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TIP PROJECT: I-4700

CONTRACT: C204266

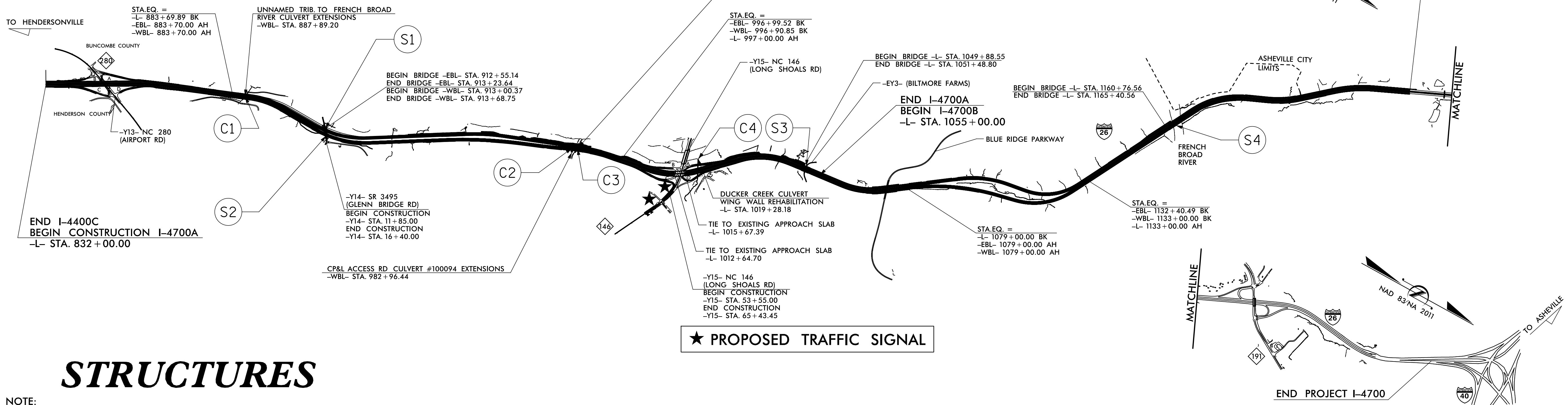
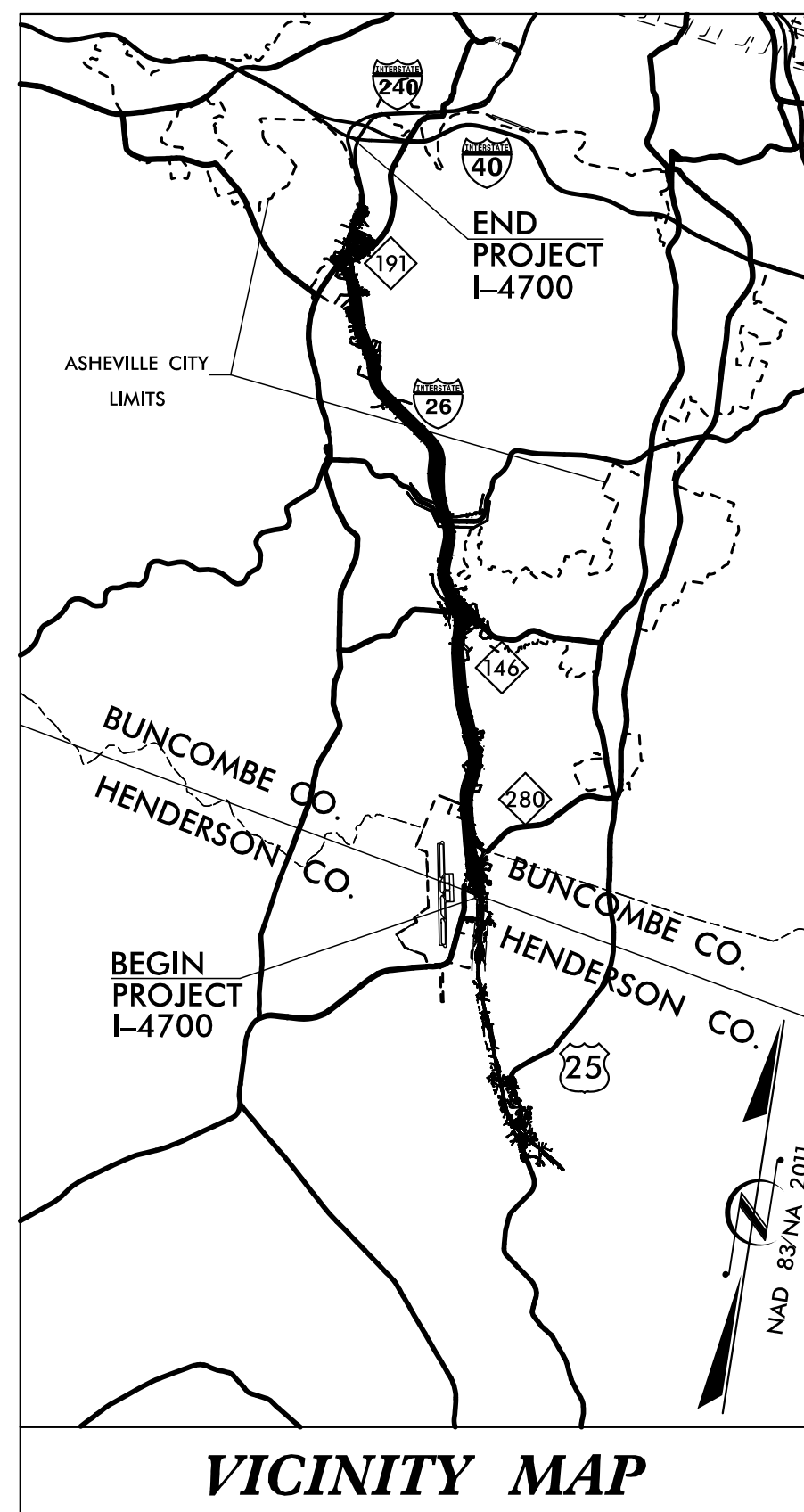
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**BUNCOMBE
COUNTY**

**LOCATION: I-26 FROM 0.3 MI EAST OF NC 280 (AIRPORT ROAD)
TO 0.5 MI EAST OF NC 191 (BREVARD ROAD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS,
RETAINING WALLS, SOUND WALLS, SIGNALS AND SIGNING**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4700		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
36030.1.FS4	IMNHF-026-1(86)9	I-4700A(P.E.)	
36030.1.FS3	IMNHF-026-1(86)9	I-4700B(P.E.)	
36030.1.5		I-4700A(UTIL)	
36030.1.6		I-4700B(UTIL)	
36030.2.3		I-4700A(R/W)	
36030.2.4		I-4700B(R/W)	
36030.3.4	NHPP-026-1(199)6	I-4700(CONST)	



STRUCTURES

NOTE:
1. THIS IS A CONTROLLED- ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

DESIGN DATA

ADT 2019 = 84,662
ADT 2040 = 117,900
K = 10
D = 55%
T = 10% *
V = 65 MPH
* TTST = 4% DUAL 6%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

TOTAL LENGTH OF ROADWAY TIP PROJECT
I-4700 = 7.359 MI
TOTAL LENGTH OF STRUCTURES OF TIP PROJECT
I-4700 = 0.131 MI
TOTAL LENGTH OF TIP PROJECT
I-4700 = 7.490 MI
NOTE: LENGTHS WERE CALCULATED USING THE WBL ALIGNMENT

Prepared In the Office of:
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2018 STANDARD SPECIFICATIONS

LETTING DATE:
JULY 16, 2019

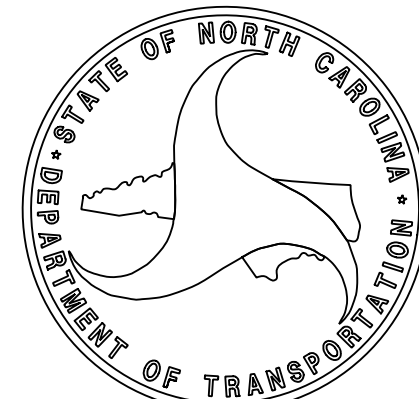
STRUCTURES ENGINEER

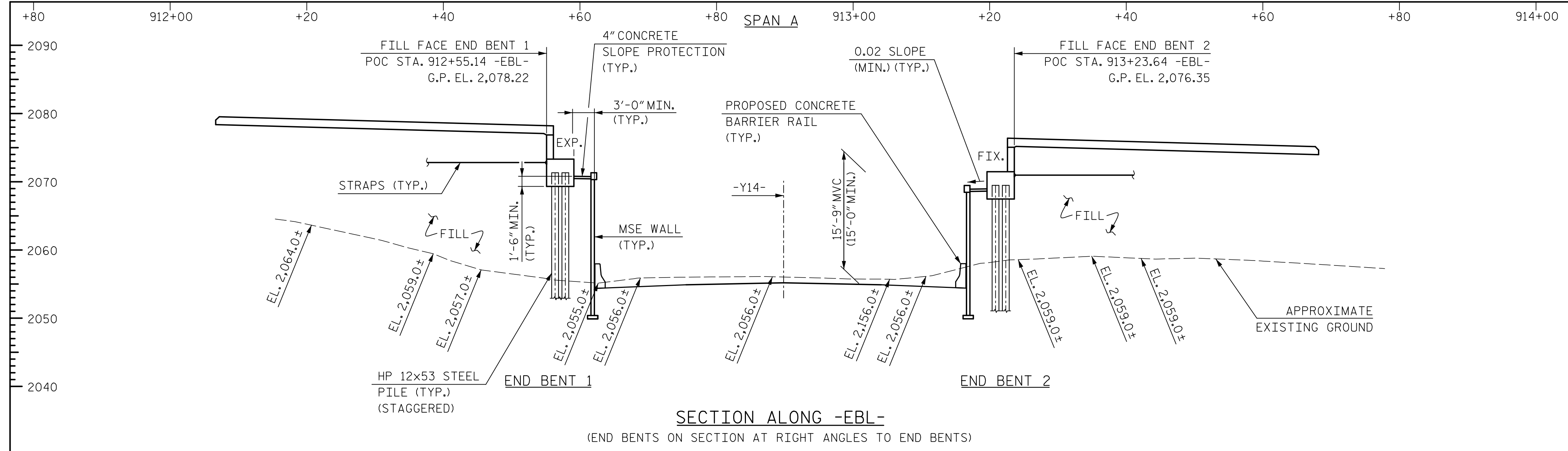


DocuSigned by:
Paul J. Barber
180F1B57368741E...

P.E.

SIGNATURE:



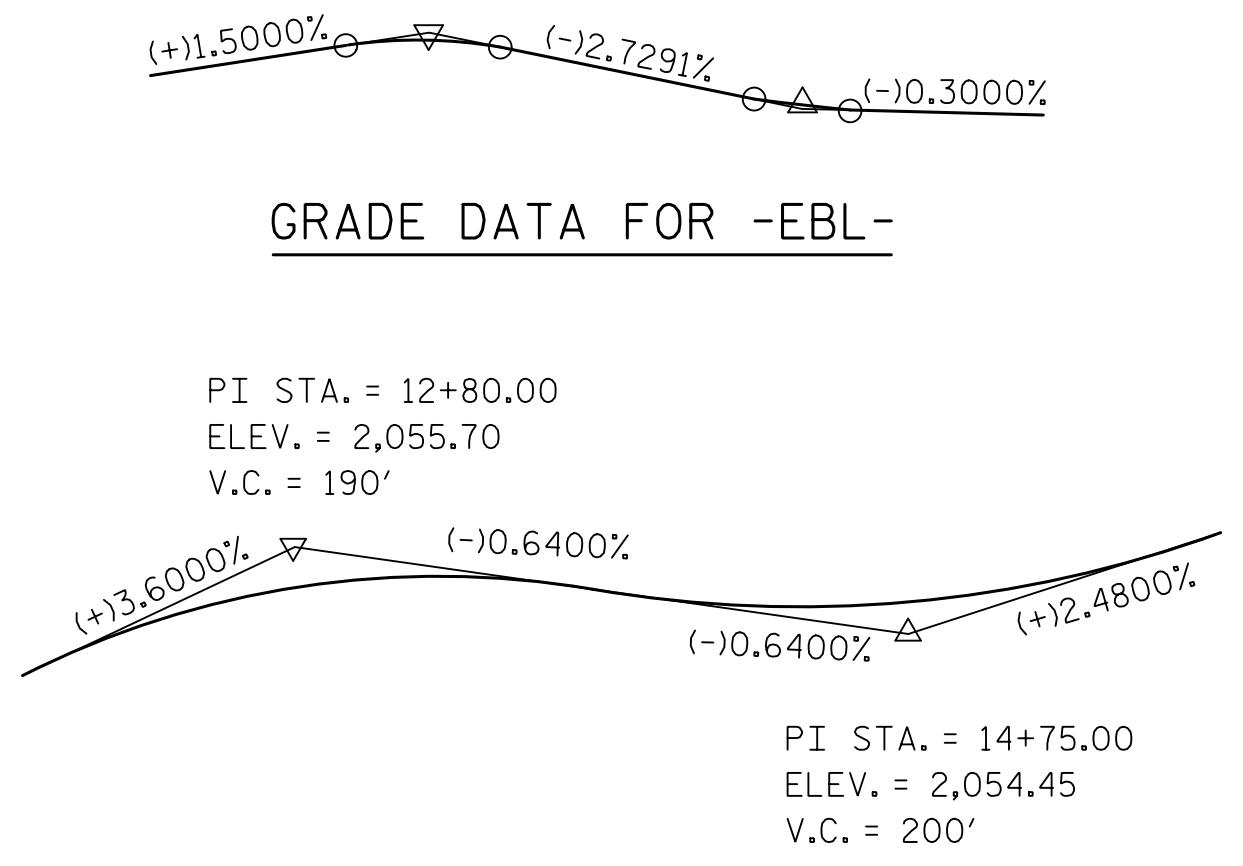
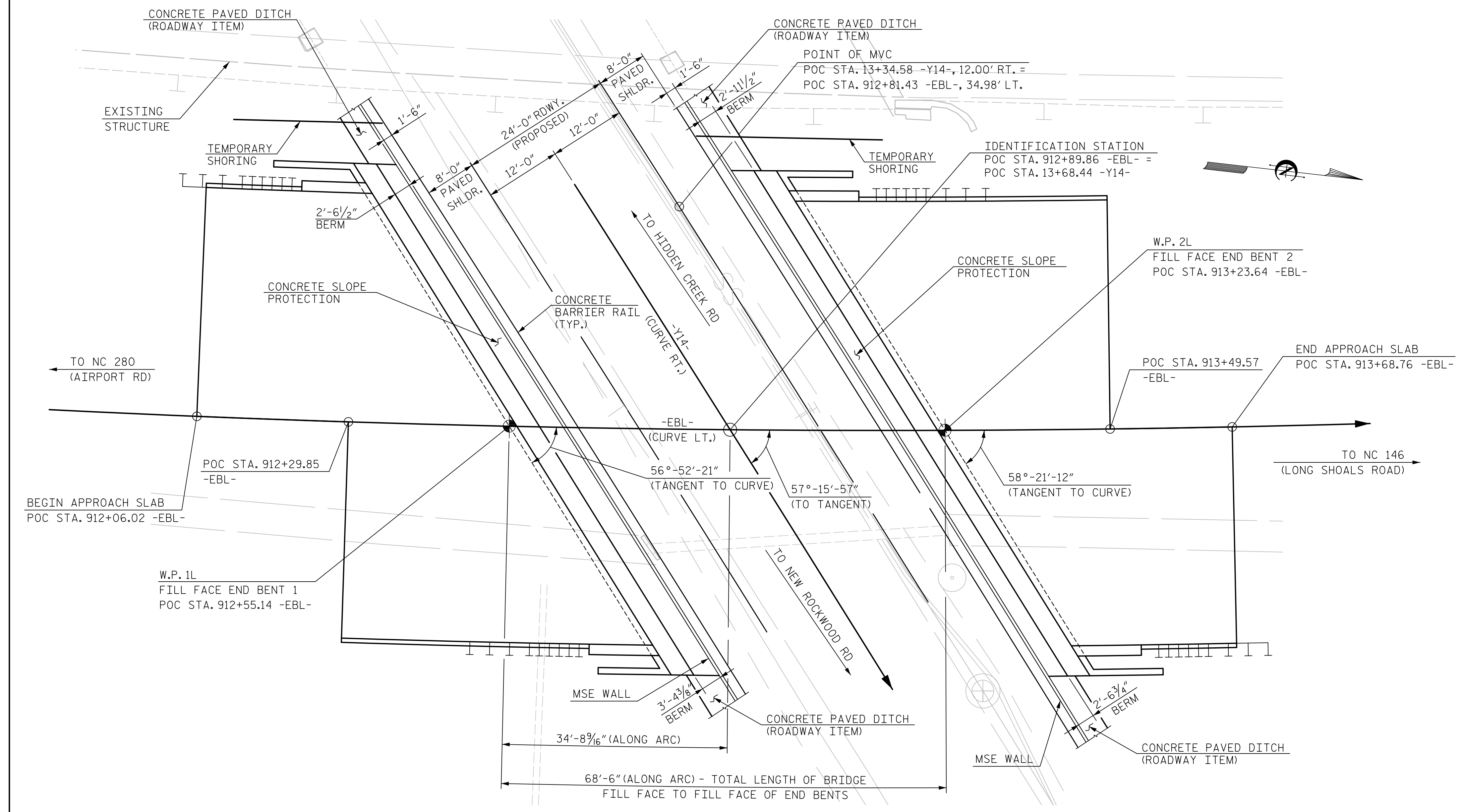


NOTES:
 FOR GENERAL NOTES, SEE SHEET 4 OF 4.
 MVC = MIN. VERTICAL CLEARANCE

CURVE DATA FOR -EBL-
 PI STA 917+33.57
 $\Delta = 26^\circ-52'-21.7''$ (LT)
 D = 2°-09'-43.6"
 L = 1,242.90 FT.
 T = 633.10 FT.
 R = 2,650.00 FT.
 SE = 0.06

CURVE DATA FOR -Y14-
 PI STA 13+88.68
 $\Delta = 2^\circ-10'-08.8''$ (RT)
 D = 0°-47'-05.5"
 L = 276.36 FT.
 T = 138.20 FT.
 R = 7,300.00 FT.
 SE = 0.02 NORMAL CROWN

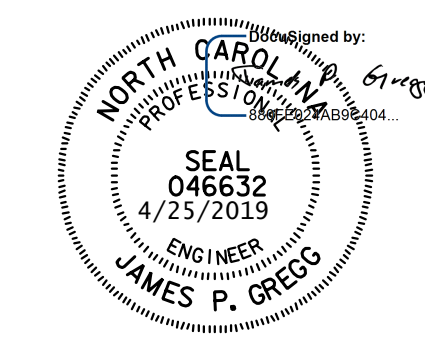
PI STA. = 900+00.00 PI STA. = 920+65.00
 ELEV = 2,112.47 ELEV = 2,056.11
 V.C. = 1,100' V.C. = 500'



PLAN

NOTES: PILES NOT SHOWN FOR CLARITY.
END BENTS ARE PARALLEL

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: B. NEUPANE DATE: 5/18
 CHECKED BY: B. EMAMI DATE: 5/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 1

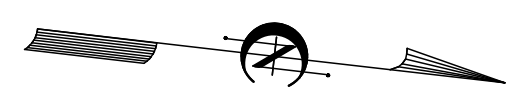
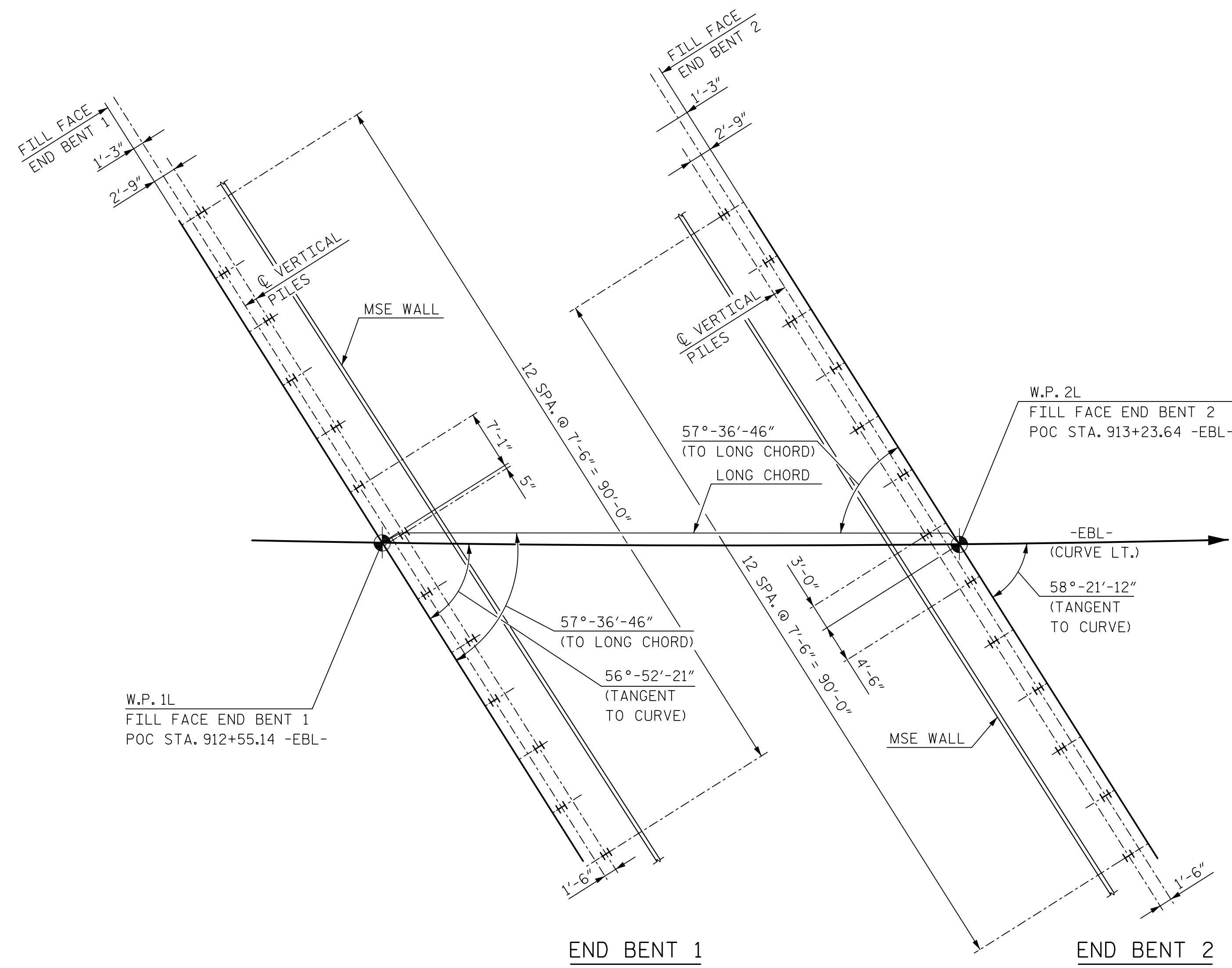
PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-
POC 13+68.44 -Y14-

SHEET 1 OF 4 REPLACES BRIDGE NO. 0069

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**GENERAL DRAWING
 BRIDGE ON I-26 EBL OVER
 GLENN BRIDGE ROAD
 BETWEEN NC146 AND NC280
 LEFT LANE**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-1
1			3			TOTAL SHEETS
2			4			31



FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.

NOTES:

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO END BENT FILL FACES.

ALL PILES AT END BENT 1 AND END BENT 2 ARE HP 12x53 STEEL PILES.

FOR FOUNDATION ELEVATIONS AND DETAILS, SEE END BENT SHEETS.

ALL PILE DIMENSIONS ARE TO CENTERS OF PILES AT BOTTOM OF END BENTS.

FOUNDATION LAYOUT

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

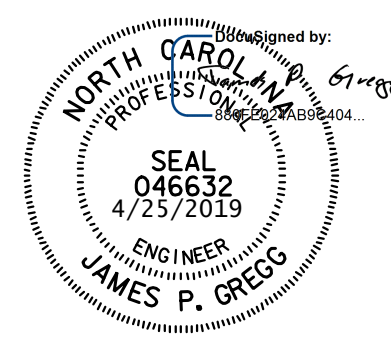
SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOUNDATION LAYOUT

LEFT LANE



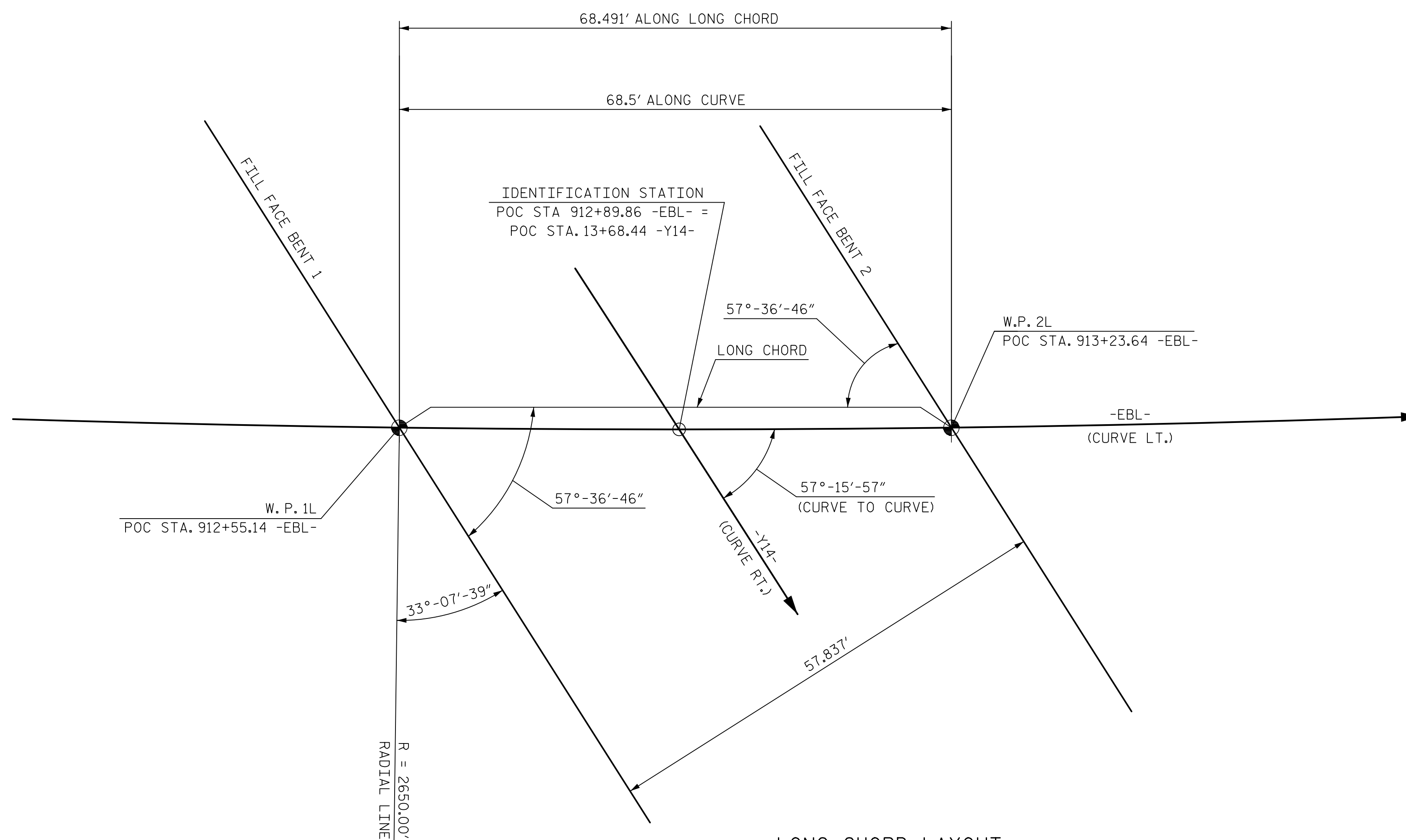
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. KANG DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

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 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			31

DWG. NO. 2



LONG CHORD LAYOUT

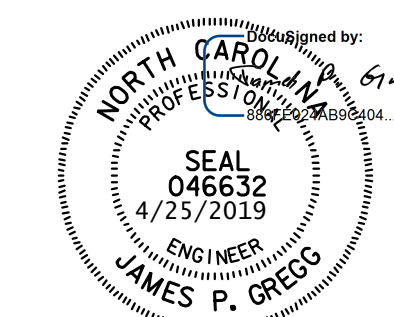
NOTE: ALL BENTS ARE PARALLEL

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 LONG CHORD LAYOUT
 LEFT LANE

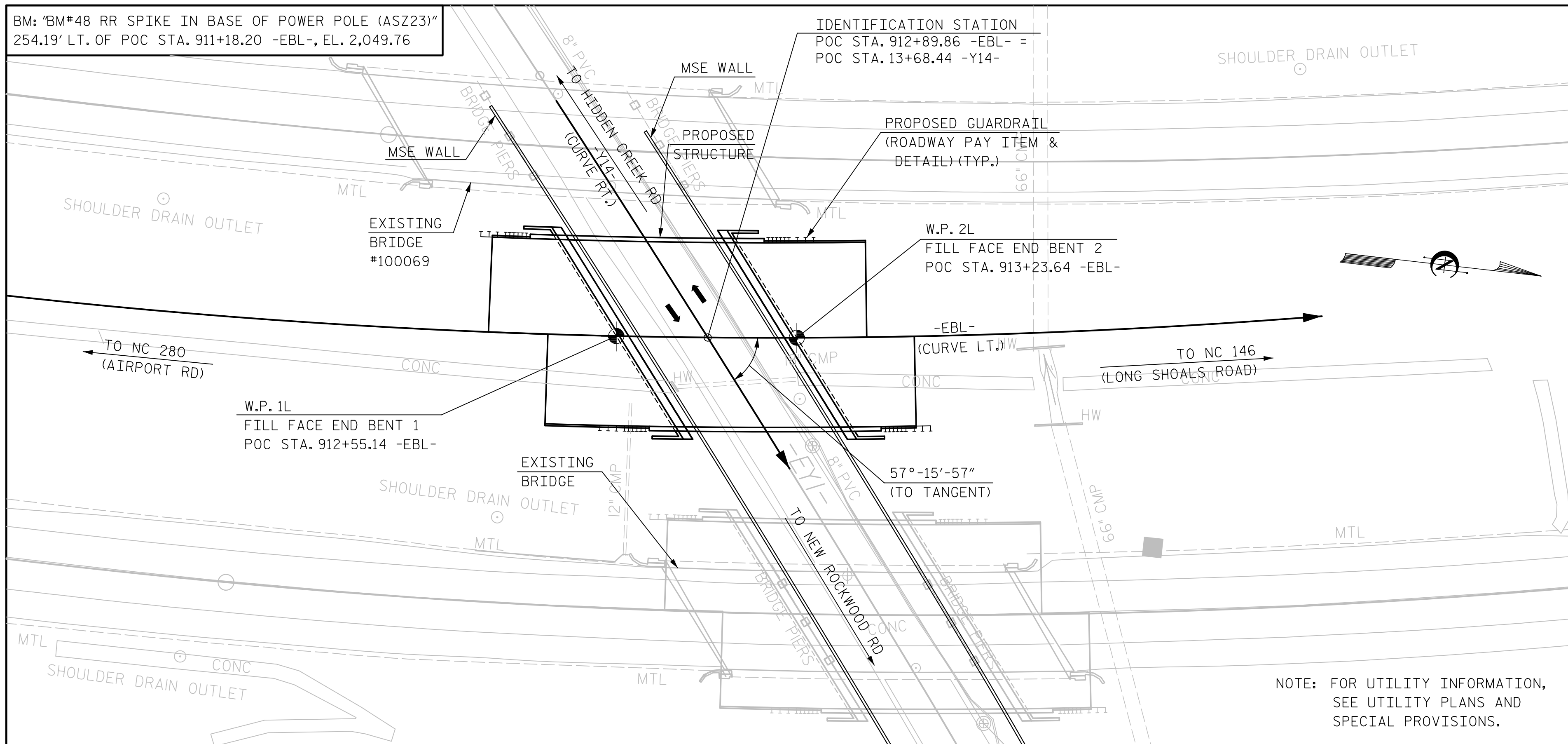


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 UNLESS ALL SIGNATURES COMPLETED**

DRAWN BY: A. KANG DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19
 DWG. NO. 3

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-3
1			3			TOTAL SHEETS
2			4			31



LOCATION SKETCH

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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 PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, 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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINED LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COST RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO THE HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 912+89.86".

THE EXISTING 3 SPAN STRUCTURE CONSISTING OF SPANS AT 44'-0" AND 34'-0" WITH AN INTERIOR SPAN LENGTH OF 57'-0" COMPOSED OF A REINFORCED CONCRETE DECK SUPPORTED BY 5 LINES OF WIDE FLANGE STEEL BEAMS WITH A CLEAR ROADWAY DISTANCE OF 38'-0" ON END BENTS ON PILE FOUNDATIONS AND REINFORCED CONCRETE SOLID BENTS ON PILE FOOTINGS, LOCATED APPROXIMATELY 85'-0" EAST OF PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

TOTAL BILL OF MATERIAL

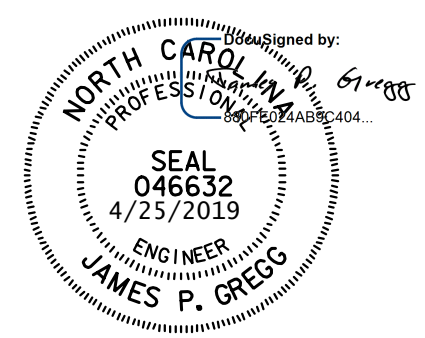
	REMOVAL OF EXISTING STRUCTURE AT STATION 912+89.86 -EBL-	ASBESTOS ASSESSMENT	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS, STATION 912+89.86 -EBL-	REINFORCING STEEL	45" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES	CONCRETE BARRIER RAIL		
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	L.F.	EA.	NO.	L.F.	L.F.
SUPERSTRUCTURE	---	---	4,836	9,410	---	LUMP SUM	---	9	578.72	---	---	---	174.09
END BENT 1	---	---	---	---	78.4	---	10,870	---	---	13	13	975	---
END BENT 2	---	---	---	---	77.2	---	10,713	---	---	13	13	780	---
TOTAL	LUMP SUM	LUMP SUM	4,836	9,410	155.6	LUMP SUM	21,583	9	578.72	26	26	1,755	174.09

TOTAL BILL OF MATERIAL

	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS
	SQ. YD.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	---	LUMP SUM	LUMP SUM
END BENT 1	32.3	---	---
END BENT 2	27.7	---	---
TOTAL	60.0	LUMP SUM	LUMP SUM

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	5'-6"
#4	6'-8"
#5	7'-8"
#6	8'-8"
#7	11'-6"
#8	12'-7"
#9	30'-8"
#10	33'-10"
#11	36'-11"

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND FY = 60KSI.



PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE ON I-26 EBL OVER
 GLENN BRIDGE ROAD
 BETWEEN NC146 AND NC280
 LEFT LANE

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: A. KANG DATE: 7/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 4

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

TOTAL SHEETS: 31

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LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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	1.39	--	1.75	0.69	1.95	1	I	31.5	0.95	1.39	1	I	5.8	0.80	0.69	2.01	1	I	31.5	
	HL-93 (OPERATING)	N/A	--	1.83	--	1.35	0.69	2.53	1	I	31.5	0.95	1.83	1	I	5.8	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	②	1.73	62.3	1.75	0.69	2.49	1	I	31.5	0.95	1.73	1	I	5.8	0.80	0.69	2.58	1	I	31.5	
	HS-20 (OPERATING)	36.000	--	2.26	81.4	1.35	0.69	3.23	1	I	31.5	0.95	2.26	1	I	5.8	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500	--	5.63	70.4	1.40	0.69	7.42	1	I	31.5	0.95	5.63	1	I	5.8	0.80	0.69	6.14	1	I	31.5
		S3C	21.500	--	3.28	70.5	1.40	0.69	4.35	1	I	31.5	0.95	3.28	1	I	5.8	0.80	0.69	3.60	1	I	31.5
		S3A	22.750	--	3.09	70.3	1.40	0.69	4.13	1	I	31.5	0.95	3.09	1	I	5.8	0.80	0.69	3.41	1	I	31.5
		S4A	26.750	--	2.74	73.3	1.40	0.69	3.69	1	I	31.5	0.95	2.74	1	I	5.8	0.80	0.69	3.05	1	I	31.5
		S5A	30.500	--	2.55	77.8	1.40	0.69	3.27	1	I	31.5	0.95	2.55	1	I	5.8	0.80	0.69	2.70	1	I	31.5
		S6A	34.500	--	2.31	79.7	1.40	0.69	3.00	1	I	31.5	0.95	2.31	1	I	5.8	0.80	0.69	2.48	1	I	31.5
		S7B	38.500	--	2.19	84.3	1.40	0.69	2.75	1	I	31.5	0.95	2.19	1	I	5.8	0.80	0.69	2.27	1	I	31.5
		S7A	40.000	--	2.27	90.8	1.40	0.69	2.75	1	I	31.5	0.95	2.28	1	I	5.8	0.80	0.69	2.27	1	I	31.5
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250	--	2.66	75.1	1.40	0.69	3.70	1	I	31.5	0.95	2.66	1	I	5.8	0.80	0.69	3.06	1	I	31.5
		T5B	32.000	--	2.56	81.9	1.40	0.69	3.25	1	I	31.5	0.95	2.56	1	I	5.8	0.80	0.69	2.68	1	I	31.5
		T6A	36.000	--	2.41	86.8	1.40	0.69	3.02	1	I	31.5	0.95	2.41	1	I	5.8	0.80	0.69	2.50	1	I	31.5
		T7A	40.000	--	2.30	92.0	1.40	0.69	2.84	1	I	31.5	0.95	2.30	1	I	5.8	0.80	0.69	2.35	1	I	31.5
		T7B	40.000	③	2.10	84.0	1.40	0.69	3.14	1	I	31.5	0.95	2.10	1	I	5.8	0.80	0.69	2.59	1	I	31.5

NOTES:

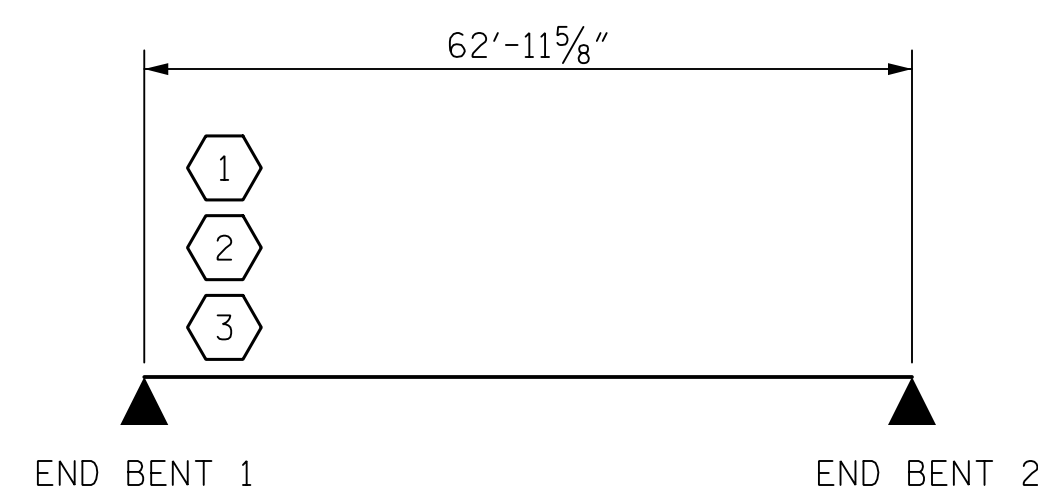
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

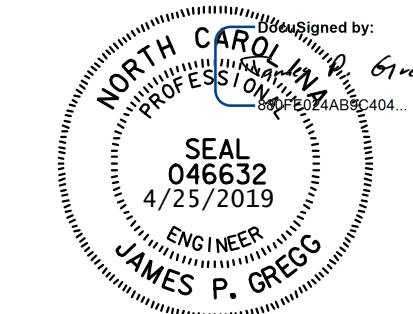
①	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

NOTE: SPAN LENGTH PROVIDED IS BEARING TO BEARING

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-



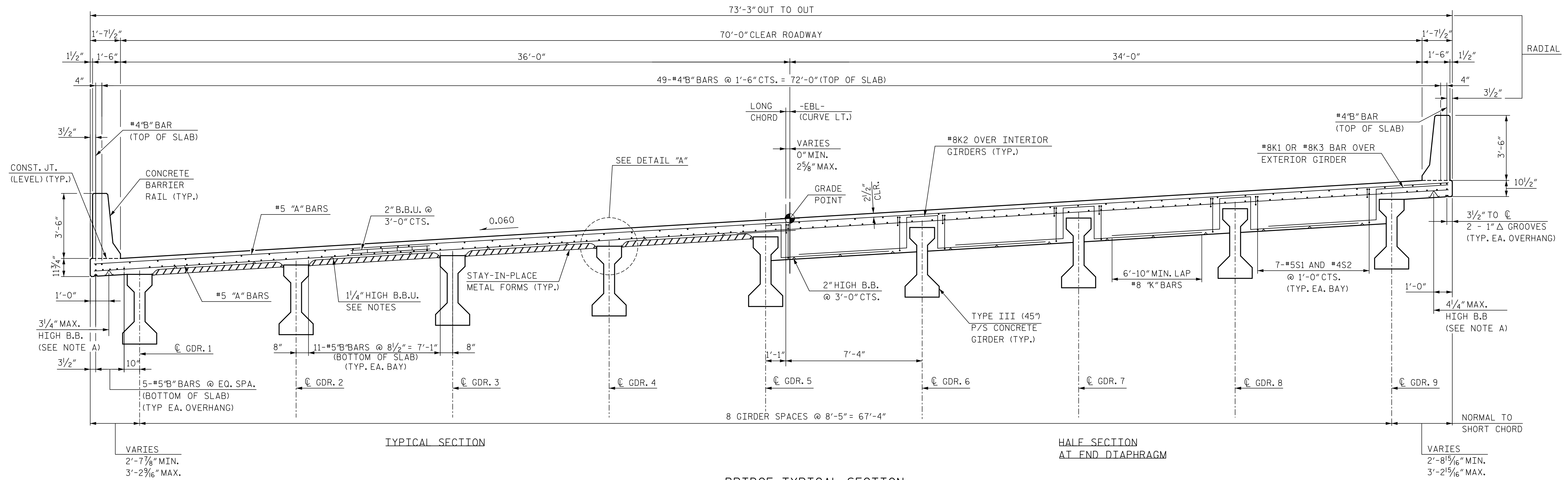
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (INTERSTATE TRAFFIC)
 LEFT LANE

ASSEMBLED BY : JMP	DATE : 1/19
CHECKED BY : BN	DATE : 1/19
DRAWN BY : MAA 1/08	REV. 11/2/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY : J. PHILLIPS	DATE : 1/19
CHECKED BY : B. NEUPANE	DATE : 1/19
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			31



BRIDGE TYPICAL SECTION
GIRDERS ARE COMPOSITE & SIMPLE SPAN

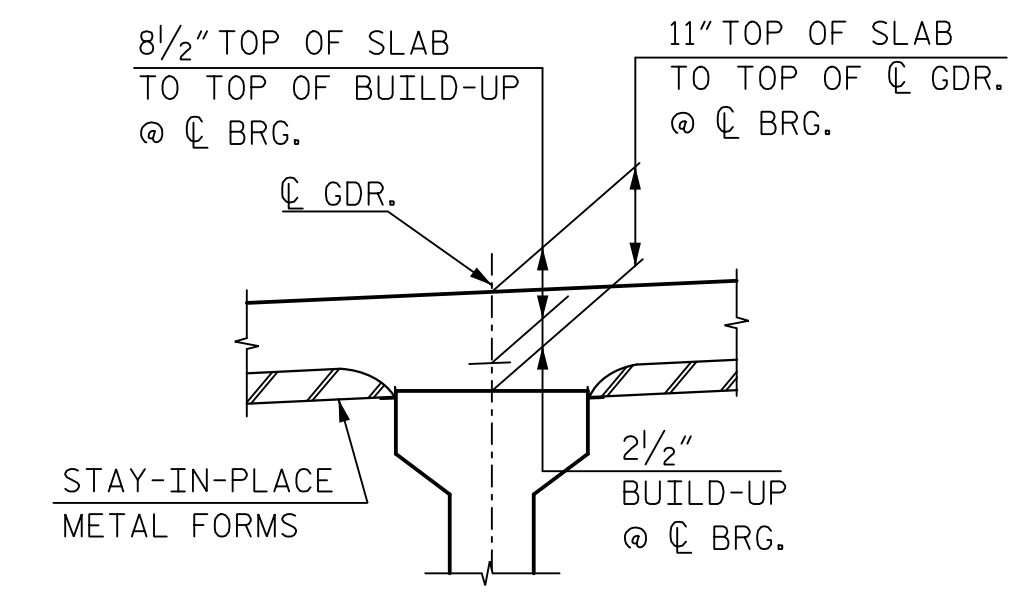
NOTES:

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 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

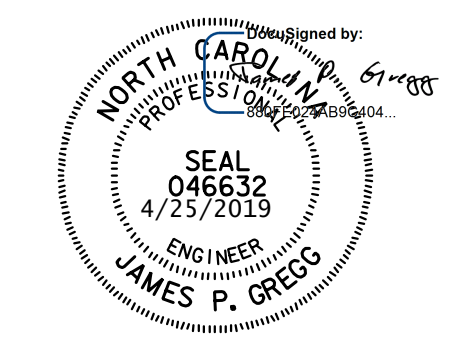
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDS.

NOTE A: THE HEIGHT OF THE BEAM BOLSTER VARIES ALONG THE LENGTH OF THE SPAN DUE TO CHAMBER AND THE VARYING HEIGHT REQUIRED FOR THE BUILDUP. THE CONTRACTOR SHALL HAVE SUFFICIENT SIZES TO PROPERLY SUPPORT THE REINFORCING STEEL.



DETAIL "A"



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BUNCOMBE COUNTY
STATION: POC 912+89.86 -EBL-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
LEFT LANE

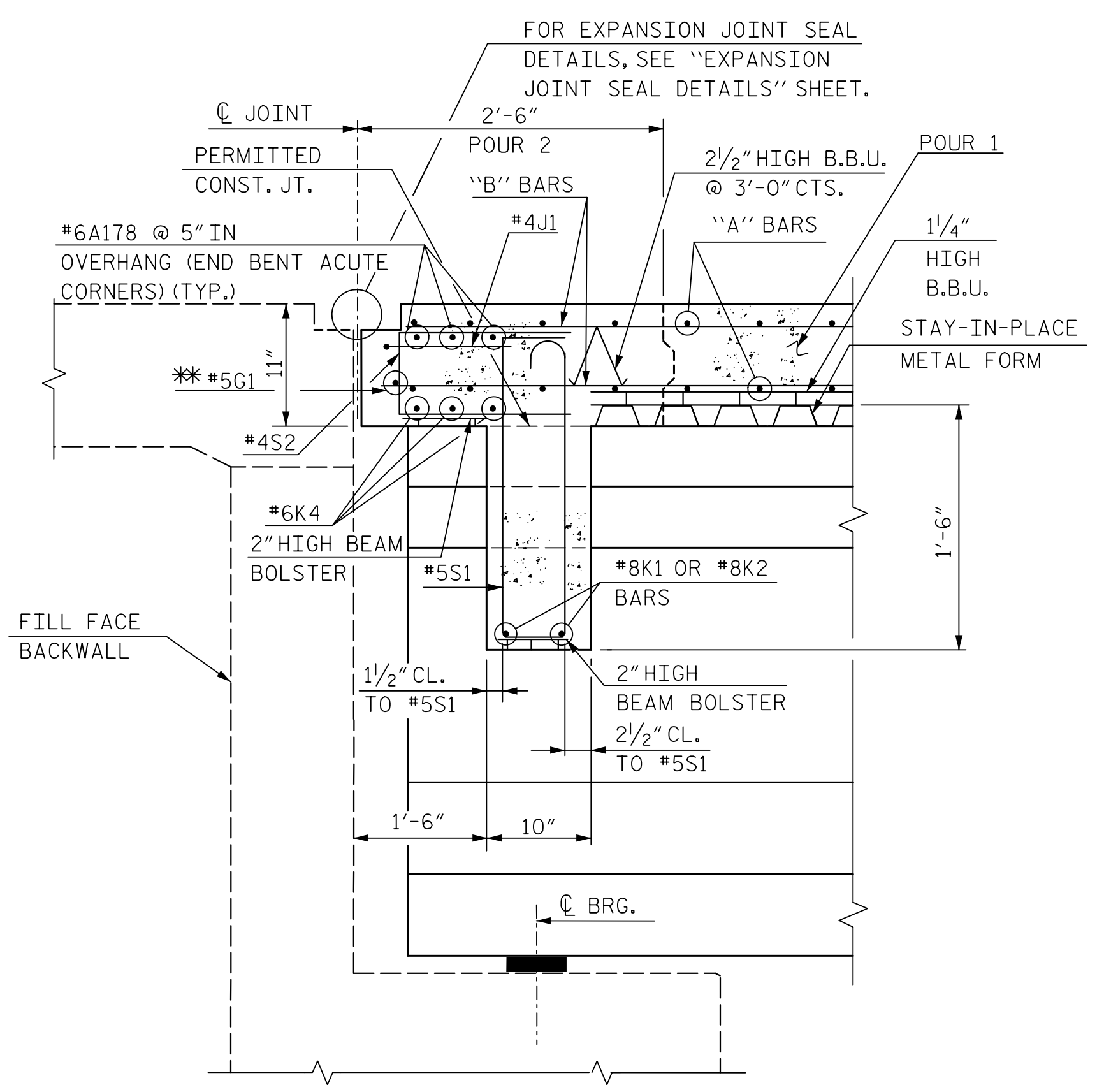
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DWG. NO. 6

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-6
1			3			TOTAL SHEETS
2			4			31

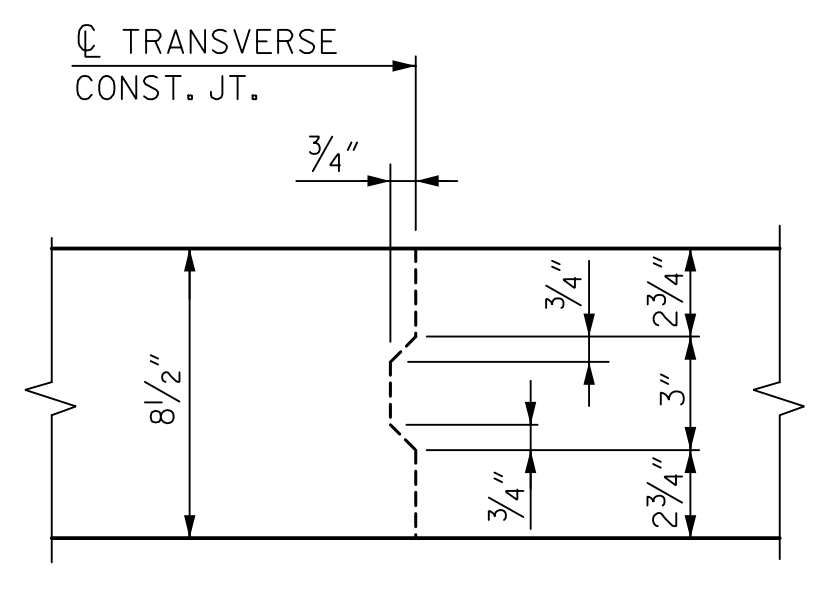
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SECTION A-A

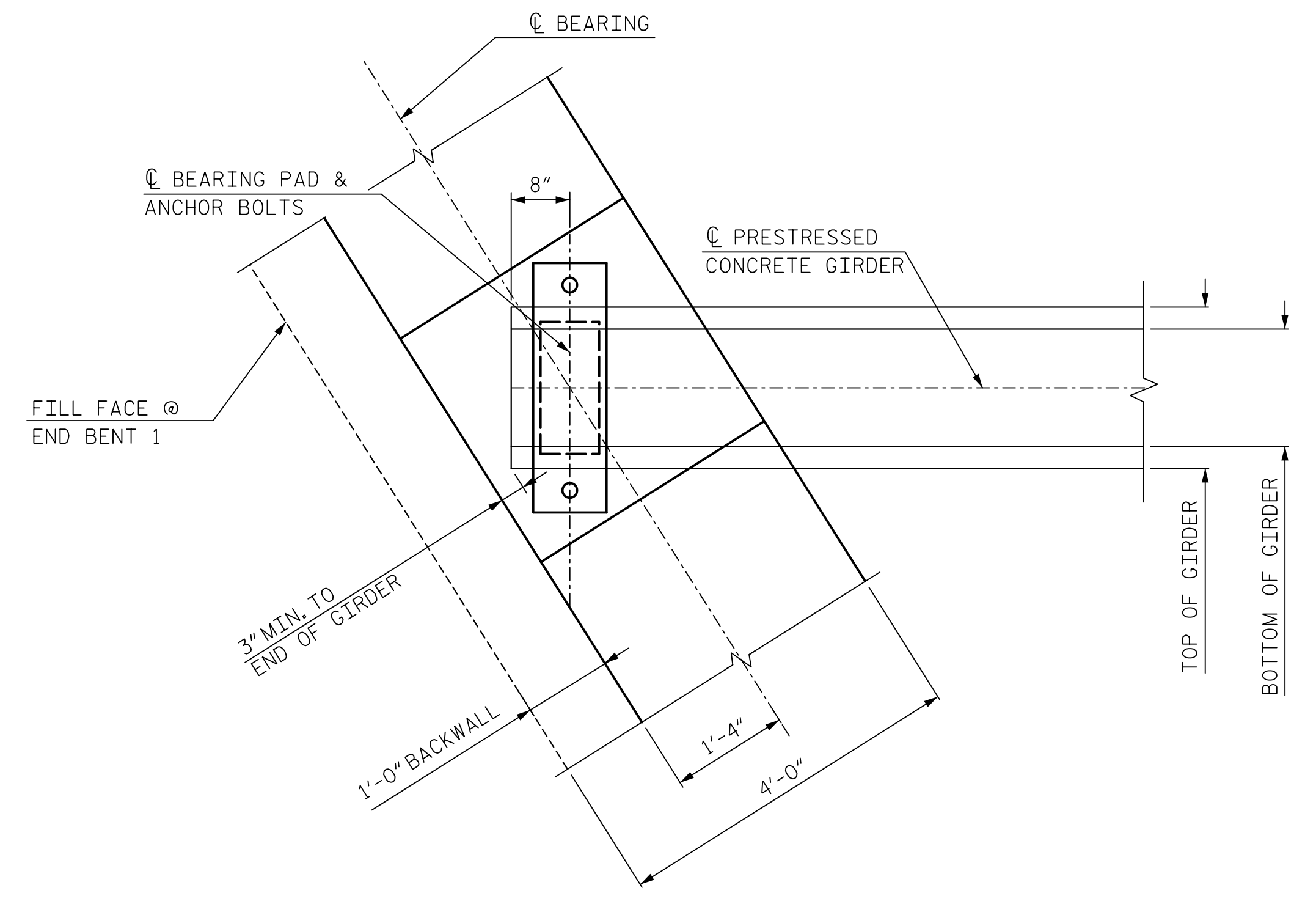
(SECTION NORMAL THRU END BENT 1 & END BENT 2 DIAPHRAGM)

** #5 "G" BAR MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.



TRANSVERSE CONSTRUCTION JOINT DETAIL

REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.



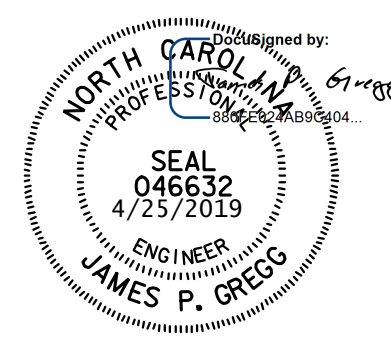
PLAN AT END BENT

END BENT 1 SHOWN, END BENT 2 SIMILAR

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION
 LEFT LANE



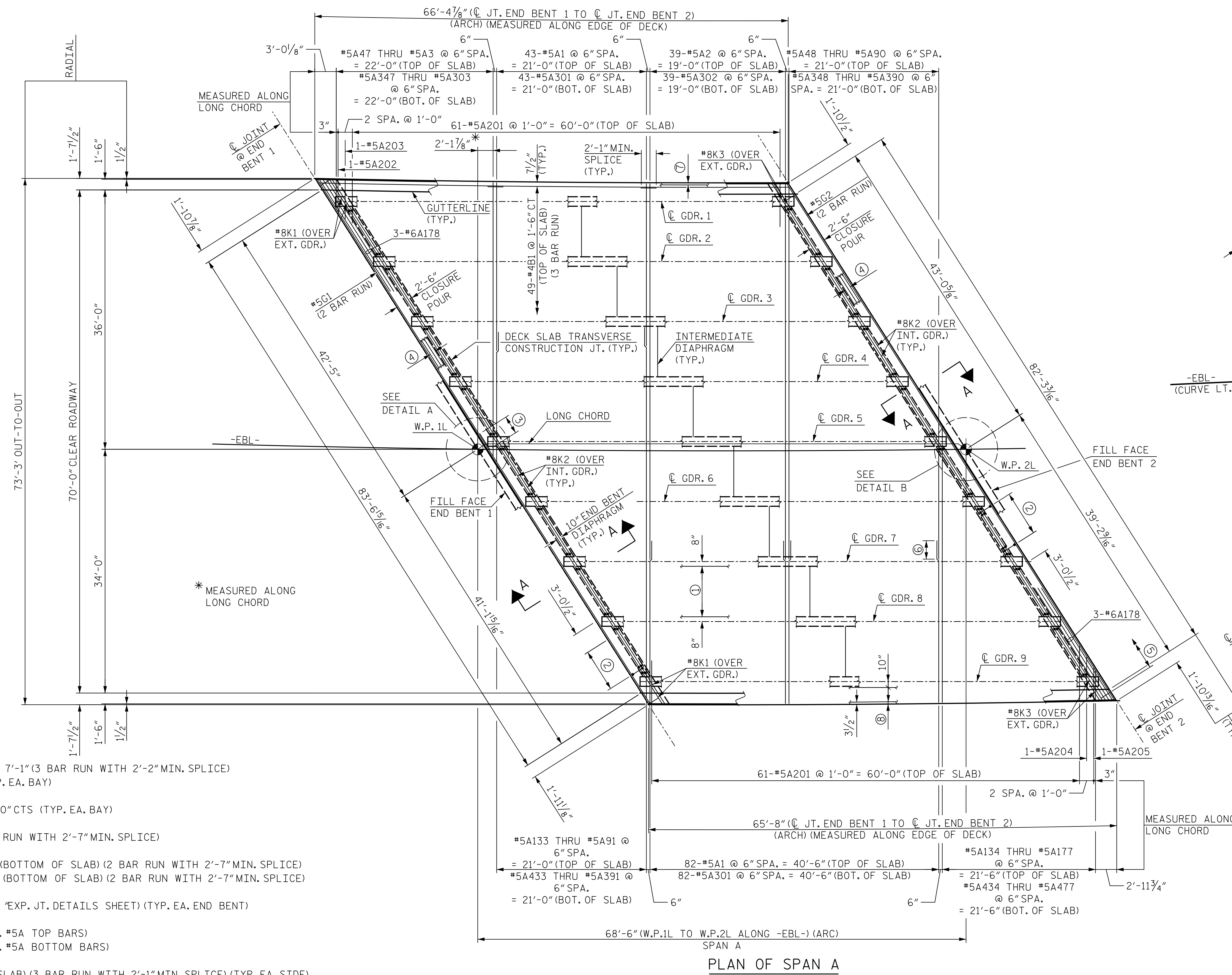
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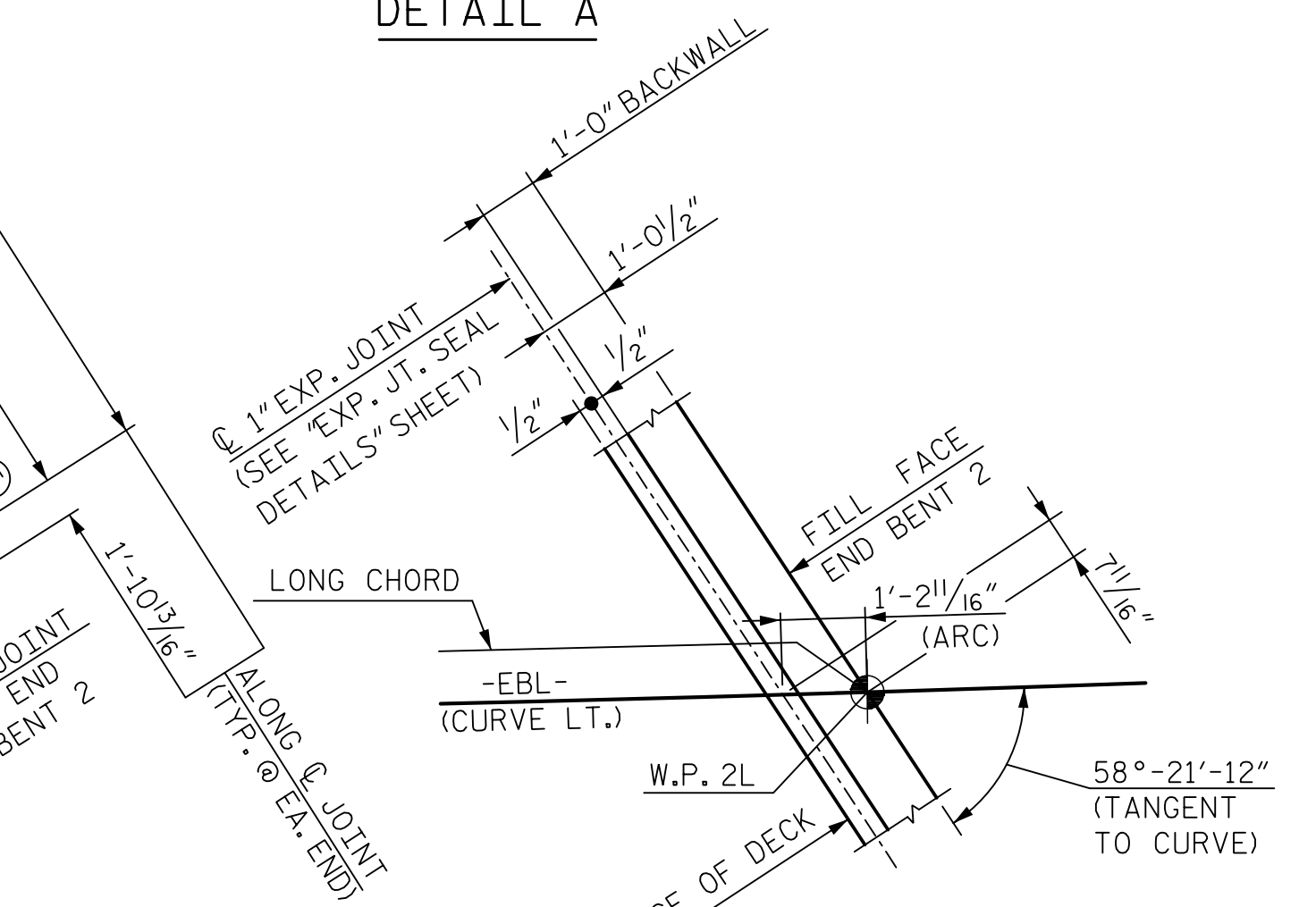
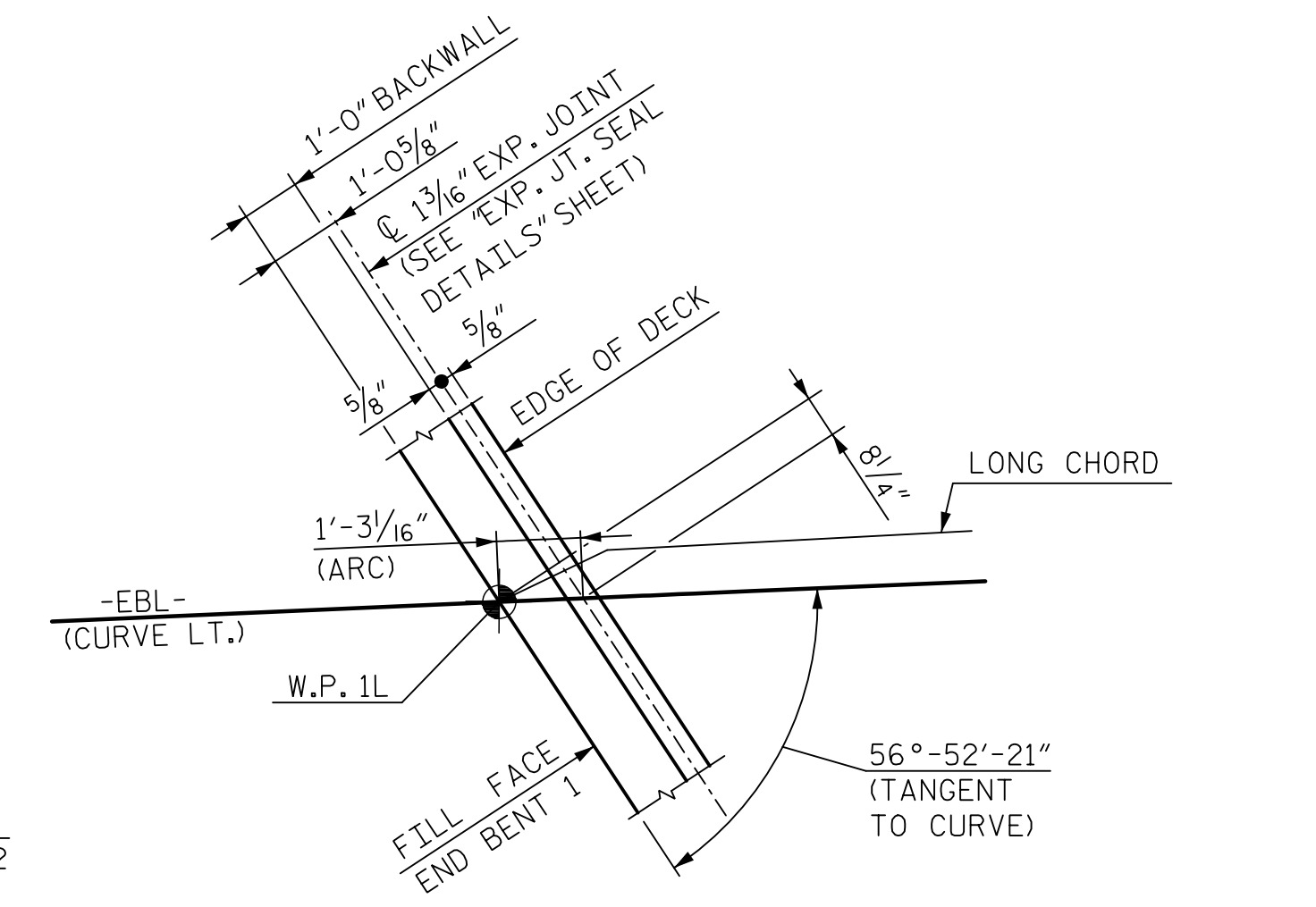
DWG. NO. 7

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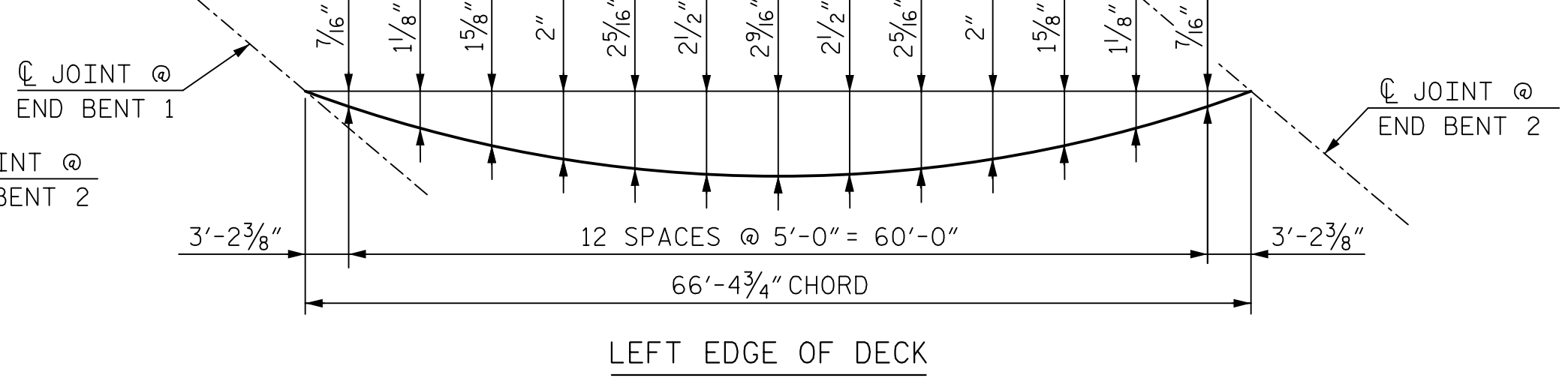
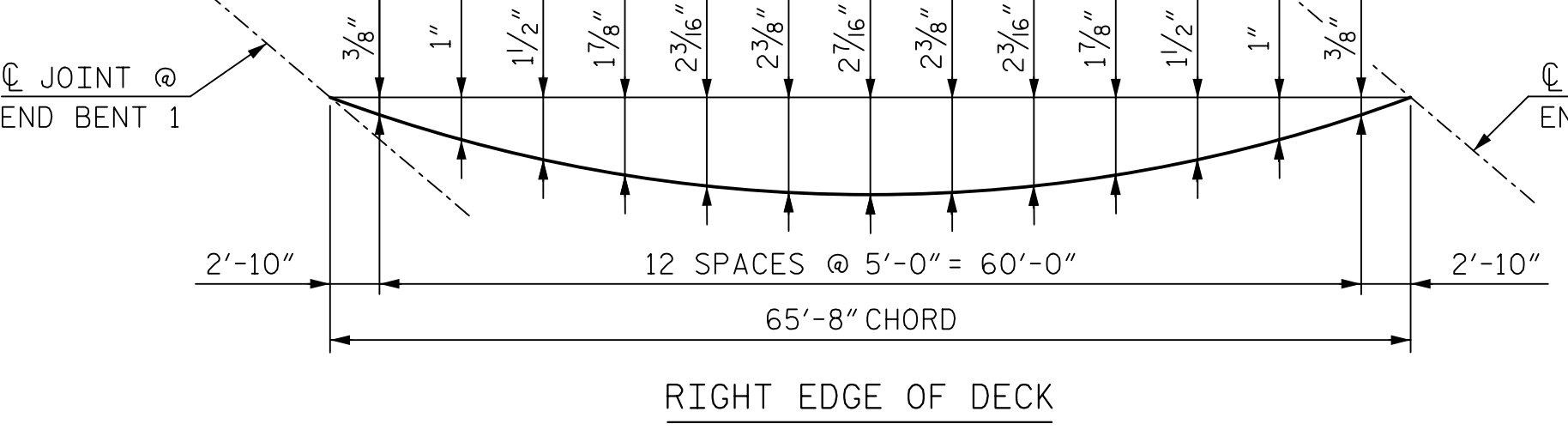
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-7
1			3			TOTAL SHEETS
2			4			31



NOTES:
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEET.
 FOR SECTION VIEWS, SEE "SUPERSTRUCTURE TYPICAL SECTION DETAILS" SHEET 2 OF 2.
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYP III & PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "SUPERSTRUCTURE FRAMING PLAN" SHEET.

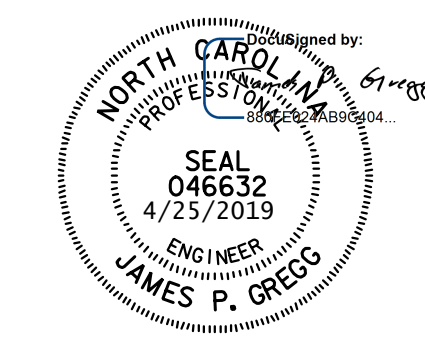


- ① 11-#5B101 @ 8 1/2" CTS. = 7'-1" (3 BAR RUN WITH 2'-2" MIN. SPLICE) (BOTTOM OF SLAB) (TYP. EA. BAY)
- ② 7-#5S1 & 7-#4S2 @ 1'-0" CTS (TYP. EA. BAY)
- ③ #5G1 AND #5G2 (2 BAR RUN WITH 2'-7" MIN. SPLICE)
- ④ 3-#6K4 @ END BENT 1 (BOTTOM OF SLAB) (2 BAR RUN WITH 2'-7" MIN. SPLICE)
3-#6K5 @ END BENT 2 (BOTTOM OF SLAB) (2 BAR RUN WITH 2'-7" MIN. SPLICE)
- ⑤ #4J1 BARS @ 1'-0" (SEE "EXP. JT. DETAILS SHEET") (TYP. EA. END BENT)
- ⑥ 2'-7" MIN. SPLICE (TYP. #5A TOP BARS)
2'-2" MIN. SPLICE (TYP. #5A BOTTOM BARS)
- ⑦ 3 1/2" TO #4B1 (TOP OF SLAB) (3 BAR RUN WITH 2'-1" MIN. SPLICE) (TYP. EA. SIDE)
- ⑧ 5-#5B101 @ EQ. SPA. (3 BAR RUN WITH 2'-2" MIN. SPLICE) (BOTTOM OF SLAB) (TYP. EA. SIDE)



PLAN OF SPAN A

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN A
 LEFT LANE

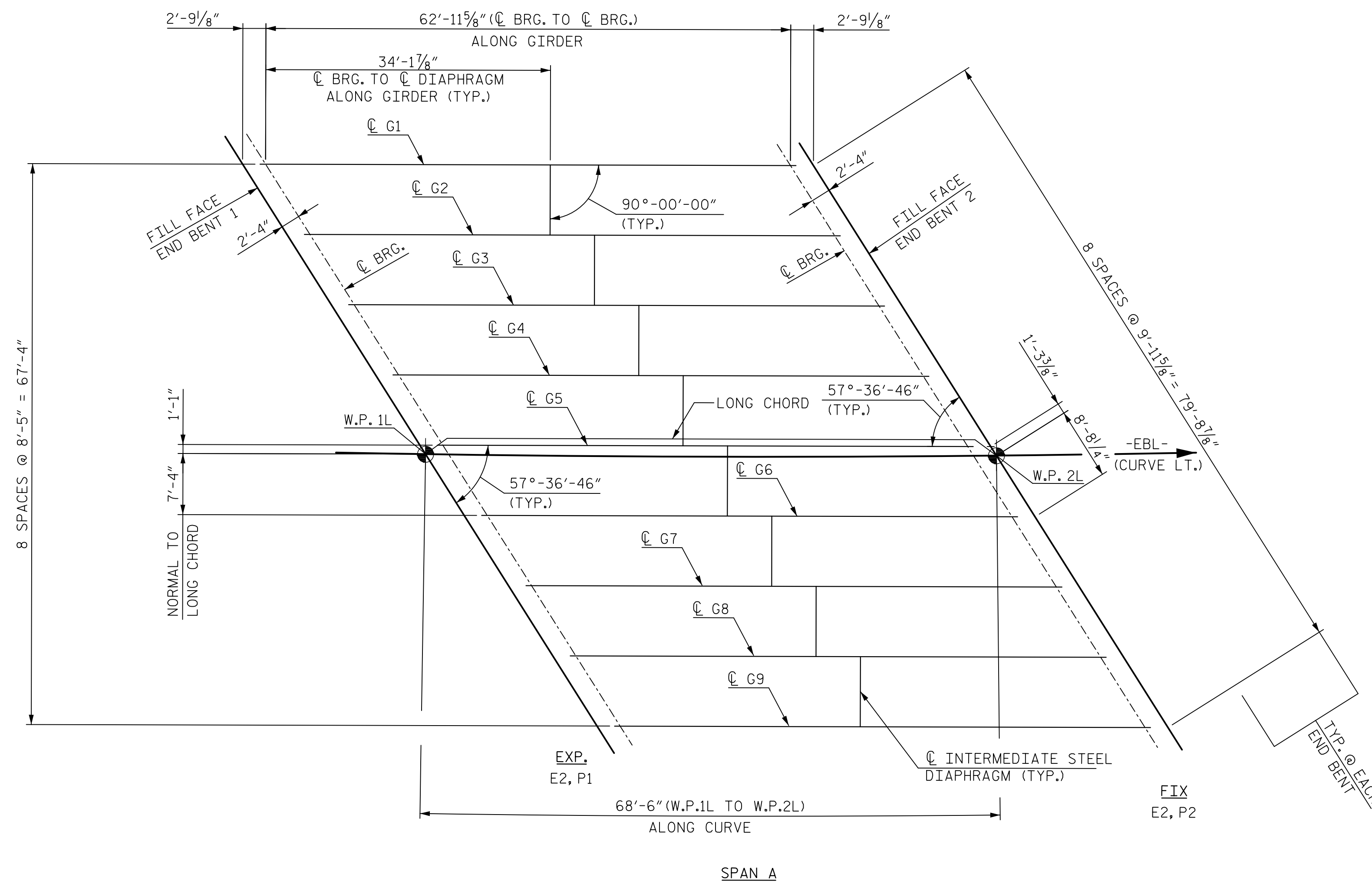
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DRAWN BY	A. KANG	DATE	12/18
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DWG. NO. 8

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1			3			TOTAL SHEETS
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FRAMING PLAN

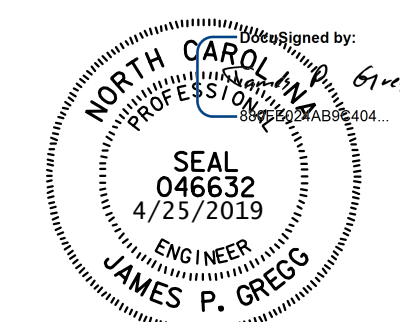
NOTES:

ALL DIMENSIONS MEASURED ALONG \O GIRDER UNLESS NOTED OTHERWISE.
 FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III & PRESTRESSED CONCRETE GIRDER" SHEET.
 FOR GIRDER ELEVATIONS AND DETAILS, SEE "AASHTO TYPE III PRESTRESSED CONCRETE GIRDER" SHEET.

NOTES:

"EXP." DENOTES EXPANSION BEARING ASSEMBLY.
 "FIX." DENOTES FIXED BEARING ASSEMBLY.
 "E" DENOTES ELASTOMERIC BEARING PAD MARK.
 "P" DENOTES STEEL SOLE PLATE MARK.
 GIRDERS IN EACH SPAN ARE SET PARALLEL TO LONG CHORD.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 LEFT LANE

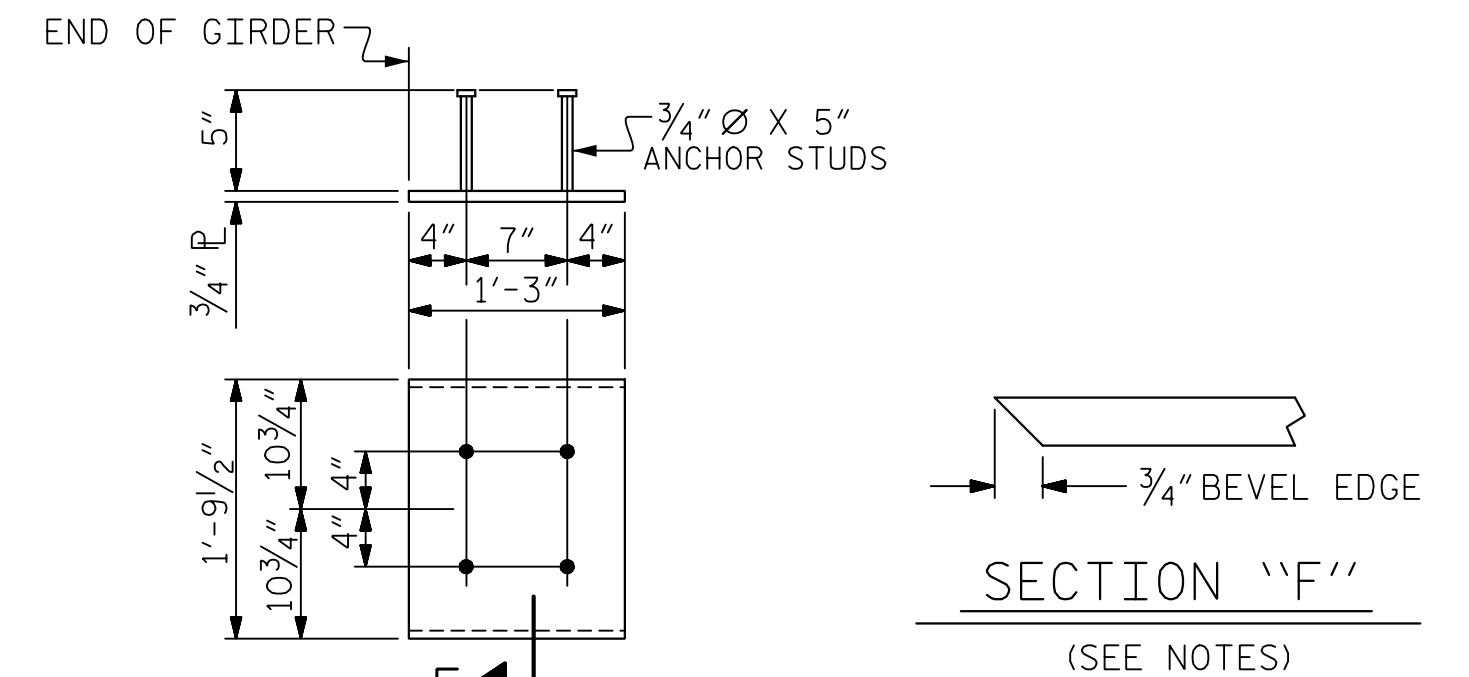
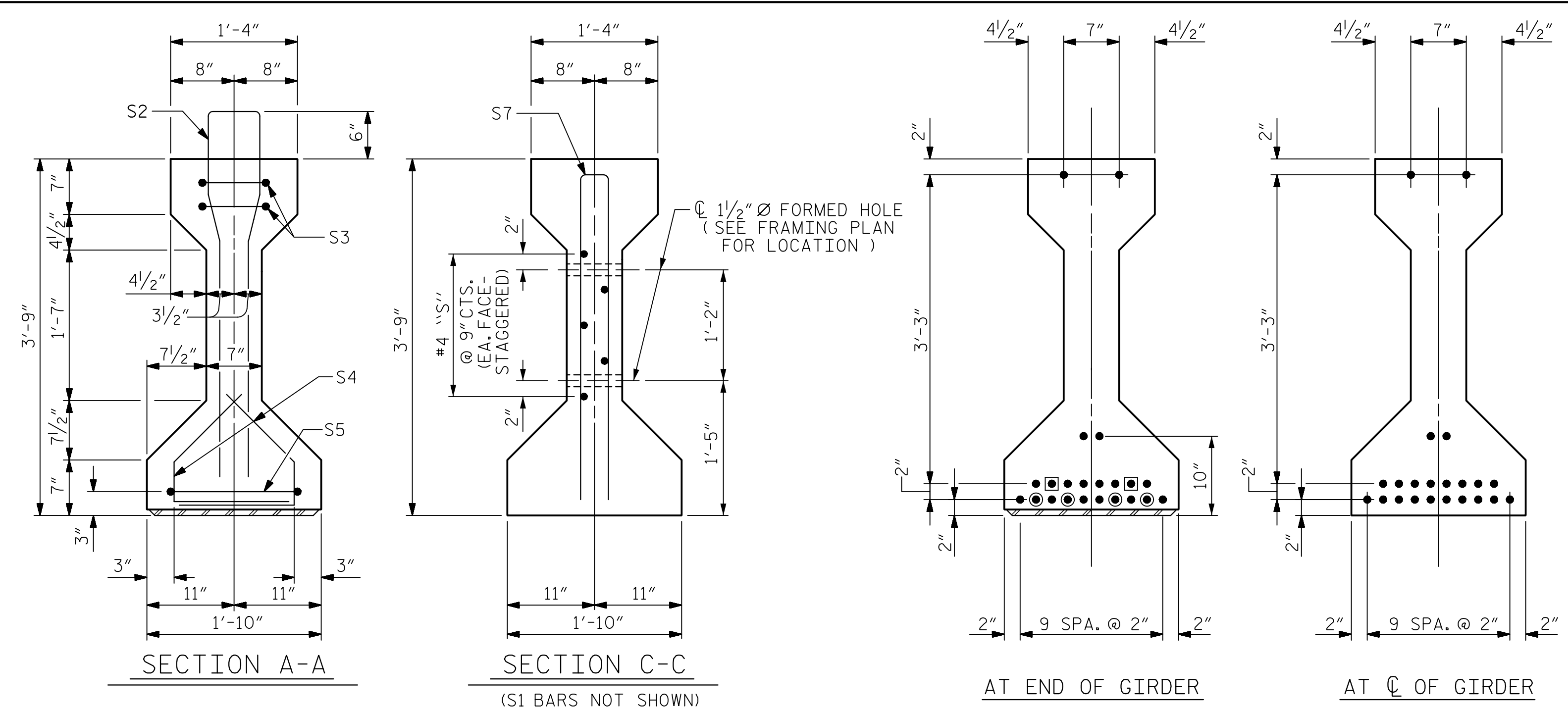
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DWG. NO. 9

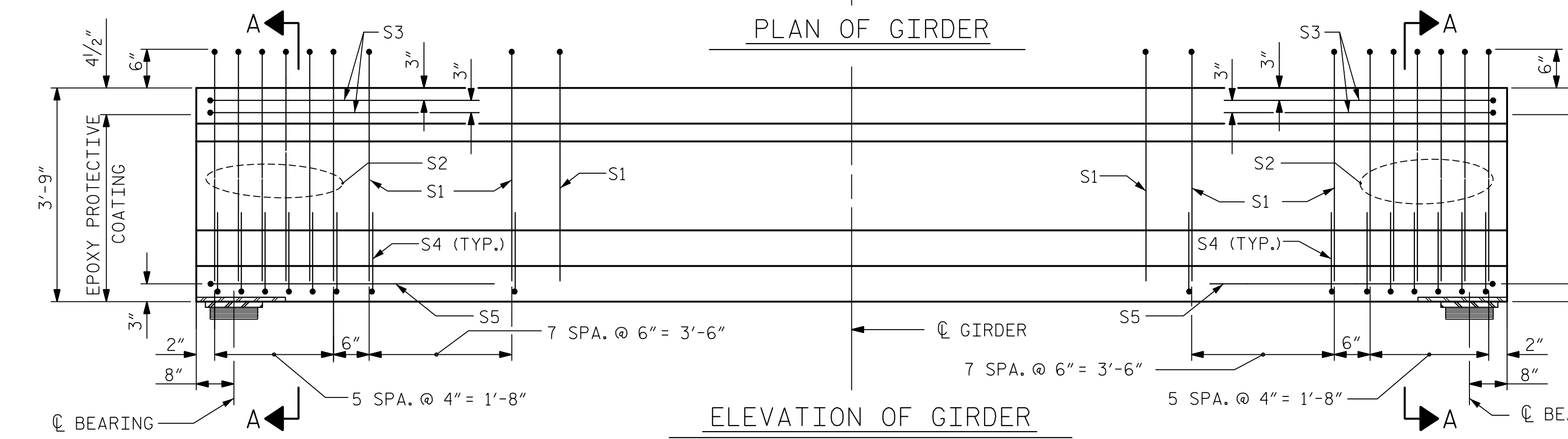
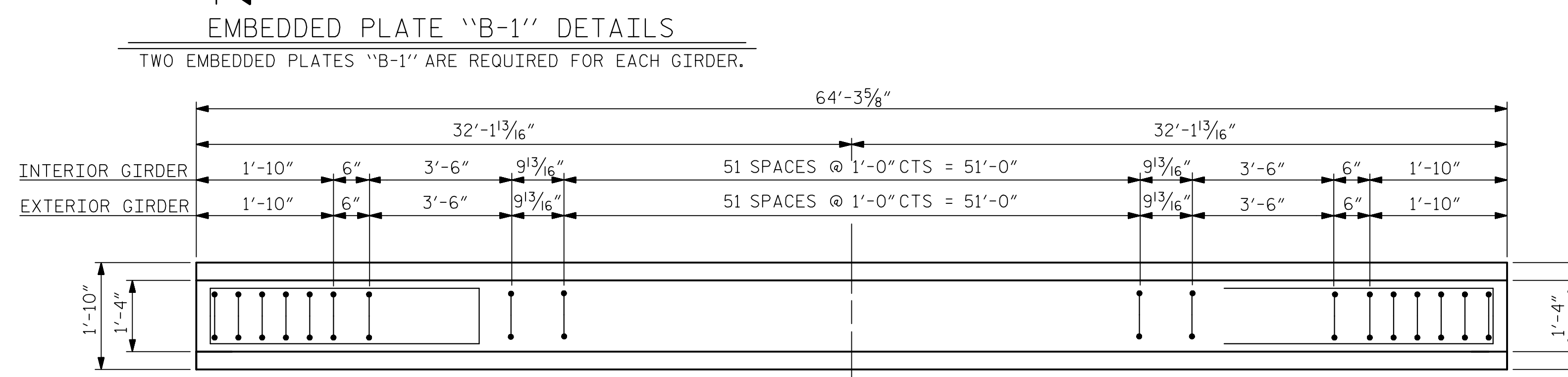
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0.6" Ø LOW RELAXATION STRAND LAYOUT

- DEBONDING LEGEND
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

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.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

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

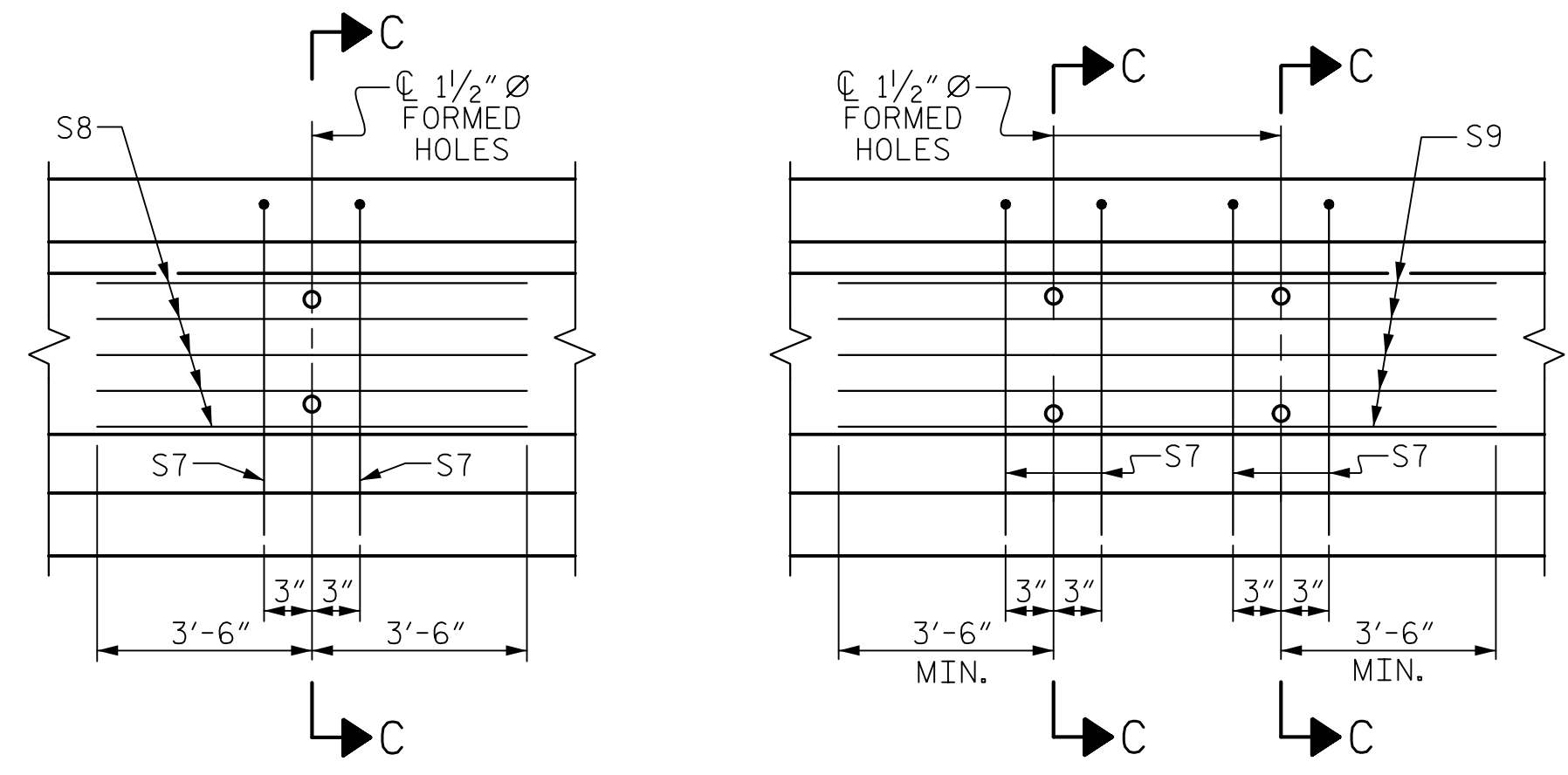
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

ALL PRESTRESSED 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 4,800 PSI.

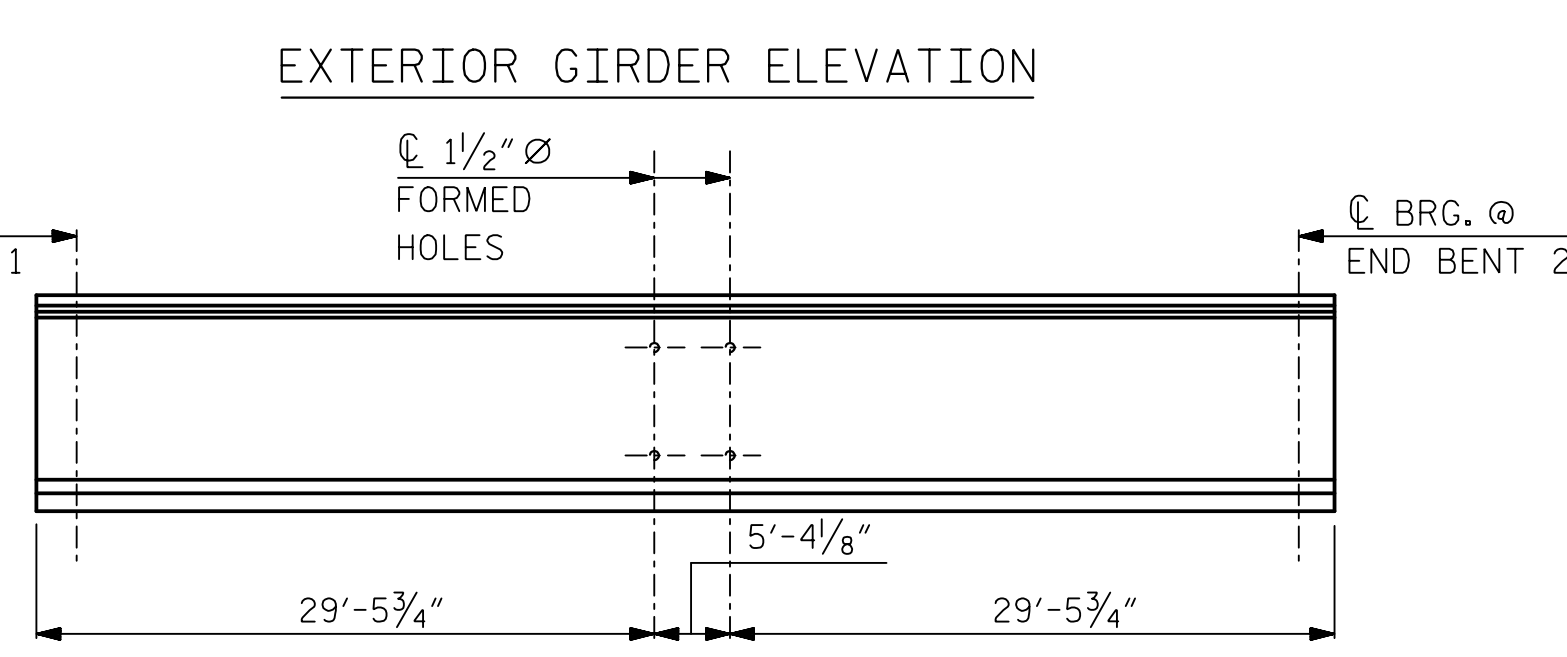
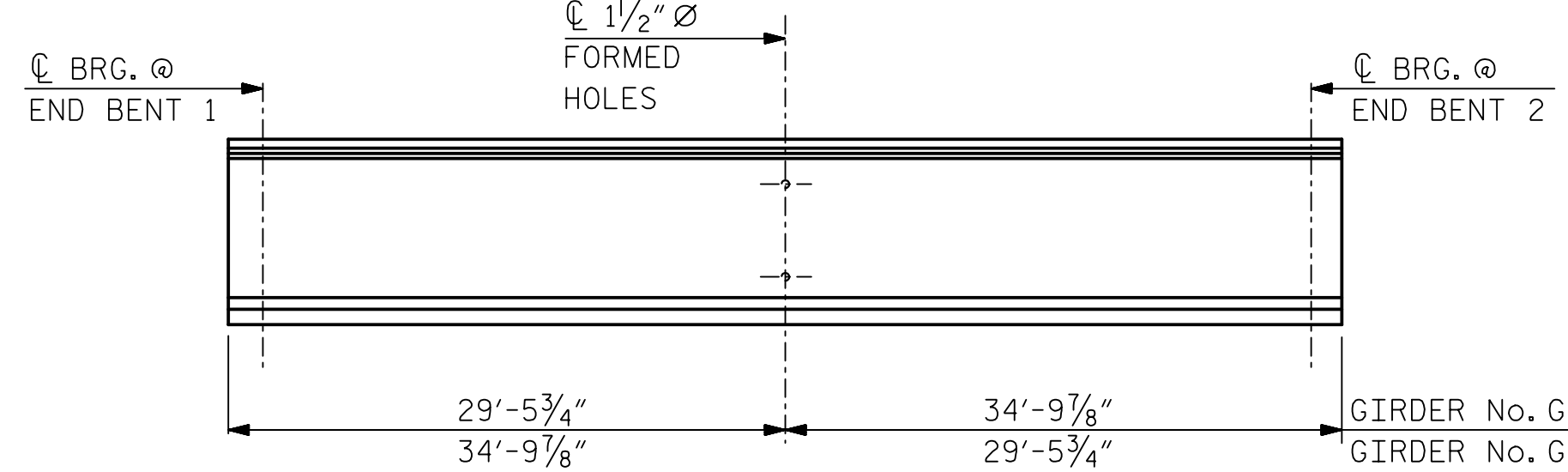
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER SHALL BE RAKED TO A DEPTH OF 1/4" EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.



SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. G1 & G9 (FOR ALL EXTERIOR GIRDERS)

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. G2, G3, G4, G5, G6, G7, AND G8 (FOR INTERIOR GDRS.)



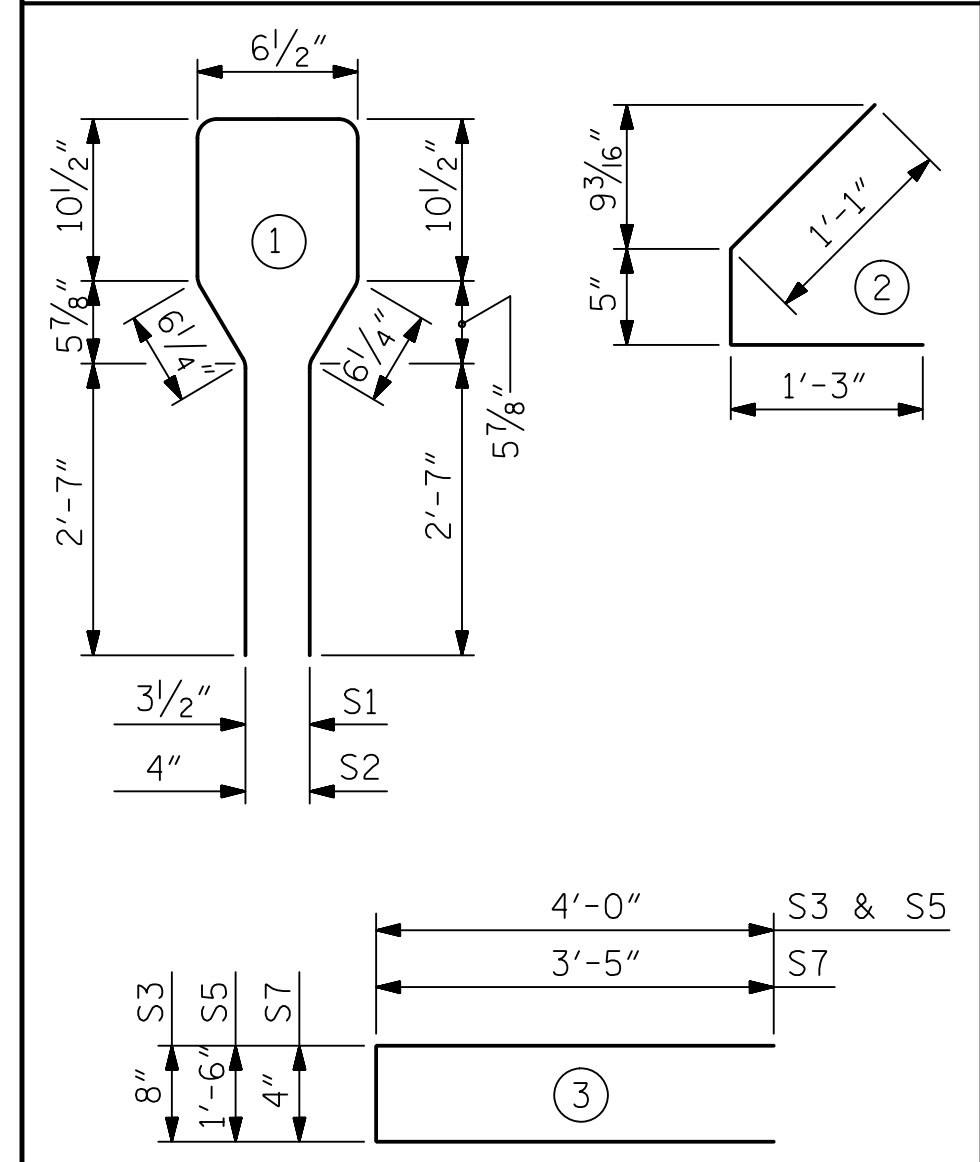
0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	68	#4	1	8'-6"	386
INTERIOR GDR.	S1	68	#4	1	8'-6"	386
	S2	12	#6	1	8'-6"	153
	S3	4	#4	3	8'-8"	23
	S4	56	#4	2	2'-9"	103
	S5	2	#4	3	9'-6"	13
EXTERIOR GDR.	S7	2	#5	3	7'-2"	15
INTERIOR GDR.	S7	4	#5	3	7'-2"	30
EXTERIOR GDR.	S8	5	#4	STR	7'-0"	23
INTERIOR GDR.	S9	5	#4	STR	12'-4"	41

BAR TYPES



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL (LB.)	6,000 PSI CONCRETE (C.Y.)	0.6" Ø L. R. STRANDS (No.)
EXTERIOR GIRDER	716	9.25	22
INTERIOR GIRDER	749	9.25	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
9	64'-3 5/8"	578.72'

PROJECT NO. **I-4700A**
 BUNCOMBE COUNTY
 STATION: **POC 912+89.86 -EBL-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA
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 RALEIGH

**AASHTO TYPE III
 PRESTRESSED CONCRETE GIRDER**

LEFT LANE

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1			3		
2			4		

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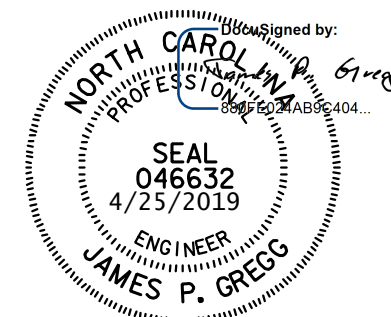
DRAWN BY : JMB 12/87 REV. 1/15 MAA/TMG
 CHECKED BY : ARB 12/87 REV. 2/15 MAA/TMG
 REV. 12/17 MAA/THC

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DWG. NO. 10



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 CHANNEL 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, CHANNELS, 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.

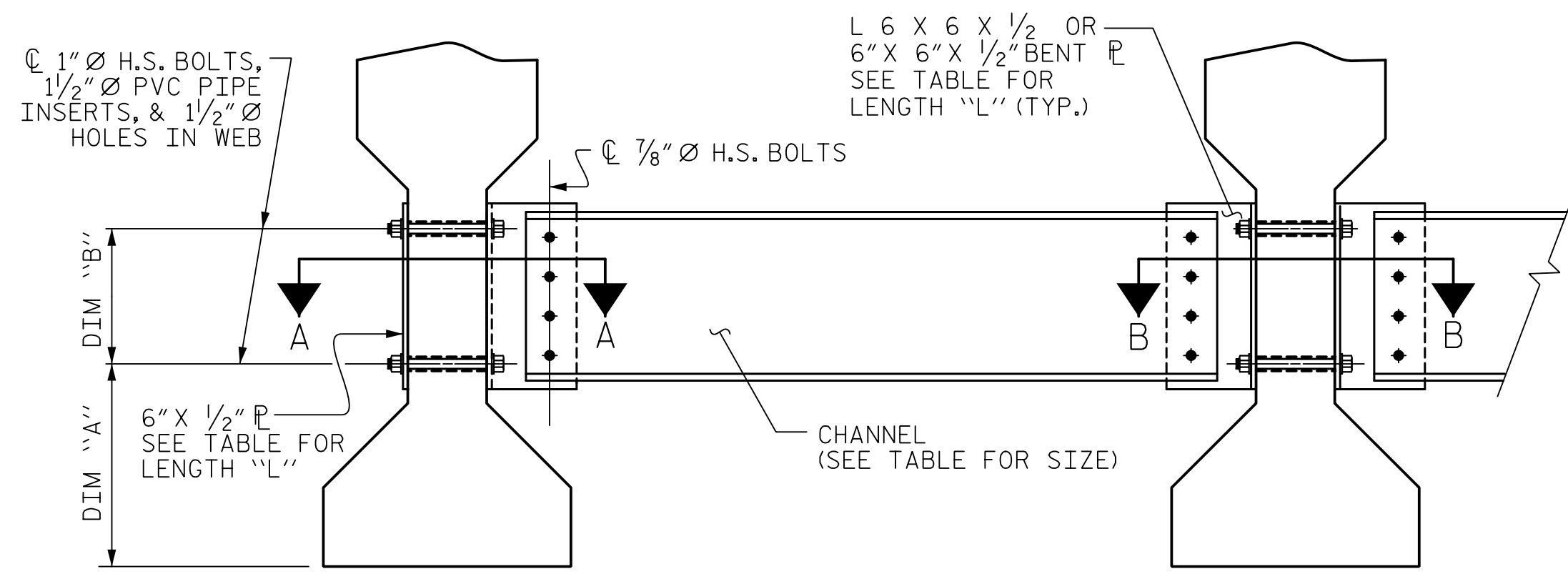
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

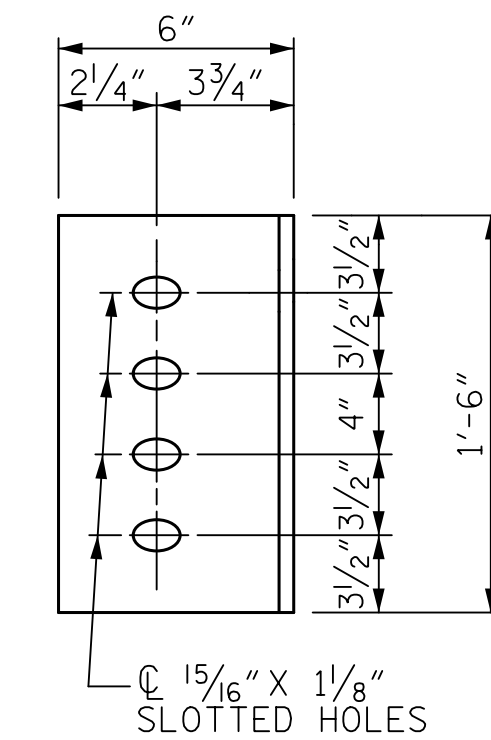
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

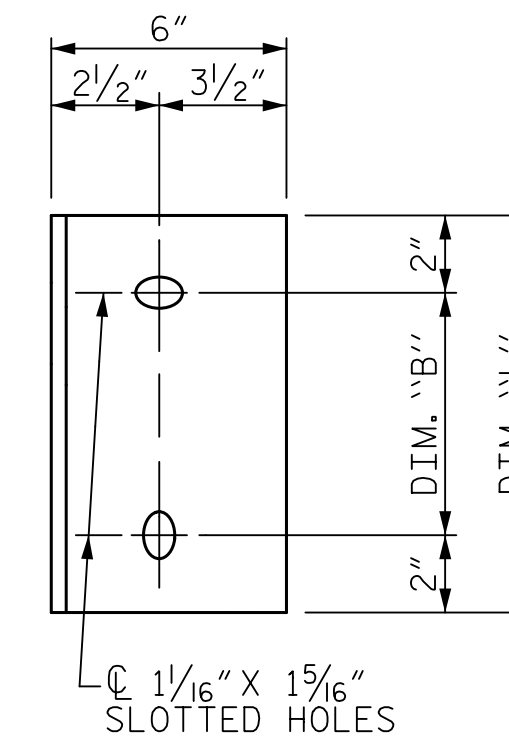
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



EXTERIOR GIRDER **INTERIOR GIRDER**
PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE



WEB FACE

CONNECTOR PLATE DETAILS

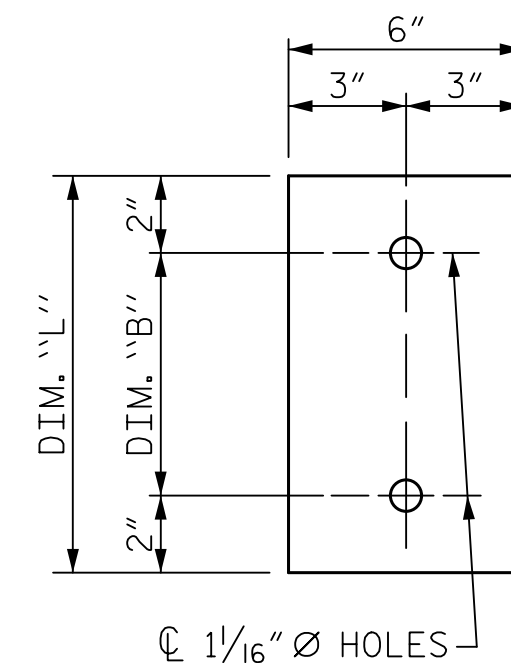
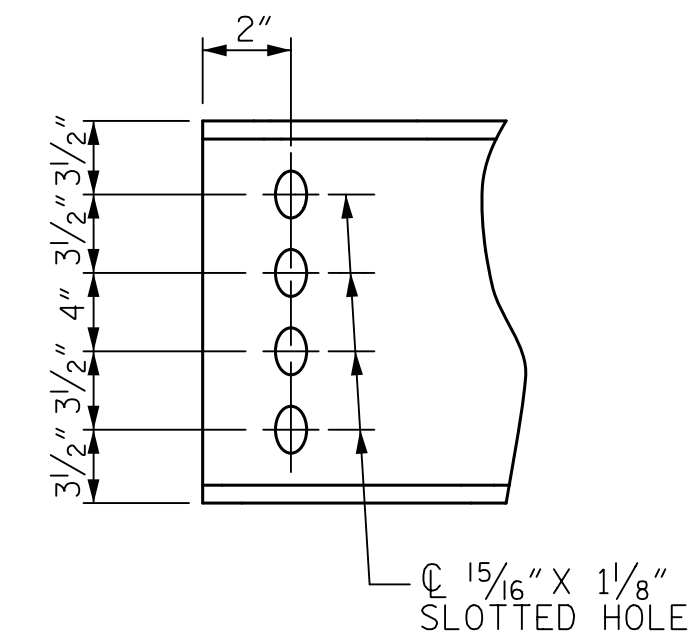
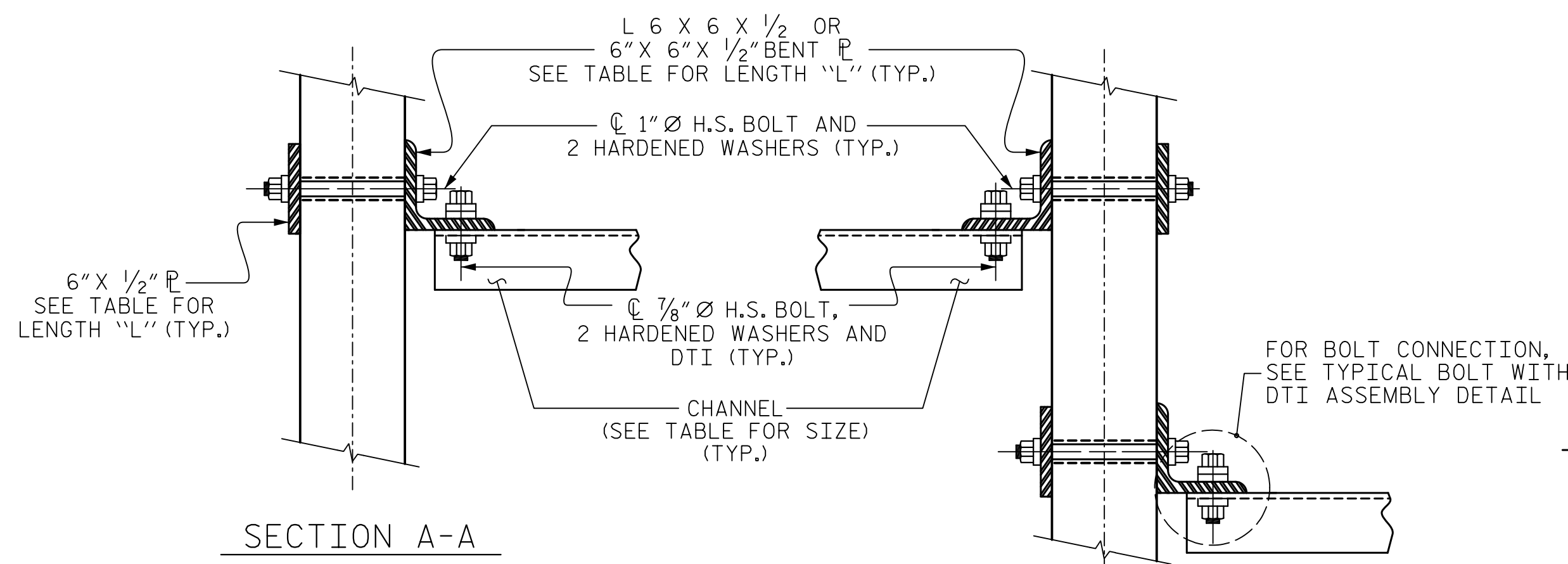


PLATE DETAILS



CHANNEL END



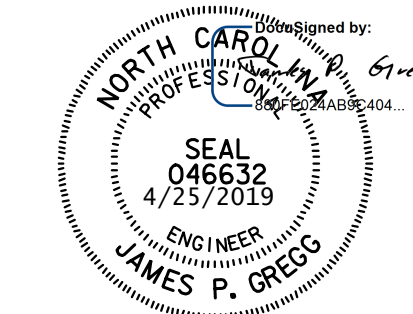
CONNECTION DETAILS

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
III	MC 18 x 42.7	1'-5"	1'-2"	1'-6"

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 912+89.86 -EBL-

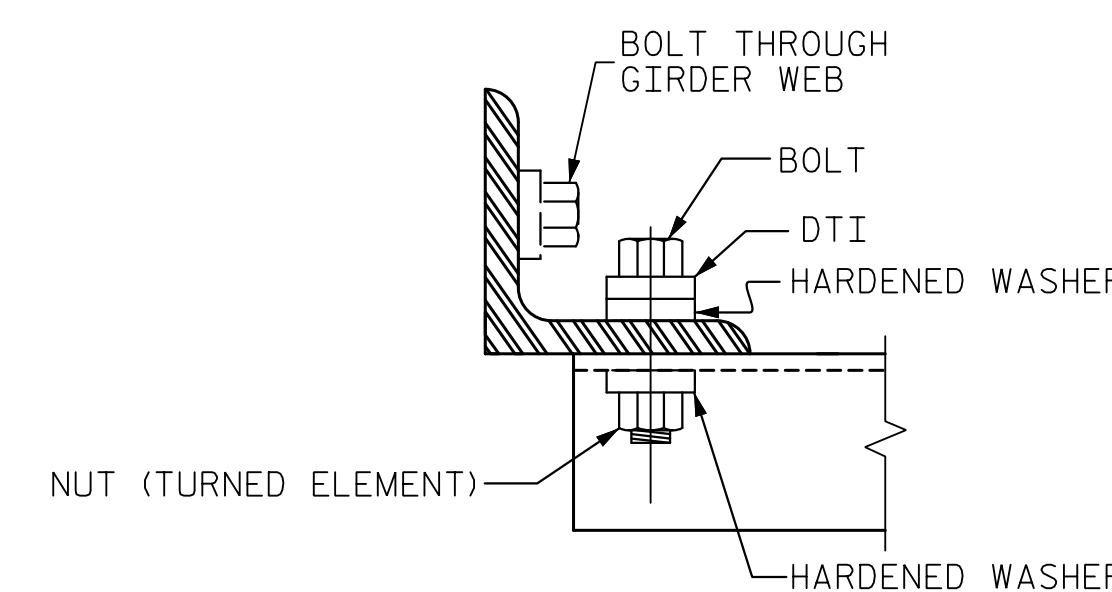
SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III & PRESTRESSED CONCRETE GIRDERS LEFT LANE

REVISIONS					SHEET NO.
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BOLT WITH DTI ASSEMBLY DETAIL

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DWG. NO. II

ASSEMBLED BY : J. PHILLIPS	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DRAWN BY : TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY : VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

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

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

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

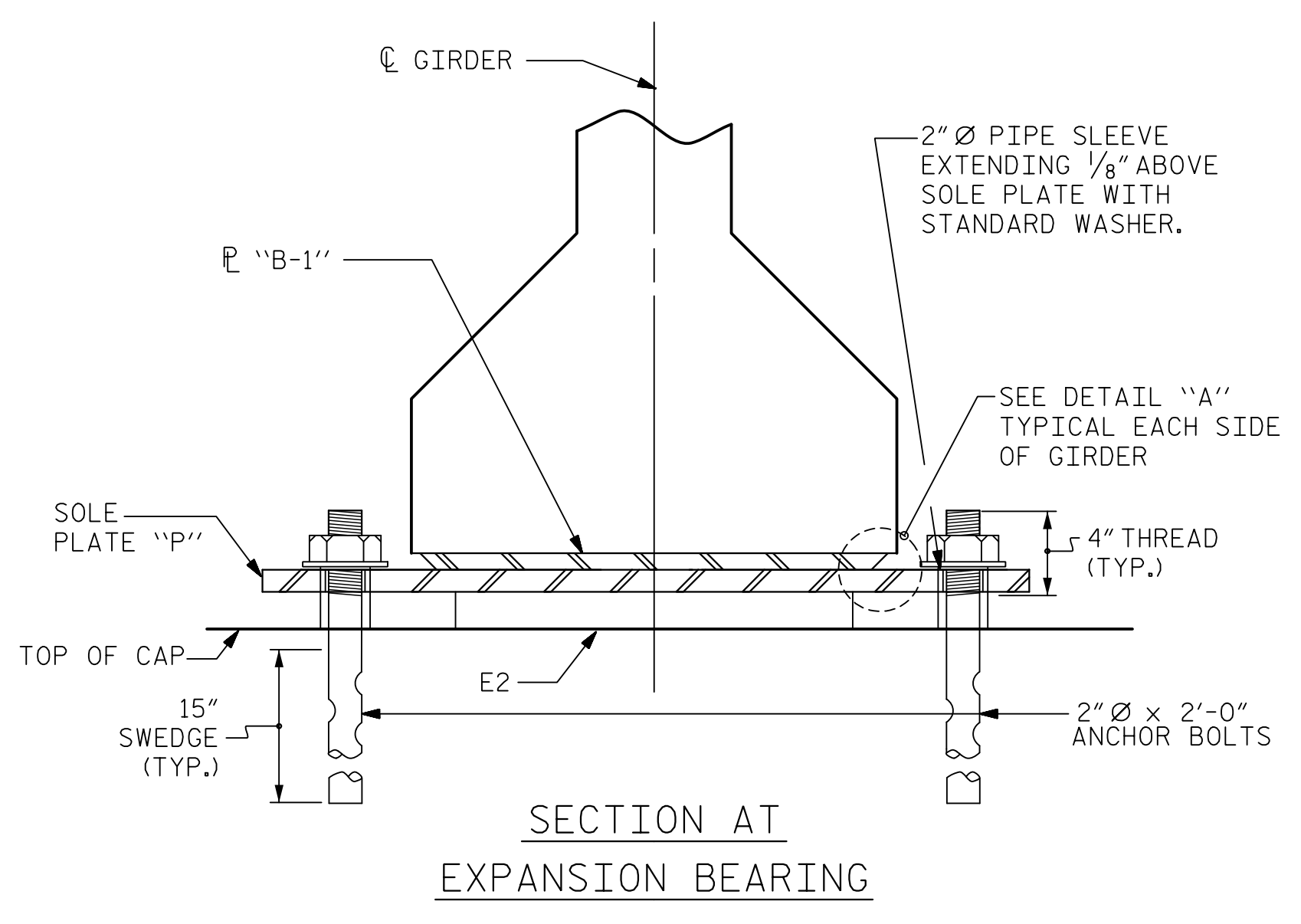
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

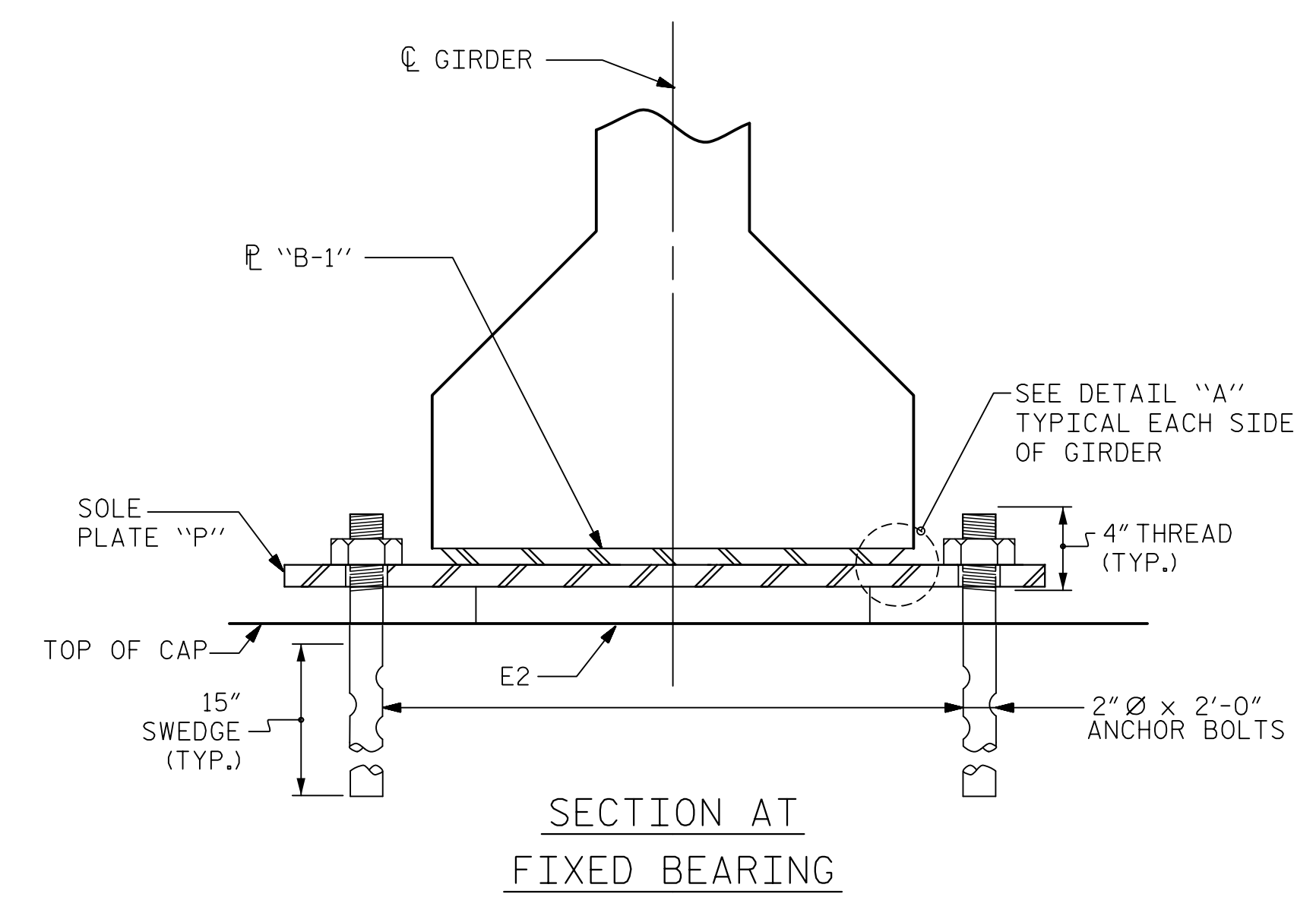
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

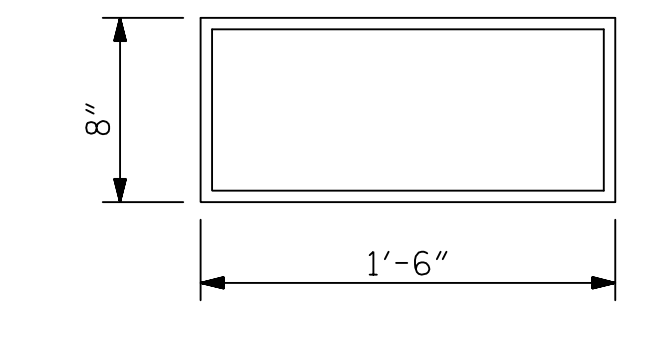
FOR BEARING AND SOLE PLATE LOCATIONS, SEE "FRAMING PLAN" SHEET.



