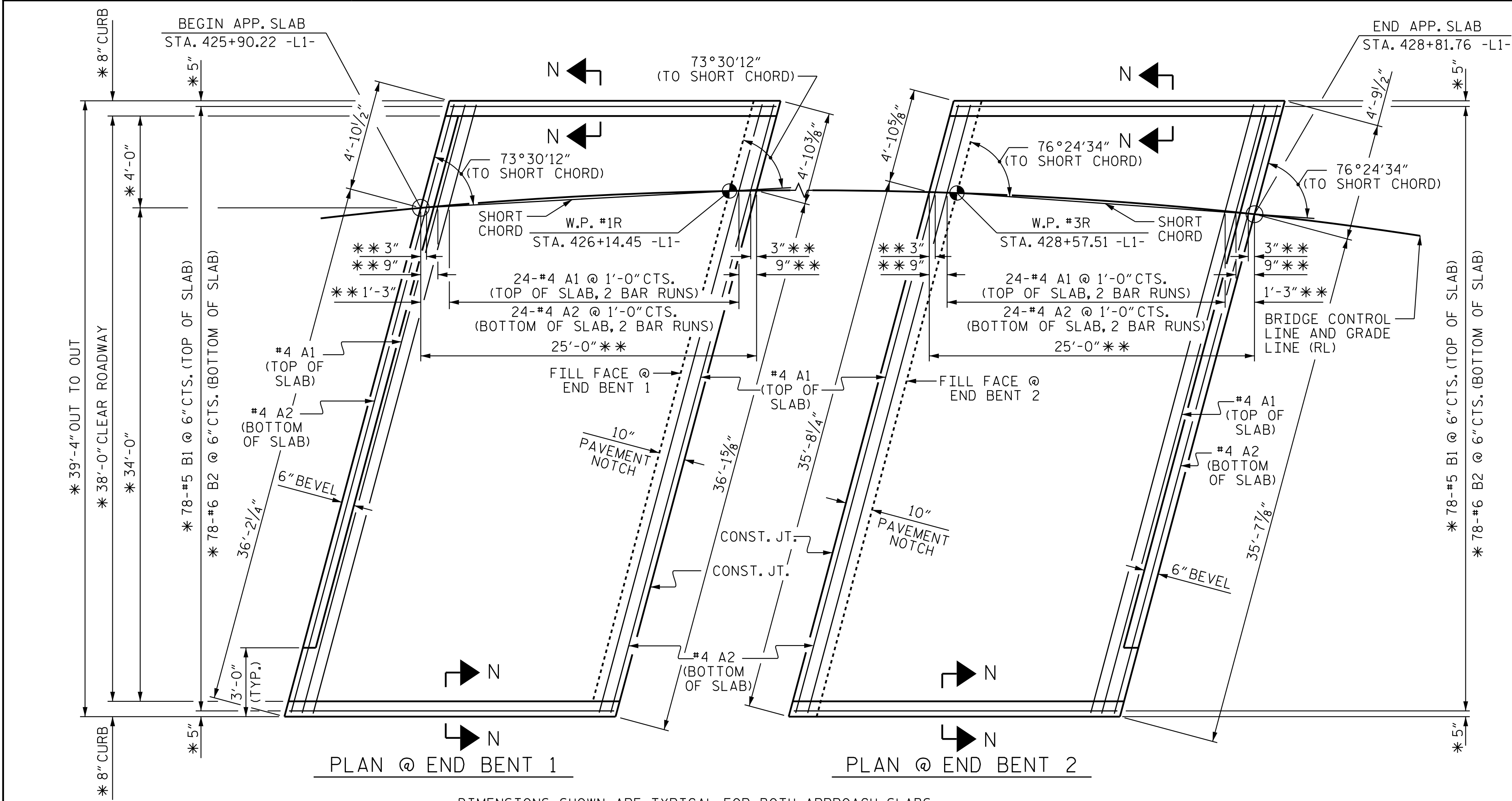




DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS
* RADIAL DIMENSION
** ALONG ARC

NOTES

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

BILL OF MATERIAL

FOR ONE APPROACH SLAB
(2 REQ'D)

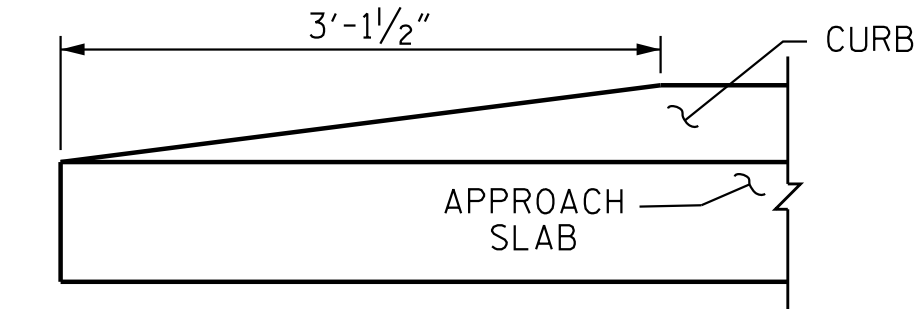
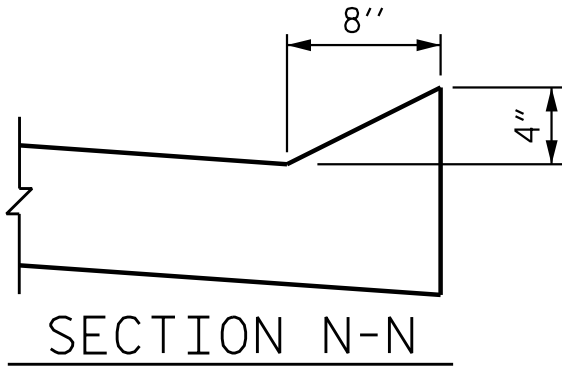
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	21'-4"	741
* A2	52	#4	STR	21'-4"	741
* B1	78	#5	STR	24'-1"	1,959
* B2	78	#6	STR	24'-7"	2,880

* EPOXY COATED
REINFORCING STEEL LBS. 6,321

CLASS AA CONCRETE C. Y. 42.5

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

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.16 -L1-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

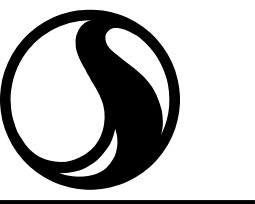
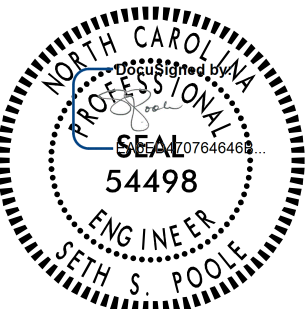
BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
WITH FLEXIBLE PAVEMENT

(RIGHT LANE)

REVISIONS						SHEET NO. S09-40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

4/23/2025



Stantec Consulting Services Inc.
801 Jones Franklin Road
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 : 08/23/18
CHECKED BY : S. S. POOLE DATE : 12/04/24

DRAWN BY : FCJ 11/88
CHECKED BY : ARB 11/88

REV. 6/13
REV. 12/17
REV. 5/18

MAA/GM
MAA/THC
MAA/THC

DESIGN
ENGINEER
OF RECORD

S. S. POOLE DATE : 04/23/25

STD. NO. BAS5

4/23/2025 2:04:44 AM jhagenbush

U:\S\Structures\B9 - RL\Drawings\Final\R3300A.SMU\AS02-700B09.dgn



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

ASSEMBLED BY : D. NORSWORTHY
CHECKED BY : S. S. POOLE
DATE : 08/15/18
DATE : 01/13/25

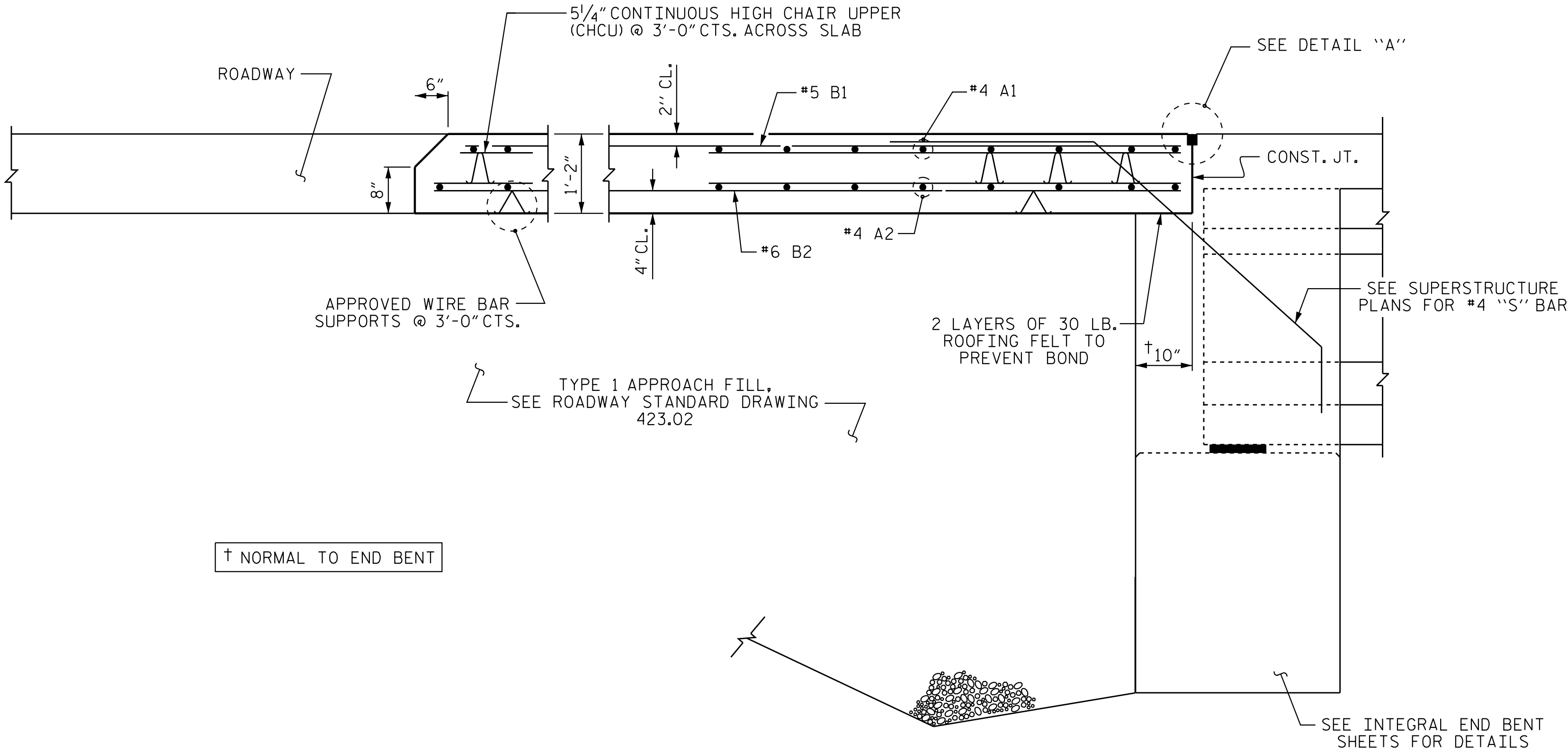
DRAWN BY : TLA 10/05
CHECKED BY : GM 5/06

REV. 12/21/11
REV. 6/13
REV. 12/17

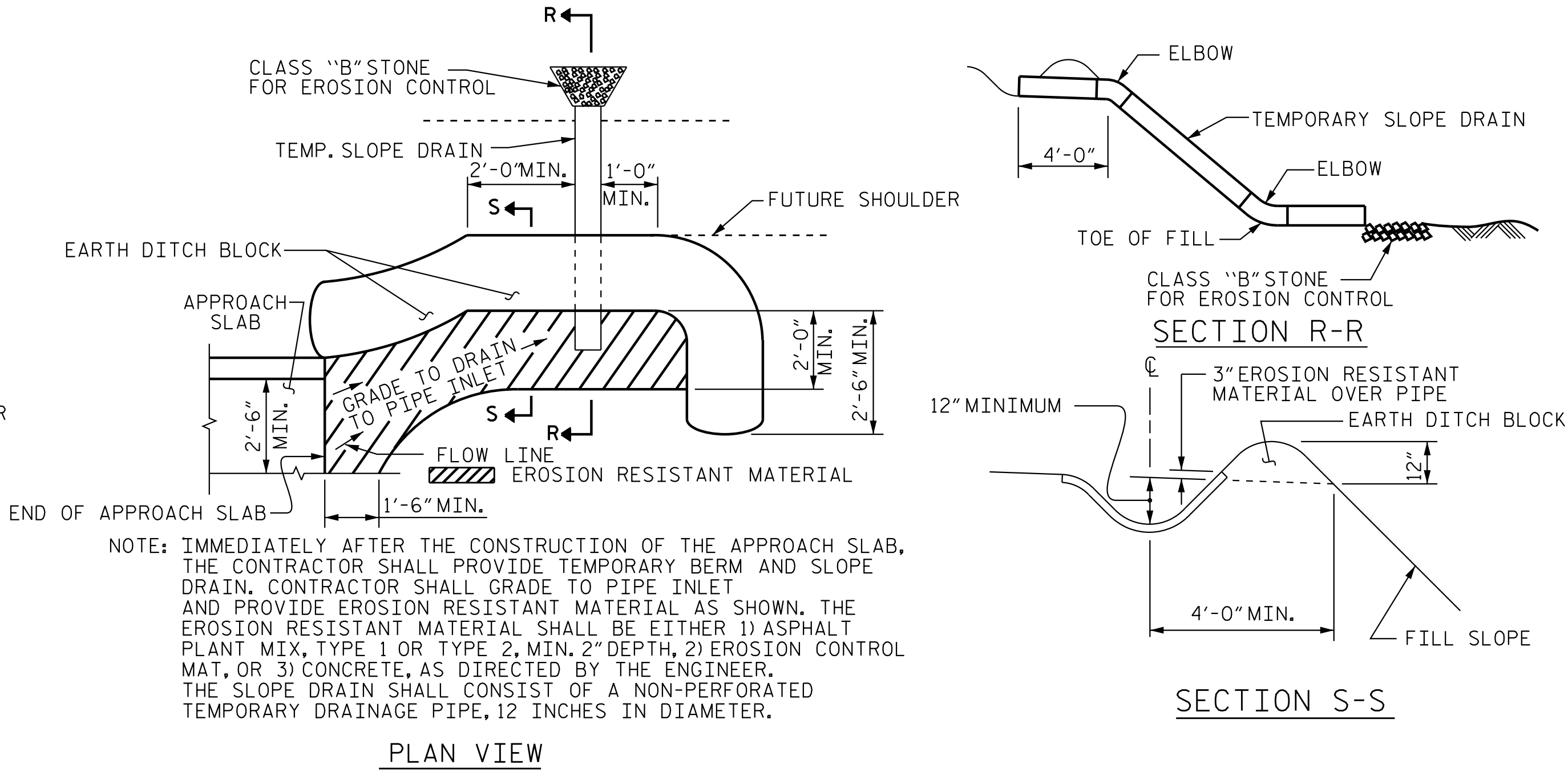
MAA/GM
MAA/GM
MAA/THC

DESIGN
ENGINEER
OF RECORD:

S. S. POOLE
DATE : 04/23/25



SECTION THRU SLAB



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

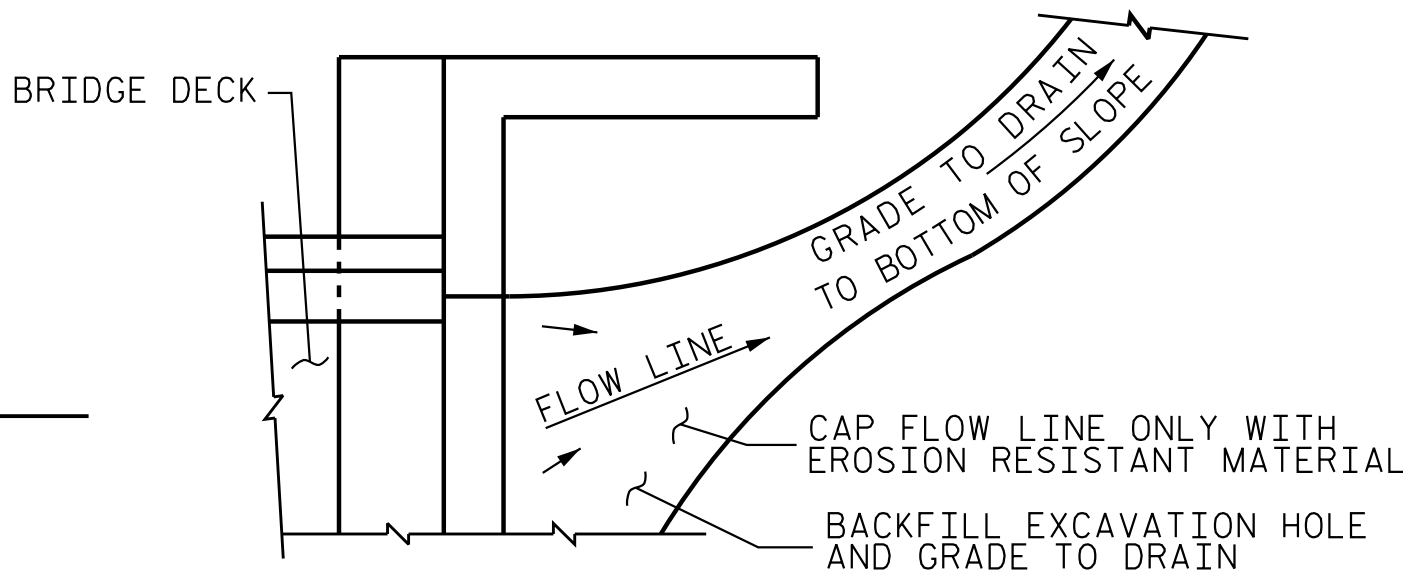
CONTRACTOR MAY PLACE 'B' BARS ALONG THE SHORT CHORD TO MATCH THE GEOMETRY OF THE APPROACH SLAB.

ARC OFFSETS ARE NEGLIGIBLE AND THEREFORE NOT SHOWN.

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

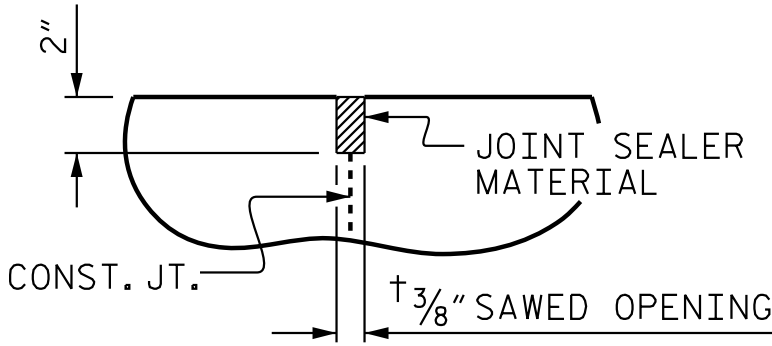
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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

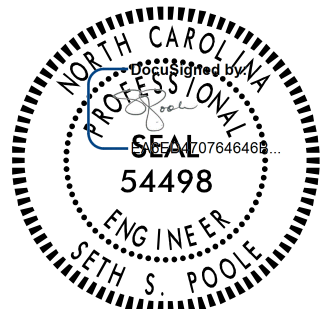


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



DETAIL "A"



4/23/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.16 -L1-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

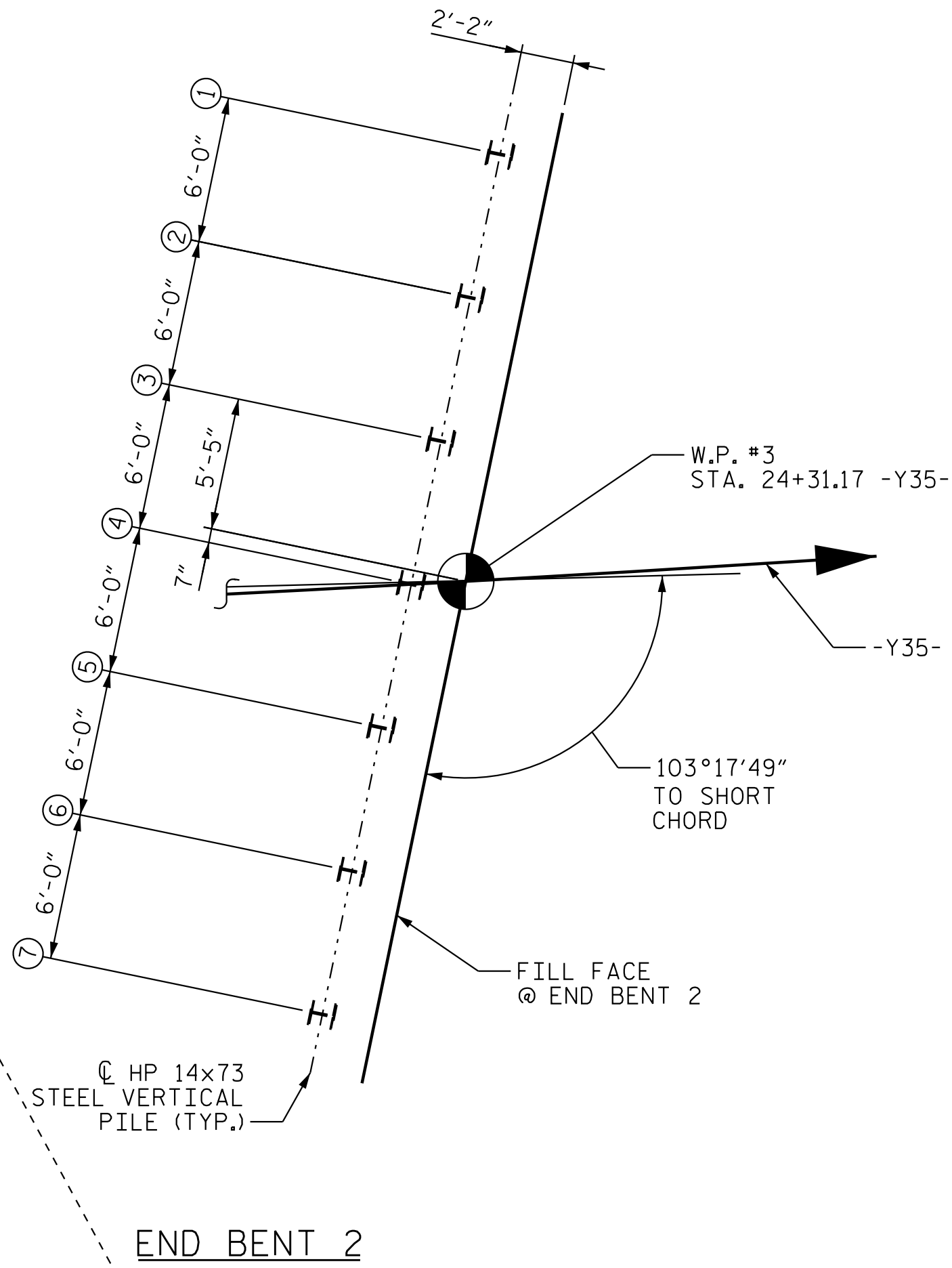
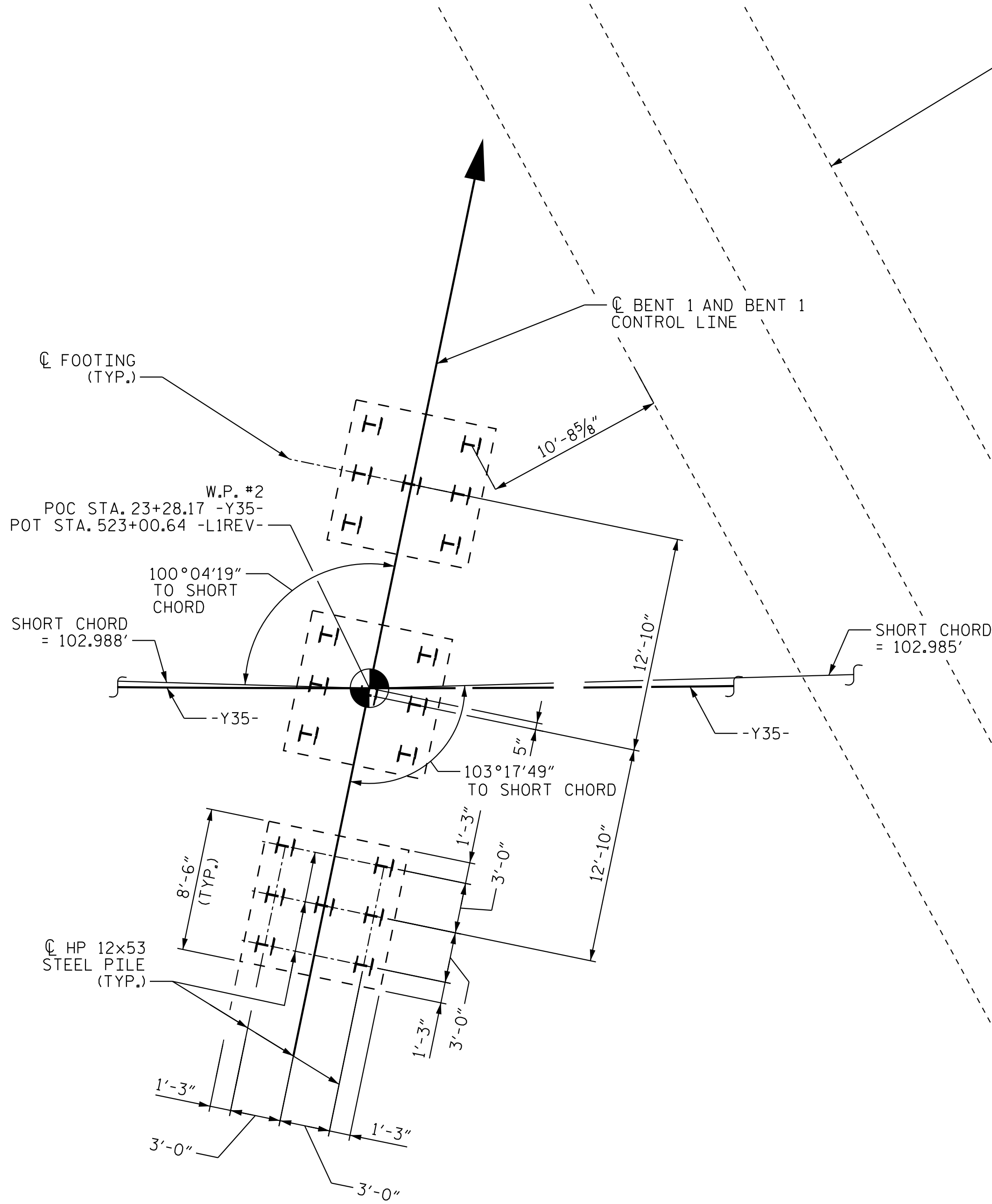
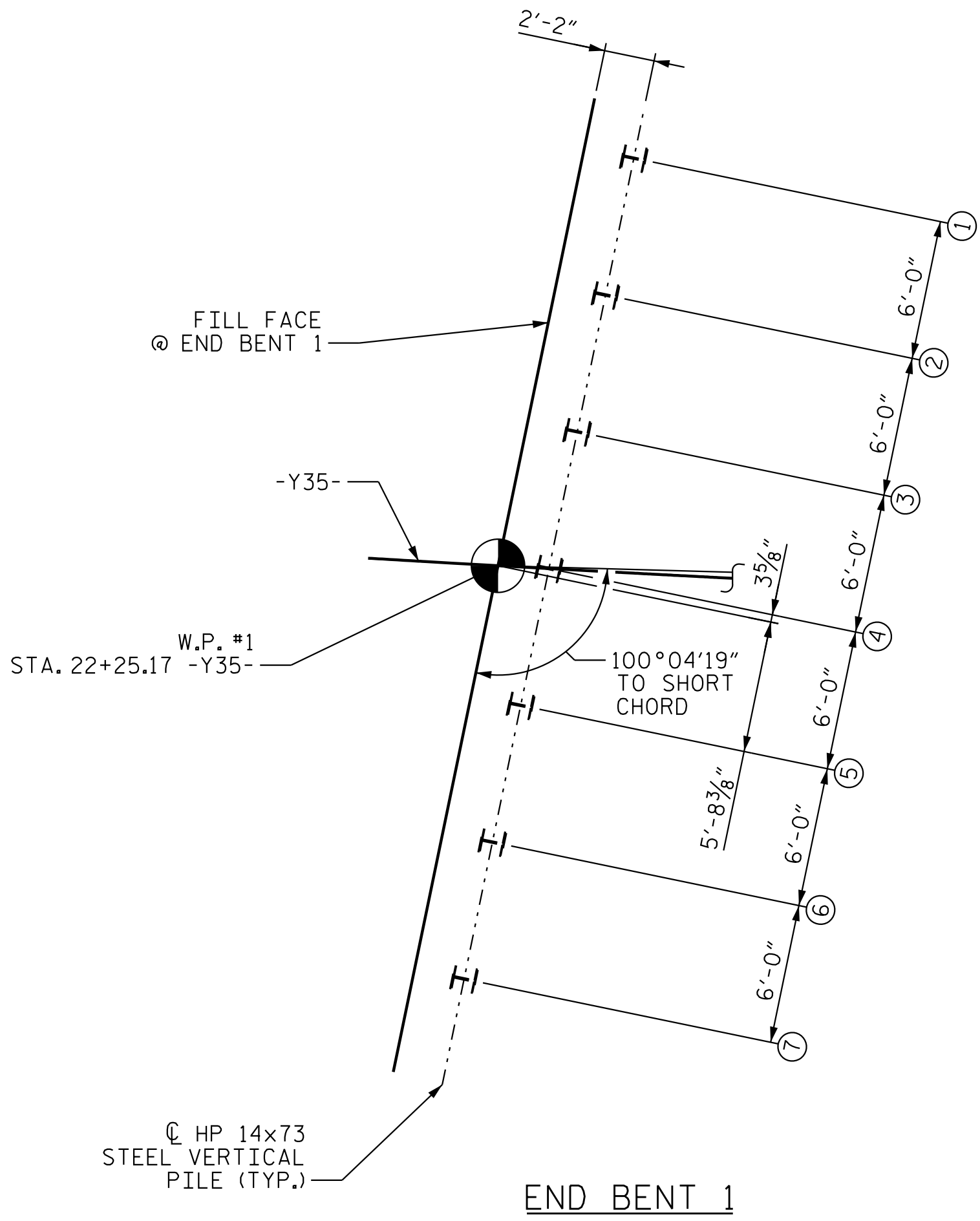
STANDARD
BRIDGE APPROACH
SLAB DETAILS

(RIGHT LANE)

REVISIONS						SHEET NO. S09-41
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

STD. NO. BAS5

4/22/2025 5:27:42 PM jhagenbush
U:\Structures\BIO -Y35-Dr-offting\Final\R3300A.SMU_FL_700BIO.dgn



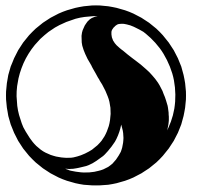
BENT 1 FOUNDATION LAYOUT

NOTES:

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES AND SURCHARGE REQUIRED AT END BENTS NO.1 AND 2.
- OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE PLUS 5 FT OF SURCHARGE MATERIAL BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO.1 AND 2.FOR BRIDGE WAITING PERIODS,SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
- 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 3 MONTHS AT END BENT NO.1.SEE ROADWAY PLANS FOR EMBANKMENT CONSTRUCTION STAGE DETAILS.
- 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..

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

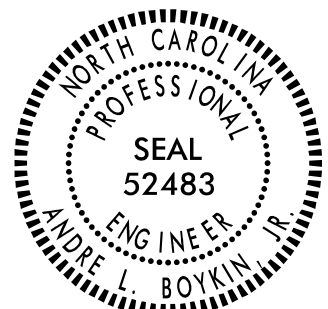
SHEET 2 OF 5



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25



Signed by: Andre L. Boykin Jr. 4/22/2025
748606847E554D6

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER NC417
(HAMPSTEAD BYPASS) ON SR 1573
(HARRISON CREEK RD.) BETWEEN
SR 1002 (ISLAND CREEK RD.) AND -SR3-

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S10-02
1			3			TOTAL SHEETS 38
2			4			

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

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 1-7				
End Bent 2, Piles 1-7				7
TOTAL QUANTITY:				7

SUMMARY OF DPT/PILE ORDER LENGTHS
(Blank entries indicate item is not applicable to structure)

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

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.

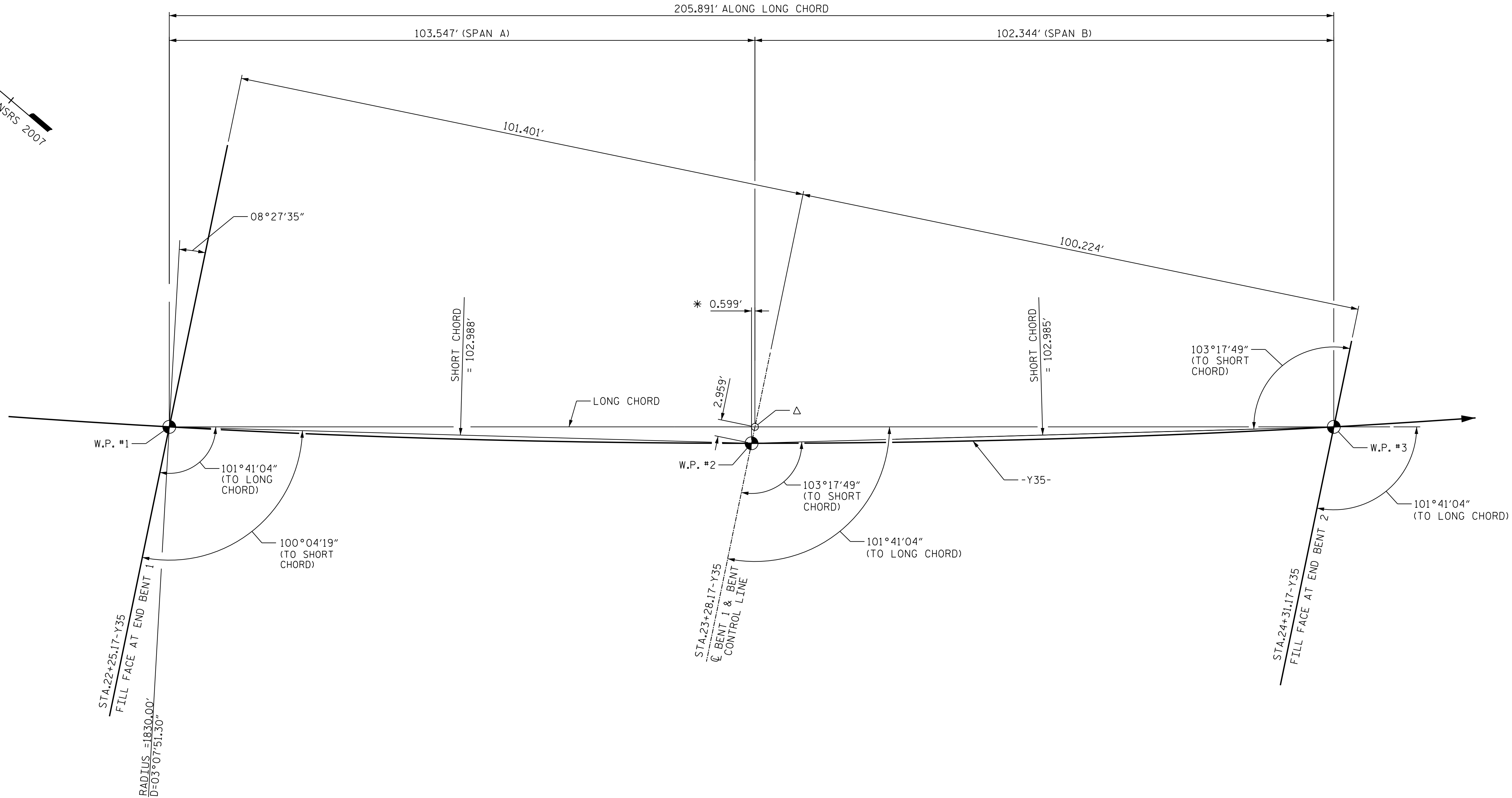
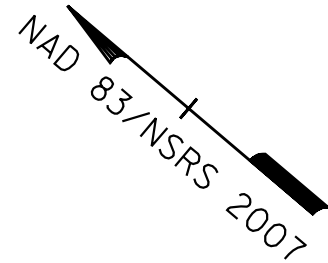
PROJECT NO. R-3300A

 PENDER COUNTY

STATION: 23+28.17 -Y35

 Signed by: _____ <i>Andrew Boykin Jr.</i> 741000883/12041016 SIGNATURE DATE	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH PILE FOUNDATION TABLES																		
REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">NO.</th> <th style="width: 15%;">BY:</th> <th style="width: 15%;">DATE:</th> <th style="width: 10%;">NO.</th> <th style="width: 15%;">BY:</th> <th style="width: 15%;">DATE:</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td style="text-align: center;">3</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td style="text-align: center;">4</td> <td></td> <td></td> </tr> </tbody> </table>	NO.	BY:	DATE:	NO.	BY:	DATE:	1			3			2			4			SHEET NO. S10-03 TOTAL SHEETS 38
NO.	BY:	DATE:	NO.	BY:	DATE:														
1			3																
2			4																
DESIGN NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED																			

4/22/2025 5:27:44 PM jhagenbush
U:\Structures\B10 -Y35-Dr-offing\Final\R3300A.SMU.LC_700B10.dgn



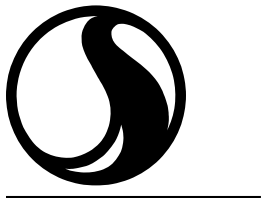
NOTES:

- ALL BENTS ARE PARALLEL.
- * WORK POINT PROJECTED ON LONG CHORD TO INTERSECTION POINT WITH BENT 1 CONTROL LINE.
 - △ C.P. #2 INTERSECTION POINT - LONG CHORD WITH C BENT 1 AND BENT CONTROL LINE.

LONG CHORD LAYOUT

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

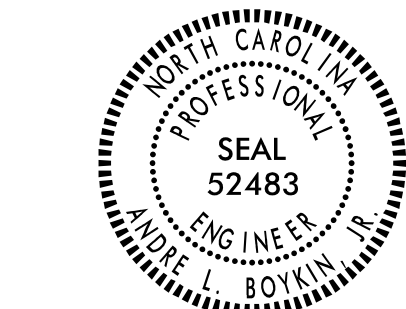
SHEET 4 OF 5



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25



Signed by: Andrew L. Boykin Jr. 4/22/2025
749606847E554D0

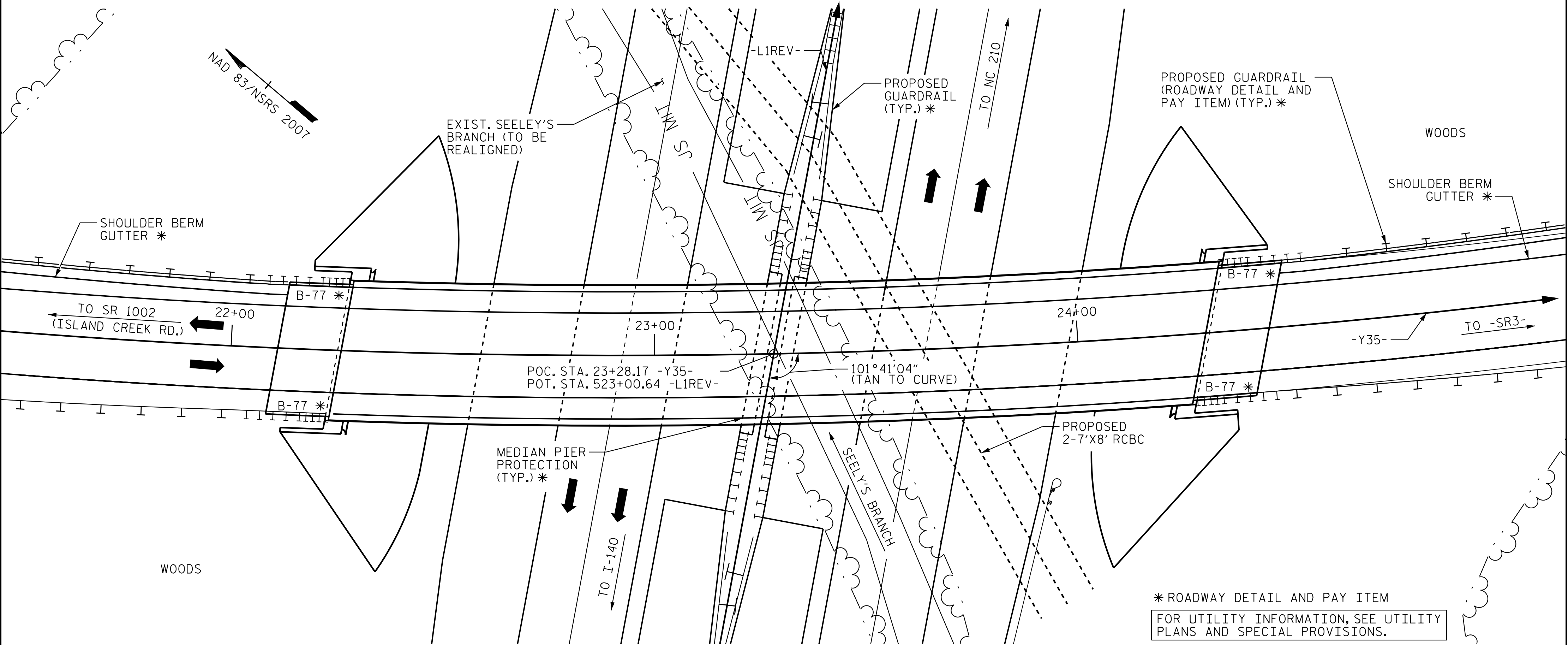
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER NC417
(HAMPSTEAD BYPASS) ON SR 1573
(HARRISON CREEK RD.) BETWEEN
SR 1002 (ISLAND CREEK RD.) AND -SR3-

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S10-04
1			3			TOTAL SHEETS 38
2			4			

BM #17: R/R SPIKE IN 8”PINE. 58.06’ RT OF -Y35- STA 17+25.52 ELEV. 35.92’



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	FOUNDATION EXCAVATION FOR BENT	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	HP 12x53 STEEL PILES		HP 14x73 STEEL PILES		STEEL PILE POINTS	PILE REDRIVES	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	MOD. 56" PRESTR. CONC. GIRDERS	
	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	EA.	EA.	NO.	LIN.FT.	NO.	LIN.FT.	EA.	EA.	EA.	LIN.FT.	SQ.YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE		6,793	6,299		LUMP SUM												408.59		LUMP SUM	8	807.9
END BENT NO.1				32.4		4,643			7			7	560.0		4			411			
BENT NO.1	LUMP SUM			66.2		9,788	1,091	21		21	1,155.0				11	1					
END BENT NO.2				33.5		4,887			7			7	490.0	7	4			414			
TOTAL	LUMP SUM	6,793	6,299	132.1	LUMP SUM	19,318	1,091	21	14	21	1,155.0	14	1,050.0	7	19	1	408.59	825	LUMP SUM	8	807.9

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR 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.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR MODIFIED 56"PRESTRESSED CONCRETE GIRDER, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

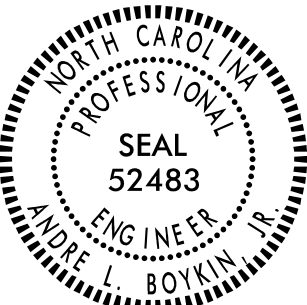
SHEET 5 OF 5



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25



Signed by:
Andre Boykin
7480008472504301

5/5/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER NC417
(HAMPSTEAD BYPASS) ON SR 1573
(HARRISON CREEK RD.) BETWEEN
SR 1002 (ISLAND CREEK RD.) AND -SR3-

REVISIONS						SHEET NO. \$10-05
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

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.

