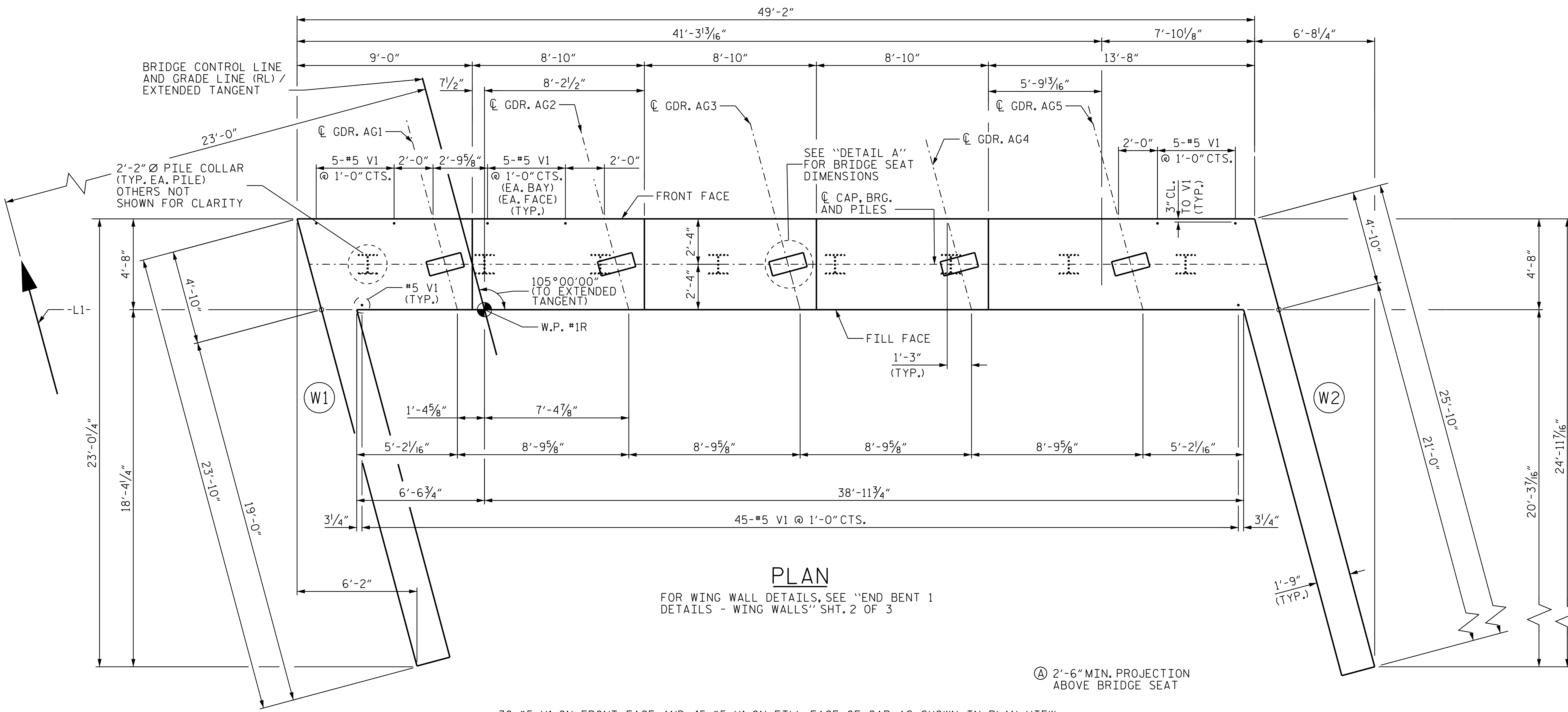
(EF) - DENOTES EACH FACE

FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 3.

3″ CL. TO ALL V1 BARS.

INSTALL THE 6″ DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECCESSARY TO CLEAR THE DRAIN PIPE.

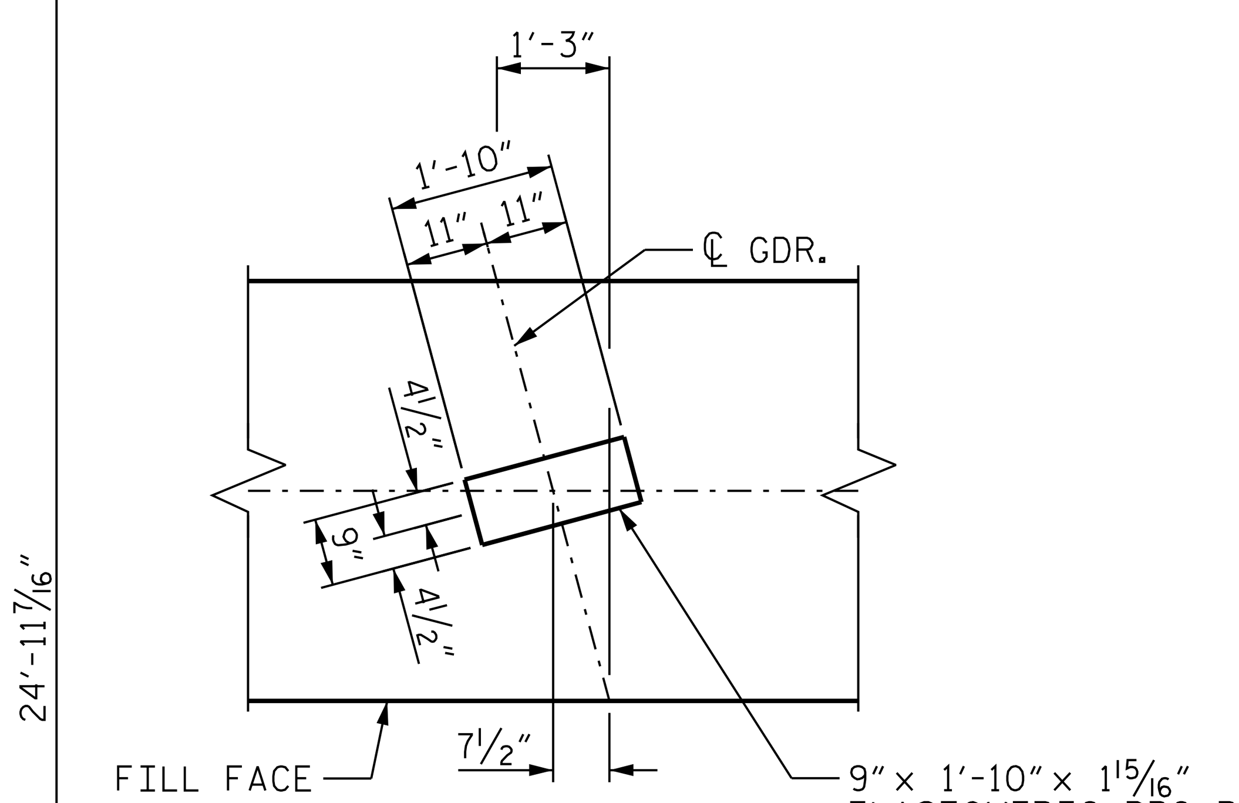
STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS



PLAN

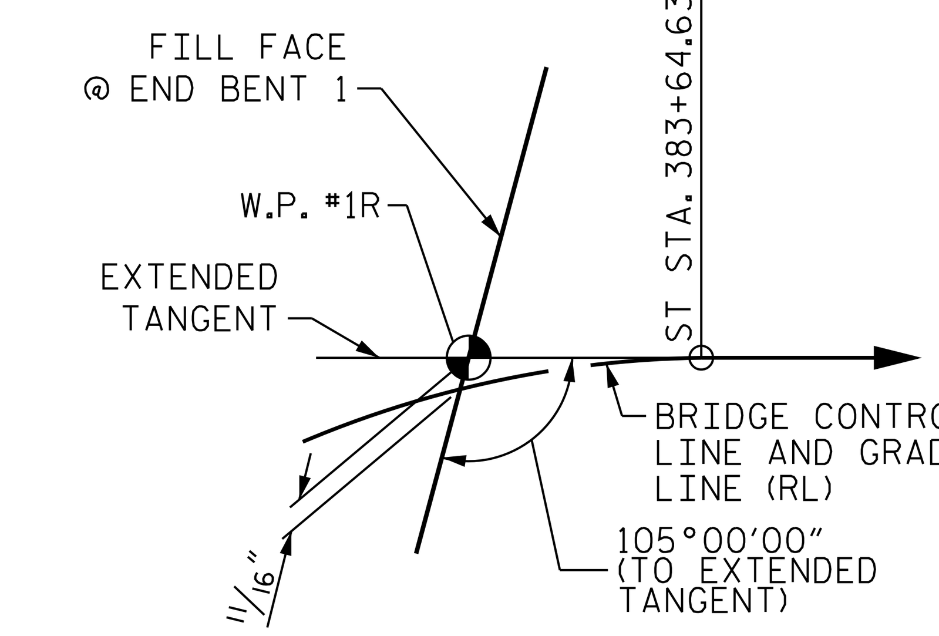
FOR WING WALL DETAILS, SEE "END BENT 1 DETAILS - WING WALLS" SHT. 2 OF 3

Ⓐ 2′-6″ MIN. PROJECTION ABOVE BRIDGE SEAT



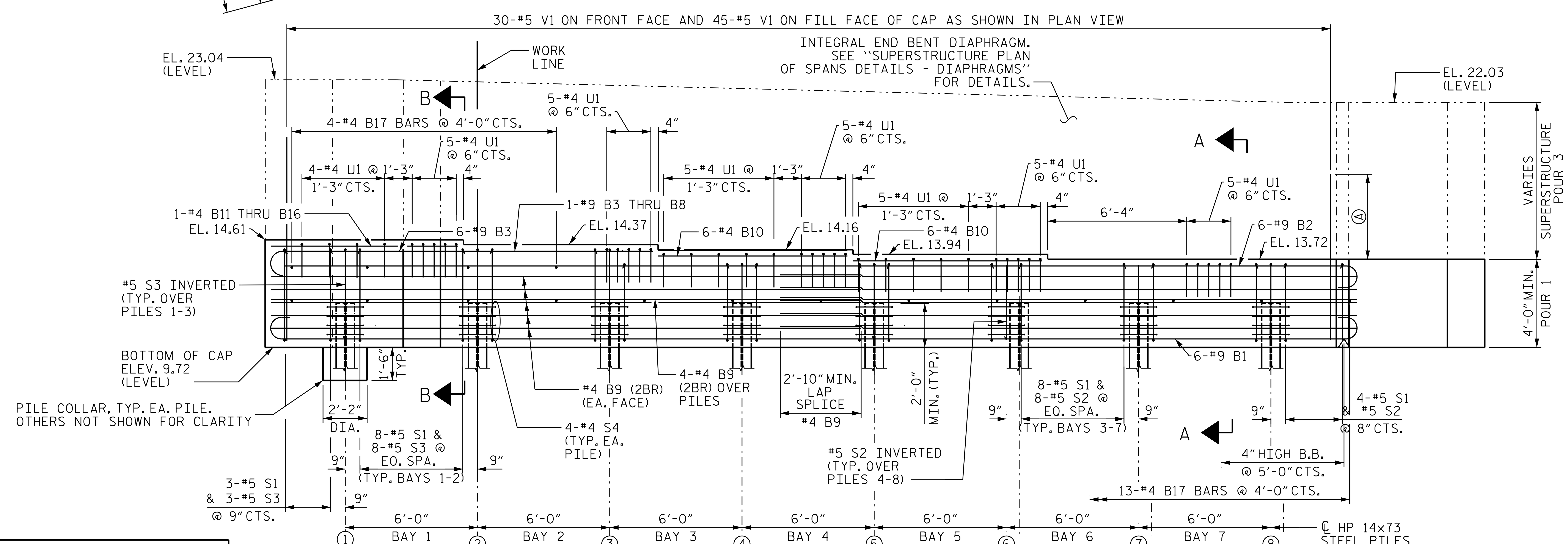
DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING



EXTENDED TANGENT DETAIL

(AT END BENT 1)



ELEVATION

WING REINFORCING NOT SHOWN FOR CLARITY.

