

09/20/24

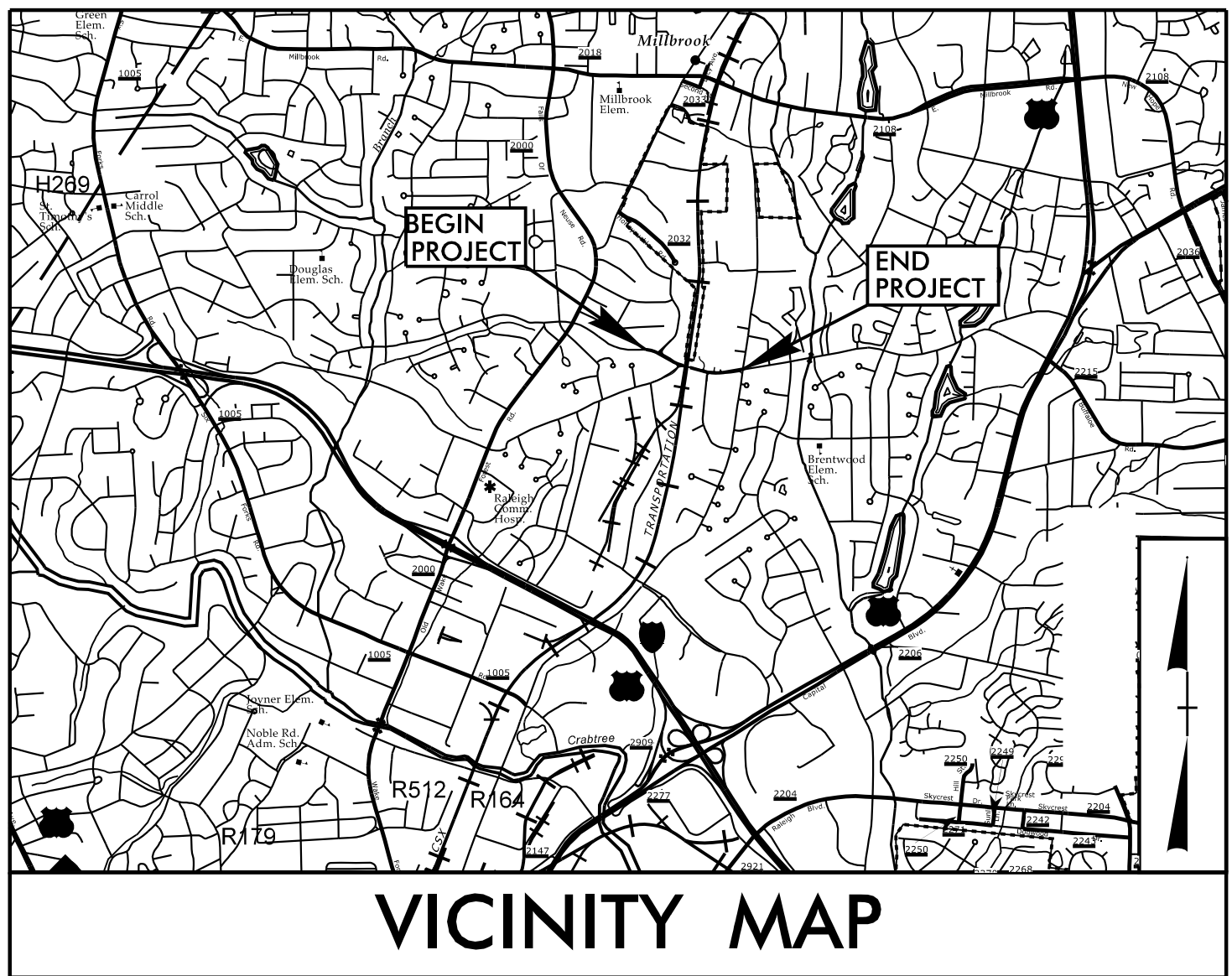
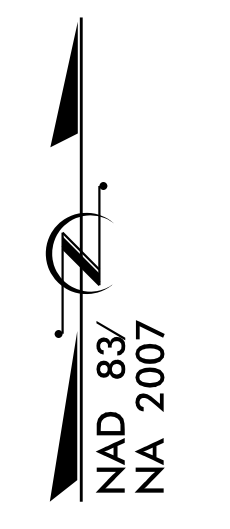
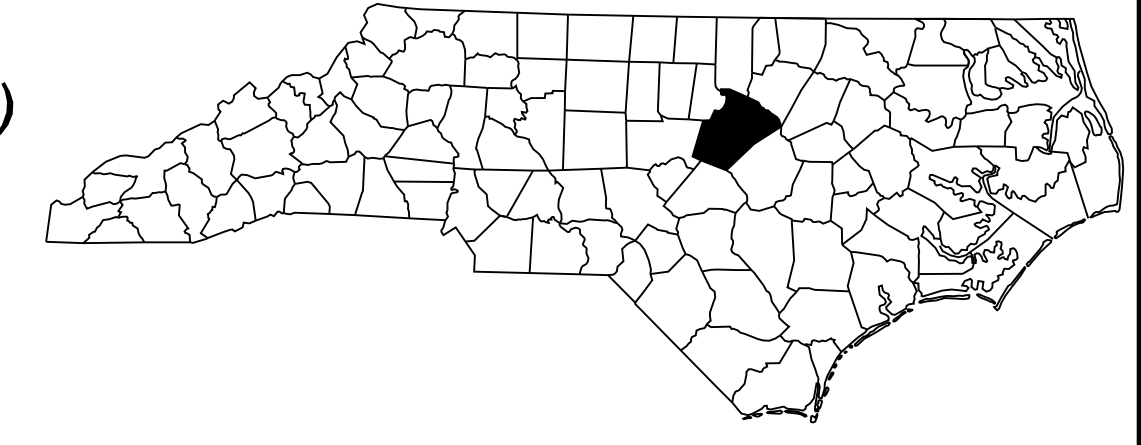
See Sheet 1A for Index of Sheets
See Sheet 1B for Conventional Symbols

STATE OF NORTH CAROLINA RAIL DIVISION

WAKE COUNTY

**LOCATION: NEW HOPE CHURCH ROAD GRADE SEPARATION OVER
CSX RAILROAD (CROSSING NO. 630607N AT MILEPOST S 152.32)**
**TYPE OF WORK: DRAINAGE, GRADING, PAVING, RETAINING WALLS,
SIGNALS, STRUCTURE, AND WIDENING**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	P-5715	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46927.1.1	NA	P.E.	
46927.2.1	NA	ROW, UTIL.	
46927.3.1	NA	CONSTR.	



TIP PROJECT: P-5715

CONTRACT: C204339

BEGIN TIP PROJECT P-5715
-L- POT STA. 11+10.00

TO WAKE FOREST ROAD

BEG. CONSTRUCTION
-L- POT STA. 10+66.83

BEGIN CONSTRUCTION
-Y1- STA. 13+50.00

BEGIN RET WALL #1
-Y1- STA. 10+90.55, 41.76' LT

END CONSTRUCTION
-DRWY1- STA. 13+15.09

BEGIN RET WALL #2
-L- STA. 15+20.00, 51.50' LT

END RET WALL #2
-Y2- STA. 15+40.00, 30.00' LT

END RET WALL #1
-Y2- STA. 19+95.45, 46.85' RT

BEGIN PAVING
-Y2- STA. 14+25.00

BEGIN BRIDGE
-L- STA. 20+48.37

END BRIDGE
-L- STA. 21+72.12

BEGIN CONSTRUCTION
-Y2- STA. 13+50.00

END CONSTRUCTION
-DRWY5- STA. 10+78.00

BEGIN CONSTRUCTION
-DRWY4- STA. 10+00.00

END CONSTRUCTION
-DRWY2- STA. 11+43.15

END CONSTRUCTION
-DRWY3- STA. 10+65.00

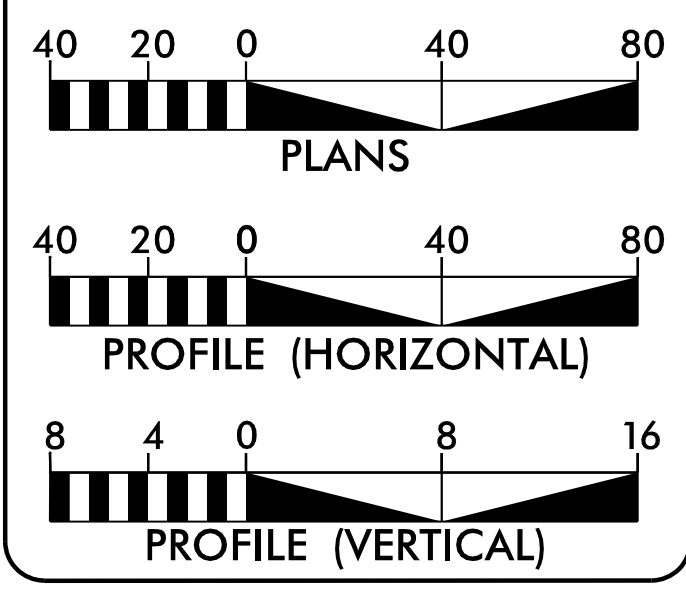
END CONSTRUCTION
-L- POT STA. 32+70.00

TO CAPITAL BLVD.

END TIP PROJECT P-5715
-L- STA. 31+55.00

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GRAPHIC SCALES



DESIGN DATA

ADT 2024 = 24,547
ADT 2042 = 29,331
K = 8%
D = 65%
T = 3%*
V = 35 MPH
*TTST 1% DUAL 2%

FUNC CLASS =
MINOR ARTERIAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT P-5715 = 0.364 MILES
LENGTH OF STRUCTURE TIP PROJECT P-5715 = 0.023 MILES
TOTAL LENGTH OF TIP PROJECT P-5715 = 0.387 MILES



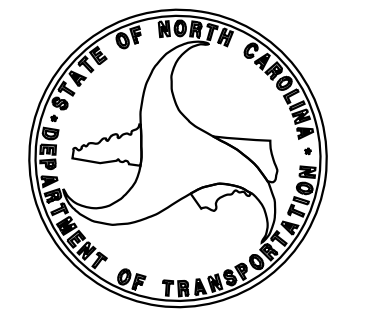
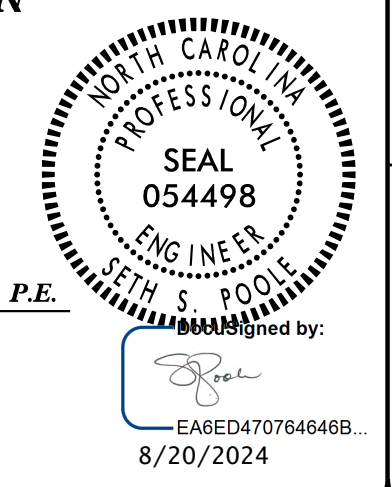
Prepared In The Office of:
Stantec
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Tel. (919) 851-6996 Fax. (919) 851-7024
www.stantec.com License No. F-0672

for the North Carolina Department of Transportation
2024 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 15, 2024

**BRIDGE DESIGN
ENGINEER**

SETH POOLE PE P.E.
SIGNATURE:



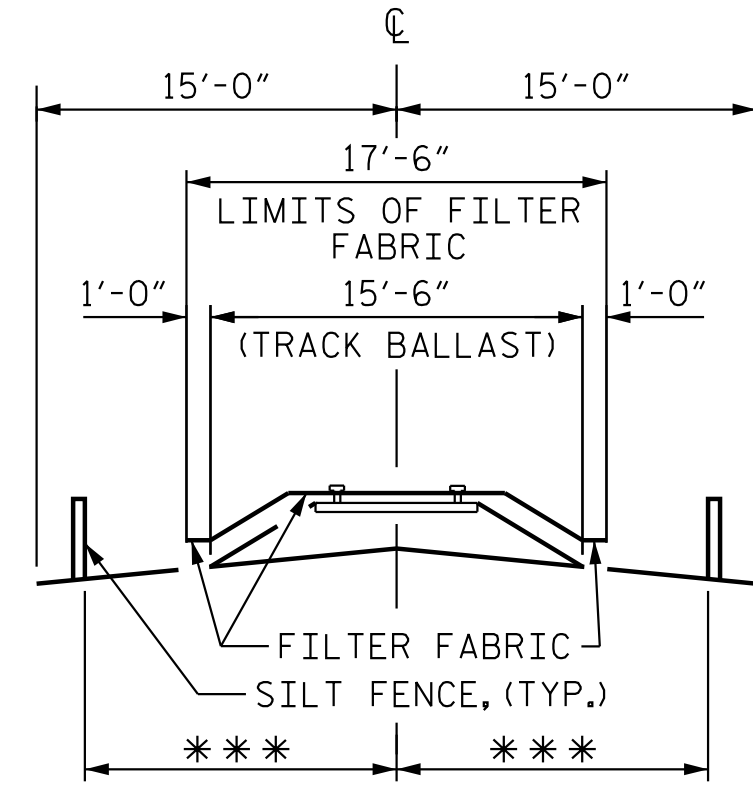
NC DEPARTMENT OF
TRANSPORTATION
RAIL DIVISION
ENGINEERING CONSULTATION
AND SAFETY

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ CDON \$\$\$\$\$\$
\$\$\$\$\$ USERNAME \$\$\$\$\$\$

20+00 20+50 21+00 21+50 22+00 22+50

GRADE DATA -L-
PI STA. = 20+35.00 -L-
EL = 336.80
VC = 400'
(+).21210% (-).68861%

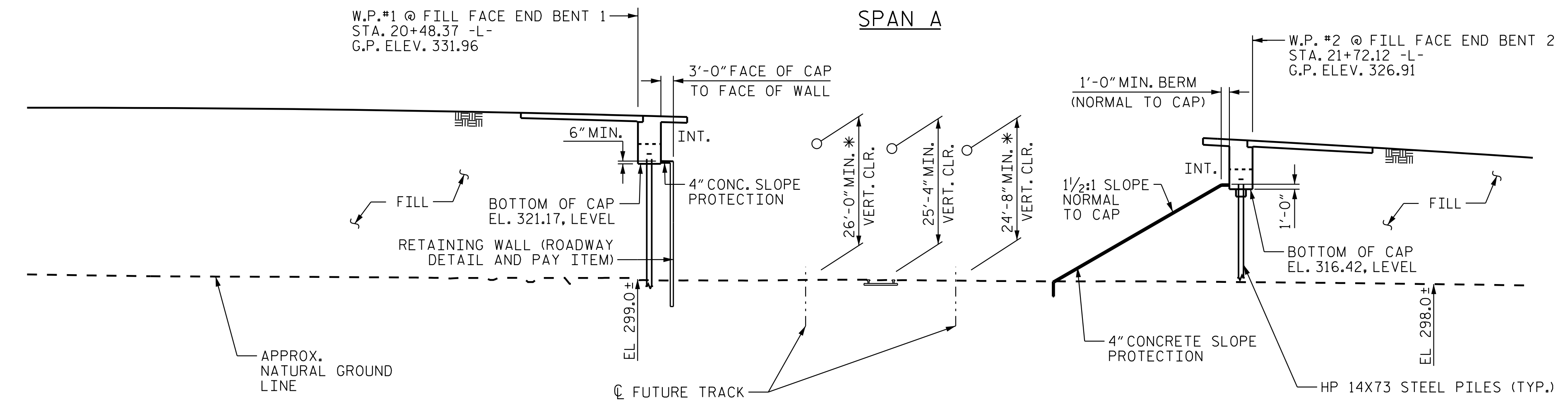
* ASSUMES MAXIMUM FUTURE RAIL ELEVATION WILL EQUAL EXISTING TOP OF RAIL



RAILROAD EROSION CONTROL DETAIL

*** TO BE DETERMINED BY THE RESIDENT ENGINEER IN CONSULTATION WITH THE RAILROAD ENGINEER.

TOP OF RAIL ELEVATIONS	
TRACK STATION	TOP OF RAIL
11+95.00	298.52
12+00.00	298.59
12+05.00	298.67
12+10.00	298.64
12+15.00	298.68
12+20.00	298.73
12+25.00	298.74
12+30.00	298.82
12+35.00	298.84
12+40.00	298.80
12+45.00	298.78
12+50.00	298.79
12+55.00	298.85
12+60.00	298.85
12+65.00	298.94
12+70.00	299.00
12+75.00	299.00
12+80.00	299.01
12+85.00	299.00
12+90.00	299.01



HORIZONTAL CURVE DATA -L-
PI STA. = 19+06.96 -L-
Δ = 13° 42' 29.55" (LT)
D = 5° 47' 14.83"
L = 236.86'
T = 119.00'
R = 990.00'

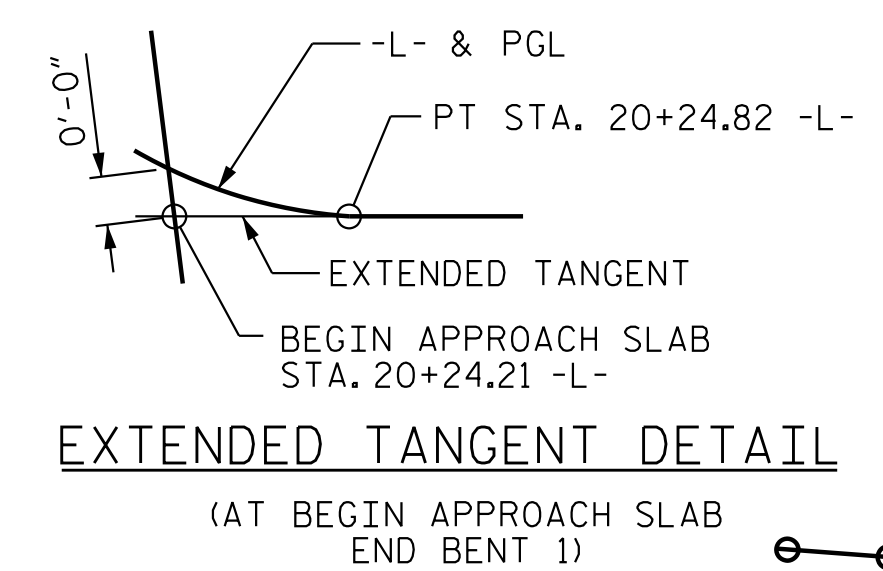
HORIZONTAL CURVE DATA -L-

SECTION ALONG -L-
(SECTION AT END BENTS ARE SHOWN AT RIGHT ANGLES)

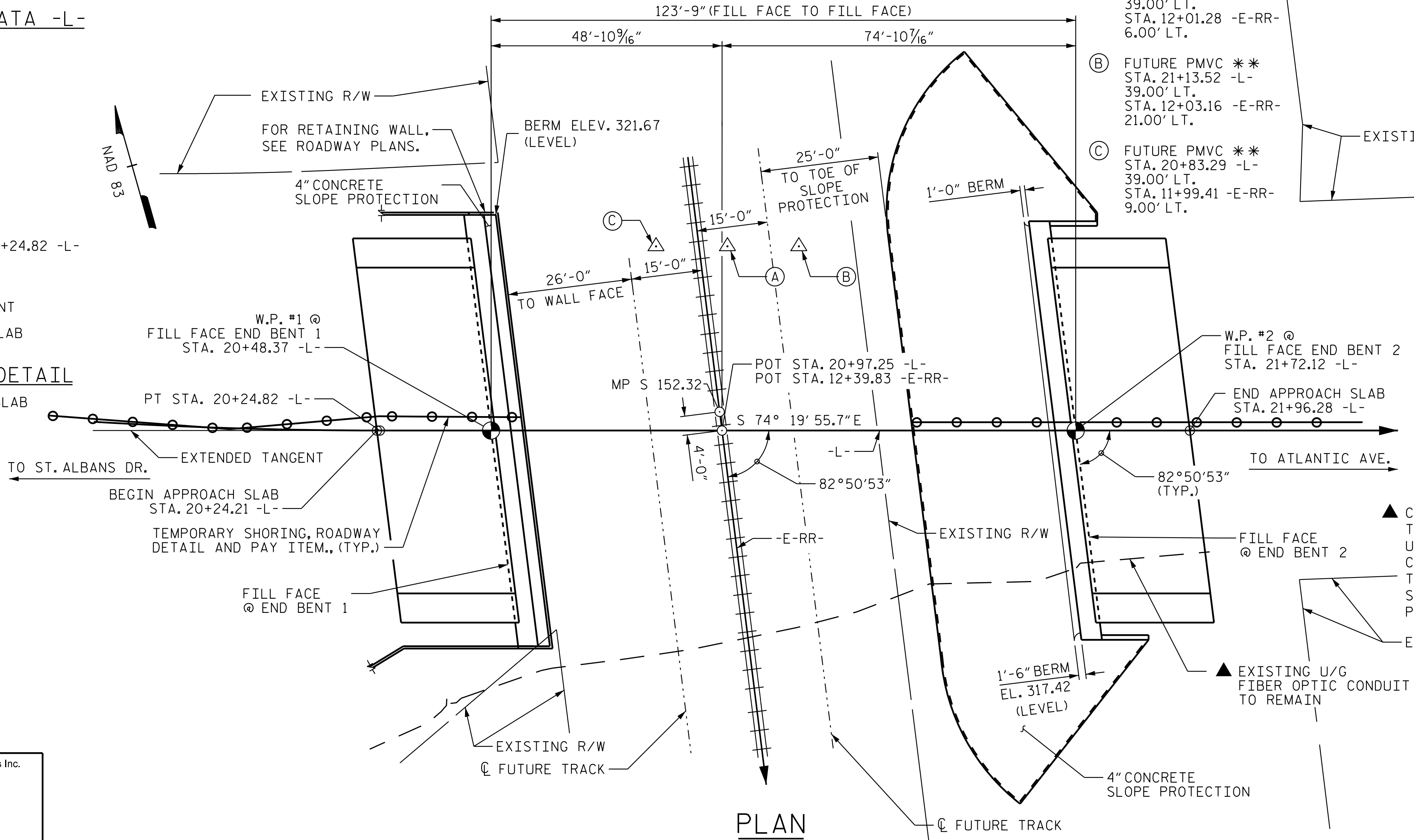
- (A) EXISTING PMVC ** STA. 20+98.40 -L- 39.00' LT. STA. 12+01.28 -E-RR- 6.00' LT.
- (B) FUTURE PMVC ** STA. 21+13.52 -L- 39.00' LT. STA. 12+03.16 -E-RR- 21.00' LT.
- (C) FUTURE PMVC ** STA. 20+83.29 -L- 39.00' LT. STA. 11+99.41 -E-RR- 9.00' LT.

MINIMUM CLEARANCE - RAILROAD

(LOOKING DOWN STATION ALONG RAILROAD)
SPAN LENGTHS BASED ON THIS SECTION. SPAN LENGTH ACCOMODATES 2 FUTURE RAILROAD TRACKS.



EXTENDED TANGENT DETAIL
(AT BEGIN APPROACH SLAB END BENT 1)



PLAN

(PILES NOT SHOWN FOR CLARITY)

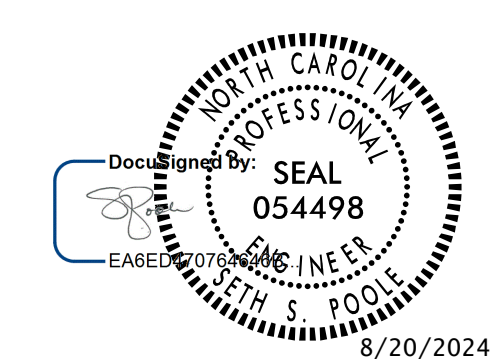
** PMVC DENOTES PT. OF MIN. VERTICAL CLEARANCE.

▲ CONTRACTOR'S ATTENTION IS BROUGHT TO THE PRESENCE OF EXISTING UNDERGROUND FIBER OPTIC CONDUIT. CONTRACTOR SHALL FIELD LOCATE PRIOR TO THE START OF CONSTRUCTION. SEE UTILITY PLANS AND SPECIAL PROVISIONS.

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-
12+39.83 -E-RR-
SHEET 1 OF 5 MILE POST #152.32 BRIDGE #911493

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER CSX RAILROAD
ON SR 2034 (NEW HOPE CHURCH RD.)
BETWEEN ST. ALBANS DR. AND
ATLANTIC AVE.



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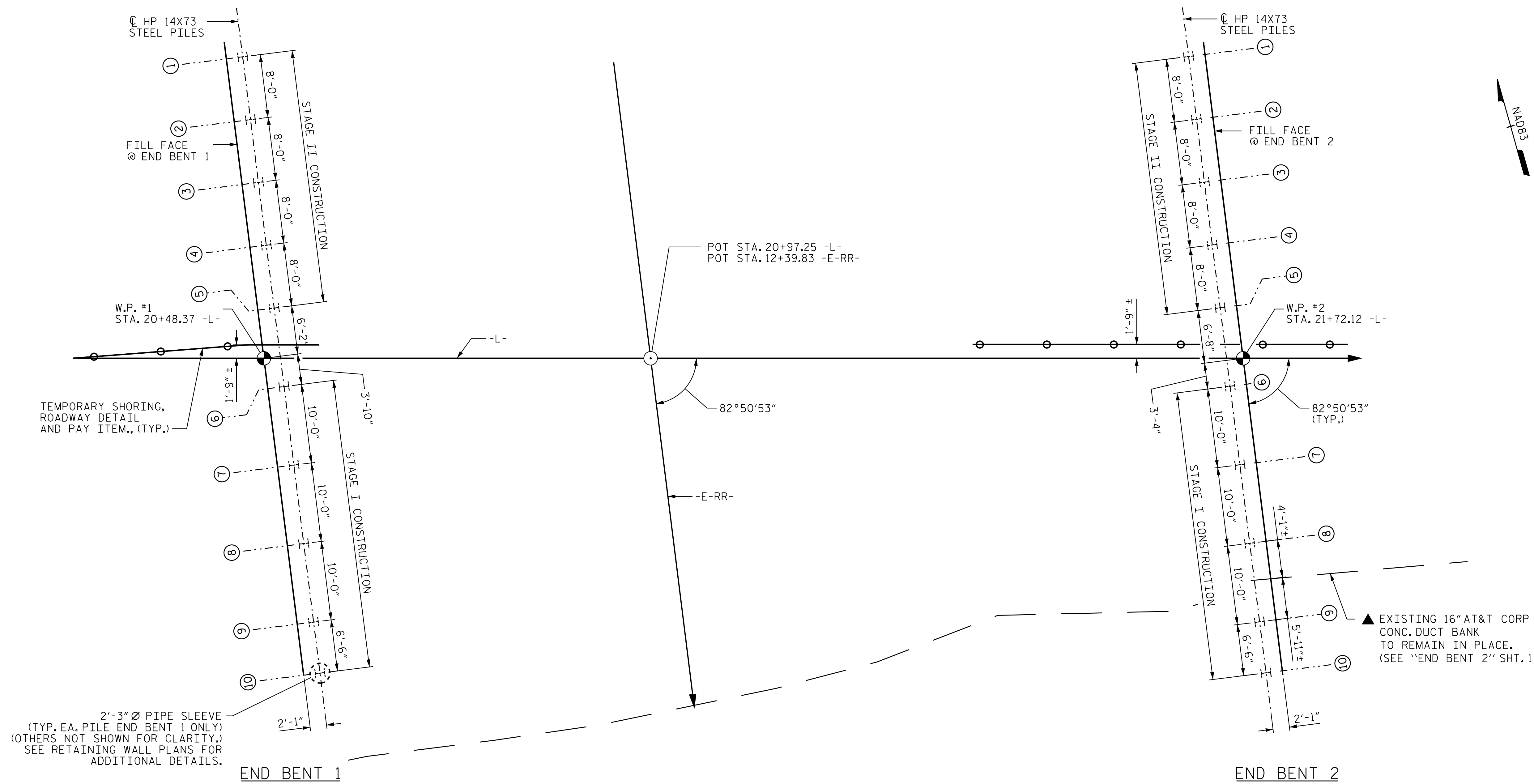
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DRAWN BY : J. B. GEILE DATE : 04/23/18
CHECKED BY : S. S. POOLE DATE : 08/01/24
DESIGN ENGINEER OF RECORD : S. S. POOLE DATE : 08/20/24

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-01	
1			3			TOTAL SHEETS	
2			4			47	

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8/20/2024 5:44:49 PM spooler



▲ CONTRACTOR SHALL FIELD VERIFY CLEARANCE BETWEEN HP 14X73 STEEL PILES AND EXISTING UNDERGROUND FIBER OPTIC CONDUIT. ENGINEER SHALL REVIEW AND APPROVE CLEARANCE CALCULATIONS PRIOR TO ANY PILE CONSTRUCTION. SEE UTILITY PLANS AND SPECIAL PROVISIONS.

▲ EXISTING 16" AT&T CORP CONC. DUCT BANK TO REMAIN IN PLACE. (SEE "END BENT 2" SHT. 1 OF 4.)

2'-3" Ø PIPE SLEEVE (TYP. EA. PILE END BENT 1 ONLY) (OTHERS NOT SHOWN FOR CLARITY.) SEE RETAINING WALL PLANS FOR ADDITIONAL DETAILS.

FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES)

FOUNDATION NOTES:

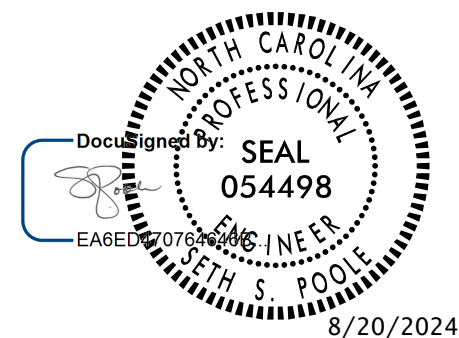
- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES REQUIRED AT END BENTS NO. 1 AND 2.
- OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO FINAL GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENTS NO. 1 AND 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
- IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 75-110 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENTS NO. 1 AND 2. 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. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER CSX RAILROAD
 ON SR 2034 (NEW HOPE CHURCH RD.)
 BETWEEN ST. ALBANS DR. AND
 ATLANTIC AVE.



8/20/2024

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DRAWN BY : J. B. GEILE DATE : 01/22/19
 CHECKED BY : S. S. POOLE DATE : 08/01/24
 DESIGN ENGINEER OF RECORD : S. S. POOLE DATE : 08/20/24

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-02
1			3			TOTAL SHEETS
2			4			47

8/20/2024 5:44:49 PM spocole

SUMMARY OF PILE INFORMATION/ INSTALLATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT/ BENT NO. PILE (S) #-# (e.g., BENT 1, PILES 1-5)	FACTORED RESISTANCE PER PILE TONS	PILE CUT-OFF (TOP OF PILE) ELEVATION FT	ESTIMATED PILE LENGTH PER PILE FT	SCOUR CRITICAL ELEVATION FT	MIN. PILE TIP (TIP NO HIGHER THAN) ELEV FT	REQUIRED DRIVING RESISTANCE (RDR)** PER PILE TONS	TOTAL PILE REDRIVES QUANTITY EACH	PREDRILLING LENGTH PER PILE LIN FT	PREDRILLING ELEVATION (ELEV NOT TO PREDRILL BELOW) FT	MAXIMUM PREDRILLING DIA INCHES	PILE EXCAVATION (BOTTOM OF HOLE) ELEV FT	PILE EXC NOT IN SOIL PER PILE LIN FT	PILE EXC IN SOIL PER PILE LIN FT	
														END BENT 1, PILES 1-5
END BENT 1, PILES 6-10	205	323.32	90			275								
END BENT 2, PILES 1-10	205	318.57	85			275								

* PREDRILLING FOR PILES IS REQUIRED FOR END BENTS/ BENT WITH A PREDRILLING LENGTH AND AT THE CONTRACTOR'S OPTION FOR END BENTS/ BENTS WITH PREDRILLING INFORMATION BUT NO PREDRILLING LENGTH.

** RDR = $\frac{\text{FACTORED RESISTANCE} + \text{FACTORED DOWNDRAW LOAD} + \text{FACTORED DEAD LOAD}}{\text{DYNAMIC RESISTANCE FACTOR}} + \text{NORMAL DOWNDRAW RESISTANCE} + \frac{\text{NORMAL SCOUR RESISTANCE}}{\text{SCOUR RESISTANCE FACTOR}}$

SUMMARY OF DPT/ PILE ORDER LENGTHS

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

DYANMIC PILE TESTING (DPT)				PILE ORDER LENGTHS	
END BENT/ BENT NO.	DPT TESTING REQUIRED? YES OR MAYBE	DPT TEST PILE LENGTH FT	TOTAL DPT TESTING QUANTITY EACH	END BENT/ BENT NO(S)	PILE ORDER LENGTH BASIS* EST OR PDA
END BENT 1, PILES 1-5	YES	85	2		
END BENT 1, PILES 6-10	YES	95			
END BENT 2, PILES 1-10	YES	90			

* EST-PILE ORDER LENGTHS FROM ESTIMATED PILE LENGTHS; DPT-PILE ORDER LENGTHS BASED ON DPT TESTING. FOR GROUPS OF END BENTS/BENTS WITH PILE ORDER LENGTHS BASED ON DPT TESTING END BENT/ BENT NO. LISTED FOR EACH GROUP IS THE REPRESENTATIVE END BENT/ BENT WITH THE DPT.

SUMMARY OF PILE INFORMATION/ INSTALLATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT/ BENT NO. PILE (S) #-# (e.g., BENT 1, PILES 1-5)	FACTORED AXIAL LOAD PER PILE TONS	FACTORED DOWNDRAW LOAD PER PILE TONS	FACTORED DEAD LOAD* PER PILE TONS	DYNAMIC RESISTANCE FACTOR	NOMINAL DOWNDRAW RESISTANCE PER PILE TONS	NOMINAL SCOUR RESISTANCE PER PILE TONS	SCOUR RESISTANCE FACTOR (DEFAULT=1.00)
END BENT 1, PILES 1-10	201	0		0.75			1.00
END BENT 2, PILES 1-10	201	0		0.75			1.00

* FACTORED DEAD LOAD IS FACTORED WEIGHT OF PILE ABOVE THE GROUND LINE.

NOTES:

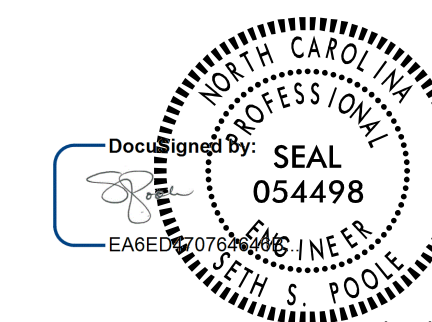
1. THE PILE FOUNDATION TABLES ARE BASED ON THE BRIDGE SUBSTRUCTURE DESIGN AND FOUNDATION RECOMMENDATIONS SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER (JEREMY R HAMM, 039779) ON 04-19-2024.
2. TOTAL PILE DRIVING EQUIPMENT SETUP QUANTITY (NOT SHOWN IN PILE FOUNDATION TABLES) EQUALS THE NUMBER OF DRIVEN PILES, I.E., THE NUMBER OF PILES WITH A REQUIRED DRIVING RESISTANCE.
3. THE ENGINEER WILL DETERMINE THE NEED FOR DPT TESTING AND PIPE PILE PLATES WHEN DPTs OR PLATES MAY BE REQUIRED.

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-03
1			3			TOTAL SHEETS
2			4			47

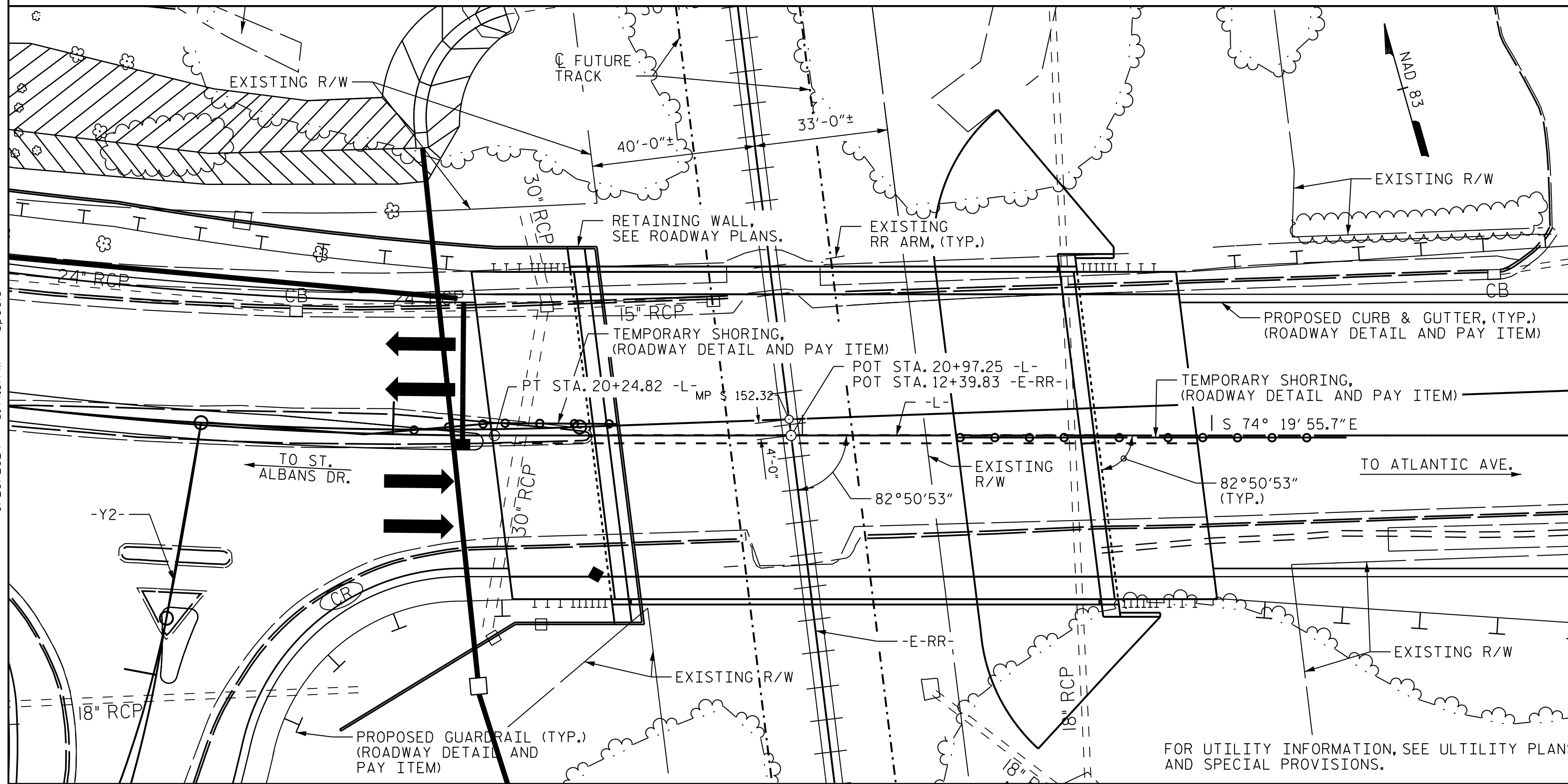
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DRAWN BY : J. B. GEILE DATE : 12/12/23 DESIGN ENGINEER OF RECORD : S. S. POOLE DATE : 08/20/24

U:\Structures\Dr\of\ting\Final\5715_NCR_FT.dgn

BM #2: BENCH TIE NAIL IN 18" TRIPLE OAK, N759098, E2118188, STA. 35+30.25 -L-, 101.14' LT. EL. 266.26



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.
- 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.
- PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- THE RAILROAD TRACK TOP OF RAIL ELEVATIONS ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.
- ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.
- THE EXISTING PAVEMENT WITHIN THE AREA OF THE END BENT PILES SHALL BE REMOVED AND THE ROADBED SCARIFIED TO A MINIMUM DEPTH OF 2'-0".
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- 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.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE SHORING AND EXCAVATION PLANS HAVE BEEN SUBMITTED TO THE RAILROAD BY THE STATE. AS OF THE TIME OF PLAN PRINTING FOR ADVERTISEMENT FOR BIDS, RAILROAD APPROVAL HAS NOT BEEN RECEIVED. WHEN SUCH APPROVAL IS RECEIVED, THE CONTRACTOR WILL BE NOTIFIED BY ADDENDUM. IN THE EVENT RAILROAD APPROVAL IS NOT GIVEN PRIOR TO SUBMISSION OF BIDS, THE CONTRACTOR SHALL SUBMIT BIDS BASED ON THE CONTRACT PLANS. THE CONTRACTOR SHALL NOT BEGIN EXCAVATION AT THE LOCATIONS SHOWN ON THESE PLANS UNTIL NOTIFIED OF RAILROAD APPROVAL.
- FOR LIMITS OF SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- THE CONTRACTOR MAY USE ADHESIVELY ANCHORED (ANCHOR BOLTS/DOWELS) IN PLACE OF #4 U5 SIDEWALK DOWELS. NO FIELD TESTING IS REQUIRED. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SECTION 420-13 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	HP 14x73 STEEL PILES		PILE REDRIVES	DYNAMIC PILE TESTING	THREE BAR METAL RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	BRIDGE MOUNTED BLACK VINYL COATED CHAIN LINK FENCE	MODIFIED 54" PRESTRESSED CONCRETE GIRDERS	
	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	EA.	NO.	LIN.FT.	EA.	EA.	LIN.FT.	SQ.YDS.	LUMP SUM	LIN.FT.	NO.	LIN.FT.
SUPERSTRUCTURE	10,220	11,318		LUMP SUM							229.00		LUMP SUM	228.14	12	1,453
END BENT NO.1			73.2		13,007	10	10	850.00				33				
END BENT NO.2			74.7		12,722	10	10	850.00				1,364				
TOTAL	10,220	11,318	147.9	LUMP SUM	25,729	20	20	1700.00	10	2	229.00	1,397	LUMP SUM	228.14	12	1,453

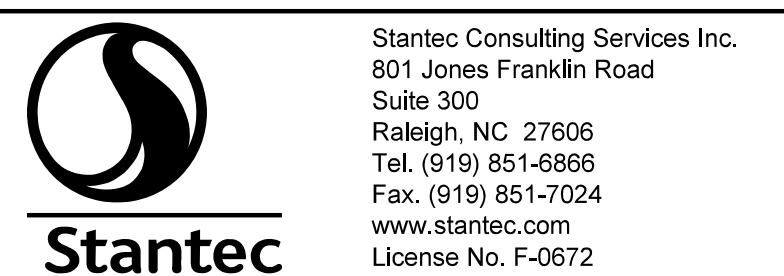
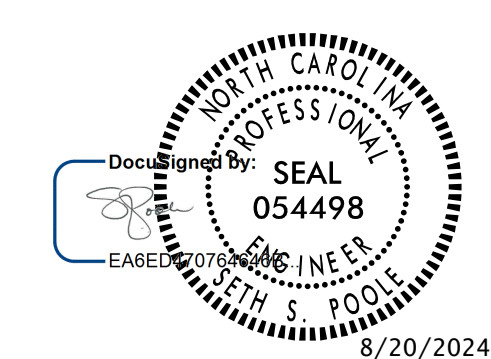
PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CSX RAIL
 ON SR 2034 (NEW HOPE CHURCH RD.)
 BETWEEN ST. ALBANS DR. AND
 ATLANTIC AVE.



DRAWN BY: J. B. GEILE DATE: 02/24/19
 CHECKED BY: S. S. POOLE DATE: 08/01/24
 DESIGN ENGINEER OF RECORD: S. S. POOLE DATE: 08/20/24

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-04
1			3			TOTAL SHEETS
2			4			47

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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 x RF	STRENGTH I LIMIT STATE								SERVICE III LIMIT STATE								COMMENT NUMBER		
						MOMENT				SHEAR				MOMENT										
						LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FF)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FF)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FF)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.04	-	1.75	0.600	1.32	A	EL	59.80	0.810	2.09	A	I	11.40	0.80	0.600	1.04	A	EL	59.80		
	HL-93 (OPERATING)	N/A		1.71	-	1.35	0.600	1.71	A	EL	59.80	0.810	2.76	A	I	11.40	N/A	-	-	-	-	-		
	HS-20 (INVENTORY)	36.000	②	1.52	54.720	1.75	0.600	1.92	A	EL	59.80	0.810	2.98	A	I	11.40	0.80	0.600	1.52	A	EL	59.80		
	HS-20 (OPERATING)	36.000		2.49	89.640	1.35	0.600	2.49	A	EL	59.80	0.810	3.90	A	I	11.40	N/A	-	-	-	-	-		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		2.87	38.745	1.40	0.600	4.05	A	I	59.80	0.760	5.90	A	I	96.20	0.80	0.600	2.87	A	I	59.80	
		SNGARBS2	20,000		2.63	52.600	1.40	0.600	3.92	A	I	59.80	0.760	6.07	A	I	96.20	0.80	0.600	2.63	A	EL	59.80	
		SNAGRIS2	22,000		1.52	33.440	1.40	0.600	2.39	A	EL	59.80	0.810	3.70	A	I	11.40	0.80	0.600	1.52	A	EL	59.80	
		SNCOTTS3	27,250		1.83	49.868	1.40	0.600	2.90	A	EL	59.80	0.810	4.46	A	I	11.40	0.80	0.600	1.83	A	EL	59.80	
		SNAGGRS4	34,925		2.53	88.360	1.40	0.600	4.00	A	EL	59.80	0.810	6.01	A	I	11.40	0.80	0.600	2.53	A	EL	59.80	
		SNS5A	35,550		1.47	52.259	1.40	0.600	2.33	A	EL	59.80	0.810	3.79	A	I	11.40	0.80	0.600	1.47	A	EL	59.80	
		SNS6A	39,950		1.34	53.533	1.40	0.600	2.12	A	EL	59.80	0.810	3.44	A	I	11.40	0.80	0.600	1.34	A	EL	59.80	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.65	54.450	1.40	0.600	2.61	A	EL	59.80	0.810	4.13	A	I	11.40	0.80	0.600	1.65	A	EL	59.80	
		TNT4A	33,075		1.63	53.912	1.40	0.600	2.57	A	EL	59.80	0.810	3.98	A	I	11.40	0.80	0.600	1.63	A	EL	59.80	
		TNT6A	41,600		1.31	54.496	1.40	0.600	2.07	A	EL	59.80	0.810	3.62	A	I	108.30	0.80	0.600	1.31	A	EL	59.80	
		TNT7A	42,000		1.31	55.020	1.40	0.600	2.07	A	EL	59.80	0.810	3.53	A	I	108.30	0.80	0.600	1.31	A	EL	59.80	
		TNT7B	42,000		1.35	56.700	1.40	0.600	2.14	A	EL	59.80	0.810	3.26	A	I	11.40	0.80	0.600	1.35	A	EL	59.80	
		TNAGRIT4	43,000		1.29	53.470	1.40	0.600	2.05	A	EL	59.80	0.810	3.18	A	I	11.40	0.80	0.600	1.29	A	EL	59.80	
		TNAGT5A	45,000	③	1.22	54.900	1.40	0.600	1.93	A	EL	59.80	0.810	3.17	A	I	11.40	0.80	0.600	1.22	A	EL	59.80	
TNAGT5B	45,000	③	1.22	54.900	1.40	0.600	1.93	A	EL	59.80	0.810	3.02	A	I	11.40	0.80	0.600	1.22	A	EL	59.80			
EMERGENCY VEHICLE (EV)	EV2	28,750		1.85	53.188	1.30	0.600	3.15	A	EL	59.80	0.810	5.57	A	I	23.50	0.80	0.600	1.85	A	EL	59.80		
	EV3	43,000	④	1.22	104.920	1.30	0.600	2.08	A	EL	59.80	0.810	3.69	A	I	23.50	0.80	0.600	1.22	A	EL	59.80		

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:

- SPAN SHOWN IN THE LRFR SUMMARY CORRESPONDS TO THE COMPOSITE DEAD LOAD AND LIVE LOAD MODEL USED FOR ANALYSIS.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

④ EMERGENCY VEHICLE RATING **

** SEE CHART FOR VEHICLE TYPE

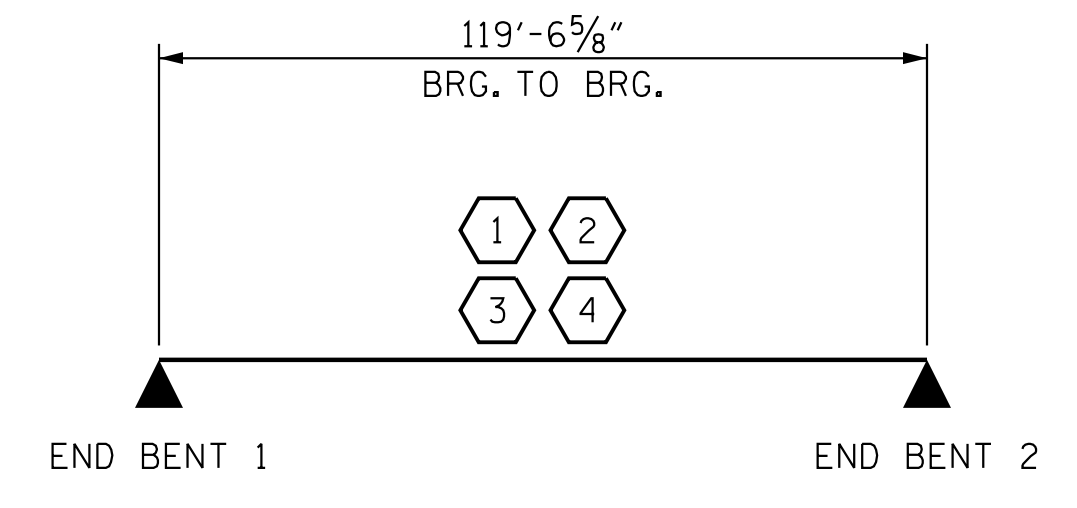
GIRDER LOCATION

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

GIRDER PROPERTIES

MODIFIED 54" PRESTRESSED CONCRETE GIRDER

AREA = 707 SQ. IN.
 WEIGHT = 737 LB/FT.
 Y_{BOTTOM} = 27.79 IN.
 Y_{TOP} = 26.21 IN.
 I_{xx} = 277,560 IN.⁴
 I_{yy} = 40,051 IN.⁴
 V/S = 3.23 IN.



LRFR SUMMARY

PROJECT NO. P-5715

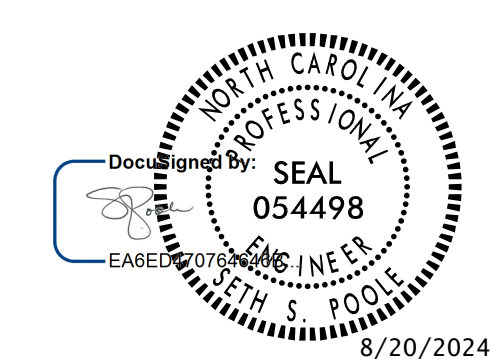
WAKE COUNTY

STATION: 20+97.25 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-05
1			3			TOTAL SHEETS
2			4			47

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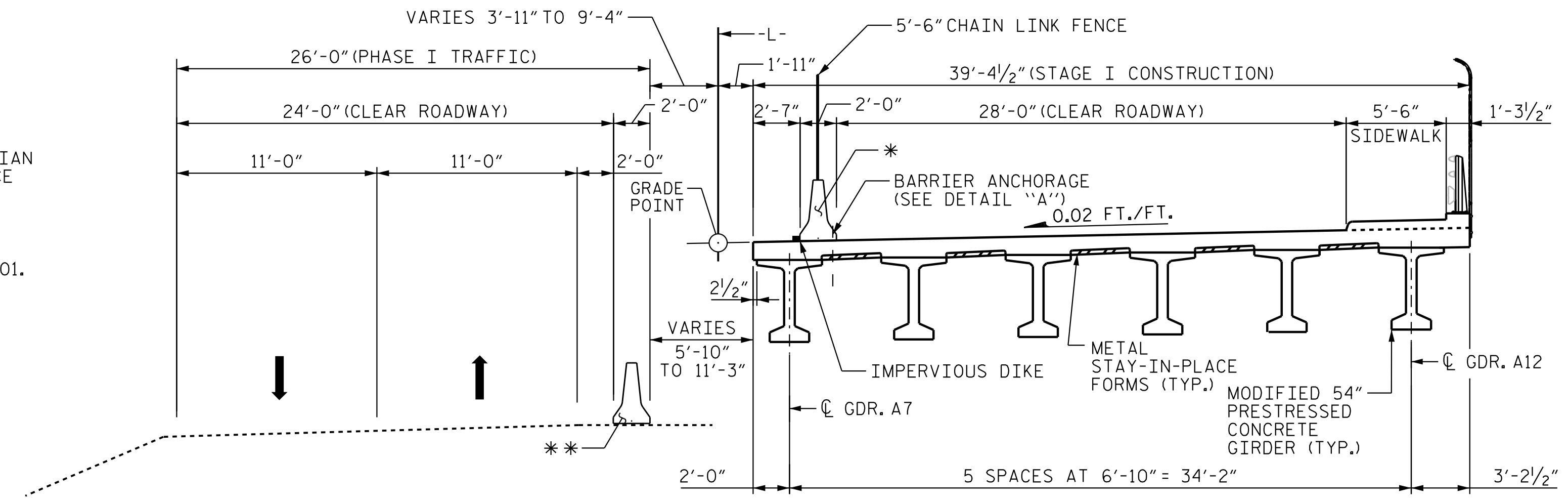
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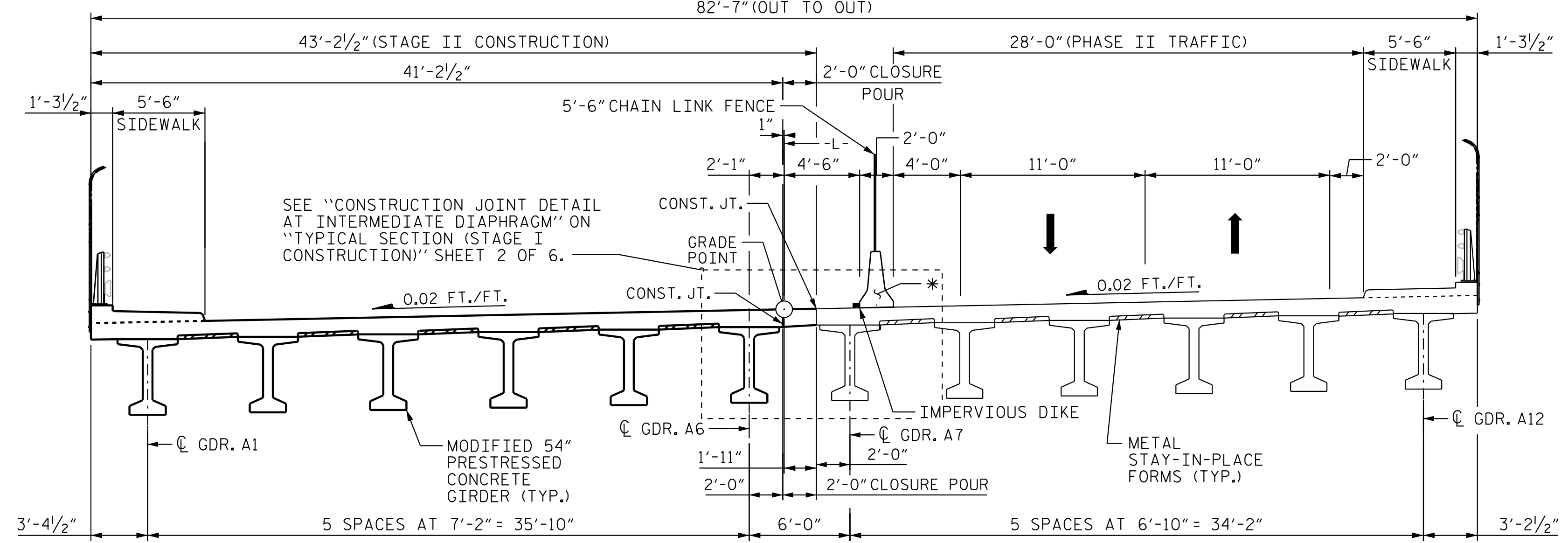
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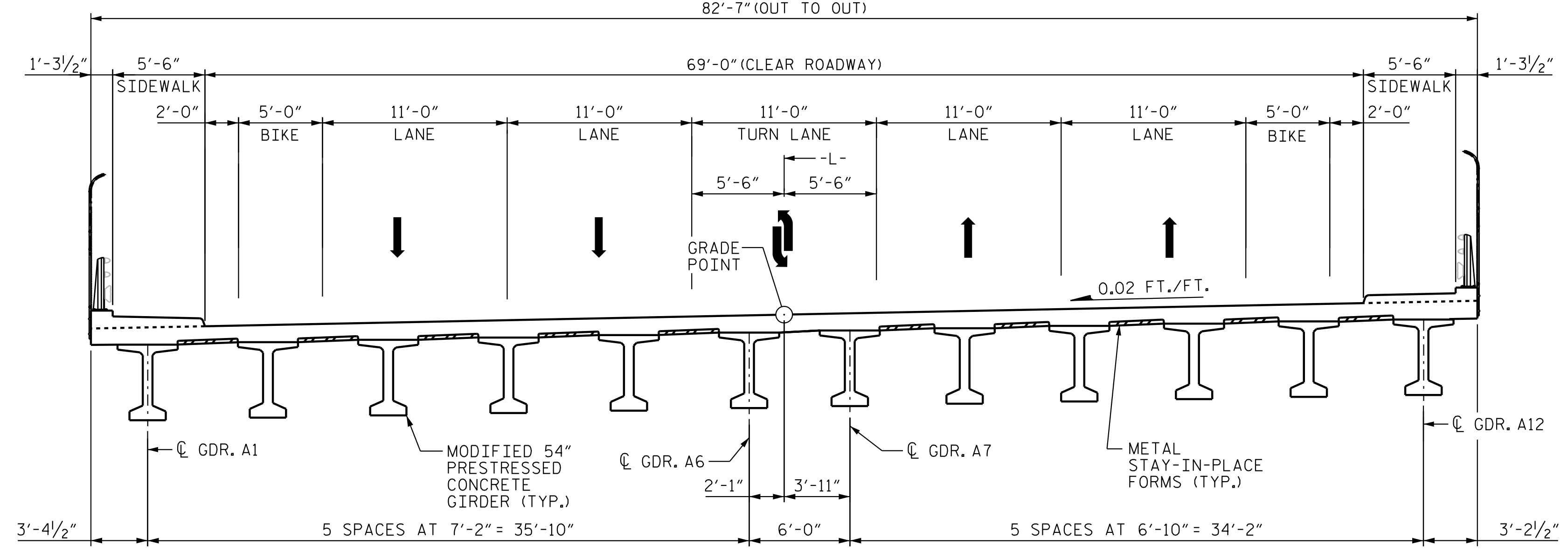
- * FOR PORTABLE PRECAST CONCRETE MEDIAN BARRIER ANCHORED TO BRIDGE DECK, (TRAFFIC CONTROL DETAIL AND PAY ITEM), SEE NCDOT STD. 854.04 & 1170.01. THE COST TO FURNISH AND INSTALL 5'-6" CHAIN LINK FENCE MOUNTED TO PORTABLE PRECAST CONCRETE MEDIAN BARRIER SHALL BE INCLUDED IN THE BID PRICE FOR ANCHORED PORTABLE CONCRETE BARRIER.
 - ** FOR PORTABLE PRECAST CONCRETE MEDIAN BARRIER, (TRAFFIC CONTROL DETAIL AND PAY ITEM), SEE NCDOT STD. 854.04 & 1170.01.
- SEE TRANSPORTATION MANAGEMENT PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.



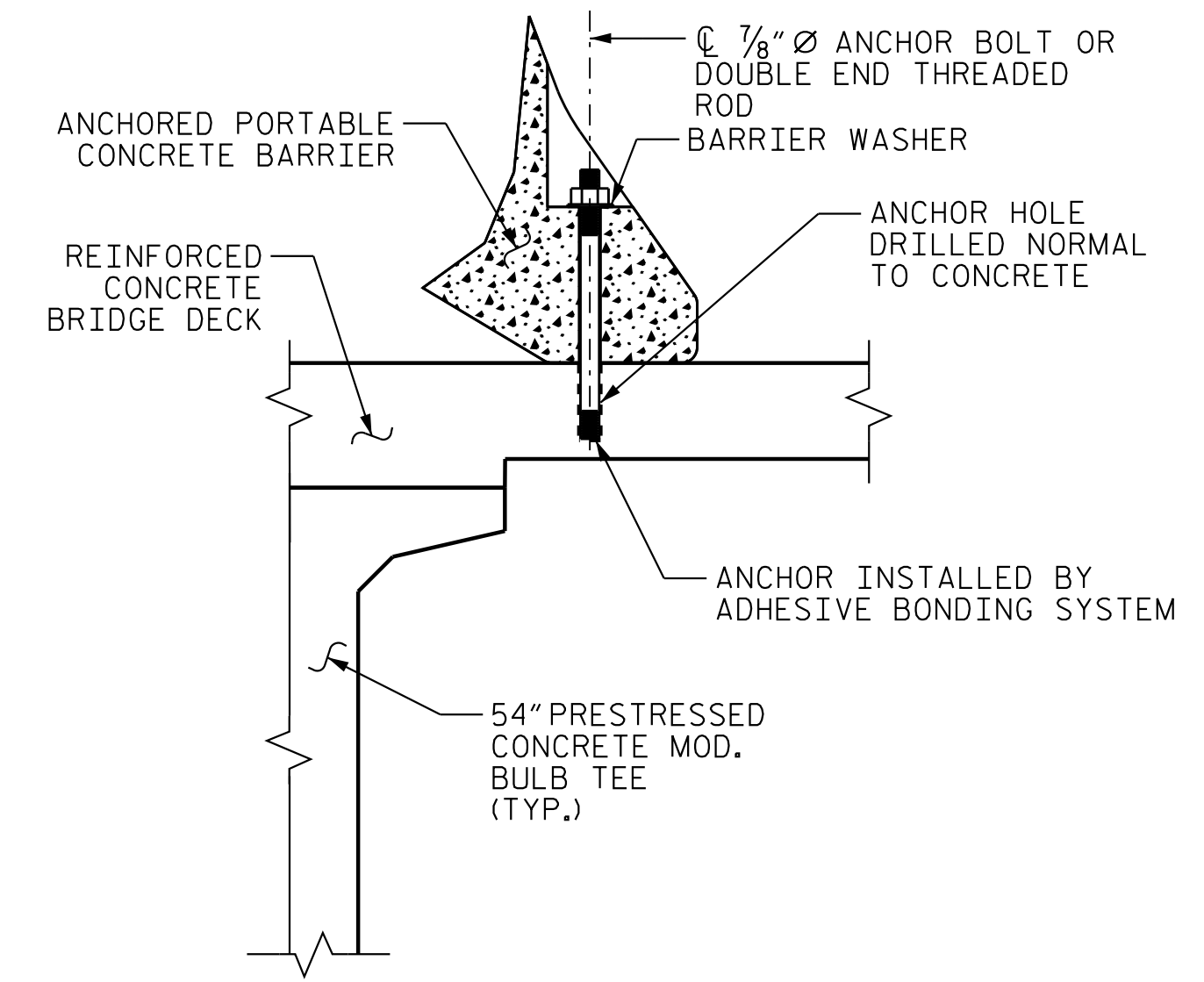
PHASE I TRAFFIC, STAGE I CONSTRUCTION



PHASE II TRAFFIC, STAGE II CONSTRUCTION



FINAL CONDITION

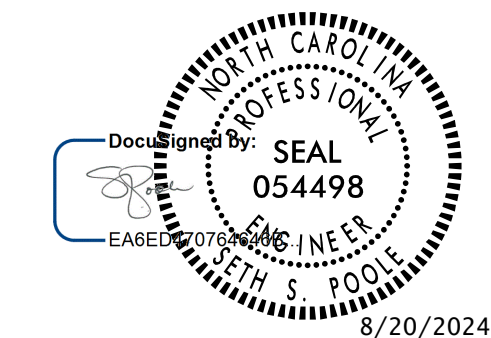


DETAIL "A"

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 BRIDGE CONSTRUCTION
 STAGING



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-06
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2			4			47

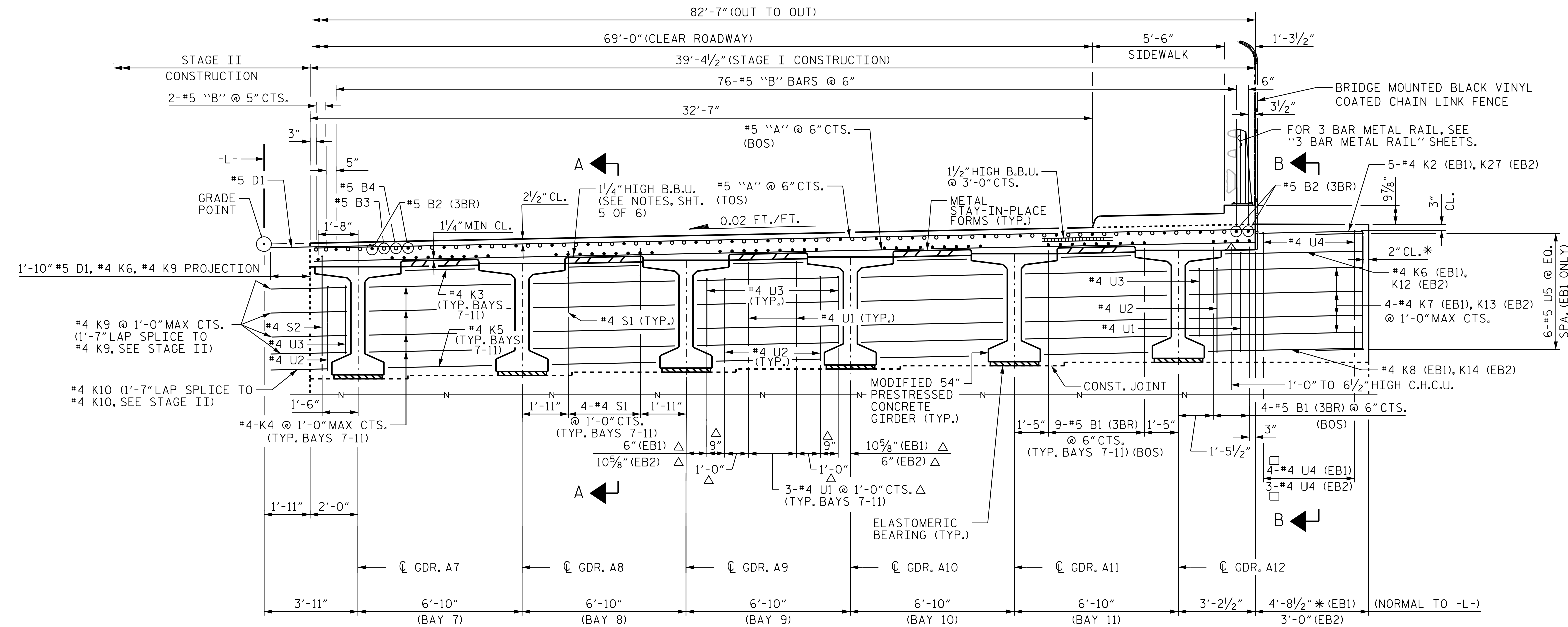
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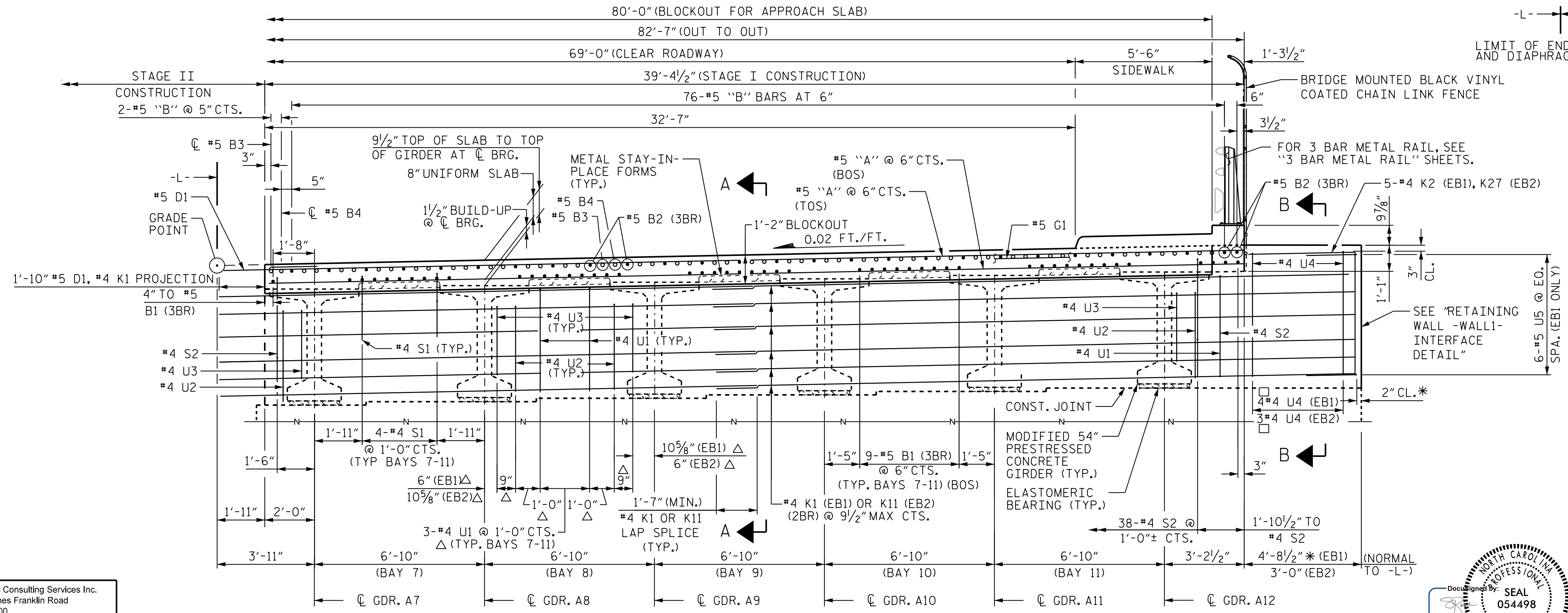
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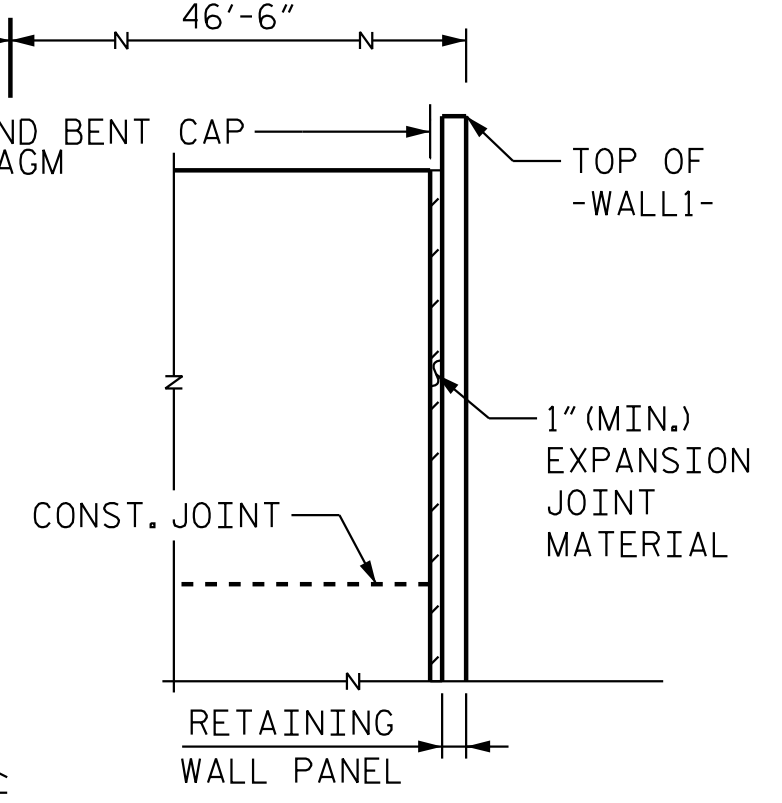
TYPICAL SECTION - INTEGRAL DIAPHRAGM AT FRONT FACE (STAGE I CONSTRUCTION)



TYPICAL SECTION - INTEGRAL DIAPHRAGM AT FILL FACE (STAGE I CONSTRUCTION)

#4 S2 BARS MAY BE REPOSITIONED AS NECESSARY TO CLEAR GIRDERS

- NOTES**
- SEE "TYPICAL SECTION (STAGE I DETAILS)", SHEET 5 OF 6 FOR ADDITIONAL NOTES.
 - DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT
 - DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT
 - (3BR) DENOTES 3 BAR RUN
 - (TOS) DENOTES TOP OF SLAB
 - (BOS) DENOTES BOTTOM OF SLAB
 - FOR "S" AND "U" BARS IN BAY 6 SEE "CONSTRUCTION JOINT DETAILS" ON "TYPICAL SECTION (STAGE II CONSTRUCTION)", SHEET 4 OF 6
 - Δ MEASURED ALONG FRONT FACE
 - SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE I)", SHEET 3 OF 4 AND "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE II)", SHEET 4 OF 4, FOR SPACING OF U4 BARS IN THE END OF THE DIAPHRAGM
 - (EB1) DENOTES END BENT 1
 - (EB2) DENOTES END BENT 2
 - * DIMENSIONS TO BE FIELD ADJUSTED, AS NECESSARY, DEPENDING ON RETAINING WALL PANEL THICKNESS. DIMENSIONS, REBAR QUANTITIES, AND CONCRETE QUANTITIES ARE BASED ON A 5" RETAINING WALL PANEL THICKNESS AND 1" JOINT MATERIAL BETWEEN FILL FACE OF RETAINING WALL AND END OF END BENT CAP AND DIAPHRAGM.



