

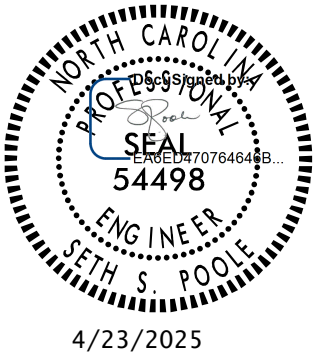
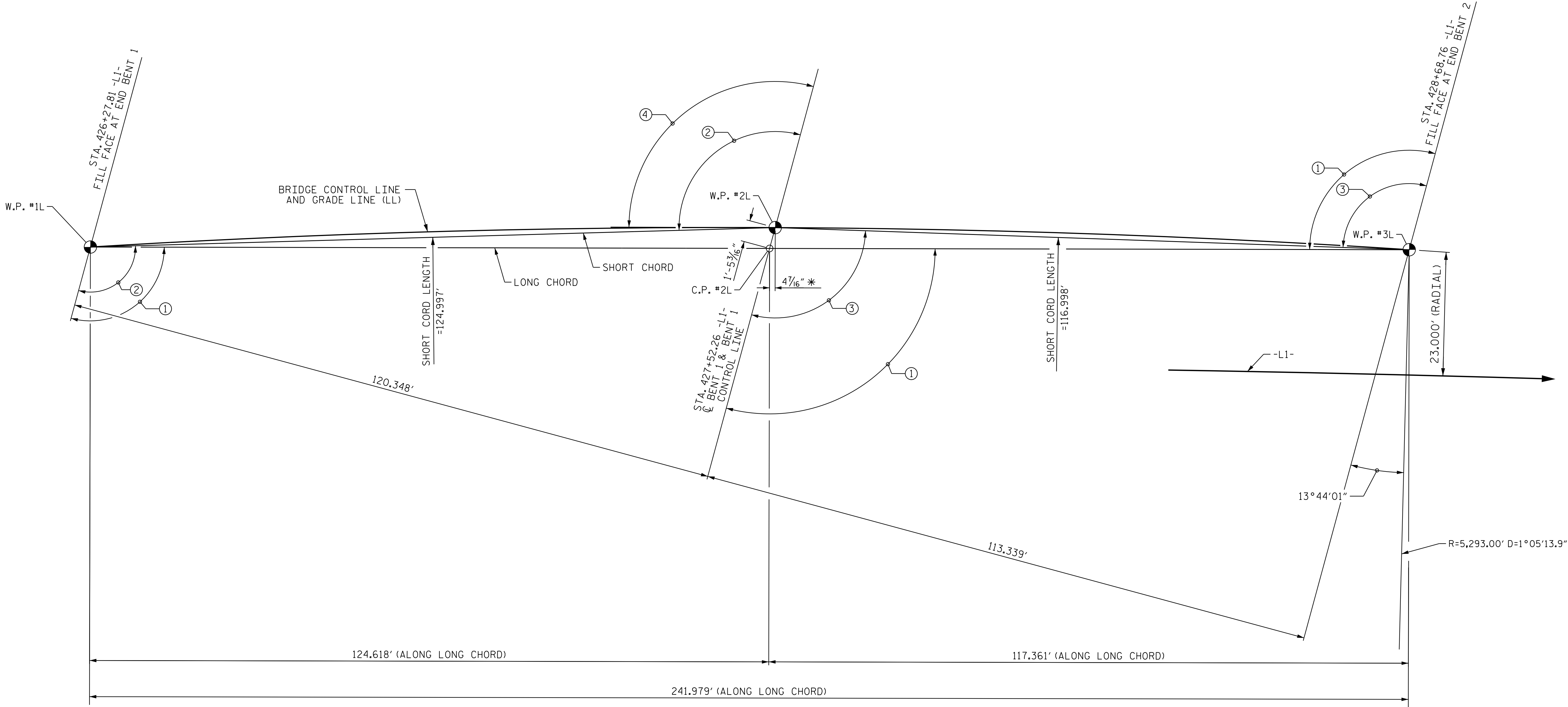


DRAWN BY : G. NGUYEN DATE : 08/15/18
CHECKED BY : S. S. POOLE DATE : 12/04/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

LONG CHORD LAYOUT

NOTES:
ALL BENTS ARE PARALLEL.
* POINT PROJECTED ON LONG CHORD.

- ① 105°02'36"
- ② 105°40'36"
- ③ 104°22'00"
- ④ 105°00'00" (TANGENT TO CURVE)



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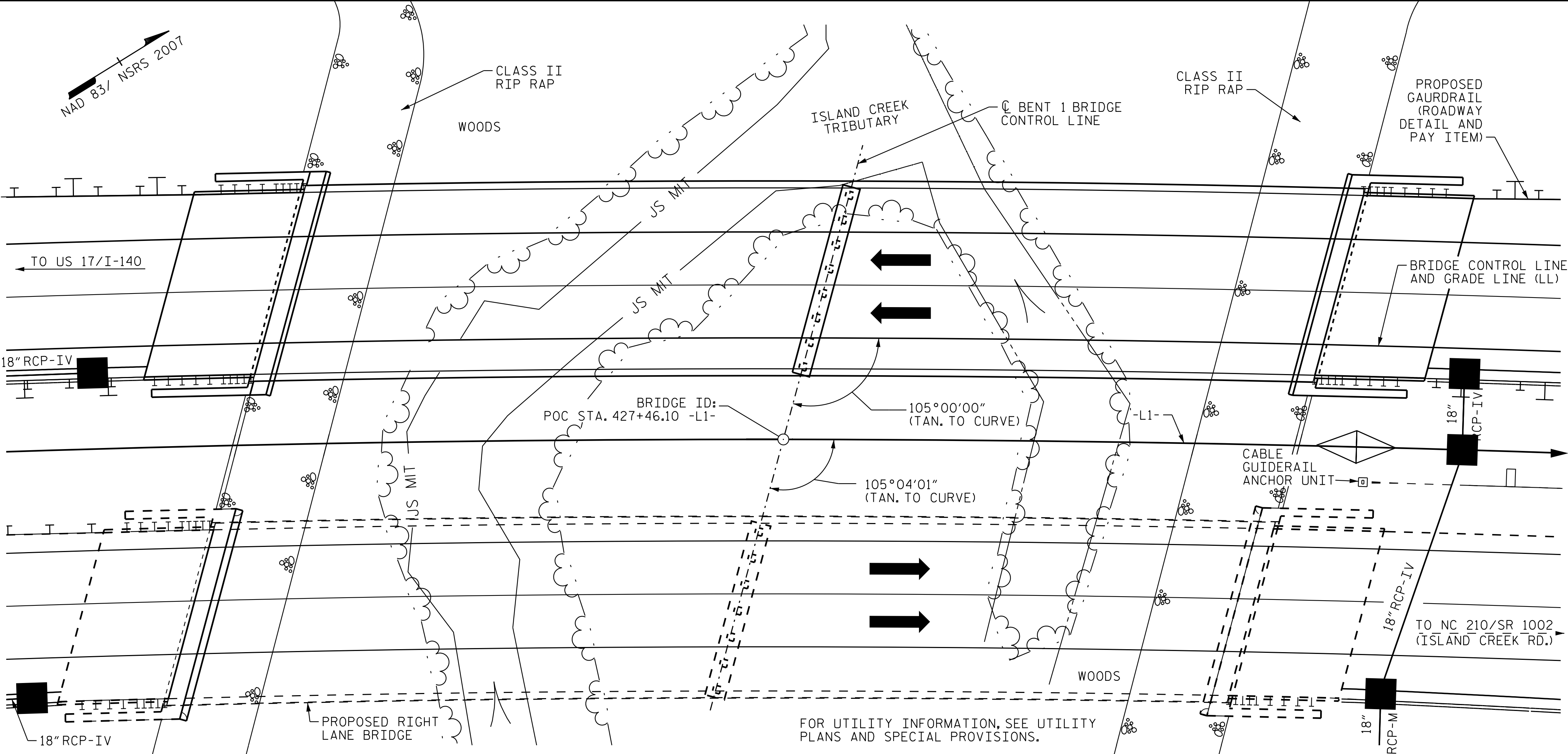
PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

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

SHEET NO.
S08-04

BM #11: R/R SPIKE IN 30" OAK. N223859 E2362153, STA. 423+83.46 -L1-, 346' LT. EL. 11.80



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA. 427+46.10 -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 24" PRESTRESSED CONCRETE PILES
	LUMP SUM	SQ. FT.	SQ. FT	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EA.	
SUPERSTRUCTURE		10,631	10,990		LUMP SUM		10	1,189.5		
END BENT NO. 1				50.3		7,164			9	
BENT NO. 1				30.0		4,869				8
END BENT NO. 2				48.6		7,124			9	
TOTAL	LUMP SUM	10,631	10,990	128.9	LUMP SUM	19,157	10	1,189.5	18	8

TOTAL BILL OF MATERIAL CONT.

24 IN. PRESTRESSED CONCRETE PILES		HP 14x73 STEEL PILES		STEEL PILE POINTS	PREDRILLING FOR PILES	PILE REDRIVES	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
NO.	LIN. FT.	NO.	LIN. FT.	EA.	LF.	EA.	EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM
		9	405	9		5		480.5	353	393	LUMP SUM
8	360			8	296.8	4	1				
		9	360	9		5			372	413	
8	360	18	765	26	296.8	14	1	480.5	725	806	LUMP SUM

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.

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.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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.

THE CONCRETE IN THE BENT CAPS, PILE CAPS AND PILES FOR 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.

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.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.4.

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

CLASS AA CONCRETE SHALL BE USED IN ALL 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.

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

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION -1.2 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 427+46.10 -L1-, SEE SPECIAL PROVISIONS.

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

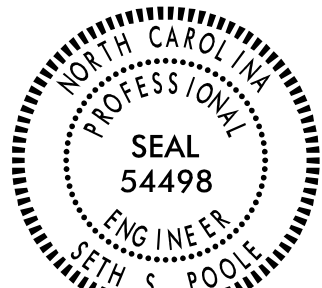
SHEET 5 OF 5



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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



Signed by: Seth S. Poole
4/30/2025
E-046ED4707840488

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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)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S08-05
1			3			TOTAL SHEETS 41
2			4			

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)

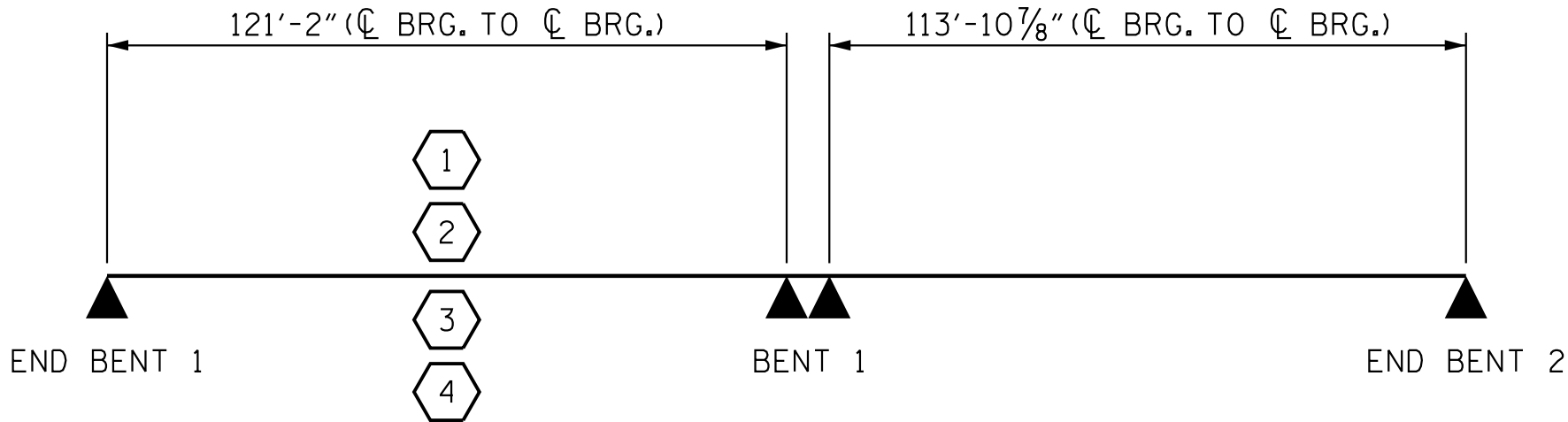
3 LEGAL LOAD RATING **

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

PENDER COUNTY

STATION: 427+46.10 -L1-

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ASSEMBLED BY : D. NORSWORTHY
CHECKED BY : S. S. POOLE

DATE : 08/15/18
DATE : 12/04/24

DRAWN BY : MAA
CHECKED BY : GM/DI

1/08
2/08

REV. 11/2/08RR
REV. 10/1/11
REV. 04/23

MAA/GM
MAA/GM
BNB/AAI

DESIGN ENGINEER
OF RECORD:

S. S. POOLE

DATE : 04/23/25

4/23/2025

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

REVISIONS						SHEET NO. S08-06
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

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CHECKED BY : S. S. POOLE DATE : 12/04/24

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



Signed by: Beth S. Poole
4/30/2025
E-Stamp: 04707840488

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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.

(5BR) DENOTES 5 BAR RUN.

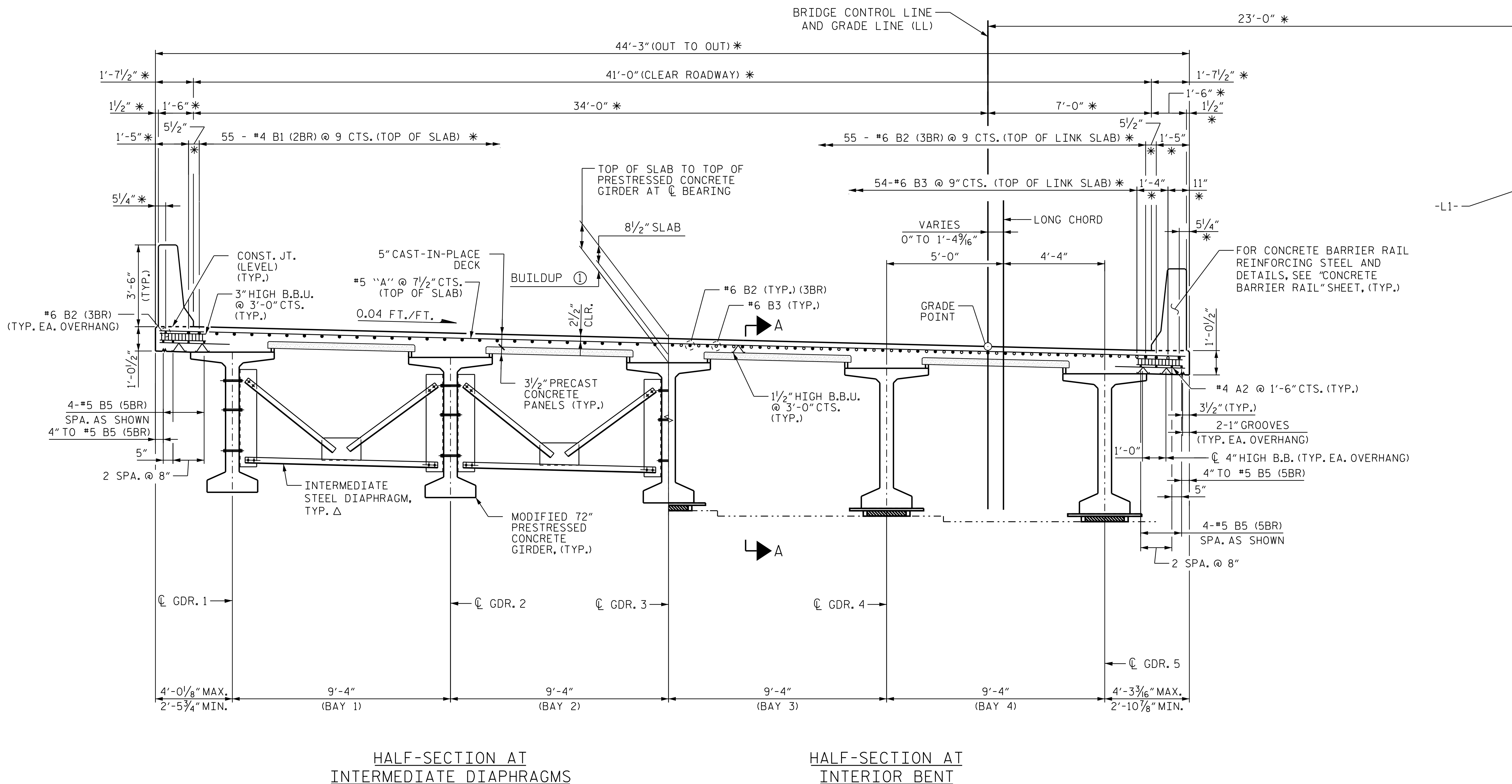
* DENOTES RADIAL DIMENSION.

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

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

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

- ① 4" @ $\text{\O}$ BEARING
** $3\frac{1}{8}$ " MAX. @ MID-SPAN
(SPAN B, GIRDER #3)
** $2\frac{5}{16}$ " MAX. @ MID-SPAN
(SPAN A GIRDER #3)
** BASED ON PREDICTED FINAL CAMBER
AND THEORETICAL GRADE LINE
ELEVATIONS.



TYPICAL SECTION

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 1 OF 4

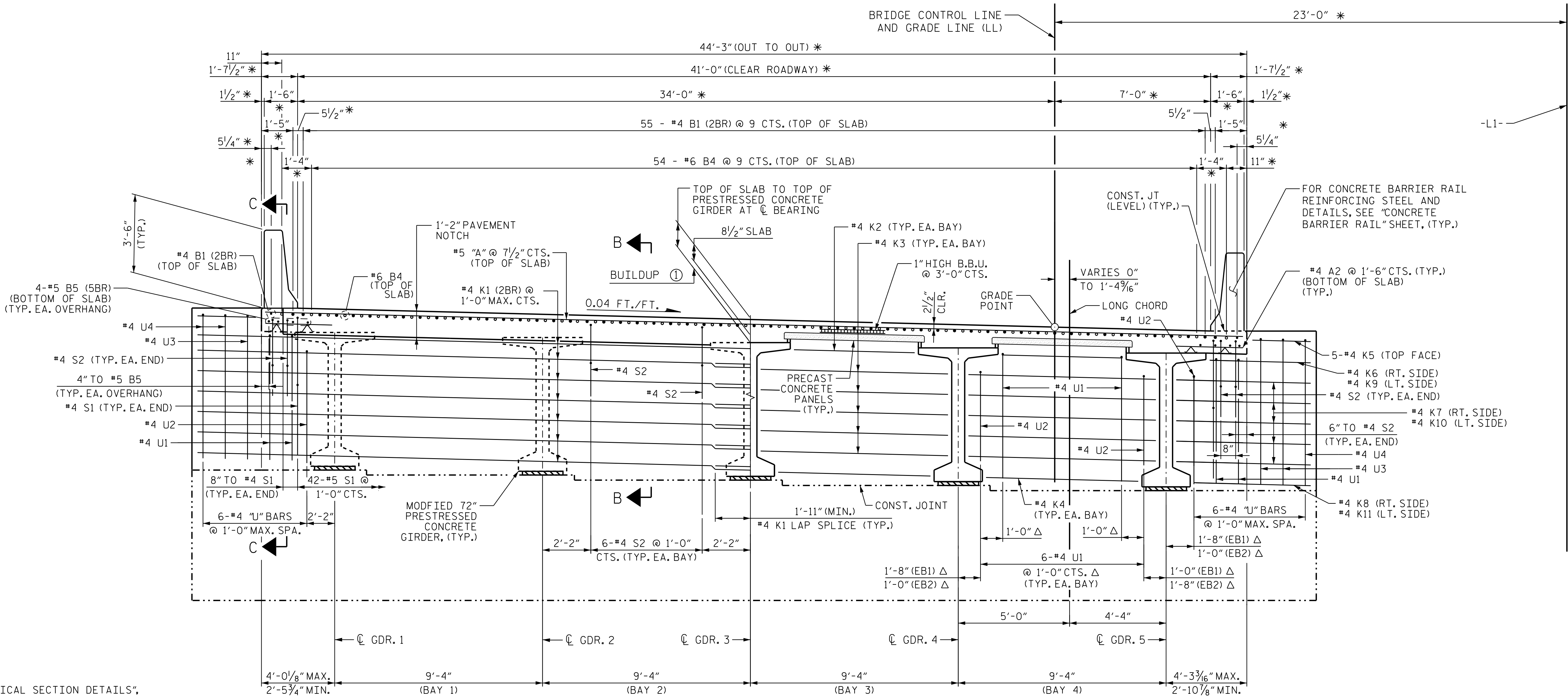
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION

(LEFT LANE)

REVISIONS						SHEET NO. S08-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



NOTES

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

(2BR) DENOTES 2 BAR RUN.

(5BR) DENOTES 5 BAR RUN.

* DENOTES RADIAL DIMENSION.

EB1 DENOTES END BENT 1

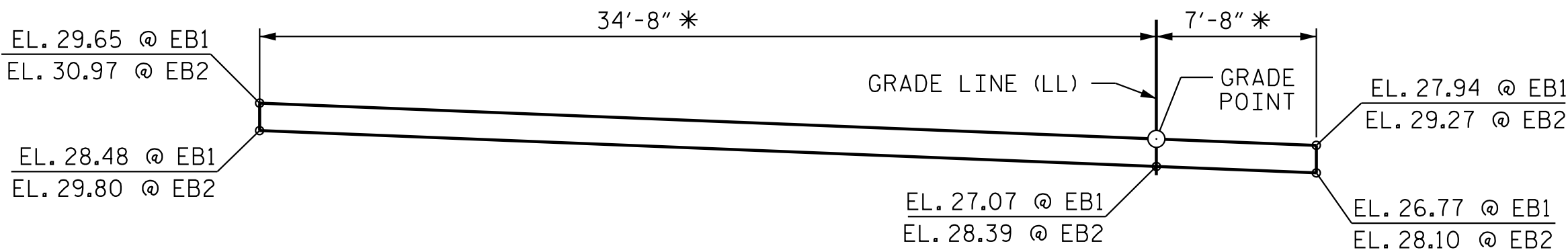
EB2 DENOTES END BENT 2.

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

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

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.10 -L1-

SHEET 2 OF 4

- ① 4" @ CL BEARING
- ** 3/8" MAX. @ MID-SPAN (SPAN B, GIRDER #3)
- ** 2 15/16" MAX. @ MID-SPAN (SPAN A GIRDER #3)
- ** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.



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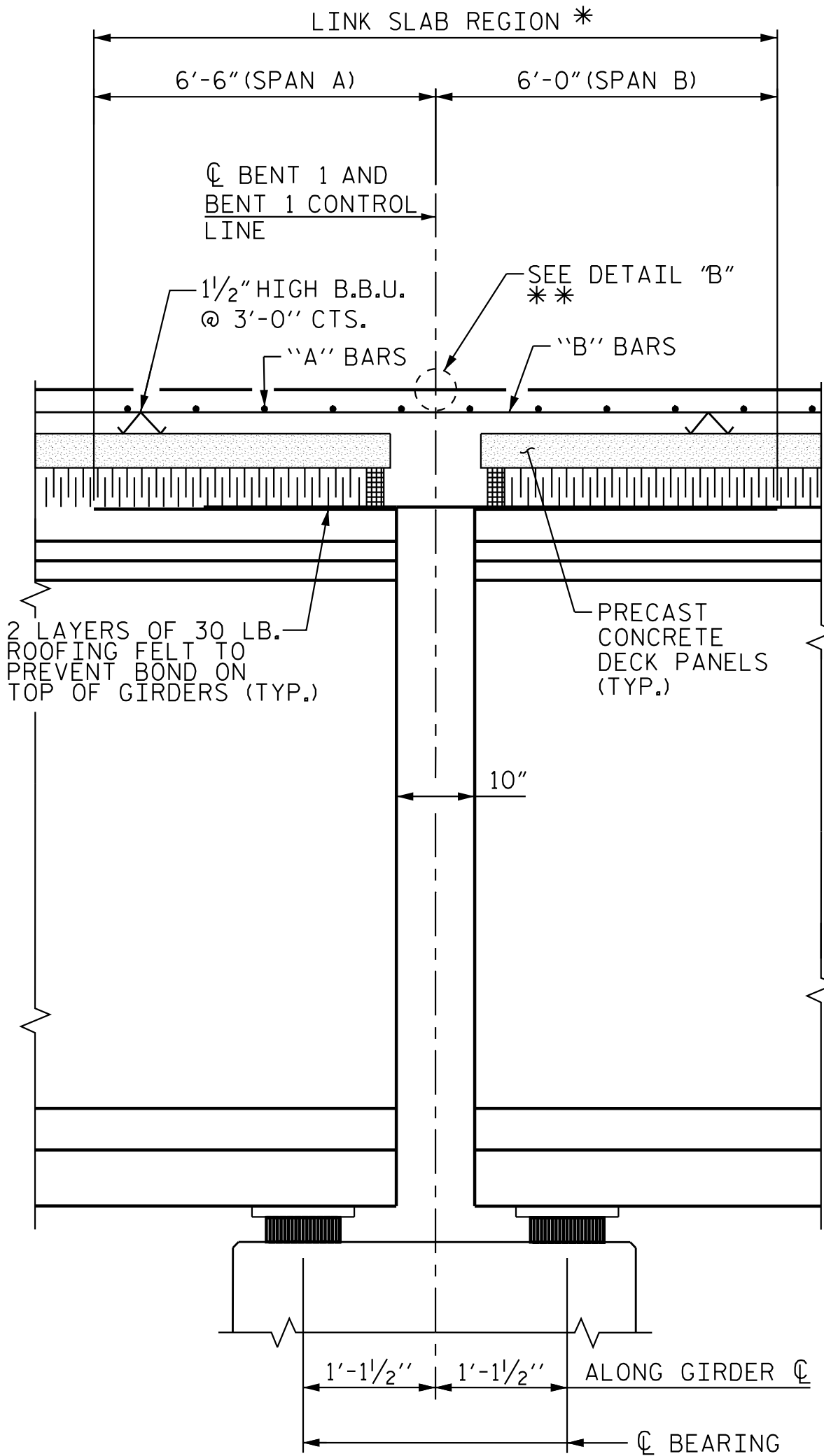
CHECKED BY : S. S. POOLE DATE : 12/04/24

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

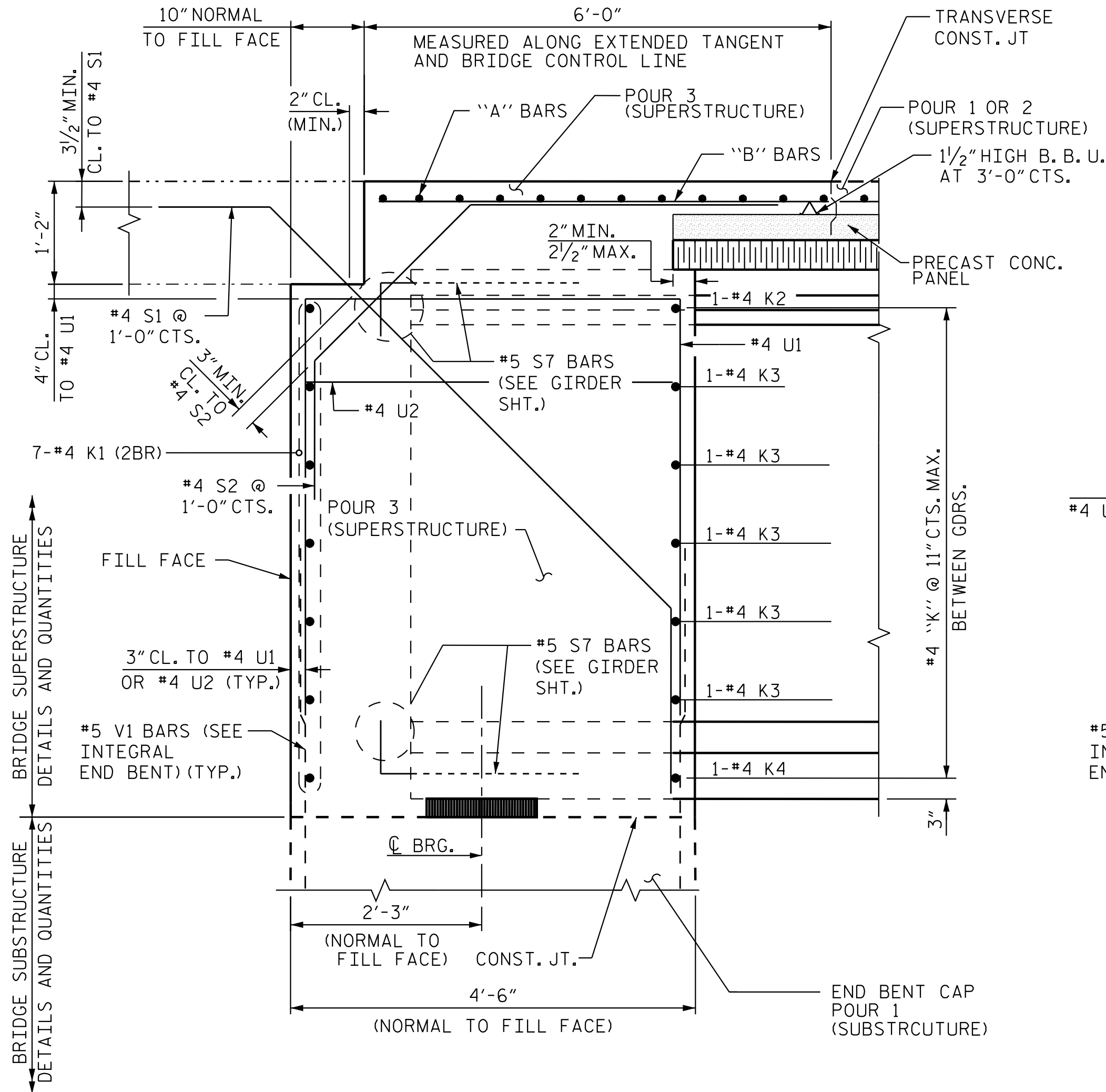


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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTION					
(LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S08-08					TOTAL SHEETS 41

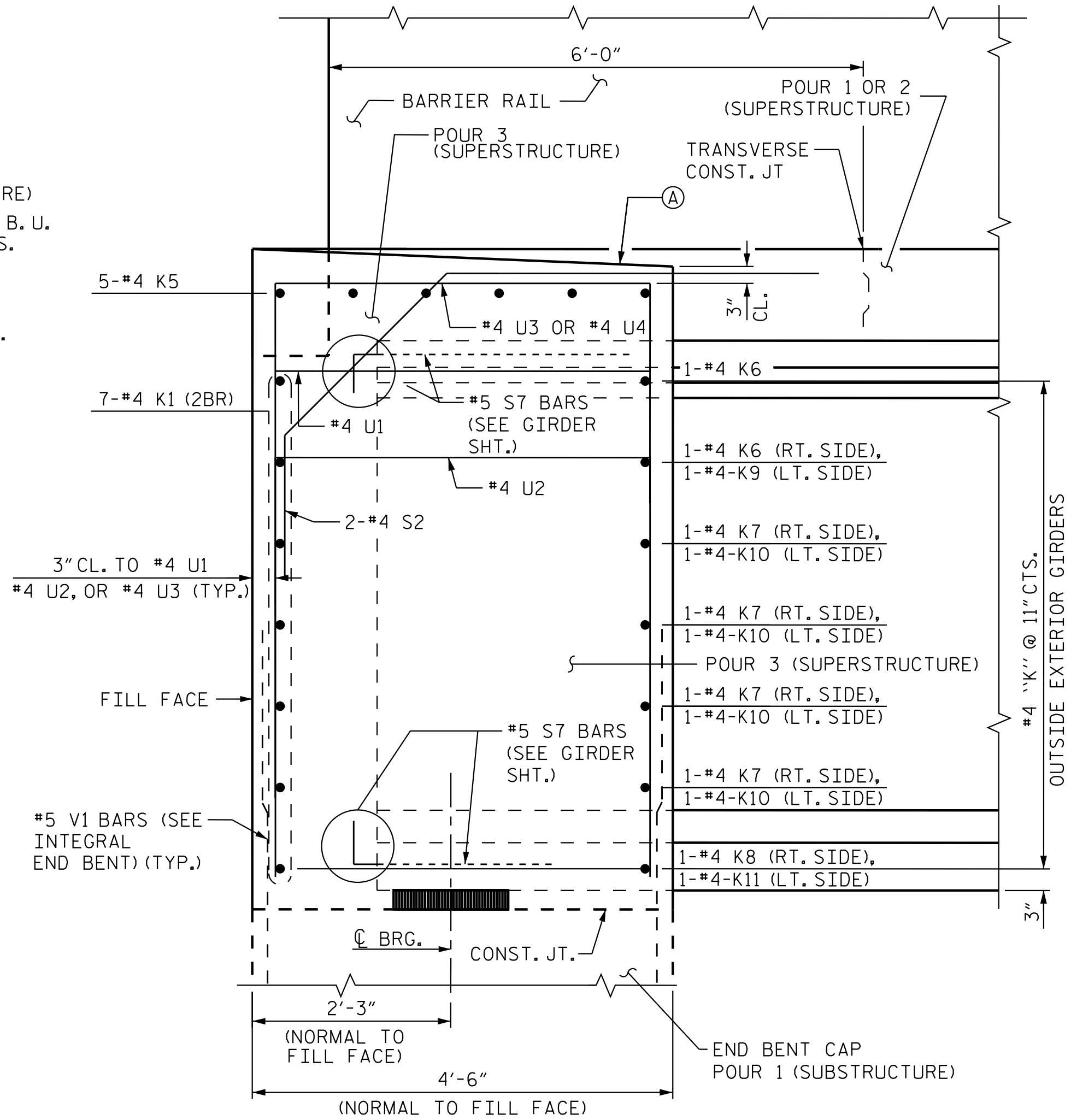


SECTION A-A AT LINK SLAB



SECTION B-B

SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 3 AND 4 OF 6

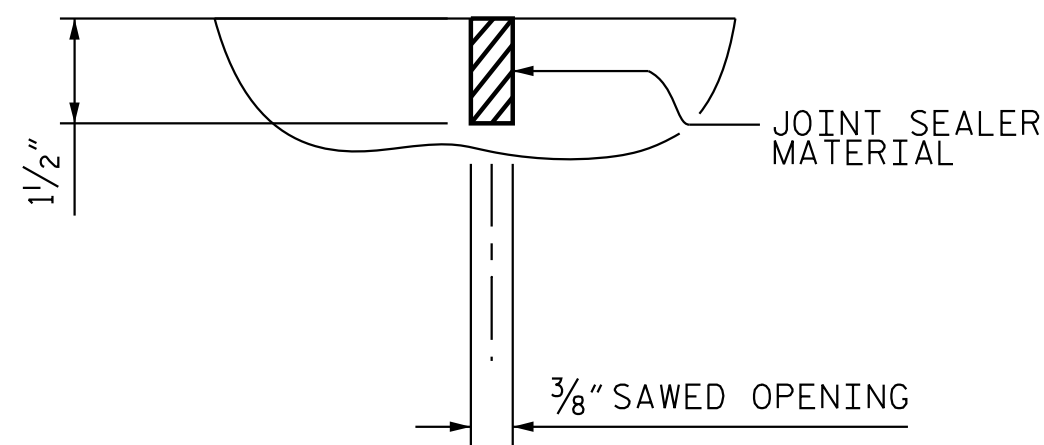


SECTION C-C

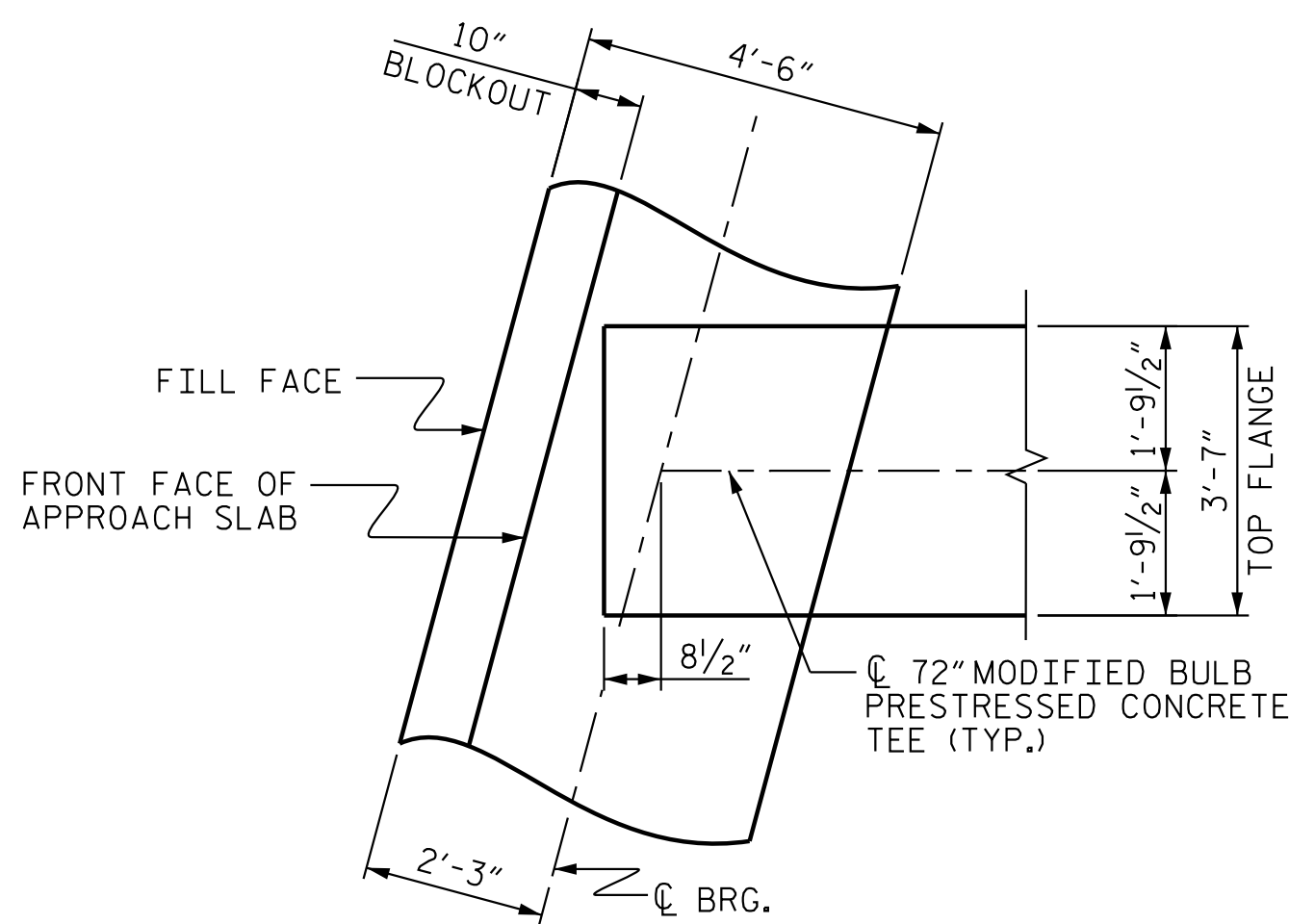
SECTION THRU INTEGRAL END BENT DIAPHRAGM BEYOND EXTERIOR GIRDER
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS", SH. 3 AND 4 OF 6

NOTES

- * 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.
- (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.
- ** A 1 1/2" DEEP, 3/8" 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.



DETAIL "B"



PLAN OF INTEGRAL END BENT

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

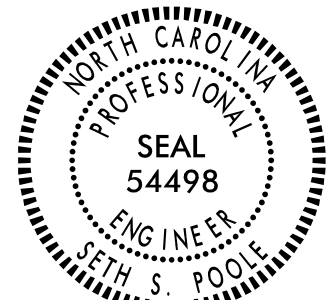
SHEET 3 OF 4



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REVISIONS						SHEET NO. S08-09
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

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

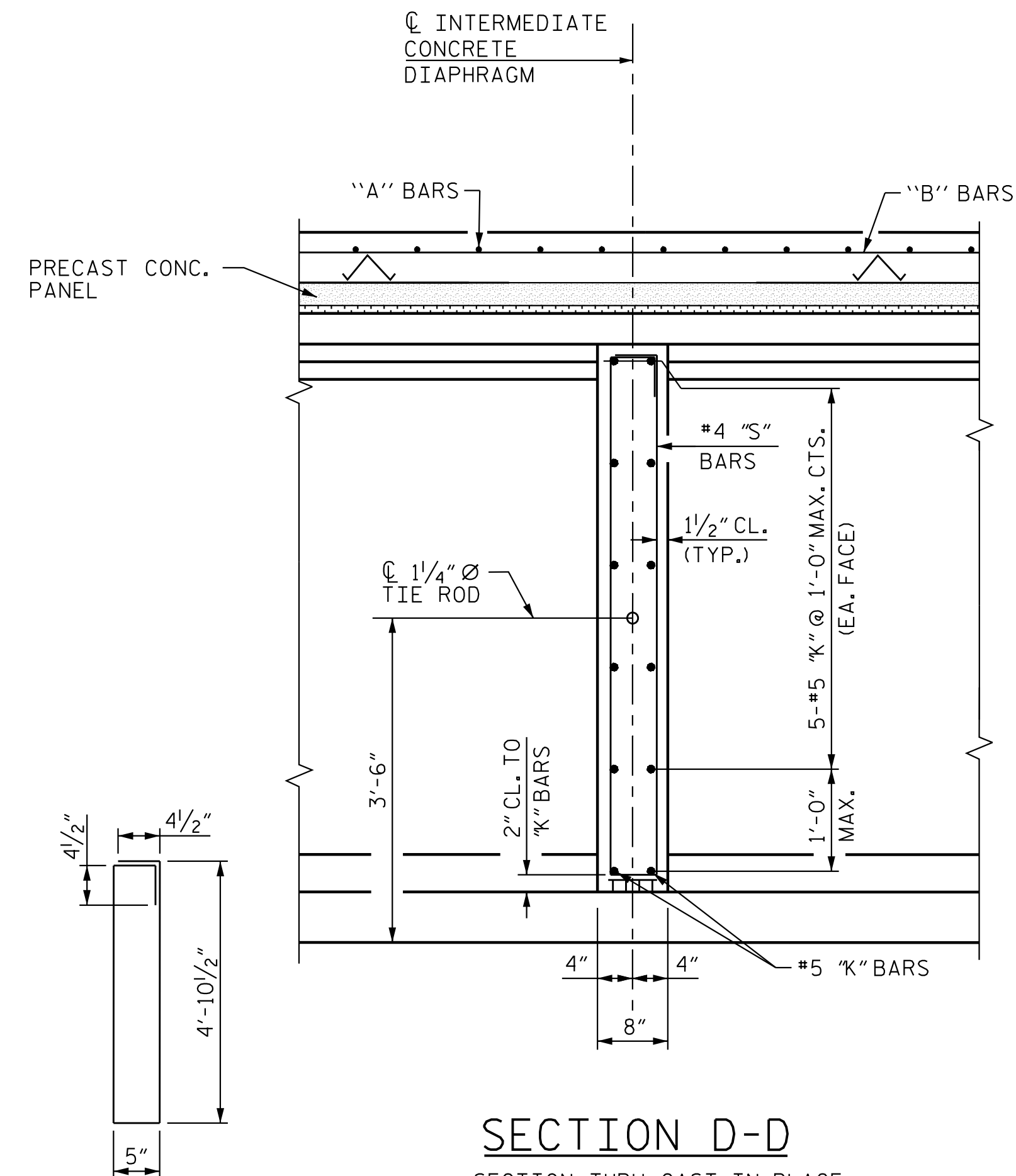
PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRE-COMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

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

OPTIONAL CONCRETE INTERMEDIATE DIAPHRAGMS

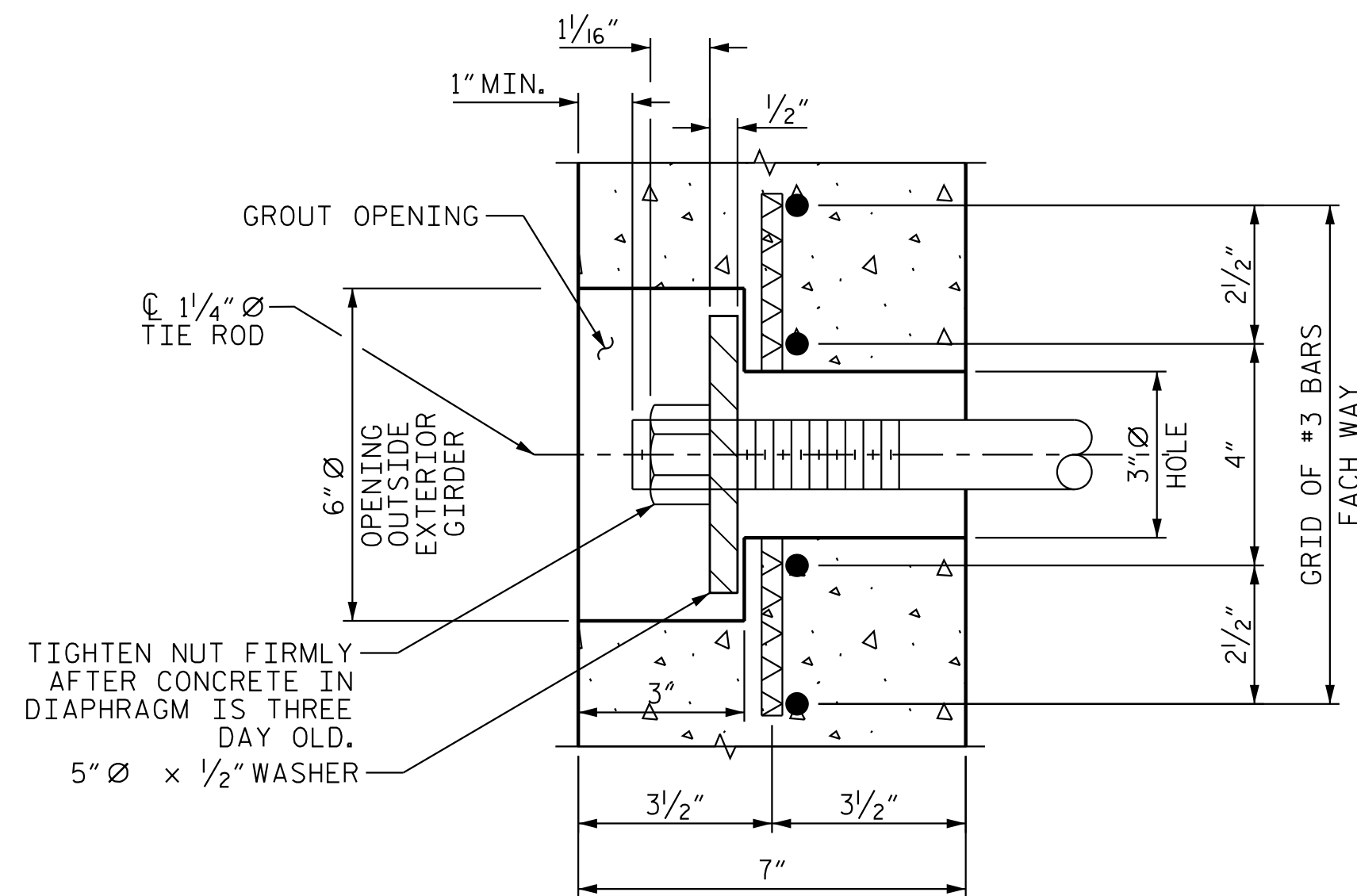
TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 1/4" Ø TIE RODS SHALL BE FULLY TIGHTENED BEFORE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN 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.



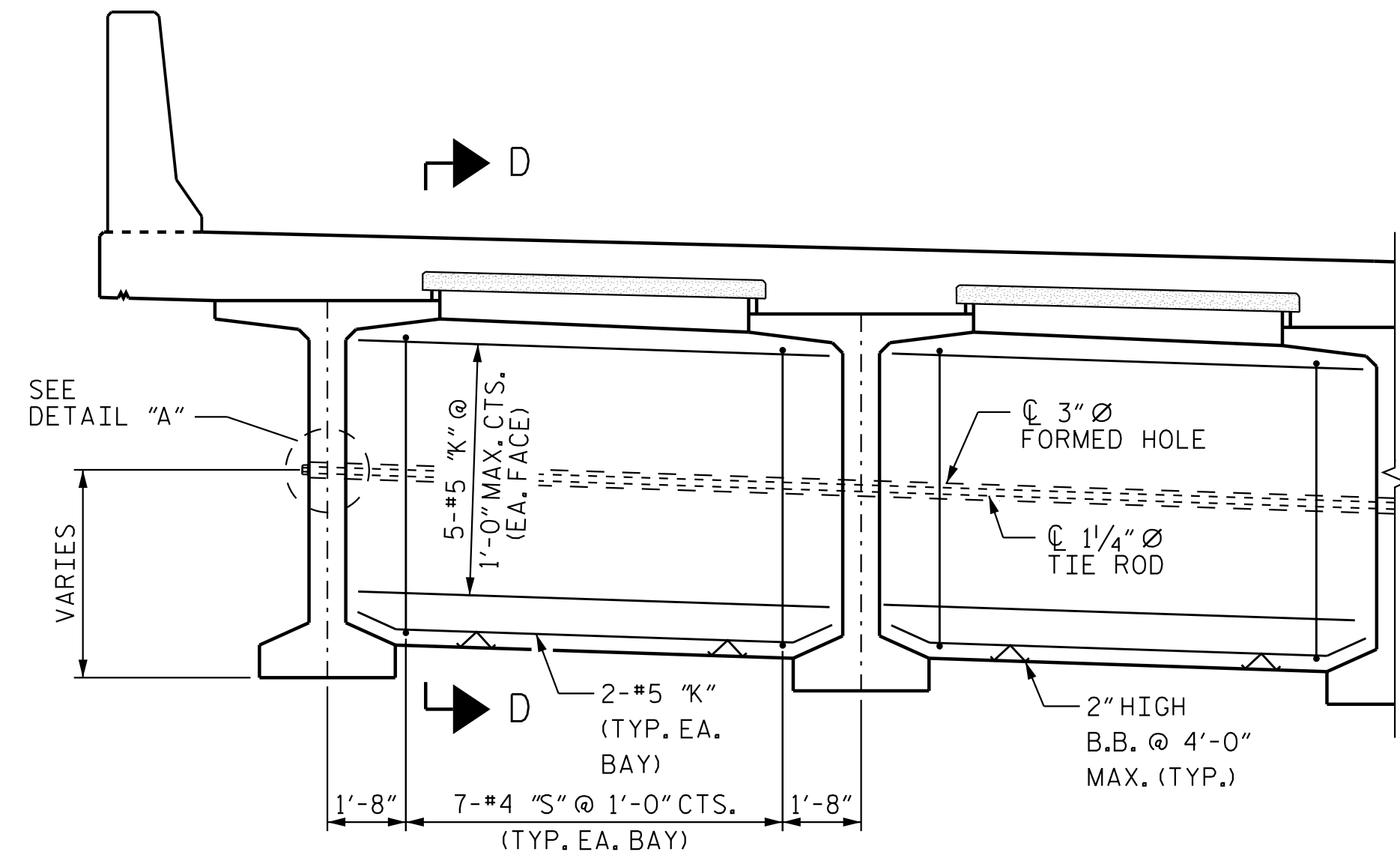
SECTION D-D

SECTION THRU CAST-IN-PLACE
CONCRETE INTERMEDIATE DIAPHRAGM

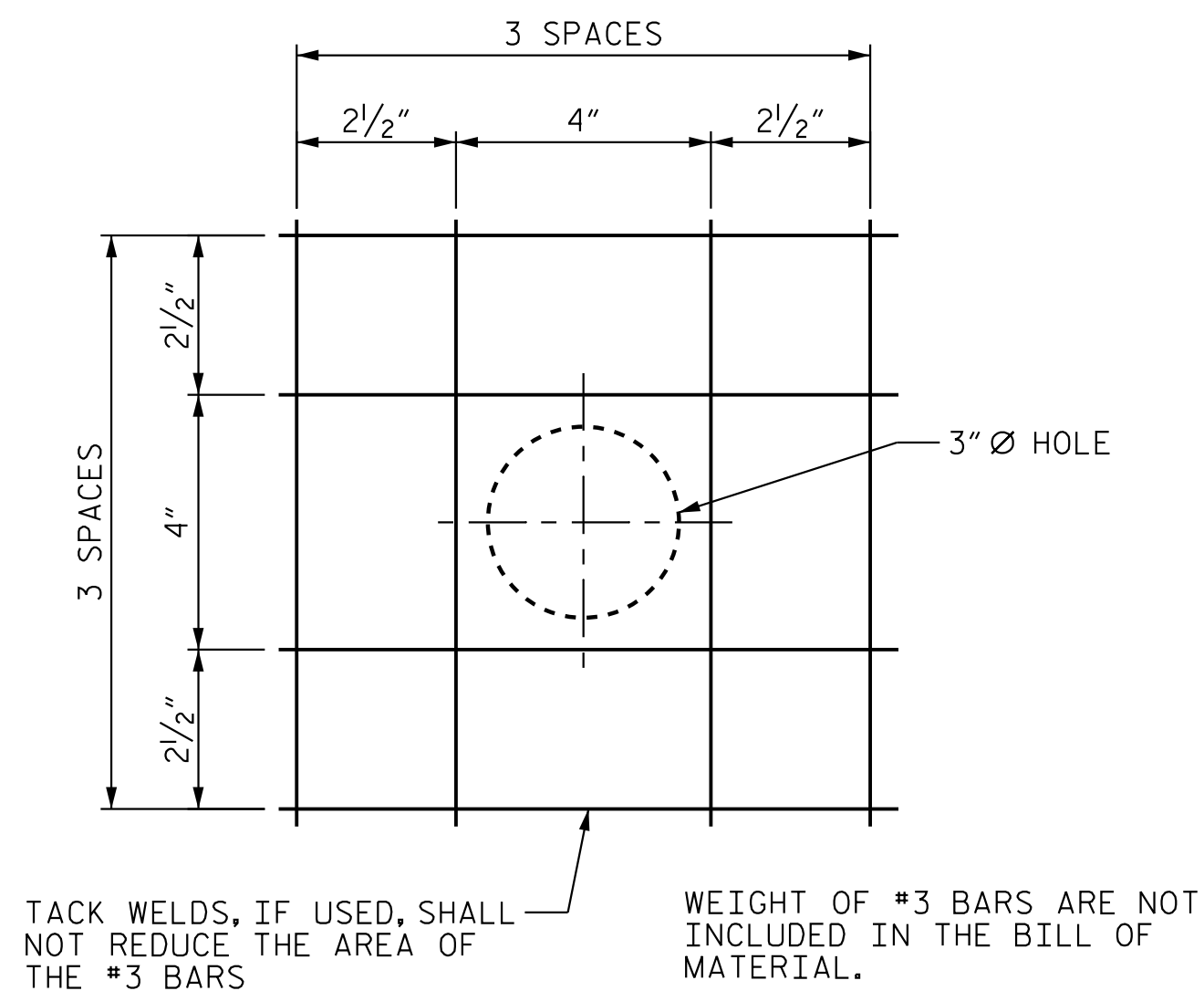


DETAIL "A"

GROUTED RECESS FOR END OF TIE ROD



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



#3 BAR GRID

PROJECT NO. R-3300A
 PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 4 OF 4



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DRAWN BY : J. GUERRERO DATE : 01/30/19
CHECKED BY : S. S. POOLE DATE : 12/04/24

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

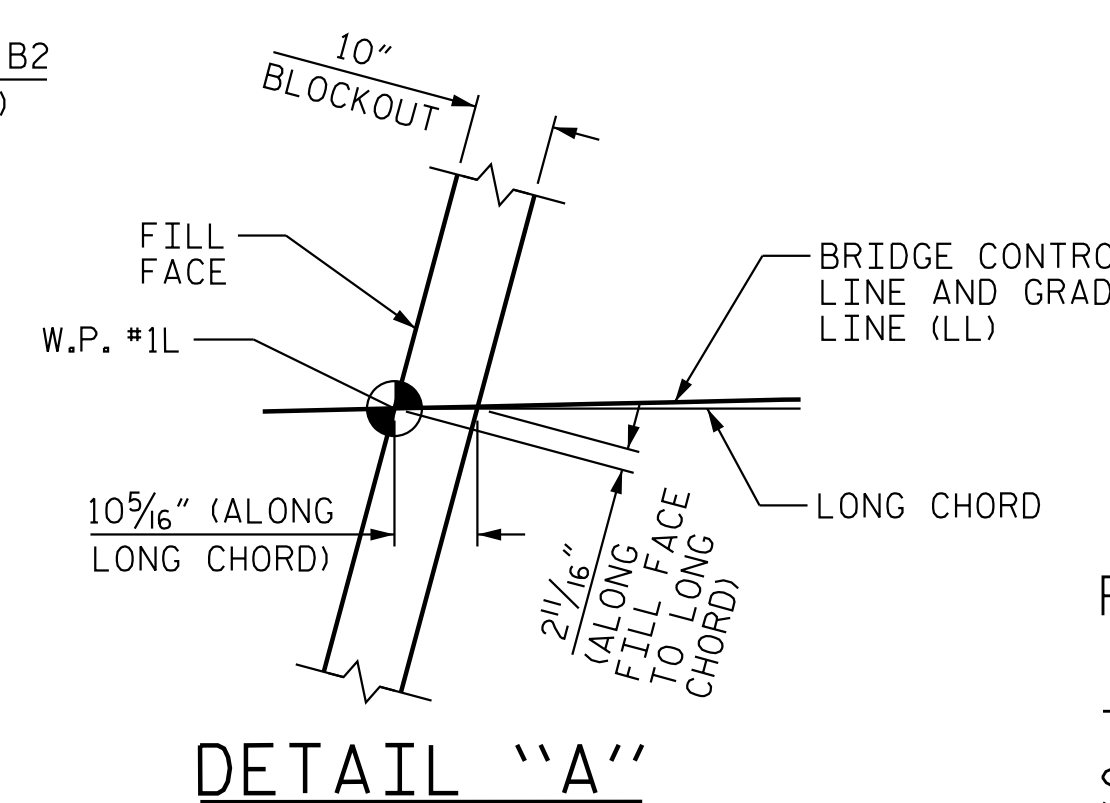


Signed by:  4/30/2025
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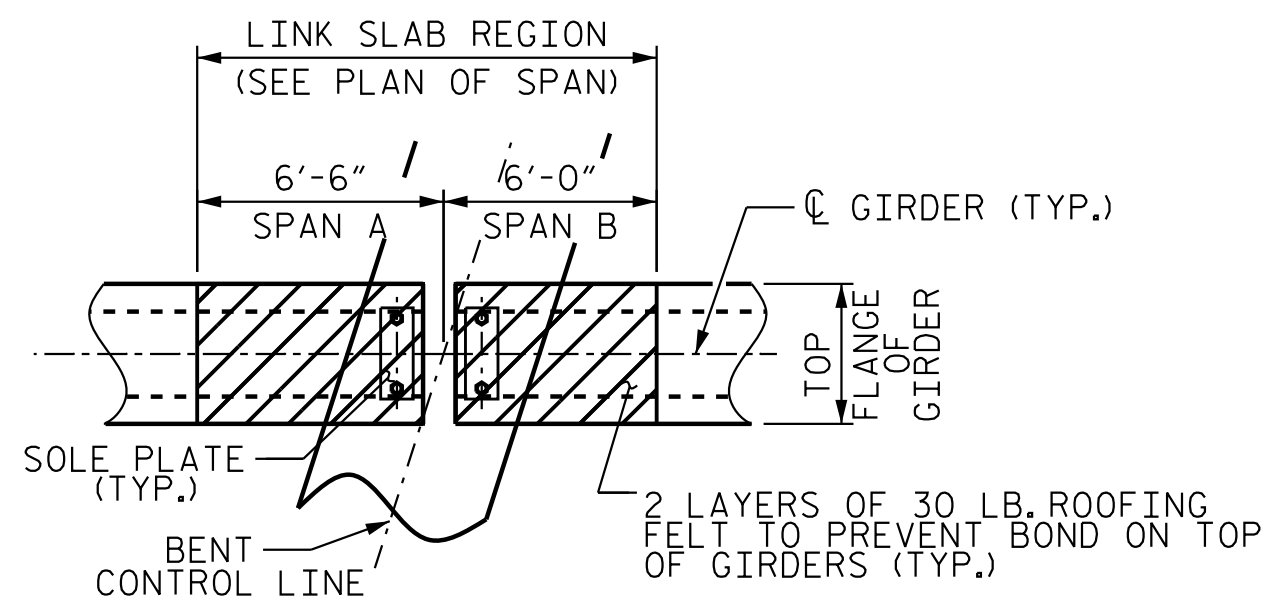
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
(DETAILS)
(LEFT LANE)

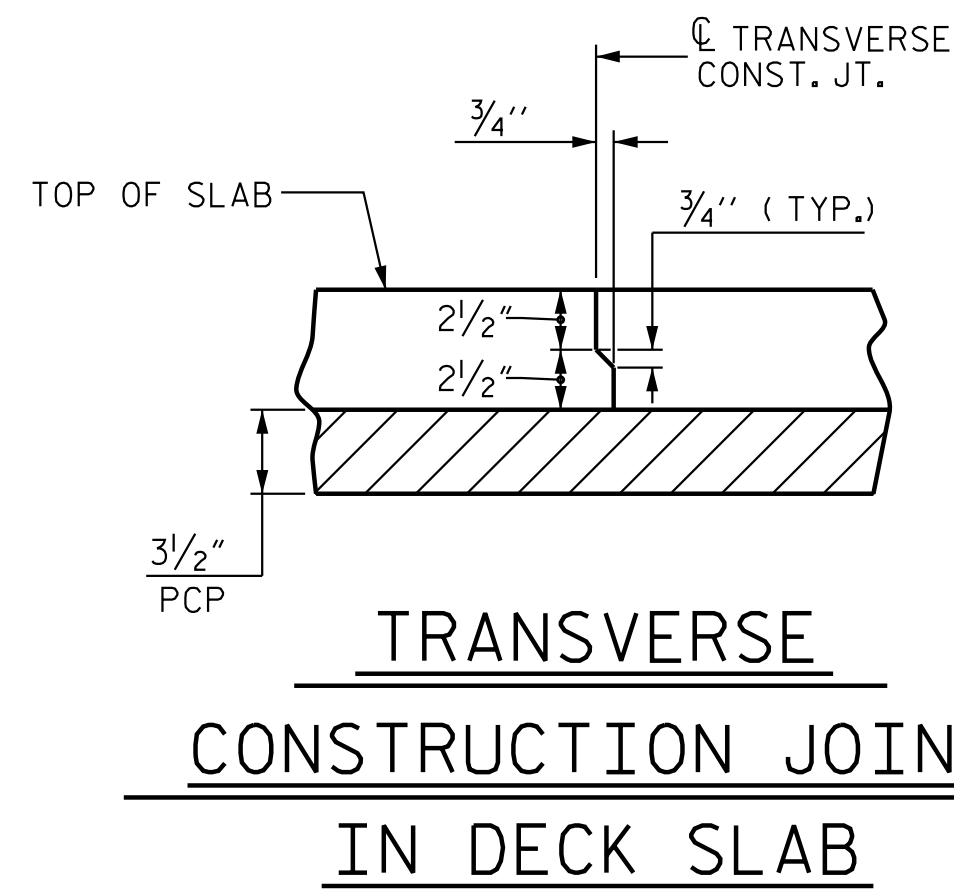
REVISIONS						SHEET NO. S08-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



PLAN OF SPAN
SPAN A



NOTE: 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.



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



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

SHEET 1 OF 6

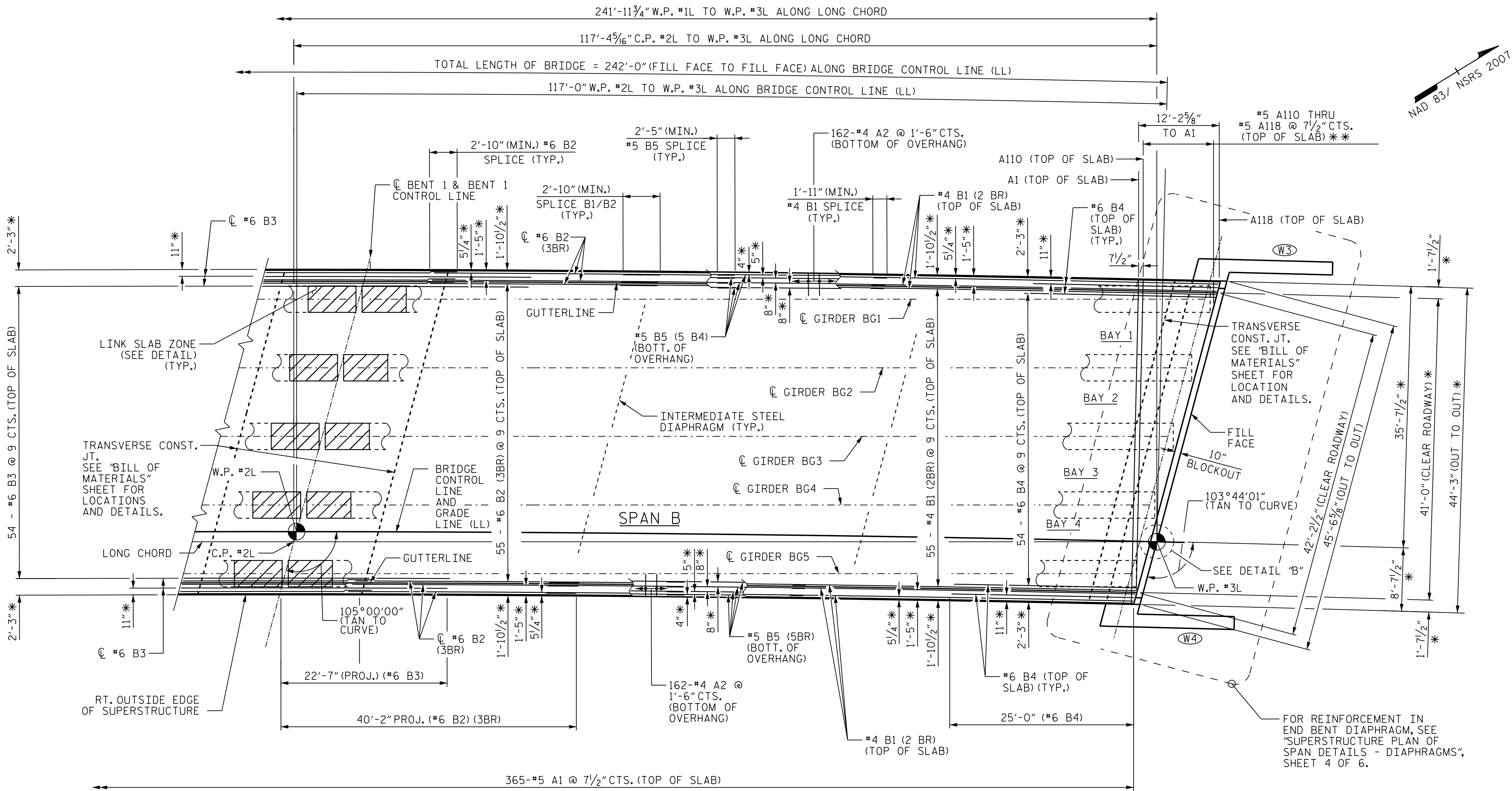
(LEFT LANE)

REVISIONS						SHEET NO. S08-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



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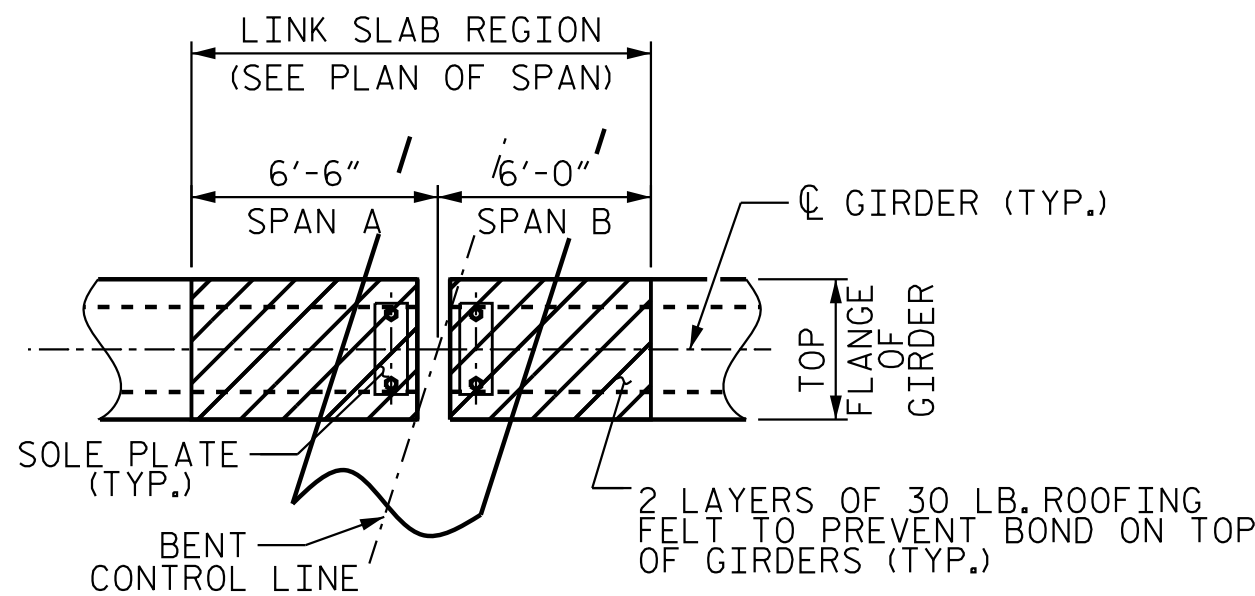


PLAN OF SPAN
SPAN B

NOTE: (2BR) DENOTES TWO BAR RUN
(3BR) DENOTES THREE BAR RUN
(5BR) DENOTES FIVE BAR RUN

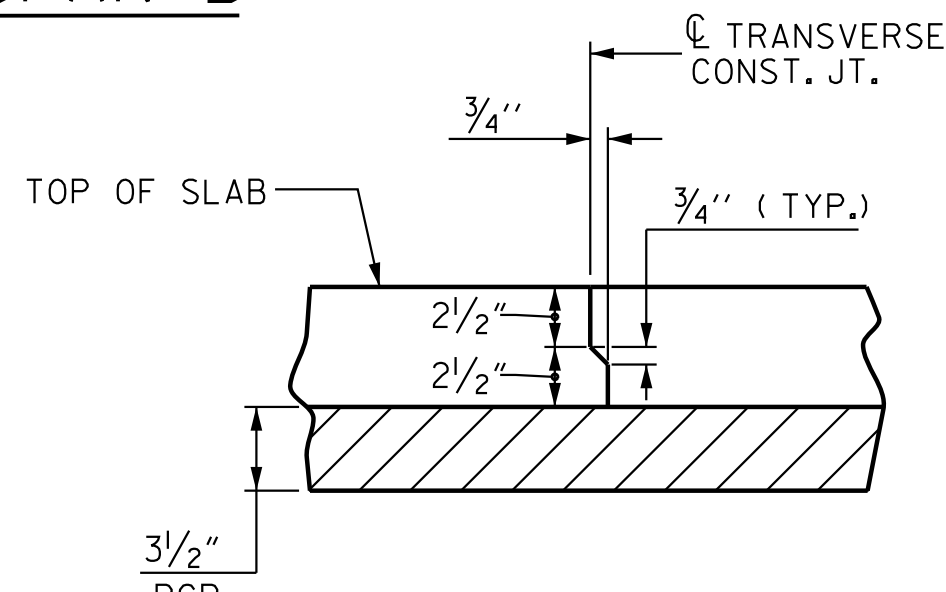
* -DENOTES RADIAL DIMENSION
** -DENOTES TWO BARS / MARK

Δ #5 B5 BARS NOT SHOWN FOR CLARITY



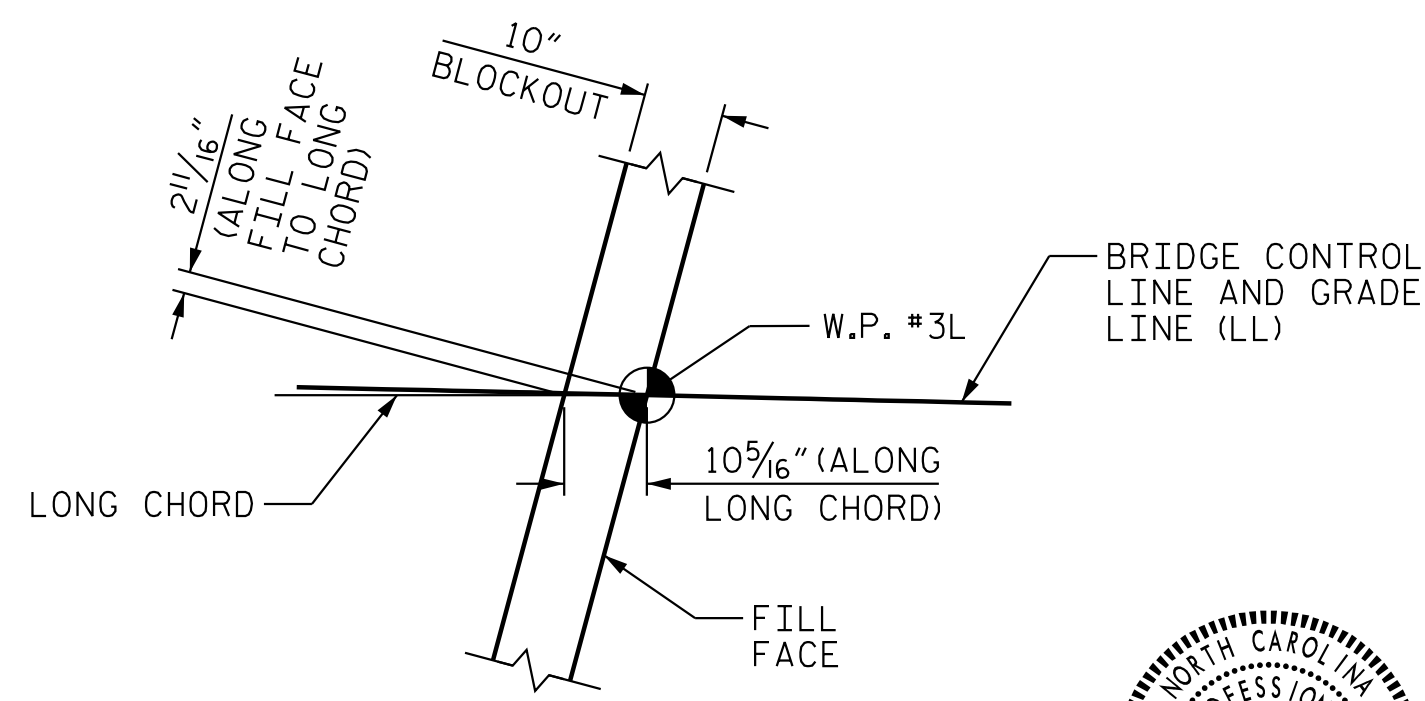
PLAN OF GIRDERS AT LINK SLAB BENT

NOTE: 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.



TRANSVERSE
CONSTRUCTION JOINT
IN DECK SLAB

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



DETAIL "B"

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN
(SPAN B)

(LEFT LANE)

REVISIONS						SHEET NO. S08-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



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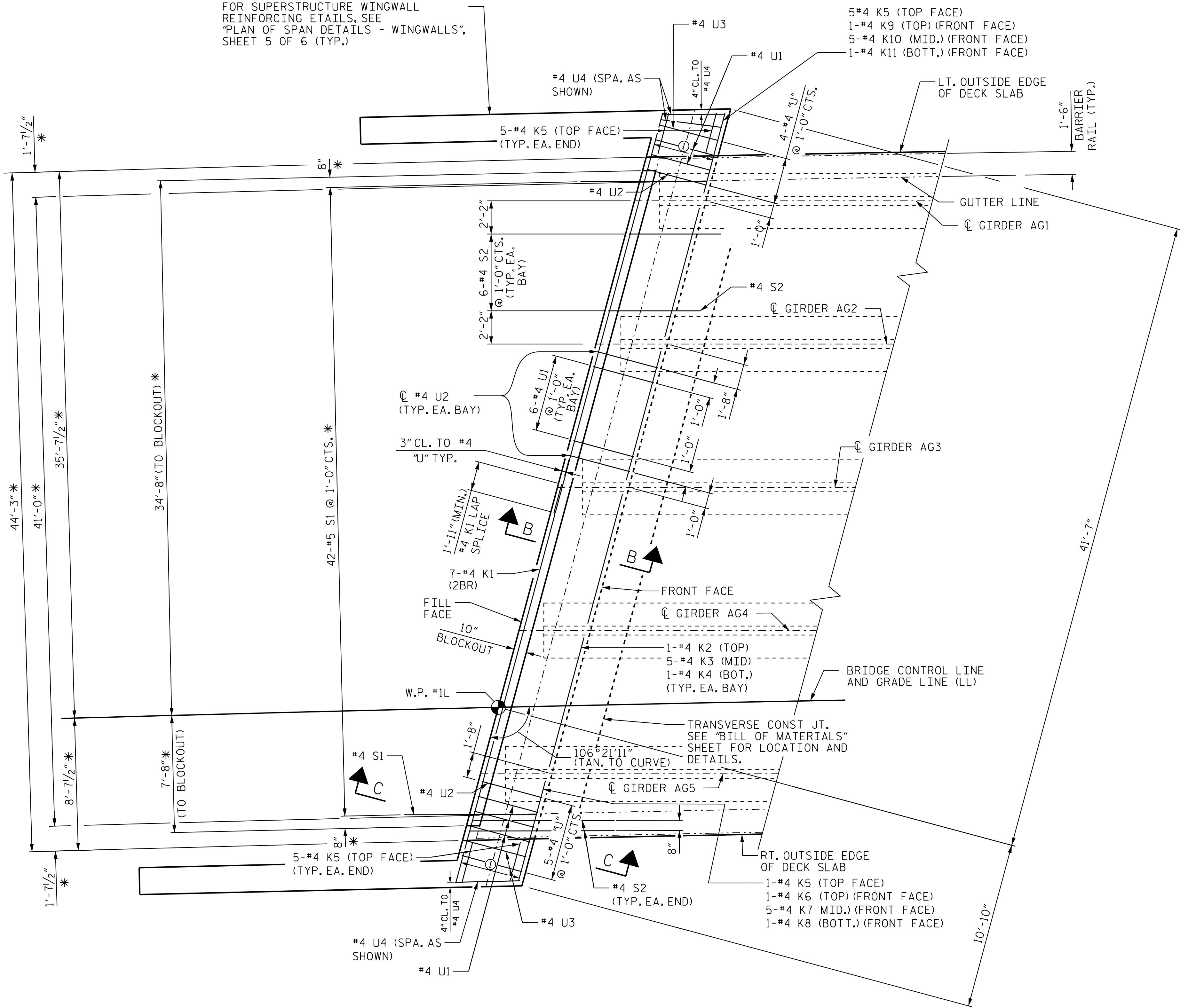


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FOR SUPERSTRUCTURE WINGWALL
REINFORCING DETAILS, SEE
"PLAN OF SPAN DETAILS - WINGWALLS",
SHEET 5 OF 6 (TYP.)



END BENT 1
DIAPHRAGM REINFORCING
DETAIL

NOTES

* DENOTES RADIAL DIMENSION

REINFORCEMENT IN DECK AND
BARRIER RAIL NOT SHOWN FOR CLARITY.

FOR SECTION A-A, SECTION B-B &
SECTION C-C, SEE "TYPICAL SECTION
(DETAILS)" SHEET 3 OF 6.

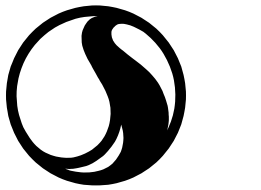
"V" BARS NOT SHOWN FOR CLARITY,
SEE SHEETS 5 AND 6 OF 6 FOR ADDITIONAL
REINFORCING DETAILS.

(2BR) DENOTES 2 BAR RUN.

① 5-#4 K5 @ E.O. SPA. (TYP. EA. END)

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

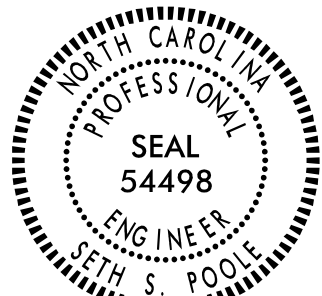
SHEET 3 OF 6



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CHECKED BY : S. S. POOLE DATE : 12/04/24

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



Signed by: Seth S. Poole
4/30/2025
E-Stamp: 4707840488

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS
DETAILS - DIAPHRAGMS

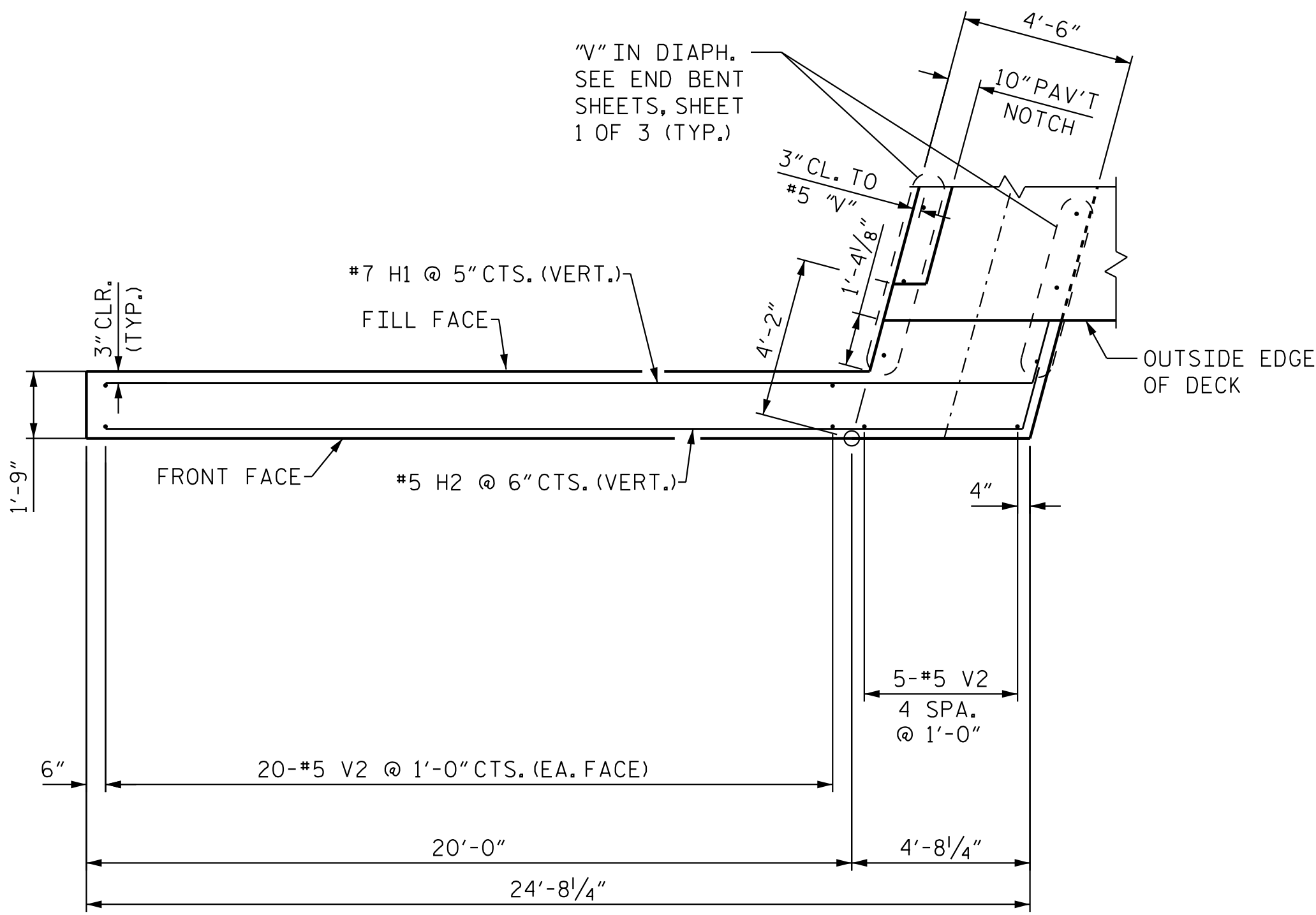
(LEFT LANE)

REVISIONS						SHEET NO. S08-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

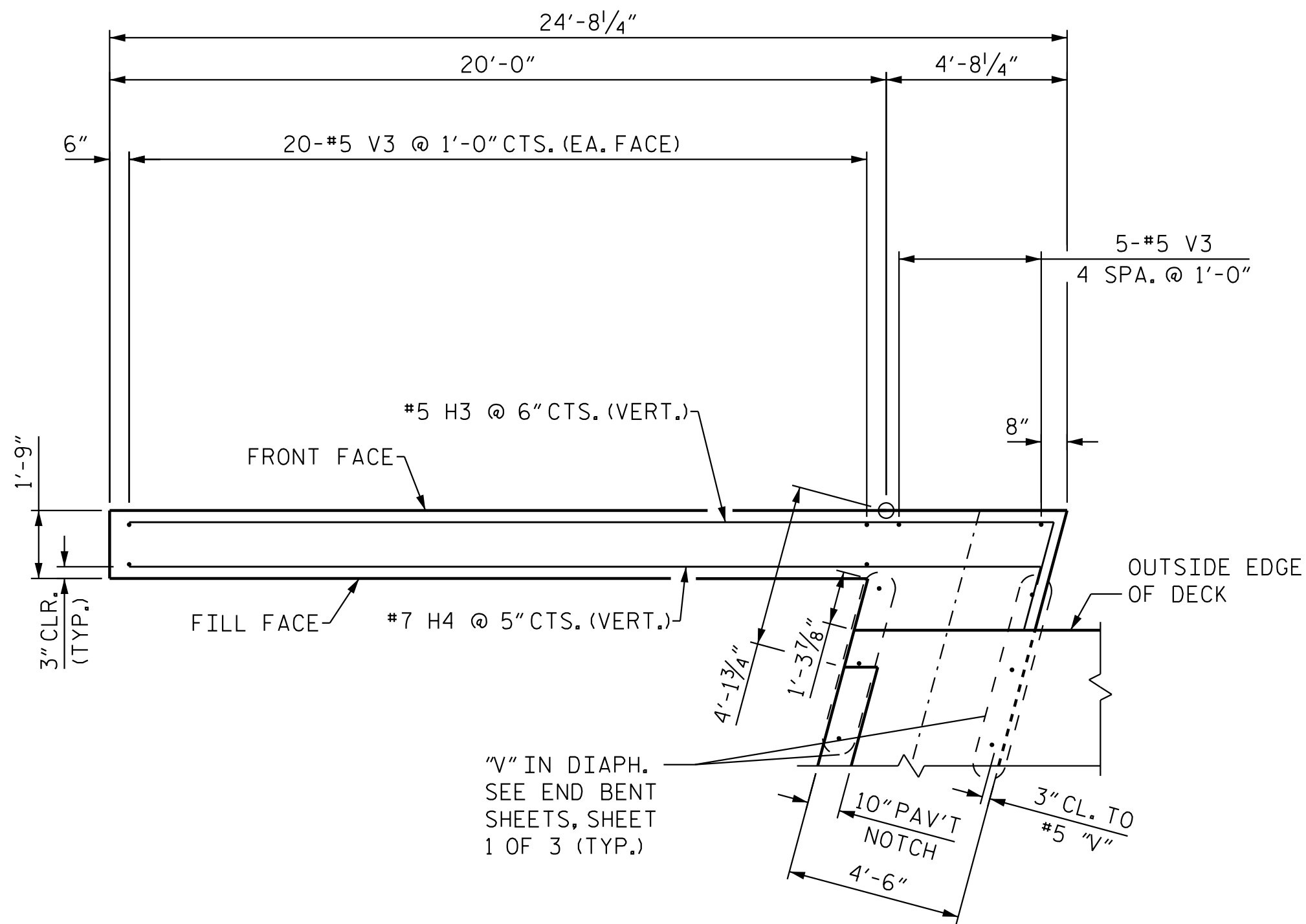


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ENGINEER
OF RECORD: S. S. POOLE DATE: 04/23/25

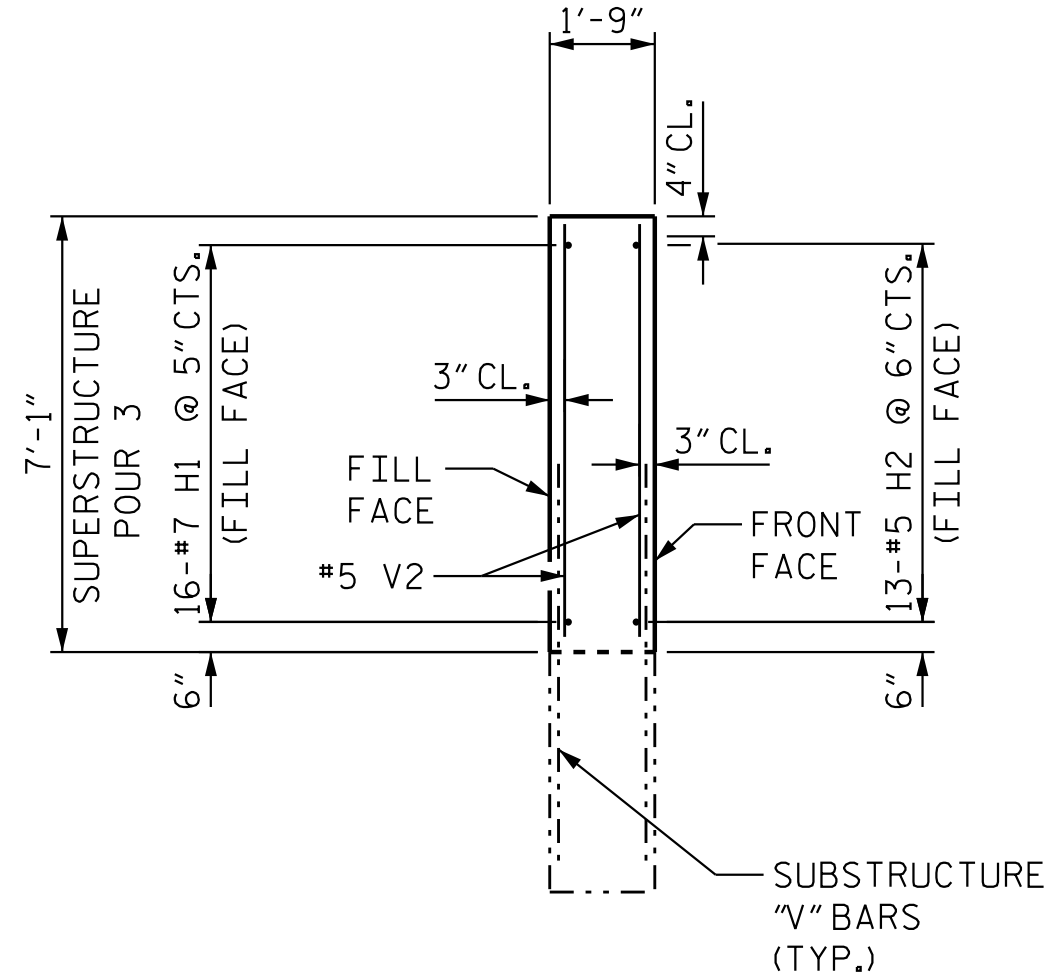
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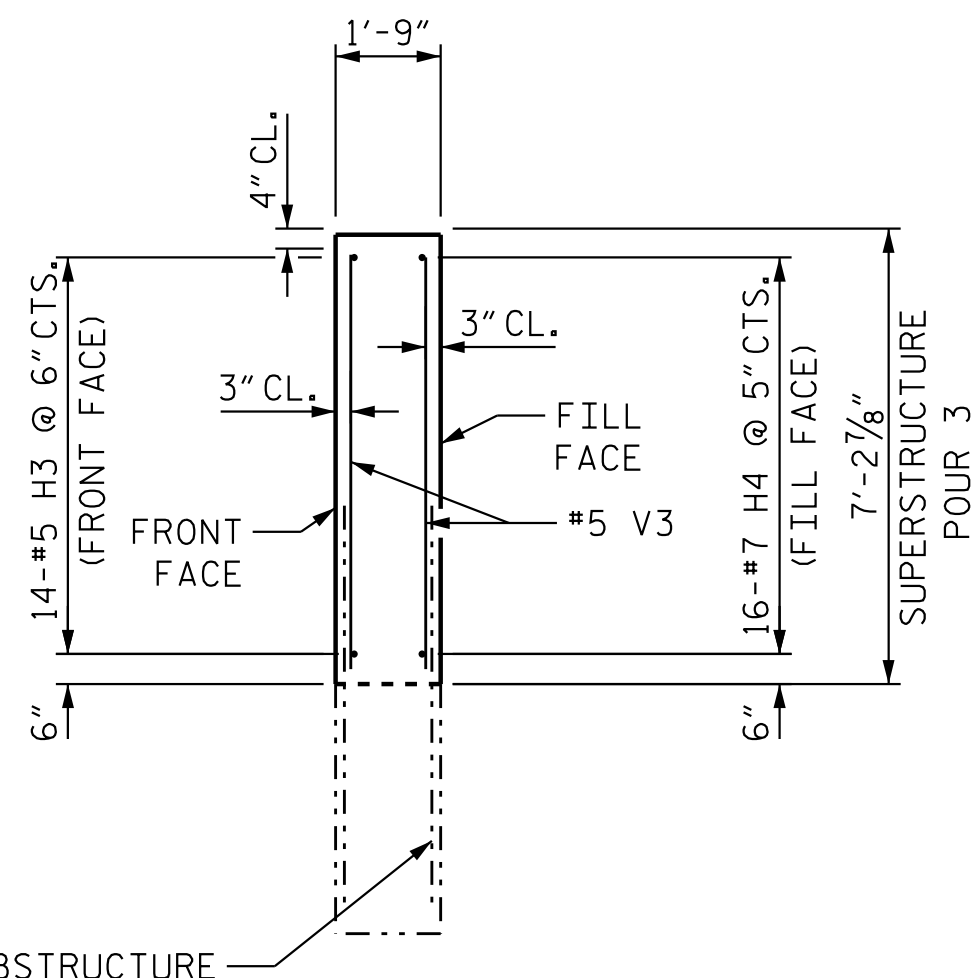
W2 PLAN OF RIGHT WING