SPAN 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

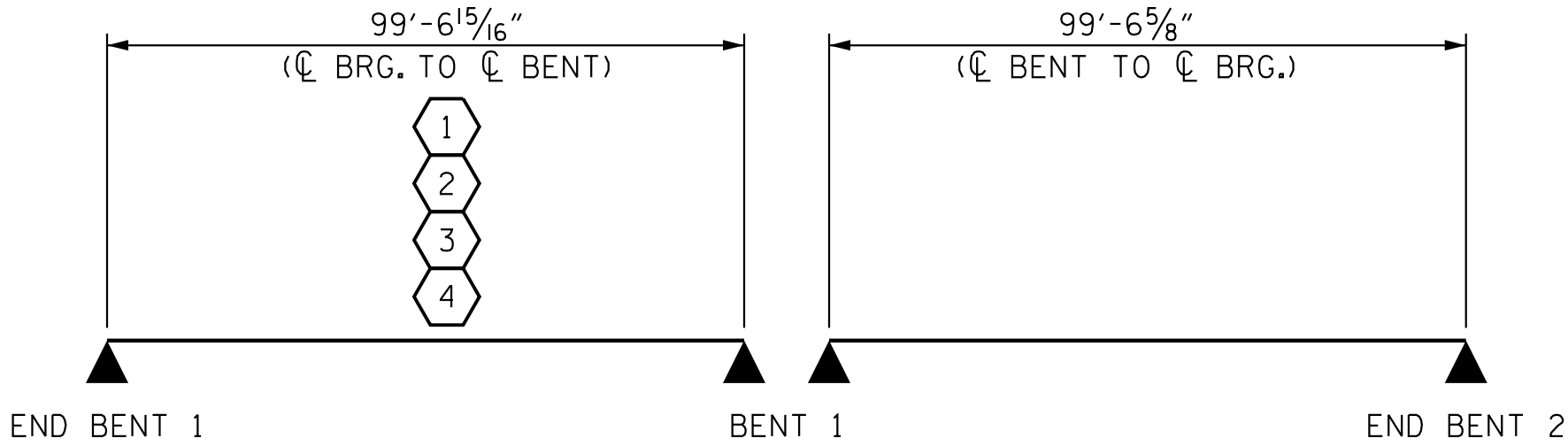
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT	CONTROLLING LOADING ⬡	MINIMUM RATING FACTOR (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	GIRDRE LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)		DISTRIBUTION FACTOR (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	⬡	1.09	--	1.75	0.746	1.26	A	ER	49.80	0.78	1.36	B	I	90.10	0.80	0.746	1.09	A	ER	49.80		
	HL-93 (OPERATING)	N/A		1.64	--	1.35	0.746	1.64	A	ER	49.80	0.78	1.79	B	I	90.10	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	⬡	1.53	55.1	1.75	0.746	1.77	A	ER	49.80	0.78	1.86	B	I	90.10	0.80	0.746	1.53	A	ER	49.80		
	HS-20 (OPERATING)	36.000		2.29	82.4	1.35	0.746	2.29	A	ER	49.80	0.78	2.44	B	I	90.10	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SN5H	13,500		3.66	49.4	1.40	0.746	5.28	A	ER	49.80	0.78	5.95	B	I	90.10	0.80	0.746	3.66	A	ER	49.80	
		SNGARBS2	20.000		2.64	52.8	1.40	0.746	3.80	A	ER	49.80	0.78	4.13	B	I	90.10	0.80	0.746	2.64	A	ER	49.80	
		SNAGRIS2	22.000		2.45	53.9	1.40	0.746	3.53	A	ER	49.80	0.78	3.80	B	I	90.10	0.80	0.746	2.45	A	ER	49.80	
		SNCOTTS3	27.250		1.81	49.3	1.40	0.746	2.60	A	ER	49.80	0.78	2.91	B	I	90.10	0.80	0.746	1.81	A	ER	49.80	
		SNAGGRS4	34.925		1.48	51.7	1.40	0.746	2.13	A	ER	49.80	0.78	2.35	B	I	90.10	0.80	0.746	1.48	A	ER	49.80	
		SNS5A	35.550		1.45	51.5	1.40	0.746	2.09	A	ER	49.80	0.78	2.35	B	I	90.10	0.80	0.746	1.45	A	ER	49.80	
		SNS6A	39.950		1.32	52.7	1.40	0.746	1.90	A	ER	49.80	0.78	2.12	B	I	90.10	0.80	0.746	1.32	A	ER	49.80	
		SNS7B	42.000		1.25	52.5	1.40	0.746	1.81	A	ER	49.80	0.78	2.06	B	I	90.10	0.80	0.746	1.25	A	ER	49.80	
	TRUCK TRACTOR SEMI- TRAILER (TTST)	TNAGRIT3	33.000		1.61	53.1	1.40	0.746	2.31	A	ER	49.80	0.78	2.56	B	I	90.10	0.80	0.746	1.61	A	ER	49.80	
		TNT4A	33.075		1.61	53.3	1.40	0.746	2.32	A	ER	49.80	0.78	2.51	B	I	90.10	0.80	0.746	1.61	A	ER	49.80	
		TNT6A	41.600		1.30	54.1	1.40	0.746	1.87	A	ER	49.80	0.78	2.16	B	I	90.10	0.80	0.746	1.30	A	ER	49.80	
		TNT7A	42.000		1.30	54.6	1.40	0.746	1.88	A	ER	49.80	0.78	2.12	B	I	90.10	0.80	0.746	1.30	A	ER	49.80	
		TNT7B	42.000		1.33	55.9	1.40	0.746	1.91	A	ER	49.80	0.78	2.02	B	I	90.10	0.80	0.746	1.33	A	ER	49.80	
		TNAGRIT4	43.000		1.27	54.6	1.40	0.746	1.84	A	ER	49.80	0.78	1.96	B	I	90.10	0.80	0.746	1.27	A	ER	49.80	
TNAGT5A		45.000		1.21	54.5	1.40	0.746	1.74	A	ER	49.80	0.78	1.92	B	I	90.10	0.80	0.746	1.21	A	ER	49.80		
TNAGT5B		45.000	⬡	1.20	54.0	1.40	0.746	1.73	A	ER	49.80	0.78	1.86	B	I	90.10	0.80	0.746	1.20	A	ER	49.80		
EMERGENCY VEHICLE (EV)	EV2	28.750		1.85	53.2	1.30	0.746	2.67	A	ER	49.80	0.78	2.86	B	I	90.10	0.80	0.746	1.85	A	ER	49.80		
	EV3	43.000	⬡	1.22	52.5	1.30	0.746	1.76	A	ER	49.80	0.78	1.88	B	I	90.10	0.80	0.746	1.22	A	ER	49.80		

GIRDER PROPERTIES

MODIFIED 56"PRESTRESSED
CONCRETE GIRDER

AREA = 759 SQ. IN.
WEIGHT = 791 LB/FT.
 γ_{BOTTOM} = 27.82 IN.
 γ_{TOP} = 28.18 IN.
 I_{xx} = 317,731 IN.⁴
 I_{yy} = 42,980 IN.⁴
V/S = 3.40 IN.



LRFR SUMMARY

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

ASSEMBLED BY : D. NORSWORTHY DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03/05/25

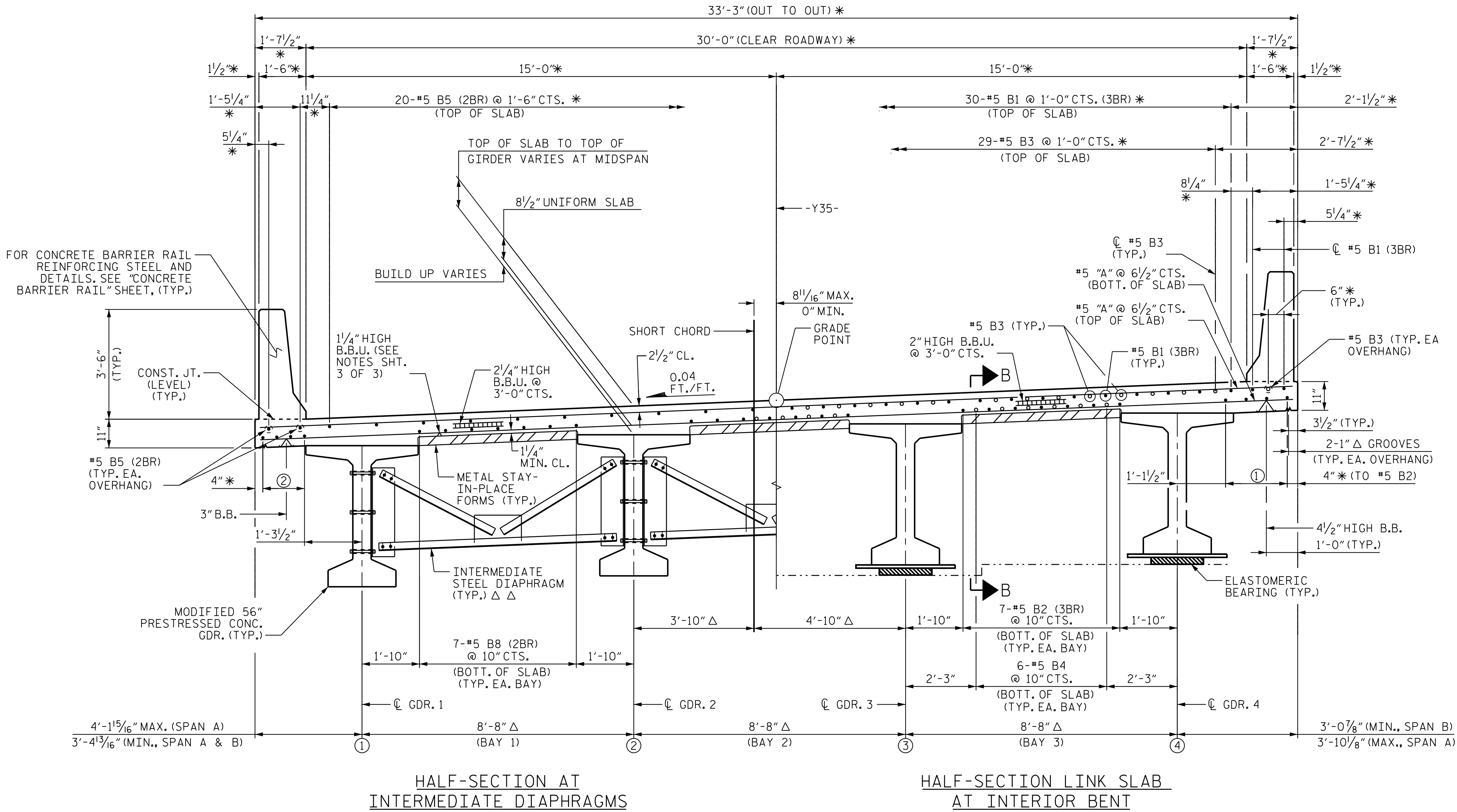
DRAWN BY : MAA 1/08 REV. 11/12/08RR MAA/GM DESIGN
CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM ENGINEER
REV. 12/17 MAA/THC OF RECORD: A. L. BOYKIN DATE : 04/22/25

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

SHEET NO. S10-06
TOTAL SHEETS 38



NOTES

SEE "TYPICAL SECTION DETAILS", SHEET 3 OF 3 FOR ADDITIONAL NOTES.

- DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
- DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.

(2BR) DENOTES 2 BAR RUN.

(3BR) DENOTES 3 BAR RUN.

* DENOTES RADIAL DIMENSION.

△ OFFSET DIMENSION NORMAL TO SHORT CHORD.

△ △ FOR INTERMEDIATE STEEL DIAPHRAGM, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 56" MOD. PRESTRESSED CONCRETE GIRDERS" SHEET.

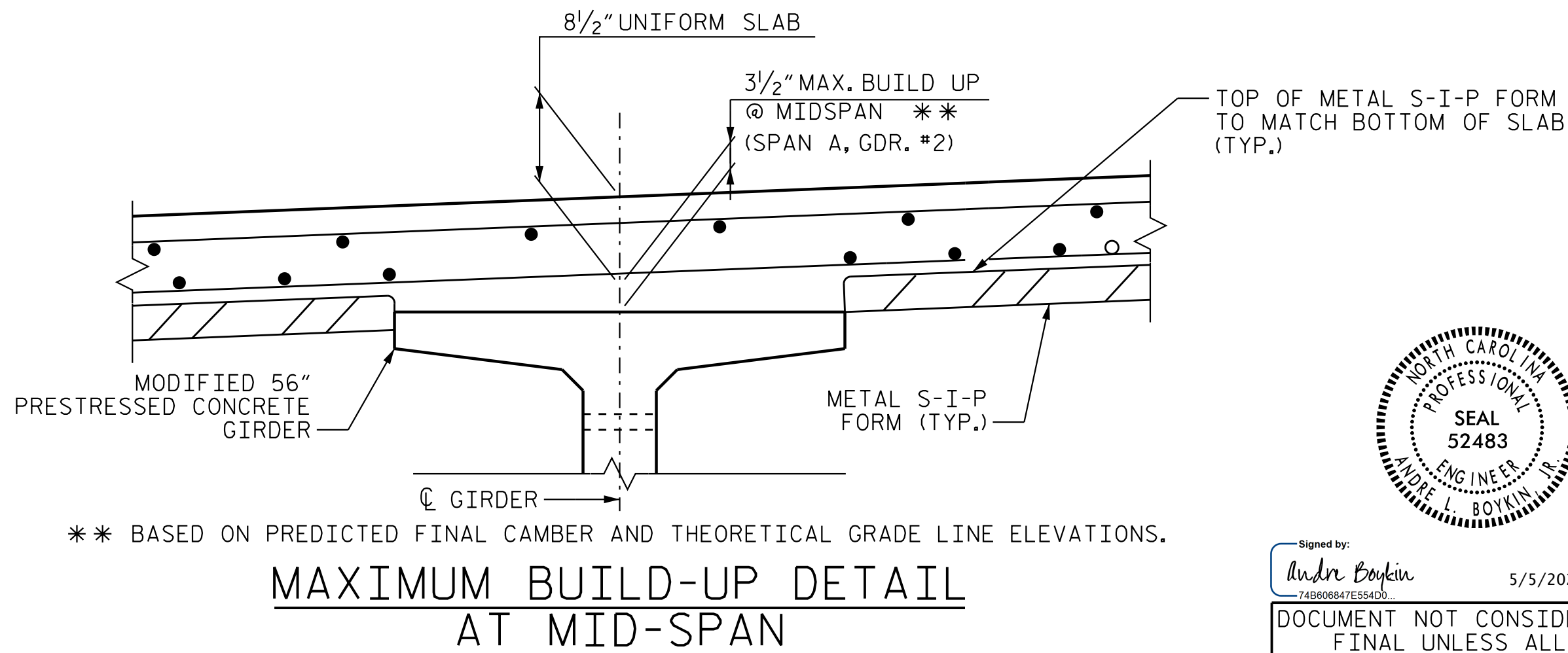
① 4-#5 B2 (3BR) @ EQ. SPA. (BOTTOM OF SLAB) (TYP. EA. OVERHANG)

3-#5 B4 ARE TO BE PLACED @ EQ. SPA. BETWEEN #5 B2 IN LEFT OVERHANG. #5 B4 WILL NOT BE REQUIRED IN THE RIGHT SIDE OVERHANG. SEE PLAN OF SPAN DETAILS - DIAPHRAGMS, SHT. 3 OF 6 FOR PLACEMENT.

② 4-#5 B8 (2BR) @ EQ. SPA. (BOTTOM OF SLAB) (TYP. EA. OVERHANG)

TYPICAL SECTION

(GIRDERS ARE PARALLEL TO SHORT CHORD IN SPANS A AND B. HORIZONTAL DIMENSIONS TO GIRDER CENTERLINES ARE NORMAL TO THE GIRDER.)



PROJECT NO. R-3300A

PENDER COUNTY

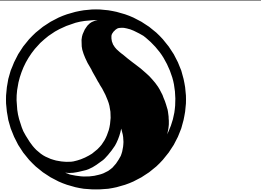
STATION: 23+28.17 -Y35-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

TYPICAL SECTION

REVISIONS						SHEET NO. S10-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25

Signed by:
Andre Boykin
74860847E554D0

5/5/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



□ SHORT CHORD TO ARC DIMENSION = 0" AT THE ARC INTERSECTION WITH THE FILL FACE AT EACH END BENT AS WELL AS THE ARC INTERSECTION WITH THE BENT 1 CONTROL LINE.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S10-08
1			3			TOTAL SHEETS 38
2			4			

DRAWN BY : <u>J. GUERRERO</u>	DATE : <u>09/10/21</u>	DESIGN ENGINEER OF RECORD: <u>A. L. BOYKIN</u>	DATE : <u>04/22/25</u>
CHECKED BY : <u>A. L. BOYKIN</u>	DATE : <u>03-05-25</u>		

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

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

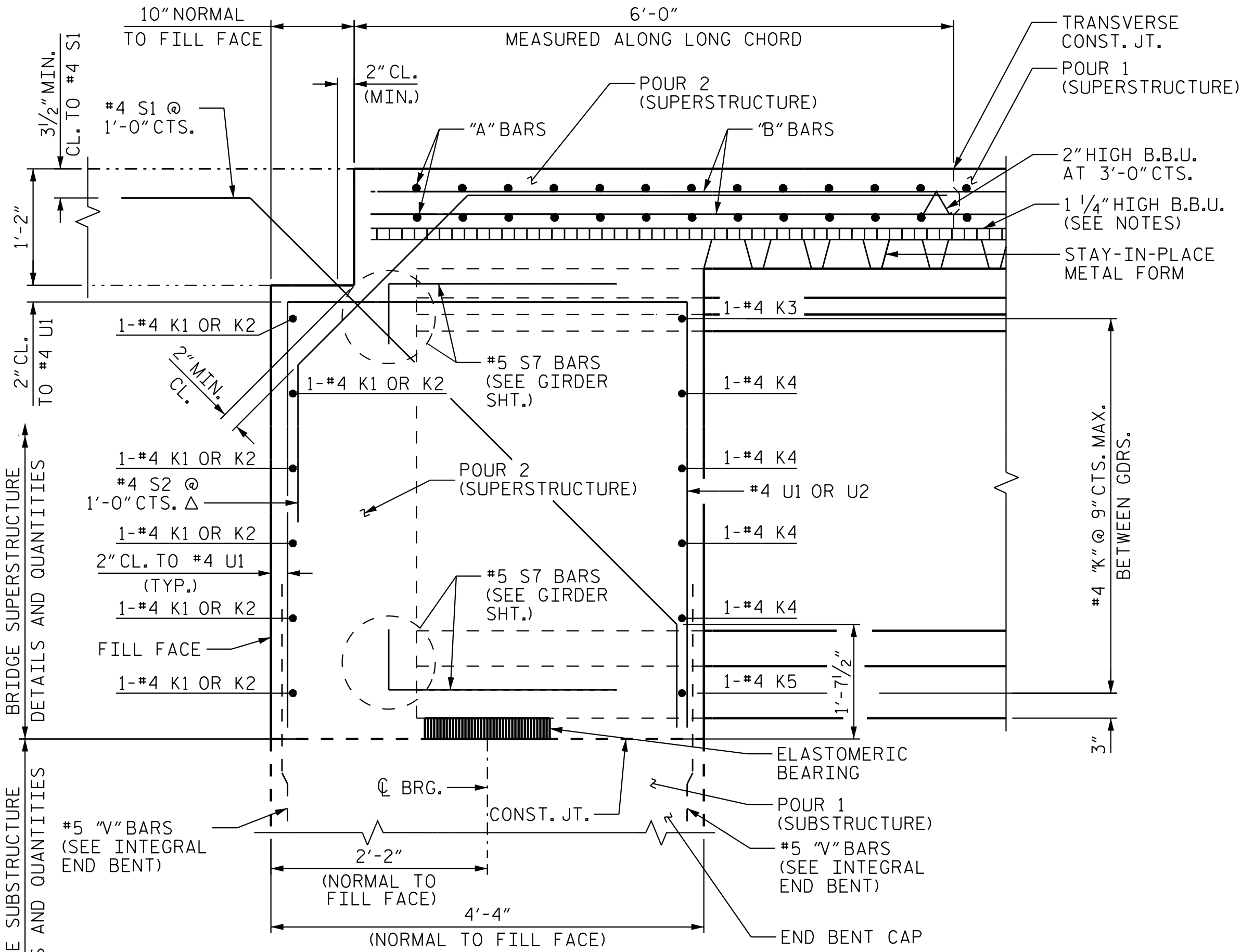
NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDUPS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS 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 IN CONCRETE BARRIER RAILS AND TOP MAT REINFORCEMENT (LONGITUDINAL & TRANSVERSE) IN SLABS AND APPROACH SLABS SHALL BE EPOXY COATED.

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

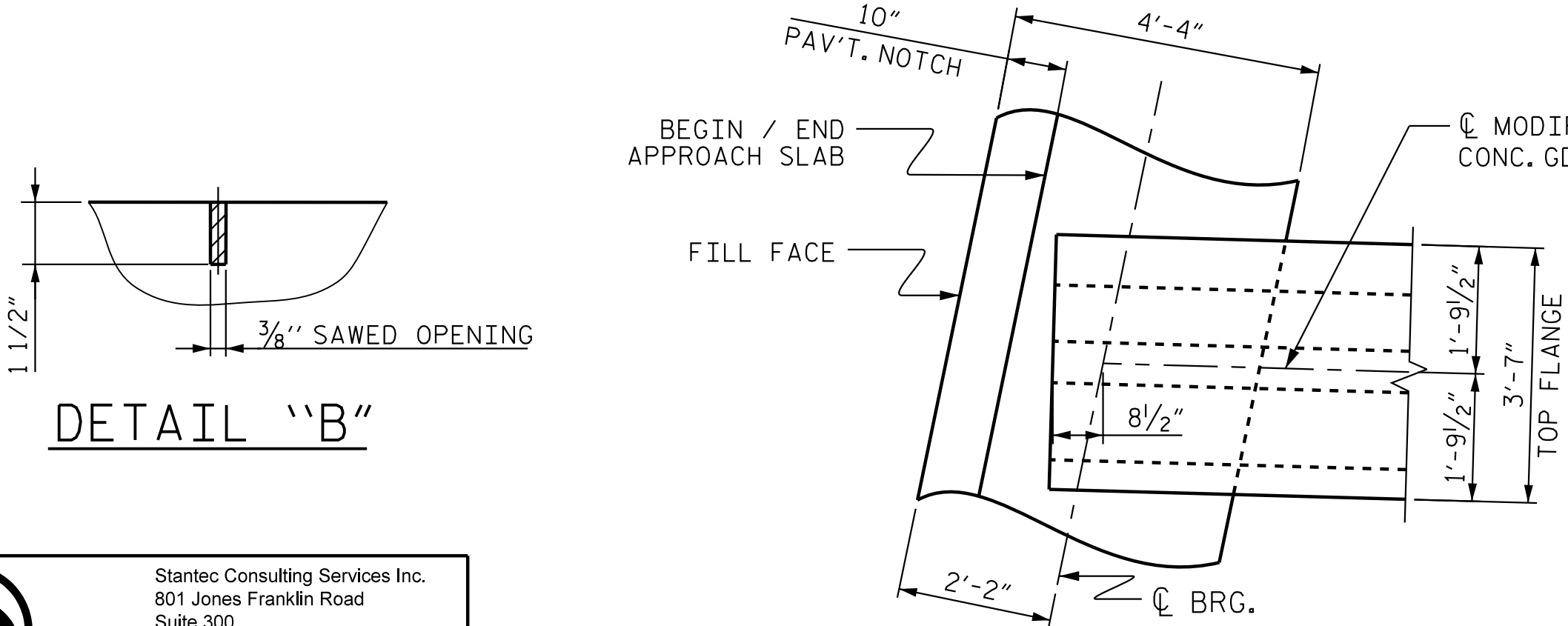
A 1 1/2" DEEP X 3/8" WIDE CONTRACTION JOINT AT BENT CONTROL LINE SHALL BE SAWN WITHIN 24 HOURS OF POURING THE LINK SLAB DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



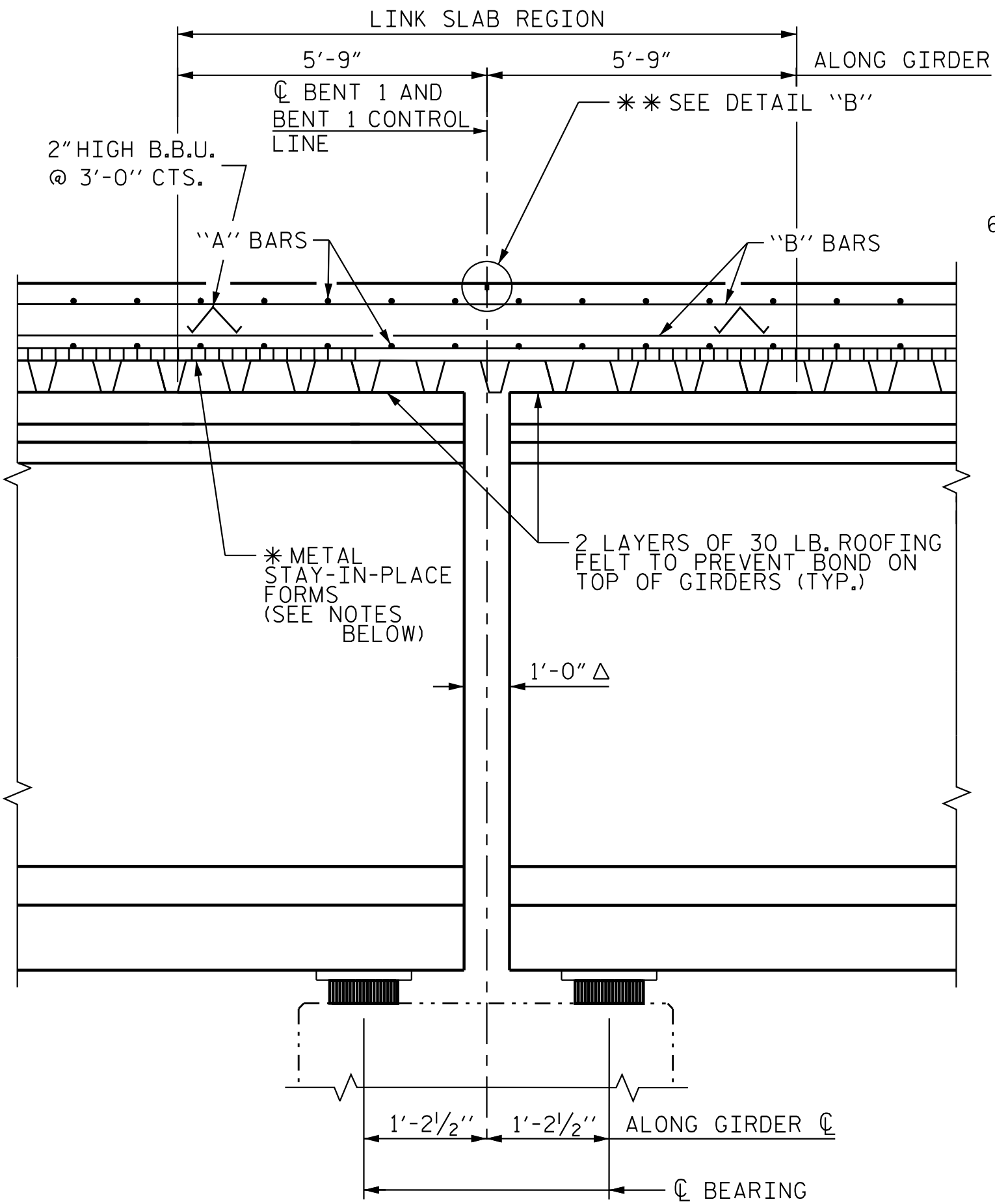
SECTION A-A

SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS, DETAILS
- DIAPHRAGMS SHEET 3 OF 4 AND 4 OF 4

Δ PLACE S2 BARS BETWEEN GIRDERS



PLAN OF INTEGRAL END BENT

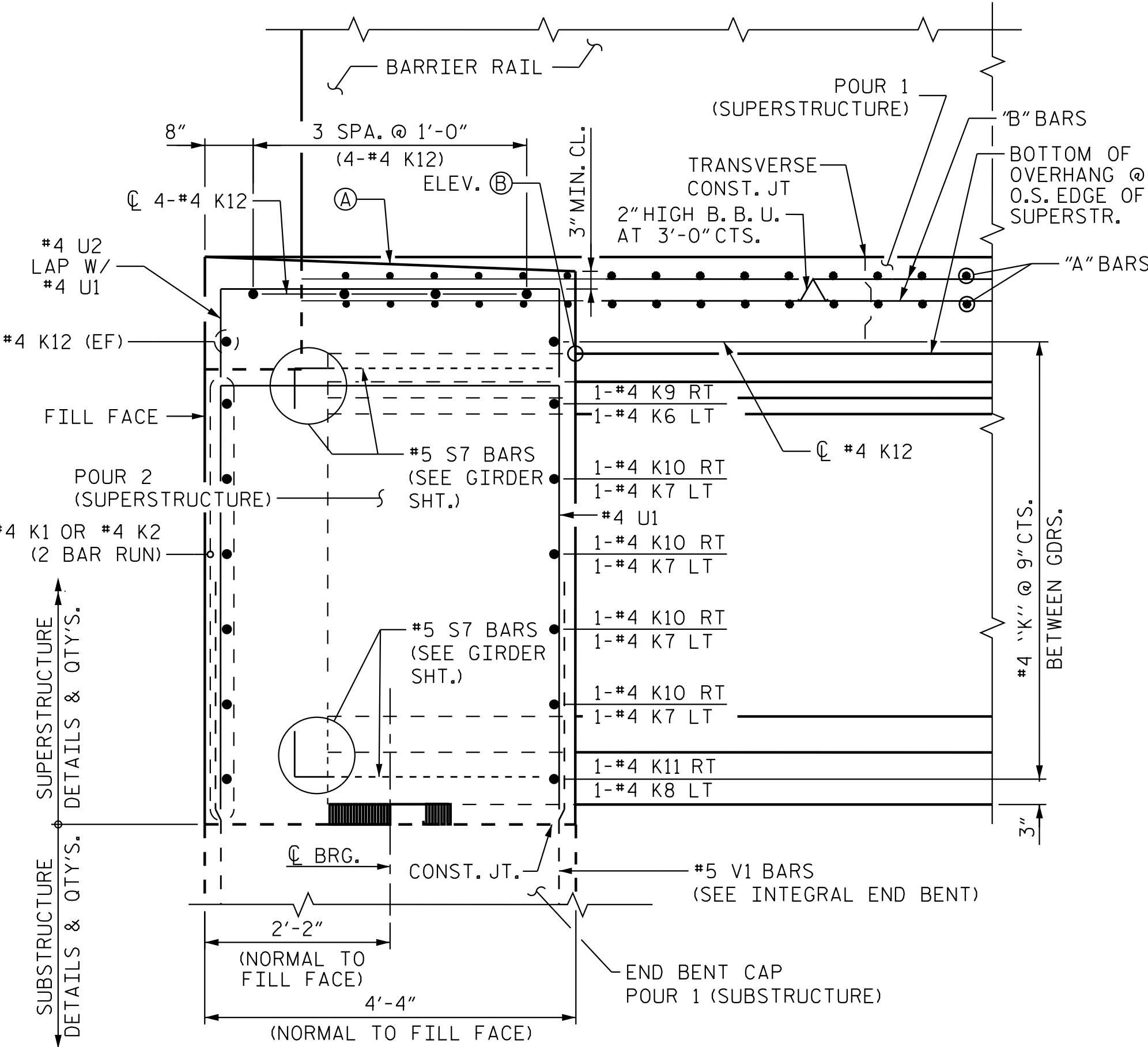


SECTION B-B

SECTION THRU DIAPHRAGM @ LINK SLAB INTERIOR BENT
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SHEET 3 OF 6

Δ NOMINAL DIMENSION 7 7/8" CLEARANCE @ TOP FLANGE DUE TO BEAM CAMBER AND FABRICATION TOLERANCES IS PROVIDED.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO THE GIRDER IN THE LINK SLAB REGION.



SECTION C-C

SECTION THRU INTEGRAL END BENT DIAPHRAGM BEYOND EXTERIOR GIRDER
SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS", SHT. 2 OF 3"

SECTION @ END BENT 1 SHOWN. SECTION @ END BENT 2 SIMILAR.
SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS", SHT. 2 OF 3"

K12 LENGTH MUST BE AT LEAST 3" FROM OUTSIDE WING
AND EDGE OF APPROACH SLAB NOTCH.

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

Ⓑ BOTTOM OF OVERHANG ELEV'S. @ FRONT FACE OF END BENT DIAPHRAGM AND OUTSIDE
EDGE OF DECK SLAB.

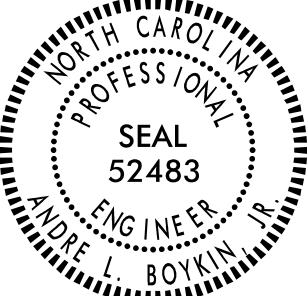
LOCATION	ELEV.
END BENT 1 (LT.)	= 61.95
END BENT 1 (RT.)	= 61.16
END BENT 2 (LT.)	= 63.28
END BENT 2 (RT.)	= 62.49

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 23+28.17 -Y35-

SHEET 3 OF 3



Signed by: Andre Boykin
74860847E554D0 5/5/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-09
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

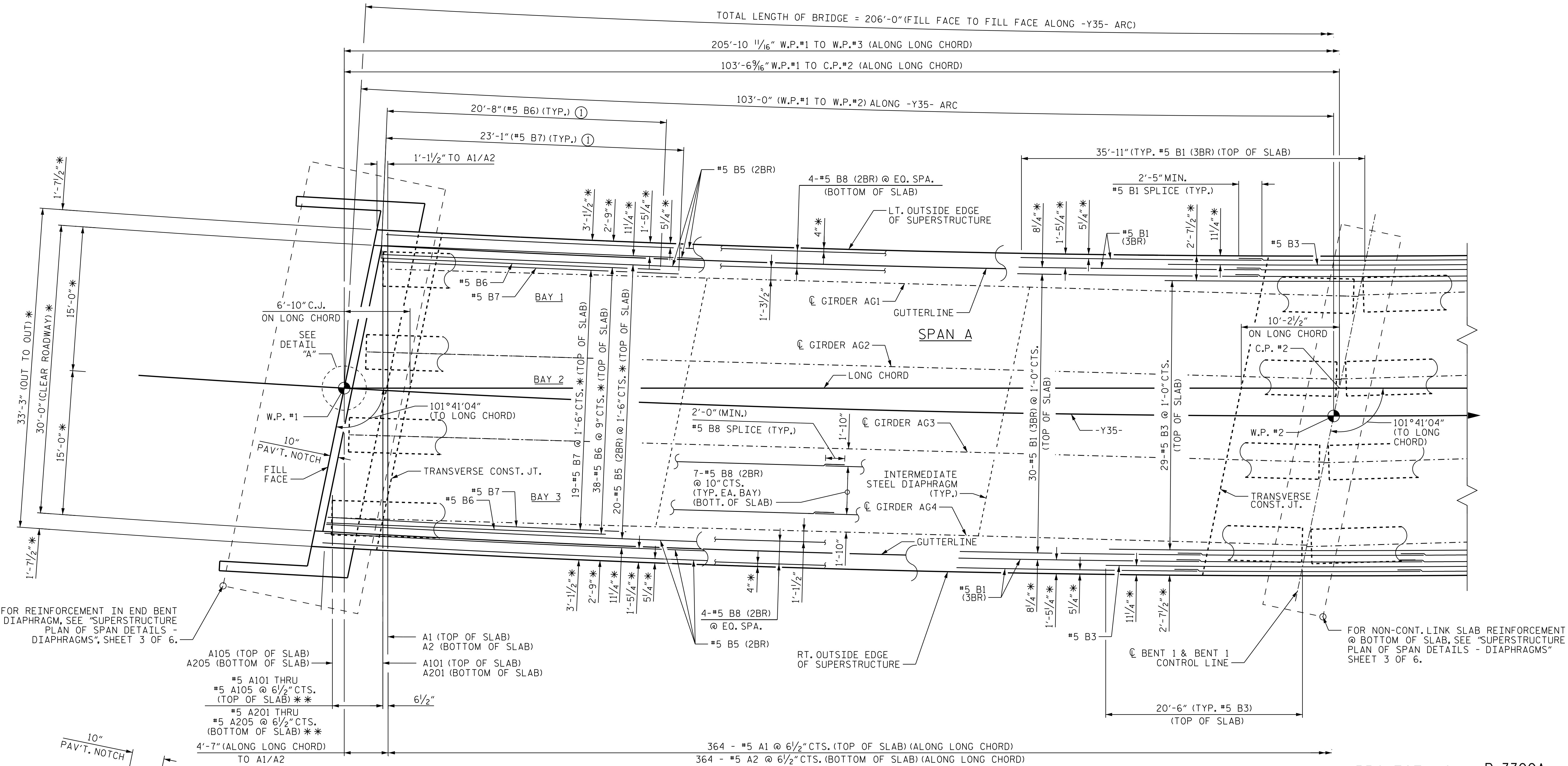


Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

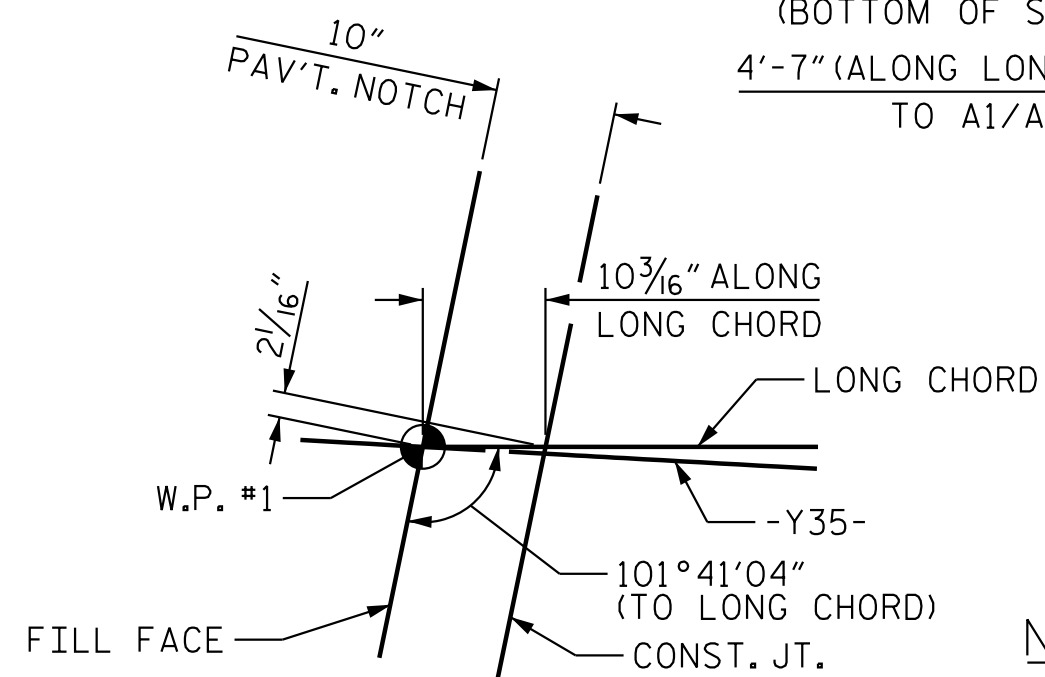
DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25

5/6/2025 1:35:04 AM jhagenbush
U:\Structures\B10 -Y35-Dr-offing\Final\R3300A.SMU_S01_700B10.dgn



FOR REINFORCEMENT IN END BENT DIAPHRAGM, SEE "SUPERSTRUCTURE PLAN OF SPAN DETAILS - DIAPHRAGMS", SHEET 3 OF 6.

FOR NON-CONT. LINK SLAB REINFORCEMENT @ BOTTOM OF SLAB, SEE "SUPERSTRUCTURE PLAN OF SPAN DETAILS - DIAPHRAGMS" SHEET 3 OF 6.



DETAIL "A"

- NOTES:
- (2BR) DENOTES TWO BAR RUN
 - (3BR) DENOTES THREE BAR RUN
 - * - DENOTES RADIAL DIMENSION
 - ** - DENOTES TWO BARS / MARK
 - FOR CONSTRUCTION JOINT DETAIL, SEE SHT. 2 OF 6.
 - ① SET #5 B6, #5 B7, AND #5 B5 2" CLEAR OF 10" PAV'T. NOTCH.

PLAN OF SPAN
SPAN A

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

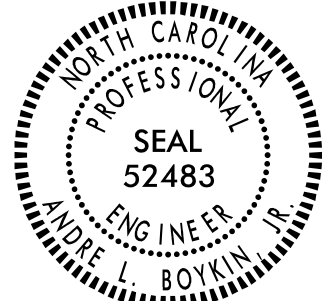
SHEET 1 OF 6



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY: J. GUERRERO DATE: 09/10/21
CHECKED BY: A. L. BOYKIN DATE: 03-05-25

DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE: 04/22/25



Signed by:
Andre Boykin
74860847E554D0

5/5/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

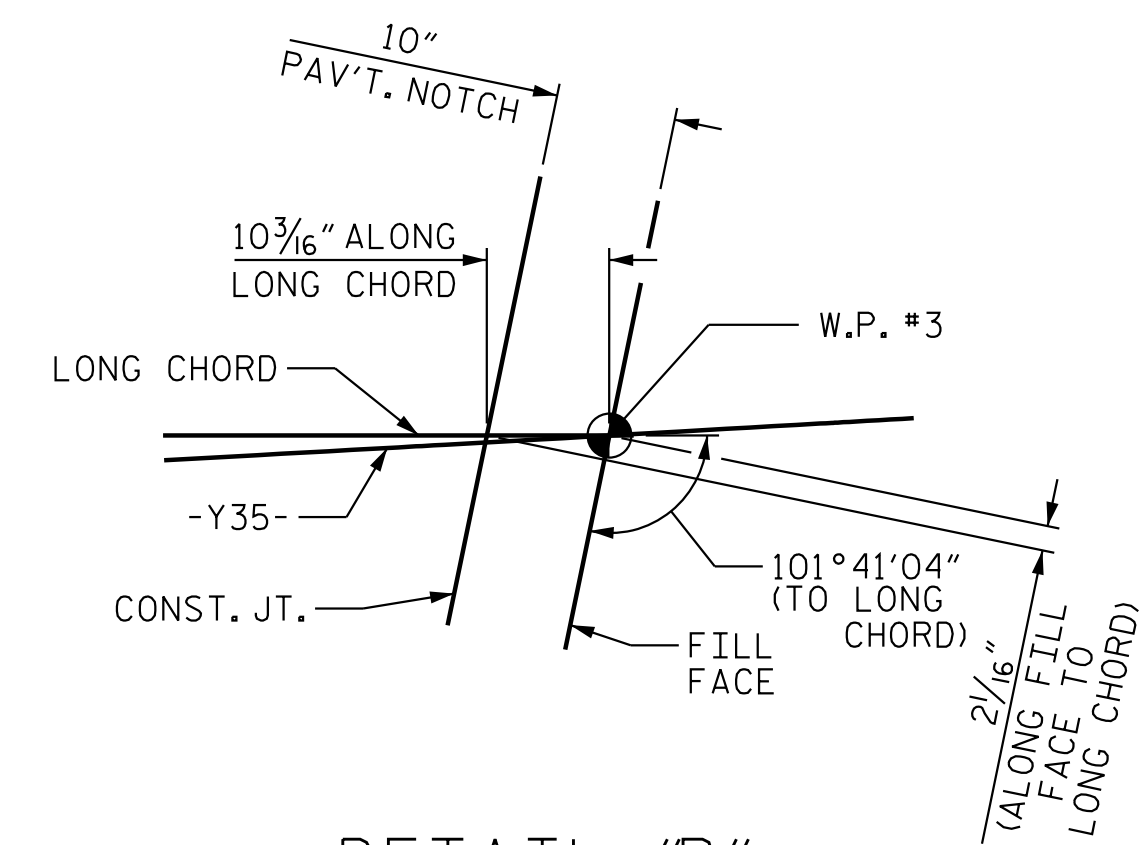
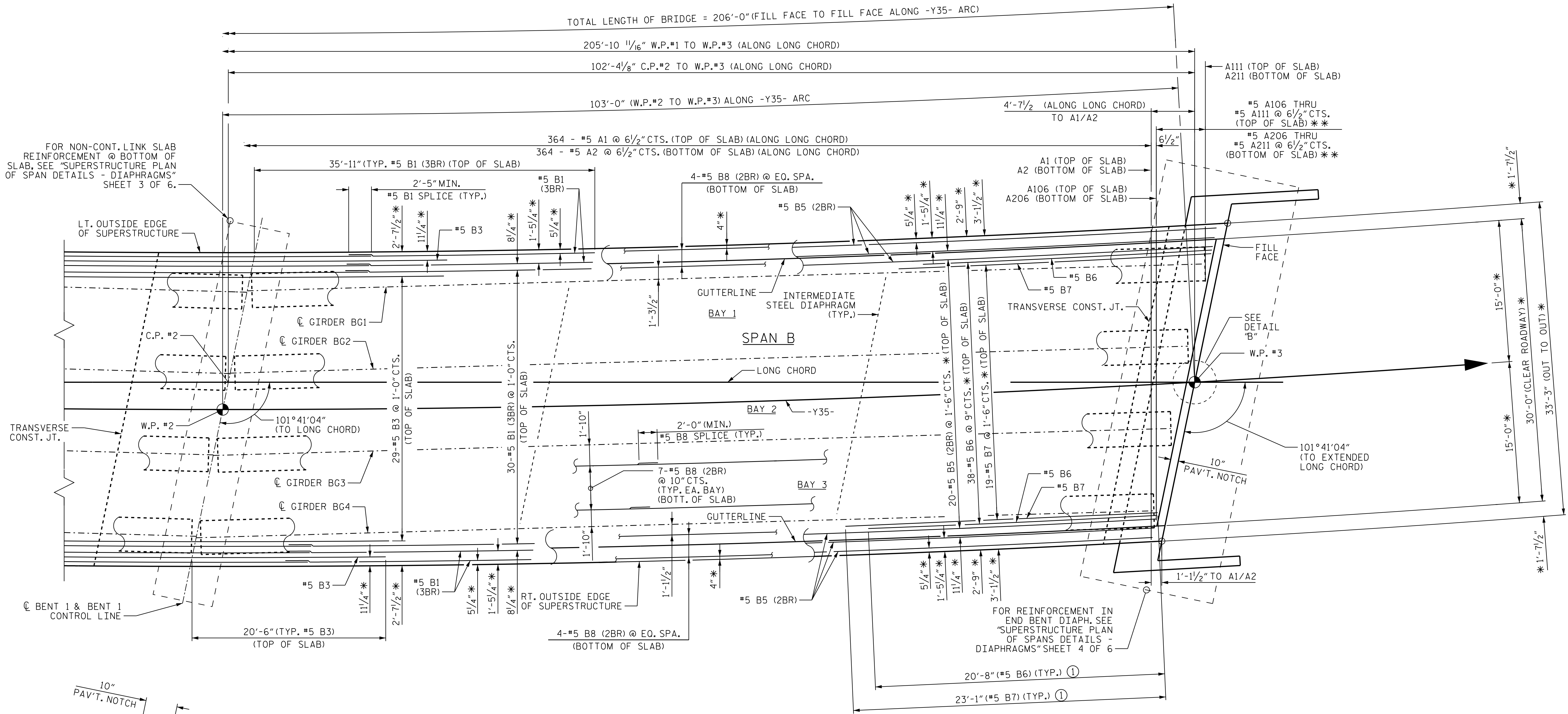
SUPERSTRUCTURE

PLAN OF SPAN

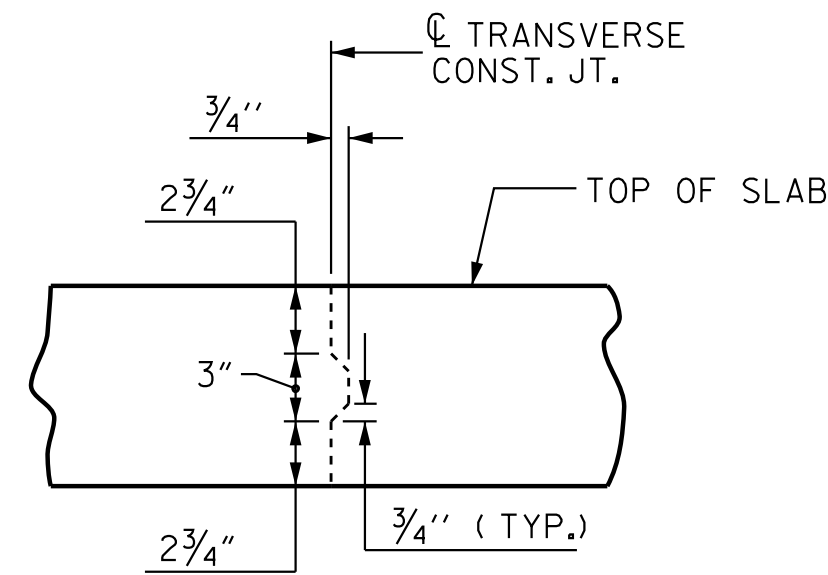
(SPAN A)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S10-10
1			3			TOTAL SHEETS
2			4			38

5/6/2025 1:38:06 AM jhagenbush
U:\Structures\B10 -Y35-Dr-offting\Final\R3300A.SMU-S02.700B10.dgn



PLAN OF SPAN SPAN B



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

NOTES:

- (2BR) DENOTES TWO BAR RUN
- (3BR) DENOTES THREE BAR RUN
- * - DENOTES RADIAL DIMENSION
- ** - DENOTES TWO BARS / MARK
- ① SET #5 B6, #5 B7, AND #5 B5 2" CLEAR OF 10" PAV'T. NOTCH.