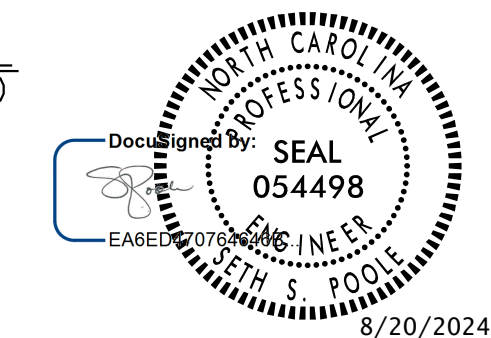
RETAINING WALL - WALL1- INTERFACE DETAIL

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 (STAGE I CONSTRUCTION)



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1			3			TOTAL SHEETS 47
2			4			

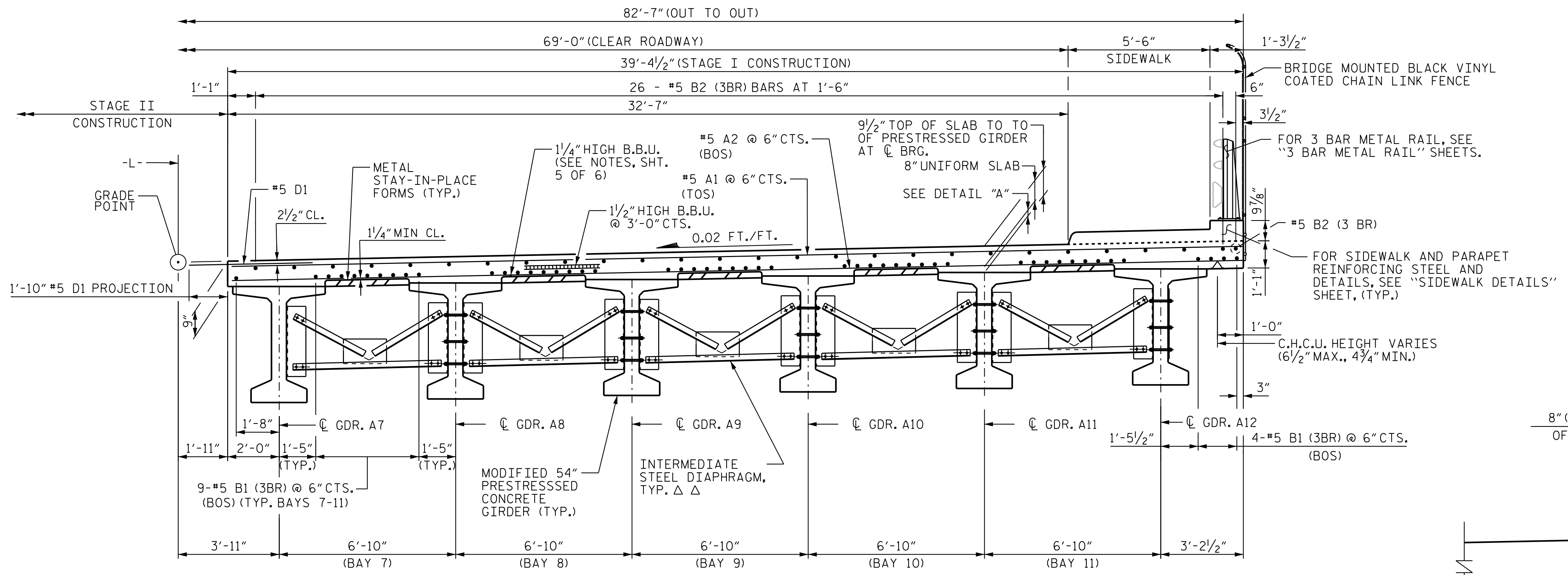
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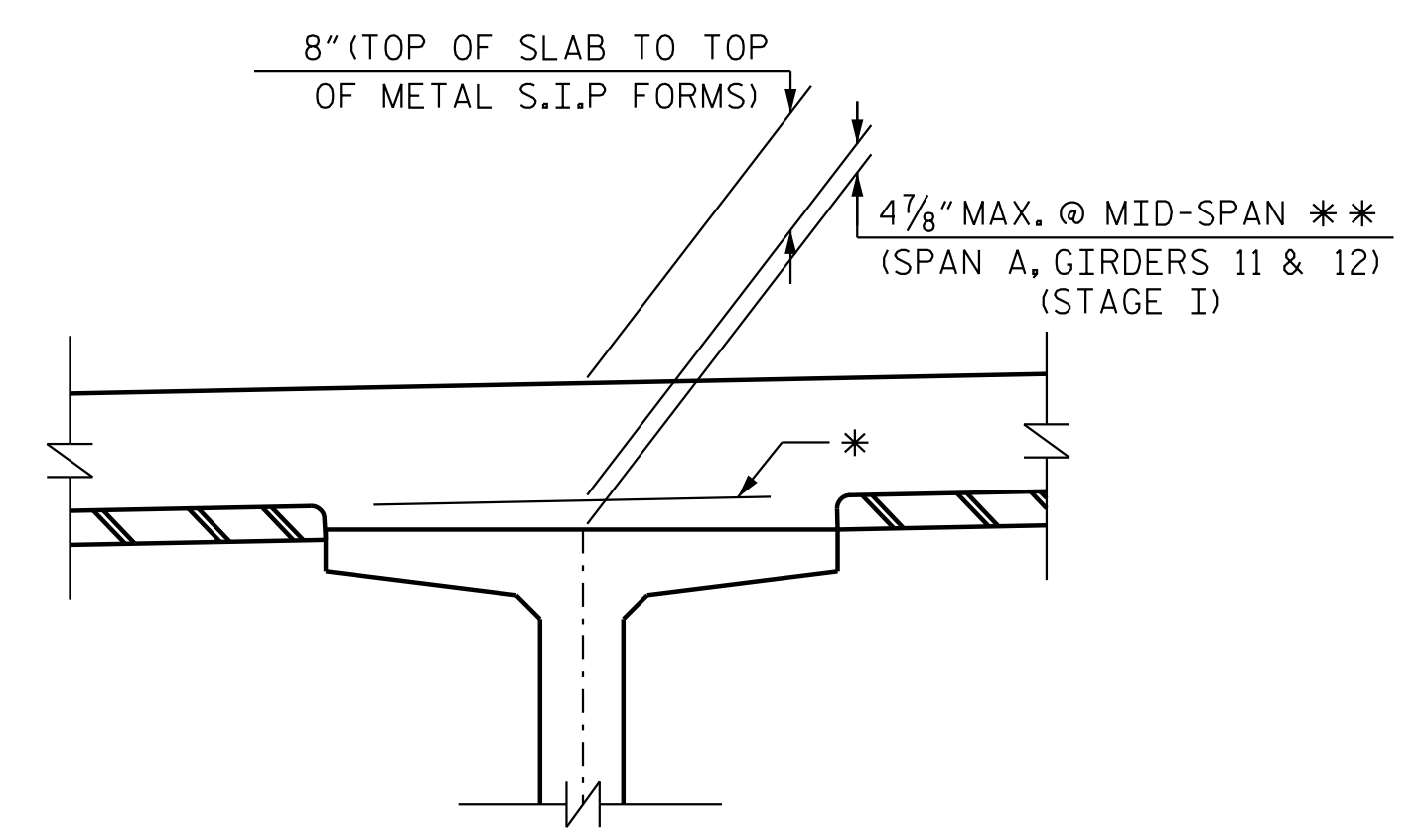
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 CHECKED BY: S. S. POOLE DATE: 08/01/24

DESIGN ENGINEER OF RECORD: S. S. POOLE DATE: 08/20/24

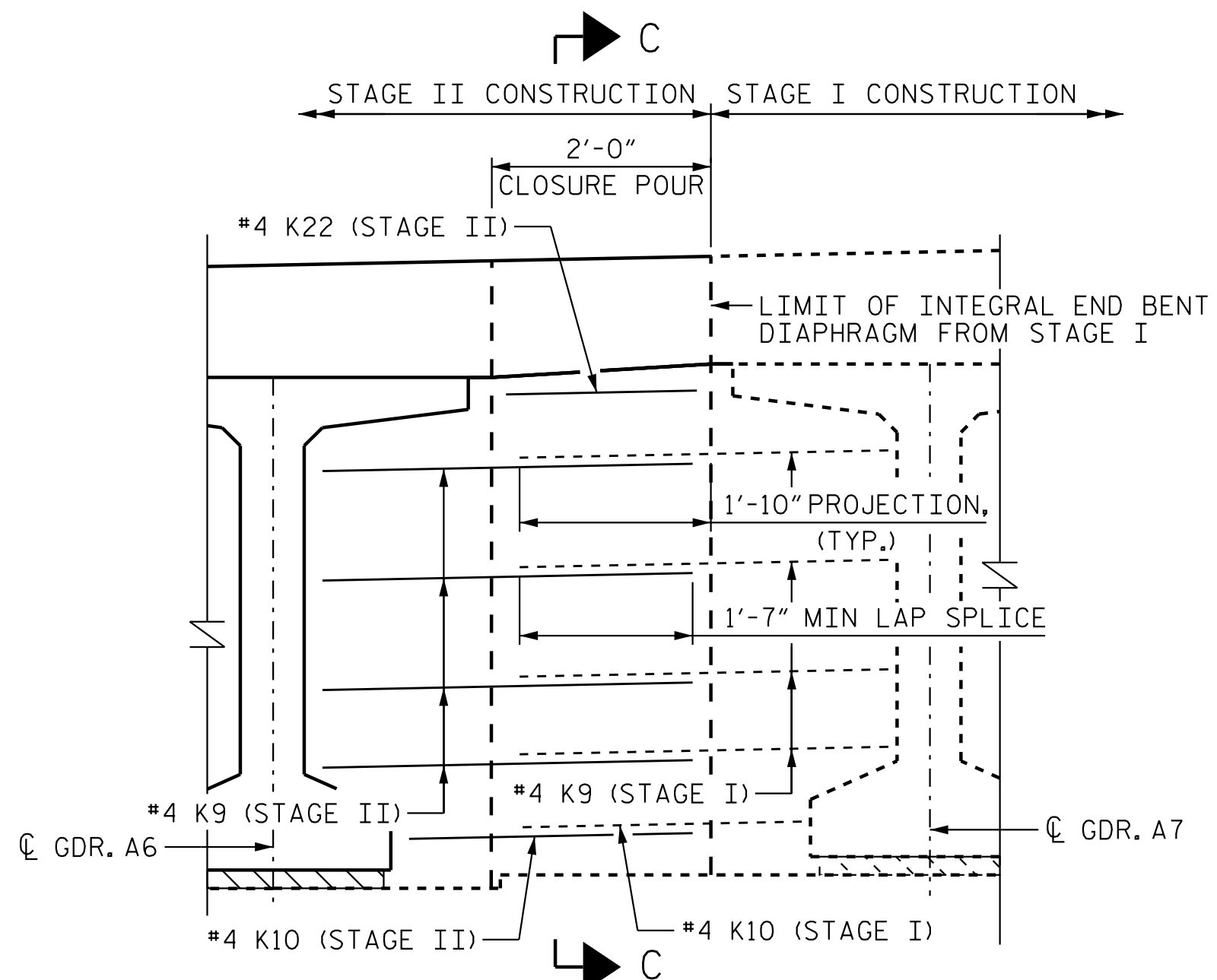
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NOTES
 SEE "TYPICAL SECTION (STAGE I DETAILS)", SHEET 5 OF 6 FOR ADDITIONAL NOTES.
 SEE "TYPICAL SECTION (STAGE II DETAILS)", SHEET 6 OF 6 FOR ADDITIONAL NOTES.
 • DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
 ○ DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
 (3BR) DENOTES 3 BAR RUN.
 Δ Δ FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 54" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.
 (TOS) DENOTES TOP OF SLAB
 (BOS) DENOTES BOTTOM OF SLAB

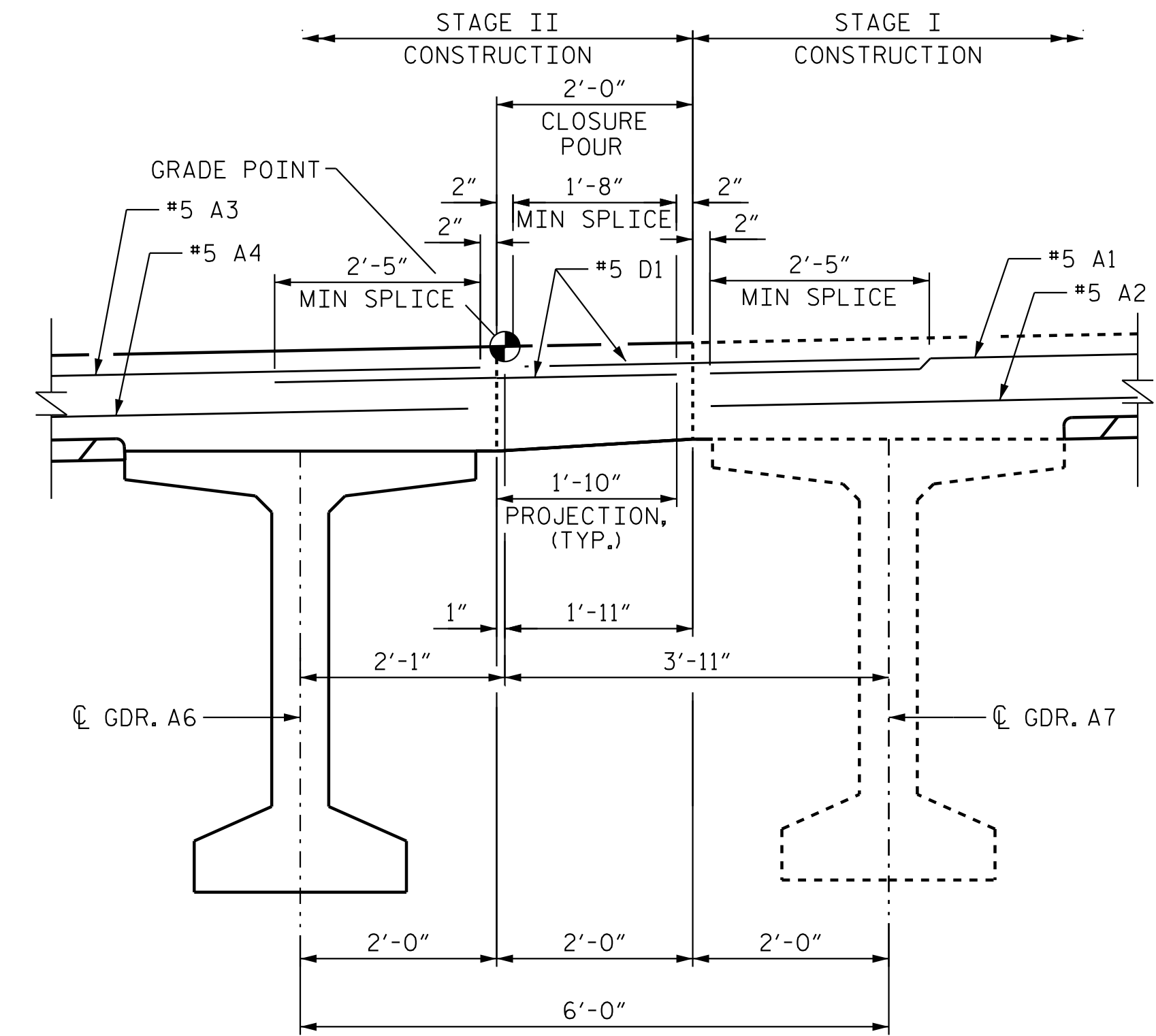


TYPICAL SECTION - INTERMEDIATE DIAPHRAGM (STAGE I CONSTRUCTION)



CONSTRUCTION JOINT DETAIL AT FRONT FACE

SHOWING PLACEMENT OF "K" BARS ("A" BARS, "B" BARS, "U" BARS, "S" BARS, AND D1 BARS) NOT SHOWN FOR CLARITY.



CONSTRUCTION JOINT DETAIL AT INTERMEDIATE DIAPHRAGM

SHOWING RELATIONSHIP BETWEEN "A" BARS AND D1 IN SLAB ("B" BARS NOT SHOWN FOR CLARITY)

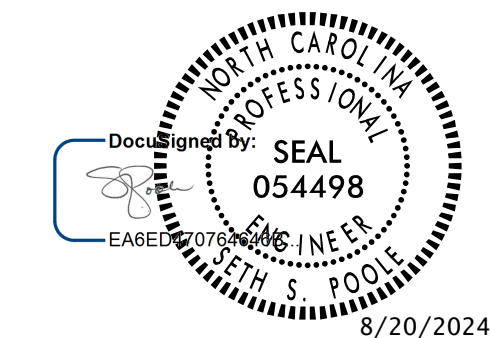
* TOP OF METAL STAY-IN-PLACE FORMS TO MATCH BOTTOM OF SLAB (TYP.)
 ** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 (STAGE I CONSTRUCTION)



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2			4			47

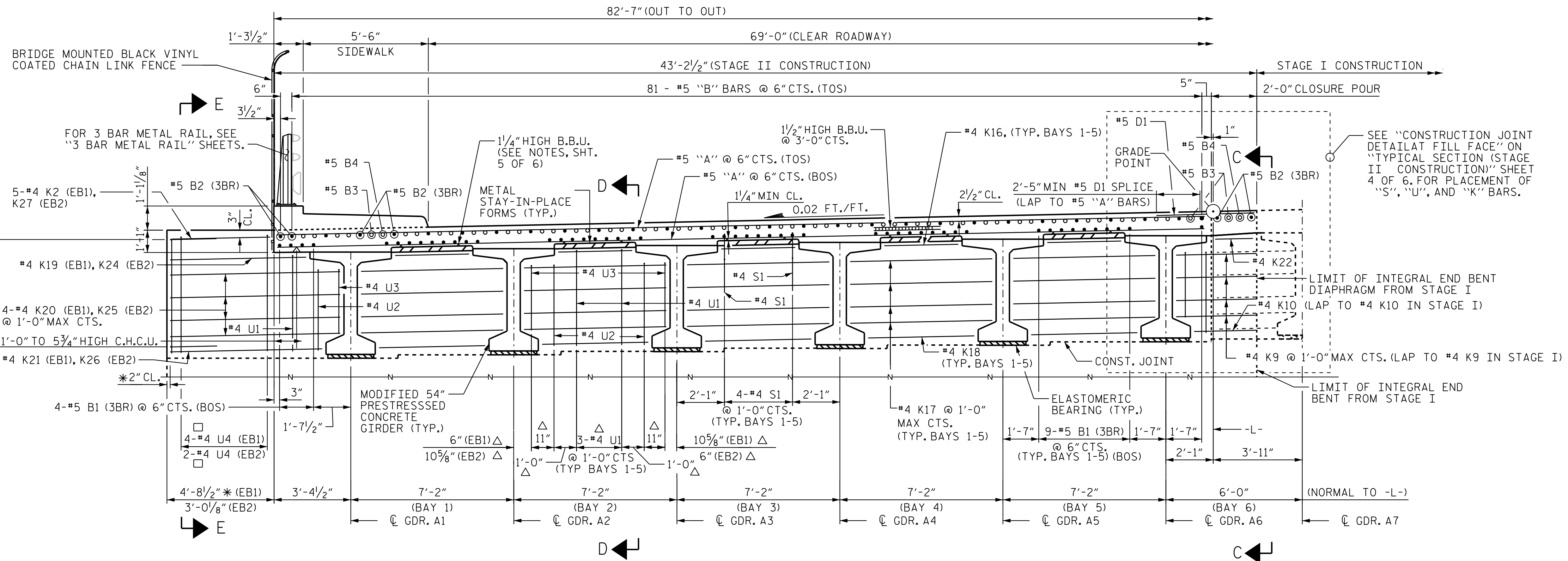
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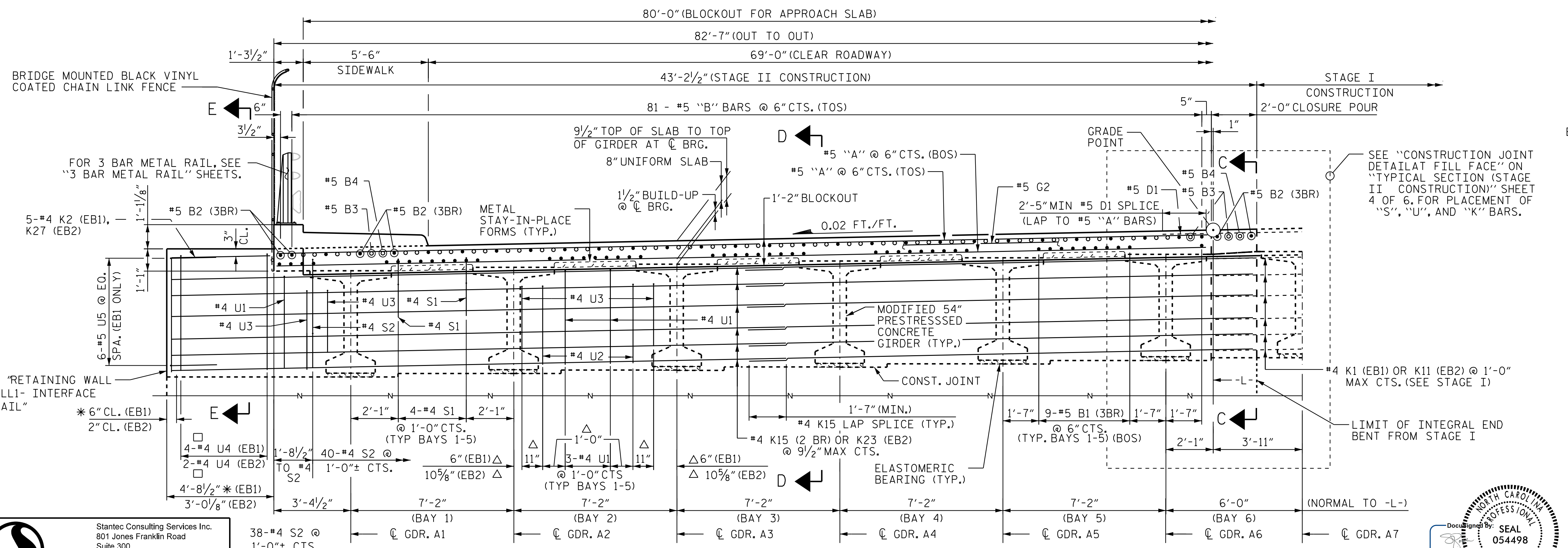
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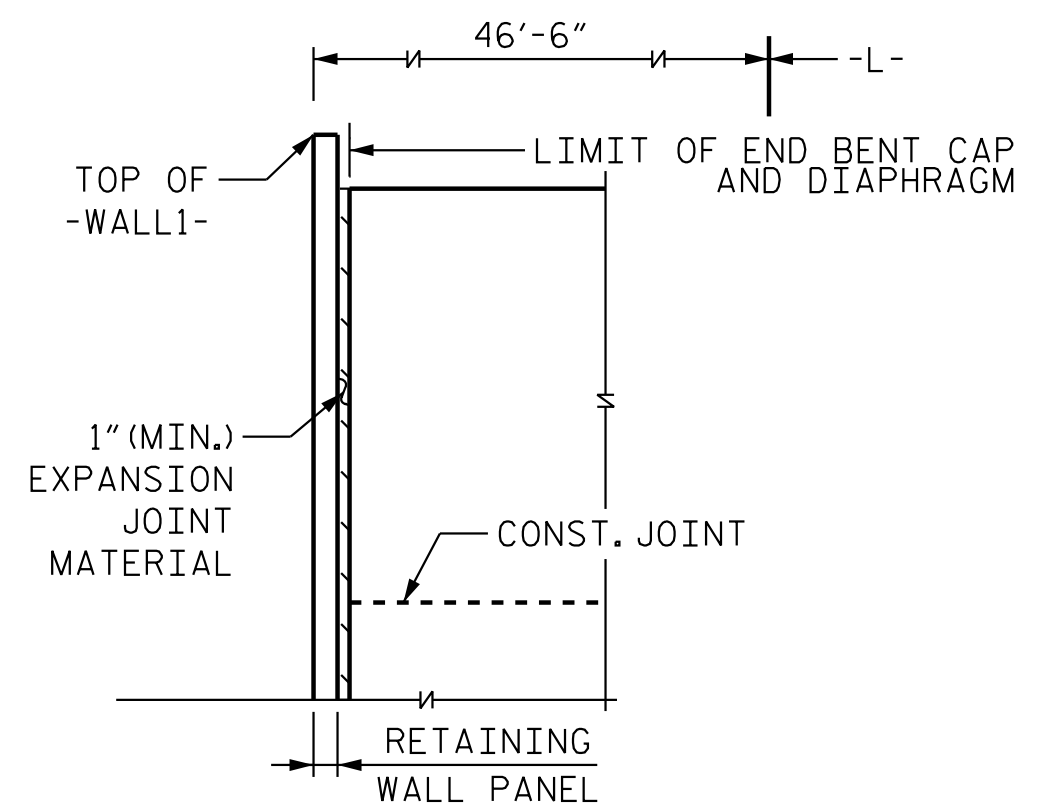
TYPICAL SECTION - INTEGRAL DIAPHRAGM AT FRONT FACE (STAGE II CONSTRUCTION)



TYPICAL SECTION - INTEGRAL DIAPHRAGM AT FILL FACE (STAGE II CONSTRUCTION)

#4 S2 MAY BE REPOSITIONED AS NECESSARY TO CLEAR GIRDERS

- NOTES**
- SEE "TYPICAL SECTION (STAGE I DETAILS)", SHEET 5 OF 6 FOR ADDITIONAL NOTES.
 - DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT
 - ◊ DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT
 - (3BR) DENOTES 3 BAR RUN
 - (TOS) DENOTES TOP OF SLAB
 - (BOS) DENOTES BOTTOM OF SLAB
 - FOR "S" AND "U" BARS IN BAY 6 SEE "CONSTRUCTION JOINT DETAILS" ON "TYPICAL SECTION (STAGE II CONSTRUCTION)", SHEET 4 OF 6
 - △ MEASURED ALONG FRONT FACE
 - SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE I)", SHEET 3 OF 4 AND "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE II)", SHEET 4 OF 4, FOR SPACING OF U4 BARS IN THE END OF THE DIAPHRAGM
 - (EB1) DENOTES END BENT 1
 - (EB2) DENOTES END BENT 2
 - * DIMENSIONS TO BE FIELD ADJUSTED, AS NECESSARY, DEPENDING ON RETAINING WALL PANEL THICKNESS, DIMENSIONS, REBAR QUANTITIES, AND CONCRETE QUANTITIES ARE BASED ON A 5" RETAINING WALL PANEL THICKNESS AND 1" JOINT MATERIAL BETWEEN FILL FACE OF RETAINING WALL AND END OF END BENT CAP AND DIAPHRAGM.



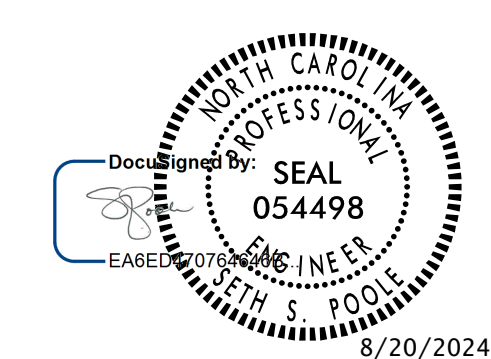
RETAINING WALL - WALL1- INTERFACE DETAIL

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 (STAGE II CONSTRUCTION)



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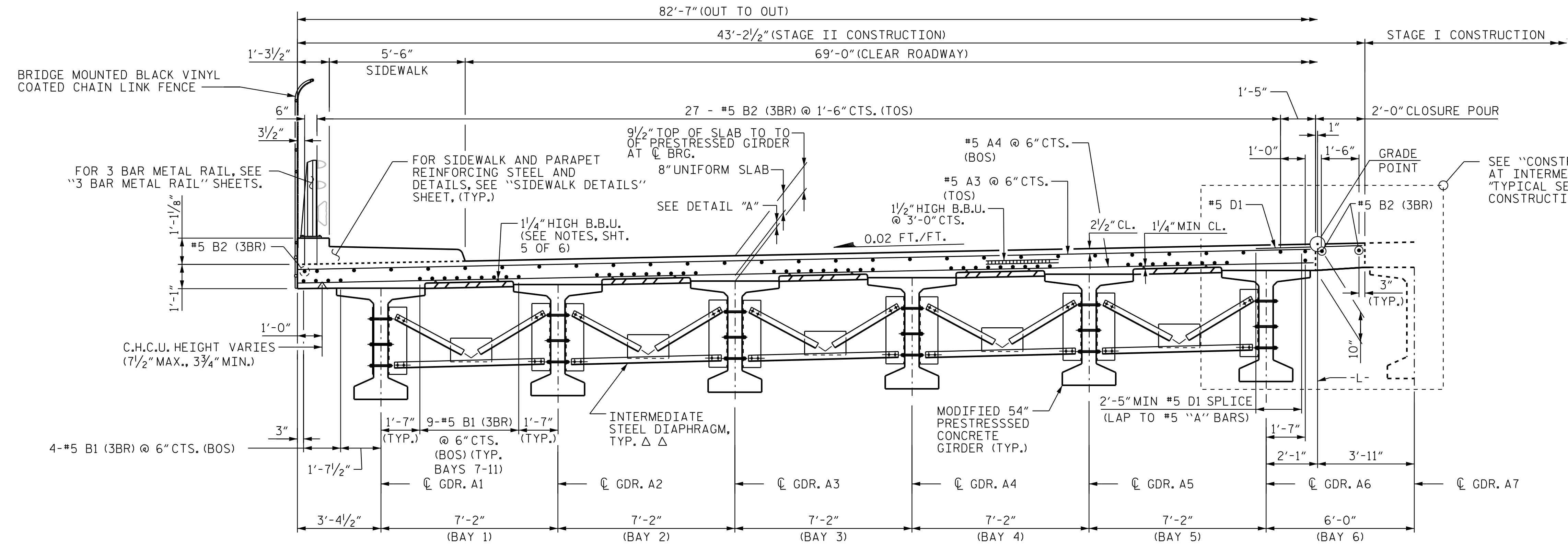
DRAWN BY: J. B. GEILE DATE: 02/11/19
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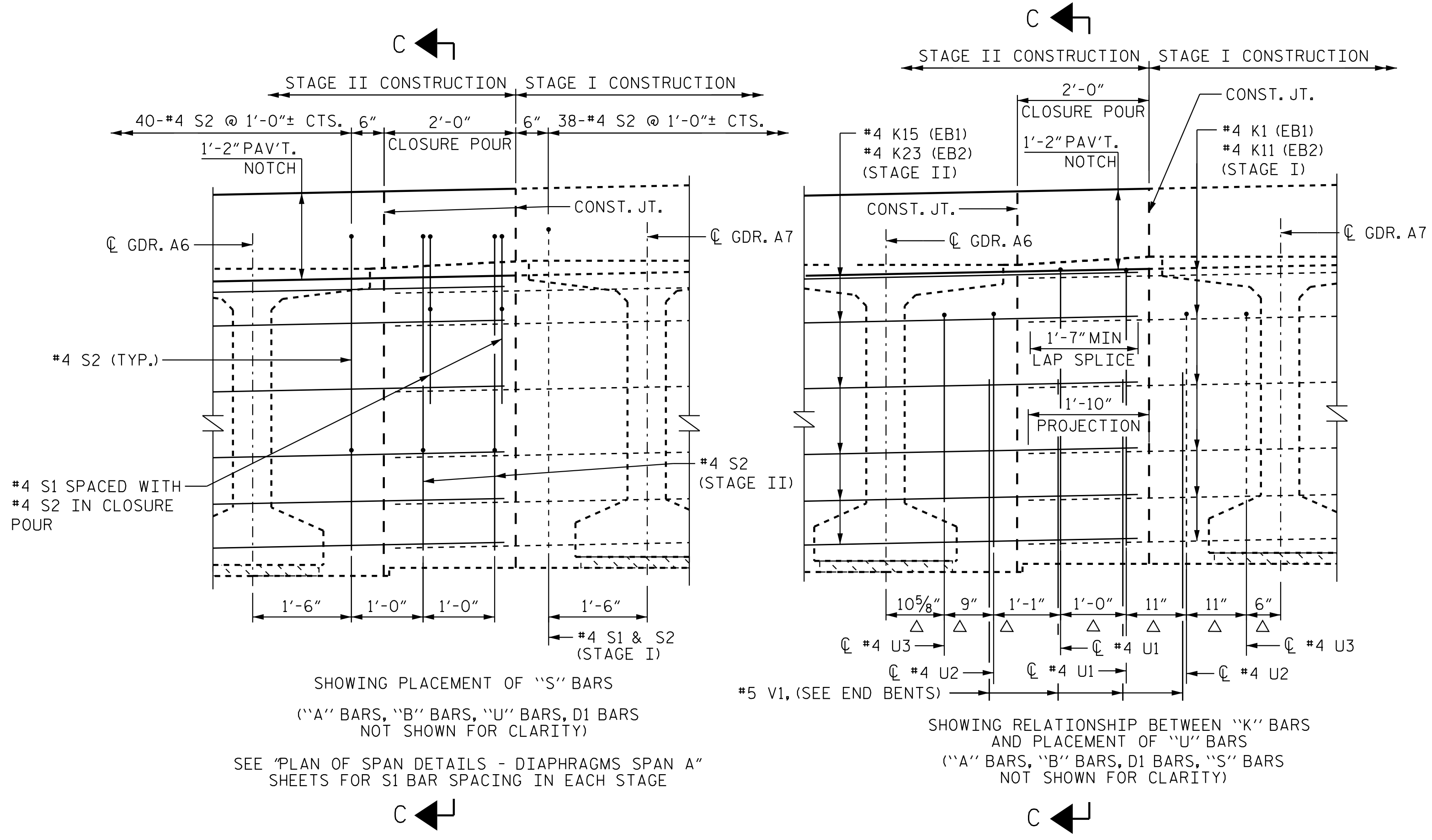
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-09
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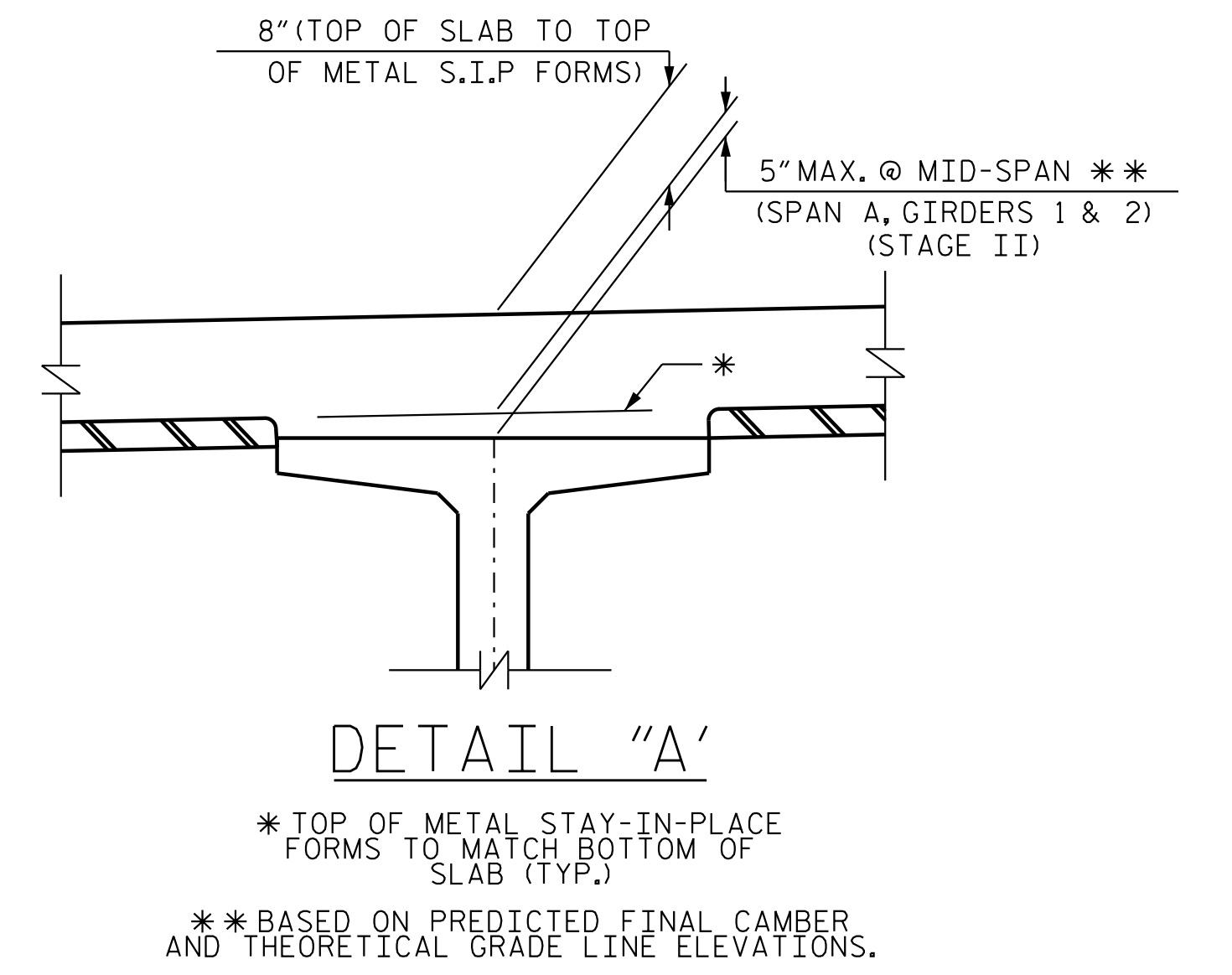
TYPICAL SECTION - INTERMEDIATE DIAPHRAGM (STAGE II CONSTRUCTION)



CONSTRUCTION JOINT DETAIL AT FILL FACE

END BENT 1 SHOWN, END BENT 2 SIMILAR

- NOTES**
- SEE "TYPICAL SECTION (STAGE II DETAILS)", SHEET 6 OF 6 FOR ADDITIONAL NOTES.
 - DENOTES CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
 - DENOTES NON-CONTINUOUS LONGITUDINAL DECK REINFORCEMENT.
 - (3BR) DENOTES 3 BAR RUN.
 - (TOS) DENOTES TOP OF SLAB
 - (BOS) DENOTES BOTTOM OF SLAB
 - △△ FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 54" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.
 - △ MEASURED ALONG FRONT FACE



DETAIL "A"

* TOP OF METAL STAY-IN-PLACE FORMS TO MATCH BOTTOM OF SLAB (TYP.)

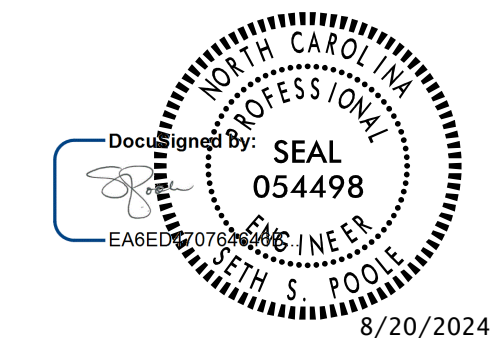
** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION (STAGE II CONSTRUCTION)



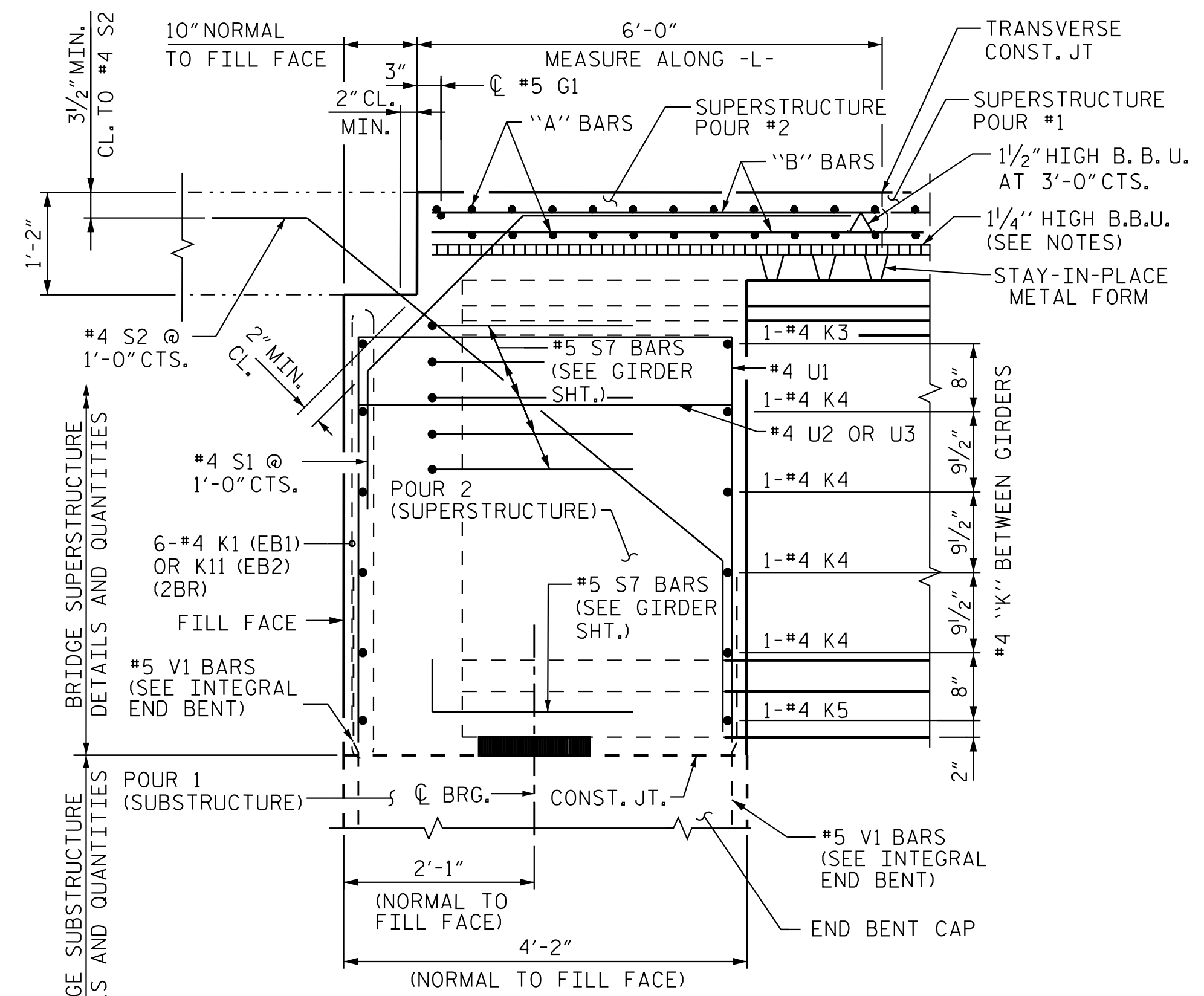
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2			4			47

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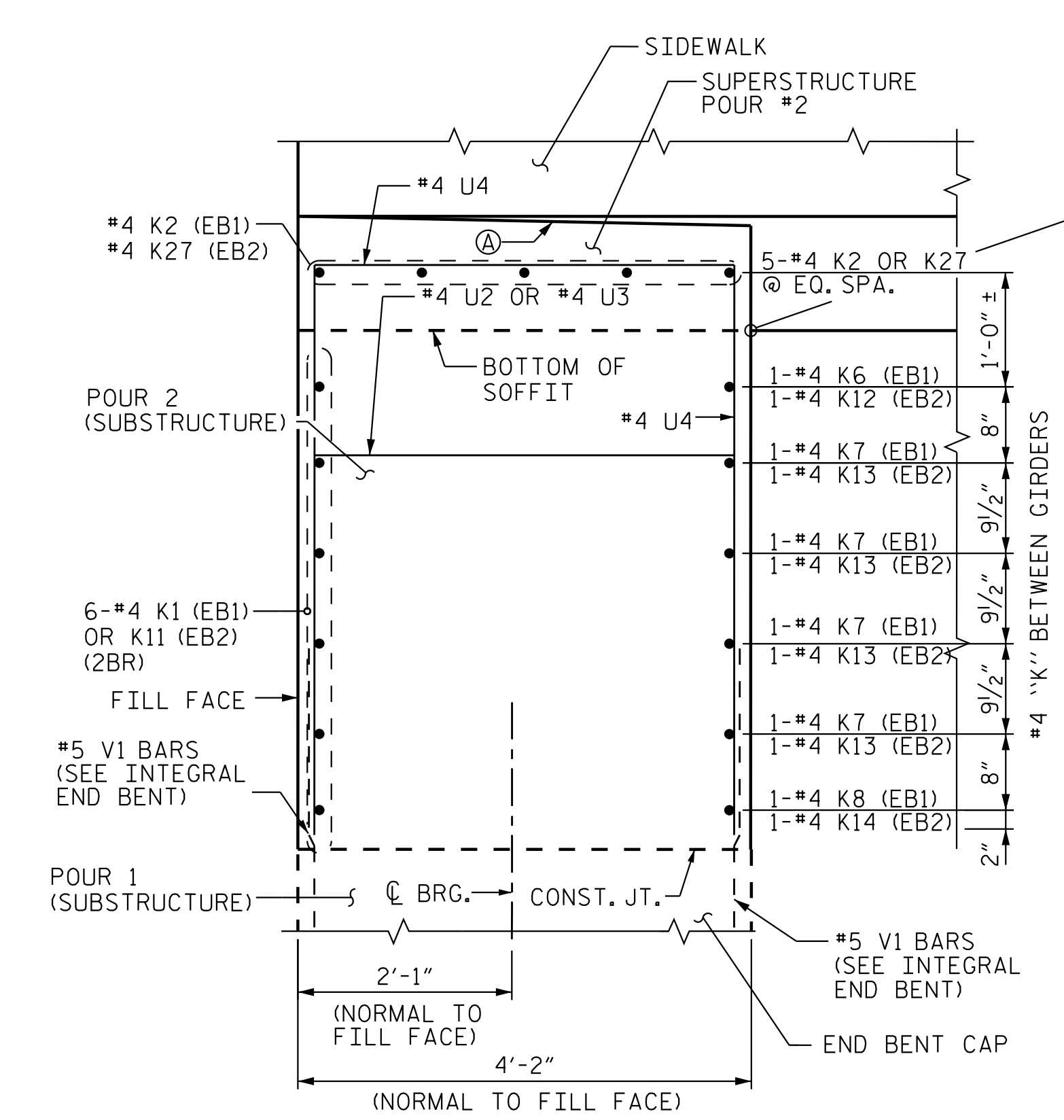
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SECTION A-A

SECTION THRU INTEGRAL END BENT DIAPHRAGM
 WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE I)", SH. 3 OF 4
 #4 S2 MAY BE REPOSITIONED AS NECESSARY TO CLEAR GIRDERS



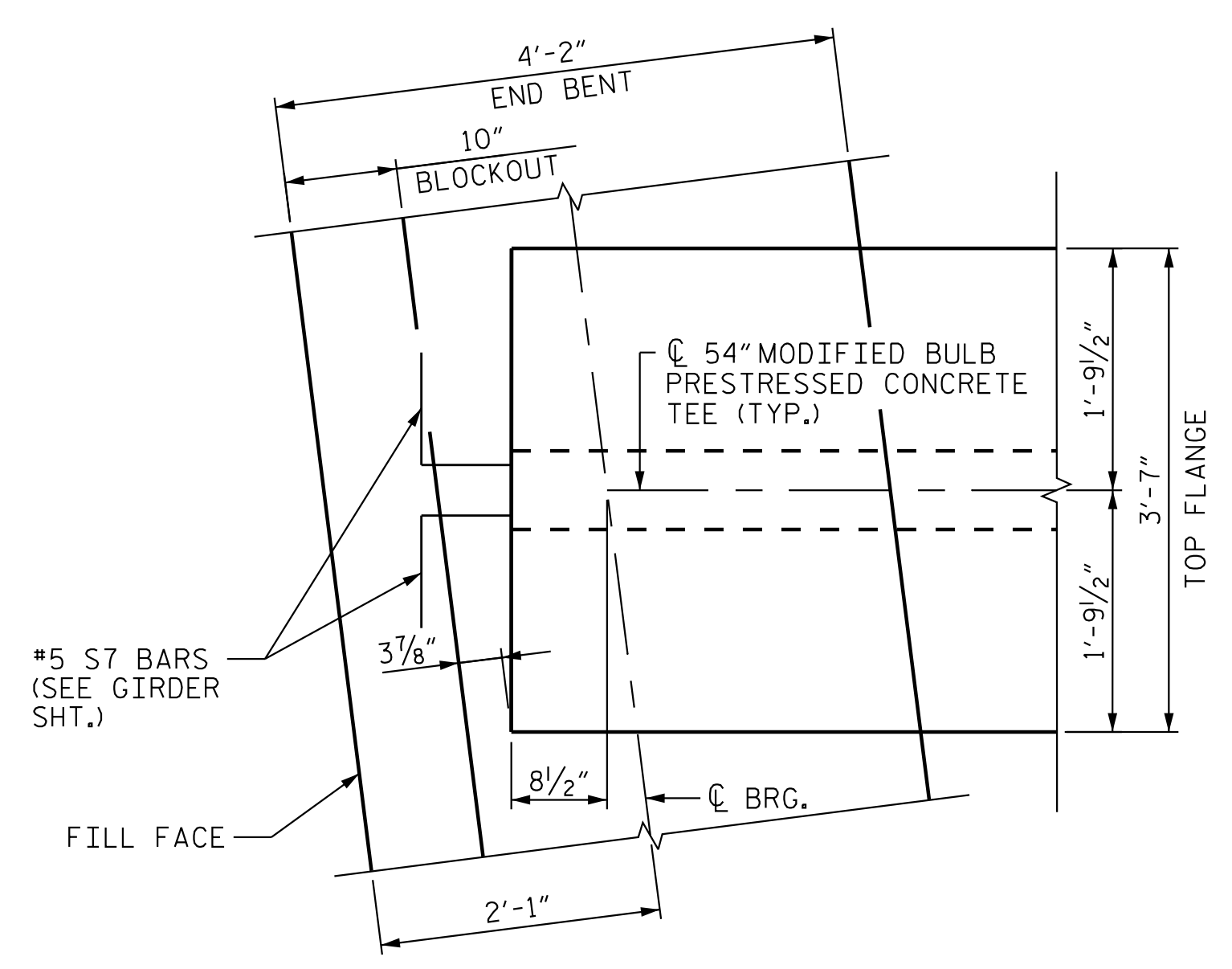
SECTION B-B

SECTION THRU INTEGRAL END BENT DIAPHRAGM
 OUTSIDE EXTERIOR GIRDER
 WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE I)", SH. 3 OF 4.

Ⓐ SLOPE TOP OF CAP BEYOND LIMITS OF SUPERSTRUCTURE AT A RATE OF 0.02 FT/FT. TO DRAIN FROM FILL FACE TO FRONT FACE.

NOTES

- PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2/2" ABOVE THE TOP OF THE REMOVABLE FORM.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
- NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDUPS.
- ALL REINFORCING STEEL IN SIDEWALKS AND PARAPETS SHALL BE EPOXY COATED.
- PREVIOUSLY CAST CONCRETE IN THE SPAN SHALL HAVE ATTAINED A COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ANY ADDITIONAL CONCRETE IS PLACED IN THE SPAN.
- #5 G1 BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.



PLAN OF INTEGRAL END BENT

PROJECT NO. P-5715
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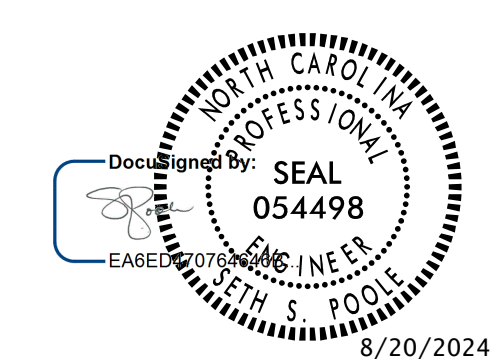
SHEET 5 OF 6

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**TYPICAL SECTION
 (STAGE I DETAILS)**

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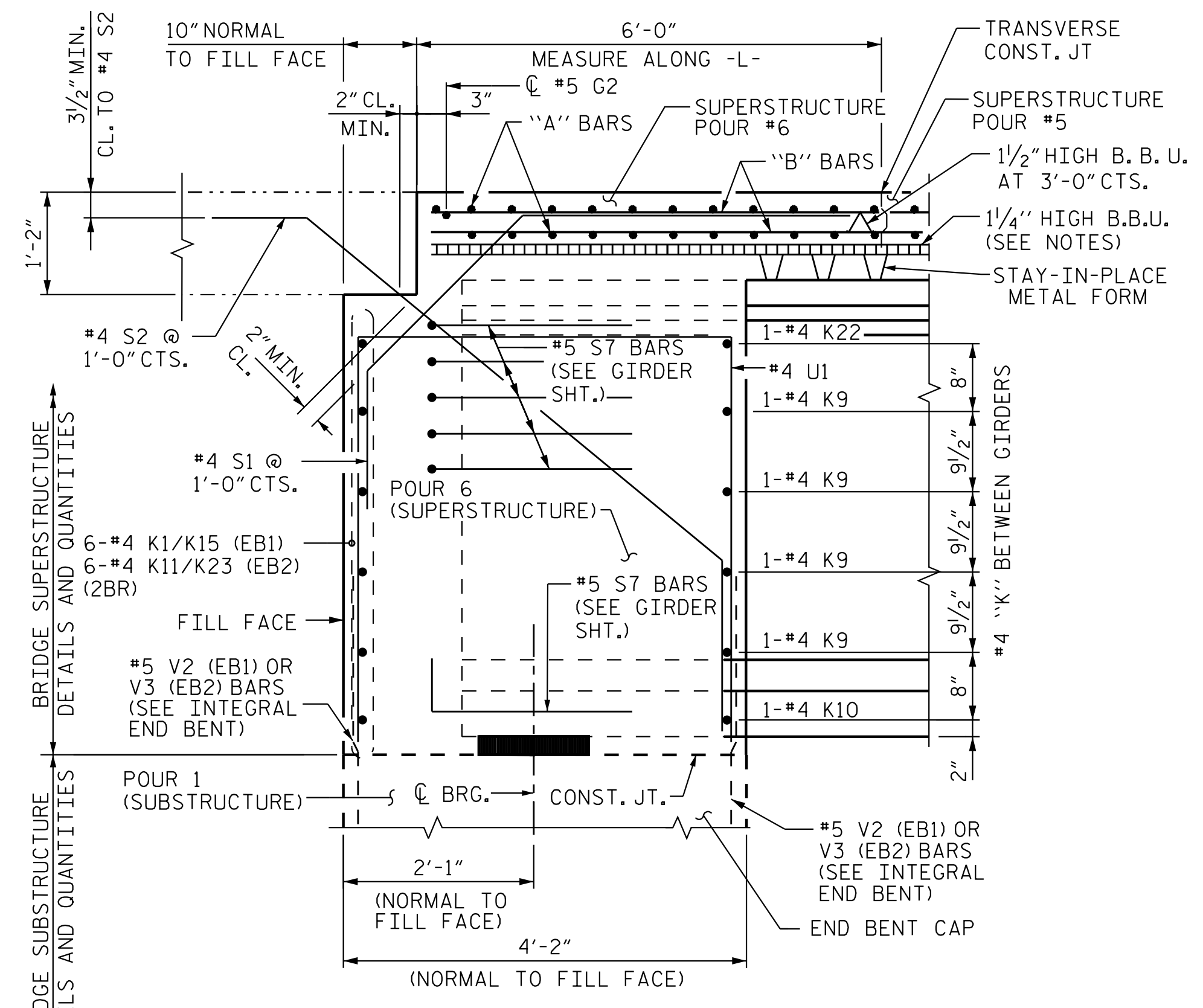
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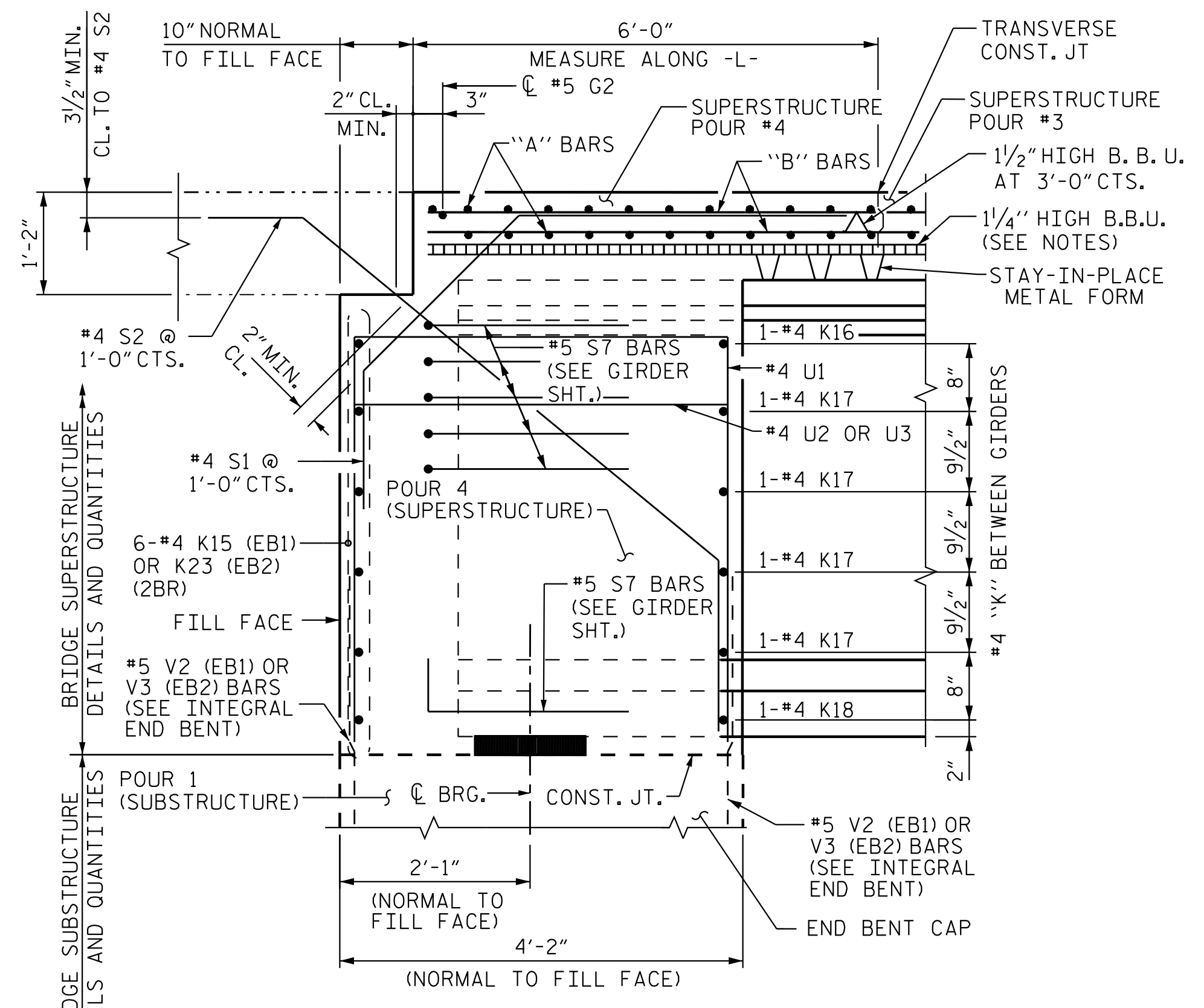
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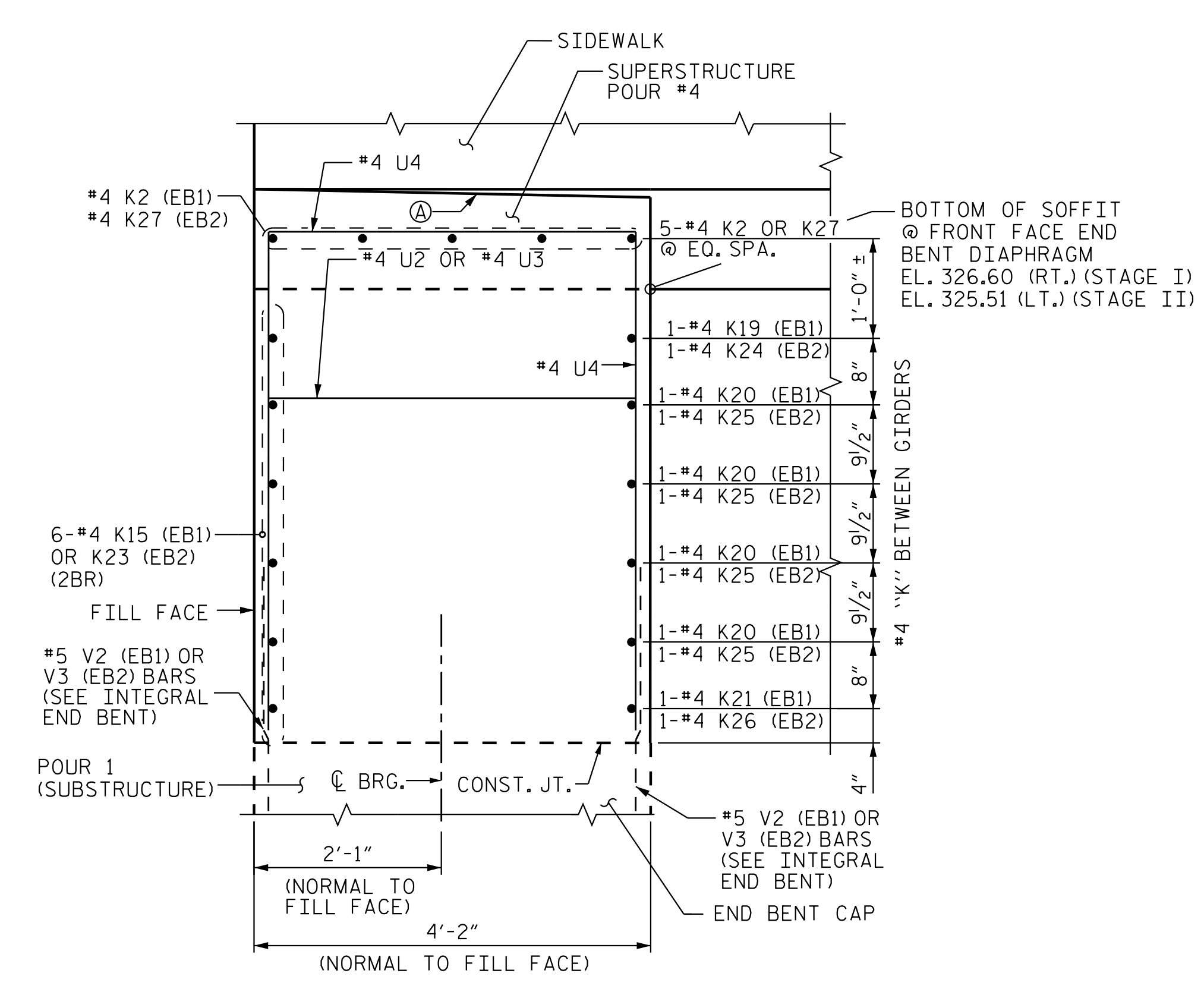
SECTION C-C

SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE II)", SH. 4 OF 4



SECTION D-D

SECTION THRU INTEGRAL END BENT DIAPHRAGM
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE II)", SH. 4 OF 4



SECTION E-E

SECTION THRU INTEGRAL END BENT DIAPHRAGM
OUTSIDE EXTERIOR GIRDER
WORK WITH "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE II)", SH. 4 OF 4.

NOTES

- SEE SHEET 5 OF 6 FOR ADDITIONAL NOTES.
- #5 G2 BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.

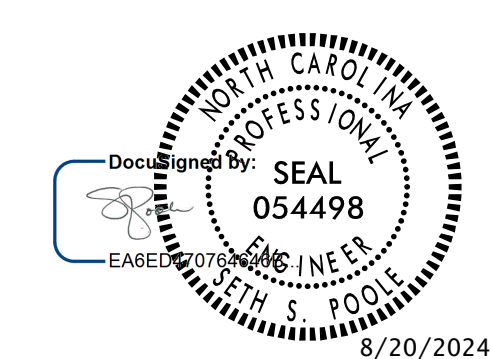
Ⓐ SLOPE TOP OF CAP BEYOND LIMITS OF SUPERSTRUCTURE AT A RATE OF 0.02 FT/FT. TO DRAIN FROM FILL FACE TO FRONT FACE.

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 6 OF 6

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TYPICAL SECTION
 (STAGE II DETAILS)



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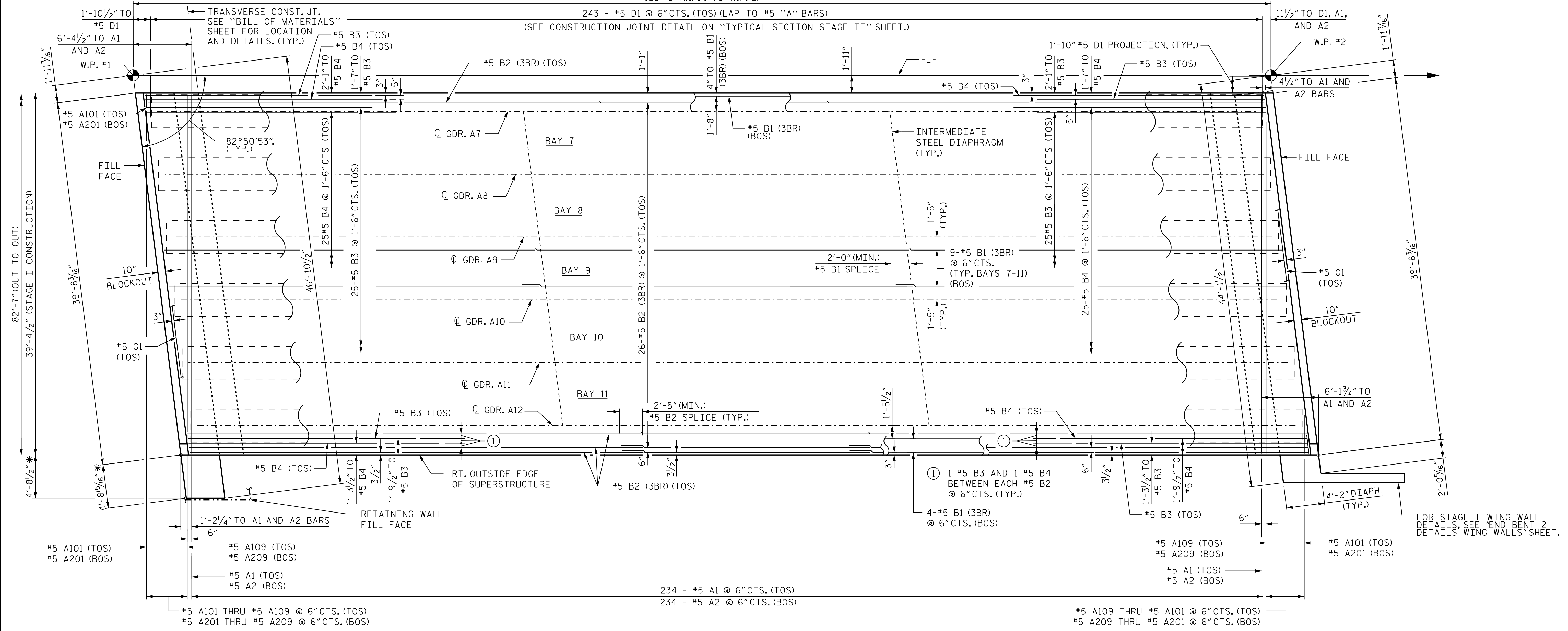
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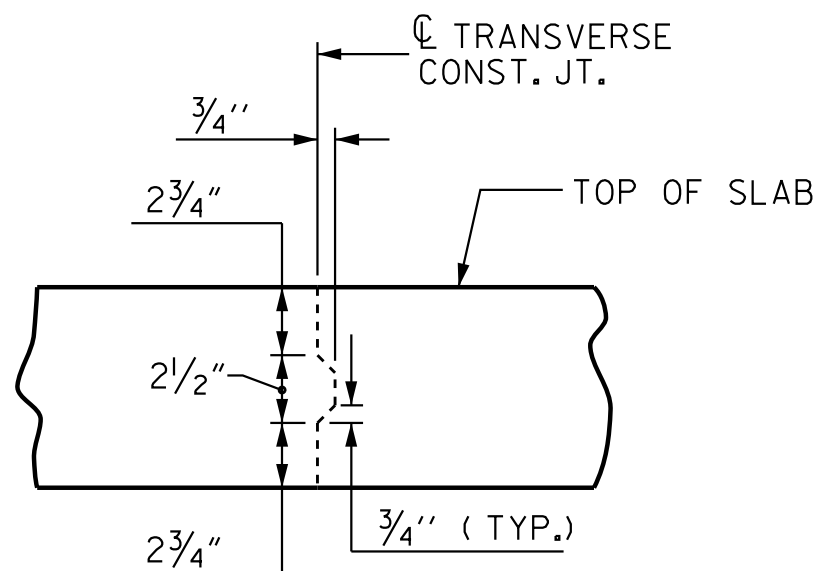
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123'-9" (W.P. 1 TO W.P. 2)



**PLAN OF SPAN
SPAN A (STAGE I)**

* DIMENSIONS TO BE FIELD ADJUSTED, AS NECESSARY, DEPENDING ON RETAINING WALL PANEL THICKNESS, DIMENSIONS, REBAR QUANTITIES, AND CONCRETE QUANTITIES ARE BASED ON A 5" RETAINING WALL PANEL THICKNESS AND 1" JOINT MATERIAL BETWEEN FILL FACE OF RETAINING WALL AND END OF END BENT CAP AND DIAPHRAGM.



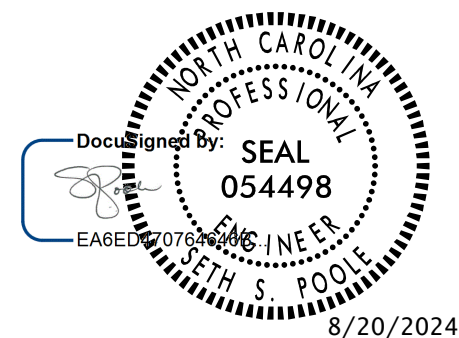
**TRANSVERSE CONSTRUCTION JOINT
IN DECK SLAB**

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

NOTES:
SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE I)", SHEET 3 OF 4 FOR ADDITIONAL NOTES
(TOS) DENOTES TOP OF SLAB
(BOS) DENOTES BOTTOM OF SLAB
(3BR) DENOTES 3 BAR RUN
SIDEWALK AND BASE DETAIL FOR 3 BAR METAL RAIL ARE NOT SHOWN. FOR SIDEWALK REINFORCEMENT AND DETAILS, SEE "SIDEWALK DETAILS" SHEET
FOR CONCRETE END POST DETAILS FOR 3 BAR METAL RAIL, SEE "SIDEWALK DETAILS" SHEET

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

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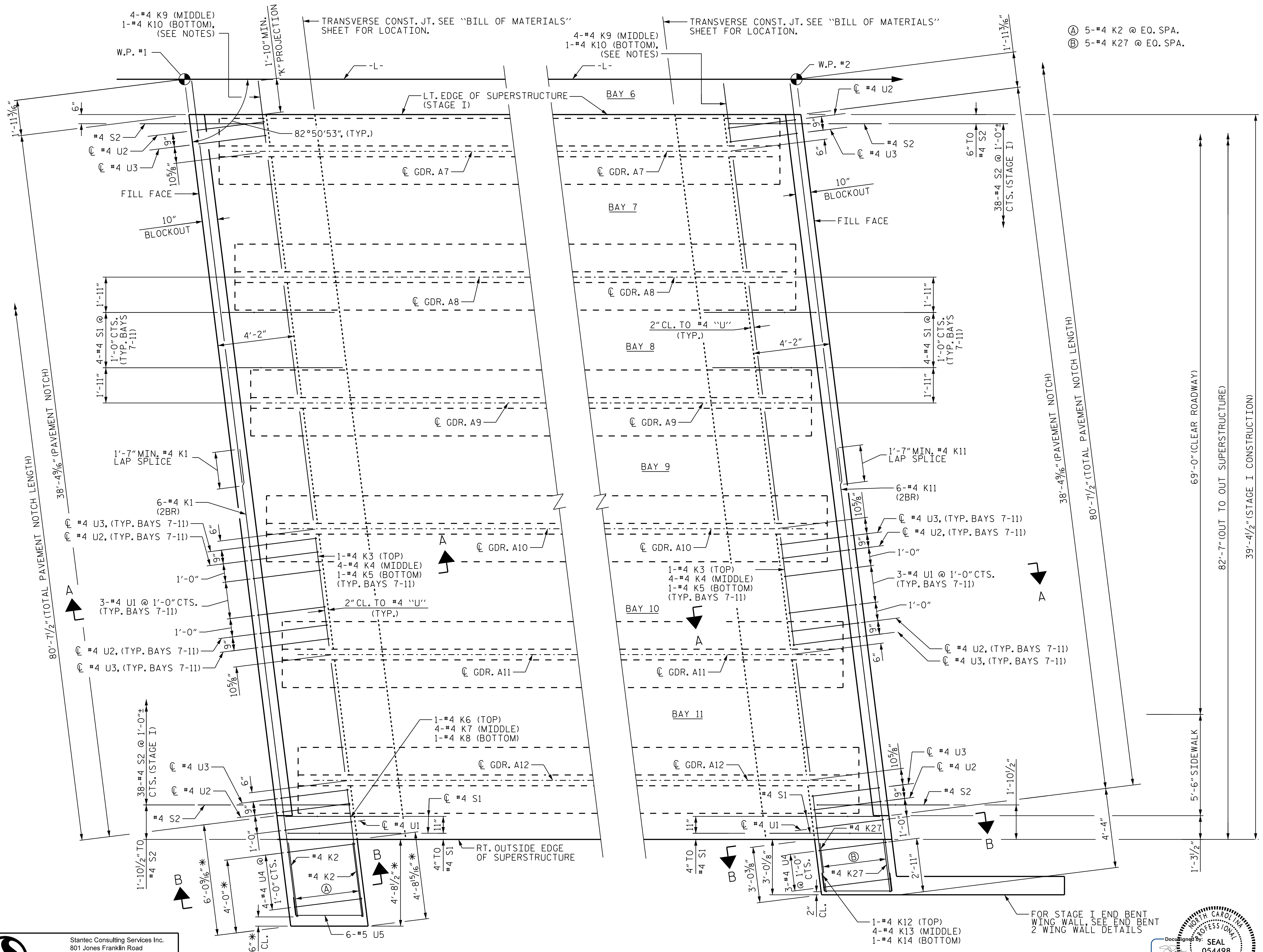
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- Ⓐ 5-#4 K2 @ EQ. SPA.
- Ⓑ 5-#4 K27 @ EQ. SPA.

NOTES:
 CONTRACTOR SHALL FIELD VERIFY THAT ADEQUATE PROJECTION OF "K" BARS IN BAY 6 DURING STAGE I CONSTRUCTION IS PROVIDED SUCH THAT "K" BARS PLACED DURING STAGE II CONSTRUCTION CAN BE SPLICED.

* DIMENSIONS TO BE FIELD ADJUSTED, AS NECESSARY, DEPENDING ON RETAINING WALL PANEL THICKNESS, DIMENSIONS, REBAR QUANTITIES, AND CONCRETE QUANTITIES ARE BASED ON A 5" RETAINING WALL PANEL THICKNESS AND 1" JOINT MATERIAL BETWEEN FILL FACE OF RETAINING WALL AND END OF END BENT CAP AND DIAPHRAGM.

SIDEWALK, END POST, AND BASE DETAIL FOR 3 BAR METAL RAIL NOT SHOWN FOR CLARITY. SEE "SIDEWALK DETAILS" SHEET.

REINFORCING IN UPPER PORTION OF WING WALL NOT SHOWN FOR CLARITY.

SLOPE TOP SURFACE OF WING WALL OVER BENT CAP AND OUTSIDE LIMITS OF SUPERSTRUCTURE. SEE "END BENT 2 DETAILS WING WALLS" SHEET.