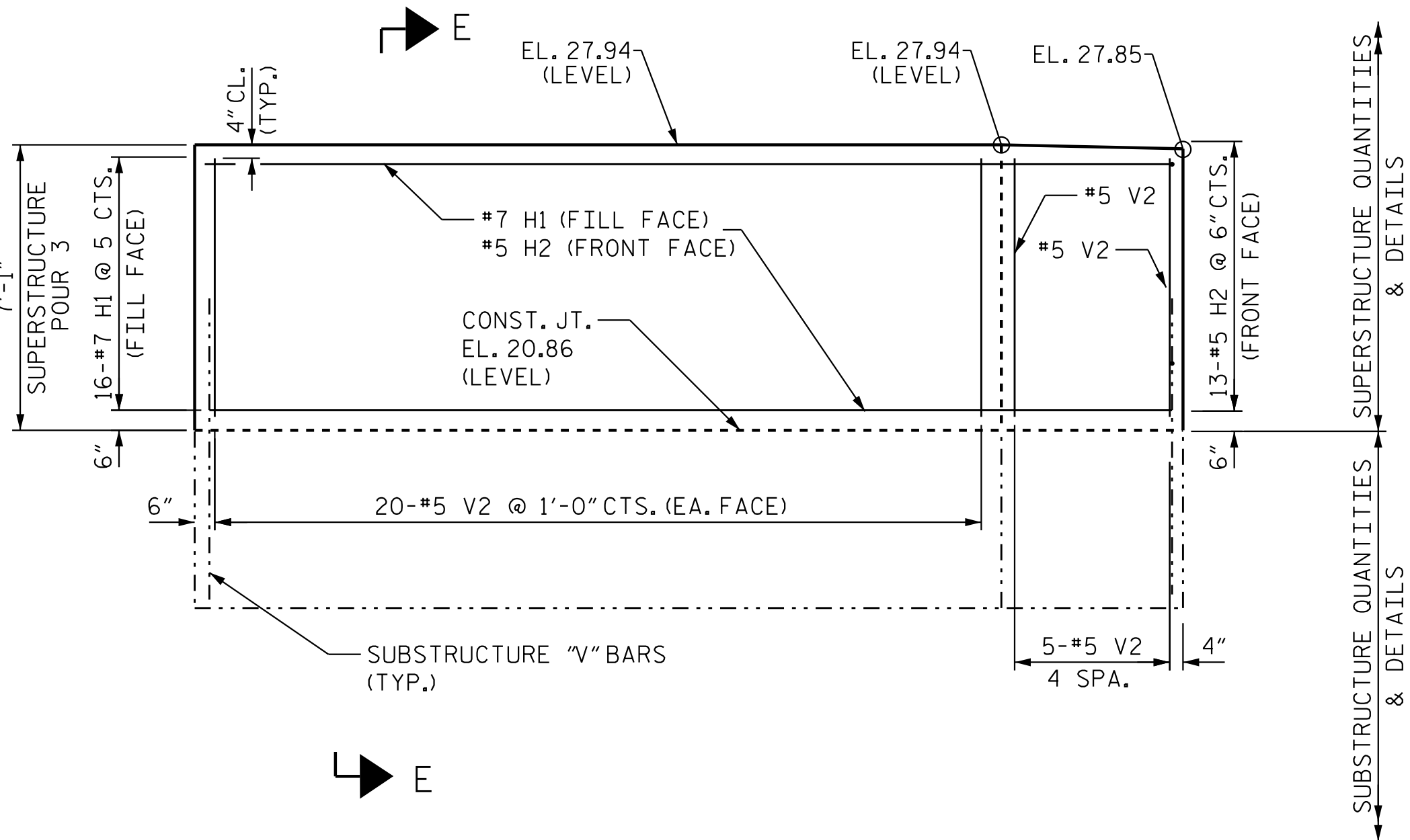
W1 PLAN OF LEFT WING



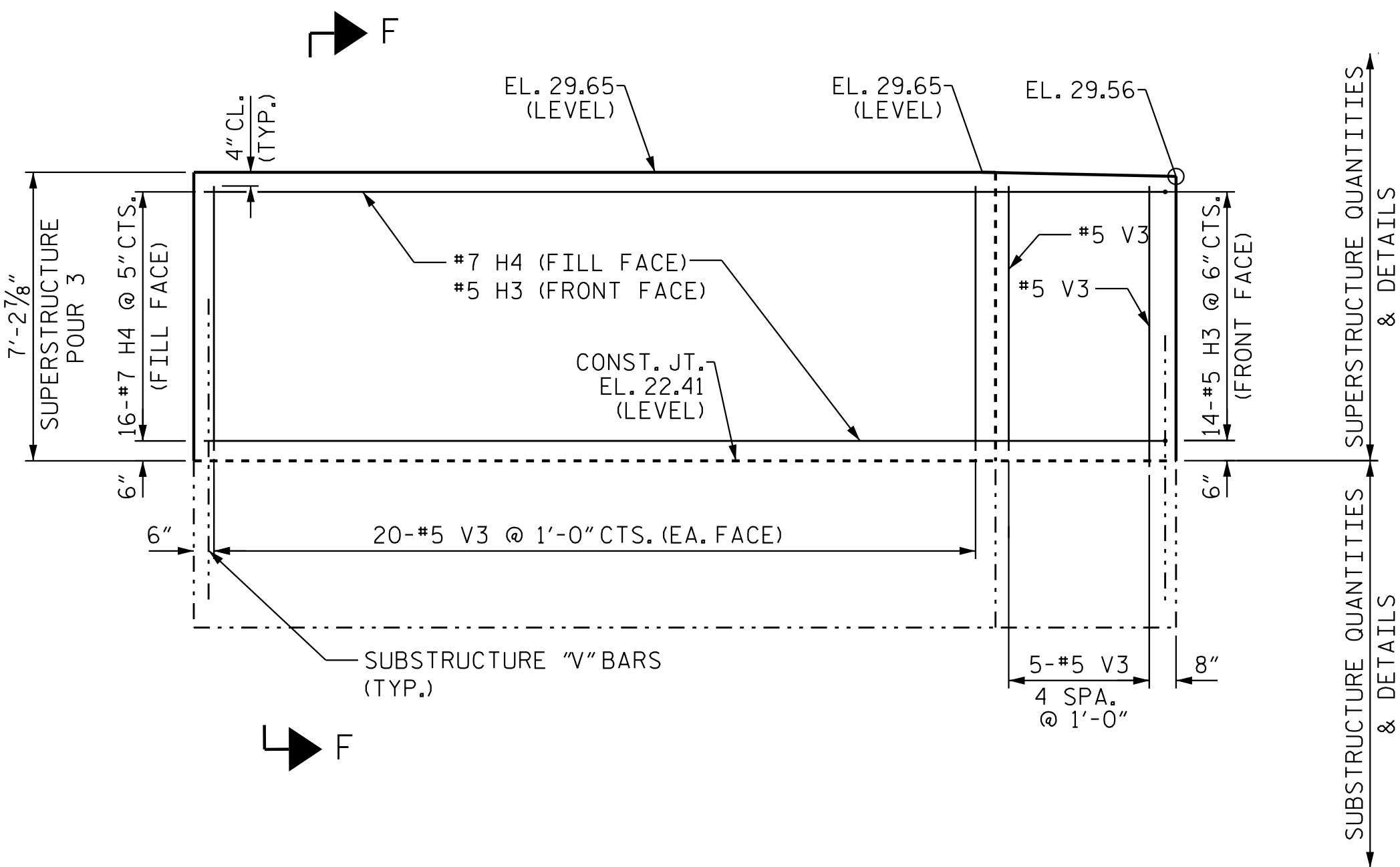
SECTION E-E



SECTION F-F



W2 ELEVATION OF RIGHT WING



W1 ELEVATION OF LEFT WING

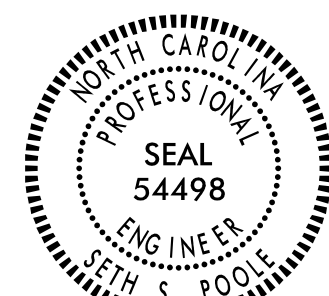
PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 5 OF 6



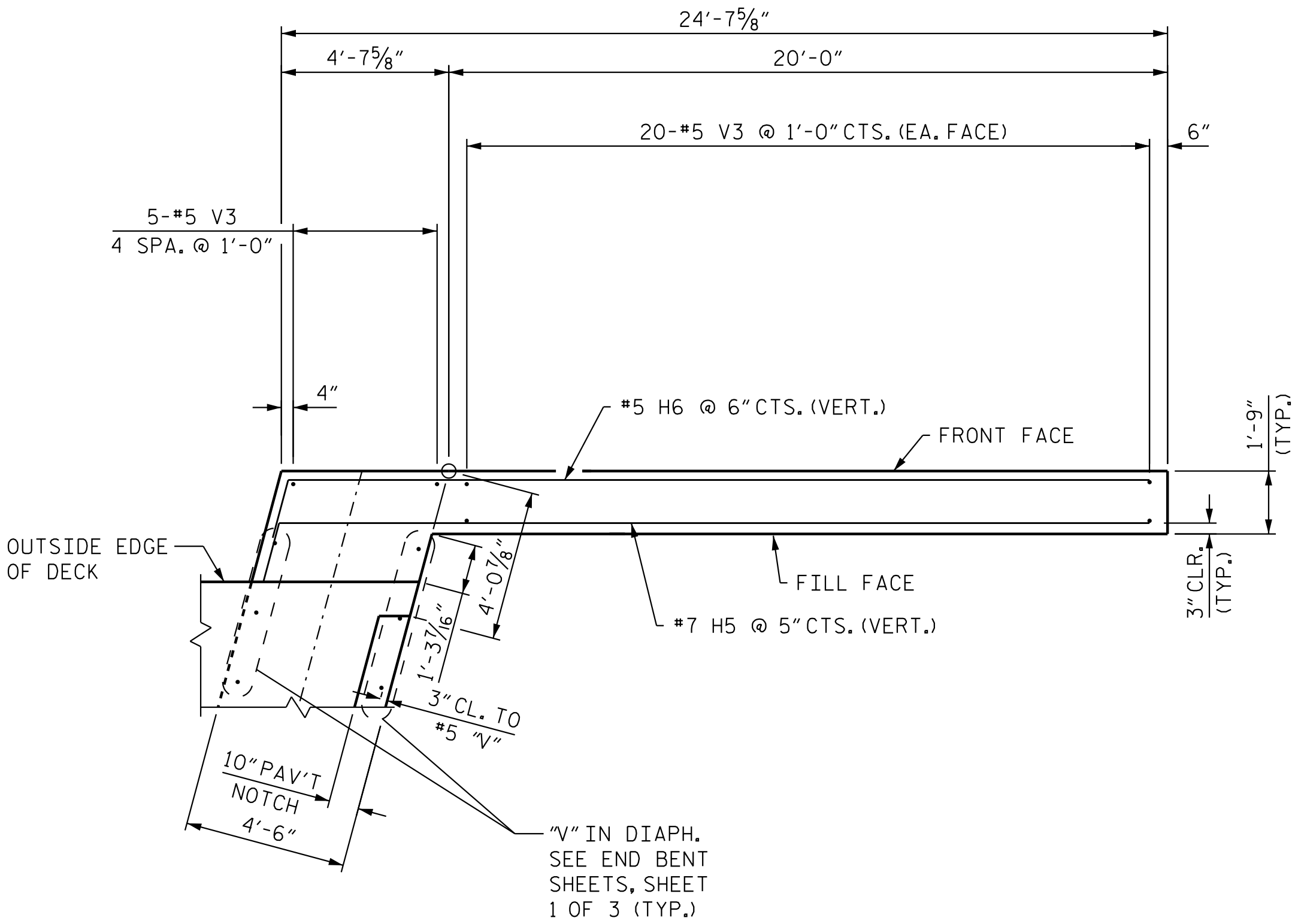
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CHECKED BY : S. S. POOLE DATE : 12/04/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25

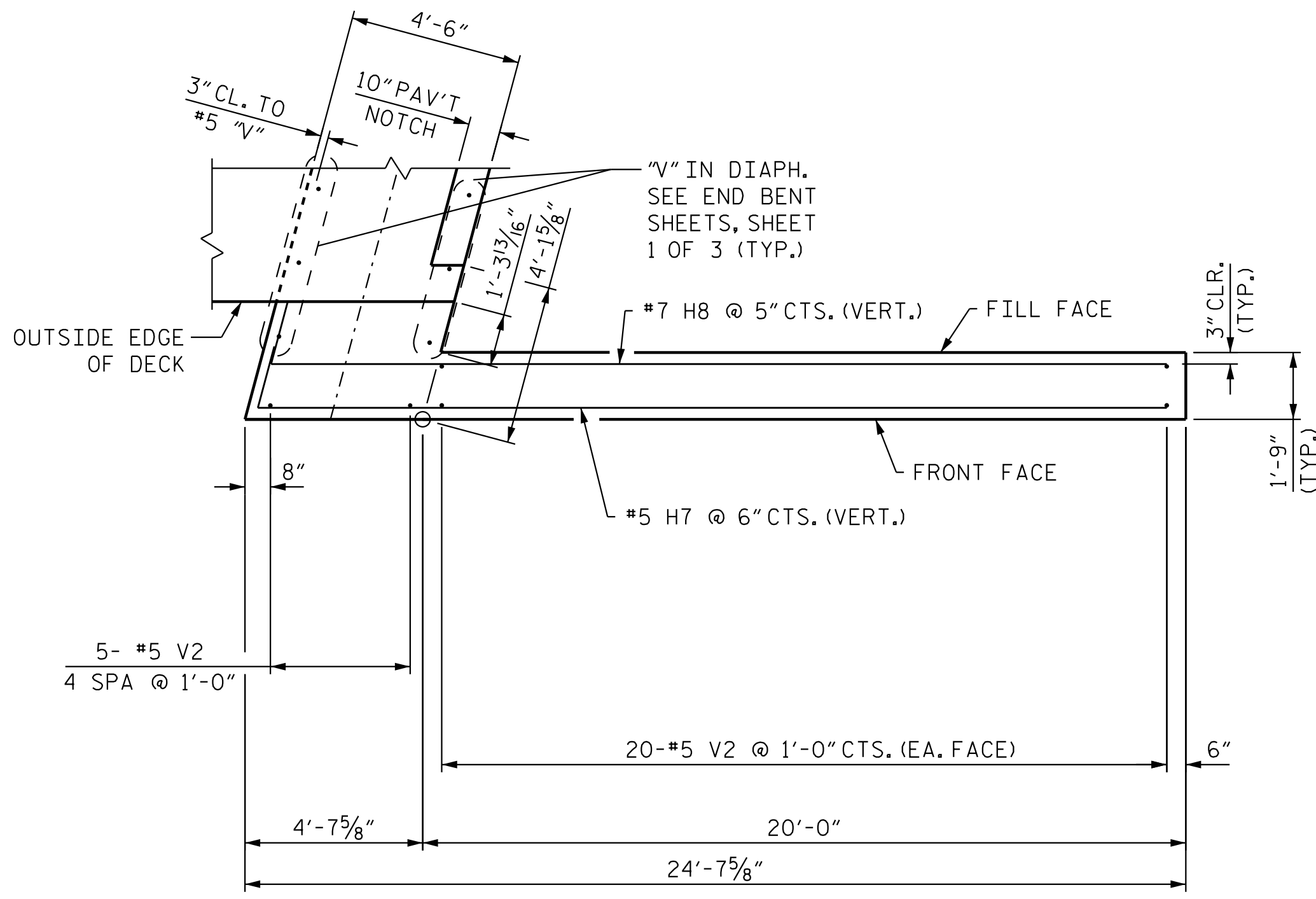


DOCUMENT NOT CONSIDERED
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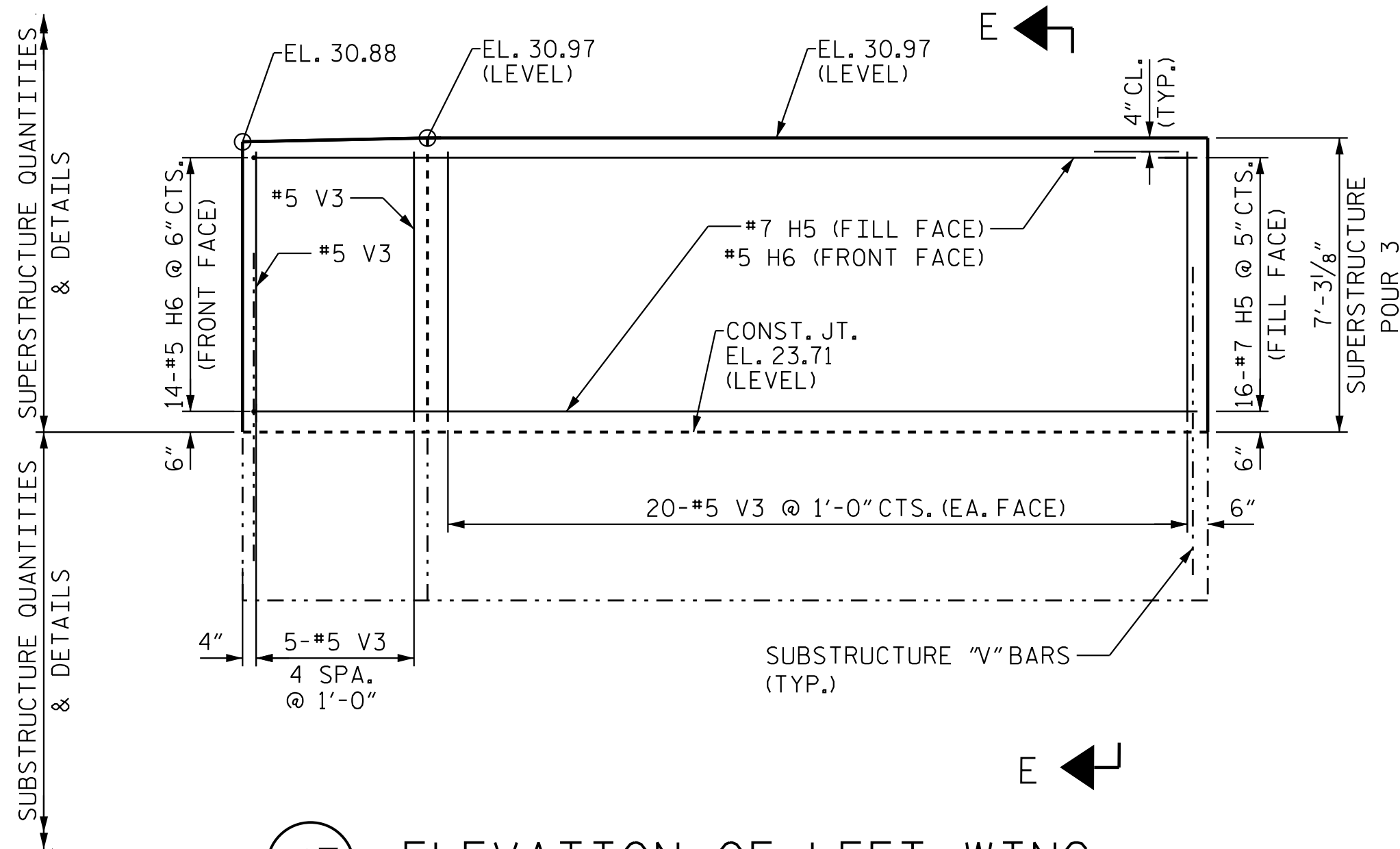
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



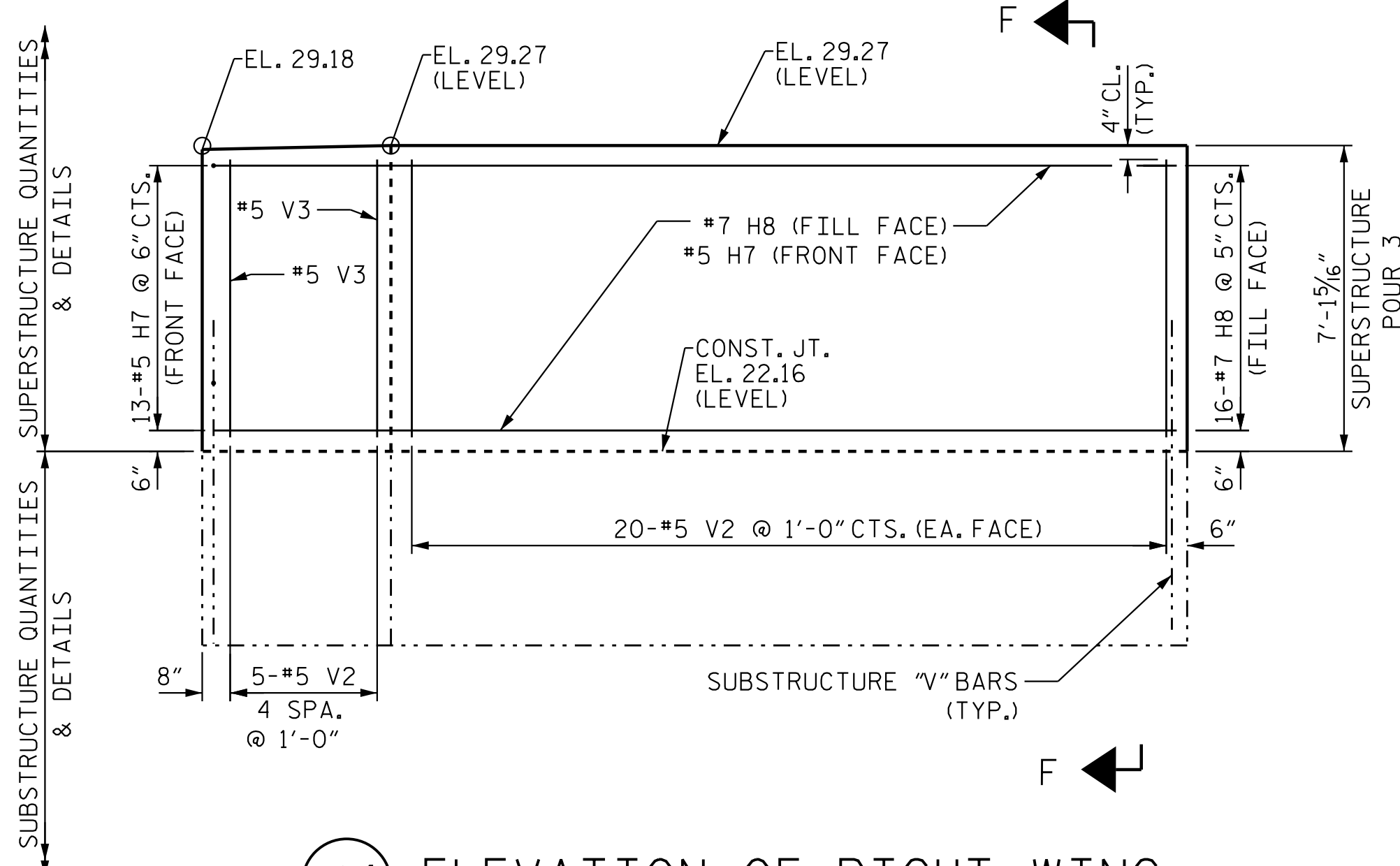
W3 PLAN OF LEFT WING



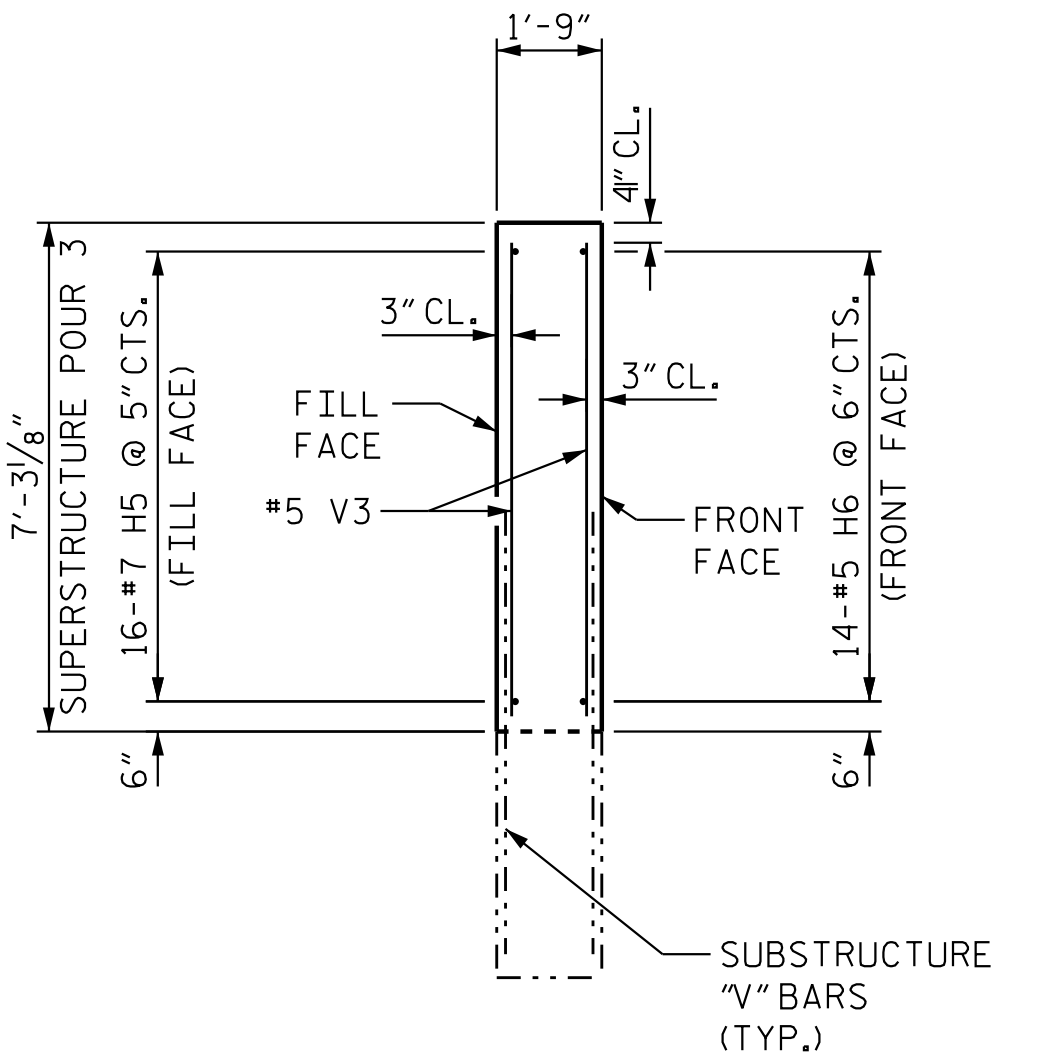
W4 PLAN OF RIGHT WING



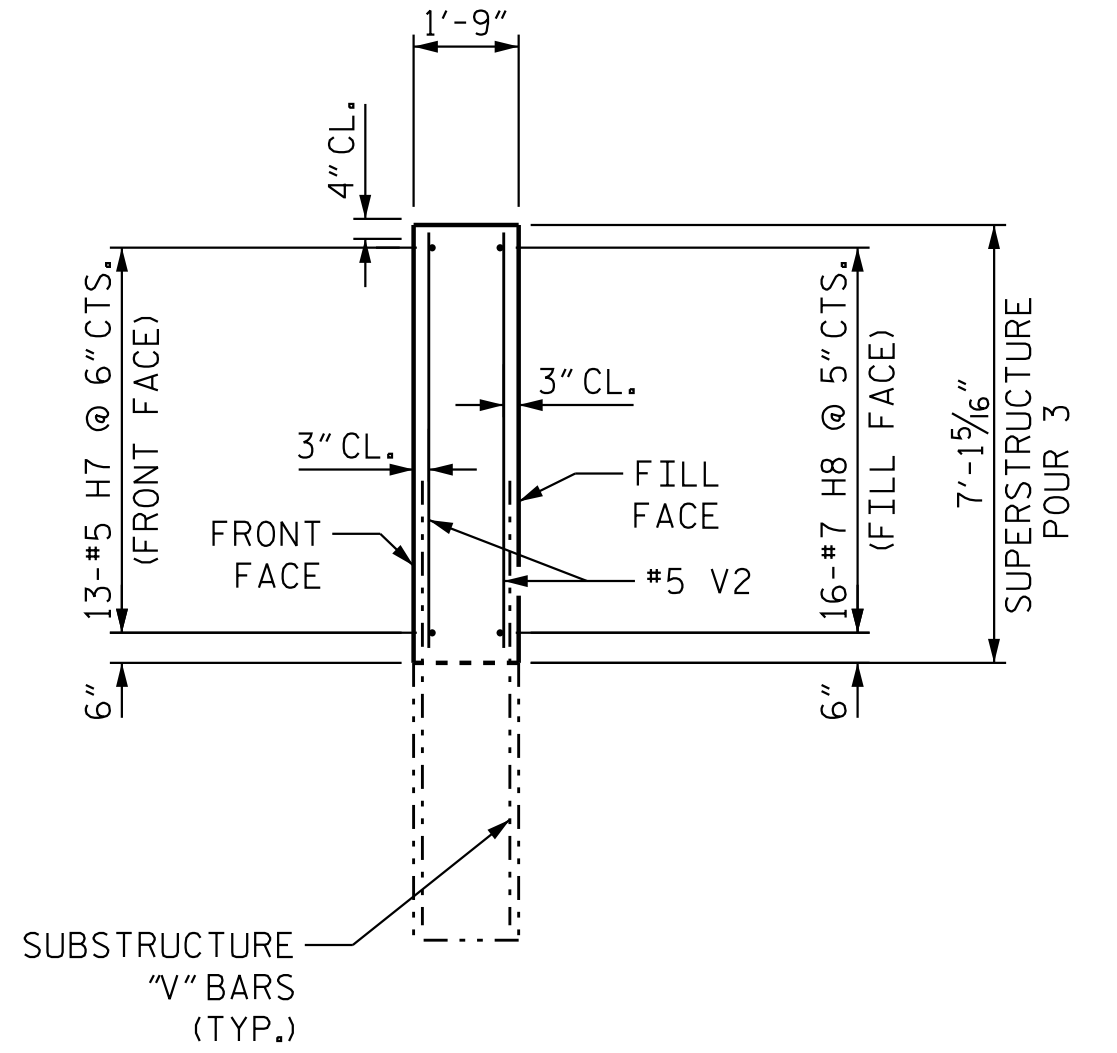
W3 ELEVATION OF LEFT WING



W4 ELEVATION OF RIGHT WING



SECTION E-E



SECTION F-F

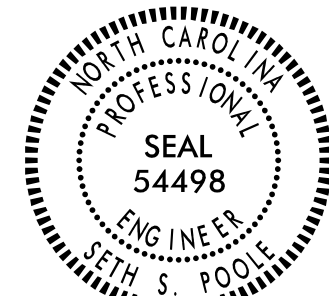
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PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 6 OF 6



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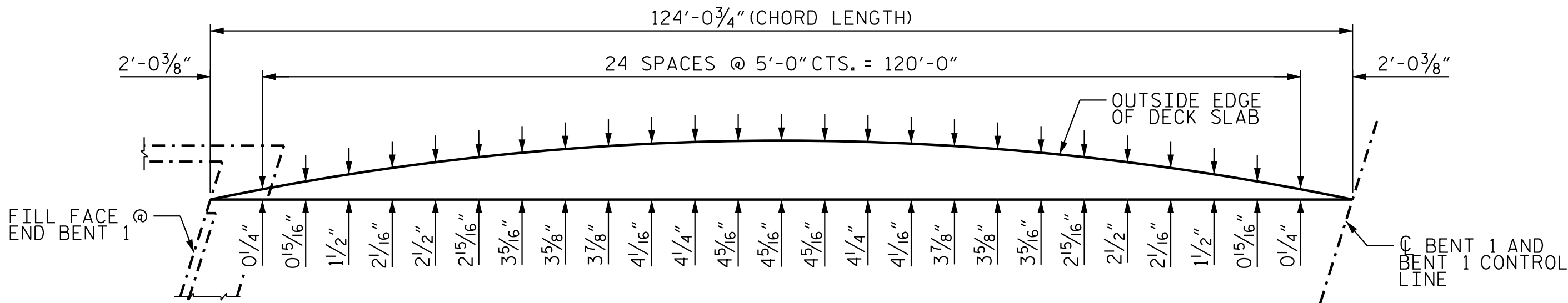
DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/04/24
DESIGN ENGINEER OF RECORD : S. S. POOLE DATE : 04/23/25



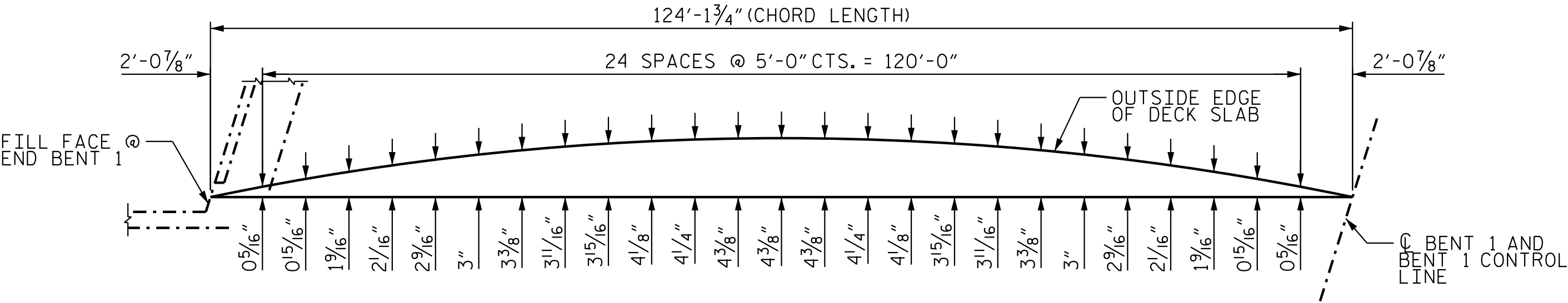
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REVISIONS						SHEET NO. S08-16
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1			3			TOTAL SHEETS 41
2			4			

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

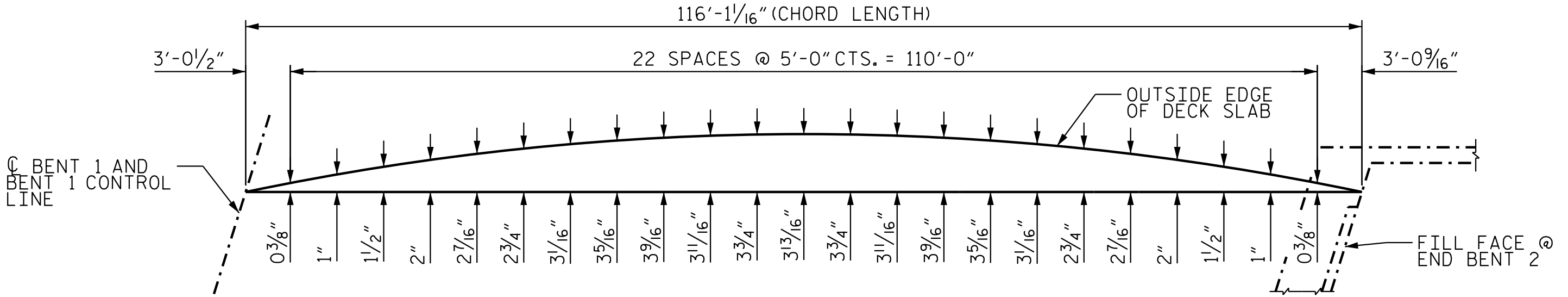


LEFT SIDE

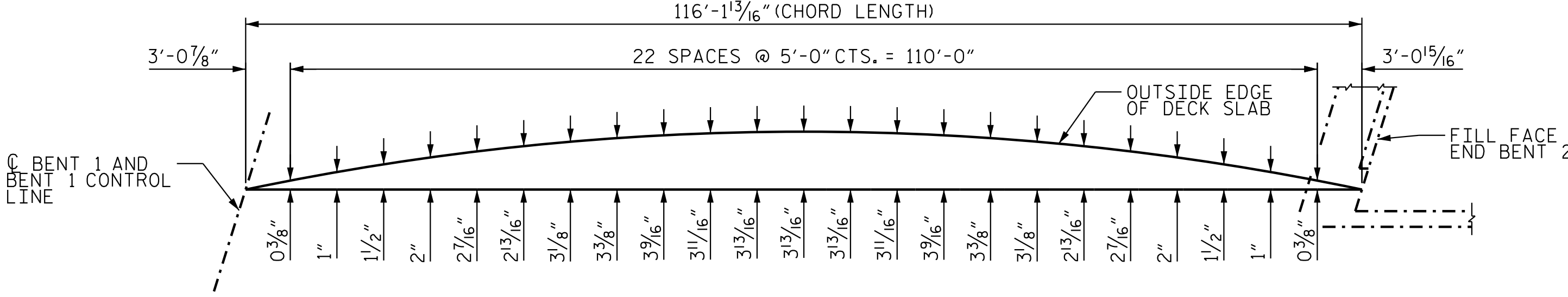


RIGHT SIDE

ARC OFFSETS- SPAN A



LEFT SIDE



RIGHT SIDE

ARC OFFSETS- SPAN B

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

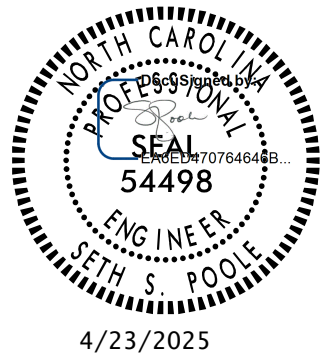
SHEET 1 OF 1



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DRAWN BY : G. NGUYEN DATE : 08/20/18
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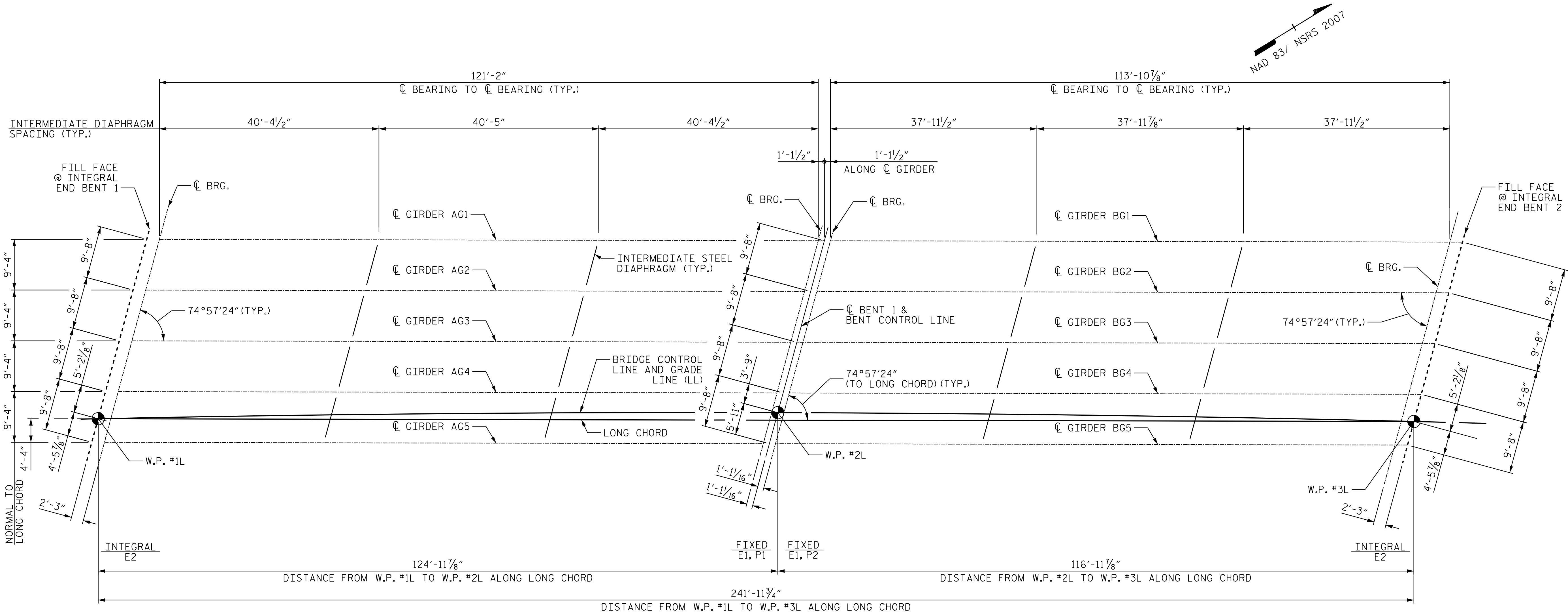
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
ARC OFFSETS

(LEFT LANE)

REVISIONS						SHEET NO. S08-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



SPAN A

FRAMING PLAN

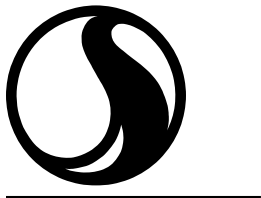
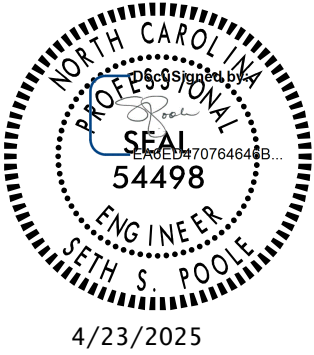
SPAN B

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 1 OF 1

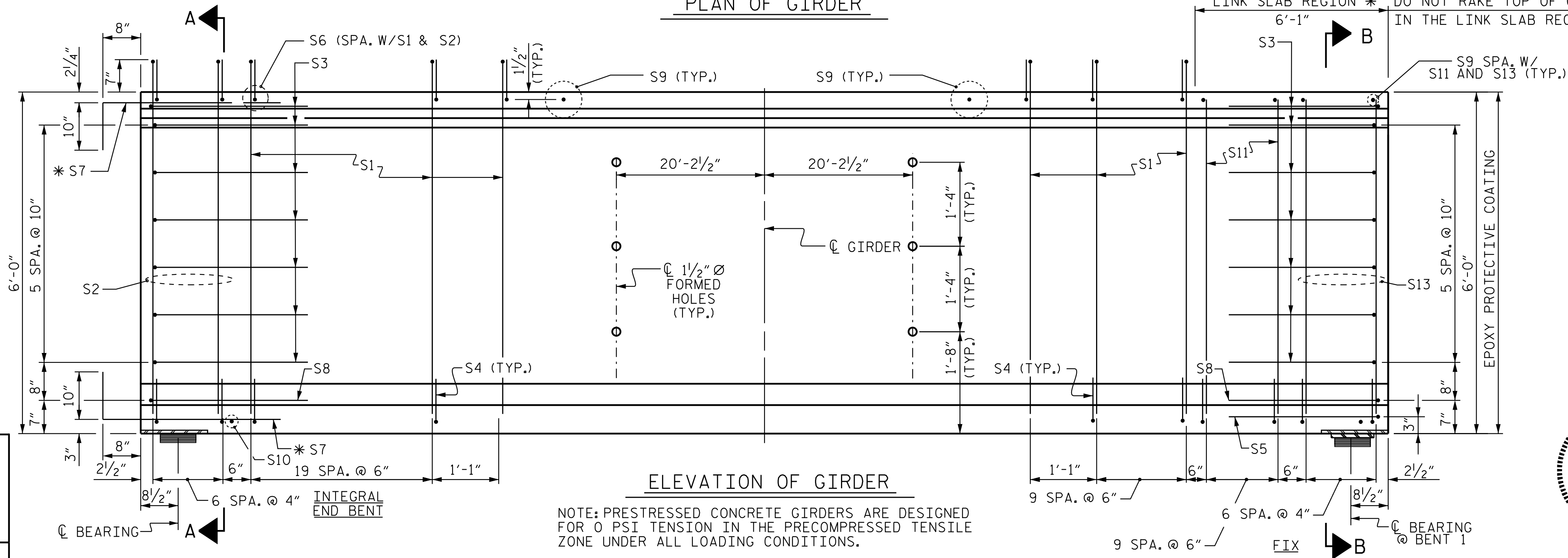
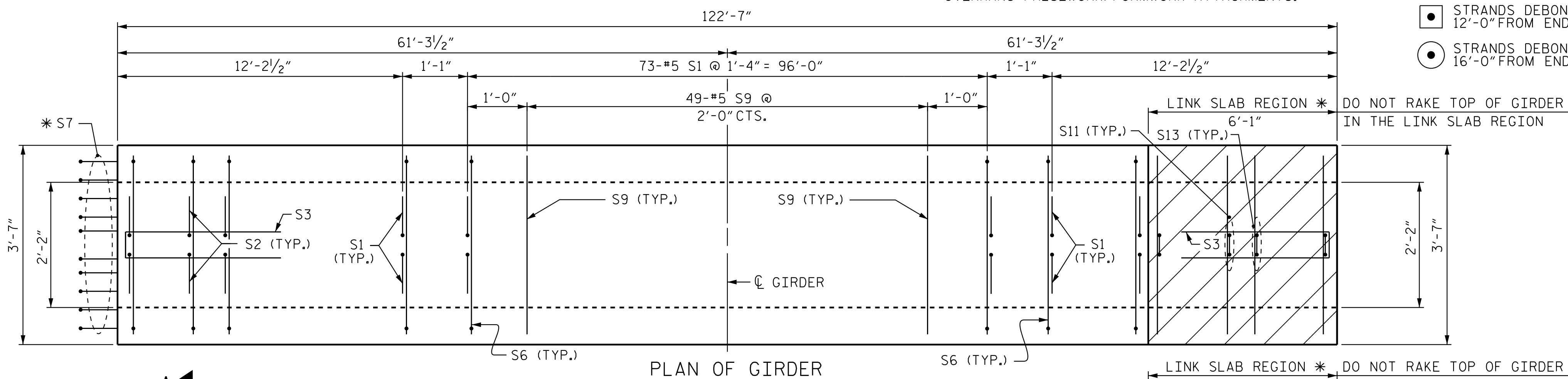
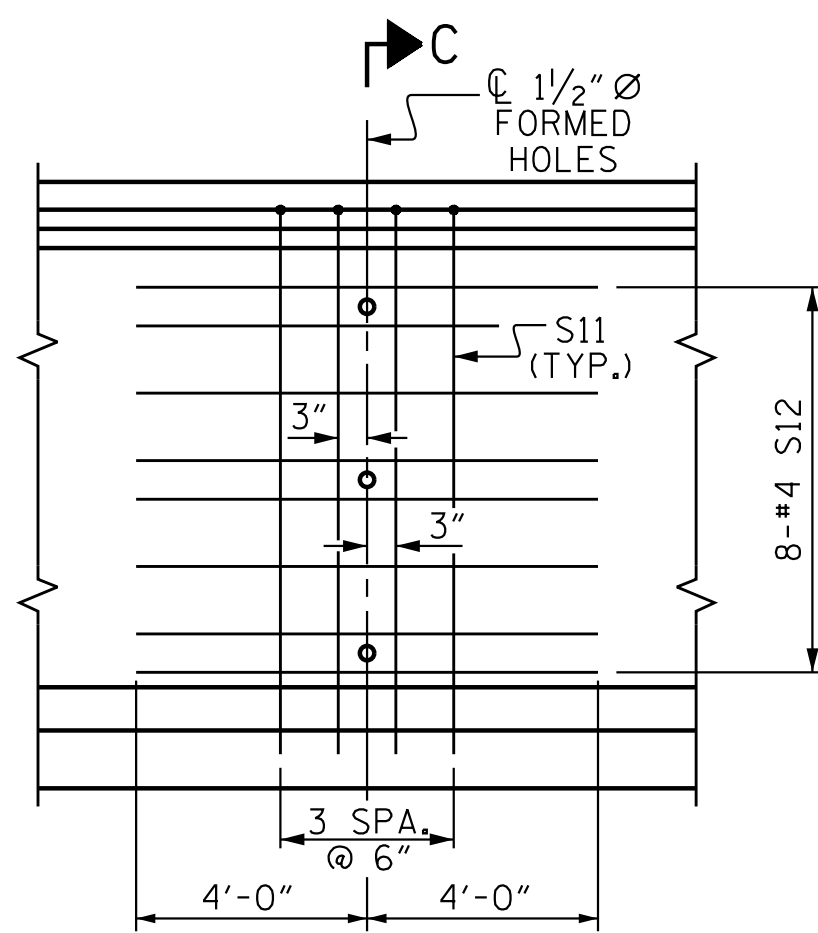
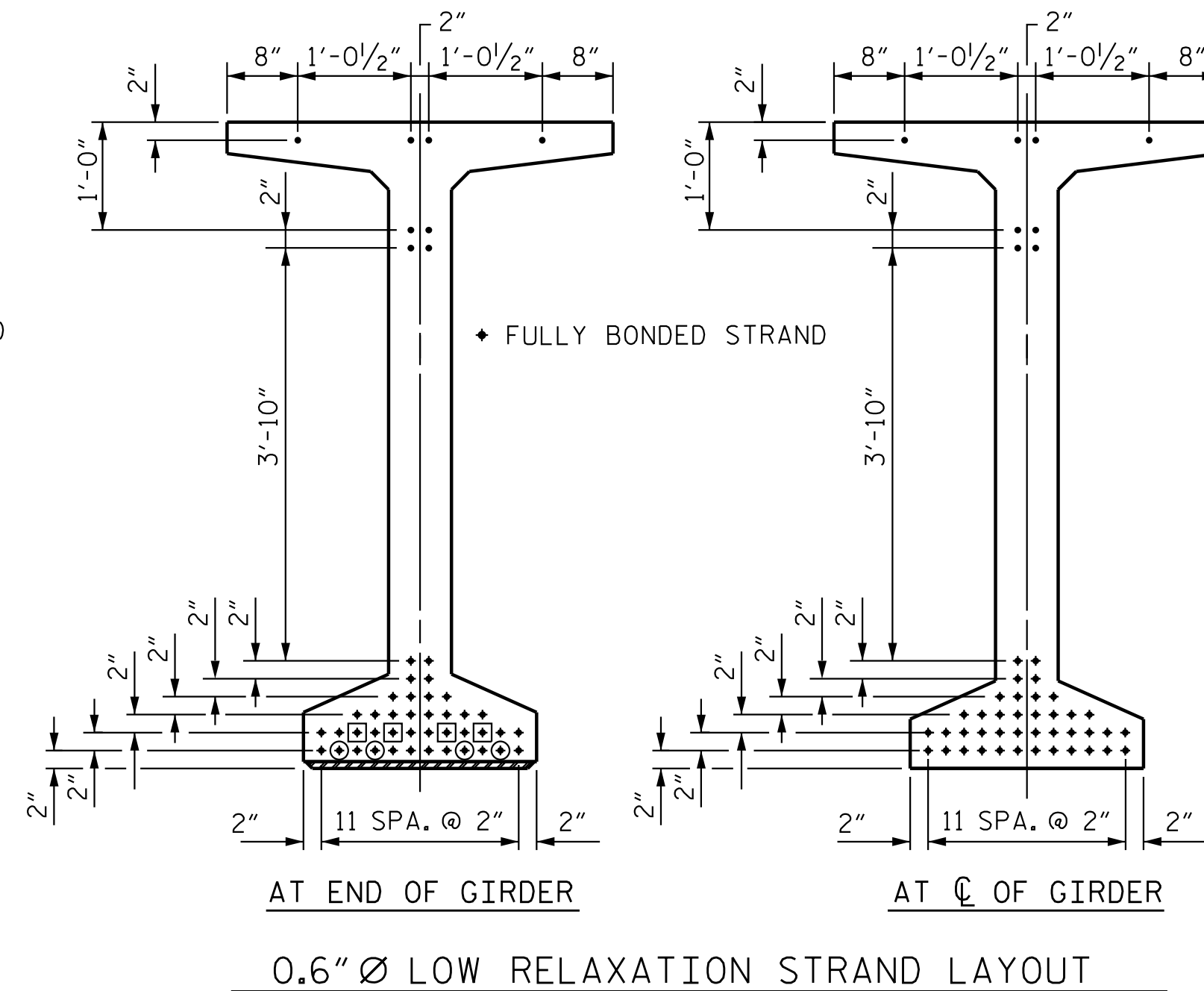
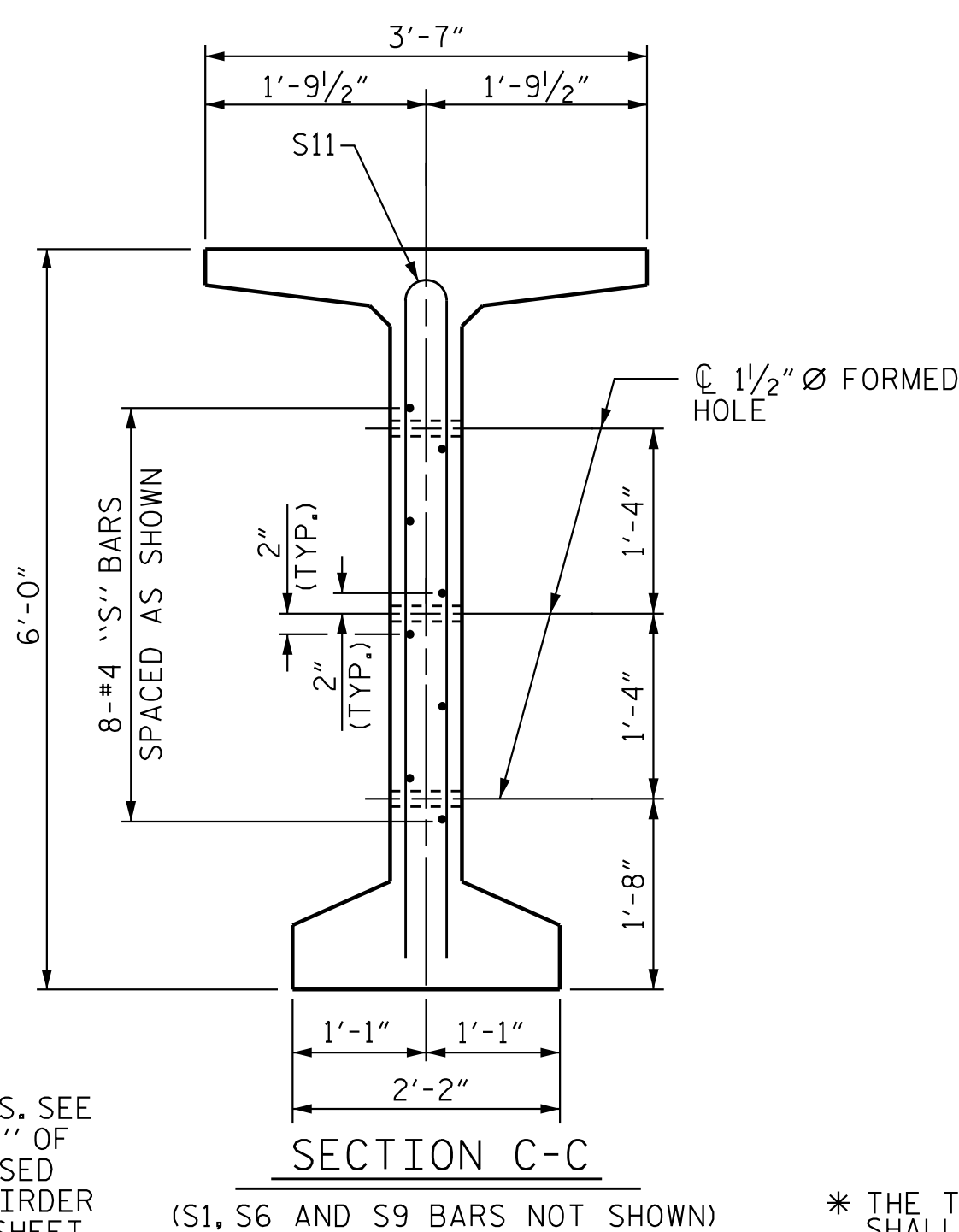
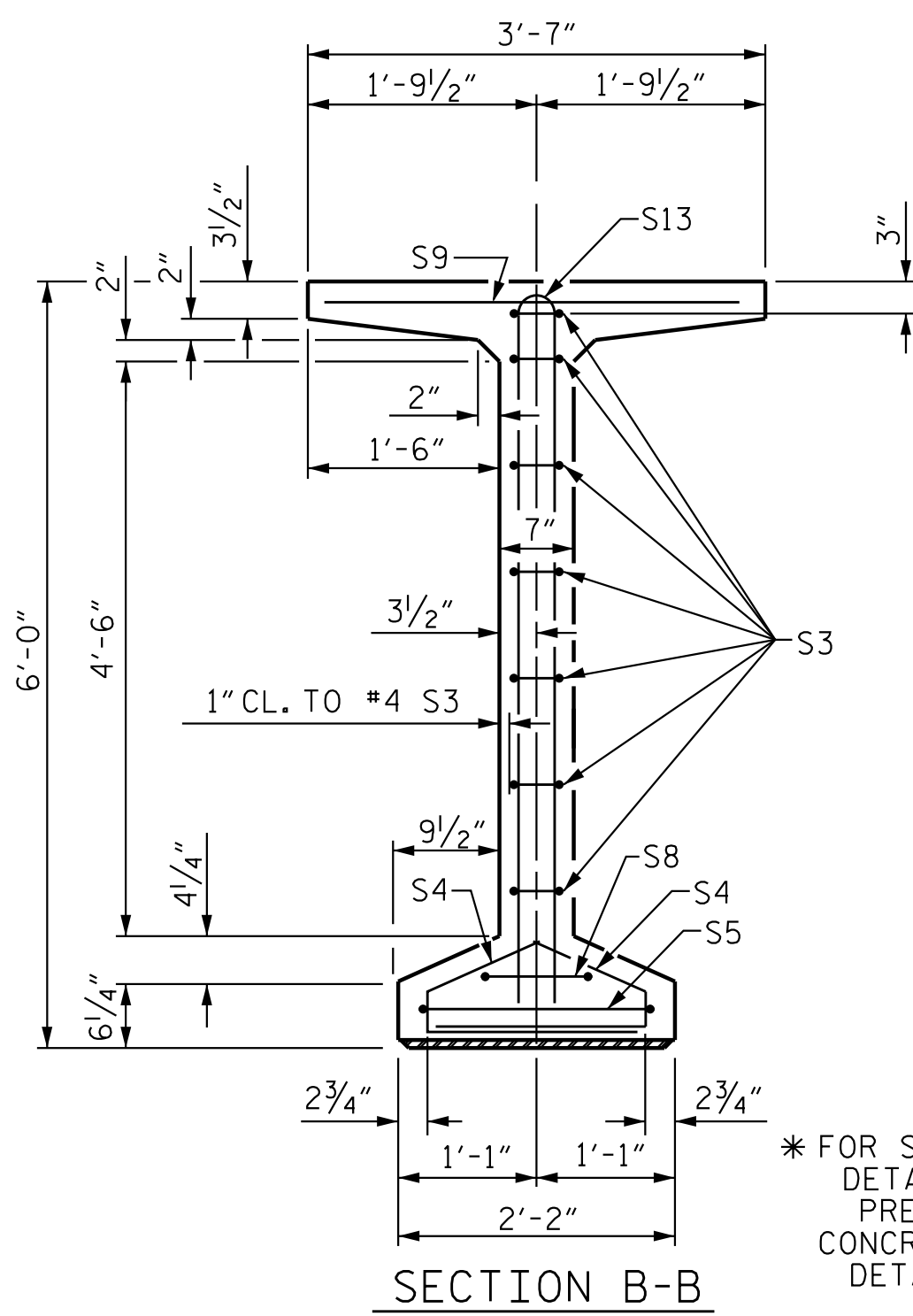
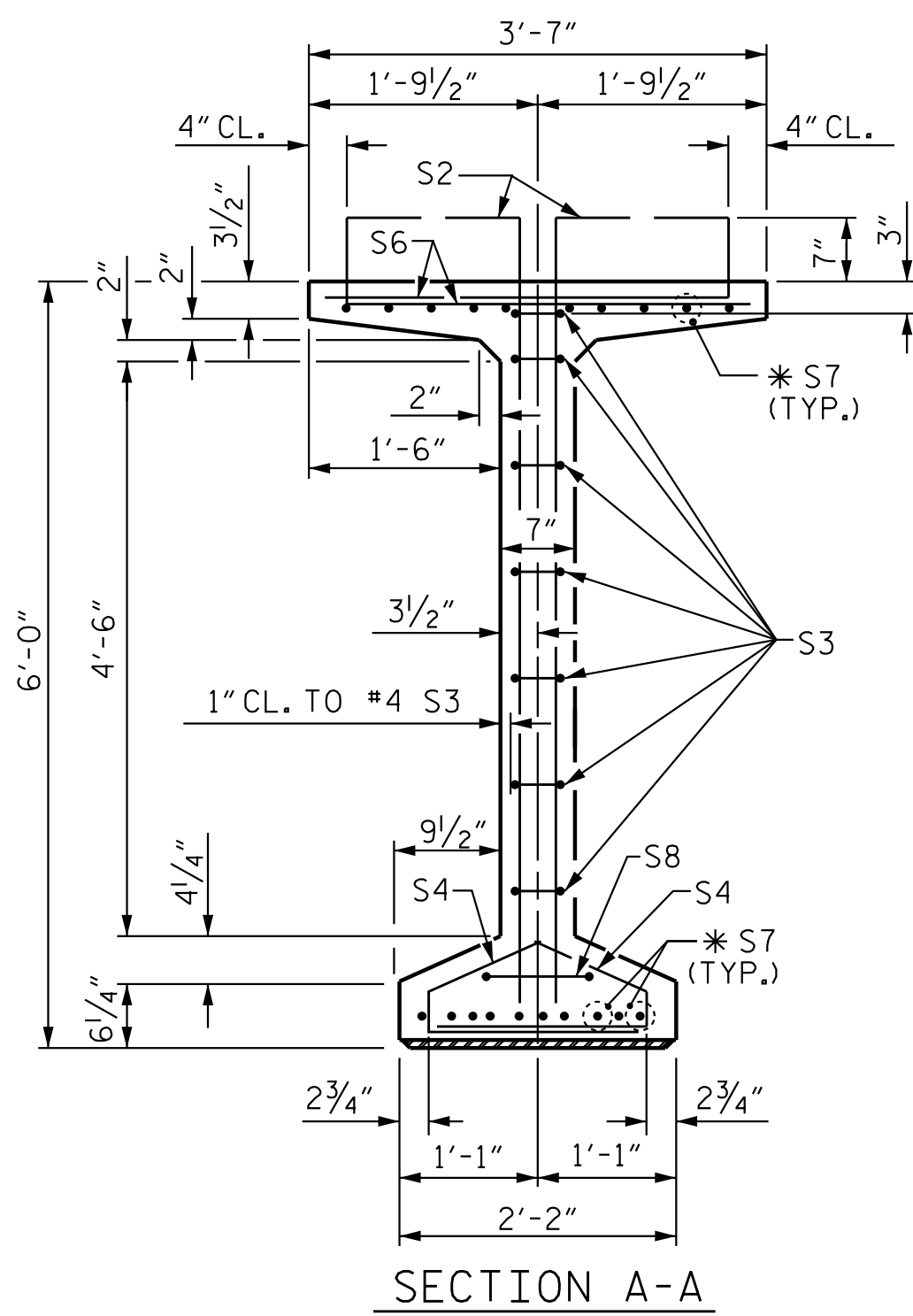
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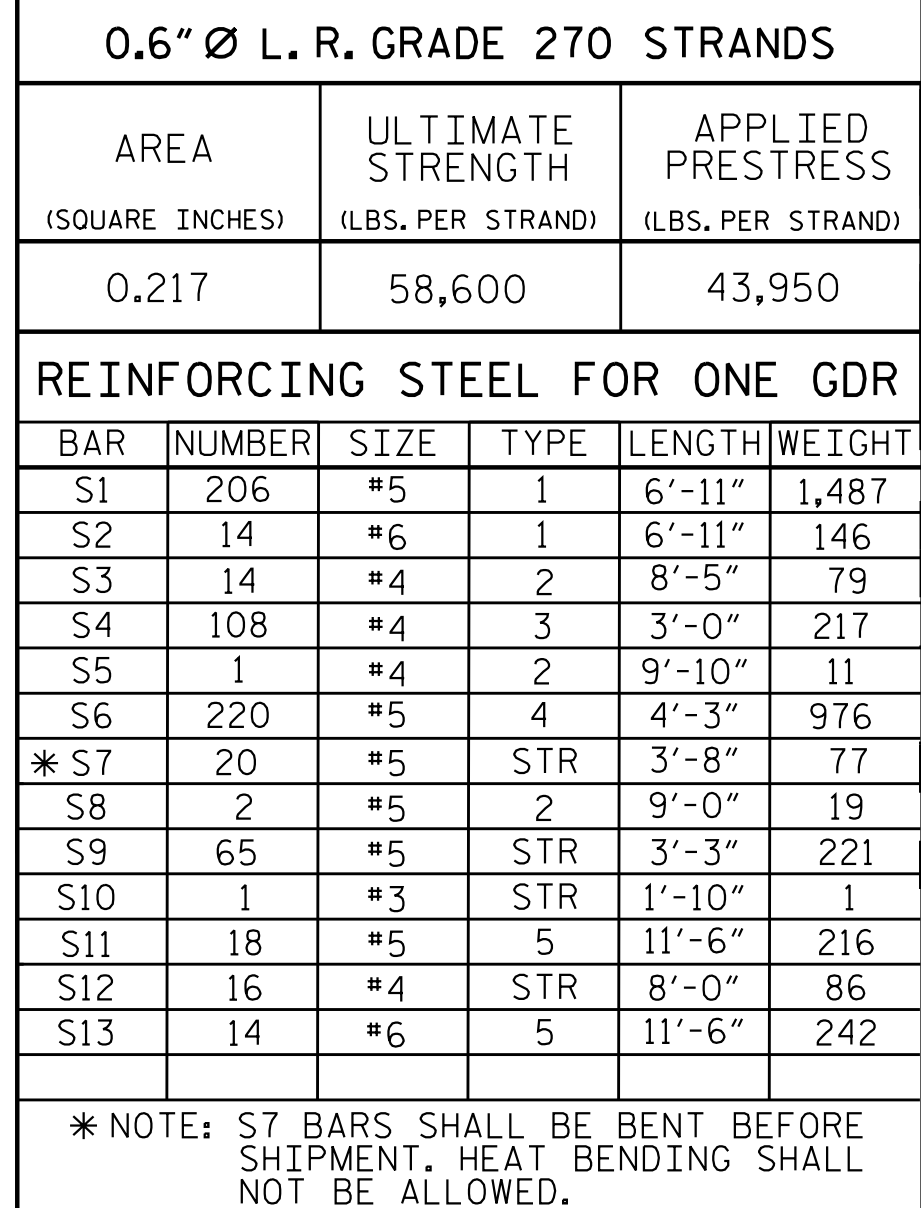
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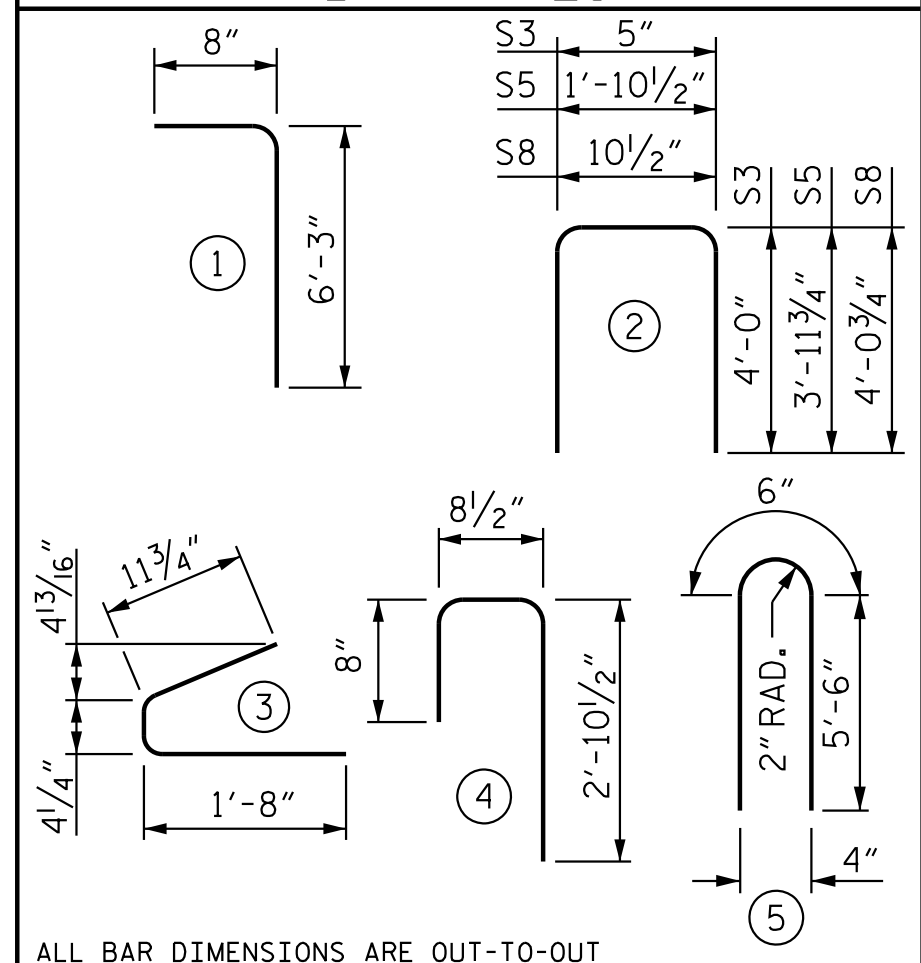
NOTE: PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◻ ● STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
- ● STRANDS DEBONDED FOR 16'-0" FROM END OF GIRDER



BAR TYPES

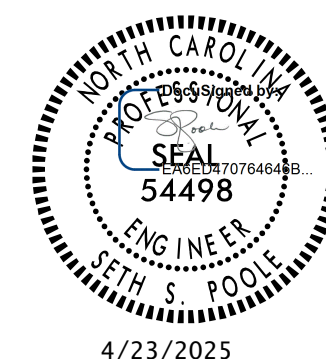


QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	10,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	NO.
	3,778	26.3	48

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	122'-7"	612'-11"

PROJECT NO. R-3300A
 PENDER COUNTY
 STATION: 427+46.10 -L1-

SHEET 1 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

**MODIFIED 72" PRESTRESSED
 CONCRETE GIRDER**

SPAN A

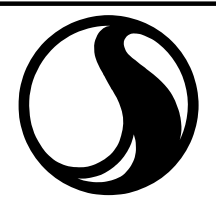
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BY:	DATE:	NO.	BY:	DATE:		S08-19
		3				TOTAL SHEETS
		4				41

SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S08-19
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2			4			

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STD. NO. PCG8



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ASSEMBLED BY : S. SOK	DATE : 02/11/19
CHECKED BY : S. S. POOLE	DATE : 12/04/24

DRAWN BY :	BNB 09/21	REV.
CHECKED BY :	AAI 09/21	REV.
		REV.

REV.	
REV.	
REV.	

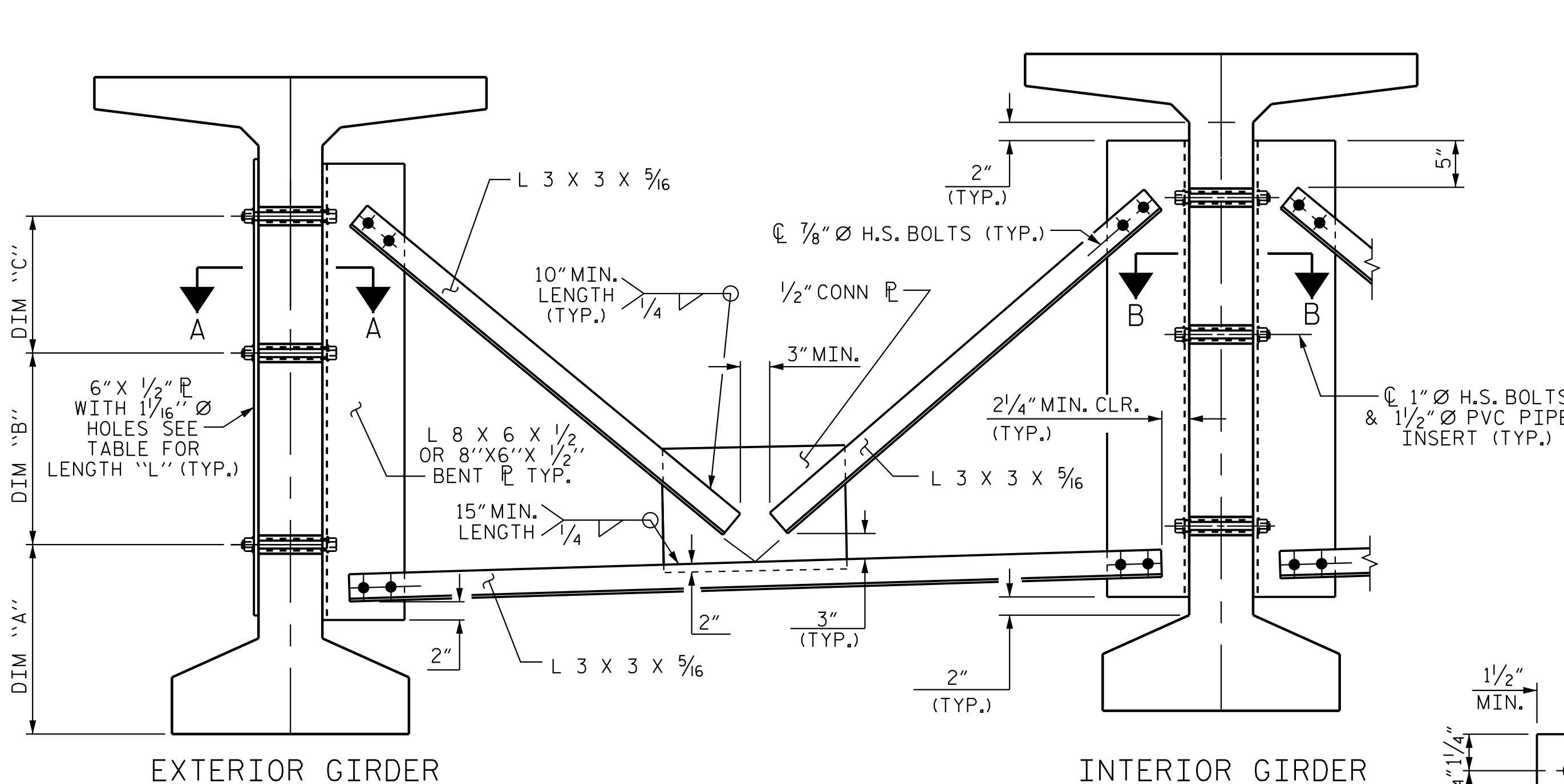
DESIGN
ENGINEER
OF RECORD: S. S. POOLE DATE: 04/23/25

STD. NO. PCG8

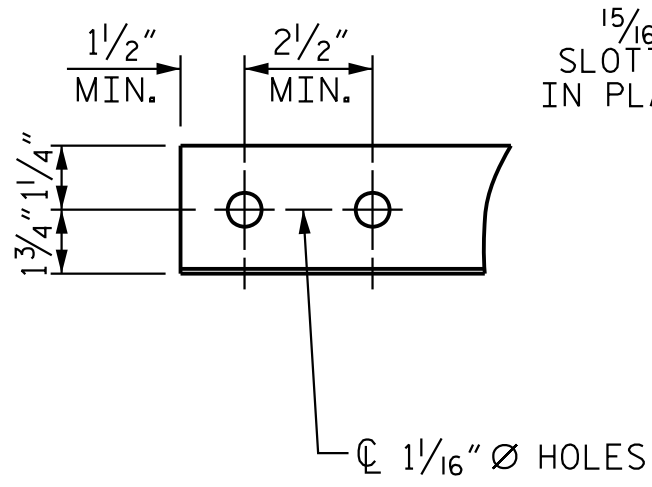
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+

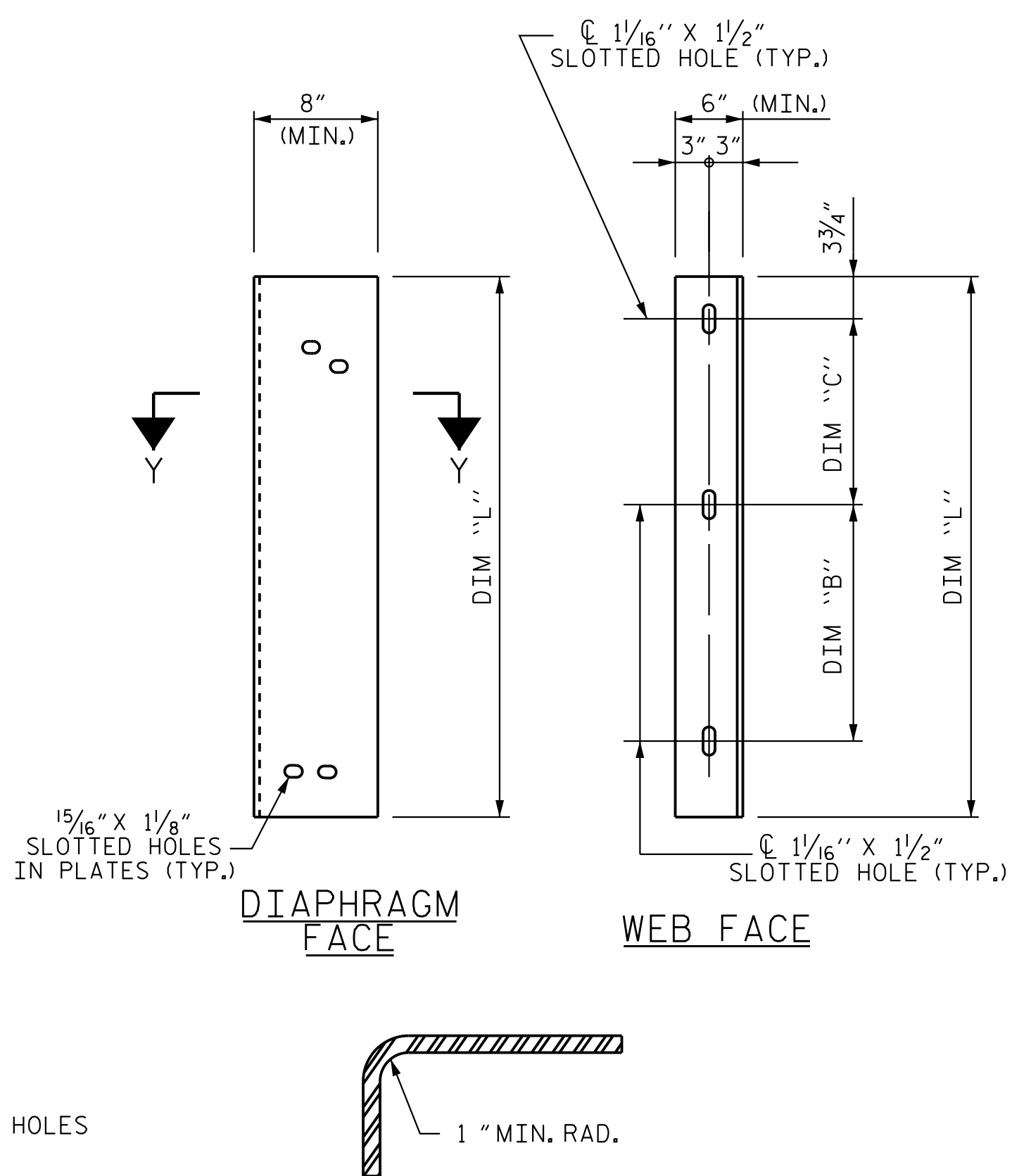
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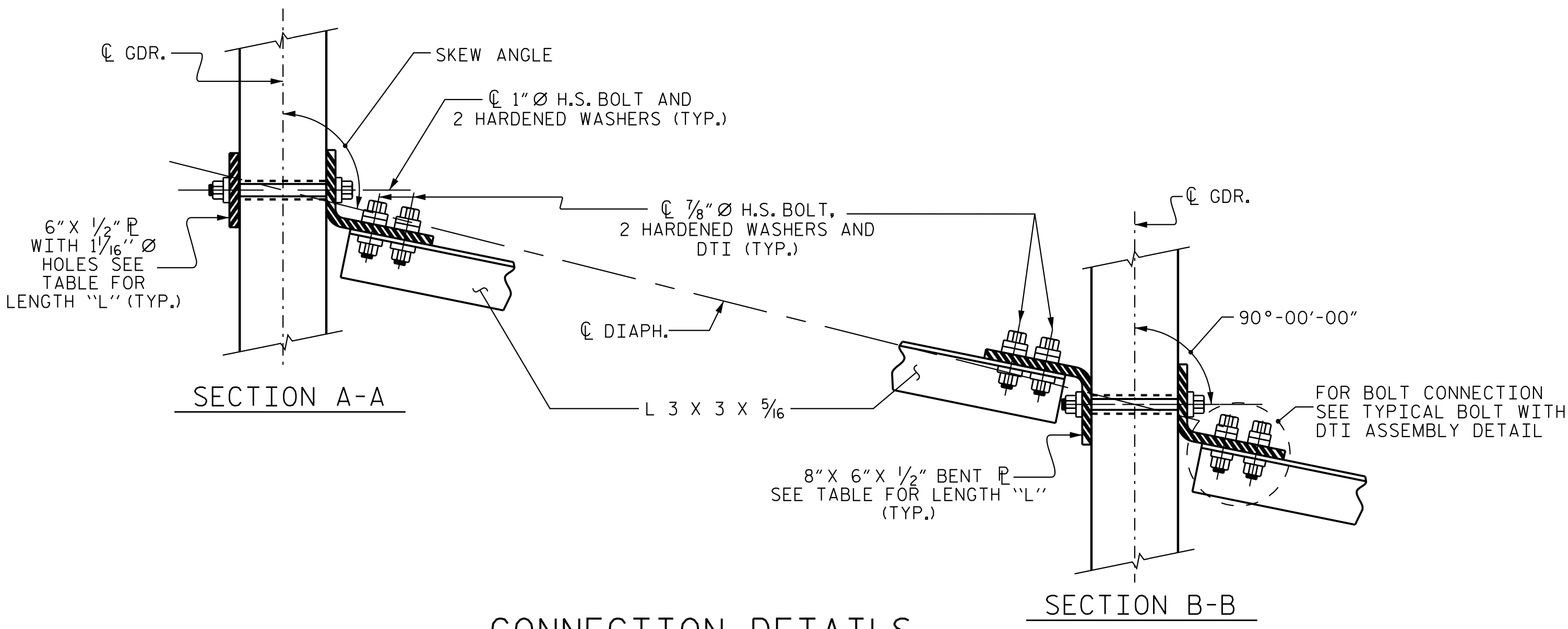
PART SECTION AT INTERMEDIATE DIAPHRAGM



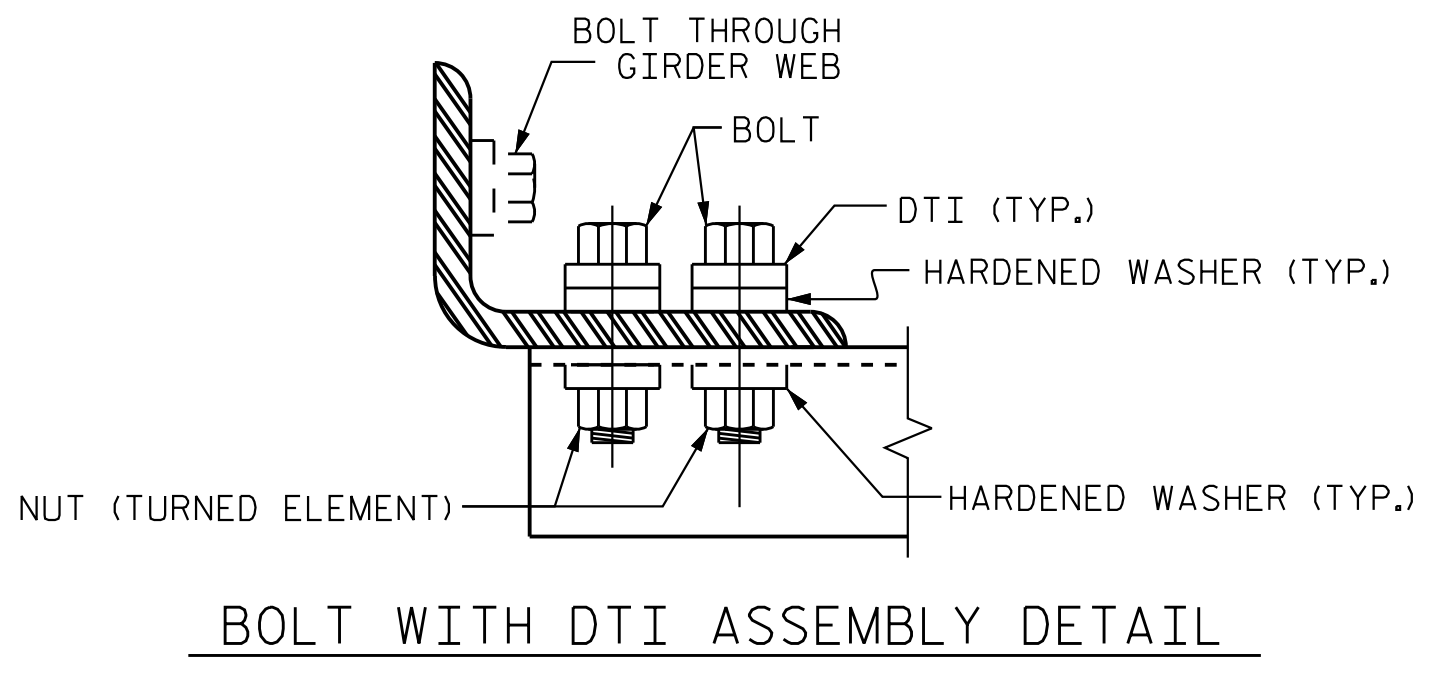
ANGLE END
(L 3 x 3 x 5/16)



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.

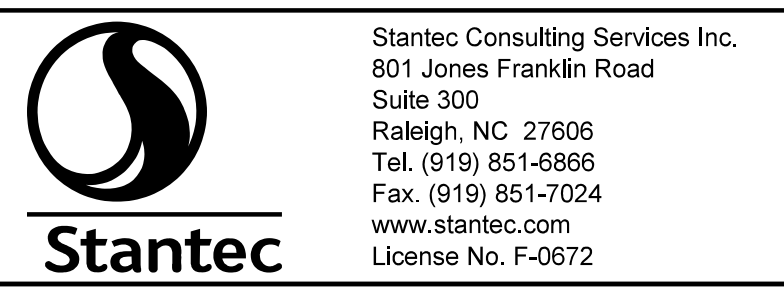
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

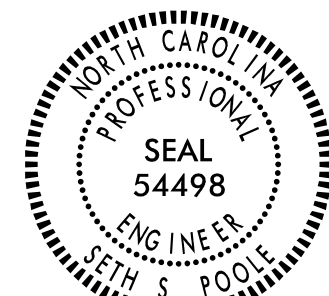
GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
MODIFIED 72" PREST. CONC. GDR.	1'-8"	1'-4"	1'-4"	4'-2"

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 4 OF 4



ASSEMBLED BY : S. SOK	DATE : 09/01/18
CHECKED BY : S. S. POOLE	DATE : 01/13/25
DRAWN BY : RWW 11/09	REV. 10/1/11 MMA/GM
CHECKED BY : GM 11/09	REV. 12/17 MMA/THC
DESIGN ENGINEER OF RECORD: S. S. POOLE	DATE : 04/23/25



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

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 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.

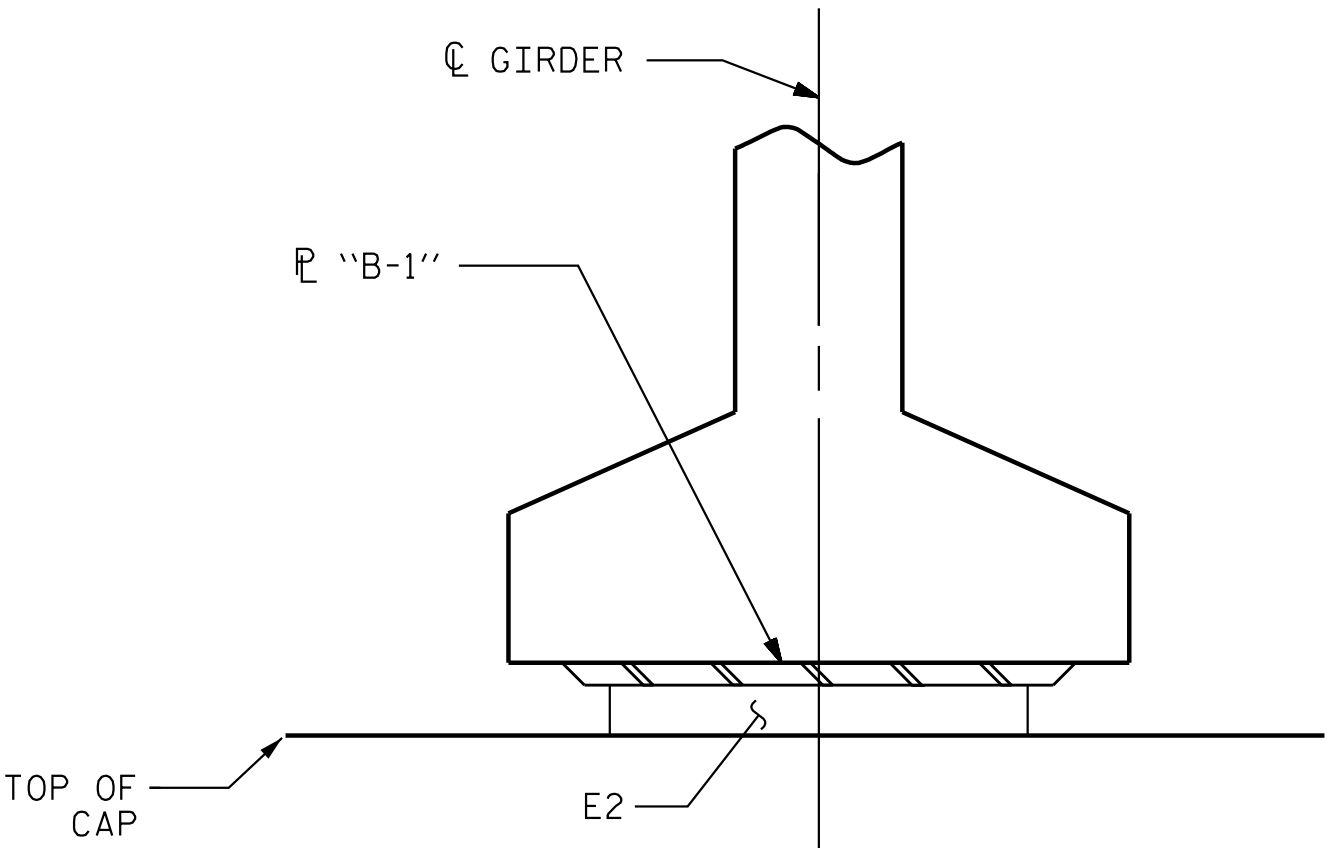
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

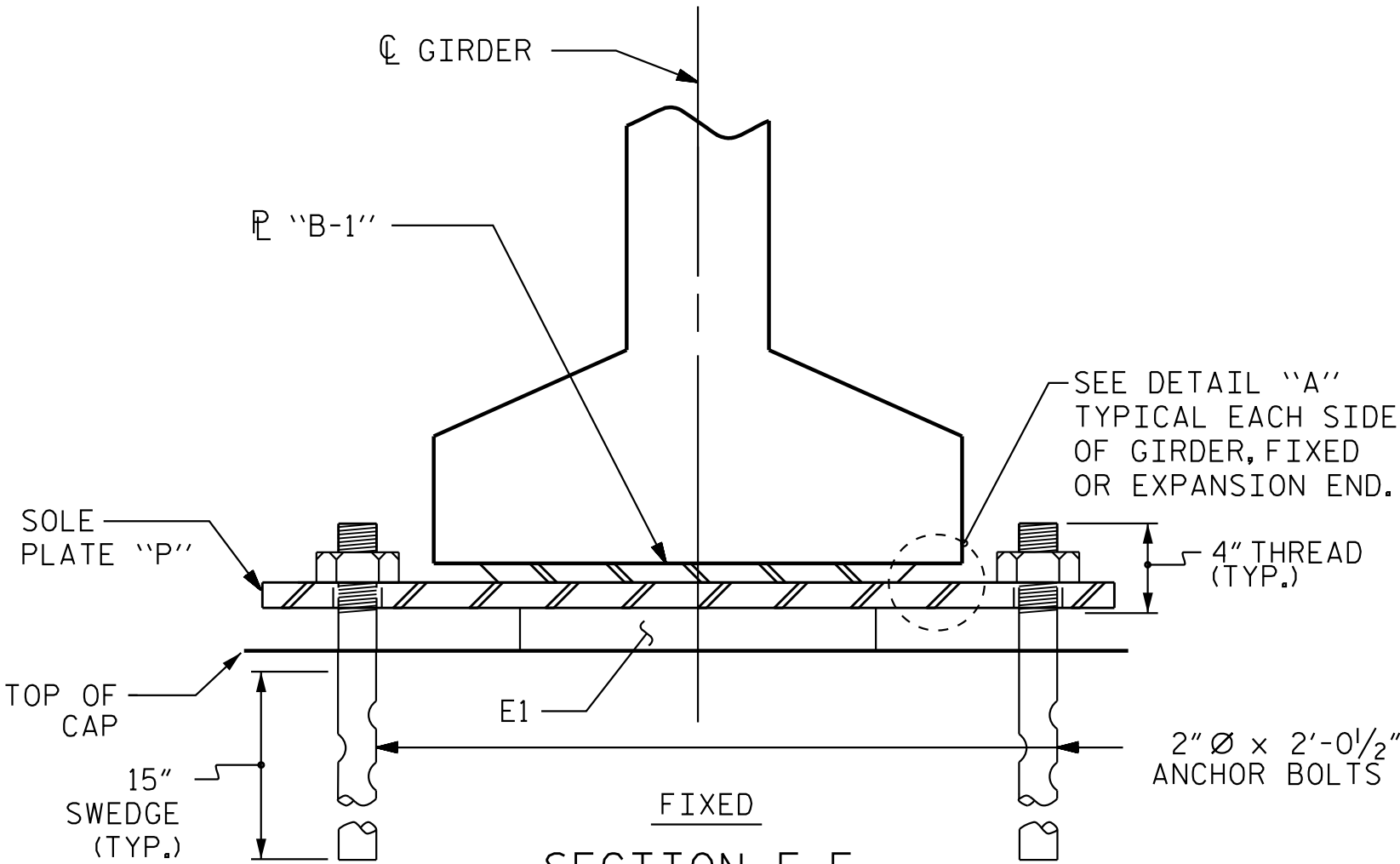
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

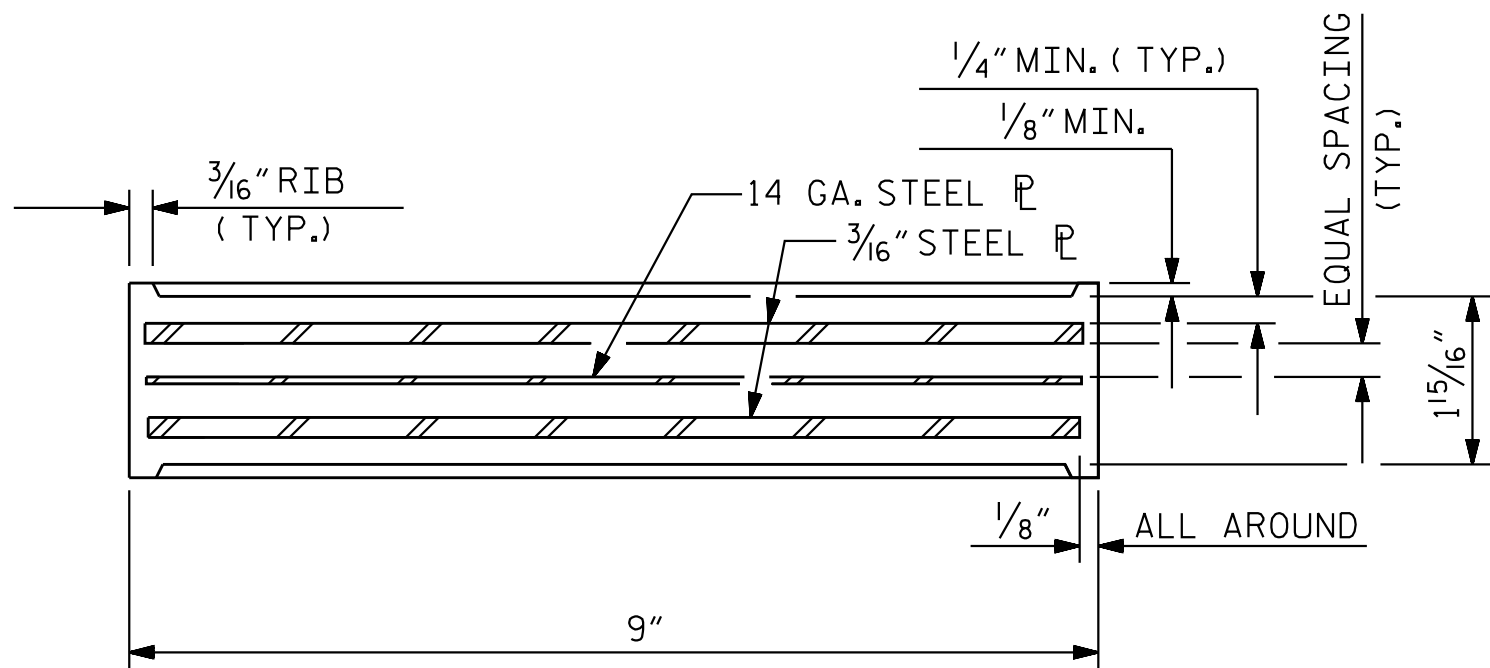
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.



