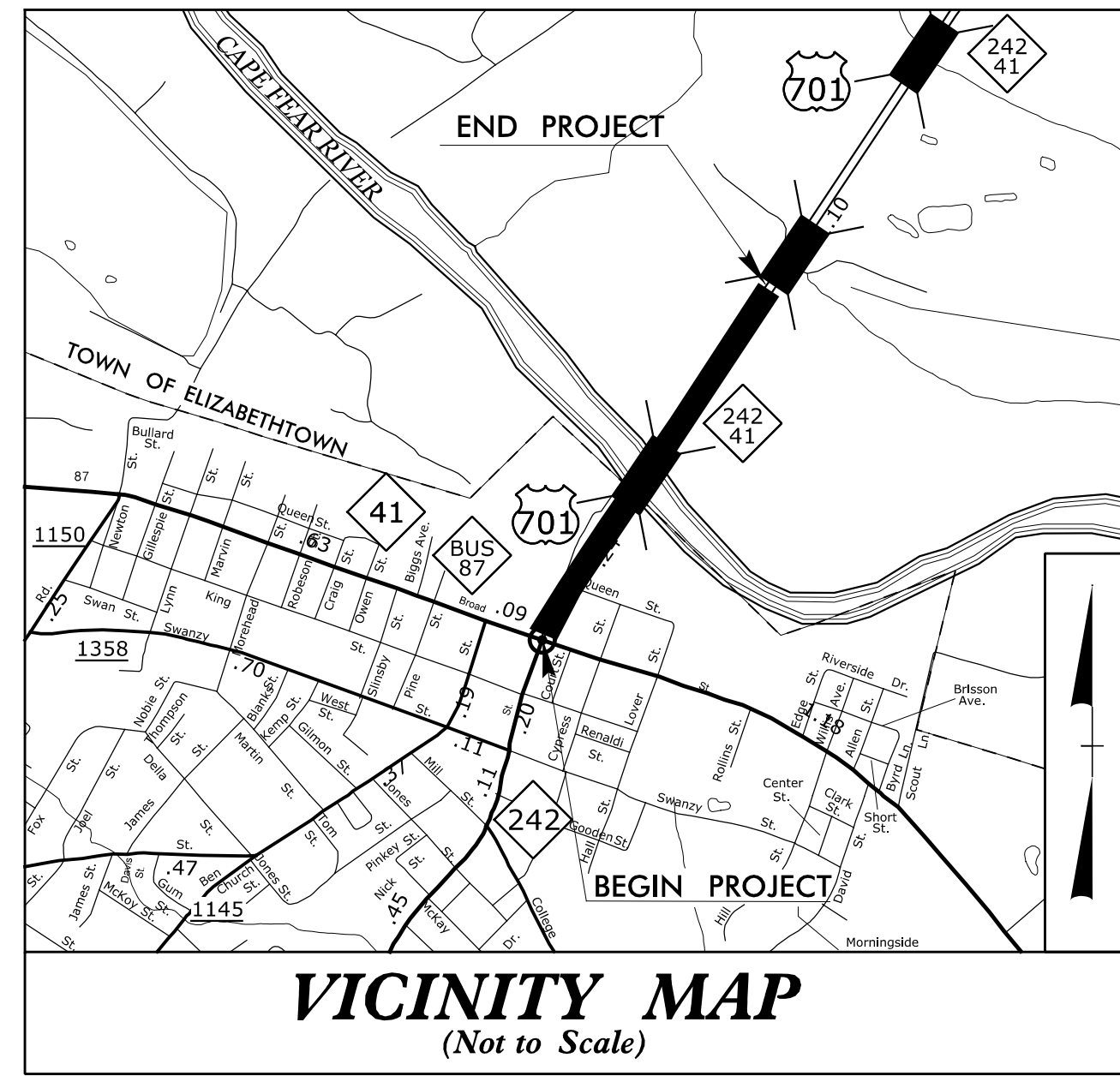


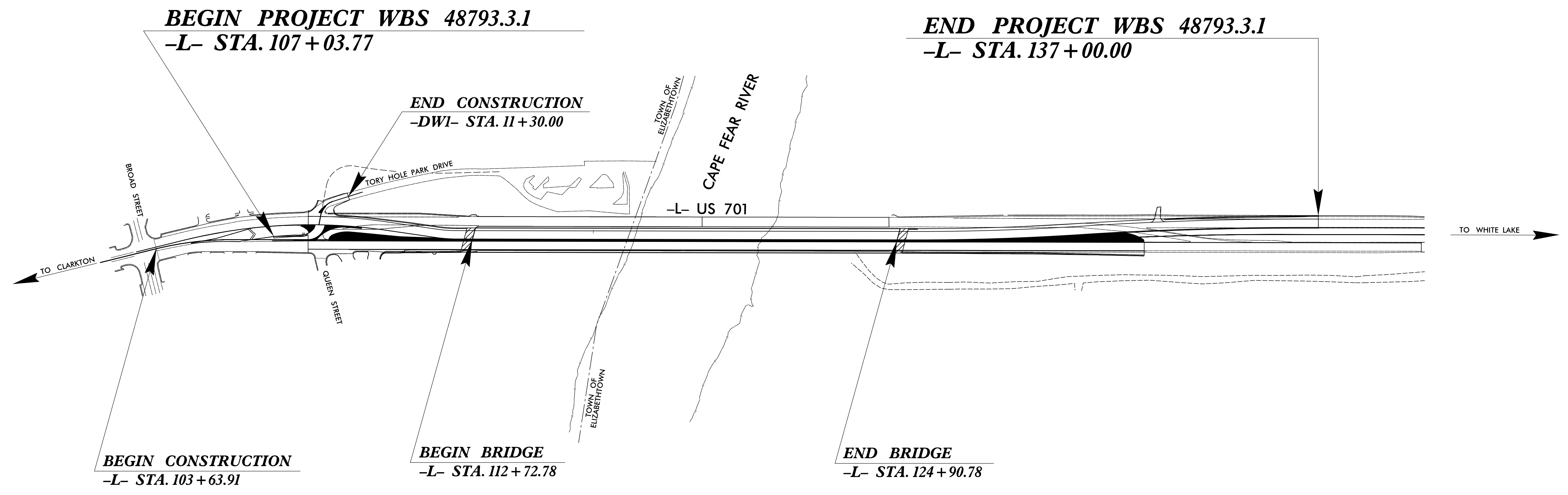
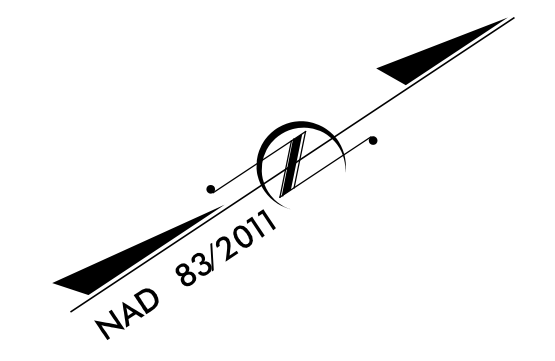
WBS 48793.3.1



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
BLADEN COUNTY

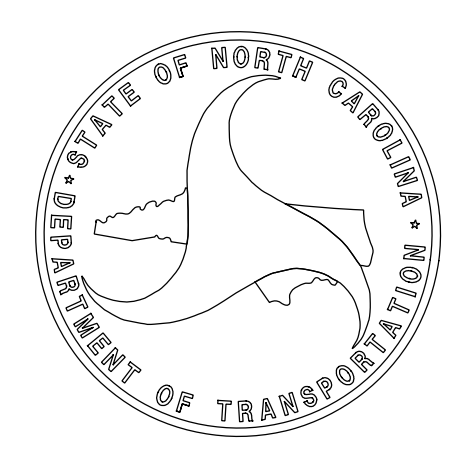
**LOCATION: EMERGENCY REPLACEMENT OF BRIDGE NO. 080016 & NO. 080017
OVER CAPE FEAR RIVER ON US 701, NC 41 & NC 242
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	48793.3.1		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48793.3.1	ER19005	PE, RW, UTIL., & CONST.	



STRUCTURES

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2020 =	14,200
ADT 2040 =	17,000
T =	8 % *
V =	25 & 55 MPH
* TTST =	4 DUAL 4
FUNC CLASS =	MINOR ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY PROJECT WBS 48793.3.1	= 0.336 MI
LENGTH STRUCTURE PROJECT WBS 48793.3.1	= 0.231 MI
TOTAL LENGTH OF PROJECT WBS 48793.3.1	= 0.567 MI

Prepared In the Office of:

ICE of CAROLINAS, PLLC
ICE of Carolinas, PLLC
4502 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-852-0333
License #: P-0999

2018 STANDARD SPECIFICATIONS

LETTING DATE:
SEPTEMBER 15, 2020

Prepared For:

**DIVISION OF HIGHWAYS
DIVISION 6**
558 GILLESPIE ST.
FAVETTVILLE, NC 28302

PAUL R. HOLSHOUSER, PE
PROJECT ENGINEER

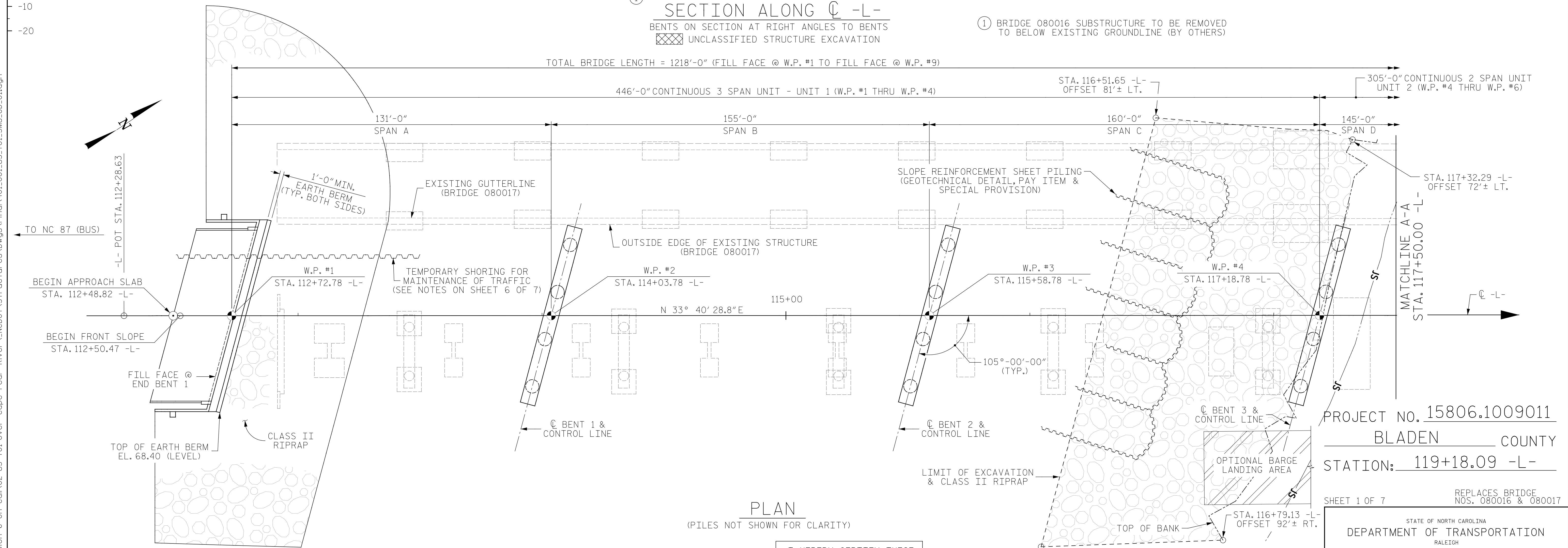
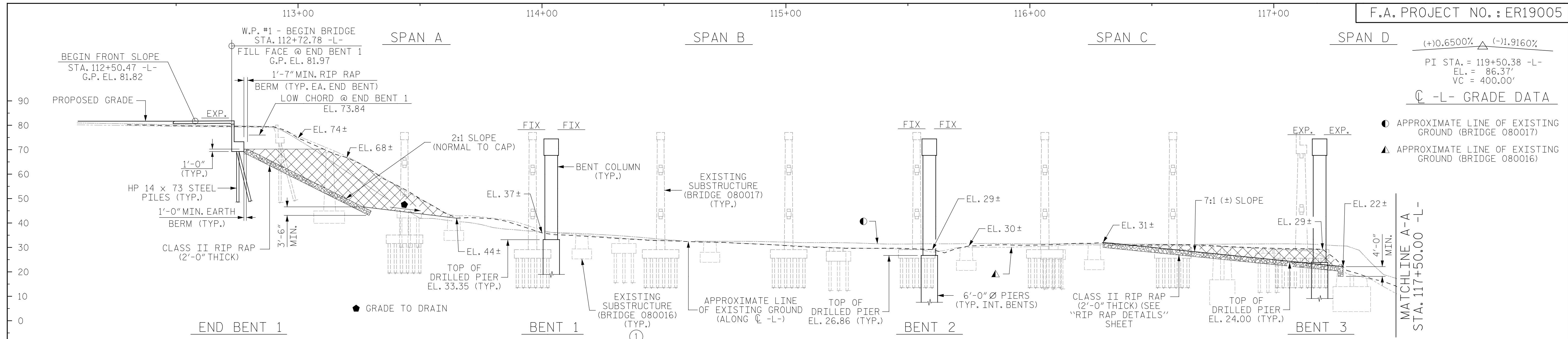
NICHOLAS D'AIUTO, PE
PROJECT DESIGN ENGINEER

STRUCTURES ENGINEER

8/12/2020

DocuSigned by:
Paul Holshouser
BE6AD6516A143E
SIGNATURE: _____ P.E.

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OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 162,000 CFS ±
FREQUENCY OF OVERTOPPING FLOOD	= 500 YR ±
OVERTOPPING FLOOD ELEVATION	= 54.4'

HYDRAULIC DATA

DESIGN DISCHARGE	= 103,000 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YR
DESIGN HIGH WATER ELEVATION	= 48.7'
DRAINAGE AREA	= 5,022 SQ. MI.
BASIC DISCHARGE (Q100)	= 121,000 CFS
BASIC HIGH WATER ELEVATION	= 50.7'

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

DRAWN BY : J. N. AUSTIN DATE : 5-5-20
 CHECKED BY : N. REZAEI DATE : 7-9-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

PROJECT NO. 15806.1009011
 BLADEN COUNTY
 STATION: 119+18.09 -L-
 SHEET 1 OF 7
 REPLACES BRIDGE NOS. 080016 & 080017

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

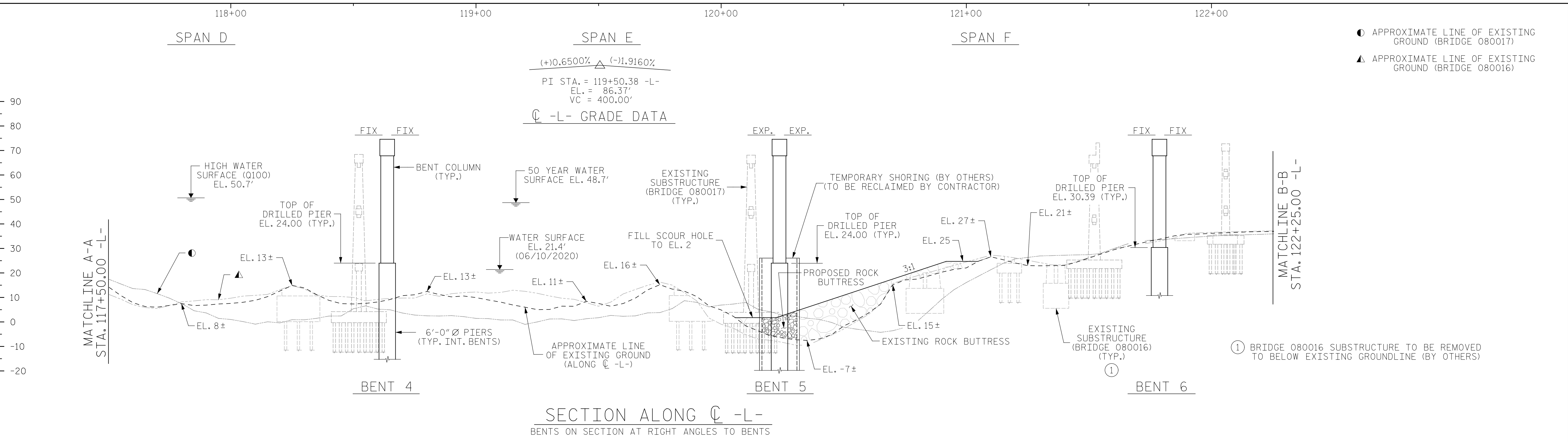
GENERAL DRAWING

FOR BRIDGE OVER CAPE FEAR RIVER ON US 701 (N. POPLAR ST.) BETWEEN NC 87 (BUS) AND NC 53

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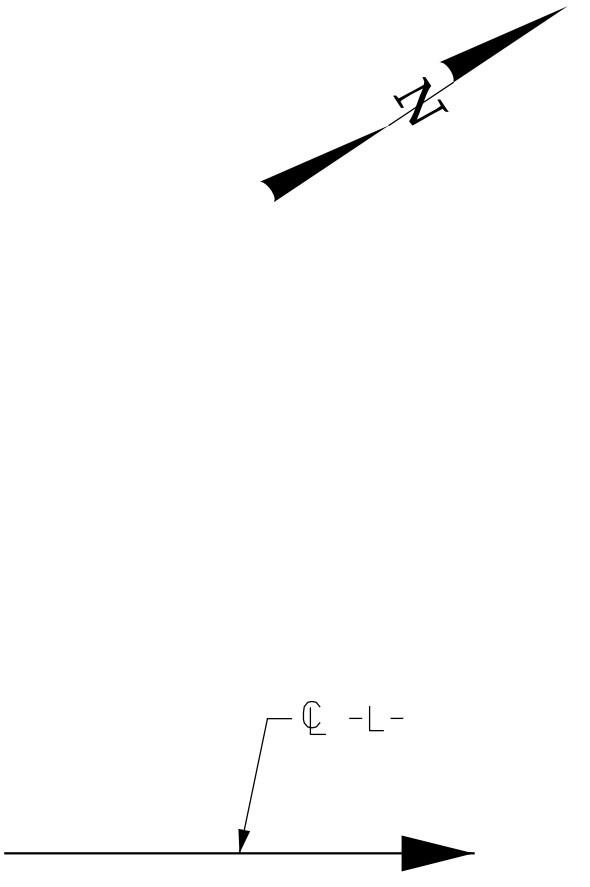
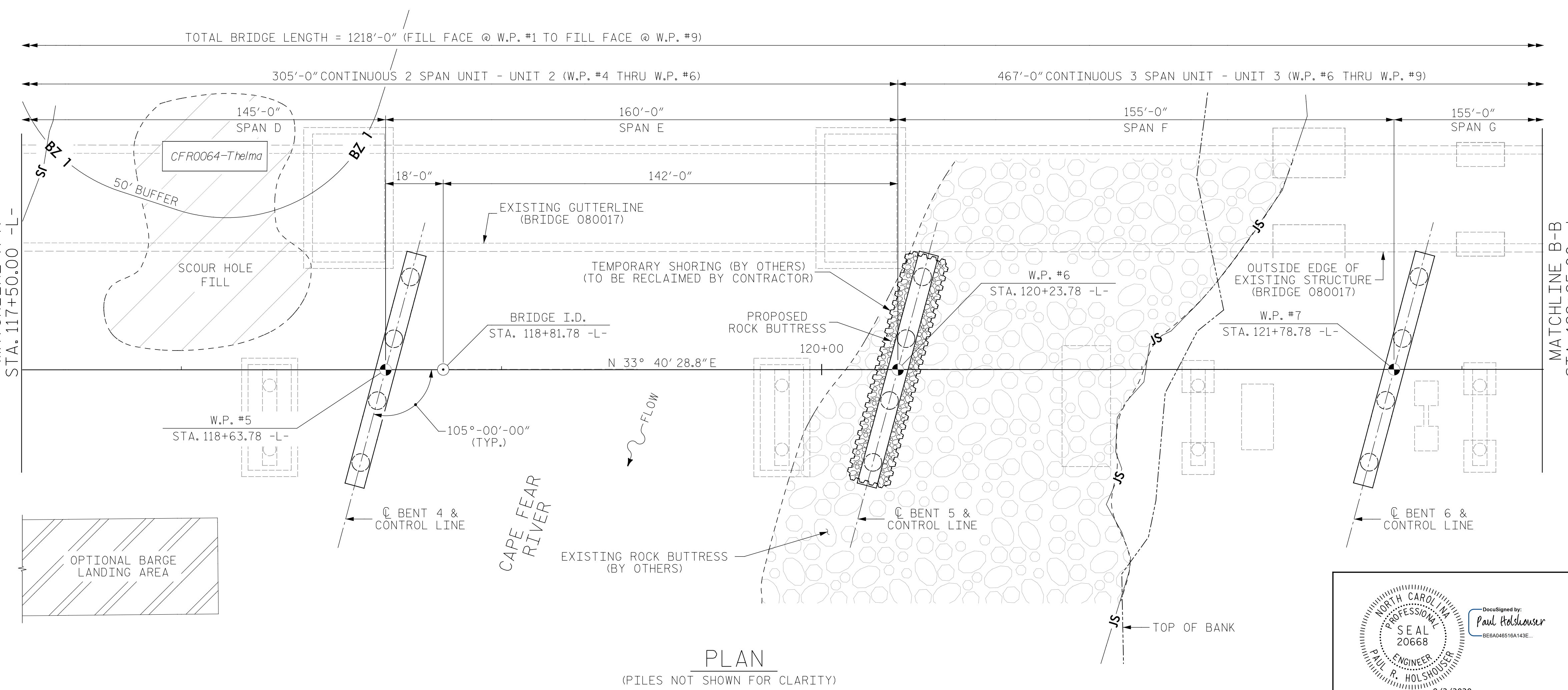
S-01
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- APPROXIMATE LINE OF EXISTING GROUND (BRIDGE 080017)
- ▲ APPROXIMATE LINE OF EXISTING GROUND (BRIDGE 080016)

① BRIDGE 080016 SUBSTRUCTURE TO BE REMOVED TO BELOW EXISTING GROUNDLINE (BY OTHERS)

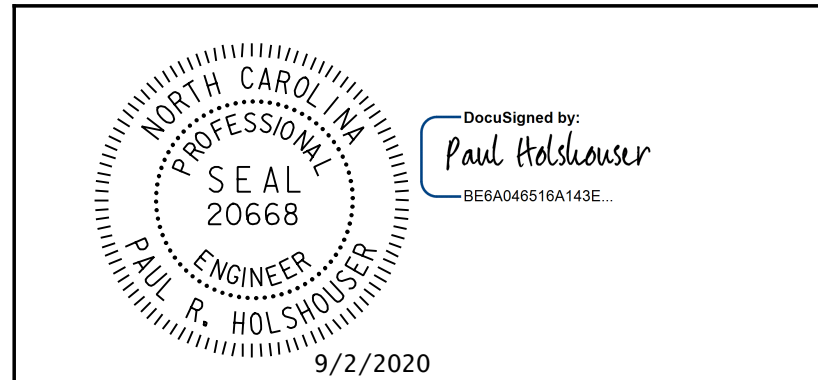


PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CAPE FEAR RIVER ON US 701 (N. POPLAR ST.) BETWEEN NC 87 (BUS) AND NC 53



DRAWN BY: J. N. AUSTIN DATE: 5-5-20
CHECKED BY: N. REZAEI DATE: 7-9-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

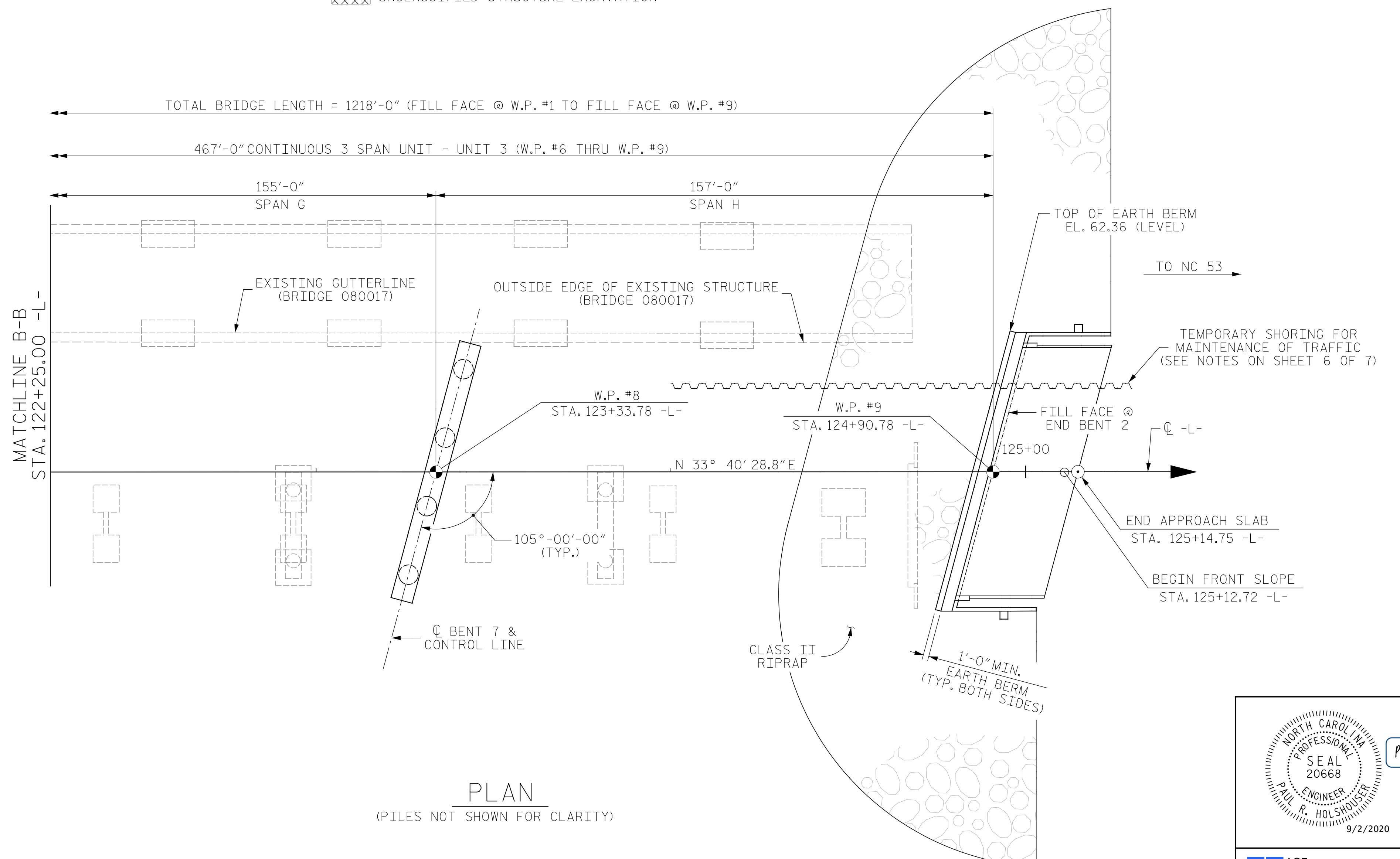
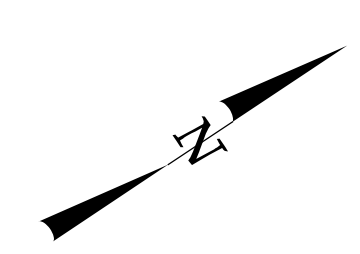
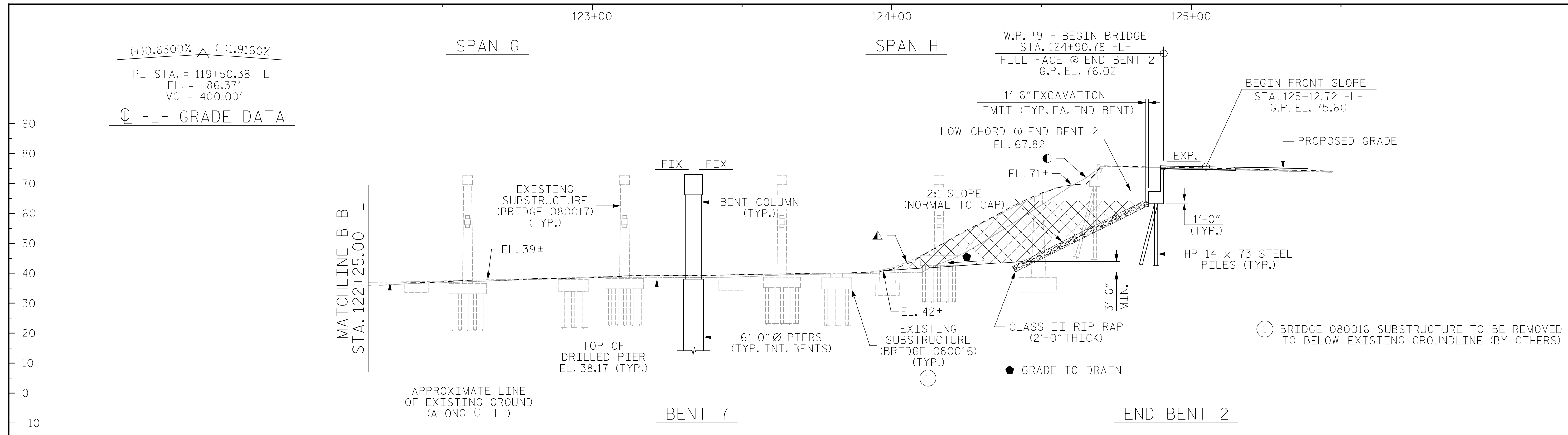
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ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-9999

REVISIONS		SHEET NO.	
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TOTAL SHEETS: 107

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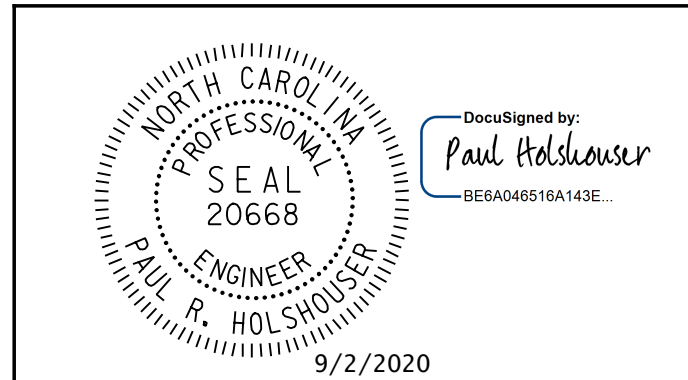


PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CAPE FEAR RIVER ON US 701 (N. POPLAR ST.) BETWEEN NC 87 (BUS) AND NC 53



DRAWN BY : J. N. AUSTIN DATE : 5-5-20
 CHECKED BY : N. REZAEI DATE : 7-9-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

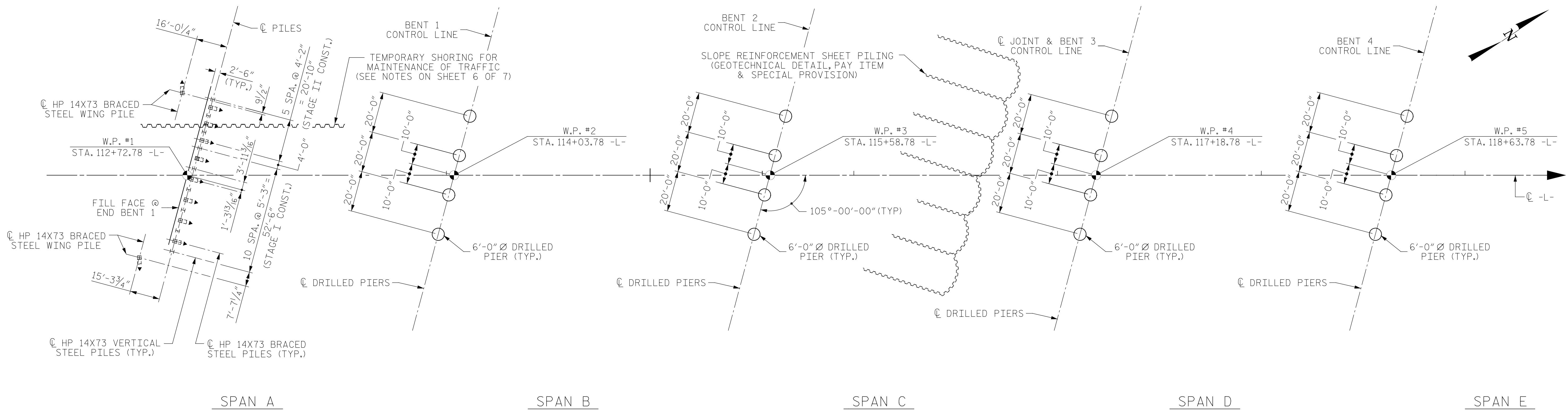
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REVISIONS				SHEET NO.	
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TOTAL SHEETS: 107

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FOUNDATION LAYOUT

PILES ARE DIMENSIONED FROM W.P. TO C OF PILE AT BOTTOM OF CAP

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 133 TONS PER PILE.

DRIVE PILES AT END BENTS 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 177 TONS PER PILE.

TESTING THE FIRST PRODUCTION PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT END BENT 1 AND 2. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

DRILLED PIERS AT BENT 1, 2, 3, 4, 5, 6, AND 7 ARE DESIGNED FOR A FACTORED RESISTANCE OF 935, 995, 963, 1008, 963, 1005, AND 1006 TONS PER PIER, RESPECTIVELY.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENTS 1 TO 7. DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 5 FT, 5 FT, -10 FT, -25 FT, -25 FT, 0 FT, AND 0 FT AT BENTS 1, 2, 3, 4, 5, 6, AND 7, RESPECTIVELY, WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL PERMANENT STEEL CASINGS AT BENTS 1 TO 7 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 25 FT, 20 FT, 20 FT, -5 FT, -12 FT, 25 FT, AND 30 FT AT BENTS 1, 2, 3, 4, 5, 6, AND 7, RESPECTIVELY.

INSTALL DRILLED PIERS AT BENTS 1 AND 7 TO A TIP ELEVATION NO HIGHER THAN -90 FT WITH THE REQUIRED FACTORED RESISTANCE.

INSTALL DRILLED PIERS AT BENTS 2 AND 6 TO A TIP ELEVATION NO HIGHER THAN -105 FT WITH THE REQUIRED FACTORED RESISTANCE.

INSTALL DRILLED PIERS AT BENTS 3, 4, AND 5 TO A TIP ELEVATION NO HIGHER THAN -120 FT WITH THE REQUIRED FACTORED RESISTANCE.

THE SCOUR CRITICAL ELEVATION FOR BENTS 1, 2, 3, 4, 5, 6, AND 7 IS AT APPROXIMATE ELEVATIONS OF 27 FT, 21 FT, -11, -8 FT, -15 FT, 25 FT, AND 31 FT, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SLURRY IS REQUIRED FOR DRILLED PIERS AT BENTS 1 TO 7.

SID INSPECTIONS ARE REQUIRED FOR DRILLED PIERS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

CSL TUBES AND TESTING ARE REQUIRED FOR DRILLED PIERS AT BENT 1 TO 7. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

THE LOAD TEST PIER SHALL BE TESTED USING ASTM D8169/D8169M-18 "STANDARD TEST METHODS FOR DEEP FOUNDATIONS UNDER BI-DIRECTIONAL STATIC AXIAL COMPRESSIVE LOAD". THE LOAD TEST PIER SHALL BE LOCATED AT APPROXIMATE STATION 117+00 OFFSET 15 LEFT. FOR ADDITIONAL DETAILS REFERENCE THE PLAN SHEET FOR THE LOAD TEST PIER AND THE PROJECT SPECIFICATIONS.

SID INSPECTION, CSL TUBES, CSL TESTING, AND SHAFT SHAPE PROFILING WILL BE REQUIRED FOR THE LOAD TEST PIER. FOR ADDITIONAL DETAILS PLEASE REFERENCE THE PLAN SHEET FOR THE LOAD TEST PIER AND THE PROJECT SPECIFICATIONS.

THE DEPARTMENT RESERVES THE RIGHT TO ADJUST THE PLAN TIP ELEVATIONS FOR THE PRODUCTION PIERS BASED ON THE RESULTS FROM THE LOAD TEST PIER UP TO +/- 15 FEET WITHOUT RENEGOTIATION OF THE CONTRACT RATE FOR "72 INCH DIAMETER DRILLED PIER (LINEAR FOOT)". ADJUSTED PRODUCTION DRILLED PIER PLAN TIP ELEVATIONS WILL BE PROVIDED BY THE ENGINEER WITHIN 14 CALENDAR DAYS OF RECEIPT OF AN ACCEPTABLE FINAL LOAD TEST REPORT.

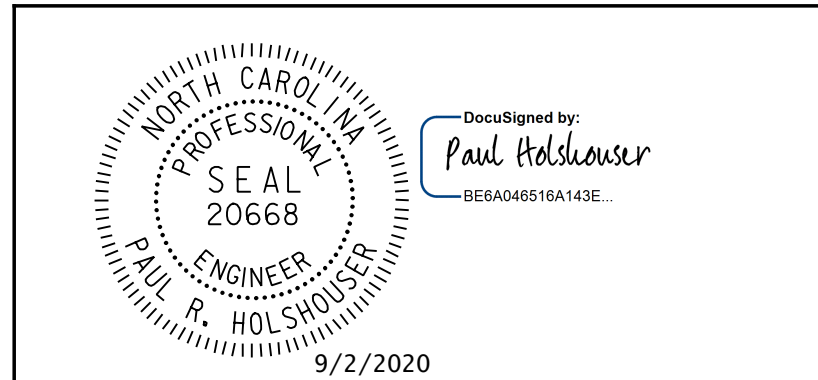
SELECTION OF SLURRY TYPE SHALL BE DETERMINED BY THE CONTRACTOR BASED ON SITE CONDITIONS. THE SLURRY TYPE UTILIZED FOR THE LOAD TEST PIER SHALL BE USED FOR THE PRODUCTION PIERS UNLESS WRITTEN PERMISSION FROM THE ENGINEER IS GRANTED. SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ARTESIAN WATER CONDITIONS WERE ENCOUNTERED AT THE SITE DURING DRILLING OF SOIL BORING B5-A TO APPROXIMATE ELEVATION 26 FT. THE CONTRACTOR SHALL BE EQUIPPED TO MANAGE POTENTIAL ARTESIAN CONDITIONS TO ELEVATION 40 FT, 35 FT, 35 FT, 27 FT, 27 FT, 35 FT, AND 40 FT AT BENTS 1, 2, 3, 4, 5, 6, AND 7, RESPECTIVELY. MAINTAINING SLURRY IN CASINGS AT LEAST FIVE FEET ABOVE ANY ARTESIAN CONDITIONS WILL BE REQUIRED.

LEGEND

- ⊥ HP 14X73 VERTICAL STEEL PILES
- ⊥ HP 14X73 BRACED STEEL PILES (BATTERED 3:12)
- ▲ INDICATES DIRECTION OF BATTER
- 6'-0" Ø DRILLED PIER

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 4 OF 7



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CAPE FEAR
 ON US 701 (N. POPLAR ST.)
 BETWEEN NC 87 (BUS) AND NC 53

DRAWN BY : B. J. MANTEI DATE : 5-14-20
 CHECKED BY : K. C. SAMUDRALA DATE : 7-14-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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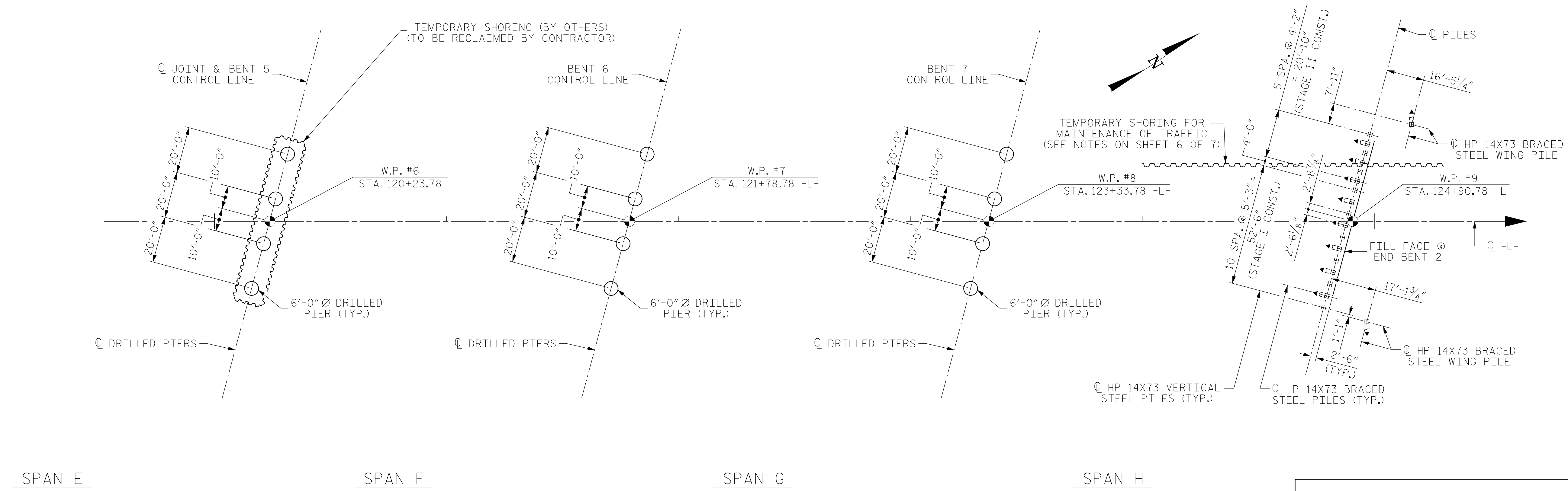
ICE of Carolinas, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

TOTAL SHEETS: 107

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NOTE:
FOR FOUNDATION NOTES, SEE "GENERAL DRAWING" SHEET 4 OF 7



SPAN E

SPAN F





SPAN G

SPAN H

FOUNDATION LAYOUT

PILES ARE DIMENSIONED FROM W.P. TO C OF PILE AT BOTTOM OF CAP

LEGEND

-  HP 14X73 VERTICAL STEEL PILES
-  HP 14X73 BRACED STEEL PILES (BATTERED 3:12)
-  INDICATES DIRECTION OF BATTER
-  6'-0" Ø DRILLED PIER

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CAPE FEAR RIVER ON US 701 (N. POPLAR ST.) BETWEEN NC 87 (BUS) AND NC 53

DocuSigned by:
Paul Holshouser
 BE6A048516A143E

PAUL R. HOLSHOUSER
 ENGINEER
 9/2/2020

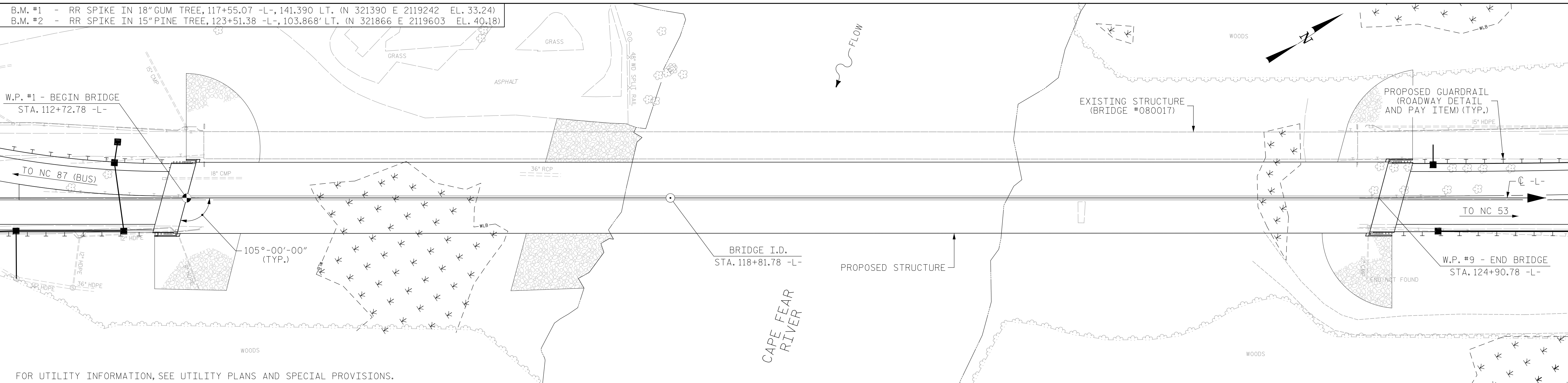
ICE of CAROLINAS, PLLC
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 Raleigh, North Carolina 27609
 Phone: 919-822-0333
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TOTAL SHEETS: 107

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 CHECKED BY: K. C. SAMUDRALA DATE: 7-14-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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.

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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA (ON SHEETS 1 OF 7 & 3 OF 7) SHALL BE EXCAVATED FOR A DISTANCE OF 152 FT± LEFT AND 95 FT± RIGHT OF CENTERLINE ROADWAY AT END BENT 1, AND 131 FT± LEFT AND 113 FT± RIGHT AT END BENT 2 AS DIRECTED BY THE ENGINEER. IN ADDITION, THE CROSS-HATCHED AREA AROUND BENT 3 SHALL BE EXCAVATED TO THE LIMITS INDICATED ON SHEET 1 OF 7 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS. WORK SHALL NOT BE STARTED ON THIS BRIDGE (OR SPECIFIC PARTS OF BRIDGE) UNTIL ROADWAY SECTION HAS BEEN EXCAVATED.

TEMPORARY SHORING WILL BE REQUIRED IN THE AREA INDICATED IN THE PLAN VIEW.

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 EXISTING STRUCTURE (BRIDGE 080017) CONSISTING OF (17 SPANS (3 @ 52'-7", 11 @ 52'-6", 2 @ 141'-0", 1 @ 160'-0") SIMPLY SUPPORTED AND CONTINUOUS SPANS; CLEAR ROADWAY WIDTH = 28'-0" REINFORCED CONCRETE DECK ON PRESTRESSED CONCRETE GIRDERS & STEEL PLATE GIRDERS ON REINFORCED CONCRETE CAPS & COLUMNS AND LOCATED 54'-0"± UPSTREAM OF THE 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.

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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION 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 MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 118+81.78 -L-".

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND $f_y = 60\text{ksi}$.

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CAPE FEAR RIVER ON US 701 (N. POPLAR ST.) BETWEEN NC 87 (BUS) AND NC 53

DocuSigned by:
Paul Holsouser
BE6A048516A143E

9/2/2020

ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

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

TOTAL SHEETS 107

DRAWN BY : J. N. AUSTIN DATE : 5-18-20
CHECKED BY : N.D. AIUTO DATE : 7-21-20
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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TOTAL BILL OF MATERIAL														
	CONSTRUCTION MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 118+81.78 -L-	REMOVAL OF EXISTING STRUCTURE AT STA. 118+81.78 -L-	ASBESTOS ASSESSMENT	6'-0" DIA. DRILLED PIERS	PERMANENT STEEL CASING FOR 6'-0" DIA. DRILLED PIERS	PDA TESTING	SID INSPECTIONS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS, STA. 118+81.78 -L-	REINFORCING STEEL
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.
SUPERSTRUCTURE										88,407	84,490			
END BENT 1						2						97.2		14,512
BENT 1				493.4	123.9		2	4				233.8		127,546
BENT 2				527.4	95.4		2	4				260.1		137,066
BENT 3				576.0	136.0		2	4				273.9		146,537
BENT 4				576.0	196.0		2	4				274.9		146,884
BENT 5				576.0	196.0		2	4				272.8		146,240
BENT 6				541.6	132.9		2	4				242.8		135,876
BENT 7				512.7	157.5		2	4				205.0		125,165
END BENT 2						2						99.5		14,800
LOAD TEST PIER				151.0	41.0		1	1						24,286
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	3954.1	1078.7	4	15	29	LUMP SUM	88,407	84,490	1,960.0	LUMP SUM	1,018,912

TOTAL BILL OF MATERIAL													
	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIP. SET UP FOR HP 14X73 STEEL PILES	HP 14 X 73 STEEL PILES		PILE REDRIVES	TWO BAR METAL RAIL	1'-2" X 2'-6" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	STRIP SEAL EXPANSION JOINTS	78" FLORIDA I-BEAM (FIB) GIRDERS	
	LBS.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						2,422.04	2,445.38					72	10,855.5
END BENT 1		19	19	1,995.0	8			1,616	1,796				
BENT 1	26,031												
BENT 2	28,694												
BENT 3	31,324							1,608	1,787				
BENT 4	31,410												
BENT 5	31,238												
BENT 6	28,301												
BENT 7	25,297												
END BENT 2		19	19	1,995.0	8			1,608	1,787				
LOAD TEST PIER	6,035												
TOTAL	208,330	38	38	3,990.0	16	2,422.04	2,445.38	4,832	5,370	LUMP SUM	LUMP SUM	72	10,855.5

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER CAPE FEAR RIVER ON US 701 (N. POPLAR ST.) BETWEEN NC 87 (BUS) AND NC 53

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-07
1			3			TOTAL SHEETS
2			4			107


 9/2/2020
 ICE of Carolinas, PLLC
 4505 Falls of Neuse Road, Suite 110
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DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-20-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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			
						LIVE-LOAD FACTORS (γ_{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ_{LL})	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.04	-	1.75	0.85	1.04	B	ER	152.75	0.92	1.34	E	I	15.16	0.80	0.85	1.43	F	ER	76.13		
	HL-93 (OPERATING)	N/A		1.35	-	1.35	0.85	1.35	B	ER	152.75	0.92	1.77	E	I	15.16	-	-	-	-	-	-		
	HS-20 (INVENTORY)	36.00	②	2.21	79.560	1.75	0.85	2.66	B	ER	152.75	0.92	2.21	E	I	15.16	0.80	0.85	2.26	E	ER	78.63		
	HS-20 (OPERATING)	36.00		2.89	104.040	1.35	0.85	3.45	B	ER	152.75	0.92	2.89	E	I	15.16	-	-	-	-	-	-		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.50		5.56	75.060	1.40	0.85	8.77	B	ER	152.75	0.92	7.31	E	I	15.16	0.80	0.85	5.56	E	ER	78.63	
		SNGARBS2	20.00		3.94	78.800	1.40	0.85	5.94	B	ER	152.75	0.92	4.98	E	I	15.16	0.80	0.85	3.94	E	ER	78.63	
		SNAGRIS2	22.00		3.65	80.300	1.40	0.85	5.41	B	ER	152.75	0.92	4.55	E	I	15.16	0.80	0.85	3.65	E	ER	78.63	
		SNCOTTS3	27.25		2.76	75.210	1.40	0.85	4.33	B	ER	152.75	0.92	3.56	E	I	15.16	0.80	0.85	2.76	E	ER	78.63	
		SNAGGRS4	37.93		2.23	84.573	1.40	0.85	3.40	B	ER	152.75	0.92	2.90	E	I	15.16	0.80	0.85	2.23	E	ER	78.63	
		SNS5A	35.55		2.19	77.855	1.40	0.85	3.34	B	ER	152.75	0.92	2.84	E	I	15.16	0.80	0.85	2.19	E	ER	78.63	
		SNS6A	39.95		1.97	78.702	1.40	0.85	2.98	B	ER	152.75	0.92	2.54	E	I	15.16	0.80	0.85	1.97	E	ER	78.63	
		SNS7B	42.00		1.88	78.960	1.40	0.85	2.83	B	ER	152.75	0.92	2.43	E	I	15.16	0.80	0.85	1.88	E	ER	78.63	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.00		2.41	79.530	1.40	0.85	3.61	B	ER	152.75	0.92	3.13	E	I	15.16	0.80	0.85	2.41	E	ER	78.63	
		TNT4A	33.08		2.40	79.380	1.40	0.85	3.60	B	ER	152.75	0.92	3.03	E	I	15.16	0.80	0.85	2.40	E	ER	78.63	
		TNT6A	41.60		1.94	80.704	1.40	0.85	2.87	B	ER	152.75	0.92	2.48	E	I	15.16	0.80	0.85	1.94	E	ER	78.63	
		TNT7A	42.00		1.93	81.060	1.40	0.85	2.85	B	ER	152.75	0.92	2.53	E	I	15.16	0.80	0.85	1.93	E	ER	78.63	
		TNT7B	42.00		1.95	81.900	1.40	0.85	2.86	B	ER	152.75	0.92	2.42	E	I	15.16	0.80	0.85	1.95	E	ER	78.63	
		TNAGRIT4	43.00		1.89	81.270	1.40	0.85	2.77	B	ER	152.75	0.92	2.34	E	I	15.16	0.80	0.85	1.89	E	ER	78.63	
		TNAGT5A	45.00		1.80	81.000	1.40	0.85	2.65	B	ER	152.75	0.92	2.27	E	I	15.16	0.80	0.85	1.80	E	ER	78.63	
		TNACT5B	45.00	③	1.79	80.550	1.40	0.85	2.65	B	ER	152.75	0.92	2.23	E	I	15.16	0.80	0.85	1.79	E	ER	78.63	

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.

① CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

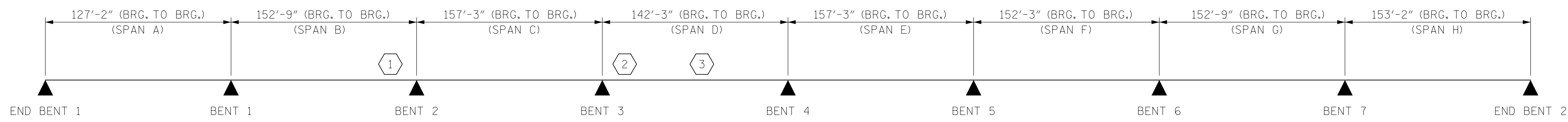
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

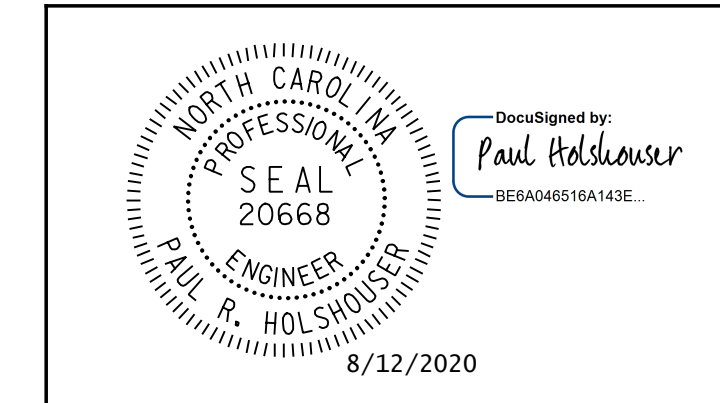
GIRDER LOCATION

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



PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

LRFR SUMMARY



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-08
1			3			TOTAL SHEETS
2			4			107

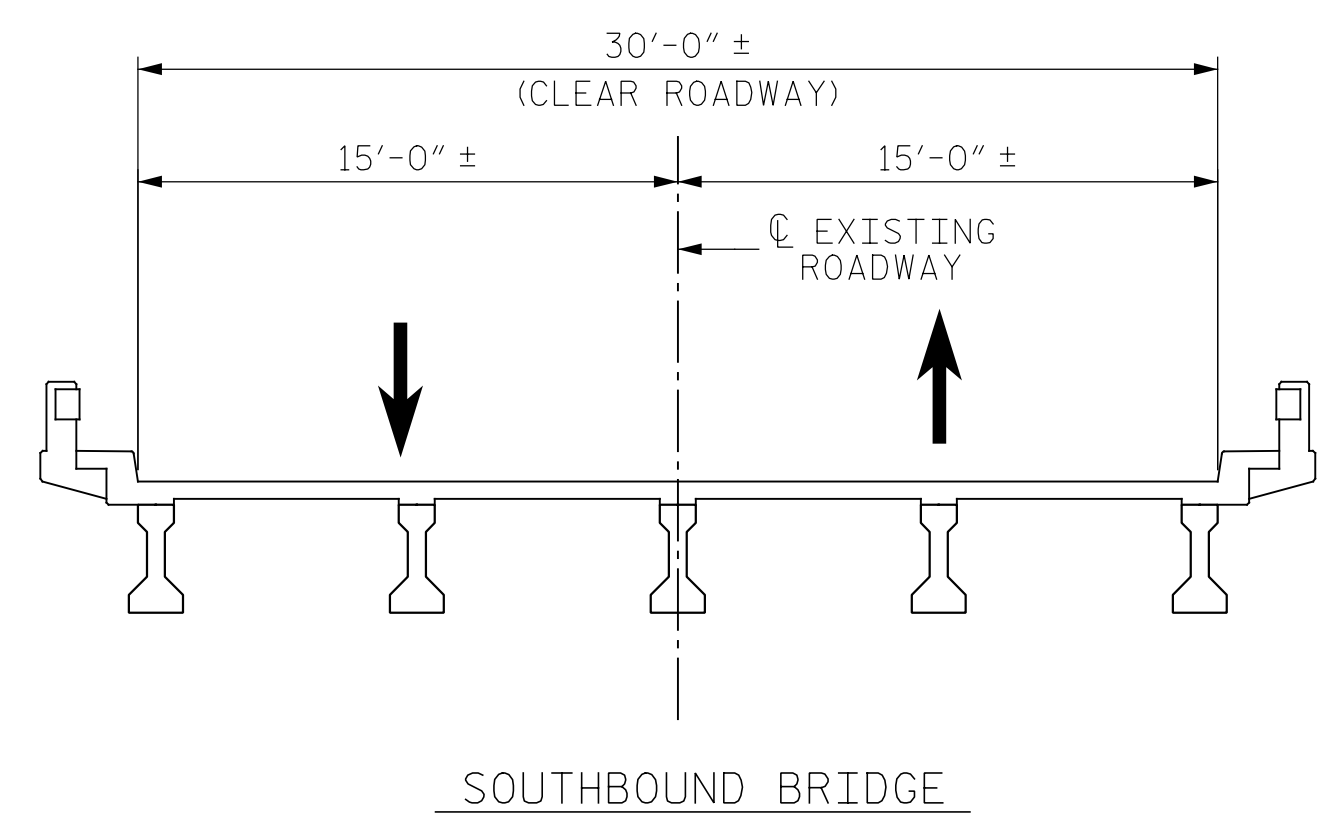
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 CHECKED BY: N. D'AIUTO DATE: 7-21-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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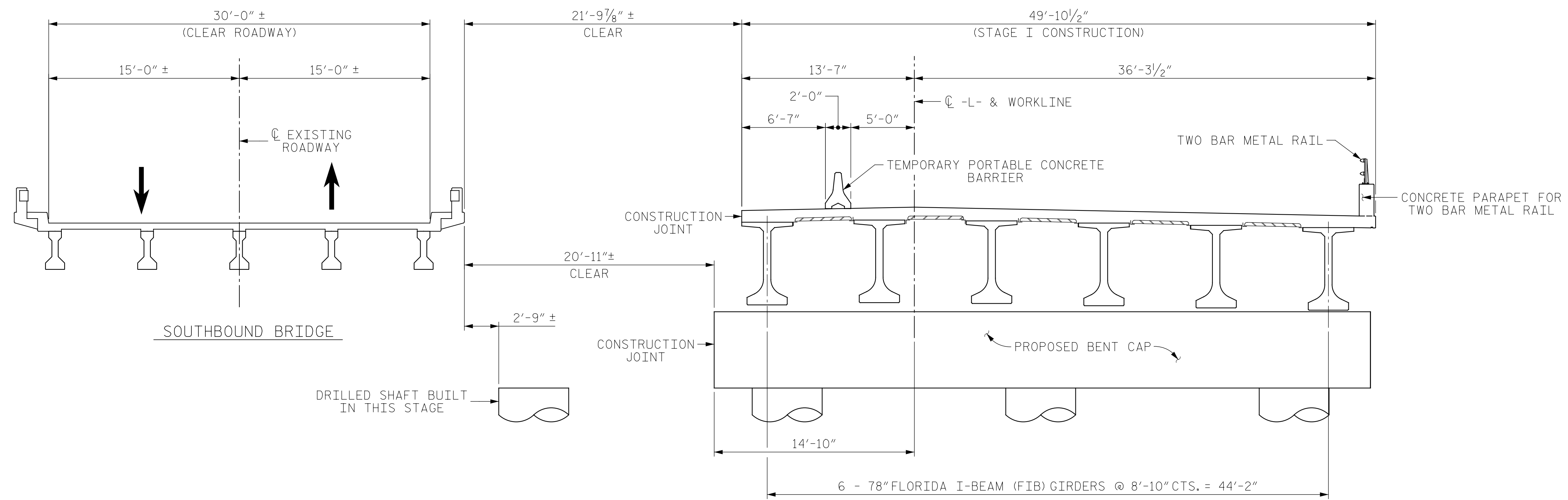
ICE of CAROLINAS, PLLC
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 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-9999

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NOTES
SEE TMP PLANS, FOR TRAFFIC STAGING NOTES AND DETAILS.



EXISTING SECTION



PHASE I - STAGE I CONSTRUCTION
DECK DRAINS NOT SHOWN

CONSTRUCTION STAGING AND TRAFFIC PHASING DIAGRAM

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION STAGING AND TRAFFIC PHASING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-09
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2			4			107

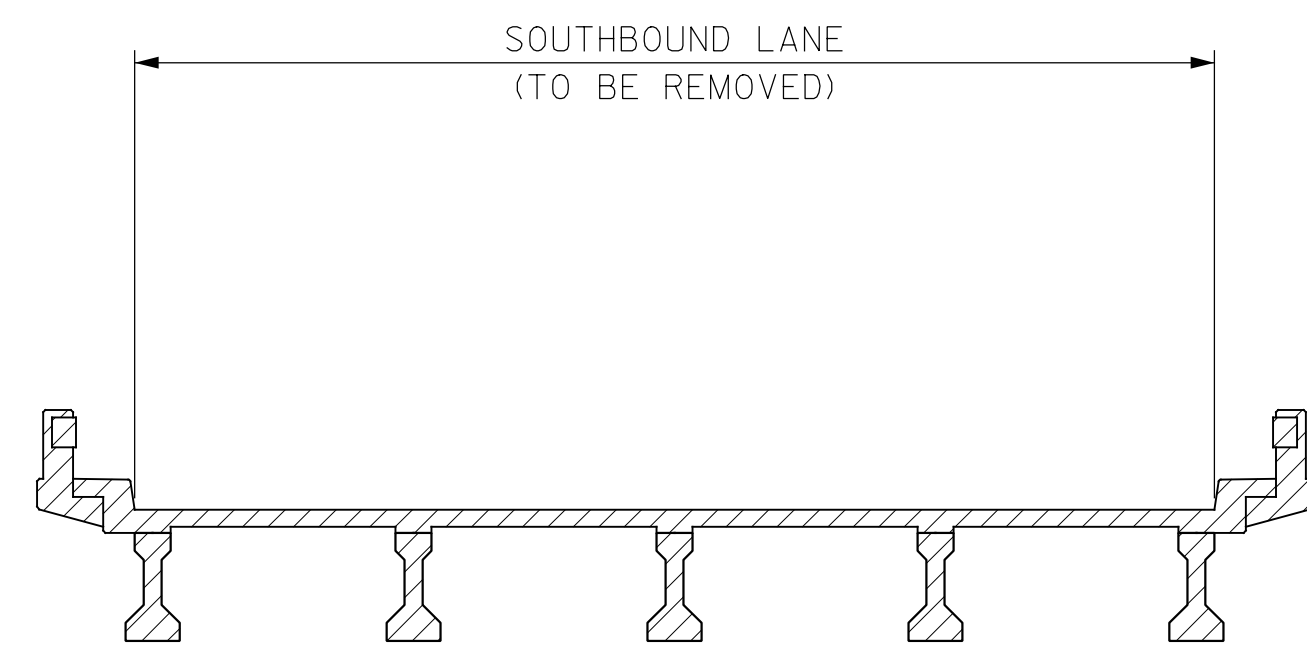
DocuSigned by:
Paul Holshouser
BEE6A08518A143E

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Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

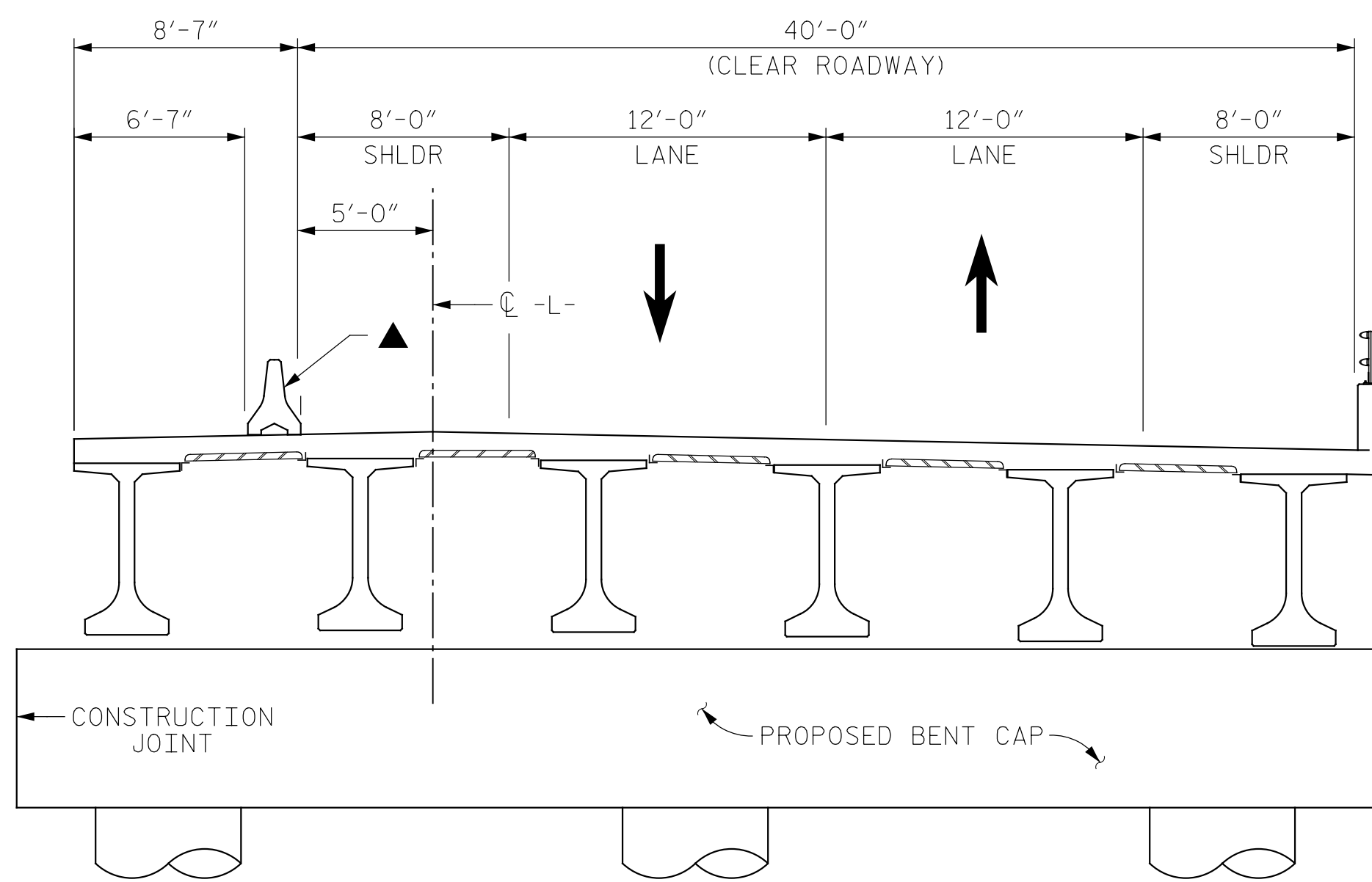
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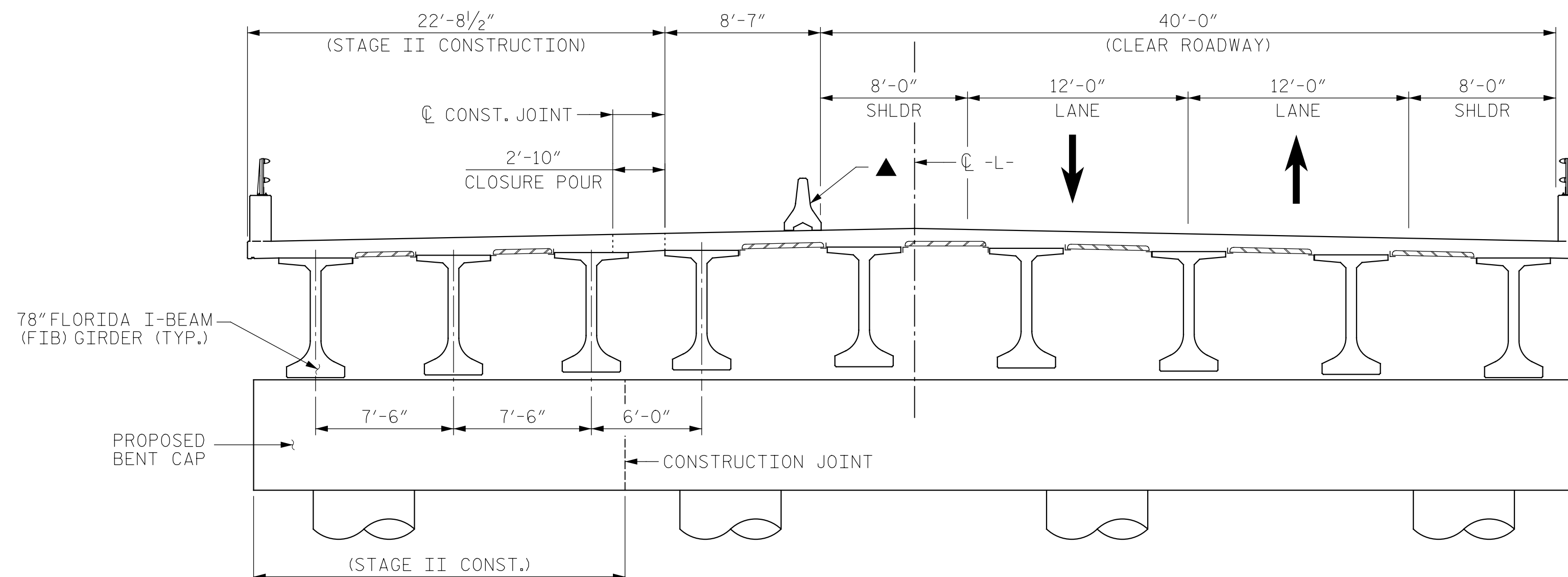
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CHECKED BY : N. REZAEI DATE : 7/13/20
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20



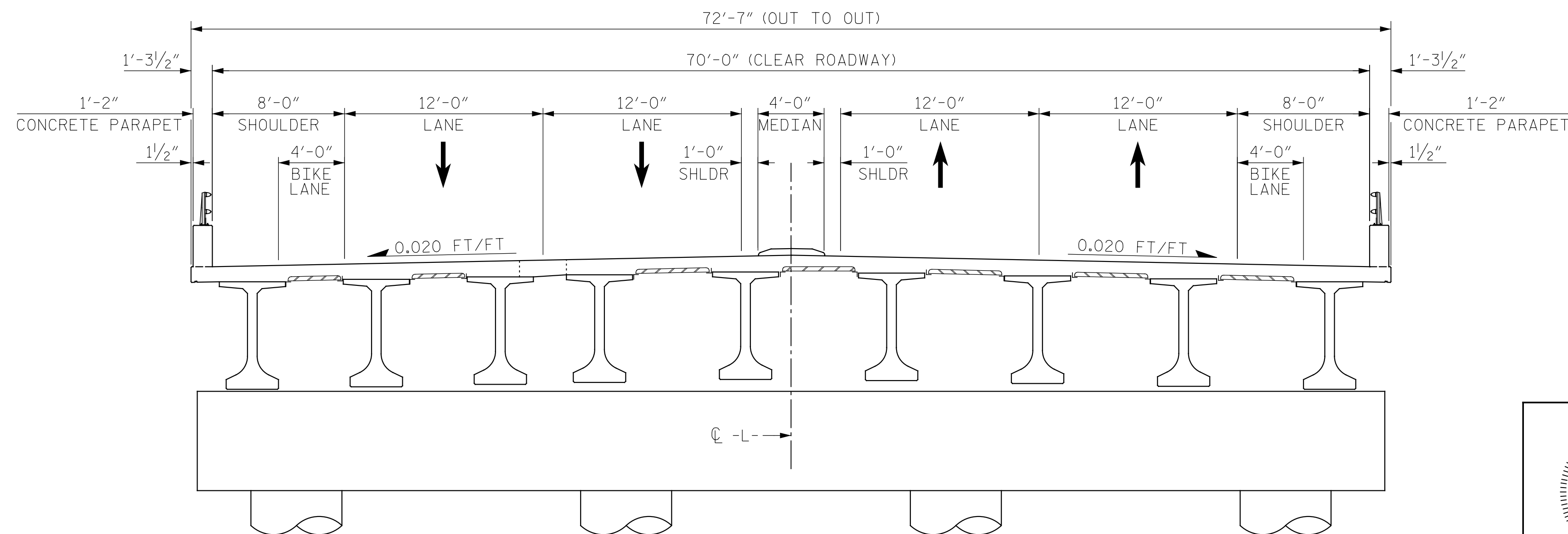
SOUTHBOUND BRIDGE



PHASE II - STAGE II REMOVAL



PHASE II - STAGE II CONSTRUCTION



FINAL STRUCTURE AND TRAFFIC PATTERN

CONSTRUCTION STAGING AND TRAFFIC PHASING DIAGRAM

NOTES:

- ▲ TEMPORARY PORTABLE CONCRETE BARRIER
- DECK DRAINS NOT SHOWN.
- SEE TMP PLANS, FOR TRAFFIC STAGING DETAILS AND NOTES.