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
ALL	11.72

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 54498 KEITH S. POOLE

Signed by: 5/5/2025

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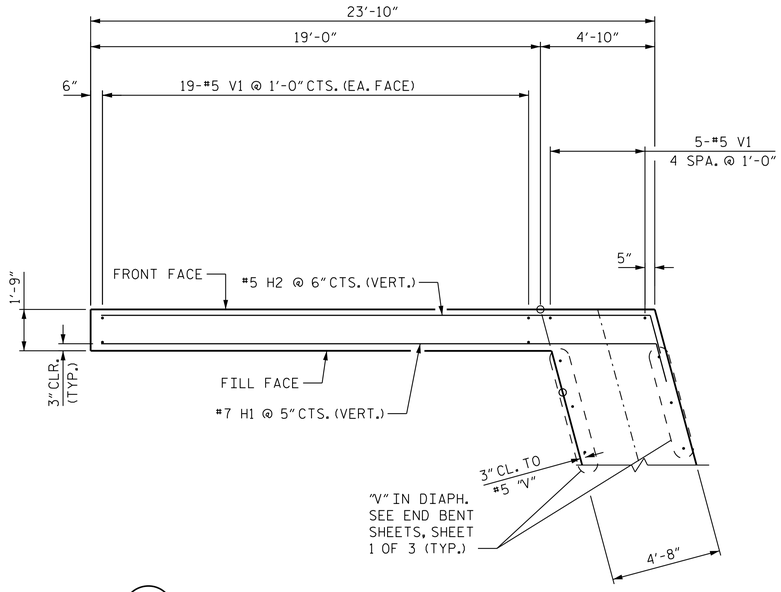
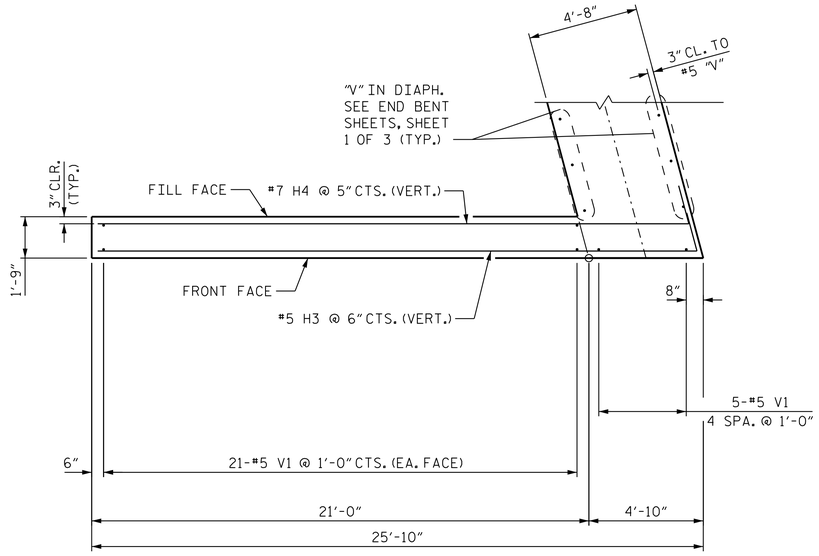
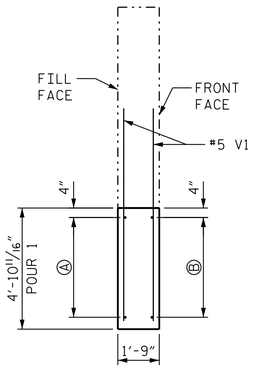


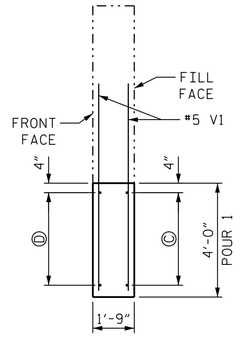
W1 PLAN OF LEFT WING



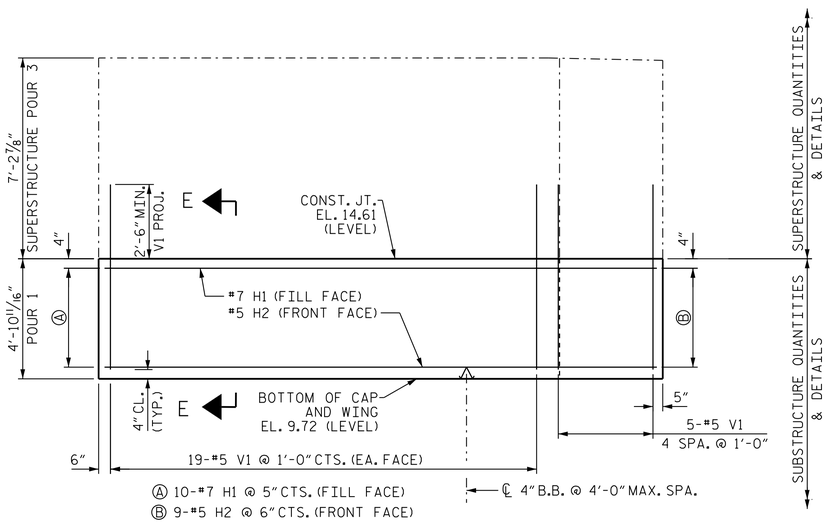
W2 PLAN OF RIGHT WING



SECTION E-E

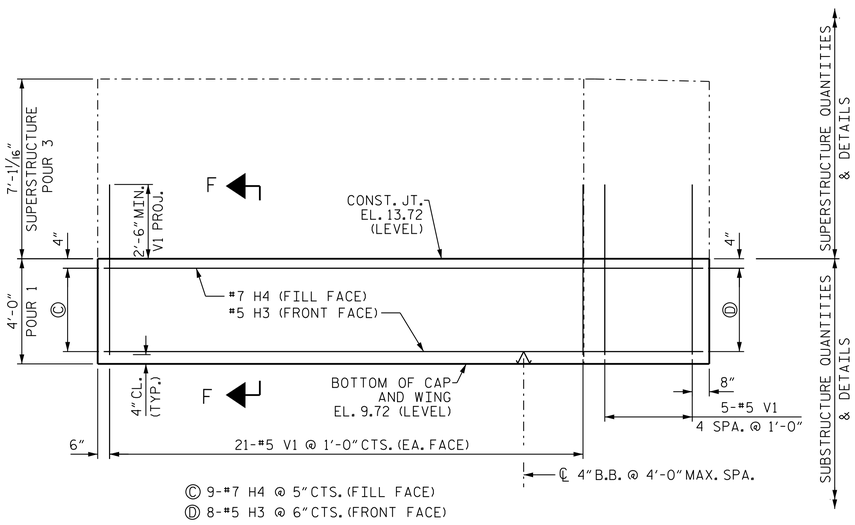


SECTION F-F



Ⓐ 10-#7 H1 @ 5" CTS. (FILL FACE)
Ⓑ 9-#5 H2 @ 6" CTS. (FRONT FACE)

W1 ELEVATION OF LEFT WING



Ⓒ 9-#7 H4 @ 5" CTS. (FILL FACE)
Ⓓ 8-#5 H3 @ 6" CTS. (FRONT FACE)

W2 ELEVATION OF RIGHT WING

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.79 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 DETAILS
WING WALLS

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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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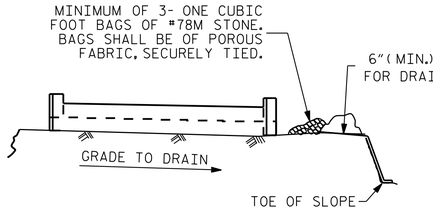
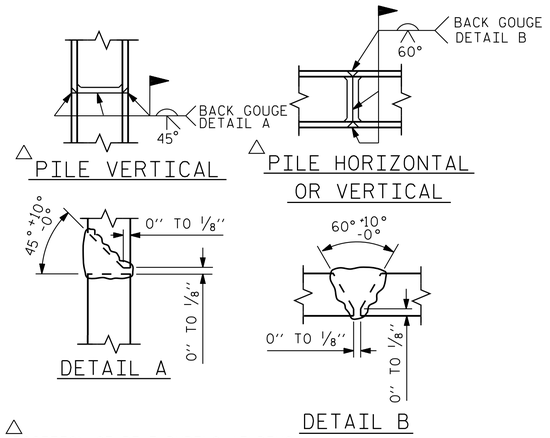


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

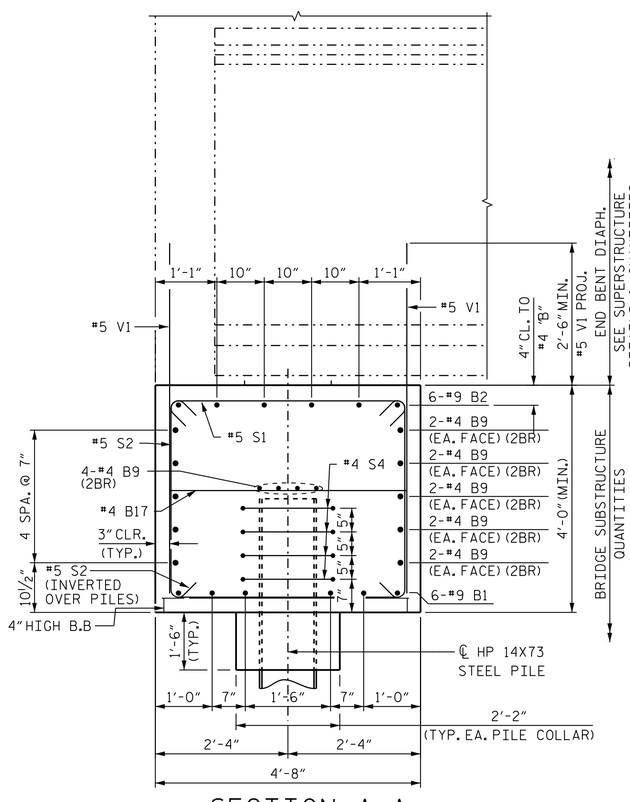
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



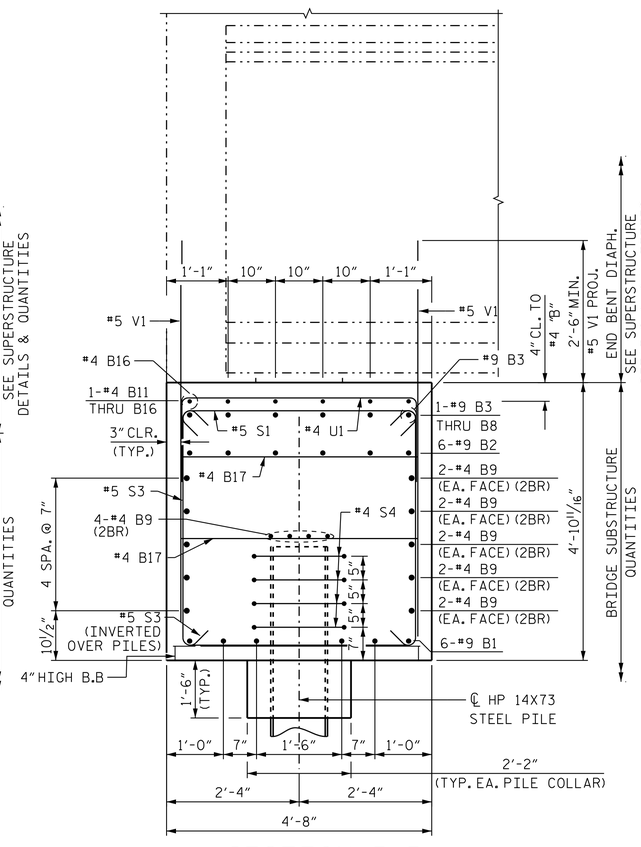
△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



SECTION A-A

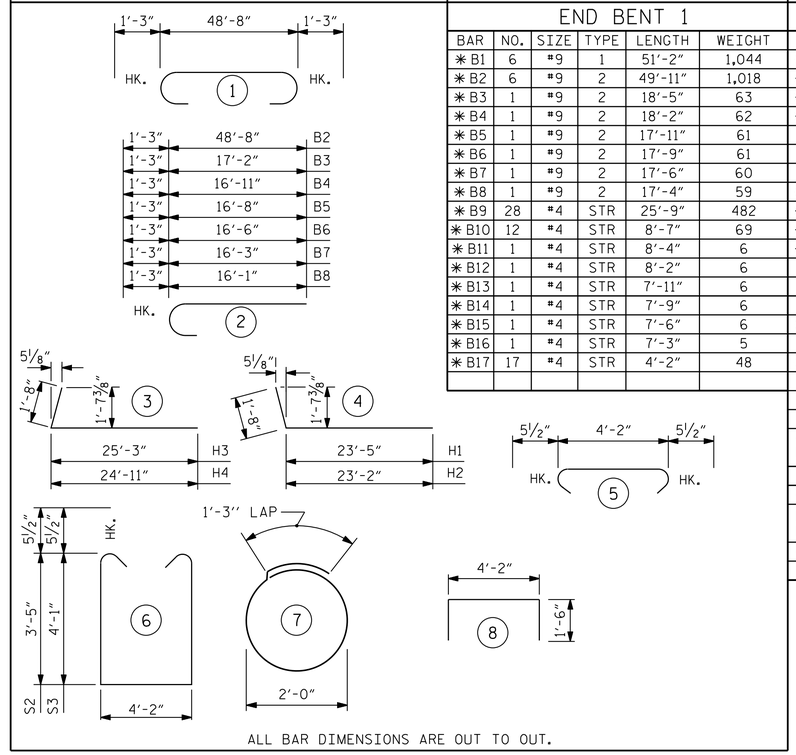
SEE "END BENT 1" SHEET 1 OF 3.



SECTION B-B

SEE "END BENT 1" SHEET 1 OF 3.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL — END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B1	6	#9	1	51'-2"	1,044
✳B2	6	#9	2	49'-11"	1,018
✳B3	1	#9	2	18'-5"	63
✳B4	1	#9	2	18'-2"	62
✳B5	1	#9	2	17'-11"	61
✳B6	1	#9	2	17'-9"	61
✳B7	1	#9	2	17'-6"	60
✳B8	1	#9	2	17'-4"	59
✳B9	28	#4	STR	25'-9"	482
✳B10	12	#4	STR	8'-7"	69
✳B11	1	#4	STR	8'-4"	6
✳B12	1	#4	STR	8'-2"	6
✳B13	1	#4	STR	7'-11"	6
✳B14	1	#4	STR	7'-9"	6
✳B15	1	#4	STR	7'-6"	6
✳B16	1	#4	STR	7'-3"	5
✳B17	17	#4	STR	4'-2"	48

BILL OF MATERIAL — END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳H1	9	#7	4	25'-1"	462
✳H2	8	#5	4	24'-10"	208
✳H3	9	#5	3	26'-11"	253
✳H4	11	#7	3	26'-7"	598
✳S1	63	#5	5	5'-1"	355
✳S2	49	#5	6	11'-11"	610
✳S3	22	#5	6	13'-3"	305
✳S4	32	#5	7	7'-7"	254
✳U1	39	#4	8	7'-2"	187
✳V1	165	#4	STR	7'-0"	1,205

✳EPOXY COATED REINFORCING STEEL — LBS. 7,480

CLASS AA CONCRETE BREAKDOWN:

POUR #1: CAP, COLLARS, LOWER WINGS, ETC.	C.Y. 49.6
CLASS AA CONCRETE TOTAL	C.Y. 49.6

NOTES

TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4". EXCEPT UNDER BEARING AREAS.