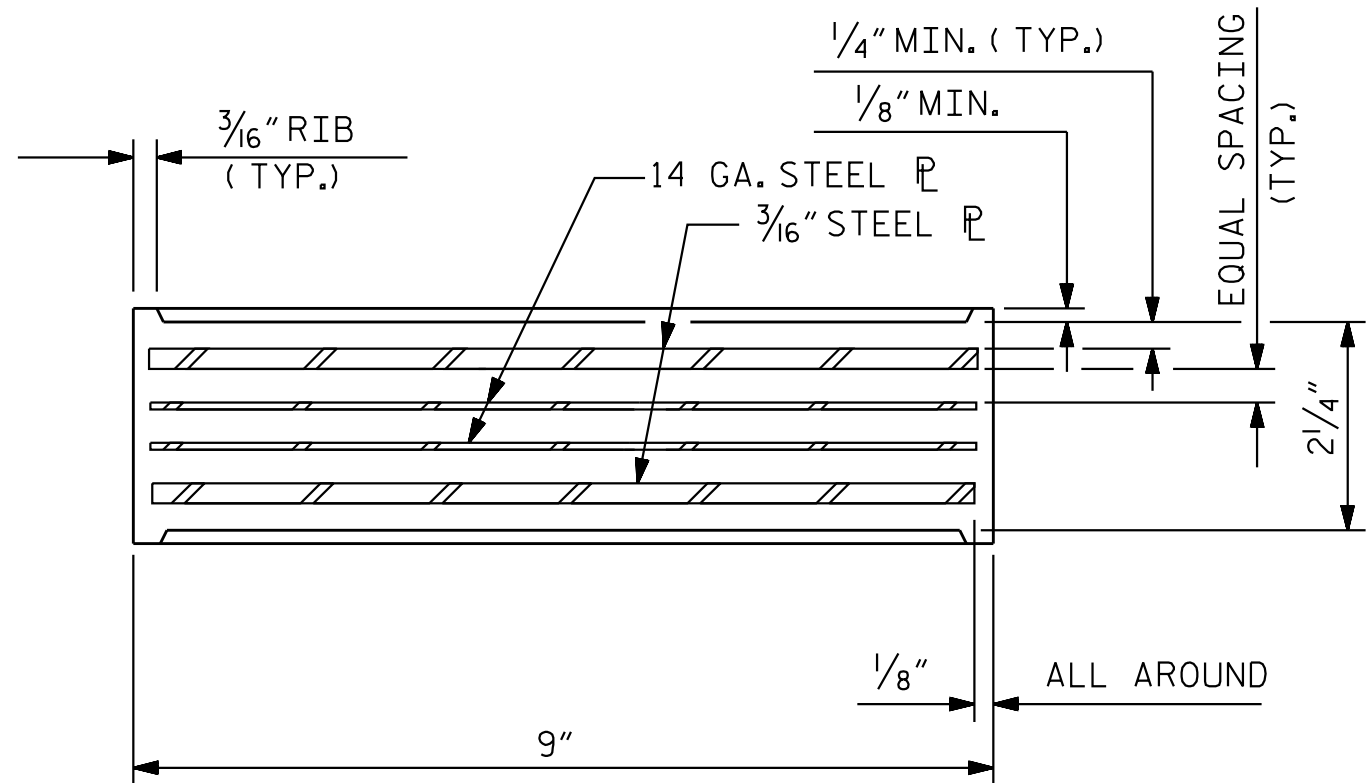
FIXED
SECTION E-E
INTEGRAL END BENTS 1 & 2



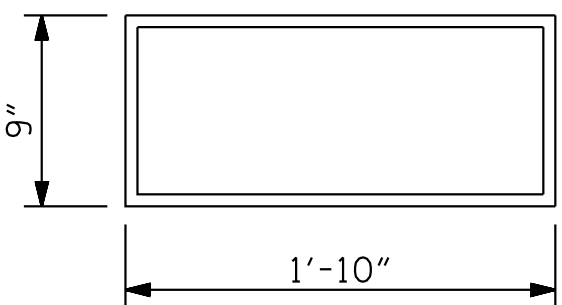
FIXED
SECTION F-F
BENT 1



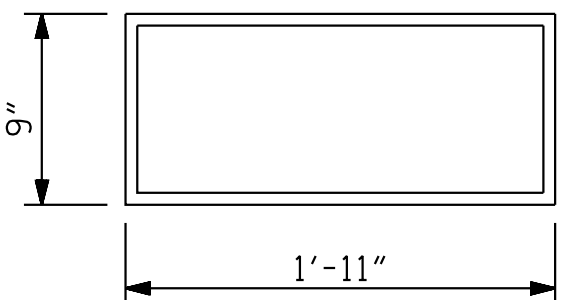
TYPICAL SECTION OF ELASTOMERIC BEARINGS



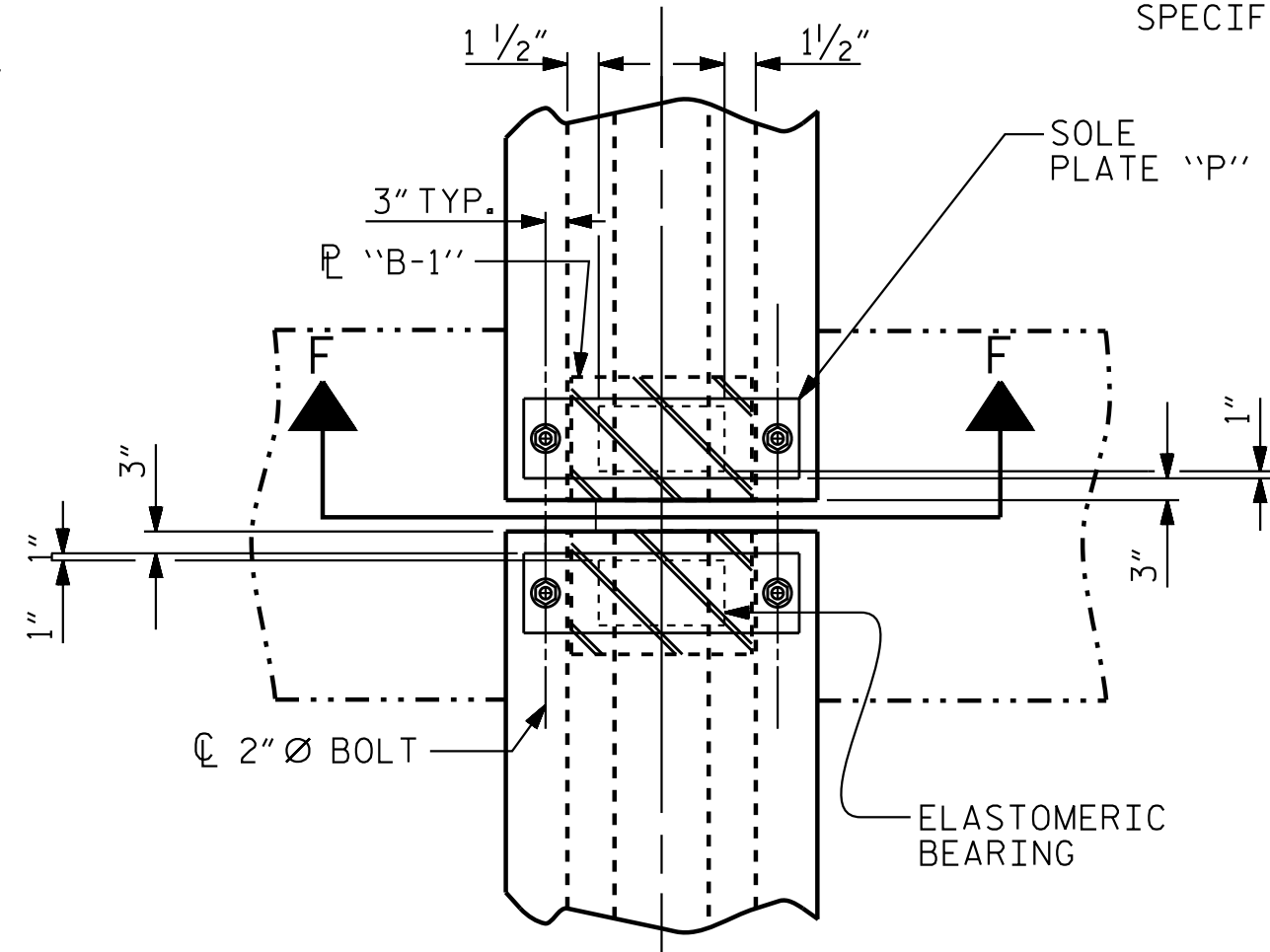
TYPICAL SECTION OF ELASTOMERIC BEARINGS



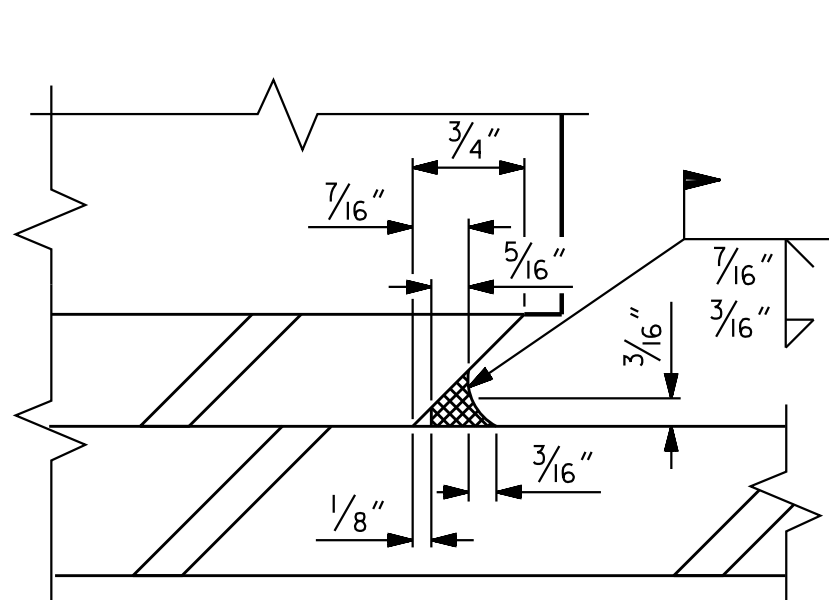
E2 (10 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV



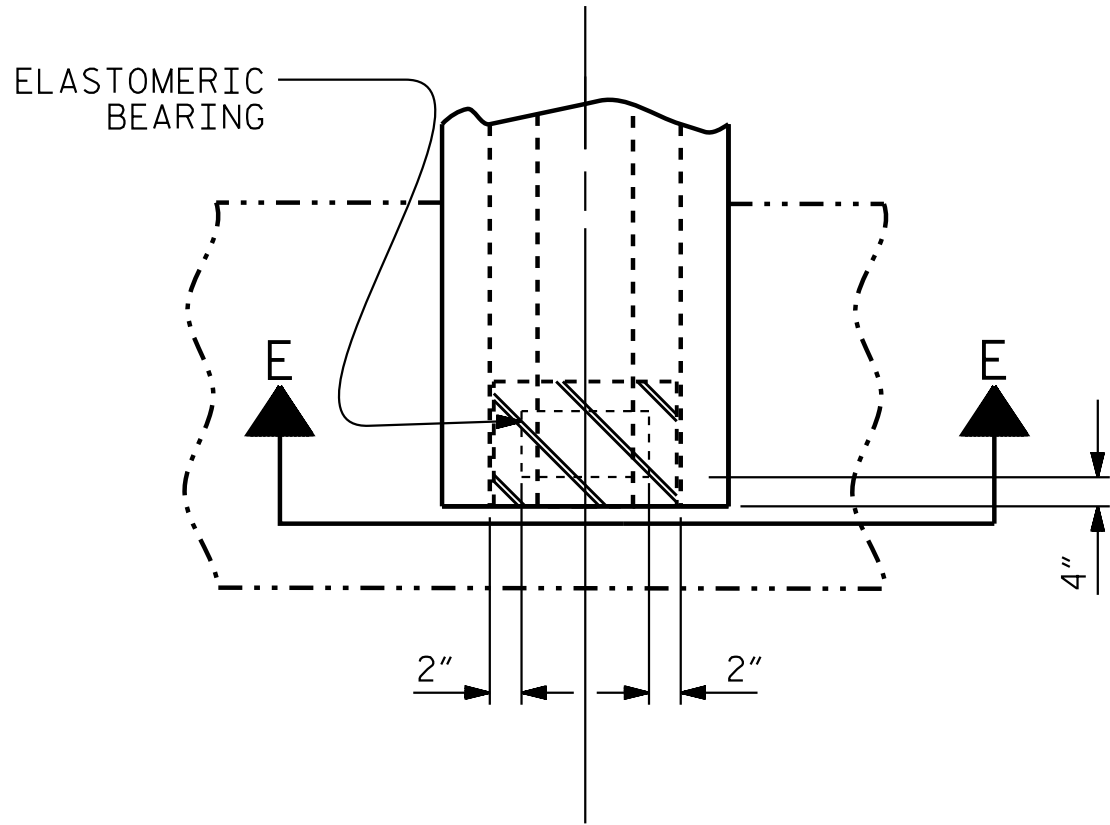
E1 (10 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE V



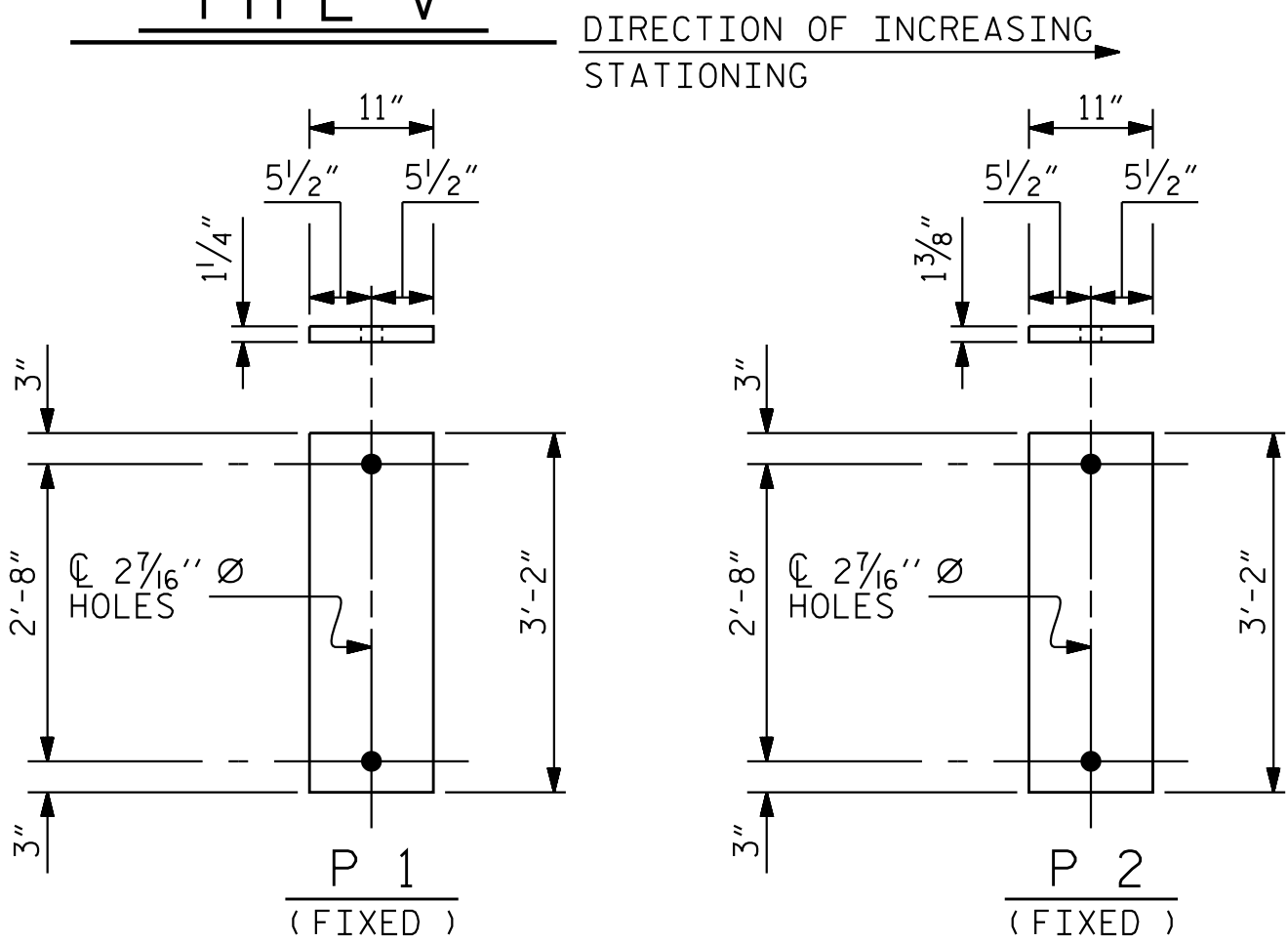
TYPICAL PLAN



DETAIL "A"



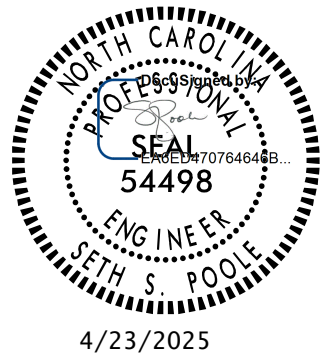
TYPICAL PLAN
(SHOWING INTEGRAL END BENT)



SOLE PLATE DETAILS ("P")

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

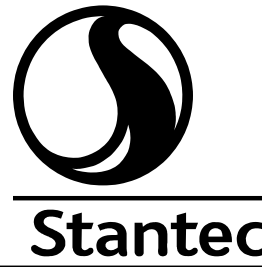
PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING
DETAILS
PRESTRESSED CONCRETE
GIRDER SUPERSTRUCTURE
(LEFT LANE)

REVISIONS						SHEET NO. S08-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

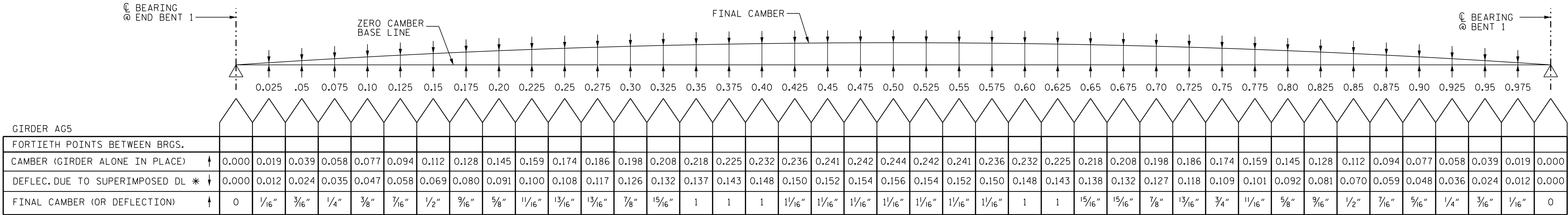
DOCUMENT NOT CONSIDERED
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DRAWN BY : D. NORSWORTHY DATE : 08/15/18
CHECKED BY : S. S. POOLE DATE : 12/04/24

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



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	DRAWN BY : <u>S. SOK</u> DATE : <u>02/11/19</u> CHECKED BY : <u>S. S. POOLE</u> DATE : <u>12/04/24</u>	DESIGN ENGINEER OF RECORD : <u>S. S. POOLE</u> DATE : <u>04/23/25</u>



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

PROJECT NO. R-3300A
PENDER COUNTY
 STATION: 427+46.10 -L1-

Professional Engineer Seal for Seth S. Poole, North Carolina, License No. 54498, expires 4/23/2025.

DEAD LOAD
DEFLECTIONS
(SPAN B)
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S08-25
1			3			TOTAL SHEETS 41
2			4			

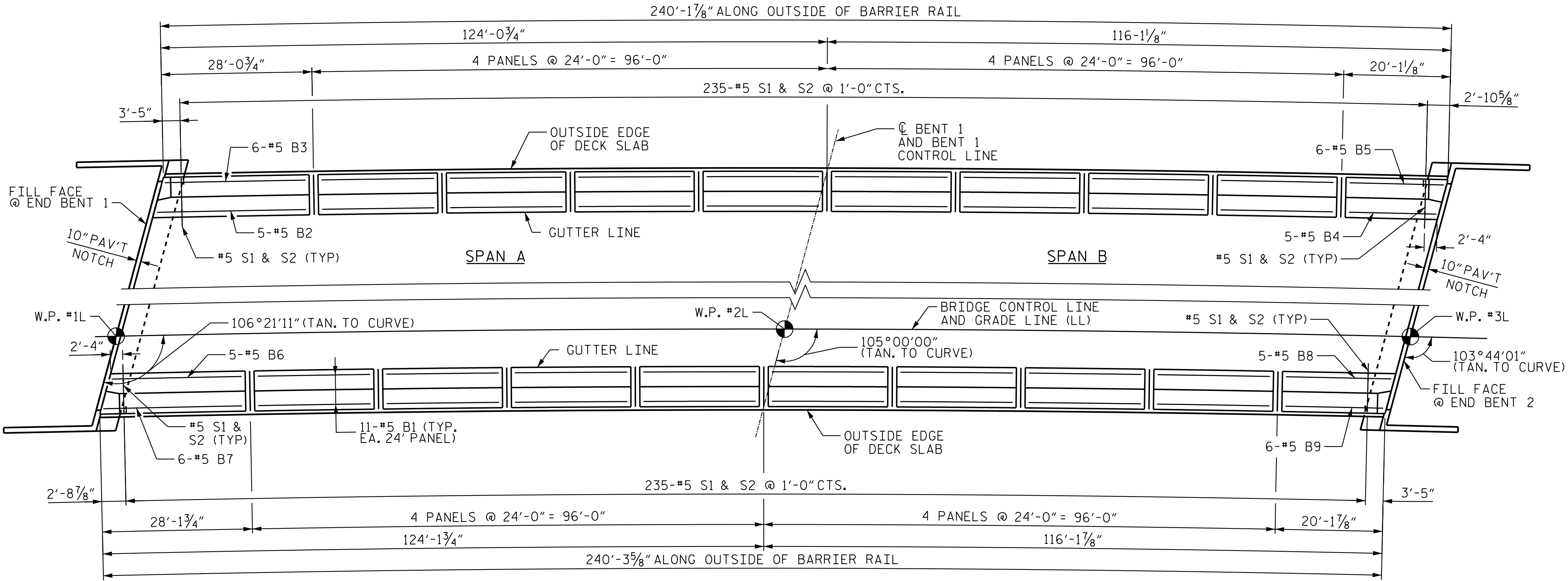
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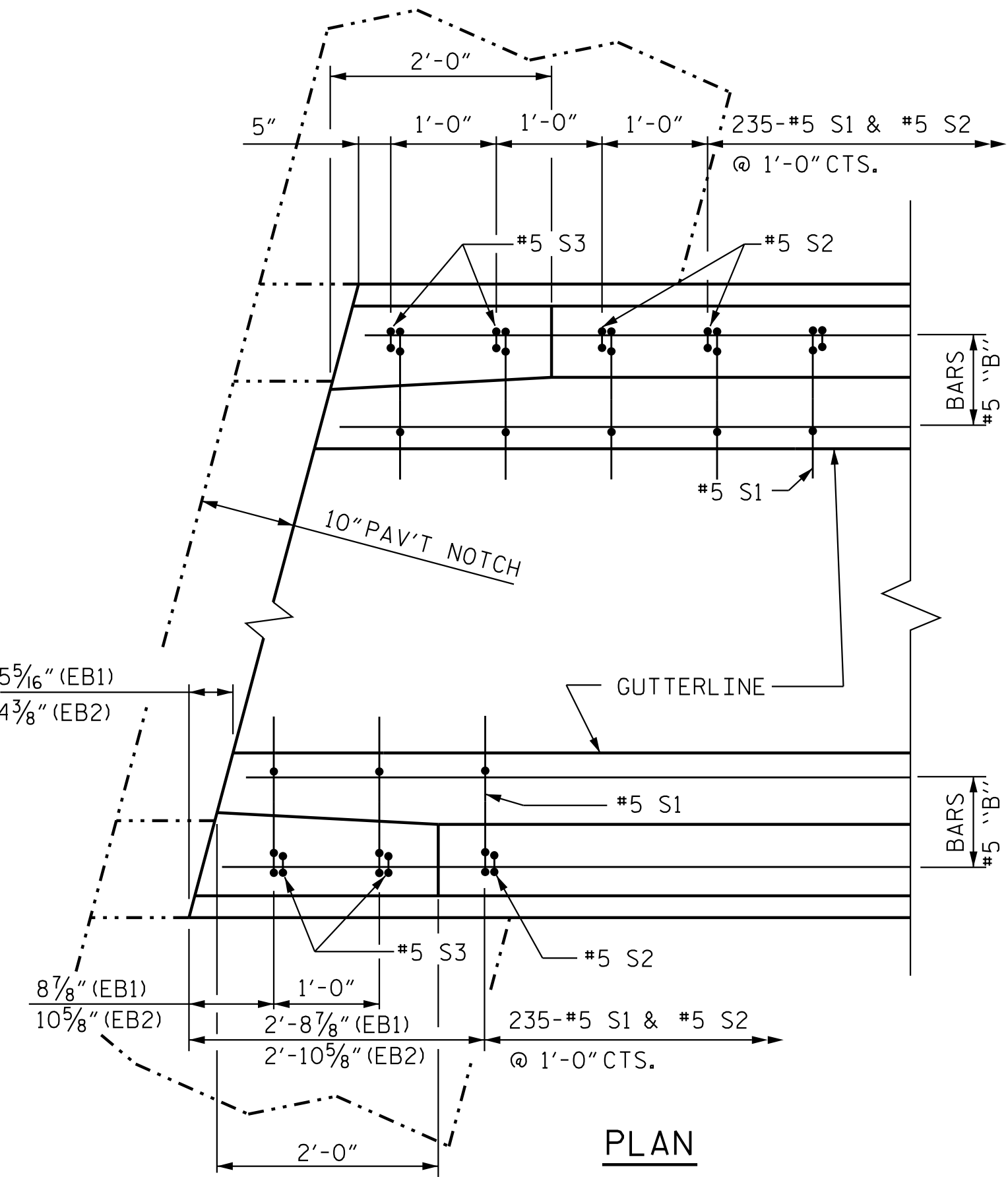
DRAWN BY : S. SOK DATE : 02/11/19
CHECKED BY : S. S. POOLE DATE : 12/04/24

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

4/23/2025 10:08:08 AM jhagenbush
U:\Structures\BB - LL\Drawings\Final\R3300A-SMU-BR01-TOOB08.dgn



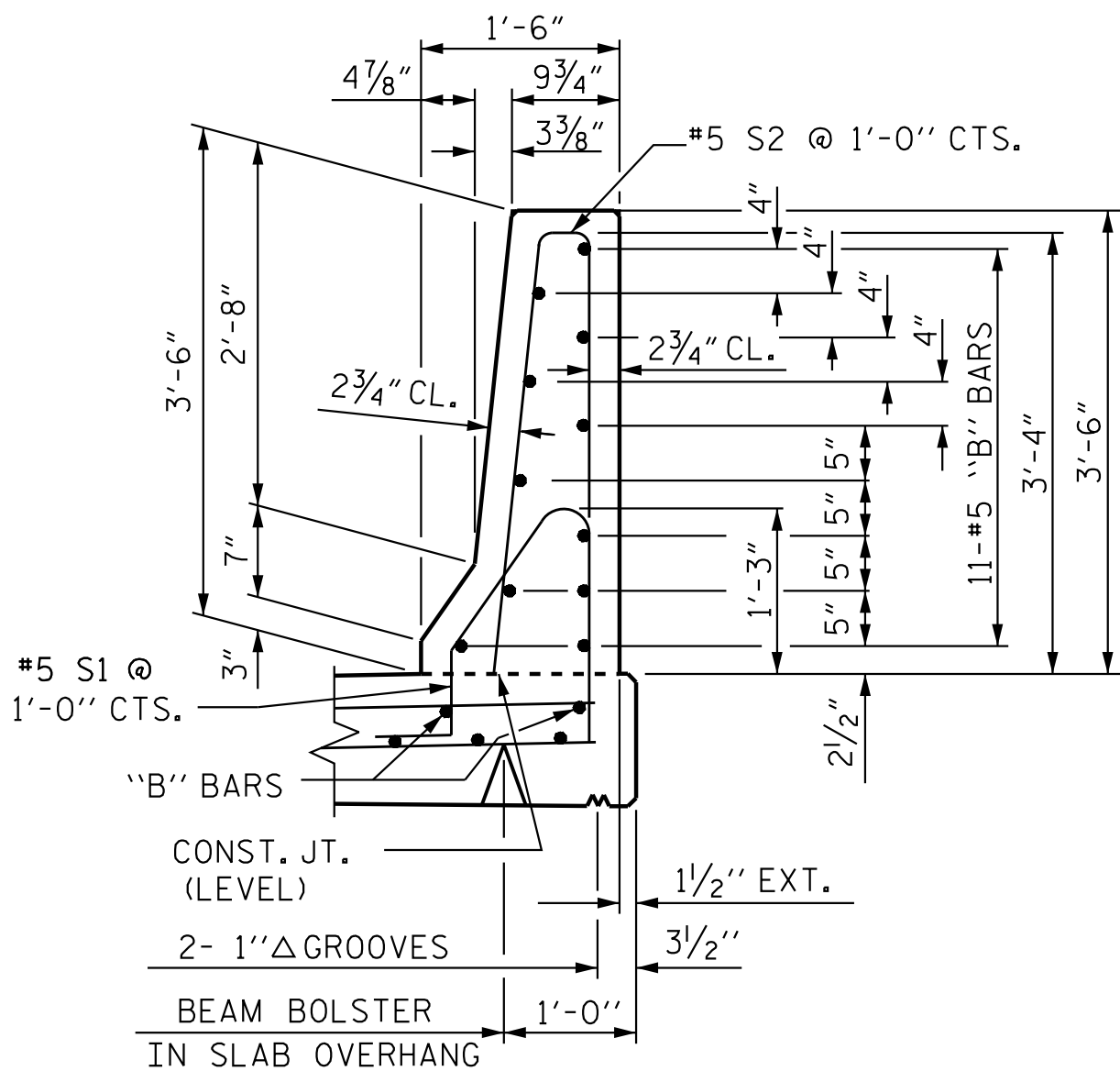
BARRIER RAIL PLAN



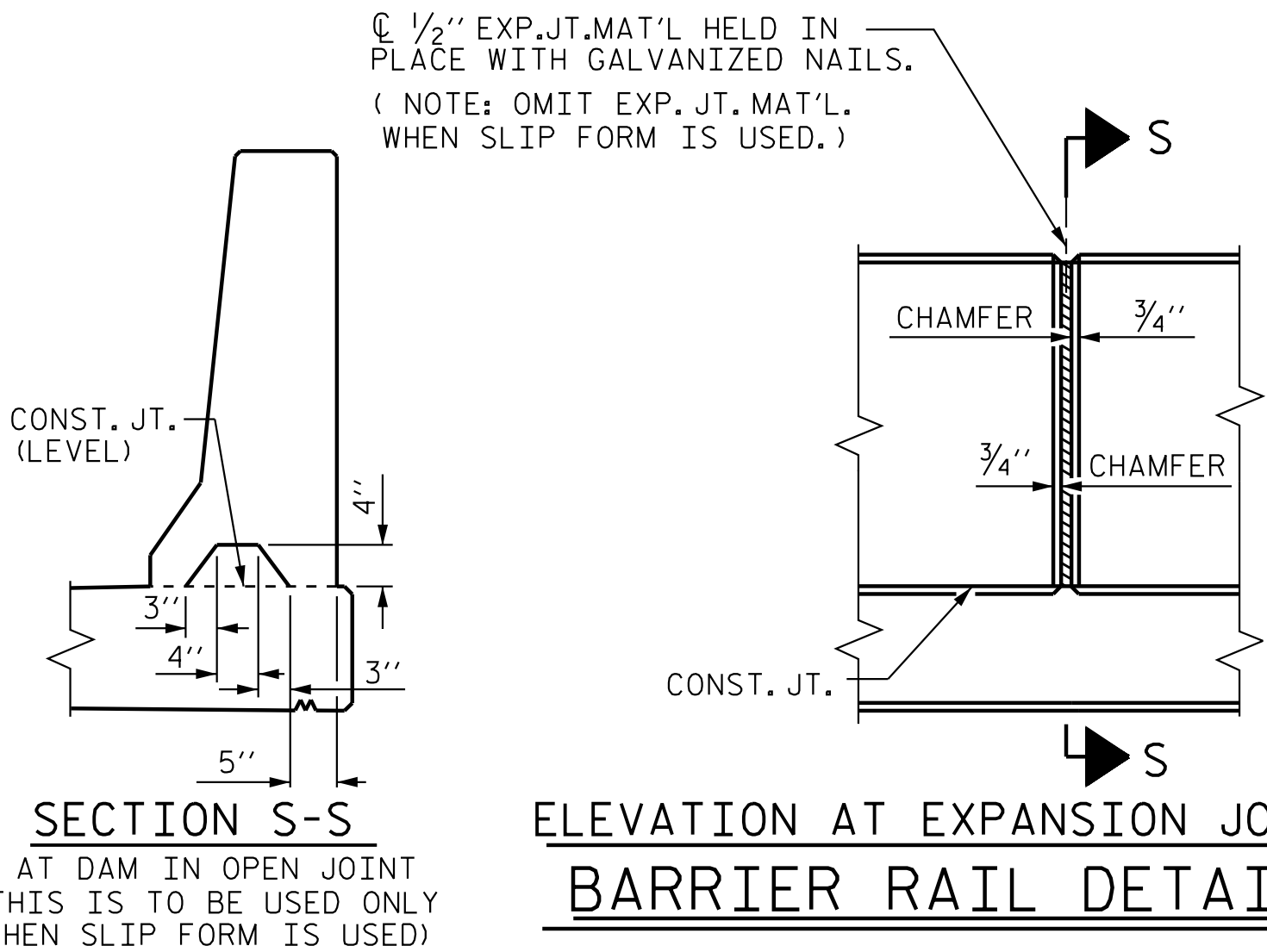
PLAN

END OF RAIL DETAILS

END BENT 1 SHOWN END BENT 2 TYP. BY ROTATION



SECTION THRU RAIL



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.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS.

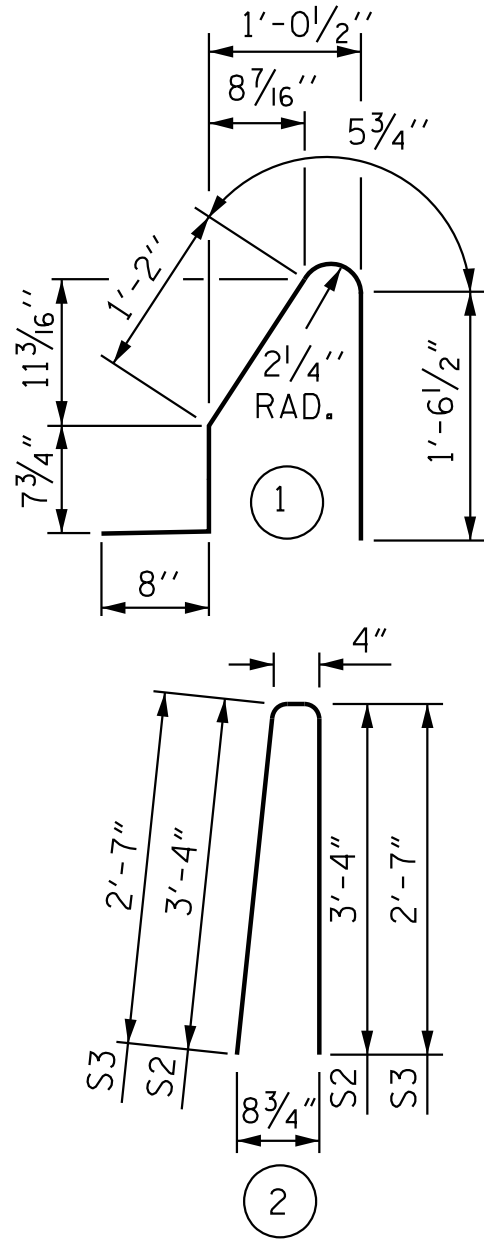
ALL CONCRETE SHALL BE CLASS AA.

① SEE "BARRIER RAIL PLAN" VIEW FOR SPACING.

(EB1) DENOTES END BENT 1

(EB2) DENOTES END BENT 2

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	176	#5	STR	23'-6"	4,314
*B2	5	#5	STR	27'-11"	146
*B3	6	#5	STR	27'-8"	173
*B4	5	#5	STR	19'-4"	101
*B5	6	#5	STR	19'-6"	122
*B6	5	#5	STR	27'-4"	143
*B7	6	#5	STR	27'-7"	173
*B8	5	#5	STR	20'-0"	104
*B9	6	#5	STR	19'-9"	124

*S1	482	#5	1	4'-6"	2,262
*S2	474	#5	2	7'-0"	3,461
*S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL	11,169 LBS.
CLASS AA CONCRETE	65.3 CU. YDS.
CONCRETE BARRIER RAIL	480.5 LIN. FT.

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

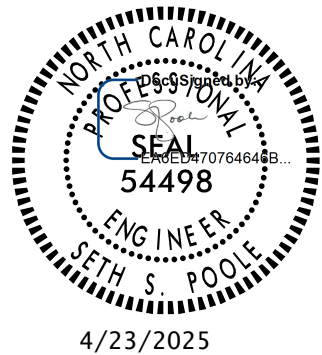
SHEET 1 OF 2

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

(LEFT LANE)

REVISIONS						SHEET NO. S08-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

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ASSEMBLED BY: J. GUERRERO DATE : 08/20/18
CHECKED BY : S. S. POOLE DATE : 12/04/24

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

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

MAA/GM
MAA/GM
MAA/THC

DESIGN
ENGINEER
OF RECORD:

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

STD. NO. CBR1

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. 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 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.)

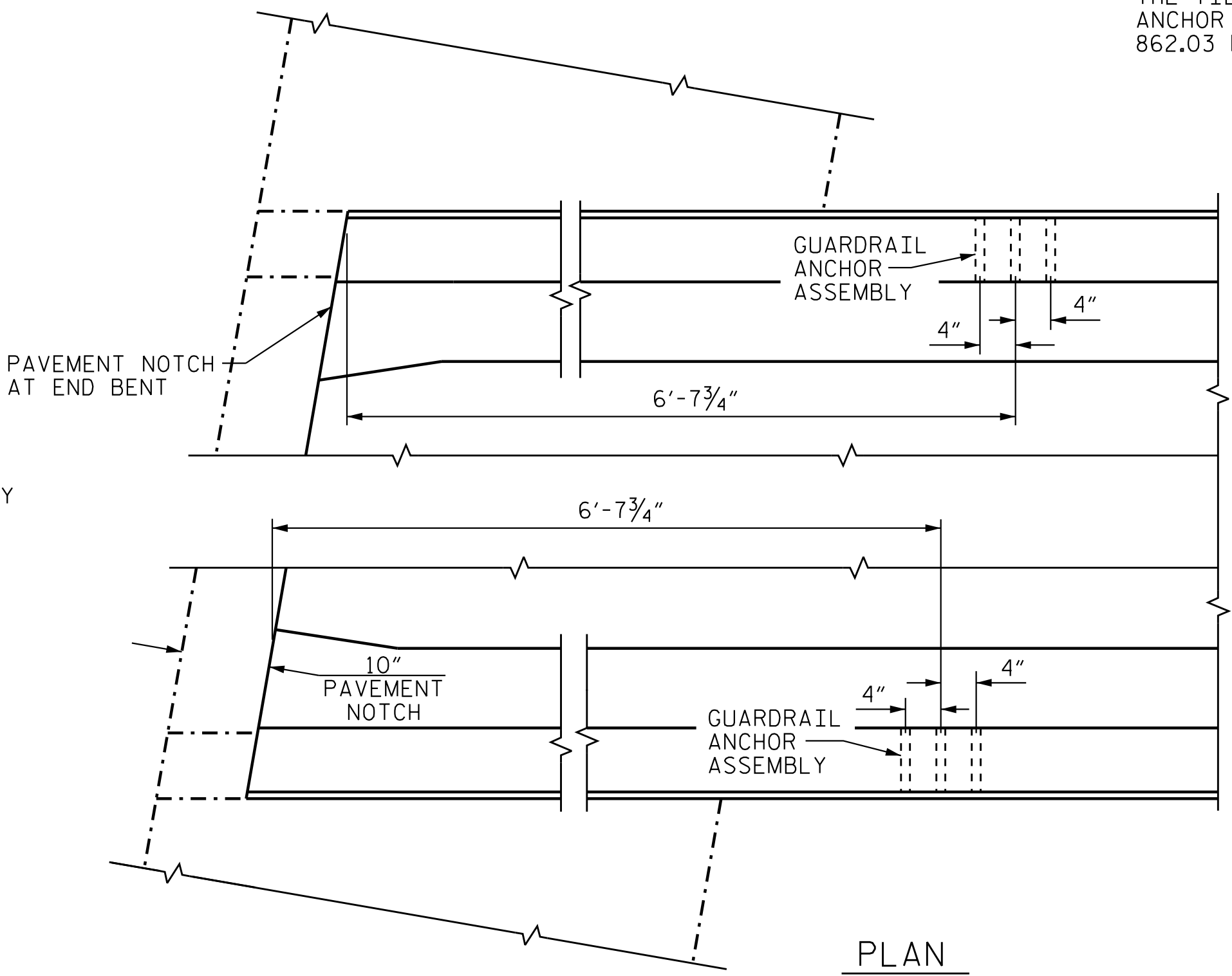
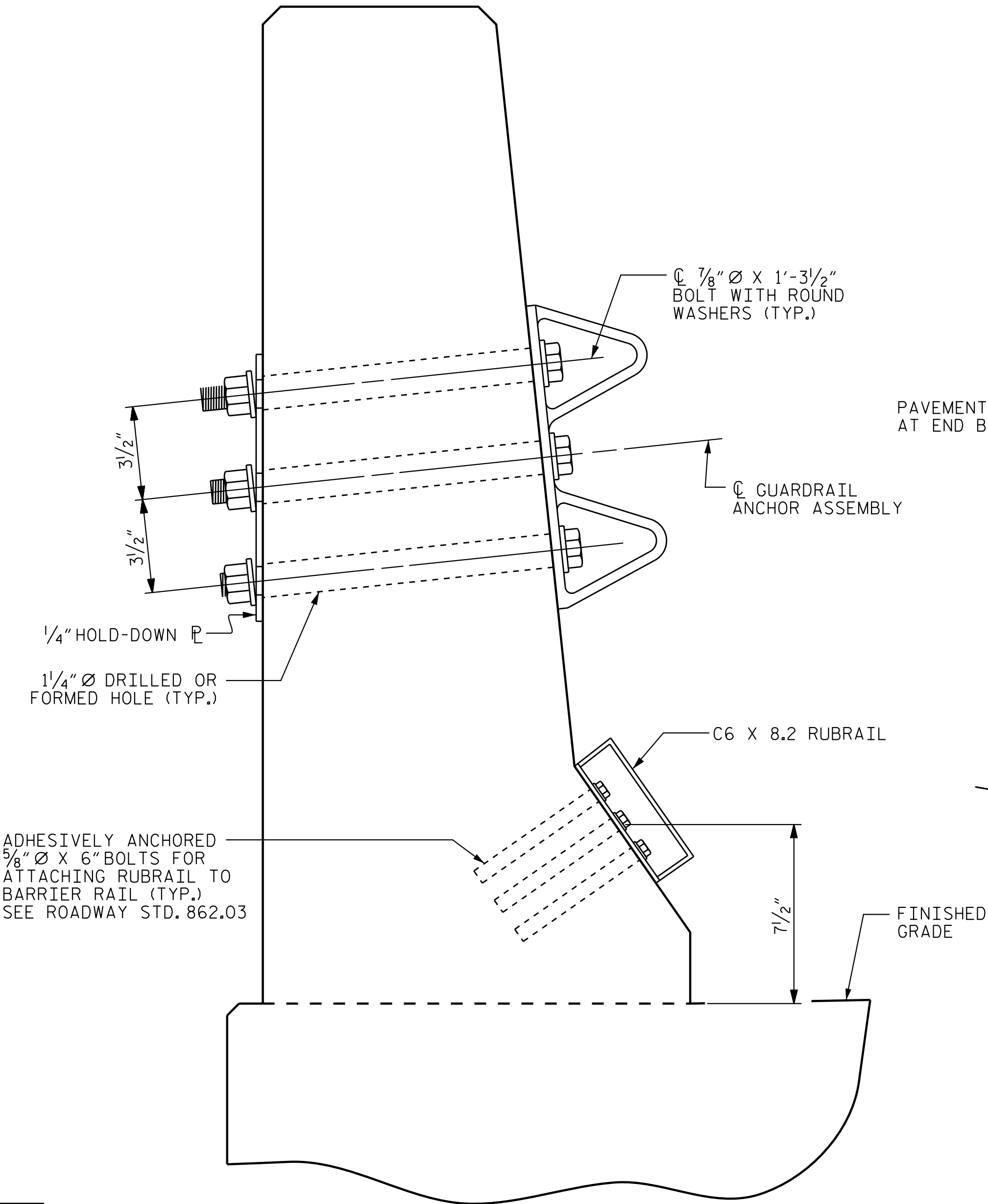
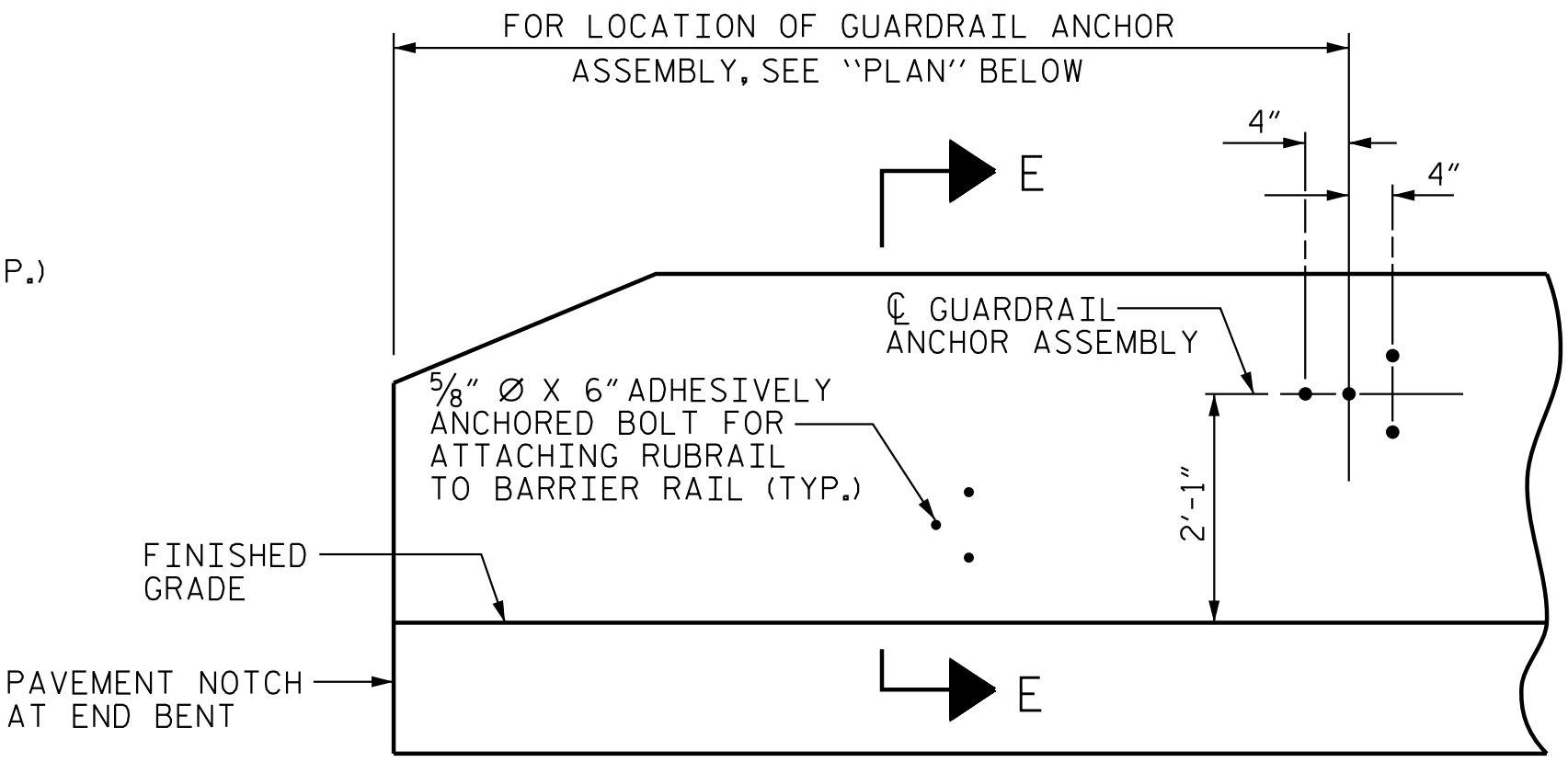
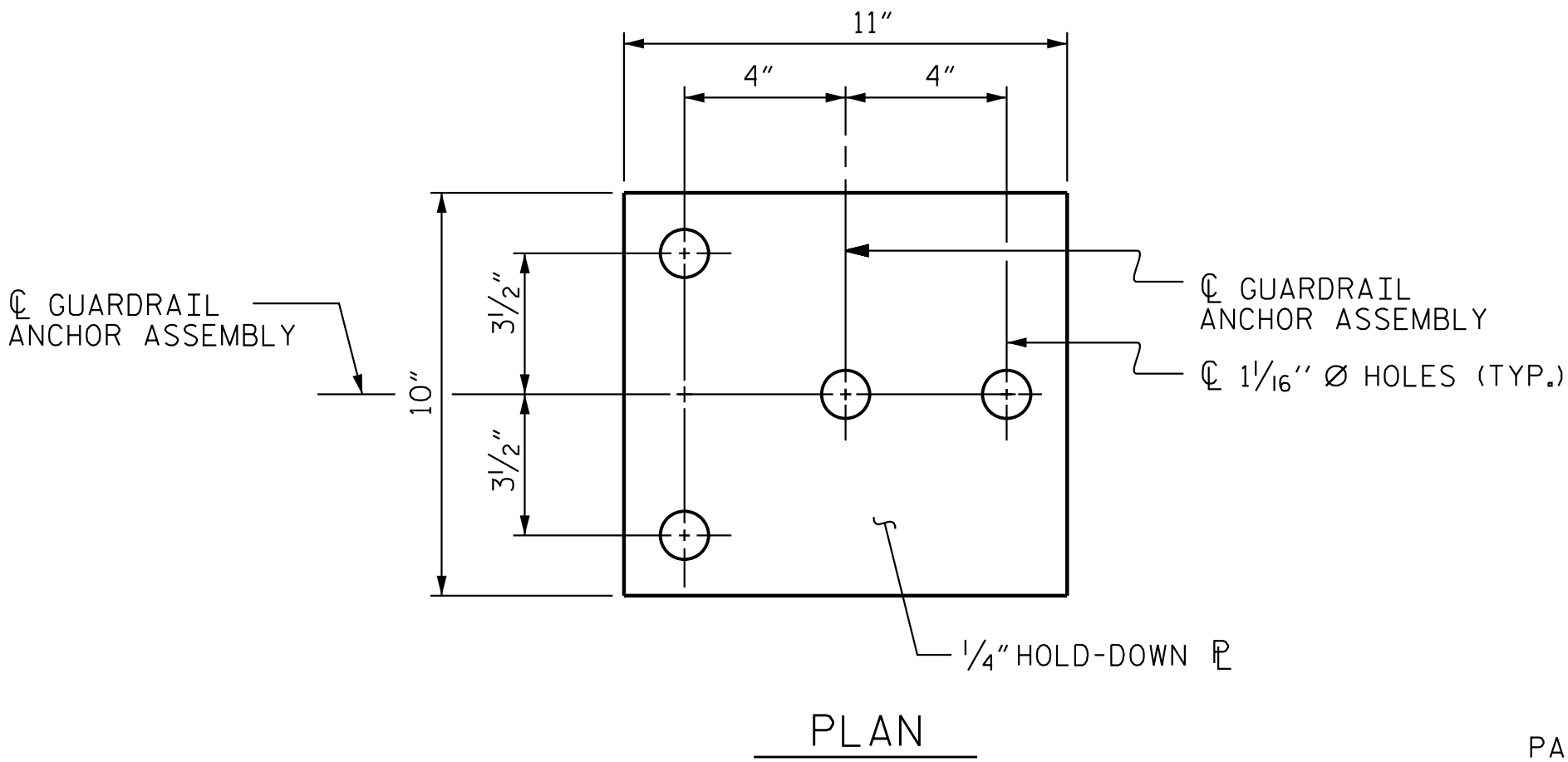
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.



LOCATION OF ANCHORS FOR GUARDRAIL

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

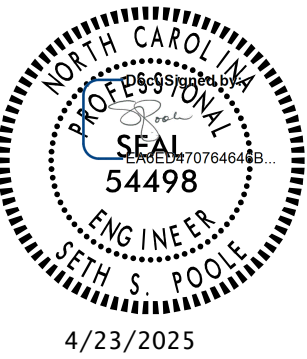


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

(LEFT LANE)

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SIGNATURES COMPLETED

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2			4			

STD. NO. GRA2



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ASSEMBLED BY : G. NGUYEN
CHECKED BY : S. S. POOLE
DATE : 08/22/18
DATE : 01/13/25

DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06
REV. 7/12
REV. 6/13
REV. 12/17
MAA/GM
MAA/CM
MAA/THC

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

DECK PANEL SUPPORTS

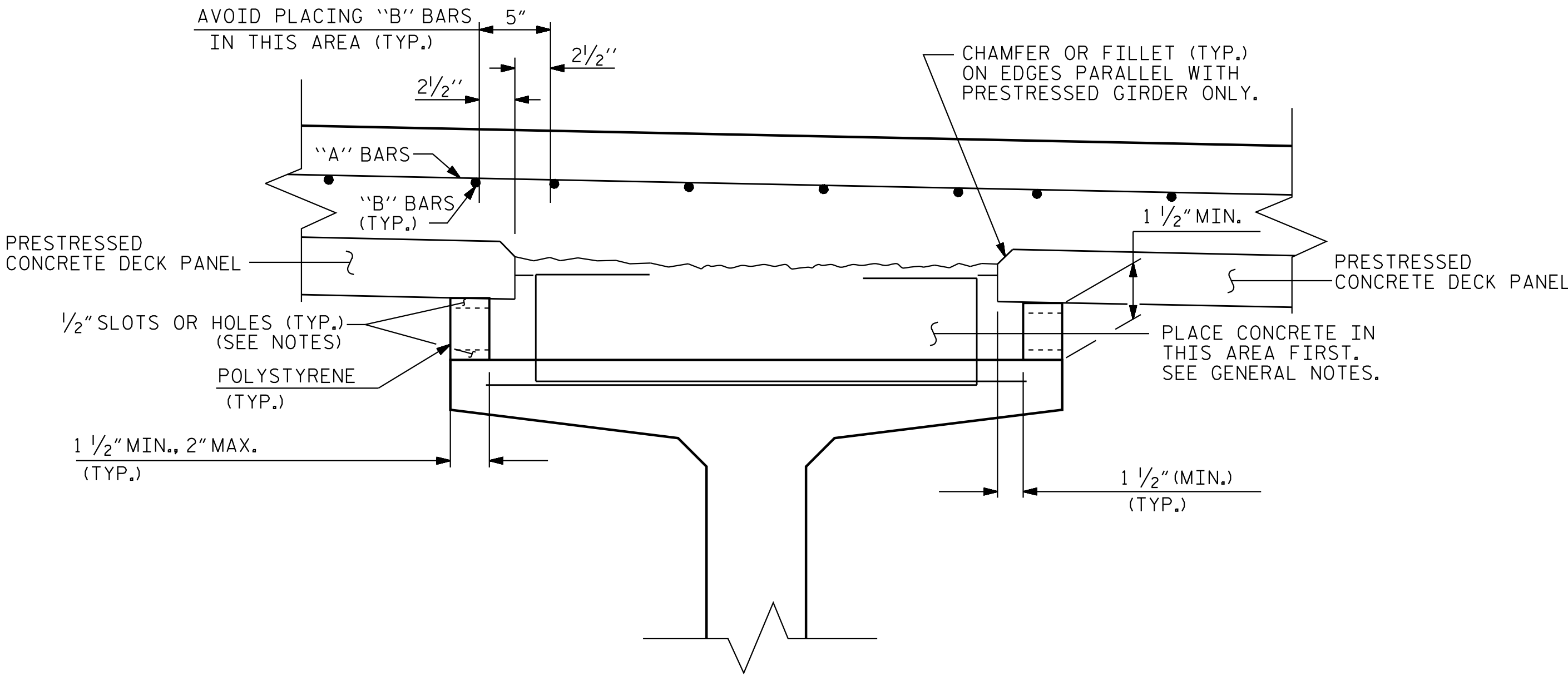
THE CONTRACTOR SHALL PROVIDE THE DECK PANEL SUPPORT SYSTEM SHOWN OR HE MAY SUBMIT A DECK PANEL SUPPORT SYSTEM OF HIS OWN DESIGN TO THE ENGINEER FOR APPROVAL.

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 1 1/2" AND A MAXIMUM WIDTH OF 2",THE POLYSTYRENE SHALL HAVE 1/2"X 1/2" WIDE SLOTS OR 1/2" 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.

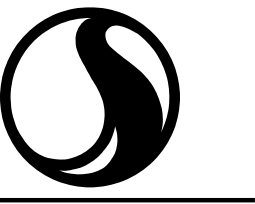
GENERAL NOTES

- 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 1/2" 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 1/2" 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.



POLYSTYRENE SUPPORT

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-



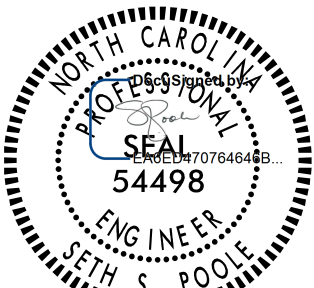
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ASSEMBLED BY : J. GUERRERO DATE : 2/07/19
CHECKED BY : S. S. POOLE DATE : 01/13/25

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

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

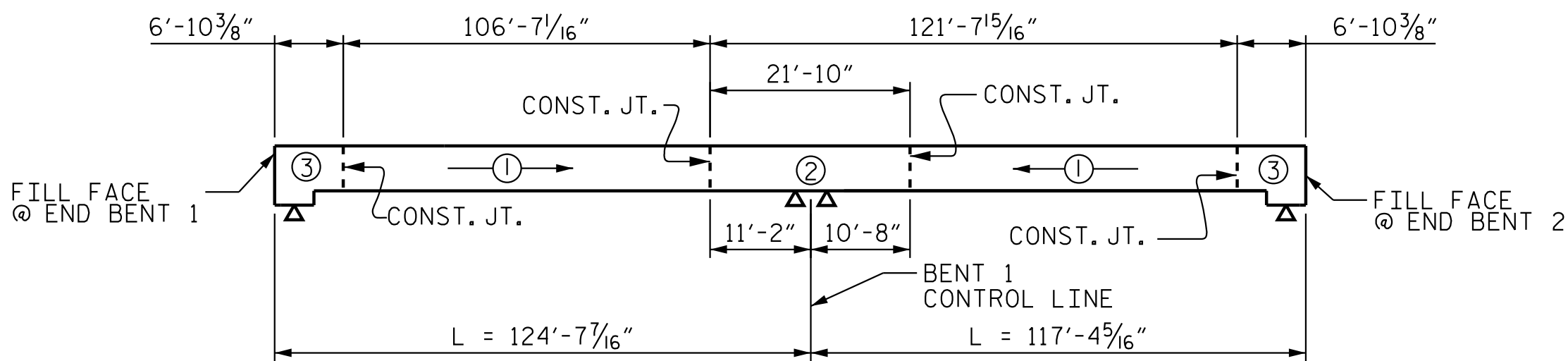
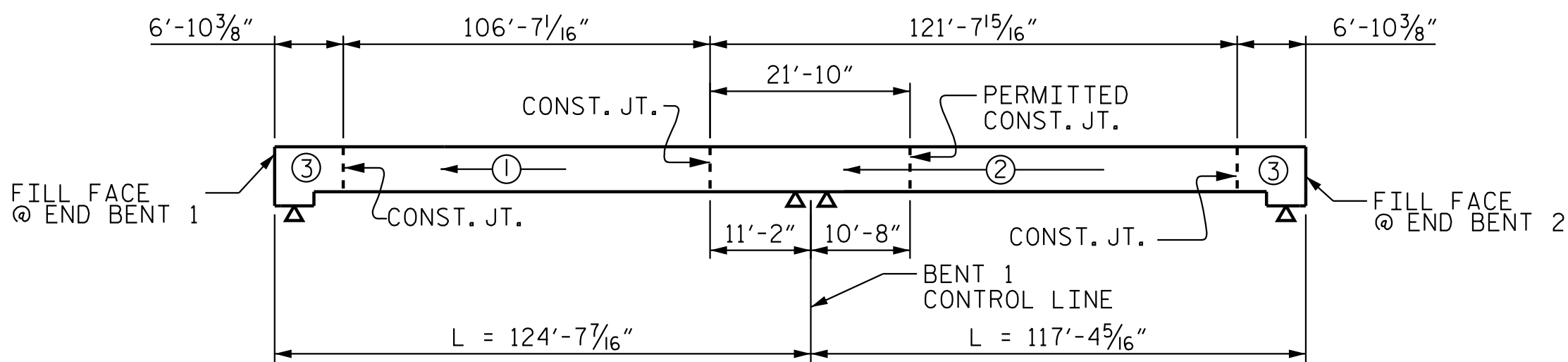
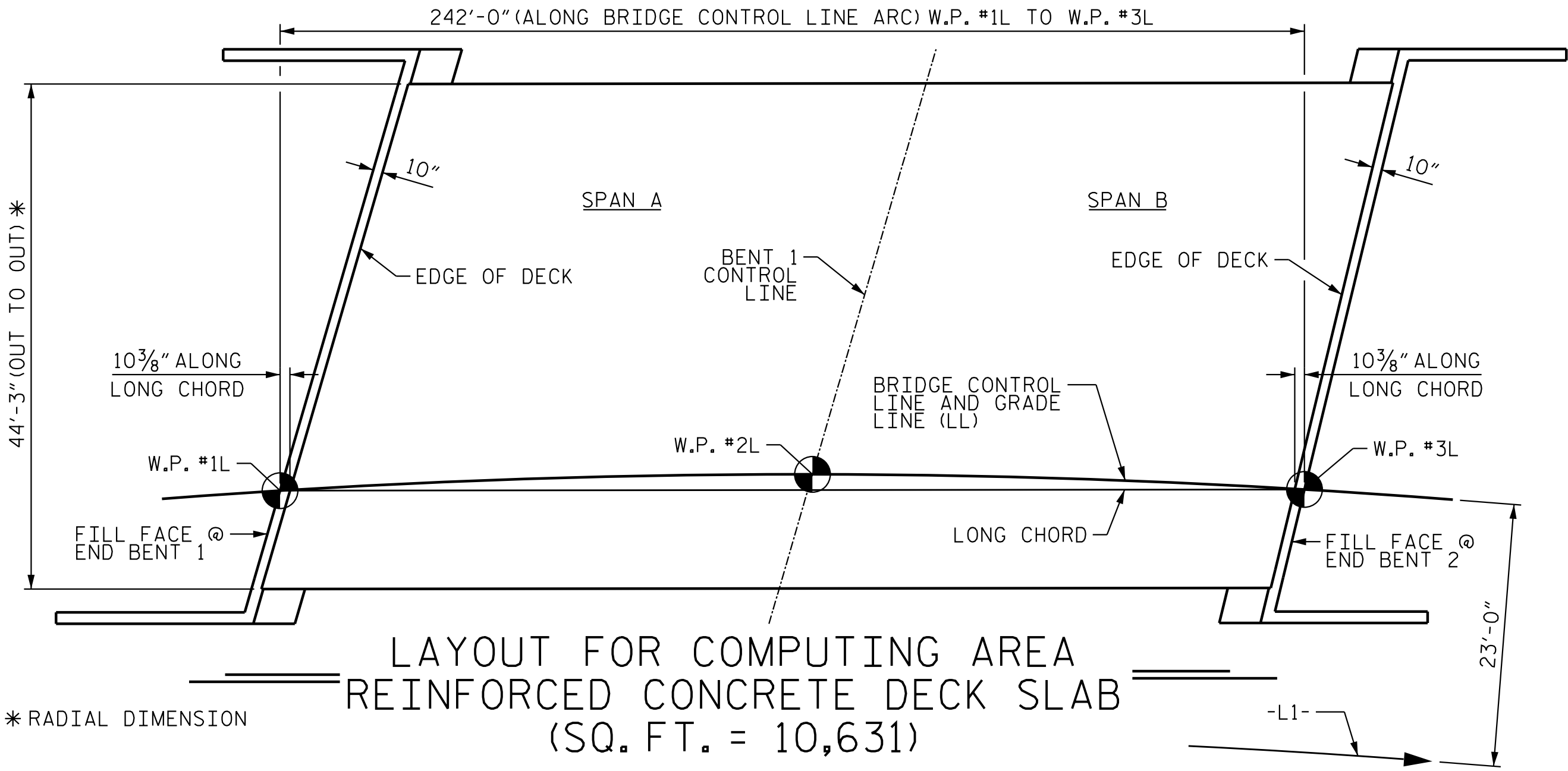
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25



4/23/2025

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
PRECAST PRESTRESSED CONCRETE DECK PANELS					
(LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S08-28					TOTAL SHEETS 41

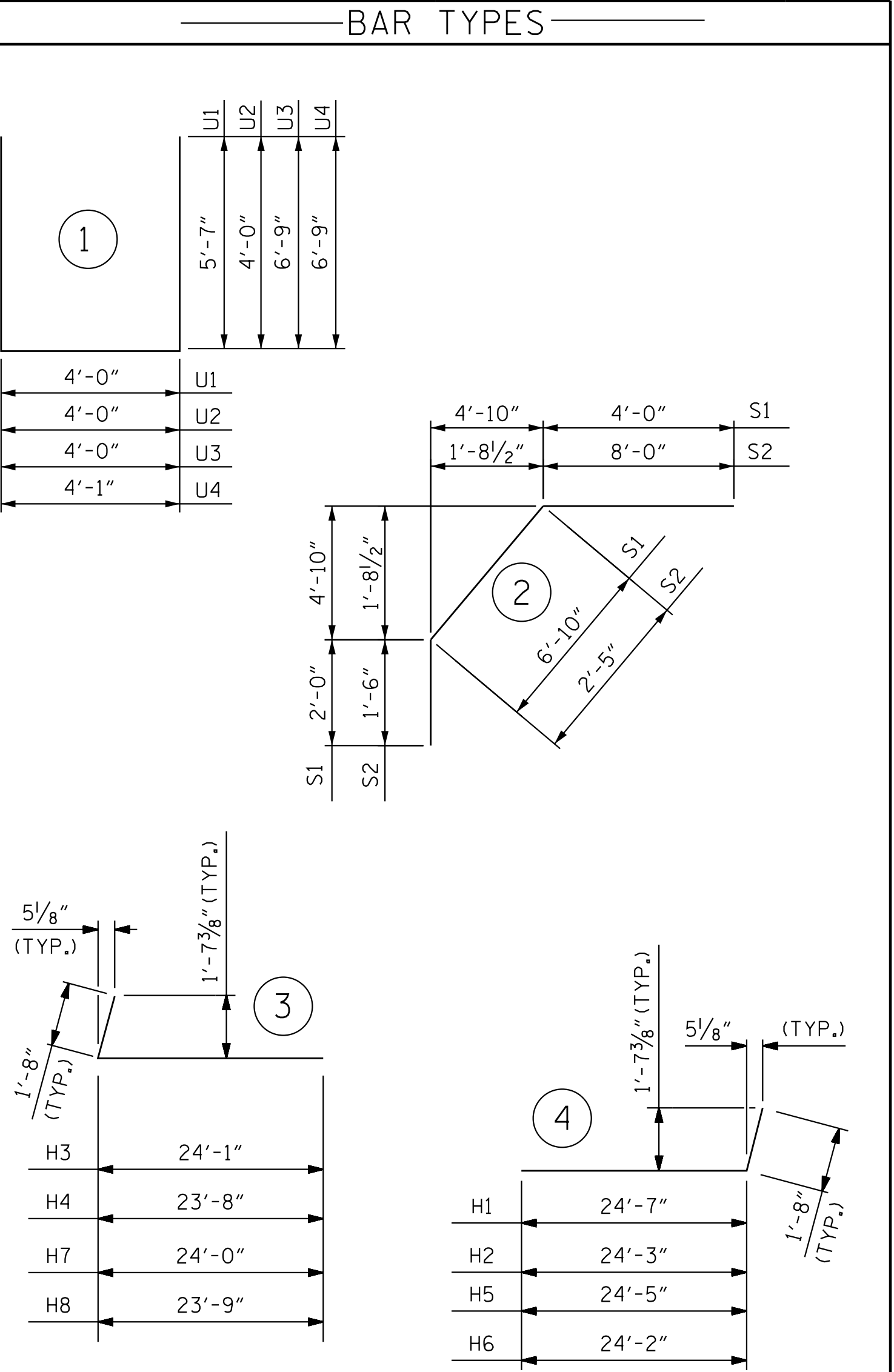


GROOVING BRIDGE FLOORS	
APPROACH SLABS	1,874 SQ.FT.
BRIDGE DECK	9,116 SQ.FT.
TOTAL	10,990 SQ.FT.

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	105.2	--	54,806
POUR #2	118.6		
POUR #3	167.3		
TOTALS **	391.1	--	54,806

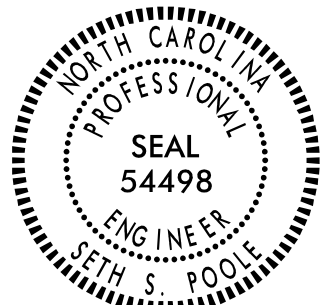
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	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	365	#5	STR	43'-10"	16,688
* A2	324	#4	STR	2'-6"	542
* A101	2	#5	STR	39'-11"	84
* A102	2	#5	STR	35'-3"	74
* A103	2	#5	STR	30'-8"	64
* A104	2	#5	STR	26'-0"	55
* A105	2	#5	STR	21'-5"	45
* A106	2	#5	STR	16'-9"	35
* A107	2	#5	STR	12'-2"	26
* A108	2	#5	STR	7'-6"	16
* A109	2	#5	STR	2'-11"	7
* A110	2	#5	STR	39'-10"	84
* A111	2	#5	STR	35'-2"	74
* A112	2	#5	STR	30'-6"	64
* A113	2	#5	STR	25'-9"	54
* A114	2	#5	STR	21'-2"	45
* A115	2	#5	STR	16'-6"	35
* A116	2	#5	STR	11'-10"	25
* A117	2	#5	STR	7'-1"	15
* A118	2	#5	STR	2'-5"	6
* B1	326	#4	STR	44'-4"	9,654
* B2	177	#6	STR	29'-6"	7,843
* B3	56	#6	STR	47'-6"	3,996
* B4	112	#6	STR	25'-0"	4,206
* B5	40	#5	STR	50'-11"	2,125
* H1	16	#7	4	26'-3"	859
* H2	13	#5	4	25'-11"	352
* H3	14	#5	3	25'-9"	377
* H4	16	#7	3	25'-4"	829
* H5	16	#7	4	26'-1"	854
* H6	14	#5	4	25'-10"	378
* H7	13	#5	3	25'-8"	349
* H8	16	#7	3	25'-5"	832
* K1	28	#4	STR	27'-2"	509
* K2	8	#4	STR	5'-5"	29
* K3	40	#4	STR	8'-8"	232
* K4	8	#4	STR	6'-11"	37
* K5	20	#4	STR	2'-9"	37
* K6	2	#4	STR	4'-11"	7
* K7	10	#4	STR	6'-6"	44
* K8	2	#4	STR	5'-8"	8
* K9	2	#4	STR	3'-3"	5
* K10	10	#4	STR	4'-9"	32
* K11	2	#4	STR	3'-11"	6
* S1	84	#4	2	12'-9"	716
* S2	56	#4	2	8'-4"	312
* U1	57	#4	1	15'-2"	578
* U2	20	#4	1	12'-0"	161
* U3	7	#4	1	17'-6"	82
* U4	5	#4	1	17'-7"	59
* V2	90	#5	STR	6'-8"	626
* V3	90	#5	STR	6'-9"	634
* EPOXY COATED REINFORCING STEEL				54,806 LBS	



ALL BAR DIMENSIONS ARE OUT TO OUT.

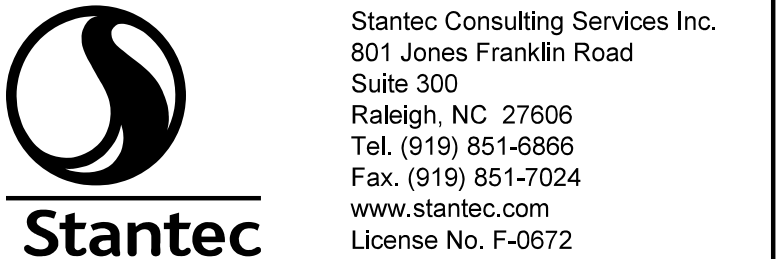
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PENDER COUNTY
STATION: 427+46.10 -L1-



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE BILL OF MATERIAL (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S08-29					TOTAL SHEETS 41

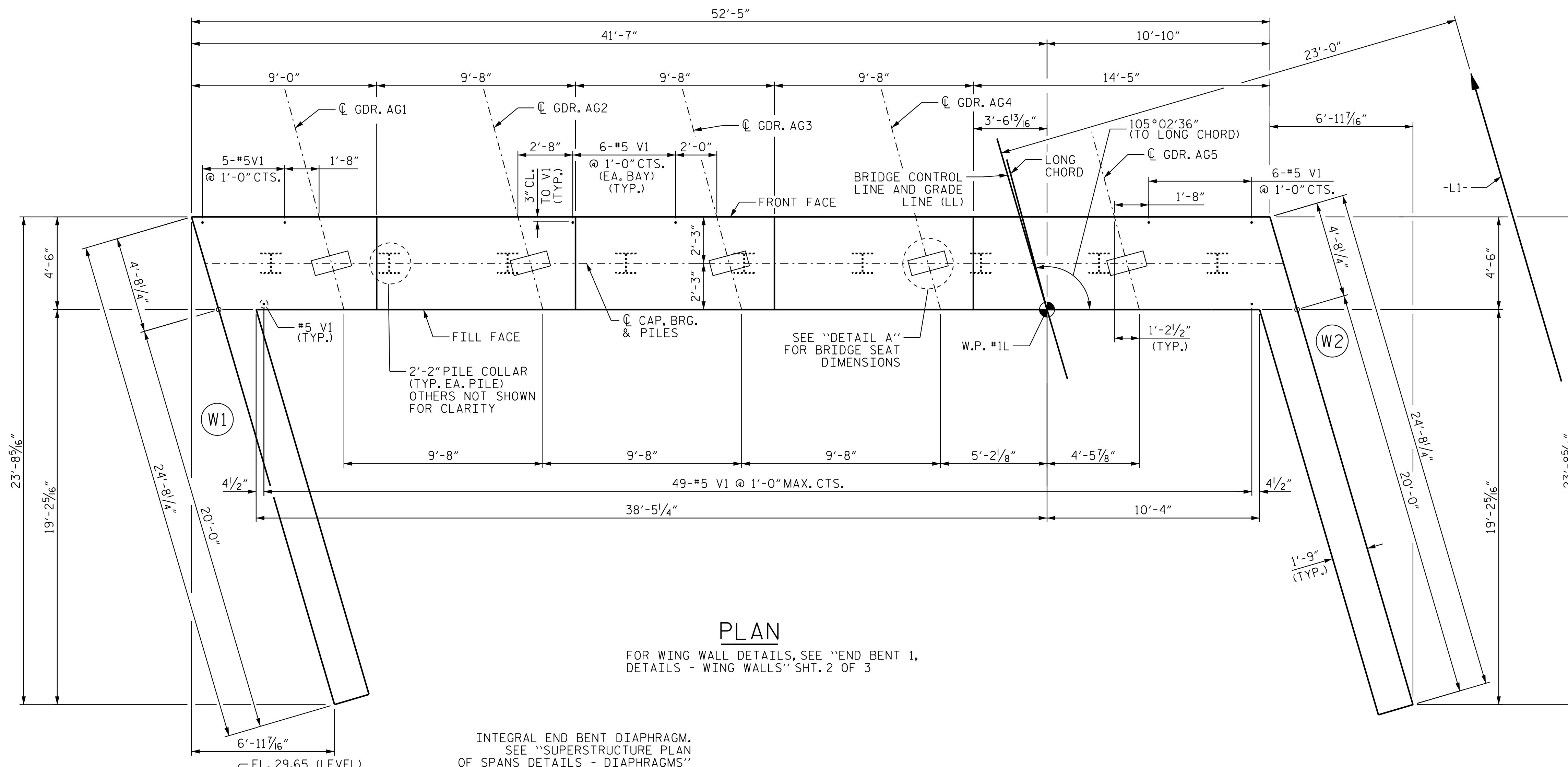


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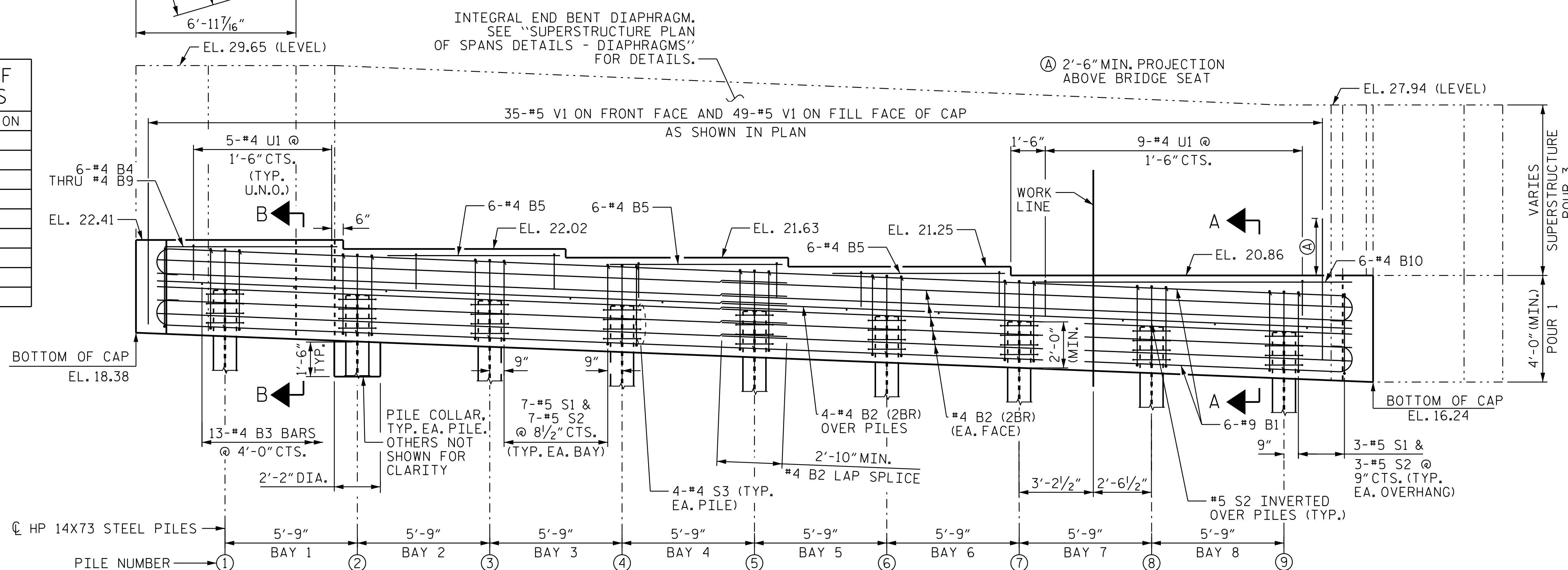
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PLAN

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

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
P1	20.22
P2	20.00
P3	19.77
P4	19.54
P5	19.31
P6	19.08
P7	18.85
P8	18.62
P9	18.39



ELEVATION



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CHECKED BY : S. S. POOLE DATE : 12/04/24

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

NOTES

(2BR) DENOTES 2 BAR RUN

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

USE CLASS AA CONCRETE FOR END BENT AND WINGWALL.

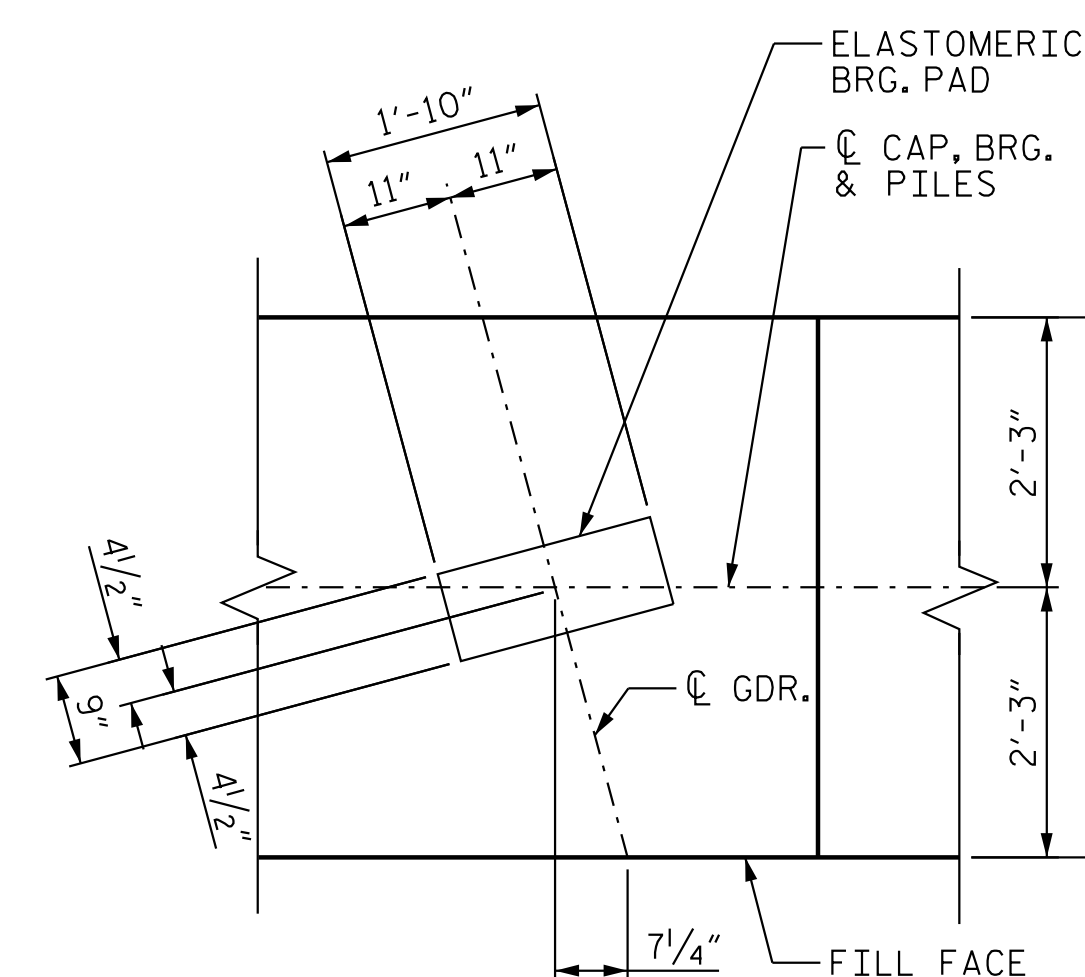
U.N.O. DENOTES UNLESS DENOTED OTHERWISE.

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.

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

THE UPPER PART OF INTEGRAL DIAPHRAGM AND WING WALLS
SHALL BE POURED WITH THE SUPERSTRUCTURE. SEE
SUPERSTRUCTURE PLAN OF SPANS.