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DRAWN BY: J. N. AUSTIN DATE: 5-5-20
 CHECKED BY: N. REZAEI DATE: 7/13/20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

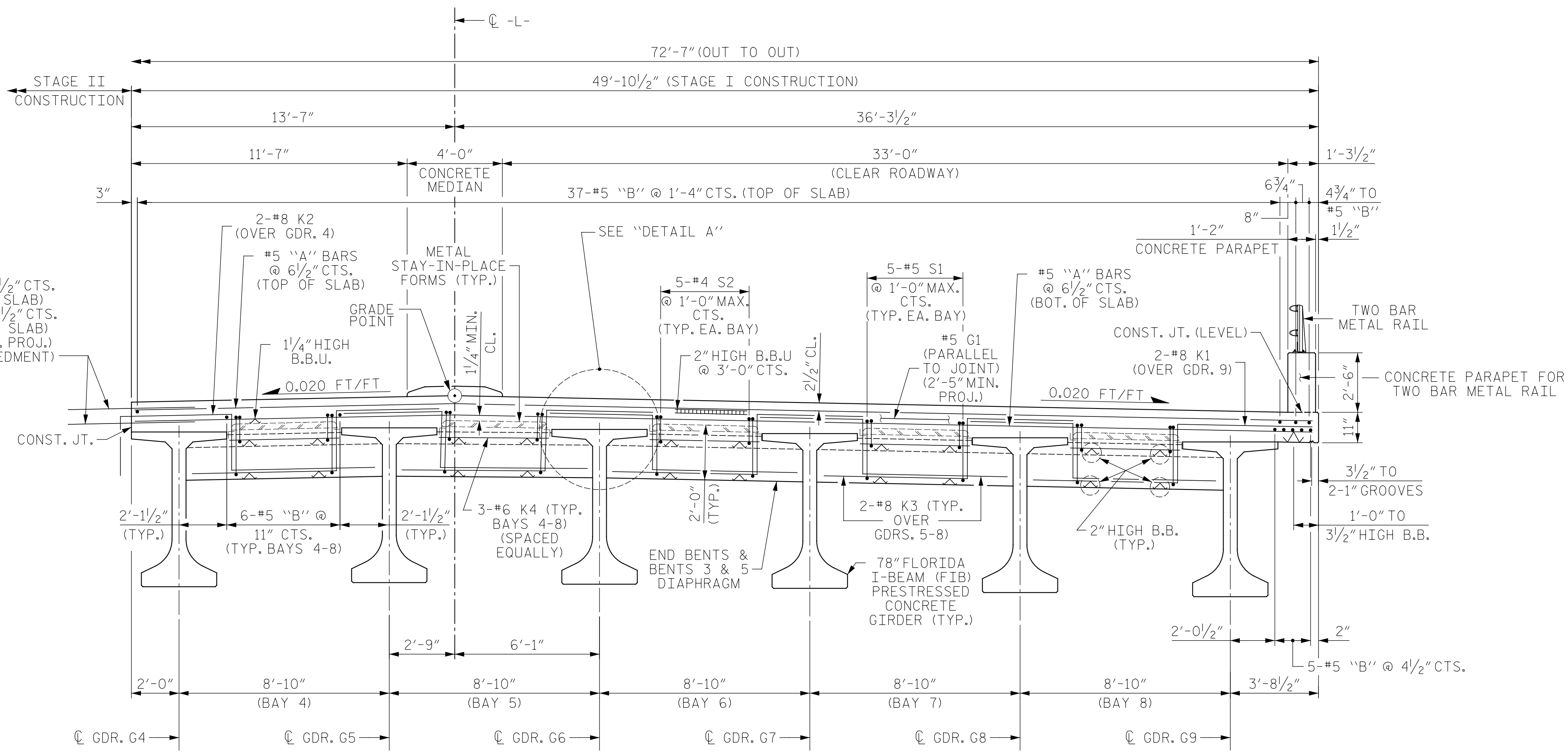
CONSTRUCTION STAGING
 AND TRAFFIC PHASING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			107

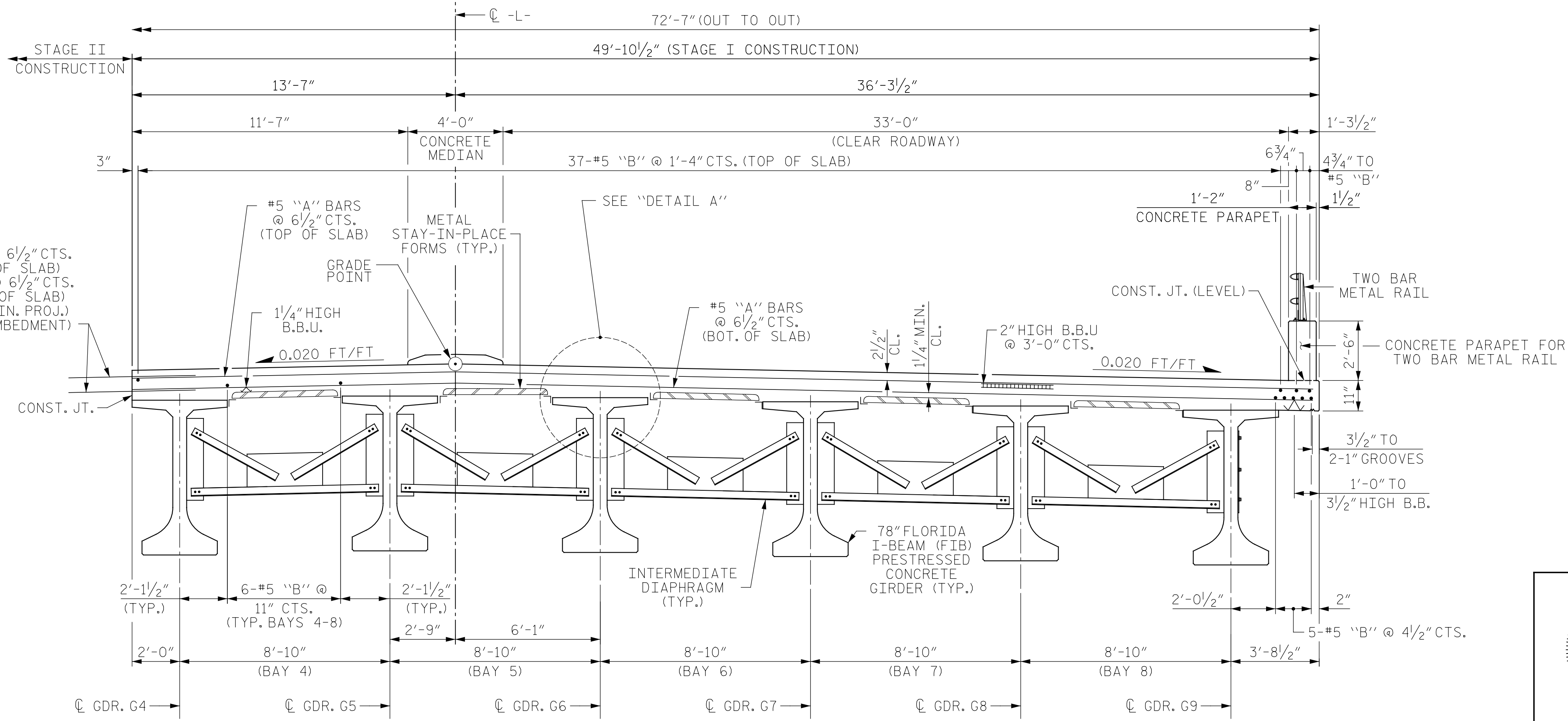
Professional Engineer Seal for Paul R. Holshouser, License # 20668, dated 8/12/2020.

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 Phone: 919-822-0333
 License #: P-0999

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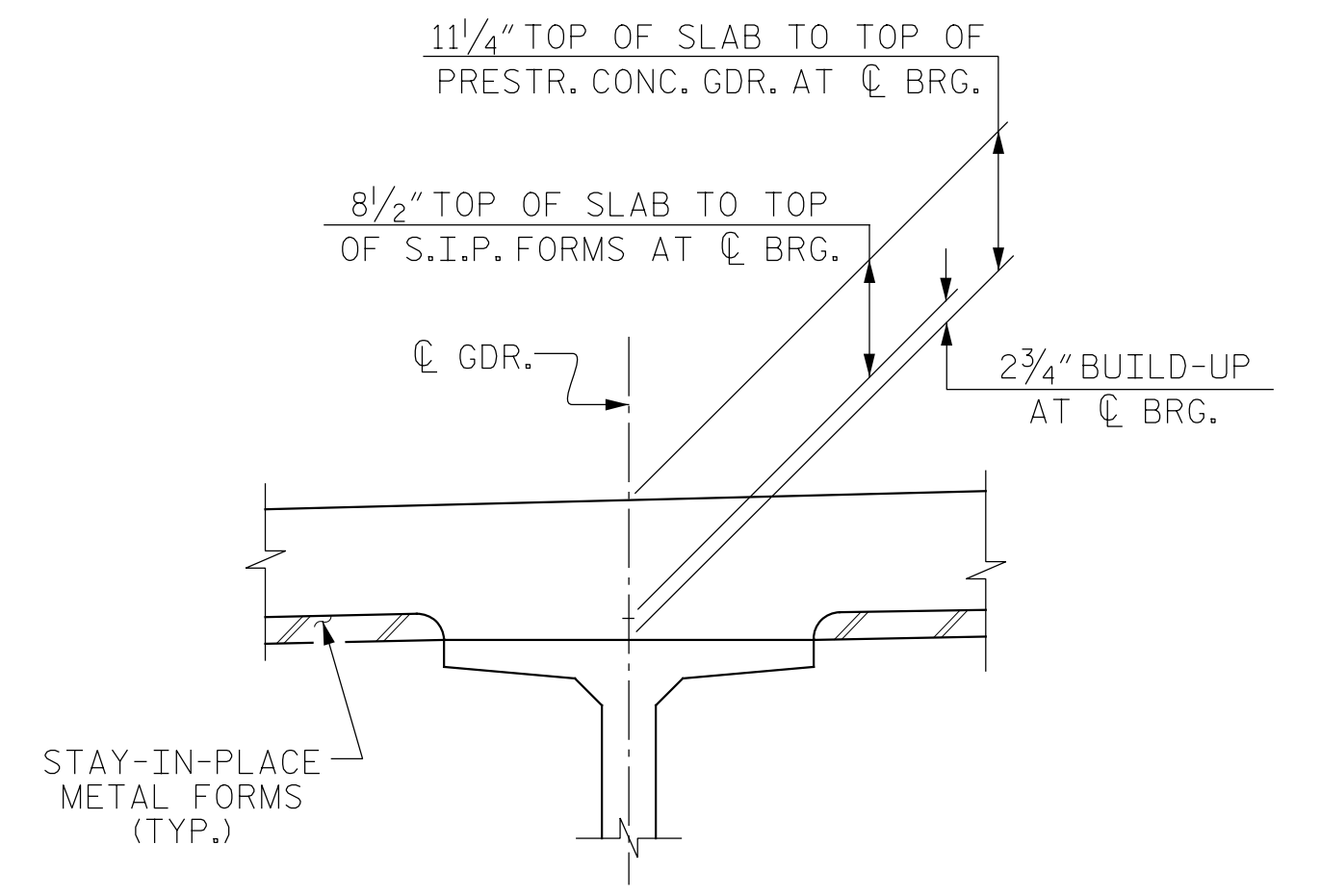
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TYPICAL SECTION @ INTERMEDIATE DIAPHRAGMS

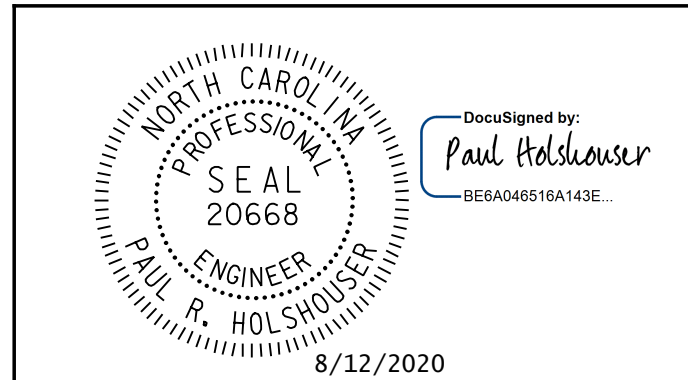
NOTES:

- FOR NUMBER OF BAR RUNS FOR THE "B" BARS, SEE PLAN OF SPANS SHEETS 1 THRU 8.
- FOR CONCRETE PARAPET REINFORCING STEEL & DETAILS, SEE "CONCRETE PARAPET AND MEDIAN DETAILS" SHEET.
- SEE "SECTION THRU DIAPHRAGM AT END BENTS" & "SECTION THRU BENT 3 & 5 DIAPHRAGM" FOR ADDITIONAL DETAILS.
- FOR CONCRETE MEDIAN REINFORCING STEEL & DETAILS, SEE SHEET "CONCRETE PARAPET AND MEDIAN DETAILS" SHEET.
- 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 CHAIRS FOR METAL DECK (C.H.C.U.) @ 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 TO AVOID INTERFERENCE WITH STUFFUPS IN PRESTRESSED CONCRETE GIRDERS.
- NO CHAMFER IS REQUIRED ON CORNERS OF GIRDER BUILDUPS
- #5 G1 OR #5 G2 BAR MAY BE SHIFTED SLIGHTLY TO CLEAR REINFORCING STEEL AND STIRRUPS.
- A TIME PERIOD OF AT LEAST 60 DAYS SHALL ELAPSE FROM THE TRANSFER OF PRESTRESSING FORCE INTO ANY GIRDER AND THE PLACEMENT OF DECK SLAB CONCRETE IN THE SPANS.
- PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.



DETAIL A
(TYP. EA. GDR. @ EA. BENT)

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 1 OF 6



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE					
TYPICAL SECTION					
STAGE I CONSTRUCTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-II
					TOTAL SHEETS 107

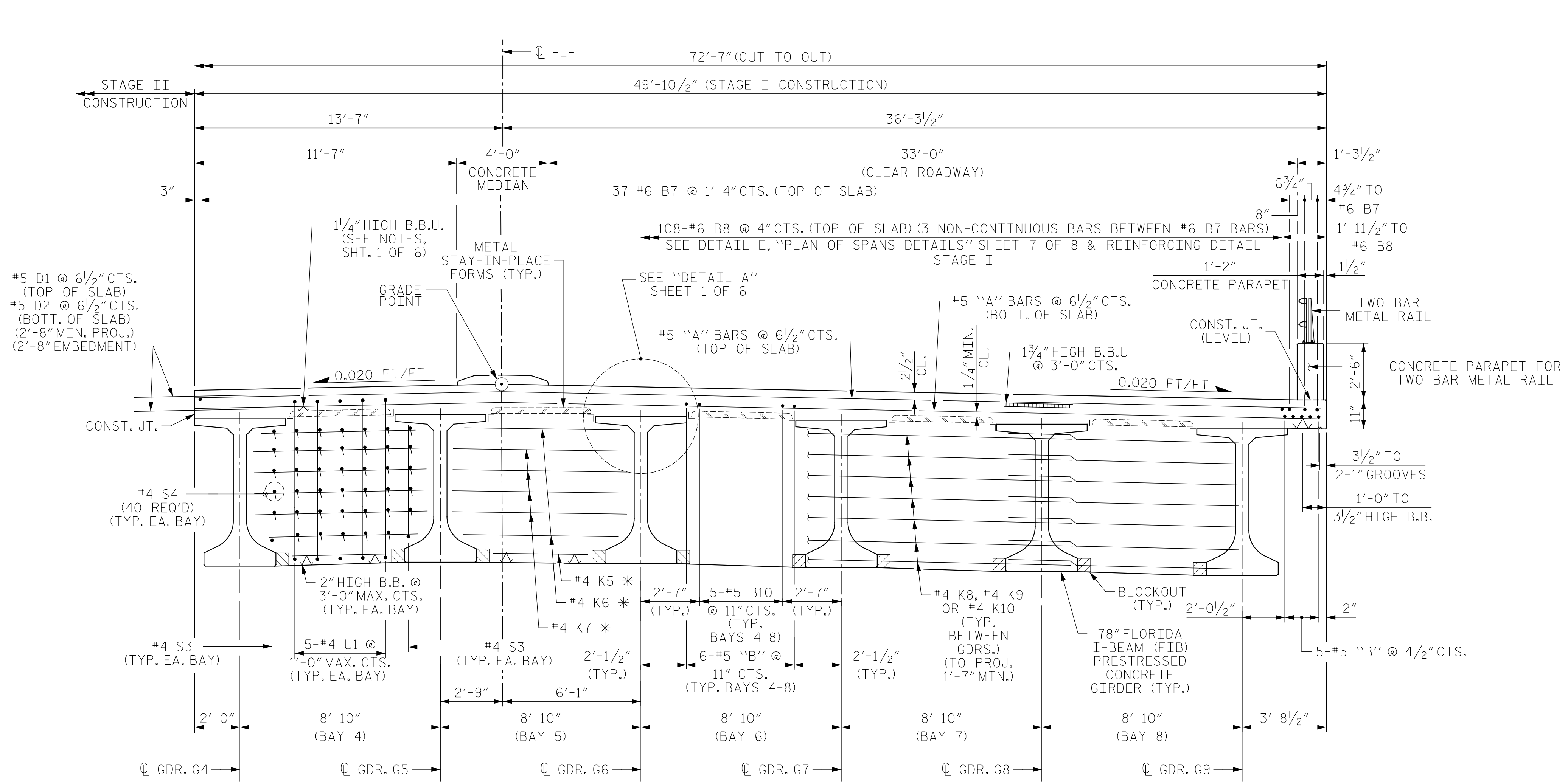
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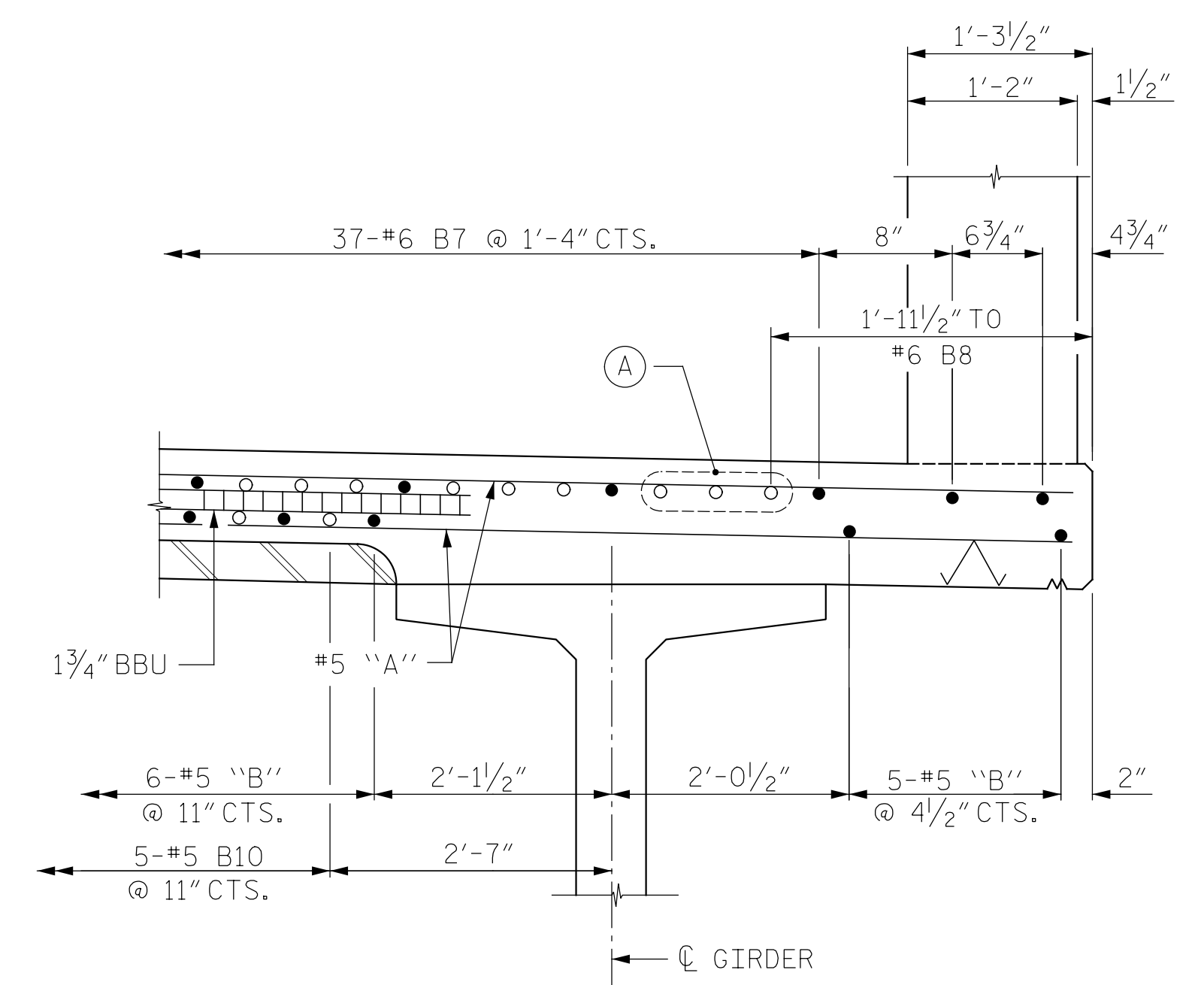
NOTES:

FOR BLOCKOUT DETAIL, SEE "BENT DIAPHRAGM & BLOCK-OUT DETAIL" ON SHEET 6 OF 6.



TYPICAL SECTION @ BENTS 1, 2, 4, 6 & 7

* (EA. FACE)
(TYP. EA. BAY)

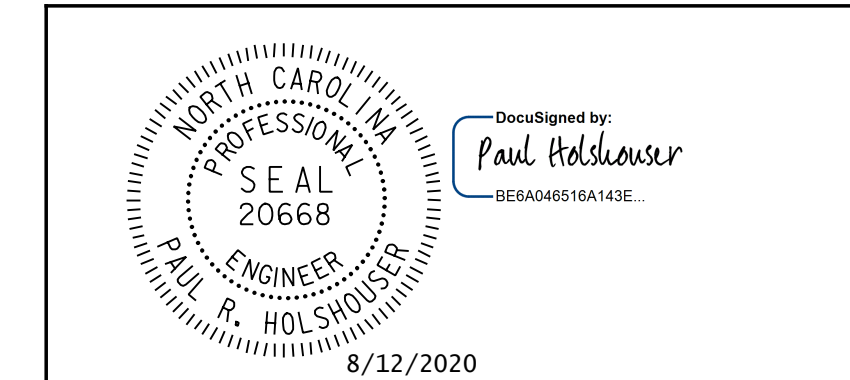


REINFORCING DETAIL
STAGE I

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
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RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
STAGE I CONSTRUCTION

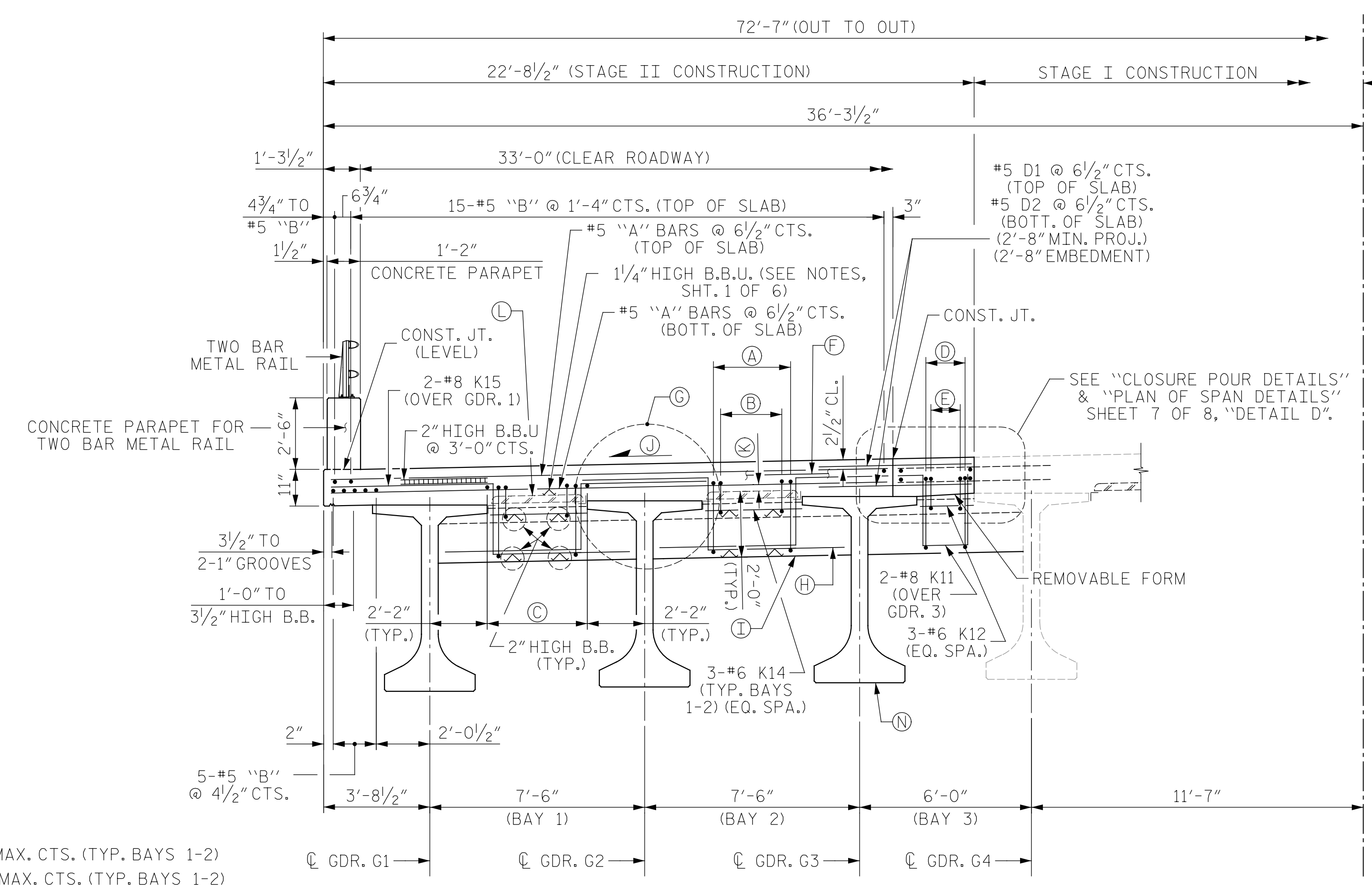


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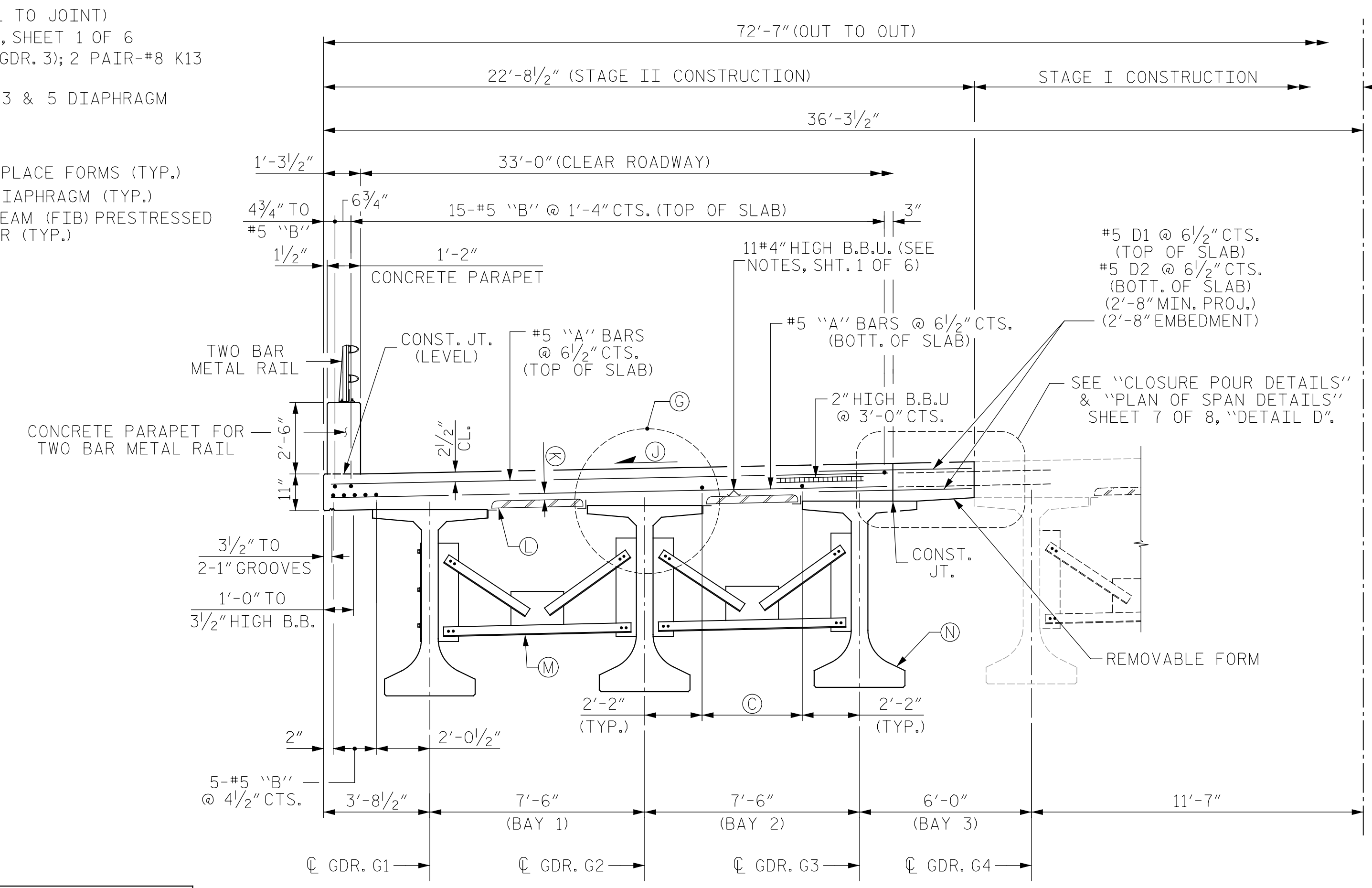
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2			4			107

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Design E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

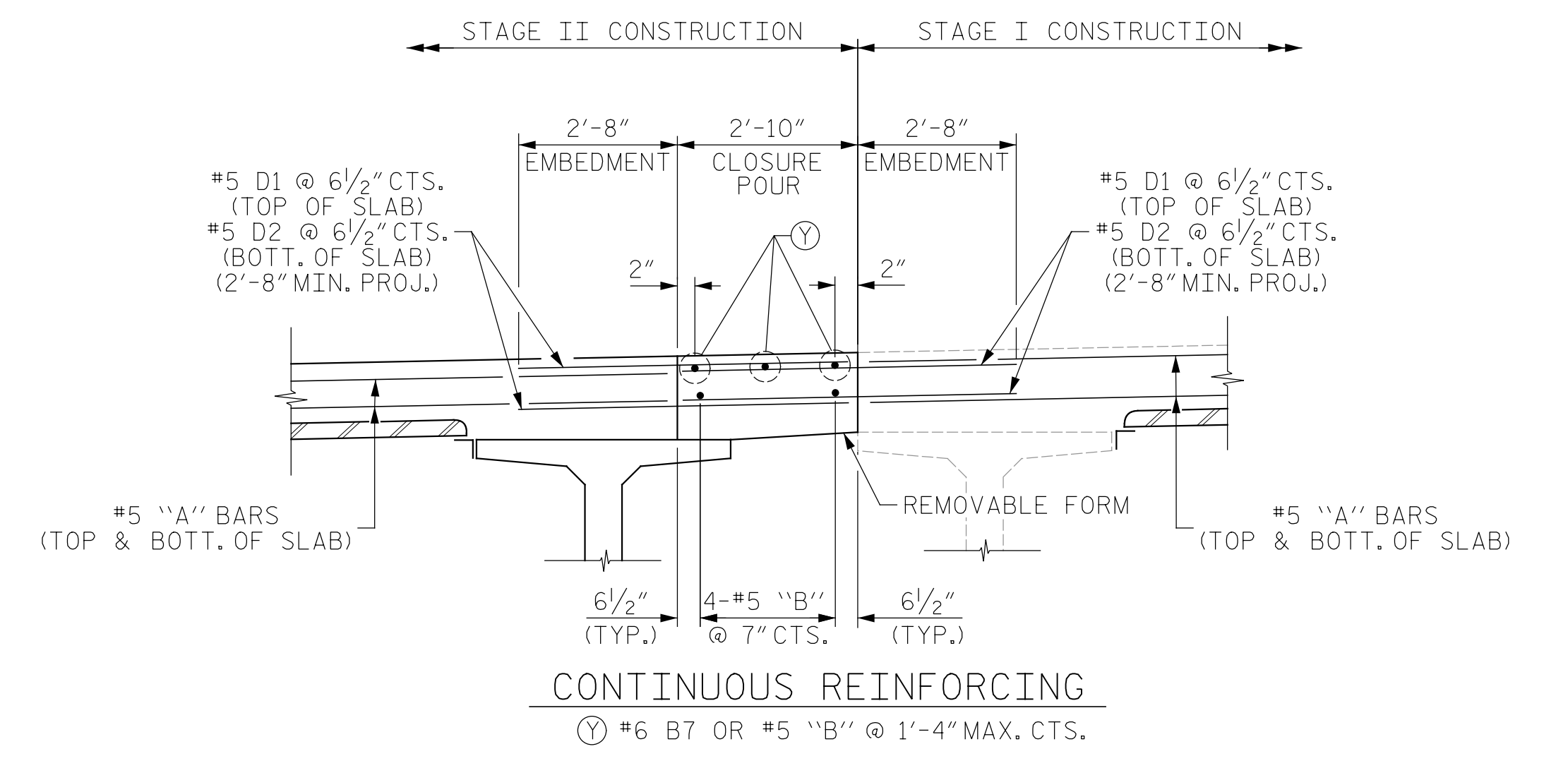


TYPICAL SECTION @ END BENTS & BENTS 3 & 5

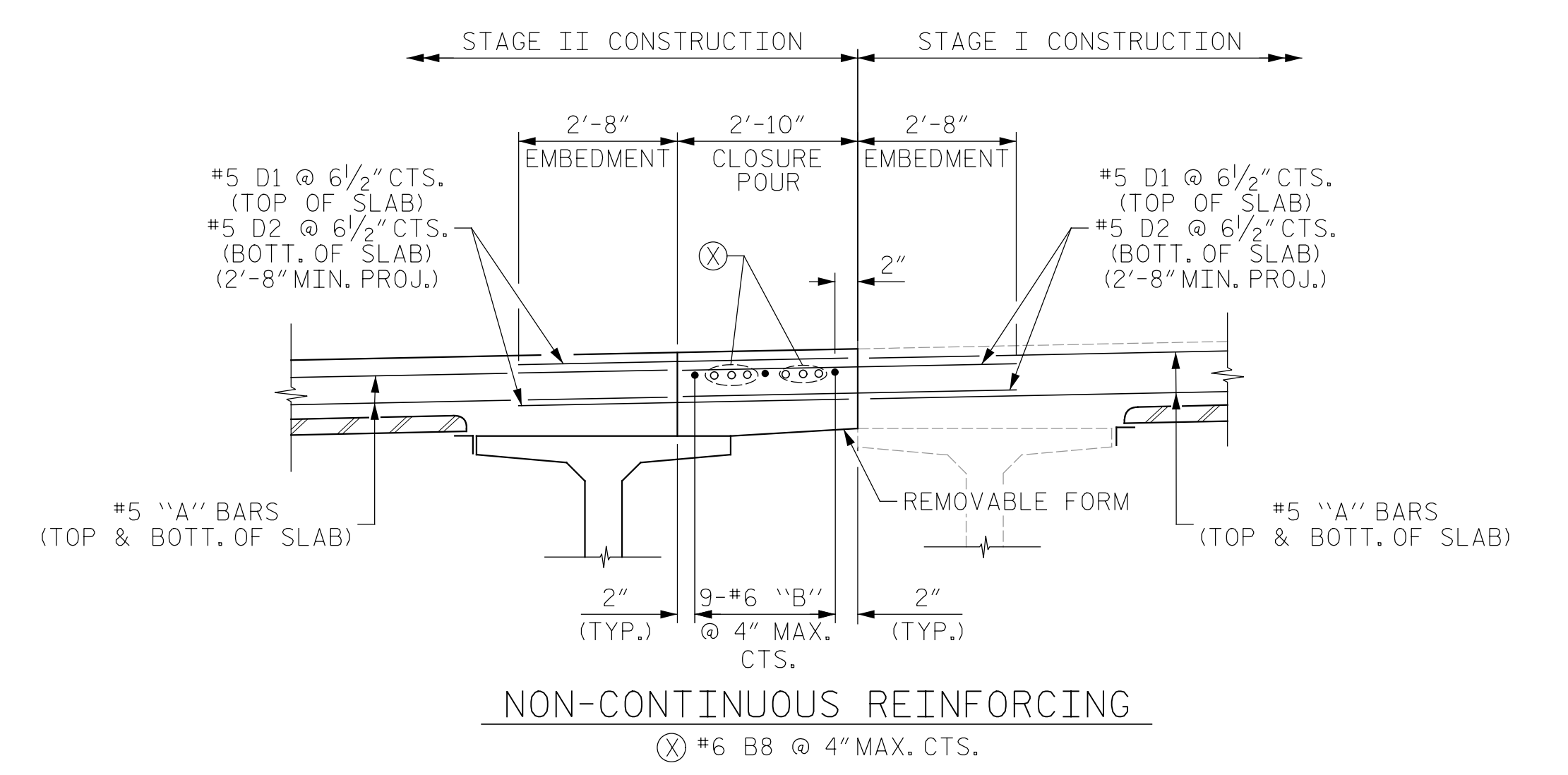


TYPICAL SECTION @ INTERMEDIATE DIAPHRAGMS

- (A) 4-#5 S1 @ 1'-0" MAX. CTS. (TYP. BAYS 1-2)
- (B) 4-#4 S2 @ 1'-0" MAX. CTS. (TYP. BAYS 1-2)
- (C) 5-#5 "B" @ 9/2" CTS. (TYP. BAYS 1-2)
- (D) 2-#5 S1 @ 1'-0" MAX. CTS.
- (E) 2-#4 S2 @ 1'-0" MAX. CTS.
- (F) #5 G2 (PARALLEL TO JOINT)
- (G) SEE "DETAIL A", SHEET 1 OF 6
- (H) 2-#8 K13 (OVER GDR. 3); 2 PAIR-#8 K13 (OVER GDR. 2)
- (I) END BENT/BENT 3 & 5 DIAPHRAGM
- (J) 0.02 FT/FT
- (K) 1/4" MIN. CL.
- (L) METAL STAY-IN-PLACE FORMS (TYP.)
- (M) INTERMEDIATE DIAPHRAGM (TYP.)
- (N) 78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER (TYP.)



CONTINUOUS REINFORCING
Ⓞ #6 B7 OR #5 "B" @ 1'-4" MAX. CTS.



NON-CONTINUOUS REINFORCING
Ⓧ #6 B8 @ 4" MAX. CTS.

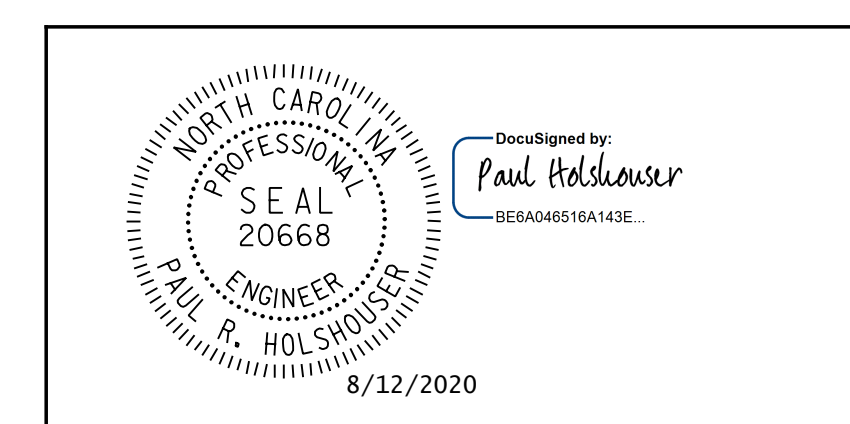
CLOSURE POUR DETAILS

#5 D1 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP AND BOTTOM SLAB REINFORCING STEEL.

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 3 OF 6

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RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
STAGE II CONSTRUCTION



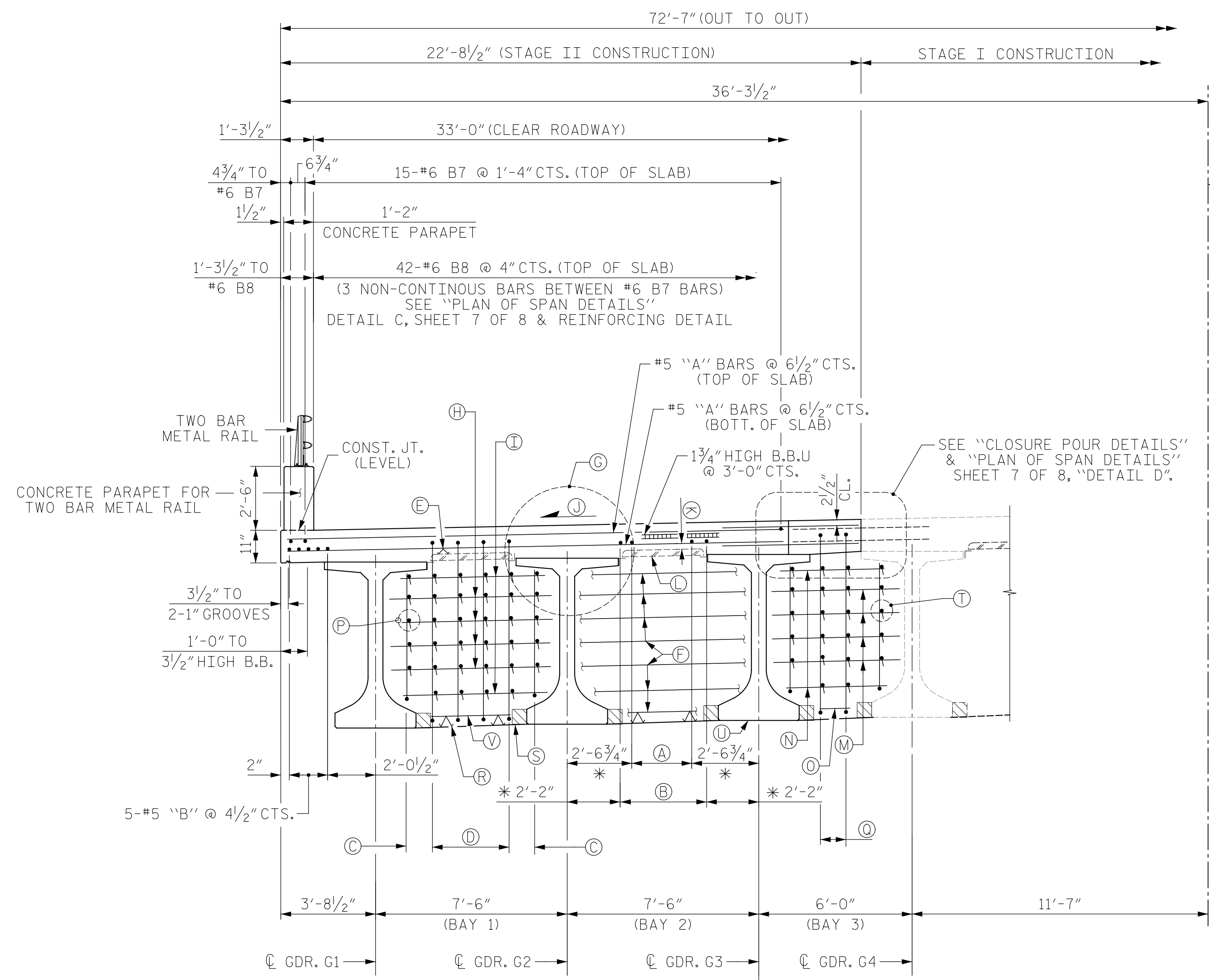
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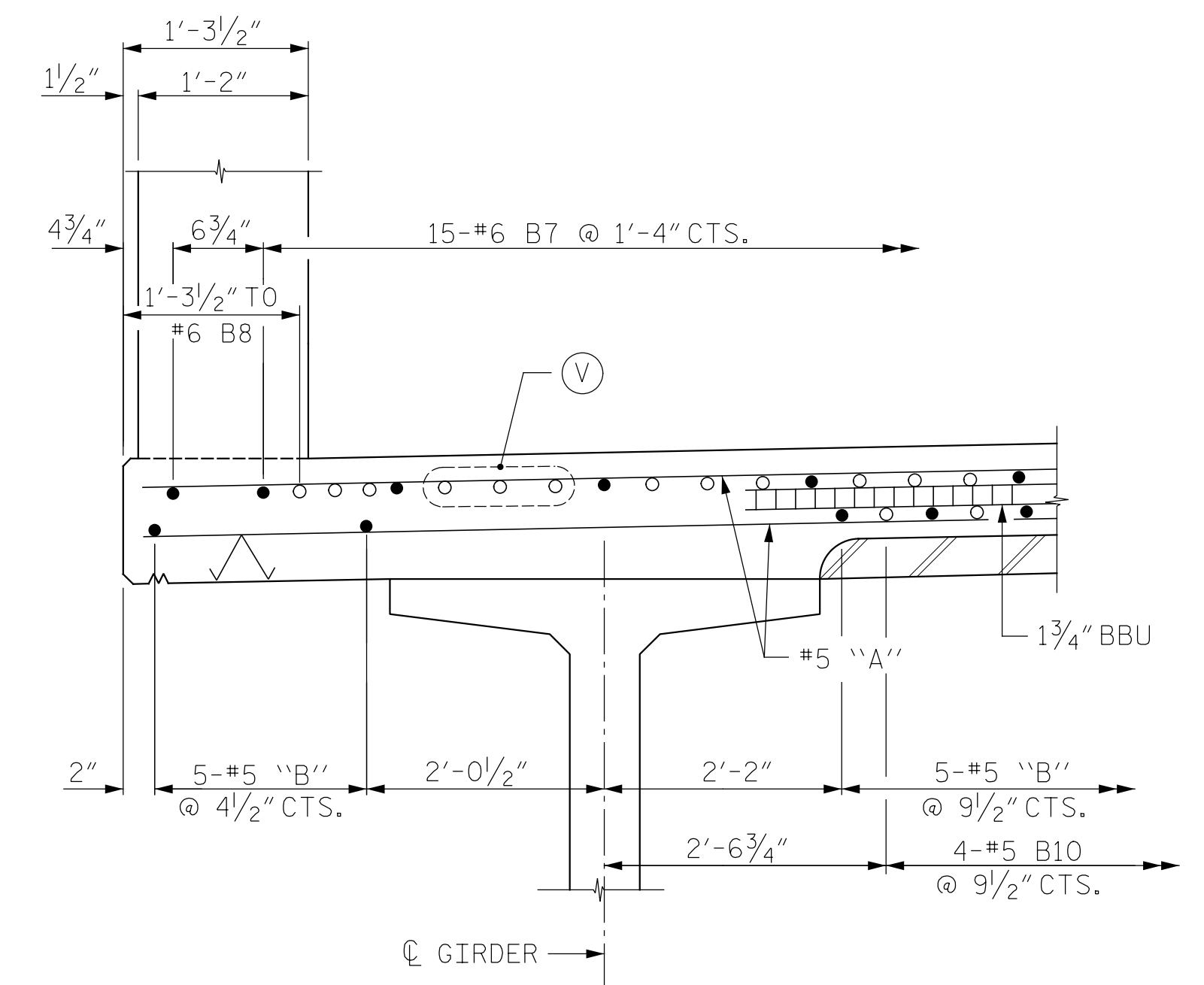
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Design E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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TYPICAL SECTION @ BENTS 1, 2, 4, 6 & 7
* (TYP. BAYS 1-2)

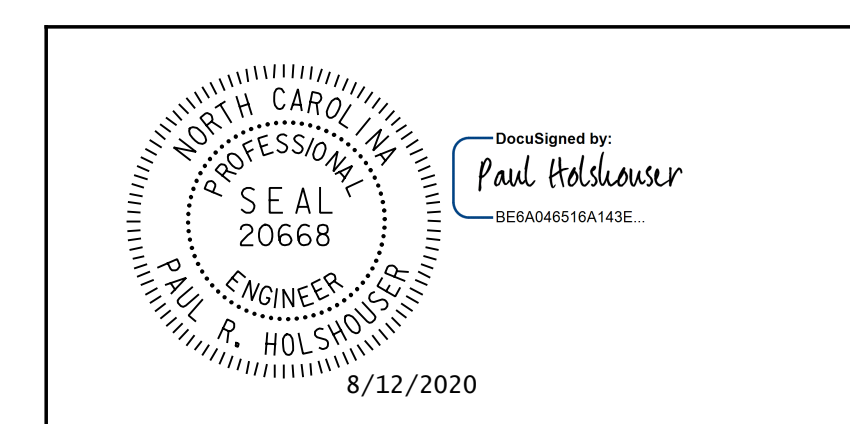
- (A) 4-#5 B10 @ 9 1/2" CTS. (TYP. BAYS 1-2)
- (B) 5-#5 "B" @ 9 1/2" CTS. (TYP. BAYS 1-2)
- (C) #4 S3 (TYP. EA. BAY)
- (D) 4-#4 U1 @ 1'-0" MAX. CTS. (TYP. BAYS 1-2)
- (E) 1/4" HIGH B.B.U. (SEE NOTES, SHEET 1 OF 6)
- (F) #4 K16, #4 K17 OR #4 K18 (TYP. BETWEEN GDERS.)
- (G) SEE "DETAIL A" SHEET 1 OF 6.
- (H) #4 K19 (EA. FACE) (TYP. BAYS 1-2)
- (I) #4 K20 (EA. FACE) (TYP. BAYS 1-2)
- (J) 0.02 FT/FT
- (K) 1/4" MIN. CL.
- (L) METAL STAY-IN-PLACE FORMS (TYP.)
- (M) #4 K21 (EA. FACE)
- (N) #4 K22 (EA. FACE)
- (O) #4 K23 (EA. FACE)
- (P) #4 S4 (34 REQ'D) (TYP. BAYS 1-2)
- (Q) 2-#4 U1 @ 1'-0" MAX. CTS.
- (R) 2" HIGH B.B. @ 3'-0" MAX. CTS. (TYP. EA. BAY)
- (S) BLOCKOUT (TYP.)
- (T) #4 S4 (22 REQ'D)
- (U) 78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER (TYP.)
- (V) #4 K24 (TYP. BAYS 1-2) (EA. FACE)



REINFORCING DETAIL
STAGE II

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 4 OF 6

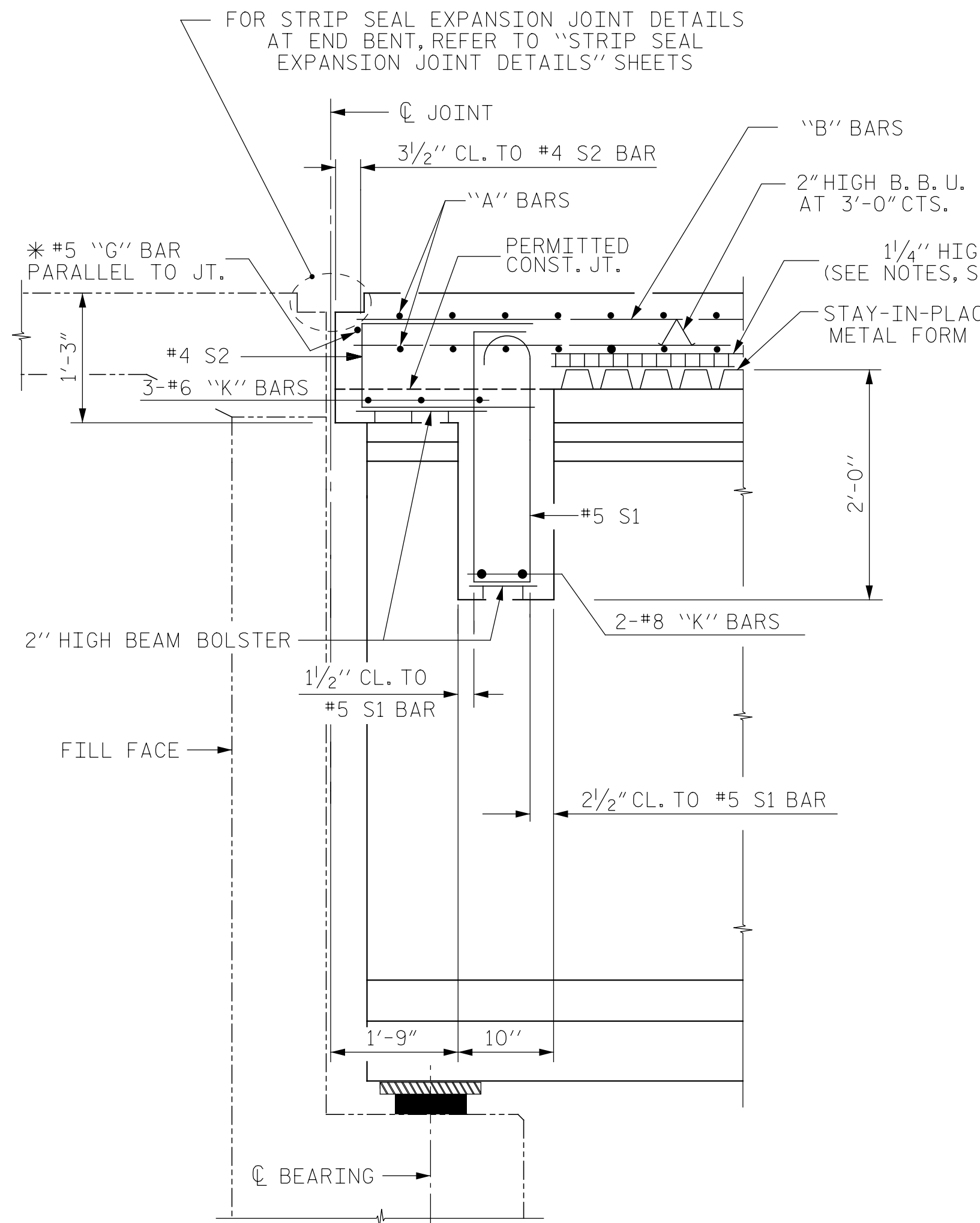


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TYPICAL SECTION					
STAGE II CONSTRUCTION					
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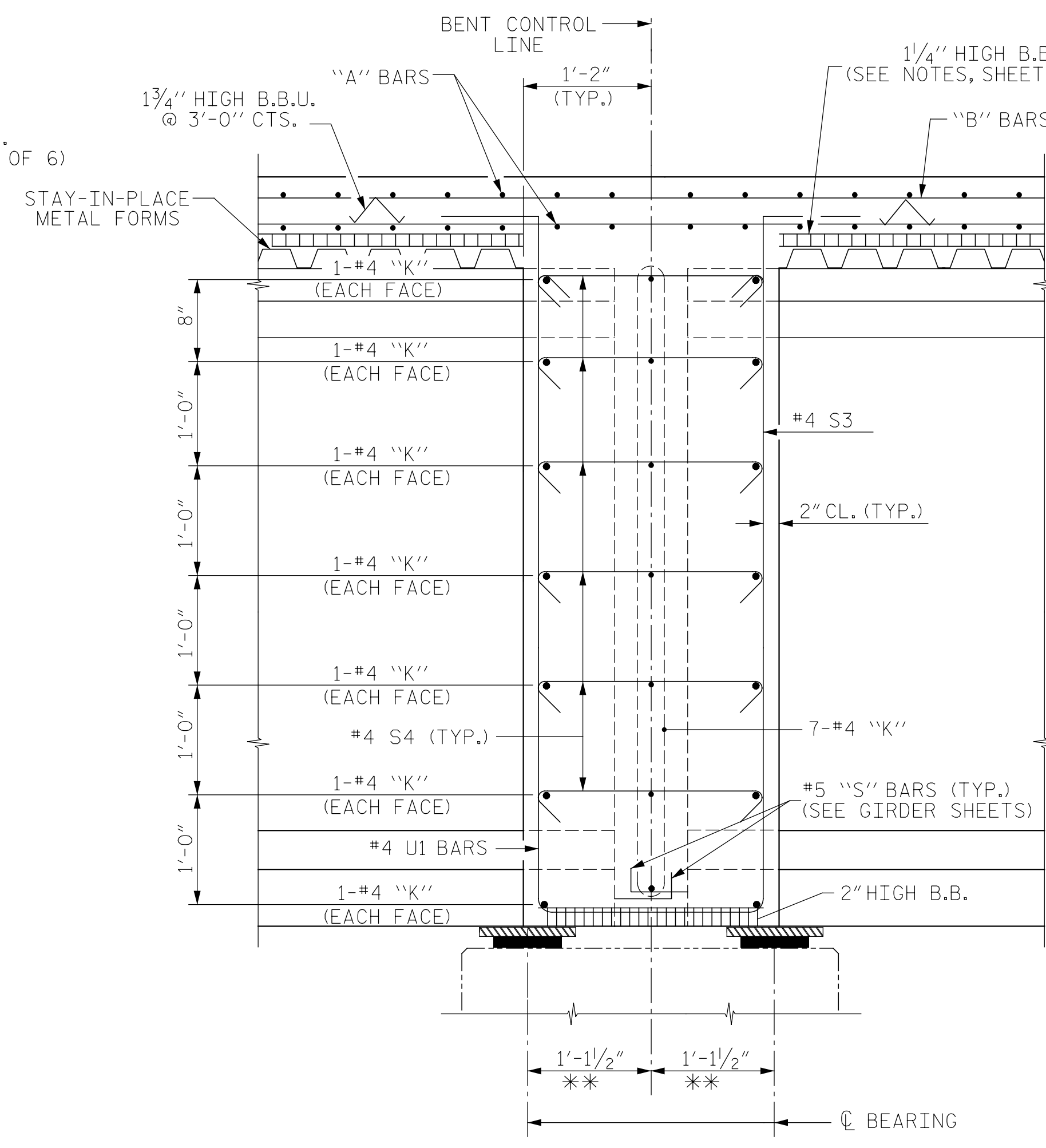
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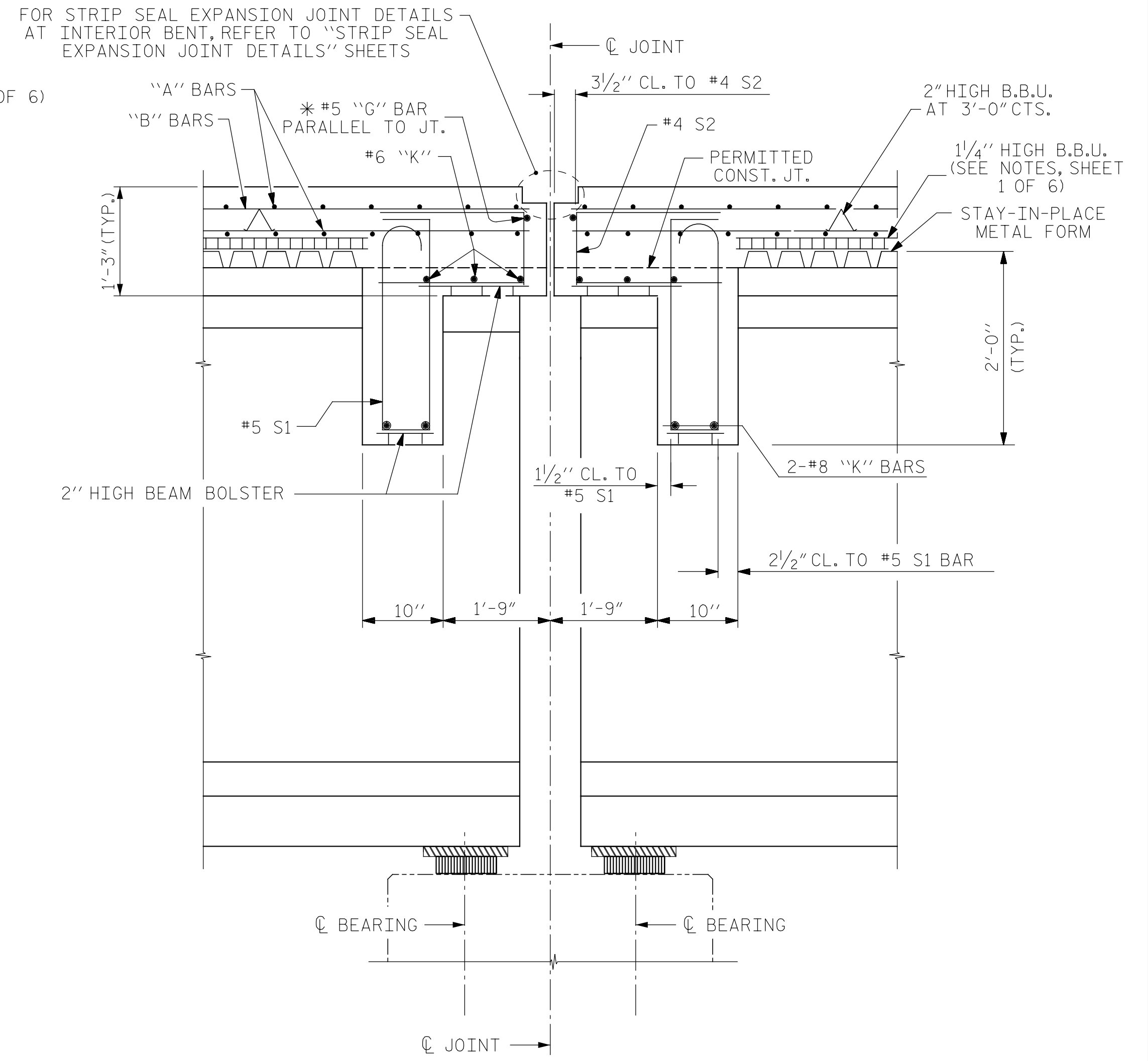


* #5 "G" BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

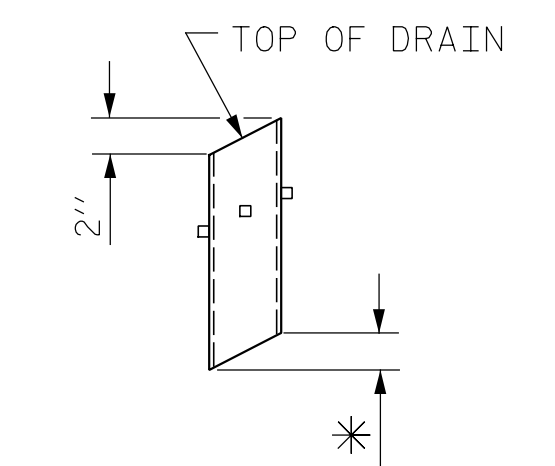
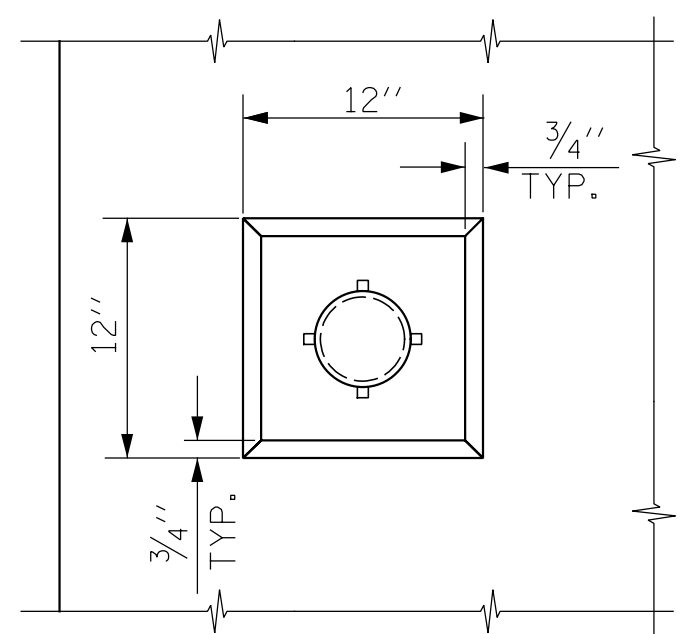
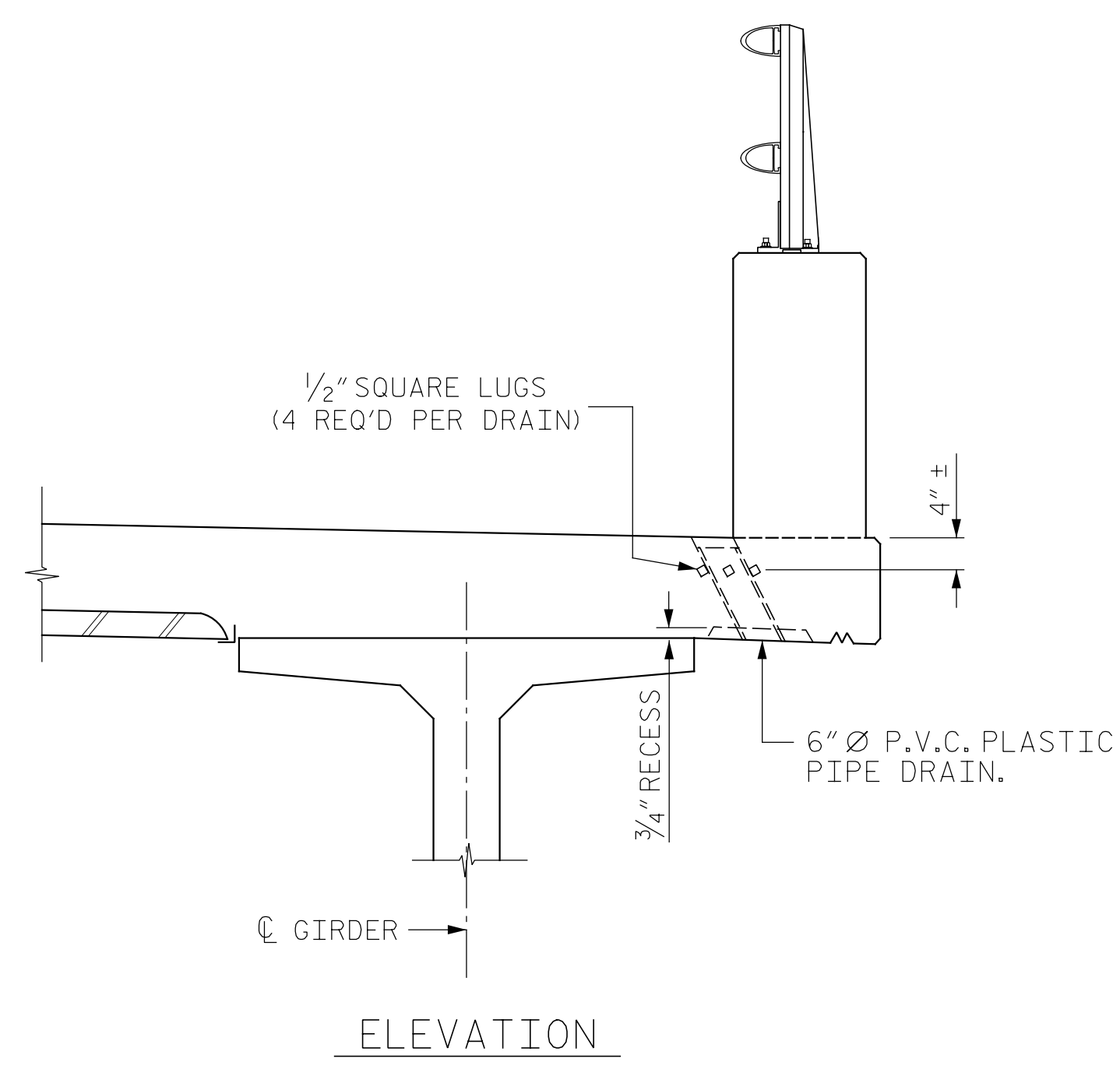
SECTION THRU DIAPHRAGM AT END BENTS
(TYP. EA. STAGE)



SECTION THRU CONTINUOUS BENT DIAPHRAGM
BENTS 1, 2, 4, 6 & 7
** DIMENSION ALONG CL GIRDER
(TYP. EA. STAGE)



SECTION THRU BENT 3 & 5 DIAPHRAGMS
* #5 "G" BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.
(TYP. EA. STAGE)
BAR CALLOUT, PLACEMENT & DIMENSIONS ARE TYPICAL EACH SIDE OF JOINT.