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

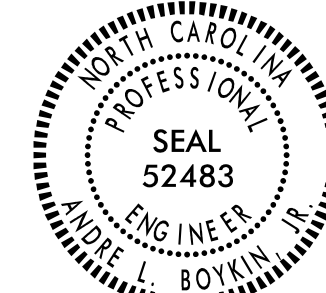
DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 2 OF 6

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



Signed by:
Andre Boykin
74860847E554D0

5/5/2025

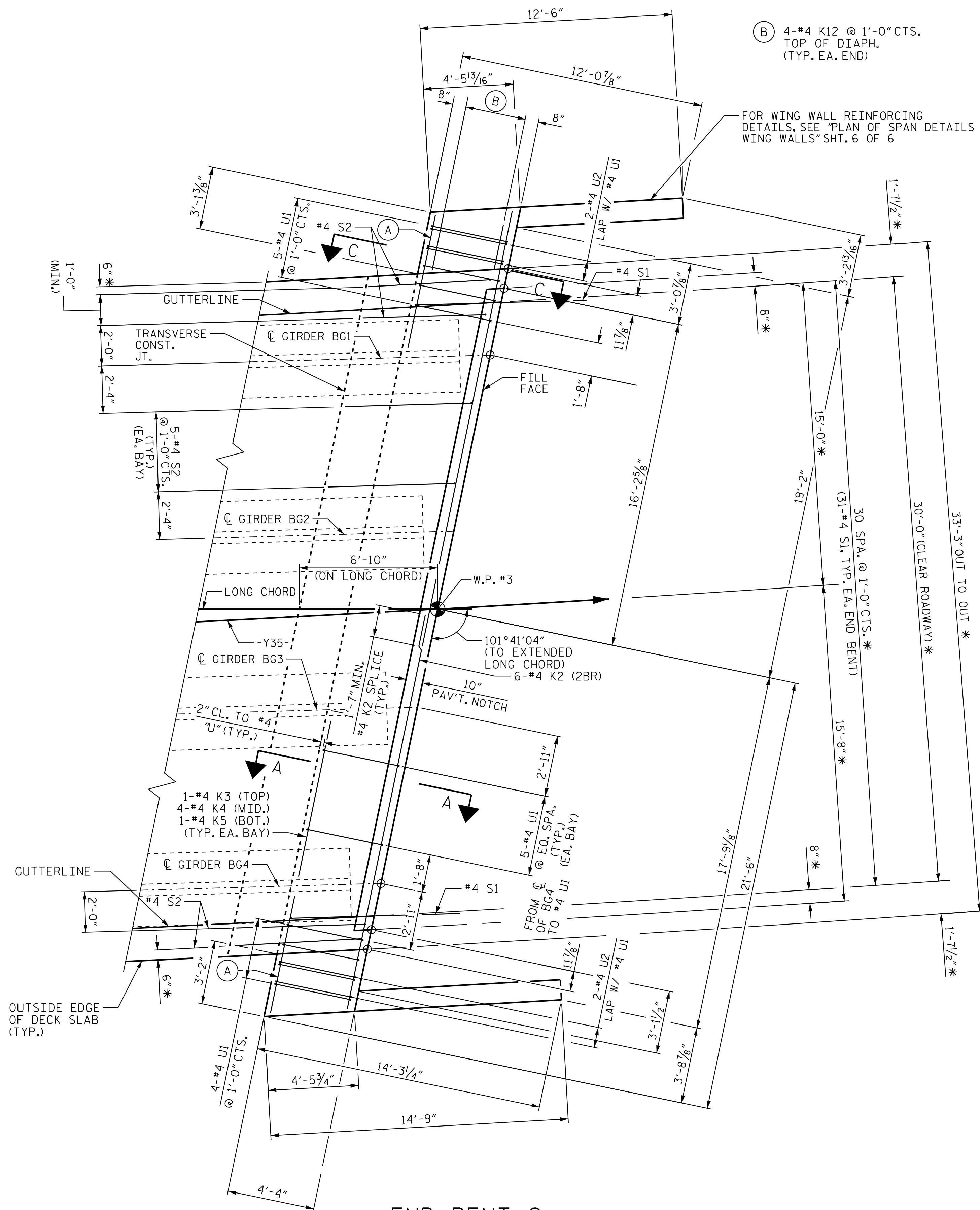
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

+

+

J:\Structures\BIO - Y35-\Drafting\Final\R3300A_SMU_S04_700BIO.dgn	5/6/2025	1:38:09 AM	jhagenbush
---	----------	------------	------------



END BENT 2
DIAPHRAGM REINFORCING DETAIL



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : <u>J. GUERRERO</u>		DATE : <u>09/10/21</u>		DESIGN ENGINEER OF RECORD: <u>A. L. BOYKIN</u>		DATE : <u>04/22/25</u>	
CHECKED BY : <u>A. L. BOYKIN</u>		DATE : <u>03-05-25</u>					

DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25

NOTES

* - DENOTES RADIAL DIMENSION

"A" BARS, "B" BARS & BARRIER RAIL
REINFORCEMENT IS NOT SHOWN IN DECK
SLAB FOR CLARITY.

FOR SECTION A-A & SECTION C-C,
SEE SUPERSTRUCTURE "TYPICAL
SECTION (DETAILS)", 3 OF 3.

(2BR) DENOTES TWO BAR RUN

LEFT OVERHANG		
ROW	FILL FACE	FRONT FACE
(1)TOP	4-#4 K12 @ 1'-0" CTS.	
(2)	#4 K12	#4 K12
(3)	#4 K2	#4 K6
(4)	#4 K2	#4 K7
(5)	#4 K2	#4 K7
(6)	#4 K2	#4 K7
(7)	#4 K2	#4 K7
(8) BOTT	#4 K2	#4 K8
RIGHT OVERHANG		
ROW	FILL FACE	FRONT FACE
(1)TOP	4-#4 K12 @ 1'-0" CTS.	
(2)	#4 K12	#4 K12
(3)	#4 K2	#4 K9
(4)	#4 K2	#4 K10
(5)	#4 K2	#4 K10
(6)	#4 K2	#4 K10
(7)	#4 K2	#4 K10
(8) BOTT	#4 K2	#4 K11

PROJECT NO. R-3300A
 PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 4 OF 6



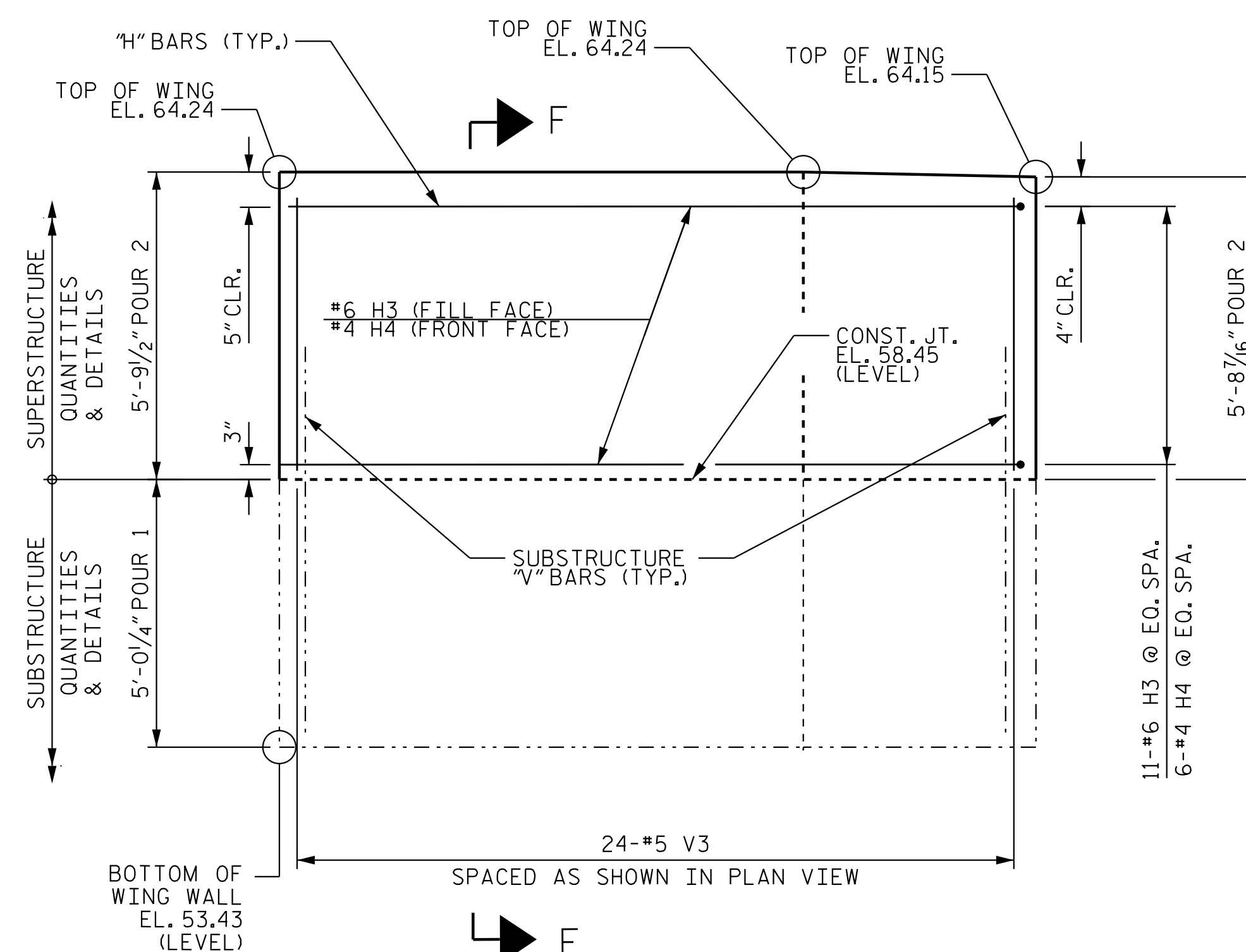
Signed by:

Andre Boykin
74B608847F554D0

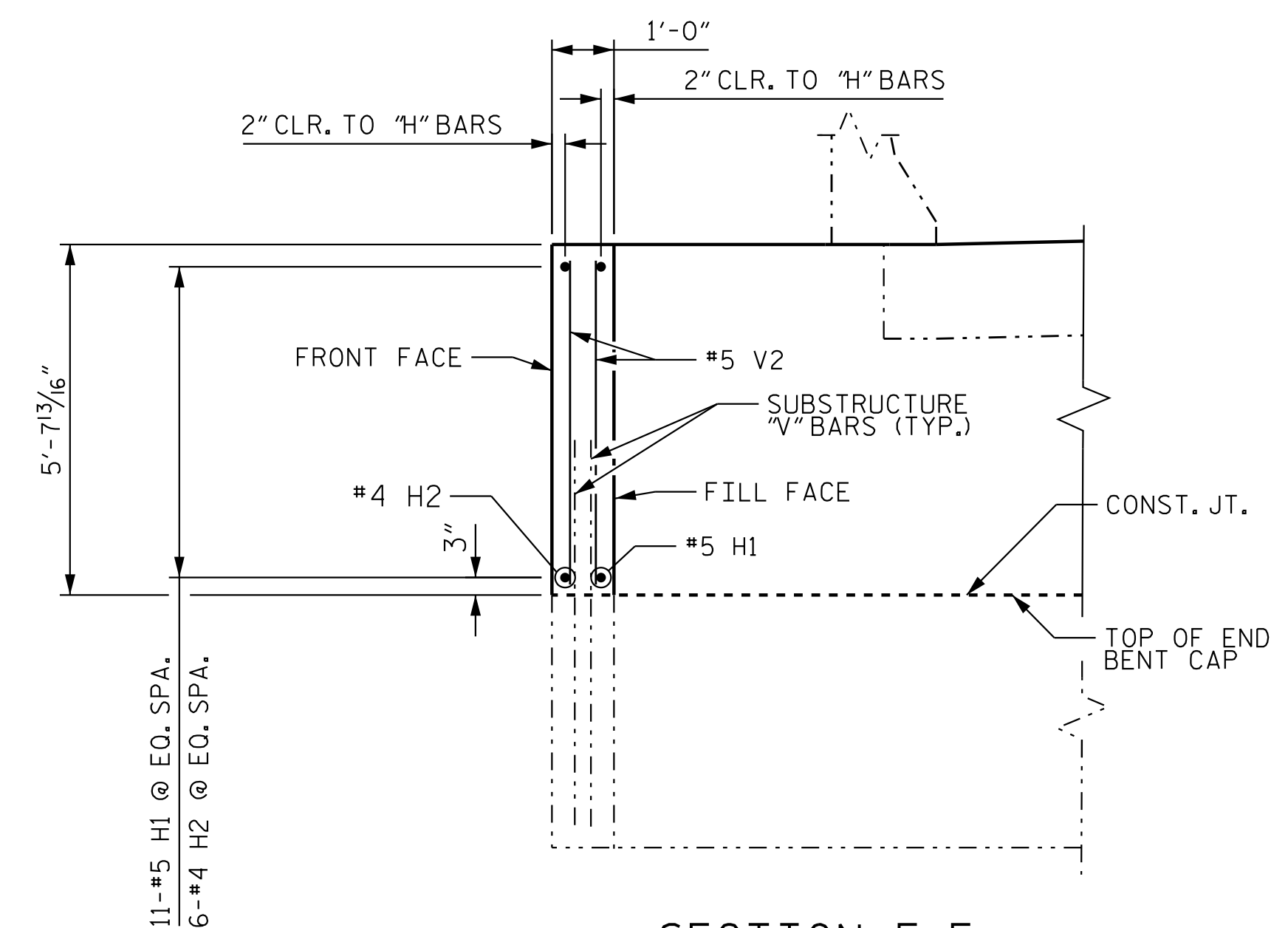
5/5/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

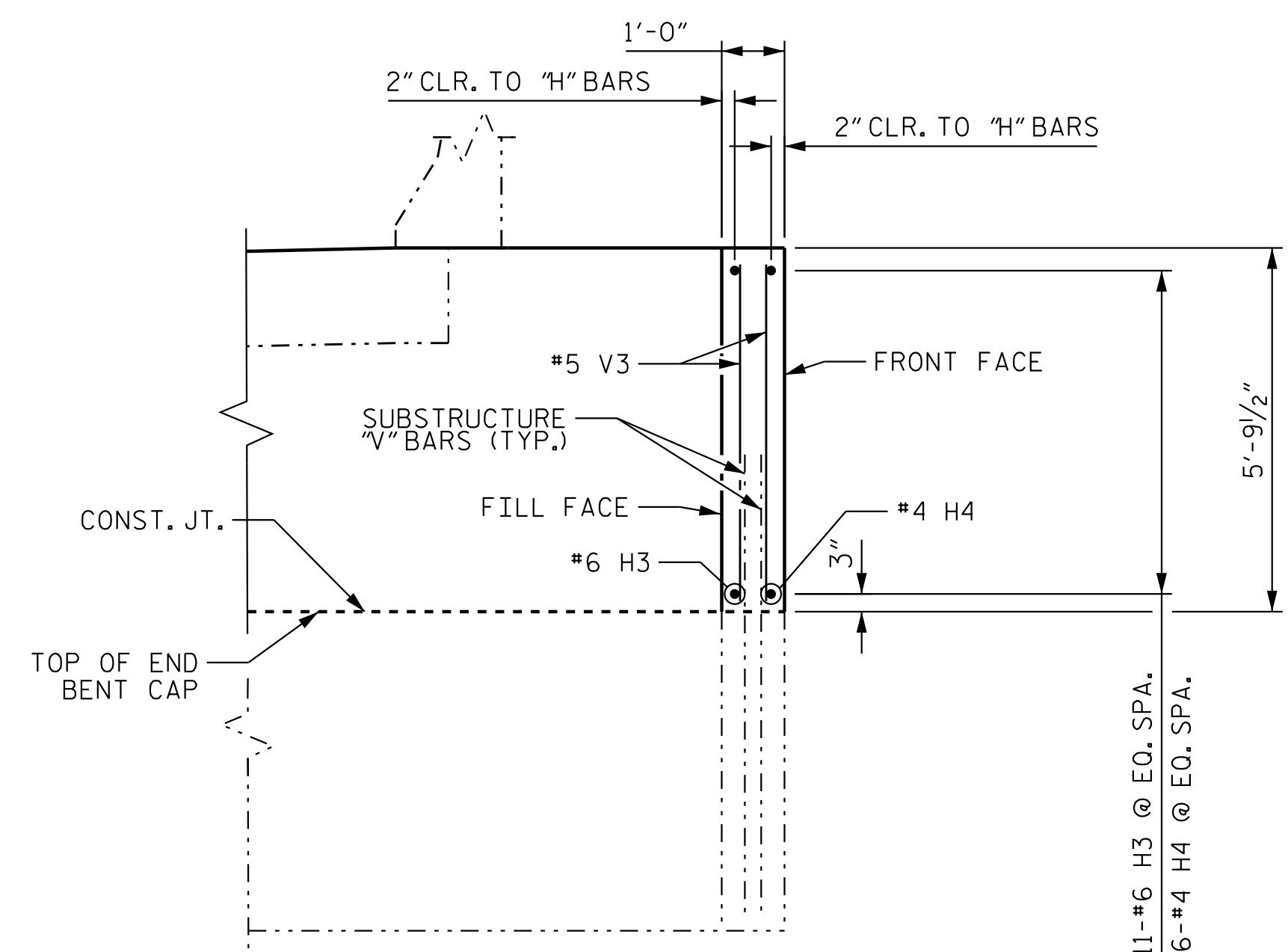
REVISONS						SHEET NO. S10-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

ELEVATION OF LEFT WING (W1)ELEVATION OF RIGHT WING (W2)

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUPERSTRUCTURE.
FOR SUBSTRUCTURE QTY'S & DETAILS,
REFER TO SHEETS S10-29 & S10-35.
(EF) DENOTES EACH FACE OF WING



SECTION E-E



SECTION F-F

STATION: 23+28.17 -Y35-

SHEET 5 OF 6



DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE: 04/22/25



Signed by:
Andre Boykin
74D08047EE4D0

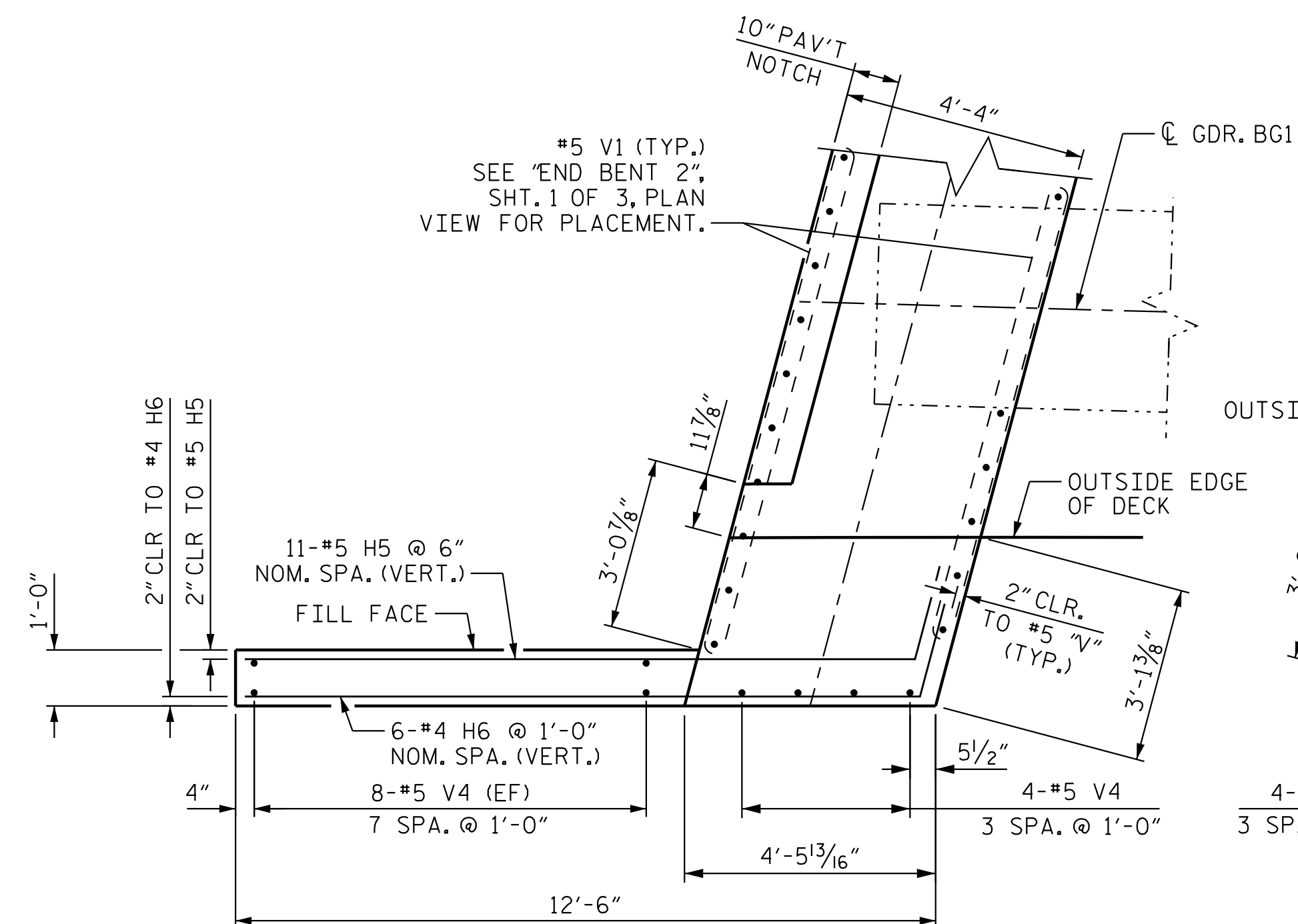
5/5/2025

74B00847E554D0
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

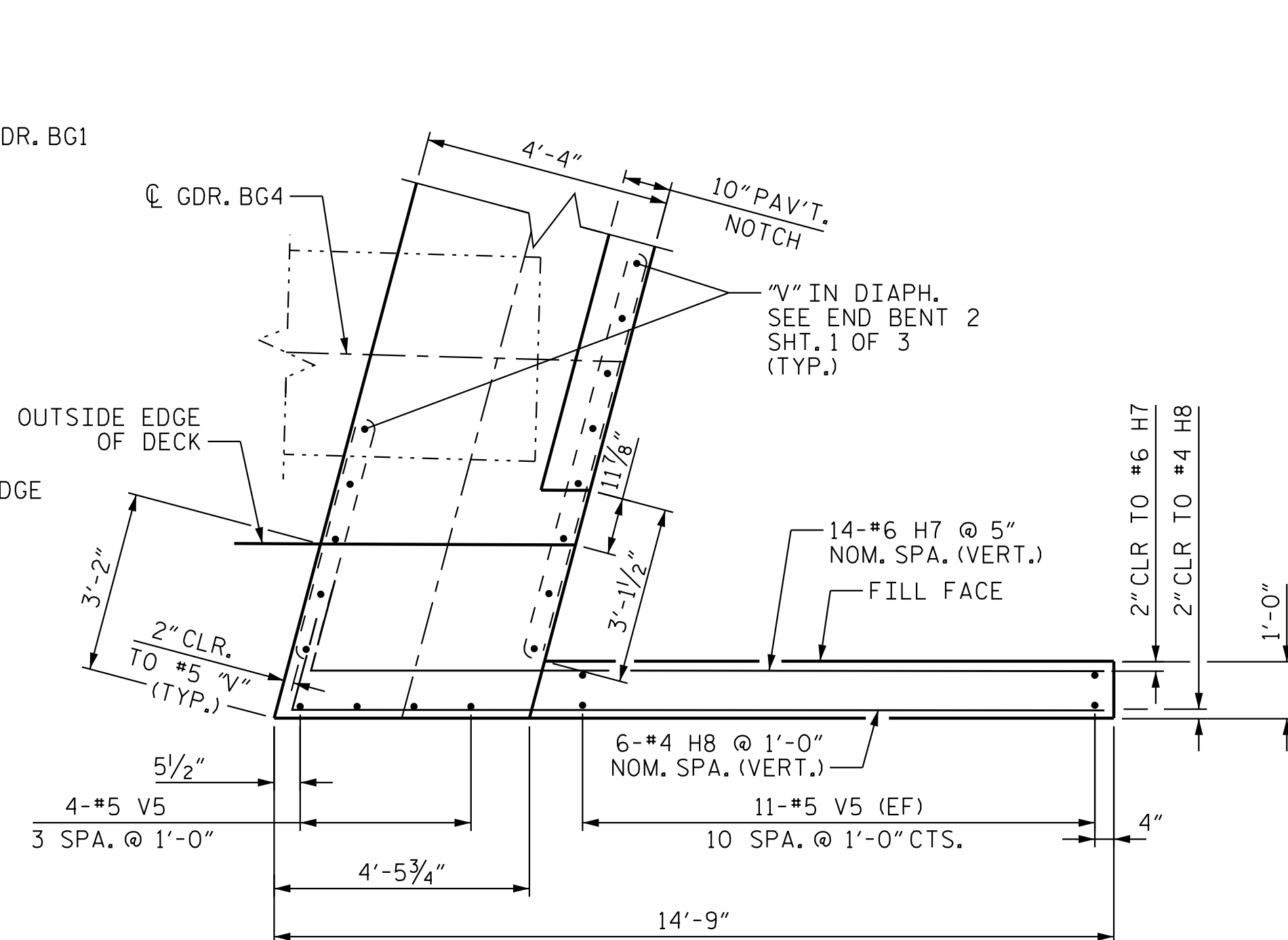
REVISIONS						SHEET NO. S10-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

SHEET NO.
S10-14

TOTAL
SHEETS
38

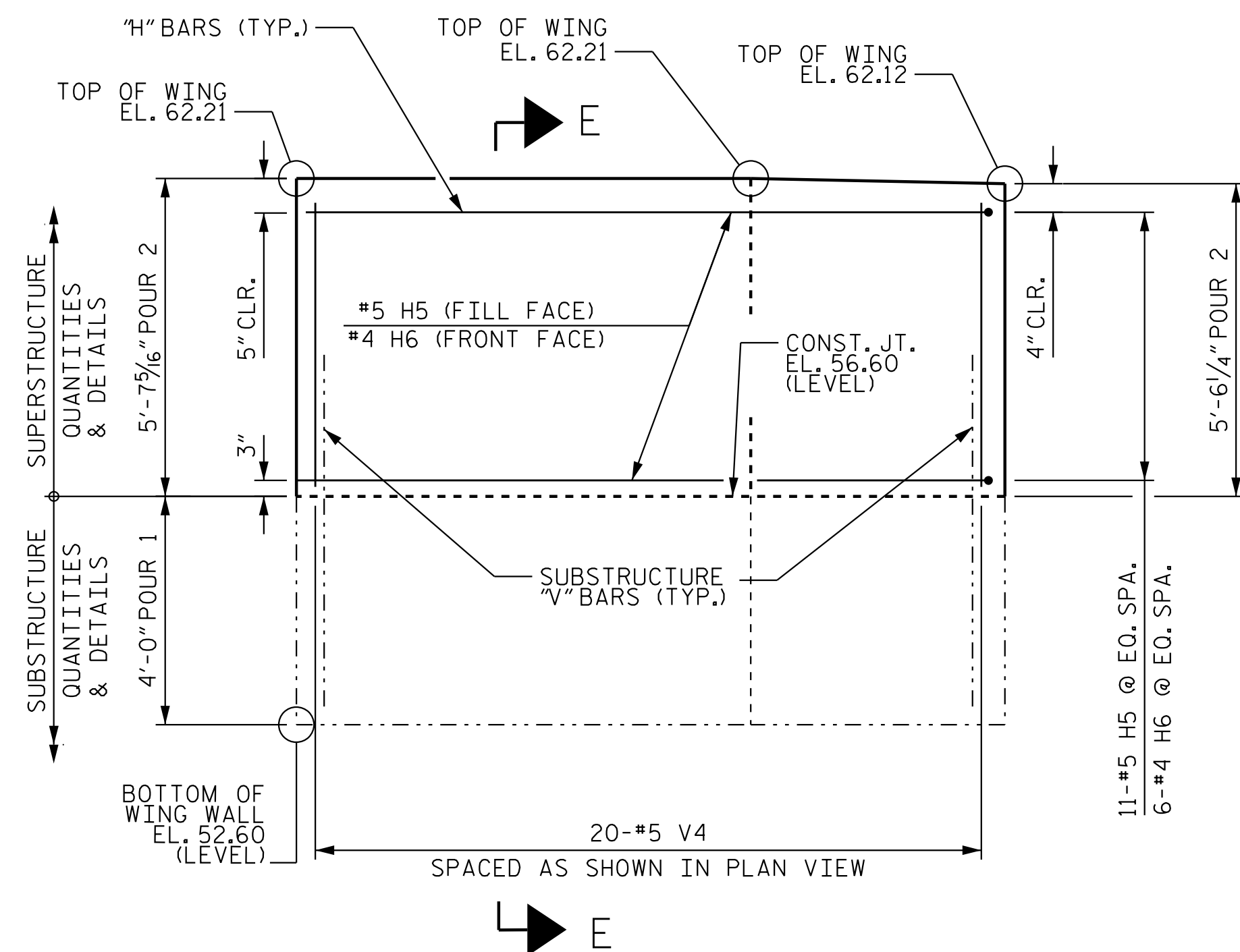


PLAN OF LEFT WING (W3)

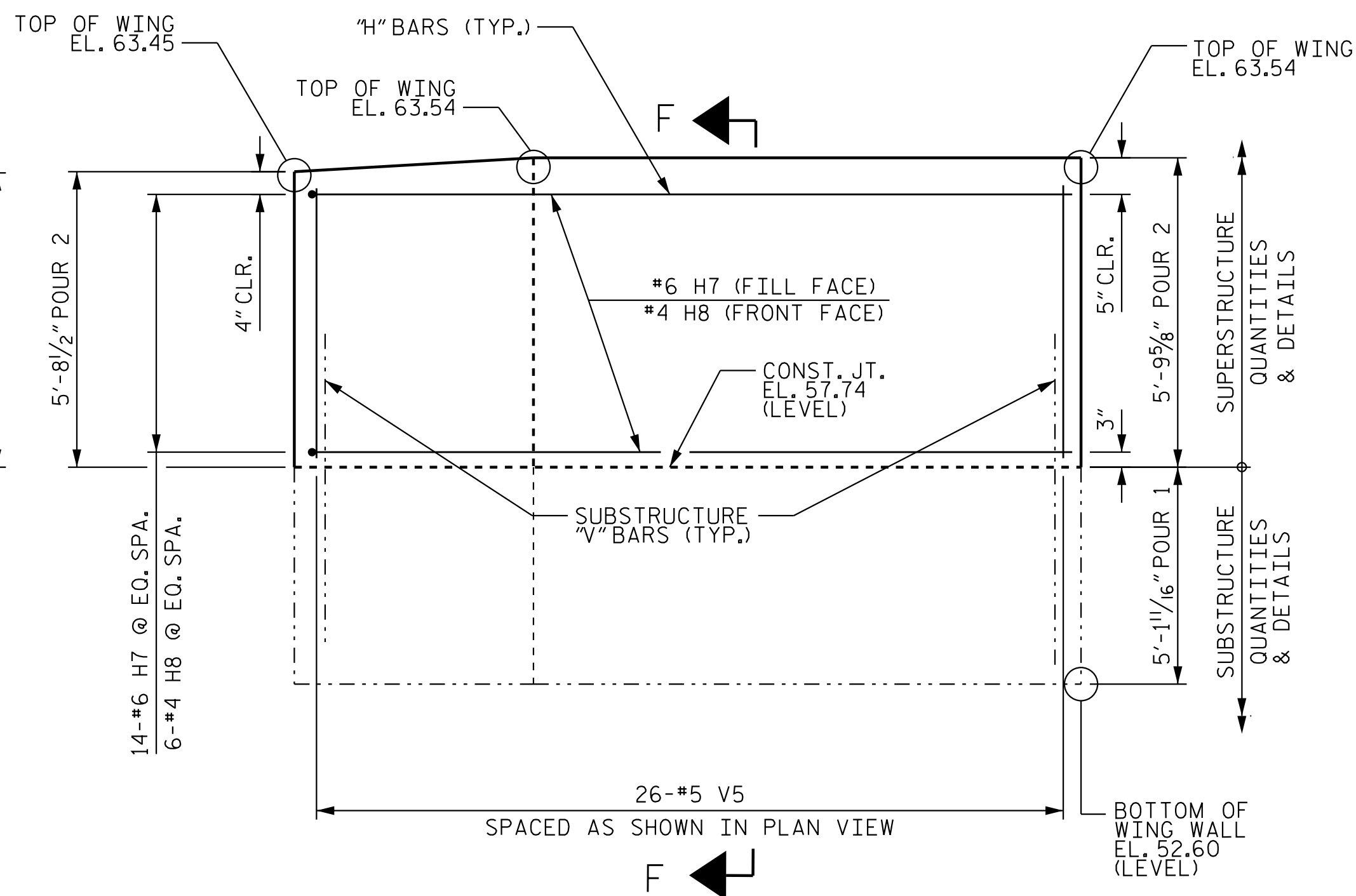


PLAN OF RIGHT WING (W4)

NOTE:
DIAPHRAGM REINFORCING STEEL NOT SHOWN FOR CLARITY.
FOR DIAPHRAGM REINFORCEMENT, SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS"



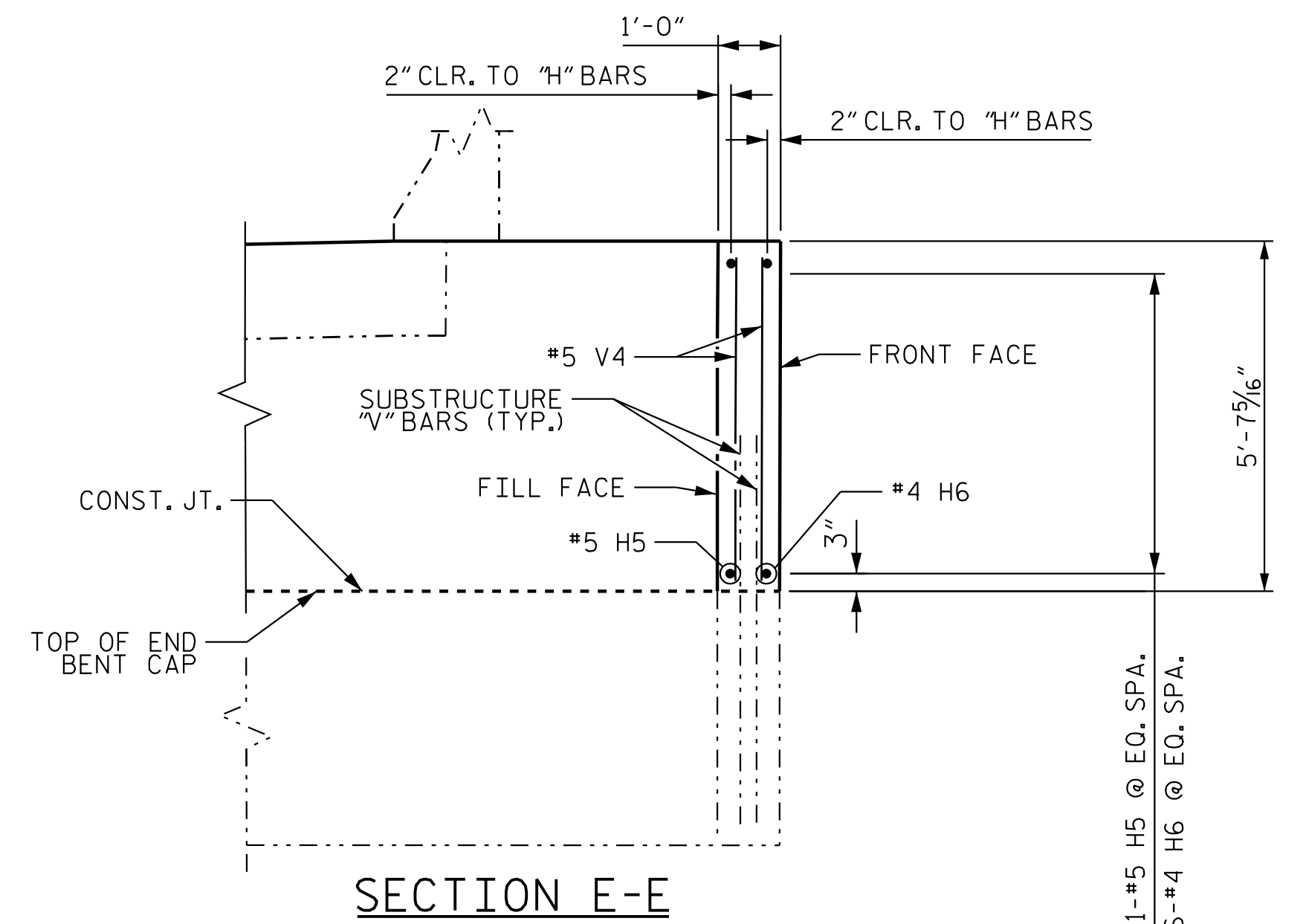
ELEVATION OF RIGHT WING (W3)



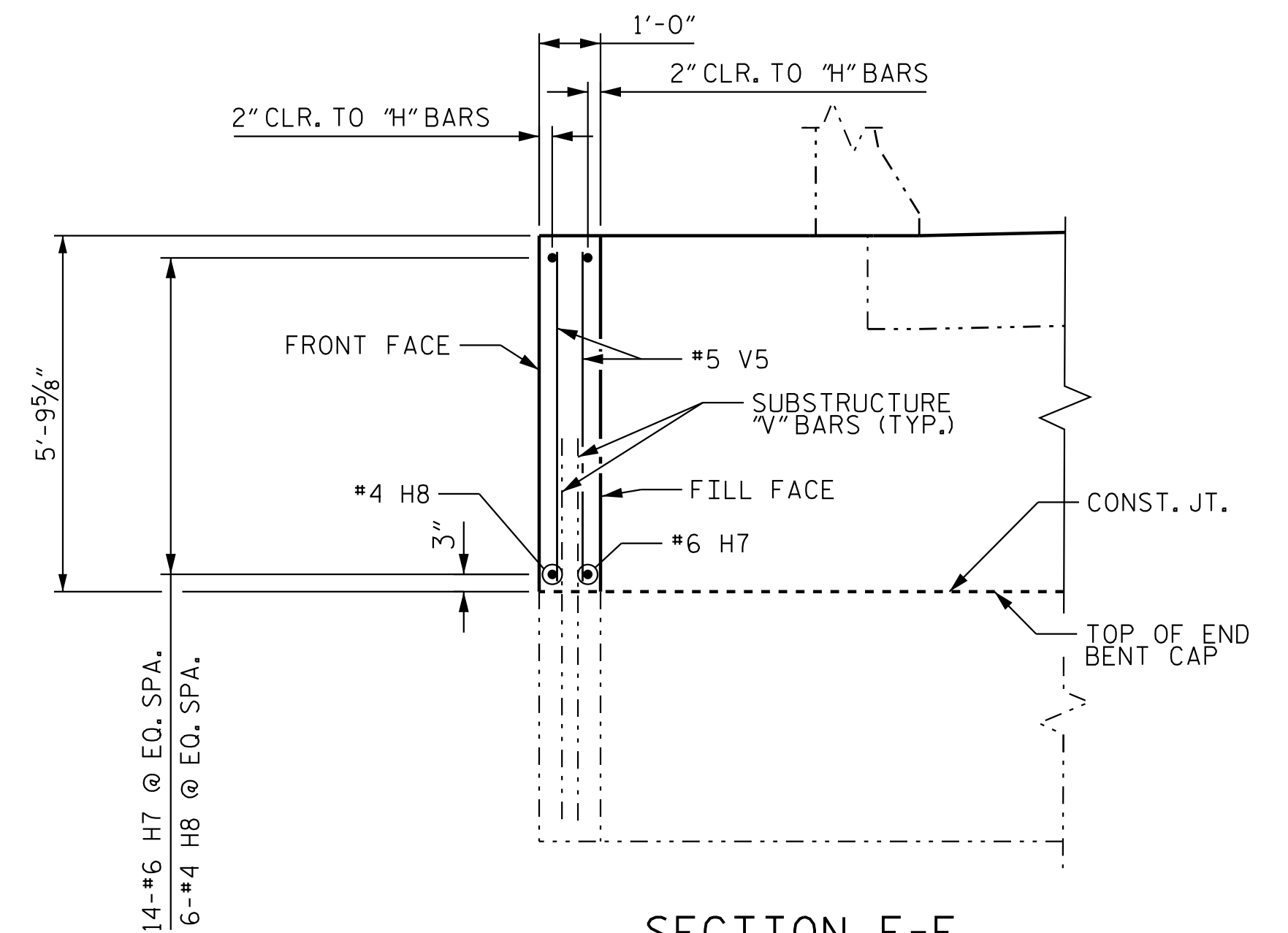
ELEVATION OF LEFT WING (W4)

WING DETAILS

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUPERSTRUCTURE.
FOR SUBSTRUCTURE QTY'S & DETAILS,
REFER TO SHEETS S10-29 & S10-35.
(EF) DENOTES EACH FACE OF WING