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

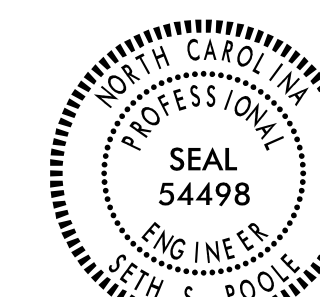


DETAIL A

DIMENSIONS TYPICAL
FOR EACH BEARING

PROJECT NO. R-3300A
 PENDER COUNTY
 STATION: 427+46.10 -L1-

SHEET 1 OF 3



Signed

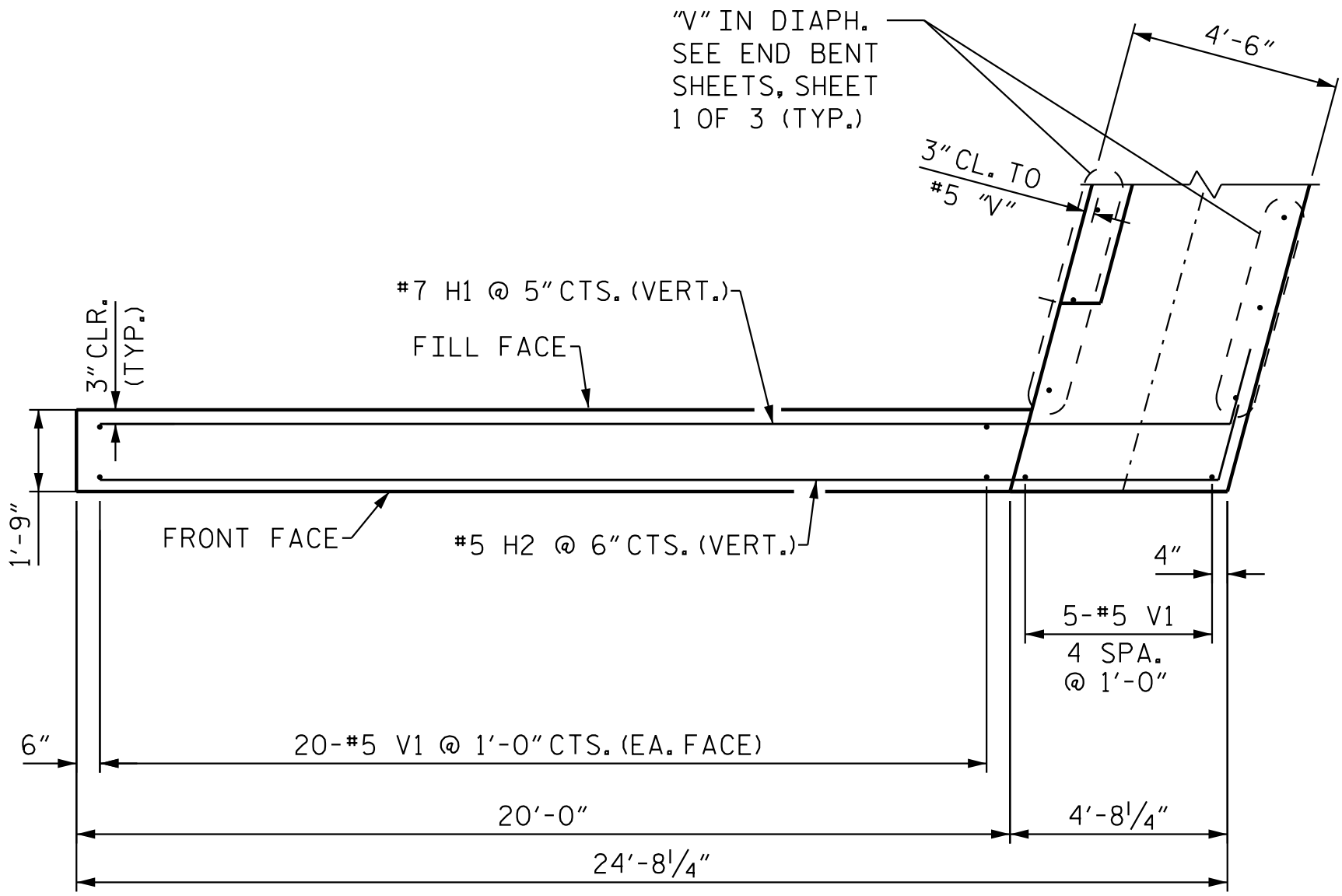
EARED

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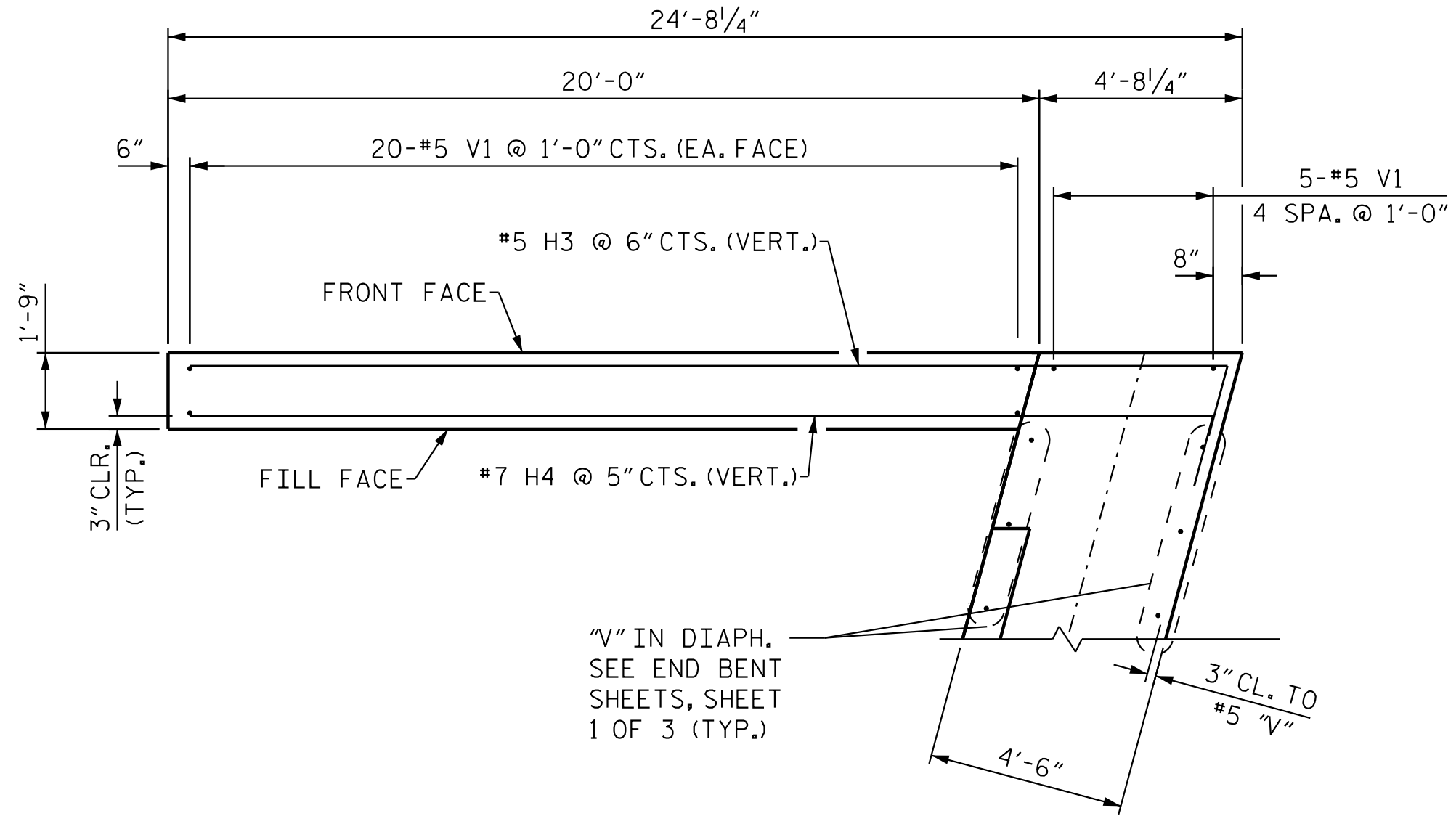
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STATE OF NORTH CAROLINA
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 RALEIGH
 SUBSTRUCTURE
 END BENT 1
 (LEFT LANE)

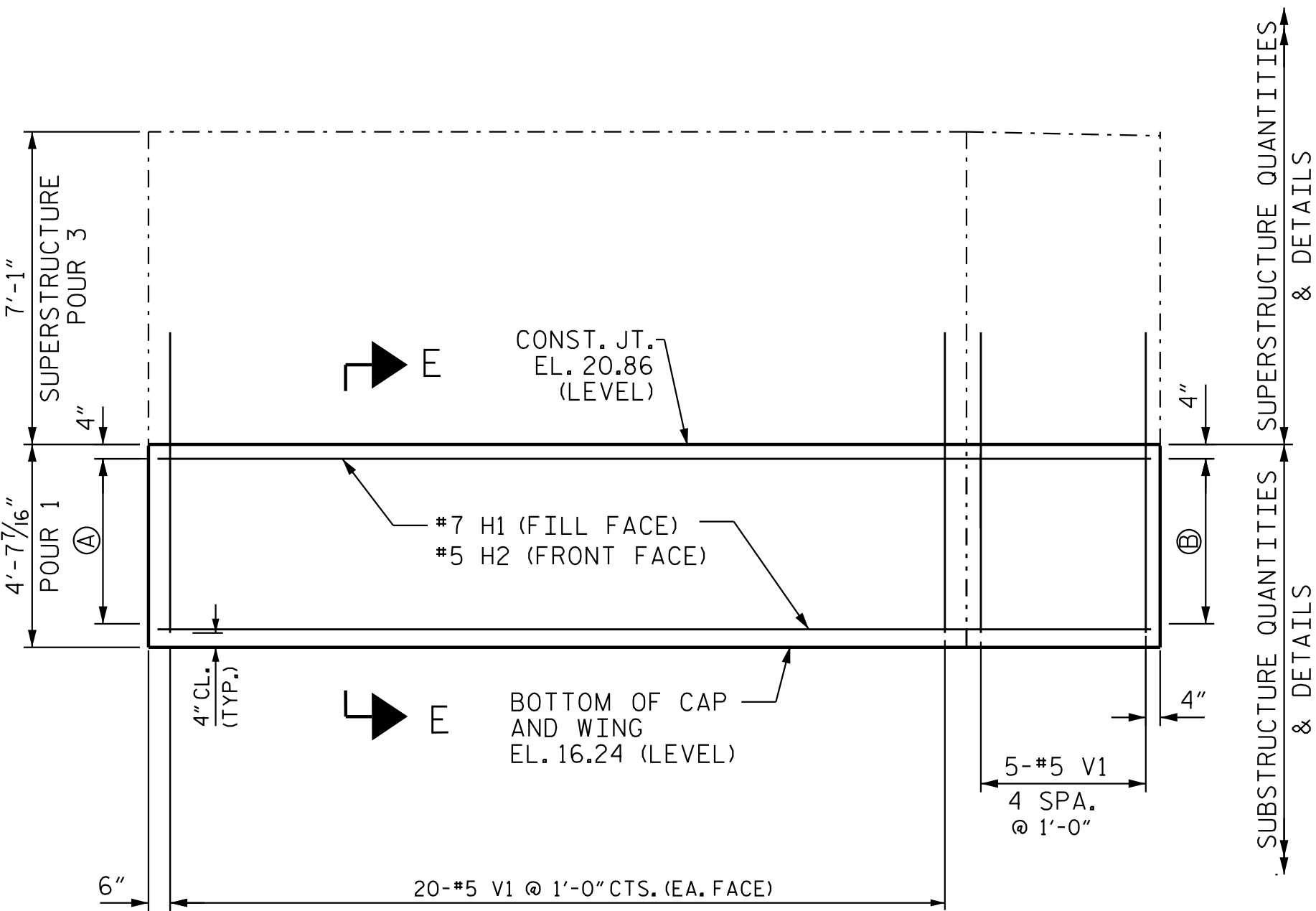
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NO.	BY:	DATE:	NO.	BY:	DATE:	S08-30
1			3			TOTAL SHEETS
2			4			41



W2 PLAN OF RIGHT WING

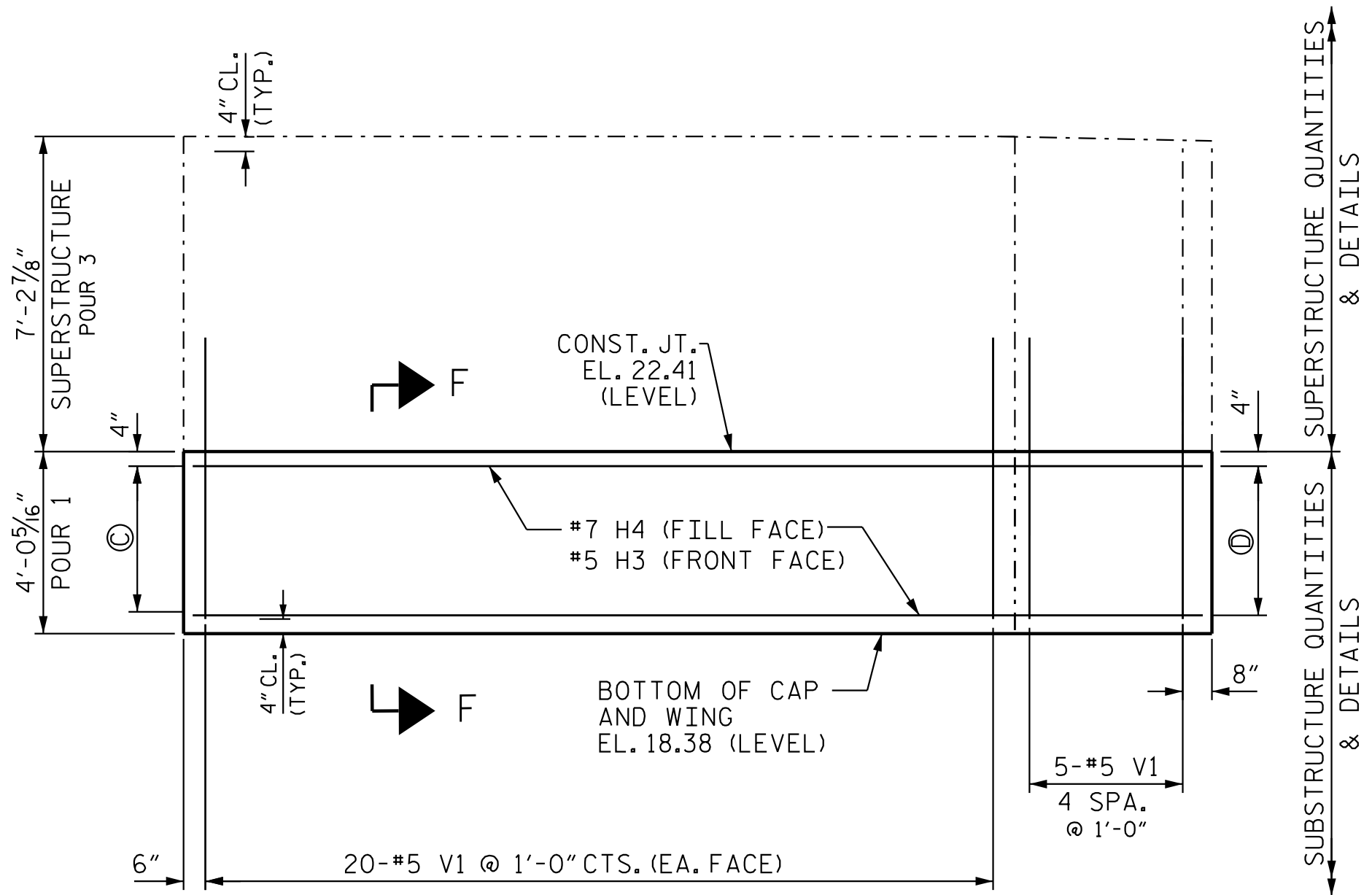


W1 PLAN OF LEFT WING



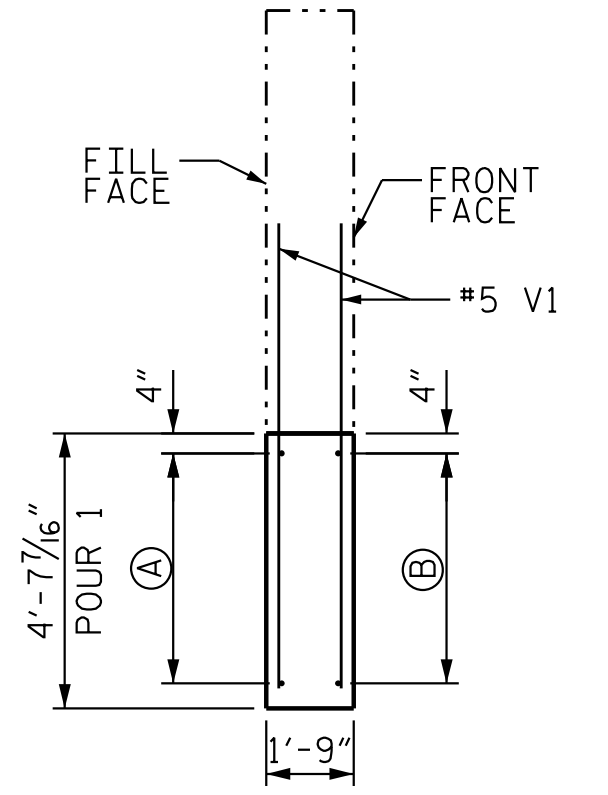
W2 ELEVATION OF RIGHT WING

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

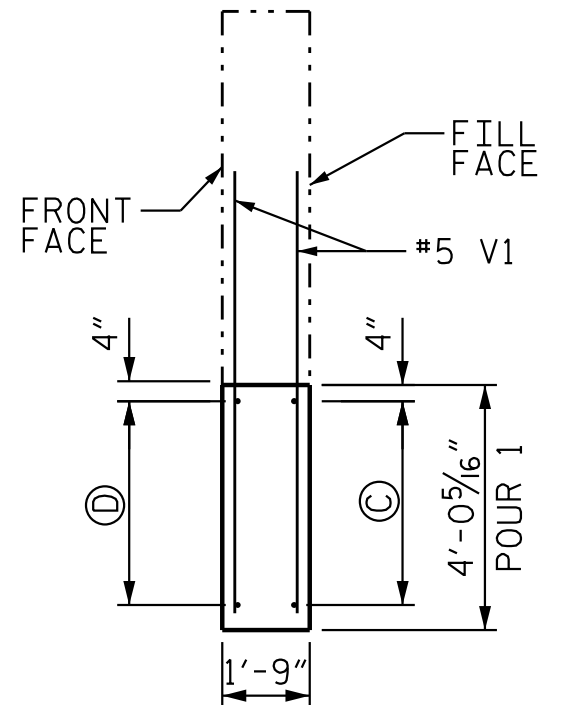


W1 ELEVATION OF LEFT WING

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



SECTION E-E



SECTION F-F

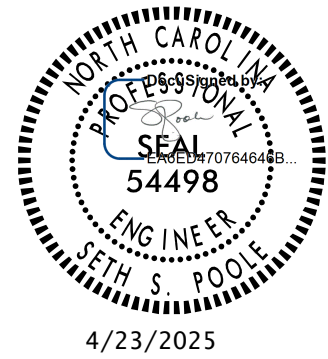
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SHEET 2 OF 3



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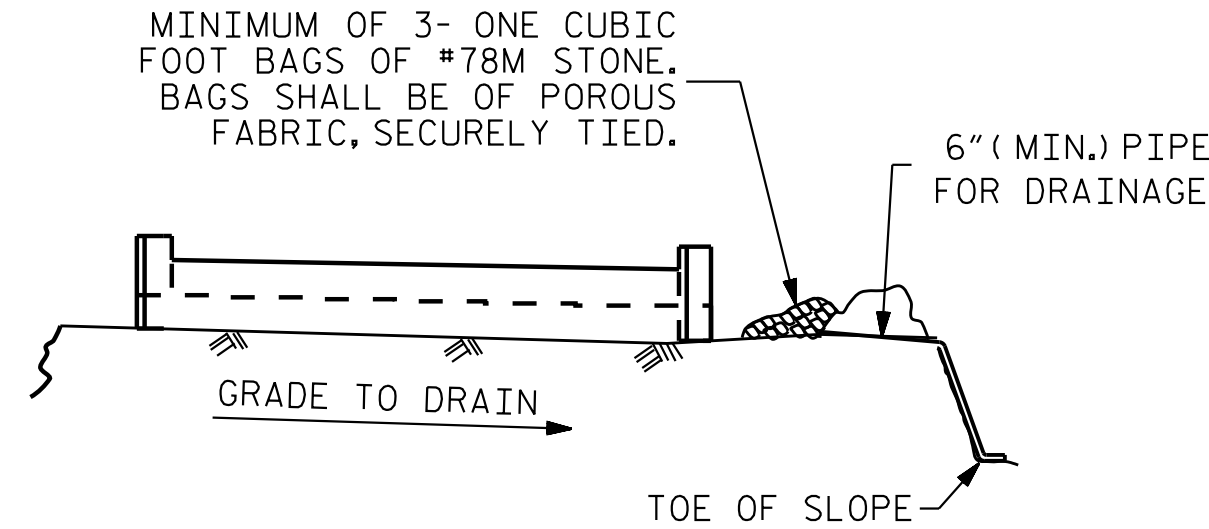
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2			4			

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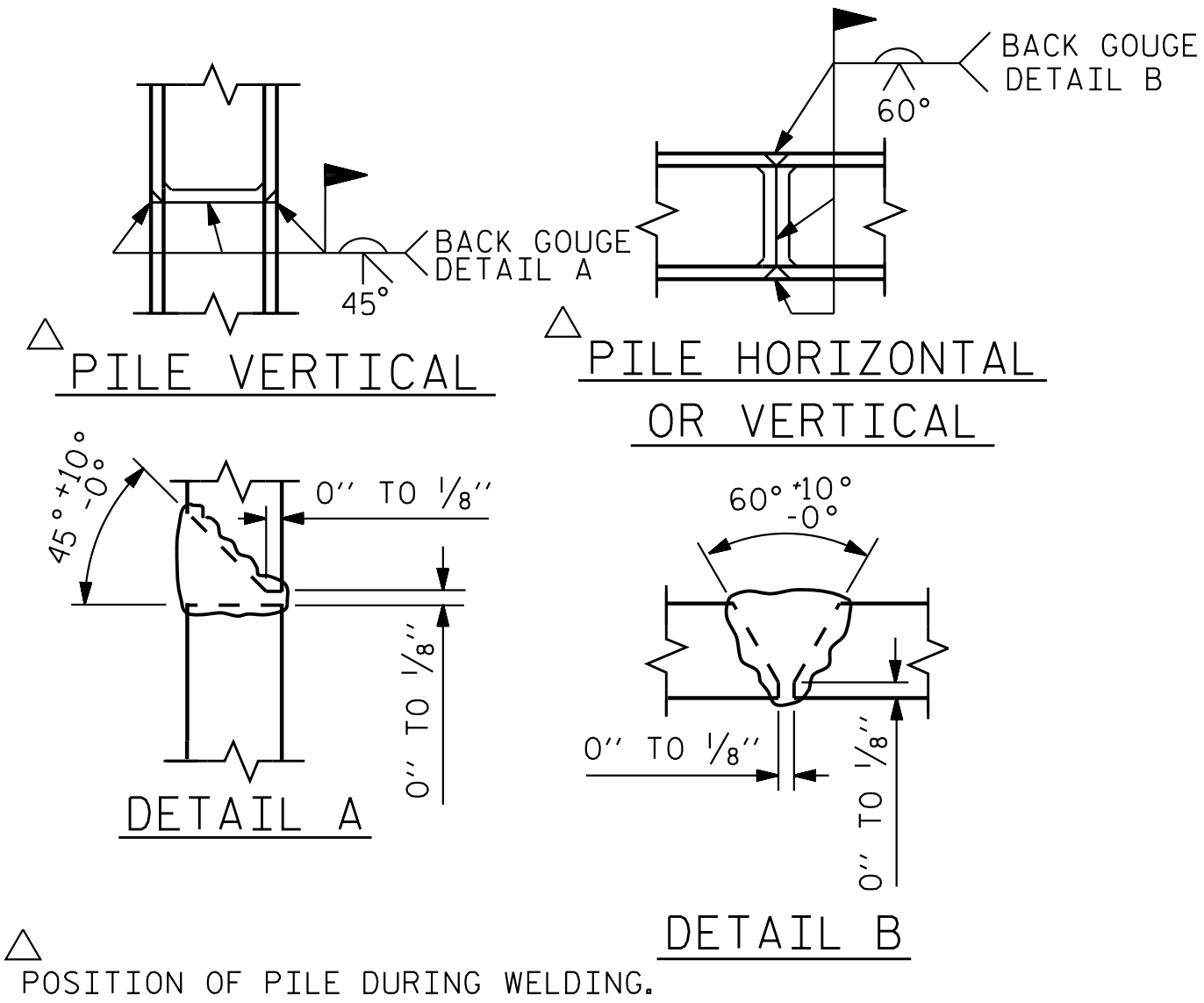


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

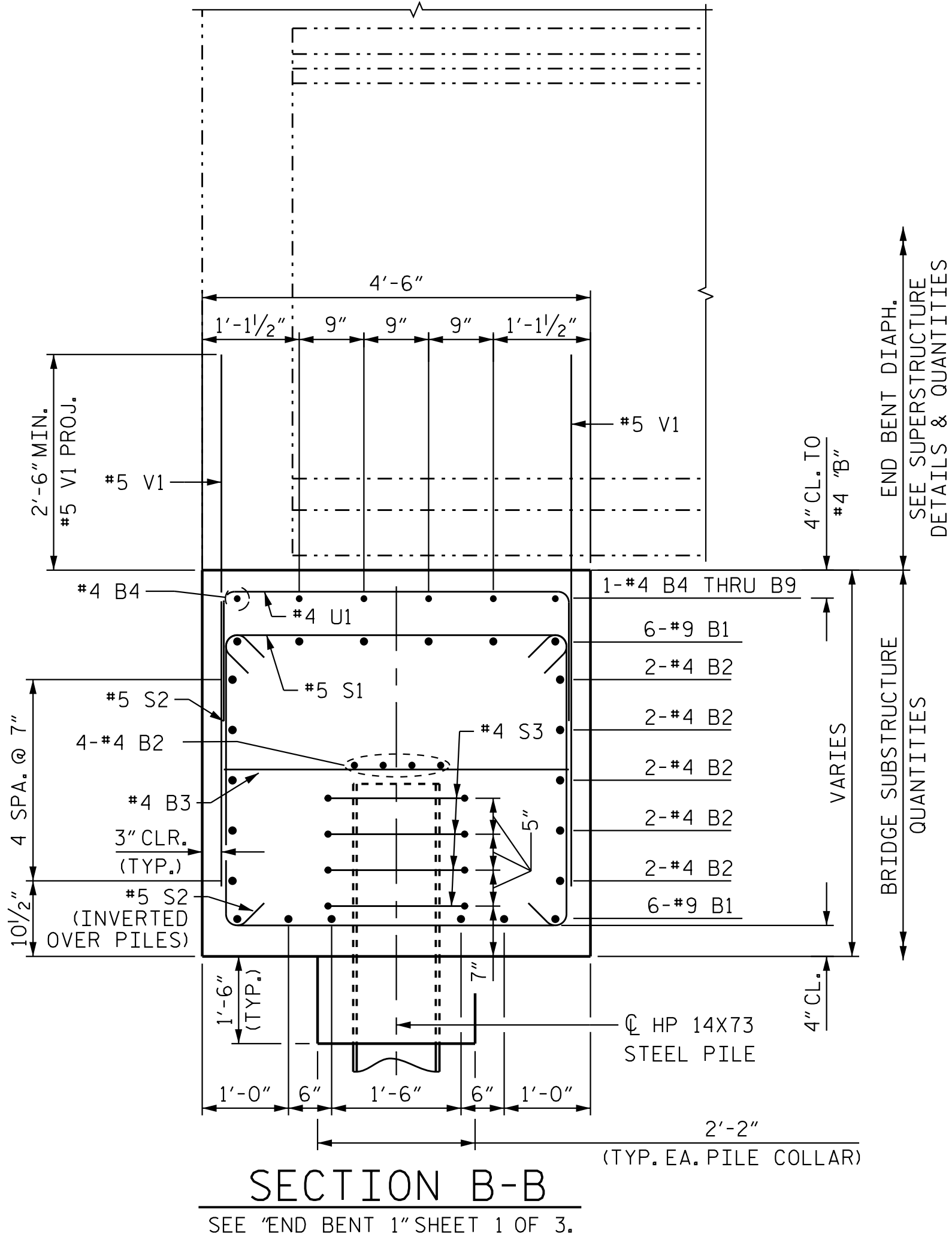
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



BAR TYPES				BILL OF MATERIAL		
END BENT 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	12	#9	1	54'-5"	2,220	
* B2	28	#4	STR	27'-5"	513	
* B3	13	#4	STR	4'-0"	35	
* B4	1	#4	STR	7'-3"	5	
* B5	19	#4	STR	7'-6"	95	
* B6	1	#4	STR	7'-8"	5	
* B7	1	#4	STR	7'-11"	5	
* B8	1	#4	STR	8'-1"	5	
* B9	1	#4	STR	8'-4"	6	
* B10	6	#4	STR	13'-9"	55	
* H1	10	#5	3	26'-3"	537	
* H2	9	#5	3	25'-11"	244	
* H3	8	#5	2	25'-9"	422	
* H4	9	#5	2	25'-4"	238	
* S1	62	#5	4	4'-11"	318	
* S2	71	#5	5	11'-9"	871	
* S3	36	#4	6	7'-7"	183	
* U1	29	#4	7	7'-0"	136	
* V1	174	#5	STR	7'-0"	1,271	
* EPOXY COATED REINFORCING STEEL				LBS. 7,164		
CLASS AA CONCRETE BREAKDOWN:						
POUR #1: CAP, COLLARS, LOWER WINGS, ETC.				C.Y. 50.3		
CLASS AA CONCRETE TOTAL				C.Y. 50.3		

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

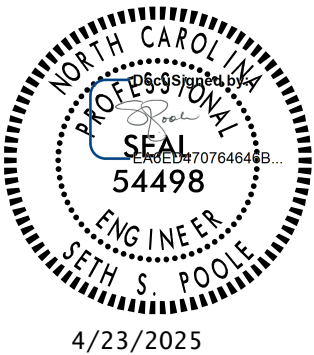
THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA & TOP OF CAP OUTSIDE THE LIMITS OF THE SUPERSTRUCTURE, SHALL BE RAKED TO A DEPTH OF 1/4"

(2BR) DENOTES 2 BAR RUN.

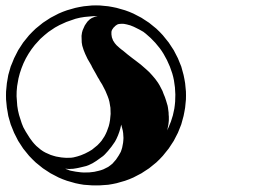
SET #5 V1 BAR 4" CLEAR (MIN.) FROM BOTTOM OF CAP.

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 3 OF 3



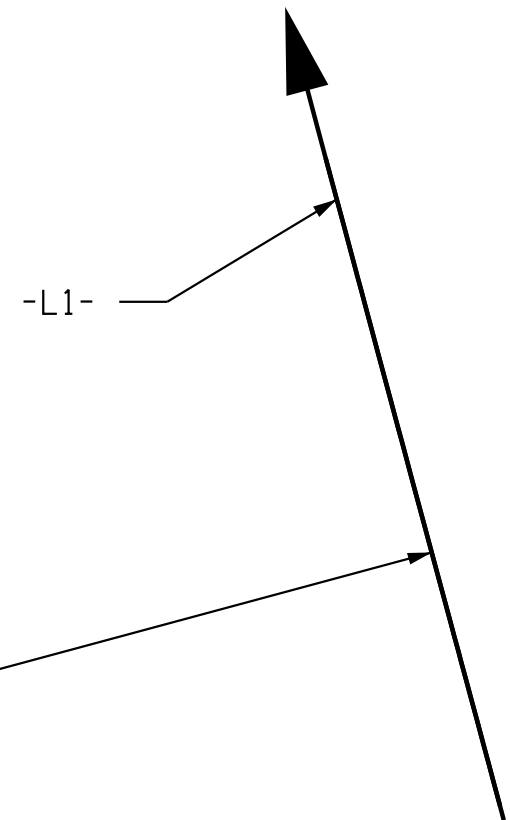
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1 DETAILS					
(LEFT LANE)					
REVISIONS					SHEET NO.
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CHECKED BY : S. S. POOLE DATE : 12/04/24

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



2" $\varnothing$ x 2'-0 1/2" ANCHOR BOLTS PROJECT 6" ABOVE CAP (TYP.)

© BENT 1 & BENT 1 CONTROL LINE

© BRG.

© GDR.

ELASTOMERIC BRG. E1 SEE "ELASTOMERIC BEARING DETAILS" (TYP.)

Dimensions (TYP.):

- 2'-8" (TYP.)
- 1'-4" (TYP.)
- 1'-1 1/2" (TYP.)
- 1'-1 1/2" (TYP.)
- 11 1/2" (TYP.)
- 11 1/2" (TYP.)
- 9" (TYP.)
- 4 1/2" (TYP.)
- 4 1/2" (TYP.)

This structural drawing illustrates the pile cutoff elevations for a bridge or pier structure. It shows eight piles numbered 1 through 8 along a horizontal axis. The vertical axis represents elevation.

Reinforcement Details:

- Pile 1:** 9-#4 U1 @ 6" CTS., 4-#4 U3, 1-#5 S1 & 2-#5 S2, EL. 22.89
- Pile 2:** 4-#4 B5, EL. 22.50
- Pile 3:** 4-#4 B4, #4 B2 (2BR) (EA. FACE), EL. 22.11
- Pile 4:** 4-#4 B4, #5 S1 INVERTED OVER PILES (TYP.), 4-#4 B4, EL. 21.73
- Pile 5:** 4-#10 B1, 4-#4 B4, EL. 21.34
- Pile 6:** 4-#4 U4, 1-#5 S1 & 2-#4 S2, EL. 16.42

Dimensions and Spacing:

- Horizontal spacing between pile centers: 5'-9"
- Horizontal distance from pile centerline to edge: 1'-10 1/2"
- Vertical spacing: 6"-#4 U2, 2'-0" (MIN.), 2'-0" (TYP.)
- Bar spacing: 15-#4 B3 BARS @ 3'-0" CTS., 8-#5 S1 & 16-#5 S2 @ 6" CTS. (TYP. EA. BAY)

Elevation Data:

PILE NUMBER	ELEVATION
1	22.89
2	22.50
3	22.11
4	21.73
5	21.34
6	16.42

Notes:

- WORKLINE
- 4-#4 S3 (TYP.) (EA. PILE)
- 4-#4 B2 (2 BR) OVER PILES
- 1-#6 B6 BETWEEN PILES (TYP.)

PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
P1	20.14
P2	19.88
P3	19.65
P4	19.42
P5	19.19
P6	18.96
P7	18.73
P8	18.50



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

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SHEET 1 OF 3

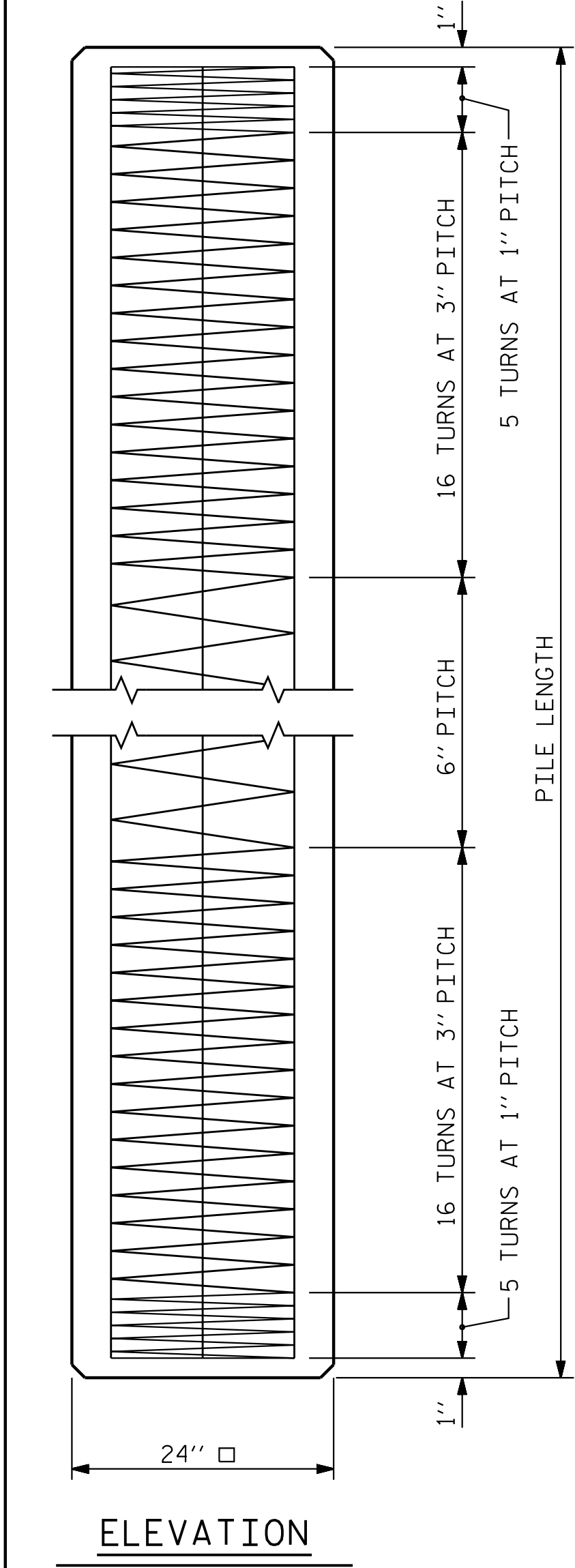
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

BENT 1

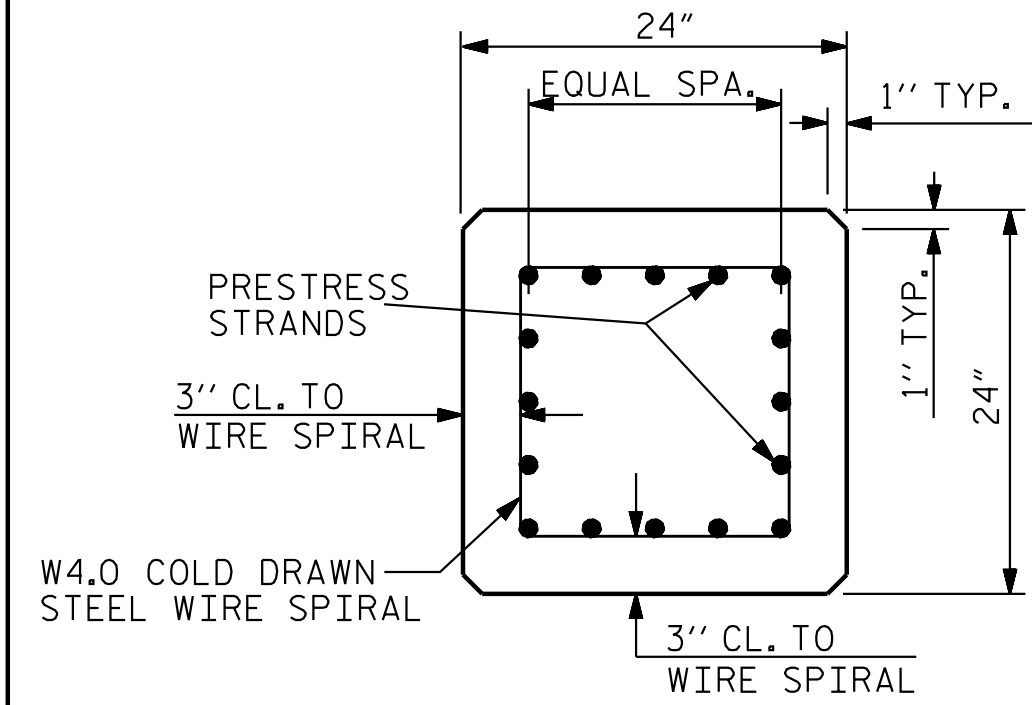
(LEFT LANE)

REVISIONS						SHEET NO. S08-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
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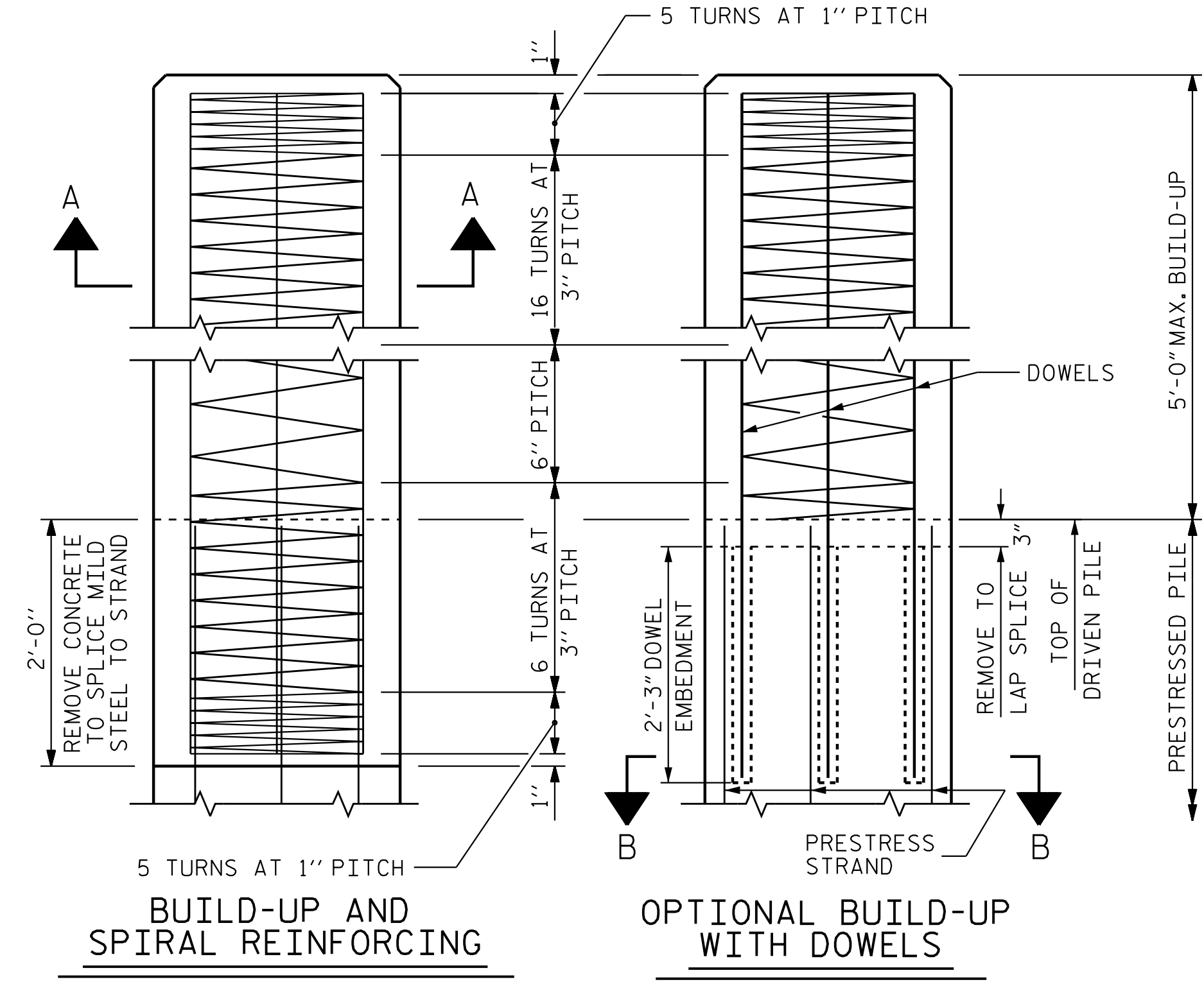


ELEVATION



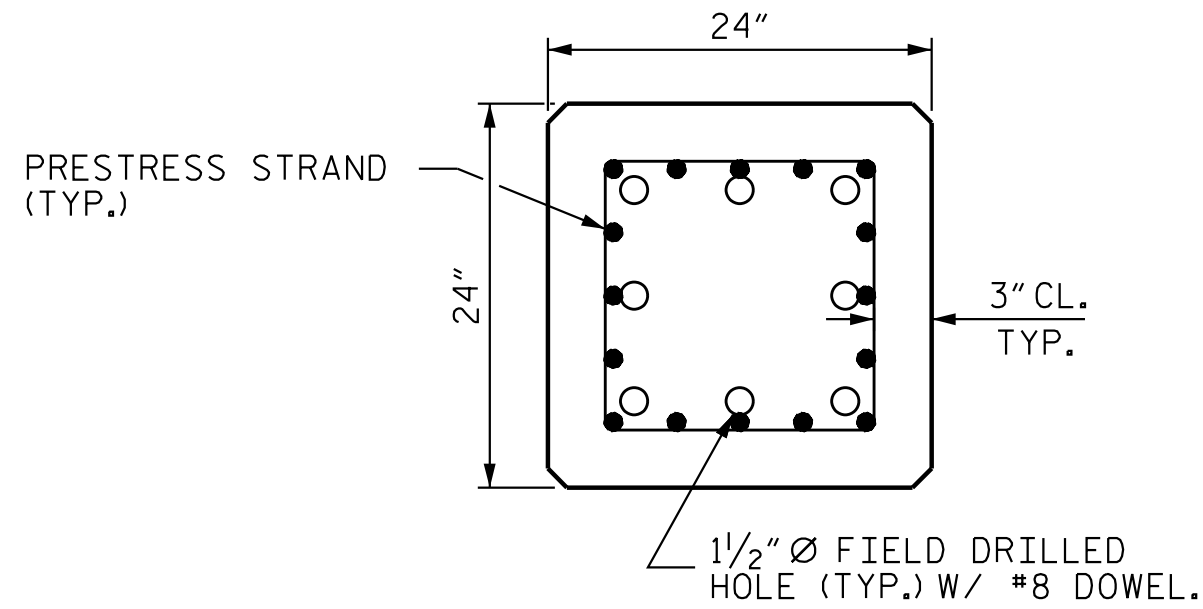
TYPICAL SECTION

0.6" Ø GRADE 270 L.R. PRESTRESS STRANDS



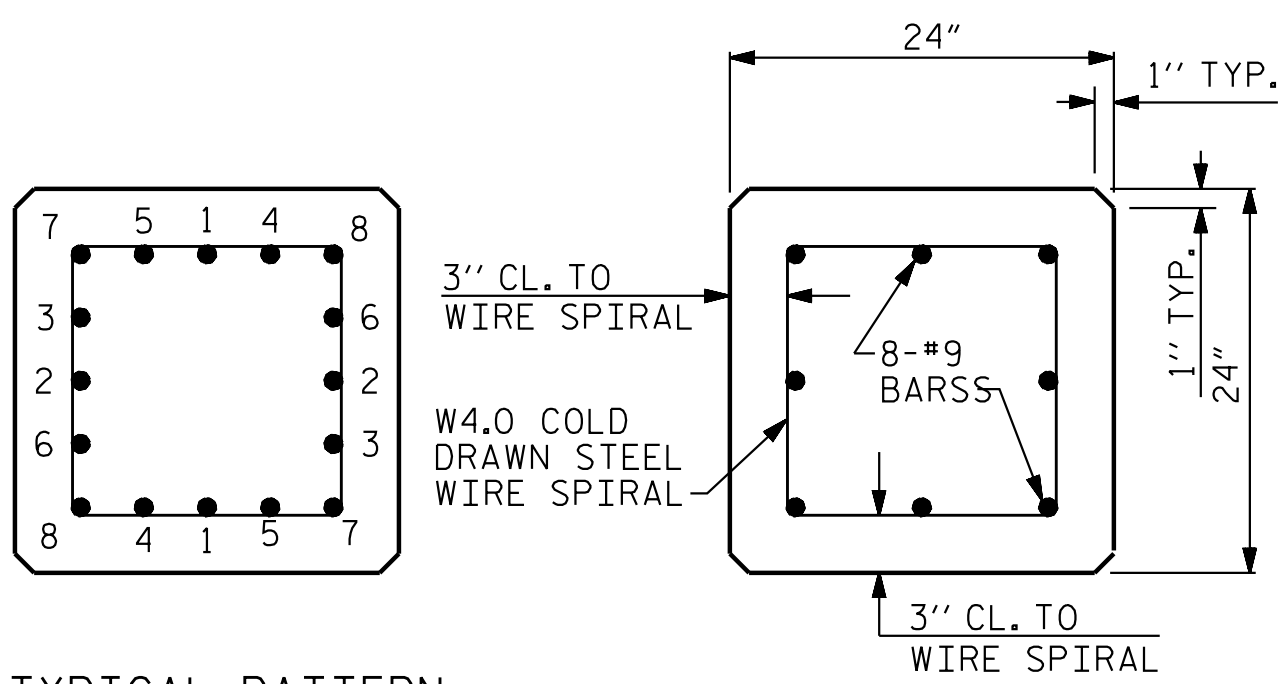
BUILD-UP AND
SPIRAL REINFORCING

OPTIONAL BUILD-UP
WITH DOWELS



SECTION "B-B"

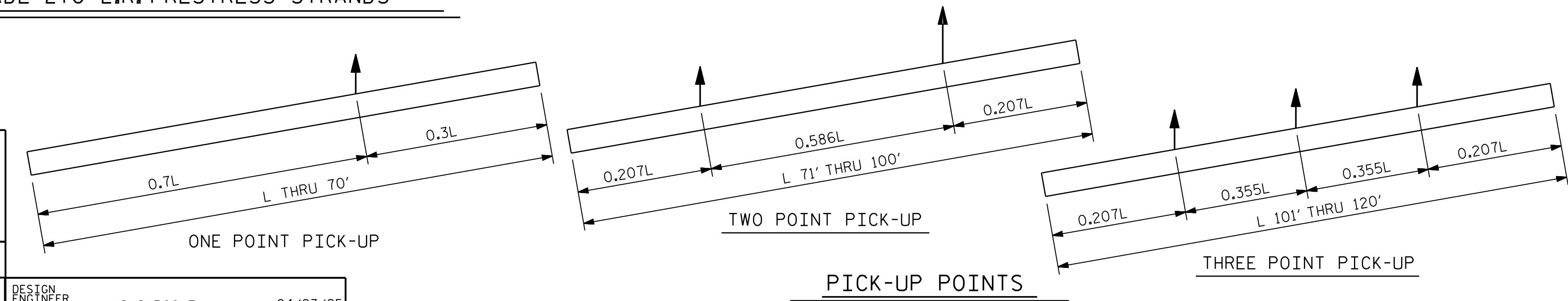
(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP
MAY BE CONSTRUCTED WITH DOWELS.)



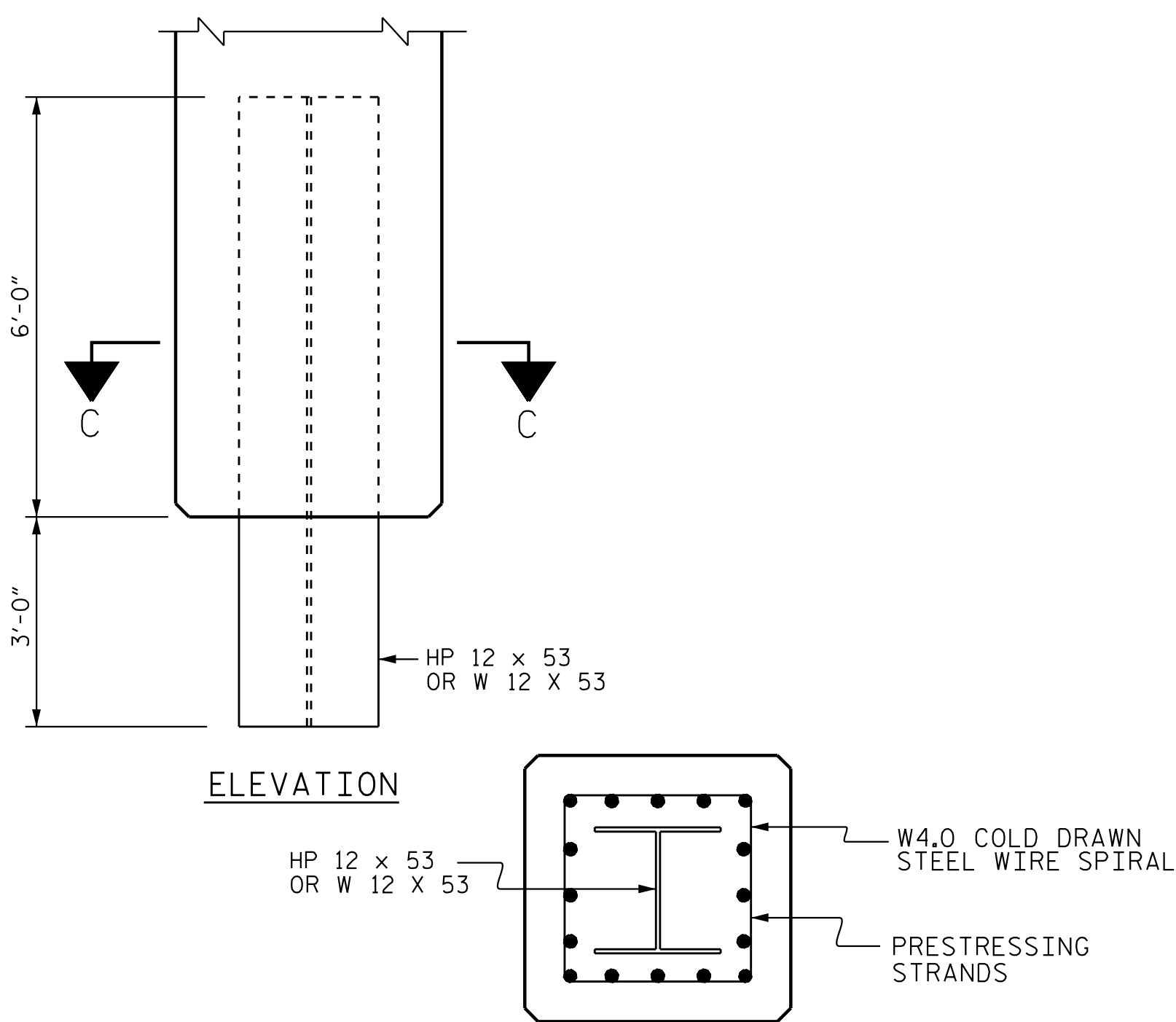
SECTION A-A

TYPICAL PATTERN
FOR
BURNING STRANDS

QUANTITIES FOR ONE 24" SQUARE PILE								
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP		TWO POINT PICK-UP		THREE POINT PICK-UP	
			0.3L	0.7L	0.207L	0.586L	0.145L	0.335L
25'-0"	3.69	7.47	7'-6"	17'-6"				
30'-0"	4.43	8.97	9'-0"	21'-0"				
35'-0"	5.17	10.46	10'-6"	24'-6"				
40'-0"	5.91	11.96	12'-0"	28'-0"				
45'-0"	6.64	13.45	13'-6"	31'-6"				
50'-0"	7.38	14.95	15'-0"	35'-0"				
55'-0"	8.12	16.44	16'-6"	38'-6"				
60'-0"	8.86	17.94	18'-0"	42'-0"				
65'-0"	9.60	19.43	19'-6"	45'-6"				
70'-0"	10.33	20.93	21'-0"	49'-0"				
75'-0"	11.07	22.42			15'-6 1/2"	43'-11"		
80'-0"	11.81	23.92			16'-6 1/2"	46'-11"		
85'-0"	12.55	25.41			17'-7"	49'-10"		
90'-0"	13.29	26.91			18'-7 1/2"	52'-9"		
95'-0"	14.03	28.40			19'-8"	55'-8"		
100'-0"	14.76	29.90			20'-8 1/2"	58'-7"		
105'-0"	15.50	21.39					15'-3"	37'-3"
110'-0"	16.24	32.89					15'-11 1/2"	39'-0 1/2"
115'-0"	16.98	34.38					16'-8"	40'-10"
120'-0"	17.72	35.87					17'-5"	42'-7"



PICK-UP POINTS



ELEVATION

SECTION C-C
PILE TIP DETAILS

FOR 24" SQUARE PRESTRESSED CONCRETE PILE

NOTES

PRESTRESSED CONCRETE STRENGTH : f'c= 7,500 PSI

BUILD-UP CONCRETE STRENGTH : f'c= 7,500 PSI

STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
0.6"	270 L.R.	0.217	58,600* PER STRAND	43,940* PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

THE CONCRETE IN THE PILES OF BENT NO.1 SHALL CONTAIN SILICA FLUME. SILICA FLUME 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. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSIVE STRENGTH: f'c= 5,000 PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN 1/2" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

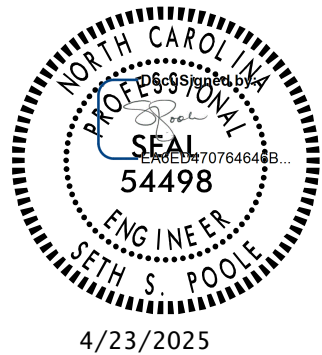
THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPICED BY OVERLAPPING A MIN. OF ONE TURN.

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.10 -L1-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

24" PRESTRESSED
CONCRETE PILE

REVISIONS						SHEET NO. S08-34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

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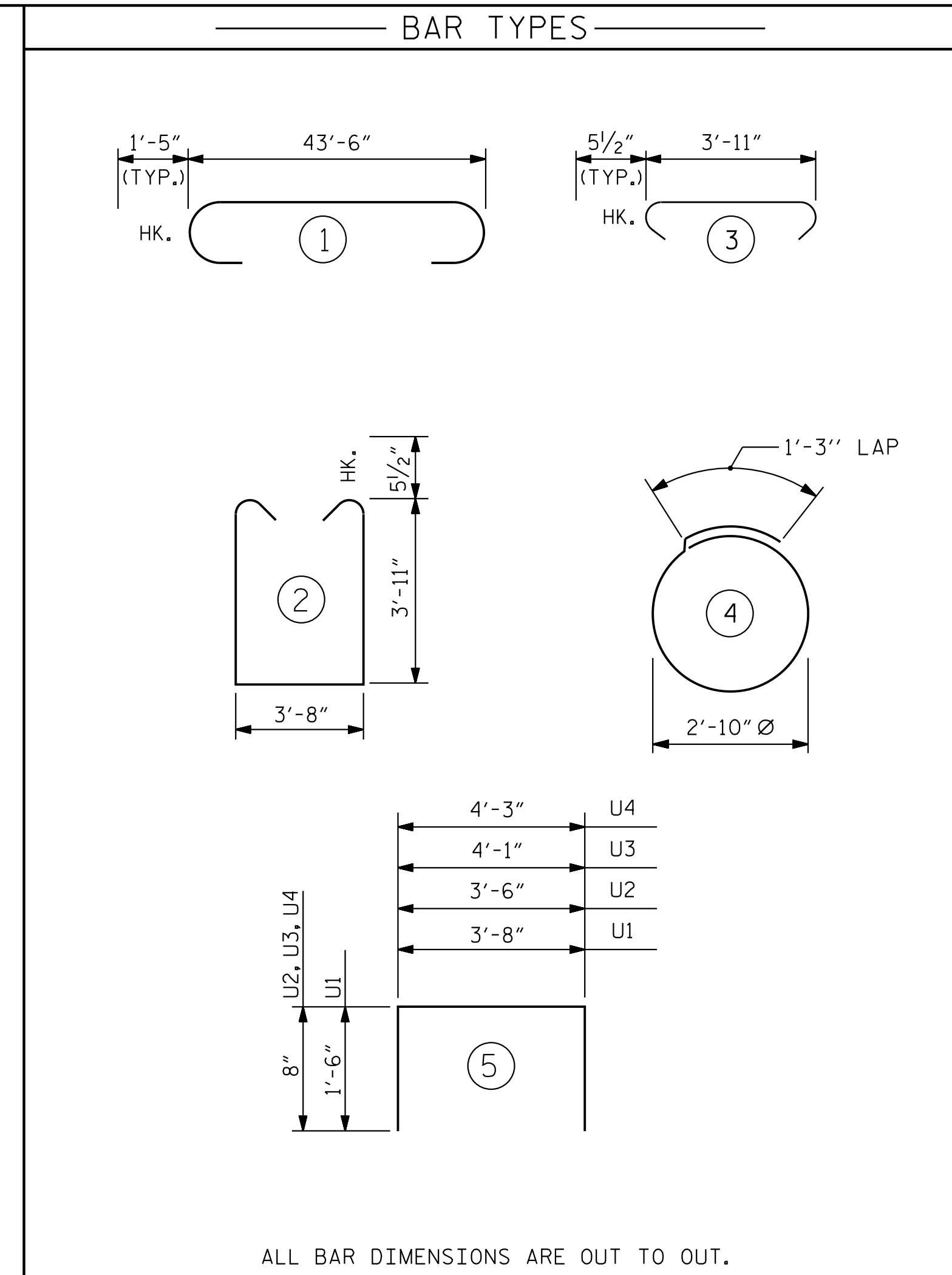
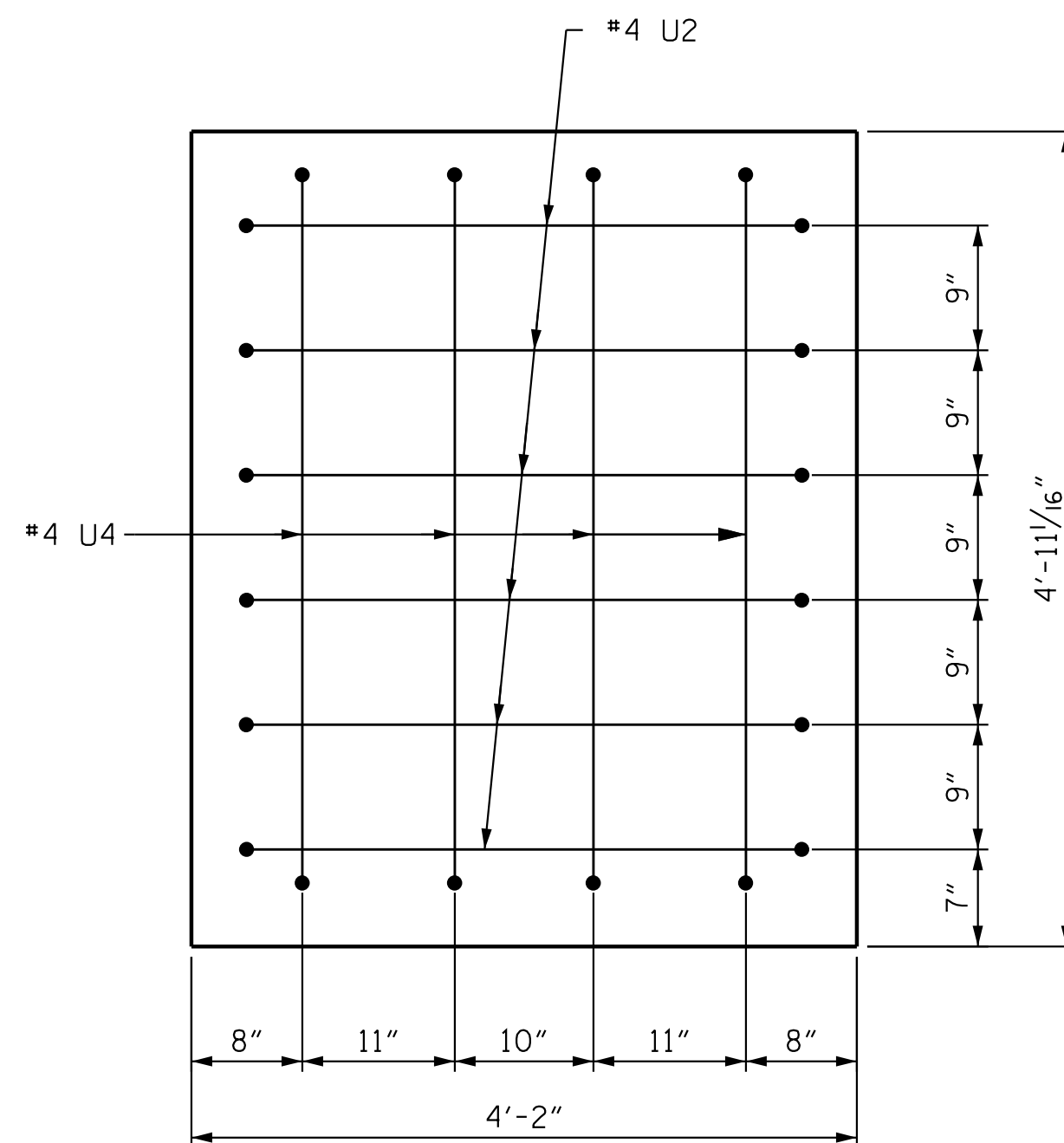
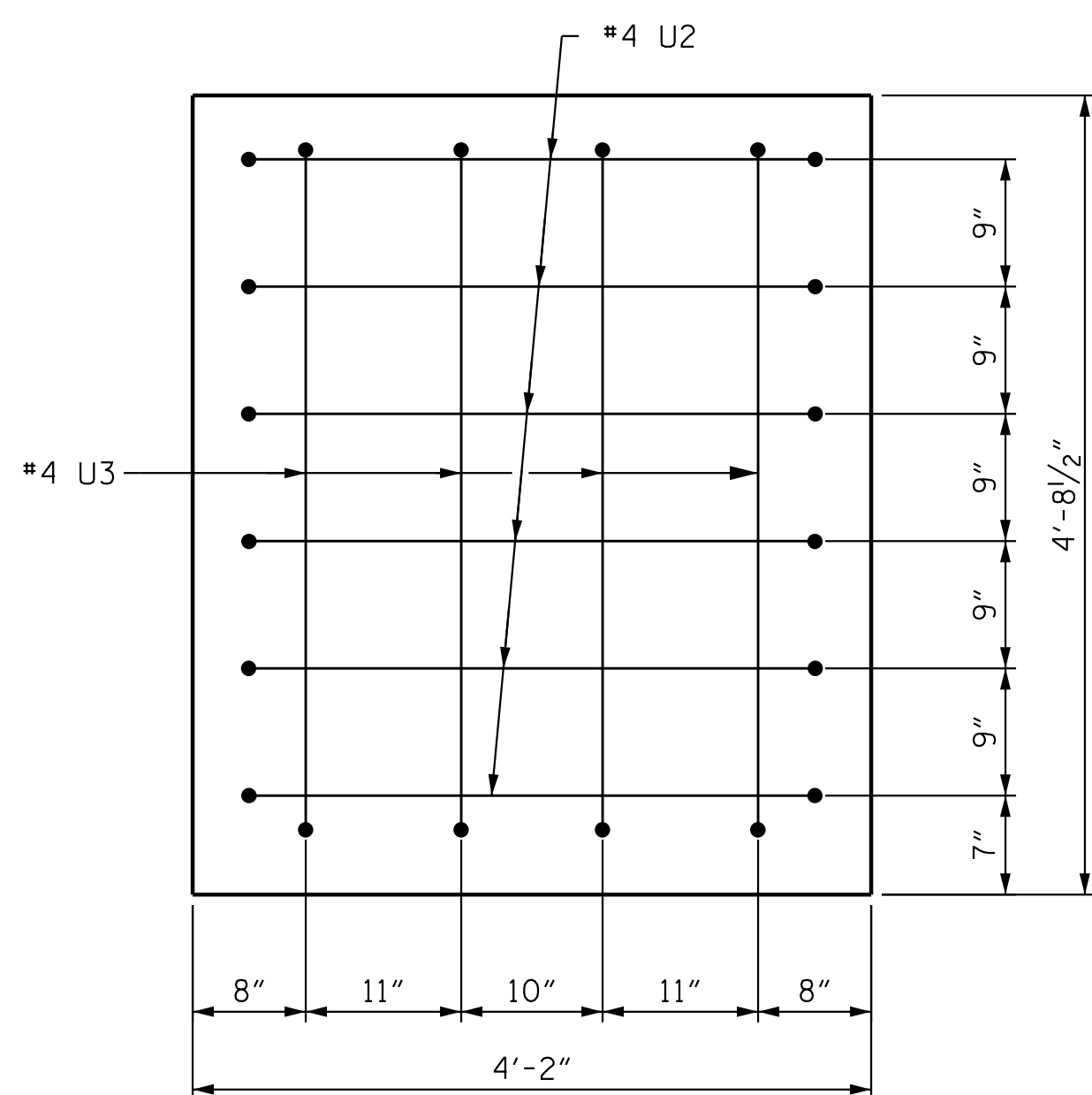
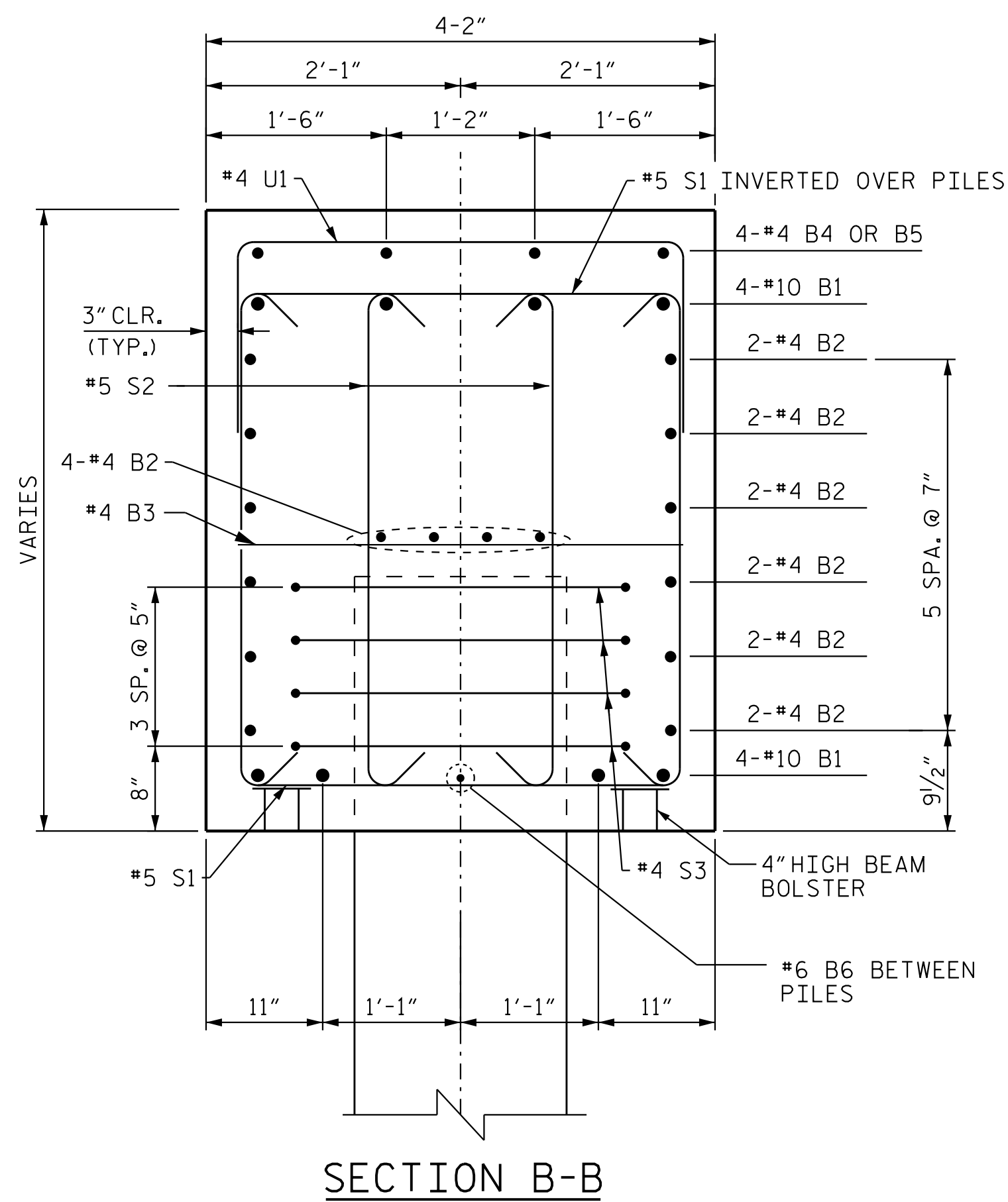
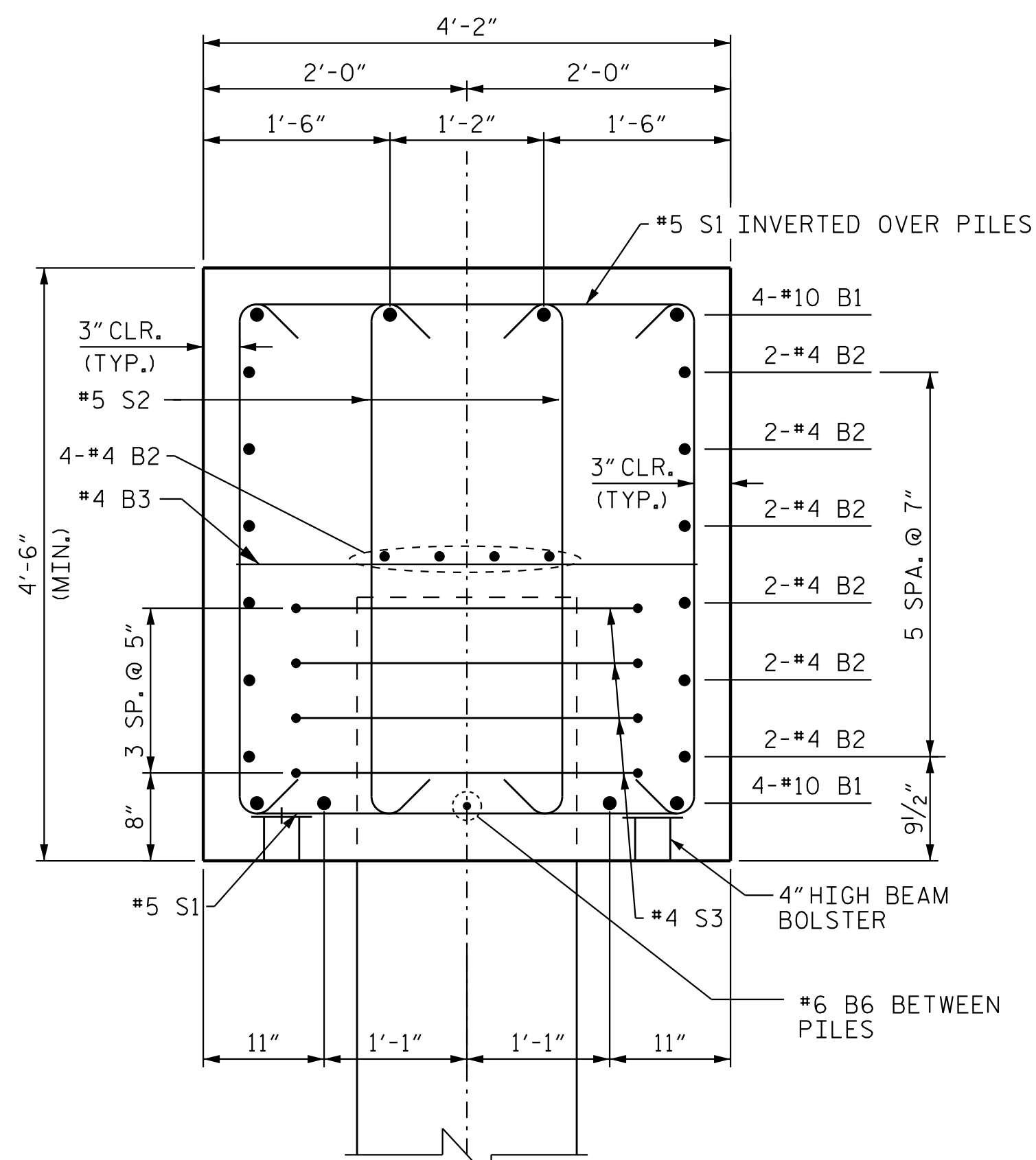
ASSEMBLED BY : J. B. GEILE
CHECKED BY : S. S. POOLE
DATE : 11/19/21
DATE : 01/13/25

DRAWN BY : WJH 1/89
CHECKED BY : CRK 3/89

REV. 10/1/11 MAA/TMC
REV. 12/14 MAA/THC
REV. 12/17 MAA/THC

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

STD. NO. PCP4



BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	8	#10	1	46'-4"	1,594
* B2	32	#4	STR	43'-6"	929
* B3	15	#4	STR	3'-6"	35
* B4	16	#4	STR	7'-6"	80
* B5	4	#4	STR	4'-4"	11
* B6	7	#6	STR	3'-9"	39
* S1	82	#5	2	12'-5"	1,061
* S2	116	#5	3	4'-10"	584
* S3	32	#4	4	10'-2"	217
* U1	57	#4	5	6'-6"	253
* U2	12	#4	5	4'-10"	38
* U3	4	#4	5	5'-5"	14
* U4	4	#4	5	5'-7"	14
* EPOXY COATED REINFORCING STEEL				LBS.	4,869
CLASS AA CONCRETE BREAKDOWN					
CAP				C. Y.	30.0
TOTAL CLASS AA CONC.				C. Y.	30.0

PROJECT NO. R-3300A
 PENDER COUNTY
 STATION: 427+46.10 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1 DETAILS

(LEFT LANE)

REVISIONS						SHEET NO. S08-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

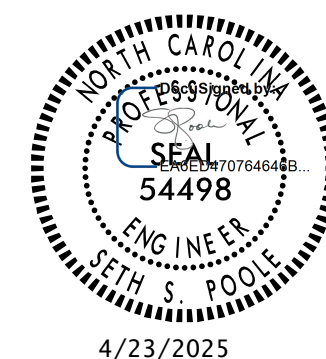


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DRAWN BY : <u>J. GUERRERO</u> DATE : <u>09/12/18</u> CHECKED BY : <u>S. S. POOLE</u> DATE : <u>12/04/24</u>	DESIGN ENGINEER OF RECORD: <u>S. S. POOLE</u> DATE : <u>04/23/25</u>
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ENGINEER
OF RECORD: S. S. POOLE DATE: 04/23/25

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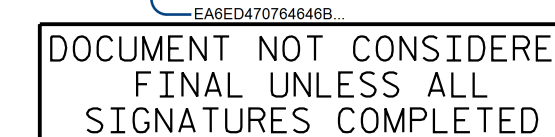




REVISIONS

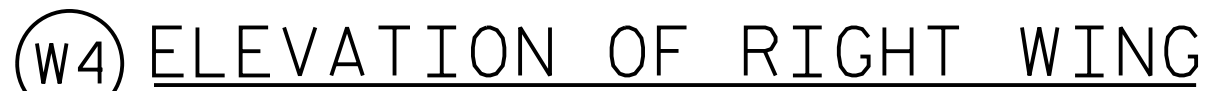
SHEET NO
S08-36

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





- (W4) PLAN OF RIGHT WING



- SECTION E-E



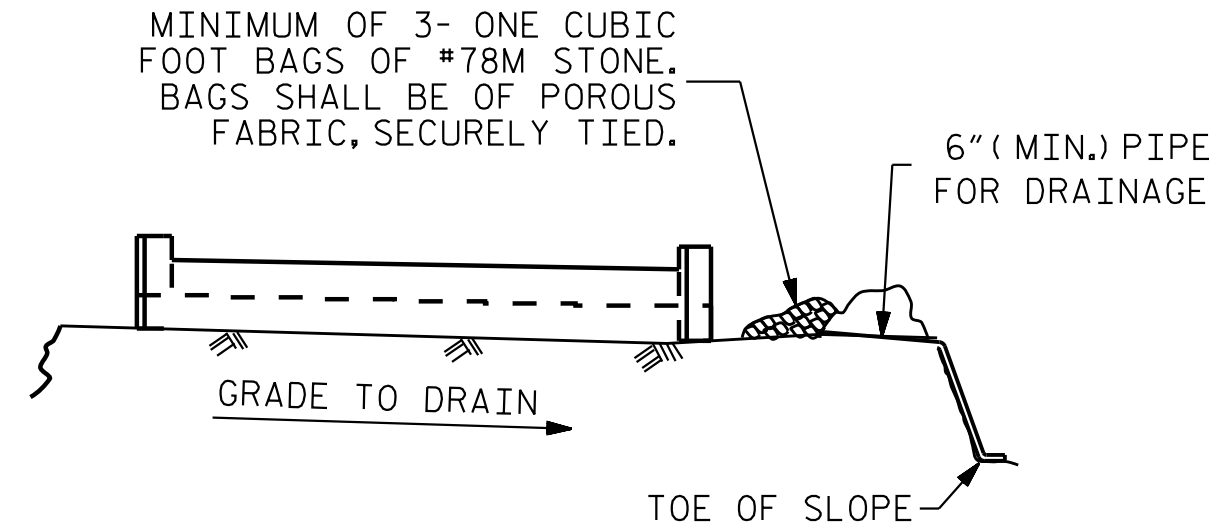
REVISIONS						SHEET NO. S08-37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

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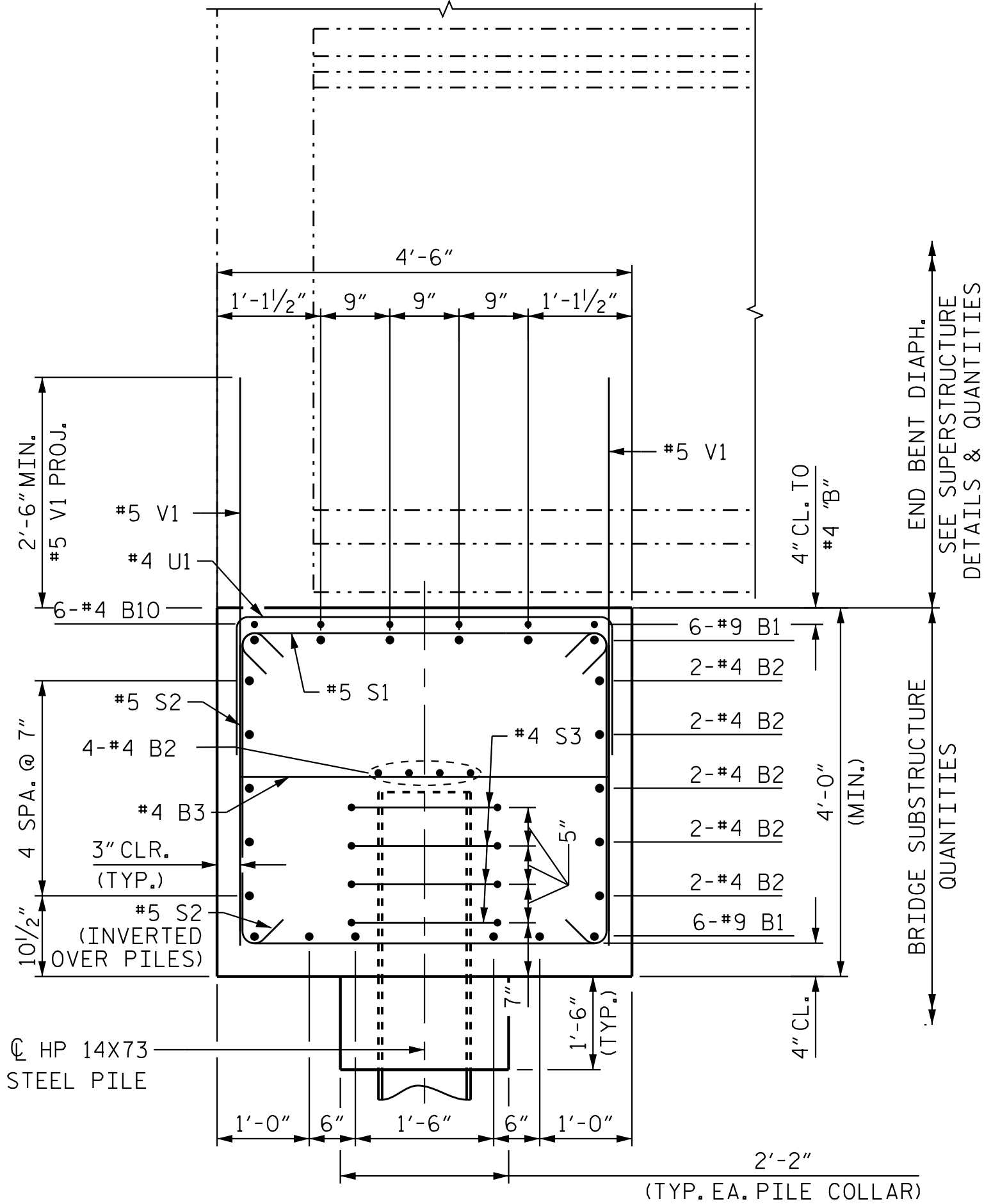


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

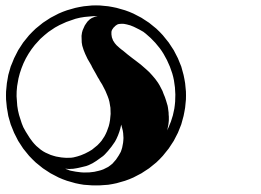
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



SECTION A-A

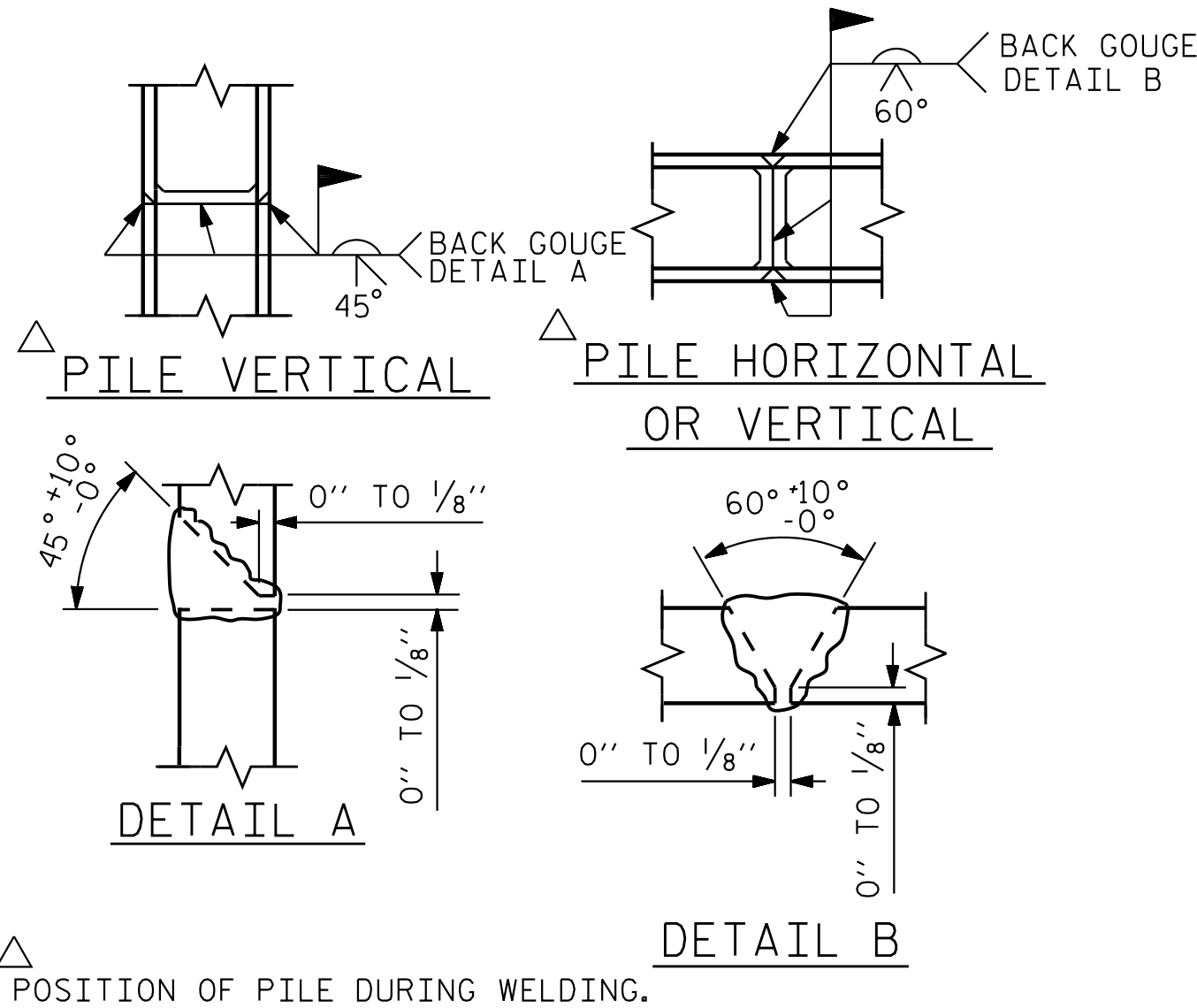
SEE "END BENT 2" SHEET 1 OF 3



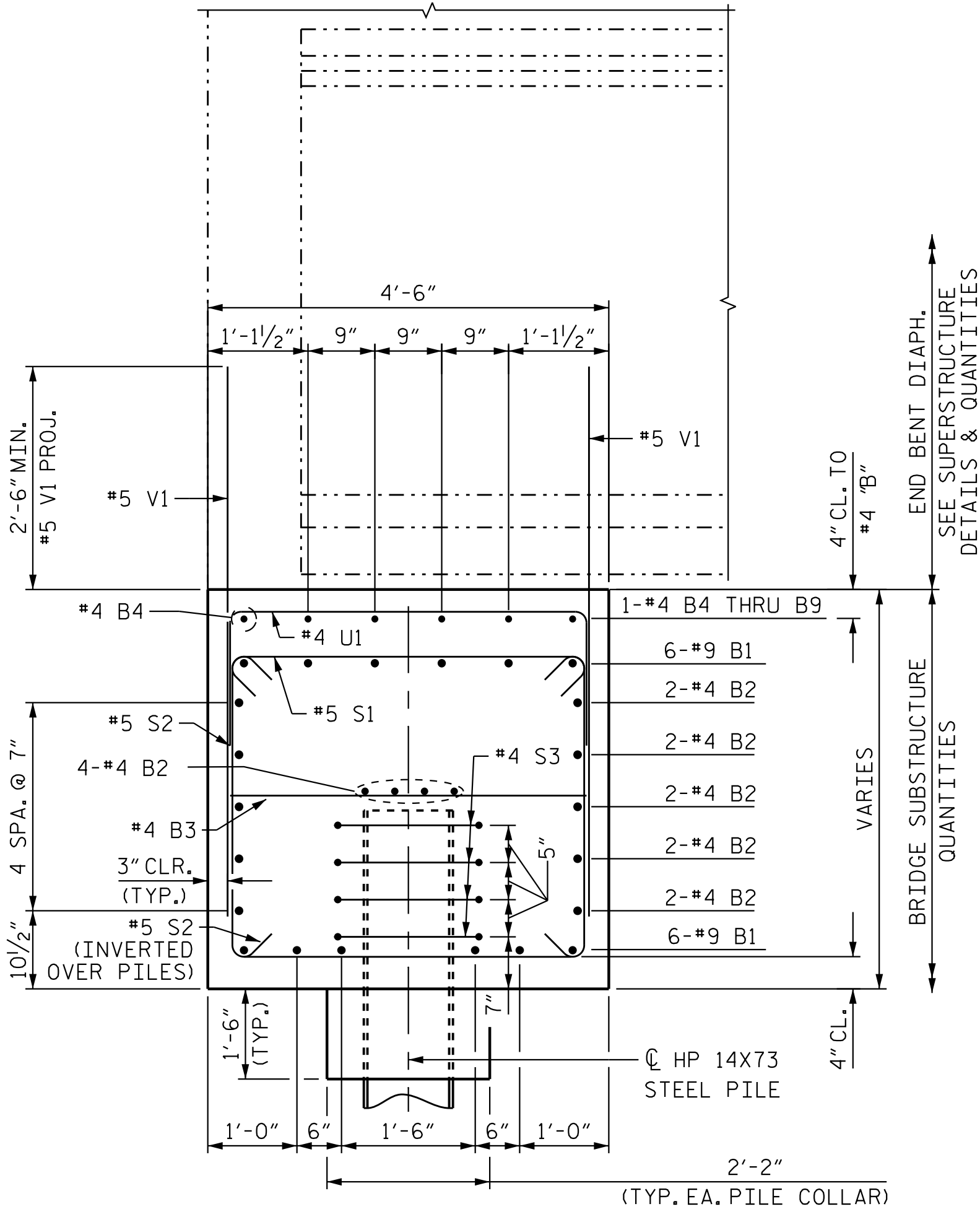
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CHECKED BY : S. S. POOLE DATE : 12/04/24

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



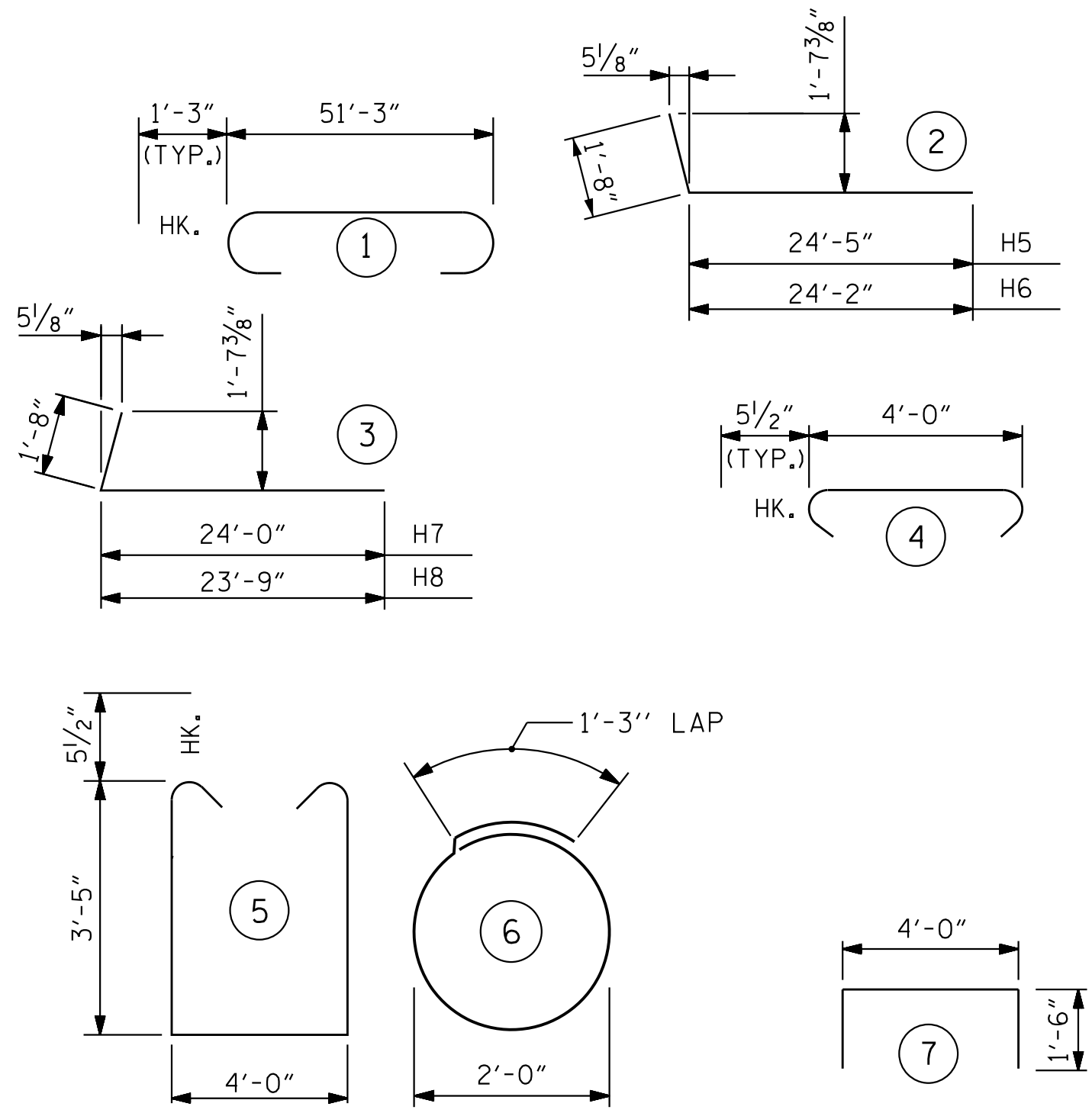
PILE SPLICE DETAILS



SECTION B-B

SEE "END BENT 2" 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.

THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA & TOP OF CAP OUTSIDE THE LIMITS OF THE SUPERSTRUCTURE, SHALL BE RAKED TO A DEPTH OF 1/4"

(2BR) DENOTES 2 BAR RUN.

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

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	12	#9	1	53'-9"	2,193
*B2	28	#4	STR	27'-1"	507
*B3	13	#4	STR	4'-0"	35
*B4	19	#4	STR	7'-6"	95
*B5	1	#4	STR	7'-9"	5
*B6	1	#4	STR	7'-11"	5
*B7	1	#4	STR	8'-1"	5
*B8	1	#4	STR	8'-3"	6
*B9	1	#4	STR	8'-5"	6
*B10	6	#4	STR	12'-10"	51

*H5	9	#7	2	26'-1"	480
*H6	8	#5	2	25'-10"	216
*H7	9	#5	3	25'-8"	241
*H8	10	#7	3	25'-4"	520

*S1	62	#5	4	4'-11"	318
*S2	71	#5	5	11'-9"	871
*S3	36	#4	6	7'-7"	183

*U1	28	#4	7	7'-0"	131
-----	----	----	---	-------	-----

*V1	172	#5	STR	7'-0"	1,256
-----	-----	----	-----	-------	-------

* EPOXY COATED REINFORCING STEEL					LBS. 7,124
----------------------------------	--	--	--	--	------------

CLASS AA CONCRETE BREAKDOWN:					
------------------------------	--	--	--	--	--

POUR #1: CAP, COLLARS, LOWER WINGS, ETC.				C.Y.	48.6
--	--	--	--	------	------

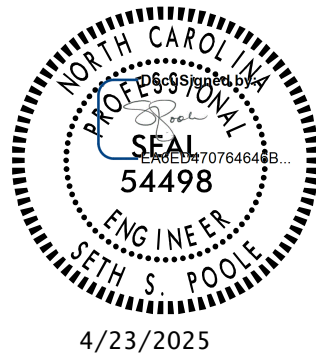
CLASS AA CONCRETE TOTAL				C.Y.	48.6
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PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.10 -L1-

SHEET 3 OF 3

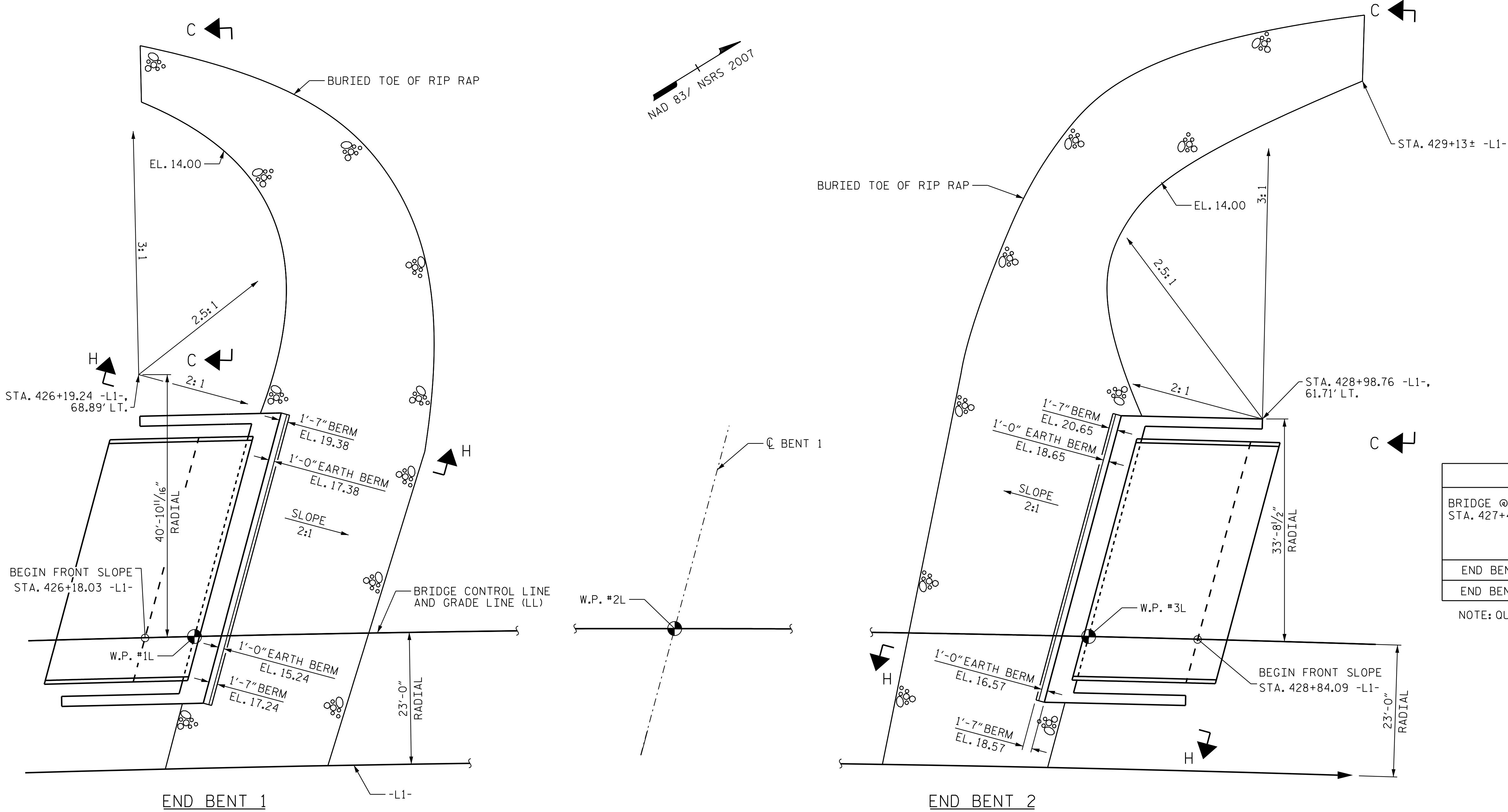


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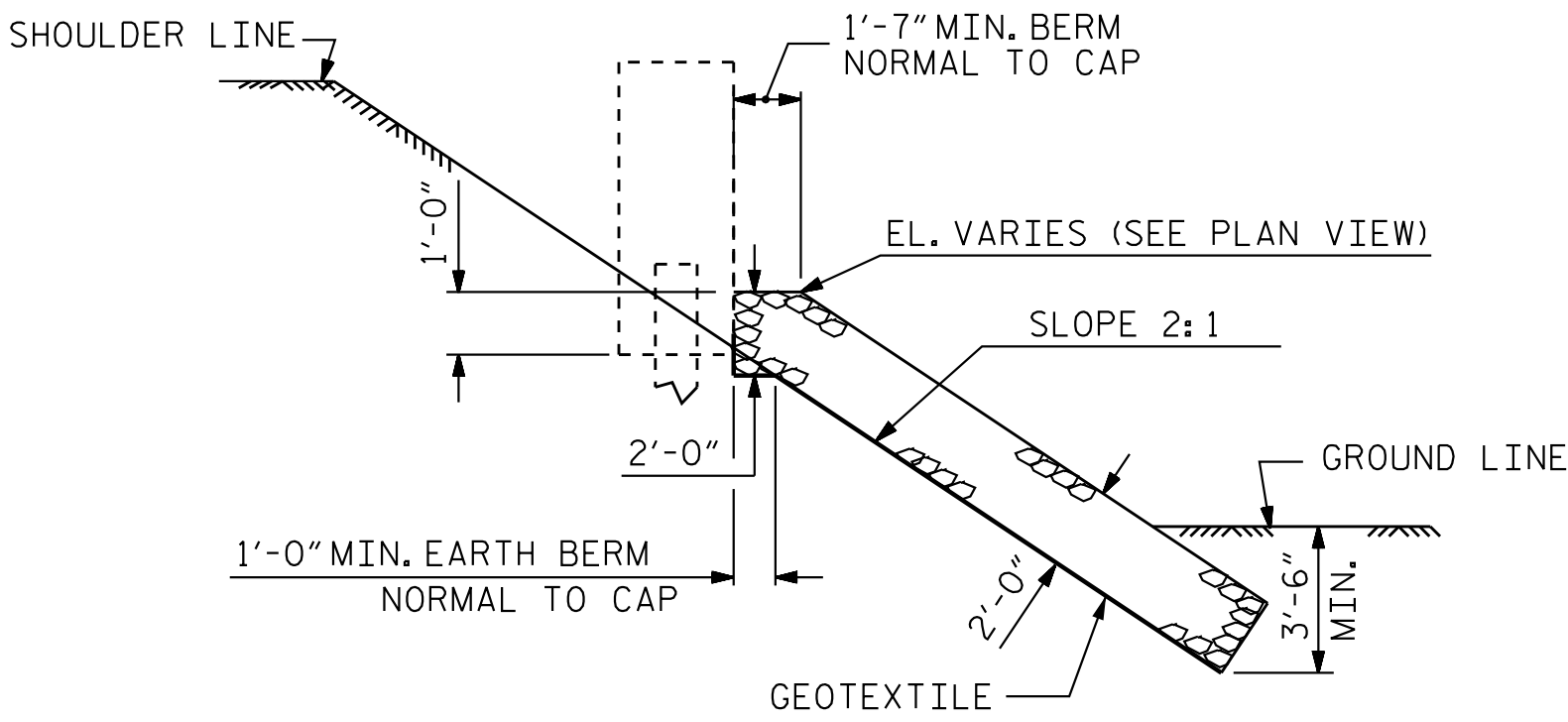
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 2 DETAILS					
(LEFT LANE)					
REVISIONS					SHEET NO. S08-38
NO.	BY:	DATE:	NO.	BY:	
1			3		TOTAL SHEETS 41
2			4		

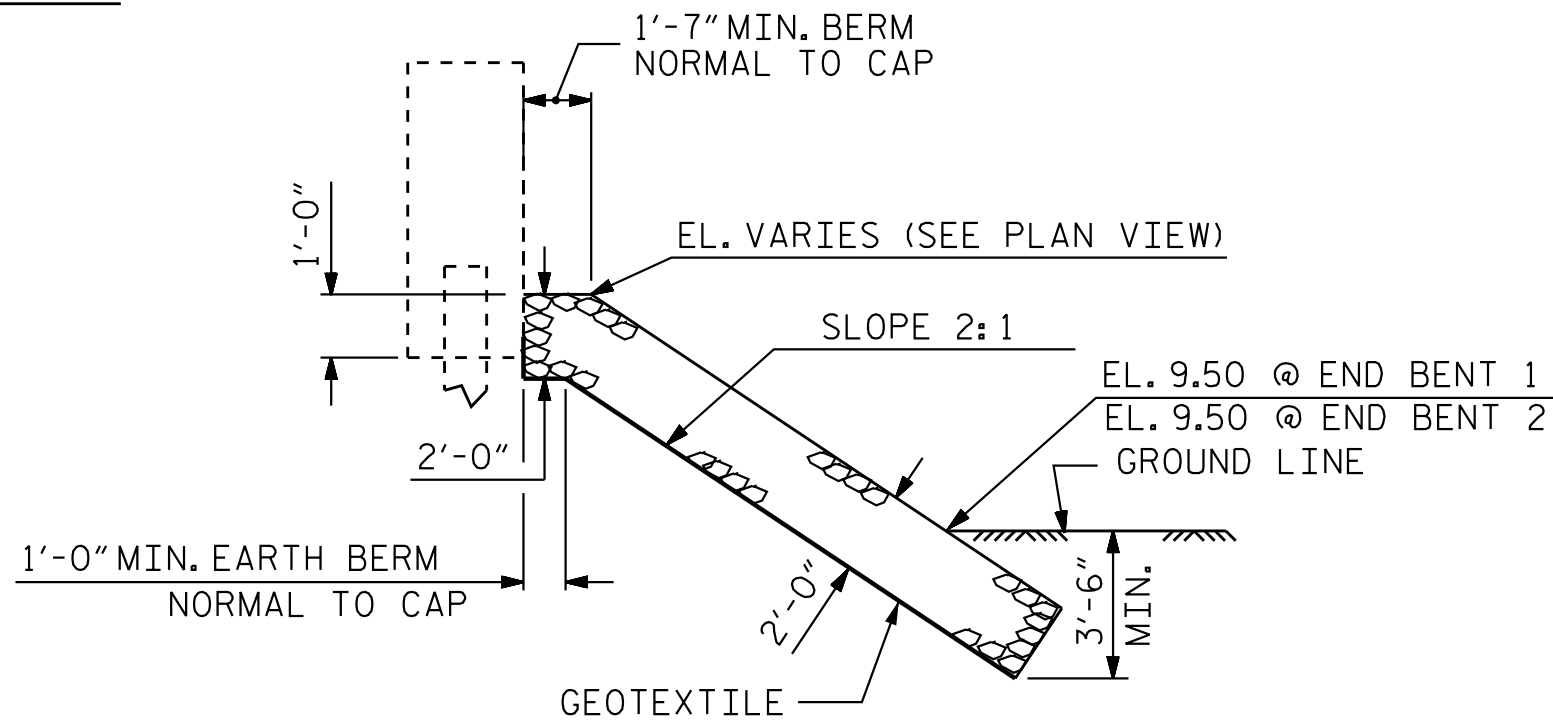
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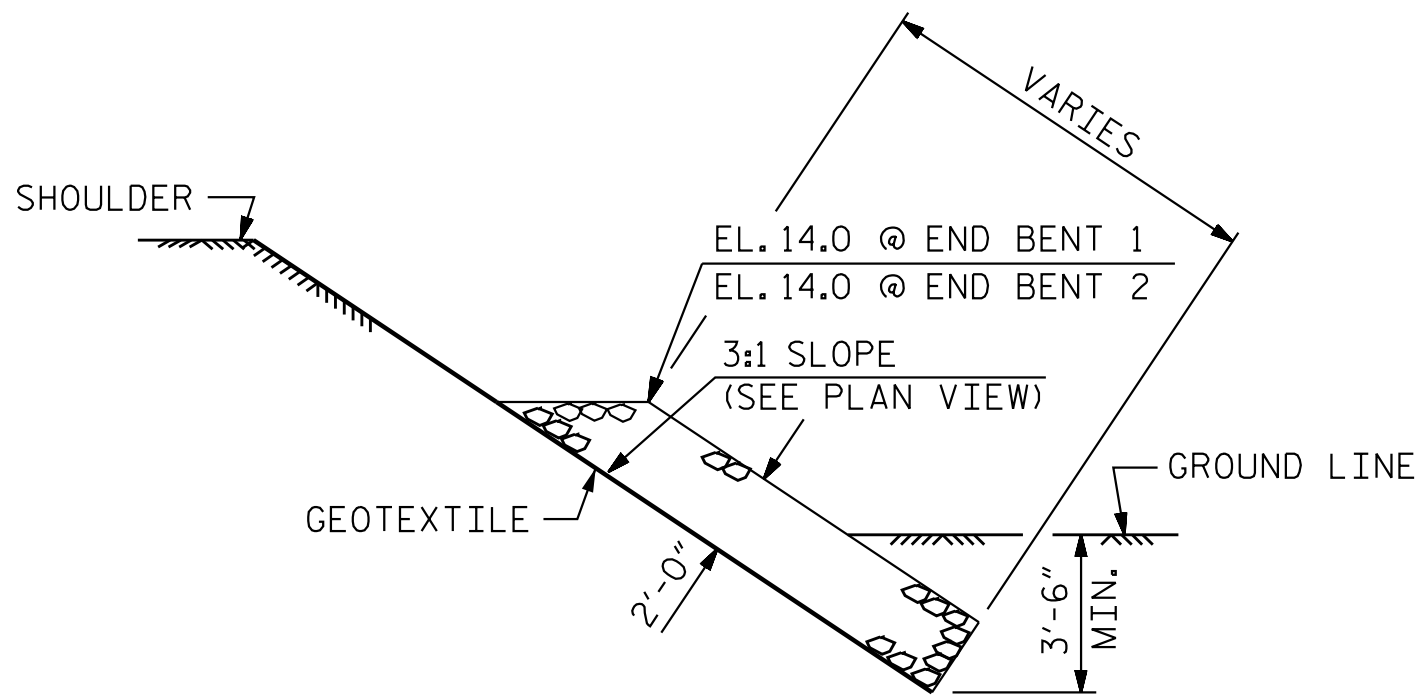
PLAN



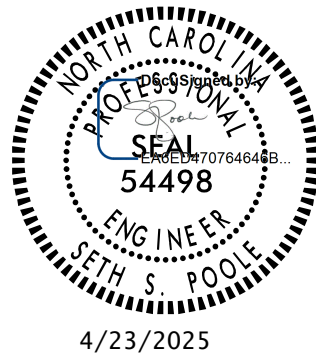
SECTION H-H



SECTION IN FRONT OF END BENT
BERM RIP RAPPED



SECTION C-C



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SIGNATURES COMPLETED

ESTIMATED QUANTITIES		
BRIDGE @ STA. 427+46.10 -L1-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	353	393
END BENT 2	372	413

NOTE: QUANTITIES FOR THIS BRIDGE ARE TO -L1-.

PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S08-39					TOTAL SHEETS 41

STD. NO. RP1



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

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NOTES

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

BILL OF MATERIAL

FOR ONE APPROACH SLAB
(2 REQ'D)

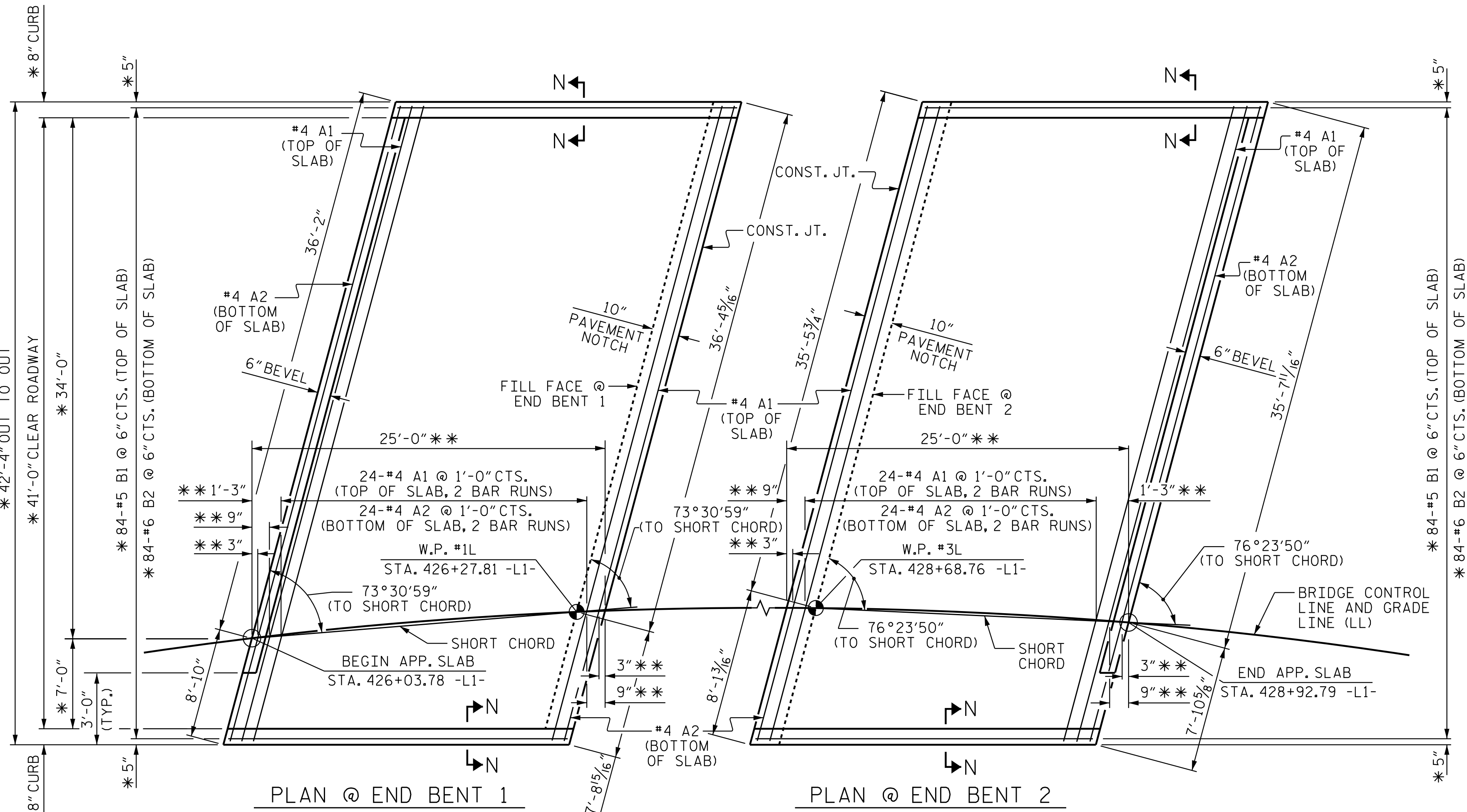
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	22'-7"	784
* A2	52	#4	STR	22'-7"	784
* B1	84	#5	STR	24'-1"	2,110
* B2	84	#6	STR	24'-7"	3,102

* EPOXY COATED
REINFORCING STEEL LBS. 6,780

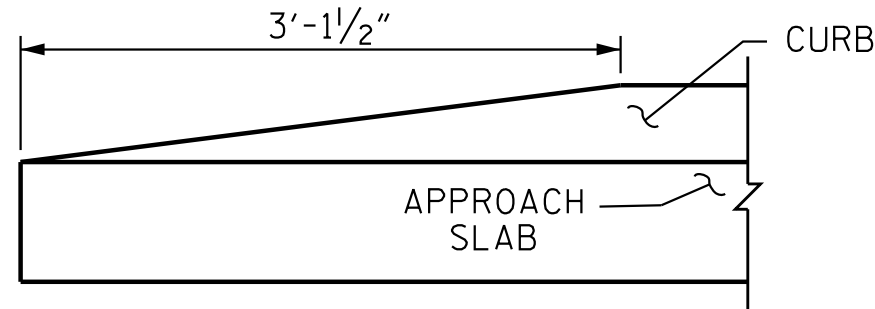
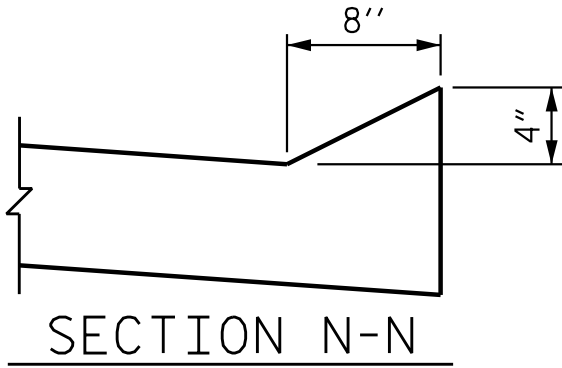
CLASS AA CONCRETE C. Y. 45.7

SPLICE LENGTHS

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

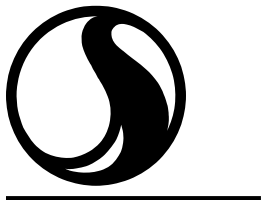


DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS
* RADIAL DIMENSION
** ALONG ARC



PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 1 OF 2



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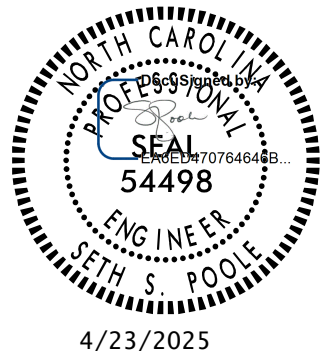
ASSEMBLED BY : J. GUERRERO DATE : 08/15/18
CHECKED BY : S. S. POOLE DATE : 12/04/24

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



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

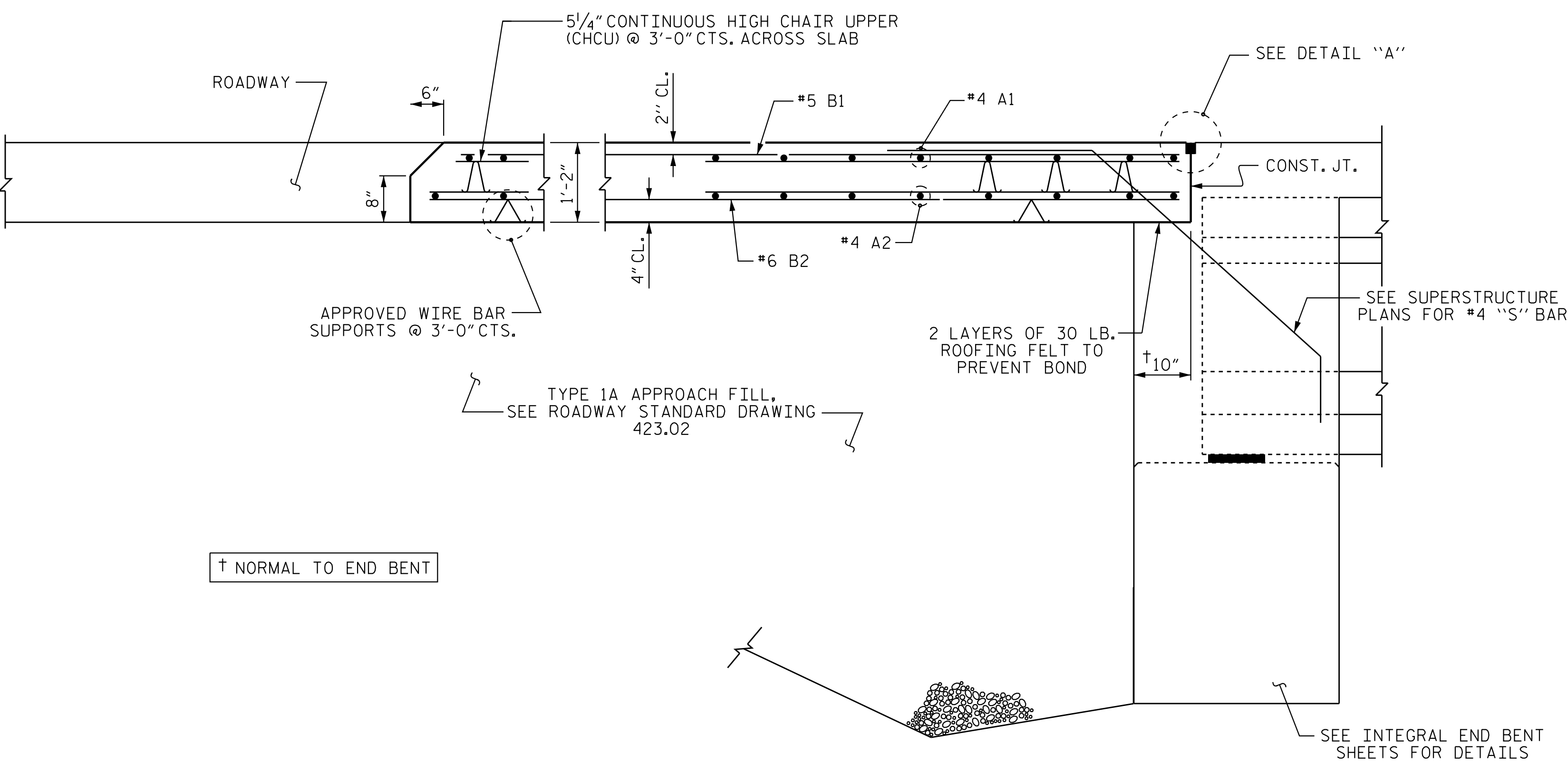
BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
WITH FLEXIBLE PAVEMENT

(LEFT LANE)

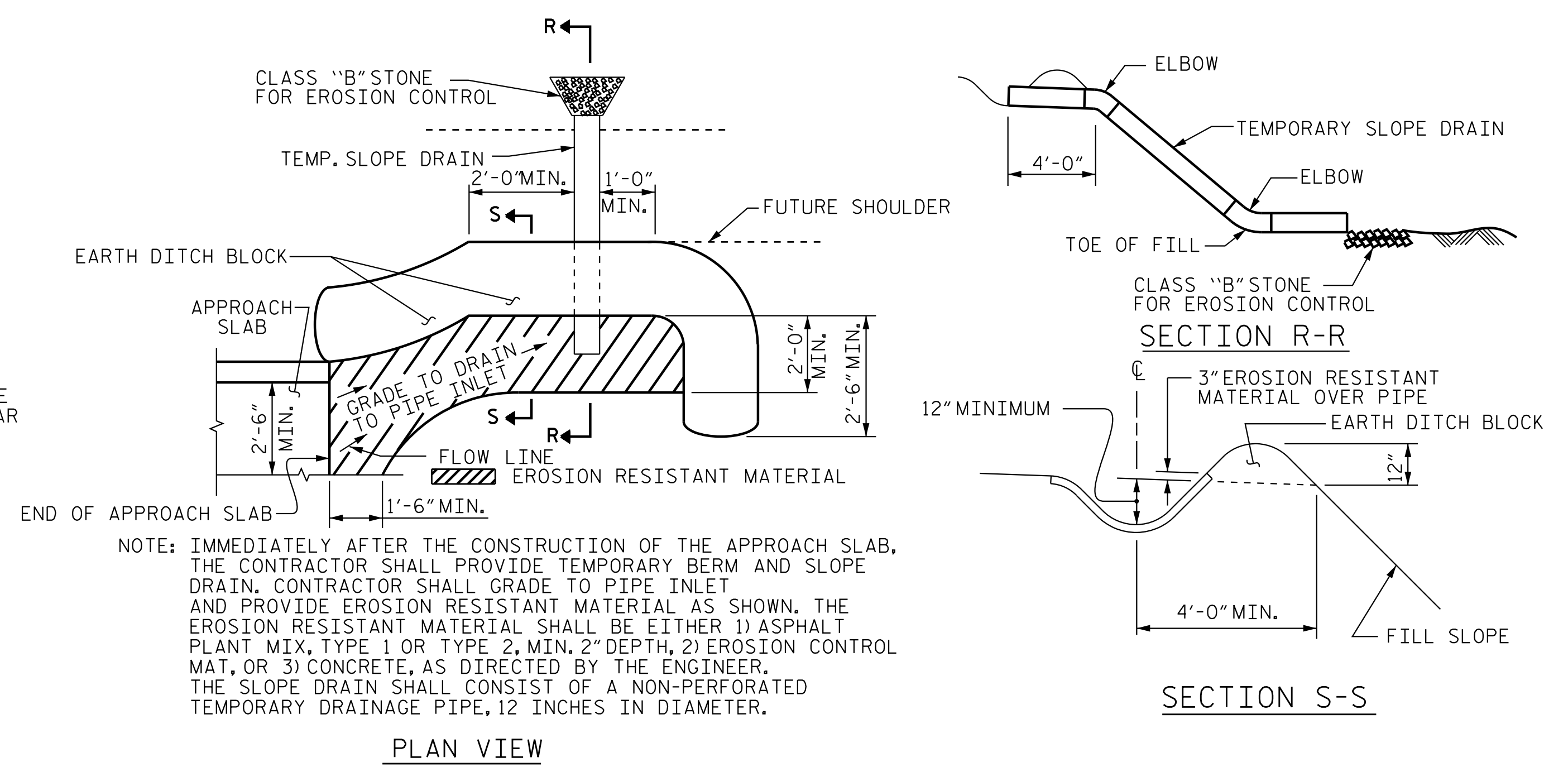
REVISIONS						SHEET NO. S08-40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

STD. NO. BAS5

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SECTION THRU SLAB

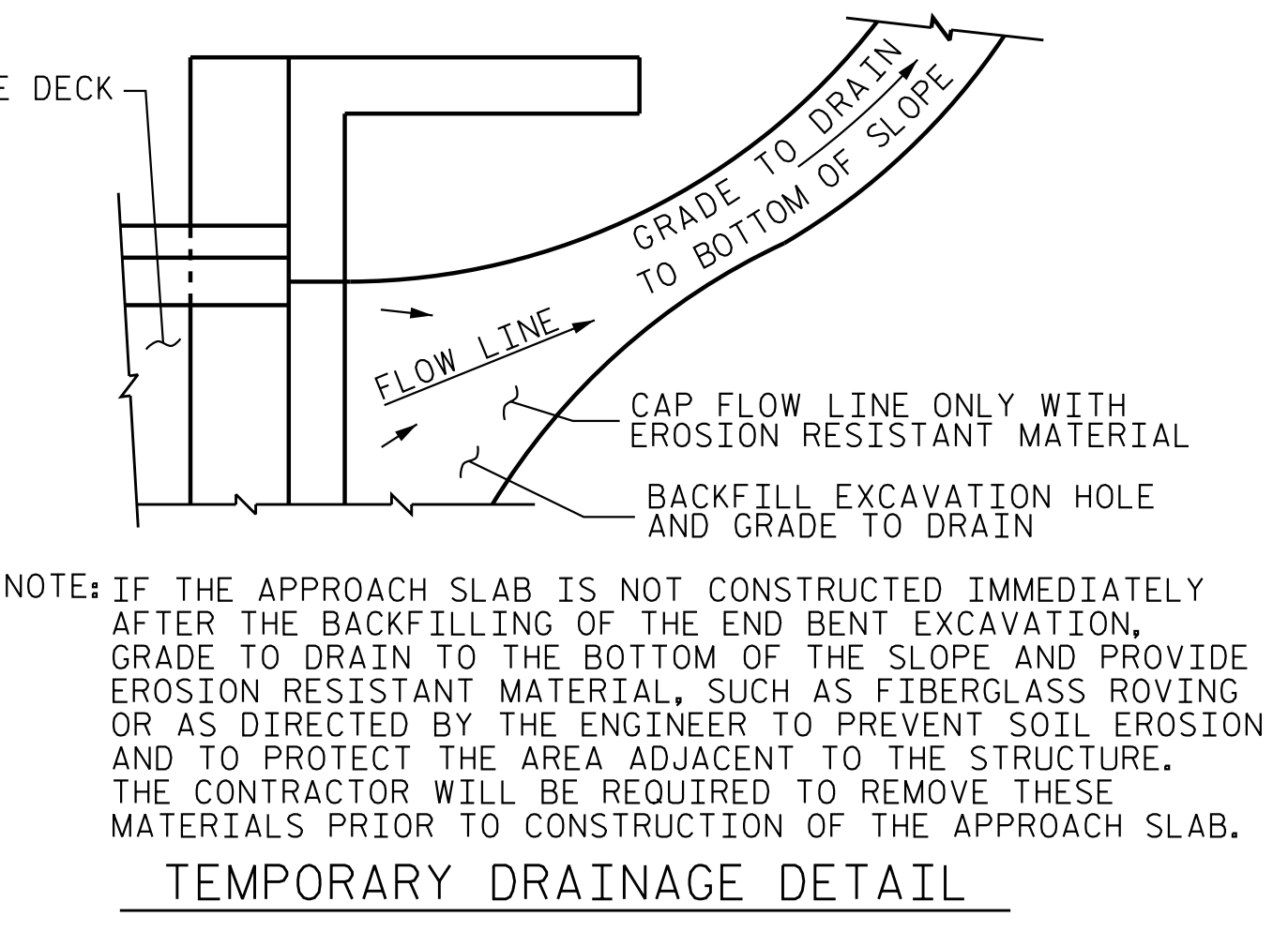


TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

- FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.
- CONTRACTOR MAY PLACE 'B' BARS ALONG 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.



PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.10 -L1-

SHEET 2 OF 2

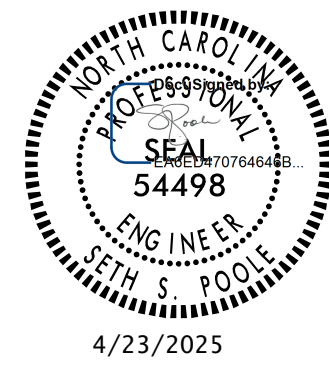
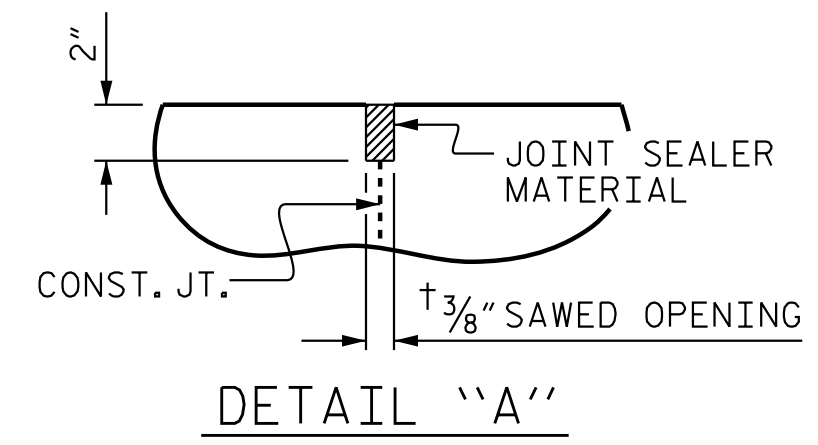


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ASSEMBLED BY : D. NORSWORTHY
CHECKED BY : S. S. POOLE
DATE : 08/01/18
DATE : 01/13/25

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



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S08-41	
STANDARD BRIDGE APPROACH SLAB DETAILS						TOTAL SHEETS 41	
(LEFT LANE)							
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

STD. NO. BAS5

-0.7667% Δ +0.5504%

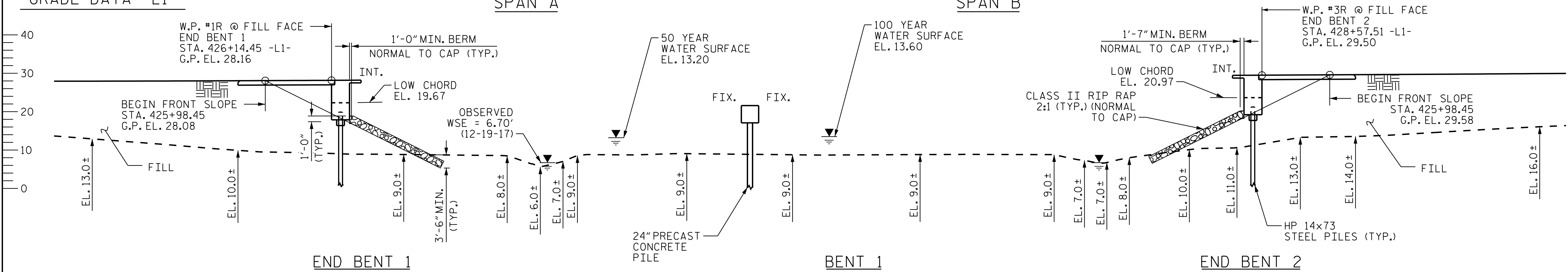
PI STA. = 425+00 -L1-
EL. = 27.53
L = 240'

GRADE DATA -L1-

+0.5504% Δ +1.4286%

PI STA. = 430+00 -L1-
EL. = 30.29
L = 210'

GRADE DATA -L1-



PI STA. = 434+32.23
 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

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

SHEET 1 OF 5 BRIDGE NO. 700254

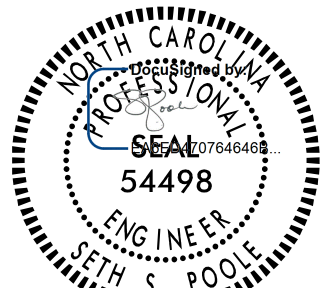
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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.)

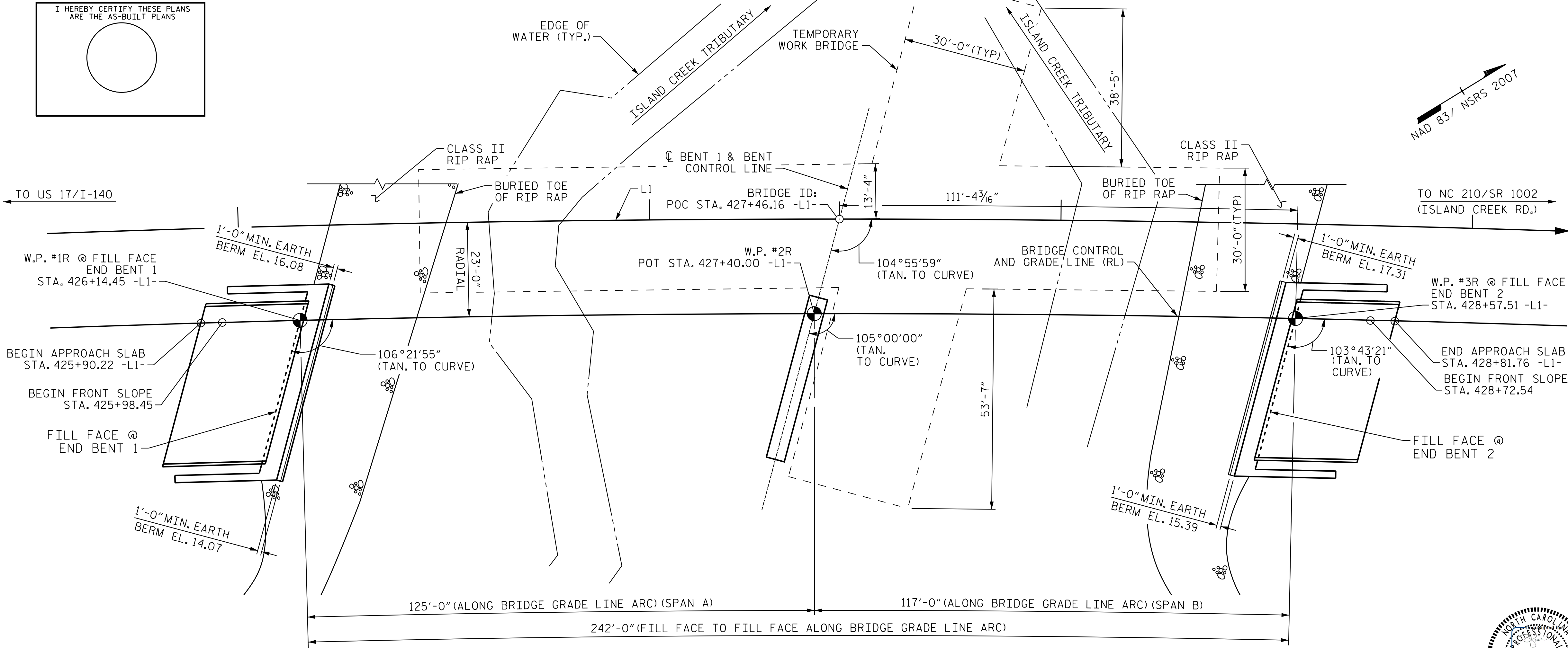
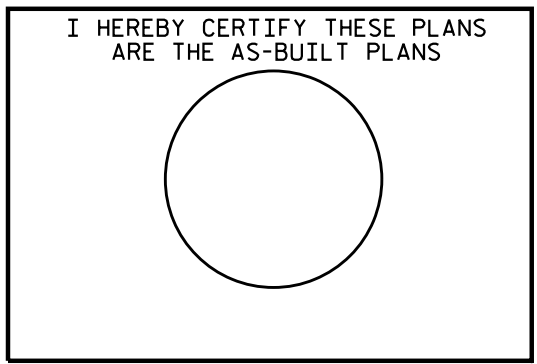
(RIGHT LANE)

REVISIONS			REVISIONS			SHEET NO. S09-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

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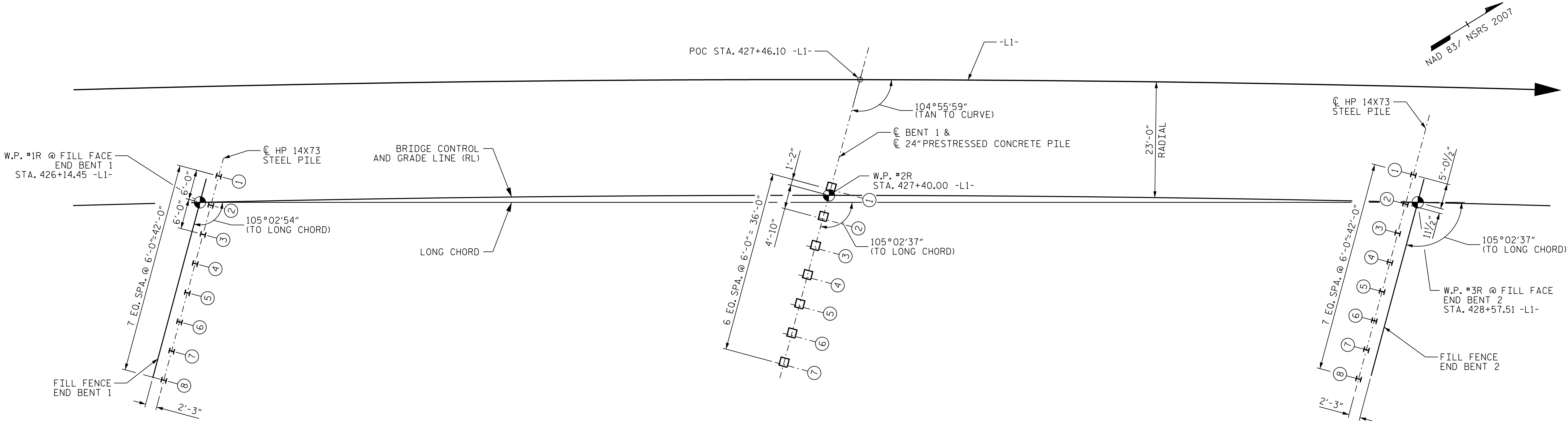
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CHECKED BY : S. S. POOLE DATE : 12/04/24

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



END BENT 1

BENT 1

END BENT 2

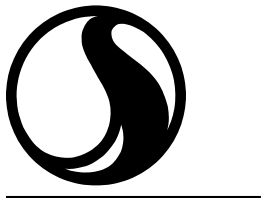
FOUNDATION LAYOUT

NOTES:

- 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 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.
- 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.
- 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.
- 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.
- IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 90 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+46.16 -L1-

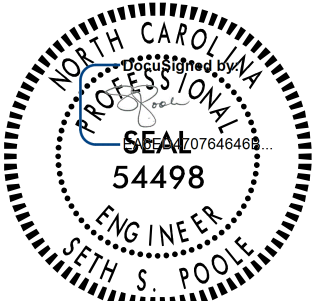
SHEET 2 OF 5



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



4/23/2025

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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.)

(RIGHT LANE)

REVISIONS						SHEET NO. S09-02
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1			3			TOTAL SHEETS 41
2			4			

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	280	See Substructure Plans	40			470	4						
Bent 1, Piles 1-7	7	480	See Substructure Plans	45	-0.2	-26.8	800	4	38.1	-26.8	28			
End Bent 2, Piles 1-8	8	250	See Substructure Plans	45			420	4						
TOTAL QUANTITY:								12	266.7					

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

**** 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) #1-# (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	272			0.6		
Bent 1, Piles 1-7	477			0.6		
End Bent 2, Piles 1-8	246			0.6		

* 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:				23

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	50	
Bent 1	50	1
End Bent 2	45	
TOTAL QUANTITY:		1

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

PENDER COUNTY

STATION: 427+46.16 -L1-

SHEET 3 OF 5

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.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE
FOUNDATION
TABLES

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SIGNATURE

4/22/2025

DATE

REVISIONS

SHEET NO.
S09-03

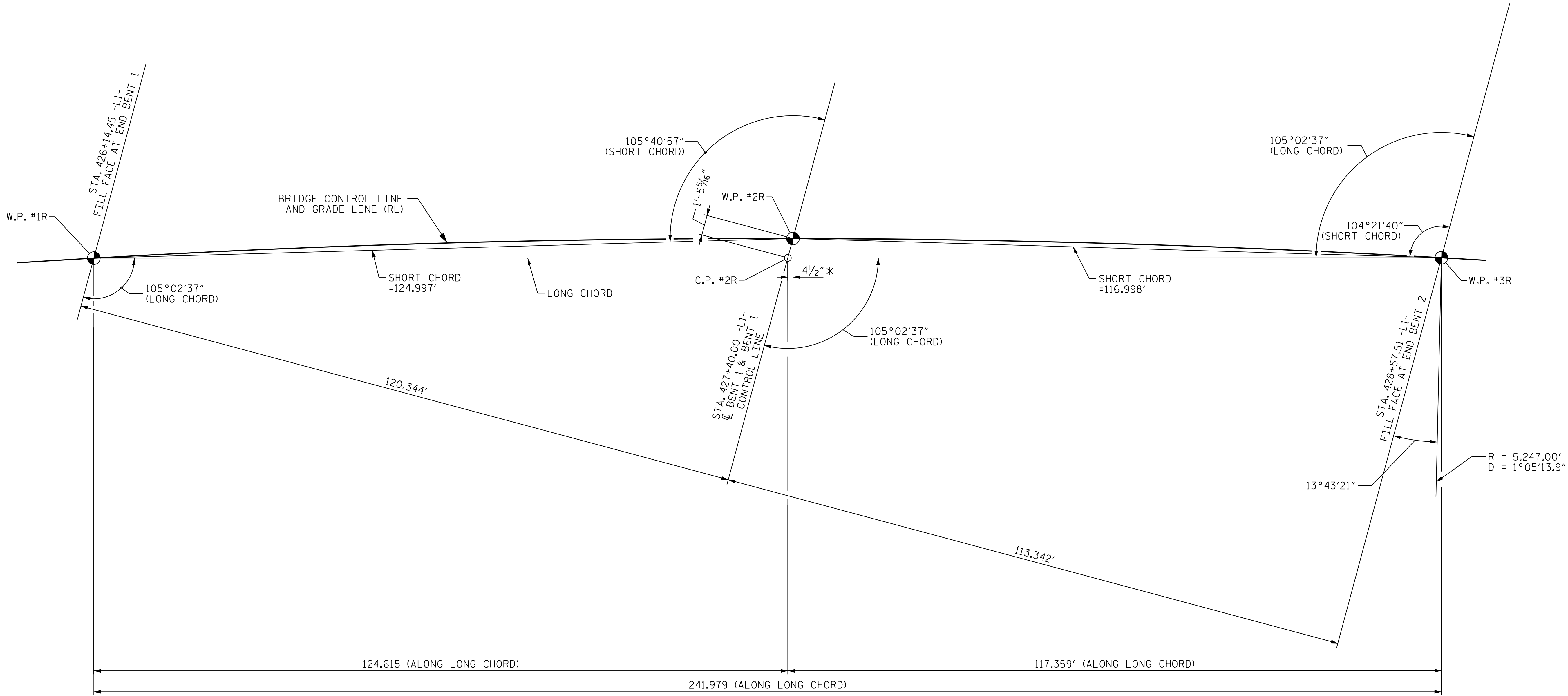
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1			3		
2			4		

TOTAL
SHEETS
41

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4/23/2025 2:02:40 AM jhagenbush

U:\Structures\B9 - RL\Drawings\Final\R3300A_SML\LC_700B09.dgn

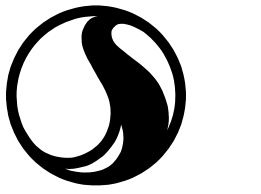


NOTES:
ALL BENTS ARE PARALLEL.
* POINT PROJECTED ON LONG CHORD.

LONG CHORD LAYOUT

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

SHEET 4 OF 5



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



4/23/2025

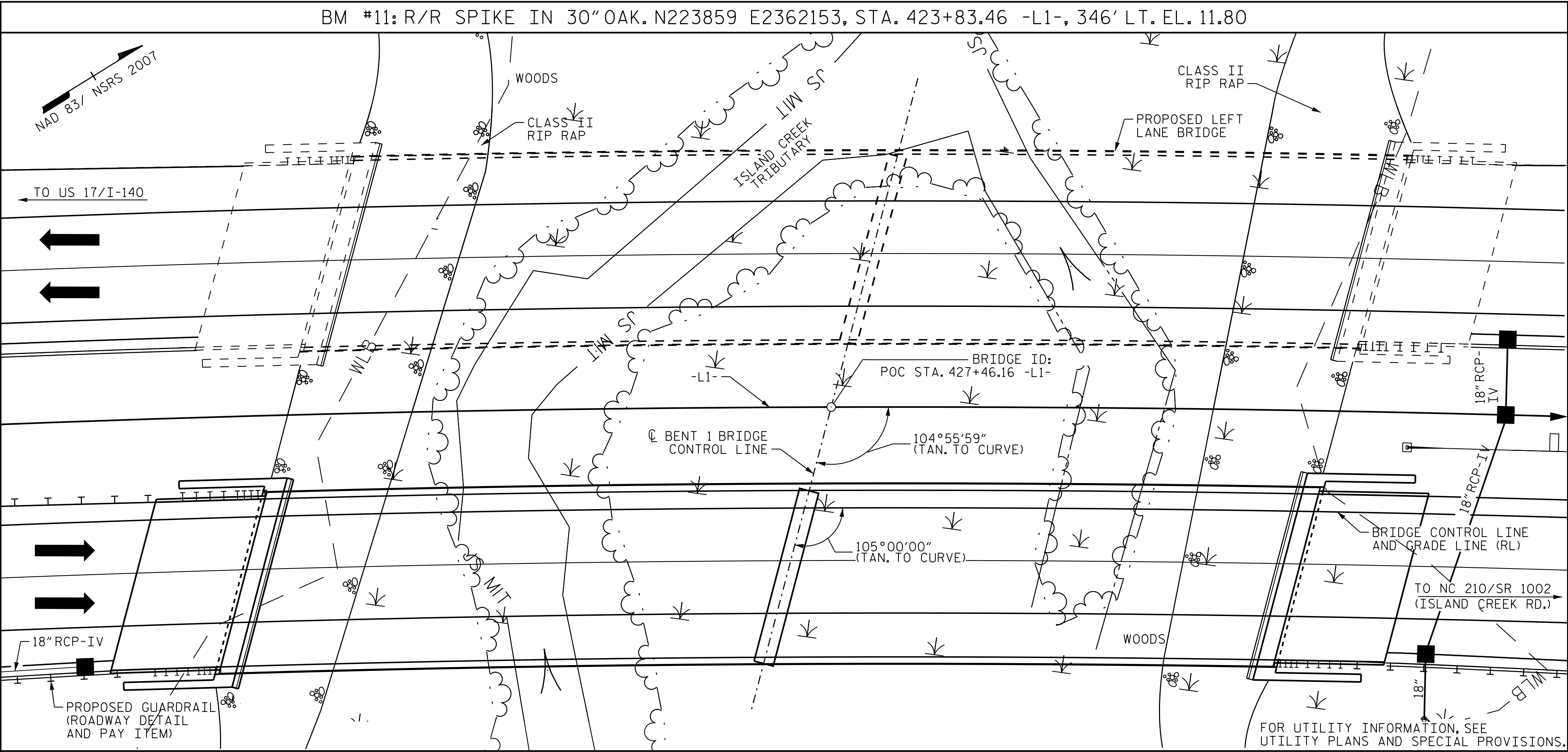
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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.)

(RIGHT LANE)

REVISIONS						SHEET NO. S09-04
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



LOCATION SKETCH

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.
- 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.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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.

THE CONCRETE IN THE BENT CAPS, PILE CAPS AND PILES FOR 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.

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.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.4.

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

CLASS AA CONCRETE SHALL BE USED IN ALL 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.

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

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION -0.2 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TOTAL BILL OF MATERIAL

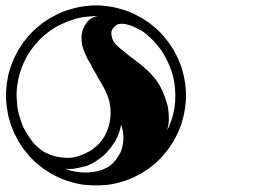
	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONC. GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR 24" PRESTRESSED CONCRETE PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	24 IN. PRESTRESSED CONCRETE PILES		HP 14x73 STEEL PILES		STEEL PILE POINTS	PREDRILLING FOR PILES	PILE REDRIVES	DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS
	SO. FT.	SO. FT	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.		EA.	NO.	LIN. FT.	NO.	LIN. FT.	EA.	LF.	EA.	EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE	9,914	10,139		LUMP SUM		10	1,189.5											480.7			LUMP SUM
END BENT NO. 1			47.8		7,362				8			8	320	8		4			300	334	
BENT NO. 1			27.4		4,269			7		7	315			7	266.7	4	1				
END BENT NO. 2			47.2		7,324				8			8	360	8		4			266	295	
TOTAL	9,914	10,139	122.4	LUMP SUM	18,955	10	1,189.5	7	16	7	315	16	680	23	266.7	12	1	480.7	566	629	LUMP SUM

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.16 -L1-

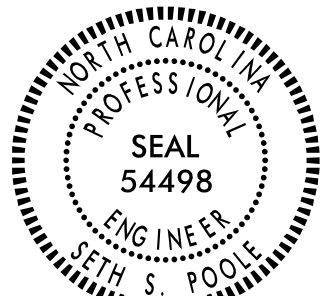
SHEET 5 OF 5



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DRAWN BY : J. GUERRERO DATE : 03/15/19
CHECKED BY : S. S. POOLE DATE : 12/04/24

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



DocuSigned by:
S. S. POOLE

5/2/2025

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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.)

(RIGHT LANE)

REVISIONS						SHEET NO. S09-05
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

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

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.16 -L1-

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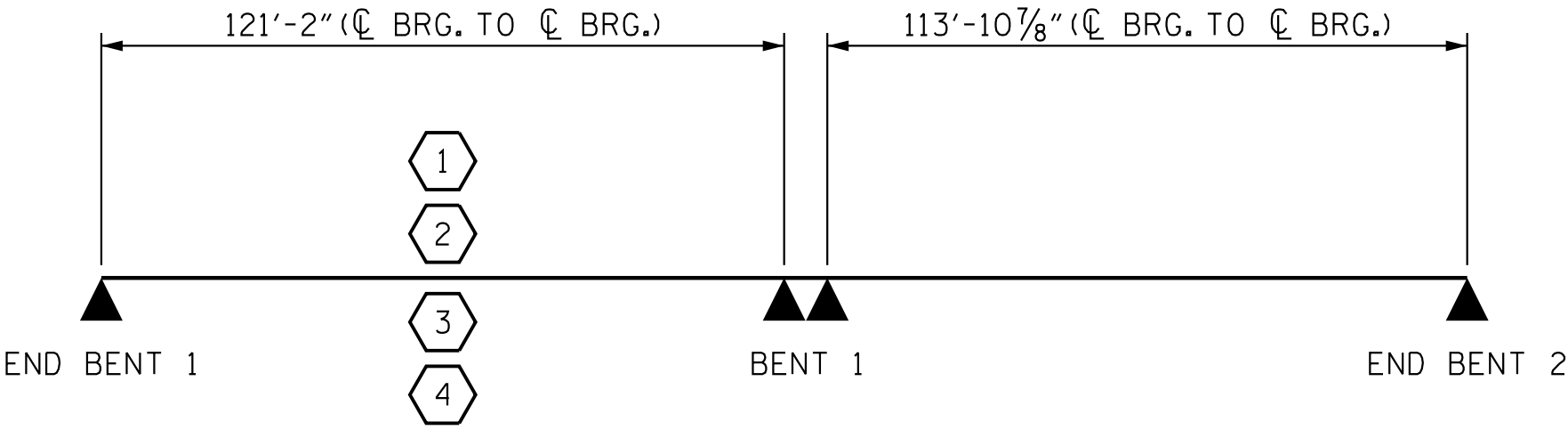
STANDARD
LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)
(RIGHT LANE)

REVISIONS						SHEET NO. S09-06
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

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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	1.70	-	1.75	0.78	1.76	A	EL	60.70	0.90	2.23	A	I	11.50	0.80	0.78	1.70	GF	EL	60.70		
	HL-93 (OPERATING)	N/A		2.28	-	1.35	0.78	2.28	A	EL	60.70	0.90	2.93	A	I	11.50	N/A	-	-	-	-	-		
	HS-20 (INVENTORY)	36,000	2	2.36	84.96	1.75	0.78	2.59	A	EL	60.70	0.90	3.20	A	I	11.50	0.80	0.78	2.36	A	EL	60.70		
	HS-20 (OPERATING)	36,000		3.36	120.96	1.35	0.78	3.36	A	EL	60.70	0.90	4.19	A	I	11.50	N/A	-	-	-	-	-		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		2.44	32.94	1.40	0.78	3.17	A	EL	60.70	0.90	4.06	A	I	11.50	0.80	0.78	2.44	A	EL	60.70	
		SNGARBS2	20,000		2.40	48.00	1.40	0.78	3.11	A	EL	60.70	0.90	4.06	A	I	11.50	0.80	0.78	2.40	A	EL	60.70	
		SNAGRIS2	22,000		2.06	45.32	1.40	0.78	2.68	A	EL	60.70	0.90	3.52	A	I	11.50	0.80	0.78	2.06	A	EL	60.70	
		SNCOTTS3	27,250		2.17	59.13	1.40	0.78	2.82	A	EL	60.70	0.90	3.63	A	I	11.50	0.80	0.78	2.17	A	EL	60.70	
		SNAGGRS4	34,925		6.11	213.39	1.40	0.78	7.92	A	EL	60.70	0.90	10.32	A	I	11.50	0.80	0.78	6.11	A	EL	60.70	
		SNS5A	35,550		4.34	154.29	1.40	0.78	5.63	A	EL	60.70	0.90	7.13	A	I	11.50	0.80	0.78	4.34	A	EL	60.70	
		SNS6A	39,950		3.02	120.65	1.40	0.78	3.91	A	EL	60.70	0.90	5.06	A	I	11.50	0.80	0.78	3.02	A	EL	60.70	
		SNS7B	42,000		4.02	168.84	1.40	0.78	5.21	A	EL	60.70	0.90	6.54	A	I	11.50	0.80	0.78	4.02	A	EL	60.70	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		2.64	87.12	1.40	0.78	3.43	A	EL	60.70	0.90	4.40	A	I	11.50	0.80	0.78	2.64	A	EL	60.70	
		TNT4A	33,075		2.65	87.65	1.40	0.78	3.43	A	EL	60.70	0.90	4.30	A	I	11.50	0.80	0.78	2.65	A	EL	60.70	
		TNT6A	41,600		2.13	88.61	1.40	0.78	2.76	A	EL	60.70	0.90	3.64	A	I	11.50	0.80	0.78	2.13	A	EL	60.70	
		TNT7A	42,000		2.13	89.46	1.40	0.78	2.76	A	EL	60.70	0.90	3.60	A	I	11.50	0.80	0.78	2.13	A	EL	60.70	
		TNT7B	42,000		2.16	90.72	1.40	0.78	2.80	A	EL	60.70	0.90	3.47	A	I	11.50	0.80	0.78	2.16	A	EL	60.70	
		TNAGRIT4	43,000		2.08	89.44	1.40	0.78	2.70	A	EL	60.70	0.90	3.35	A	I	11.50	0.80	0.78	2.08	A	EL	60.70	
TNAGT5A		45,000		1.98	89.10	1.40	0.78	2.56	A	EL	60.70	0.90	3.27	A	I	11.50	0.80	0.78	1.98	A	EL	60.70		
TNAGT5B		45,000	3	1.96	88.20	1.40	0.78	2.55	A	EL	60.70	0.90	3.19	A	I	11.50	0.80	0.78	1.96	A	EL	60.70		
EMERGENCY VEHICLE (EV)	EV2	28,750		3.05	87.69	1.30	0.78	3.95	A	EL	60.70	0.90	4.94	A	I	11.50	0.80	0.78	3.05	A	EL	60.70		
	EV3	43,000	4	2.01	86.43	1.30	0.78	2.61	A	EL	60.70	0.90	3.23	A	I	11.50	0.80	0.78	2.01	A	EL	60.70		



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ASSEMBLED BY : D. NORSWORTHY
CHECKED BY : S. S. POOLE

DATE : 08/15/18
DATE : 12/04/24

DRAWN BY : MAA
CHECKED BY : GM/DI

1/08
2/08

REV. 11/2/08RR
REV. 10/1/11
REV. 04/23

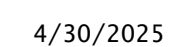
MAA/GM
MAA/GM
BNB/AAI

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



HALF-SECTION AT
INTERIOR BENT

REVISIONS						SHEET NO. S09-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



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4/29/2025 3:33:07 PM jgeile

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NOTES

SEE "TYPICAL SECTION DETAILS",
SHEET 4 OF 4 FOR NOTES.
(2BR) DENOTES 2 BAR RUN.

(5BR) DENOTES 5 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.

* DENOTES RADIAL DIMENSION.

- ① 4" @ ϕ BEARING
* * 2 $\frac{1}{2}$ " MAX. @ MID-SPAN
(SPAN B, GIRDER #3)
* * 2 $\frac{3}{4}$ " MAX. @ MID-SPAN
(SPAN A, GIRDER #3)

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

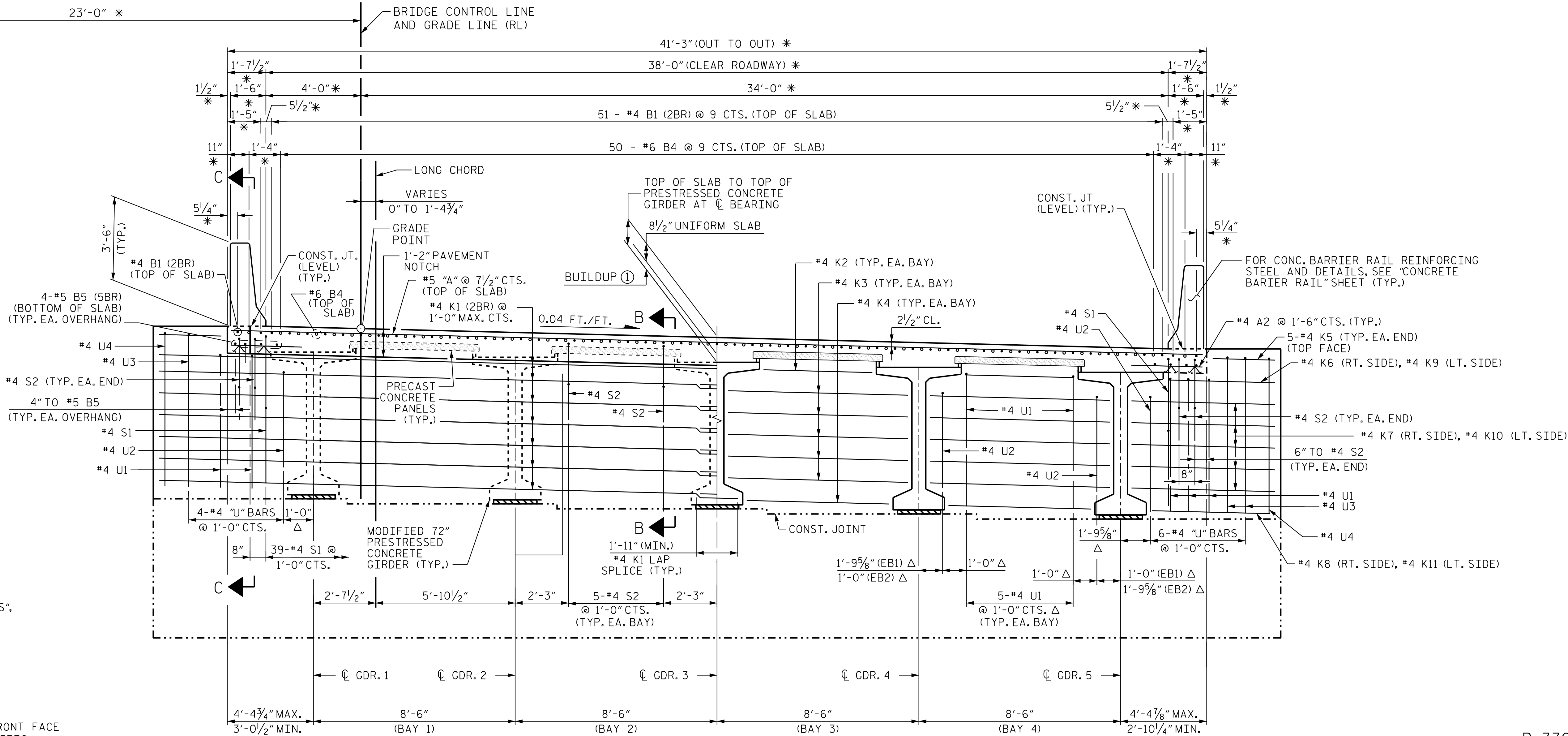
TYPICAL SECTION DEPICTS "U" BARS REQUIRED
AT END BENT 1. SEE "PLAN OF SPANS DETAILS
- DIAPHRAGMS", SHEET 4 OF 6 FOR "U" BARS
REQUIRED AT END BENT 2.



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CHECKED BY : S. S. POOLE DATE : 12/04/24

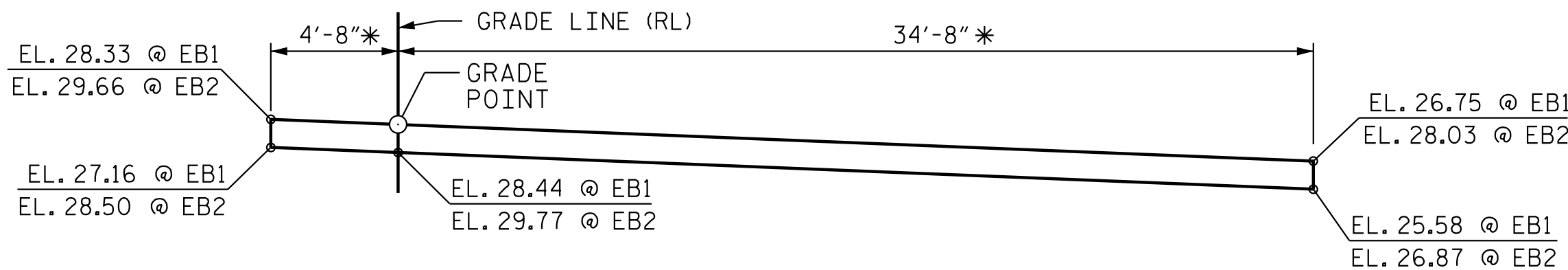
DESIGN
ENGINEER
OF RECORD: S. S. POOLE DATE : 04/23/25



INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FILL FACE

INTEGRAL DIAPHRAGM
HALF-SECTION REINFORCEMENT
AT FRONT FACE

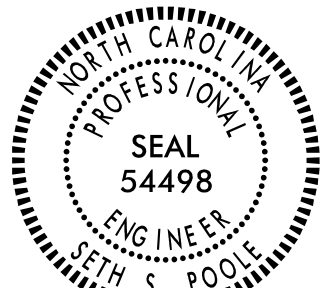
TYPICAL SECTION



INTEGRAL DIAPHRAGM
APPROACH SLAB BLOCKOUT
ALONG FILL FACE

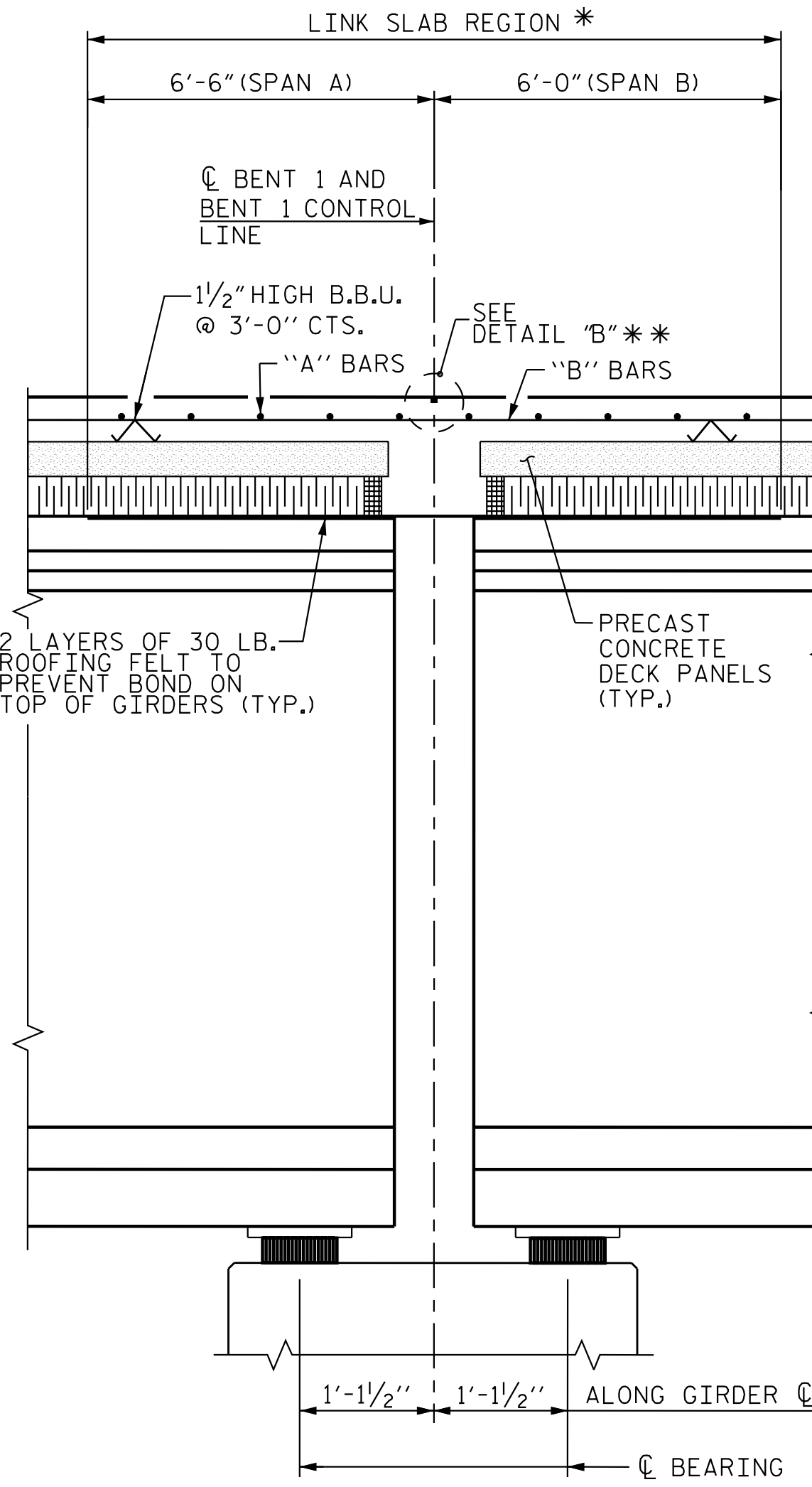
PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.16 -L1-

SHEET 2 OF 4

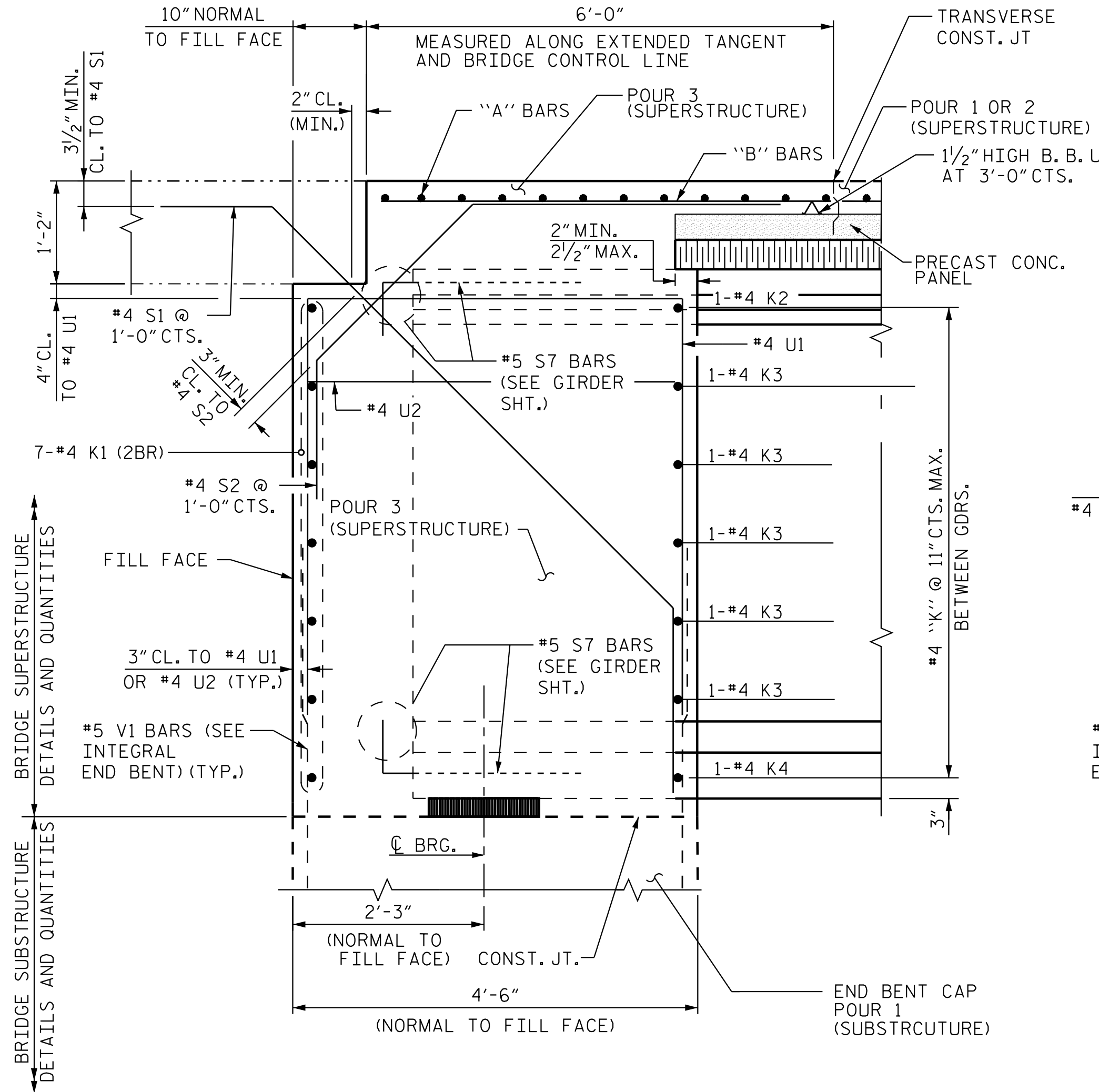


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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE TYPICAL SECTION (RIGHT LANE)						SHEET NO. S09-08	
REVISIONS						TOTAL SHEETS 41	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

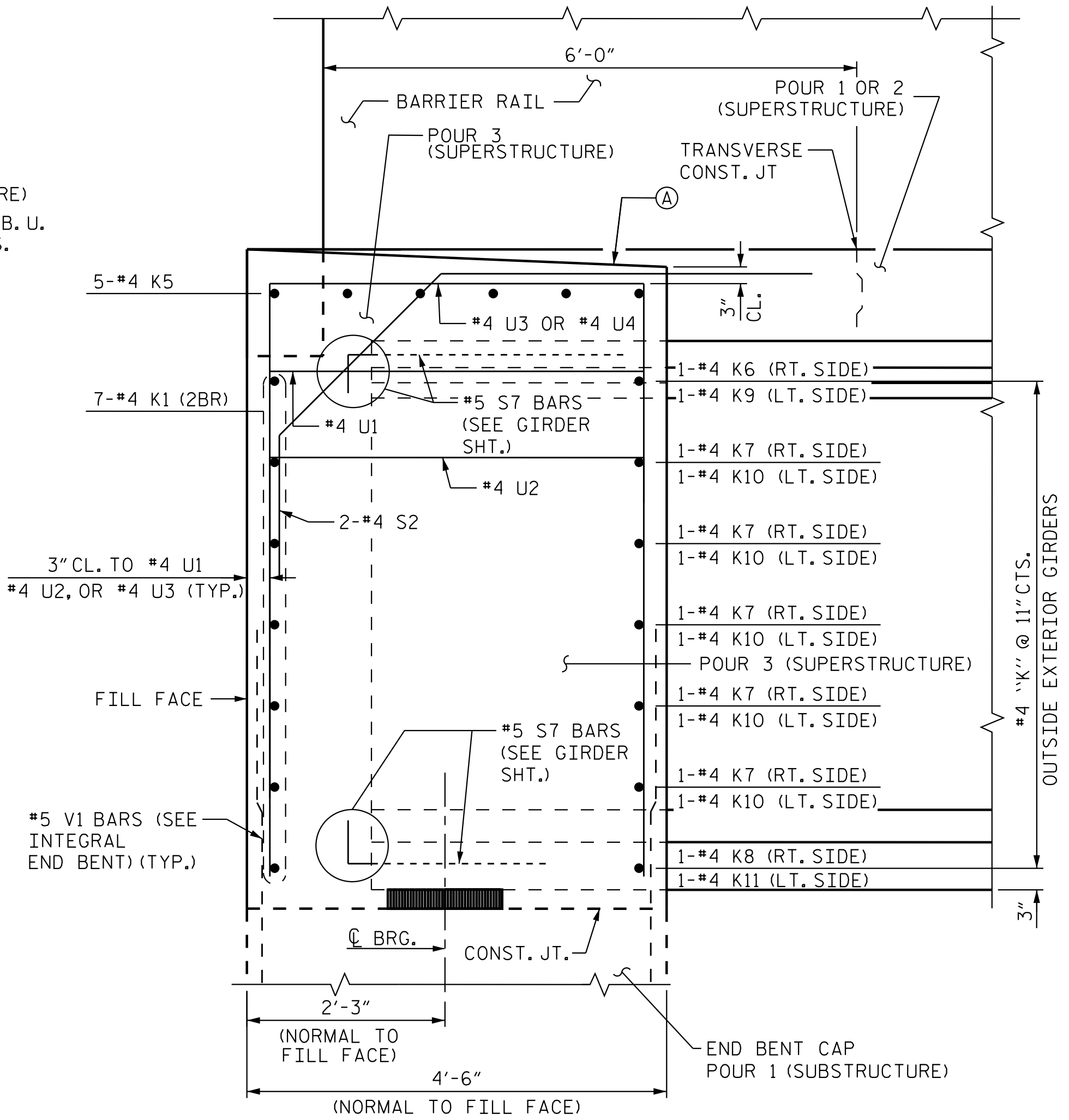


SECTION A-A AT LINK SLAB



SECTION B-B

SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS",
SHEETS 3 AND 4 OF 6.



SECTION C-C

SECTION THRU INTEGRAL END BENT DIAPHRAGM BEYOND EXTERIOR GIRDER
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS",
SHEETS 3 AND 4 OF 6.

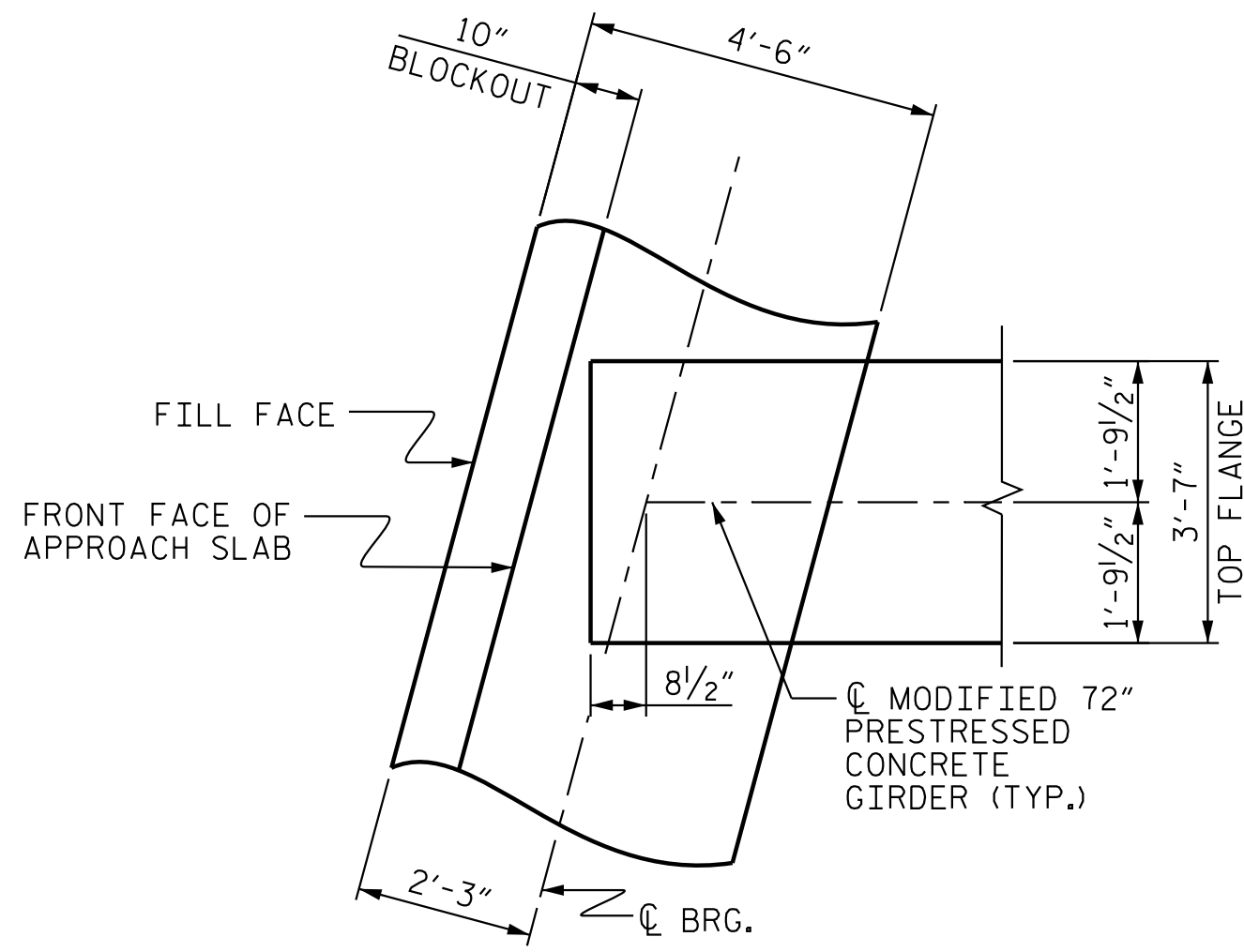
NOTES

(2BR) DENOTES 2 BAR RUN.

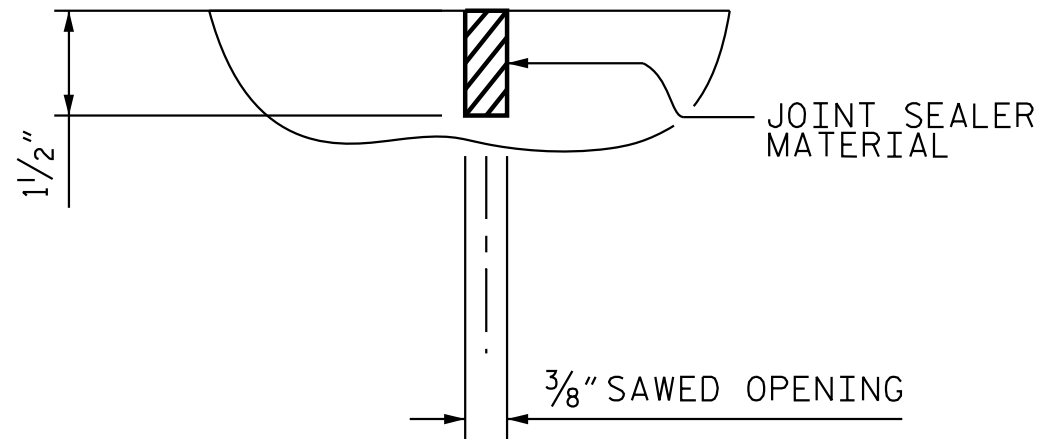
Ⓐ SLOPE TOP SURFACE OF DIAPHRAGM BETWEEN OUTSIDE
EDGE OF SUPERSTRUCTURE AND OUTSIDE EDGE OF WINGWALL
AT A RATE OF 2% TO DRAIN AWAY FROM THE FILL FACE.

* 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 1/2" DEEP, 3/8" 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 INTEGRAL END BENT

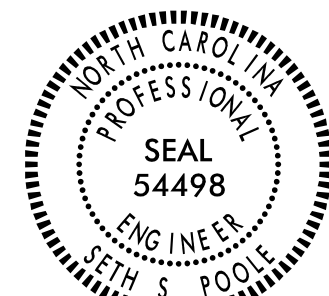


DETAIL "B"



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



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PENDER COUNTY
STATION: 427+46.16 -L1=

SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S09-09		
SUPERSTRUCTURE						TOTAL SHEETS 41		
TYPICAL SECTION (DETAILS)								
(RIGHT LANE)								
REVISIONS								
NO.	BY:	DATE:	NO.	BY:	DATE:			
1			3					
2			4					

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.

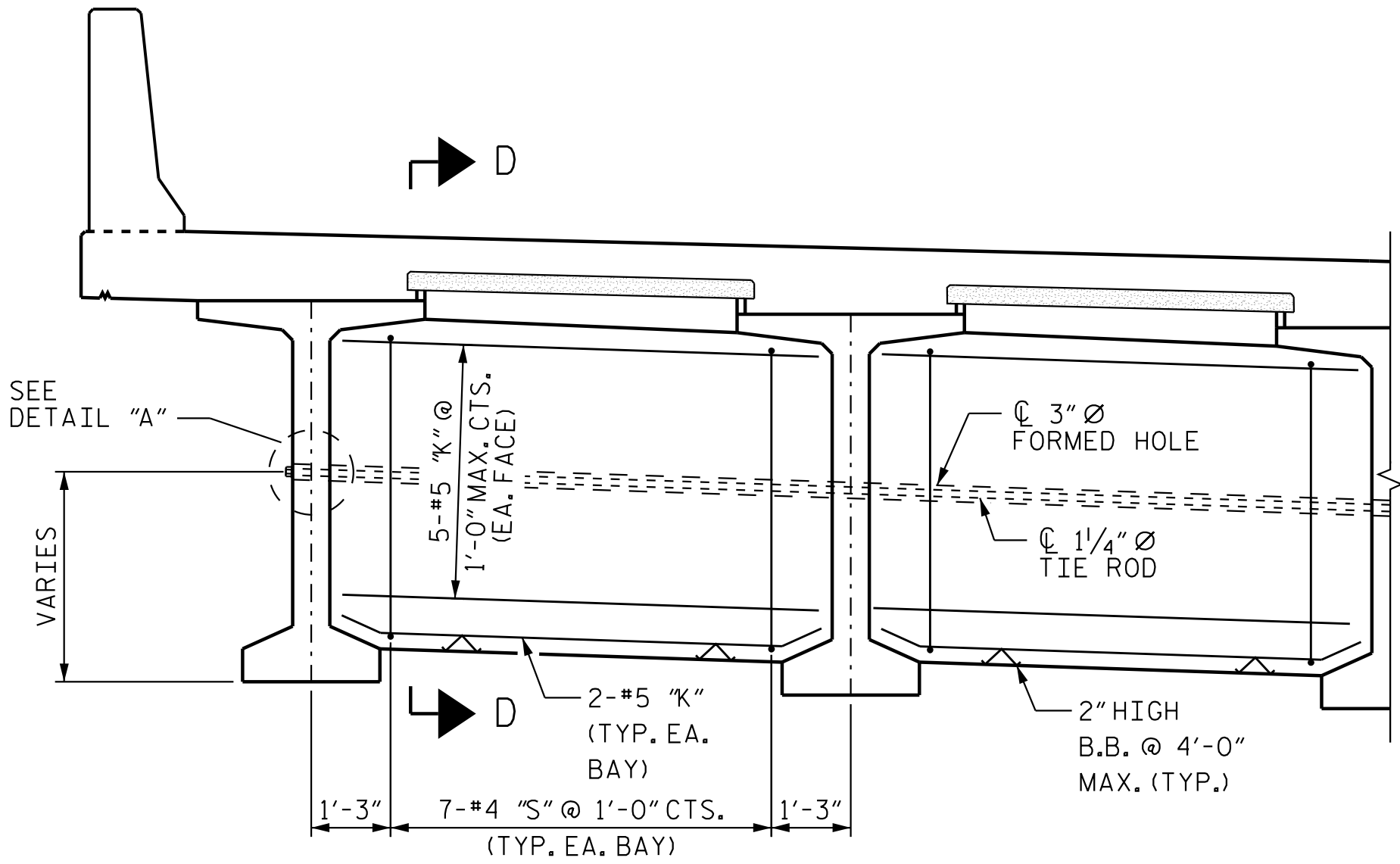
PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 PSI IN THE PRE-COMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

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

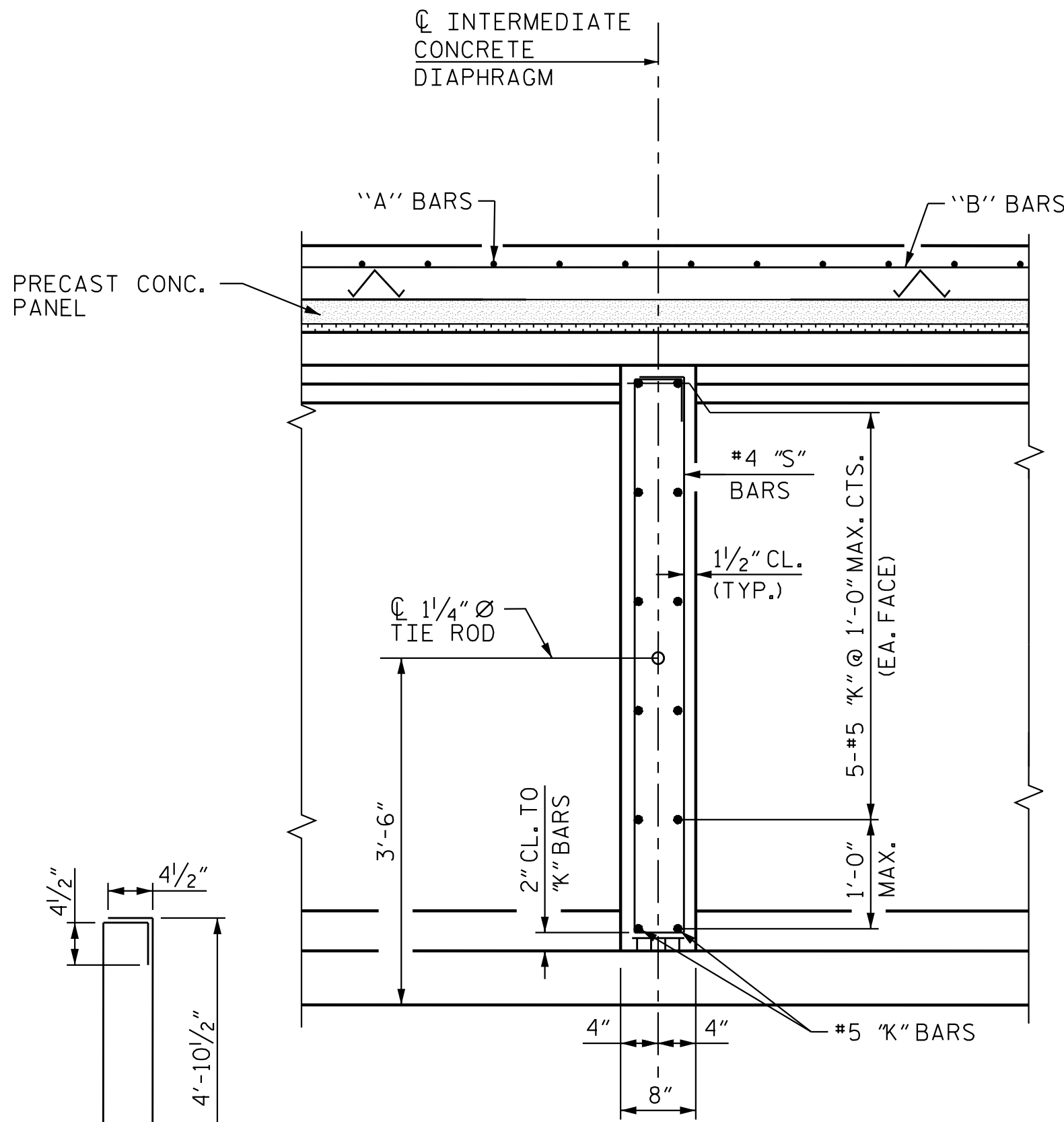
OPTIONAL CONCRETE INTERMEDIATE DIAPHRAGMS

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.



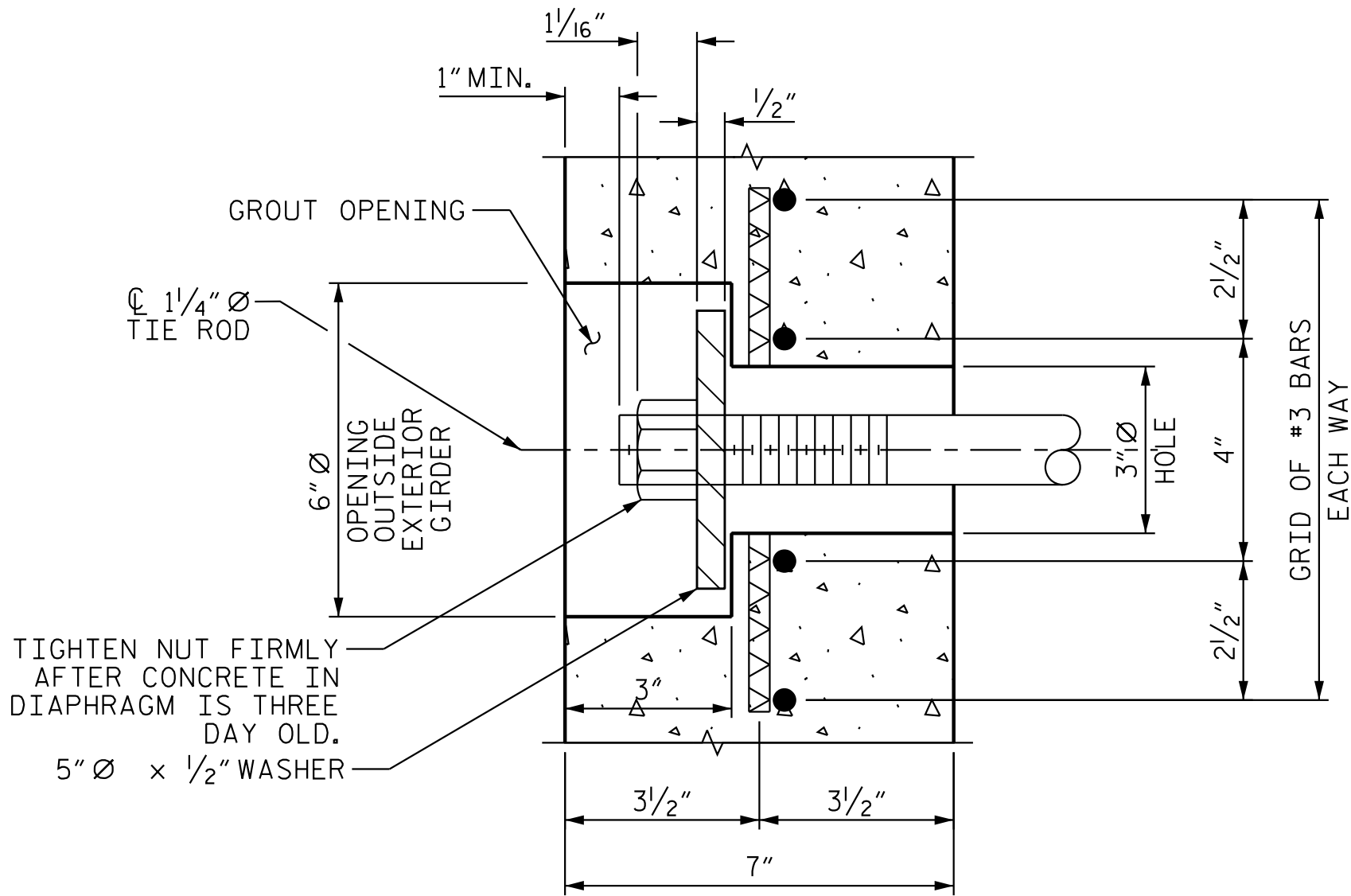
PART - SECTION AT OPTIONAL CAST-IN-PLACE
CONCRETE INTERMEDIATE DIAPHRAGM



SECTION D-D

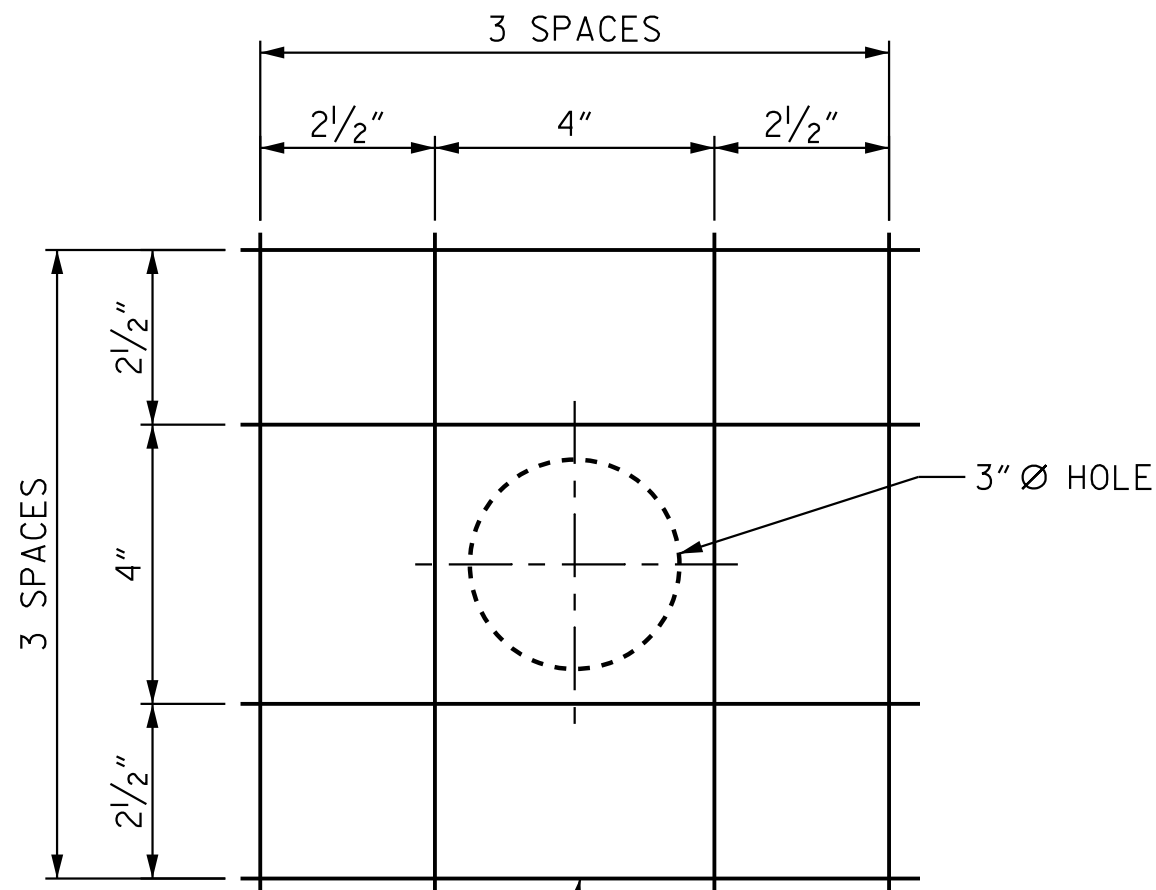
SECTION THRU CAST-IN-PLACE
CONCRETE INTERMEDIATE DIAPHRAGM

#4 "S" BAR



DETAIL "A"

GROUTED RECESS FOR END OF TIE ROD

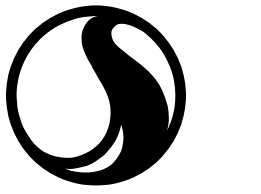


#3 BAR GRID

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.

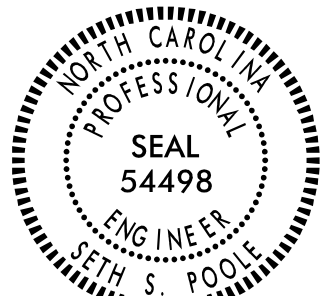
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STATION: 427+46.16 -L1-



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



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DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

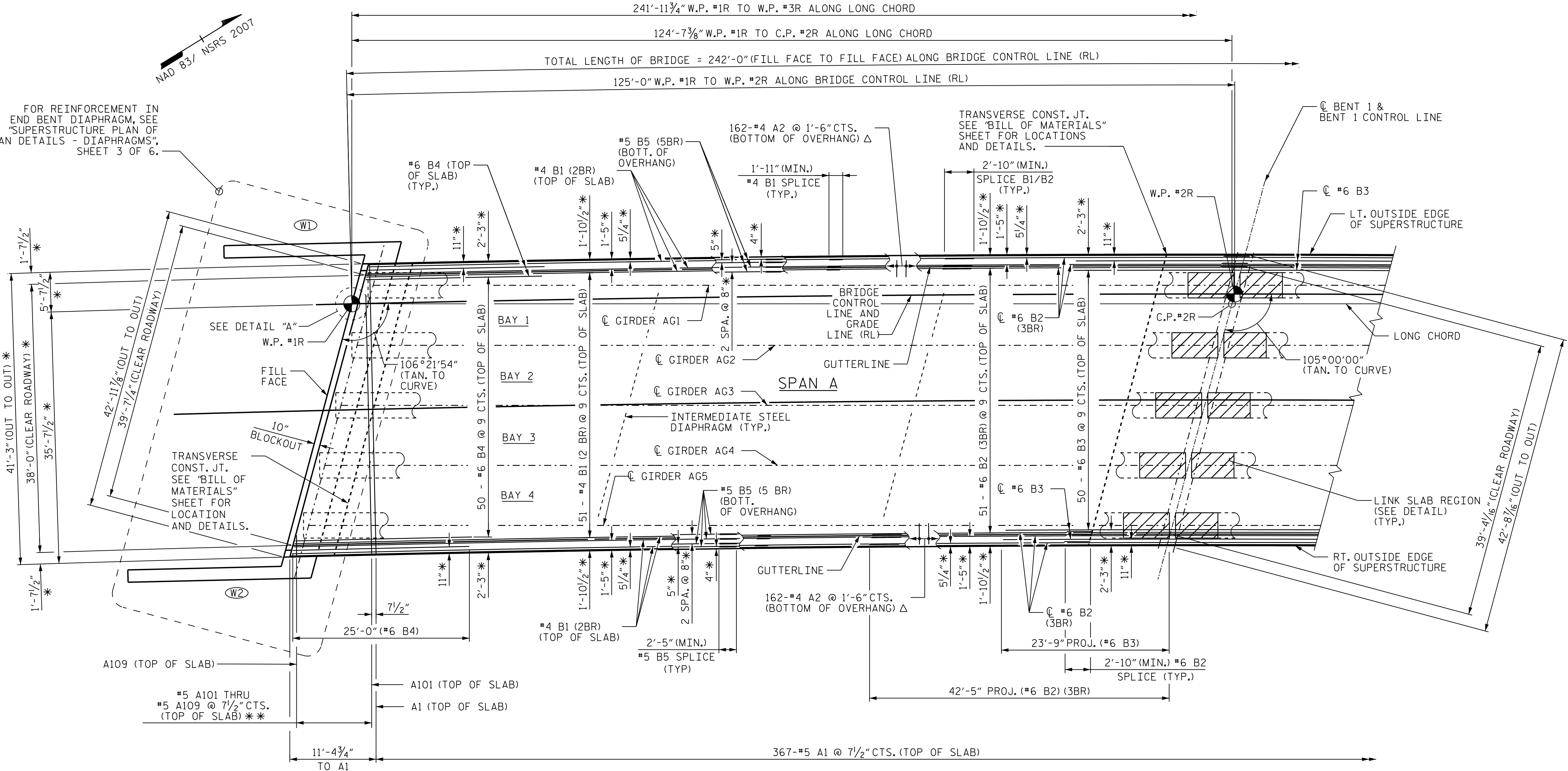
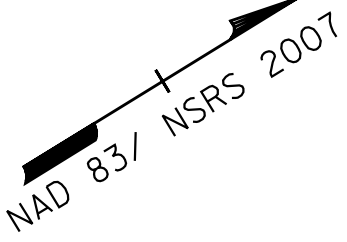
TYPICAL SECTION
(DETAILS)

REVISIONS						SHEET NO. S09-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

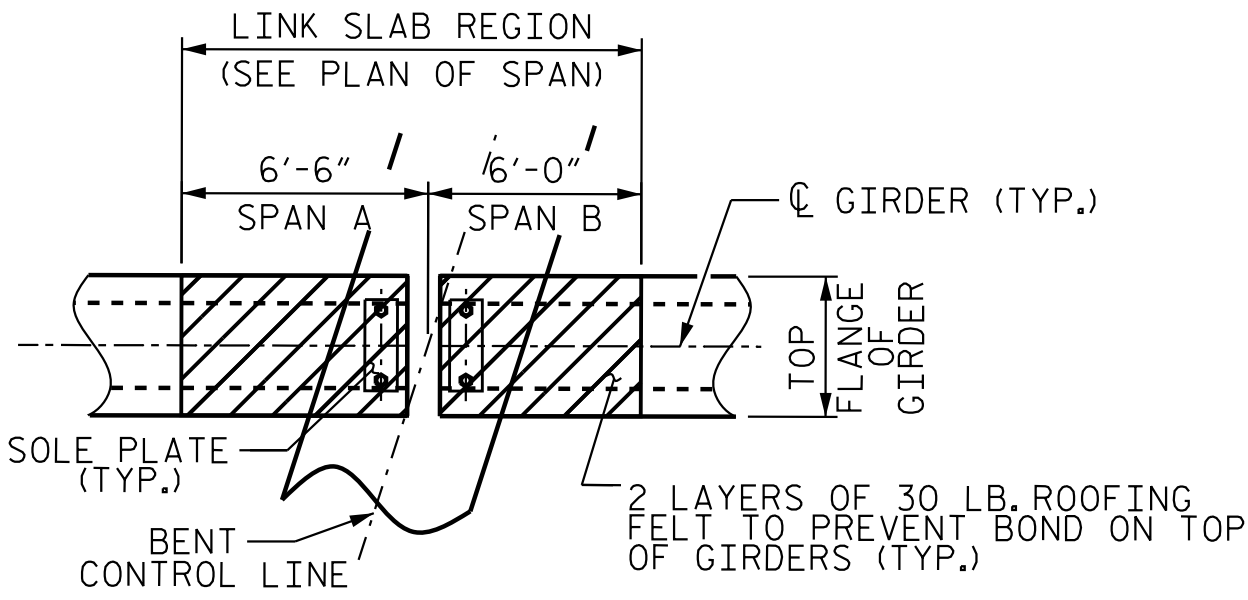
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FOR REINFORCEMENT IN
END BENT DIAPHRAGM, SEE
"SUPERSTRUCTURE PLAN OF
SPAN DETAILS - DIAPHRAGMS",
SHEET 3 OF 6.