(2BR) DENOTES 2 BAR RUN.

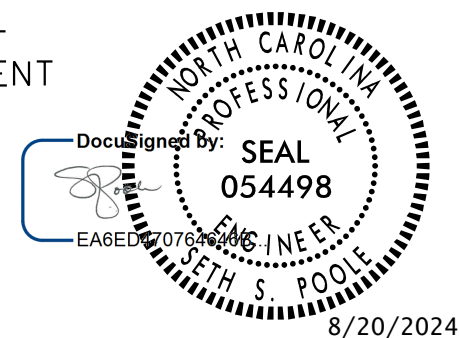
FOR STAGE I END BENT WING WALL, SEE "END BENT 2 DETAILS WING WALLS" SHEET.

**END BENT 1
 DIAPHRAGM REINFORCING DETAIL**

**END BENT 2
 DIAPHRAGM REINFORCING DETAIL**

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 WAKE COUNTY
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SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 DETAILS - DIAPHRAGMS
 SPAN A (STAGE I)

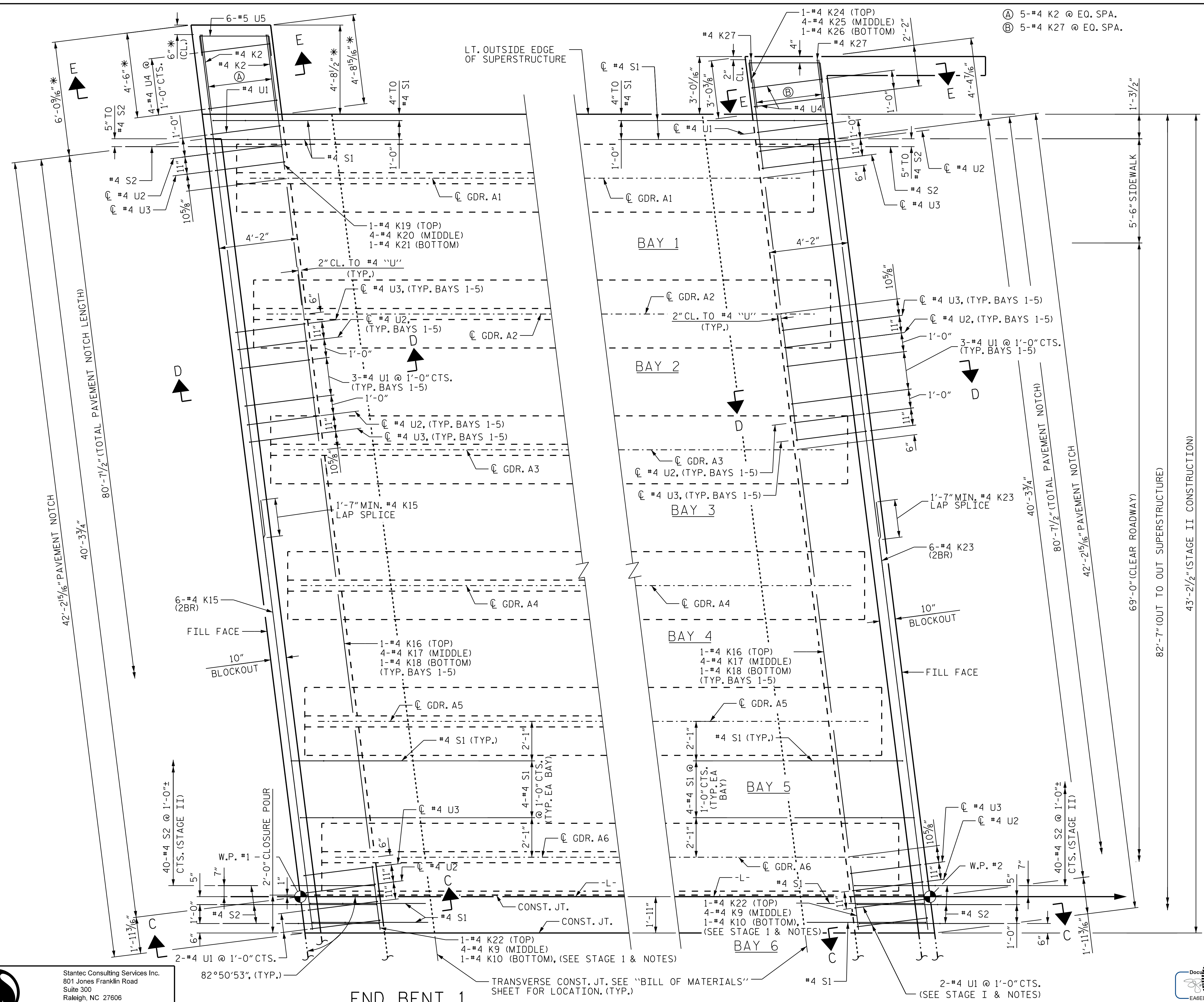
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- Ⓐ 5-#4 K2 @ EQ. SPA.
- Ⓑ 5-#4 K27 @ EQ. SPA.

NOTES:

SEE "PLAN OF SPAN DETAILS - DIAPHRAGMS SPAN A (STAGE I)", SHEET 3 OF 4 FOR ADDITIONAL NOTES

(2BR) DENOTES 2 BAR RUN

REINFORCING IN UPPER PORTION OF WINGWALLS NOT SHOWN FOR CLARITY

* DIMENSIONS TO BE FIELD ADJUSTED, AS NECESSARY, DEPENDING ON RETAINING WALL PANEL THICKNESS, DIMENSIONS, REBAR QUANTITIES, AND CONCRETE QUANTITIES ARE BASED ON A 5" RETAINING WALL PANEL THICKNESS AND 1" JOINT MATERIAL BETWEEN FILL FACE OF RETAINING WALL AND END OF END BENT CAP AND DIAPHRAGM.

SIDEWALK, END POST, AND BASE DETAIL FOR 3 BAR METAL RAIL NOT SHOWN FOR CLARITY. SEE "SIDEWALK DETAILS" SHEET.

SLOPE TOP SURFACE OF WING WALL OVER BENT CAP AND OUTSIDE LIMITS OF SUPERSTRUCTURE, SEE "END BENT 2 DETAILS WING WALLS" SHEET.

FOR STAGE II END BENT WING WALL, SEE "END BENT 2 DETAILS WING WALLS" SHEET.

PROJECT NO. P-5715

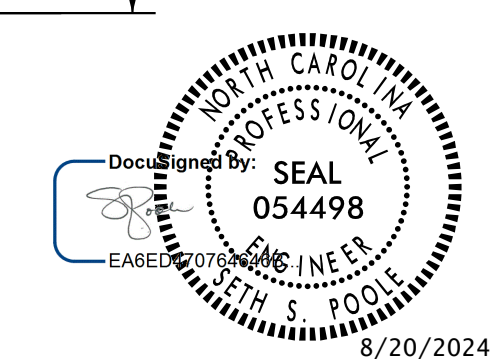
WAKE COUNTY

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SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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**SUPERSTRUCTURE
PLAN OF SPAN
DETAILS - DIAPHRAGMS
SPAN A (STAGE II)**



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**END BENT 1
DIAPHRAGM REINFORCING DETAIL**

**END BENT 2
DIAPHRAGM REINFORCING DETAIL**

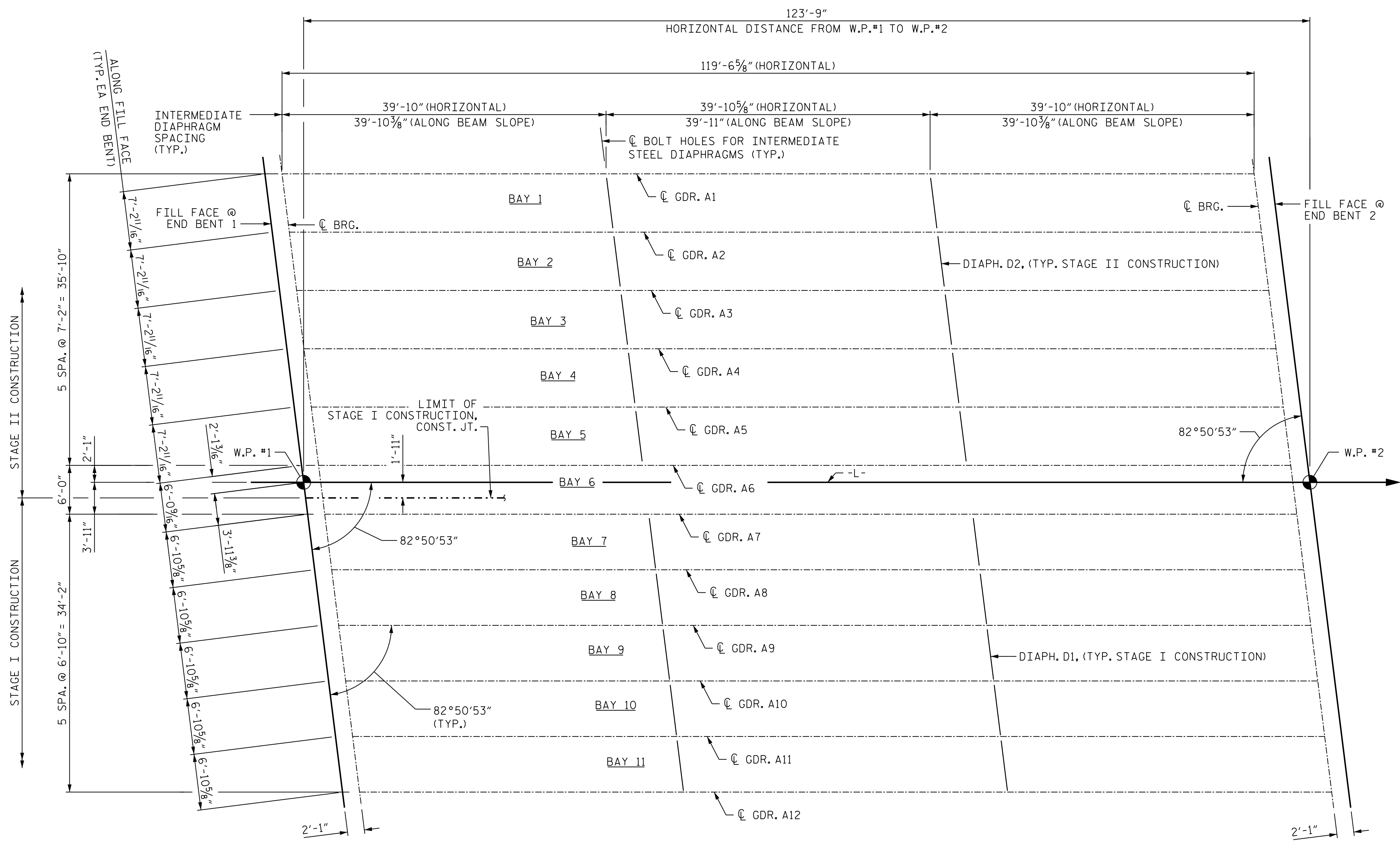
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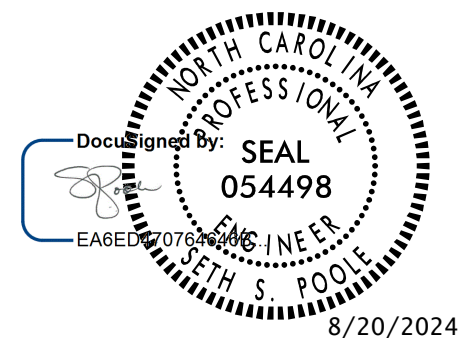
NOTES:
 ALL DIMENSIONS ARE HORIZONTAL UNLESS NOTED OTHERWISE.
 E1 DENOTES ELASTOMERIC BEARING TO BE USED FOR EACH GIRDER AT EACH END BENT.
 SEE TYPICAL SECTION SHEETS FOR INTEGRAL END BENT DIAPHRAGM DETAILS.
 REFER TO PLAN OF SPAN DETAILS SHEET FOR INTEGRAL DIAPHRAGMS.
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR MODIFIED 54" PRESTRESSED CONCRETE GIRDERS" SHEET.



FRAMING PLAN - SPAN A

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR PRESTRESSED CONCRETE GIRDERS" SHEET.

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WAKE COUNTY
 STATION: 20+97.25 -L-

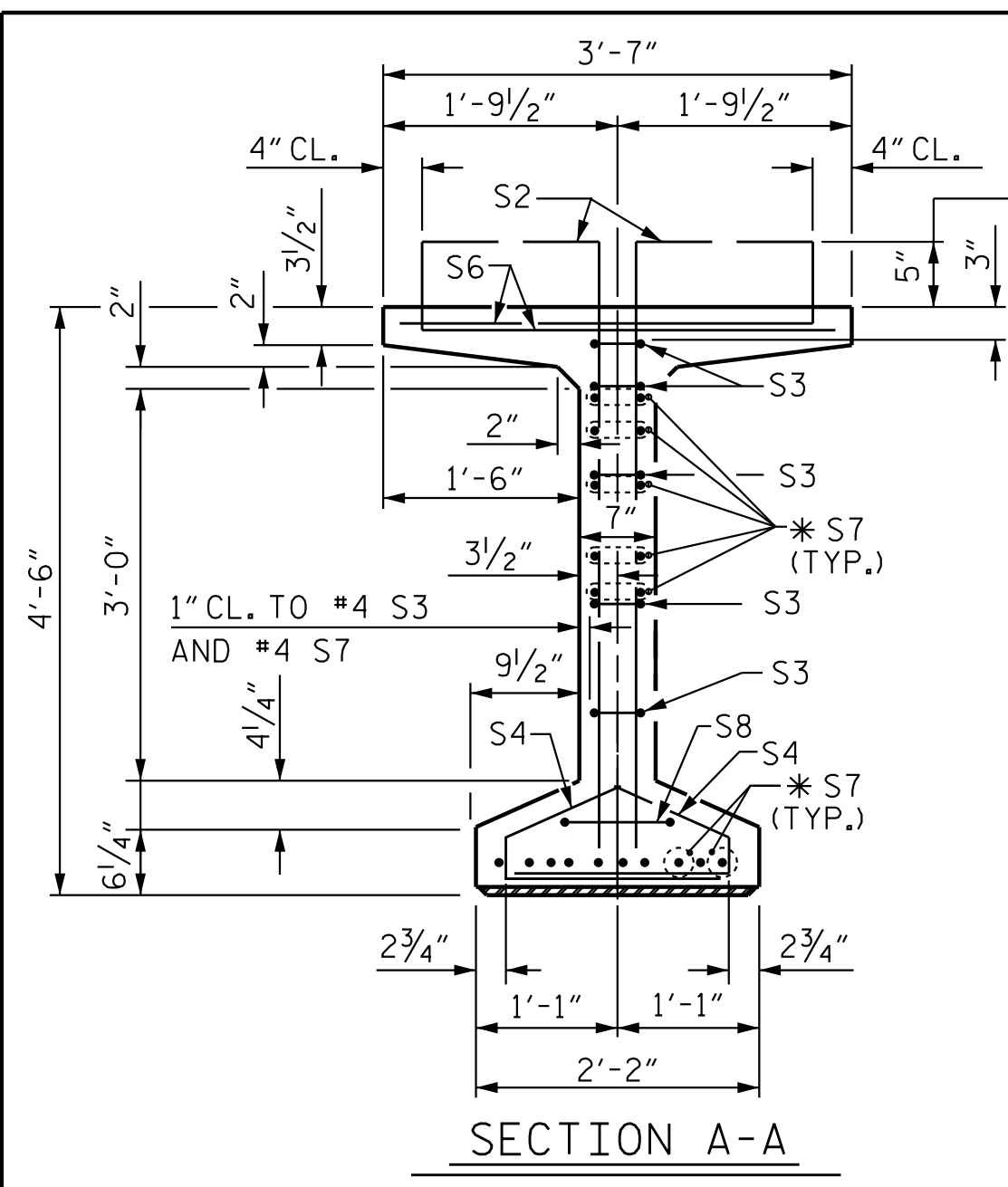


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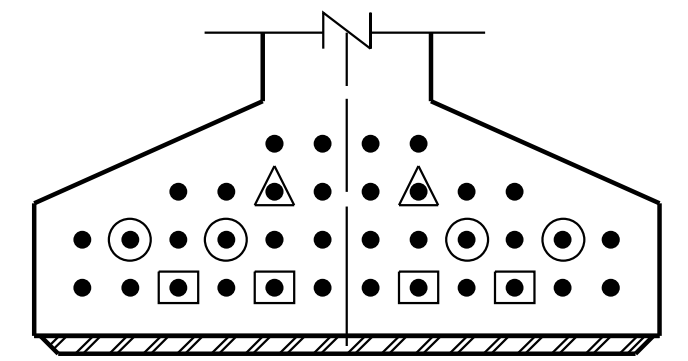
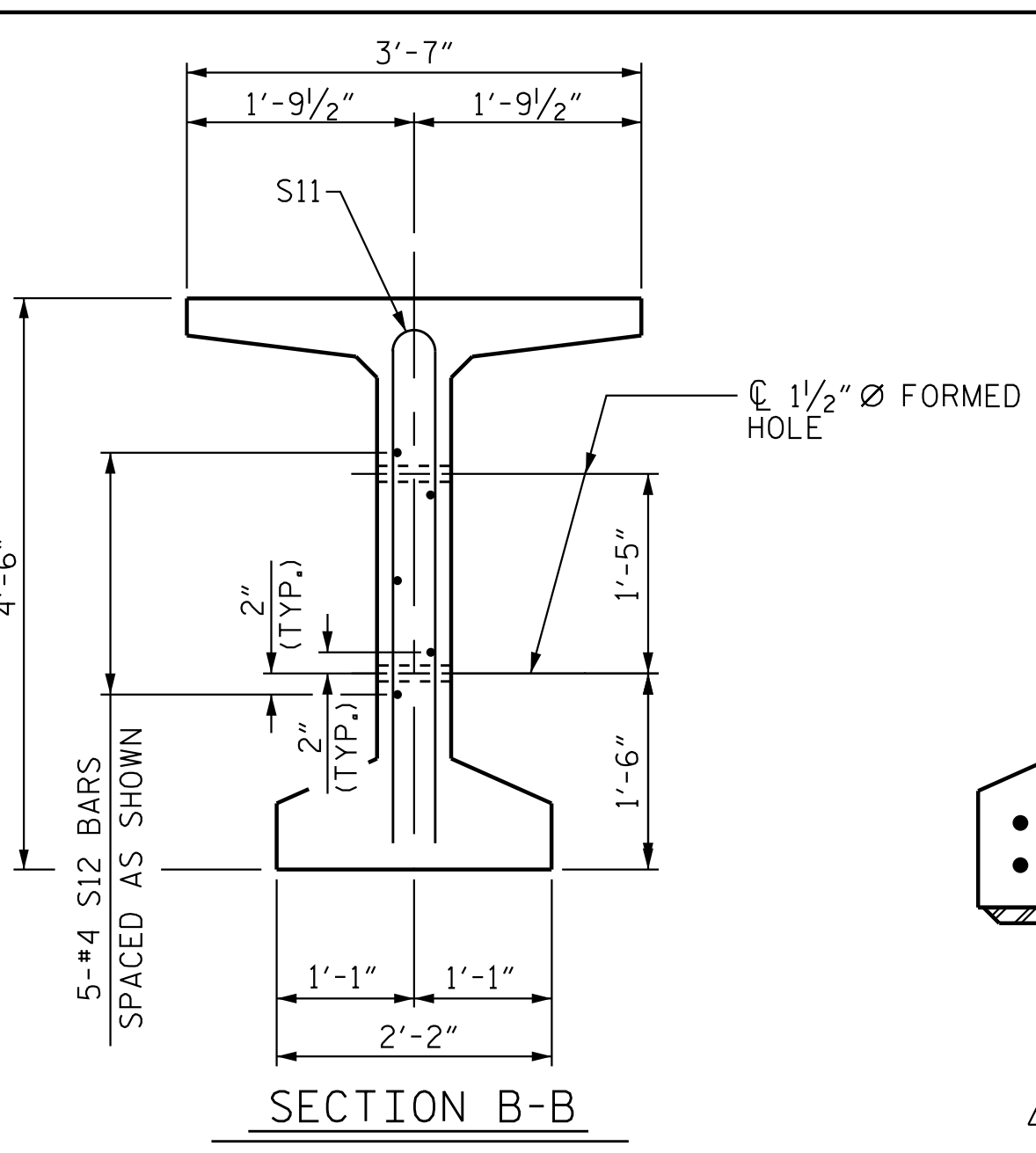
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE FRAMING PLAN					
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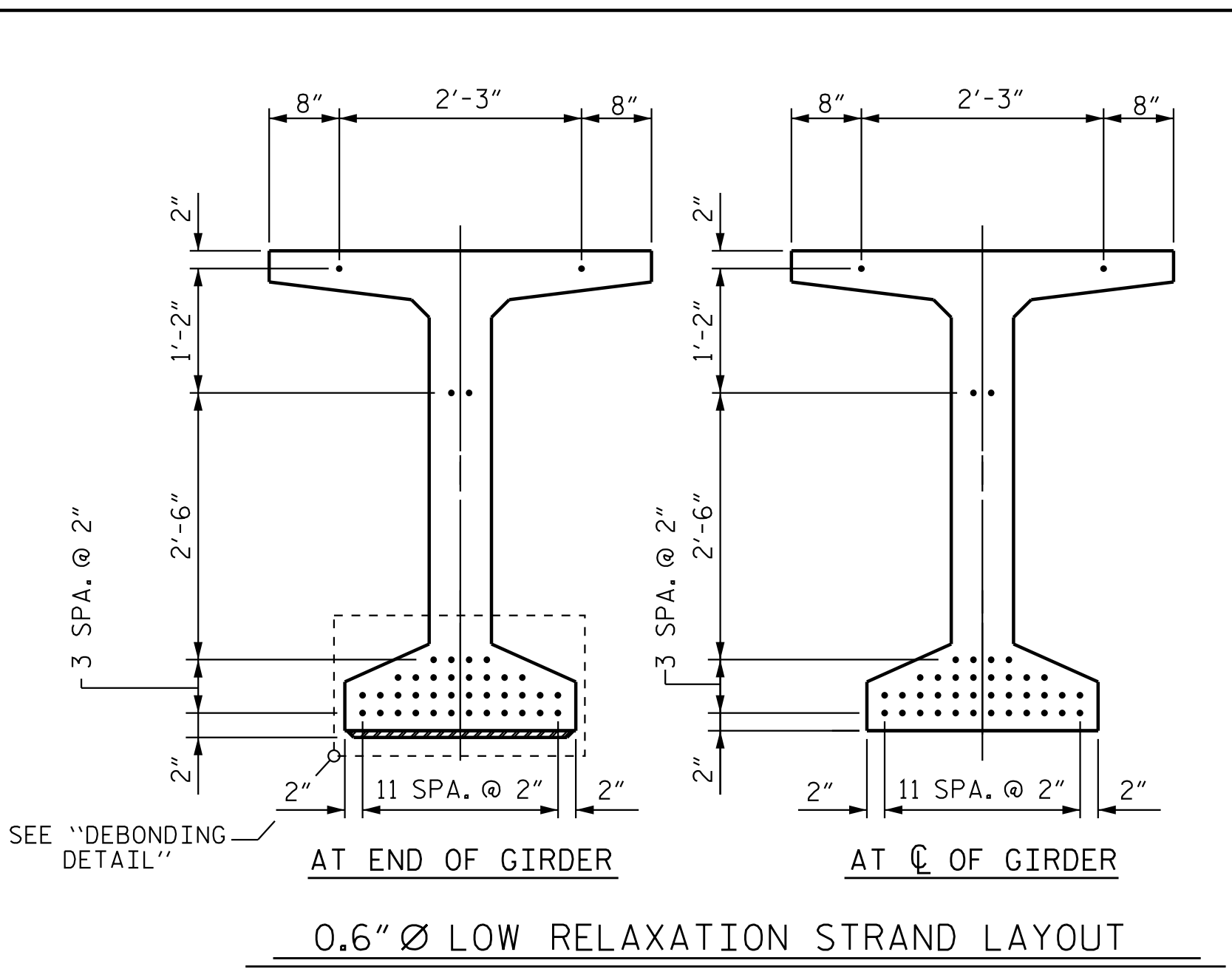
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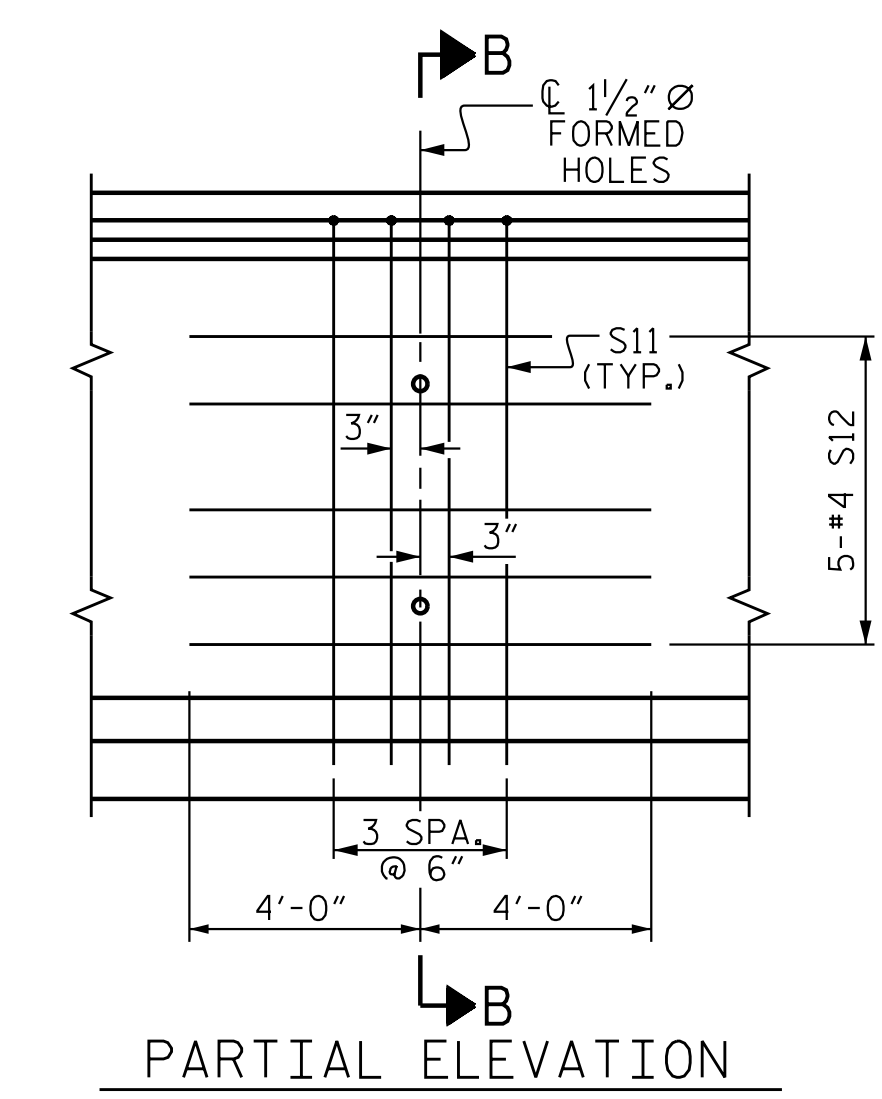
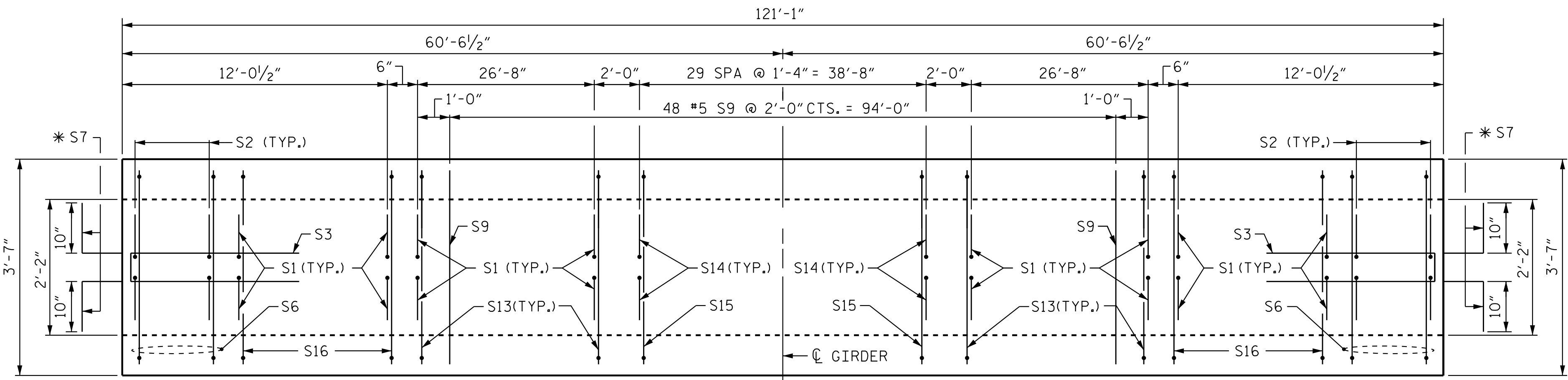
THE FABRICATOR'S ATTENTION IS CALLED TO THE VARIABLE PROJECTION HEIGHT OF "S" BARS, SEE TABLE.



- DEBONDING DETAIL**
- FULLY BONDED STRANDS
 - ▲ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ⊙ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
 - ⊠ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



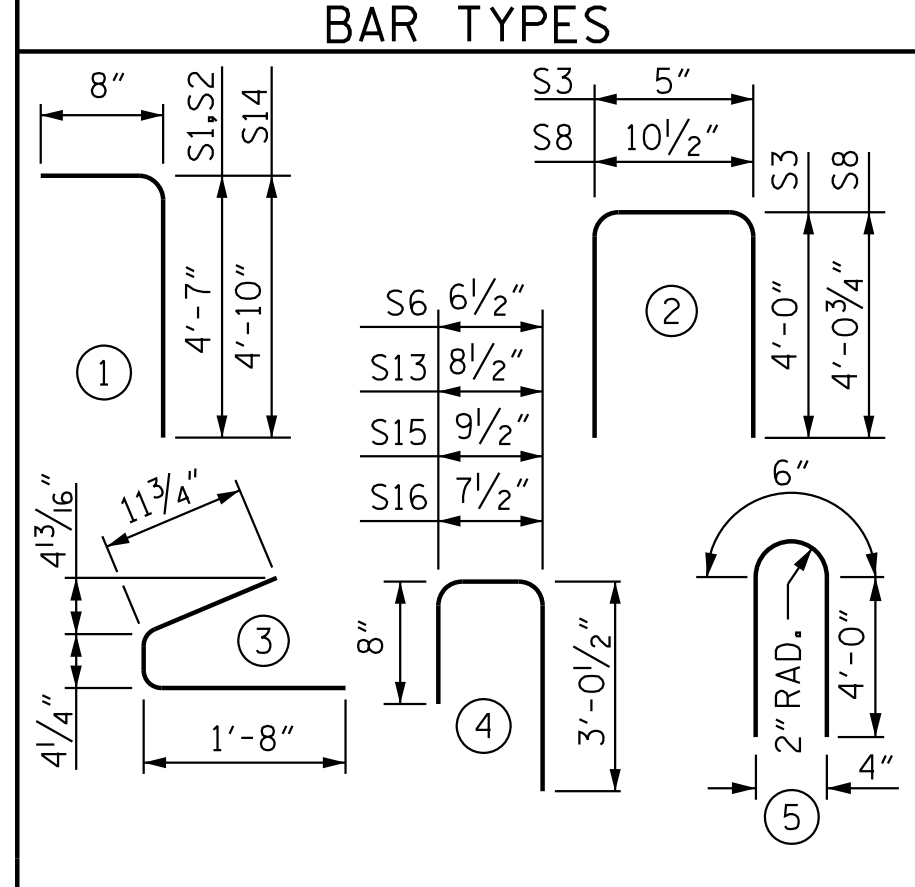
* FOR S7 BARS, SEE DETAIL "C" OF "PRESTRESSED CONCRETE GIRDER DETAILS" SHEET



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

REINFORCING STEEL FOR ONE GDR					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	152	#5	1	5'-3"	833
S2	44	#6	1	5'-3"	347
S3	10	#4	2	8'-5"	57
S4	112	#4	3	3'-0"	225
S6	44	#5	4	4'-3"	195
*S7	40	#4	STR	3'-8"	98
S8	2	#5	2	9'-0"	19
S9	48	#5	STR	3'-3"	163
S10	2	#3	STR	1'-10"	2
S11	8	#5	5	8'-6"	71
S12	10	#4	STR	8'-0"	54
S13	84	#5	4	4'-5"	387
S14	60	#5	1	5'-6"	344
S15	60	#5	4	4'-6"	282
S16	86	#5	4	4'-4"	307

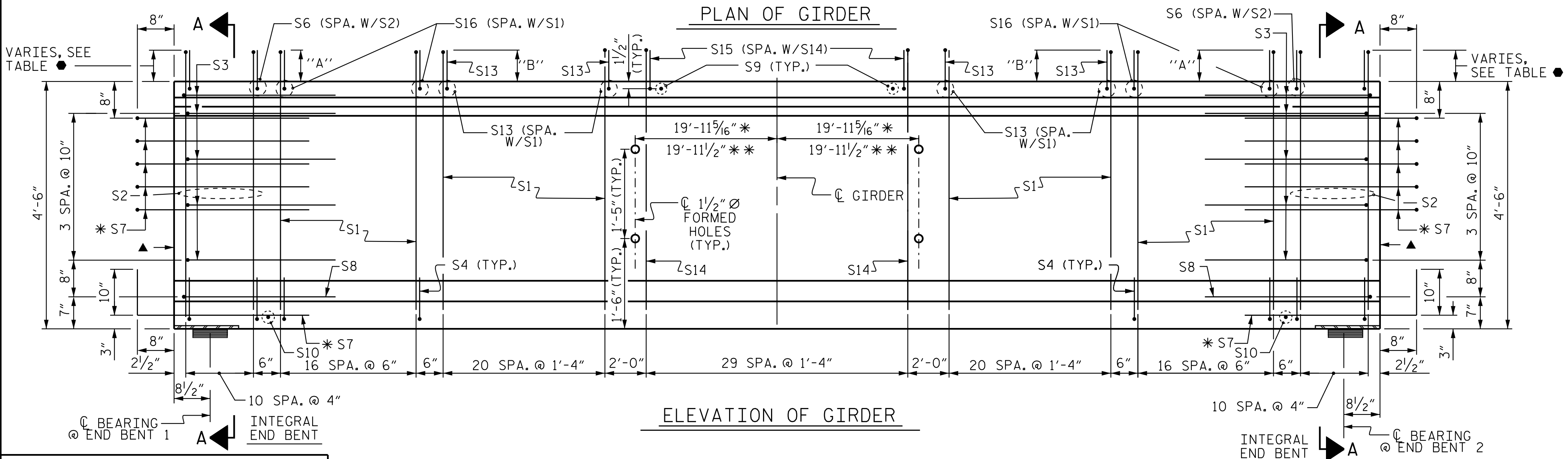
* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	10,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
	3,383	22.0	40

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
12	121'-1"	1453'-0"



● PROJECTION HEIGHT

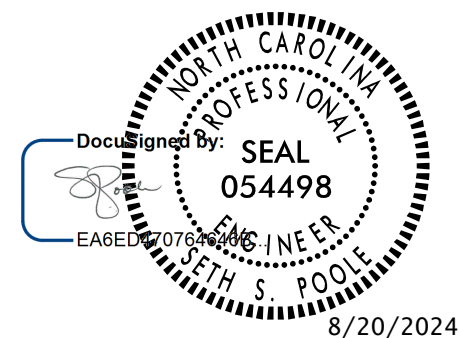
#5 S1	"A" = 6"
#6 S2	"B" = 7"
#5 S6	5"
#5 S13	5"
#5 S14	7"
#5 S15	8"
#5 S16	8"
#5 S16	6"

▲ BEVEL END OF GIRDER FOR GRADE. SEE "PRESTRESSED CONCRETE GIRDER DETAILS," SHEET.

* HORIZONTAL DIMENSION
** DIMENSION ALONG BEAM SLOPE

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STATION: 20+97.25 -L-

SHEET 1 OF 3

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RALEIGH

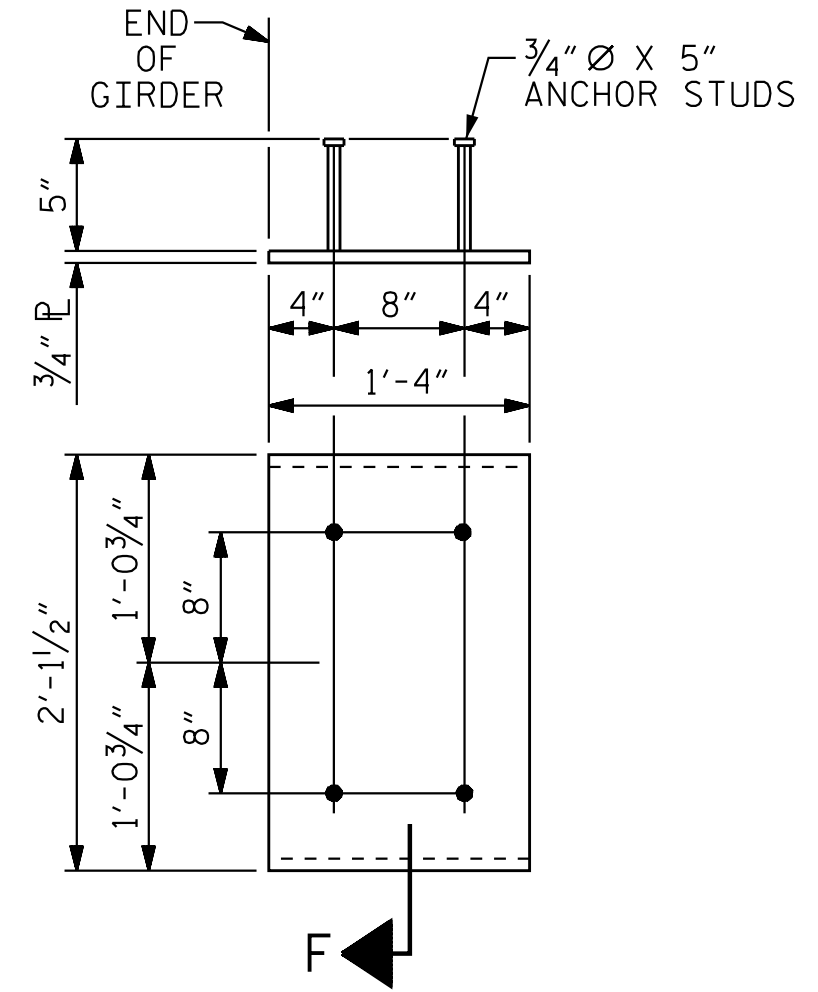
**SUPERSTRUCTURE
MODIFIED 54" PRESTRESSED
CONCRETE GIRDER**

SPAN A

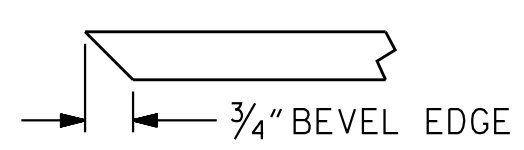
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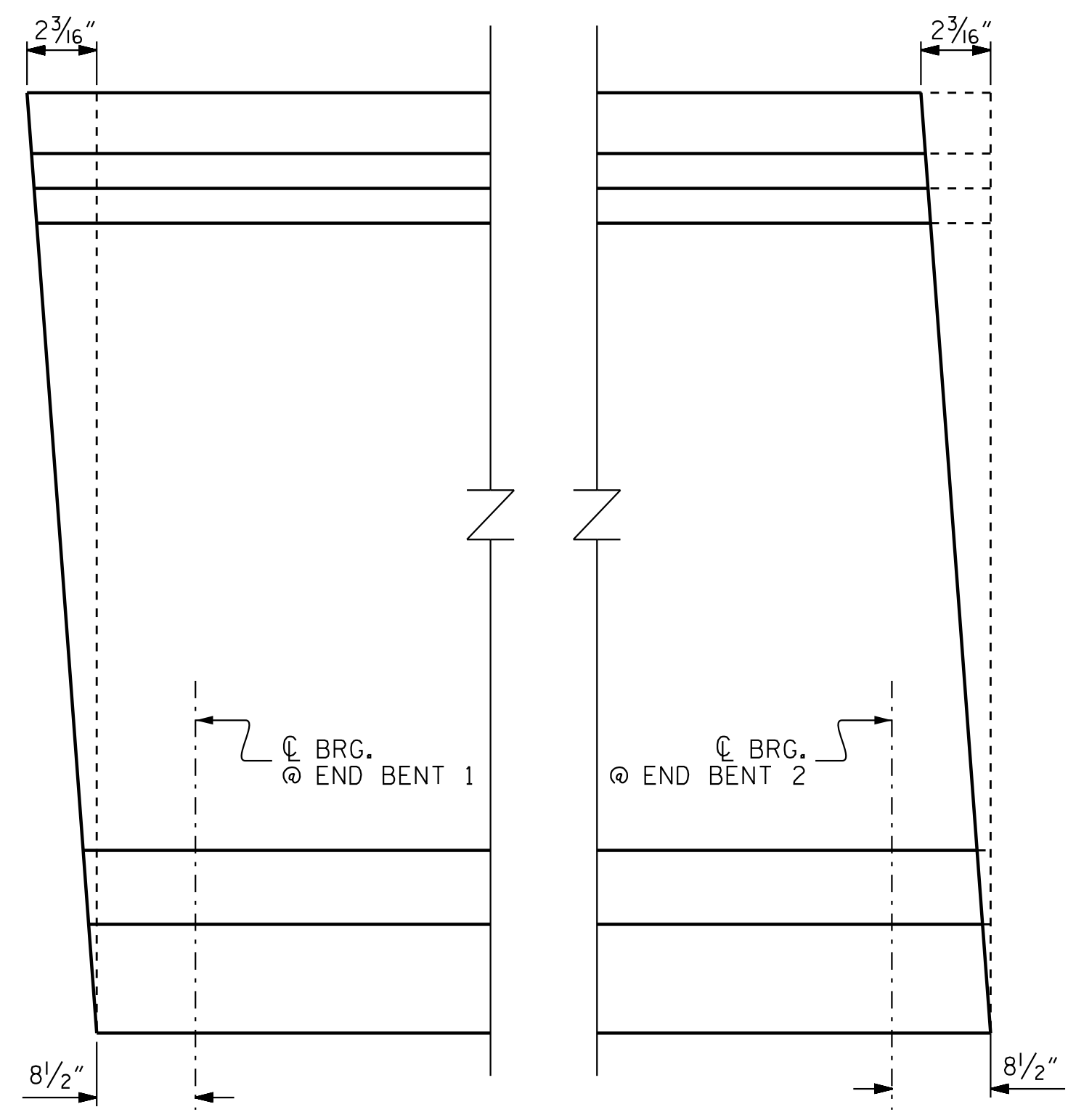
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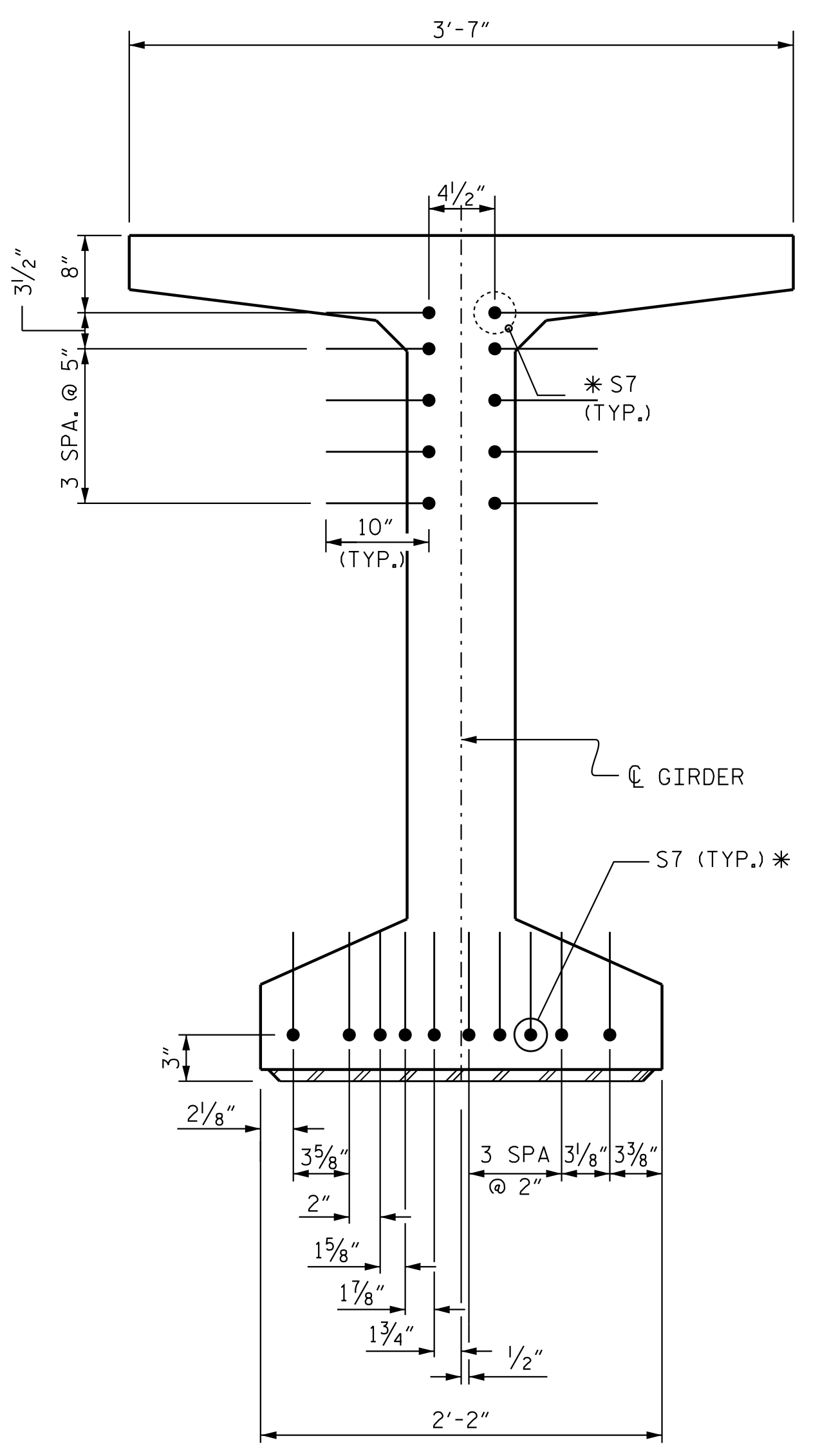
EMBEDDED PLATE "B-1" DETAILS FOR 54" MODIFIED BULB TEES
(2 REQ'D PER GIRDER)



SECTION "F"
(SEE NOTES)



GIRDER END BEVEL DETAIL
REINFORCING STEEL NOT SHOWN FOR CLARITY.



DETAIL "C"

* #4 S7 BARS SHALL BE FIELD BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

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".

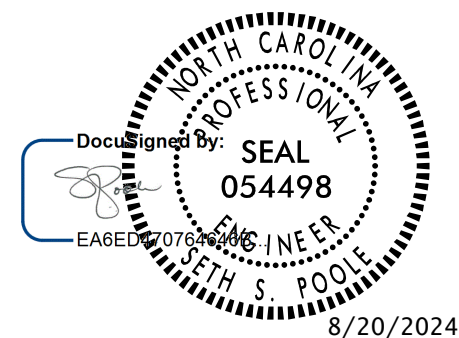
A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 54" MODIFIED BULB TEES.

S7 BARS SHALL BE PLACED OUTSIDE THE S2 BARS IN THE SAME VERTICAL PLANE AS THE S3 BARS SUCH THAT 1" CL. TO S3 AND S7 CAN BE SATISFIED.

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PRESTRESSED CONCRETE GIRDER
DETAILS



REVISIONS						SHEET NO.
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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 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.

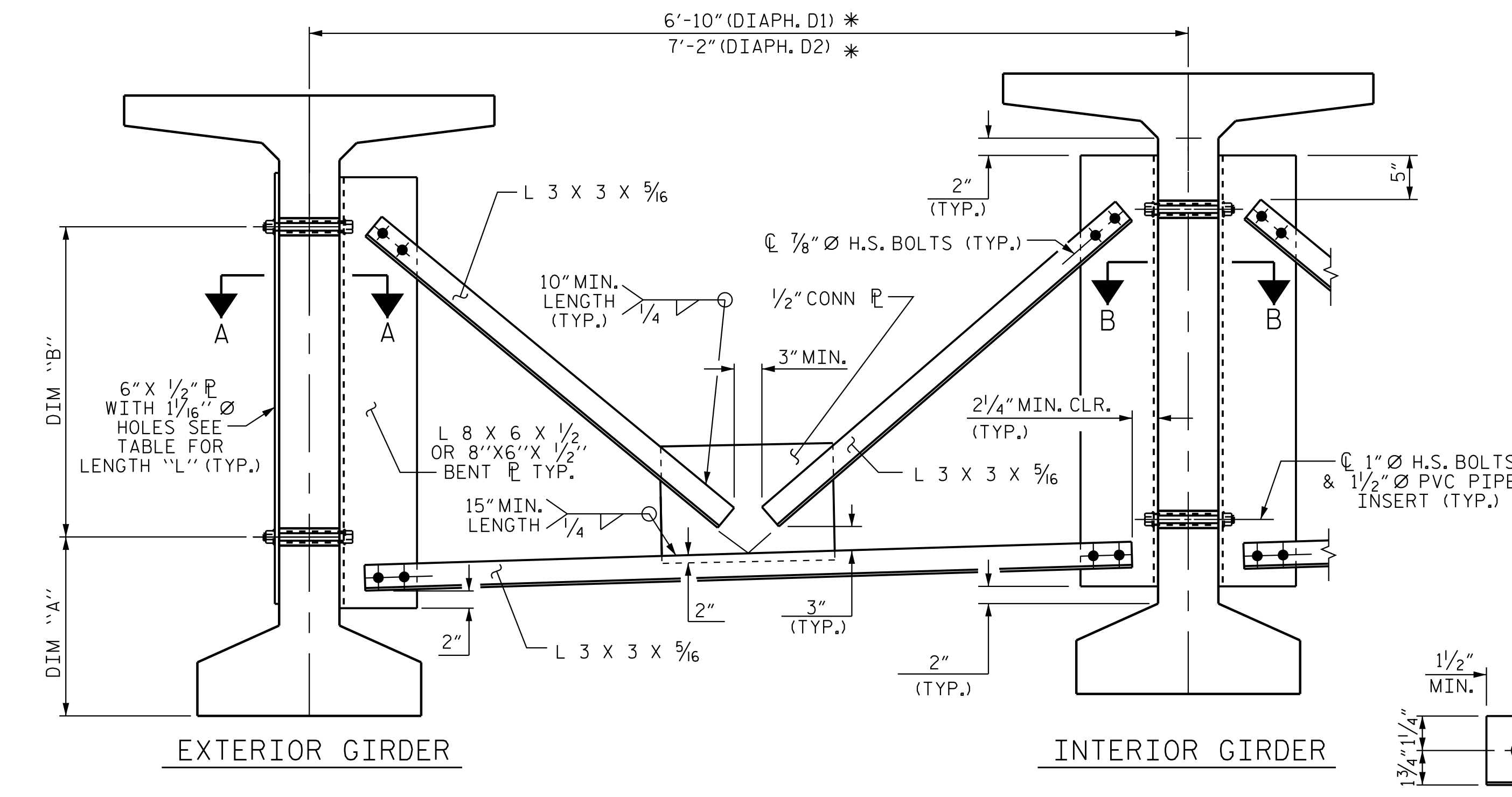
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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.

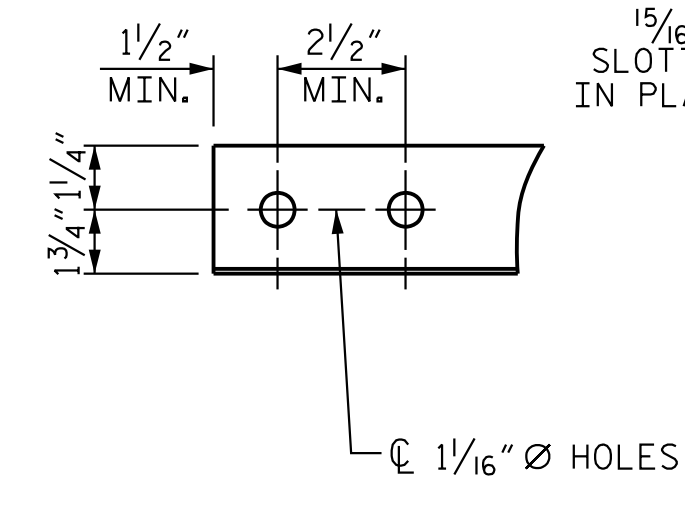
IN THE EXTERIOR BAYS (BAYS 7 AND 11 DURING PHASE I CONSTRUCTION, AND BAYS 1 AND 5 DURING PHASE II CONSTRUCTION), PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

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

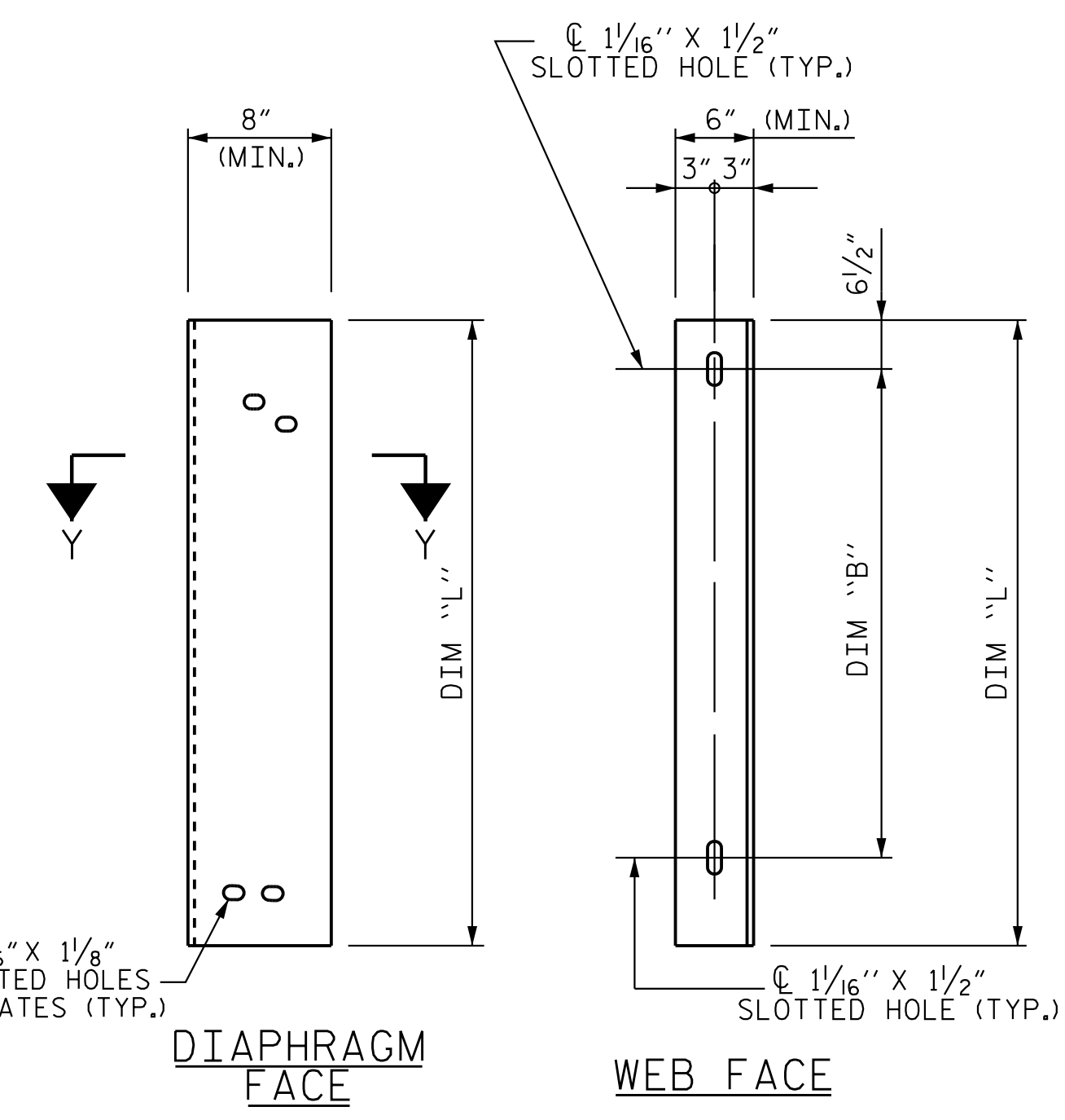


PART SECTION AT INTERMEDIATE DIAPHRAGM

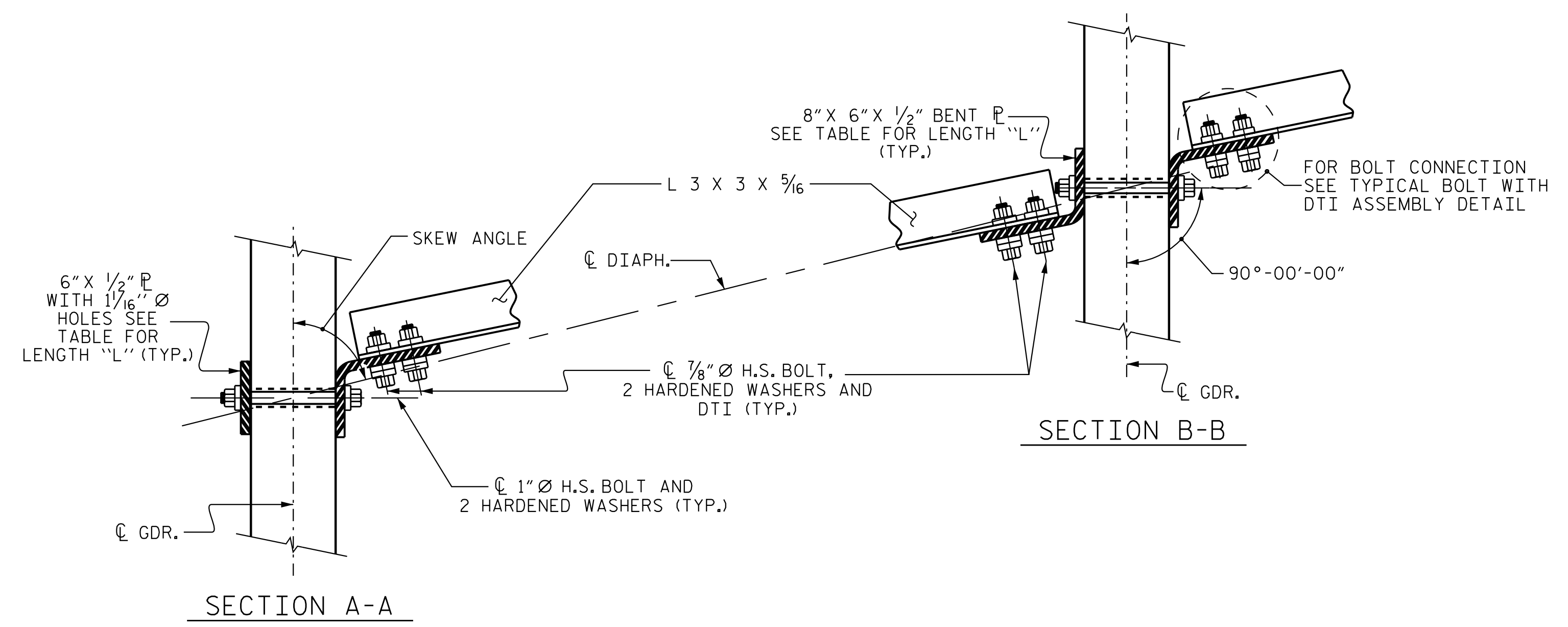
* MEASURED PERPENDICULAR TO C GIRDER



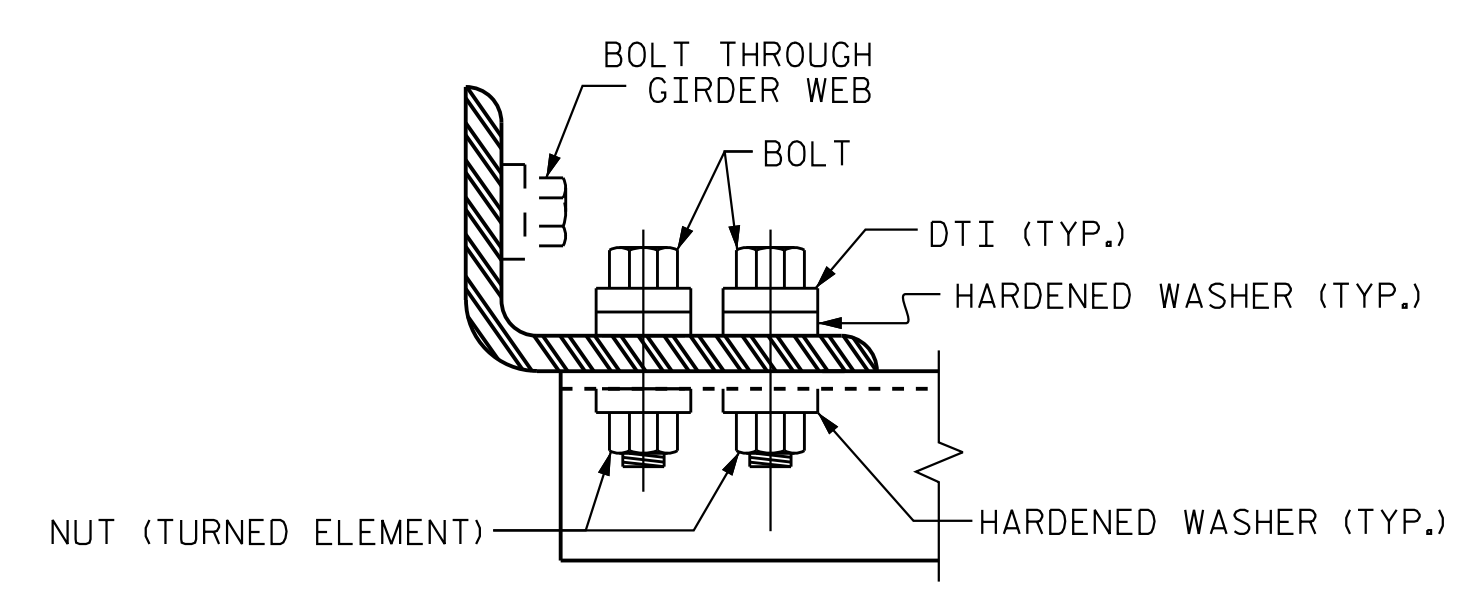
ANGLE END
(L 3 X 3 X 5/16)



CONNECTOR PLATE DETAIL



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

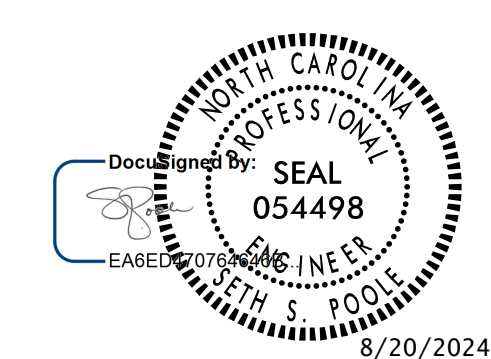
TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "L"
MODIFIED 54" PRESTRESSED CONCRETE GIRDER	1'-6"	1'-5"	2'-6"

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
 INTERMEDIATE STEEL
 DIAPHRAGMS FOR
 MODIFIED 54"
 PRESTRESSED CONCRETE
 GIRDERS



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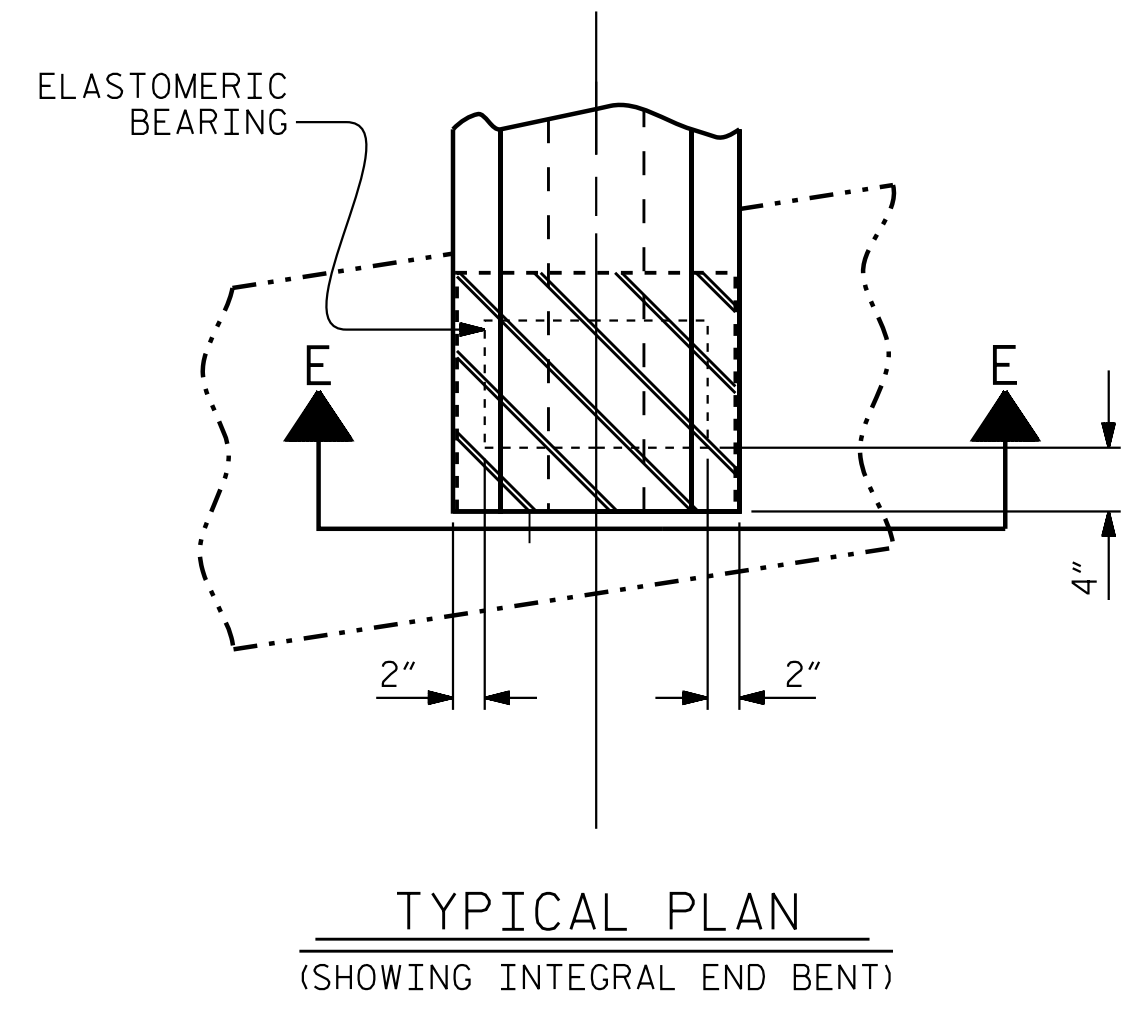
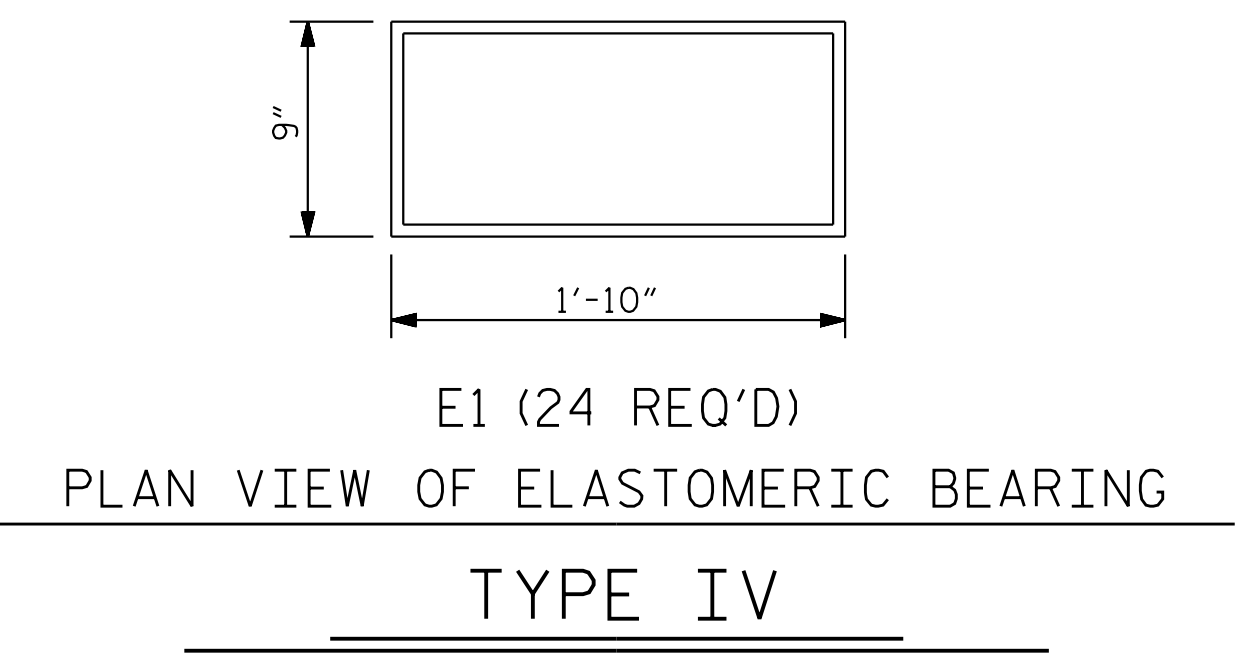
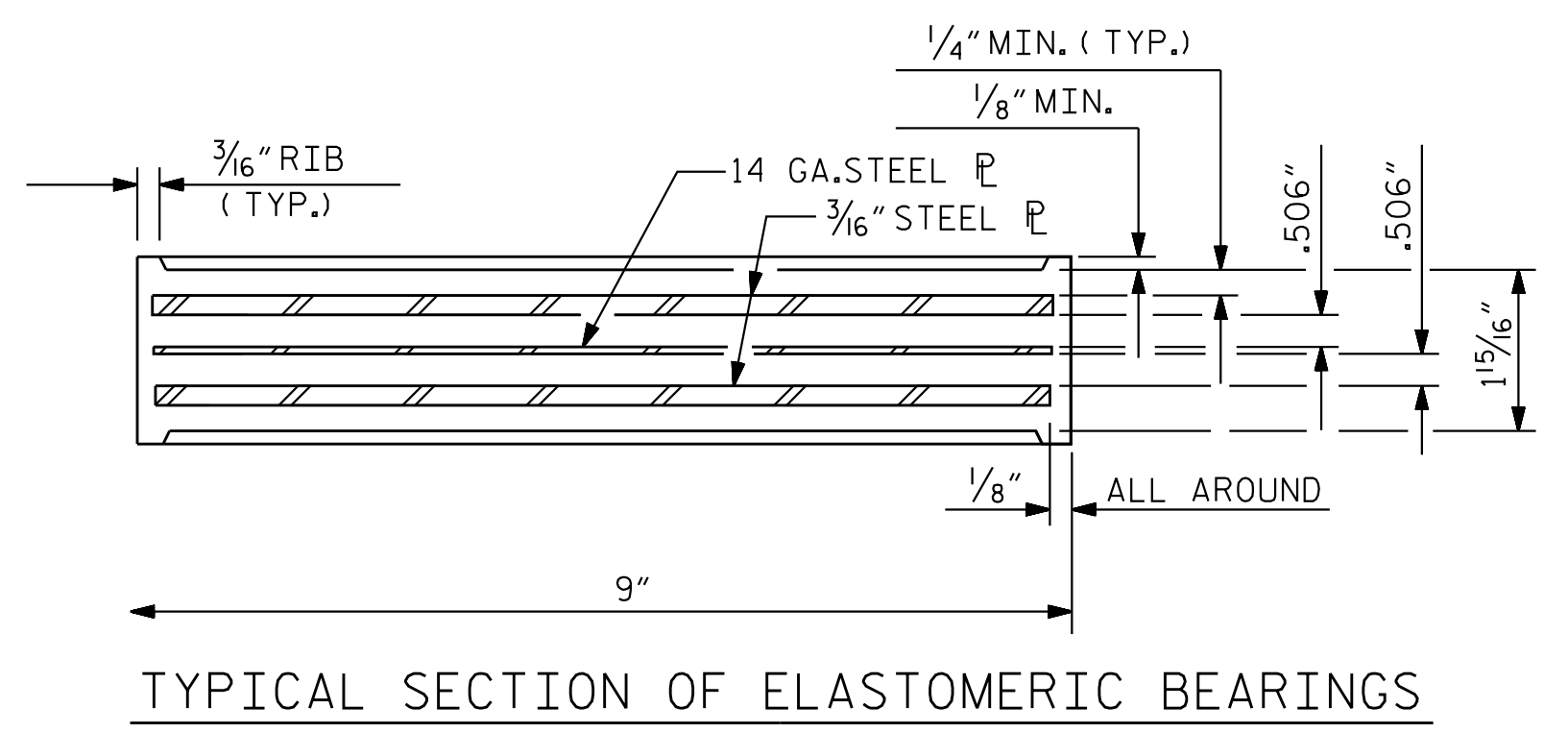
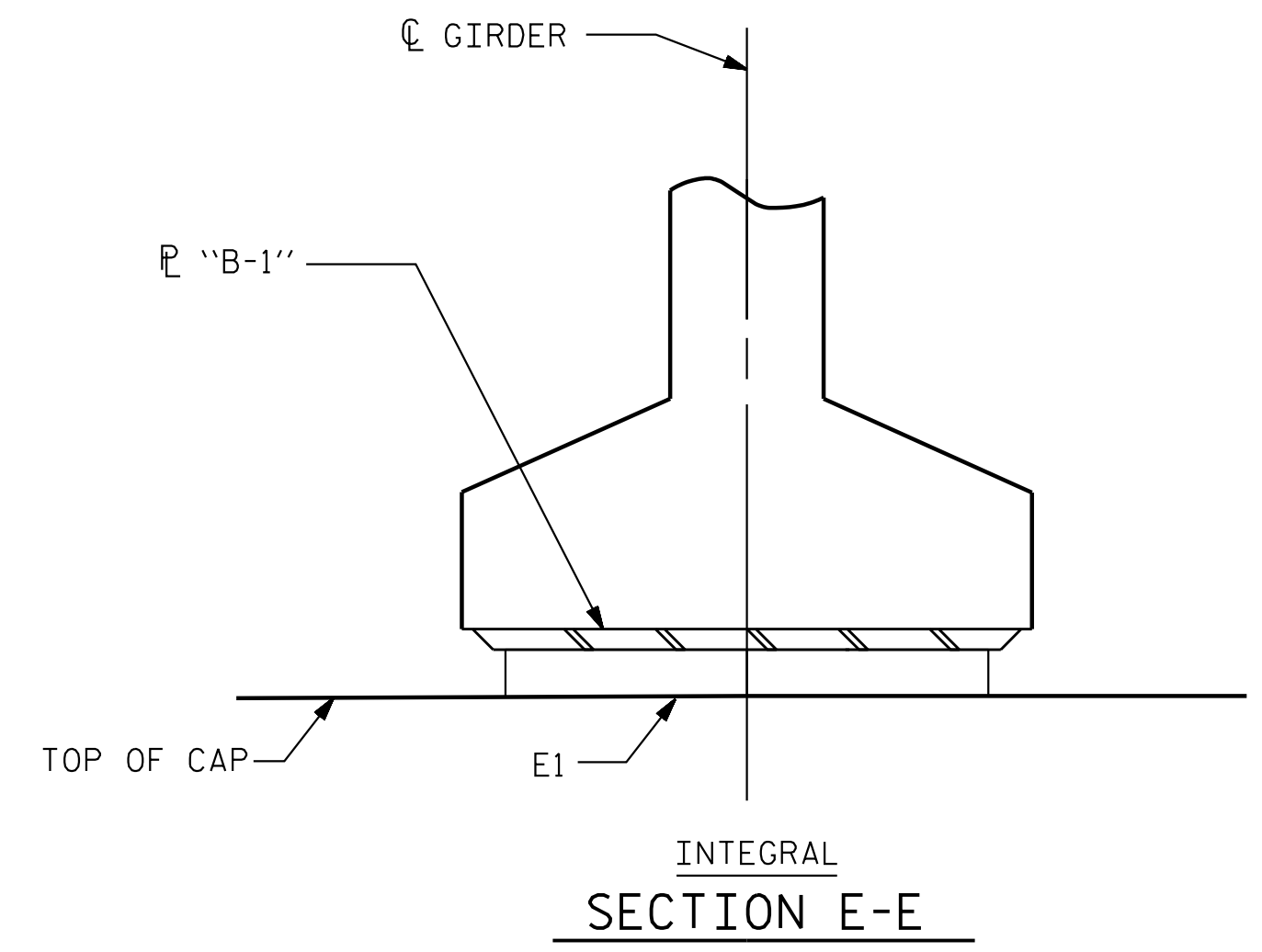
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NOTES

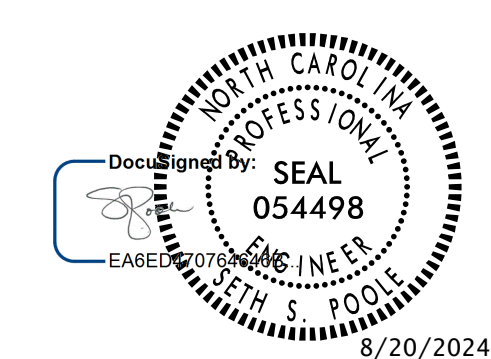
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.
 THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 k

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 ELASTOMERIC BEARING
 DETAILS
 PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE



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2			4			TOTAL SHEETS 47

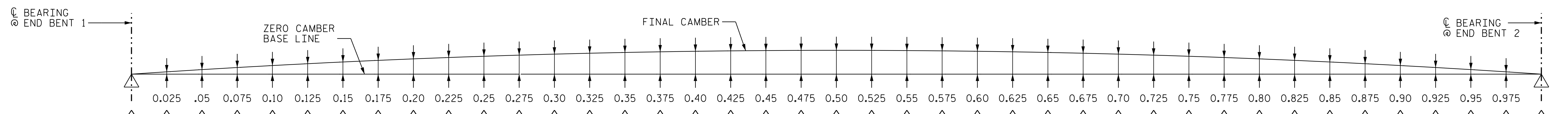
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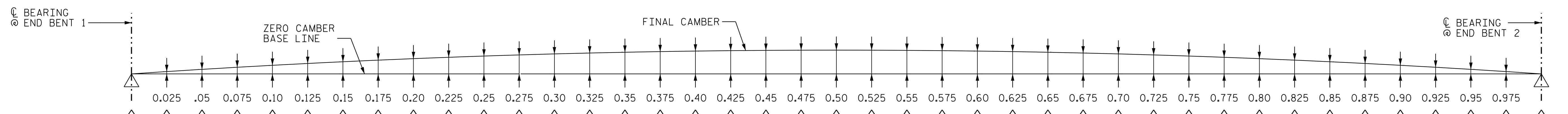
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GIRDERS 1 & 2

FORTIETH POINTS BETWEEN BRGS.																																											
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.029	0.058	0.087	0.115	0.142	0.169	0.194	0.218	0.240	0.262	0.281	0.299	0.314	0.329	0.339	0.350	0.357	0.363	0.365	0.368	0.365	0.363	0.357	0.350	0.339	0.329	0.314	0.299	0.281	0.262	0.240	0.218	0.194	0.169	0.142	0.115	0.087	0.058	0.029	0.000	
DEFLEC. DUE TO SUPERIMPOSED DL *	↓	0.000	0.019	0.038	0.058	0.077	0.095	0.113	0.131	0.149	0.163	0.177	0.192	0.206	0.215	0.224	0.233	0.242	0.245	0.248	0.251	0.254	0.251	0.248	0.245	0.242	0.233	0.224	0.215	0.206	0.192	0.177	0.163	0.149	0.131	0.113	0.095	0.077	0.058	0.038	0.019	0.000	
FINAL CAMBER (OR DEFLECTION)	↑	0"	1/8"	1/4"	3/8"	7/16"	9/16"	11/16"	3/4"	13/16"	15/16"	1"	11/16"	11/8"	13/16"	11/4"	11/4"	15/16"	15/16"	13/8"	13/8"	13/8"	13/8"	13/8"	13/8"	15/16"	15/16"	11/4"	11/4"	13/16"	11/8"	11/16"	1"	15/16"	13/16"	3/4"	11/16"	9/16"	7/16"	3/8"	1/4"	1/8"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDER 3

FORTIETH POINTS BETWEEN BRGS.																																											
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.029	0.058	0.087	0.115	0.142	0.169	0.194	0.218	0.240	0.262	0.281	0.299	0.314	0.329	0.339	0.350	0.357	0.363	0.365	0.368	0.365	0.363	0.357	0.350	0.339	0.329	0.314	0.299	0.281	0.262	0.240	0.218	0.194	0.169	0.142	0.115	0.087	0.058	0.029	0.000	
DEFLEC. DUE TO SUPERIMPOSED DL *	↓	0.000	0.019	0.038	0.056	0.075	0.093	0.110	0.128	0.145	0.159	0.173	0.187	0.201	0.210	0.219	0.227	0.236	0.239	0.242	0.245	0.249	0.245	0.242	0.239	0.236	0.227	0.219	0.210	0.201	0.187	0.173	0.159	0.145	0.128	0.110	0.093	0.075	0.056	0.038	0.019	0.000	
FINAL CAMBER (OR DEFLECTION)	↑	0"	1/8"	1/4"	3/8"	1/2"	5/8"	11/16"	13/16"	7/8"	1"	11/16"	11/8"	13/16"	11/4"	15/16"	15/16"	13/8"	17/16"	17/16"	17/16"	17/16"	17/16"	17/16"	17/16"	17/16"	13/8"	15/16"	15/16"	11/4"	13/16"	11/8"	11/16"	1"	7/8"	13/16"	11/16"	5/8"	1/2"	3/8"	1/4"	1/8"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

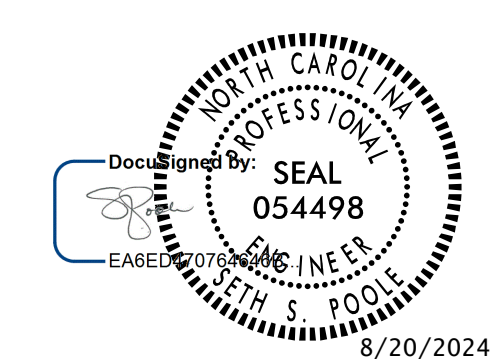
SCHEMATIC CAMBER ORDINATES SPAN A

ALL VALUES ARE SHOWN IN DECIMALS OF A FOOT EXCEPT "FINAL CAMBER (OR DEFLECTION)" WHICH IS SHOWN IN INCHES.
 (+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.
 (-) FINAL CAMBER INDICATES NET DOWNWARD DISPLACEMENT.