SECTION E-E



SECTION F-F

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 23+28.17 -Y35-

SHEET 6 OF 6



Signed by:

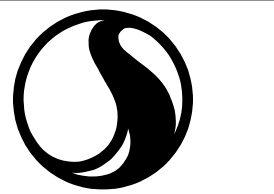
Andre Boykin

5/5/2025

74BXR0847E55400

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



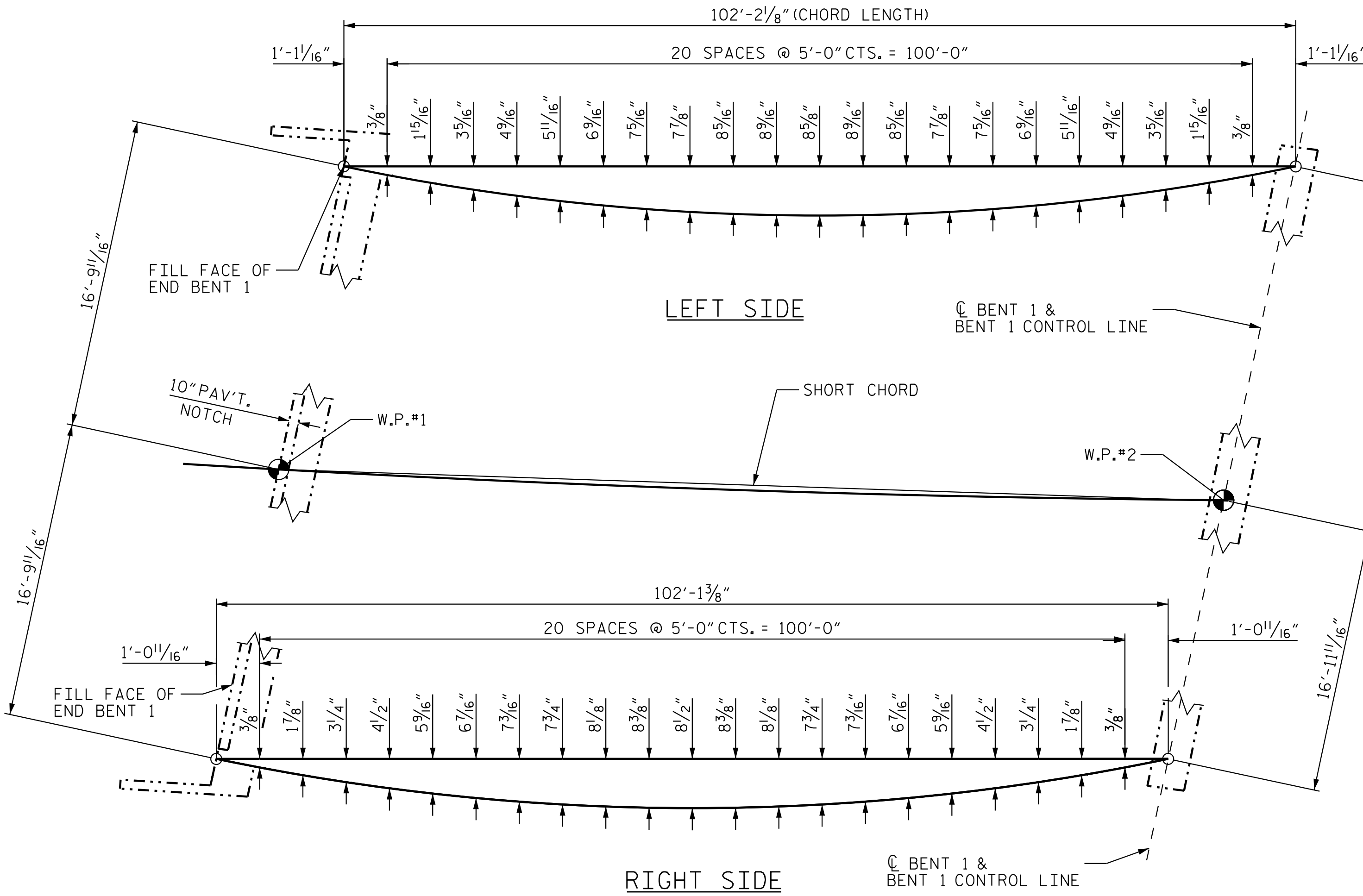
Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

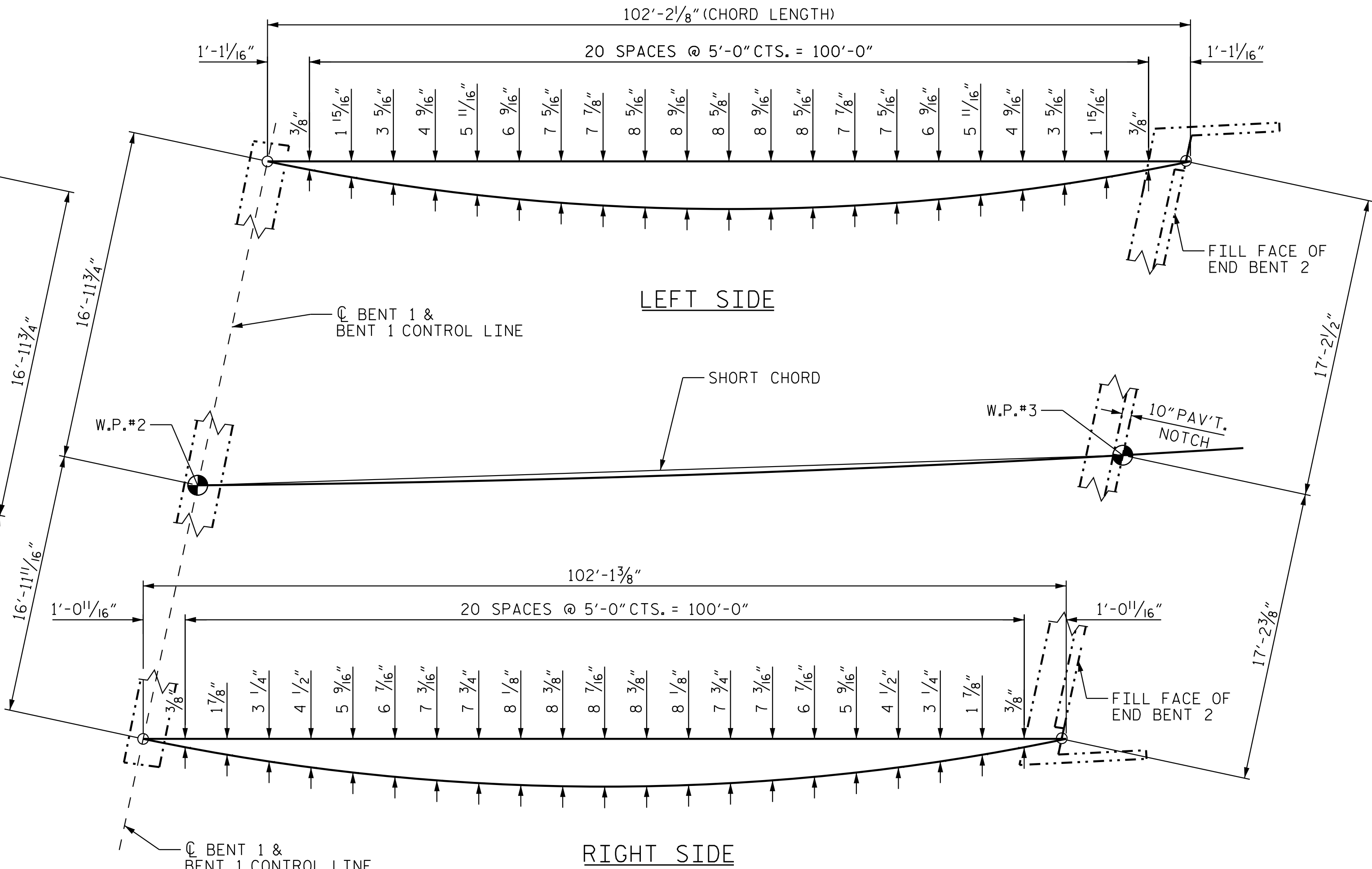
DRAWN BY : J. GUERRERO	DATE : 09/10/21	DESIGN ENGINEER OF RECORD: A. L. BOYKIN	DATE : 04/22/25
CHECKED BY : A. L. BOYKIN	DATE : 03-05-25		

DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE: 04/22/25

NOTE:
ARC OFFSETS ARE TAKEN ALONG THE OUTSIDE EDGE OF SUPERSTRUCTURE.

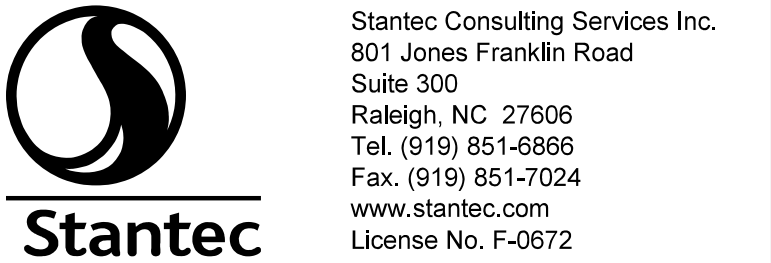


ARC OFFSETS- SPAN A

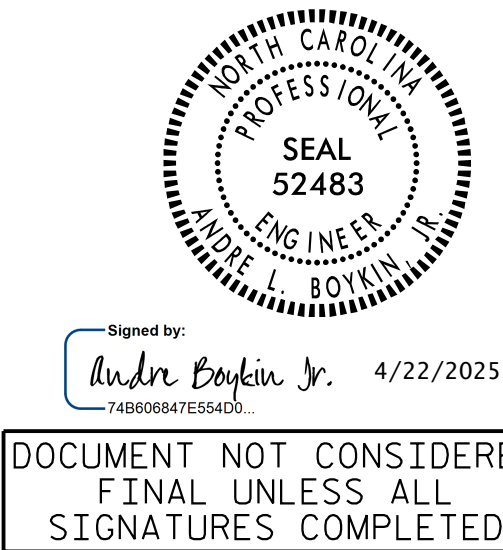


ARC OFFSETS- SPAN B

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-



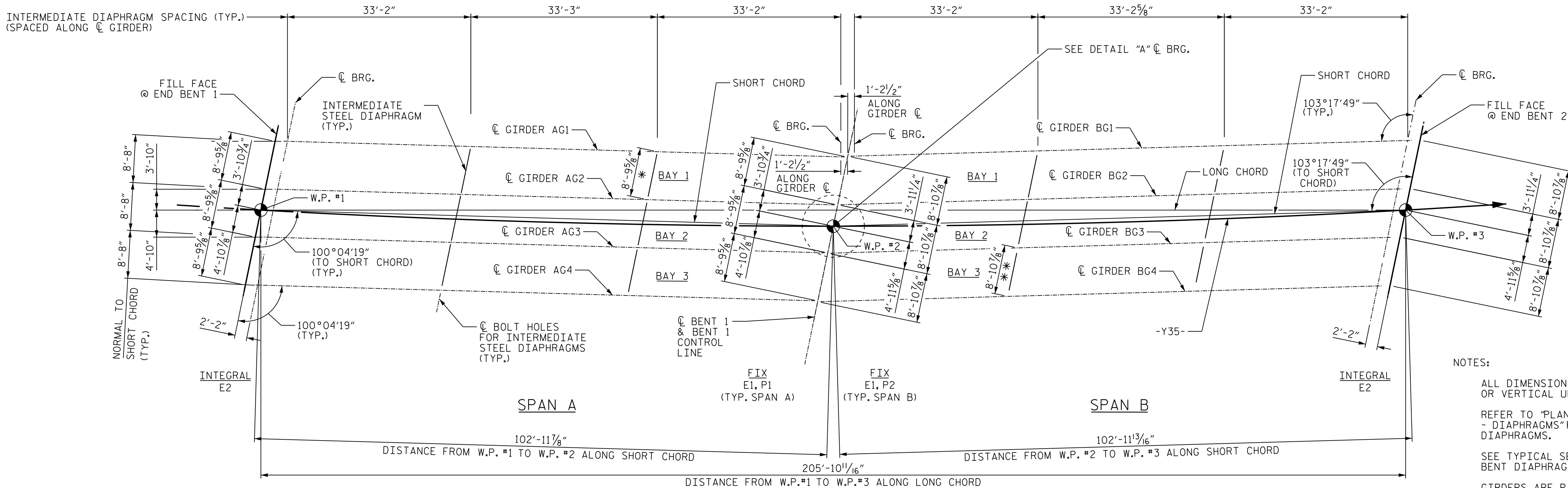
DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25
DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE ARC OFFSETS						SHEET NO. S10-16	
REVISIONS						TOTAL SHEETS 38	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

4/22/2025 5:27:33PM jhagenbush
U:\Structures\B10 -Y35-Dr-offting\Final\R3300A.SMU.FP_700B10.dgn



FRAMING PLAN

* - TYP. FOR SPAN A
** - TYP. FOR SPAN B

NOTES:

ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL UNLESS NOTED.

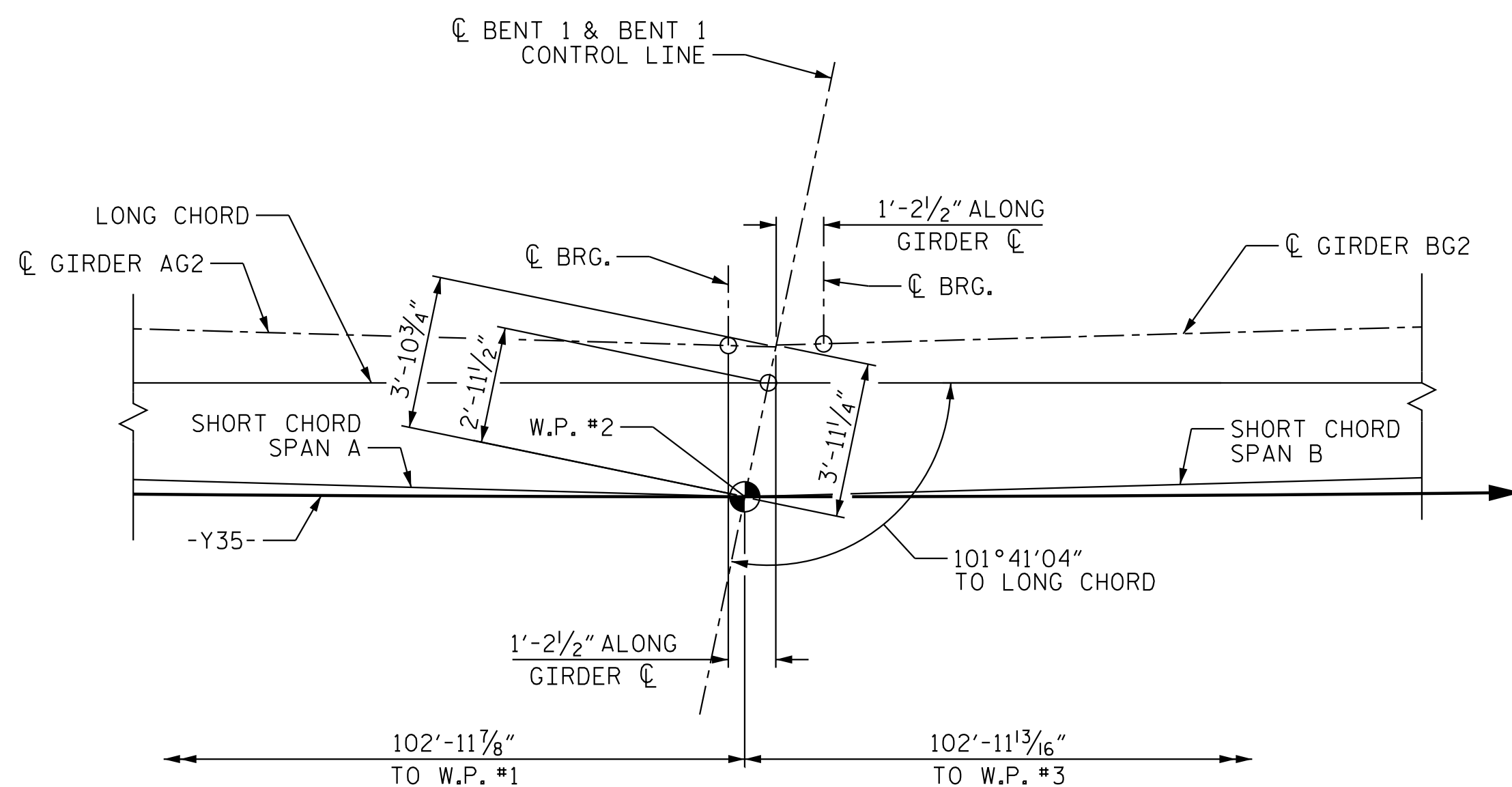
REFER TO 'PLAN OF SPAN DETAILS - DIAPHRAGMS' FOR END BENT DIAPHRAGMS.

SEE TYPICAL SECTION FOR END BENT DIAPHRAGM DETAILS.

GIRDERS ARE PARALLEL TO SHORT CHORD.

FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED 56" PRESTRESSED CONCRETE GIRDERS."

E1, E2, P1, P2 DENOTE ELASTOMERIC BEARING OR SOLE PLATE, SEE ELASTOMERIC BEARING DETAILS.



DETAIL "A"

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25



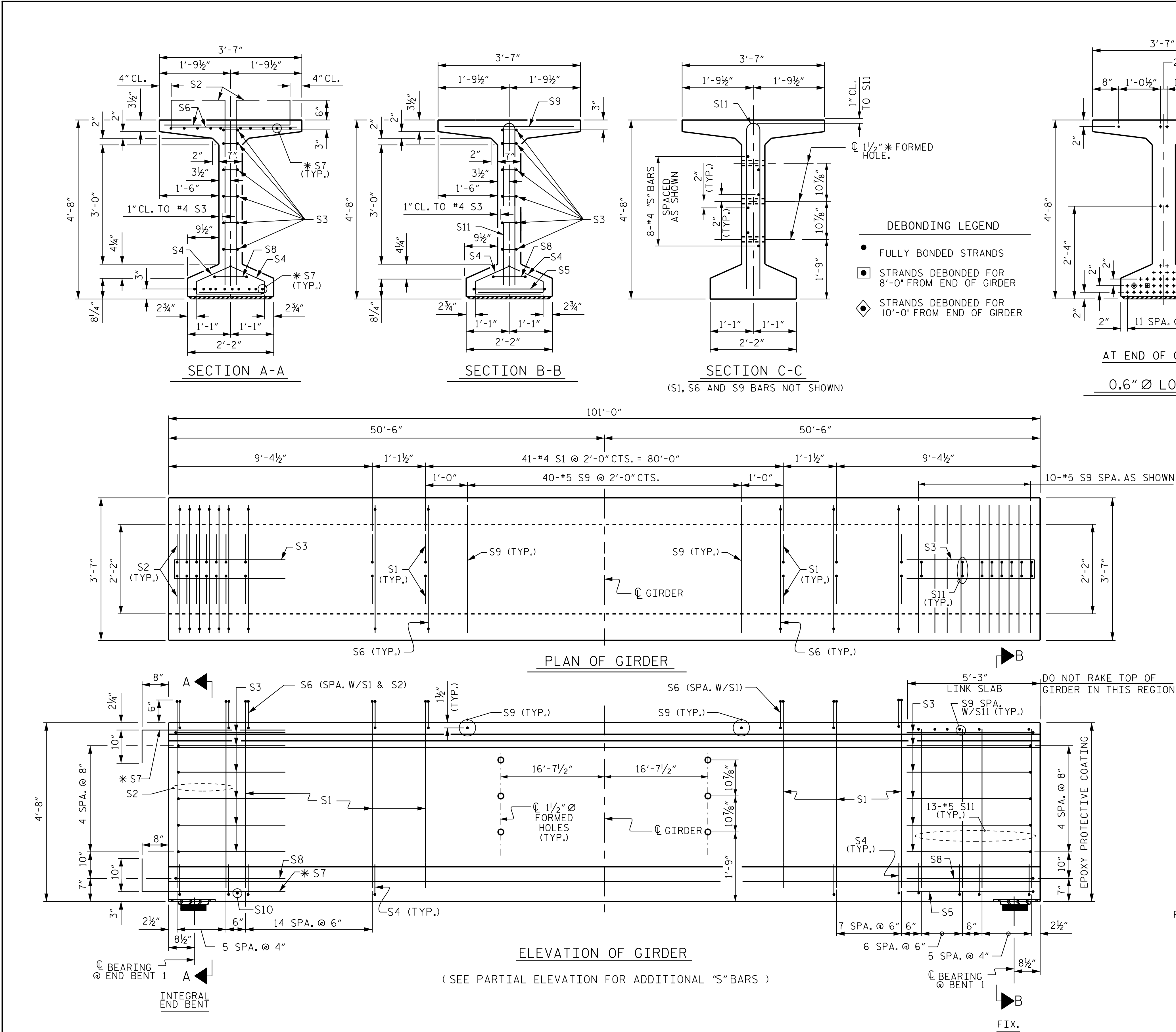
Signed by:
Andre Boykin Jr. 4/22/2025
748606847E554D0

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

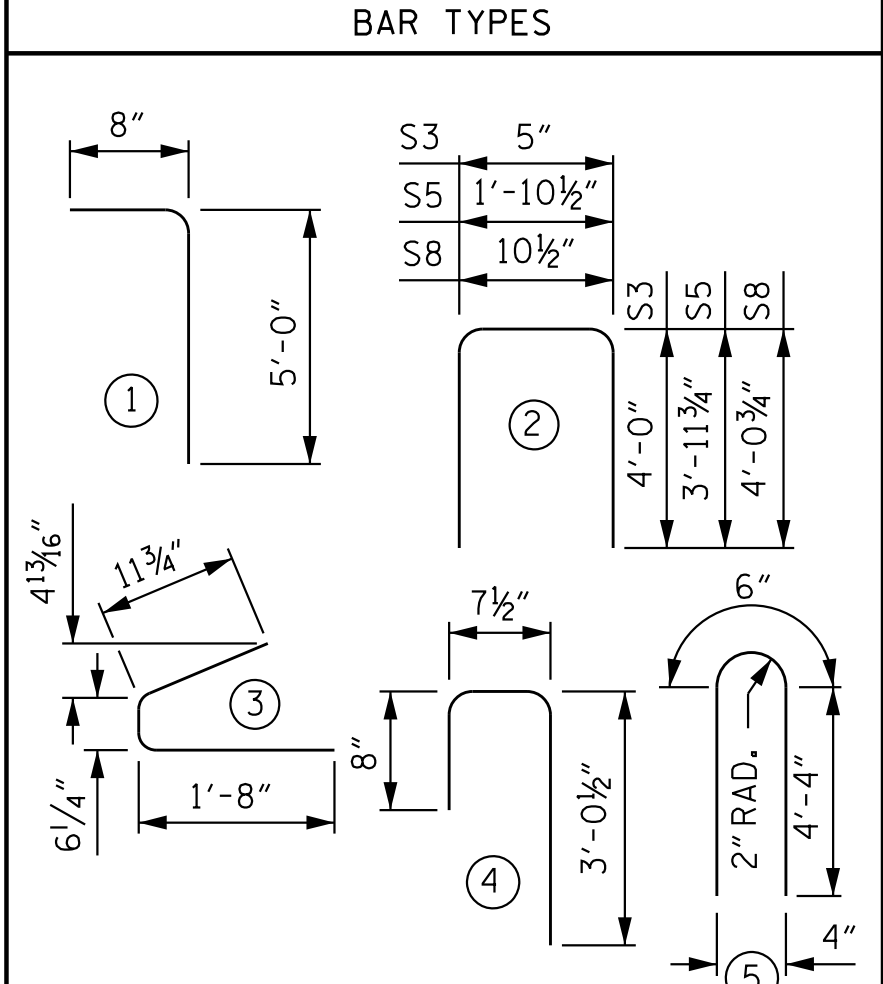
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
FRAMING PLAN

REVISIONS						SHEET NO. S10-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

\\stl\structures\B10 -Y35-Dr-offting\Final\R3300A.SMU COL_700B10.dgn 5/6/2025 1:38:13 AM jhagenbush



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	128	#4	1	5'-8"	485
S2	12	#5	1	5'-8"	71
S3	12	#4	2	8'-5"	67
S4	84	#4	3	3'-2"	178
S5	1	#5	2	9'-10"	10
S6	140	#5	4	4'-4"	633
* S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	50	#5	STR	3'-3"	169
S10	1	#3	STR	2'-0"	1
S11	21	#5	5	9'-2"	201
S12	16	#4	STR	8'-0"	86



ALL BAR DIMENSIONS ARE OUT-TO-OUT			
QUANTITIES FOR ONE GIRDER			
GIRDERS	REINFORCING STEEL	8500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GA1-GA4	1,996	19.7	36
GIRDERS REQUIRED			
NUMBER	LENGTH	TOTAL LENGTH	
4	101'-0"	404'-0"	

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

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

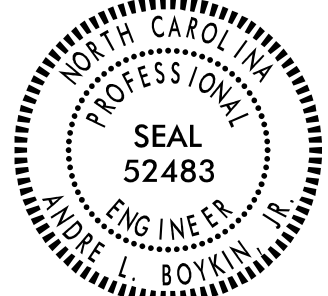
SHEET 1 OF 4



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J.E. HAGENBUSH DATE : 02-06-25
CHECKED BY : A.L. BOYKIN DATE : 03-05-25

DESIGN
ENGINEER
OF RECORD: A.L. BOYKIN DATE : 04/22/25



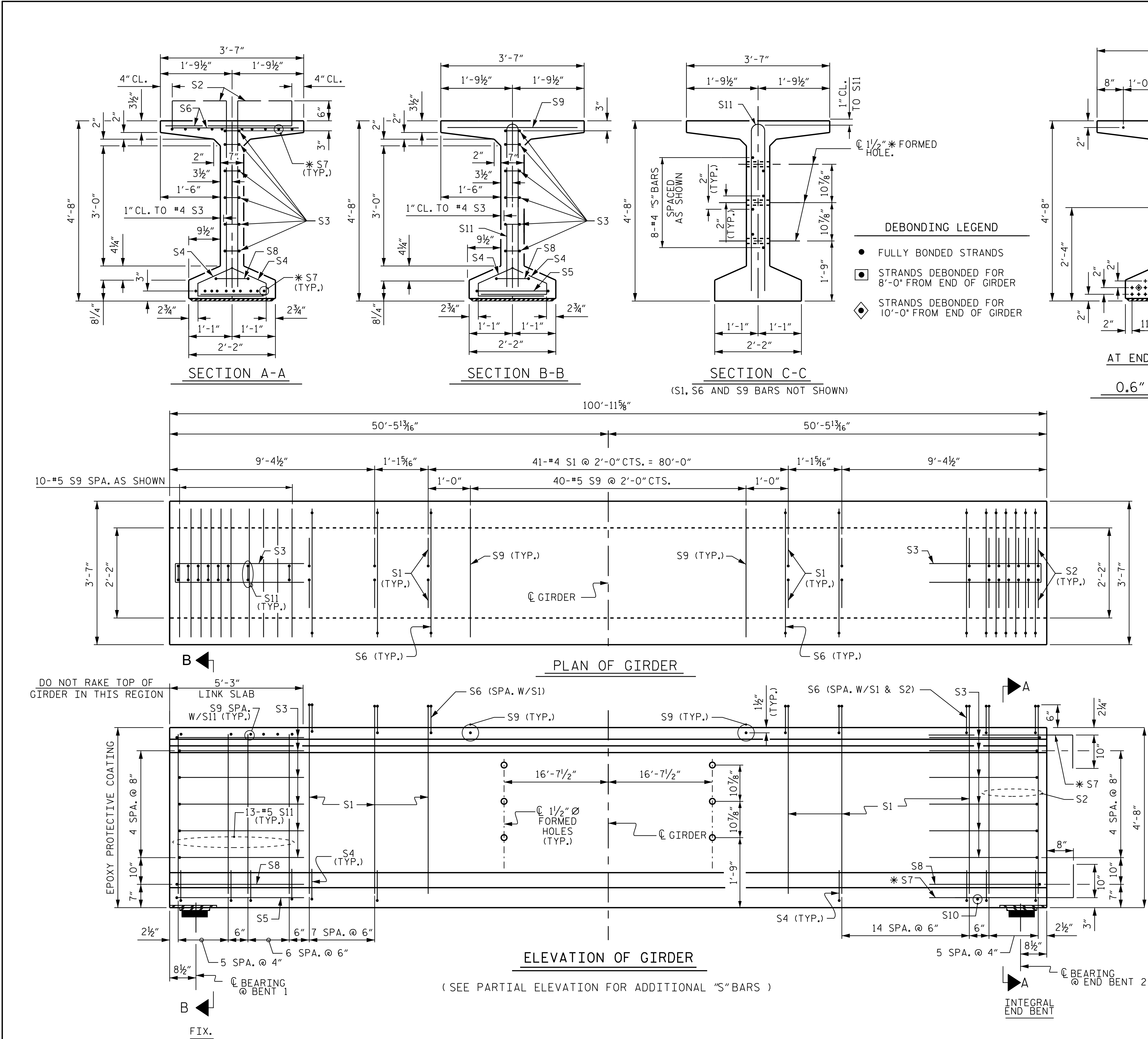
Signed by:
Andre Boykin
748608847E554D0

5/5/2025

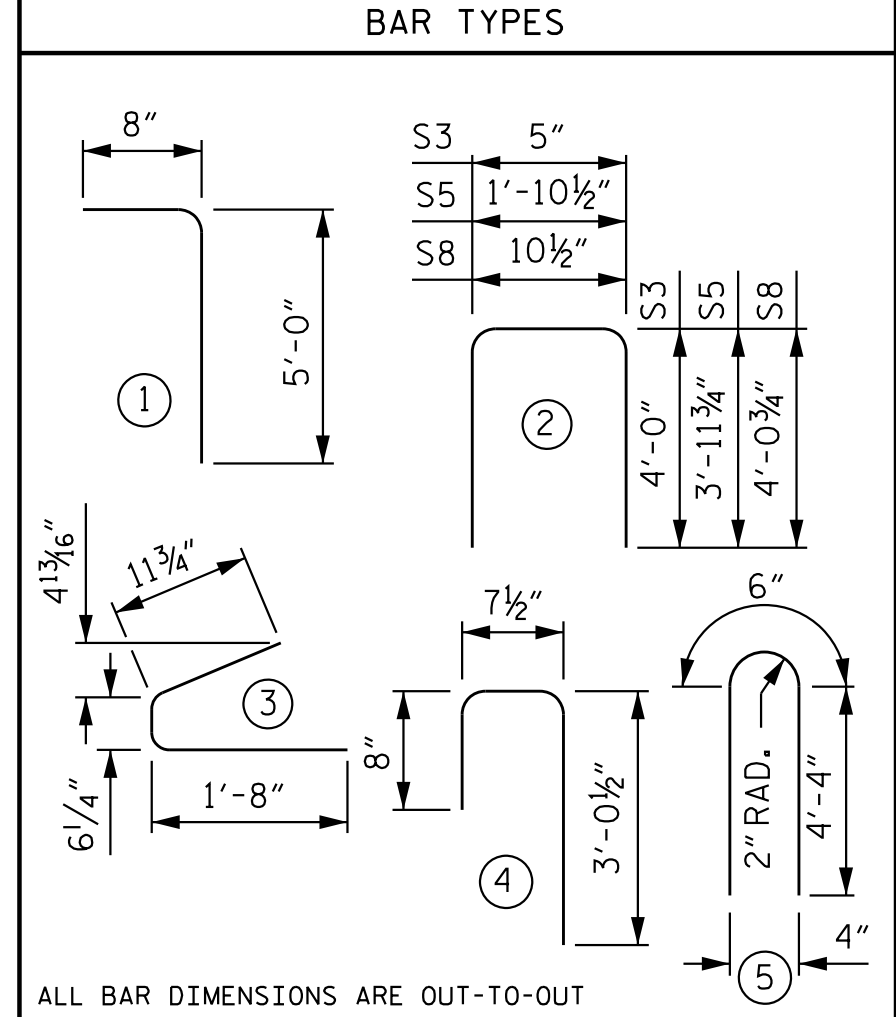
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

\\s\structures\B10 -Y35-Ur-offting\Final\R3300A.SMU.G02.700B10.dgn 5/6/2025 1:35:16 AM jhagenbush



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	128	#4	1	5'-8	485
S2	12	#5	1	5'-8"	71
S3	12	#4	1	8'-5"	67
S4	84	#4	2	3'-2"	178
S5	1	#5	3	9'-10"	10
S6	140	#5	4	4'-4"	633
* S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	50	#5	STR	3'-3"	169
S10	1	#3	STR	2'-0"	1
S11	21	#5	5	9'-2"	201
S12	16	#4	STR	8'-0"	86



QUANTITIES FOR ONE GIRDER			
GIRDERS	REINFORCING STEEL	8500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GB1-GB4	1,996	19.7	36
GIRDERS REQUIRED			
NUMBER	LENGTH	TOTAL LENGTH	
4	100'-11 5/8"	403'-10 1/2"	

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

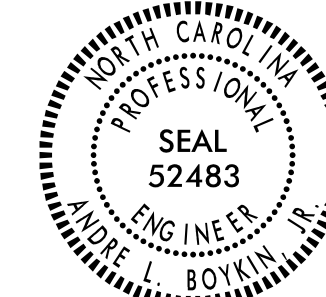
PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 2 OF 4



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

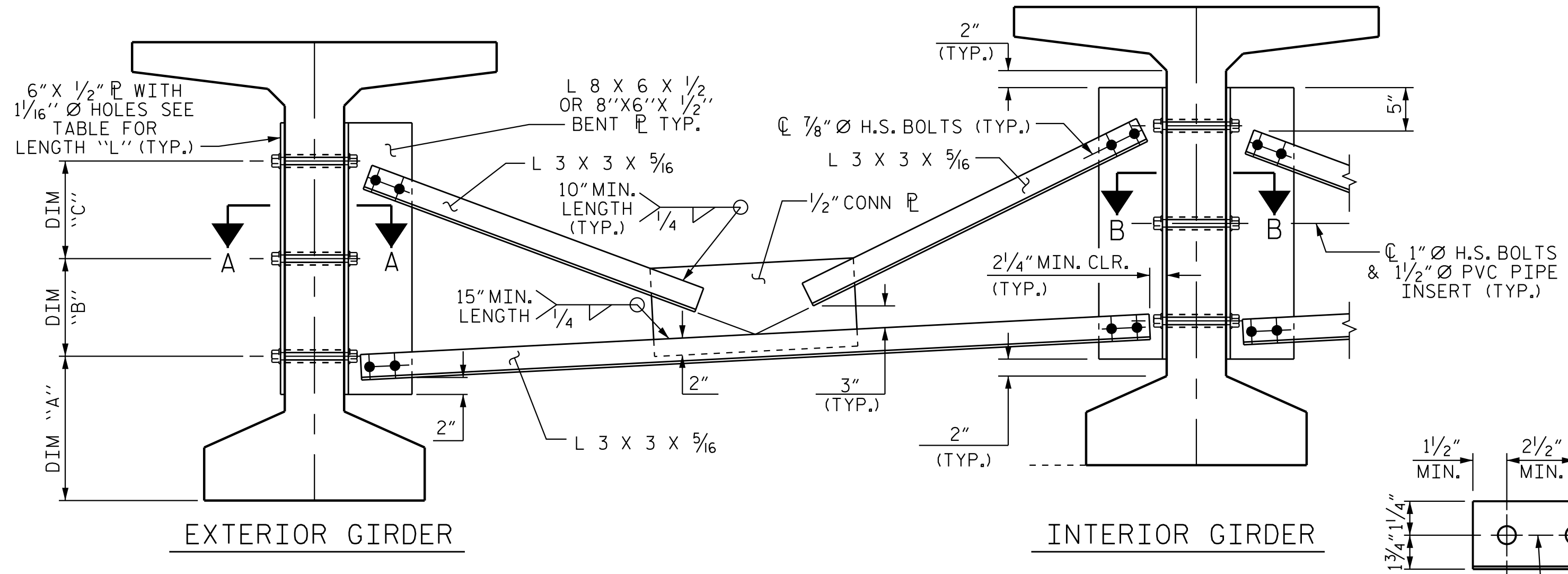
DRAWN BY : J.E. HAGENBUSH DATE : 02-06-25
CHECKED BY : A. L. BOYKIN DATE : 03-05-25
DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25



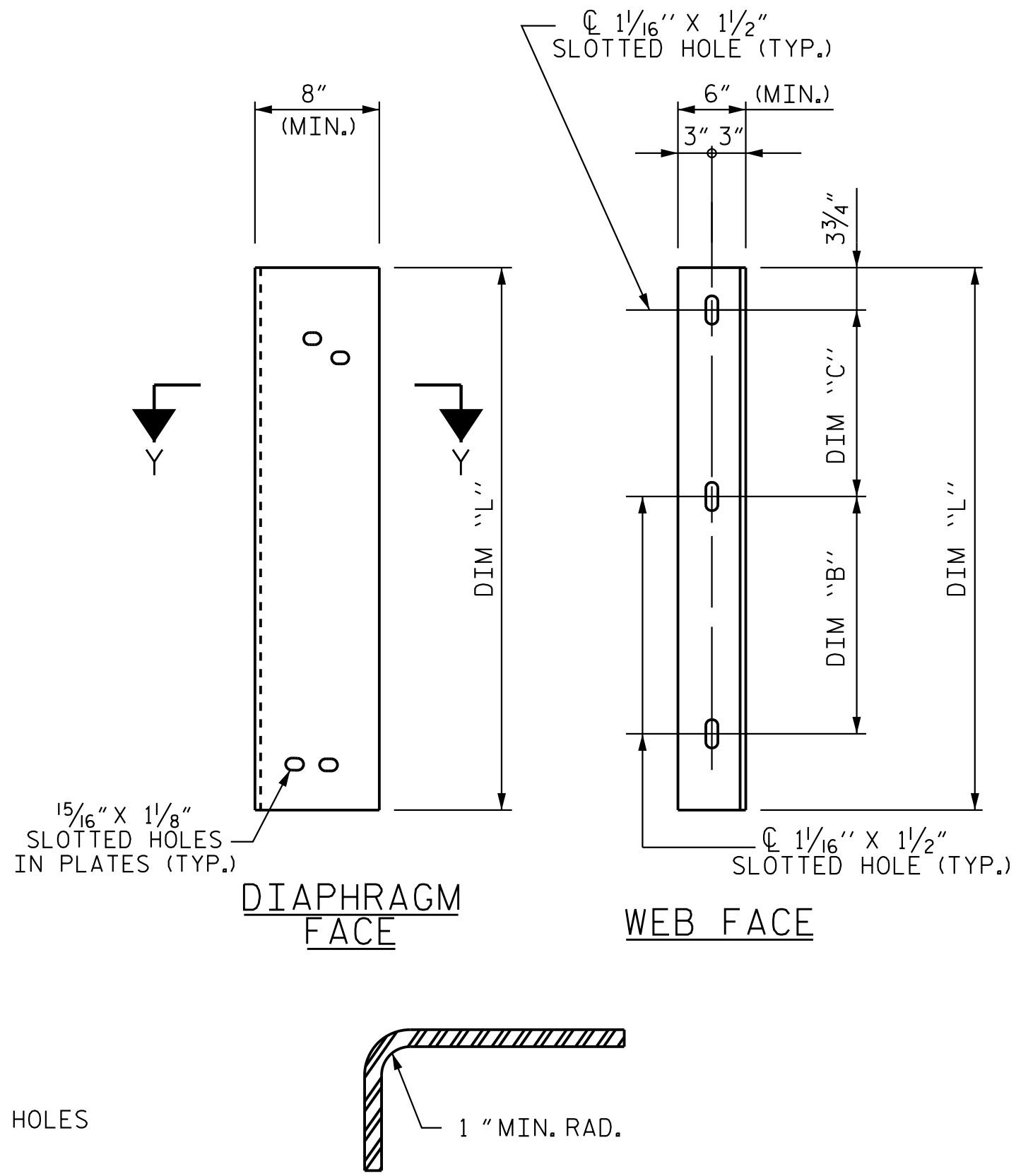
Signed by:
Andre Boykin
74860847E554D0
5/5/2025
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

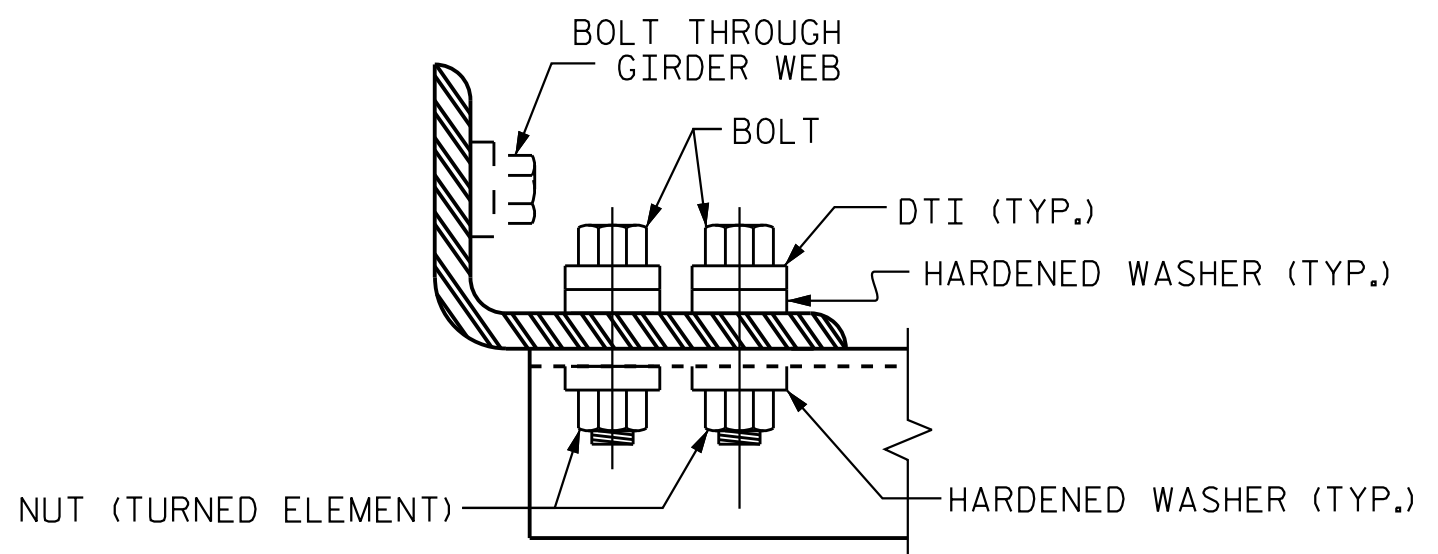
4/29/2025 3:52:50 PM jgeile
U:\Structures\B10 -Y35-Dr-offting\Final\R3300A.SMU.C04.700B10.dgn



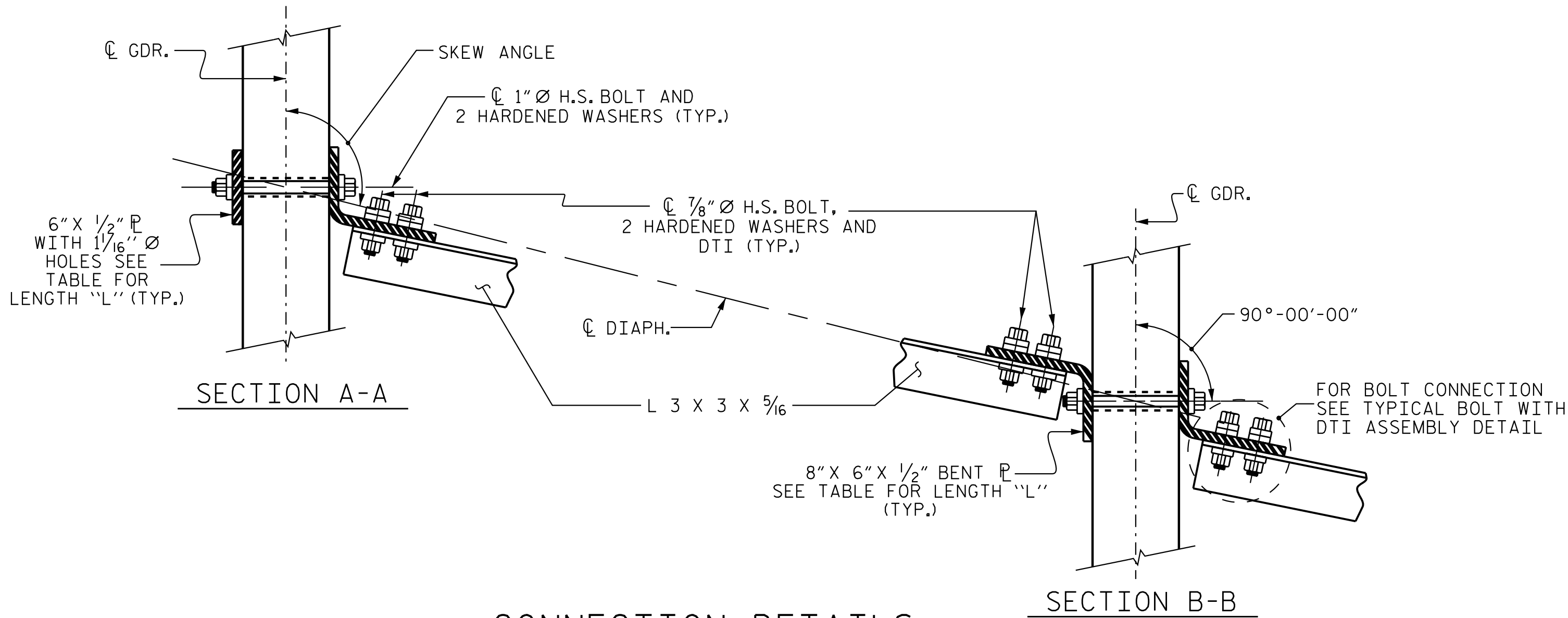
PART SECTION AT INTERMEDIATE DIAPHRAGM
(MODIFIED 56"PRESTRESSED CONCRETE GIRDER)