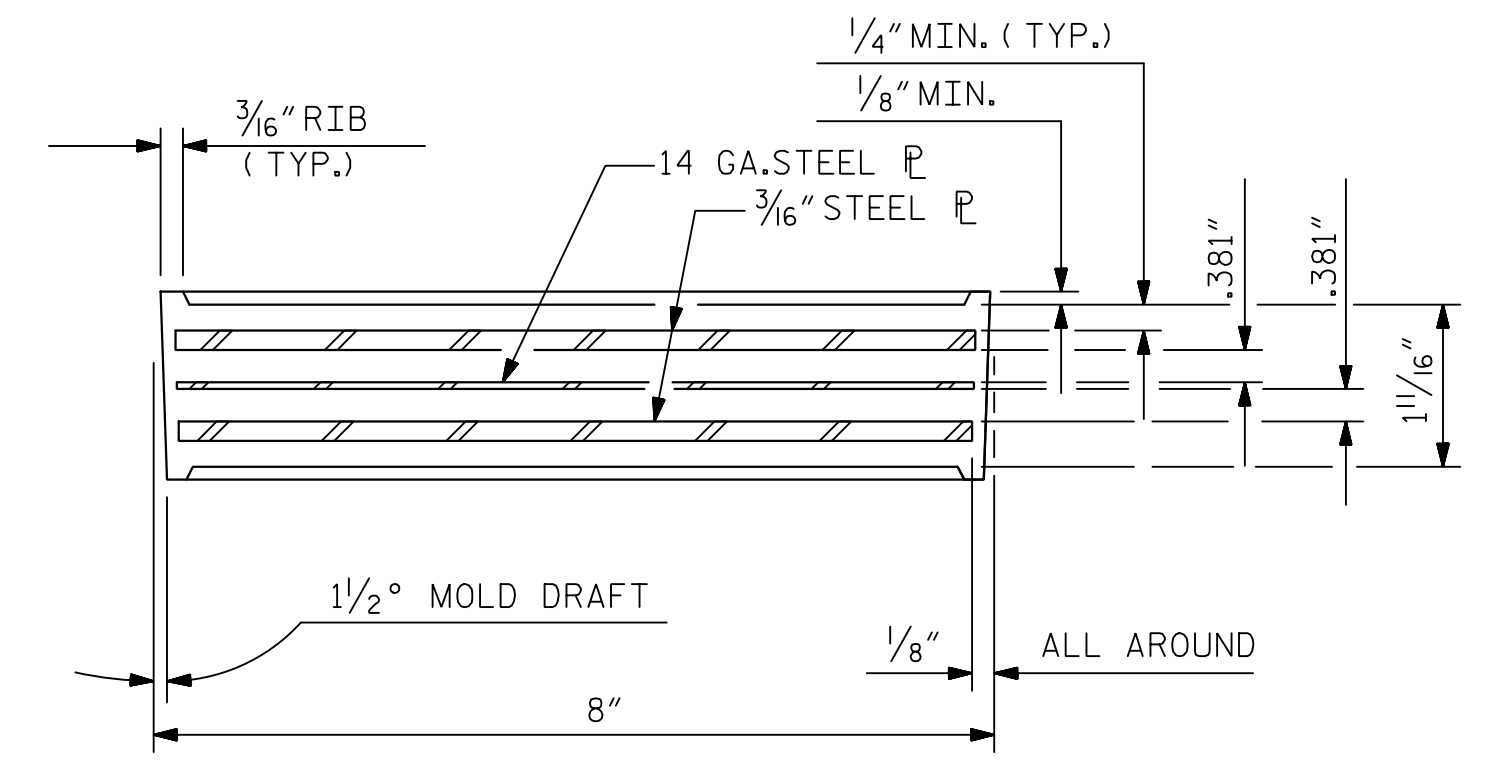
SECTION AT EXPANSION BEARING



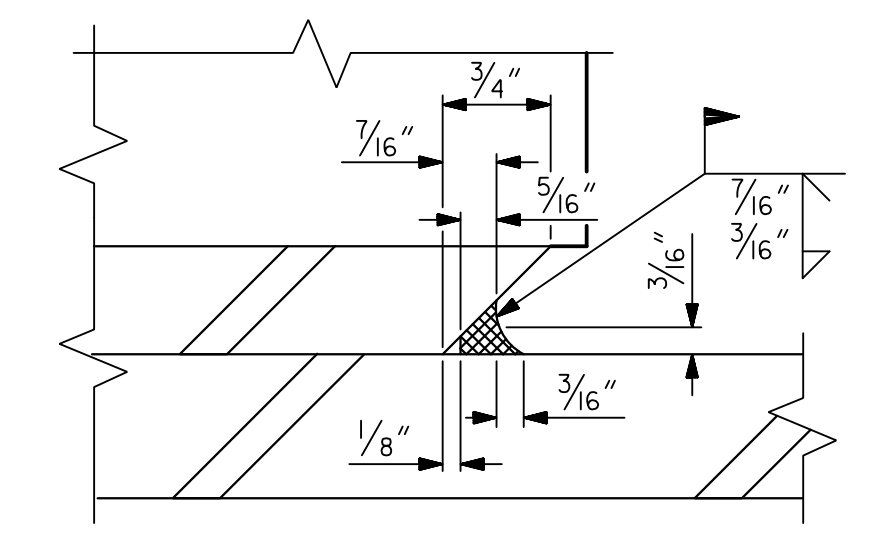
SECTION AT FIXED BEARING



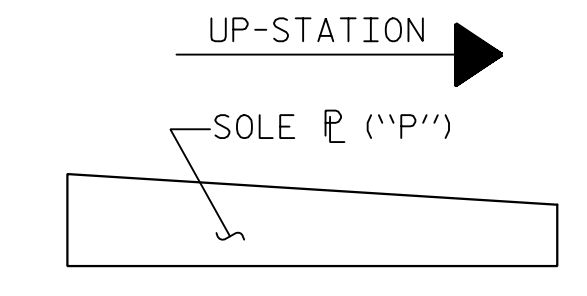
E2 (18 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE III



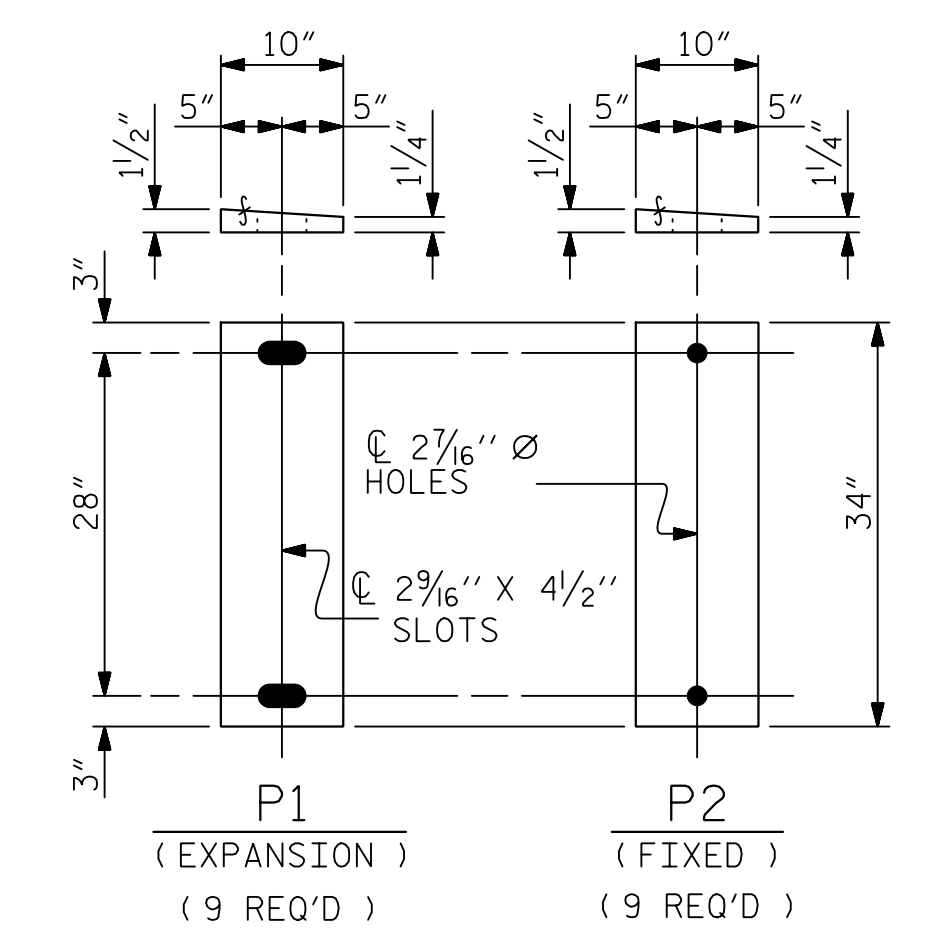
TYPICAL SECTION OF ELASTOMERIC BEARINGS



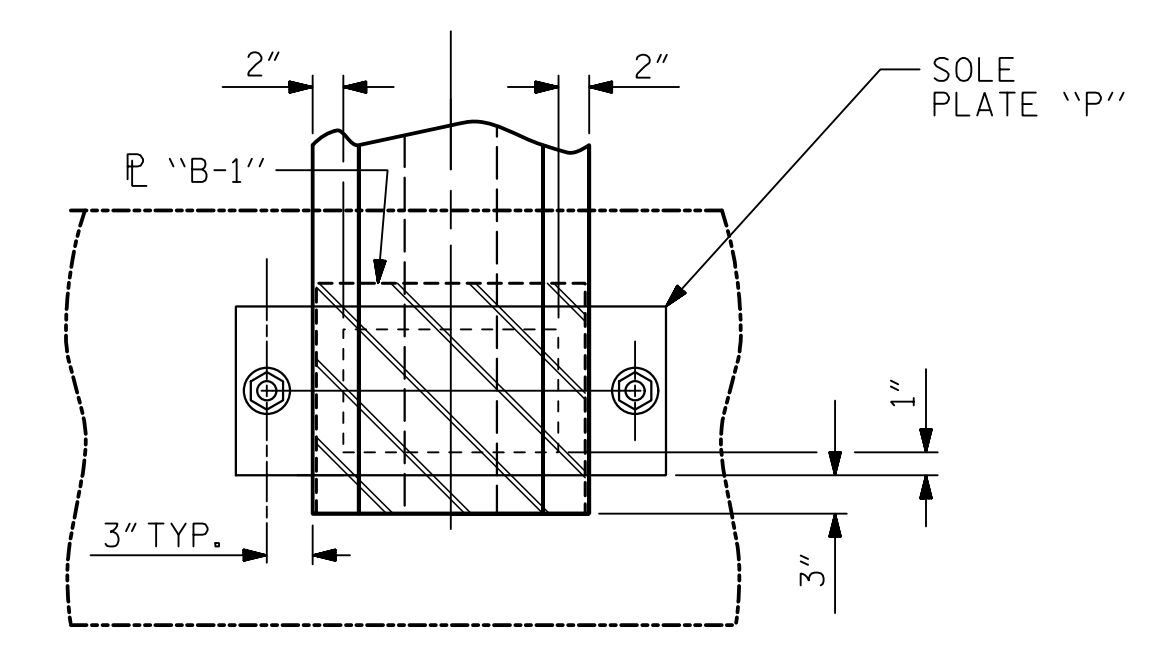
DETAIL "A"



SOLE "P" PLACEMENT DETAIL



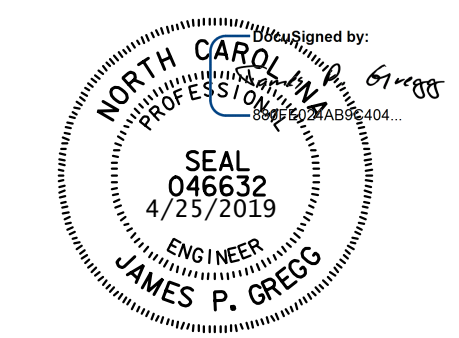
SOLE PLATE DETAILS ("P")



TYPICAL PLAN AT END OF GIRDER
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE III	205 K

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 912+89.86 -EBL-



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

ASSEMBLED BY : Z. GUO	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DRAWN BY : WJH 8/89	REV. 6/13 AAC/MAA
CHECKED BY : CRK 8/89	REV. 1/15 MAA/TMC
	REV. 12/17 MAA/THC

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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DRAWN BY : Z. GUO	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			31
2			4			

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 1										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.022	0.041	0.056	0.066	0.069	0.066	0.056	0.041	0.022	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.015	0.030	0.042	0.049	0.052	0.049	0.042	0.030	0.015	0.000
FINAL CAMBER	↑ 0	1/16	1/8	3/16	3/16	3/16	3/16	3/16	1/8	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 2 & 8										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.022	0.041	0.056	0.066	0.069	0.066	0.056	0.041	0.022	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.017	0.033	0.046	0.055	0.058	0.055	0.046	0.033	0.017	0.000
FINAL CAMBER	↑ 0	1/16	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/16	0

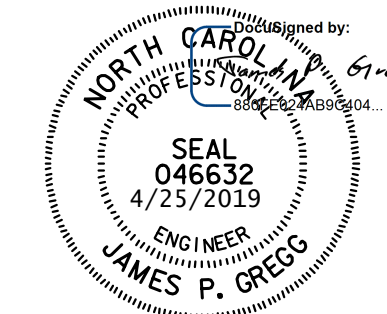
DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 3 & 7										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.022	0.041	0.056	0.066	0.069	0.066	0.056	0.041	0.022	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.016	0.033	0.046	0.054	0.057	0.054	0.046	0.033	0.016	0.000
FINAL CAMBER	↑ 0	1/16	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 4, 5 & 6										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.022	0.041	0.056	0.066	0.069	0.066	0.056	0.041	0.022	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.016	0.032	0.044	0.052	0.055	0.052	0.044	0.032	0.016	0.000
FINAL CAMBER	↑ 0	1/16	1/8	1/8	3/16	3/16	3/16	1/8	1/8	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 9										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.022	0.041	0.056	0.066	0.069	0.066	0.056	0.041	0.022	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.	* ↓ 0.000	0.016	0.031	0.043	0.051	0.054	0.051	0.043	0.031	0.016	0.000
FINAL CAMBER	↑ 0	1/16	1/8	1/8	3/16	3/16	3/16	1/8	1/8	1/16	0

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-



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 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: J. PHILLIPS DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 13

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS
 LEFT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-13
1			3			TOTAL SHEETS
2			4			31

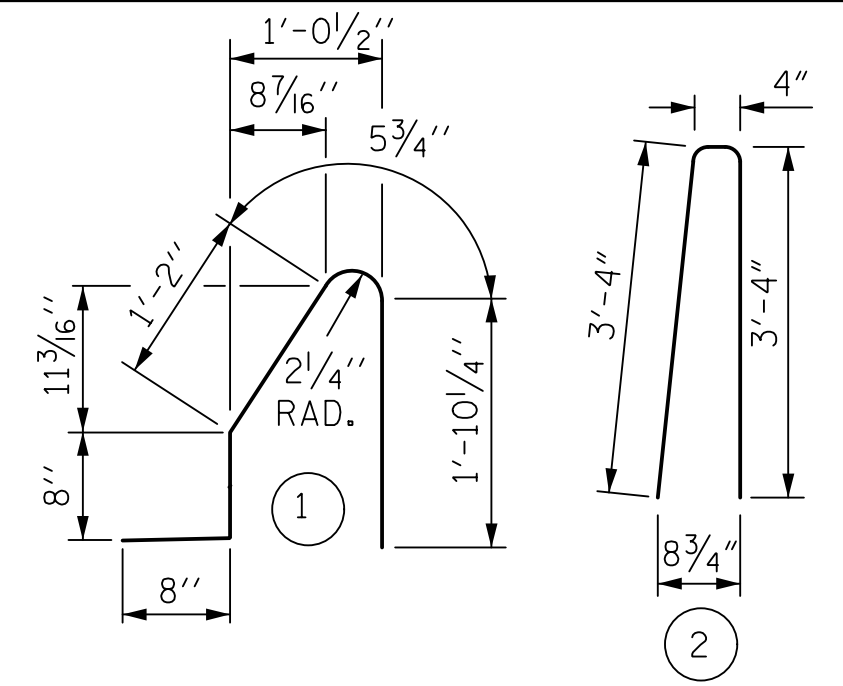
NOTES

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

BAR TYPES



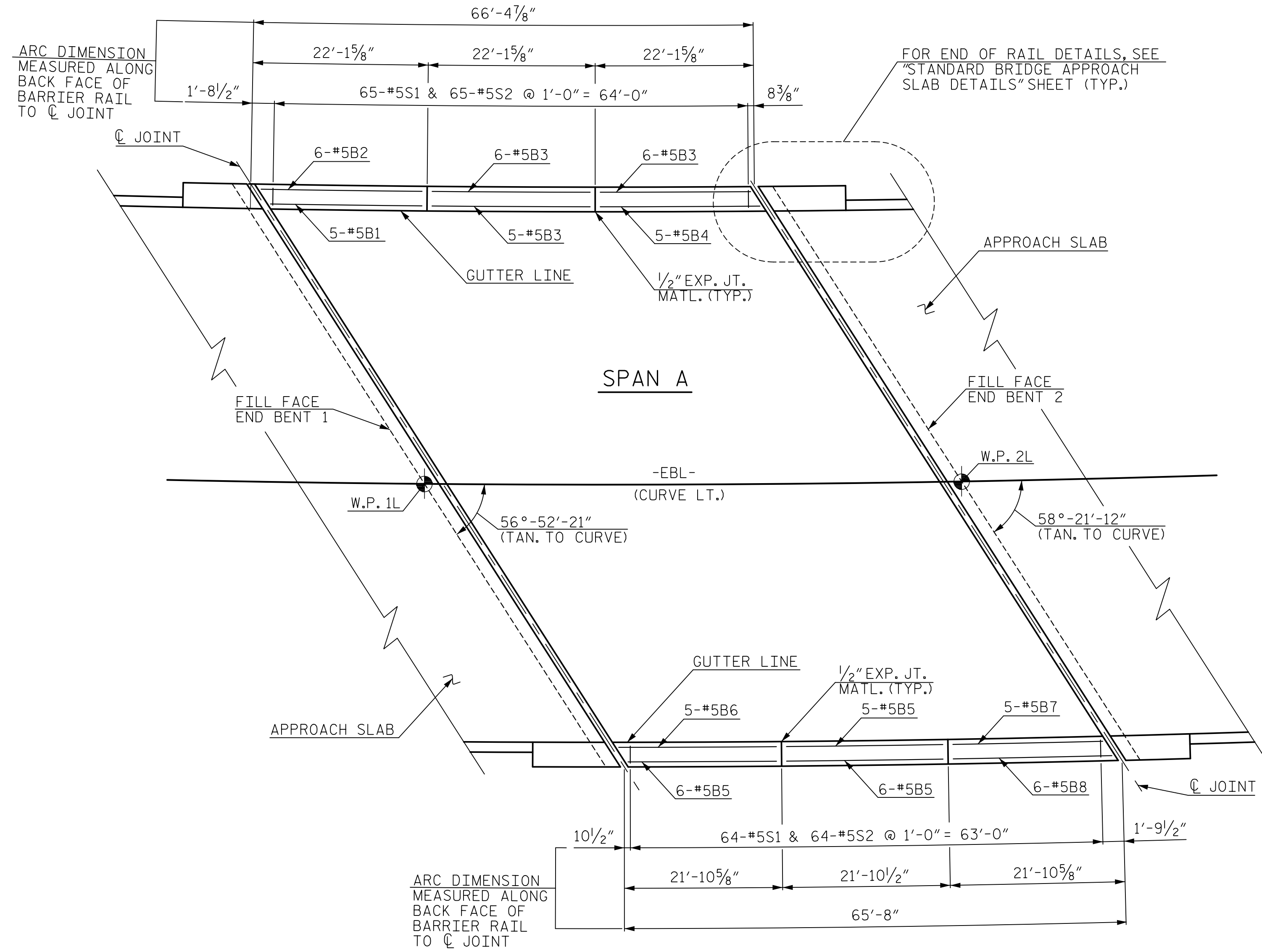
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	5	#5	STR	20'-11"	109
* B2	6	#5	STR	21'-6"	135
* B3	17	#5	STR	21'-10"	387
* B4	5	#5	STR	22'-6"	117
* B5	17	#5	STR	21'-7"	383
* B6	5	#5	STR	22'-3"	116
* B7	5	#5	STR	20'-8"	108
* B8	6	#5	STR	21'-3"	133
* S1	129	#5	1	4'-10"	650
* S2	129	#5	2	7'-0"	942

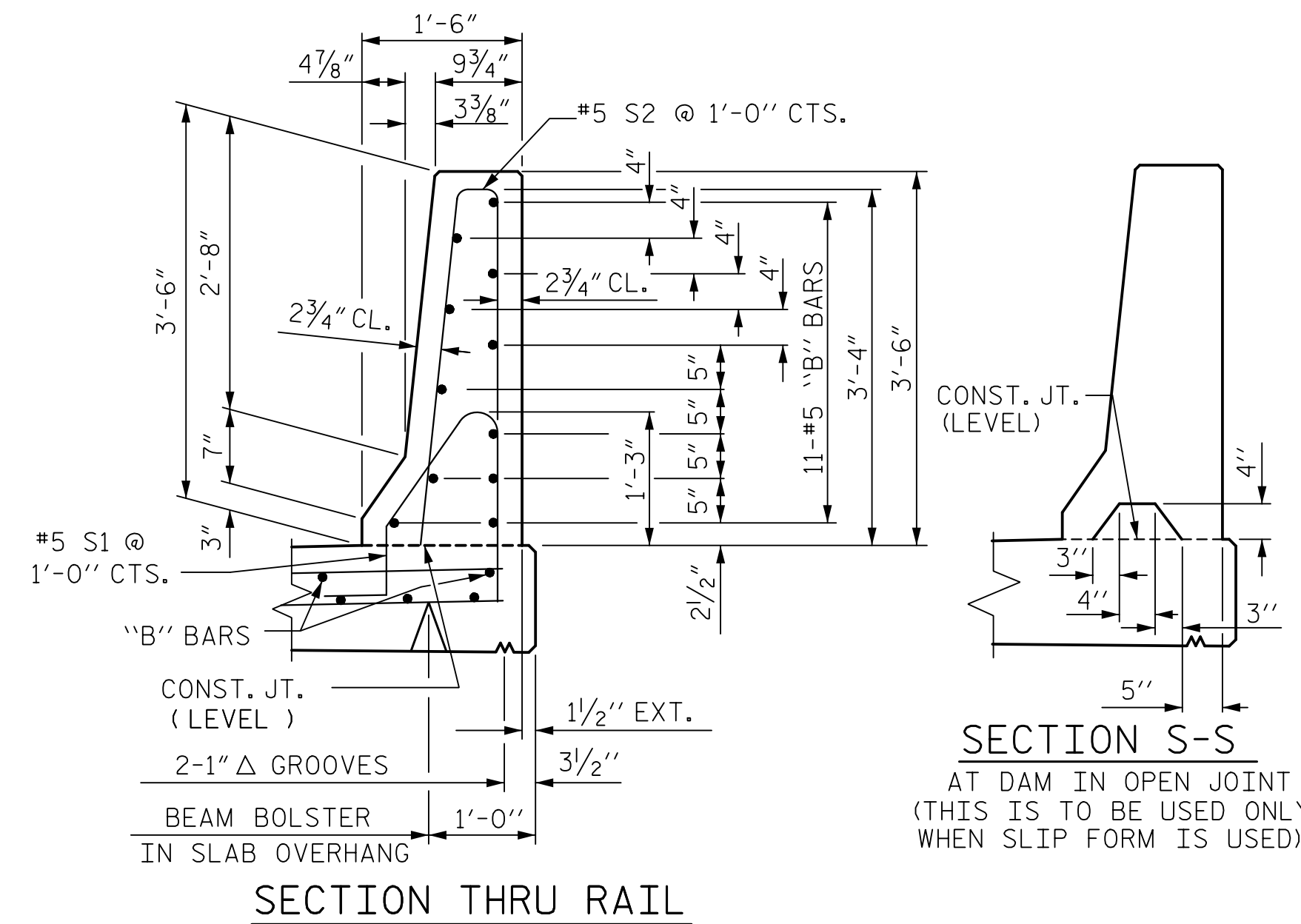
* EPOXY COATED REINFORCING STEEL 3,080 LBS.
 CLASS AA CONCRETE 17.9 CU. YDS.
 CONCRETE BARRIER RAIL 132.03 LIN. FT.

NOTE: FOR BARRIER RAIL EXTENSIONS ON APPROACH SLABS, SEE "STANDARD BRIDGE APPROACH SLAB DETAILS" SHEET.

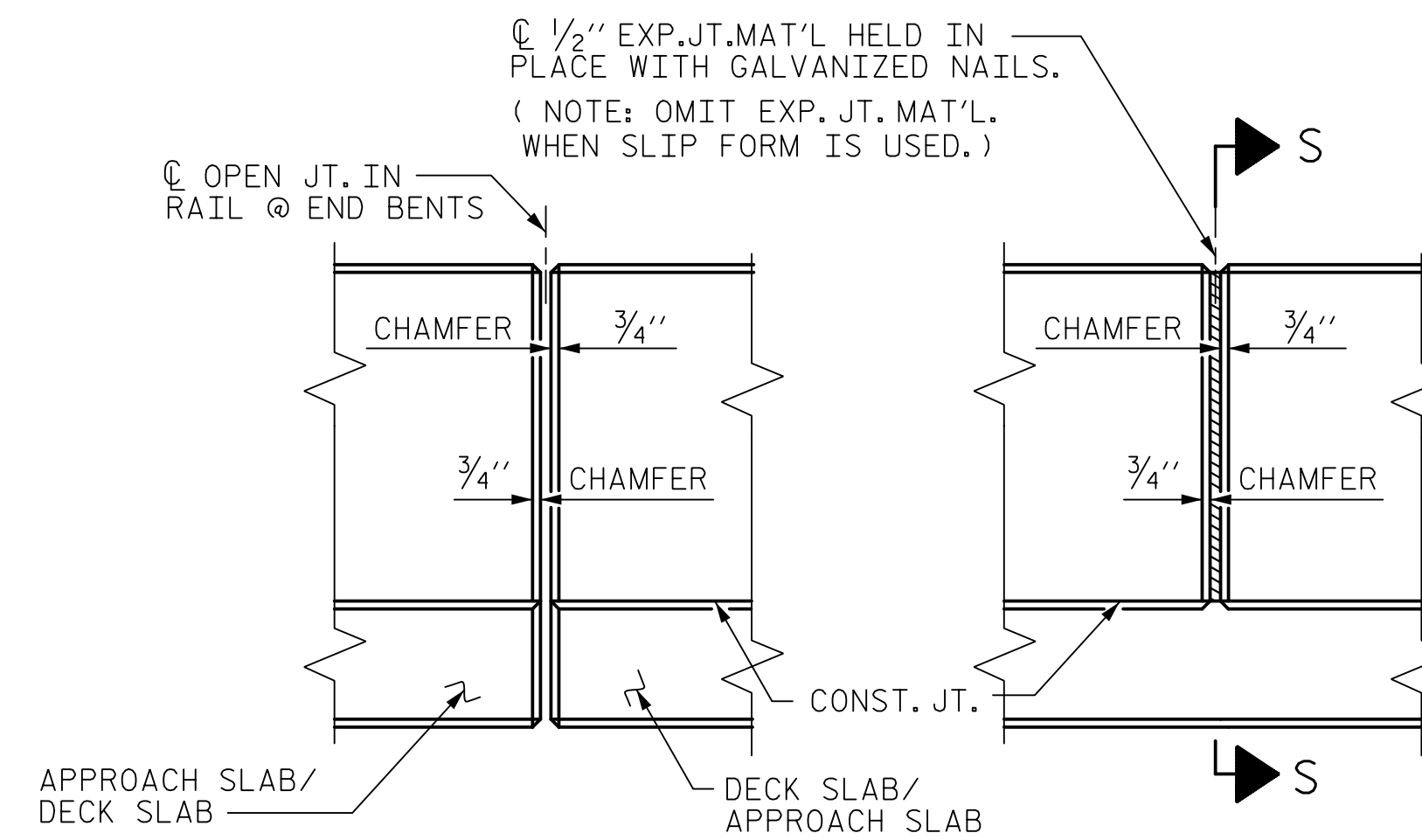


PLAN OF BARRIER RAIL

NOTE: EDGE OF SLAB NOT SHOWN FOR CLARITY.



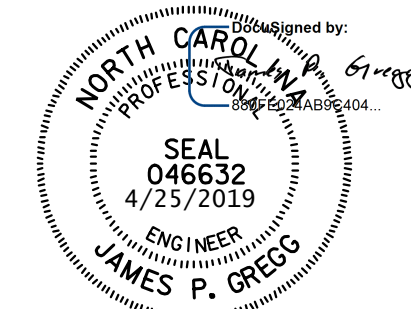
SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-



ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY : E. JOWZA	DATE : 12/18
CHECKED BY : A. KANG	DATE : 12/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD CONCRETE BARRIER RAIL					
LEFT LANE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
SHEET NO. SI-14					TOTAL SHEETS 31

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

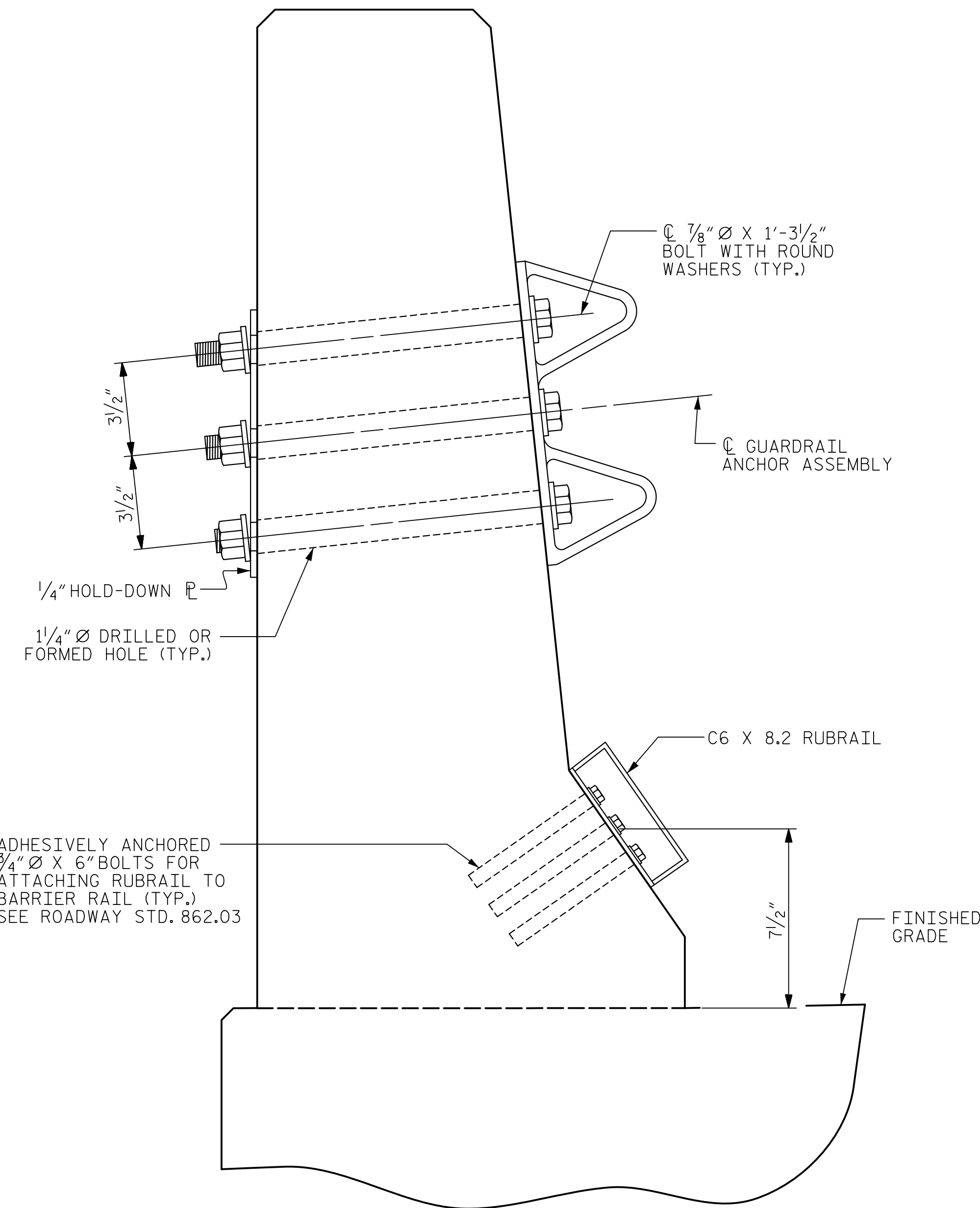
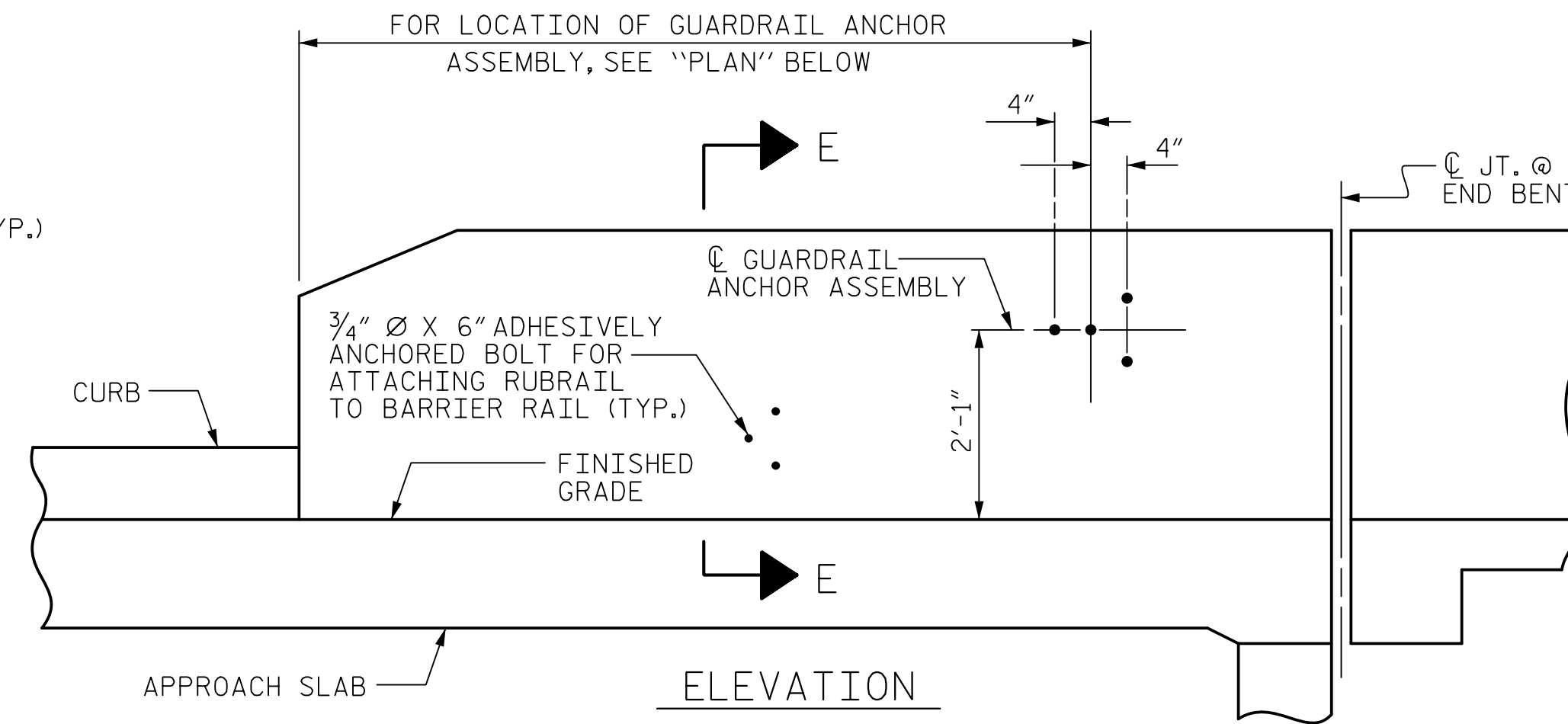
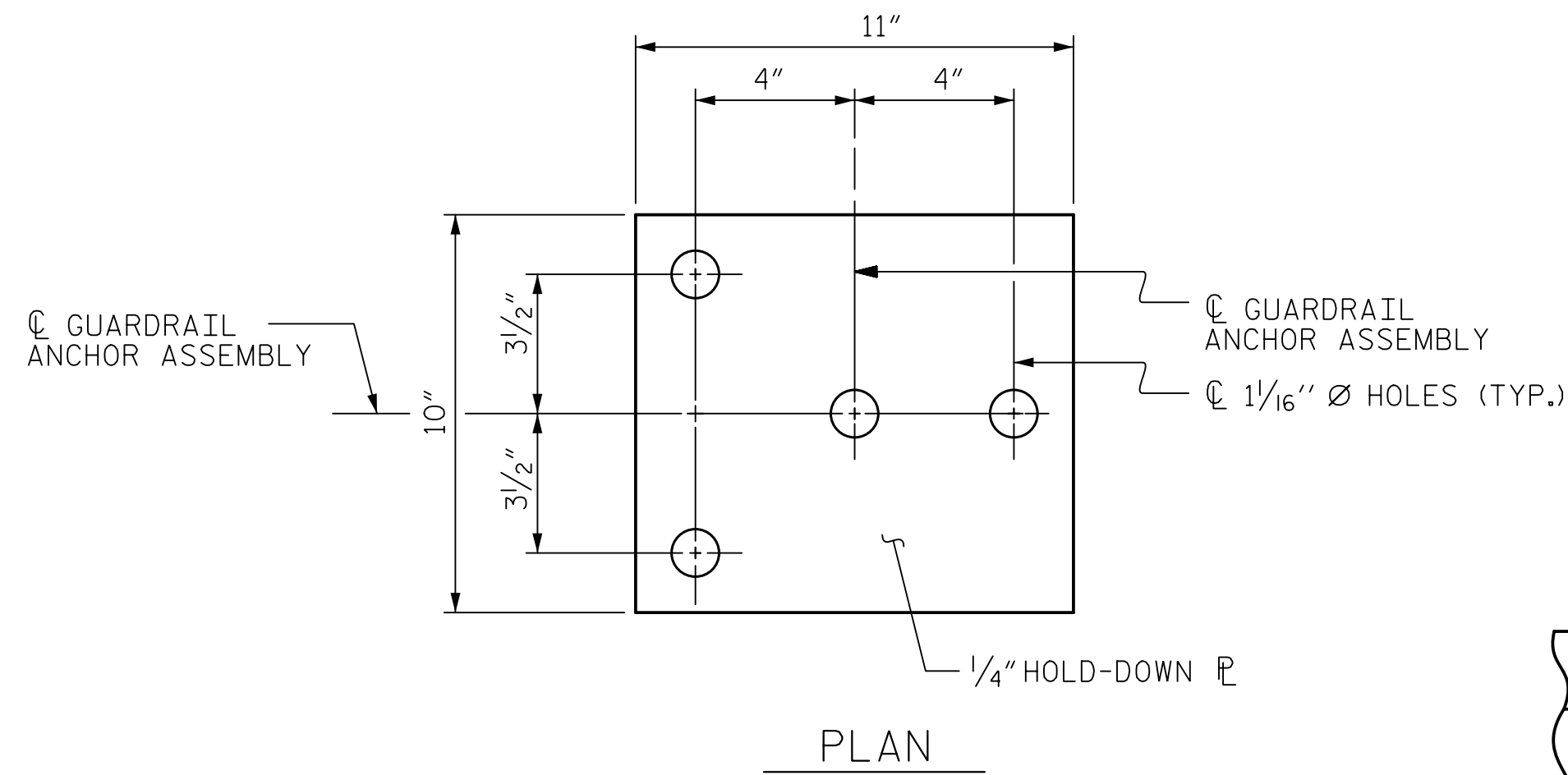
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

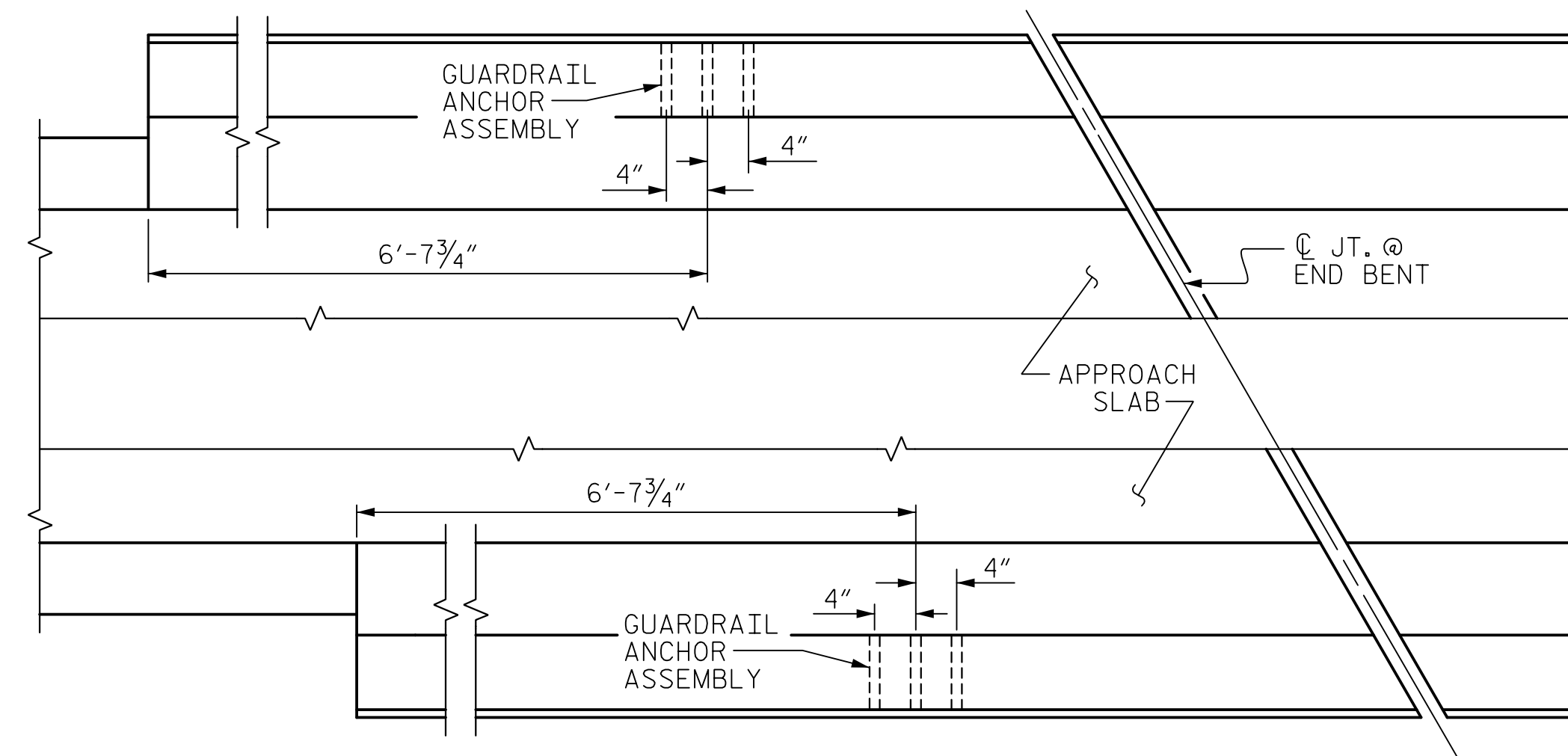
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

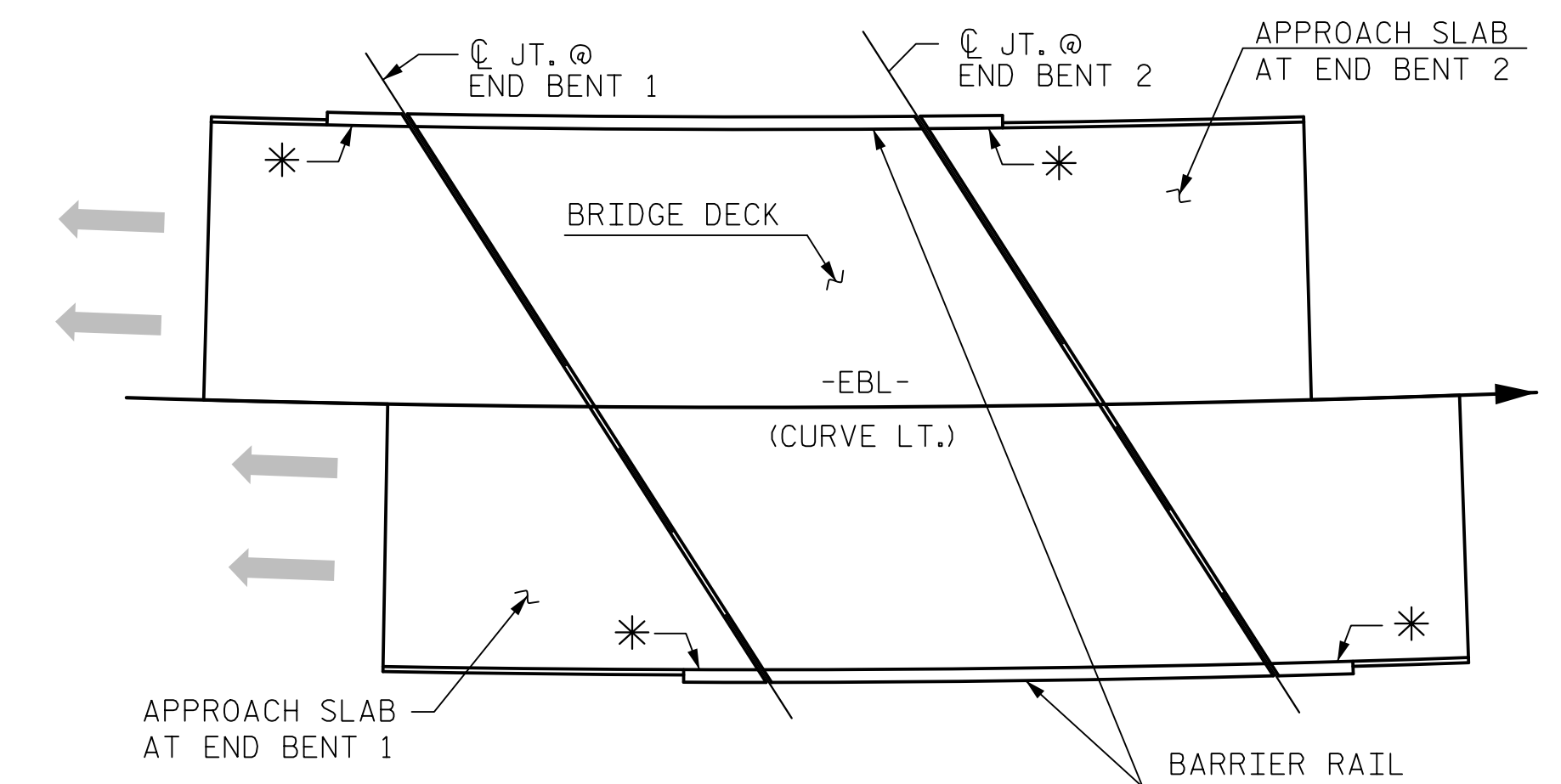


SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

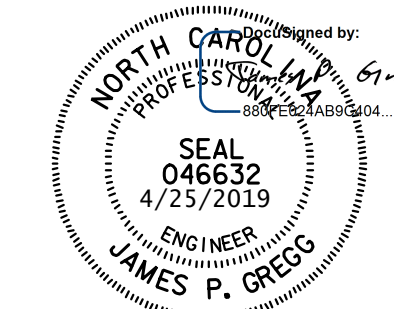
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-



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

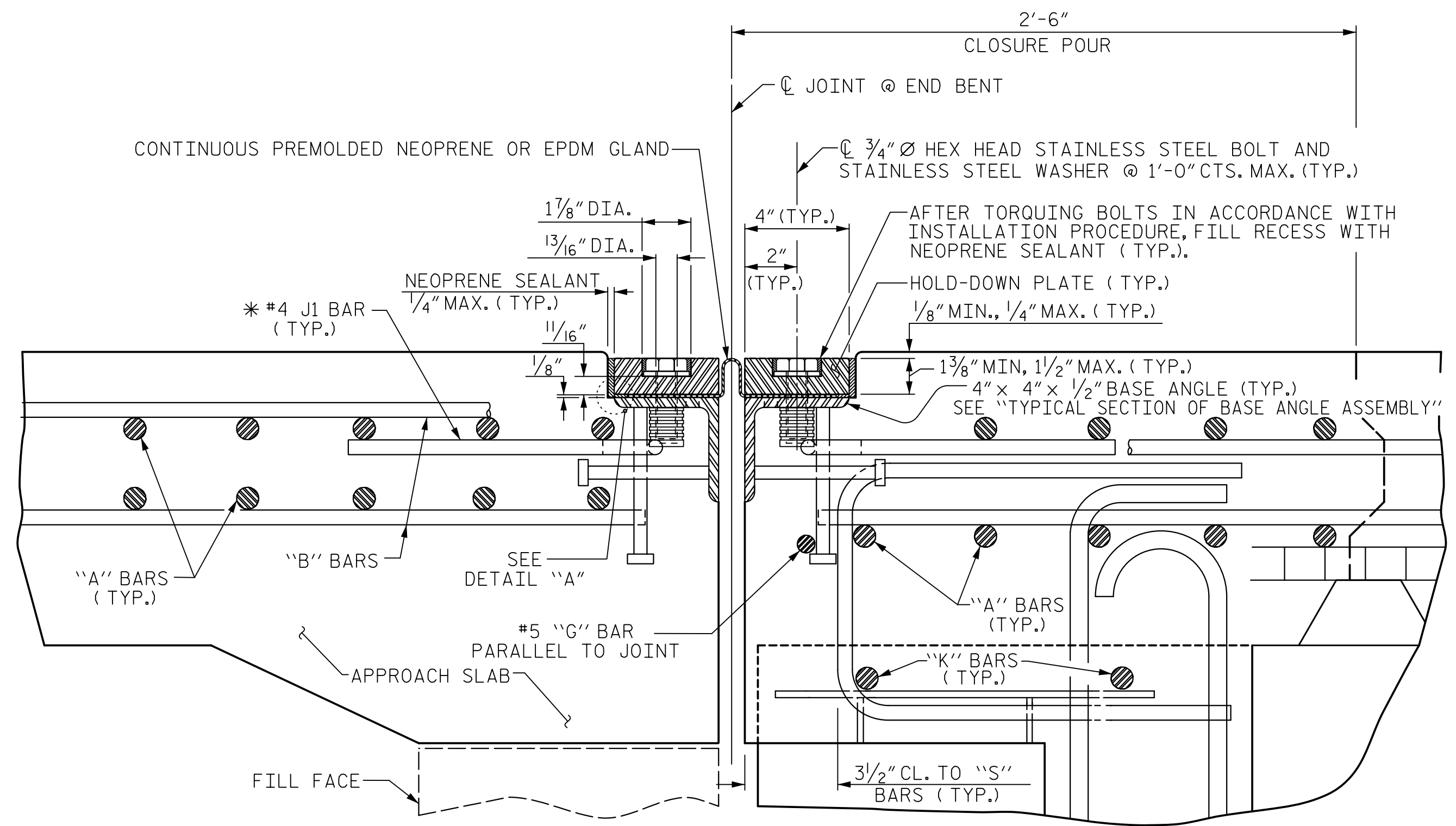
ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY : E. JOWZA	DATE : 12/18	DWG. NO. 15	
CHECKED BY : A. KANG	DATE : 12/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19		

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

TOTAL SHEETS: 31



EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

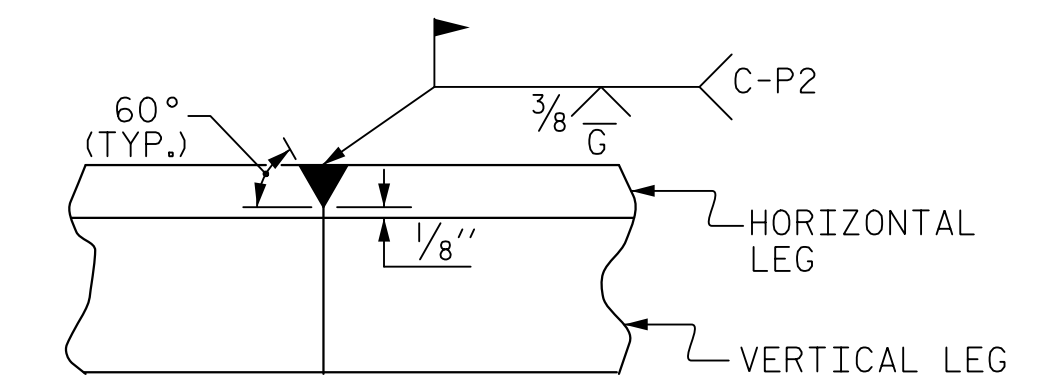
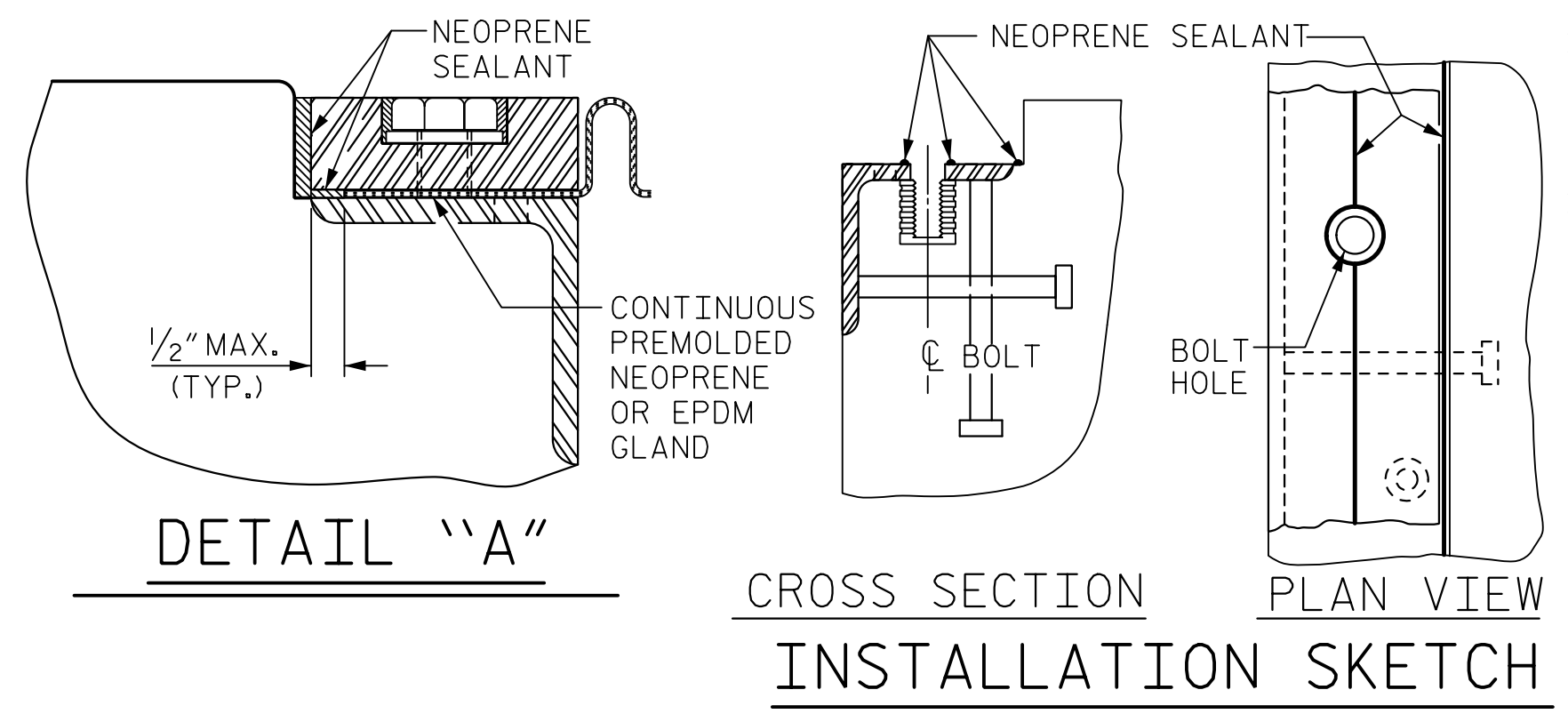
* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

INSTALLATION PROCEDURE

1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4 1/8" TO 4 1/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE 3/4" Ø HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" Ø HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X 1/2" BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED 1/8" IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE BUT DO NOT TIGHTEN. THE ENGINEER SHALL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES, THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, AND THE LIFTING HOLES IN THE HOLD-DOWN PLATE, AND COMPLETELY FILL THE RECESSES AND LIFTING HOLES WITH NEOPRENE SEALANT.

GENERAL NOTES

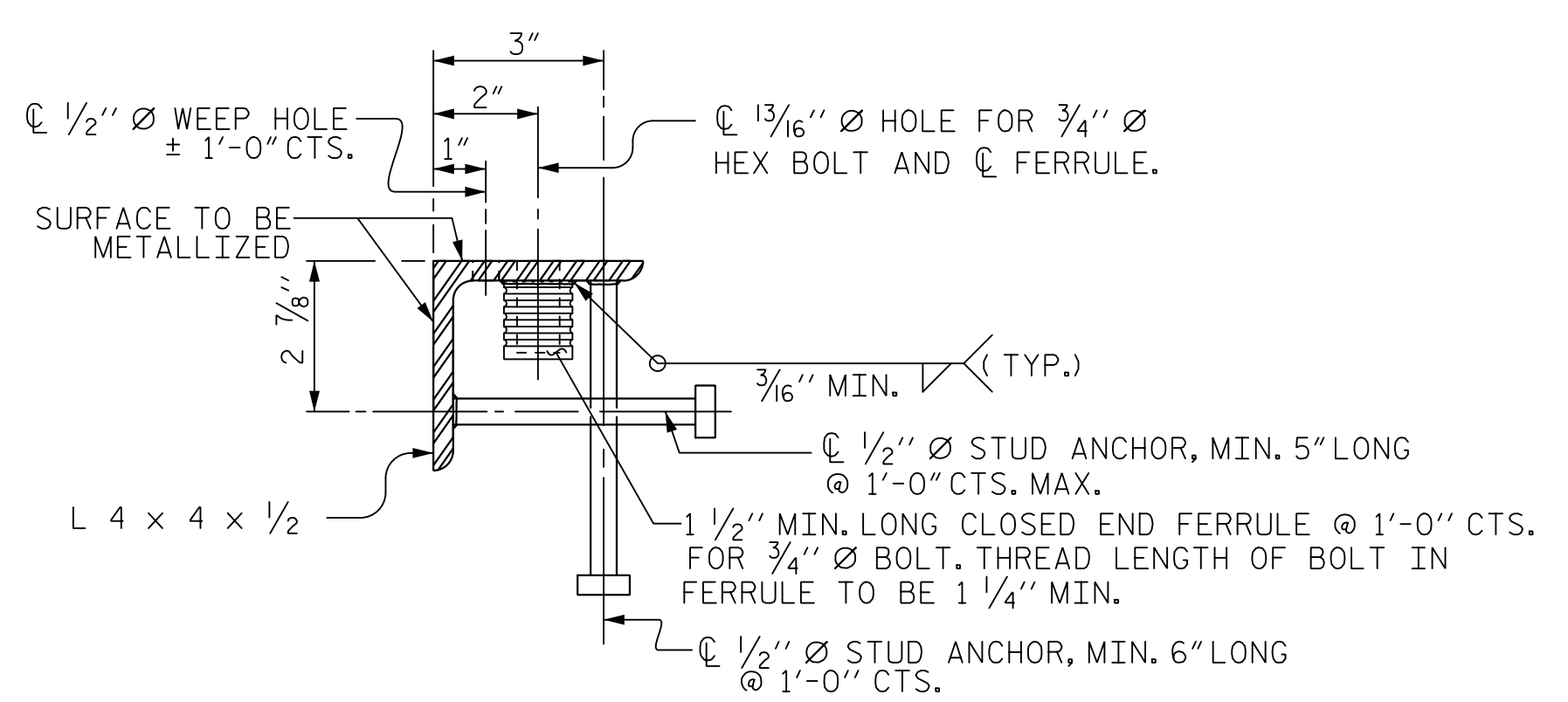
1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MINIMUM.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD-DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
7. THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
8. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
9. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
10. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
11. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
12. THE FABRICATOR SHALL PROVIDE 1/2" Ø THREADED HOLES IN THE HOLD-DOWN PLATES TO ASSIST IN LIFTING AND PLACING. THE HOLES SHALL BE 3/4" DEEP AT 6'-0" MAXIMUM SPACING AND A MINIMUM OF TWO HOLES PER PLATE.



DETAIL- FIELD WELD SPLICE OF BASE ANGLE

MOVEMENT AND SETTING AT JOINT					
END BENT NO.	SKEW ANGLE *	TOTAL MOVEMENT (ALONG C RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	56°-52'-21"	3/8"	1 1/4"	1 3/8"	1 1/16"
2	58°-21'-12"	0"	1"	1"	1"

* MEASURED TANGENT TO CURVE AT FILL FACE



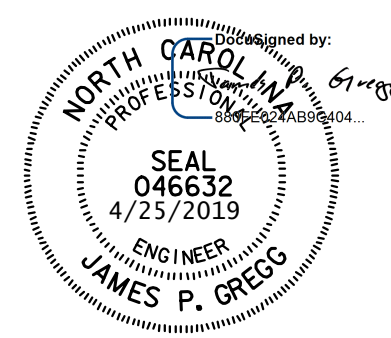
TYPICAL SECTION OF BASE ANGLE ASSEMBLY

ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : REK 9/87	REV. 10/17 MAA/GM
CHECKED BY : CRK 10/87	REV. 10/17 MAA/THC
	REV. 6/18 MAA/THC

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: E. JOWZA DATE: 12/18
 CHECKED BY: A. KANG DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 16



PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 1 OF 2

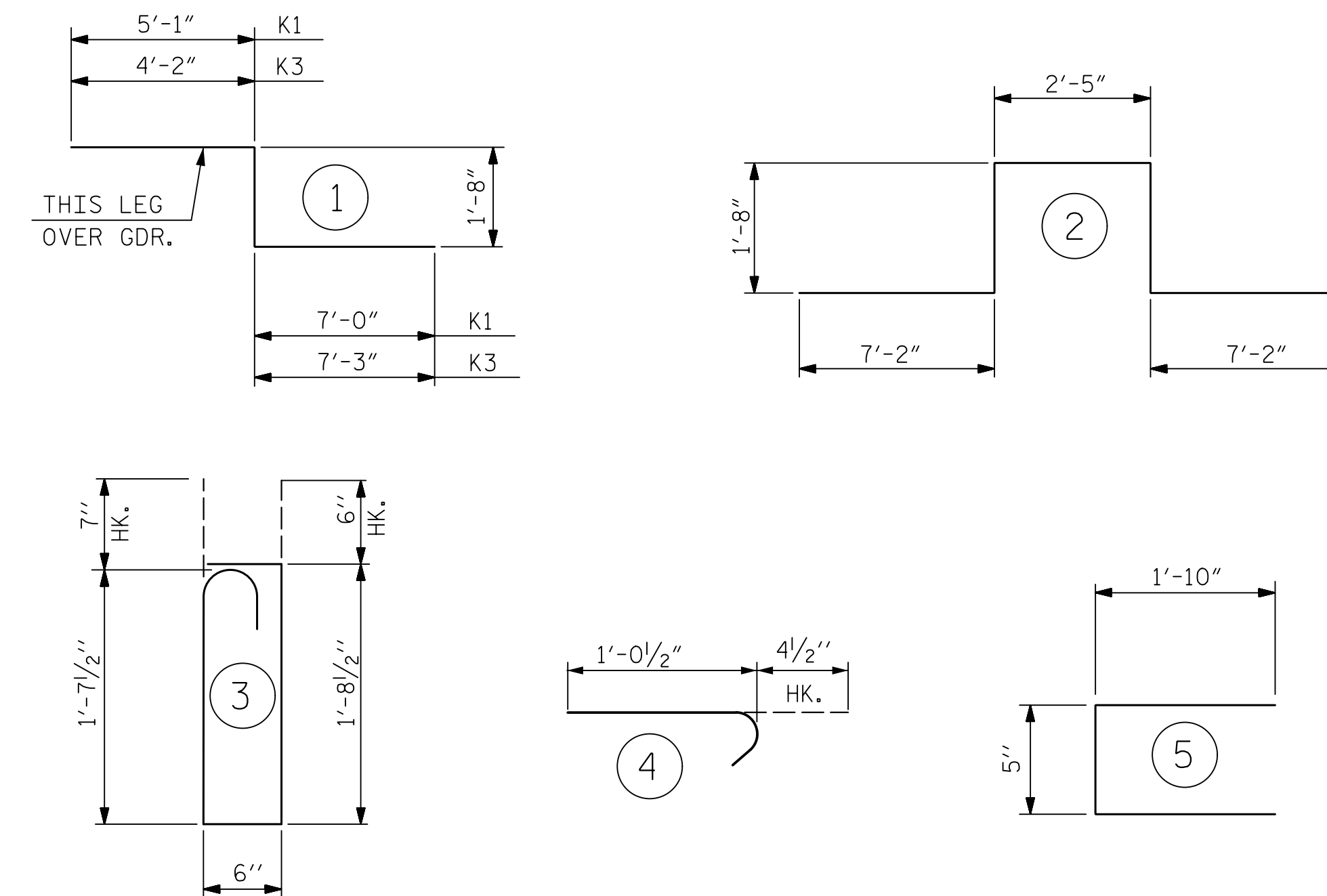
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD EXPANSION JOINT SEAL DETAILS					
LEFT LANE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. SI-16
					TOTAL SHEETS 31

REINFORCING BAR SCHEDULE					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A1	125	5	STR	22'-10"	2,977
* A2	39	5	STR	52'-8"	2,143
* A3	1	5	STR	37'-9"	40
* A4	1	5	STR	36'-11"	39
* A5	1	5	STR	36'-2"	38
* A6	1	5	STR	35'-4"	37
* A7	1	5	STR	34'-7"	37
* A8	1	5	STR	33'-10"	36
* A9	1	5	STR	33'-0"	35
* A10	1	5	STR	32'-3"	34
* A11	1	5	STR	31'-6"	33
* A12	1	5	STR	30'-8"	32
* A13	1	5	STR	29'-11"	32
* A14	1	5	STR	29'-2"	31
* A15	1	5	STR	28'-4"	30
* A16	1	5	STR	27'-7"	29
* A17	1	5	STR	26'-9"	28
* A18	1	5	STR	26'-0"	28
* A19	1	5	STR	25'-3"	27
* A20	1	5	STR	24'-5"	26
* A21	1	5	STR	23'-8"	25
* A22	1	5	STR	22'-11"	24
* A23	1	5	STR	22'-1"	24
* A24	1	5	STR	21'-4"	23
* A25	1	5	STR	20'-7"	22
* A26	1	5	STR	19'-9"	21
* A27	1	5	STR	19'-0"	20
* A28	1	5	STR	18'-2"	19
* A29	1	5	STR	17'-5"	19
* A30	1	5	STR	16'-8"	18
* A31	1	5	STR	15'-10"	17
* A32	1	5	STR	15'-1"	16
* A33	1	5	STR	14'-4"	15
* A34	1	5	STR	13'-6"	15
* A35	1	5	STR	12'-9"	14
* A36	1	5	STR	12'-0"	13
* A37	1	5	STR	11'-2"	12
* A38	1	5	STR	10'-5"	11
* A39	1	5	STR	9'-7"	10
* A40	1	5	STR	8'-10"	10
* A41	1	5	STR	8'-1"	9
* A42	1	5	STR	7'-3"	8
* A43	1	5	STR	6'-6"	7
* A44	1	5	STR	5'-9"	6
* A45	1	5	STR	4'-11"	6
* A46	1	5	STR	4'-2"	5
* A47	1	5	STR	3'-5"	4
* A48	1	5	STR	51'-6"	54
* A49	1	5	STR	50'-8"	53
* A50	1	5	STR	49'-11"	53
* A51	1	5	STR	49'-1"	52
* A52	1	5	STR	48'-4"	51
* A53	1	5	STR	47'-6"	50
* A54	1	5	STR	46'-9"	49
* A55	1	5	STR	45'-11"	48
* A56	1	5	STR	45'-2"	48
* A57	1	5	STR	44'-4"	47
* A58	1	5	STR	43'-7"	46
* A59	1	5	STR	42'-10"	45
* A60	1	5	STR	42'-0"	44
* A61	1	5	STR	41'-3"	44
* A62	1	5	STR	40'-5"	43
* A63	1	5	STR	39'-8"	42
* A64	1	5	STR	38'-10"	41
* A65	1	5	STR	38'-1"	40
* A66	1	5	STR	37'-3"	39
* A67	1	5	STR	36'-6"	39
* A68	1	5	STR	35'-8"	38
* A69	1	5	STR	34'-11"	37
* A70	1	5	STR	34'-2"	36
* A71	1	5	STR	33'-4"	35
* A72	1	5	STR	32'-7"	34
* A73	1	5	STR	31'-9"	34

REINFORCING BAR SCHEDULE					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A74	1	5	STR	31'-0"	33
* A75	1	5	STR	30'-2"	32
* A76	1	5	STR	29'-5"	31
* A77	1	5	STR	28'-7"	30
* A78	1	5	STR	27'-10"	30
* A79	1	5	STR	27'-0"	29
* A80	1	5	STR	26'-3"	28
* A81	1	5	STR	25'-6"	27
* A82	1	5	STR	24'-8"	26
* A83	1	5	STR	23'-11"	25
* A84	1	5	STR	23'-1"	25
* A85	1	5	STR	22'-4"	24
* A86	1	5	STR	21'-6"	23
* A87	1	5	STR	20'-9"	22
* A88	1	5	STR	19'-11"	21
* A89	1	5	STR	19'-2"	20
* A90	1	5	STR	18'-5"	20
* A91	1	5	STR	51'-2"	54
* A92	1	5	STR	50'-4"	53
* A93	1	5	STR	49'-7"	52
* A94	1	5	STR	48'-9"	51
* A95	1	5	STR	48'-0"	51
* A96	1	5	STR	47'-2"	50
* A97	1	5	STR	46'-5"	49
* A98	1	5	STR	45'-8"	48
* A99	1	5	STR	44'-10"	47
* A100	1	5	STR	44'-1"	46
* A101	1	5	STR	43'-3"	46
* A102	1	5	STR	42'-6"	45
* A103	1	5	STR	41'-9"	44
* A104	1	5	STR	40'-11"	43
* A105	1	5	STR	40'-2"	42
* A106	1	5	STR	39'-4"	42
* A107	1	5	STR	38'-7"	41
* A108	1	5	STR	37'-10"	40
* A109	1	5	STR	37'-0"	39
* A110	1	5	STR	36'-3"	38
* A111	1	5	STR	35'-5"	37
* A112	1	5	STR	34'-8"	37
* A113	1	5	STR	33'-11"	36
* A114	1	5	STR	33'-1"	35
* A115	1	5	STR	32'-4"	34
* A116	1	5	STR	31'-6"	33
* A117	1	5	STR	30'-9"	33
* A118	1	5	STR	30'-0"	32
* A119	1	5	STR	29'-2"	31
* A120	1	5	STR	28'-5"	30
* A121	1	5	STR	27'-7"	29
* A122	1	5	STR	26'-10"	28
* A123	1	5	STR	26'-1"	28
* A124	1	5	STR	25'-3"	27
* A125	1	5	STR	24'-6"	26
* A126	1	5	STR	23'-8"	25
* A127	1	5	STR	22'-11"	24
* A128	1	5	STR	22'-2"	24
* A129	1	5	STR	21'-4"	23
* A130	1	5	STR	20'-7"	22
* A131	1	5	STR	19'-9"	21
* A132	1	5	STR	19'-0"	20
* A133	1	5	STR	18'-3"	20
* A134	1	5	STR	37'-9"	40
* A135	1	5	STR	36'-11"	39
* A136	1	5	STR	36'-1"	38
* A137	1	5	STR	35'-4"	37
* A138	1	5	STR	34'-6"	36
* A139	1	5	STR	33'-9"	36
* A140	1	5	STR	32'-11"	35
* A141	1	5	STR	32'-2"	34
* A142	1	5	STR	31'-4"	33
* A143	1	5	STR	30'-6"	32
* A144	1	5	STR	29'-9"	32
* A145	1	5	STR	28'-11"	31
* A146	1	5	STR	28'-2"	30

REINFORCING BAR SCHEDULE					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A147	1	5	STR	27'-4"	29
* A148	1	5	STR	26'-7"	28
* A149	1	5	STR	25'-9"	27
* A150	1	5	STR	25'-0"	27
* A151	1	5	STR	24'-2"	26
* A152	1	5	STR	23'-4"	25
* A153	1	5	STR	22'-7"	24
* A154	1	5	STR	21'-9"	23
* A155	1	5	STR	21'-0"	22
* A156	1	5	STR	20'-2"	22
* A157	1	5	STR	19'-5"	21
* A158	1	5	STR	18'-7"	20
* A159	1	5	STR	17'-10"	19
* A160	1	5	STR	17'-0"	18
* A161	1	5	STR	16'-2"	17
* A162	1	5	STR	15'-5"	17
* A163	1	5	STR	14'-7"	16
* A164	1	5	STR	13'-10"	15
* A165	1	5	STR	13'-0"	14
* A166	1	5	STR	12'-3"	13
* A167	1	5	STR	11'-5"	12
* A168	1	5	STR	10'-8"	12
* A169	1	5	STR	9'-10"	11
* A170	1	5	STR	9'-0"	10
* A171	1	5	STR	8'-3"	9
* A172	1	5	STR	7'-5"	8
* A173	1	5	STR	6'-8"	7
* A174	1	5	STR	5'-10"	7
* A175	1	5	STR	5'-1"	6
* A176	1	5	STR	4'-3"	5
* A177	1	5	STR	3'-6"	4
* A178	6	6	STR	16'-0"	145
* A201	122	5	STR	6'-0"	764
* A202	1	5	STR	3'-9"	4
* A203	1	5	STR	5'-4"	6
* A204	1	5	STR	5'-6"	6
* A205	1	5	STR	3'-11"	5
* B1	153	4	STR	23'-5"	2394
* G1	2	5	STR	44'-10"	94
* G2	2	5	STR	44'-2"	93
* J1	165	4	4	1'-5"	157
* K1	4	8	1	13'-9"	147
* K2	28	8	2	20'-2"	1508
* K3	4	8	1	13'-1"	140
* S1	112	5	3	4'-11"	575
* S2	112	4	5	4'-3"	318
EPOXY COATED REINFORCING STEEL TOTAL:					16,592

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR 1	133.6	18,341	16,592
POUR 2	19.9		
TOTALS**	153.5	18,341	16,592

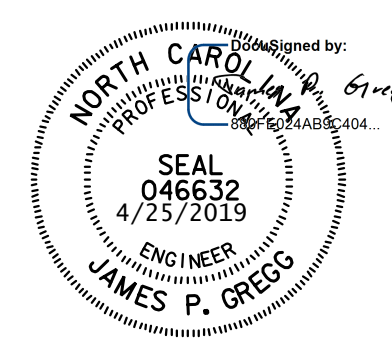
**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. CONCRETE IN CLOSURE POUR AT SLAB EXPANSION JOINTS IS INCLUDED IN POUR 2 QUANTITY.

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

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL
 LEFT LANE



ASSEMBLED BY : J. PHILLIPS	DATE : 1/19
CHECKED BY : Z. GUO	DATE : 1/19
DRAWN BY : JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

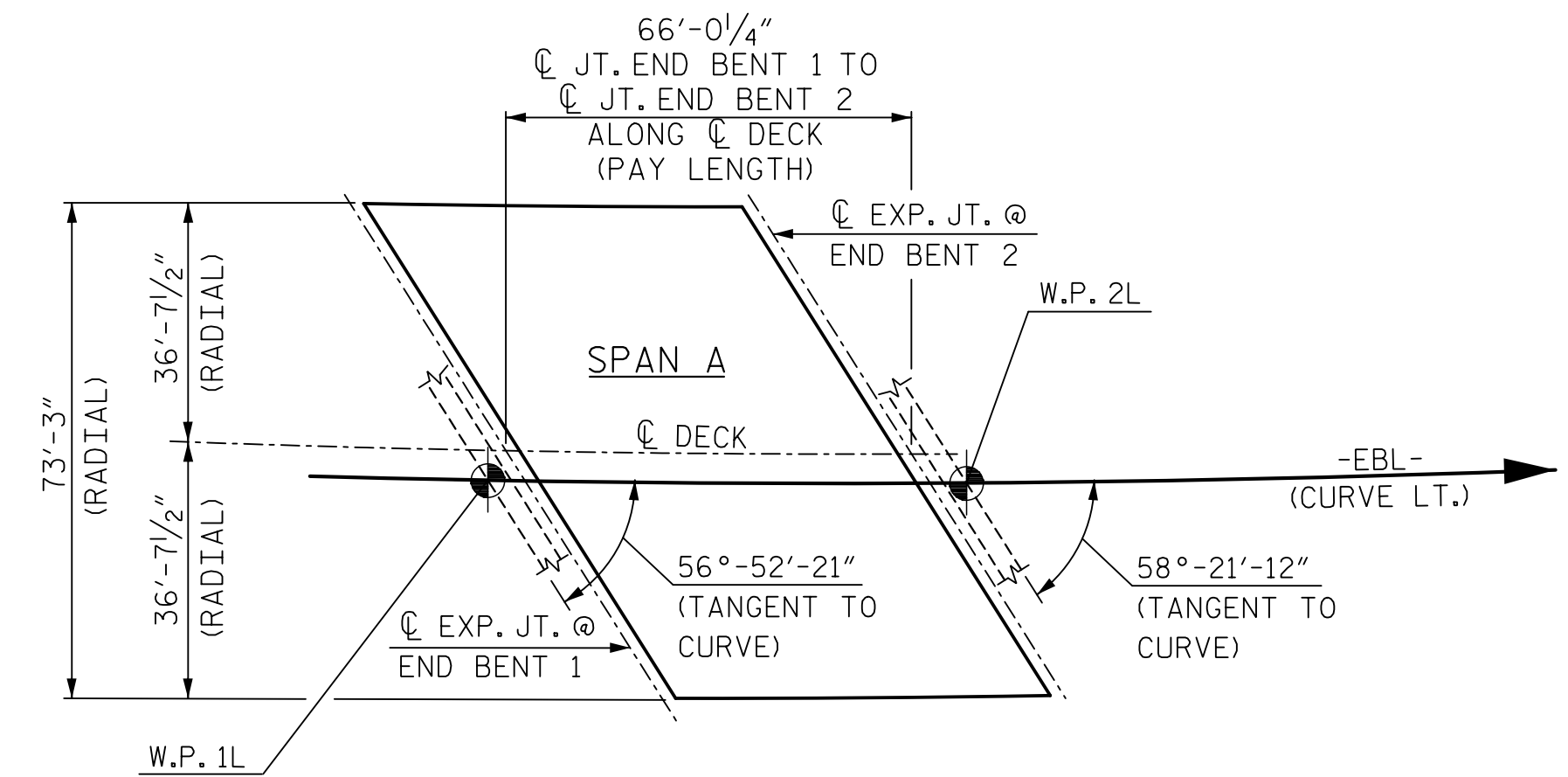
HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : J. PHILLIPS	DATE : 1/19
CHECKED BY : Z. GUO	DATE : 1/19
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19

REVISIONS						SHEET NO. SI-18
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 31
2			4			

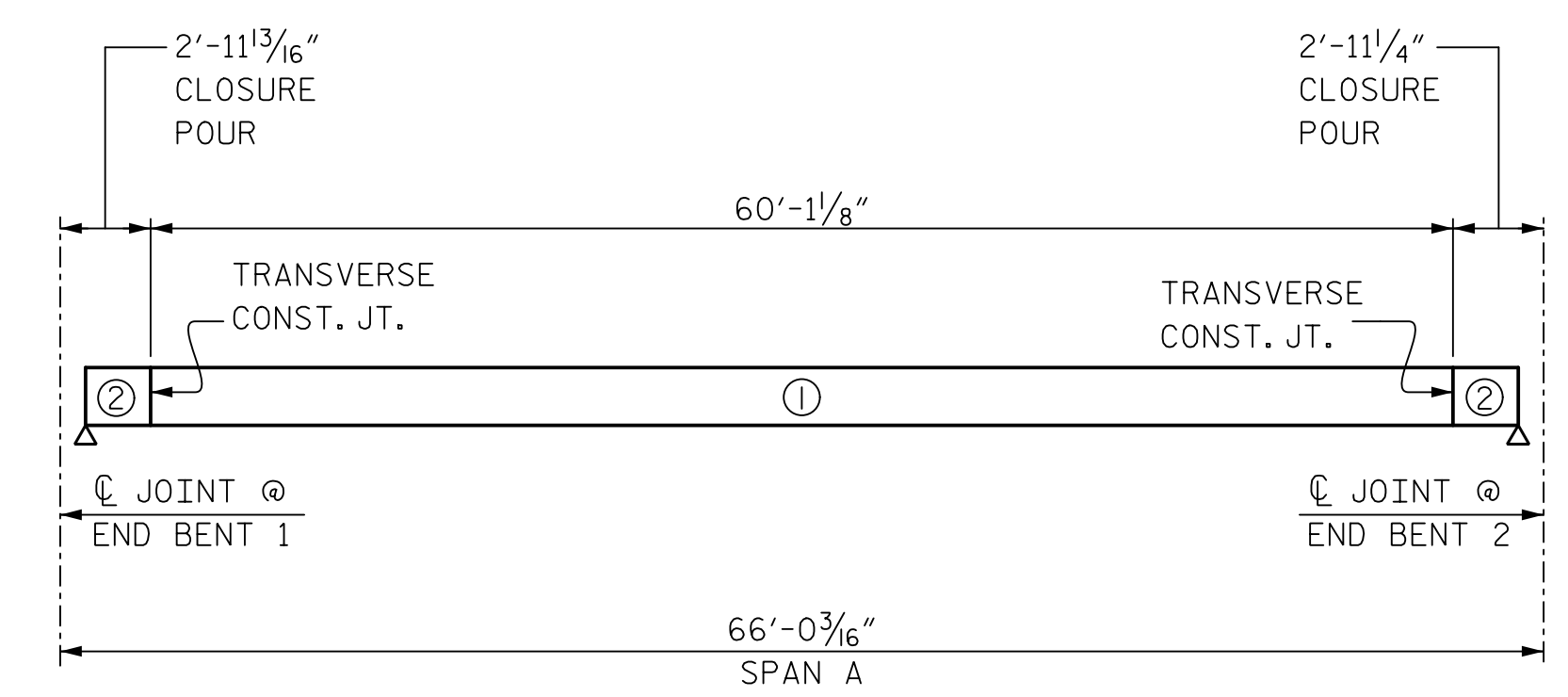
REINFORCING BAR SCHEDULE					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A301	125	5	STR	22'-10"	2,977
A302	39	5	STR	52'-8"	2,143
A303	1	5	STR	38'-4"	40
A304	1	5	STR	37'-6"	40
A305	1	5	STR	36'-9"	39
A306	1	5	STR	35'-11"	38
A307	1	5	STR	35'-2"	37
A308	1	5	STR	34'-5"	36
A309	1	5	STR	33'-7"	36
A310	1	5	STR	32'-10"	35
A311	1	5	STR	32'-1"	34
A312	1	5	STR	31'-3"	33
A313	1	5	STR	30'-6"	32
A314	1	5	STR	29'-9"	32
A315	1	5	STR	28'-11"	31
A316	1	5	STR	28'-2"	30
A317	1	5	STR	27'-4"	29
A318	1	5	STR	26'-7"	28
A319	1	5	STR	25'-10"	27
A320	1	5	STR	25'-0"	27
A321	1	5	STR	24'-3"	26
A322	1	5	STR	23'-6"	25
A323	1	5	STR	22'-8"	24
A324	1	5	STR	21'-11"	23
A325	1	5	STR	21'-2"	23
A326	1	5	STR	20'-4"	22
A327	1	5	STR	19'-7"	21
A328	1	5	STR	18'-9"	20
A329	1	5	STR	18'-0"	19
A330	1	5	STR	17'-3"	18
A331	1	5	STR	16'-5"	18
A332	1	5	STR	15'-8"	17
A333	1	5	STR	14'-11"	16
A334	1	5	STR	14'-1"	15
A335	1	5	STR	13'-4"	14
A336	1	5	STR	12'-7"	14
A337	1	5	STR	11'-9"	13
A338	1	5	STR	11'-0"	12
A339	1	5	STR	10'-2"	11
A340	1	5	STR	9'-5"	10
A341	1	5	STR	8'-8"	10
A342	1	5	STR	7'-10"	9
A343	1	5	STR	7'-1"	8
A344	1	5	STR	6'-4"	7
A345	1	5	STR	5'-6"	6
A346	1	5	STR	4'-9"	5
A347	1	5	STR	4'-0"	5
A348	1	5	STR	52'-3"	55
A349	1	5	STR	51'-5"	54
A350	1	5	STR	50'-8"	53
A351	1	5	STR	49'-10"	52
A352	1	5	STR	49'-1"	52
A353	1	5	STR	48'-3"	51
A354	1	5	STR	47'-6"	50
A355	1	5	STR	46'-8"	49
A356	1	5	STR	45'-11"	48
A357	1	5	STR	45'-1"	48
A358	1	5	STR	44'-4"	47
A359	1	5	STR	43'-7"	46
A360	1	5	STR	42'-9"	45
A361	1	5	STR	42'-0"	44
A362	1	5	STR	41'-2"	43
A363	1	5	STR	40'-5"	43
A364	1	5	STR	39'-7"	42
A365	1	5	STR	38'-10"	41
A366	1	5	STR	38'-0"	40
A367	1	5	STR	37'-3"	39
A368	1	5	STR	36'-5"	38
A369	1	5	STR	35'-8"	38
A370	1	5	STR	34'-11"	37
A371	1	5	STR	34'-1"	36
A372	1	5	STR	33'-4"	35
A373	1	5	STR	32'-6"	34

REINFORCING BAR SCHEDULE					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A374	1	5	STR	31'-9"	34
A375	1	5	STR	30'-11"	33
A376	1	5	STR	30'-2"	32
A377	1	5	STR	29'-4"	31
A378	1	5	STR	28'-7"	30
A379	1	5	STR	27'-9"	29
A380	1	5	STR	27'-0"	29
A381	1	5	STR	26'-3"	28
A382	1	5	STR	25'-5"	27
A383	1	5	STR	24'-8"	26
A384	1	5	STR	23'-10"	25
A385	1	5	STR	23'-1"	25
A386	1	5	STR	22'-3"	24
A387	1	5	STR	21'-6"	23
A388	1	5	STR	20'-8"	22
A389	1	5	STR	19'-11"	21
A390	1	5	STR	19'-2"	20
A391	1	5	STR	51'-11"	55
A392	1	5	STR	51'-1"	54
A393	1	5	STR	50'-4"	53
A394	1	5	STR	49'-6"	52
A395	1	5	STR	48'-9"	51
A396	1	5	STR	47'-11"	50
A397	1	5	STR	47'-2"	50
A398	1	5	STR	46'-5"	49
A399	1	5	STR	45'-7"	48
A400	1	5	STR	44'-10"	47
A401	1	5	STR	44'-0"	46
A402	1	5	STR	43'-3"	46
A403	1	5	STR	42'-6"	45
A404	1	5	STR	41'-8"	44
A405	1	5	STR	40'-11"	43
A406	1	5	STR	40'-1"	42
A407	1	5	STR	39'-4"	42
A408	1	5	STR	38'-7"	41
A409	1	5	STR	37'-9"	40
A410	1	5	STR	37'-0"	39
A411	1	5	STR	36'-2"	38
A412	1	5	STR	35'-5"	37
A413	1	5	STR	34'-8"	37
A414	1	5	STR	33'-10"	36
A415	1	5	STR	33'-1"	35
A416	1	5	STR	32'-3"	34
A417	1	5	STR	31'-6"	33
A418	1	5	STR	30'-9"	33
A419	1	5	STR	29'-11"	32
A420	1	5	STR	29'-2"	31
A421	1	5	STR	28'-4"	30
A422	1	5	STR	27'-7"	29
A423	1	5	STR	26'-10"	28
A424	1	5	STR	26'-0"	28
A425	1	5	STR	25'-3"	27
A426	1	5	STR	24'-5"	26
A427	1	5	STR	23'-8"	25
A428	1	5	STR	22'-11"	24
A429	1	5	STR	22'-1"	24
A430	1	5	STR	21'-4"	23
A431	1	5	STR	20'-6"	22
A432	1	5	STR	19'-9"	21
A433	1	5	STR	19'-0"	20
A434	1	5	STR	38'-4"	40
A435	1	5	STR	37'-6"	40
A436	1	5	STR	36'-8"	39
A437	1	5	STR	35'-11"	38
A438	1	5	STR	35'-1"	37
A439	1	5	STR	34'-4"	36
A440	1	5	STR	33'-6"	35
A441	1	5	STR	32'-9"	35
A442	1	5	STR	31'-11"	34
A443	1	5	STR	31'-1"	33
A444	1	5	STR	30'-4"	32
A445	1	5	STR	29'-6"	31
A446	1	5	STR	28'-9"	30

BILL OF MATERIAL					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A447	1	5	STR	27'-11"	30
A448	1	5	STR	27'-2"	29
A449	1	5	STR	26'-4"	28
A450	1	5	STR	25'-7"	27
A451	1	5	STR	24'-9"	26
A452	1	5	STR	23'-11"	25
A453	1	5	STR	23'-2"	25
A454	1	5	STR	22'-4"	24
A455	1	5	STR	21'-7"	23
A456	1	5	STR	20'-9"	22
A457	1	5	STR	20'-0"	21
A458	1	5	STR	19'-2"	20
A459	1	5	STR	18'-5"	20
A460	1	5	STR	17'-7"	19
A461	1	5	STR	16'-9"	18
A462	1	5	STR	16'-0"	17
A463	1	5	STR	15'-2"	16
A464	1	5	STR	14'-5"	16
A465	1	5	STR	13'-7"	15
A466	1	5	STR	12'-10"	14
A467	1	5	STR	12'-0"	13
A468	1	5	STR	11'-3"	12
A469	1	5	STR	10'-5"	11
A470	1	5	STR	9'-7"	10
A471	1	5	STR	8'-10"	10
A472	1	5	STR	8'-0"	9
A473	1	5	STR	7'-3"	8
A474	1	5	STR	6'-5"	7
A475	1	5	STR	5'-8"	6
A476	1	5	STR	4'-10"	6
A477	1	5	STR	4'-1"	5
B101	294	5	STR	23'-5"	7,181
K4	6	6	STR	44'-10"	405
K5	6	6	STR	44'-2"	399
REINFORCING STEEL TOTAL:					18,341



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4,836)



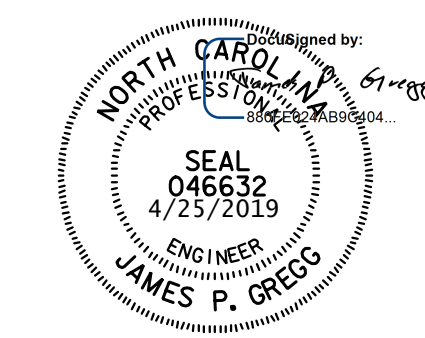
POURING SEQUENCE

NOTE: ALL DIMENSIONS ARE ALONG CONTROL LINE AND ARE ARC DIMENSIONS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

GROOVING BRIDGE FLOORS		
APPROACH SLABS	5,012	SQ.FT.
BRIDGE DECK	4,398	SQ.FT.
TOTAL	9,410	SQ.FT.

SHEET 2 OF 2



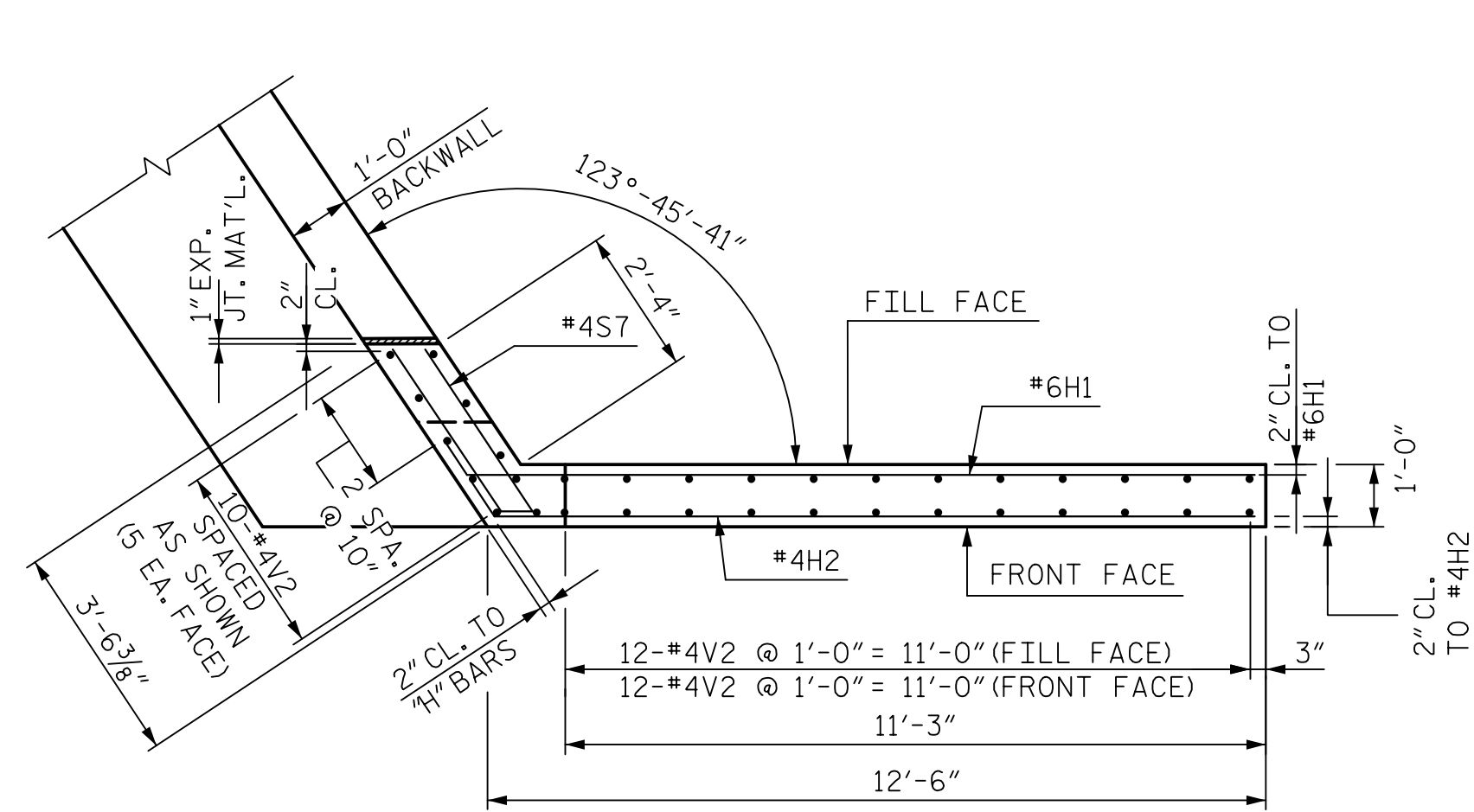
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL
 LEFT LANE

ASSEMBLED BY : J. PHILLIPS	DATE : 1/19
CHECKED BY : Z. GUO	DATE : 1/19
DRAWN BY : JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

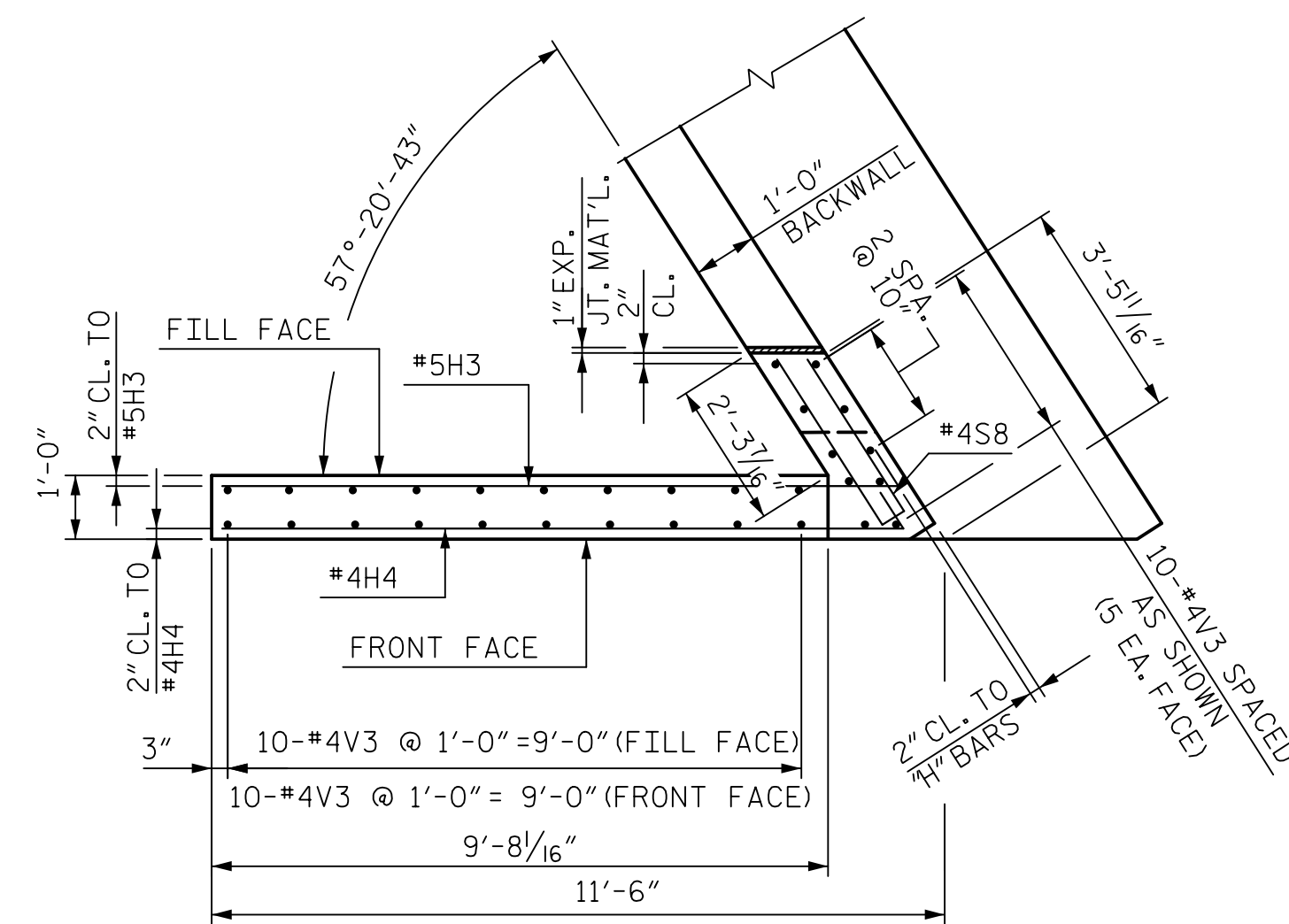
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : J. PHILLIPS	DATE : 1/19
CHECKED BY : Z. GUO	DATE : 1/19
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-19
1			3			TOTAL SHEETS
2			4			31

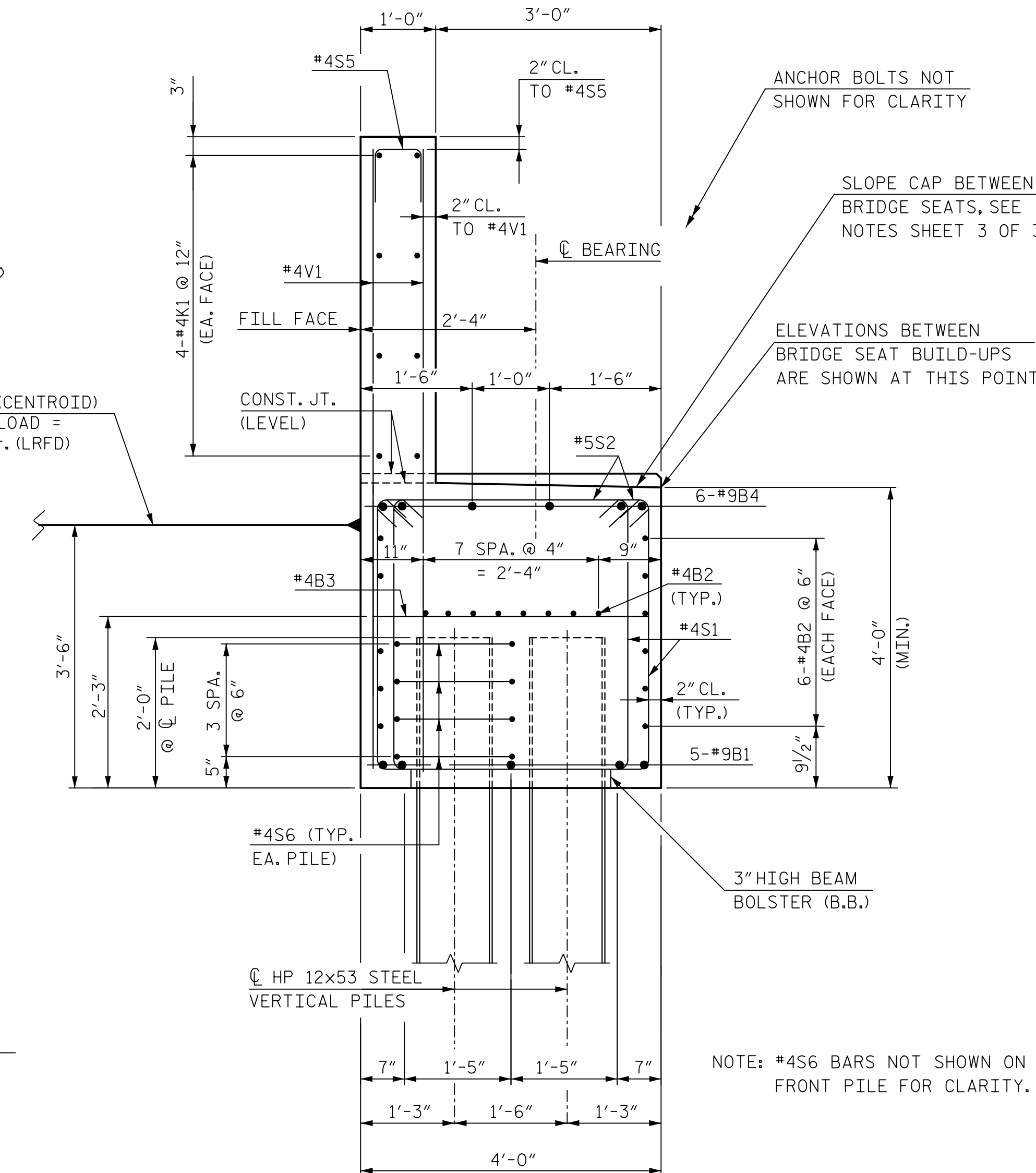


PLAN OF WING (W1)



PLAN OF WING (W2)

STRAPS (CENTROID)
DESIGN LOAD =
3.0 k/ft. (LRFD)

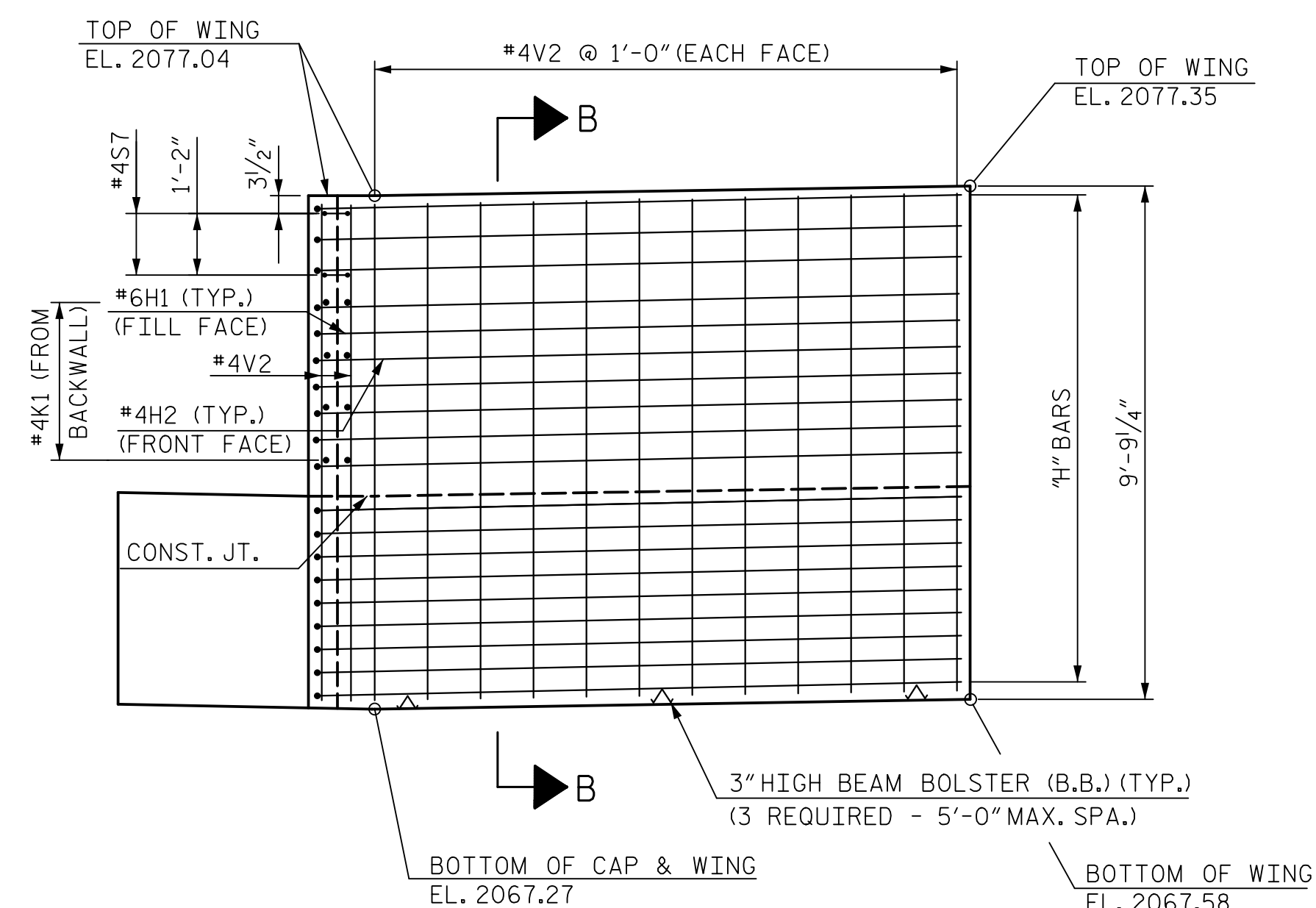


SECTION A-A

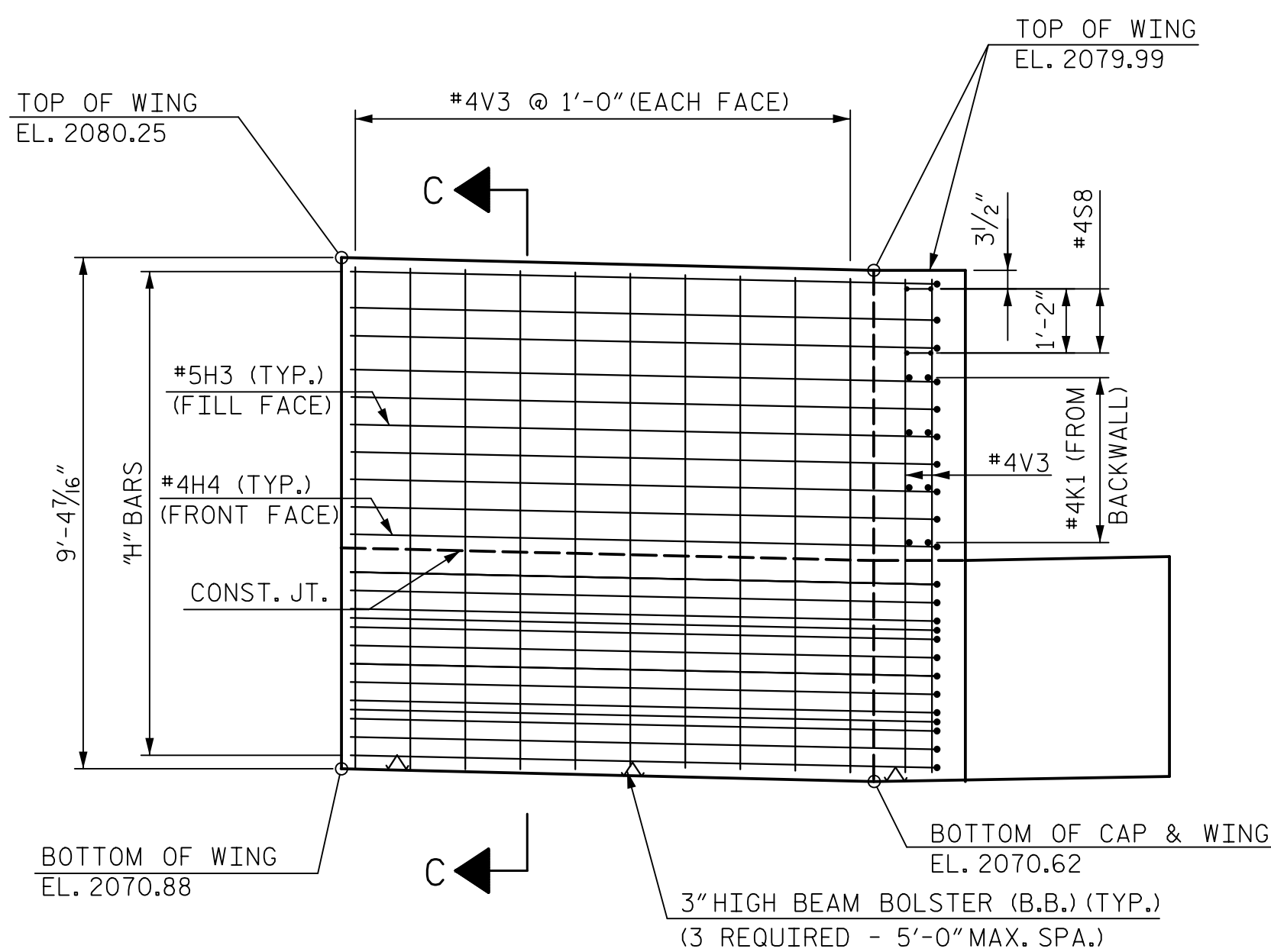
NOTES:

FOR NOTES, SEE SHEET 3 OF 3.

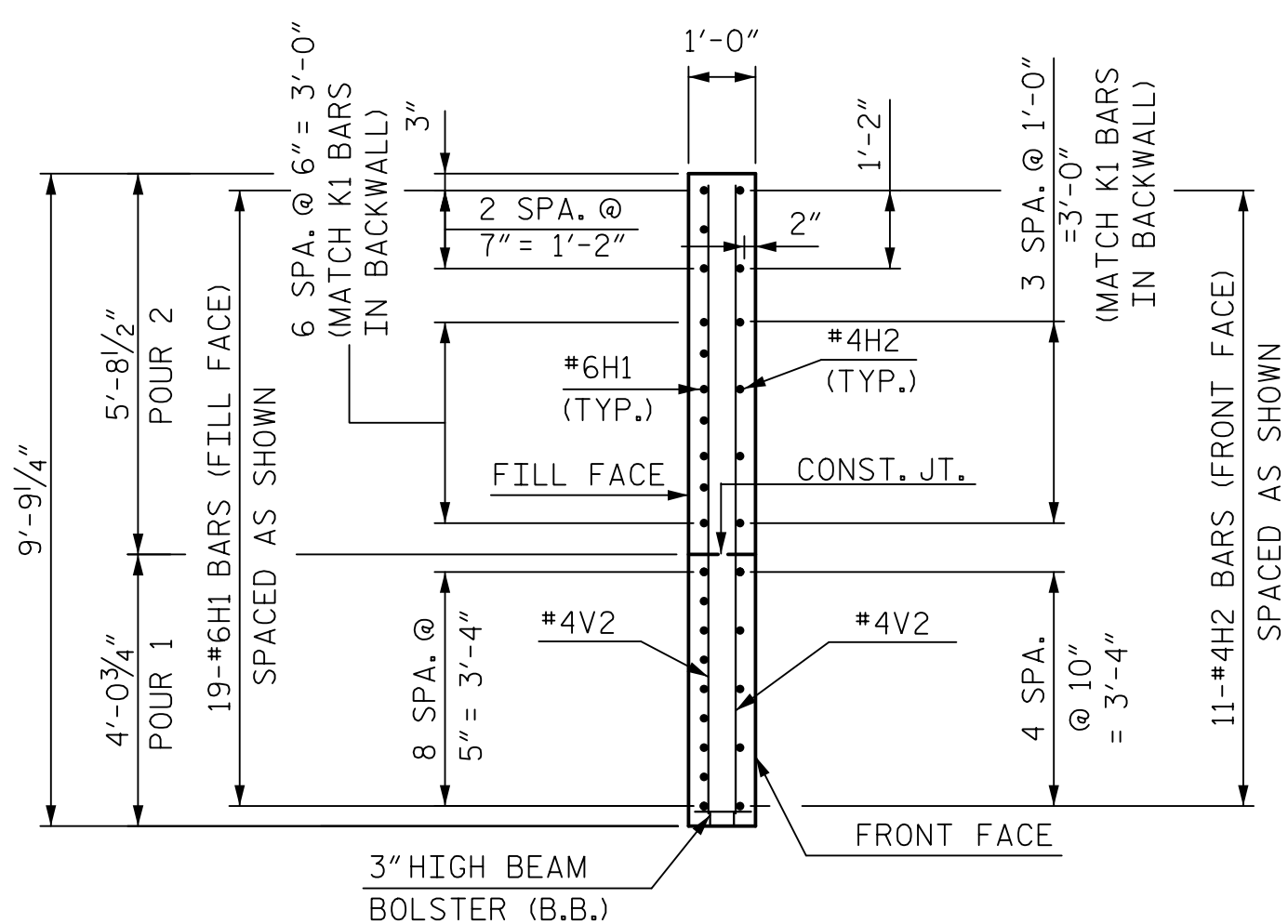
FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.



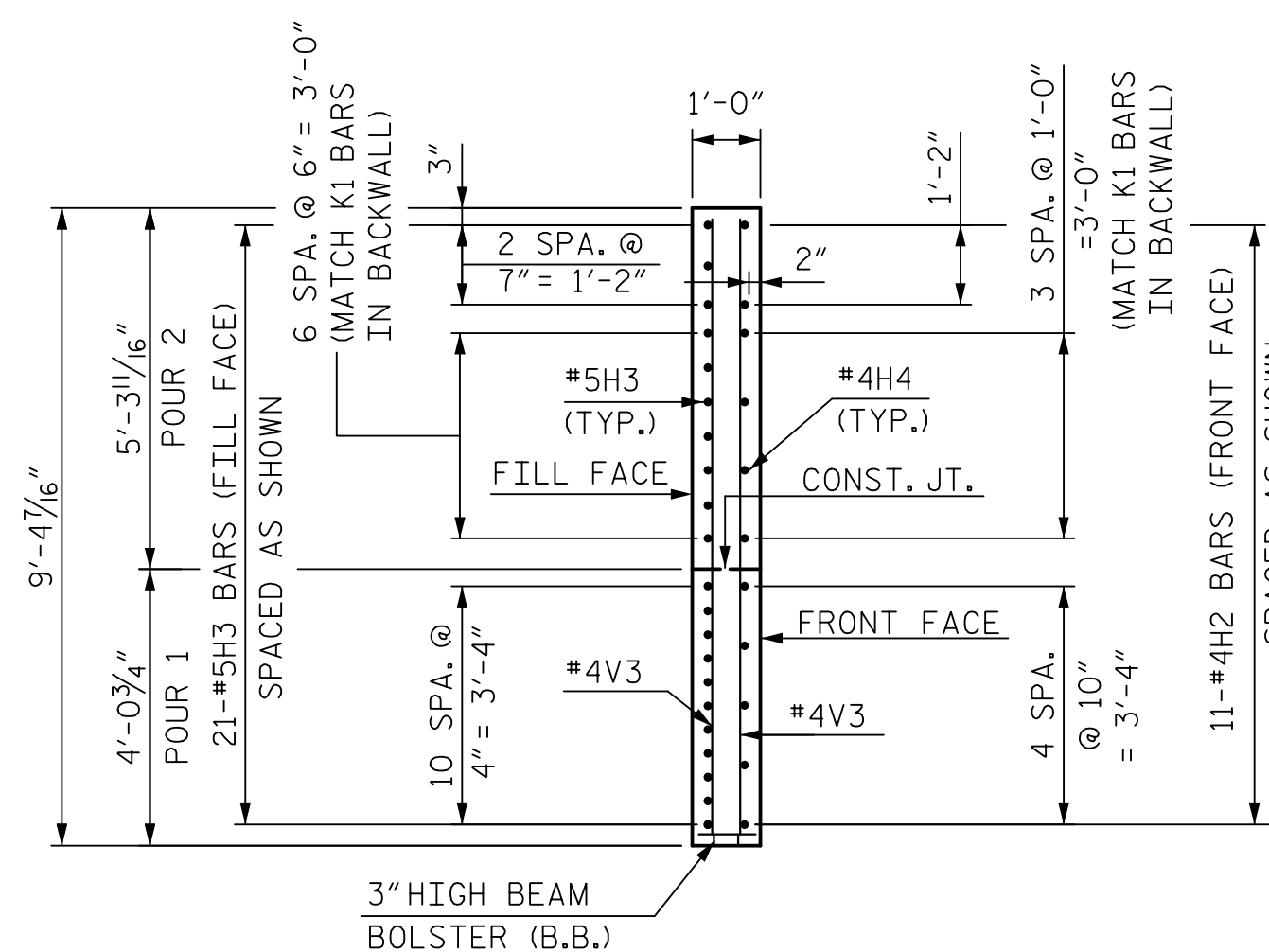
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

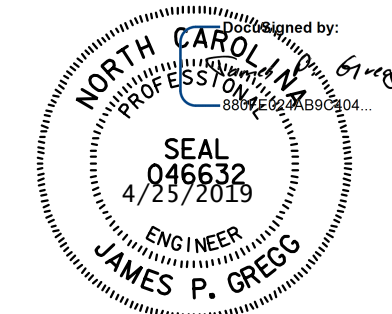


SECTION B-B



SECTION C-C

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: B. NEUPANE	DATE: 12/18	DWG. NO. 21	
CHECKED BY: Z. GUO	DATE: 1/19		
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 3/19		

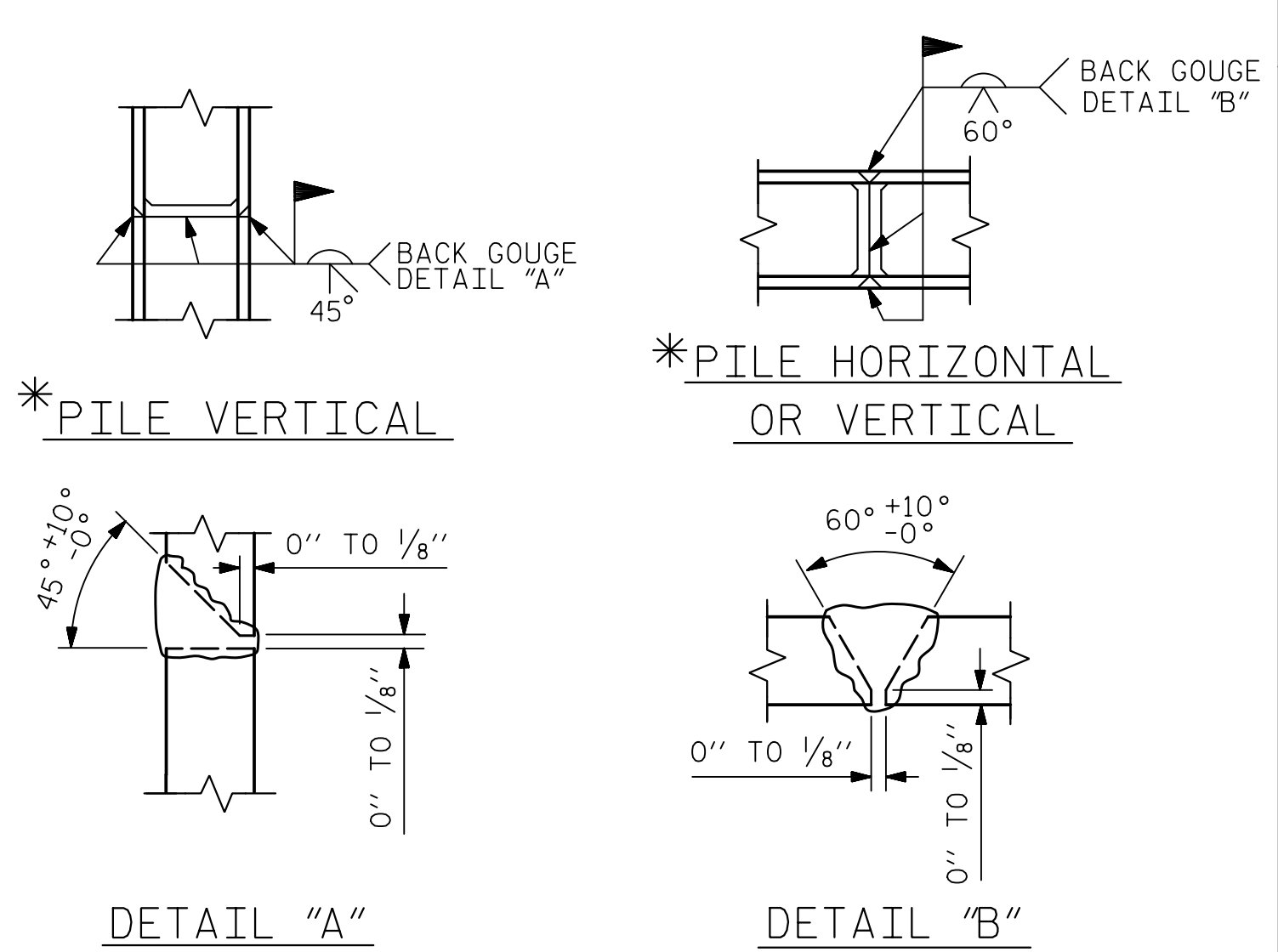
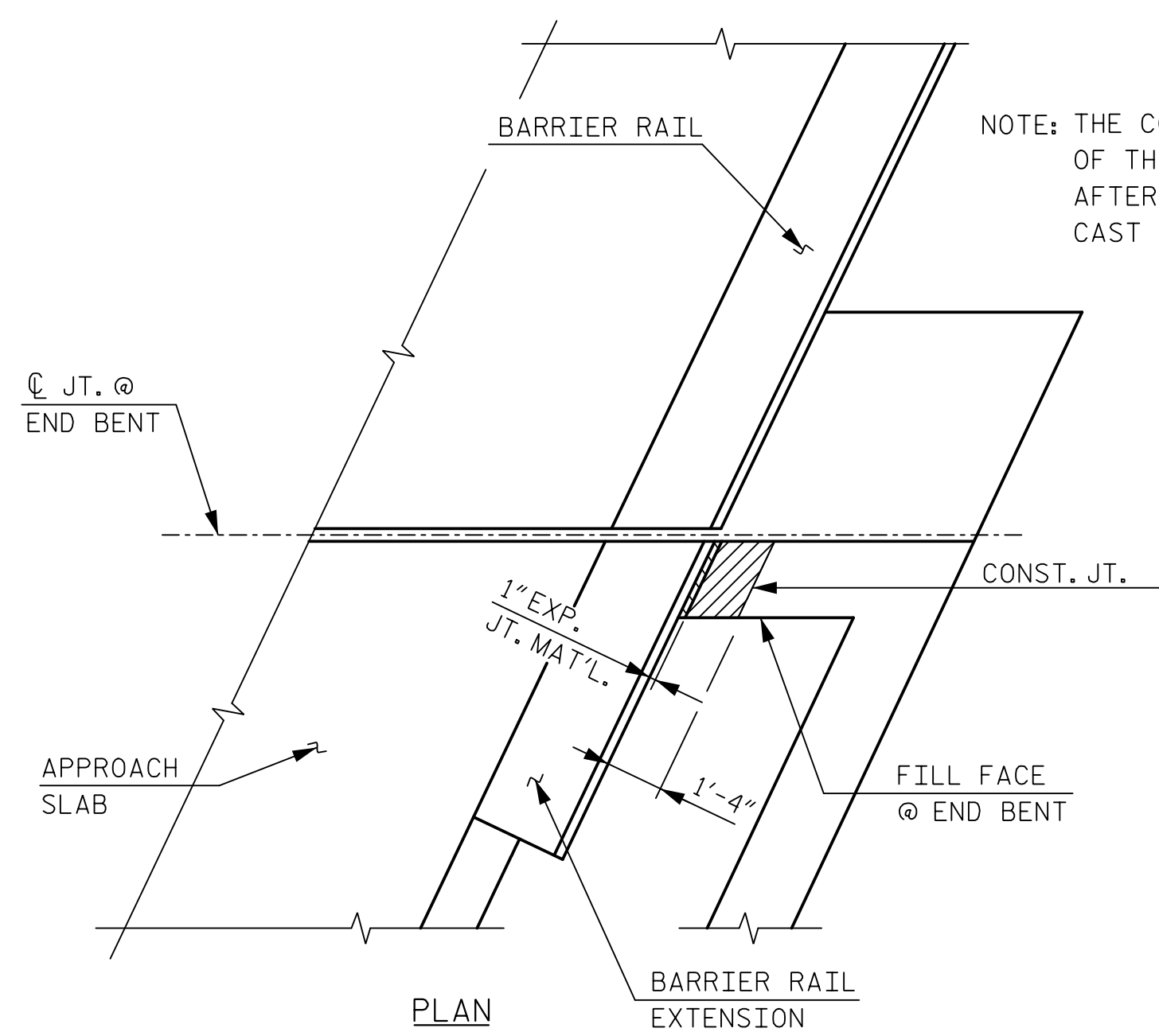
PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
 END BENT 1
 LEFT LANE

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

TOTAL SHEETS: 31



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

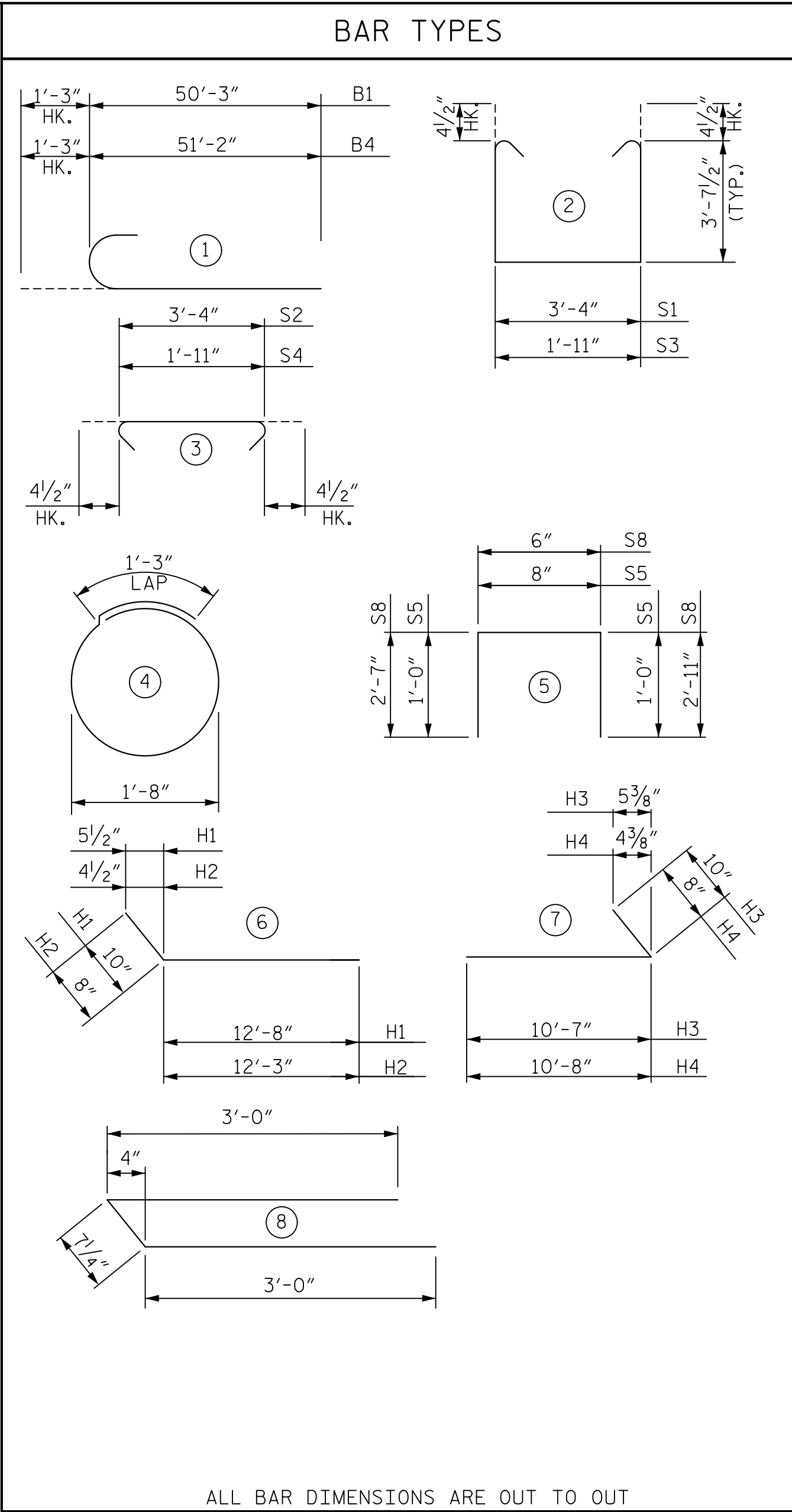
NOTES:

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

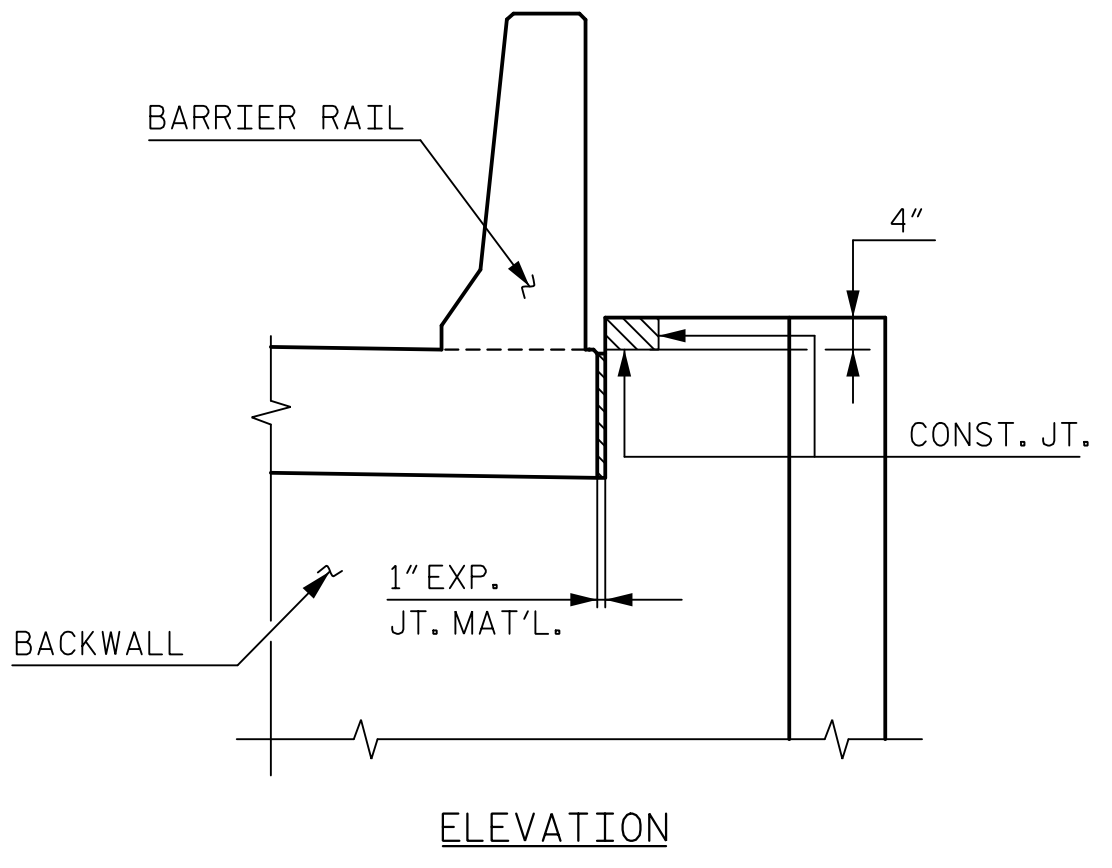
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

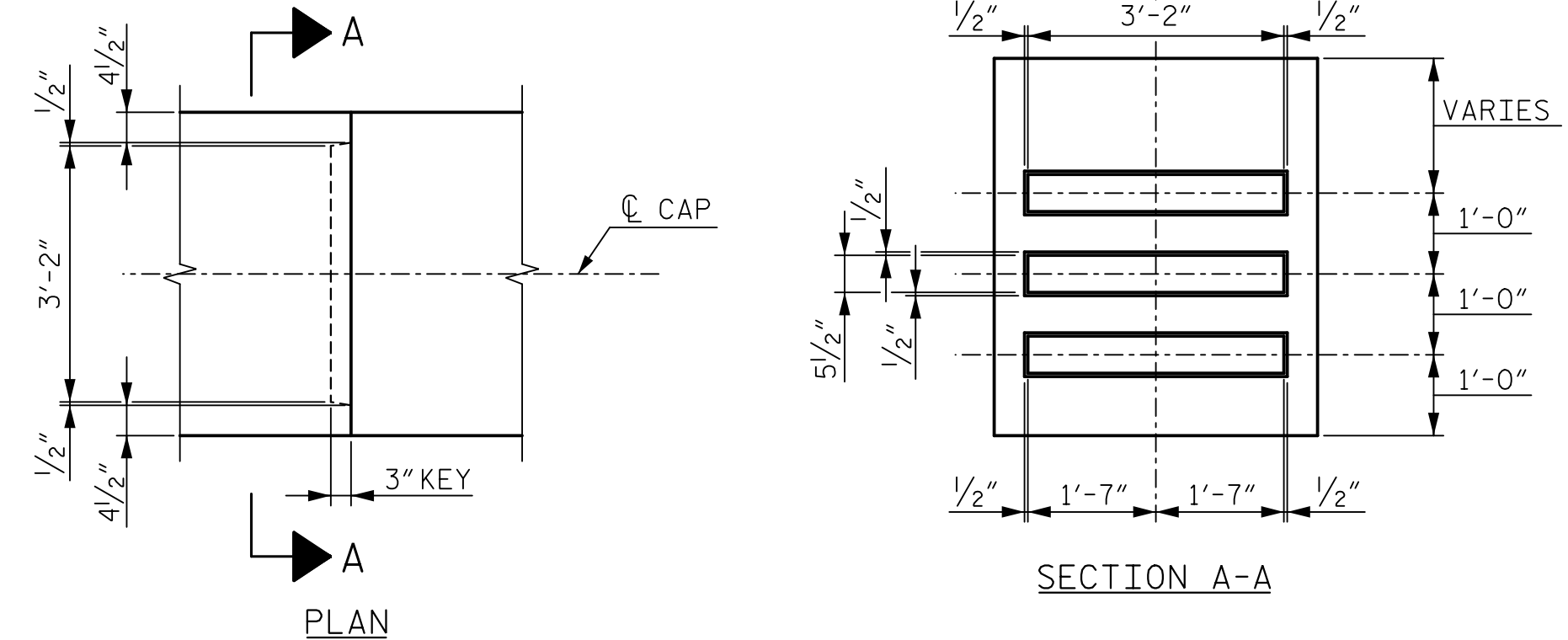
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.



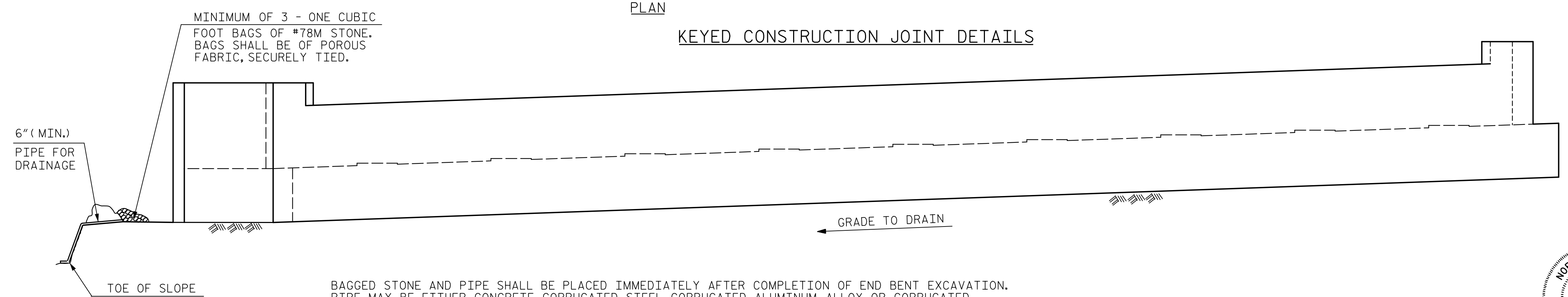
BILL OF REINFORCING					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9		51'-6"	1,751
B2	80	4	STR.	25'-11"	1,385
B3	23	4	STR.	3'-8"	56
B4	12	9		52'-6"	2,142
H1	19	6		13'-6"	385
H2	11	4		12'-11"	95
H3	21	5		11'-5"	250
H4	11	4		11'-4"	83
K1	32	4	STR.	25'-11"	554
S1	242	4		11'-4"	1,832
S2	242	4		4'-1"	660
S3	4	4		9'-11"	26
S4	4	4		2'-8"	7
S5	87	4		2'-8"	155
S6	52	4		6'-6"	226
S7	2	4		6'-7"	9
S8	2	4		6'-0"	8
V1	174	4	STR.	7'-4"	852
V2	34	4	STR.	9'-5"	214
V3	30	4	STR.	9'-0"	180



BLOCKOUT IN WINGWALL



KEYED CONSTRUCTION JOINT DETAILS



MINIMUM OF 3 - ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

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 FOR THE SEVERAL PAY ITEMS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

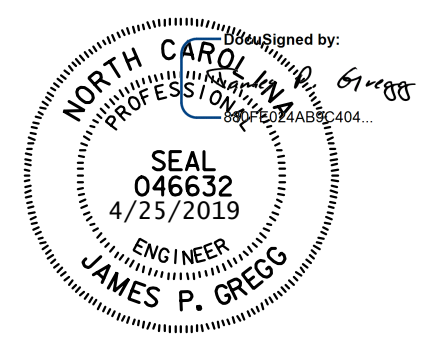
SUBSTRUCTURE

END BENT 1
 LEFT LANE

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DESIGNED BY: B. NEUPANE DATE: 12/18
 CHECKED BY: Z. GUO DATE: 1/19
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

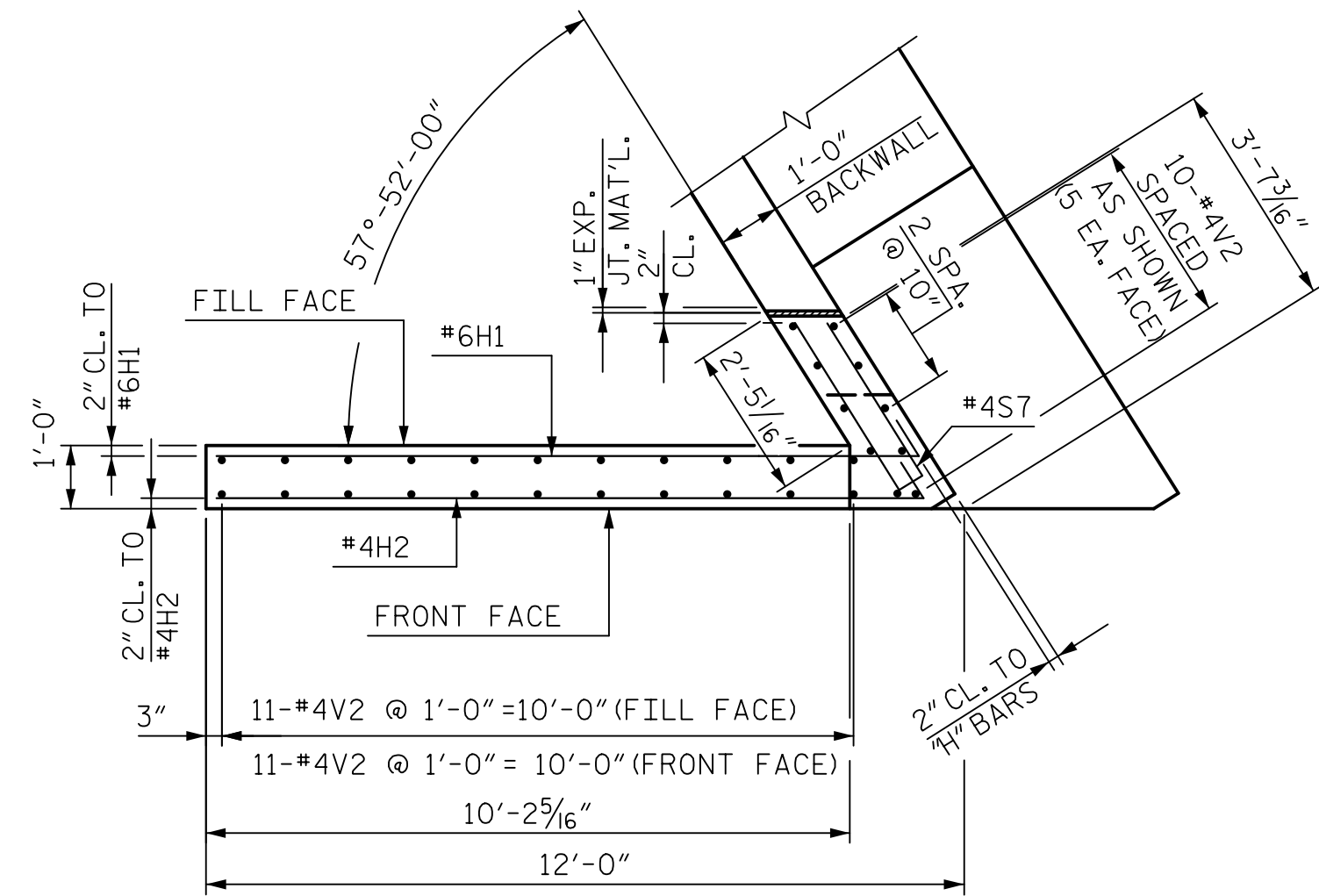
DWG. NO. 22



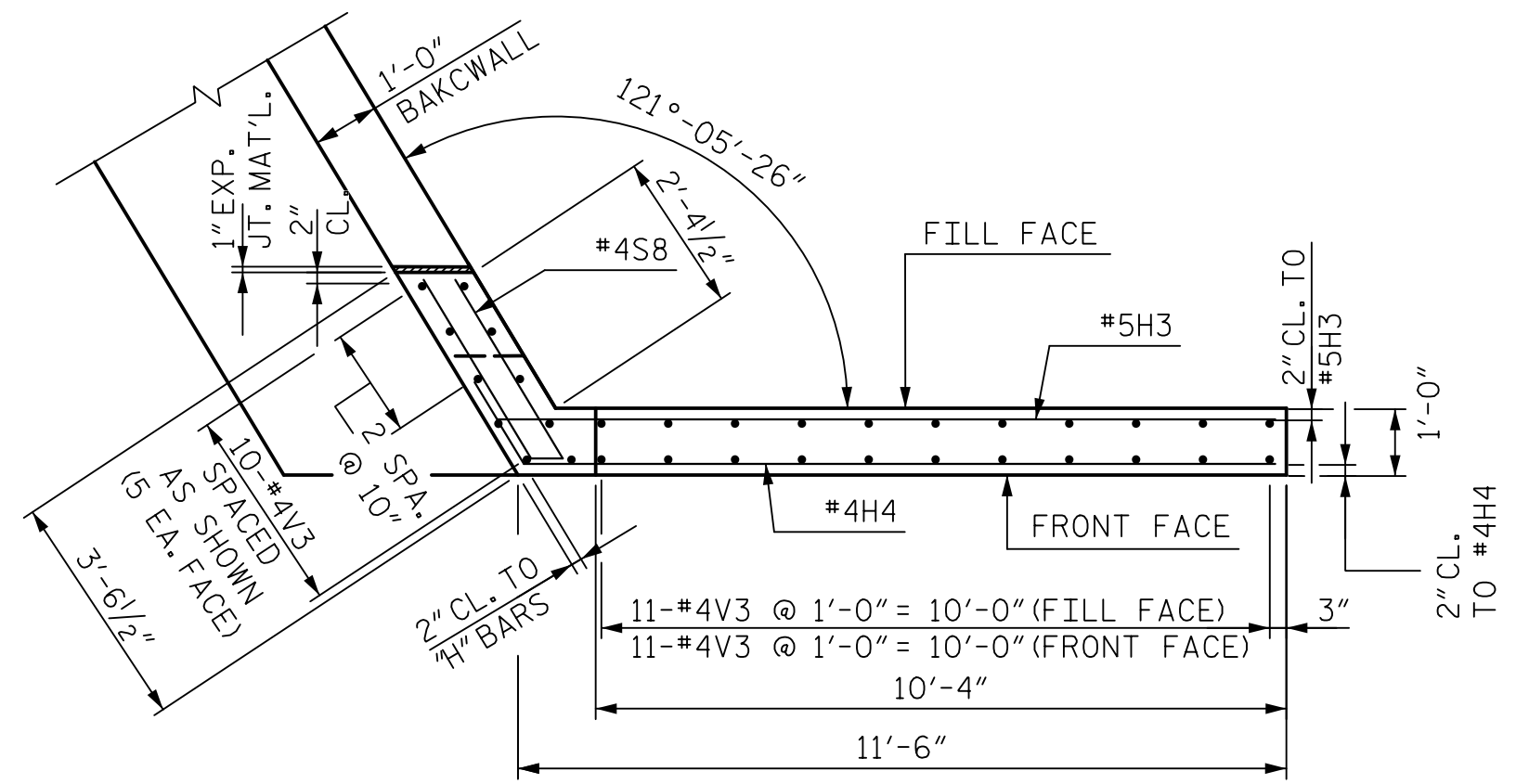
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-22
1			3			TOTAL SHEETS
2			4			31

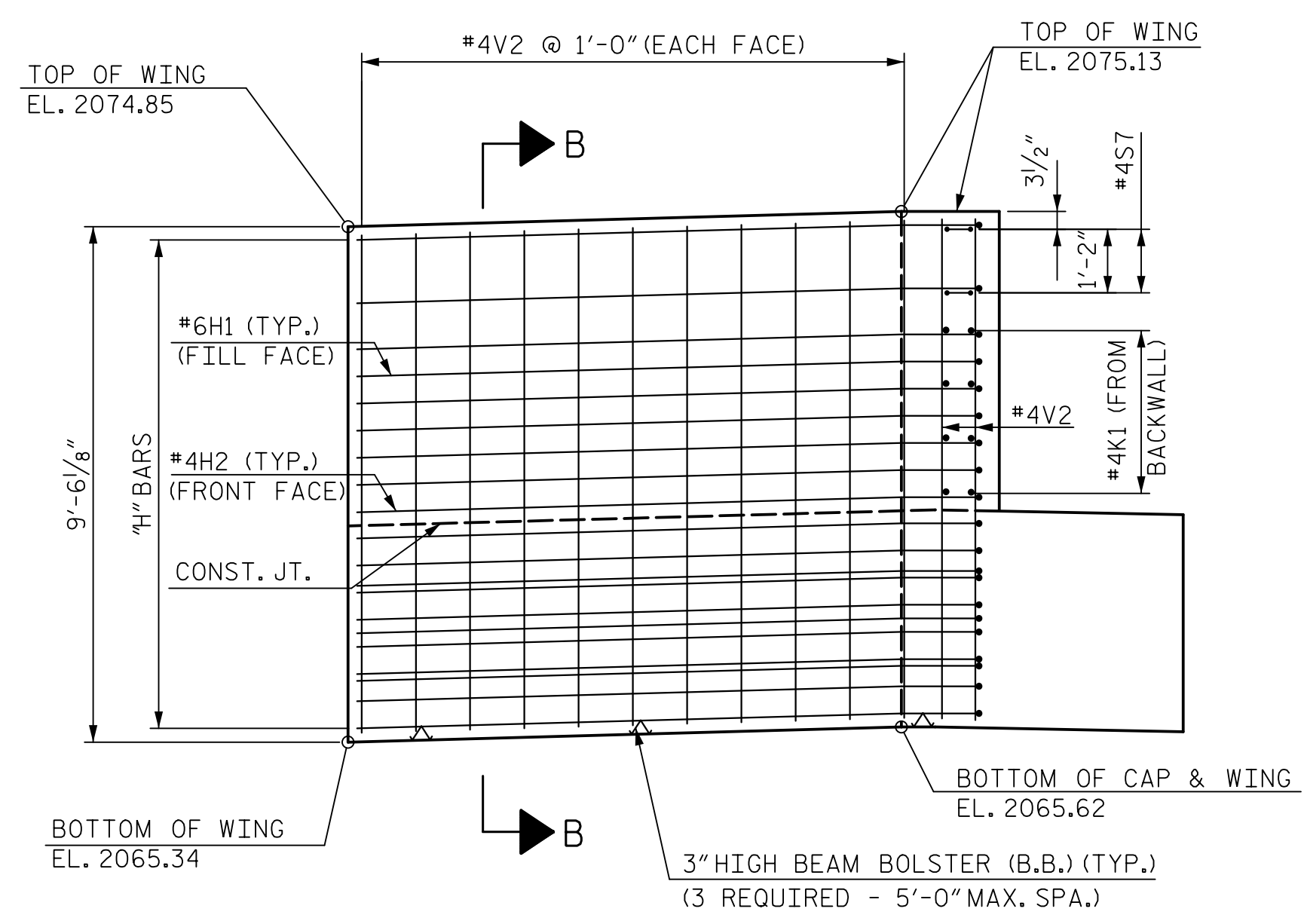
NOTES:
 FOR NOTES, SEE SHEET 3 OF 3.
 FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.