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 1 OF 3

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



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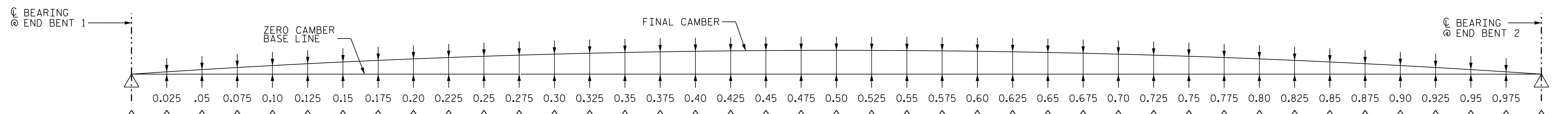
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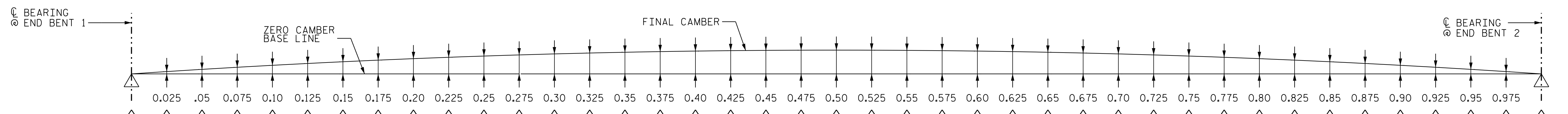
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GIRDERS 4 & 5

FORTIETH POINTS BETWEEN BRGS.		0	0.025	0.05	0.075	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45	0.475	0.50	0.525	0.55	0.575	0.60	0.625	0.65	0.675	0.70	0.725	0.75	0.775	0.80	0.825	0.85	0.875	0.90	0.925	0.95	0.975	1	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.029	0.058	0.087	0.115	0.142	0.169	0.194	0.218	0.240	0.262	0.281	0.299	0.314	0.329	0.339	0.350	0.357	0.363	0.365	0.368	0.365	0.363	0.357	0.350	0.339	0.329	0.314	0.299	0.281	0.262	0.240	0.218	0.194	0.169	0.142	0.115	0.087	0.058	0.029	0.000	
DEFLEC. DUE TO SUPERIMPOSED DL *	↓	0.000	0.017	0.034	0.051	0.069	0.085	0.101	0.117	0.133	0.146	0.158	0.171	0.184	0.192	0.200	0.208	0.216	0.219	0.222	0.225	0.227	0.225	0.222	0.219	0.216	0.208	0.200	0.192	0.184	0.171	0.158	0.146	0.133	0.117	0.101	0.085	0.069	0.051	0.034	0.017	0.000	
FINAL CAMBER (OR DEFLECTION)	↑	0"	1/8"	5/16"	7/16"	9/16"	11/16"	13/16"	15/16"	1"	1 1/8"	1 1/4"	1 5/16"	1 3/8"	1 7/16"	1 9/16"	1 9/16"	1 5/8"	1 5/8"	1 11/16"	1 11/16"	1 11/16"	1 11/16"	1 11/16"	1 11/16"	1 5/8"	1 5/8"	1 9/16"	1 9/16"	1 7/16"	1 3/8"	1 5/16"	1 1/4"	1 1/8"	1"	15/16"	13/16"	11/16"	9/16"	7/16"	5/16"	1/8"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDERS 6 & 7

FORTIETH POINTS BETWEEN BRGS.		0	0.025	0.05	0.075	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45	0.475	0.50	0.525	0.55	0.575	0.60	0.625	0.65	0.675	0.70	0.725	0.75	0.775	0.80	0.825	0.85	0.875	0.90	0.925	0.95	0.975	1	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.029	0.058	0.087	0.115	0.142	0.169	0.194	0.218	0.240	0.262	0.281	0.299	0.314	0.329	0.329	0.350	0.357	0.363	0.365	0.368	0.365	0.363	0.357	0.350	0.339	0.329	0.314	0.299	0.281	0.262	0.240	0.218	0.194	0.169	0.142	0.115	0.087	0.058	0.029	0.000	
DEFLEC. DUE TO SUPERIMPOSED DL *	↓	0.000	0.015	0.031	0.046	0.061	0.076	0.090	0.104	0.119	0.130	0.142	0.153	0.164	0.171	0.179	0.186	0.193	0.196	0.198	0.201	0.203	0.201	0.198	0.196	0.193	0.186	0.179	0.171	0.164	0.153	0.142	0.130	0.119	0.104	0.090	0.076	0.061	0.046	0.031	0.015	0.000	
FINAL CAMBER (OR DEFLECTION)	↑	0"	3/16"	5/16"	1/2"	5/8"	13/16"	15/16"	1 1/16"	1 3/16"	1 5/16"	1 7/16"	1 9/16"	1 5/8"	1 11/16"	1 13/16"	1 13/16"	1 7/8"	1 15/16"	2"	2"	2"	2"	2"	2"	1 15/16"	1 7/8"	1 13/16"	1 13/16"	1 11/16"	1 5/8"	1 9/16"	1 7/16"	1 5/16"	1 3/16"	1 1/16"	1 5/16"	1 3/16"	5/8"	1/2"	5/16"	3/16"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

SCHEMATIC CAMBER ORDINATES SPAN A

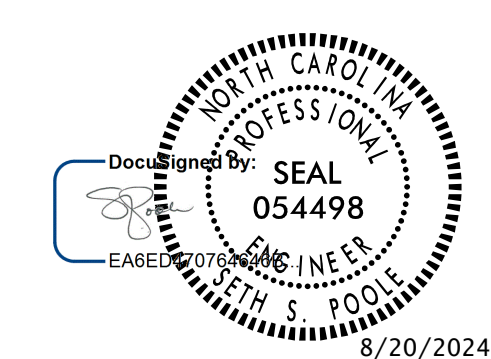
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 (+) FINAL CAMBER INDICATES NET UPWARD DISPLACEMENT.
 (-) FINAL CAMBER INDICATES NET DOWNWARD DISPLACEMENT.

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
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 RALEIGH

**SUPERSTRUCTURE
 DEAD LOAD
 DEFLECTIONS
 SPAN A**



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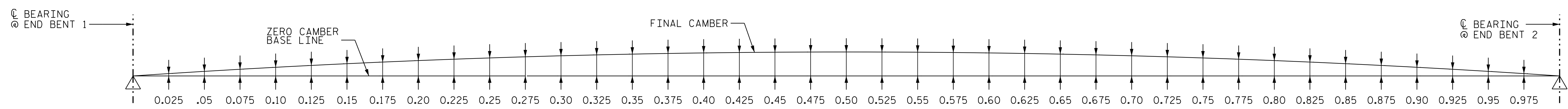
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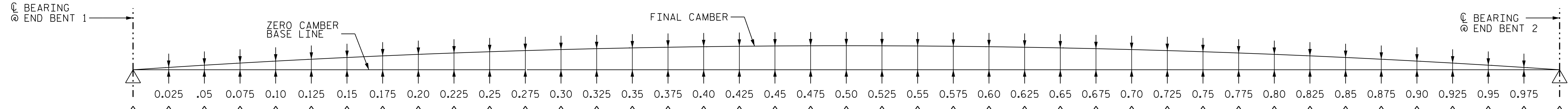
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GIRDERS 8 & 9

FORTIETH POINTS BETWEEN BRGS.		0	0.025	0.05	0.075	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45	0.475	0.50	0.525	0.55	0.575	0.60	0.625	0.65	0.675	0.70	0.725	0.75	0.775	0.80	0.825	0.85	0.875	0.90	0.925	0.95	0.975	100	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.029	0.058	0.087	0.115	0.142	0.169	0.194	0.218	0.240	0.262	0.281	0.299	0.314	0.329	0.339	0.350	0.357	0.363	0.365	0.368	0.365	0.363	0.357	0.350	0.339	0.329	0.314	0.299	0.281	0.262	0.240	0.218	0.194	0.169	0.142	0.115	0.087	0.058	0.029	0.000	
DEFLEC. DUE TO SUPERIMPOSED DL *	↓	0.000	0.016	0.033	0.049	0.066	0.081	0.097	0.112	0.128	0.140	0.152	0.164	0.176	0.184	0.192	0.200	0.207	0.210	0.213	0.215	0.218	0.215	0.213	0.210	0.207	0.200	0.192	0.184	0.176	0.164	0.152	0.140	0.128	0.112	0.097	0.081	0.066	0.049	0.033	0.016	0.000	
FINAL CAMBER (OR DEFLECTION)	↑	0"	1/8"	5/16"	7/16"	5/8"	3/4"	7/8"	1"	1 1/16"	1 3/16"	1 5/16"	1 3/8"	1 1/2"	1 9/16"	1 5/8"	1 11/16"	1 13/16"	1 3/4"	1 13/16"	1 13/16"	1 13/16"	1 13/16"	1 13/16"	1 13/16"	1 3/4"	1 11/16"	1 11/16"	1 5/8"	1 9/16"	1 1/2"	1 3/8"	1 5/16"	1 3/16"	1 1/16"	1"	7/8"	3/4"	5/8"	7/16"	5/16"	1/8"	0"

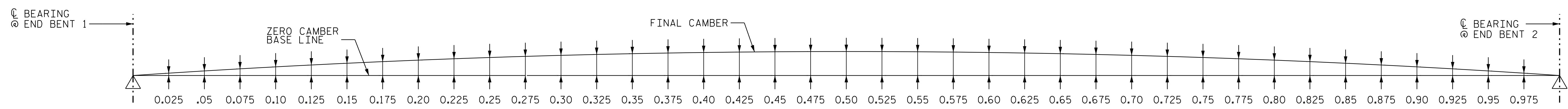
* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDER 10

FORTIETH POINTS BETWEEN BRGS.		0	0.025	0.05	0.075	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45	0.475	0.50	0.525	0.55	0.575	0.60	0.625	0.65	0.675	0.70	0.725	0.75	0.775	0.80	0.825	0.85	0.875	0.90	0.925	0.95	0.975	100	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.029	0.058	0.087	0.115	0.142	0.169	0.194	0.218	0.240	0.262	0.281	0.299	0.314	0.329	0.339	0.350	0.357	0.363	0.365	0.368	0.365	0.363	0.357	0.350	0.339	0.329	0.314	0.299	0.281	0.262	0.240	0.218	0.194	0.169	0.142	0.115	0.087	0.058	0.029	0.000	
DEFLEC. DUE TO SUPERIMPOSED DL *	↓	0.000	0.018	0.036	0.054	0.072	0.089	0.106	0.123	0.140	0.153	0.167	0.180	0.193	0.202	0.210	0.219	0.227	0.230	0.233	0.236	0.239	0.236	0.233	0.230	0.227	0.219	0.210	0.202	0.193	0.180	0.167	0.153	0.140	0.123	0.106	0.089	0.072	0.054	0.036	0.018	0.000	
FINAL CAMBER (OR DEFLECTION)	↑	0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1 5/16"	1 1/16"	1 1/8"	1 3/16"	1 1/4"	1 5/16"	1 7/16"	1 7/16"	1 1/2"	1 1/2"	1 9/16"	1 9/16"	1 9/16"	1 9/16"	1 9/16"	1 9/16"	1 1/2"	1 1/2"	1 7/16"	1 7/16"	1 5/16"	1 1/4"	1 3/16"	1 1/8"	1 1/16"	1 5/16"	7/8"	3/4"	5/8"	1/2"	3/8"	1/4"	1/8"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



GIRDERS 11 & 12

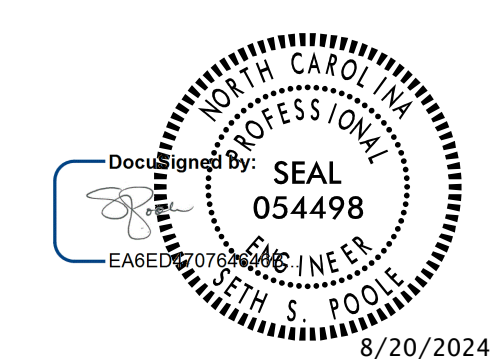
FORTIETH POINTS BETWEEN BRGS.		0	0.025	0.05	0.075	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45	0.475	0.50	0.525	0.55	0.575	0.60	0.625	0.65	0.675	0.70	0.725	0.75	0.775	0.80	0.825	0.85	0.875	0.90	0.925	0.95	0.975	100	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.029	0.058	0.087	0.115	0.142	0.169	0.194	0.218	0.240	0.262	0.281	0.299	0.314	0.329	0.339	0.350	0.357	0.363	0.365	0.368	0.365	0.363	0.357	0.350	0.339	0.329	0.314	0.299	0.281	0.262	0.240	0.218	0.194	0.169	0.142	0.115	0.087	0.058	0.029	0.000	
DEFLEC. DUE TO SUPERIMPOSED DL *	↓	0.000	0.018	0.037	0.055	0.074	0.091	0.109	0.126	0.143	0.157	0.171	0.184	0.198	0.207	0.216	0.224	0.233	0.236	0.239	0.242	0.245	0.242	0.239	0.236	0.233	0.224	0.216	0.207	0.198	0.184	0.171	0.157	0.143	0.126	0.109	0.091	0.074	0.055	0.037	0.018	0.000	
FINAL CAMBER (OR DEFLECTION)	↑	0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	13/16"	7/8"	1"	1 1/8"	1 1/8"	1 3/16"	1 5/16"	1 3/8"	1 3/8"	1 3/8"	1 7/16"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 7/16"	1 3/8"	1 3/8"	1 3/8"	1 5/16"	1 3/16"	1 1/8"	1 1/8"	1"	7/8"	13/16"	3/4"	5/8"	1/2"	3/8"	1/4"	1/8"	0"

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 3 OF 3

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



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			47

DOCUMENT NOT CONSIDERED
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DRAWN BY : J. B. GEILE DATE : 02/01/19 DESIGN ENGINEER OF RECORD : S. S. POOLE DATE : 08/20/24
 CHECKED BY : S. S. POOLE DATE : 08/01/24

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NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS : AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPliced AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS. PLACE ONE JOINT SPlice JUST BEYOND THE 3RD RAIL POST FROM EACH END, TYPICALLY 14' FROM THE END. PLACE OTHER JOINTS AS NEEDED.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE "3 BAR METAL RAIL", SHEET 3 OF 3.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS FOR RAIL ATTACHMENT SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

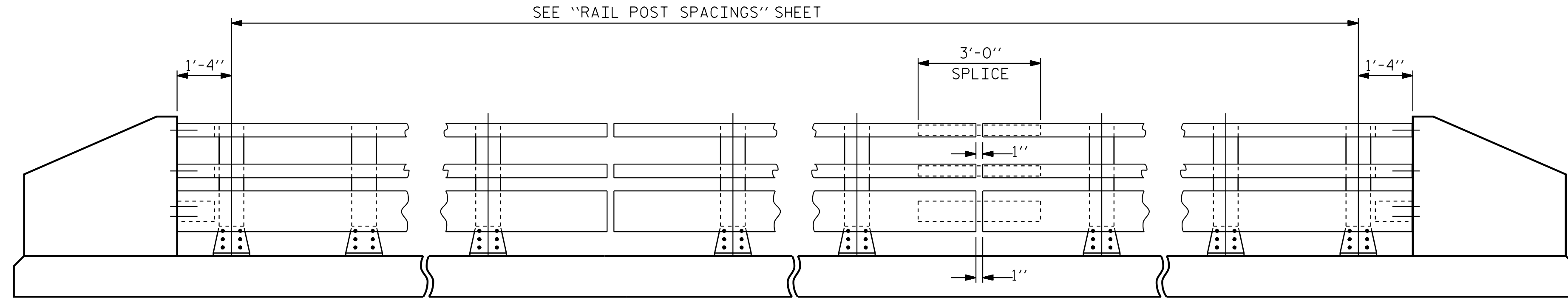
TO ENSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAIN VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

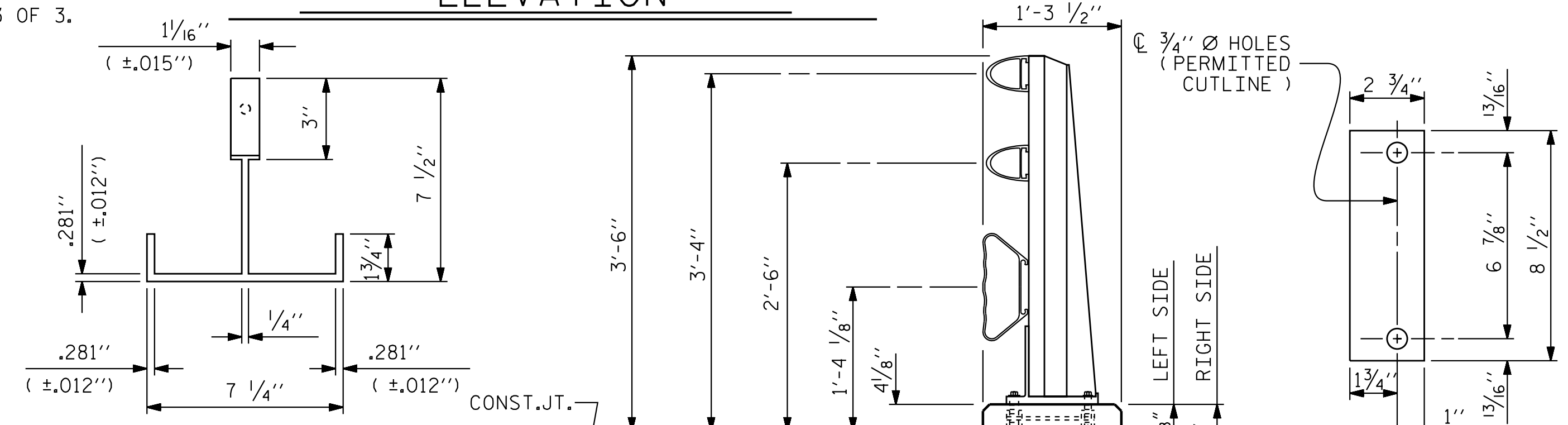
MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

PAY LENGTH = 229.0 LIN.FT.



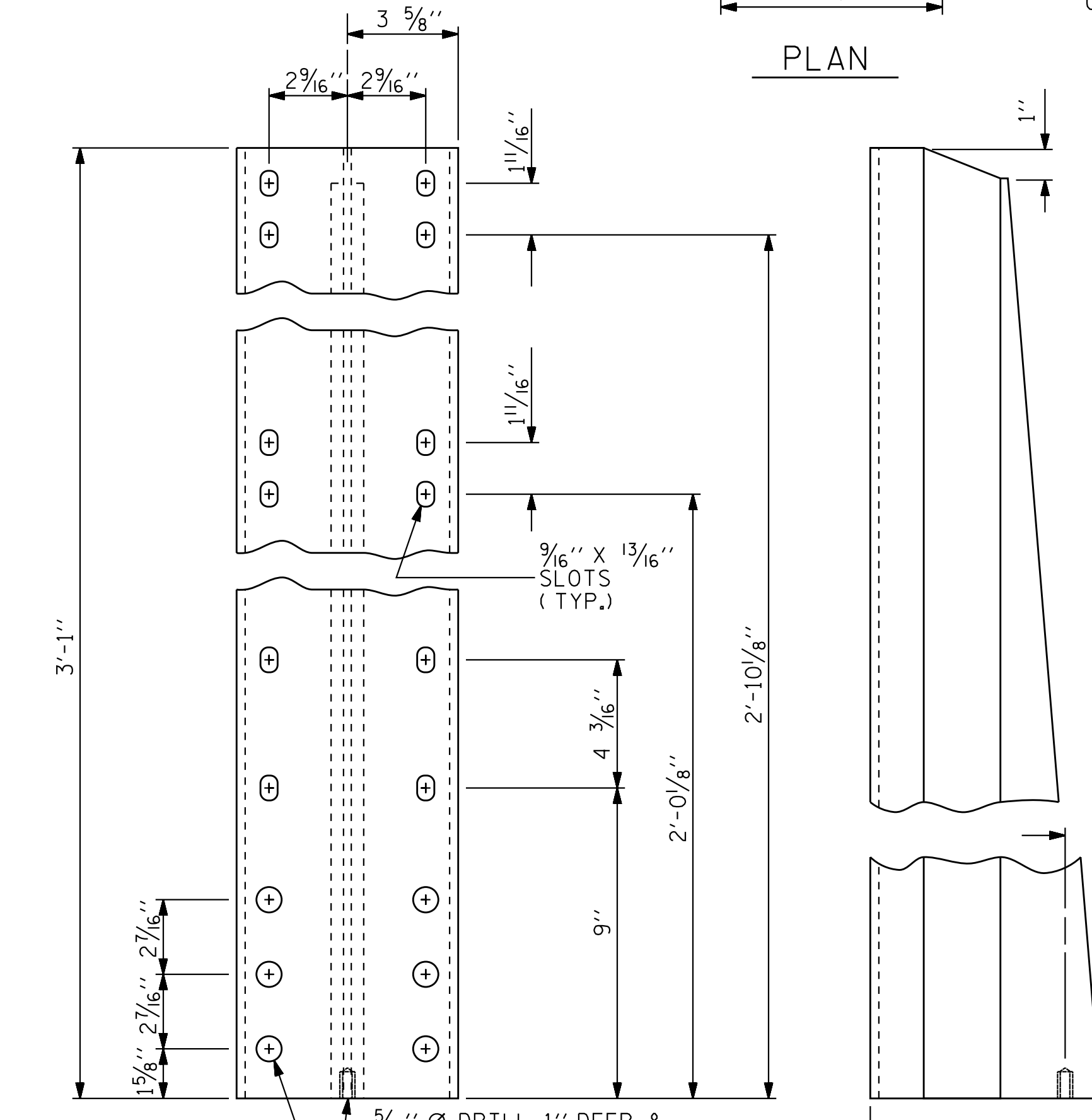
NOTE:
FOR ATTACHMENT OF METAL RAIL TO END POST, SEE "3 BAR METAL RAIL", SHEET 3 OF 3.

ELEVATION



SECTION THRU RAIL

FOR ANCHOR ASSEMBLY, SEE "3 BAR METAL RAIL" SHEET 2 OF 3.



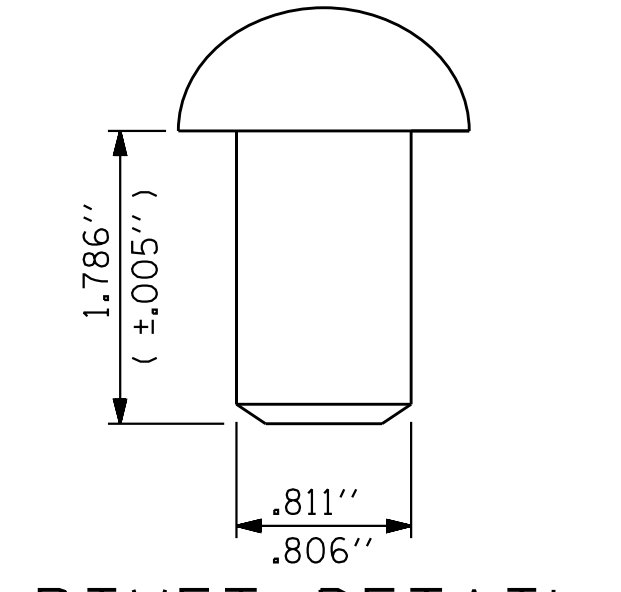
PLAN

6 - .825" Ø HOLES PUNCHED FOR RIVETS
 3/16" Ø DRILL 1" DEEP & 3/8" Ø [16 THREAD] TAP 7/8" DEEP FOR 3/8" Ø X 1 1/2" STAINLESS STEEL CAP SCREW

FRONT ELEVATION

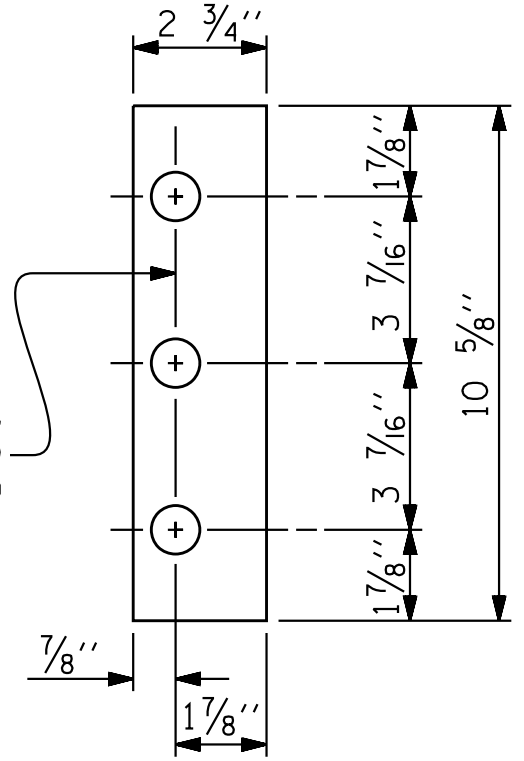
SIDE ELEVATION

DETAILS OF POST



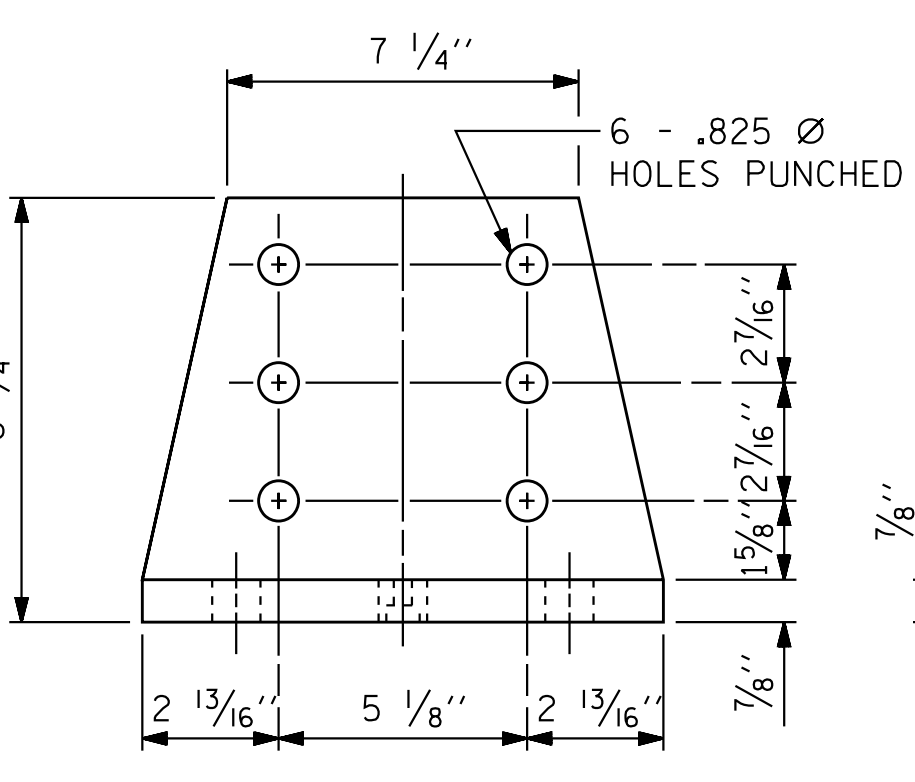
RIVET DETAIL

REAR PLATE

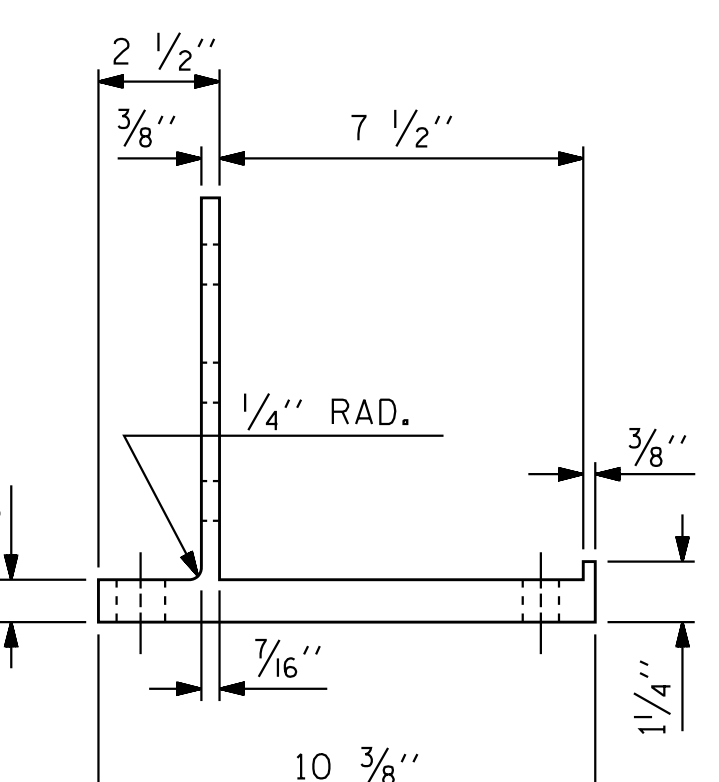


FRONT PLATE SHIM DETAILS

NOTE:
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

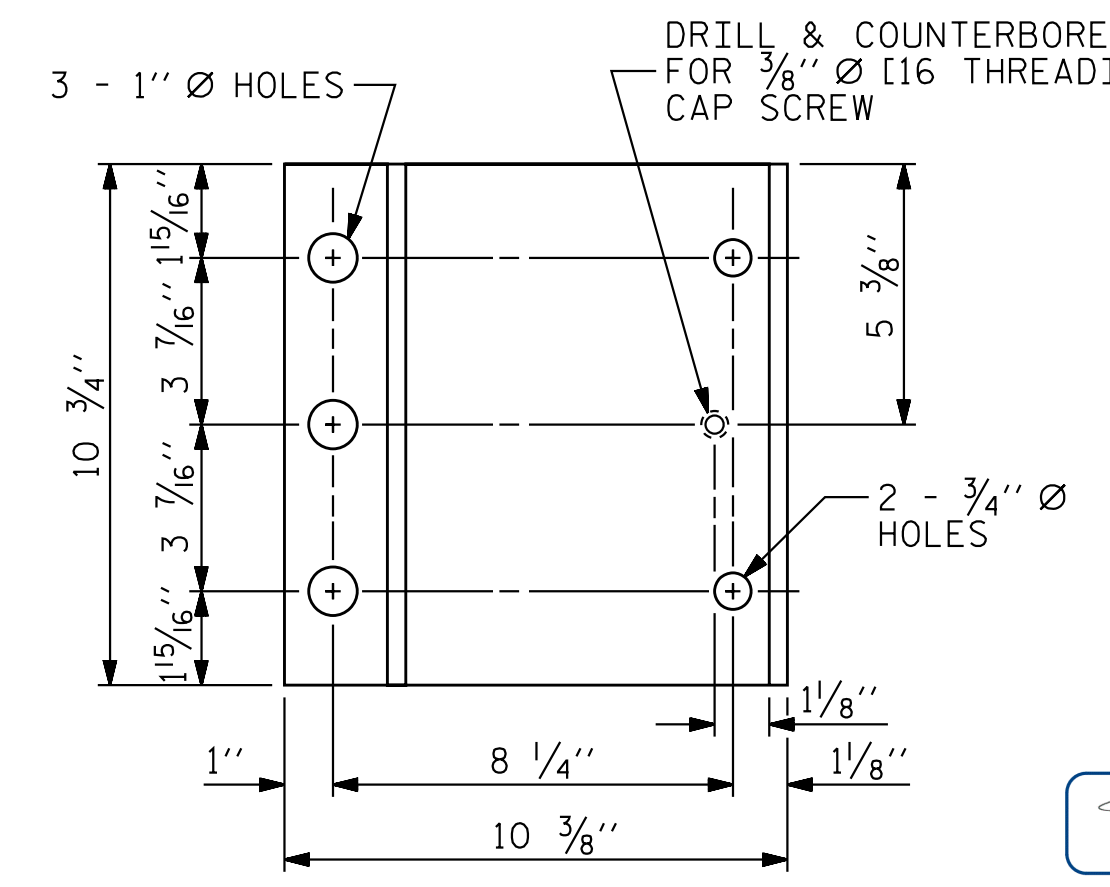


FRONT ELEVATION



SIDE ELEVATION

POST BASE DETAILS



PLAN

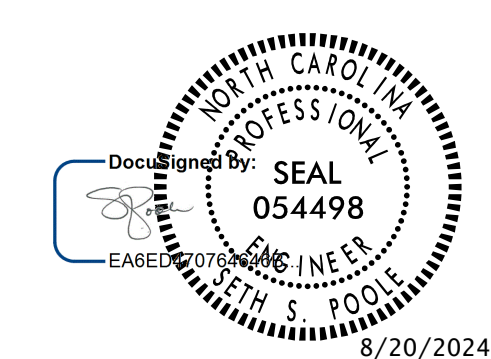
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DRAWN BY : J. B. GEILE DATE : 01/24/19
 CHECKED BY : S. S. POOLE DATE : 08/01/24
 DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 08/20/24

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3 BAR METAL RAIL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS 47
2			4			

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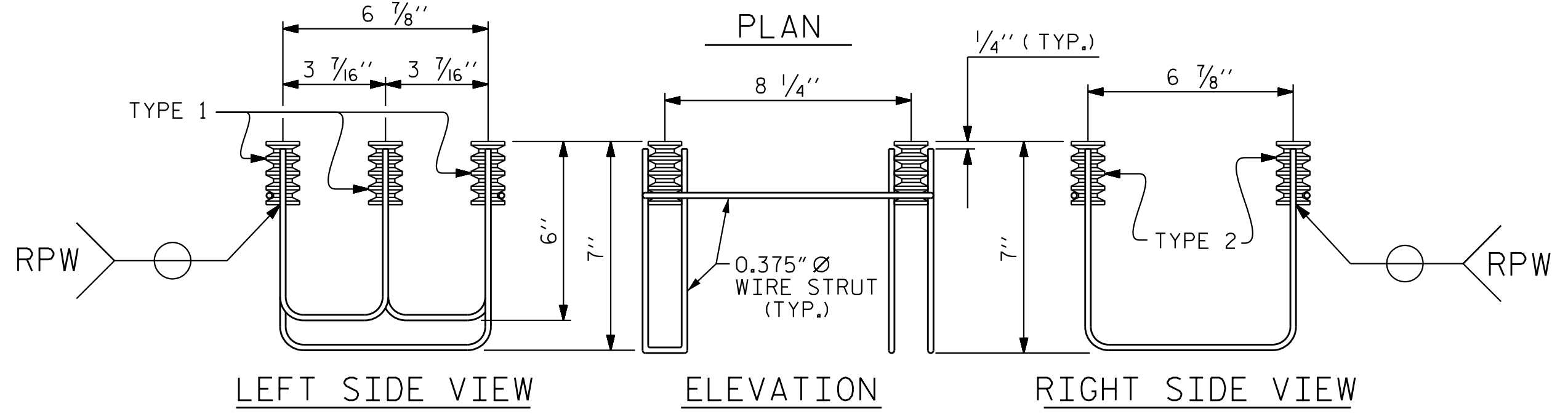
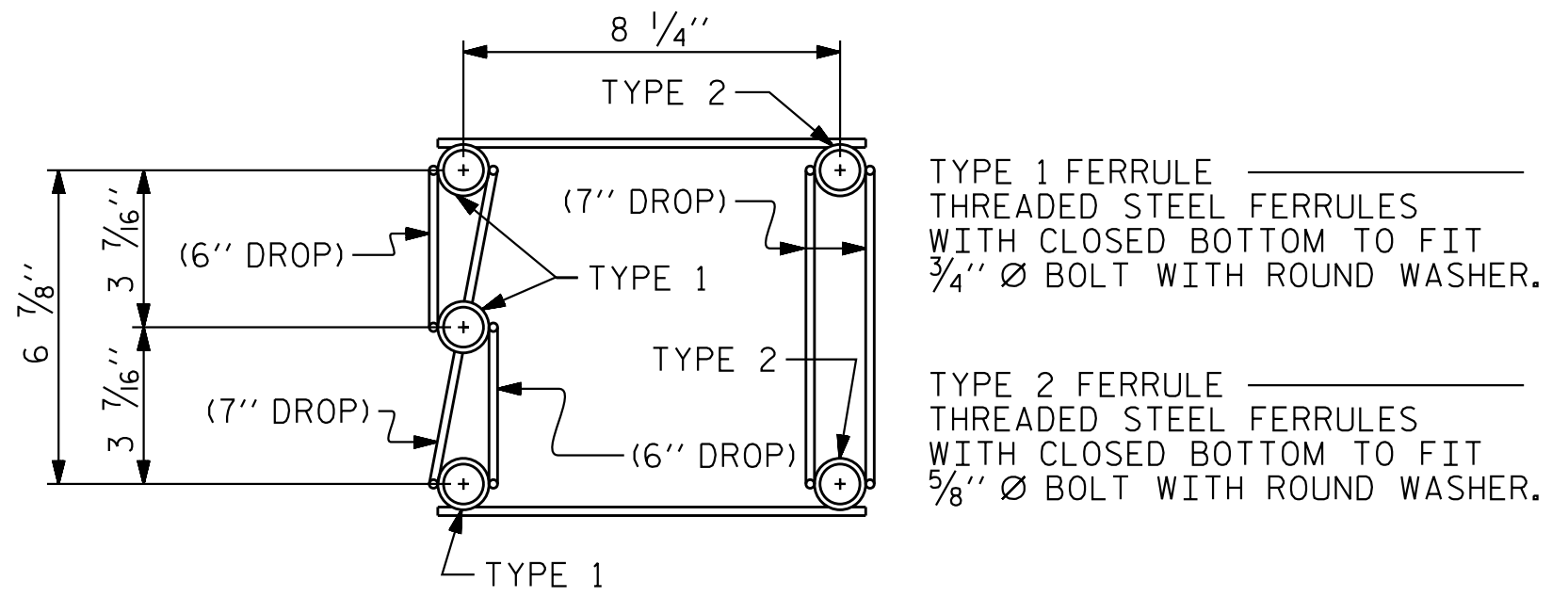
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NOTES

STRUCTURAL CONCRETE ANCHOR ASSEMBLY

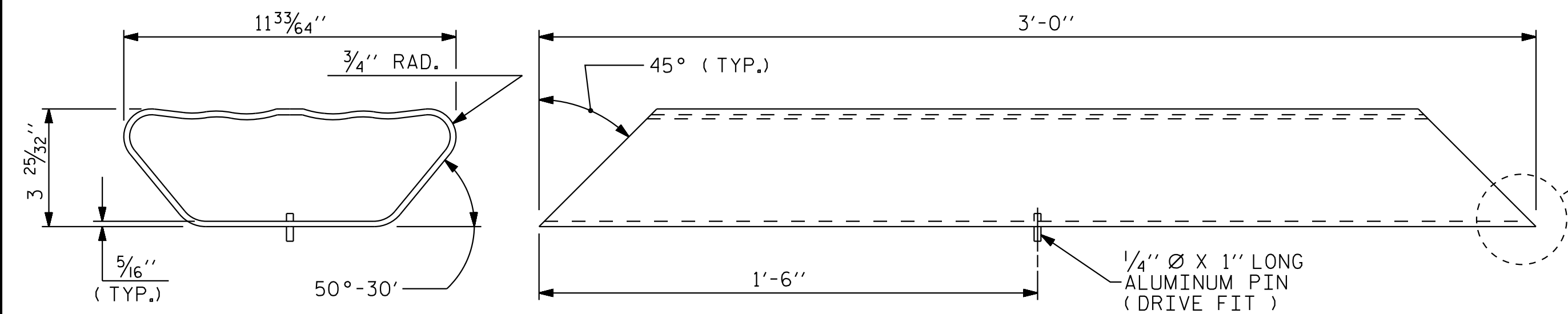
THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES AND 1 1/4" FOR 5/8" FERRULES.
- B. 3 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. 2 - 5/8" Ø X 2 1/4" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 5/8" Ø X 2 1/4" GALVANIZED BOLTS 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.
- D. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- E. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- F. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- G. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

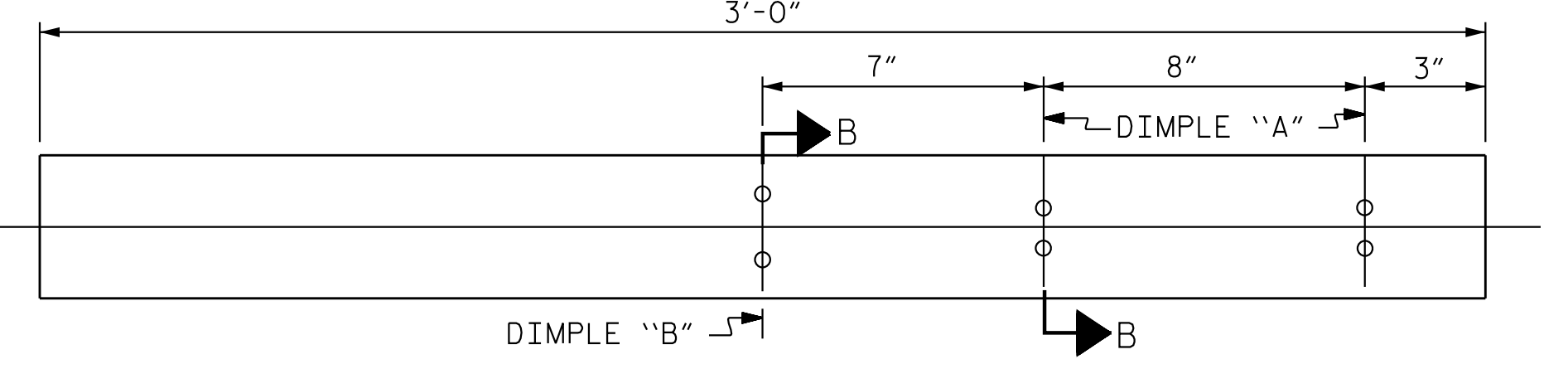
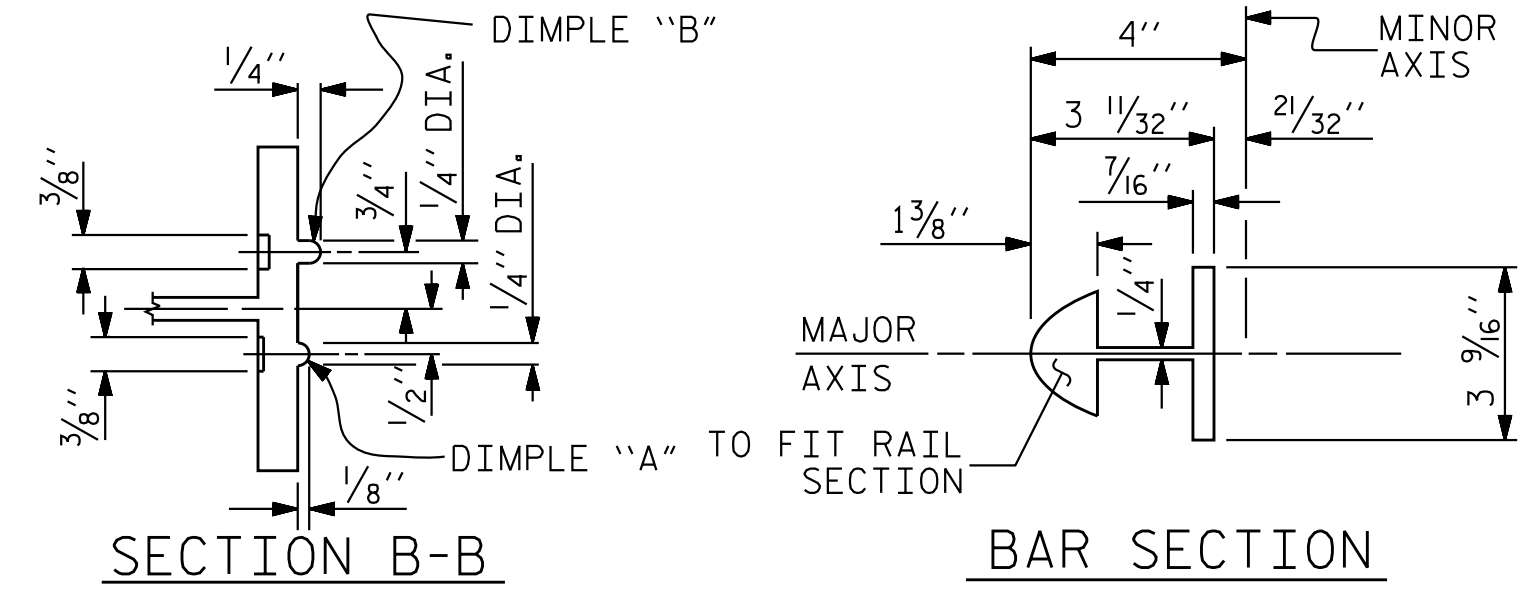
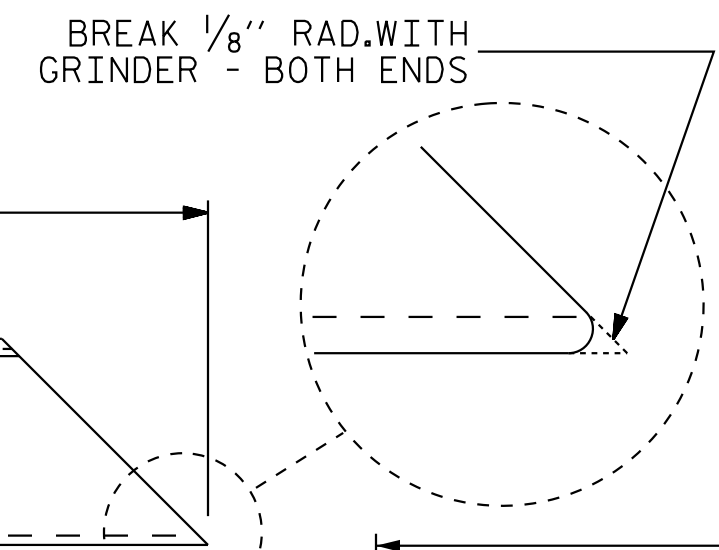


5-BOLT METAL RAIL ANCHOR ASSEMBLY

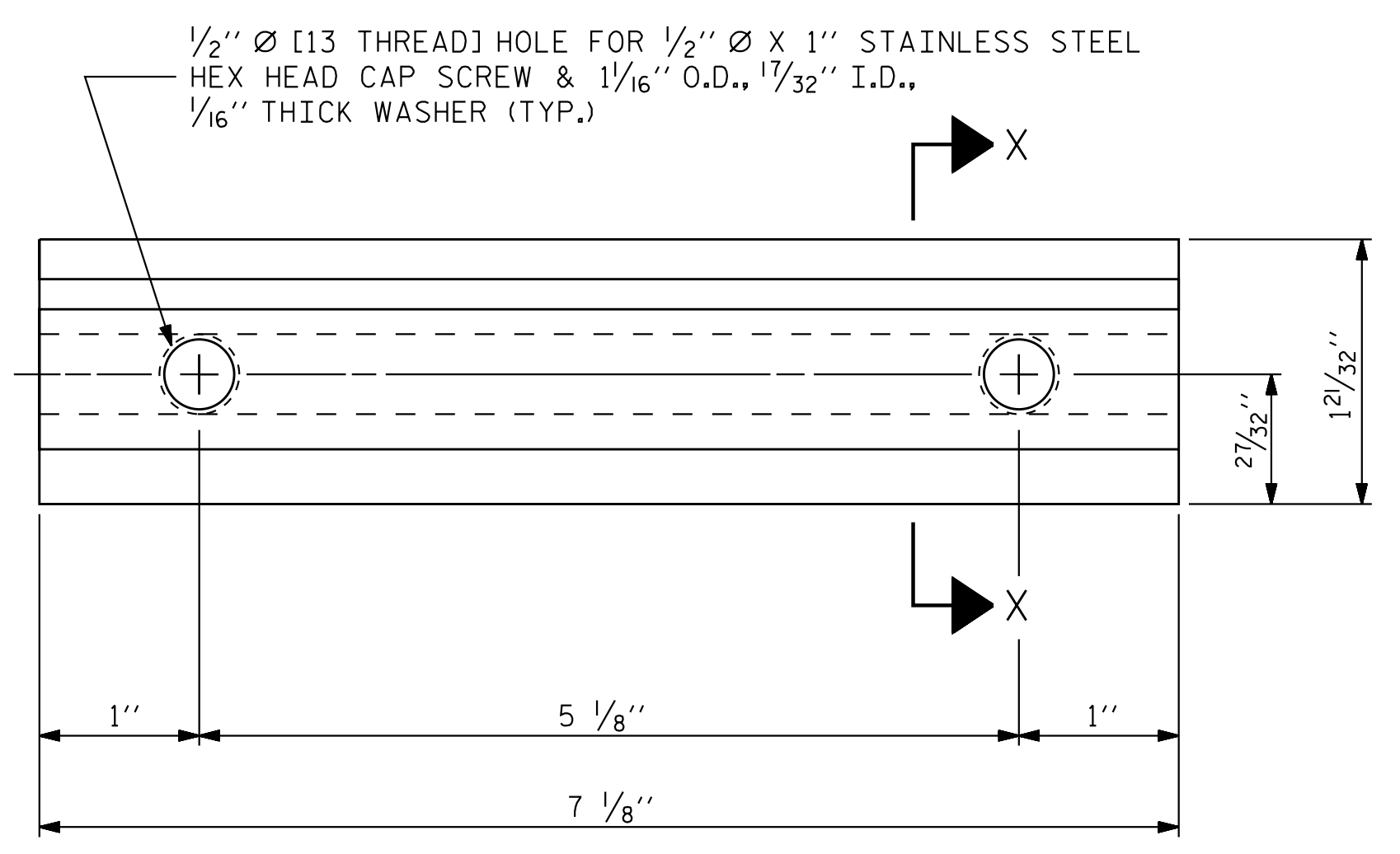
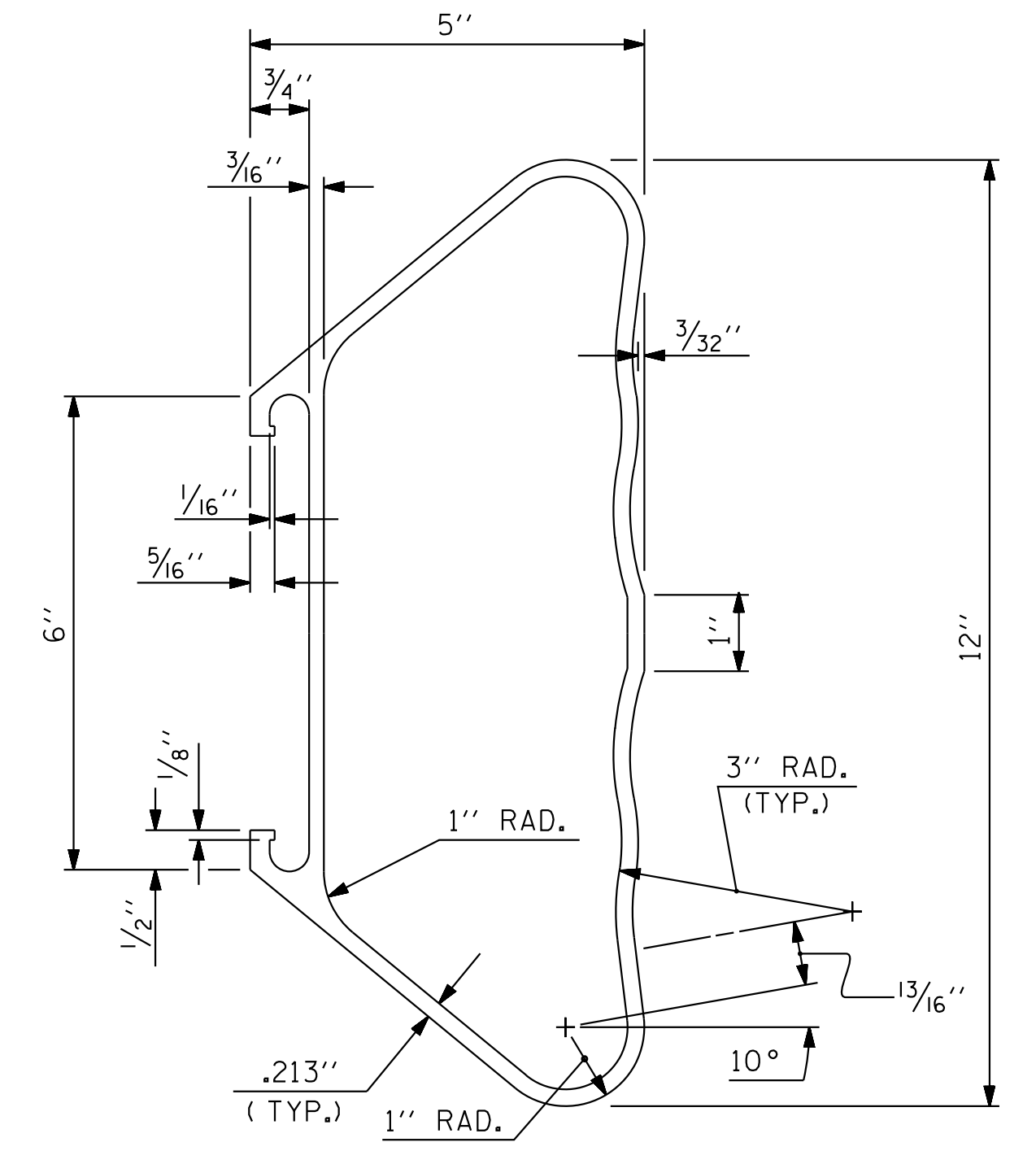
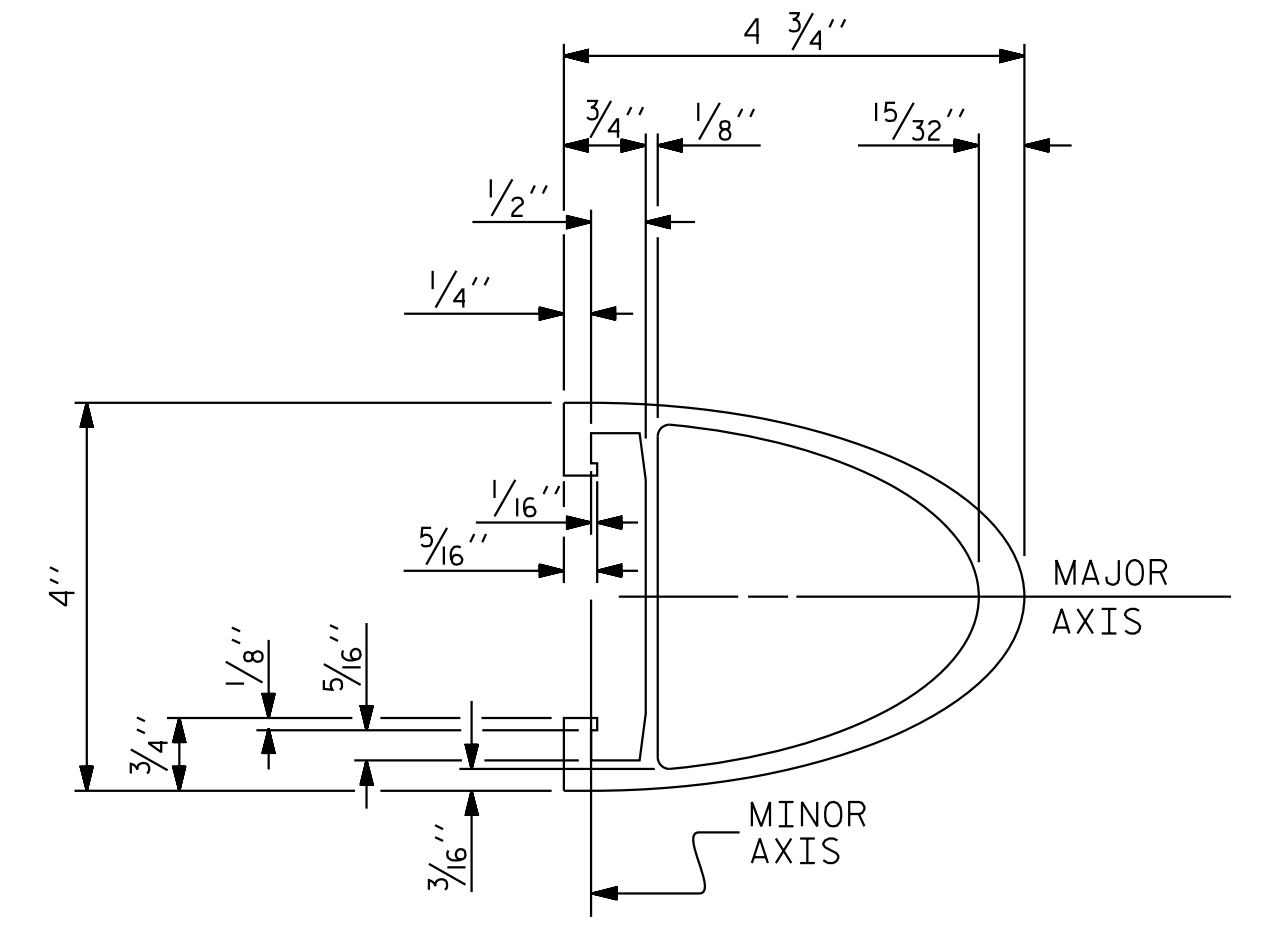
(42 ASSEMBLIES REQUIRED)



BOTTOM RAIL EXPANSION BAR

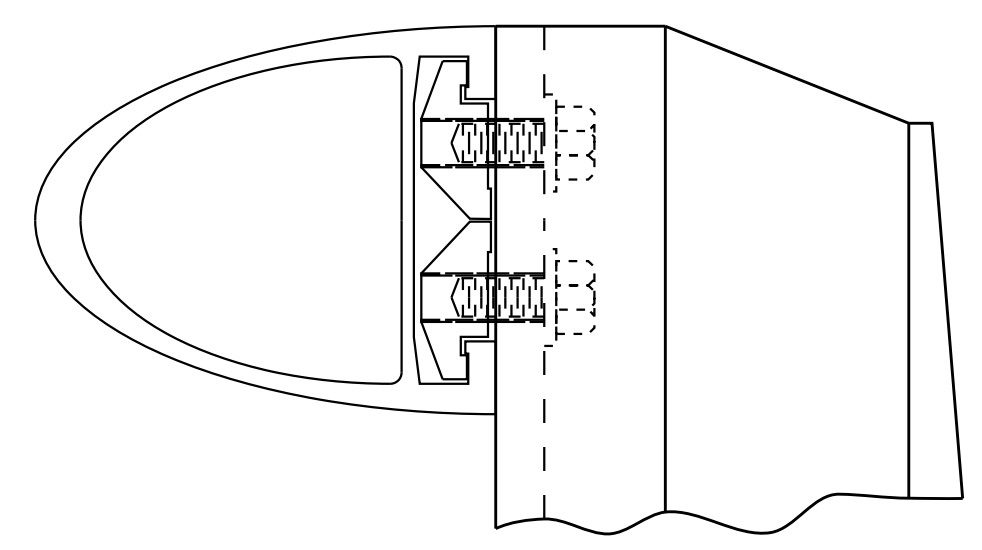
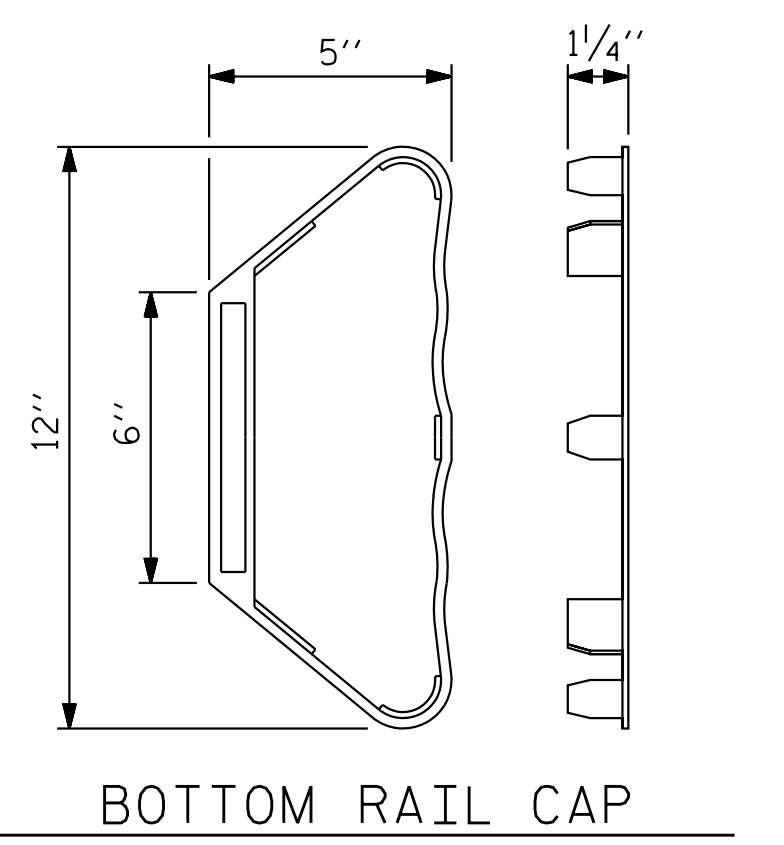
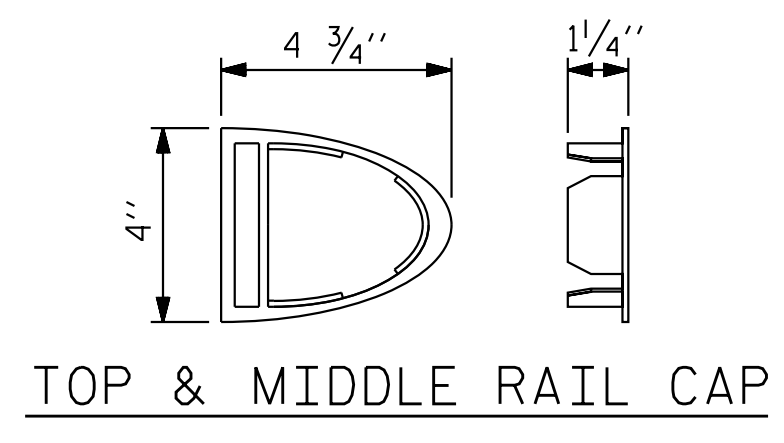
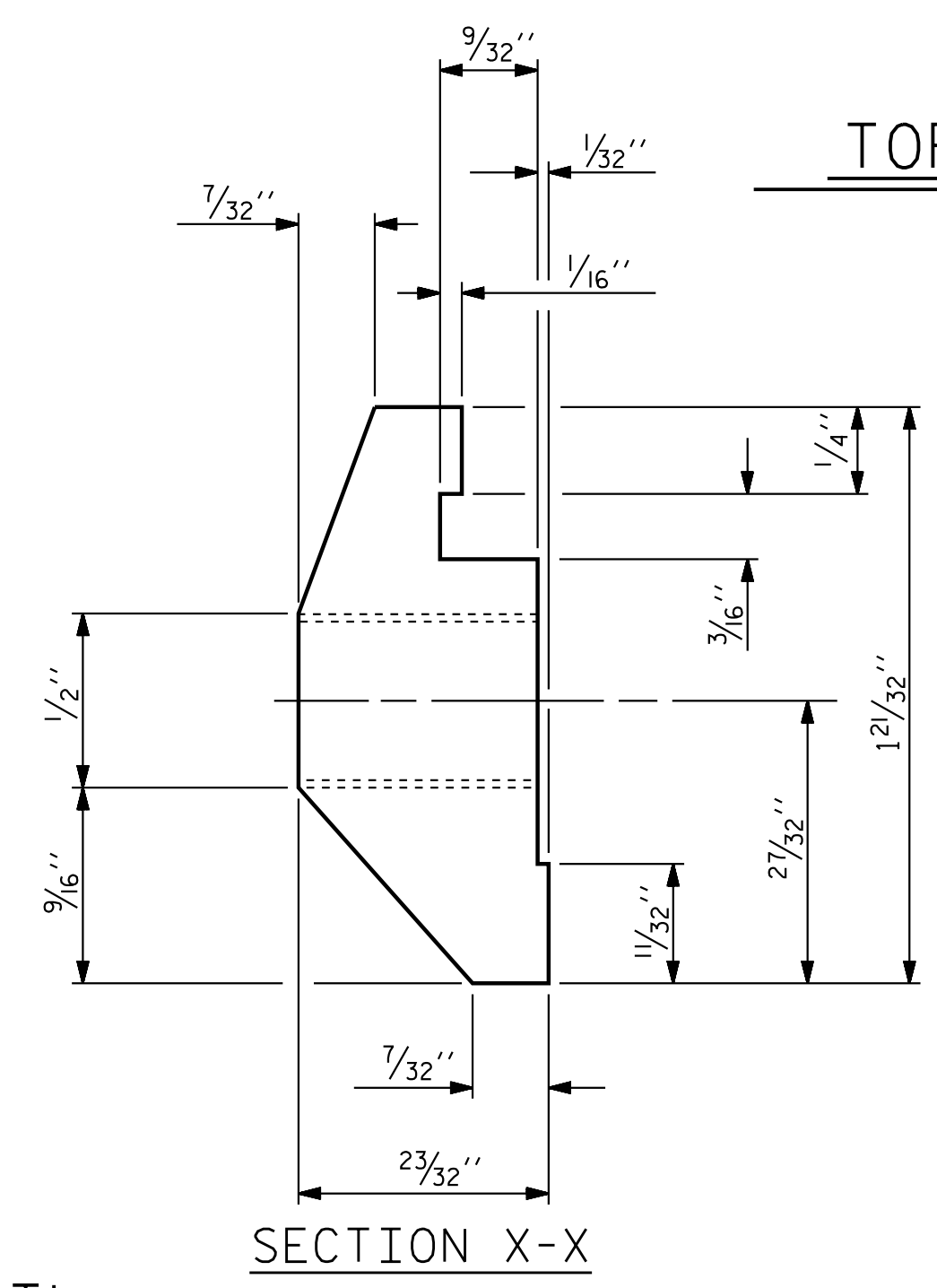


TOP & MIDDLE RAIL EXPANSION BAR



CLAMP BAR DETAIL

(6 REQUIRED PER POST)