(2BR) DENOTES 2 BAR RUN.

SET #5 V1 BAR 4" CLEAR (MIN.) FROM BOTTOM OF CAP.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 DETAILS

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CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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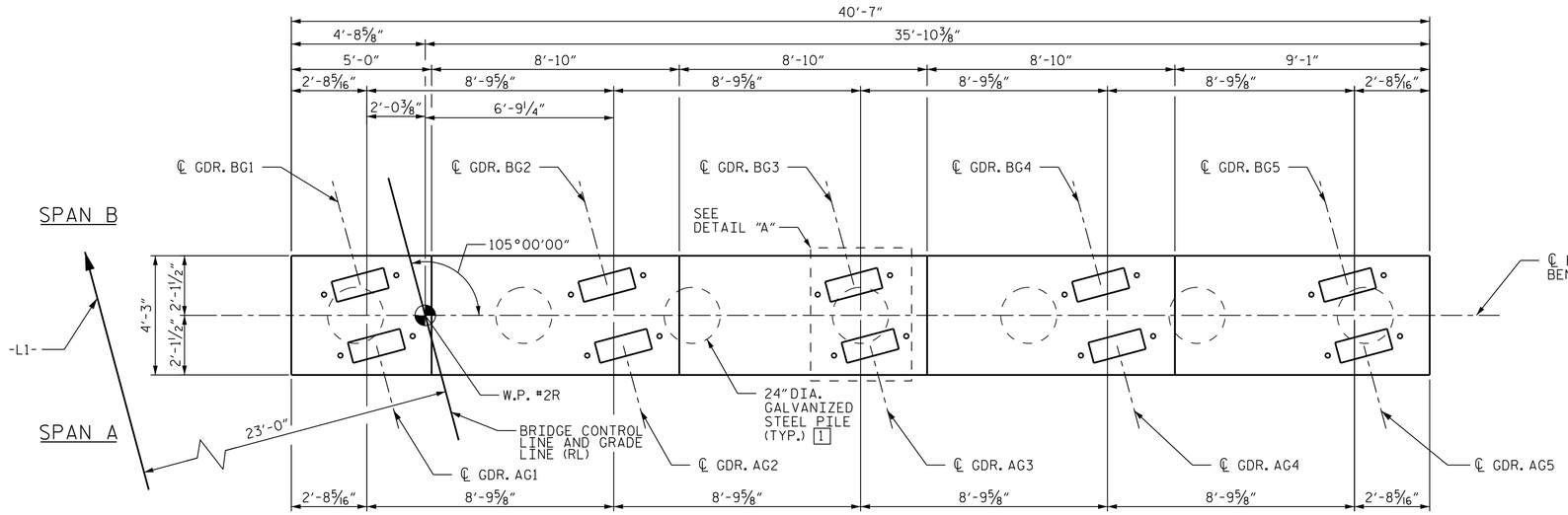
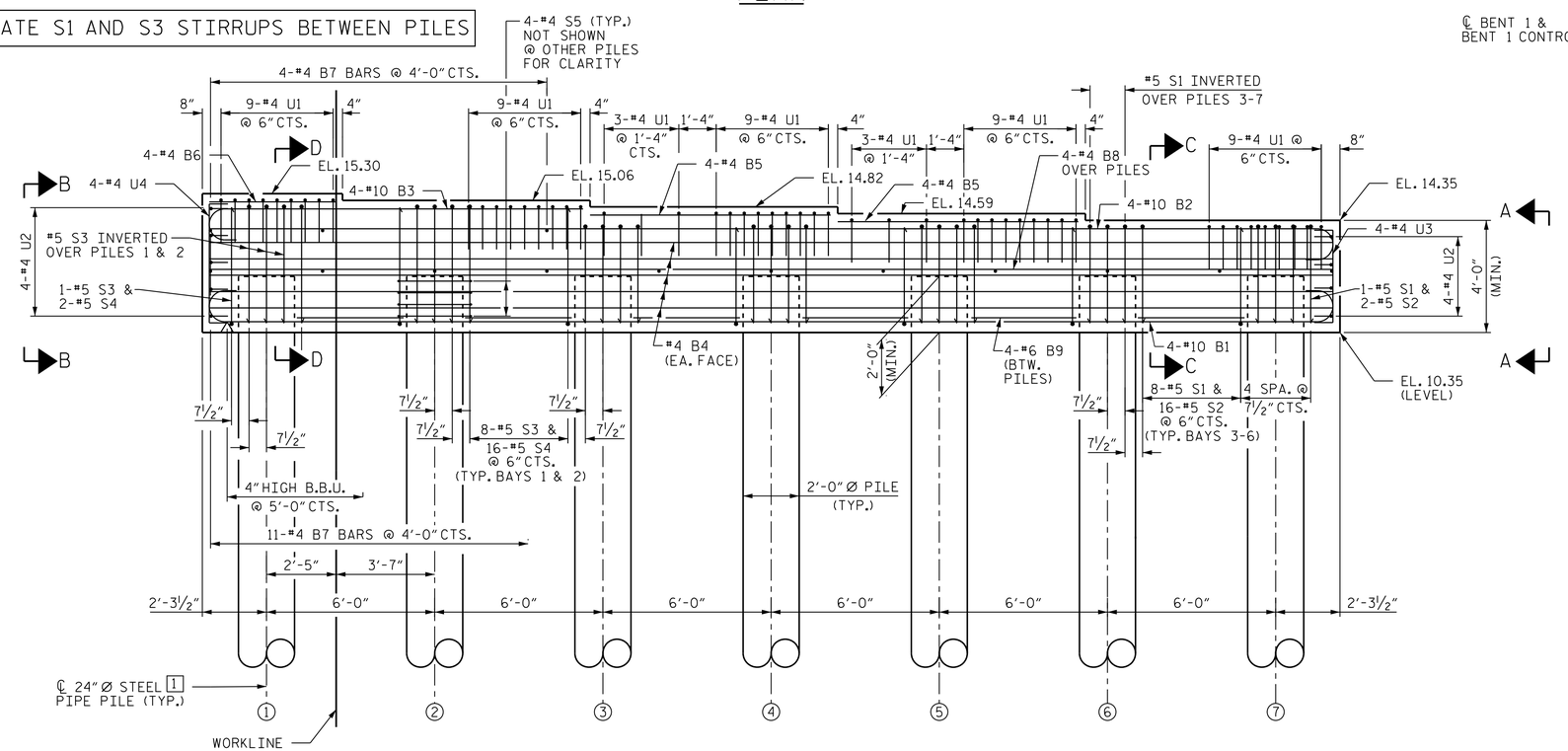


PLAN

INVERT ALTERNATE S1 AND S3 STIRRUPS BETWEEN PILES



ELEVATION

PILE PLUG REINFORCING NOT SHOWN FOR CLARITY, SEE "24" STEEL PIPE PILE" SHEET 2 OF 3 FOR DETAILS.

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
ALL	12.35

NOTES:

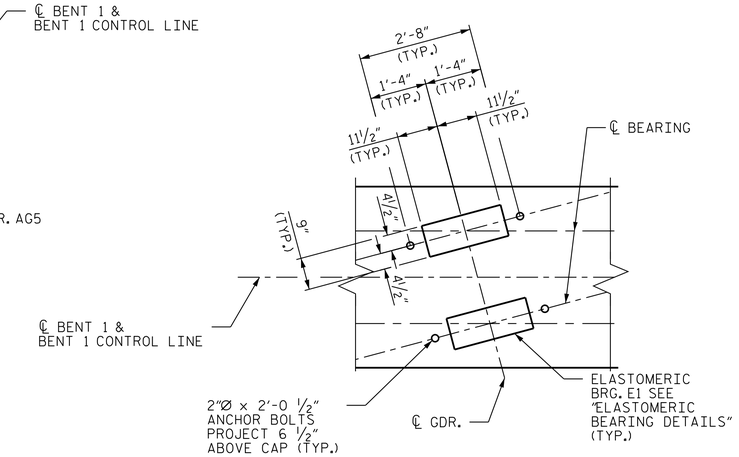
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINF. STEEL.

FOR VIEW A-A, VIEW B-B, SECTION C-C, AND SECTION D-D, SEE "BENT 1 DETAILS" SHEET 3 OF 3.

GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

1 SEE 24" STEEL PIPE PILE SHEET 2 OF 3.



DETAIL "A"

DIMENSIONS TYPICAL FOR EACH BEARING

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1

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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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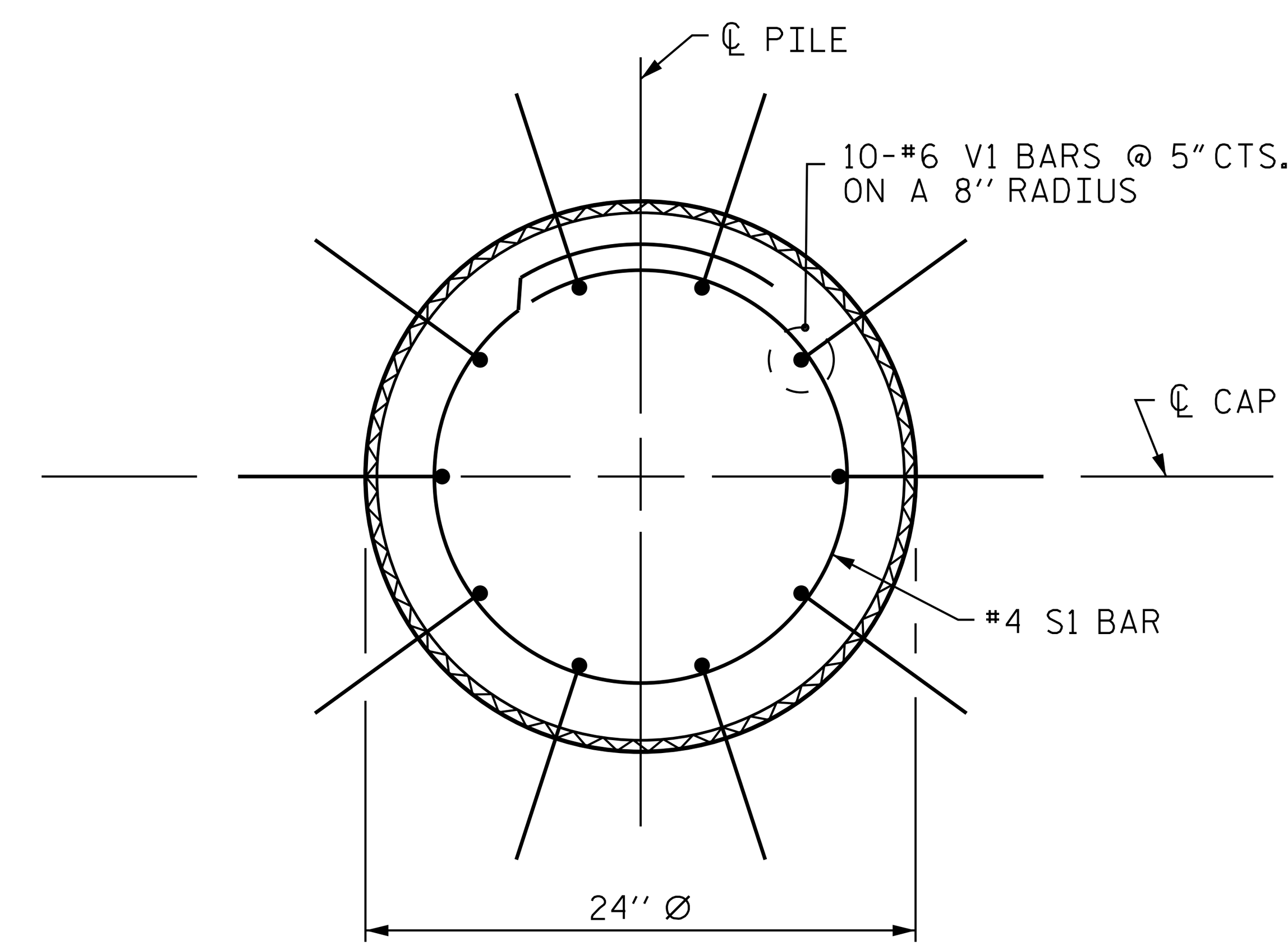
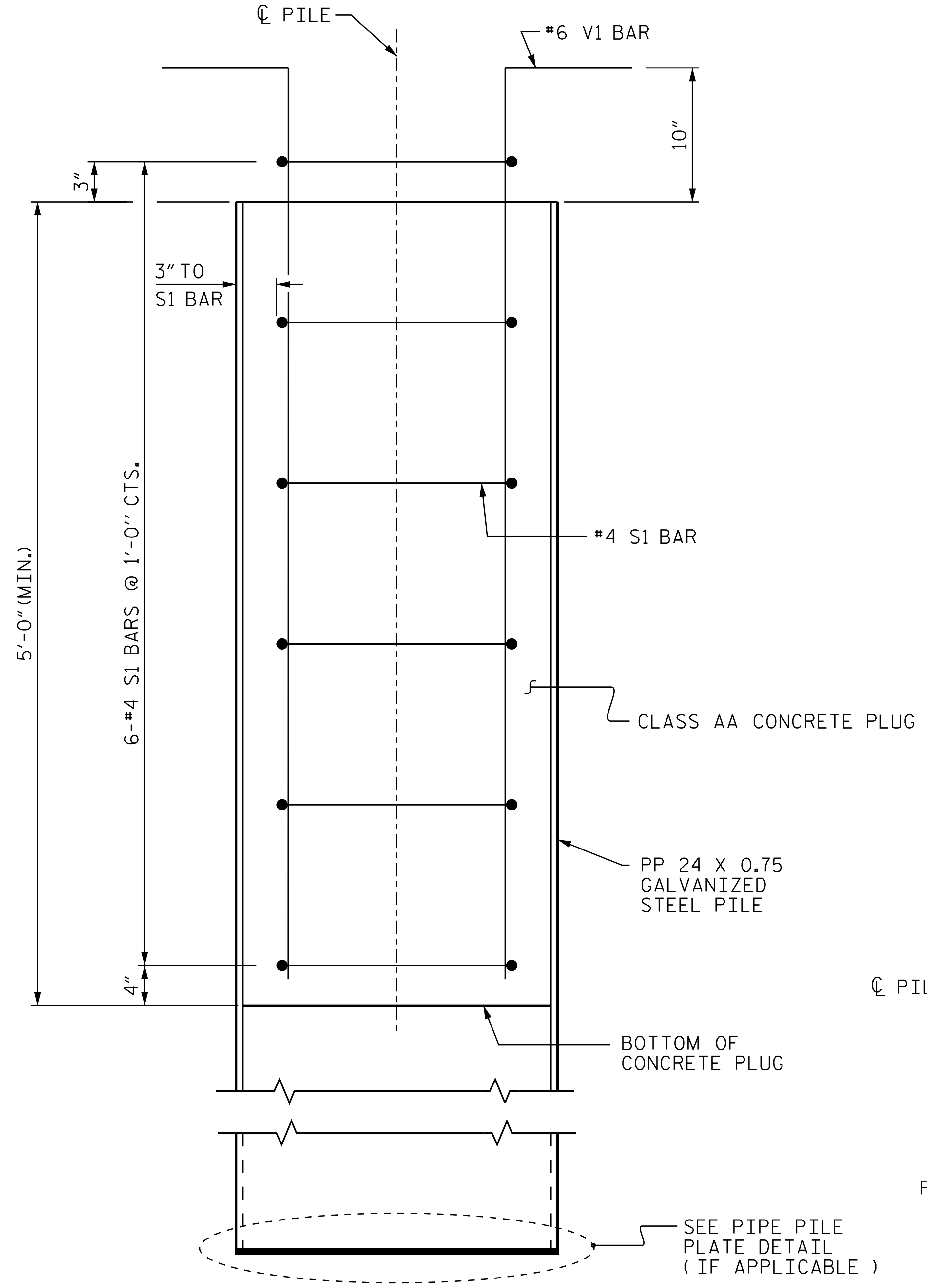
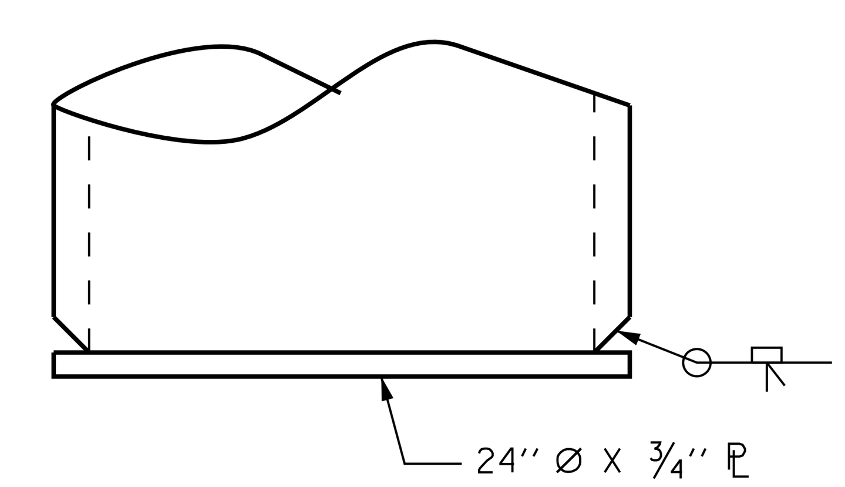