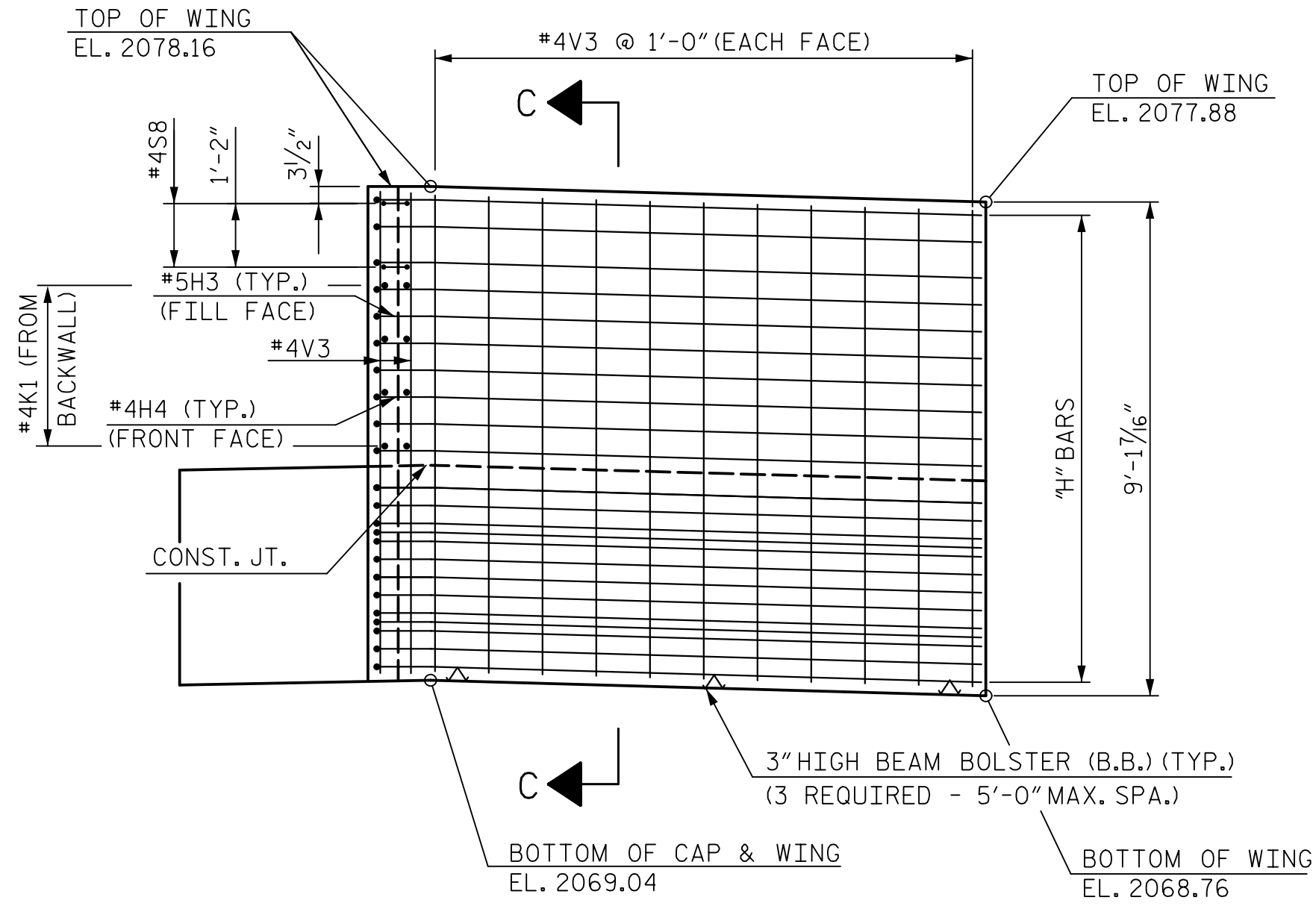
PLAN OF WING (W1)



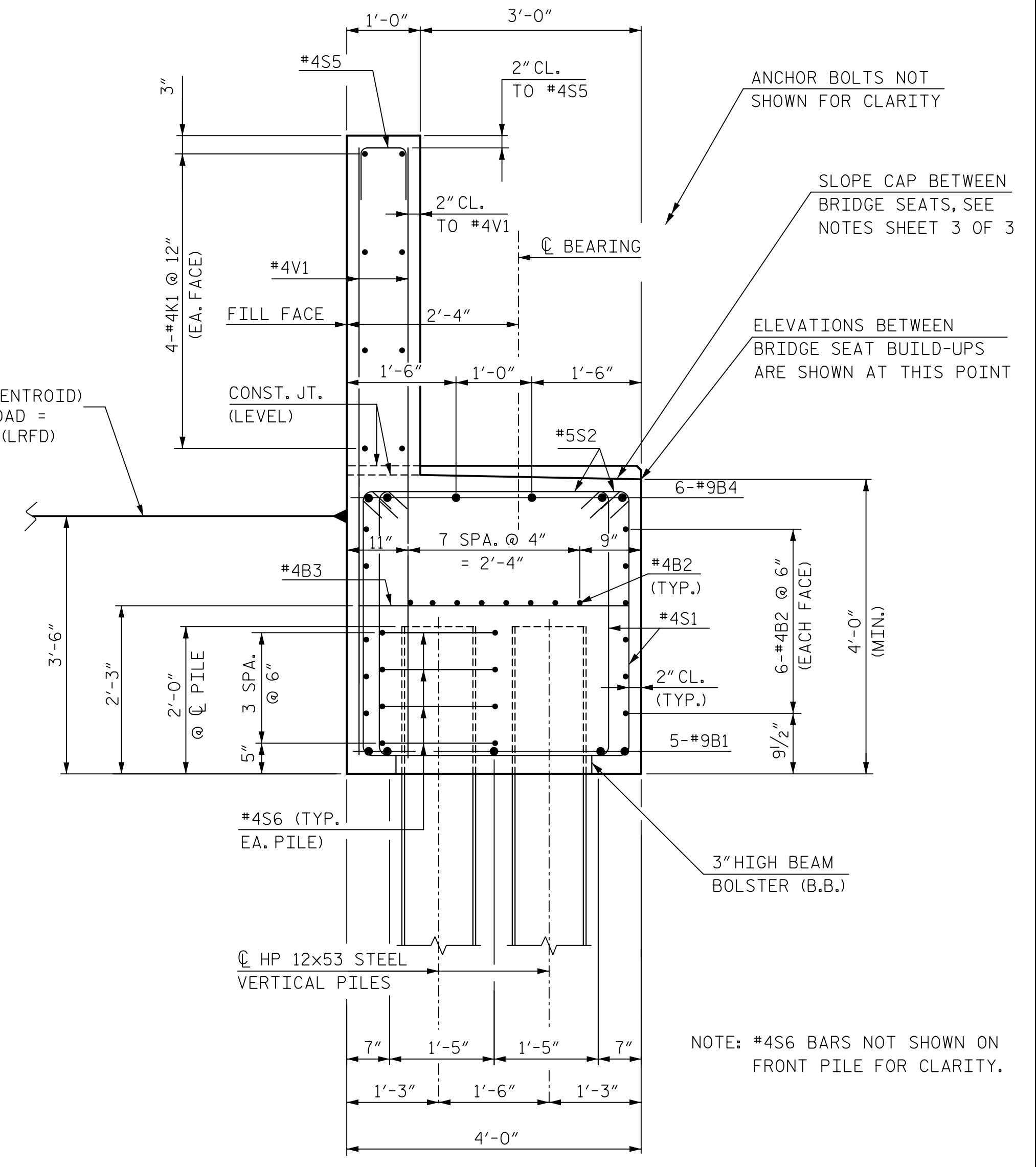
PLAN OF WING (W2)



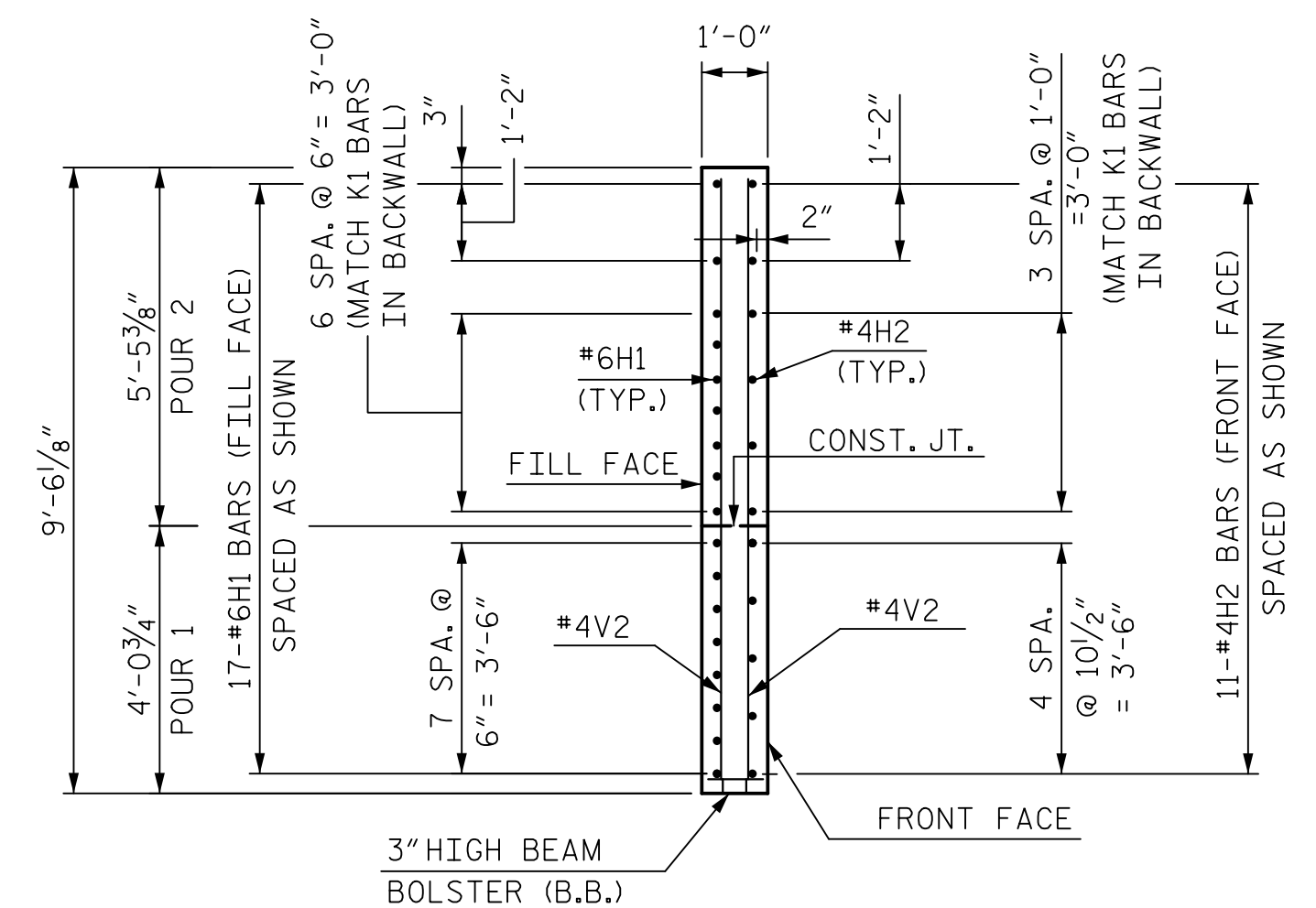
ELEVATION OF WING (W1)



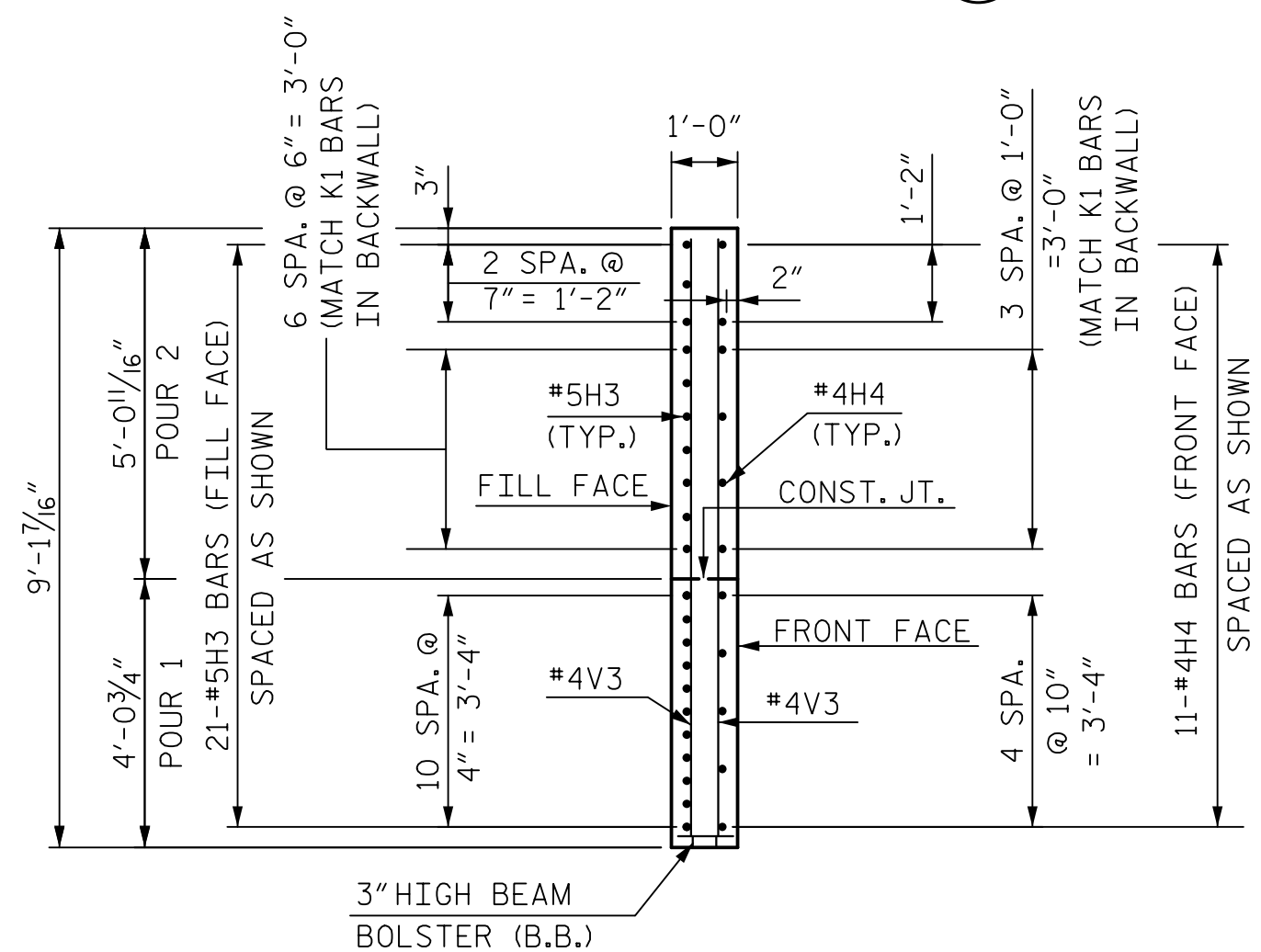
ELEVATION OF WING (W2)



SECTION A-A



SECTION B-B

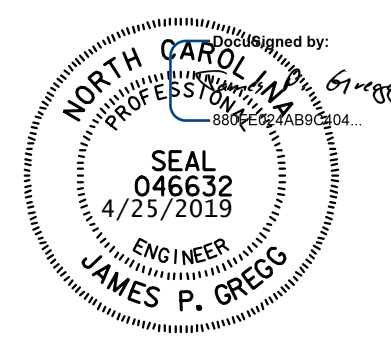


SECTION C-C

STRAPS (CENTROID)
 DESIGN LOAD =
 3.0 k/ft. (LRFD)

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 LEFT LANE



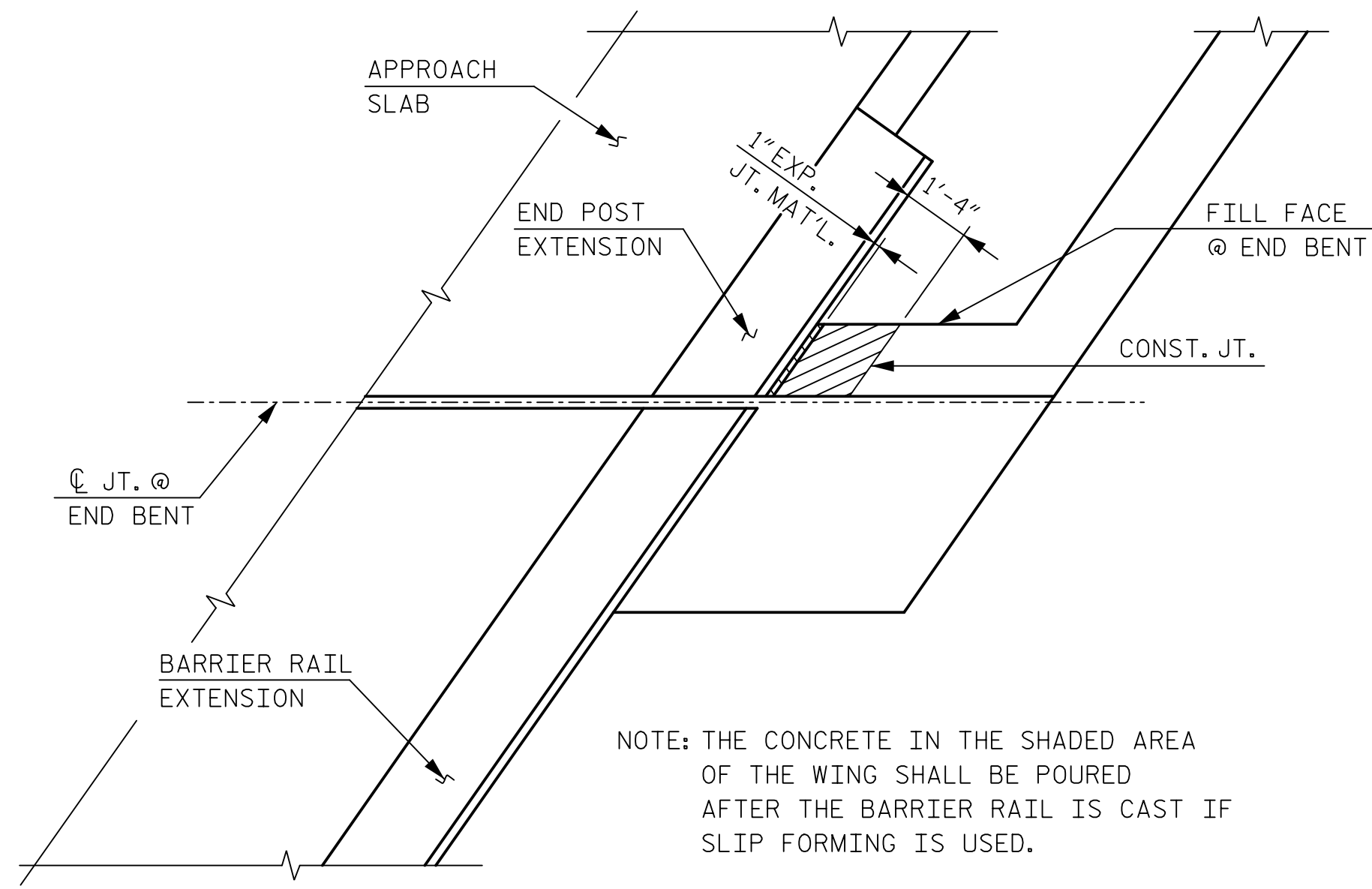
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 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: B. NEUPANE DATE: 12/18
 CHECKED BY: Z. GUO DATE: 1/19
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 24

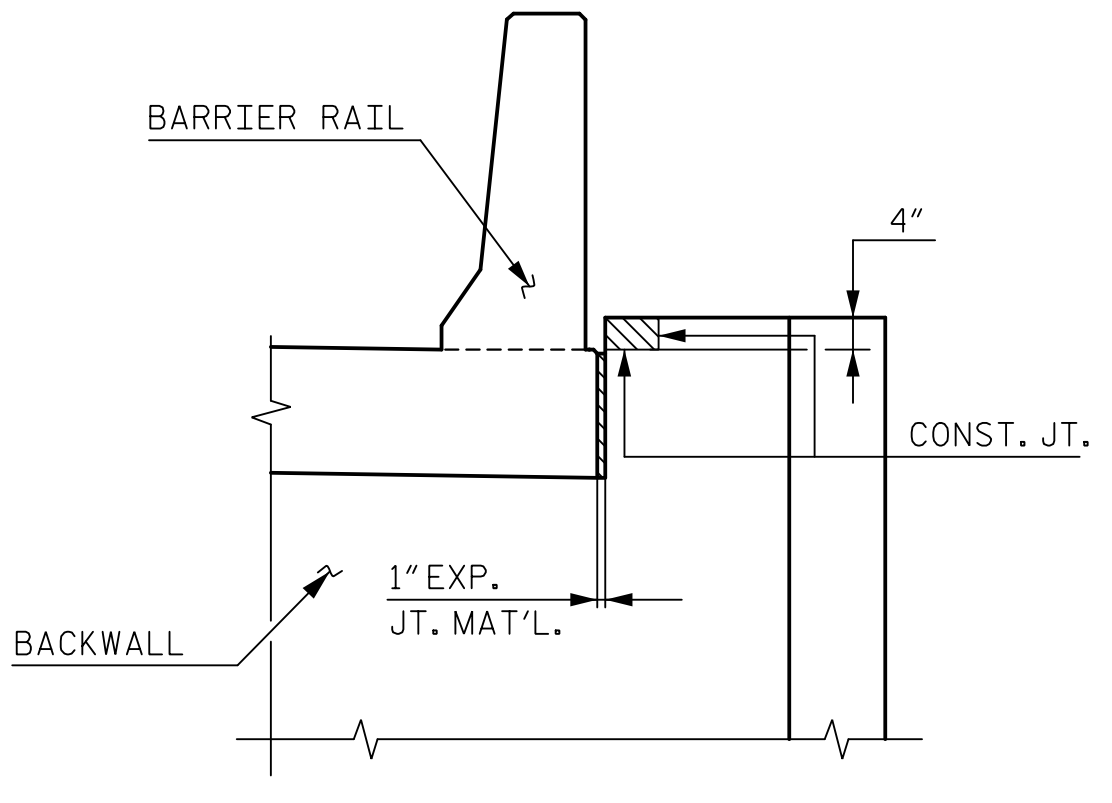
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-24
1			3			TOTAL SHEETS
2			4			31



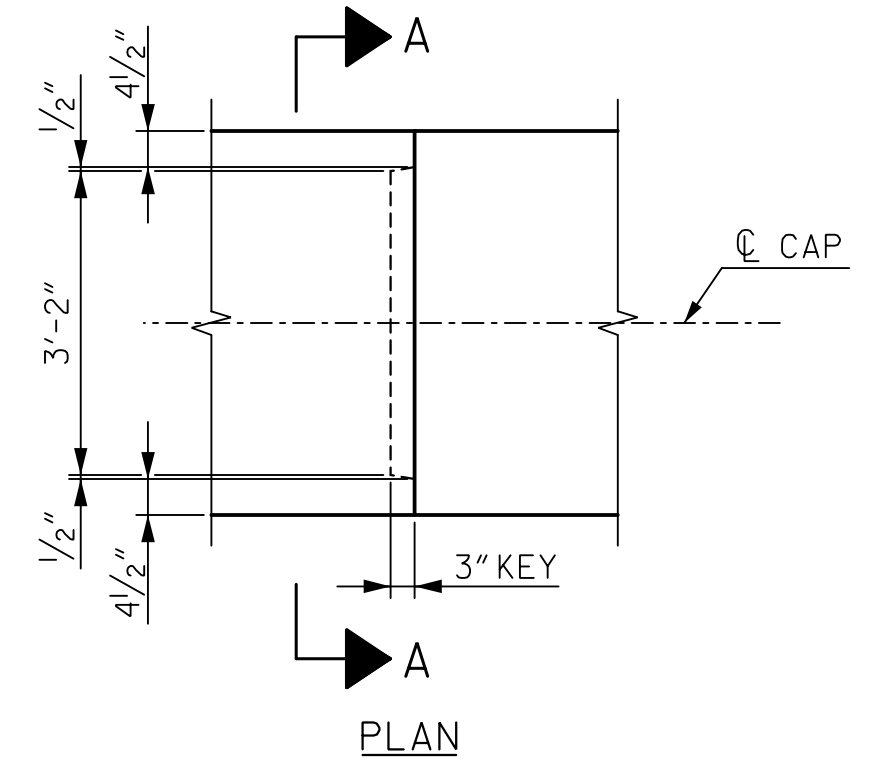
PLAN

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

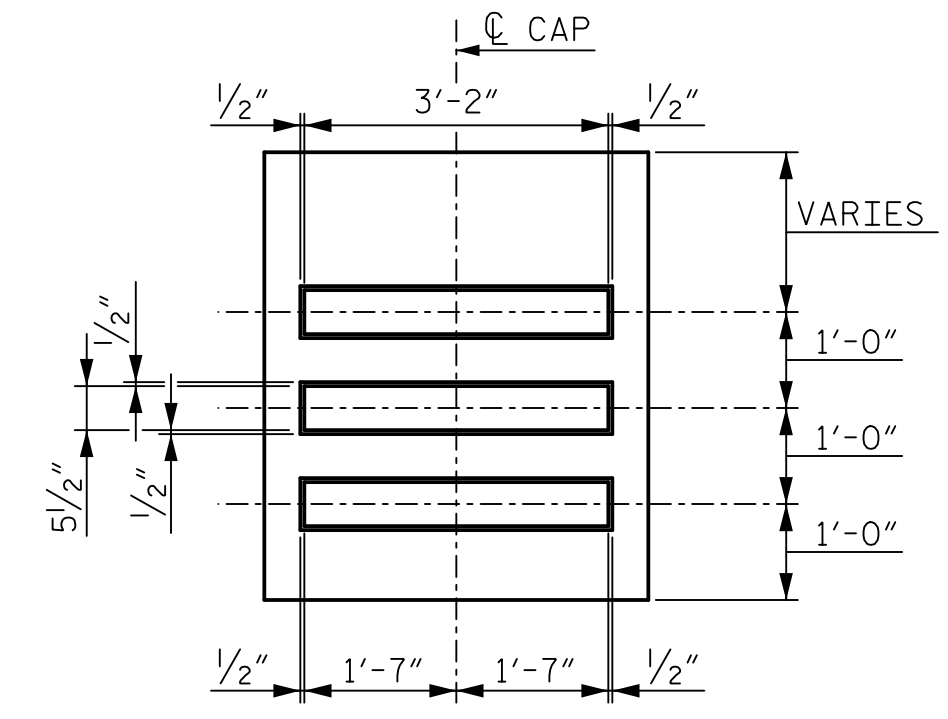


ELEVATION

BLOCKOUT IN WINGWALL



PLAN

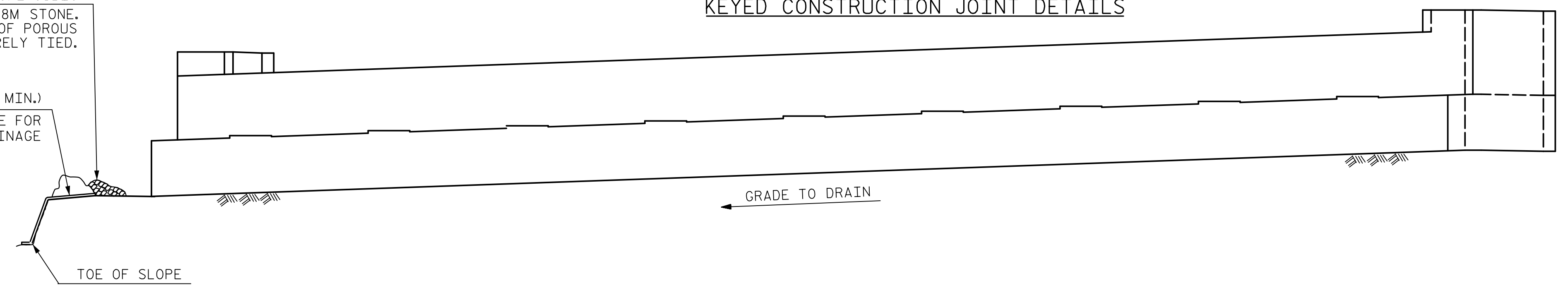


SECTION A-A

KEYED CONSTRUCTION JOINT DETAILS

MINIMUM OF 3 - ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

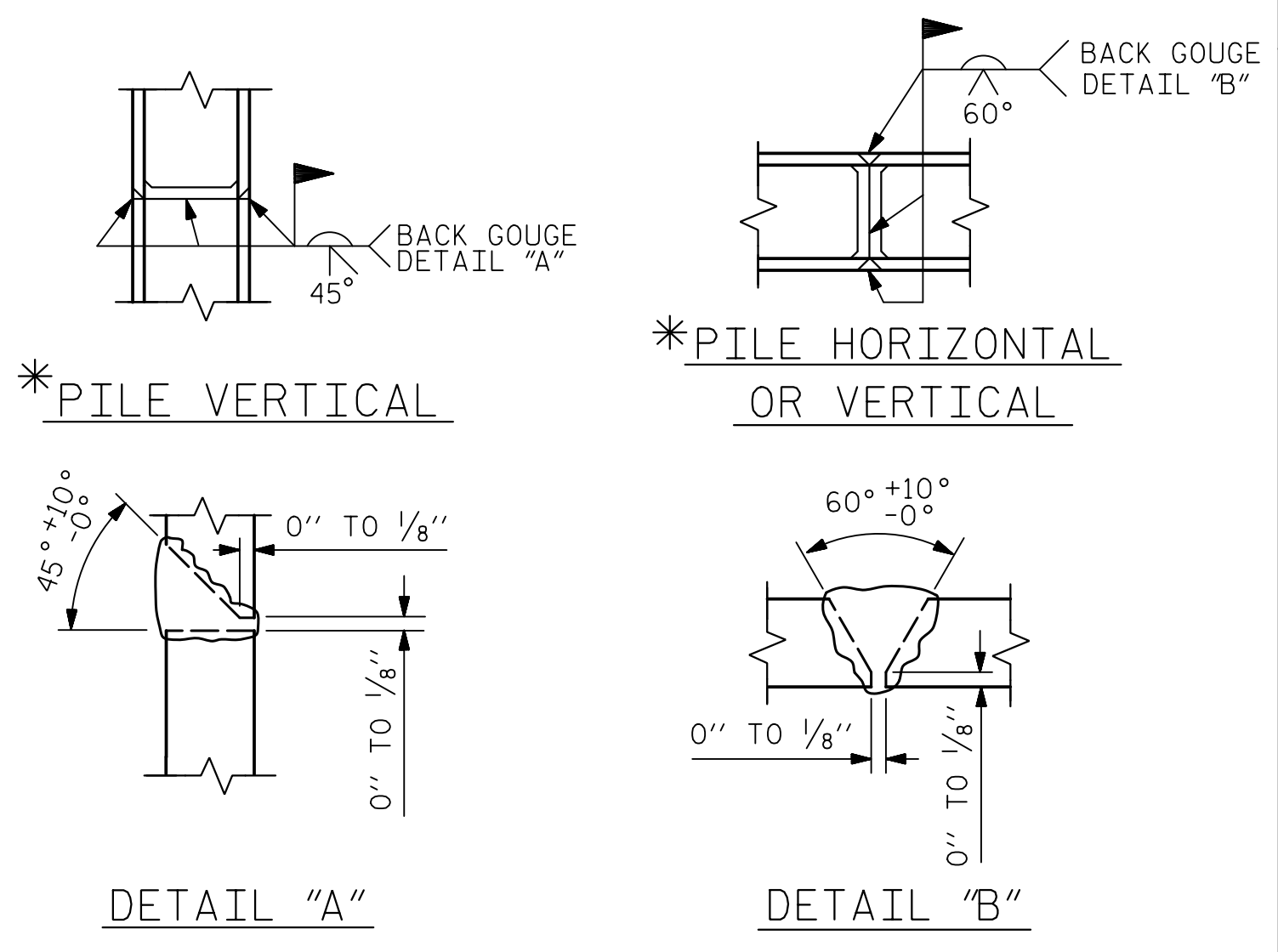


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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 FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 2

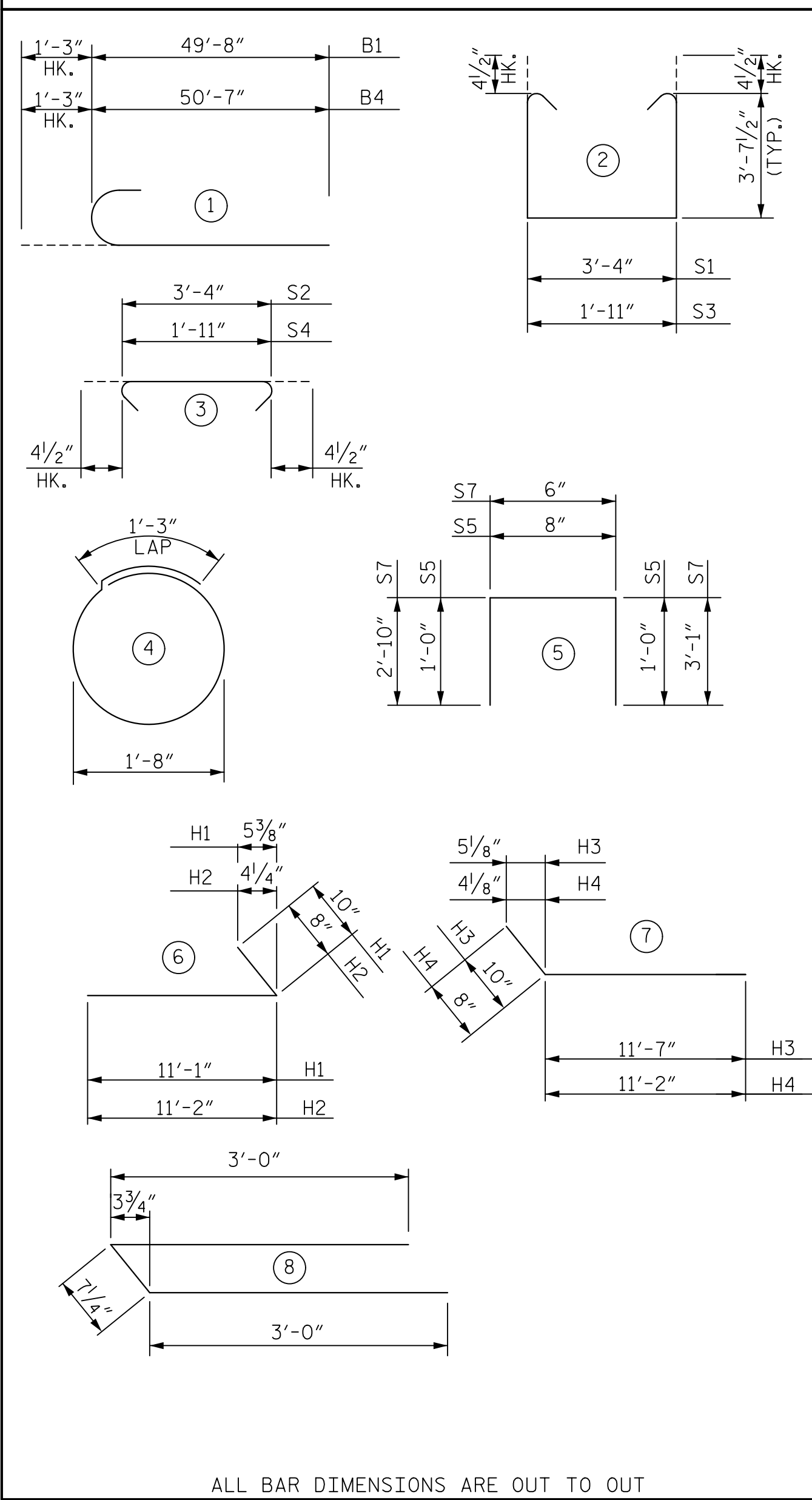


PILE SPLICE DETAILS

NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9	1	50'-11"	1,731
B2	80	4	STR.	25'-8"	1,372
B3	23	4	STR.	3'-8"	56
B4	12	9	1	51'-10"	2,115
H1	17	6	6	11'-11"	304
H2	11	4	6	11'-10"	87
H3	21	5	7	12'-5"	272
H4	11	4	7	11'-10"	87
K1	32	4	STR.	25'-8"	549
S1	242	4	2	11'-4"	1,832
S2	242	4	3	4'-1"	660
S3	3	4	2	9'-11"	20
S4	3	4	3	2'-8"	5
S5	86	4	5	2'-8"	153
S6	52	4	4	6'-6"	226
S7	2	4	5	6'-5"	9
S8	2	4	8	6'-7"	9
V1	172	4	STR.	7'-4"	843
V2	32	4	STR.	9'-2"	196
V3	32	4	STR.	8'-9"	187

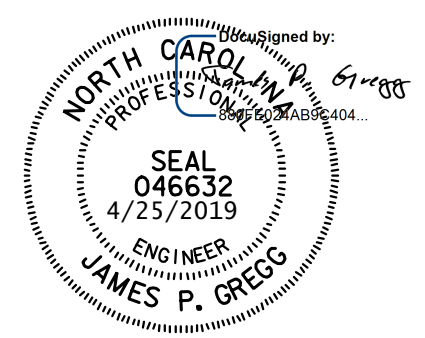
QUANTITIES

REINFORCING STEEL	LBS.	10,713
CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP & BOT. OF WINGS	CU. YDS.	59.9
POUR 2 - TOP OF WINGS & BACKWALL	CU. YDS.	17.3
TOTAL	CU. YDS.	77.2
HP 12x53 STEEL PILES	NO.	13
	LIN. FT.	780
PILE DRIVING EQUIPMENT SETUP	EA.	13

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 912+89.86 -EBL-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 2
LEFT LANE



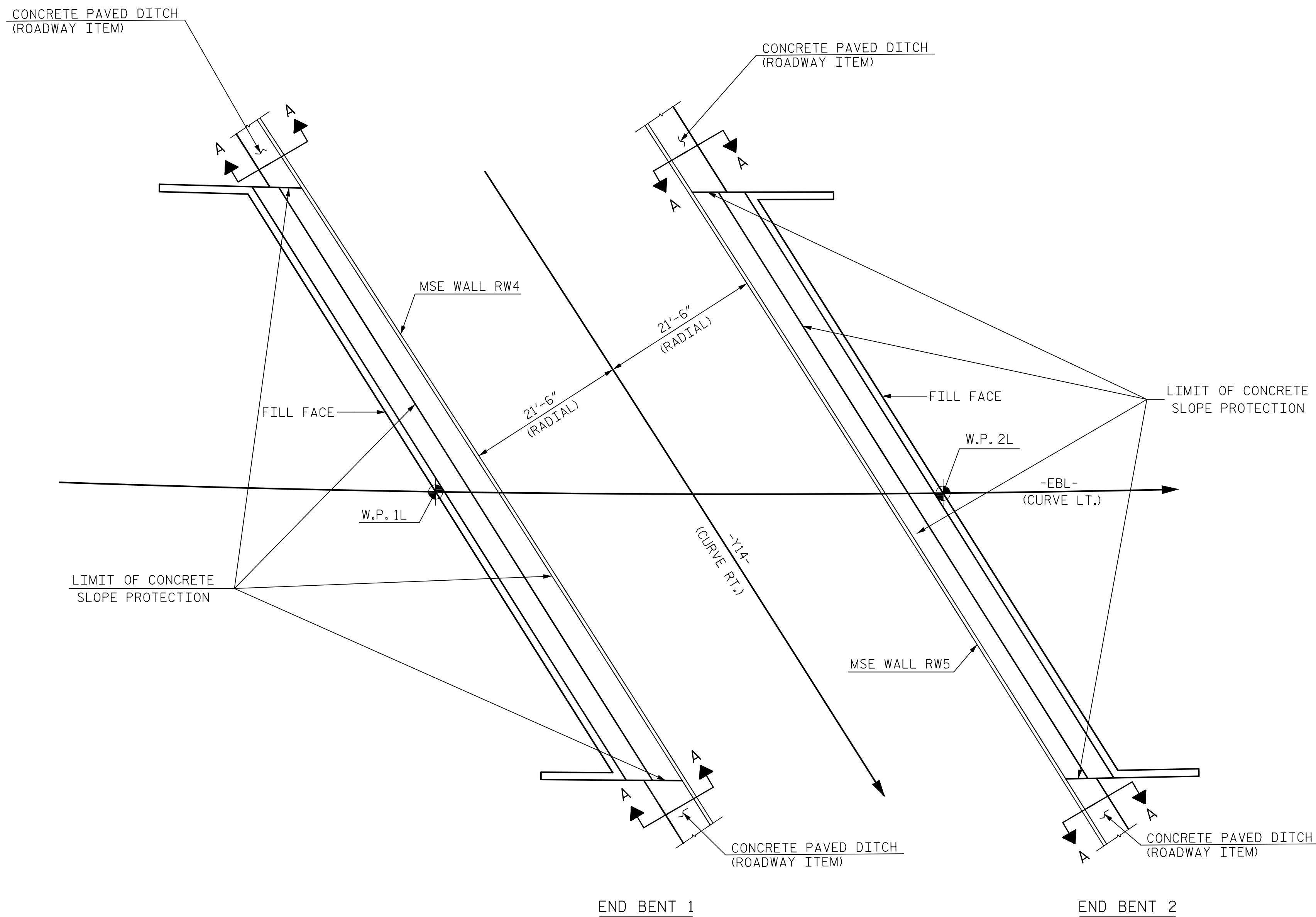
HNTB HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: B. NEUPANE DATE: 12/18
CHECKED BY: Z. GUO DATE: 1/19
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

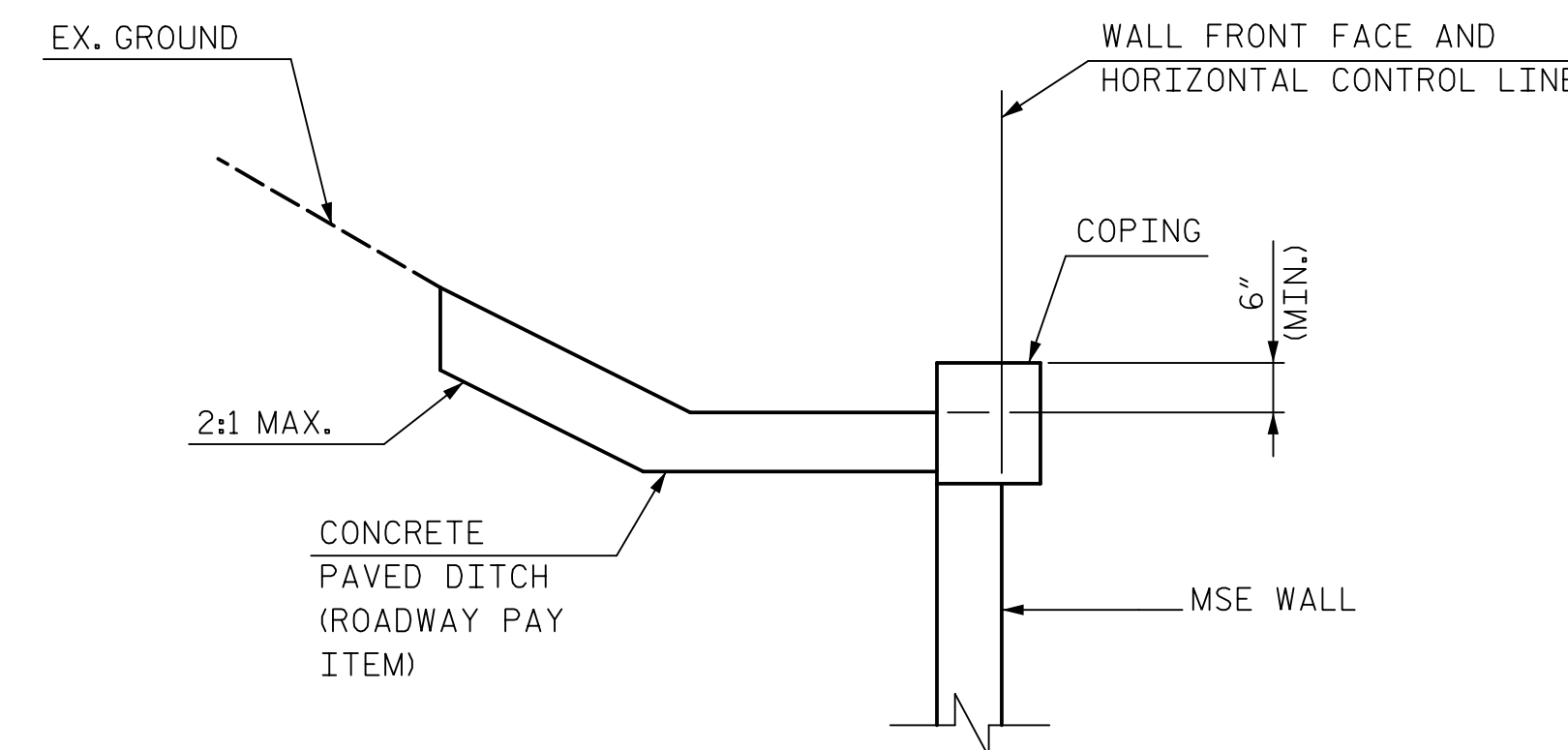
DWG. NO. 25

DOCUMENT NOT CONSIDERED FINAL
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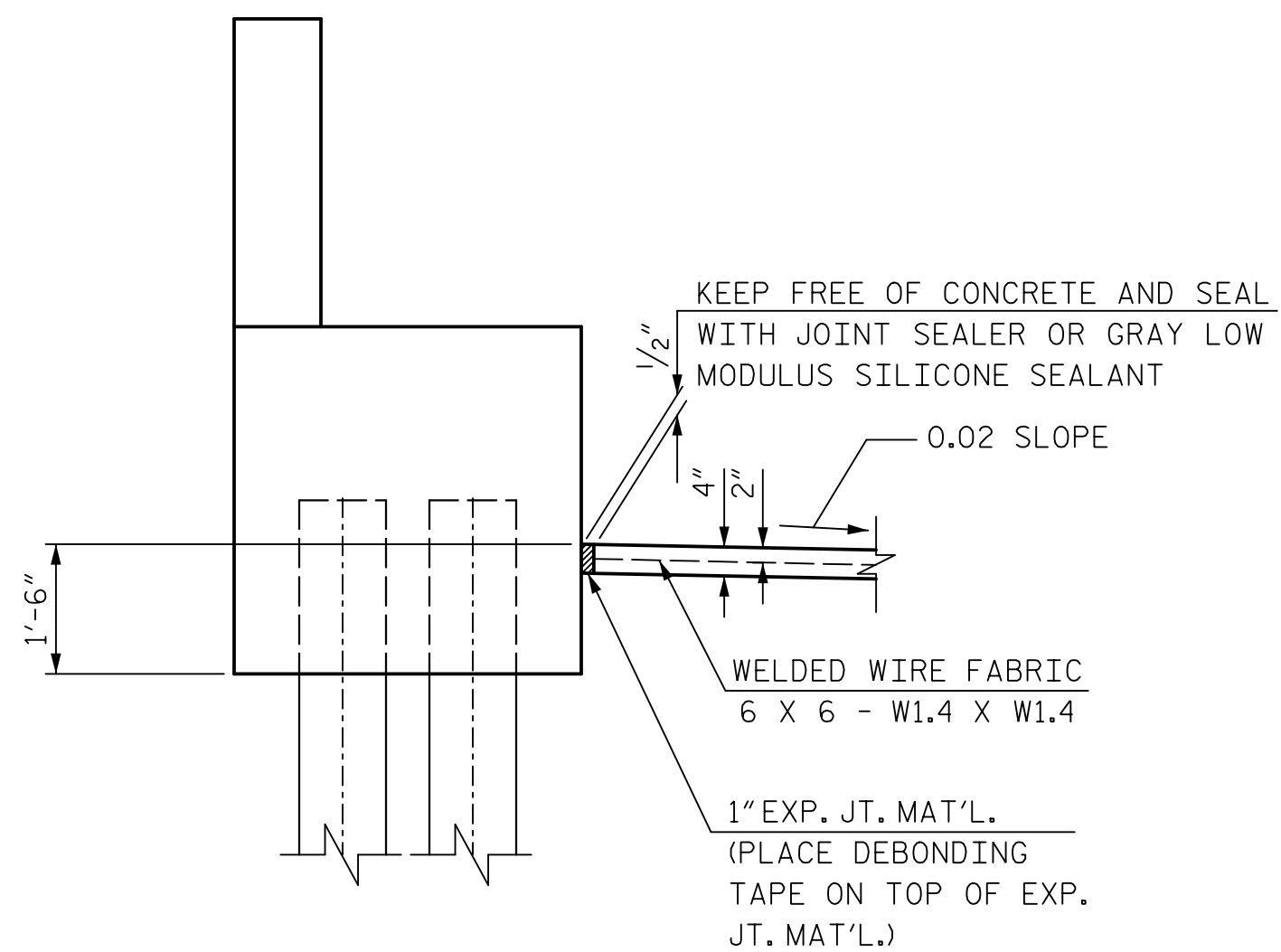
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-25
1			3			TOTAL SHEETS
2			4			31



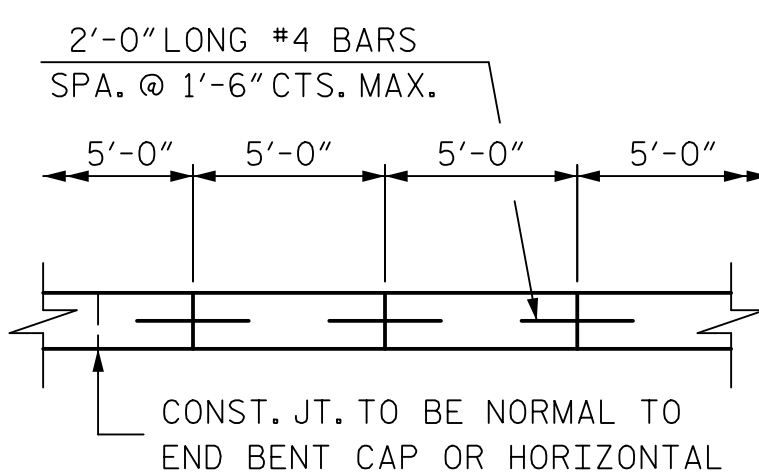
PLAN



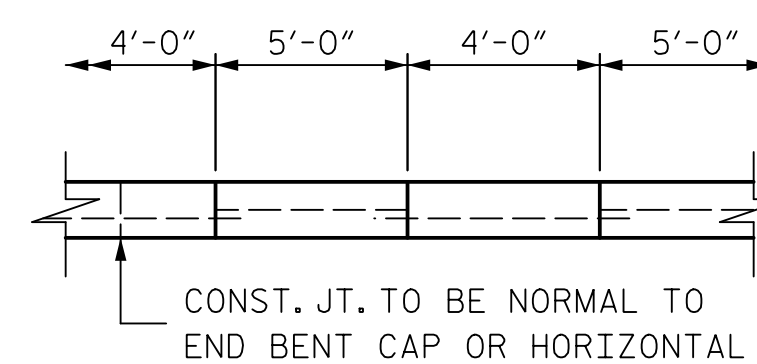
SECTION A-A



SECTION AT END BENT



POURING DETAIL



OPTIONAL POURING DETAIL

NOTES:

FOR BERM WIDTHS, 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.

BRIDGE @ STA. 912+89.86 -L- LEFT LANE	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	32.3	58.1
END BENT 2	27.7	49.9

* QUANTITY SHOWN IS BASED ON 5' POURS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION
 DETAILS

LEFT LANE

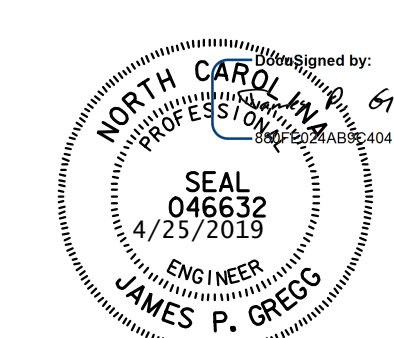
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

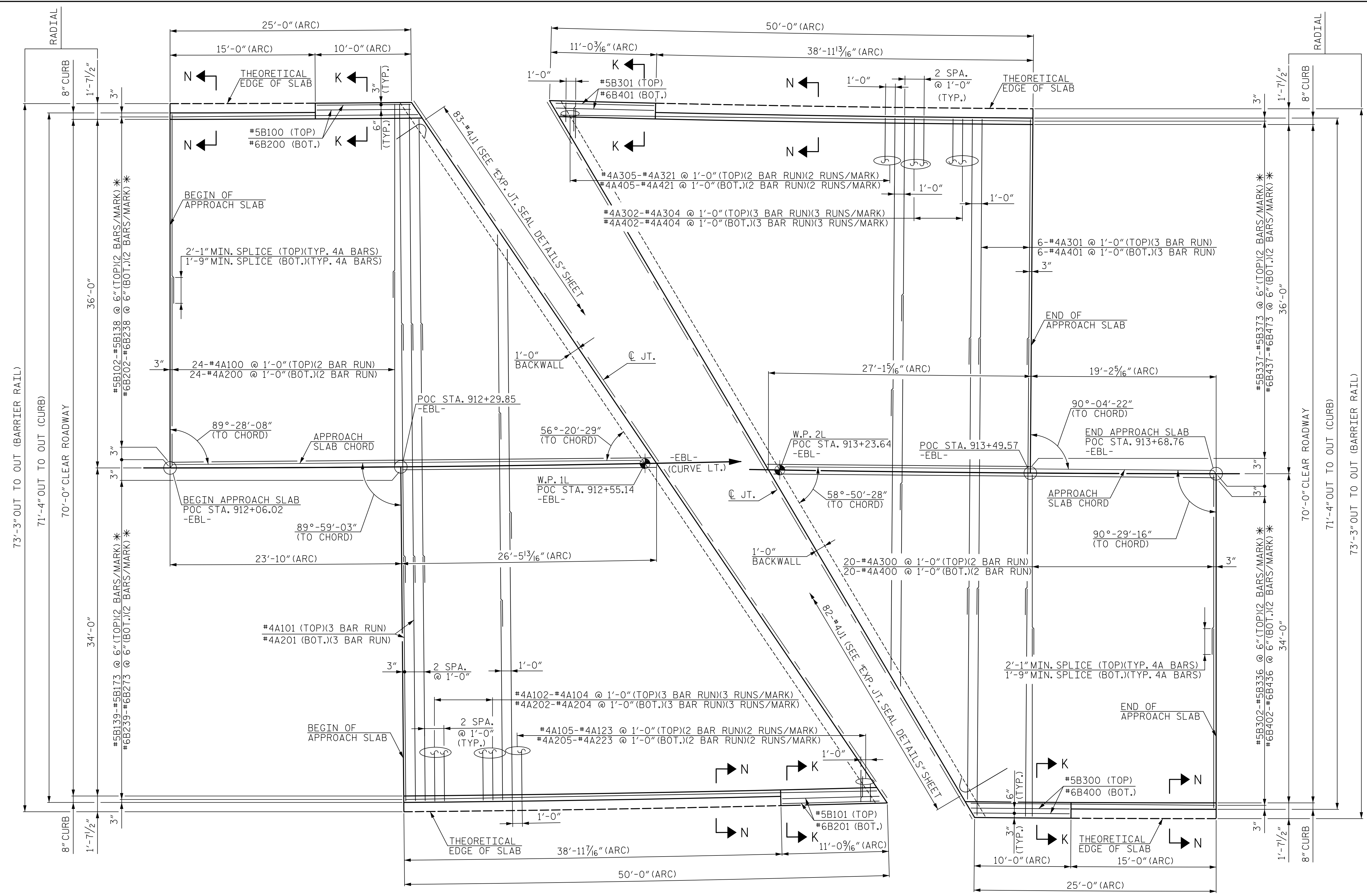
DRAWN BY: Z. GUO DATE: 1/19
 CHECKED BY: B. NEUPANE DATE: 1/19
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 26

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
1			3			TOTAL SHEETS
2			4			31

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED





NOTES:

FOR SECTION K-K AND SECTION N-N, SEE "BRIDGE APPROACH SLAB FOR RIGID PAVEMENT" SHEET 2 OF 5.

FOR APPROACH SLAB BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB FOR RIGID PAVEMENT" SHEET 3 & 4 OF 5.

FOR BARRIER RAIL REINFORCING STEEL PLACEMENT AND BILL OF MATERIAL, SEE "BRIDGE APPROACH SLAB FOR RIGID PAVEMENT" SHEET 5 OF 5.

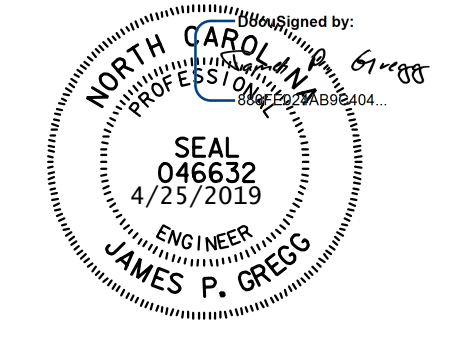
FOR STANDARD EXPANSION JOINT SEAL DETAILS, SEE "EXPANSION JOINT SEAL DETAILS" SHEET 1 OF 2.

APPROACH SLAB TRANSVERSE REBARS ARE PARALLEL TO BEGIN/END OF APPROACH SLAB.

PLAN AT END BENT 1
APPROACH SLAB CHORD EXAGGERATED FOR CLARITY

PLAN AT END BENT 2
APPROACH SLAB CHORD EXAGGERATED FOR CLARITY

* ALL "B" BARS ARE PARALLEL TO APPROACH SLAB CHORD



PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 1 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR RIGID PAVEMENT					
LEFT LANE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. SI-27
					TOTAL SHEETS 31

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: E. JOWZA DATE: 12/18
 CHECKED BY: A. KANG DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

DWG. NO. 27

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, MSE WALL REINFORCEMENT AND BACKFILL MATERIAL SEE ROADWAY PLANS.

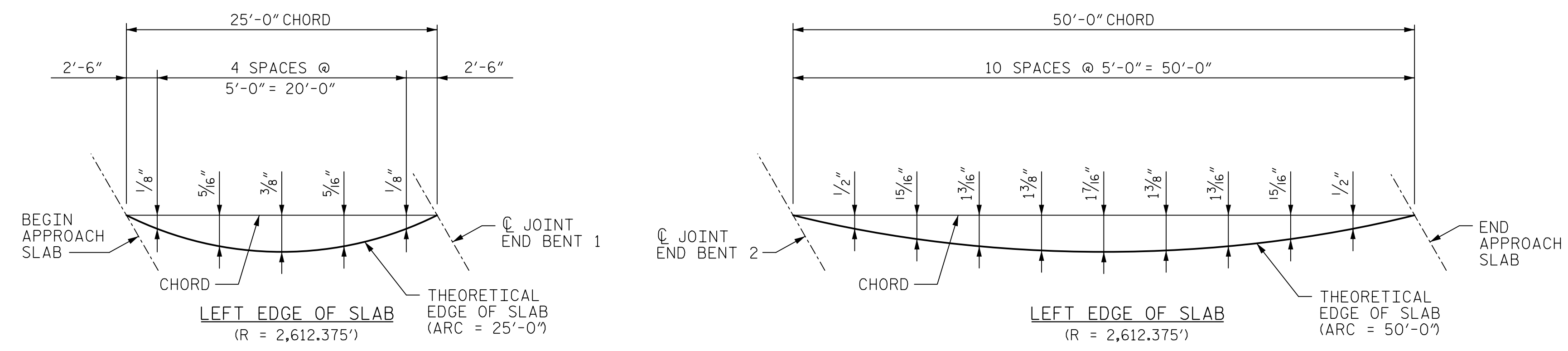
GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

BACKFILL MATERIAL SHALL BE THE SAME MATERIAL USED IN THE MSE REINFORCED ZONE.

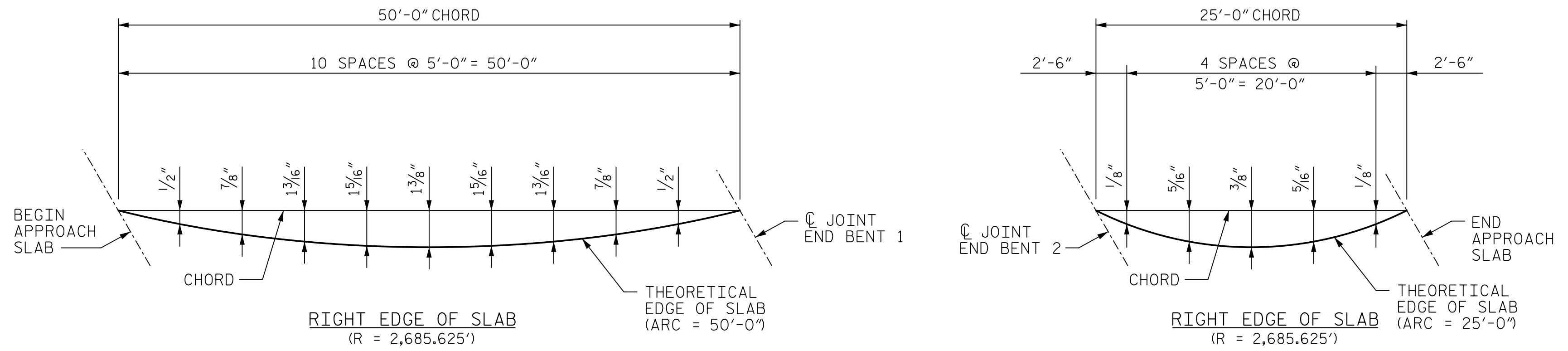
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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.

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

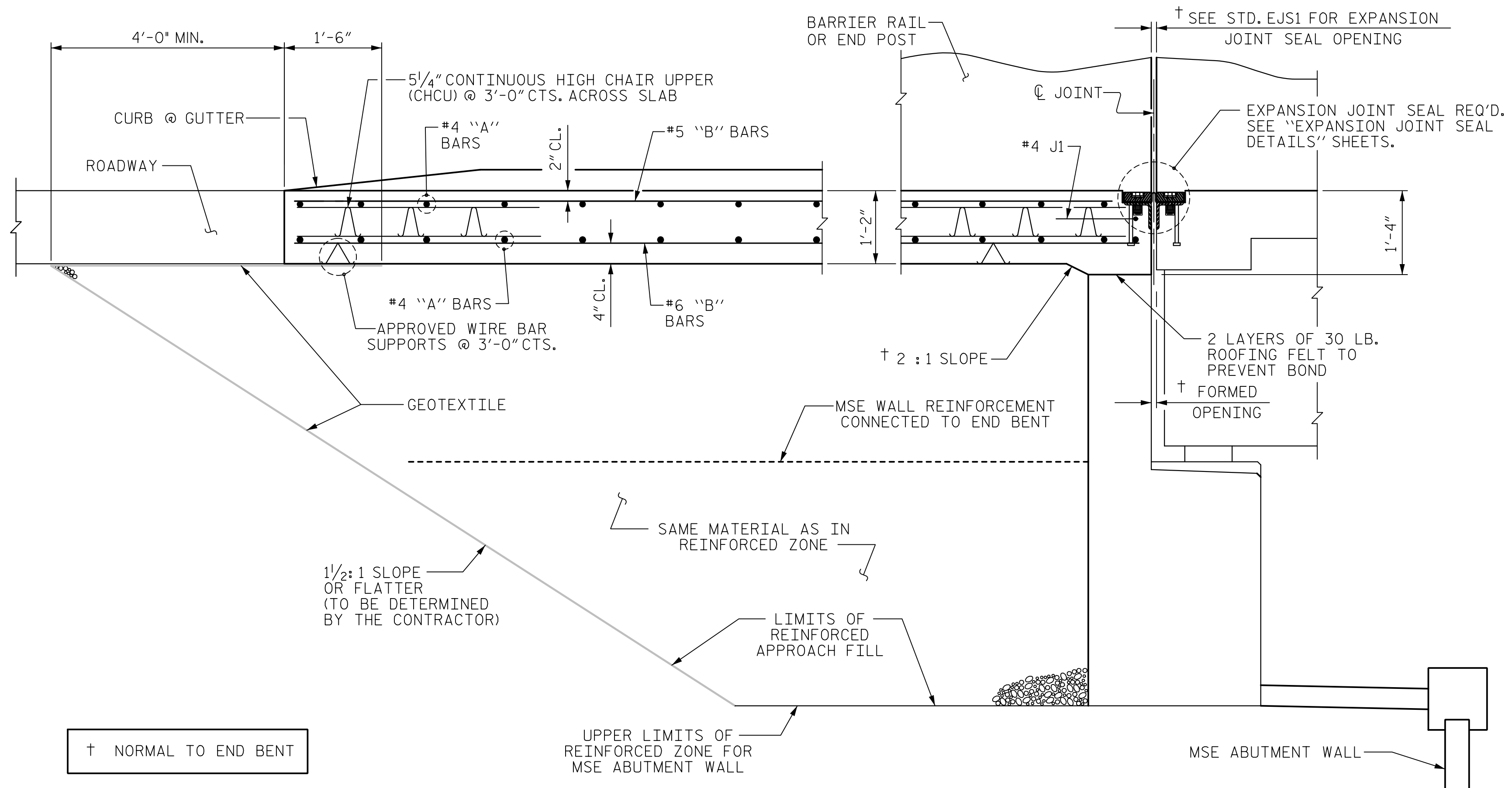


FOR PLAN VIEW OF APPROACH SLABS AT END BENT 1 AND END BENT 2, SEE SHEET 1 OF 5.



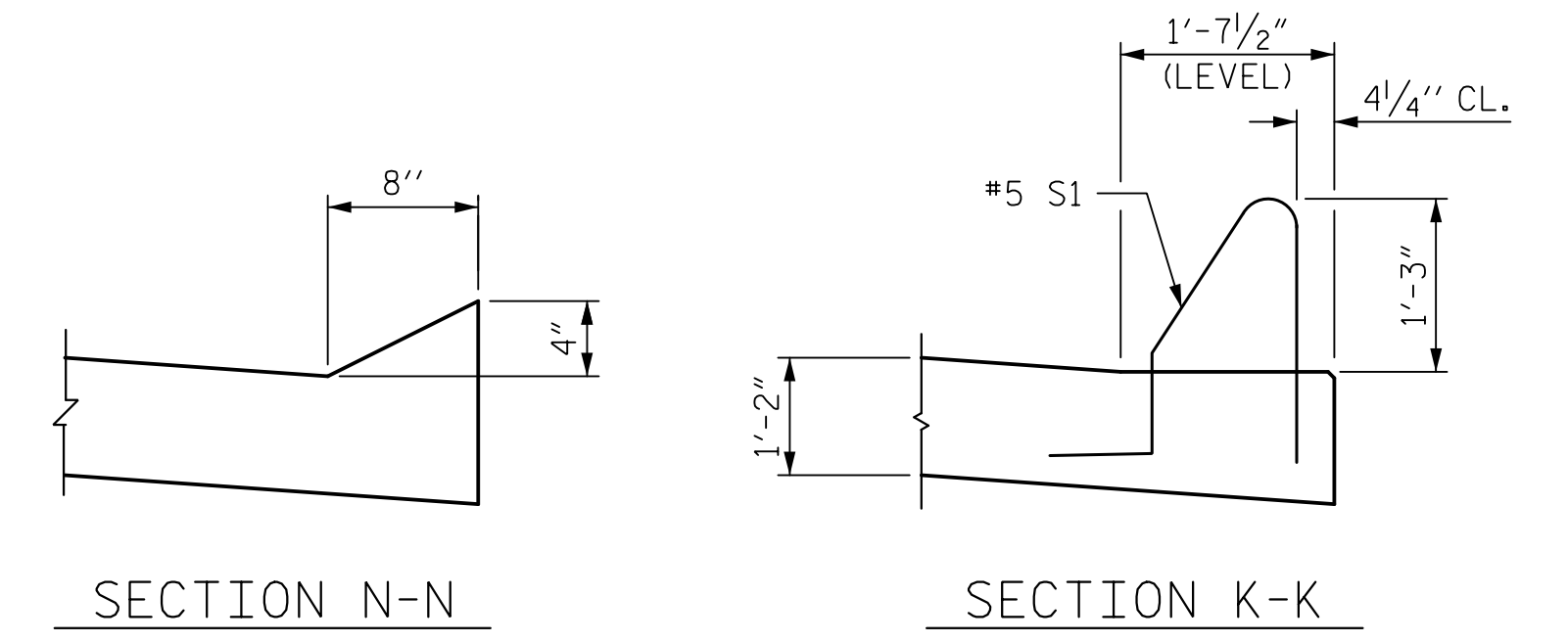
CURVE OFFSETS - APPROACH SLAB AT END BENT 1

CURVE OFFSETS - APPROACH SLAB AT END BENT 2



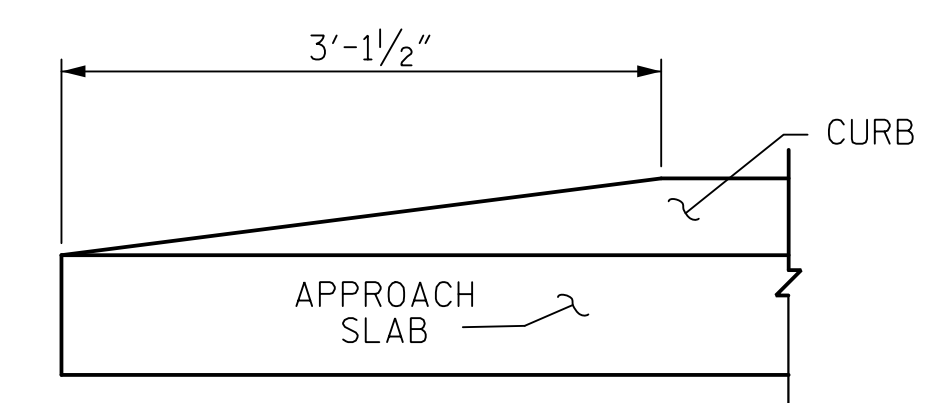
SECTION THRU SLAB

(TYPE III - REINFORCED APPROACH FILL)



SECTION N-N

SECTION K-K



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR RIGID PAVEMENT

LEFT LANE

ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : RH 5/99	REV. 12/21/11 MAA/GM
CHECKED BY : RDR 5/99	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
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HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY : E. JOWZA	DATE : 12/18	DWG. NO. 28	
CHECKED BY : A. KANG	DATE : 12/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-28
1			3			TOTAL SHEETS
2			4			31

BILL OF MATERIAL

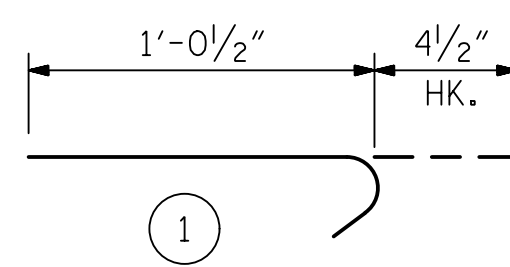
APPROACH SLAB AT END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A100	48	4	STR.	19'-9"	633	*B120	2	5	STR.	36'-10"	77	B215	2	6	STR.	33'-10"	102
*A101	6	4	STR.	25'-5"	102	*B121	2	5	STR.	37'-6"	78	B216	2	6	STR.	34'-7"	104
*A102	9	4	STR.	25'-0"	150	*B122	2	5	STR.	38'-2"	80	B217	2	6	STR.	35'-3"	106
*A103	9	4	STR.	23'-6"	141	*B123	2	5	STR.	38'-10"	81	B218	2	6	STR.	35'-11"	108
*A104	9	4	STR.	22'-0"	132	*B124	2	5	STR.	39'-6"	82	B219	2	6	STR.	36'-7"	110
*A105	4	4	STR.	30'-0"	80	*B125	2	5	STR.	40'-2"	84	B220	2	6	STR.	37'-3"	112
*A106	4	4	STR.	28'-5"	76	*B126	2	5	STR.	40'-10"	85	B221	2	6	STR.	37'-11"	114
*A107	4	4	STR.	26'-11"	72	*B127	2	5	STR.	41'-6"	87	B222	2	6	STR.	38'-7"	116
*A108	4	4	STR.	25'-5"	68	*B128	2	5	STR.	42'-2"	88	B223	2	6	STR.	39'-3"	118
*A109	4	4	STR.	23'-11"	64	*B129	2	5	STR.	42'-10"	89	B224	2	6	STR.	39'-11"	120
*A110	4	4	STR.	22'-5"	60	*B130	2	5	STR.	43'-7"	91	B225	2	6	STR.	40'-8"	122
*A111	4	4	STR.	20'-11"	56	*B131	2	5	STR.	44'-3"	92	B226	2	6	STR.	41'-4"	124
*A112	4	4	STR.	19'-5"	52	*B132	2	5	STR.	44'-11"	94	B227	2	6	STR.	42'-0"	126
*A113	4	4	STR.	17'-11"	48	*B133	2	5	STR.	45'-7"	95	B228	2	6	STR.	42'-8"	128
*A114	4	4	STR.	16'-5"	44	*B134	2	5	STR.	46'-3"	96	B229	2	6	STR.	43'-4"	130
*A115	4	4	STR.	14'-11"	40	*B135	2	5	STR.	46'-11"	98	B230	2	6	STR.	44'-0"	132
*A116	4	4	STR.	13'-5"	36	*B136	2	5	STR.	47'-7"	99	B231	2	6	STR.	44'-8"	134
*A117	4	4	STR.	11'-11"	32	*B137	2	5	STR.	48'-3"	101	B232	2	6	STR.	45'-4"	136
*A118	4	4	STR.	10'-5"	28	*B138	2	5	STR.	49'-0"	102	B233	2	6	STR.	46'-0"	138
*A119	4	4	STR.	8'-11"	24	*B139	2	5	STR.	25'-10"	54	B234	2	6	STR.	46'-9"	140
*A120	4	4	STR.	7'-5"	20	*B140	2	5	STR.	26'-6"	55	B235	2	6	STR.	47'-5"	142
*A121	4	4	STR.	5'-11"	16	*B141	2	5	STR.	27'-2"	57	B236	2	6	STR.	48'-1"	144
*A122	4	4	STR.	4'-5"	12	*B142	2	5	STR.	27'-10"	58	B237	2	6	STR.	48'-9"	146
*A123	4	4	STR.	2'-11"	8	*B143	2	5	STR.	28'-6"	59	B238	2	6	STR.	49'-5"	148
A200	48	4	STR.	19'-7"	628	*B144	2	5	STR.	29'-2"	61	B239	2	6	STR.	26'-3"	79
A201	6	4	STR.	25'-2"	101	*B145	2	5	STR.	29'-10"	62	B240	2	6	STR.	26'-11"	81
A202	9	4	STR.	24'-9"	149	*B146	2	5	STR.	30'-6"	64	B241	2	6	STR.	27'-7"	83
A203	9	4	STR.	23'-3"	140	*B147	2	5	STR.	31'-2"	65	B242	2	6	STR.	28'-3"	85
A204	9	4	STR.	21'-9"	131	*B148	2	5	STR.	31'-11"	67	B243	2	6	STR.	28'-11"	87
A205	4	4	STR.	30'-0"	80	*B149	2	5	STR.	32'-7"	68	B244	2	6	STR.	29'-7"	89
A206	4	4	STR.	28'-5"	76	*B150	2	5	STR.	33'-3"	69	B245	2	6	STR.	30'-3"	91
A207	4	4	STR.	26'-11"	72	*B151	2	5	STR.	33'-11"	71	B246	2	6	STR.	30'-11"	93
A208	4	4	STR.	25'-5"	68	*B152	2	5	STR.	34'-7"	72	B247	2	6	STR.	31'-7"	95
A209	4	4	STR.	23'-11"	64	*B153	2	5	STR.	35'-3"	74	B248	2	6	STR.	32'-4"	97
A210	4	4	STR.	22'-5"	60	*B154	2	5	STR.	35'-11"	75	B249	2	6	STR.	33'-0"	99
A211	4	4	STR.	20'-11"	56	*B155	2	5	STR.	36'-7"	76	B250	2	6	STR.	33'-8"	101
A212	4	4	STR.	19'-4"	52	*B156	2	5	STR.	37'-4"	78	B251	2	6	STR.	34'-4"	103
A213	4	4	STR.	17'-10"	48	*B157	2	5	STR.	38'-0"	79	B252	2	6	STR.	35'-0"	105
A214	4	4	STR.	16'-4"	44	*B158	2	5	STR.	38'-8"	81	B253	2	6	STR.	35'-8"	107
A215	4	4	STR.	14'-10"	40	*B159	2	5	STR.	39'-4"	82	B254	2	6	STR.	36'-4"	109
A216	4	4	STR.	13'-4"	36	*B160	2	5	STR.	40'-0"	83	B255	2	6	STR.	37'-0"	111
A217	4	4	STR.	11'-9"	31	*B161	2	5	STR.	40'-8"	85	B256	2	6	STR.	37'-9"	113
A218	4	4	STR.	10'-3"	27	*B162	2	5	STR.	41'-4"	86	B257	2	6	STR.	38'-5"	115
A219	4	4	STR.	8'-9"	23	*B163	2	5	STR.	42'-0"	88	B258	2	6	STR.	39'-1"	117
A220	4	4	STR.	7'-3"	19	*B164	2	5	STR.	42'-8"	89	B259	2	6	STR.	39'-9"	119
A221	4	4	STR.	5'-9"	15	*B165	2	5	STR.	43'-5"	91	B260	2	6	STR.	40'-5"	121
A222	4	4	STR.	4'-3"	11	*B166	2	5	STR.	44'-1"	92	B261	2	6	STR.	41'-1"	123
A223	4	4	STR.	2'-9"	7	*B167	2	5	STR.	44'-9"	93	B262	2	6	STR.	41'-9"	125
*B100	2	5	STR.	9'-9"	20	*B168	2	5	STR.	45'-5"	95	B263	2	6	STR.	42'-5"	127
*B101	2	5	STR.	10'-2"	21	*B169	2	5	STR.	46'-1"	96	B264	2	6	STR.	43'-1"	129
*B102	2	5	STR.	24'-8"	51	*B170	2	5	STR.	46'-9"	98	B265	2	6	STR.	43'-10"	132
*B103	2	5	STR.	25'-4"	53	*B171	2	5	STR.	47'-5"	99	B266	2	6	STR.	44'-6"	134
*B104	2	5	STR.	26'-0"	54	*B172	2	5	STR.	48'-1"	100	B267	2	6	STR.	45'-2"	136
*B105	2	5	STR.	26'-8"	56	*B173	2	5	STR.	48'-10"	102	B268	2	6	STR.	45'-10"	138
*B106	2	5	STR.	27'-4"	57	B200	2	6	STR.	9'-9"	29	B269	2	6	STR.	46'-6"	140
*B107	2	5	STR.	28'-0"	58	B201	2	6	STR.	10'-2"	31	B270	2	6	STR.	47'-2"	142
*B108	2	5	STR.	28'-8"	60	B202	2	6	STR.	25'-1"	75	B271	2	6	STR.	47'-10"	144
*B109	2	5	STR.	29'-4"	61	B203	2	6	STR.	25'-9"	77	B272	2	6	STR.	48'-6"	146
*B110	2	5	STR.	30'-0"	63	B204	2	6	STR.	26'-5"	79	B273	2	6	STR.	49'-3"	148
*B111	2	5	STR.	30'-9"	64	B205	2	6	STR.	27'-1"	81	*J1	83	4	1	1'-5"	79
*B112	2	5	STR.	31'-5"	66	B206	2	6	STR.	27'-9"	83						
*B113	2	5	STR.	32'-1"	67	B207	2	6	STR.	28'-6"	86						
*B114	2	5	STR.	32'-9"	68	B208	2	6	STR.	29'-2"	88						
*B115	2	5	STR.	33'-5"	70	B209	2	6	STR.	29'-10"	90						
*B116	2	5	STR.	34'-1"	71	B210	2	6	STR.	30'-6"	92						
*B117	2	5	STR.	34'-9"	72	B211	2	6	STR.	31'-2"	94						
*B118	2	5	STR.	35'-5"	74	B212	2	6	STR.	31'-10"	96						
*B119	2	5	STR.	36'-1"	75	B213	2	6	STR.	32'-6"	98						
						B214	2	6	STR.	33'-2"	100						

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-1"	1'-9"
#5	2'-7"	2'-2"
#6	3'-10"	2'-7"

THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT

REINFORCING STEEL **	LBS.	10,141
* EPOXY COATED REINFORCING STEEL **	LBS.	7,677
CLASS AA CONCRETE **◆	C. Y.	118.7

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 5 OF 5.
◆ INCLUDES 2 CURBS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 912+89.86 -EBL-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR RIGID PAVEMENT

LEFT LANE

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

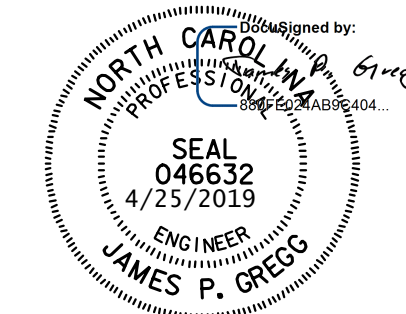
TOTAL SHEETS
31

HNTB HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: E. JOWZA DATE: 12/18
CHECKED BY: A. KANG DATE: 12/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 29

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



BILL OF MATERIAL

APPROACH SLAB AT END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A300	40	4	STR.	18'-9"	501	*B324	2	5	STR.	38'-0"	79	B419	2	6	STR.	35'-3"	106
*A301	18	4	STR.	25'-5"	306	*B325	2	5	STR.	38'-8"	81	B420	2	6	STR.	35'-11"	108
*A302	9	4	STR.	25'-0"	150	*B326	2	5	STR.	39'-3"	82	B421	2	6	STR.	36'-6"	110
*A303	9	4	STR.	23'-4"	140	*B327	2	5	STR.	39'-10"	83	B422	2	6	STR.	37'-1"	111
*A304	9	4	STR.	21'-8"	130	*B328	2	5	STR.	40'-5"	84	B423	2	6	STR.	37'-8"	113
*A305	4	4	STR.	29'-5"	79	*B329	2	5	STR.	41'-1"	86	B424	2	6	STR.	38'-3"	115
*A306	4	4	STR.	27'-9"	74	*B330	2	5	STR.	41'-8"	87	B425	2	6	STR.	38'-10"	117
*A307	4	4	STR.	26'-1"	70	*B331	2	5	STR.	42'-3"	88	B426	2	6	STR.	39'-6"	119
*A308	4	4	STR.	24'-5"	65	*B332	2	5	STR.	42'-10"	89	B427	2	6	STR.	40'-1"	120
*A309	4	4	STR.	22'-9"	61	*B333	2	5	STR.	43'-6"	91	B428	2	6	STR.	40'-8"	122
*A310	4	4	STR.	21'-1"	56	*B334	2	5	STR.	44'-1"	92	B429	2	6	STR.	41'-3"	124
*A311	4	4	STR.	19'-6"	52	*B335	2	5	STR.	44'-8"	93	B430	2	6	STR.	41'-10"	126
*A312	4	4	STR.	17'-10"	48	*B336	2	5	STR.	45'-4"	95	B431	2	6	STR.	42'-5"	127
*A313	4	4	STR.	16'-2"	43	*B337	2	5	STR.	26'-6"	55	B432	2	6	STR.	43'-0"	129
*A314	4	4	STR.	14'-6"	39	*B338	2	5	STR.	27'-1"	56	B433	2	6	STR.	43'-8"	131
*A315	4	4	STR.	12'-10"	34	*B339	2	5	STR.	27'-8"	58	B434	2	6	STR.	44'-3"	133
*A316	4	4	STR.	11'-3"	30	*B340	2	5	STR.	28'-3"	59	B435	2	6	STR.	44'-10"	135
*A317	4	4	STR.	9'-7"	26	*B341	2	5	STR.	28'-11"	60	B436	2	6	STR.	45'-5"	136
*A318	4	4	STR.	7'-11"	21	*B342	2	5	STR.	29'-6"	62	B437	2	6	STR.	26'-10"	81
*A319	4	4	STR.	6'-3"	17	*B343	2	5	STR.	30'-1"	63	B438	2	6	STR.	27'-5"	82
*A320	4	4	STR.	4'-7"	12	*B344	2	5	STR.	30'-9"	64	B439	2	6	STR.	28'-0"	84
*A321	4	4	STR.	3'-0"	8	*B345	2	5	STR.	31'-4"	65	B440	2	6	STR.	28'-7"	86
A400	40	4	STR.	18'-7"	497	*B346	2	5	STR.	32'-0"	67	B441	2	6	STR.	29'-3"	88
A401	18	4	STR.	25'-2"	303	*B347	2	5	STR.	32'-7"	68	B442	2	6	STR.	29'-10"	90
A402	9	4	STR.	24'-9"	149	*B348	2	5	STR.	33'-2"	69	B443	2	6	STR.	30'-5"	91
A403	9	4	STR.	23'-1"	139	*B349	2	5	STR.	33'-10"	71	B444	2	6	STR.	31'-0"	93
A404	9	4	STR.	21'-5"	129	*B350	2	5	STR.	34'-5"	72	B445	2	6	STR.	31'-8"	95
A405	4	4	STR.	29'-3"	78	*B351	2	5	STR.	35'-0"	73	B446	2	6	STR.	32'-3"	97
A406	4	4	STR.	27'-7"	74	*B352	2	5	STR.	35'-8"	74	B447	2	6	STR.	32'-10"	99
A407	4	4	STR.	25'-11"	69	*B353	2	5	STR.	36'-3"	76	B448	2	6	STR.	33'-5"	100
A408	4	4	STR.	24'-3"	65	*B354	2	5	STR.	36'-10"	77	B449	2	6	STR.	34'-1"	102
A409	4	4	STR.	22'-8"	61	*B355	2	5	STR.	37'-6"	78	B450	2	6	STR.	34'-8"	104
A410	4	4	STR.	21'-0"	56	*B356	2	5	STR.	38'-1"	79	B451	2	6	STR.	35'-3"	106
A411	4	4	STR.	19'-4"	52	*B357	2	5	STR.	38'-8"	81	B452	2	6	STR.	35'-10"	108
A412	4	4	STR.	17'-8"	47	*B358	2	5	STR.	39'-4"	82	B453	2	6	STR.	36'-5"	109
A413	4	4	STR.	16'-1"	43	*B359	2	5	STR.	39'-11"	83	B454	2	6	STR.	37'-1"	111
A414	4	4	STR.	14'-5"	39	*B360	2	5	STR.	40'-6"	84	B455	2	6	STR.	37'-8"	113
A415	4	4	STR.	12'-9"	34	*B361	2	5	STR.	41'-2"	86	B456	2	6	STR.	38'-3"	115
A416	4	4	STR.	11'-1"	30	*B362	2	5	STR.	41'-9"	87	B457	2	6	STR.	38'-10"	117
A417	4	4	STR.	9'-6"	25	*B363	2	5	STR.	42'-4"	88	B458	2	6	STR.	39'-6"	119
A418	4	4	STR.	7'-10"	21	*B364	2	5	STR.	43'-0"	90	B459	2	6	STR.	40'-1"	120
A419	4	4	STR.	6'-2"	16	*B365	2	5	STR.	43'-7"	91	B460	2	6	STR.	40'-8"	122
A420	4	4	STR.	4'-6"	12	*B366	2	5	STR.	44'-2"	92	B461	2	6	STR.	41'-3"	124
A421	4	4	STR.	2'-11"	8	*B367	2	5	STR.	44'-10"	94	B462	2	6	STR.	41'-11"	126
*B300	2	5	STR.	9'-9"	20	*B368	2	5	STR.	45'-5"	95	B463	2	6	STR.	42'-6"	128
*B301	2	5	STR.	10'-2"	21	*B369	2	5	STR.	46'-0"	96	B464	2	6	STR.	43'-1"	129
*B302	2	5	STR.	24'-9"	52	*B370	2	5	STR.	46'-8"	97	B465	2	6	STR.	43'-8"	131
*B303	2	5	STR.	25'-4"	53	*B371	2	5	STR.	47'-3"	99	B466	2	6	STR.	44'-4"	133
*B304	2	5	STR.	25'-11"	54	*B372	2	5	STR.	47'-10"	100	B467	2	6	STR.	44'-11"	135
*B305	2	5	STR.	26'-6"	55	*B373	2	5	STR.	48'-6"	101	B468	2	6	STR.	45'-6"	137
*B306	2	5	STR.	27'-2"	57	B400	2	6	STR.	9'-9"	29	B469	2	6	STR.	46'-1"	138
*B307	2	5	STR.	27'-9"	58	B401	2	6	STR.	10'-2"	31	B470	2	6	STR.	46'-9"	140
*B308	2	5	STR.	28'-4"	59	B402	2	6	STR.	25'-2"	76	B471	2	6	STR.	47'-4"	142
*B309	2	5	STR.	28'-11"	60	B403	2	6	STR.	25'-9"	77	B472	2	6	STR.	47'-11"	144
*B310	2	5	STR.	29'-7"	62	B404	2	6	STR.	26'-4"	79	B473	2	6	STR.	48'-7"	146
*B311	2	5	STR.	30'-2"	63	B405	2	6	STR.	26'-11"	81	*J1	82	4	1	1'-5"	78
*B312	2	5	STR.	30'-9"	64	B406	2	6	STR.	27'-7"	83						
*B313	2	5	STR.	31'-4"	65	B407	2	6	STR.	28'-2"	85						
*B314	2	5	STR.	32'-0"	67	B408	2	6	STR.	28'-9"	86						
*B315	2	5	STR.	32'-7"	68	B409	2	6	STR.	29'-4"	88						
*B316	2	5	STR.	33'-2"	69	B410	2	6	STR.	29'-11"	90						
*B317	2	5	STR.	33'-9"	70	B411	2	6	STR.	30'-6"	92						
*B318	2	5	STR.	34'-5"	72	B412	2	6	STR.	31'-1"	93						
*B319	2	5	STR.	35'-0"	73	B413	2	6	STR.	31'-9"	95						
*B320	2	5	STR.	35'-7"	74	B414	2	6	STR.	32'-4"	97						
*B321	2	5	STR.	36'-3"	76	B415	2	6	STR.	32'-11"	99						
*B322	2	5	STR.	36'-10"	77	B416	2	6	STR.	33'-6"	101						
*B323	2	5	STR.	37'-5"	78	B417	2	6	STR.	34'-1"	102						
						B418	2	6	STR.	34'-8"	104						

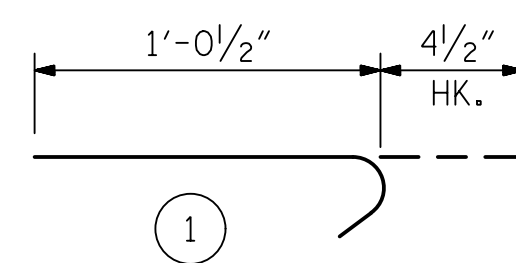
REINFORCING STEEL ** LBS. 9,902
 * EPOXY COATED REINFORCING STEEL ** LBS. 7,529
 CLASS AA CONCRETE ** C. Y. 116.0

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 5 OF 5.
 ◆ INCLUDES 2 CURBS.

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-1"	1'-9"
#5	2'-7"	2'-2"
#6	3'-10"	2'-7"

THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 912+89.86 -EBL-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR RIGID PAVEMENT

LEFT LANE

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

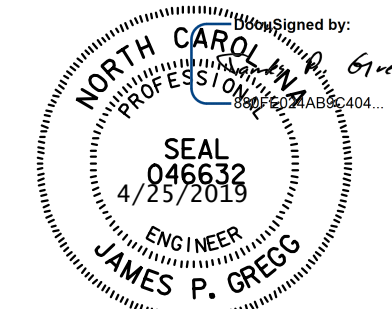
TOTAL SHEETS 31

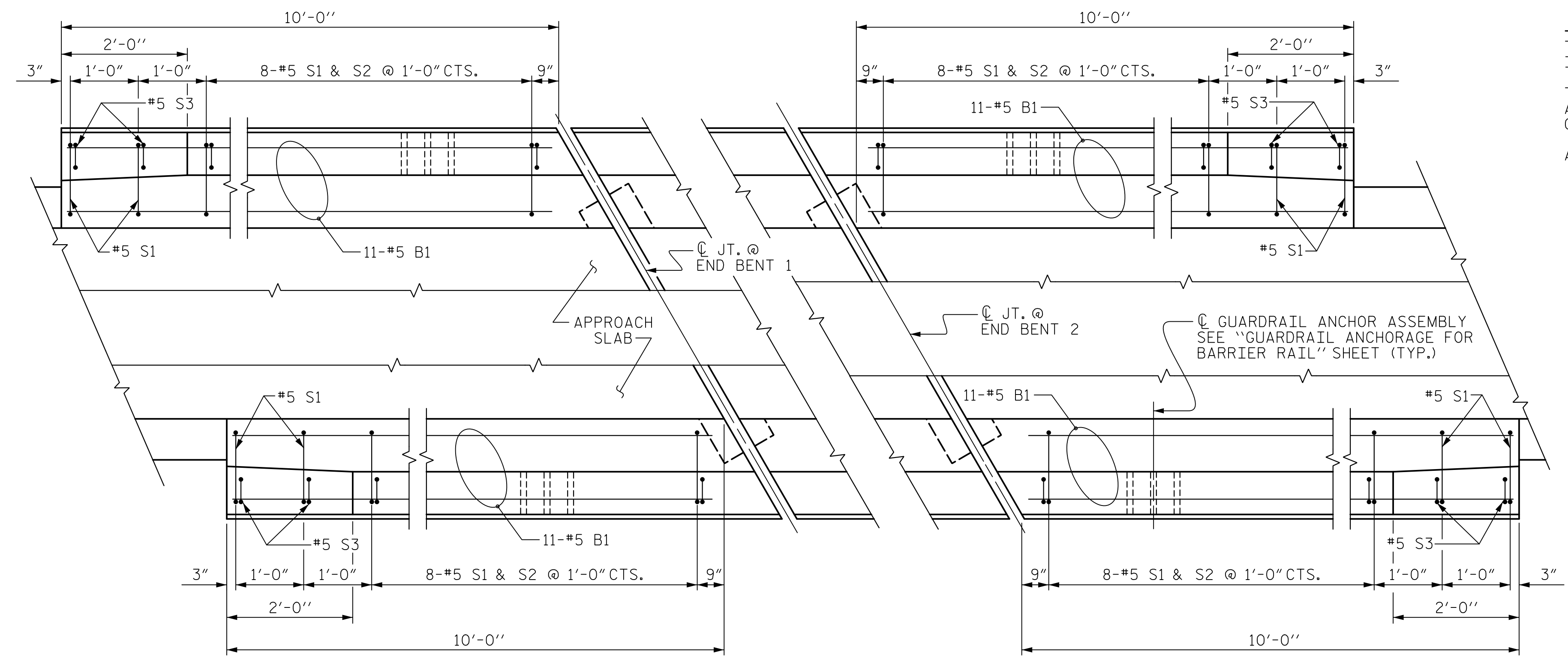
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 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: E. JOWZA DATE: 12/18
 CHECKED BY: A. KANG DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

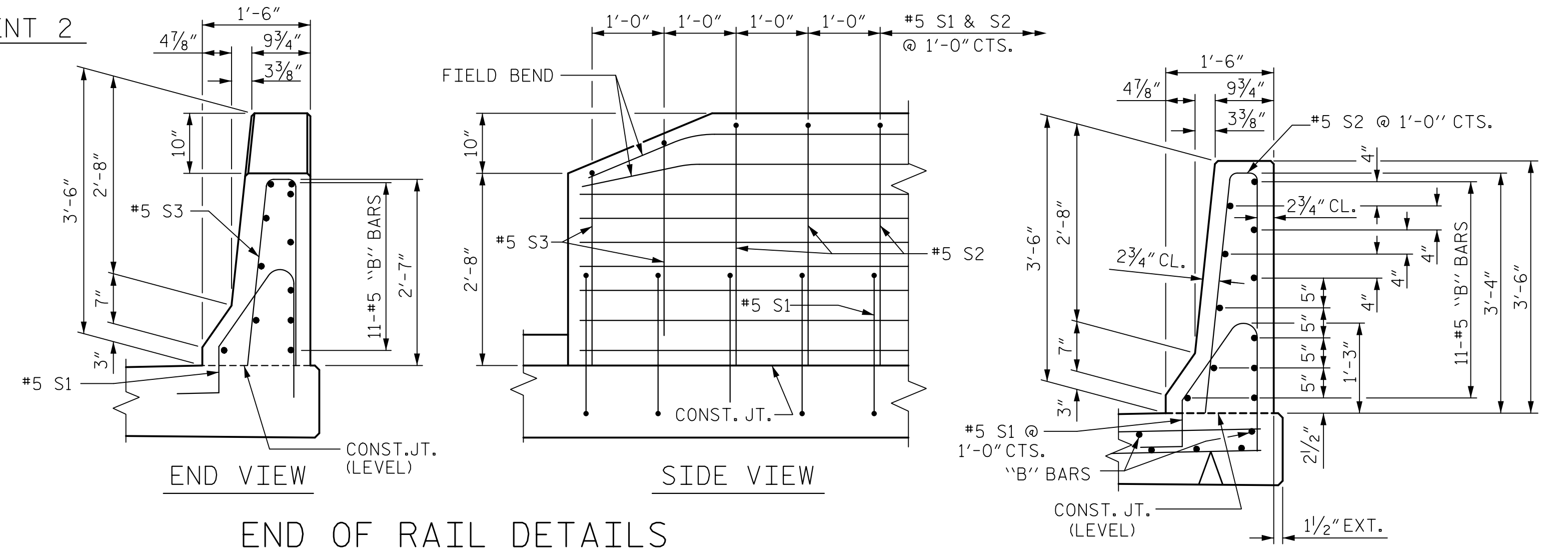
DWG. NO. 30

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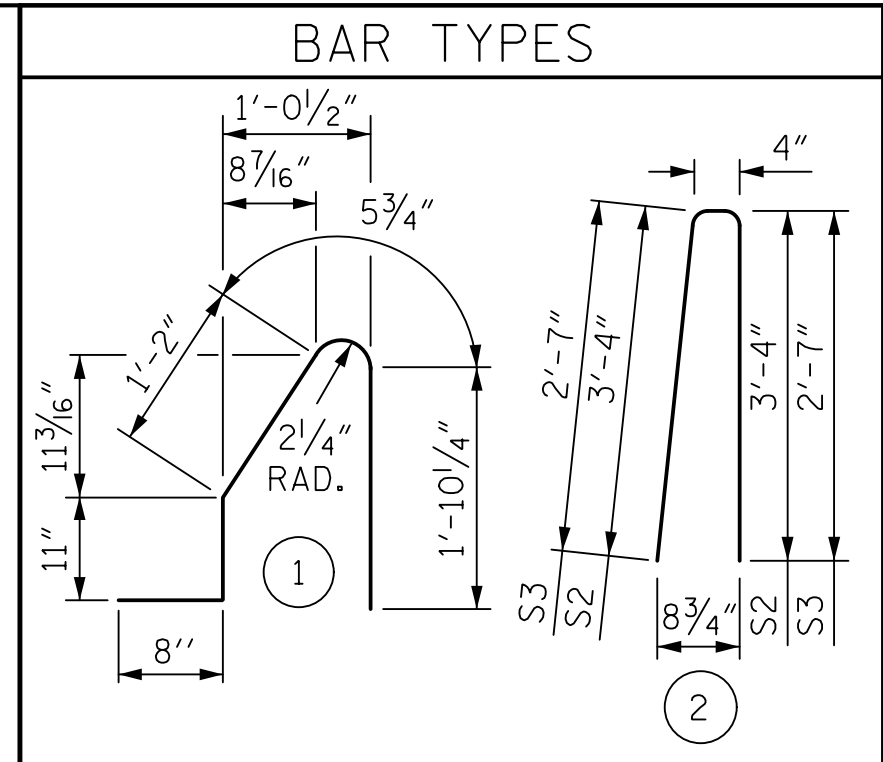




END BENT 1
END BENT 2
PLAN OF BARRIER RAIL



END VIEW
SIDE VIEW
END OF RAIL DETAILS

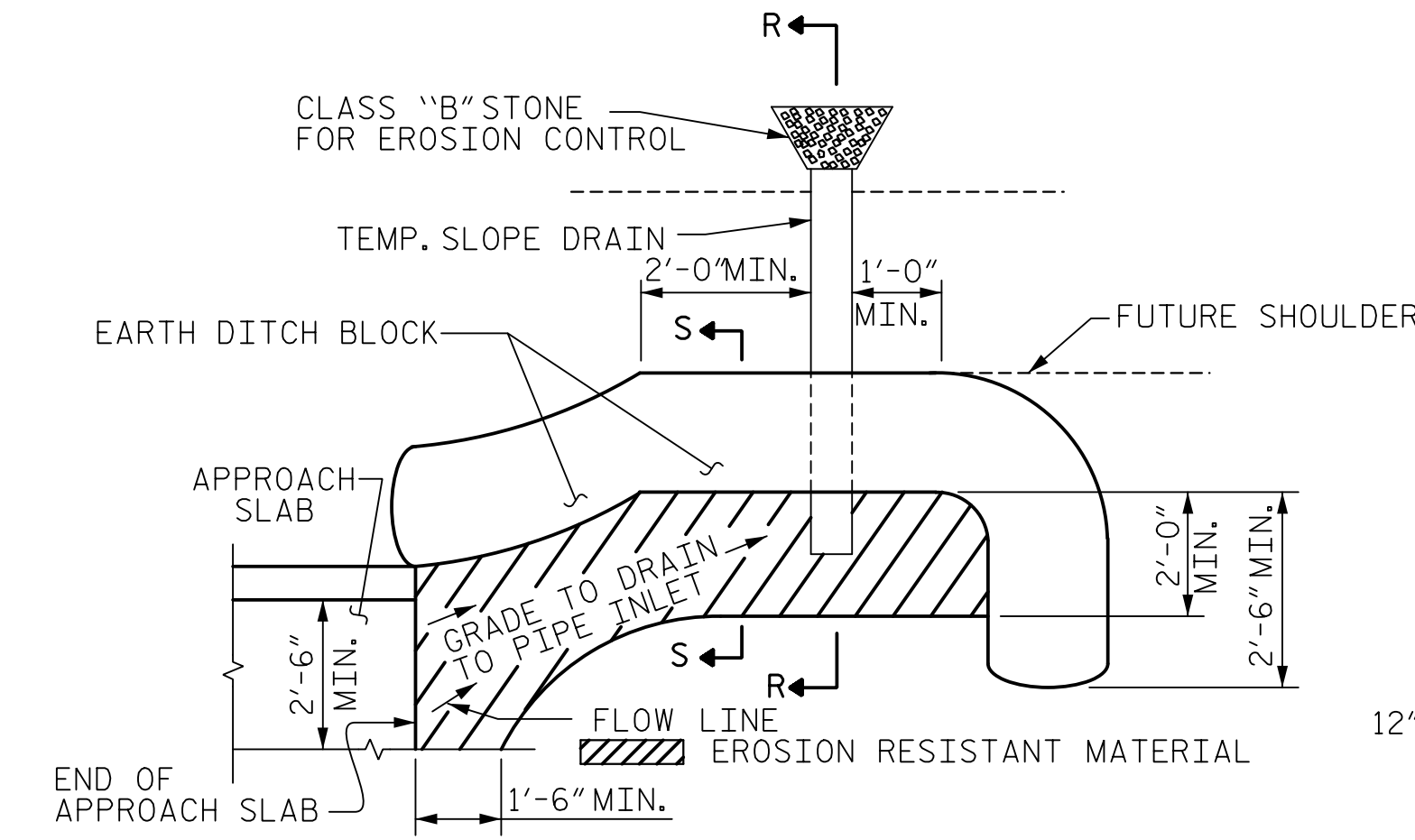


ALL BAR DIMENSIONS ARE OUT TO OUT

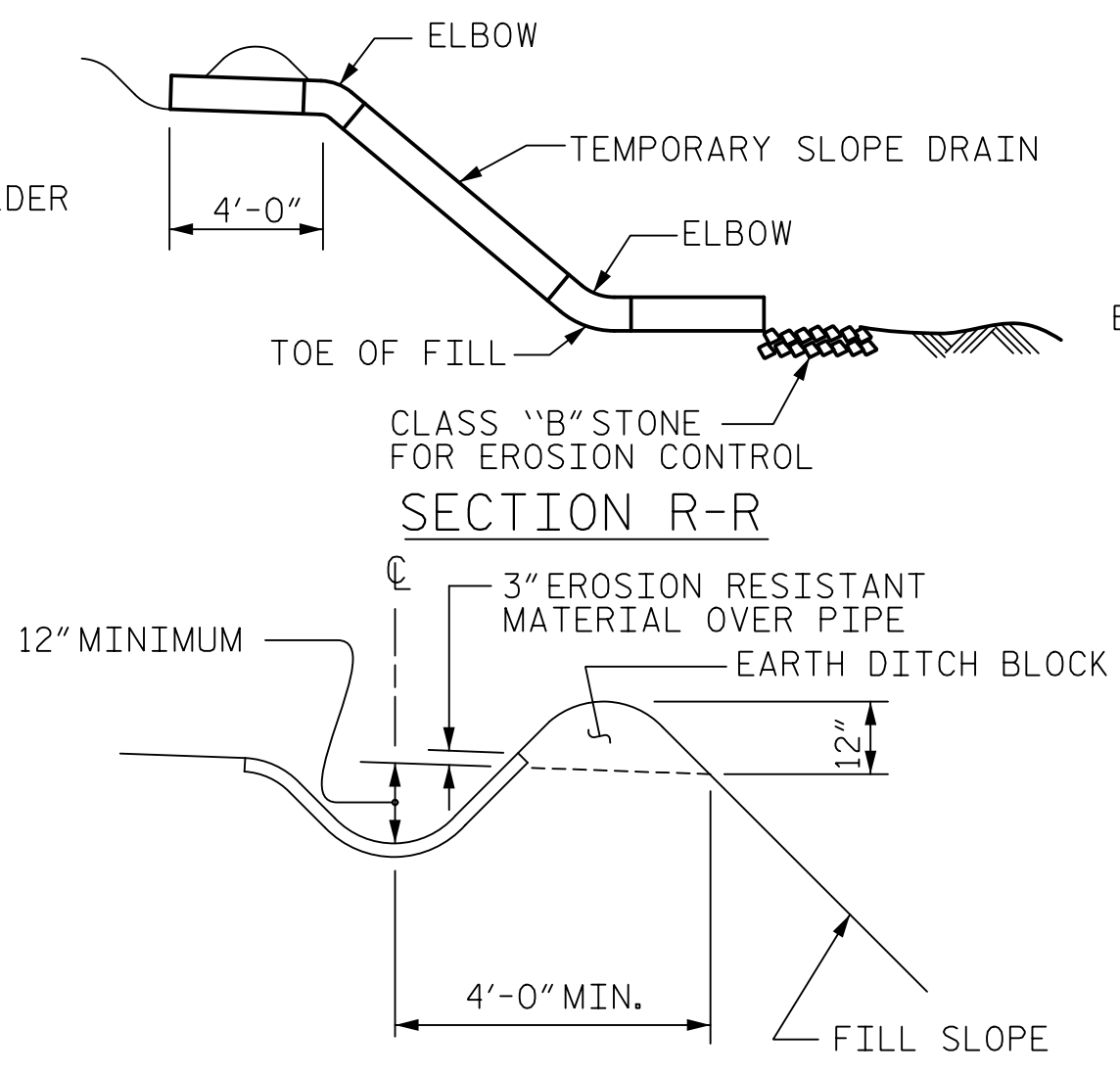
BILL OF MATERIAL
BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	44	#5	STR	9'-9"	447
*S1	40	#5	1	5'-1"	212
*S2	32	#5	2	7'-0"	234
*S3	8	#5	2	5'-6"	46
* EPOXY COATED REINFORCING STEEL				LBS.	939
CLASS AA CONCRETE				C. Y.	5.6
CONCRETE BARRIER RAIL				42.06 LIN. FT.	

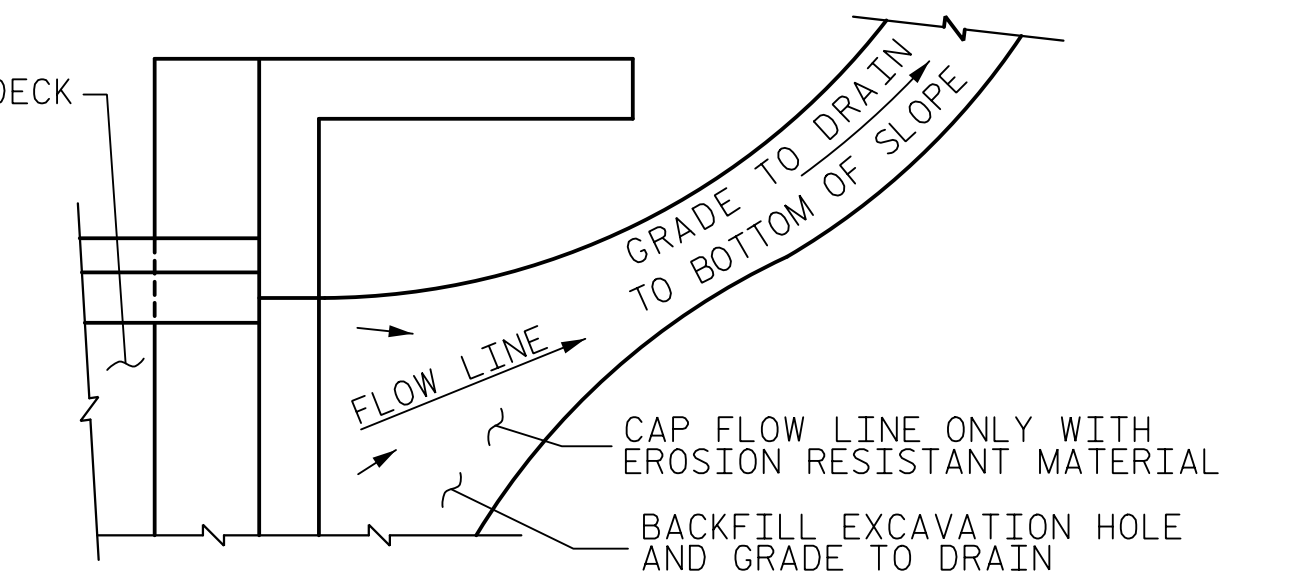
NOTES
THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".
THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.



PLAN VIEW



SECTION S-S



TEMPORARY DRAINAGE DETAIL

NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

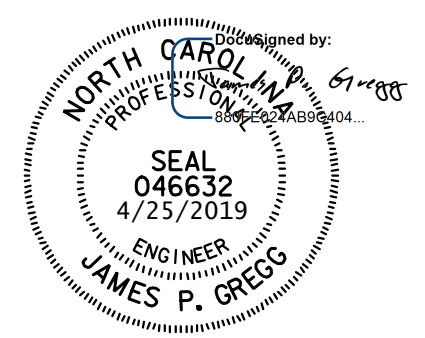
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : FCJ 11/88	REV. 6/13 MAA/GM
CHECKED BY : ARB 11/88	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

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DESIGNED BY: E. JOWZA DATE 12/18
CHECKED BY: A. KANG DATE 12/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE 3/19

DWG. NO. 31



PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 912+89.86 -EBL-

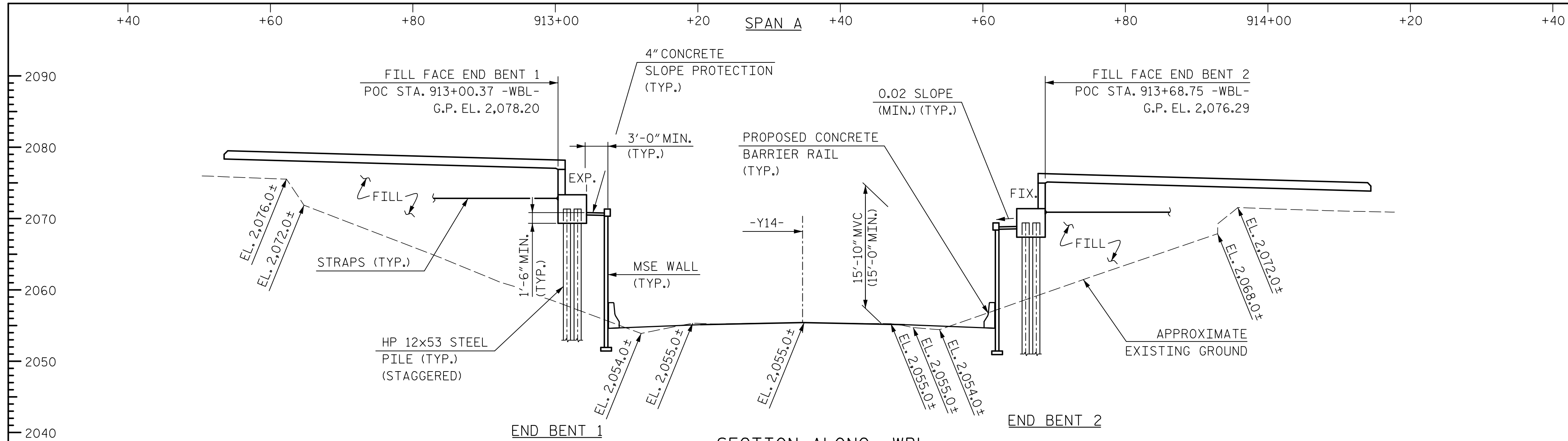
SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH
SLAB DETAILS

LEFT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	SI-31
1			3			TOTAL SHEETS
2			4			31



NOTES:
 FOR GENERAL NOTES, SEE SHEET 4 OF 4.
 MVC = MIN. VERTICAL CLEARANCE

CURVE DATA FOR -WBL-

PI STA 918+08.01
 $\Delta = 27^\circ-17'-04.10''$ (LT)
 D = $2^\circ-00'-00.0''$
 L = 1,364.22 FT.
 T = 695.30 FT.
 R = 2,864.79 FT.
 SE = 0.06

CURVE DATA FOR -Y14-

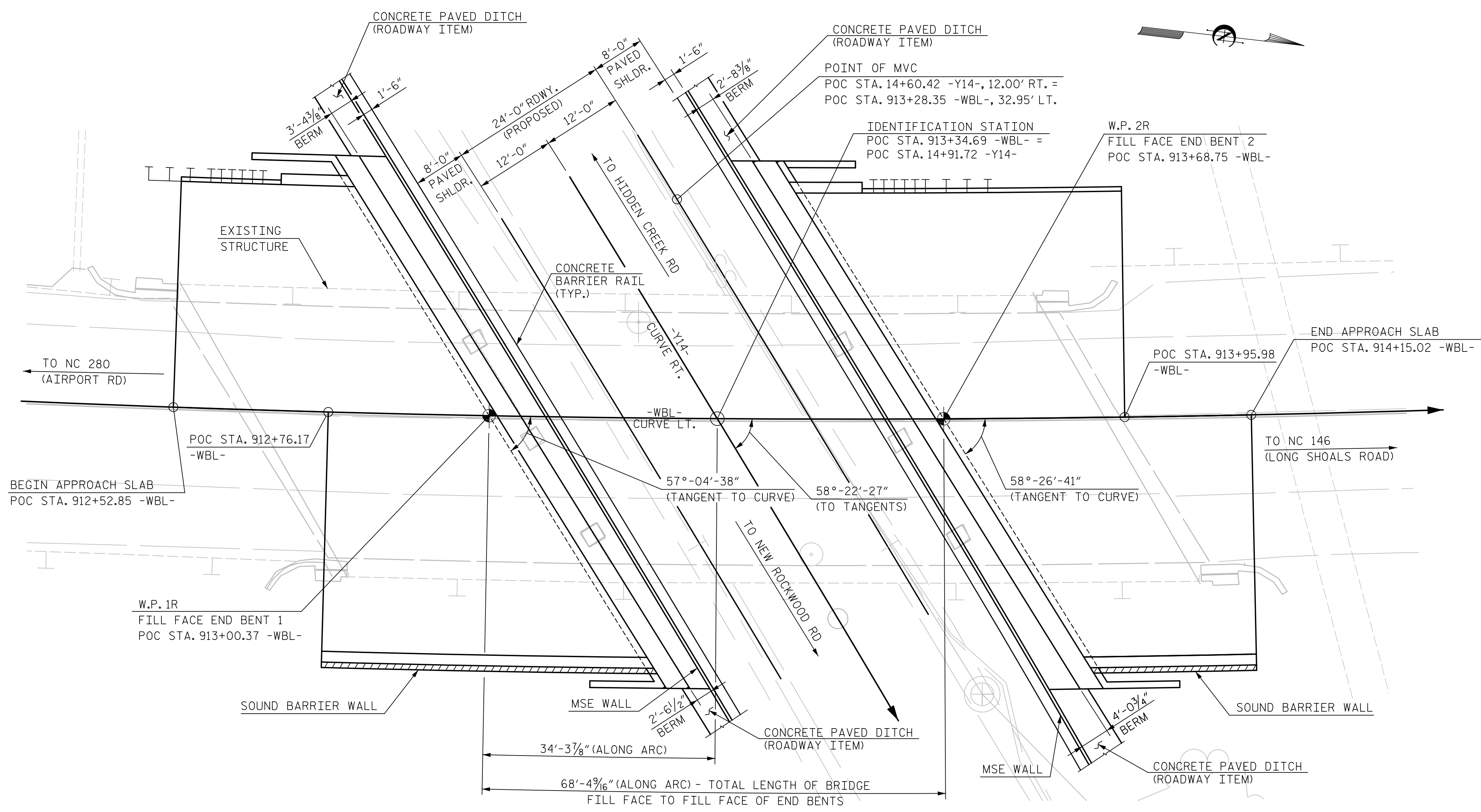
PI STA 13+88.68	PI STA 15+84.33
$\Delta = 2^\circ-10'-08.8''$ (RT)	$\Delta = 3^\circ-49'-42.2''$ (RT)
D = $0^\circ-47'-05.5''$	D = $3^\circ-19'-52.1''$
L = 276.36 FT.	L = 114.93 FT.
T = 138.20 FT.	T = 57.48 FT.
R = 7,300.00 FT.	R = 1,720.00 FT.
SE = 0.02 NORMAL CROWN	SE = 0.02 NORMAL CROWN

PI STA. = 901+15.00	PI STA. = 920+00.00
ELEV. = 2,111.27	ELEV. = 2,058.68
V.C. = 1100'	V.C. = 700'

GRADE DATA FOR -WBL-

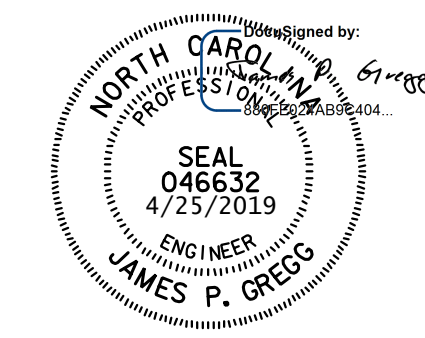
PI STA. = 12+80.00	PI STA. = 14+75.00
ELEV. = 2,055.70	ELEV. = 2,054.45
V.C. = 190'	V.C. = 200'

GRADE DATA FOR -Y14-



PLAN

NOTES: PILES NOT SHOWN FOR CLARITY.
 END BENTS ARE PARALLEL



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DRAWN BY	B. NEUPANE	DATE	5/18
CHECKED BY	B. EMAMI	DATE	5/18
DESIGNED BY	J. GREGG	DATE	3/19

DWG. NO. 1

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-
POC 14+91.72 -Y14-

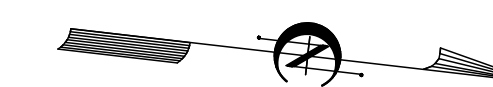
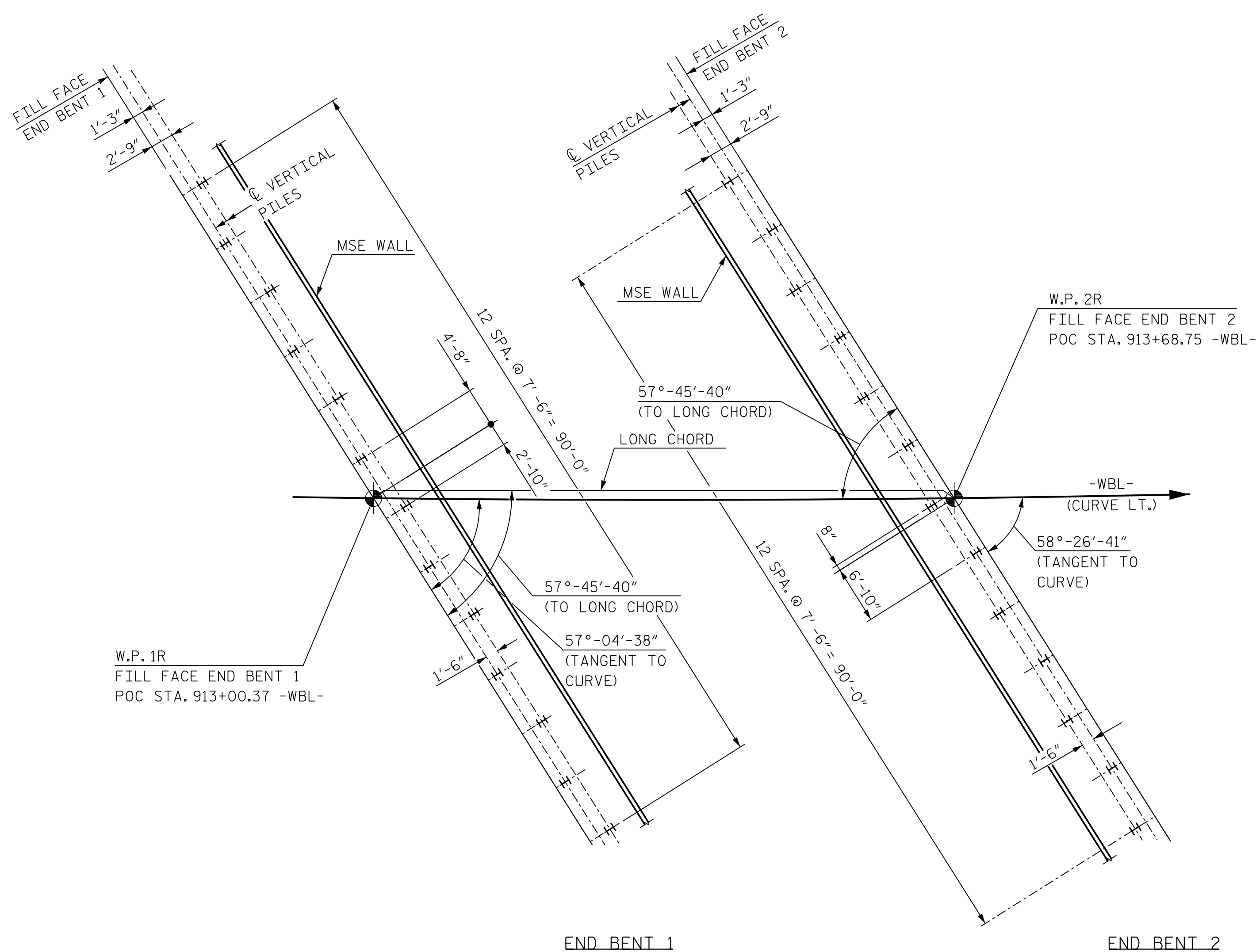
SHEET 1 OF 4 REPLACES BRIDGE NO. 0068

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON I-26 WBL OVER
 GLENN BRIDGE ROAD
 BETWEEN NC146 AND NC280
 RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-1
1			3			TOTAL SHEETS
2			4			32

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 UNLESS ALL SIGNATURES COMPLETED**



FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.

NOTES:

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO END BENT FILL FACES.

ALL PILES AT END BENT 1 AND END BENT 2 ARE HP 12x53 STEEL PILES.

FOR FOUNDATION ELEVATIONS AND DETAILS, SEE END BENT SHEETS.

ALL PILE DIMENSIONS ARE TO CENTERS OF PILES AT BOTTOM OF END BENTS.

FOUNDATION LAYOUT

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

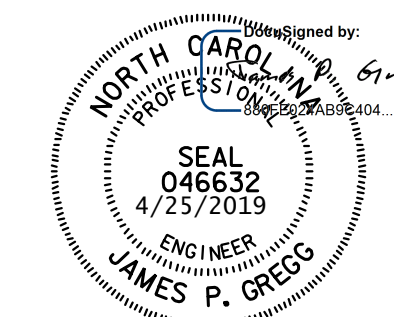
SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOUNDATION LAYOUT

RIGHT LANE



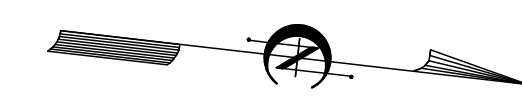
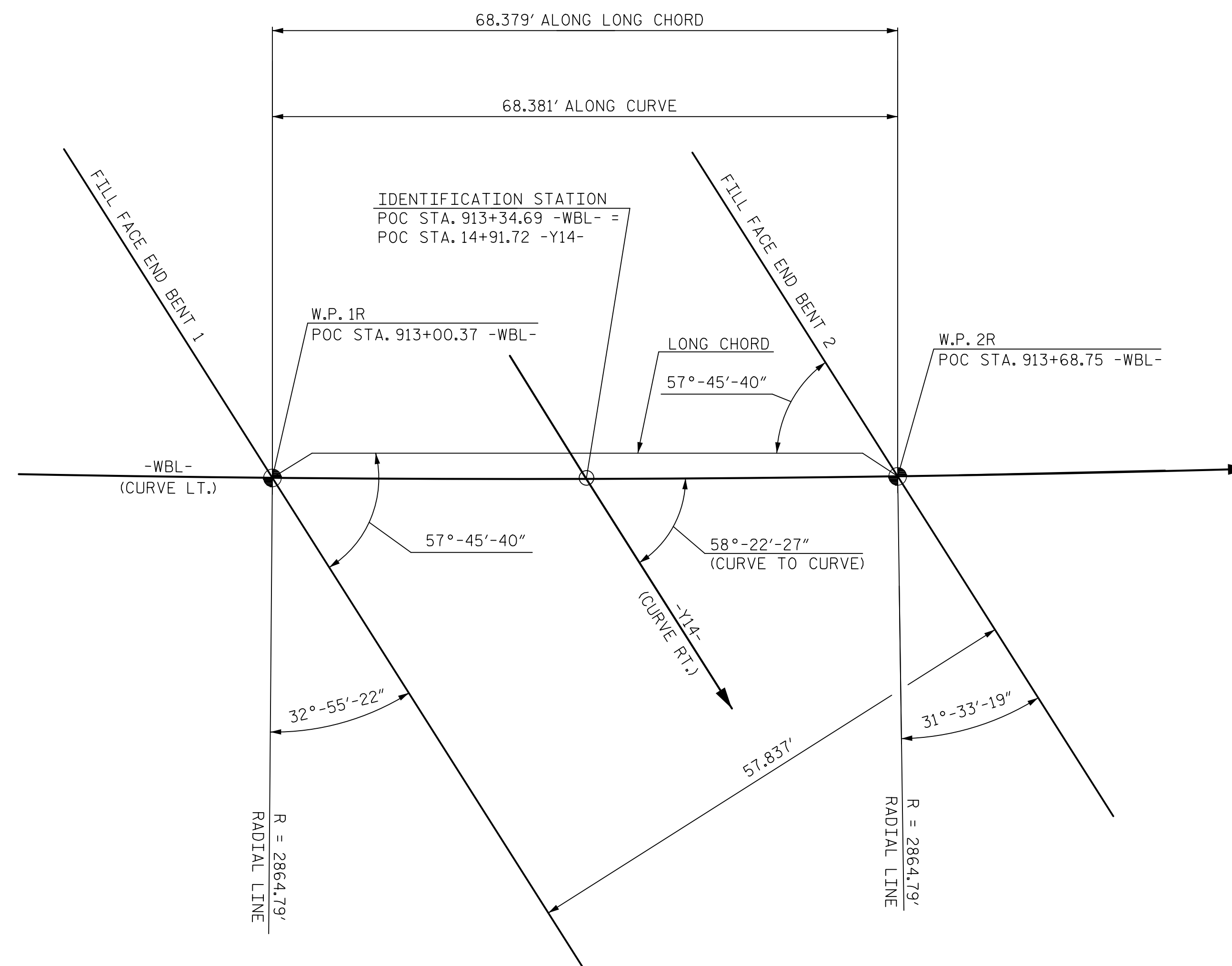
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DRAWN BY: A. KANG DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 2

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			32
2			4			

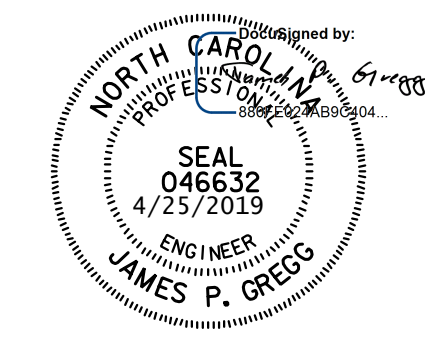


LONG CHORD LAYOUT
NOTE: ALL BENTS ARE PARALLEL

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 LONG CHORD LAYOUT
 RIGHT LANE



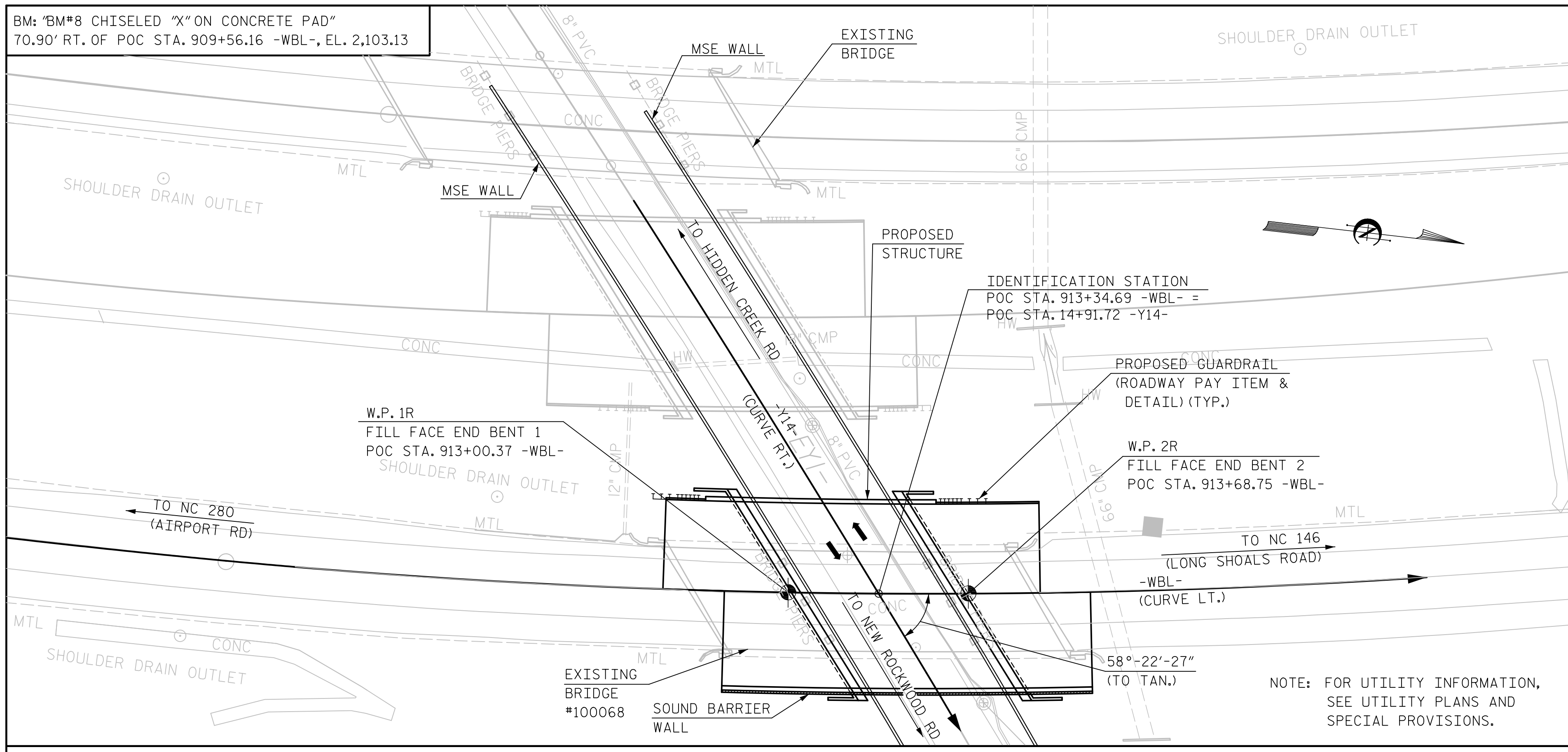
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DRAWN BY: A. KANG DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 3

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 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-3
1			3			TOTAL SHEETS
2			4			32



LOCATION SKETCH

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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 LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, 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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINED LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COST RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO THE HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR 'REMOVAL OF EXISTING STRUCTURE AT STATION 913+34.69'.