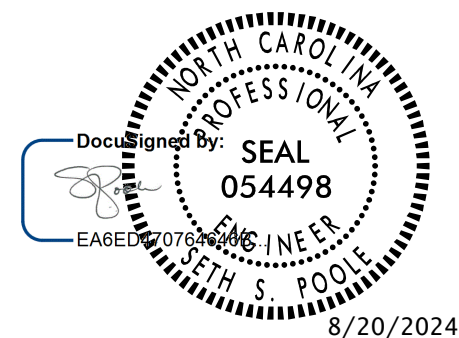


PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3 BAR METAL RAIL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS 47
2			4			

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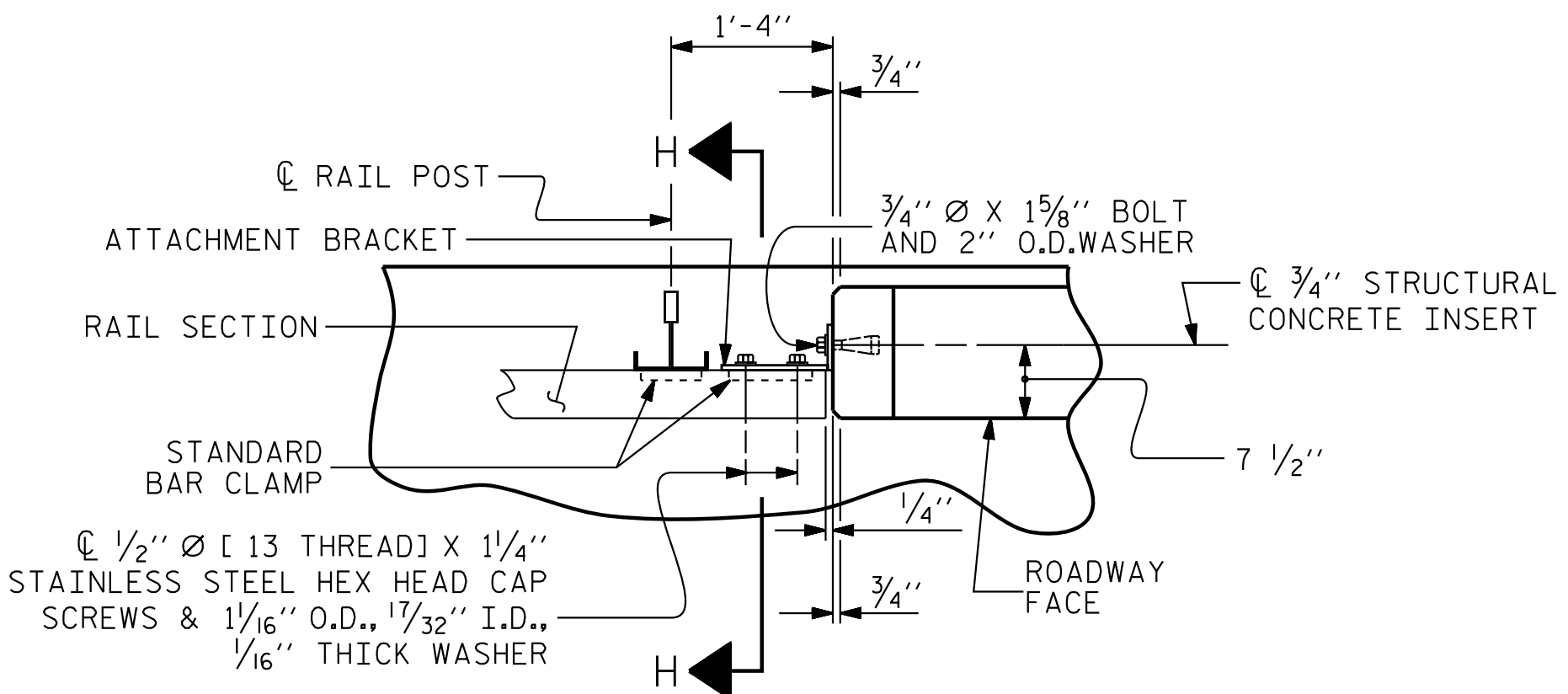
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DRAWN BY: J. B. GEILE DATE: 01/24/19
CHECKED BY: S. S. POOLE DATE: 08/01/24

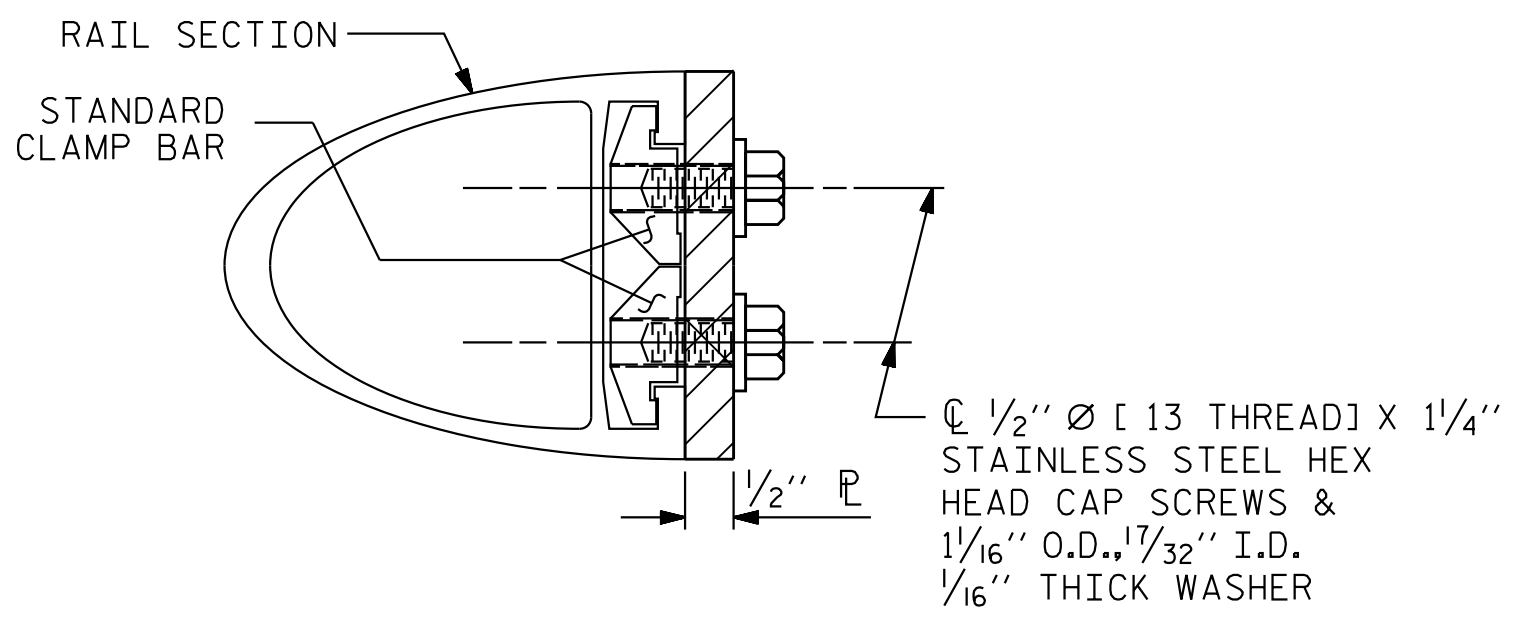
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE: 08/20/24

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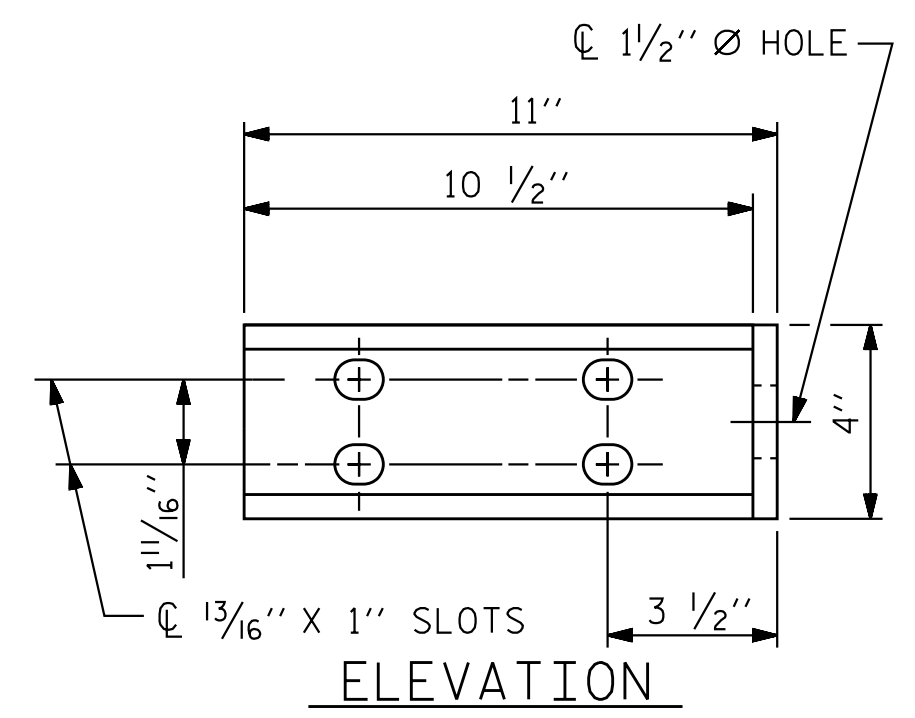
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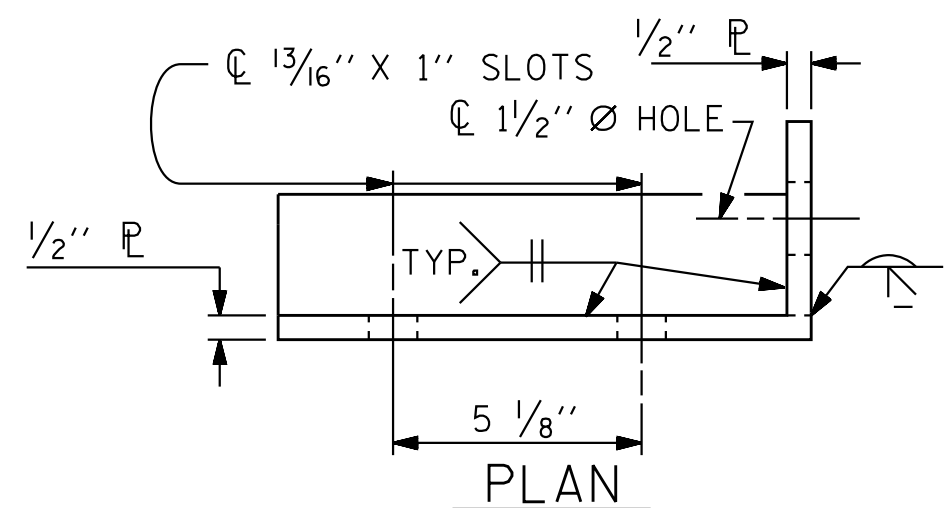
PLAN OF RAIL AND END POST
(STIFFENER ON 1/2" R NOT SHOWN FOR CLARITY)



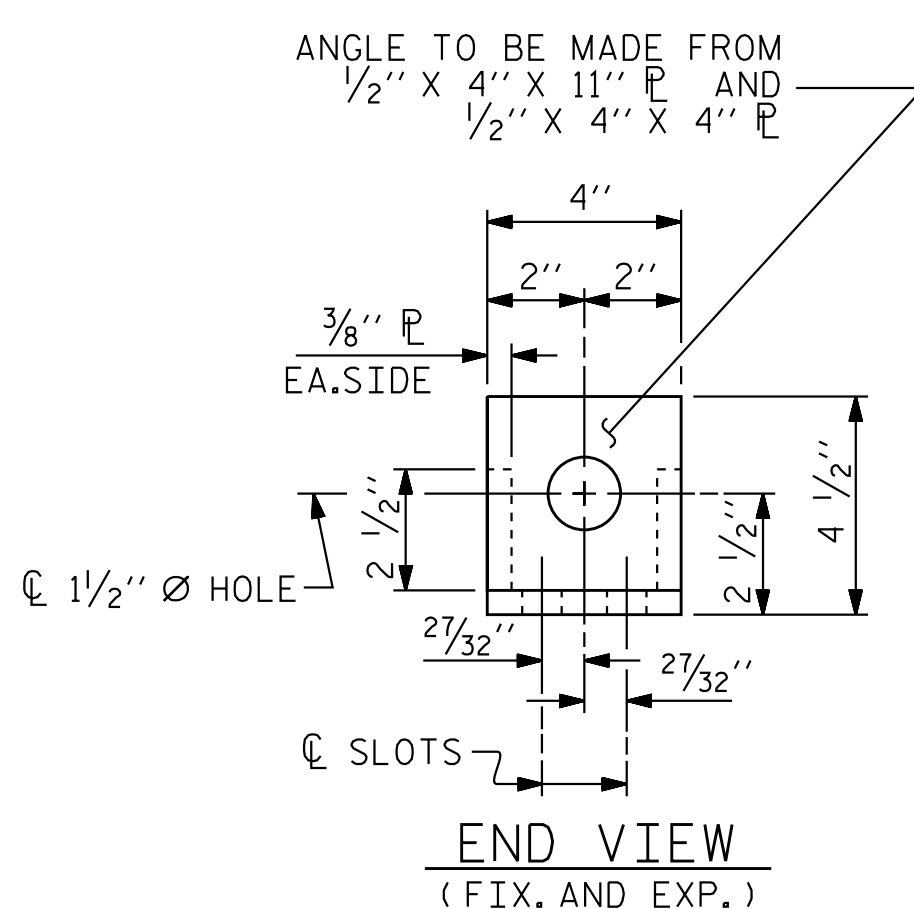
SECTION H-H
(FOR TOP & MIDDLE RAIL)



ELEVATION

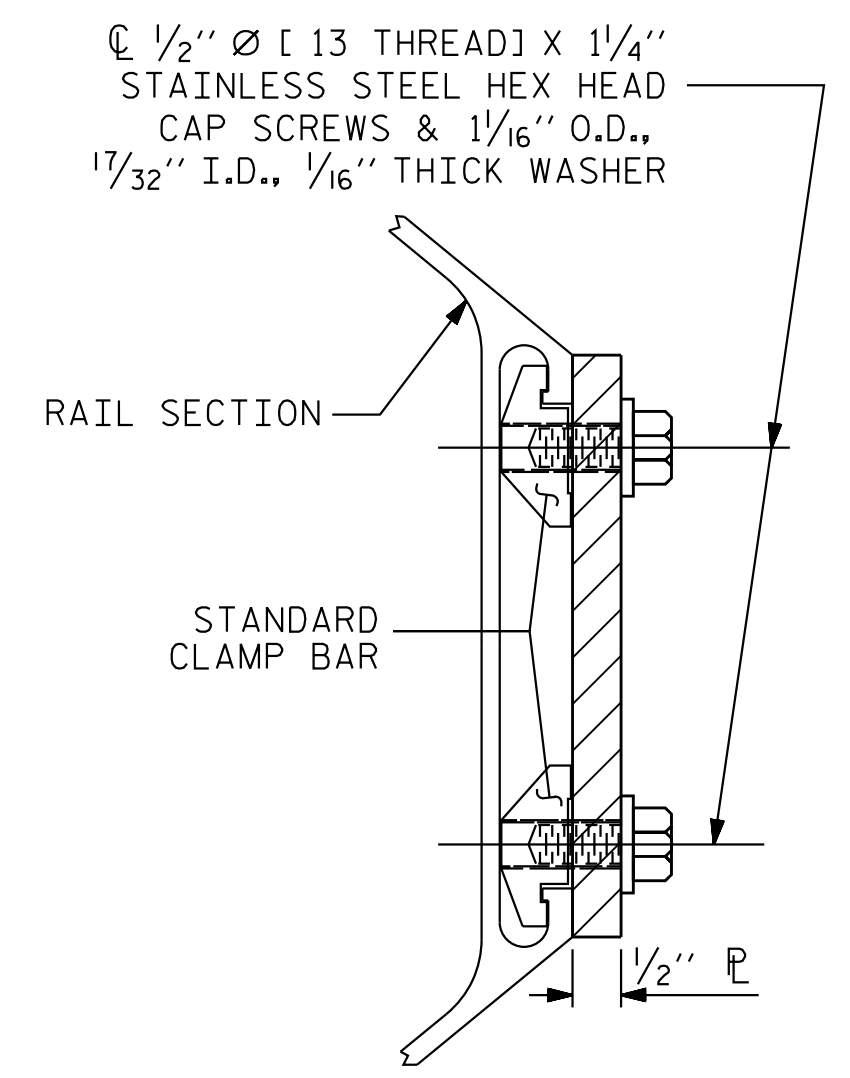


PLAN

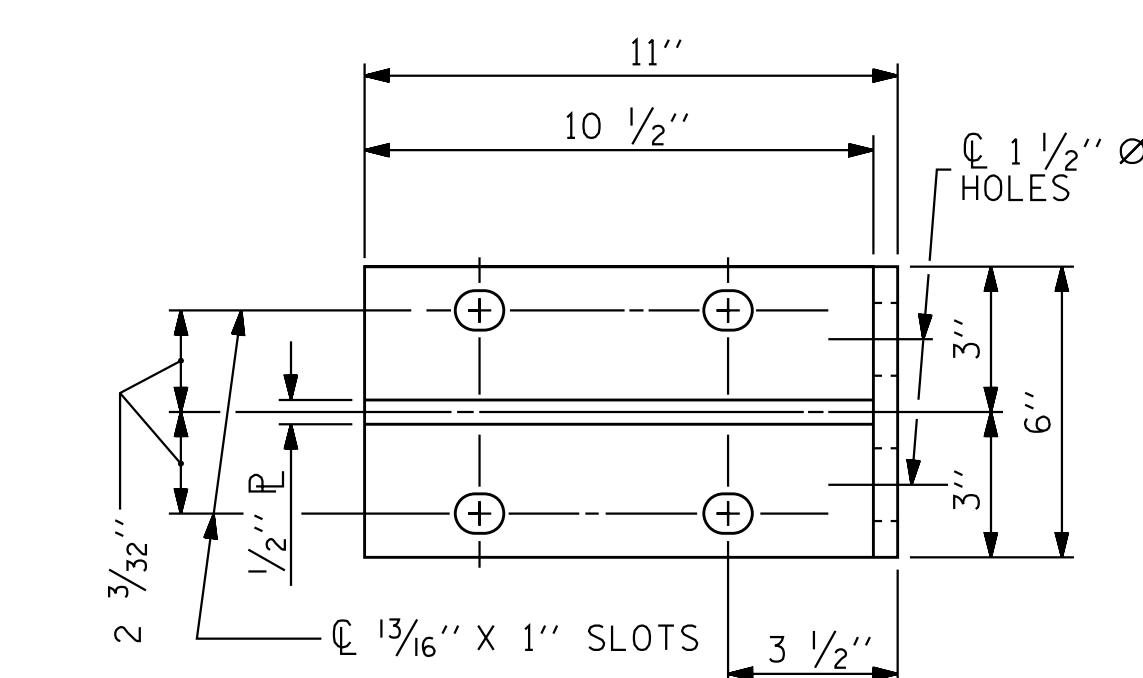


END VIEW
(FIX. AND EXP.)

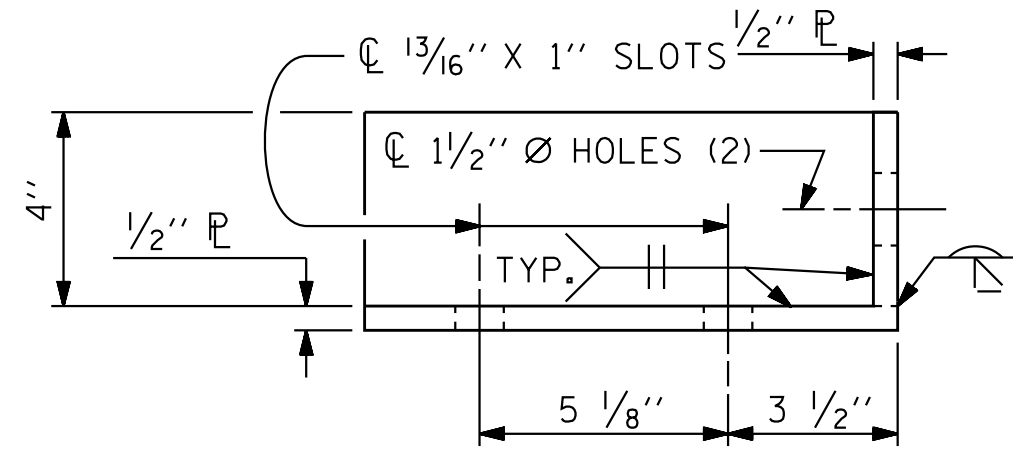
DETAILS FOR ATTACHMENT BRACKET
(TOP & MIDDLE RAIL ONLY)



SECTION H-H
(FOR BOTTOM RAIL)

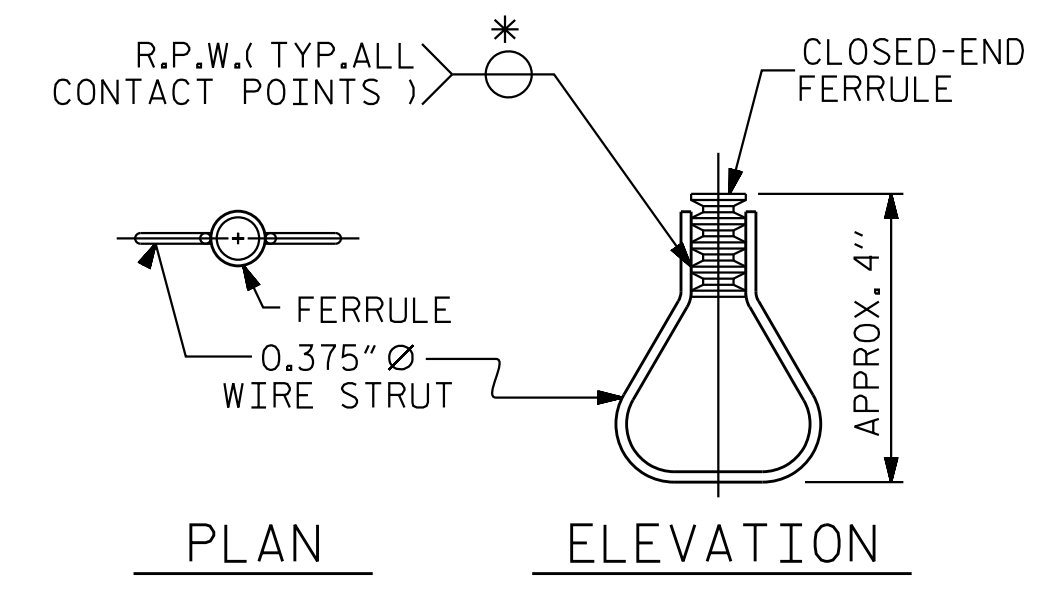


ELEVATION



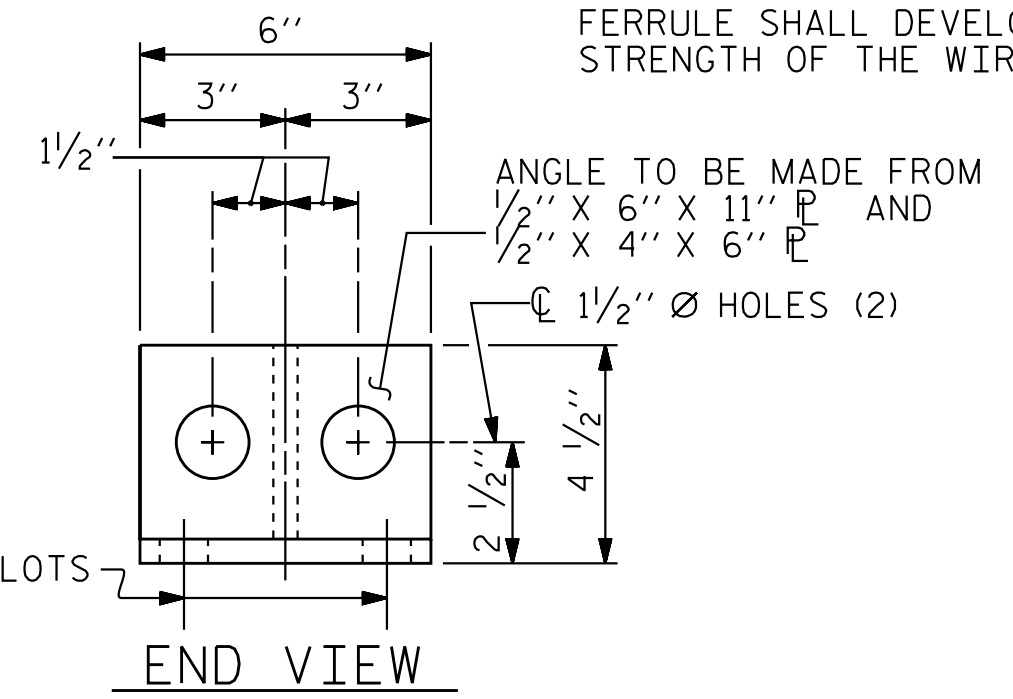
PLAN

DETAILS FOR ATTACHMENT BRACKET
(BOTTOM RAIL ONLY)



STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



END VIEW

DETAILS FOR ATTACHMENT BRACKET
(BOTTOM RAIL ONLY)

NOTES

METAL RAIL TO END POST CONNECTION

- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.
 - C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60° F. WASHERS FOR RAIL ATTACHMENT SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.
 - D. STANDARD CLAMP BARS ("3 BAR METAL RAIL", SHEET 2 OF 3).
- THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 3 BAR METAL RAIL.
- THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
- THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

NOTES

STRUCTURAL CONCRETE INSERT

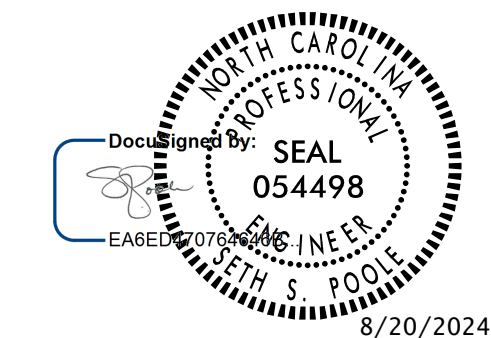
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER, BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER, THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
 - C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

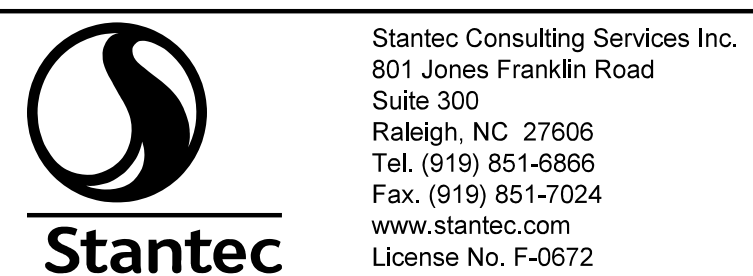
3 BAR METAL RAIL



8/20/2024

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS 47
2			4			

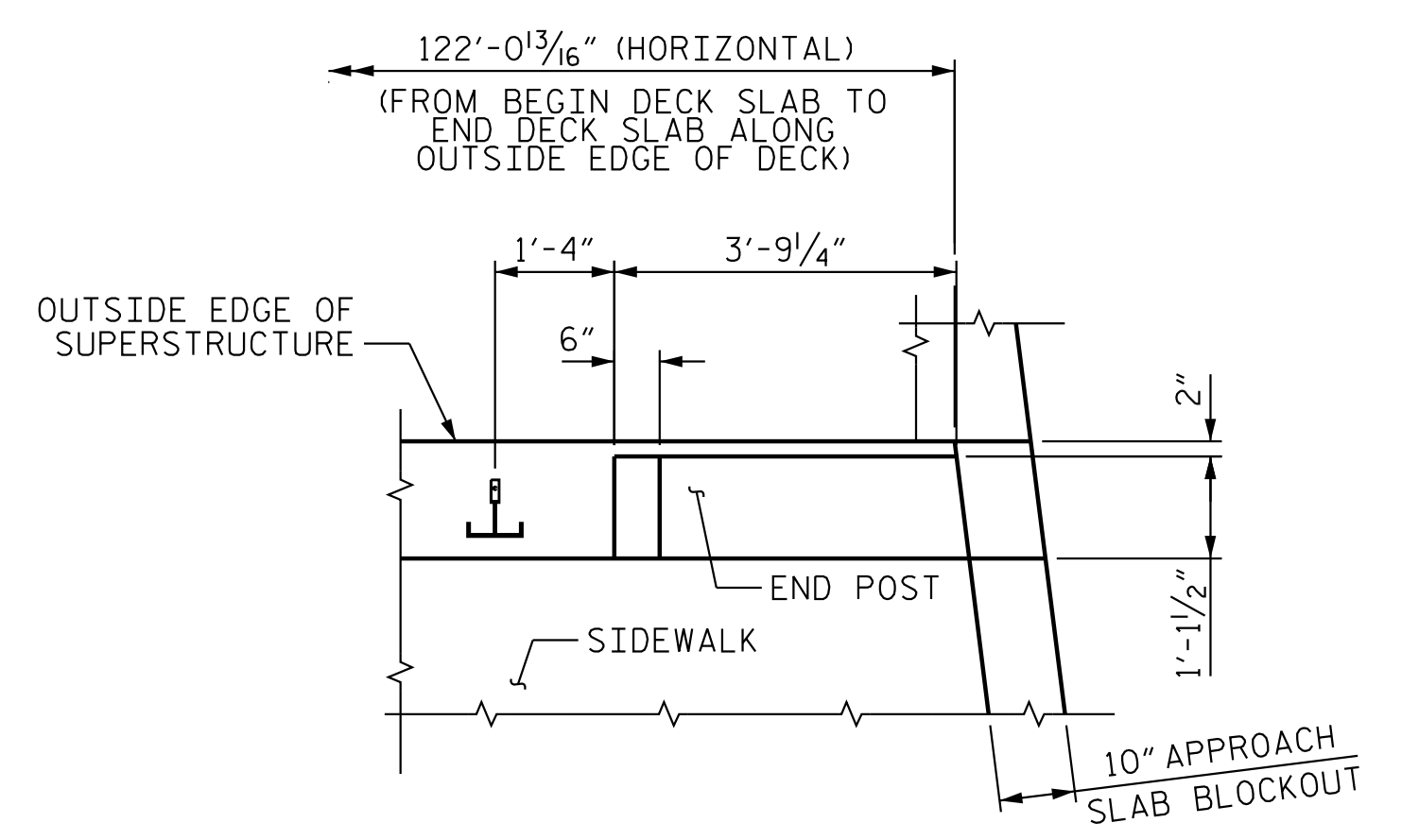
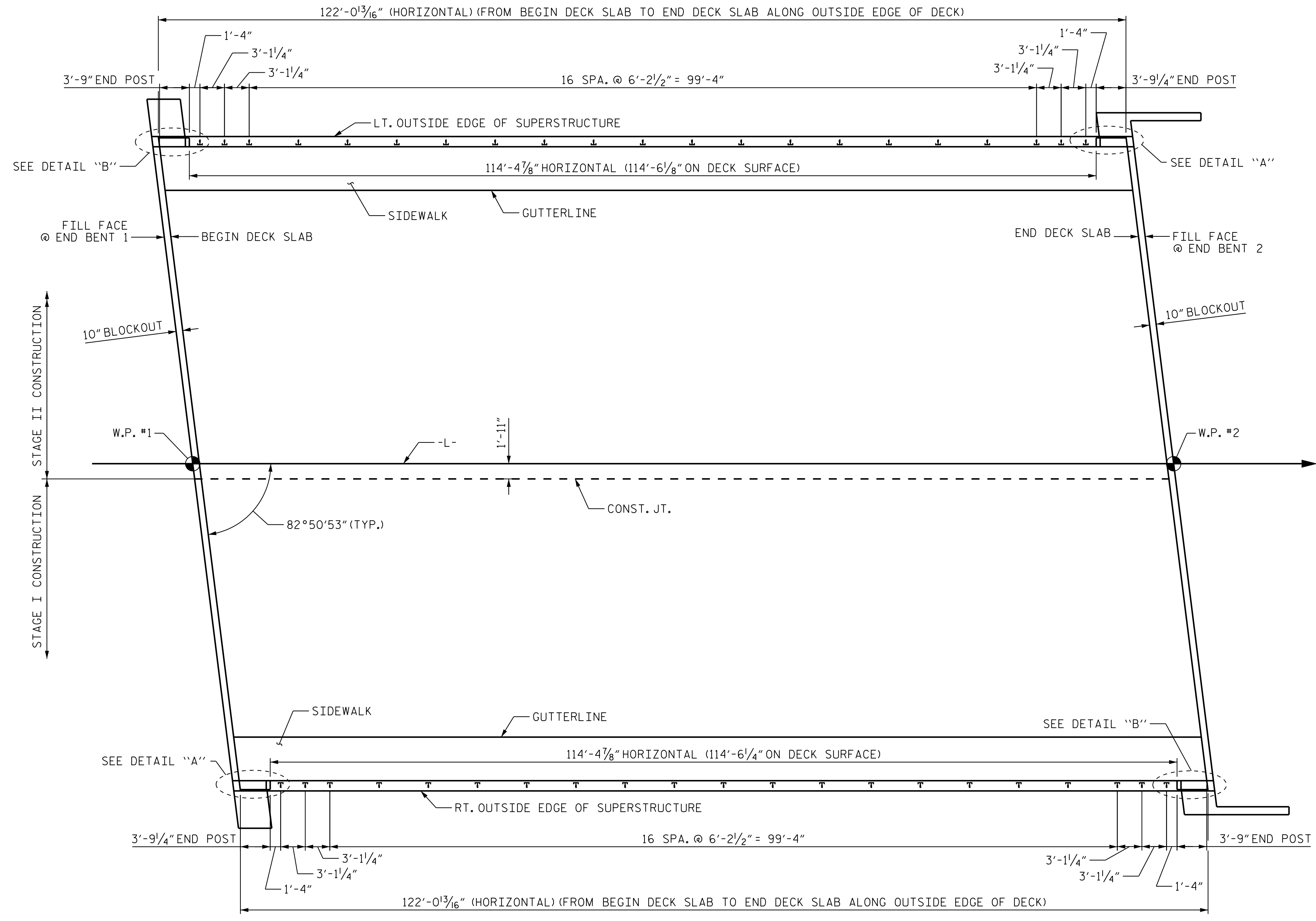
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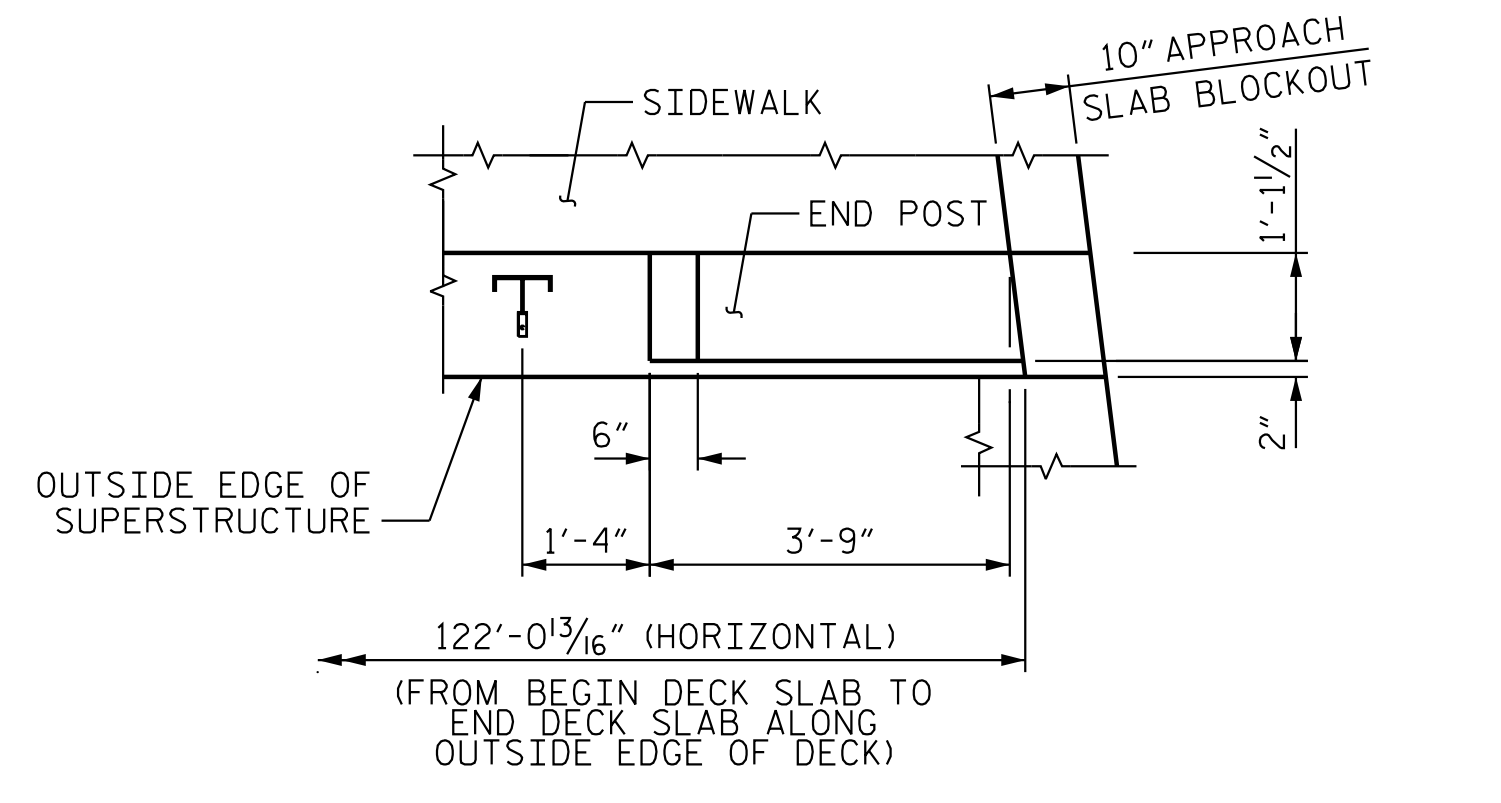
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DRAWN BY: J. B. GEILE DATE: 01/23/19 DESIGN ENGINEER OF RECORD: S. S. POOLE DATE: 08/01/24
 CHECKED BY: S. S. POOLE DATE: 08/01/24

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DETAIL "A"

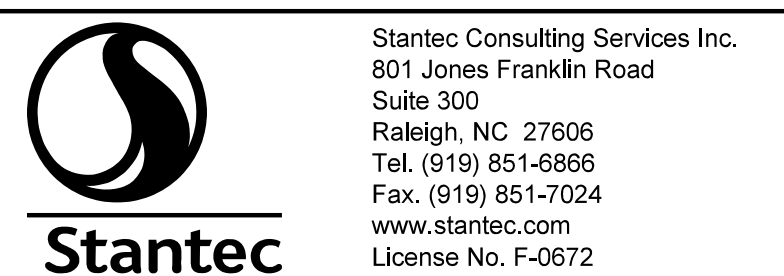


DETAIL "B"

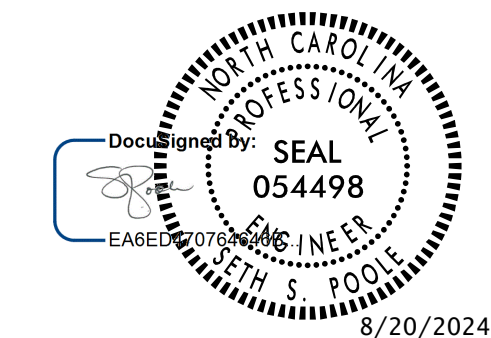
PLAN OF RAIL POST SPACING

FENCE POSTS NOT SHOWN FOR CLARITY.

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

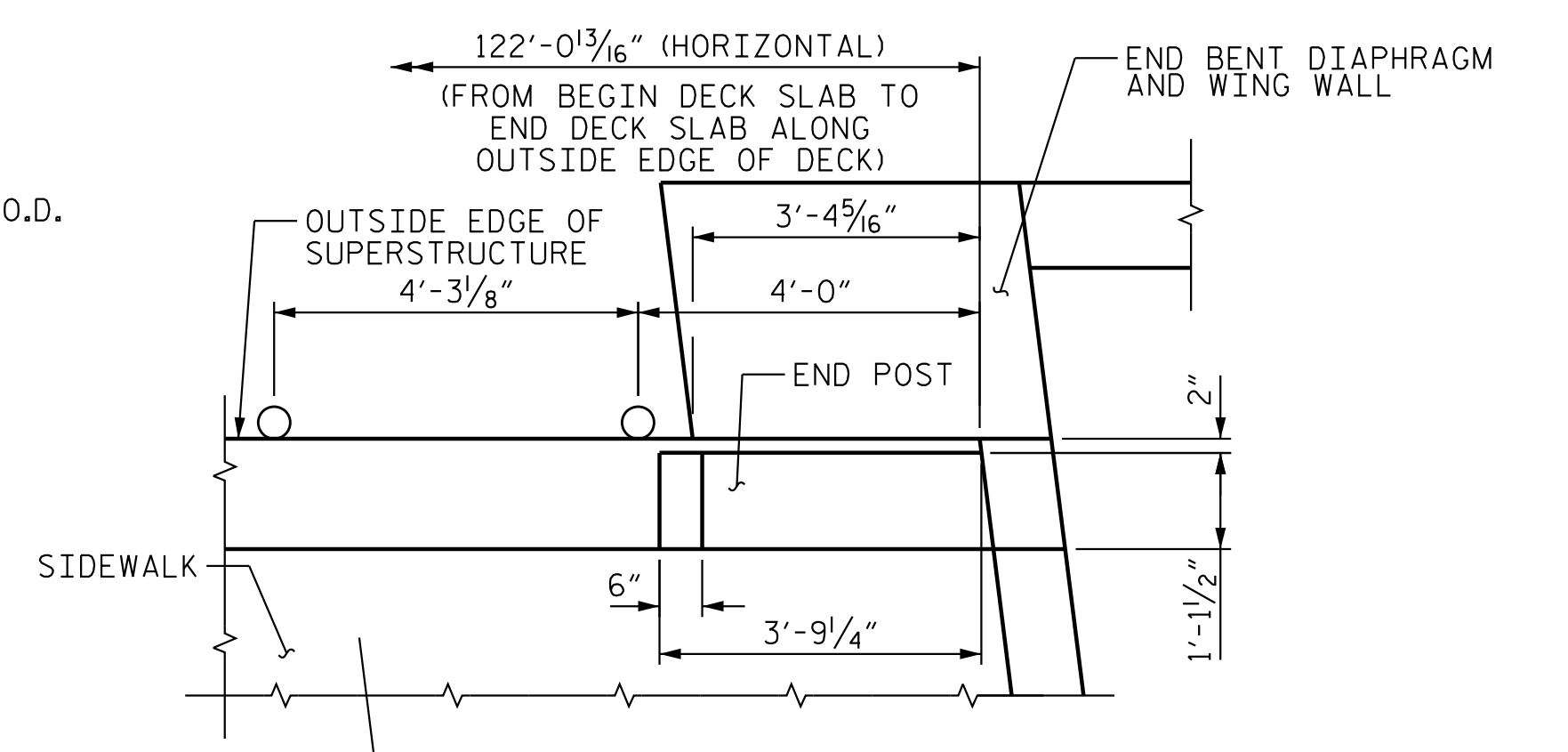
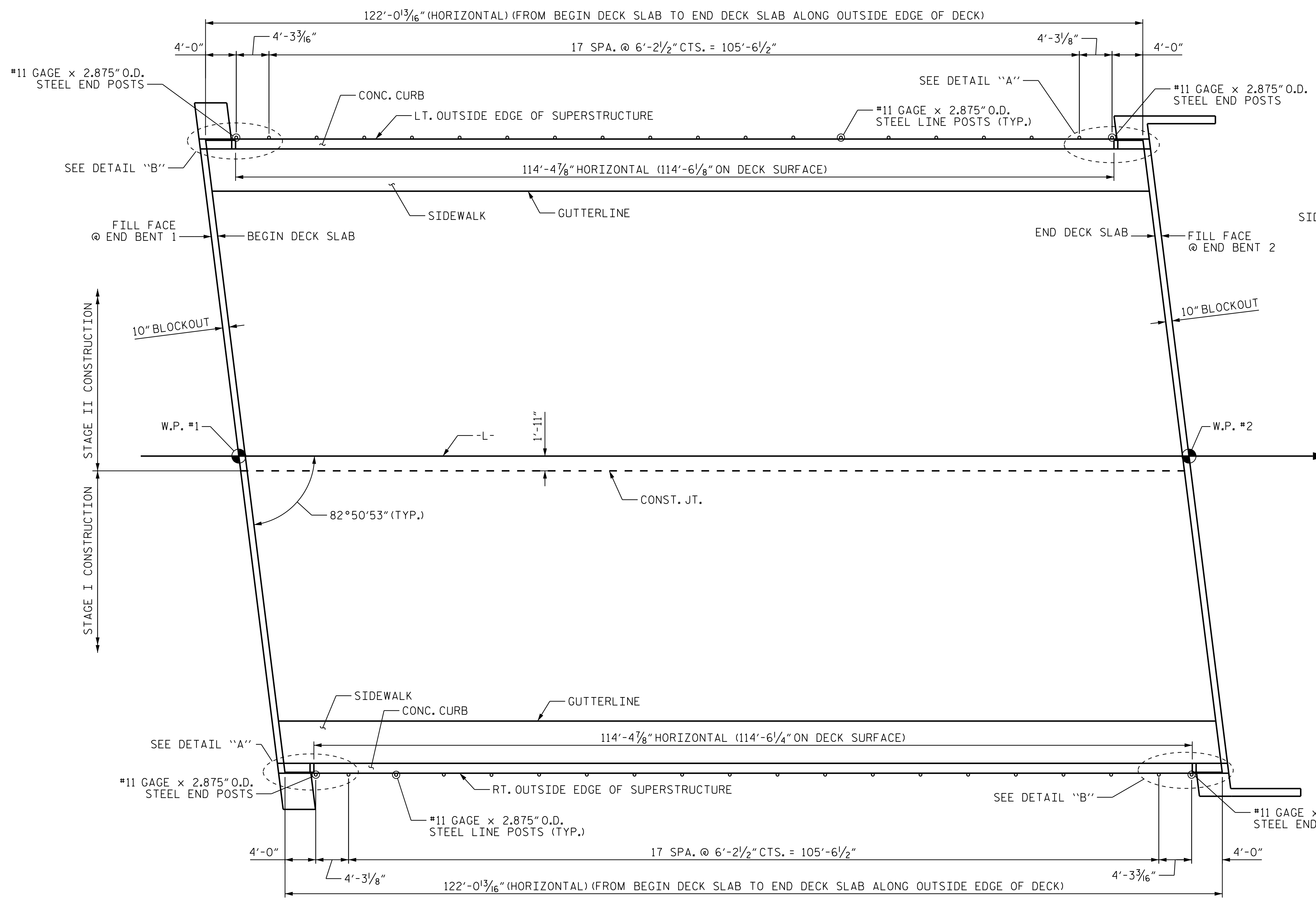


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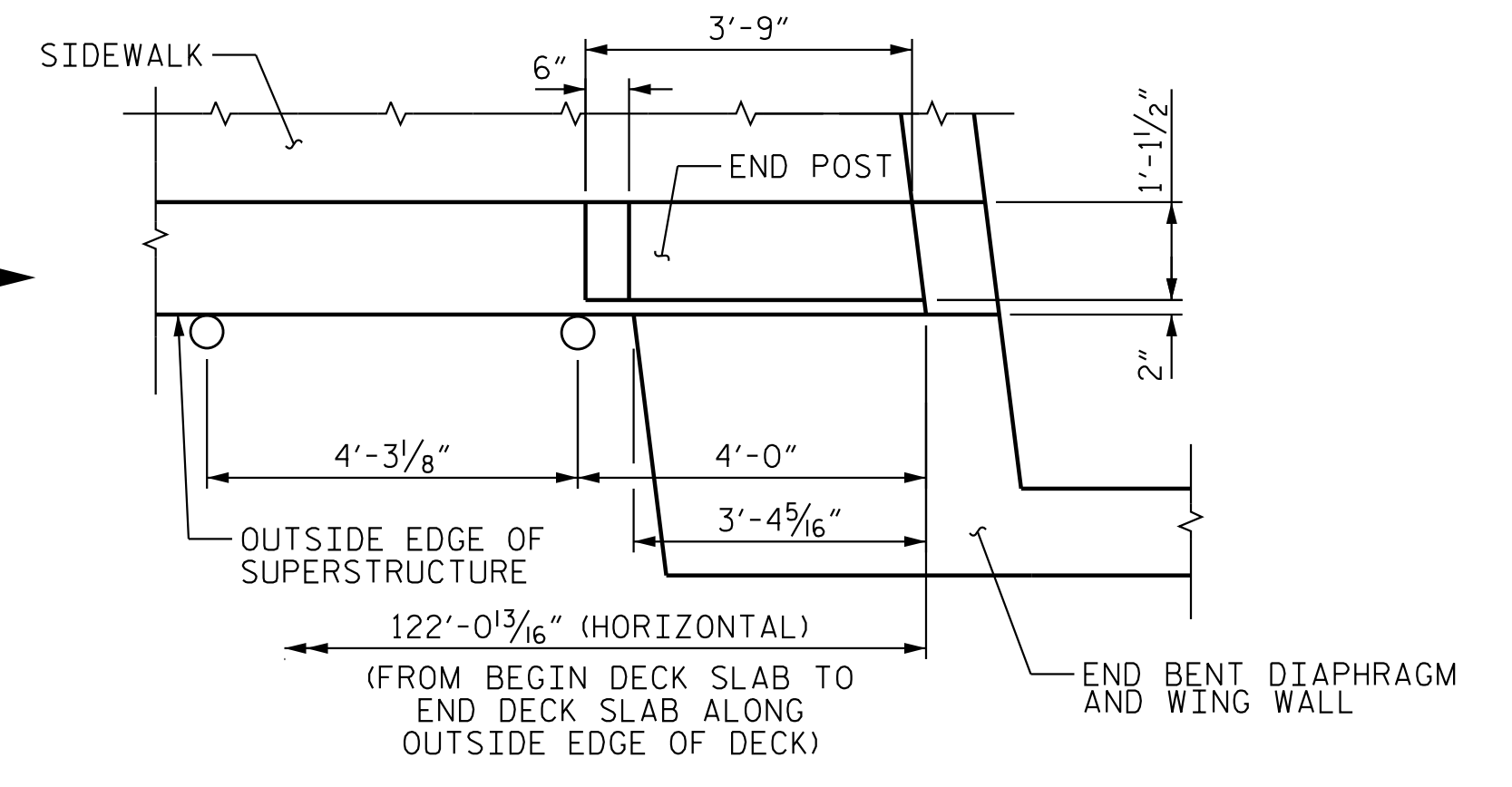


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE RAIL POST SPACING					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
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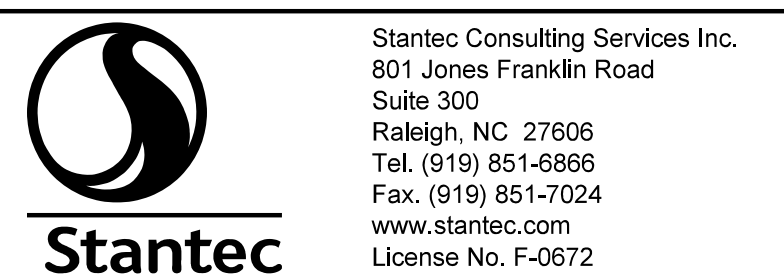
DETAIL "A" END BENT 2 SHOWN, END BENT 1 SIMILAR



DETAIL "B" END BENT 2 SHOWN, END BENT 1 SIMILAR

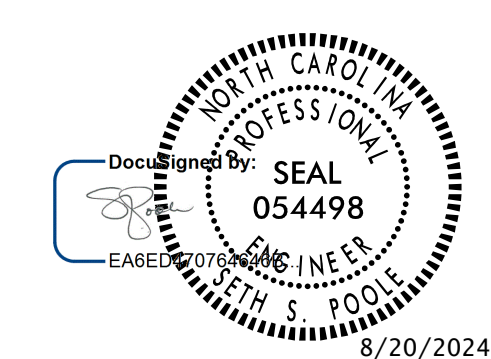
PLAN OF FENCE POST SPACING
3 BAR METAL RAIL POSTS NOT SHOWN FOR CLARITY.

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-



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DRAWN BY : J. B. GEILE DATE : 01/25/19
CHECKED BY : S. S. POOLE DATE : 08/01/24
DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 08/20/24

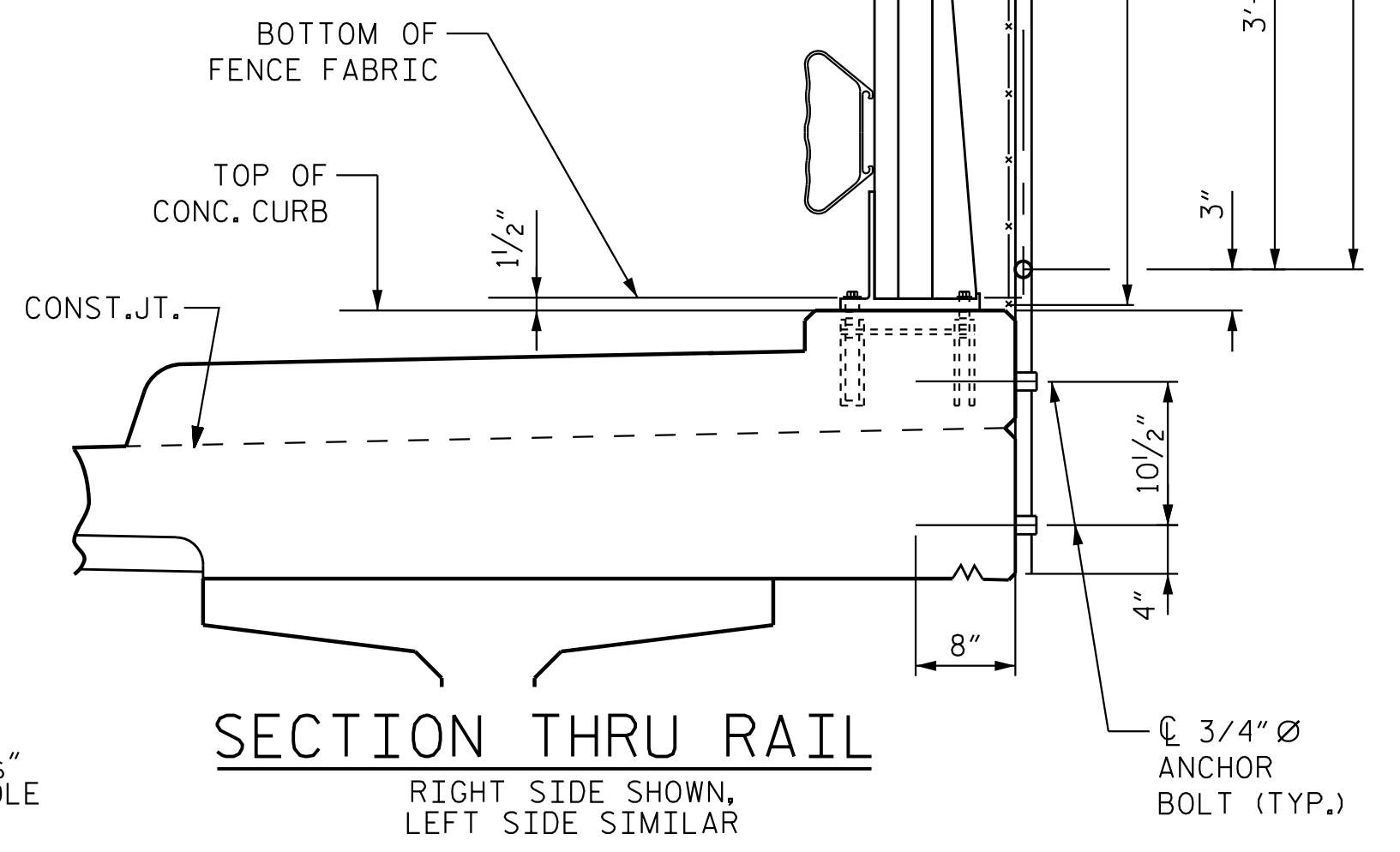
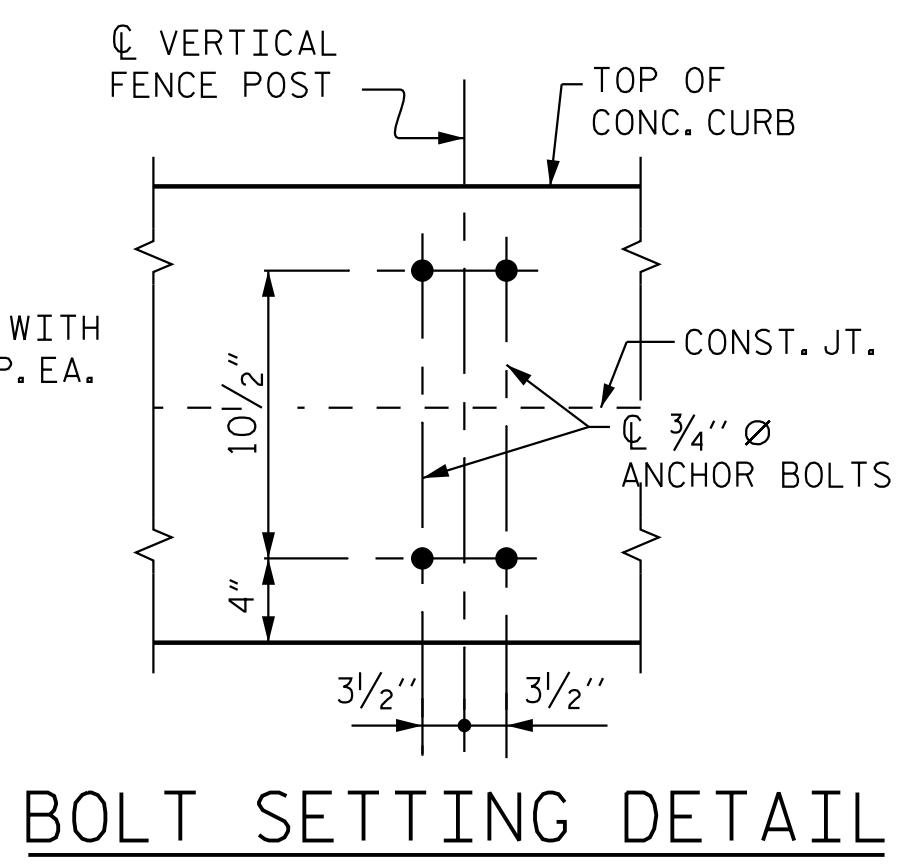
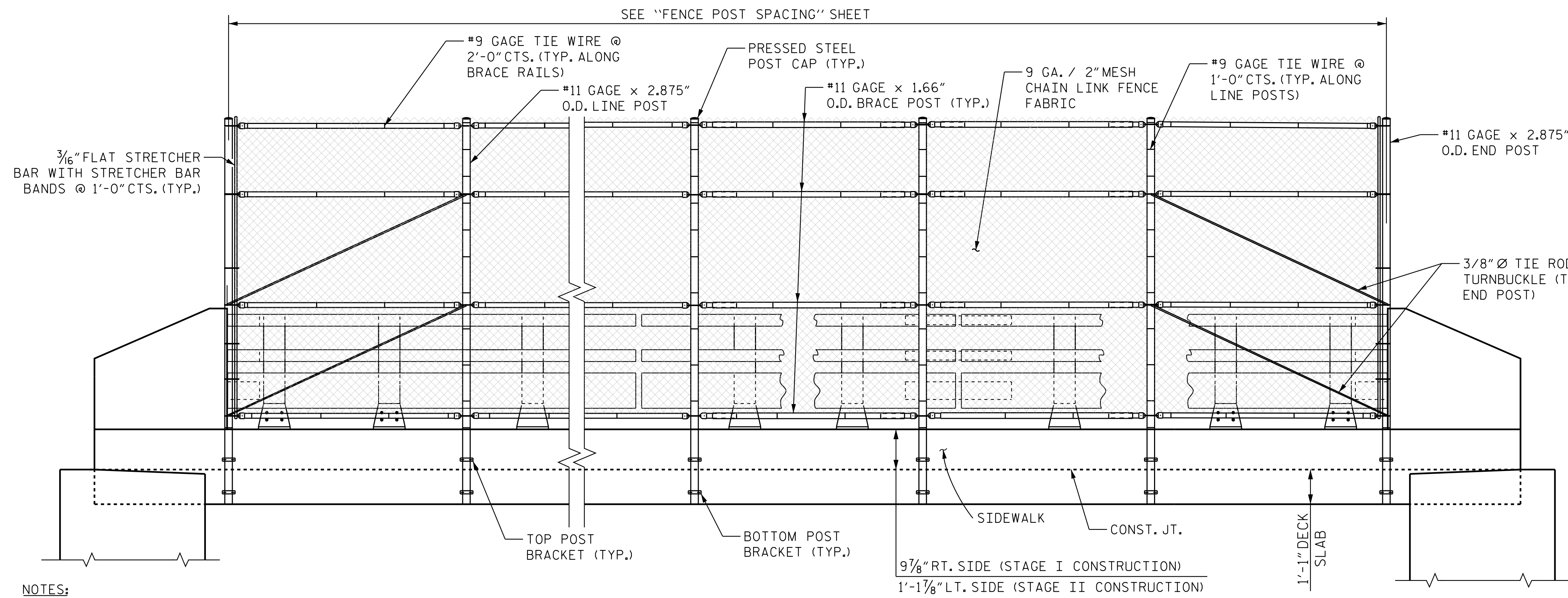


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
FENCE POST SPACING

NO.	BY:	DATE:	REVISIONS			SHEET NO.
			NO.	BY:	DATE:	
1			3			S-29
2			4			TOTAL SHEETS 47

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NOTES:
FOR BRIDGE MOUNTED BLACK VINYL COATED CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

MATERIAL FOR ANCHOR BOLTS SHALL BE TYPE 304 STAINLESS STEEL WITH A MINIMUM 9000 PSI ULTIMATE STRENGTH. NUTS AND WASHERS SHALL BE TYPE 304 STAINLESS STEEL. ANCHOR BOLTS SHALL BE EMBEDDED AS PER ADHESIVE BONDING SYSTEM MANUFACTURER SPECIFICATIONS. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK NUTS, CLASS 2B THREADS.

FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE SECTION 420-13 OF THE STANDARD SPECIFICATIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED.

ALL FENCE MATERIALS SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

ALL CHAIN LINK FENCE FABRIC, POSTS, RAILS, FITTINGS, HARDWARE, AND ACCESSORIES SHALL BE BLACK VINYL COATED IN ACCORDANCE WITH ARTICLE 1050 OF THE STANDARD SPECIFICATIONS.

WELDING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 1072-18 OF STANDARD SPECIFICATIONS.

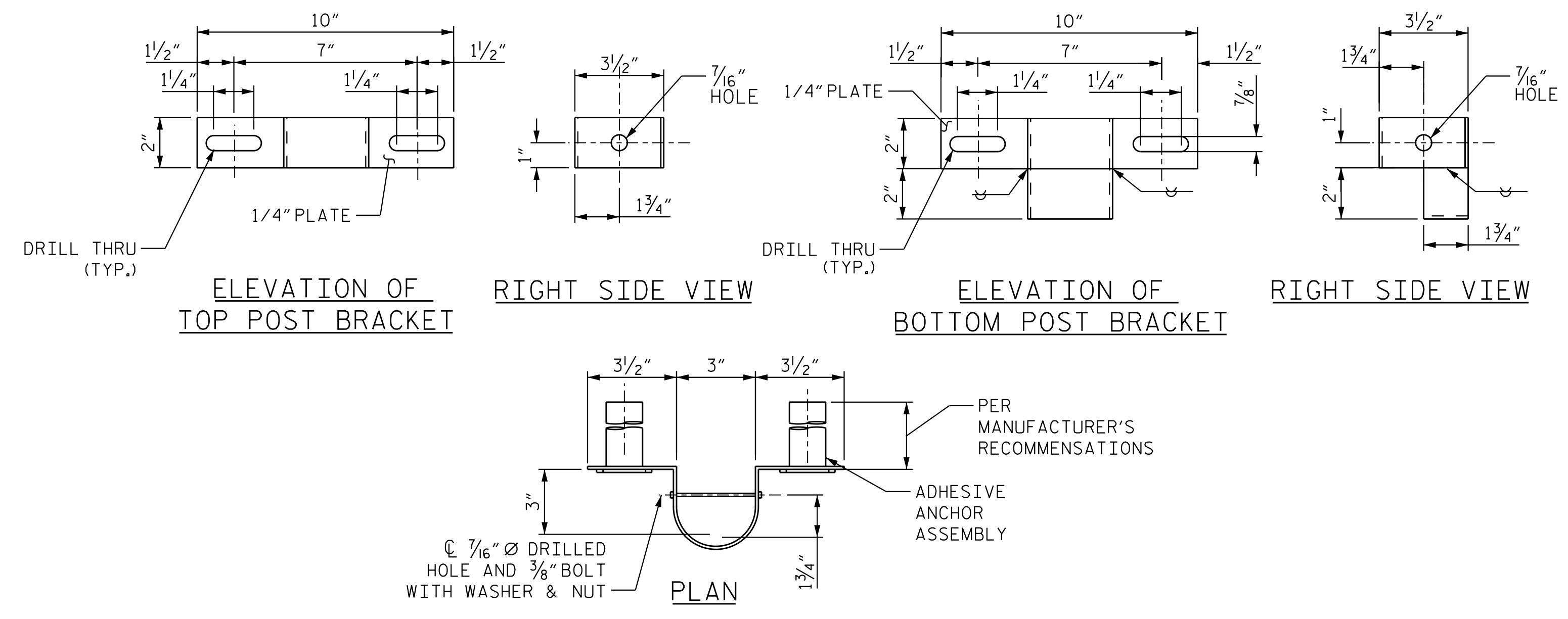
ADHESIVE BONDING SYSTEM SHALL HAVE MINIMUM PULLOUT STRENGTH OF 10 KIPS. THE ADHESIVE BONDING SYSTEM SHALL BE CHOSEN FROM THOSE ON THE NCDOT APPROVED PRODUCT LIST.

104" BRIDGE MOUNTED BLACK VINYL COATED CHAIN LINK FENCE

TOTAL PAY LENGTH	228.14 LF
STAGE I	114.07 LF
STAGE II	114.07 LF

ELEVATION

(ALL FENCE ELEMENTS SHALL BE VINYL COATED. SEE NOTES FOR ADDITIONAL DETAILS.)



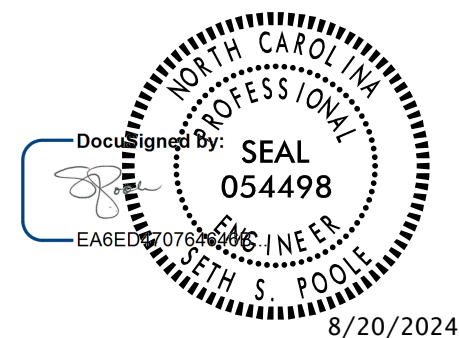
BRACKET DETAILS

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WAKE COUNTY
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DRAWN BY: J. B. GEILE DATE: 04/26/19
 CHECKED BY: S. S. POOLE DATE: 08/01/24
 DESIGN ENGINEER OF RECORD: S. S. POOLE DATE: 08/20/24

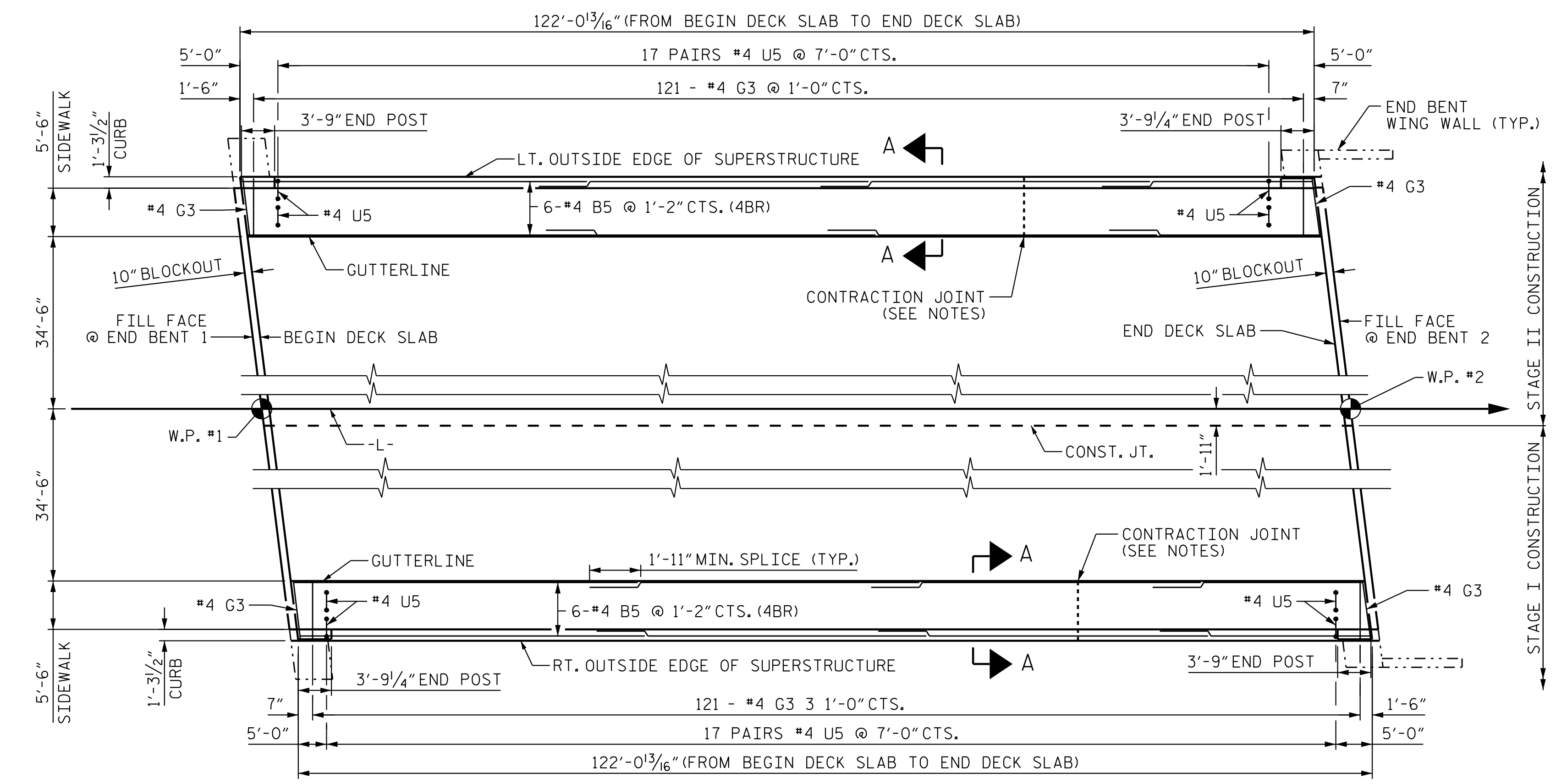


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BRIDGE MOUNTED
 BLACK VINYL COATED
 CHAIN LINK FENCE
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS 47
2			4			

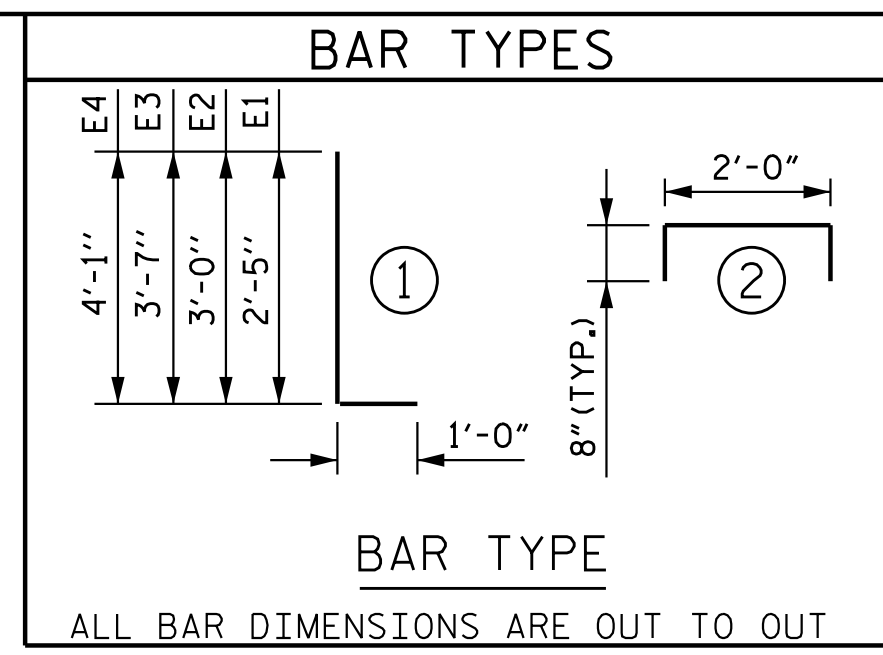
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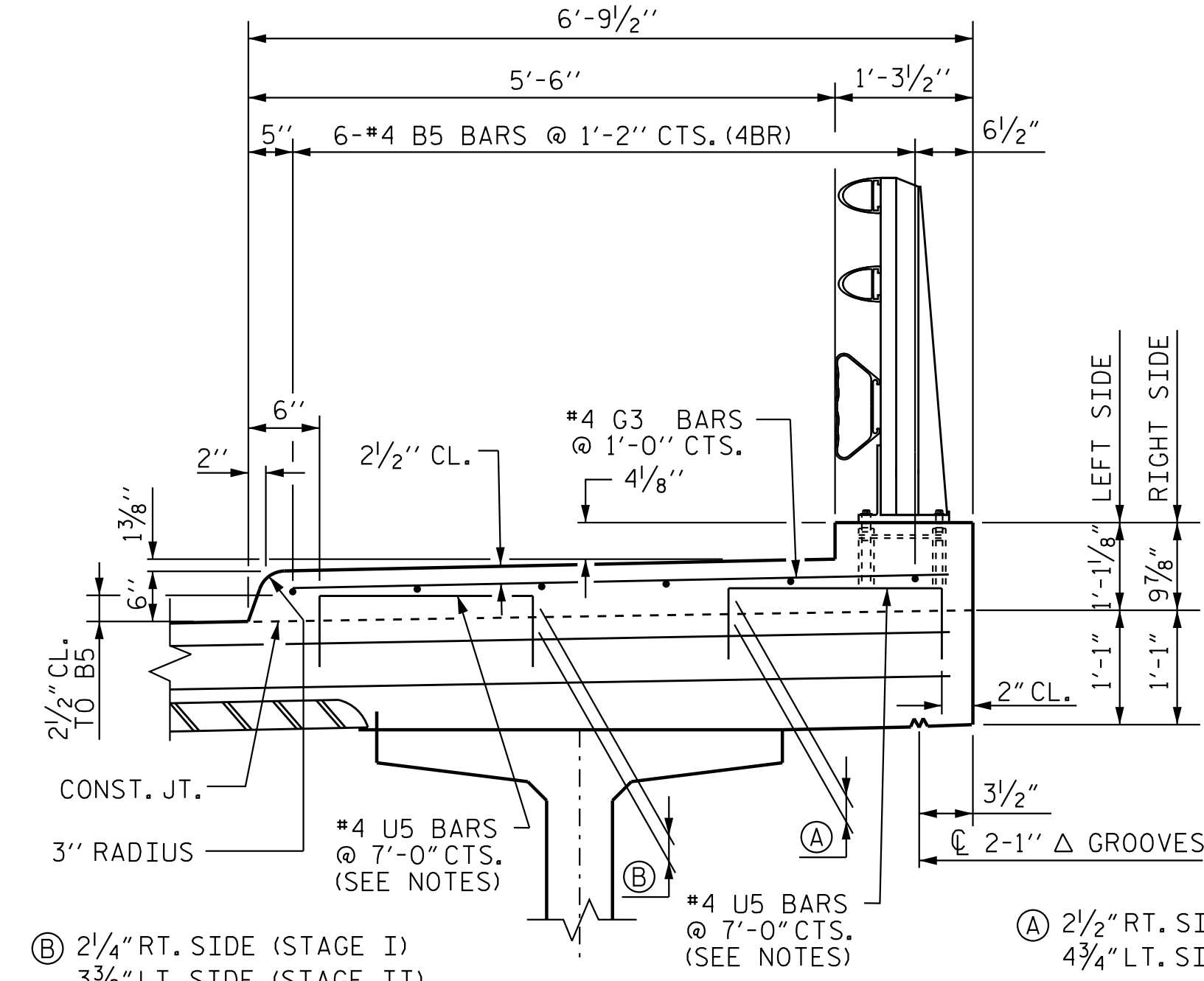


PLAN OF SIDEWALK

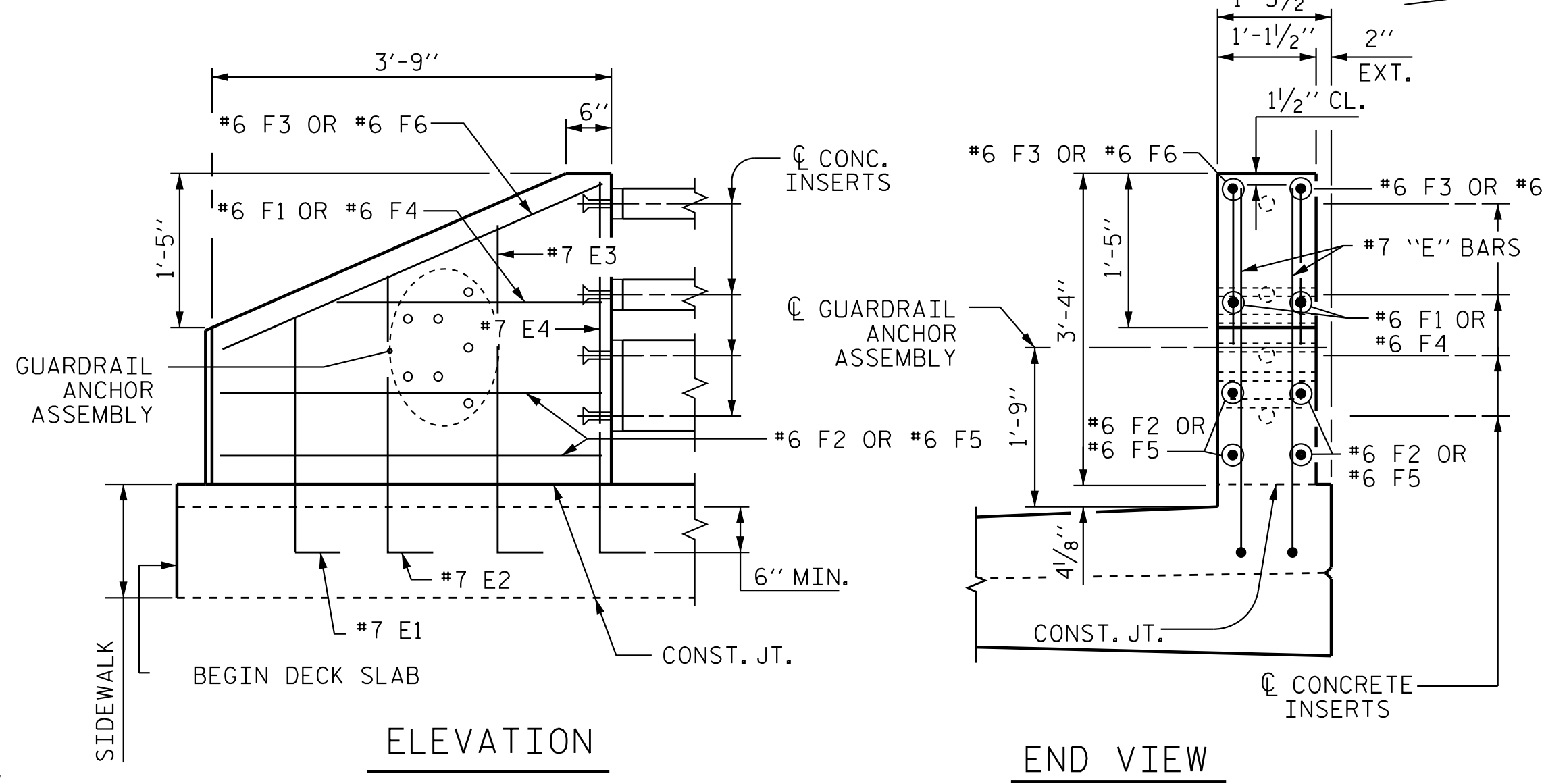
NOTE: ALL DIMENSIONS SHOWN ARE HORIZONTAL AND ARE ALONG THE OUTSIDE EDGE OF SUPERSTRUCTURE.