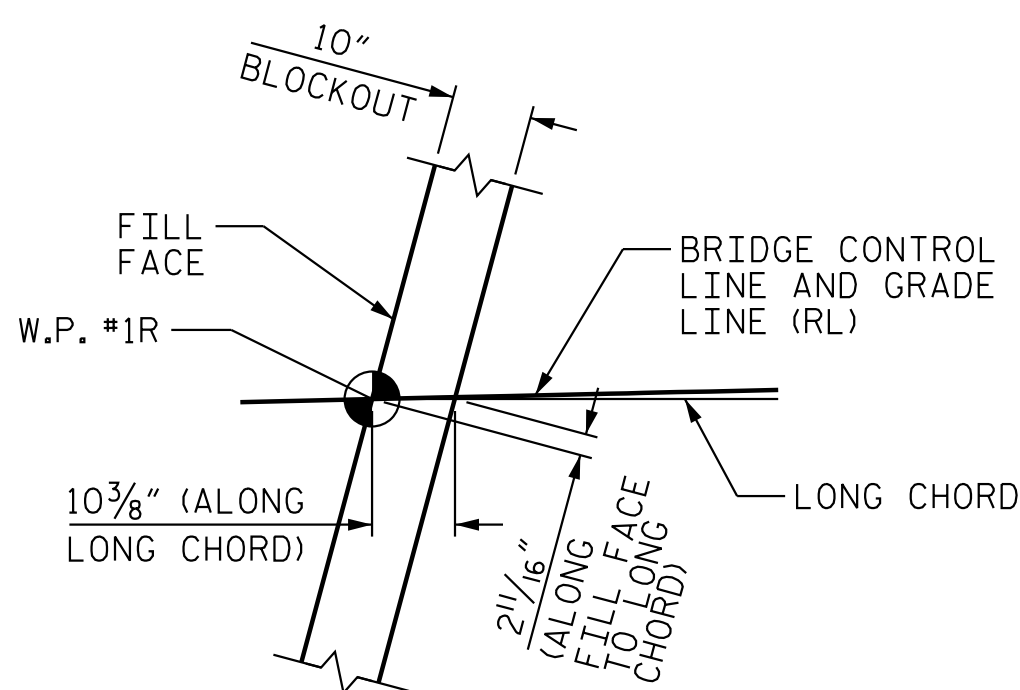
NOTE: (2BR) DENOTES TWO BAR RUN
(3BR) DENOTES THREE BAR RUN
(5BR) DENOTES FIVE BAR RUN
* - DENOTES RADIAL DIMENSION
** - DENOTES TWO BARS / MARK
Δ #5 B5 BARS NOT SHOWN FOR CLARITY.



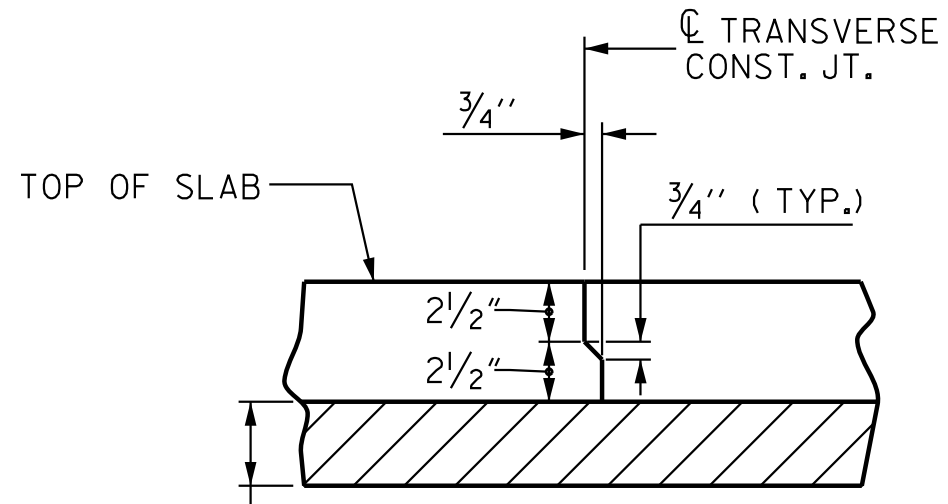
PLAN OF GIRDERS AT LINK SLAB BENT

NOTE: 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.

PLAN OF SPAN SPAN A

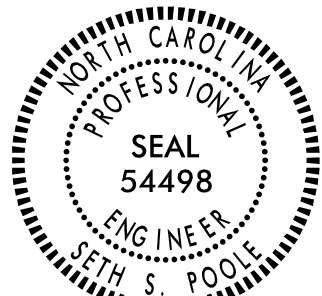


DETAIL "A"



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
PENDER COUNTY
STATION: 427+46.16 -L1-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPAN
(SPAN A)

(RIGHT LANE)

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NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S09-11
2			4			TOTAL SHEETS 41



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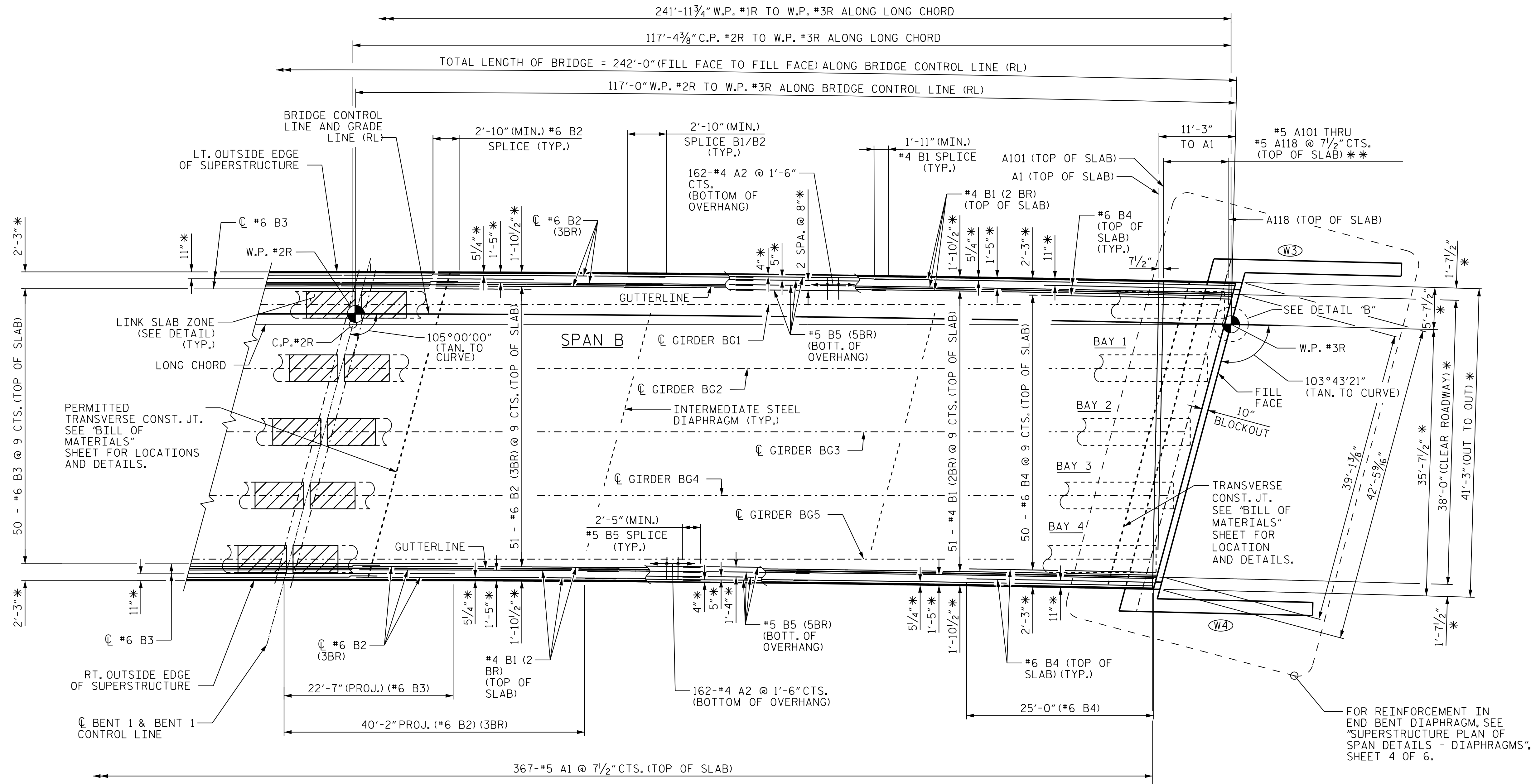
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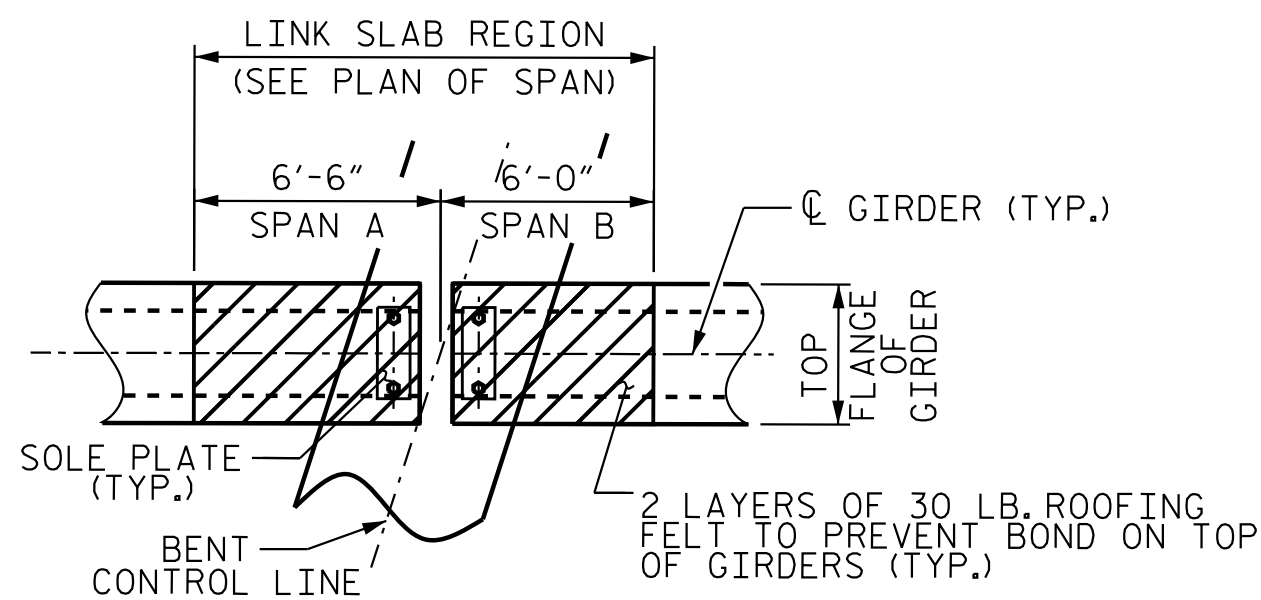
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NAD 83/ NSRS 2007

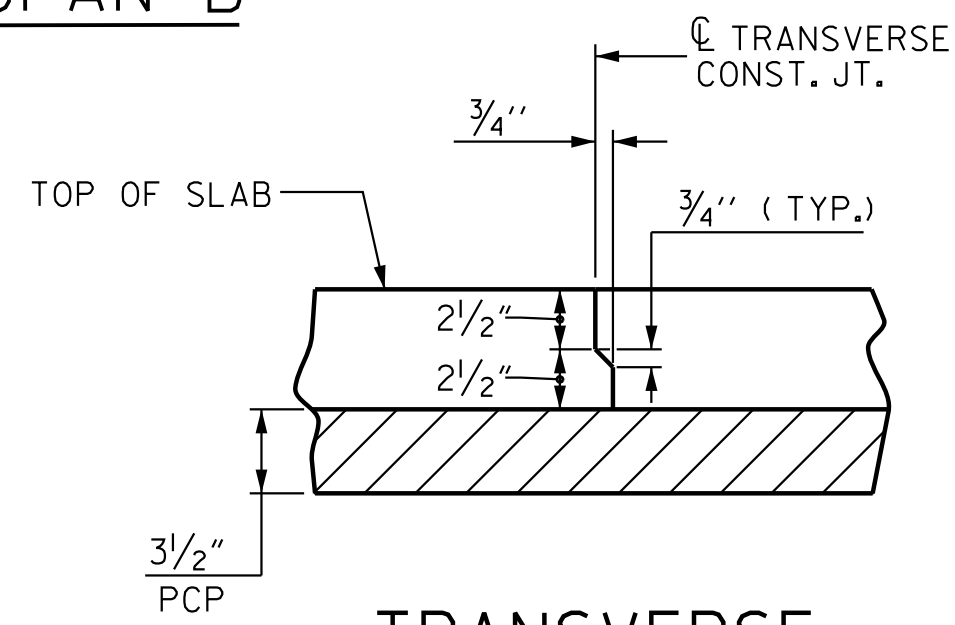


PLAN OF SPAN
SPAN B



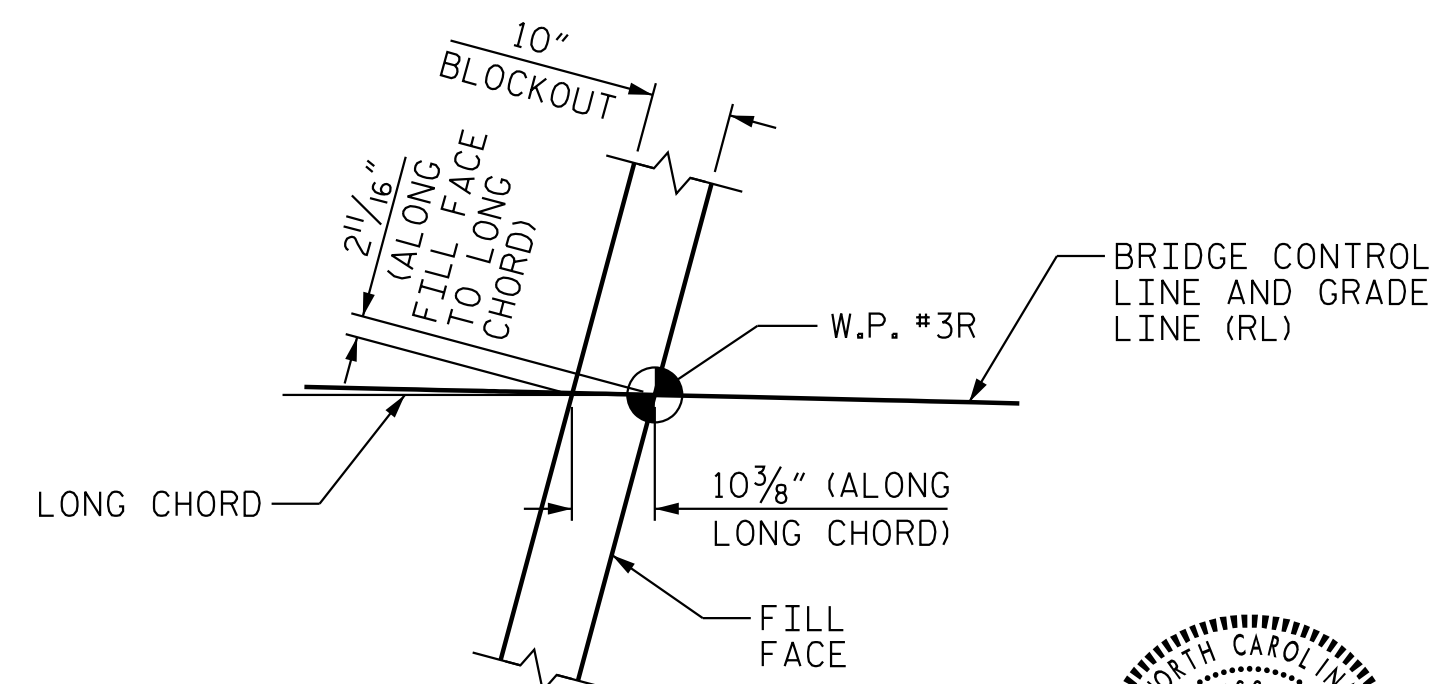
PLAN OF GIRDERS AT LINK SLAB BENT

NOTE: 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.

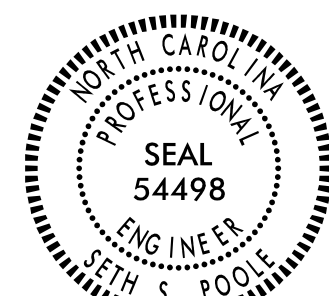


TRANSVERSE
CONSTRUCTION JOINT
IN DECK SLAB

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



DETAIL "B"



Signed by: 4/30/2025
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PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.16 -L1-

SHEET 2 OF 6

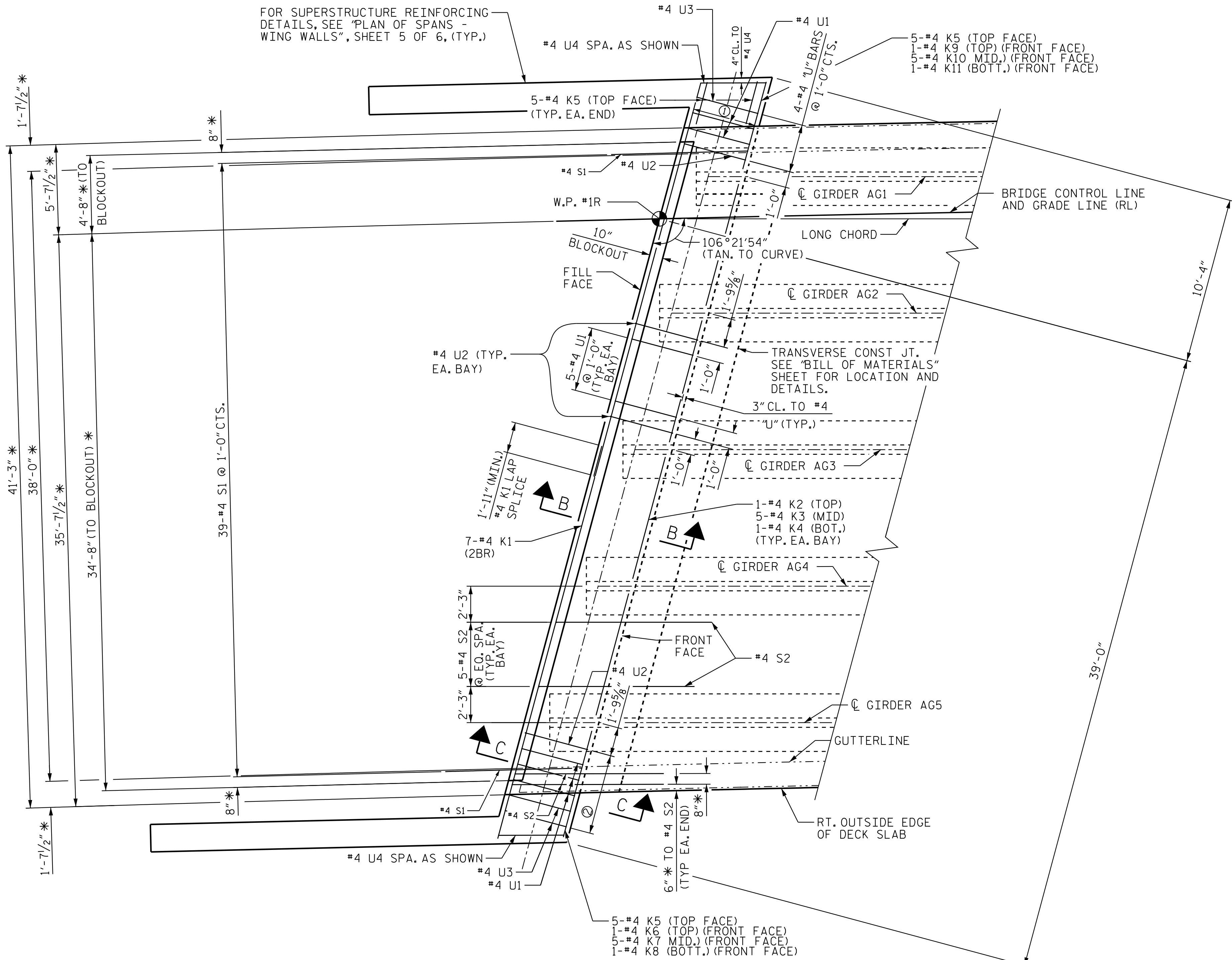
STATE OF NORTH CAROLINA
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RALEIGH
SUPERSTRUCTURE

PLAN OF SPAN
(SPAN B)

(RIGHT LANE)

REVISIONS						SHEET NO. S09-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

FOR SUPERSTRUCTURE REINFORCING
DETAILS, SEE "PLAN OF SPANS -
WING WALLS", SHEET 5 OF 6, (TYP.)



NOTES

* DENOTES RADIAL DIMENSION

REINFORCEMENT IN DECK AND
BARRIER RAIL NOT SHOWN FOR CLARITY.

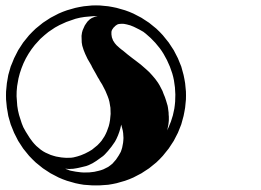
FOR SECTION A-A, SECTION B-B &
SECTION C-C, SEE "TYPICAL SECTION
(DETAILS)" SHEET 3 OF 6.

"V" BARS NOT SHOWN FOR CLARITY,
SEE SHEETS 5 AND 6 OF 6 FOR ADDITIONAL
REINFORCING DETAILS.

(2BR) DENOTES 2 BAR RUN.

- ① 5-#4 K5 @ E.O. SPA. (TYP. EA. END)
② 6-#4 "U" @ 1'-0" CTS.

END BENT 1 DIAPHRAGM REINFORCING DETAIL



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



Signed by:
[Signature]

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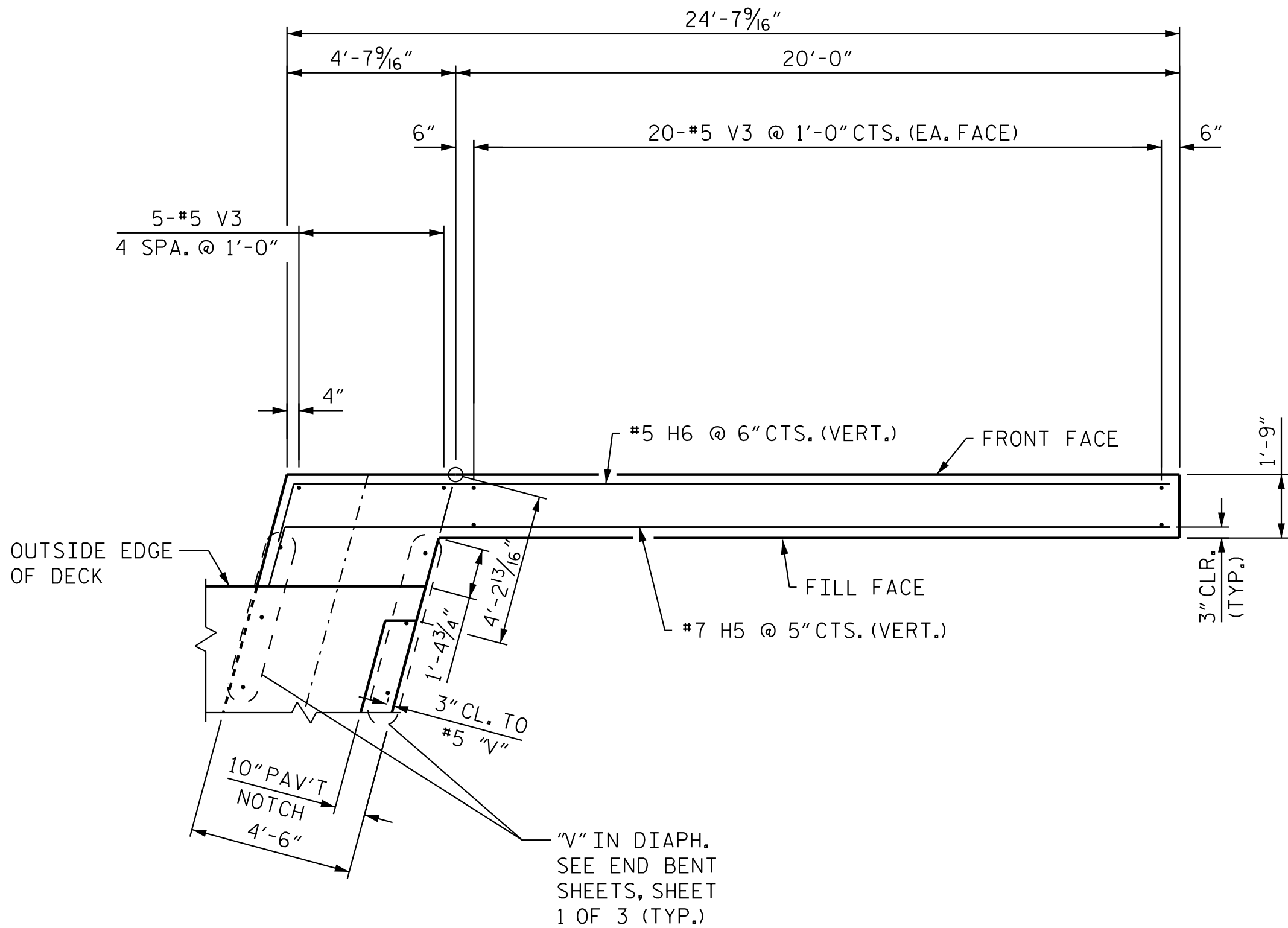
SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

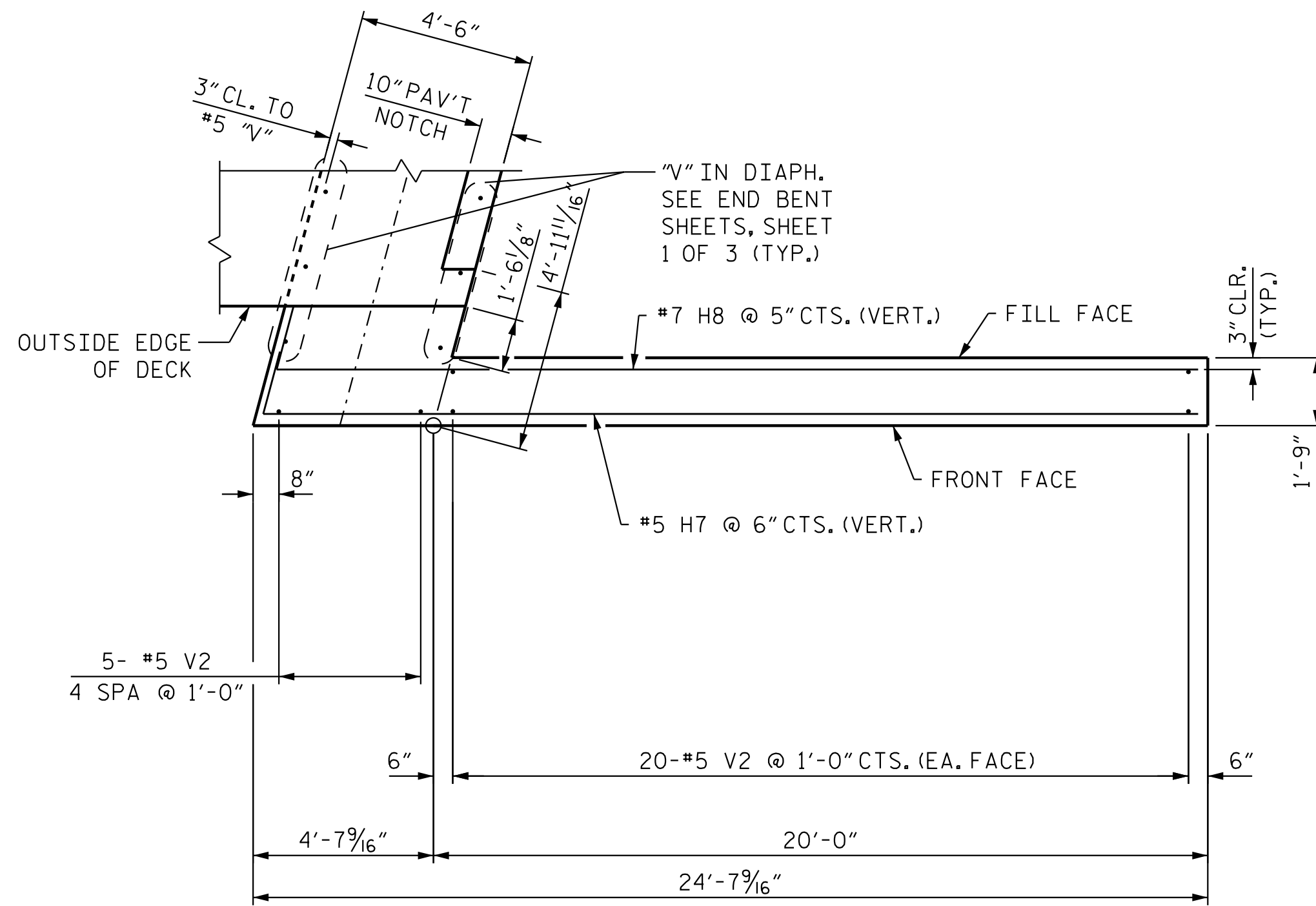
PLAN OF SPANS
DETAILS - DIAPHRAGMS

(RIGHT LANE)

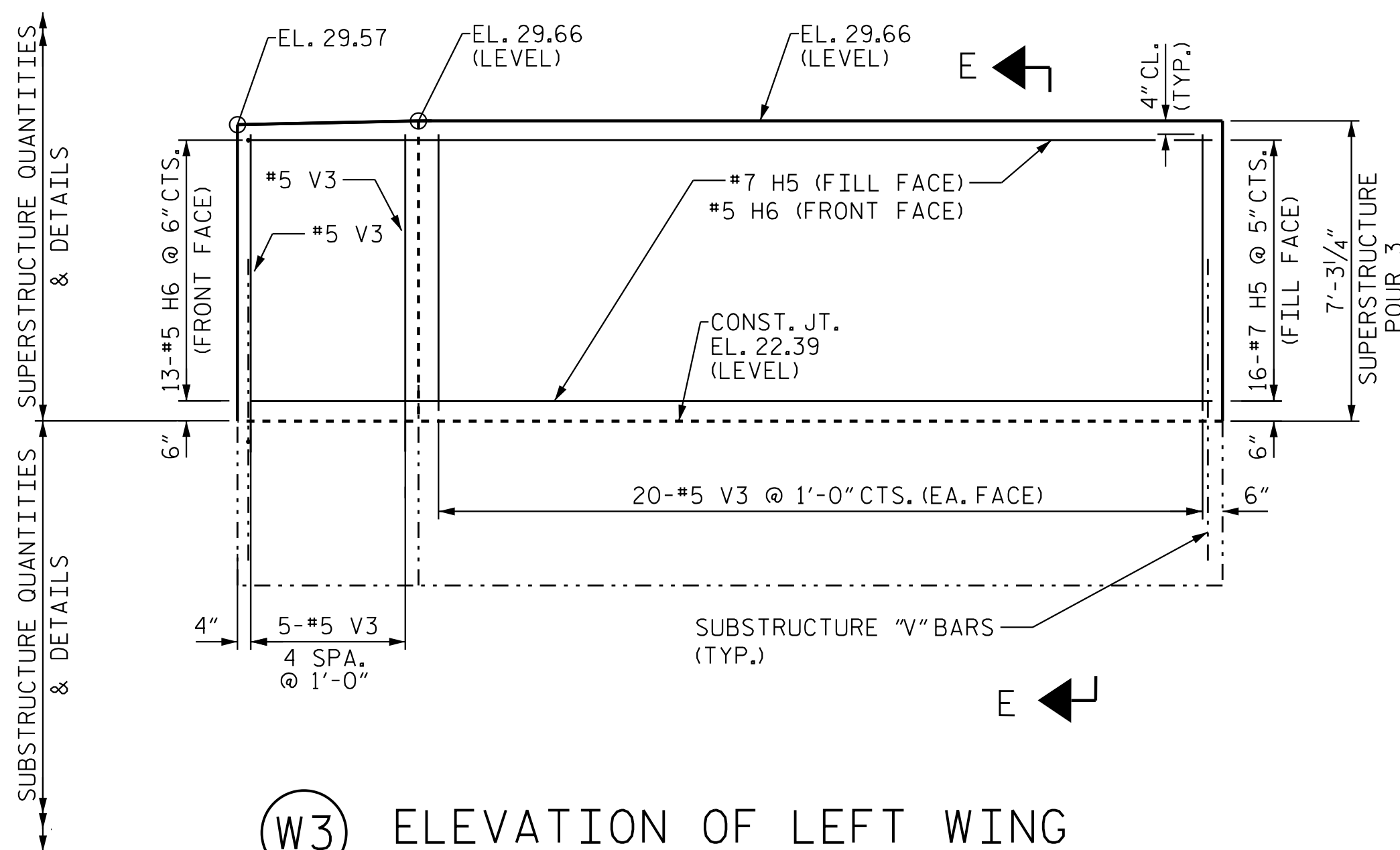
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



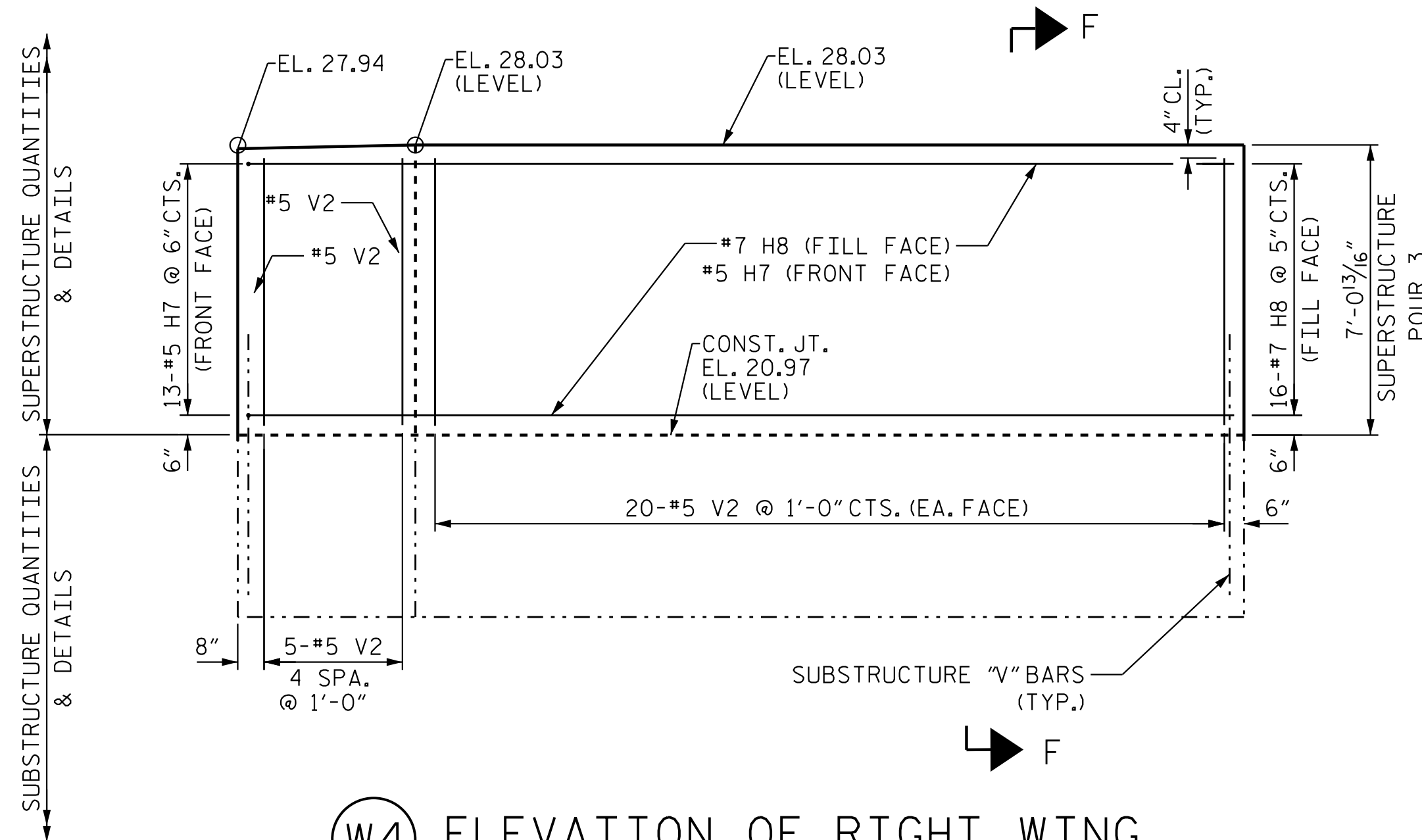
W3 PLAN OF LEFT WING



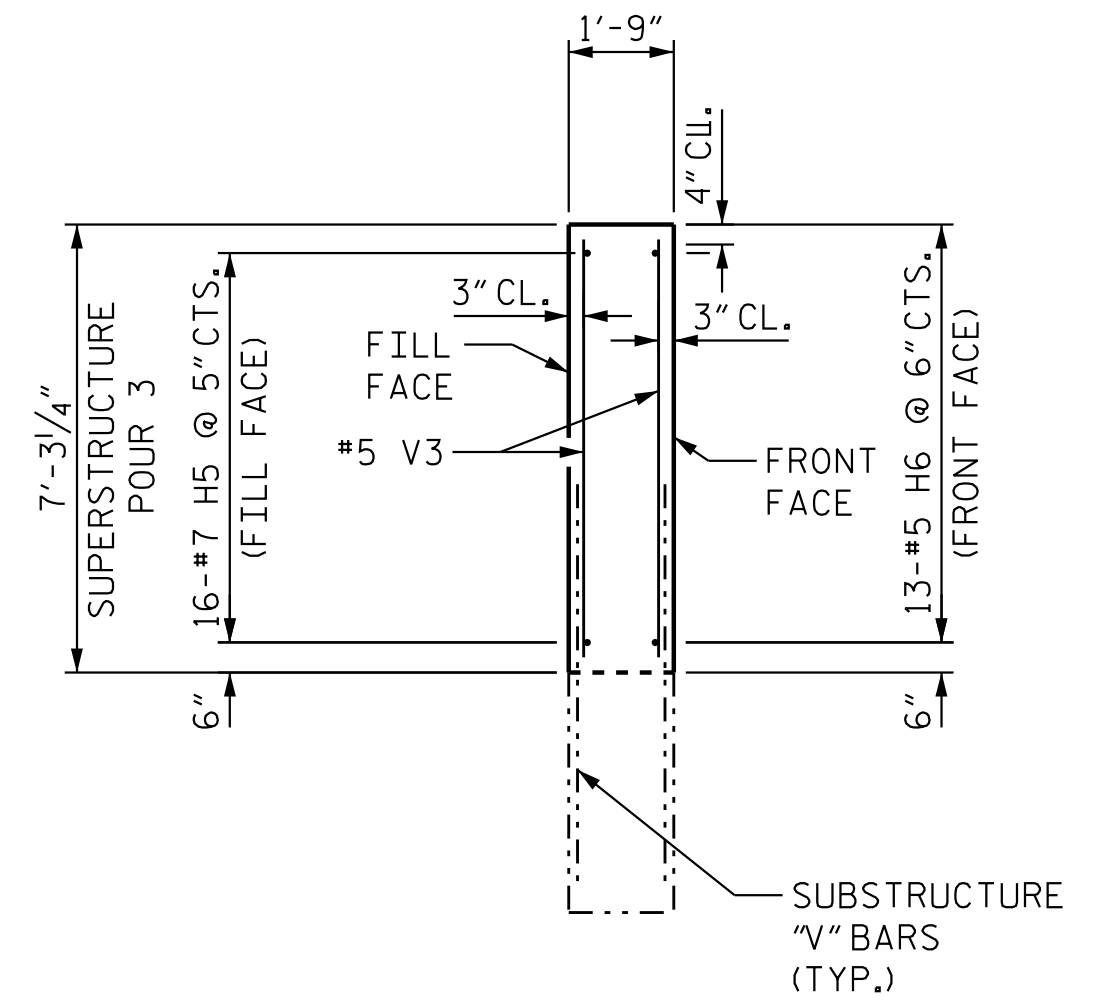
W4 PLAN OF RIGHT WING



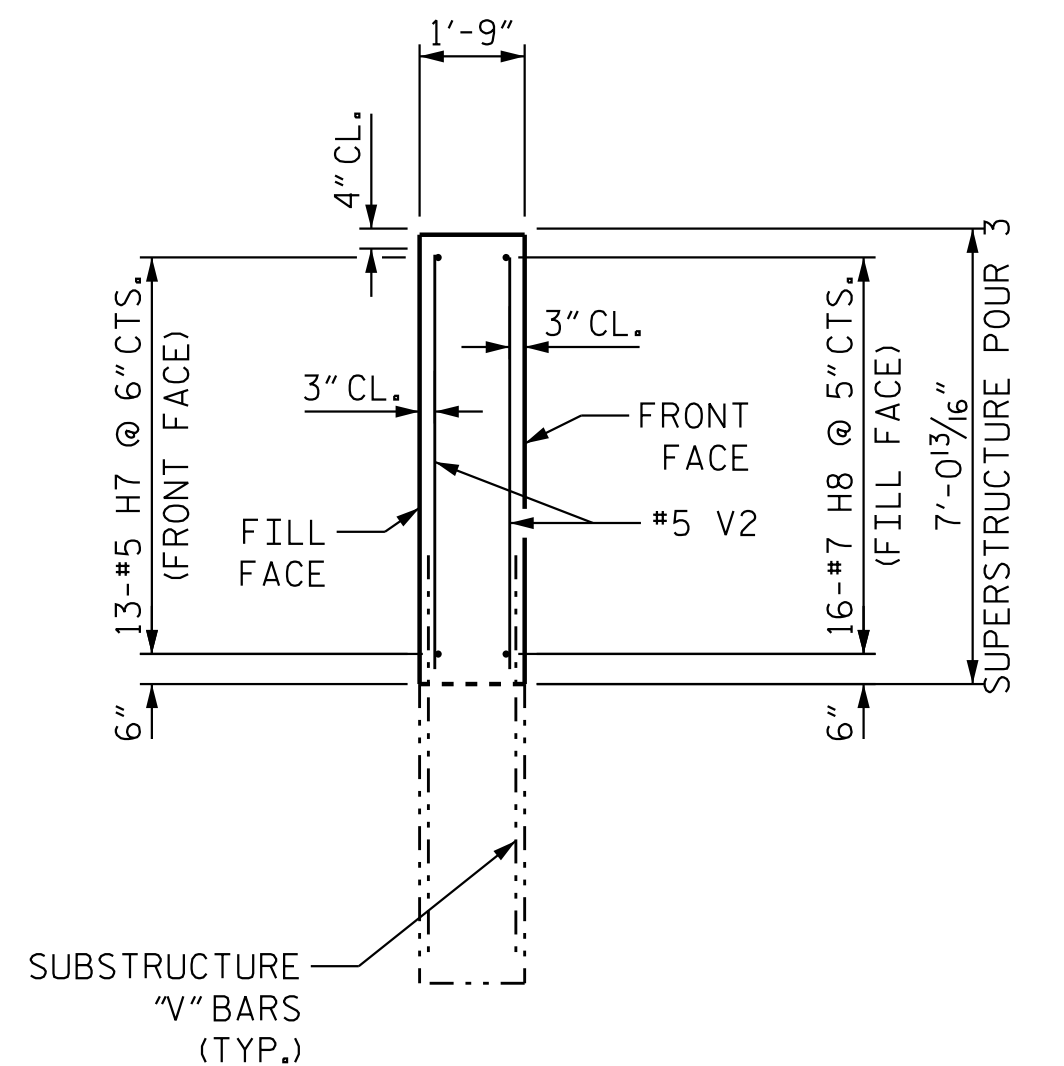
W3 ELEVATION OF LEFT WING



W4 ELEVATION OF RIGHT WING



SECTION E-E



SECTION F-F

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

SHEET 6 OF 6



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



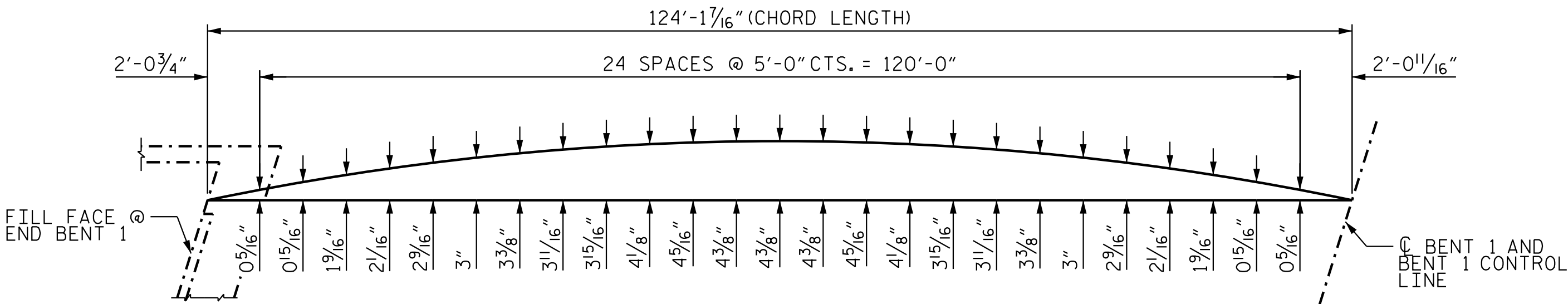
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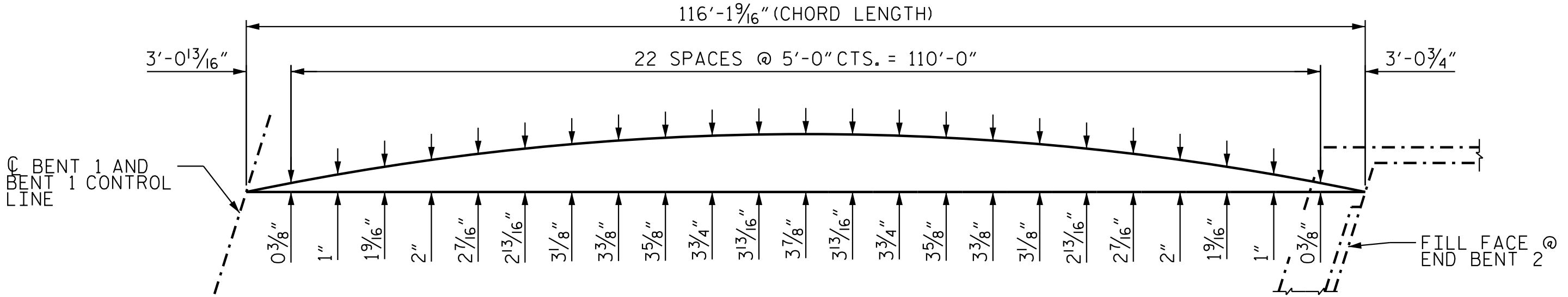
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS
DETAILS -
WING WALLS
(RIGHT LANE)

REVISIONS						SHEET NO. S09-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

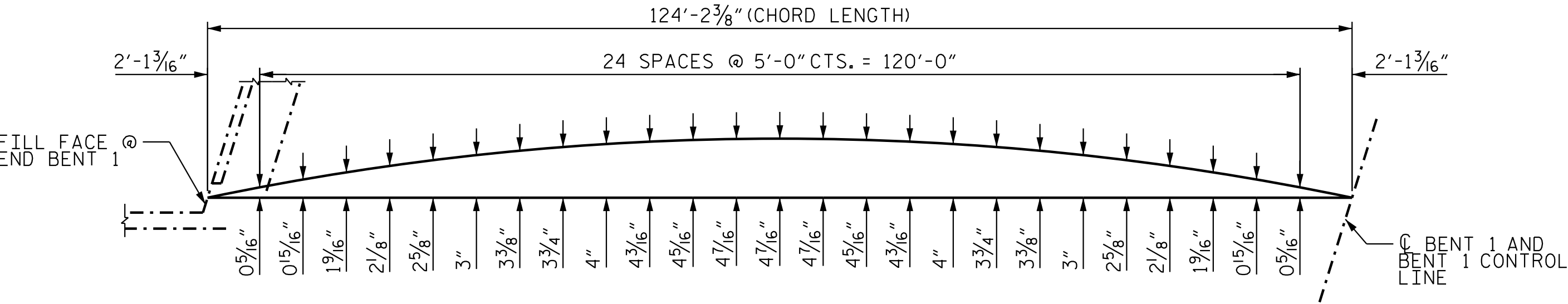
NOTE:
ARC OFFSETS ARE TAKEN ALONG THE OUTSIDE EDGE OF SUPERSTRUCTURE.



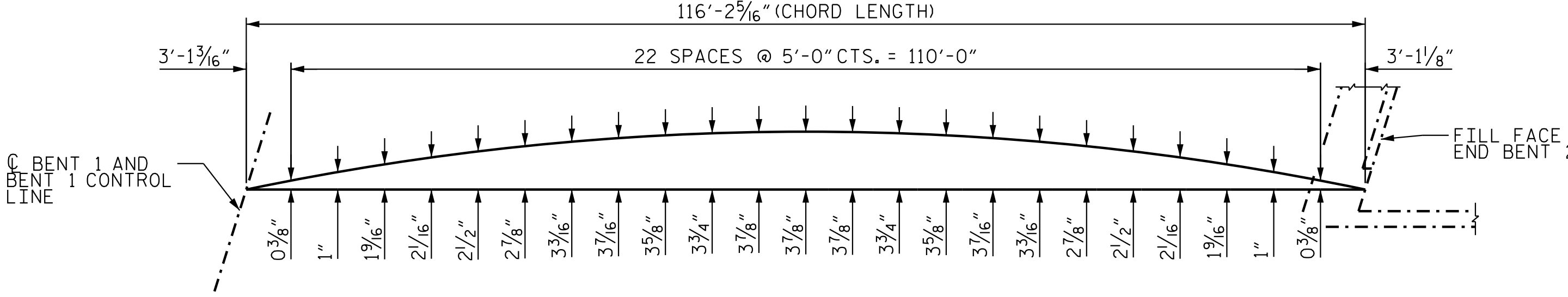
LEFT SIDE



LEFT SIDE



RIGHT SIDE



RIGHT SIDE

ARC OFFSETS- SPAN A

ARC OFFSETS- SPAN B

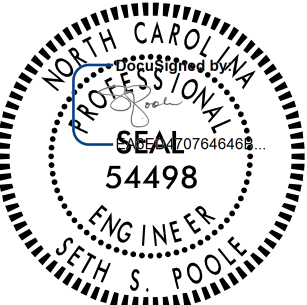
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SHEET 1 OF 1



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DRAWN BY : G. NGUYEN DATE : 08/20/18
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S09-17	
SUPERSTRUCTURE ARC OFFSETS						TOTAL SHEETS 41	
(RIGHT LANE)							
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

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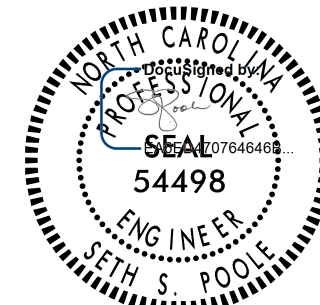
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 PENDER COUNTY
STATION: 427+46.16 -L1-

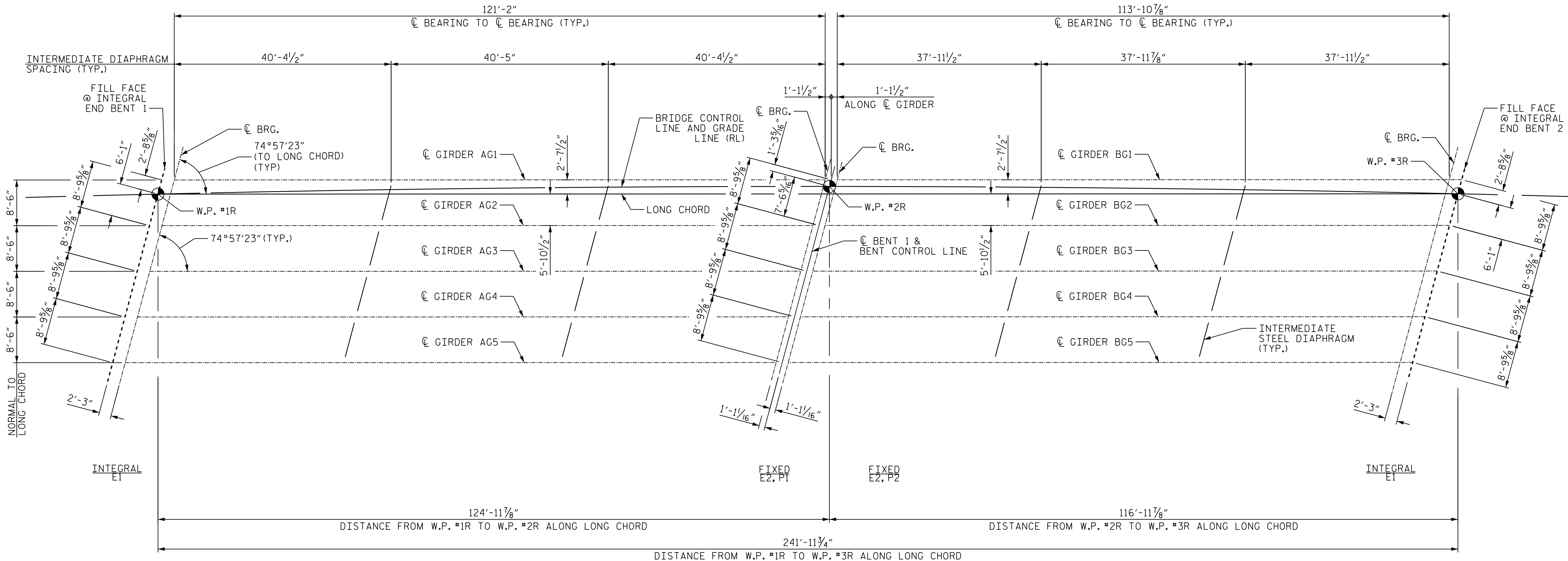
SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE FRAMING PLAN

(RIGHT LANE)

REVISIONS						SHEET NO. S09-18
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1			3			TOTAL SHEETS 41
2			4			



SPAN A

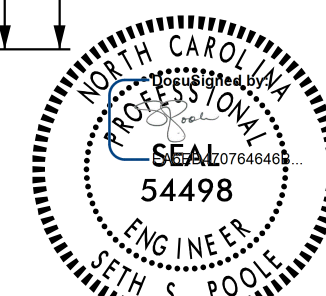
FRAMING PLAN

ALL BENTS ARE PARALLEL.

SPAN B



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2			4			

STD. NO. PCG8

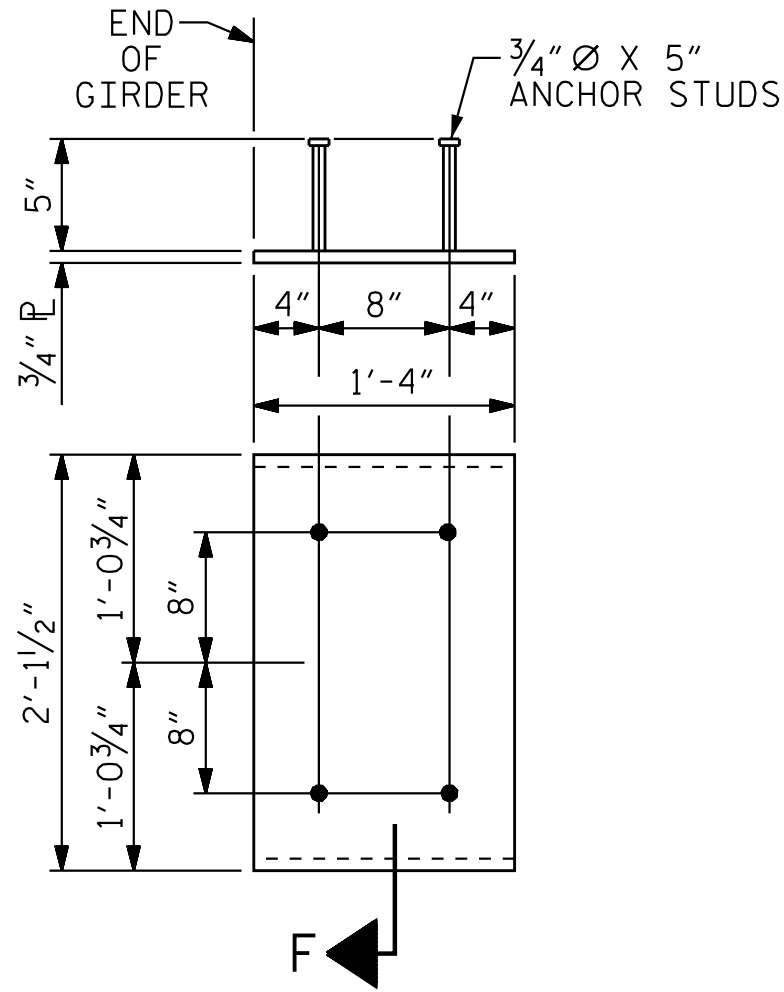


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ASSEMBLED BY : S. SOK
CHECKED BY : S. S. POOLE

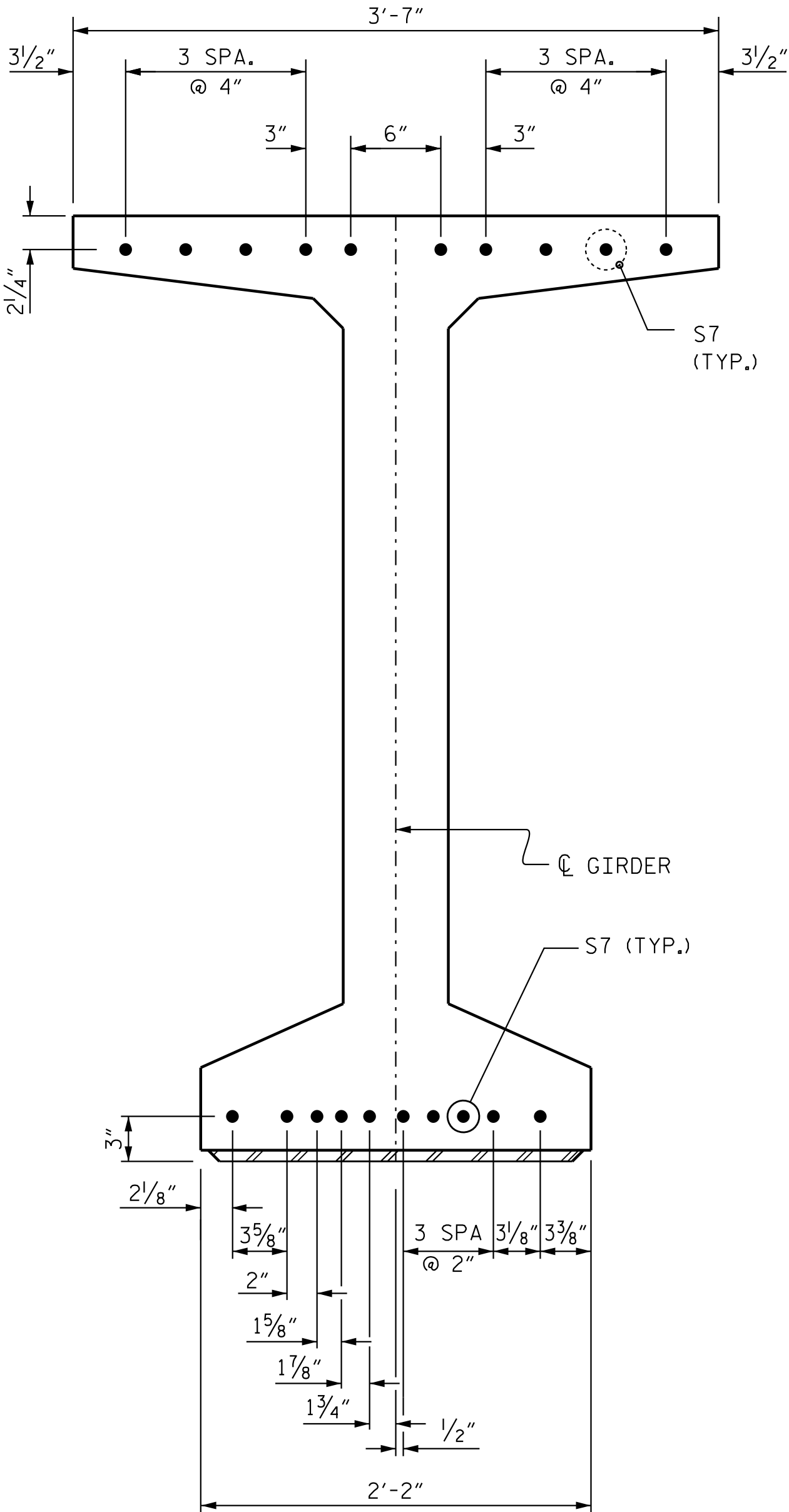
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ENGINEER
OF RECORD: S. S. POOLE DATE : 04/23/25



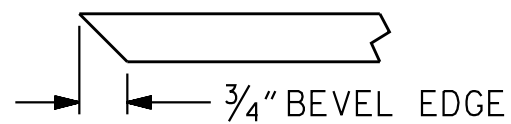
EMBEDDED PLATE "B-1" DETAILS
FOR 72" MODIFIED BULB TEES

(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.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

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 8,000 PSI.

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

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.

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 LBS.

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

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

PROJECT NO. R-3300A

PENDER COUNTY

STATION: 427+46.16 -L1-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
MODIFIED 72"
PRESTRESSED CONCRETE
GIRDER DETAILS

(RIGHT LANE)

REVISIONS						SHEET NO.
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DATE : 03/19/19
DATE : 12/04/24

DRAWN BY : ELR 11/91
CHECKED BY : GRP 11/91

REV. 1/15
REV. 2/15
REV. 12/17
MAA/TMG
MAA/TMG
MAA/THC

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

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 GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALIZATION, 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.

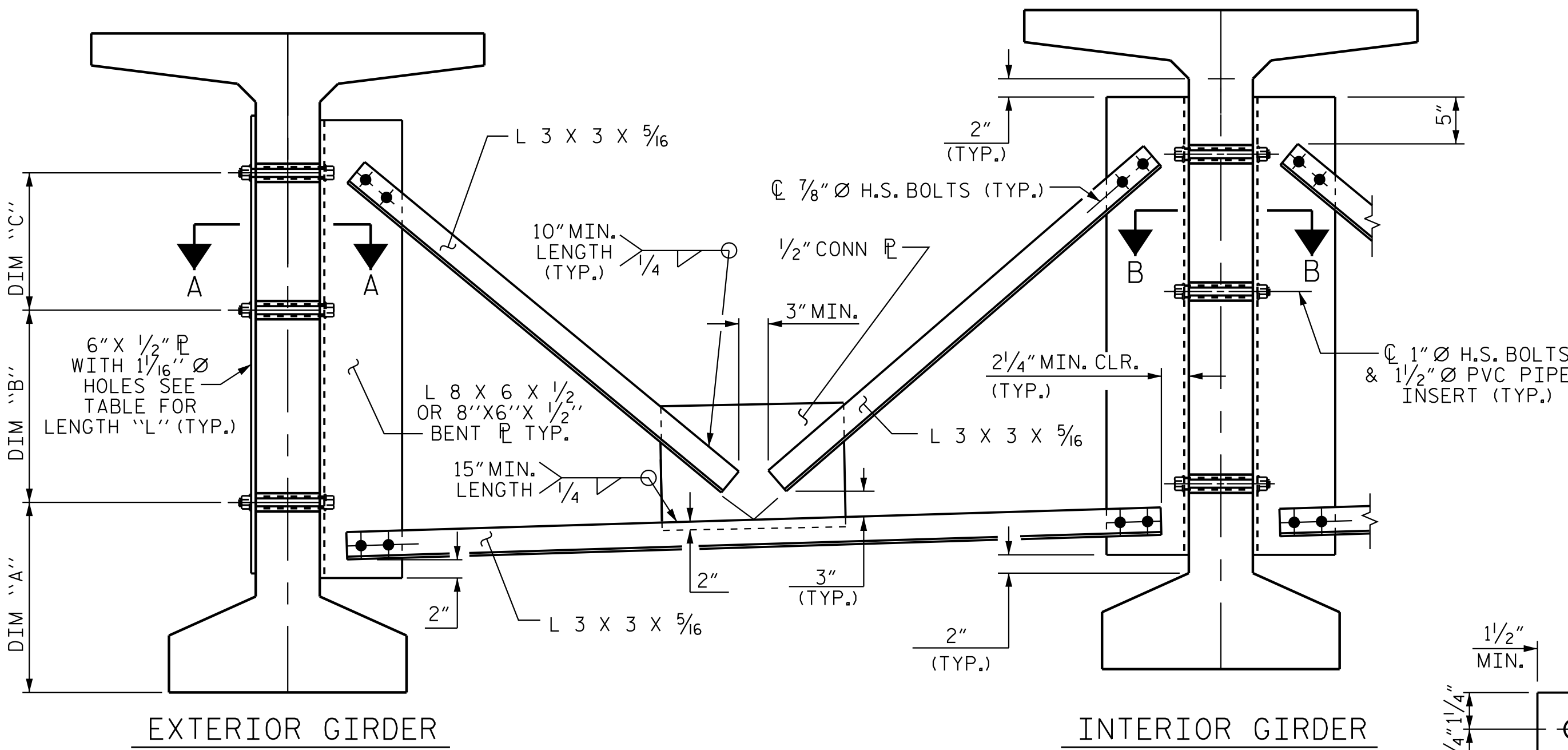
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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.

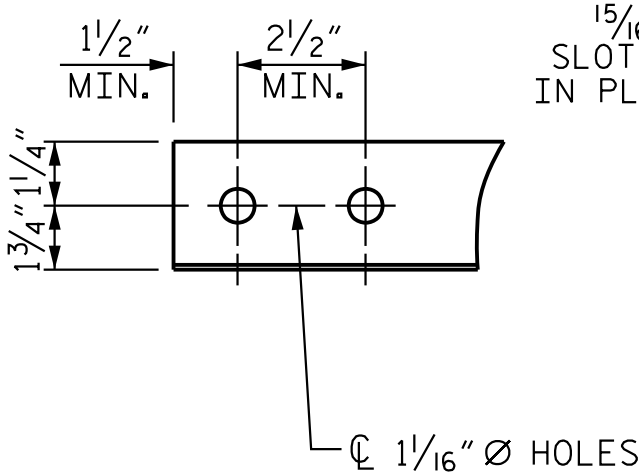
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
MODIFIED 72" PREST. CONC. GDR.	1'-8"	1'-4"	1'-4"	4'-2"

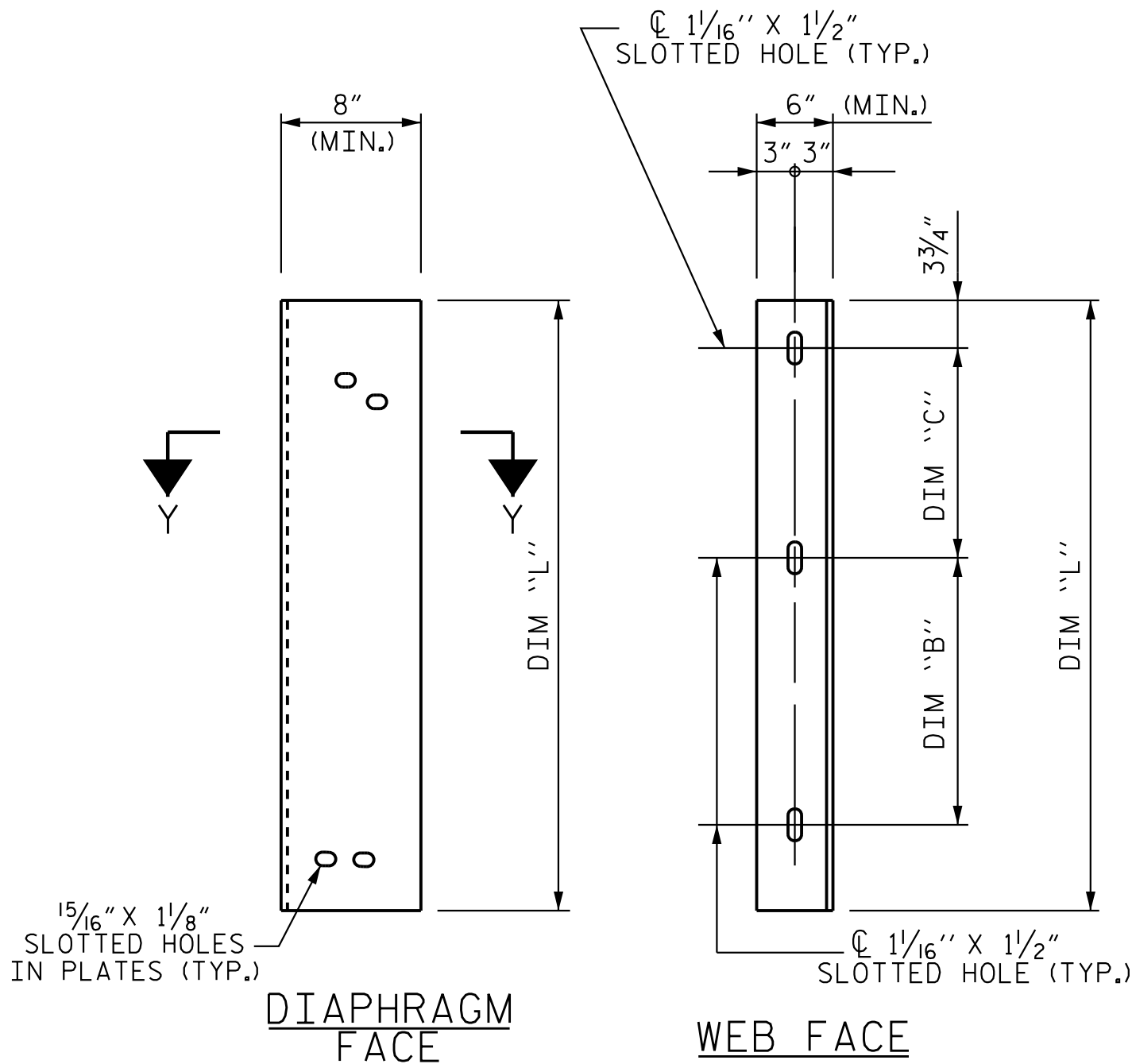


PART SECTION AT INTERMEDIATE DIAPHRAGM



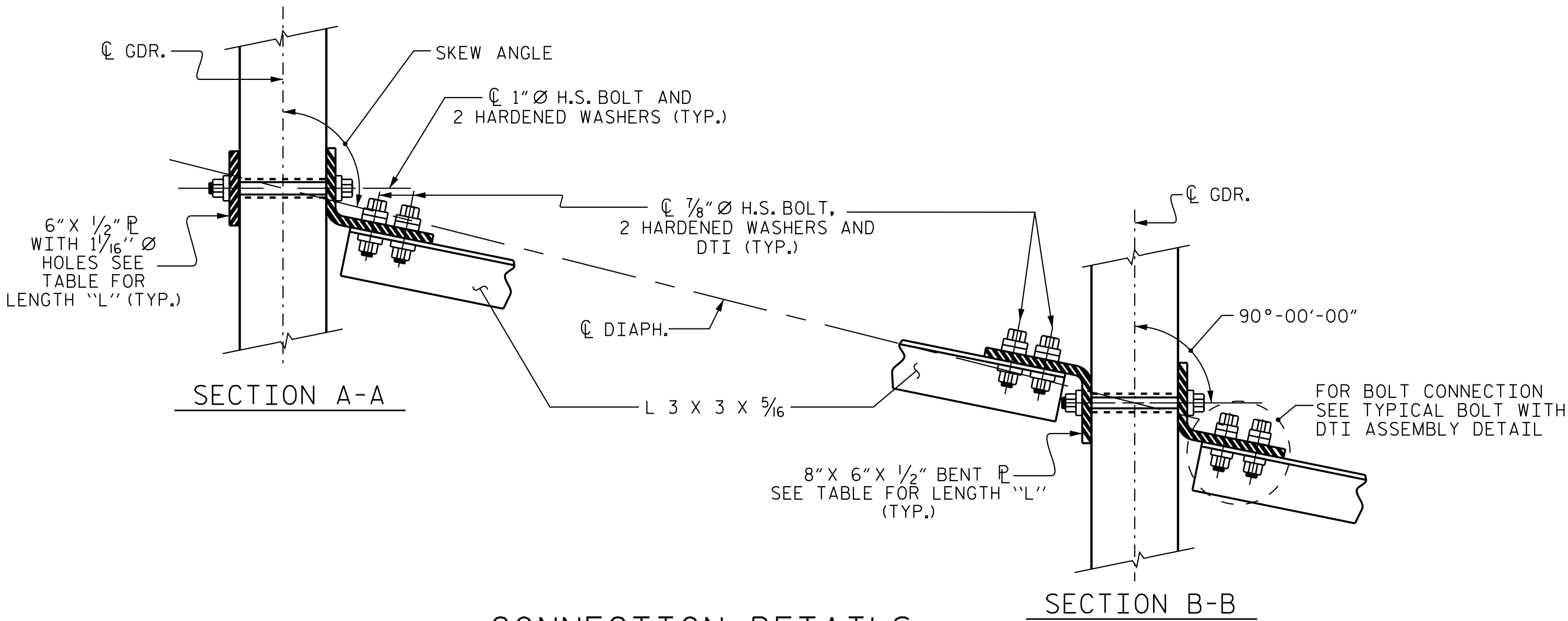
ANGLE END

(L 3 x 3 x 5/16)

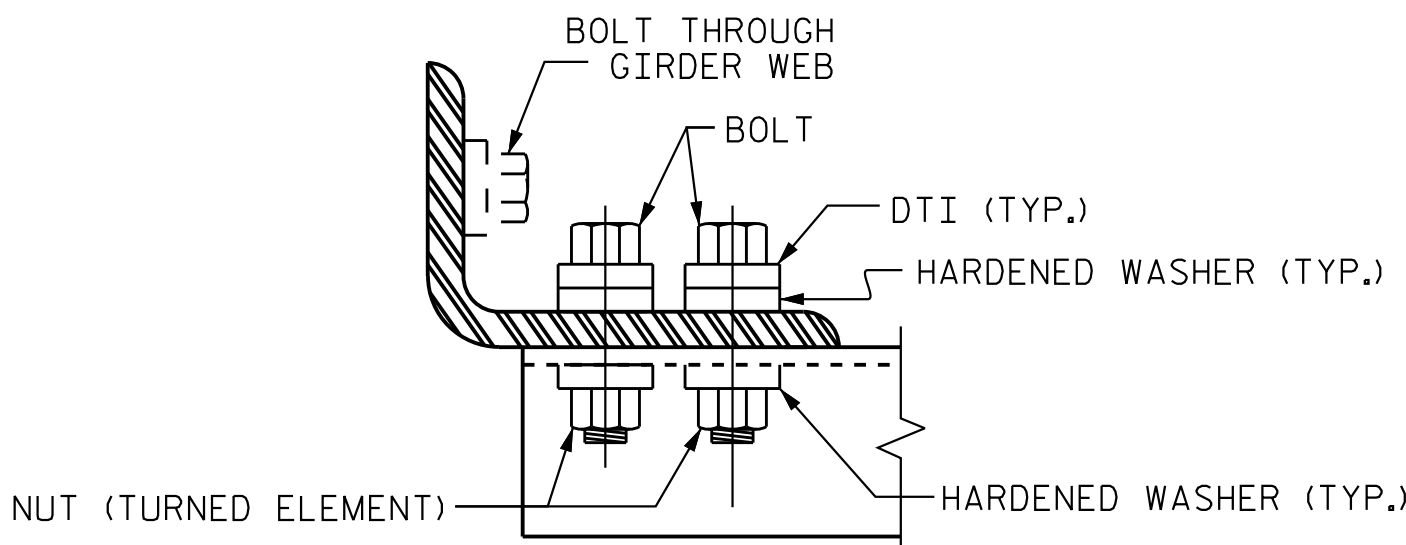


SECTION Y-Y

CONNECTOR PLATE DETAIL



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. R-3300A
PENDER COUNTY
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SHEET 4 OF 4



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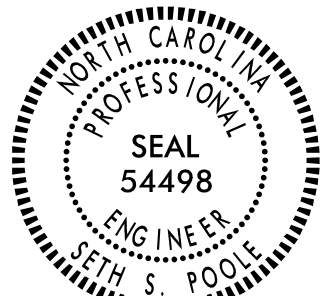
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DATE : 12/04/24

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

REV. 10/1/11
REV. 12/17

MMA/GM
MMA/THC

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



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NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 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.

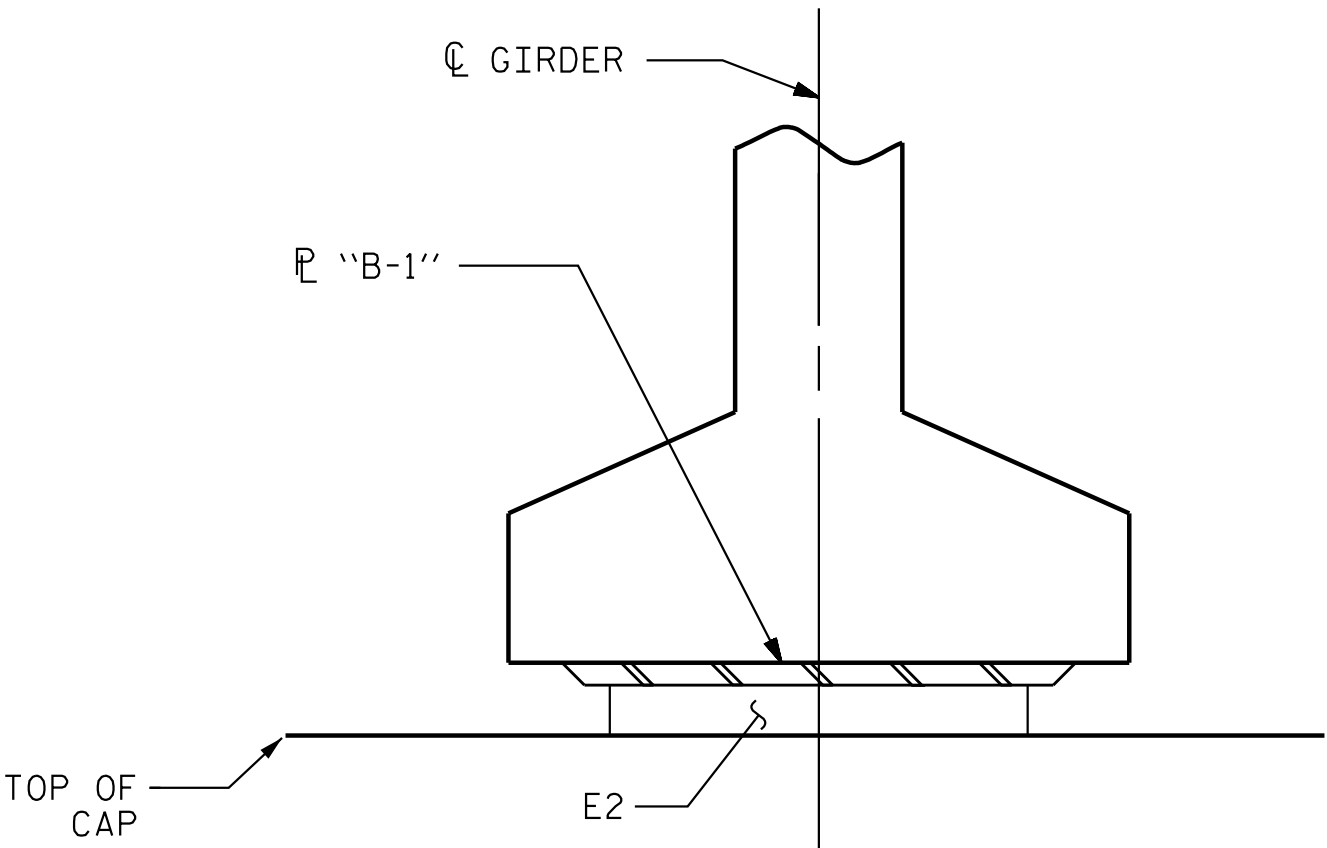
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

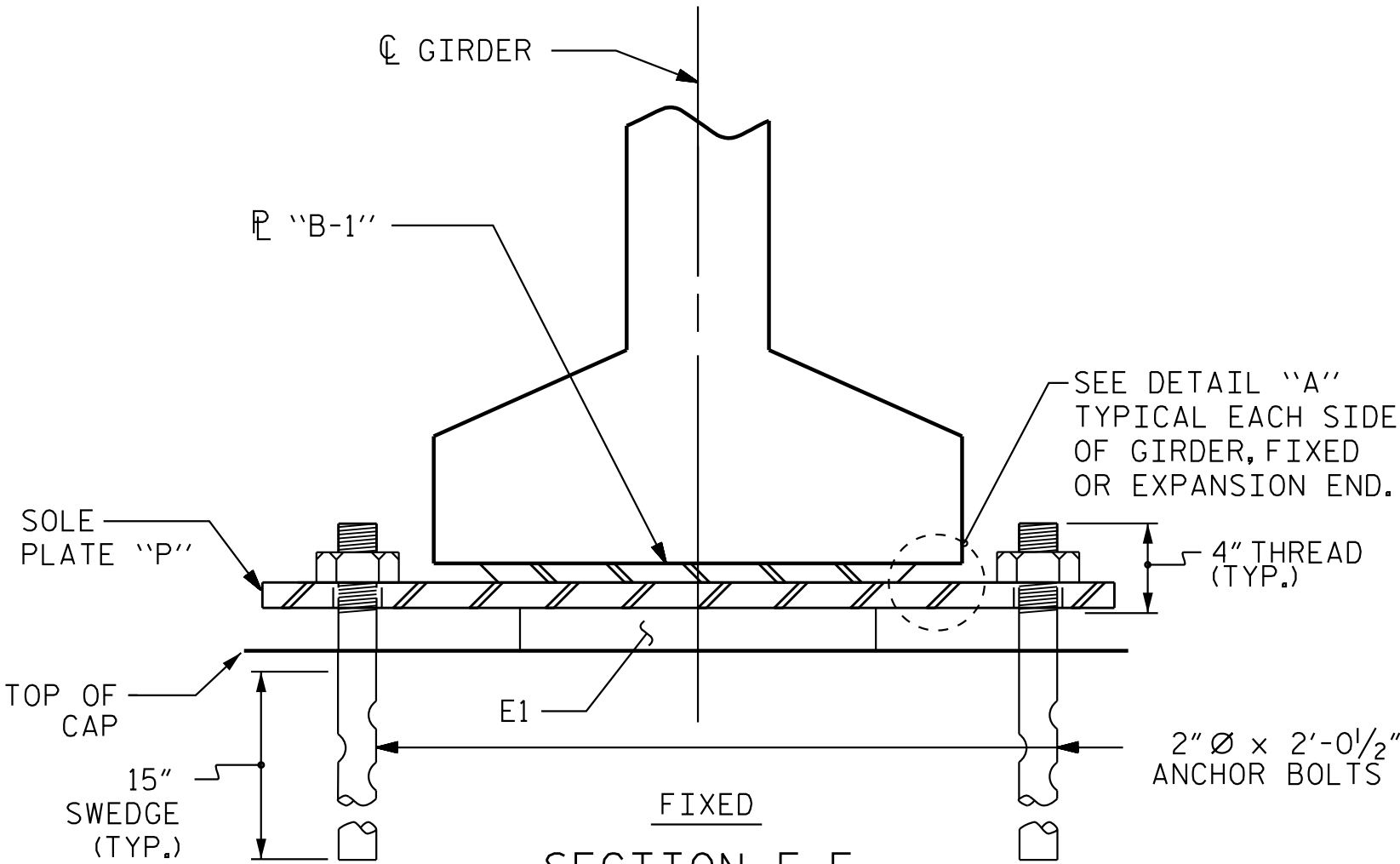
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

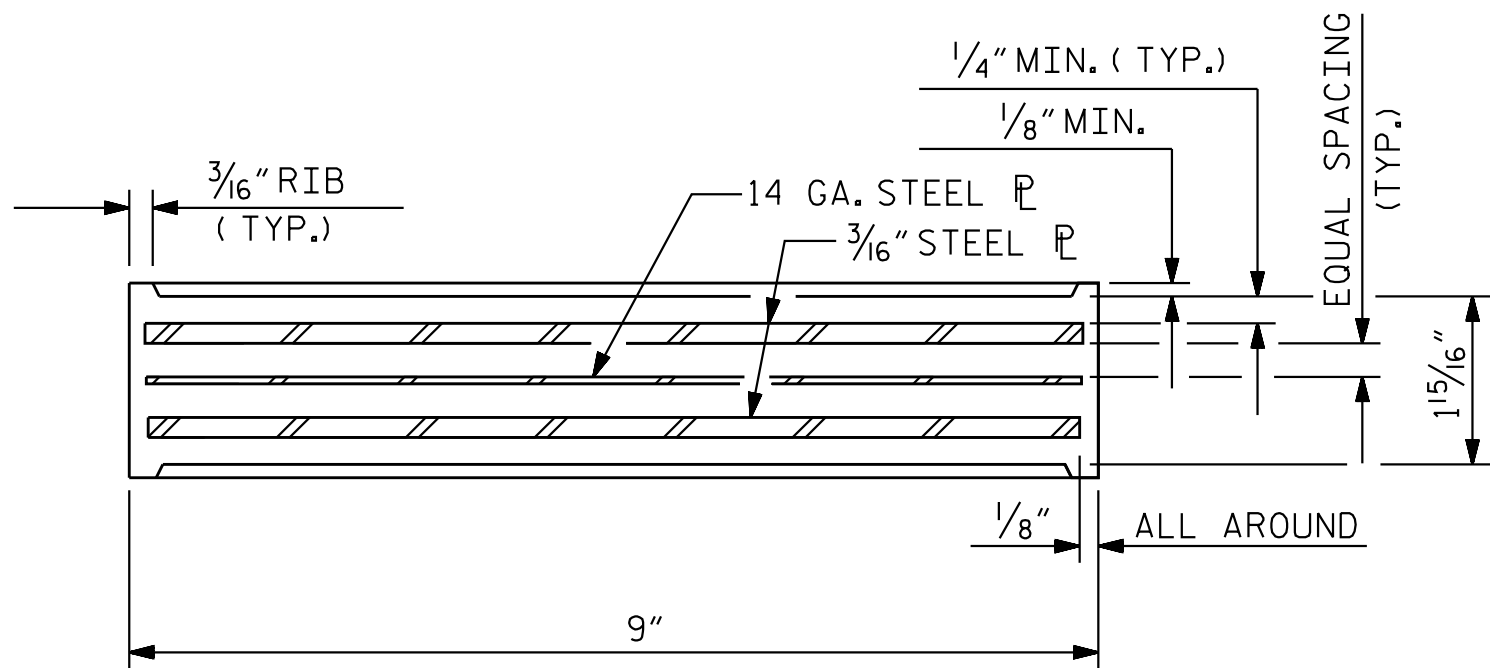
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.