THE EXISTING 3 SPAN STRUCTURE CONSISTING OF SPANS AT 42'-6" AND 35'-4" WITH AN INTERIOR SPAN LENGTH OF 55'-0" COMPOSED OF A REINFORCED CONCRETE DECK SUPPORTED BY 5 LINES OF WIDE FLANGE STEEL BEAMS WITH A CLEAR ROADWAY DISTANCE OF 38'-0" ON END BENTS ON PILE FOUNDATIONS AND REINFORCED CONCRETE SOLID BENTS ON PILE FOOTINGS, LOCATED APPROXIMATELY 0 FT. EAST OF PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 LOCATION SKETCH,
 GENERAL NOTES &
 TOTAL BILL OF MATERIAL
 RIGHT LANE

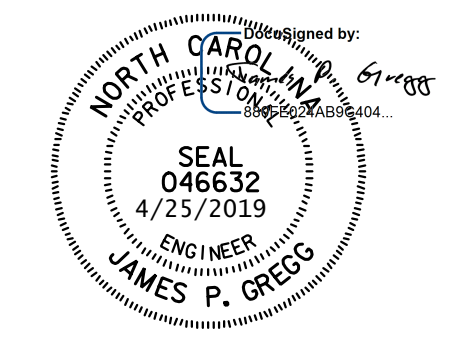
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			32
2			4			

	REMOVAL OF EXISTING STRUCTURE AT STATION 913+34.69 -WBL-	ASBESTOS ASSESSMENT	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS, STATION 913+34.69 -WBL-	REINFORCING STEEL	45" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES	CONCRETE BARRIER RAIL		
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	L.F.	EA.	NO.	L.F.	L.F.
SUPERSTRUCTURE	—	—	4,827	9,392	—	LUMP SUM	—	9	577.78	—	—	—	227.61
END BENT 1	—	—	—	—	78.2	—	10,801	—	—	13	13	1,008	—
END BENT 2	—	—	—	—	77.1	—	10,615	—	—	13	13	780	—
TOTAL	LUMP SUM	LUMP SUM	4,827	9,392	155.3	LUMP SUM	21,416	9	577.78	26	26	1,788	227.61

	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	SOUND BARRIER WALL (BRIDGE MOUNTED)
	SQ. YD.	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	—	LUMP SUM	LUMP SUM	LUMP SUM
END BENT 1	31.8	—	—	—
END BENT 2	33.1	—	—	—
TOTAL	64.9	LUMP SUM	LUMP SUM	LUMP SUM

SIZE	LENGTH
#3	5'-6"
#4	6'-8"
#5	7'-8"
#6	8'-8"
#7	11'-6"
#8	12'-7"
#9	30'-8"
#10	33'-10"
#11	36'-11"

NOTE:
 SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30"
 (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS
 AND FY = 60KSI.



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DRAWN BY: A. KANG DATE: 7/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 4

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LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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	1.36	--	1.75	0.69	1.91	1	I	31.4	0.95	1.36	1	I	5.8	0.80	0.69	1.94	1	I	31.4	
	HL-93 (OPERATING)	N/A	--	1.78	--	1.35	0.69	2.47	1	I	31.4	0.95	1.78	1	I	5.8	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	②	1.68	60.5	1.75	0.69	2.44	1	I	31.4	0.95	1.68	1	I	5.8	0.80	0.69	2.49	1	I	31.4	
	HS-20 (OPERATING)	36.000	--	2.20	79.2	1.35	0.69	3.16	1	I	31.4	0.95	2.20	1	I	5.8	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500	--	5.49	68.6	1.40	0.69	7.26	1	I	31.4	0.95	5.49	1	I	5.8	0.80	0.69	5.92	1	I	31.4
		S3C	21.500	--	3.20	68.8	1.40	0.69	4.26	1	I	31.4	0.95	3.20	1	I	5.8	0.80	0.69	3.47	1	I	31.4
		S3A	22.750	--	3.01	68.5	1.40	0.69	4.04	1	I	31.4	0.95	3.01	1	I	5.8	0.80	0.69	3.29	1	I	31.4
		S4A	26.750	--	2.67	71.4	1.40	0.69	3.61	1	I	31.4	0.95	2.67	1	I	5.8	0.80	0.69	2.94	1	I	31.4
		S5A	30.500	--	2.48	75.6	1.40	0.69	3.19	1	I	31.4	0.95	2.48	1	I	5.8	0.80	0.69	2.60	1	I	31.4
		S6A	34.500	--	2.25	77.6	1.40	0.69	2.93	1	I	31.4	0.95	2.25	1	I	5.8	0.80	0.69	2.39	1	I	31.4
		S7B	38.500	--	2.14	82.4	1.40	0.69	2.69	1	I	31.4	0.95	2.14	1	I	5.8	0.80	0.69	2.19	1	I	31.4
		S7A	40.000	--	2.19	87.6	1.40	0.69	2.69	1	I	31.4	0.95	2.22	1	I	5.8	0.80	0.69	2.19	1	I	31.4
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250	--	2.59	73.2	1.40	0.69	3.62	1	I	31.4	0.95	2.59	1	I	5.8	0.80	0.69	2.95	1	I	31.4
		T5B	32.000	--	2.49	79.7	1.40	0.69	3.17	1	I	31.4	0.95	2.49	1	I	5.8	0.80	0.69	2.59	1	I	31.4
		T6A	36.000	--	2.35	84.6	1.40	0.69	2.95	1	I	31.4	0.95	2.35	1	I	5.8	0.80	0.69	2.41	1	I	31.4
		T7A	40.000	--	2.24	89.6	1.40	0.69	2.78	1	I	31.4	0.95	2.24	1	I	5.8	0.80	0.69	2.27	1	I	31.4
		T7B	40.000	③	2.05	82.0	1.40	0.69	3.07	1	I	31.4	0.95	2.05	1	I	5.8	0.80	0.69	2.50	1	I	31.4

NOTES:

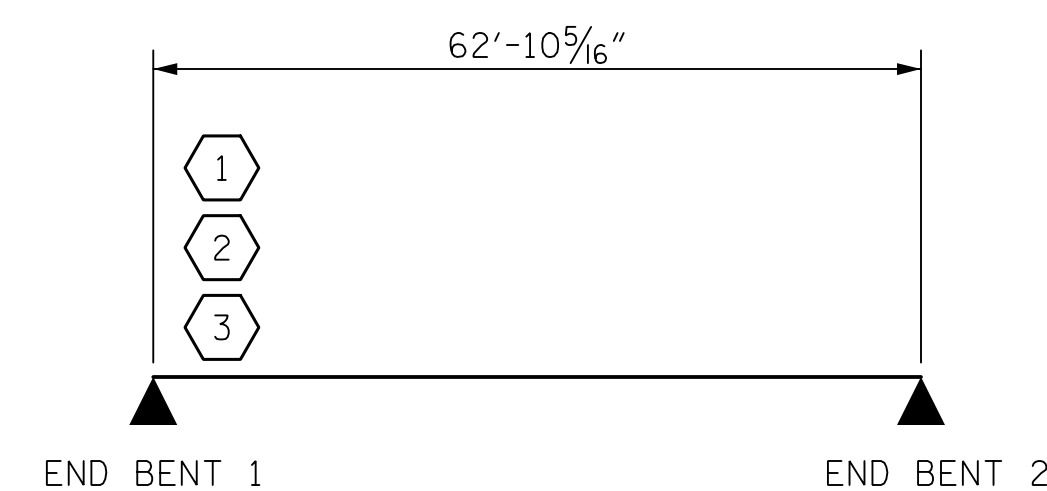
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

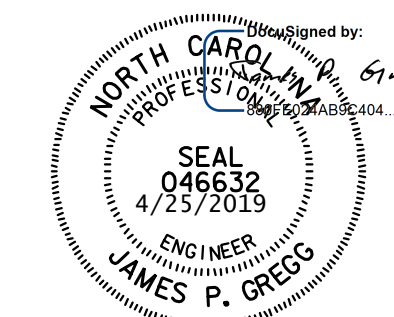
①	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
**	SEE CHART FOR VEHICLE TYPE
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

NOTE: SPAN LENGTH PROVIDED IS BEARING TO BEARING

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-



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

ASSEMBLED BY : Z. GUO	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

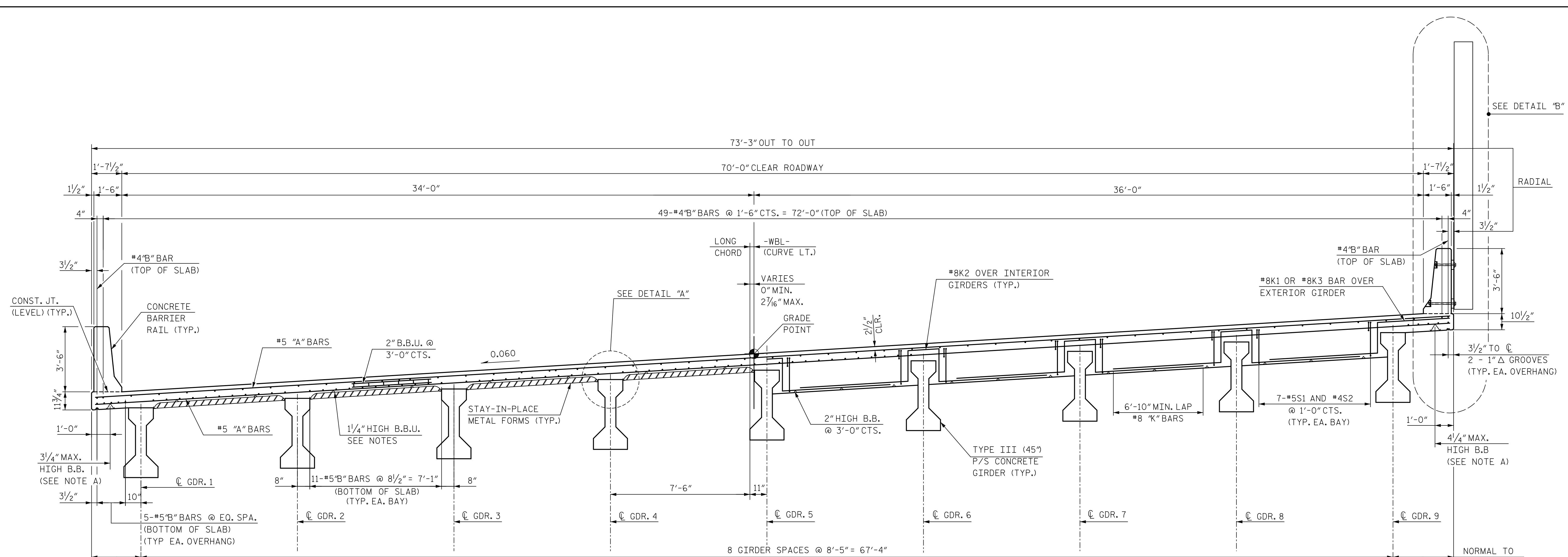
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DRAWN BY: Z. GUO DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 5

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-5
1			3			TOTAL SHEETS
2			4			32

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TYPICAL SECTION

HALF SECTION AT END DIAPHRAGM

BRIDGE TYPICAL SECTION
GIRDERS ARE COMPOSITE & SIMPLE SPAN

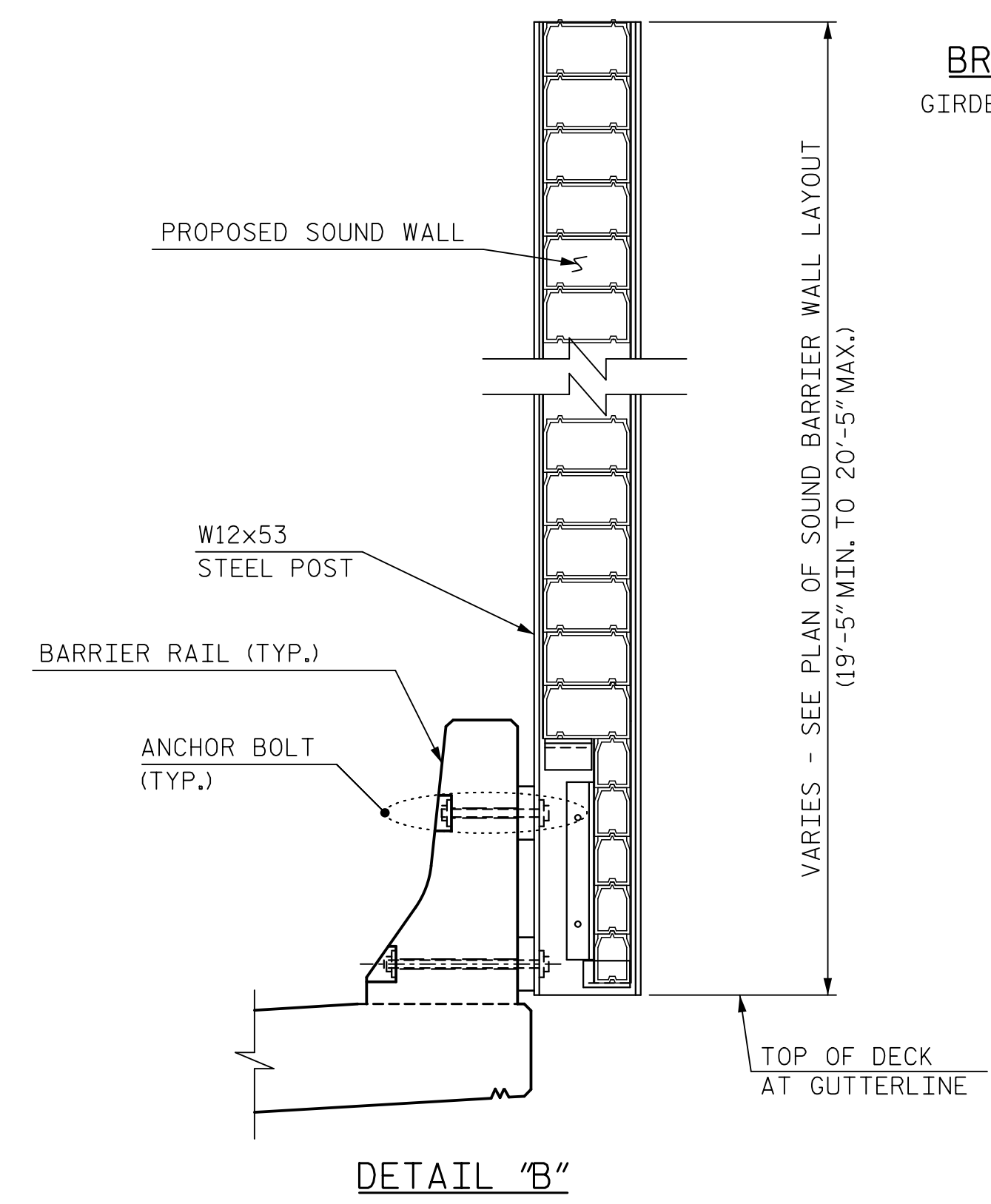
NOTES:

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 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

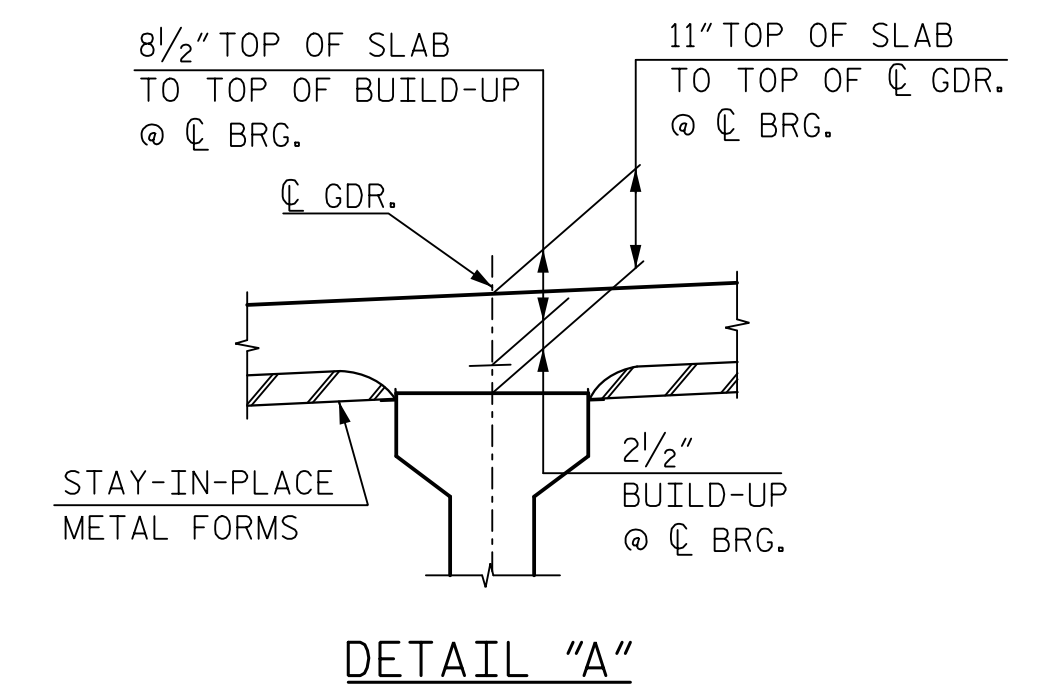
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDPUPS.

NOTE A: THE HEIGHT OF THE BEAM BOLSTER VARIES ALONG THE LENGTH OF THE SPAN DUE TO CHAMBER AND THE VARYING HEIGHT REQUIRED FOR THE BUILDUP. THE CONTRACTOR SHALL HAVE SUFFICIENT SIZES TO PROPERLY SUPPORT THE REINFORCING STEEL.



DETAIL "B"



DETAIL "A"

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
RIGHT LANE

NO.		BY	DATE	NO.		BY	DATE	SHEET NO.
1				3				TOTAL SHEETS
2				4				32

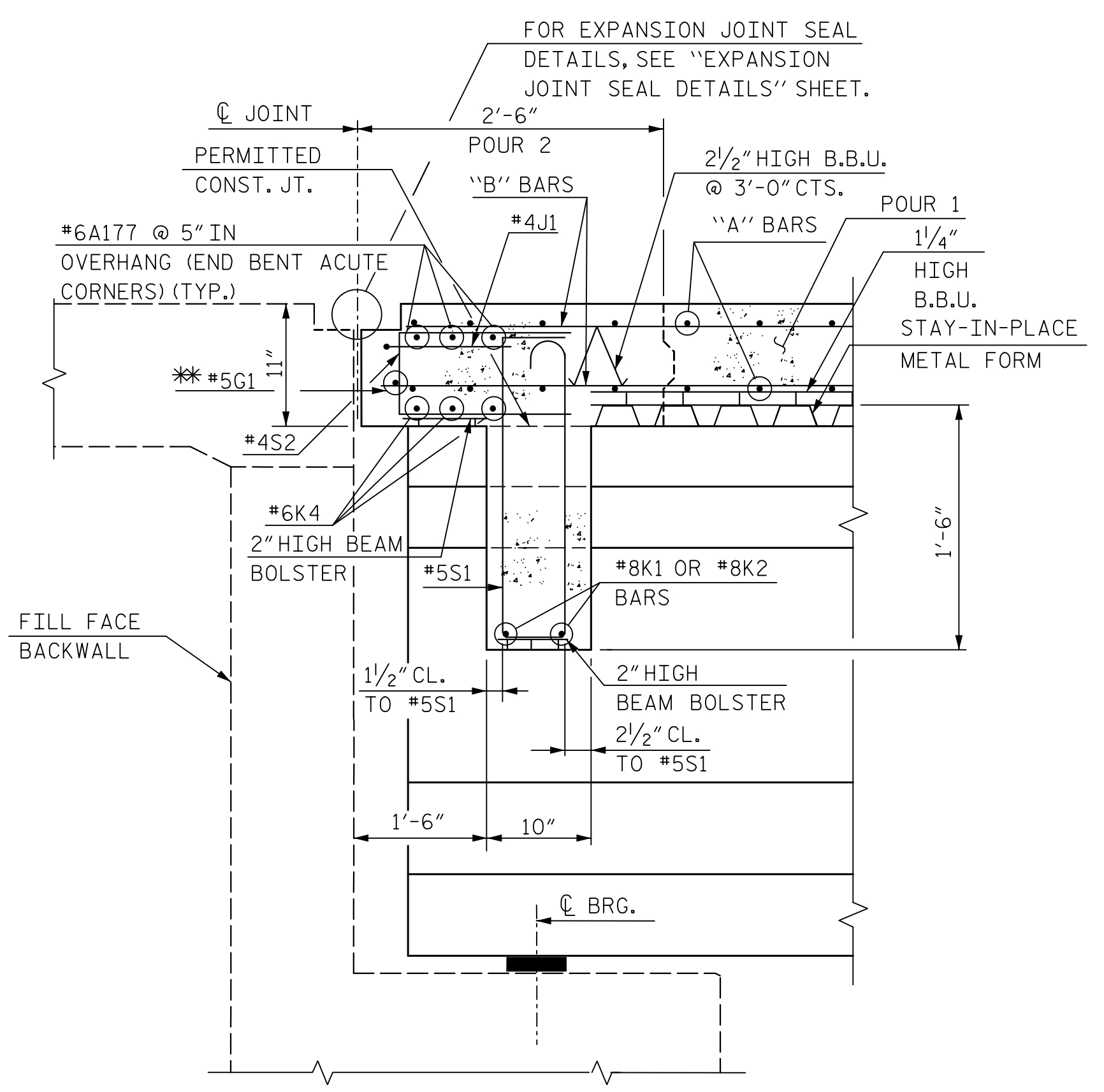
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DRAWN BY: Z. GUO DATE: 12/18
CHECKED BY: B. NEUPANE DATE: 12/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

SEAL 046632 4/25/2019 ENGINEER JAMES P. GREGG

DWG. NO. 6

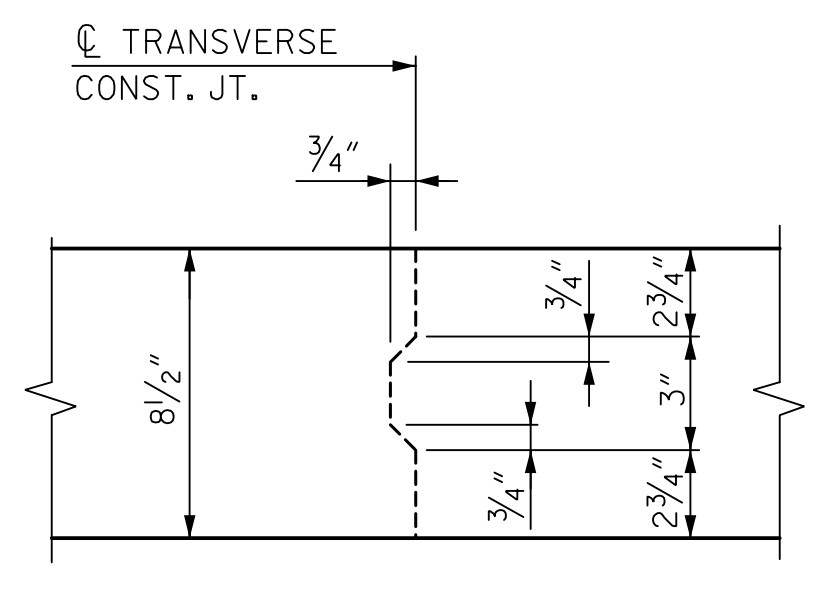
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SECTION A-A

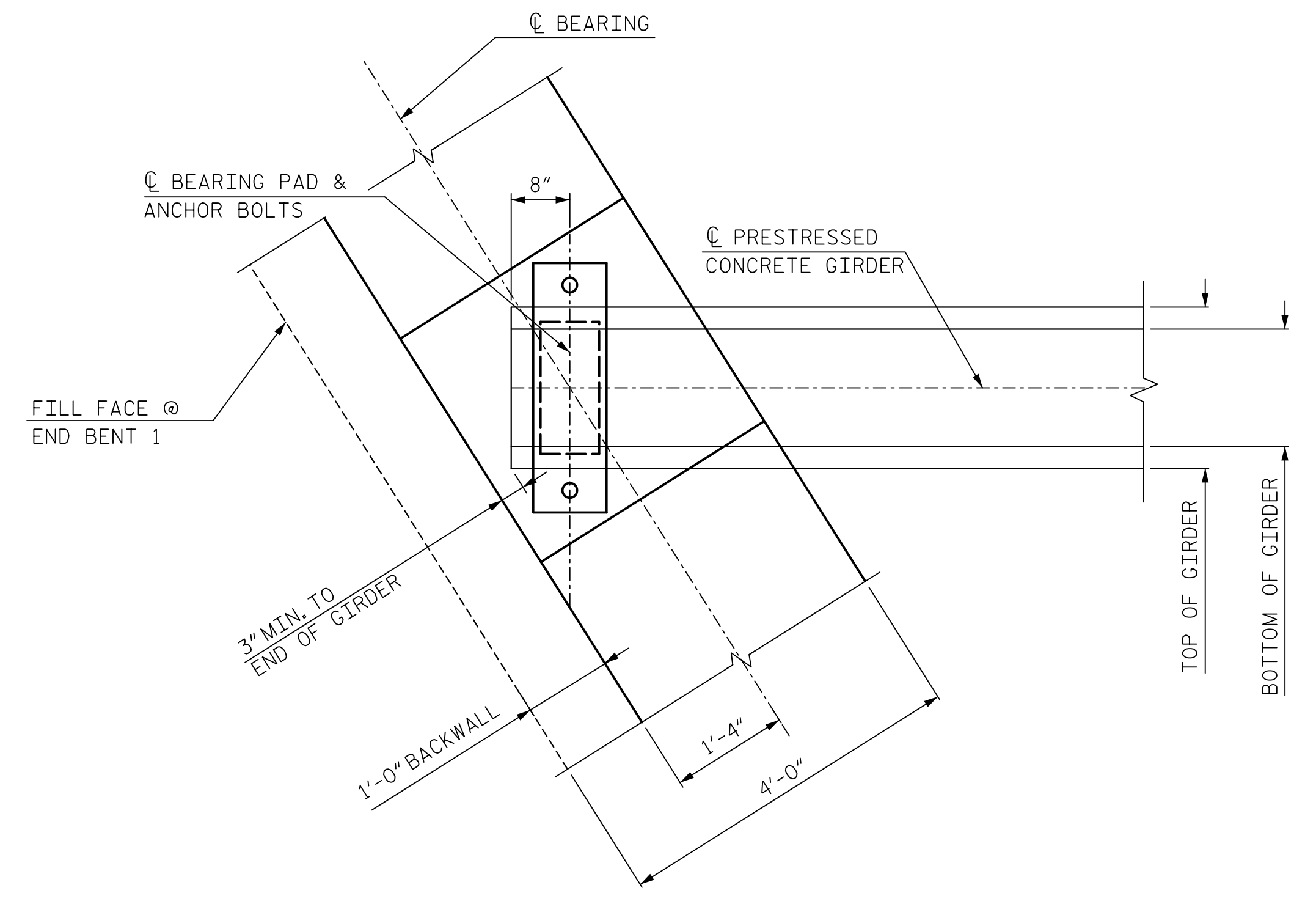
(SECTION NORMAL THRU END BENT 1 & END BENT 2 DIAPHRAGM)

** #5 "G" BAR MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.



TRANSVERSE CONSTRUCTION JOINT DETAIL

REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.



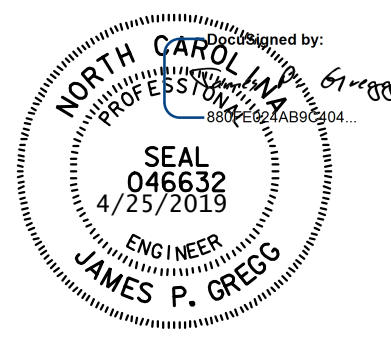
PLAN AT END BENT

END BENT 1 SHOWN, END BENT 2 SIMILAR

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 2 OF 2

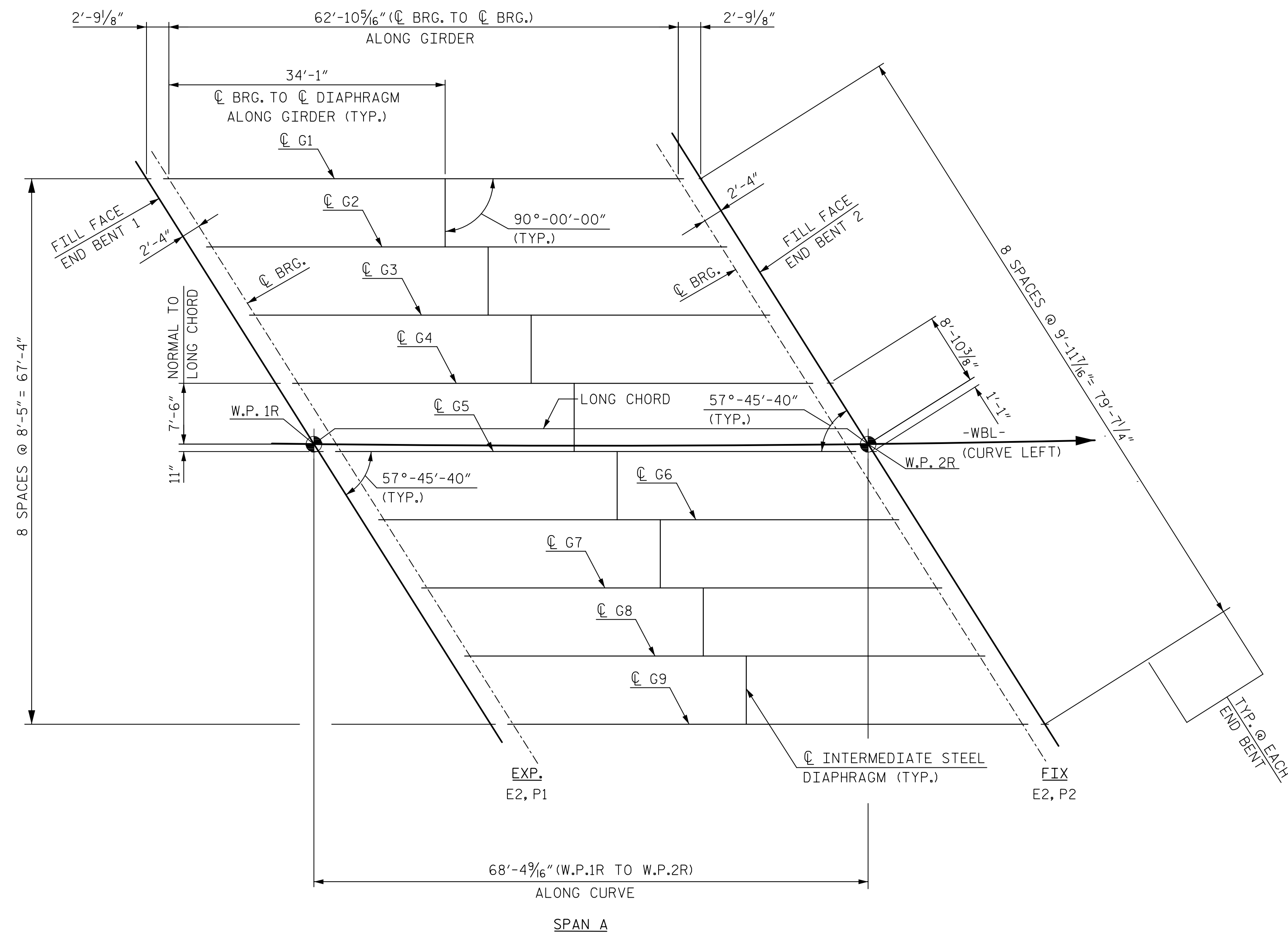
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION
 RIGHT LANE



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DRAWN BY	Z. GUO	DATE	12/18
CHECKED BY	B. NEUPANE	DATE	12/18
DESIGN ENGINEER OF RECORD	J. GREGG	DATE	3/19

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			32
2			4			



FRAMING PLAN

NOTES:

ALL DIMENSIONS MEASURED ALONG C GIRDER UNLESS NOTED OTHERWISE.

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III & PRESTRESSED CONCRETE GIRDER" SHEET.

FOR GIRDER ELEVATIONS AND DETAILS, SEE "AASHTO TYPE III PRESTRESSED CONCRETE GIRDER" SHEET.

NOTES:

"EXP." DENOTES EXPANSION BEARING ASSEMBLY.

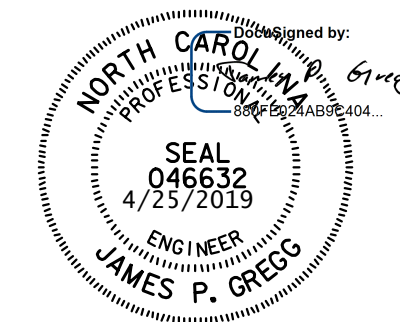
"FIX." DENOTES FIXED BEARING ASSEMBLY.

"E" DENOTES ELASTOMERIC BEARING PAD MARK.

"P" DENOTES STEEL SOLE PLATE MARK.

GIRDERS ARE SET PARALLEL TO LONG CHORD.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-



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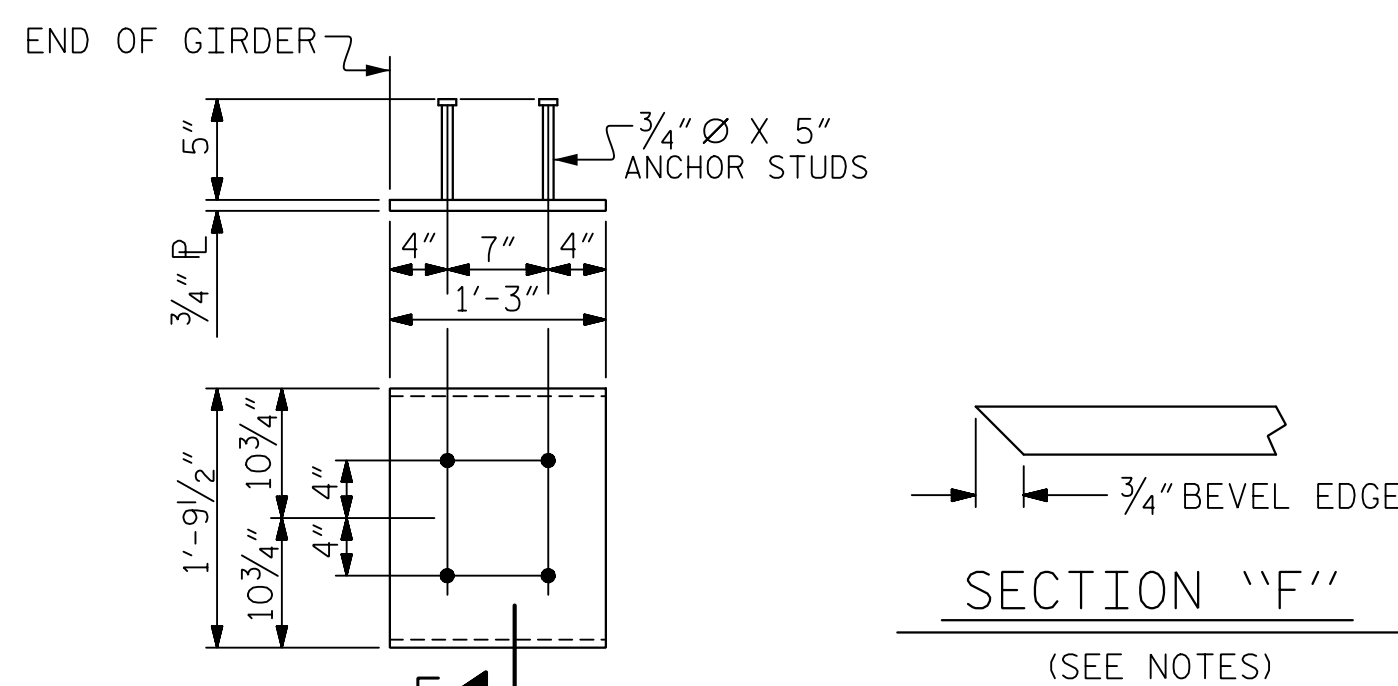
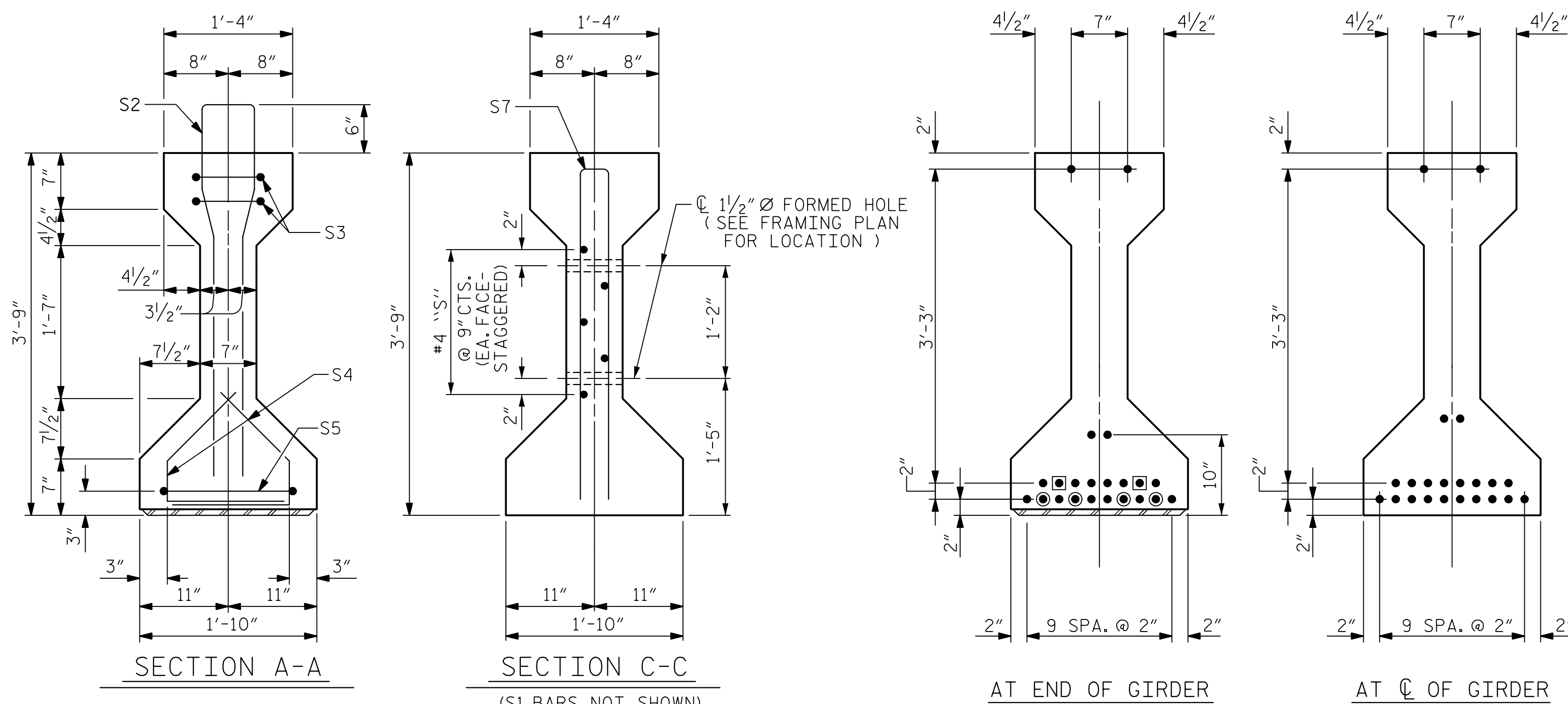
DWG. NO. 9

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 FRAMING PLAN
 RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-9
1			3			TOTAL SHEETS
2			4			32



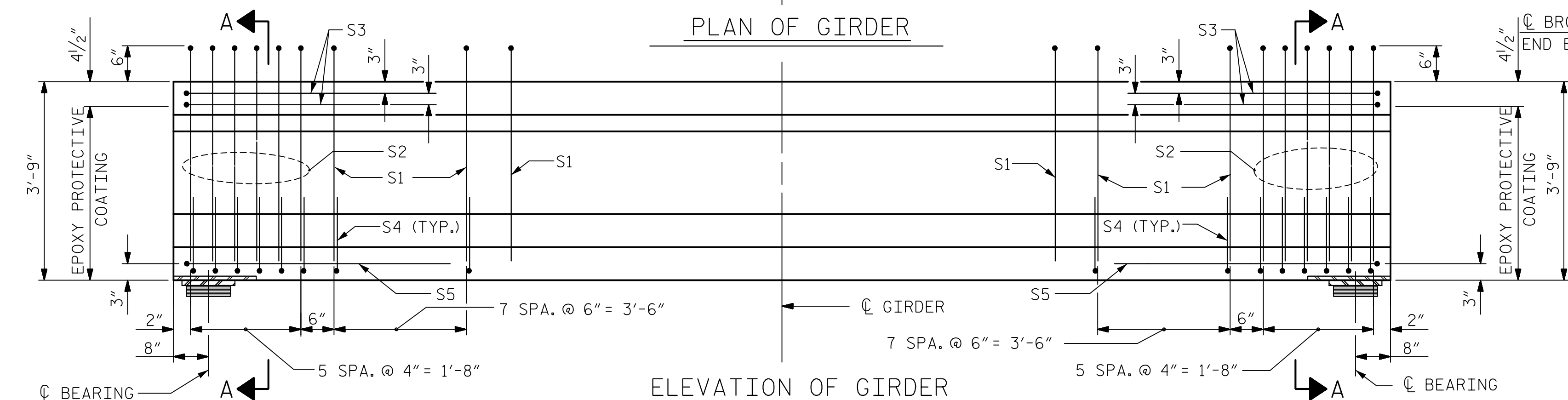
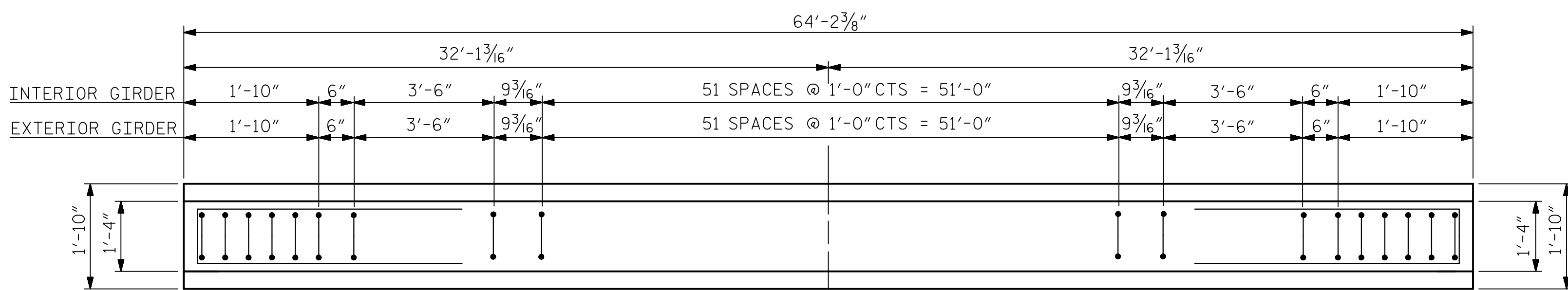
0.6" Ø LOW RELAXATION STRAND LAYOUT

DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

EMBEDDED PLATE "B-1" DETAILS

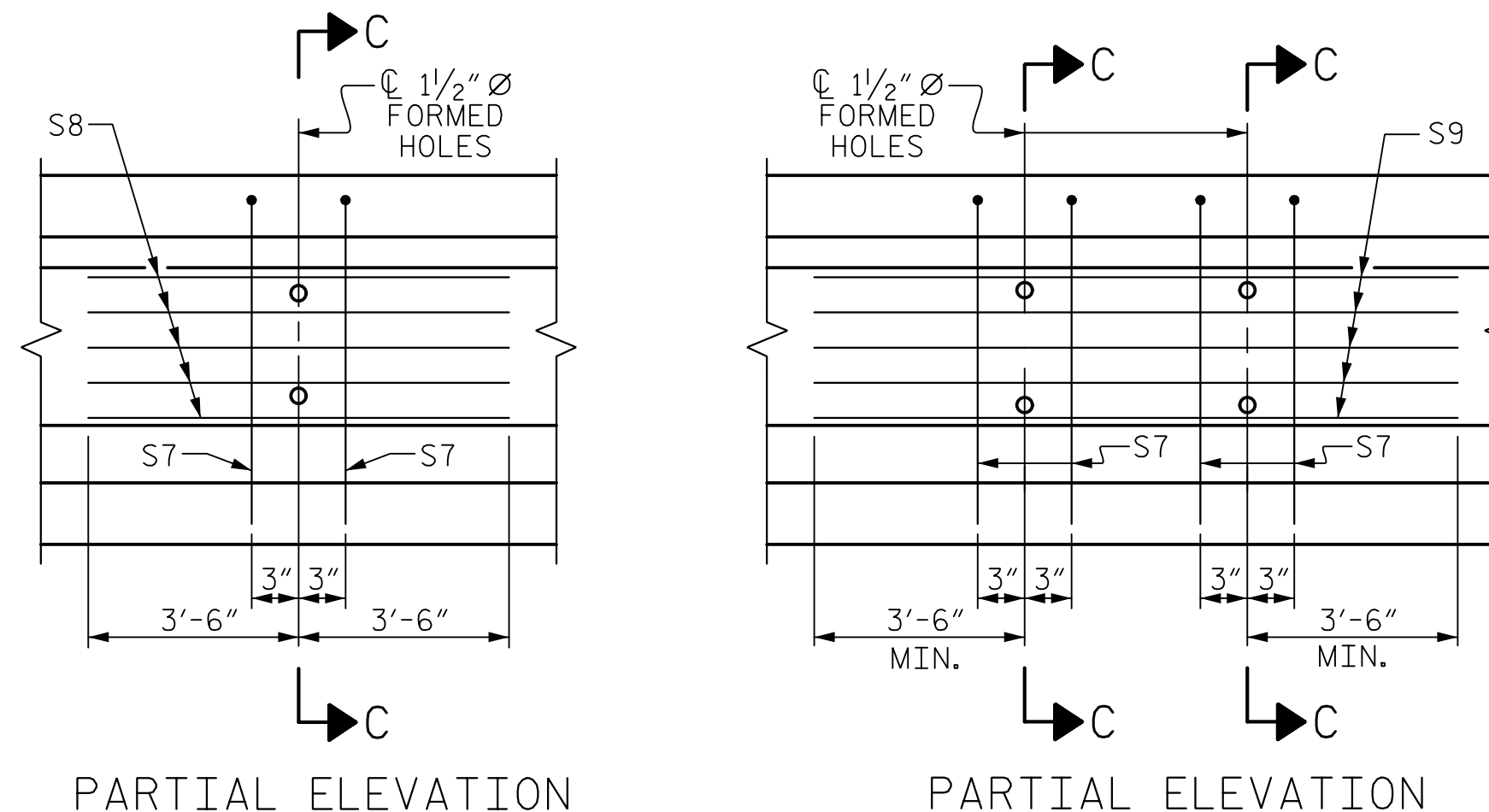
TWO EMBEDDED PLATES "B-1" ARE REQUIRED FOR EACH GIRDER.



(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

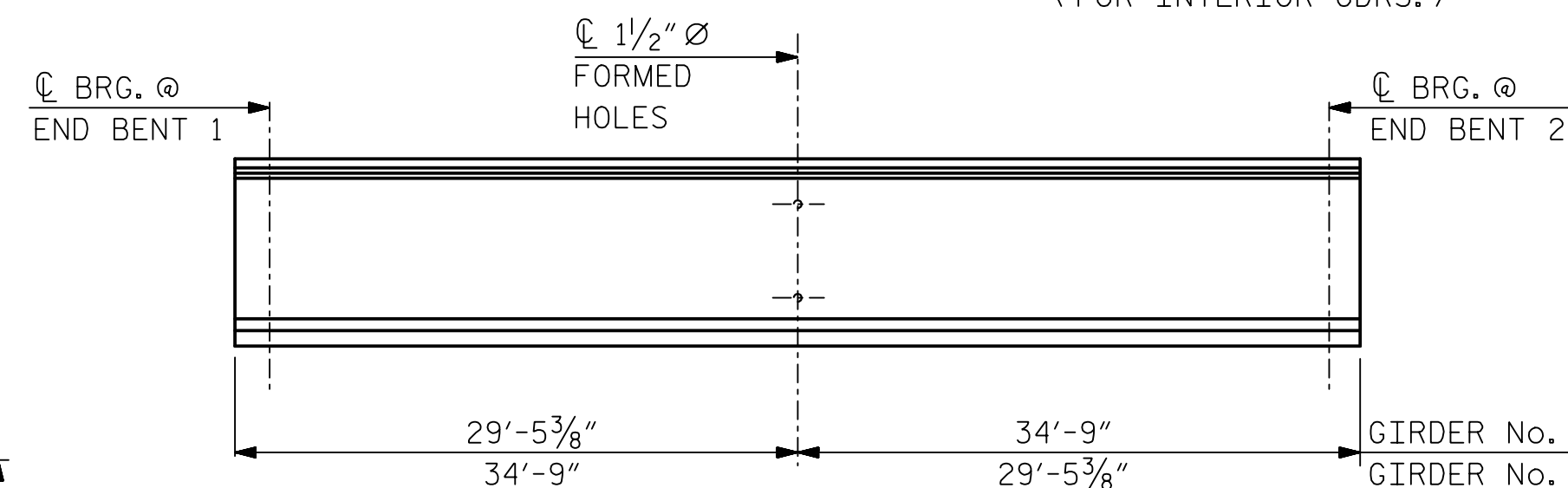
NOTES

- 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.
- APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.
- 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.
- ALL PRESTRESSED 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 4,800 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 SHALL BE RAKED TO A DEPTH OF 1/4" EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.



SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. G1 & G9 (FOR ALL EXTERIOR GIRDERS)

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. G2, G3, G4, G5, G6, G7, AND G8 (FOR INTERIOR GDRS.)



0.6" Ø L. R. GRADE 270 STRANDS

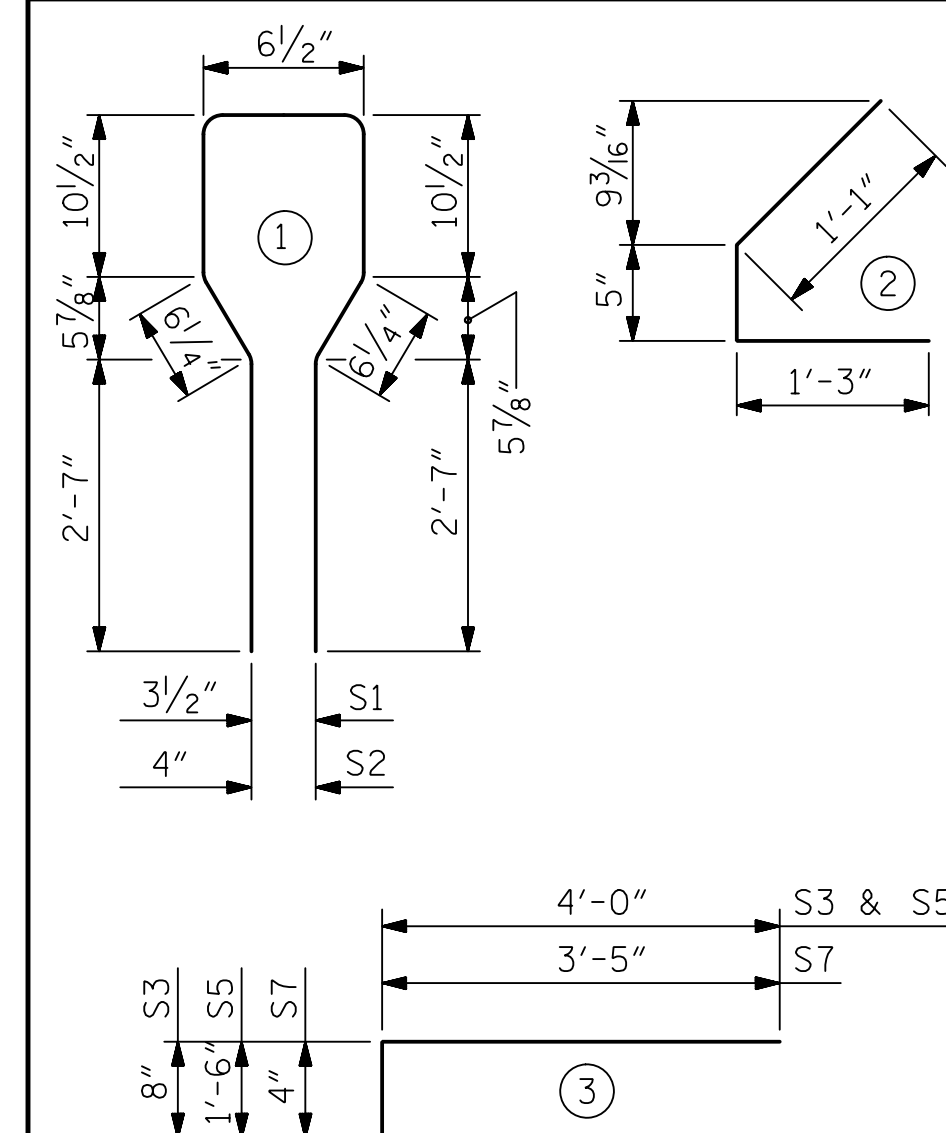
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	68	#4	1	8'-6"	386
INTERIOR GDR.	S1	68	#4	1	8'-6"	386
	S2	12	#6	1	8'-6"	153
	S3	4	#4	3	8'-8"	23
	S4	56	#4	2	2'-9"	103
	S5	2	#4	3	9'-6"	13
EXTERIOR GDR.	S7	2	#5	3	7'-2"	15
INTERIOR GDR.	S7	4	#5	3	7'-2"	30
EXTERIOR GDR.	S8	5	#4	STR	7'-0"	23
INTERIOR GDR.	S9	5	#4	STR	12'-4"	41

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	6,000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	716	9.24	22
INTERIOR GIRDER	749	9.24	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
9	64'-2 3/8"	577.78'

PROJECT NO. **I-4700A**
 BUNCOMBE COUNTY
 STATION: **POC 913+34.69 -WBL-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

AASHTO TYPE III
 PRESTRESSED CONCRETE GIRDER

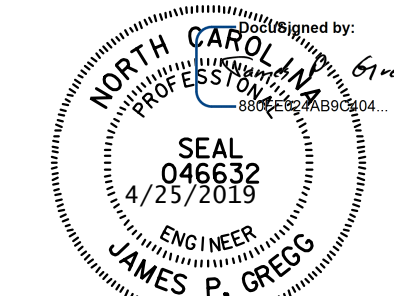
RIGHT LANE

NO.	BY	DATE	REVISIONS			SHEET NO.
			NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			32

ASSEMBLED BY : Z. GUO	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DRAWN BY : JMB 12/87	REV. 1/15 MAA/TMG
CHECKED BY : ARB 12/87	REV. 2/15 MAA/TMG
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : Z. GUO	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19



DWG. NO. 10

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 CHANNEL 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, CHANNELS, 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.

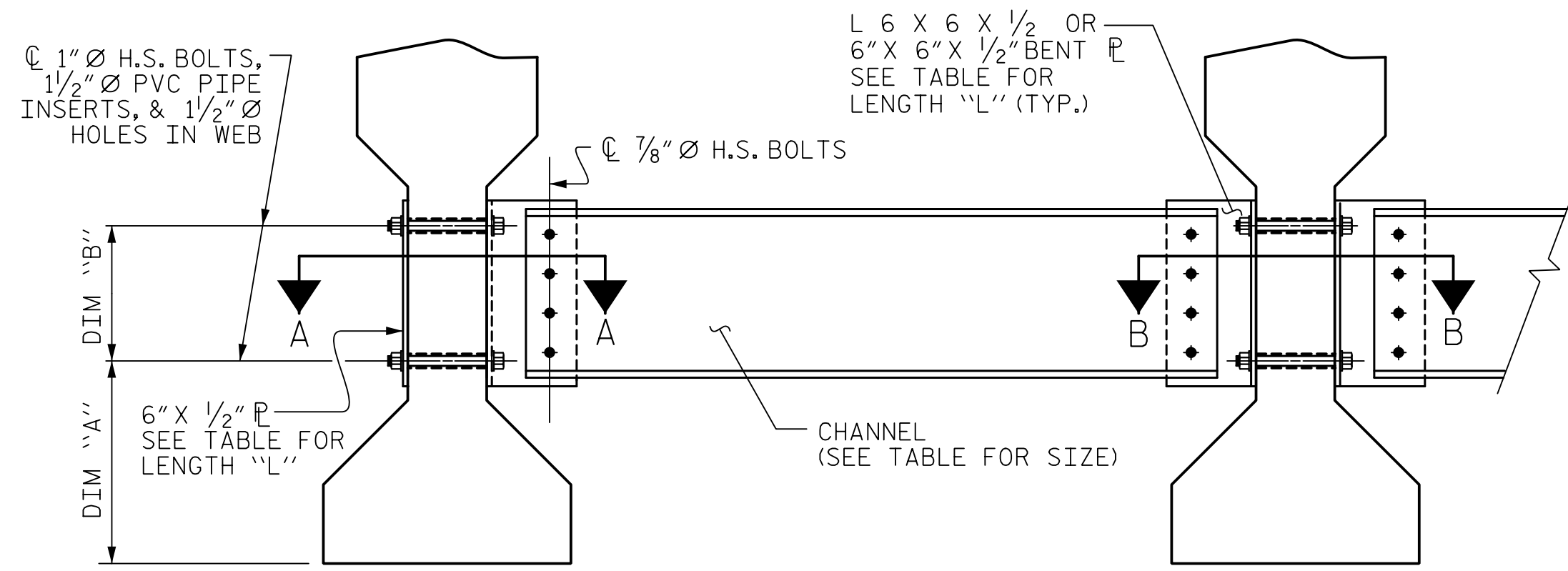
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

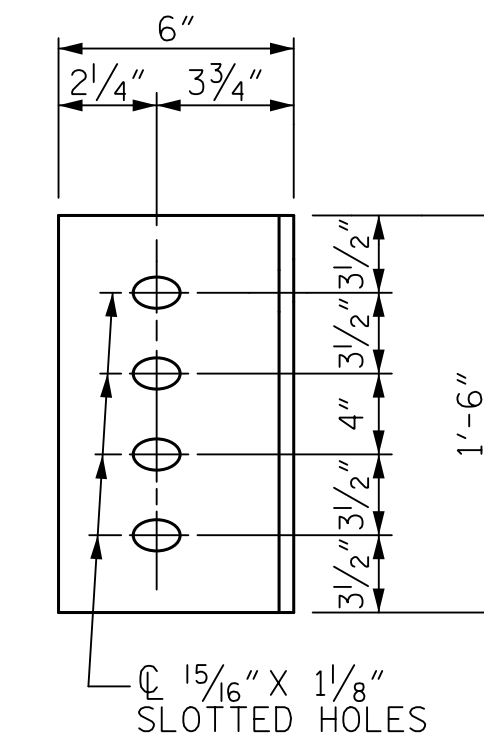
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

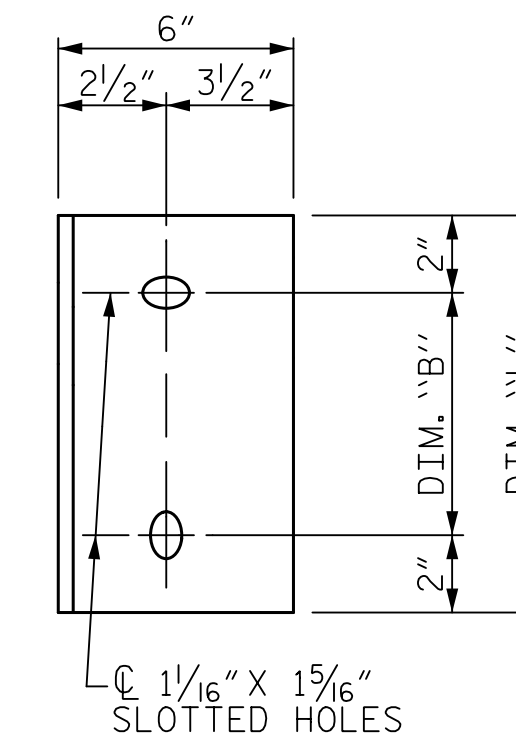
GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
III	MC 18 x 42.7	1'-5"	1'-2"	1'-6"



EXTERIOR GIRDER **INTERIOR GIRDER**
PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE



WEB FACE

CONNECTOR PLATE DETAILS

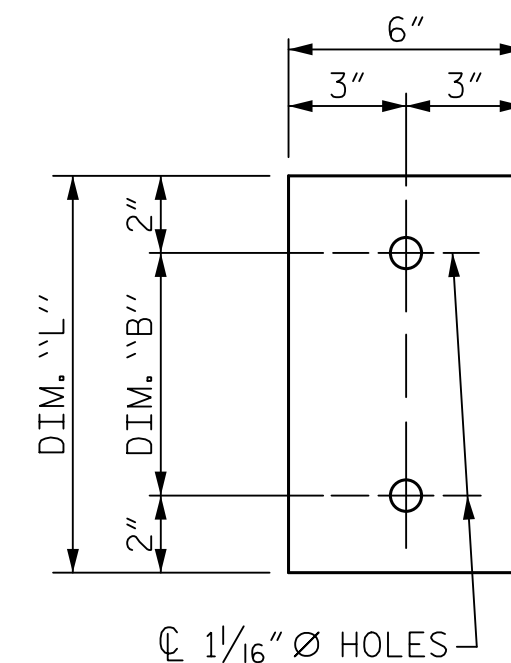
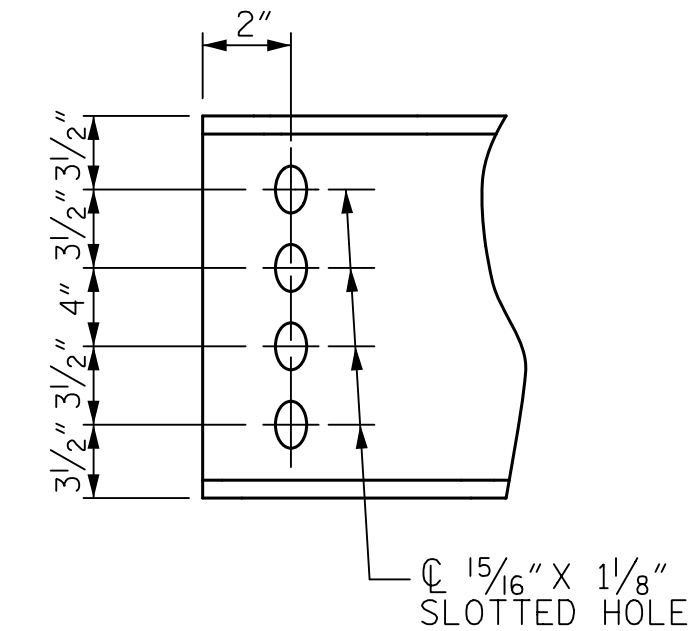
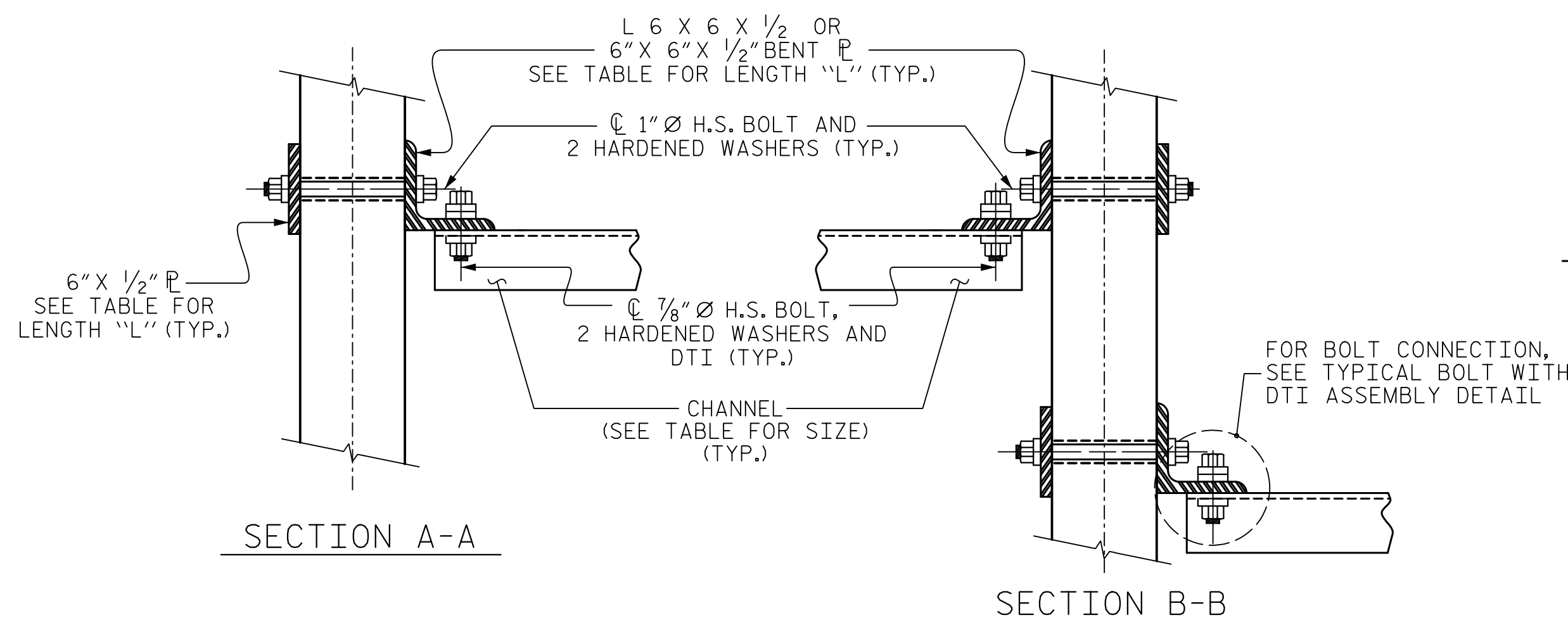


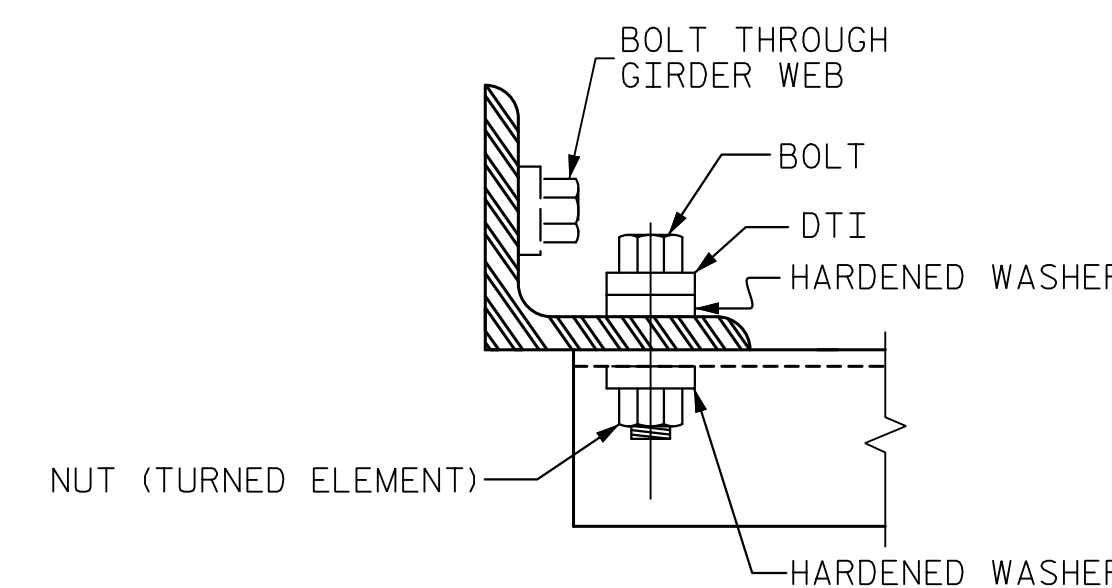
PLATE DETAILS



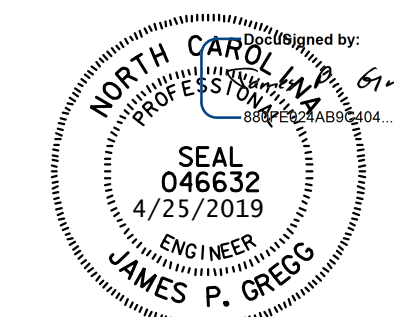
CHANNEL END



SECTION A-A **SECTION B-B**
CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL



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343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: Z. GUO DATE: 12/18
CHECKED BY: B. NEUPANE DATE: 12/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. II

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
INTERMEDIATE
STEEL DIAPHRAGMS
FOR TYPE III &
PRESTRESSED CONCRETE
GIRDERS
RIGHT LANE

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

TOTAL SHEETS: 32

ASSEMBLED BY: Z. GUO	DATE: 12/18
CHECKED BY: B. NEUPANE	DATE: 12/18
DRAWN BY: TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY: VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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UNLESS ALL SIGNATURES COMPLETED**

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

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

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

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

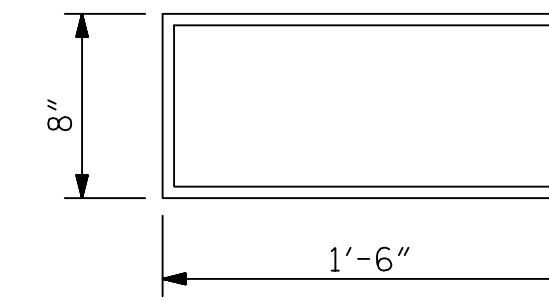
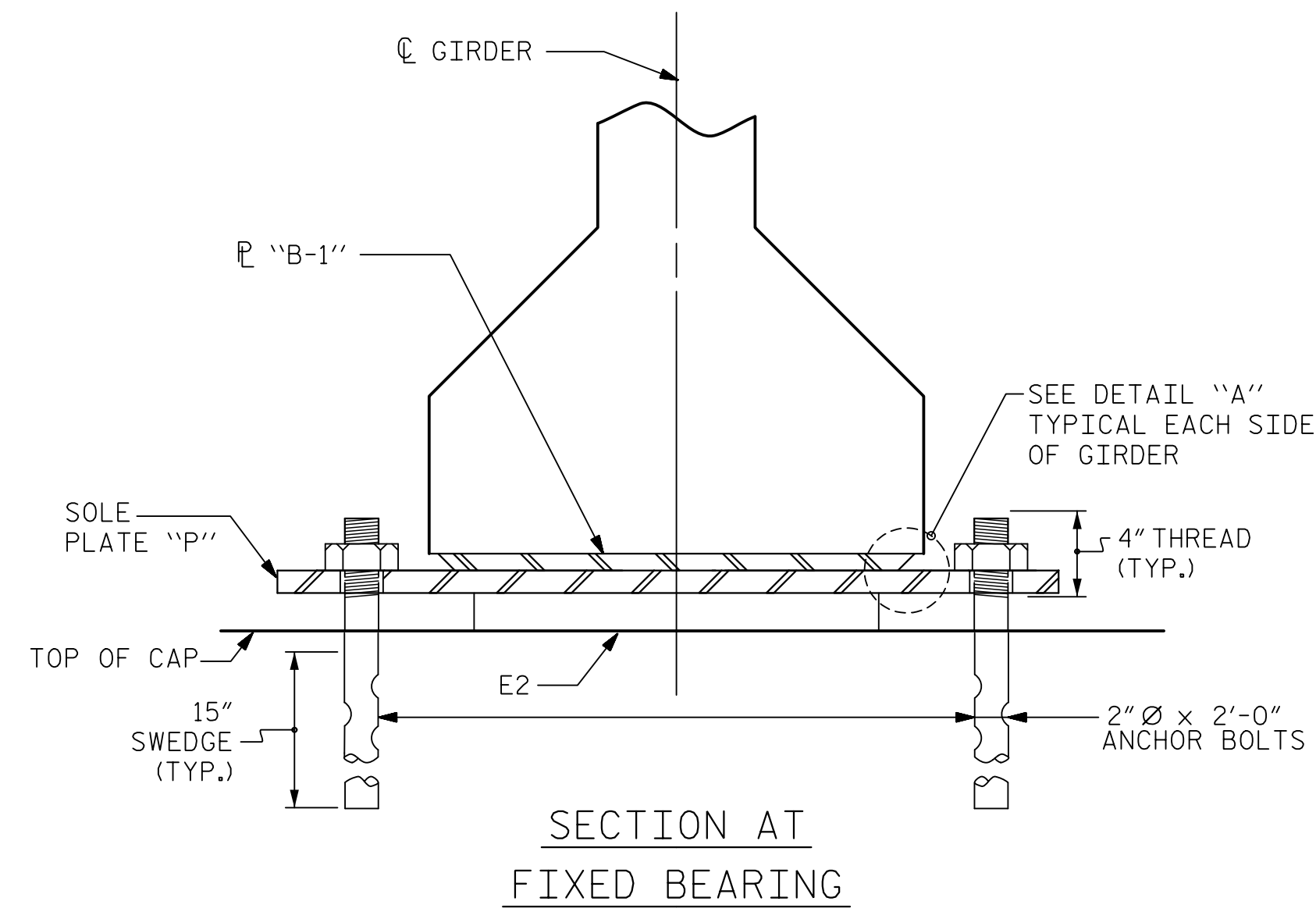
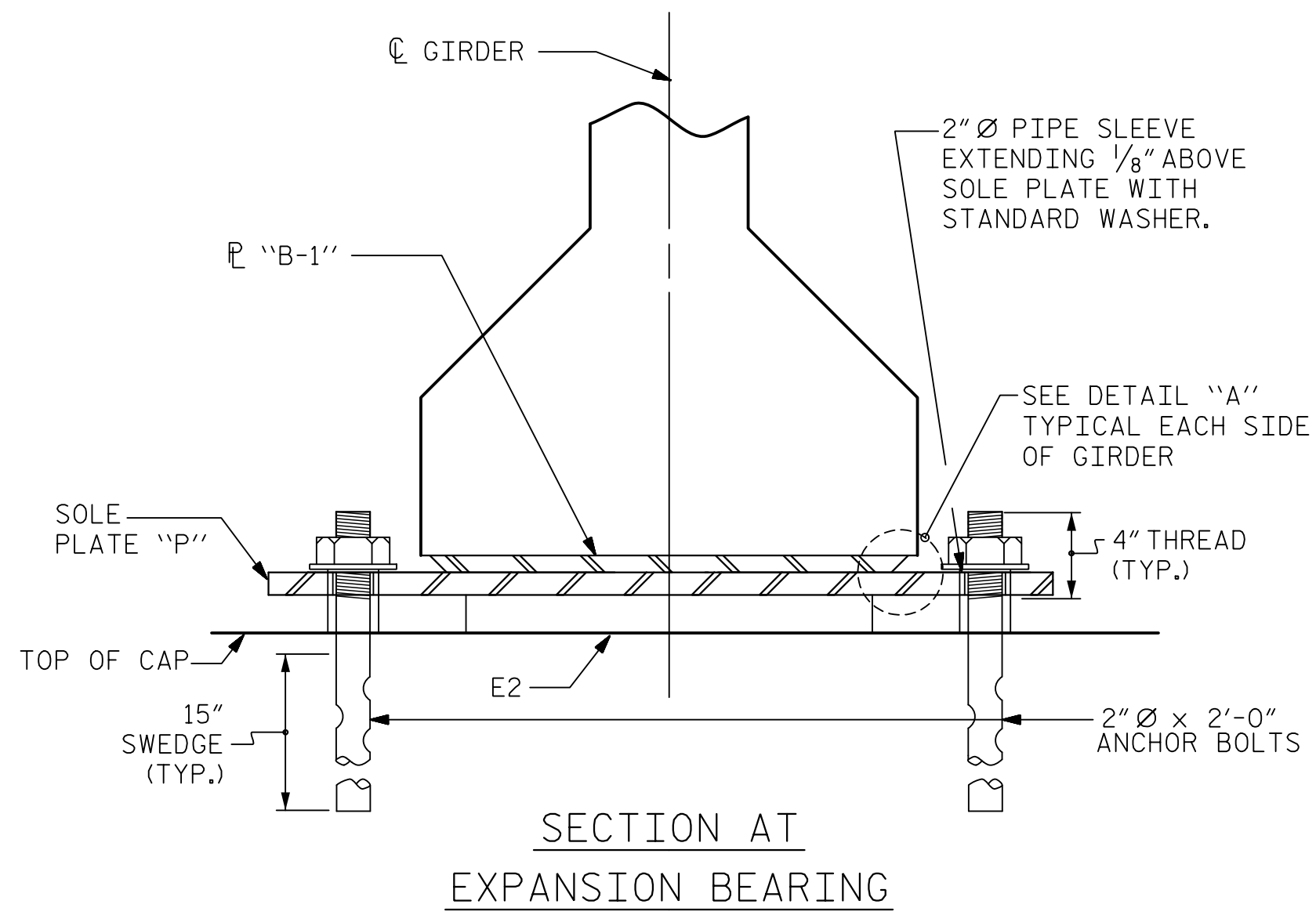
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

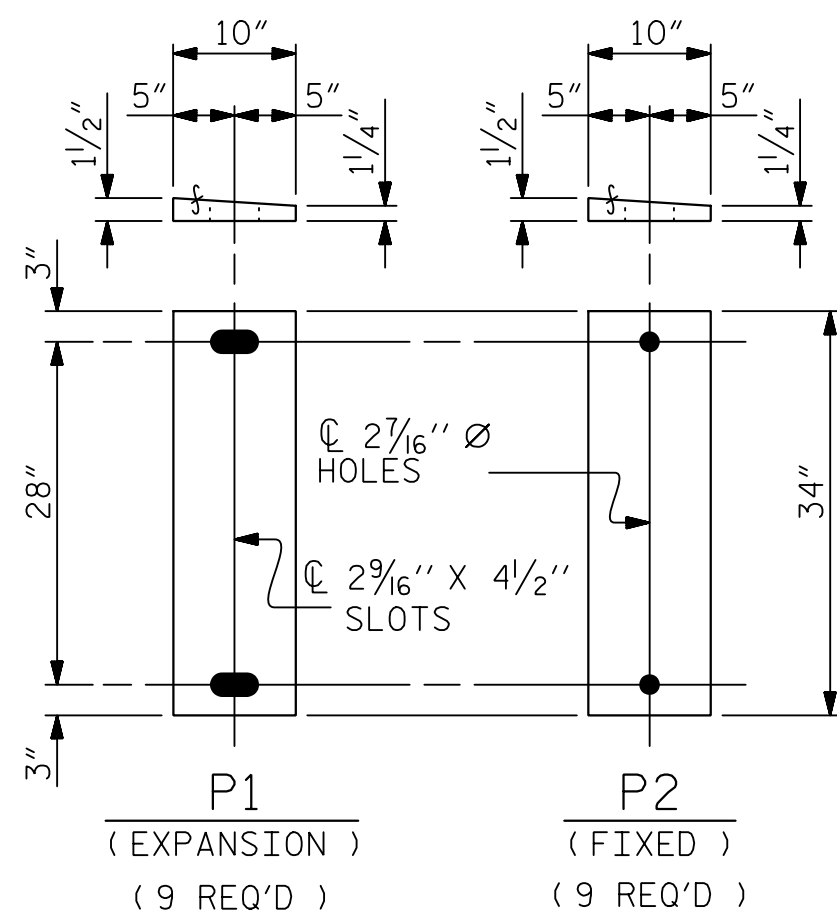
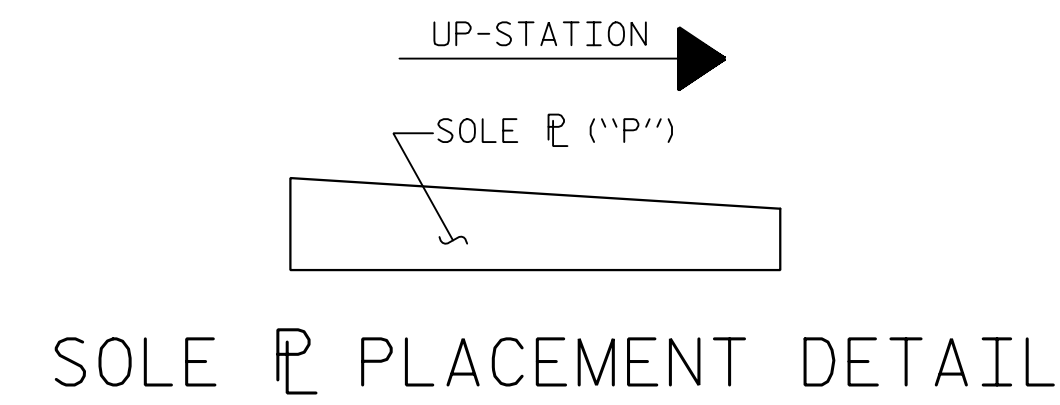
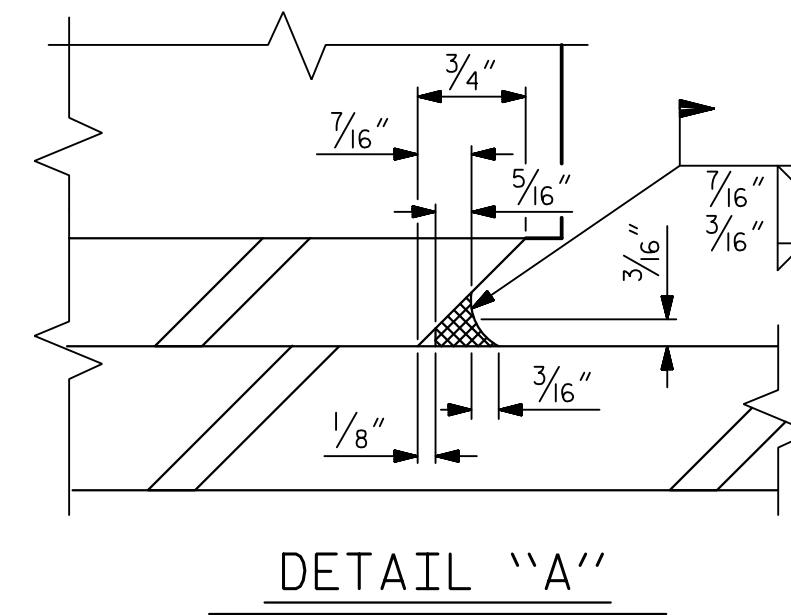
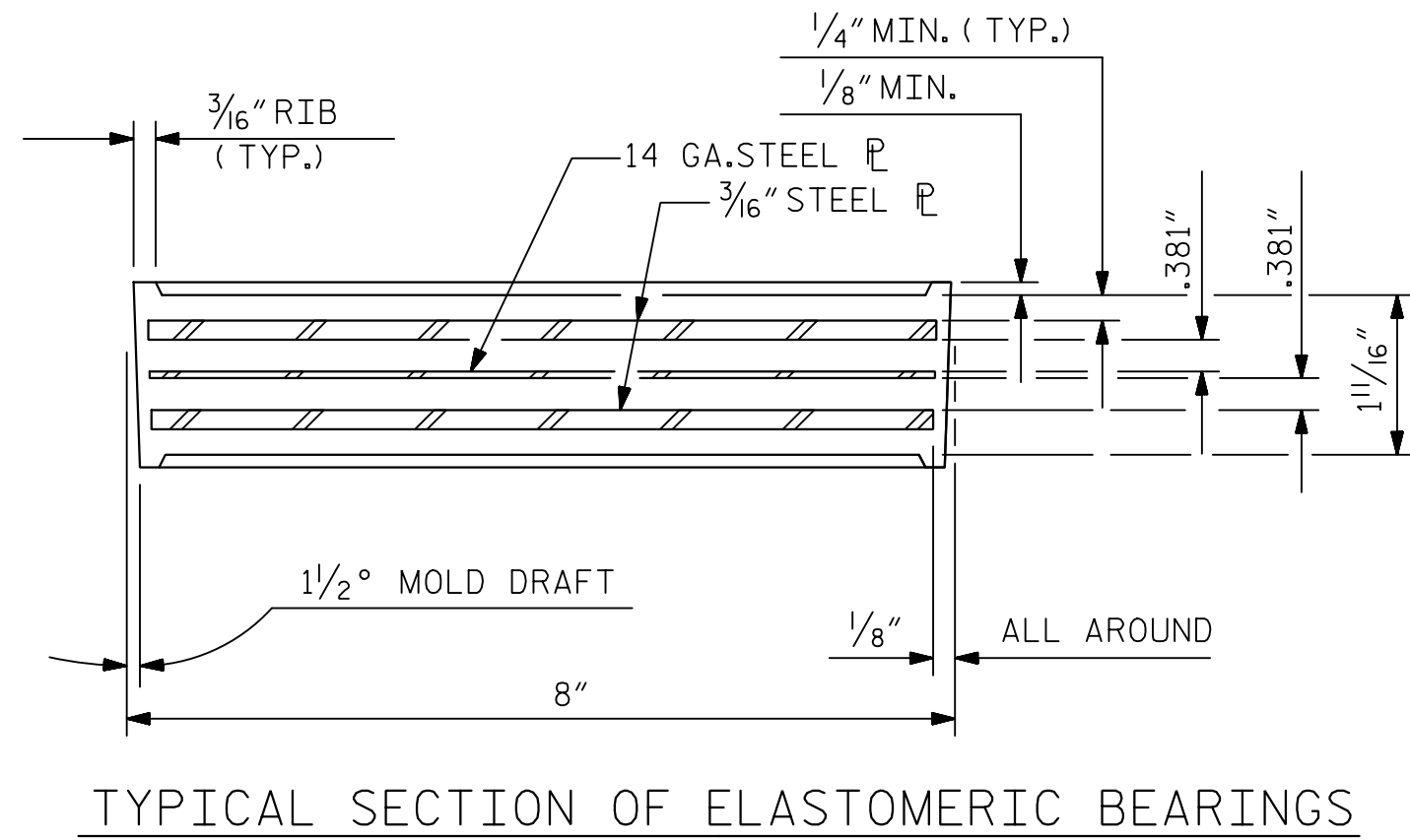
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

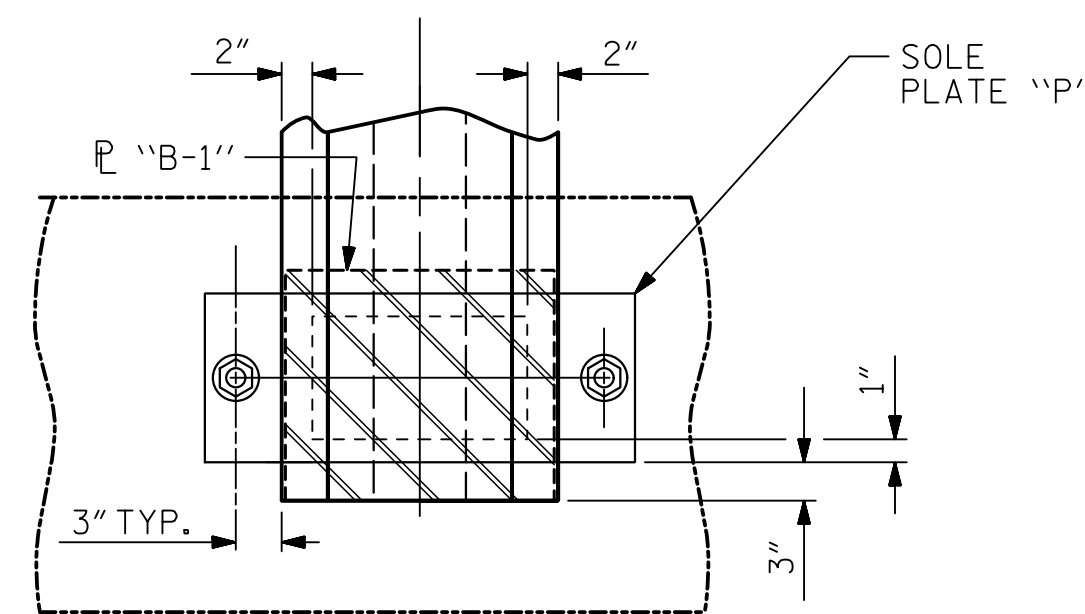
FOR BEARING AND SOLE PLATE LOCATIONS, SEE "FRAMING PLAN" SHEET.



E2 (18 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE III



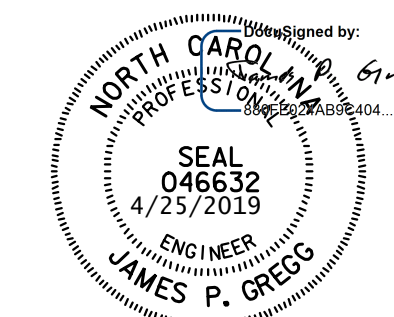
SOLE PLATE DETAILS ("P")



TYPICAL PLAN AT END OF GIRDER
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE III	205 K

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-



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

ASSEMBLED BY : Z. GUO	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DRAWN BY : WJH 8/89	REV. 6/13 AAC/MAA
CHECKED BY : CRK 8/89	REV. 1/15 MAA/TMC
	REV. 12/17 MAA/THC

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HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : Z. GUO	DATE : 12/18
CHECKED BY : B. NEUPANE	DATE : 12/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-12
1			3			TOTAL SHEETS
2			4			32

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 1										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.039	0.053	0.063	0.066	0.063	0.053	0.039	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.015	0.029	0.041	0.048	0.051	0.048	0.041	0.029	0.015	0.000
FINAL CAMBER	↑ 0	1/16	1/8	1/8	3/16	3/16	3/16	1/8	1/8	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 7										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.039	0.053	0.063	0.066	0.063	0.053	0.039	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.017	0.033	0.047	0.055	0.058	0.055	0.047	0.033	0.017	0.000
FINAL CAMBER	↑ 0	1/16	1/16	1/16	1/8	1/8	1/8	1/16	1/16	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 2										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.039	0.053	0.063	0.066	0.063	0.053	0.039	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.017	0.033	0.046	0.054	0.057	0.054	0.046	0.033	0.017	0.000
FINAL CAMBER	↑ 0	1/16	1/16	1/16	1/8	1/8	1/8	1/16	1/16	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 8										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.039	0.053	0.063	0.066	0.063	0.053	0.039	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.017	0.034	0.048	0.056	0.059	0.056	0.048	0.034	0.017	0.000
FINAL CAMBER	↑ 0	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0

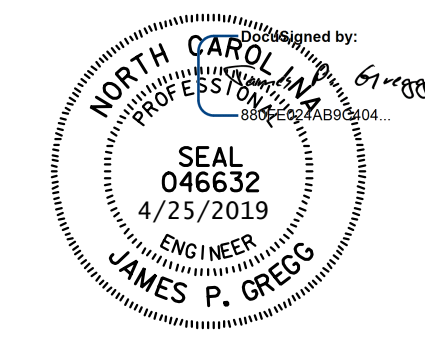
DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 3										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.039	0.053	0.063	0.066	0.063	0.053	0.039	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.016	0.032	0.045	0.053	0.056	0.053	0.045	0.032	0.016	0.000
FINAL CAMBER	↑ 0	1/16	1/16	1/8	1/8	1/8	1/8	1/8	1/16	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 9										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.039	0.053	0.063	0.066	0.063	0.053	0.039	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.016	0.033	0.045	0.054	0.056	0.053	0.045	0.033	0.016	0.000
FINAL CAMBER	↑ 0	1/16	1/16	1/8	1/8	1/8	1/8	1/8	1/16	1/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDER 4, 5 & 6										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.039	0.053	0.063	0.066	0.063	0.053	0.039	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.016	0.031	0.044	0.051	0.054	0.051	0.044	0.031	0.016	0.000
FINAL CAMBER	↑ 0	1/16	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/16	0

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-



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 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: Z. GUO DATE: 1/19
 CHECKED BY: B. NEUPANE DATE: 1/19
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS
 RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			32
2			4			

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NOTES

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

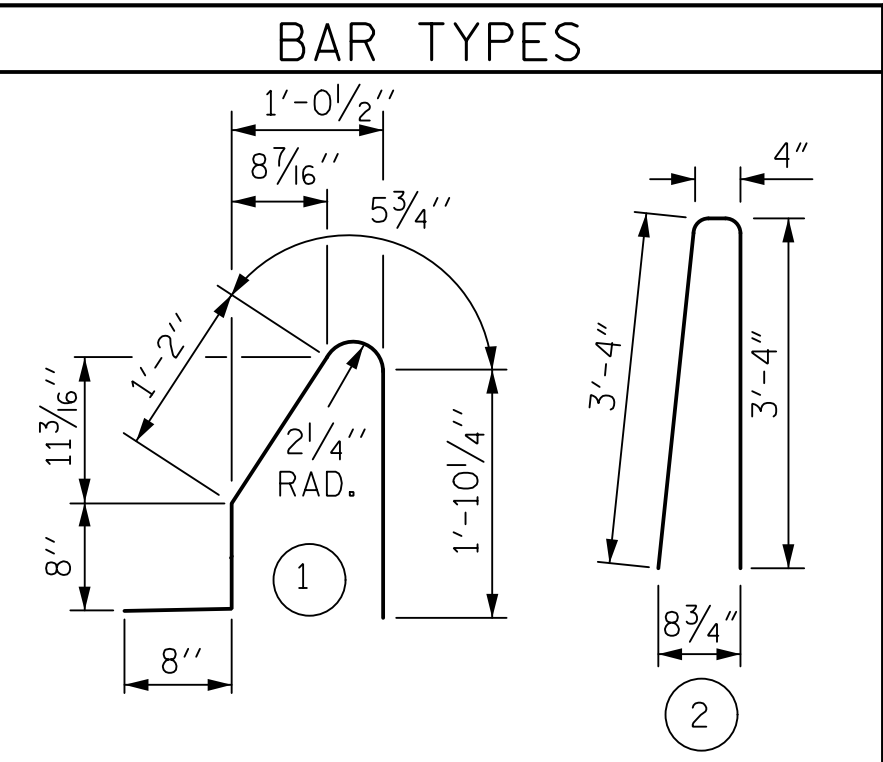
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR SOUND BARRIER WALL DETAILS, SEE "SOUND BARRIER WALL DETAILS" SHEET.

FOR SOUND BARRIER WALL ON CONCRETE PILES AND TYPICAL WALL TURN DETAILS, SEE "SOUND BARRIER WALL NO. -NW6.1-" SHEET 1 OF 4.

FOR SOUND BARRIER WALL CONNECTION DETAILS AT TRANSITION PANEL, SEE "SOUND BARRIER WALL DETAILS NO. -NW6.1-", SHEET 4 OF 4.



ALL BAR DIMENSIONS ARE OUT TO OUT

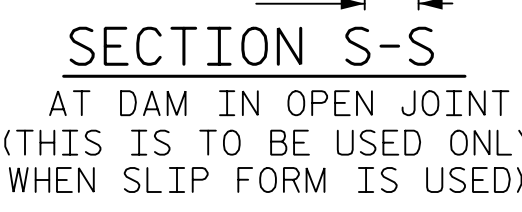
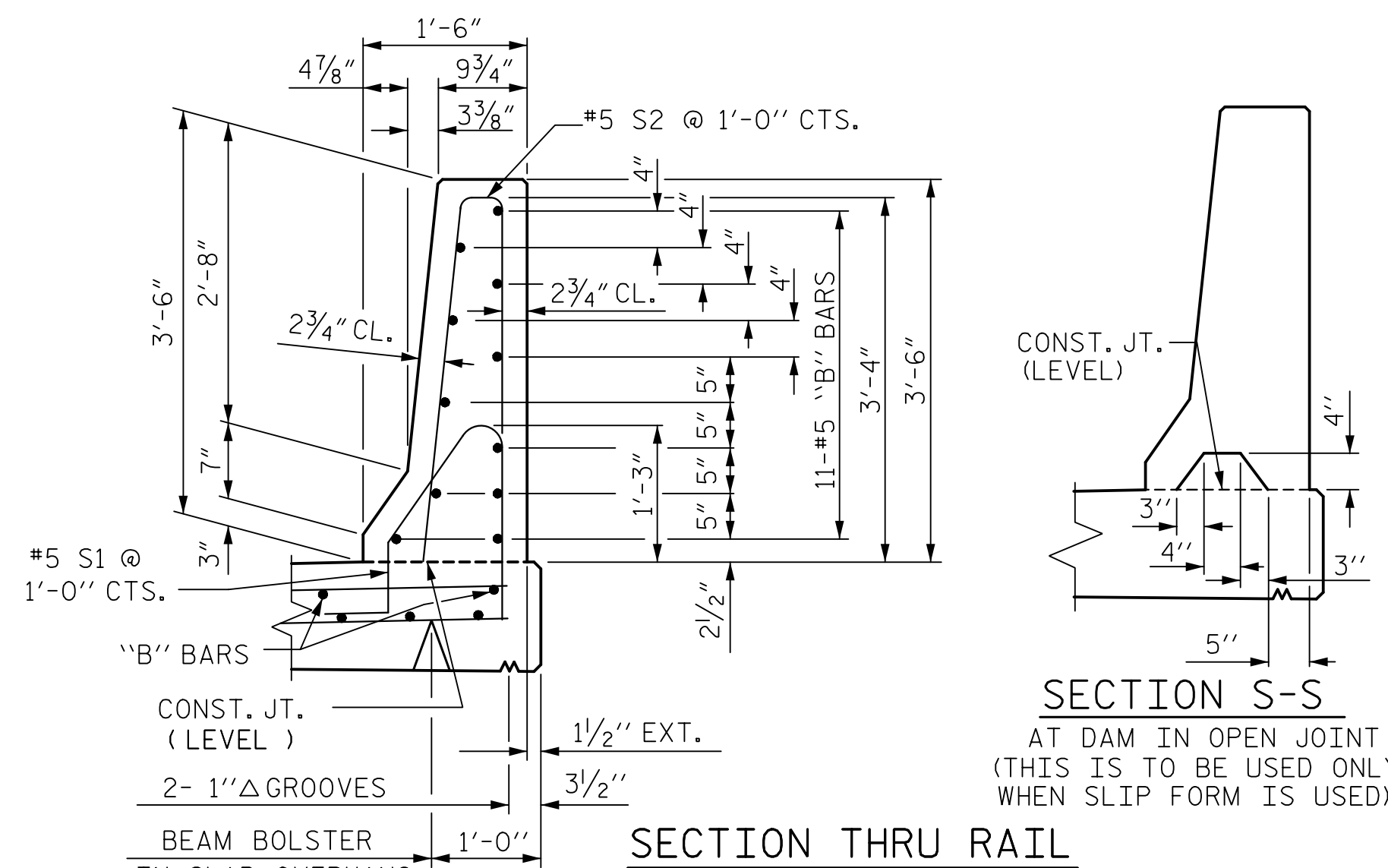
BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

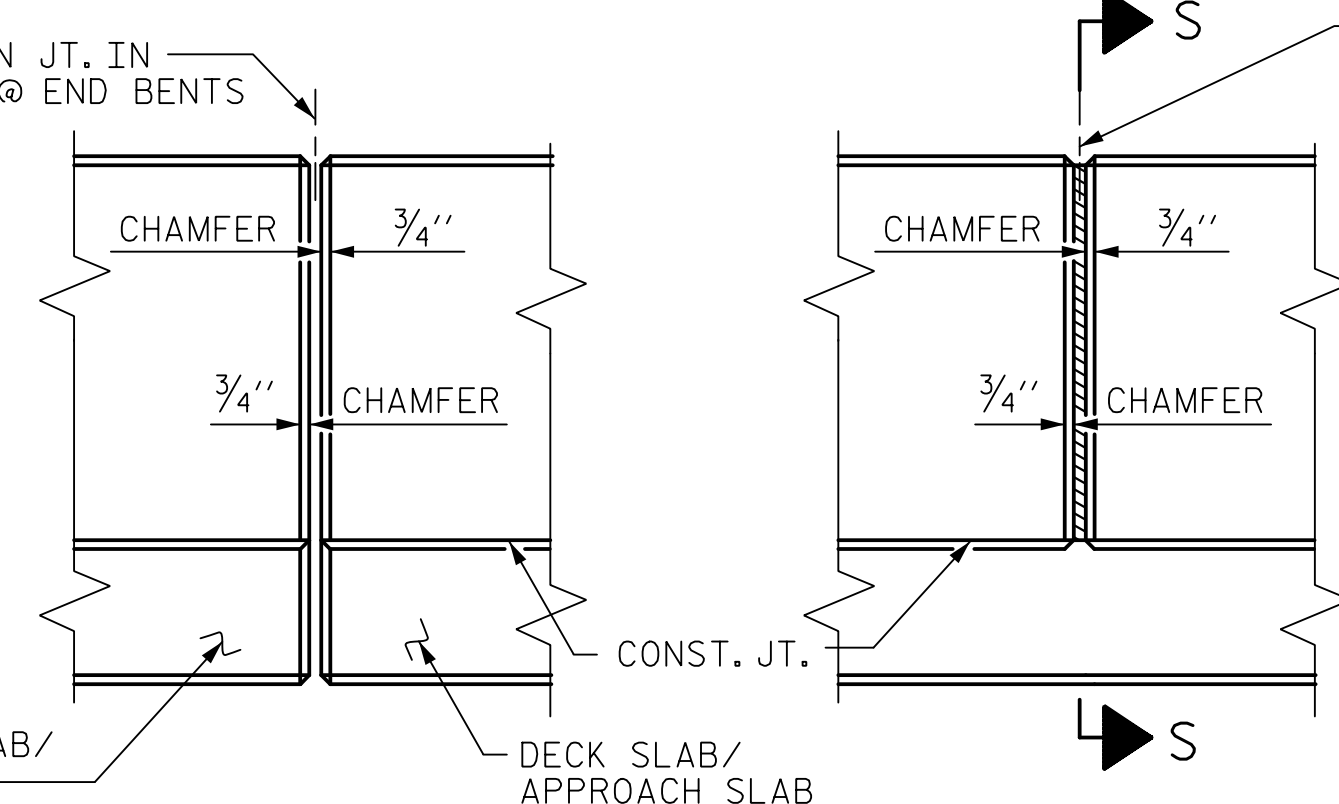
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	5	#5	STR	20'-10"	109
* B2	6	#5	STR	21'-6"	135
* B3	17	#5	STR	21'-9"	386
* B4	5	#5	STR	22'-5"	117
* B5	17	#5	STR	21'-6"	381
* B6	5	#5	STR	22'-3"	116
* B7	5	#5	STR	20'-8"	108
* B8	6	#5	STR	21'-3"	133
* S1	129	#5	1	4'-10"	650
* S2	129	#5	2	7'-0"	942

* EPOXY COATED REINFORCING STEEL 3,077 LBS.
 CLASS AA CONCRETE 17.9 CU. YDS.
 CONCRETE BARRIER RAIL 131.82 LIN. FT.

NOTE: FOR BARRIER RAIL EXTENSIONS ON APPROACH SLABS, SEE "STANDARD BRIDGE APPROACH SLAB DETAILS" SHEET.

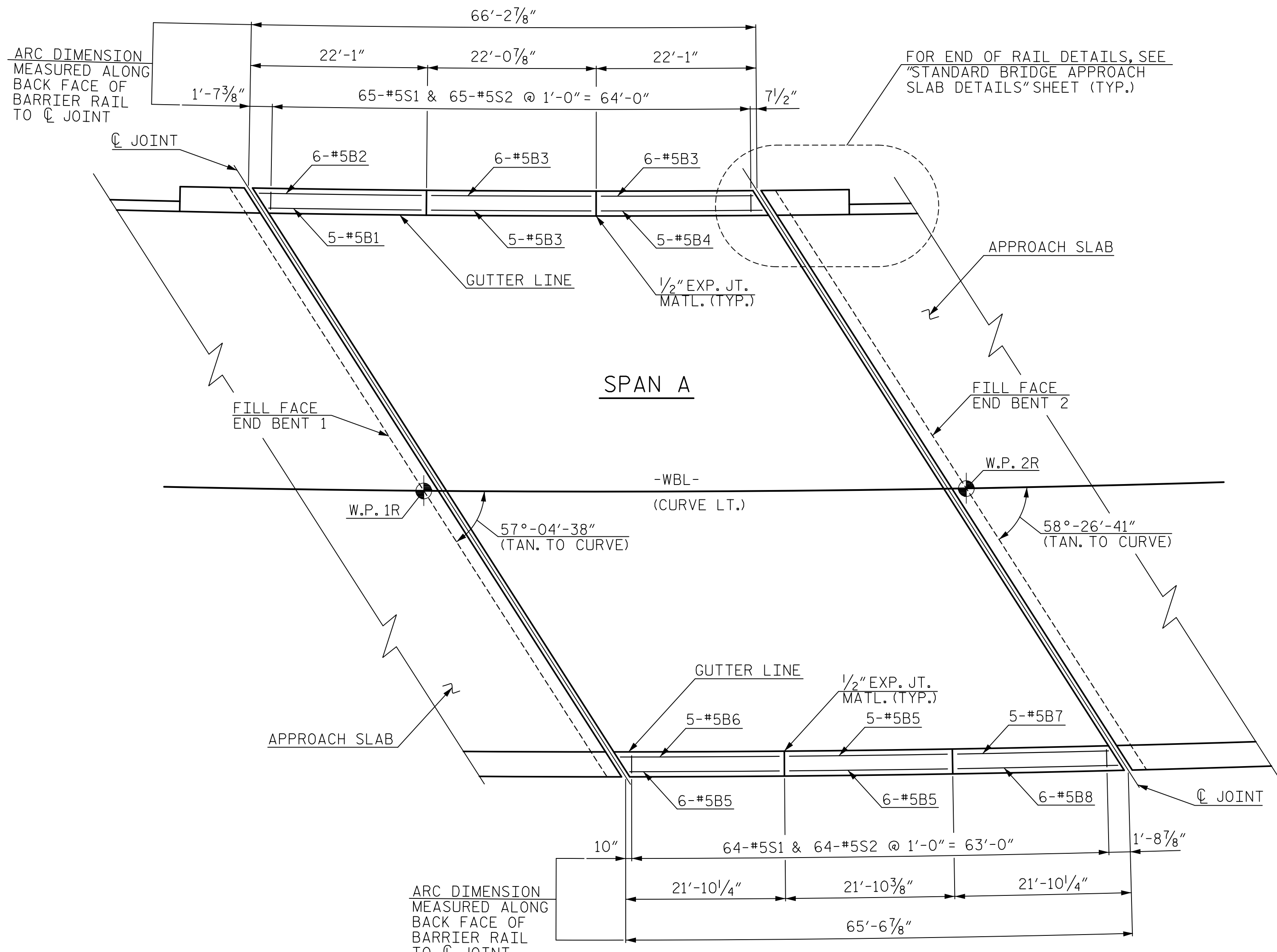


SECTION S-S
 AT DAM IN OPEN JOINT
 (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



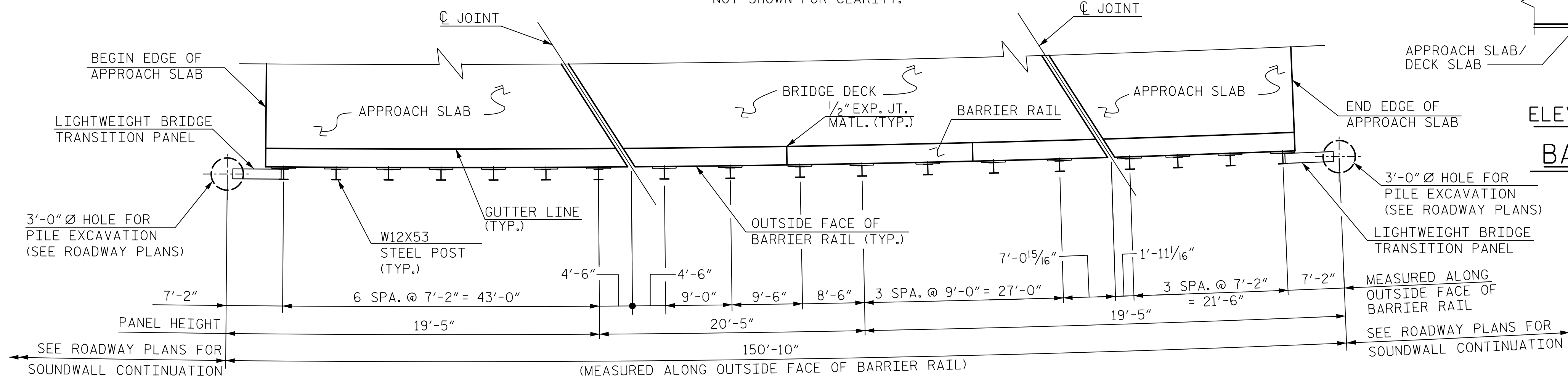
ELEVATION AT EXPANSION JOINTS
 BARRIER RAIL DETAILS

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-



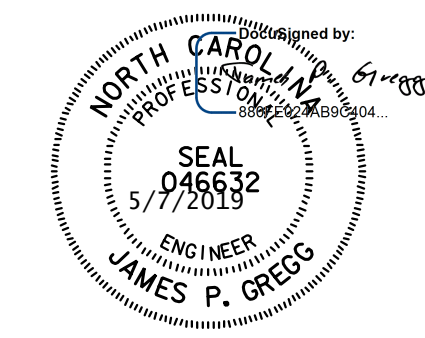
PLAN OF BARRIER RAIL

NOTE: EDGE OF SLAB AND SOUND BARRIER WALL NOT SHOWN FOR CLARITY.



PLAN OF SOUND BARRIER WALL NW6.1 LAYOUT

NOTE: EDGE OF SLAB AND PANELS BETWEEN STEEL POST NOT SHOWN FOR CLARITY.



ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY : E. JOWZA	DATE : 12/18	DWG. NO. 14	
CHECKED BY : A. KANG	DATE : 12/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19		

STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION	
RALEIGH		STANDARD	
		CONCRETE	
		BARRIER RAIL	
		RIGHT LANE	
		REVISIONS	
NO.	BY	DATE	NO.
1			3
2			4
		SHEET NO. S2-14	
		TOTAL SHEETS 32	

STD. NO. CBRI

NOTES

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

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

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

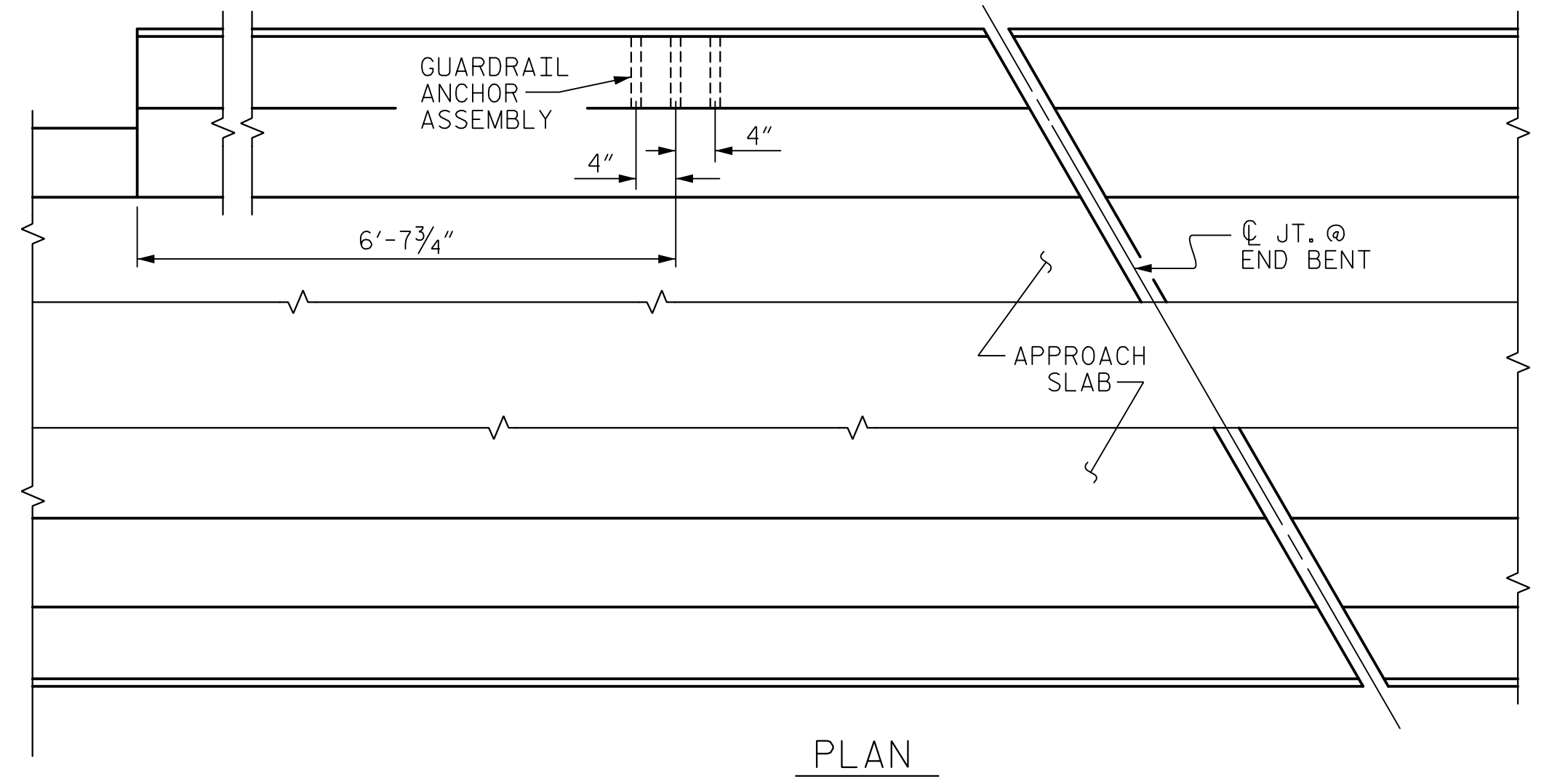
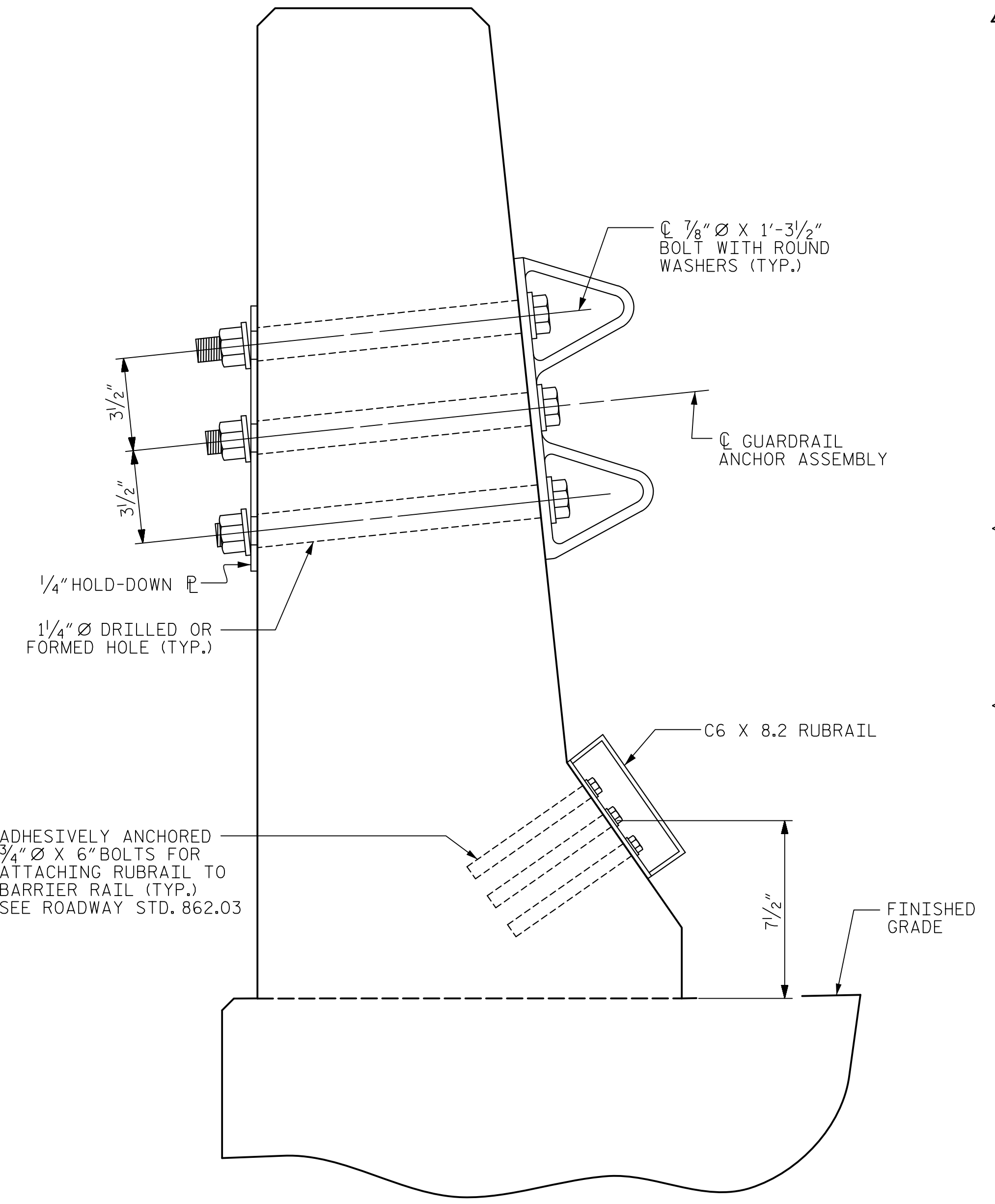
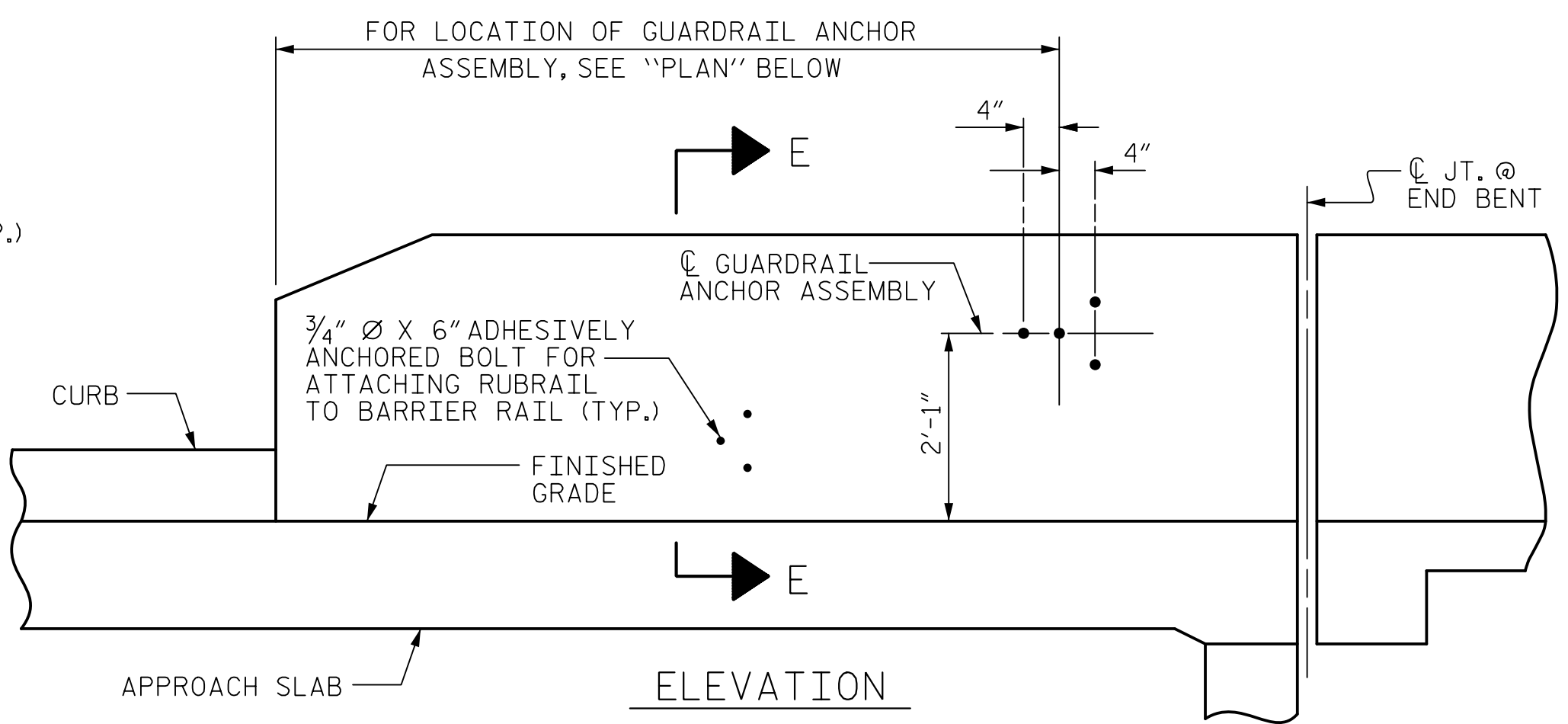
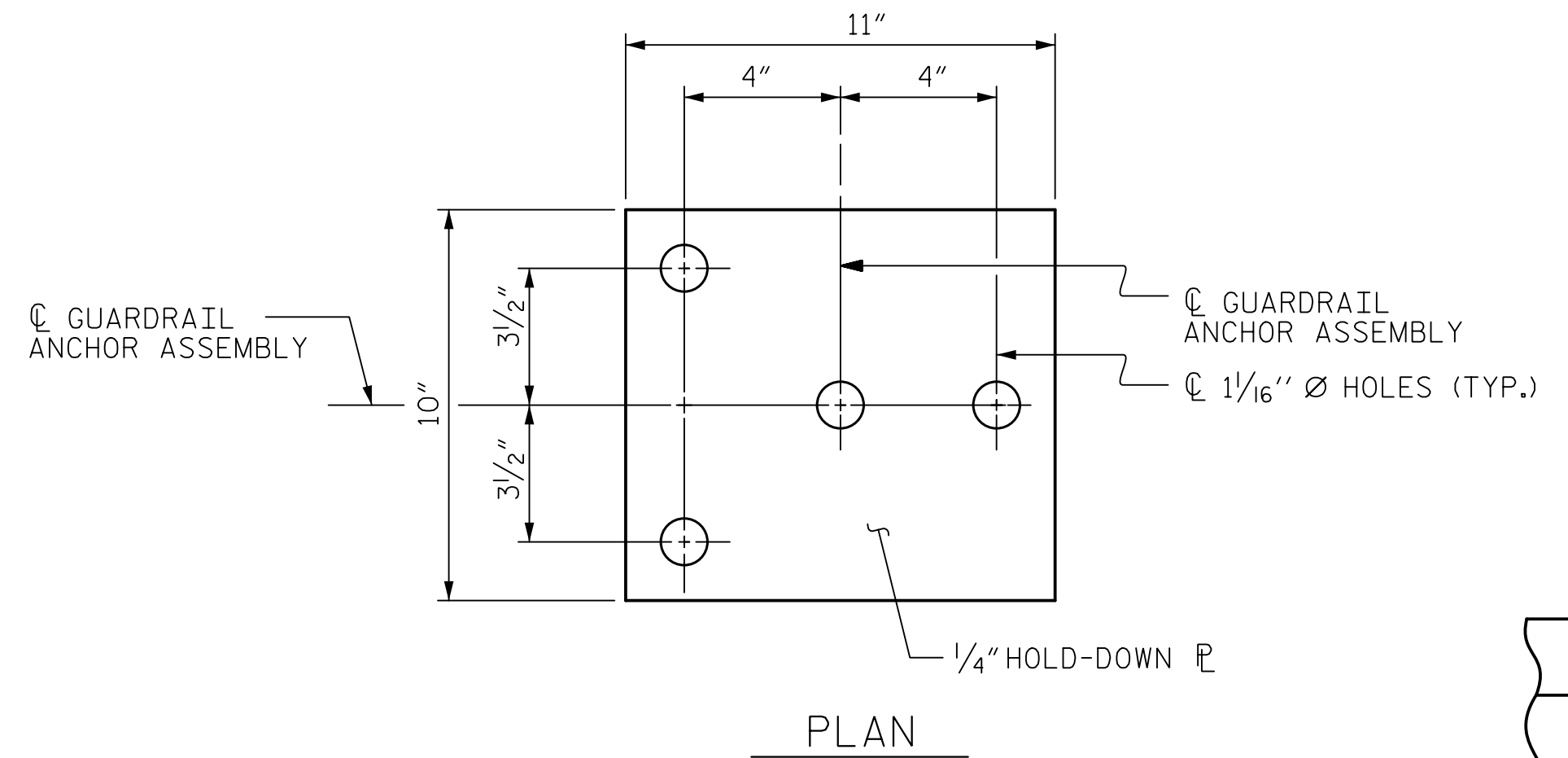
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

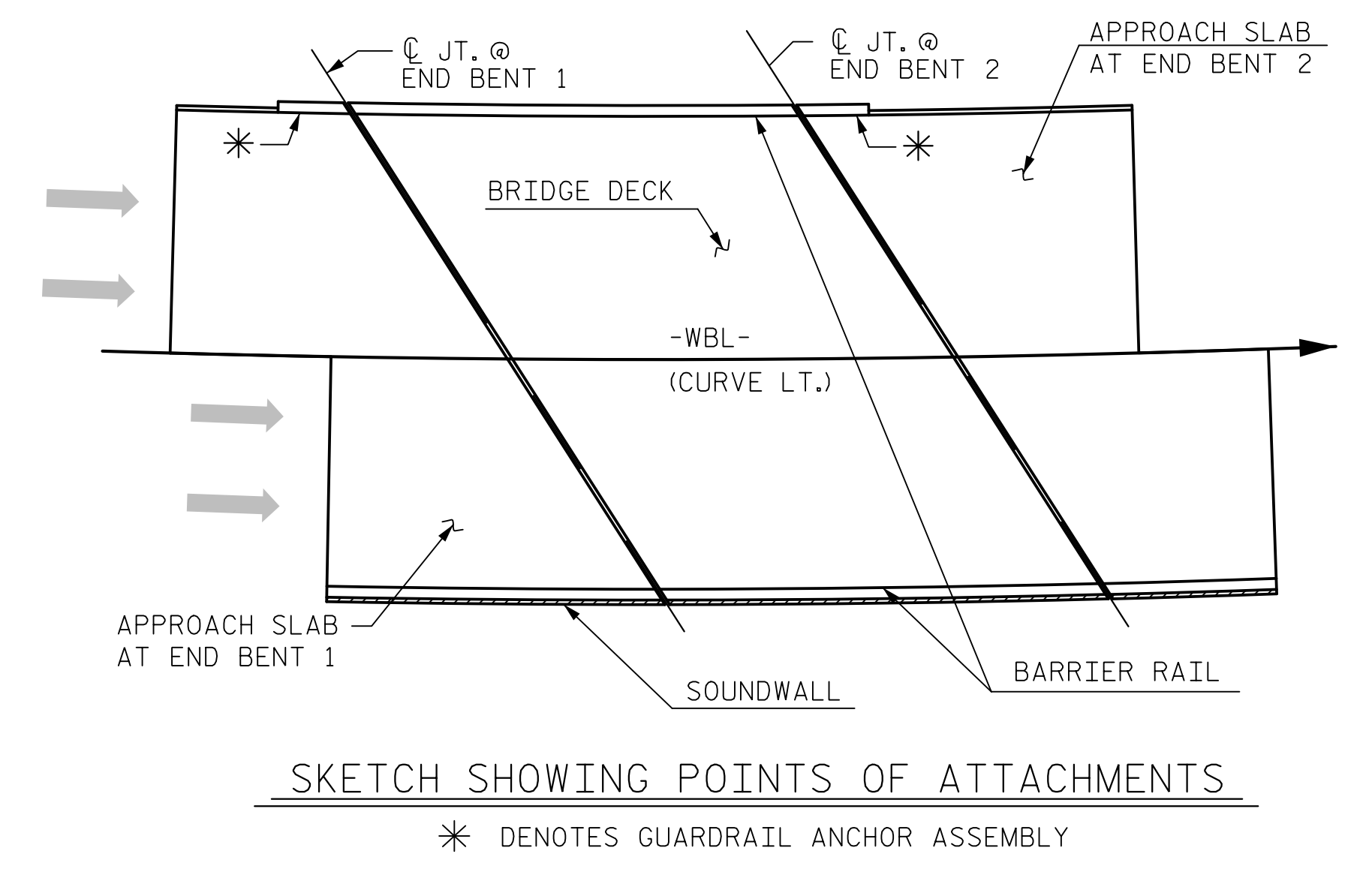
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

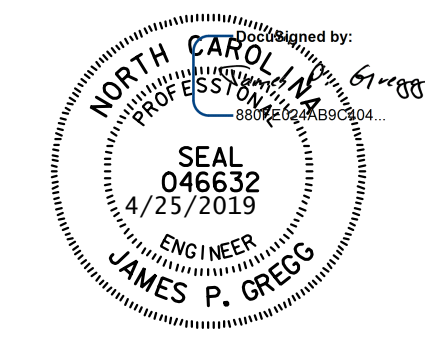


LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR. SOUNDWALL NOT SHOWN FOR CLARITY.



PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-



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

ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY : E. JOWZA	DATE : 12/18	DWG. NO. 15	
CHECKED BY : A. KANG	DATE : 12/18		
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19		

RIGHT LANE					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S2-15
					TOTAL SHEETS 32

NOTES

WALL SUPPORT SYSTEM

POSTS, BEARING PLATES AND MISCELLANEOUS STEEL SHALL BE AASHTO 270 GRADE 50 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111 AND IN ACCORDANCE TO SECTION 1076 OF THE STANDARD SPECIFICATIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 AND SHALL BE GALVANIZED IN ACCORDANCE TO AASHTO M111.

ALL POSTS SHALL BE PLUMB.

SOUND BARRIER WALL

COLOR OF THE SOUND BARRIER WALL PANEL SHALL BE UNIFORM THROUGHOUT THE PULTRUDED COMPOSITE AND IS TO BE APPROVED BY THE ENGINEER. SOUND BARRIER WALL PANEL SHALL HAVE A DRY STACK PATTERN WITH STAIN COLOR FS36173.

SOUND BARRIER WALL SHALL BE DESIGNED TO WITHSTAND A MINIMUM WIND VELOCITY OF 115 MPH AND A MINIMUM WIND PRESSURE OF 0.04 KSF.

WEIGHT OF SOUND BARRIER WALL SHALL NOT EXCEED 493 LBS/FT.

SOUND BARRIER WALL SHALL CONSIST OF STACKED TONGUE AND GROOVE STRUCTURAL PLANKS AS DETAILED ON PLANS. THE PLANKS SHALL BE COMPRISED OF A PULTRUDED GLASS REINFORCED THERMOSET COMPOSITE STRUCTURAL BOX FILLED WITH RECYCLED TIRE RUBBER OR ANOTHER SUBSTANCE OF COMPARABLE DENSITY AND NOISE REDUCTION CAPABILITY. ENDS SHALL BE CAPPED SO NOT TO ALLOW FILL MATERIAL TO FALL OUT.

LENGTH OF PLANKS SHALL BE CUT TO A LENGTH NO LESS THAN 4" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS, NOR SHALL THE LENGTH BE GREATER THAN 3" LESS THAN THE CLEAR SPACING PROVIDED BETWEEN SUPPORT POSTS.

PLANKS SHALL BE CUT SO THAT THE ENDS ARE SMOOTH AND PERPENDICULAR TO EACH PLANKS BASE AND SHALL BE APPROVED BY THE ENGINEER.

EACH PANEL SHALL BE PLACED SO THAT THE TOP OF THE FINISHED PANEL MEETS FLUSH WITH THE TOP OF EACH SUPPORT POST.

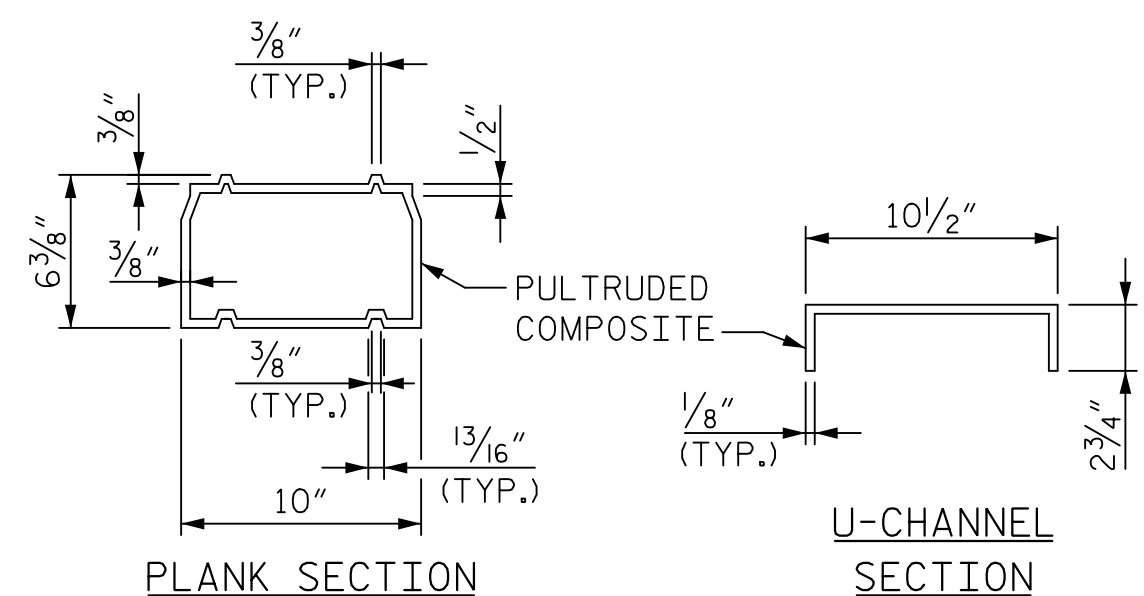
FOR PREFORMED BEARING PADS AND ELASTOMERIC BEARING, SEE SECTION 1079 OF THE STANDARD SPECIFICATIONS.

FOR SOUND BARRIER WALL, SEE SPECIAL PROVISION SOUND BARRIER WALL (BRIDGE MOUNTED).