PLAN

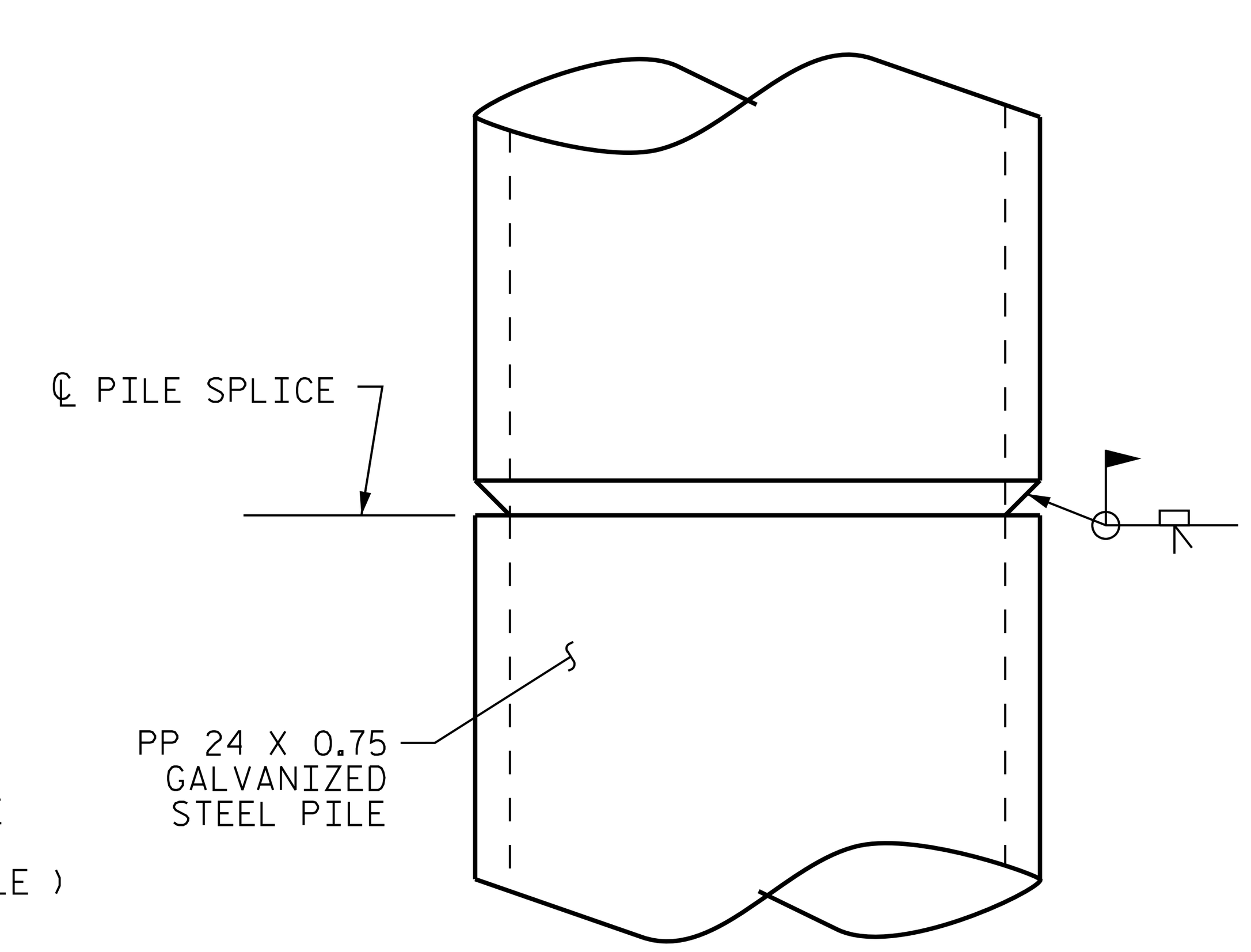


ELEVATION

PP 24 X 0.75
GALVANIZED STEEL PILE
(OPEN OR CLOSED END)



PIPE PILE PLATE DETAIL
(IF APPLICABLE)



PIPE PILE SPLICE DETAIL

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS AA CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 24 X 0.75 GALVANIZED STEEL PILES.

APPLY AN 8 MIL THICK 1350 ALUMINUM (W-A1-1350) THERMAL SPRAY COATING WITH A 0.5 MIL THICK SEAL COAT TO THE PILES, IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

AFTER DRIVING THE PILES, APPLY 1 COAT EACH OF 1080-9 BROWN AND 1080-9 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

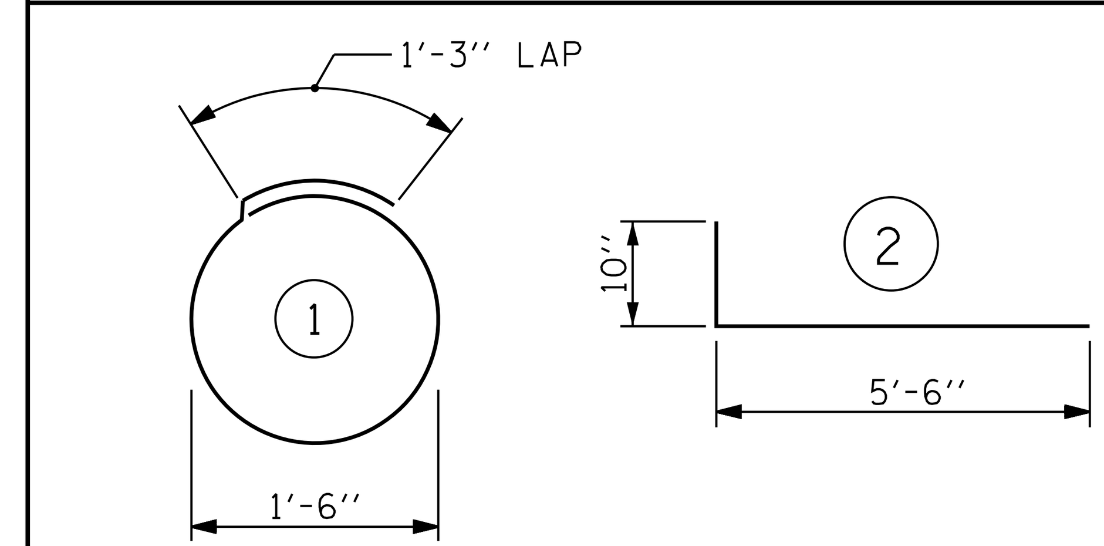
BILL OF MATERIAL FOR ONE PP 24 X 0.75 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S1	6	#4	1	6′-0″	24
* V1	10	#6	2	6′-4″	95

* EPOXY COATED REINFORCING STEEL = 119 LBS

CLASS AA CONCRETE
5′-0″ MINIMUM PLUG 0.5 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.79 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

24″ STEEL PIPE PILE
BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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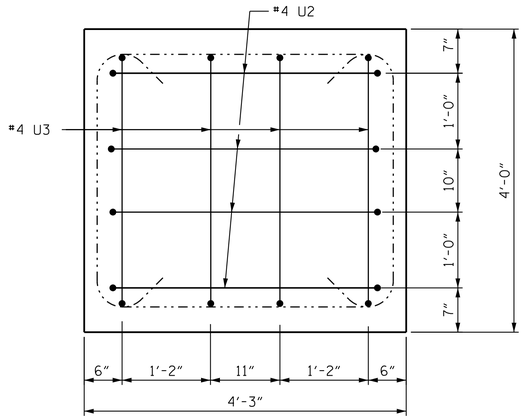
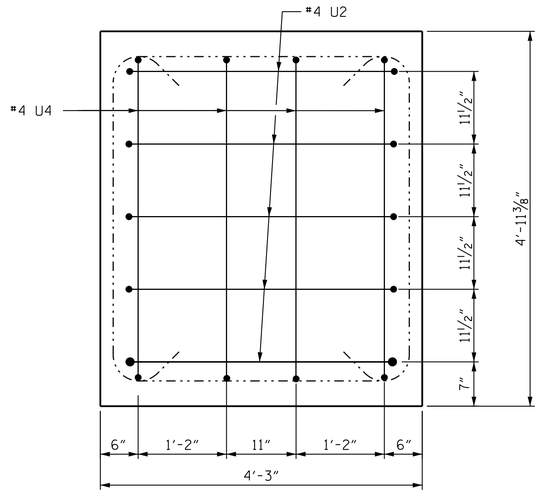
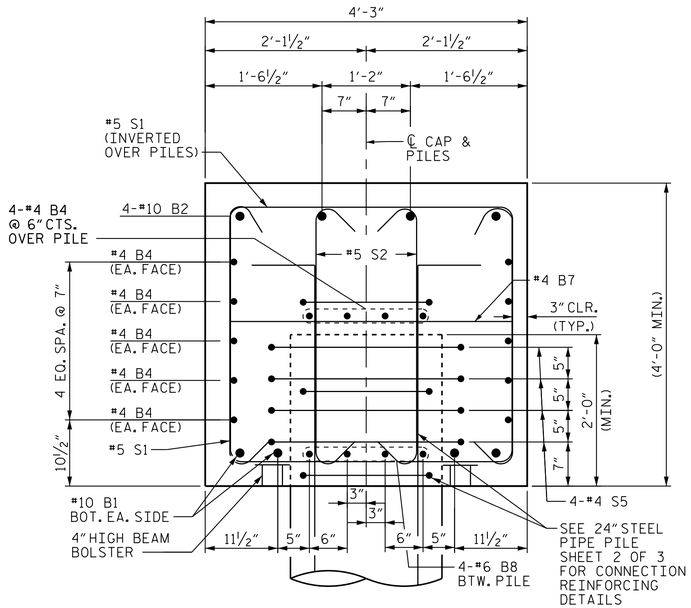