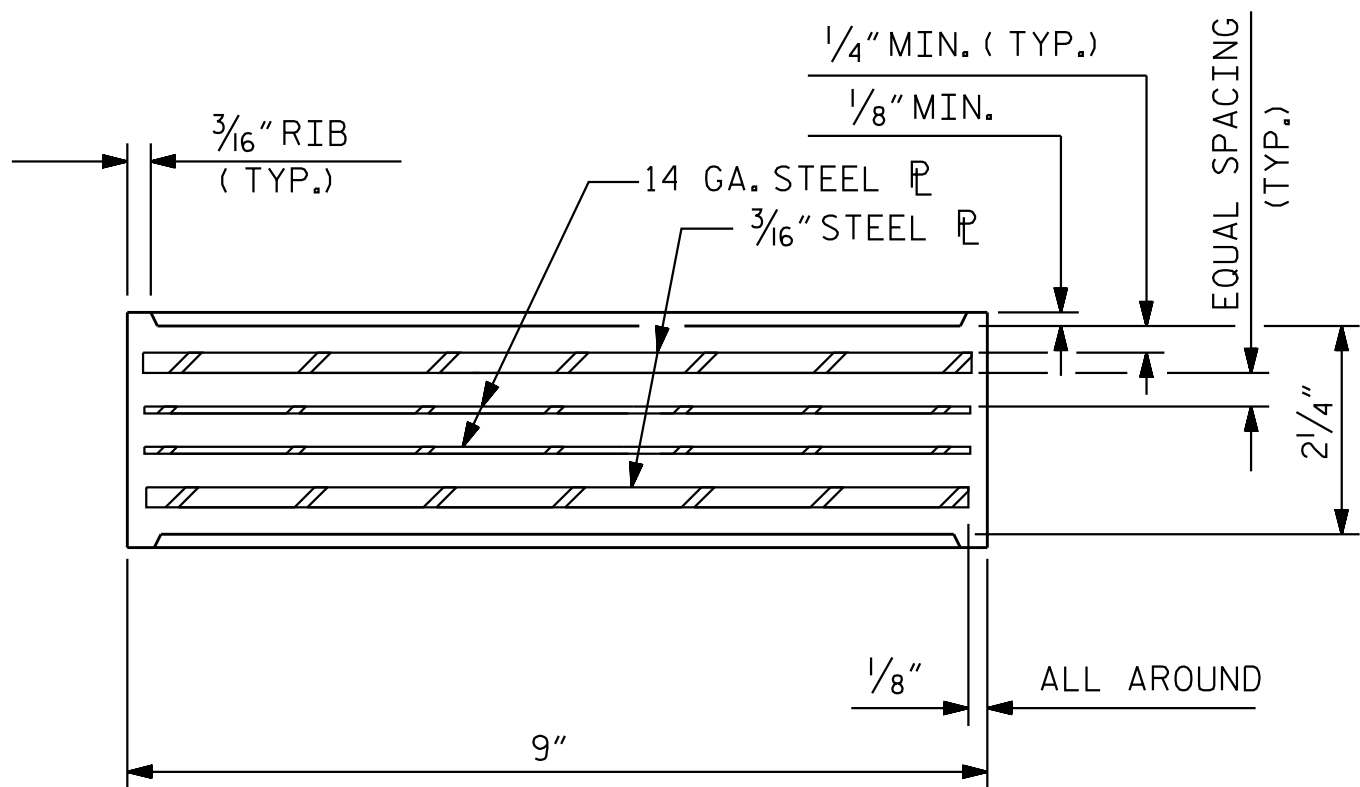
SECTION E-E
INTEGRAL END BENTS 1 & 2



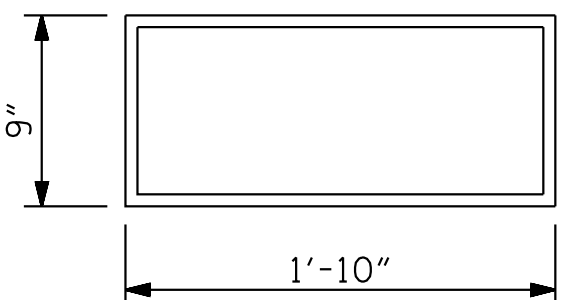
SECTION F-F
BENT 1



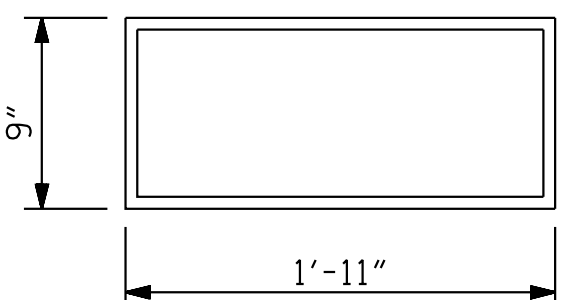
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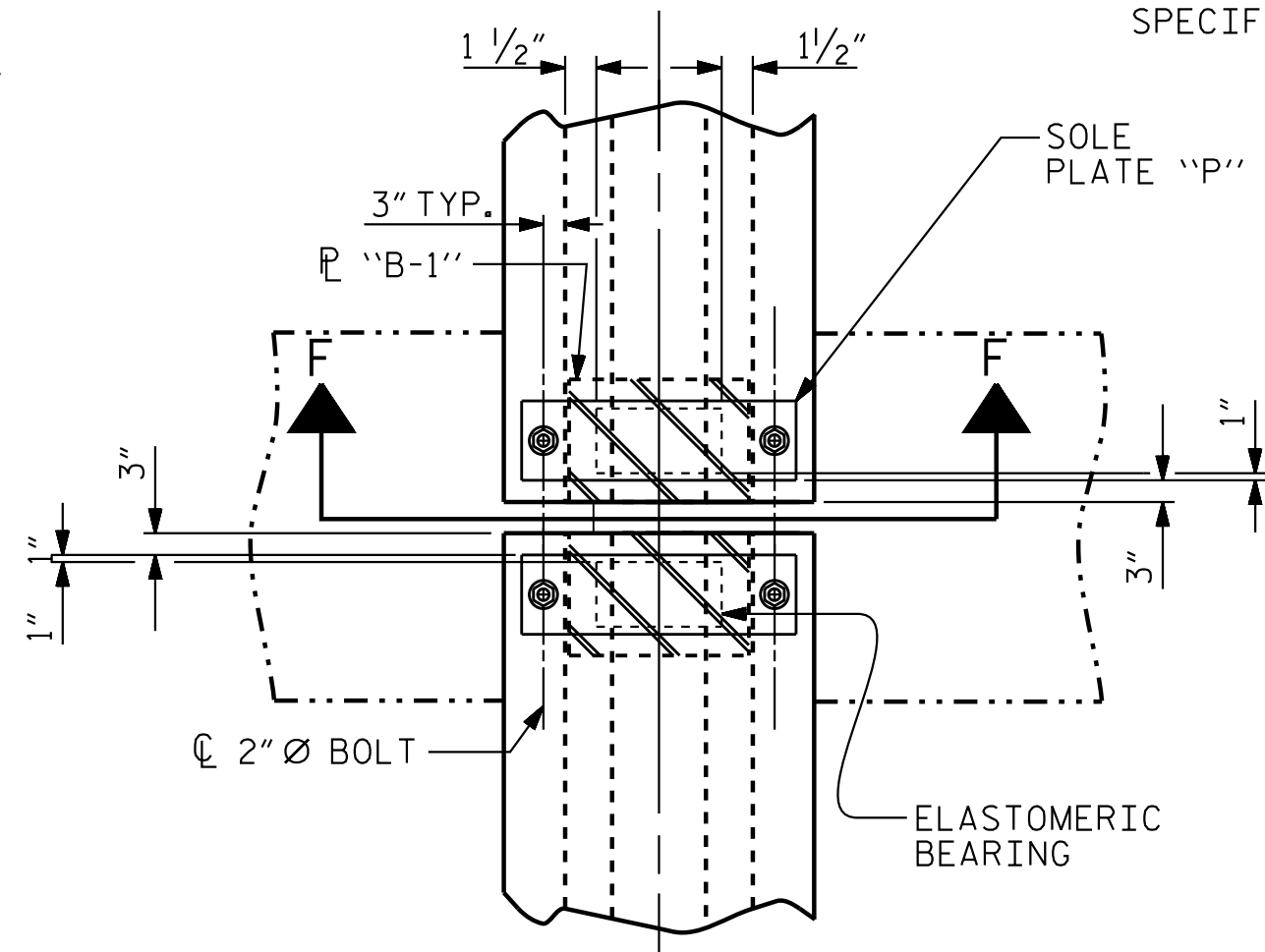
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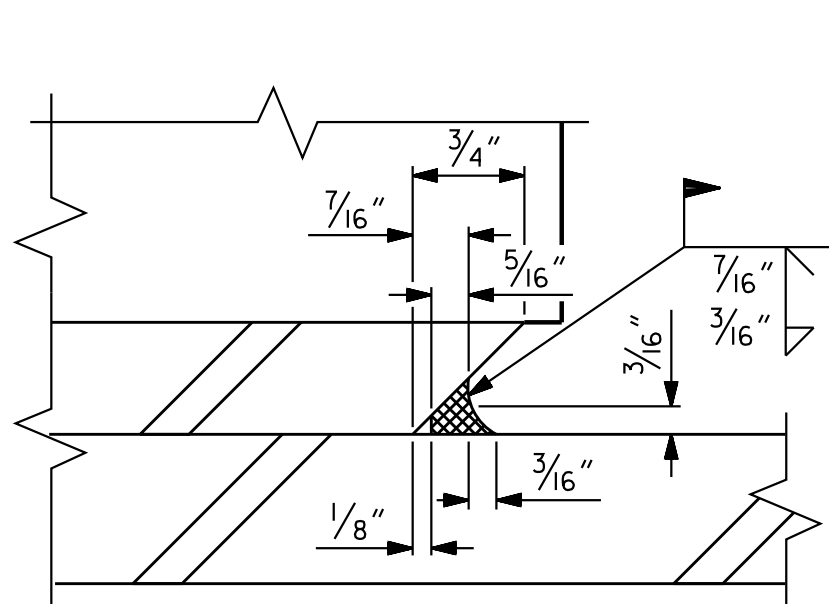
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PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV



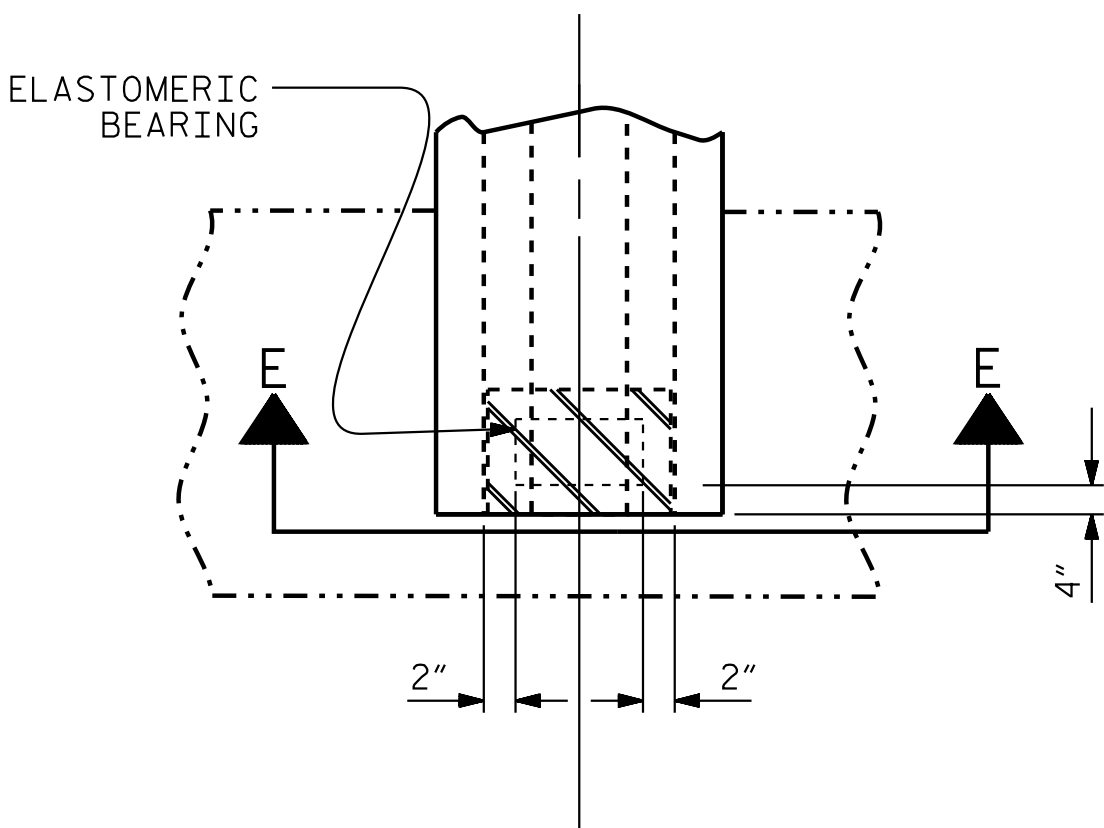
E1 (10 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE V



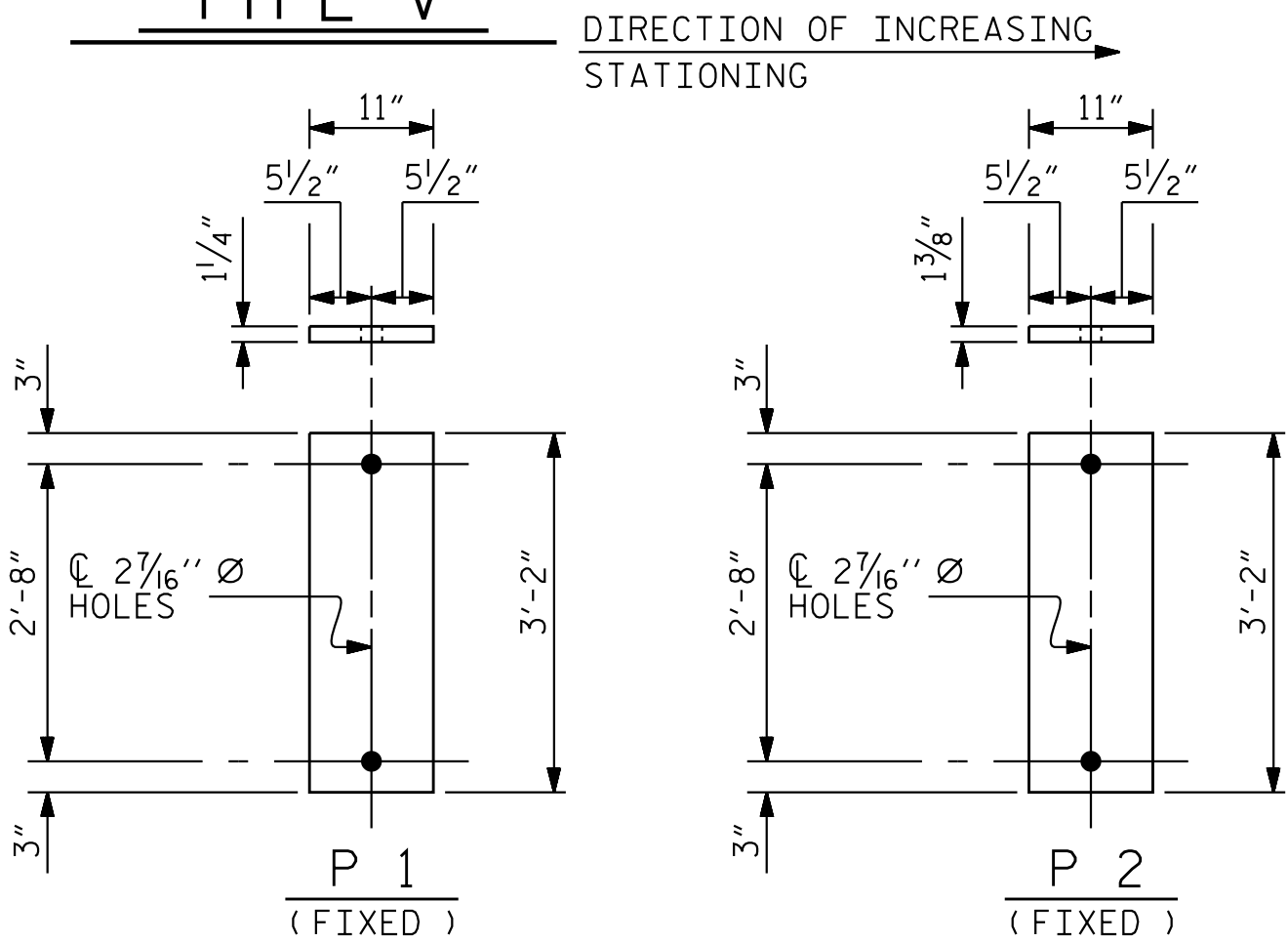
TYPICAL PLAN



DETAIL "A"



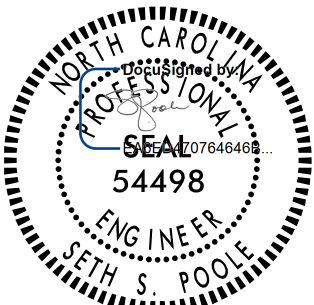
TYPICAL PLAN
(SHOWING INTEGRAL END BENT)



SOLE PLATE DETAILS ("P")

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

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



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING
DETAILS
PRESTRESSED CONCRETE
GIRDER SUPERSTRUCTURE
(RIGHT LANE)

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2			4			

STD. NO. EB3



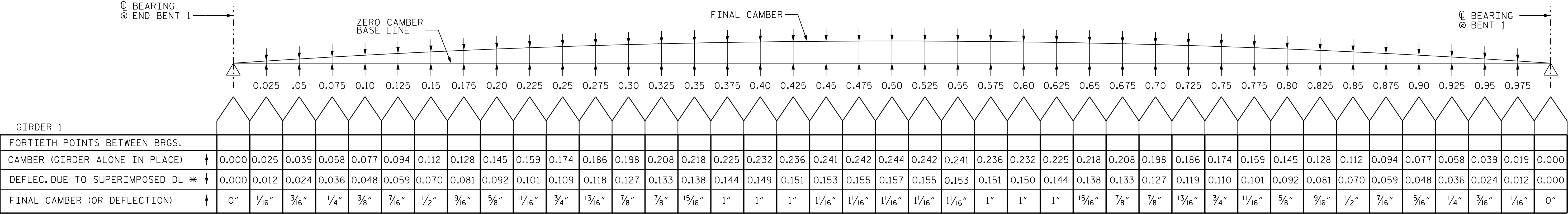
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DRAWN BY : D. NORSWORTHY DATE : 08/15/18
CHECKED BY : S. S. POOLE DATE : 12/04/24

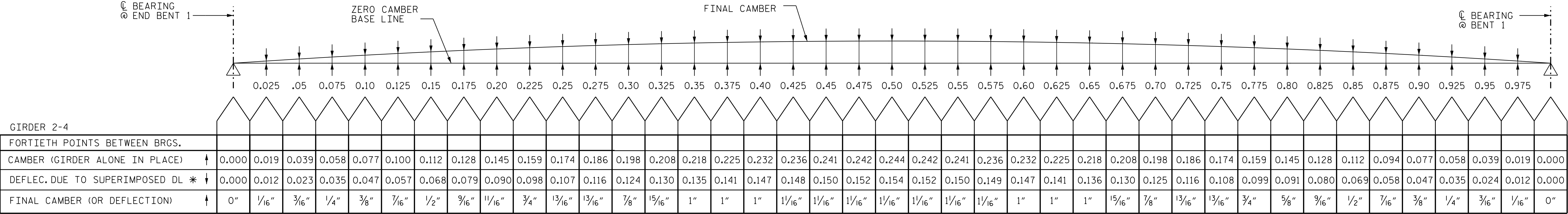
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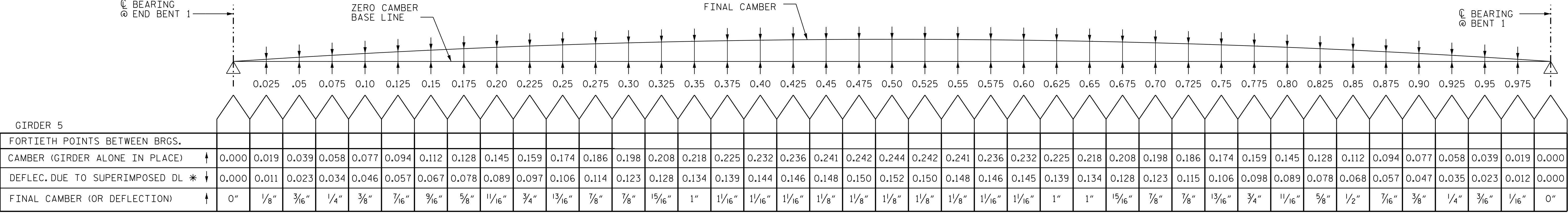
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* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES

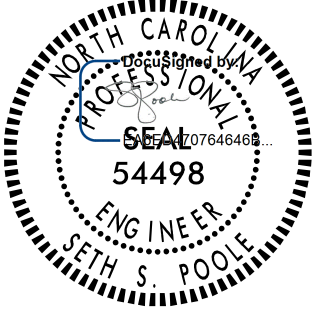
ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT "FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.

(+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.

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

SHEET 1 OF 2

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

					
4/23/2025					
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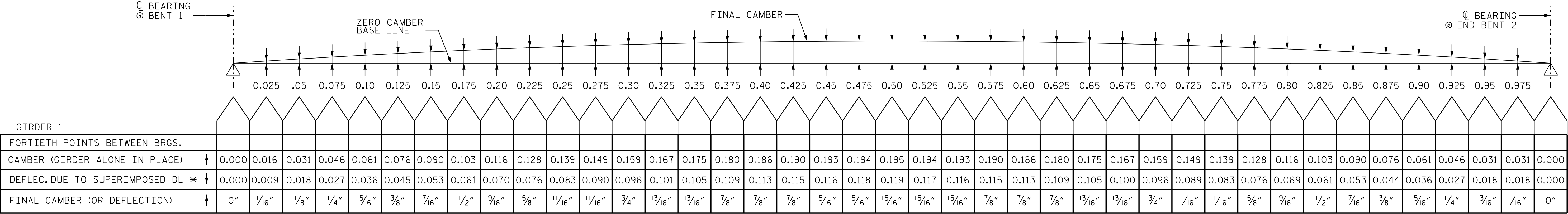
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DEAD LOAD DEFLECTIONS (SPAN A)					
(RIGHT LANE)					
REVISIONS					SHEET NO. S09-24
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS 41					

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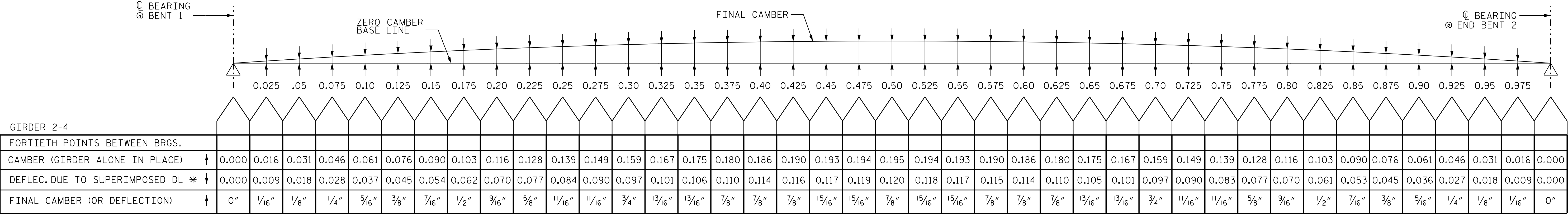
4/23/2025 2:06:36 AM jhagenbush

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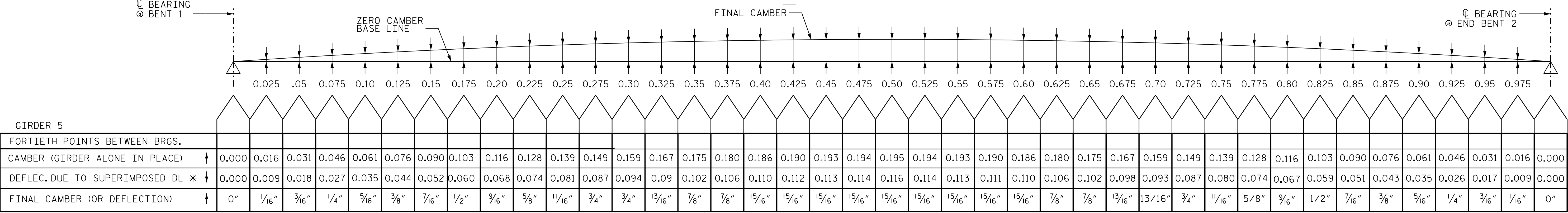
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* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

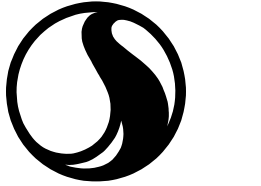
SCHEMATIC CAMBER ORDINATES

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: 427+46.16 -L1-

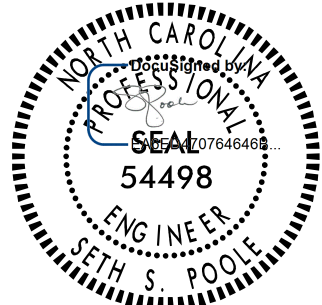
SHEET 2 OF 2



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DRAWN BY : S. SOK DATE : 03/19/19
CHECKED BY : S. S. POOLE DATE : 12/04/24

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



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DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD
DEFLECTIONS
(SPAN B)

(RIGHT LANE)

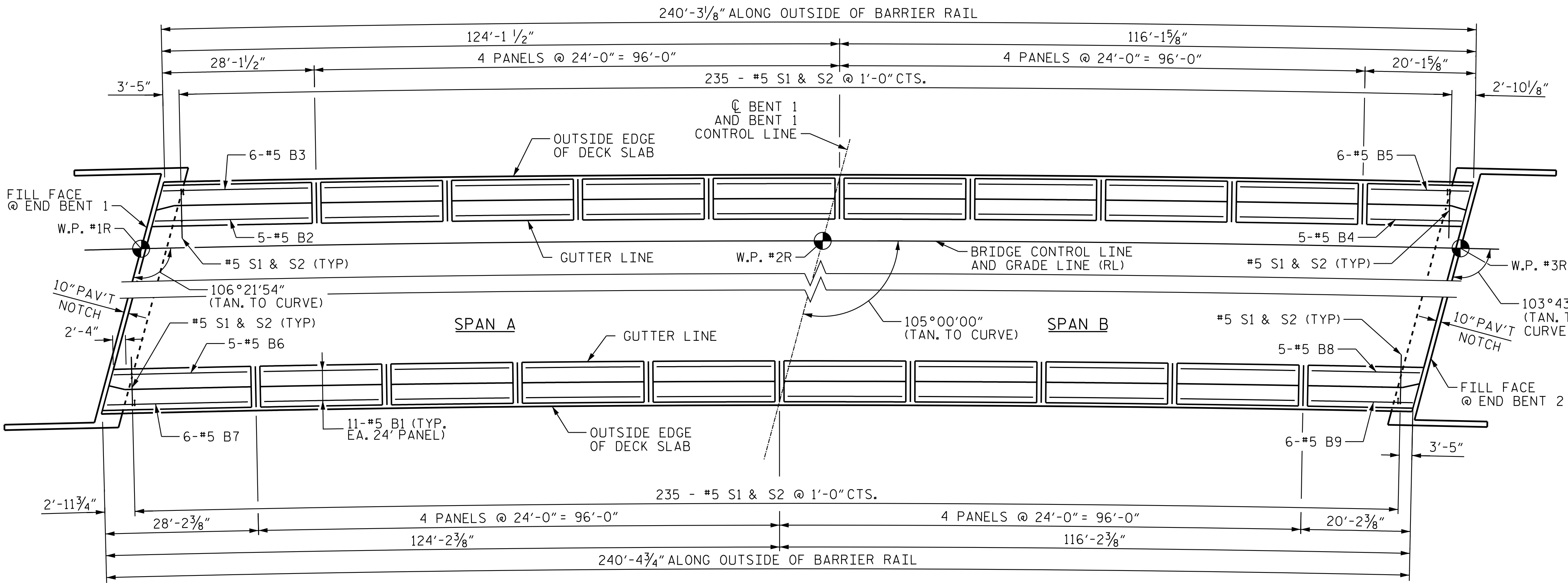
REVISIONS						SHEET NO. S09-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

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4/23/2025 2:06:43 AM jhagenbush

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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.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS, THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS.

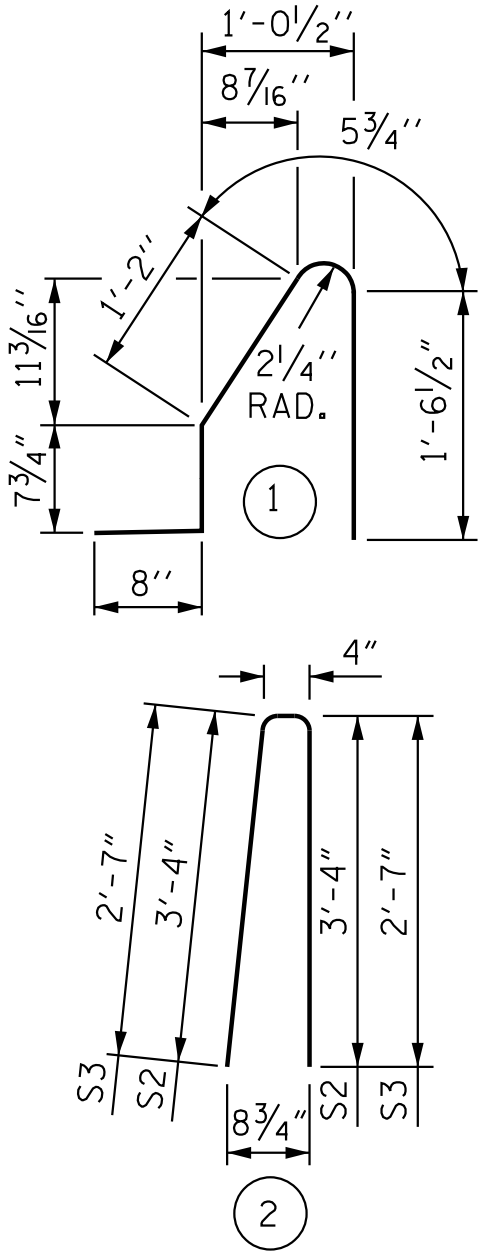
ALL CONCRETE SHALL BE CLASS AA.

① SEE "BARRIER RAIL PLAN" VIEW FOR SPACING.

(EB1) DENOTES END BENT 1

(EB2) DENOTES END BENT 2

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

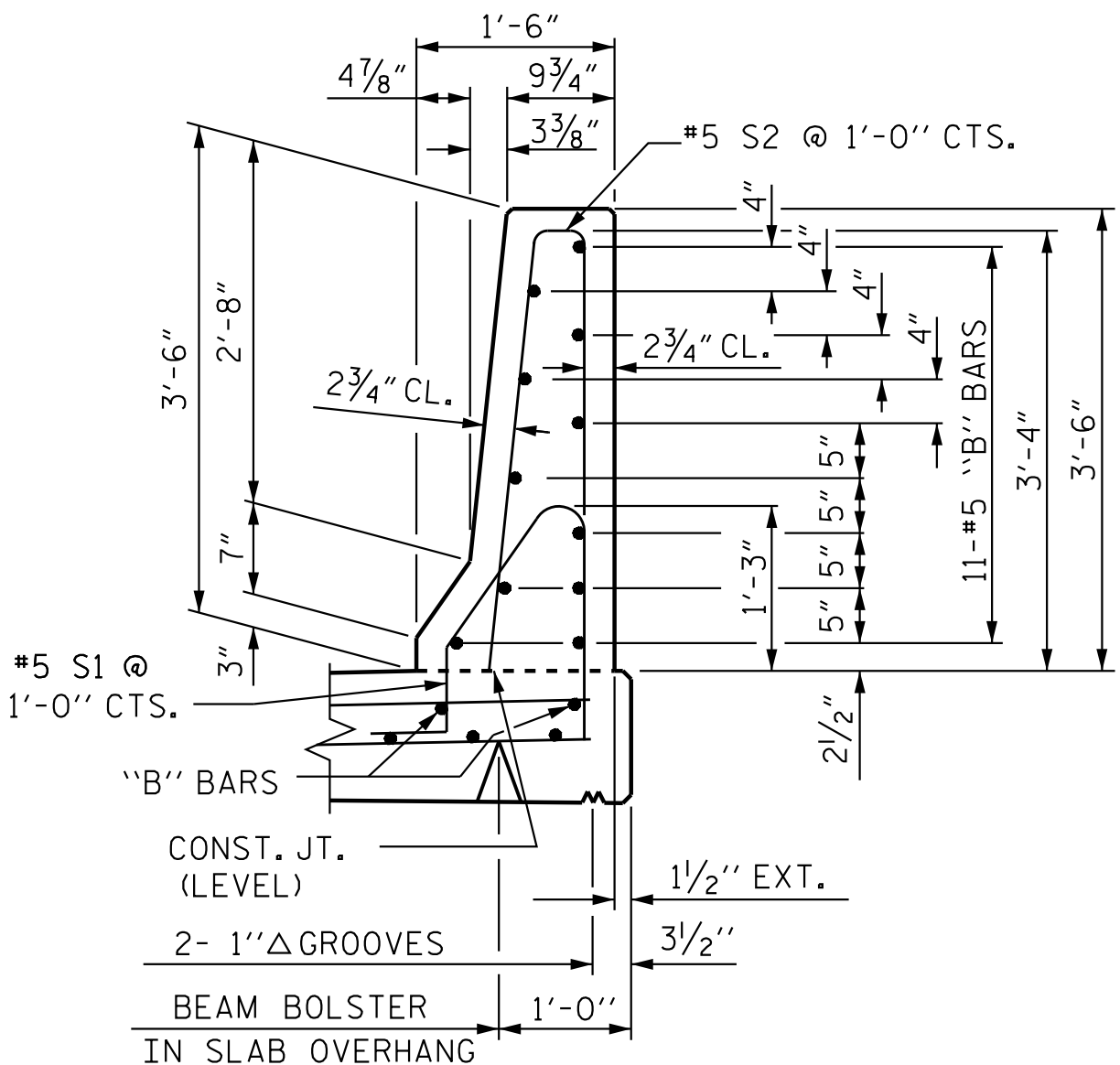
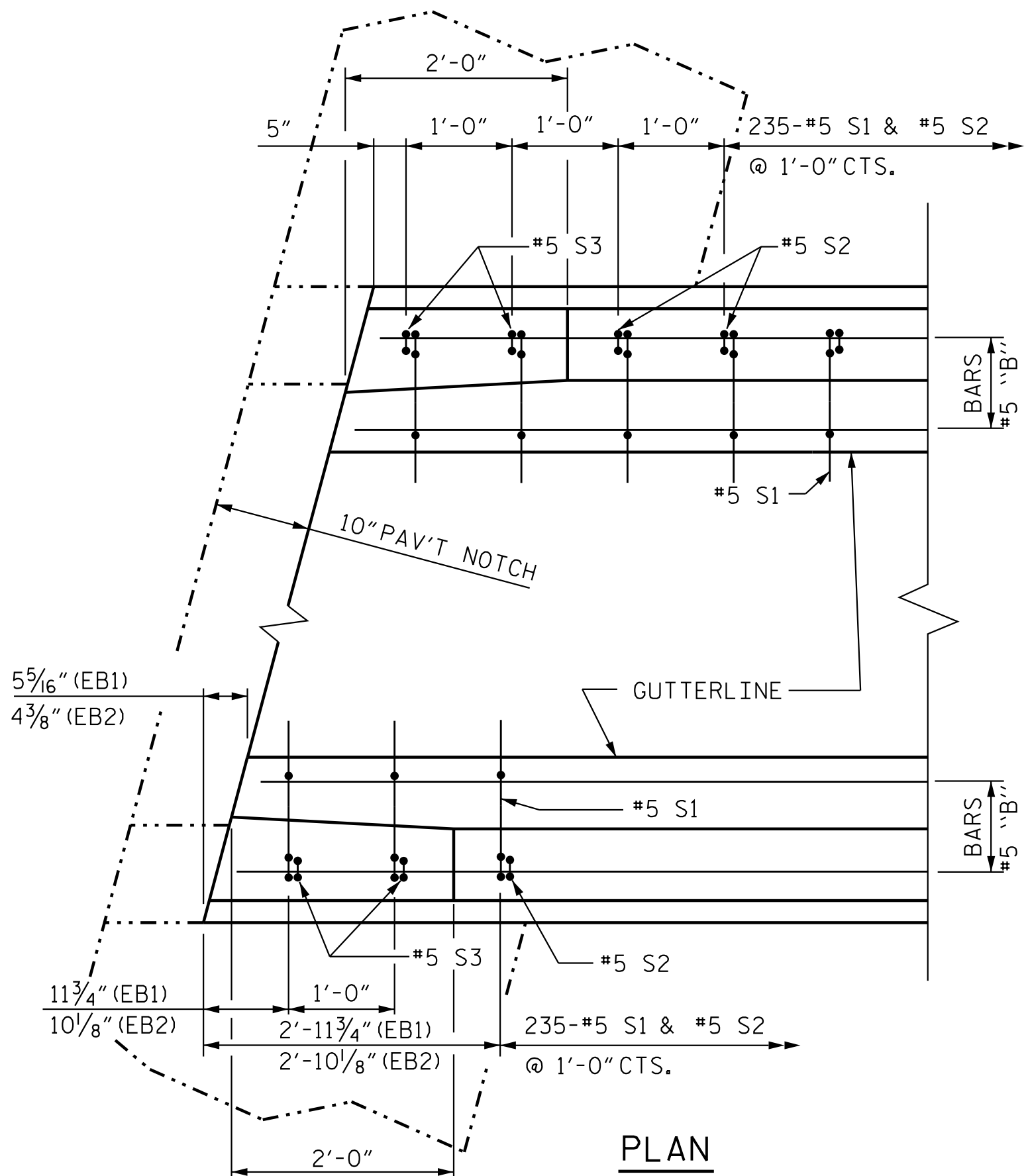
BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

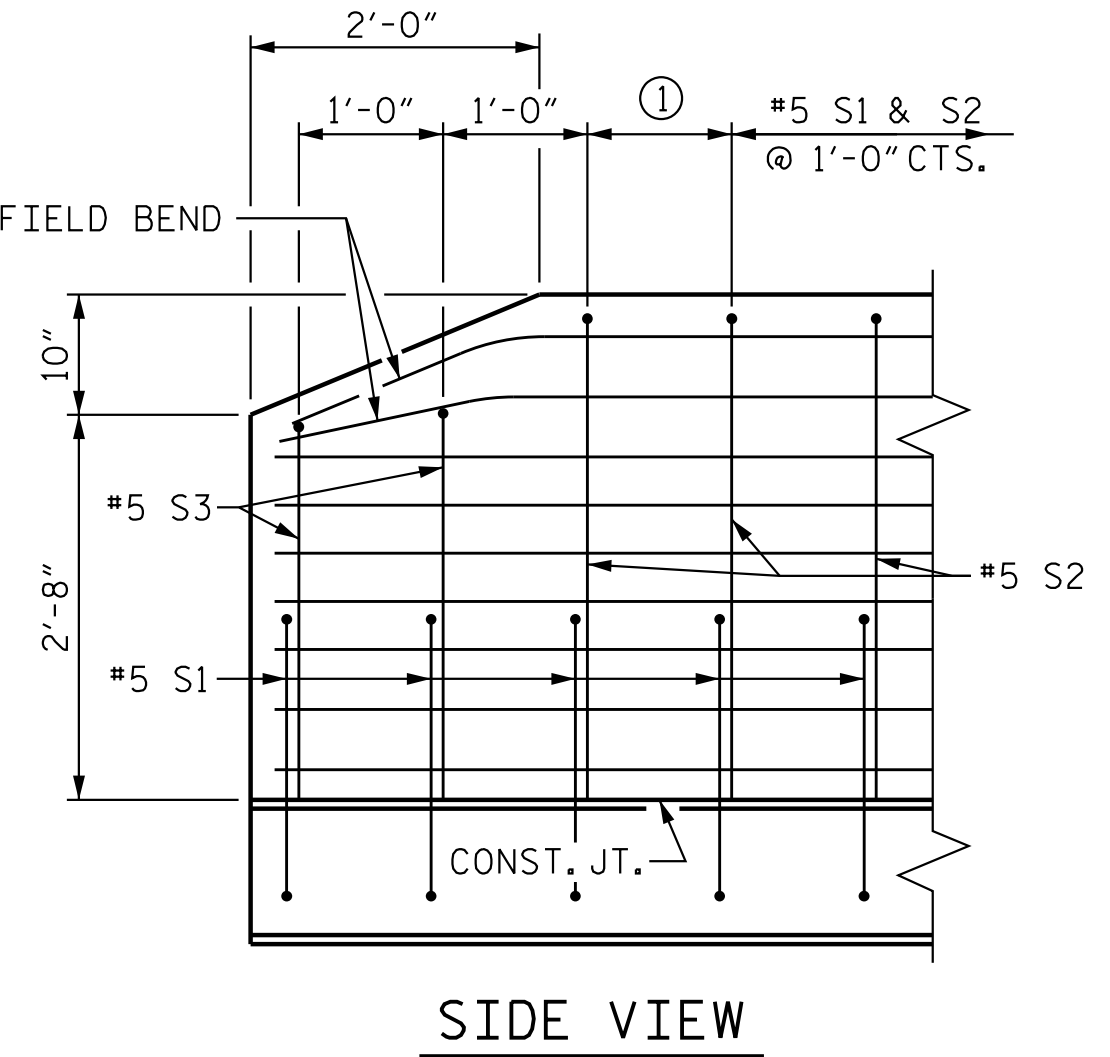
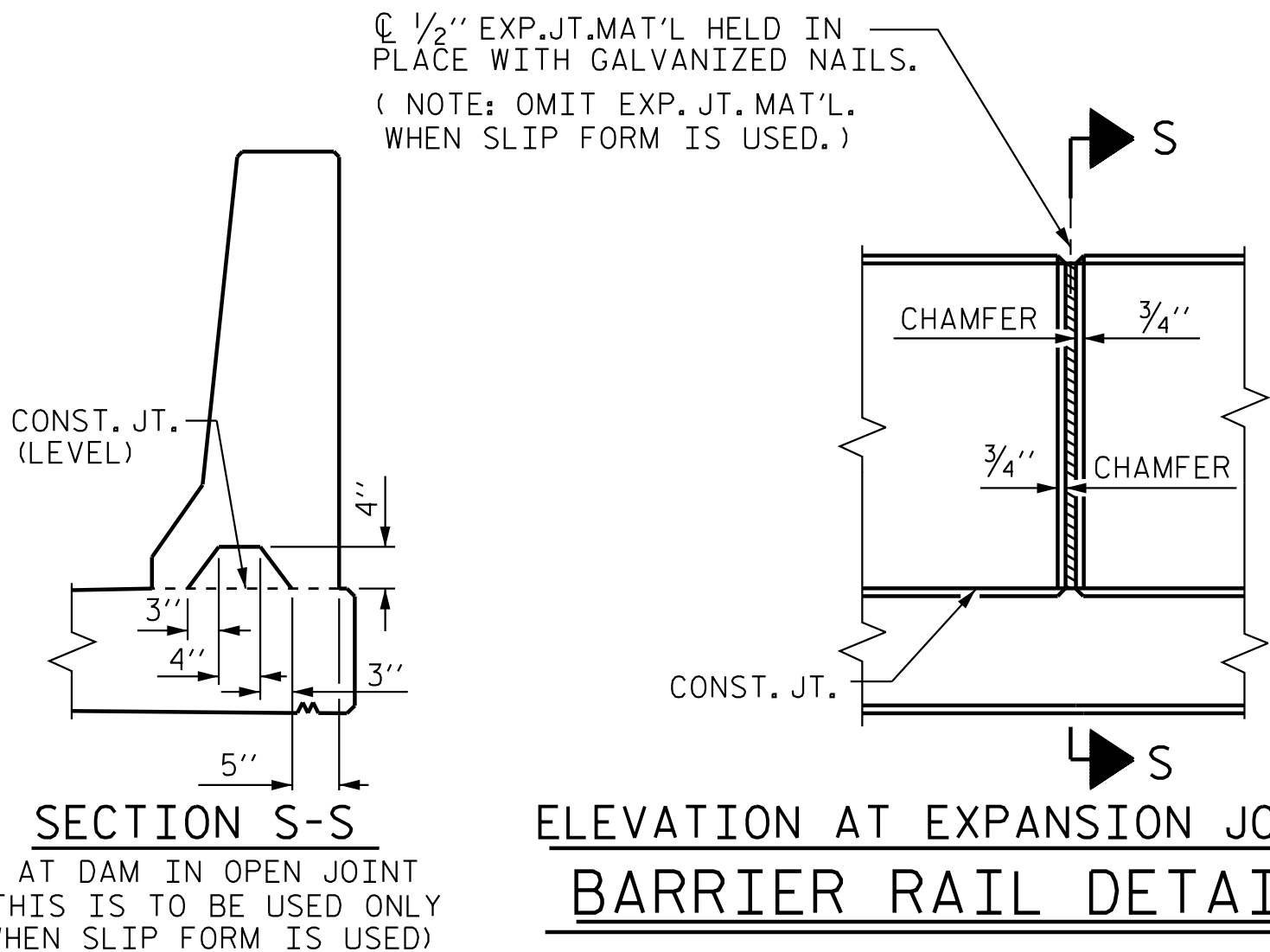
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	176	#5	STR	23'-6"	4,314
*B2	5	#5	STR	27'-11"	146
*B3	6	#5	STR	27'-8"	173
*B4	5	#5	STR	19'-3"	100
*B5	6	#5	STR	19'-6"	122
*B6	5	#5	STR	27'-3"	142
*B7	6	#5	STR	27'-7"	173
*B8	5	#5	STR	20'-0"	104
*B9	6	#5	STR	19'-9"	124
*S1	482	#5	1	4'-6"	2,262
*S2	474	#5	2	7'-0"	3,461
*S3	8	#5	2	5'-6"	46

* EPOXY COATED REINFORCING STEEL 11,167 LBS.
CLASS AA CONCRETE 65.3 CU. YDS.
CONCRETE BARRIER RAIL 480.7 LIN. FT.

BARRIER RAIL PLAN



SECTION THRU RAIL



END OF RAIL DETAILS

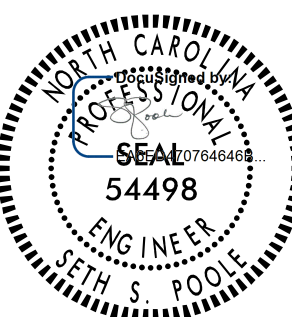
END BENT 1 SHOWN END BENT 2 TYP. BY ROTATION



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DRAWN BY : J. GUERRERO DATE : 08/24/18
CHECKED BY : S. S. POOLE DATE : 12/04/24

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



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

SHEET 1 OF 2

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

(RIGHT LANE)

REVISIONS			REVISIONS			SHEET NO. S09-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			

STD. NO. CBR1

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.)

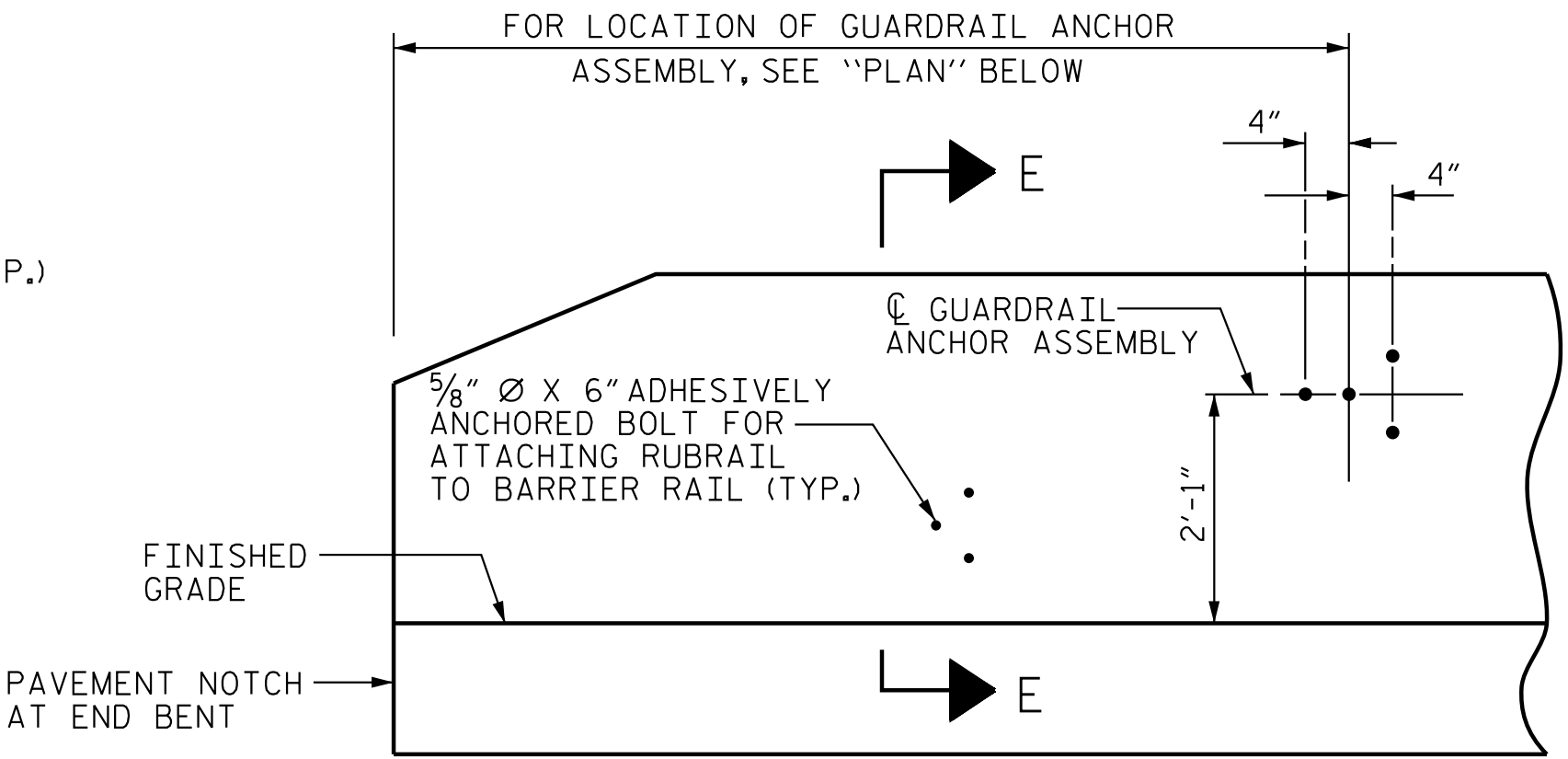
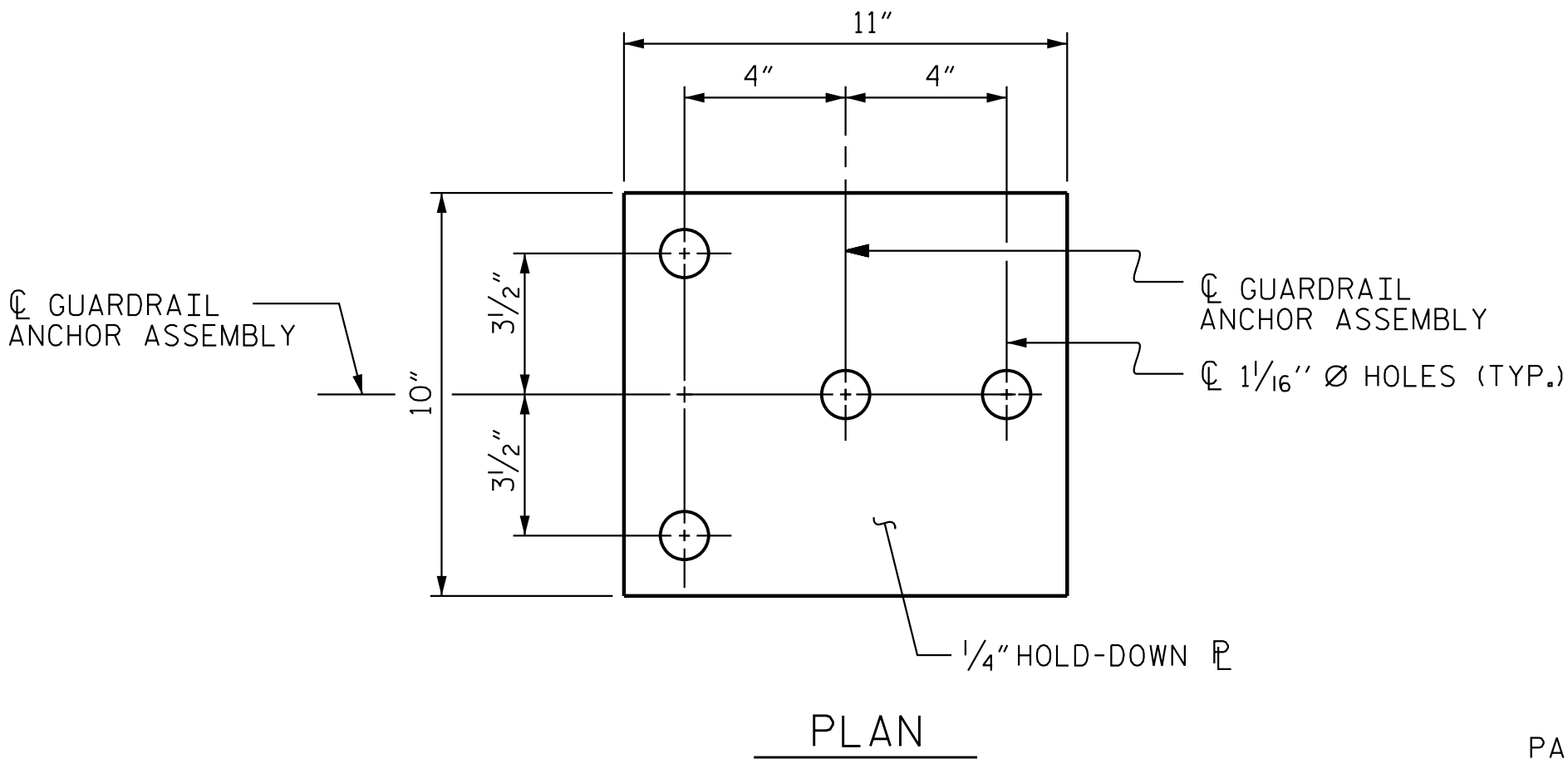
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

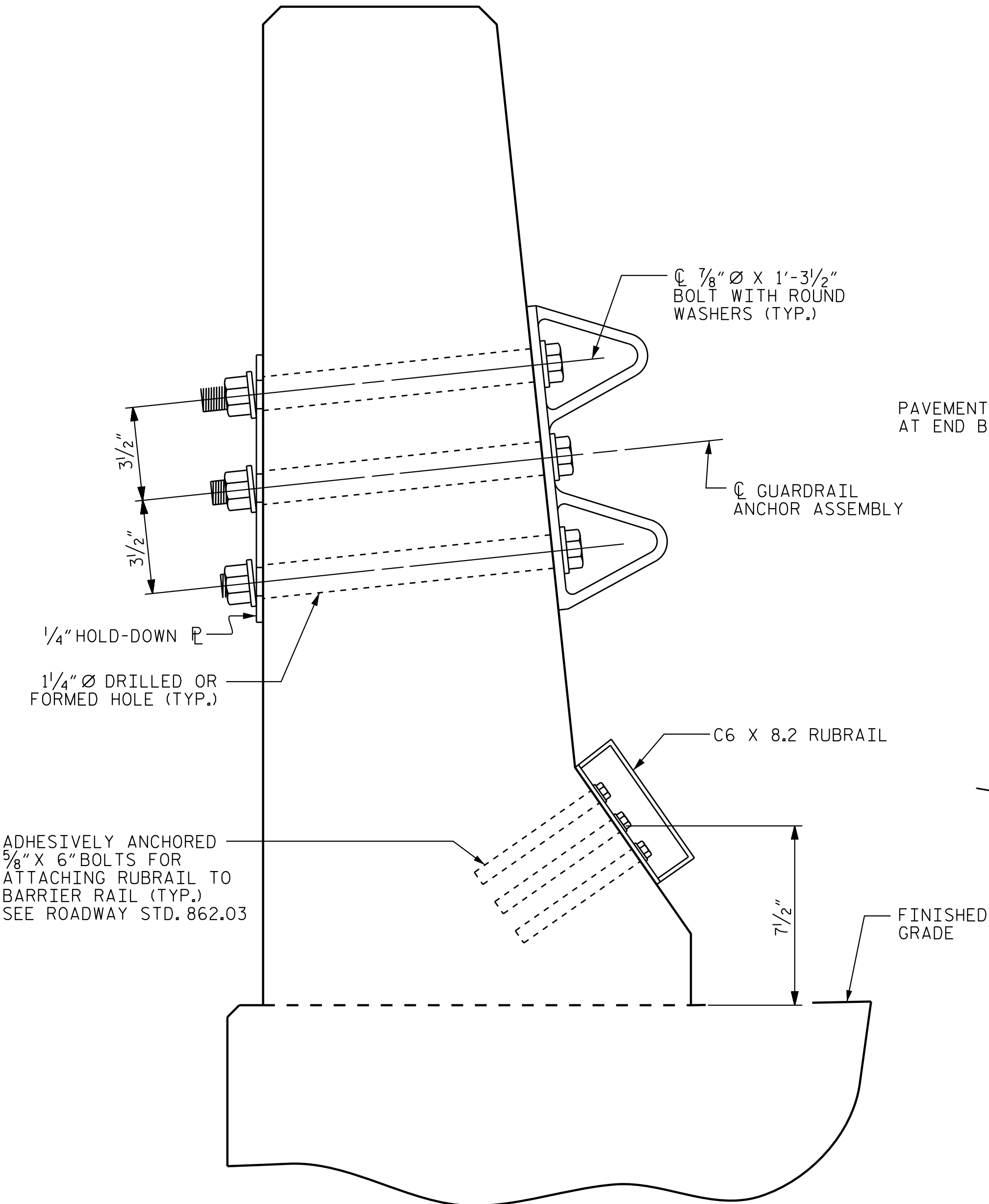
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

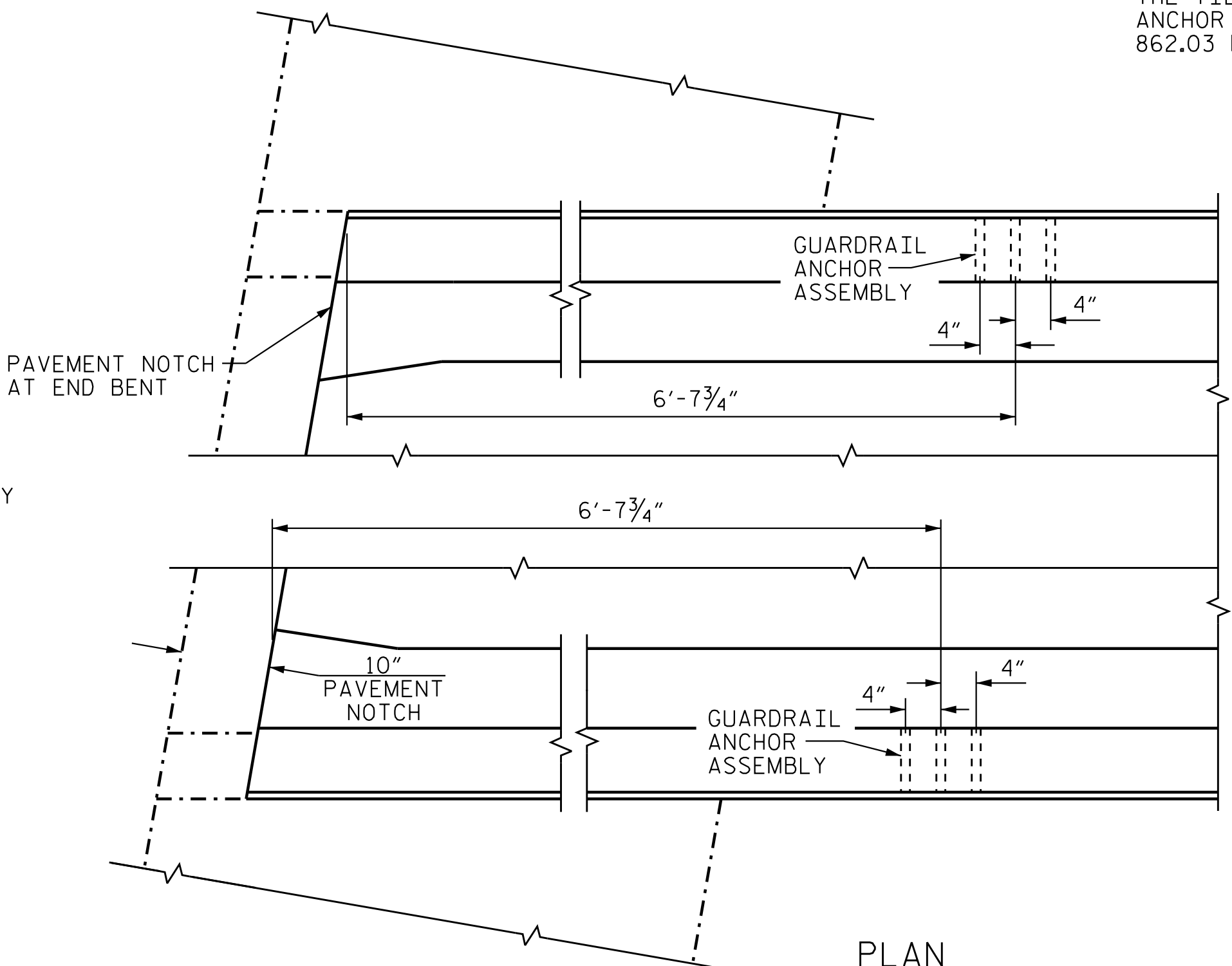
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR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



ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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

GUARDRAIL ANCHOR NOT REQUIRED AT END BENT 2 (LT.). SEE "SKETCH SHOWING POINTS OF ATTACHMENTS"

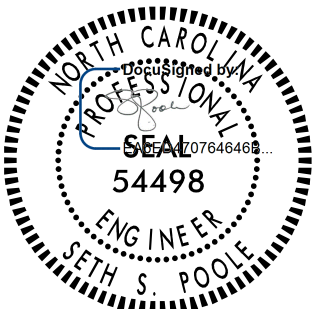


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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

SHEET 2 OF 2



4/23/2025

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL						
(RIGHT LANE)						
REVISIONS						SHEET NO. S09-27
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2			4			

STD. NO. GRA2



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ASSEMBLED BY : G. NGUYEN
CHECKED BY : S. S. POOLE

DATE : 08/22/18
DATE : 01/13/25

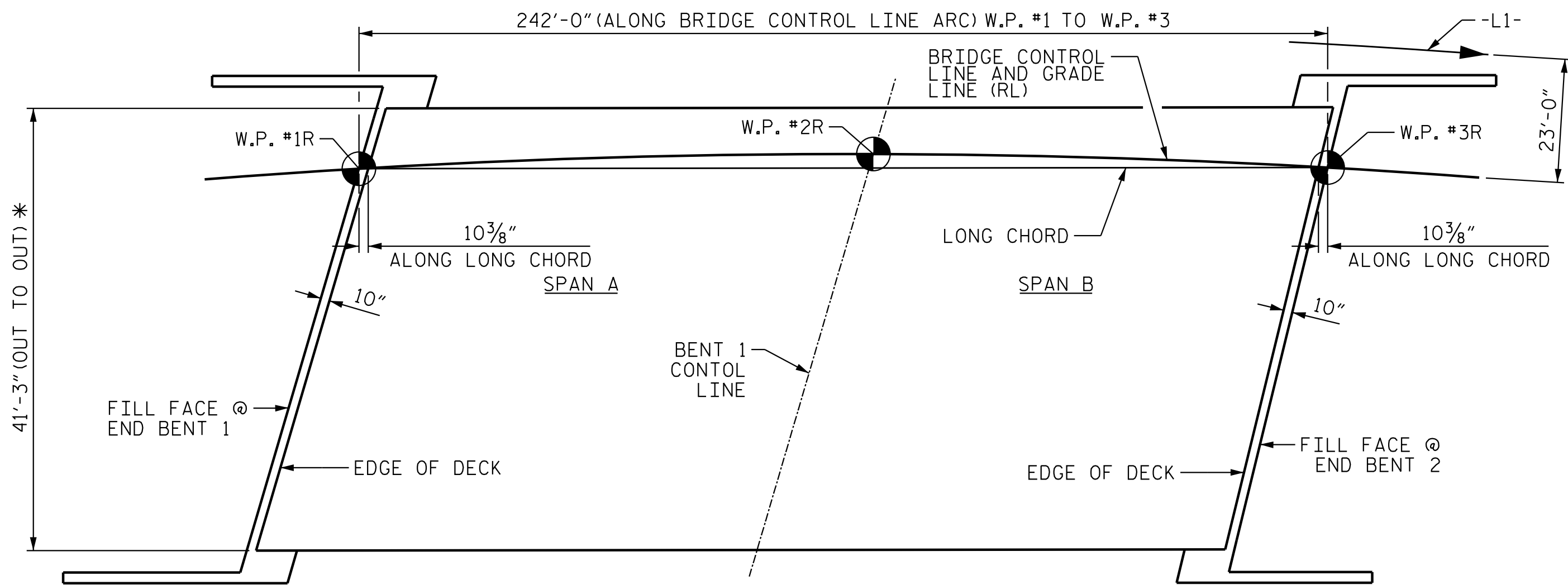
DRAWN BY : TLA 5/06
CHECKED BY : GM 5/06

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

MAA/GM
MAA/GM
MAA/THC

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ENGINEER
OF RECORD:

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



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4/29/2025 3:33:53 PM jgeile

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PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
P1	18.94
P2	18.70
P3	18.45
P4	18.21
P5	17.96
P6	17.72
P7	17.47
P8	17.23

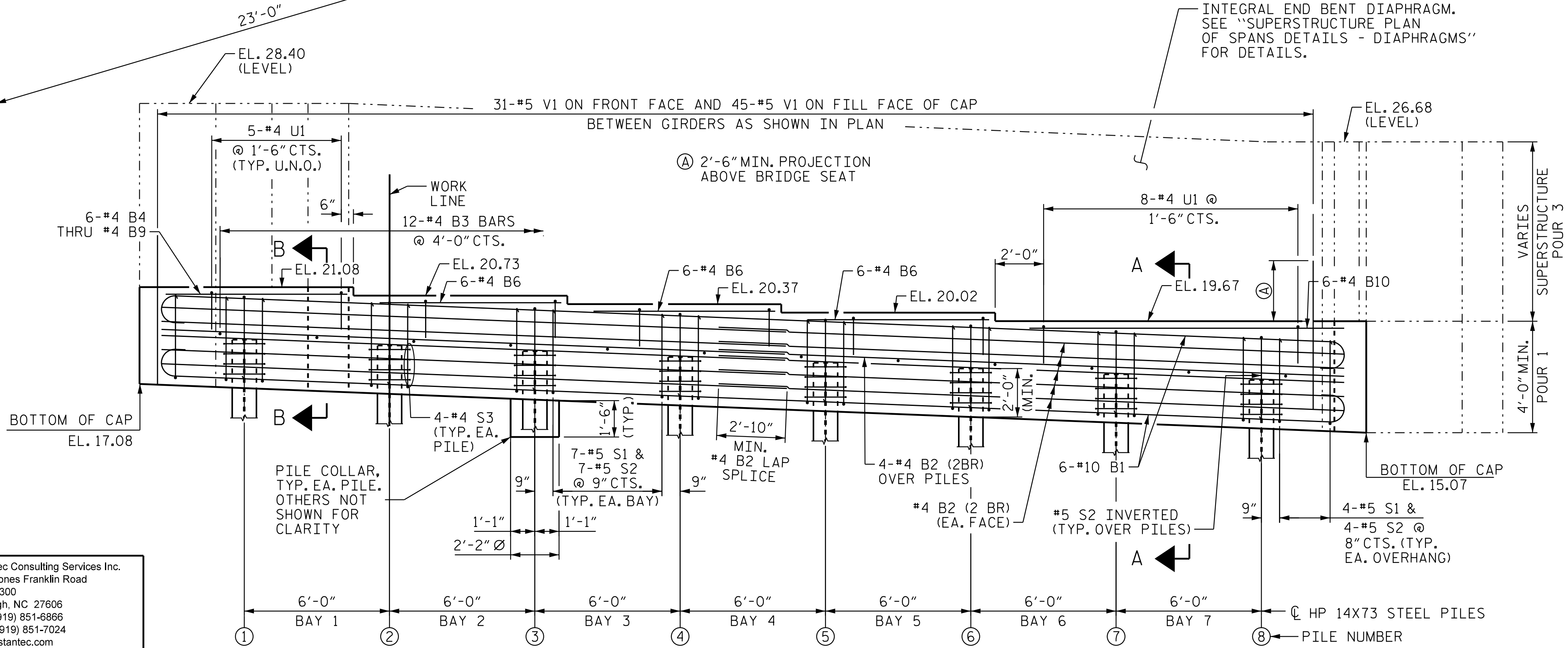
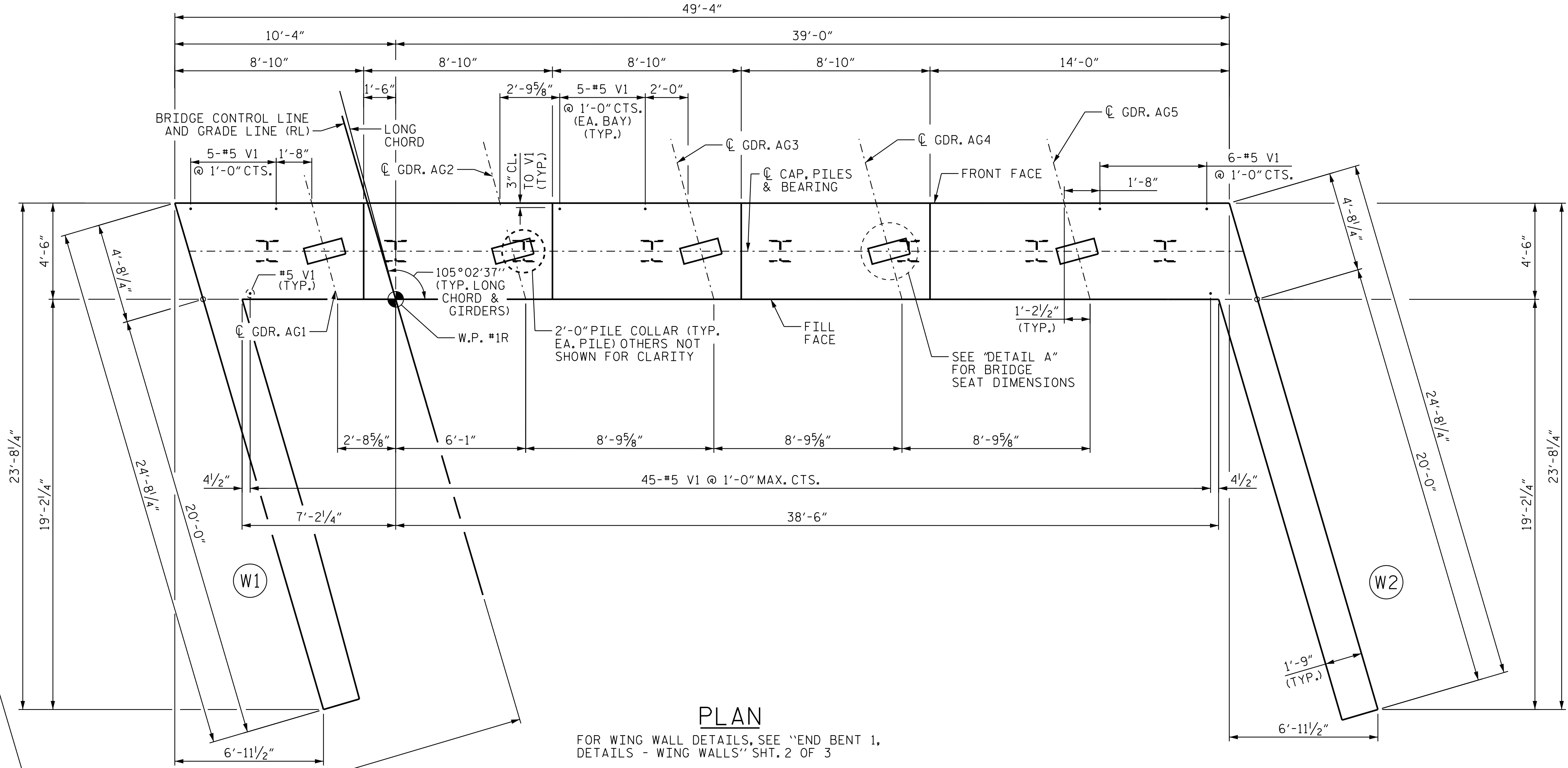


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DRAWN BY : G. NGUYEN DATE : 08/15/18

CHECKED BY : S. S. POOLE DATE : 12/04/24

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

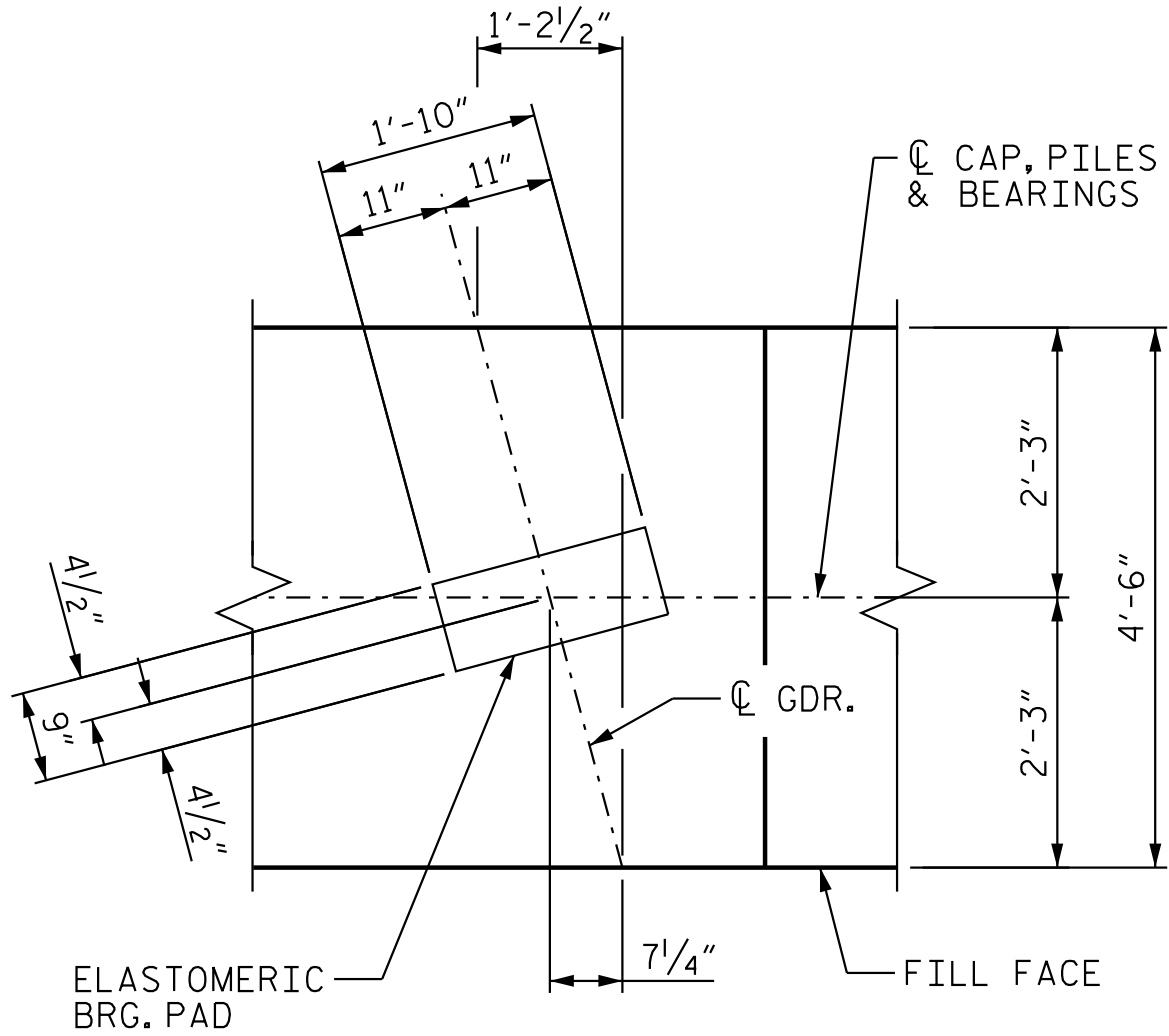


NOTES

- (2BR) DENOTES 2 BAR RUN
- FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 3.
- USE CLASS AA CONCRETE FOR END BENT AND WINGWALL.
- U.N.O. DENOTES UNLESS DENOTED OTHERWISE.
- 3"CL. TO ALL V1 BARS.

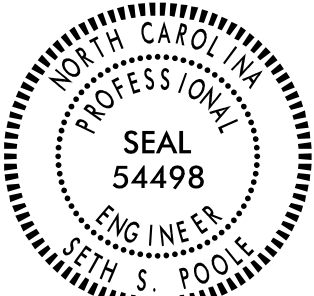
INSTALL THE 6" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS FOR ADDITIONAL DETAILS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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



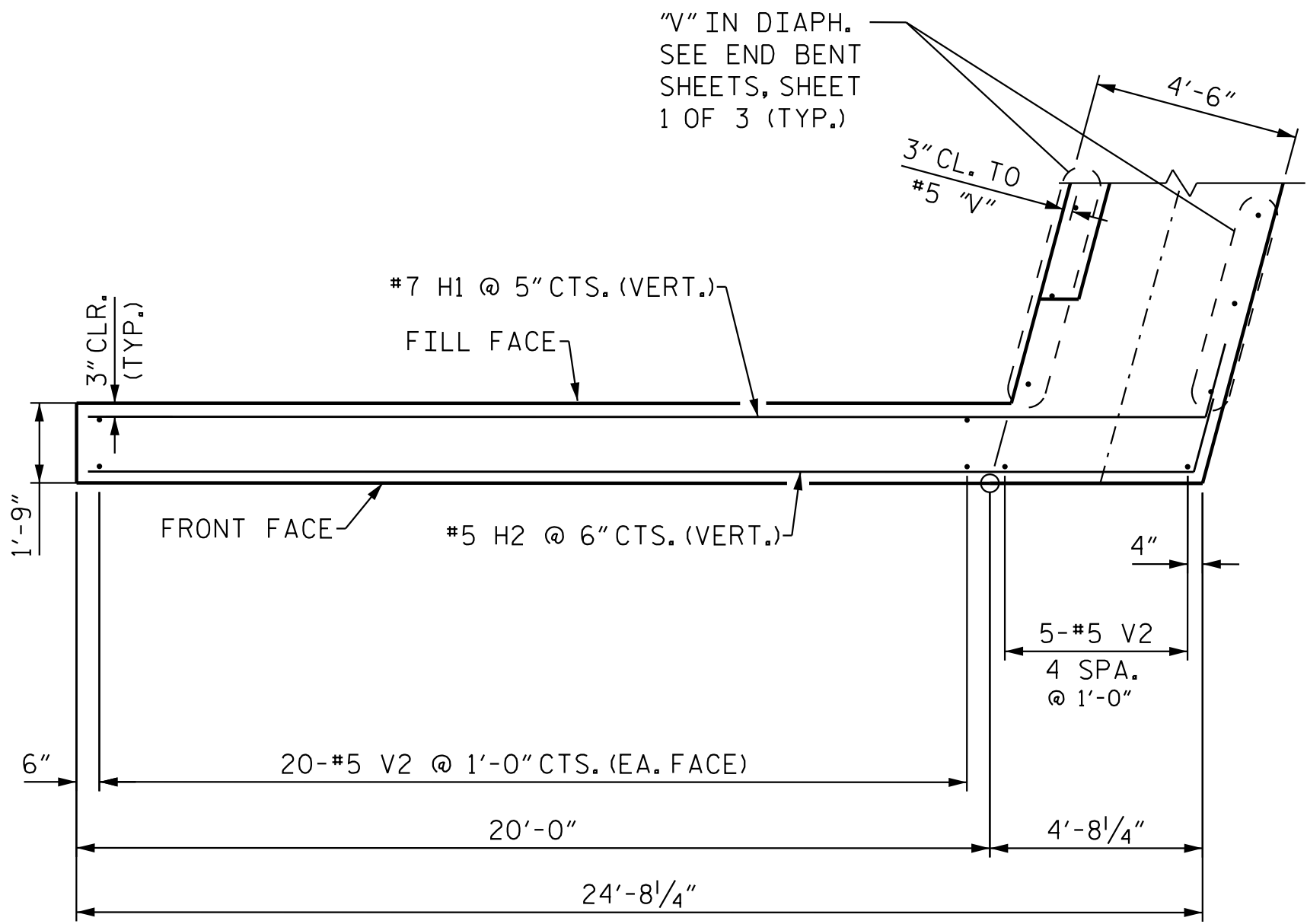
PROJECT NO. R-3300A
PENDER COUNTY
STATION: 427+46.16 -L1-

SHEET 1 OF 3

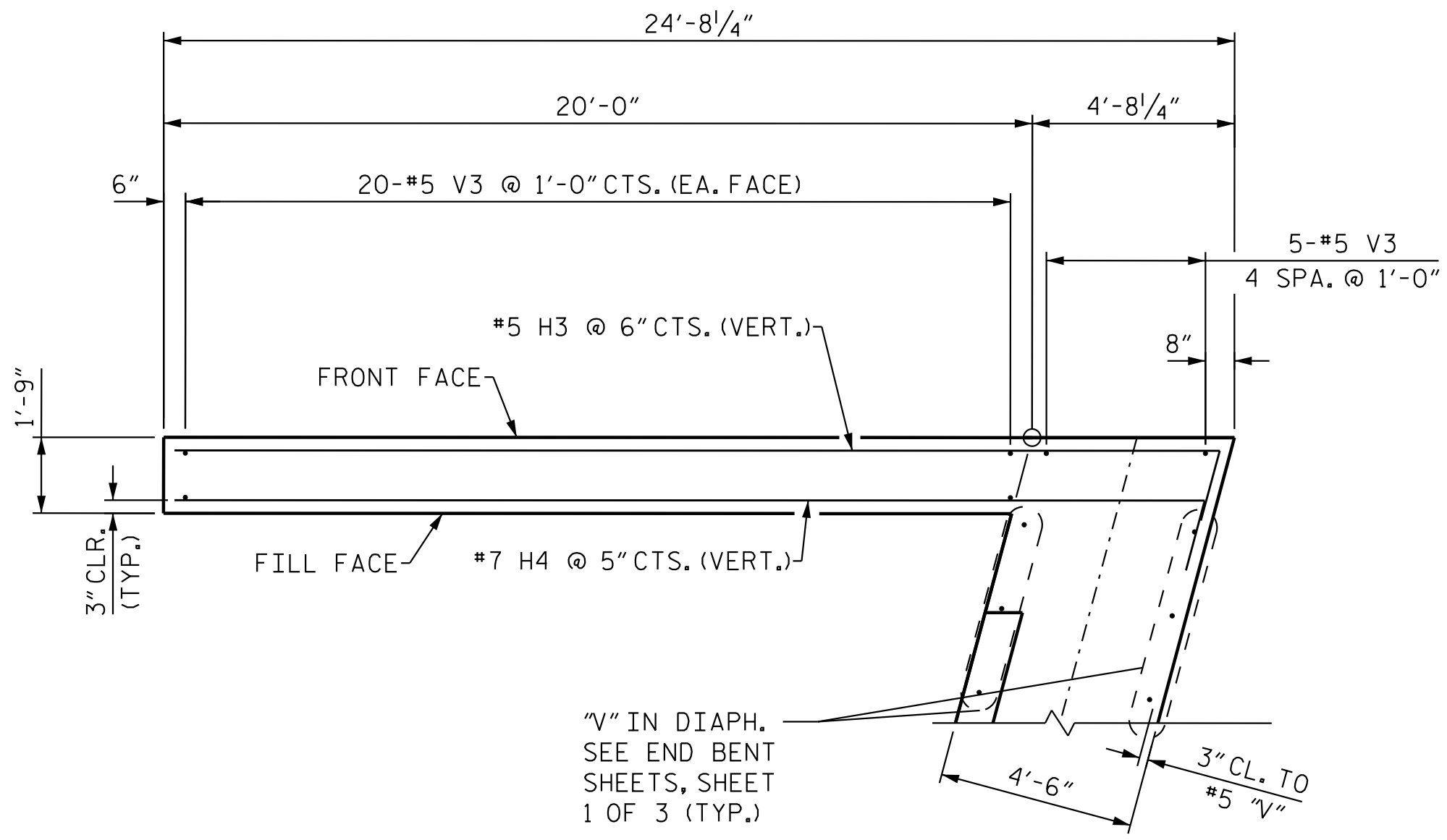


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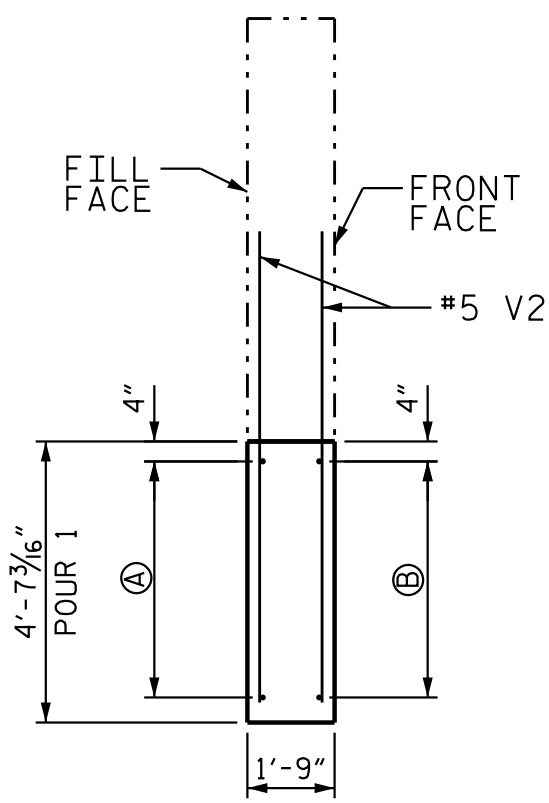
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
(RIGHT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S09-30					TOTAL SHEETS 41



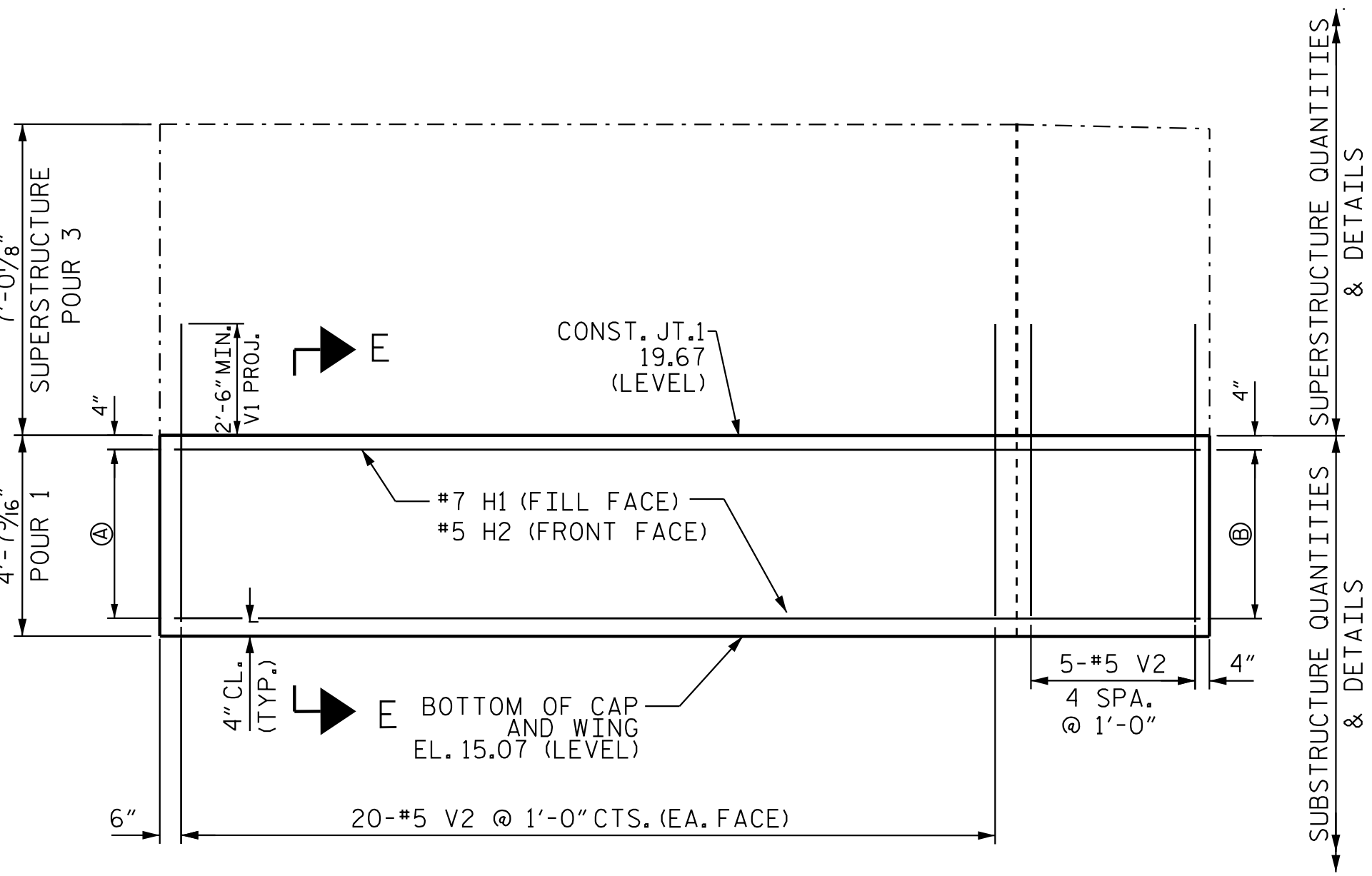
W2 PLAN OF RIGHT WING



W1 PLAN OF LEFT WING

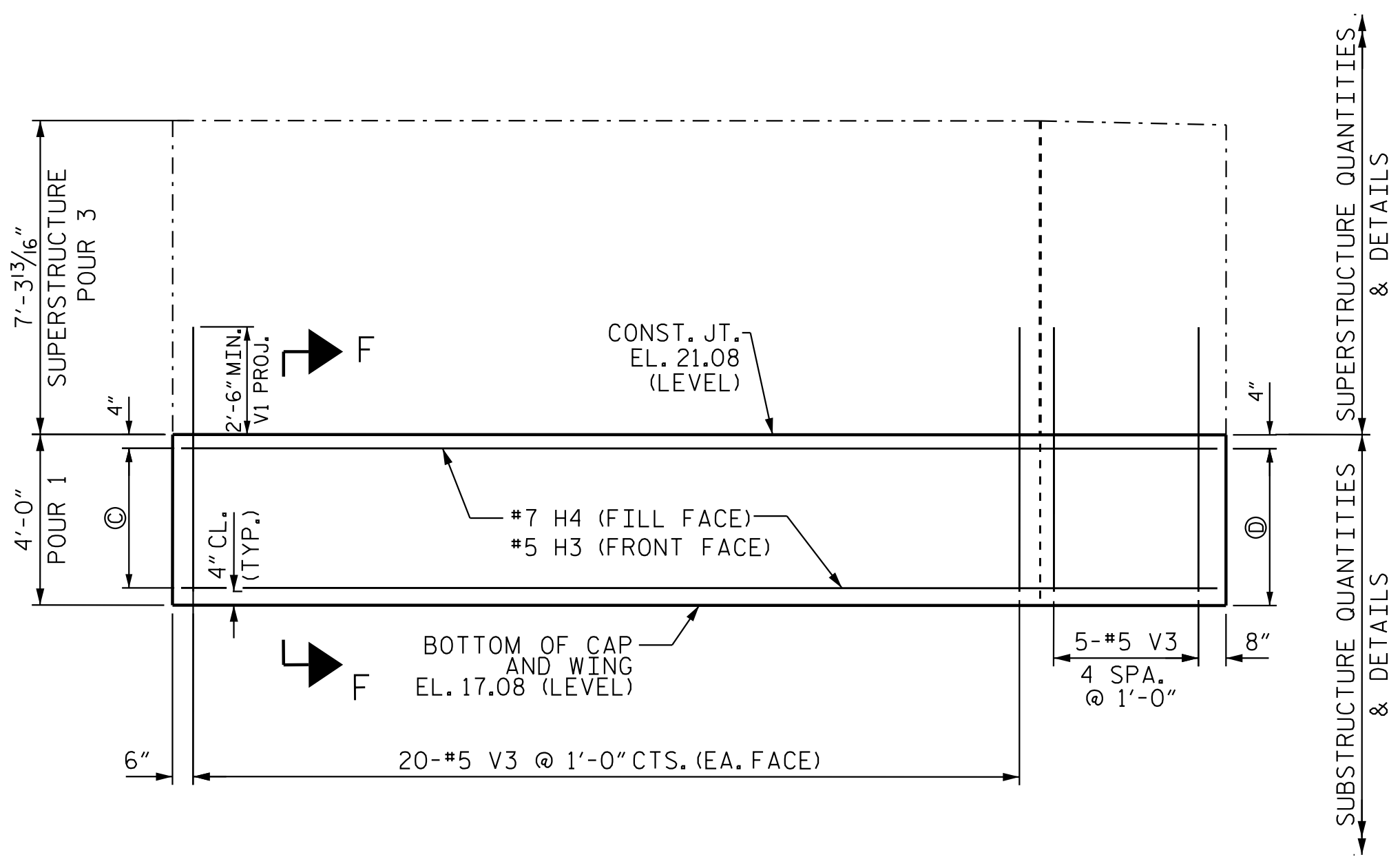


SECTION E-E



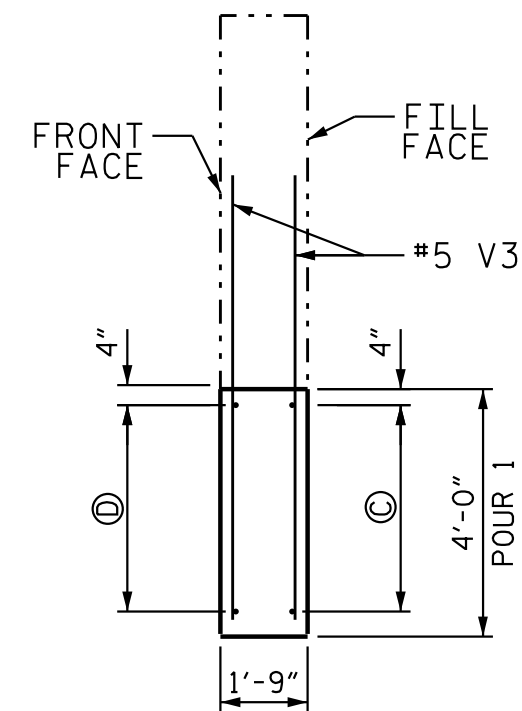
W2 ELEVATION OF RIGHT WING

- ① 10-#7 H1 @ 5" CTS. (FILL FACE)
② 9-#5 H2 @ 6" CTS. (FRONT FACE)



W1 ELEVATION OF LEFT WING

- ③ 9-#7 H4 @ 5" CTS. (FILL FACE)
④ 8-#5 H3 @ 6" CTS. (FRONT FACE)



SECTION F-F

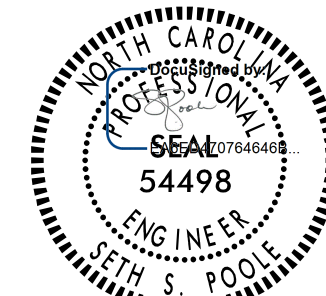
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SHEET 2 OF 3



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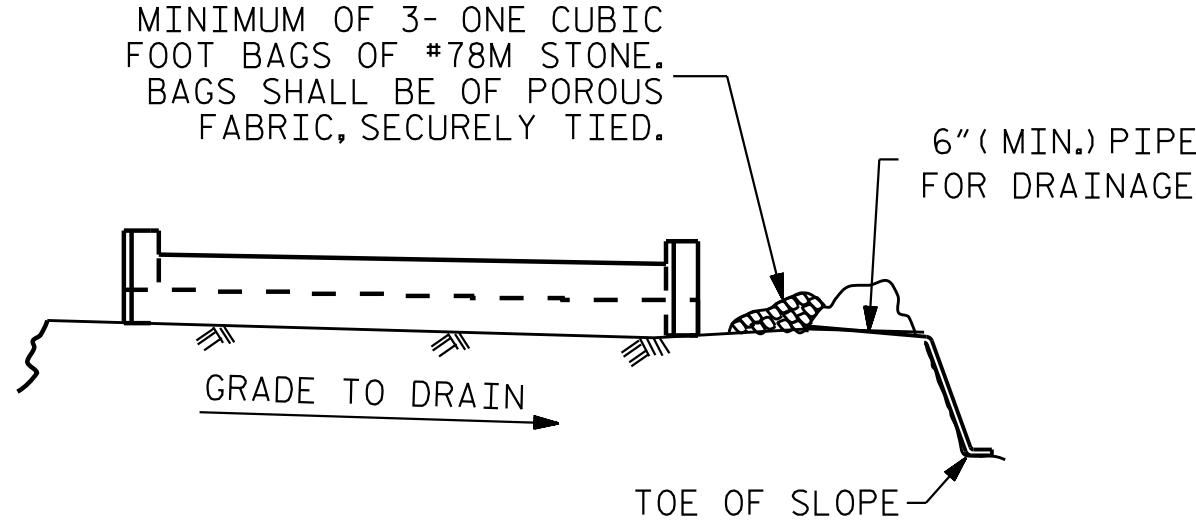
DRAWN BY : J. GUERRERO DATE : 10/24/18
CHECKED BY : S. S. POOLE DATE : 12/04/24
DESIGN ENGINEER OF RECORD : S. S. POOLE DATE : 04/23/25



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2			4			

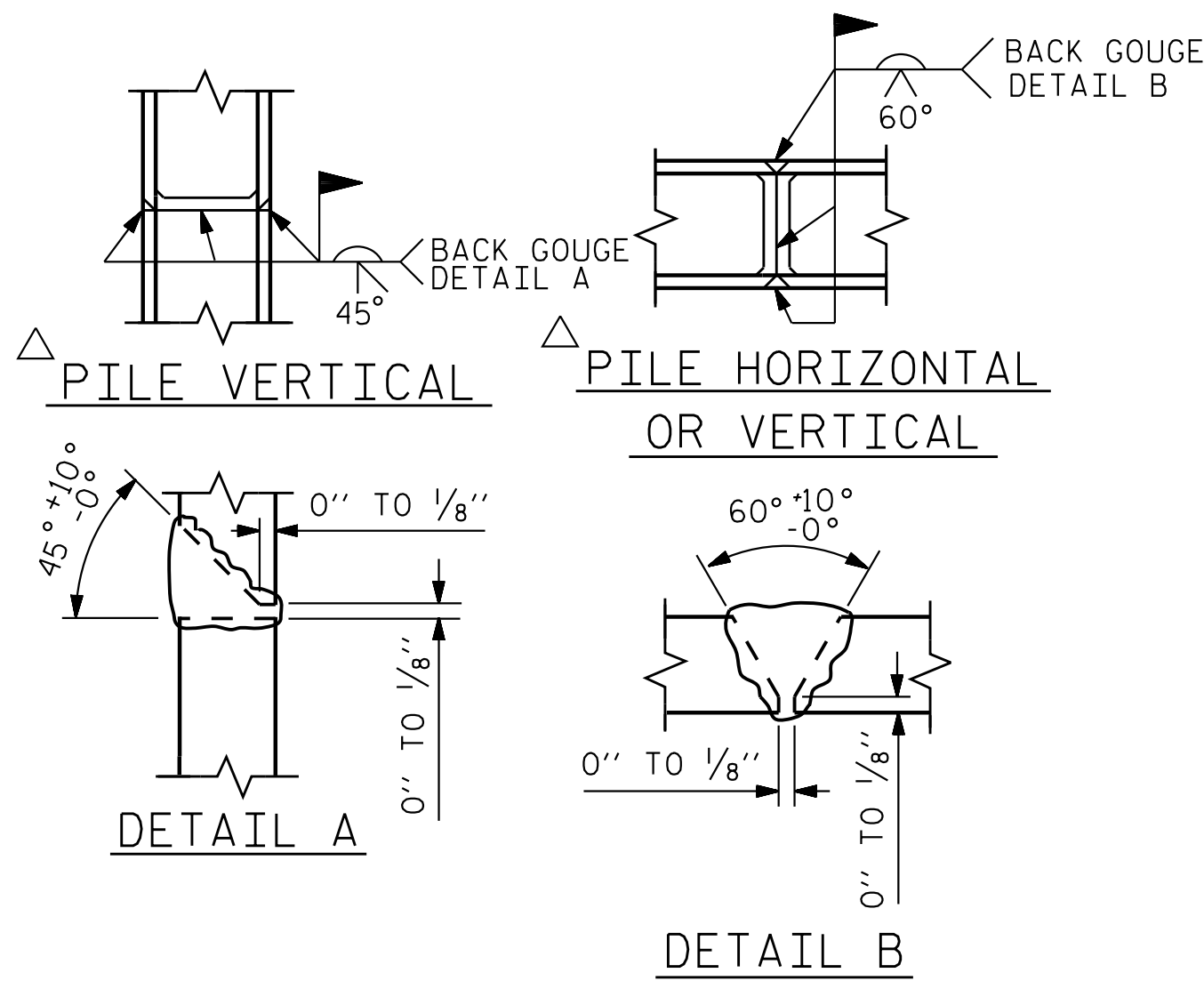


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

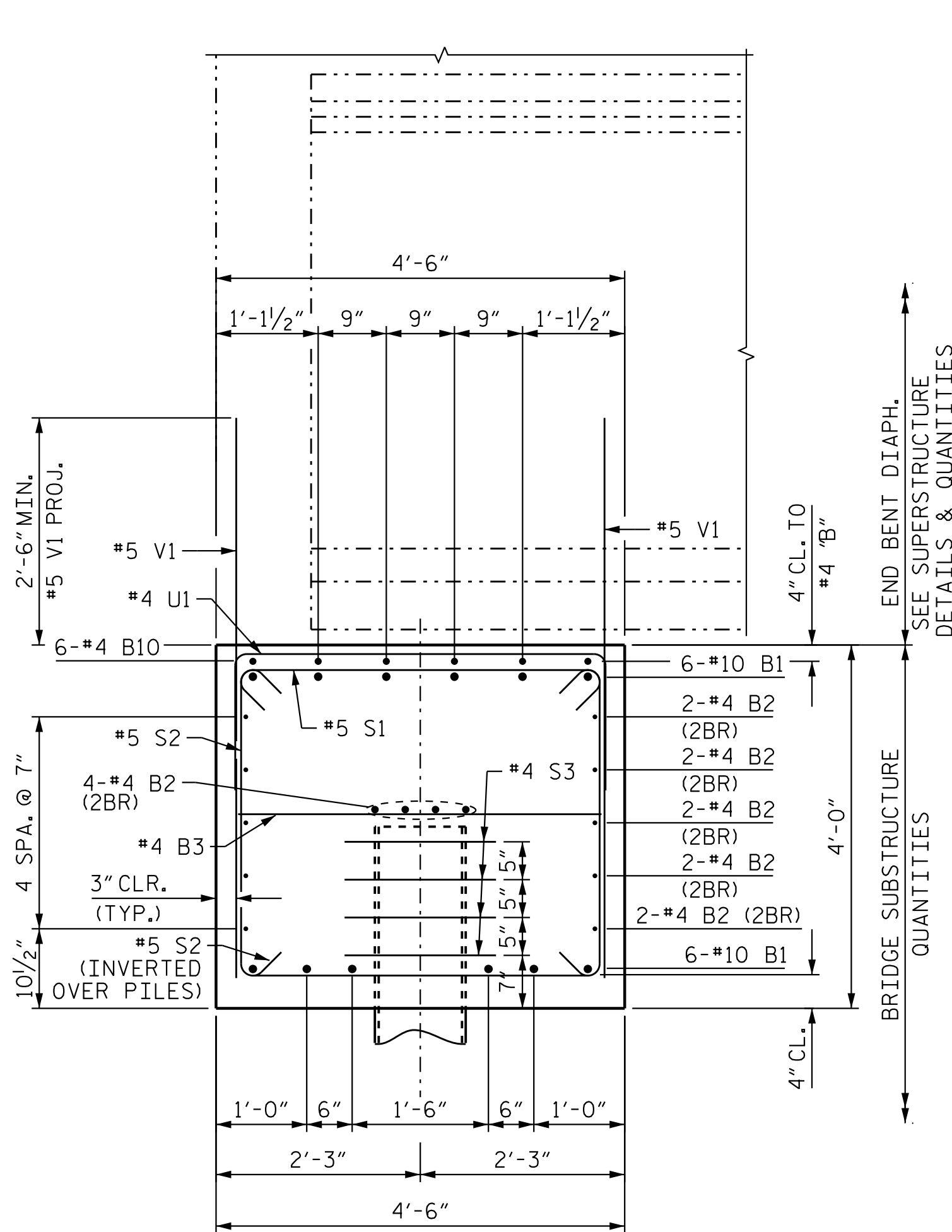
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



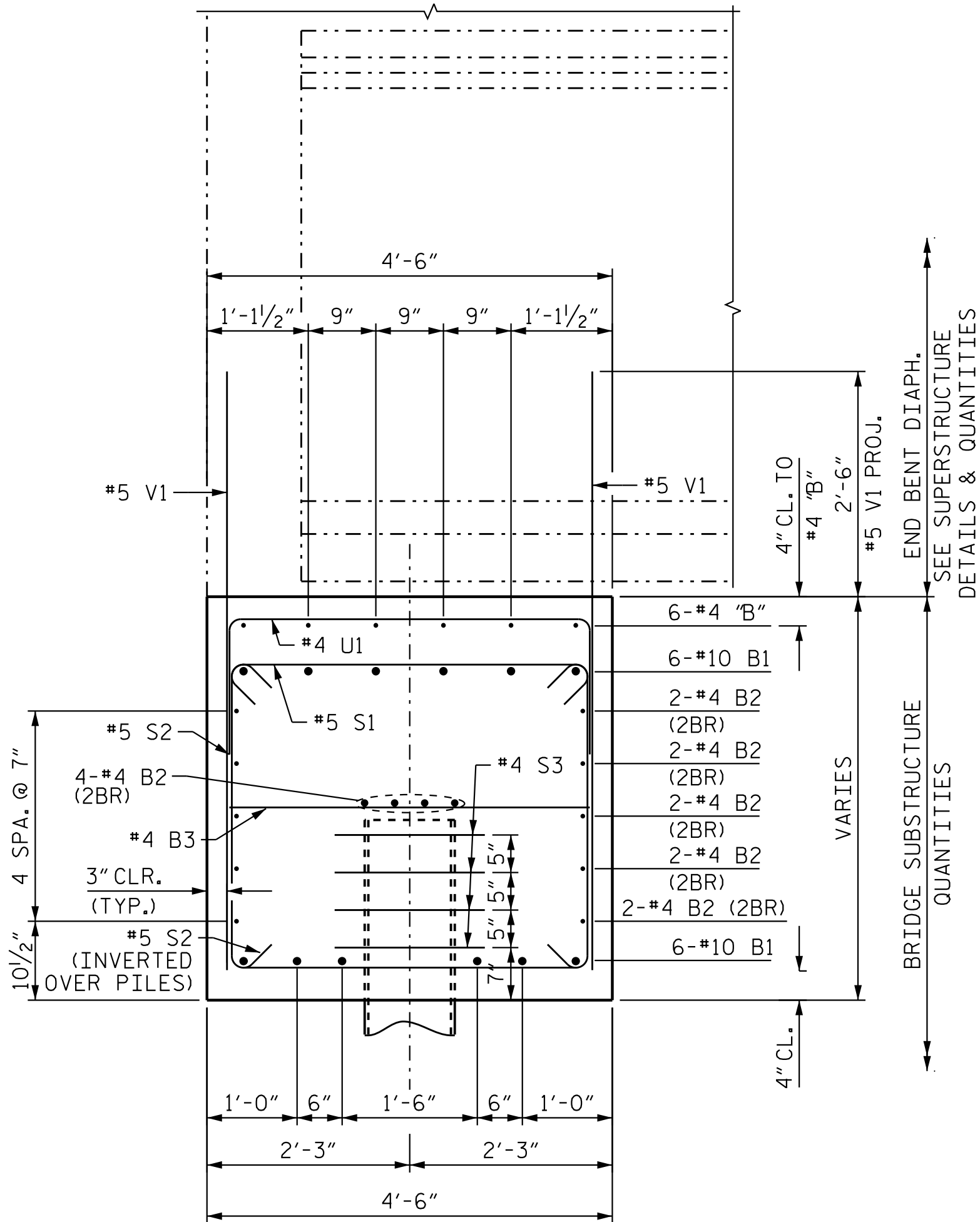
POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



SECTION A-A

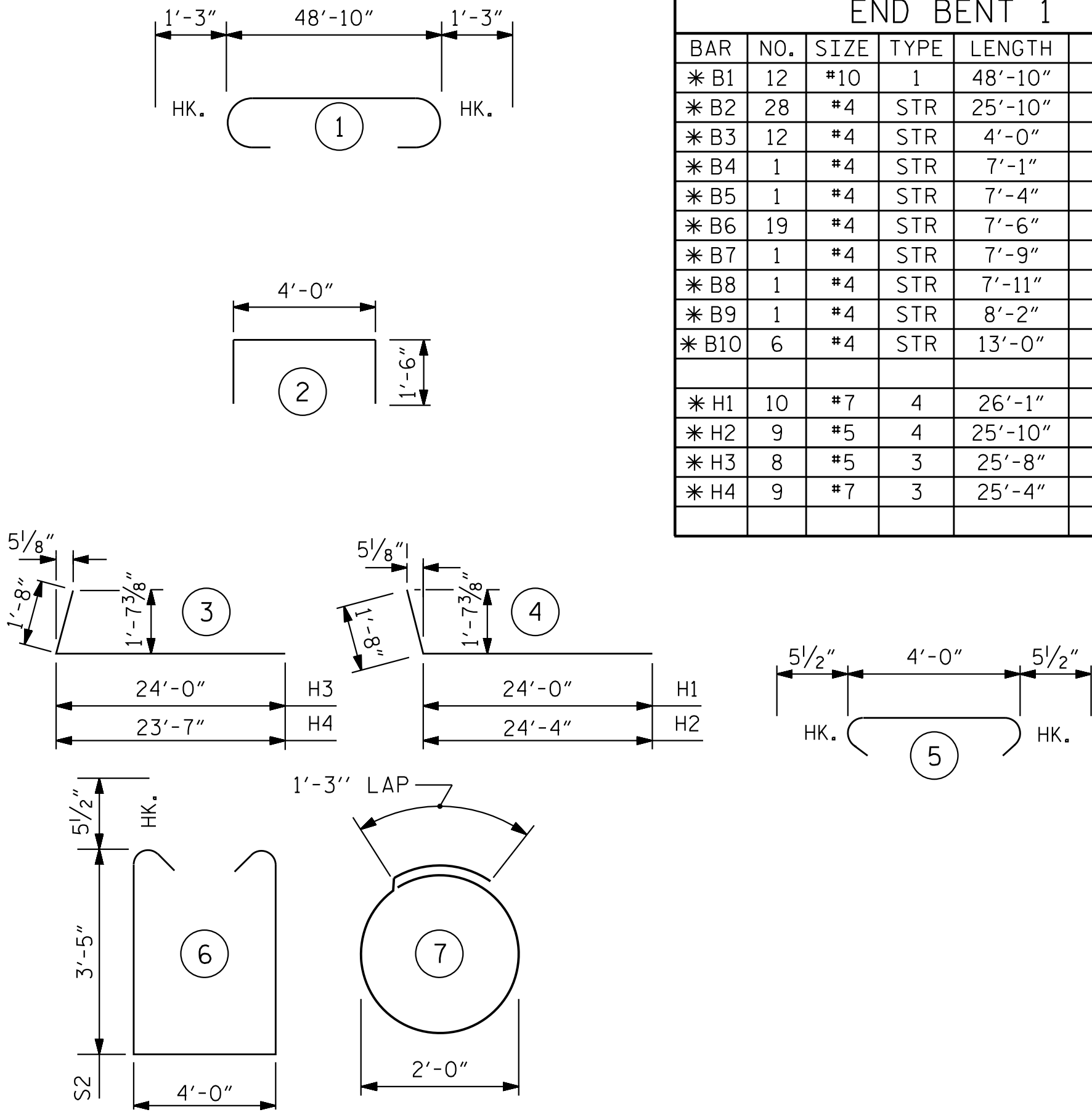
SEE "END BENT 1" SHEET 1 OF 3



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	12	#10	1	48'-10"	2,522
*B2	28	#4	STR	25'-10"	484
*B3	12	#4	STR	4'-0"	33
*B4	1	#4	STR	7'-1"	5
*B5	1	#4	STR	7'-4"	5
*B6	19	#4	STR	7'-6"	96
*B7	1	#4	STR	7'-9"	6
*B8	1	#4	STR	7'-11"	6
*B9	1	#4	STR	8'-2"	6
*B10	6	#4	STR	13'-0"	53
*H1	10	#7	4	26'-1"	534
*H2	9	#5	4	25'-10"	243
*H3	8	#5	3	25'-8"	215
*H4	9	#7	3	25'-4"	467

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*S1	57	#5	5	4'-11"	293
*S2	65	#5	6	11'-9"	797
*S3	32	#5	7	7'-7"	254
*U1	28	#4	2	7'-0"	131
*V1	166	#4	STR	7'-0"	1,212
*EPOXY COATED REINFORCING STEEL					LBS. 7,362

CLASS AA CONCRETE BREAKDOWN:

POUR #1: CAP, COLLARS, LOWER WINGS, ETC.	C.Y. 47.8
CLASS AA CONCRETE TOTAL	C.Y. 47.8

NOTES

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

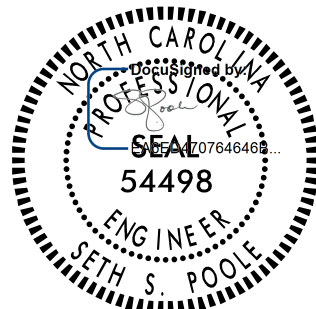
THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCLUDING THE BEARING AREA & TOP OF CAP OUTSIDE THE LIMITS OF THE SUPERSTRUCTURE, SHALL BE RAKED TO A DEPTH OF 1/4".