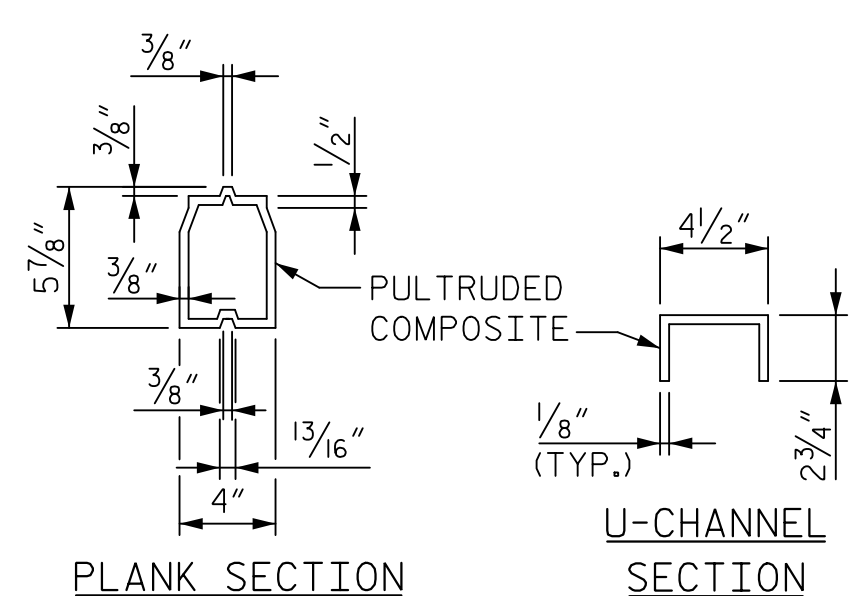
PRIOR TO DRILLING HOLES FOR ANCHOR BOLTS, CONTRACTOR SHALL LOCATE BARRIER RAIL REINFORCING. CONTRACTOR SHALL AVOID DRILLING THROUGH REINFORCING STEEL.

CONTRACTOR SHALL DRILL HOLES FOR ANCHOR BOLTS PRIOR TO PANEL FABRICATION.

FOR SOUND BARRIER WALL LAYOUT, SEE "CONCRETE BARRIER RAIL" SHEET.

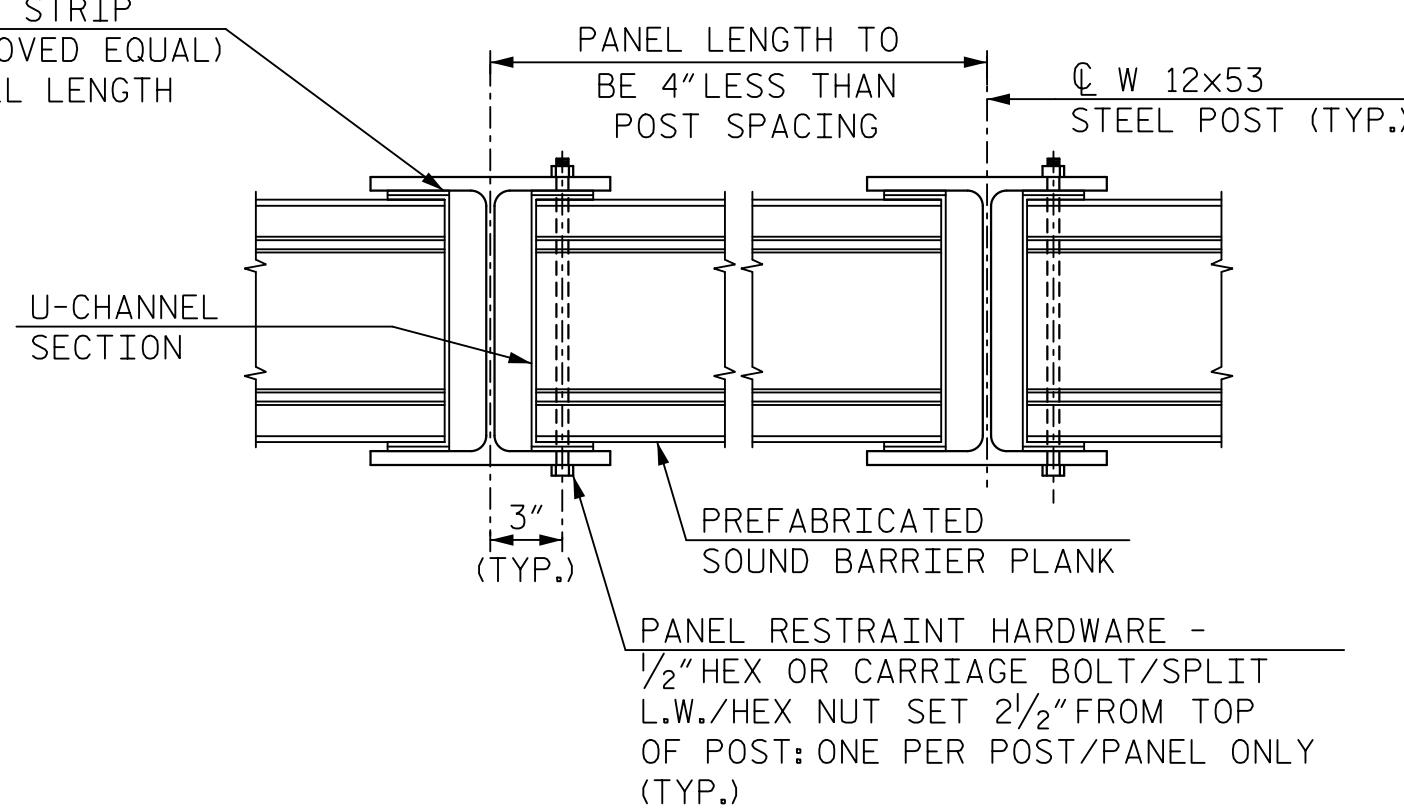


PANEL TYPE 1

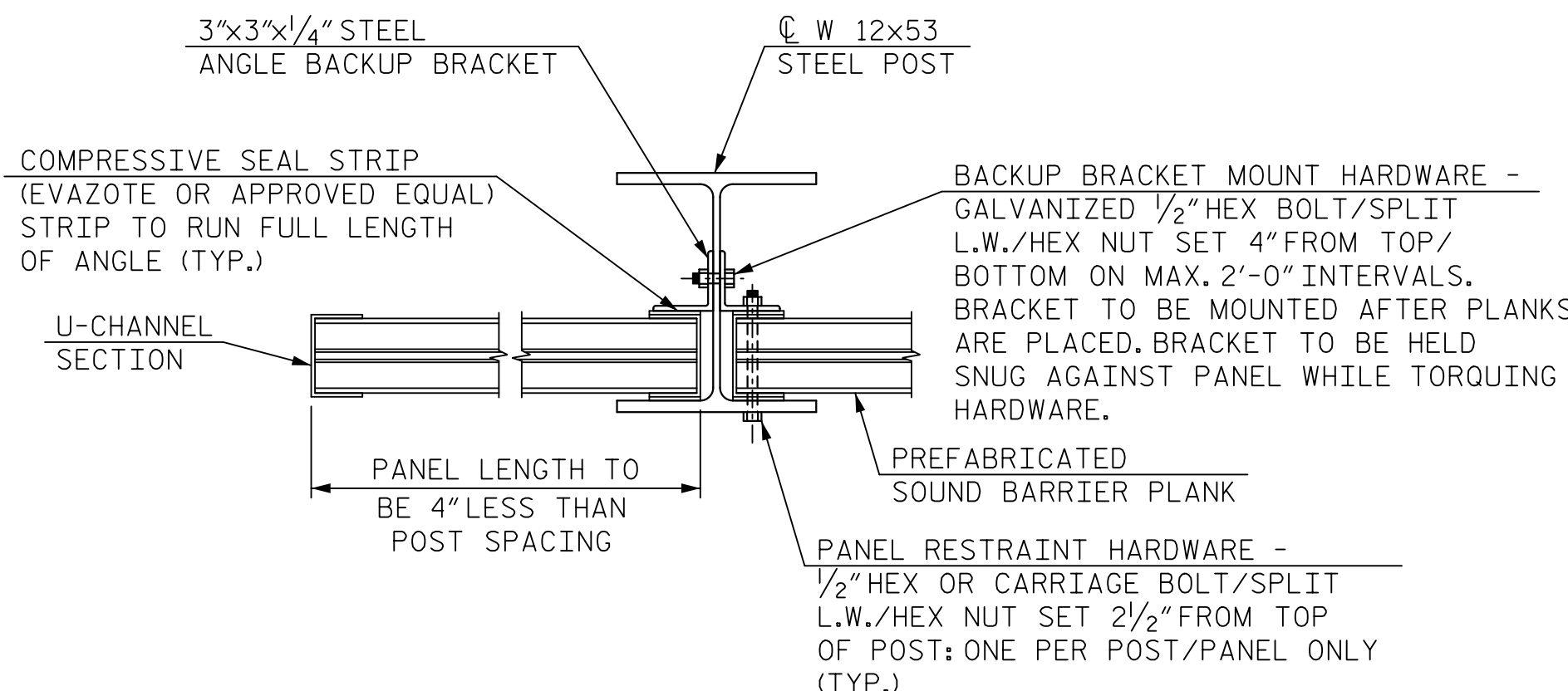


PANEL TYPE 2

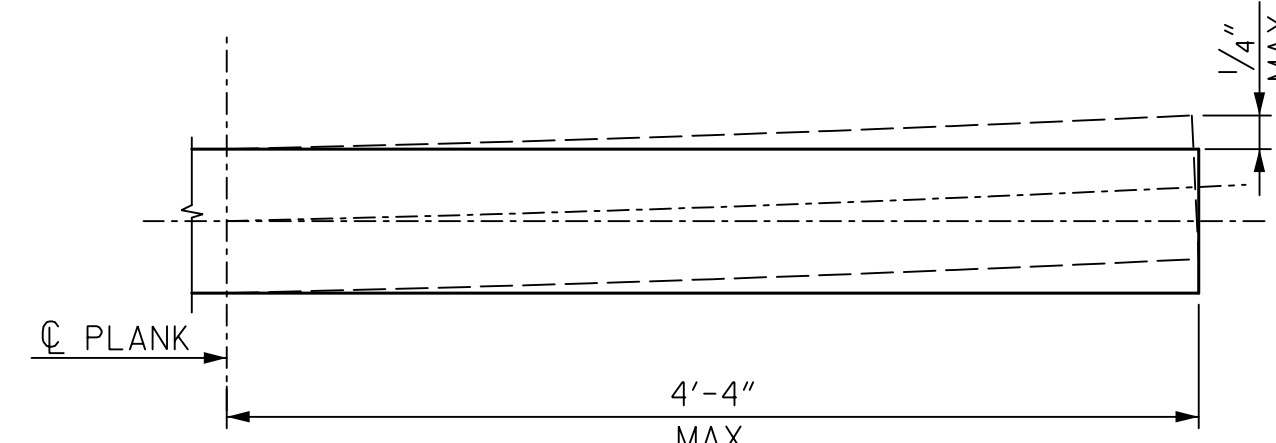
COMPRESSIVE SEAL STRIP (EVAZOTE OR APPROVED EQUAL) STRIP TO RUN FULL LENGTH OF FLANGE (TYP.)



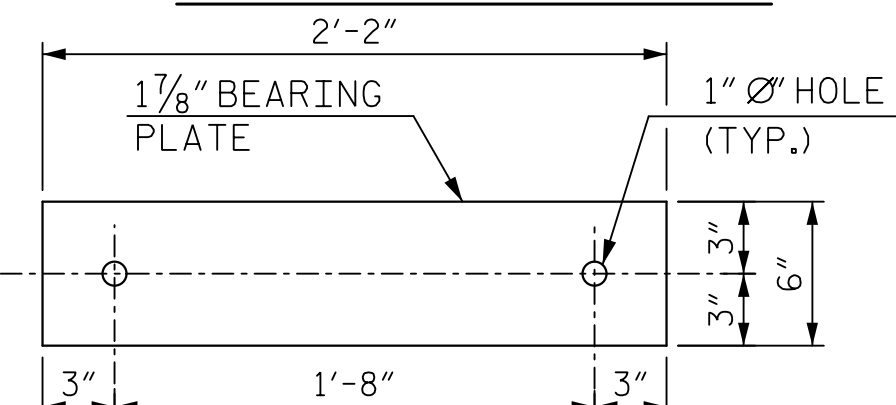
MOUNTING DETAIL - PANEL TYPE 1



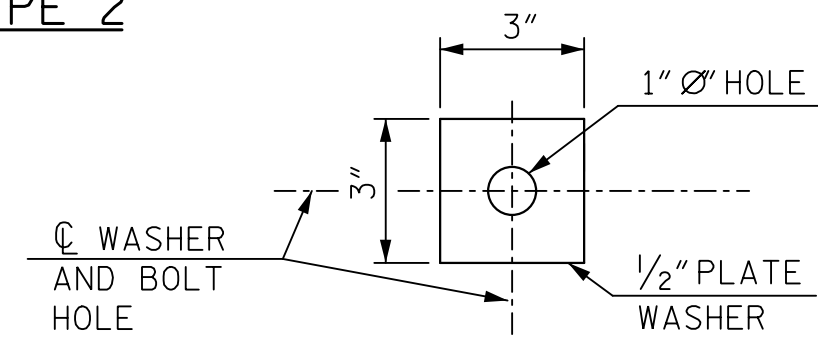
MOUNTING DETAIL - PANEL TYPE 2



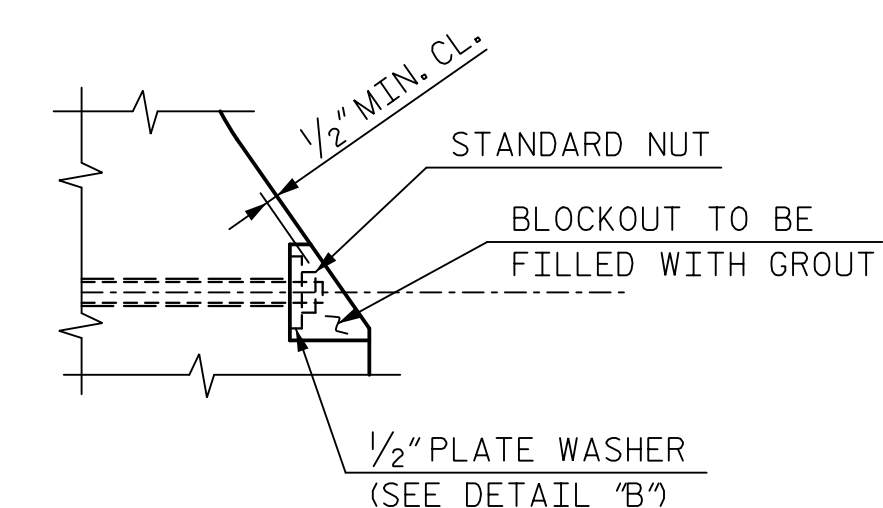
PLANK BOW TOLERANCE



DETAIL "C"

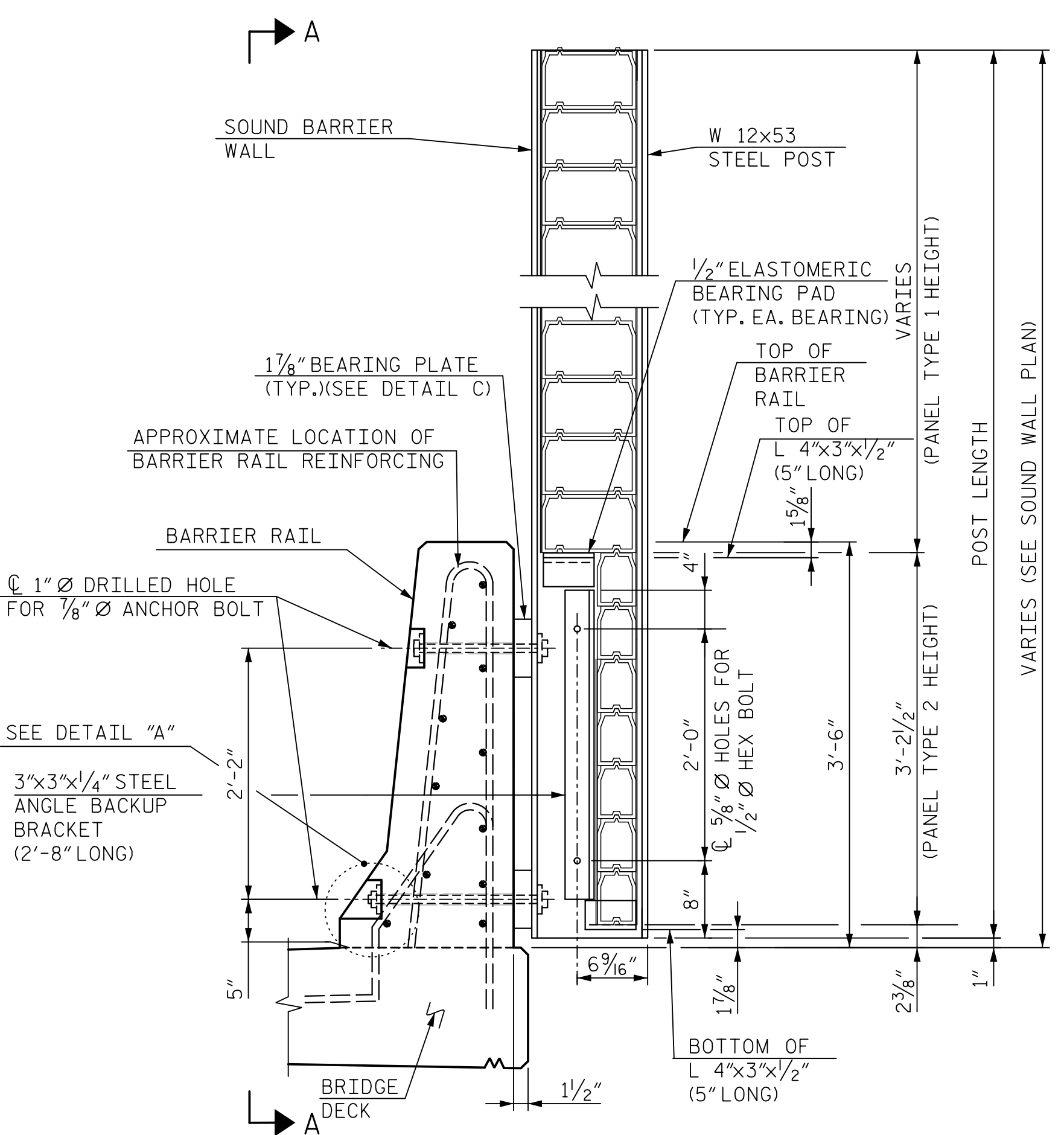


DETAIL "B"

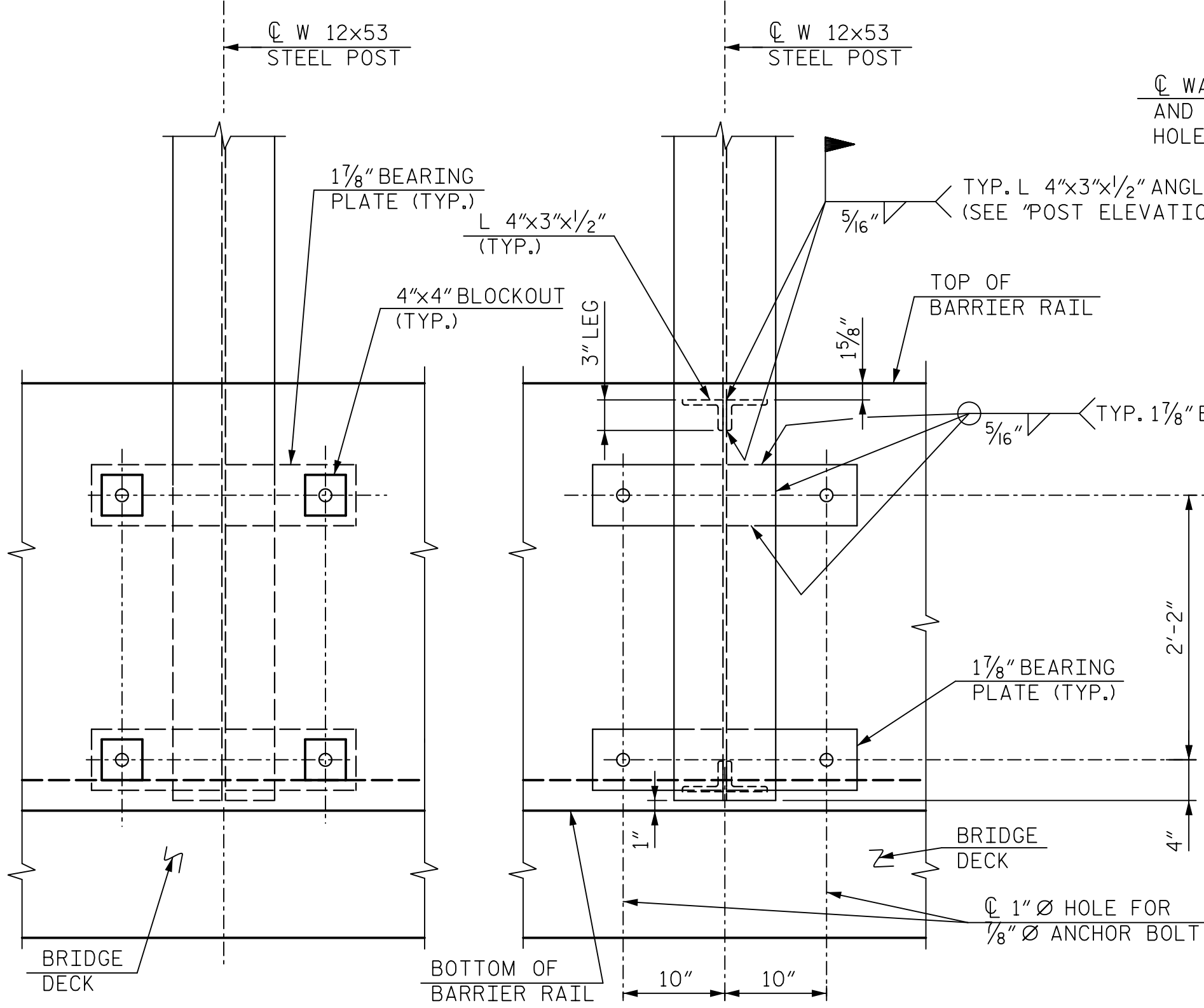


DETAIL "A"

(GROUT SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS) (LOWER BLOCKOUT SHOWN, UPPER BLOCKOUT SIMILAR)



POST ELEVATION

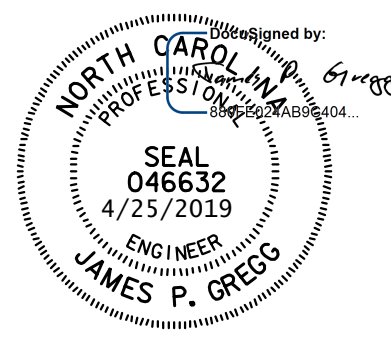


VIEW A-A

SECTION THRU POST

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
SOUND BARRIER WALL
DETAILS
RIGHT LANE

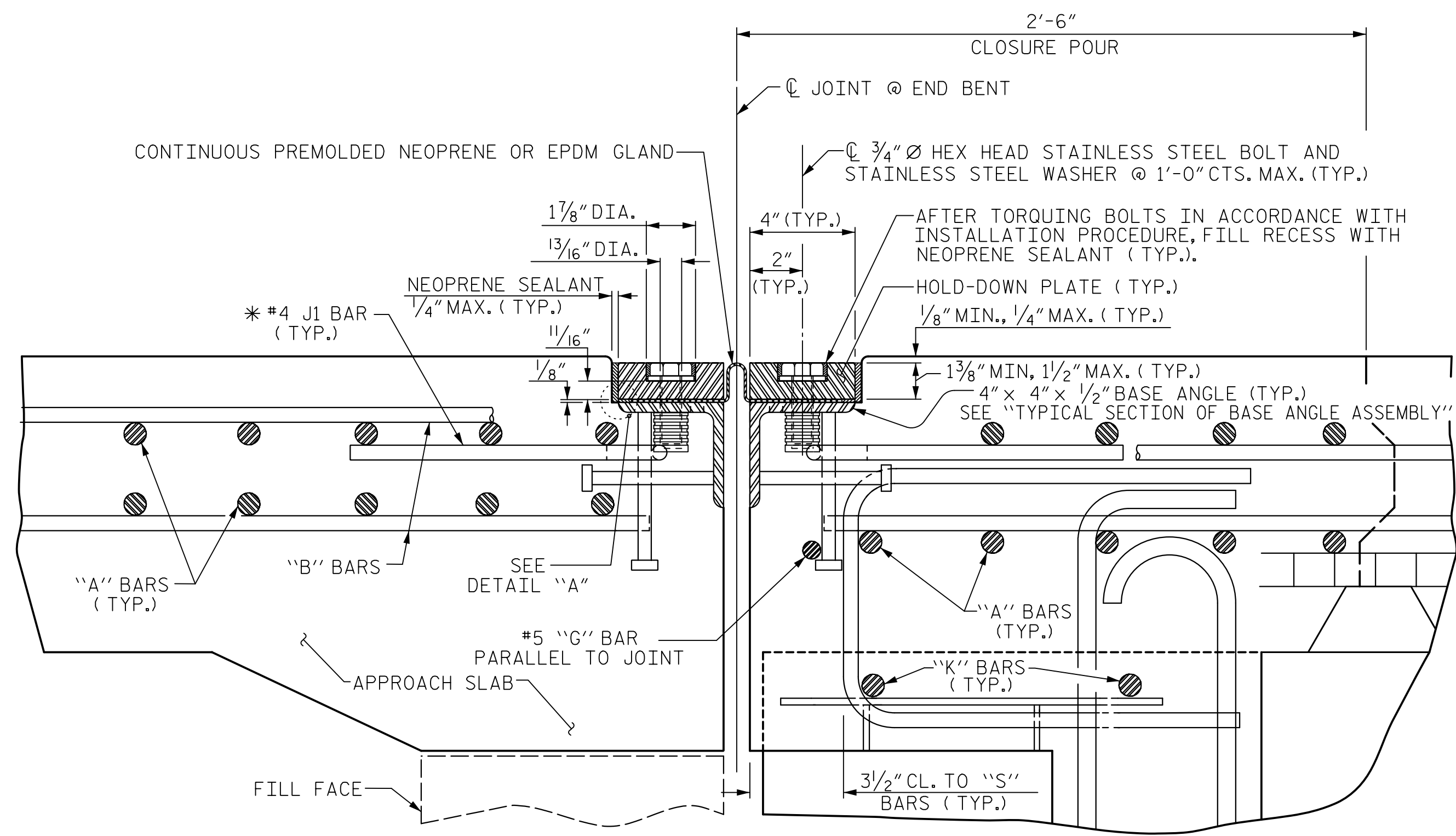


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DRAWN BY	Z. GUO	DATE	1/19
CHECKED BY	J. PHILLIPS	DATE	1/19
DESIGN ENGINEER OF RECORD	J. GREGG	DATE	3/19

DWG. NO. 16

REVISIONS						SHEET NO. S2-16
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			32

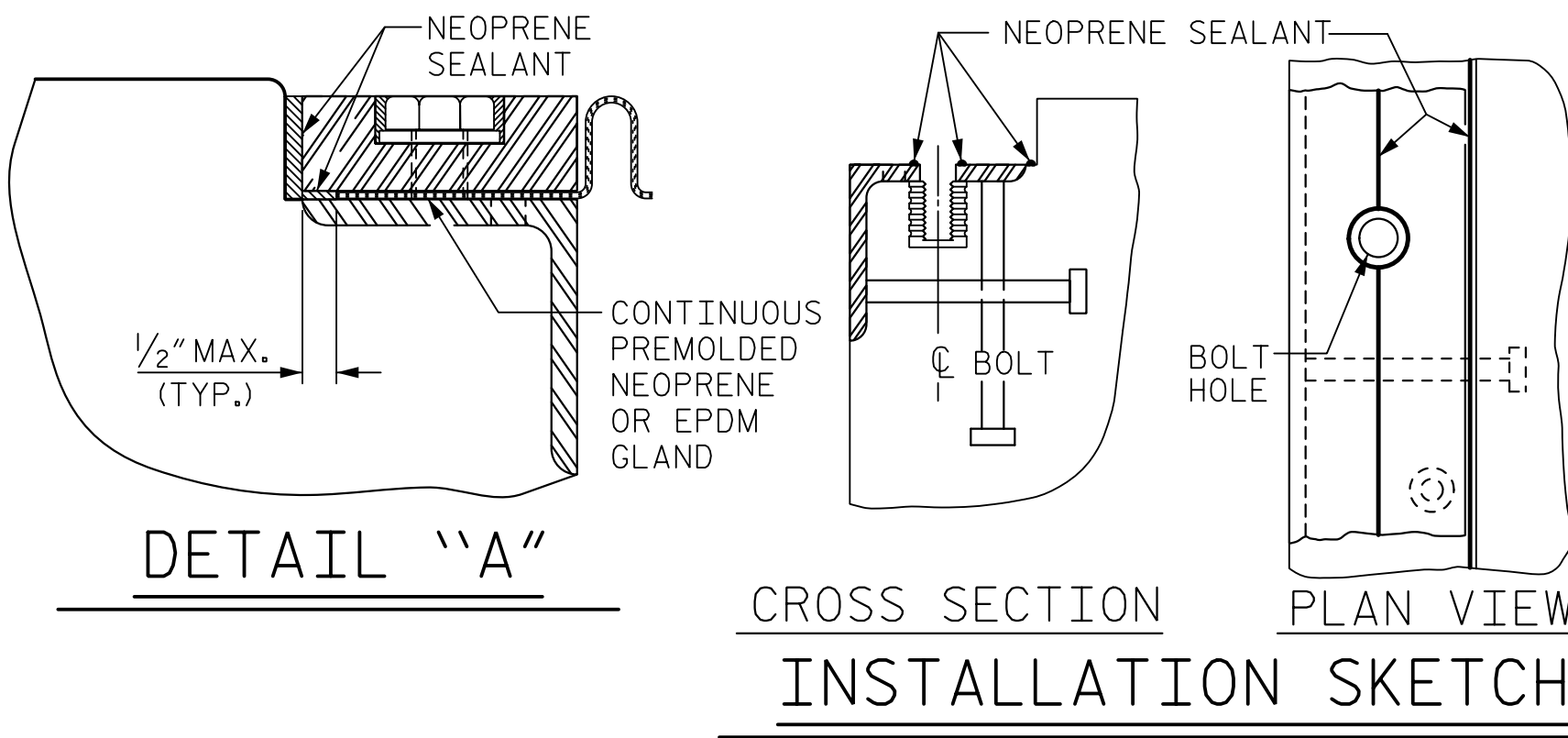
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EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.



DETAIL "A"

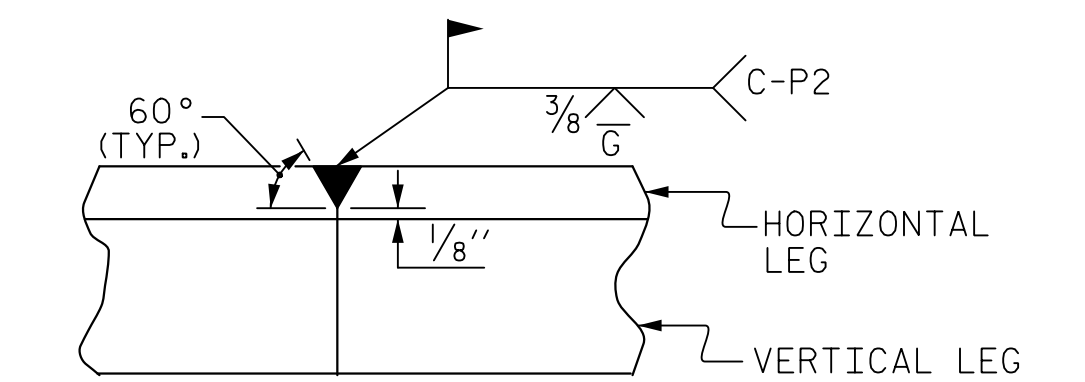
CROSS SECTION
PLAN VIEW
INSTALLATION SKETCH

INSTALLATION PROCEDURE

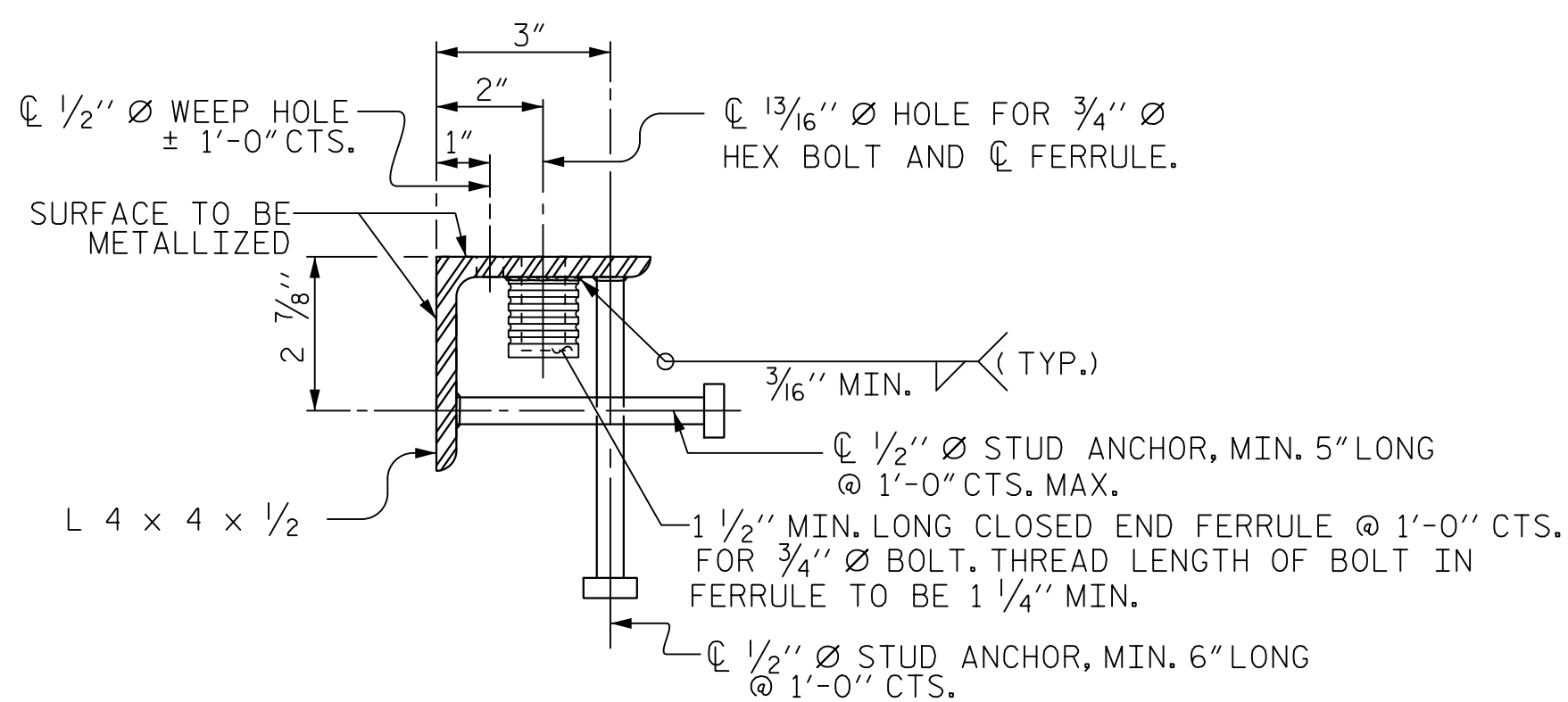
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4/8" TO 4/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE 3/4" Ø HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" Ø HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X 1/2" BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED 1/8" IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES, THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, AND THE LIFTING HOLES IN THE HOLD-DOWN PLATE, AND COMPLETELY FILL THE RECESSES AND LIFTING HOLES WITH NEOPRENE SEALANT.

GENERAL NOTES

1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MINIMUM.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD-DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
7. THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
8. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
9. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
10. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
11. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
12. THE FABRICATOR SHALL PROVIDE 1/2" Ø THREADED HOLES IN THE HOLD-DOWN PLATES TO ASSIST IN LIFTING AND PLACING. THE HOLES SHALL BE 3/4" DEEP AT 6'-0" MAXIMUM SPACING AND A MINIMUM OF TWO HOLES PER PLATE.



DETAIL- FIELD WELD
SPLICE OF BASE ANGLE



TYPICAL SECTION OF BASE ANGLE ASSEMBLY

MOVEMENT AND SETTING AT JOINT					
END BENT NO.	SKEW ANGLE *	TOTAL MOVEMENT (ALONG CL RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	57°-04'-38"	3/8"	1/4"	1 3/16"	1 1/16"
2	58°-26'-41"	0"	1"	1"	1"

* MEASURED TANGENT TO CURVE AT FILL FACE

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 EXPANSION JOINT
 SEAL DETAILS
 RIGHT LANE

ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : REK 9/87	REV. 10/1/11 MAA/GM
CHECKED BY : CRK 10/87	REV. 10/17 MAA/THC
	REV. 6/18 MAA/THC

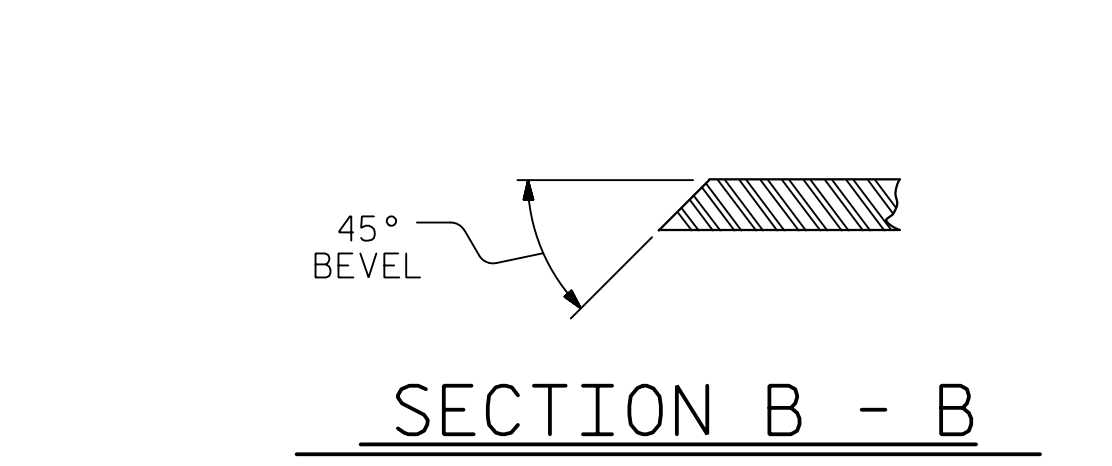
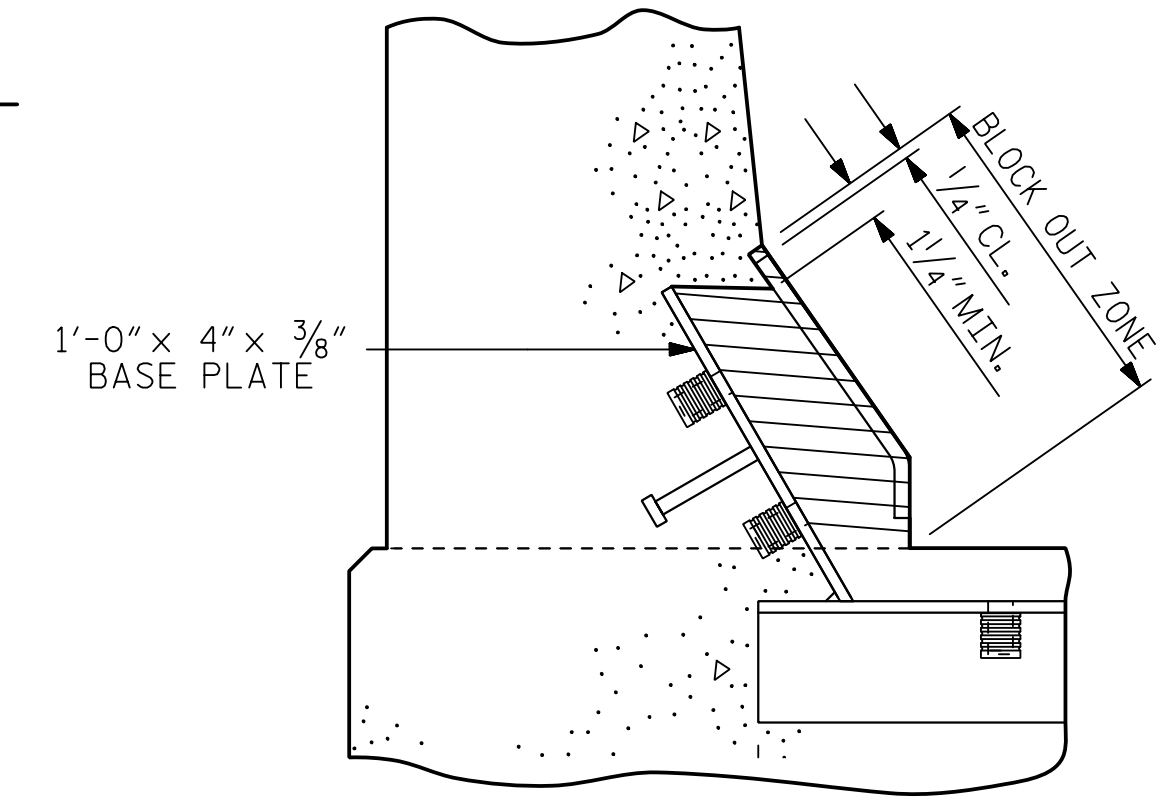
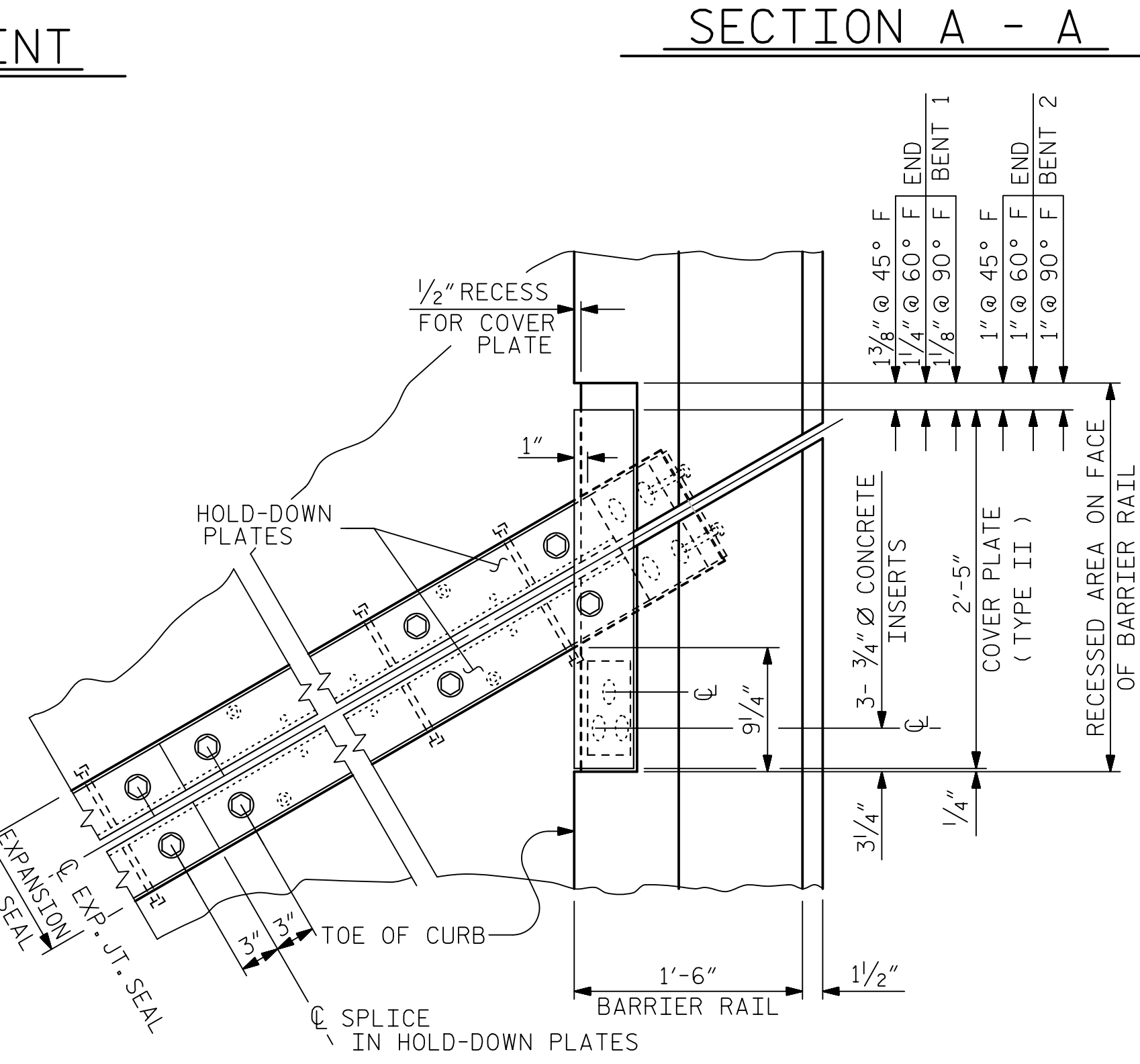
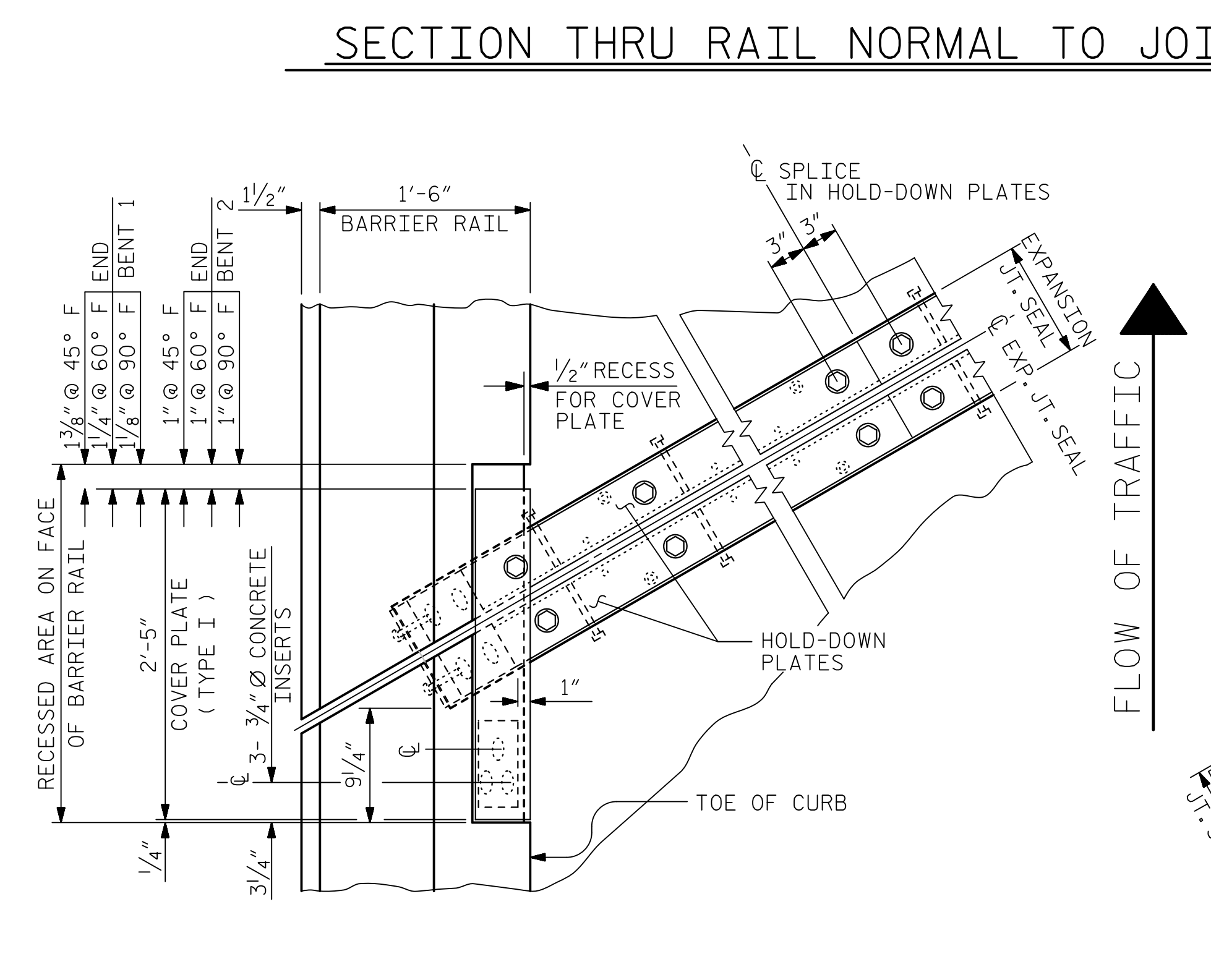
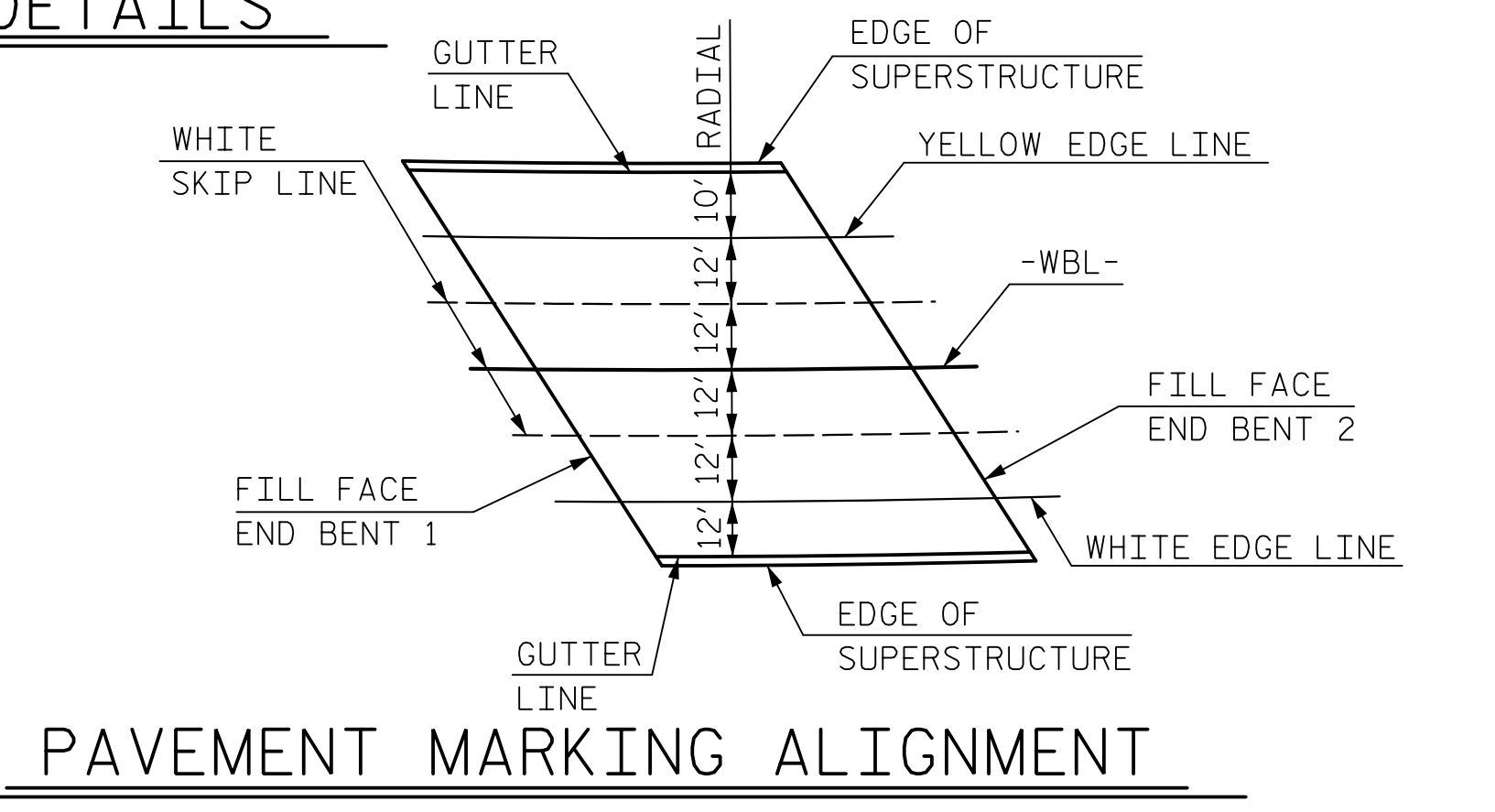
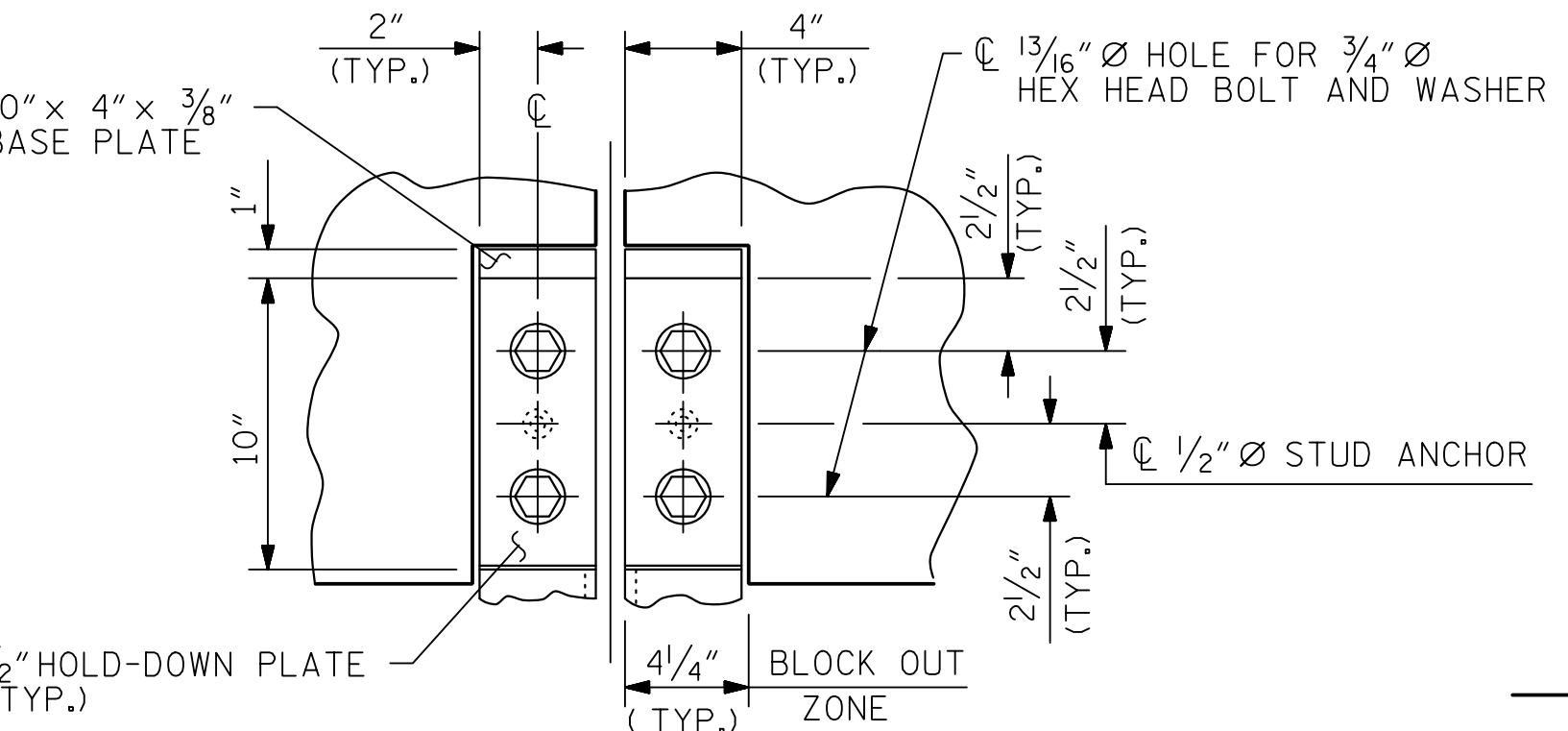
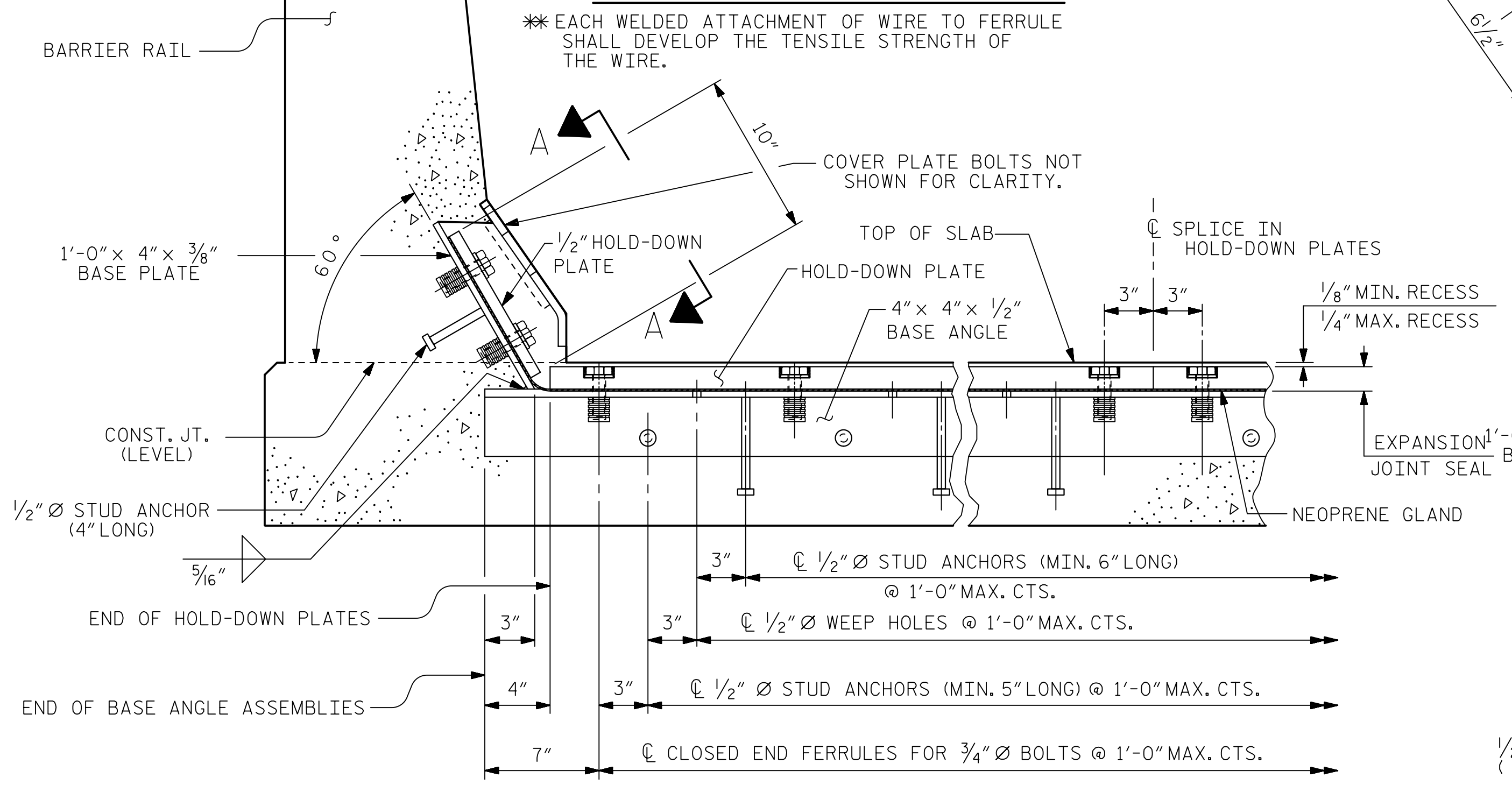
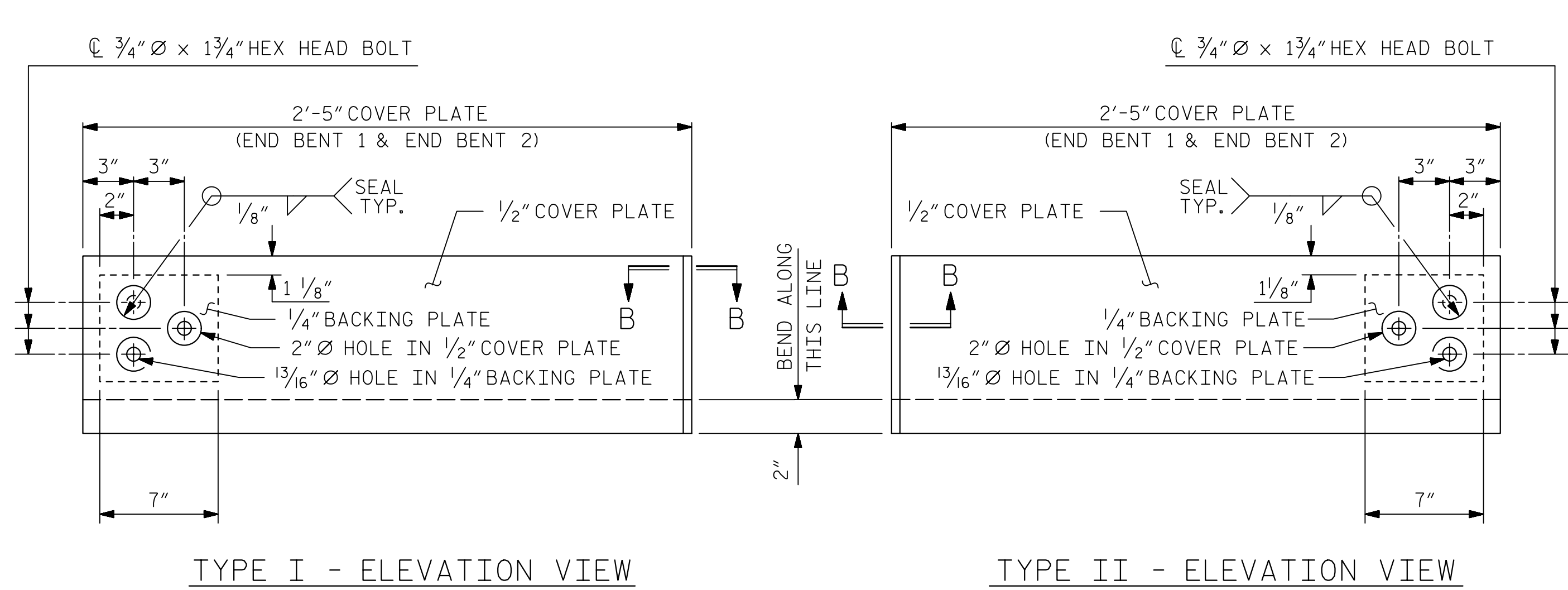
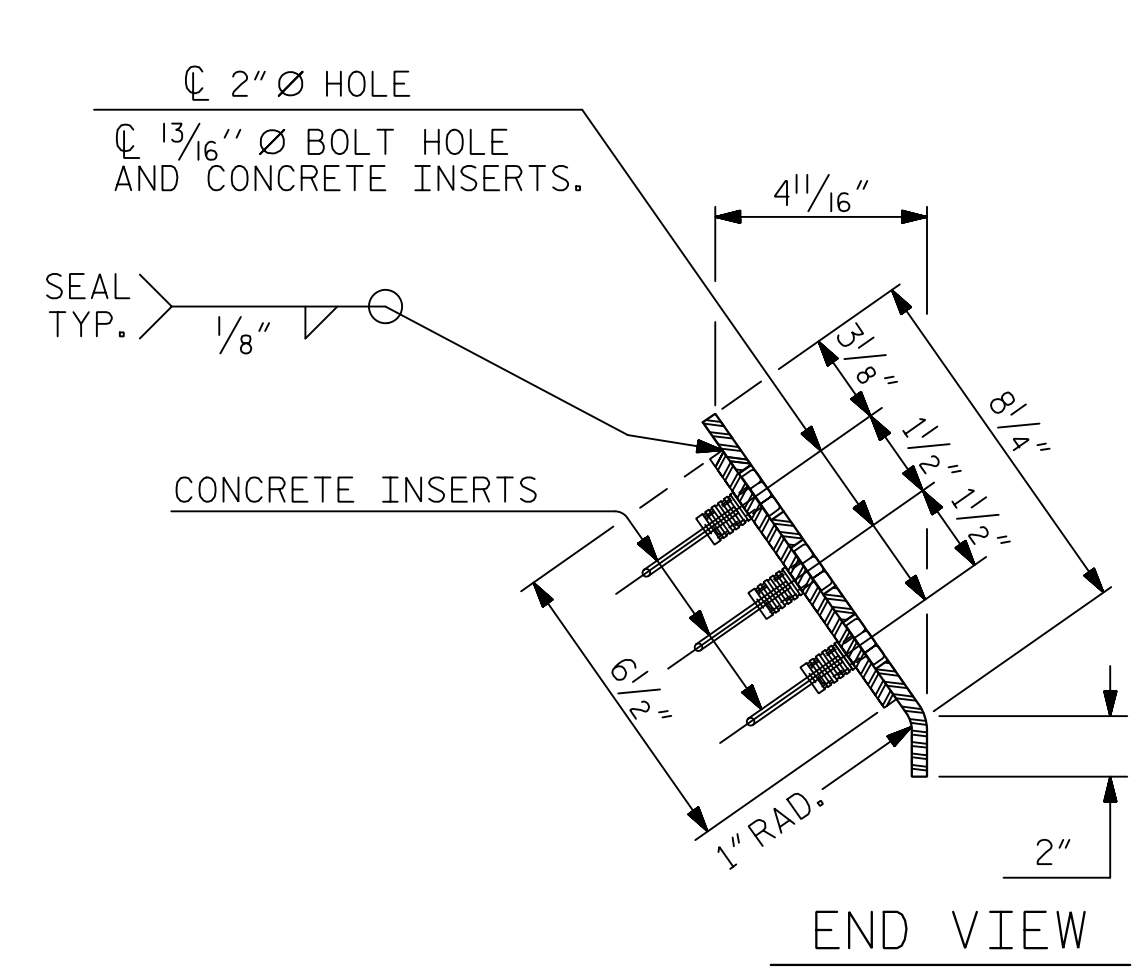
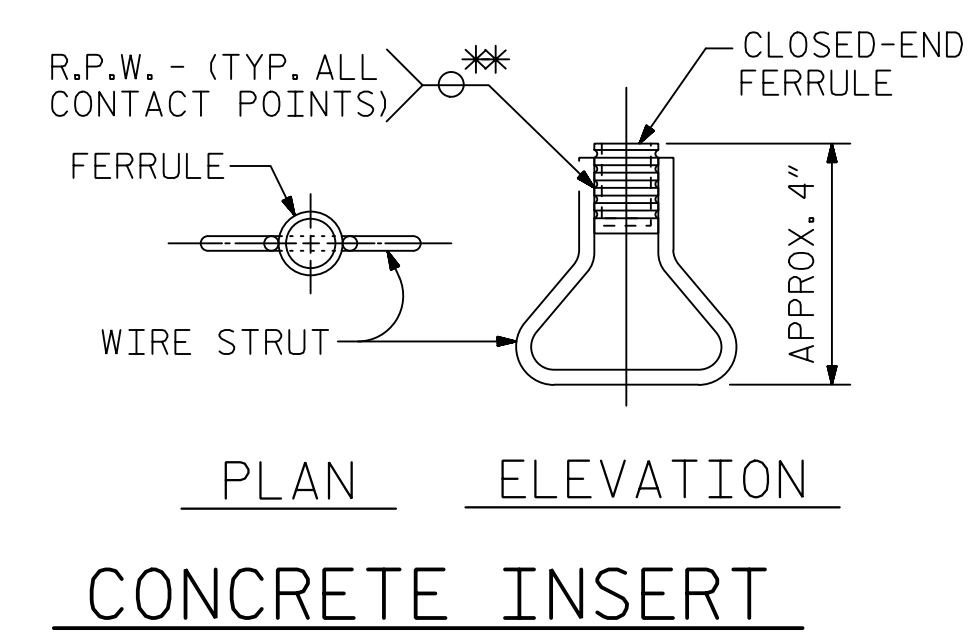
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: E. JOWZA DATE 12/18
 CHECKED BY: A. KANG DATE 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE 3/19

DWG. NO. 17

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REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	TOTAL SHEETS
1			3		32
2			4		



PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 EXPANSION JOINT SEAL DETAILS FOR BARRIER RAIL
 RIGHT LANE

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

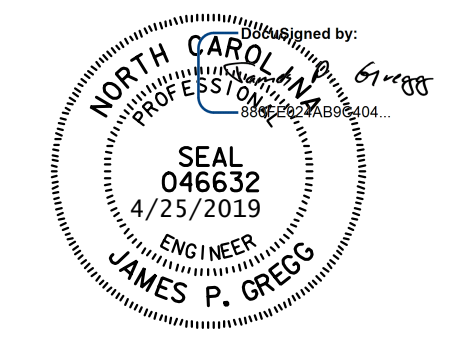
TOTAL SHEETS: 32

ASSEMBLED BY : ERJ
 CHECKED BY : ASK
 DATE : 12/18
 DATE : 12/18
 DRAWN BY : REK 9/87
 CHECKED BY : CRK 10/87
 REV. 7/12
 REV. 6/13
 REV. 12/17
 MAA/GM
 MAA/GM
 MAA/THC

PLAN OF EXPANSION JOINT SEAL

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 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY: E. JOWZA DATE 12/18
 CHECKED BY: A. KANG DATE 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE 3/19
 DWG. NO. 18

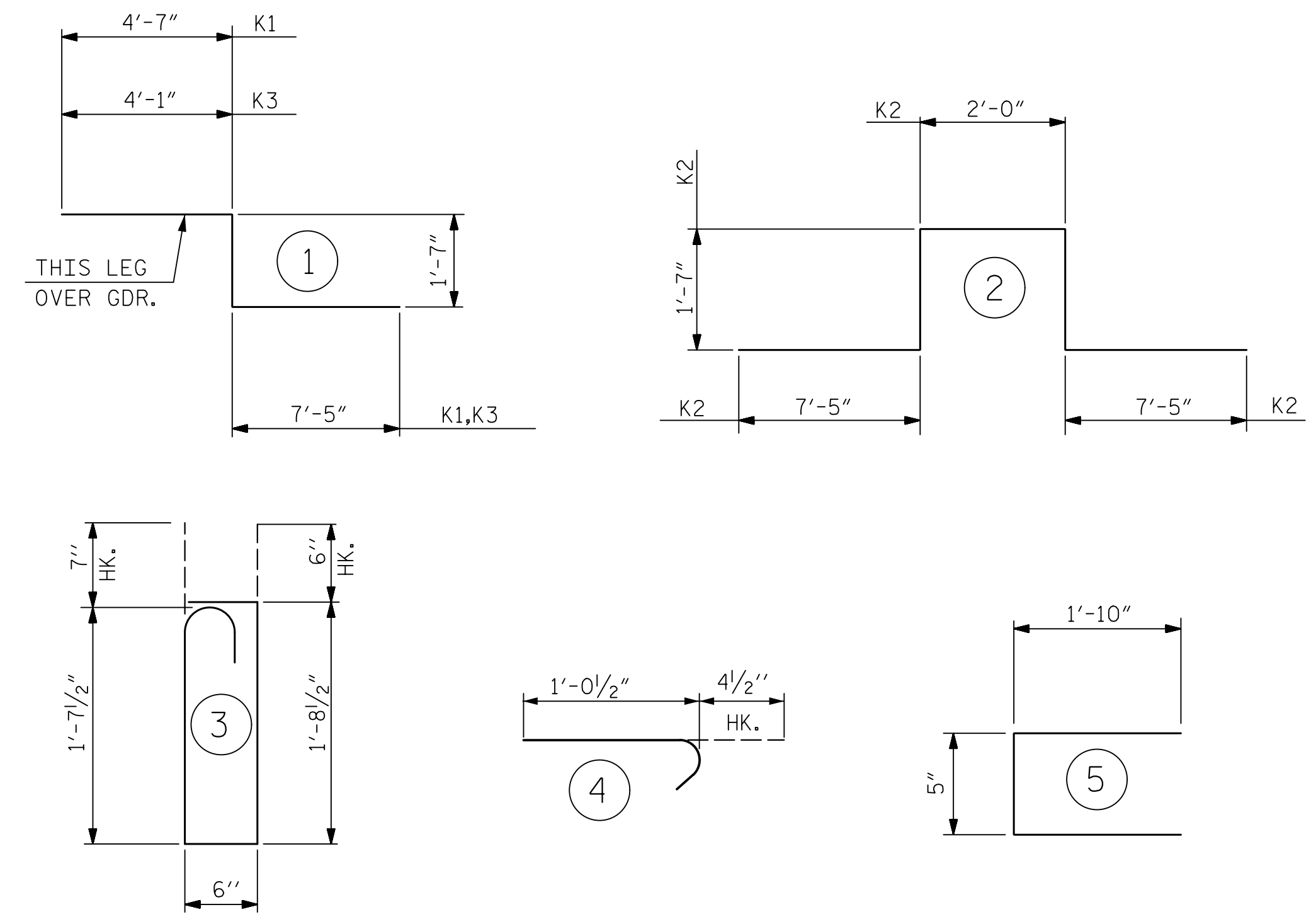


REINFORCING BAR SCHEDULE					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A1	124	5	STR	23'-2"	2,997
* A2	39	5	STR	52'-4"	2,129
* A3	1	5	STR	37'-0"	39
* A4	1	5	STR	36'-2"	38
* A5	1	5	STR	35'-5"	37
* A6	1	5	STR	34'-7"	37
* A7	1	5	STR	33'-10"	36
* A8	1	5	STR	33'-0"	35
* A9	1	5	STR	32'-3"	34
* A10	1	5	STR	31'-6"	33
* A11	1	5	STR	30'-8"	32
* A12	1	5	STR	29'-11"	32
* A13	1	5	STR	29'-1"	31
* A14	1	5	STR	28'-4"	30
* A15	1	5	STR	27'-6"	29
* A16	1	5	STR	26'-9"	28
* A17	1	5	STR	26'-0"	28
* A18	1	5	STR	25'-2"	27
* A19	1	5	STR	24'-5"	26
* A20	1	5	STR	23'-7"	25
* A21	1	5	STR	22'-10"	24
* A22	1	5	STR	22'-0"	23
* A23	1	5	STR	21'-3"	23
* A24	1	5	STR	20'-6"	22
* A25	1	5	STR	19'-8"	21
* A26	1	5	STR	18'-11"	20
* A27	1	5	STR	18'-1"	19
* A28	1	5	STR	17'-4"	19
* A29	1	5	STR	16'-7"	18
* A30	1	5	STR	15'-9"	17
* A31	1	5	STR	15'-0"	16
* A32	1	5	STR	14'-2"	15
* A33	1	5	STR	13'-5"	14
* A34	1	5	STR	12'-7"	14
* A35	1	5	STR	11'-10"	13
* A36	1	5	STR	11'-1"	12
* A37	1	5	STR	10'-3"	11
* A38	1	5	STR	9'-6"	10
* A39	1	5	STR	8'-8"	10
* A40	1	5	STR	7'-11"	9
* A41	1	5	STR	7'-1"	8
* A42	1	5	STR	6'-4"	7
* A43	1	5	STR	5'-7"	6
* A44	1	5	STR	4'-9"	5
* A45	1	5	STR	4'-0"	5
* A46	1	5	STR	51'-4"	54
* A47	1	5	STR	50'-6"	53
* A48	1	5	STR	49'-8"	52
* A49	1	5	STR	48'-11"	52
* A50	1	5	STR	48'-1"	51
* A51	1	5	STR	47'-4"	50
* A52	1	5	STR	46'-6"	49
* A53	1	5	STR	45'-9"	48
* A54	1	5	STR	44'-11"	47
* A55	1	5	STR	44'-2"	47
* A56	1	5	STR	43'-4"	46
* A57	1	5	STR	42'-6"	45
* A58	1	5	STR	41'-9"	44
* A59	1	5	STR	40'-11"	43
* A60	1	5	STR	40'-2"	42
* A61	1	5	STR	39'-4"	42
* A62	1	5	STR	38'-7"	41
* A63	1	5	STR	37'-9"	40
* A64	1	5	STR	37'-0"	39
* A65	1	5	STR	36'-2"	38
* A66	1	5	STR	35'-4"	37
* A67	1	5	STR	34'-7"	37
* A68	1	5	STR	33'-9"	36
* A69	1	5	STR	33'-0"	35
* A70	1	5	STR	32'-2"	34
* A71	1	5	STR	31'-5"	33
* A72	1	5	STR	30'-7"	32
* A73	1	5	STR	29'-10"	32

REINFORCING BAR SCHEDULE					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A74	1	5	STR	29'-0"	31
* A75	1	5	STR	28'-2"	30
* A76	1	5	STR	27'-5"	29
* A77	1	5	STR	26'-7"	28
* A78	1	5	STR	25'-10"	27
* A79	1	5	STR	25'-0"	27
* A80	1	5	STR	24'-3"	26
* A81	1	5	STR	23'-5"	25
* A82	1	5	STR	22'-8"	24
* A83	1	5	STR	21'-10"	23
* A84	1	5	STR	21'-0"	22
* A85	1	5	STR	20'-3"	22
* A86	1	5	STR	19'-5"	21
* A87	1	5	STR	51'-1"	54
* A88	1	5	STR	50'-4"	53
* A89	1	5	STR	49'-6"	52
* A90	1	5	STR	48'-9"	51
* A91	1	5	STR	47'-11"	50
* A92	1	5	STR	47'-2"	50
* A93	1	5	STR	46'-4"	49
* A94	1	5	STR	45'-7"	48
* A95	1	5	STR	44'-9"	47
* A96	1	5	STR	44'-0"	46
* A97	1	5	STR	43'-3"	46
* A98	1	5	STR	42'-5"	45
* A99	1	5	STR	41'-8"	44
* A100	1	5	STR	40'-10"	43
* A101	1	5	STR	40'-1"	42
* A102	1	5	STR	39'-3"	41
* A103	1	5	STR	38'-6"	41
* A104	1	5	STR	37'-8"	40
* A105	1	5	STR	36'-11"	39
* A106	1	5	STR	36'-1"	38
* A107	1	5	STR	35'-4"	37
* A108	1	5	STR	34'-6"	36
* A109	1	5	STR	33'-9"	36
* A110	1	5	STR	32'-11"	35
* A111	1	5	STR	32'-2"	34
* A112	1	5	STR	31'-4"	33
* A113	1	5	STR	30'-7"	32
* A114	1	5	STR	29'-10"	32
* A115	1	5	STR	29'-0"	31
* A116	1	5	STR	28'-3"	30
* A117	1	5	STR	27'-5"	29
* A118	1	5	STR	26'-8"	28
* A119	1	5	STR	25'-10"	27
* A120	1	5	STR	25'-1"	27
* A121	1	5	STR	24'-3"	26
* A122	1	5	STR	23'-6"	25
* A123	1	5	STR	22'-8"	24
* A124	1	5	STR	21'-11"	23
* A125	1	5	STR	21'-1"	22
* A126	1	5	STR	20'-4"	22
* A127	1	5	STR	19'-6"	21
* A128	1	5	STR	18'-9"	20
* A129	1	5	STR	17'-11"	19
* A130	1	5	STR	17'-2"	18
* A131	1	5	STR	39'-3"	41
* A132	1	5	STR	38'-5"	41
* A133	1	5	STR	37'-8"	40
* A134	1	5	STR	36'-10"	39
* A135	1	5	STR	36'-0"	38
* A136	1	5	STR	35'-3"	37
* A137	1	5	STR	34'-5"	36
* A138	1	5	STR	33'-8"	36
* A139	1	5	STR	32'-10"	35
* A140	1	5	STR	32'-0"	34
* A141	1	5	STR	31'-3"	33
* A142	1	5	STR	30'-5"	32
* A143	1	5	STR	29'-8"	31
* A144	1	5	STR	28'-10"	31
* A145	1	5	STR	28'-0"	30
* A146	1	5	STR	27'-3"	29

REINFORCING BAR SCHEDULE					
EPOXY COATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
* A147	1	5	STR	26'-5"	28
* A148	1	5	STR	25'-8"	27
* A149	1	5	STR	24'-10"	26
* A150	1	5	STR	24'-0"	26
* A151	1	5	STR	23'-3"	25
* A152	1	5	STR	22'-5"	24
* A153	1	5	STR	21'-8"	23
* A154	1	5	STR	20'-10"	22
* A155	1	5	STR	20'-0"	21
* A156	1	5	STR	19'-3"	21
* A157	1	5	STR	18'-5"	20
* A158	1	5	STR	17'-8"	19
* A159	1	5	STR	16'-10"	18
* A160	1	5	STR	16'-0"	17
* A161	1	5	STR	15'-3"	16
* A162	1	5	STR	14'-5"	16
* A163	1	5	STR	13'-8"	15
* A164	1	5	STR	12'-10"	14
* A165	1	5	STR	12'-0"	13
* A166	1	5	STR	11'-3"	12
* A167	1	5	STR	10'-5"	11
* A168	1	5	STR	9'-8"	11
* A169	1	5	STR	8'-10"	10
* A170	1	5	STR	8'-0"	9
* A171	1	5	STR	7'-3"	8
* A172	1	5	STR	6'-5"	7
* A173	1	5	STR	5'-8"	6
* A174	1	5	STR	4'-10"	6
* A175	1	5	STR	4'-0"	5
* A176	1	5	STR	3'-3"	4
* A177	6	6	STR	16'-0"	145
* A201	122	5	STR	6'-0"	764
* A202	1	5	STR	4'-4"	5
* A203	1	5	STR	5'-11"	7
* A204	1	5	STR	5'-3"	6
* A205	1	5	STR	3'-8"	4
* B1	153	4	STR	23'-3"	2,377
* G1	2	5	STR	44'-9"	94
* G2	2	5	STR	44'-2"	93
* J1	165	4	4	1'-5"	157
* K1	4	8	1	13'-7"	146
* K2	28	8	2	20'-0"	1,496
* K3	4	8	1	13'-1"	140
* S1	112	5	3	4'-11"	575
* S2	112	4	5	4'-1"	306
EPOXY COATED REINFORCING STEEL TOTAL:					16,542

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

—SUPERSTRUCTURE BILL OF MATERIAL—

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	133.4	18,267	16,542
POUR 2	19.8		
TOTALS**	153.2	18,267	16,542

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. CONCRETE IN CLOSURE POUR AT SLAB EXPANSION JOINTS IS INCLUDED IN POUR 2 QUANTITY.

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

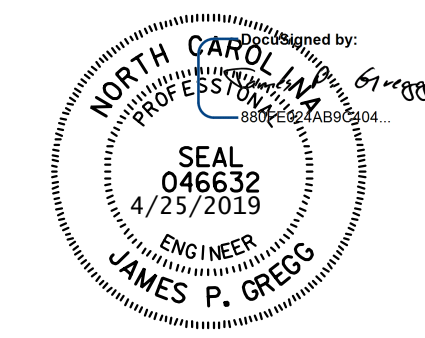
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-1"	1'-9"	2'-1"	1'-9"	2'-9"
#5	2'-7"	2'-2"	2'-7"	2'-2"	3'-5"
#6	3'-1"	2'-7"	3'-10"	2'-7"	4'-4"
#8	6'-10"	4'-7"			

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL
 RIGHT LANE



ASSEMBLED BY : Z. GUO DATE : 12/18
 CHECKED BY : J. PHILLIPS DATE : 12/18
 DRAWN BY : JMB 5/87 REV. 8/16/99 RWW/LES
 CHECKED BY : SJD 9/87 REV. 5/1/06 TLA/GM
 REV. 10/1/11 MAA/GM

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: Z. GUO DATE: 12/18
 CHECKED BY: J. PHILLIPS DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

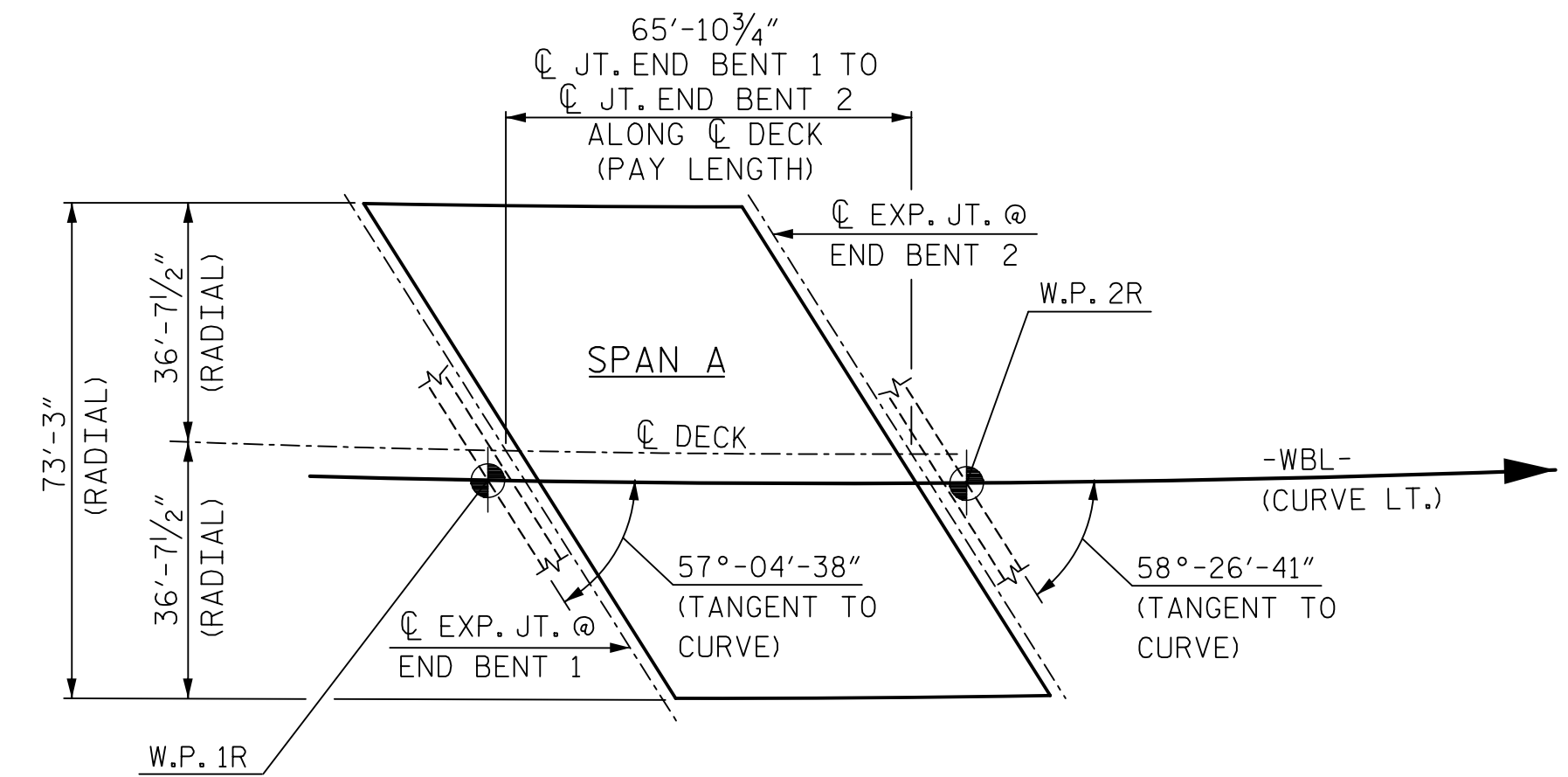
DWG. NO. 19

REVISIONS						SHEET NO. S2-19
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 32
2			4			

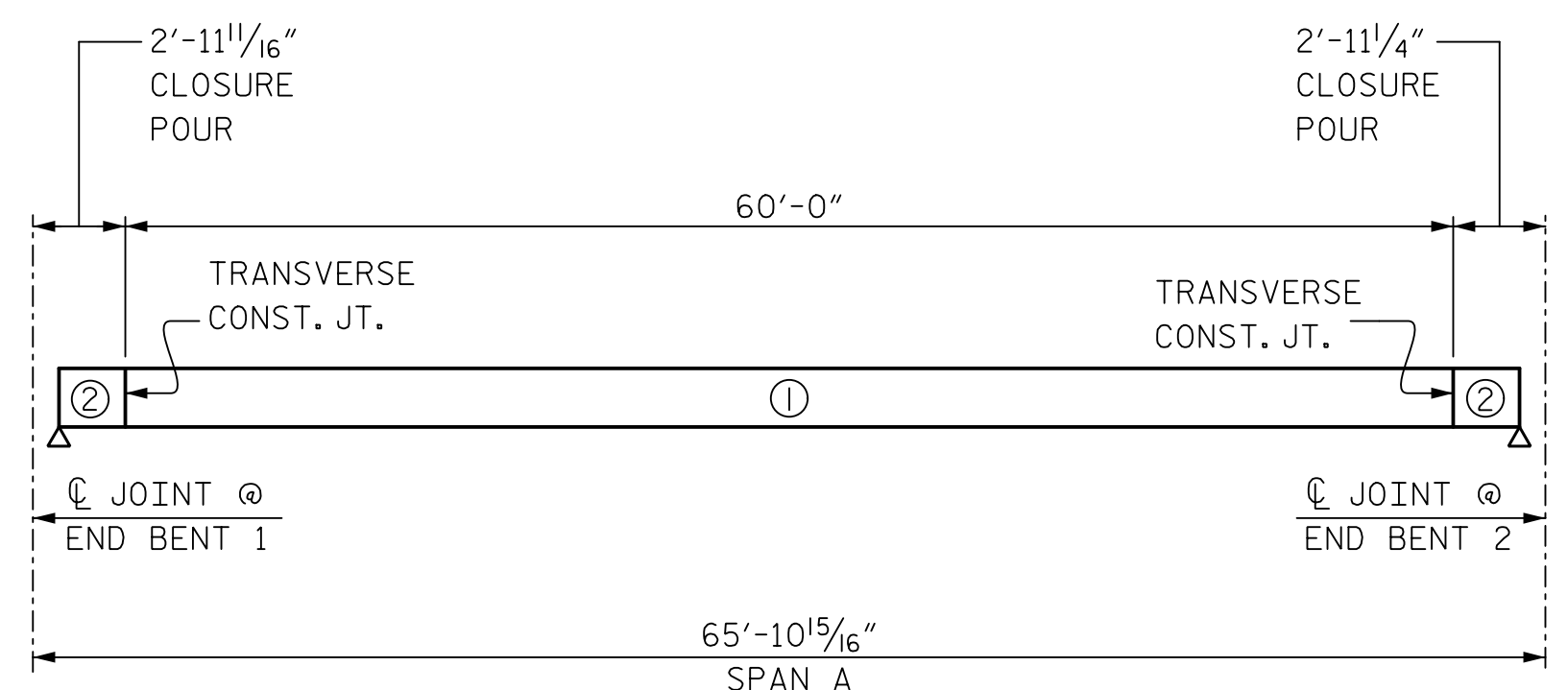
REINFORCING BAR SCHEDULE					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A301	124	5	STR	23'-3"	2,997
A302	39	5	STR	52'-4"	2,129
A303	1	5	STR	37'-7"	40
A304	1	5	STR	36'-9"	39
A305	1	5	STR	36'-0"	38
A306	1	5	STR	35'-2"	37
A307	1	5	STR	34'-5"	36
A308	1	5	STR	33'-7"	36
A309	1	5	STR	32'-10"	35
A310	1	5	STR	32'-0"	34
A311	1	5	STR	31'-3"	33
A312	1	5	STR	30'-6"	32
A313	1	5	STR	29'-8"	31
A314	1	5	STR	28'-11"	31
A315	1	5	STR	28'-1"	30
A316	1	5	STR	27'-4"	29
A317	1	5	STR	26'-7"	28
A318	1	5	STR	25'-9"	27
A319	1	5	STR	25'-0"	27
A320	1	5	STR	24'-2"	26
A321	1	5	STR	23'-5"	25
A322	1	5	STR	22'-7"	24
A323	1	5	STR	21'-10"	23
A324	1	5	STR	21'-1"	22
A325	1	5	STR	20'-3"	22
A326	1	5	STR	19'-6"	21
A327	1	5	STR	18'-8"	20
A328	1	5	STR	17'-11"	19
A329	1	5	STR	17'-1"	18
A330	1	5	STR	16'-4"	18
A331	1	5	STR	15'-7"	17
A332	1	5	STR	14'-9"	16
A333	1	5	STR	14'-0"	15
A334	1	5	STR	13'-2"	14
A335	1	5	STR	12'-5"	13
A336	1	5	STR	11'-7"	13
A337	1	5	STR	10'-10"	12
A338	1	5	STR	10'-1"	11
A339	1	5	STR	9'-3"	10
A340	1	5	STR	8'-6"	9
A341	1	5	STR	7'-8"	8
A342	1	5	STR	6'-11"	8
A343	1	5	STR	6'-1"	7
A344	1	5	STR	5'-4"	6
A345	1	5	STR	4'-6"	5
A346	1	5	STR	51'-11"	55
A347	1	5	STR	51'-1"	54
A348	1	5	STR	50'-3"	53
A349	1	5	STR	49'-6"	52
A350	1	5	STR	48'-8"	51
A351	1	5	STR	47'-11"	50
A352	1	5	STR	47'-1"	50
A353	1	5	STR	46'-4"	49
A354	1	5	STR	45'-6"	48
A355	1	5	STR	44'-9"	47
A356	1	5	STR	43'-11"	46
A357	1	5	STR	43'-1"	45
A358	1	5	STR	42'-4"	45
A359	1	5	STR	41'-6"	44
A360	1	5	STR	40'-9"	43
A361	1	5	STR	39'-11"	42
A362	1	5	STR	39'-2"	41
A363	1	5	STR	38'-4"	40
A364	1	5	STR	37'-7"	40
A365	1	5	STR	36'-9"	39
A366	1	5	STR	36'-0"	38
A367	1	5	STR	35'-2"	37
A368	1	5	STR	34'-4"	36
A369	1	5	STR	33'-7"	36
A370	1	5	STR	32'-9"	35
A371	1	5	STR	32'-0"	34
A372	1	5	STR	31'-2"	33
A373	1	5	STR	30'-5"	32

REINFORCING BAR SCHEDULE					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A374	1	5	STR	29'-7"	31
A375	1	5	STR	28'-10"	31
A376	1	5	STR	28'-0"	30
A377	1	5	STR	27'-2"	29
A378	1	5	STR	26'-5"	28
A379	1	5	STR	25'-7"	27
A380	1	5	STR	24'-10"	26
A381	1	5	STR	24'-0"	26
A382	1	5	STR	23'-3"	25
A383	1	5	STR	22'-5"	24
A384	1	5	STR	21'-8"	23
A385	1	5	STR	20'-10"	22
A386	1	5	STR	20'-0"	21
A387	1	5	STR	51'-9"	54
A388	1	5	STR	50'-11"	54
A389	1	5	STR	50'-2"	53
A390	1	5	STR	49'-4"	52
A391	1	5	STR	48'-7"	51
A392	1	5	STR	47'-9"	50
A393	1	5	STR	47'-0"	50
A394	1	5	STR	46'-2"	49
A395	1	5	STR	45'-5"	48
A396	1	5	STR	44'-7"	47
A397	1	5	STR	43'-10"	46
A398	1	5	STR	43'-0"	45
A399	1	5	STR	42'-3"	45
A400	1	5	STR	41'-5"	44
A401	1	5	STR	40'-8"	43
A402	1	5	STR	39'-11"	42
A403	1	5	STR	39'-1"	41
A404	1	5	STR	38'-4"	40
A405	1	5	STR	37'-6"	40
A406	1	5	STR	36'-9"	39
A407	1	5	STR	35'-11"	38
A408	1	5	STR	35'-2"	37
A409	1	5	STR	34'-4"	36
A410	1	5	STR	33'-7"	36
A411	1	5	STR	32'-9"	35
A412	1	5	STR	32'-0"	34
A413	1	5	STR	31'-2"	33
A414	1	5	STR	30'-5"	32
A415	1	5	STR	29'-7"	31
A416	1	5	STR	28'-10"	31
A417	1	5	STR	28'-1"	30
A418	1	5	STR	27'-3"	29
A419	1	5	STR	26'-6"	28
A420	1	5	STR	25'-8"	27
A421	1	5	STR	24'-11"	26
A422	1	5	STR	24'-1"	26
A423	1	5	STR	23'-4"	25
A424	1	5	STR	22'-6"	24
A425	1	5	STR	21'-9"	23
A426	1	5	STR	20'-11"	22
A427	1	5	STR	20'-2"	22
A428	1	5	STR	19'-4"	21
A429	1	5	STR	18'-7"	20
A430	1	5	STR	17'-9"	19
A431	1	5	STR	39'-9"	42
A432	1	5	STR	39'-0"	41
A433	1	5	STR	38'-2"	40
A434	1	5	STR	37'-5"	40
A435	1	5	STR	36'-7"	39
A436	1	5	STR	35'-9"	38
A437	1	5	STR	35'-0"	37
A438	1	5	STR	34'-2"	36
A439	1	5	STR	33'-5"	35
A440	1	5	STR	32'-7"	34
A441	1	5	STR	31'-9"	34
A442	1	5	STR	31'-0"	33
A443	1	5	STR	30'-2"	32
A444	1	5	STR	29'-5"	31
A445	1	5	STR	28'-7"	30
A446	1	5	STR	27'-10"	30

REINFORCING BAR SCHEDULE					
UNCOATED REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)
A447	1	5	STR	27'-0"	29
A448	1	5	STR	26'-2"	28
A449	1	5	STR	25'-5"	27
A450	1	5	STR	24'-7"	26
A451	1	5	STR	23'-9"	25
A452	1	5	STR	23'-0"	24
A453	1	5	STR	22'-2"	24
A454	1	5	STR	21'-5"	23
A455	1	5	STR	20'-7"	22
A456	1	5	STR	19'-9"	21
A457	1	5	STR	19'-0"	20
A458	1	5	STR	18'-2"	19
A459	1	5	STR	17'-5"	19
A460	1	5	STR	16'-7"	18
A461	1	5	STR	15'-9"	17
A462	1	5	STR	15'-0"	16
A463	1	5	STR	14'-2"	15
A464	1	5	STR	13'-5"	14
A465	1	5	STR	12'-7"	14
A466	1	5	STR	11'-9"	13
A467	1	5	STR	11'-0"	12
A468	1	5	STR	10'-2"	11
A469	1	5	STR	9'-5"	10
A470	1	5	STR	8'-7"	9
A471	1	5	STR	7'-9"	9
A472	1	5	STR	7'-0"	8
A473	1	5	STR	6'-2"	7
A474	1	5	STR	5'-5"	6
A475	1	5	STR	4'-7"	5
A476	1	5	STR	3'-10"	4
B101	294	5	STR	23'-3"	7,130
K4	6	6	STR	44'-9"	404
K5	6	6	STR	44'-2"	399
REINFORCING STEEL TOTAL:					18,267



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4,827)



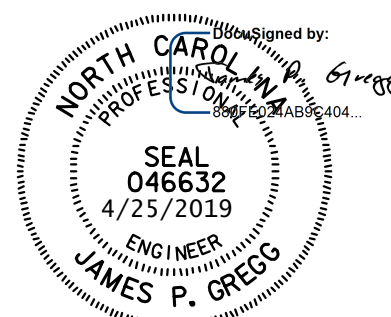
POURING SEQUENCE

NOTE: ALL DIMENSIONS ARE ALONG CONTROL LINE AND ARE ARC DIMENSIONS.

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

GROOVING BRIDGE FLOORS	
APPROACH SLABS	5,003 SQ.FT.
BRIDGE DECK	4,389 SQ.FT.
TOTAL	9,392 SQ.FT.

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD SUPERSTRUCTURE BILL OF MATERIAL
 RIGHT LANE

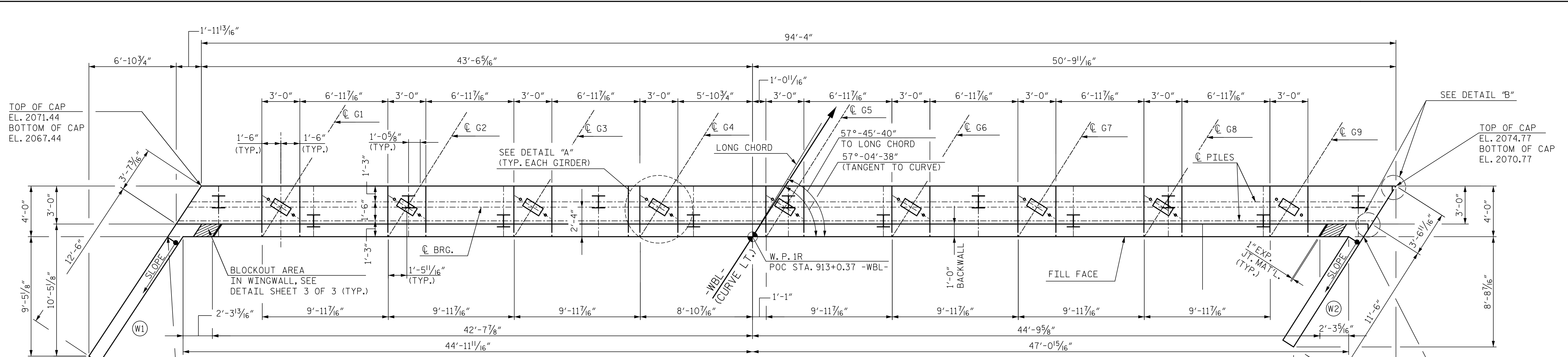
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CHECKED BY : J. PHILLIPS	DATE : 12/18
DRAWN BY : JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

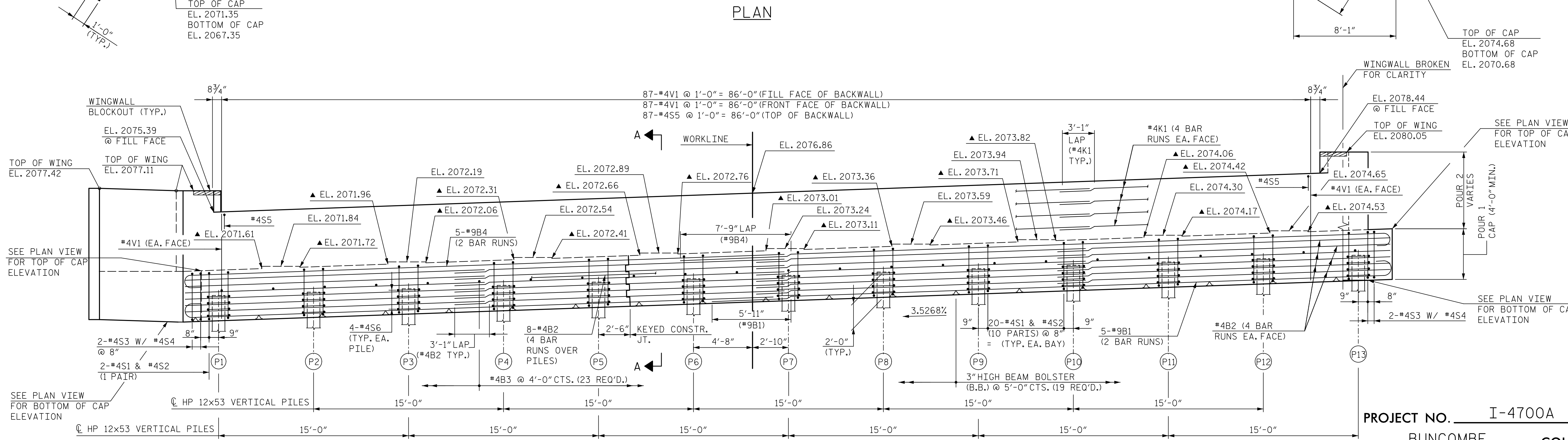
HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : Z. GUO	DATE : 12/18
CHECKED BY : J. PHILLIPS	DATE : 12/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19

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

STD. NO. BOM2



PLAN



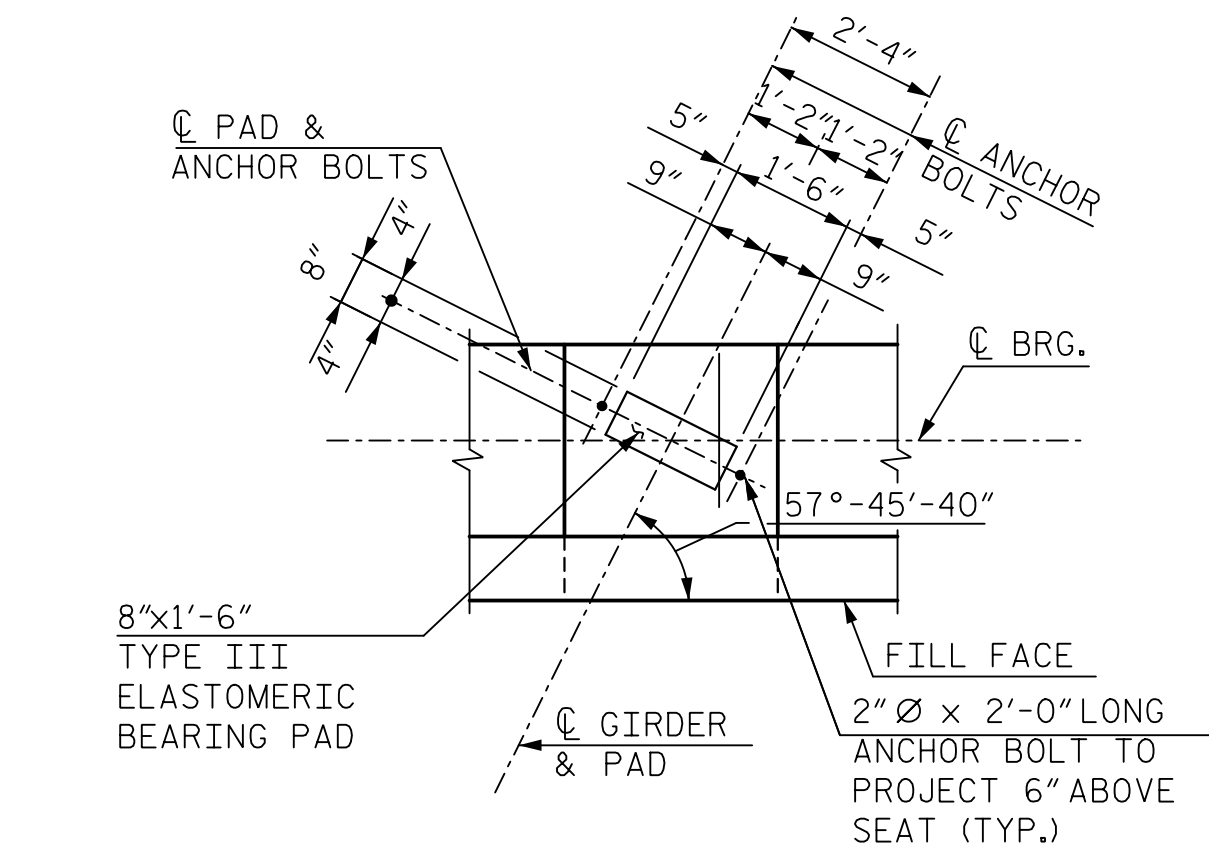
ELEVATION

▲ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEATS, SEE SECTION A-A, SHEET 2 OF 3.

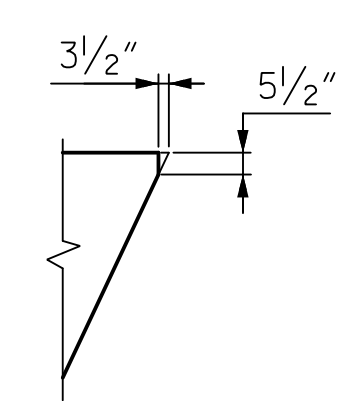
NOTES:

- FOR NOTES AND PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
- FOR WINGWALL DETAILS AND SECTION A-A, SEE SHEET 2 OF 3.
- FOR KEYED CONSTRUCTION JOINT DETAIL, SEE SHEET 3 OF 3.

TOP OF PILE ELEVATIONS													
PILE	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13
ELEVATION	2069.49	2069.76	2070.02	2070.29	2070.55	2070.82	2071.08	2071.34	2071.61	2071.87	2072.14	2072.40	2072.67



DETAIL A



DETAIL B

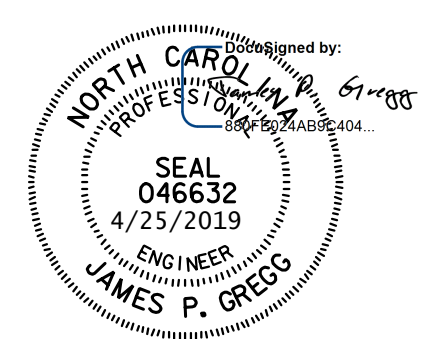
PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1
 RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-21
1			3			TOTAL SHEETS
2			4			32

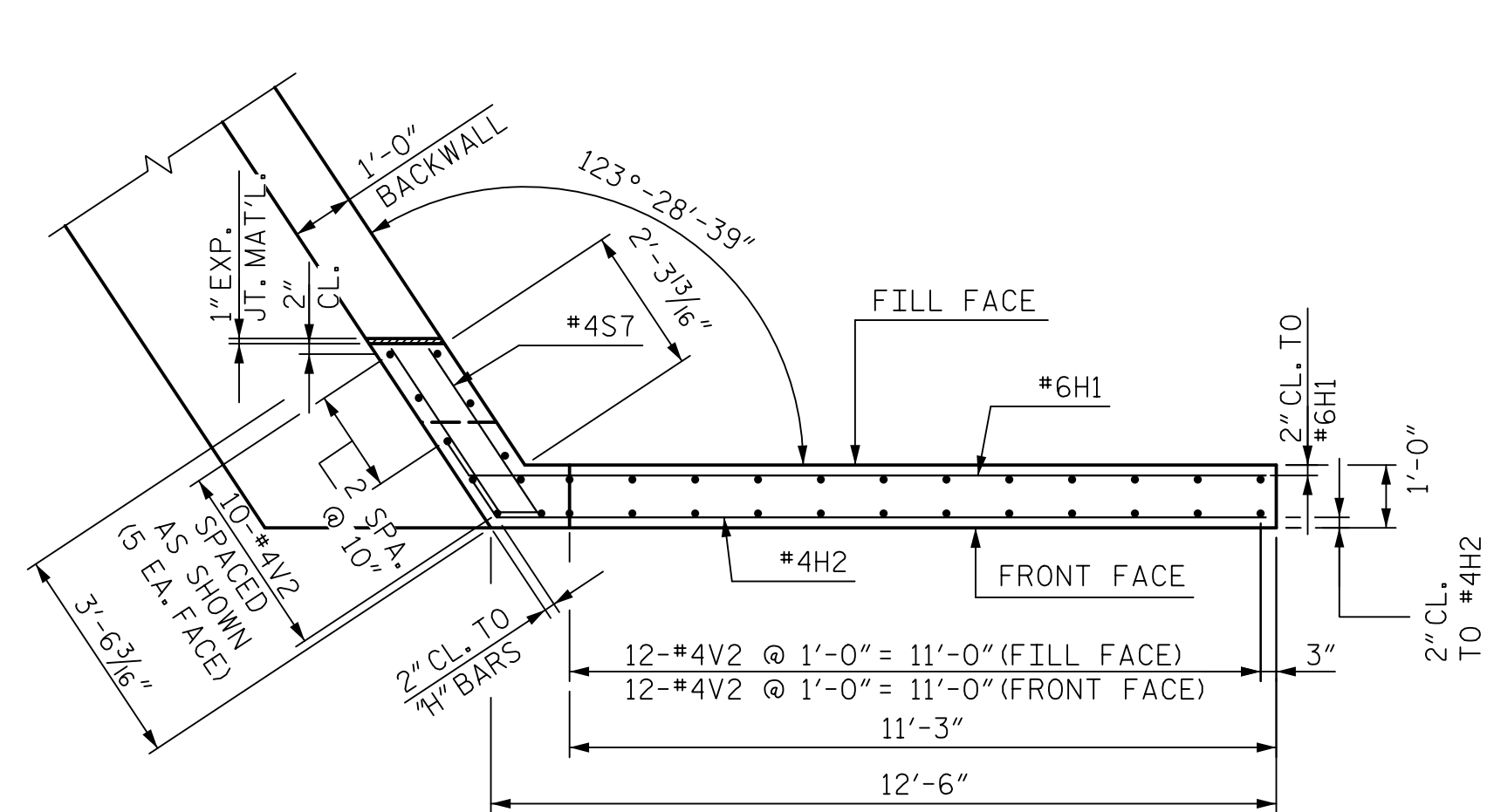


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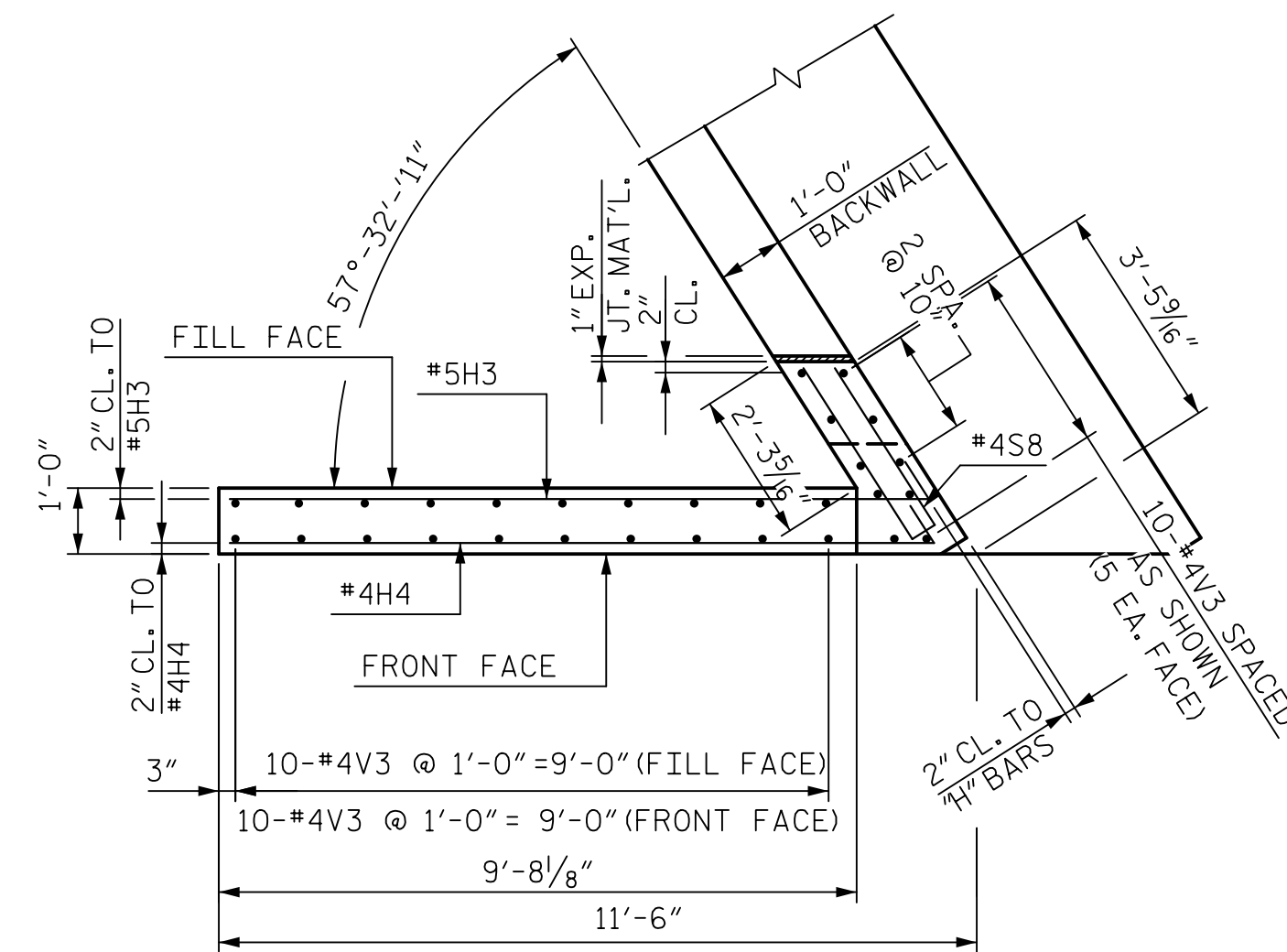
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: Z. GUO DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 21

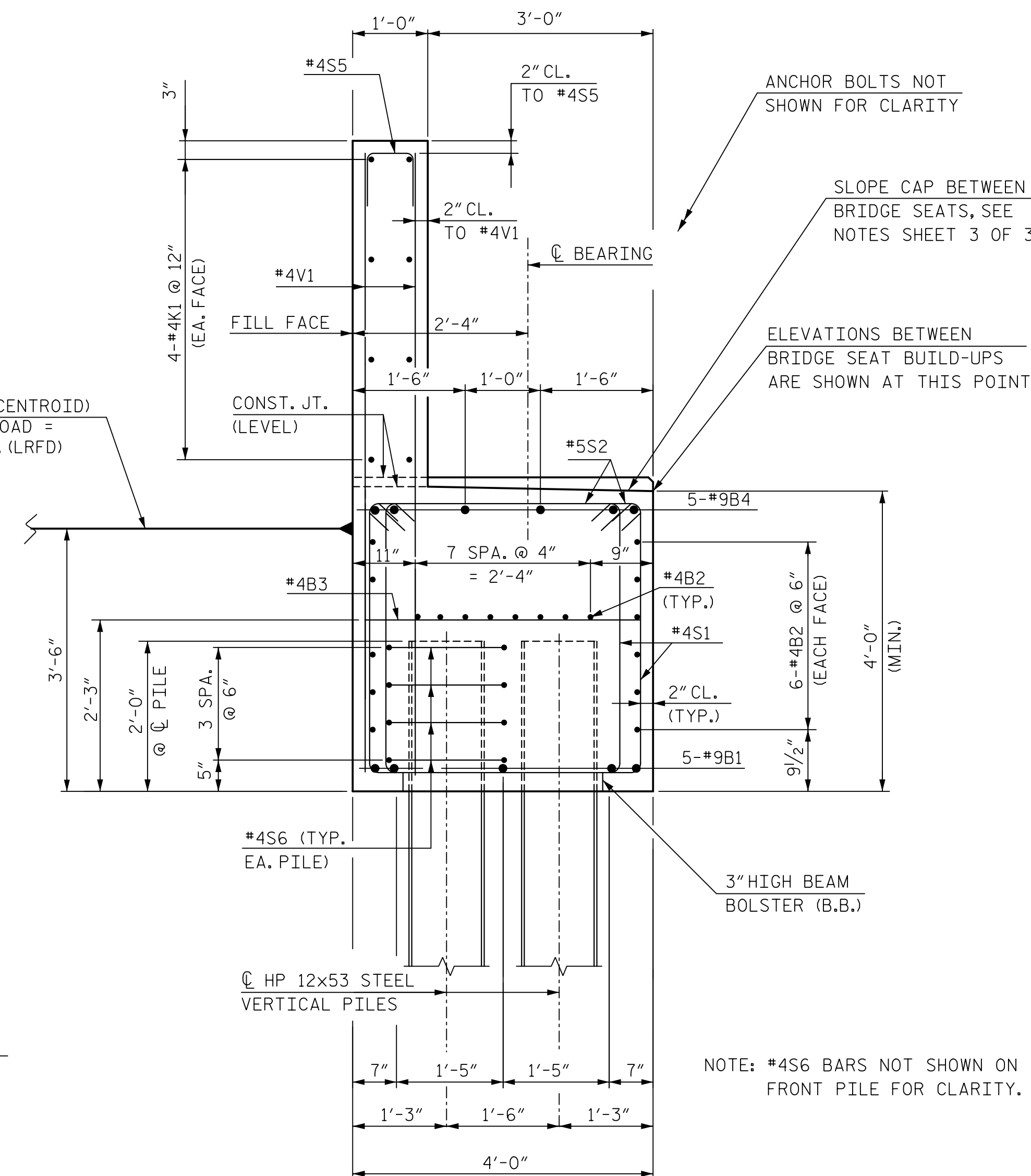


PLAN OF WING (W1)



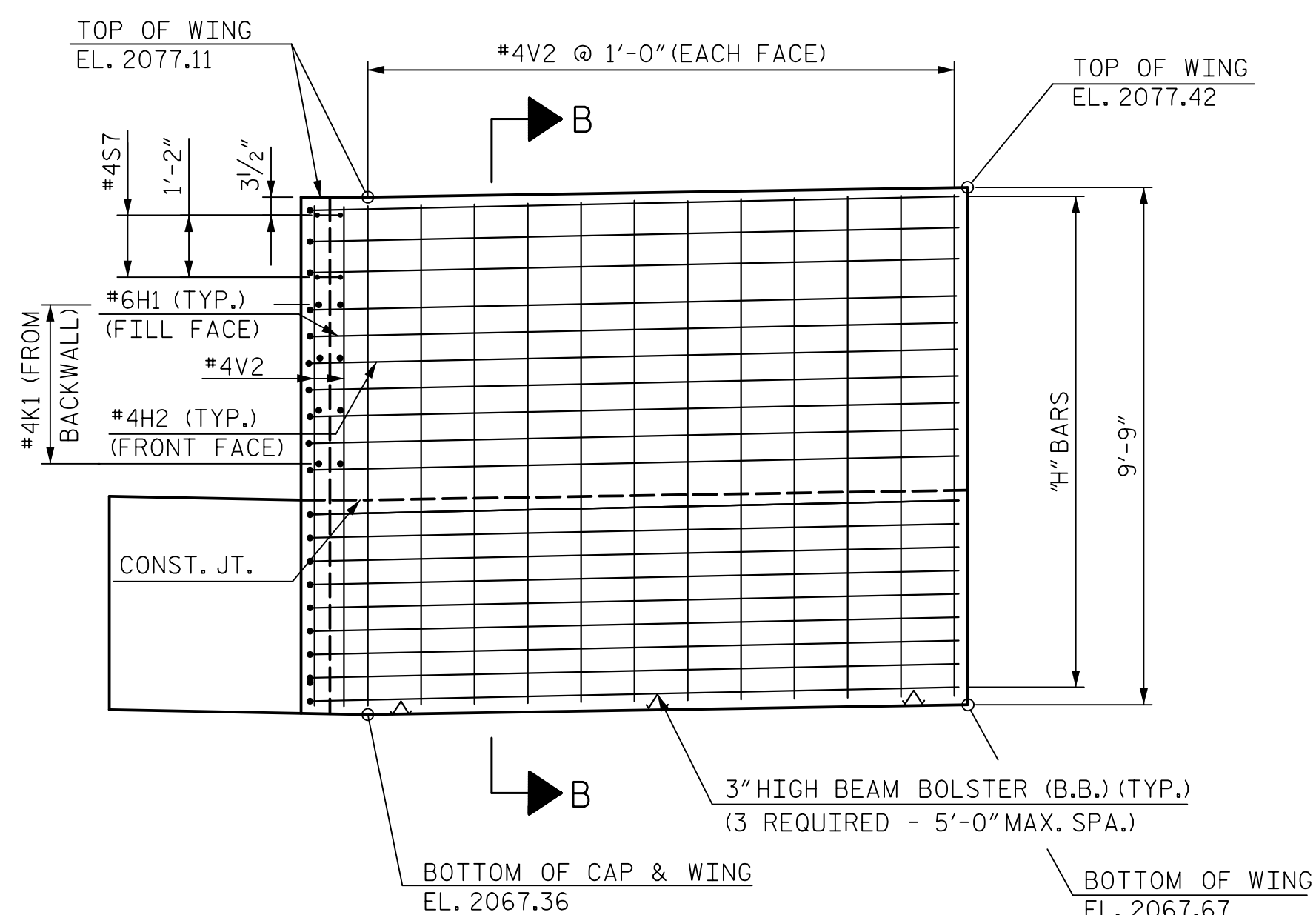
PLAN OF WING (W2)

STRAPS (CENTROID)
DESIGN LOAD =
3.0 k/ft. (LRFD)

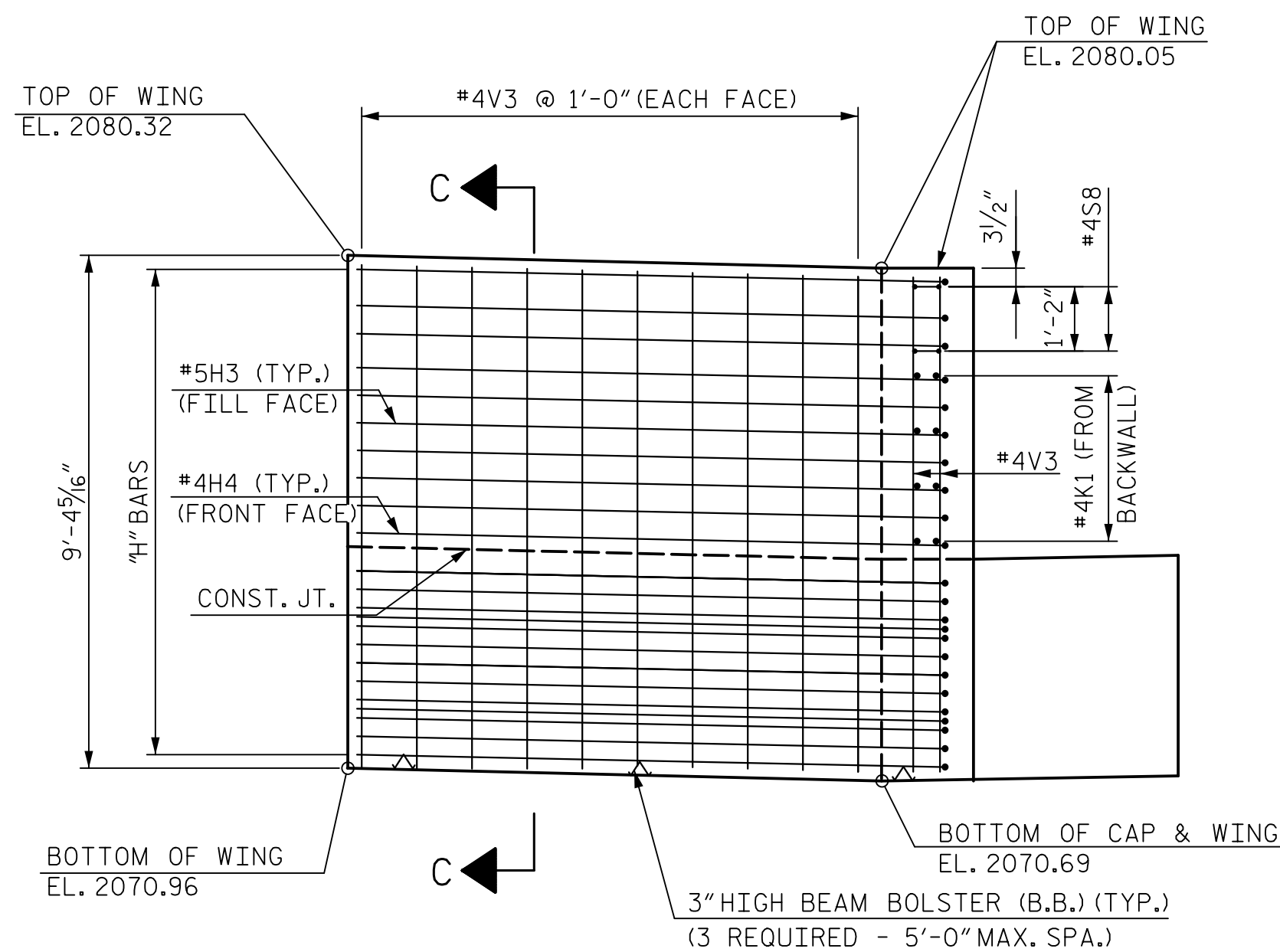


SECTION A-A

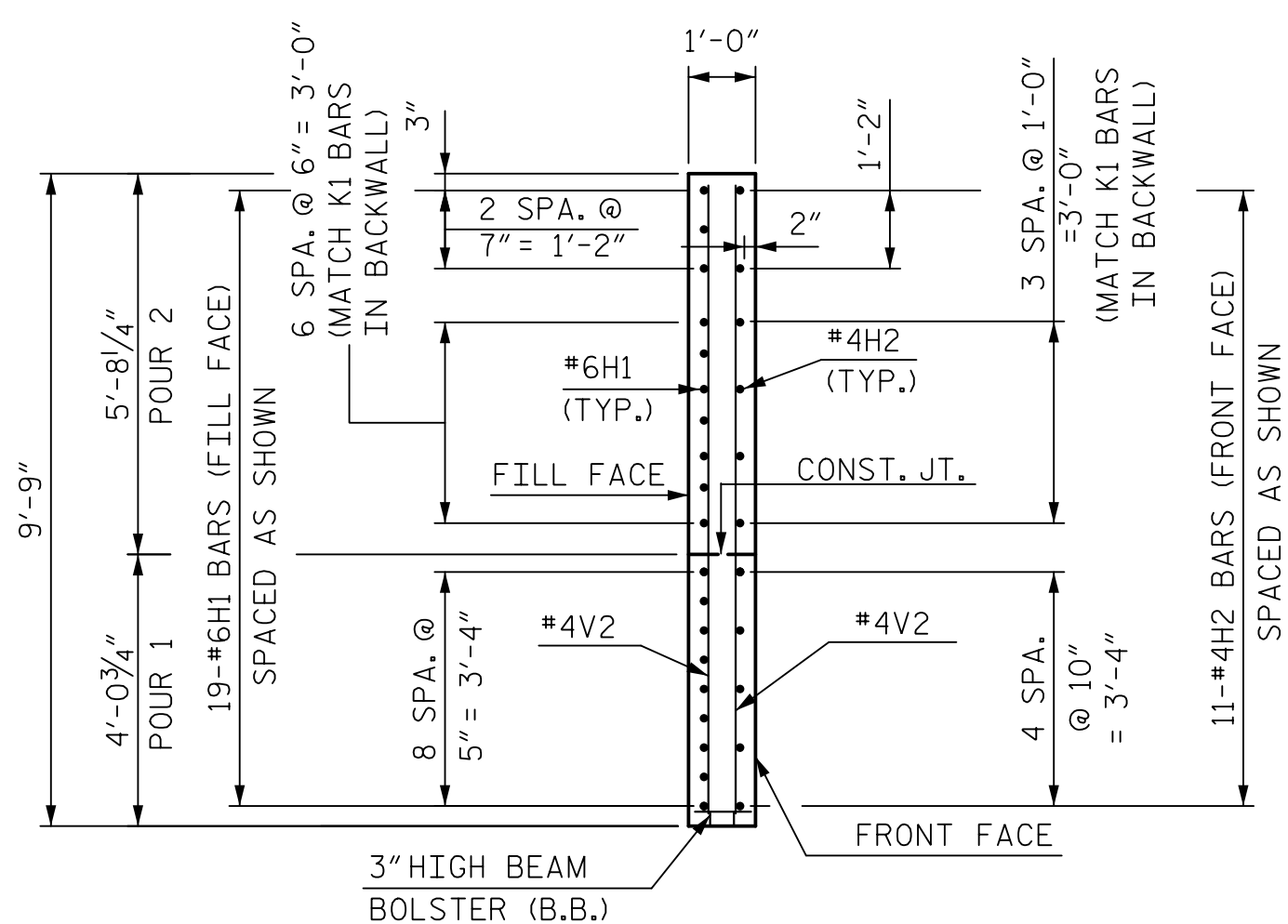
NOTES:
FOR NOTES, SEE SHEET 3 OF 3.
FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.