CONNECTOR PLATE DETAIL



BOLT WITH DTI ASSEMBLY DETAIL



CONNECTION DETAILS

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 AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE 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 56" PREST. CONC. GDR.	1'-9"	10 7/8"	10 7/8"	2'-8"

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 4 OF 4



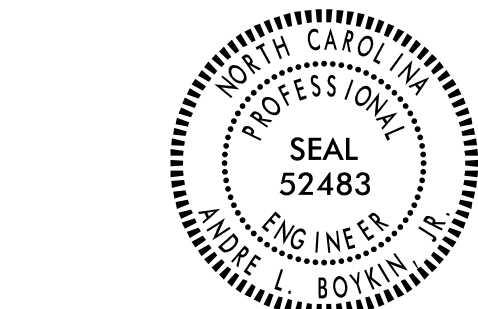
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

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

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

ASSEMBLED BY : J. GUERRERO
CHECKED BY : A. L. BOYKIN
DATE : 09/10/21
DATE : 03/05/25

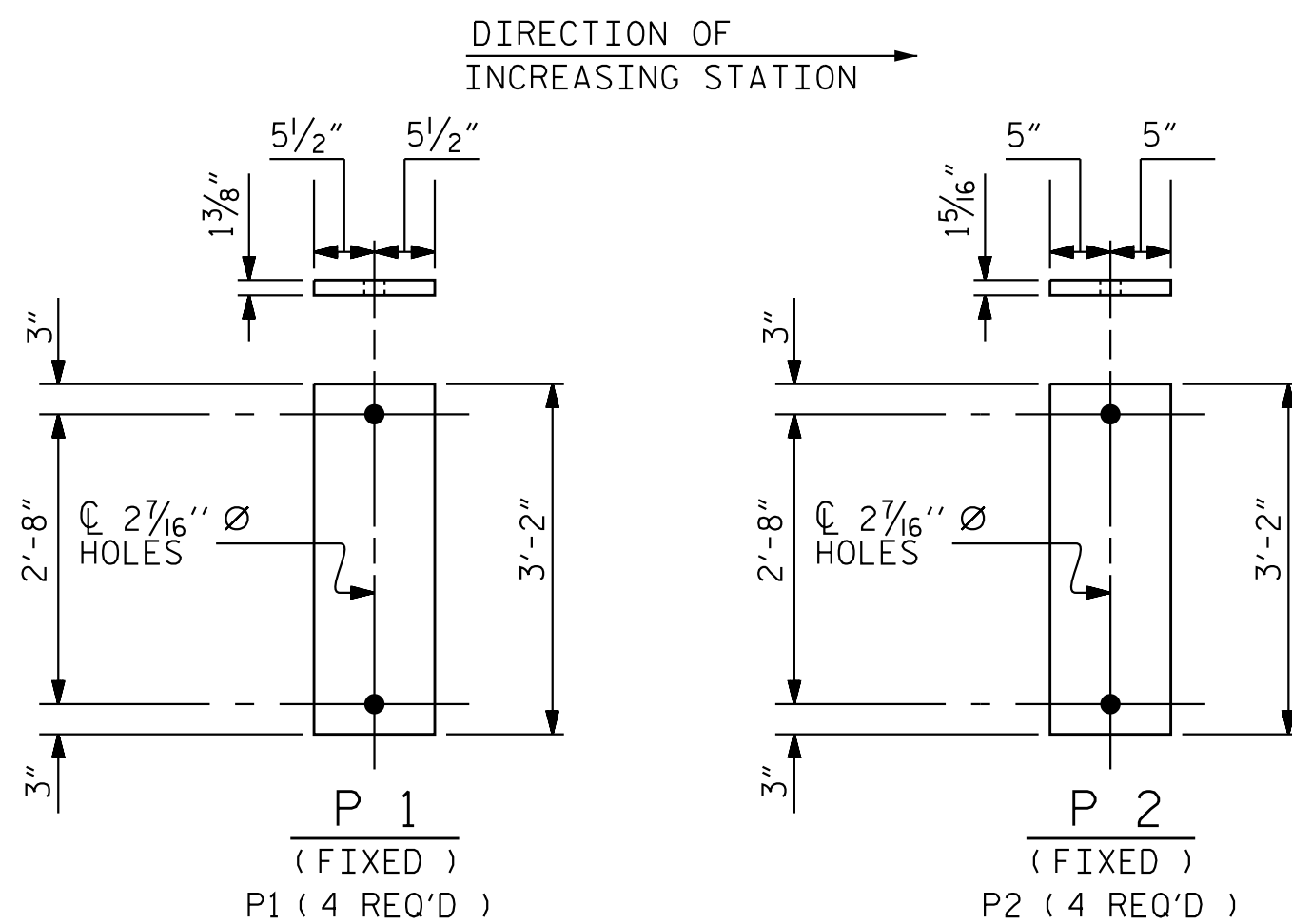
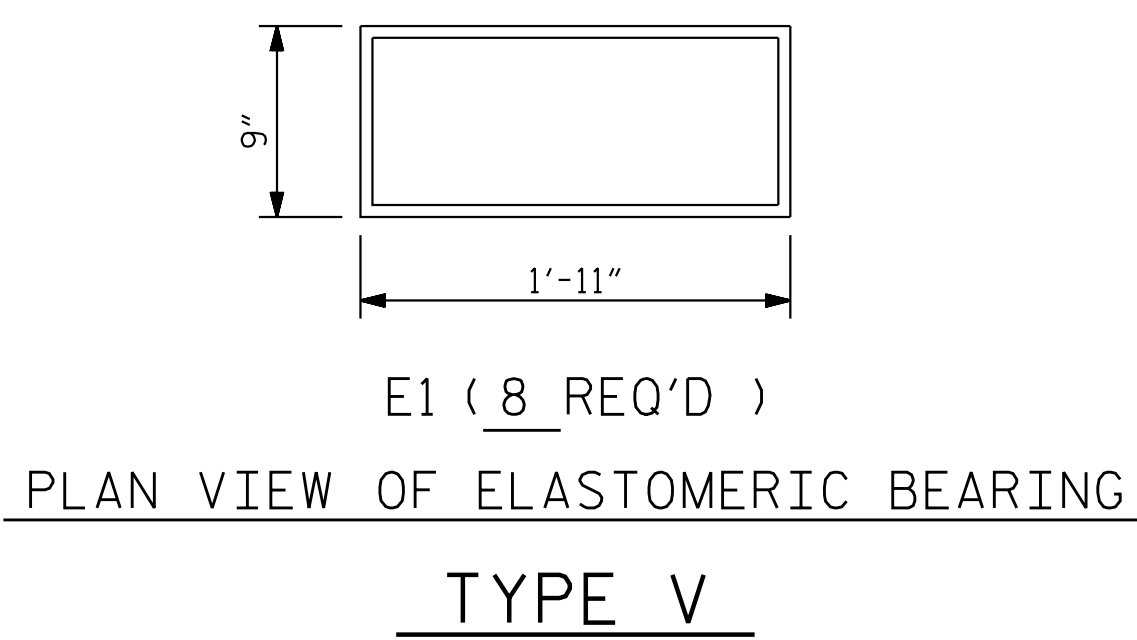
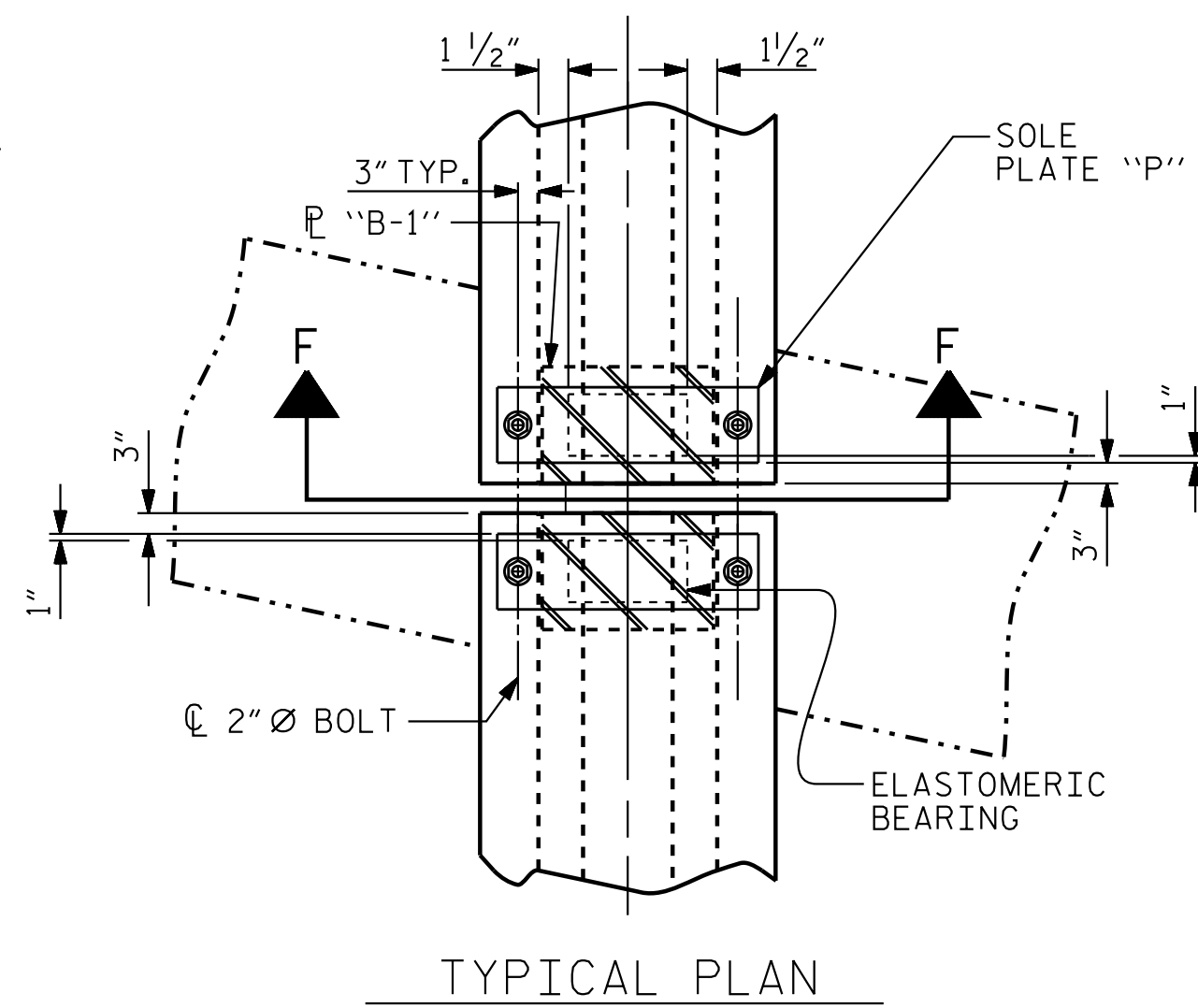
DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN
DATE : 04/22/25



Signed by:
Andrew L. Boykin
5/5/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



PROJECT NO. R-3300A
PENDER COUNTY
 STATION: 23+28.17 -Y35-

Signed by: Andre Boykin Jr. 4/22/2025
74806847E554D0

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUPERSTRUCTURE

ELASTOMERIC

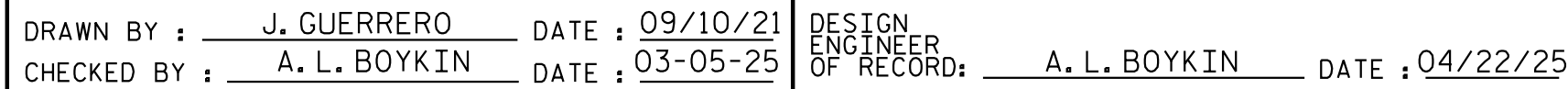
BEARING DETAILS

PRESTRESSED

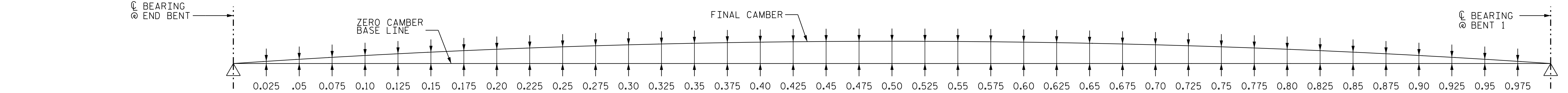
CONCRETE GIRDER

SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 38
1			3			
2			4			

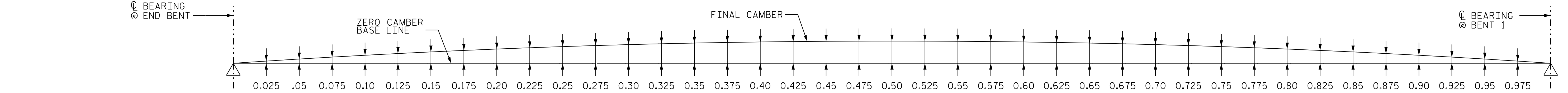


4/22/2025 5:27:37 PM jhagenbush
U:\Structures\B10 -Y35-Ur-offting\Final\R3300A.SMU.DL.01.700B10.dgn



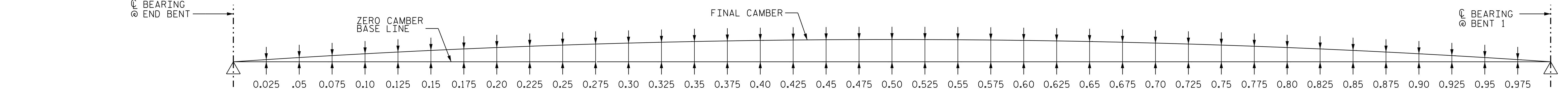
GIRDER 1																																										
FORTIETH POINTS BETWEEN BRGS.																																										
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.019	0.039	0.058	0.077	0.095	0.113	0.129	0.145	0.160	0.175	0.187	0.199	0.209	0.219	0.226	0.233	0.237	0.242	0.243	0.245	0.243	0.242	0.237	0.233	0.226	0.219	0.209	0.199	0.187	0.175	0.160	0.145	0.129	0.113	0.095	0.077	0.058	0.039	0.019	0.000
DEFLEC.DUE TO SUPERIMPOSED DL *	↓	0.000	0.011	0.021	0.032	0.043	0.053	0.063	0.074	0.084	0.092	0.100	0.108	0.117	0.122	0.127	0.132	0.137	0.139	0.141	0.143	0.145	0.143	0.141	0.139	0.138	0.133	0.127	0.122	0.117	0.109	0.101	0.093	0.085	0.075	0.064	0.054	0.044	0.033	0.022	0.011	0.000
FINAL CAMBER (OR DEFLECTION)	↑	0"	1⁄8"	3⁄16"	5⁄16"	7⁄16"	1⁄2"	9⁄16"	11⁄16"	3⁄4"	13⁄16"	7⁄8"	15⁄16"	1"	1 1⁄16"	1 1⁄8"	1 1⁄8"	1 1⁄8"	1 3⁄16"	1 3⁄16"	1 3⁄16"	1 3⁄16"	1 3⁄16"	1 3⁄16"	1 3⁄16"	1 1⁄8"	1 1⁄8"	1 1⁄8"	1 1⁄16"	1"	1 5⁄16"	7⁄8"	13⁄16"	3⁄4"	5⁄8"	9⁄16"	1⁄2"	3⁄8"	5⁄16"	3⁄16"	1⁄8"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDER 2-3																																										
FORTIETH POINTS BETWEEN BRGS.																																										
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.019	0.039	0.058	0.077	0.095	0.113	0.129	0.145	0.160	0.175	0.187	0.199	0.209	0.219	0.226	0.233	0.237	0.242	0.243	0.245	0.243	0.242	0.237	0.233	0.226	0.219	0.209	0.199	0.187	0.175	0.160	0.145	0.129	0.113	0.095	0.077	0.058	0.039	0.019	0.000
DEFLEC.DUE TO SUPERIMPOSED DL *	↓	0.000	0.012	0.024	0.035	0.047	0.059	0.070	0.081	0.093	0.101	0.110	0.119	0.128	0.134	0.140	0.145	0.151	0.153	0.155	0.157	0.159	0.157	0.155	0.153	0.151	0.146	0.140	0.134	0.129	0.120	0.111	0.102	0.093	0.082	0.071	0.059	0.048	0.036	0.024	0.012	0.000
FINAL CAMBER (OR DEFLECTION)	↑	0"	1/16"	3/16"	1/4"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	7/8"	15/16"	15/16"	1"	1"	1 1/16"	1 1/16"	1"	1 1/16"	1 1/16"	1"	1"	15/16"	15/16"	7/8"	13/16"	13/16"	3/4"	11/16"	5/8"	9/16"	1/2"	7/16"	3/8"	1/4"	3/16"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDER 4																																									
FORTIETH POINTS BETWEEN BRGS.																																									
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.019	0.039	0.058	0.077	0.095	0.113	0.129	0.145	0.160	0.175	0.187	0.199	0.209	0.219	0.226	0.233	0.237	0.242	0.243	0.245	0.243	0.242	0.237	0.233	0.226	0.219	0.209	0.199	0.187	0.175	0.160	0.145	0.129	0.113	0.095	0.077	0.058	0.039	0.019	0.000
DEFLEC.DUE TO SUPERIMPOSED DL * ↓	0.000	0.011	0.023	0.034	0.046	0.057	0.067	0.078	0.089	0.098	0.107	0.115	0.124	0.129	0.135	0.140	0.146	0.145	0.143	0.142	0.141	0.142	0.144	0.145	0.146	0.141	0.135	0.130	0.124	0.116	0.107	0.099	0.090	0.079	0.068	0.058	0.047	0.035	0.023	0.012	0.000
FINAL CAMBER (OR DEFLECTION) ↑	0"	1/8"	3/16"	5/16"	3/8"	7/16"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	7/8"	15/16"	1"	1"	1 1/16"	1 1/8"	1 3/16"	1 3/16"	1 1/4"	1 3/16"	1 3/16"	1 1/8"	1 1/16"	1"	1"	15/16"	7/8"	7/8"	13/16"	3/4"	11/16"	5/8"	1/2"	7/16"	3/8"	1/4"	3/16"	1/8"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

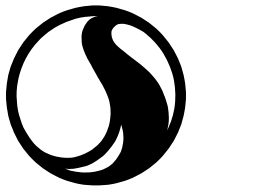
SCHEMATIC CAMBER ORDINATES SPAN A AND B GIRDERS

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
PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 1 OF 2



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25

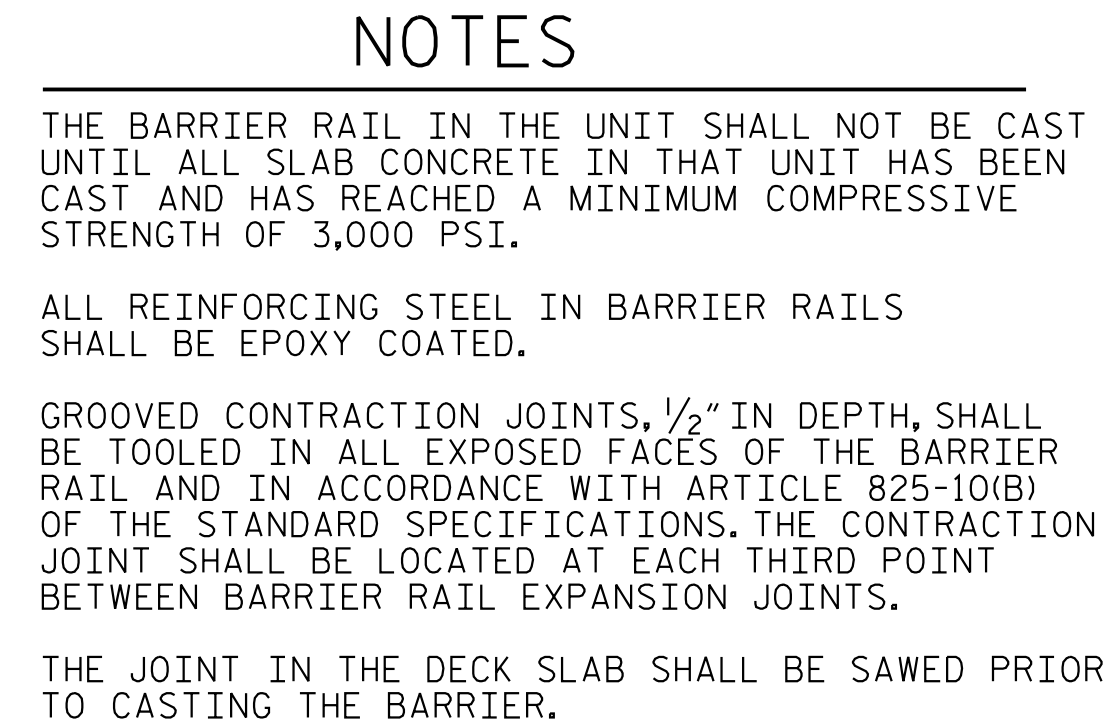


Signed by: Andrew L. Boykin Jr. 4/22/2025
748908947E554D5

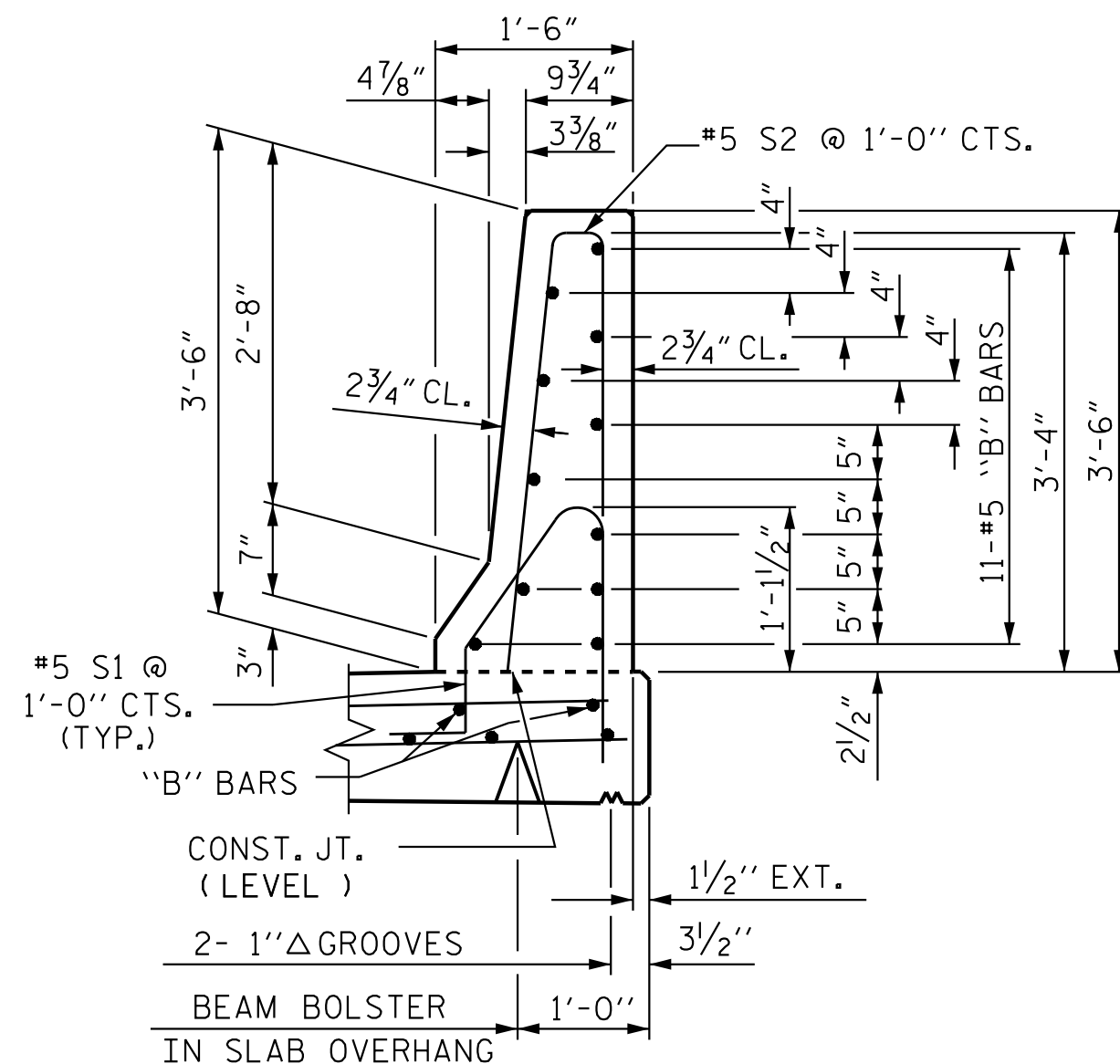
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
DEAD LOAD
DEFLECTIONS
SPAN A

REVISIONS						SHEET NO. S10-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



* ARC DIMENSION
ALL HORIZONTAL DIMENSIONS ARE MEASURED ALONG
THE ARC @ THE OUTSIDE EDGE OF SUPERSTRUCTURE.

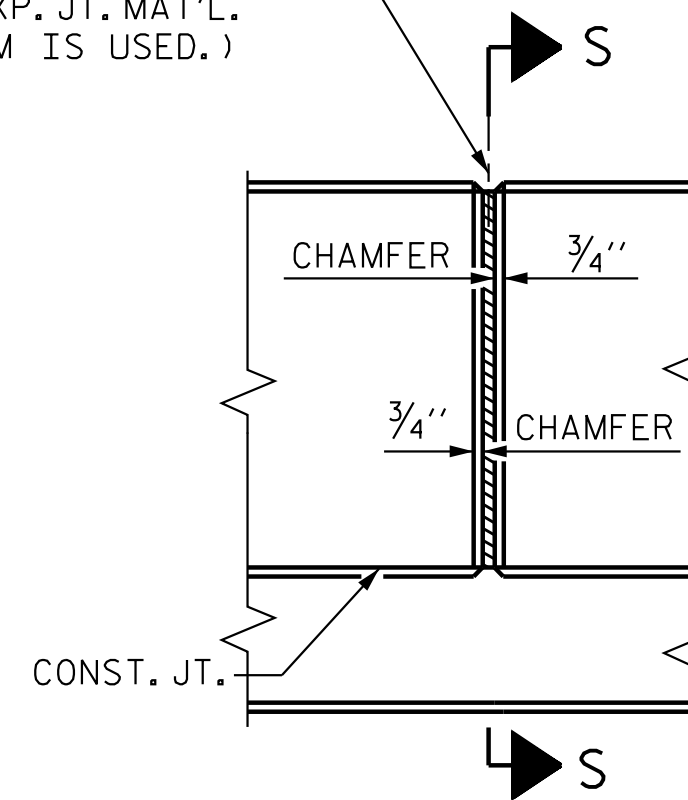


Side view of the reinforcement layout. Dimensions include a total width of 2'-0" and a top layer height of 10". The reinforcement bars are labeled #5 S1, #5 S2, and #5 S3. A field bend is indicated. The bottom layer height is 2'-8". A constant joint (CONST. JT.) is shown at the bottom. The reinforcement bars are positioned relative to the centerline (CTS.).

SIDE VIEW

① 1/2" EXP. JT. MAT'L HELD IN —
PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L.
WHEN SLIP FORM IS USED.)

RIGHT SIDE @ END BENT 2/ LEFT
SIDE @ END BENT 1 SHOWN.
OTHER LOCATIONS SIMILAR.



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

END BENT 1 SHOWN END BENT 2 SIMILAR BY ROTATION



Stantec Consulting Services Inc.
801 Jones Franklin Road
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 :	09/10/21
CHECKED BY :	A. L. BOYKIN	DATE :	03/05/25

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

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

DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE: 04/22/25

BILL OF MATERIAL						
FOR CONCRETE BARRIER RAIL ONLY						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	132	#5	STR	27'-7"	3,798	
* B2	10	#5	STR	18'-3"	190	
* B3	12	#5	STR	18'-2"	227	
* B4	10	#5	STR	17'-1"	178	
* B5	12	#5	STR	17'-3"	216	
* S1	410	#5	1	4'-7"	1,960	
* S2	402	#5	2	7'-0"	2,935	
* S3	8	#5	2	5'-6"	46	
* EPOXY COATED REINFORCING STEEL					9,550 LBS.	
CLASS AA CONCRETE				55.2 CU. YDS.		
CONCRETE BARRIER RAIL				408.59	LIN. FT.	

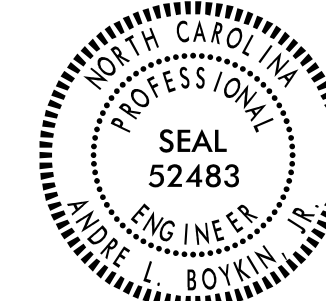
PROJECT NO. R-3300A
 PENDER COUNTY
STATION: 23+28.17 -Y35-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
CONCRETE
BARRIER RAIL

REVISIONS						SHEET NO. S10-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

Signed by: Andre Boykin Jr. 4/22/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 1/8" 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. 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 1/8" 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.)

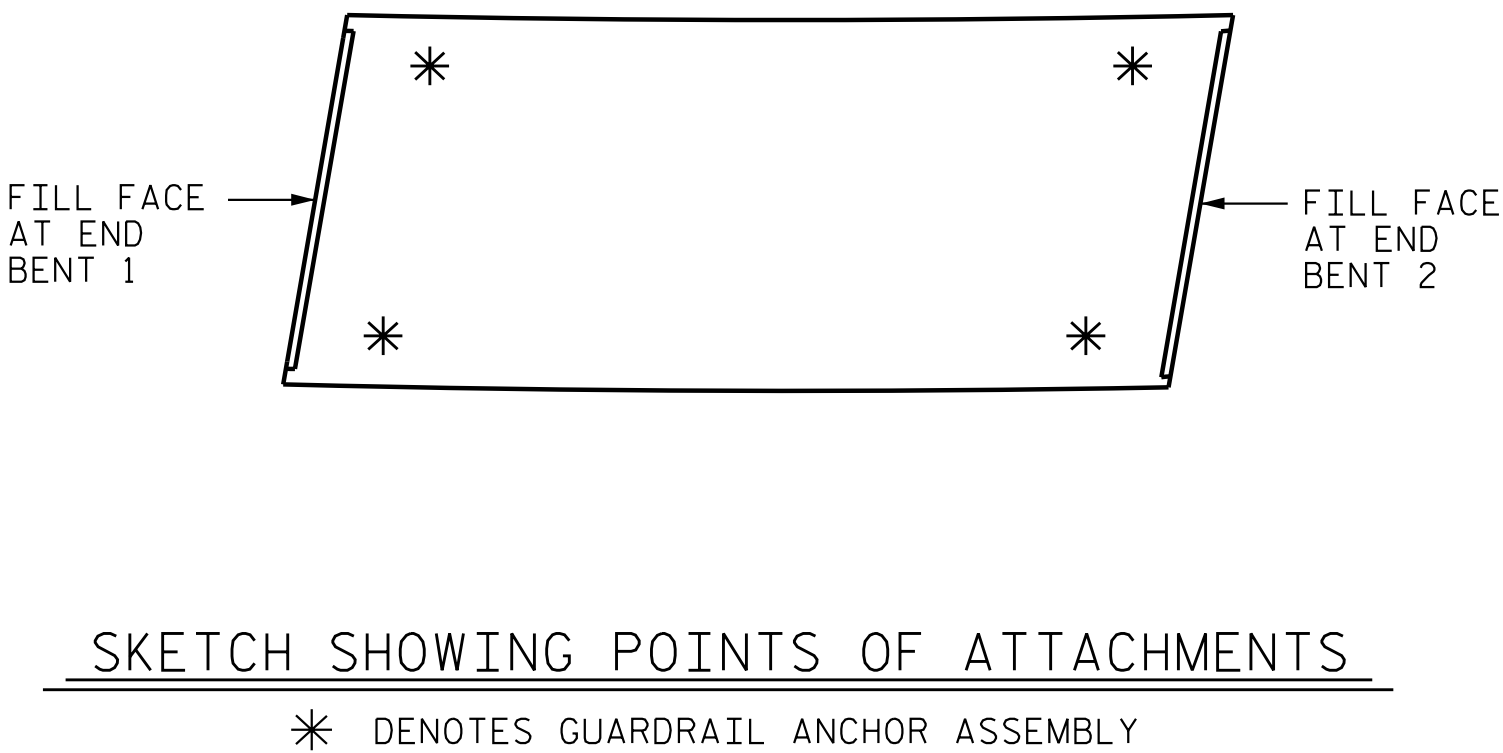
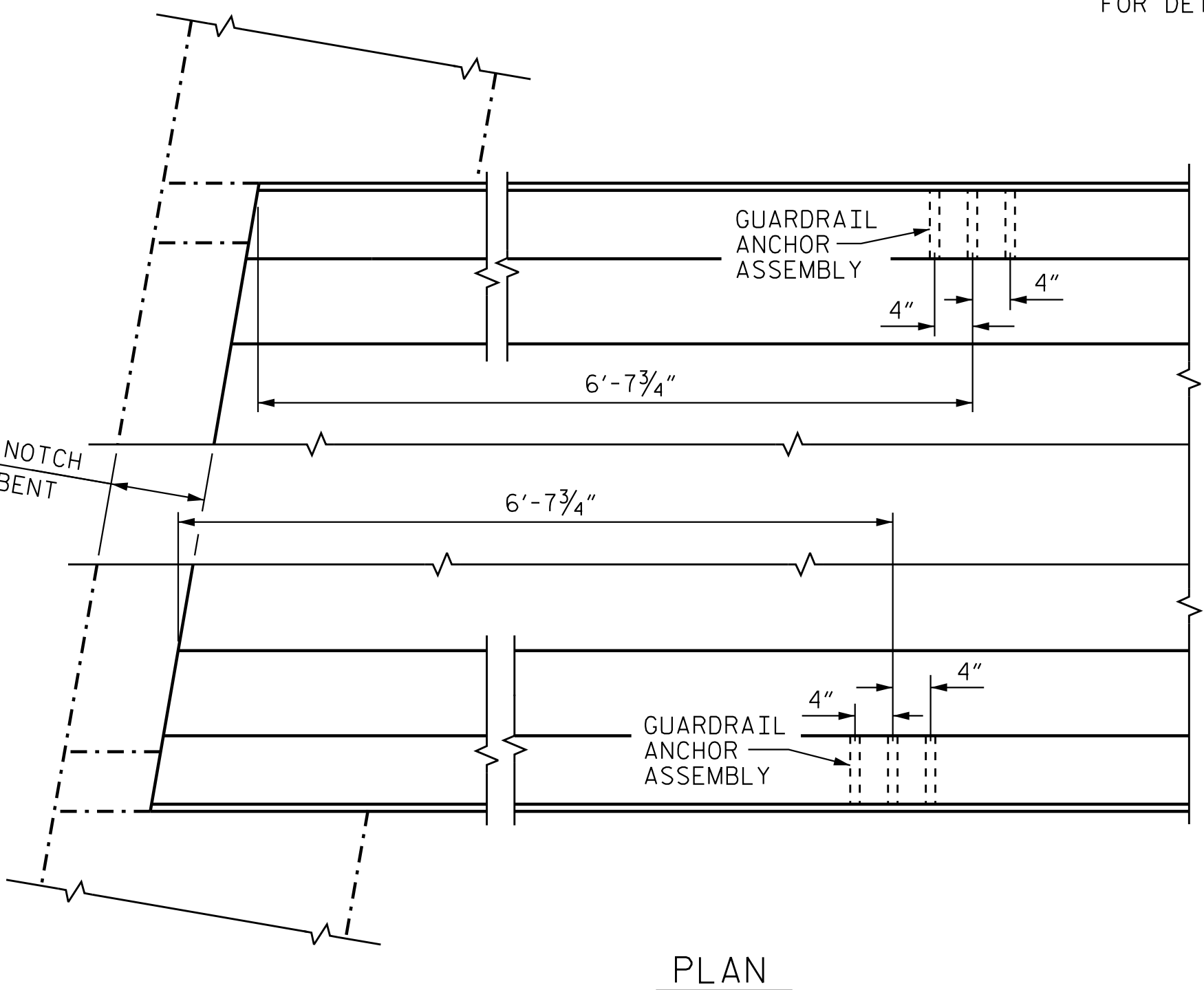
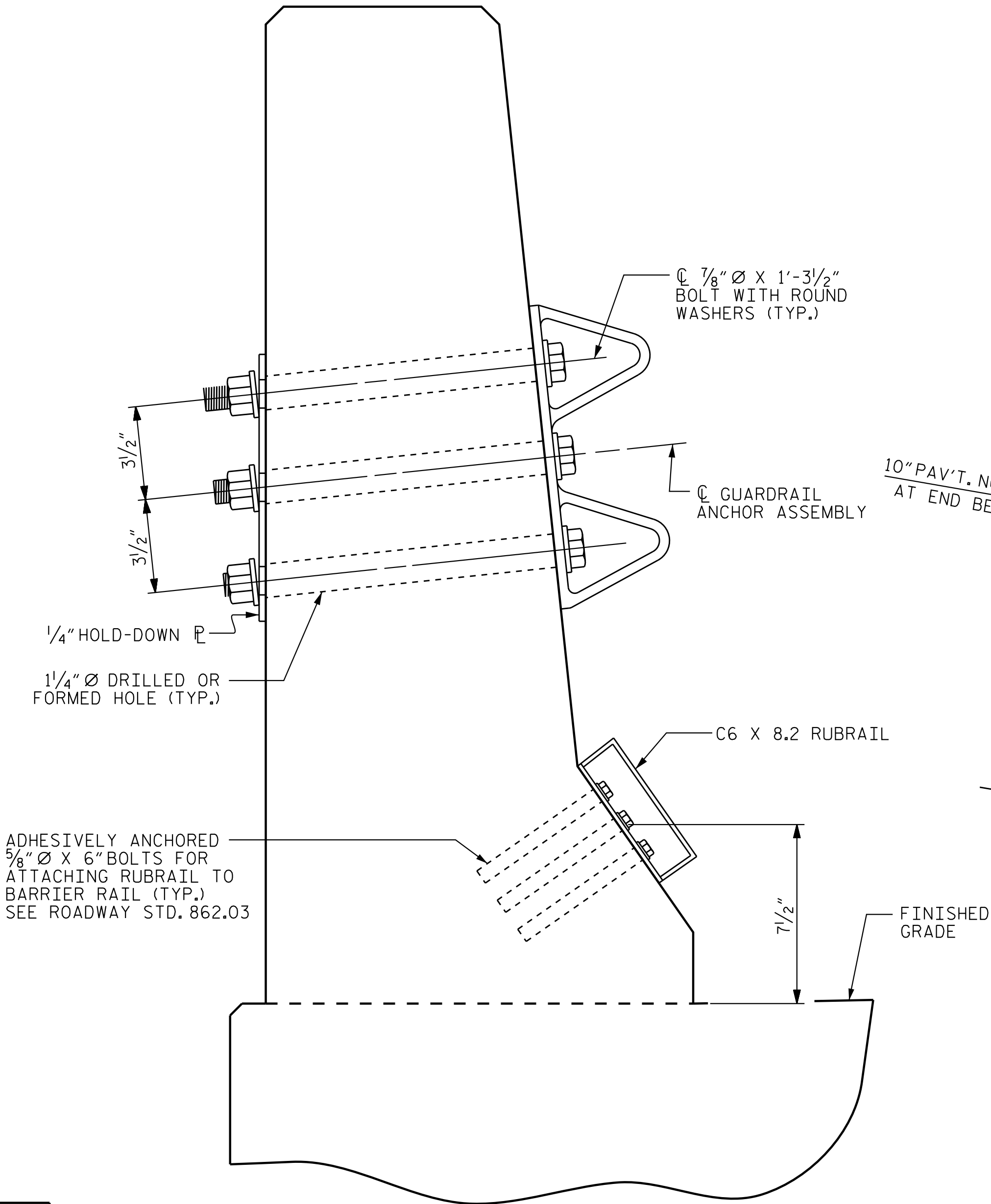
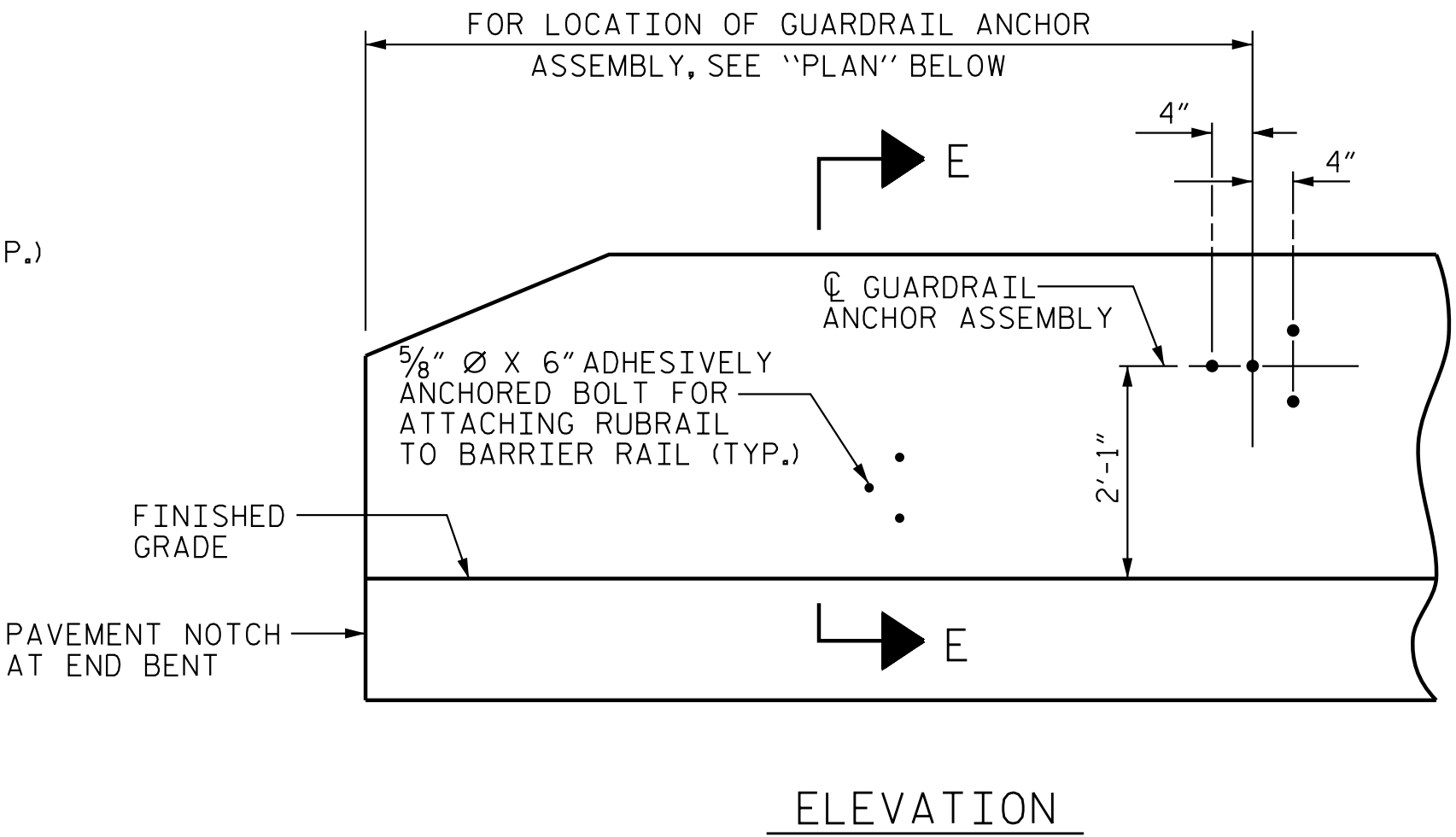
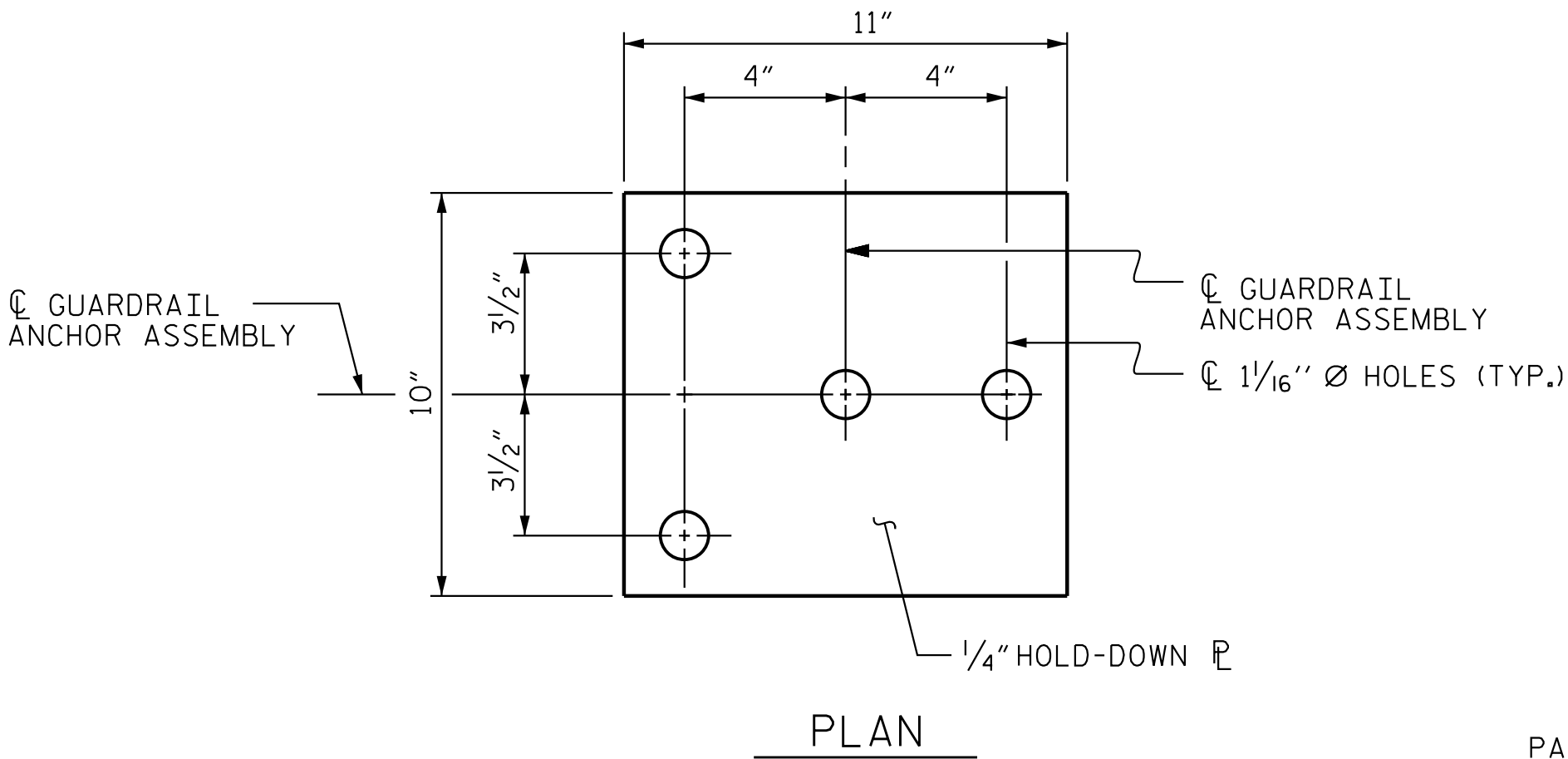
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