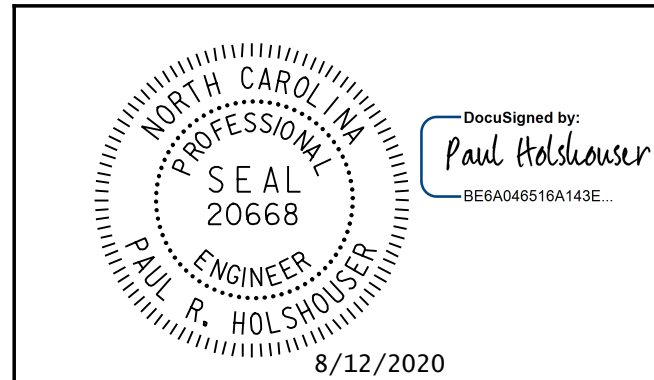


PLAN OF RECESS
PIPE DETAIL
DRAIN CONNECTOR DETAIL

NOTES:

- TOP OF FLOOR DRAINS TO BE SET 3/8" BELOW SURFACE OF SLAB.
- 4 - 1/2" SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.
- THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.
- FOR ADDITIONAL INFORMATION FOR 1/4" B.B.U., SEE SHEET 1 OF 6.

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 5 OF 6

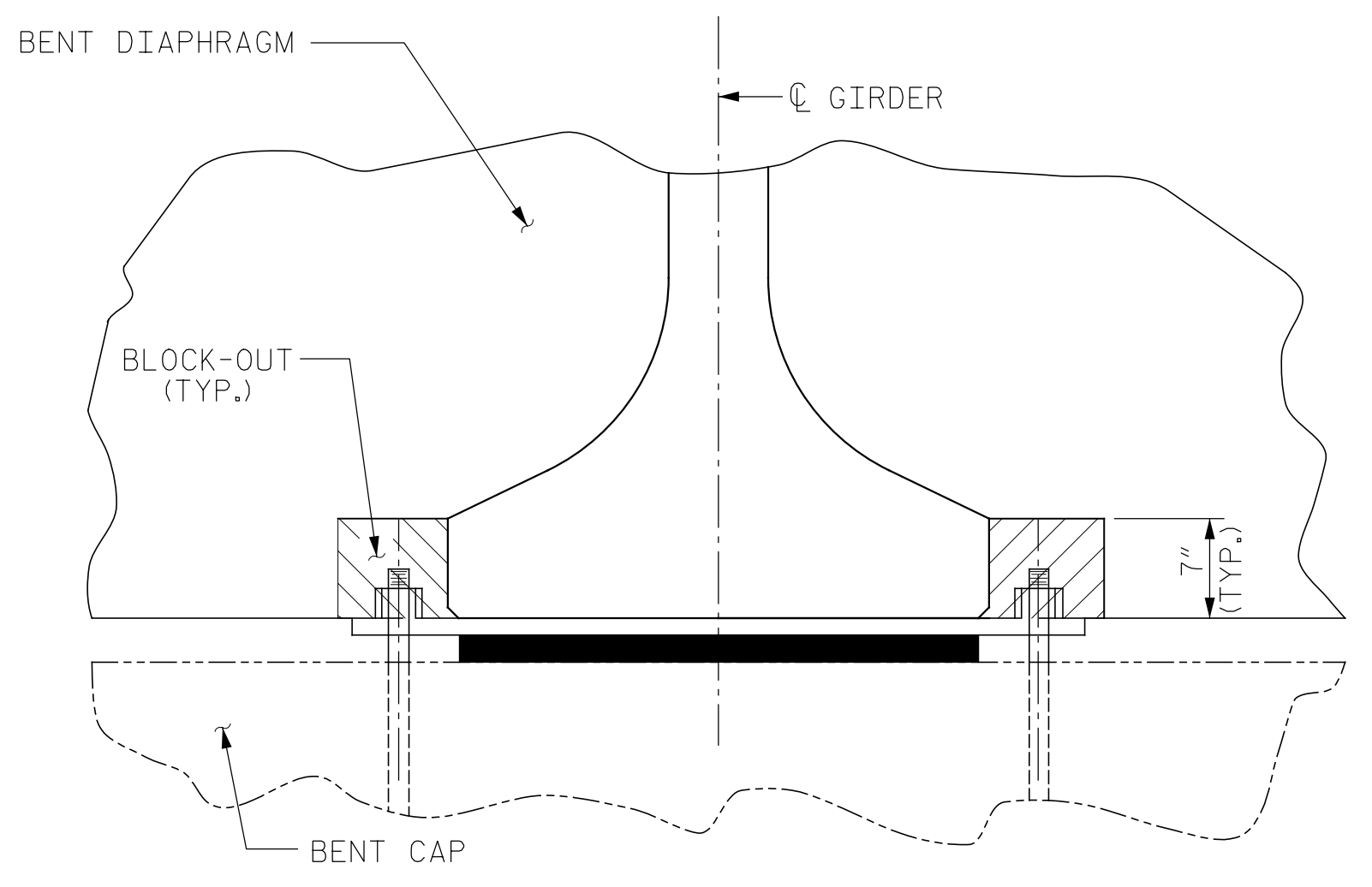


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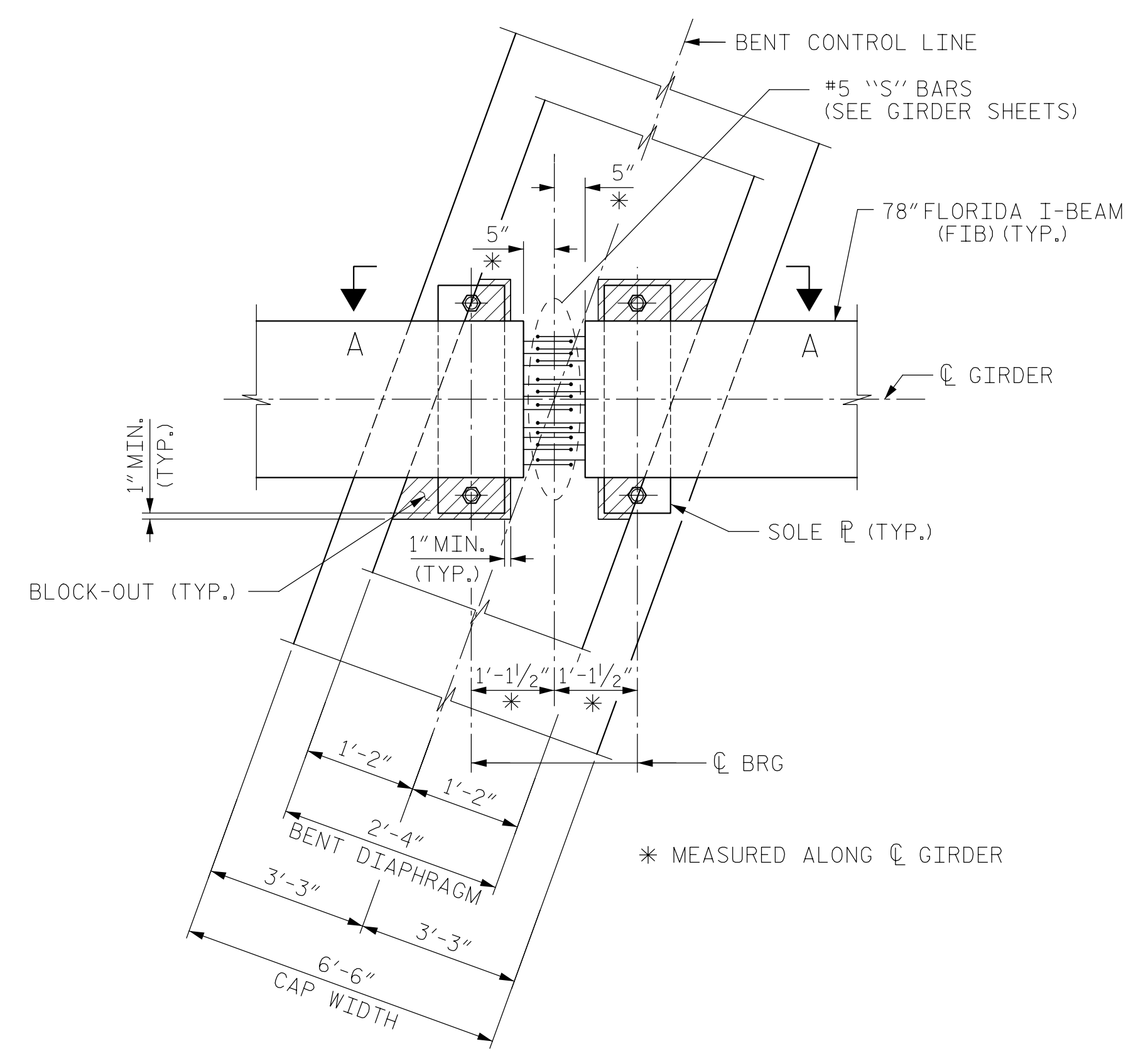
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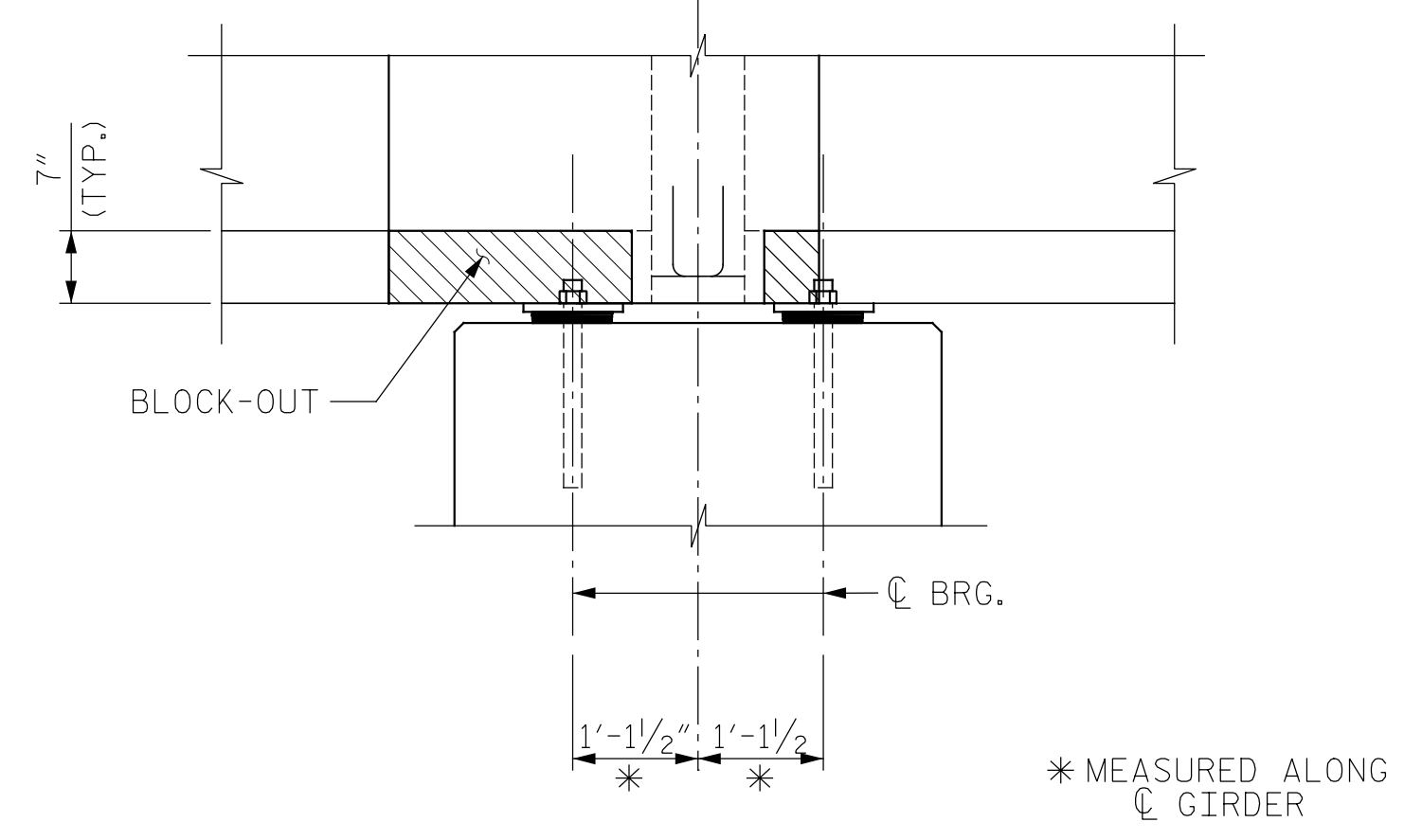
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END VIEW

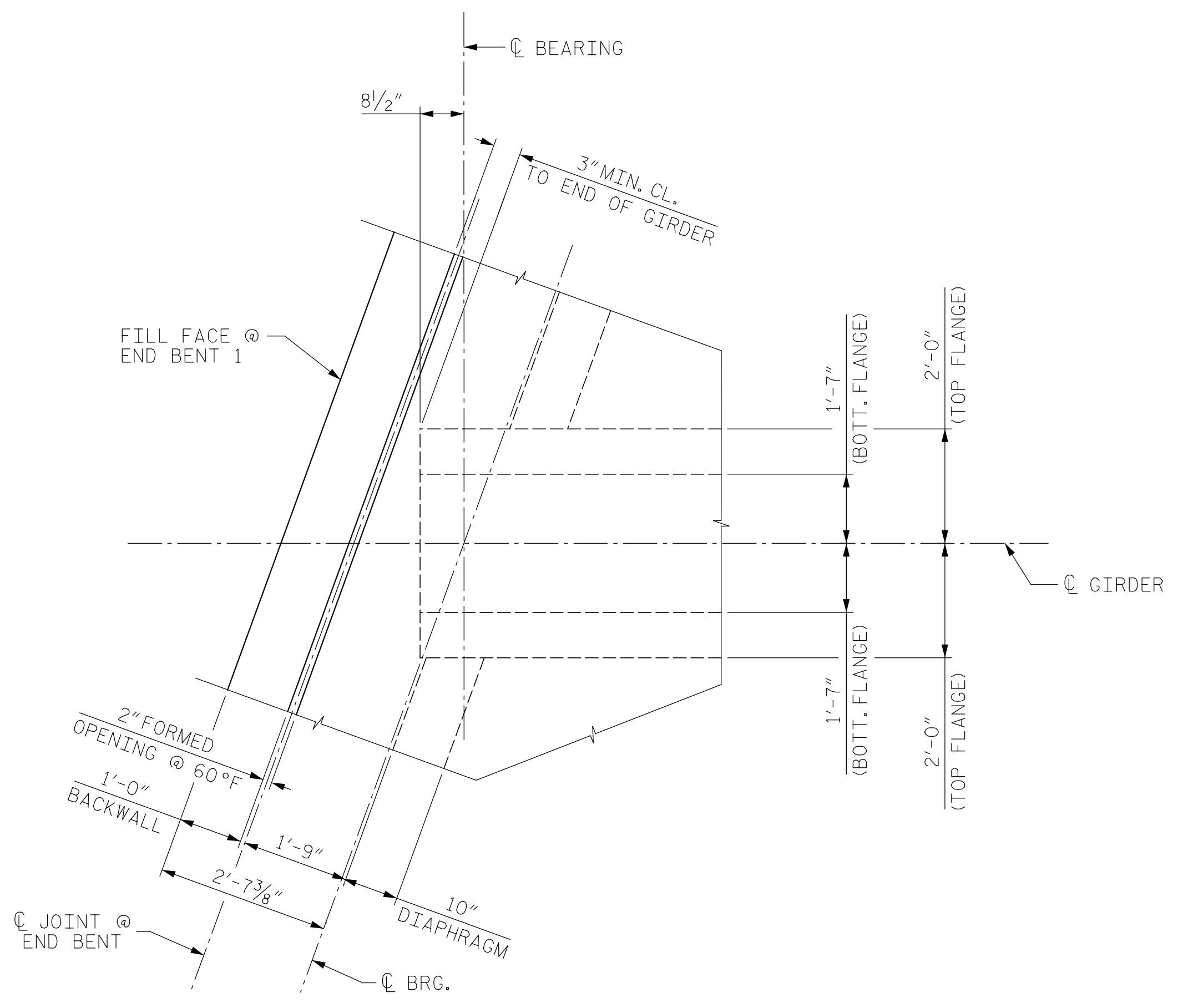


PLAN VIEW



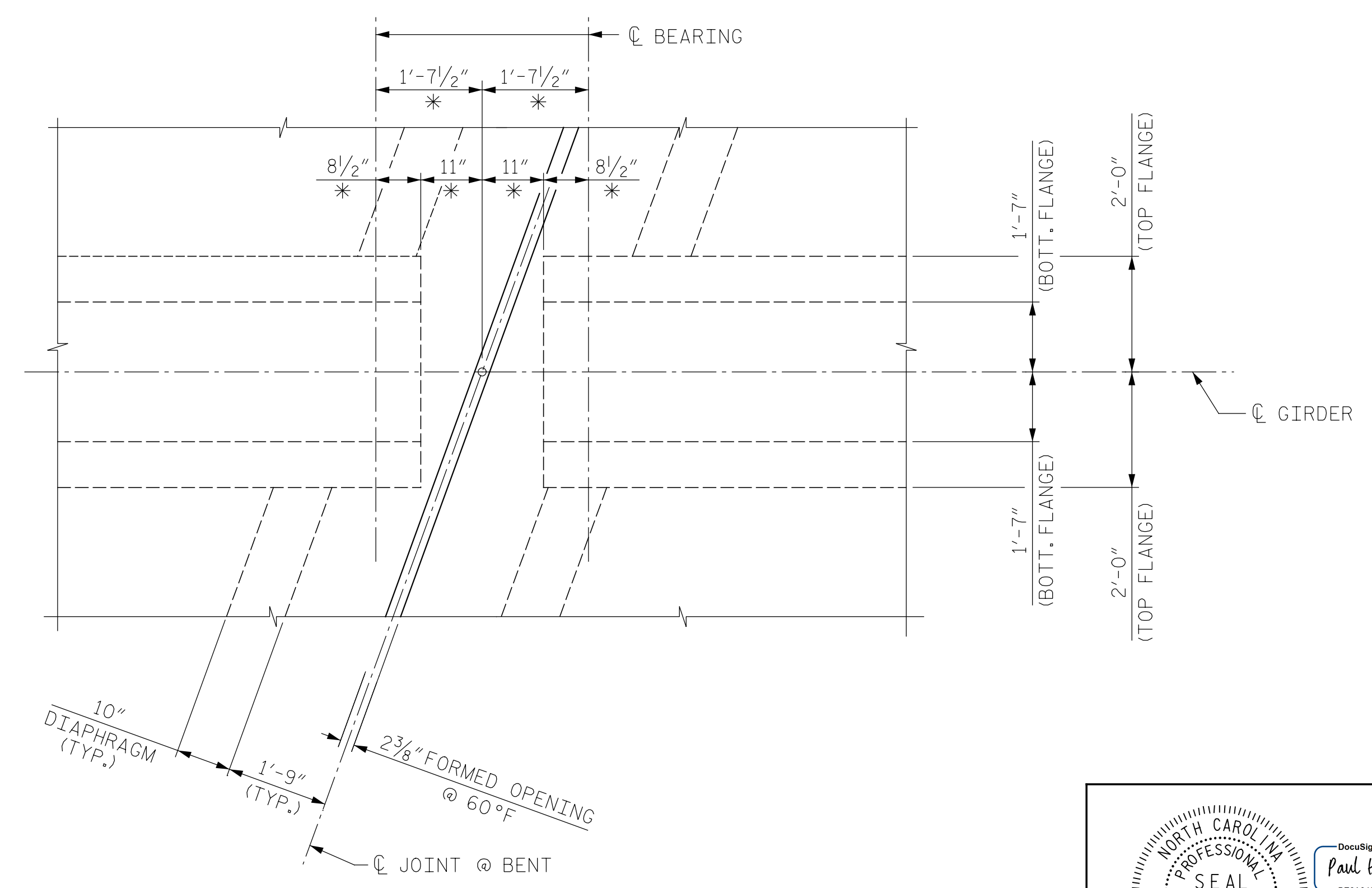
SECTION A-A

BENT DIAPHRAGM & BLOCK-OUT DETAIL
(AT BENTS 1, 2, 4, 6 & 7)



PLAN OF GIRDER AT END BENT 1

END BENT 2 SIMILAR
DIMENSIONS ARE TYPICAL EA. END BENT

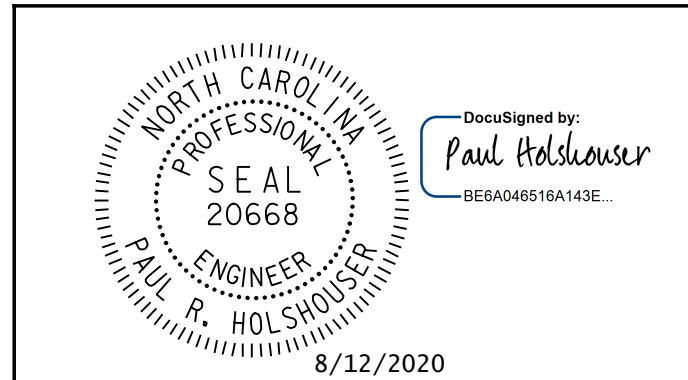


PLAN OF GIRDER AT BENTS 3 & 5

* MEASURED ALONG GIRDER

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BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 6 OF 6

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



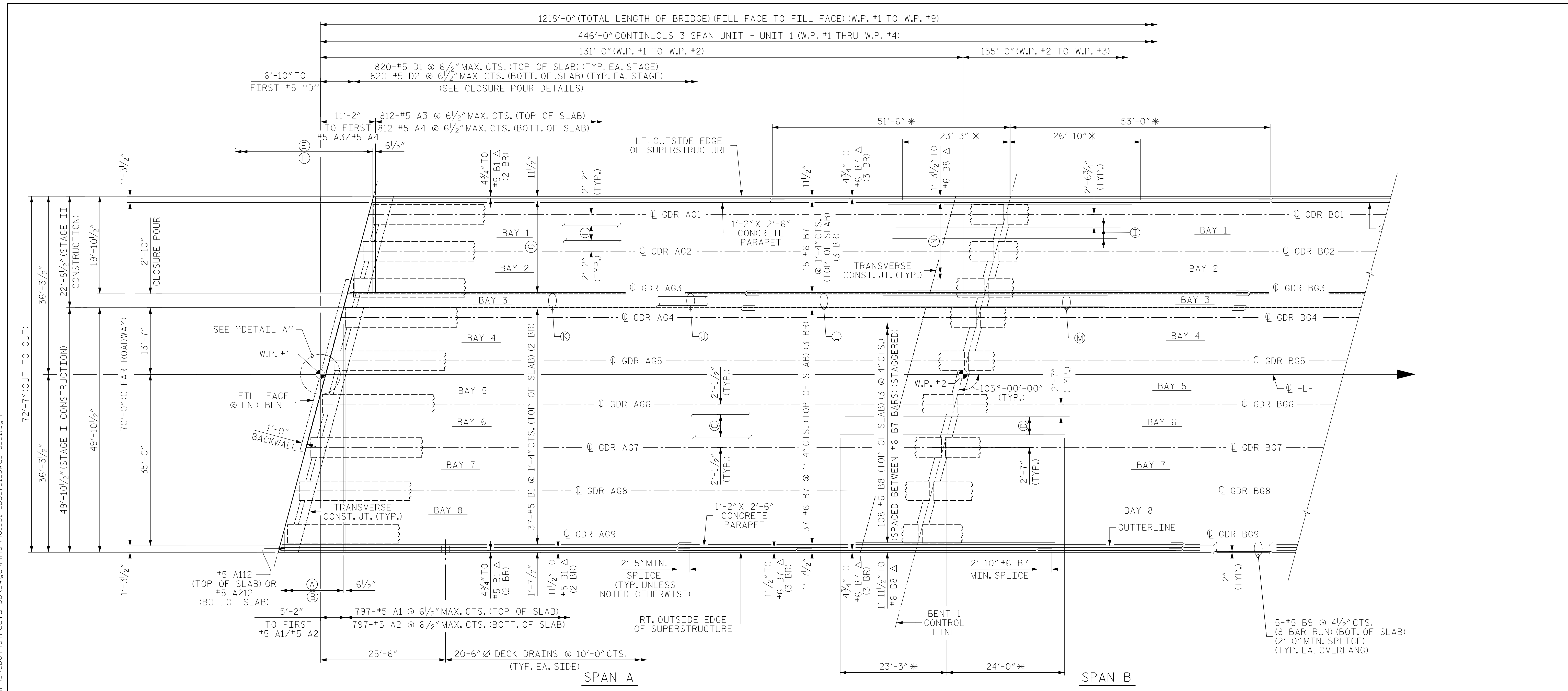
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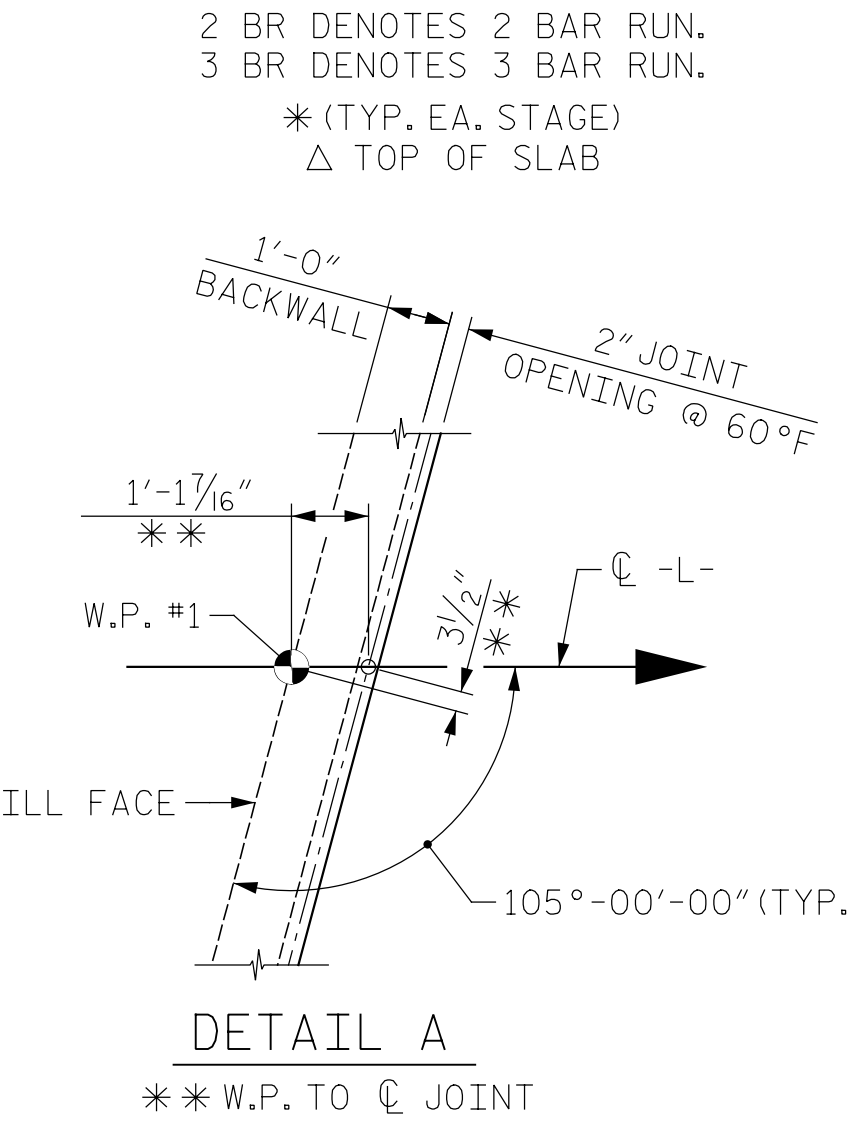
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PLAN OF SPAN A AND PARTIAL PLAN OF SPAN B

- (A) #5 A101 THRU #5 A111 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (B) #5 A201 THRU #5 A211 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (C) 6-#5 B9 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (D) 5-#5 B10 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8)
- (E) #5 A301 THRU #5 A304 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (F) #5 A401 THRU #5 A404 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (G) 15-#5 B1 @ 1'-4" CTS. (TOP OF SLAB) (2 BR)
- (H) 5-#5 B9 @ 9 1/2" CTS. (TYP. BAYS 1-2) (BOT. OF SLAB) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (I) 4-#5 B10 @ 9 1/2" CTS. (BOT. OF SLAB) (TYP. BAYS 1-2)
- (J) 4-#5 B9 @ 7" CTS. (8 BAR RUN) (BOT. OF SLAB) (2'-0" MIN. SPLICE)
- (K) 3-#5 B1 @ 1'-4" MAX. CTS. (2 BAR RUN) (TOP OF SLAB)
- (L) 3-#6 B7 (3 BAR RUN) (TOP OF SLAB) (SEE CLOSURE POUR DETAILS)
- (M) 6-#6 B8 (TOP OF SLAB) (SEE CLOSURE POUR DETAILS) (STAGGERED)
- (N) 42-#6 B8 (TOP OF SLAB) (3 @ 4" CTS.) (SPACED BETWEEN #6 B7 BARS) (STAGGERED)



DETAIL A
** W.P. TO C JOINT

NOTES

2 BR DENOTES 2 BAR RUN.
3 BR DENOTES 3 BAR RUN.
*(TYP. EA. STAGE)
Δ TOP OF SLAB

FOR CLOSURE POUR DETAILS, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & "TYPICAL SECTION" SHEET 3 OF 6.

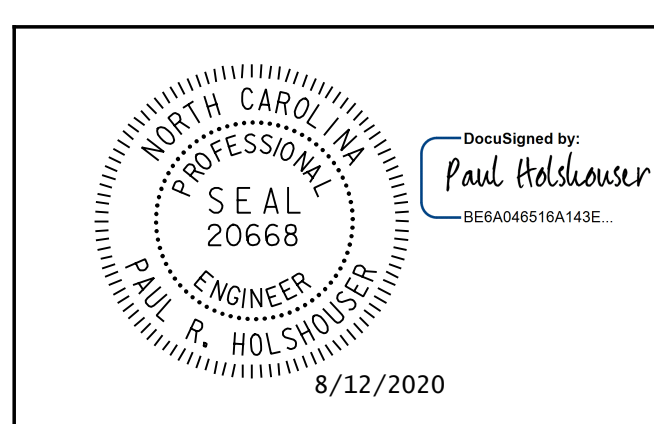
FOR POUR SEQUENCE, SEE "POURING SEQUENCE" SHEETS.

FOR BENT/END BENT DIAPHRAGM DETAILS & REINFORCING STEEL, SEE SHEETS 7 OF 8 & 8 OF 8.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY TO CLEAR DECK DRAINS.

FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE SHEET 4 OF 8.

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 STATION: 118+81.78 -L-
 SHEET 1 OF 8



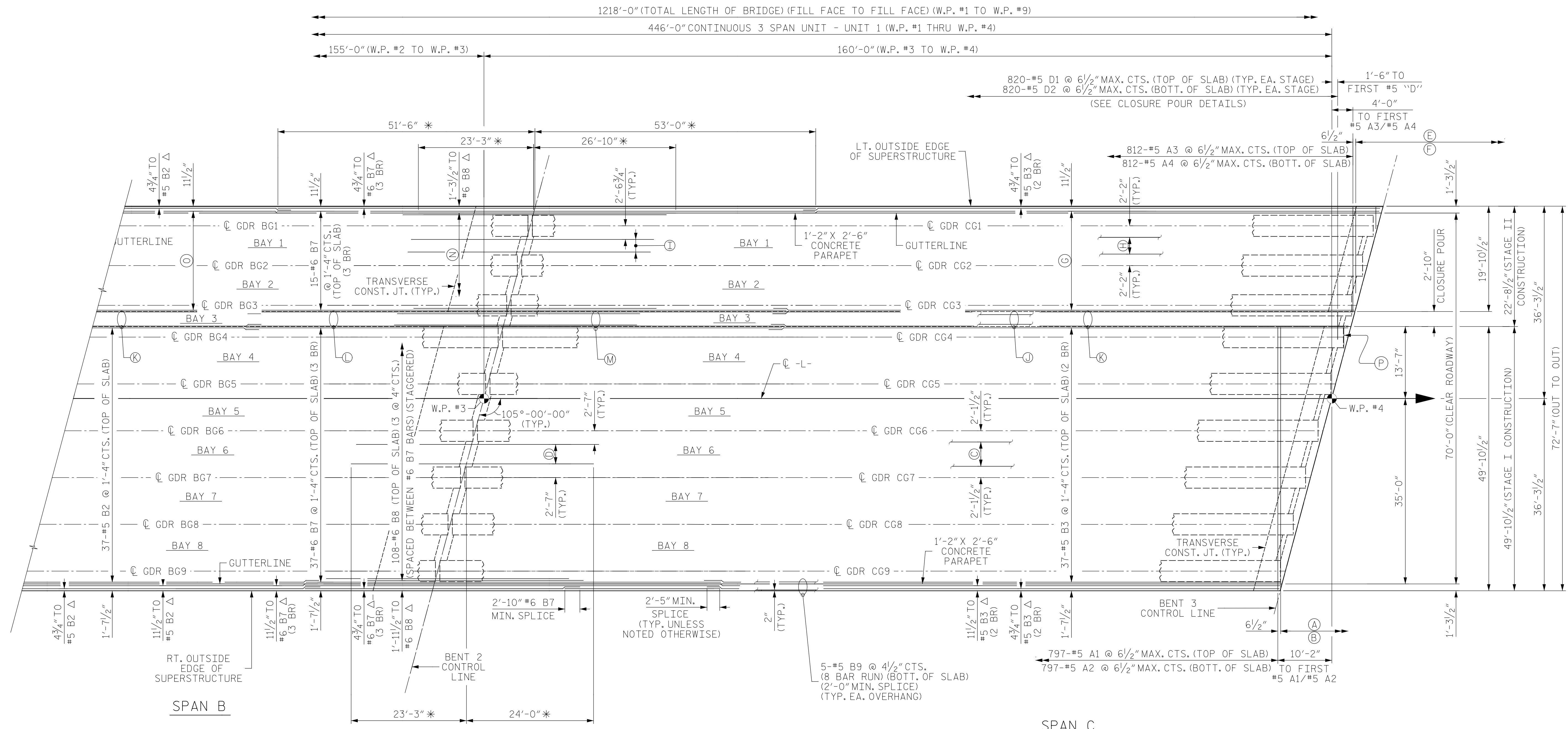
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PARTIAL PLAN OF SPAN B AND PLAN OF SPAN C

- (A) #5 A101 THRU #5 A111 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (B) #5 A201 THRU #5 A211 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (C) 6-#5 B9 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (D) 5-#5 B10 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8)
- (E) #5 A301 THRU #5 A304 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (F) #5 A401 THRU #5 A404 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (G) 15-#5 B3 @ 1'-4" CTS. (TOP OF SLAB) (2 BR)
- (H) 5-#5 B9 @ 9 1/2" CTS. (TYP. BAYS 1-2) (BOT. OF SLAB) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (I) 4-#5 B10 @ 9 1/2" CTS. (BOT. OF SLAB) (TYP. BAYS 1-2)
- (J) 4-#5 B9 @ 7" CTS. (8 BAR RUN) (BOT. OF SLAB) (2'-0" MIN. SPLICE)
- (K) 3-#5 B2 OR 3-#5 B3 (2 BAR RUN) @ 1'-4" MAX. CTS. (TOP OF SLAB)
- (L) 3-#6 B7 (3 BAR RUN) (TOP OF SLAB) (SEE CLOSURE POUR DETAILS)
- (M) 6-#6 B8 (TOP OF SLAB) (SEE CLOSURE POUR DETAILS) (STAGGERED)
- (N) 42-#6 B8 (TOP OF SLAB) (3 @ 4" CTS.) (SPACED BETWEEN #6 B7 BARS) (STAGGERED)
- (O) 15-#5 B2 @ 1'-4" CTS. (TOP OF SLAB)
- (P) #5 A112 (TOP OF SLAB) OR #5 A212 (BOT. OF SLAB)

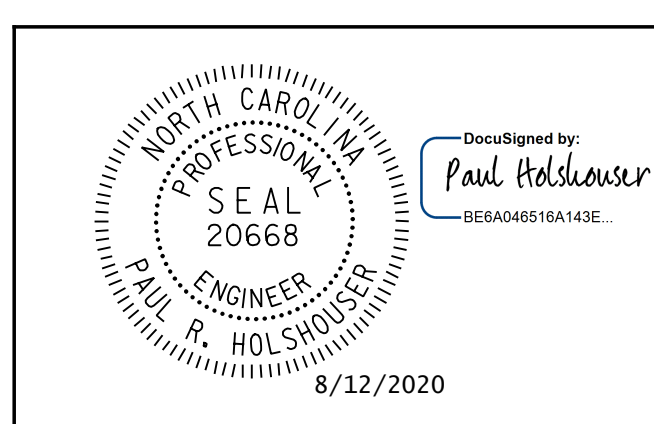
2 BR DENOTES 2 BAR RUN.
 3 BR DENOTES 3 BAR RUN.
 * (TYP. EA. STAGE)
 Δ TOP OF SLAB

- NOTES**
- FOR CLOSURE POUR DETAILS, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & "TYPICAL SECTION" SHEET 3 OF 6.
 - FOR POUR SEQUENCE, SEE "POURING SEQUENCE" SHEETS.
 - FOR BENT/END BENT DIAPHRAGM DETAILS & REINFORCING STEEL, SEE SHEETS 7 OF 8 & 8 OF 8.
 - FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE SHEET 4 OF 8.

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 8

DRAWN BY : N.D'AIUTO DATE : 7-15-20
 CHECKED BY : N. REZAEI DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

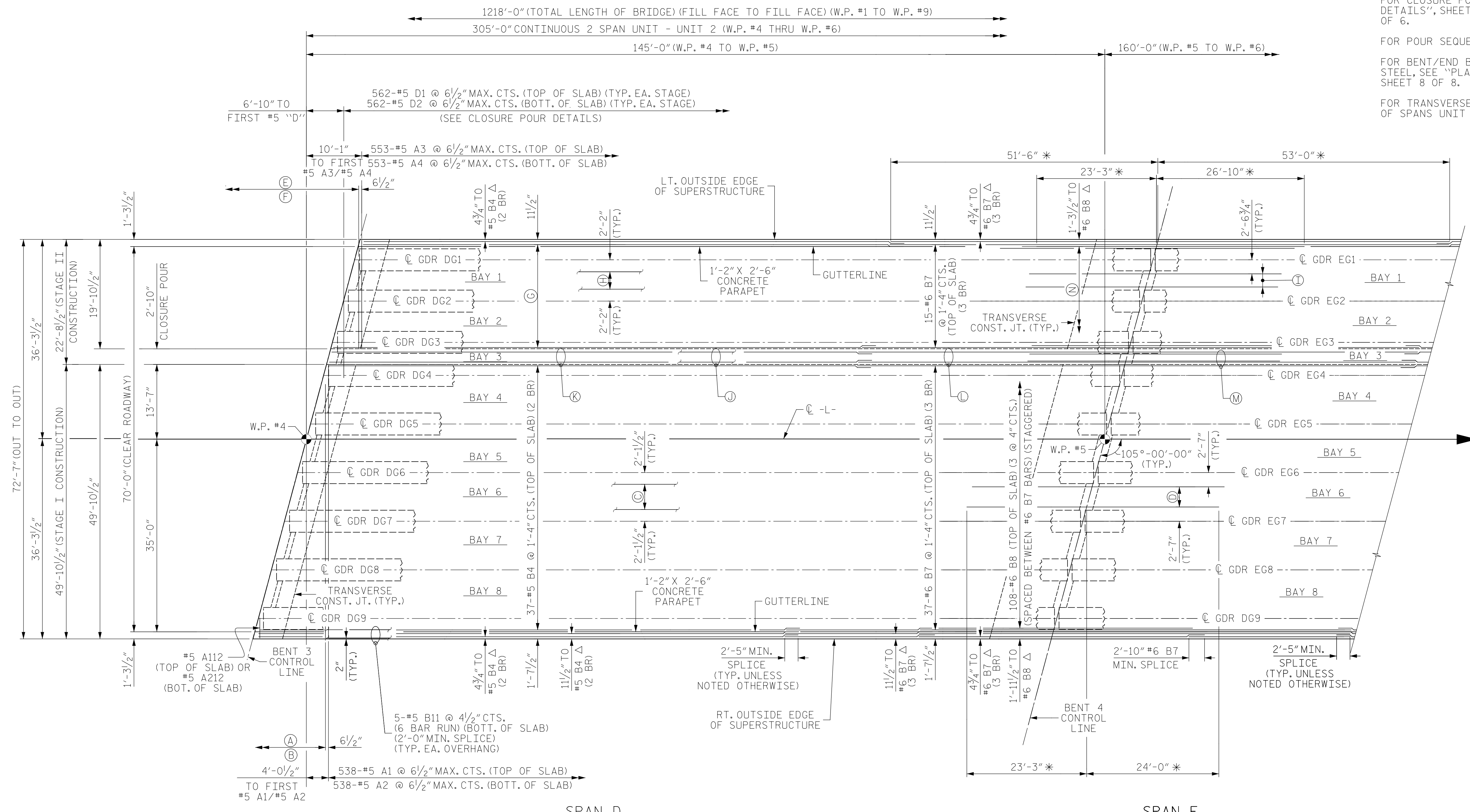
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 License #: P-0999

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPANS UNIT 1 SPANS B & C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-18
					TOTAL SHEETS 107

NOTES
 FOR CLOSURE POUR DETAILS, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & "TYPICAL SECTION", SHEET 3 OF 6.
 FOR POUR SEQUENCE, SEE "POURING SEQUENCE" SHEETS.
 FOR BENT/END BENT DIAPHRAGM DETAILS & REINFORCING STEEL, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & SHEET 8 OF 8.
 FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "PLAN OF SPANS UNIT 2", SHEET 4 OF 8.



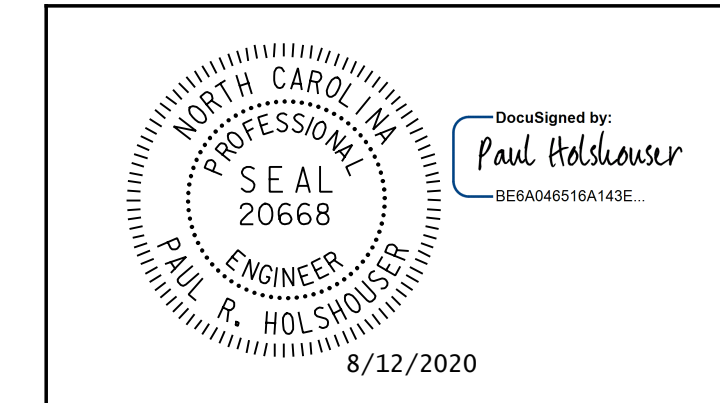
PLAN OF SPAN D & PARTIAL SPAN E

2 BR DENOTES 2 BAR RUN.
 3 BR DENOTES 3 BAR RUN.
 * (TYP. EA. STAGE)
 Δ TOP OF SLAB

- (A) #5 A101 THRU #5 A111 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (B) #5 A201 THRU #5 A211 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (C) 6-#5 B11 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8) (6 BAR RUN) (2'-0" MIN. SPLICE)
- (D) 5-#5 B10 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8)
- (E) #5 A301 THRU #5 A304 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (F) #5 A401 THRU #5 A404 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (G) 15-#5 B4 @ 1'-4" CTS. (TOP OF SLAB) (2 BR)
- (H) 5-#5 B11 @ 9 1/2" CTS. (TYP. BAYS 1-2) (BOT. OF SLAB) (6 BAR RUN) (2'-0" MIN. SPLICE)
- (I) 4-#5 B10 @ 9 1/2" CTS. (BOT. OF SLAB) (TYP. BAYS 1-2)
- (J) 4-#5 B11 @ 7" CTS. (6 BAR RUN) (BOT. OF SLAB) (2'-0" MIN. SPLICE)
- (K) 3-#5 B4 @ 1'-4" MAX. CTS. (2 BAR RUN) (TOP OF SLAB)
- (L) 3-#6 B7 (3 BAR RUN) (TOP OF SLAB) (SEE CLOSURE POUR DETAILS)
- (M) 6-#6 B8 (TOP OF SLAB) (SEE CLOSURE POUR DETAILS) (STAGGERED)
- (N) 42-#6 B8 (TOP OF SLAB) (3 @ 4" CTS.) (SPACED BETWEEN #6 B7 BARS) (STAGGERED)

DRAWN BY : N.D'AIUTO DATE : 7-15-20
 CHECKED BY : N. REZAEI DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 8



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
PLAN OF SPANS UNIT 2					
SPANS D & E					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-19
TOTAL SHEETS					107

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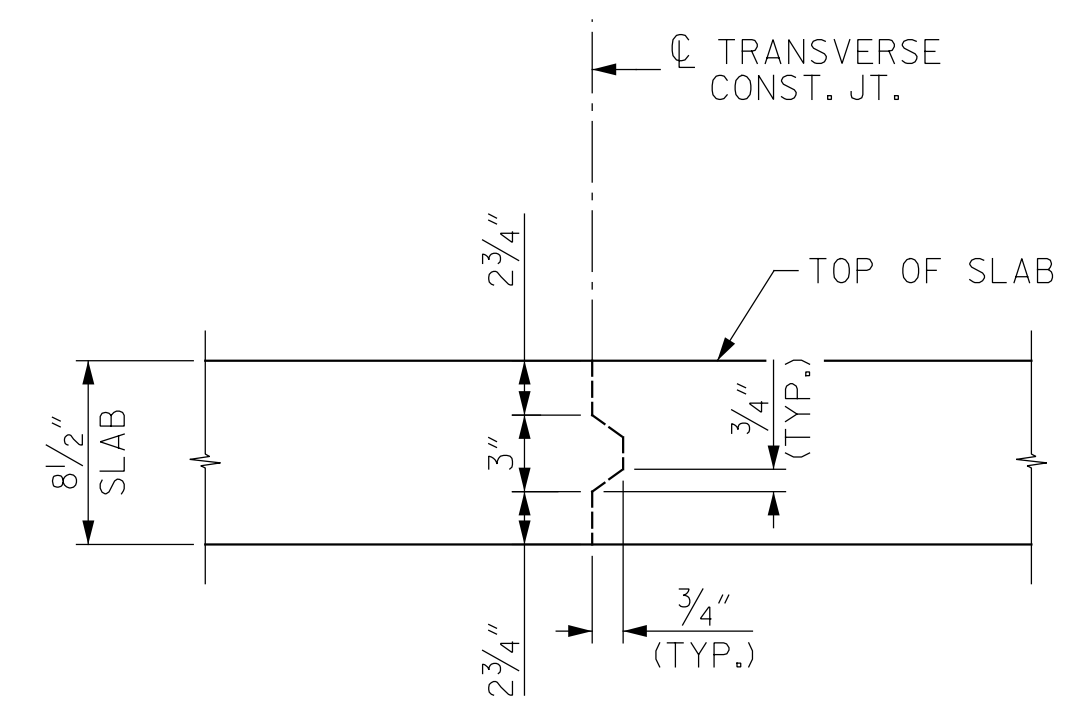
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NOTES

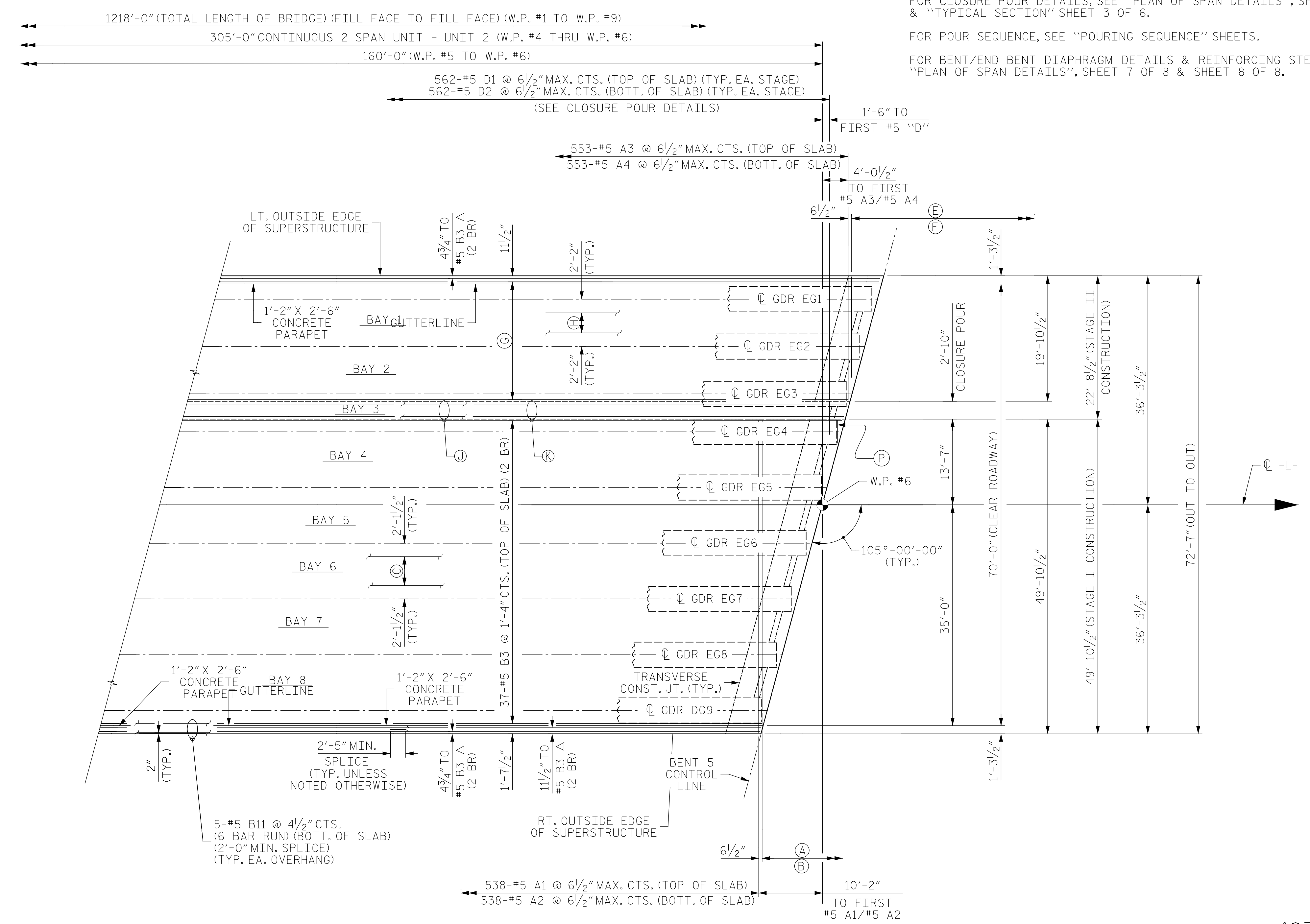
FOR CLOSURE POUR DETAILS, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & "TYPICAL SECTION" SHEET 3 OF 6.

FOR POUR SEQUENCE, SEE "POURING SEQUENCE" SHEETS.

FOR BENT/END BENT DIAPHRAGM DETAILS & REINFORCING STEEL, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & SHEET 8 OF 8.



TRANSVERSE CONSTRUCTION JOINT DETAIL
 REINFORCING STEEL IN SLAB NOT SHOWN.
 LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.



PARTIAL PLAN OF SPAN E

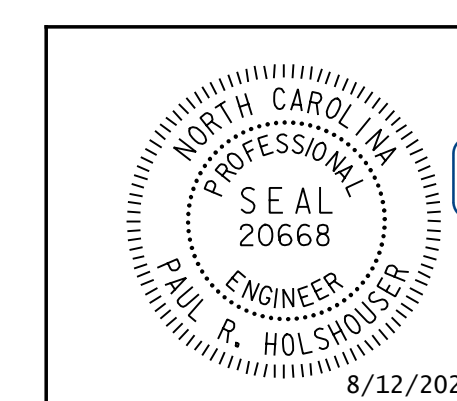
2 BR DENOTES 2 BAR RUN,
 3 BR DENOTES 3 BAR RUN.
 * (TYP. EA. STAGE)
 Δ TOP OF SLAB

- Ⓐ #5 A101 THRU #5 A111 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- Ⓑ #5 A201 THRU #5 A211 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- Ⓒ 6-#5 B11 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8) (6 BAR RUN) (2'-0" MIN. SPLICE)
- Ⓓ #5 A301 THRU #5 A304 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- Ⓔ #5 A401 THRU #5 A404 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- ⓐ 15-#5 B3 @ 1'-4" CTS. (TOP OF SLAB) (2 BAR RUN)
- ⓑ 5-#5 B11 @ 9 1/2" CTS. (TYP. BAYS 1-2) (BOT. OF SLAB) (6 BAR RUN) (2'-0" MIN. SPLICE)
- ⓒ 4-#5 B11 @ 7" CTS. (6 BAR RUN) (BOT. OF SLAB) (2'-0" MIN. SPLICE)
- ⓓ 3-#5 B3 @ 1'-4" MAX. CTS. (2 BAR RUN) (TOP OF SLAB)
- ⓔ #5 A112 (TOP OF SLAB) OR #5 A212 (BOT. OF SLAB)

DRAWN BY : N.D'AIUTO DATE : 7-15-20
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 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 4 OF 8



DocuSigned by:
Paul Holshouser
 BE6A048510A143E

8/12/2020

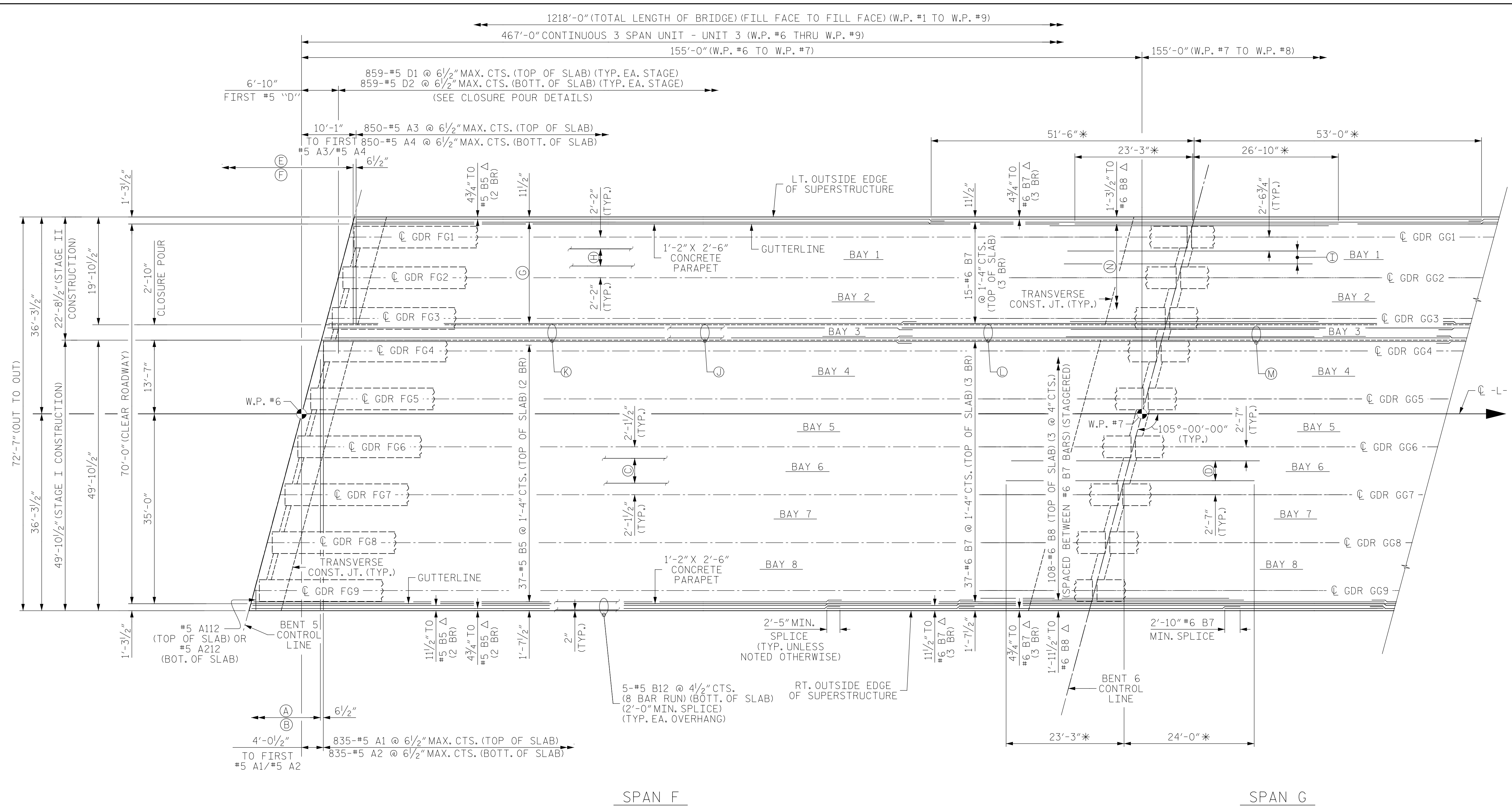


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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
PLAN OF SPANS UNIT 2					
SPAN E					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-20
					TOTAL SHEETS 107

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PLAN OF SPAN F AND PARTIAL PLAN OF SPAN G

- (A) #5 A101 THRU #5 A111 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (B) #5 A201 THRU #5 A211 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (C) 6-#5 B12 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (D) 5-#5 B10 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8)
- (E) #5 A301 THRU #5 A304 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (F) #5 A401 THRU #5 A404 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (G) 15-#5 B5 @ 1'-4" CTS. (TOP OF SLAB) (2 BR)
- (H) 5-#5 B12 @ 9 1/2" CTS. (TYP. BAYS 1-2) (BOT. OF SLAB) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (I) 4-#5 B10 @ 9 1/2" CTS. (BOT. OF SLAB) (TYP. BAYS 1-2)
- (J) 4-#5 B12 @ 7" CTS. (8 BAR RUN) (BOT. OF SLAB) (2'-0" MIN. SPLICE)
- (K) 3-#5 B5 @ 1'-4" MAX. CTS. (2 BAR RUN) (TOP OF SLAB)
- (L) 3-#6 B7 (3 BAR RUN) (TOP OF SLAB) (SEE CLOSURE POUR DETAILS)
- (M) 6-#6 B8 (TOP OF SLAB) (SEE CLOSURE POUR DETAILS) (STAGGERED)
- (N) 42-#6 B8 (TOP OF SLAB) (3 @ 4" CTS.) (SPACED BETWEEN #6 B7 BARS) (STAGGERED)

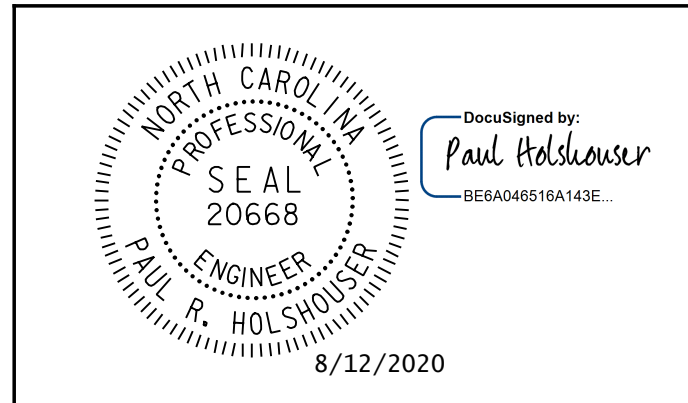
2 BR DENOTES 2 BAR RUN.
 3 BR DENOTES 3 BAR RUN.
 * (TYP. EA. STAGE)
 Δ TOP OF SLAB

NOTES

FOR CLOSURE POUR DETAILS, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & "TYPICAL SECTION" SHEET 3 OF 6.
 FOR POUR SEQUENCE, SEE "POURING SEQUENCE" SHEETS.
 FOR BENT/END BENT DIAPHRAGM DETAILS & REINFORCING STEEL, SEE "PLAN OF SPAN DETAILS" SHEET 7 OF 8 & SHEET 8 OF 8.
 FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "PLAN OF SPAN DETAILS" SHEET 4 OF 8.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 5 OF 8

DRAWN BY: N. D'AIUTO DATE: 7-15-20
 CHECKED BY: N. REZAEI DATE: 7-21-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



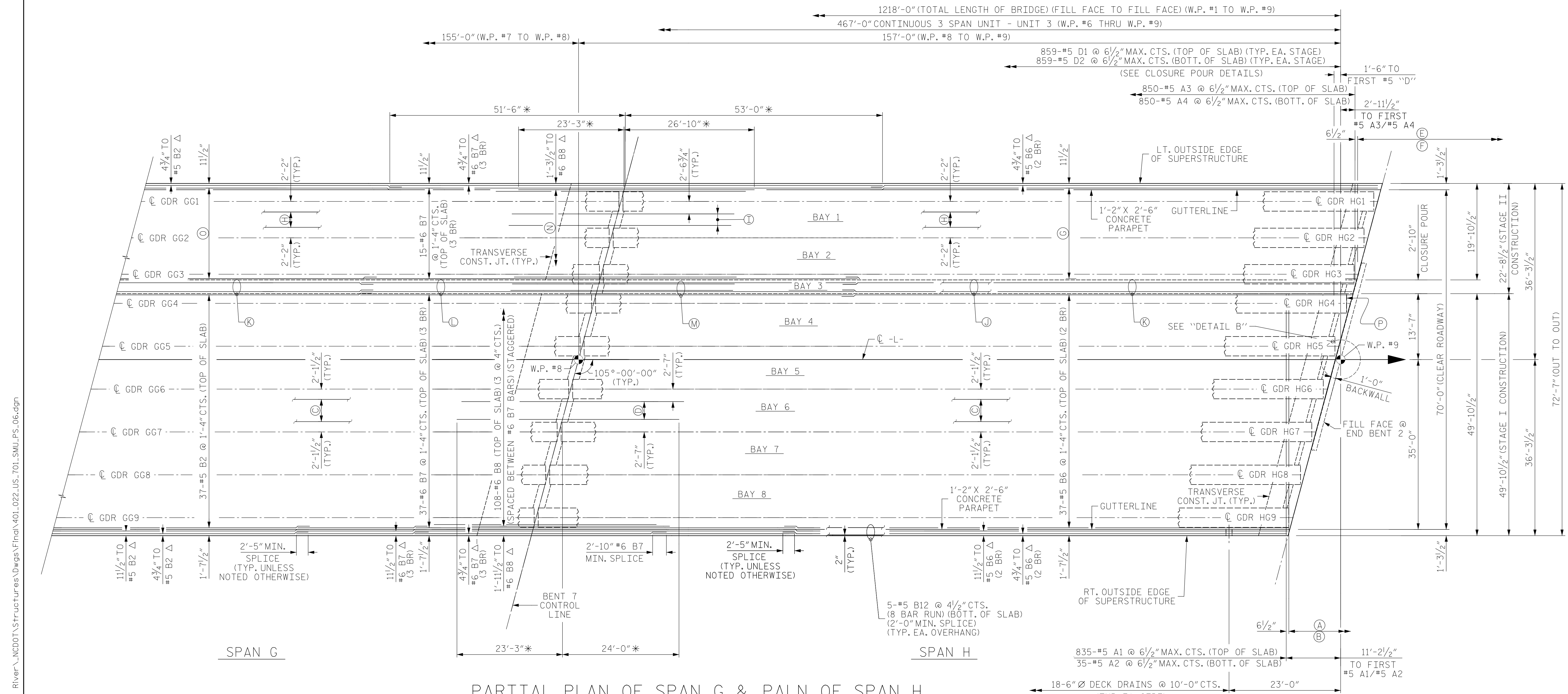
ICE of Carolinas, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
PLAN OF SPANS UNIT 3					
SPANS F & G					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-21
 TOTAL SHEETS 107

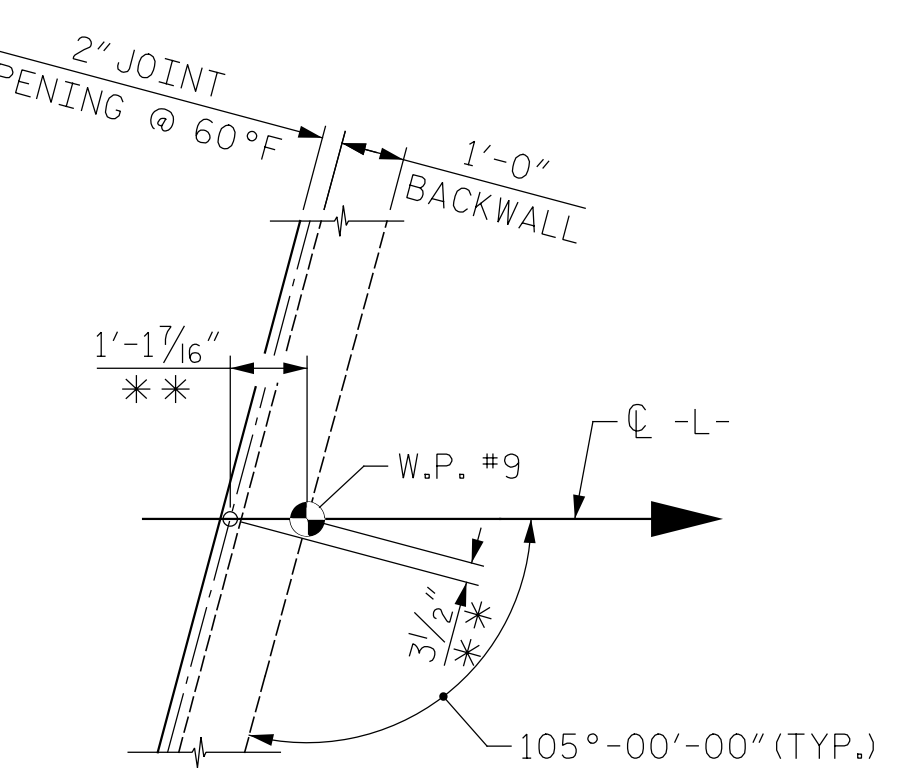
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PARTIAL PLAN OF SPAN G & PALN OF SPAN H

2 BR DENOTES 2 BAR RUN.
3 BR DENOTES 3 BAR RUN.
* (TYP. EA. STAGE)
Δ TOP OF SLAB

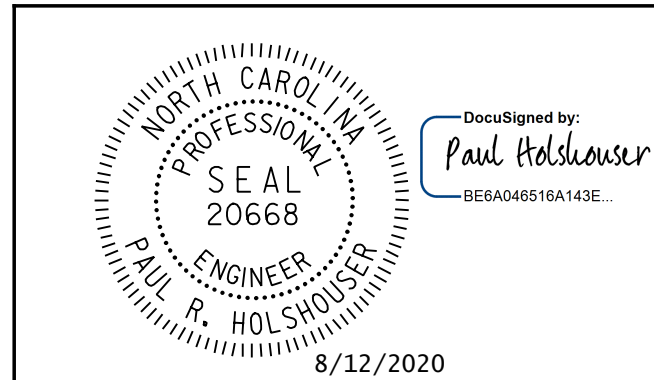


DETAIL B
** W.P. TO C. JOINT.