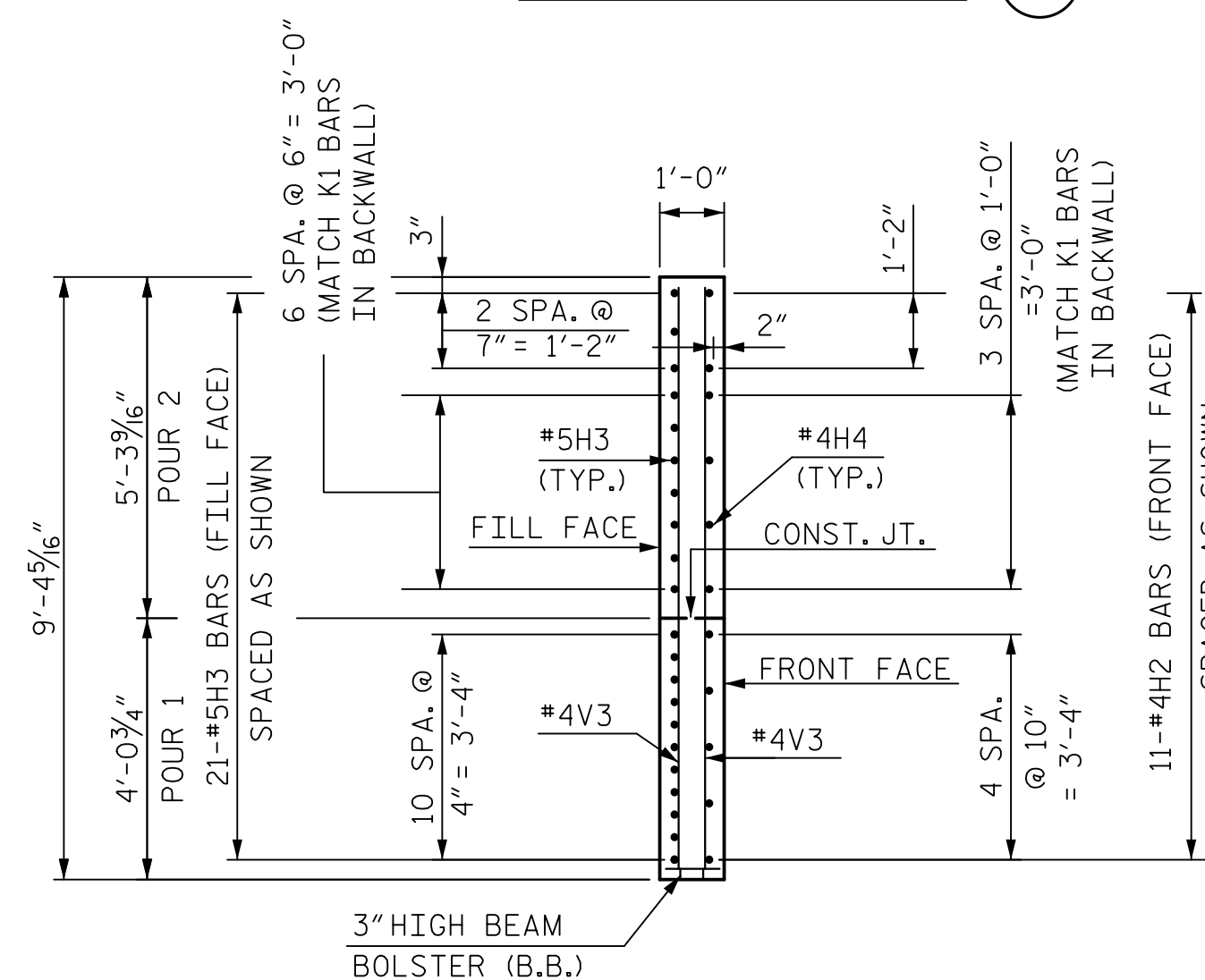
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

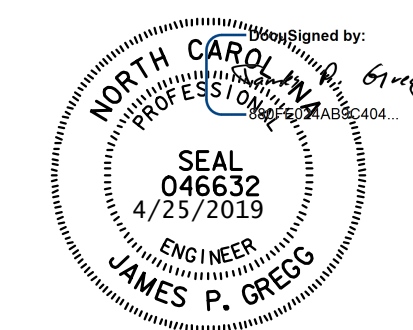


SECTION B-B



SECTION C-C

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

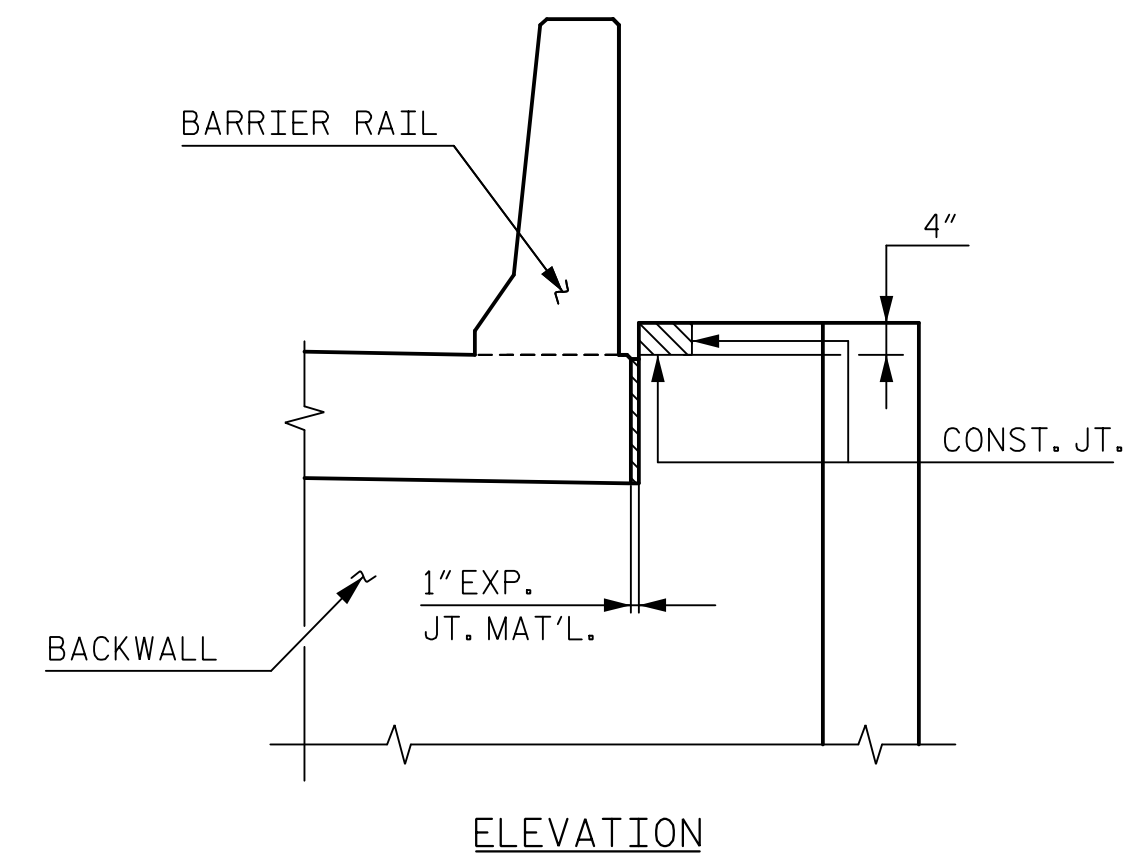
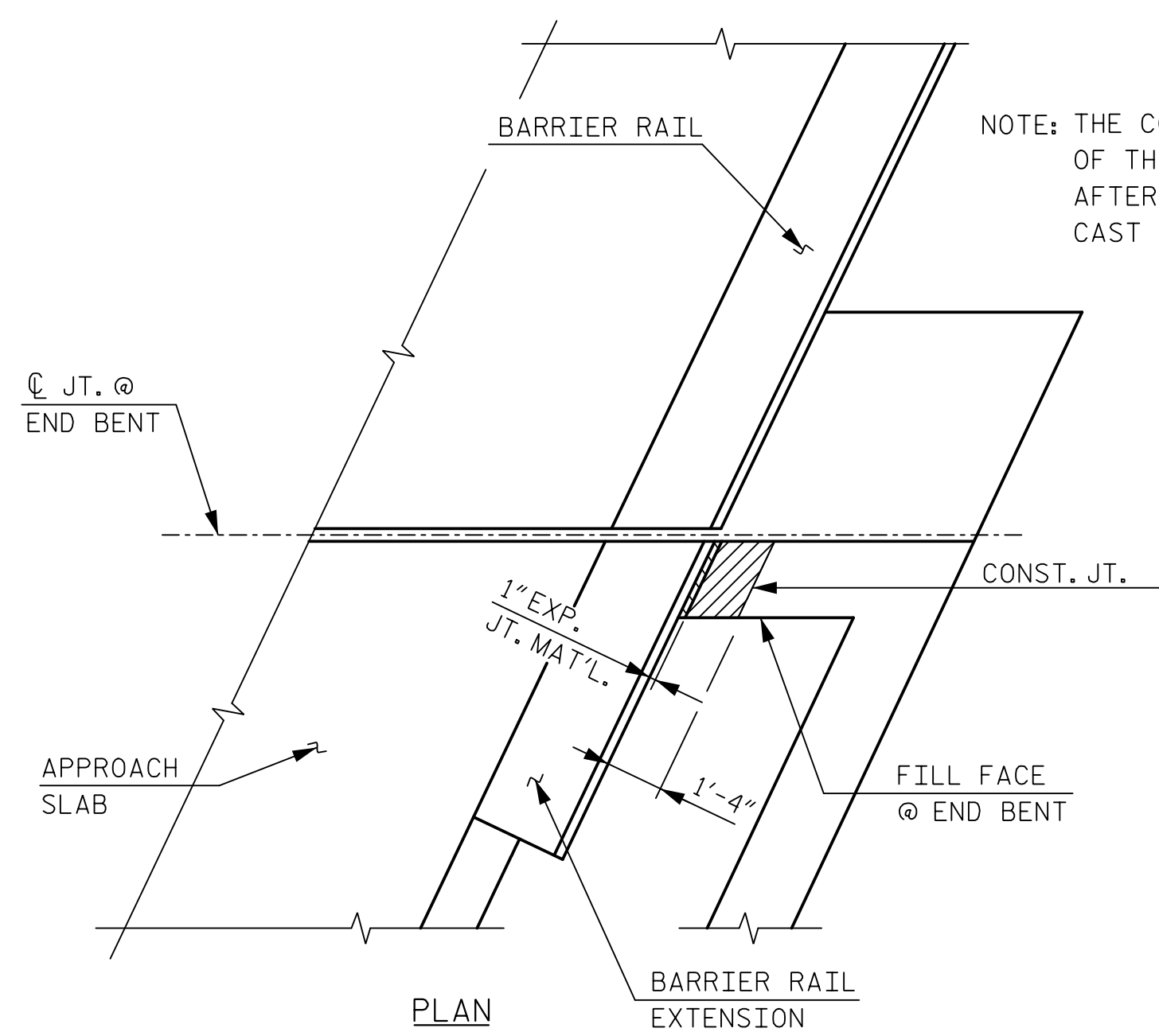


HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609																	
DRAWN BY: Z. GUO	DATE: 12/18	DWG. NO. 22	<table border="1"> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>BY</th> <th>DATE</th> <th>NO.</th> </tr> <tr> <td>1</td> <td>B. NEUPANE</td> <td>12/18</td> <td>3</td> </tr> <tr> <td>2</td> <td>J. GREGG</td> <td>3/19</td> <td>4</td> </tr> </table>	REVISIONS				NO.	BY	DATE	NO.	1	B. NEUPANE	12/18	3	2	J. GREGG	3/19	4
REVISIONS																			
NO.	BY			DATE	NO.														
1	B. NEUPANE	12/18	3																
2	J. GREGG	3/19	4																
CHECKED BY: B. NEUPANE	DATE: 12/18																		
DESIGN ENGINEER OF RECORD: J. GREGG	DATE: 3/19																		

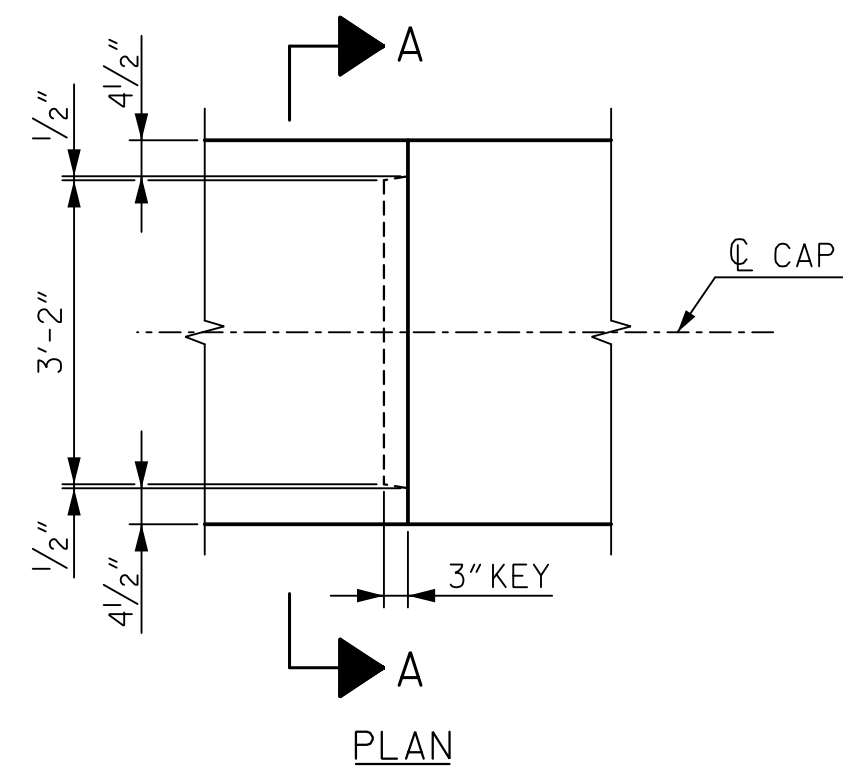
PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-

SHEET 2 OF 3

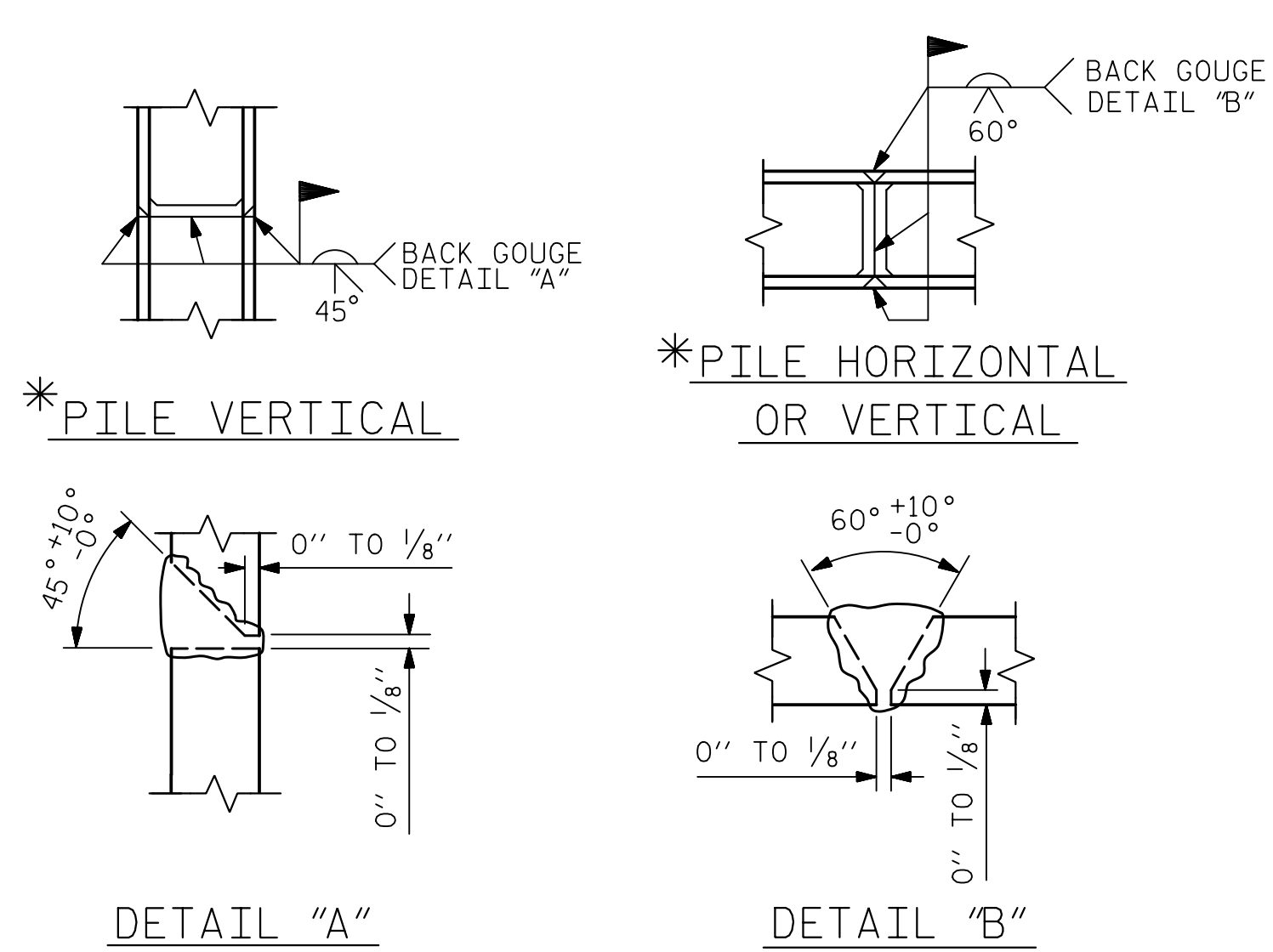
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH							
SUBSTRUCTURE							
END BENT 1							
RIGHT LANE							
NO.		BY		DATE		SHEET NO.	
1		3		4		S2-22	
2		4				TOTAL SHEETS 32	



BLOCKOUT IN WINGWALL



KEYED CONSTRUCTION JOINT DETAILS

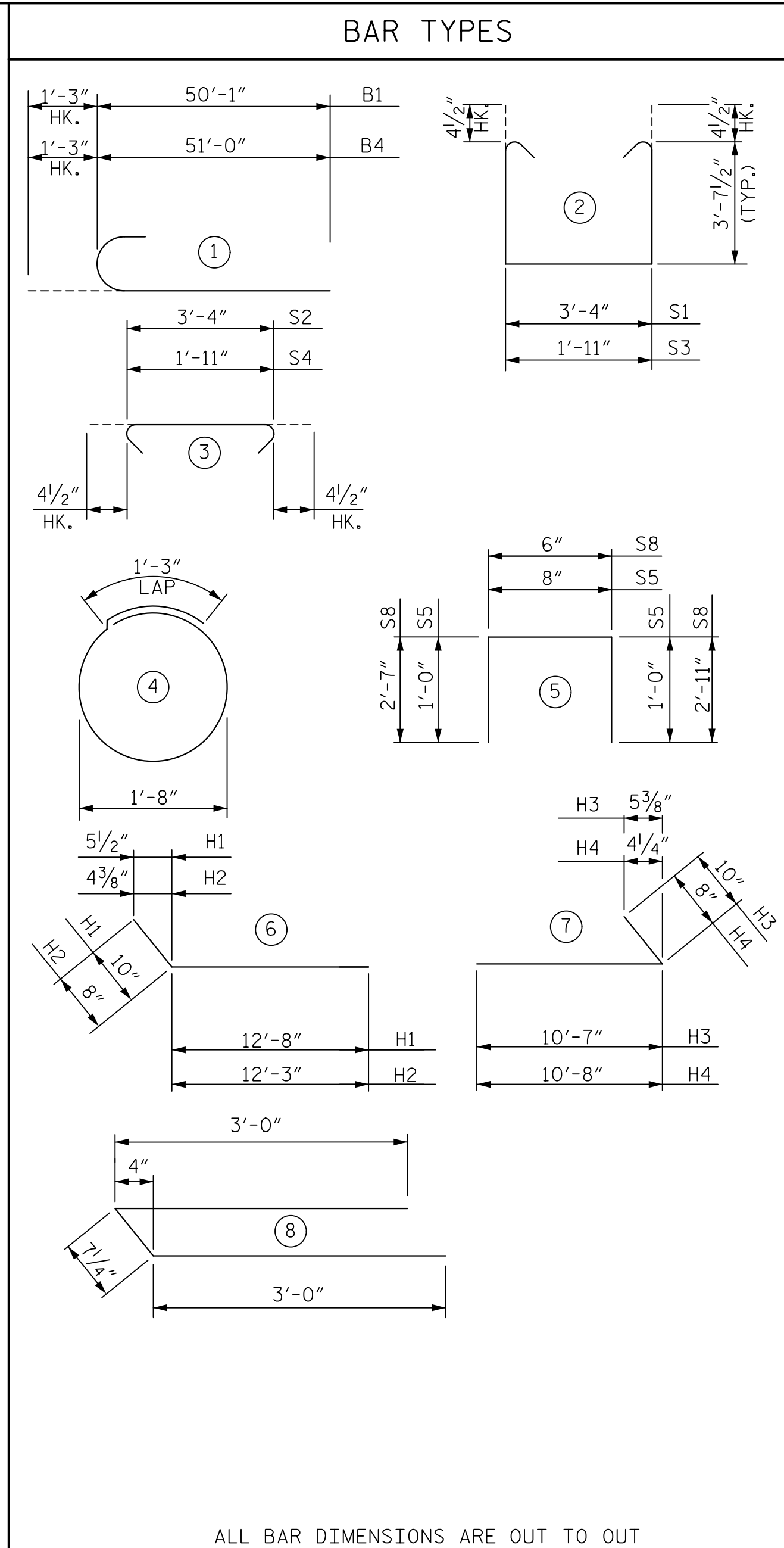


* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

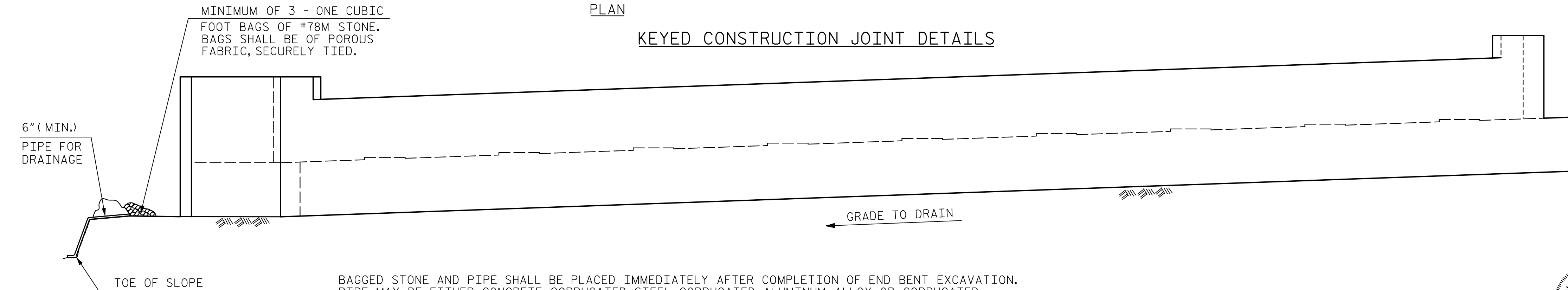
NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.



BILL OF REINFORCING					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9		51'-4"	1,745
B2	80	4	STR.	25'-10"	1,381
B3	23	4	STR.	3'-8"	56
B4	12	9		52'-3"	2,132
H1	19	6		13'-6"	385
H2	11	4		12'-11"	95
H3	21	5		11'-5"	250
H4	11	4		11'-4"	83
K1	32	4	STR.	25'-10"	552
S1	242	4		11'-4"	1,832
S2	242	4		4'-1"	660
S3	4	4		9'-11"	26
S4	4	4		2'-8"	7
S5	87	4		2'-8"	155
S6	52	4		6'-6"	226
S7	2	4		6'-7"	9
S8	2	4		6'-0"	8
V1	174	4	STR.	7'-4"	852
V2	34	4	STR.	9'-4"	212
V3	30	4	STR.	8'-11"	179

QUANTITIES		
REINFORCING STEEL	LBS.	10,801
CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP & BOT. OF WINGS	CU. YDS.	60.4
POUR 2 - TOP OF WINGS & BACKWALL	CU. YDS.	17.8
TOTAL	CU. YDS.	78.2
HP 12x53 STEEL PILES	NO.	13
	LIN. FT.	1,008
PILE DRIVING EQUIPMENT SETUP	NO.	13



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 FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT 1

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

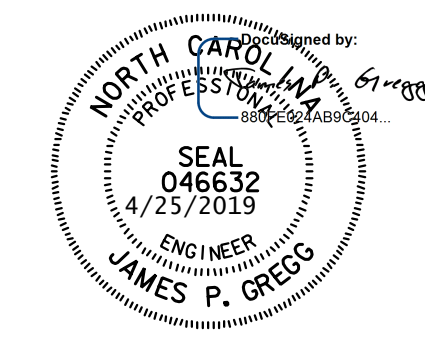
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT 1

RIGHT LANE



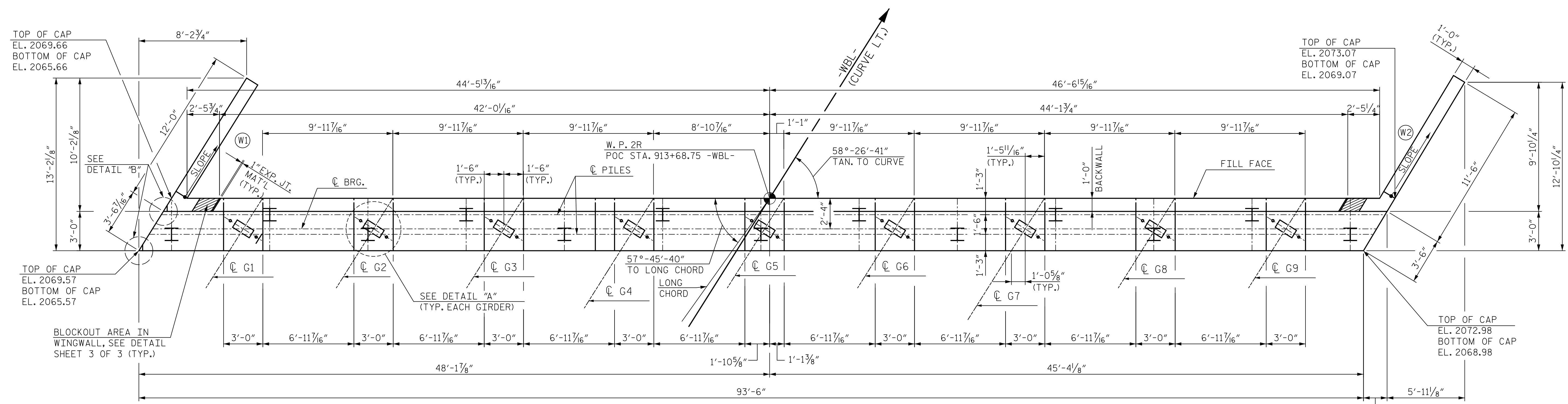
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DRAWN BY: Z. GUO DATE: 12/18
 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

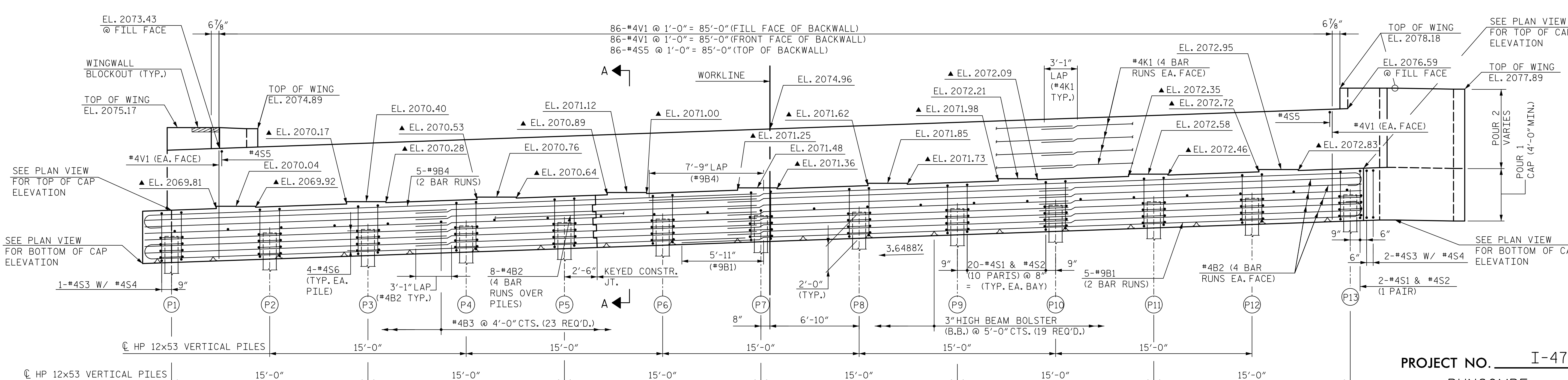
DWG. NO. 23

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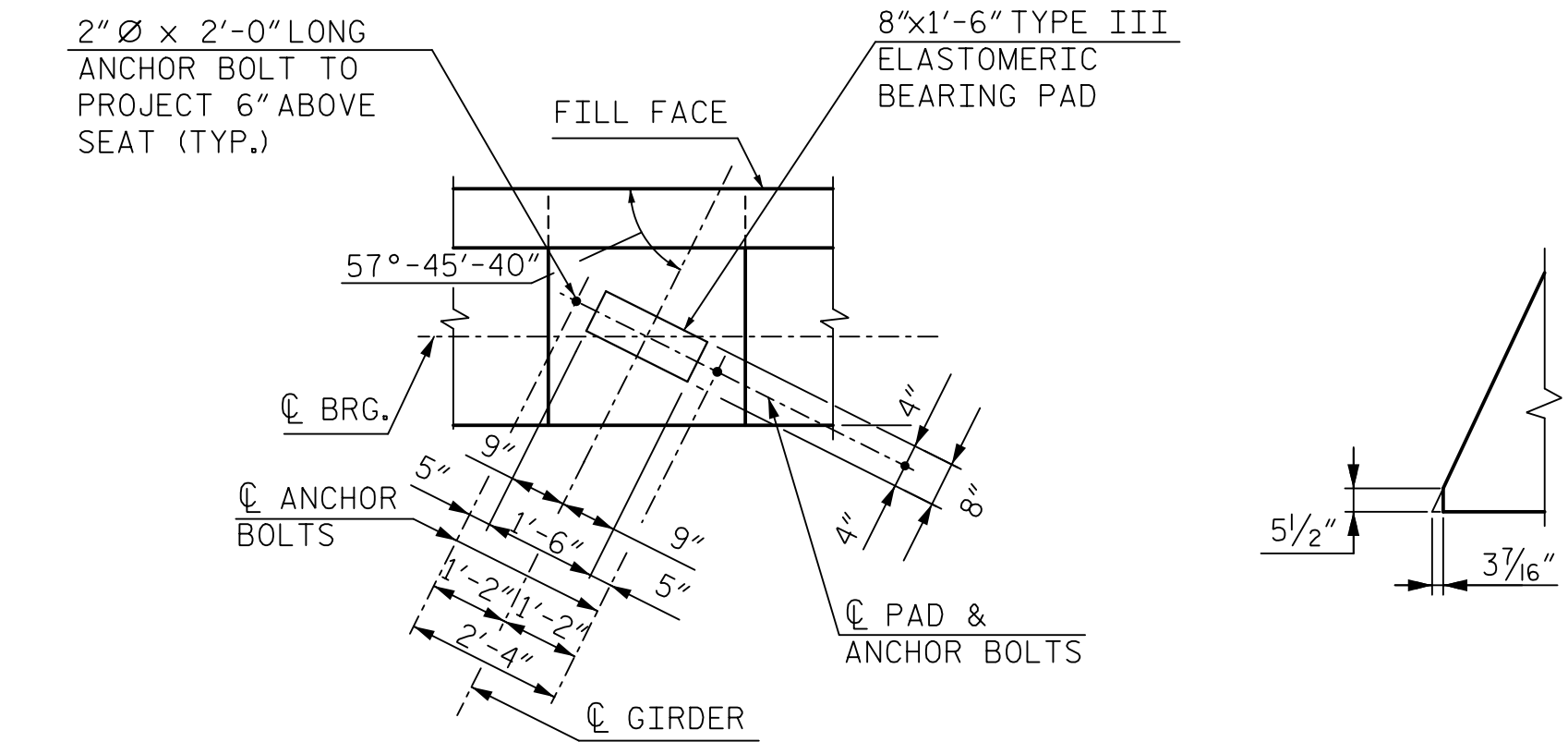
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-23
1			3			TOTAL SHEETS
2			4			32



PLAN



ELEVATION



DETAIL A

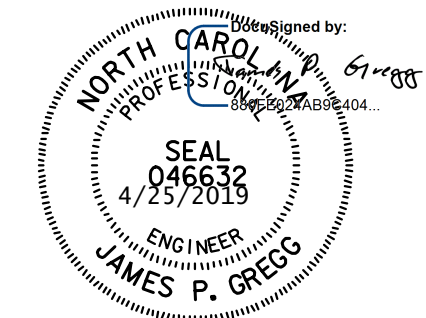
DETAIL B

▲ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEATS, SEE SECTION A-A, SHEET 2 OF 3.

NOTES:

- FOR NOTES AND PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
- FOR WINGWALL DETAILS AND SECTION A-A, SEE SHEET 2 OF 3.
- FOR KEYED CONSTRUCTION JOINT DETAIL, SEE SHEET 3 OF 3.

TOP OF PILE ELEVATIONS													
PILE	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13
ELEVATION	2067.66	2067.94	2068.21	2068.48	2068.76	2069.03	2069.30	2069.58	2069.85	2070.13	2070.40	2070.67	2070.95



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 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 24

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

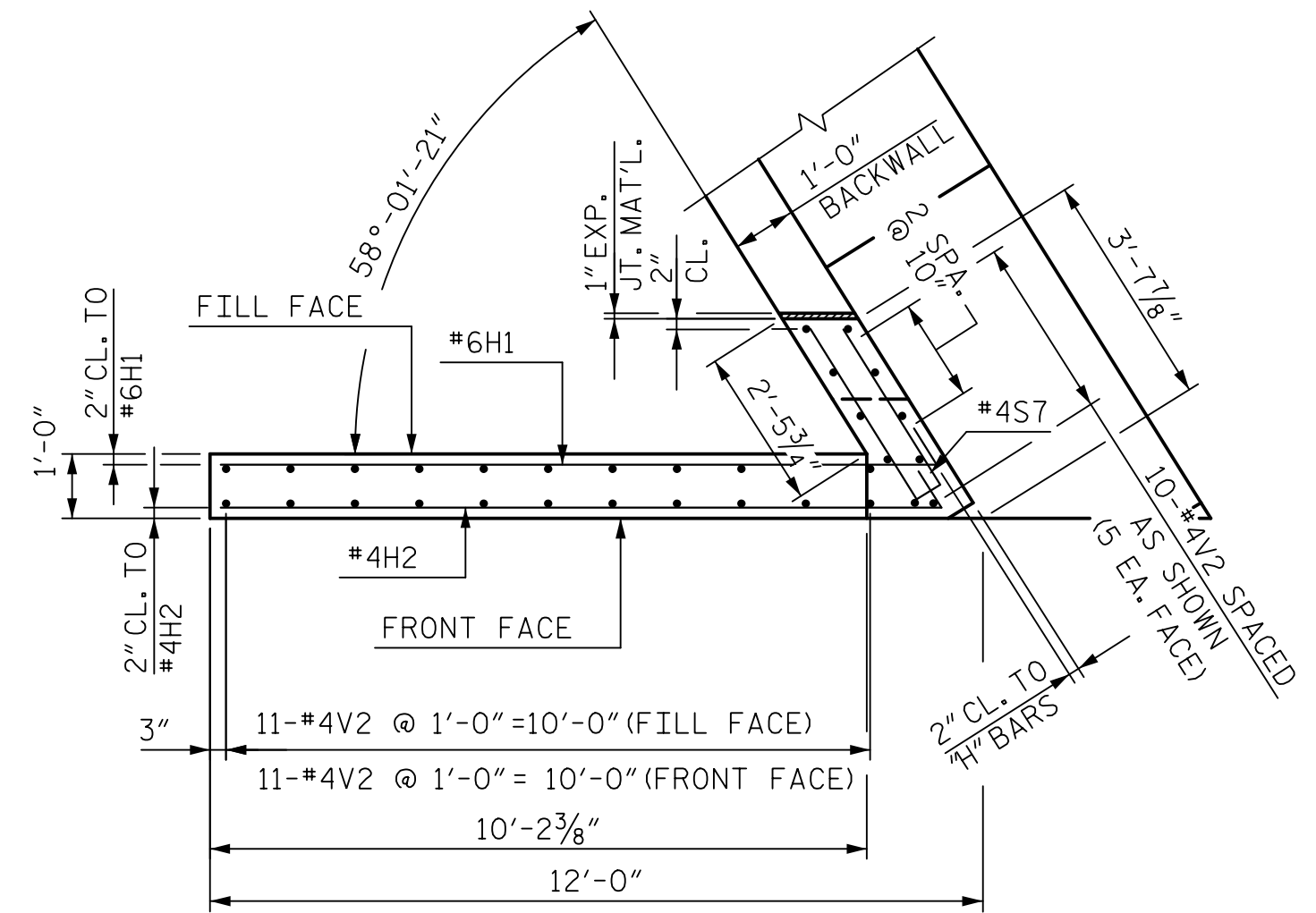
END BENT 2

RIGHT LANE

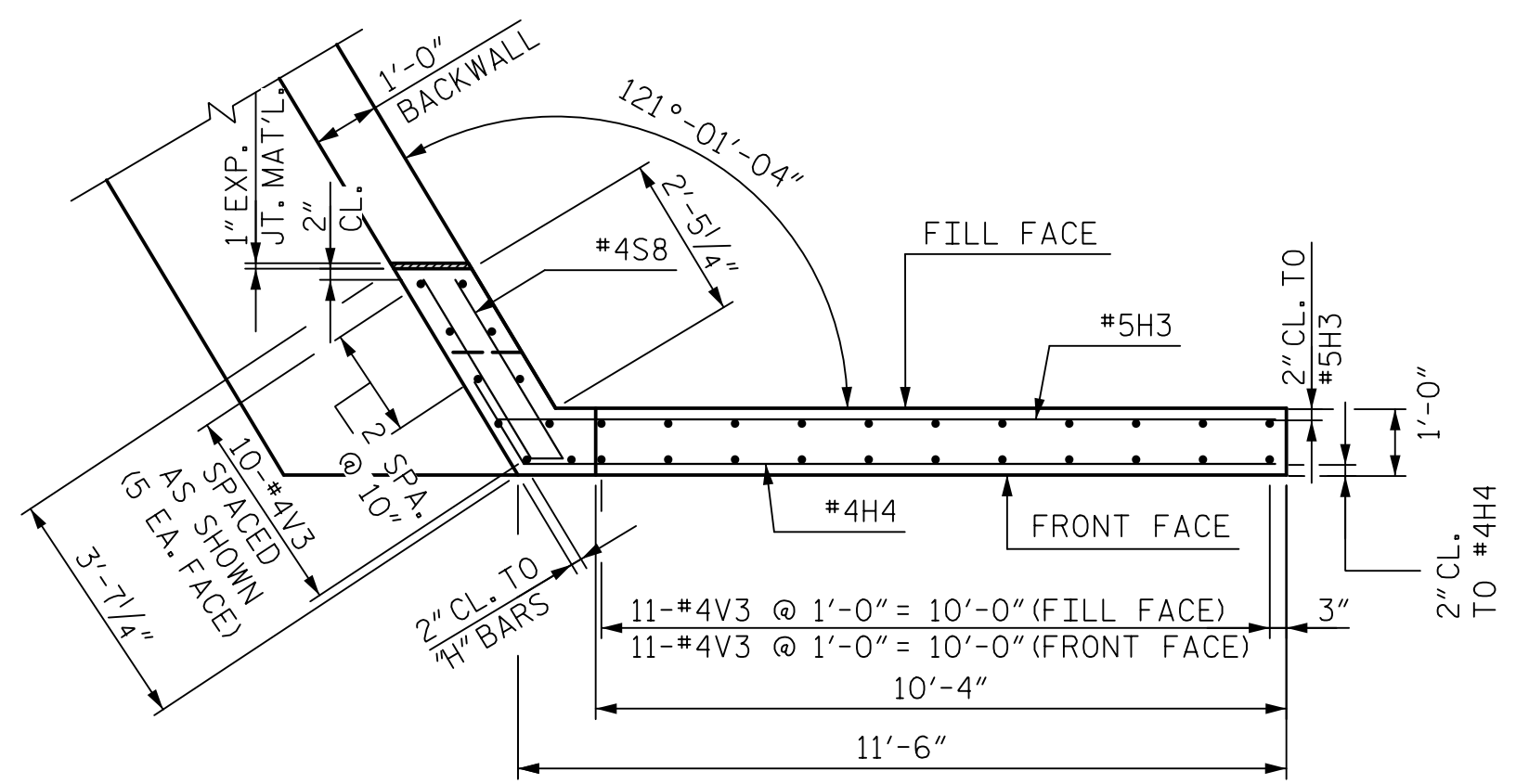
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S2-24
 TOTAL SHEETS 32

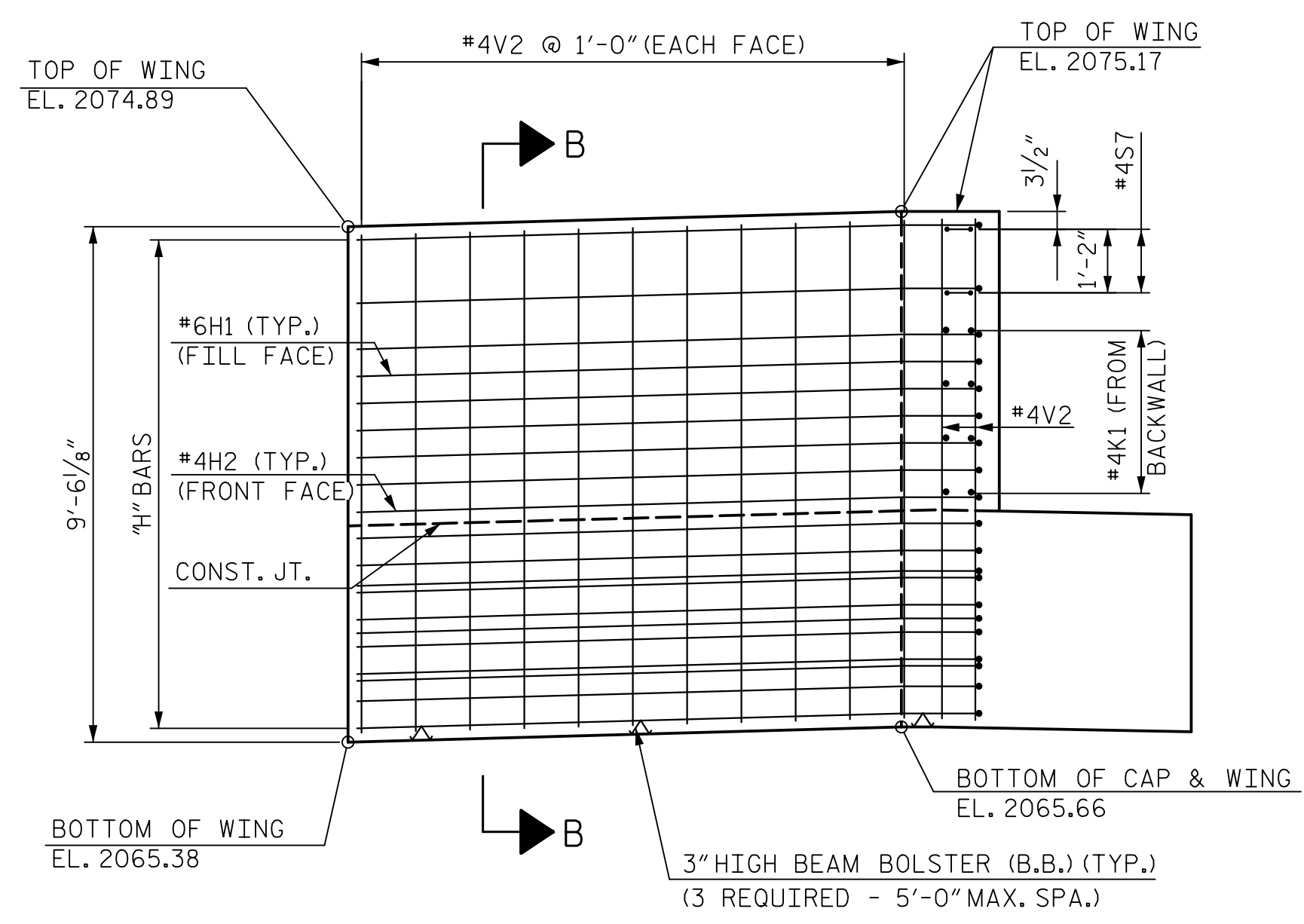
NOTES:
 FOR NOTES, SEE SHEET 3 OF 3.
 FOR BLOCKOUT IN WINGWALL, SEE SHEET 3 OF 3.



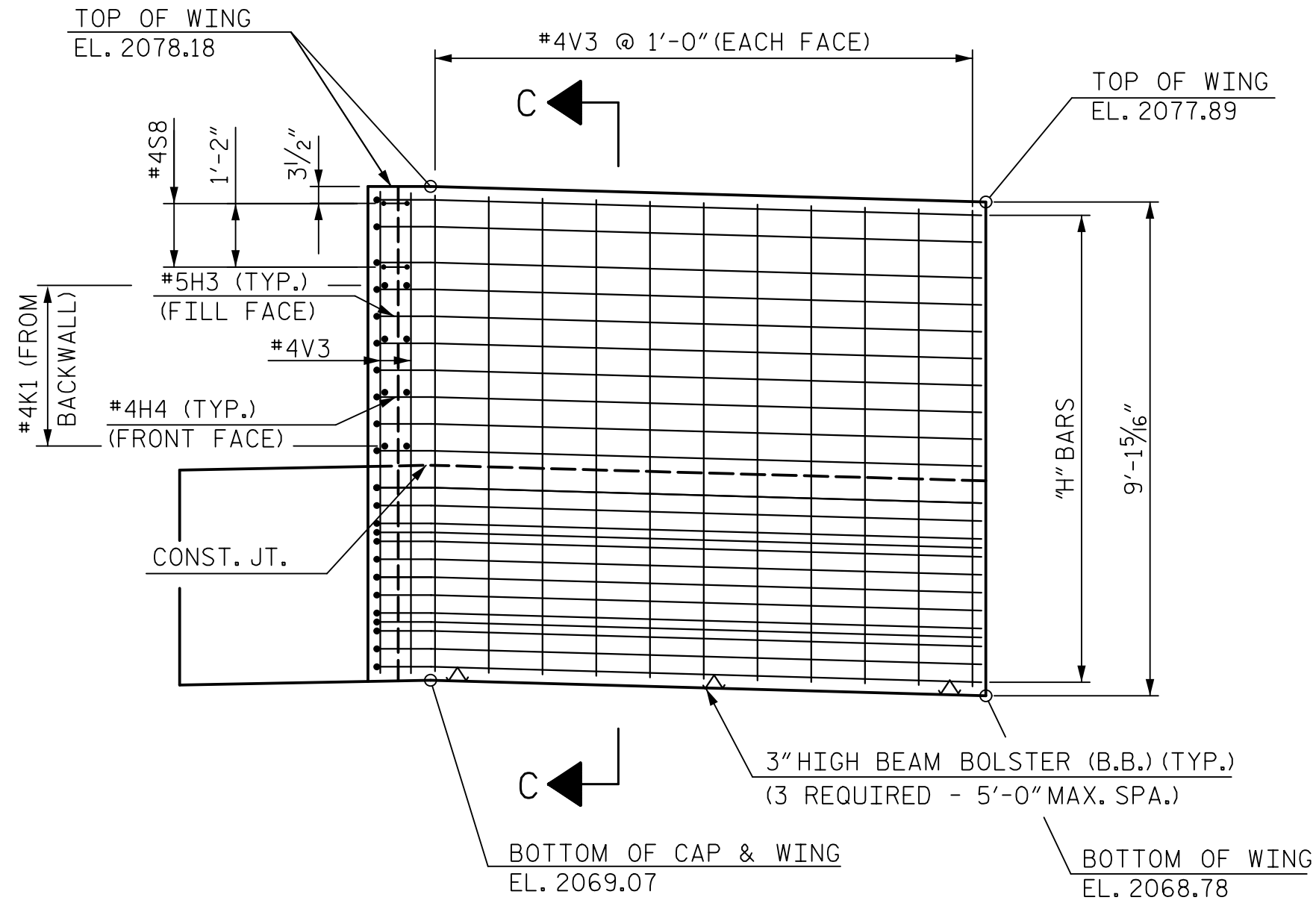
PLAN OF WING (W1)



PLAN OF WING (W2)

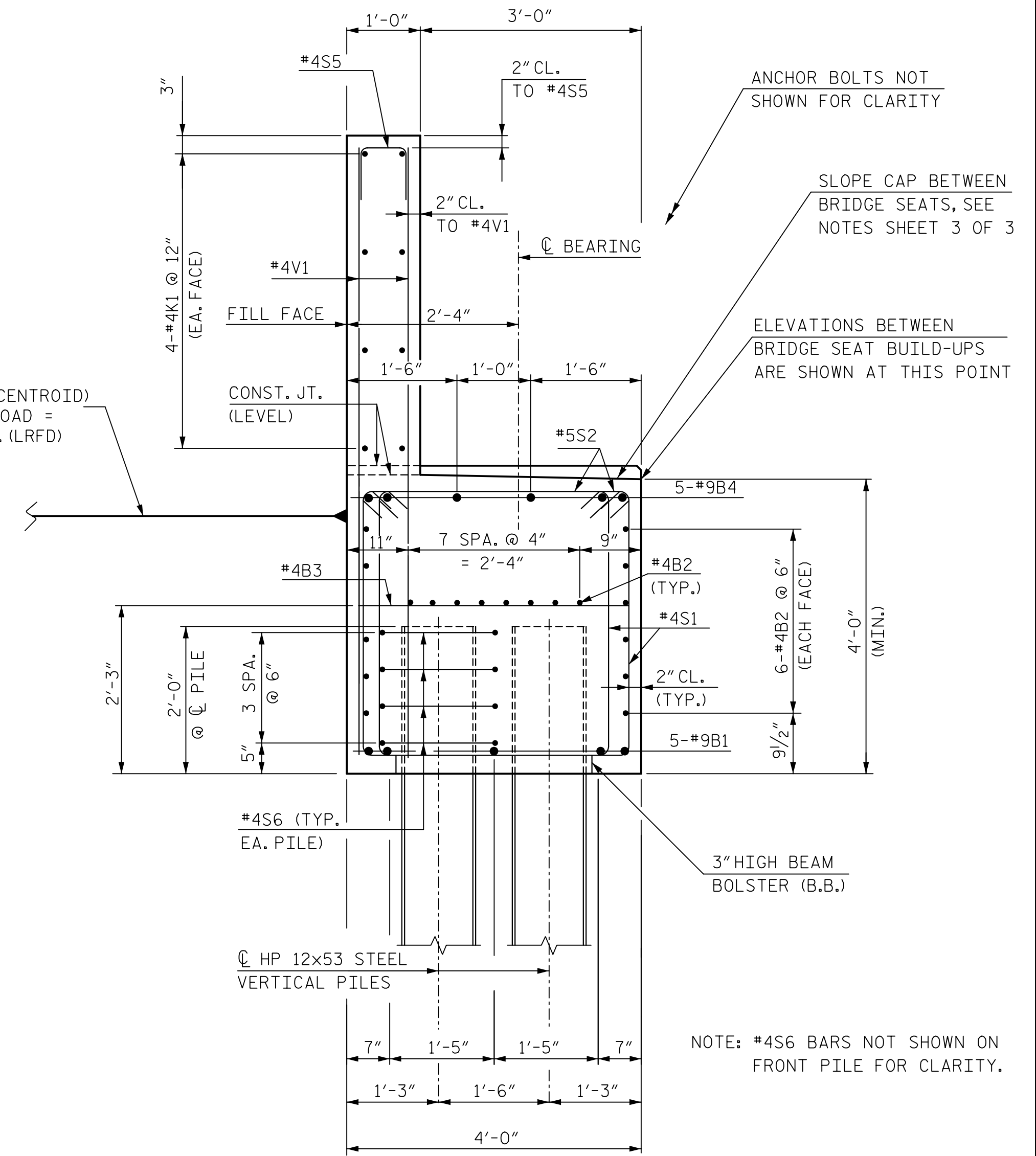


ELEVATION OF WING (W1)

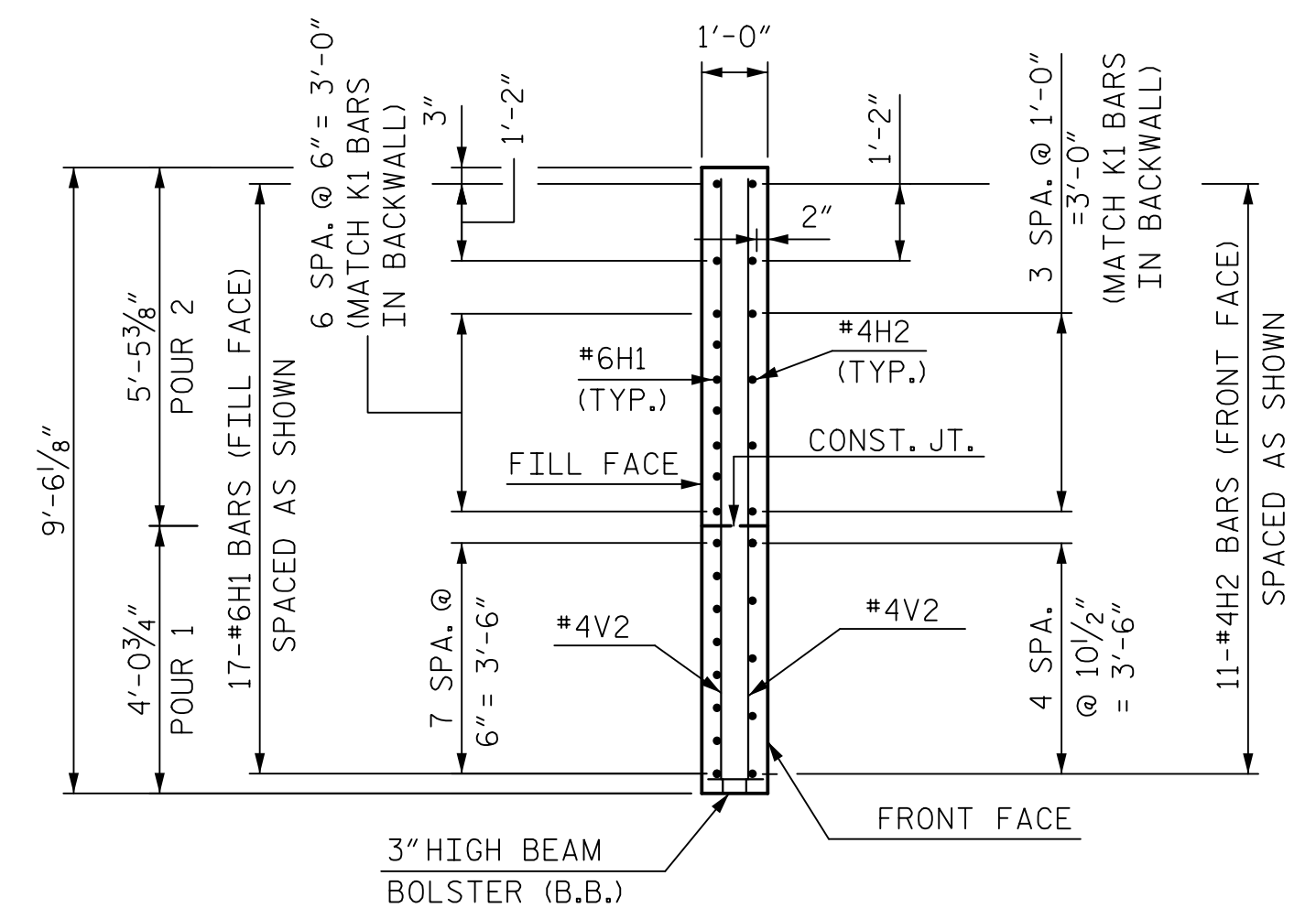


ELEVATION OF WING (W2)

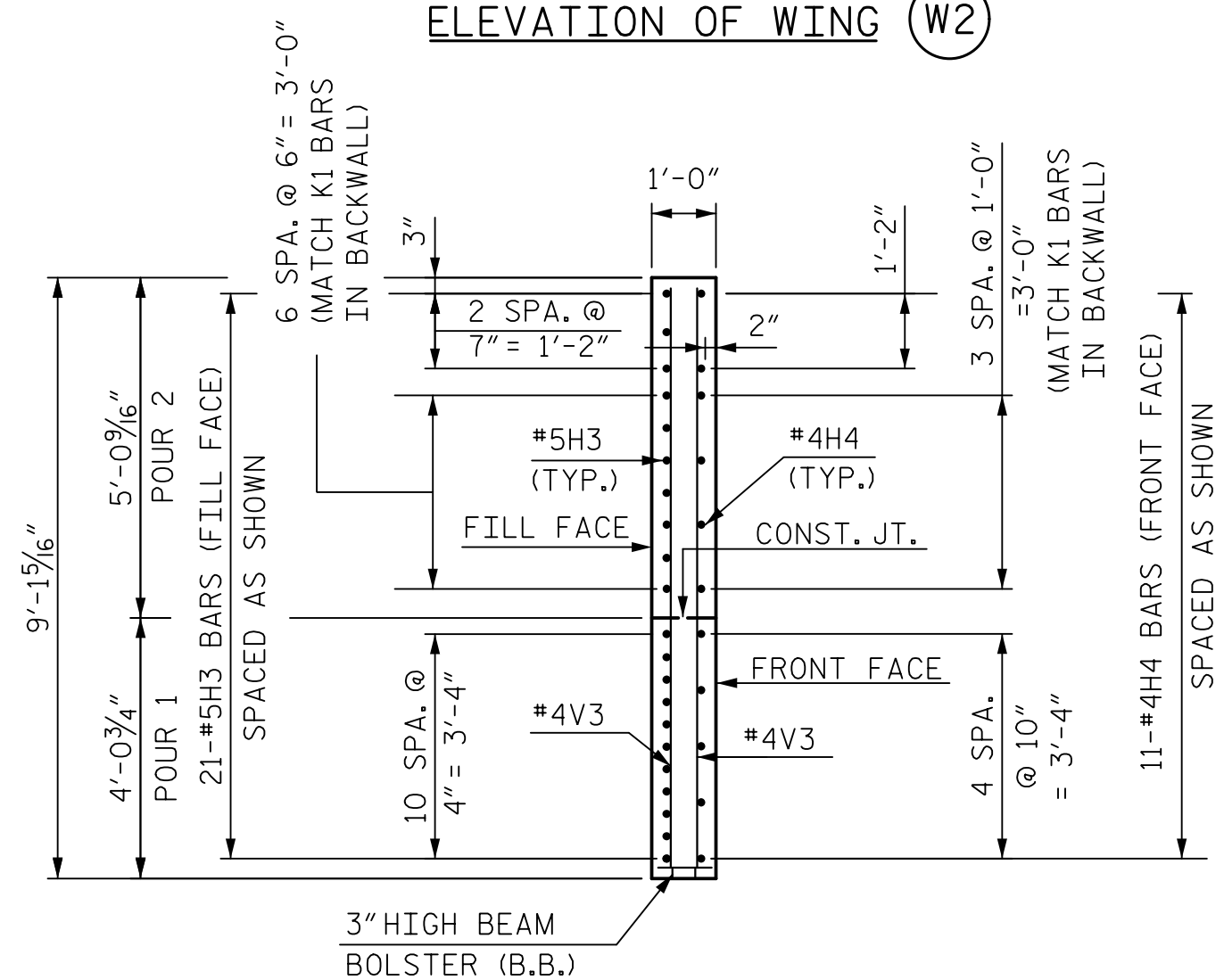
STRAPS (CENTROID)
 DESIGN LOAD = 3.0 k/ft. (LRFD)



SECTION A-A

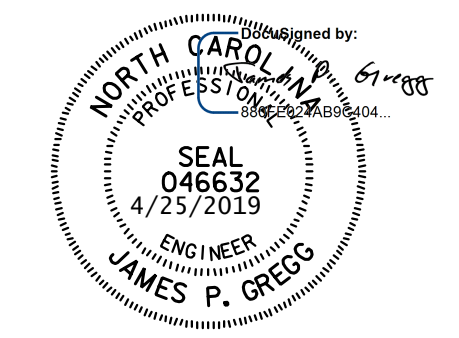


SECTION B-B



SECTION C-C

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 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

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 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 25

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 2 OF 3

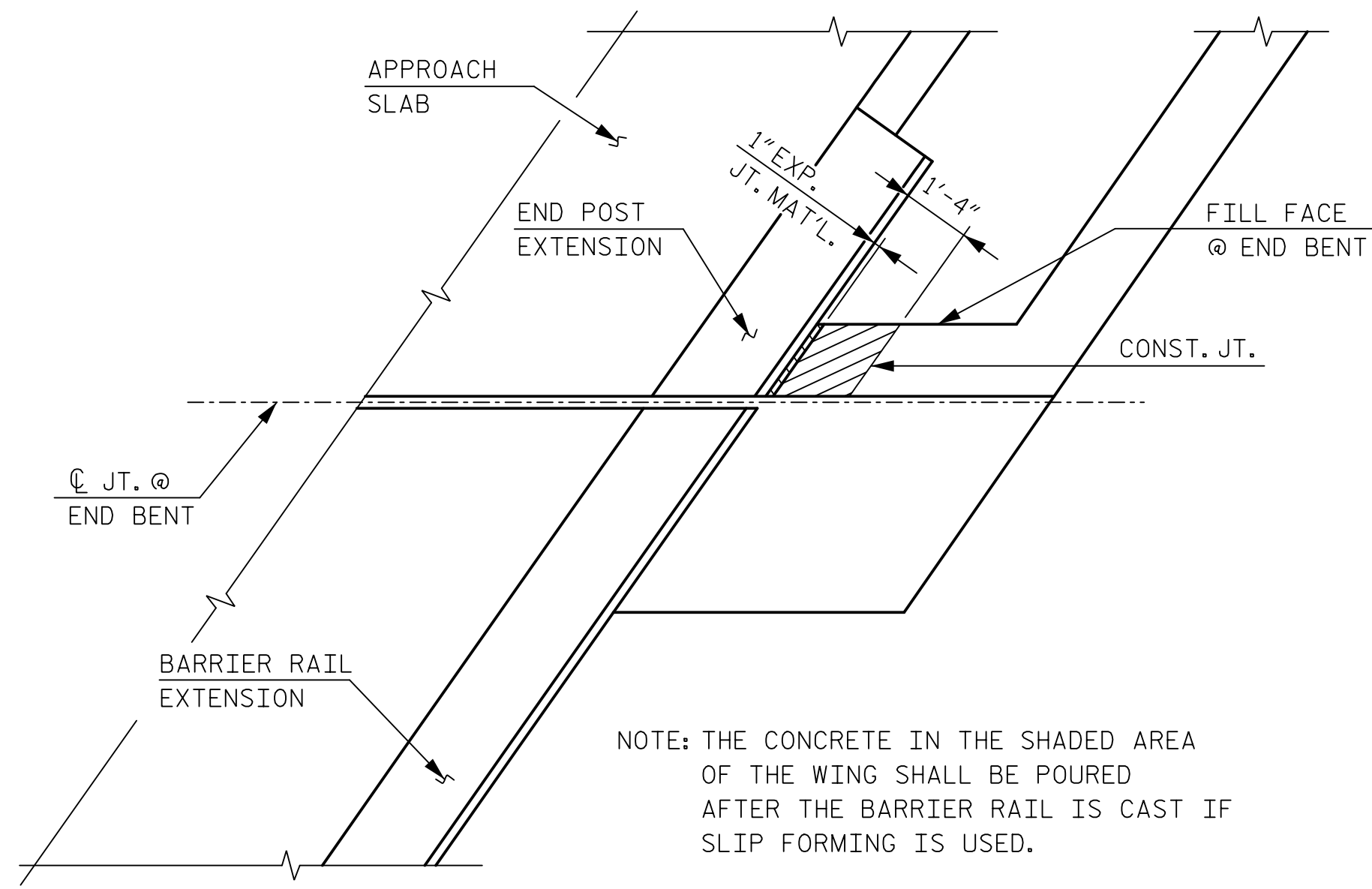
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

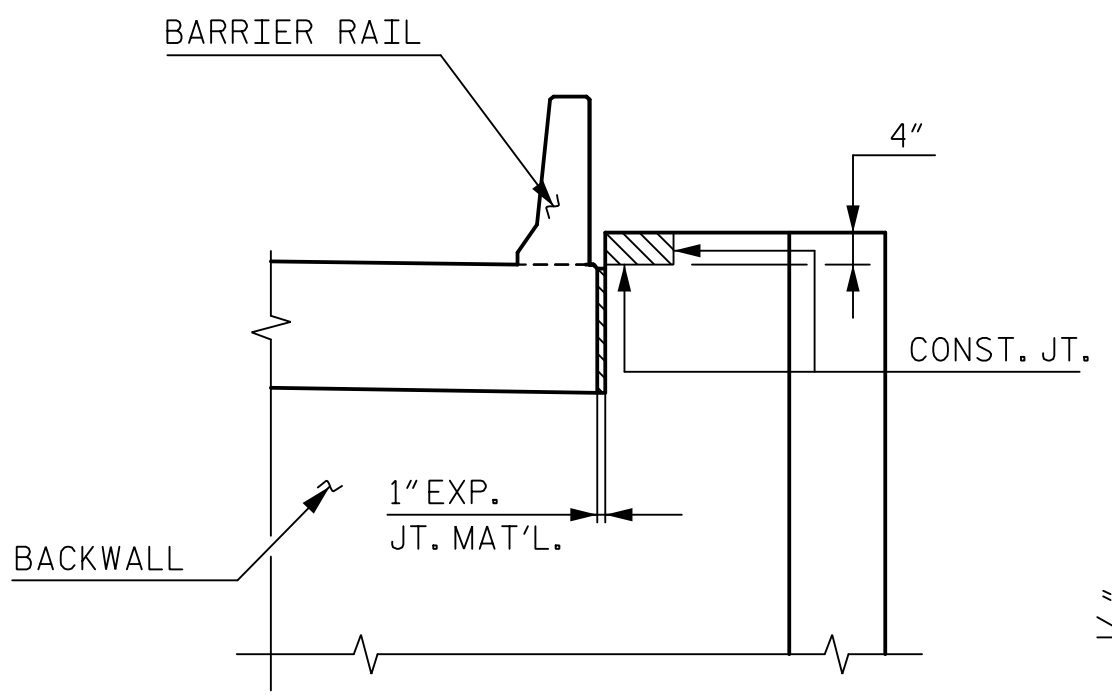
END BENT 2

RIGHT LANE

REVISIONS					SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			32
2			4			

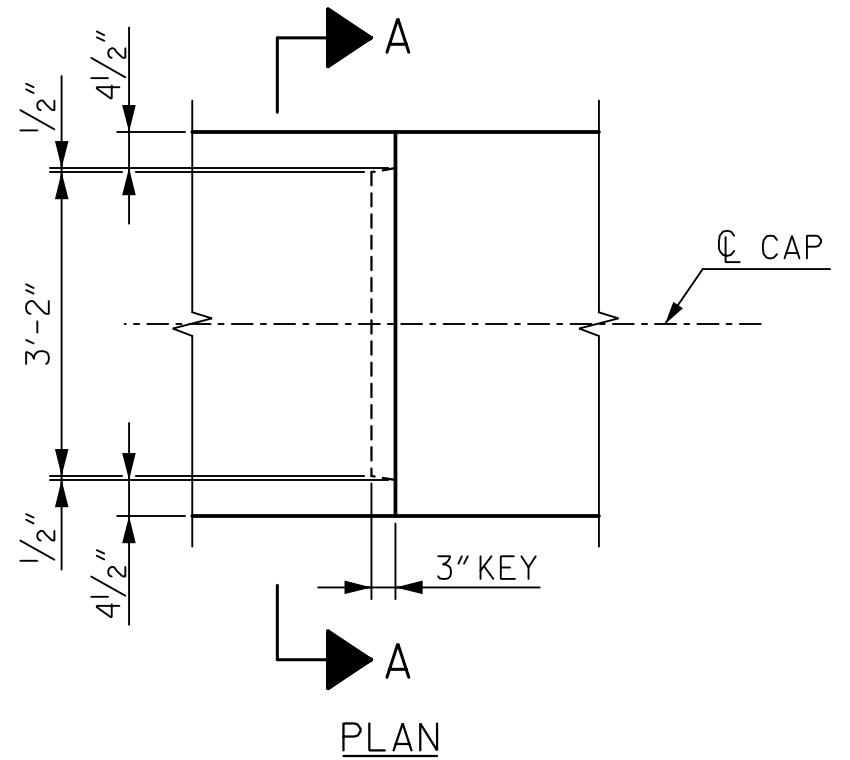


PLAN

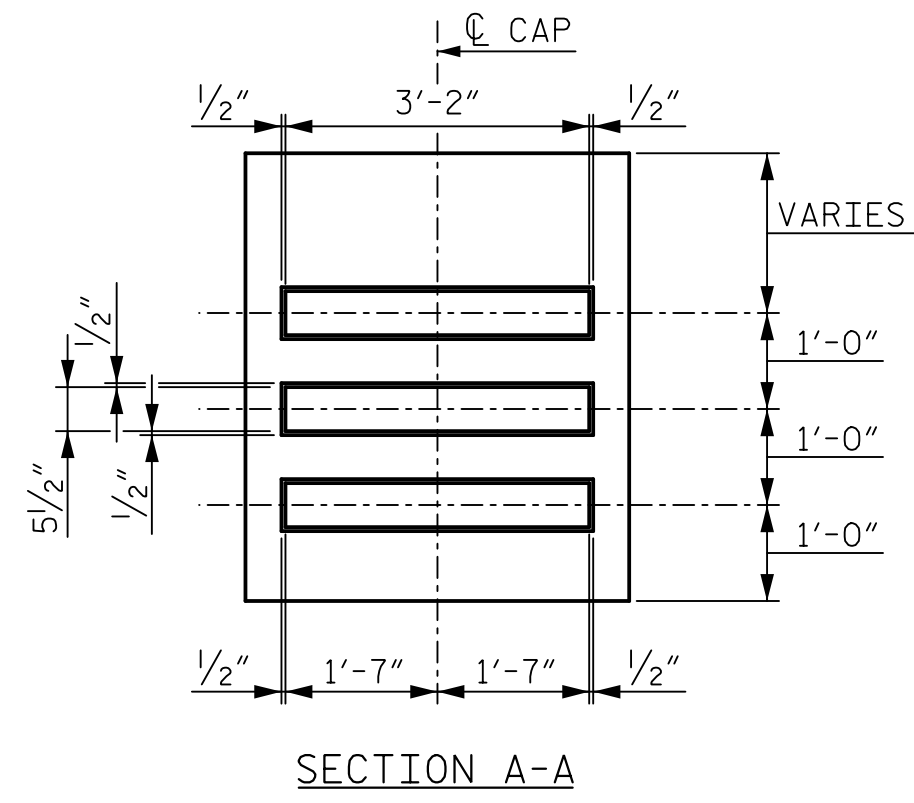


ELEVATION

BLOCKOUT IN WINGWALL



PLAN

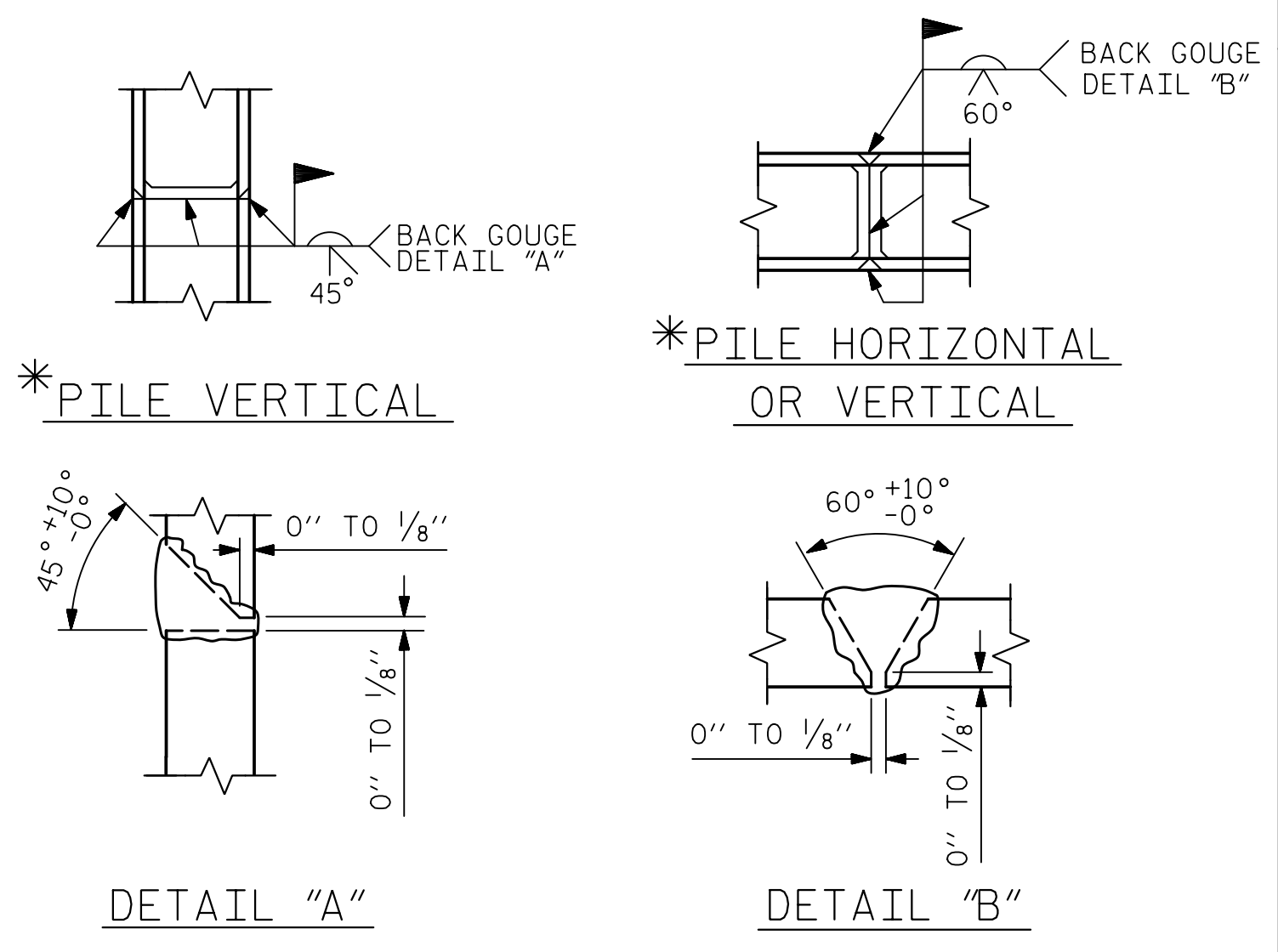


SECTION A-A

KEYED CONSTRUCTION JOINT DETAILS

NOTES:

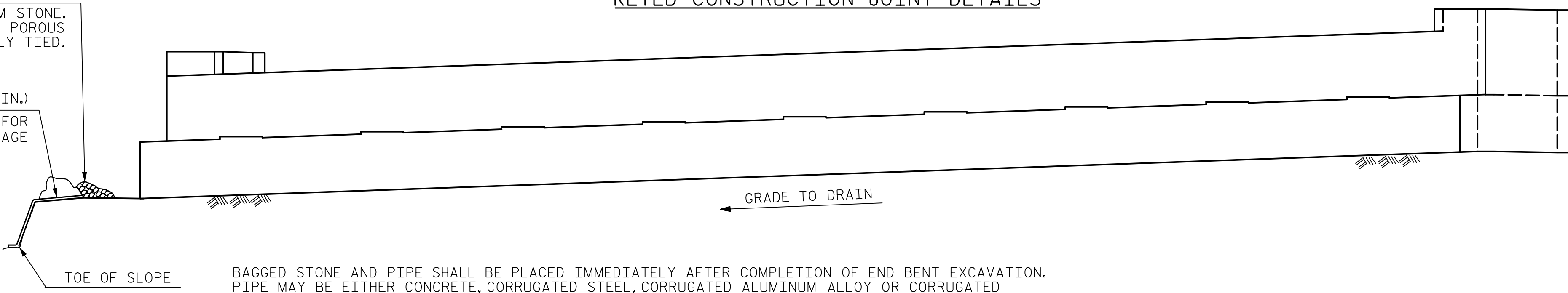
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
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- THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.



PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

MINIMUM OF 3 - ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

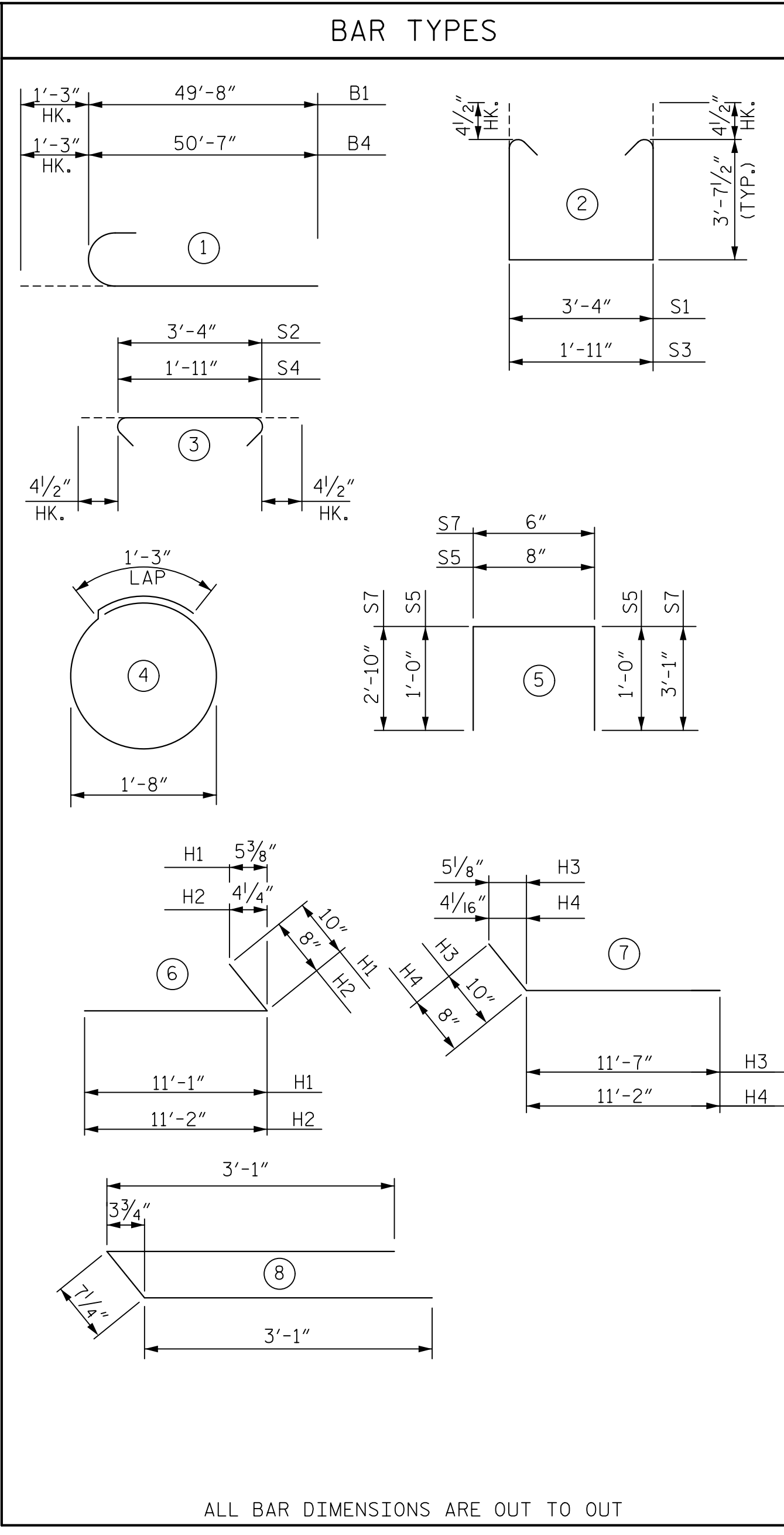


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

TEMPORARY DRAINAGE AT END BENT 2



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9	1	50'-11"	1,731
B2	80	4	STR.	25'-8"	1,372
B3	23	4	STR.	3'-8"	56
B4	12	9	1	51'-10"	2,088
H1	17	6	6	11'-11"	304
H2	11	4	6	11'-10"	87
H3	21	5	7	12'-5"	272
H4	11	4	7	11'-10"	87
K1	32	4	STR.	25'-8"	549
S1	242	4	2	11'-4"	1,832
S2	242	4	3	4'-1"	660
S3	3	4	2	9'-11"	20
S4	3	4	3	2'-8"	5
S5	86	4	5	2'-8"	153
S6	52	4	4	6'-6"	226
S7	2	4	5	6'-5"	9
S8	2	4	8	6'-9"	9
V1	172	4	STR.	7'-4"	843
V2	32	4	STR.	9'-2"	196
V3	32	4	STR.	8'-9"	187

QUANTITIES

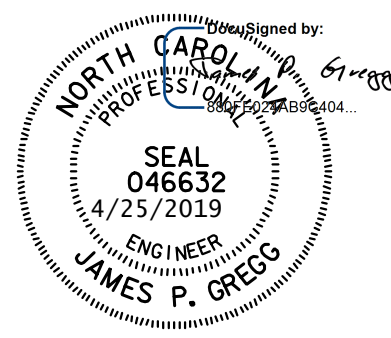
REINFORCING STEEL	LBS.	10,615
CLASS "A" CONCRETE BREAKDOWN		
POUR 1 - CAP & BOT. OF WINGS	CU. YDS.	59.8
POUR 2 - TOP OF WINGS & BACKWALL	CU. YDS.	17.3
TOTAL	CU. YDS.	77.1
HP 12x53 STEEL PILES	NO.	13
	LIN. FT.	780
PILE DRIVING EQUIPMENT SETUP	EA.	13

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2
 RIGHT LANE



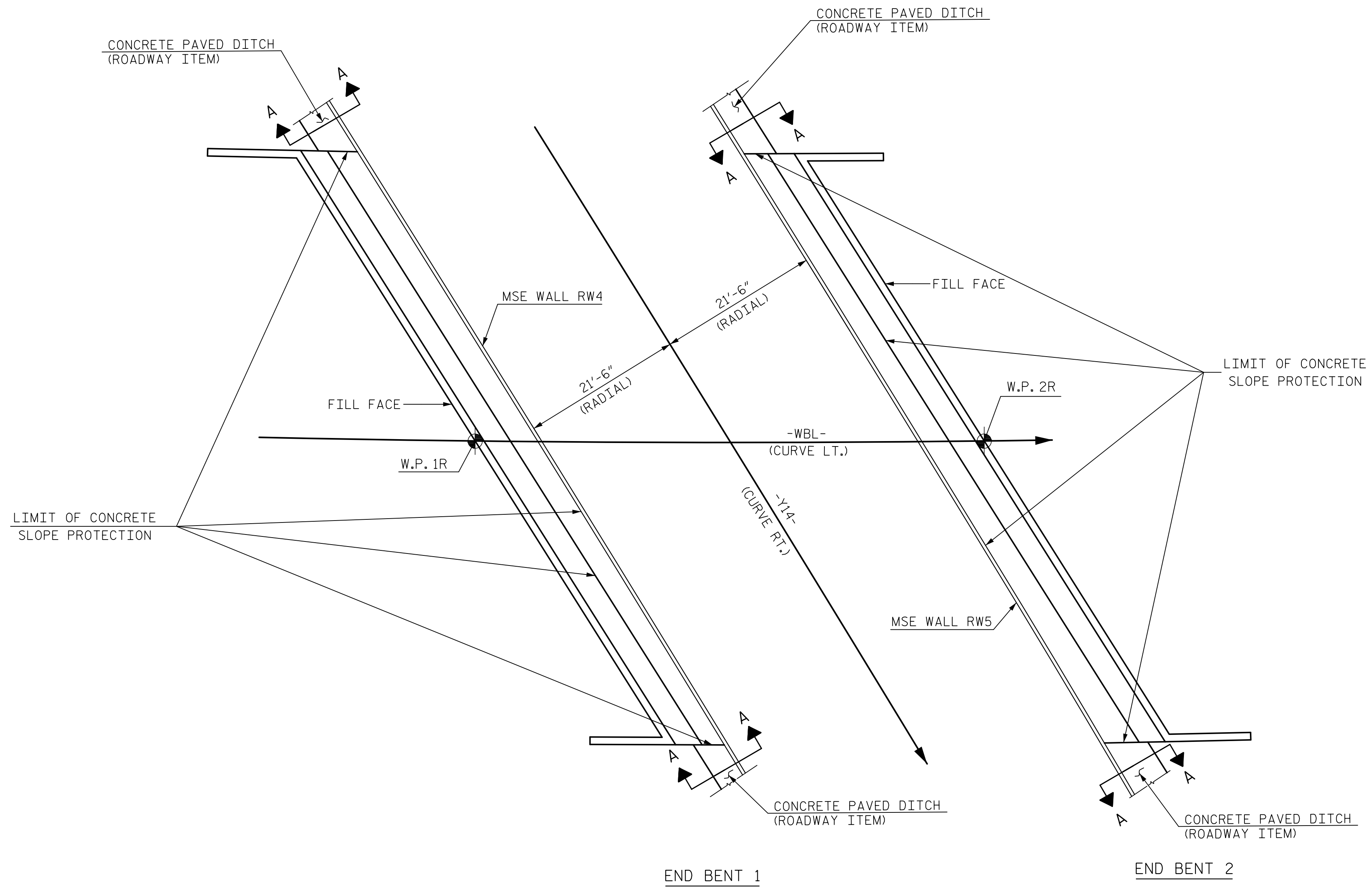
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 CHECKED BY: B. NEUPANE DATE: 12/18
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

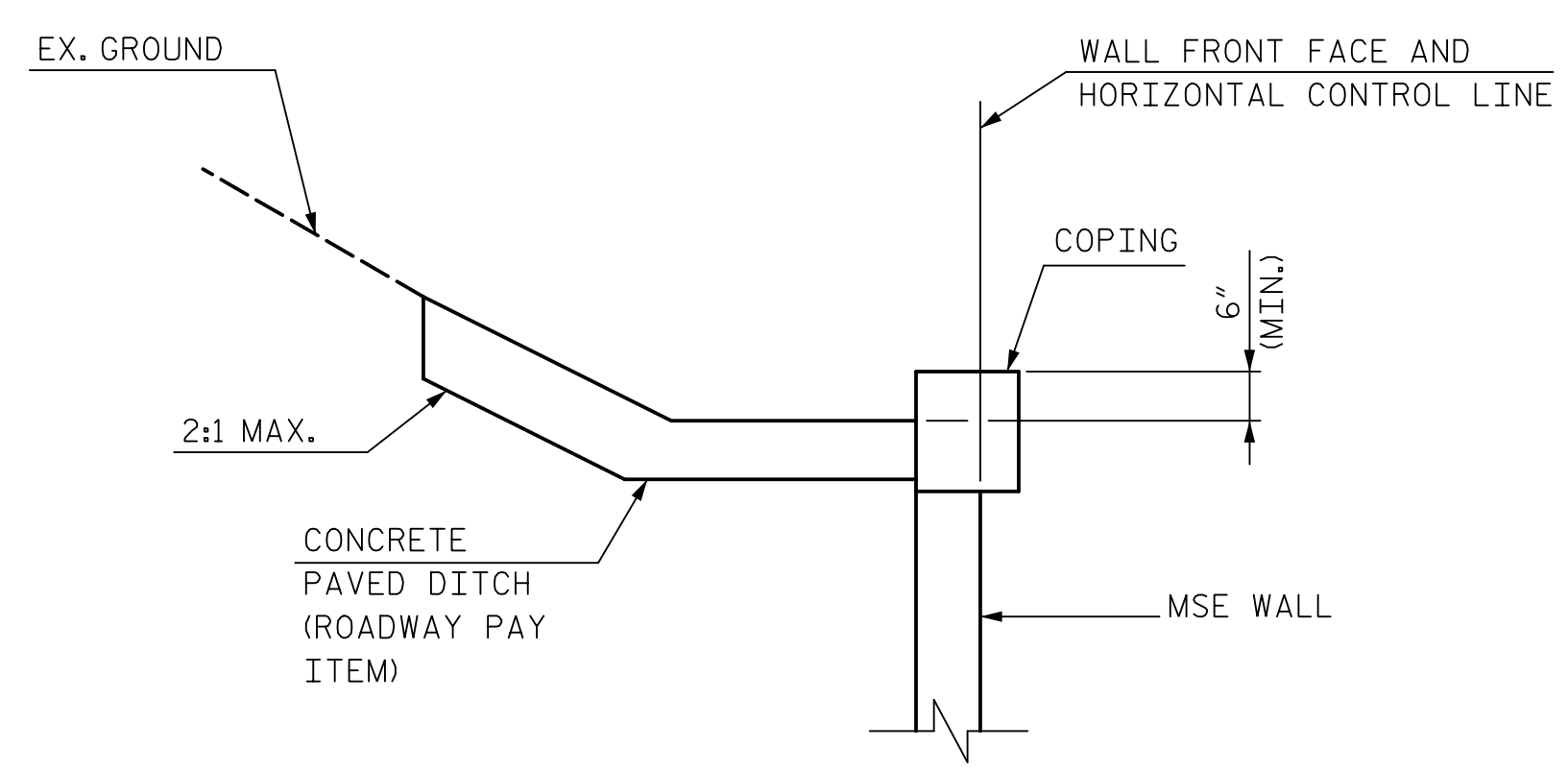
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S1-26
1			3			TOTAL SHEETS
2			4			32

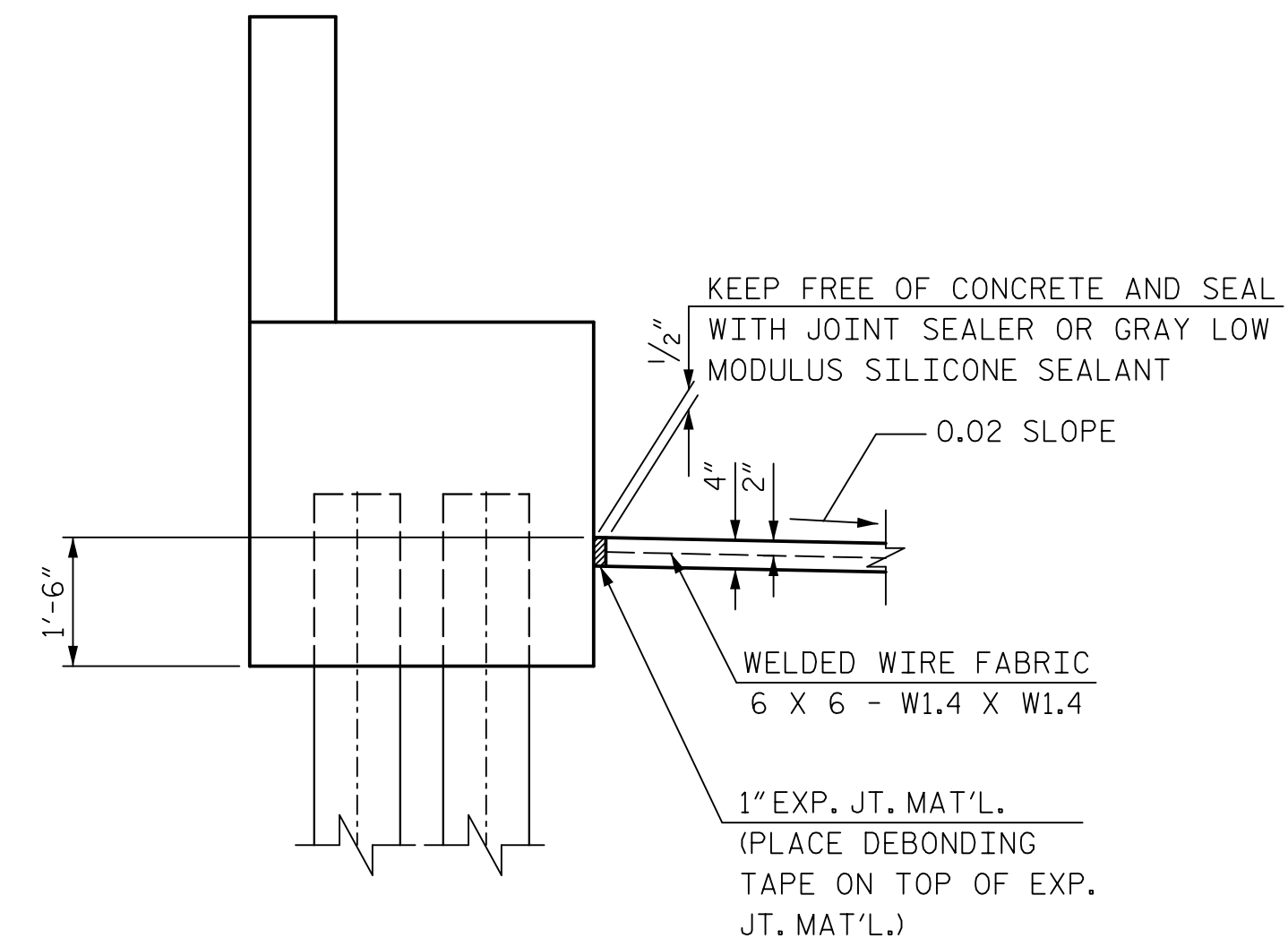
DWG. NO. 26



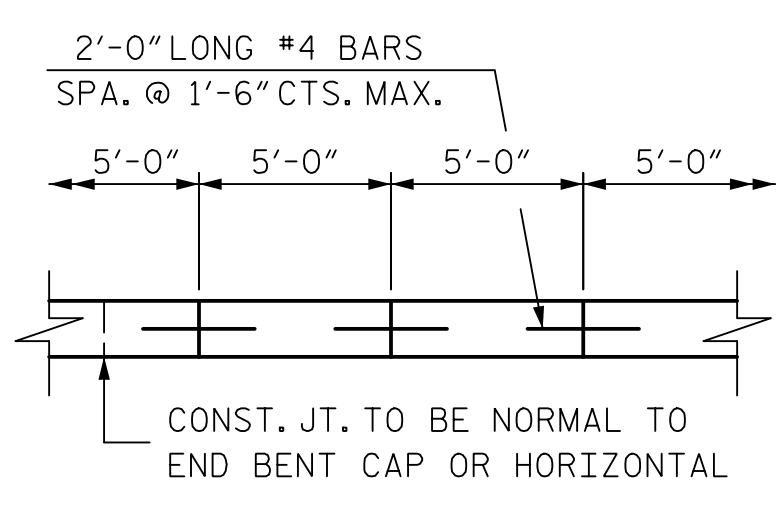
PLAN



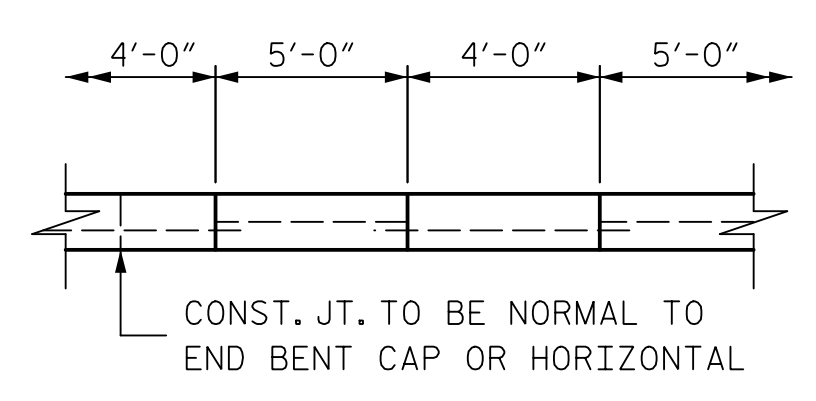
SECTION A-A



SECTION AT END BENT



POURING DETAIL



OPTIONAL POURING DETAIL

NOTES:

FOR BERM WIDTHS, 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.

BRIDGE @ STA. 913+34.69 -L- RIGHT LANE	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	31.8	57.3
END BENT 2	33.1	59.6

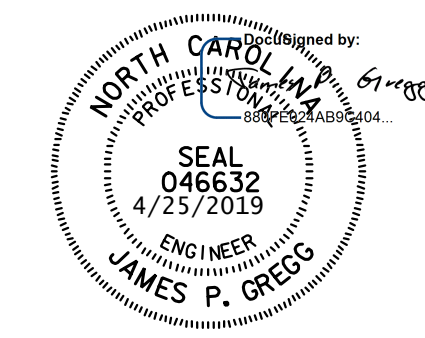
* QUANTITY SHOWN IS BASED ON 5' POURS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION
 DETAILS

RIGHT LANE



HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: Z. GUO DATE: 1/19
 CHECKED BY: B. NEUPANE DATE: 1/19
 DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

DWG. NO. 27

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			32
2			4			

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, MSE WALL REINFORCEMENT AND BACKFILL MATERIAL SEE ROADWAY PLANS.

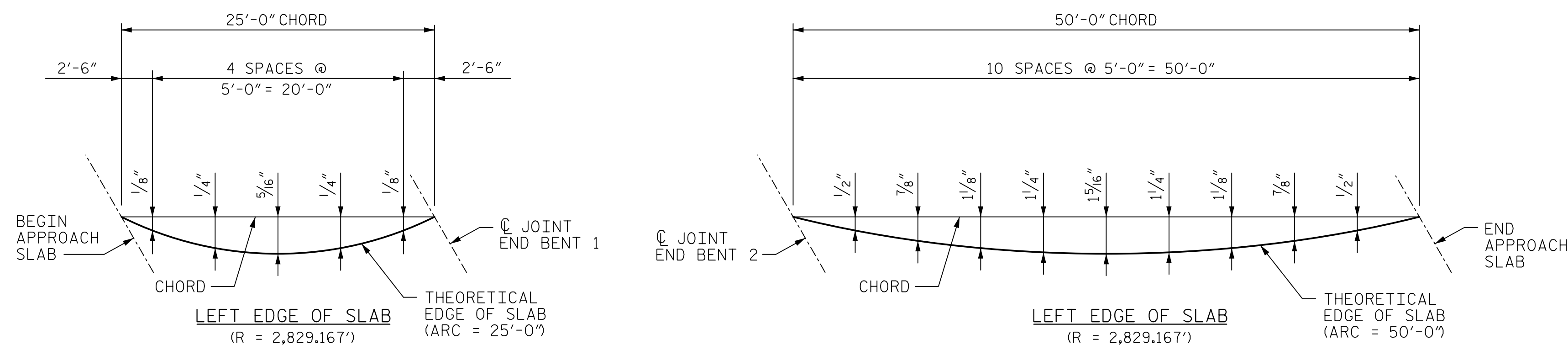
GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

BACKFILL MATERIAL SHALL BE THE SAME MATERIAL USED IN THE MSE REINFORCED ZONE.

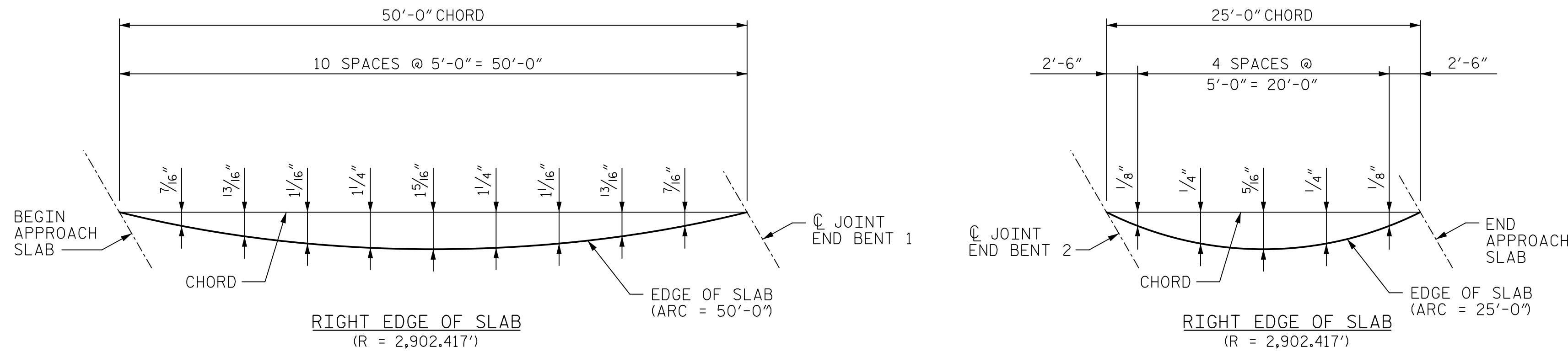
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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.

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

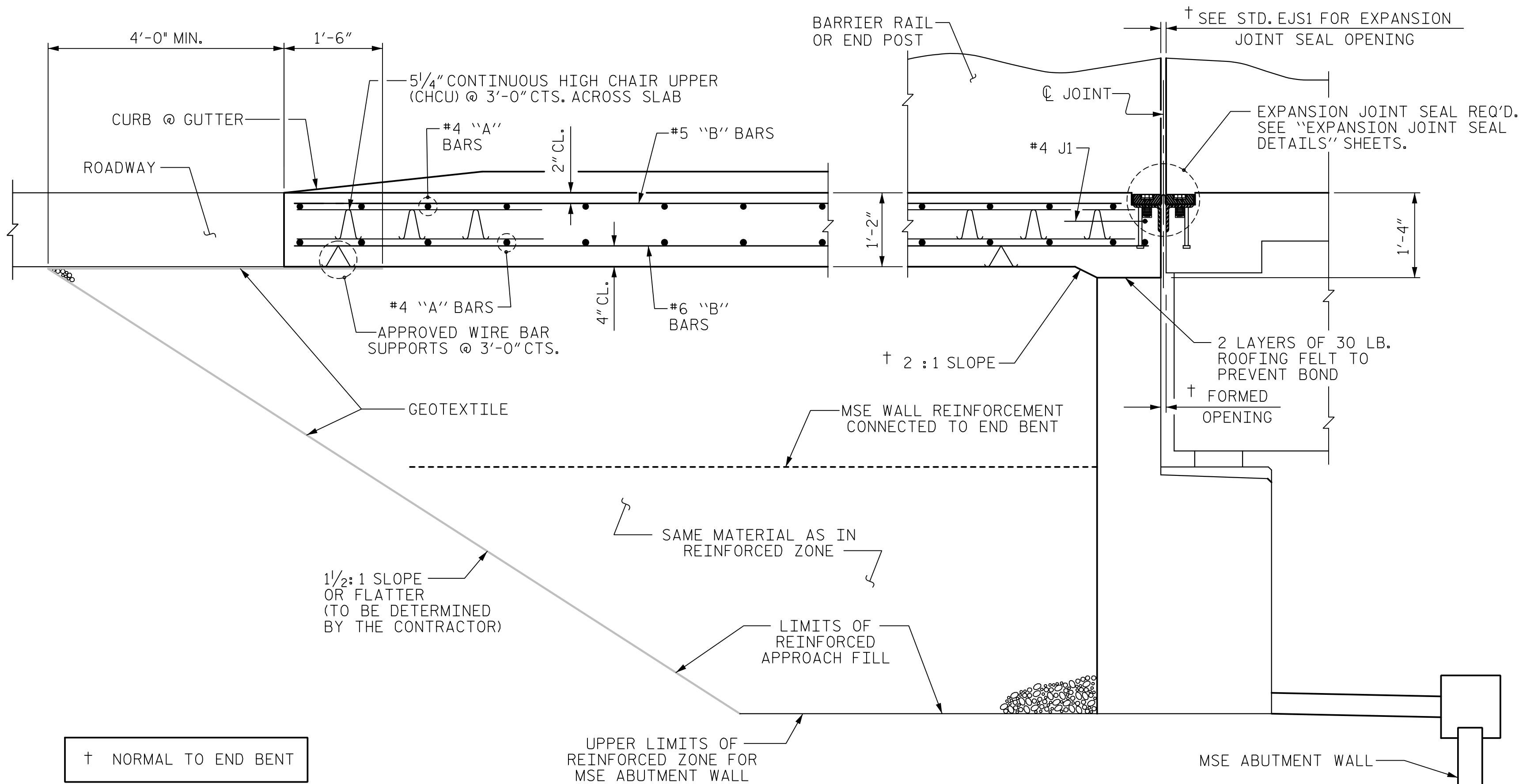


FOR PLAN VIEW OF APPROACH SLABS AT END BENT 1 AND END BENT 2, SEE SHEET 1 OF 5.



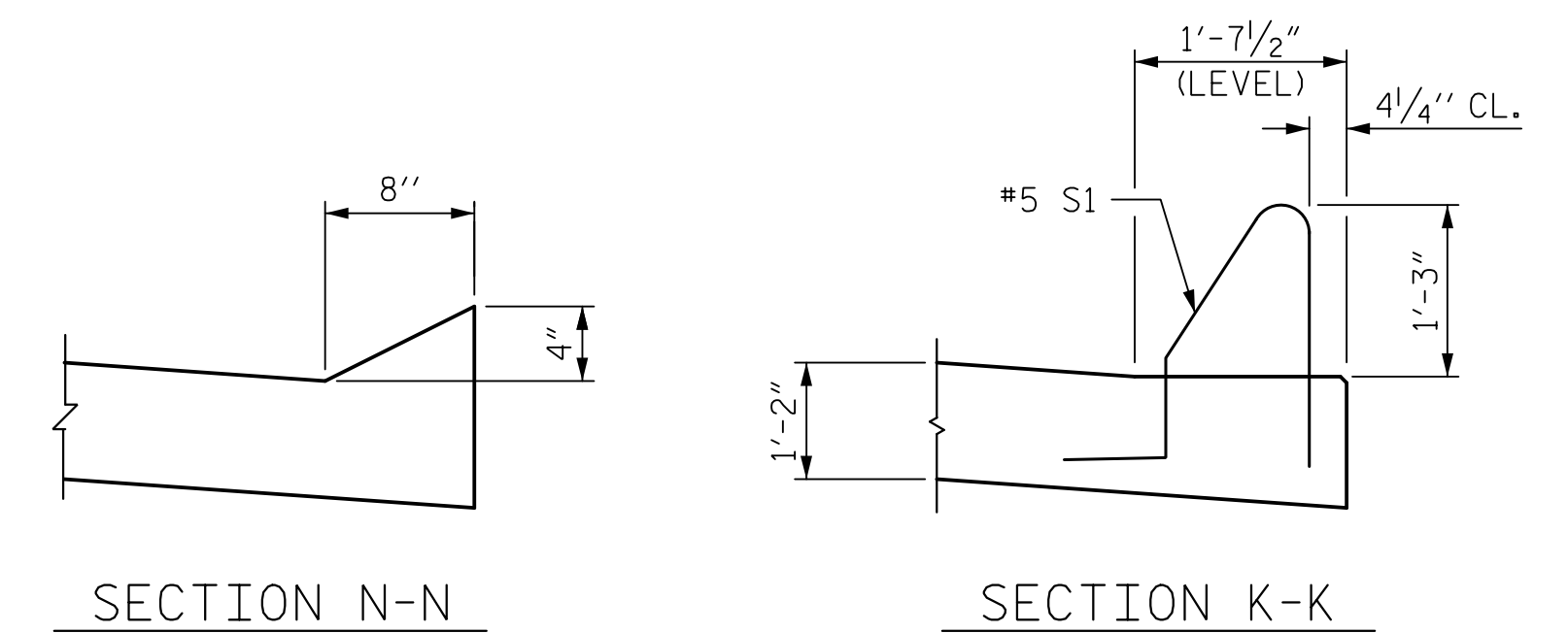
CURVE OFFSETS - APPROACH SLAB AT END BENT 1

CURVE OFFSETS - APPROACH SLAB AT END BENT 2



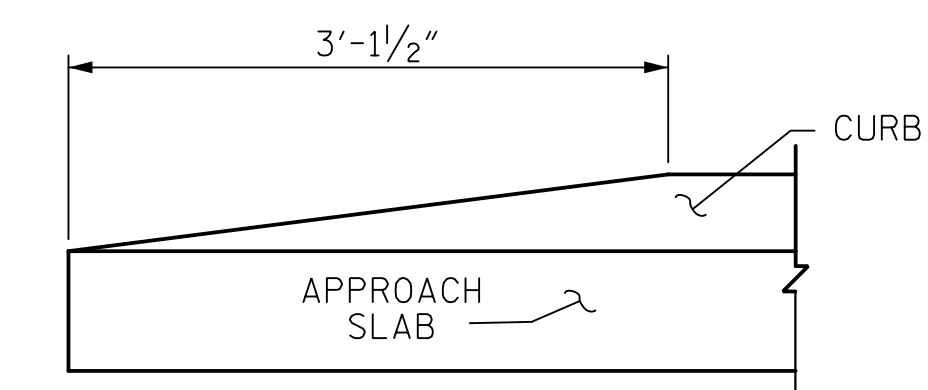
SECTION THRU SLAB

(TYPE III - REINFORCED APPROACH FILL)



SECTION N-N

SECTION K-K



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POC 913+34.69 -WBL-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

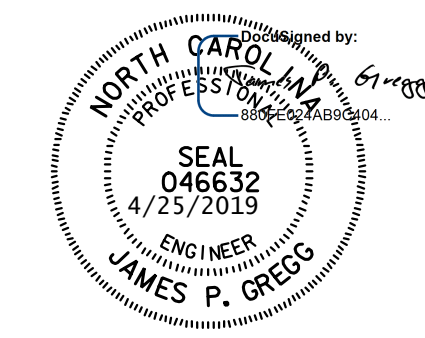
STANDARD
 BRIDGE APPROACH SLAB
 FOR RIGID PAVEMENT

RIGHT LANE

ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : RH 5/99	REV. 12/21/11 MAA/GM
CHECKED BY : RDR 5/99	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : E. JOWZA	DATE : 12/18
CHECKED BY : A. KANG	DATE : 12/18
DESIGN ENGINEER OF RECORD : J. GREGG	DATE : 3/19



REVISIONS						SHEET NO. S2-29
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 32
2			4			

STD. NO. BAS1

BILL OF MATERIAL

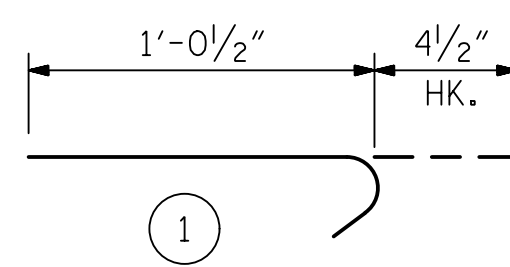
APPROACH SLAB AT END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A100	48	4	STR.	18'-9"	601	*B120	2	5	STR.	36'-8"	76	B215	2	6	STR.	33'-9"	101
*A101	6	4	STR.	25'-9"	103	*B121	2	5	STR.	37'-4"	78	B216	2	6	STR.	34'-5"	103
*A102	9	4	STR.	25'-7"	154	*B122	2	5	STR.	38'-0"	79	B217	2	6	STR.	35'-1"	105
*A103	9	4	STR.	24'-0"	144	*B123	2	5	STR.	38'-8"	81	B218	2	6	STR.	35'-9"	107
*A104	9	4	STR.	22'-6"	135	*B124	2	5	STR.	39'-4"	82	B219	2	6	STR.	36'-5"	109
*A105	4	4	STR.	30'-0"	80	*B125	2	5	STR.	40'-0"	83	B220	2	6	STR.	37'-1"	111
*A106	4	4	STR.	28'-5"	76	*B126	2	5	STR.	40'-8"	85	B221	2	6	STR.	37'-9"	113
*A107	4	4	STR.	26'-11"	72	*B127	2	5	STR.	41'-4"	86	B222	2	6	STR.	38'-5"	115
*A108	4	4	STR.	25'-5"	68	*B128	2	5	STR.	42'-0"	88	B223	2	6	STR.	39'-1"	117
*A109	4	4	STR.	23'-11"	64	*B129	2	5	STR.	42'-8"	89	B224	2	6	STR.	39'-9"	119
*A110	4	4	STR.	22'-5"	60	*B130	2	5	STR.	43'-4"	90	B225	2	6	STR.	40'-5"	121
*A111	4	4	STR.	20'-11"	56	*B131	2	5	STR.	44'-0"	92	B226	2	6	STR.	41'-1"	123
*A112	4	4	STR.	19'-5"	52	*B132	2	5	STR.	44'-8"	93	B227	2	6	STR.	41'-9"	125
*A113	4	4	STR.	17'-11"	48	*B133	2	5	STR.	45'-4"	95	B228	2	6	STR.	42'-5"	127
*A114	4	4	STR.	16'-5"	44	*B134	2	5	STR.	46'-0"	96	B229	2	6	STR.	43'-1"	129
*A115	4	4	STR.	14'-11"	40	*B135	2	5	STR.	46'-8"	97	B230	2	6	STR.	43'-9"	131
*A116	4	4	STR.	13'-5"	36	*B136	2	5	STR.	47'-5"	99	B231	2	6	STR.	44'-5"	133
*A117	4	4	STR.	11'-11"	32	*B137	2	5	STR.	24'-9"	52	B232	2	6	STR.	45'-1"	135
*A118	4	4	STR.	10'-5"	28	*B138	2	5	STR.	25'-4"	53	B233	2	6	STR.	45'-9"	137
*A119	4	4	STR.	8'-11"	24	*B139	2	5	STR.	26'-0"	54	B234	2	6	STR.	46'-5"	139
*A120	4	4	STR.	7'-5"	20	*B140	2	5	STR.	26'-8"	56	B235	2	6	STR.	47'-1"	141
*A121	4	4	STR.	5'-11"	16	*B141	2	5	STR.	27'-4"	57	B236	2	6	STR.	47'-10"	144
*A122	4	4	STR.	4'-5"	12	*B142	2	5	STR.	28'-0"	58	B237	2	6	STR.	25'-2"	76
*A123	4	4	STR.	2'-11"	8	*B143	2	5	STR.	28'-8"	60	B238	2	6	STR.	25'-9"	77
A200	48	4	STR.	18'-7"	596	*B144	2	5	STR.	29'-4"	61	B239	2	6	STR.	26'-5"	79
A201	6	4	STR.	25'-6"	102	*B145	2	5	STR.	30'-0"	63	B240	2	6	STR.	27'-1"	81
A202	9	4	STR.	25'-4"	152	*B146	2	5	STR.	30'-8"	64	B241	2	6	STR.	27'-9"	83
A203	9	4	STR.	23'-9"	143	*B147	2	5	STR.	31'-4"	65	B242	2	6	STR.	28'-5"	85
A204	9	4	STR.	22'-4"	134	*B148	2	5	STR.	32'-0"	67	B243	2	6	STR.	29'-1"	87
A205	4	4	STR.	30'-0"	80	*B149	2	5	STR.	32'-7"	68	B244	2	6	STR.	29'-9"	89
A206	4	4	STR.	28'-5"	76	*B150	2	5	STR.	33'-3"	69	B245	2	6	STR.	30'-5"	91
A207	4	4	STR.	26'-11"	72	*B151	2	5	STR.	33'-11"	71	B246	2	6	STR.	31'-1"	93
A208	4	4	STR.	25'-5"	68	*B152	2	5	STR.	34'-7"	72	B247	2	6	STR.	31'-9"	95
A209	4	4	STR.	23'-11"	64	*B153	2	5	STR.	35'-3"	74	B248	2	6	STR.	32'-5"	97
A210	4	4	STR.	22'-5"	60	*B154	2	5	STR.	35'-11"	75	B249	2	6	STR.	33'-0"	99
A211	4	4	STR.	20'-11"	56	*B155	2	5	STR.	36'-7"	76	B250	2	6	STR.	33'-8"	101
A212	4	4	STR.	19'-4"	52	*B156	2	5	STR.	37'-3"	78	B251	2	6	STR.	34'-4"	103
A213	4	4	STR.	17'-10"	48	*B157	2	5	STR.	37'-11"	79	B252	2	6	STR.	35'-0"	105
A214	4	4	STR.	16'-4"	44	*B158	2	5	STR.	38'-7"	80	B253	2	6	STR.	35'-8"	107
A215	4	4	STR.	14'-10"	40	*B159	2	5	STR.	39'-3"	82	B254	2	6	STR.	36'-4"	109
A216	4	4	STR.	13'-4"	36	*B160	2	5	STR.	39'-11"	83	B255	2	6	STR.	37'-0"	111
A217	4	4	STR.	11'-9"	31	*B161	2	5	STR.	40'-6"	84	B256	2	6	STR.	37'-8"	113
A218	4	4	STR.	10'-3"	27	*B162	2	5	STR.	41'-2"	86	B257	2	6	STR.	38'-4"	115
A219	4	4	STR.	8'-9"	23	*B163	2	5	STR.	41'-10"	87	B258	2	6	STR.	39'-0"	117
A220	4	4	STR.	7'-3"	19	*B164	2	5	STR.	42'-6"	89	B259	2	6	STR.	39'-8"	119
A221	4	4	STR.	5'-9"	15	*B165	2	5	STR.	43'-2"	90	B260	2	6	STR.	40'-4"	121
A222	4	4	STR.	4'-3"	11	*B166	2	5	STR.	43'-10"	91	B261	2	6	STR.	41'-0"	123
A223	4	4	STR.	2'-9"	7	*B167	2	5	STR.	44'-6"	93	B262	2	6	STR.	41'-7"	125
*B100	2	5	STR.	9'-9"	20	*B168	2	5	STR.	45'-2"	94	B263	2	6	STR.	42'-3"	127
*B101	1	5	STR.	49'-0"	51	*B169	2	5	STR.	45'-10"	96	B264	2	6	STR.	42'-11"	129
*B102	2	5	STR.	24'-9"	52	*B170	2	5	STR.	46'-6"	97	B265	2	6	STR.	43'-7"	131
*B103	2	5	STR.	25'-5"	53	*B171	2	5	STR.	47'-2"	98	B266	2	6	STR.	44'-3"	133
*B104	2	5	STR.	26'-1"	54	*B172	2	5	STR.	47'-10"	100	B267	2	6	STR.	44'-11"	135
*B105	2	5	STR.	26'-9"	56	*B173	2	5	STR.	48'-6"	101	B268	2	6	STR.	45'-7"	137
*B106	2	5	STR.	27'-5"	57	B200	2	6	STR.	9'-9"	29	B269	2	6	STR.	46'-3"	139
*B107	2	5	STR.	28'-1"	59	B201	1	6	STR.	49'-5"	74	B270	2	6	STR.	46'-11"	141
*B108	2	5	STR.	28'-9"	60	B202	2	6	STR.	25'-1"	75	B271	2	6	STR.	47'-3"	143
*B109	2	5	STR.	29'-5"	61	B203	2	6	STR.	25'-9"	77	B272	2	6	STR.	48'-3"	145
*B110	2	5	STR.	30'-1"	63	B204	2	6	STR.	26'-5"	79	B273	2	6	STR.	48'-11"	147
*B111	2	5	STR.	30'-9"	64	B205	2	6	STR.	27'-1"	81	*J1	83	4	1	1'-5"	79
*B112	2	5	STR.	31'-5"	66	B206	2	6	STR.	27'-9"	83						
*B113	2	5	STR.	32'-1"	67	B207	2	6	STR.	28'-5"	85						
*B114	2	5	STR.	32'-9"	68	B208	2	6	STR.	29'-1"	87						
*B115	2	5	STR.	33'-5"	70	B209	2	6	STR.	29'-9"	89						
*B116	2	5	STR.	34'-1"	71	B210	2	6	STR.	30'-5"	91						
*B117	2	5	STR.	34'-9"	72	B211	2	6	STR.	31'-1"	93						
*B118	2	5	STR.	35'-4"	74	B212	2	6	STR.	31'-9"	95						
*B119	2	5	STR.	36'-0"	75	B213	2	6	STR.	32'-5"	97						
						B214	2	6	STR.	33'-1"	99						

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-1"	1'-9"
#5	2'-7"	2'-2"
#6	3'-10"	2'-7"

THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT

REINFORCING STEEL **	LBS.	9,983
* EPOXY COATED REINFORCING STEEL **	LBS.	7,577
CLASS AA CONCRETE **	C. Y.	118.0

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 5 OF 5.
◆ INCLUDES 1 CURB.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR RIGID PAVEMENT

RIGHT LANE

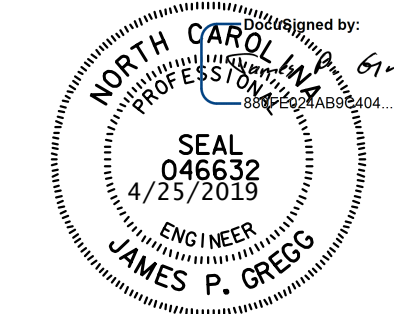
REVISIONS

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

SHEET NO.
S2-30
TOTAL SHEETS
32

HNTB HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: E. JOWZA DATE: 12/18
CHECKED BY: A. KANG DATE: 12/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DWG. NO. 30

BILL OF MATERIAL

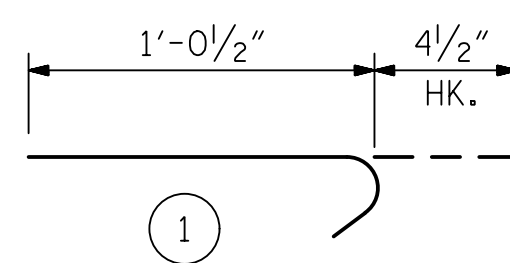
APPROACH SLAB AT END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A300	40	4	STR.	19'-9"	528	*B324	2	5	STR.	37'-10"	79	B419	2	6	STR.	35'-3"	106
*A301	18	4	STR.	25'-5"	306	*B325	2	5	STR.	38'-5"	80	B420	2	6	STR.	35'-10"	108
*A302	9	4	STR.	25'-1"	151	*B326	2	5	STR.	39'-0"	81	B421	2	6	STR.	36'-5"	109
*A303	9	4	STR.	23'-5"	141	*B327	2	5	STR.	39'-7"	83	B422	2	6	STR.	37'-0"	111
*A304	9	4	STR.	21'-9"	131	*B328	2	5	STR.	40'-2"	84	B423	2	6	STR.	37'-7"	113
*A305	4	4	STR.	29'-6"	79	*B329	2	5	STR.	40'-9"	85	B424	2	6	STR.	38'-3"	115
*A306	4	4	STR.	27'-10"	74	*B330	2	5	STR.	41'-4"	86	B425	2	6	STR.	38'-10"	117
*A307	4	4	STR.	26'-2"	70	*B331	2	5	STR.	42'-0"	88	B426	2	6	STR.	39'-5"	118
*A308	4	4	STR.	24'-6"	65	*B332	2	5	STR.	42'-7"	89	B427	2	6	STR.	40'-0"	120
*A309	4	4	STR.	22'-10"	61	*B333	2	5	STR.	43'-2"	90	B428	2	6	STR.	40'-7"	122
*A310	4	4	STR.	21'-2"	57	*B334	2	5	STR.	43'-9"	91	B429	2	6	STR.	41'-2"	124
*A311	4	4	STR.	19'-7"	52	*B335	2	5	STR.	44'-4"	92	B430	2	6	STR.	41'-9"	125
*A312	4	4	STR.	17'-11"	48	*B336	2	5	STR.	44'-11"	94	B431	2	6	STR.	42'-5"	127
*A313	4	4	STR.	16'-3"	43	*B337	2	5	STR.	45'-6"	95	B432	2	6	STR.	43'-0"	129
*A314	4	4	STR.	14'-7"	39	*B338	2	5	STR.	46'-2"	96	B433	2	6	STR.	43'-7"	131
*A315	4	4	STR.	12'-11"	35	*B339	2	5	STR.	27'-9"	58	B434	2	6	STR.	44'-2"	133
*A316	4	4	STR.	11'-4"	30	*B340	2	5	STR.	28'-4"	59	B435	2	6	STR.	44'-9"	134
*A317	4	4	STR.	9'-8"	26	*B341	2	5	STR.	28'-11"	60	B436	2	6	STR.	45'-4"	136
*A318	4	4	STR.	8'-0"	21	*B342	2	5	STR.	29'-6"	62	B437	2	6	STR.	45'-11"	138
*A319	4	4	STR.	6'-4"	17	*B343	2	5	STR.	30'-1"	63	B438	2	6	STR.	46'-7"	140
*A320	4	4	STR.	4'-8"	12	*B344	2	5	STR.	30'-9"	64	B439	2	6	STR.	28'-2"	85
*A321	4	4	STR.	3'-1"	8	*B345	2	5	STR.	31'-4"	65	B440	2	6	STR.	28'-9"	86
A400	40	4	STR.	19'-7"	523	*B346	2	5	STR.	31'-11"	67	B441	2	6	STR.	29'-4"	88
A401	18	4	STR.	25'-2"	303	*B347	2	5	STR.	32'-6"	68	B442	2	6	STR.	29'-11"	90
A402	9	4	STR.	24'-10"	149	*B348	2	5	STR.	33'-2"	69	B443	2	6	STR.	30'-6"	92
A403	9	4	STR.	23'-2"	139	*B349	2	5	STR.	33'-9"	70	B444	2	6	STR.	31'-2"	94
A404	9	4	STR.	21'-6"	129	*B350	2	5	STR.	34'-4"	72	B445	2	6	STR.	31'-9"	95
A405	4	4	STR.	29'-4"	78	*B351	2	5	STR.	34'-11"	73	B446	2	6	STR.	32'-4"	97
A406	4	4	STR.	27'-8"	74	*B352	2	5	STR.	35'-7"	74	B447	2	6	STR.	32'-11"	99
A407	4	4	STR.	26'-0"	69	*B353	2	5	STR.	36'-2"	75	B448	2	6	STR.	33'-7"	101
A408	4	4	STR.	24'-4"	65	*B354	2	5	STR.	36'-9"	77	B449	2	6	STR.	34'-2"	103
A409	4	4	STR.	22'-8"	61	*B355	2	5	STR.	37'-4"	78	B450	2	6	STR.	34'-9"	104
A410	4	4	STR.	21'-0"	56	*B356	2	5	STR.	38'-0"	79	B451	2	6	STR.	35'-4"	106
A411	4	4	STR.	19'-5"	52	*B357	2	5	STR.	38'-7"	80	B452	2	6	STR.	36'-0"	108
A412	4	4	STR.	17'-9"	47	*B358	2	5	STR.	39'-2"	82	B453	2	6	STR.	36'-7"	110
A413	4	4	STR.	16'-1"	43	*B359	2	5	STR.	39'-9"	83	B454	2	6	STR.	37'-2"	112
A414	4	4	STR.	14'-5"	39	*B360	2	5	STR.	40'-4"	84	B455	2	6	STR.	37'-9"	113
A415	4	4	STR.	12'-9"	34	*B361	2	5	STR.	41'-0"	86	B456	2	6	STR.	38'-4"	115
A416	4	4	STR.	11'-2"	30	*B362	2	5	STR.	41'-7"	87	B457	2	6	STR.	39'-0"	117
A417	4	4	STR.	9'-6"	25	*B363	2	5	STR.	42'-2"	88	B458	2	6	STR.	39'-7"	119
A418	4	4	STR.	7'-10"	21	*B364	2	5	STR.	42'-9"	89	B459	2	6	STR.	40'-2"	121
A419	4	4	STR.	6'-2"	16	*B365	2	5	STR.	43'-5"	91	B460	2	6	STR.	40'-9"	122
A420	4	4	STR.	4'-6"	12	*B366	2	5	STR.	44'-0"	92	B461	2	6	STR.	41'-5"	124
A421	4	4	STR.	2'-11"	8	*B367	2	5	STR.	44'-7"	93	B462	2	6	STR.	42'-0"	126
*B300	1	5	STR.	24'-4"	25	*B368	2	5	STR.	45'-2"	94	B463	2	6	STR.	42'-7"	128
*B301	2	5	STR.	10'-2"	21	*B369	2	5	STR.	45'-10"	96	B464	2	6	STR.	43'-2"	130
*B302	2	5	STR.	24'-9"	52	*B370	2	5	STR.	46'-5"	97	B465	2	6	STR.	43'-10"	132
*B303	2	5	STR.	25'-4"	53	*B371	2	5	STR.	47'-0"	98	B466	2	6	STR.	44'-5"	133
*B304	2	5	STR.	25'-11"	54	*B372	2	5	STR.	47'-7"	99	B467	2	6	STR.	45'-0"	135
*B305	2	5	STR.	26'-6"	55	*B373	2	5	STR.	48'-3"	101	B468	2	6	STR.	45'-7"	137
*B306	2	5	STR.	27'-1"	56	B400	1	6	STR.	24'-9"	37	B469	2	6	STR.	46'-3"	139
*B307	2	5	STR.	27'-8"	58	B401	2	6	STR.	10'-2"	31	B470	2	6	STR.	46'-10"	141
*B308	2	5	STR.	28'-3"	59	B402	2	6	STR.	25'-2"	76	B471	2	6	STR.	47'-5"	142
*B309	2	5	STR.	28'-10"	60	B403	2	6	STR.	25'-9"	77	B472	2	6	STR.	48'-0"	144
*B310	2	5	STR.	29'-6"	62	B404	2	6	STR.	26'-4"	79	B473	2	6	STR.	48'-8"	146
*B311	2	5	STR.	30'-1"	63	B405	2	6	STR.	26'-11"	81	*J1	82	4	1	1'-5"	78
*B312	2	5	STR.	30'-8"	64	B406	2	6	STR.	27'-6"	83						
*B313	2	5	STR.	31'-3"	65	B407	2	6	STR.	28'-1"	84						
*B314	2	5	STR.	31'-10"	66	B408	2	6	STR.	28'-8"	86						
*B315	2	5	STR.	32'-5"	68	B409	2	6	STR.	29'-3"	88						
*B316	2	5	STR.	33'-0"	69	B410	2	6	STR.	29'-11"	90						
*B317	2	5	STR.	33'-8"	70	B411	2	6	STR.	30'-6"	92						
*B318	2	5	STR.	34'-3"	71	B412	2	6	STR.	31'-1"	93						
*B319	2	5	STR.	34'-10"	73	B413	2	6	STR.	31'-8"	95						
*B320	2	5	STR.	35'-5"	74	B414	2	6	STR.	32'-3"	97						
*B321	2	5	STR.	36'-0"	75	B415	2	6	STR.	32'-10"	99						
*B322	2	5	STR.	36'-7"	76	B416	2	6	STR.	33'-5"	100						
*B323	2	5	STR.	37'-2"	78	B417	2	6	STR.	34'-1"	102						
						B418	2	6	STR.	34'-8"	104						

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-1"	1'-9"
#5	2'-7"	2'-2"
#6	3'-10"	2'-7"

THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT

REINFORCING STEEL **	LBS.	10,057
* EPOXY COATED REINFORCING STEEL **	LBS.	7,625
CLASS AA CONCRETE ** ♦	C. Y.	118.3

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 5 OF 5.
♦ INCLUDES 1 CURB.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR RIGID PAVEMENT

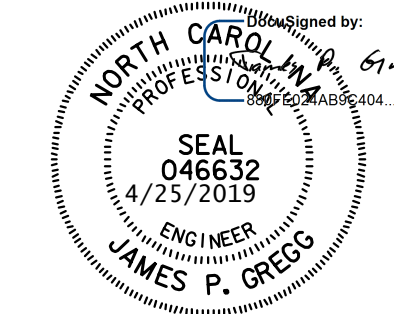
RIGHT LANE

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

TOTAL SHEETS: 32

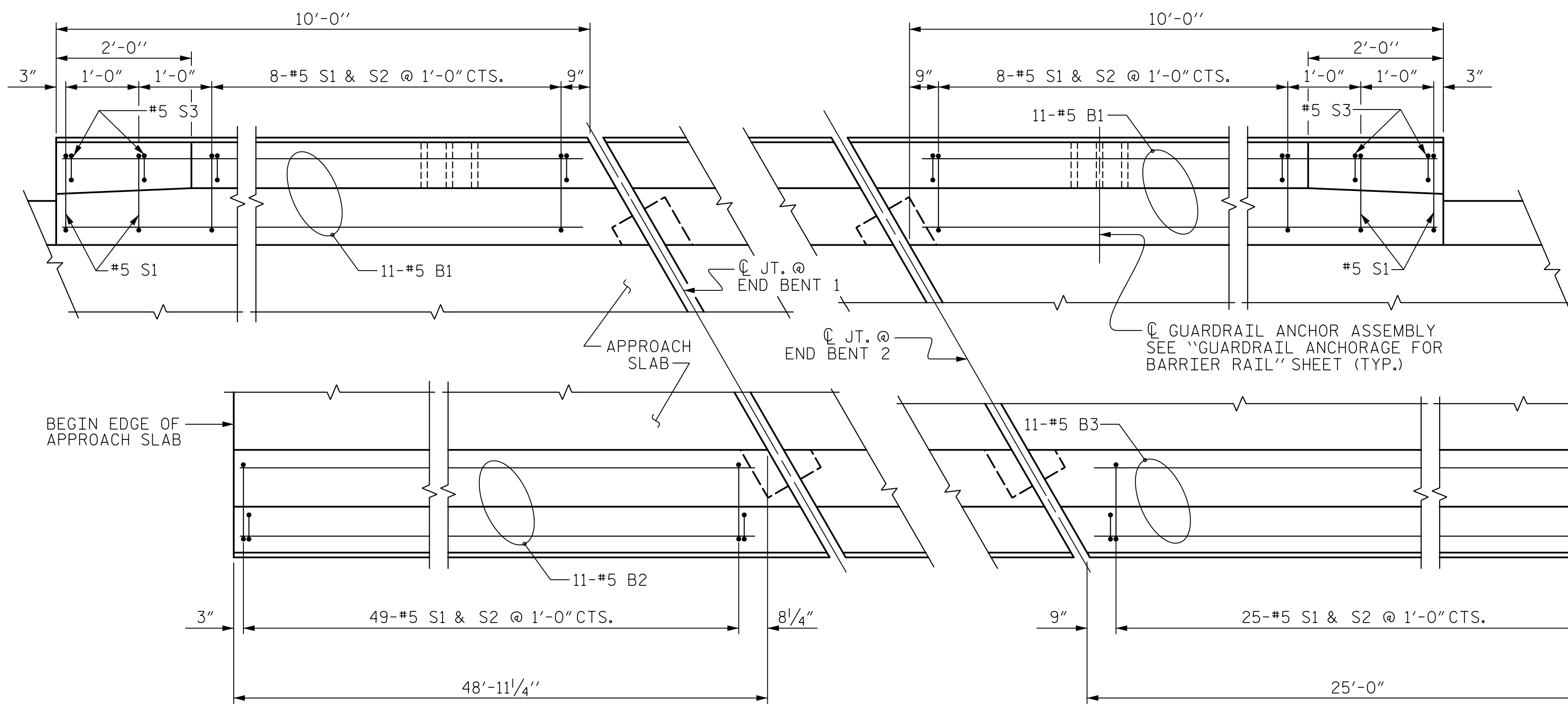
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343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: E. JOWZA DATE: 12/18
CHECKED BY: A. KANG DATE: 12/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

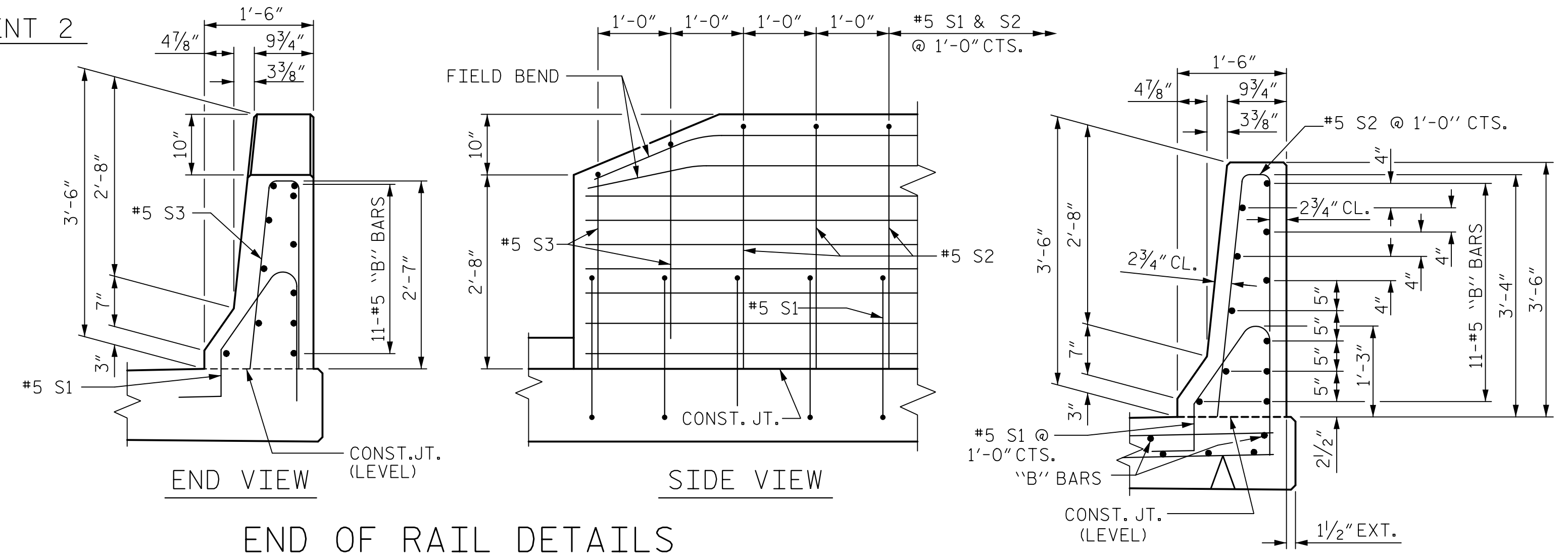


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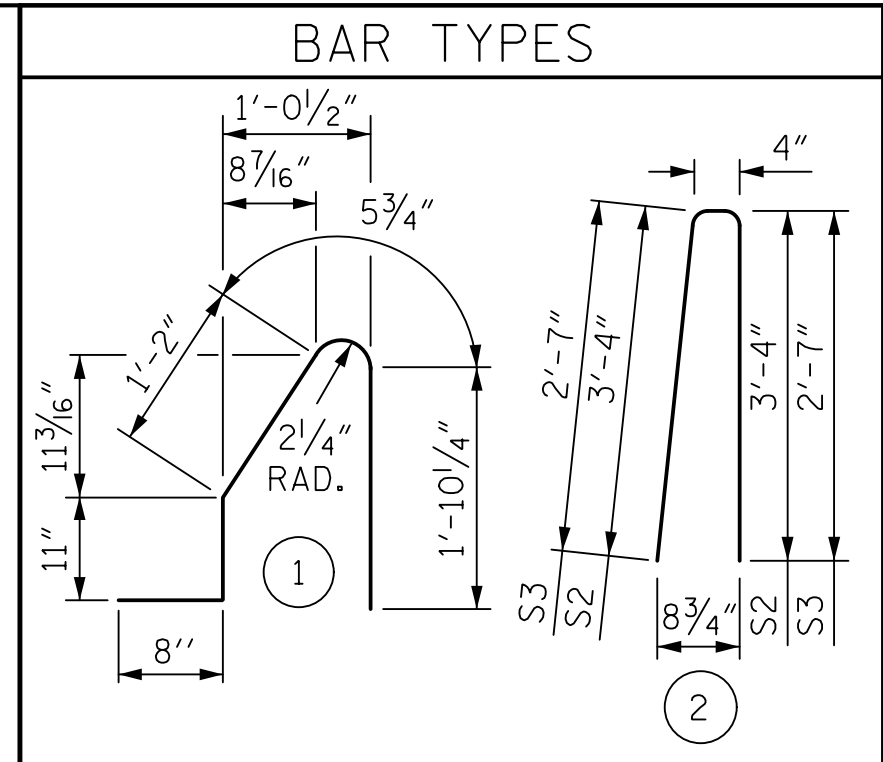
DWG. NO. 31



END BENT 1
END BENT 2
PLAN OF BARRIER RAIL



END VIEW
SIDE VIEW
END OF RAIL DETAILS
(WEST EDGE ONLY)

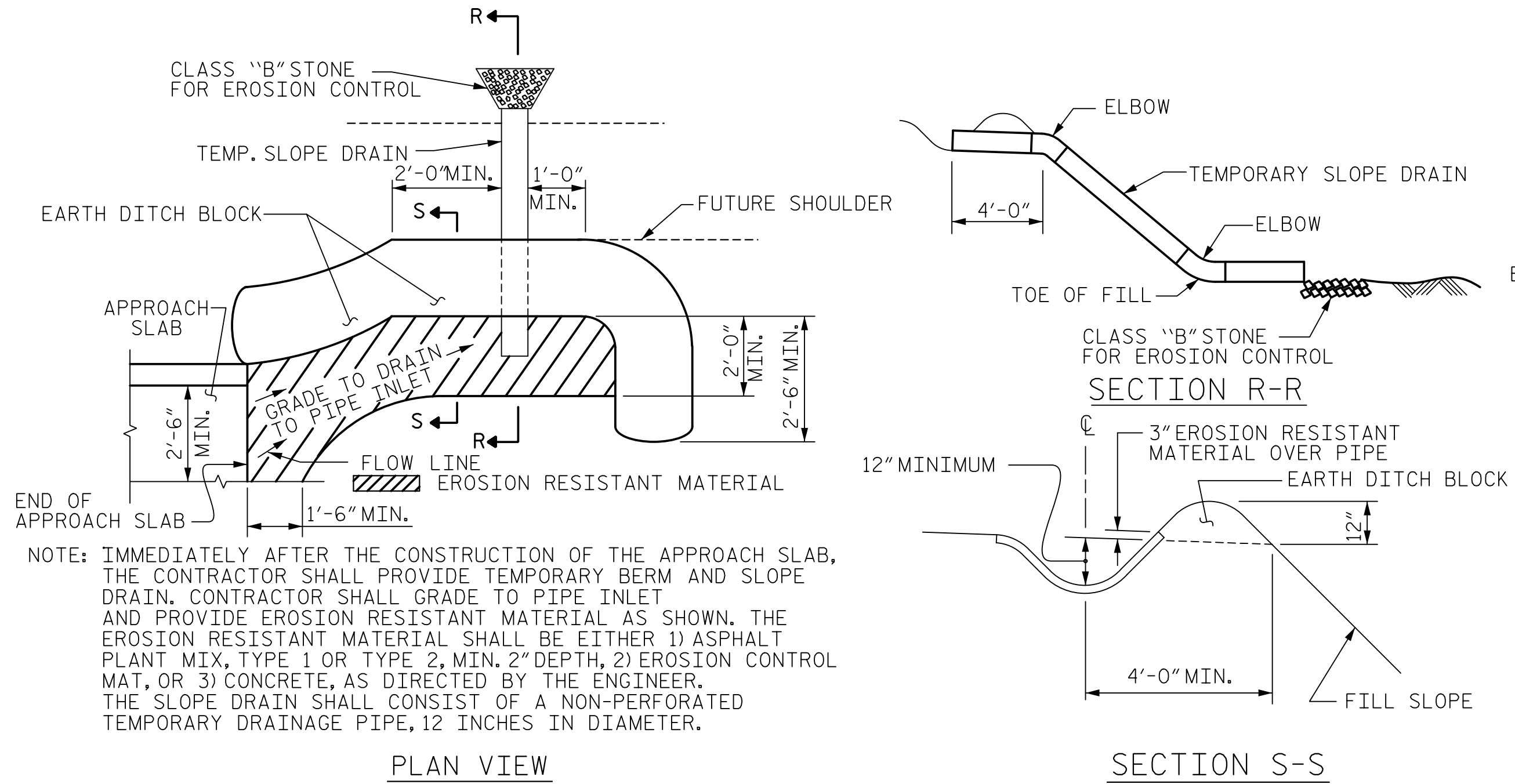


ALL BAR DIMENSIONS ARE OUT TO OUT

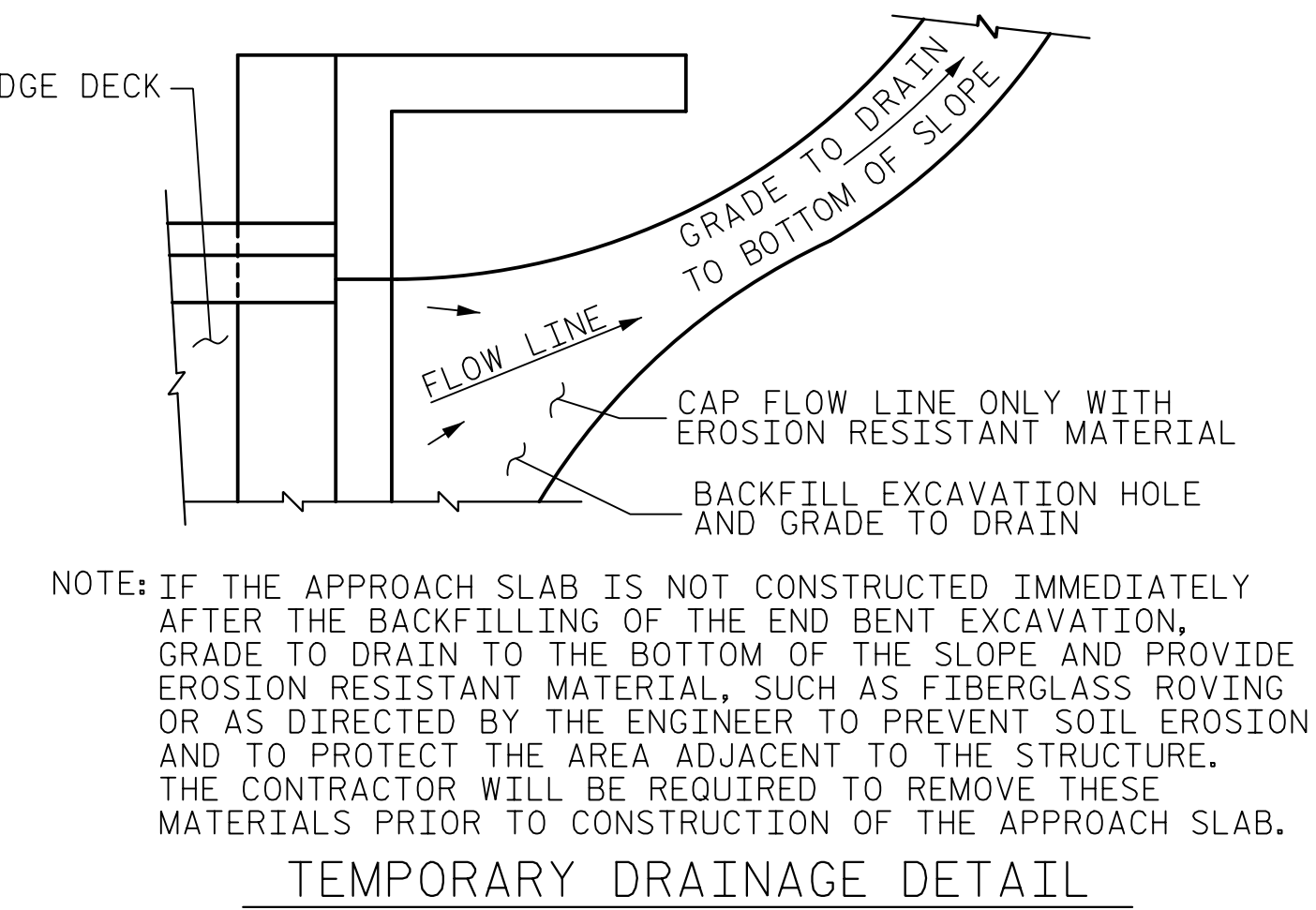
BILL OF MATERIAL

BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	22	#5	STR	9'-9"	224
*B2	11	#5	STR	48'-8"	558
*B3	11	#5	STR	24'-9"	284
*S1	94	#5	1	5'-1"	498
*S2	90	#5	2	7'-0"	657
*S3	4	#5	2	5'-6"	23

*EPOXY COATED REINFORCING STEEL	LBS.	2,244
CLASS AA CONCRETE	C. Y.	13.0
CONCRETE BARRIER RAIL	96.02 LIN. FT.	