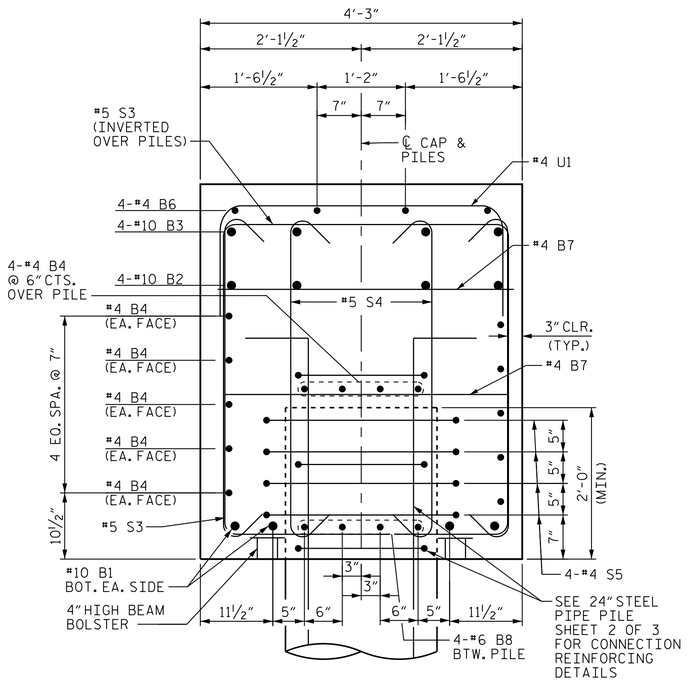
VIEW A-A



VIEW B-B

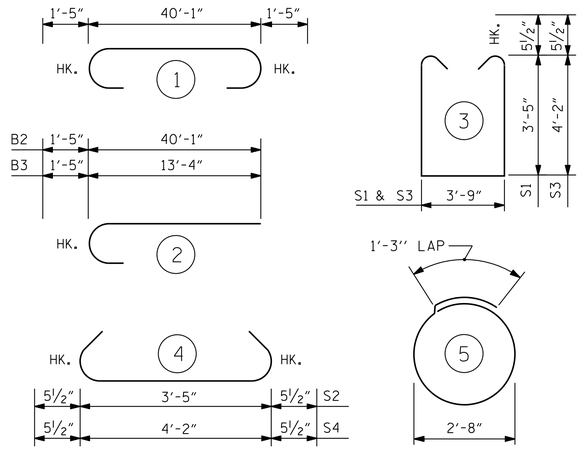


SECTION C-C



SECTION D-D

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B1	4	#10	1	42'-11"	739
✳B2	4	#10	2	41'-6"	715
✳B3	4	#10	2	14'-9"	254
✳B4	14	#4	STR	40'-0"	375
✳B5	8	#4	STR	8'-7"	46
✳B6	4	#4	STR	4'-6"	13
✳B7	15	#4	STR	3'-9"	38
✳B8	24	#6	STR	3'-6"	127
✳S1	48	#5	3	11'-6"	576
✳S2	66	#5	4	4'-4"	299
✳S3	23	#5	3	13'-0"	312
✳S4	34	#5	4	5'-1"	181
✳S5	28	#4	5	9'-8"	181
✳U1	51	#4	6	6'-9"	230
✳U2	9	#4	6	4'-11"	30
✳U3	4	#4	6	4'-8"	13
✳U4	4	#4	6	5'-4"	15

✳EPOXY COATED REINFORCING STEEL LBS. 4,144

CLASS AA CONCRETE BREAKDOWN

CAP C.Y. 26.7

✳✳TOTAL CLASS AA CONC. C.Y. 26.7

✳✳CONCRETE DISPLACED BY THE 24"STEEL PIPE PILE HAS BEEN DEDUCTED FROM THE CONCRETE TOTAL.

CONCRETE AND STEEL FOR CONCRETE PLUGS ARE INCLUDED IN PP 24X0.75 PILE QUANTITY.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S POOLE

Signed by: 5/5/2025

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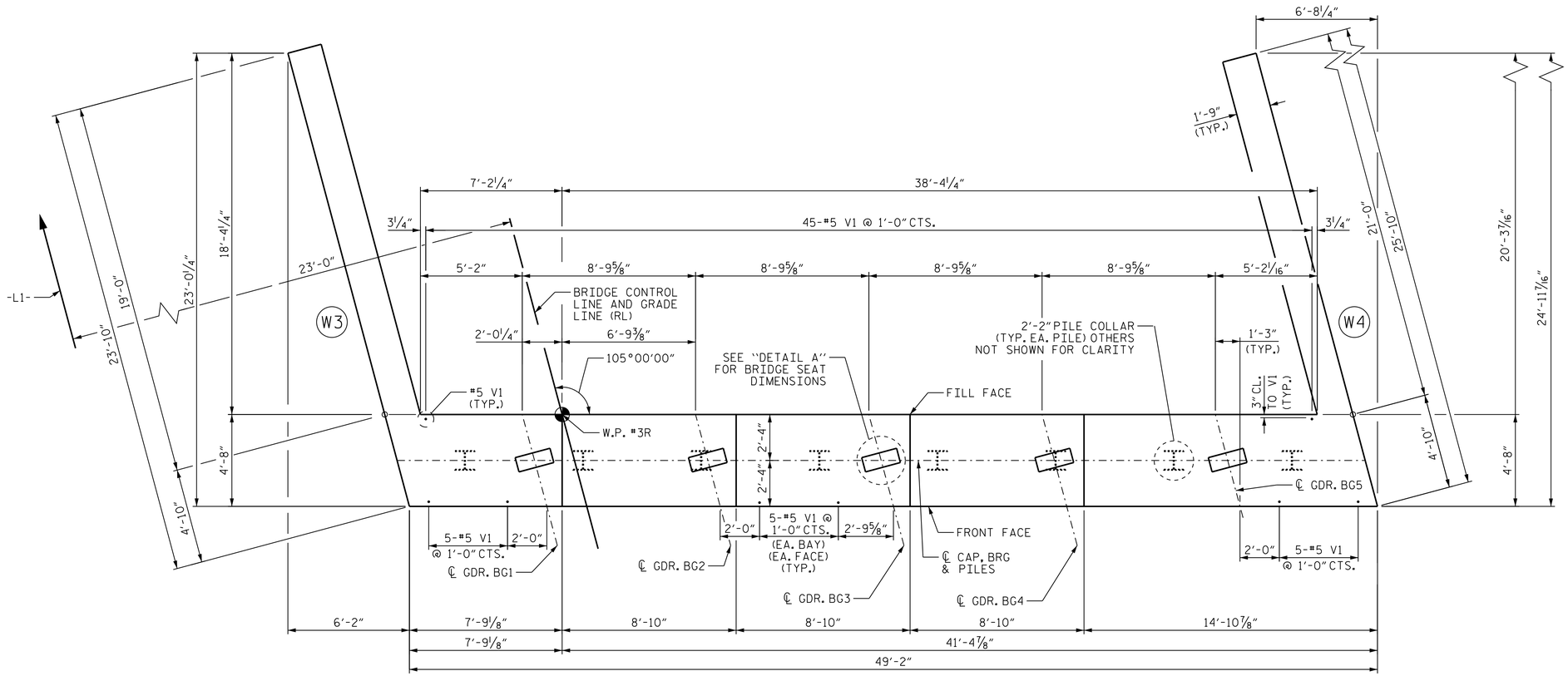
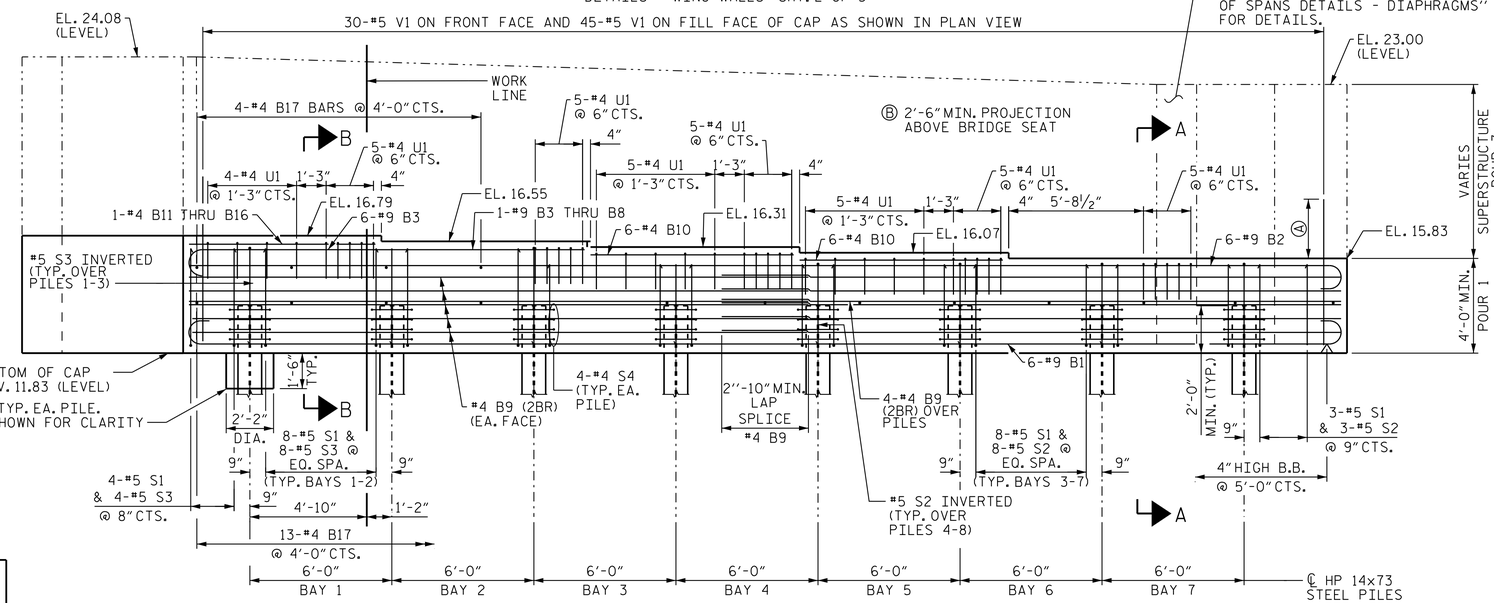


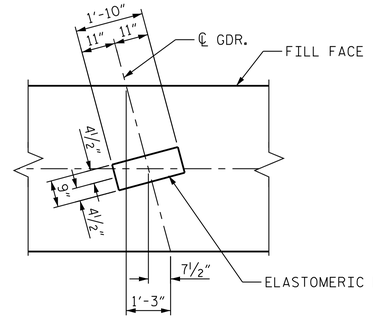
PLAN

FOR WING WALL DETAILS, SEE "END BENT 2 DETAILS - WING WALLS" SHT. 2 OF 3



ELEVATION

WING REINFORCING NOT SHOWN FOR CLARITY.



DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING

NOTES

(2BR) DENOTES 2 BAR RUN

(EF) - DENOTES EACH FACE

FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 3.

3" CL. TO ALL V1 BARS.

INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECCESSARY TO CLEAR THE DRAIN PIPE.

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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SUBSTRUCTURE

END BENT 2

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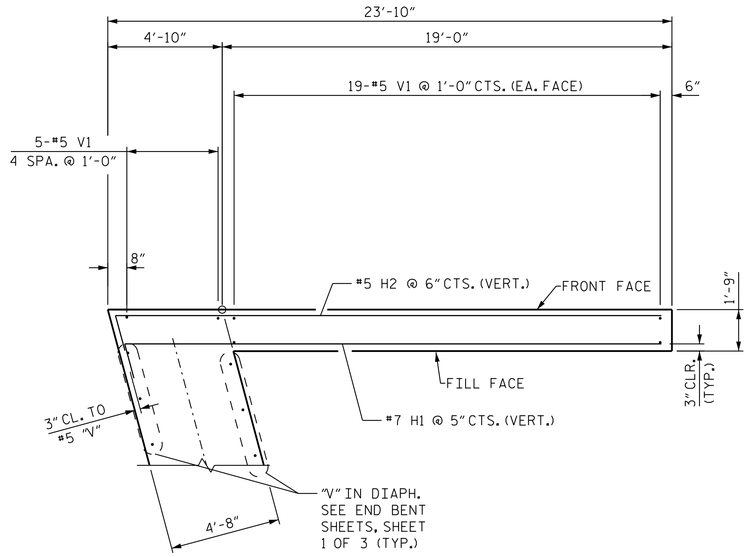
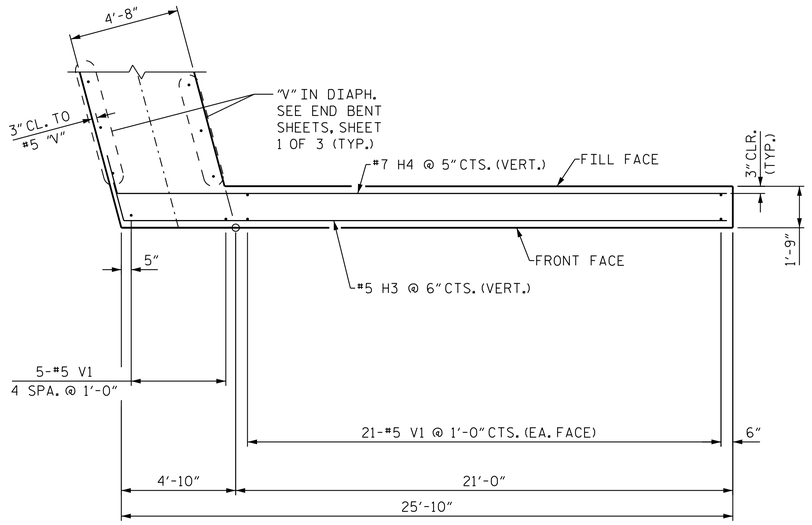
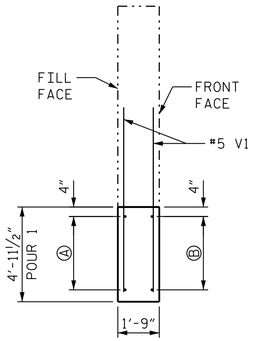