NOTES

- FOR CLOSURE POUR DETAILS, SEE "PLAN OF SPAN DETAILS", SHEET 7 OF 8 & "TYPICAL SECTION", SHEET 3 OF 6.
- FOR POUR, SEQUENCE SEE "POURING SEQUENCE" SHEETS.
- FOR BENT/END BENT DIAPHRAGM DETAILS & REINFORCING STEEL, SEE "PALN OF SPAN DETAILS", SHEET 7 OF 8 & SHEET 8 OF 8.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY TO CLEAR DECK DRAINS.
- FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "PLAN OF SPAN DETAILS", SHEET 4 OF 8.

- (A) #5 A101 THRU #5 A111 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (B) #5 A201 THRU #5 A211 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (C) 6-#5 B12 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (D) 5-#5 B10 @ 11" CTS. (BOT. OF SLAB) (TYP. BAYS 4-8)
- (E) #5 A301 THRU #5 A304 @ 6 1/2" CTS. (2 BARS PER MARK) (TOP OF SLAB)
- (F) #5 A401 THRU #5 A404 @ 6 1/2" CTS. (2 BARS PER MARK) (BOT. OF SLAB)
- (G) 15-#5 B6 @ 1'-4" CTS. (TOP OF SLAB) (2 BAR RUN)
- (H) 5-#5 B12 @ 9 1/2" CTS. (TYP. BAYS 1-2) (BOT. OF SLAB) (8 BAR RUN) (2'-0" MIN. SPLICE)
- (I) 4-#5 B10 @ 9 1/2" CTS. (BOT. OF SLAB) (TYP. BAYS 1-2)
- (J) 4-#5 B12 @ 7" CTS. (8 BAR RUN) (BOT. OF SLAB) (2'-0" MIN. SPLICE)
- (K) 3-#5 B2 OR 3-#5 B6 (2 BAR RUN) @ 1'-4" MAX. CTS. (TOP OF SLAB)
- (L) 3-#6 B7 (3 BAR RUN) (TOP OF SLAB) (SEE CLOSURE POUR DETAILS)
- (M) 6-#6 B8 (TOP OF SLAB) (SEE CLOSURE POUR DETAILS) (STAGGERED)
- (N) 42-#6 B8 (TOP OF SLAB) (3 @ 4" CTS.) (SPACED BETWEEN #6 B7 BARS) (STAGGERED)
- (O) 15-#5 B2 @ 1'-4" CTS. (TOP OF SLAB)
- (P) #5 A112 (TOP OF SLAB) OR #5 A212 (BOT. OF SLAB)



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PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 6 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS
UNIT 3
SPANS G & H

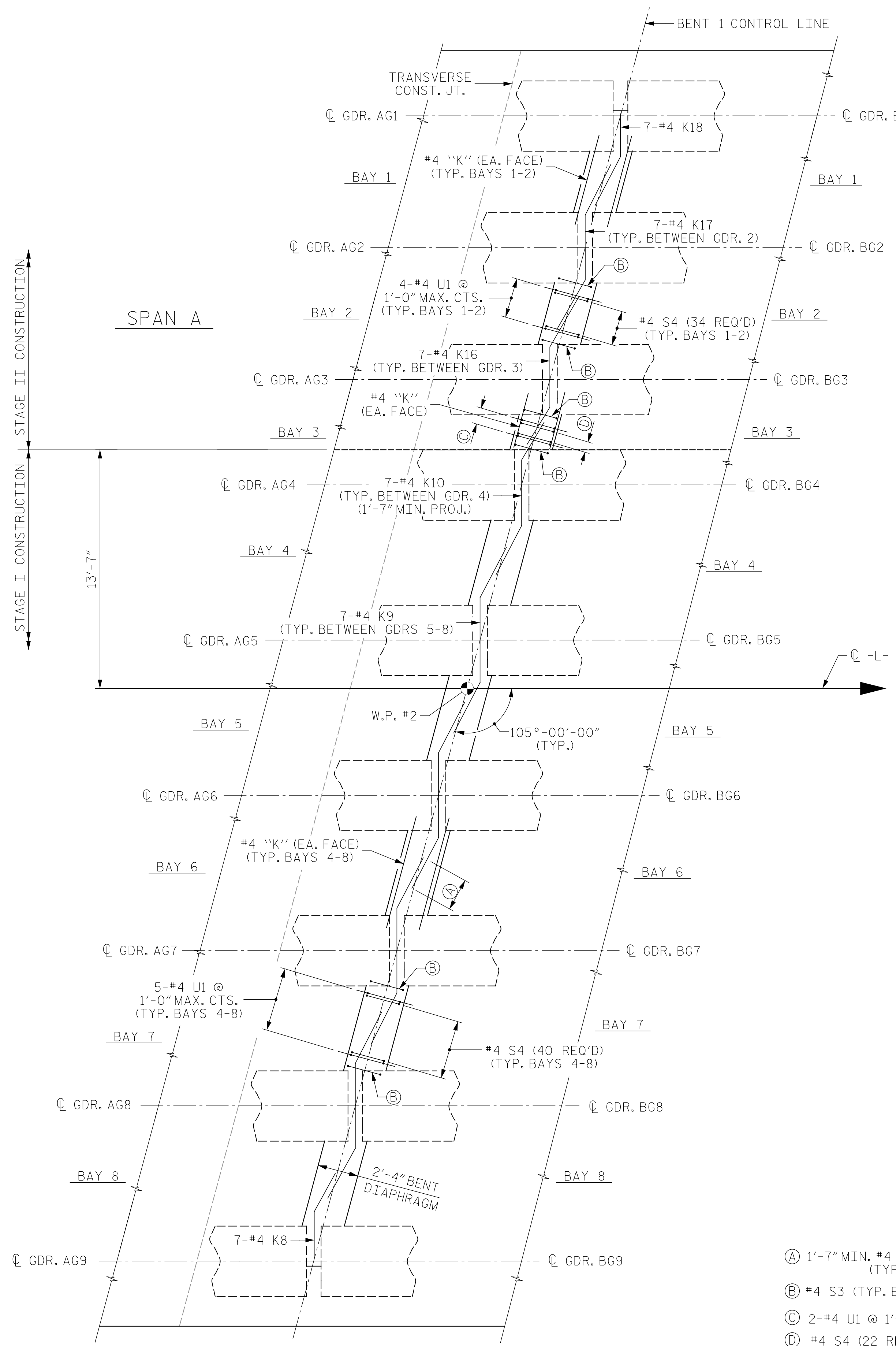
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NO.	DATE	NO.	DATE
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2		4	

TOTAL SHEETS: 107

DRAWN BY: N.D. AIUTO DATE: 7-15-20
CHECKED BY: N. REZAEI DATE: 7-21-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

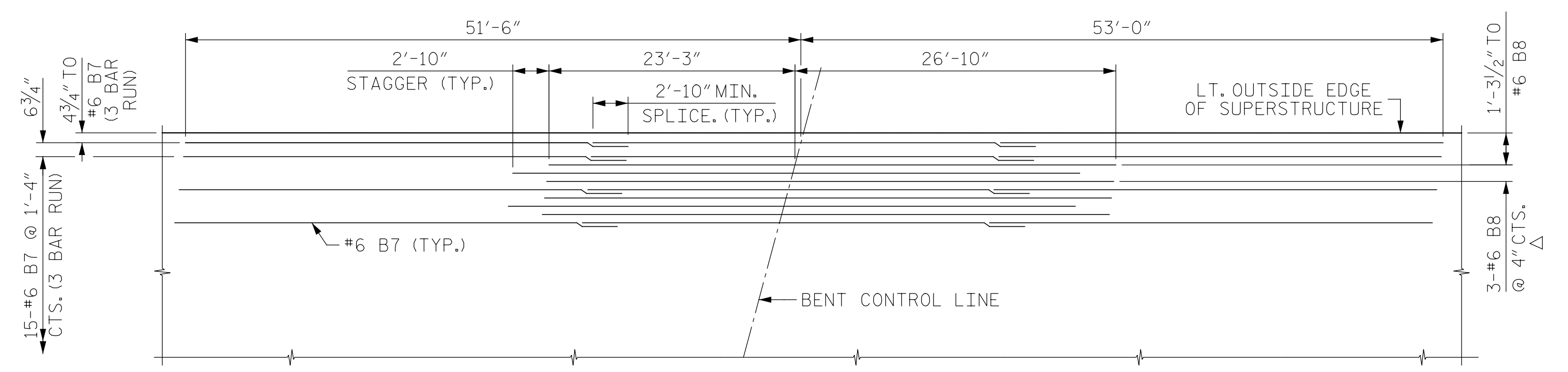
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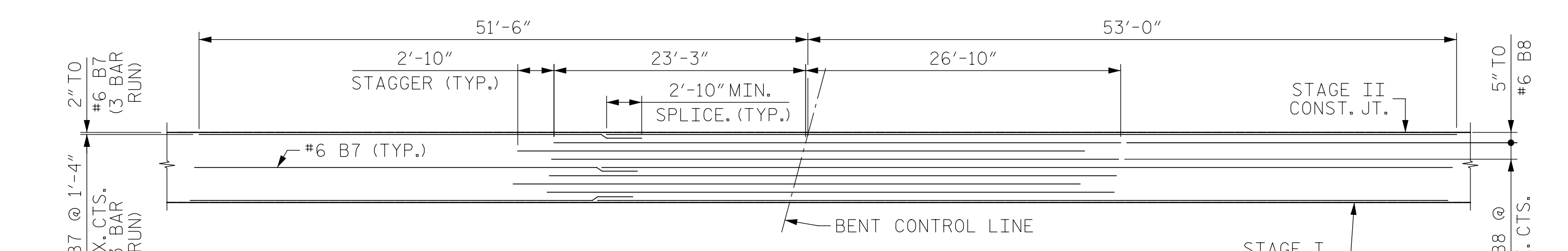


BENT 1, 2, 4, 6 & 7 DIAPHRAGM REINFORCING DETAIL
 BENT 1 SHOWN, BENTS 2,4,6 & 7 SIMILAR

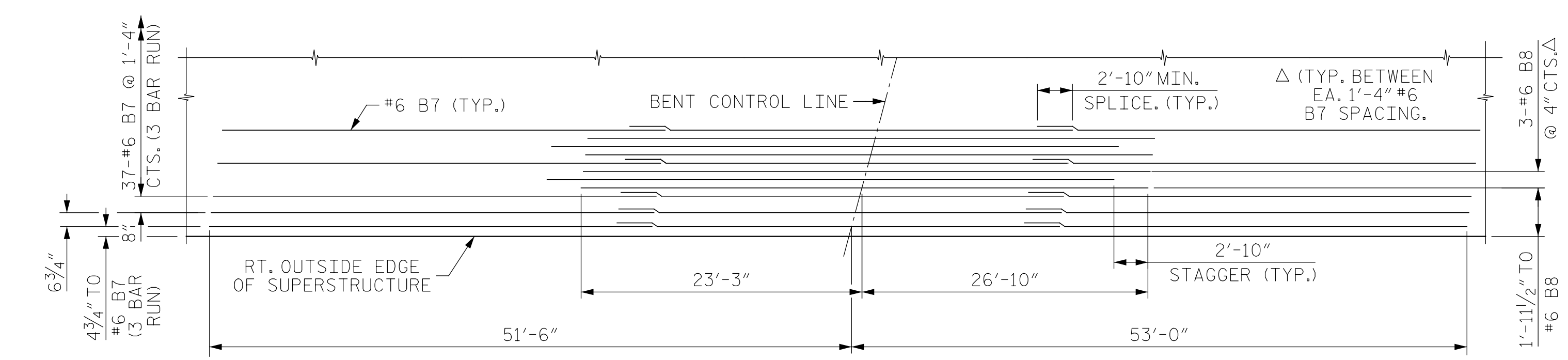
- (A) 1'-7" MIN. #4 "K" SPLICE (TYP.)
- (B) #4 S3 (TYP. EA. BAY)
- (C) 2-#4 U1 @ 1'-0" MAX. CTS.
- (D) #4 S4 (22 REQ'D)



DETAIL C - BENTS 1, 2, 4, 6 & 7
 STAGE II (TOP OF SLAB ONLY)
 #6 B8 ALTERNATE STAGGER ABOUT BENT CONTROL LINE

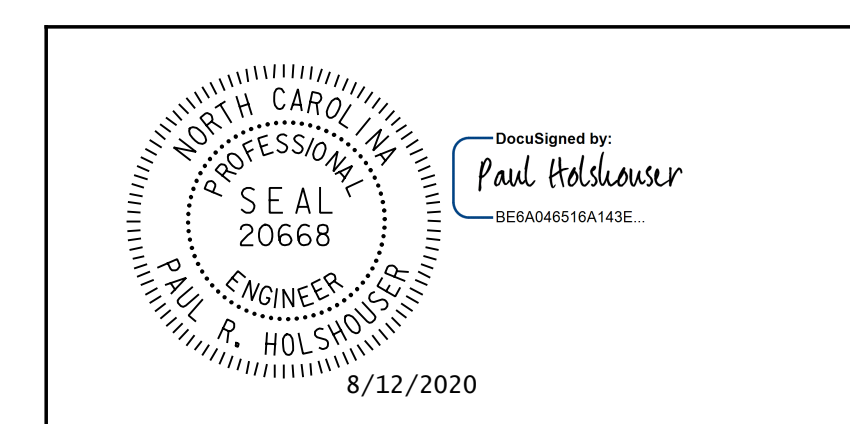


DETAIL D - BENTS 1, 2, 4, 6 & 7
 CLOSURE POUR (TOP OF SLAB ONLY)
 #6 B8 ALTERNATE STAGGER ABOUT BENT CONTROL LINE



DETAIL E - BENTS 1, 2, 4, 6 & 7
 STAGE I (TOP OF SLAB ONLY)
 #6 B8 ALTERNATE STAGGER ABOUT BENT CONTROL LINE

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 7 OF 8



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

DRAWN BY : N. D'AIUTO DATE : 7-15-20
 CHECKED BY : N. REZAEI DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

DOCUMENT NOT CONSIDERED FINAL
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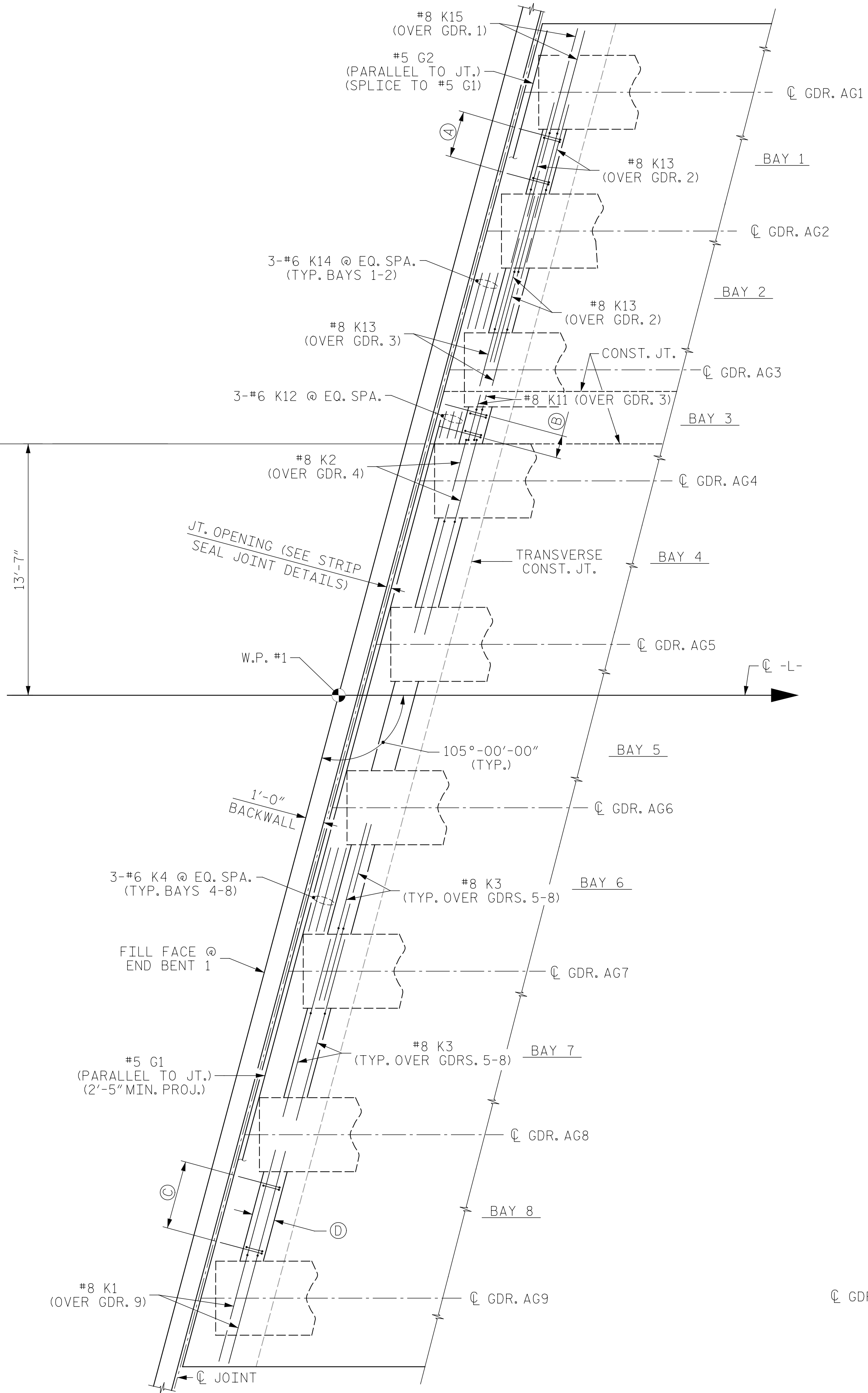
ICE of Carolinas, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-9999

REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 107
2			4			

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 File Name: R:\Projects\19-77 Division 6 On Call\02 US 701 over Cape Fear River\NC00T\Structures\Dwg\Final\401_023_US_701_SWL_PS_07.dgn
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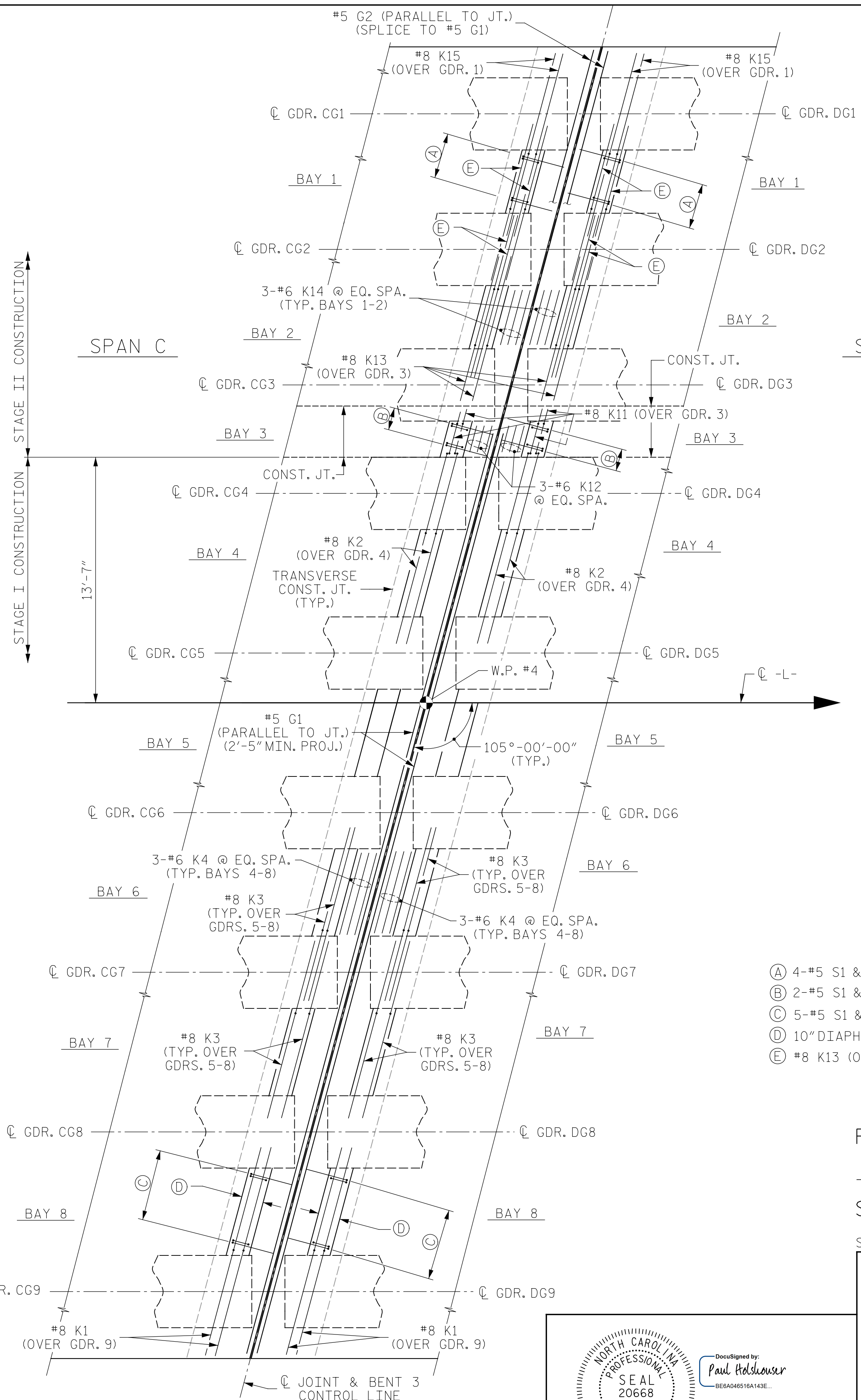
STAGE I CONSTRUCTION
STAGE II CONSTRUCTION



END BENT DIAPHRAGM REINFORCING DETAIL
END BENT 1 SHOWN, END BENT 2 SIMILAR

DRAWN BY : N. D'AIUTO DATE : 7-15-20
CHECKED BY : N. REZAEI DATE : 7-21-20
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

STAGE I CONSTRUCTION
STAGE II CONSTRUCTION



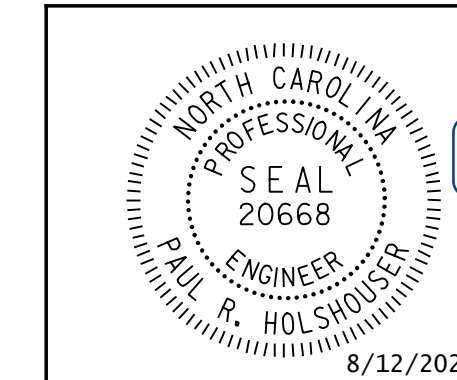
BENT 3 & 5 DIAPHRAGM REINFORCING DETAIL
BENT 3 SHOWN, BENT 5 SIMILAR
BAR CALLOUT AND PLACEMENT ARE TYPICAL EA. SIDE OF C. JOINT.

DRAWN BY : N. D'AIUTO DATE : 7-15-20
CHECKED BY : N. REZAEI DATE : 7-21-20
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

NOTES:
CONCRETE MEDIAN NOT SHOWN FOR CLARITY.
REINFORCEMENT IN DECK & CONCRETE PARAPET NOT SHOWN FOR CLARITY.

- (A) 4-#5 S1 & 4-#4 S2 @ 1'-0" MAX. CTS. (TYP. BAYS 1-2)
- (B) 2-#5 S1 & 2-#4 S2 @ 1'-0" MAX. CTS.
- (C) 5-#5 S1 & 5-#4 S2 @ 1'-0" MAX. CTS. (TYP. BAYS 4-8)
- (D) 10" DIAPHRAGM (TYP.)
- (E) #8 K13 (OVER GDR. 2)

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 8 OF 8



DocuSigned by:
Paul Holshouser
BEE6A08510A143E

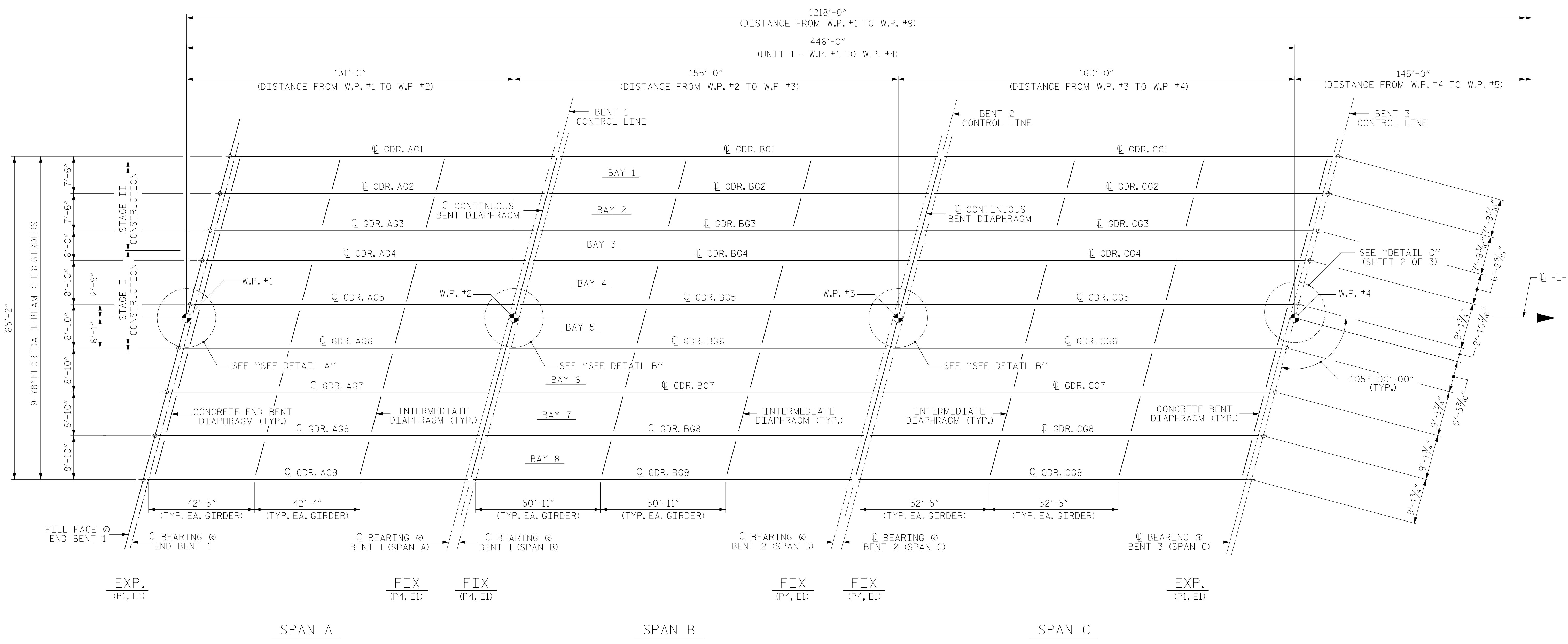
8/12/2020

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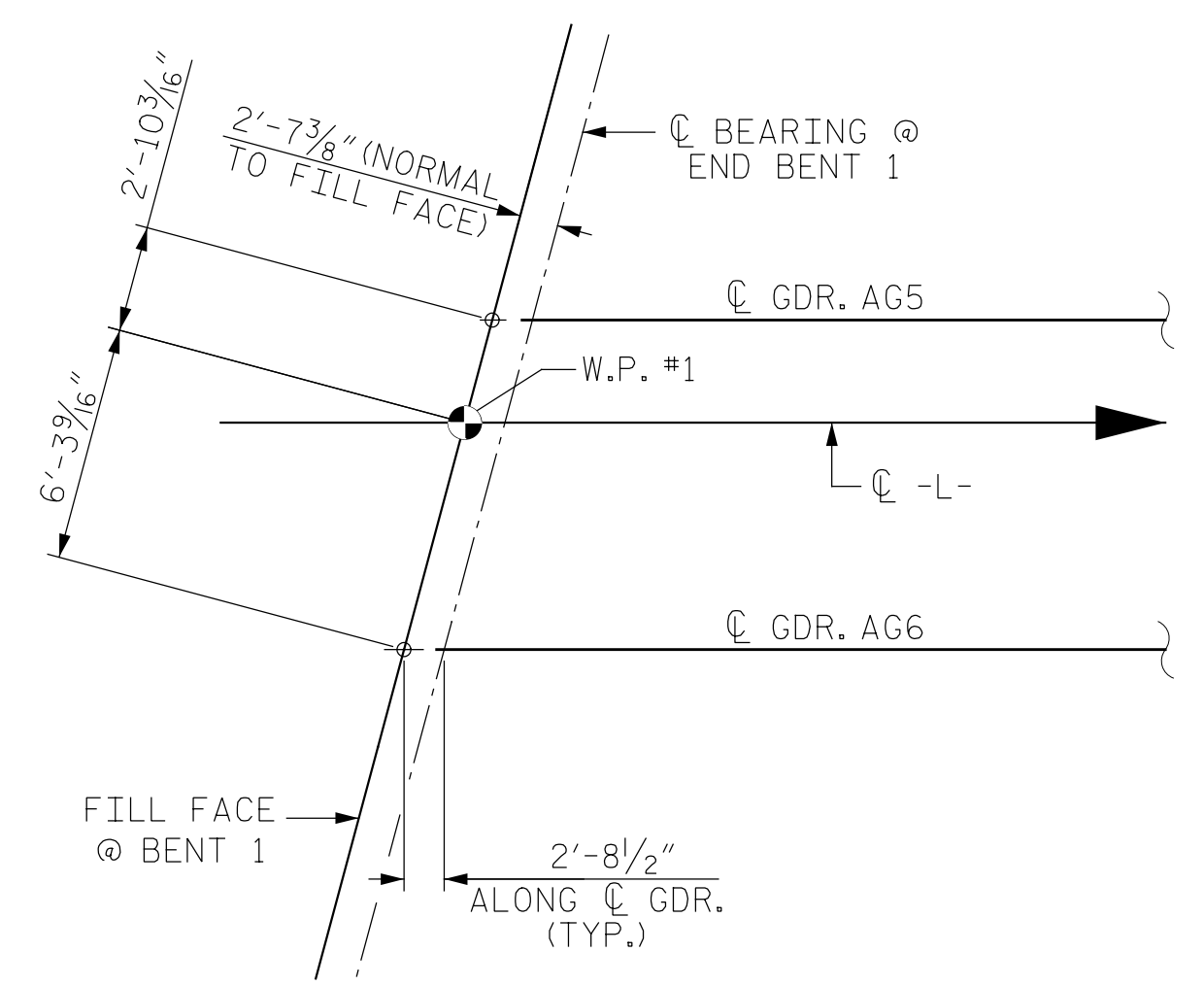
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4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

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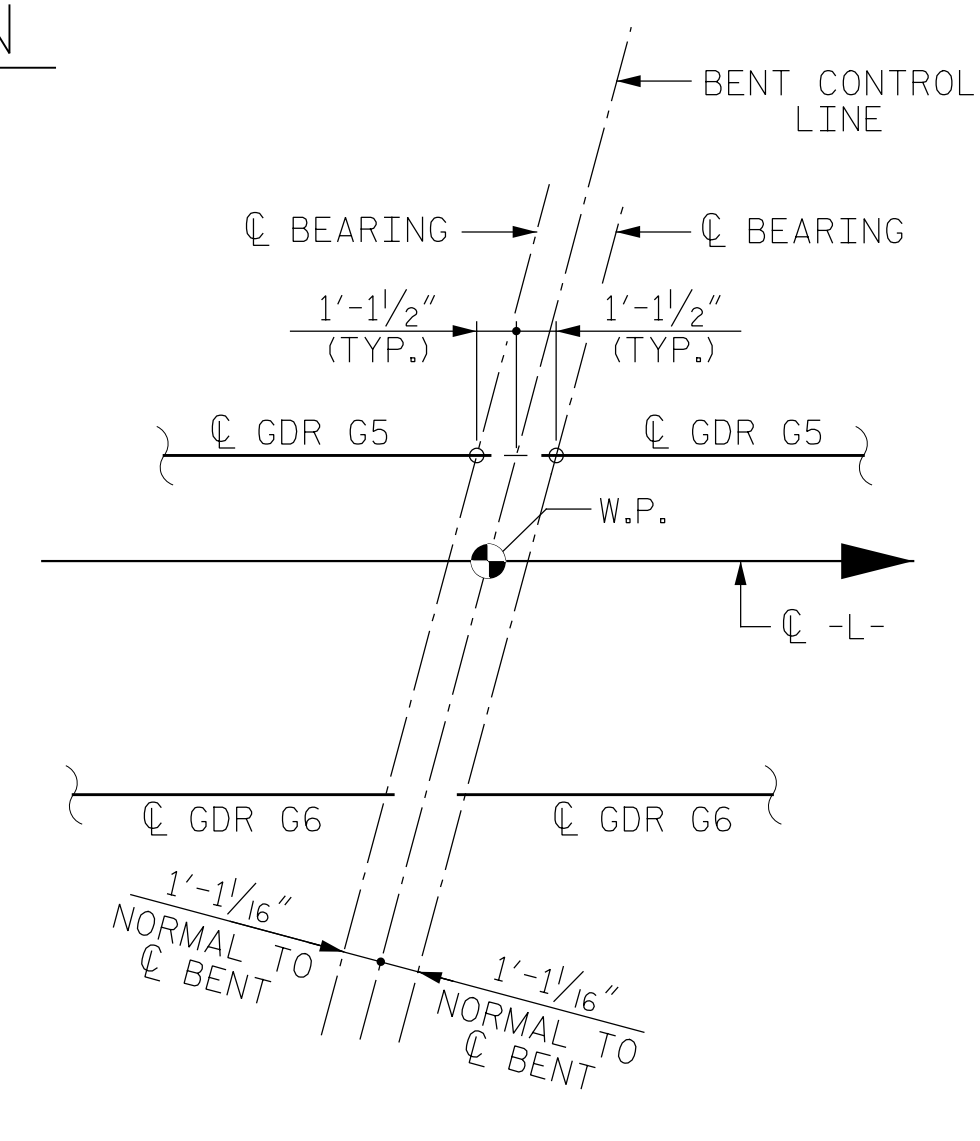
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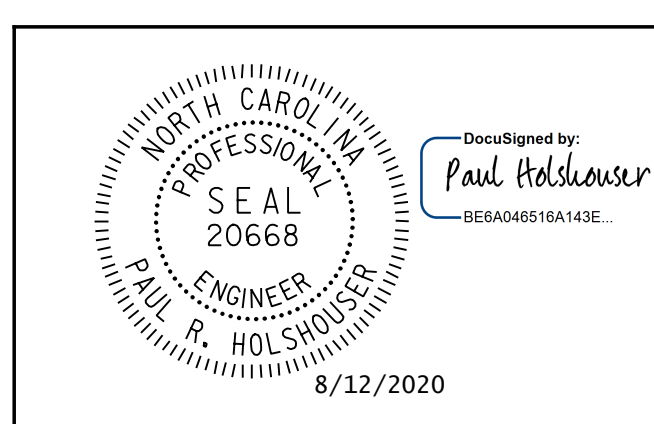
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DETAIL A



DETAIL B
(TYPICAL AT BENT 1, 2, 4, 6 & 7)



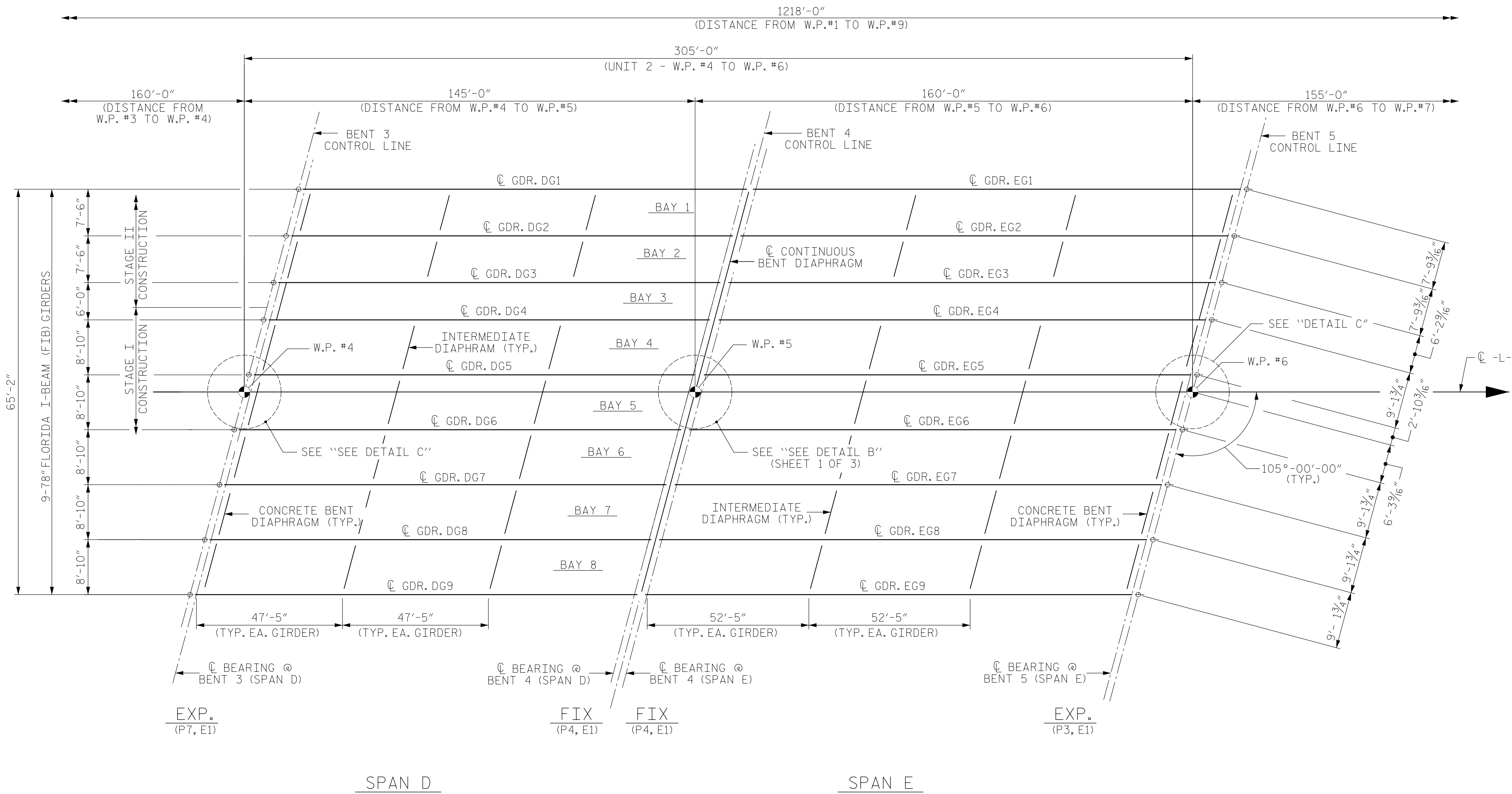
PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE FRAMING PLAN UNIT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-25					TOTAL SHEETS 107

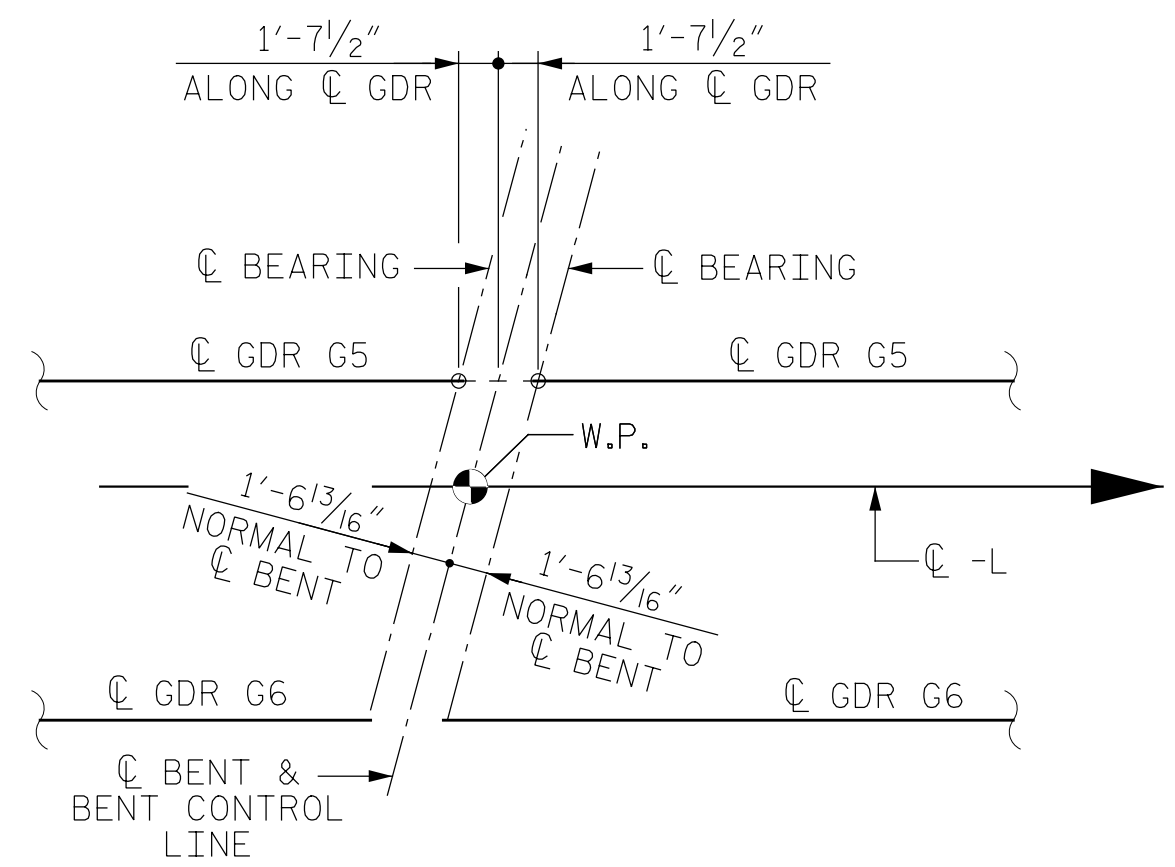
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 CHECKED BY: P. R. HOLSHOUSER DATE: 7-16-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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UNIT 2 - FRAMING PLAN

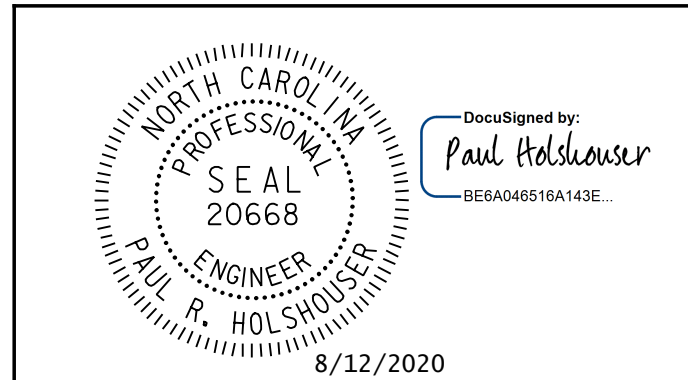


DETAIL C (TYPICAL AT BENT 3 & 5)

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 UNIT 2



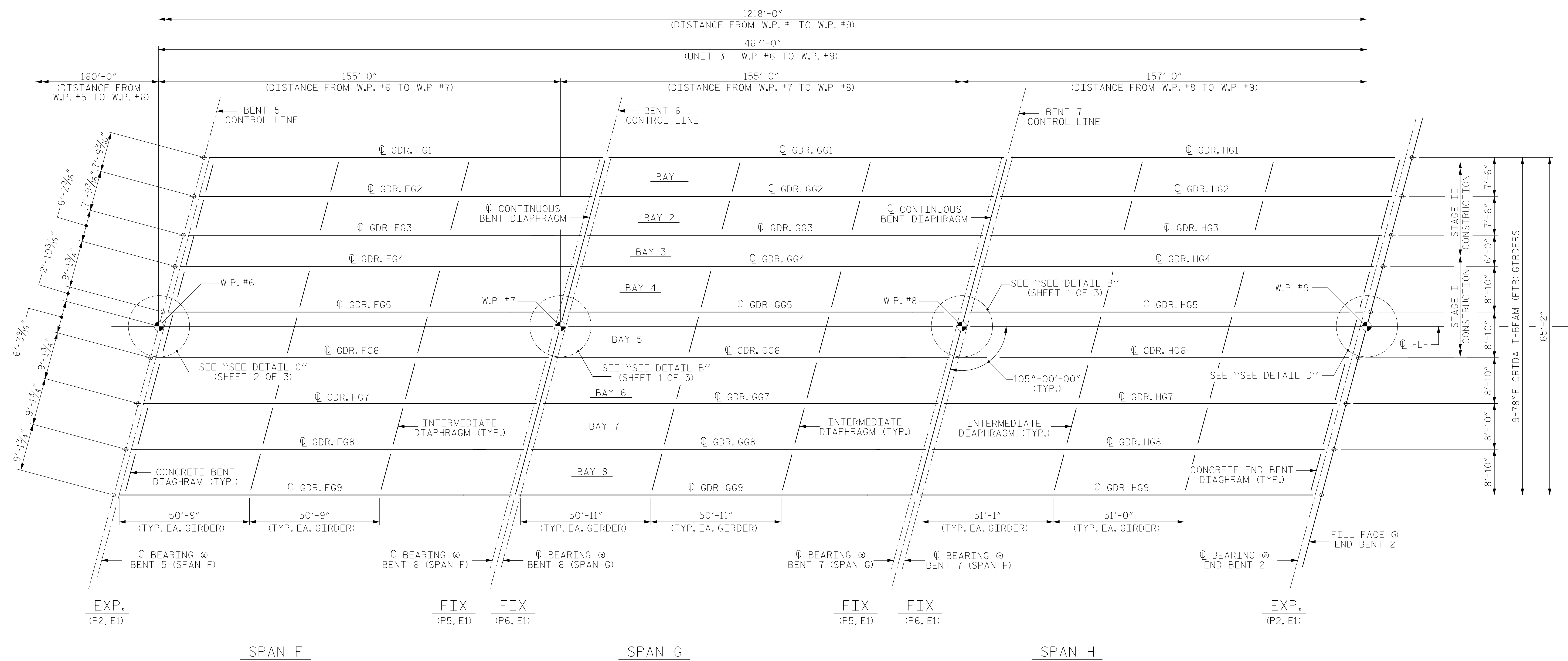
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DRAWN BY : B. J. MANTEI DATE : 7-09-20
 CHECKED BY : P. R. HOLSHOUSER DATE : 7-16-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

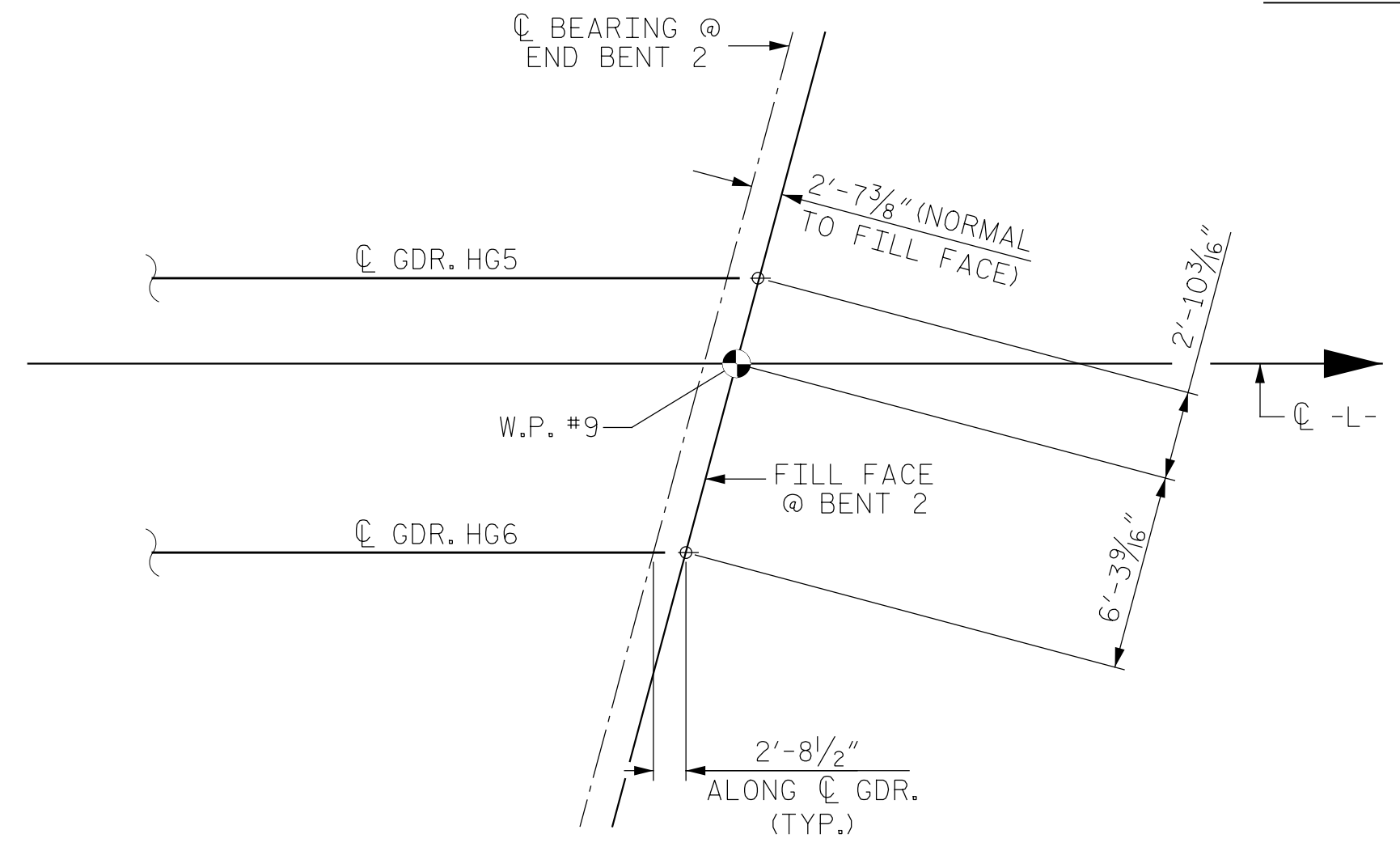
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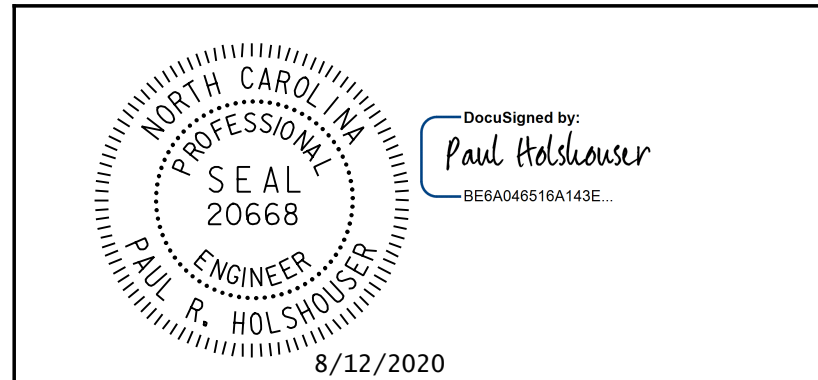
UNIT 3 - FRAMING PLAN



DETAIL D

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 UNIT 3

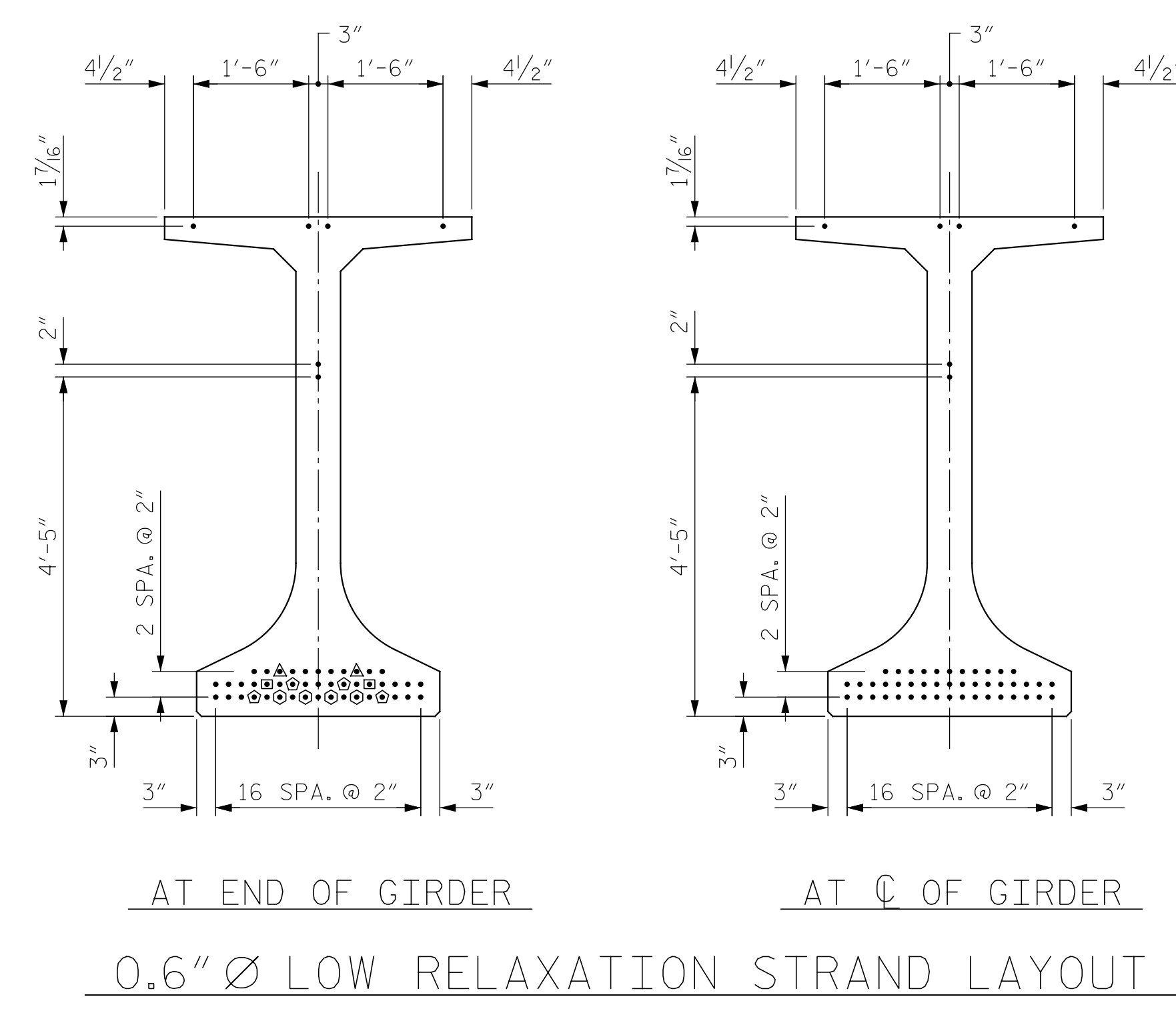
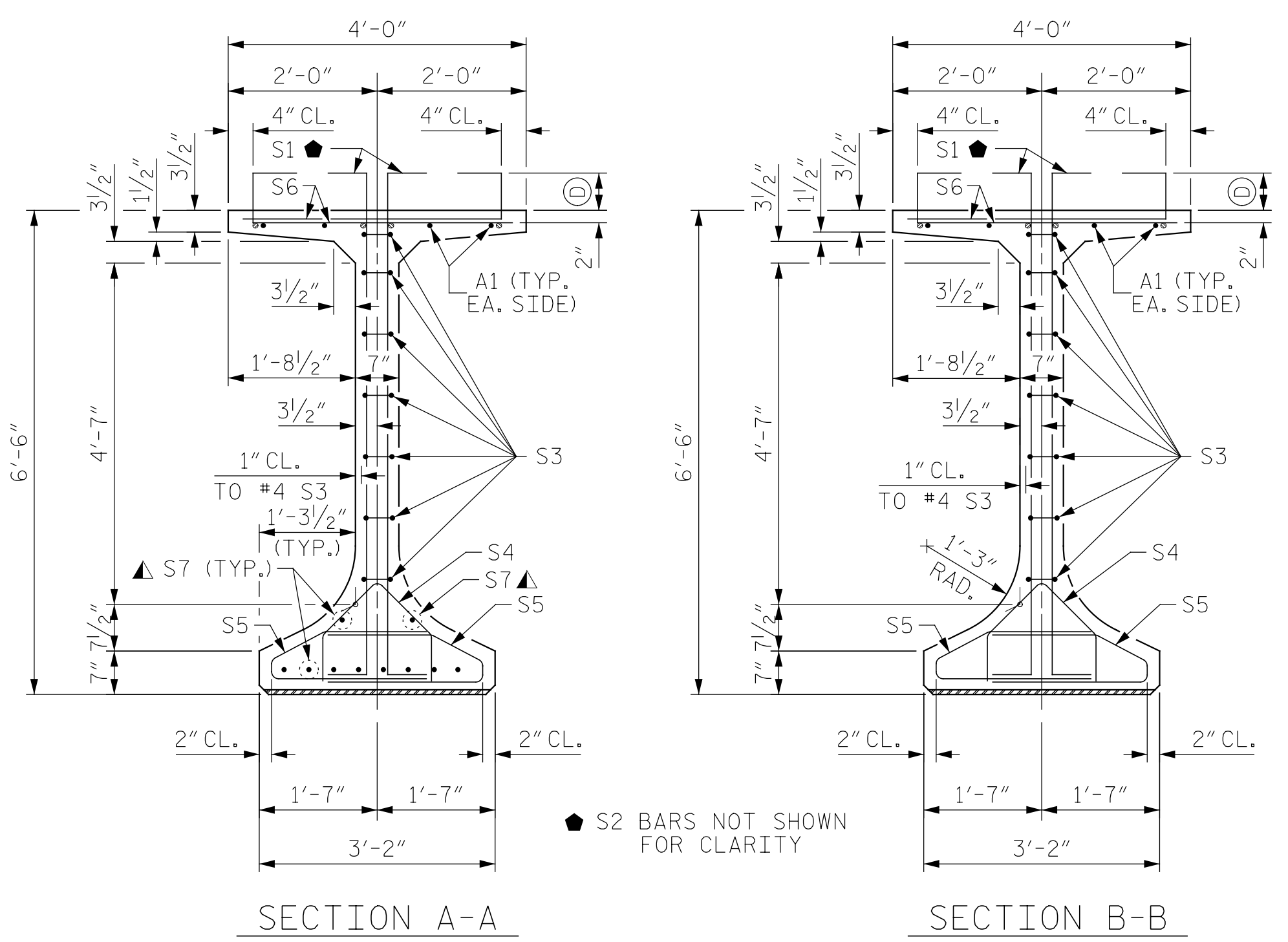


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 DRAWN BY : B. J. MANTEI DATE : 7-09-20
 CHECKED BY : P. R. HOLSHOUSER DATE : 7-16-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20



BAR TYPES

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 GDR

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	8	6	STR	28' - 0"	336
S1	312	5	1	7' - 9"	2,522
S2	16	5	STR	6' - 0"	100
S3	14	4	5	8' - 5"	79
S4	40	3	2	3' - 2"	48
S5	256	3	3	4' - 3"	409
S6	312	5	4	4' - 9"	1,546
▲ S7	10	5	STR	3' - 8"	38
S8	49	5	STR	3' - 8"	187
S9	8	5	6	12' - 6"	104
S10	16	4	STR	8' - 0"	86

QUANTITIES FOR ONE GIRDER

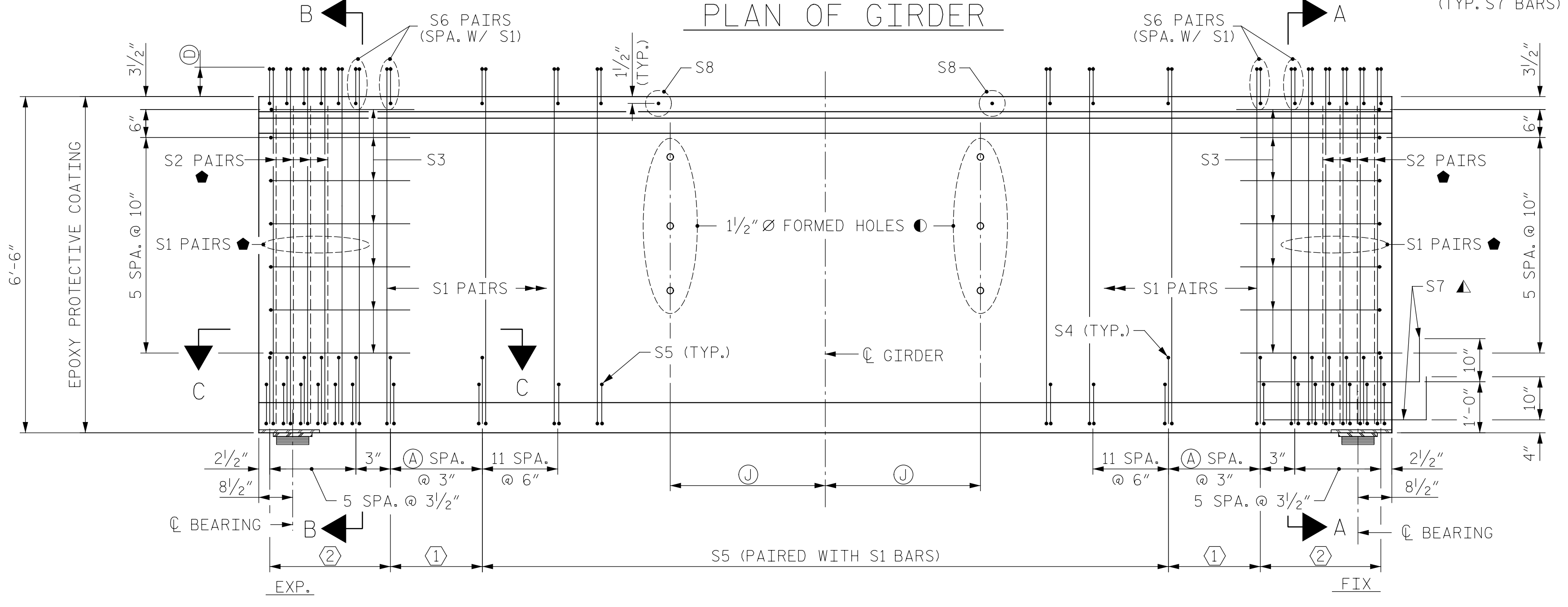
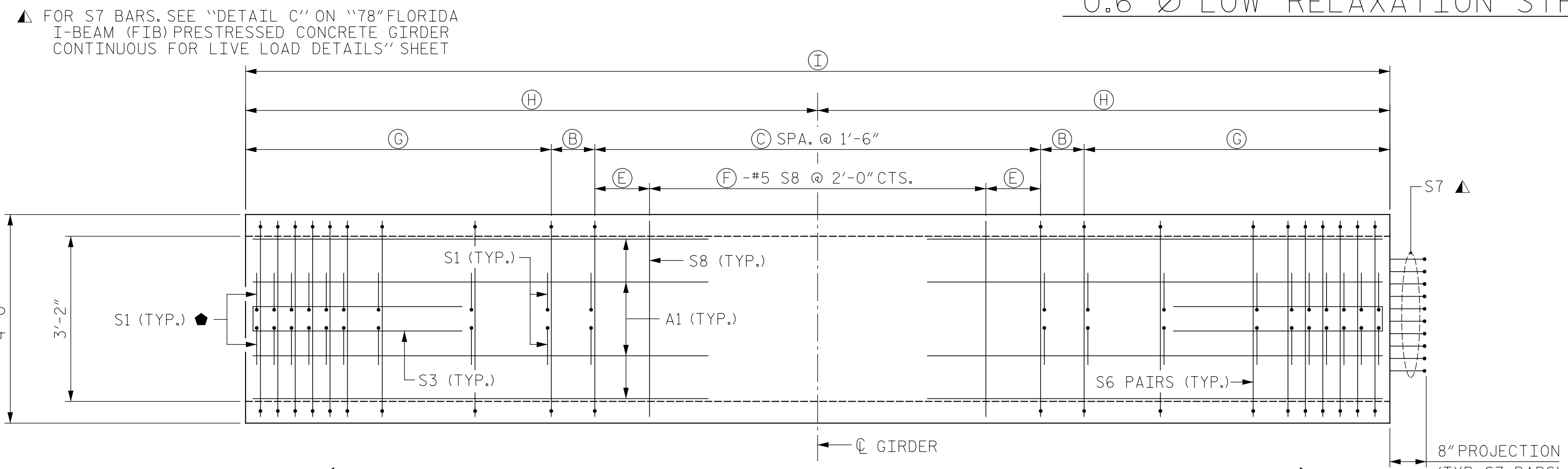
REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.
GDR AGX	5,455	36.4

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
9	128'-7"	1,157'-3"

ALL BAR DIMENSIONS ARE OUT-TO-OUT

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

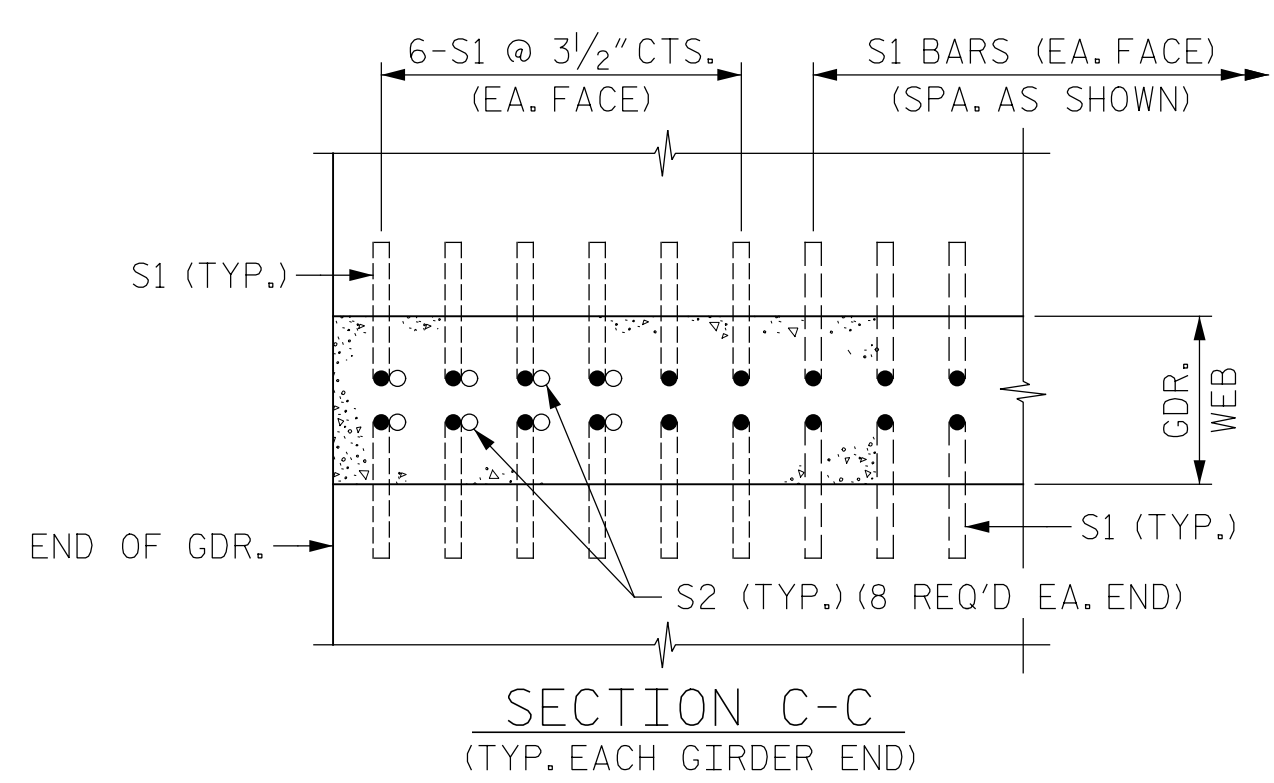


DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- ◊ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◈ STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER

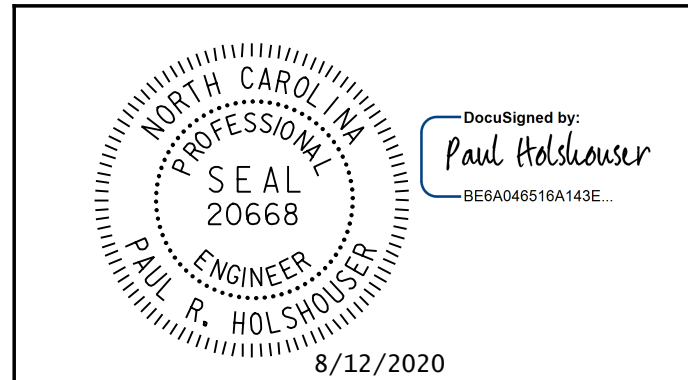
TABLE OF VARIABLES

SPAN	A	B	C	D	E	F	G	H	I	J
A	27	1'-4 1/2"	65	6"	9"	49	14'-2"	64'-3 1/2"	128'-7"	21'-2"



PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 1 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 78" FLORIDA I-BEAM (FIB)
 SPAN A
 CONTINUOUS FOR LIVE LOAD
 PRESTRESSED CONCRETE GIRDER



● SEE "SECTION C-C" FOR MORE INFORMATION & DETAILS
 ● SEE "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL INFORMATION AND DETAILS.
 S1 & S6 BARS MAY BE SHIFTED AS FOUND NECESSARY TO CLEAR 1/2" Ø HOLES IN GIRDER WEB

DRAWN BY: B. J. MANTEI DATE: 7-16-20
 CHECKED BY: N. REZAEI DATE: 7-16-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

ELEVATION OF GIRDER

- ① 14-S4 & S5 PAIRS @ 6" CTS. (PAIRED WITH S1 BARS)
- ② S4 & S5 PAIRS (SPA. AS SHOWN) (PAIRED WITH S1 BARS)

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

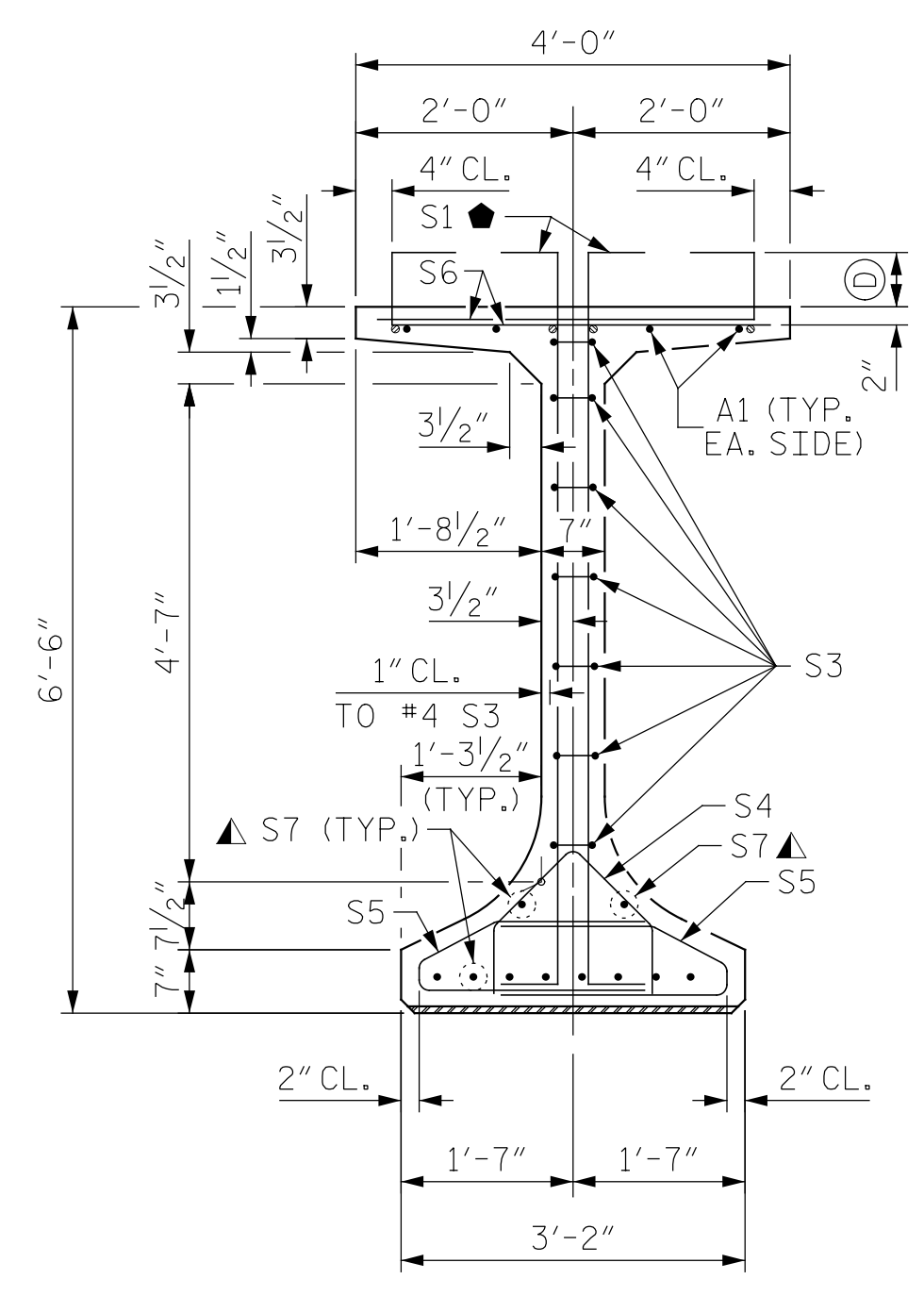
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 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-9999

REVISIONS

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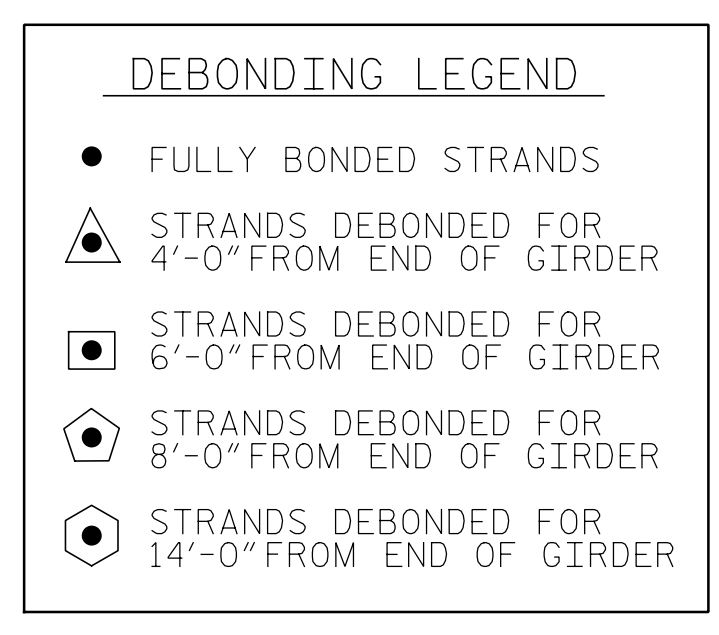
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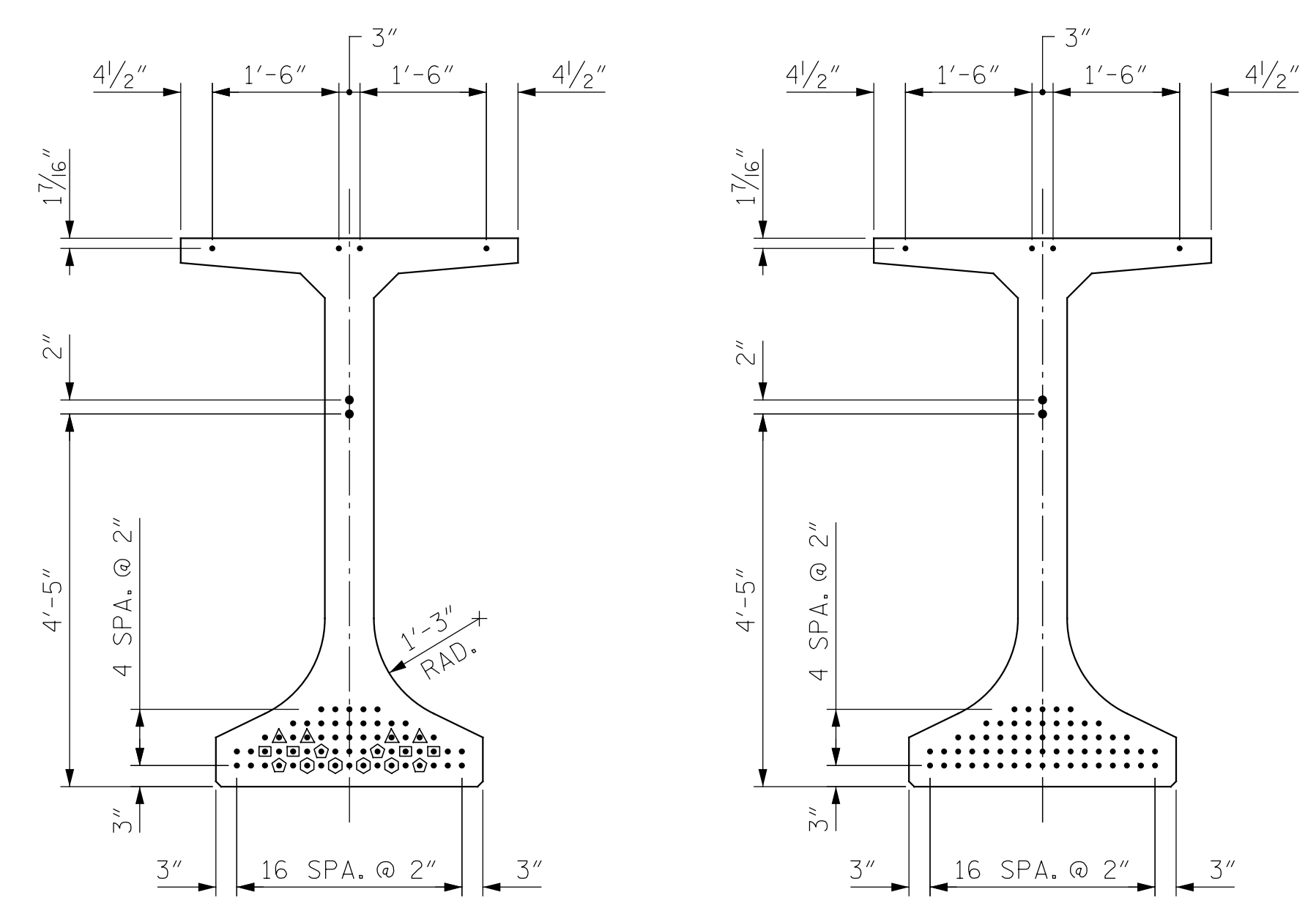


SECTION A-A

▲ FOR S7 BARS, SEE "DETAIL C" ON "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET



◆ S2 BARS NOT SHOWN FOR CLARITY



AT END OF GIRDER
AT C OF GIRDER
0.6" Ø LOW RELAXATION STRAND LAYOUT

BAR TYPES		0.6" Ø L. R. GRADE 270 STRANDS		
NO.	SHAPE	AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
1		0.217	58,600	43,950
2				
3				
4				
5				
6				

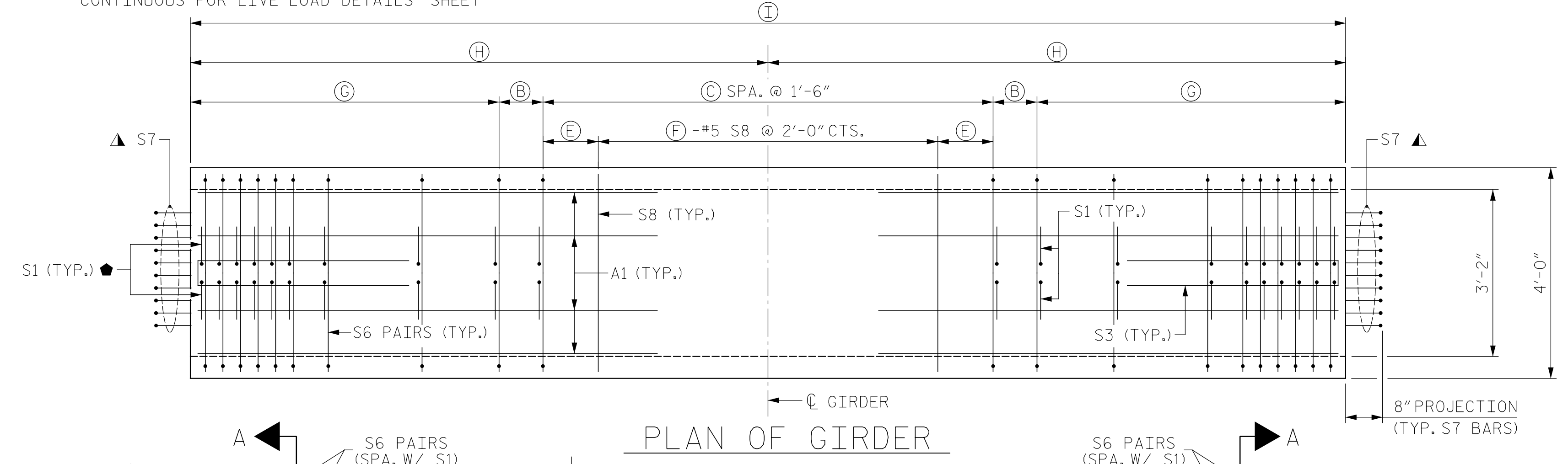
REINFORCING STEEL FOR ONE GDR					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	8	6	STR	28' - 0"	336
S1	348	5	1	7' - 9"	2,813
S2	16	5	STR	6' - 0"	100
S3	14	4	5	8' - 5"	79
S4	40	3	2	3' - 2"	48
S5	292	3	3	4' - 3"	467
S6	348	5	4	4' - 9"	1,724
▲ S7	20	5	STR	3' - 8"	76
S8	62	5	STR	3' - 8"	237
S9	8	5	6	12' - 6"	104
S10	16	4	STR	8' - 0"	86

QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
		LB.	C.Y.
GDR BGX	6,070	43.7	67

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
9	154'-2"	1,387'-6"

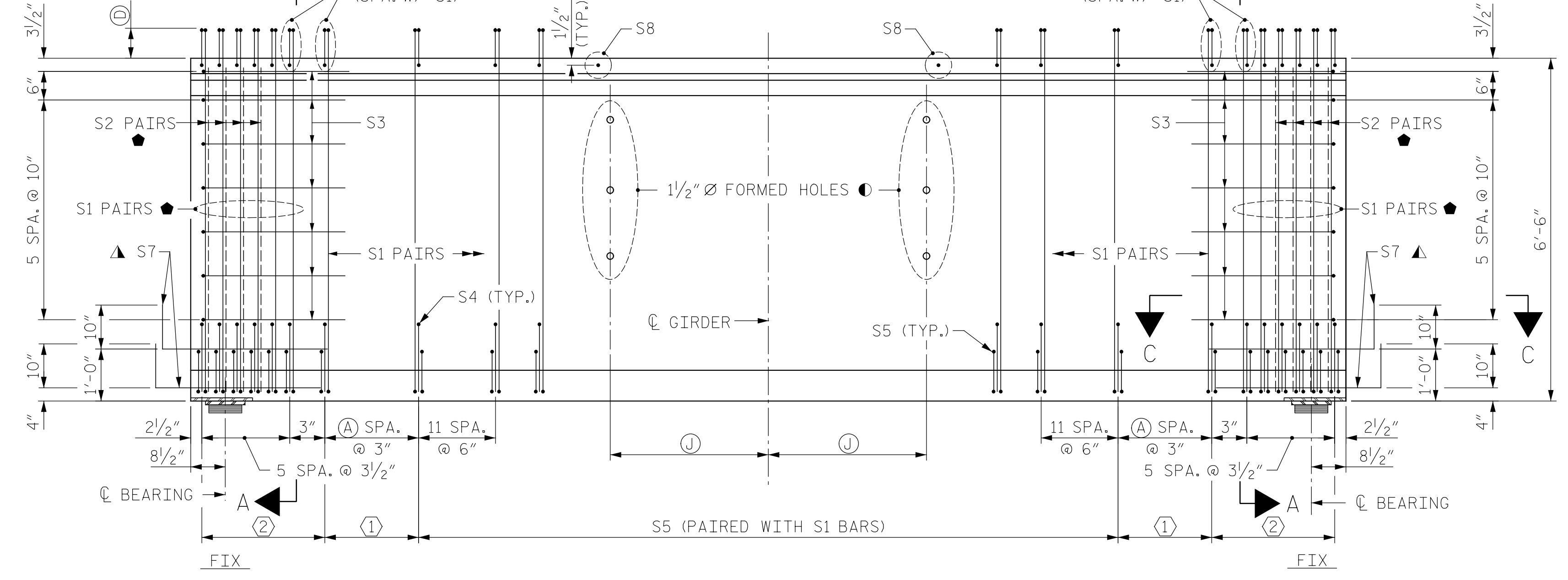
ALL BAR DIMENSIONS ARE OUT-TO-OUT

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



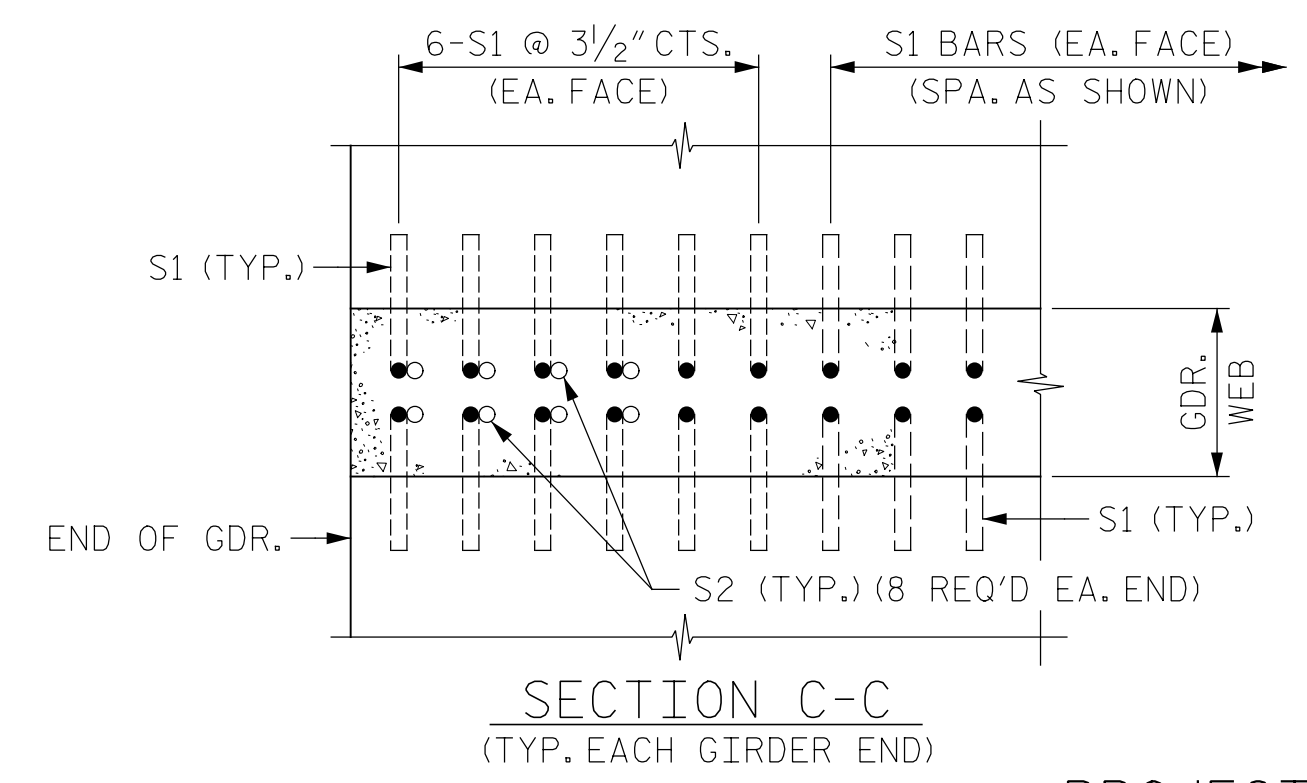
PLAN OF GIRDER

TABLE OF VARIABLES										
SPAN	A	B	C	D	E	F	G	H	I	J
B	27	8"	83	6"	1'-3"	62	14'-2"	77'-1"	154'-2"	25'-5/2"



ELEVATION OF GIRDER

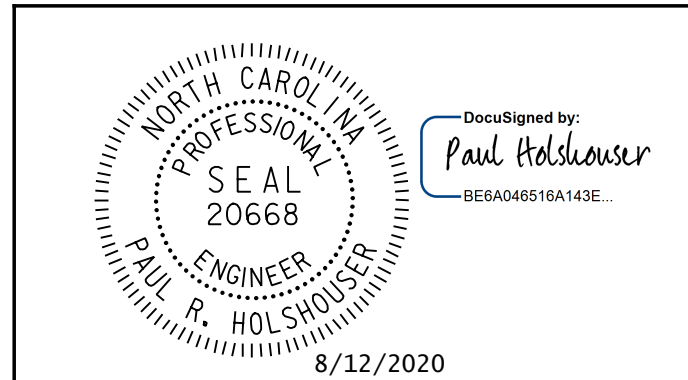
- ① 14-S4 & S5 PAIRS @ 6" CTS. (PAIRED WITH S1 BARS)
- ② S4 & S5 PAIRS (SPA. AS SHOWN) (PAIRED WITH S1 BARS)



SECTION C-C (TYP. EACH GIRDER END)

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 2 OF 8

SEE "SECTION C-C" FOR MORE INFORMATION & DETAILS
SEE "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL INFORMATION AND DETAILS.
S1 & S6 BARS MAY BE SHIFTED AS FOUND NECESSARY TO CLEAR 1/2" Ø HOLES IN GIRDER WEB



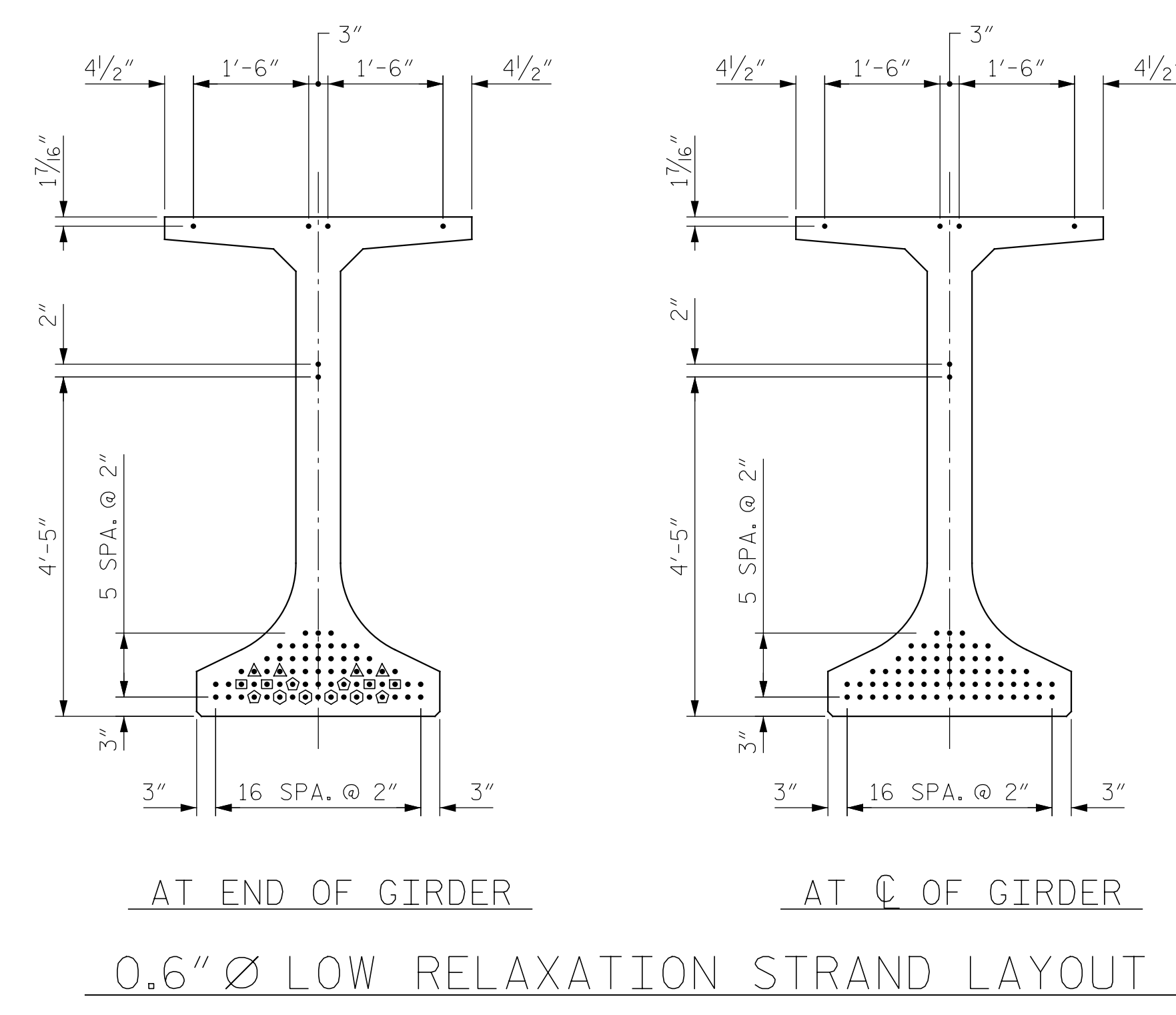
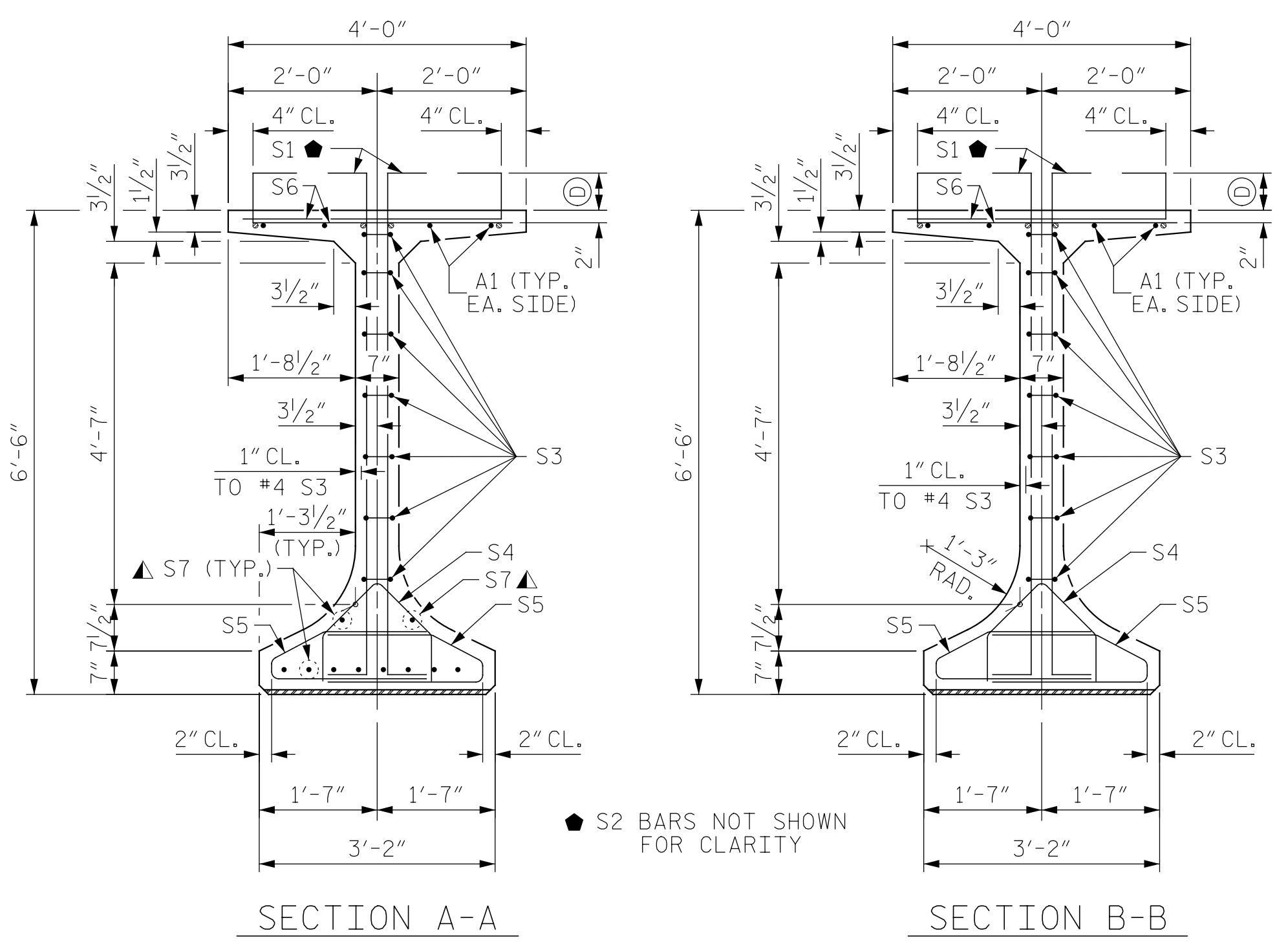
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Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-9999

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
78" FLORIDA I-BEAM (FIB) SPAN B					
CONTINUOUS FOR LIVE LOAD PRESTRESSED CONCRETE GIRDER					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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DRAWN BY: B. J. MANTEI DATE: 7/16/20
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BAR TYPES

0.6" Ø L. R. GRADE 270 STRANDS

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

REINFORCING STEEL FOR ONE GDR

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	8	6	STR	28' - 0"	336
S1	354	5	1	7' - 9"	2,861
S2	16	5	STR	6' - 0"	100
S3	14	4	5	8' - 5"	79
S4	40	3	2	3' - 2"	48
S5	298	3	3	4' - 3"	476
S6	354	5	4	4' - 9"	1,754
▲ S7	10	5	STR	3' - 8"	38
S8	65	5	STR	3' - 8"	249
S9	8	5	6	12' - 6"	104
S10	16	4	STR	8' - 0"	86

QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.
GDR CGX	6,131	45.0

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
9	158'-8"	1,428'-0"

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

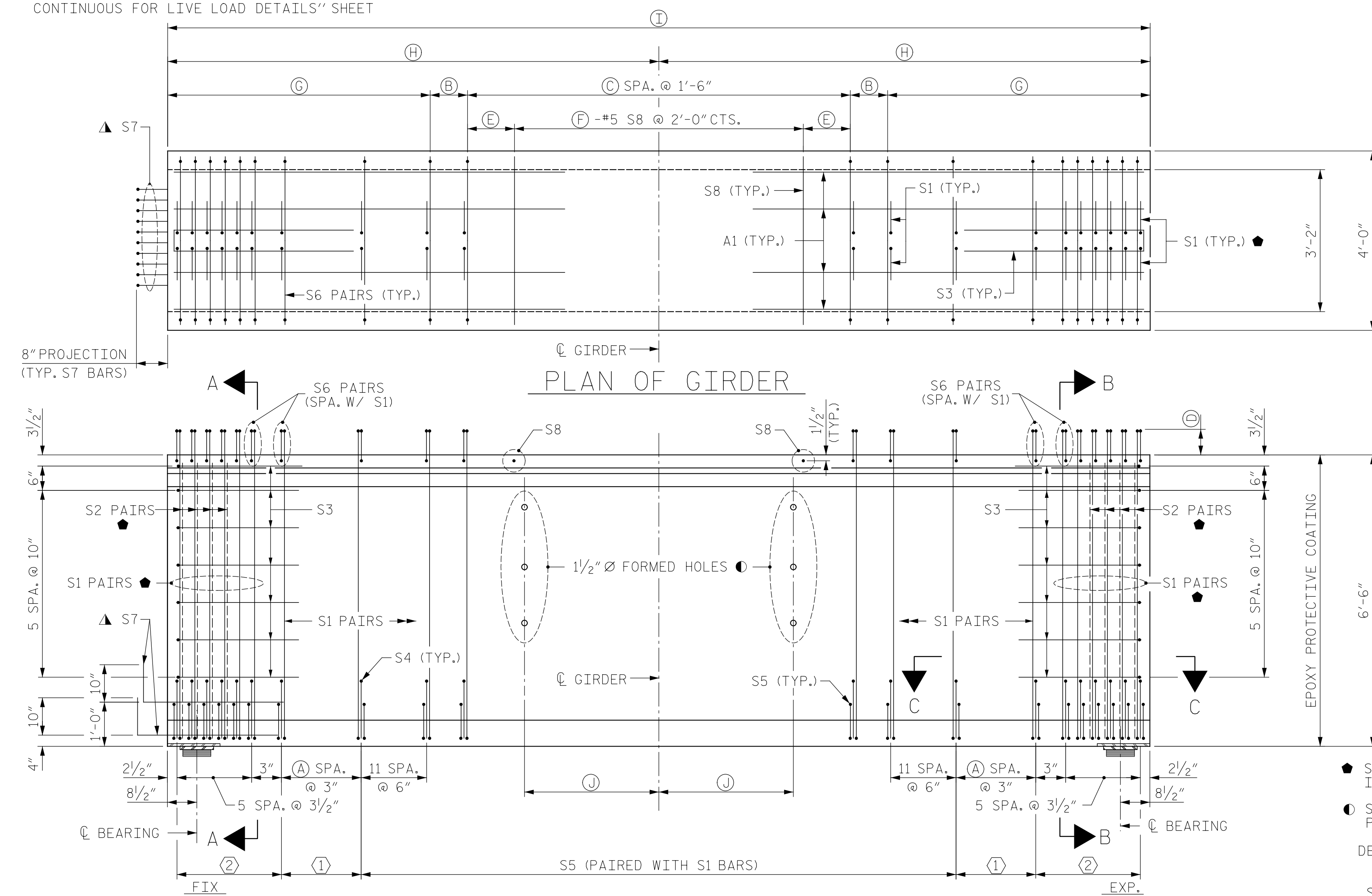
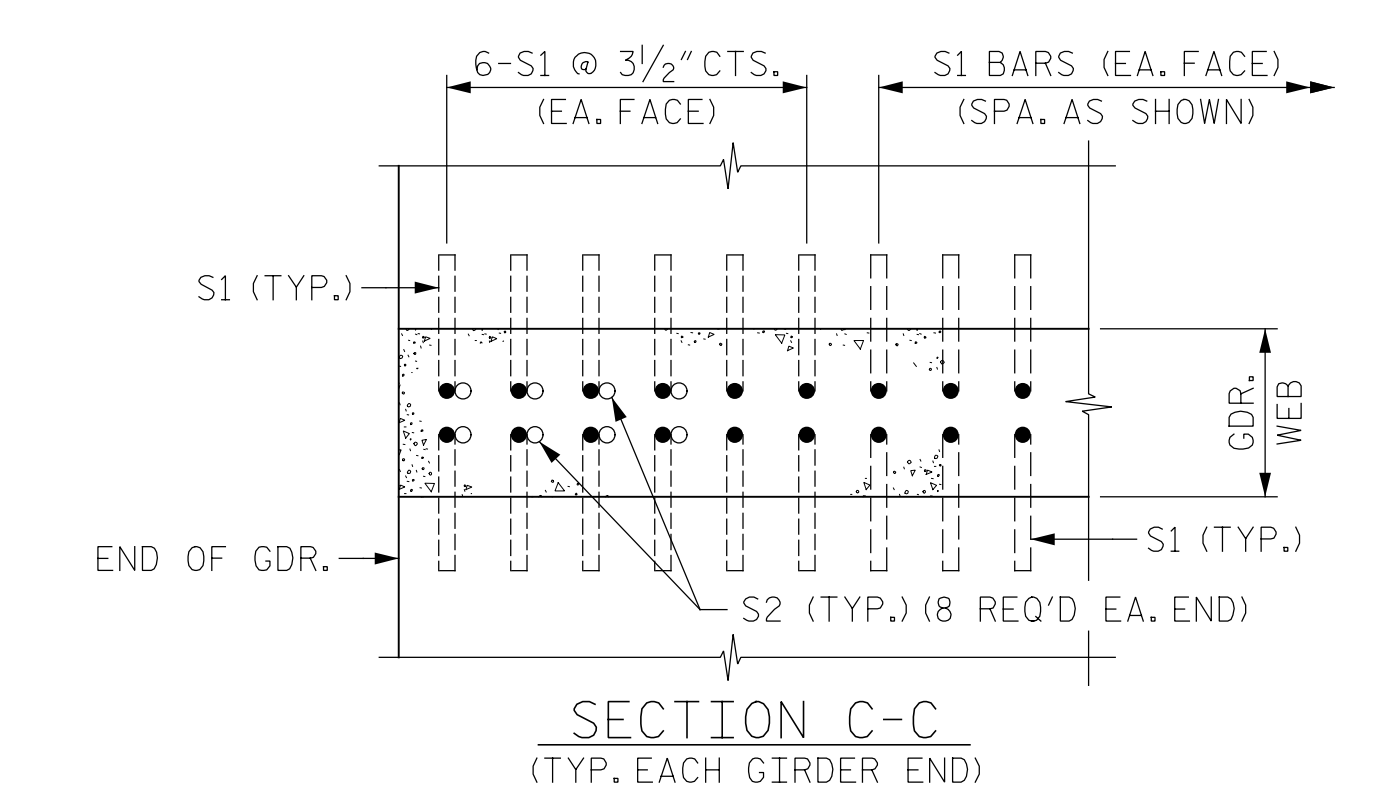
▲ FOR S7 BARS, SEE "DETAIL C" ON "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- ◈ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◉ STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER

TABLE OF VARIABLES

SPAN	A	B	C	D	E	F	G	H	I	J
C	27	8"	86	6"	6"	65	14'-2"	79'-4"	158'-8"	26'-2 1/2"



● SEE "SECTION C-C" FOR MORE INFORMATION & DETAILS

① SEE "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL INFORMATION AND DETAILS.

S1 & S6 BARS MAY BE SHIFTED AS FOUND NECESSARY TO CLEAR 1 1/2" Ø HOLES IN GIRDER WEB

ICE of CAROLINAS, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License # P-9999

DocuSigned by:
 Paul Holshouser
 BE6A048516A143E
 8/12/2020

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 78" FLORIDA I-BEAM (FIB)
 SPAN C
 CONTINUOUS FOR LIVE LOAD
 PRESTRESSED CONCRETE GIRDER

REVISIONS

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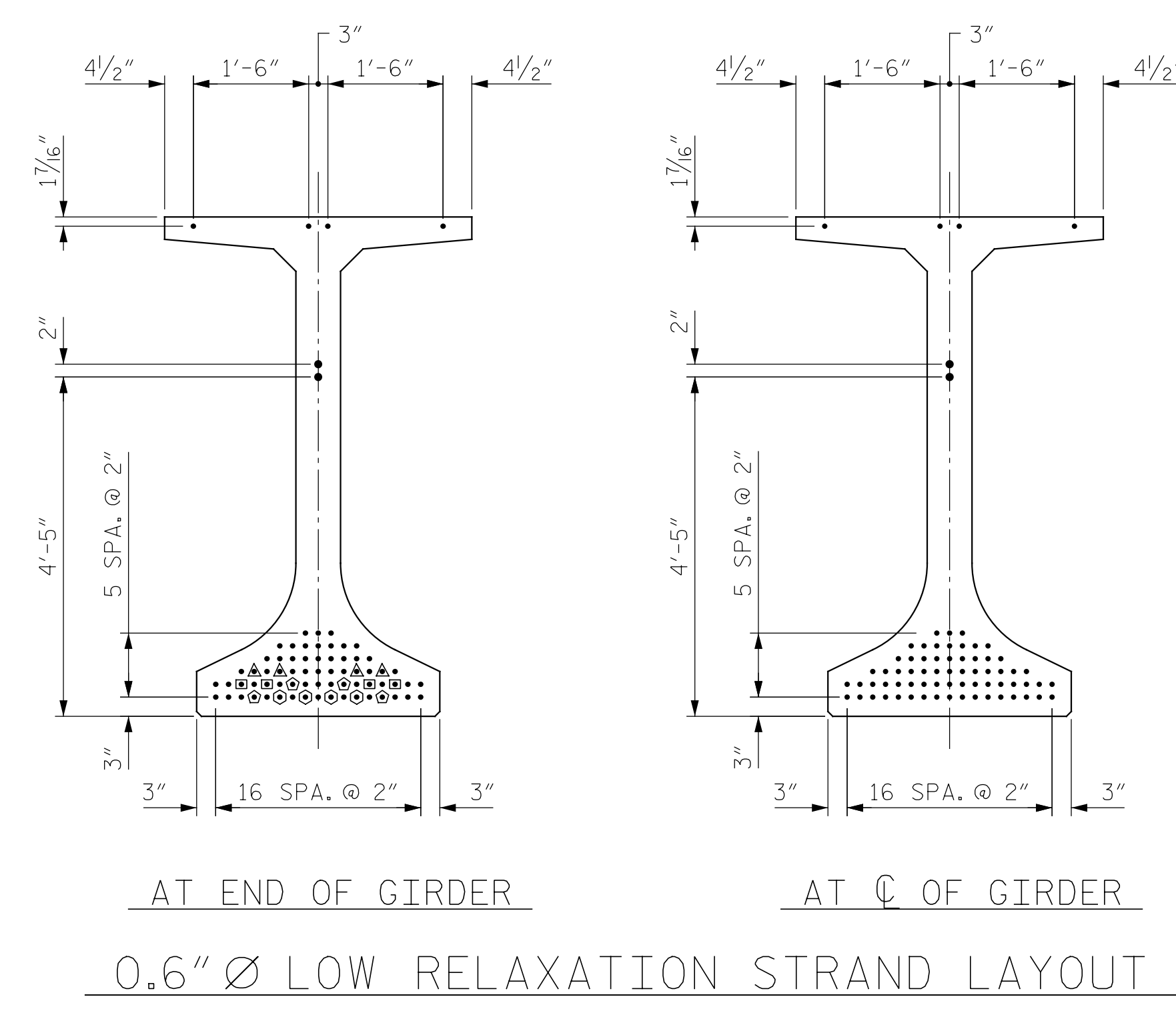
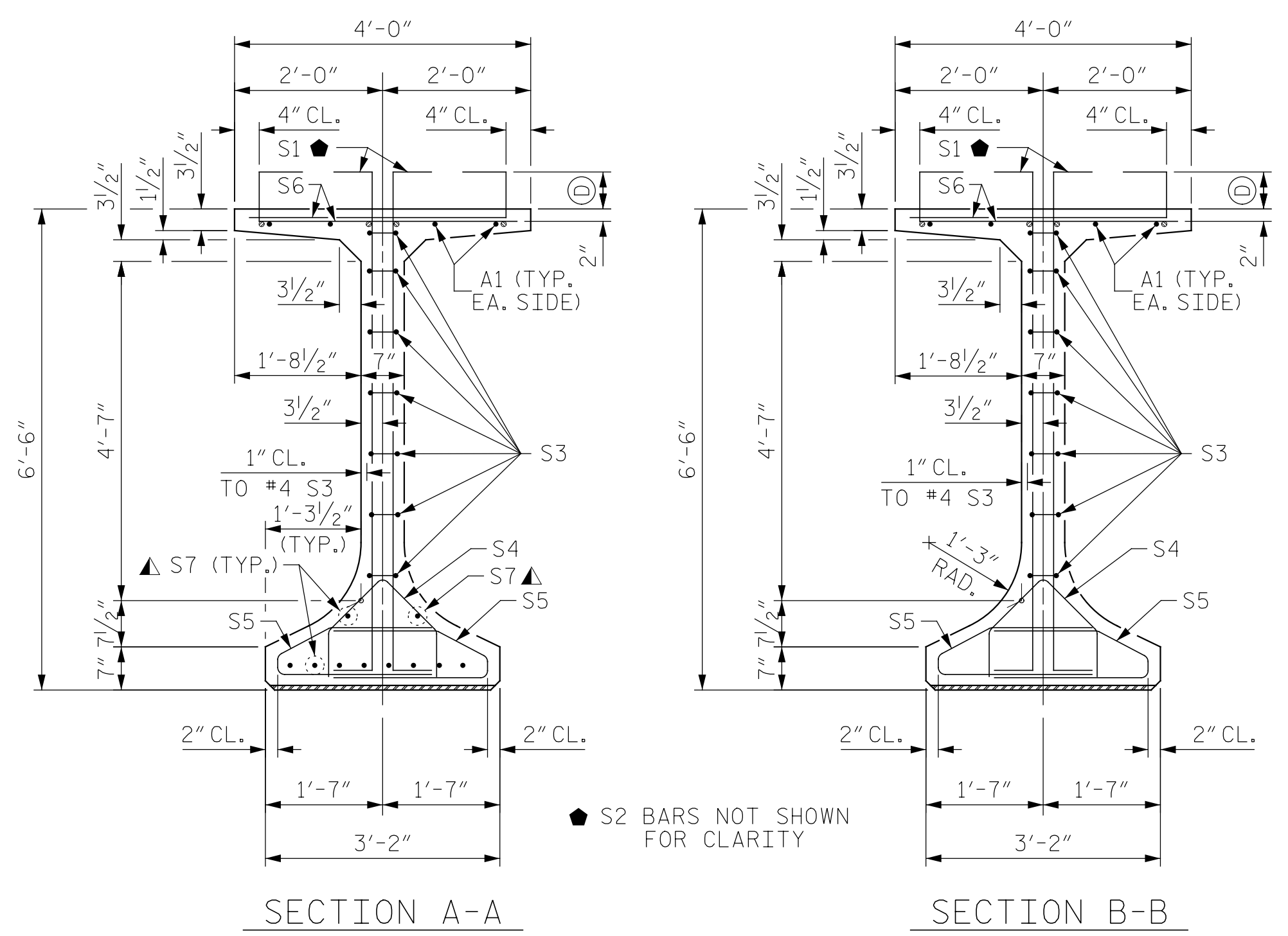
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 CHECKED BY: N. REZAEI DATE: 7/16/20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

- ① 14-S4 & S5 PAIRS @ 6" CTS. (PAIRED WITH S1 BARS)
- ② S4 & S5 PAIRS (SPA. AS SHOWN) (PAIRED WITH S1 BARS)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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BAR TYPES

0.6" Ø L. R. GRADE 270 STRANDS

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

REINFORCING STEEL FOR ONE GDR

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	8	6	STR 28' - 0"	336	
S1	332	5	1	7' - 9"	2,684
S2	16	5	STR 6' - 0"	100	
S3	14	4	5	8' - 5"	79
S4	40	3	2	3' - 2"	48
S5	276	3	3	4' - 3"	441
S6	332	5	4	4' - 9"	1,645
▲ S7	10	5	STR 3' - 8"	38	
S8	56	5	STR 3' - 8"	214	
S9	8	5	6	12' - 6"	104
S10	16	4	STR 8' - 0"	86	

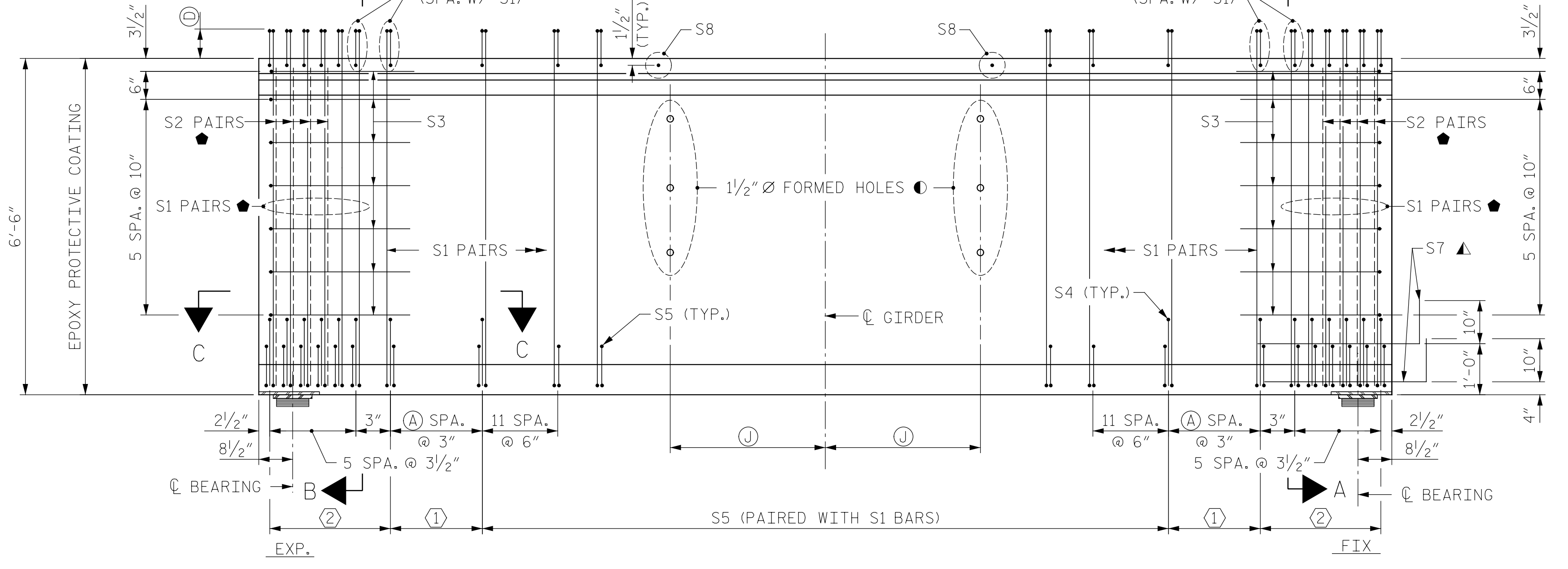
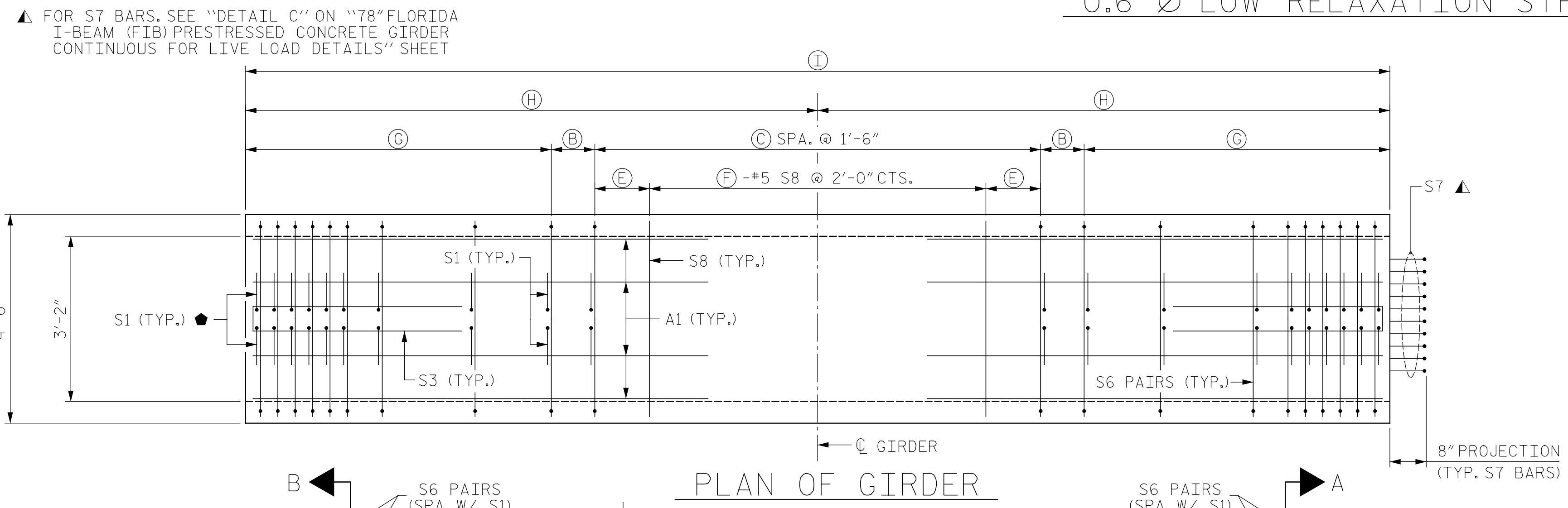
QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
	LB.	C.Y.	No.
GDR DGX	5,775	40.7	72

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
9	143'-8"	1,293'-0"

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

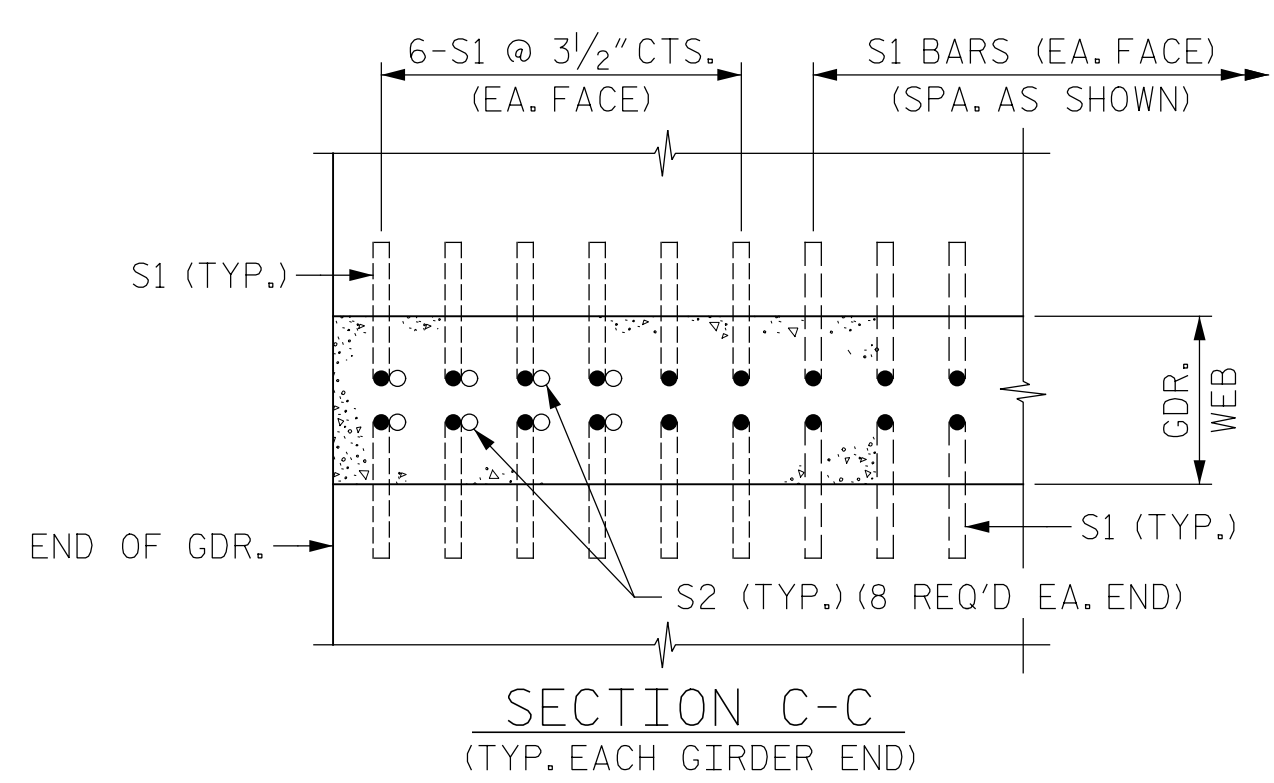


DEBONDING LEGEND

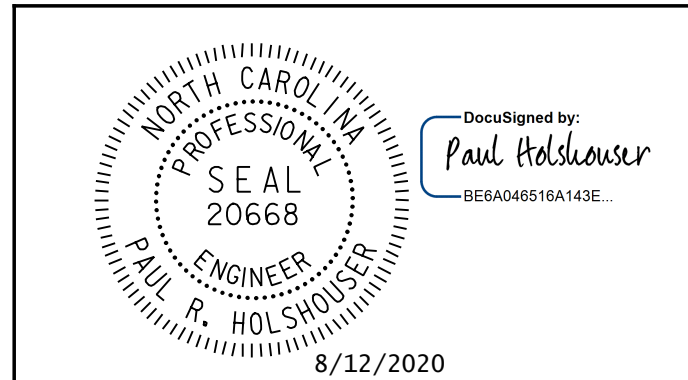
- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- ◊ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◌ STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER

TABLE OF VARIABLES

SPAN	A	B	C	D	E	F	G	H	I	J
D	27	1'-5"	75	6"	1'-3"	56	14'-2"	71'-10"	143'-8"	23'-8 1/2"



PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 4 OF 8



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 78" FLORIDA I-BEAM (FIB)
 SPAN D
 CONTINUOUS FOR LIVE LOAD
 PRESTRESSED CONCRETE GIRDER

DRAWN BY: B. J. MANTEI DATE: 7/16/20
 CHECKED BY: N. REZAEI DATE: 7/16/20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

- ① 14-S4 & S5 PAIRS @ 6" CTS. (PAIRED WITH S1 BARS)
- ② S4 & S5 PAIRS (SPA. AS SHOWN) (PAIRED WITH S1 BARS)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

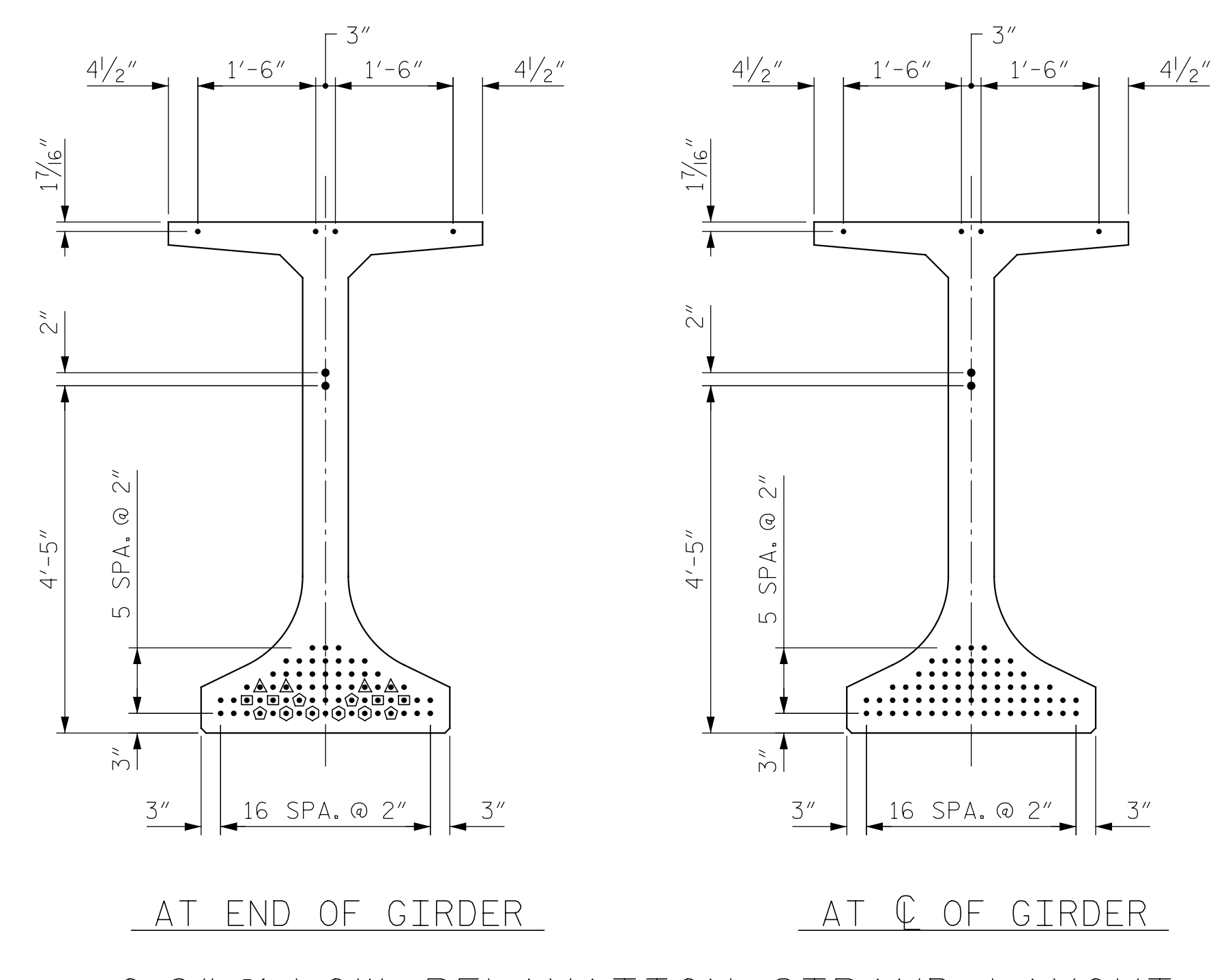
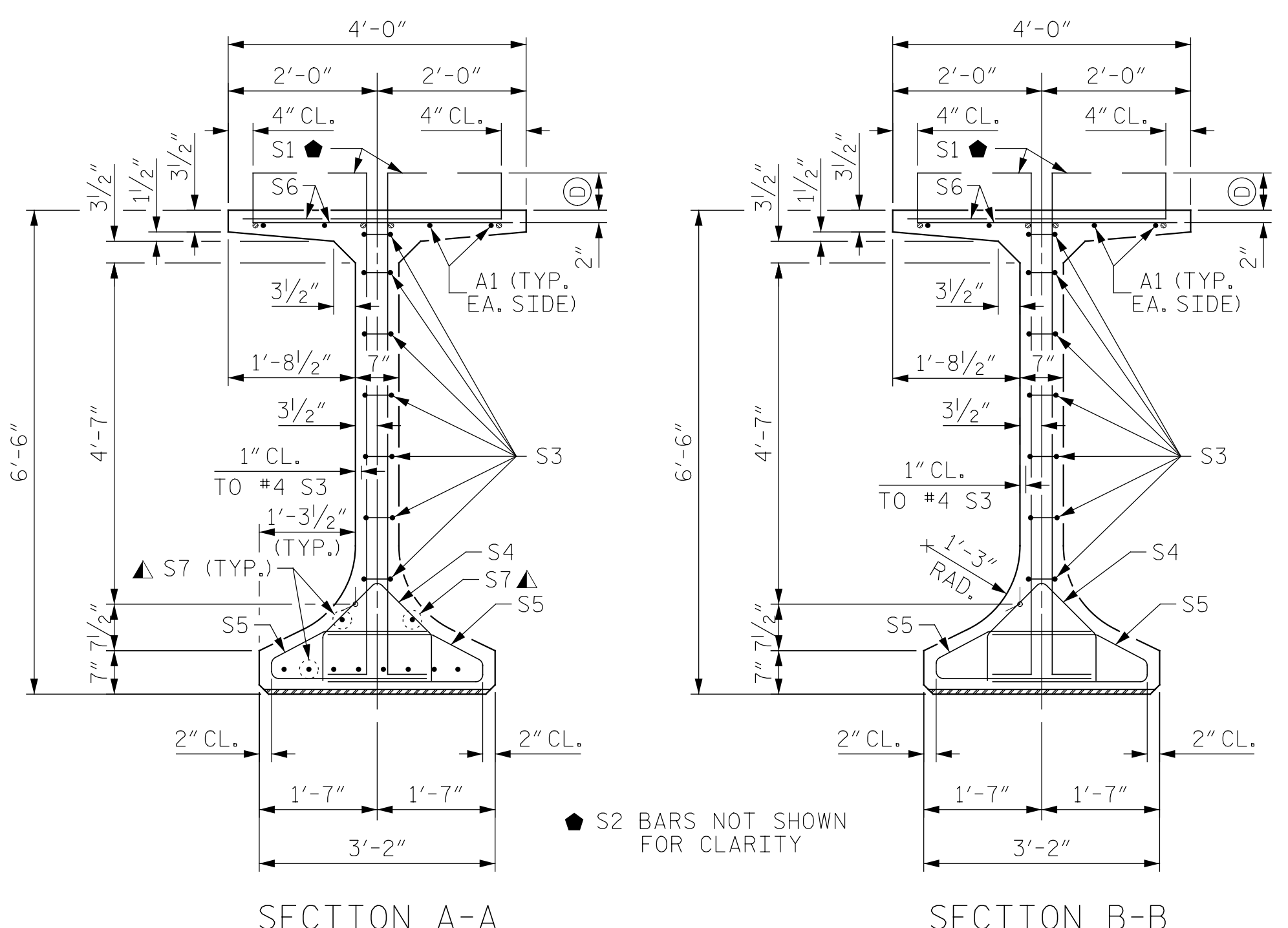
ICE of CAROLINAS, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License # P-9999

REVISIONS

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

SHEET NO. S-31
 TOTAL SHEETS 107

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 Plot Date: 8/11/2020 10:08:14 PM



0.6" Ø LOW RELAXATION STRAND LAYOUT

BAR TYPES		0.6" Ø L. R. GRADE 270 STRANDS		
NO.	SHAPE	AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
1	Rectangular	0.217	58,600	43,950
2	Triangular			
3	Triangular			
4	Rectangular			
5	Rectangular			
6	Rectangular			

REINFORCING STEEL FOR ONE GDR					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	8	6	STR	28' - 0"	336
S1	354	5	1	7' - 9"	2,861
S2	16	5	STR	6' - 0"	100
S3	14	4	5	8' - 5"	79
S4	40	3	2	3' - 2"	48
S5	298	3	3	4' - 3"	476
S6	354	5	4	4' - 9"	1,754
▲ S7	10	5	STR	3' - 8"	38
S8	65	5	STR	3' - 8"	249
S9	8	5	6	12' - 6"	104
S10	16	4	STR	8' - 0"	86

QUANTITIES FOR ONE GIRDER			
GDR EXG	REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
	6,131	45.0	72

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
9	158'-8"	1,428'-0"

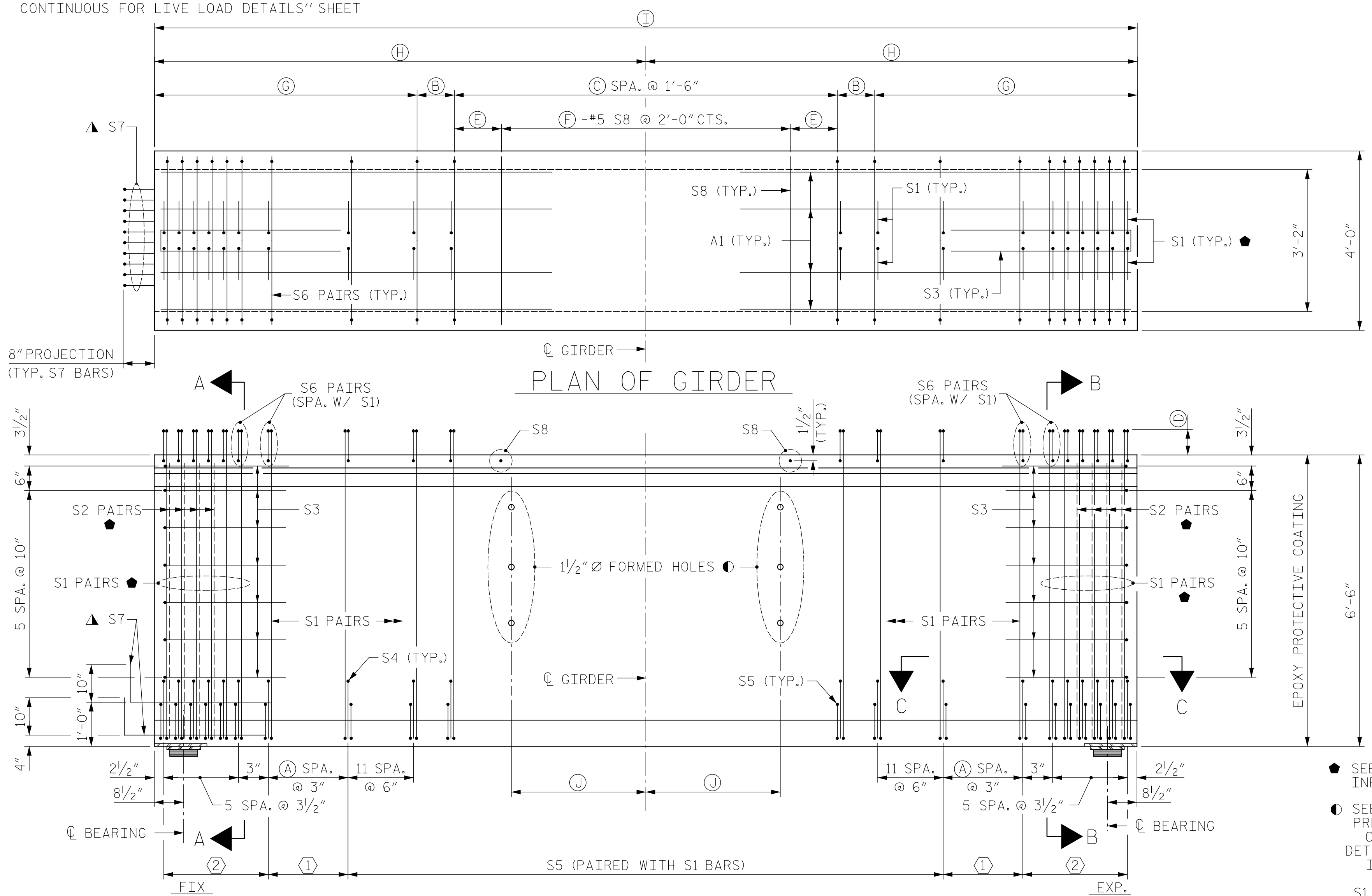
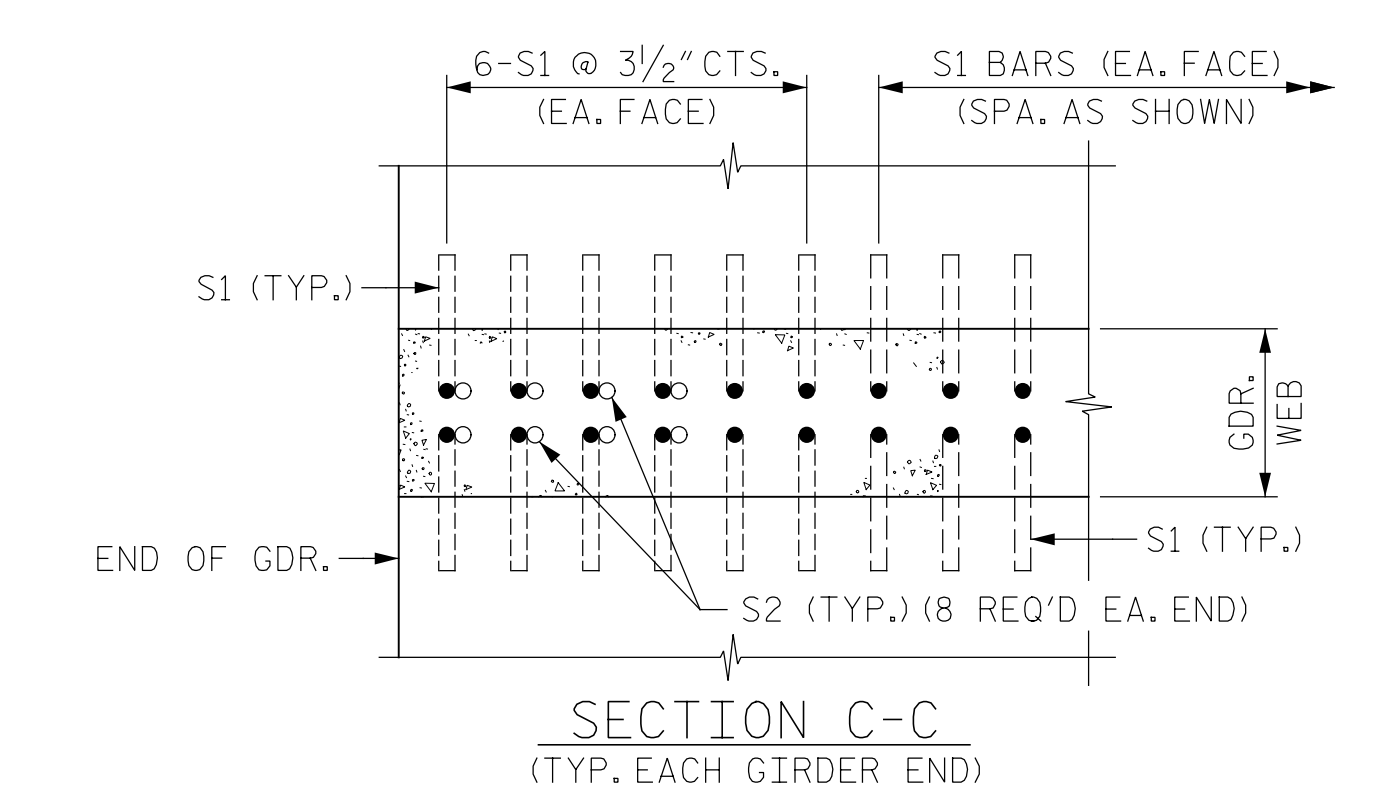
ALL BAR DIMENSIONS ARE OUT-TO-OUT

▲ FOR S7 BARS, SEE "DETAIL C" ON "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET

DEBONDING LEGEND	
●	FULLY BONDED STRANDS
▲	STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
■	STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
◻	STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
◻	STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER

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

TABLE OF VARIABLES										
SPAN	A	B	C	D	E	F	G	H	I	J
E	27	8"	86	7 1/2"	6"	65	14'-2"	79'-4"	158'-8"	26'-2 1/2"

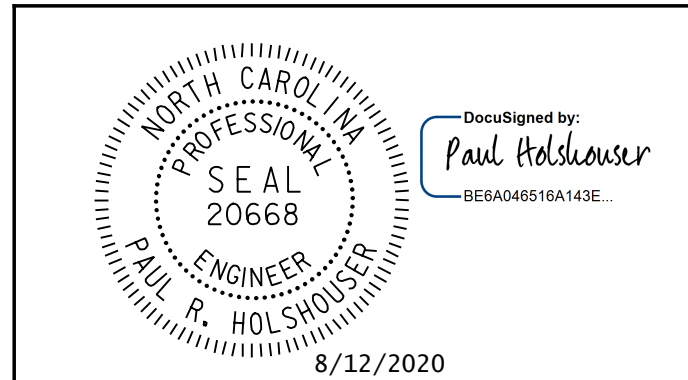


- ① 14-S4 & S5 PAIRS @ 6" CTS. (PAIRED WITH S1 BARS)
- ② S4 & S5 PAIRS (SPA. AS SHOWN) (PAIRED WITH S1 BARS)

● SEE "SECTION C-C" FOR MORE INFORMATION & DETAILS
 ○ SEE "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL INFORMATION AND DETAILS.