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



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

NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".
THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.
SOUND BARRIER WALL NOT SHOWN FOR CLARITY. FOR SOUND BARRIER WALL LAYOUT AND DETAILS, SEE "CONCRETE BARRIER RAIL" AND "SOUND BARRIER WALL DETAILS" SHEETS, RESPECTIVELY.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POC 913+34.69 -WBL-

SHEET 5 OF 5

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S2-32
1			3			TOTAL SHEETS
2			4			32

ASSEMBLED BY : ERJ	DATE : 12/18
CHECKED BY : ASK	DATE : 12/18
DRAWN BY : FCJ 11/88	REV. 6/13 MAA/GM
CHECKED BY : ARB 11/88	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

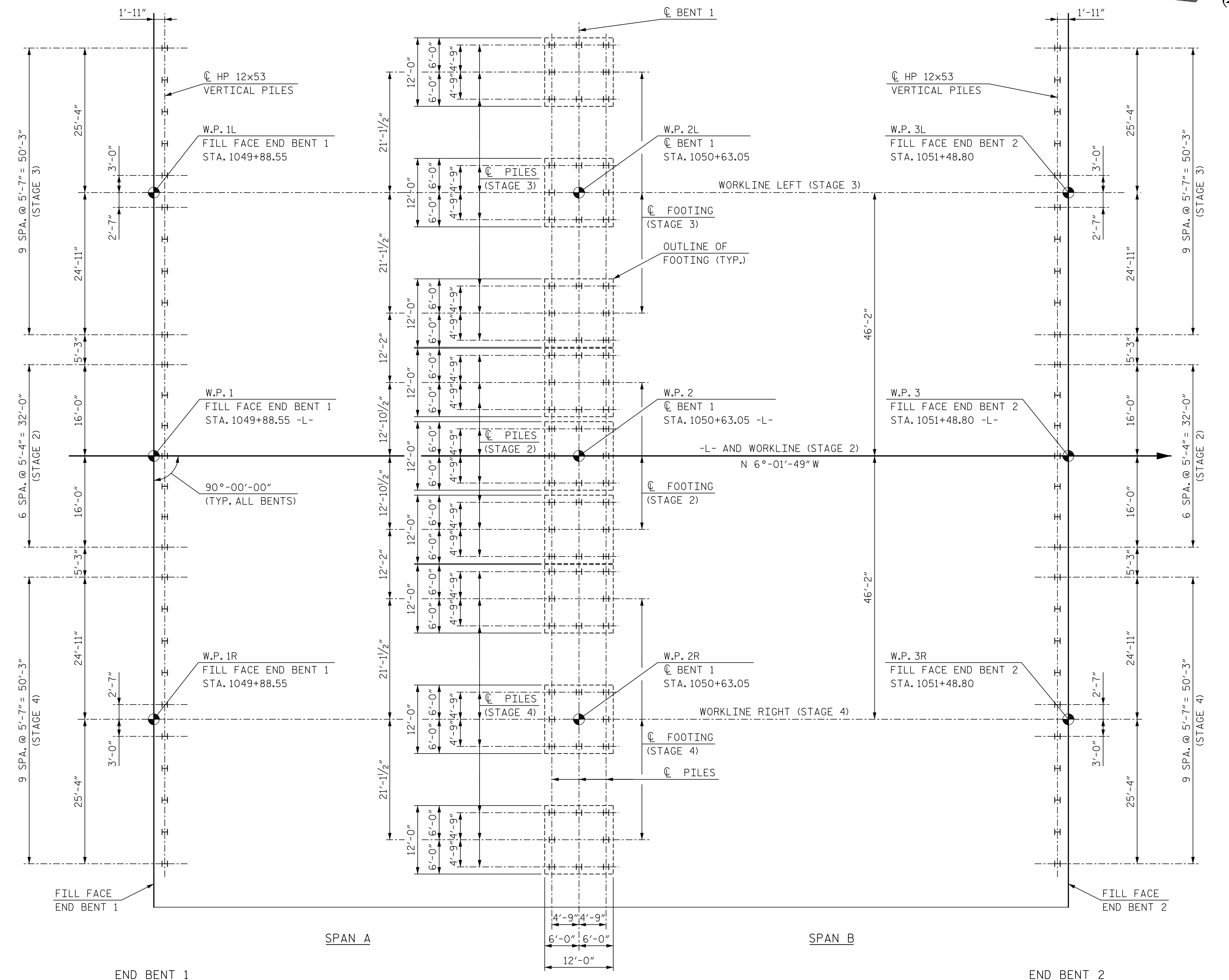
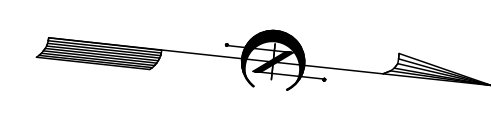
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NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DESIGNED BY: E. JONZA DATE: 12/18
CHECKED BY: A. KANG DATE: 12/18
DESIGN ENGINEER OF RECORD: J. GREGG DATE: 3/19

SEAL 046632 4/25/2019
ENGINEER JAMES P. GREGG

DWG. NO. 32

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UNLESS ALL SIGNATURES COMPLETED



FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 114 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40,000 FT-LBS TO 60,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 24,000 FT-LBS TO 40,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30,000 FT-LBS TO 50,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.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.

NOTES:

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO FILL FACES AT END BENTS AND C BENT AT BENT NO.1.

ALL PILE DIMENSIONS ARE TO CENTERS OF PILES.

ALL PILES ARE HP 12x53 STEEL PILES.

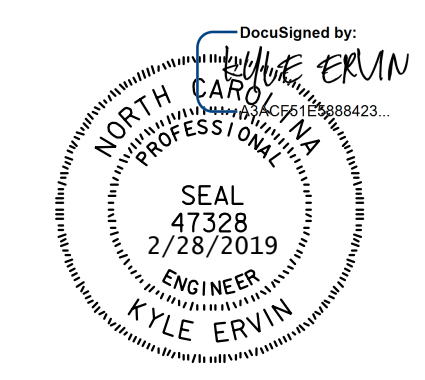
FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT SHEETS.

SOME COLUMNS ARE OFFSET FROM CENTERLINE FOOTING.

ALL PILES ARE VERTICAL.

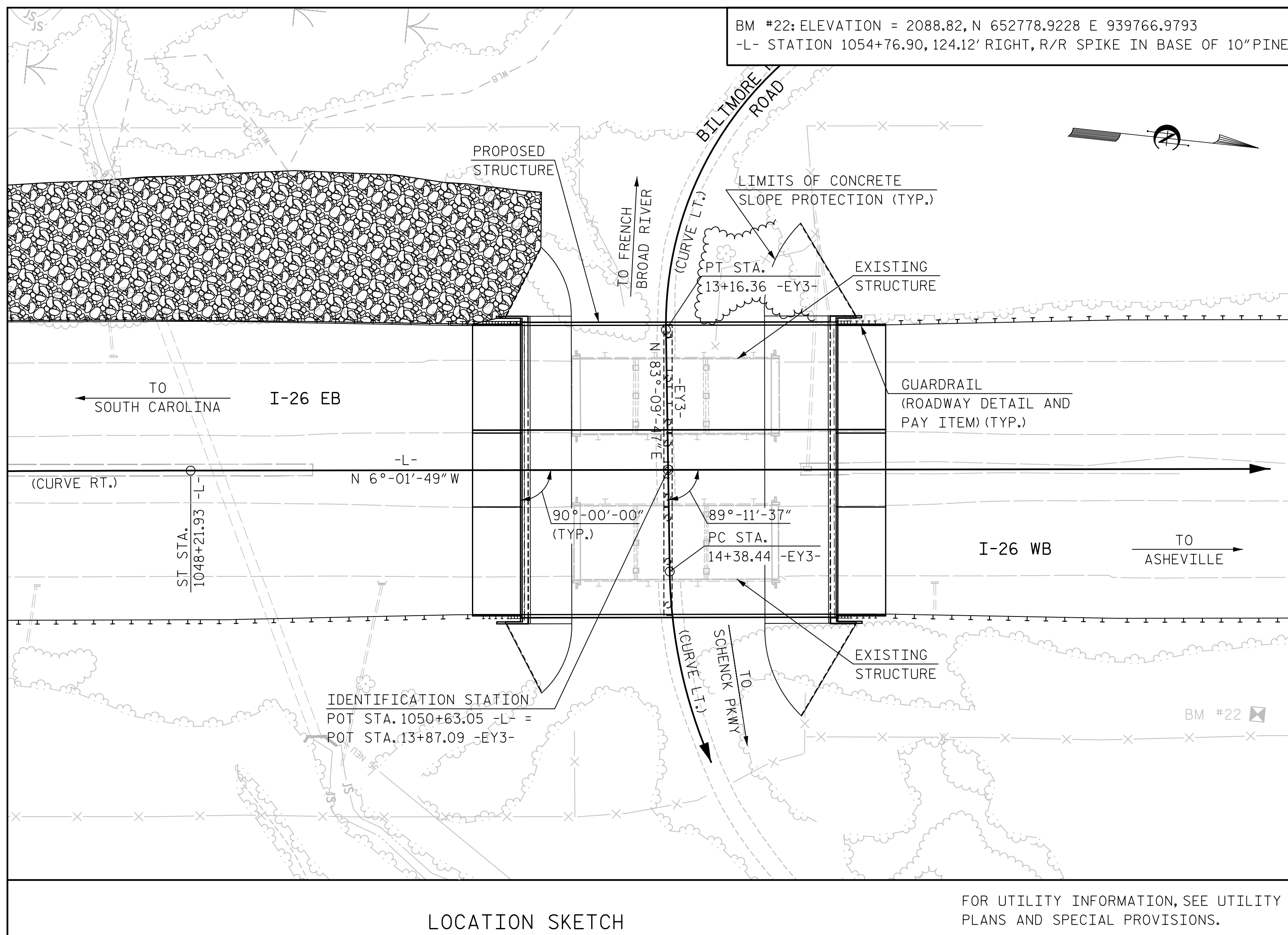
PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOUNDATION LAYOUT

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		DRAWN BY <u>B. VAUGHN</u> DATE <u>1/18</u> CHECKED BY <u>K. ERVIN</u> DATE <u>1/19</u> DESIGN ENGINEER OF RECORD <u>K. ERVIN</u> DATE <u>1/18</u>	<table border="1"> <thead> <tr> <th colspan="6">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>BY</th> <th>DATE</th> <th>NO.</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>				REVISIONS						NO.	BY	DATE	NO.	BY	DATE	1			3			2			4
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2			4																									
				SHEET NO. S3-2 TOTAL SHEETS 49																								



GENERAL 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.
- DIMENSIONS AND ELEVATIONS SHOWN FOR THE EXISTING STRUCTURES ARE FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCE BETWEEN THE EXISTING STRUCTURES SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE. IF FIELD CONDITIONS VARY FROM THE PLANS, MODIFICATIONS MAY BE MADE AS NECESSARY AS DIRECTED BY THE ENGINEER.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- FOR LIMITS OF PARTIAL REMOVAL OF EXISTING STRUCTURE, SEE "SUPERSTRUCTURE CONSTRUCTION SEQUENCE" SHEETS.
- FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION ACTIVITIES, SEE SPECIAL PROVISIONS.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIAL CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURES AT STATION 1050+63.05 -L-".

- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- 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 SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- THE EXISTING STRUCTURES CONSISTING OF 3 SPAN (30.5' - 35.5' - 35.5'), CONCRETE DECK ON ROLLED STEEL W-SHAPE GIRDERS, WITH 38.0' CLEAR ROADWAY WIDTH, SUPPORTED BY PILE BENT CONCRETE END BENTS AND CONCRETE POST AND BEAM BENTS ON ISOLATED SPREAD FOOTINGS, AND LOCATED ADJACENT TO THE PROPOSED STRUCTURES SHALL BE REMOVED. THE EXISTING BRIDGES ARE PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGES DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGES, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

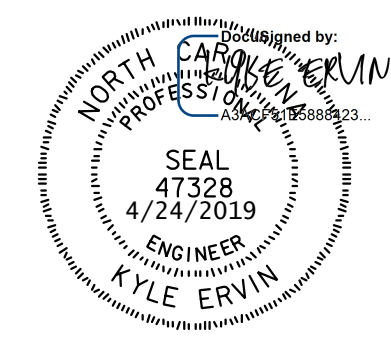
- TEMPORARY ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- CONTRACTOR SHALL REMOVE TEMPORARY ASPHALT TO WITHIN 1/4" OF CONCRETE BRIDGE DECK AND APPROACH SLAB BY MILLING. THE REMAINING ASPHALT THICKNESS IS TO BE REMOVED IN PREPARATION FOR SILANE DECK TREATMENT. SEE SILANE DECK TREATMENT SPECIAL PROVISIONS FOR PREPARATION REQUIREMENTS.
- FOR SILANE DECK TREATMENT, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL									
	REMOVAL OF EXISTING STRUCTURES AT STATION 1050+63.05 -L-	ASBESTOS ASSESSMENT	FOUNDATION EXCAVATION FOR BENT 1 STA. 1050+63.05 -L-	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 1050+63.05 -L-	REINFORCED CONCRETE DECK SLAB	CLASS A CONCRETE	BRIDGE APPR. SLABS, STATION 1050+63.05 -L-	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FEET	CU. YARDS	LUMP SUM	LBS.	LBS.
SUPERSTRUCTURE	---	---	---	---	23,669	---	LUMP SUM	---	---
END BENT 1	---	---	---	---	---	108.8	---	17,796	---
BENT 1	---	---	LUMP SUM	---	---	386.8	---	72,898	3,474
END BENT 2	---	---	---	---	---	108.8	---	17,970	---
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	23,669	604.4	LUMP SUM	108,664	3,474

SAMPLE BAR REPLACEMENT		NOTE:
SIZE	LENGTH	
#3	6'-2"	SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi. BAR LENGTHS IN THIS TABLE ARE A GUIDE. THE ENGINEER SHALL APPROVE FINAL LENGTHS BASED ON THE TYPE AND LOCATION OF SAMPLE BAR.
#4	7'-4"	
#5	8'-6"	
#6	9'-8"	
#7	10'-10"	
#8	12'-0"	
#9	13'-2"	
#10	14'-6"	
#11	15'-10"	

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

TOTAL BILL OF MATERIAL																				
	54" PRESTRESSED CONCRETE GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 STEEL PILES		HP 12 x 53 STEEL PILES		CONCRETE BARRIER RAIL		CONCRETE MEDIAN BARRIER		4" SLOPE PROTECTION		ELASTOMERIC BEARINGS		MILLING ASPHALT PAVEMENT 7/2" TO 1/4"		DIAMOND GRINDING		SILANE DECK TREATMENT	
	NO.	L.F.	EACH	NO.	L.F.	L.F.	L.F.	SQ. YARDS	LUMP SUM	SQ. YARDS	SQ. YARDS	SQ. YARDS	LUMP SUM	SQ. YARDS	SQ. YARDS	SQ. YARDS				
SUPERSTRUCTURE	38	2,986.50	---	---	---	317.17	208.58	---	LUMP SUM	603	---	---	LUMP SUM	3,316	3,340	---				
END BENT 1	---	---	27	27	1,674	---	---	461	---	---	---	---	---	---	---	---				
BENT 1	---	---	72	72	2,394	---	---	---	---	---	---	---	---	---	---	---				
END BENT 2	---	---	27	27	1,134	---	---	752	---	---	---	---	---	---	---	---				
TOTAL	38	2,986.50	126	126	5,202	317.17	208.58	1,213	LUMP SUM	603	---	---	LUMP SUM	3,316	3,340	---				



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DRAWN BY: B. VAUGHN	DATE: 11/18	DWG. NO. 3	
CHECKED BY: K. ERVIN	DATE: 2/19		
DESIGN ENGINEER OF RECORD: K. ERVIN	DATE: 11/18		

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 LOCATION SKETCH,
 GENERAL NOTES, AND
 TOTAL BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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 (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	①	1.21	--	1.75	0.74	1.38	A	EL/ER	35.7	0.85	1.34	B	I	7.7	0.80	0.74	1.21	B	EL/ER	41.4		
		HL-93 (OPERATING)	N/A	--	1.77	--	1.35	0.74	1.79	A	EL/ER	35.7	0.85	1.77	B	I	7.7	N/A	--	--	--	--	--		
		HS-20 (INVENTORY)	36.000	②	1.64	59.0	1.75	0.74	1.81	A	EL/ER	35.7	0.85	1.78	B	I	7.7	0.80	0.74	1.64	B	EL/ER	41.4		
		HS-20 (OPERATING)	36.000	--	2.34	84.2	1.35	0.74	2.35	A	EL/ER	35.7	0.85	2.34	B	I	7.7	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500	--	4.16	52.0	1.40	0.74	5.62	A	EL/ER	35.7	0.85	6.16	B	I	7.7	0.80	0.74	4.16	B	EL/ER	41.4		
		S3C	21.500	--	2.42	52.0	1.40	0.74	3.27	A	EL/ER	35.7	0.85	3.51	B	I	7.7	0.80	0.74	2.42	B	EL/ER	41.4		
		S3A	22.750	--	2.29	52.1	1.40	0.74	3.10	A	EL/ER	35.7	0.85	3.43	B	I	7.7	0.80	0.74	2.29	B	EL/ER	41.4		
		S4A	26.750	--	2.02	54.0	1.40	0.74	2.75	A	EL/ER	35.7	0.85	2.83	B	I	7.7	0.80	0.74	2.02	B	EL/ER	41.4		
		S5A	30.500	--	1.78	54.3	1.40	0.74	2.43	A	EL/ER	35.7	0.85	2.58	B	I	7.7	0.80	0.74	1.78	B	EL/ER	41.4		
		S6A	34.500	--	1.62	55.9	1.40	0.74	2.21	A	EL/ER	35.7	0.85	2.31	B	I	7.7	0.80	0.74	1.62	B	EL/ER	41.4		
		S7B	38.500	--	1.47	56.6	1.40	0.74	2.02	A	EL/ER	35.7	0.85	2.15	B	I	7.7	0.80	0.74	1.47	B	EL/ER	41.4		
		S7A	40.000	③	1.45	58.0	1.40	0.74	2.00	A	EL/ER	35.7	0.85	2.19	B	I	7.7	0.80	0.74	1.45	B	EL/ER	41.4		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250	--	1.99	56.2	1.40	0.74	2.73	A	EL/ER	35.7	0.85	2.87	B	I	7.7	0.80	0.74	1.99	B	EL/ER	41.4		
		T5B	32.000	--	1.75	56.0	1.40	0.74	2.40	A	EL/ER	35.7	0.85	2.65	B	I	7.7	0.80	0.74	1.75	B	EL/ER	41.4		
		T6A	36.000	--	1.60	57.6	1.40	0.74	2.21	A	EL/ER	35.7	0.85	2.52	B	I	7.7	0.80	0.74	1.60	B	EL/ER	41.4		
		T7A	40.000	--	1.49	59.6	1.40	0.74	2.06	A	EL/ER	35.7	0.85	2.19	B	I	7.7	0.80	0.74	1.49	B	EL/ER	41.4		
	T7B	40.000	--	1.59	63.6	1.40	0.74	2.22	A	EL/ER	35.7	0.85	2.06	B	I	7.7	0.80	0.74	1.59	B	EL/ER	41.4			

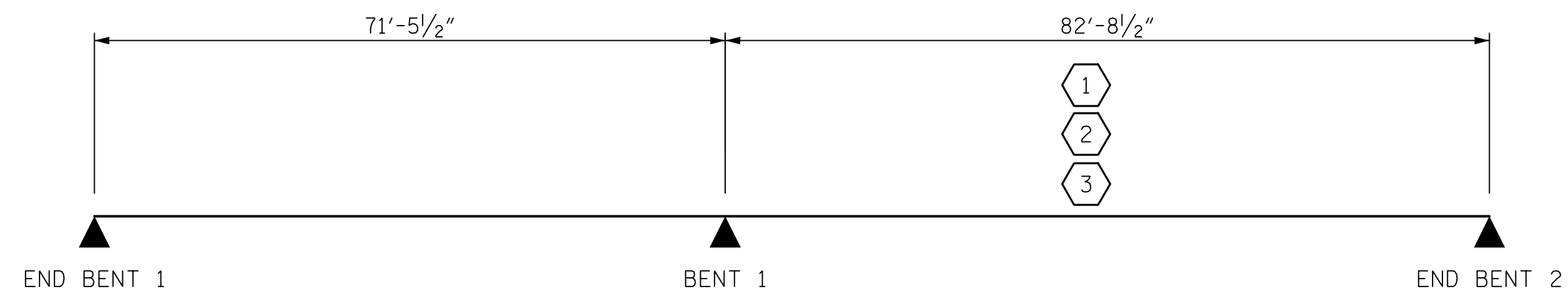
NOTES:

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:

-
-
-
-

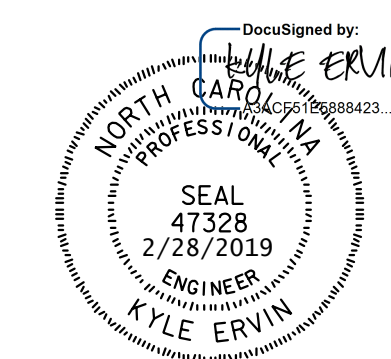
#	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

NOTE: SPAN LENGTHS ARE BEARING TO BEARING LENGTHS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-



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

ASSEMBLED BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 2/19
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THG

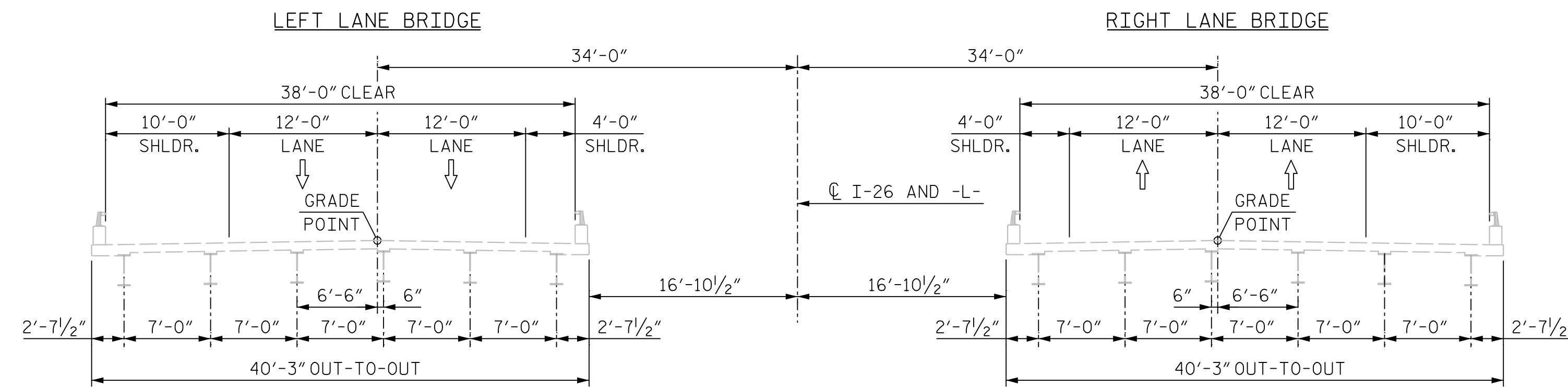
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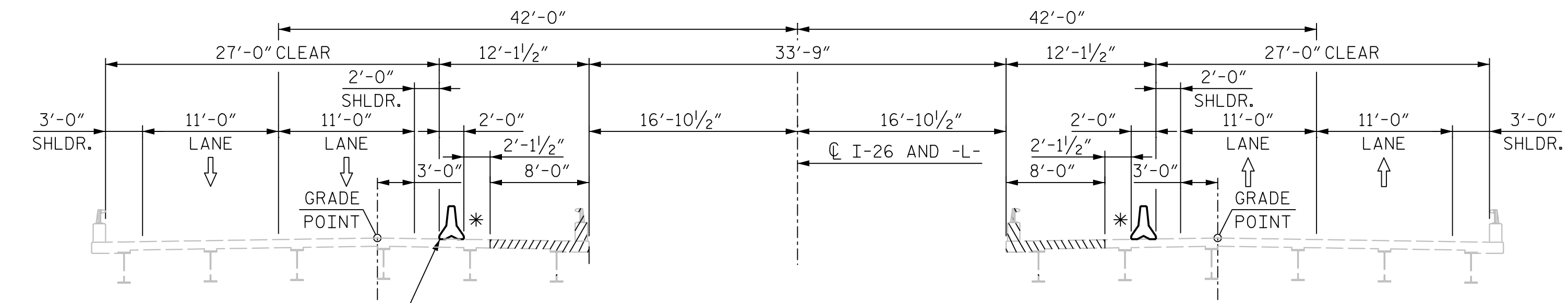
DRAWN BY : B. VAUGHN DATE : 11/18
 CHECKED BY : K. ERVIN DATE : 2/19
 DESIGN ENGINEER OF RECORD : K. ERVIN DATE : 11/18

DWG. NO. 4

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 49
2			4			

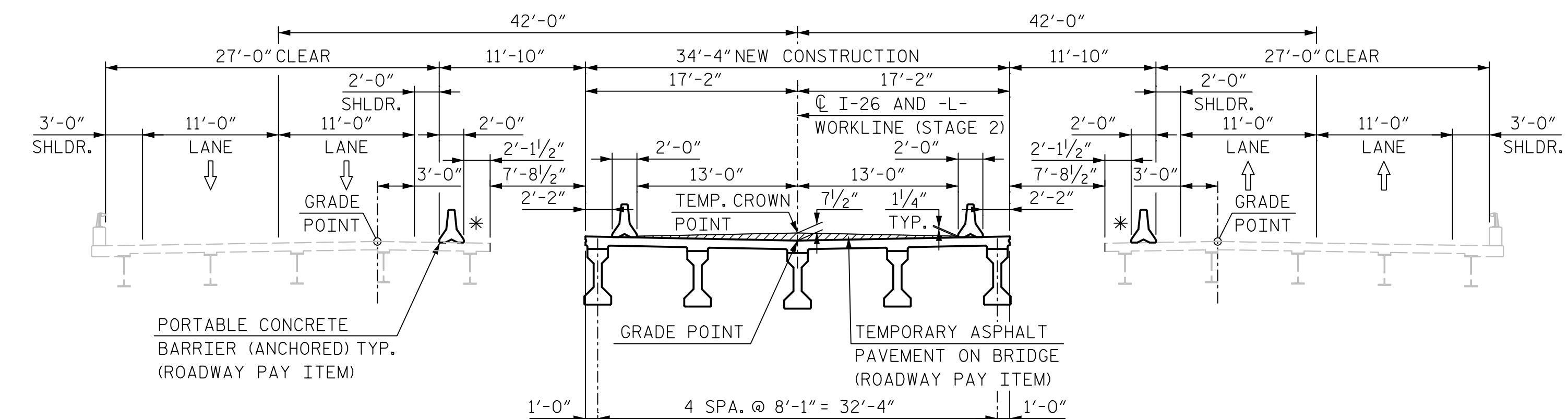


EXISTING CONDITION



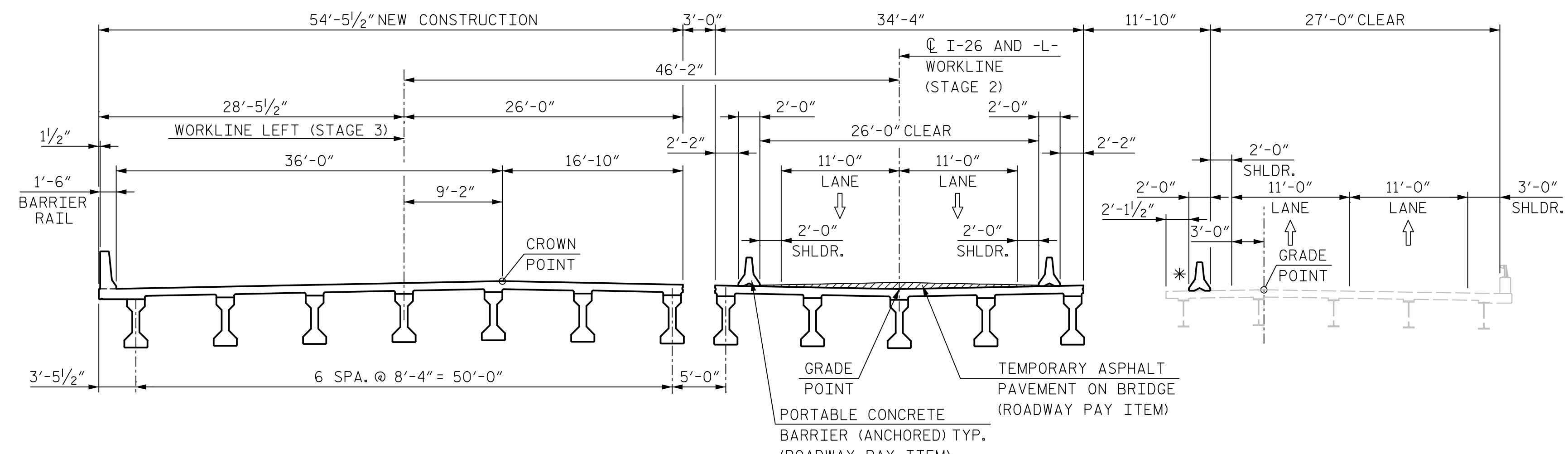
STAGE 1

(PLACE TWO PORTABLE CONCRETE BARRIERS, REMOVE PORTION OF EXISTING BRIDGES)



STAGE 2

(BUILD MEDIAN BRIDGE SECTION AND MAINTAIN TRAFFIC ON EXISTING BRIDGES, PLACE TWO PORTABLE CONCRETE BARRIERS IN STAGE 2 MEDIAN CONSTRUCTION, CONSTRUCT TEMPORARY ASPHALT OVERLAY ON MEDIAN BRIDGE SECTION)



STAGE 3

(SHIFT LEFT LANE BRIDGE TRAFFIC TO MEDIAN BRIDGE SECTION, REPLACE AND WIDEN EXISTING LEFT LANE BRIDGE)

NOTES:

EXISTING CONDITION:
DIMENSIONS SHOWN FOR THE EXISTING STRUCTURES ARE FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING STRUCTURES SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE. IF FIELD CONDITIONS VARY FROM THE PLANS, MODIFICATIONS MAY BE MADE AS NECESSARY AS DIRECTED BY THE ENGINEER.

STAGE 1:
REMOVAL OF EXISTING SUBSTRUCTURE SHOULD BE MINIMIZED AND OVERALL STABILITY SHALL NOT BE AFFECTED. UPON FIELD VERIFICATION OF REQUIRED SUBSTRUCTURE REMOVAL LIMITS, THE CONTRACTOR SHALL REQUEST APPROVAL BY THE ENGINEER BEFORE SUBSTRUCTURE DEMOLITION BEGINS.

* CANTILEVERED DECK AREA SHALL NOT EXCEED 100 PSF OF LIVE LOAD. IF THIS LOAD IS TO BE EXCEEDED, THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING OF THE CANTILEVERED EXISTING DECK.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

STAGE 2:
* CANTILEVERED DECK AREA SHALL NOT EXCEED 100 PSF OF LIVE LOAD. IF THIS LOAD IS TO BE EXCEEDED, THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING OF THE CANTILEVERED EXISTING DECK.

CONSTRUCT 34'-4" OF MEDIAN BRIDGE DECK WIDTH. INSTALL TEMPORARY ANCHORED BARRIERS ON NEW BRIDGE. PLACE TACKCOAT AND ASPHALT OVERLAY FOR TEMPORARY TRAFFIC CONFIGURATION.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER AND TEMPORARY ASPHALT OVERLAY.

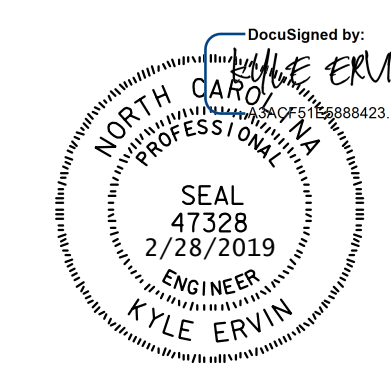
STAGE 3:
* CANTILEVERED DECK AREA SHALL NOT EXCEED 100 PSF OF LIVE LOAD. IF THIS LOAD IS TO BE EXCEEDED, THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING OF THE CANTILEVERED EXISTING DECK.

SHIFT TRAFFIC FROM EXISTING LEFT LANE BRIDGE ONTO NEWLY CONSTRUCTED MEDIAN BRIDGE SECTION. REMOVE EXISTING LEFT LANE BRIDGE. CONSTRUCT 54'-5 1/2" OF LEFT LANE BRIDGE DECK WIDTH.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
CONSTRUCTION
SEQUENCE

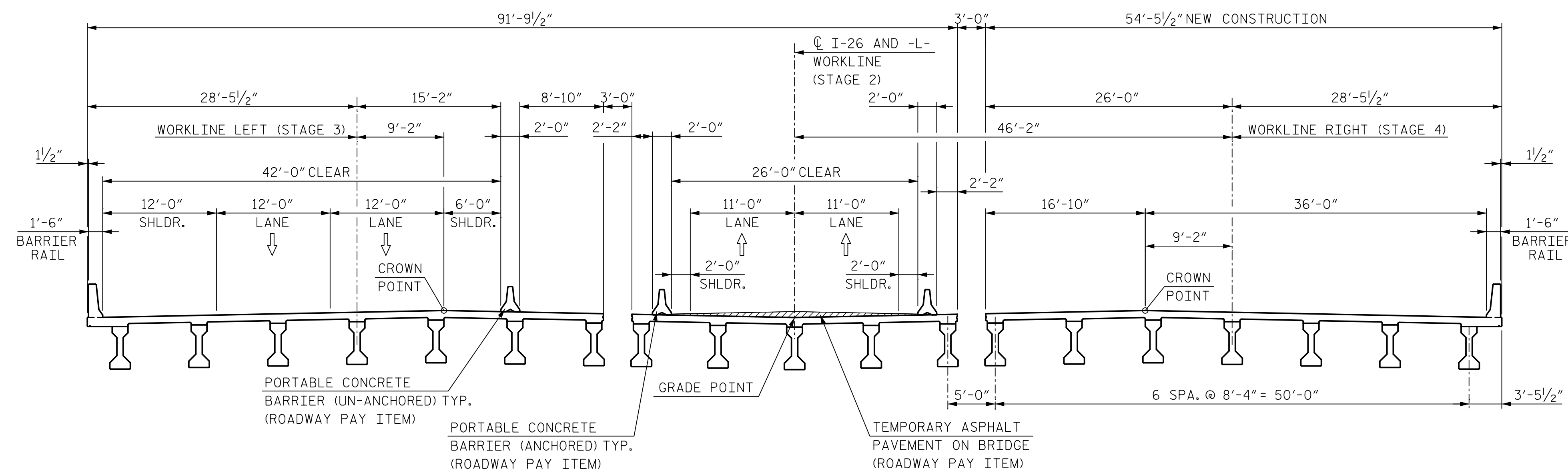
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DRAWN BY B. VAUGHN DATE 11/18
CHECKED BY K. ERVIN DATE 11/18
DESIGN ENGINEER OF RECORD K. ERVIN DATE 11/18

DWG. NO. 5

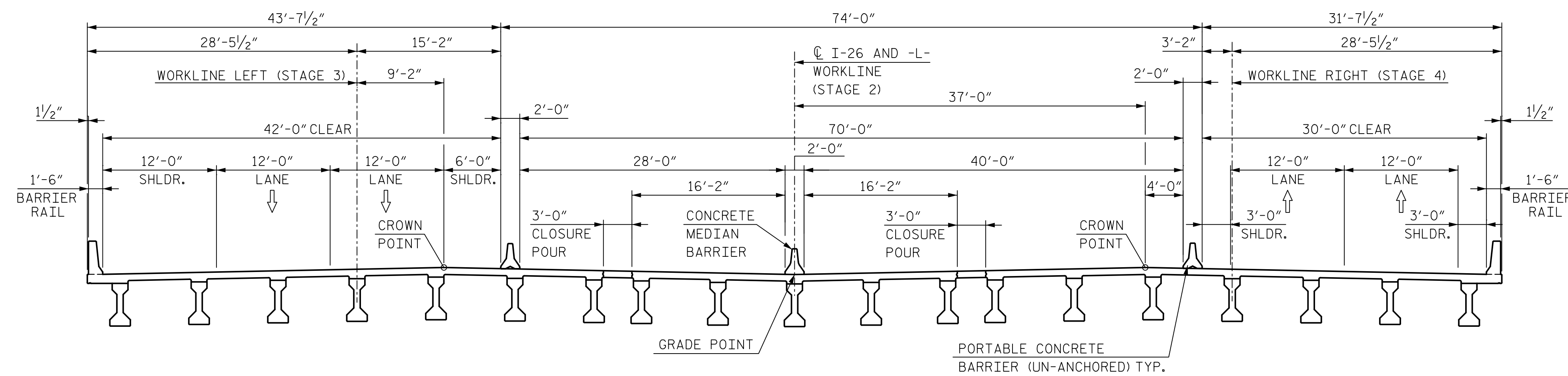
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REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS	
1			3			S3-5	
2			4			49	



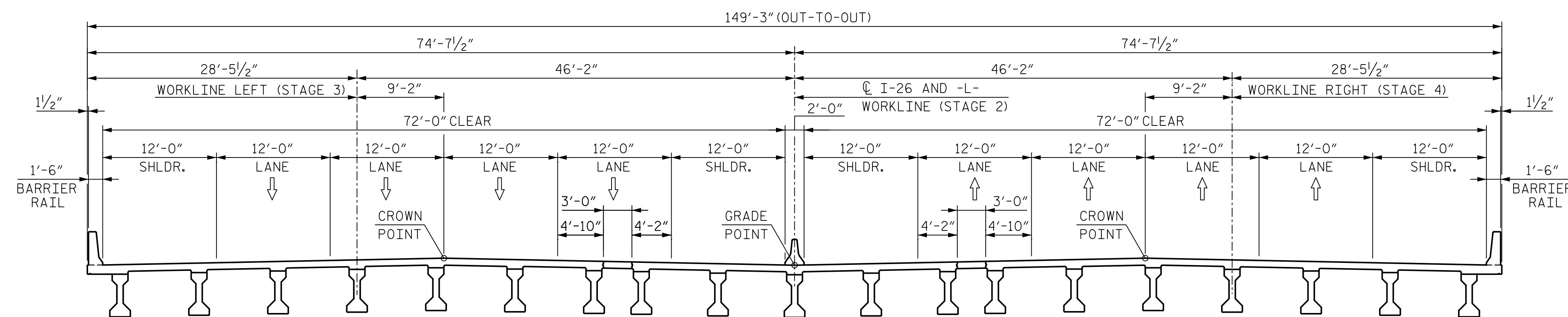
STAGE 4

(PLACE SINGLE PORTABLE CONCRETE BARRIER, SHIFT TRAFFIC TO NEW LEFT LANE BRIDGE AND REVERSE TRAFFIC IN MEDIAN BRIDGE SECTION, REPLACE AND WIDEN EXISTING RIGHT BRIDGE)



STAGE 5

(PLACE SINGLE PORTABLE CONCRETE BARRIER, SHIFT TRAFFIC FROM MEDIAN BRIDGE SECTION TO NEW RIGHT LANE BRIDGE, REMOVE TWO PORTABLE CONCRETE BARRIERS (ANCHORED), REMOVE TEMPORARY ASPHALT PAVEMENT ON BRIDGE, TIE STAGES TOGETHER WITH CLOSURE POURS, GROOVE BRIDGE FLOORS, BUILD CONCRETE MEDIAN BARRIER)



FINAL CONDITION

NOTES:

STAGE 4:
INSTALL TEMPORARY UN-ANCHORED BARRIER ON NEWLY CONSTRUCTED LEFT LANE BRIDGE SECTION. SHIFT TRAFFIC FROM MEDIAN BRIDGE SECTION TO NEWLY CONSTRUCTED LEFT LANE BRIDGE SECTION. SHIFT TRAFFIC FROM EXISTING RIGHT LANE BRIDGE ONTO MEDIAN BRIDGE SECTION. REMOVE EXISTING RIGHT LANE BRIDGE. CONSTRUCT 54'-5 1/2\"/>

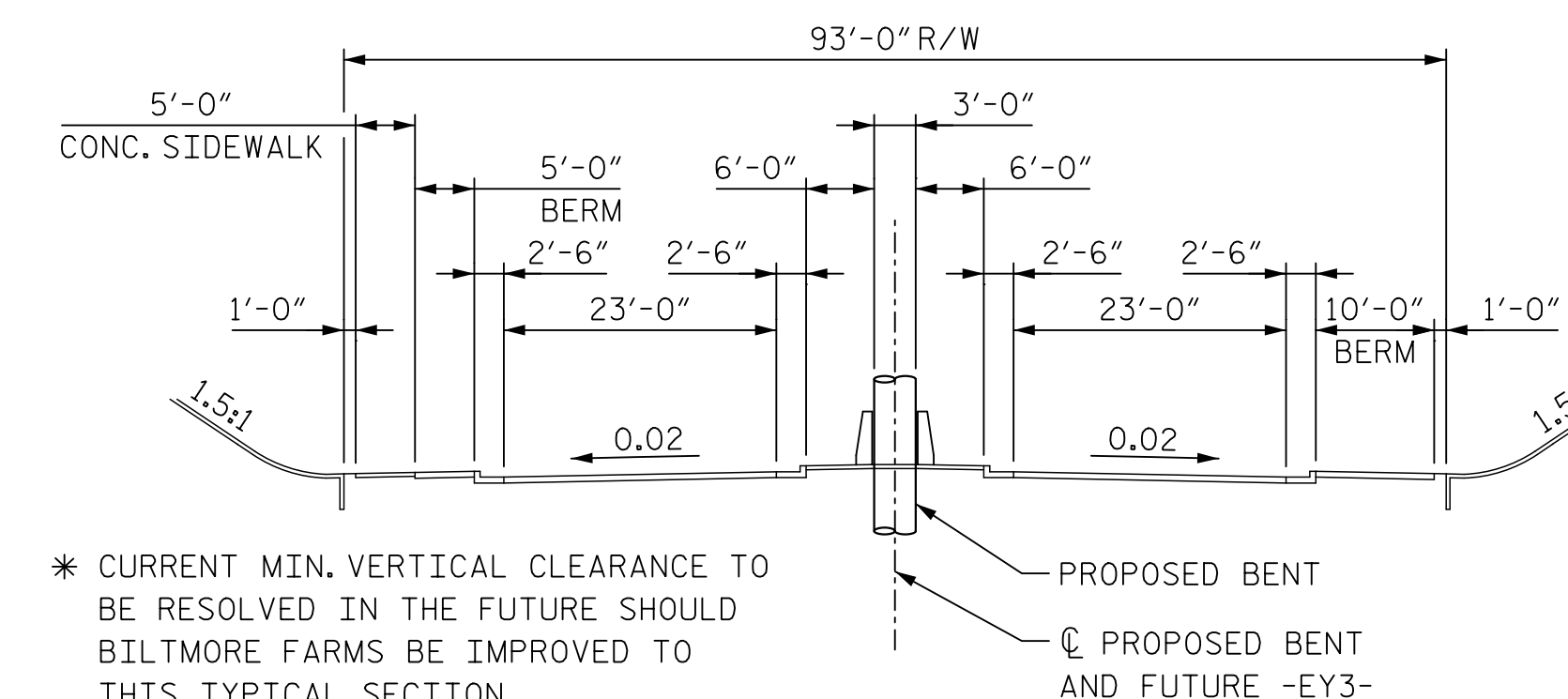
SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE PORTABLE CONCRETE BARRIER.

STAGE 5:
INSTALL TEMPORARY UN-ANCHORED BARRIER ON NEWLY CONSTRUCTED RIGHT LANE BRIDGE SECTION. SHIFT TRAFFIC FROM MEDIAN BRIDGE SECTION TO NEWLY CONSTRUCTED RIGHT LANE BRIDGE SECTION. REMOVE TWO TEMPORARY ANCHORED BARRIERS. REMOVE TEMPORARY ASPHALT PAVEMENT ON THE MEDIAN BRIDGE SECTION BY MILLING TO NEAR CONCRETE SURFACE. TIE ALL STAGES OF BRIDGE TOGETHER WITH 3'-0\"/>

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE PORTABLE CONCRETE BARRIER.

FINAL CONDITION:
REMOVE TWO TEMPORARY UN-ANCHORED BARRIERS AND SHIFT TRAFFIC TO THE FINAL CONFIGURATION.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE PORTABLE CONCRETE BARRIER.

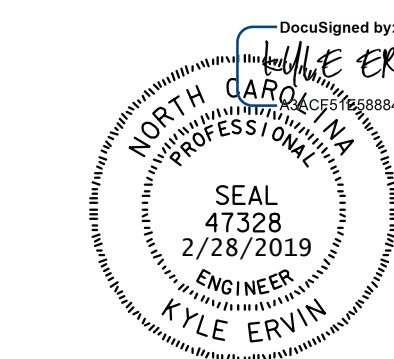


* CURRENT MIN. VERTICAL CLEARANCE TO BE RESOLVED IN THE FUTURE SHOULD BILTMORE FARMS BE IMPROVED TO THIS TYPICAL SECTION.

ANTICIPATED TYPICAL SECTION OF FUTURE BILTMORE FARMS ROAD

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
CONSTRUCTION SEQUENCE

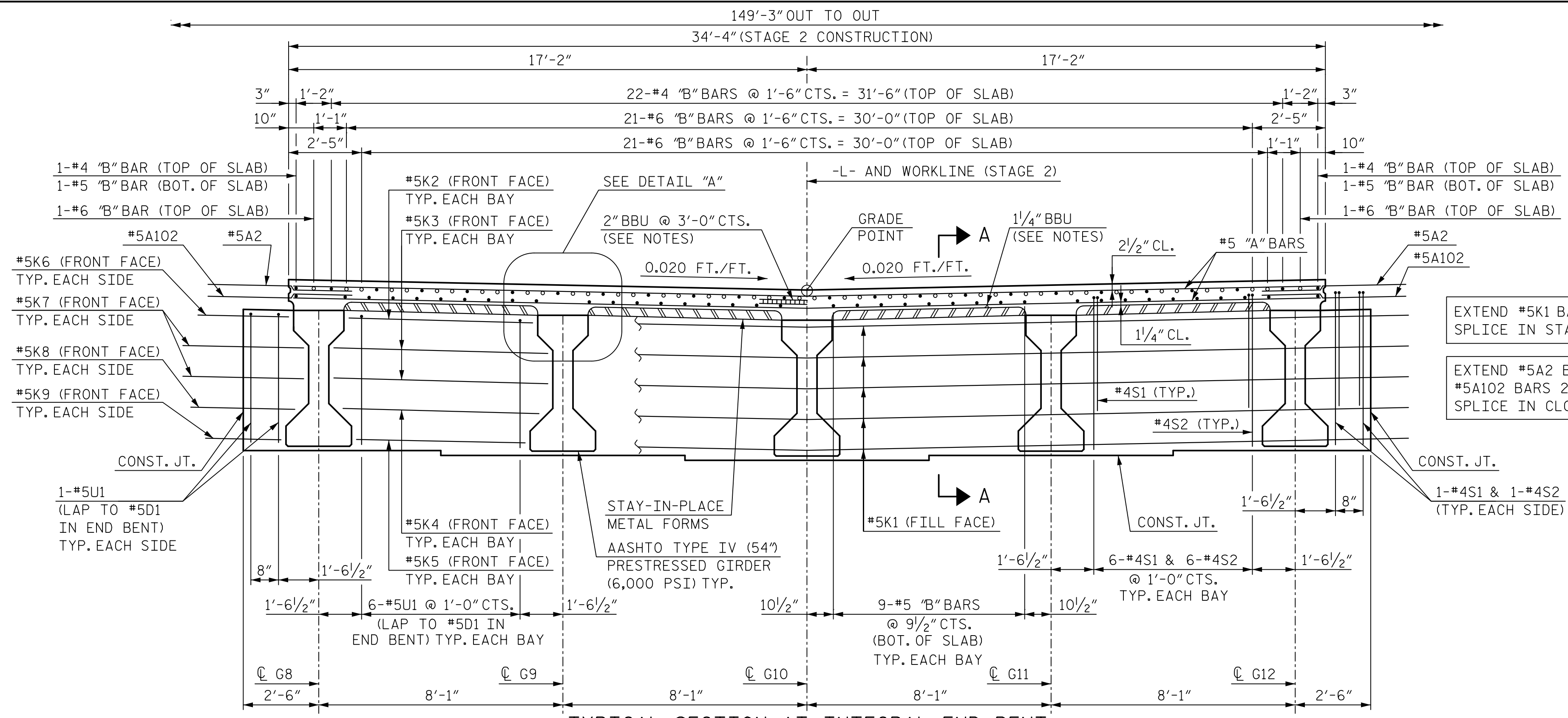
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CHECKED BY K. ERVIN DATE 11/18
DESIGN ENGINEER OF RECORD K. ERVIN DATE 11/18

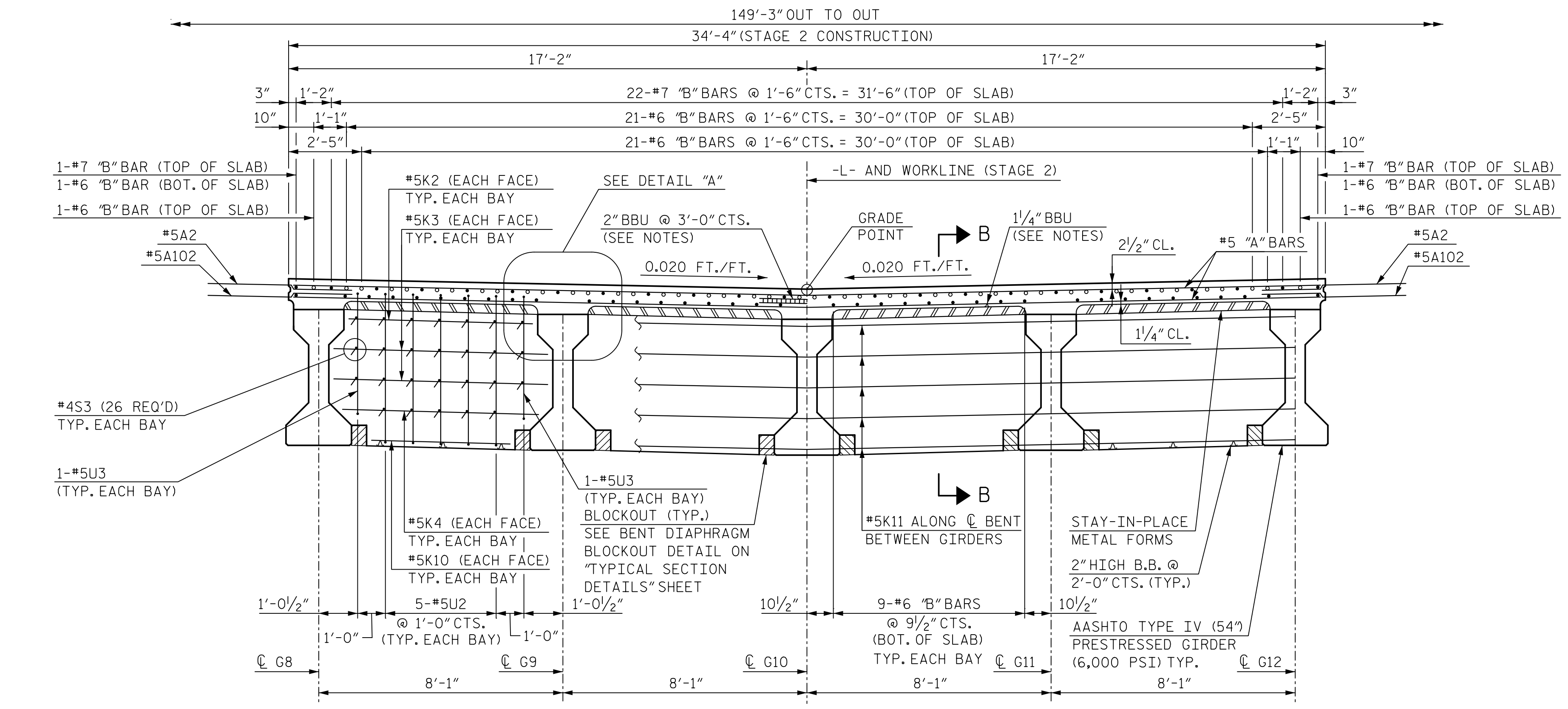
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			



TYPICAL SECTION AT INTEGRAL END BENT
(STAGE 2 CONSTRUCTION)
FOR SECTION THRU END BENT, SEE SECTION A-A ON "TYPICAL SECTION DETAILS" SHEET



TYPICAL SECTION AT CONTINUOUS BENT DIAPHRAGM
(STAGE 2 CONSTRUCTION)
FOR SECTION THRU BENT, SEE SECTION B-B ON "TYPICAL SECTION DETAILS" SHEET

- "B" BAR KEY**
- = CONTINUOUS BAR RUN, SEE PLAN OF SPAN SHEETS
 - = NON-CONTINUOUS BAR RUN FOR NEGATIVE MOMENT REGIONS, SEE PLAN OF SPAN SHEETS

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 (CHCM) AT 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

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

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

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

TO MAINTAIN PROPER LOCATION OF "A" BARS IN THE TOP OF SLAB, BBU DEPTH MUST VARY IN UNIT AS THE MAXIMUM SIZE OF THE "B" BARS IN THE TOP OF THE SLAB VARIES. A 2 1/4" BBU SHALL BE USED WHERE ONLY #4 "B" BARS ARE PRESENT. WHERE #6 OR #7 "B" BARS ARE PRESENT, A 2" BBU SHALL BE USED.

NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILD-UPS.

FOR WING DETAILS, SEE "END BENT 1" AND "END BENT 2" SHEETS.

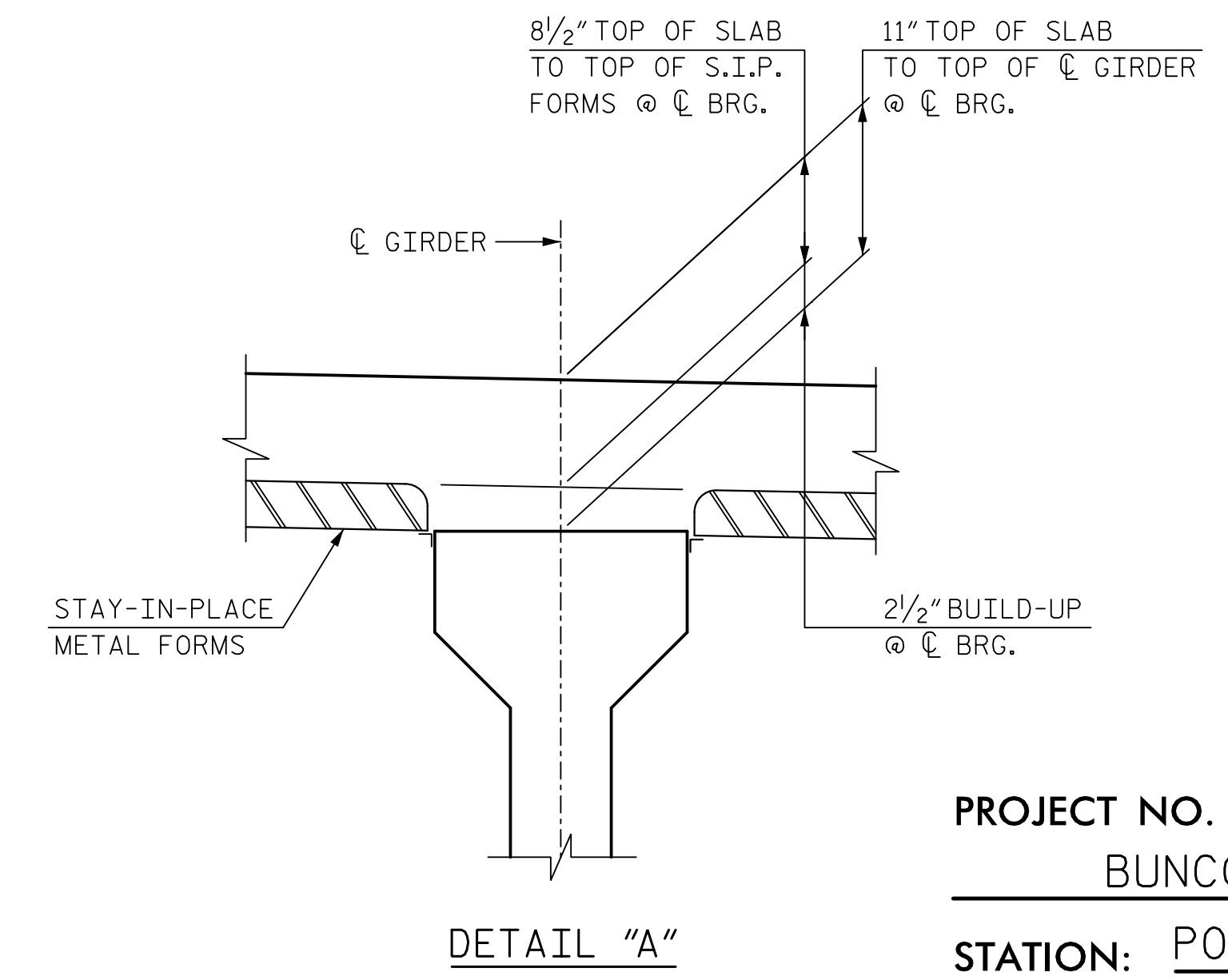
DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.

THE TOP SURFACE OF THE END BENT DIAPHRAGM AT THE CLOSURE POUR BAY SHALL BE ROUGHENED TO A DEPTH OF 1/4".

ALL REINFORCEMENT SHALL HAVE A 2" MIN. CLEAR UNLESS NOTED OTHERWISE.

EXTEND #5K1 BARS 2'-10" FOR SPLICE IN STAGES 3 AND 4

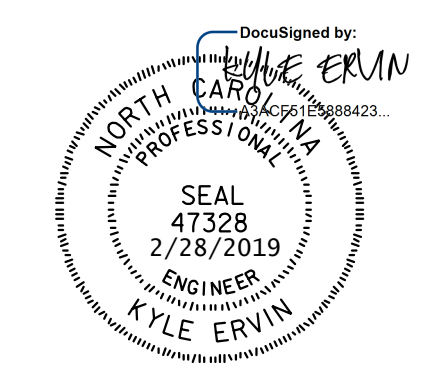
EXTEND #5A2 BARS 2'-9" AND #5A102 BARS 2'-6" FOR SPLICE IN CLOSURE POUR



DETAIL "A"

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 1 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTIONS
STAGE 2 CONSTRUCTION



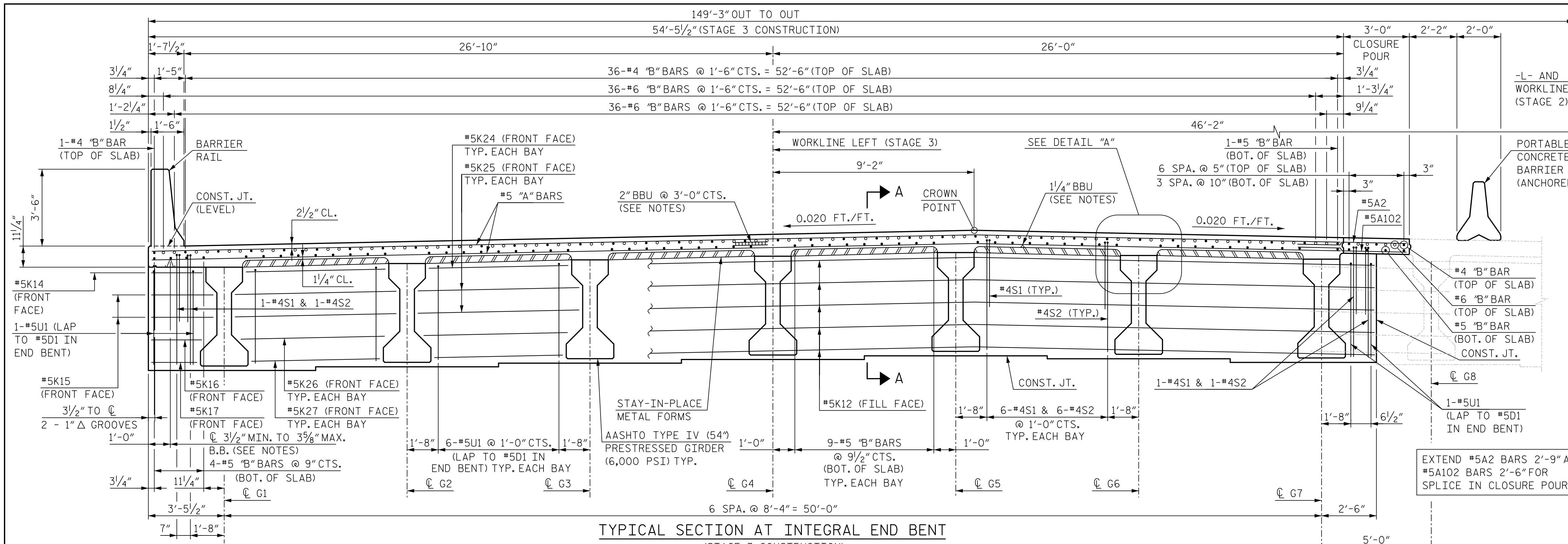
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DESIGN ENGINEER OF RECORD K. ERVIN DATE 1/18

DWG. NO. 7

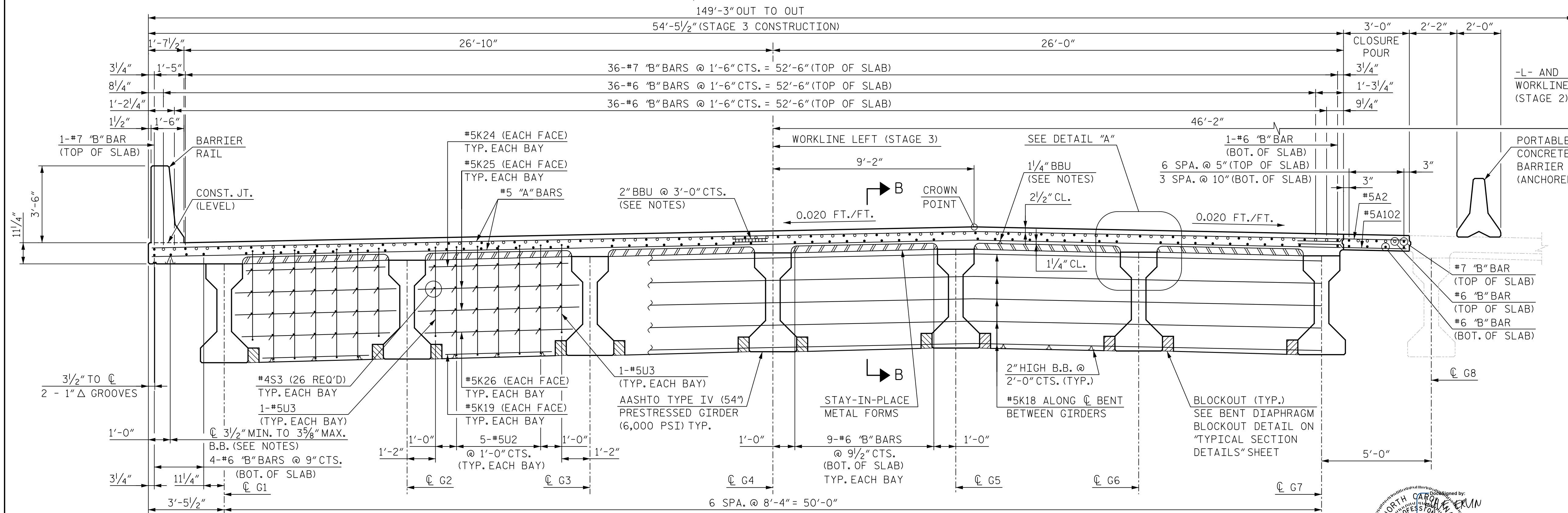
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REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS	
1			3			S3-7	
2			4			49	



TYPICAL SECTION AT INTEGRAL END BENT
(STAGE 3 CONSTRUCTION)

FOR SECTION THRU END BENT, SEE SECTION A-A ON "TYPICAL SECTION DETAILS" SHEET



TYPICAL SECTION AT CONTINUOUS BENT DIAPHRAGM
(STAGE 3 CONSTRUCTION)

FOR SECTION THRU BENT, SEE SECTION B-B ON "TYPICAL SECTION DETAILS" SHEET
NOTE: NO BENT DIAPHRAGM AT CLOSURE BAY

NOTES:
FOR NOTES AND DETAIL "A", SEE "TYPICAL SECTIONS STAGE 2 CONSTRUCTION" SHEET.

REMOVABLE FORMS SHALL BE USED AT CLOSURE BAY.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

THE TOP SURFACE OF THE END BENT DIAHRM AT THE CLOSURE POUR BAY SHALL BE ROUGHENED TO A DEPTH OF 1/4".

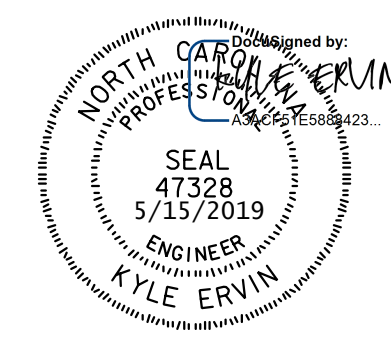
- "B" BAR KEY**
- = CONTINUOUS BAR RUN, SEE PLAN OF SPAN SHEETS
 - = NON-CONTINUOUS BAR RUN FOR NEGATIVE MOMENT REGIONS, SEE PLAN OF SPAN SHEETS

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTIONS
STAGE 3 CONSTRUCTION
AND CLOSURE POUR



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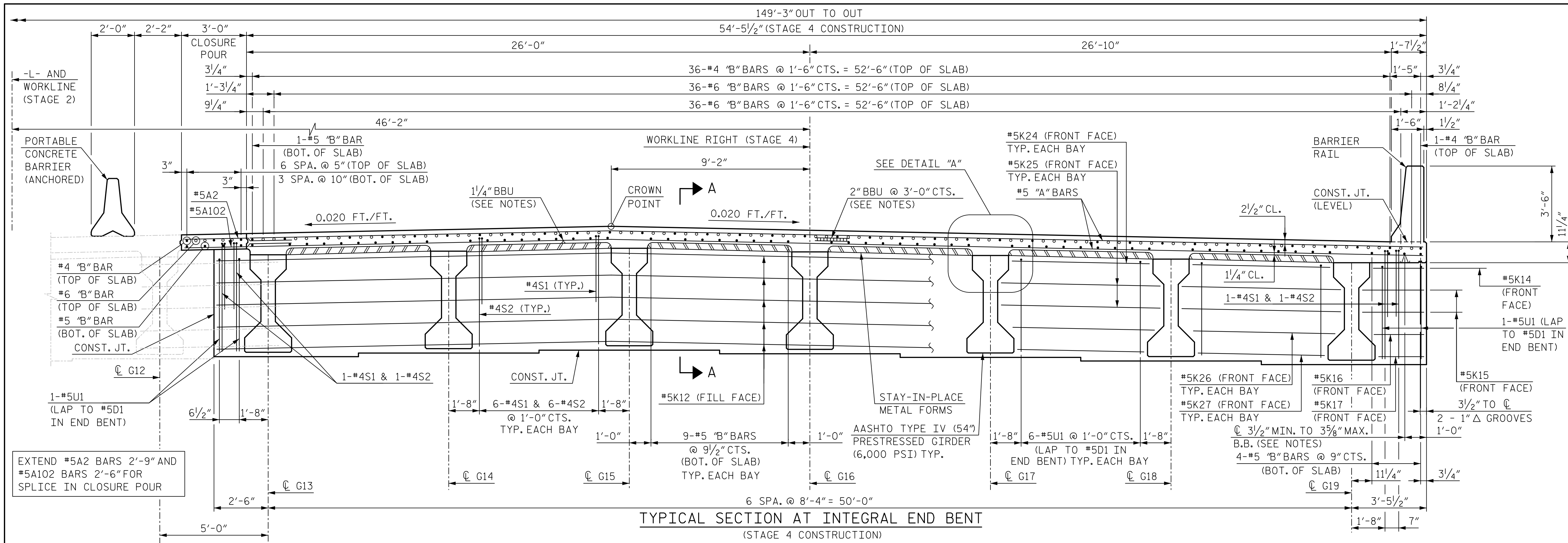
DRAWN BY: B. VAUGHN DATE: 11/18
CHECKED BY: K. ERVIN DATE: 1/19
DESIGN ENGINEER OF RECORD: K. ERVIN DATE: 11/18

DWG. NO. 8

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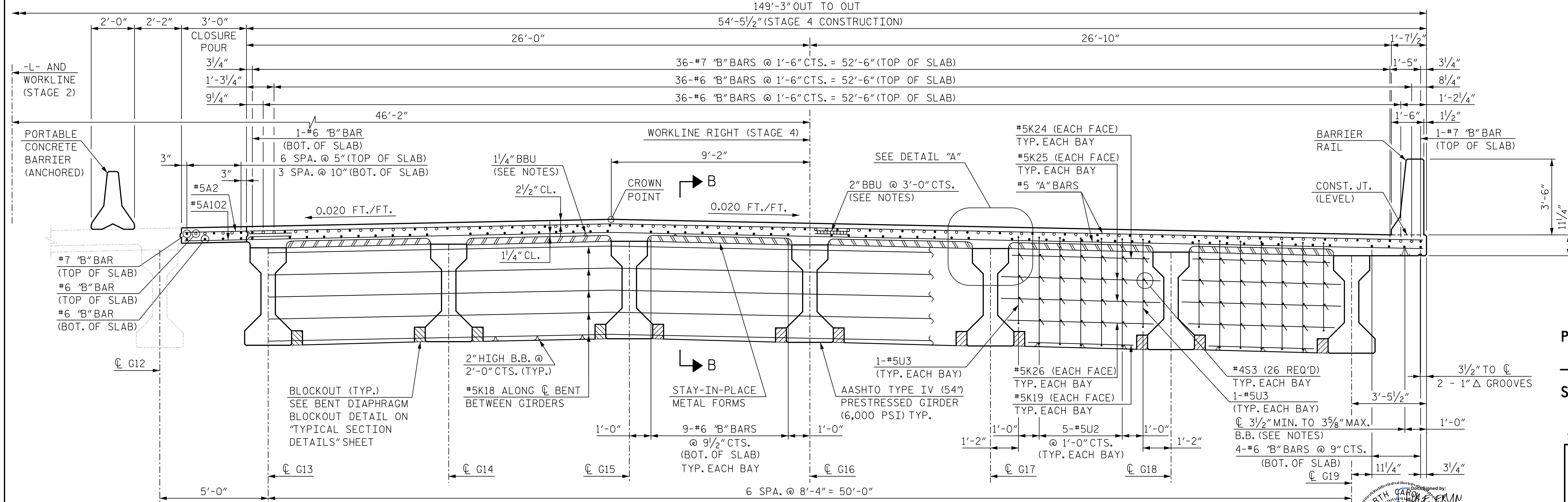
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS: 49



TYPICAL SECTION AT INTEGRAL END BENT
(STAGE 4 CONSTRUCTION)

FOR SECTION THRU END BENT, SEE SECTION A-A ON "TYPICAL SECTION DETAILS" SHEET



TYPICAL SECTION AT CONTINUOUS BENT DIAPHRAGM
(STAGE 4 CONSTRUCTION)

FOR SECTION THRU BENT, SEE SECTION B-B ON "TYPICAL SECTION DETAILS" SHEET
NOTE: NO BENT DIAPHRAGM AT CLOSURE BAY

NOTES:
FOR NOTES AND DETAIL "A", SEE "TYPICAL SECTIONS STAGE 2 CONSTRUCTION" SHEET.

REMOVABLE FORMS SHALL BE USED AT CLOSURE BAY.

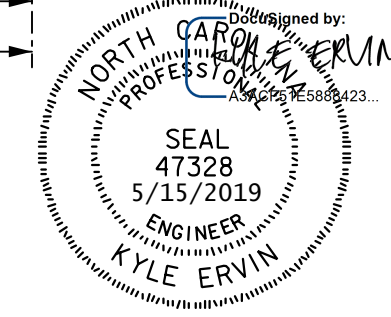
SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

THE TOP SURFACE OF THE END BENT DIAHRM AT THE CLOSURE POUR BAY SHALL BE ROUGHENED TO A DEPTH OF 1/4".

- "B" BAR KEY**
- = CONTINUOUS BAR RUN, SEE PLAN OF SPAN SHEETS
 - = NON-CONTINUOUS BAR RUN FOR NEGATIVE MOMENT REGIONS, SEE PLAN OF SPAN SHEETS

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 3 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTIONS
STAGE 4 CONSTRUCTION
AND CLOSURE POUR



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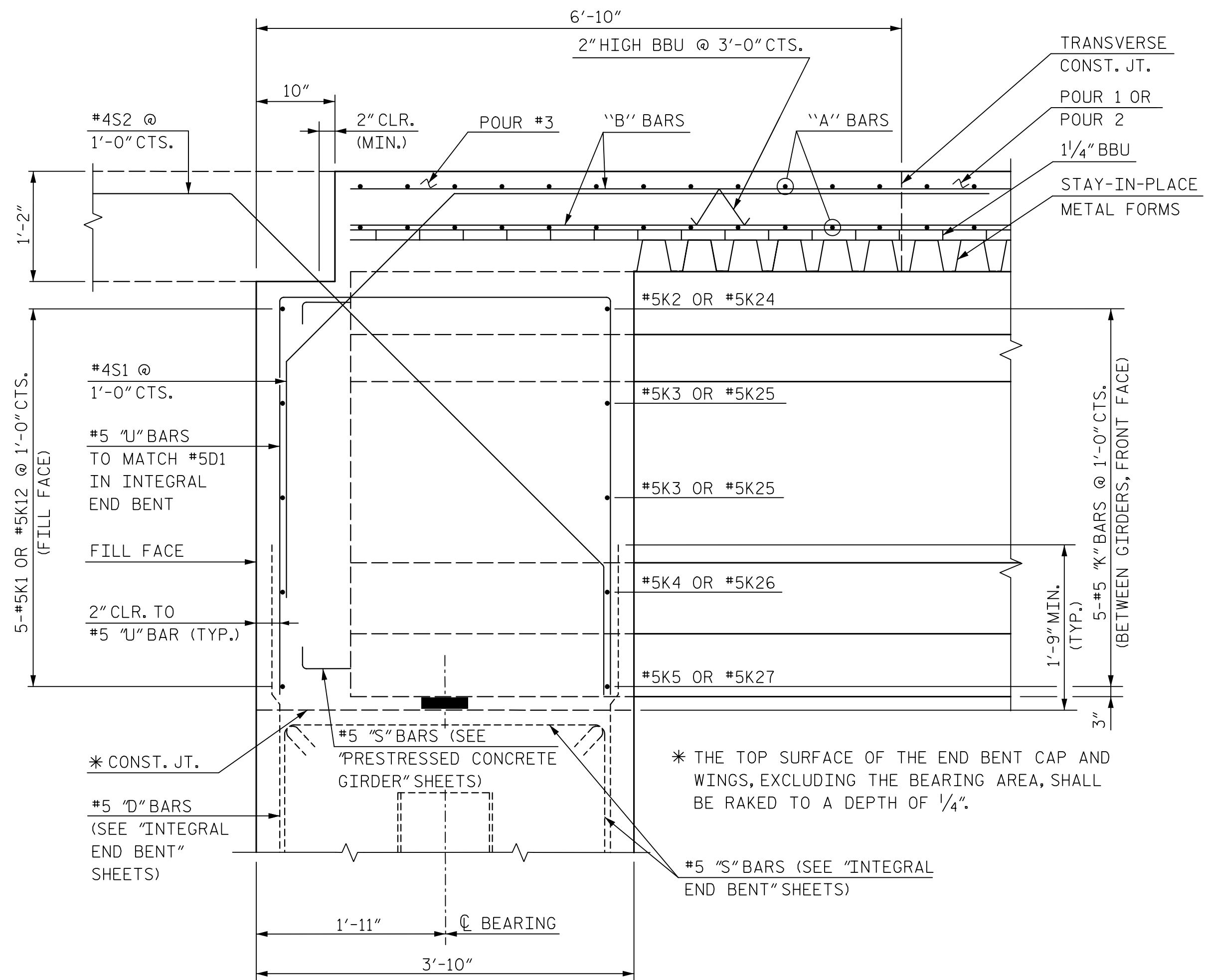
**DOCUMENT NOT CONSIDERED FINAL
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CHECKED BY: K. ERVIN DATE: 1/19
DESIGN ENGINEER OF RECORD: K. ERVIN DATE: 11/18

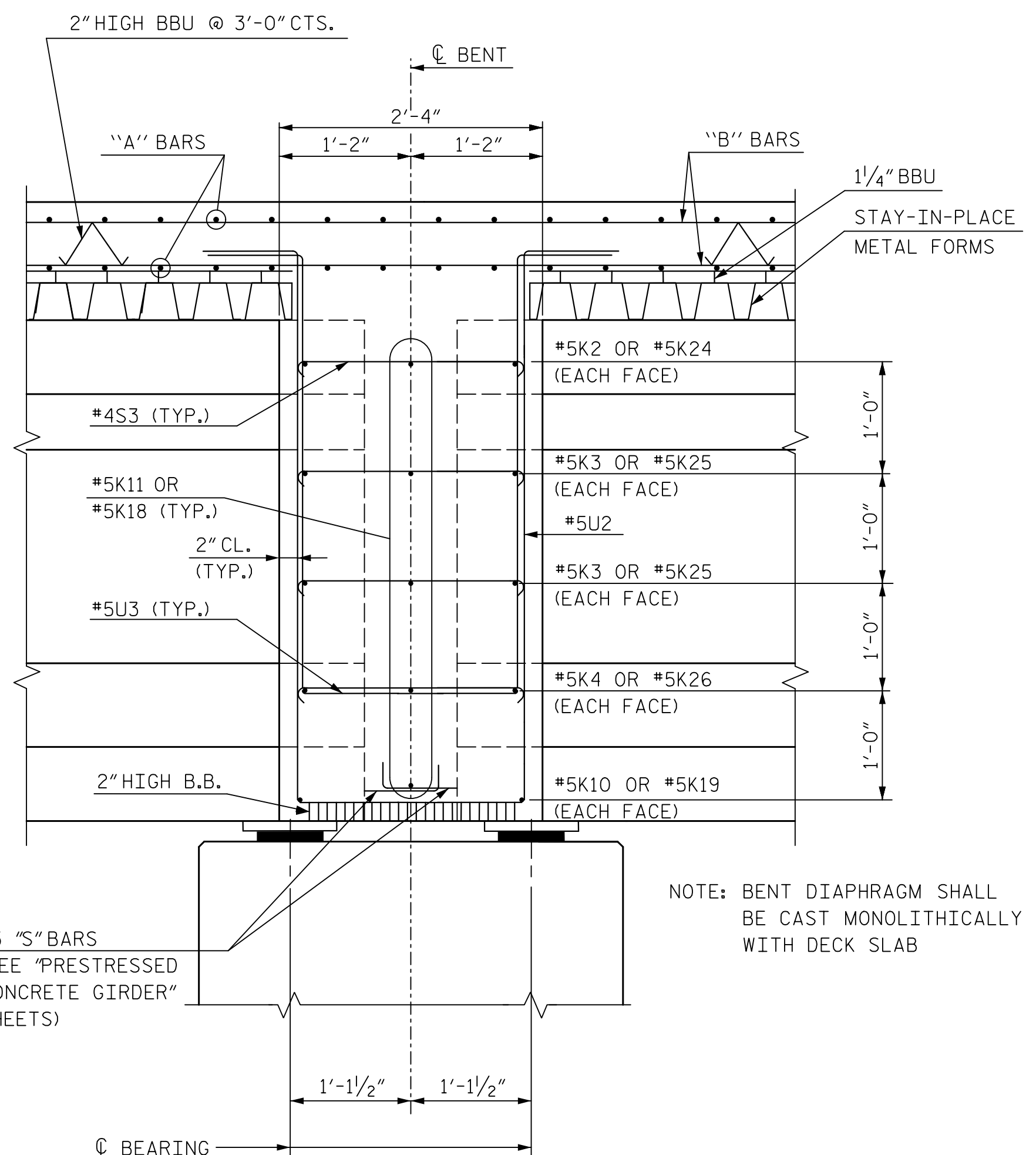
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NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS: 49

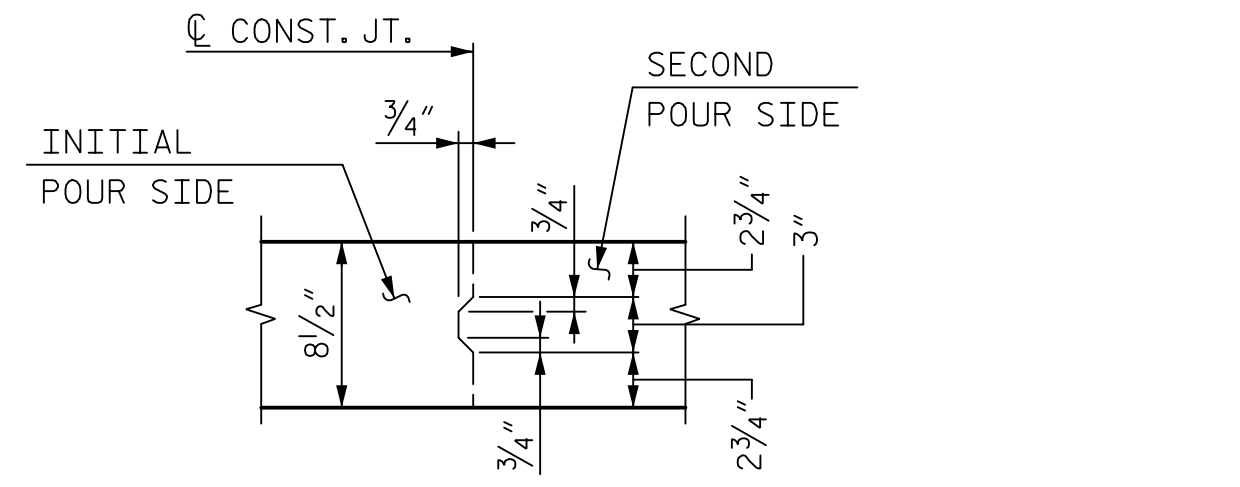
DWG. NO. 9



SECTION A-A
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

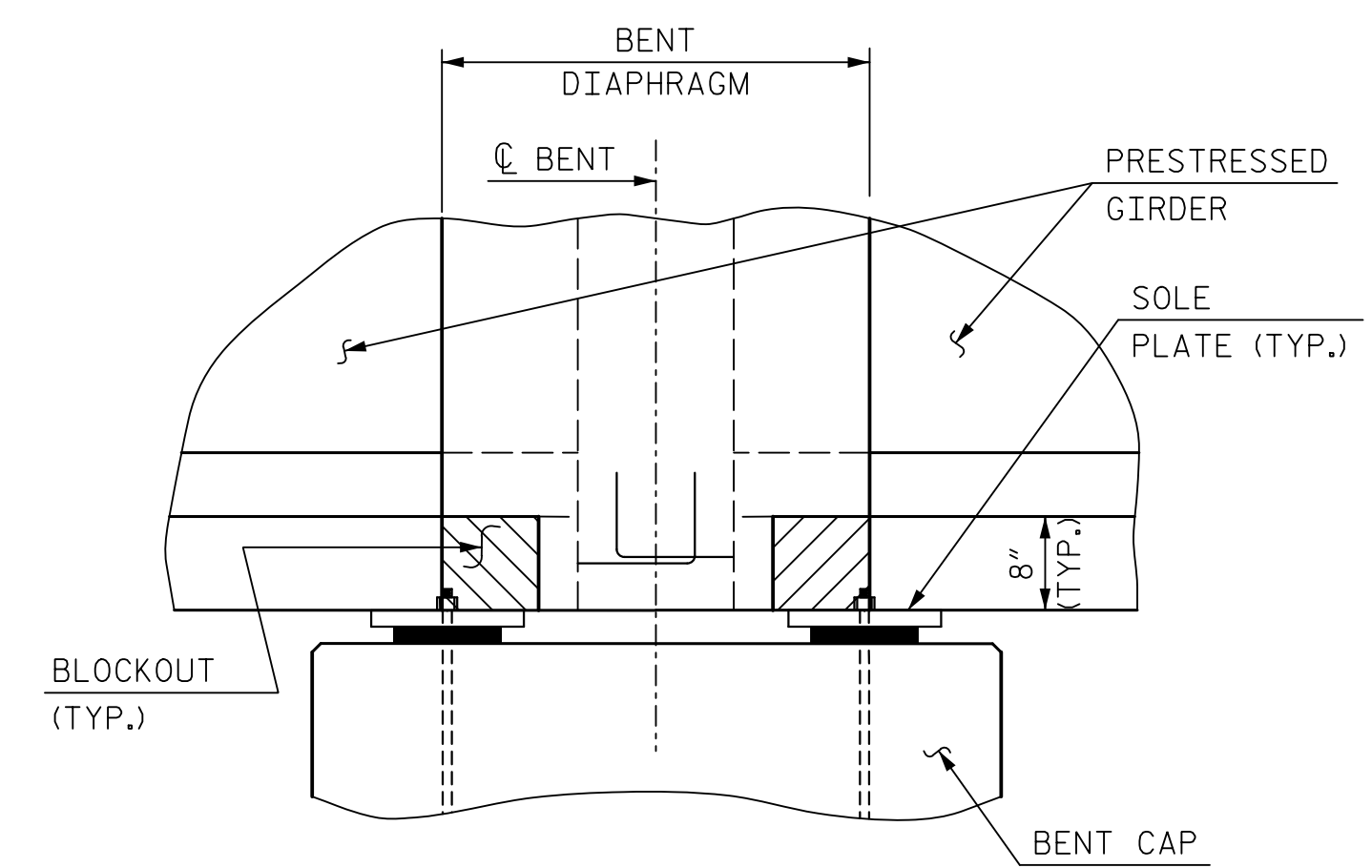


SECTION B-B

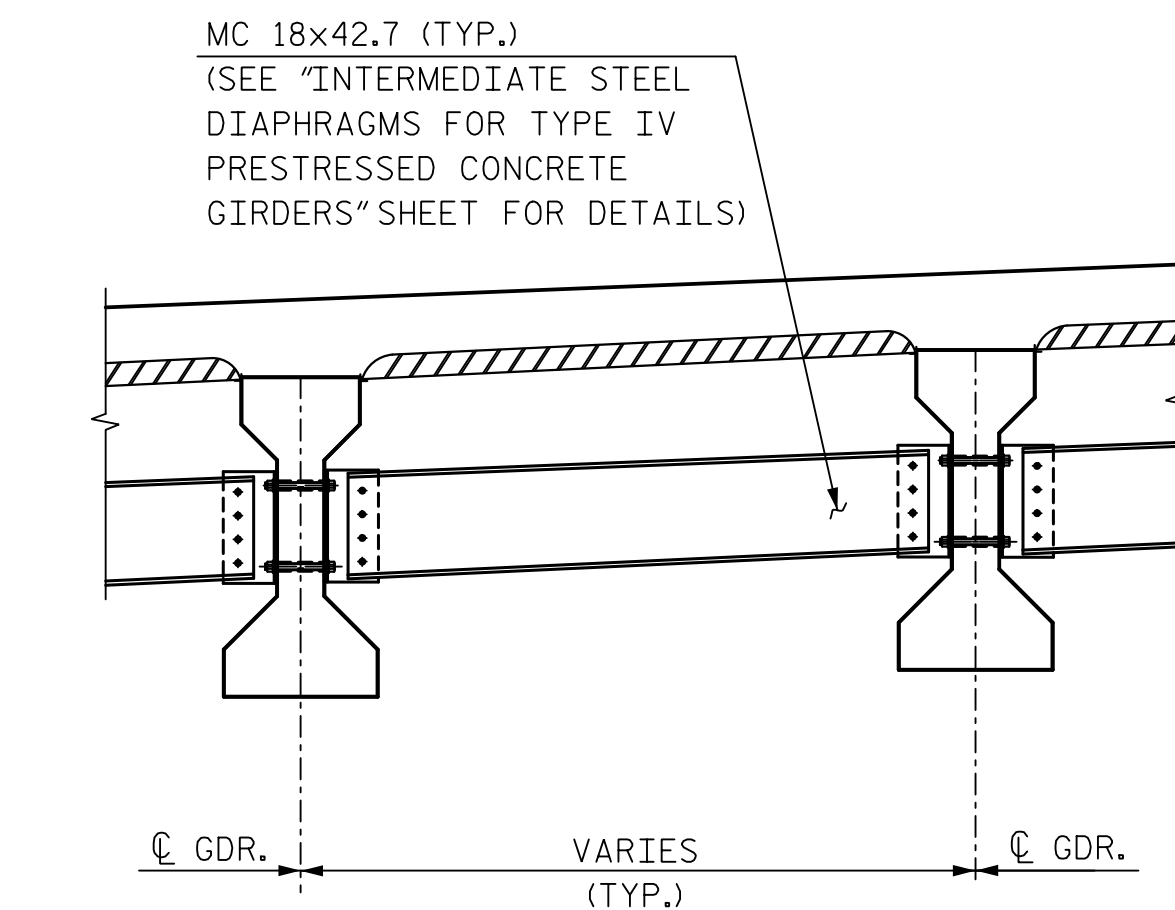


REINFORCING STEEL IN SLAB NOT SHOWN. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.

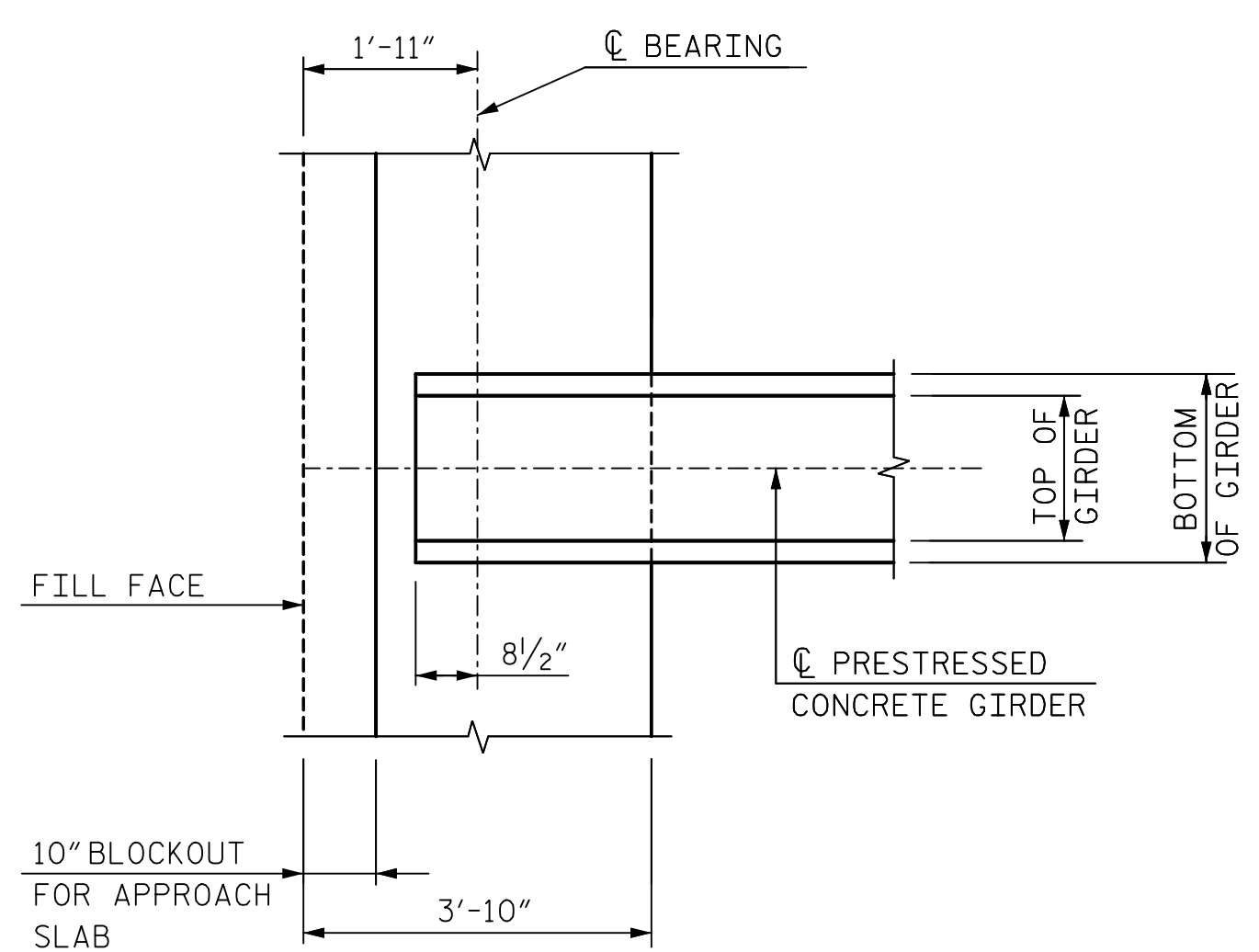
TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT DETAIL



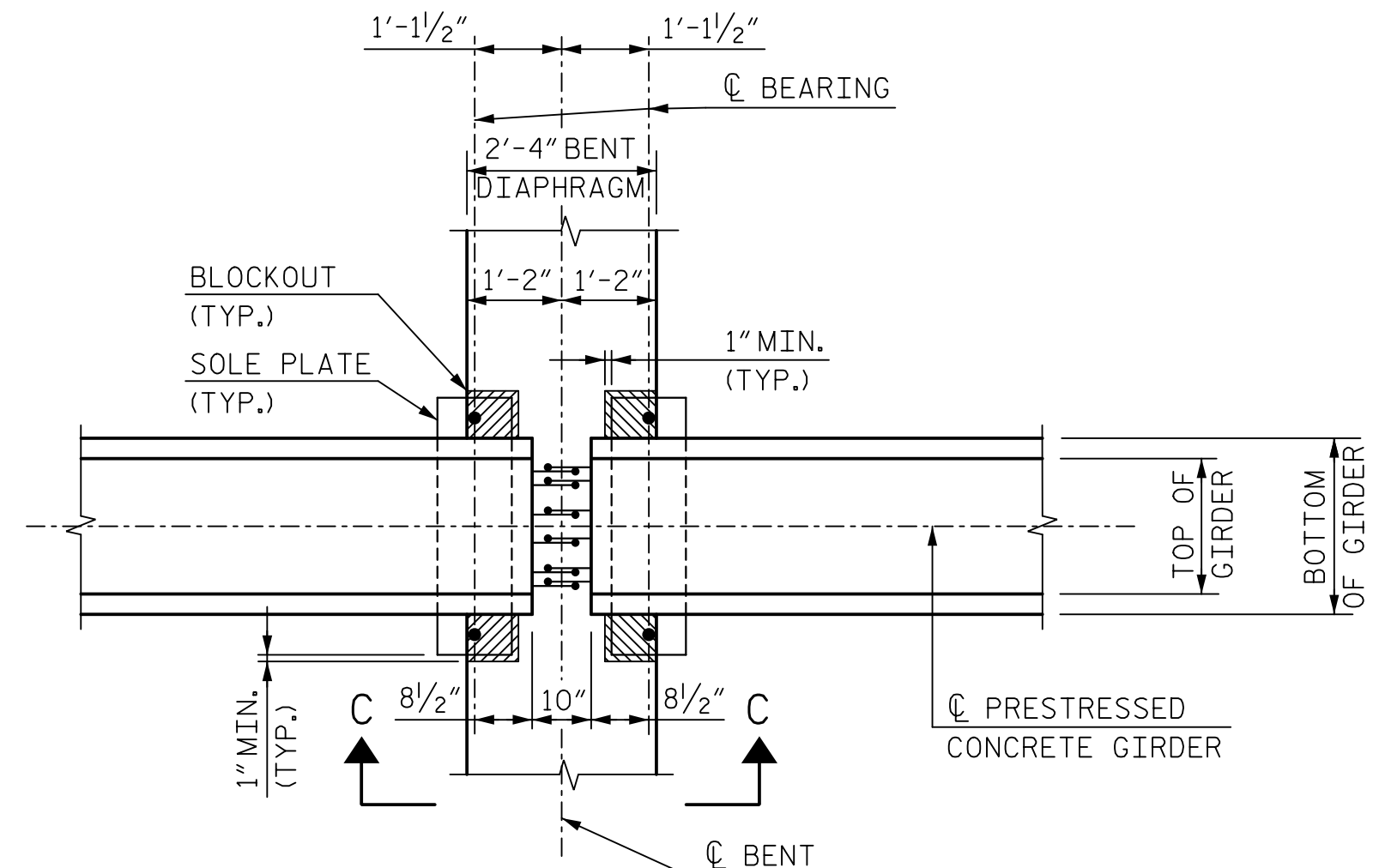
SECTION C-C



PARTIAL TYPICAL SECTION
(SHOWING INTERMEDIATE DIAPHRAGM)



PLAN OF GIRDER AT INTEGRAL END BENT 1
(END BENT 2 SIMILAR)

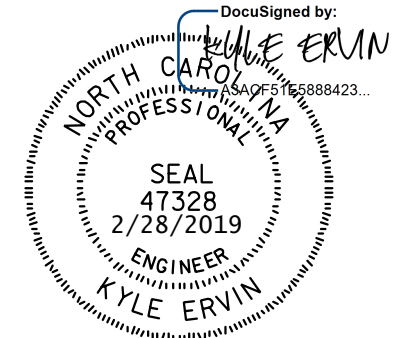


BENT DIAPHRAGM BLOCKOUT DETAIL

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION
 DETAILS



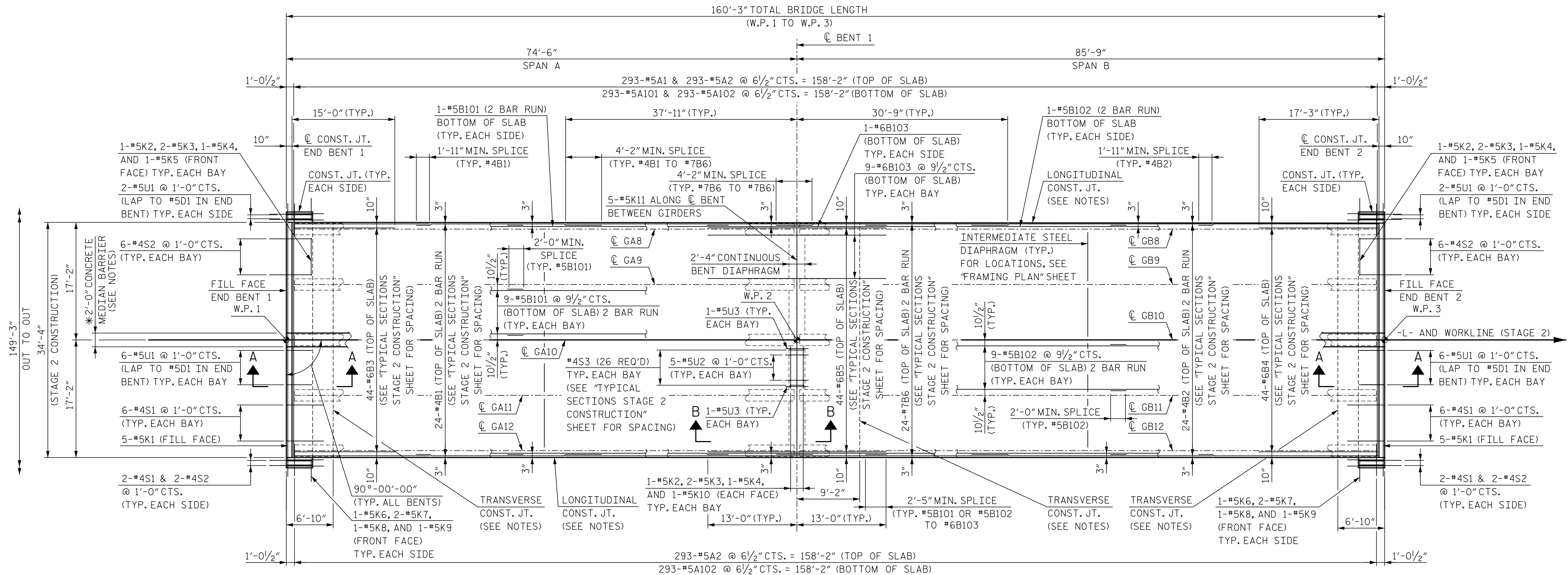
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DRAWN BY B. VAUGHN DATE 1/18
 CHECKED BY K. ERVIN DATE 1/19
 DESIGN ENGINEER OF RECORD K. ERVIN DATE 1/18

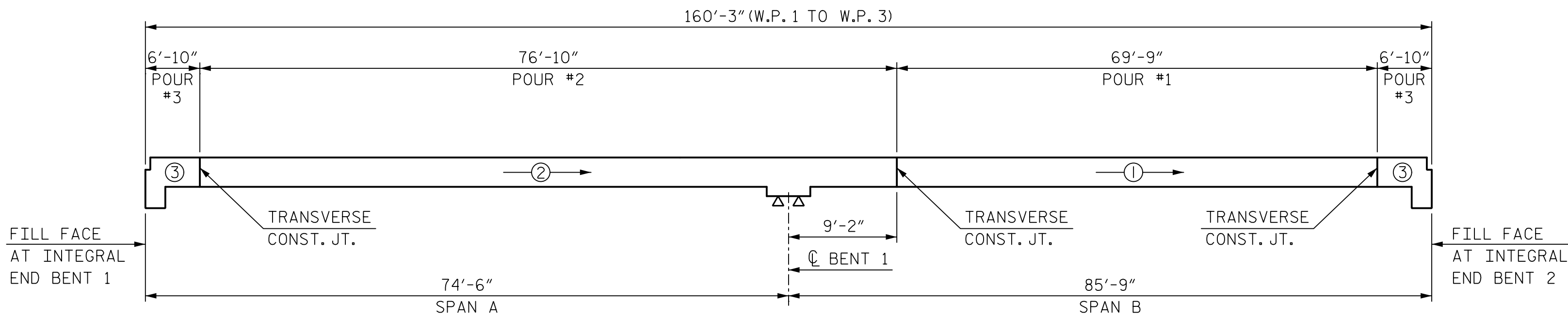
DWG. NO. 10

DOCUMENT NOT CONSIDERED FINAL
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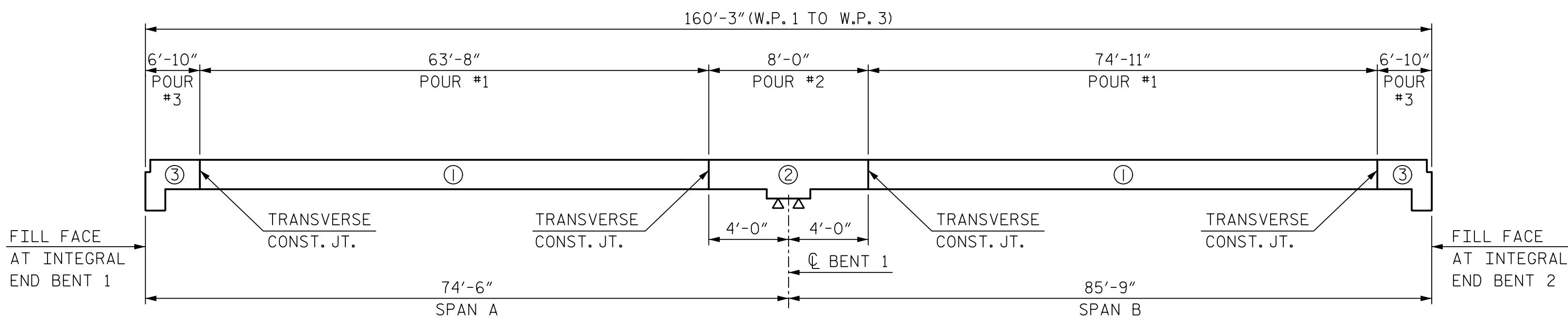
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			



PLAN OF SPANS A AND B STAGE 2 CONSTRUCTION



POURING SEQUENCE



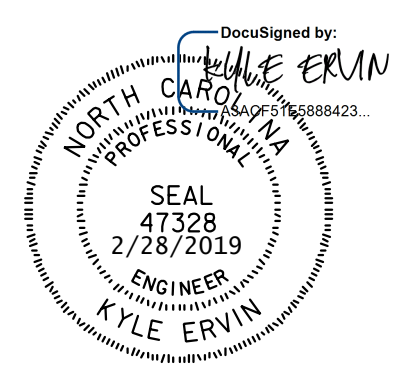
OPTIONAL POURING SEQUENCE

NOTE: POUR ② CANNOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3,000 PSI.

NOTES:
 FOR CONCRETE MEDIAN BARRIER DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE MEDIAN BARRIER" SHEETS.
 FOR SECTION VIEWS AND TRANSVERSE AND LONGITUDINAL CONSTRUCTION JOINT DETAILS, SEE "TYPICAL SECTION DETAILS" SHEET.
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "FRAMING PLAN" SHEET.
 *BUILD CONCRETE MEDIAN BARRIER DURING STAGE 5 OF THE CONSTRUCTION SEQUENCE. FOR CONSTRUCTION SEQUENCE, SEE "CONSTRUCTION SEQUENCE" SHEETS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS A AND B
 STAGE 2 CONSTRUCTION

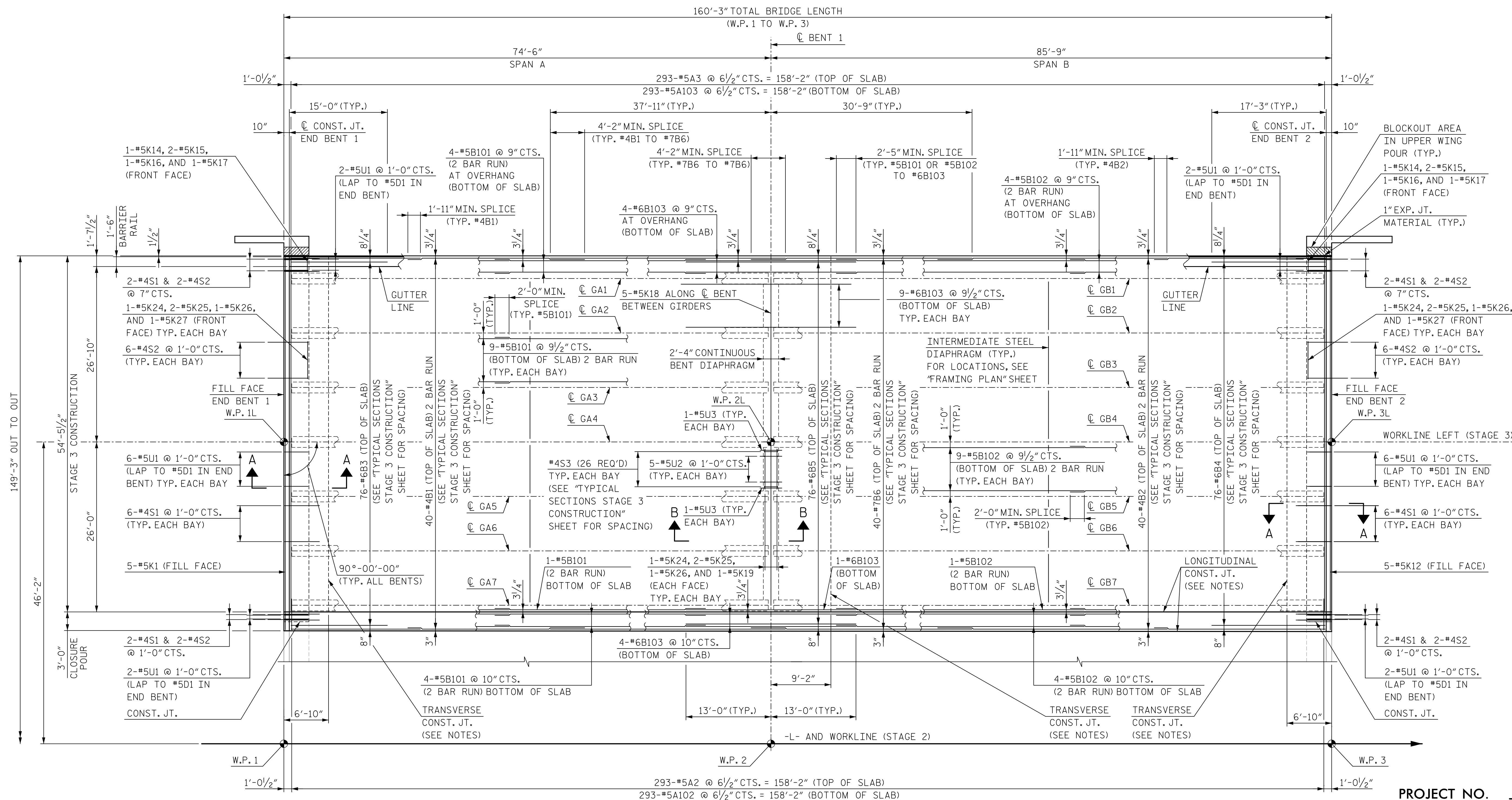
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 CHECKED BY K. ERVIN DATE 1/19
 DESIGN ENGINEER OF RECORD K. ERVIN DATE 1/18

DWG. NO. II

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S3-11	
1			3			TOTAL SHEETS	
2			4			49	

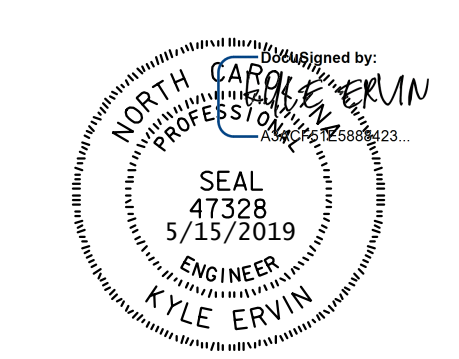
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PLAN OF SPANS A AND B STAGE 3 CONSTRUCTION

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

NOTES:
 FOR CONCRETE MEDIAN BARRIER DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.
 FOR SECTION VIEWS AND TRANSVERSE AND LONGITUDINAL CONSTRUCTION JOINT DETAILS, SEE "TYPICAL SECTION DETAILS" SHEET.
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "FRAMING PLAN" SHEET.



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DWG. NO. 12

SHEET 2 OF 3

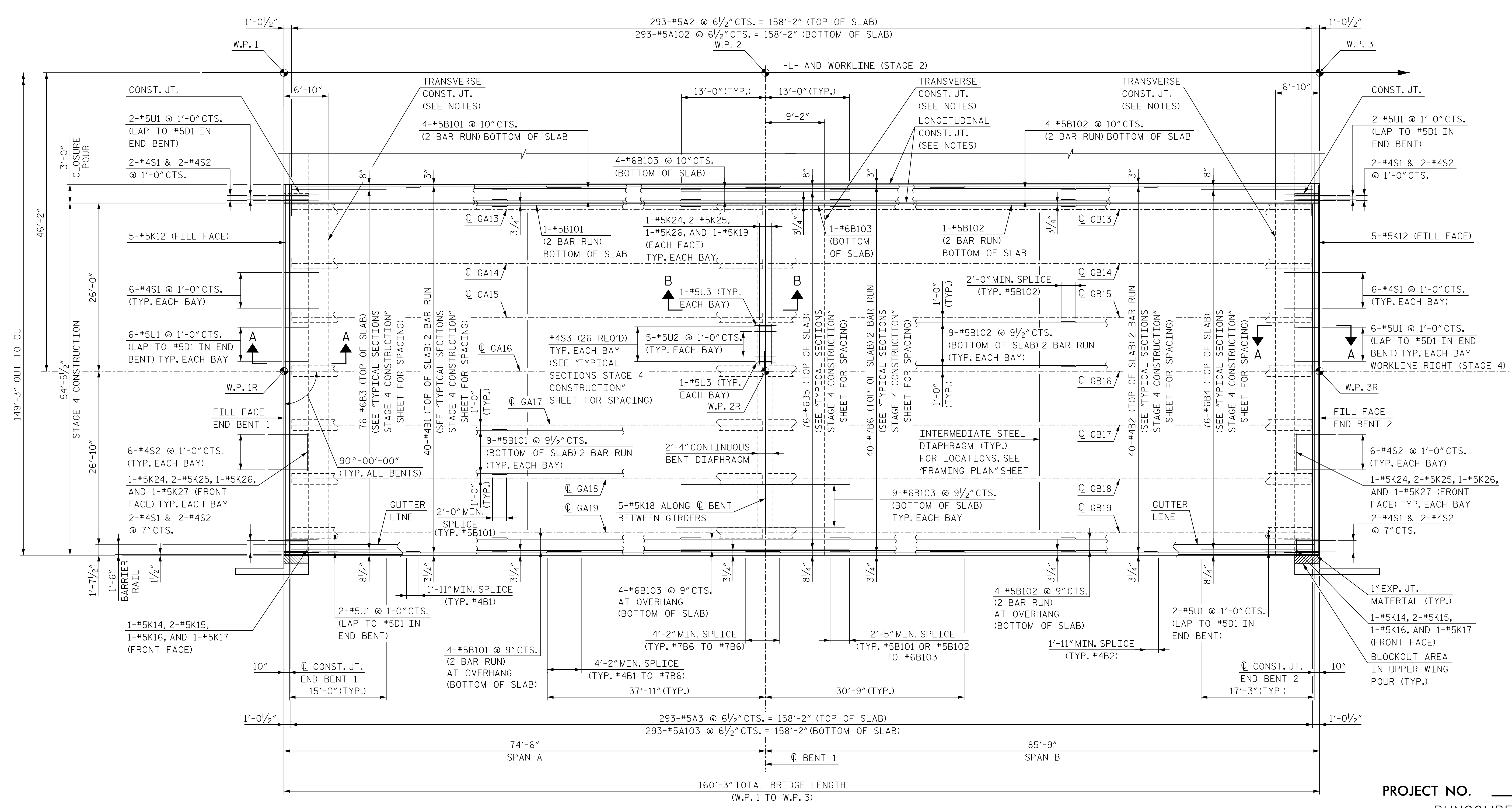
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS A AND B
 STAGE 3 CONSTRUCTION

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			

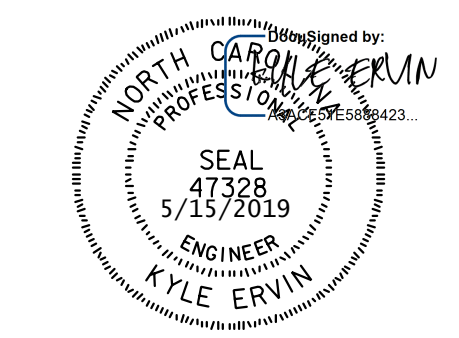
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PLAN OF SPANS A AND B STAGE 4 CONSTRUCTION

PROJECT NO. I-4700A
 BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

NOTES:
 FOR CONCRETE MEDIAN BARRIER DIMENSIONS, REINFORCING STEEL, AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.
 FOR SECTION VIEWS AND TRANSVERSE AND LONGITUDINAL CONSTRUCTION JOINT DETAILS, SEE "TYPICAL SECTION DETAILS" SHEET.
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS. FOR LOCATION, SEE "FRAMING PLAN" SHEET.



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DWG. NO. 13

SHEET 3 OF 3

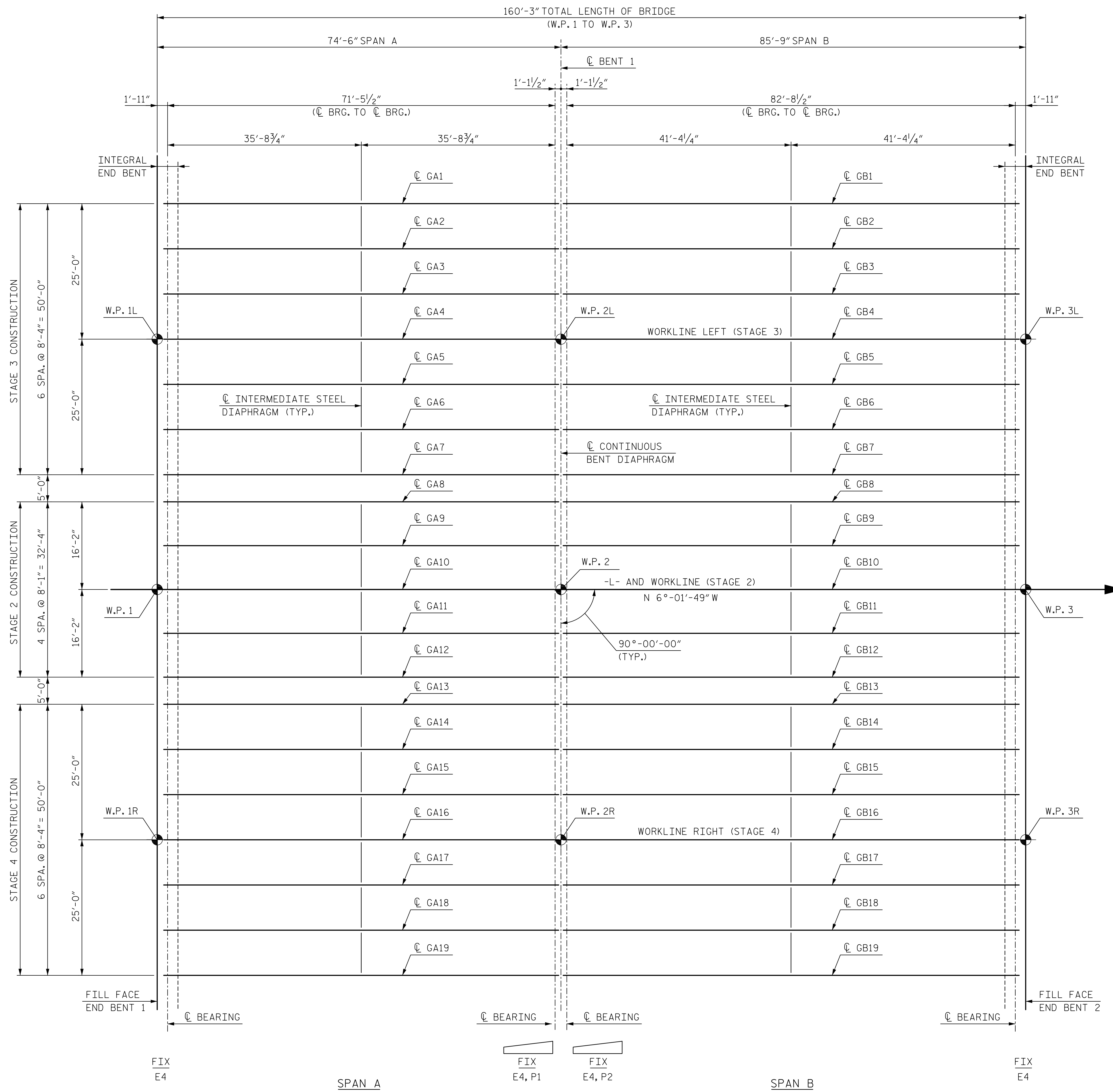
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS A AND B
 STAGE 4 CONSTRUCTION

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			

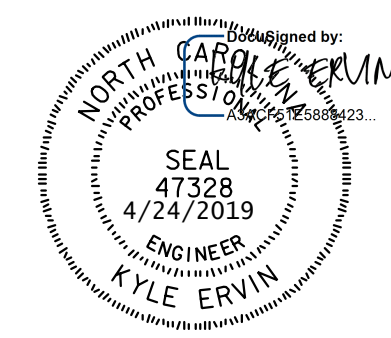
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NOTES:

- "FIX" DENOTES FIXED BEARING ASSEMBLY.
- "E" DENOTES ELASTOMERIC BEARING PAD MARK.
- "P" DENOTES STEEL SOLE PLATE MARK.
- "W.P." DENOTES WORK POINT
- NO SOLE PLATES ARE REQUIRED AT INTEGRAL END BENTS.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN

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DRAWN BY B. VAUGHN DATE 11/18
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 DESIGN ENGINEER OF RECORD K. ERVIN DATE 11/18

DWG. NO. 14

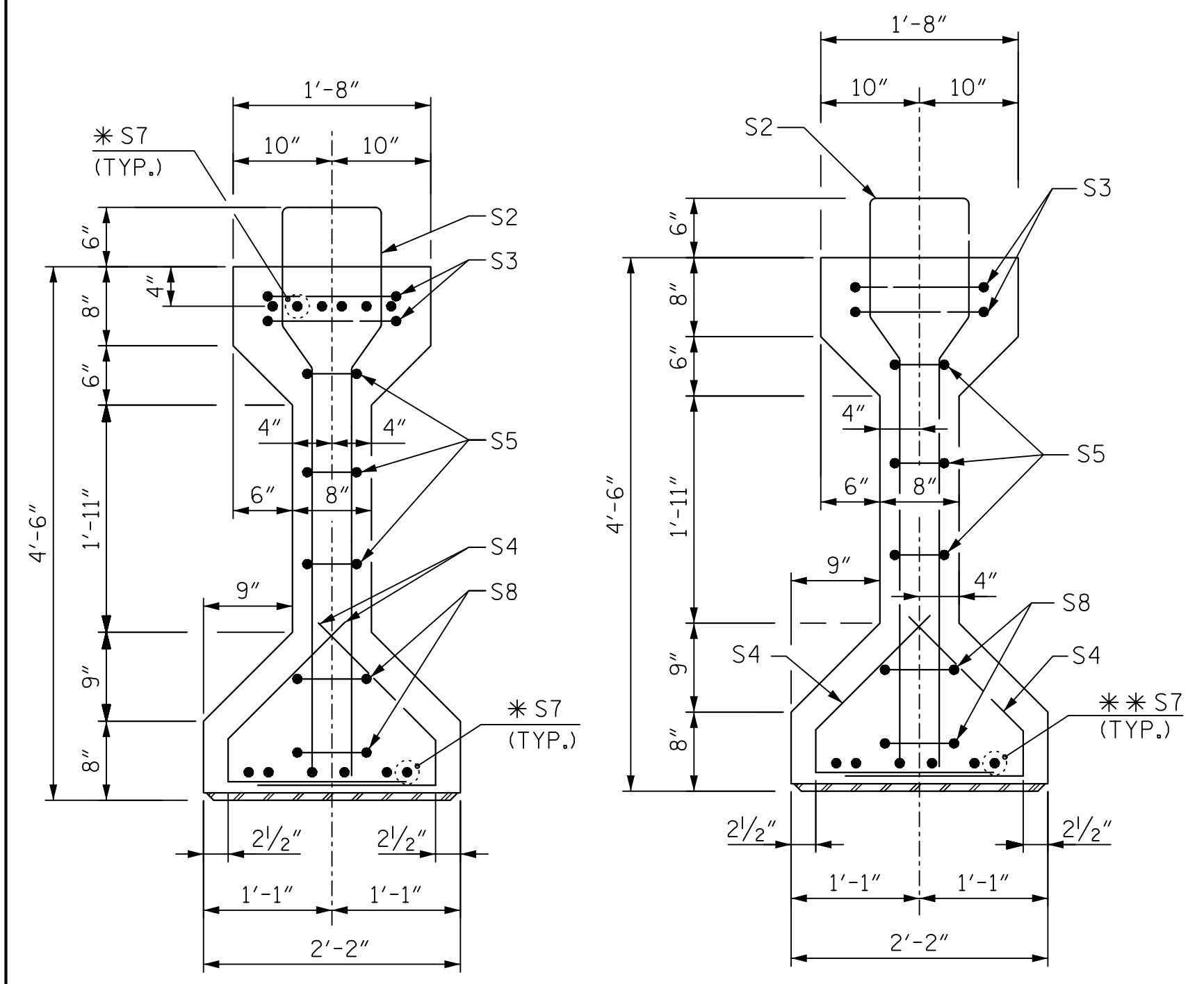
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			

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 UNLESS ALL SIGNATURES COMPLETED**

SPAN A

FRAMING PLAN

SPAN B

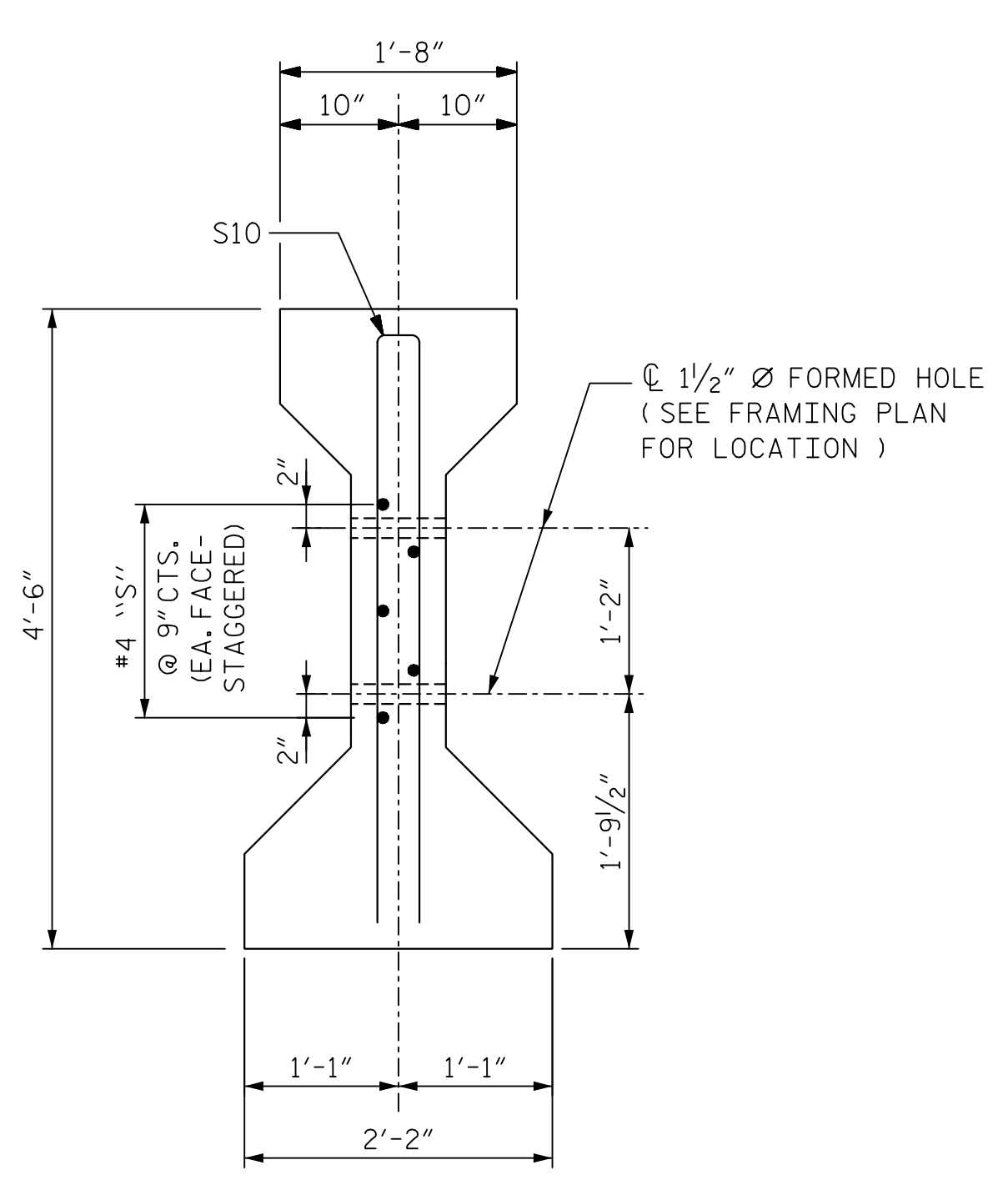


SECTION A-A

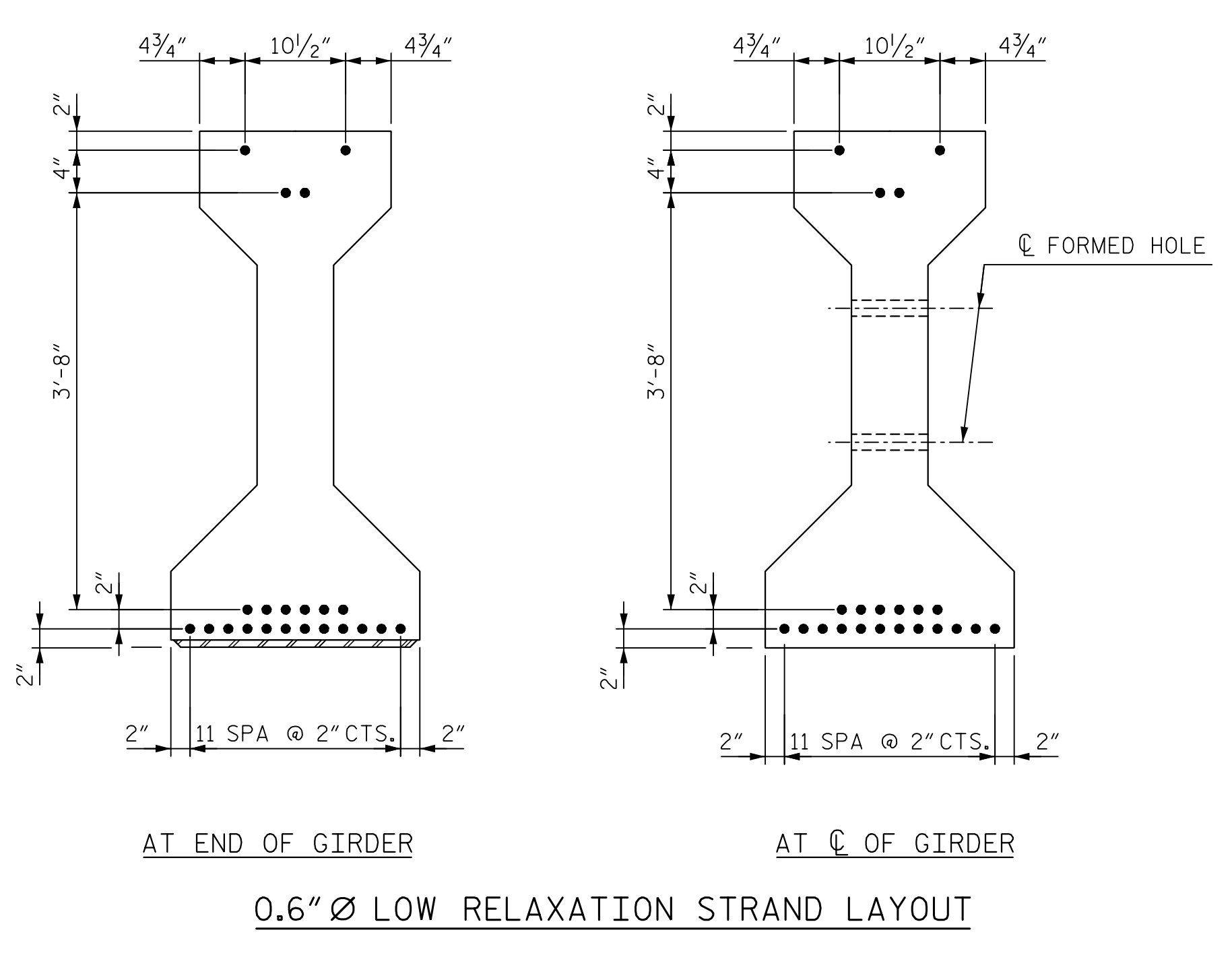
* FOR S7 BARS @ INTEGRAL END BENTS, SEE DETAIL A SHEET 3 OF 4

SECTION B-B

** FOR S7 BARS @ CONTINUOUS BENT, SEE DETAIL B SHEET 3 OF 4

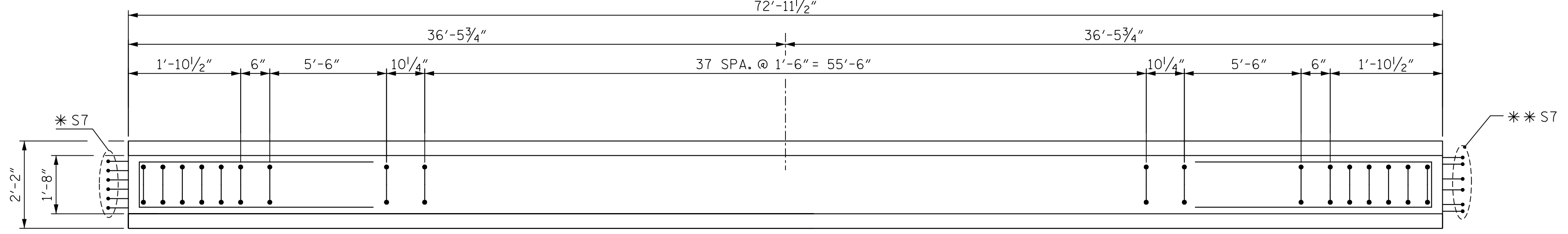


SECTION C-C
(S1 BARS NOT SHOWN)

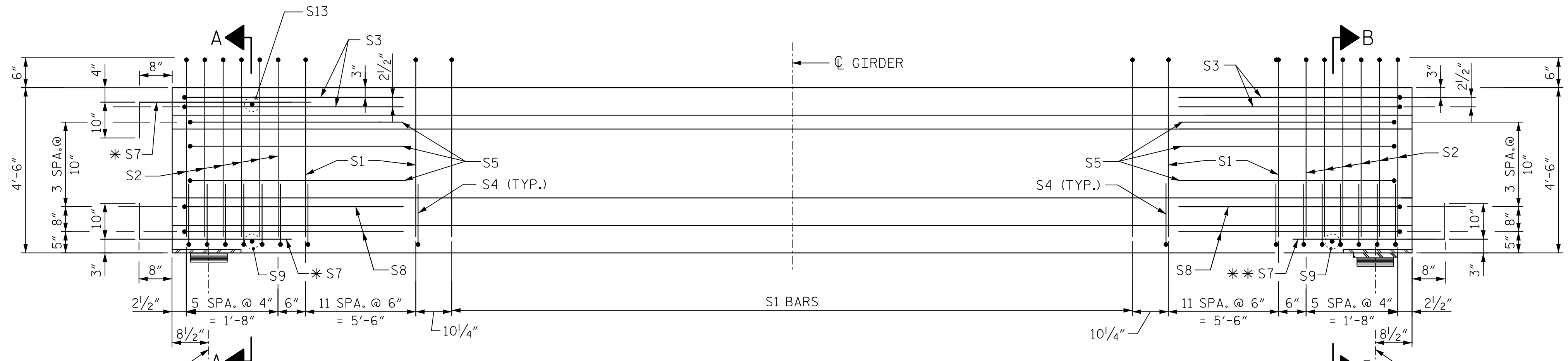


0.6" Ø LOW RELAXATION STRAND LAYOUT

NOTE:
BEAM LENGTH SHOWN REFLECTS THE BEAM LENGTH ALONG THE GRADE.