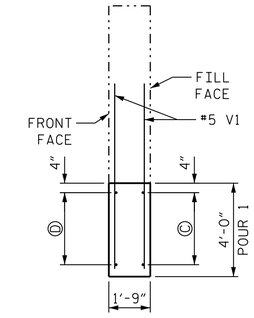
W3 PLAN OF LEFTWING



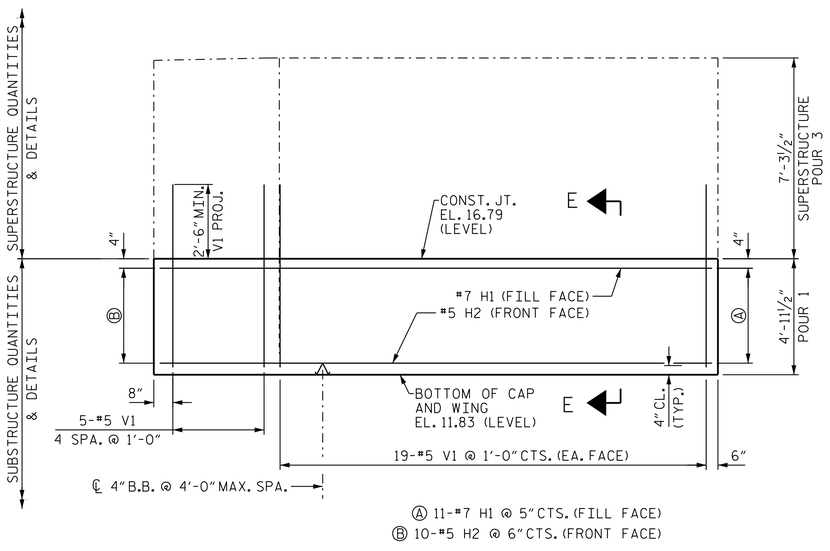
W4 PLAN OF RIGHT WING



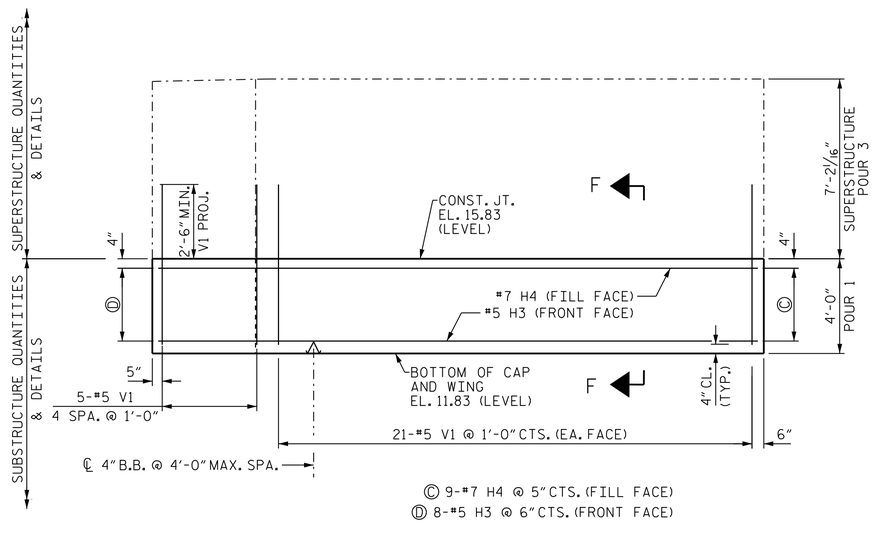
SECTION E-E



SECTION F-F



W3 ELEVATION OF LEFT WING



W4 ELEVATION OF RIGHT WING

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801 Jones Franklin Road
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Raleigh, NC 27606
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License No. F-0672

DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. R-3300A
NEW HANOVER COUNTY
STATION: 384+20.79 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2 DETAILS WING WALLS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S07-33
1			3			TOTAL SHEETS
2			4			37

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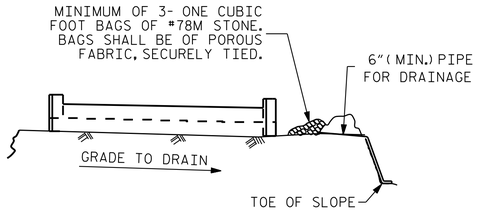
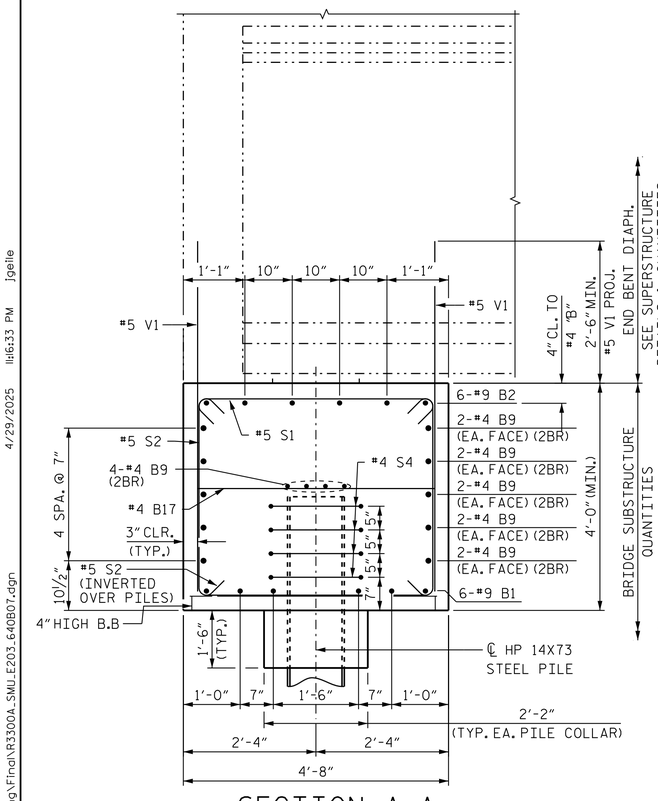


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

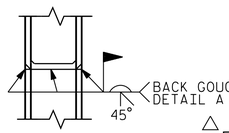
TEMPORARY DRAINAGE AT END BENT



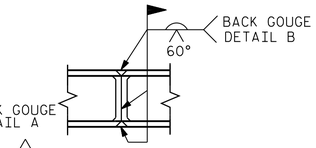
SECTION A-A

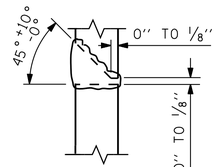
SEE "END BENT 2" SHEET 1 OF 3.

△ PILE VERTICAL

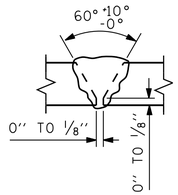


△ PILE HORIZONTAL OR VERTICAL





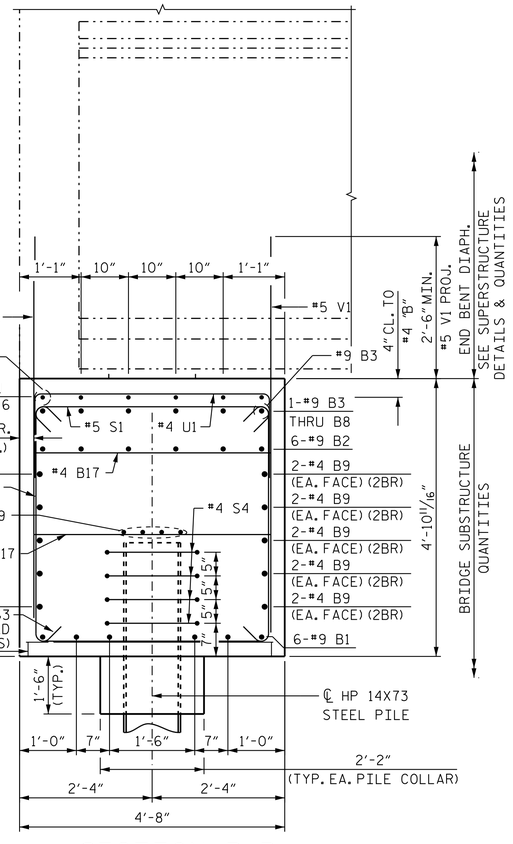
DETAIL A



DETAIL B

△ POSITION OF PILE DURING WELDING.

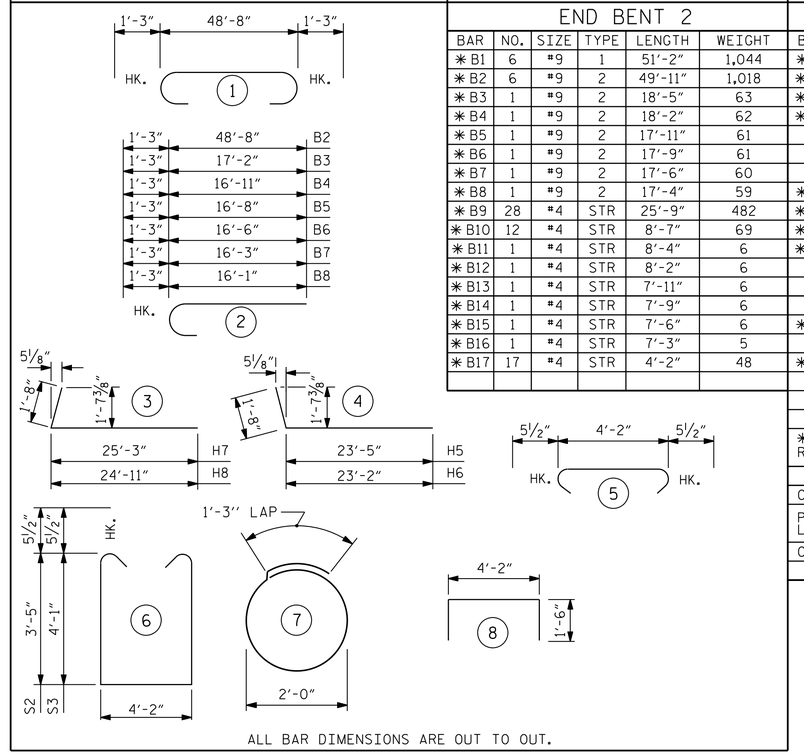
PILE SPLICE DETAILS



SECTION B-B

SEE "END BENT 2" SHEET 1 OF 3.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	6	#9	1	51'-2"	1,044
✳ B2	6	#9	2	49'-11"	1,018
✳ B3	1	#9	2	18'-5"	63
✳ B4	1	#9	2	18'-2"	62
✳ B5	1	#9	2	17'-11"	61
✳ B6	1	#9	2	17'-9"	61
✳ B7	1	#9	2	17'-6"	60
✳ B8	1	#9	2	17'-4"	59
✳ B9	28	#4	STR	25'-9"	482
✳ B10	12	#4	STR	8'-7"	69
✳ B11	1	#4	STR	8'-4"	6
✳ B12	1	#4	STR	8'-2"	6
✳ B13	1	#4	STR	7'-11"	6
✳ B14	1	#4	STR	7'-9"	6
✳ B15	1	#4	STR	7'-6"	6
✳ B16	1	#4	STR	7'-3"	5
✳ B17	17	#4	STR	4'-2"	48

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ H1	9	#7	4	25'-1"	462
✳ H2	8	#5	4	24'-10"	208
✳ H3	10	#5	3	26'-11"	281
✳ H4	11	#7	3	26'-7"	598
✳ S1	63	#5	5	5'-1"	355
✳ S2	49	#5	6	11'-11"	610
✳ S3	22	#5	6	13'-3"	305
✳ S4	32	#5	7	7'-7"	254
✳ U1	39	#4	8	7'-2"	187
✳ V1	165	#4	STR	7'-0"	1,205

✳ EPOXY COATED REINFORCING STEEL — LBS. 7,508

CLASS AA CONCRETE BREAKDOWN:

POUR #1: CAP, COLLARS, LOWER WINGS, ETC.	C.Y. 49.9
CLASS AA CONCRETE TOTAL	C.Y. 49.9

NOTES

TOP SURFACE AREAS OF THE END BENT CAP SHALL BE KEPT CLEAN AND FREE OF LAITANCE.

ROUGH FLOAT AND ROUGHEN THE TOP OF THE END BENT CAP TO PROVIDE MIN. SURFACE AMPLITUDE OF 1/4". EXCEPT UNDER BEARING AREAS.

(2BR) DENOTES 2 BAR RUN.