(2BR) DENOTES 2 BAR RUN.

SET #5 V1 BARS 4" CL. (MIN.) FROM BOTTOM OF CAP.

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

SHEET 3 OF 3



4/23/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 DETAILS

(RIGHT LANE)

REVISIONS						SHEET NO. S09-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 41
2			4			



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CHECKED BY : S. S. POOLE DATE : 12/04/24

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

NOTES:

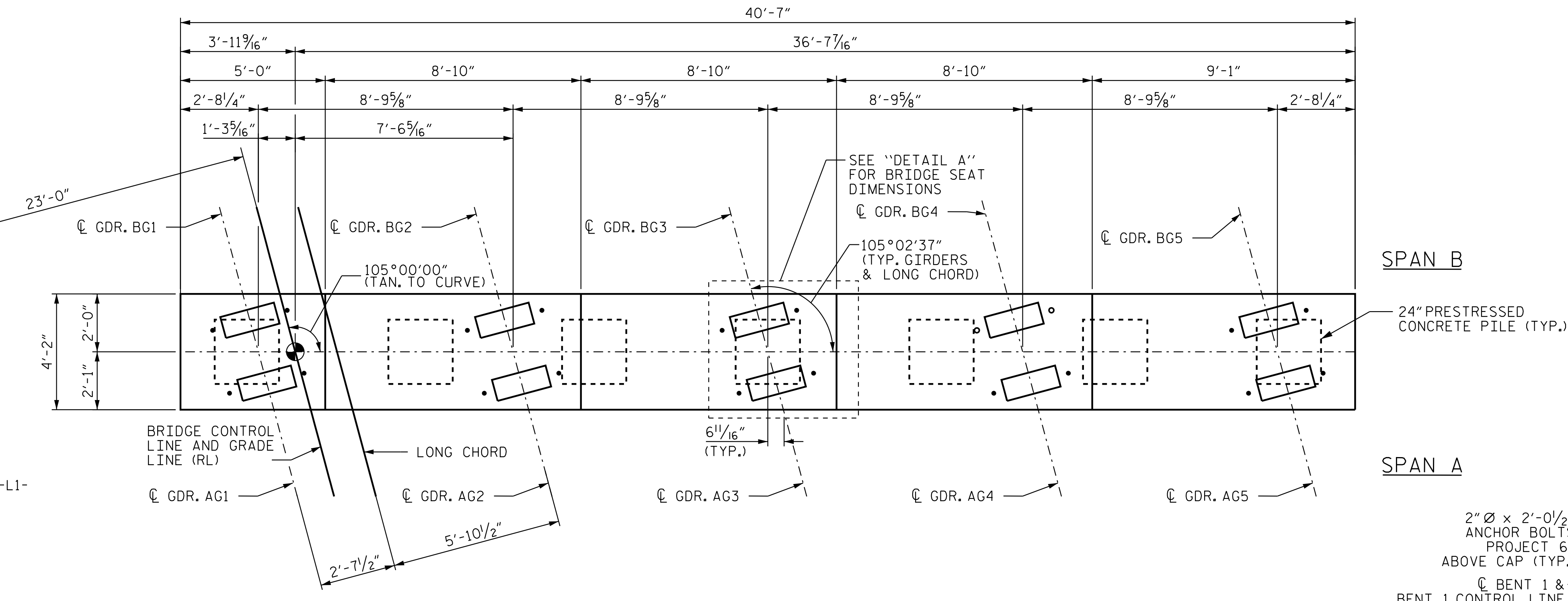
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

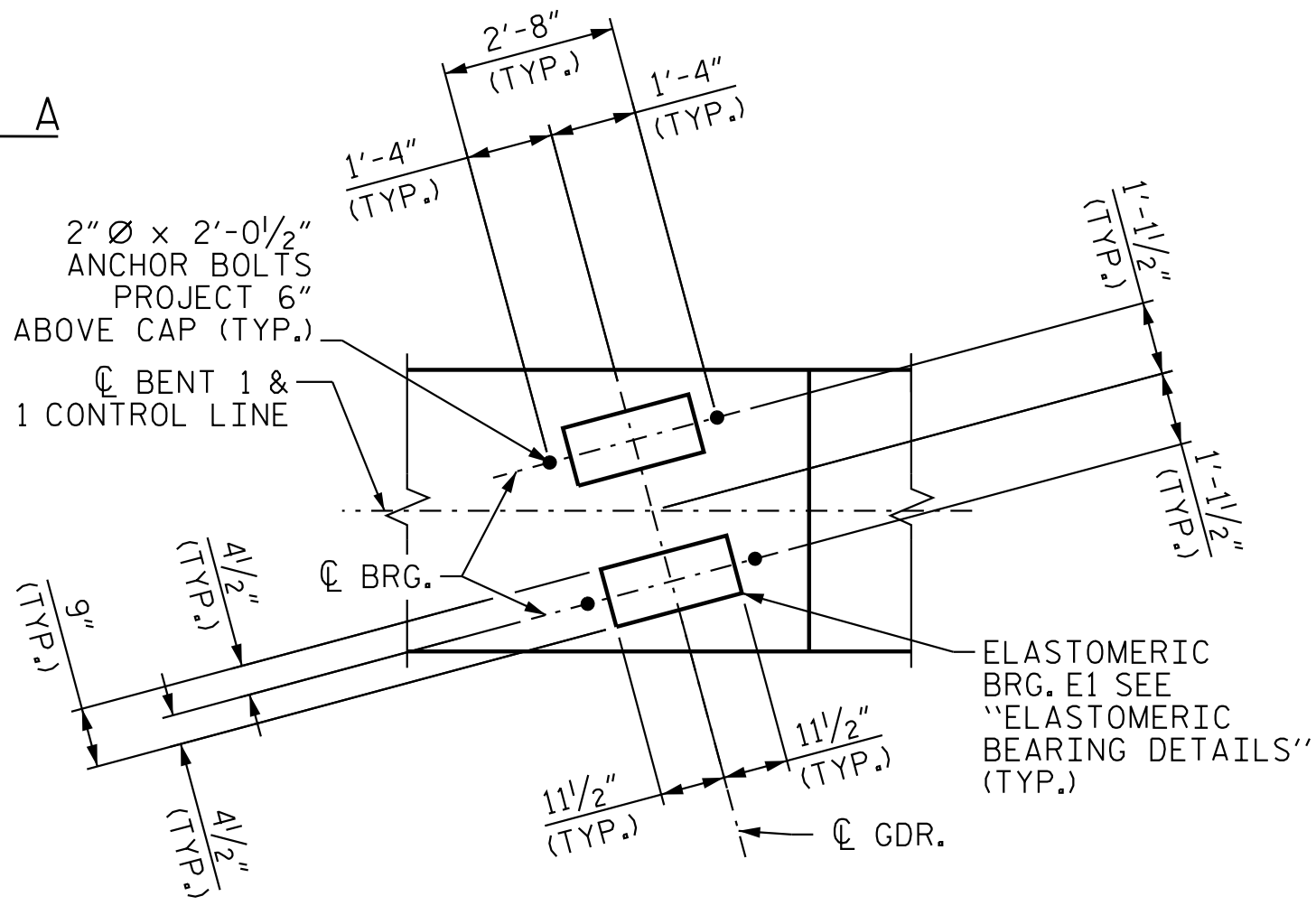
FOR VIEW A-A, VIEW B-B, SECTION C-C, AND SECTION D-D, SEE BENT 1 SHEET 3 OF 3.

SEE 24" PRECAST CONCRETE PILE SHEET 2 OF 3 FOR PILE DETAILS.

U.N.O DENOTES UNLESS NOTED OTHERWISE.

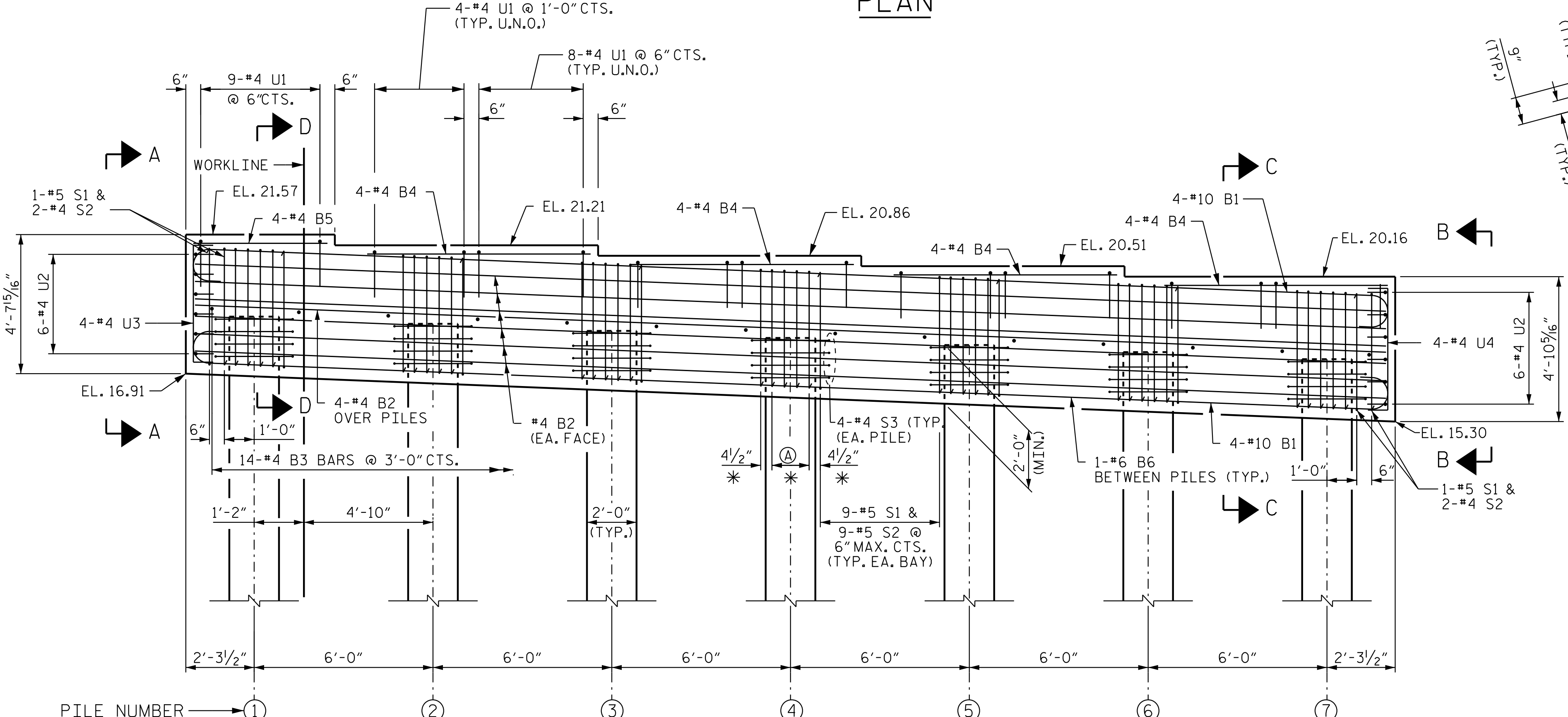


PLAN



DETAIL "A"

DIMENSIONS TYPICAL FOR EACH BEARING



ELEVATION

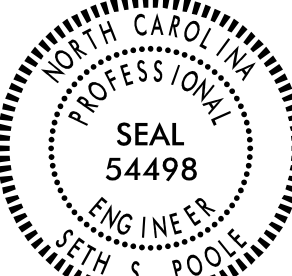
PILE CUTOFF ELEVATIONS	
PILE	ELEVATION
P1	18.86
P2	18.62
P3	18.38
P4	18.14
P5	17.91
P6	17.67
P7	17.43

PROJECT NO. R-3300A
PENDER COUNTY
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SHEET 1 OF 3

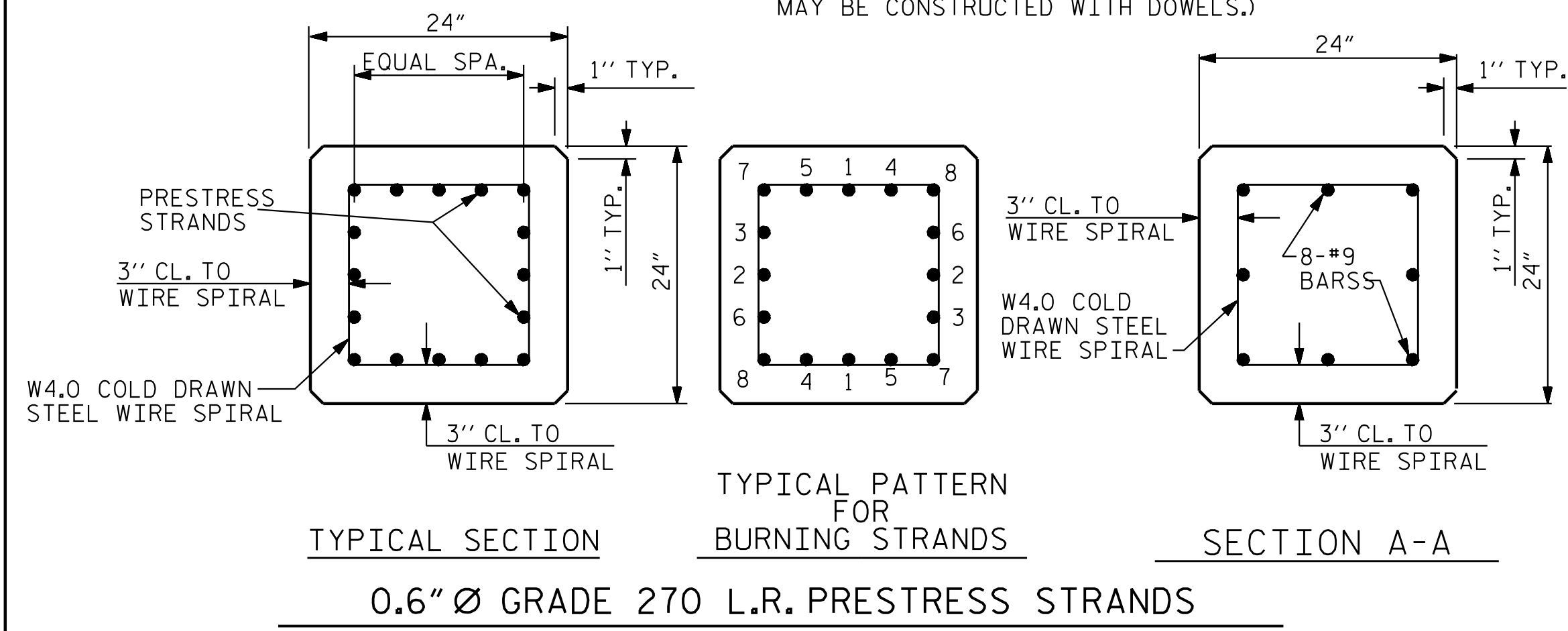
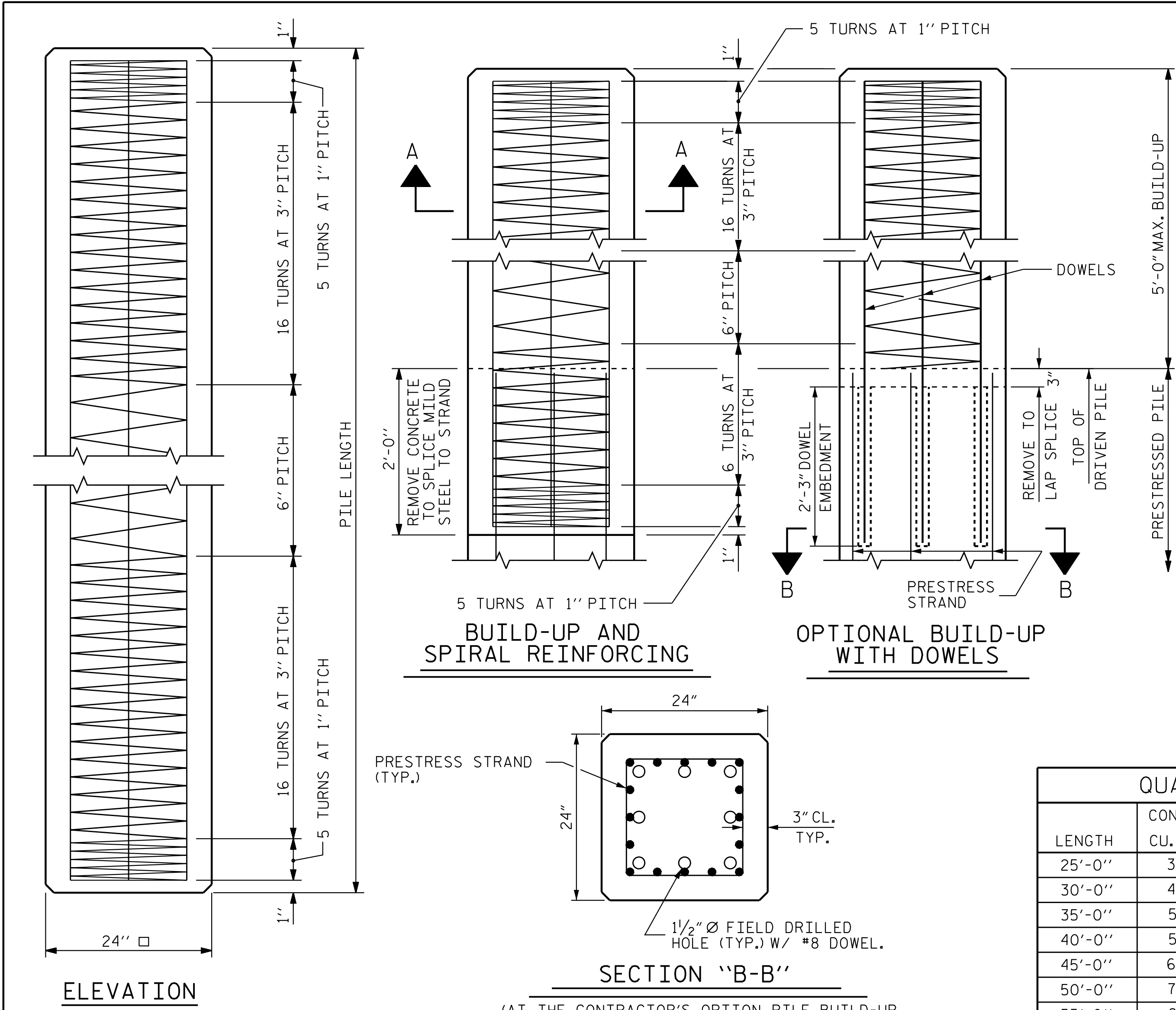


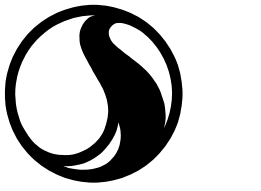
DRAWN BY : J. GUERRERO DATE : 08/15/18
CHECKED BY : S. S. POOLE DATE : 12/04/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 04/23/25



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1 (RIGHT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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ASSEMBLED BY : J. B. GEILE
CHECKED BY : S. S. POOLE

DATE : 11/19/21
DATE : 12/04/24

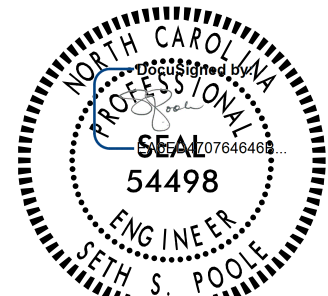
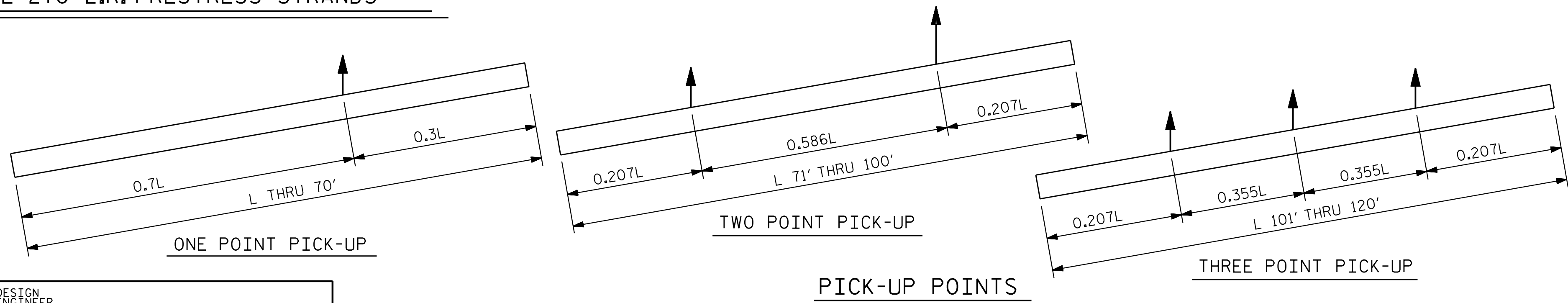
DRAWN BY : WJH 1/89
CHECKED BY : CRK 3/89

REV. 10/1/11
REV. 12/14
REV. 12/17

MAA/TMC
MAA/THC
MAA/THC

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

QUANTITIES FOR ONE 24" SQUARE PILE								
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP		TWO POINT PICK-UP		THREE POINT PICK-UP	
			0.3L	0.7L	0.207L	0.586L	0.145L	0.335L
25'-0"	3.69	7.47	7'-6"	17'-6"				
30'-0"	4.43	8.97	9'-0"	21'-0"				
35'-0"	5.17	10.46	10'-6"	24'-6"				
40'-0"	5.91	11.96	12'-0"	28'-0"				
45'-0"	6.64	13.45	13'-6"	31'-6"				
50'-0"	7.38	14.95	15'-0"	35'-0"				
55'-0"	8.12	16.44	16'-6"	38'-6"				
60'-0"	8.86	17.94	18'-0"	42'-0"				
65'-0"	9.60	19.43	19'-6"	45'-6"				
70'-0"	10.33	20.93	21'-0"	49'-0"				
75'-0"	11.07	22.42			15'-6 1/2"	43'-11"		
80'-0"	11.81	23.92			16'-6 1/2"	46'-11"		
85'-0"	12.55	25.41			17'-7"	49'-10"		
90'-0"	13.29	26.91			18'-7 1/2"	52'-9"		
95'-0"	14.03	28.40			19'-8"	55'-8"		
100'-0"	14.76	29.90			20'-8 1/2"	58'-7"		
105'-0"	15.50	21.39					15'-3"	37'-3"
110'-0"	16.24	32.89					15'-11 1/2"	39'-0 1/2"
115'-0"	16.98	34.38					16'-8"	40'-10"
120'-0"	17.72	35.87					17'-5"	42'-7"



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SIGNATURES COMPLETED

NOTES

PRESTRESSED CONCRETE STRENGTH : $f'_c = 7,500$ PSI
BUILD-UP CONCRETE STRENGTH : $f'_c = 7,500$ PSI
STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
0.6"	270 L.R.	0.217	58,600* PER STRAND	43,940* PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

THE CONCRETE IN THE PILES OF BENT NO. 1 SHALL CONTAIN SILICA FLUME. SILICA FLUME 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. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSIVE STRENGTH: $f'_c = 5,000$ PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN 1/2" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPICED BY OVERLAPPING A MIN. OF ONE TURN.

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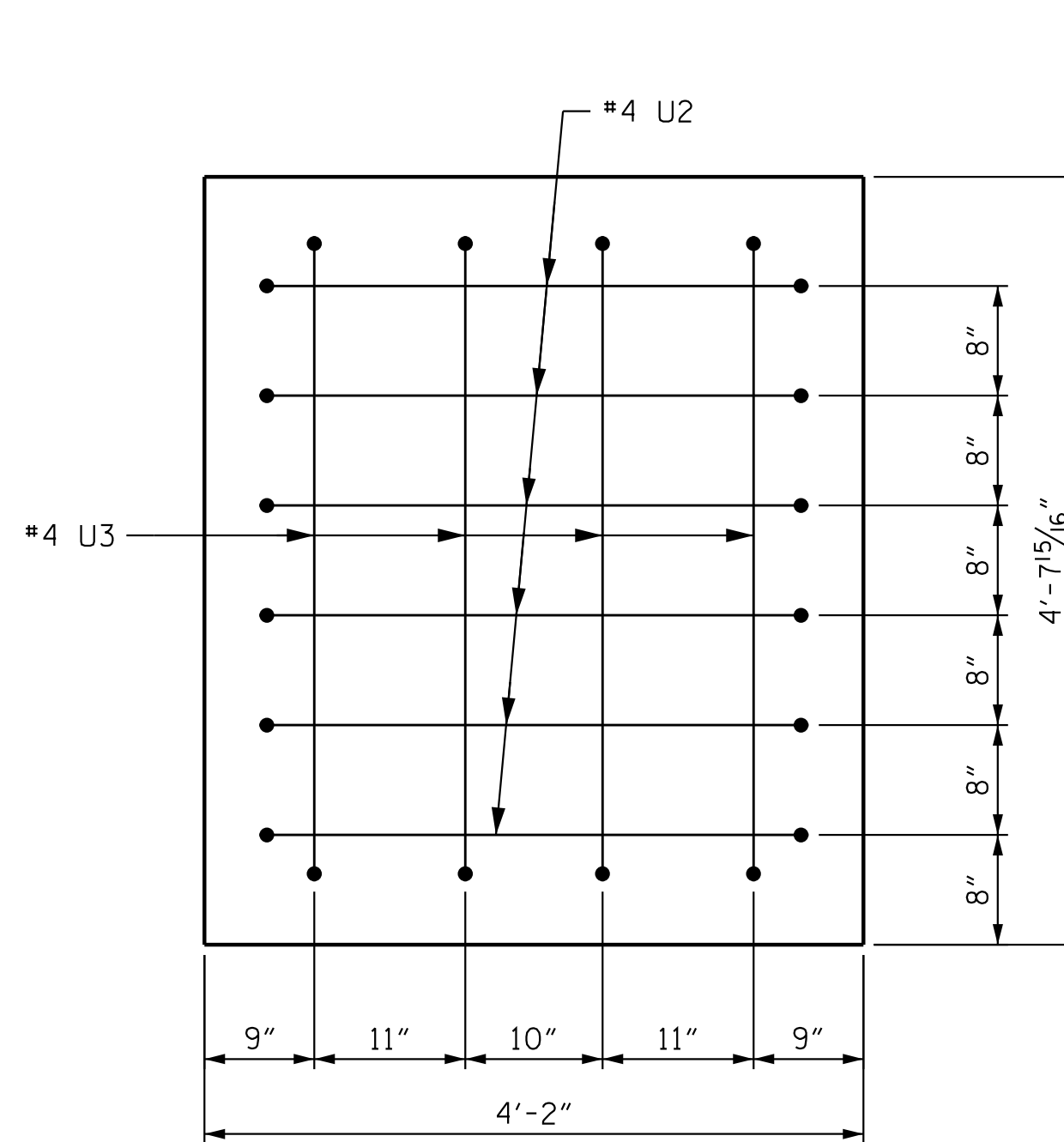
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

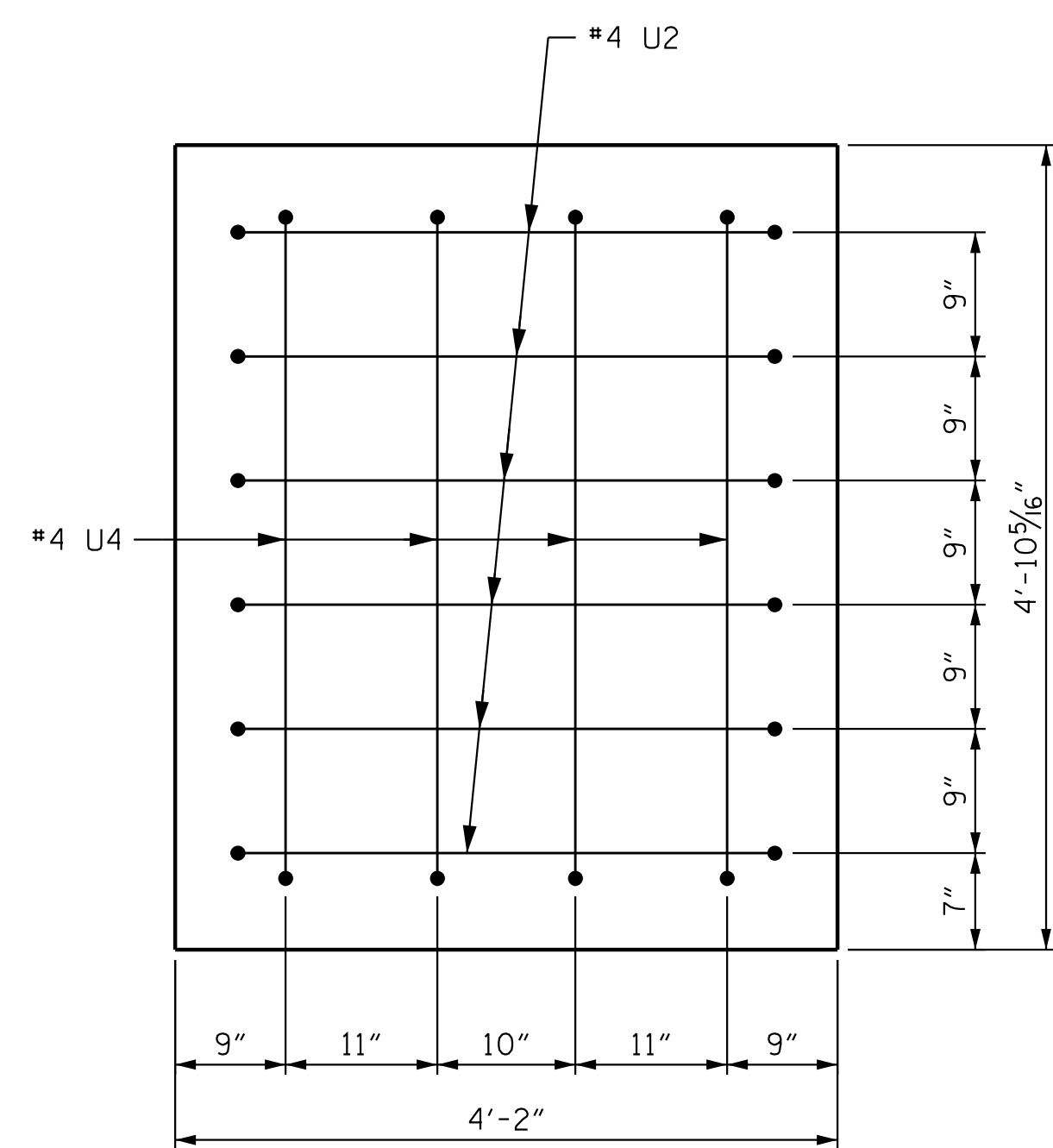
STANDARD
24" PRESTRESSED
CONCRETE PILE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S09-34
1			3			TOTAL SHEETS
2			4			41

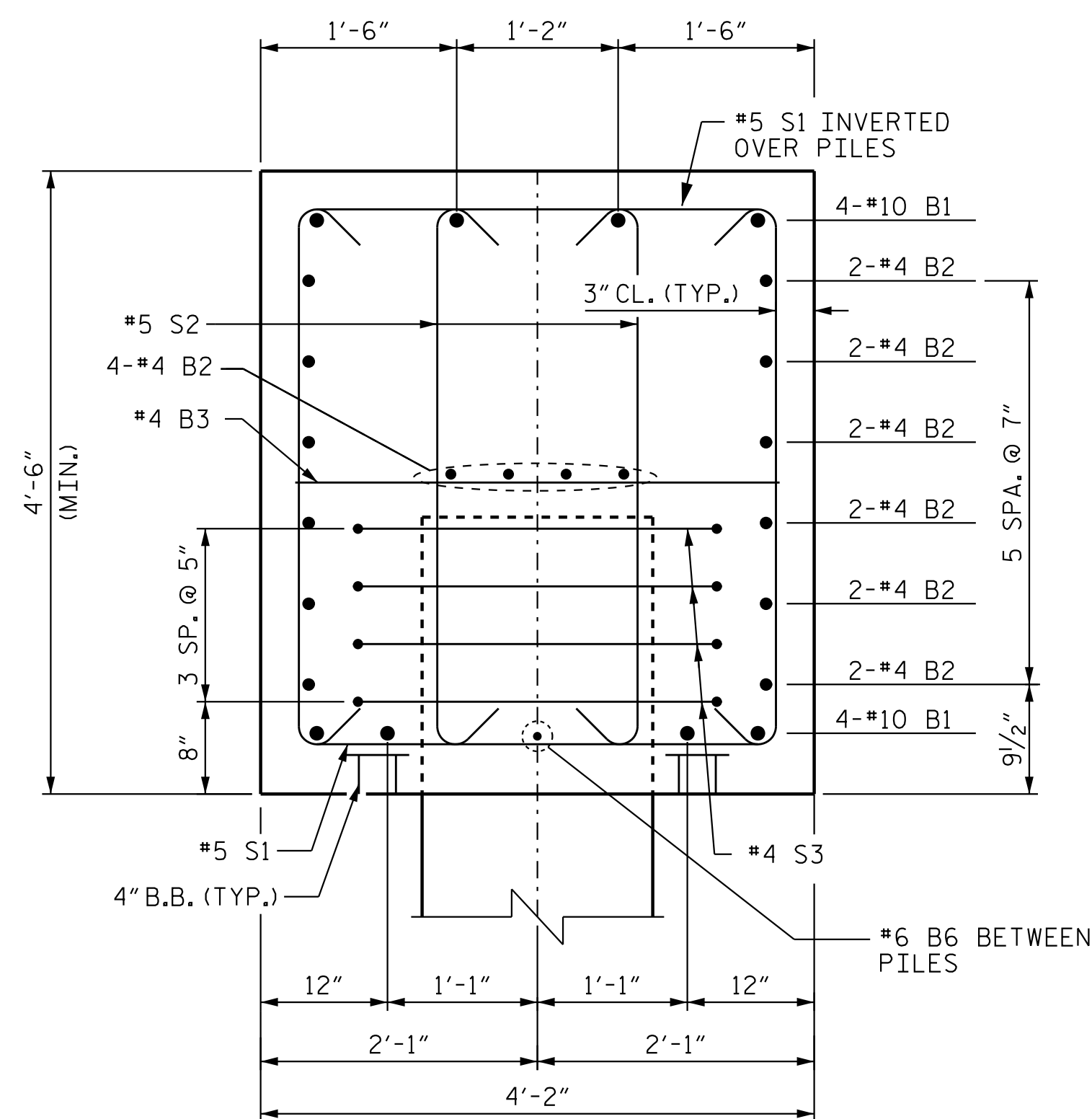
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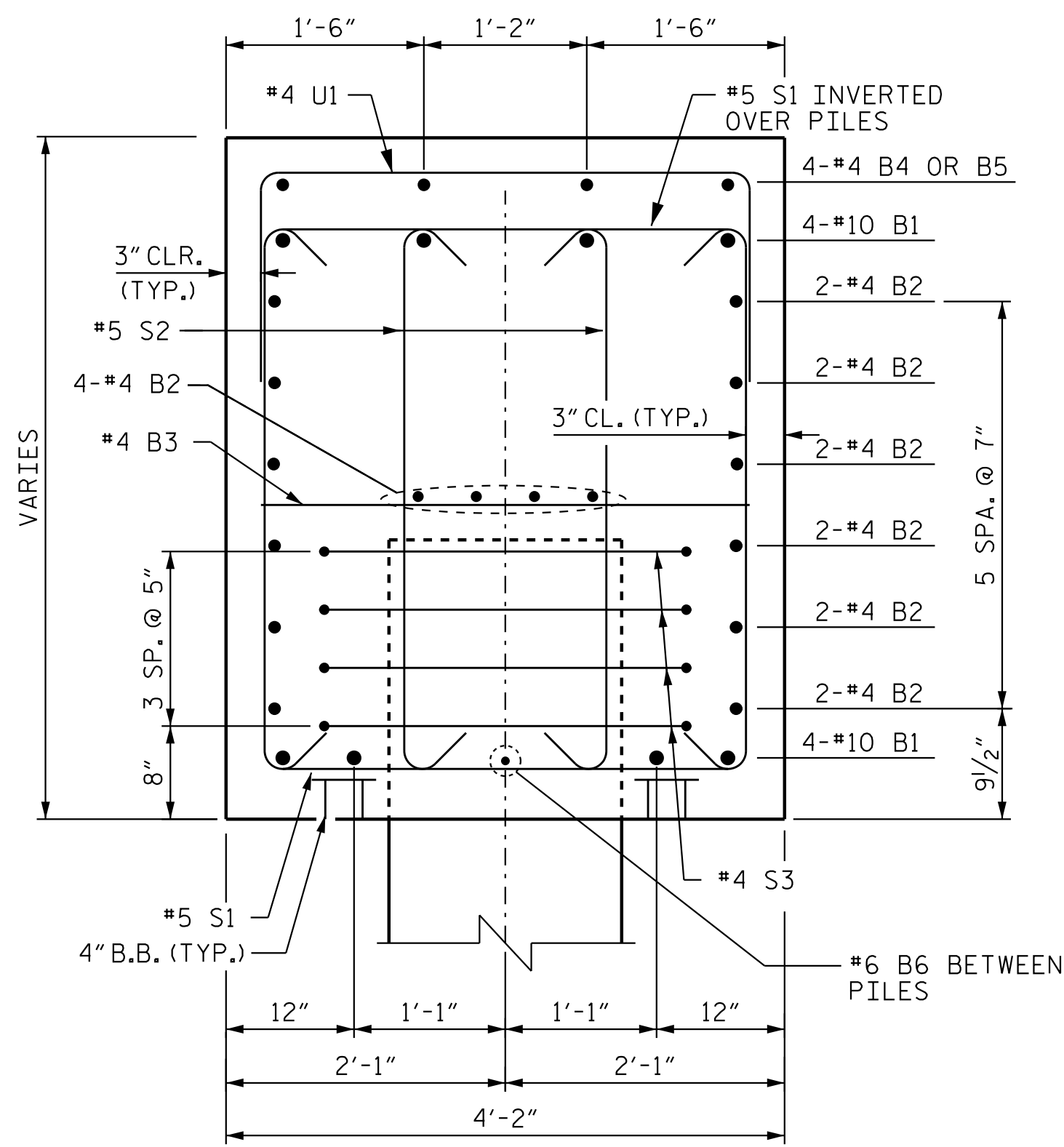
VIEW A-A



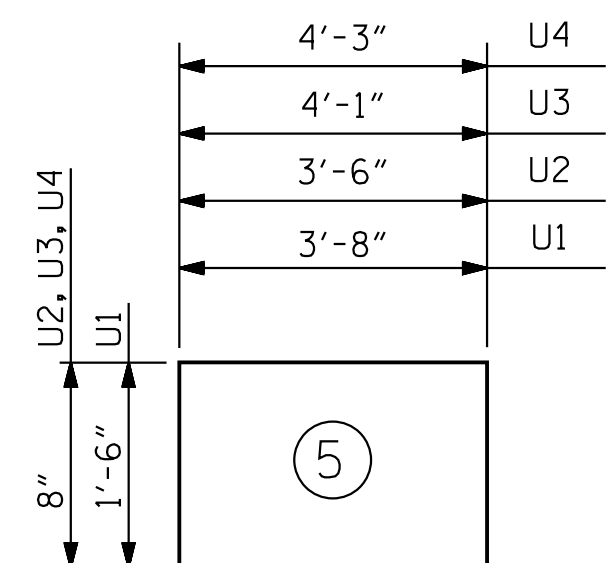
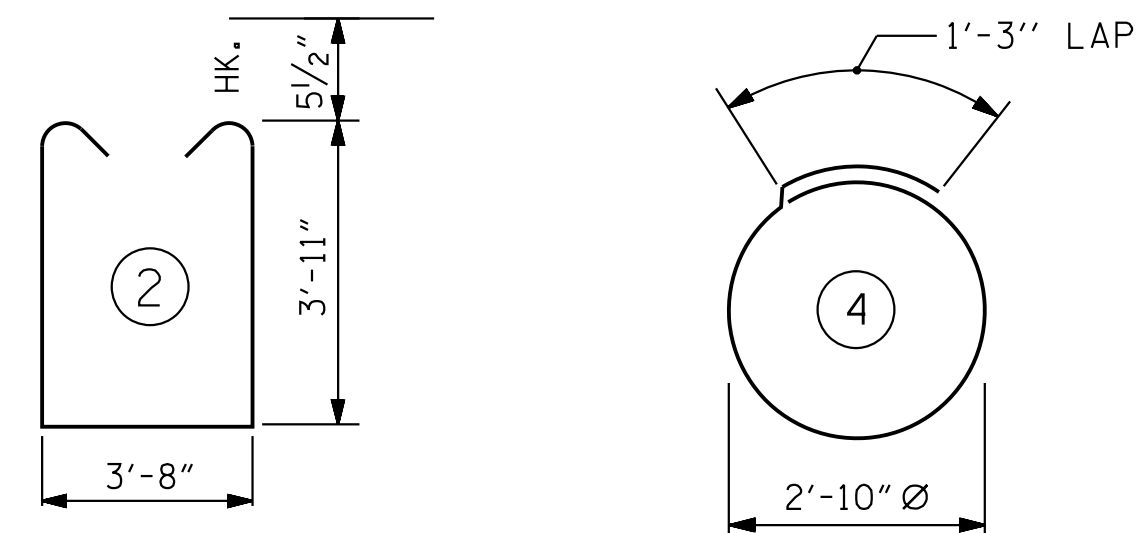
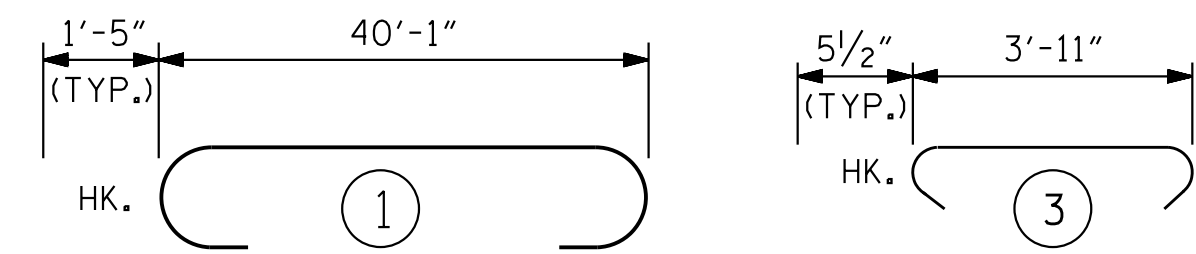
VIEW B-B



SECTION C-C



SECTION D-D

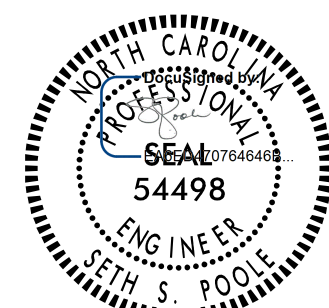


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	8	#10	1	42'-11"	1,477
* B2	16	#4	STR	40'-0"	427
* B3	14	#4	STR	3'-6"	32
* B4	16	#4	STR	7'-6"	80
* B5	4	#4	STR	4'-6"	11
* B6	6	#6	STR	4'-0"	36
* S1	86	#5	2	12'-5"	1,113
* S2	116	#5	3	4'-10"	584
* S3	28	#4	4	10'-2"	190
* U1	57	#4	5	6'-6"	253
* U2	12	#4	5	4'-10"	38
* U3	4	#4	5	5'-4"	14
* U4	4	#4	5	5'-7"	14
* EPOXY COATED					
REINFORCING STEEL				LBS.	4,269
CLASS AA CONCRETE BREAKDOWN					
CAP				C. Y.	27.4
TOTAL CLASS AA CONC.				C. Y.	27.4

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

SHEET 3 OF 3



4/23/2025

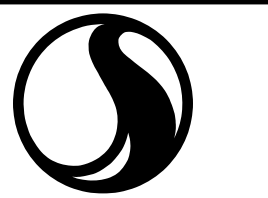
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RALEIGH

SUBSTRUCTURE BENT 1 DETAILS

(RIGHT LANE)

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2			4			

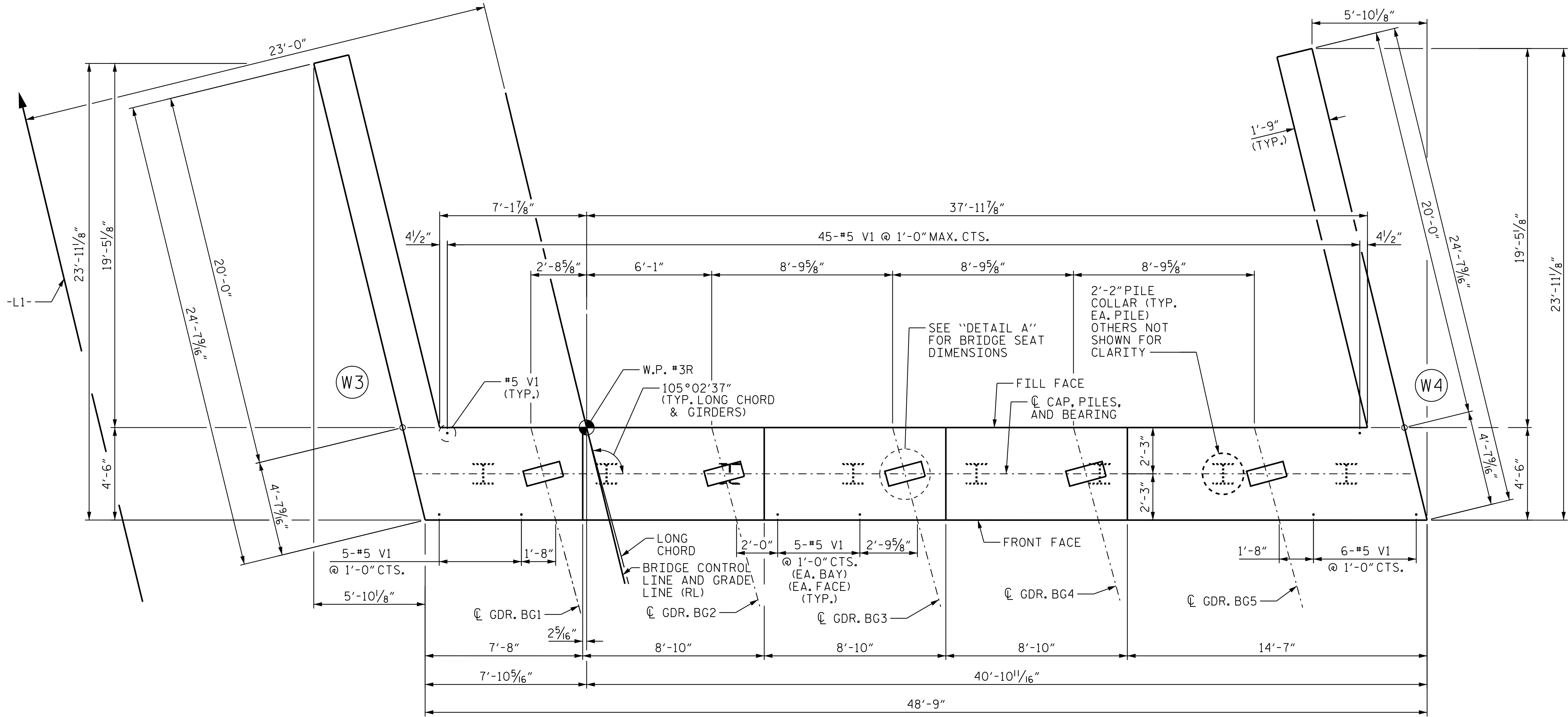


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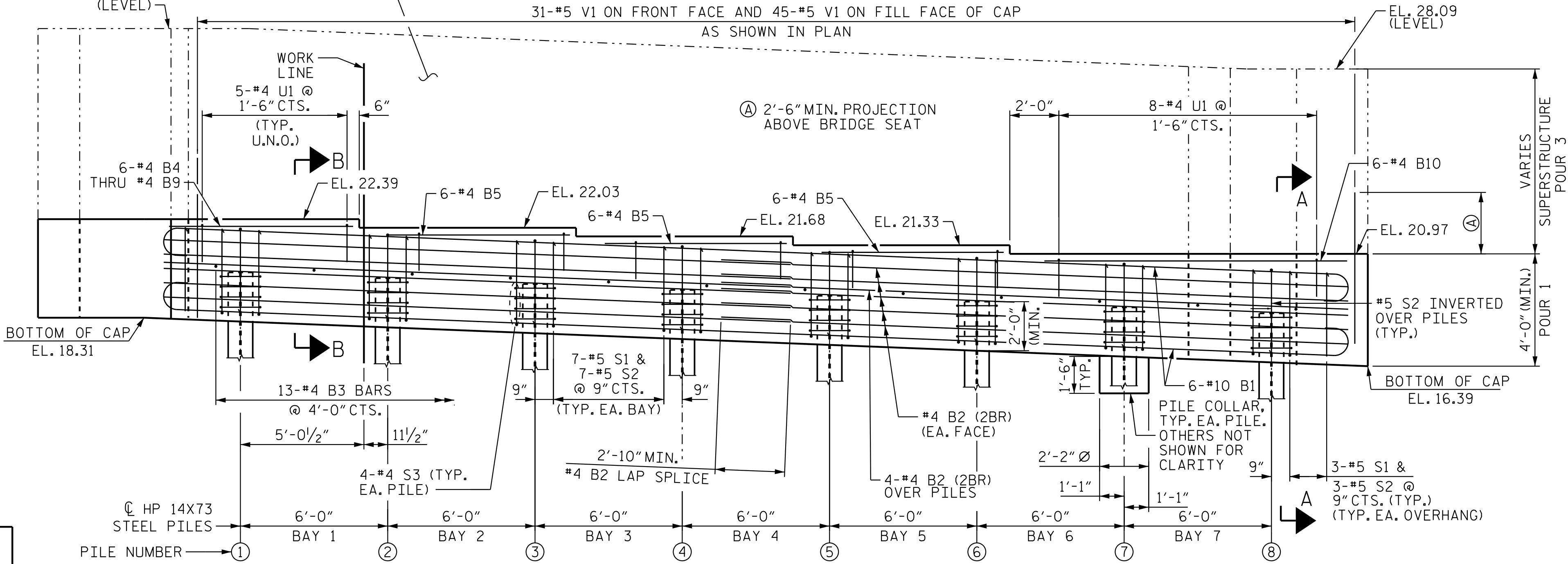
PLAN

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

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

PILE CUTOFF ELEVATIONS

PILE	ELEVATION
P1	20.20
P2	19.96
P3	19.72
P4	19.49
P5	19.25
P6	19.02
P7	18.78
P8	18.54



ELEVATION

NOTES

2BR DENOTES 2 BAR RUN

(EF) - DENOTES EACH FACE

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

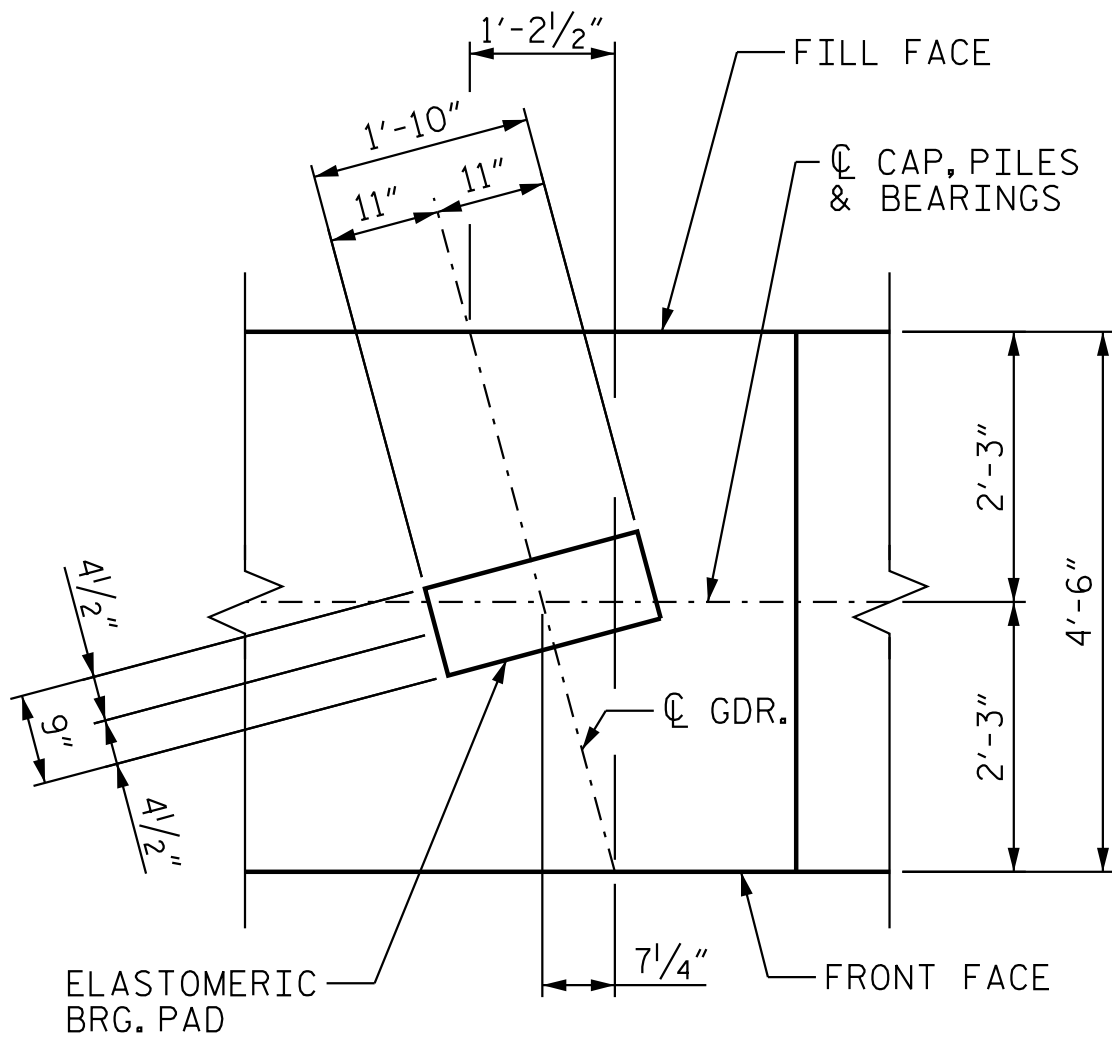
3"CL. TO ALL V1 BARS.

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 NECESSARY TO CLEAR THE DRAIN PIPE.

U.N.O. DENOTES UNLESS NOTED OTHERWISE.

USE CLASS AA CONCRETE FOR END BENT AND WING WALL.

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



DETAIL A

DIMENSIONS TYPICAL FOR EACH BEARING

PROJECT NO. R-3300A
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SHEET 1 OF 3



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Signed by: [Signature]

4/30/2025

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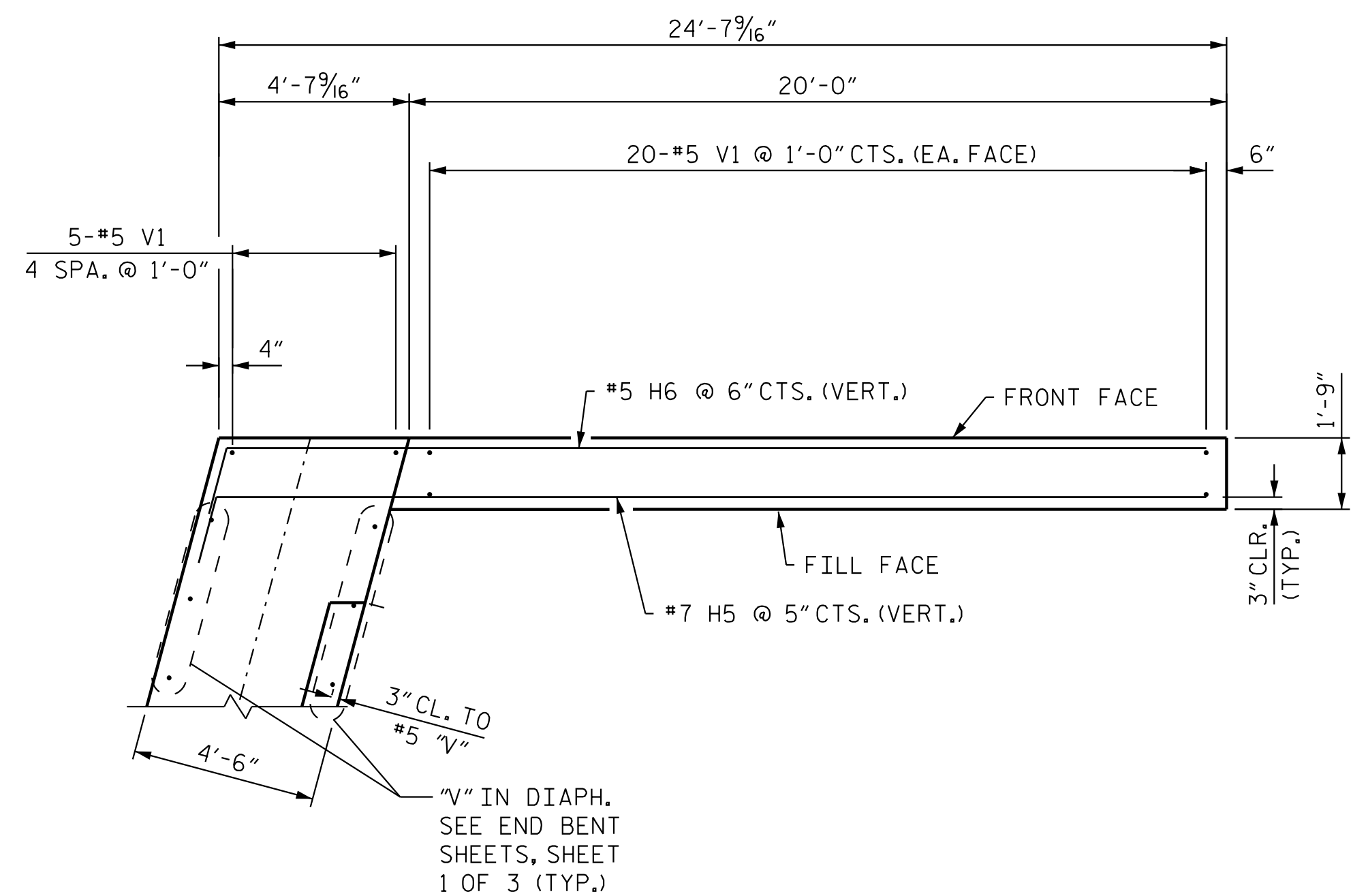
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SUBSTRUCTURE

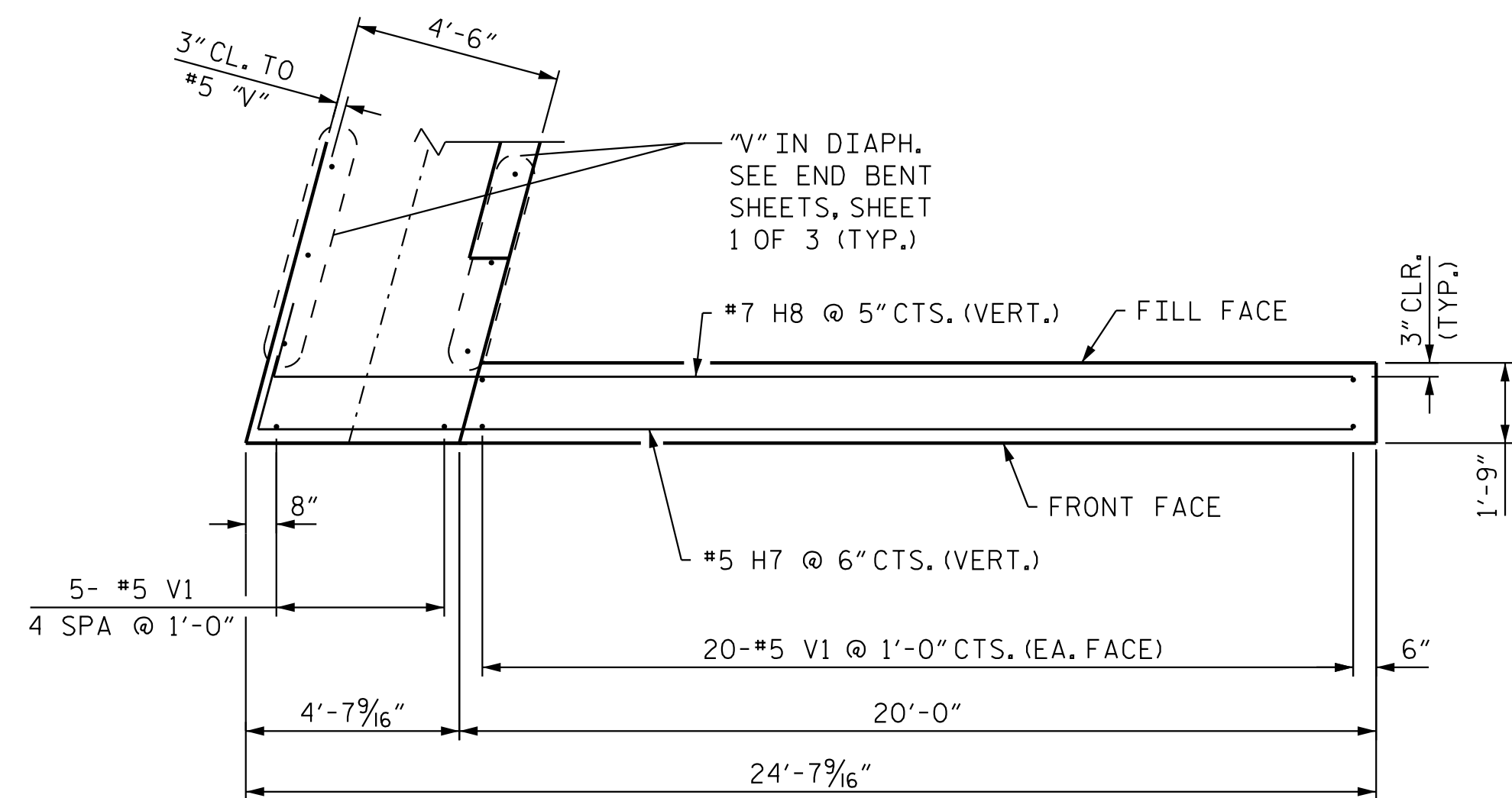
END BENT 2

(RIGHT LANE)

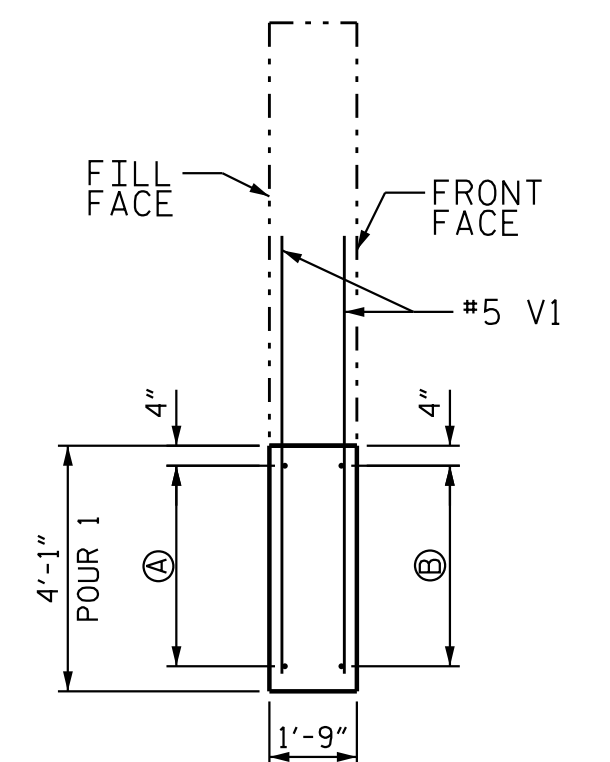
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1			3			TOTAL SHEETS 41
2			4			



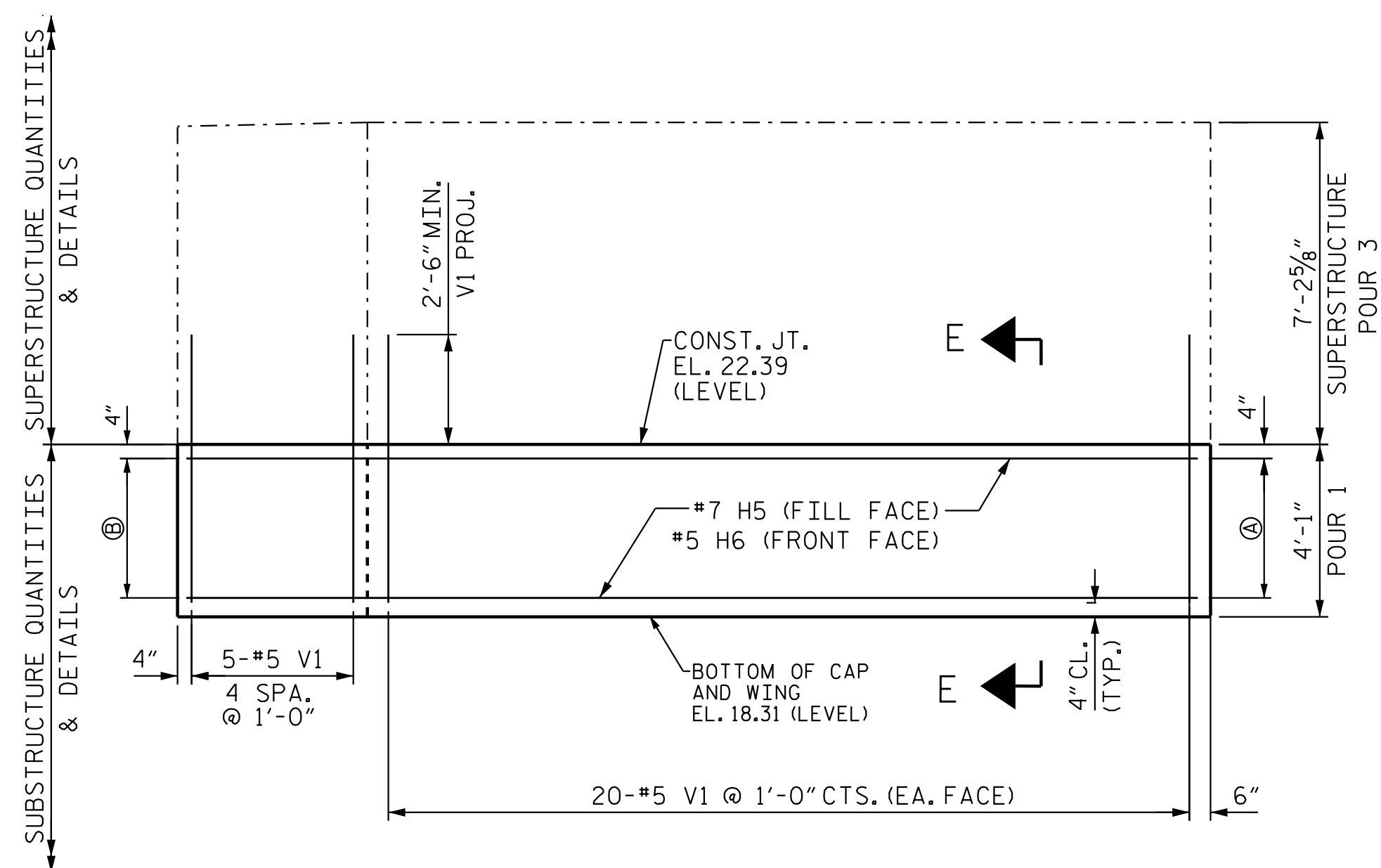
(W3) PLAN OF LEFT WING



(W4) PLAN OF RIGHT WING

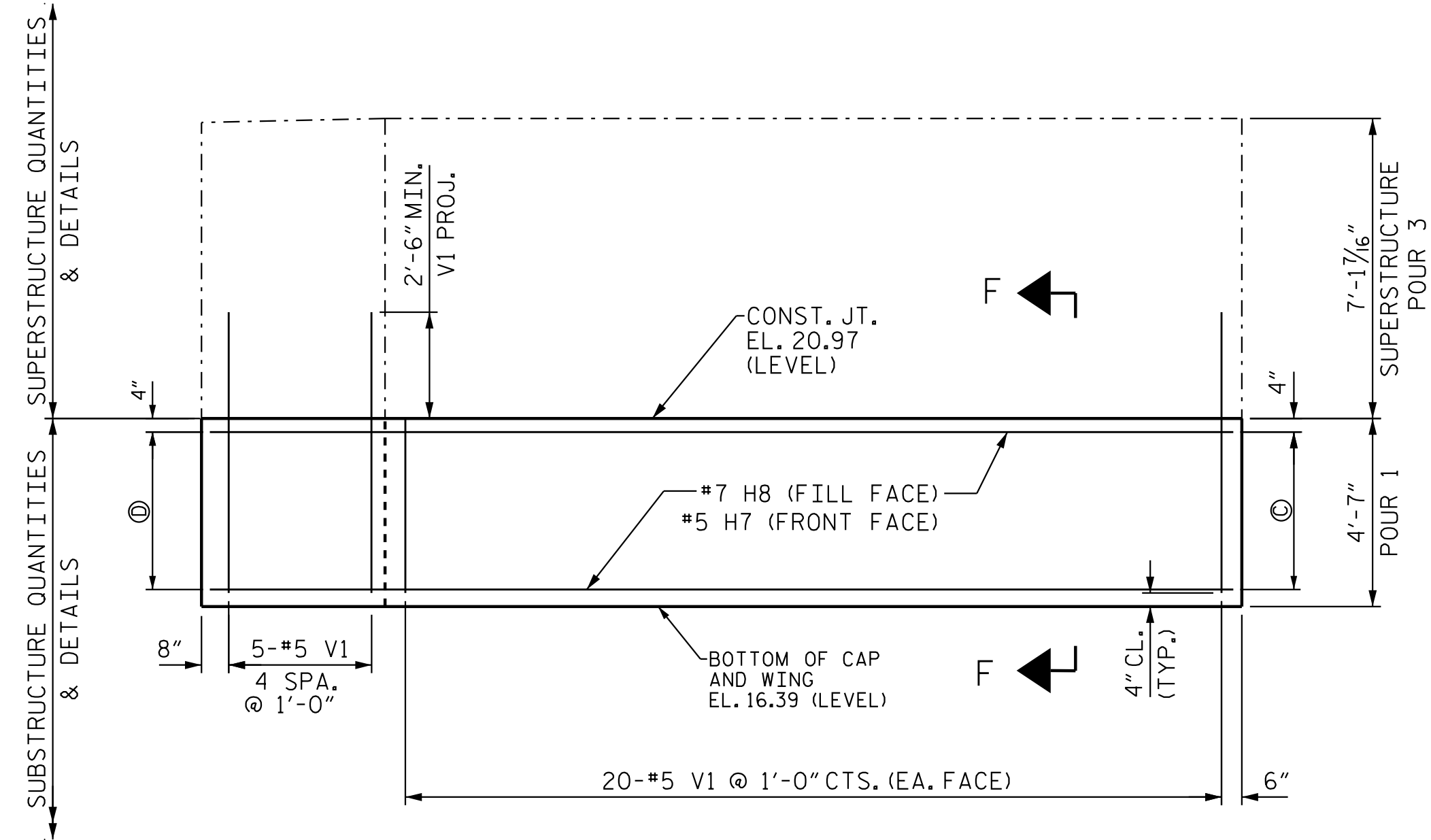


SECTION E-E



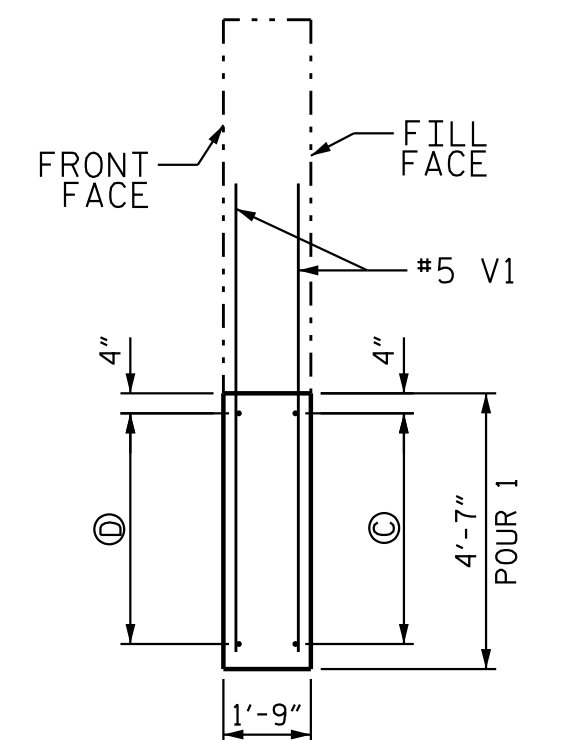
(W3) ELEVATION OF LEFT WING

- (A) 9-#7 H5 @ 5" CTS. (FILL FACE)
 (B) 8-#5 H6 @ 6" CTS. (FRONT FACE)



(W4) ELEVATION OF RIGHT WING

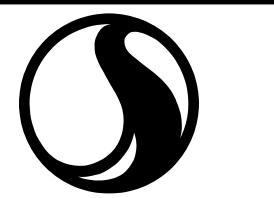
- (C) 10-#7 H8 @ 5"CTS. (FILL FACE)
 (D) 9-#5 H7 @ 6"CTS. (FRONT FACE)



SECTION F-F

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

SHEET 2 OF 3

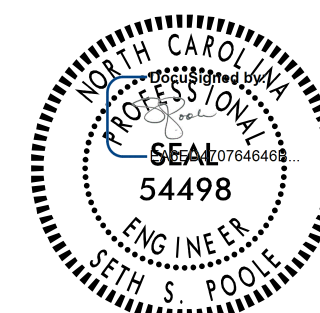


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CHECKED BY : S. S. POOLE DATE : 12/04/24

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



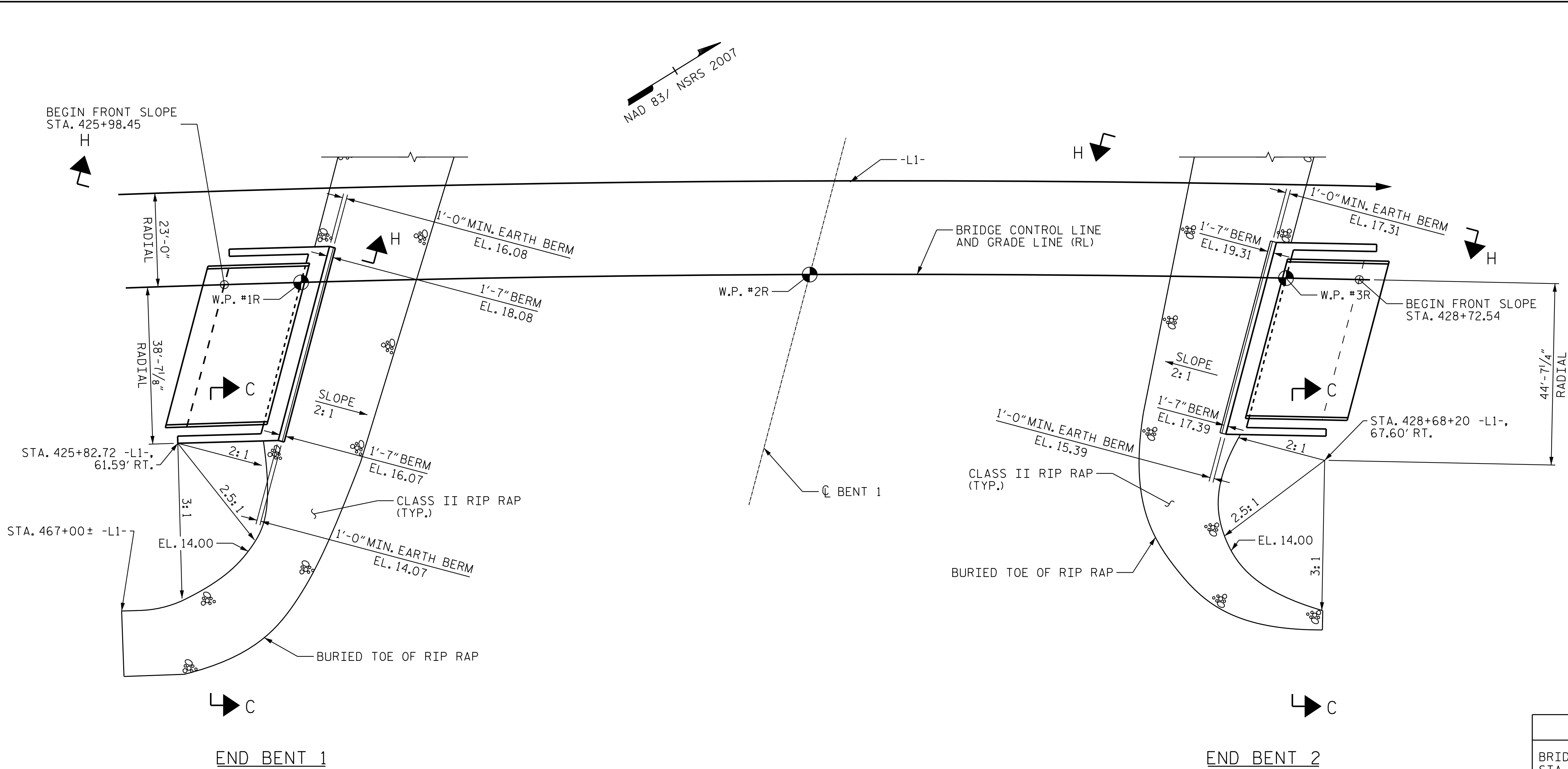
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(RIGHT LANE)						SHEET NO. S09-37
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2			4			

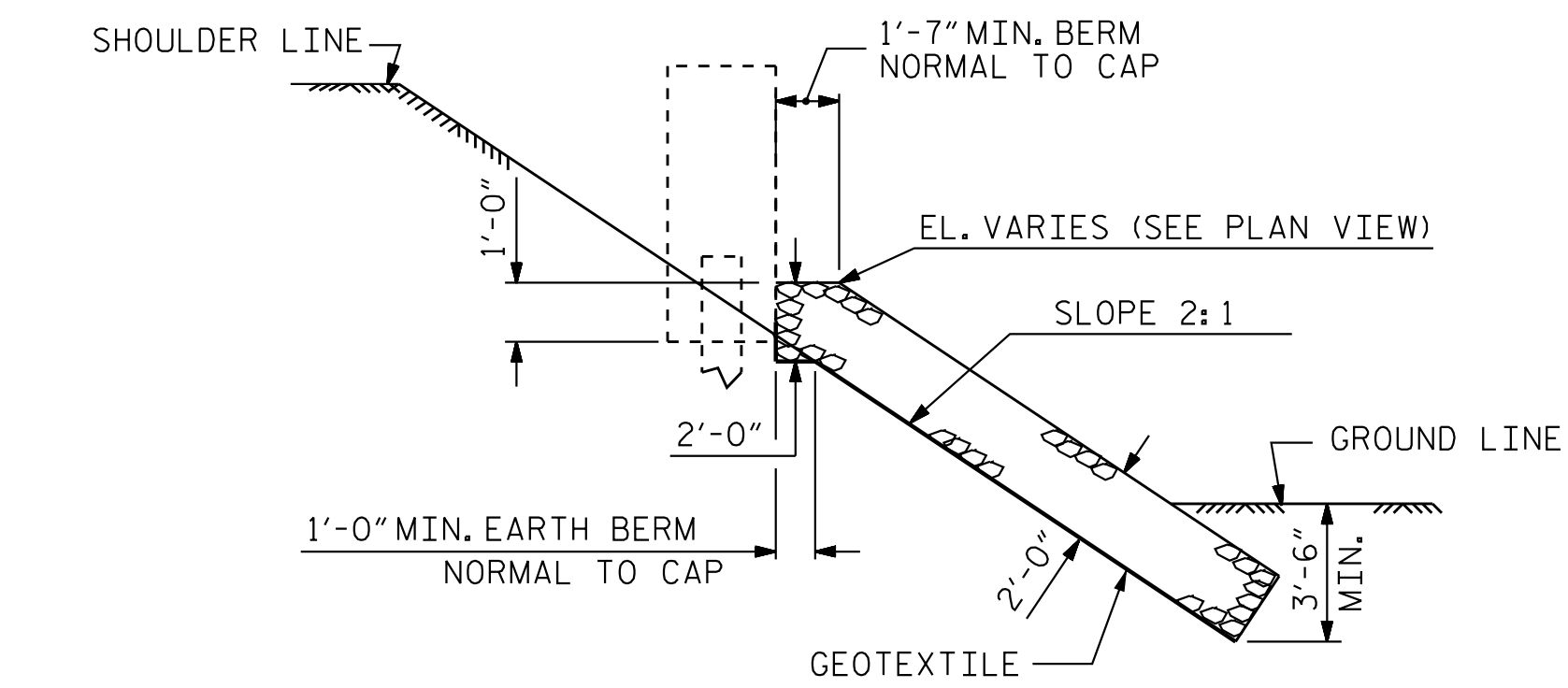
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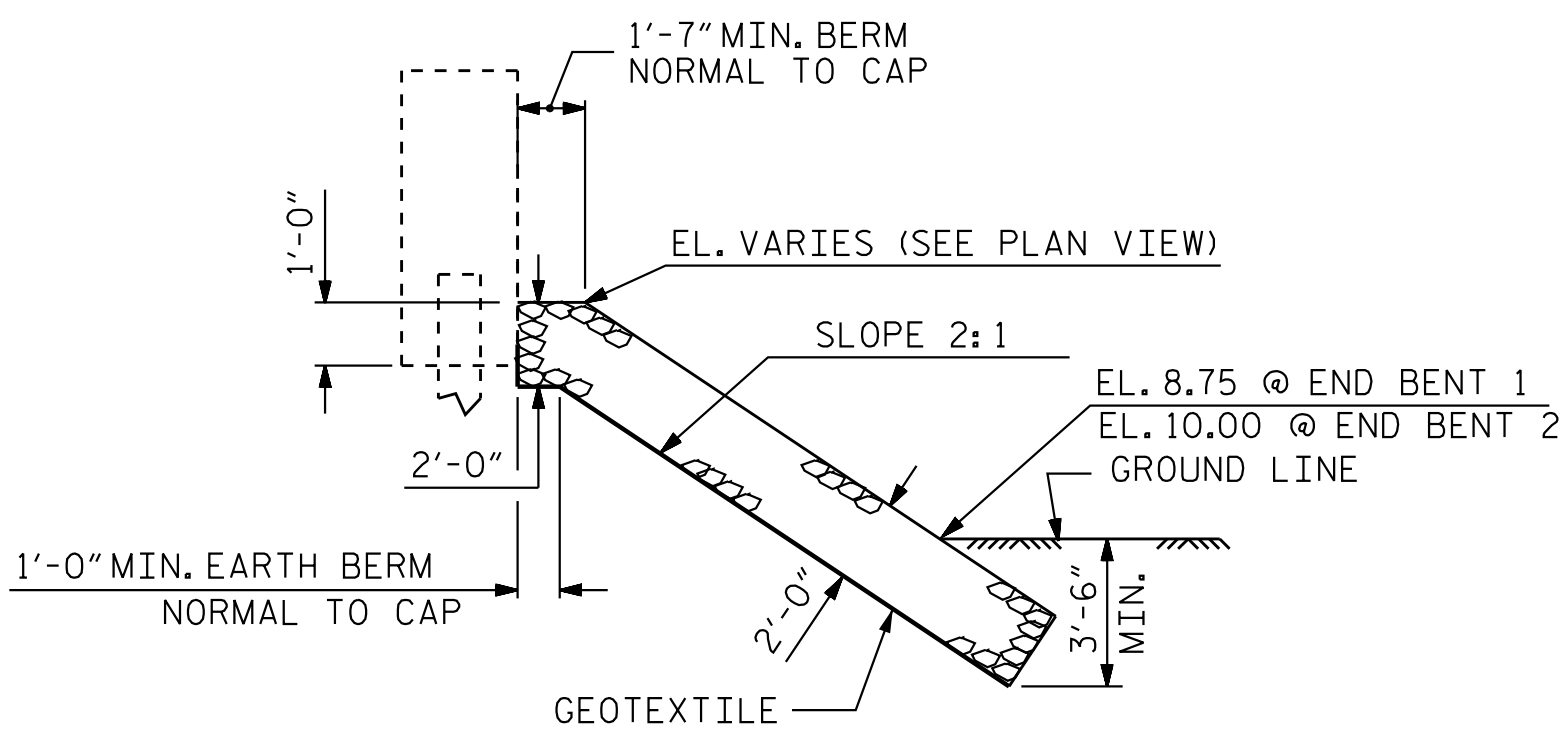


PLAN

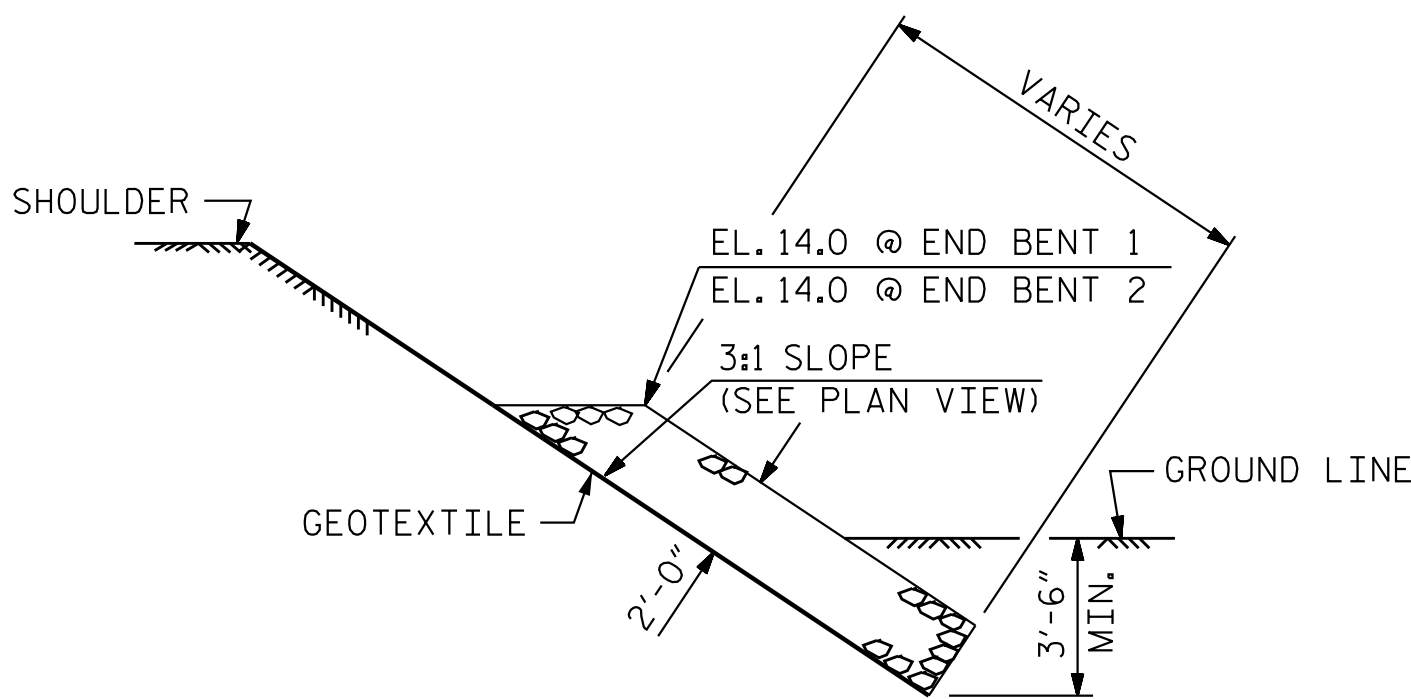
ESTIMATED QUANTITIES		
BRIDGE @ STA. 427+46.16 -L1-	RIp RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	300	334
END BENT 2	266	295



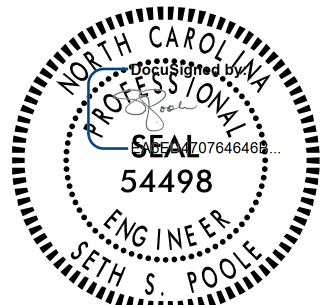
SECTION H-H



SECTION IN FRONT OF END BENT
BERM RIP RAPPED



SECTION C-C



4/23/2025

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

SHEET 1 OF 1

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
STANDARD RIP RAP DETAILS						
(RIGHT LANE)						
REVISIONS						SHEET NO. S09-39
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1			3			
2			4			

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