S1 & S6 BARS MAY BE SHIFTED AS FOUND NECESSARY TO CLEAR 1 1/2" Ø HOLES IN GIRDER WEB

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



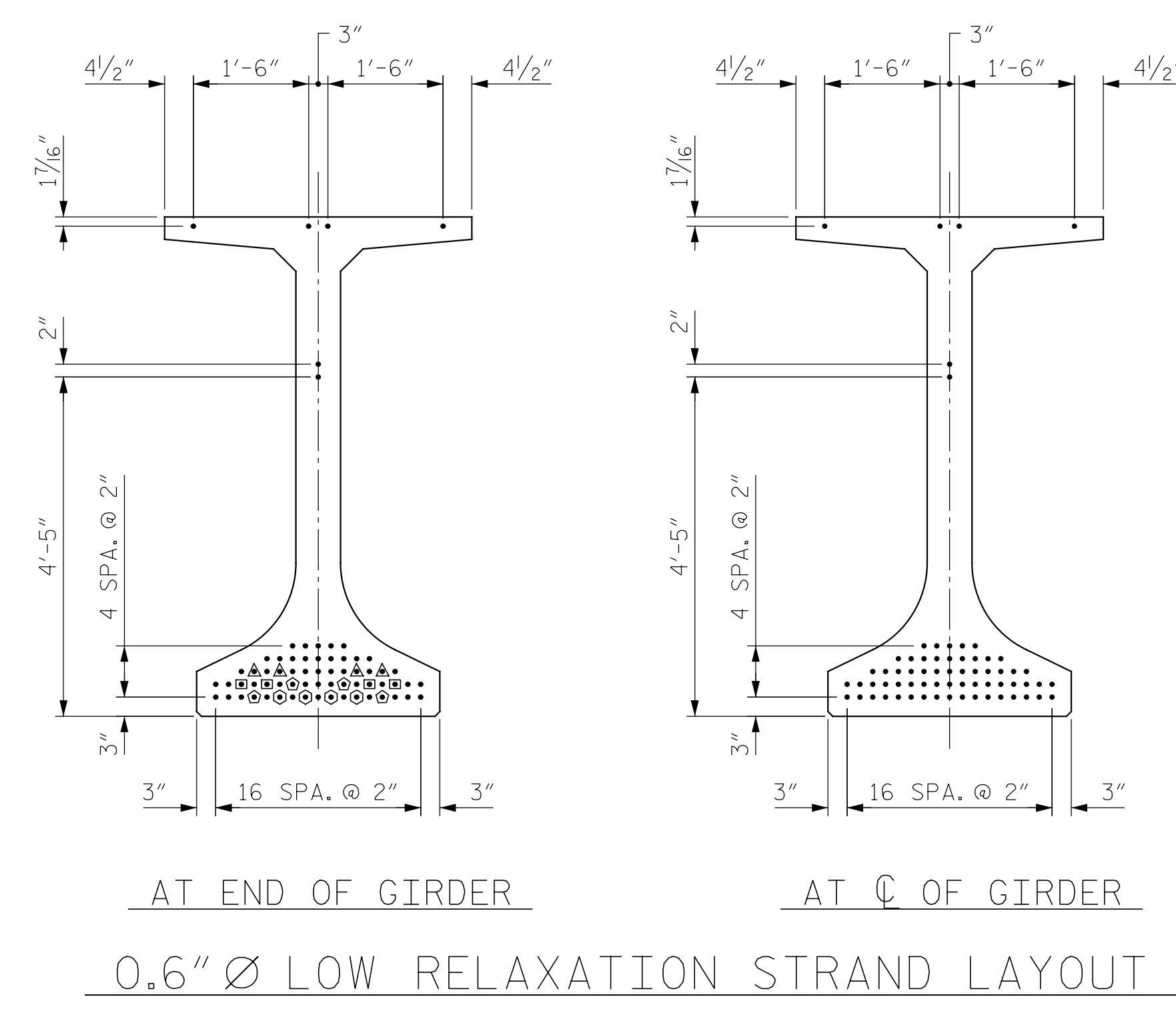
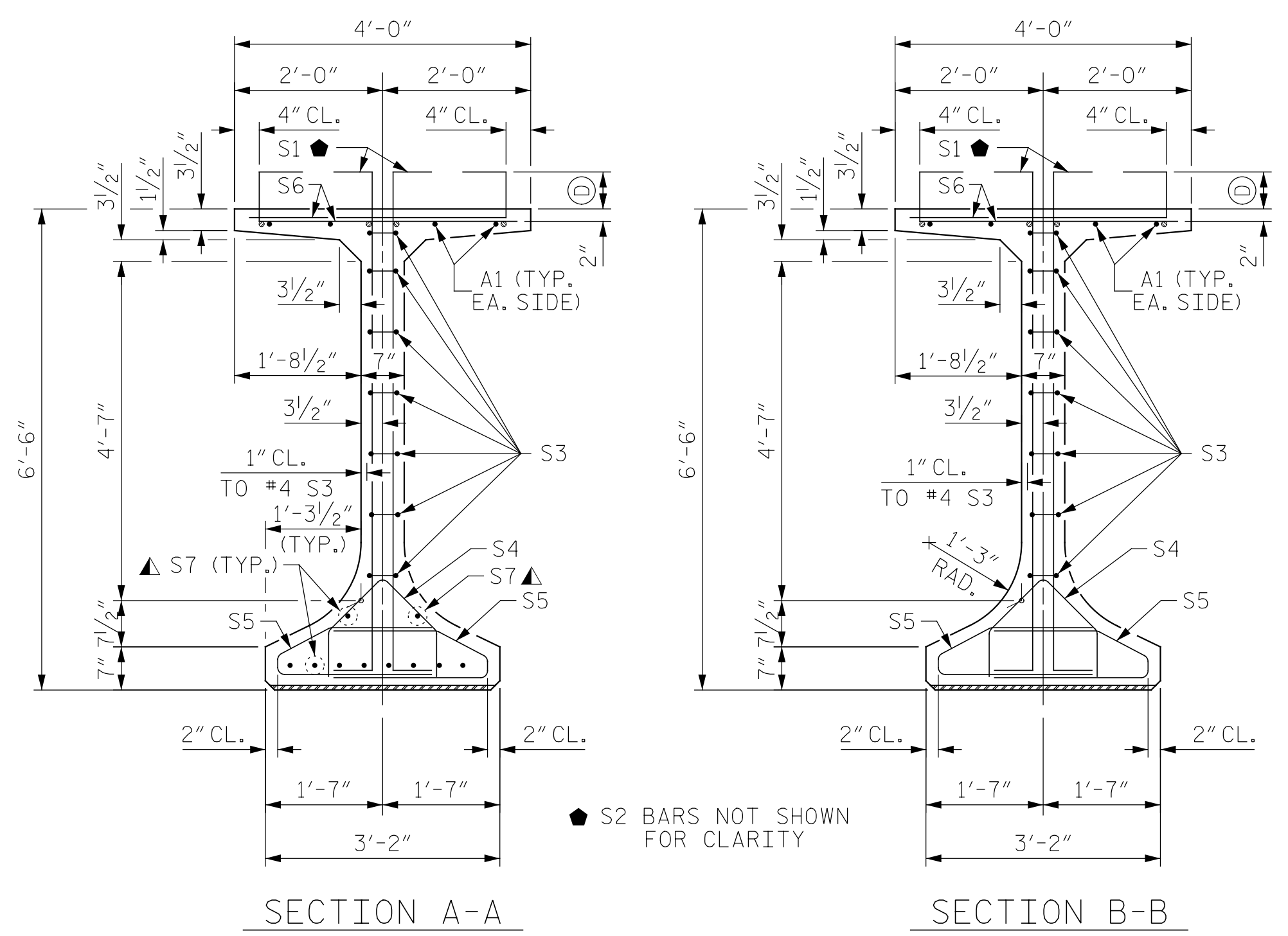
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 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License # P-9999

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 5 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
78" FLORIDA I-BEAM (FIB) SPAN E					
CONTINUOUS FOR LIVE LOAD PRESTRESSED CONCRETE GIRDER					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					107

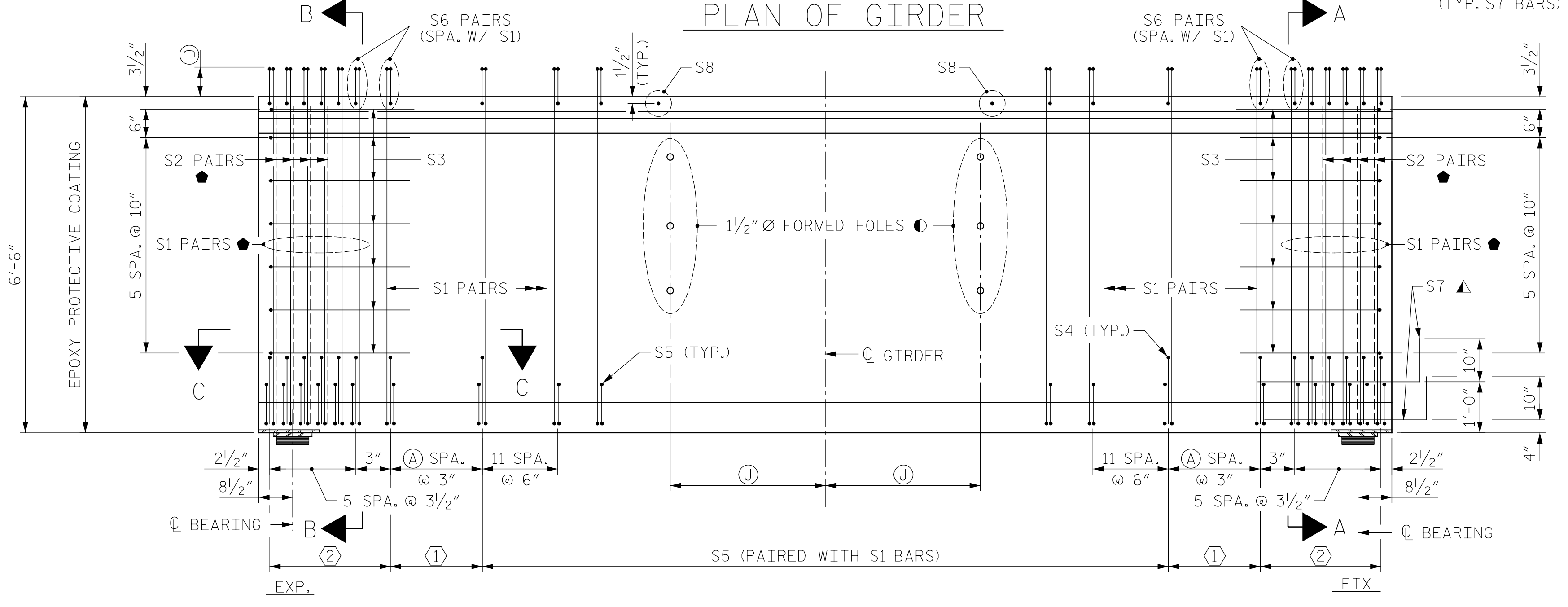
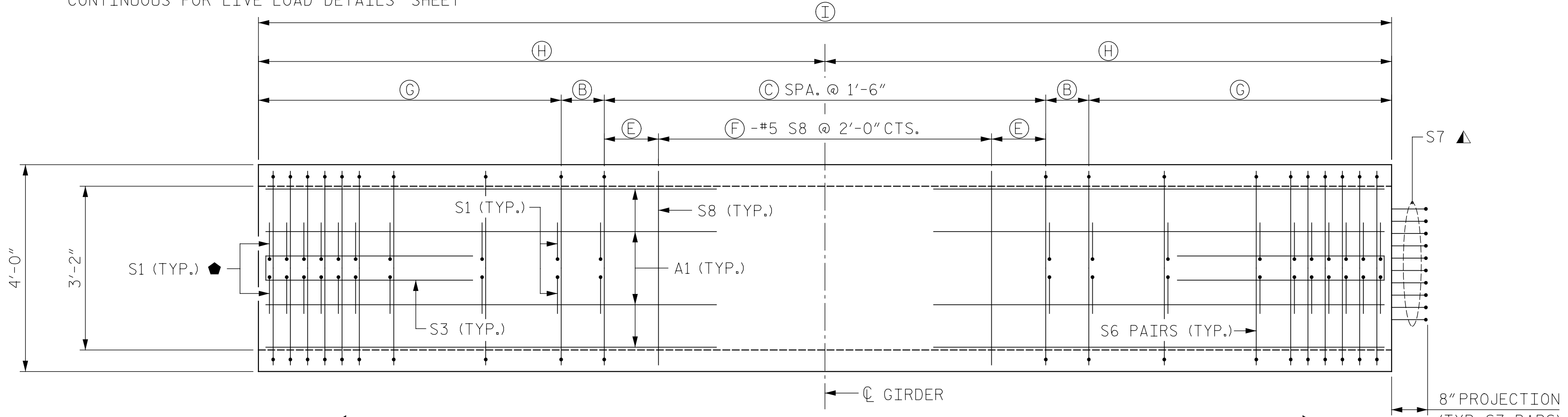
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DRAWN BY: B. J. MANTEI DATE: 7/16/20
 CHECKED BY: N. REZAEI DATE: 7/16/20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



BAR TYPES		0.6" Ø L. R. GRADE 270 STRANDS	
1	6" x 6"-10"	AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)
2	8 3/4" x 8 3/4" x 9"	0.217	58,600
3	8 1/2" x 1'-3" x 3'-5"	APPLIED PRESTRESS (LBS. PER STRAND)	43,950
4	8" x 9"	REINFORCING STEEL FOR ONE GDR	
5	5" x 4'-0"	BAR NO.	SIZE
6	6" x 6"-0" x 2" RAD.	TYPE	LENGTH
ALL BAR DIMENSIONS ARE OUT-TO-OUT		WEIGHT	
		A1	8
		S1	346
		S2	16
		S3	14
		S4	40
		S5	290
		S6	346
		▲ S7	10
		S8	62
		S9	8
		S10	16
		QUANTITIES FOR ONE GIRDER	
		REINFORCING STEEL	9000 PSI CONCRETE
		LB.	0.6" Ø L.R. STRANDS
		C.Y.	No.
		GDR FGX	6,002
			43.5
			67
		GIRDERS REQUIRED	
		NUMBER	LENGTH
		9	153'-8"
			TOTAL LENGTH
			1,383'-0"

▲ FOR S7 BARS, SEE "DETAIL C" ON "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET



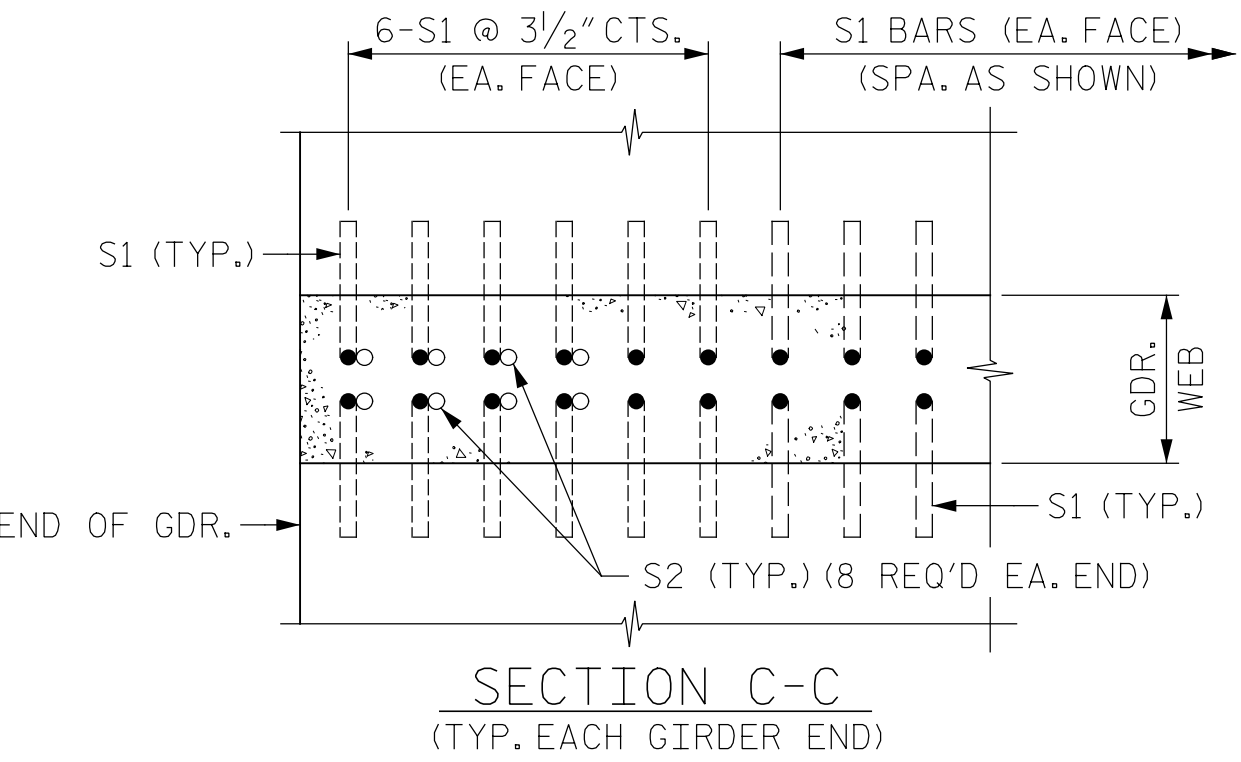
DRAWN BY: B. J. MANTEI DATE: 7/16/20
 CHECKED BY: N. REZAEI DATE: 7/16/20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

ELEVATION OF GIRDER

- ① 14-S4 & S5 PAIRS @ 6" CTS. (PAIRED WITH S1 BARS)
- ② S4 & S5 PAIRS (SPA. AS SHOWN) (PAIRED WITH S1 BARS)

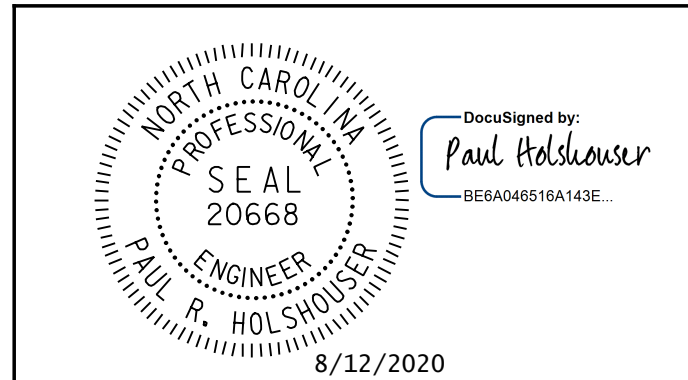
DEBONDING LEGEND	
●	FULLY BONDED STRANDS
▲	STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
■	STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
◊	STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
◈	STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER

TABLE OF VARIABLES										
SPAN	A	B	C	D	E	F	G	H	I	J
F	27	1'-2"	82	7 1/2"	6"	62	14'-2"	76'-10"	153'-8"	25'-4 1/2"



- SEE "SECTION C-C" FOR MORE INFORMATION & DETAILS
- SEE "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL INFORMATION AND DETAILS.

S1 & S6 BARS MAY BE SHIFTED AS FOUND NECESSARY TO CLEAR 1/2" Ø HOLES IN GIRDER WEB



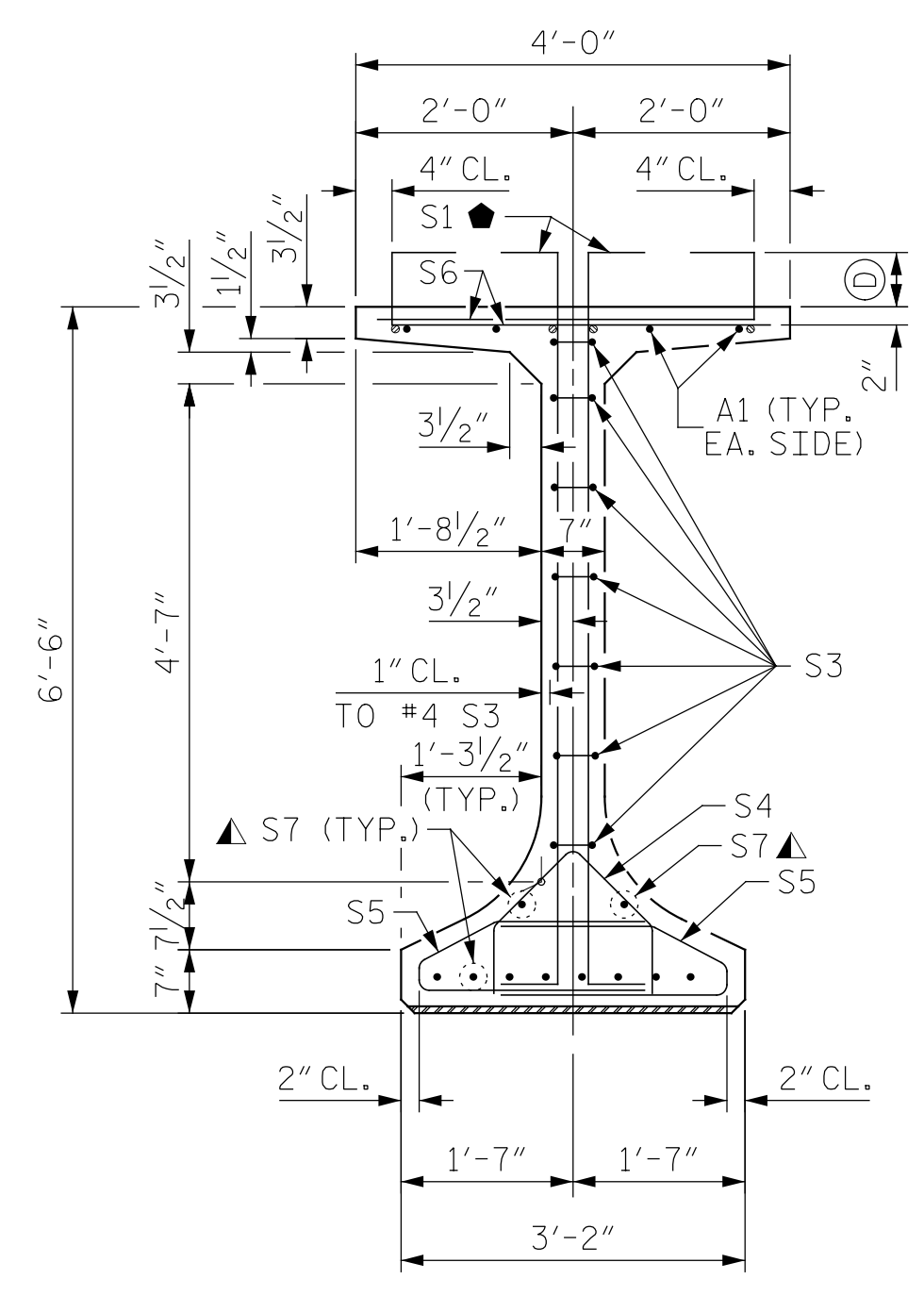
ICE of CAROLINAS, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-9999

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 6 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
78" FLORIDA I-BEAM (FIB) SPAN F					
CONTINUOUS FOR LIVE LOAD PRESTRESSED CONCRETE GIRDER					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-33
					TOTAL SHEETS 107

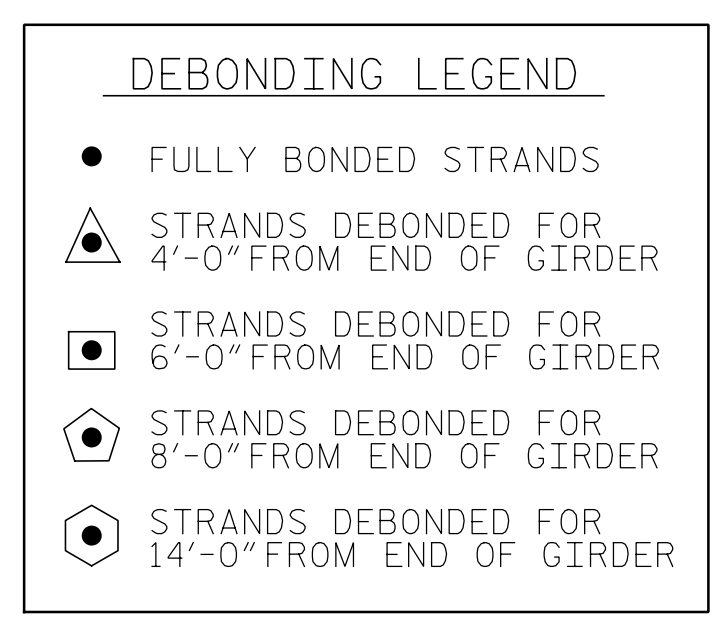
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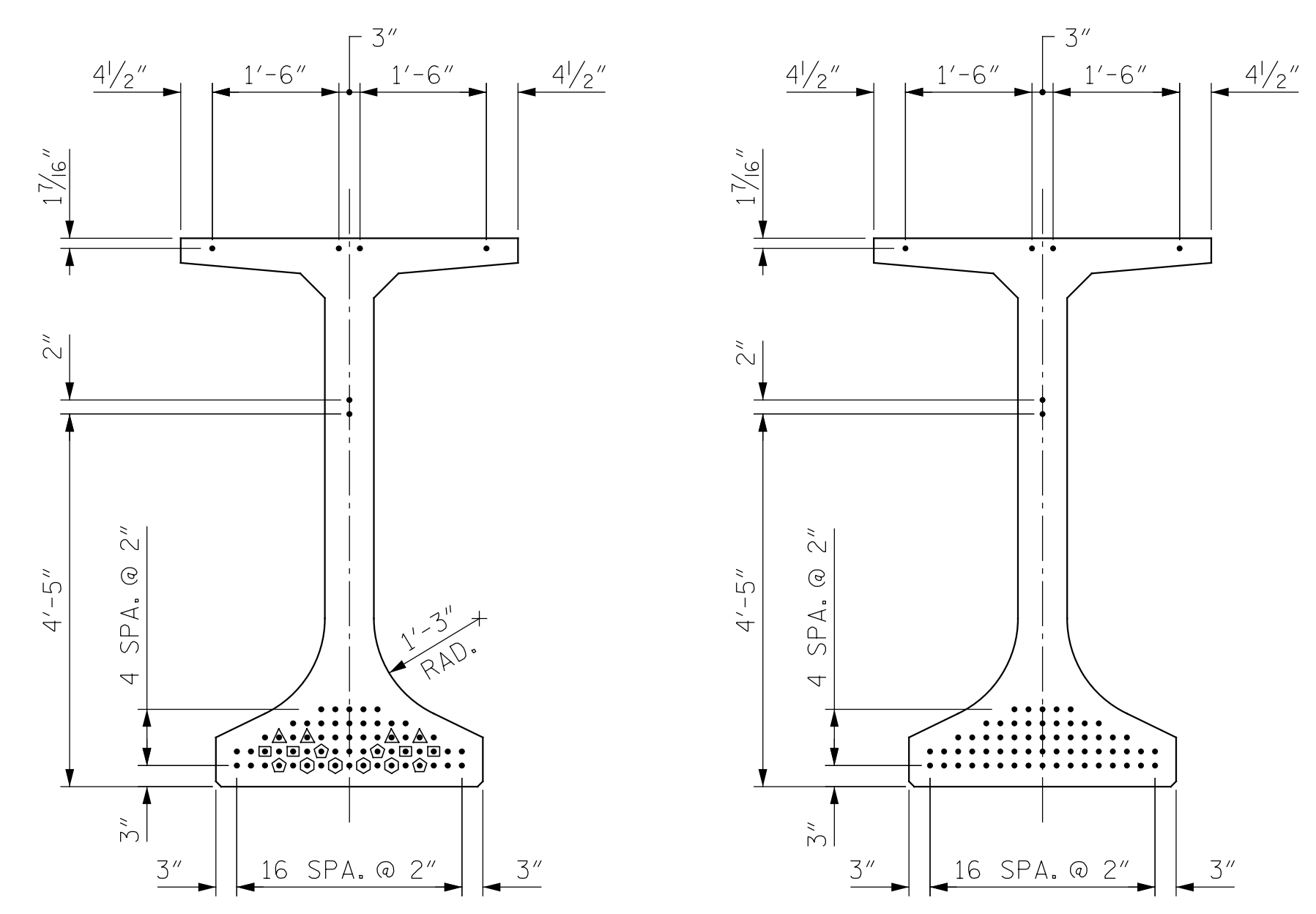


SECTION A-A

▲ FOR S7 BARS, SEE "DETAIL C" ON "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET



◆ S2 BARS NOT SHOWN FOR CLARITY



AT END OF GIRDER
AT C OF GIRDER
0.6" Ø LOW RELAXATION STRAND LAYOUT

BAR TYPES		0.6" Ø L. R. GRADE 270 STRANDS		
NO.	SHAPE	AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
1	6" x 6" x 9"	0.217	58,600	43,950
2	8 3/4" x 8 3/4" x 9"			
3	8 1/2" x 1'-3" x 1'-11 1/2"			
4	8" x 8" x 8"			
5	5" x 4'-0"			
6	6" x 6" x 2" RAD. x 6'-0"			

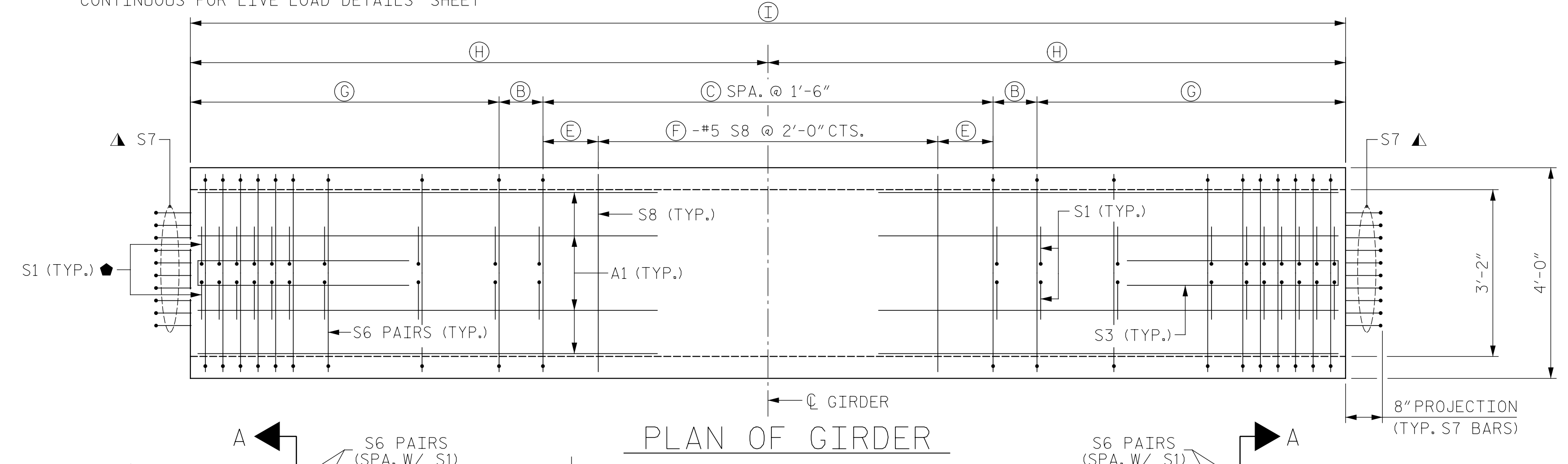
REINFORCING STEEL FOR ONE GDR					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	8	6	STR	28' - 0"	336
S1	348	5	1	7' - 9"	2,813
S2	16	5	STR	6' - 0"	100
S3	14	4	5	8' - 5"	79
S4	40	3	2	3' - 2"	48
S5	292	3	3	4' - 3"	467
S6	348	5	4	4' - 9"	1,724
▲ S7	20	5	STR	3' - 8"	76
S8	62	5	STR	3' - 8"	237
S9	8	5	6	12' - 6"	104
S10	16	4	STR	8' - 0"	86

QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
		LB.	C.Y.
GDR GGX	6,070	43.7	67

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
9	154'-2"	1,387'-6"

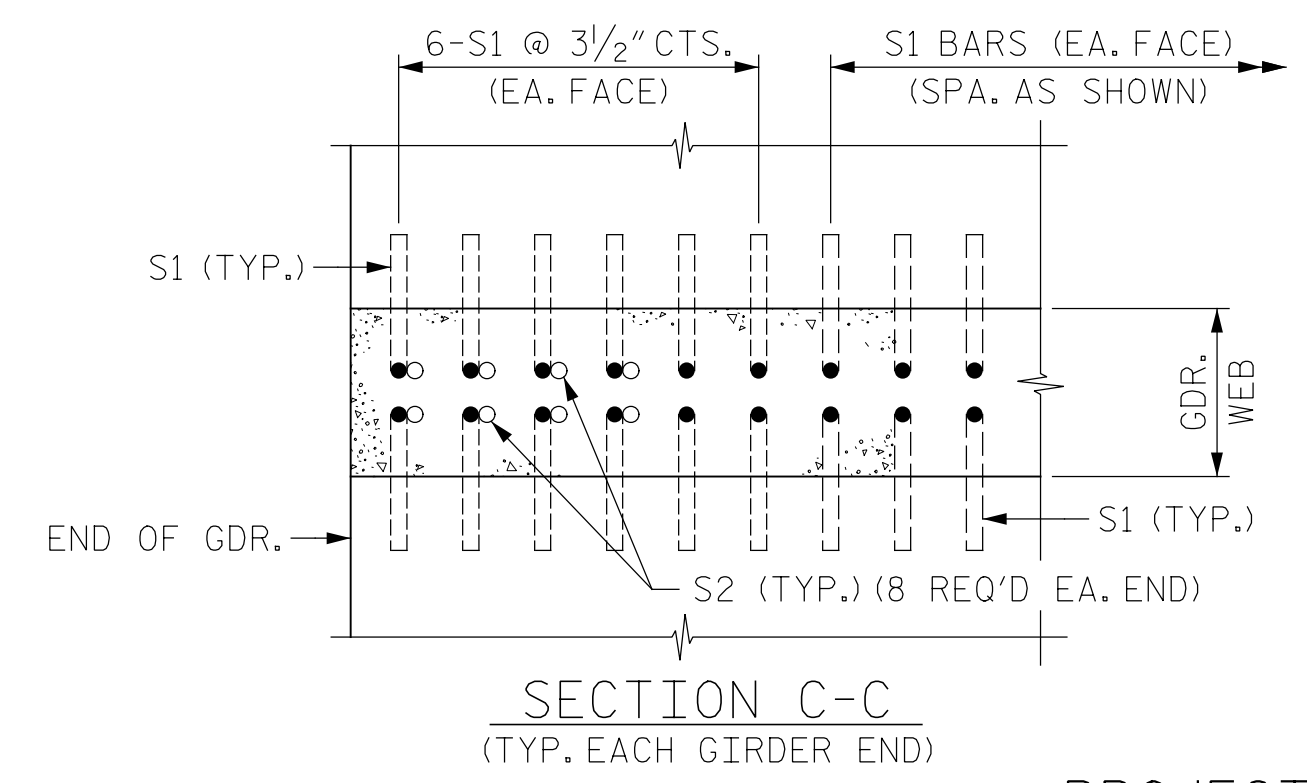
ALL BAR DIMENSIONS ARE OUT-TO-OUT

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

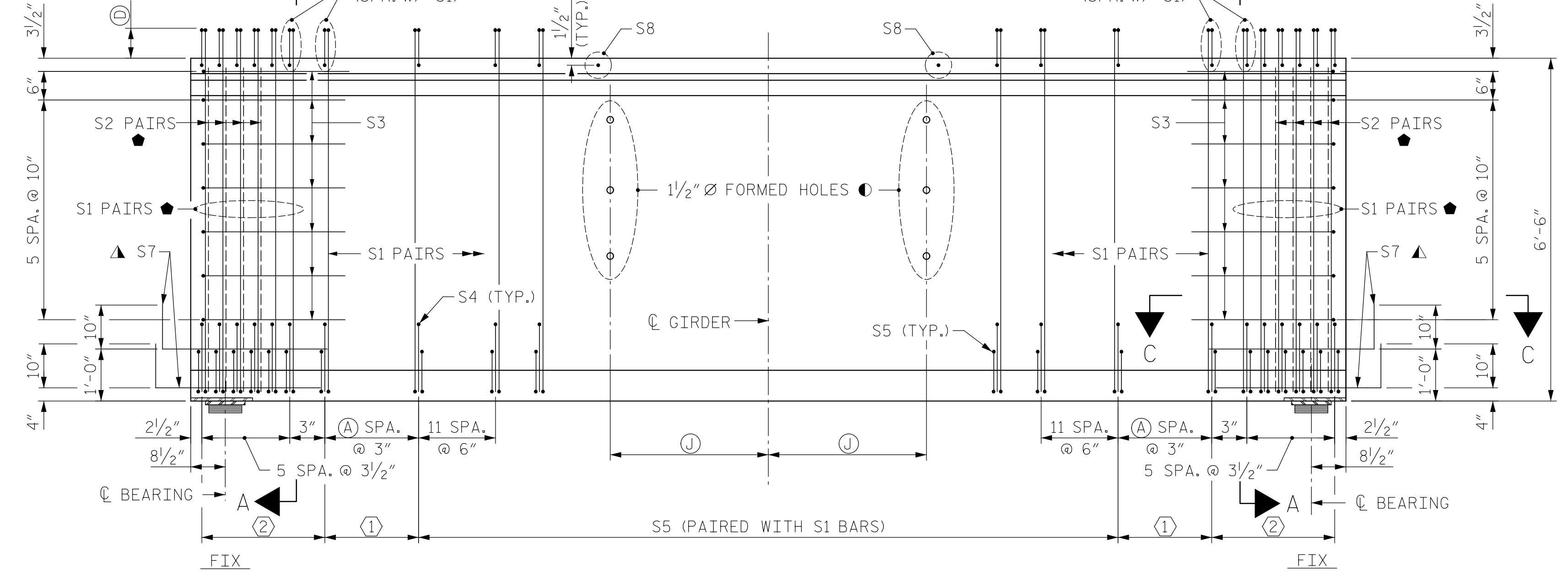


PLAN OF GIRDER

TABLE OF VARIABLES										
SPAN	A	B	C	D	E	F	G	H	I	J
G	27	8"	83	6"	9"	62	14'-2"	77'-1"	154'-2"	25'-5 1/2"



SECTION C-C (TYP. EACH GIRDER END)



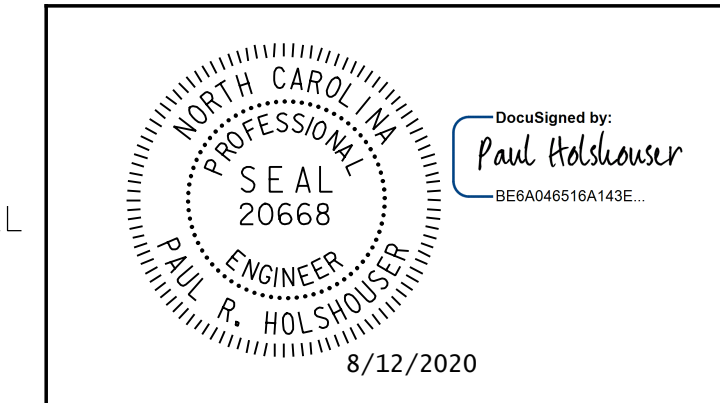
ELEVATION OF GIRDER

- ① 14-S4 & S5 PAIRS @ 6" CTS. (PAIRED WITH S1 BARS)
- ② S4 & S5 PAIRS (SPA. AS SHOWN) (PAIRED WITH S1 BARS)

● SEE "SECTION C-C" FOR MORE INFORMATION & DETAILS

● SEE "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL INFORMATION AND DETAILS.

S1 & S6 BARS MAY BE SHIFTED AS FOUND NECESSARY TO CLEAR 1/2" Ø HOLES IN GIRDER WEB



PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 7 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
78" FLORIDA I-BEAM (FIB) SPAN G					
CONTINUOUS FOR LIVE LOAD PRESTRESSED CONCRETE GIRDER					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

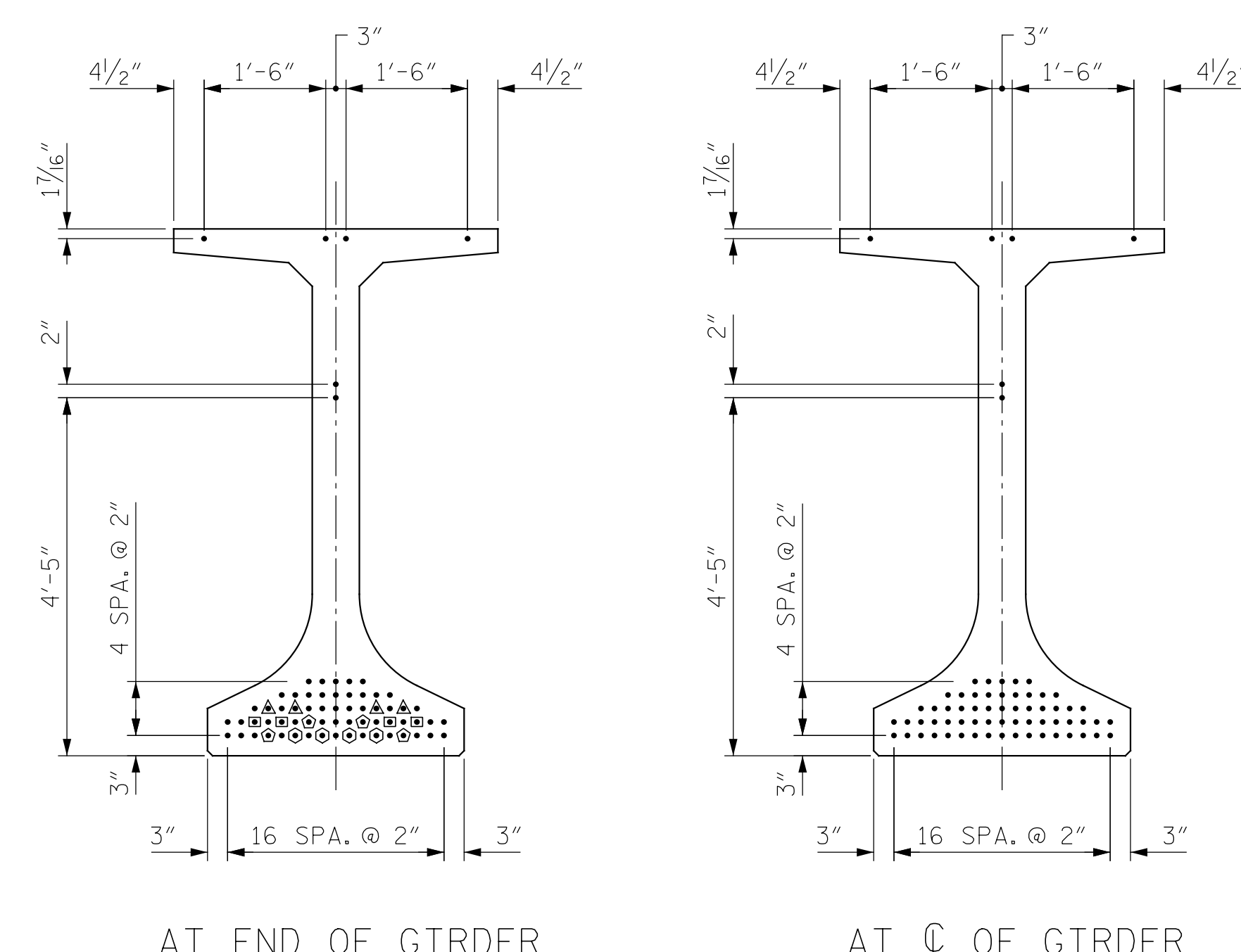
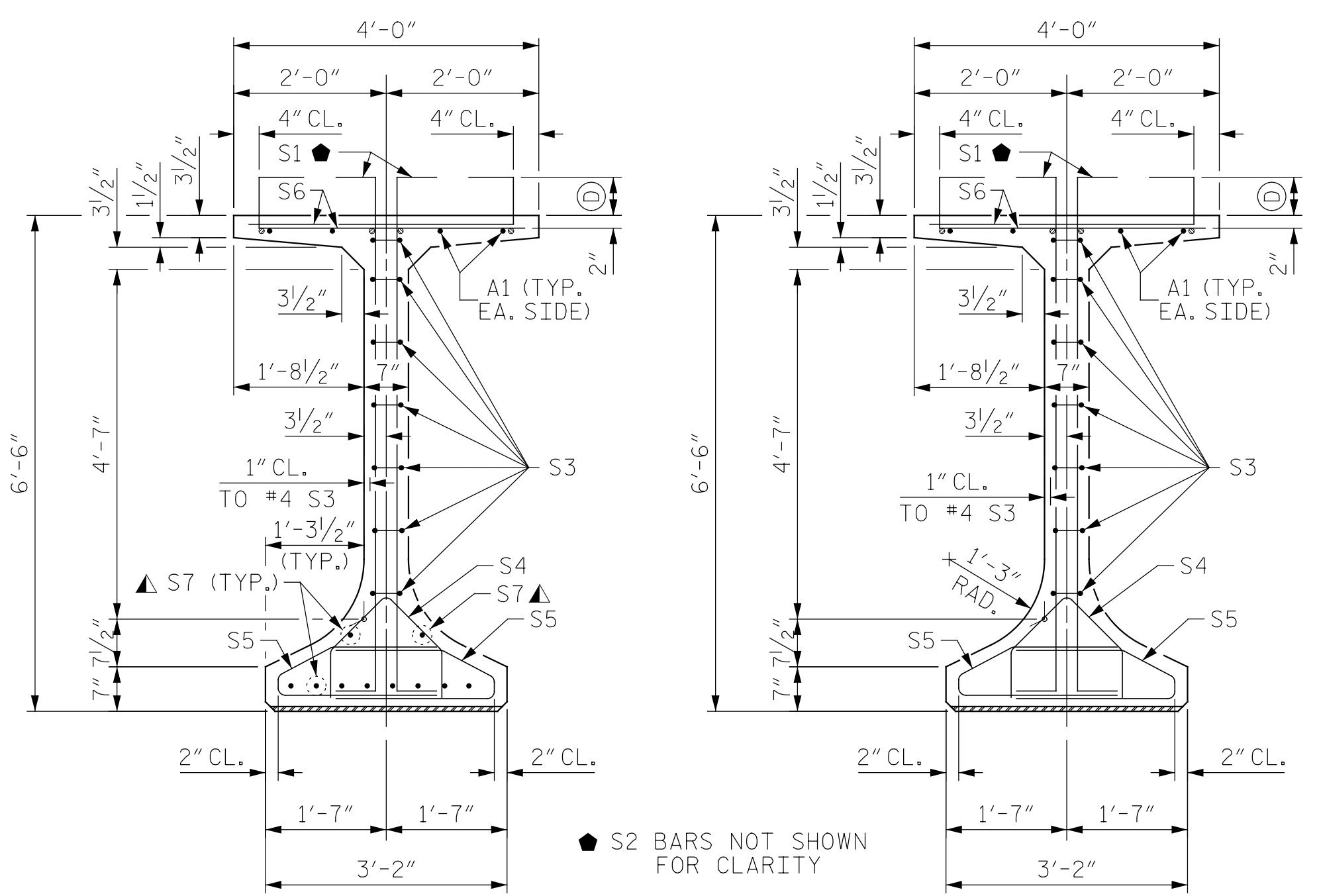
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4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-9999

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UNLESS ALL SIGNATURES COMPLETED

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 Plot Date: 8/11/2020 10:08:20 PM

DRAWN BY: B. J. MANTEI DATE: 7/16/20
CHECKED BY: N. REZAEI DATE: 7/16/20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

SHEET NO. S-34
TOTAL SHEETS 107



0.6" Ø LOW RELAXATION STRAND LAYOUT

BAR TYPES		0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)		
0.217	58,600	43,950		
REINFORCING STEEL FOR ONE GDR				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	8	6	STR 28' - 0"	336
S1	348	5	1 7' - 9"	2,813
S2	16	5	STR 6' - 0"	100
S3	14	4	5 8' - 5"	79
S4	40	3	2 3' - 2"	48
S5	292	3	3 4' - 3"	467
S6	348	5	4 4' - 9"	1,724
▲ S7	10	5	STR 3' - 8"	38
S8	62	5	STR 3' - 8"	237
S9	8	5	6 12' - 6"	104
S10	16	4	STR 8' - 0"	86
QUANTITIES FOR ONE GIRDER				
GDR HGX	REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS	
	LB.	C.Y.	No.	
	6,032	43.8	67	
GIRDERS REQUIRED				
NUMBER	LENGTH	TOTAL LENGTH		
9	154'-7"	1,391'-3"		

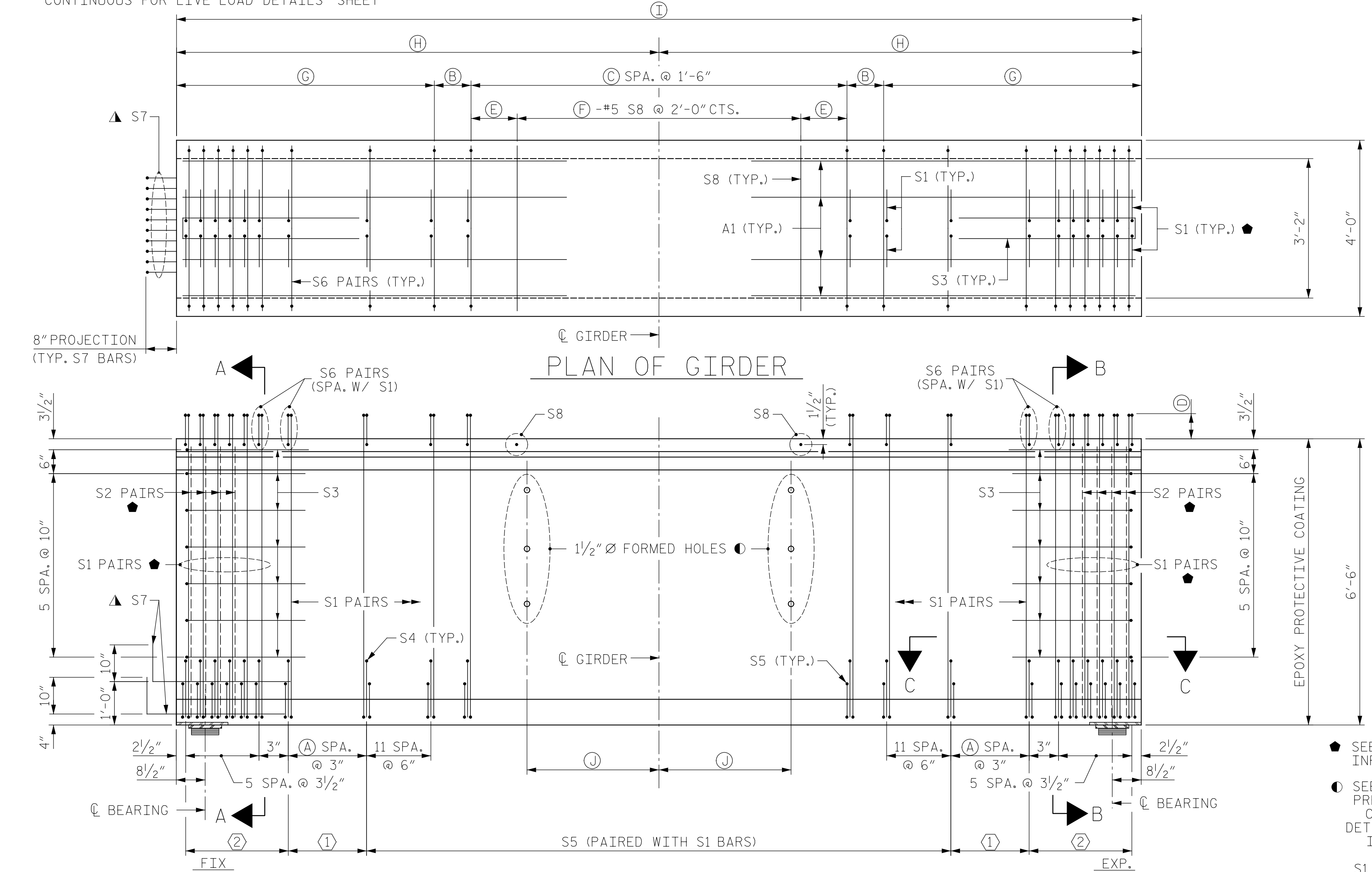
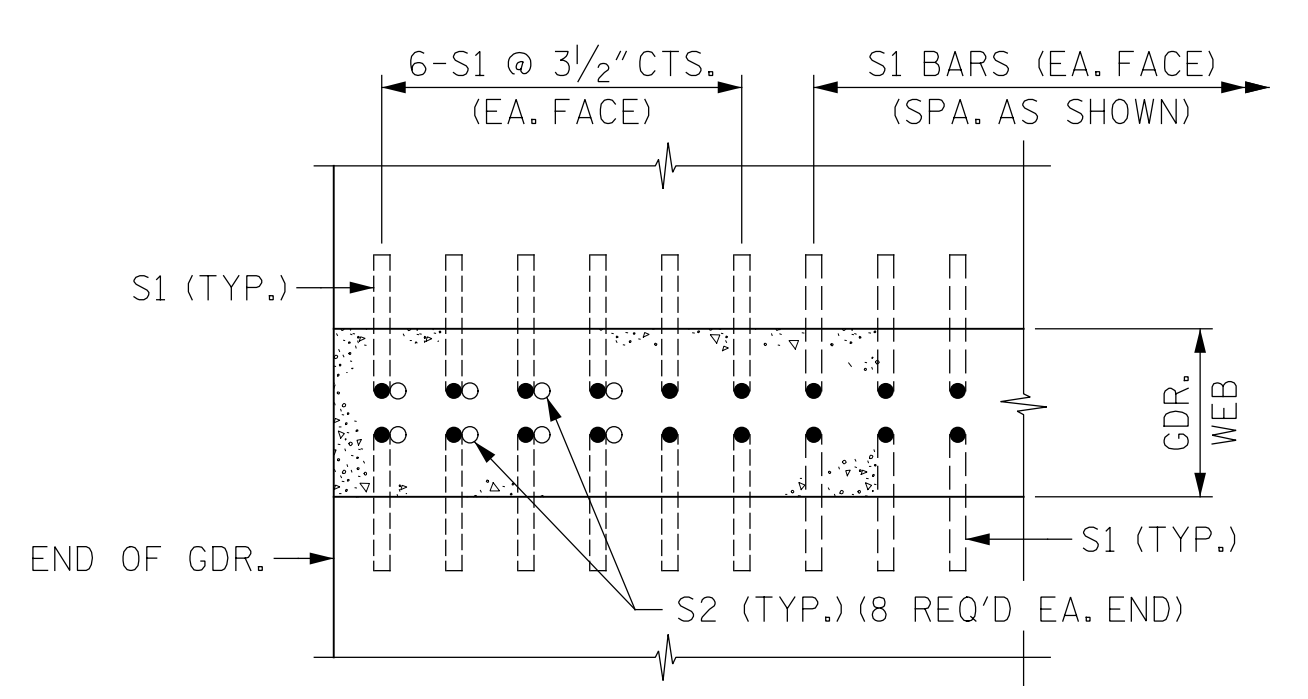
ALL BAR DIMENSIONS ARE OUT-TO-OUT

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

▲ FOR S7 BARS, SEE "DETAIL C" ON "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET

DEBONDING LEGEND	
●	FULLY BONDED STRANDS
▲	STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
■	STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
◈	STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
◉	STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER

TABLE OF VARIABLES										
SPAN	A	B	C	D	E	F	G	H	I	J
H	27	10 1/2"	83	6"	1'-3"	62	14'-2"	77'-3 1/2"	154'-7"	25'-6"

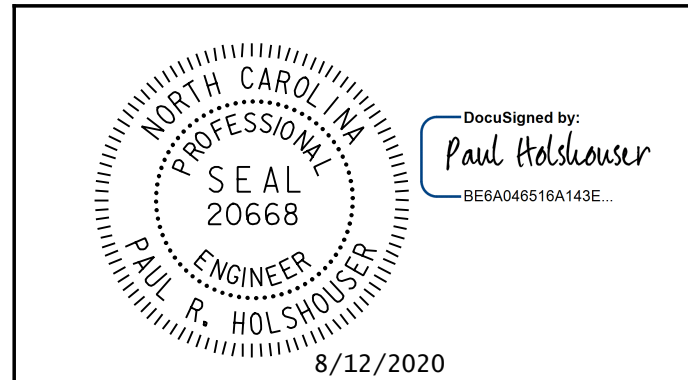


● SEE "SECTION C-C" FOR MORE INFORMATION & DETAILS

① SEE "78" FLORIDA I-BEAM (FIB) PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL INFORMATION AND DETAILS.