SET #5 V1 BAR 4" CLEAR (MIN.) FROM BOTTOM OF CAP.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2 DETAILS

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DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 01/12/25
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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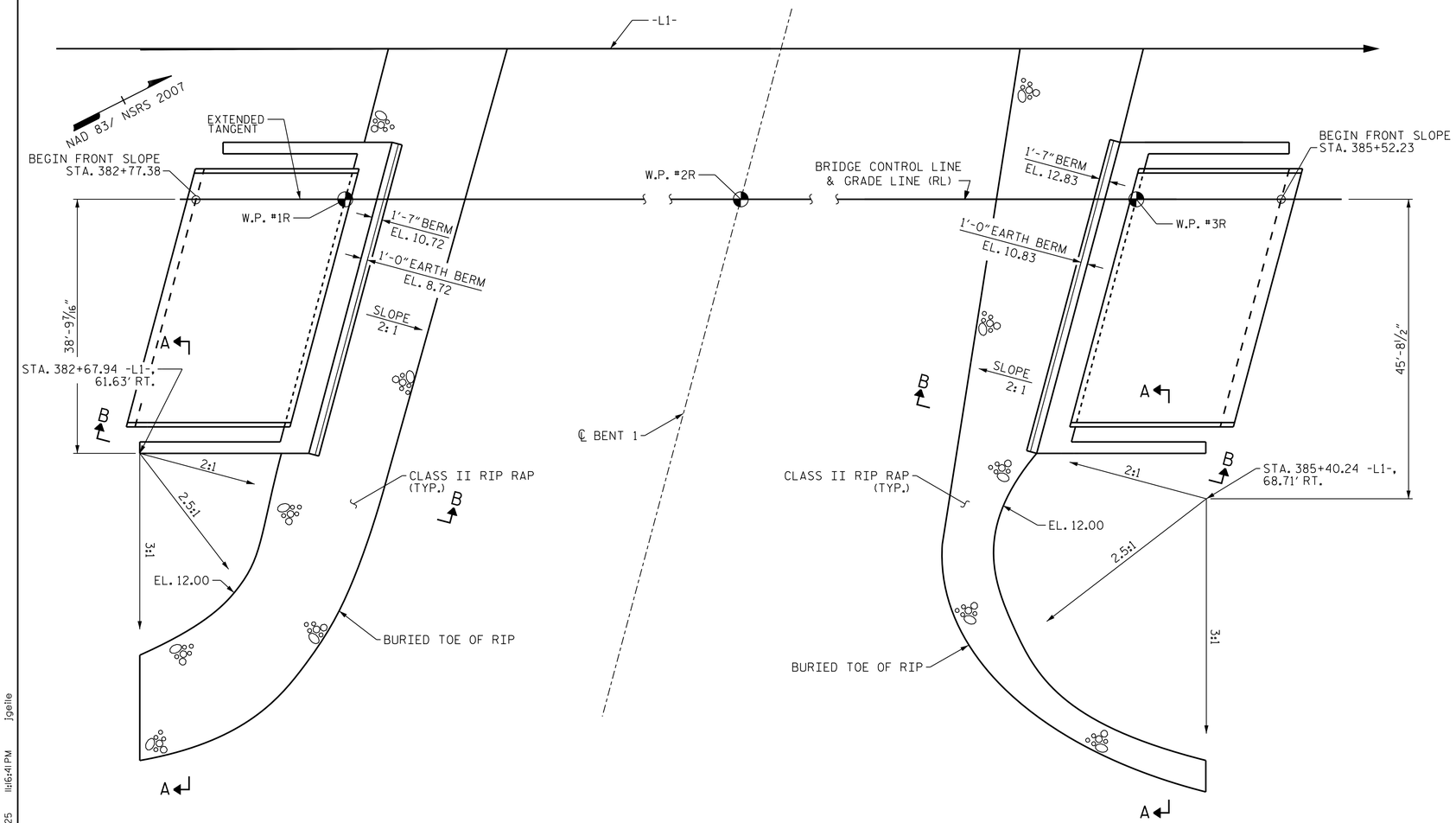
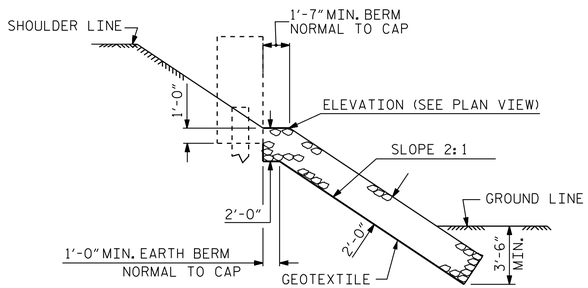


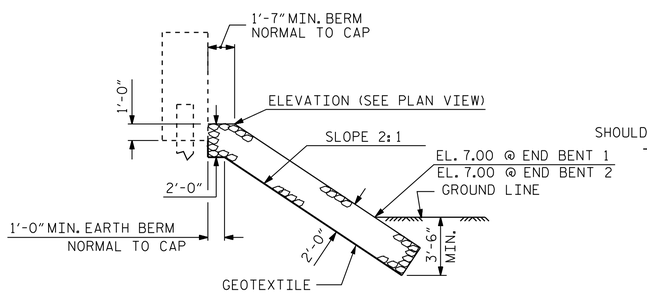
END BENT 1

END BENT 2

PLAN

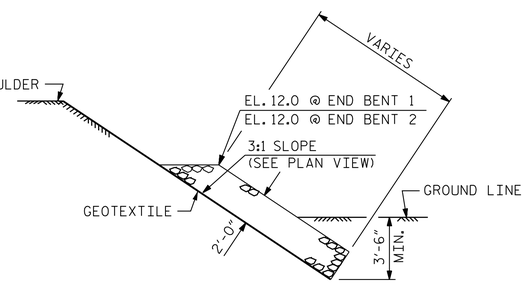


SECTION B-B



SECTION IN FRONT OF END BENT

BERM RIP RAPPED



SECTION A-A

ESTIMATED QUANTITIES

BRIDGE @ STA. 384+14.63 -L1- (RIGHT LANE)	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	190	211
END BENT 2	154	171

NOTE: QUANTITIES FOR THIS BRIDGE IS TO -L1- LINE.

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

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DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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STD. NO. RP1

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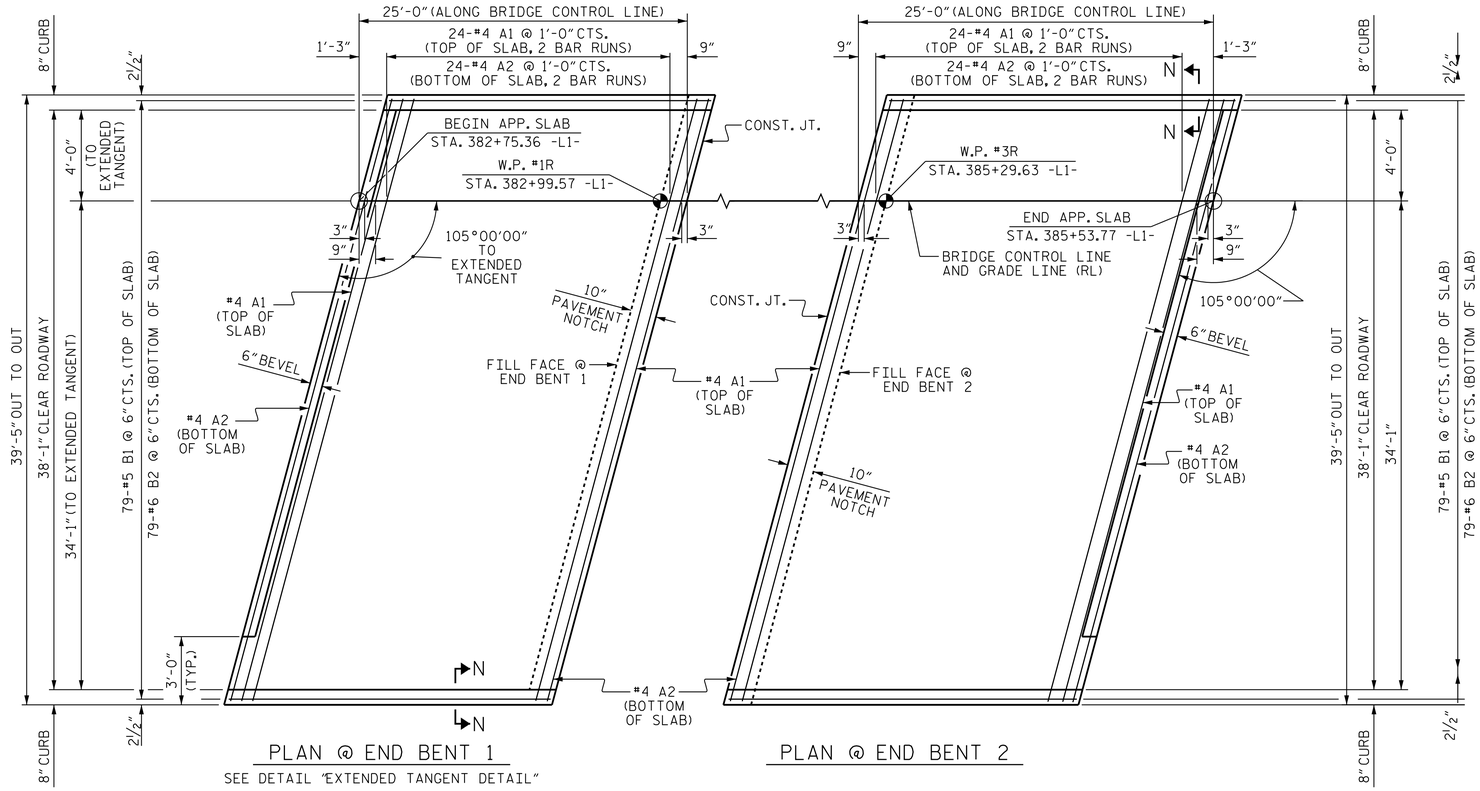


PLAN @ END BENT 1

SEE DETAIL "EXTENDED TANGENT DETAIL"

PLAN @ END BENT 2

NOTES

FOR APPROACH FILL DETAILS AND NOTES, SEE SHEET 2 OF 2.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	52	#4	STR	21'-3"	738
✳ A2	52	#4	STR	21'-3"	738
✳ B1	79	#5	STR	24'-1"	1,984
✳ B2	79	#6	STR	24'-7"	2,917

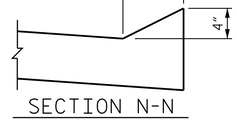
✳ EPOXY COATED REINFORCING STEEL LBS. 6,377

CLASS AA CONCRETE C.Y. 42.6

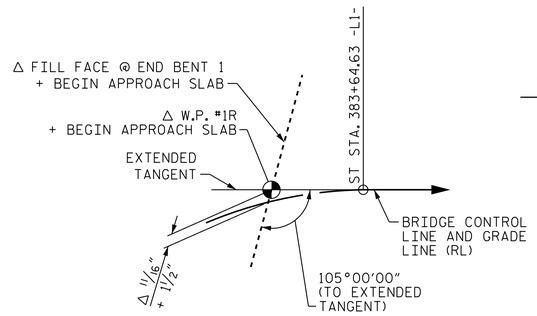
SPLICE LENGTHS

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

END OF CURB WITHOUT SHOULDER BERM GUTTER



SECTION N-N



EXTENDED TANGENT DETAIL

(△ AT FILL FACE OF END BENT 1)
(+ AT BEGIN APPROACH SLAB)

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR INTEGRAL ABUTMENT WITH FLEXIBLE PAVEMENT

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ASSEMBLED BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : T. N. ENNIS DATE : 10/25/21

DRAWN BY : TLA 10/05
CHECKED BY : GM 5/06

REV. 12/21/11 MAA/GM
REV. 6/13 MAA/GM
REV. 12/17 MAA/THC

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE

Signed by: 5/5/2025

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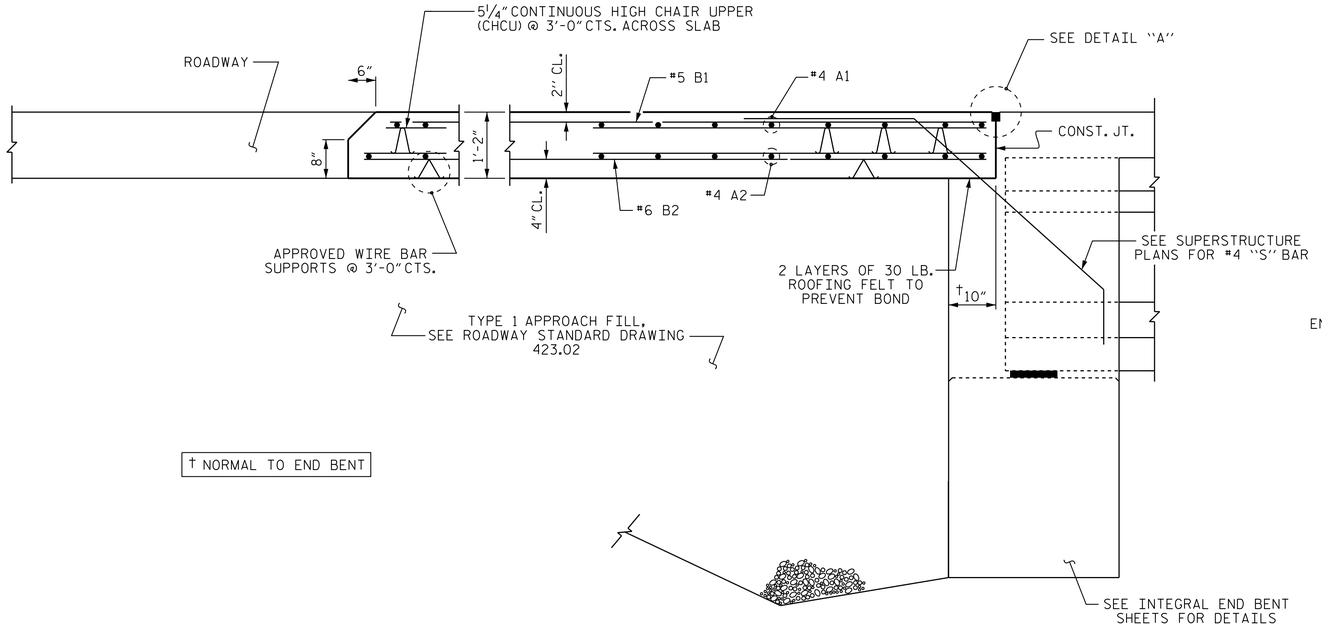
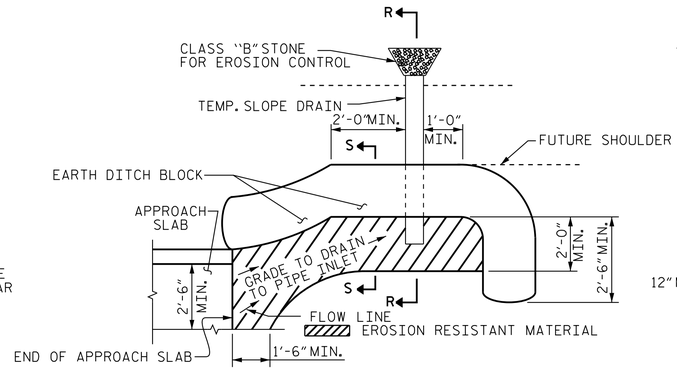
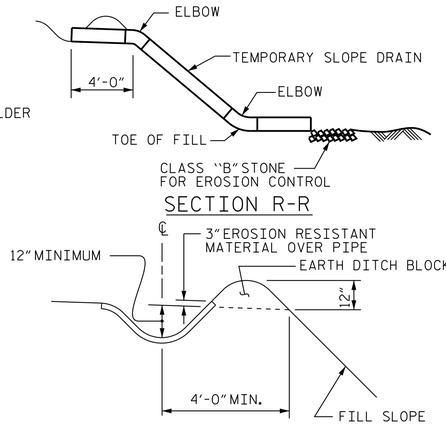


SECTION THRU SLAB



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.