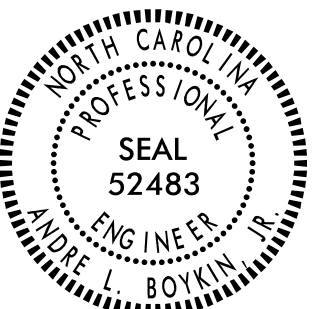
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

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
PENDER COUNTY
STATION: 23+28.17 -Y35-

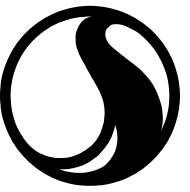
SHEET 1 OF 1



Signed by:
Andre Boykin Jr. 4/22/2025
748B0847E934D0

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S10-25		
GUARDRAIL ANCHORAGE FOR BARRIER RAIL						TOTAL SHEETS 38		
REVISIONS								
NO.	BY:	DATE:	NO.	BY:	DATE:			
1			3					
2			4					



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

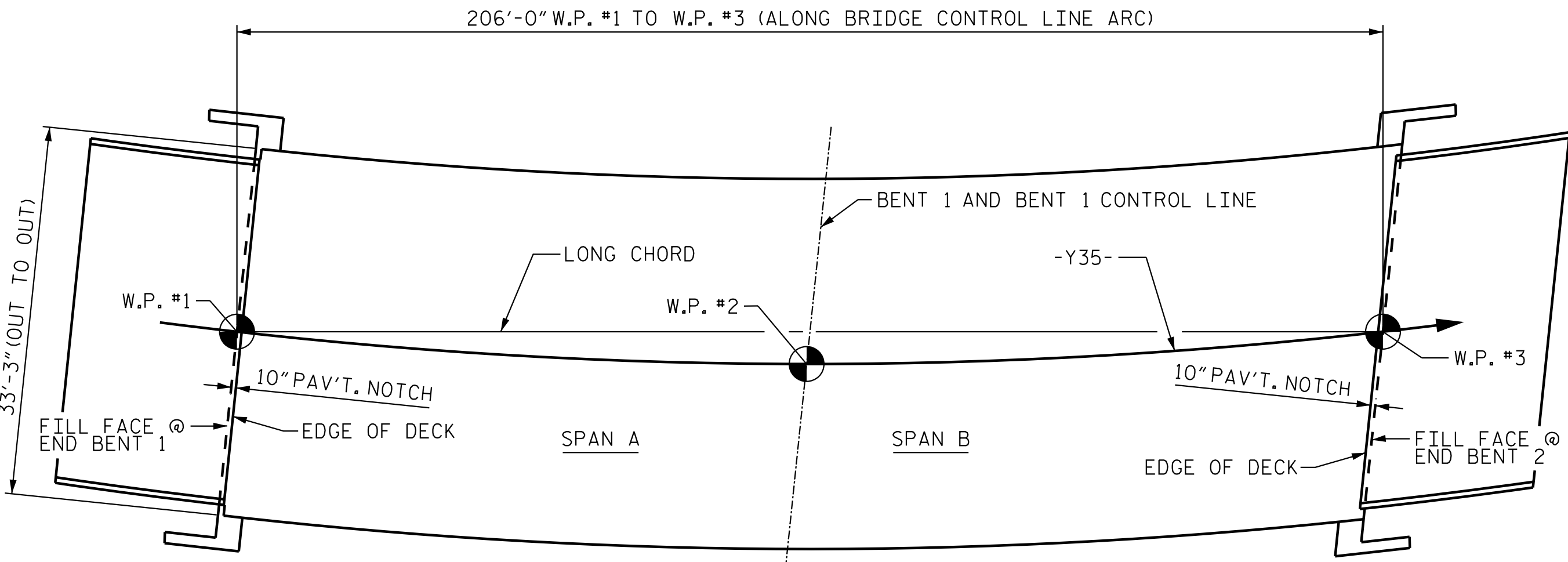
ASSEMBLED BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03/05/25

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

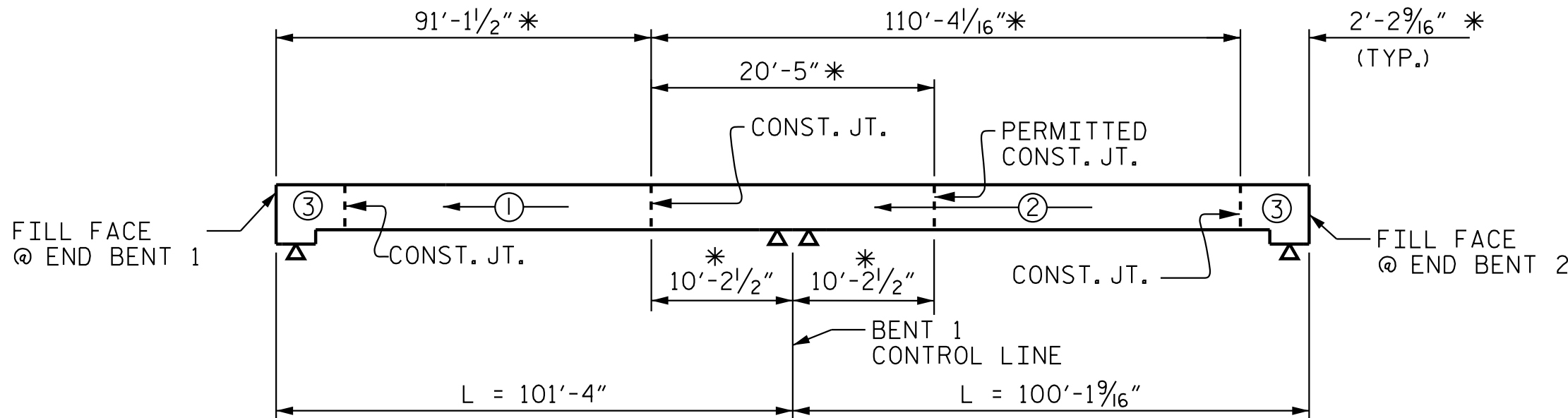
REV. 7/12
REV. 6/13
REV. 12/17

MAA/GM
MAA/GM
MAA/THC

DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25



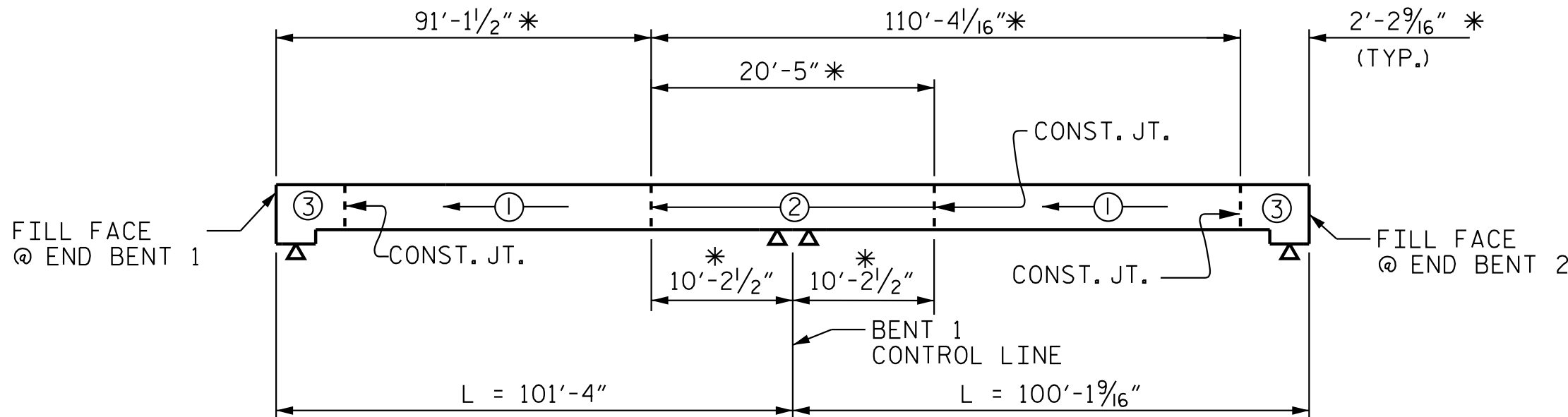
LAYOUT FOR COMPUTING AREA
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 6,793)



* - DIMENSIONS ARE ALONG LONG CHORD

POURING SEQUENCE PRESTRESSED CONCRETE SUPERSTRUCTURE

(LINK SLAB)
⊕ = INDICATES POUR NUMBER
AND DIRECTION OF POUR
L = LENGTH ALONG LONG CHORD



* - DIMENSIONS ARE ALONG LONG CHORD

OPTIONAL POURING SEQUENCE PRESTRESSED CONCRETE SUPERSTRUCTURE

POUR ② CAN NOT BE STARTED UNTIL BOTH
ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI



DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25
DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25

REINFORCING BAR SCHEDULE

SPANS A & B

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	364	#5	STR	32'-10"	12,465	* B1	102	#5	STR	25'-7"	2,722
A2	364	#5	STR	32'-10"	12,465	B2	87	#5	STR	21'-11"	1,989
						* B3	31	#5	STR	41'-1"	1,328
* A101	2	#5	STR	28'-6"	59	B4	21	#5	STR	51'-5"	1,126
* A102	2	#5	STR	23'-2"	48	* B5	96	#5	STR	34'-6"	3,454
* A103	2	#5	STR	17'-11"	37	* B6	76	#5	STR	20'-8"	1,638
* A104	2	#5	STR	12'-7"	26	* B7	38	#5	STR	23'-1"	915
* A105	2	#5	STR	7'-3"	15	B8	116	#5	STR	36'-8"	4,436
* A106	2	#5	STR	28'-4"	59						
* A107	2	#5	STR	23'-2"	48	H1	11	#5	3	13'-4"	153
* A108	2	#5	STR	18'-0"	38	H2	6	#4	3	13'-5"	54
* A109	2	#5	STR	12'-10"	27	H3	11	#6	4	15'-6"	256
* A110	2	#5	STR	7'-8"	16	H4	6	#4	4	15'-5"	62
* A111	2	#5	STR	2'-6"	5	H5	11	#5	4	13'-10"	159
						H6	6	#4	4	13'-8"	55
A201	2	#5	STR	28'-6"	59	H7	14	#6	3	15'-8"	329
A202	2	#5	STR	23'-2"	48	H8	6	#4	3	15'-10"	63
A203	2	#5	STR	17'-11"	37						
A204	2	#5	STR	12'-7"	26	K1	12	#4	STR	20'-5"	164
A205	2	#5	STR	7'-3"	15	K2	12	#4	STR	20'-10"	167
A206	2	#5	STR	28'-4"	59	K3	6	#4	STR	4'-9"	19
A207	2	#5	STR	23'-2"	48	K4	30	#4	STR	7'-10"	157
A208	2	#5	STR	18'-0"	38	K5	6	#4	STR	6'-3"	25
A209	2	#5	STR	12'-10"	27	K6	2	#4	STR	4'-9"	6
A210	2	#5	STR	7'-8"	16	K7	8	#4	STR	6'-4"	34
A211	2	#5	STR	2'-6"	5	K8	2	#4	STR	5'-7"	7

						K9	2	#4	STR	3'-11"	5
						K10	8	#4	STR	5'-5"	29
						K11	2	#4	STR	4'-8"	6
						K12	24	#4	STR	3'-6"	56

						S1	38	#4	2	11'-0"	279
						S2	62	#4	2	11'-4"	469
						U1	48	#4	1	12'-2"	390
						U2	9	#4	1	13'-0"	78

						V2	20	#5	STR	5'-4"	111
						V3	24	#5	STR	5'-5"	136
						V4	20	#5	STR	5'-3"	110
						V5	26	#5	STR	5'-6"	149

REINFORCING STEEL 23,174 LBS
* EPOXY COATED
REINFORCING STEEL 23,648 LBS

GROOVING BRIDGE FLOORS

APPROACH SLABS	792 SQ.FT.
BRIDGE DECK	5,507 SQ.FT.
TOTAL	6,299 SQ.FT.

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

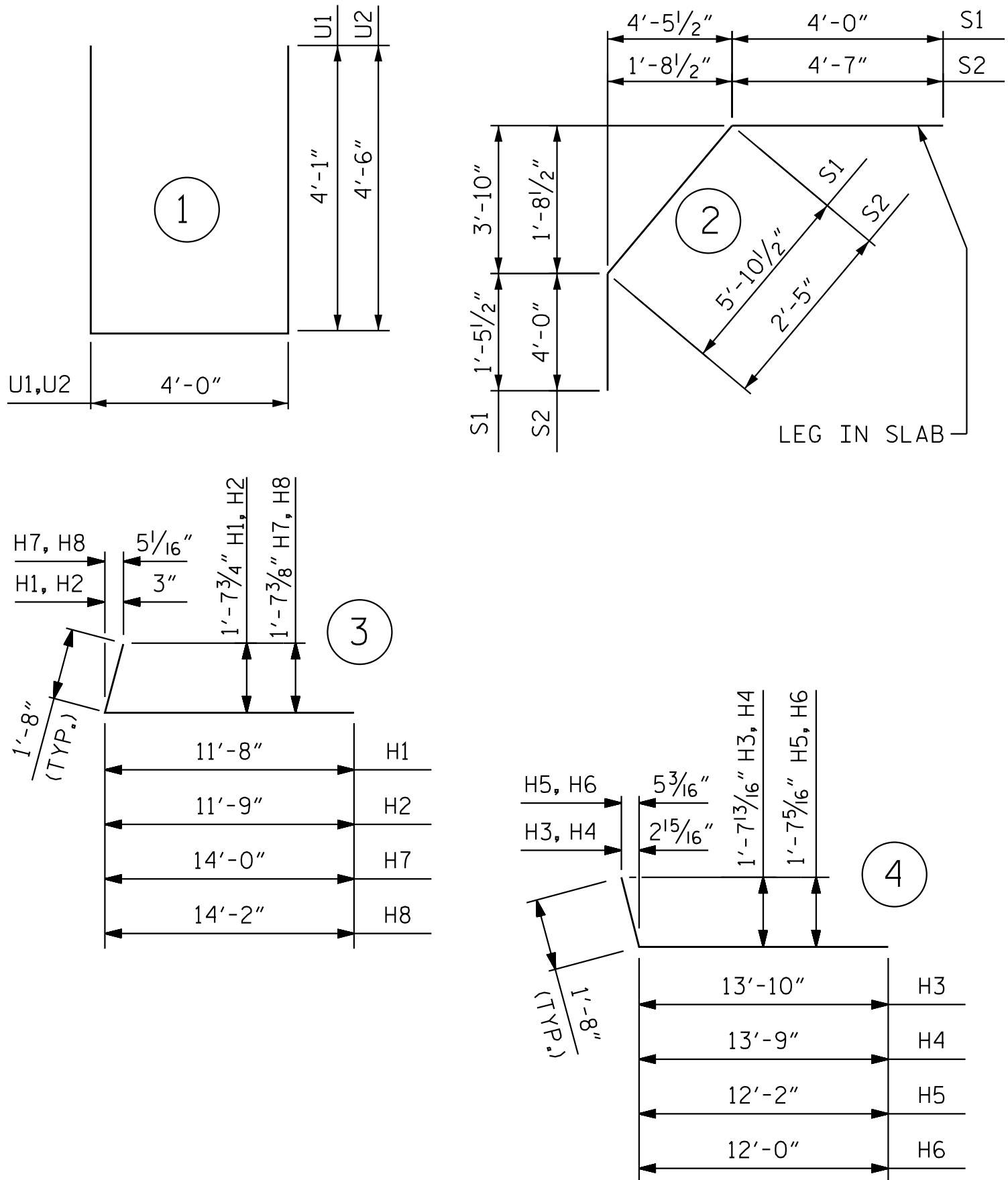
BAR SIZE	EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11"	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	87.0	23,174	23,648
POUR #2	108.2		
POUR #3	84.5		
TOTALS **	279.7	23,174	23,648

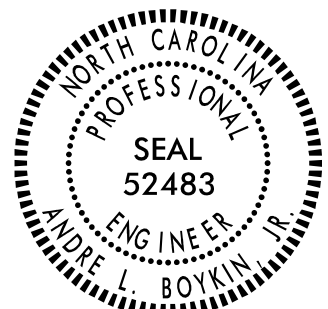
** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-



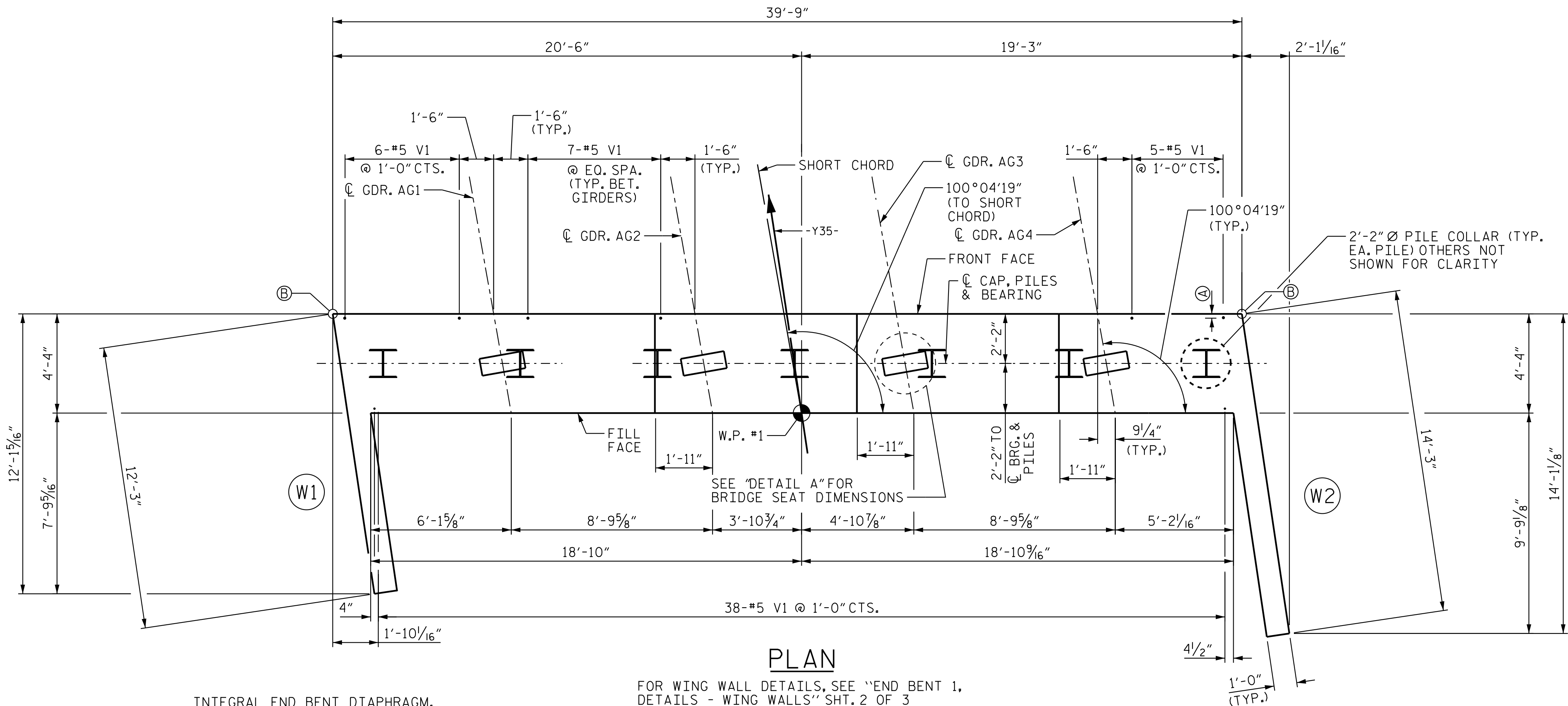
Signed by: Andrew Boykin
748608847E554D0

5/5/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

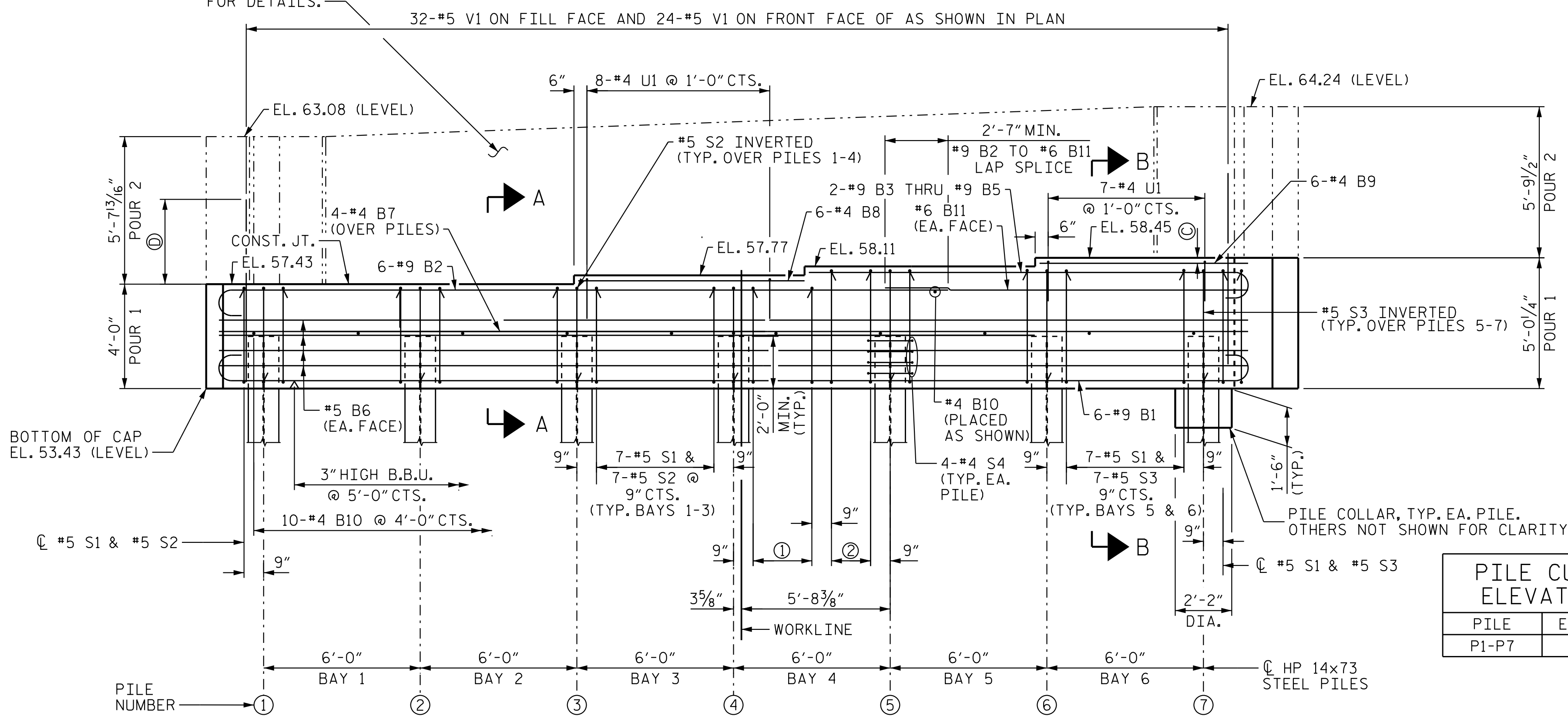
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE BILL OF MATERIAL						REVISIONS		SHEET NO. S10-26
NO.	BY:	DATE:	NO.	BY:	DATE:			TOTAL SHEETS 38
1			3					
2			4					

4/29/2025 3:52:59 PM jgelle
U:\Structures\BIO - Y35 - Dr-offing\Final\R3300A.SMU\EIOI.700BIO.dgn



INTEGRAL END BENT DIAPHRAGM.
SEE "SUPERSTRUCTURE PLAN
OF SPANS DETAILS - DIAPHRAGMS"
FOR DETAILS.

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



- ① 4-#5 S1 & 4-#5 S2 @ 9" CTS.
- ② 3-#5 S1 & 3-#5 S3 @ 9" CTS.

NOTES

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

Ⓐ 2" CLR. TO ALL #5 V1 BARS.

Ⓑ BOTTOM OF CAP ELEV. TAKEN @ THIS POINT.

Ⓒ 3" FROM TOP OF CAP TO Ⓒ #4 'B'. TYP. FOR SEAT AREAS UNDER GIRDERS 2 AND 4.

Ⓓ 3'-0" MIN. PROJECTION ABOVE BRIDGE SEAT.

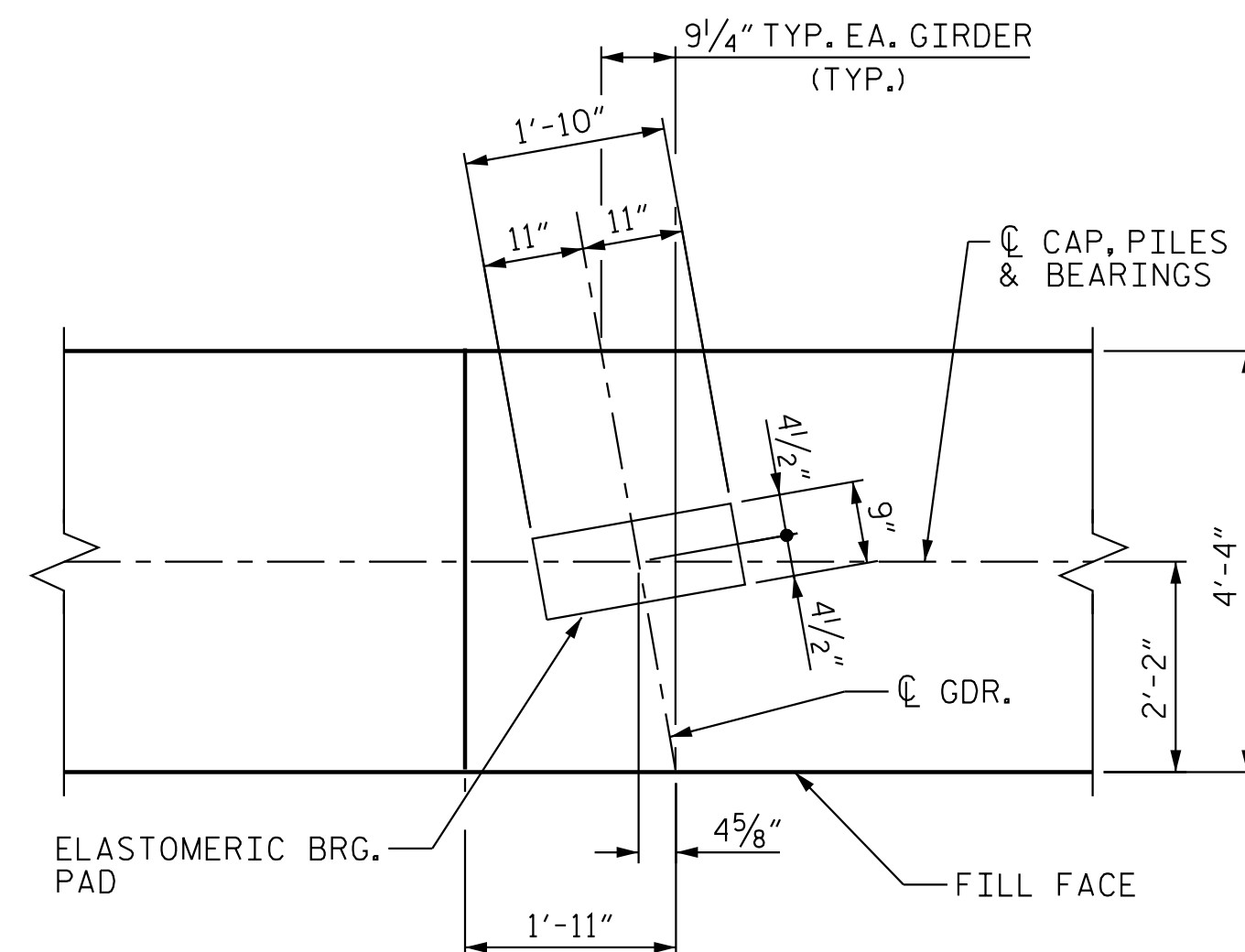
INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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

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

THE UPPER PART OF INTEGRAL PORTION AND WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE SUPERSTRUCTURE PLAN OF SPANS.

THE TOP SURFACE OF POUR #1 OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".



DETAIL A

DIMENSIONS TYPICAL
FOR EACH BEARING

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 23+28.17 -Y35-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1



Signed by:
Andrew L. Boykin 4/30/2025
74860684765420

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-27
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

SPLICE LENGTH

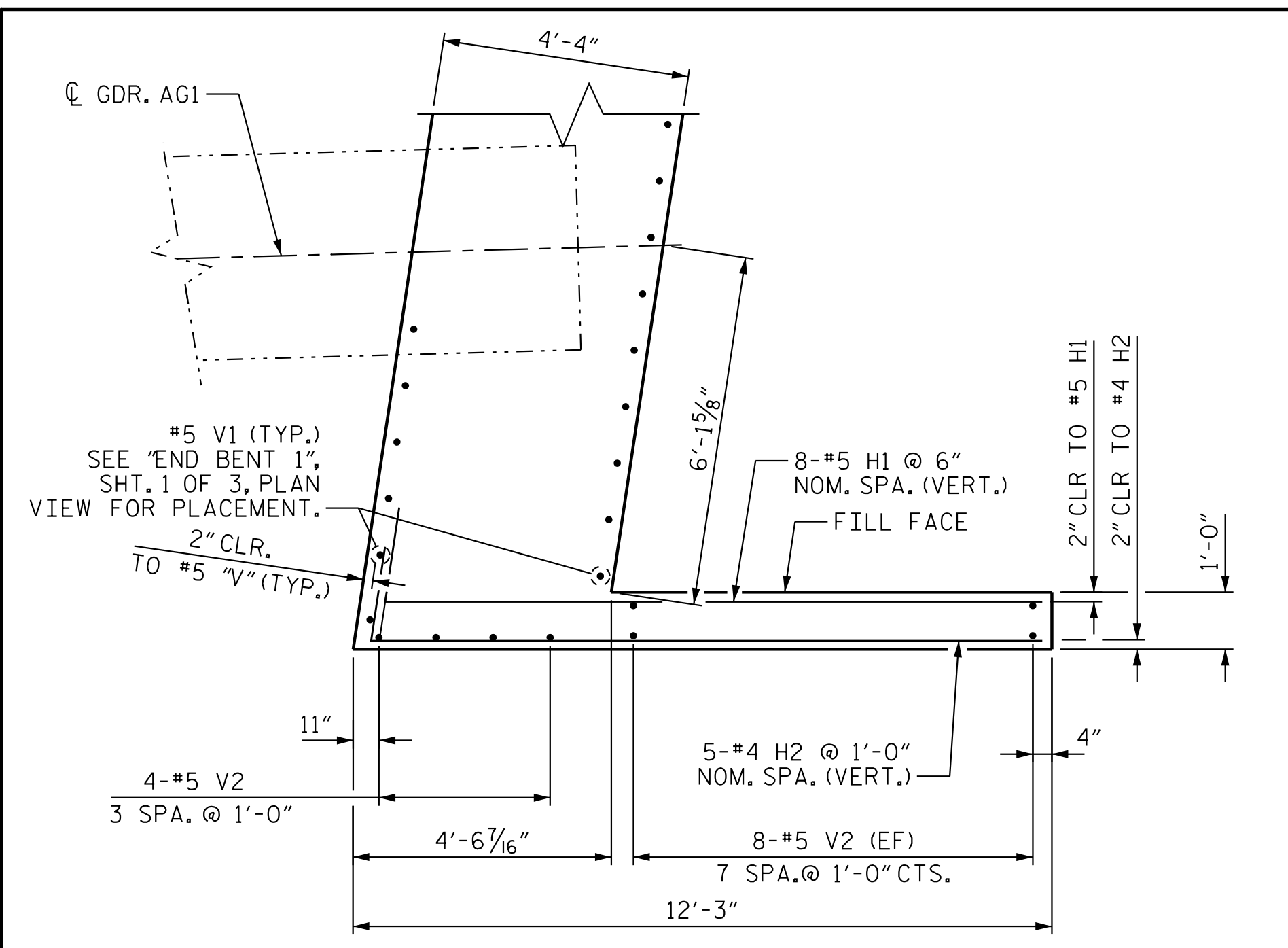
#4 B2	2'-5"
-------	-------



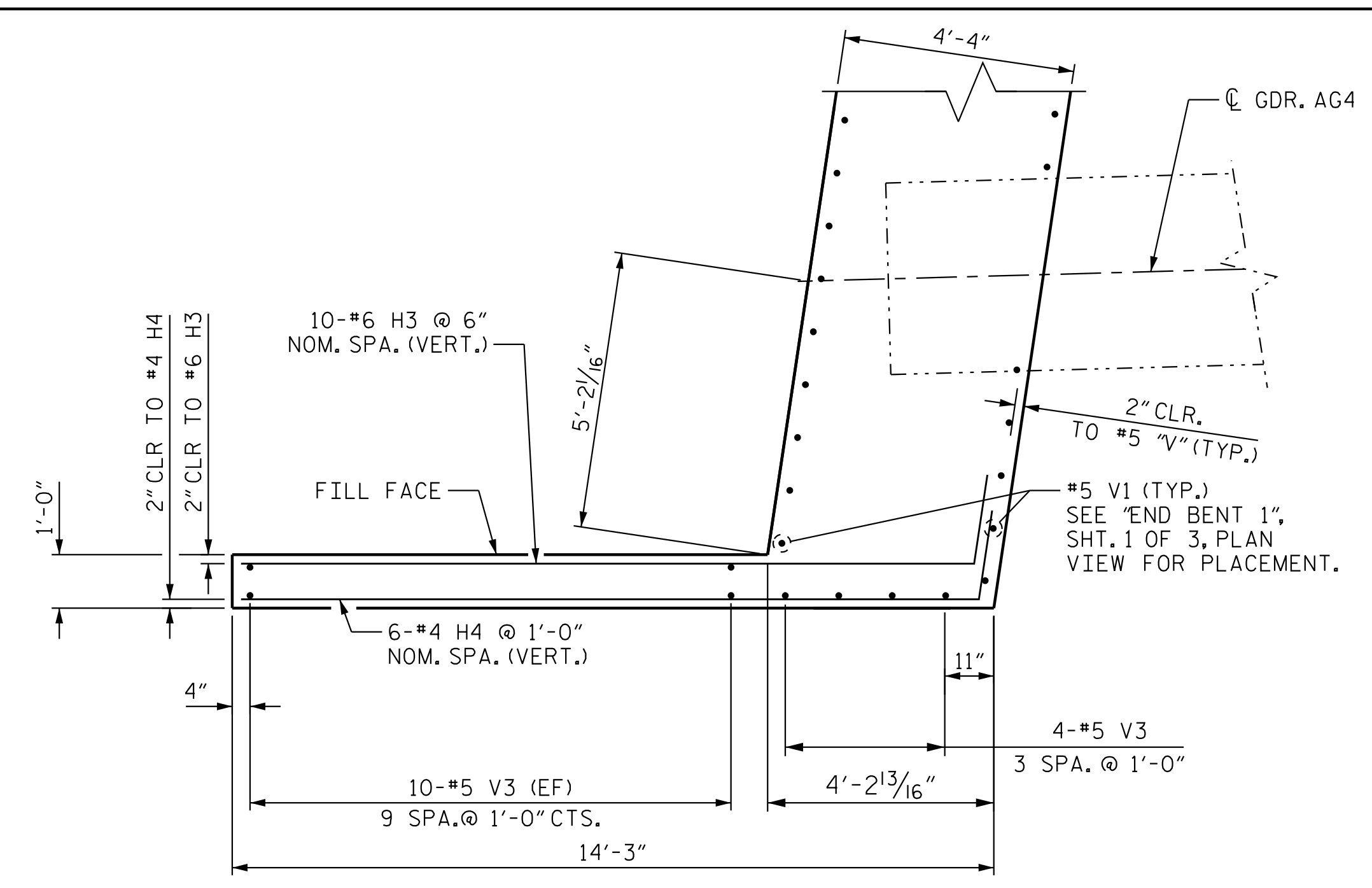
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

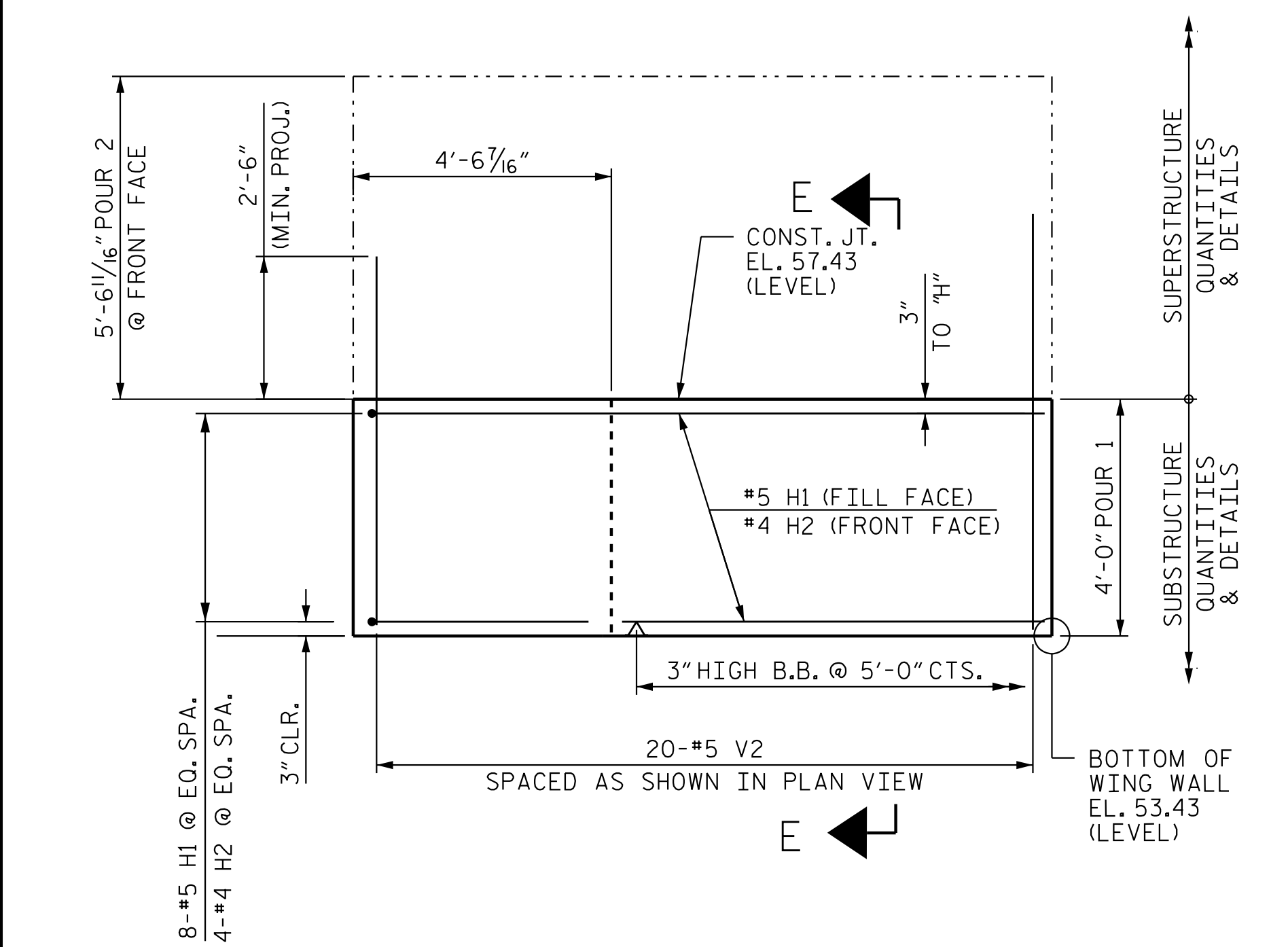
DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25