S1 & S6 BARS MAY BE SHIFTED AS FOUND NECESSARY TO CLEAR 1 1/2" Ø HOLES IN GIRDER WEB

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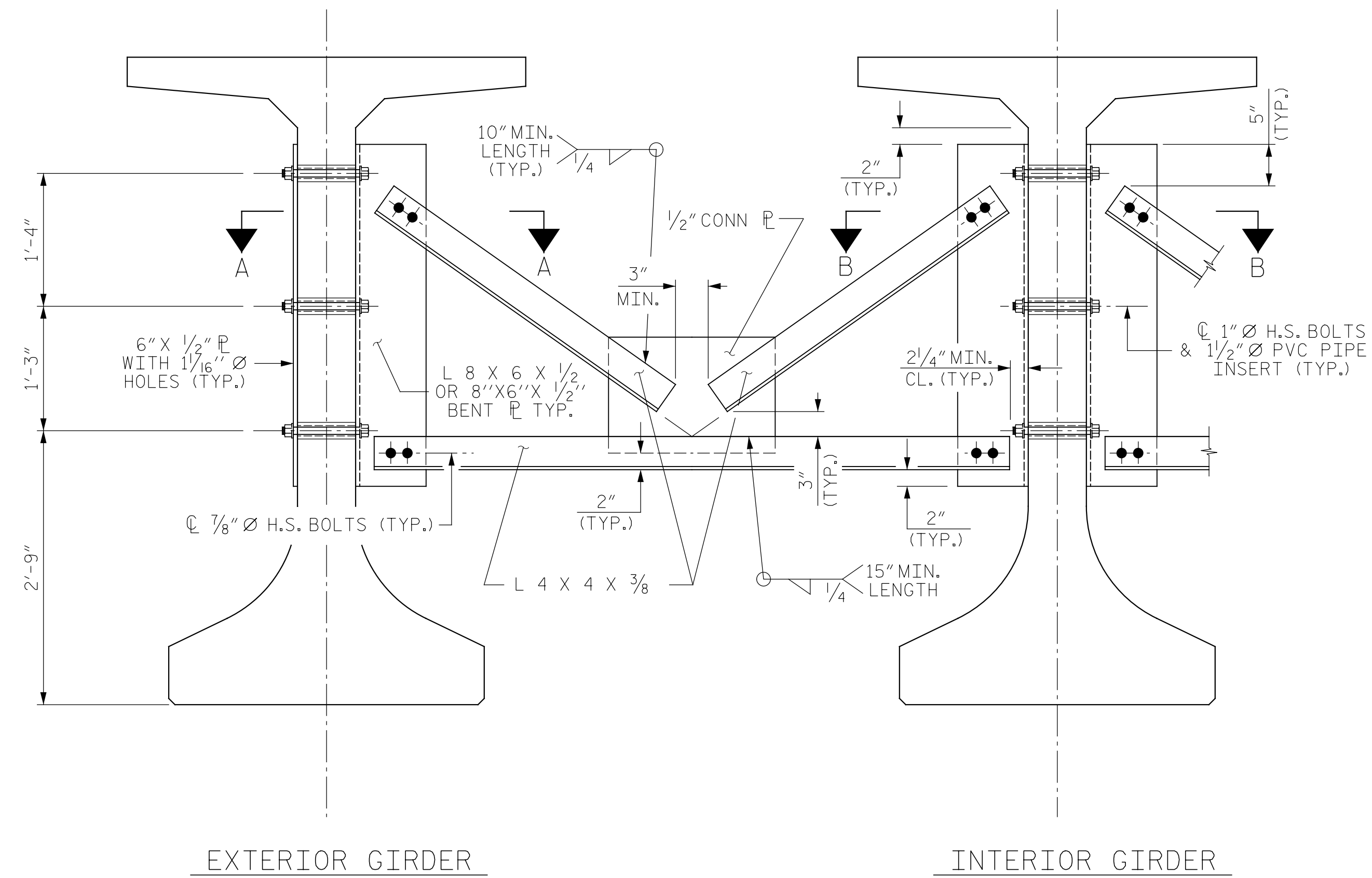
PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 8 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 78" FLORIDA I-BEAM (FIB)
 SPAN H
 CONTINUOUS FOR LIVE LOAD
 PRESTRESSED CONCRETE GIRDER

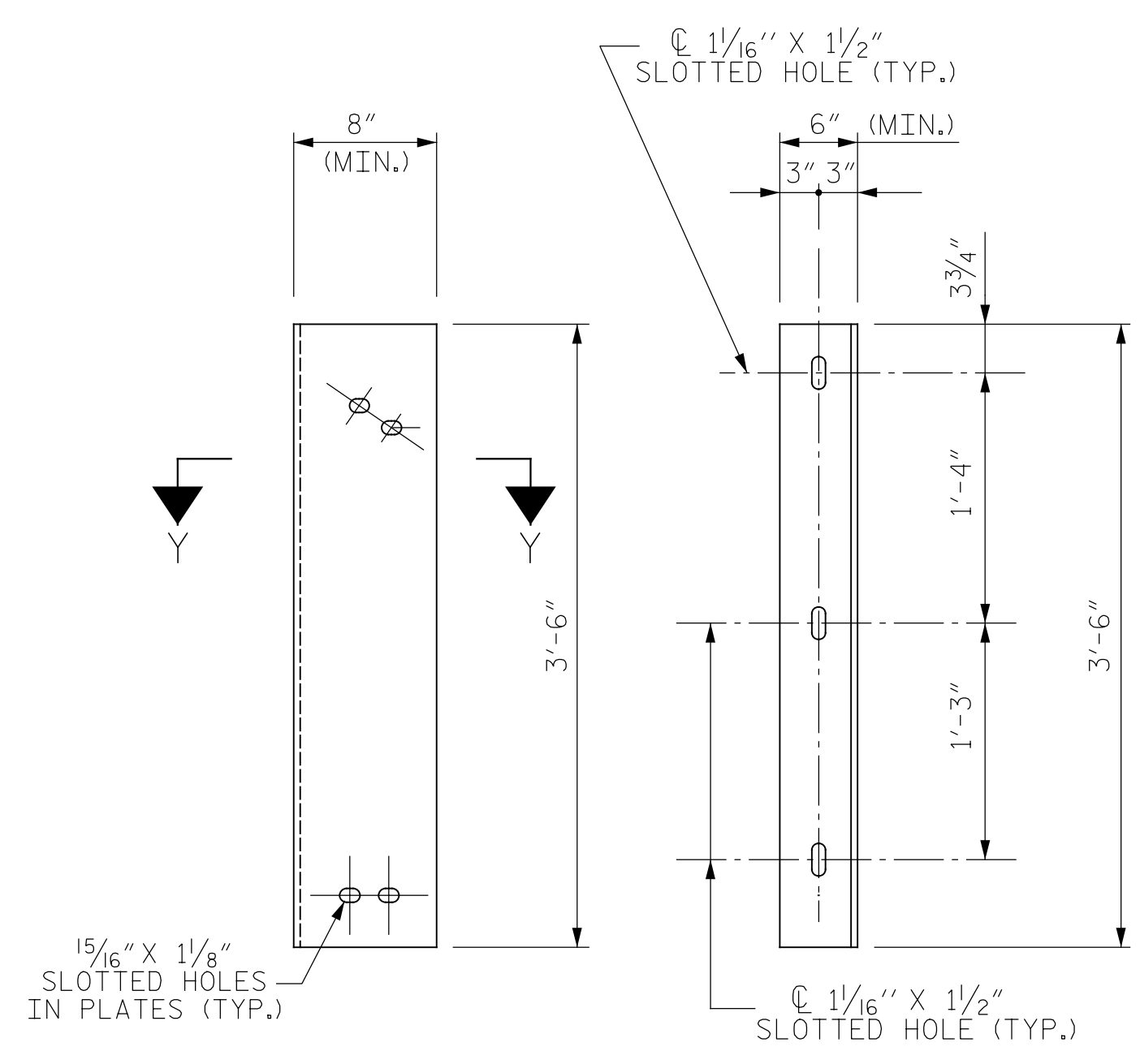
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			107

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 CHECKED BY: N. REZAEI DATE: 7/16/20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

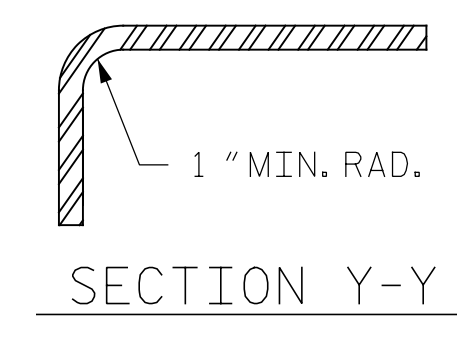
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PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTOR PLATE DETAIL



SECTION Y-Y

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

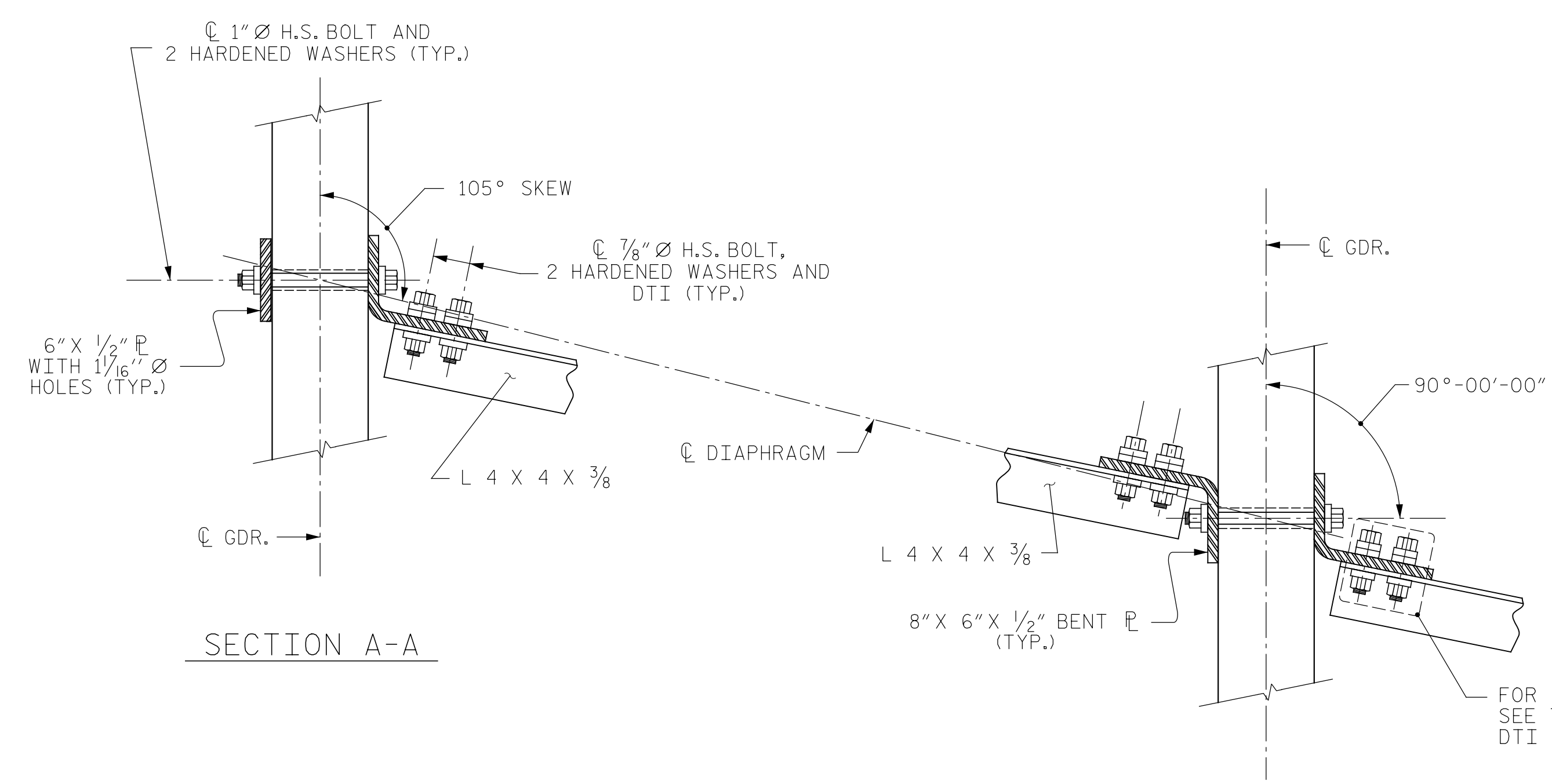
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

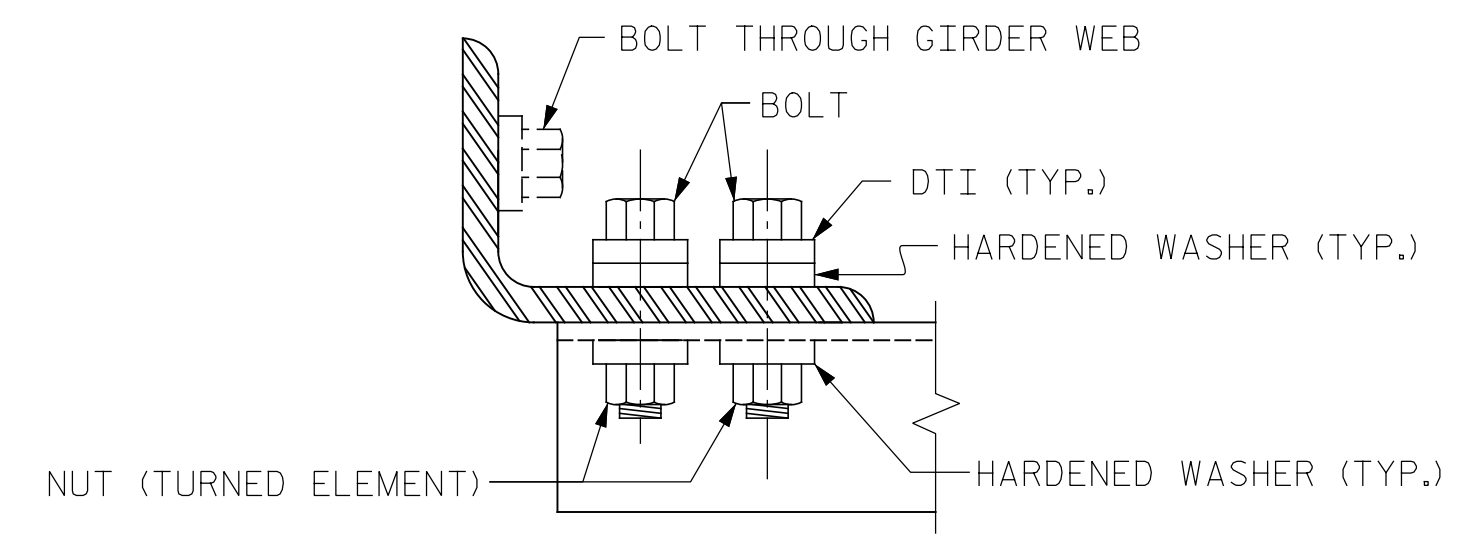
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

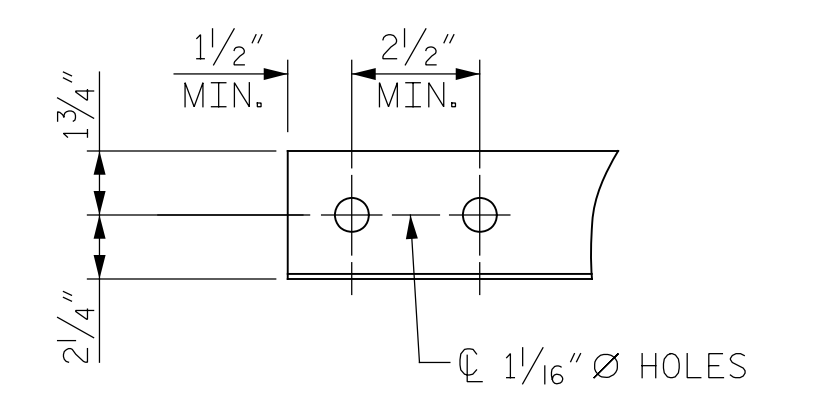
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



CONNECTION DETAILS

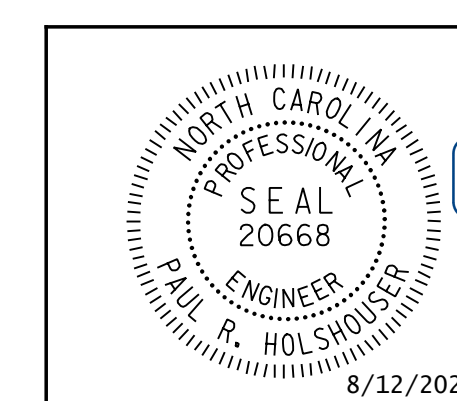


BOLT WITH DTI ASSEMBLY DETAIL



ANGLE END (L 4 X 4 X 3/8)

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-



DocuSigned by:
 Paul Holshouser
 BE6A048516A143E



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 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

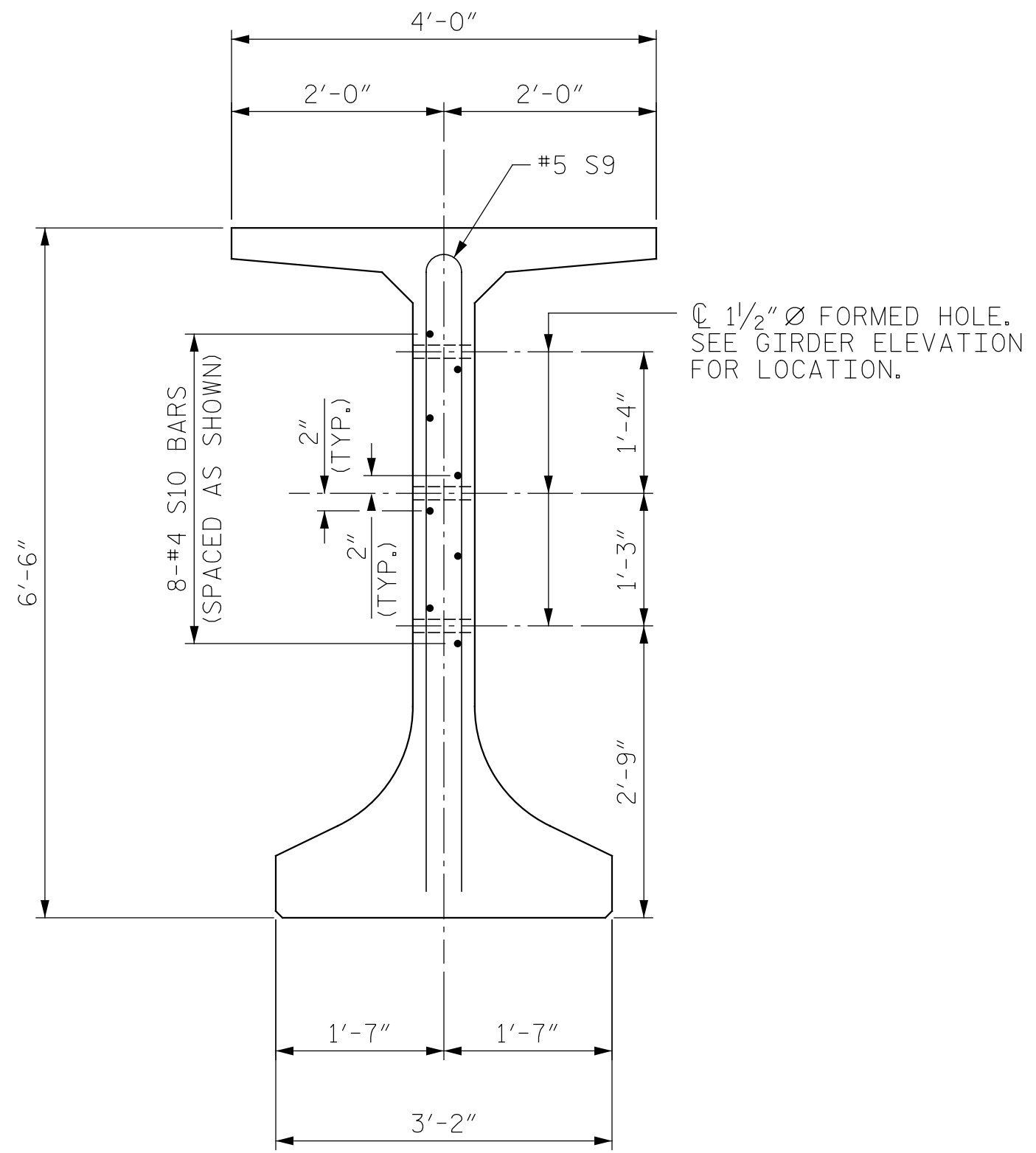
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUPERSTRUCTURE					
INTERMEDIATE					
STEEL DIAPHRAGMS					
78" FLORIDA I-BEAM (FIB)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-36
 TOTAL SHEETS 107

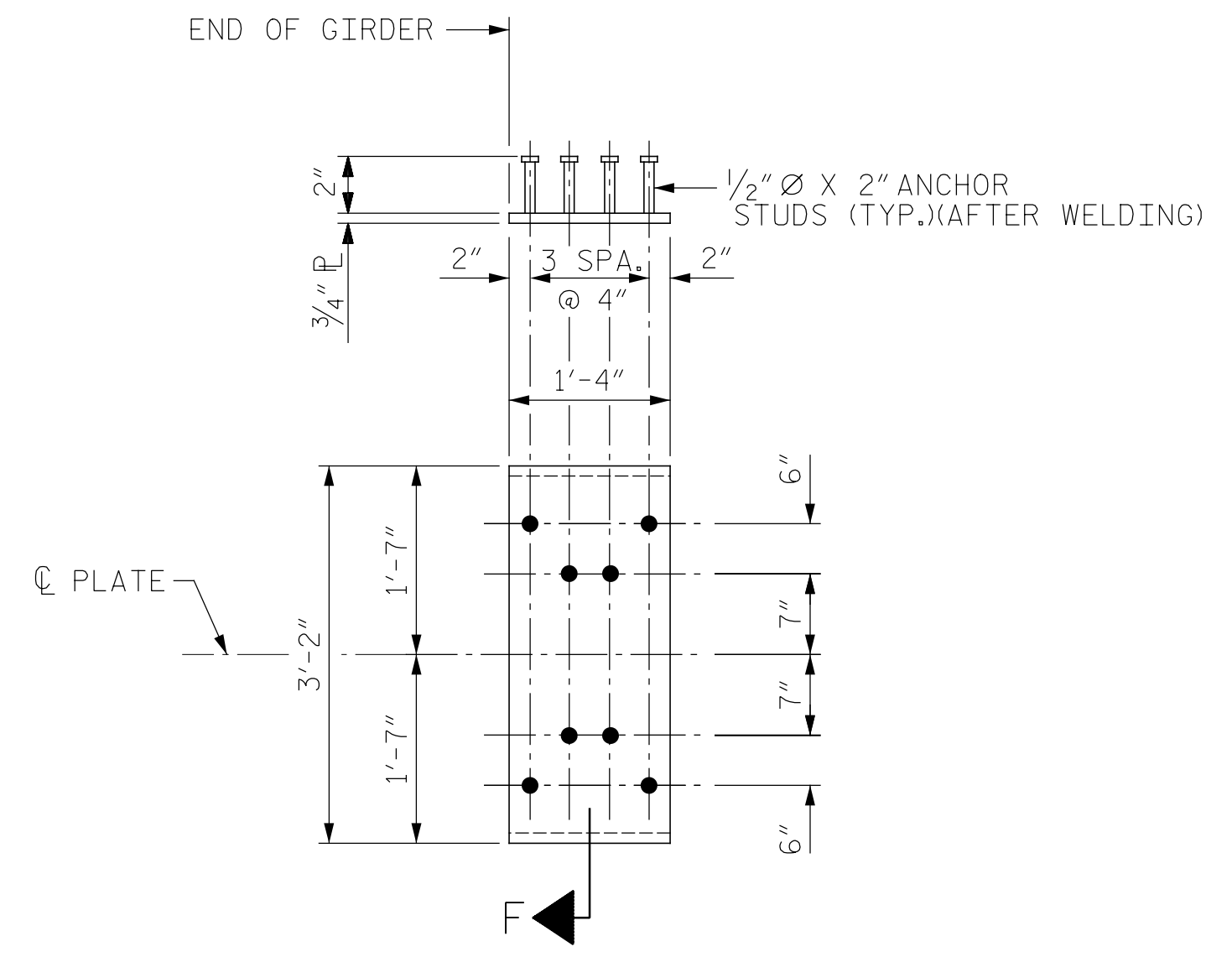
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 CHECKED BY: K. C. SAMUDRALA DATE: 7-14-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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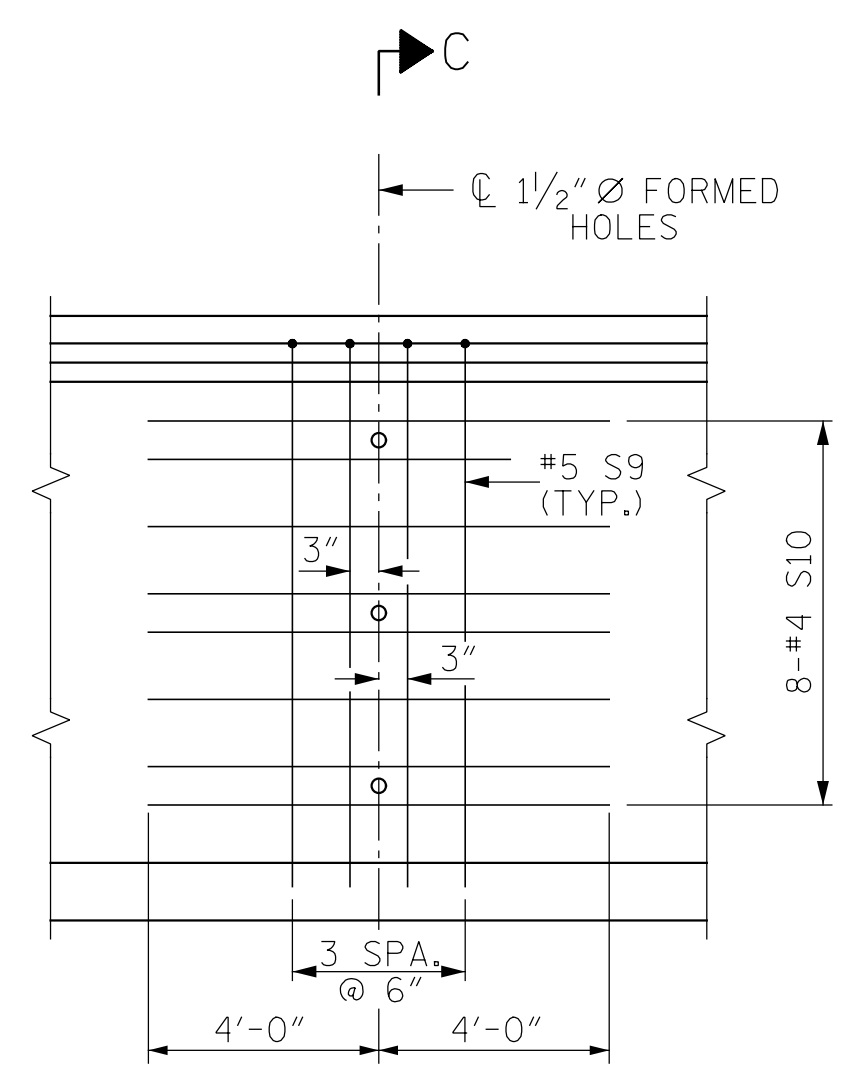
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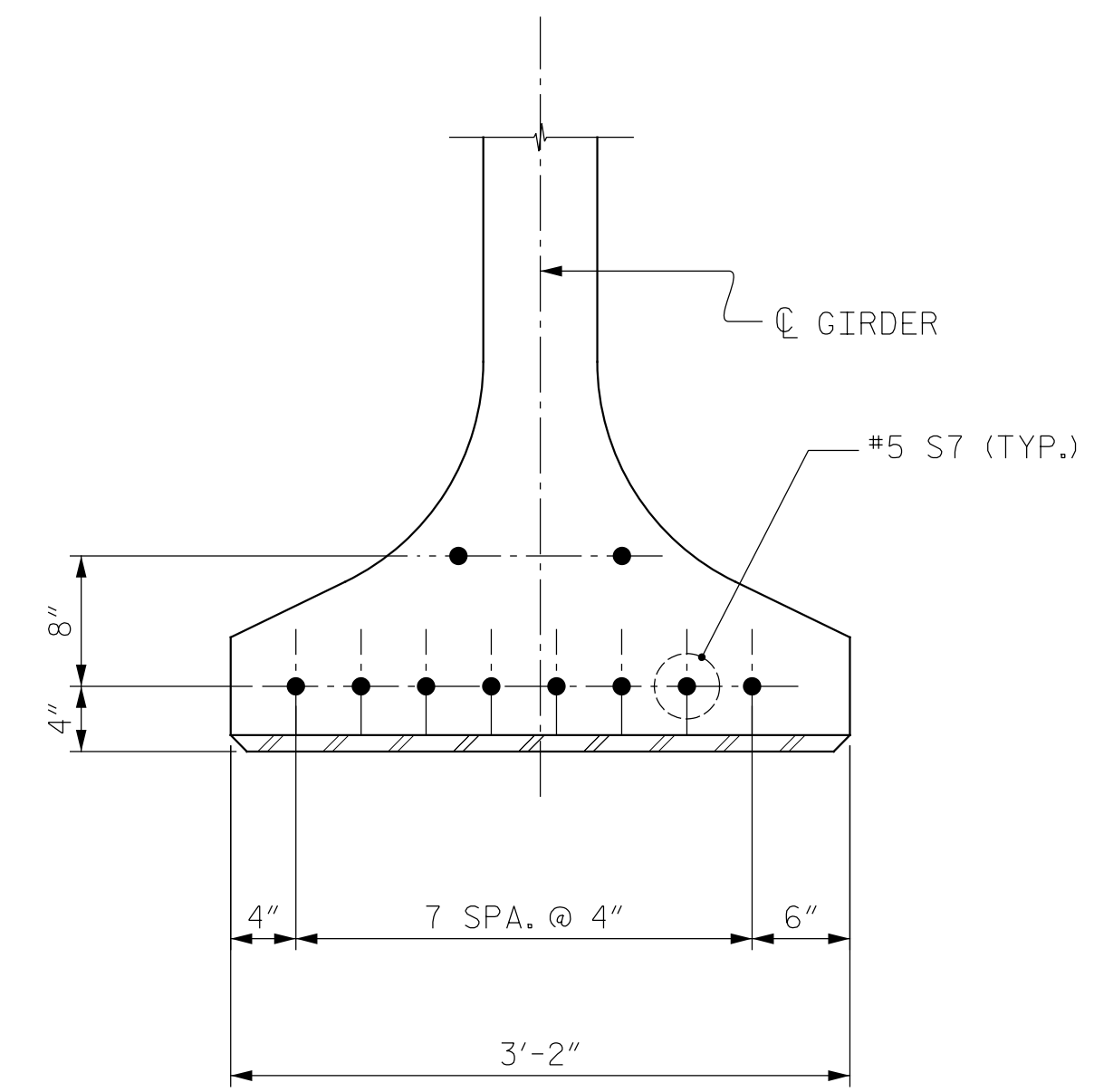
SECTION C-C
(S2, S6 AND S8 BARS NOT SHOWN)



EMBEDDED PLATE "B-1" DETAILS
(2 REQ'D PER GIRDER)



PARTIAL ELEVATION



DETAIL C

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

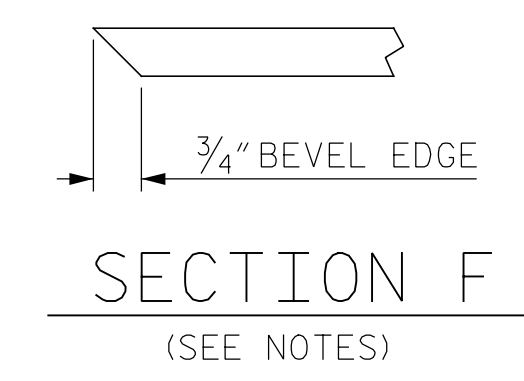
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7,000 PSI.

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

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

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

FOR 78" FLORIDA I-BEAM (FIB) GIRDERS, SEE SPECIAL PROVISIONS.

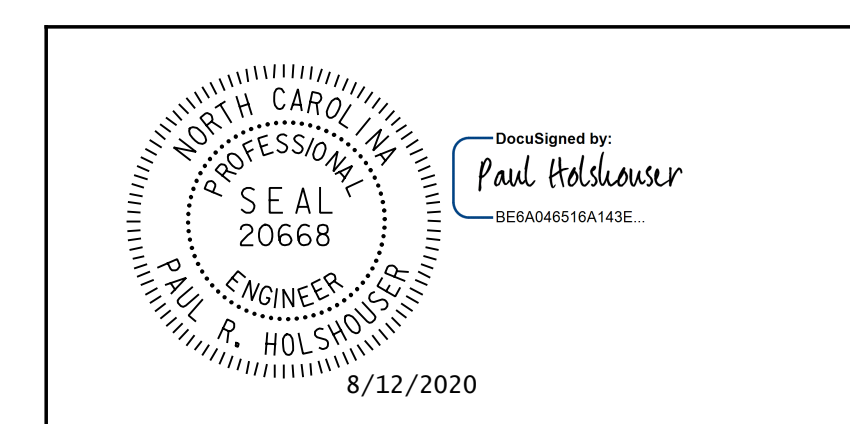


SECTION F
(SEE NOTES)

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
78" FLORIDA I-BEAM (FIB)
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			107

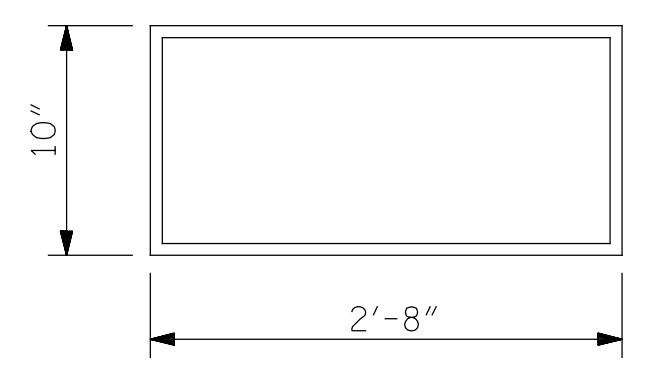
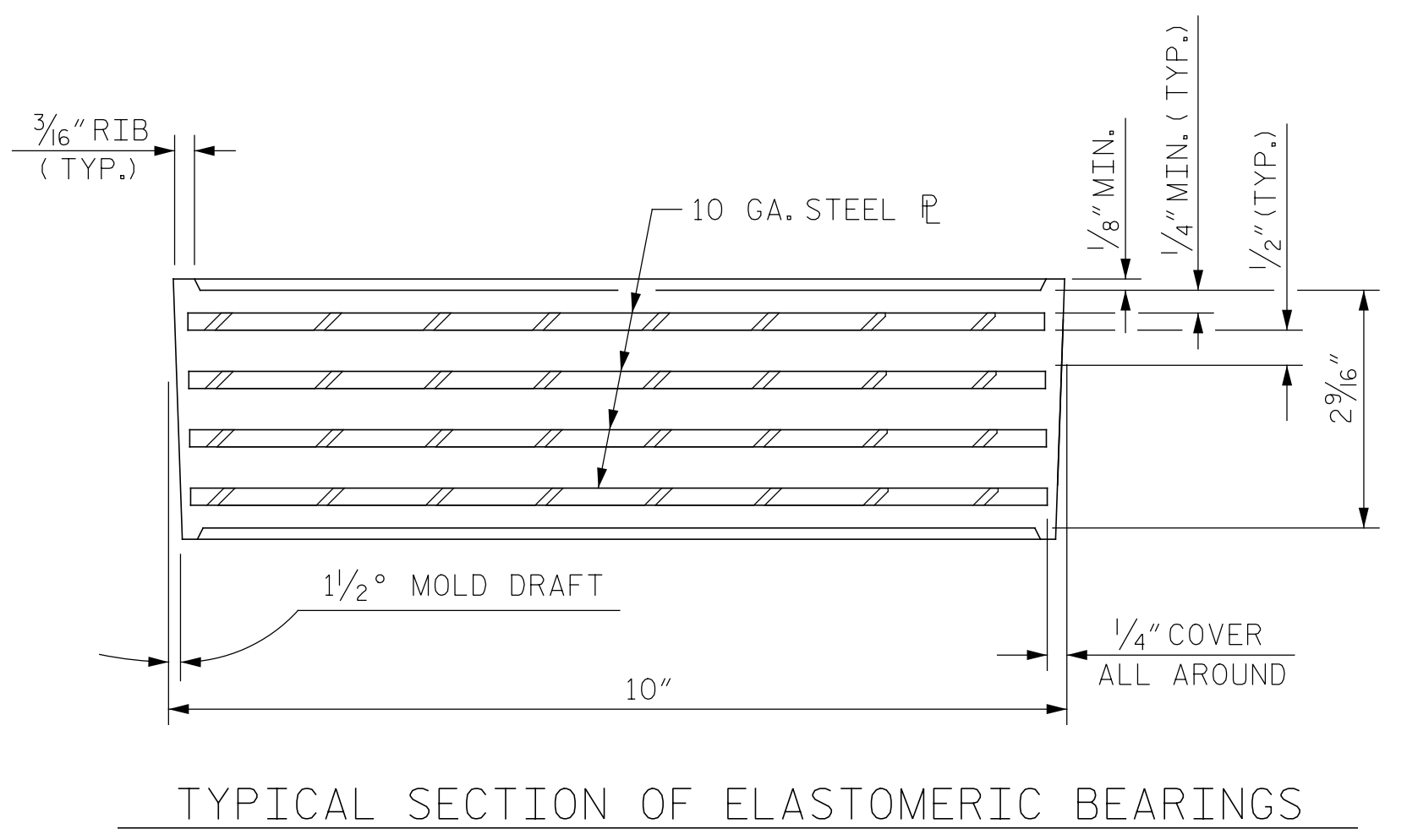
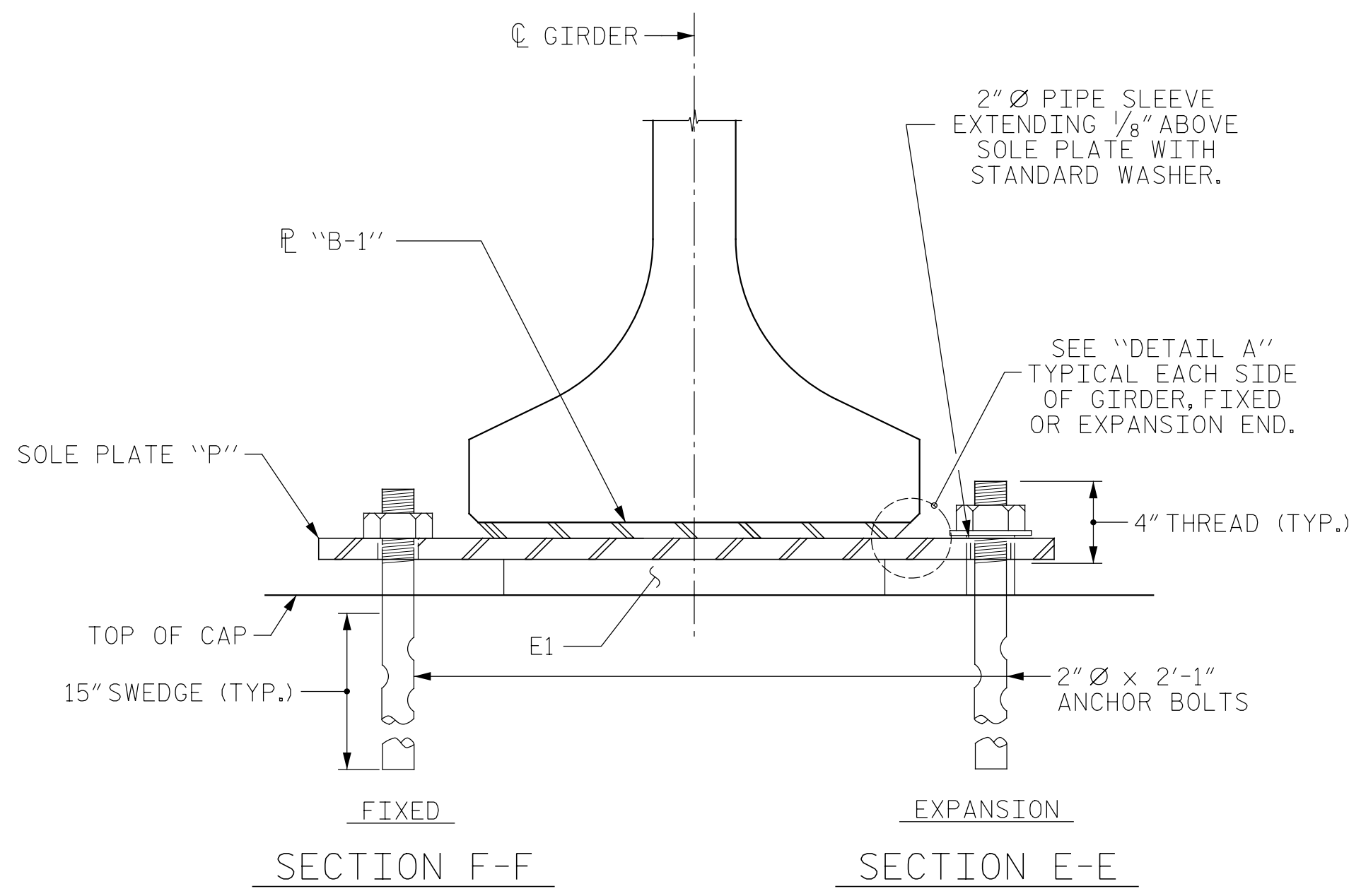


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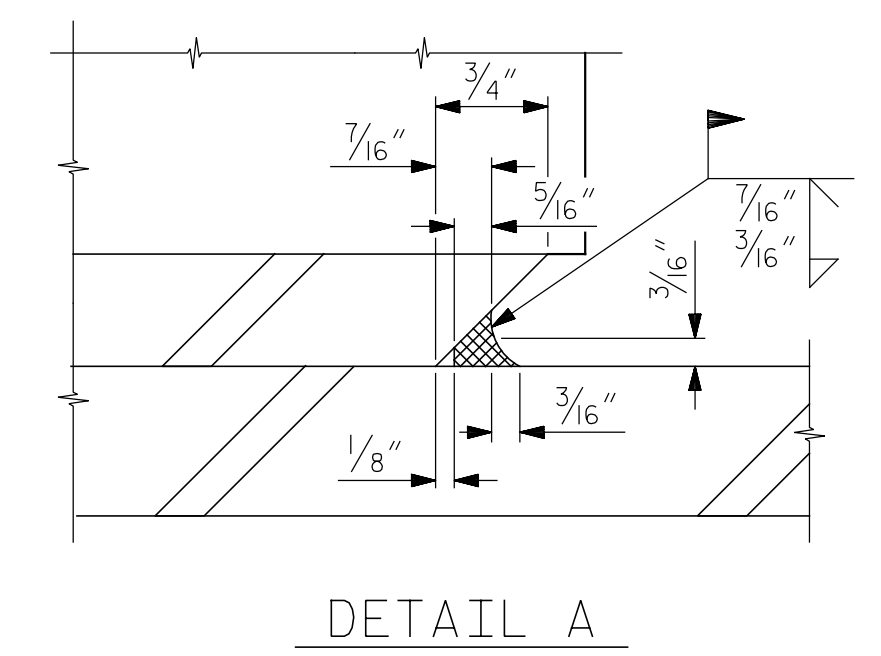
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DRAWN BY: J. N. AUSTIN DATE: 6-12-20
CHECKED BY: K. C. SAMUDRALA DATE: 7-14-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



E1 (144 REQ'D)
 PLAN VIEW OF ELASTOMERIC BEARING
 TYPE E1



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. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, 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 150 PSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

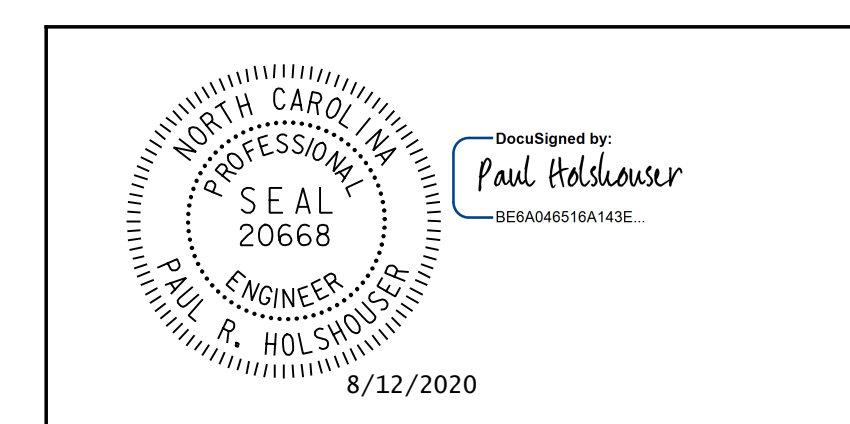
STEEL PLATES IN BEARING PADS SHALL CONFORM TO ASTM A1011 GRADE 36, TYPE 1.

FOR "SECTION E-E" AND "SECTION F-F" DETAILS, SEE "ELASTOMERIC BEARING DETAILS" SHEET 2 OF 2

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE E1	505 k

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 1 OF 2



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

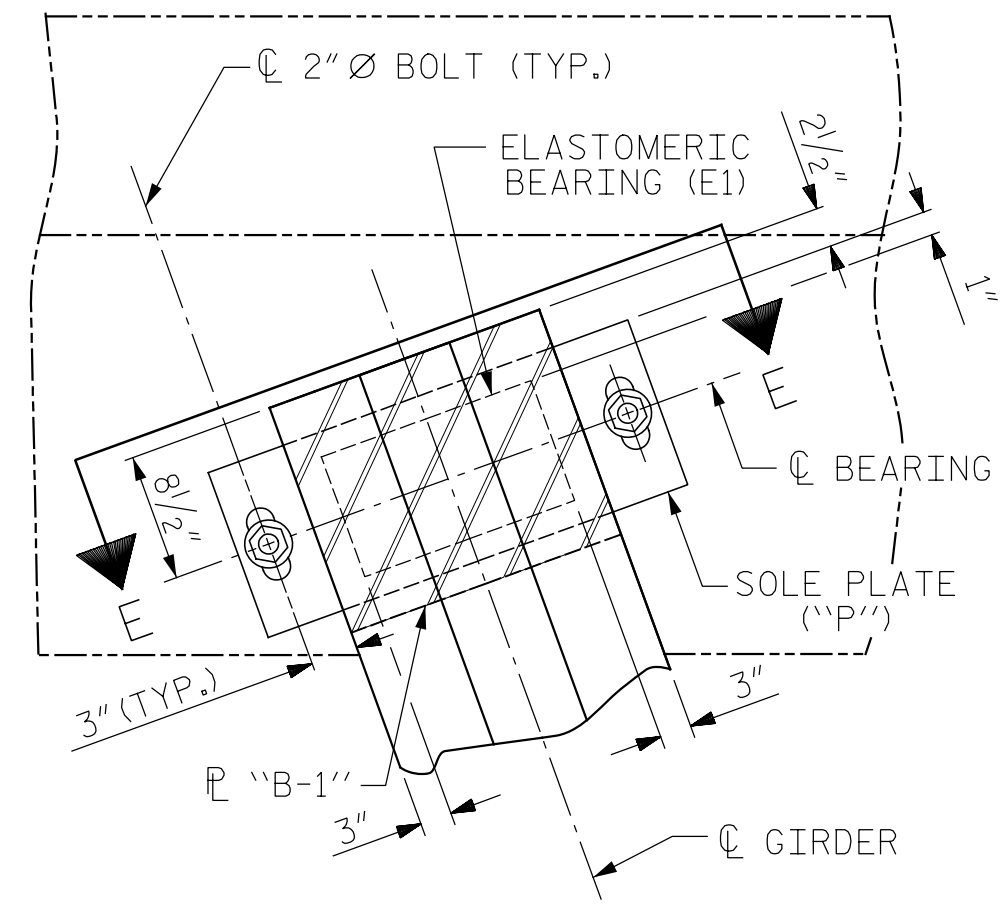
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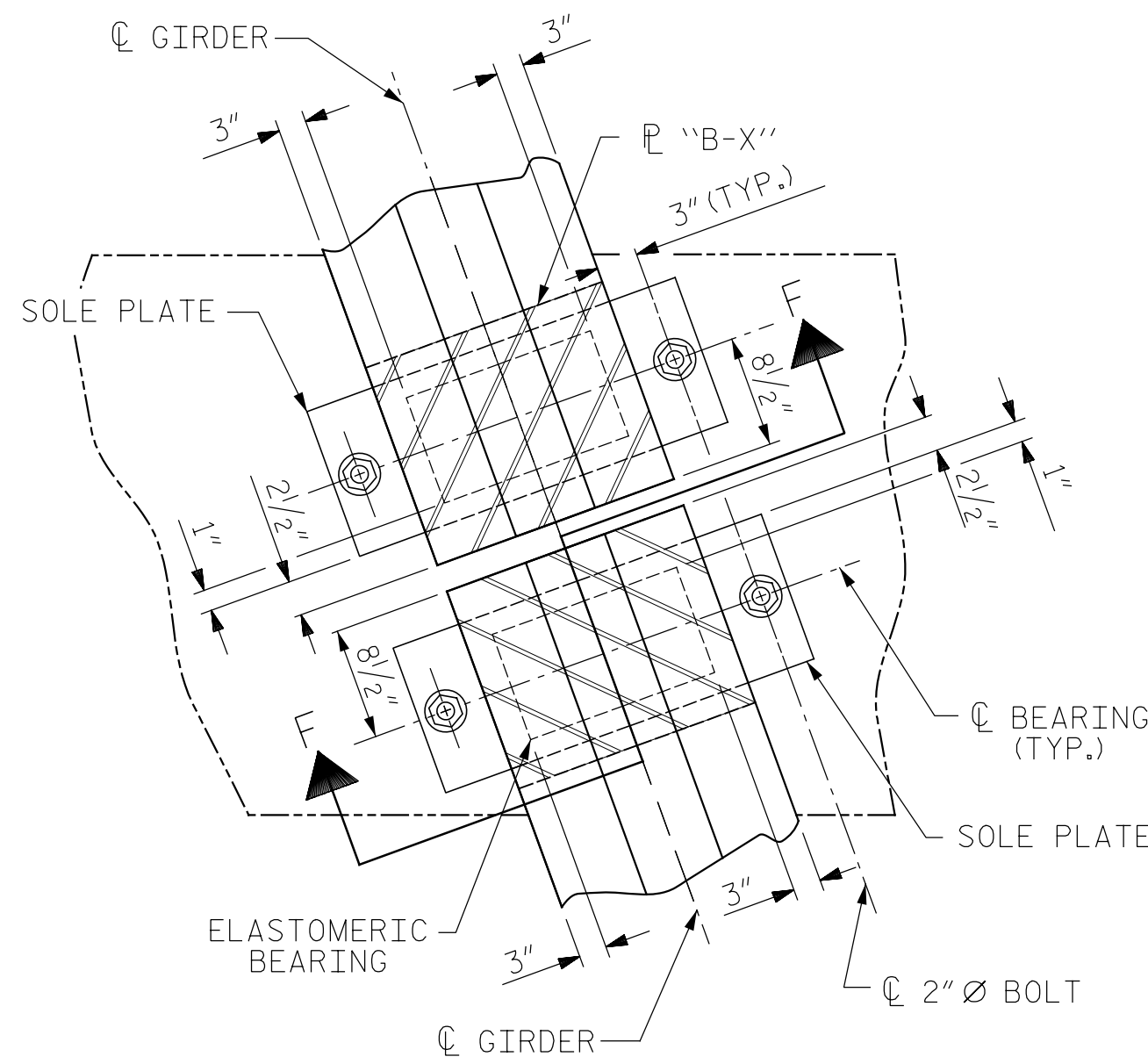
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 License #: P-0999

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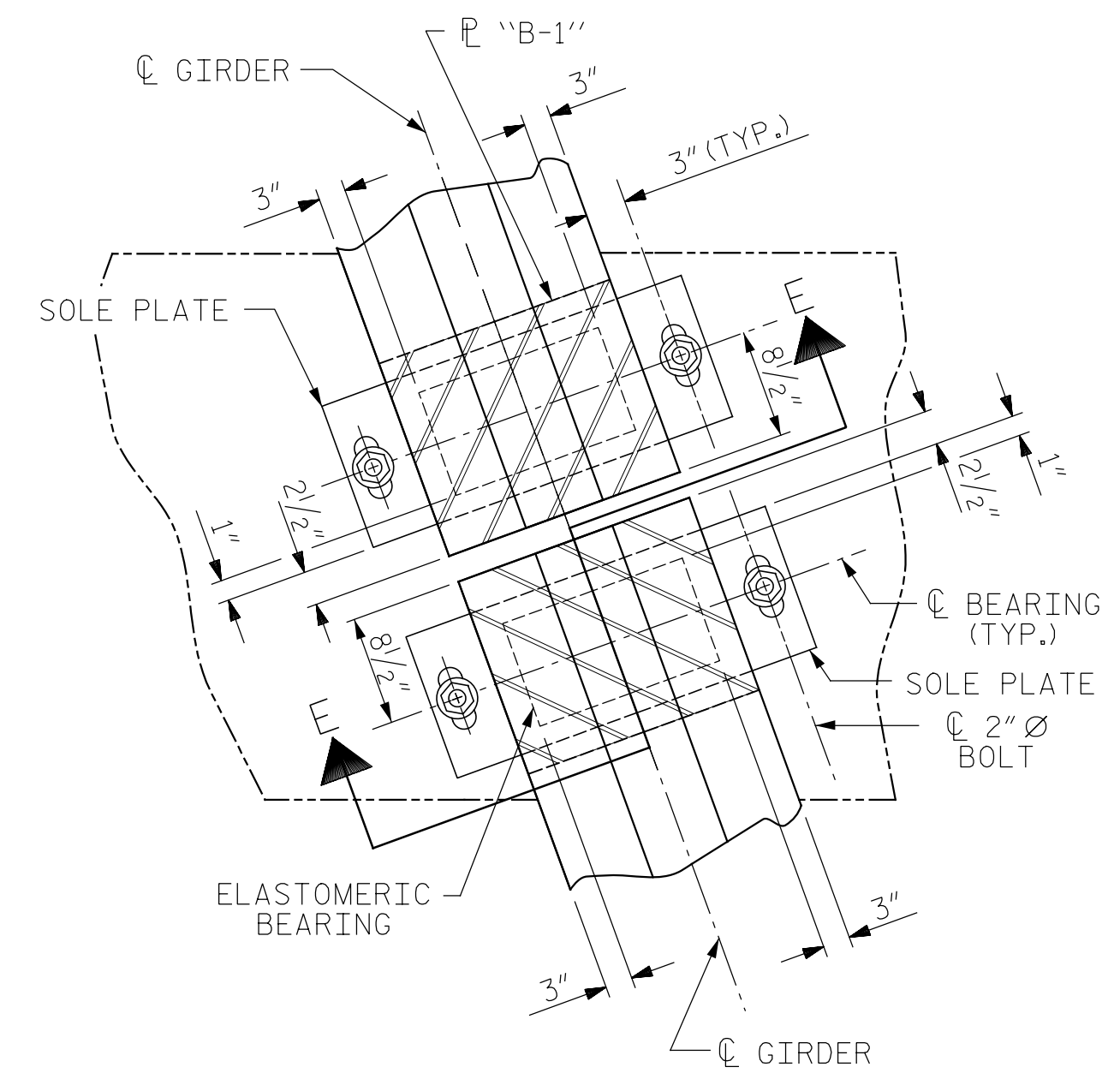
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FOR "SECTION E-E" AND "SECTION F-F", SEE "ELASTOMERIC BEARING DETAILS" SHEET 1 OF 2



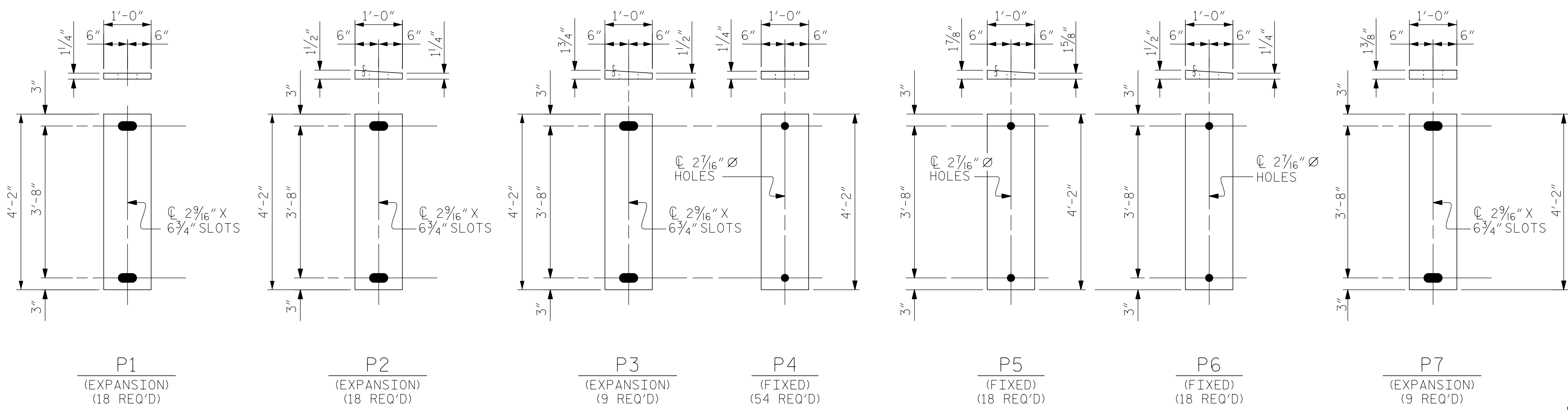
TYPICAL PLAN @ END BENTS



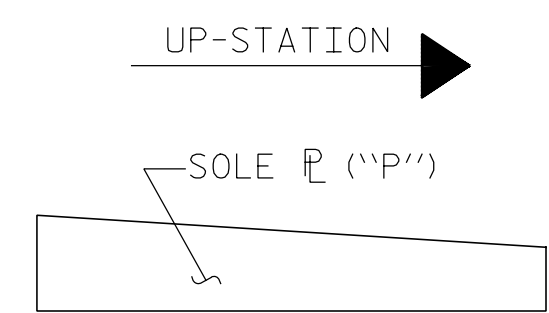
TYPICAL PLAN @ BENTS 1, 2, 4, 6, & 7
(SHOWING CONTINUOUS BENT)



TYPICAL PLAN @ BENTS 3 & 5
(SHOWING NON-CONTINUOUS BENT)



SOLE PLATE DETAILS ("P")



SOLE PLATE PLACEMENT DETAIL

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 2 OF 2

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

Professional Engineer Seal for Paul R. Holshouser, License # 20668, dated 8/12/2020.

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39	
1			3			TOTAL SHEETS	
2			4			107	

DRAWN BY: J. N. AUSTIN DATE: 6-10-20
CHECKED BY: P. R. H. / N. D. DATE: 7-23-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN A																					
	GIRDER AG1																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.025	0.050	0.073	0.094	0.113	0.128	0.141	0.150	0.156	0.158	0.156	0.150	0.141	0.128	0.113	0.094	0.073	0.050	0.025	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.016	0.032	0.047	0.062	0.074	0.085	0.093	0.100	0.102	0.104	0.101	0.099	0.091	0.083	0.071	0.059	0.045	0.030	0.015	0.000
FINAL CAMBER	↑	0	1/8"	3/16"	5/16"	3/8"	1/2"	1/2"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	1/2"	7/16"	5/16"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN A																					
	GIRDER AG2																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.025	0.050	0.073	0.094	0.113	0.128	0.141	0.150	0.156	0.158	0.156	0.150	0.141	0.128	0.113	0.094	0.073	0.050	0.025	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.016	0.031	0.046	0.061	0.072	0.084	0.091	0.098	0.100	0.103	0.100	0.097	0.089	0.081	0.070	0.058	0.044	0.030	0.015	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	5/16"	3/8"	1/2"	1/2"	5/8"	5/8"	11/16"	11/16"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN A																					
	GIRDERS AG3 & AG4																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.025	0.050	0.073	0.094	0.113	0.128	0.141	0.150	0.156	0.158	0.156	0.150	0.141	0.128	0.113	0.094	0.073	0.050	0.025	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.015	0.029	0.043	0.056	0.067	0.078	0.084	0.091	0.093	0.095	0.092	0.090	0.083	0.076	0.065	0.054	0.041	0.027	0.014	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	9/16"	5/8"	11/16"	11/16"	3/4"	3/4"	3/4"	3/4"	11/16"	5/8"	9/16"	1/2"	3/8"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

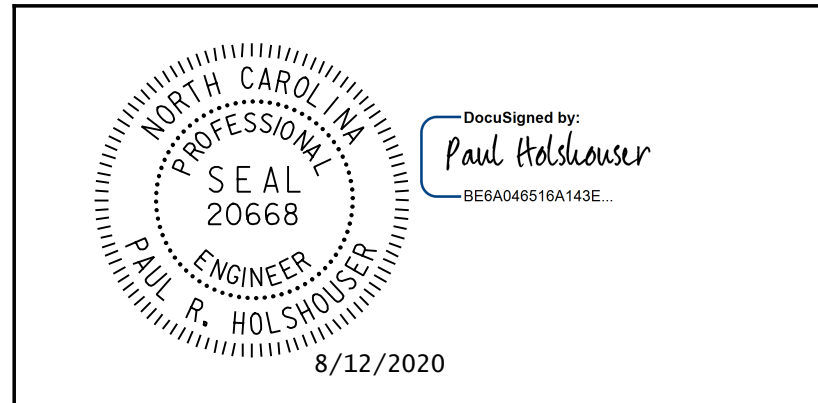
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN A																					
	GIRDERS AG5 THRU AG8																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.025	0.050	0.073	0.094	0.113	0.128	0.141	0.150	0.156	0.158	0.156	0.150	0.141	0.128	0.113	0.094	0.073	0.050	0.025	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.018	0.037	0.054	0.071	0.085	0.098	0.107	0.115	0.118	0.120	0.117	0.114	0.105	0.096	0.082	0.069	0.052	0.035	0.017	0.000
FINAL CAMBER	↑	0	1/16"	3/16"	1/4"	1/4"	5/16"	3/8"	7/16"	7/16"	7/16"	7/16"	7/16"	7/16"	7/16"	3/8"	3/8"	5/16"	1/4"	3/16"	1/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 1 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER DEFLECTIONS
AND CAMBER



ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			107

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN A																					
	GIRDER AG9																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.025	0.050	0.073	0.094	0.113	0.128	0.141	0.150	0.156	0.158	0.156	0.150	0.141	0.128	0.113	0.094	0.073	0.050	0.025	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.018	0.035	0.051	0.068	0.081	0.093	0.101	0.109	0.112	0.114	0.111	0.108	0.099	0.091	0.078	0.065	0.049	0.033	0.017	0.000
FINAL CAMBER	↑	0	1/16"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	1/2"	9/16"	1/2"	9/16"	1/2"	1/2"	7/16"	7/16"	3/8"	5/16"	3/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN B																					
	GIRDER BG1																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.030	0.059	0.088	0.116	0.139	0.162	0.176	0.190	0.195	0.200	0.195	0.189	0.175	0.160	0.137	0.115	0.087	0.058	0.029	0.000
FINAL CAMBER	↑	0	3/16"	5/16"	7/16"	9/16"	1 1/16"	3/4"	13/16"	7/8"	15/16"	7/8"	15/16"	7/8"	13/16"	3/4"	11/16"	9/16"	1/2"	5/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN B																					
	GIRDER BG2																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.029	0.058	0.086	0.114	0.136	0.159	0.173	0.187	0.191	0.196	0.191	0.186	0.172	0.157	0.135	0.113	0.085	0.057	0.029	0.000
FINAL CAMBER	↑	0	3/16"	5/16"	1/2"	9/16"	1 1/16"	3/4"	7/8"	7/8"	15/16"	15/16"	15/16"	7/8"	7/8"	13/16"	3/4"	5/8"	1/2"	3/8"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

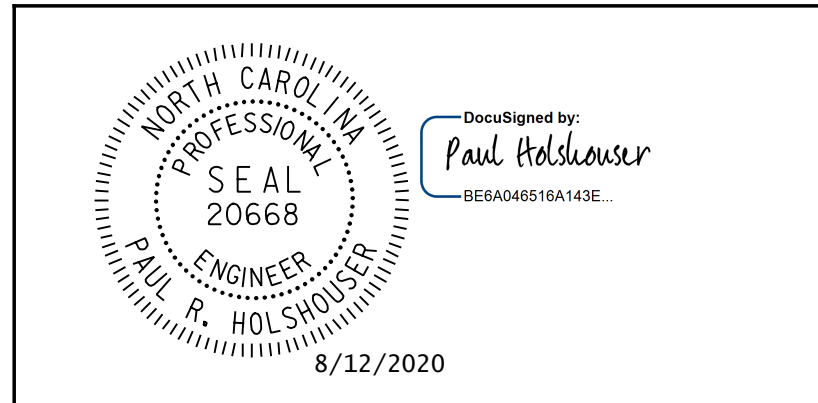
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN B																					
	GIRDERS BG3 & BG4																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.027	0.053	0.078	0.104	0.124	0.144	0.157	0.169	0.174	0.178	0.173	0.169	0.156	0.143	0.122	0.102	0.077	0.052	0.026	0.000
FINAL CAMBER	↑	0	3/16"	3/8"	9/16"	1 1/16"	7/8"	15/16"	1 1/16"	1 1/8"	1 3/16"	1 1/8"	1 3/16"	1 1/8"	1 1/4"	1 5/16"	7/8"	3/4"	9/16"	7/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 2 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER DEFLECTIONS
AND CAMBER



ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

DOCUMENT NOT CONSIDERED FINAL
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			107

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 File name: R:\Projects\19-77 Division 6 On Call\02 US 701 over Cape Fear River\NC00T\Structures\Dwgs\Final\401_041_US_701_SWL_DL_02.dgn
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DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN B																					
	GIRDERS BG5 THRU BG8																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.034	0.068	0.101	0.133	0.159	0.185	0.202	0.218	0.223	0.229	0.223	0.217	0.200	0.184	0.158	0.132	0.099	0.067	0.033	0.000
FINAL CAMBER	↑	0	1/8"	3/16"	5/16"	3/8"	7/16"	7/16"	1/2"	1/2"	9/16"	9/16"	9/16"	1/2"	9/16"	1/2"	7/16"	3/8"	5/16"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN B																					
	GIRDER BG9																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.032	0.064	0.095	0.126	0.150	0.175	0.190	0.206	0.211	0.216	0.211	0.205	0.189	0.173	0.149	0.124	0.094	0.063	0.032	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	9/16"	9/16"	1 1/16"	1 1/16"	3/4"	1 1/16"	3/4"	1 1/16"	1 1/16"	5/8"	9/16"	7/16"	3/8"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN C																					
	GIRDER CG1																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.035	0.070	0.103	0.137	0.164	0.191	0.208	0.226	0.233	0.239	0.234	0.229	0.212	0.196	0.169	0.143	0.109	0.074	0.037	0.000
FINAL CAMBER	↑	0	3/16"	5/16"	1/2"	9/16"	3/4"	3/4"	7/8"	7/8"	15/16"	7/8"	15/16"	13/16"	13/16"	1 1/16"	5/8"	1/2"	7/16"	5/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN C																					
	GIRDER CG2																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.034	0.069	0.102	0.135	0.161	0.188	0.205	0.223	0.229	0.235	0.230	0.225	0.209	0.193	0.167	0.140	0.107	0.073	0.037	0.000
FINAL CAMBER	↑	0	3/16"	3/8"	1/2"	5/8"	3/4"	13/16"	7/8"	15/16"	1"	15/16"	15/16"	7/8"	7/8"	3/4"	1 1/16"	9/16"	7/16"	5/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 3 OF 10

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DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DEPARTMENT OF TRANSPORTATION
 SUPERSTRUCTURE
 GIRDER DEFLECTIONS
 AND CAMBER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-42	
REVISIONS						TOTAL SHEETS 107	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

ICE of CAROLINAS, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN C																					
	GIRDERS CG3 & CG4																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.032	0.063	0.093	0.124	0.148	0.173	0.189	0.205	0.211	0.217	0.212	0.207	0.192	0.178	0.153	0.129	0.098	0.067	0.034	0.000
FINAL CAMBER	↑	0	1/4"	7/16"	5/8"	3/4"	15/16"	1"	1 1/8"	1 1/8"	1 3/16"	1 3/16"	1 3/16"	1 1/8"	1 1/16"	15/16"	7/8"	11/16"	9/16"	3/8"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN C																					
	GIRDERS CG5 THRU CG8																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.040	0.081	0.120	0.159	0.190	0.221	0.242	0.262	0.270	0.277	0.271	0.265	0.246	0.227	0.196	0.165	0.126	0.086	0.043	0.000
FINAL CAMBER	↑	0	1/8"	3/16"	5/16"	5/16"	7/16"	7/16"	7/16"	7/16"	1/2"	7/16"	7/16"	3/8"	7/16"	5/16"	5/16"	1/4"	1/4"	1/8"	1/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN C																					
	GIRDER CG9																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.038	0.076	0.113	0.150	0.179	0.209	0.228	0.247	0.254	0.262	0.256	0.250	0.232	0.214	0.185	0.156	0.119	0.081	0.041	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	3/4"	3/4"	5/8"	5/8"	11/16"	5/8"	5/8"	9/16"	9/16"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

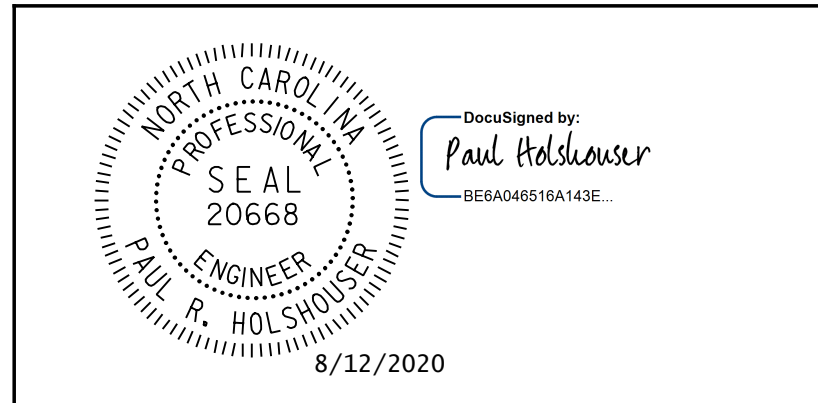
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN D																					
	GIRDER DG1																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.051	0.100	0.147	0.190	0.228	0.260	0.286	0.304	0.316	0.320	0.316	0.304	0.286	0.260	0.228	0.190	0.147	0.100	0.051	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.025	0.051	0.074	0.097	0.115	0.134	0.145	0.156	0.159	0.163	0.158	0.153	0.141	0.129	0.110	0.092	0.069	0.046	0.023	0.000
FINAL CAMBER	↑	0	5/16"	9/16"	7/8"	1 1/8"	1 3/8"	1 1/2"	1 11/16"	1 3/4"	1 7/8"	1 7/8"	1 7/8"	1 13/16"	1 3/4"	1 9/16"	1 7/16"	1 3/16"	15/16"	5/8"	5/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 4 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER DEFLECTIONS
AND CAMBER



ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
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License #: P-0999

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			107

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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 Plot Head: 8/11/2020 10:08:34 PM

DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN D																					
	GIRDER DG2																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.051	0.100	0.147	0.190	0.228	0.260	0.286	0.304	0.316	0.320	0.316	0.304	0.286	0.260	0.228	0.190	0.147	0.100	0.051	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.025	0.049	0.072	0.095	0.112	0.130	0.141	0.152	0.155	0.158	0.154	0.149	0.137	0.125	0.107	0.089	0.067	0.045	0.023	0.000
FINAL CAMBER	↑	0	5/16"	5/8"	7/8"	1 1/8"	1 3/8"	1 9/16"	1 3/4"	1 13/16"	1 15/16"	1 15/16"	1 15/16"	1 7/8"	1 13/16"	1 5/8"	1 7/16"	1 3/16"	15/16"	1 1/16"	5/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN D																					
	GIRDERS DG3 & DG4																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.051	0.100	0.147	0.190	0.228	0.260	0.286	0.304	0.316	0.320	0.316	0.304	0.286	0.260	0.228	0.190	0.147	0.100	0.051	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.023	0.046	0.067	0.088	0.105	0.121	0.131	0.141	0.144	0.147	0.143	0.139	0.128	0.117	0.100	0.083	0.062	0.042	0.021	0.000
FINAL CAMBER	↑	0	5/16"	5/8"	15/16"	1 1/4"	1 1/2"	1 11/16"	1 7/8"	1 15/16"	2 1/16"	2 1/16"	2 1/16"	2"	1 7/8"	1 3/4"	1 9/16"	1 5/16"	1"	1 1/16"	3/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN D																					
	GIRDERS DG5 THRU DG8																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.051	0.100	0.147	0.190	0.228	0.260	0.286	0.304	0.316	0.320	0.316	0.304	0.286	0.260	0.228	0.190	0.147	0.100	0.051	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.029	0.057	0.083	0.110	0.130	0.151	0.163	0.176	0.180	0.184	0.178	0.173	0.159	0.145	0.125	0.104	0.078	0.053	0.026	0.000
FINAL CAMBER	↑	0	1/4"	1/2"	3/4"	15/16"	1 3/16"	1 5/16"	1 1/2"	1 9/16"	1 5/8"	1 5/8"	1 5/8"	1 9/16"	1 1/2"	1 3/8"	1 1/4"	1 1/16"	13/16"	9/16"	5/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN D																					
	GIRDER DG9																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.051	0.100	0.147	0.190	0.228	0.260	0.286	0.304	0.316	0.320	0.316	0.304	0.286	0.260	0.228	0.190	0.147	0.100	0.051	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.027	0.054	0.080	0.105	0.124	0.144	0.156	0.168	0.171	0.175	0.170	0.165	0.152	0.139	0.119	0.099	0.074	0.050	0.025	0.000
FINAL CAMBER	↑	0	5/16"	9/16"	1 3/16"	1"	1 1/4"	1 3/8"	1 9/16"	1 5/8"	1 3/4"	1 3/4"	1 3/4"	1 11/16"	1 5/8"	1 7/16"	1 5/16"	1 1/16"	7/8"	5/8"	5/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 5 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER DEFLECTIONS
AND CAMBER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			107

DocuSigned by:
Paul Holshouser
BEE6A08518A143E

ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : J. N. AUSTIN DATE : 7-20-20
CHECKED BY : N. D'AIUTO DATE : 7-21-20
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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 File name: R:\Projects\19-77 Division 6 On Call\02 US 701 over Cape Fear River\NC00T\Structures\Dwgs\Final\401_044_US_701_SWL_DL_05.dgn
 Plot Date: 8/11/2020 10:08:36 PM

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN E																					
	GIRDER EG1																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.038	0.077	0.114	0.151	0.181	0.210	0.230	0.249	0.257	0.264	0.258	0.253	0.234	0.216	0.187	0.157	0.120	0.082	0.041	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	9/16"	7/16"	7/16"	5/16"	5/16"	3/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN E																					
	GIRDER EG2																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.037	0.073	0.109	0.144	0.172	0.201	0.220	0.238	0.245	0.252	0.247	0.242	0.224	0.207	0.179	0.150	0.114	0.078	0.039	0.000
FINAL CAMBER	↑	0	3/16"	5/16"	7/16"	1/2"	5/8"	5/8"	3/4"	3/4"	3/4"	3/4"	3/4"	11/16"	11/16"	9/16"	9/16"	7/16"	3/8"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN E																					
	GIRDERS EG3 & EG4																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.035	0.069	0.103	0.136	0.163	0.190	0.207	0.225	0.232	0.238	0.233	0.228	0.212	0.195	0.169	0.142	0.108	0.074	0.037	0.000
FINAL CAMBER	↑	0	3/16"	3/8"	1/2"	5/8"	3/4"	13/16"	7/8"	7/8"	15/16"	15/16"	15/16"	7/8"	13/16"	11/16"	11/16"	1/2"	7/16"	5/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

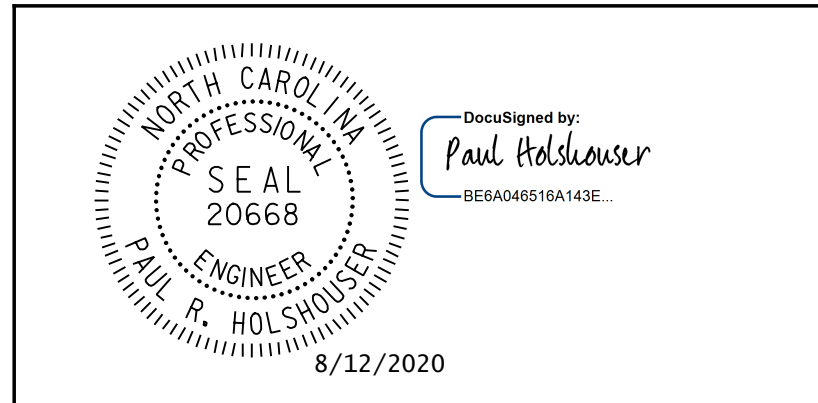
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN E																					
	GIRDERS EG5 THRU EG8																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.042	0.085	0.125	0.166	0.199	0.232	0.253	0.275	0.283	0.291	0.285	0.279	0.258	0.238	0.206	0.174	0.132	0.090	0.045	0.000
FINAL CAMBER	↑	0	1/16"	3/16"	1/4"	1/4"	5/16"	1/4"	5/16"	5/16"	5/16"	1/4"	5/16"	1/4"	1/4"	3/16"	3/16"	1/8"	1/8"	1/16"	1/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 6 OF 10

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 Plot Date: 8/11/2020 10:08:37 PM

DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20



ICE of CAROLINAS, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE GIRDER DEFLECTIONS AND CAMBER					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					S-45
					107