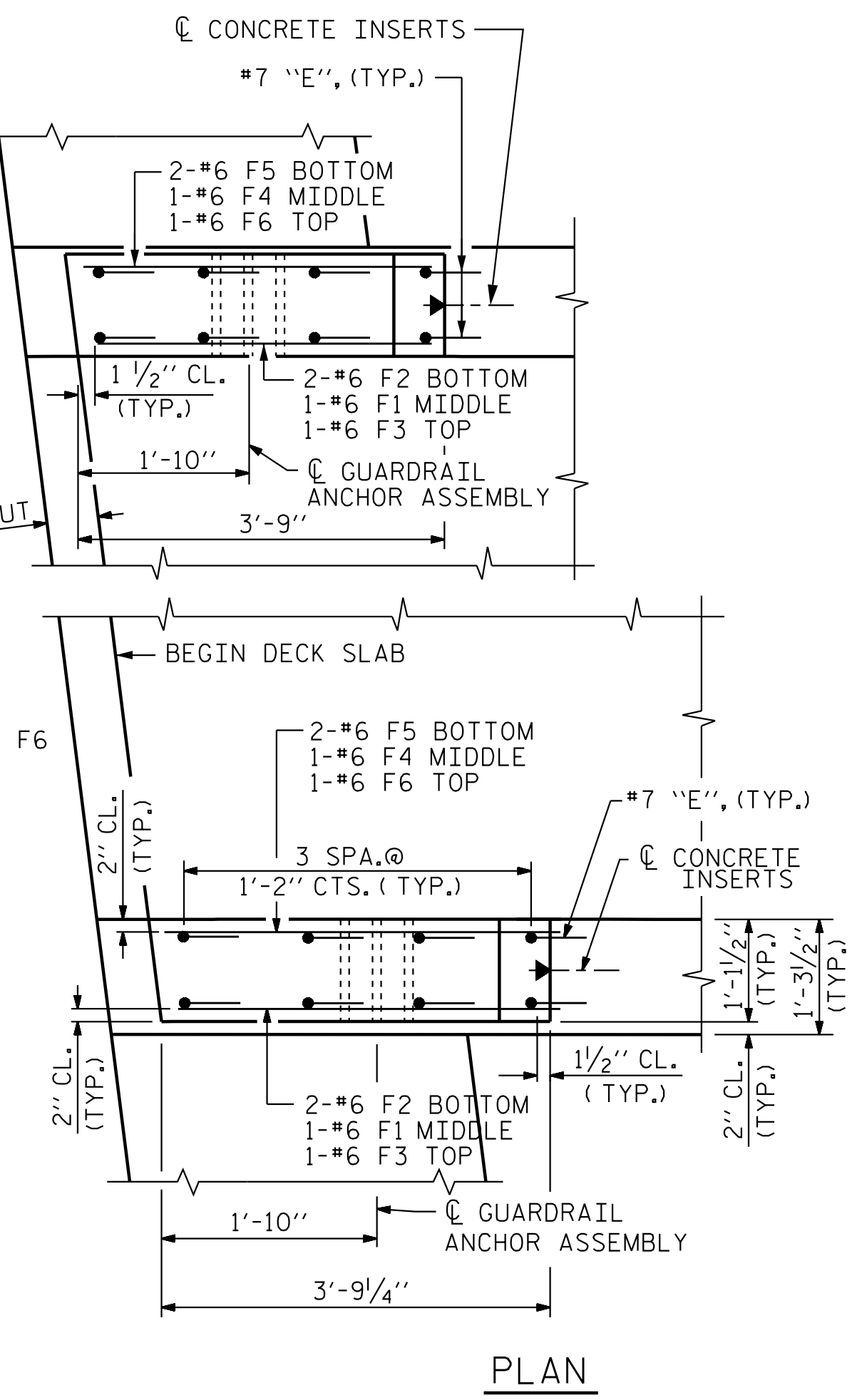
BILL OF MATERIAL					
FOR CONCRETE SIDEWALK ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B5	48	#4	STR	32'-0"	1027
* E1	8	#7	1	3'-5"	56
* E2	8	#7	1	4'-0"	65
* E3	8	#7	1	4'-7"	75
* E4	8	#7	1	5'-1"	83
* F1	4	#6	STR	2'-6"	15
* F2	8	#6	STR	3'-5"	41
* F3	4	#6	STR	3'-8"	22
* F4	4	#6	STR	2'-9"	17
* F5	8	#6	STR	3'-6"	42
* F6	4	#6	STR	3'-6"	21
* G3	246	#4	STR	6'-1"	1000
* U5	68	#4	2	3'-4"	151
* EPOXY COATED REINFORCING STEEL					2,630 LBS.
CLASS AA CONCRETE (STAGE I)					
SIDEWALK					13.0 C.Y.
END POSTS					0.85 C.Y.
TOTAL					13.85 C.Y.
CLASS AA CONCRETE (STAGE II)					
SIDEWALK					25.5 C.Y.
END POSTS					0.85 C.Y.
TOTAL					26.35 C.Y.
CLASS AA CONCRETE (TOTAL)					
SIDEWALK					38.5 C.Y.
END POSTS					1.7 C.Y.
TOTAL					40.2 C.Y.



SECTION A-A



END POST DETAILS



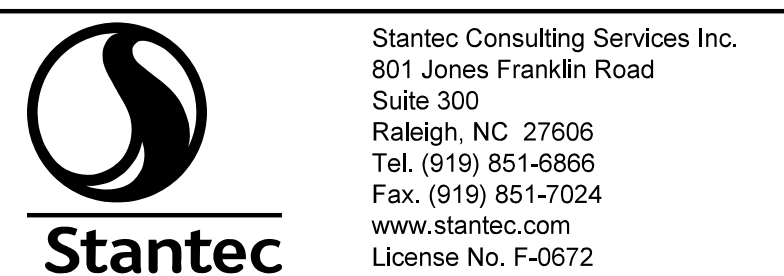
PLAN

NOTES:
 THE SIDEWALK IN THE SINGLE SPAN SHALL NOT BE CAST UNTIL ALL CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
 ALL REINFORCING STEEL IN THE SIDEWALK AND END POSTS SHALL BE EPOXY COATED.
 GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS.

THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.
 THE #4 U5 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER DECK SLAB HAS BEEN SCREEDED OFF.
 FOR DETAILS OF CONCRETE INSERTS IN END POST, SEE "3 BAR METAL RAIL" SHEET 3 OF 3.

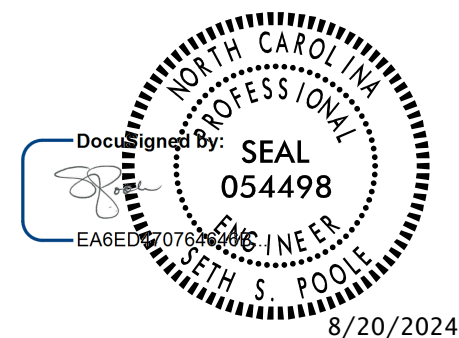
FOR DETAILS OF GUARDRAIL ANCHOR ASSEMBLIES, SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEET.
 THE SIDEWALK ON THE APPROACH SLABS IS INCLUDED WITH THE APPROACH SLAB BILL OF MATERIAL AND IS PAID FOR WITH THE APPROACH SLAB PAY ITEM.

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-



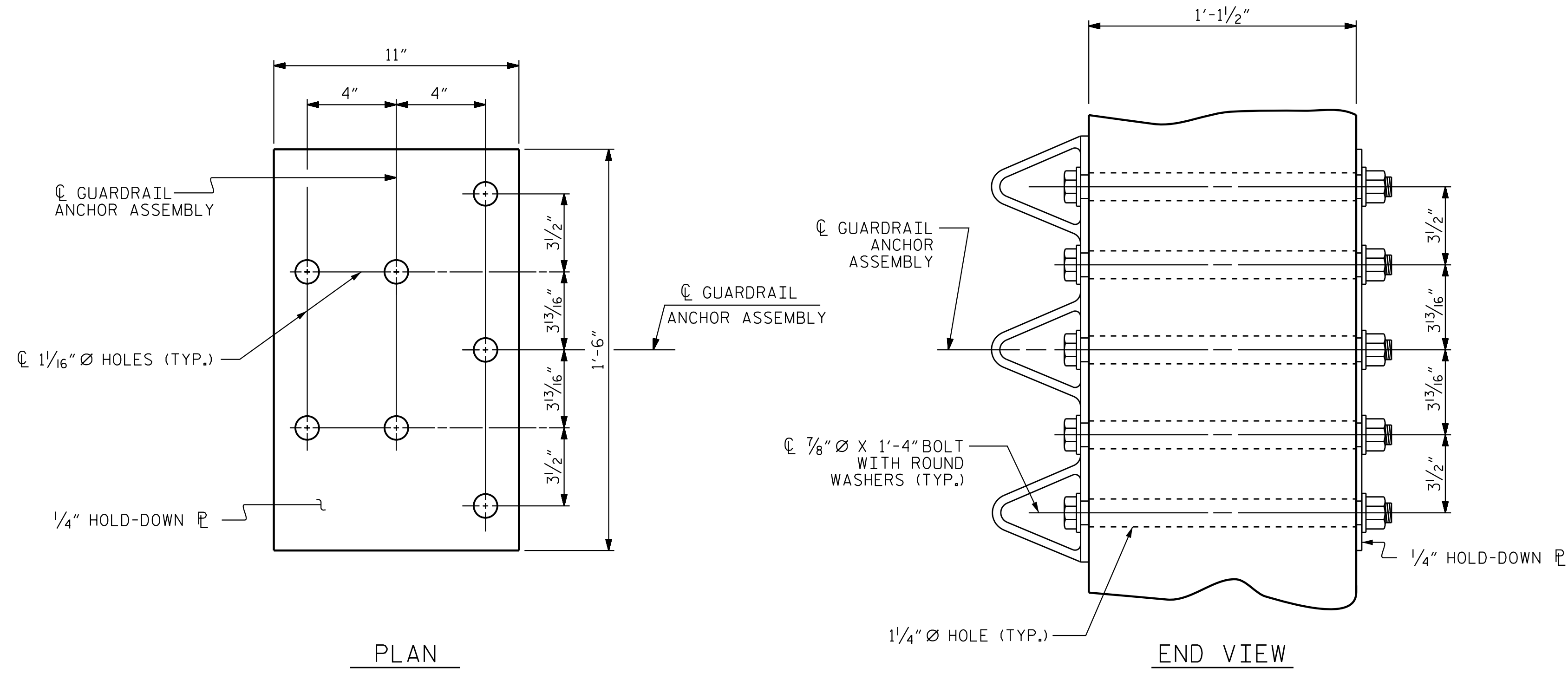
DRAWN BY: J. E. HAGENBUSH DATE: 06/22/18
 CHECKED BY: S. S. POOLE DATE: 08/01/24
 DESIGN ENGINEER OF RECORD: S. S. POOLE DATE: 08/20/24

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE SIDEWALK DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

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

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

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

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. 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 ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

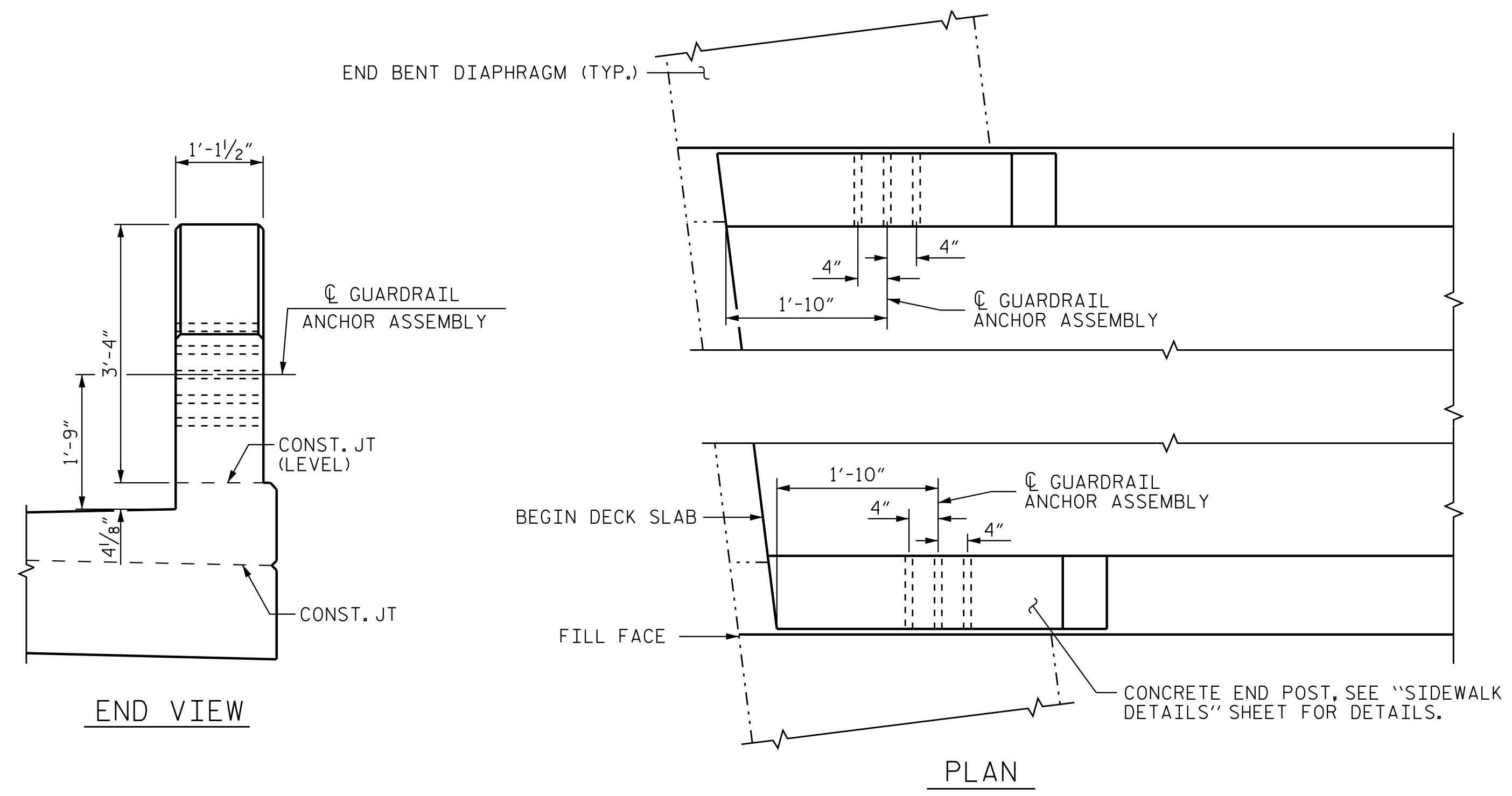
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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



SKETCH SHOWING POINTS OF ATTACHMENT

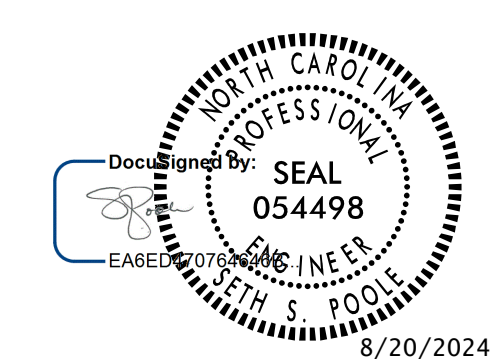
* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

END BENT 1 SHOWN, END BENT 2 SIMILAR

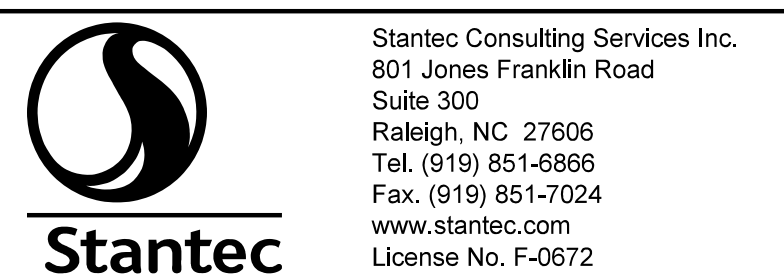
PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			47

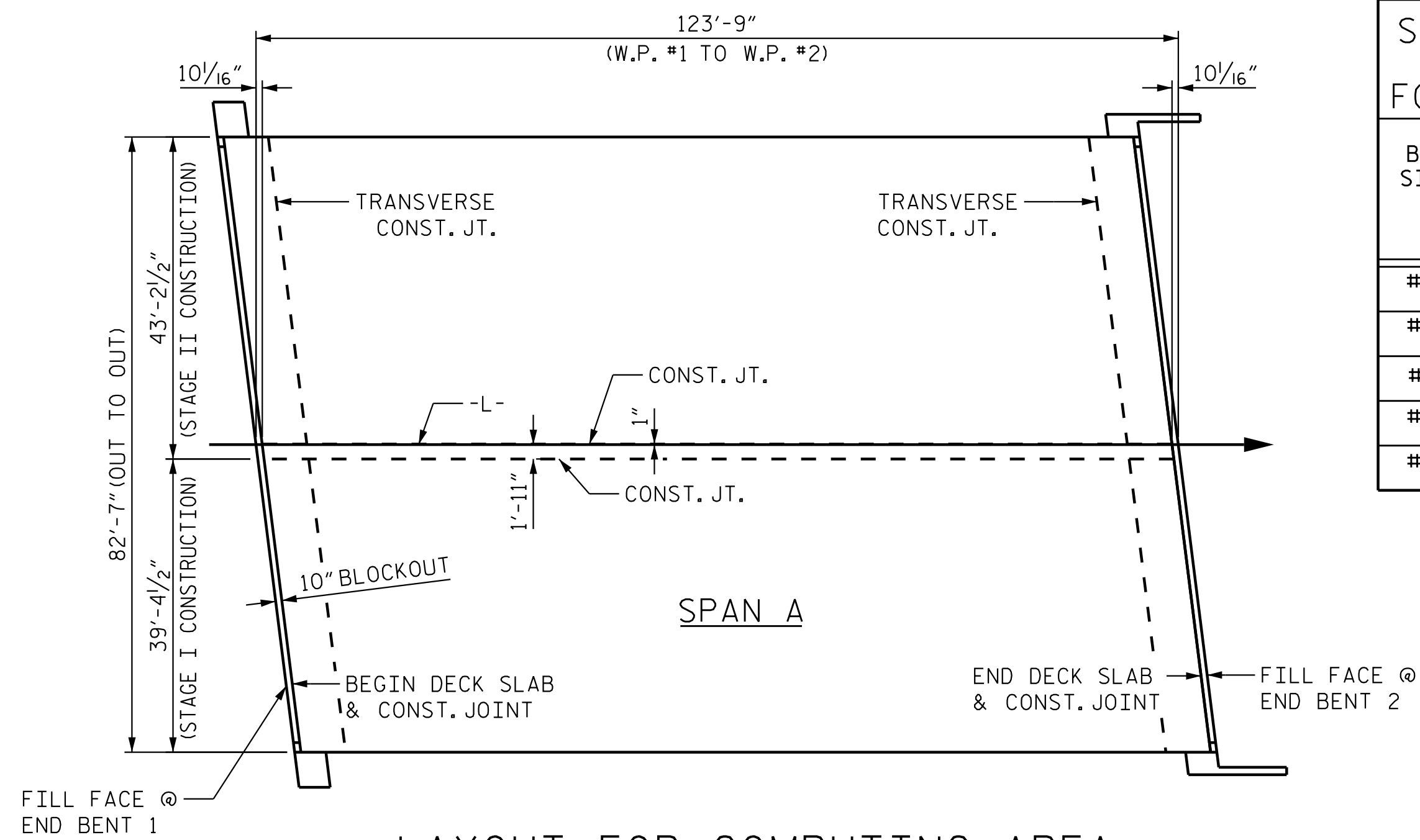
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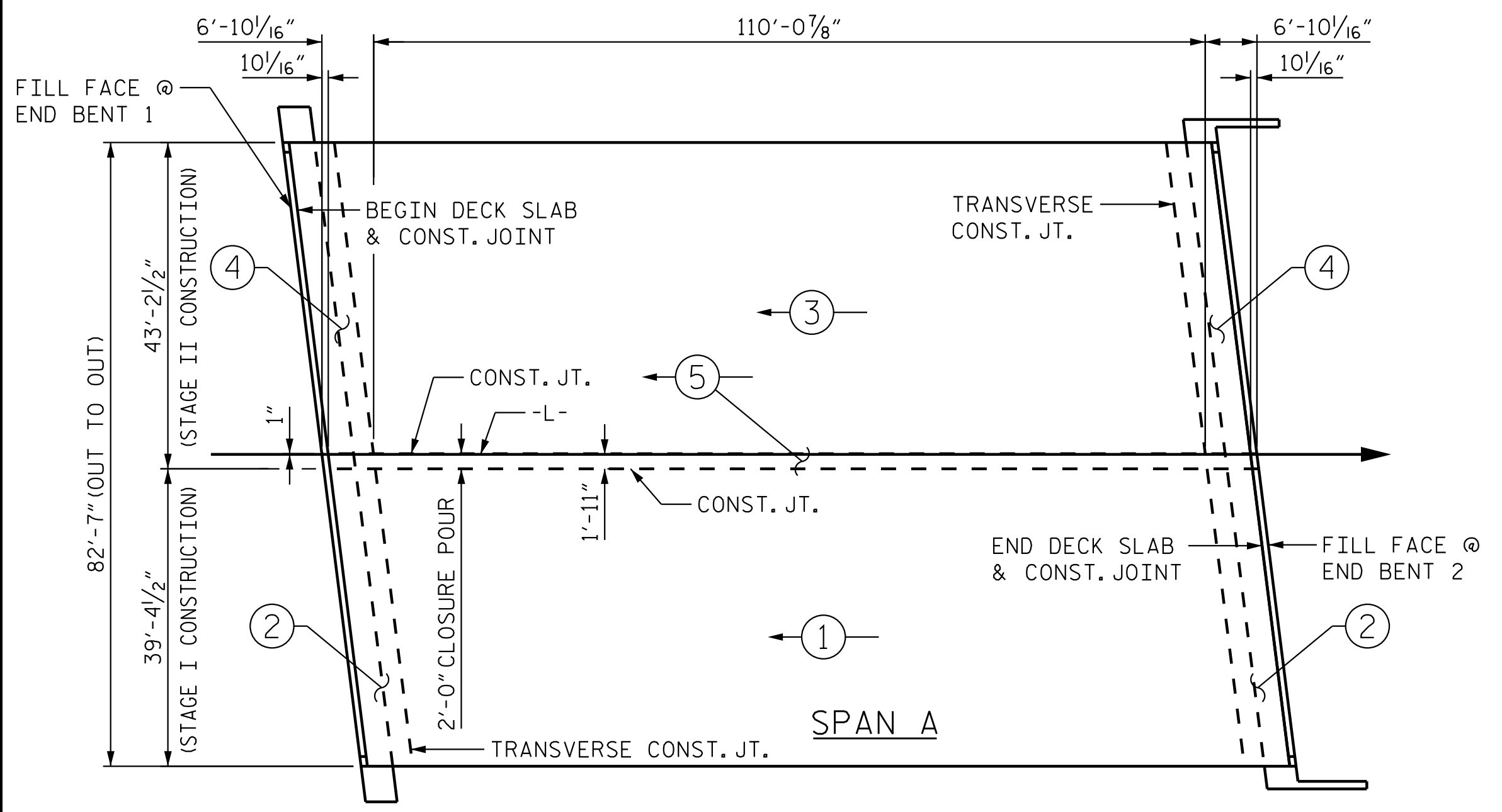
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LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB
 (STAGE I = 4,873 SQ. FT)
 (STAGE II = 5,347 SQ. FT)
 (TOTAL = 10,220 SQ. FT)

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

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



POURING SEQUENCE

⊕ = INDICATES POUR NUMBER AND DIRECTION OF POUR

NOTES: DUE TO SINGLE SPAN ARRANGEMENT, "OPTIONAL POURING SEQUENCE" IS IDENTICAL TO THE "POURING SEQUENCE" SHOWN AND IS THEREFORE NOT INCLUDED.
 UPPER PORTIONS OF WING WALLS ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIAL AND CONCRETE POUR QUANTITIES.

GROOVING BRIDGE FLOORS

STAGE I CONSTRUCTION	
APPROACH SLABS	1,536 SQ.FT.
BRIDGE DECK	3,794 SQ.FT.
TOTAL	5,330 SQ.FT.
STAGE II CONSTRUCTION	
APPROACH SLABS	1,726 SQ.FT.
BRIDGE DECK	4,262 SQ.FT.
TOTAL	5,988 SQ.FT.
TOTAL	
APPROACH SLABS	3,262 SQ.FT.
BRIDGE DECK	8,056 SQ.FT.
TOTAL	11,318 SQ.FT.

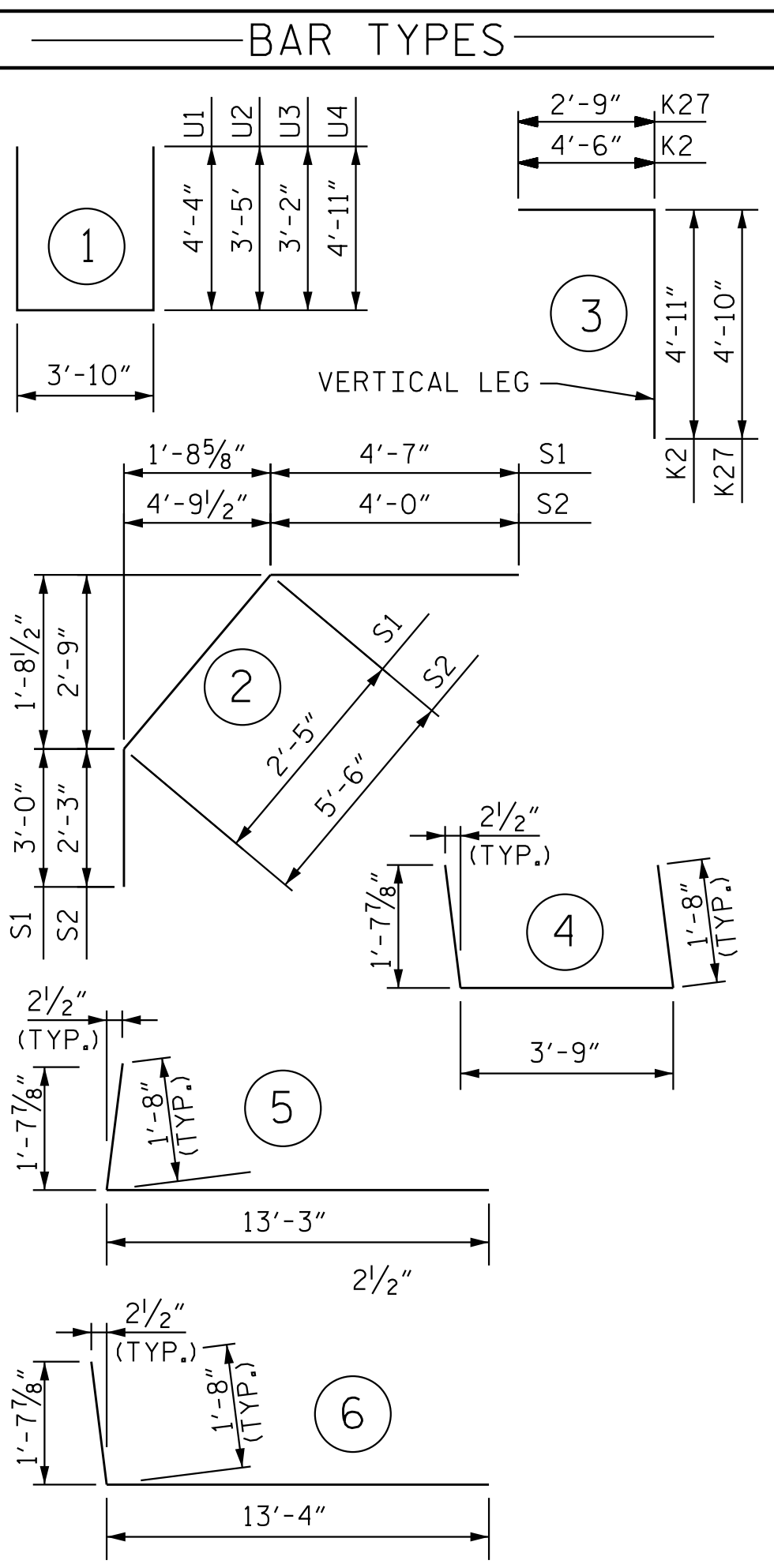
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	* EPOXY COATED REINFORCING STEEL (LBS.)
STAGE I	POUR #1: 136.7 POUR #2: 70.5	18,276	18,405
STAGE II	POUR #3: 142.6 POUR #4: 73.7 POUR #5: 10.2		
TOTALS **	433.7	36,919	38,036

** QUANTITIES FOR PARAPET AND SIDEWALK ARE NOT INCLUDED

REINFORCING BAR SCHEDULE

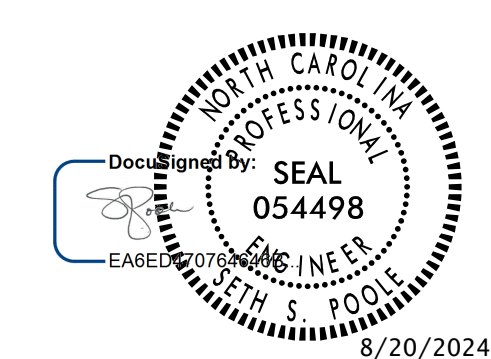
STAGE I					STAGE II						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
* A1	234	5	STR	39'-0"	9518	* A3	233	5	STR	40'-10"	9923
A2	234	5	STR	39'-0"	9518	A4	233	5	STR	40'-10"	9923
* A101	2	5	STR	4'-7"	10	* A301	2	5	STR	2'-7"	5
* A102	2	5	STR	8'-7"	18	* A302	2	5	STR	6'-7"	14
* A103	2	5	STR	12'-6"	26	* A303	2	5	STR	10'-7"	22
* A104	2	5	STR	16'-6"	34	* A304	2	5	STR	14'-7"	30
* A105	2	5	STR	20'-6"	43	* A305	2	5	STR	18'-7"	39
* A106	2	5	STR	24'-6"	51	* A306	2	5	STR	22'-6"	47
* A107	2	5	STR	28'-6"	59	* A307	2	5	STR	26'-6"	55
* A108	2	5	STR	32'-5"	68	* A308	2	5	STR	30'-6"	64
* A109	2	5	STR	36'-5"	76	* A309	2	5	STR	34'-6"	72
						* A310	2	5	STR	38'-6"	80
A201	2	5	STR	4'-7"	10	A401	2	5	STR	2'-5"	5
A202	2	5	STR	8'-7"	18	A402	2	5	STR	6'-5"	13
A203	2	5	STR	12'-6"	26	A403	2	5	STR	10'-5"	22
A204	2	5	STR	16'-6"	34	A404	2	5	STR	14'-4"	30
A205	2	5	STR	20'-6"	43	A405	2	5	STR	18'-4"	38
A206	2	5	STR	24'-6"	51	A406	2	5	STR	22'-4"	47
A207	2	5	STR	28'-6"	59	A407	2	5	STR	26'-4"	55
A208	2	5	STR	32'-5"	68	A408	2	5	STR	30'-4"	63
A209	2	5	STR	36'-5"	76	A409	2	5	STR	34'-3"	71
						A410	2	5	STR	38'-3"	80
B1	150	5	STR	41'-11"	6452	B1	150	5	STR	41'-11"	6558
* B2	81	5	STR	42'-3"	3569	* B2	93	5	STR	42'-3"	4098
* B3	52	5	STR	24'-9"	1342	* B3	55	5	STR	24'-9"	1420
* B4	52	5	STR	27'-2"	1473	* B4	55	5	STR	27'-2"	1558
* D1	243	5	STR	4'-6"	1141	* D1	243	5	STR	4'-6"	1141
* G1	2	5	STR	39'-4"	83	* G2	2	5	STR	X'-X"	86
H1	20	5	6	15'-0"	313	H2	20	5	5	14'-11"	311
K1	12	4	STR	23'-9"	190	K2	5	4	3	9'-5"	31
K2	5	4	3	9'-5"	31	K9	8	4	STR	3'-4"	18
K3	10	4	STR	2'-10"	19	K10	2	4	STR	2'-7"	3
K4	40	4	STR	5'-10"	156	K15	12	4	STR	24'-8"	198
K5	10	4	STR	4'-4"	29	K16	10	4	STR	3'-2"	21
K6	1	4	STR	5'-2"	3	K17	40	4	STR	6'-2"	165
K7	4	4	STR	6'-9"	18	K18	10	4	STR	4'-8"	31
K8	1	4	STR	5'-11"	4	K19	1	4	STR	5'-4"	4
K9	8	4	STR	3'-4"	18	K20	8	4	STR	6'-11"	37
K10	2	4	STR	2'-7"	3	K21	2	4	STR	6'-2"	8
K11	12	4	STR	23'-0"	184	K22	2	4	STR	1'-10"	2
K12	1	4	STR	4'-0"	3	K23	12	4	STR	23'-11"	192
K13	4	4	STR	5'-7"	15	K24	1	4	STR	4'-3"	3
K14	1	4	STR	4'-9"	3	K25	4	4	STR	5'-9"	15
K27	5	4	3	7'-7"	25	K26	1	4	STR	5'-0"	3
						K27	5	4	3	7'-7"	25
* S1	44	4	2	10'-0"	294	* S1	48	4	2	10'-0"	321
* S2	76	4	2	11'-9"	597	* S2	84	4	2	11'-9"	659
U1	32	4	1	12'-6"	267	U1	36	4	1	12'-6"	301
U2	24	4	1	10'-8"	171	U2	24	4	1	10'-8"	171
U3	24	4	1	10'-2"	163	U3	24	4	1	10'-2"	163
U4	7	4	1	13'-8"	64	U4	6	4	1	13'-8"	55
U5	6	5	4	7'-1"	44	U5	6	5	4	7'-1"	44
V2	20	5	STR	4'-5"	92	V2	20	5	STR	4'-5"	92
REINFORCING STEEL 18,276 LBS					REINFORCING STEEL 18,798 LBS						
* EPOXY COATED REINFORCING STEEL 18,405 LBS					* EPOXY COATED REINFORCING STEEL 19,638 LBS						



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BILL OF MATERIAL

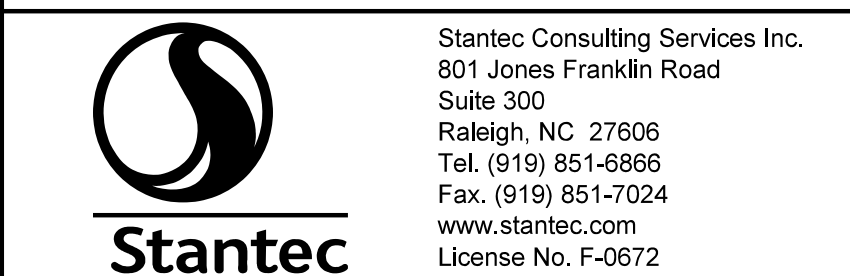


REVISIONS

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SHEET NO. S-33
 TOTAL SHEETS 47

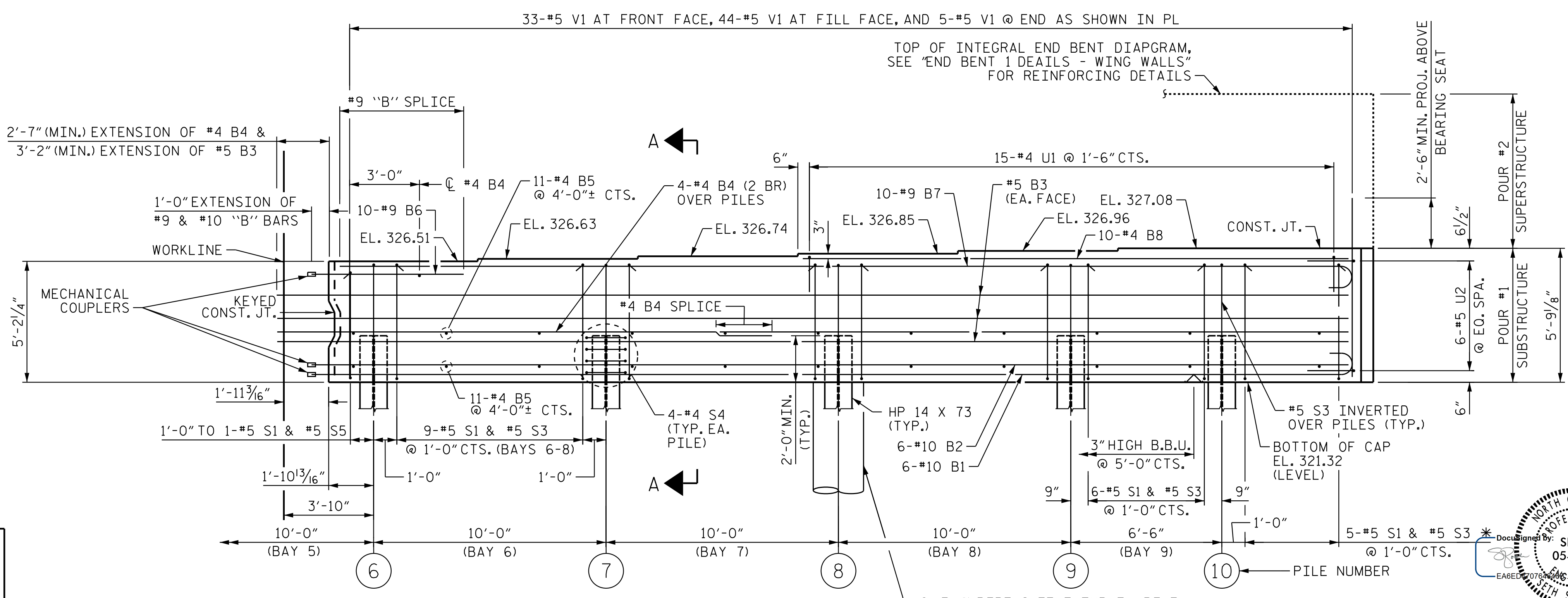
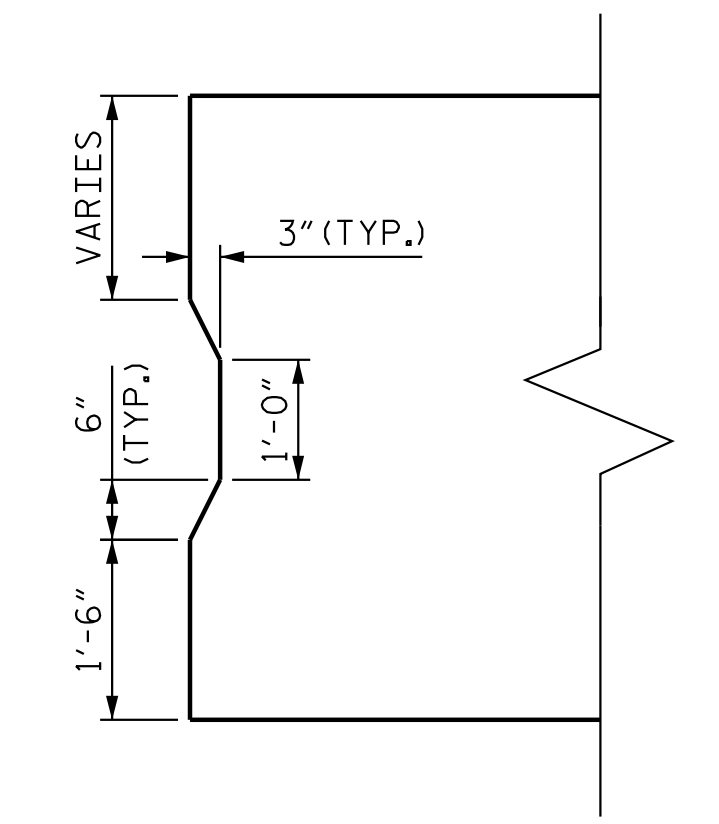
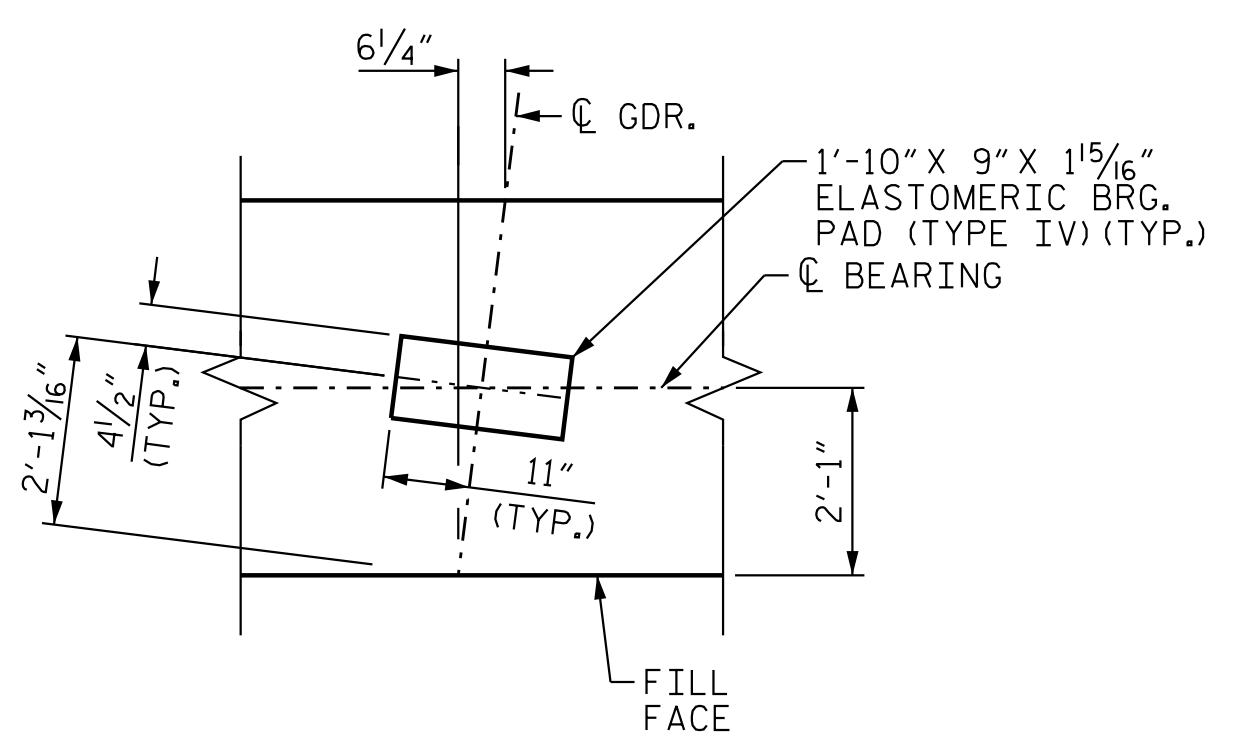
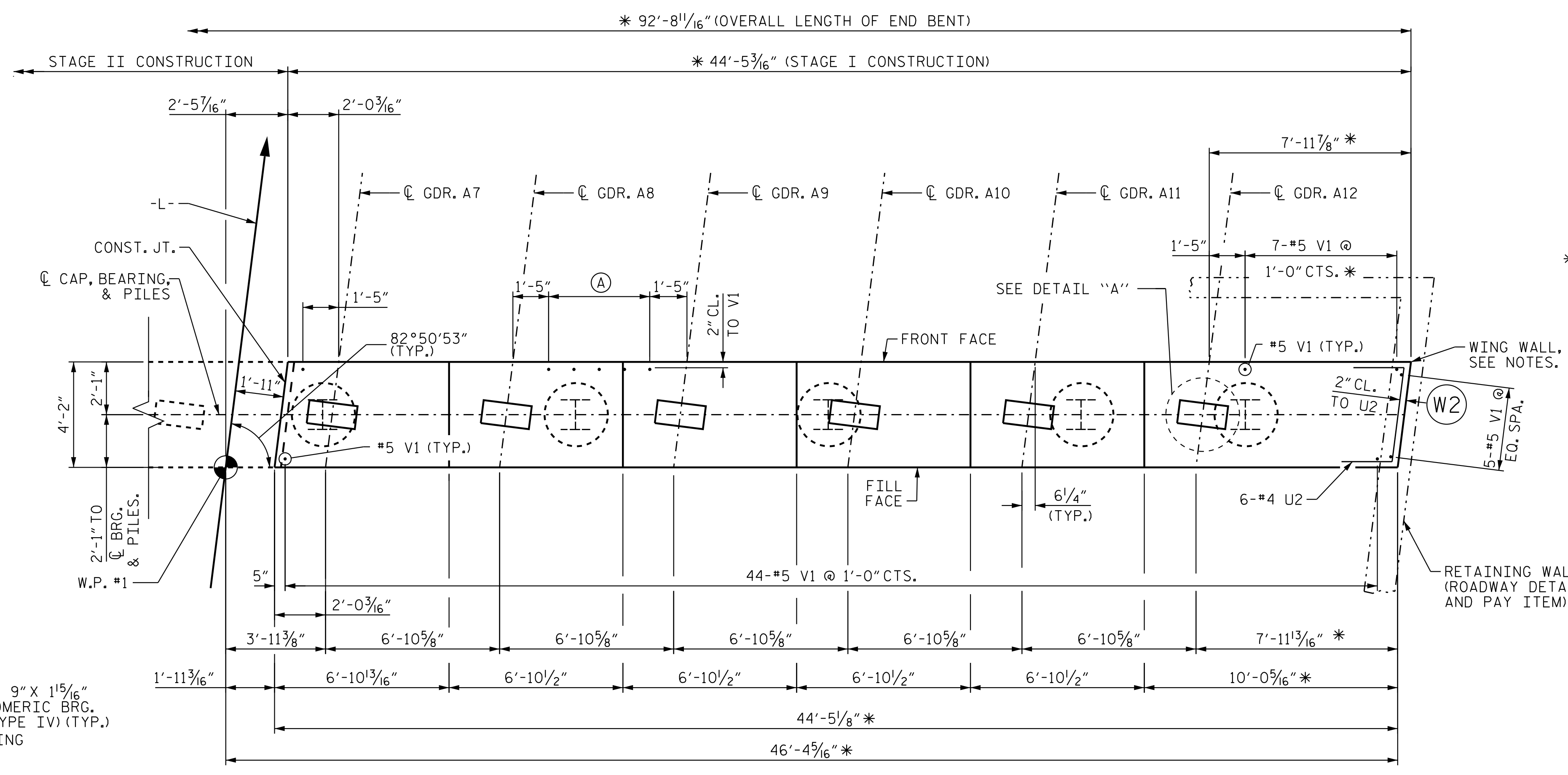
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BAR	MIN. SPLICE
#4 B4	2'-5"
#4 B3	3'-0"
#9 'B'	5'-4"

NOTES

FOR WING WALL DETAILS, SEE "END BENT 1, DETAILS - WING WALLS" SHT. 3 OF 4

FOR PILE SPLICE DETAILS, SEE "END BENT 1, DETAILS" SHT. 4 OF 4.

(2 BR) DENOTES 2 BAR RUN

(A) 5-#5 V1 @ 1'-0" ± CTS. (TYP. BETWEEN GIRDERS)

2'-3" Ø PIPE SLEEVE SHALL BE INSTALLED ALONG LENGTH OF PILE FROM EXISTING GROUND TO BOTTOM OF CAP. SEE RETAINING WALL PLANS FOR ADDITIONAL DETAILS.

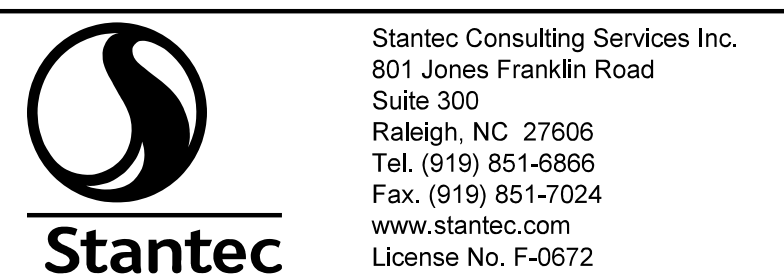
* DIMENSIONS TO BE FIELD ADJUSTED, AS NECESSARY, DEPENDING ON RETAINING WALL PANEL THICKNESS. DIMENSIONS, REBAR QUANTITIES, AND CONCRETE QUANTITIES ARE BASED ON A 5" RETAINING WALL PANEL THICKNESS AND 1" JOINT MATERIAL BETWEEN FILL FACE OF RETAINING WALL AND END OF END BENT CAP AND DIAPHRAGM. SEE "RETAINING WALL -WALL- INTERFACE DETAIL" ON "TYPICAL SECTION (STAGE I CONSTRUCTION) SHEET 1 OF 6 FOR ADDITIONAL DETAILS.

REINFORCING STEEL NOT SHOWN FOR CLARITY. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH KEYED CONSTRUCTION JOINT.

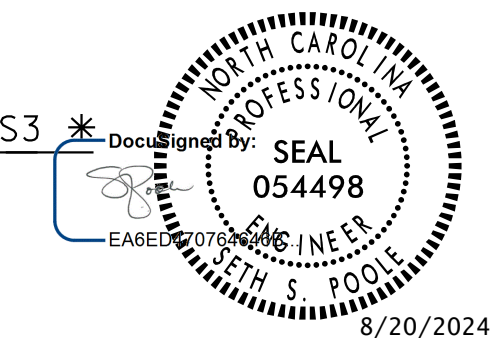
PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1
(STAGE I CONSTRUCTION)



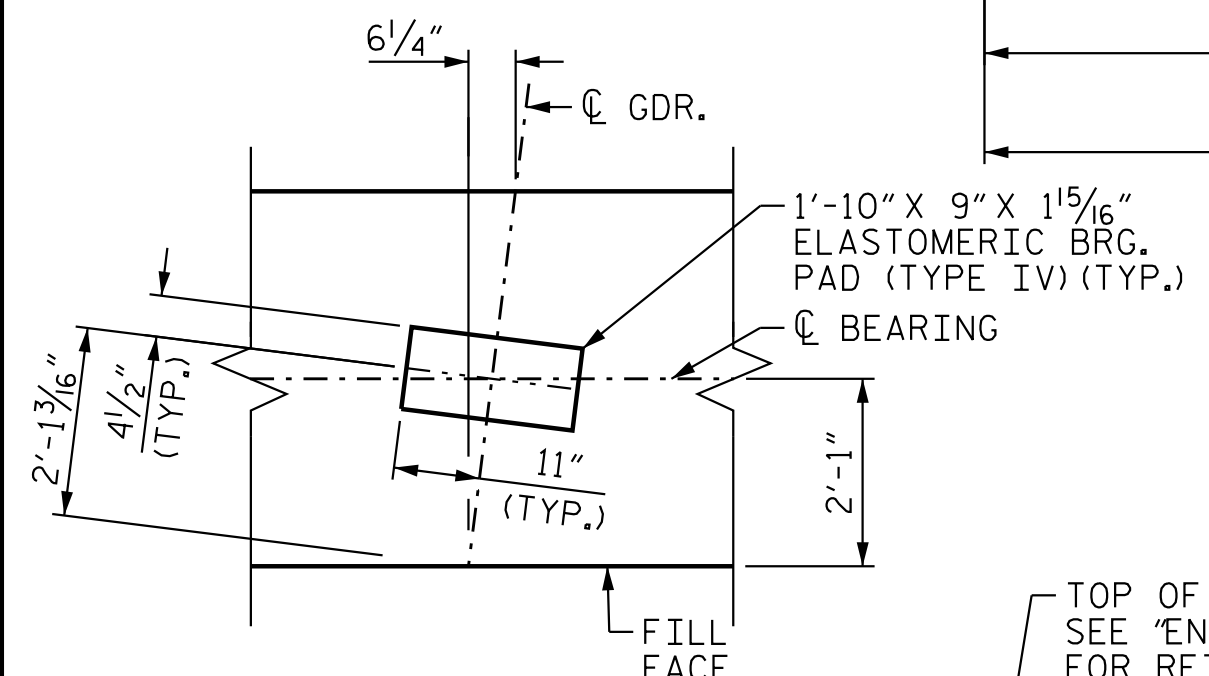
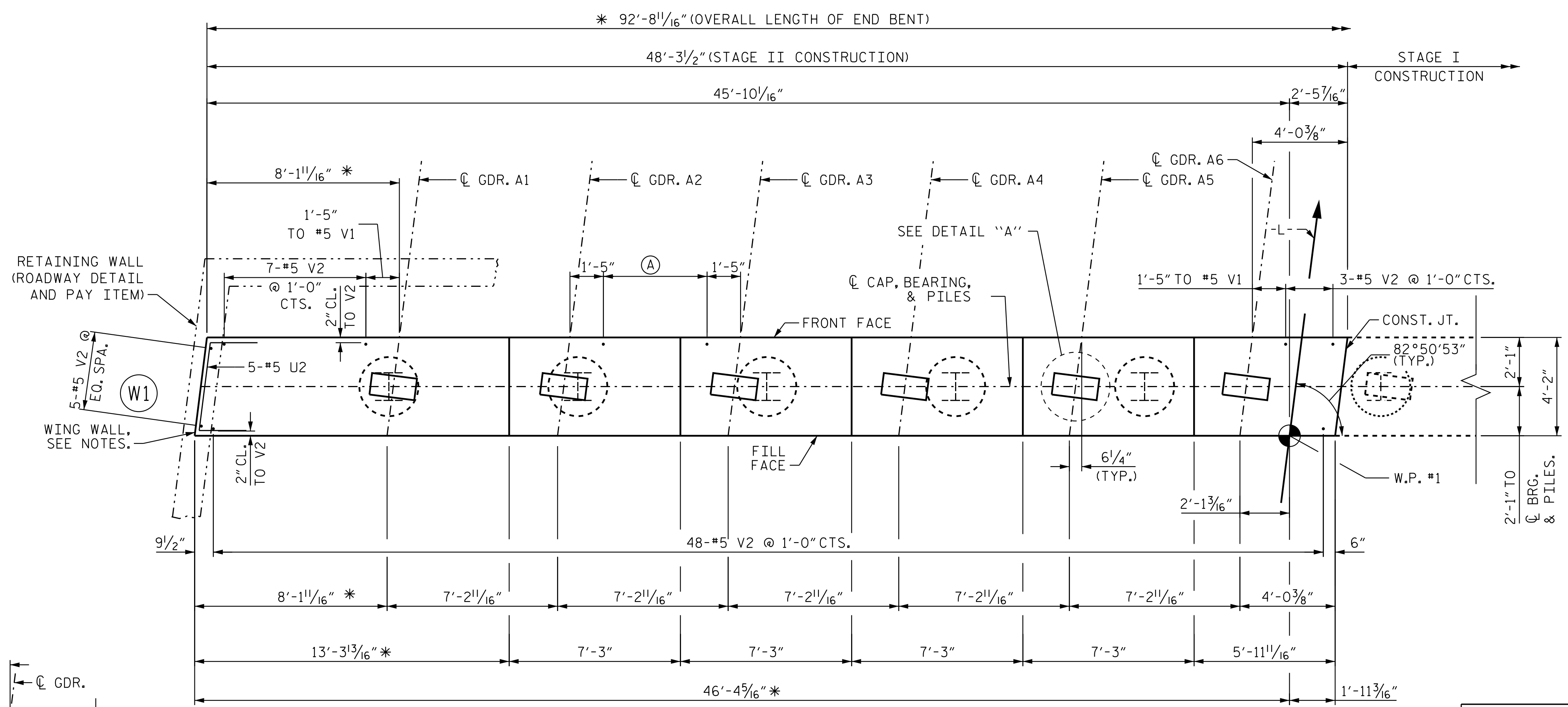
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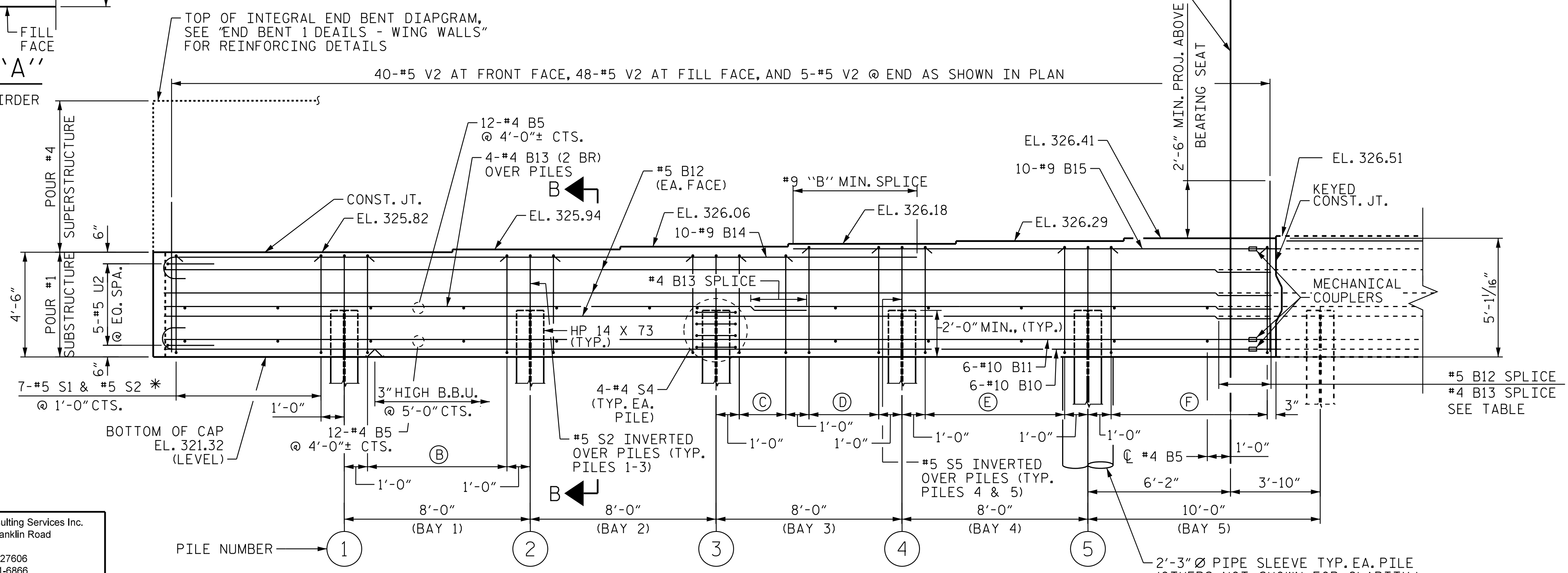
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1			3			TOTAL SHEETS 47
2			4			

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PLAN

SPlice LENGTH	
BAR	MIN. SPLICE
#4 B13	2'-5"
#5 B12	3'-0"
#9 "B"	5'-4"



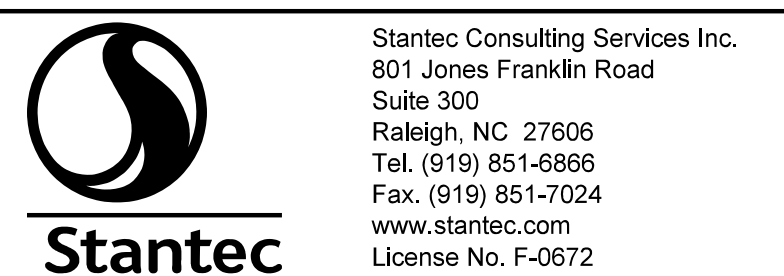
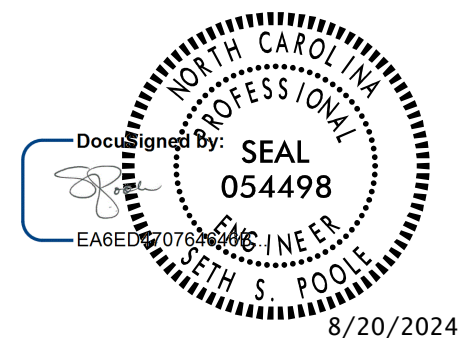
ELEVATION

NOTES

- FOR WING WALL DETAILS, SEE "END BENT 1 DETAILS - WING WALLS" SHT. 3 OF 4.
- FOR PILE SPLICE DETAILS, SEE "END BENT 1 DETAILS" SHT. 4 OF 4.
- (2 BR) DENOTES 2 BAR RUN
- (A) 6-#5 V2 @ EQ. (10 1/2" NOM.) SPA. (TYP. BETWEEN GIRDERS)
- (B) 7-#5 S1 & #5 S2 @ 1'-0" CTS. (TYP. BAYS 1 & 2)
- (C) 3-#5 S1 & #5 S2 @ 1'-0" CTS.
- (D) 4-#5 S1 & #5 S5 @ 1'-0" CTS.
- (E) 7-#5 S1 & #5 S5 @ 1'-0" CTS.
- (F) 8-#5 S1 & #5 S5 @ EQ. (11 3/4" SPA.
- 2'-3" Ø PIPE SLEEVE SHALL BE INSTALLED ALONG LENGTH OF PILE FROM EXISTING GROUND TO BOTTOM OF CAP. SEE RETAINING WALL PLANS FOR ADDITIONAL DETAILS.
- * DIMENSIONS TO BE FIELD ADJUSTED, AS NECESSARY, DEPENDING ON RETAINING WALL PANEL THICKNESS, DIMENSIONS, REBAR QUANTITIES, AND CONCRETE QUANTITIES ARE BASED ON A 5" RETAINING WALL PANEL THICKNESS AND 1" JOINT MATERIAL BETWEEN FILL FACE OF RETAINING WALL AND END OF END BENT CAP AND DIAPHRAGM. SEE "RETAINING WALL - WALL1 - INTERFACE DETAIL" ON "TYPICAL SECTION (STAGE II CONSTRUCTION) SHEET 3 OF 6 FOR ADDITIONAL DETAILS.

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 2 OF 4
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1
 (STAGE II CONSTRUCTION)



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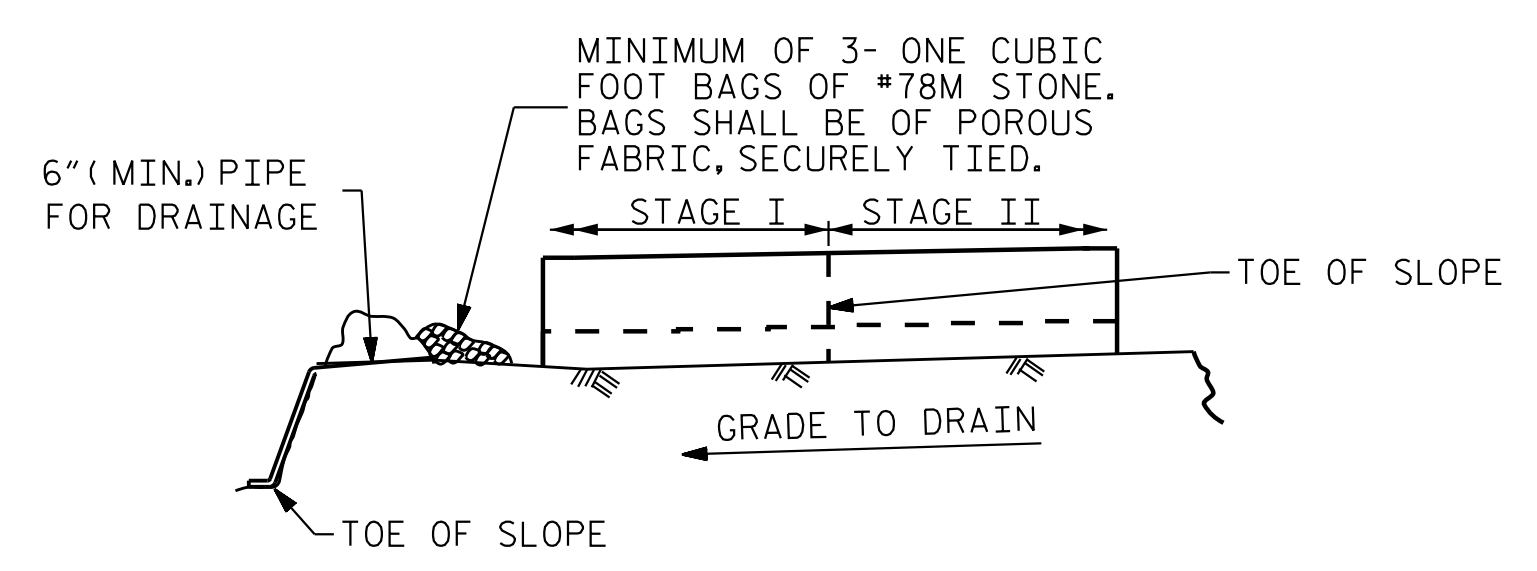
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2			4			

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SUPERSTRUCTURE CONCRETE

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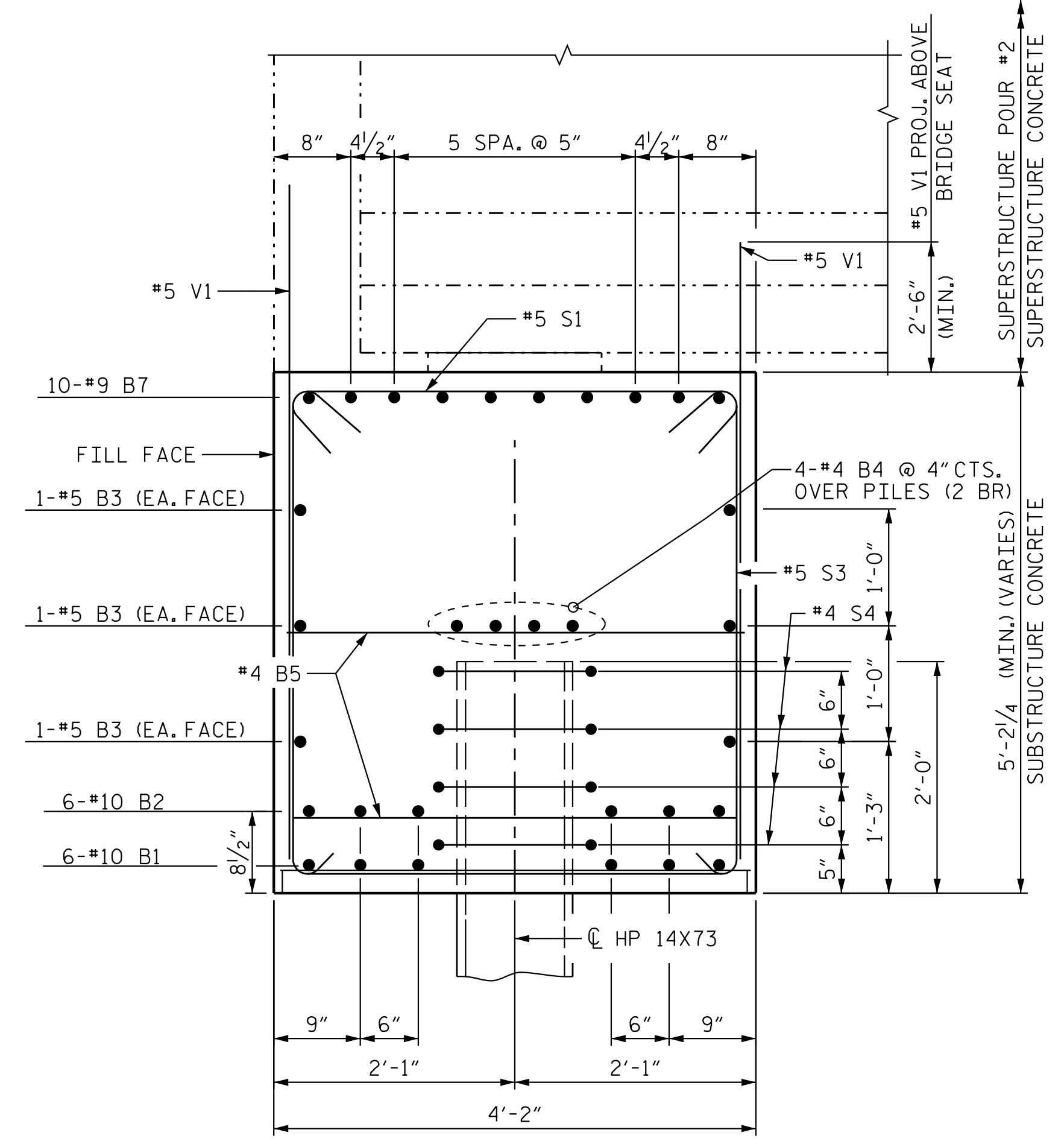


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

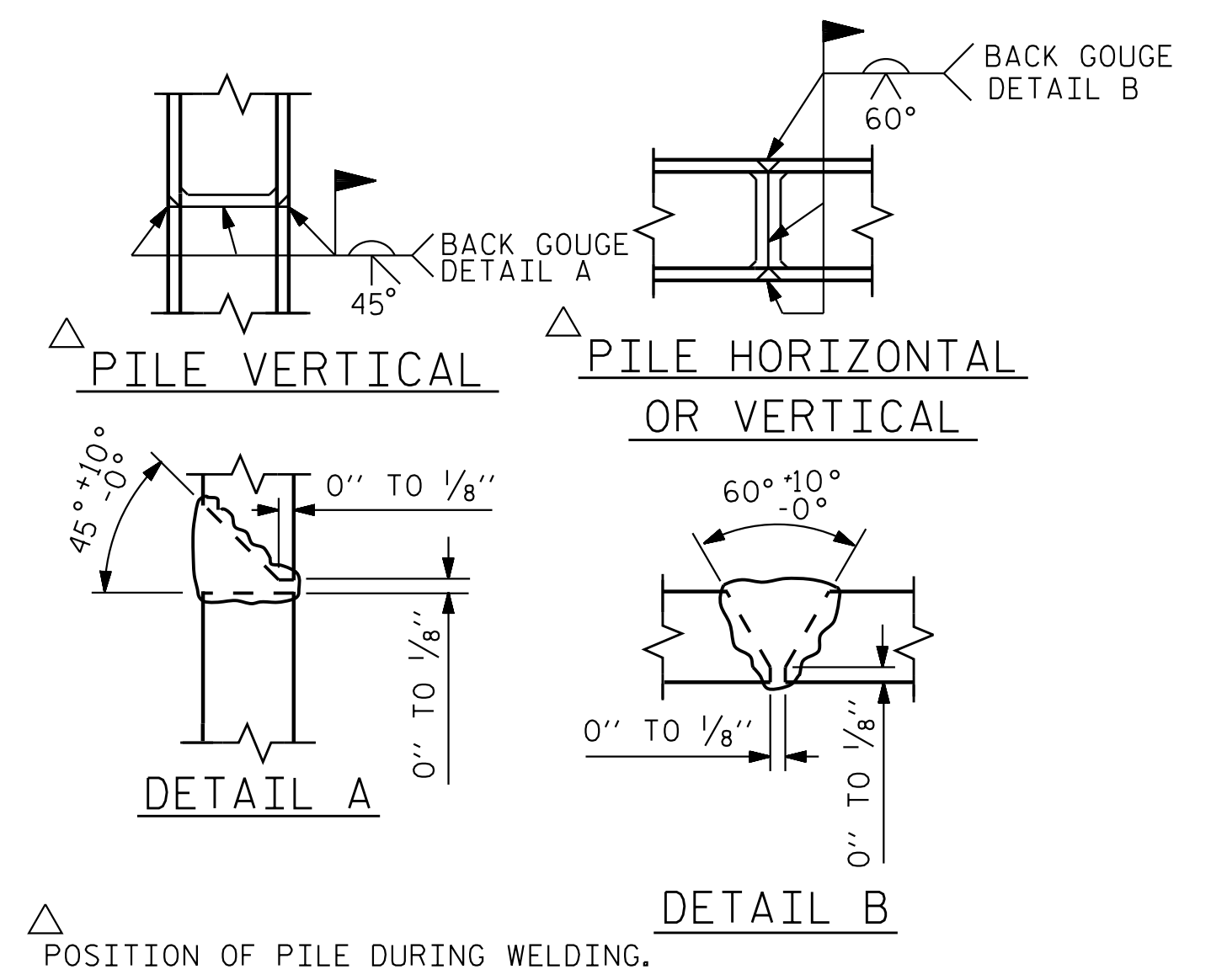
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

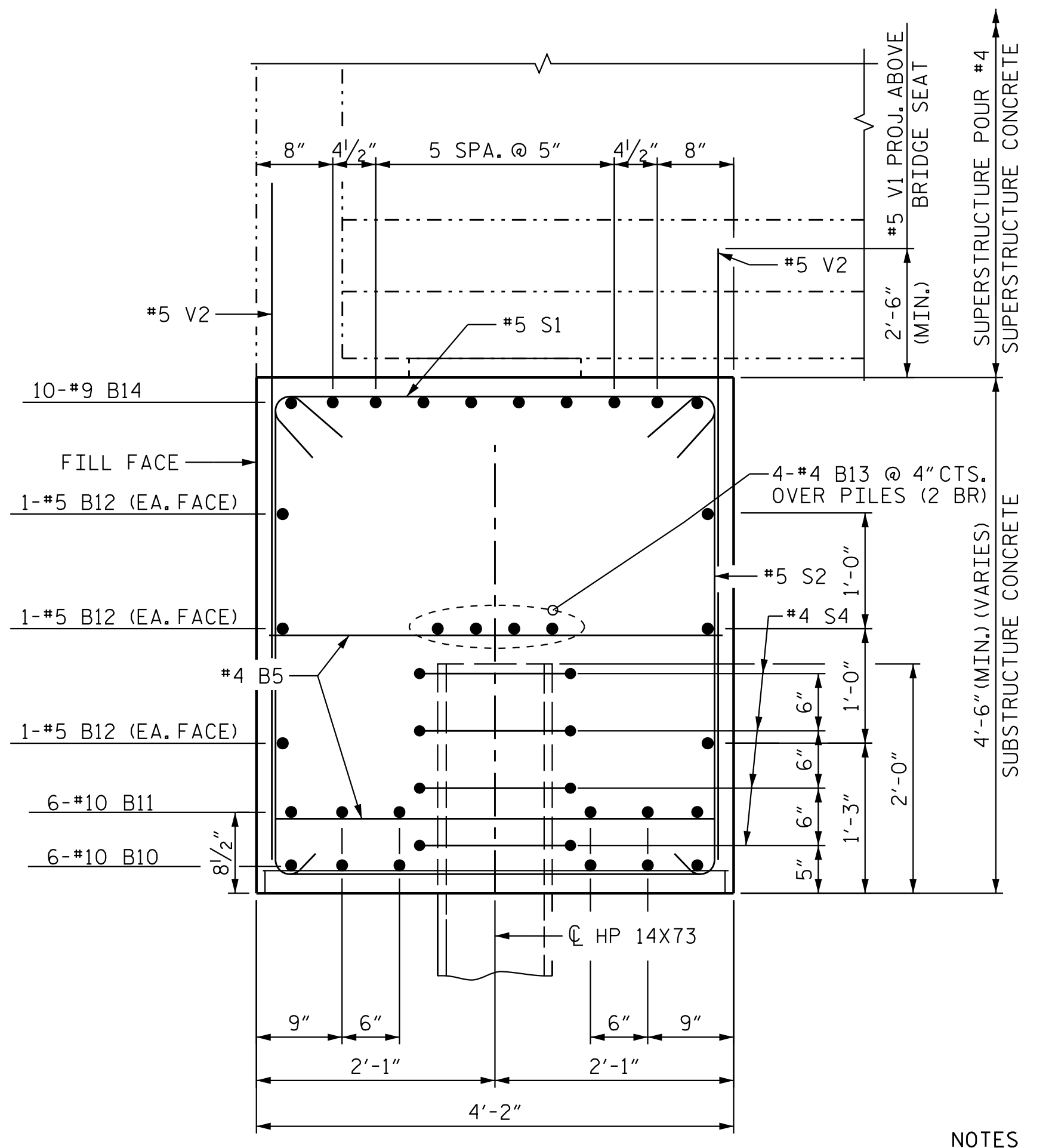


SECTION A-A

SEE "END BENT 1 (STAGE I CONSTRUCTION)" SHEET 1 OF 4.