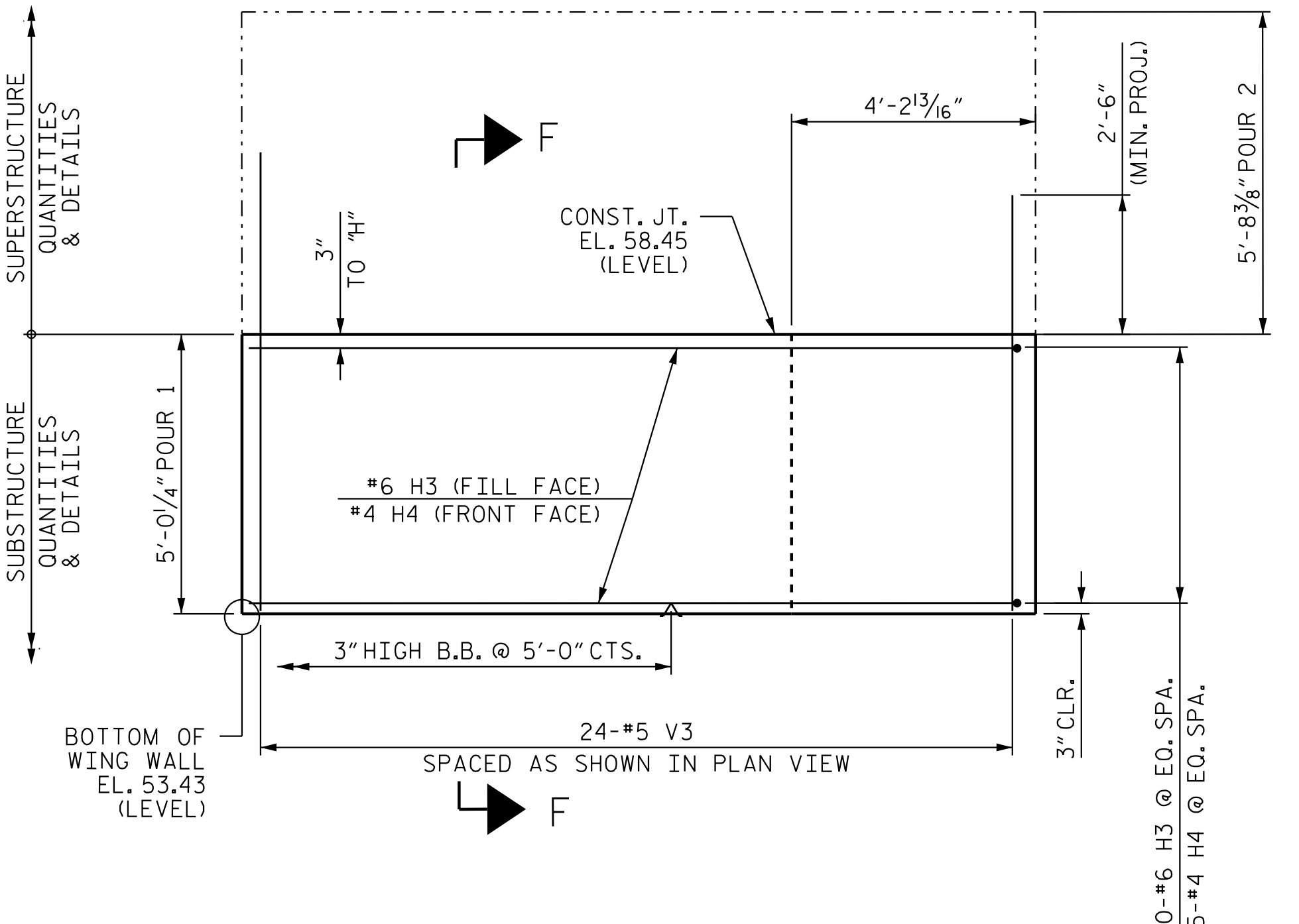
PLAN OF LEFT WING (W1)



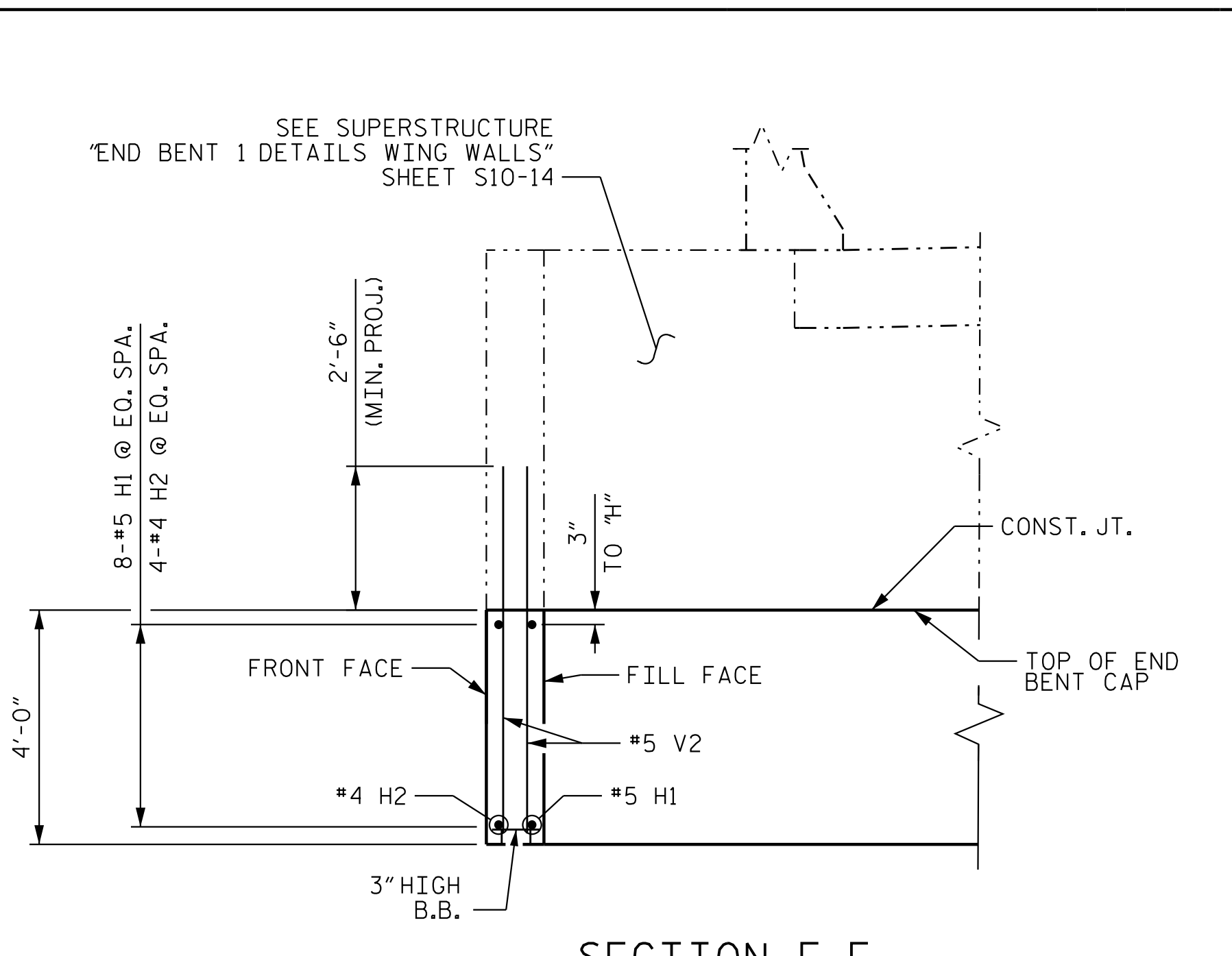
PLAN OF RIGHT WING (W2)



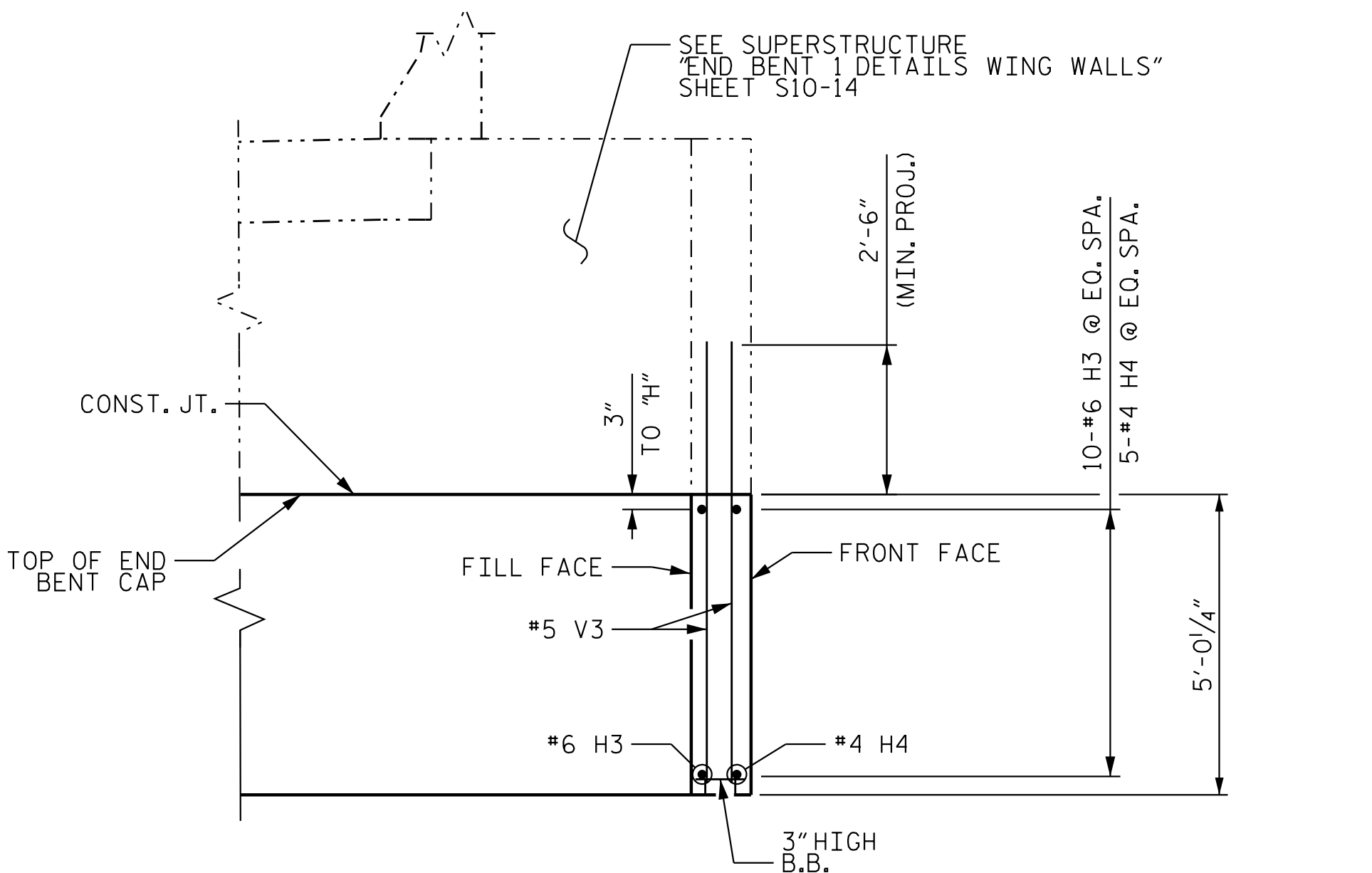
ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)



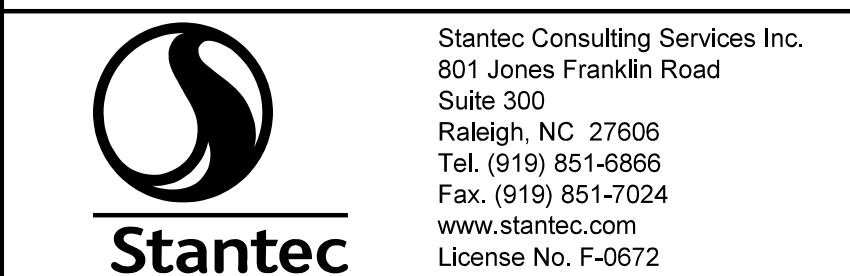
SECTION E-E



SECTION F-F

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

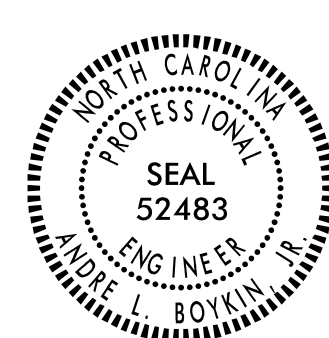
SHEET 2 OF 3



DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25
DESIGN ENGINEER OF RECORD : A. L. BOYKIN DATE : 04/22/25

WING DETAILS

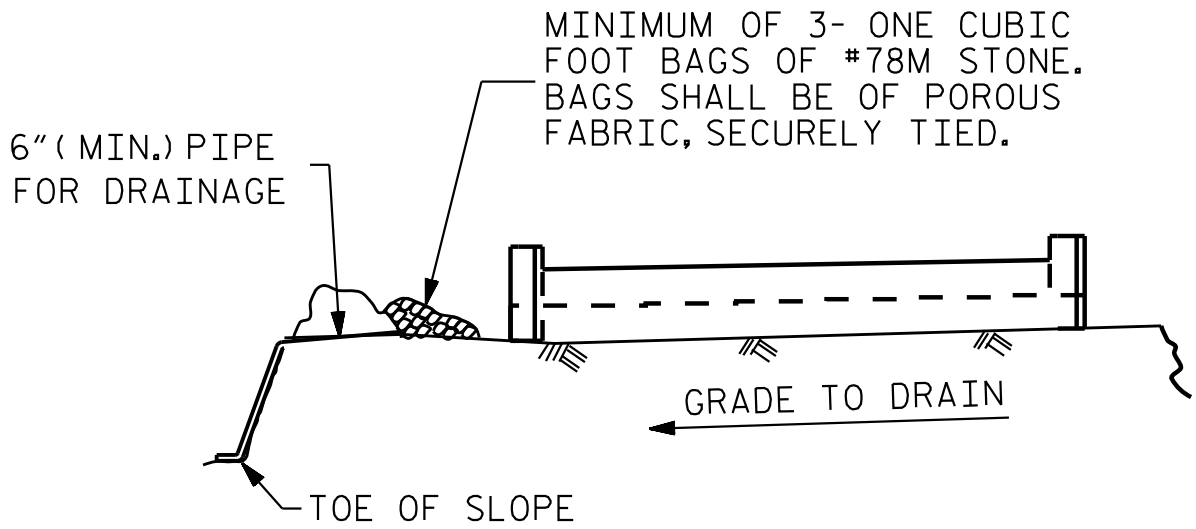
NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUBSTRUCTURE,
FOR SUPERSTRUCTURE QTY'S & DETAILS.
REFER TO SHEET S10-15.
(EF) DENOTES EACH FACE OF WING



Signed by:
Andre Boykin Jr. 4/22/2025
74800847ESS400

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

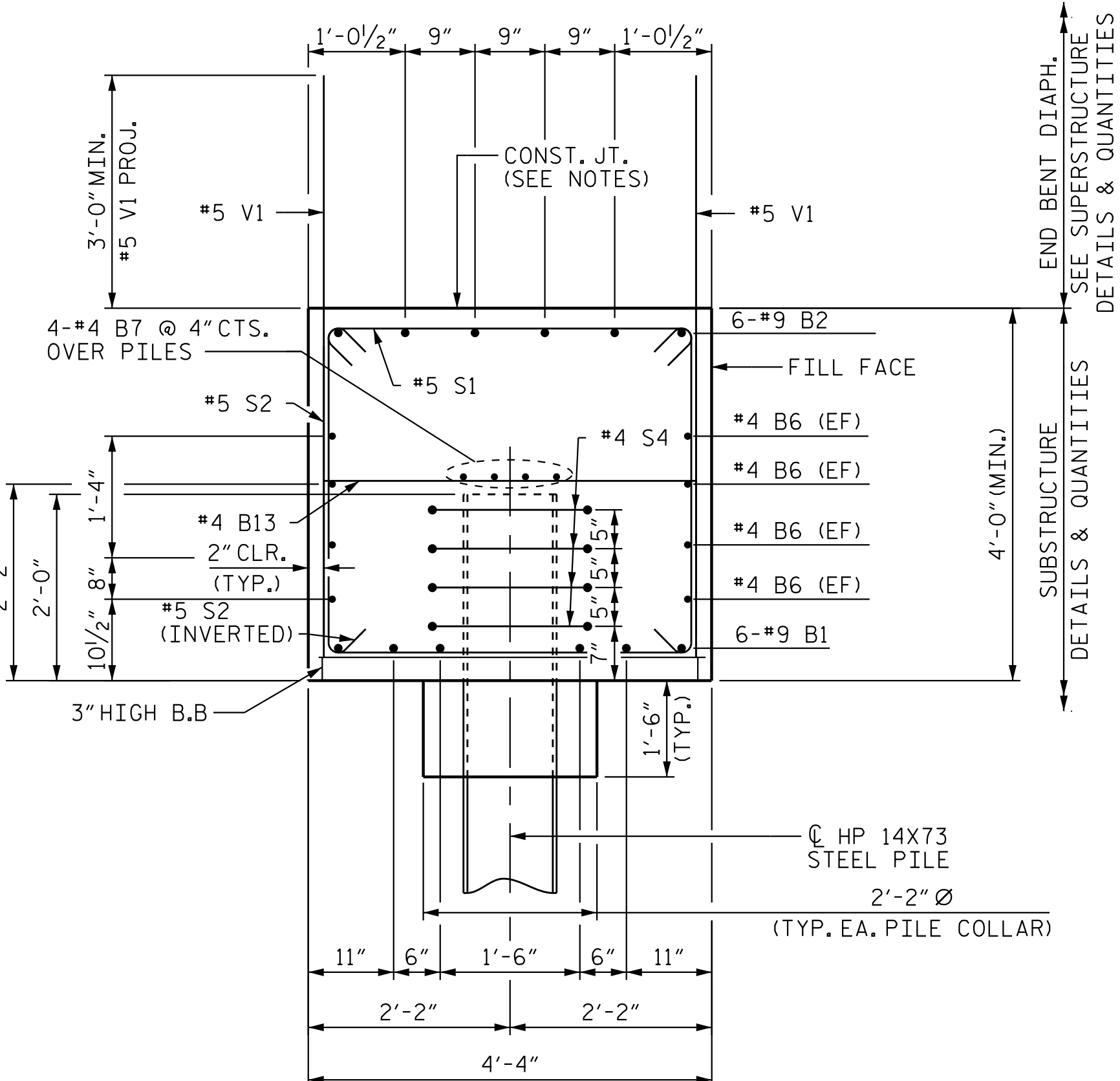


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

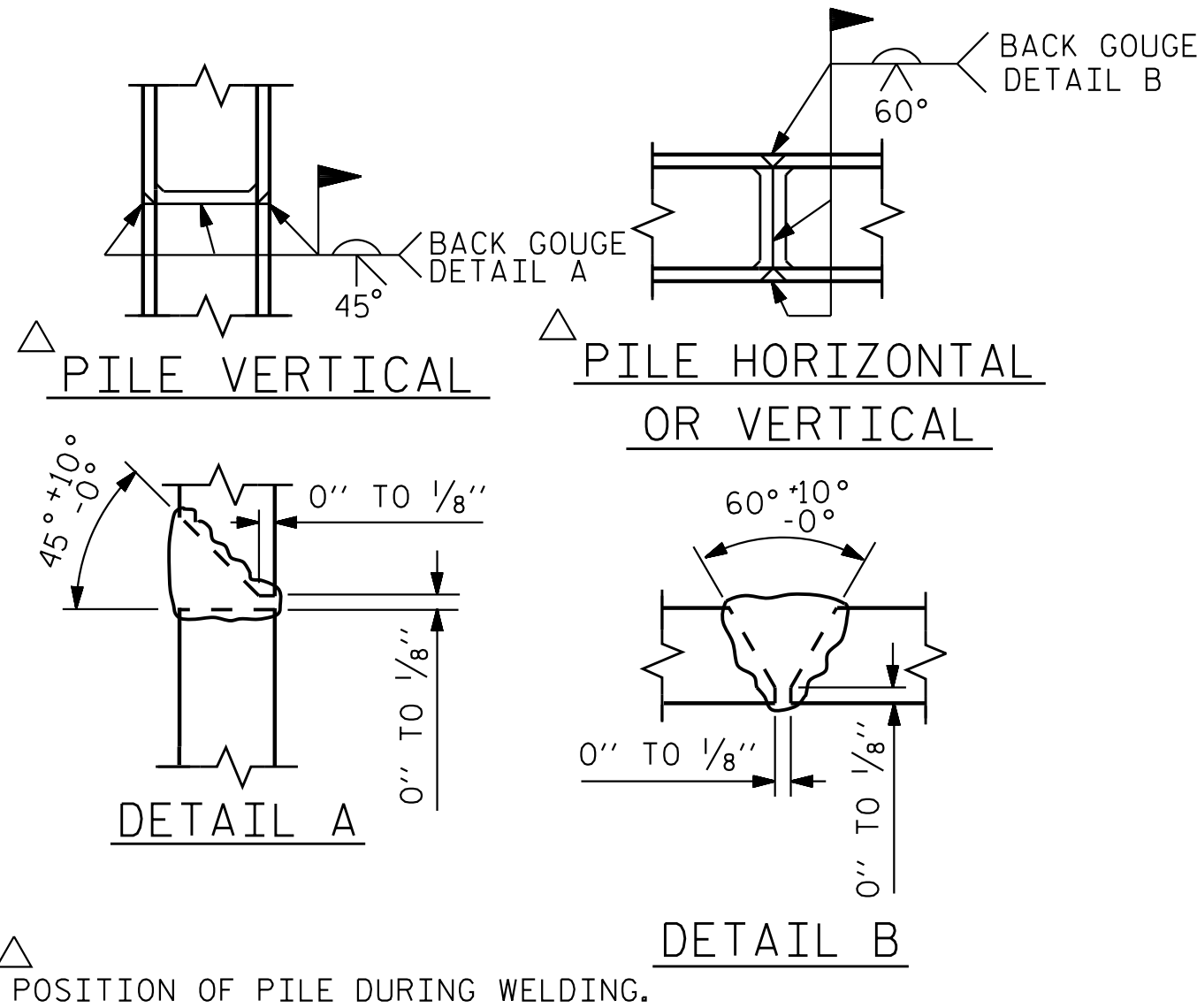
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

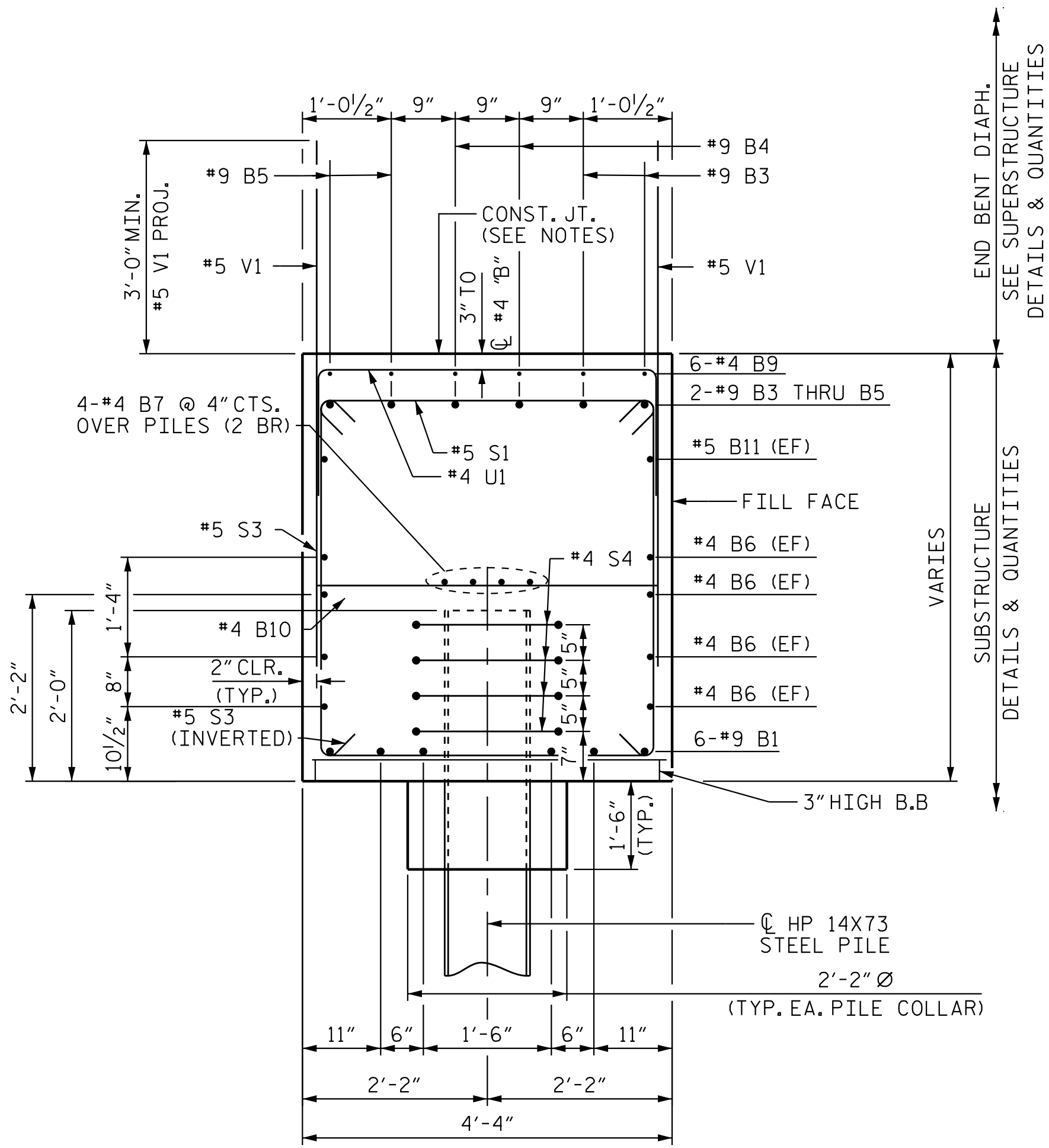


SECTION A-A

SEE "END BENT 1" SHEET 1 OF 3



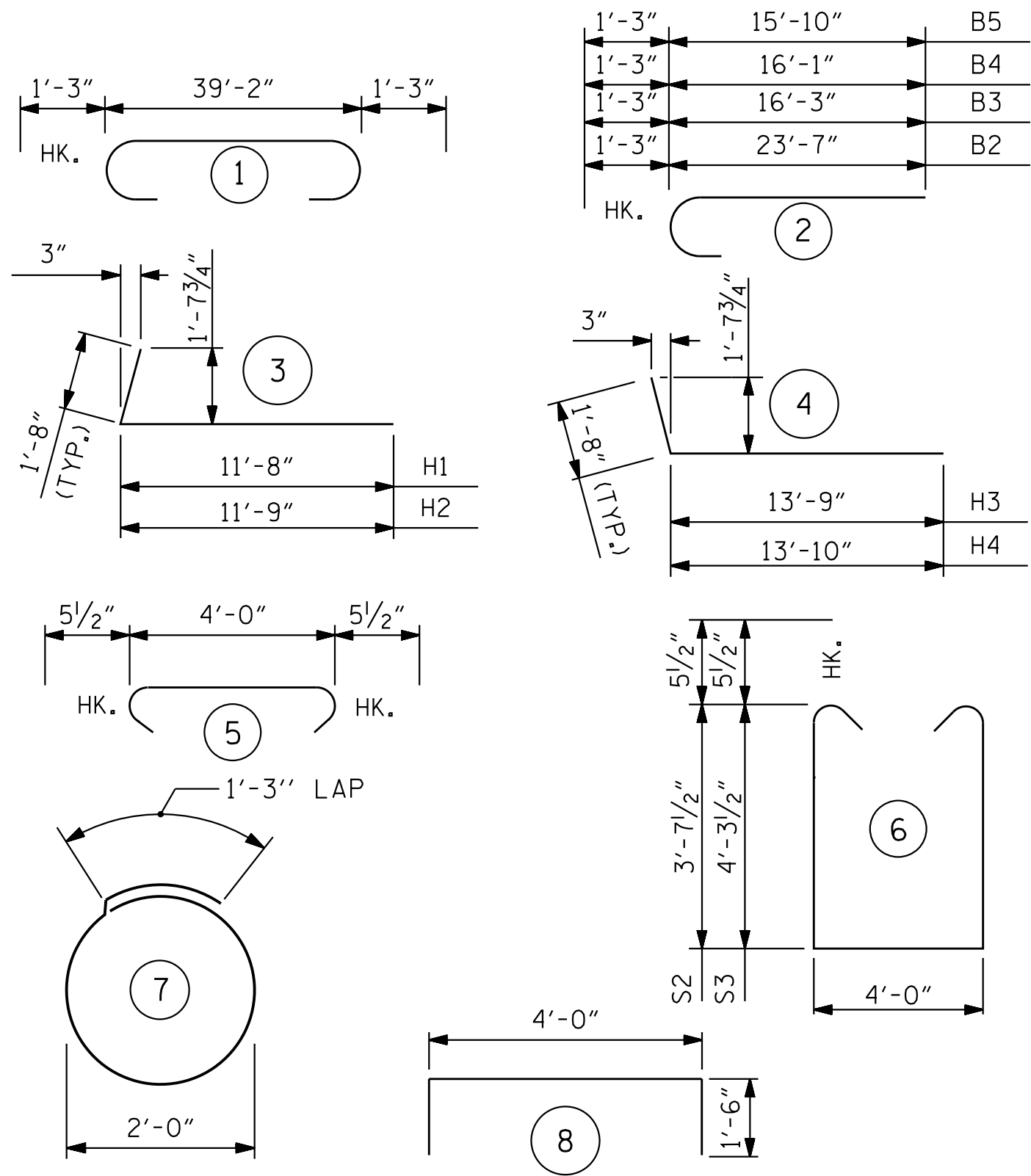
PILE SPLICE DETAILS



SECTION B-B

SEE "END BENT 1" SHEET 1 OF 3

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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.

(EF) DENOTES (EACH FACE)

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	41'-8"	850
B2	6	#9	2	28'-8"	585
B3	2	#9	2	17'-6"	119
B4	2	#9	2	17'-4"	118
B5	2	#9	2	17'-1"	116
B6	8	#4	STR	39'-2"	209
B7	4	#4	STR	38'-8"	103
B8	6	#4	STR	8'-10"	35
B9	6	#4	STR	7'-0"	28
B10	11	#4	STR	4'-0"	29
B11	2	#6	STR	14'-5"	43

H1	8	#5	3	13'-4"	111
H2	5	#4	3	13'-5"	45
H3	10	#6	4	15'-7"	234
H4	6	#4	4	15'-6"	62

S1	44	#5	5	4'-11"	226
S2	30	#5	6	12'-2"	381
S3	21	#5	6	13'-6"	296
S4	28	#4	7	7'-7"	142

U1	15	#4	8	7'-0"	70
----	----	----	---	-------	----

V1	70	#5	STR	7'-2"	523
V2	20	#5	STR	6'-4"	132
V3	24	#5	STR	7'-5"	186

REINFORCING STEEL LBS. 4,643

CLASS A CONCRETE BREAKDOWN:
POUR #1: CAP, COLLARS, ETC. C.Y. 32.4

CLASS A CONCRETE TOTAL C.Y. 32.8

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 23+28.17 -Y35-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

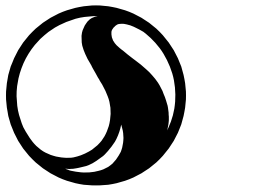
END BENT 1 DETAILS



Signed by: Andrew Boykin Jr. 4/22/2025
748600847E554D0...

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

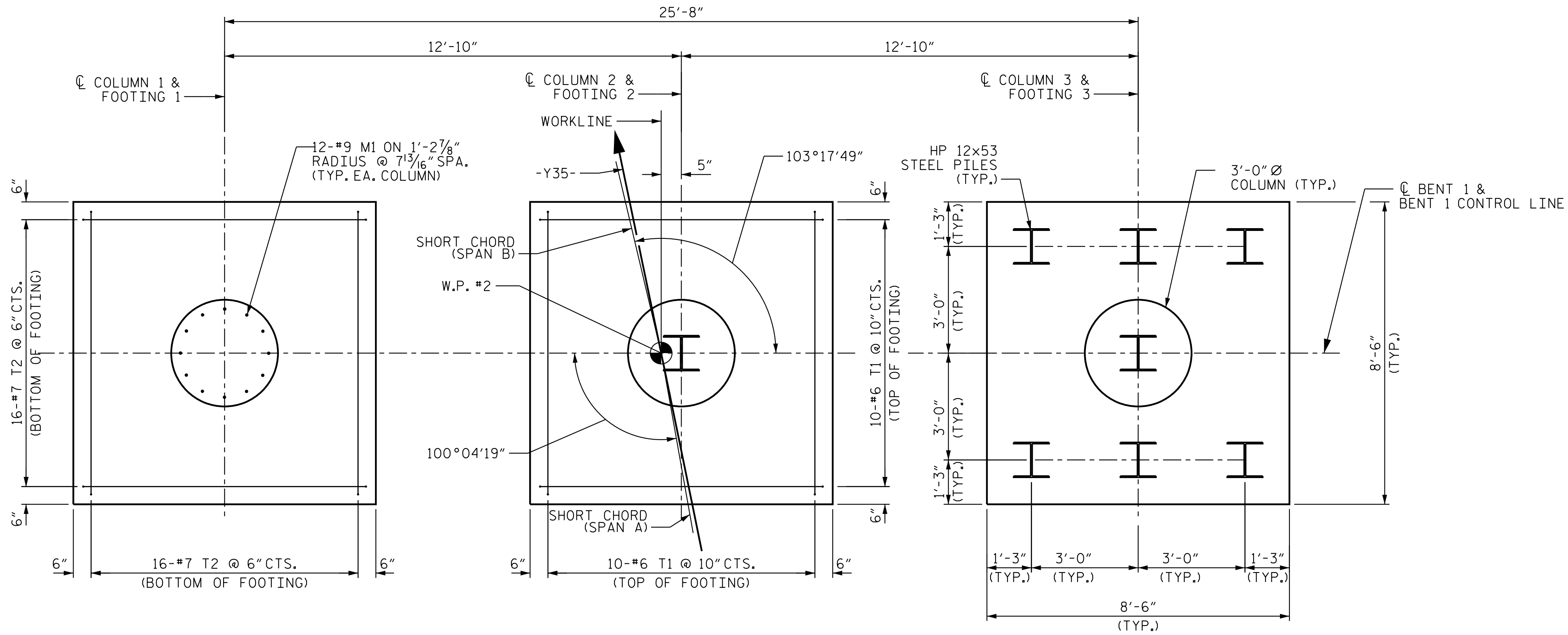
DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25
DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25

REVISONS						SHEET NO. S10-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

4/22/2025 5:27:45 PM jhagenbush
U:\Structures\B10 -Y35-Dr-offing\Final\R3300A.SMU.B102_700B10.dgn

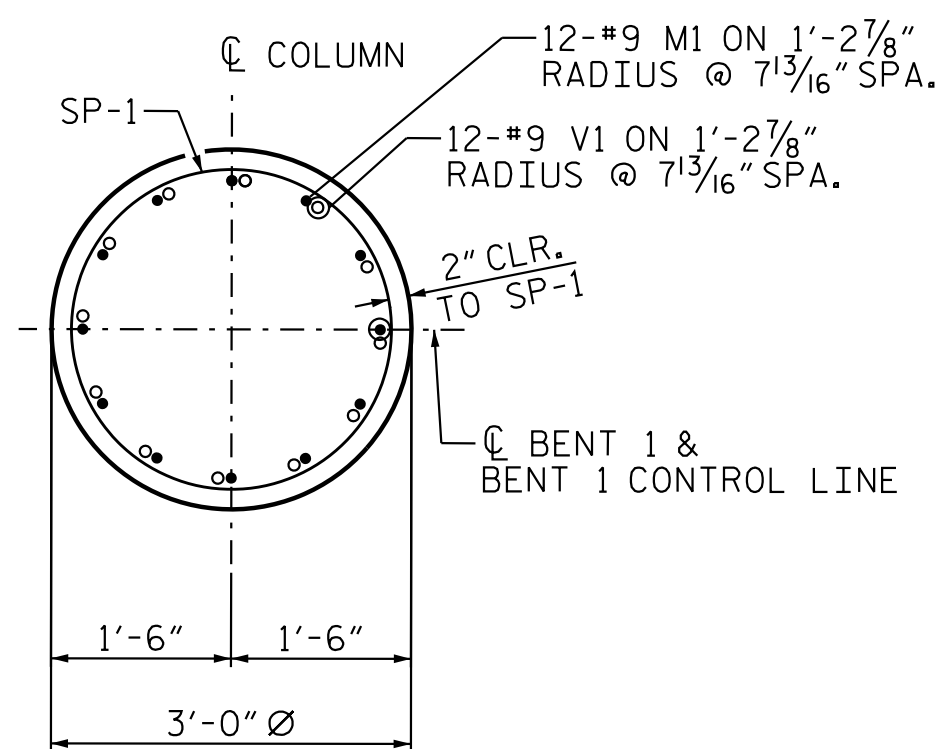
SPAN B

SPAN A

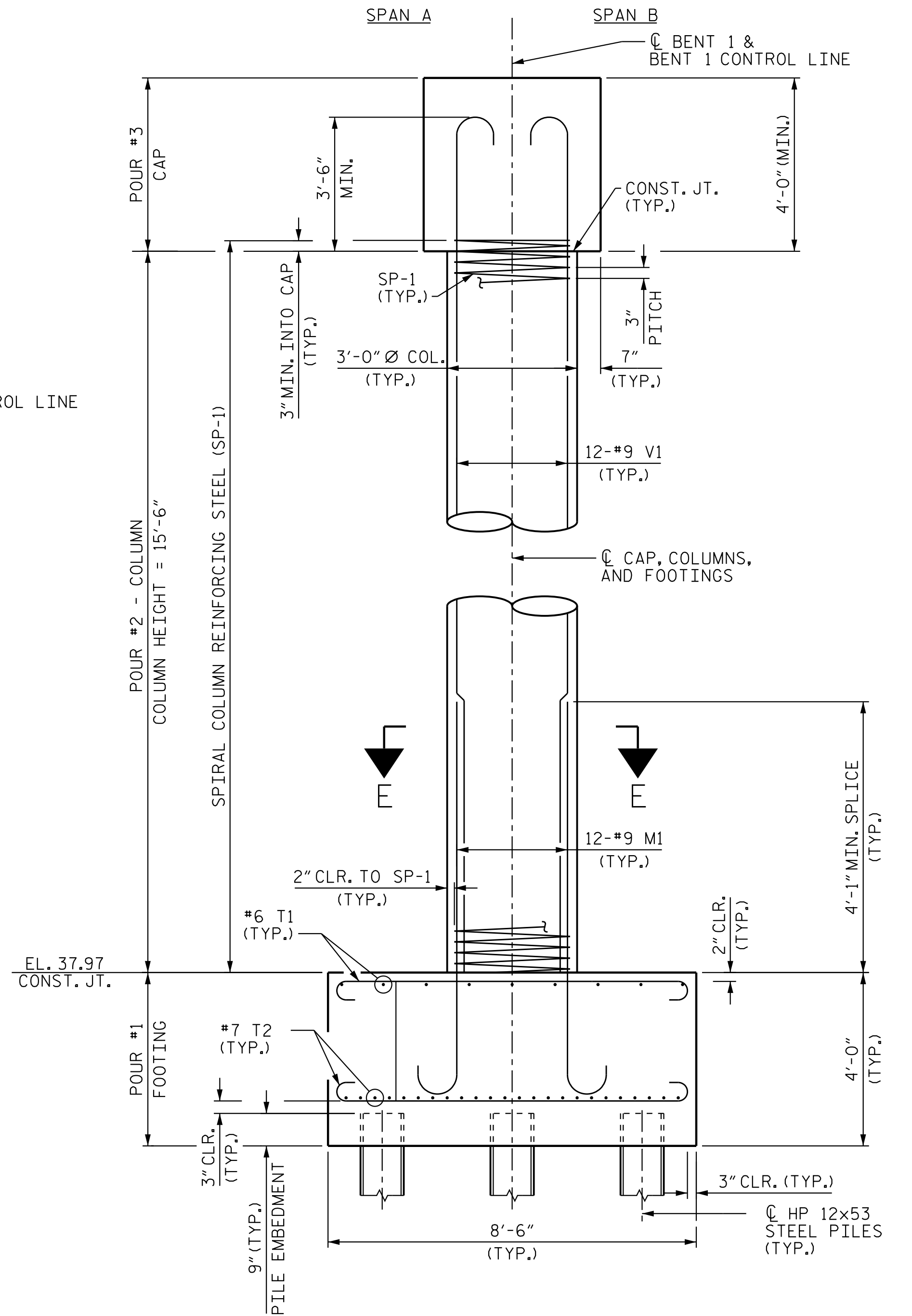


PLAN OF FOOTINGS

ALL DIMENSIONS AND DETAILS SHOWN FOR FOOTINGS ARE TYPICAL FOR EACH FOOTING UNLESS NOTED OTHERWISE.



SECTION E-E



END ELEVATION

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 2 OF 3



Signed by: Andre L. Boykin Jr. 4/22/2025
748609847555420

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10- 31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25
DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25



DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE: 04/22/25

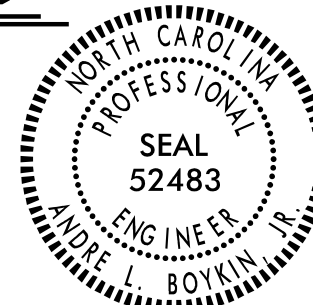


The diagrams illustrate the required back gouge details for pile welding in two orientations:

- PILE VERTICAL:** Shows a cross-section of a pile with a 45° back gouge. The detail is labeled "BACK GOUGE DETAIL A".
- PILE HORIZONTAL OR VERTICAL:** Shows a cross-section of a pile with a 60° back gouge. The detail is labeled "BACK GOUGE DETAIL B".

Both diagrams include dimensions for the back gouge angle (45° and 60°) and the distance from the pile surface to the back gouge (0" to 1/8").

PILE SPLICE DETAILS



Signed by: Andre Boykin Jr. 4/22/2025
74B606847E554D0...