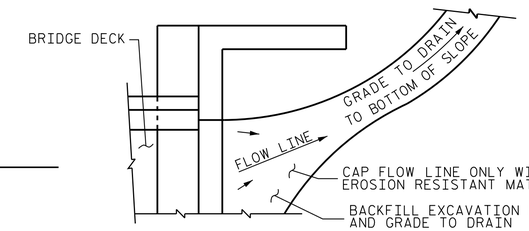
PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS 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

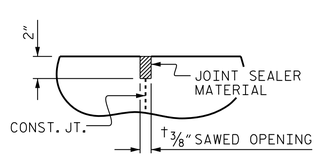
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF BRIDGE DECK.

AREA BETWEEN 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.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER HTE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



DETAIL "A"

PROJECT NO. R-3300A

NEW HANOVER COUNTY

STATION: 384+20.79 -L1-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB DETAILS

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
Signed by: 5/5/2025

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CHECKED BY : S. S. POOLE DATE : 01/12/25
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STD. NO. BAS5

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-0.7667% △ +0.5504%

PI STA. = 425+00 -L1-
EL. = 27.53
L = 240'

GRADE DATA -L1-

+0.5504% △ +1.4286%

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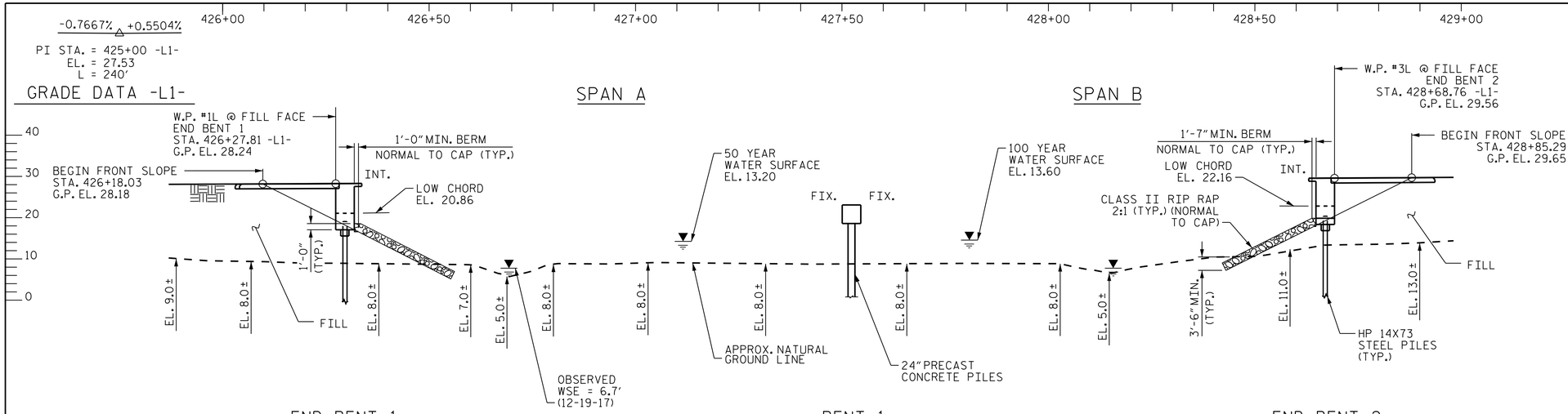
EL. = 30.29
L = 210'

GRADE DATA -L1-



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Δ = 37°59'01.2" (RT.)
D = 1°05'13.9"
L = 3,493.69'
T = 1,813.77'
R = 5,270.00'

HORIZONTAL CURVE DATA -L1-

DESIGN DISCHARGE	1,470 C.F.S
FREQUENCY	50 YR.
DESIGN HIGH WATER EL.	13.20
DRAINAGE AREA	4.00 SQ. MI
BASE DISCHARGE (Q100)	1,690 C.F.S
BASE HIGH WATER EL.	13.60

HYDRAULIC DESIGN DATA

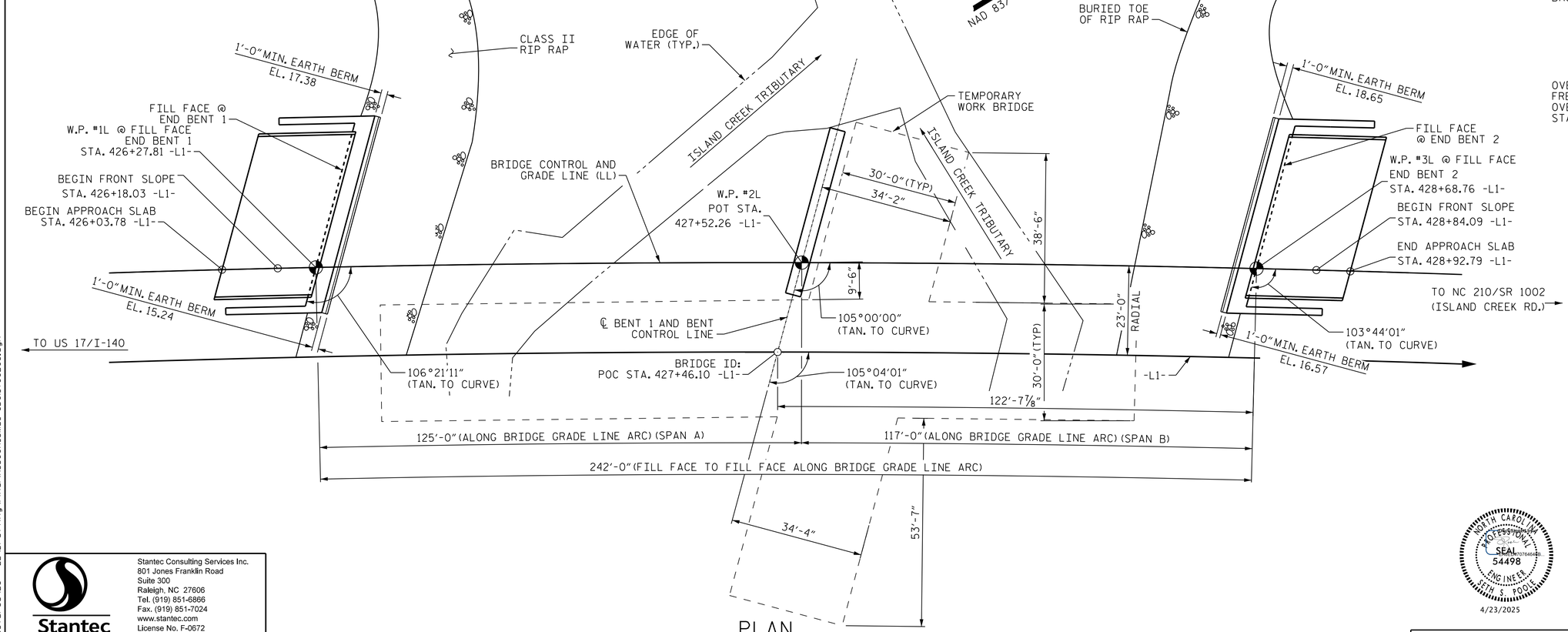
OVERTOPPING DISCHARGE	34,400 C.F.S
FREQUENCY	500+ YR.
OVERTOPPING EL.	29.30
STATION	425+19.71 SAG POINT

OVERTOPPING FLOOD DATA

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

SECTION ALONG -L1-

(SECTION AT END BENTS AND BENTS ARE SHOWN AT RIGHT ANGLES)



PLAN

(PILES NOT SHOWN FOR CLARITY)

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.10 -L1-

SHEET 1 OF 5 BRIDGE NO. 700253

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER ISLAND CREEK TRIBUTARY ON US 17 BYPASS BETWEEN US 17/I-140 AND NC 210/SR 1002 (ISLAND CREEK RD.)

(LEFT LANE)

NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S. POOLE
4/23/2025

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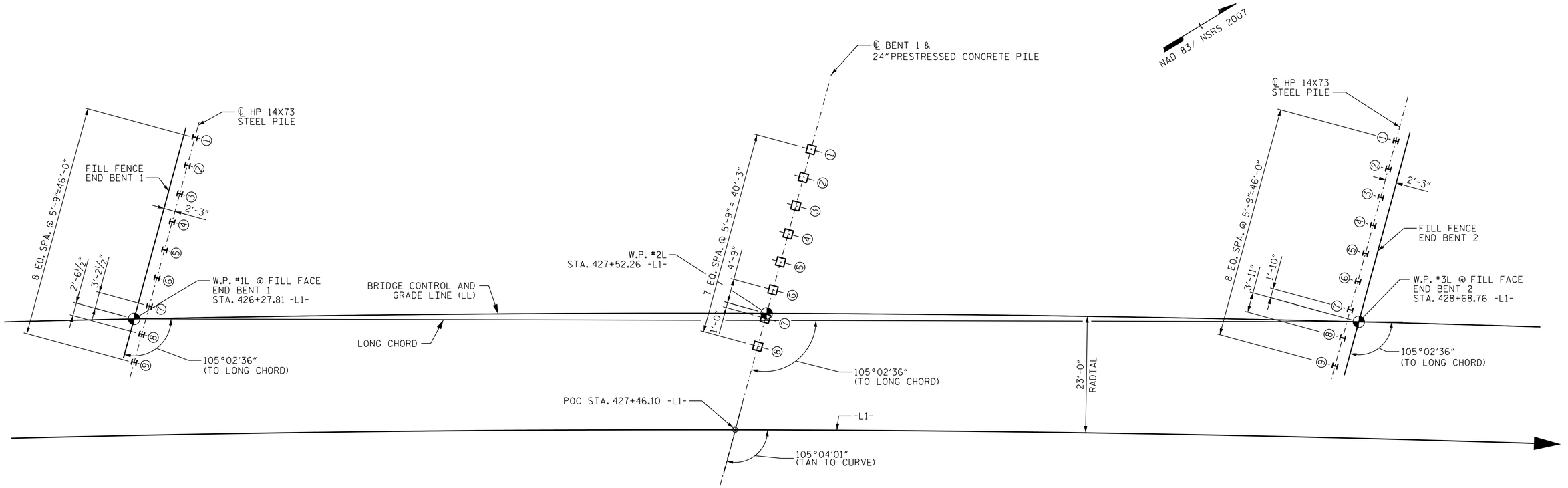
DRAWN BY : G. NGUYEN DATE : 08/15/18
CHECKED BY : S. S. POOLE DATE : 12/04/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25



END BENT 1 BENT 1 END BENT 2

FOUNDATION LAYOUT

NOTES

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES AND SURCHARGE REQUIRED AT END BENTS NO. 1 AND 2.
3. OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE PLUS 3 FT OF SURCHARGE MATERIAL BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO. 1. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
4. OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE PLUS 3 FT OF SURCHARGE MATERIAL BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
5. APPROACH EMBANKMENT CONSTRUCTION AT END BENT NO. 1 MUST BE COMPLETED IN STAGES FOR SHORT TERM SLOPE STABILITY. TOTAL WAITING PERIOD INCLUDING ALL STAGES IS 5 MONTHS AT END BENT NO. 1. SEE ROADWAY PLANS FOR EMBANKMENT CONSTRUCTION STAGE DETAILS.
6. APPROACH EMBANKMENT CONSTRUCTION AT END BENT NO. 2 MUST BE COMPLETED IN STAGES FOR SHORT TERM SLOPE STABILITY. TOTAL WAITING PERIOD INCLUDING ALL STAGES IS 4 MONTHS AT END BENT NO. 2. SEE ROADWAY PLANS FOR EMBANKMENT CONSTRUCTION STAGE DETAILS.
7. IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 110 TO 155 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO. 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.10 -L1-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER ISLAND CREEK TRIBUTARY ON US 17 BYPASS BETWEEN US 17/I-140 AND NC 210/SR 1002 (ISLAND CREEK RD.)

(LEFT LANE)

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NORTH CAROLINA PROFESSIONAL SEAL 54498 ENGINEER SETH S POOLE
4/23/2025

DRAWN BY : G. NGUYEN DATE : 08/15/18
CHECKED BY : S. S. POOLE DATE : 12/04/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S08-02
1			3			TOTAL SHEETS
2			4			41

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