PILE SPLICE DETAILS



SECTION B-B

SEE "END BENT 1 (STAGE II CONSTRUCTION)" SHEET 2 OF 4.

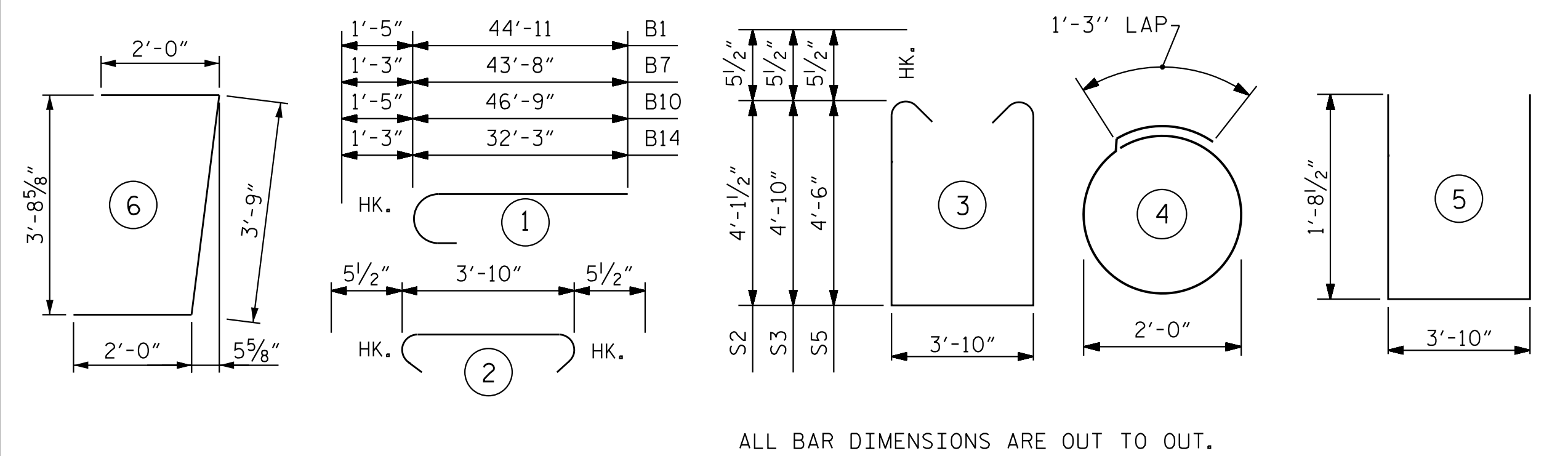
NOTES

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

THE TOP SURFACE AREA OF THE END BENT AND WING WALLS, EXCEPT THE BEARING AREAS, SHALL BE RAKED TO A DEPTH OF 1/4".

(2 BR) DENOTES 2 BAR RUN.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

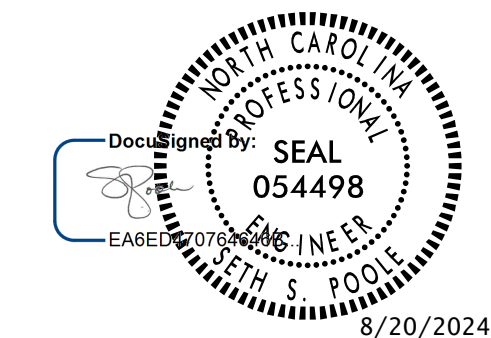
END BENT 1 - STAGE I					END BENT 1 - STAGE II						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	6	10	1	46'-4"	1196	B5	24	4	STR	3'-11"	63
B2	6	10	STR	44'-11"	1160	B6	6	10	1	48'-2"	1244
B3	6	5	STR	47'-1"	295	B11	6	10	STR	46'-9"	1207
B4	8	4	STR	24'-3"	130	B12	6	5	STR	47'-7"	298
B5	23	4	STR	3'-11"	60	B13	8	4	STR	24'-10"	133
B6	10	9	STR	6'-7"	224	B14	10	9	1	33'-6"	1139
B7	10	9	1	44'-11"	1527	B15	10	9	STR	19'-4"	657
B8	10	4	STR	22'-9"	152						
S1	39	5	2	4'-9"	193	S1	43	5	2	4'-9"	213
S3	43	5	3	14'-5"	647	S2	27	5	3	13'-10"	366
S4	20	4	4	7'-7"	101	S4	20	4	4	7'-7"	101
S5	1	5	3	13'-9"	14	S5	21	5	3	13'-9"	301
U1	15	4	5	7'-3"	73						
U2	6	5	6	7'-9"	48	U2	5	5	6	7'-9"	40
V1	82	5	STR	8'-2"	698	V2	93	5	STR	7'-6"	727
REINFORCING STEEL					LBS. 6,518	REINFORCING STEEL					LBS. 6,489
CLASS A CONCRETE BREAKDOWN:						CLASS A CONCRETE BREAKDOWN:					
POUR #1: CAP, ETC.					C.Y. 37.7	POUR #1: CAP, ETC.					C.Y. 35.5
CLASS A CONCRETE TOTAL *					C.Y. 37.7	CLASS A CONCRETE TOTAL *					C.Y. 35.5

* UPPER PORTION OF WING WALLS W1 AND W2 POURED WITH SUPERSTRUCTURE POURS #4 AND #2, RESPECTIVELY.

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1 DETAILS



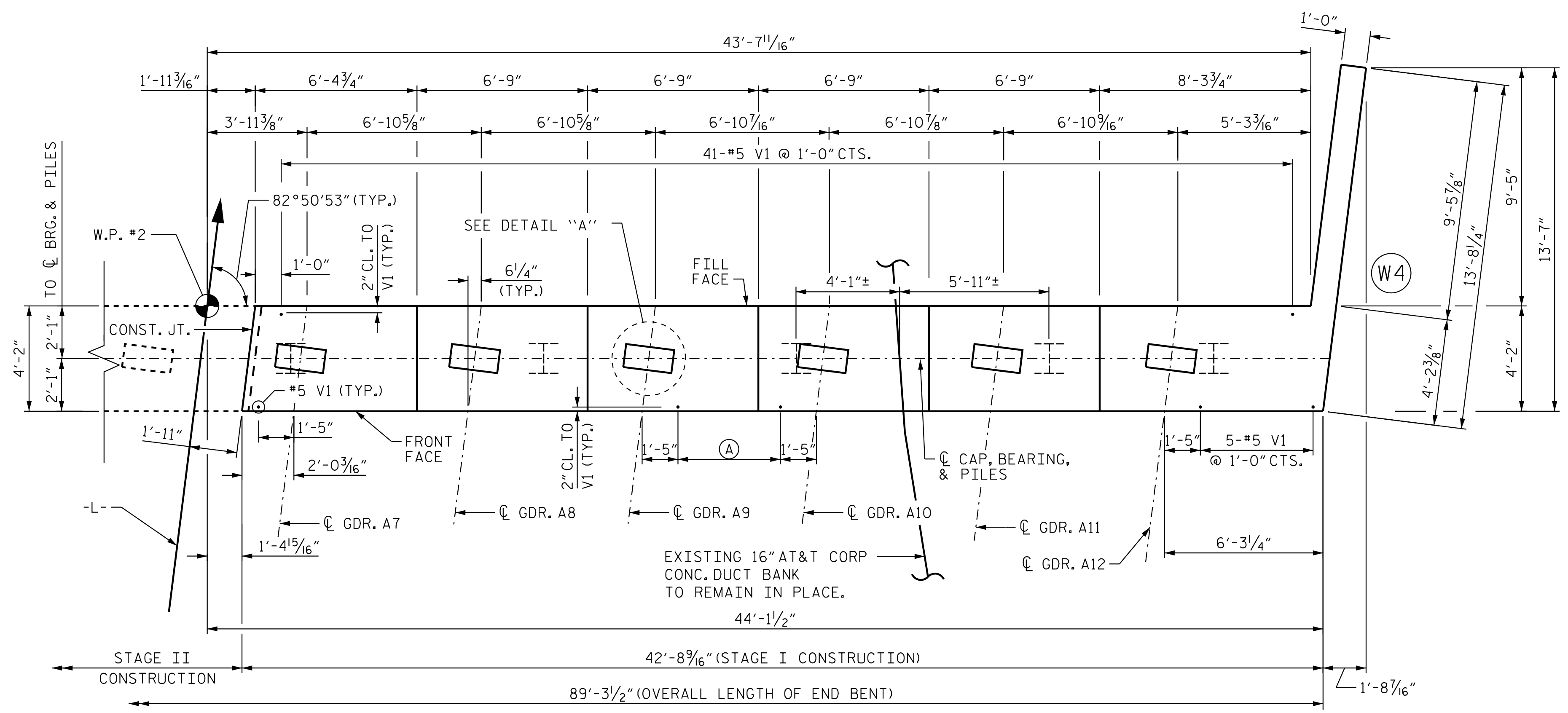
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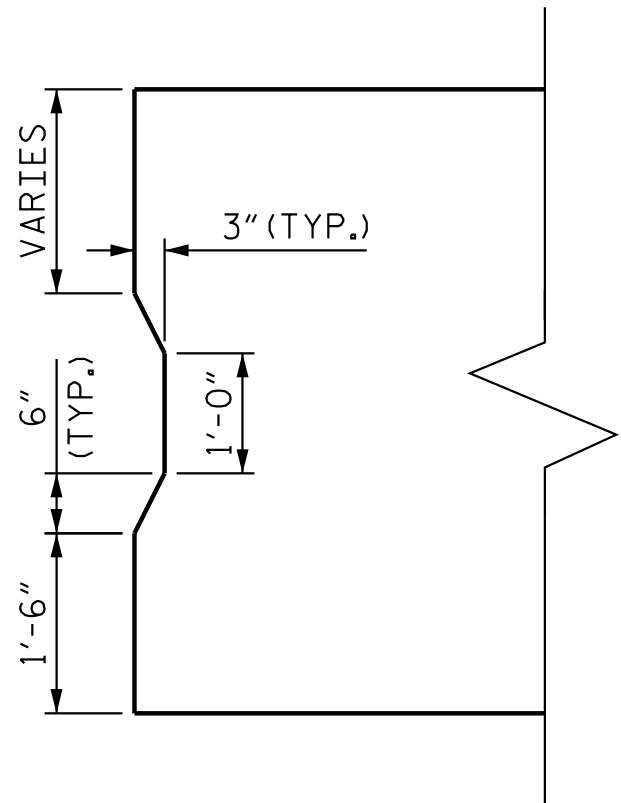
Stantec Consulting Services Inc.
 801 Jones Franklin Road
 Suite 300
 Raleigh, NC 27606
 Tel. (919) 851-6866
 Fax. (919) 851-7024
 www.stantec.com
 License No. F-0672

DRAWN BY: J. B. GEILE DATE: 11/28/18
 CHECKED BY: S. S. POOLE DATE: 08/01/24
 DESIGN ENGINEER OF RECORD: S. S. POOLE DATE: 08/20/24

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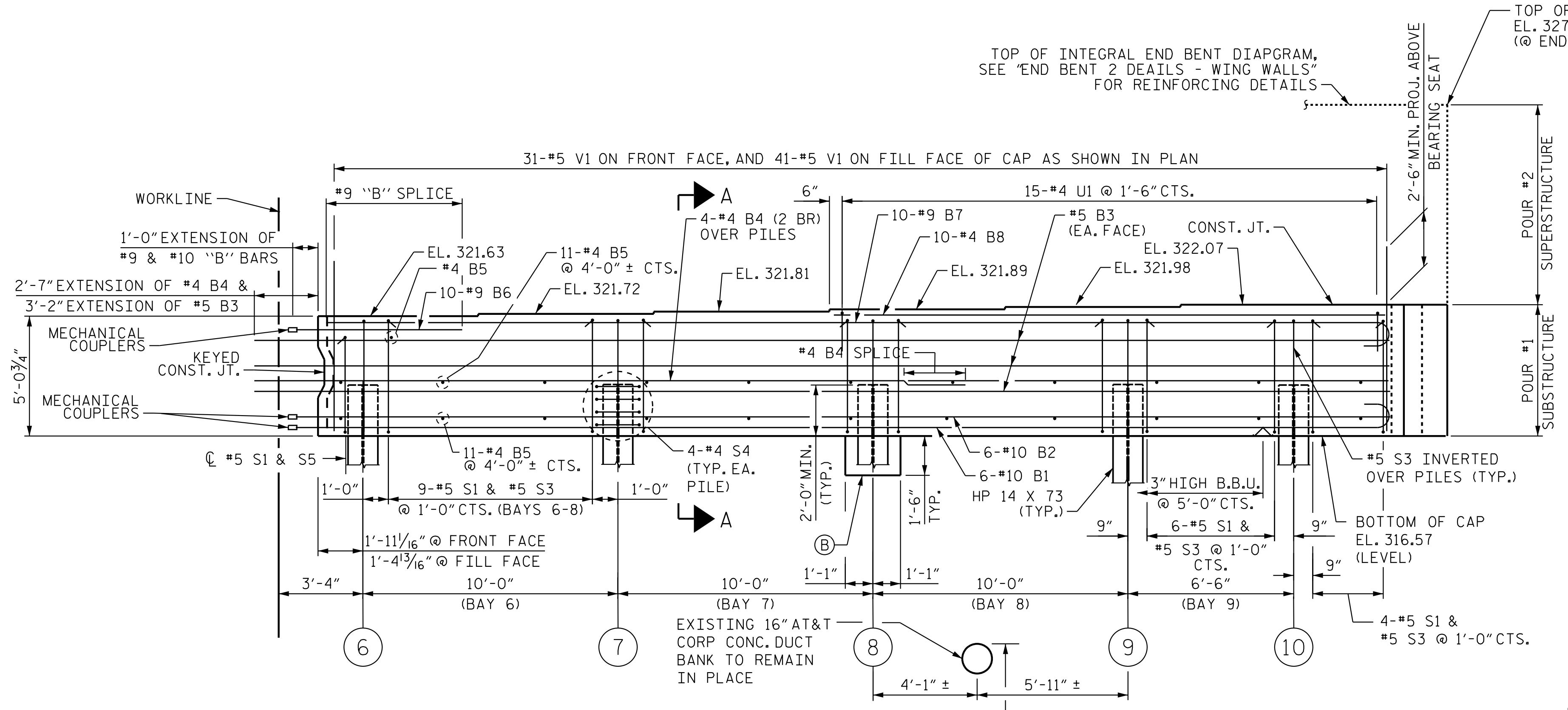
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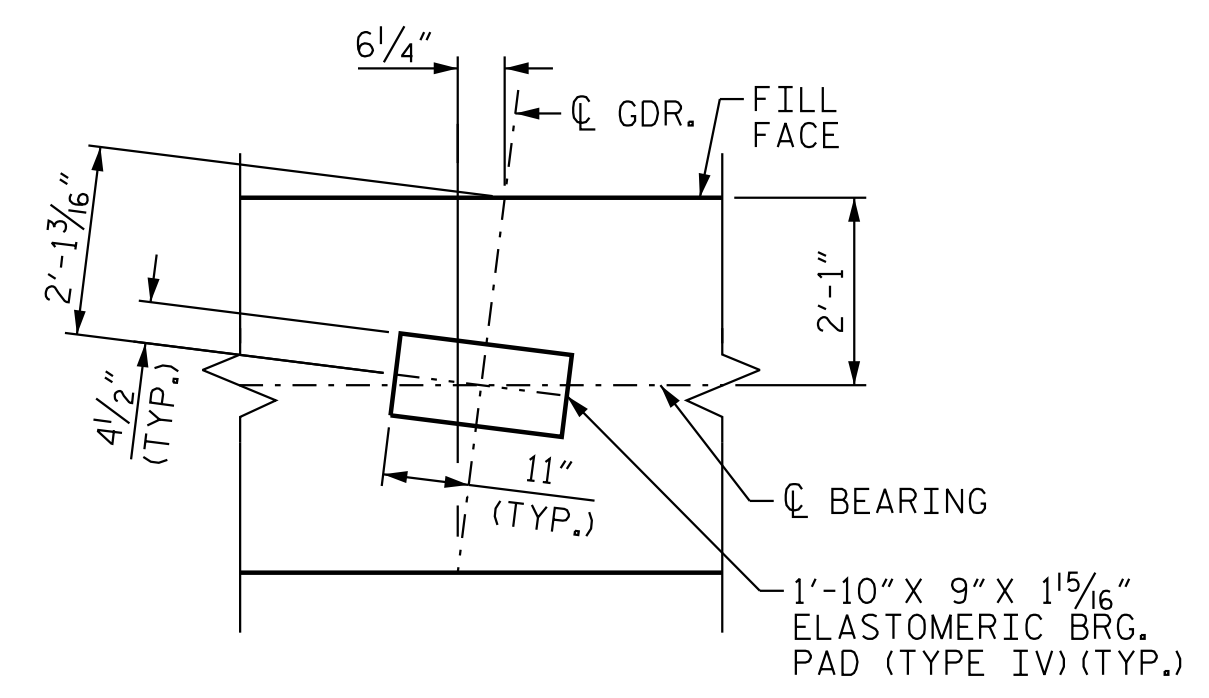
KEYED CONST. JT. DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH KEYED CONSTRUCTION JOINT.

SPLICE LENGTH	
#4 B4	2'-5"
#9 "B"	5'-4"
#5 B3	3'-0"



ELEVATION

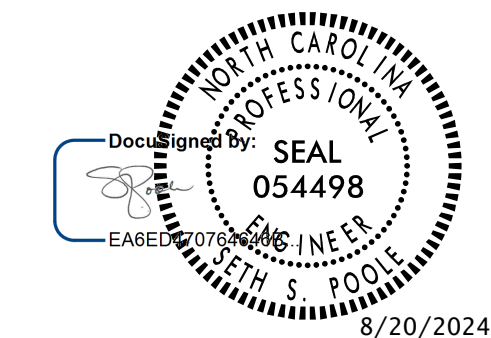


DETAIL "A" TYPICAL EACH GIRDER

- NOTES**
- FOR PILE SPLICE DETAILS, SEE "END BENT 2 DETAILS" SHT. 4 OF 4.
 - (2 BR) DENOTES 2 BAR RUN
 - FOR WING WALL DETAILS, SEE "END BENT 2, DETAILS - WING WALLS" SHT. 3 OF 4
 - (A) 5-#5 V1 @ 1'-0" CTS. (TYP. BETWEEN GIRDERS)
 - (B) 2'-2" Ø PILE COLLAR, TYP. EA. PILE. OTHERS NOT SHOWN FOR CLARITY

PROJECT NO. P-5715
 WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 1 OF 4
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 (STAGE I CONSTRUCTION)



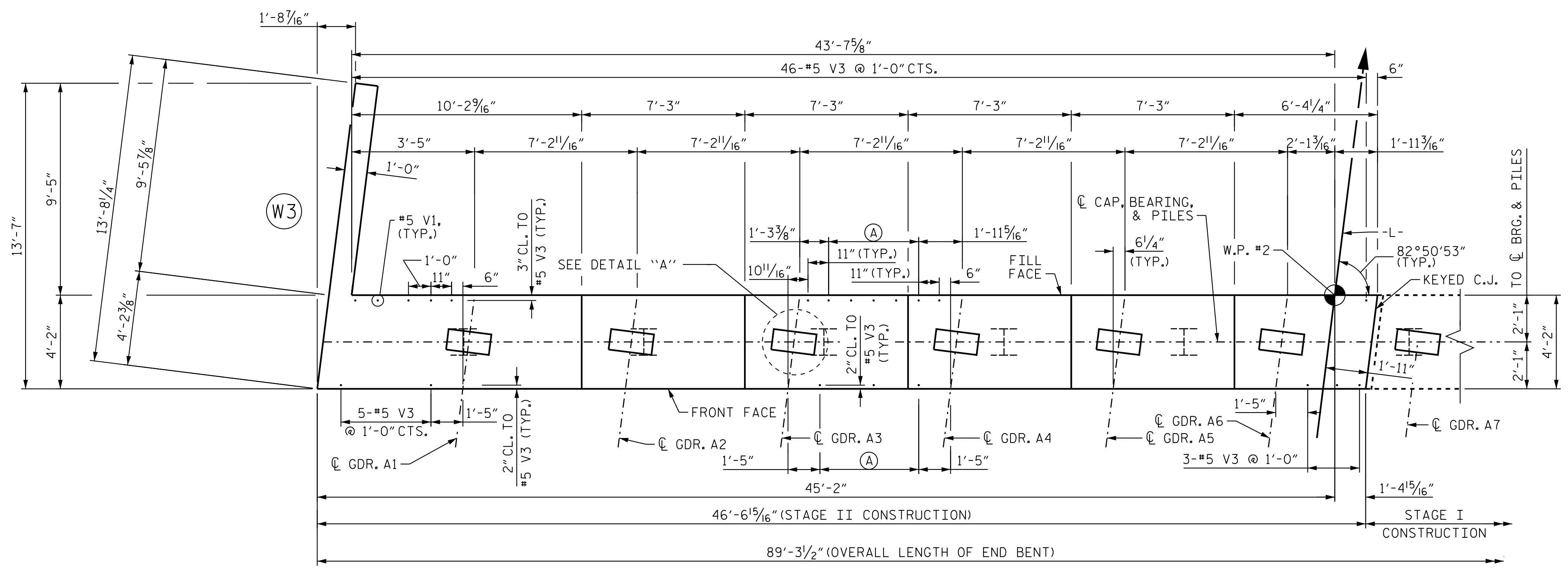
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2			4			

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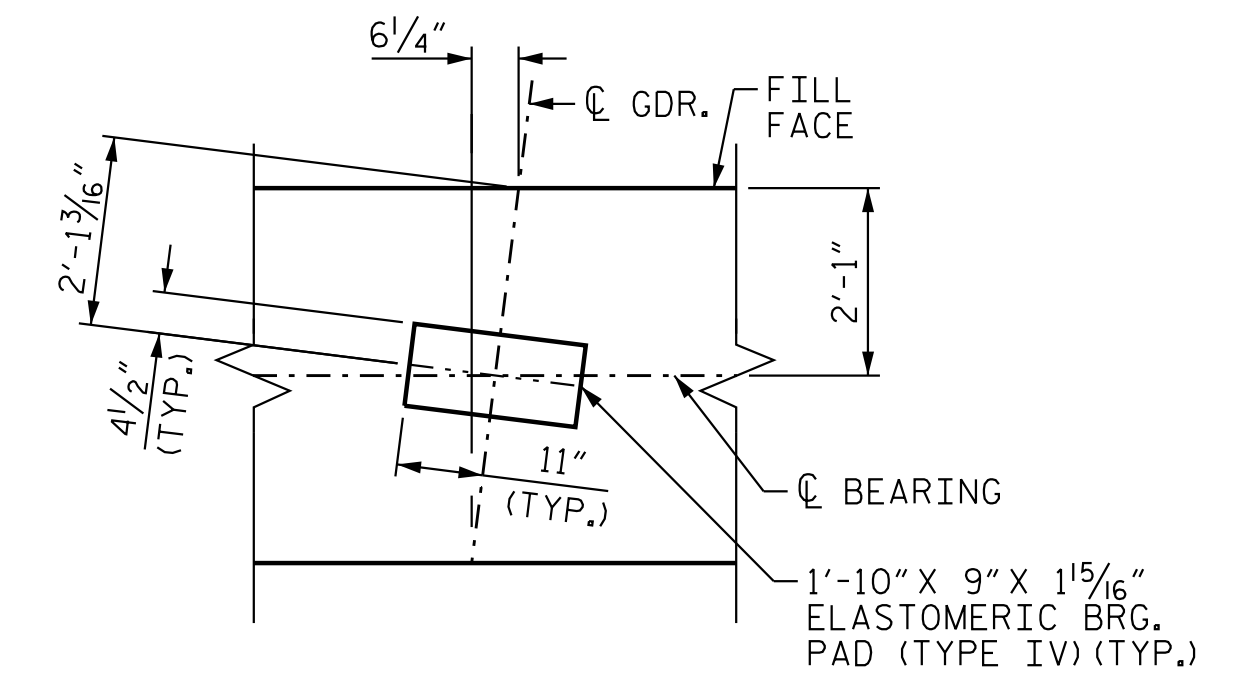
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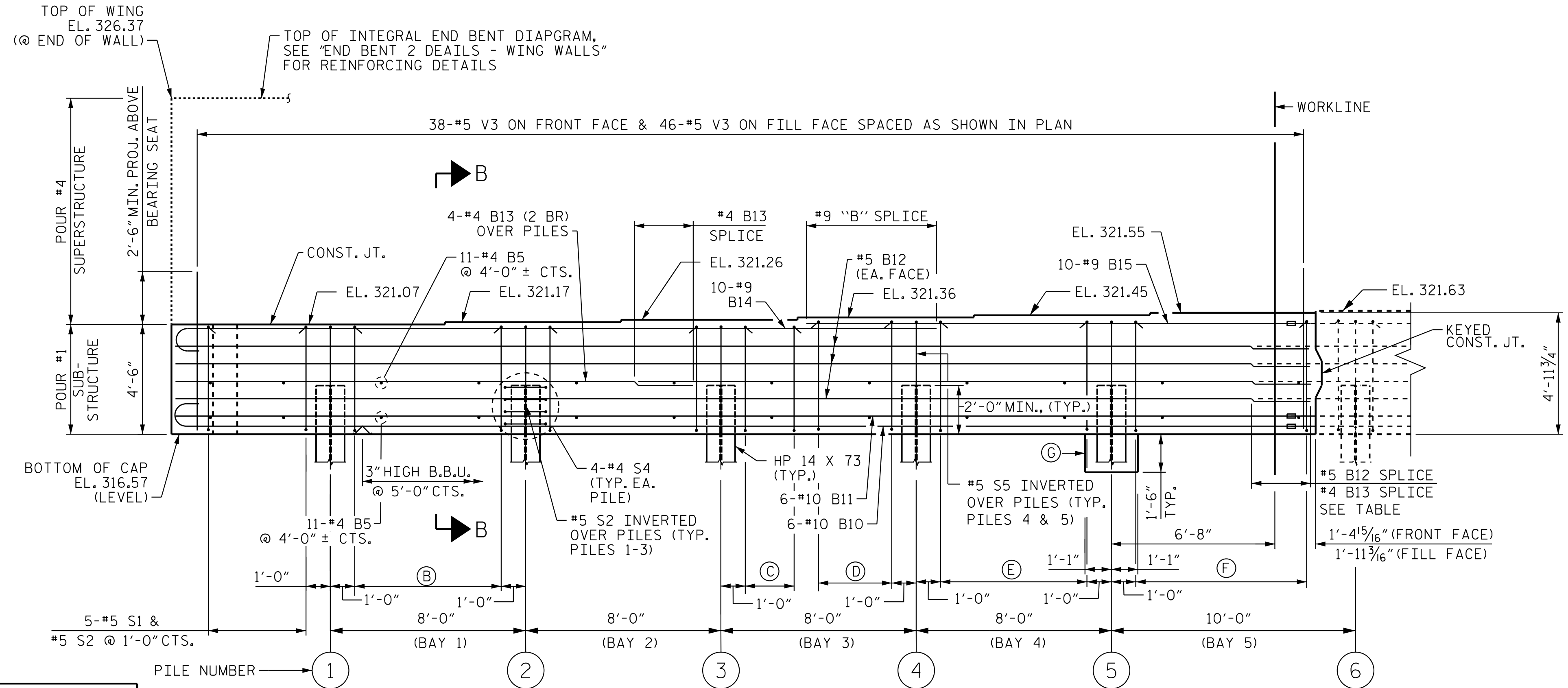
PLAN

NOTES

- FOR PILE SPLICE DETAILS, SEE "END BENT 2 DETAILS" SHT. 4 OF 4.
- 2 BR DENOTES 2 BAR RUN
- FOR WING WALL DETAILS, SEE "END BENT 2, DETAILS - WING WALLS" SHT. 3 OF 4
- (A) 6-#5 V3 @ EQ. (10 1/2" NOM.) SPA.
- (B) 7-#5 S1 & #5 S2 @ 1'-0" CTS. (TYP. BAYS 1 & 2)
- (C) 3-#5 S1 & #5 S2 @ 1'-0" CTS.
- (D) 4-#5 S1 & #5 S5 @ 1'-0" CTS.
- (E) 7-#5 S1 & #5 S5 @ 1'-0" CTS.
- (F) 7-#5 S1 & #5 S5 @ 1'-0" CTS.
- (G) 2'-2" Ø PILE COLLAR, TYP. EA. PILE. OTHERS NOT SHOWN FOR CLARITY



DETAIL "A"
TYPICAL EACH GIRDER

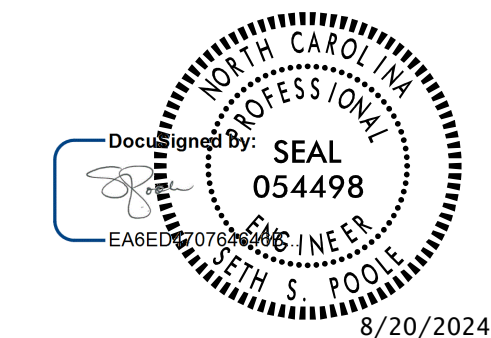


ELEVATION

SPLICE LENGTH	
BAR	MIN. SPLICE
#5 B12	3'-0"
#4 B13	2'-5"
#9 "B"	5'-4"

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

SHEET 2 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 2
(STAGE II CONSTRUCTION)



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2			4				



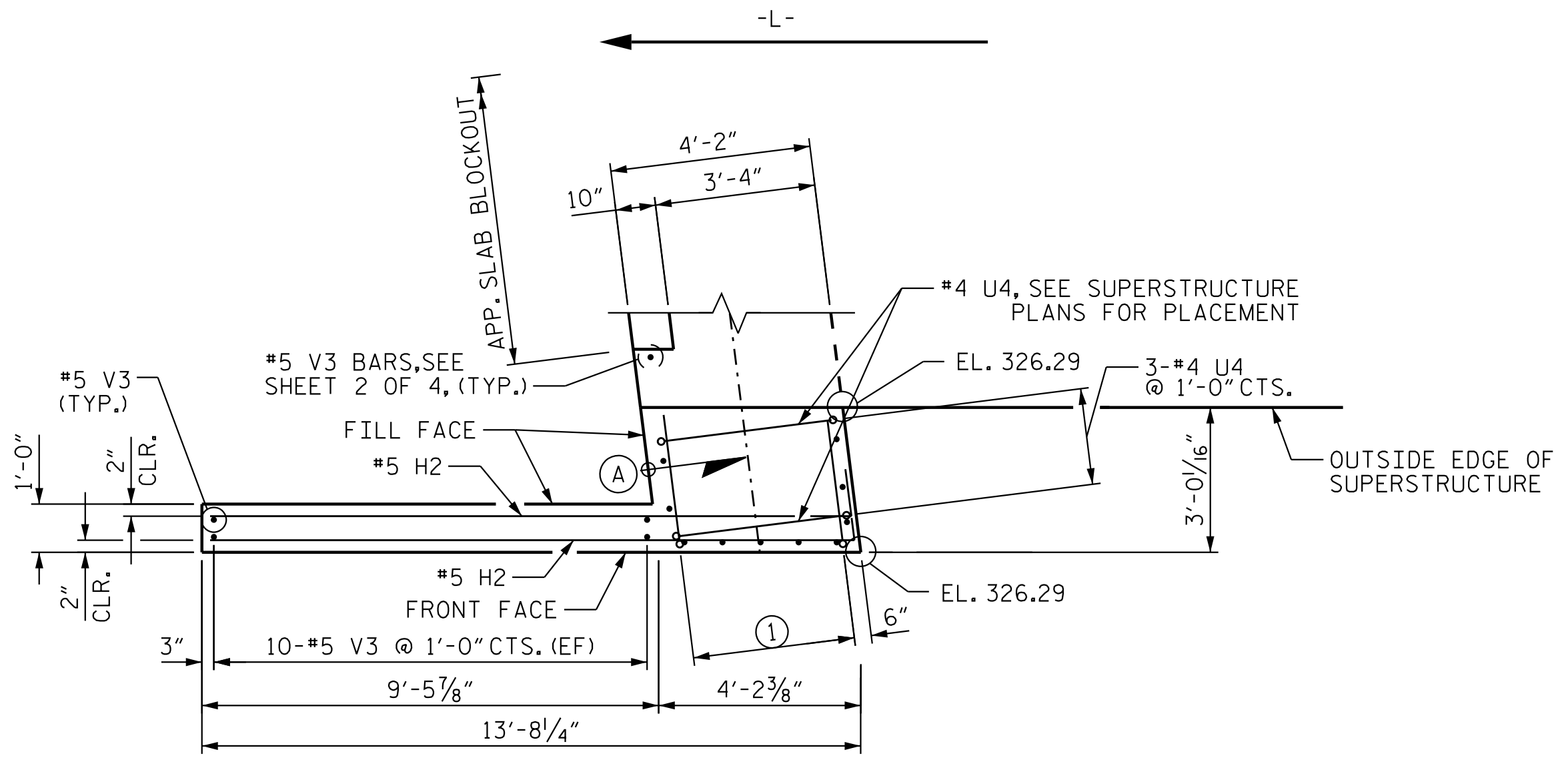
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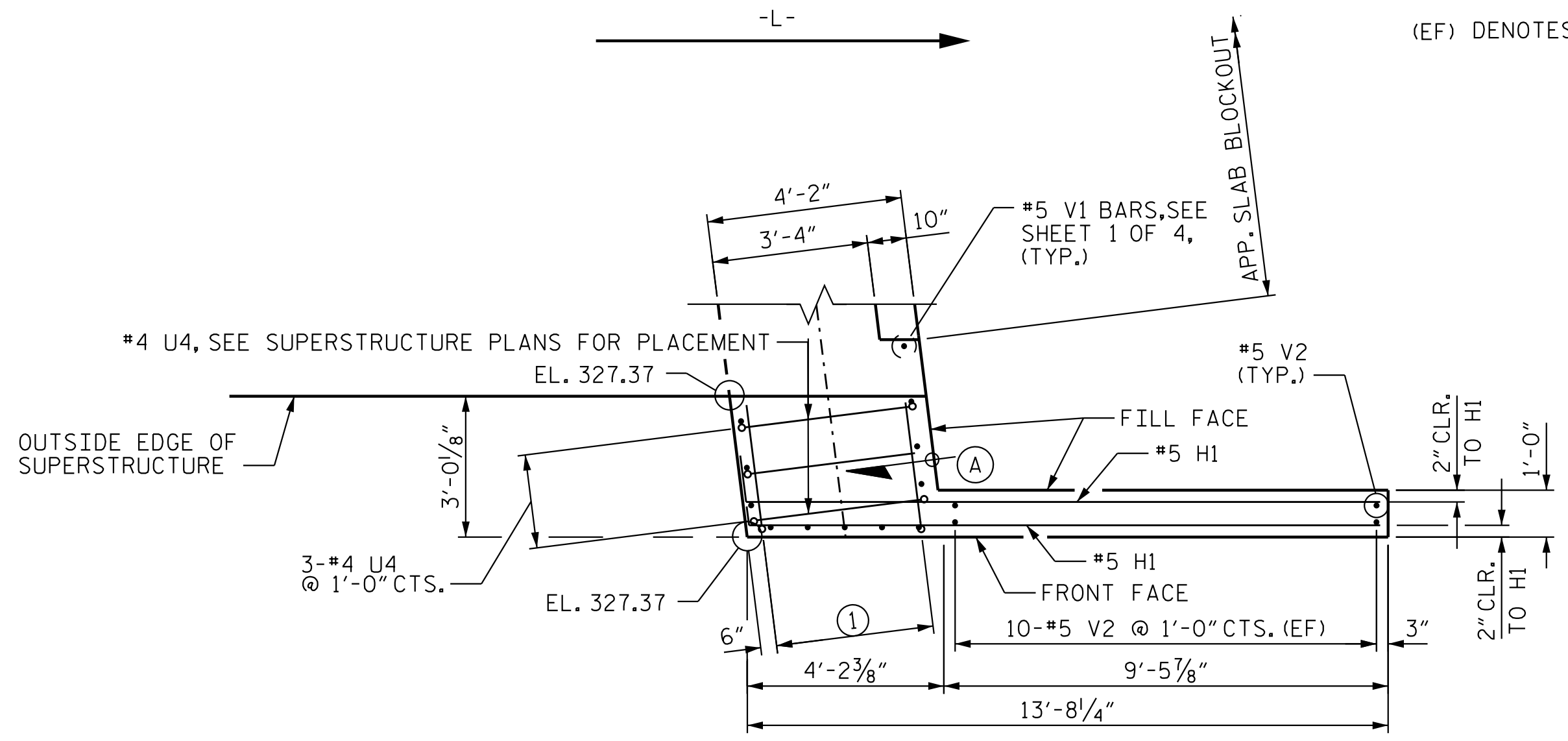
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- NOTES:**
- Ⓐ SLOPE TOP OF CAP BEYOND EDGE OF SUPERSTRUCTURE AT A RATE OF 0.02 FT/FT. TO DRAIN FROM FILL FACE TO FRONT FACE.
 - BAR PLACED IN SUPERSTRUCTURE POUR(S).
 - BAR PLACED IN SUBSTRUCTURE POUR(S).
 - (EF) DENOTES EA. FACE

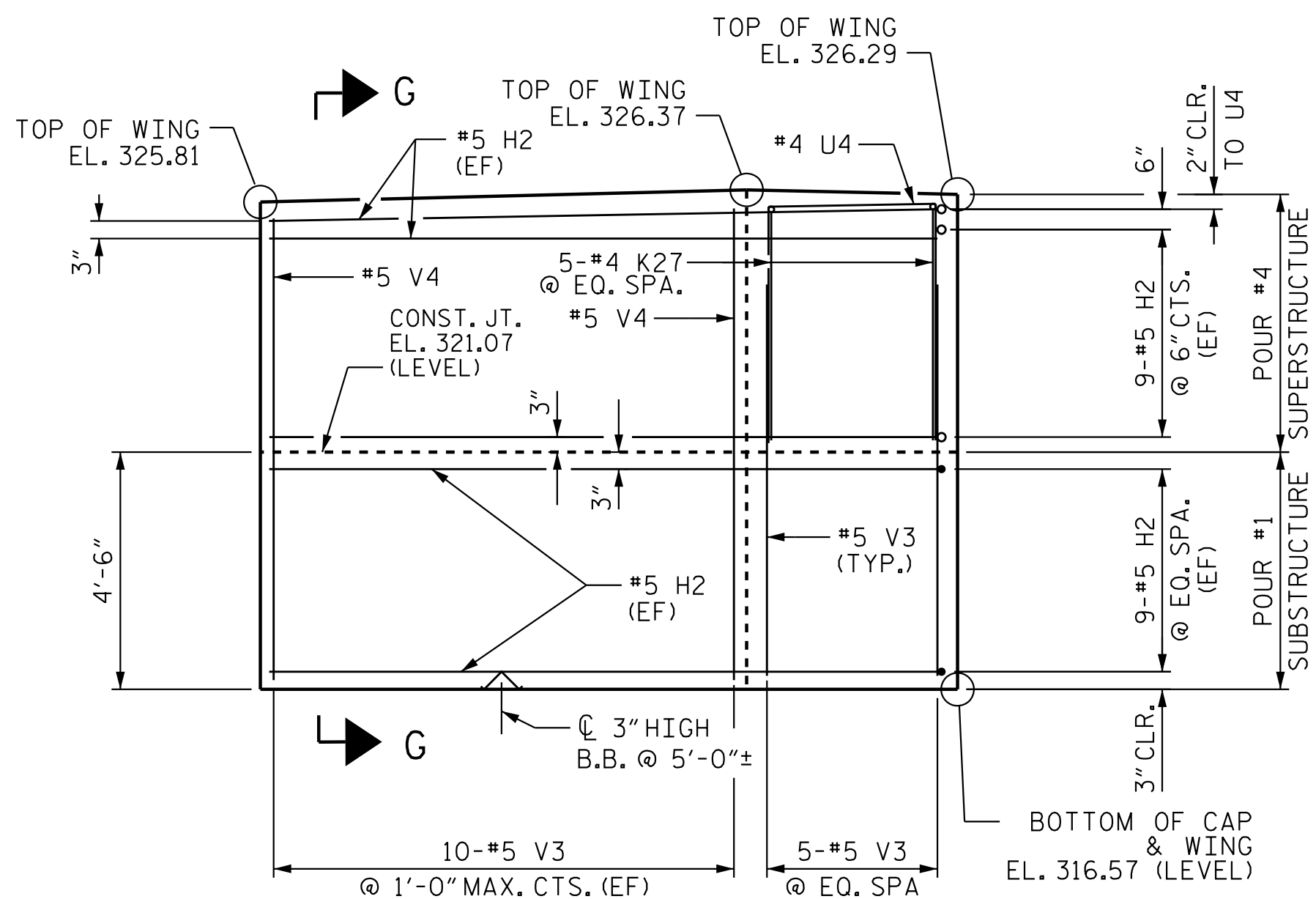


PLAN OF LEFT WING (W3)

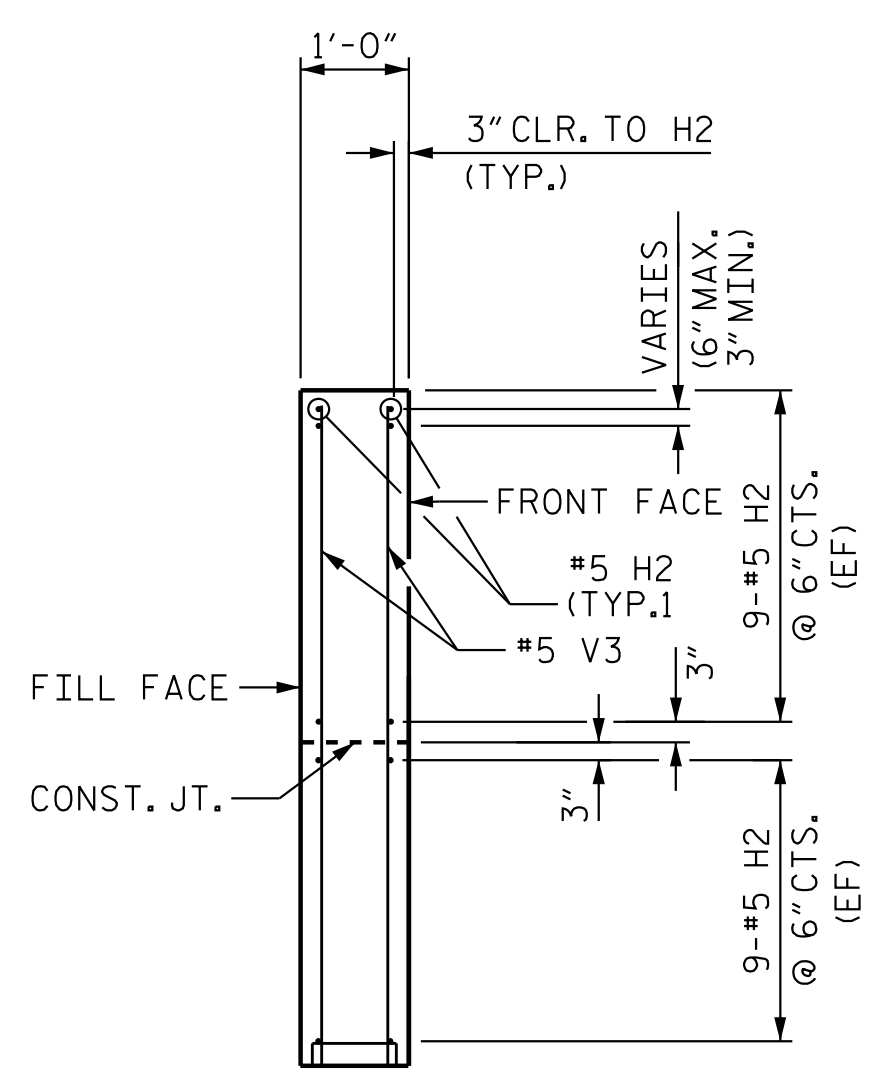
① 5-#4 K27 @ EQ. SPA.



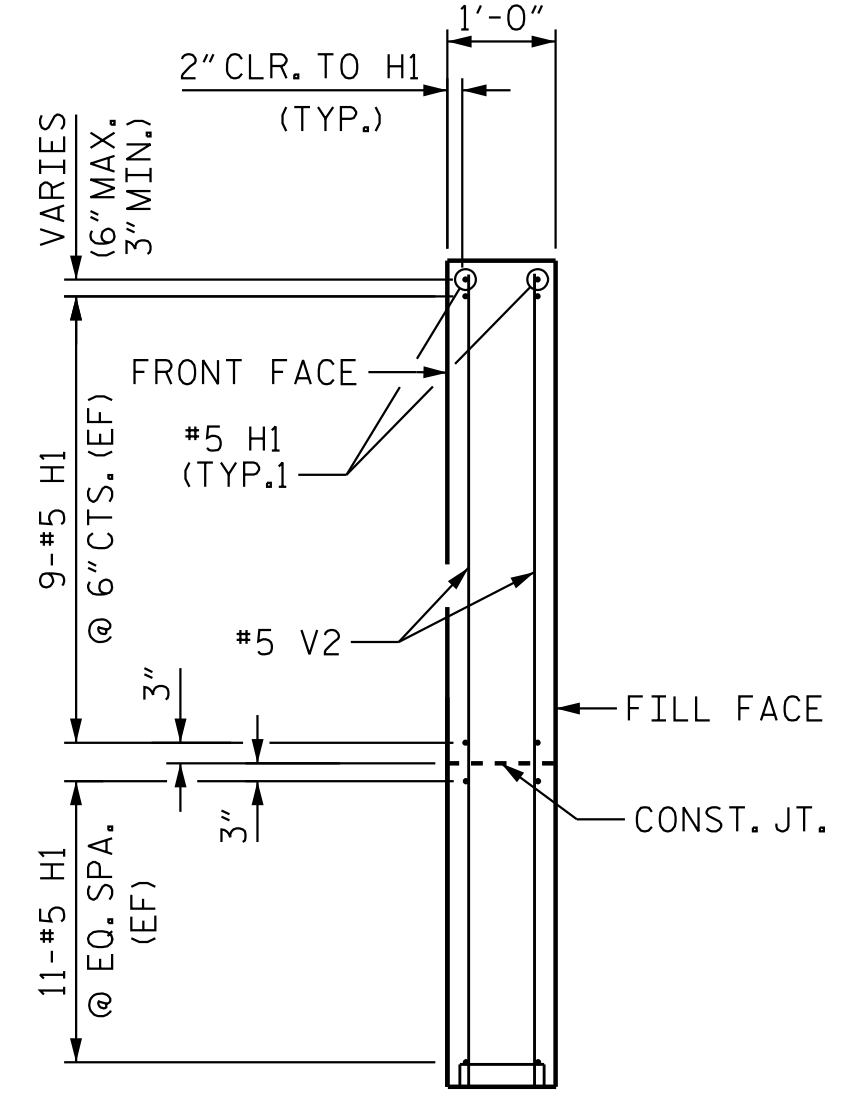
PLAN OF RIGHT WING (W4)



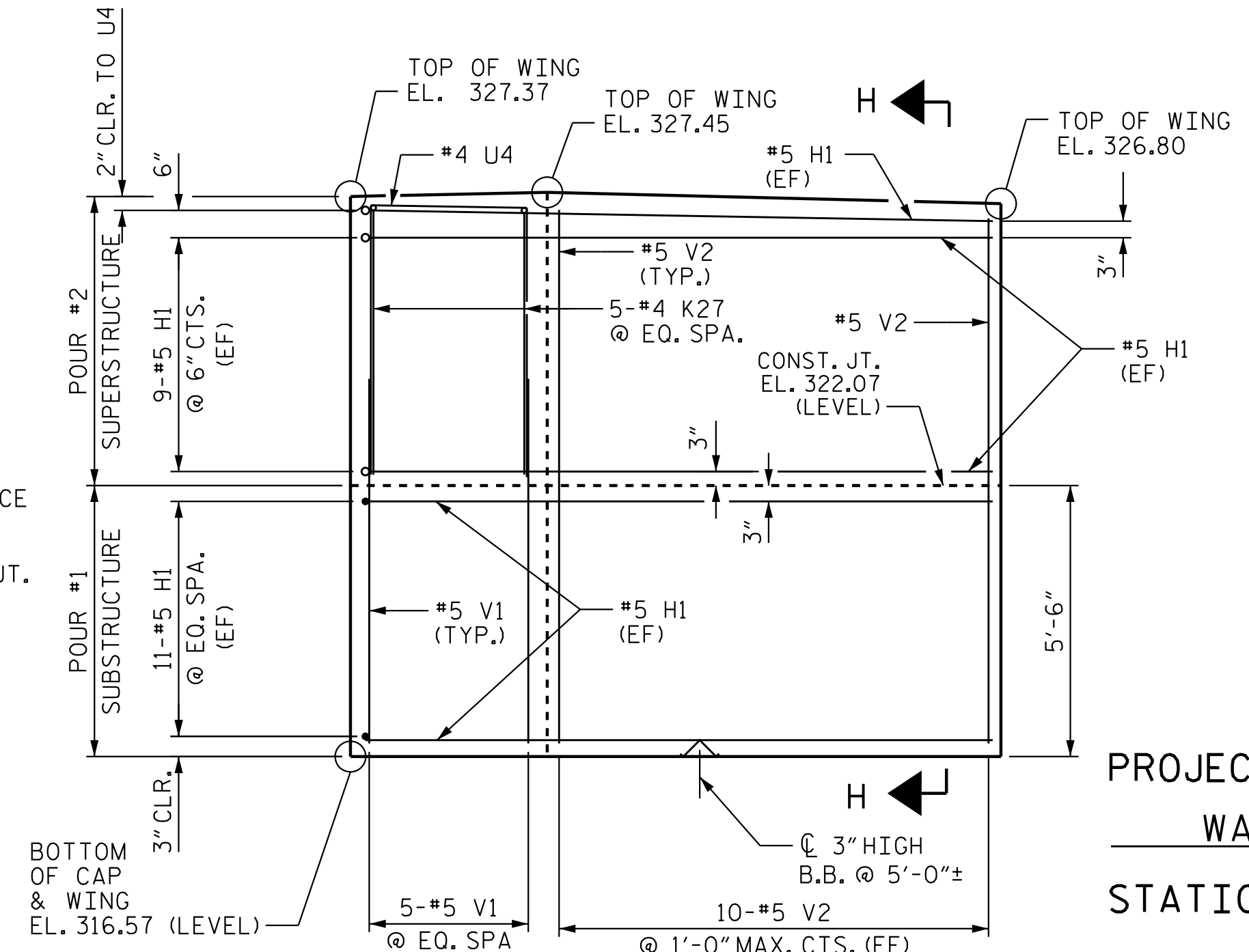
ELEVATION OF LEFT WING (W3)
(STAGE II CONSTRUCTION)



SECTION G-G



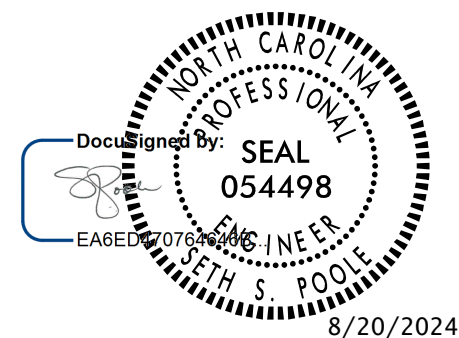
SECTION H-H



ELEVATION OF RIGHT WING (W4)
(STAGE I CONSTRUCTION)

PROJECT NO. P-5715
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STATION: 20+97.25 -L-

SHEET 3 OF 4
STATE OF NORTH CAROLINA
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SUBSTRUCTURE
END BENT 2 DETAILS
WING WALLS



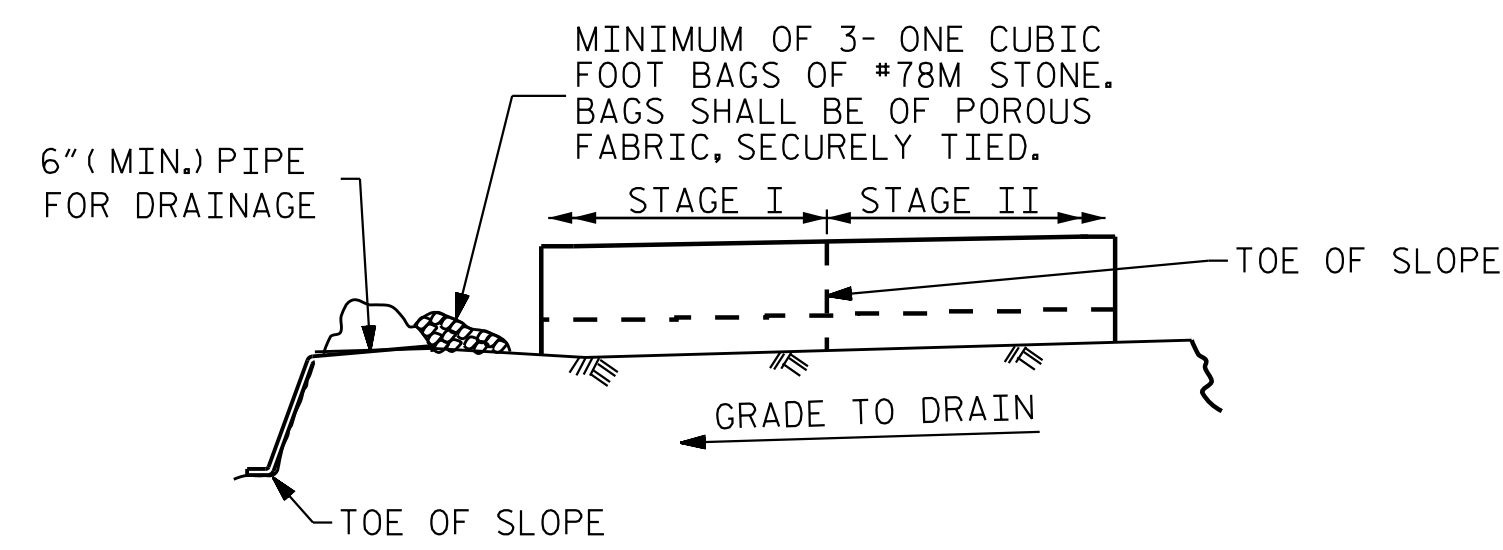
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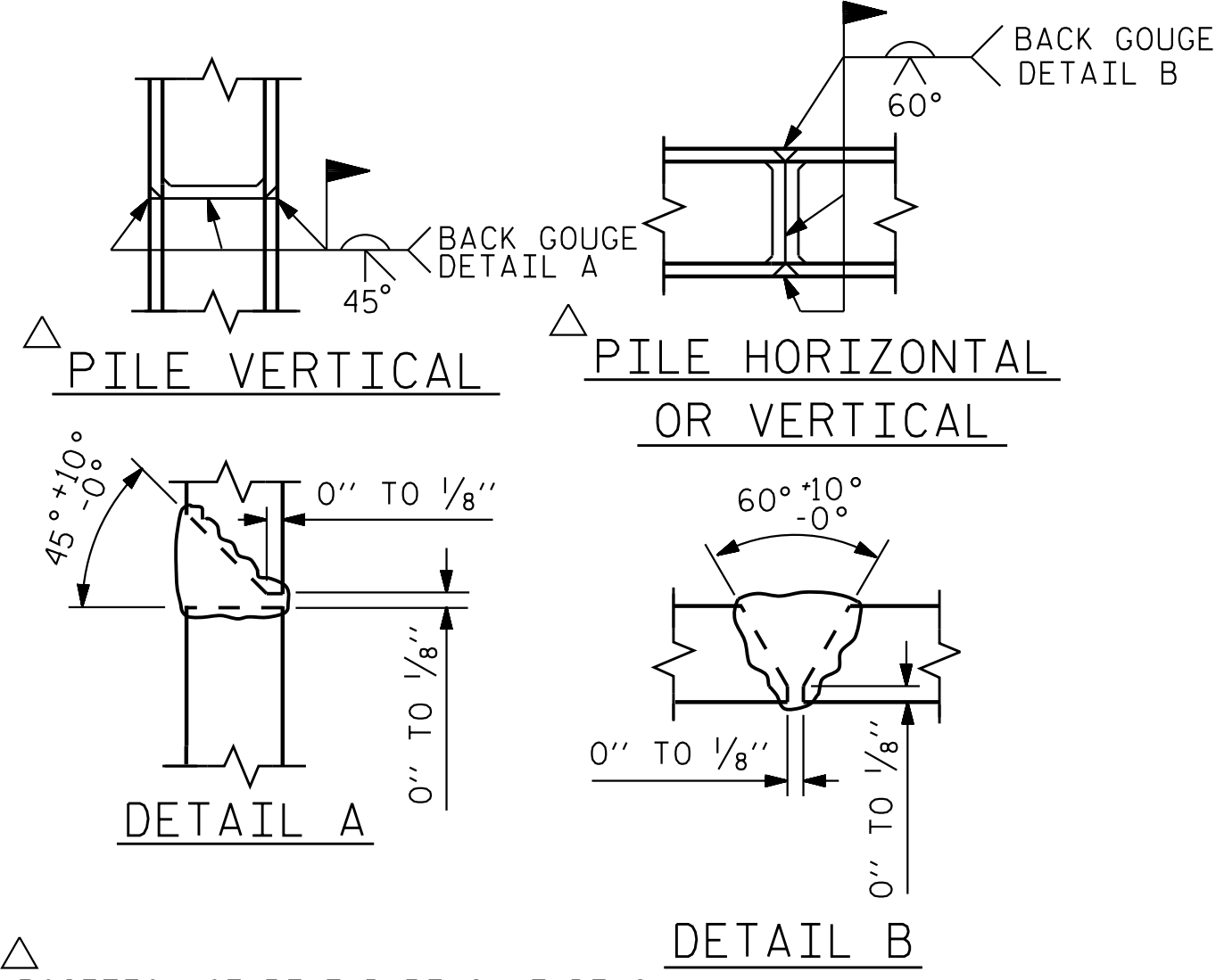


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

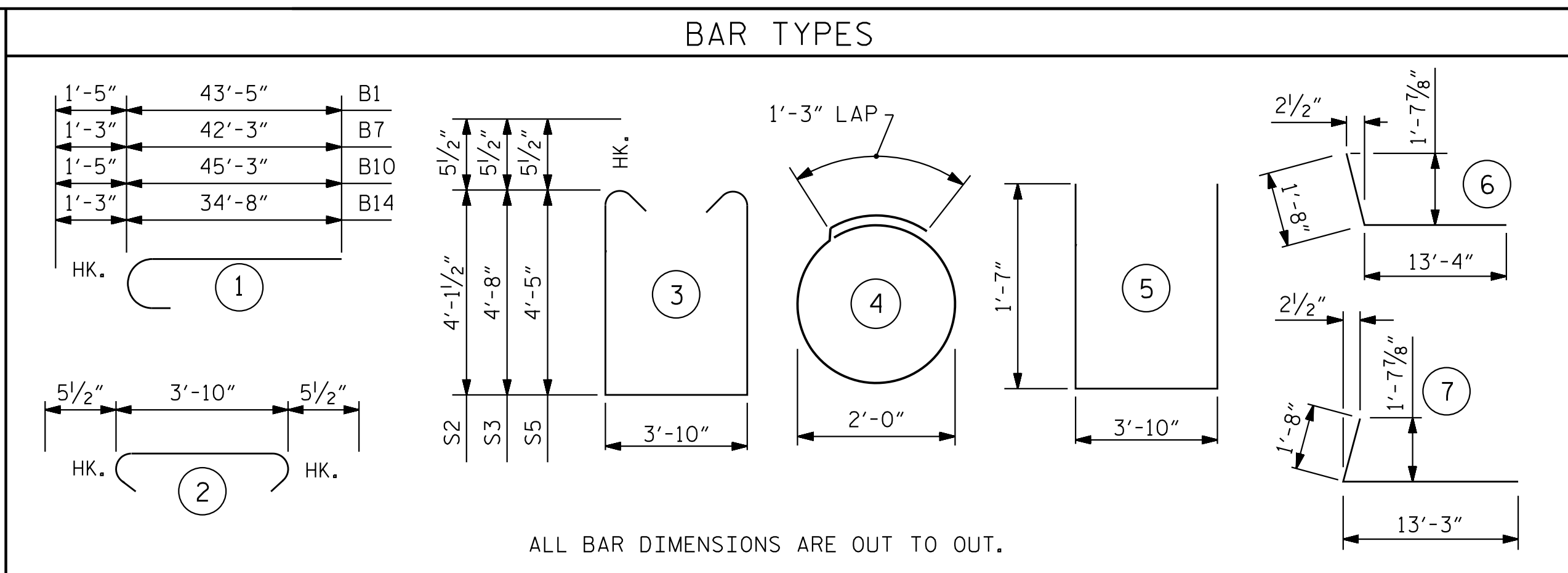
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING.

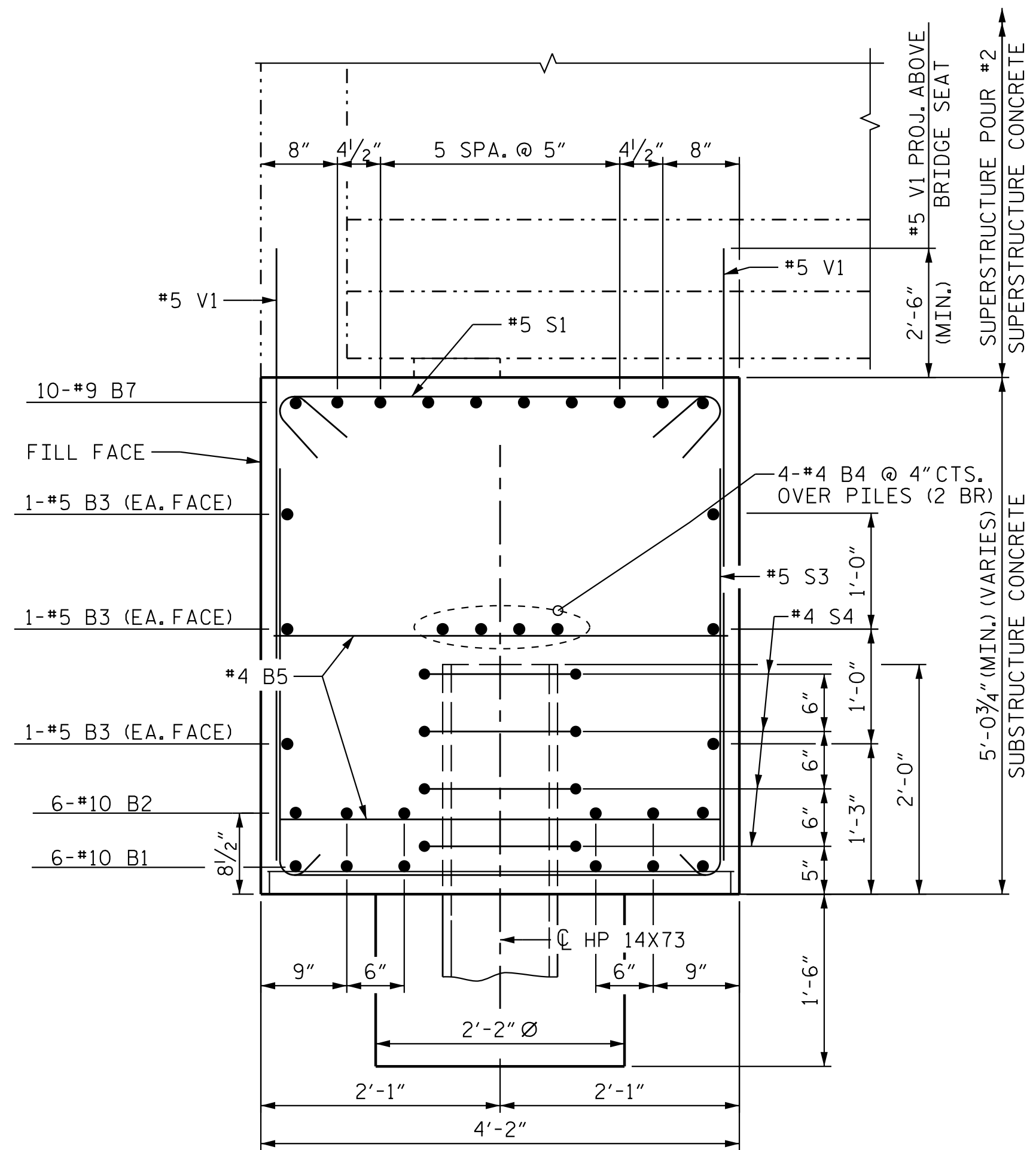
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

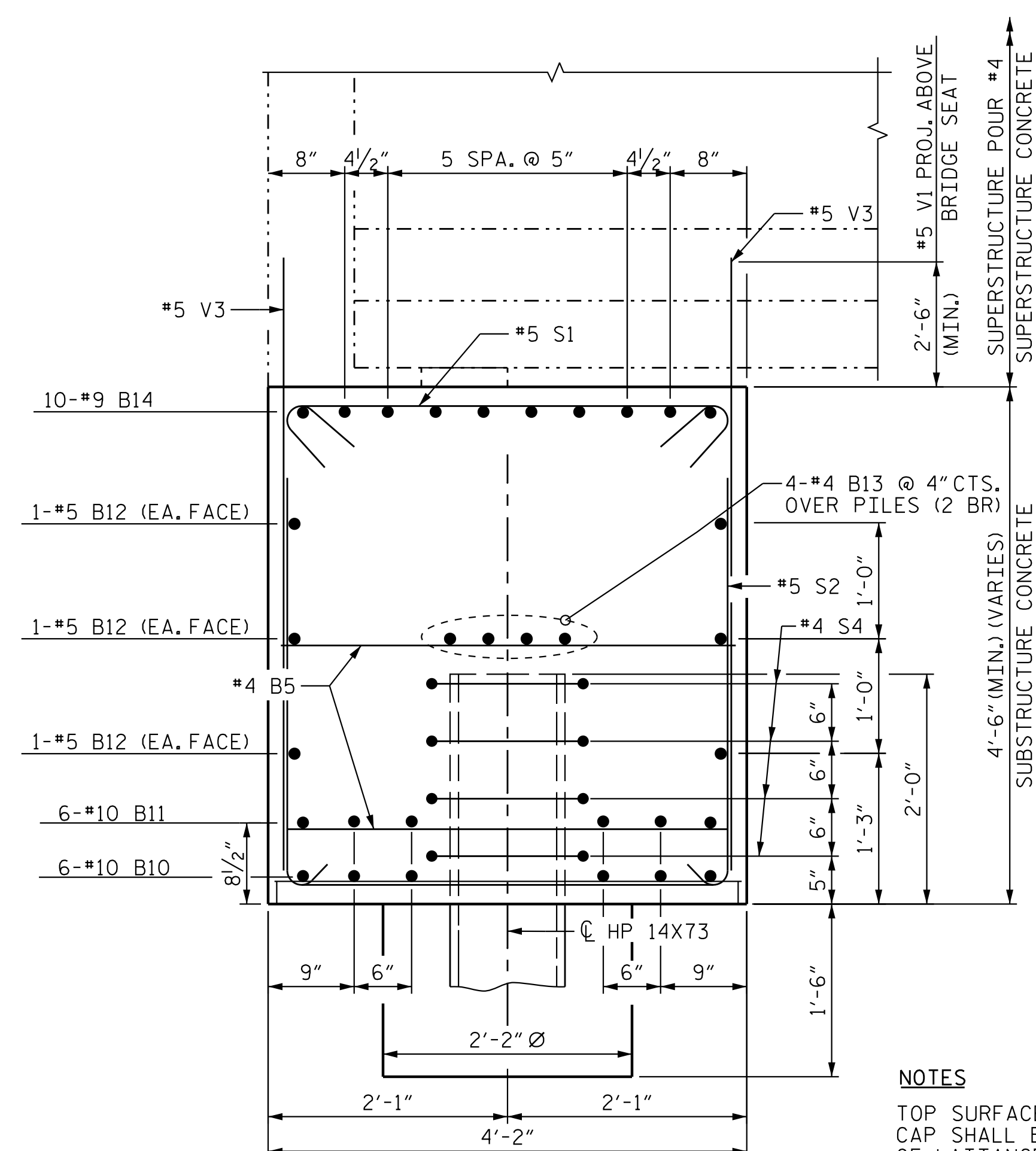
BILL OF MATERIAL											
END BENT 2 - STAGE I					END BENT 2 - STAGE II						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	10	1	44'-10"	1158	B5	22	4	STR	3'-11"	58
B2	2	10	STR	43'-2"	371	B10	6	10	1	46'-8"	1205
B3	4	5	STR	45'-4"	189	B11	6	10	STR	45'-0"	1162
B4	12	4	STR	23'-5"	188	B12	6	5	STR	45'-10"	287
B5	23	4	STR	3'-11"	60	B13	8	4	STR	23'-11"	128
B6	10	9	STR	6'-6"	221	B14	10	9	1	32'-9"	1114
B7	10	9	1	43'-6"	1479	B15	10	9	STR	19'-2"	652
B8	10	4	STR	21'-7"	144						
H1	22	5	6	15'-0"	344	H2	18	5	7	14'-11"	280
S1	38	5	2	4'-9"	188	S1	40	5	2	4'-9"	198
S3	42	5	3	14'-1"	617	S2	25	5	3	13'-0"	339
S4	20	4	3	7'-7"	101	S4	20	4	4	7'-7"	101
S5	1	5	4	13'-7"	14	S5	20	5	3	13'-7"	283
U1	15	4	5	7'-0"	70						
V1	72	5	STR	7'-10"	588	V3	84	5	STR	7'-3"	635
V2	25	5	STR	11'-0"	287	V4	25	5	STR	10'-0"	261
REINFORCING STEEL					LBS. 6,019	REINFORCING STEEL					LBS. 6,703
CLASS A CONCRETE BREAKDOWN:						CLASS A CONCRETE BREAKDOWN:					
POUR #1: CAP, COLLARS, ETC.					C.Y. 38.1	POUR #1: CAP, COLLARS, ETC.					C.Y. 36.6
CLASS A CONCRETE TOTAL *					C.Y. 38.1	CLASS A CONCRETE TOTAL *					C.Y. 36.6

* UPPER PORTION OF WING WALLS W3 AND W4 POURED WITH SUPERSTRUCTURE POURS #4 AND #2, RESPECTIVELY. LOWER PORTION OF WING WALLS INCLUDED IN SUBSTRUCTURE POUR #1.