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	23'-10"	615
B2	6	#10	1	15'-1"	389
B3	6	#10	2	34'-2"	882
B4	10	#5	STR	31'-4"	327
B5	2	#6	STR	9'-1"	27
B6	6	#4	STR	8'-9"	35
B7	6	#4	STR	4'-11"	20
B8	2	#6	STR	3'-10"	5
M1	36	#9	1	8'-2"	1000
S1	50	#5	3	10'-8"	556
S2	38	#5	3	12'-1"	479
T1	60	#6	2	9'-4"	841
T2	96	#7	2	9'-8"	1,897
U1	37	#4	4	6'-10"	169
U2	9	#4	4	5'-8"	34
U3	4	#4	4	5'-6"	15
U4	4	#4	4	6'-7"	18
V1	36	#9	1	20'-3"	2,479
REINFORCING STEEL				LBS.	9,788
SP-1	3	**	5	552'-10"	1,091
SPIRAL COLUMN REINFORCING STEEL				LBS.	1,091
CLASS A CONCRETE BREAKDOWN					
POUR #1 FOOTINGS				C. Y.	32.1
POUR #2 COLUMNS				C. Y.	12.1
POUR #3 CAP				C. Y.	22.0
TOTAL CLASS A CONC.				C. Y.	66.2

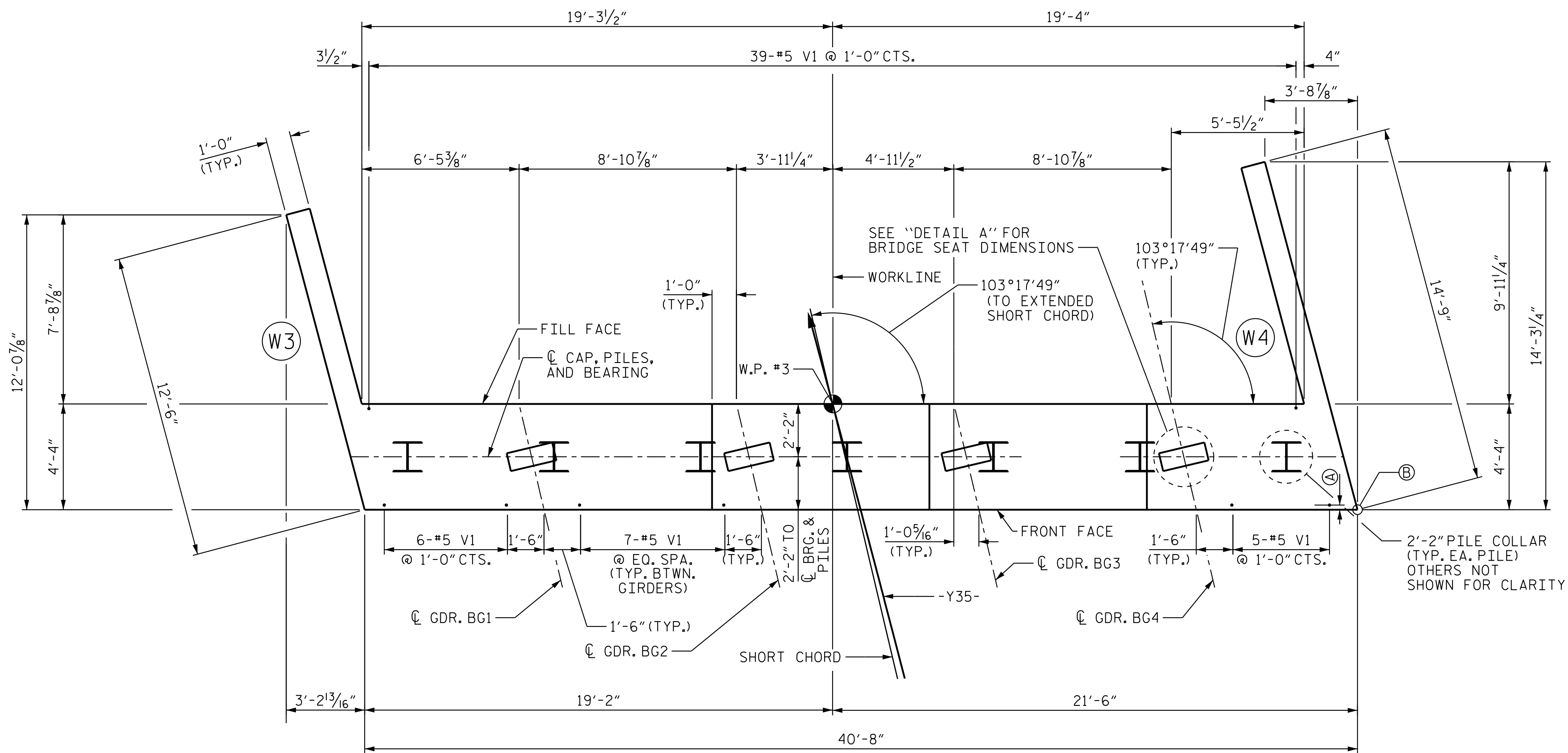
PROJECT NO. R-3300A
 PENDER COUNTY
 STATION: 23+28.17 -Y35-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

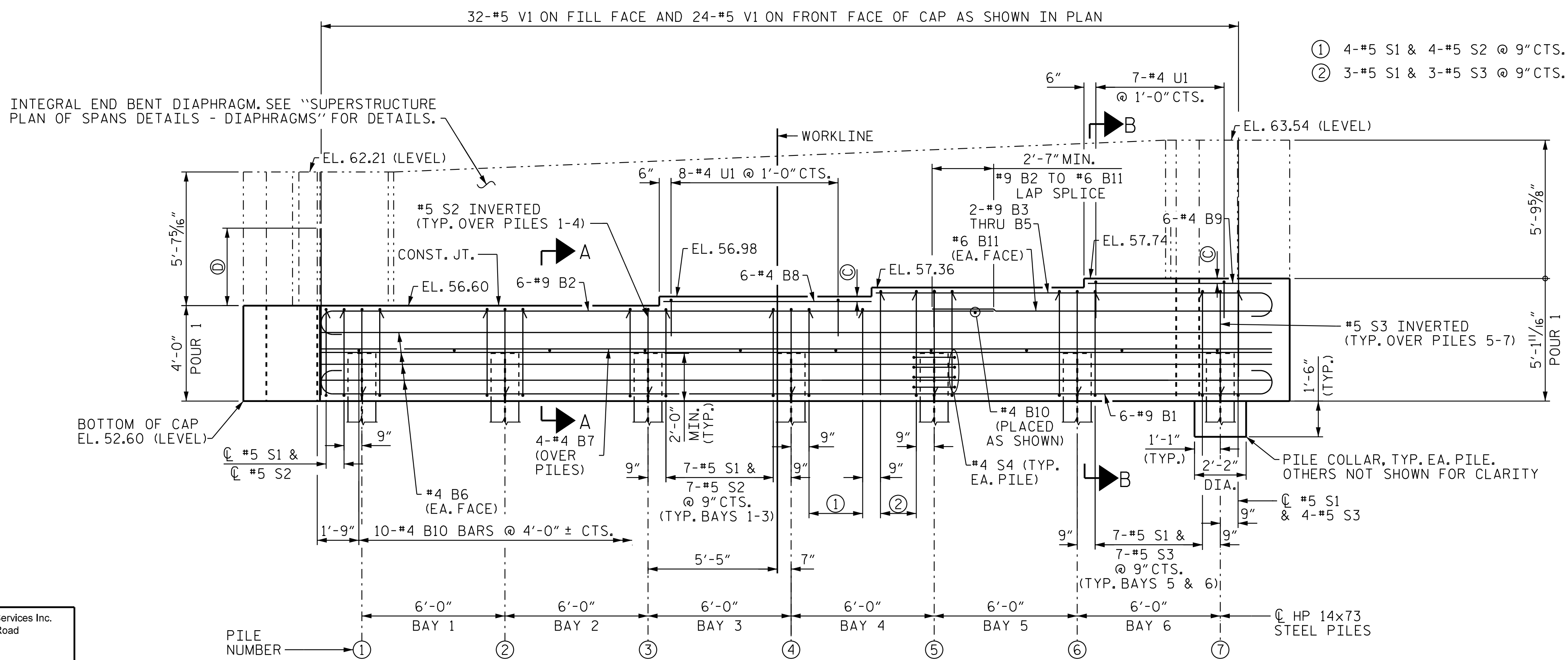
BENT 1 DETAILS

REVISIONS						SHEET NO. S10-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



PLAN

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



ELEVATION

NOTES

- (2 BR) DENOTES 2 BAR RUN.
- FOR SECTION A-A AND B-B, SEE SHEET 3 OF 3.
- Ⓐ 2" CLR. TO ALL V1 BARS.
- Ⓑ BOTTOM OF CAP ELEV. TAKEN @ THIS POINT.
- Ⓒ 3" FROM TOP OF CAP TO Ⓔ #4 "B" TYP. FOR SEATS 2 & 4.
- Ⓓ 3'-0" MIN. #5 V1 PROJECTION ABOVE BRIDGE SEAT.

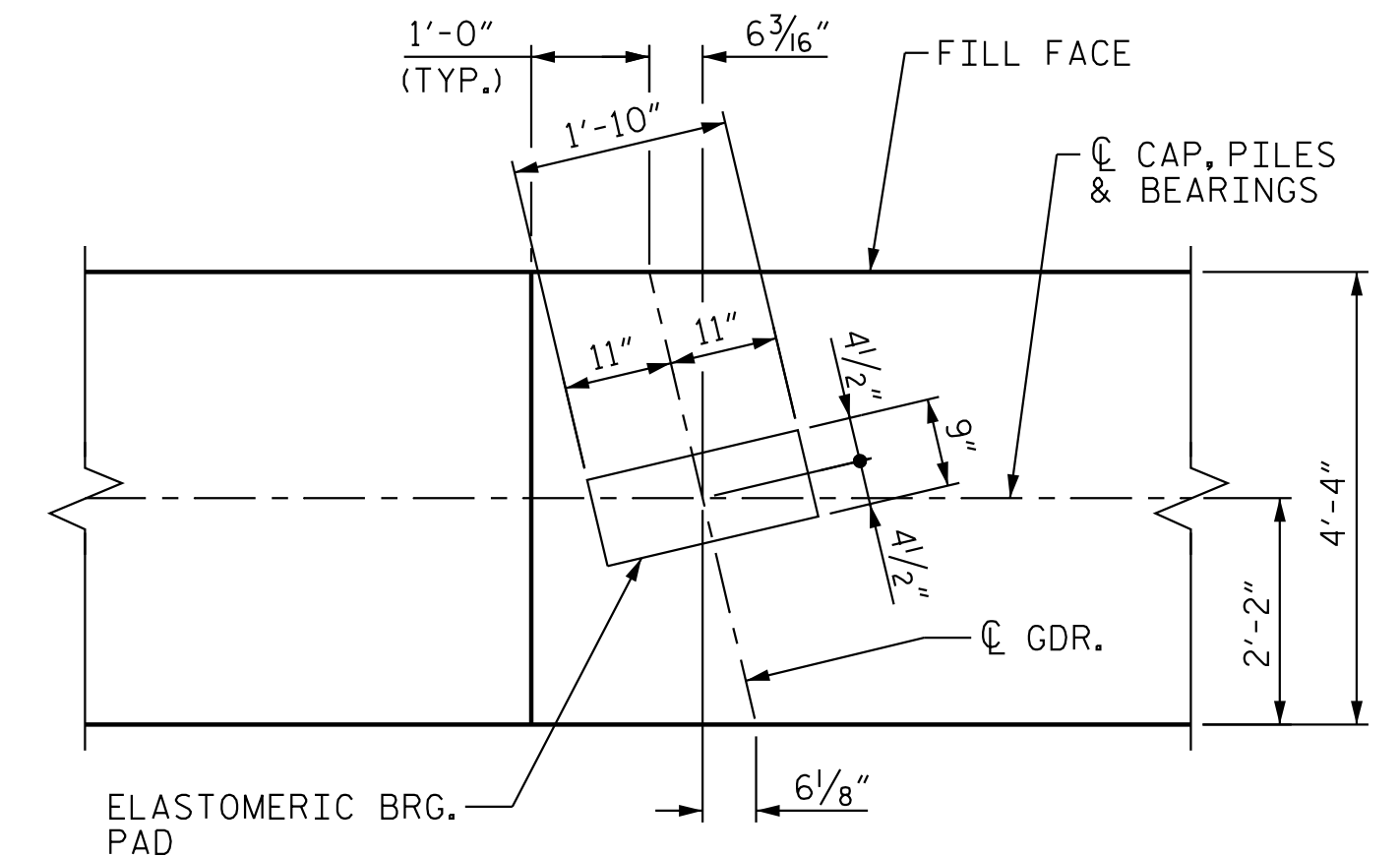
INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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

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

THE UPPER PART OF INTEGRAL PORTION AND WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE SUPERSTRUCTURE PLAN OF SPANS.

THE TOP SURFACE OF POUR #1 OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".



DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
P1-P7	54.60

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 1 OF 3



Signed by: Andrew L. Boykin 4/30/2025
74860864765420

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

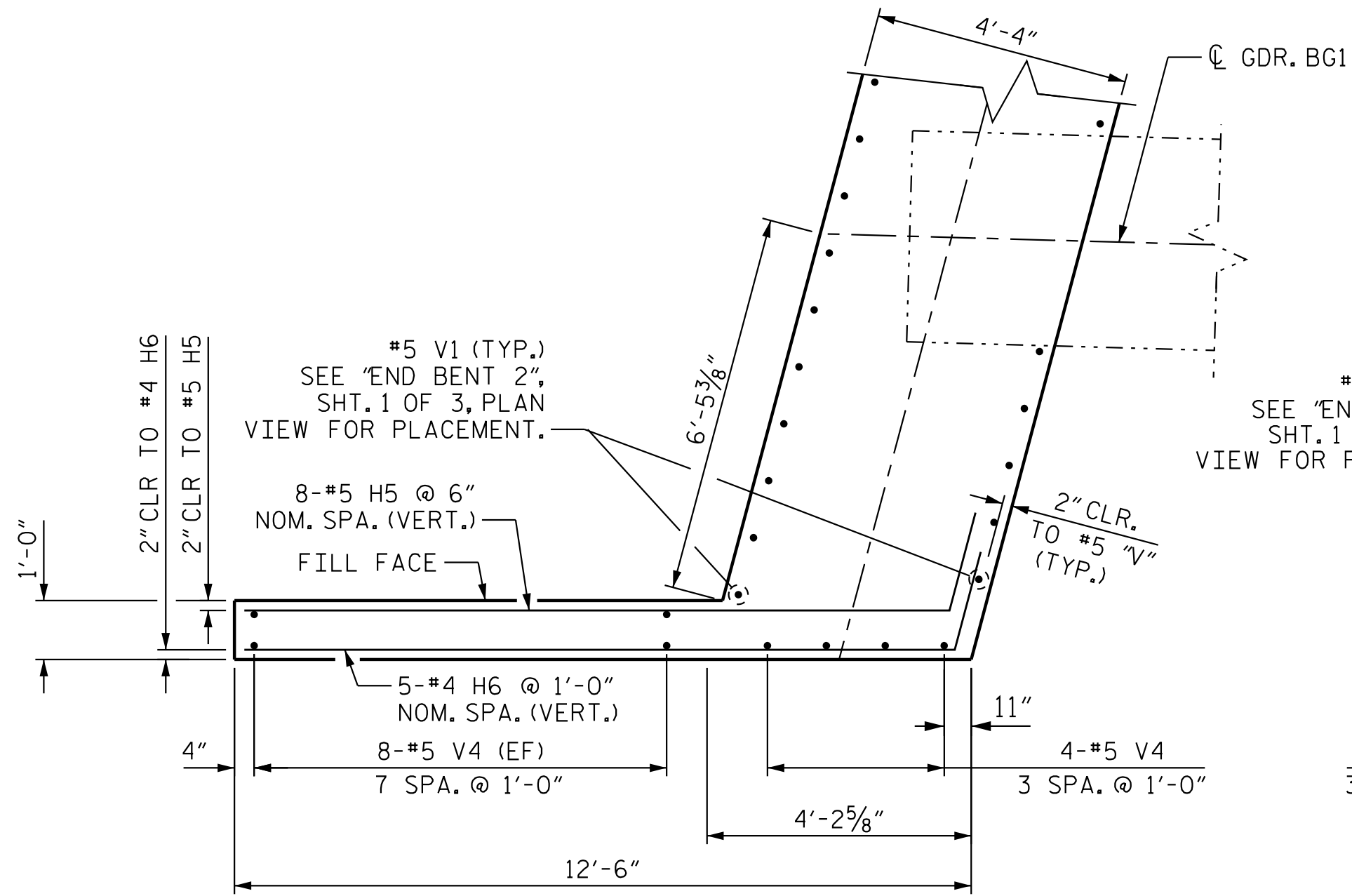
STATE OF NORTH CAROLINA						SHEET NO. S10-33
DEPARTMENT OF TRANSPORTATION						
RALEIGH						
SUBSTRUCTURE						TOTAL SHEETS 38
END BENT 2						
REVISIONS						TOTAL SHEETS 38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



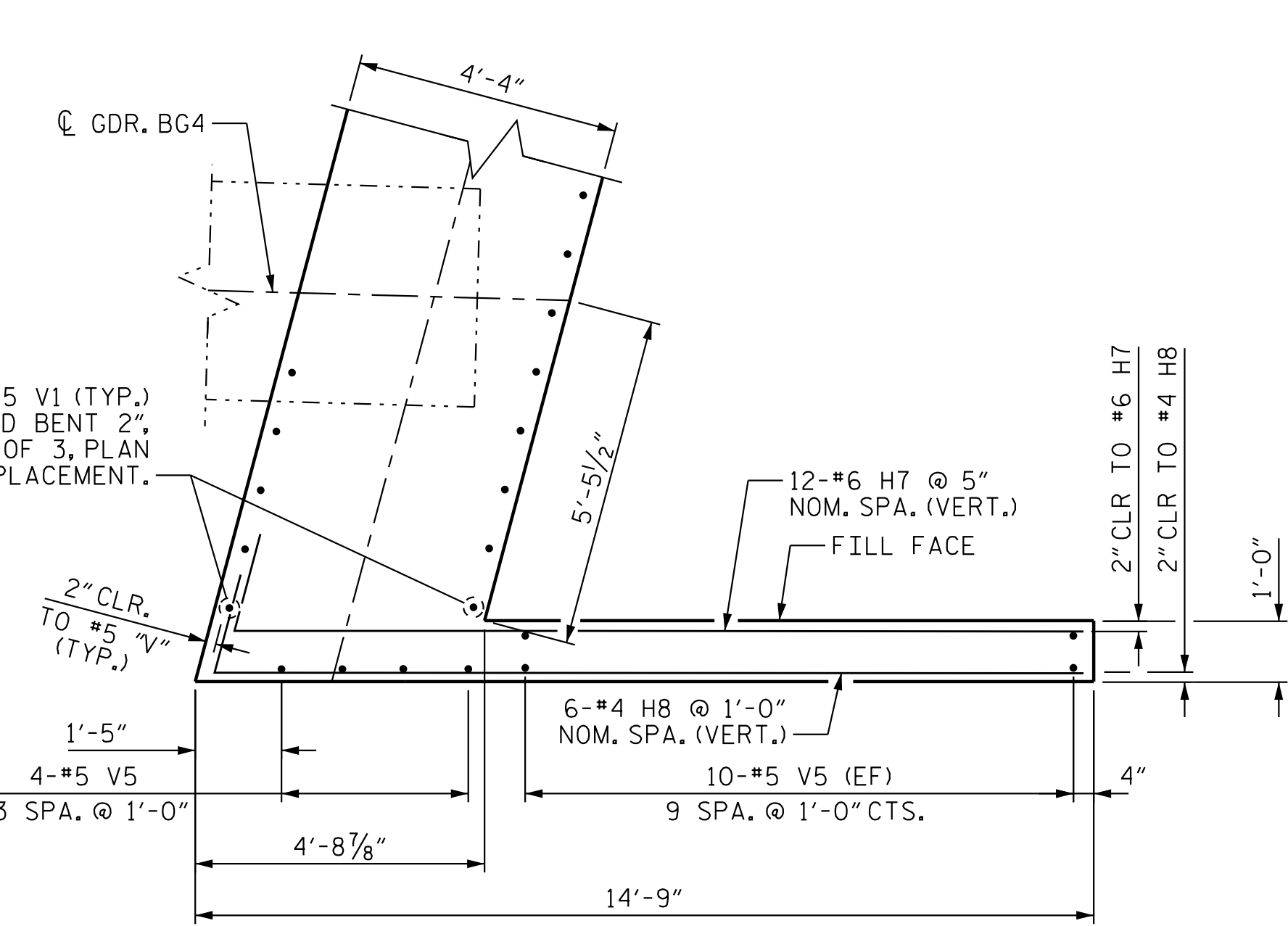
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

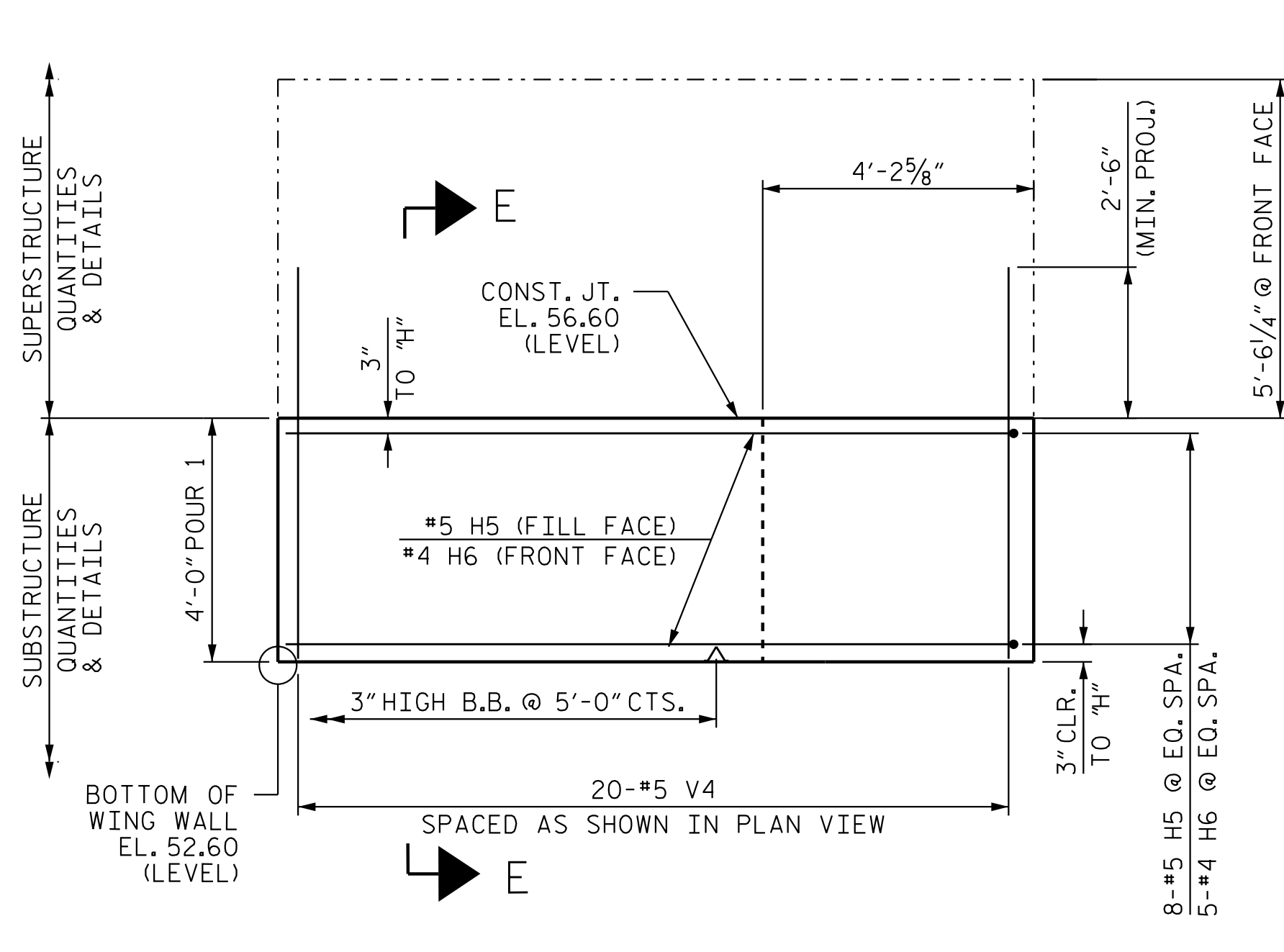
DESIGN
ENGINEER
OF RECORD: A. L. BOYKIN DATE : 04/22/25



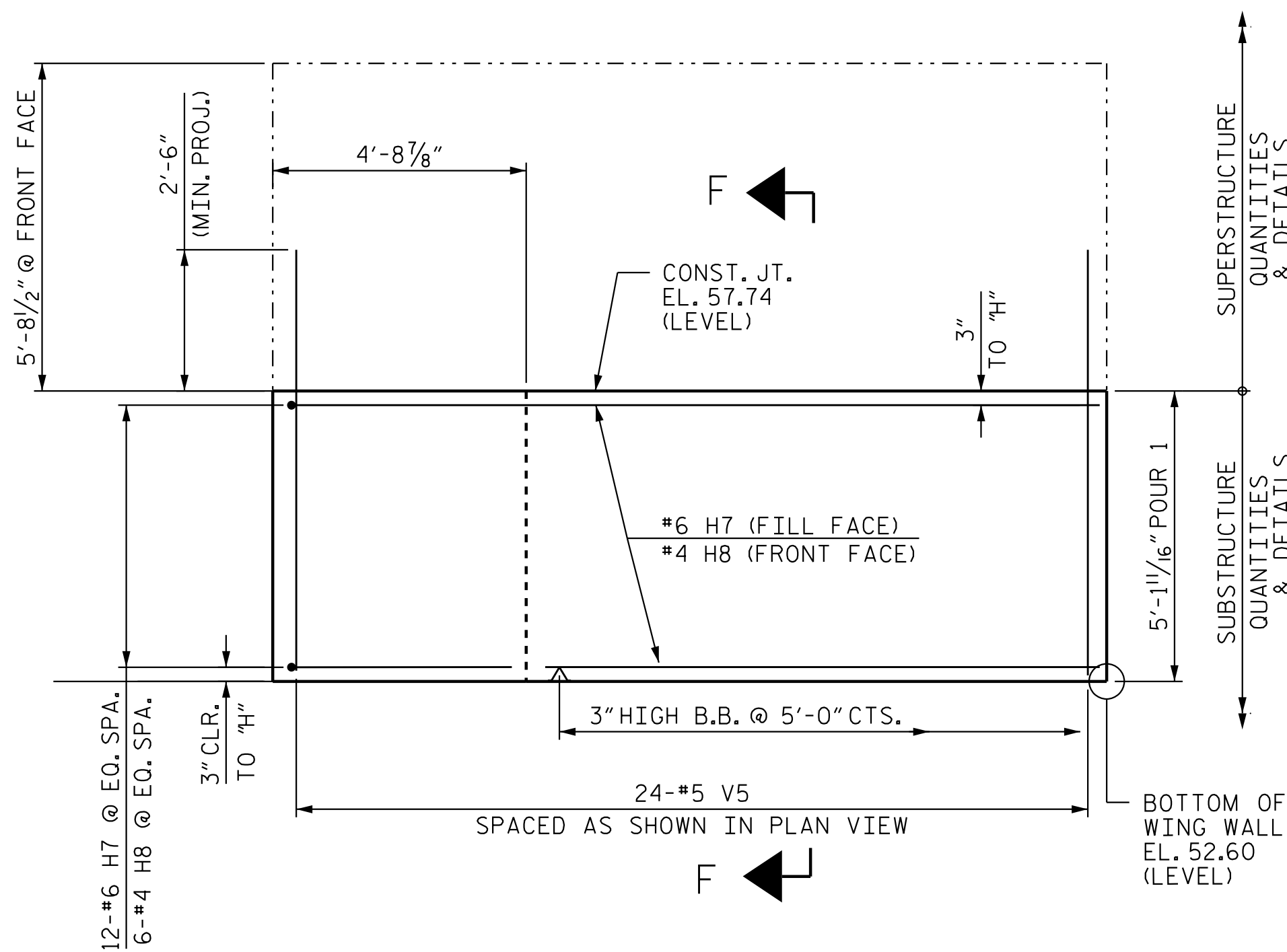
PLAN OF LEFT WING (W3)



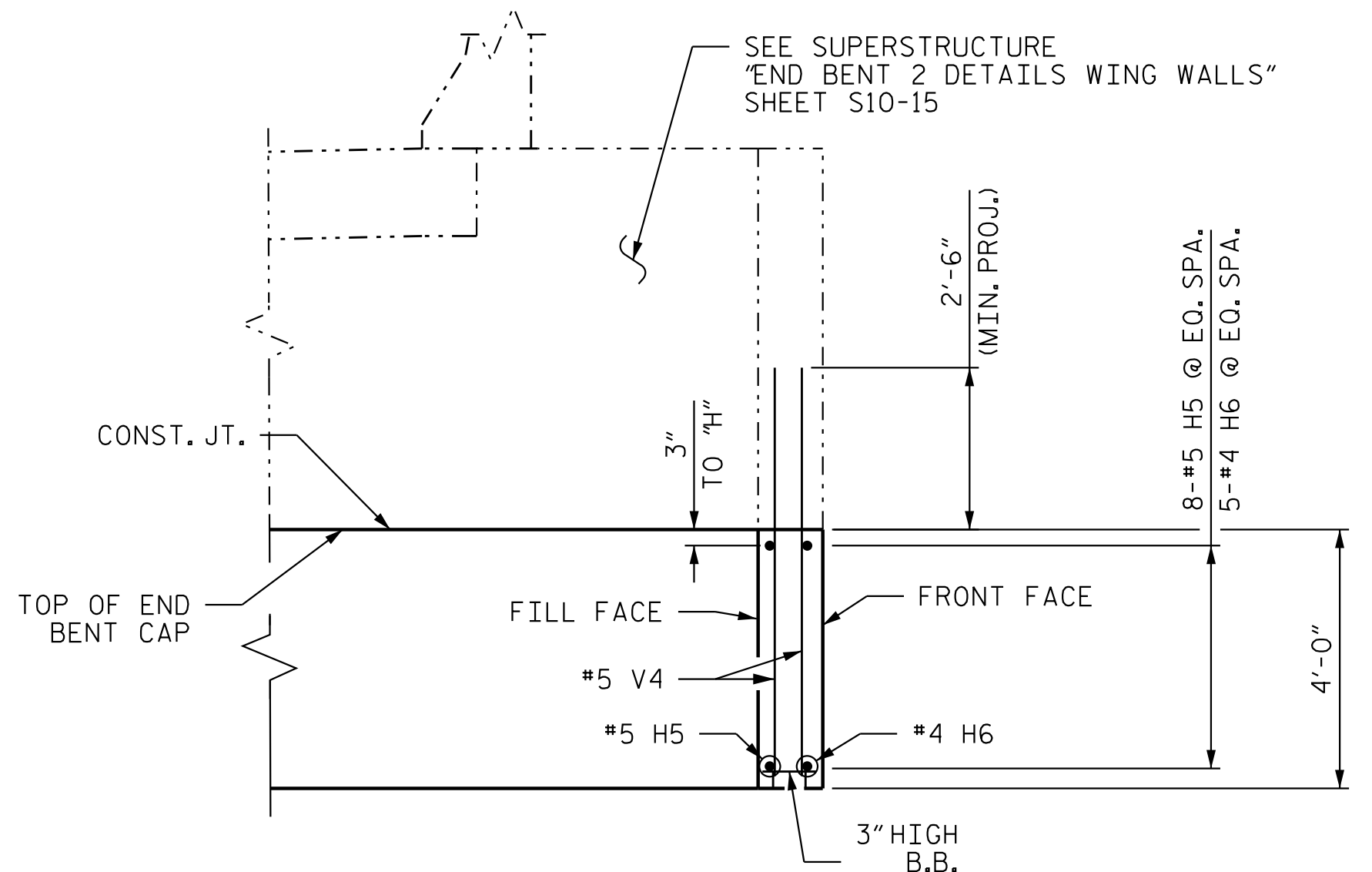
PLAN OF RIGHT WING (W4)



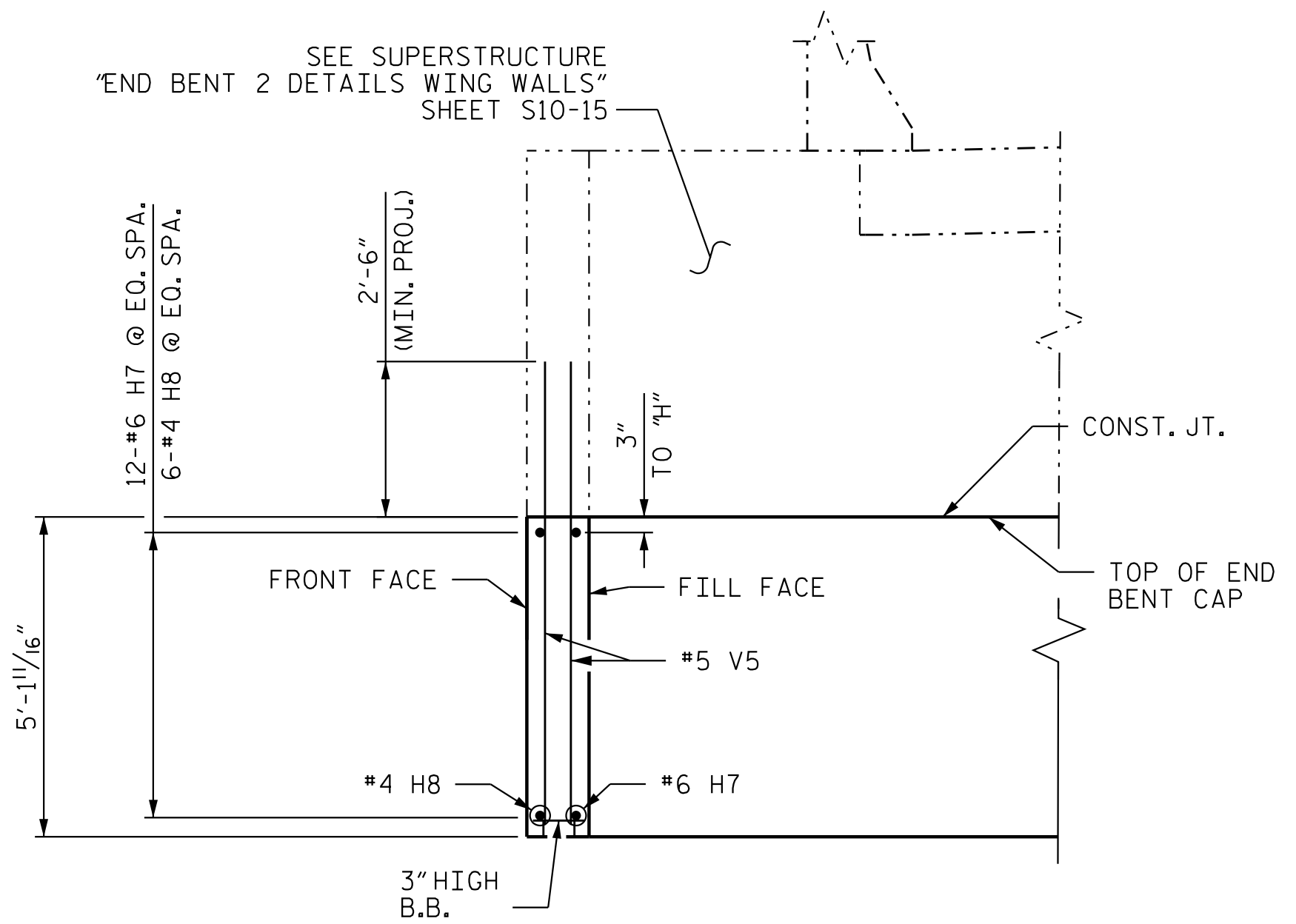
ELEVATION AT LEFT WING (W3)



ELEVATION AT RIGHT WING (W4)



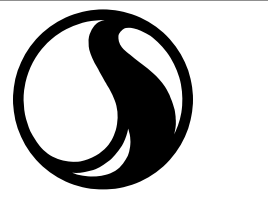
SECTION E-E



SECTION F-F

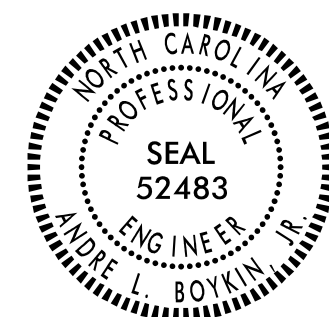
WING DETAILS

NOTE:
THIS SHEET PROVIDES DETAILS
RELEVANT FOR SUBSTRUCTURE,
FOR SUPERSTRUCTURE QTY'S & DETAILS.
REFER TO SHEET S10-15.
(EF) DENOTES EACH FACE OF WING



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25
DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25



Signed by: Andre Boykin
748000847504301
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

5/5/2025

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2 DETAILS
WING WALLS

REVISIONS						SHEET NO. S10-34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

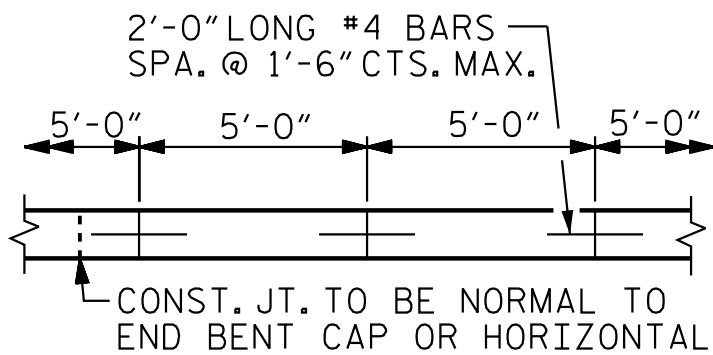
GENERAL NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

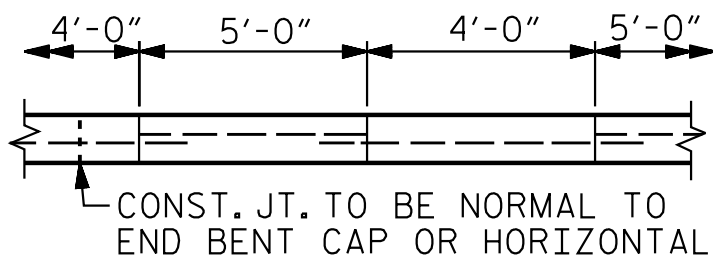
BRIDGE @ STA. 23+28.17 -Y35-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	411	740
END BENT 2	414	745

* QUANTITY SHOWN IS BASED ON 5' POURS.



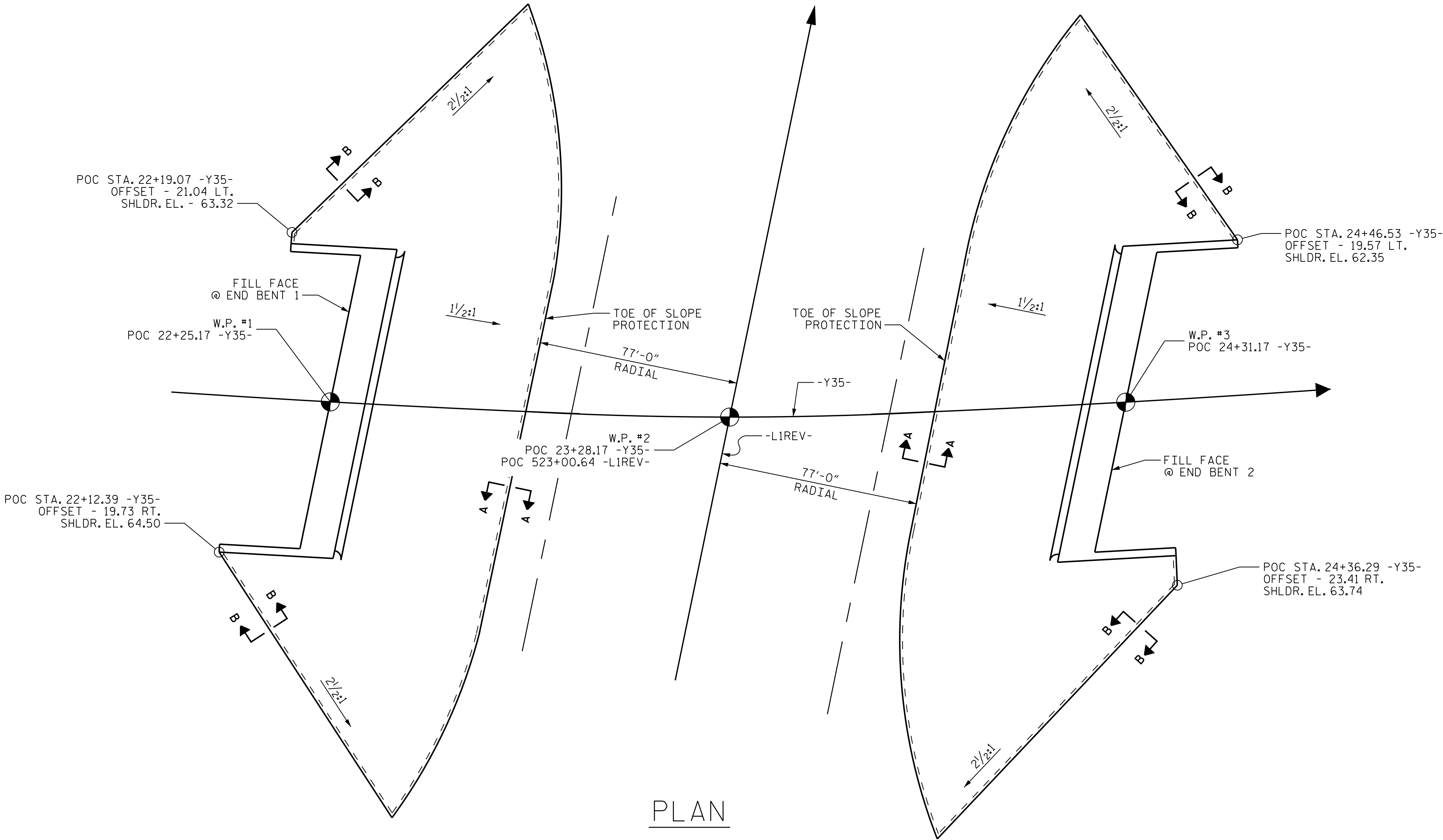
STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL

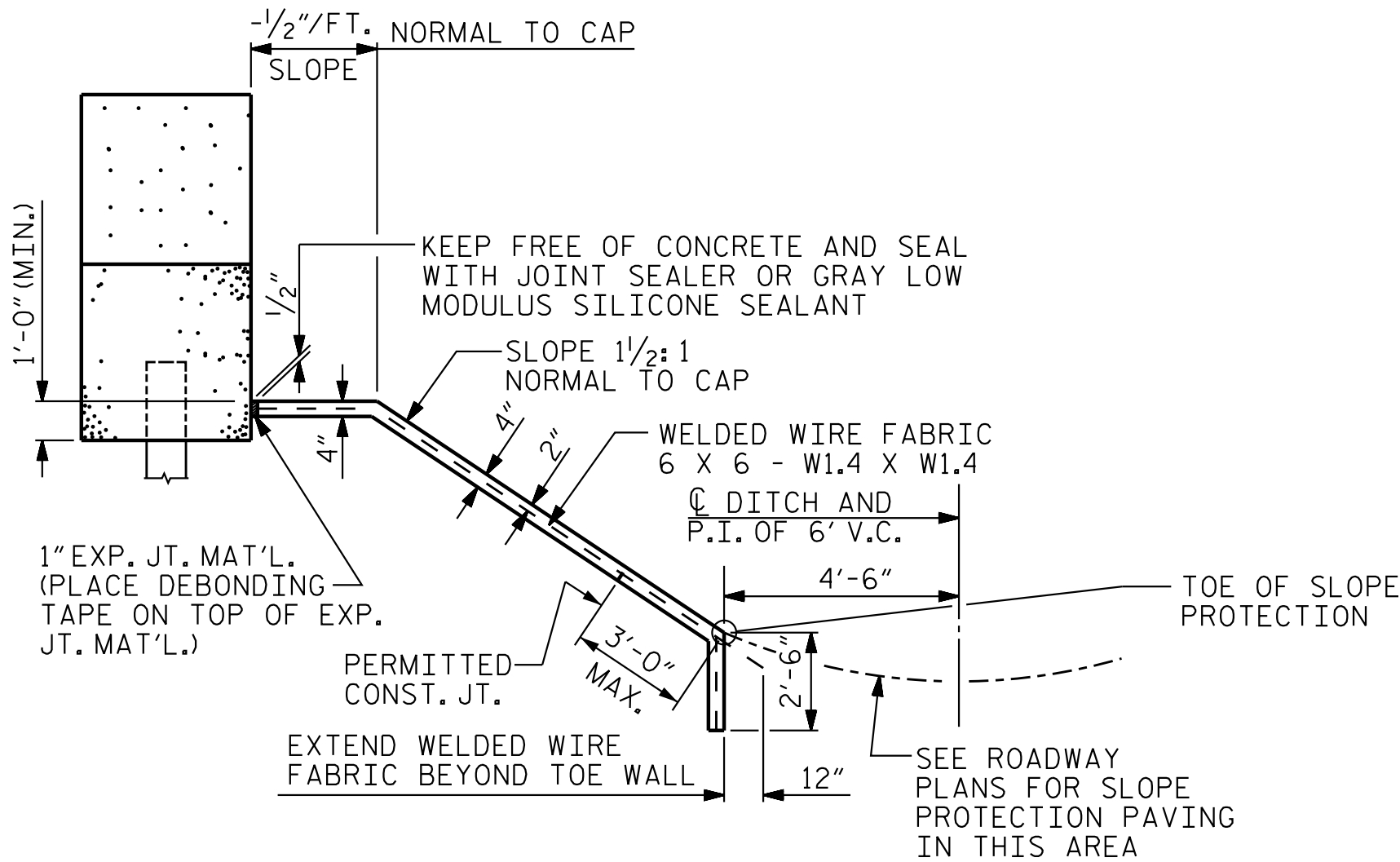


POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

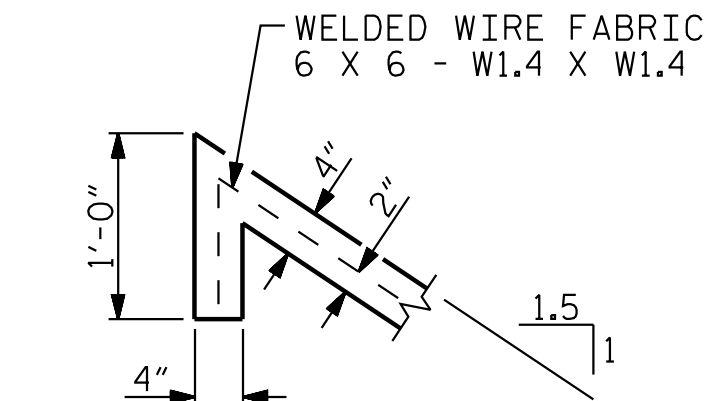
OPTIONAL POURING DETAIL



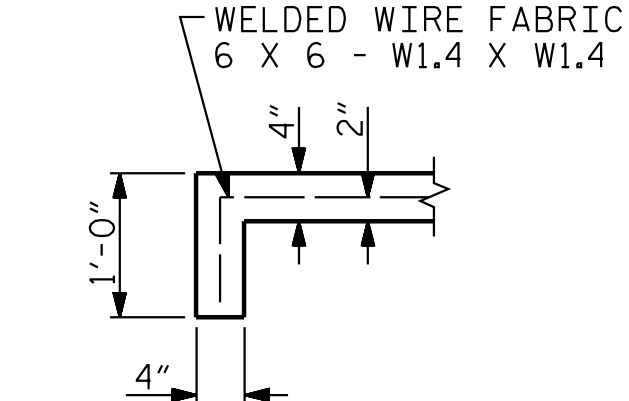
PLAN



SECTION ALONG CL SURVEY WHEN FILL CATCHES IN DITCH



SECTION A-A



SECTION B-B

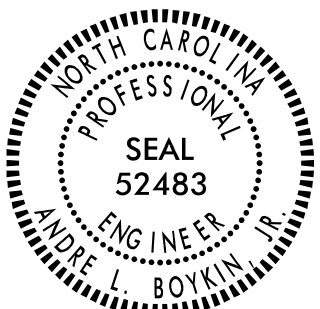


Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : J. GUERRERO DATE : 09/10/21
CHECKED BY : A. L. BOYKIN DATE : 03-05-25

DESIGN ENGINEER OF RECORD: A. L. BOYKIN DATE : 04/22/25

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 23+28.17 -Y35-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SLOPE PROTECTION
DETAILS

Signed by: Andre Boykin
7480000475154101
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S10-36
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ...	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60.....	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS.
SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " $\emptyset$ SHEAR STUDS FOR THE $\frac{3}{4}$ " $\emptyset$ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " $\emptyset$ STUDS FOR 4 - $\frac{3}{4}$ " $\emptyset$ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " $\emptyset$ STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " $\emptyset$ STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " $\emptyset$ STUDS FOR 4 - $\frac{3}{4}$ " $\emptyset$ STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.