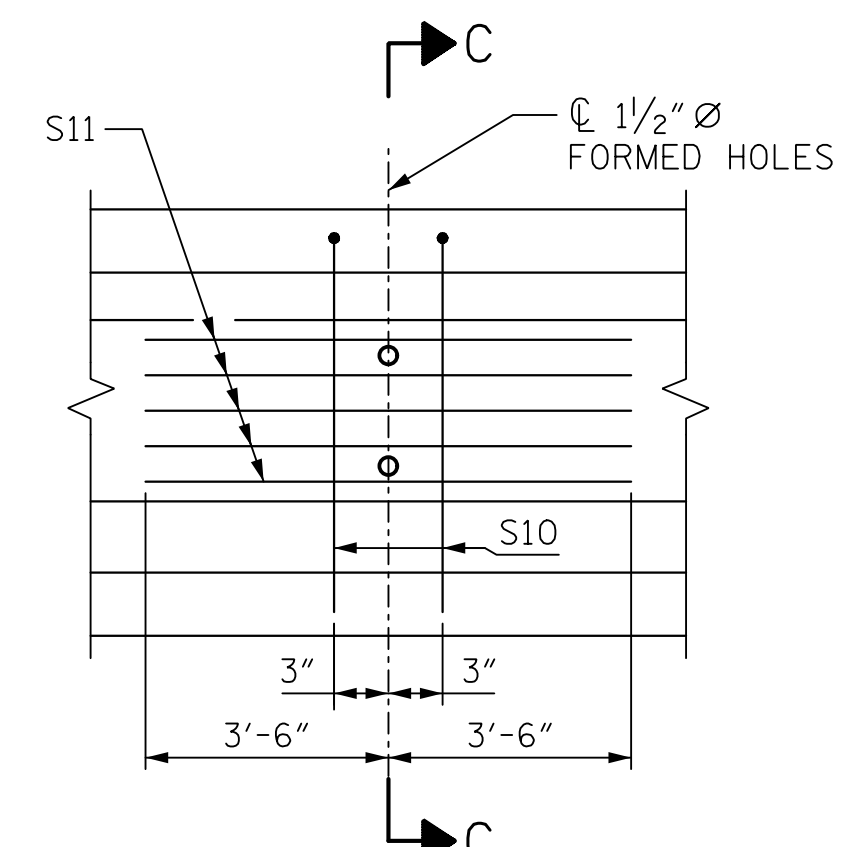


PLAN OF GIRDER



ELEVATION OF GIRDER
(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

NOTE: FOR LOCATION OF INTERMEDIATE DIAPHRAGM, SEE SHEET 3 OF 4.



PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL

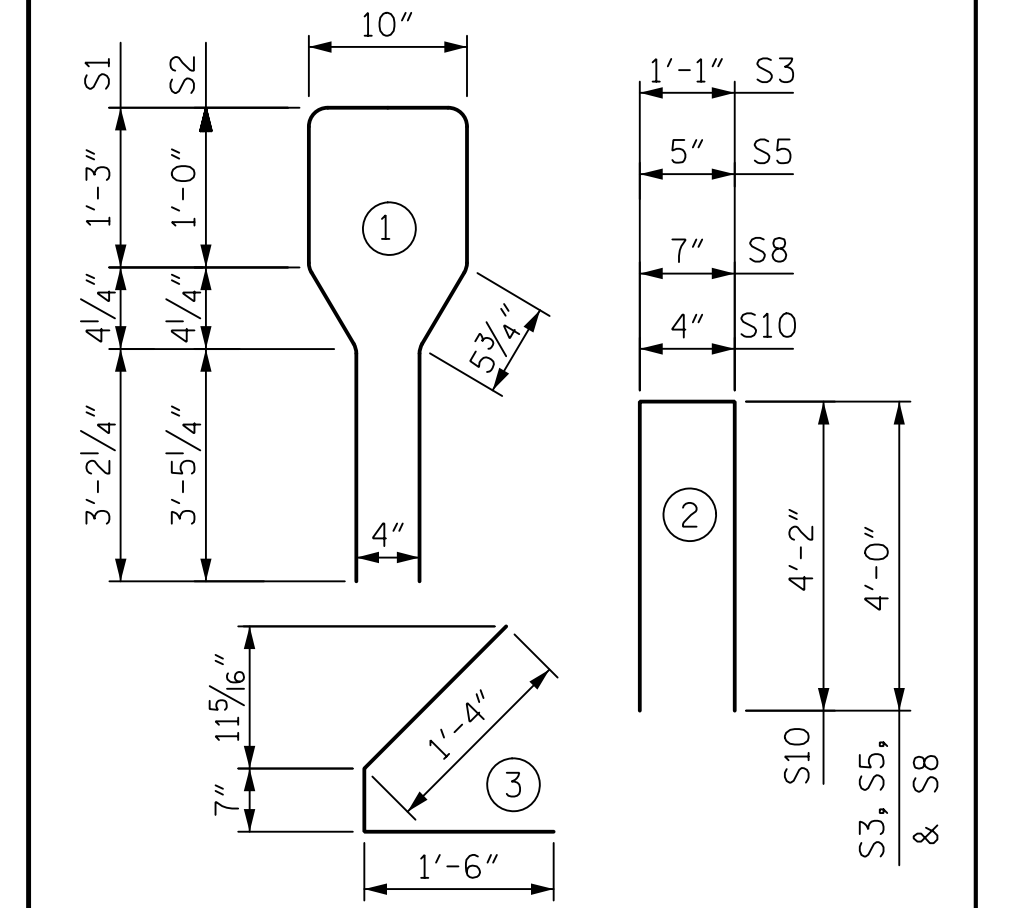
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	61	#4	1	10'-8"	435
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	72	#4	3	3'-5"	165
S5	6	#4	2	8'-5"	34
* S7	18	#5	STR	3'-8"	69
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	24
S13	1	#3	STR	1'-4"	1

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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	6,000 PSI CONCRETE	0.6" Ø L. R. STRANDS
LB.	C.Y.	No.
986	14.8	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
19	72'-11 1/2"	1,386.21'

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE IV
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN A

ASSEMBLED BY :	DATE :
CHECKED BY :	DATE :
DRAWN BY : ELR 8/91	REV. 10/1/11 MAA/GM
CHECKED BY : GRP 8/91	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

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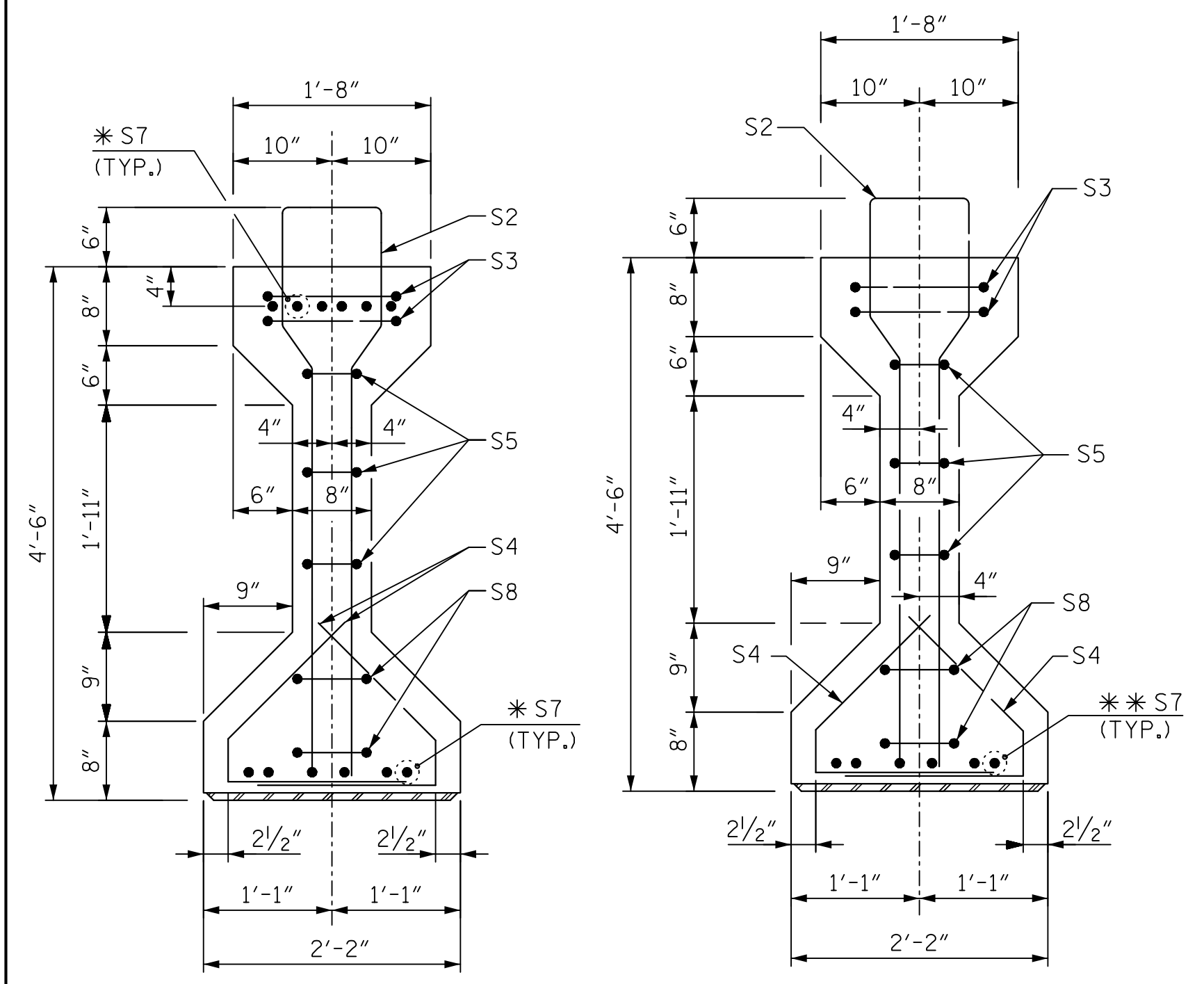
DocuSigned by:
KYLE ERVIN
SEAL
47328
2/28/2019
ENGINEER
KYLE ERVIN

DRAWN BY : B. VAUGHN DATE : 11/18
CHECKED BY : K. ERVIN DATE : 11/18
DESIGN ENGINEER OF RECORD : K. ERVIN DATE : 11/18

DWG. NO. 15

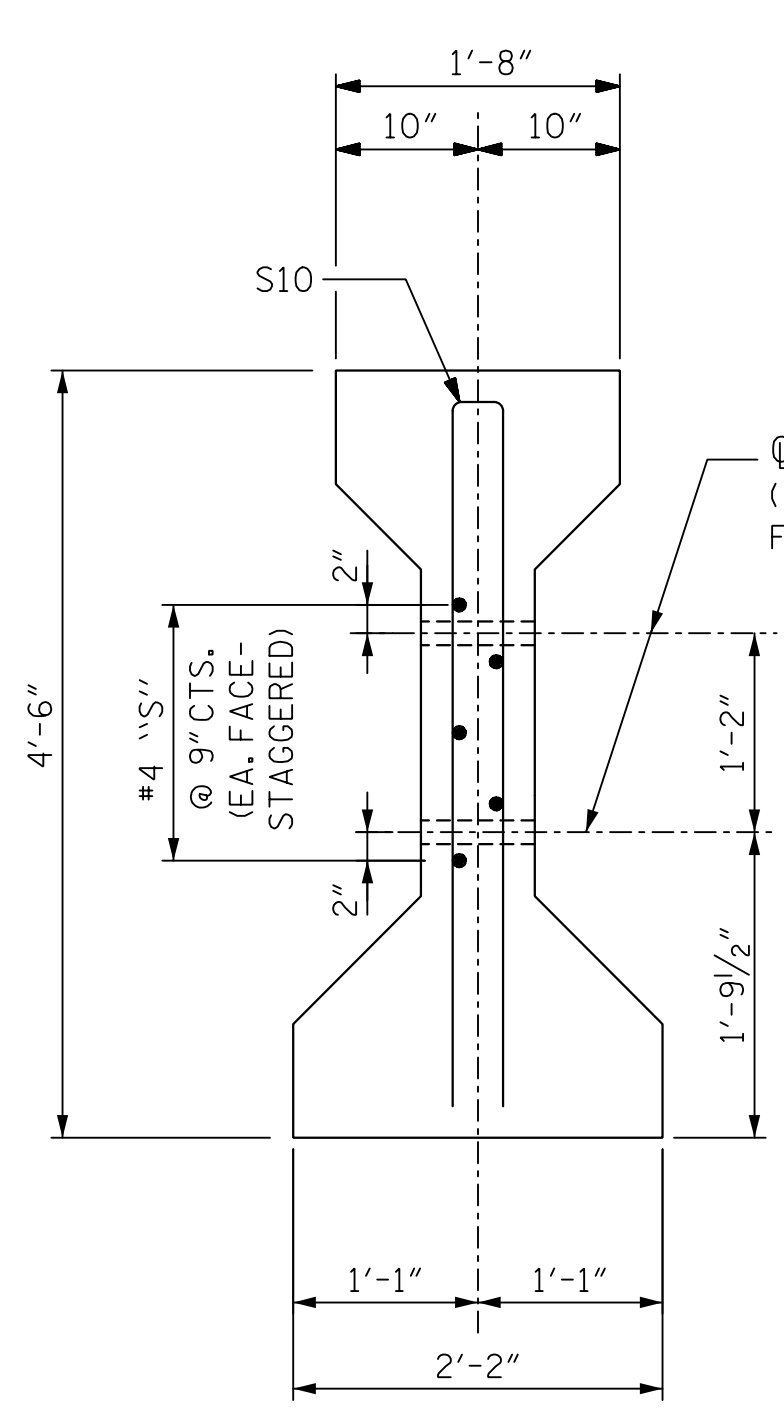
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S3-15
1			3			TOTAL SHEETS 49
2			4			



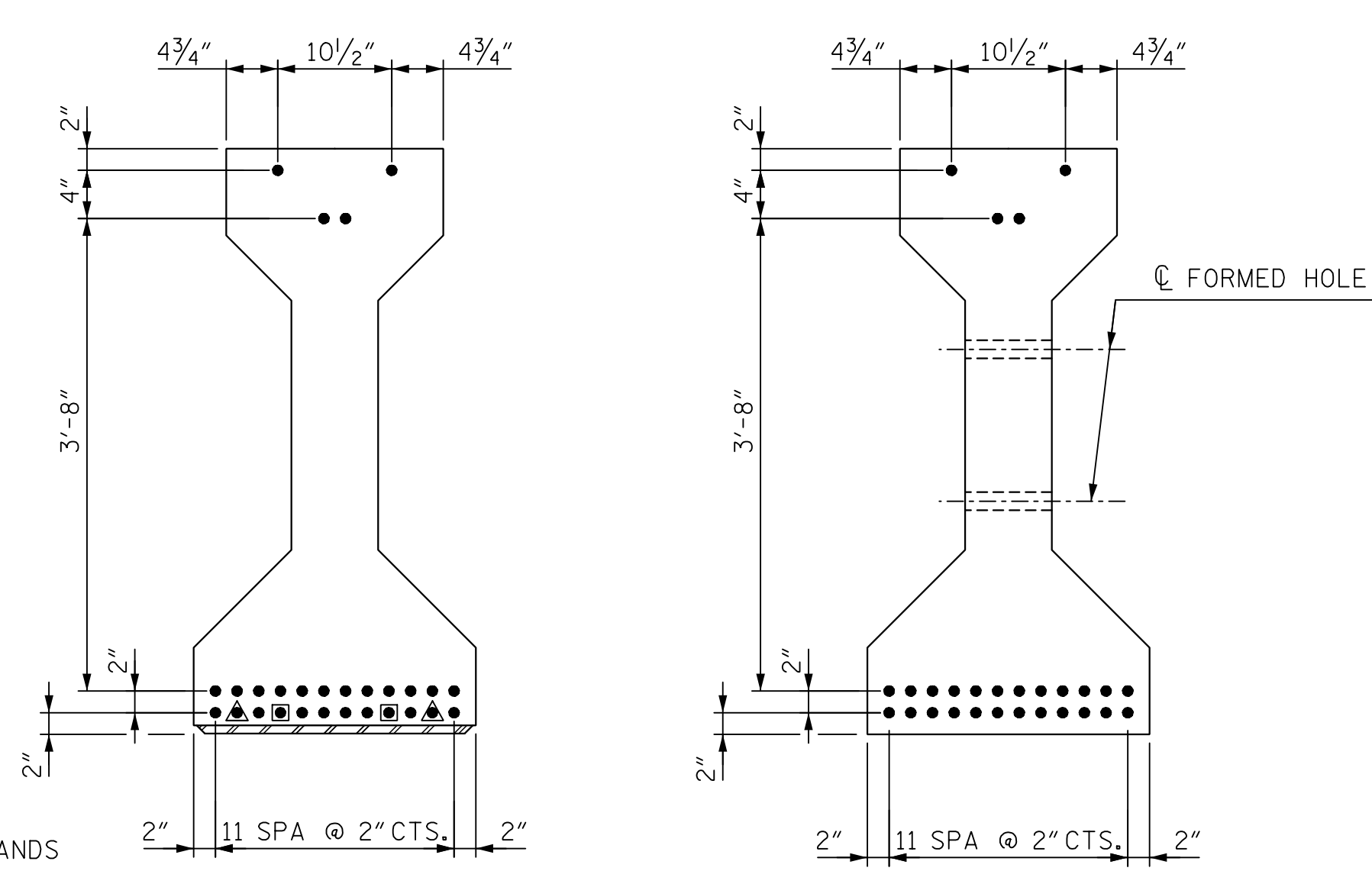
SECTION A-A
 * FOR S7 BARS @ INTEGRAL END BENTS, SEE DETAIL A SHEET 3 OF 4

SECTION B-B
 ** FOR S7 BARS @ CONTINUOUS BENT, SEE DETAIL B SHEET 3 OF 4



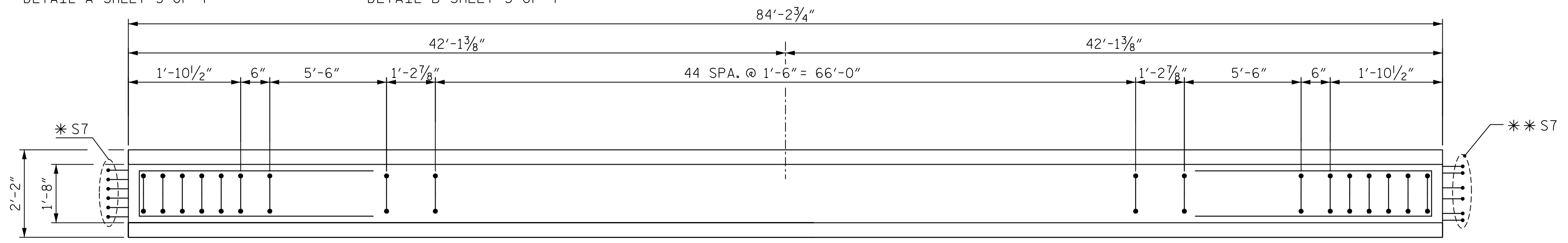
SECTION C-C
 (S1 BARS NOT SHOWN)

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED 6'-0" FROM END OF GIRDER

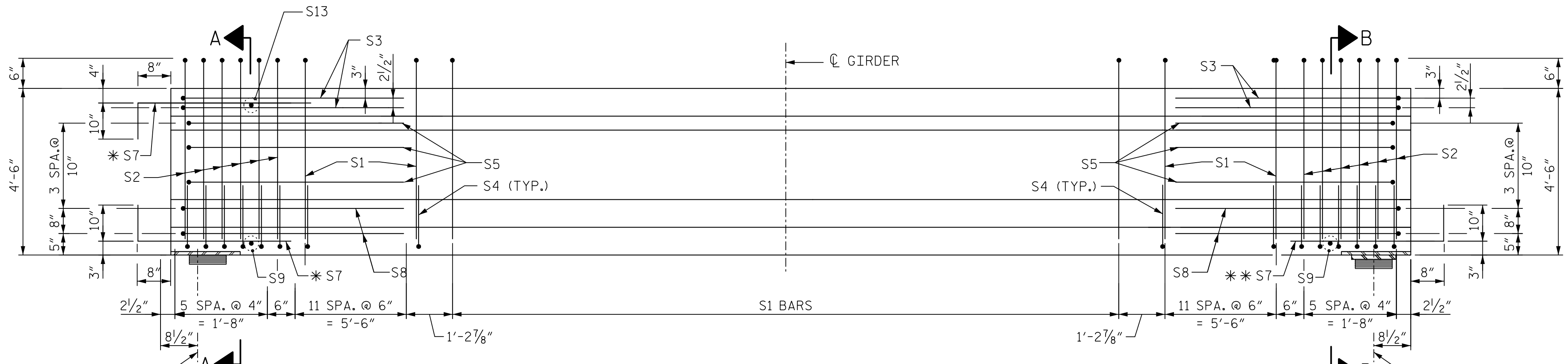


0.6" Ø LOW RELAXATION STRAND LAYOUT

NOTE:
 BEAM LENGTH SHOWN REFLECTS THE BEAM LENGTH ALONG THE GRADE.

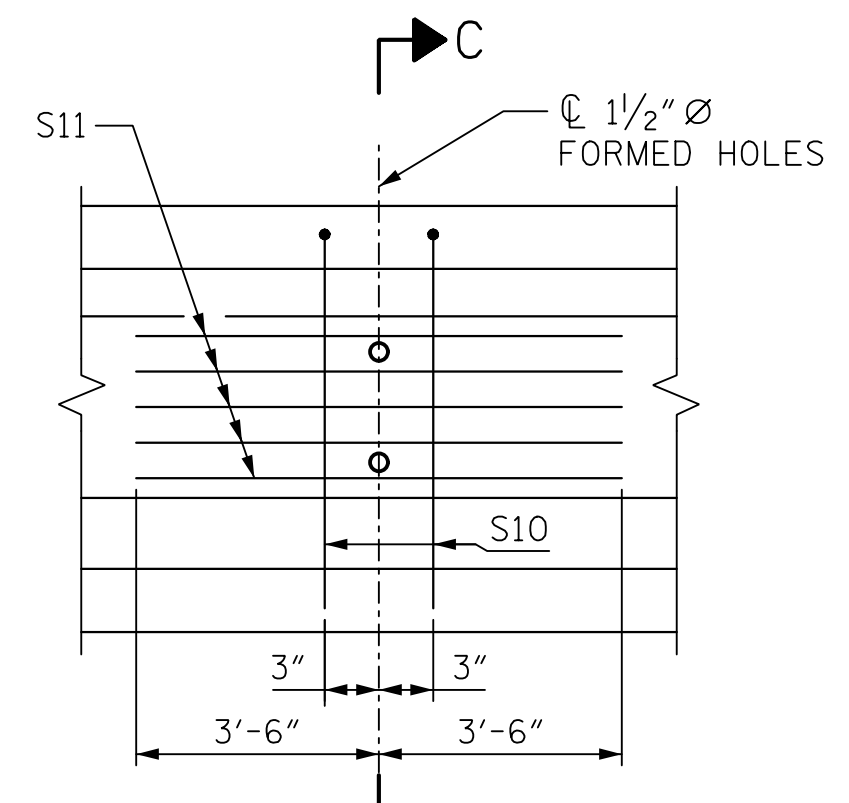


PLAN OF GIRDER



ELEVATION OF GIRDER
 (SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

NOTE: FOR LOCATION OF INTERMEDIATE DIAPHRAGM, SEE SHEET 3 OF 4.



PARTIAL ELEVATION
 SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL

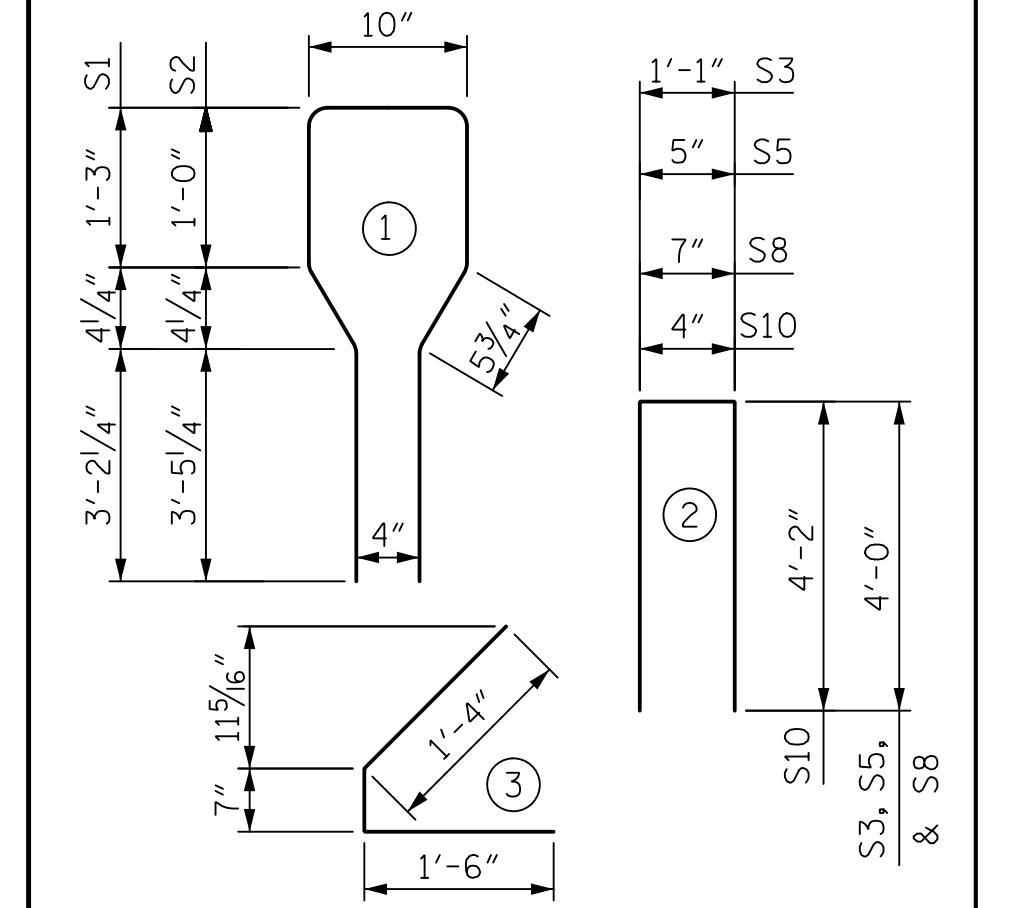
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	69	#4	1	10'-8"	492
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	72	#4	3	3'-5"	165
S5	6	#4	2	8'-5"	34
* S7	18	#5	STR	3'-8"	69
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	24
S13	1	#3	STR	1'-4"	1

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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	6,000 PSI CONCRETE	0.6" Ø L. R. STRANDS
LB.	C.Y.	No.
1,043	17.1	28

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
19	84'-2 3/4"	1,600.35'

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 2 OF 4

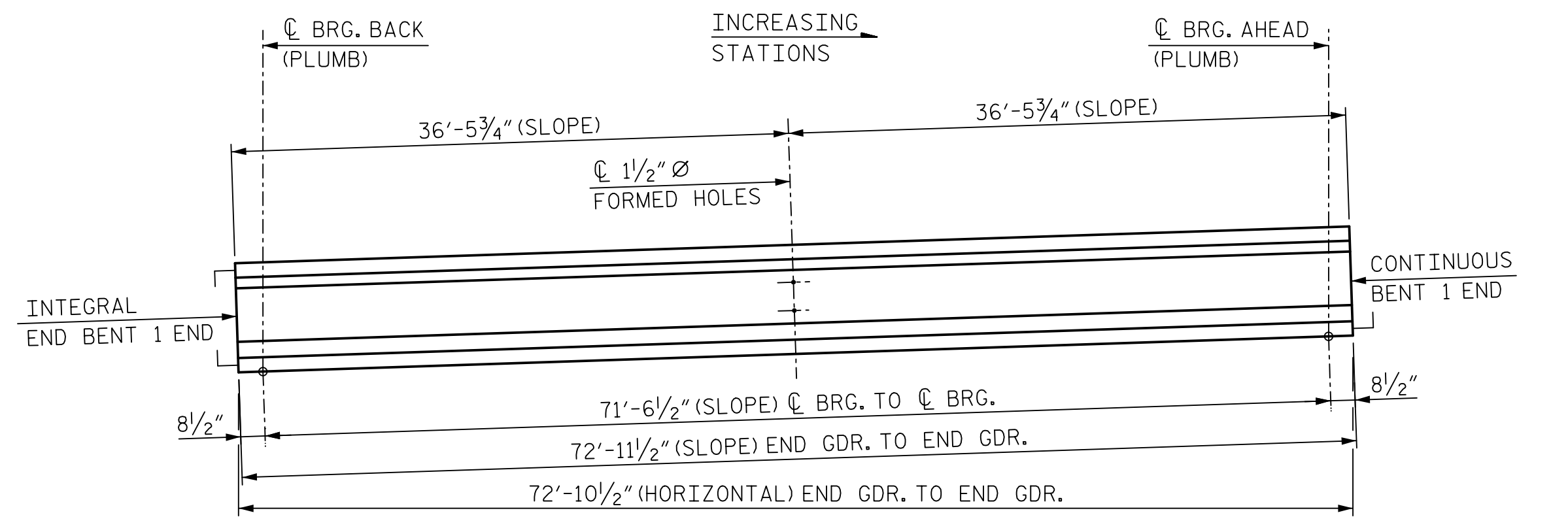
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD
AASHTO TYPE IV
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN B

ASSEMBLED BY :	DATE :
CHECKED BY :	DATE :
DRAWN BY : ELR 8/91	REV. 10/1/11 MAA/GM
CHECKED BY : GRP 8/91	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

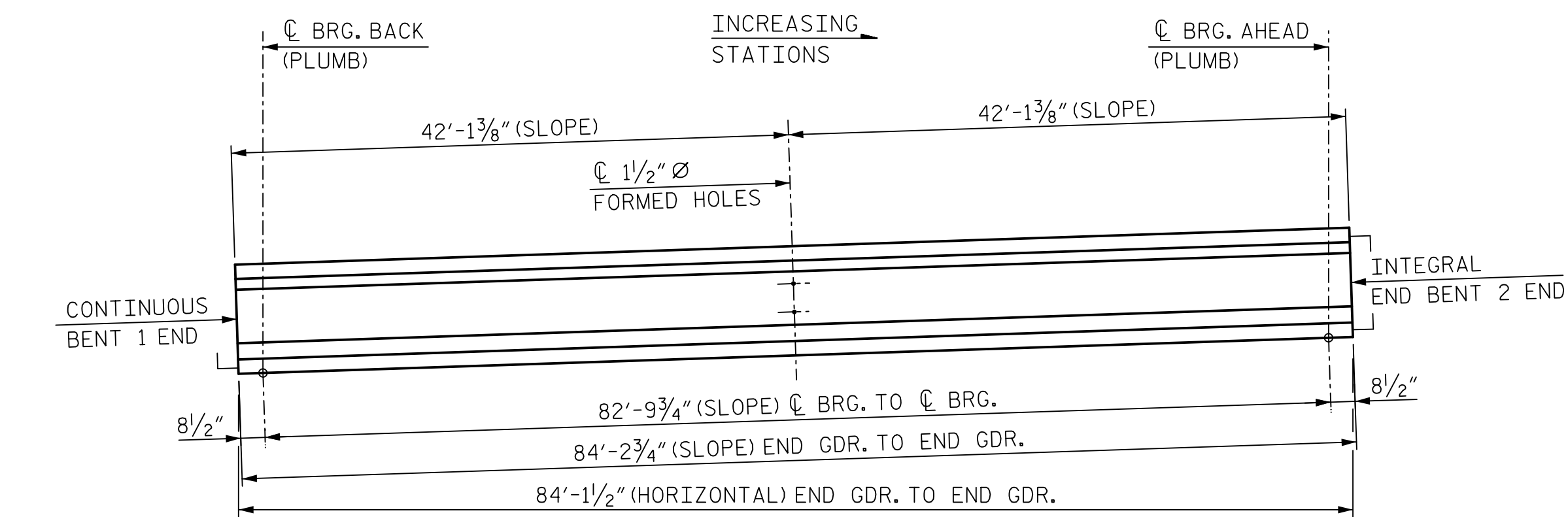
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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DRAWN BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 11/18
DESIGN ENGINEER OF RECORD : K. ERVIN	DATE : 11/18

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S3-16	
1			3			TOTAL SHEETS 49	
2			4				

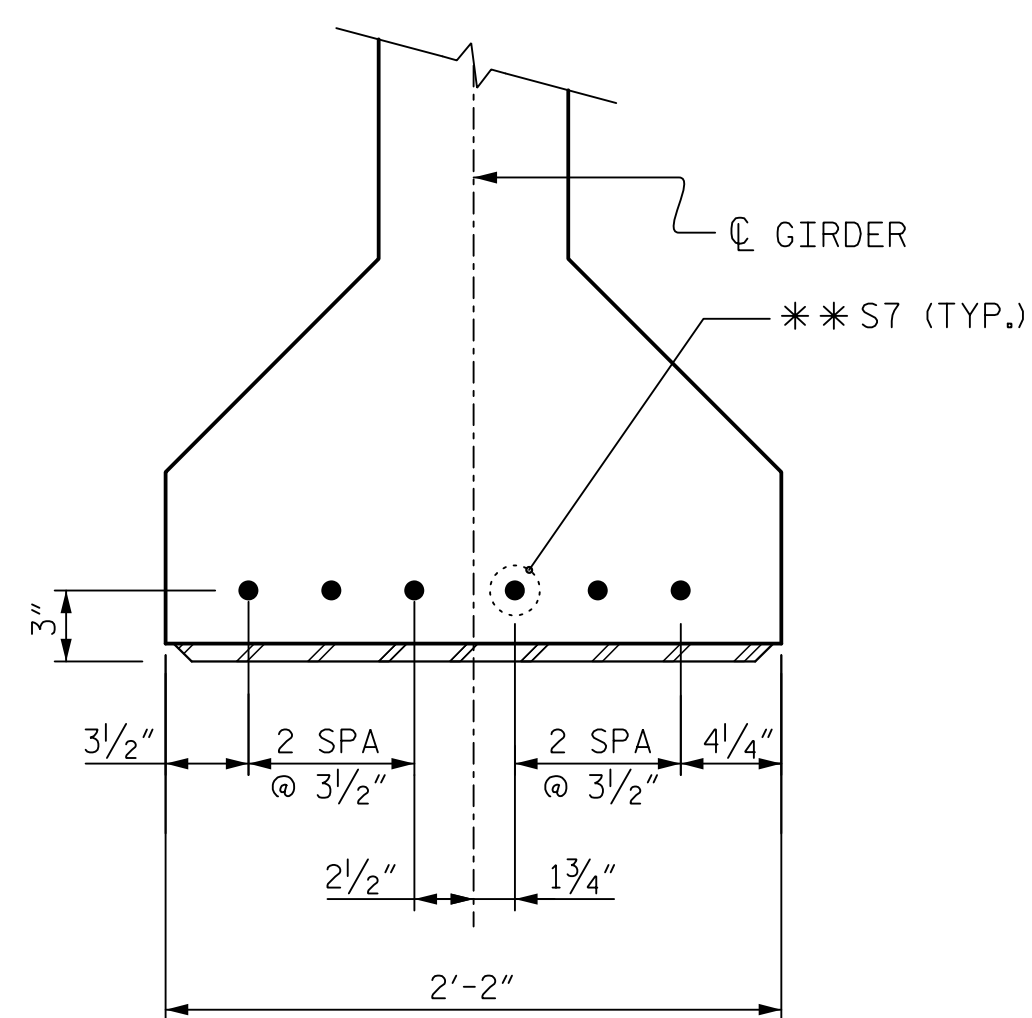


GIRDER ELEVATION
(SPAN A GIRDERS)

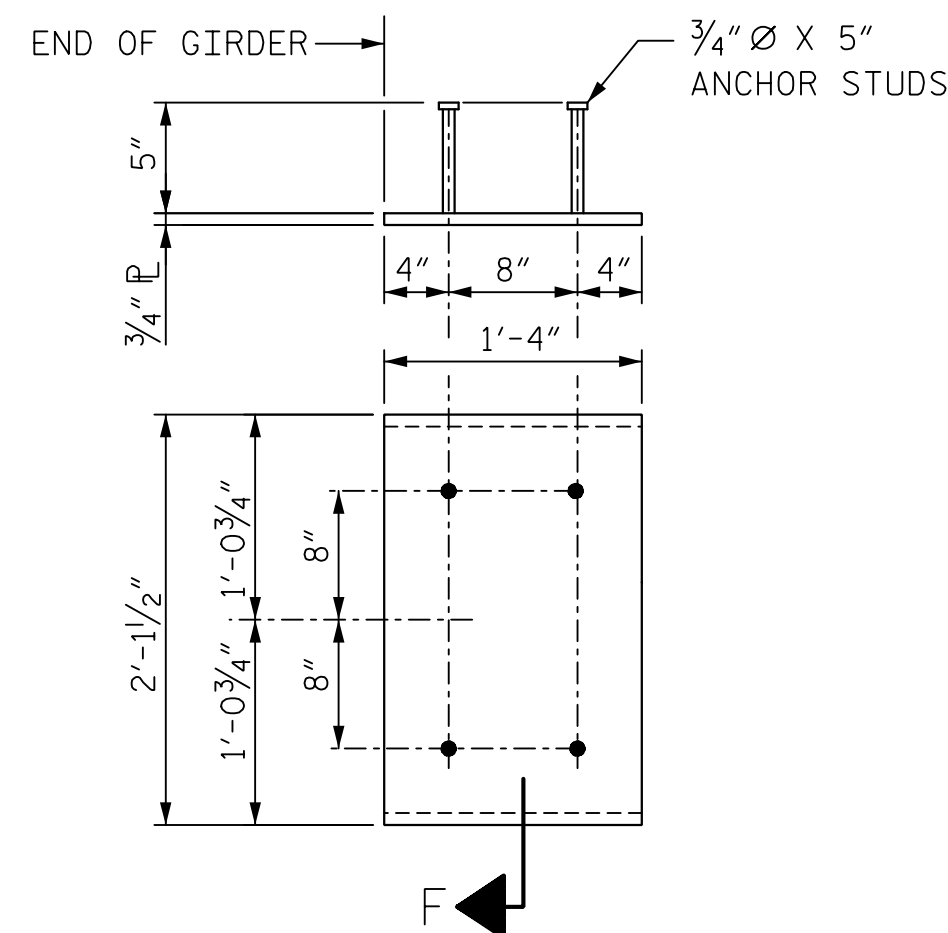


GIRDER ELEVATION
(SPAN B GIRDERS)

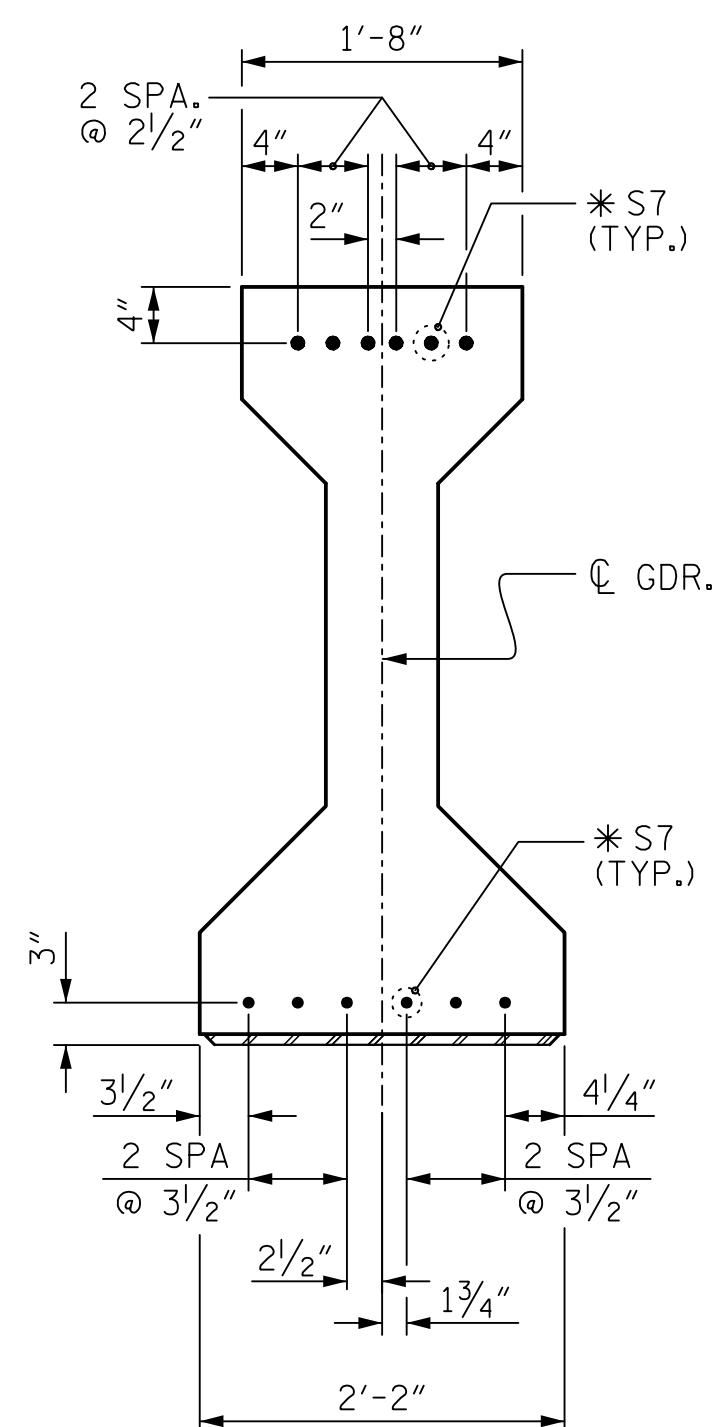
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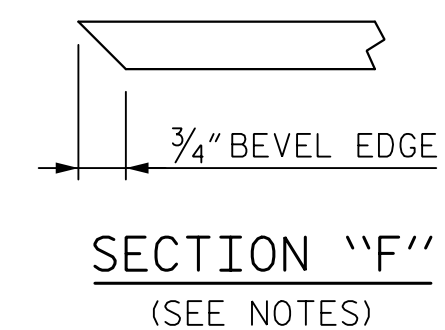
DETAIL "B"
(FOR AASHTO TYPE IV GIRDERS
AT CONTINUOUS BENT)



EMBEDDED PLATE "B-1" DETAILS
FOR AASHTO TYPE IV GIRDER
(2 REQ'D PER GIRDER)



DETAIL "A"
(FOR AASHTO TYPE IV GIRDERS
AT INTEGRAL END BENT)



SECTION "F"
(SEE NOTES)

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,500 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".

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

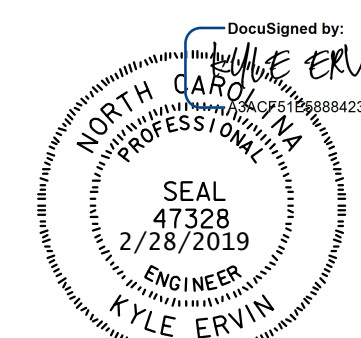
STANDARD

PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS

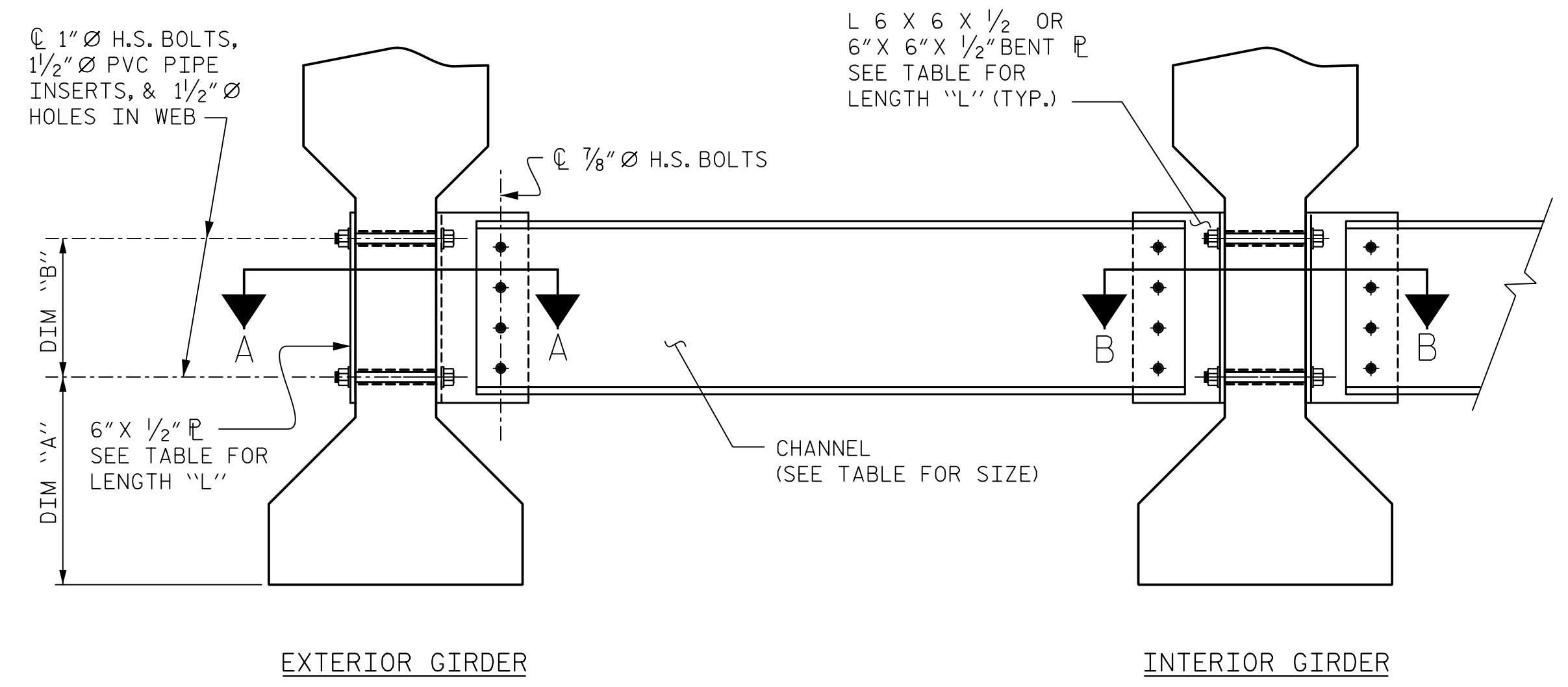
ASSEMBLED BY : B. VAUGHN	DATE : 10/18
CHECKED BY : K. ERVIN	DATE : 1/19
DRAWN BY : ELR 11/91	REV. 1/15 MAA/TMG
CHECKED BY : GRP 11/91	REV. 2/15 MAA/TMG
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
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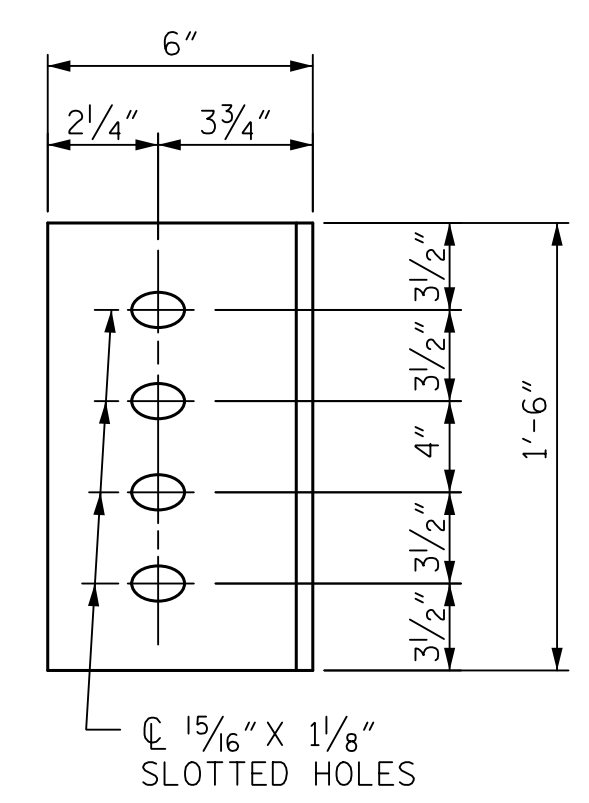
HNTB	HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 1/19
DESIGN ENGINEER OF RECORD : K. ERVIN	DATE : 1/19



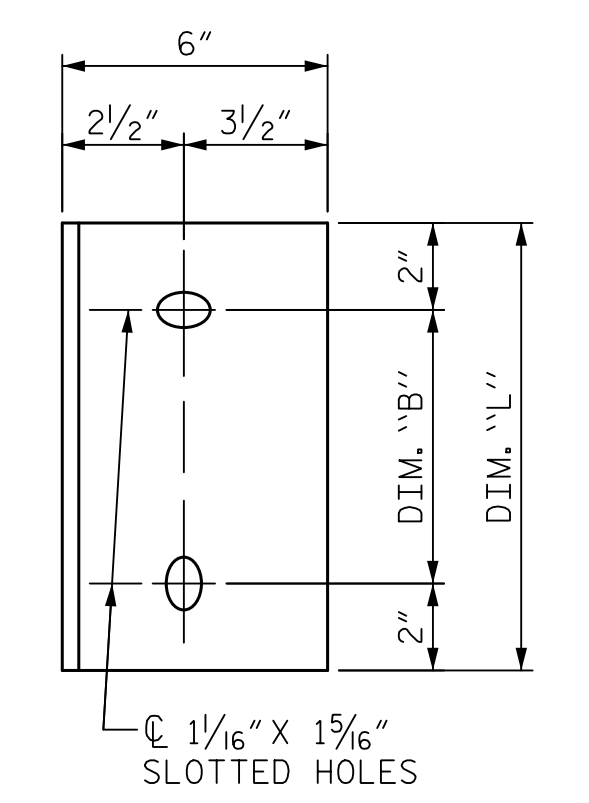
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			



PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE



WEB FACE

CONNECTOR PLATE DETAILS

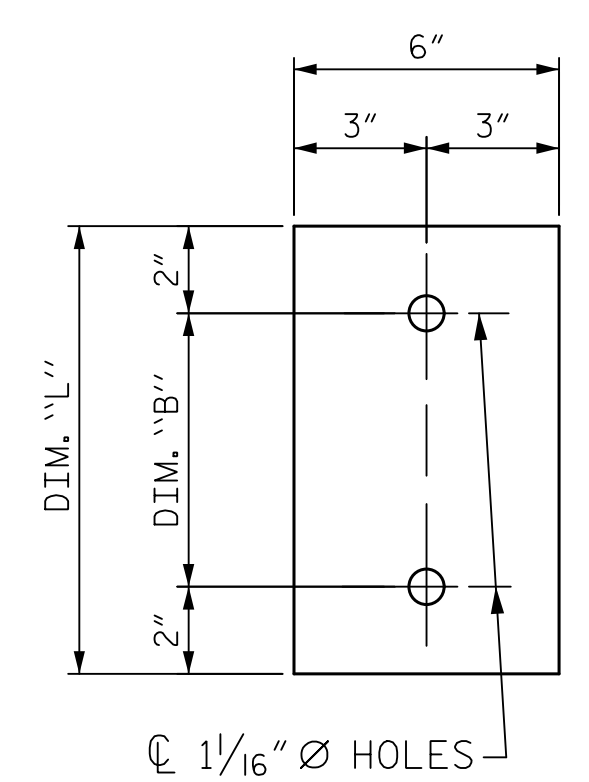
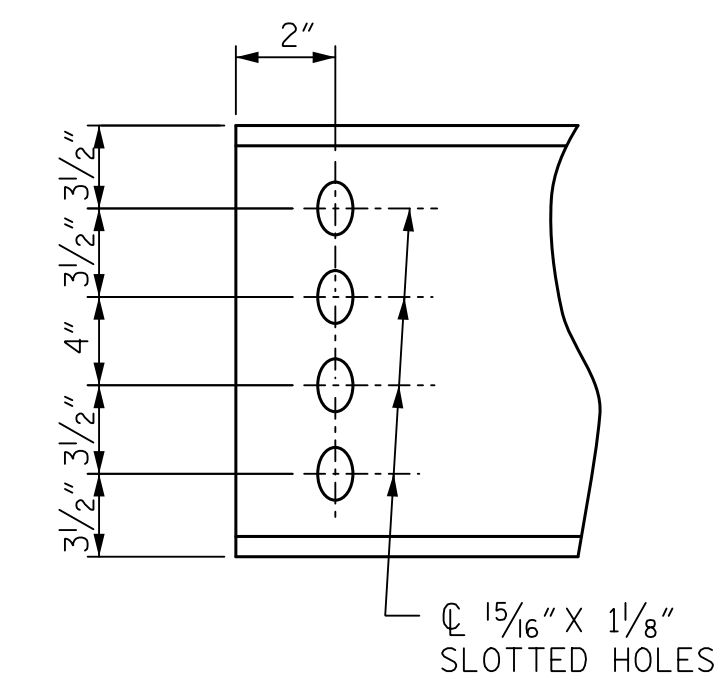


PLATE DETAILS



CHANNEL END

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 CHANNEL 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, CHANNELS, 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.

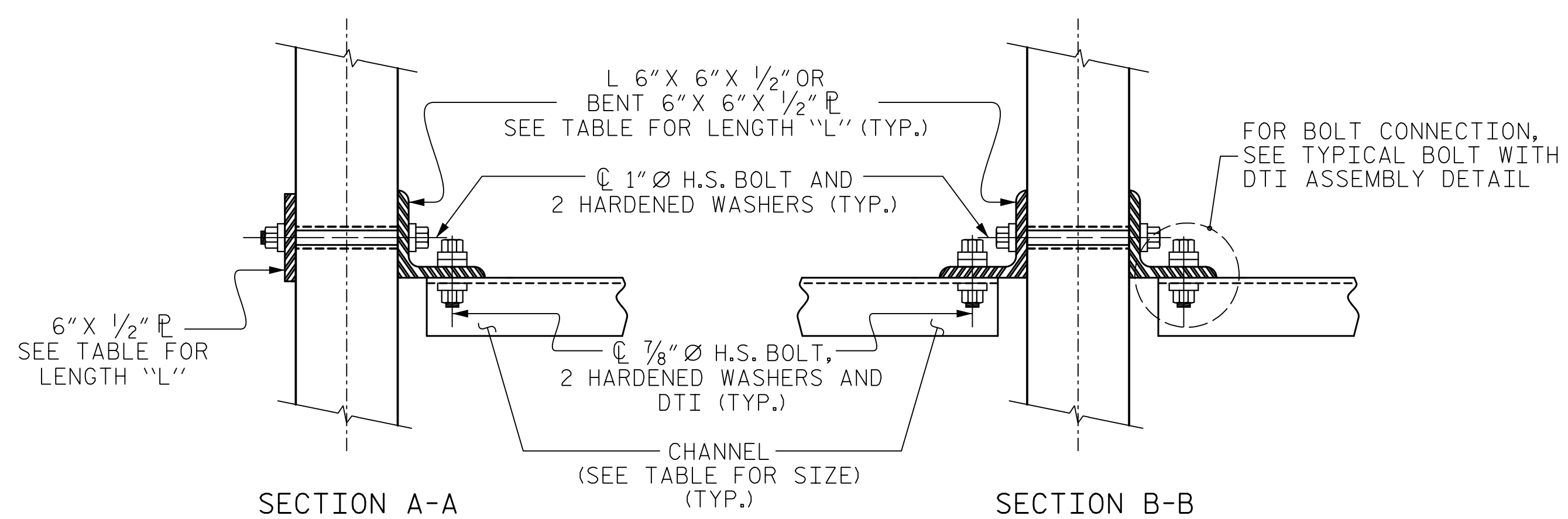
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

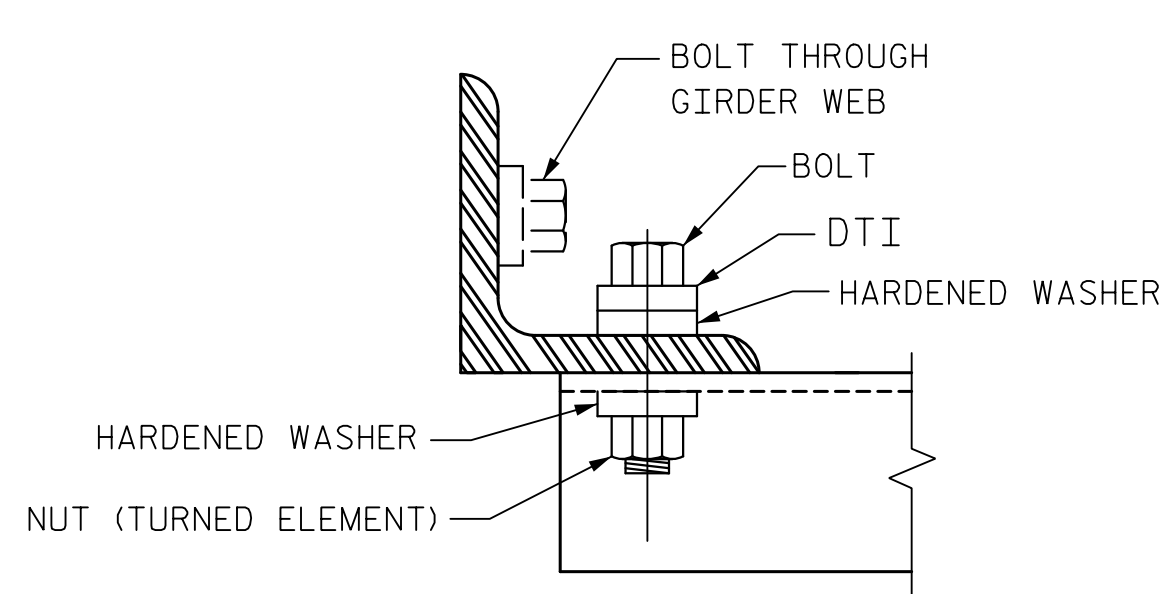
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, 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.



CONNECTION DETAILS



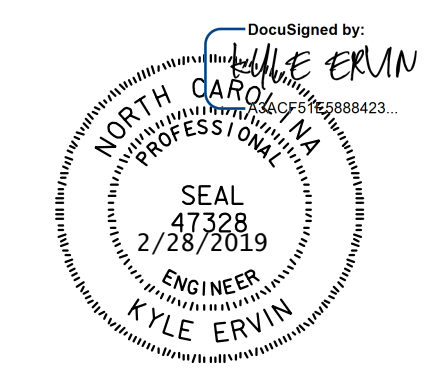
BOLT WITH DTI ASSEMBLY DETAIL

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
IV	MC 18 x 42.7	1'-9 1/2"	1'-2"	1'-6"

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 4 OF 4



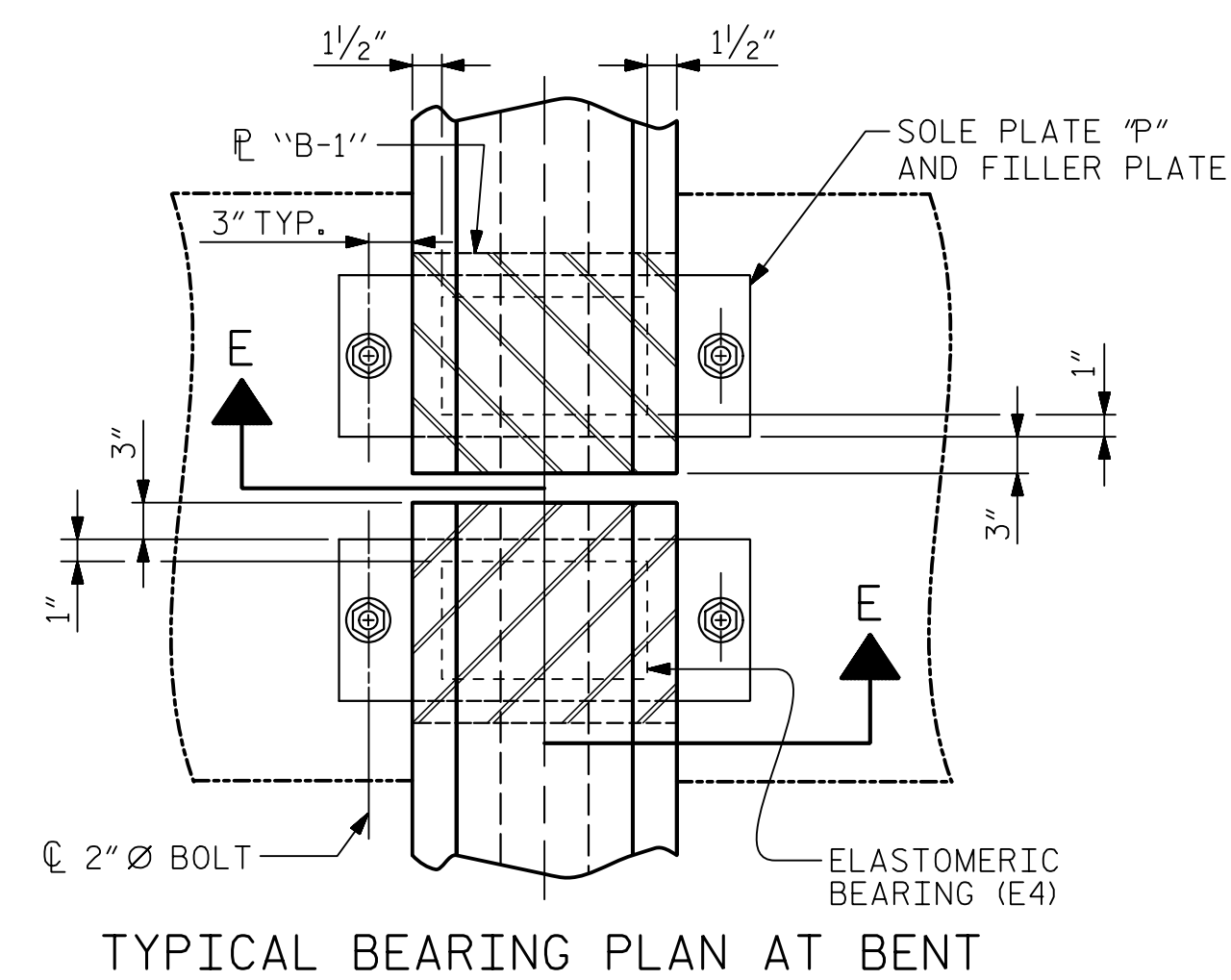
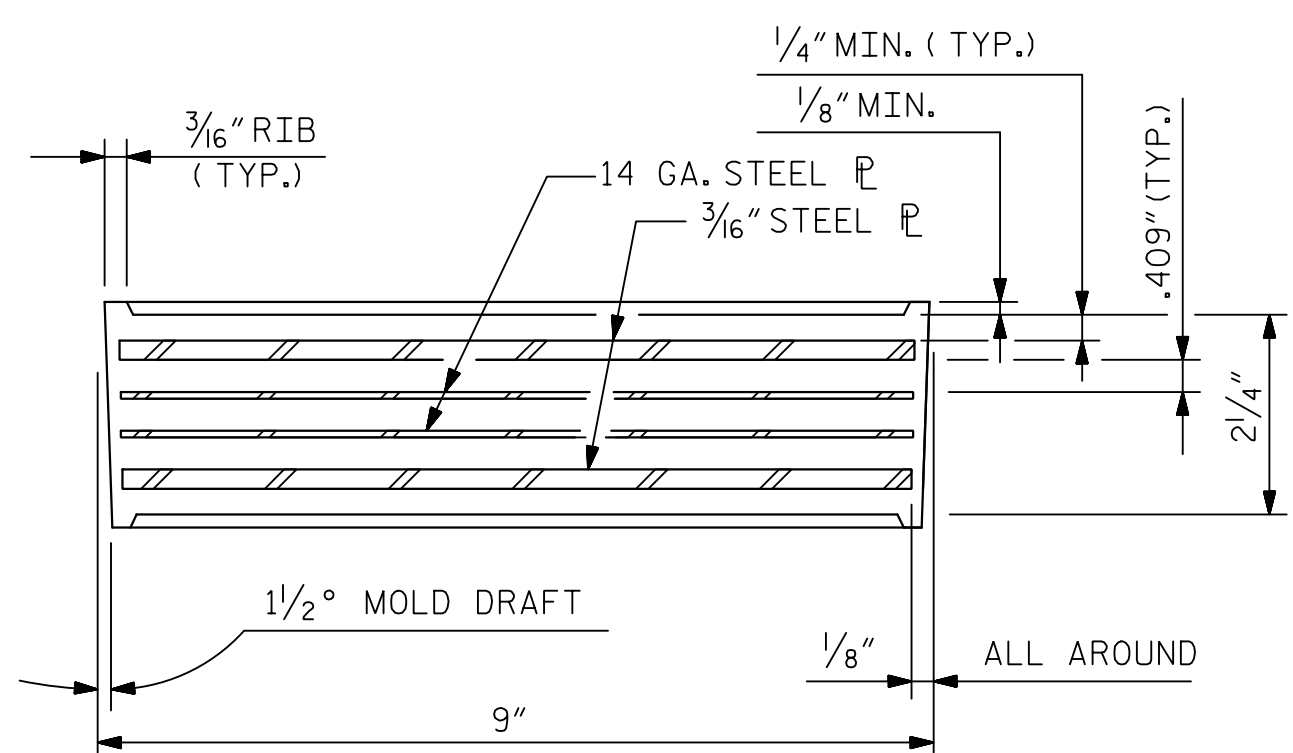
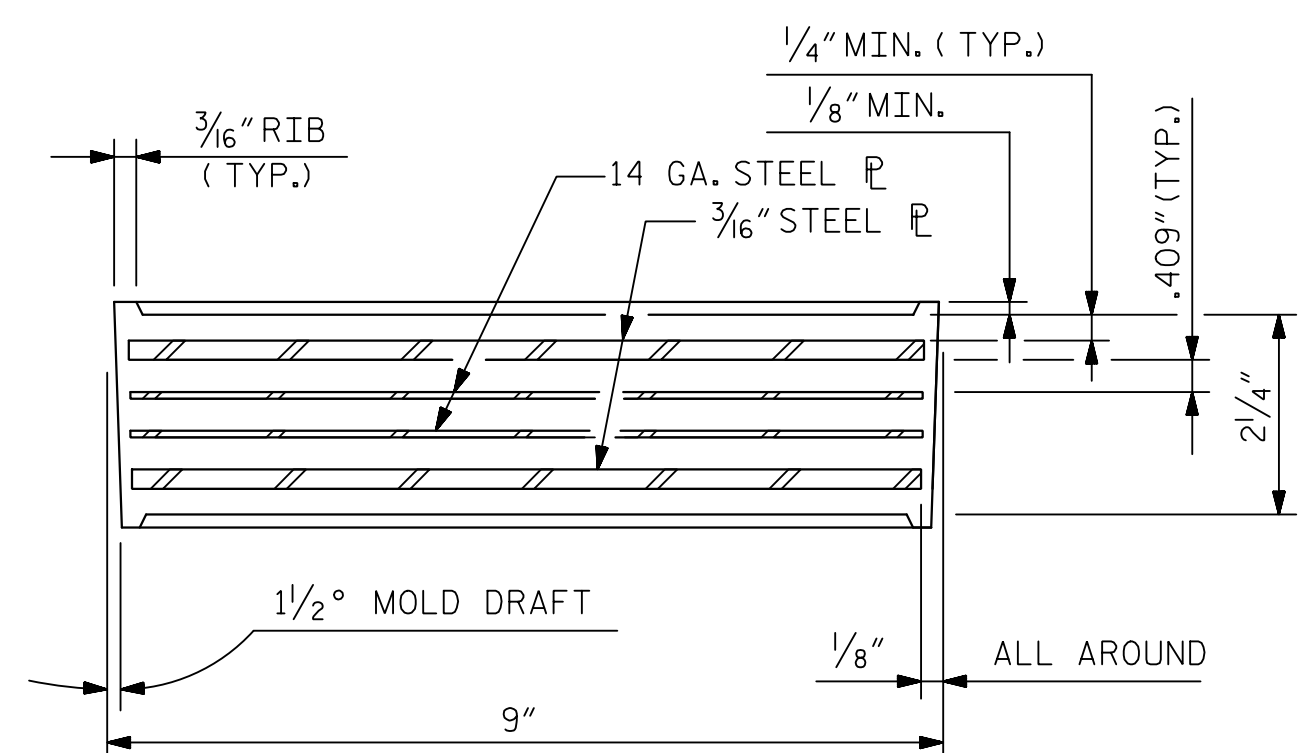
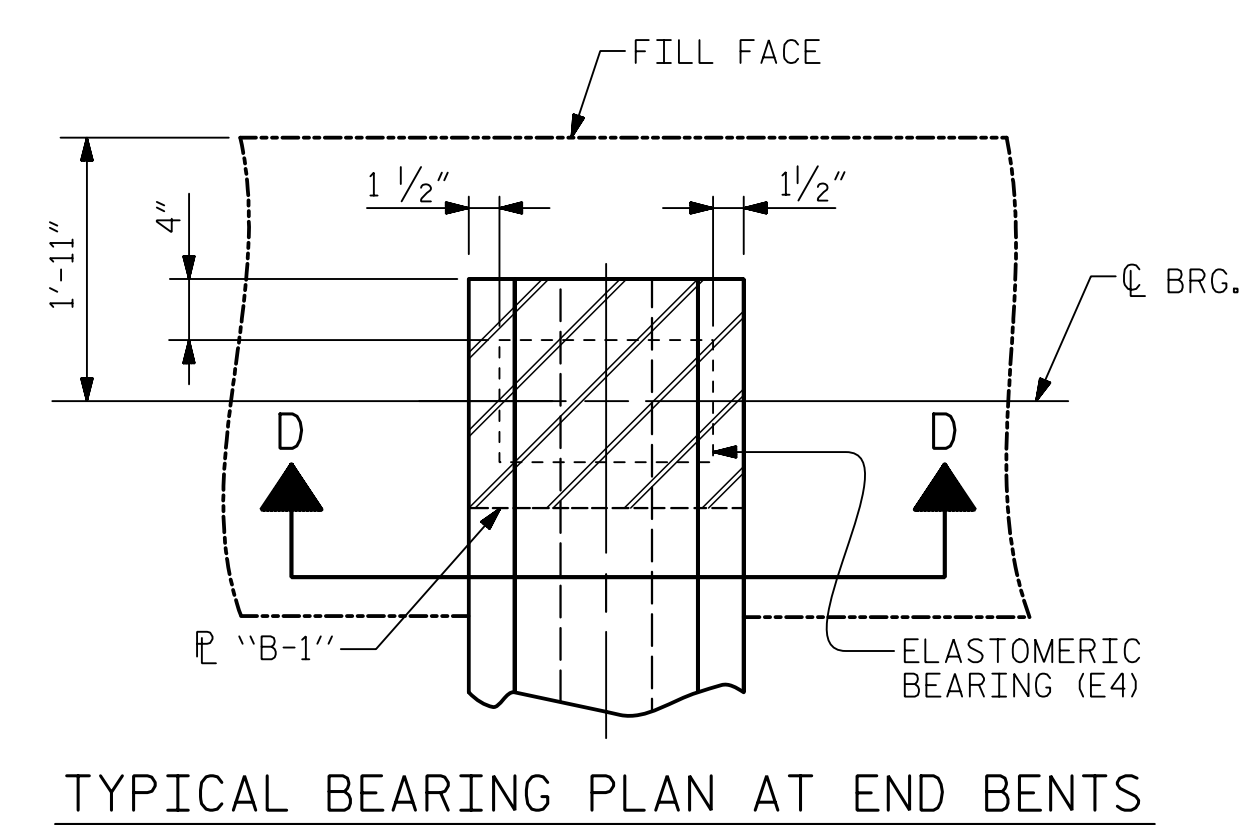
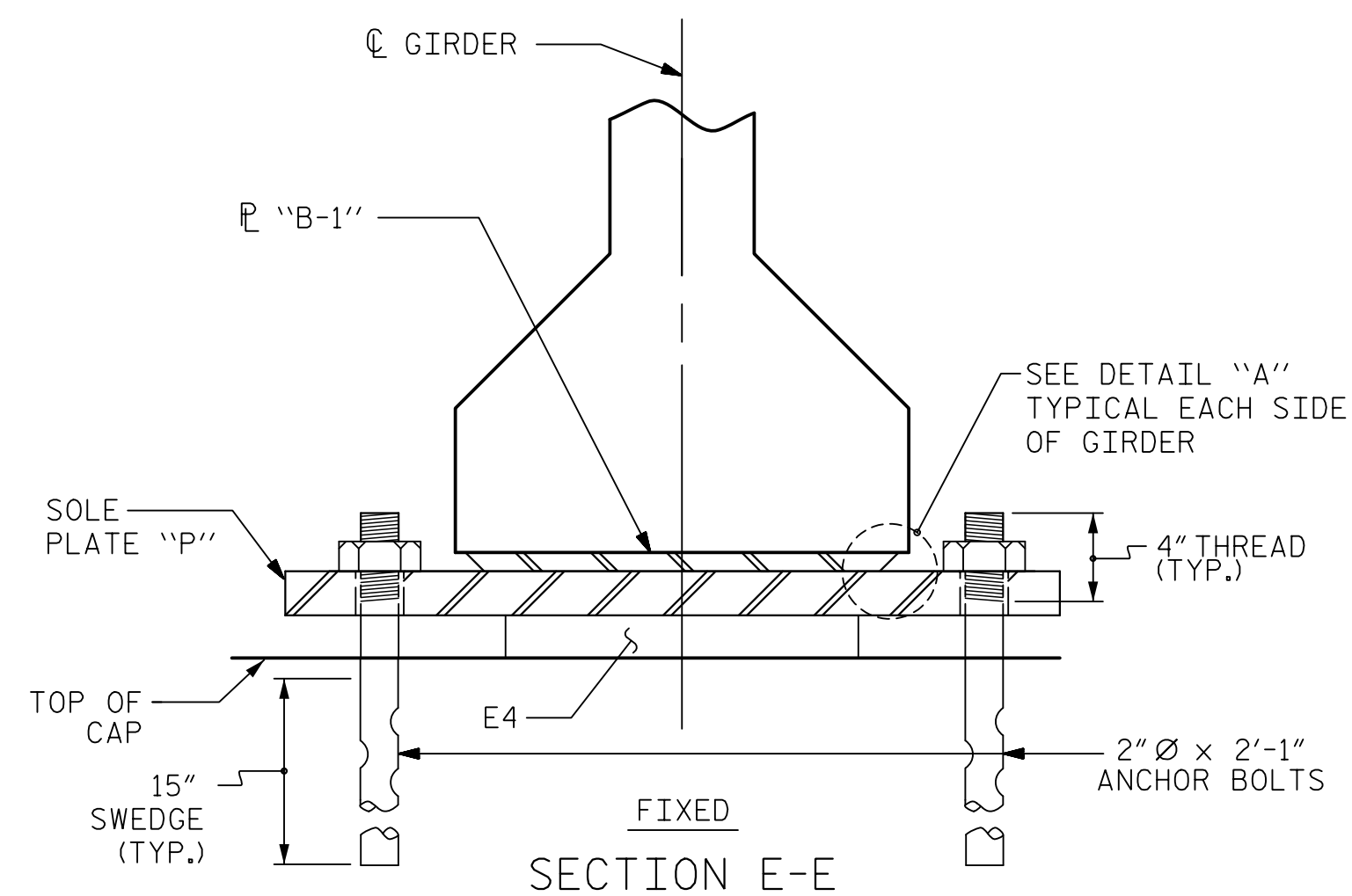
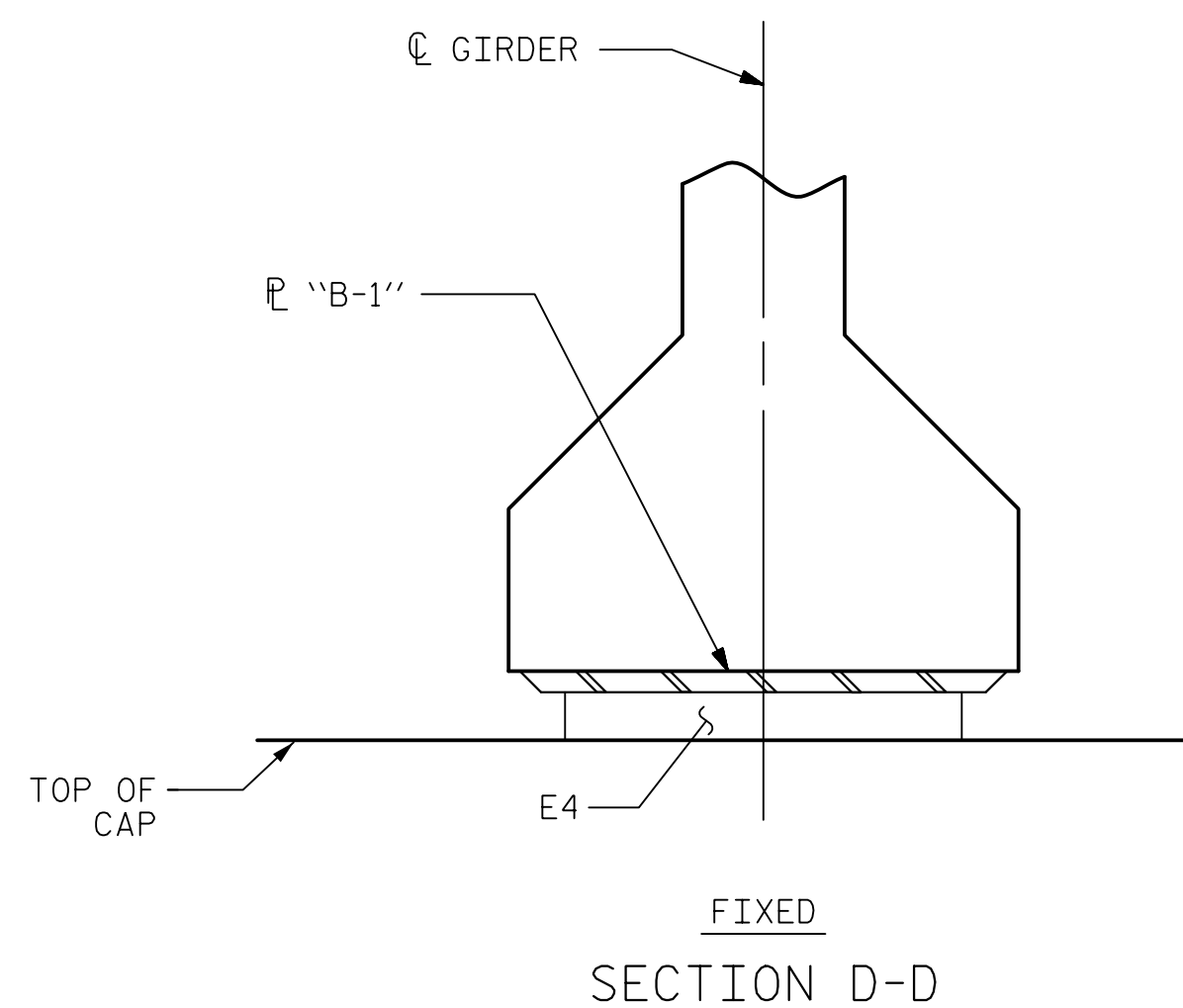
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS

ASSEMBLED BY : B. VAUGH	DATE : 11/10/18
CHECKED BY : K. ERVIN	DATE : 2/1/19
DRAWN BY : TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY : VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 1/19
DESIGN ENGINEER OF RECORD : K. ERVIN	DATE : 11/18

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			S3-18 49
2			4			



NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

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

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, AND NUTS. SHOP INSPECTION IS REQUIRED.

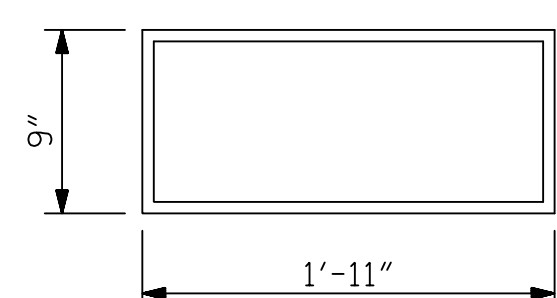
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

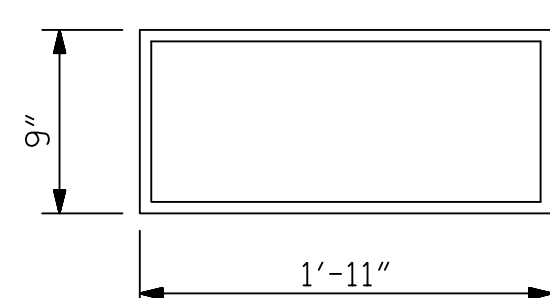
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

FOR BEARING AND SOLE PLATE LOCATIONS, SEE "FRAMING PLAN" SHEET.

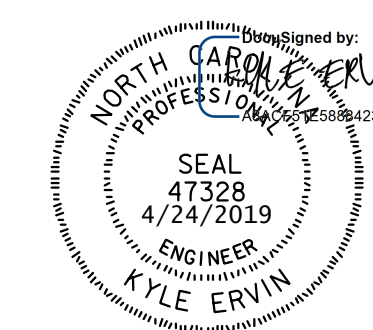
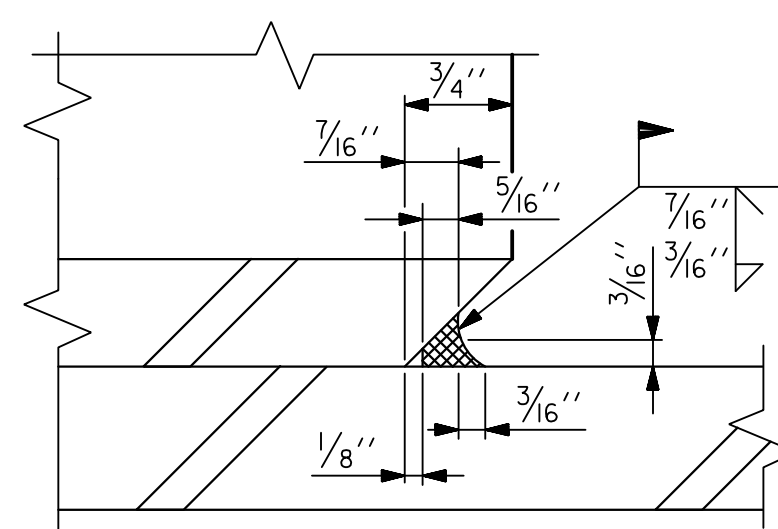
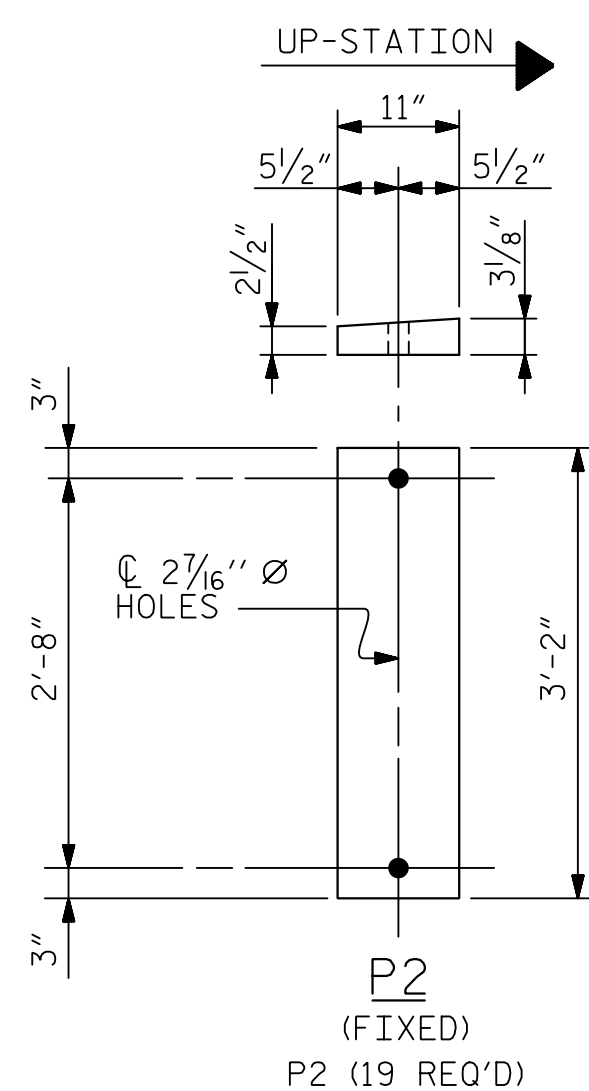
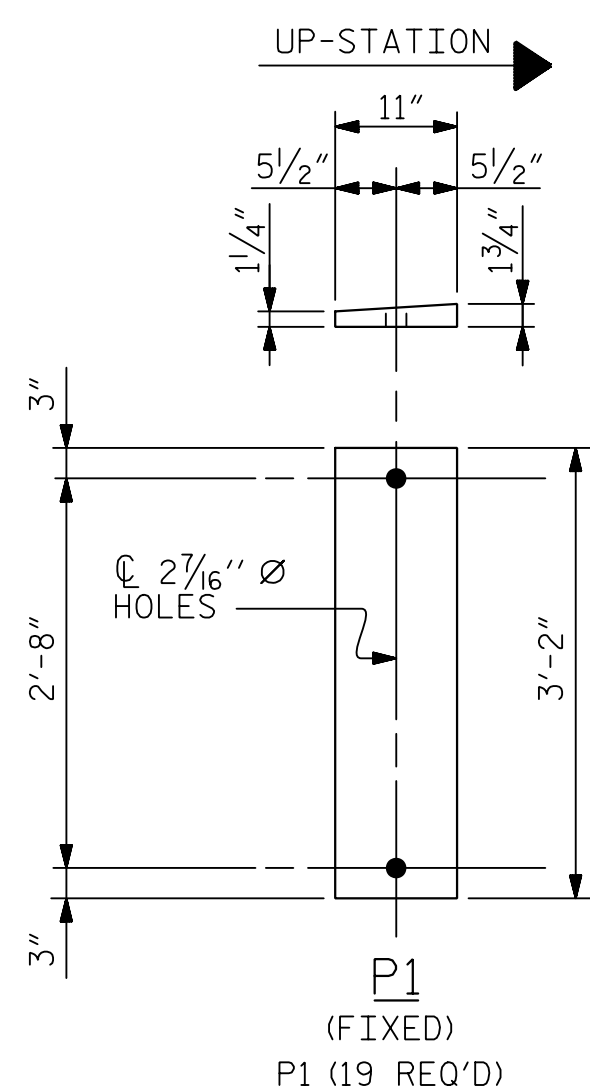


E4 (38 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE V



E4 (38 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE V

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE V	320 k



PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

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

ASSEMBLED BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 1/19
DRAWN BY : EEM 2/97	REV. 5/1/06 TLA/GM
CHECKED BY : VAP 2/97	REV. 10/1/11 MAA/GM
	REV. 6/13 AAC/MAA

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DRAWN BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 1/19
DESIGN ENGINEER OF RECORD : K. ERVIN	DATE : 11/18

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS 49

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 1 AND 19										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.015	-0.029	-0.040	-0.048	-0.050	-0.048	-0.040	-0.029	-0.015	0.000
FINAL CAMBER ↑	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 1 AND 19										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.041	0.078	0.106	0.125	0.131	0.125	0.106	0.078	0.041	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.026	-0.052	-0.072	-0.084	-0.089	-0.084	-0.072	-0.052	-0.026	0.000
FINAL CAMBER ↑	0	3/16	5/16	7/16	1/2	1/2	1/2	7/16	5/16	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 2 AND 18										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.015	-0.030	-0.041	-0.048	-0.051	-0.048	-0.041	-0.030	-0.015	0.000
FINAL CAMBER ↑	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 2 AND 18										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.041	0.078	0.106	0.125	0.131	0.125	0.106	0.078	0.041	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.027	-0.052	-0.073	-0.086	-0.090	-0.086	-0.073	-0.052	-0.027	0.000
FINAL CAMBER ↑	0	3/16	5/16	3/8	1/2	1/2	1/2	3/8	5/16	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 3 AND 17										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.015	-0.029	-0.040	-0.047	-0.050	-0.047	-0.040	-0.029	-0.015	0.000
FINAL CAMBER ↑	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 3 AND 17										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.041	0.078	0.106	0.125	0.131	0.125	0.106	0.078	0.041	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.024	-0.047	-0.065	-0.077	-0.081	-0.077	-0.065	-0.047	-0.024	0.000
FINAL CAMBER ↑	0	3/16	3/8	1/2	5/16	5/8	5/16	1/2	3/8	3/16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 4 THRU 6 AND 14 THRU 16										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.014	-0.028	-0.038	-0.045	-0.047	-0.045	-0.038	-0.028	-0.014	0.000
FINAL CAMBER ↑	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 4 THRU 6 AND 14 THRU 16										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.041	0.078	0.106	0.125	0.131	0.125	0.106	0.078	0.041	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.023	-0.045	-0.062	-0.073	-0.077	-0.073	-0.062	-0.045	-0.023	0.000
FINAL CAMBER ↑	0	1/4	3/8	1/2	5/8	5/8	5/8	1/2	3/8	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 7 AND 13										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.011	-0.022	-0.031	-0.036	-0.038	-0.036	-0.031	-0.022	-0.011	0.000
FINAL CAMBER ↑	0	1/8	1/4	3/8	7/16	7/16	7/16	3/8	1/4	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 7 AND 13										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.041	0.078	0.106	0.125	0.131	0.125	0.106	0.078	0.041	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.019	-0.037	-0.051	-0.060	-0.064	-0.060	-0.051	-0.037	-0.019	0.000
FINAL CAMBER ↑	0	1/4	1/2	5/8	3/4	13/16	3/4	5/8	1/2	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 8 AND 12										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.012	-0.023	-0.032	-0.037	-0.039	-0.037	-0.032	-0.023	-0.012	0.000
FINAL CAMBER ↑	0	1/8	1/4	3/8	7/16	7/16	7/16	3/8	1/4	1/8	0

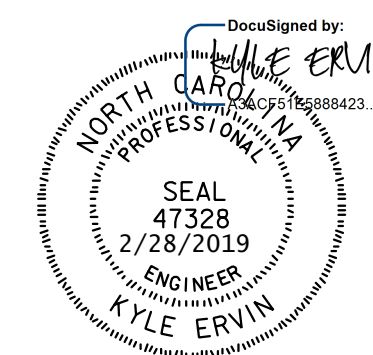
DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 8 AND 12										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.041	0.078	0.106	0.125	0.131	0.125	0.106	0.078	0.041	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.019	-0.038	-0.053	-0.062	-0.065	-0.062	-0.053	-0.038	-0.019	0.000
FINAL CAMBER ↑	0	1/4	1/2	5/8	3/4	13/16	3/4	5/8	1/2	1/4	0

DEAD LOAD DEFLECTION TABLE FOR SPAN A											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 9 THRU 11										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.014	-0.028	-0.038	-0.045	-0.048	-0.045	-0.038	-0.028	-0.014	0.000
FINAL CAMBER ↑	0	1/8	3/16	1/4	5/16	5/16	5/16	1/4	3/16	1/8	0

DEAD LOAD DEFLECTION TABLE FOR SPAN B											
0.6" Ø LOW RELAXATION STRANDS	GIRDERS 9 THRU 11										
TENTH POINTS	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.041	0.078	0.106	0.125	0.131	0.125	0.106	0.078	0.041	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	-0.023	-0.045	-0.062	-0.073	-0.077	-0.073	-0.062	-0.045	-0.023	0.000
FINAL CAMBER ↑	0	3/16	3/8	1/2	5/8	5/8	5/8	1/2	3/8	3/16	0

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD. SUPERIMPOSED DEAD LOAD DOES NOT INCLUDE TEMPORARY BARRIERS NOR TEMPORARY OVERLAY. ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-



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

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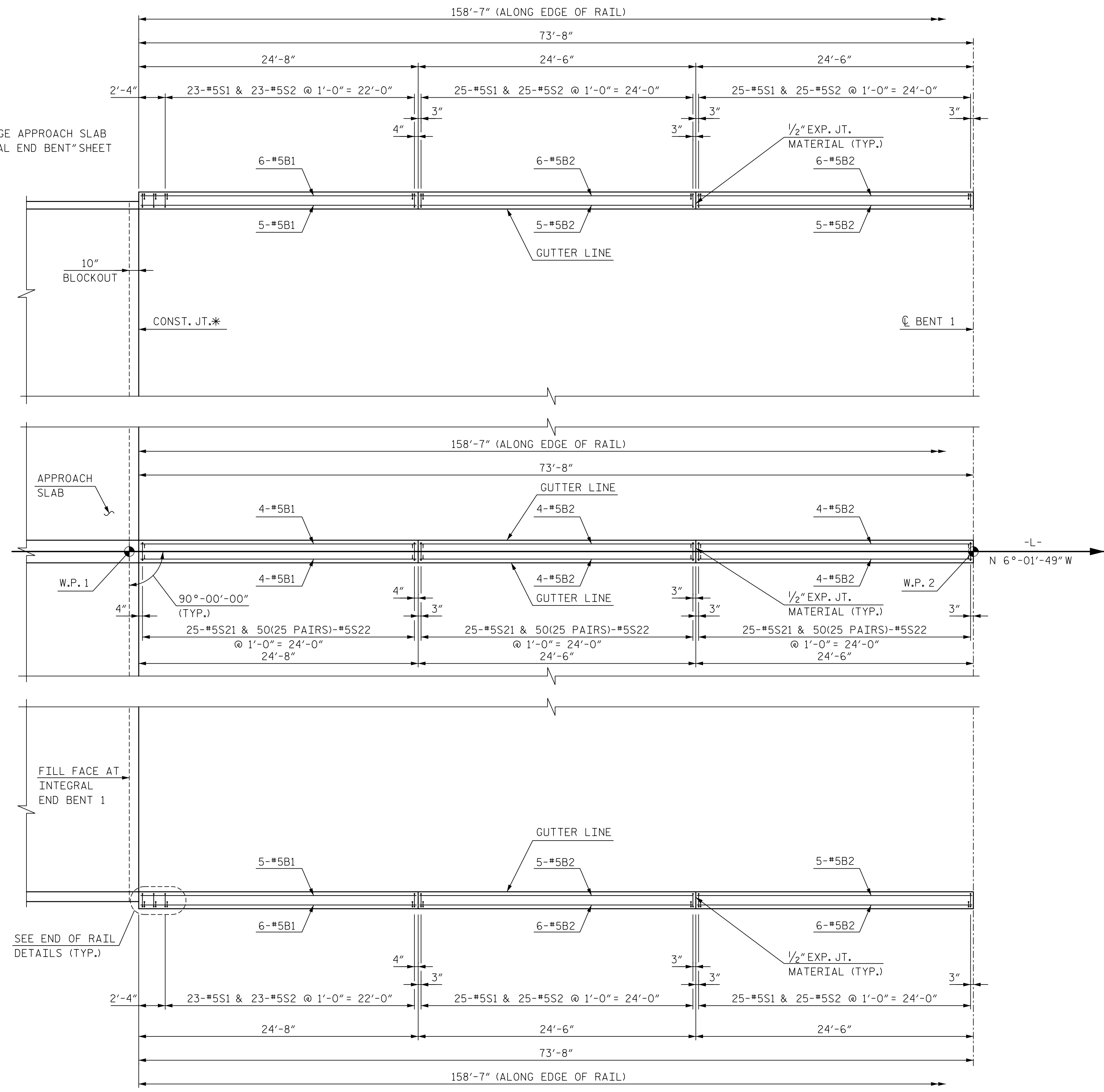
DRAWN BY B. VAUGHN DATE 11/18
 CHECKED BY K. ERVIN DATE 12/18
 DESIGN ENGINEER OF RECORD K. ERVIN DATE 11/18

DWG. NO. 20

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 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			

* SEE "BRIDGE APPROACH SLAB FOR INTEGRAL END BENT" SHEET

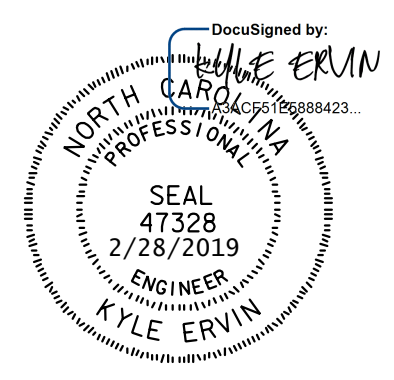


SPAN A
 PLAN OF BARRIER RAIL
 EDGE OF SLAB NOT SHOWN FOR CLARITY

NOTES:
 FOR PLAN OF BARRIER RAIL SPAN B, SEE SHEET 2 OF 4.
 FOR NOTES, BARRIER RAIL DETAILS, END OF RAIL DETAILS, AND BILL OF MATERIALS, SEE SHEET 3 OF 4.
 FOR NOTES, MEDIAN BARRIER DETAILS, AND BILL OF MATERIALS, SEE SHEET 4 OF 4.
 FOR BARRIERS ON APPROACH SLAB, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.
 W.P. = DENOTES WORK POINT

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

SHEET 1 OF 4



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

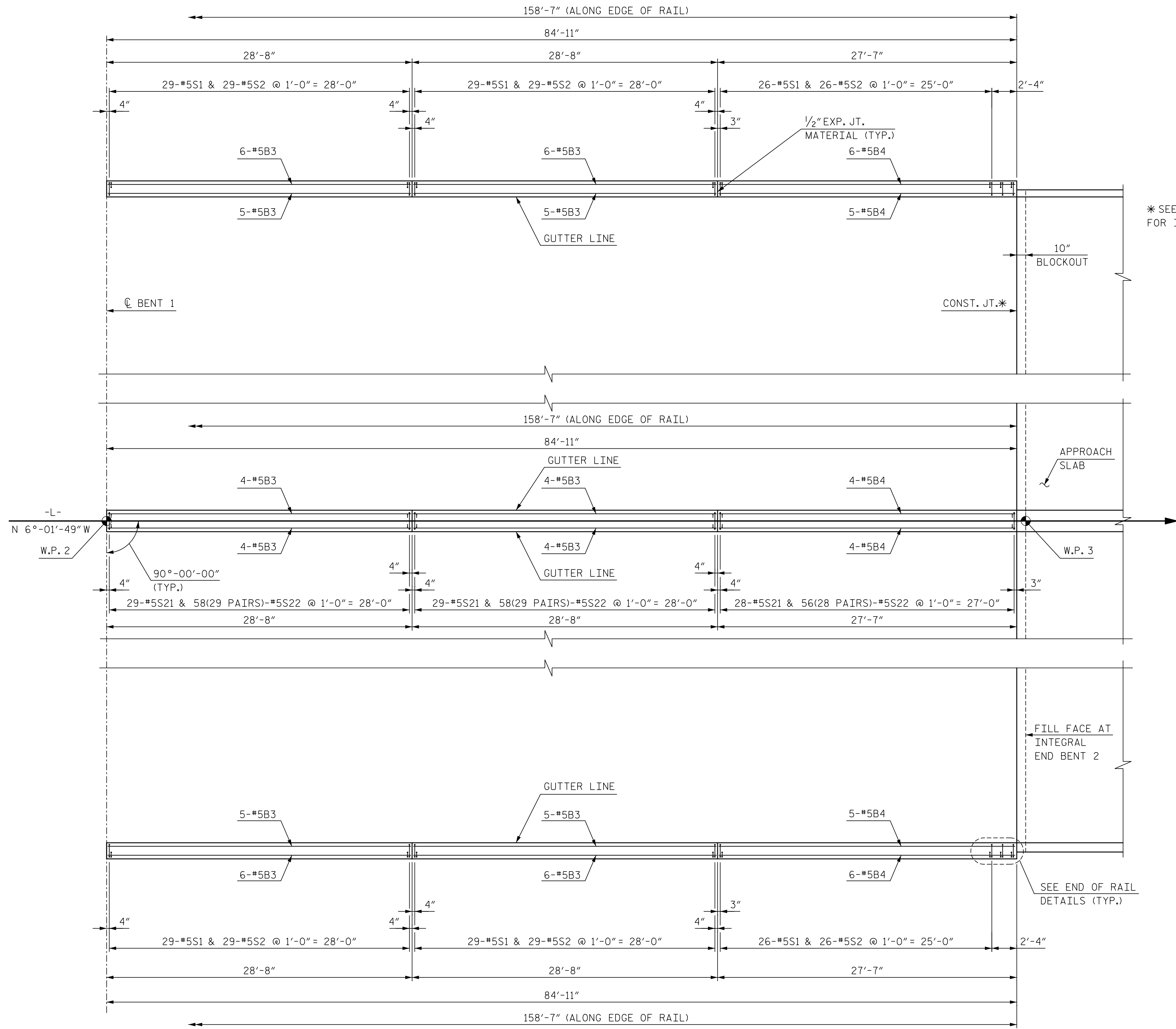
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DRAWN BY B. VAUGHN DATE 1/18
 CHECKED BY K. ERVIN DATE 1/19
 DESIGN ENGINEER OF RECORD K. ERVIN DATE 1/18

DWG. NO. 21

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			S3-21 49
2			4			



SPAN B
 PLAN OF BARRIER RAIL
 EDGE OF SLAB NOT SHOWN FOR CLARITY

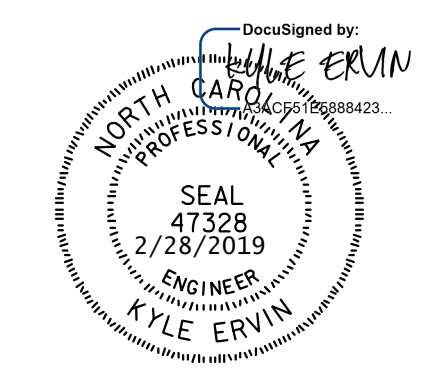
NOTES:
 FOR PLAN OF BARRIER RAIL SPAN A, SEE SHEET 1 OF 4.
 FOR NOTES, BARRIER RAIL DETAILS, END OF RAIL DETAILS, AND BILL OF MATERIALS, SEE SHEET 3 OF 4.
 FOR NOTES, MEDIAN BARRIER DETAILS, AND BILL OF MATERIALS, SEE SHEET 4 OF 4.
 FOR BARRIERS ON APPROACH SLAB, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.
 W.P. = DENOTES WORK POINT

* SEE "BRIDGE APPROACH SLAB FOR INTEGRAL END BENT" SHEET

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

SHEET 2 OF 4

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



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DRAWN BY B. VAUGHN DATE 1/18
 CHECKED BY K. ERVIN DATE 1/19
 DESIGN ENGINEER OF RECORD K. ERVIN DATE 1/18

DWG. NO. 22

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			

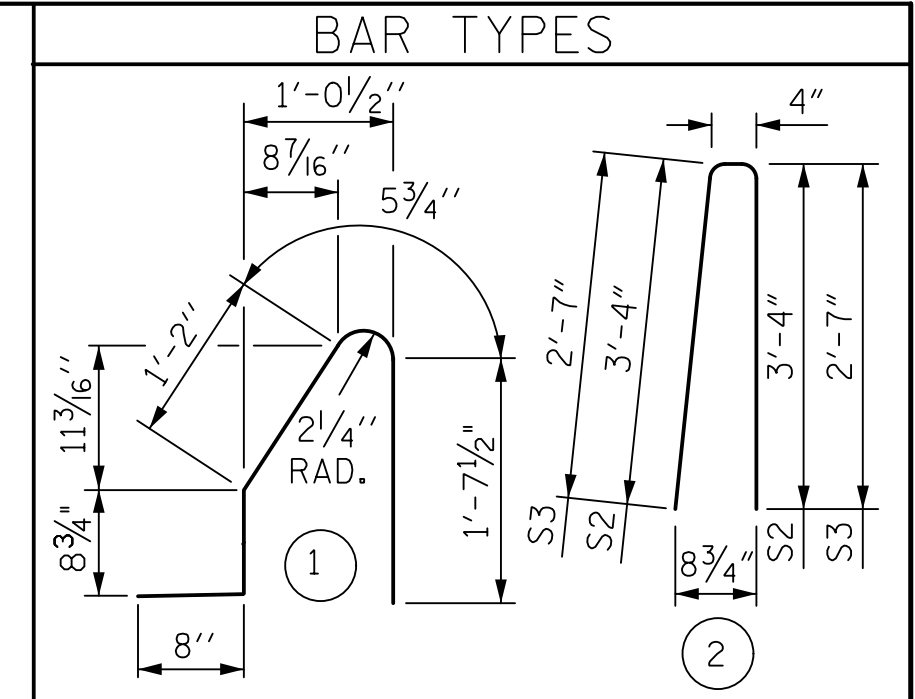
NOTES

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

BAR LIST AND QUANTITIES SHOWN ON THIS SHEET DO NOT INCLUDE BARRIERS ON APPROACH SLABS. FOR BARRIERS ON APPROACH SLABS, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.

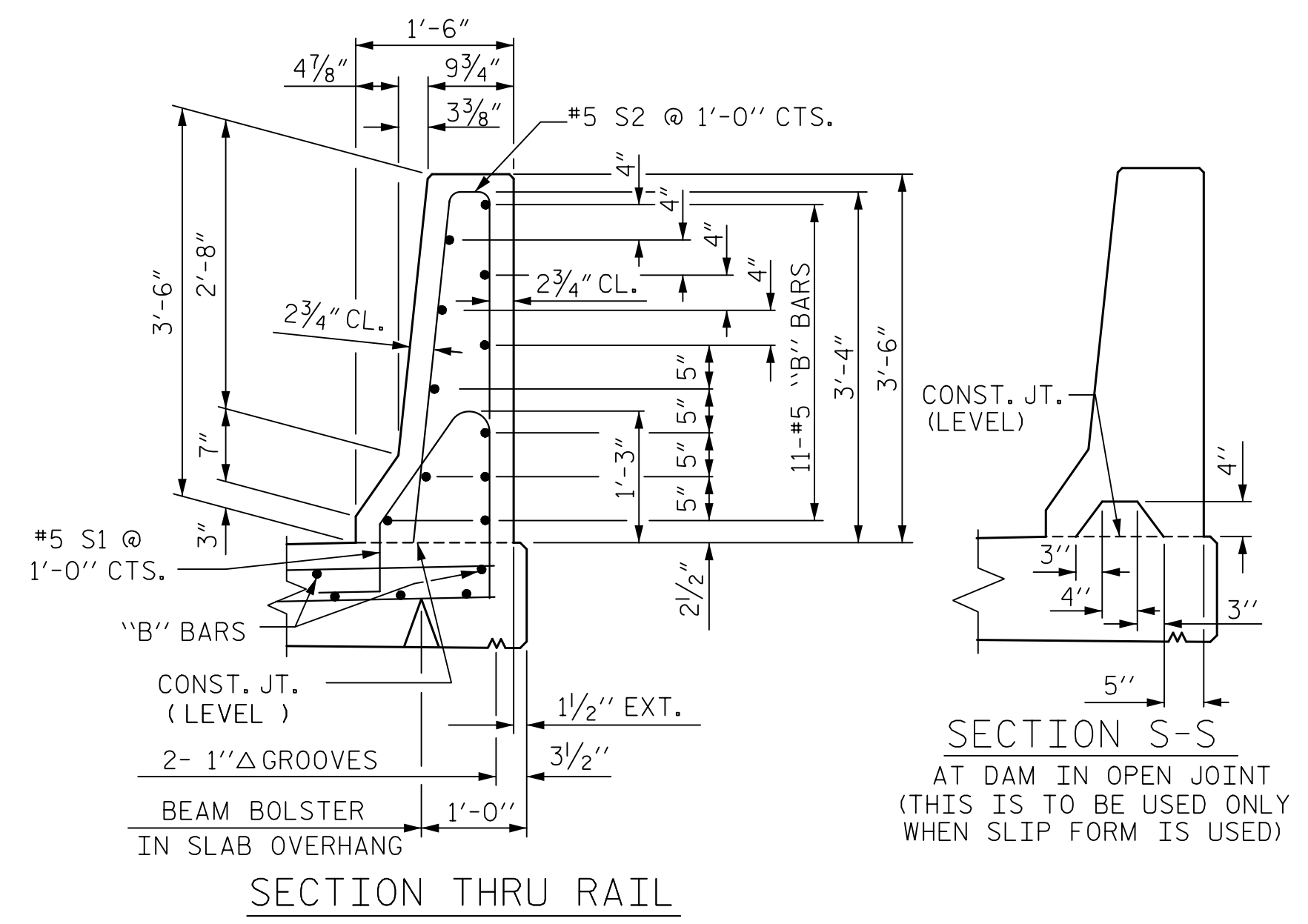


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

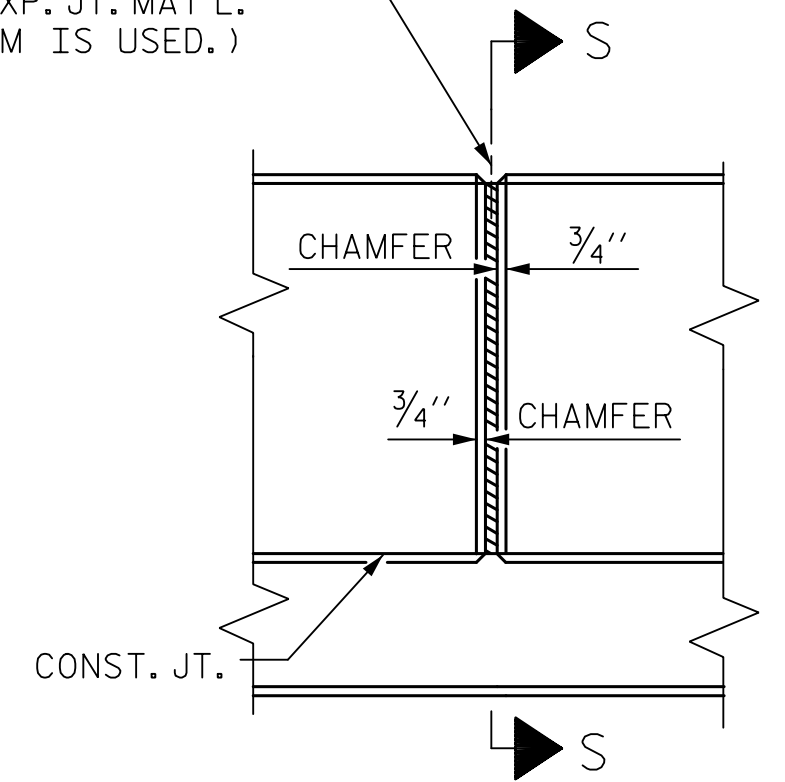
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S1	322	#5	1	4'-8"	1,568
* S2	314	#5	2	7'-0"	2,293
* S3	8	#5	2	5'-6"	46
* B1	22	#5	STR	24'-4"	559
* B2	44	#5	STR	24'-2"	1,110
* B3	44	#5	STR	28'-4"	1,301
* B4	22	#5	STR	27'-3"	626
* EPOXY COATED REINFORCING STEEL					7,503 LBS.
CLASS AA CONCRETE					43.2 CU. YDS.
CONCRETE BARRIER RAIL					317.2 LIN. FT.

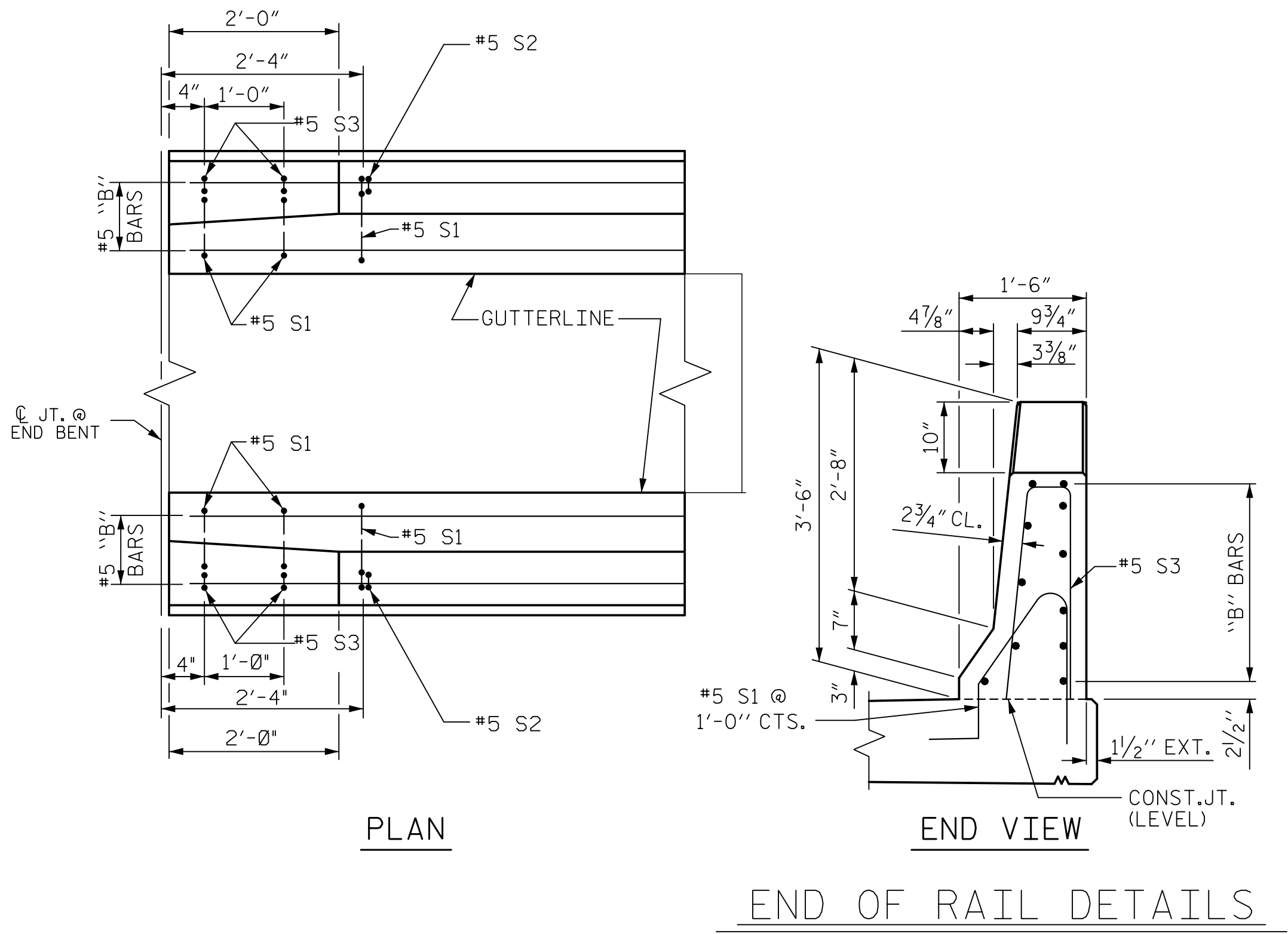
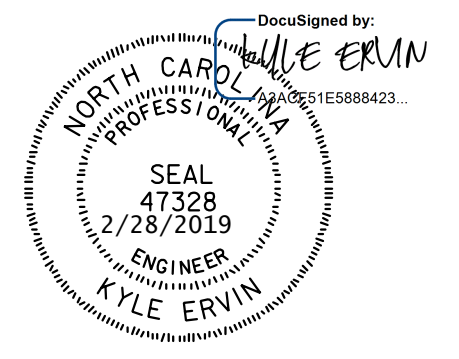


SECTION THRU RAIL

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



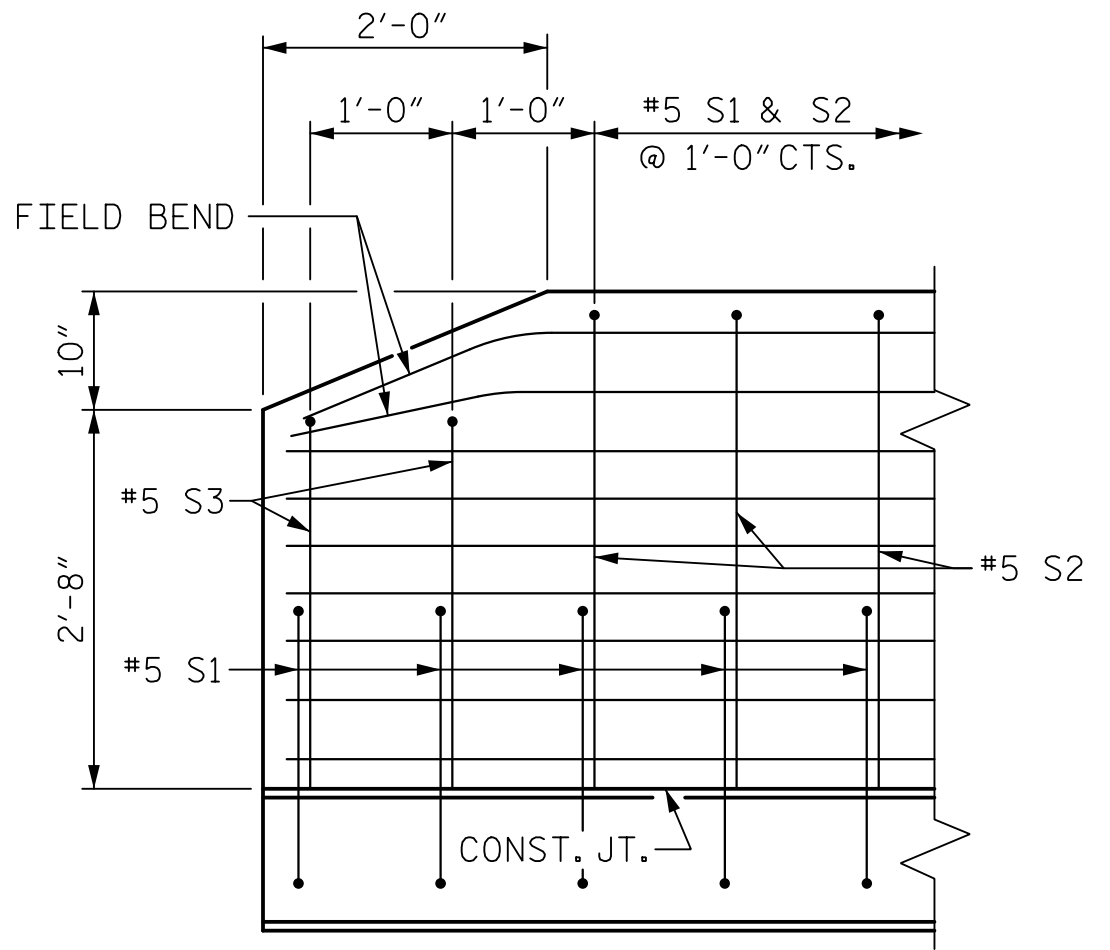
ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS



PLAN

END VIEW

END OF RAIL DETAILS



SIDE VIEW

ASSEMBLED BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 02/19
DRAWN BY : ARB 5/87	REV. 7/12
CHECKED BY : SJD 9/87	REV. 6/13
	MAA/GM
	MAA/GM

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DRAWN BY : B. VAUGHN	DATE : 11/18
CHECKED BY : K. ERVIN	DATE : 01/19
DESIGN ENGINEER OF RECORD : K. ERVIN	DATE : 11/18

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DWG. NO. 23

PROJECT NO. I-4700A
BUNCOMBE COUNTY
STATION: POT 1050+63.05 -L-

SHEET 3 OF 4

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S3-23
1			3			TOTAL SHEETS 49
2			4			

STD. NO. CBR1

NOTES

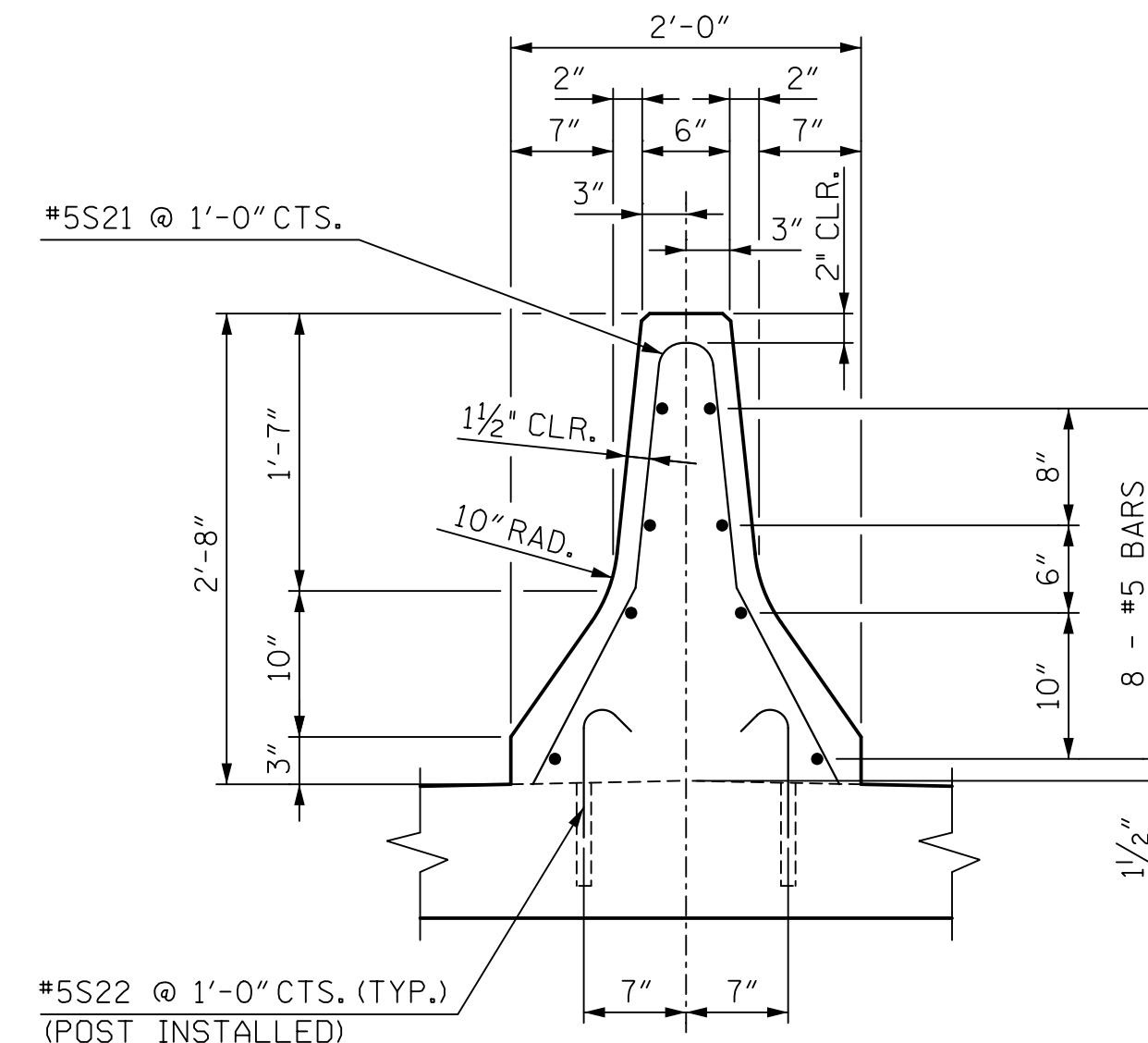
THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S22 BARS SHALL BE POST-INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM DURING THE PRESCRIBED CONSTRUCTION STAGE. THE YIELD LOAD FOR THE #5 S22 BARS IS 18.6 KIPS. TYPICAL EMBEDMENT OF #5 S22 BARS IS 5", THIS LENGTH SHALL BE ADJUSTED IN ORDER TO ACHIEVE FULL YIELD LOAD OF THE BAR BASED ON THE ADHESIVE SYSTEM USED. LEVEL TWO FIELD TESTING IS REQUIRED FOR THE ADHESIVE BONDING SYSTEM.

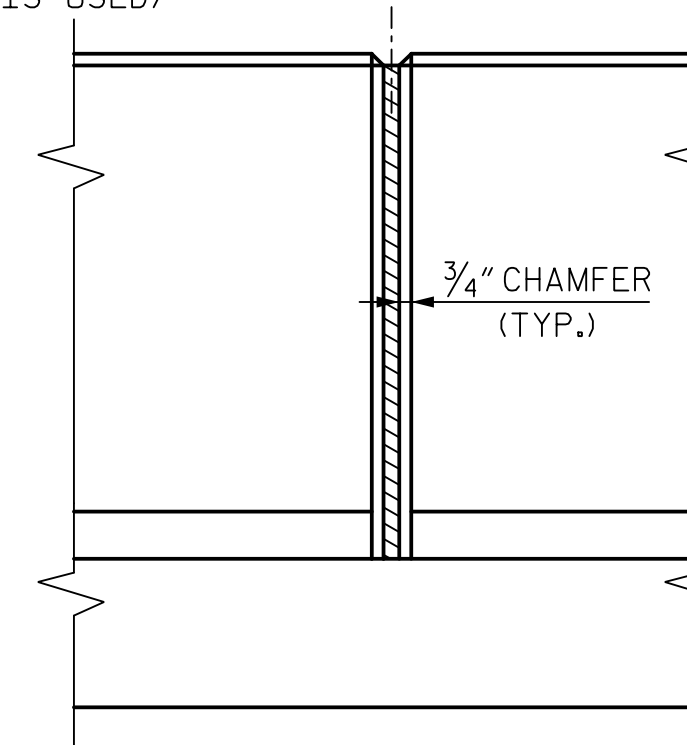
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

BAR LIST AND QUANTITIES SHOWN ON THIS SHEET DO NOT INCLUDE MEDIAN BARRIERS ON APPROACH SLABS. FOR MEDIAN BARRIERS ON APPROACH SLABS, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.

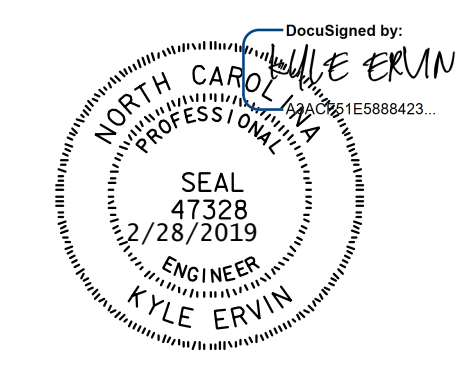


SECTION THRU CONCRETE MEDIAN BARRIER

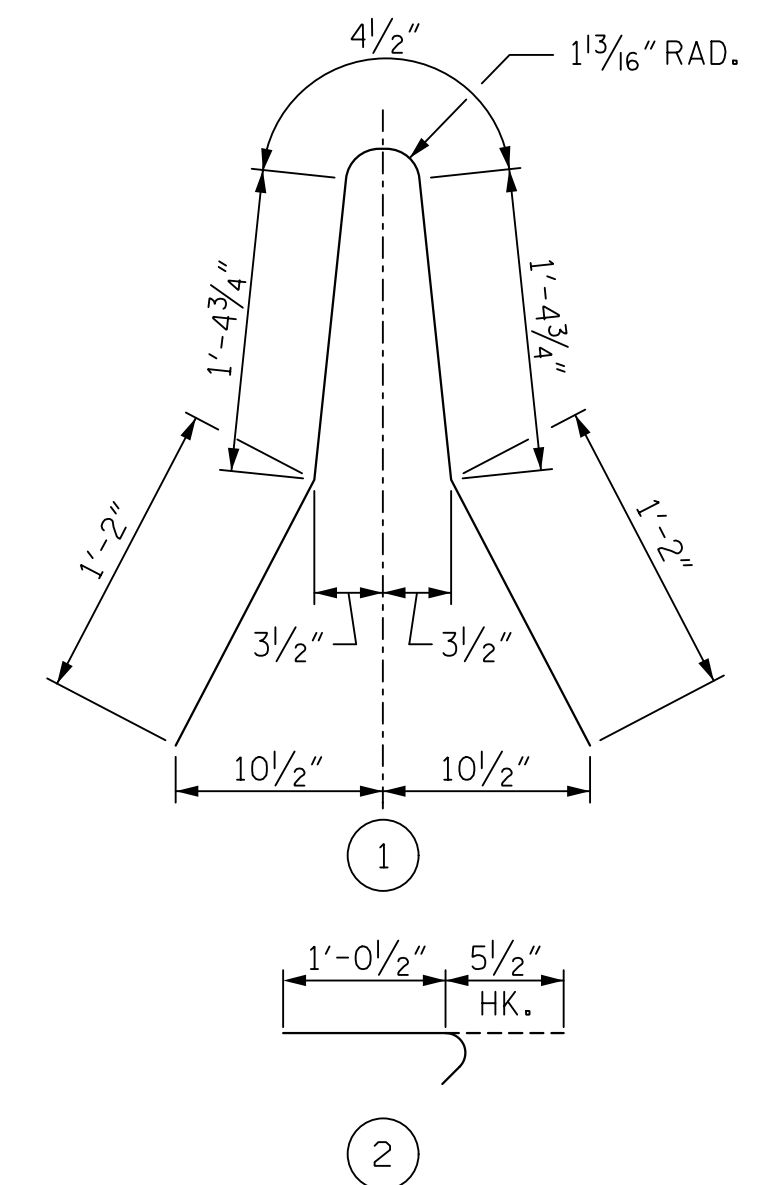
1/2" EXP. JT. MAT'L. HELD IN PLACE WITH GALVANIZED NAILS (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT BARRIER EXP. JT.



BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE MEDIAN BARRIER ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S21	161	#5	1	5'-6"	924
* S22	322	#5	2	1'-6"	504
* B1	8	#5	STR	24'-4"	204
* B2	16	#5	STR	24'-2"	404
* B3	16	#5	STR	28'-4"	473
* B4	8	#5	STR	27'-3"	228

* EPOXY COATED REINFORCING STEEL	2,737 LBS.
CLASS AA CONCRETE	16.2 CU. YDS.
CONCRETE MEDIAN BARRIER RAIL	158.6 LIN. FT.

PROJECT NO. I-4700A
BUNCOMBE COUNTY
 STATION: POT 1050+63.05 -L-

SHEET 4 OF 4

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

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DRAWN BY B. VAUGHN DATE 11/18
 CHECKED BY K. ERVIN DATE 01/19
 DESIGN ENGINEER OF RECORD K. ERVIN DATE 11/18

DWG. NO. 24

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			49
2			4			