SECTION A-A

SEE "END BENT 2 (STAGE I CONSTRUCTION)" SHEET 1 OF 4.



SECTION B-B

SEE "END BENT 2 (STAGE II CONSTRUCTION)" SHEET 2 OF 4.

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

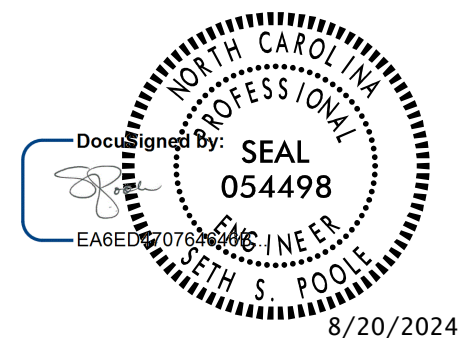
THE TOP SURFACE AREA OF THE END BENT AND WING WALLS, EXCEPT THE BEARING AREAS, SHALL BE RAKED TO A DEPTH OF 1/4".

(2 BR) DENOTES 2 BAR RUN.

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2 DETAILS



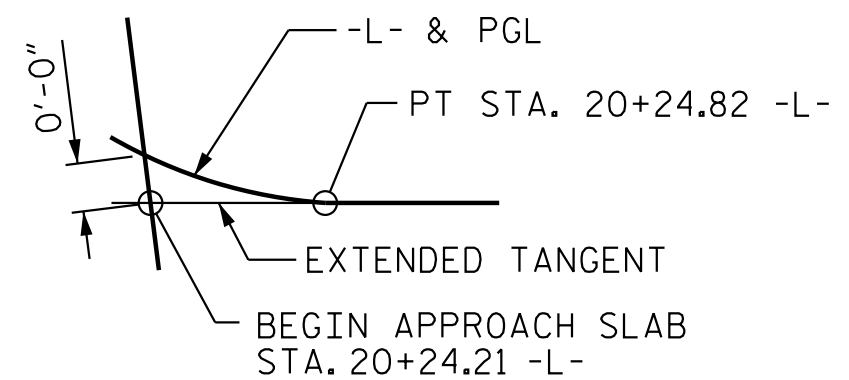
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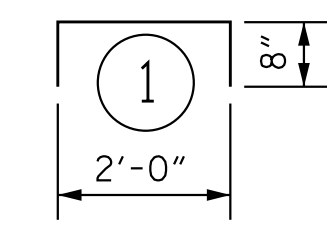
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EXTENDED TANGENT DETAIL
(AT BEGIN APPROACH SLAB END BENT 1)

BAR TYPES

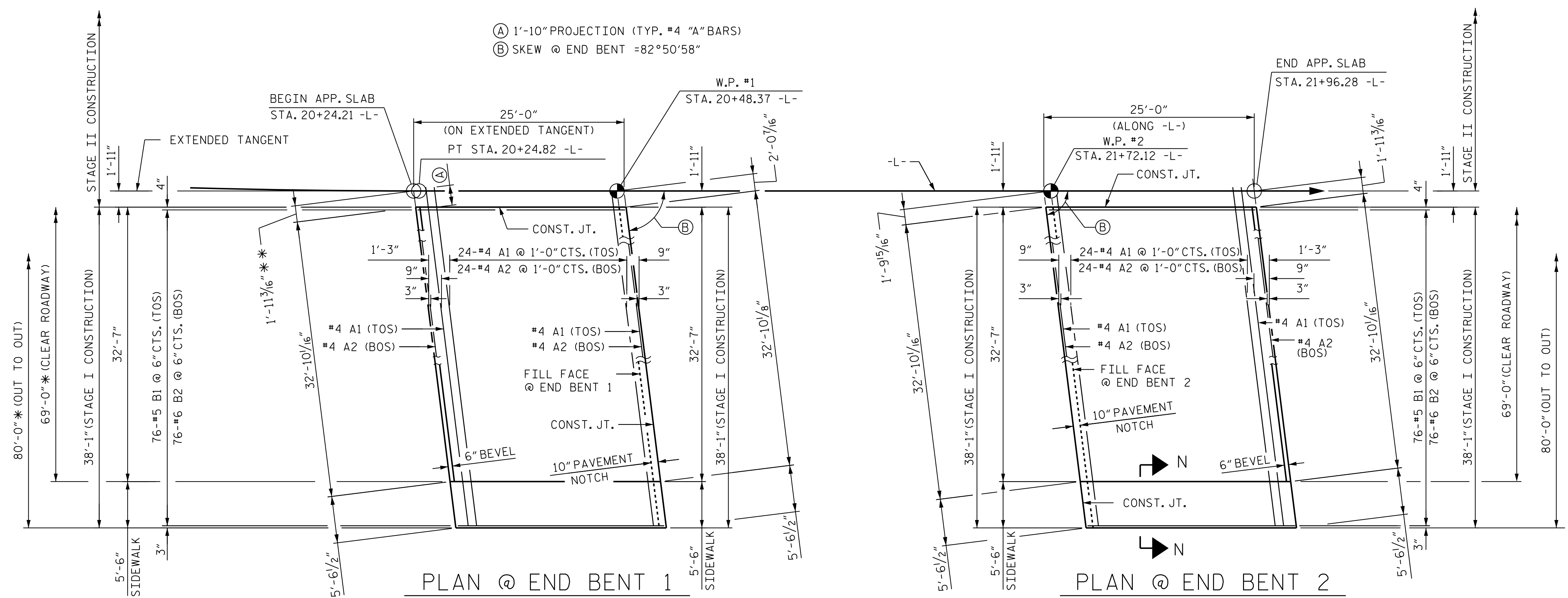


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL (STAGE I)

FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	4	STR	40'-0"	665
A2	26	4	STR	40'-0"	665
* B1	76	5	STR	24'-2"	1916
B2	76	6	STR	24'-8"	2816
* B5	5	4	STR	24'-8"	82
* U5	8	4	1	3'-4"	18
* G2	25	4	STR	4'-11"	62
REINFORCING STEEL				LBS.	3,481
* EPOXY COATED REINFORCING STEEL				LBS.	2,743
CLASS AA CONCRETE					
SLAB				C. Y.	40.8
SIDEWALK (RT. SIDE)				C. Y.	2.5
TOTAL				C. Y.	43.3

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STAGE I CONSTRUCTION

* DIMENSION NORMAL TO EXTENDED TANGENT
** FROM POINT ON EXTENDED TANGENT

NOTES

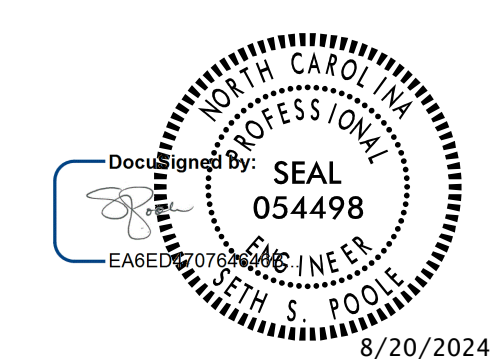
- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
- THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWS 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.
- FOR "SECTION N-N", SEE "BRIDGE APPROACH SLAB SIDEWALK DETAILS", SHEET 4 OF 4.
- (TOS) DENOTES TOP OF SLAB.
- (BOS) DENOTES BOTTOM OF SLAB.

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

SHEET 1 OF 4

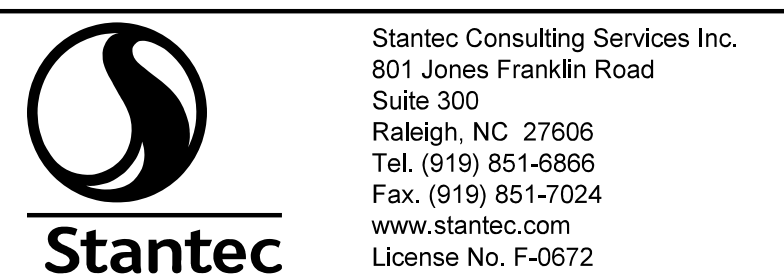
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DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT
(STAGE I CONSTRUCTION)



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1			3			S-42
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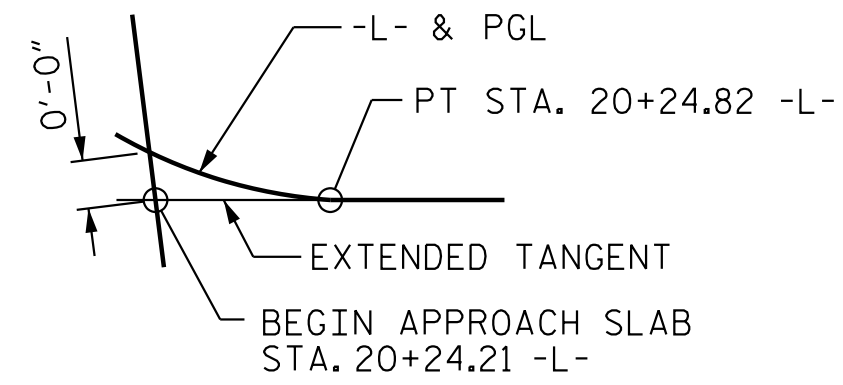
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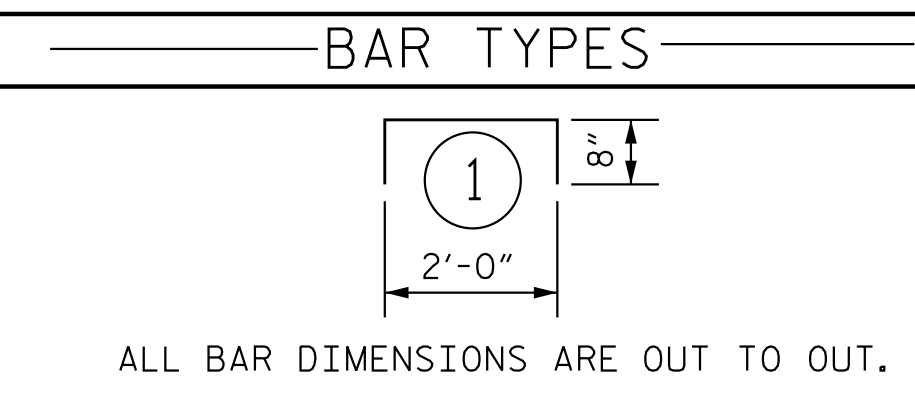
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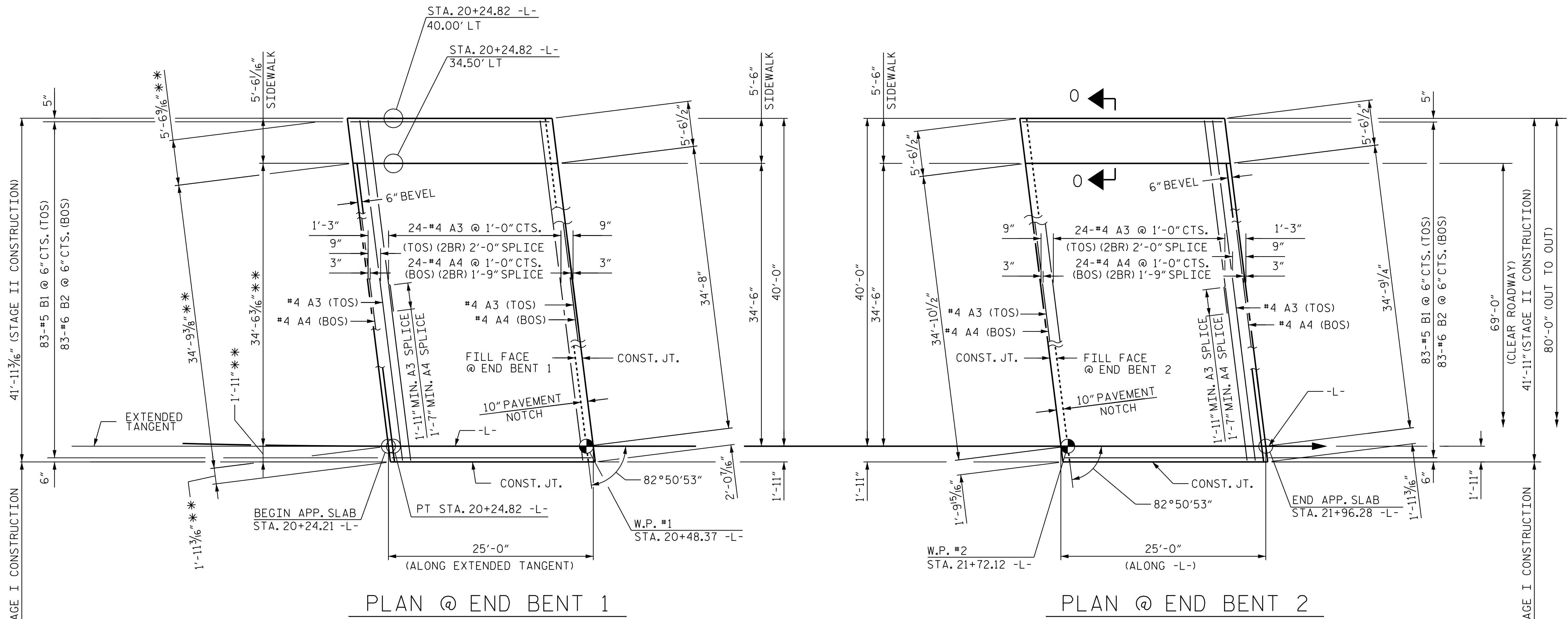


EXTENDED TANGENT DETAIL

(AT BEGIN APPROACH SLAB END BENT 1)



BILL OF MATERIAL (STAGE II)						
FOR ONE APPROACH SLAB (2 REQ'D)						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A3	52	4	STR	21'-11"	762	
A4	52	4	STR	21'-10"	759	
* B1	83	5	STR	24'-2"	2093	
B2	83	6	STR	24'-8"	3076	
* B5	5	4	STR	24'-8"	83	
* U5	8	4	1	3'-4"	18	
* G2	25	4	STR	4'-11"	83	
REINFORCING STEEL				LBS.	3,835	
* EPOXY COATED REINFORCING STEEL				LBS.	3,039	
CLASS AA CONCRETE						
SLAB				C. Y.	45.3	
SIDEWALK (L.T. SIDE)				C. Y.	3.1	
TOTAL				C. Y.	48.4	



PLAN @ END BENT 1

PLAN @ END BENT 2

STAGE II CONSTRUCTION

* DIMENSION NORMAL TO EXTENDED TANGENT
 ** FROM POINT ON EXTENDED TANGENT

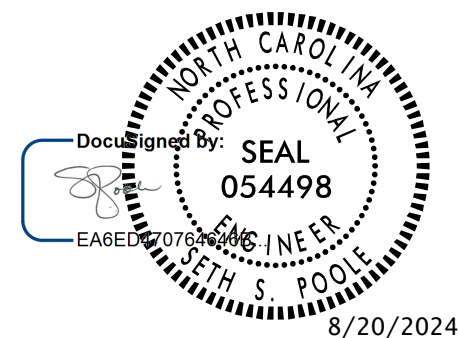
NOTES:
 FOR NOTES, SEE SHEET 1 OF 4.

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR INTEGRAL ABUTMENT
 (STAGE II CONSTRUCTION)



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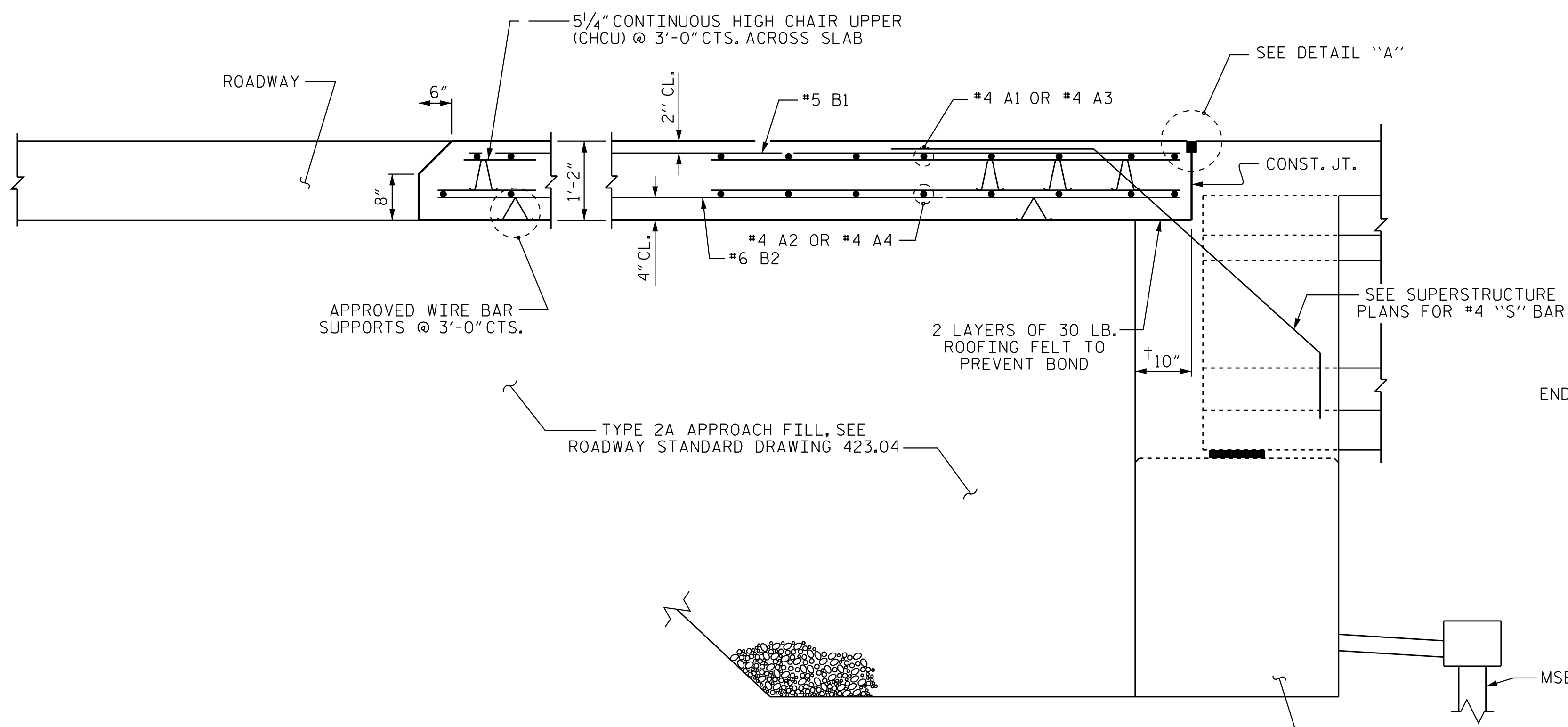
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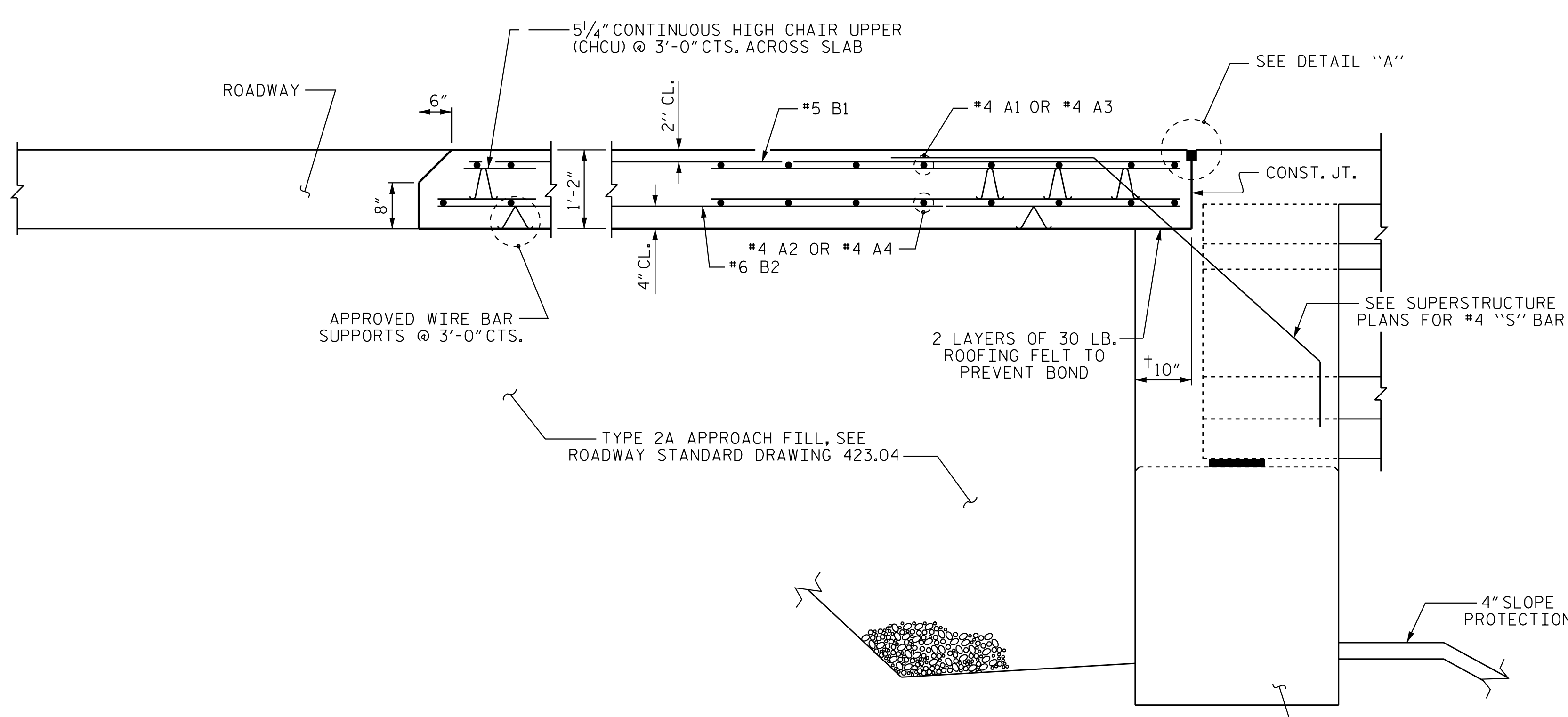
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SECTION THRU SLAB
(END BENT 1)
(TYPE 2A - ALTERNATE APPROACH FILL)

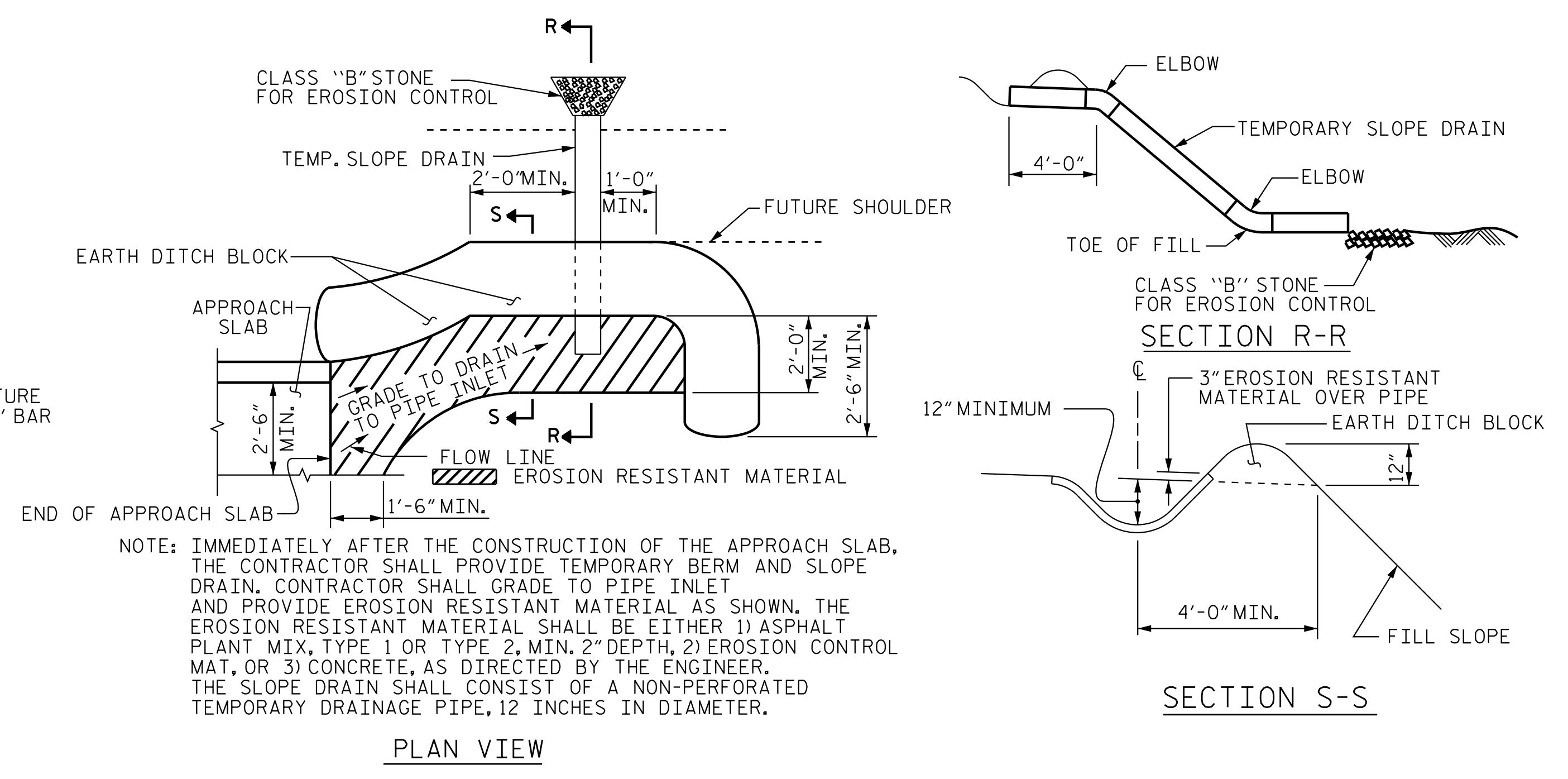
SEE INTEGRAL END BENT SHEETS FOR DETAILS

† NORMAL TO END BENT



SECTION THRU SLAB
(END BENT 2)
(TYPE 1A - ALTERNATE APPROACH FILL)

SEE INTEGRAL END BENT SHEETS FOR DETAILS



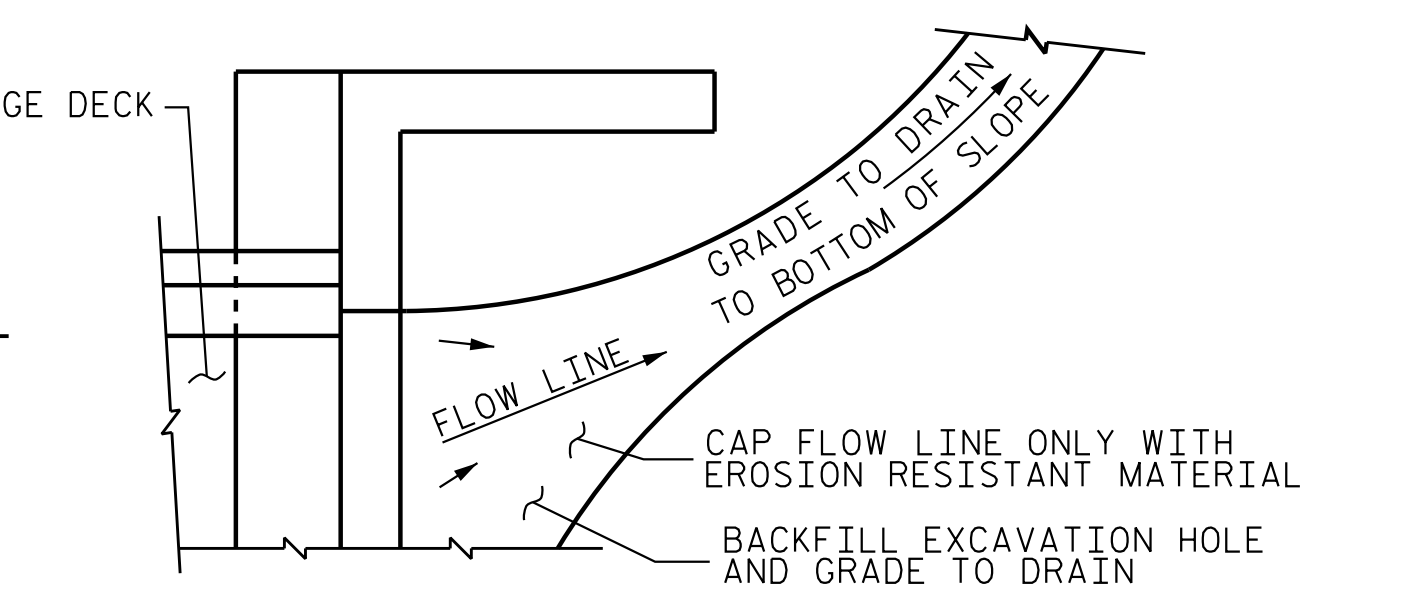
TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

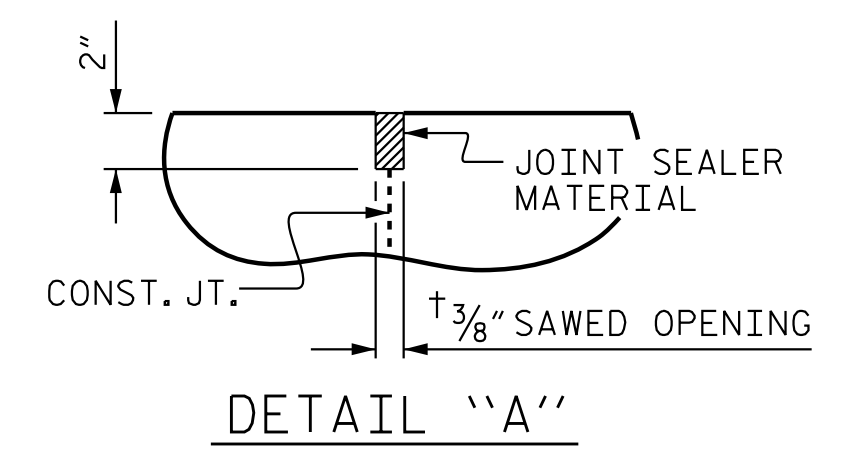
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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 OPENING 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.



TEMPORARY DRAINAGE DETAIL

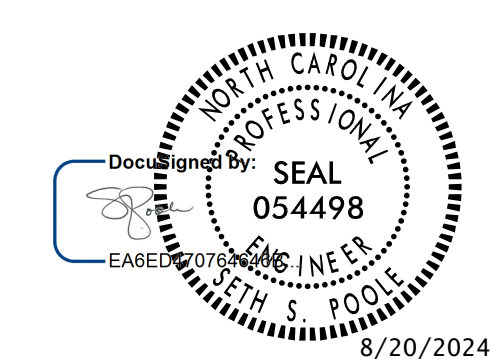


DETAIL "A"

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



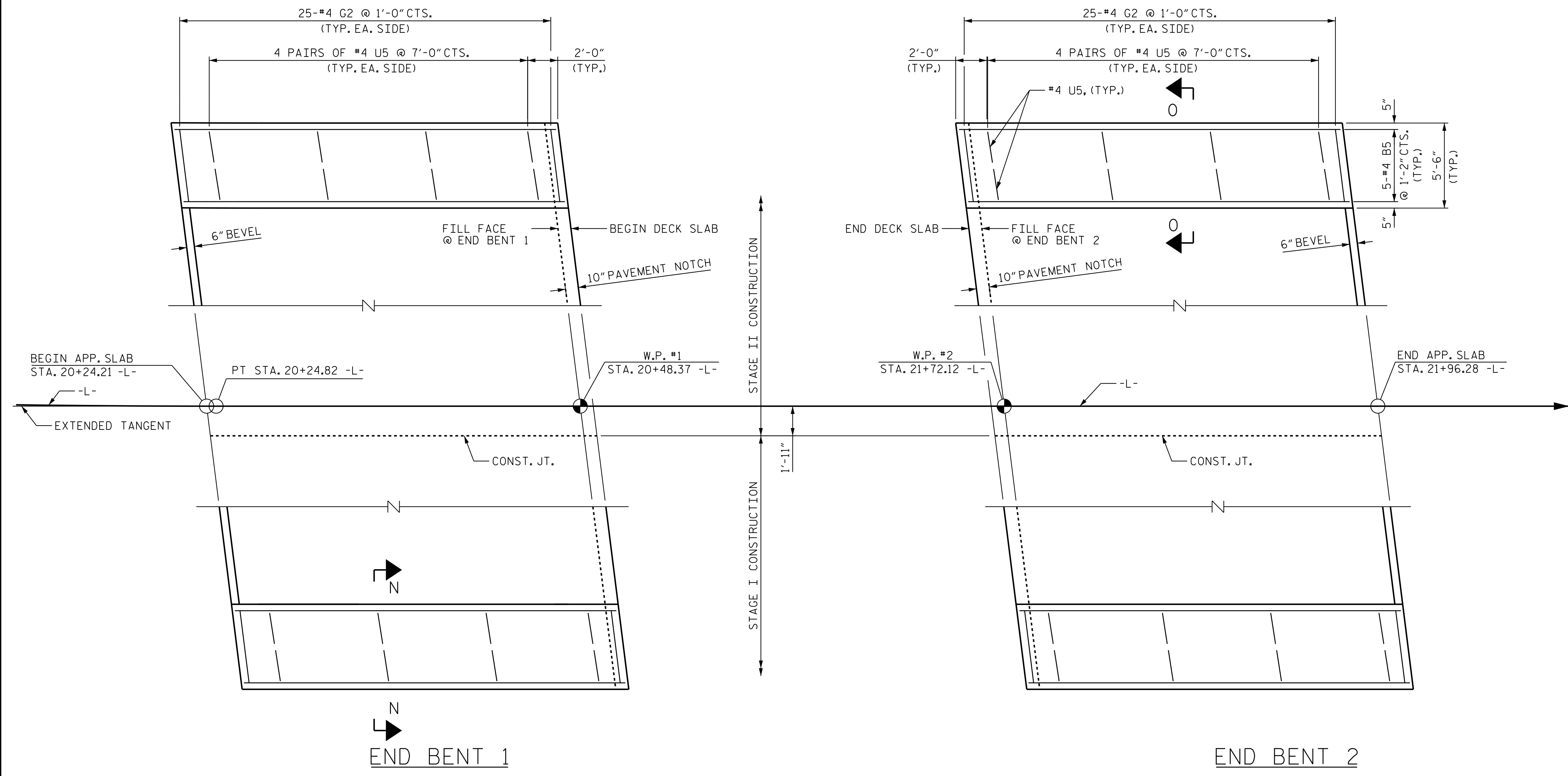
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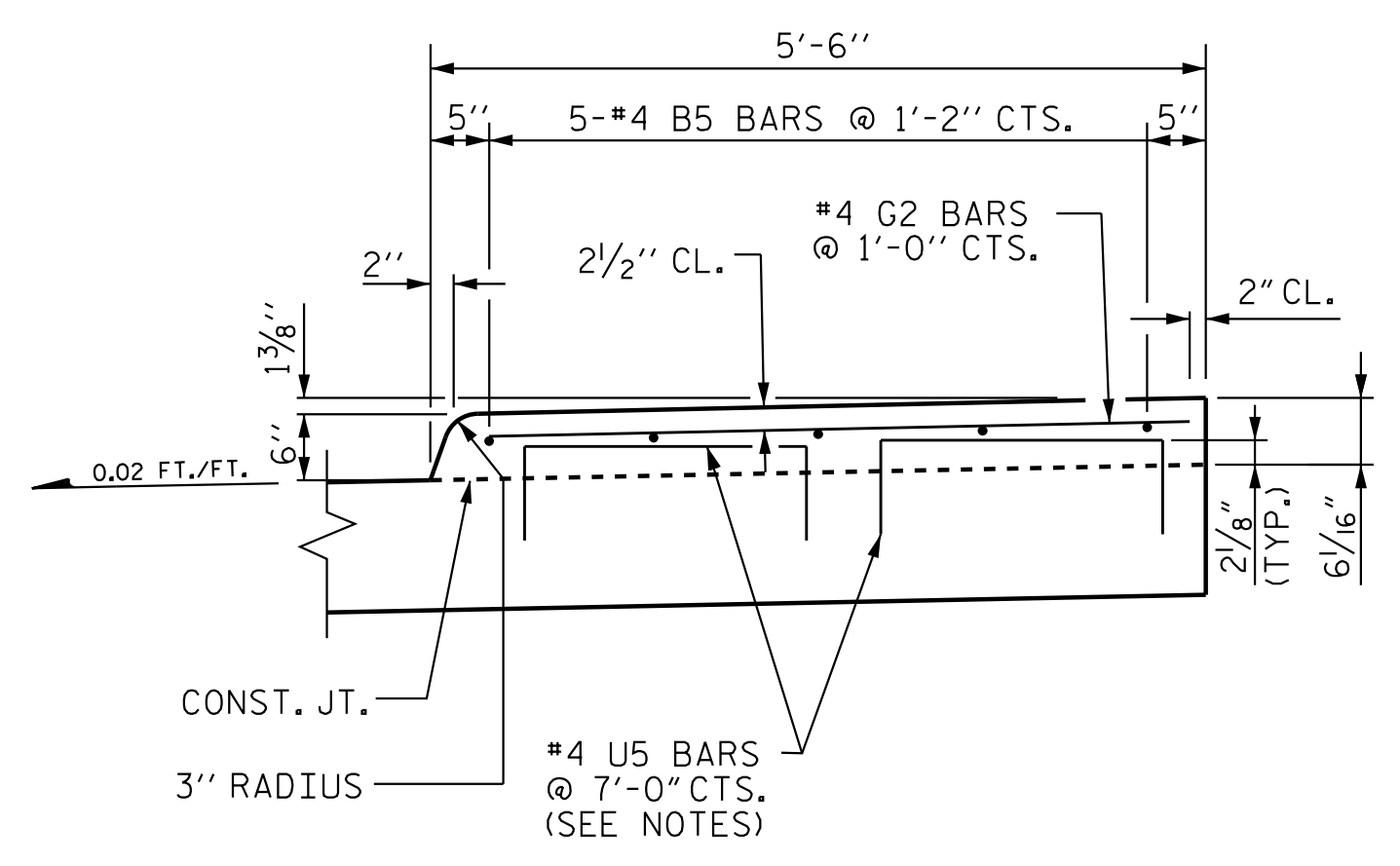
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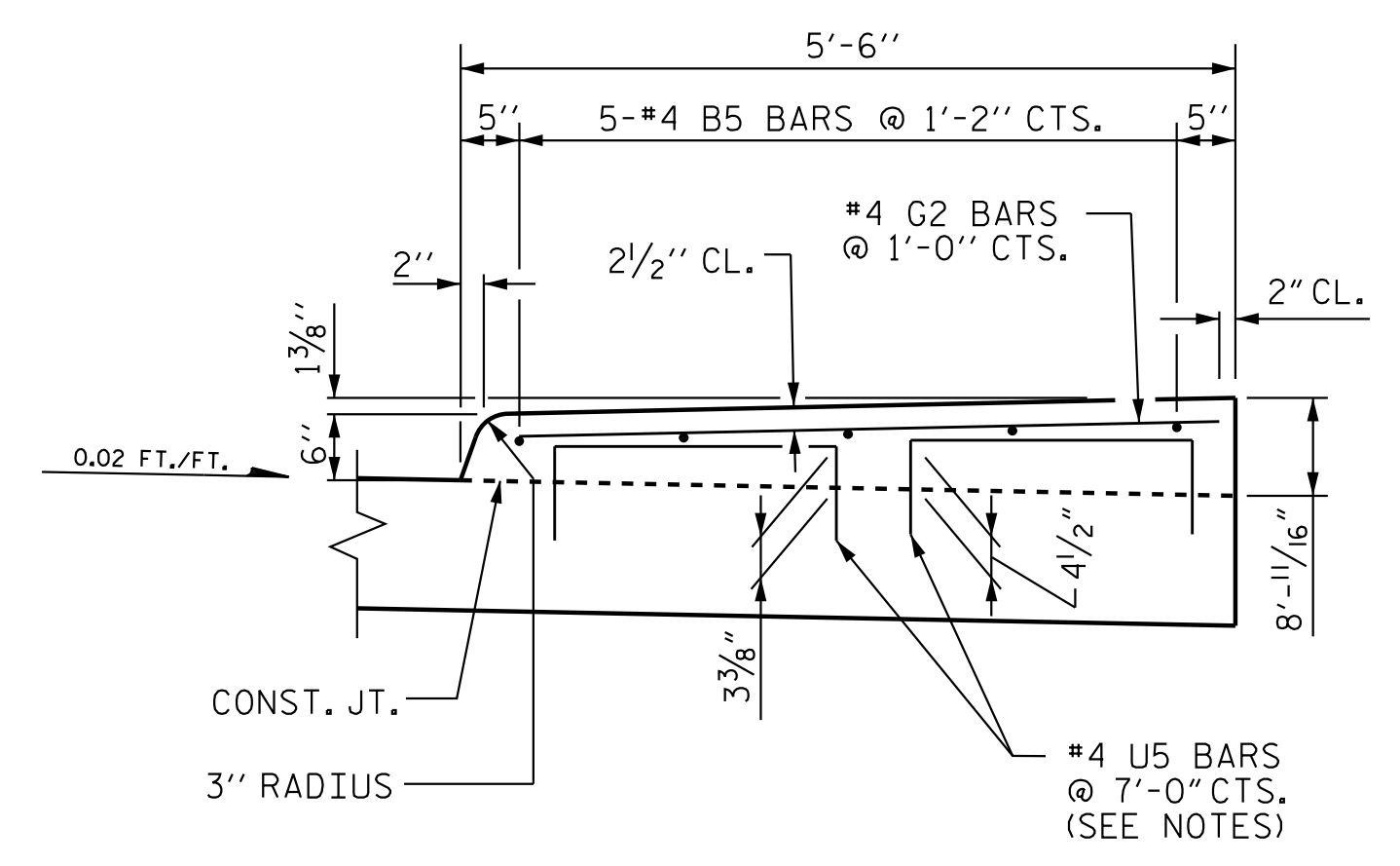
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PLAN OF SIDEWALK ON APPROACH SLAB
(REINFORCING TYPICAL FOR EACH SIDEWALK ON BOTH APPROACH SLABS)



SECTION N-N



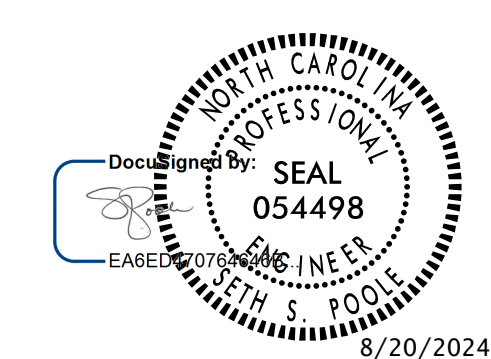
SECTION O-O

PROJECT NO. P-5715
WAKE COUNTY
STATION: 20+97.25 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
SIDEWALK DETAILS



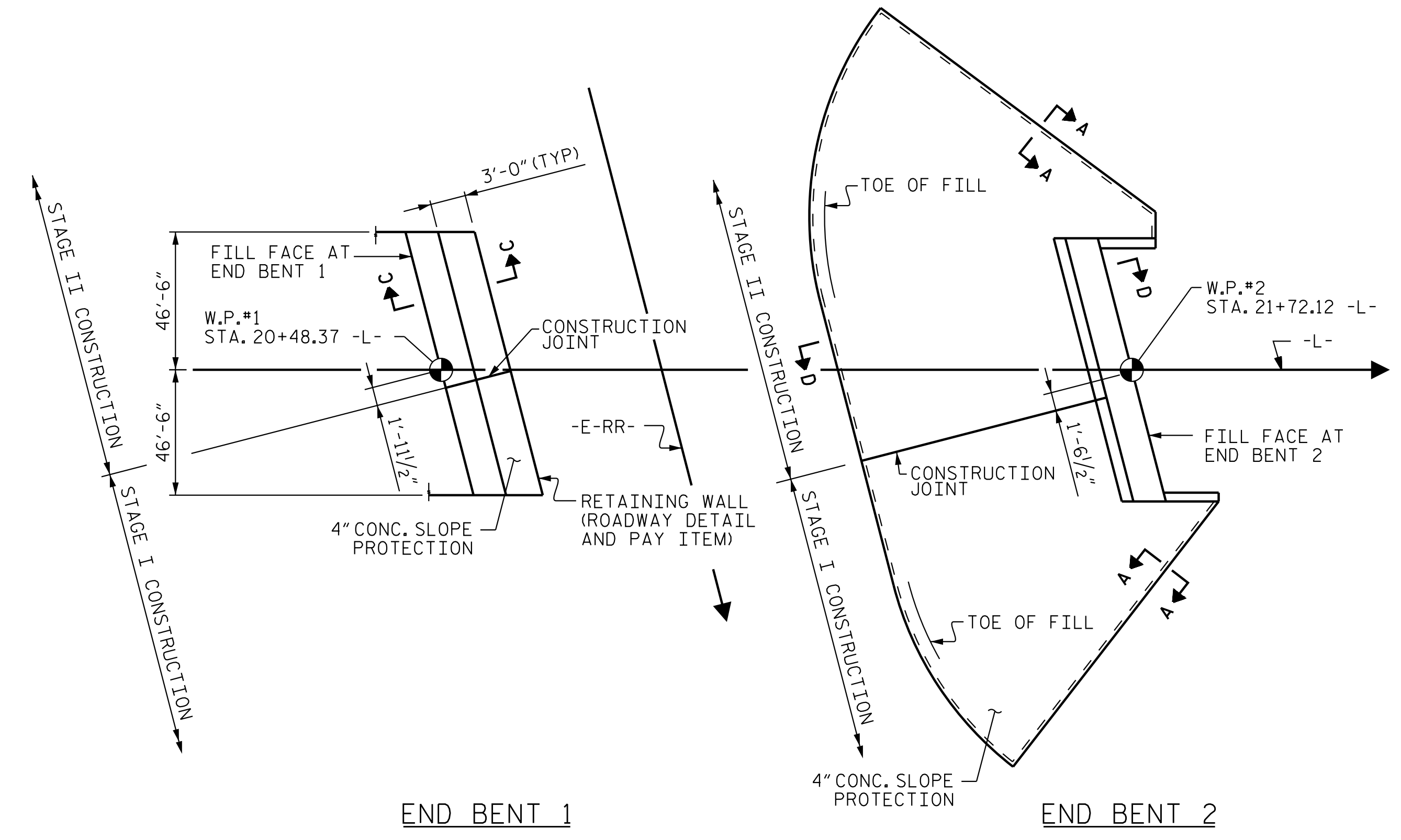
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			47

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Stantec Consulting Services Inc.
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www.stantec.com
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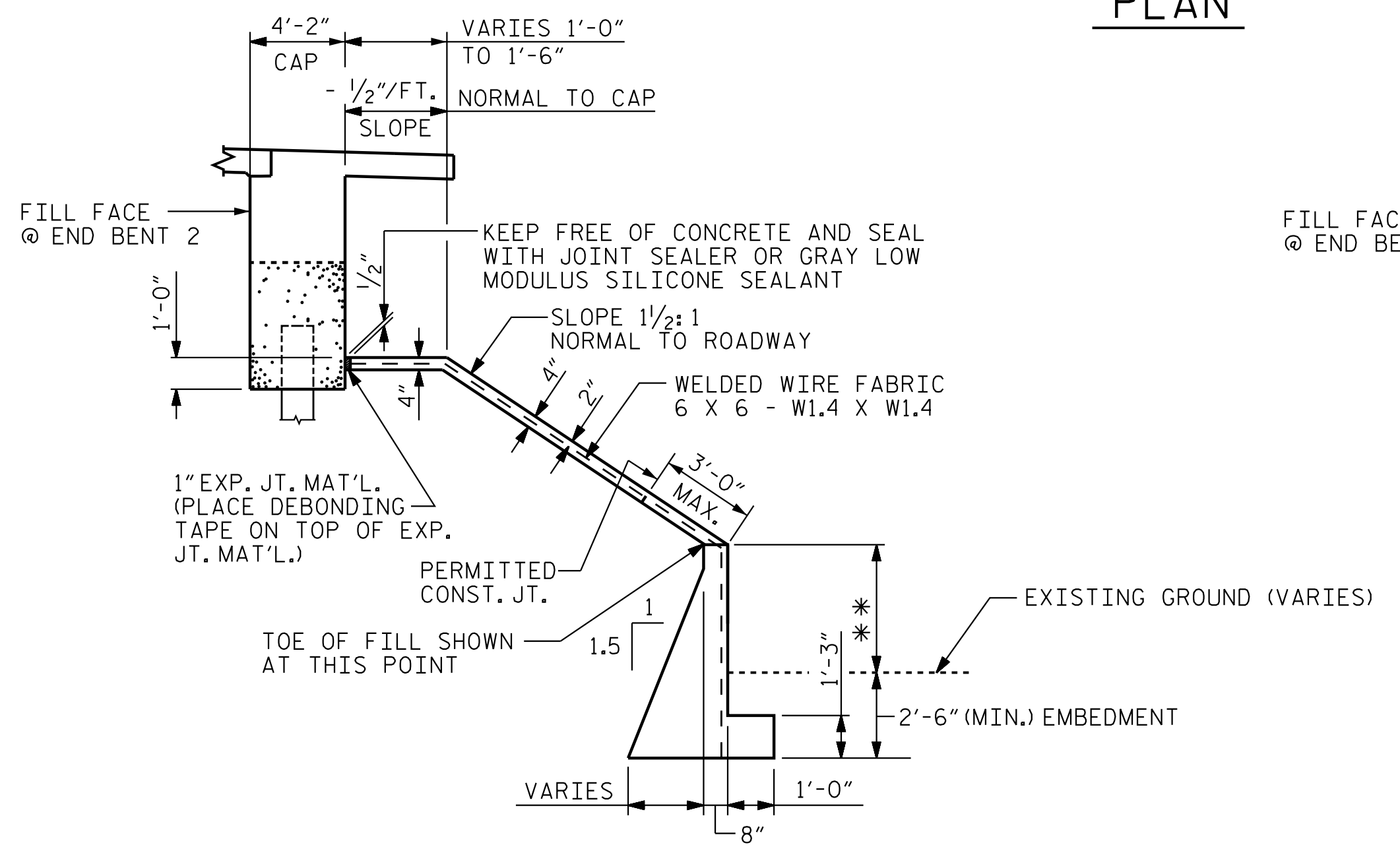
DRAWN BY : J. B. GEILE DATE : 02/22/19
CHECKED BY : S. S. POOLE DATE : 08/01/24
DESIGN ENGINEER OF RECORD : S. S. POOLE DATE : 08/20/24

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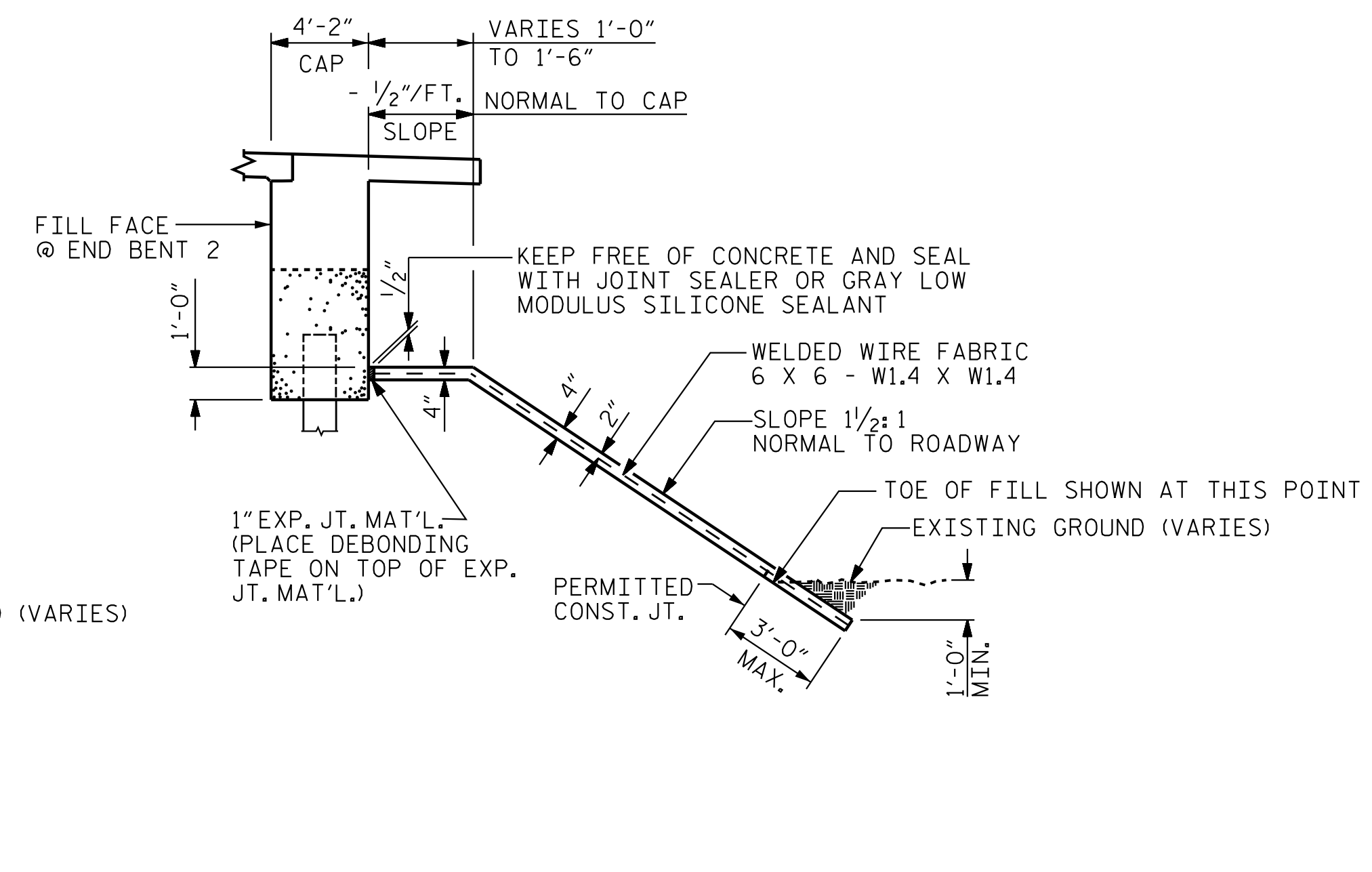
END BENT 1 END BENT 2

PLAN



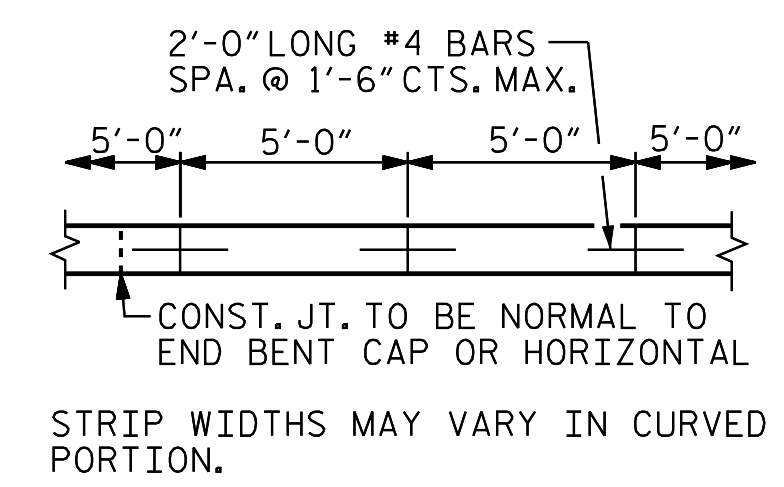
SECTION ALONG -L- WHEN TOE OF FILL IS ABOVE EXISTING GROUND

** VERTICAL PORTION OF SLOPE PAVING AS NECESSARY TO MEET EXISTING GROUND. (MAXIMUM HEIGHT ABOVE GROUND = 3'-6"). SEE NOTES.

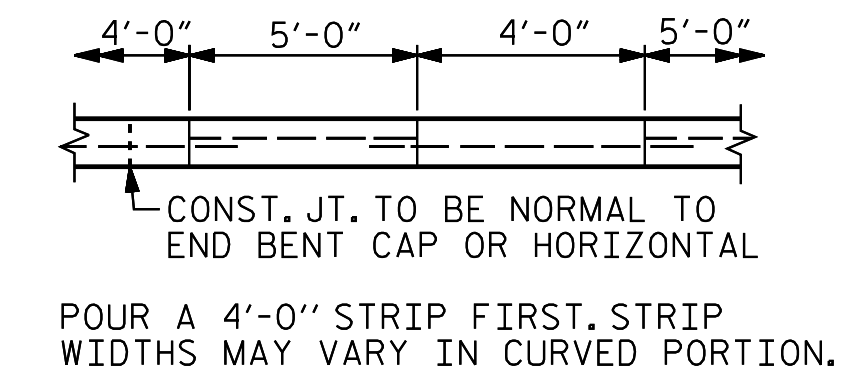


SECTION ALONG -L- WHEN DITCH IS NOT PROVIDED

SECTION D-D



POURING DETAIL



OPTIONAL POURING DETAIL

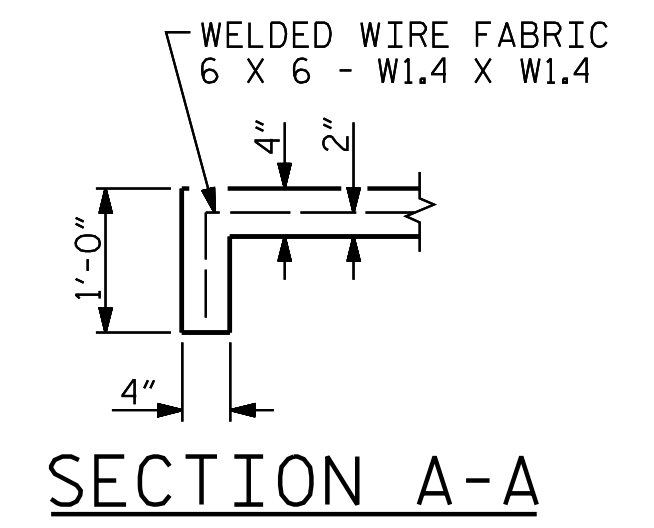
GENERAL NOTES

STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING. SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

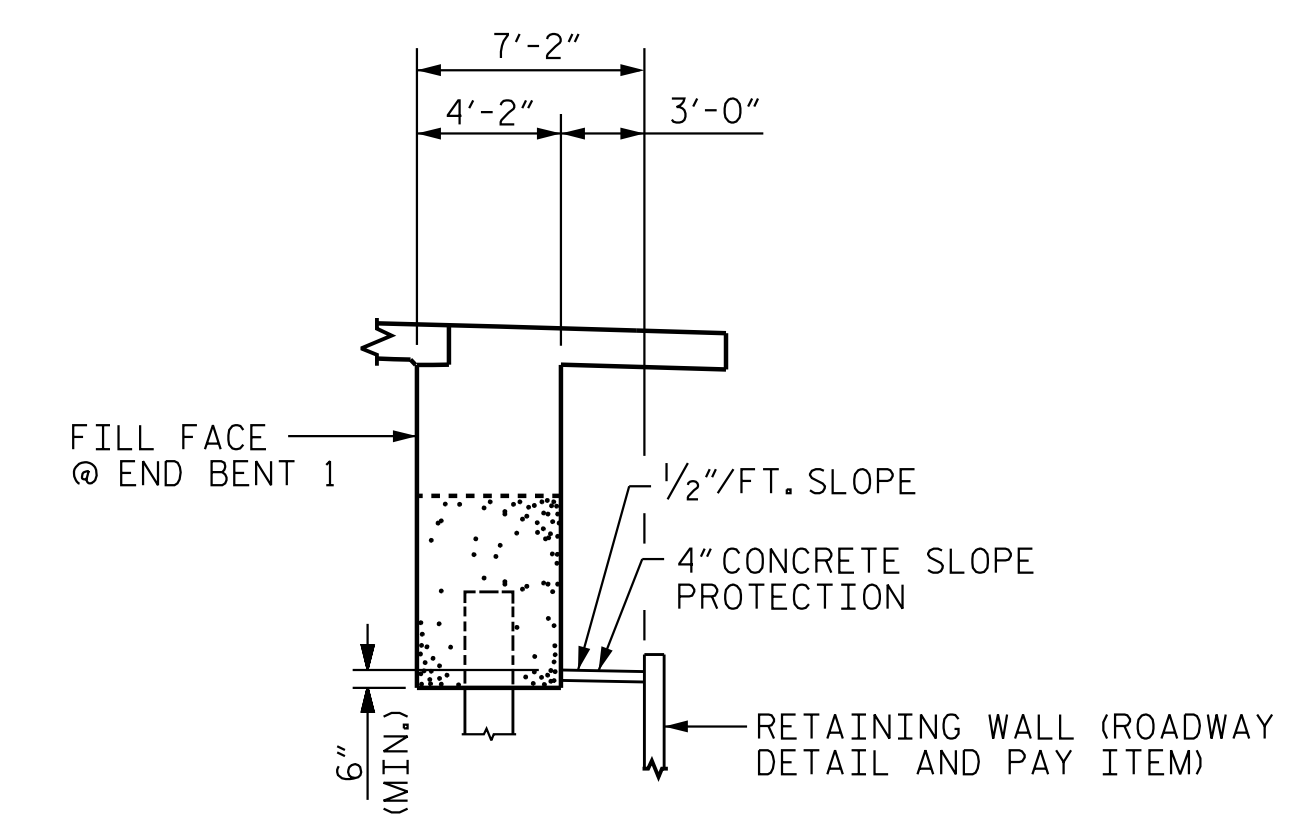
ALL ITEMS AND WORK NECESSARY TO FURNISH AND CONSTRUCT THE VERTICAL PORTION OF SLOPE PAVING ARE INCIDENTAL AND SHOULD BE INCLUDED IN THE UNIT CONTRACT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

BRIDGE @ STA. 20+97.25 -L-	4" INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1 - STAGE I CONSTRUCTION	16	28
END BENT 1 - STAGE II CONSTRUCTION	17	30
END BENT 2 - STAGE I CONSTRUCTION	646	1163
END BENT 2 - STAGE II CONSTRUCTION	718	1293
TOTAL	1397	2514

* QUANTITY SHOWN IS BASED ON 5' POURS.



SECTION A-A

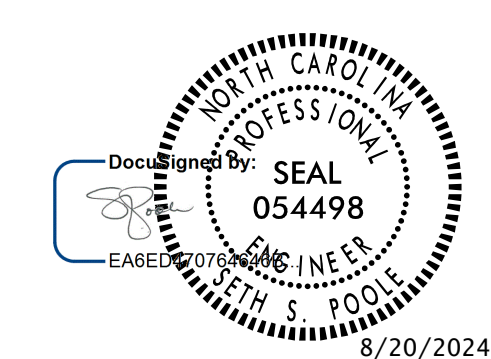


SECTION C-C

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

SHEET 1 OF 2

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



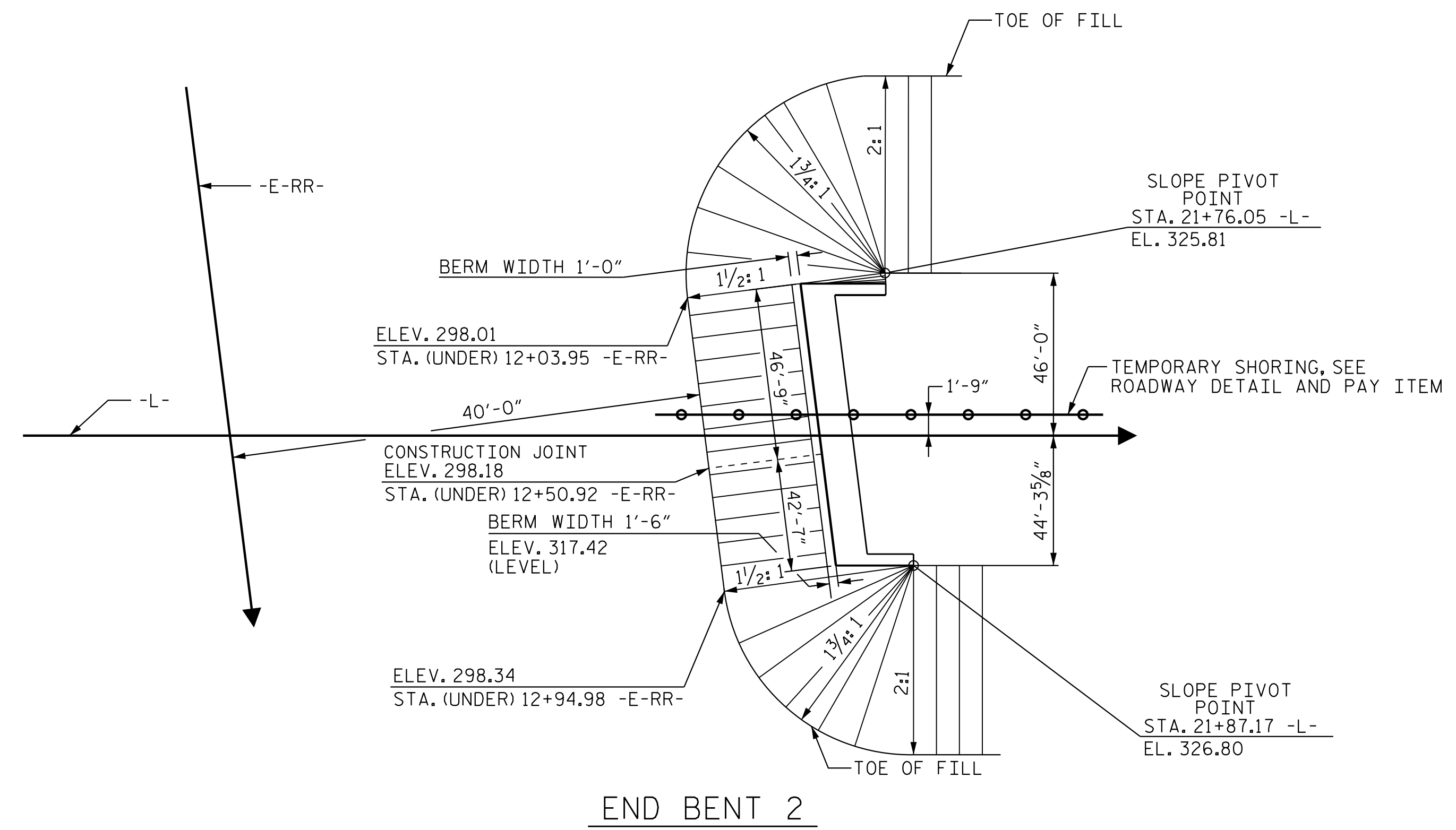
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
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2			4			

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DRAWN BY: J. B. GEILE DATE: 03/14/19 DESIGN ENGINEER
 CHECKED BY: S. S. POOLE DATE: 08/01/24 OF RECORD: S. S. POOLE DATE: 08/20/24

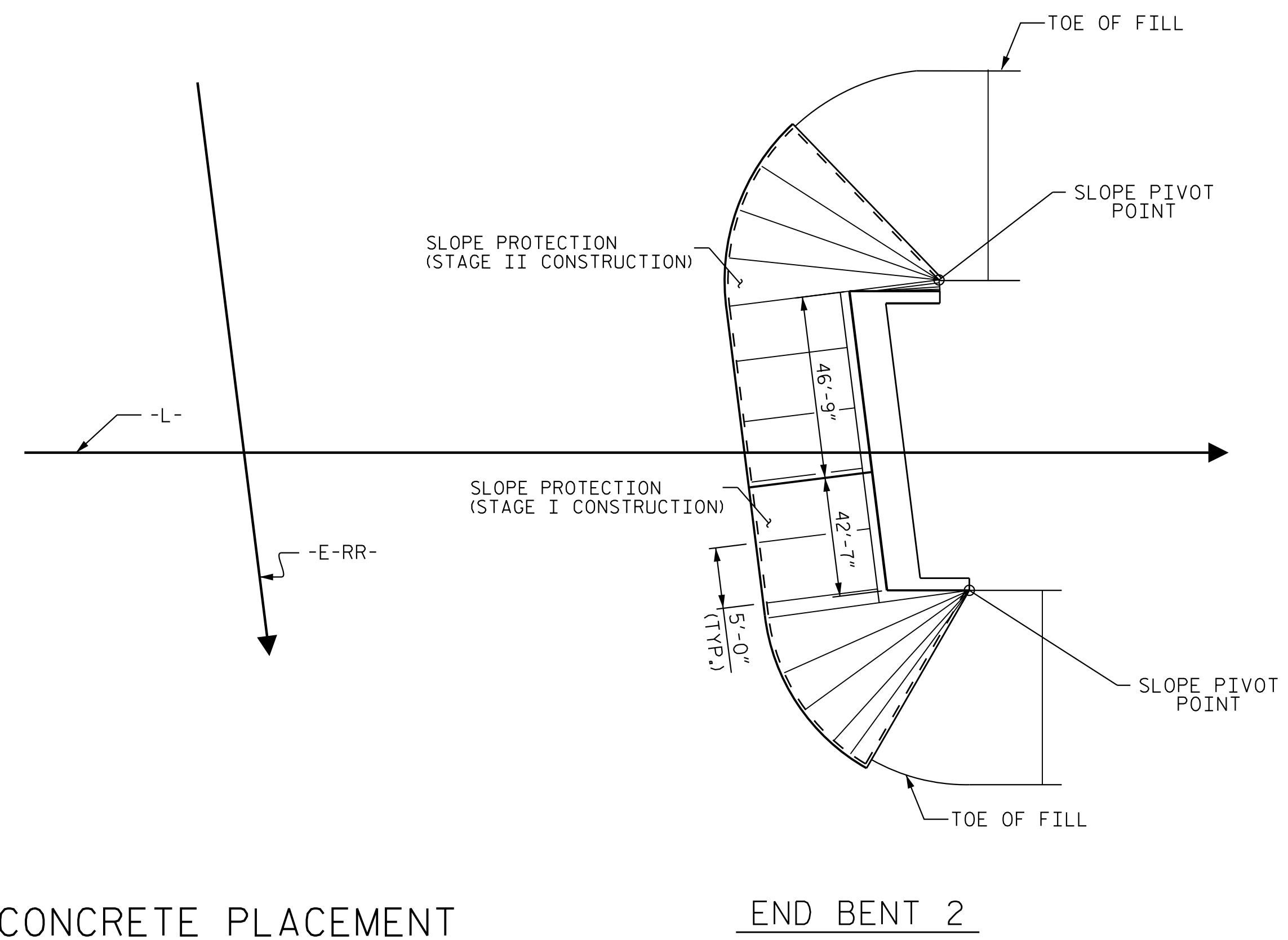
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END BENT 2

PLAN - GRADING

ELEVATIONS SHOWN ARE AT TOP OF SLOPE PAVING



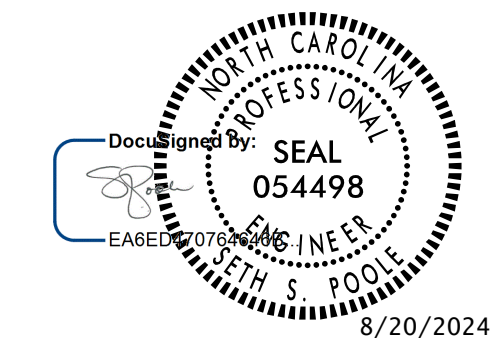
END BENT 2

PLAN - CONCRETE PLACEMENT

PROJECT NO. P-5715
WAKE COUNTY
 STATION: 20+97.25 -L-

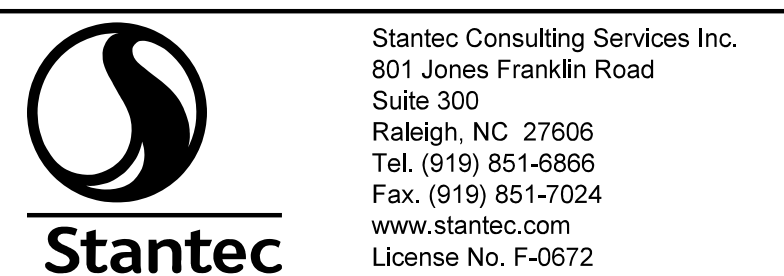
SHEET 2 OF 2

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



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			47

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 DESIGN ENGINEER OF RECORD: S. S. POOLE DATE : 08/20/24

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