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN E																					
	GIRDER EG9																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.050	0.098	0.144	0.186	0.224	0.255	0.280	0.299	0.310	0.314	0.310	0.299	0.280	0.255	0.224	0.186	0.144	0.098	0.050	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.041	0.082	0.122	0.161	0.193	0.225	0.246	0.267	0.275	0.283	0.276	0.270	0.251	0.231	0.200	0.168	0.128	0.088	0.044	0.000
FINAL CAMBER	↑	0	1/8"	3/16"	1/4"	5/16"	3/8"	3/8"	7/16"	3/8"	7/16"	3/8"	3/8"	3/8"	3/8"	5/16"	5/16"	3/16"	3/16"	1/8"	1/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN F																					
	GIRDER FG1																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.127	0.163	0.196	0.224	0.246	0.262	0.272	0.275	0.272	0.262	0.246	0.224	0.196	0.163	0.127	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.037	0.073	0.107	0.140	0.166	0.193	0.209	0.225	0.230	0.235	0.229	0.223	0.205	0.188	0.161	0.135	0.102	0.069	0.034	0.000
FINAL CAMBER	↑	0	1/16"	1/8"	1/4"	1/4"	3/8"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	5/16"	5/16"	3/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN F																					
	GIRDER FG2																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.127	0.163	0.196	0.224	0.246	0.262	0.272	0.275	0.272	0.262	0.246	0.224	0.196	0.163	0.127	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.035	0.070	0.102	0.134	0.159	0.184	0.200	0.215	0.220	0.225	0.219	0.213	0.196	0.180	0.154	0.129	0.097	0.066	0.033	0.000
FINAL CAMBER	↑	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	9/16"	9/16"	5/8"	5/8"	5/8"	9/16"	5/8"	9/16"	1/2"	7/16"	3/8"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

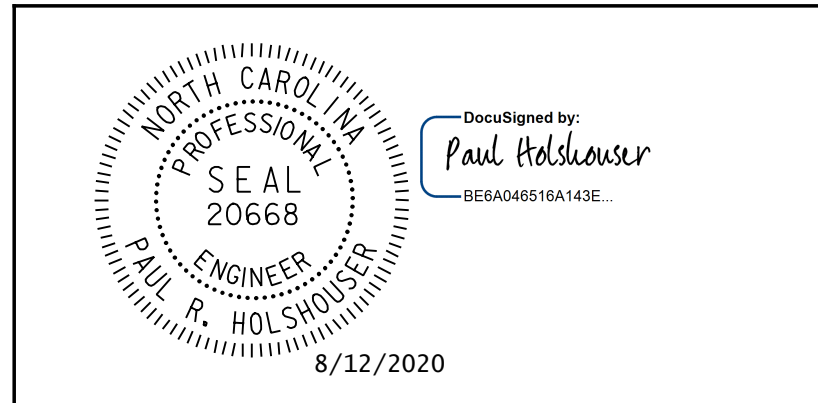
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN F																					
	GIRDERS FG3 & FG4																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.127	0.163	0.196	0.224	0.246	0.262	0.272	0.275	0.272	0.262	0.246	0.224	0.196	0.163	0.127	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.033	0.066	0.096	0.127	0.150	0.174	0.189	0.204	0.208	0.213	0.207	0.201	0.185	0.170	0.146	0.122	0.092	0.062	0.031	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	9/16"	5/8"	11/16"	11/16"	3/4"	3/4"	13/16"	3/4"	3/4"	5/8"	5/8"	1/2"	7/16"	5/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 7 OF 10

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DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20



ICE of CAROLINAS, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUPERSTRUCTURE					
GIRDER DEFLECTIONS AND CAMBER					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-46					TOTAL SHEETS 107

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN F																					
	GIRDERS FG5 THRU FG8																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.127	0.163	0.196	0.224	0.246	0.262	0.272	0.272	0.262	0.246	0.224	0.196	0.163	0.127	0.086	0.044	0.000	
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.040	0.080	0.117	0.155	0.183	0.212	0.230	0.248	0.254	0.260	0.253	0.245	0.226	0.207	0.178	0.149	0.112	0.076	0.038	0.000
FINAL CAMBER	↑	0	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	3/16"	3/16"	3/16"	3/16"	1/4"	3/16"	1/4"	3/16"	3/16"	3/16"	3/16"	1/8"	1/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN F																					
	GIRDER FG9																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.127	0.163	0.196	0.224	0.246	0.262	0.272	0.272	0.262	0.246	0.224	0.196	0.163	0.127	0.086	0.044	0.000	
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.039	0.078	0.114	0.150	0.178	0.206	0.223	0.241	0.246	0.252	0.245	0.238	0.220	0.201	0.173	0.145	0.109	0.074	0.037	0.000
FINAL CAMBER	↑	0	1/16"	1/8"	3/16"	3/16"	3/16"	3/16"	1/4"	1/4"	5/16"	1/4"	5/16"	5/16"	5/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN G																					
	GIRDER GG1																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.029	0.058	0.086	0.114	0.136	0.159	0.173	0.188	0.193	0.198	0.193	0.188	0.173	0.159	0.136	0.114	0.086	0.058	0.029	0.000
FINAL CAMBER	↑	0	3/16"	5/16"	1/2"	9/16"	11/16"	3/4"	7/8"	7/8"	15/16"	15/16"	15/16"	7/8"	7/8"	3/4"	11/16"	9/16"	1/2"	5/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

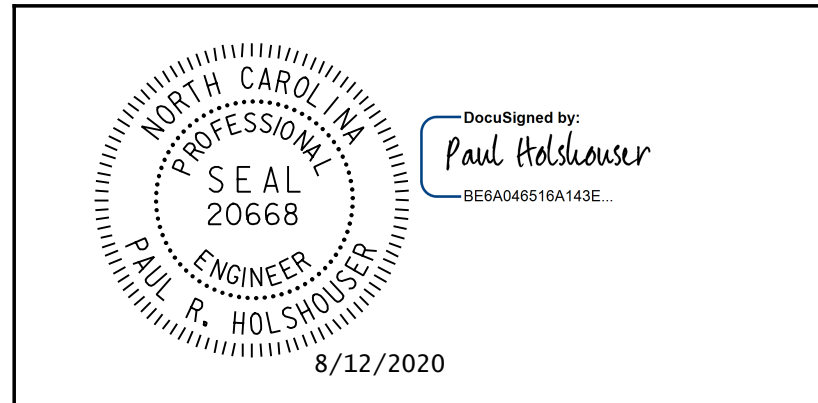
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN G																					
	GIRDER GG2																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.028	0.056	0.083	0.111	0.132	0.154	0.168	0.182	0.187	0.192	0.187	0.182	0.168	0.154	0.132	0.111	0.083	0.056	0.028	0.000
FINAL CAMBER	↑	0	3/16"	3/8"	1/2"	5/8"	3/4"	13/16"	15/16"	15/16"	1"	1"	1"	15/16"	15/16"	13/16"	3/4"	5/8"	1/2"	3/8"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 8 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER DEFLECTIONS
AND CAMBER



ICE of Carolinas, PLLC
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Phone: 919-822-0333
License #: P-0999

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			107

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 File name: R:\Projects\19-77 Division 6 On Call\02 US 701 over Cape Fear River\NC00T\Structures\Dwg\Final\401_047_US_701_SWL_DL_08.dgn
 Plot Head: 8/11/2020 10:08:40 PM

DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN G																					
	GIRDERS GG3 & GG4																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.026	0.052	0.077	0.101	0.121	0.141	0.154	0.167	0.171	0.176	0.171	0.167	0.154	0.141	0.121	0.102	0.077	0.052	0.026	0.000
FINAL CAMBER	↑	0	3/16"	7/16"	5/8"	3/4"	7/8"	1"	1 1/16"	1 1/8"	1 3/16"	1 3/16"	1 3/16"	1 1/8"	1 1/16"	1"	7/8"	3/4"	9/16"	7/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN G																					
	GIRDER GG5 THRU GG8																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.033	0.067	0.099	0.131	0.156	0.182	0.199	0.215	0.221	0.226	0.221	0.215	0.199	0.182	0.156	0.131	0.099	0.067	0.033	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	5/16"	3/8"	1/2"	1/2"	9/16"	9/16"	5/8"	9/16"	5/8"	9/16"	9/16"	1/2"	1/2"	3/8"	5/16"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN G																					
	GIRDER GG9																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.196	0.223	0.245	0.261	0.271	0.274	0.271	0.261	0.245	0.223	0.196	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.031	0.063	0.093	0.124	0.148	0.172	0.187	0.203	0.208	0.214	0.208	0.203	0.187	0.172	0.148	0.124	0.093	0.063	0.031	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	1/2"	9/16"	5/8"	1 1/16"	1 1/16"	3/4"	3/4"	3/4"	1 1/16"	1 1/16"	5/8"	9/16"	1/2"	3/8"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

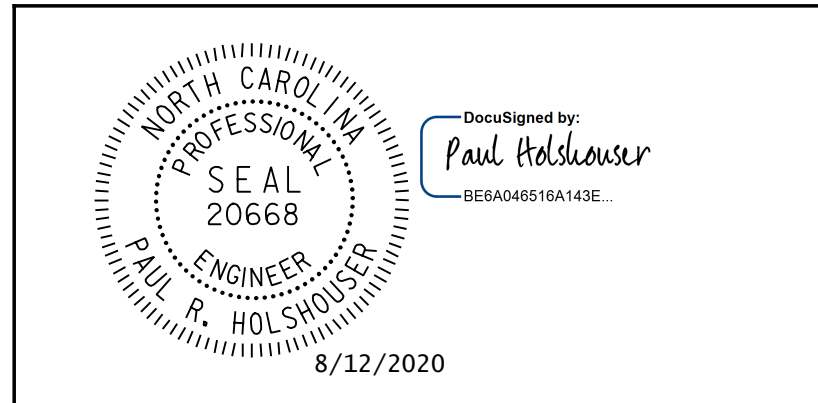
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN H																					
	GIRDER HG1																					
	TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.195	0.223	0.245	0.261	0.270	0.274	0.270	0.261	0.245	0.223	0.195	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.032	0.064	0.095	0.126	0.150	0.175	0.191	0.208	0.214	0.220	0.215	0.210	0.195	0.179	0.155	0.131	0.099	0.068	0.034	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	9/16"	9/16"	5/8"	5/8"	1 1/16"	5/8"	1 1/16"	5/8"	5/8"	1/2"	1/2"	3/8"	5/16"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 9 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER DEFLECTIONS
AND CAMBER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			107



ICE of Carolinas, PLLC
4505 Falls of Neuse Road, Suite 110
Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

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DRAWN BY : J. N. AUSTIN DATE : 7-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-21-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION STRANDS	SPAN H																						
	GIRDER HG2																						
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00		
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.195	0.223	0.245	0.261	0.270	0.274	0.270	0.261	0.245	0.223	0.195	0.163	0.126	0.086	0.044	0.000	
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.031	0.063	0.093	0.123	0.147	0.172	0.188	0.203	0.209	0.215	0.210	0.206	0.191	0.176	0.152	0.128	0.097	0.066	0.033	0.000	
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	1/2"	5/16"	3/8"	1/2"	5/8"	1 1/16"	1 1/16"	3/4"	1 1/16"	1 1/16"	5/8"	3/4"	1/2"	7/16"	3/8"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN H																					
	GIRDERS HG3 & HG4																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.195	0.223	0.245	0.261	0.270	0.274	0.270	0.261	0.245	0.223	0.195	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.029	0.058	0.086	0.114	0.136	0.159	0.173	0.188	0.193	0.199	0.194	0.190	0.176	0.163	0.140	0.118	0.090	0.061	0.031	0.000
FINAL CAMBER	↑	0	3/16"	5/16"	1/2"	9/16"	1 1/16"	3/4"	7/8"	7/8"	15/16"	7/8"	15/16"	7/8"	13/16"	3/4"	5/8"	9/16"	7/16"	5/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN H																					
	GIRDERS HG5 THRU HG8																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.195	0.223	0.245	0.261	0.270	0.274	0.270	0.261	0.245	0.223	0.195	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.037	0.074	0.109	0.145	0.173	0.202	0.221	0.239	0.246	0.253	0.247	0.242	0.224	0.207	0.178	0.150	0.114	0.078	0.039	0.000
FINAL CAMBER	↑	0	1/16"	1/8"	3/16"	3/16"	1/4"	1/4"	5/16"	1/4"	5/16"	1/4"	1/4"	1/4"	1/4"	3/16"	3/16"	1/8"	1/8"	1/8"	1/16"	0

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

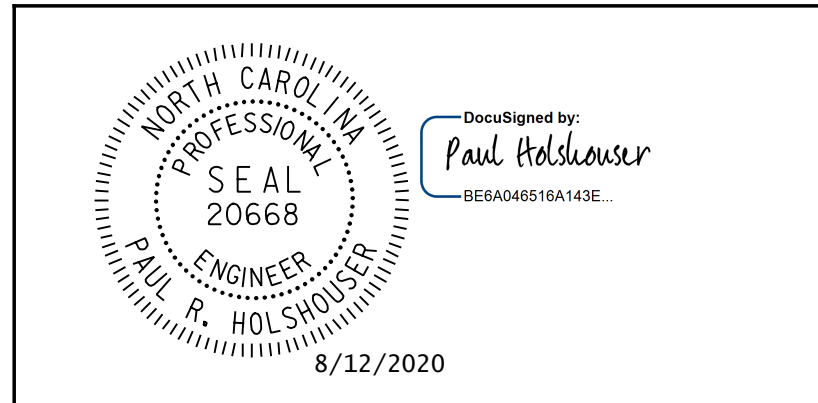
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION STRANDS	SPAN H																					
	GIRDER HG9																					
TWENTIETH POINTS	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.044	0.086	0.126	0.163	0.195	0.223	0.245	0.261	0.270	0.274	0.270	0.261	0.245	0.223	0.195	0.163	0.126	0.086	0.044	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.035	0.070	0.104	0.137	0.164	0.192	0.209	0.227	0.233	0.240	0.235	0.229	0.213	0.196	0.169	0.143	0.108	0.074	0.037	0.000
FINAL CAMBER	↑	0	1/8"	3/16"	1/4"	5/16"	3/8"	3/8"	7/16"	7/16"	7/16"	7/16"	3/8"	3/8"	5/16"	5/16"	1/4"	3/16"	1/8"	1/16"	0	

* INCLUDES SLAB, BUILDUPS, FUTURE WEARING SURFACE & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 10 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER DEFLECTIONS
AND CAMBER



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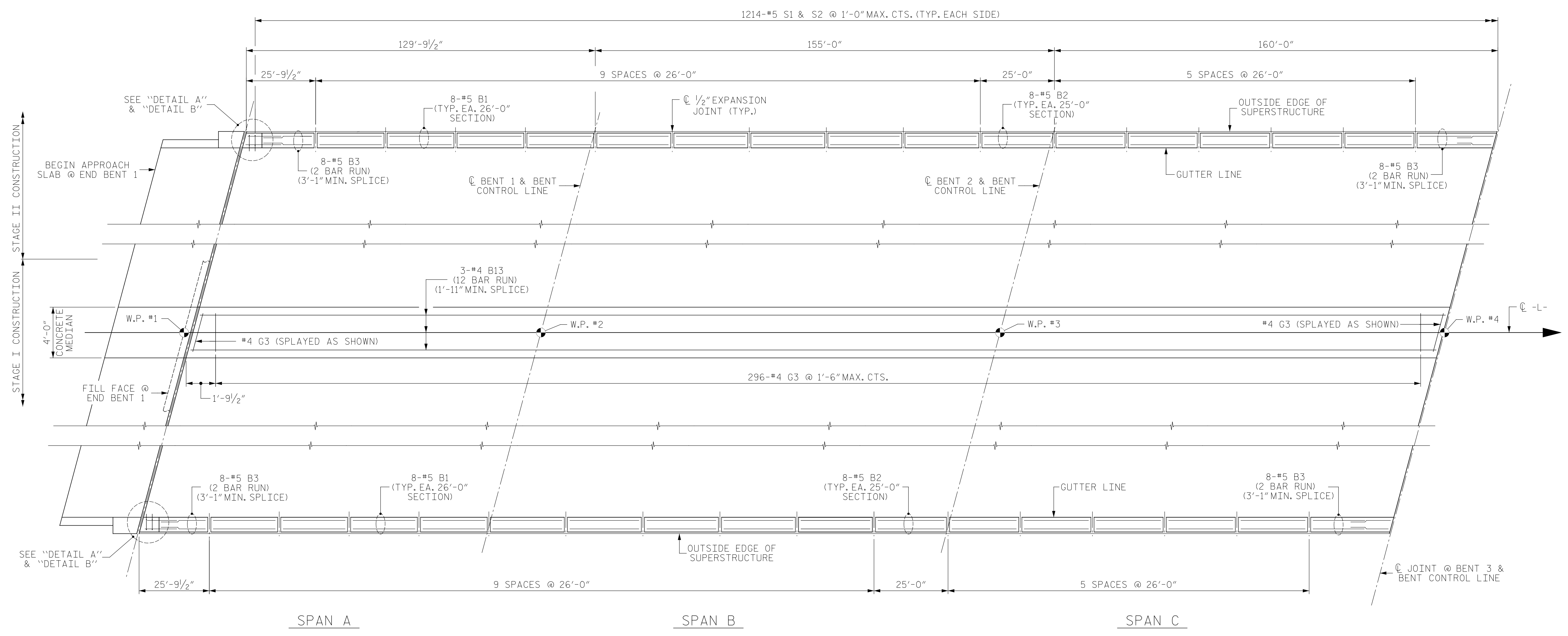
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
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2			4			107

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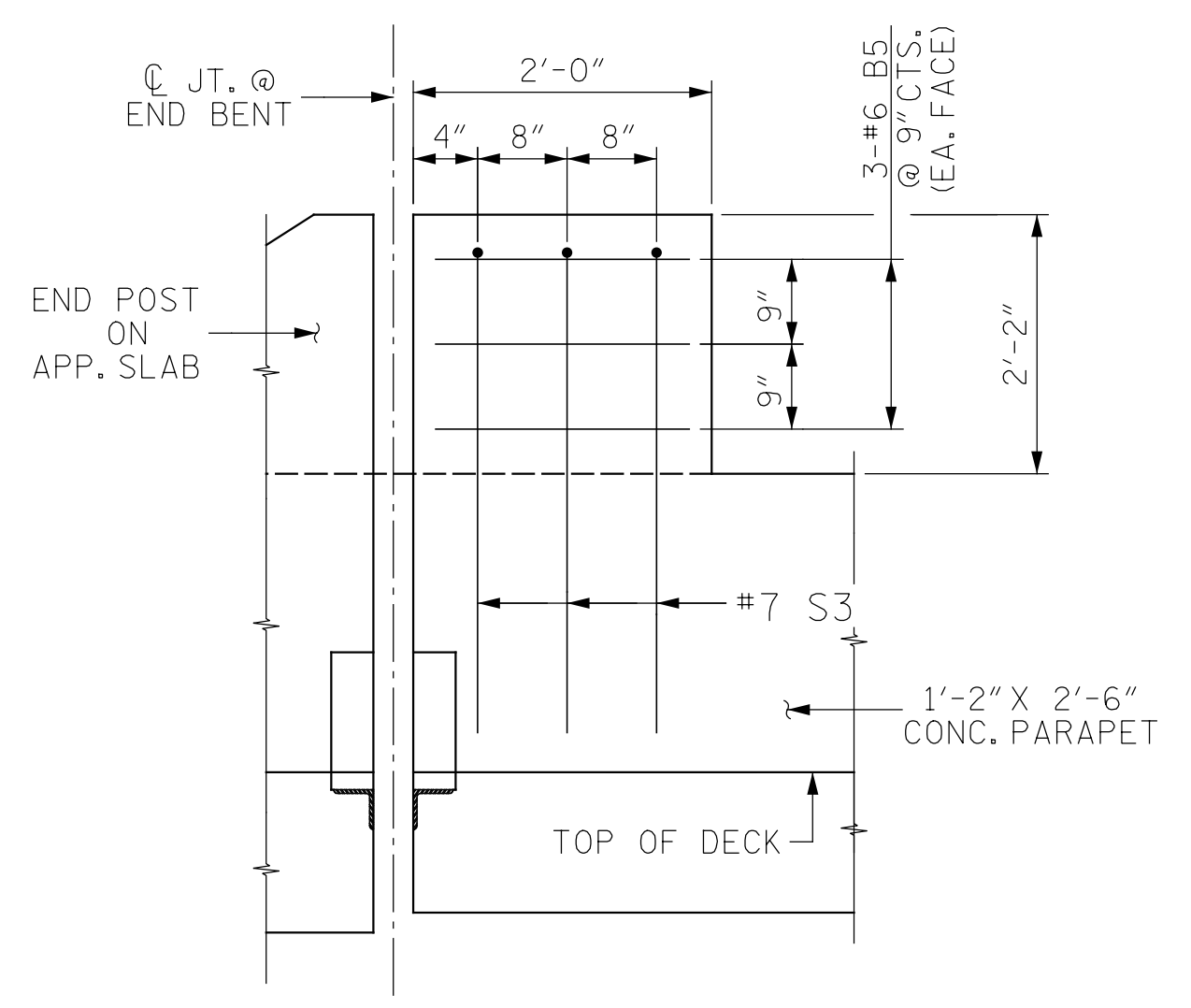
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DRAWN BY : J. N. AUSTIN DATE : 7-20-20
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 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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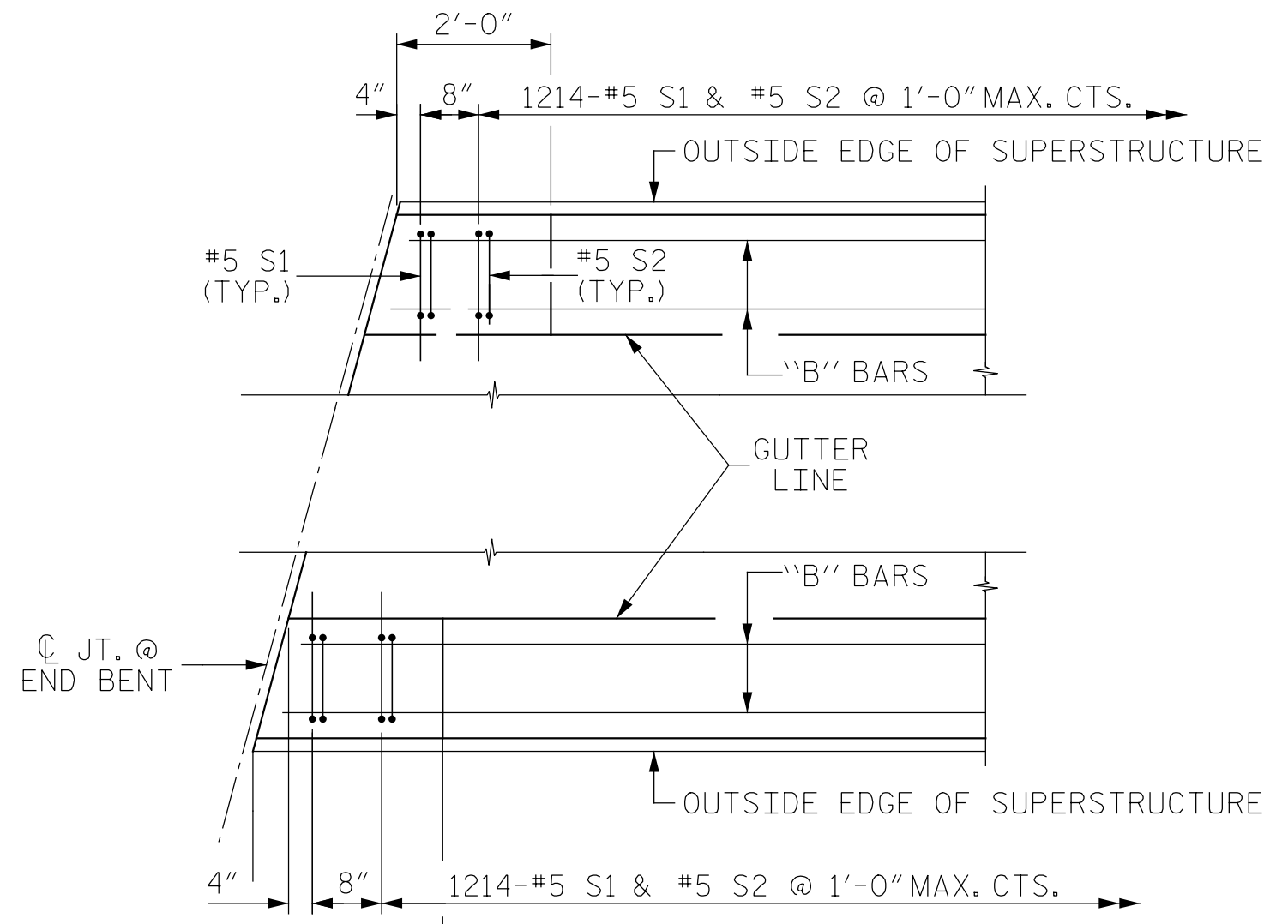


UNIT 1 - PLAN OF CONCRETE PARAPET & MEDIAN



DETAIL A

TYP. EA. END BARS IN 1'-2" X 2'-6" CONC. PARAPET NOT SHOWN FOR CLARITY

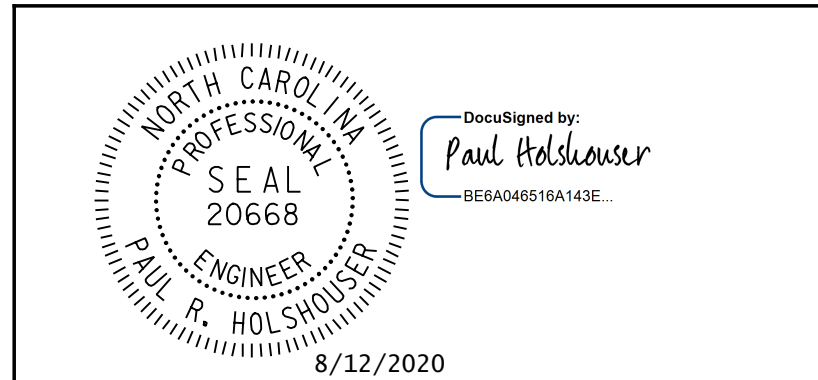


DETAIL B

END BENT 1 SHOWN, END BENT 2 SIMILAR

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF CONCRETE PARAPETS & MEDIAN
 UNIT 1

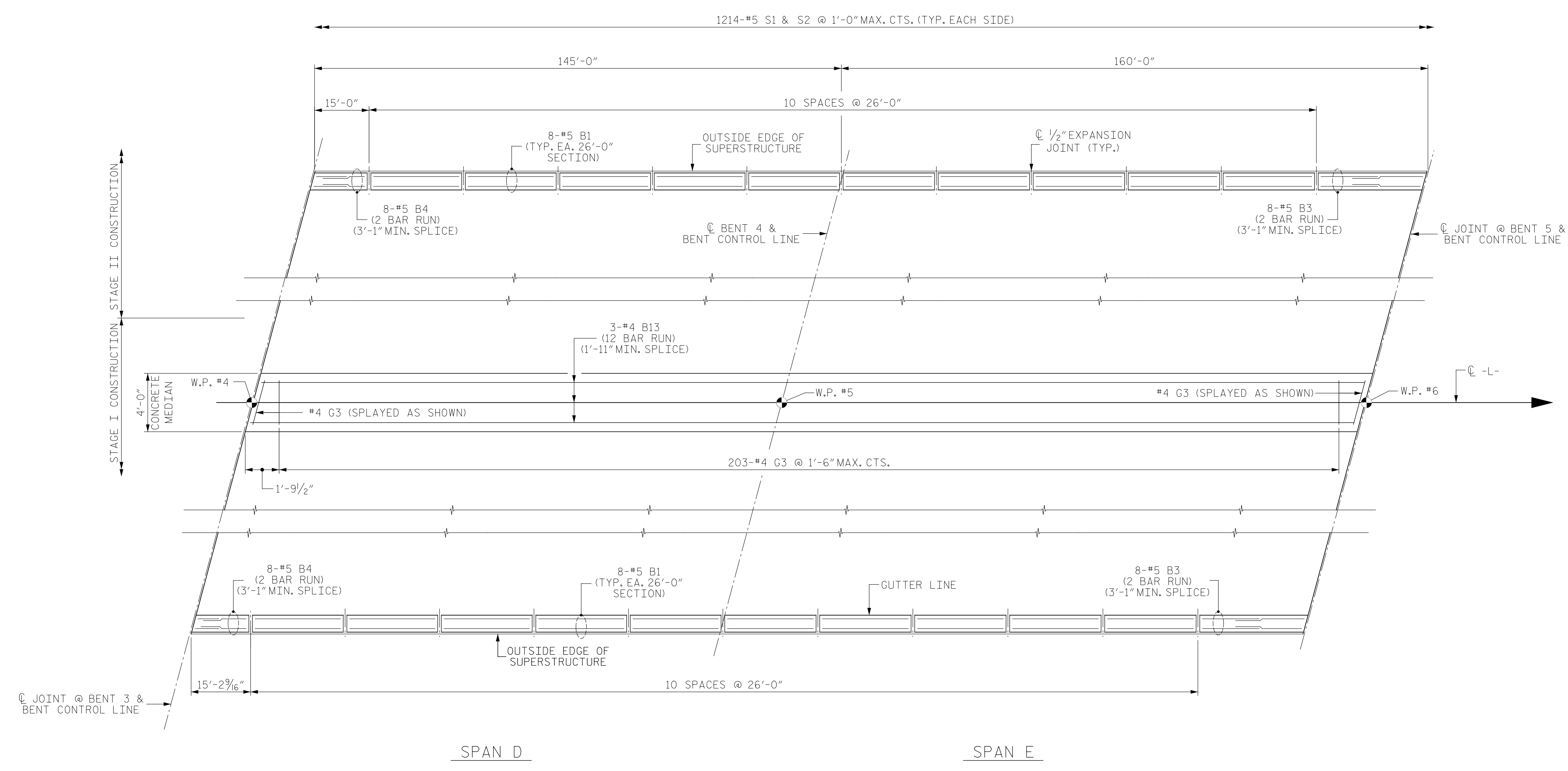


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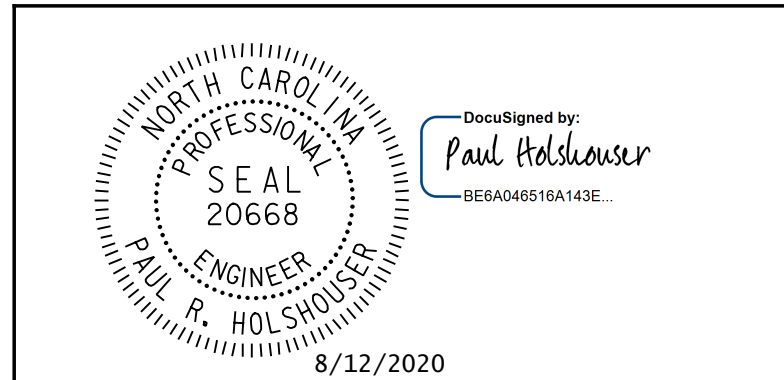
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UNIT 2 - PLAN OF CONCRETE PARAPET & MEDIAN

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF CONCRETE
 PARAPETS & MEDIAN
 UNIT 2

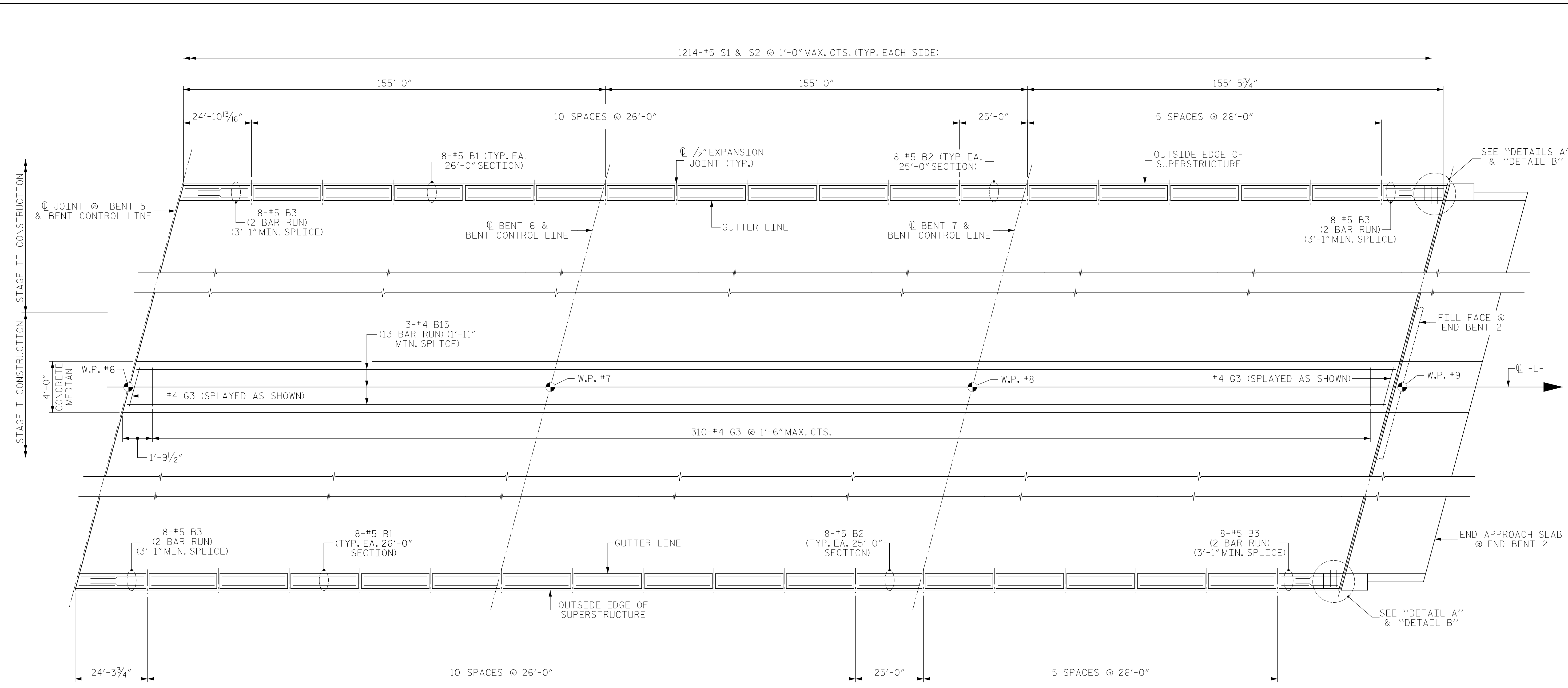


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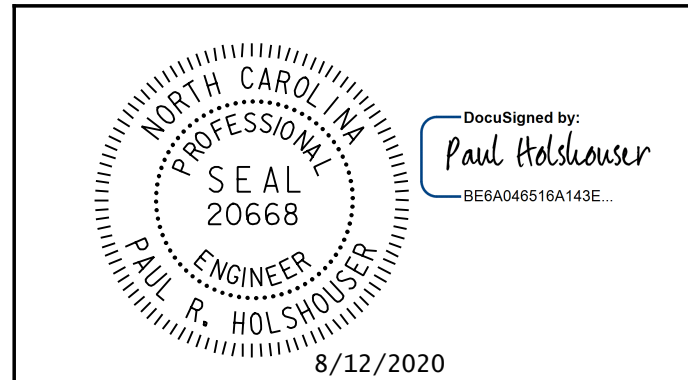


UNIT 3 - PLAN OF CONCRETE PARAPET & MEDIAN
 FOR "DETAIL A" & "DETAIL B", SEE SHEET 1 OF 4

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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 PLAN OF CONCRETE
 PARAPETS & MEDIAN
 UNIT 3

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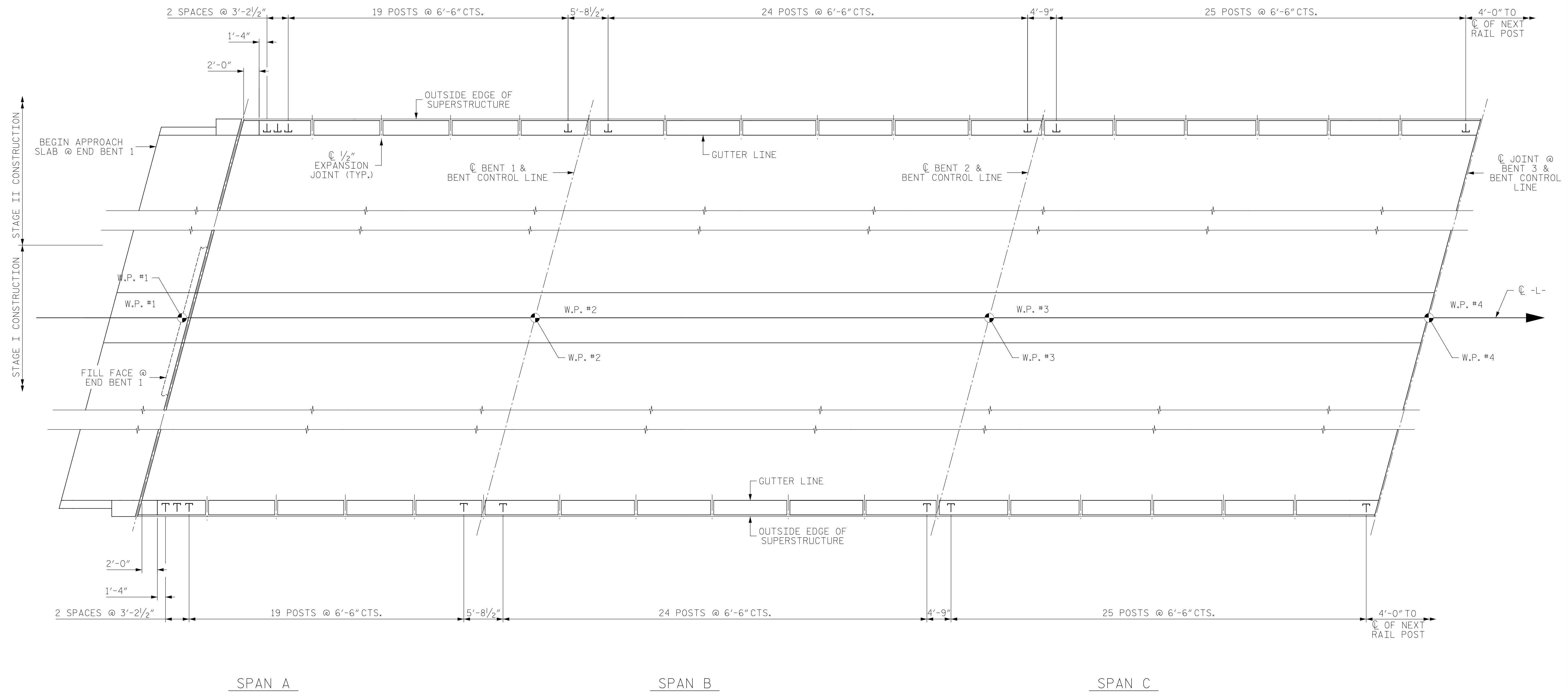


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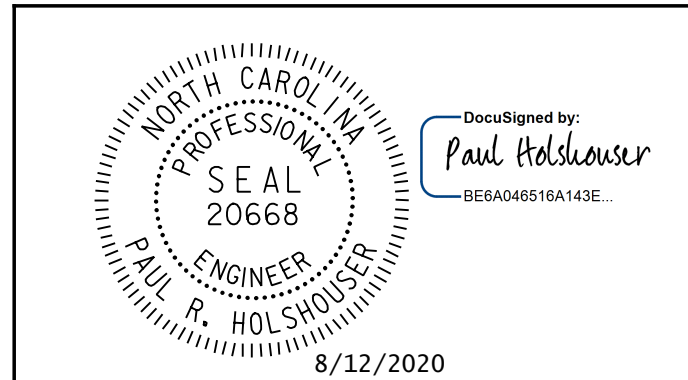
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UNIT 1 - PLAN OF METAL RAIL POST SPACING

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 METAL RAIL POST SPACING
 UNIT 1



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 CHECKED BY : P. R. HOLSHOUSER DATE : 7-22-20
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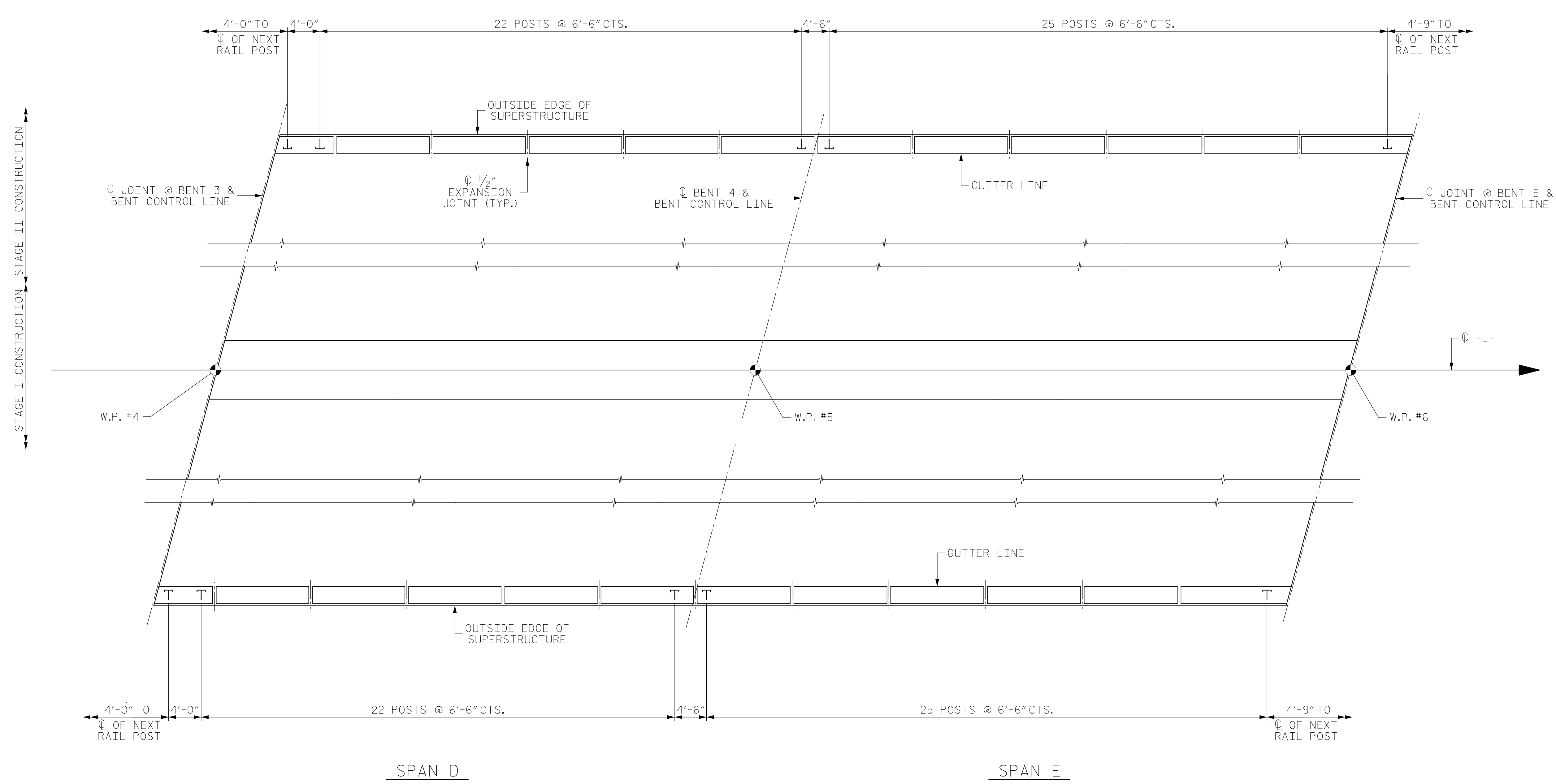
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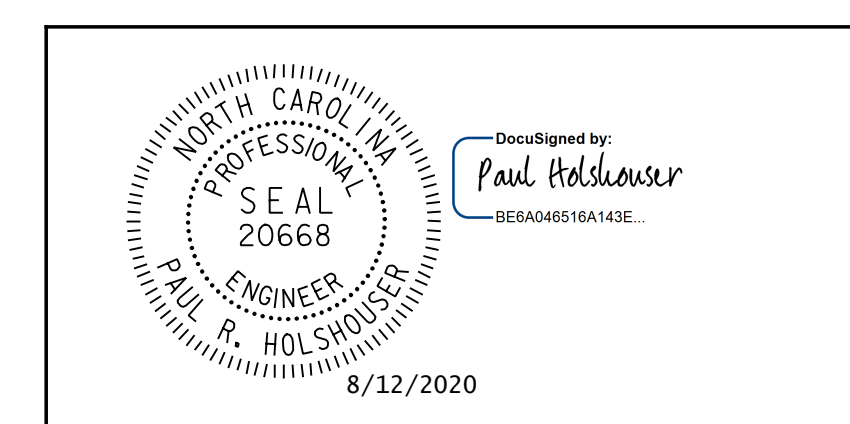
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UNIT 2 - PLAN OF METAL RAIL POST SPACING

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 METAL RAIL POST SPACING
 UNIT 2

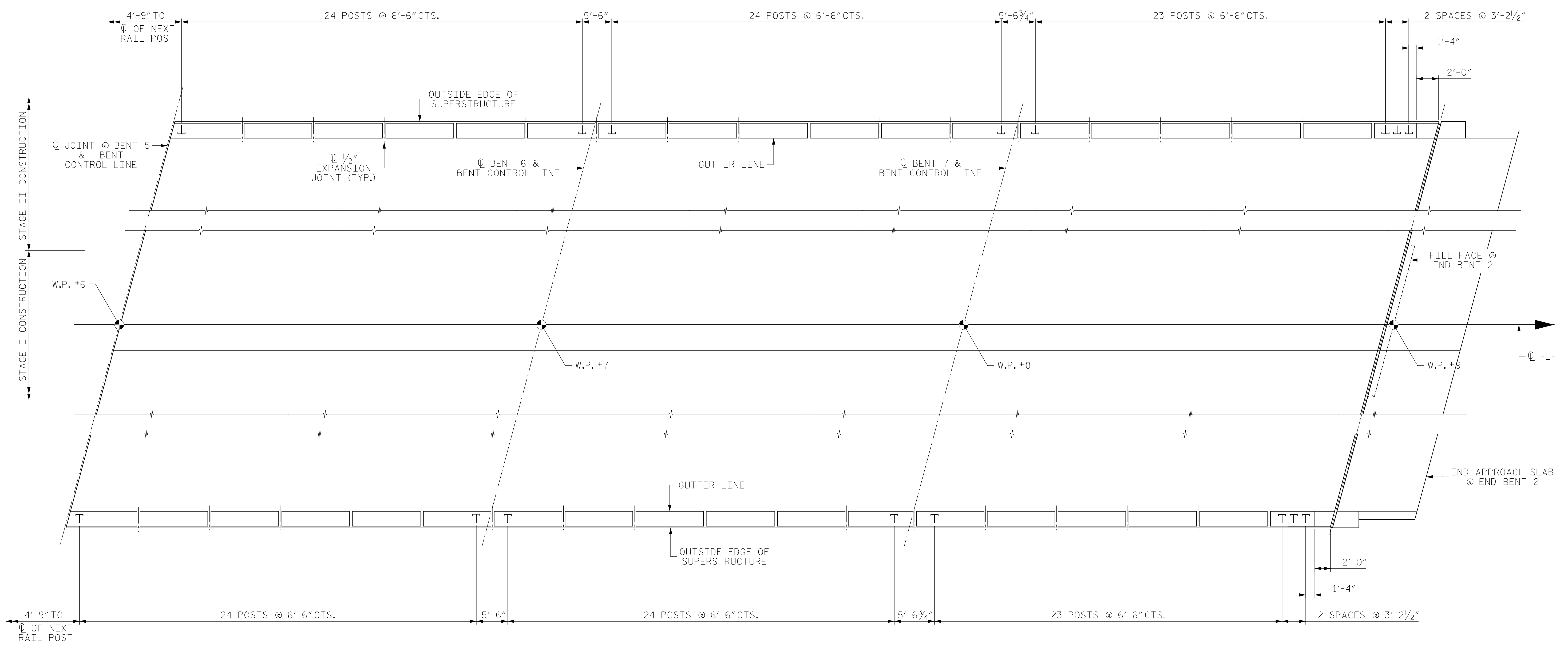
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 CHECKED BY : P. R. HOLSHOUSER DATE : 7-22-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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SPAN F

SPAN G

SPAN H

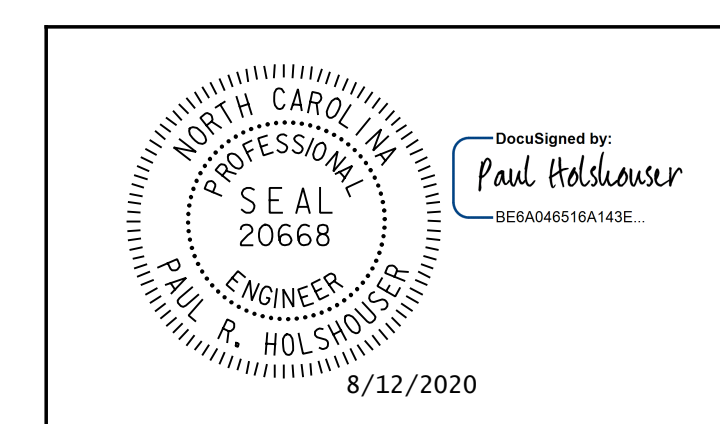
UNIT 3 - PLAN OF METAL RAIL POST SPACING

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 METAL RAIL POST SPACING
 UNIT 3

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56	
1			3			TOTAL SHEETS	
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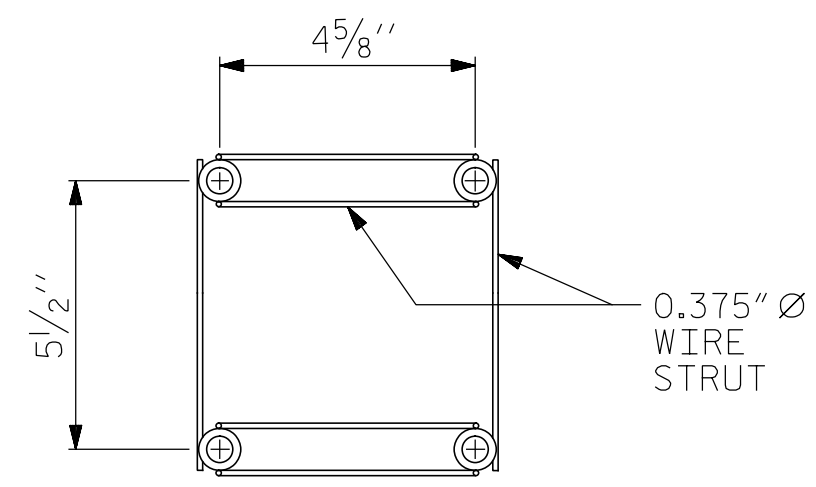
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

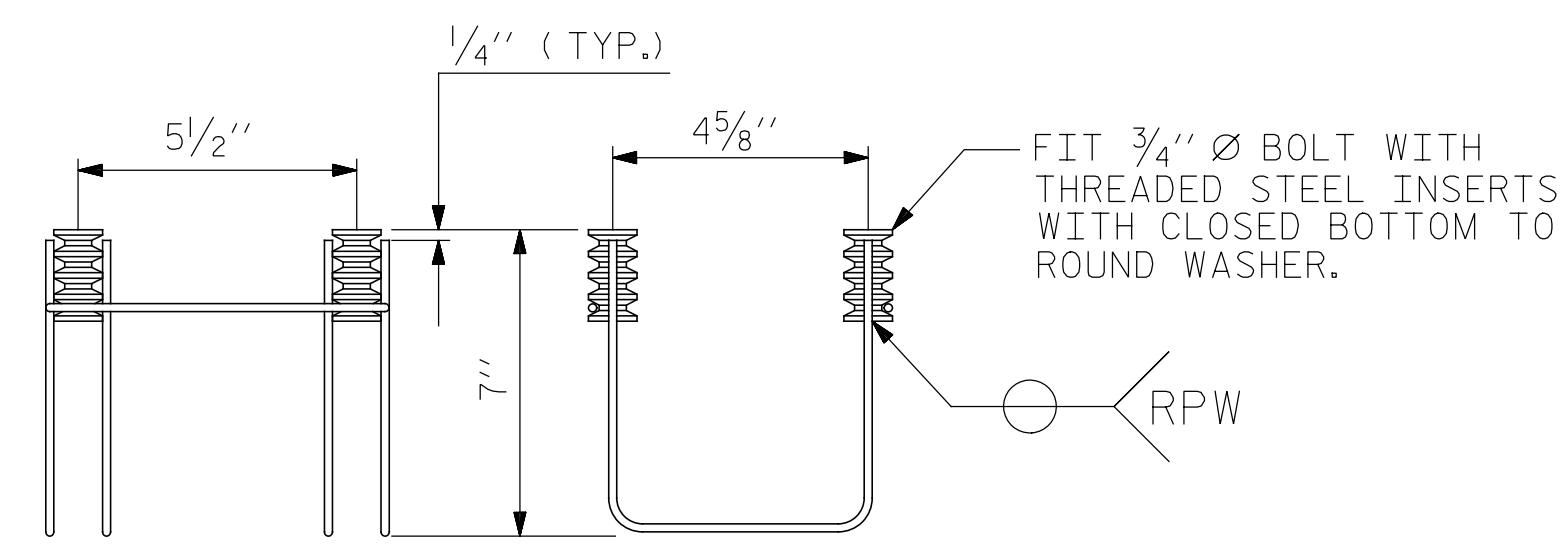
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT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

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN

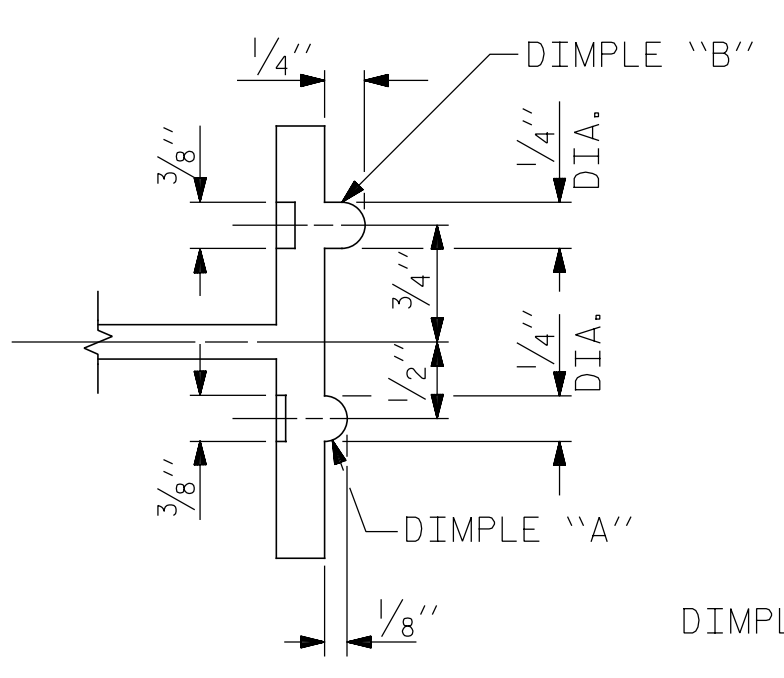


SIDE VIEW

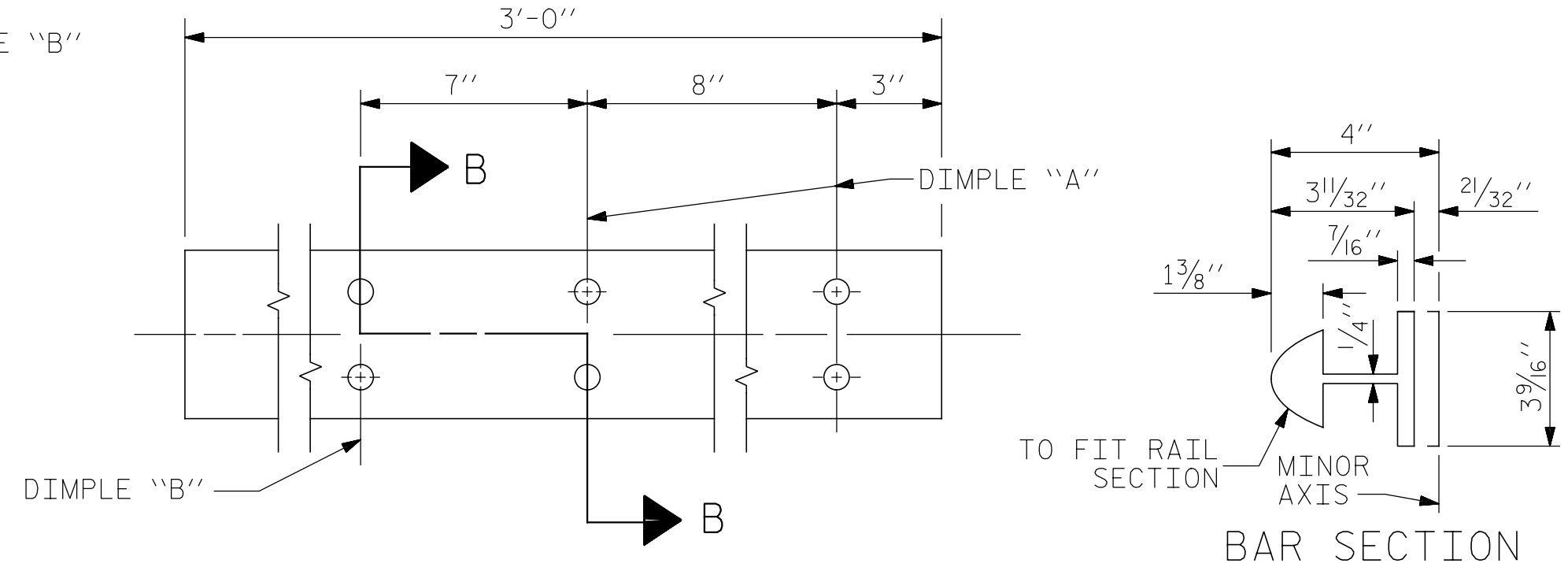
ELEVATION

4-BOLT METAL RAIL ANCHOR ASSEMBLY

STAGE I - (191 ASSEMBLIES REQUIRED)
 STAGE II - (191 ASSEMBLIES REQUIRED)
 TOTAL - (382 ASSEMBLIES REQUIRED)

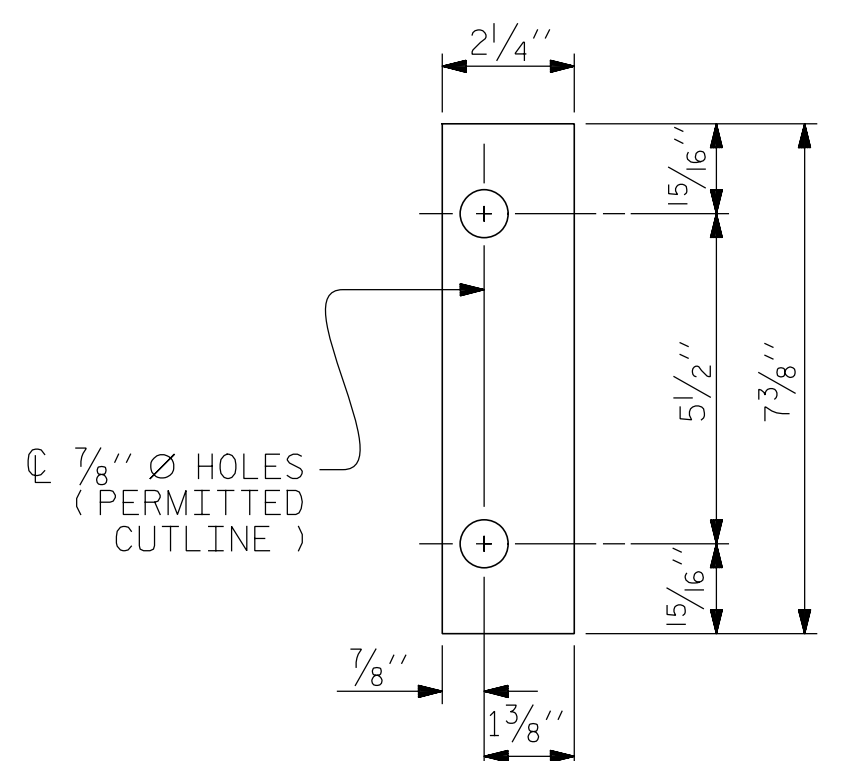


SECTION B - B

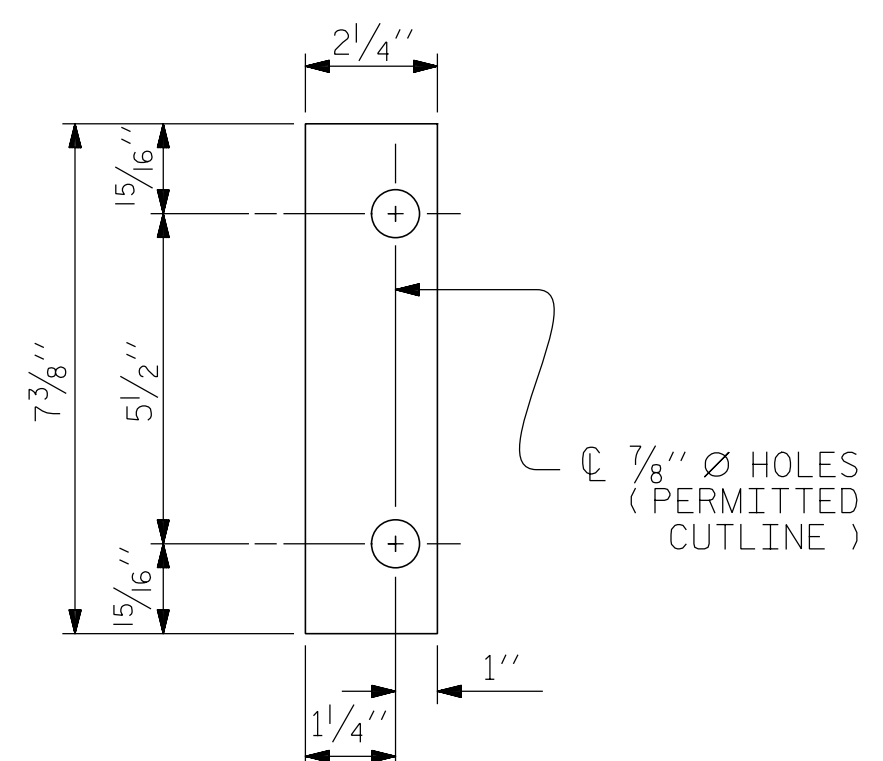


EXPANSION BAR DETAILS

BAR SECTION



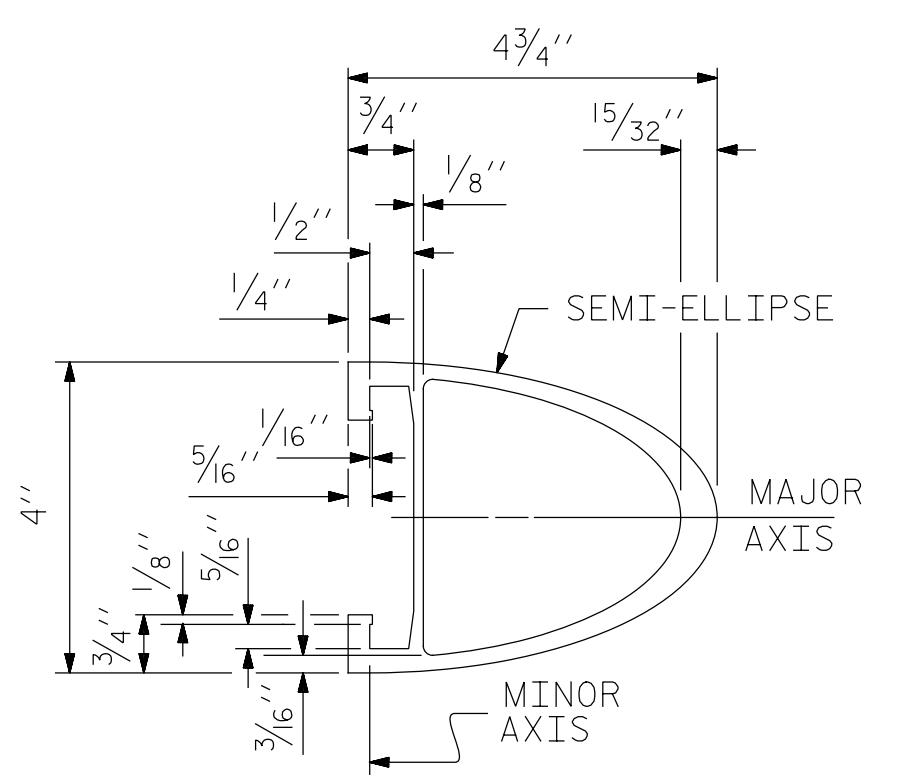
FRONT PLATE



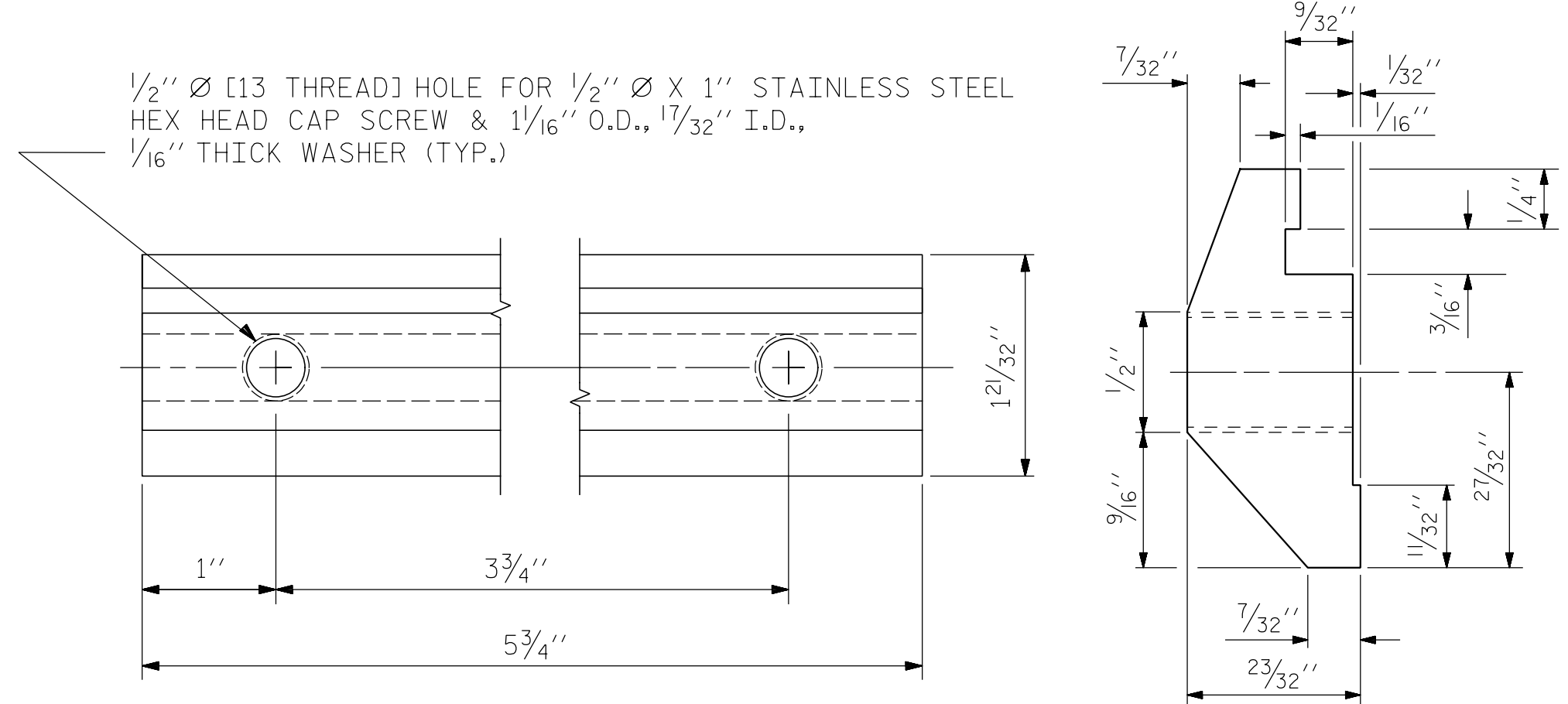
REAR PLATE

SHIM DETAILS

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

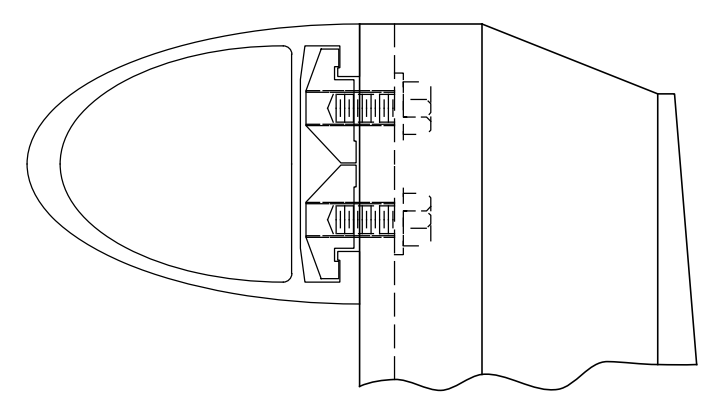


RAIL SECTION

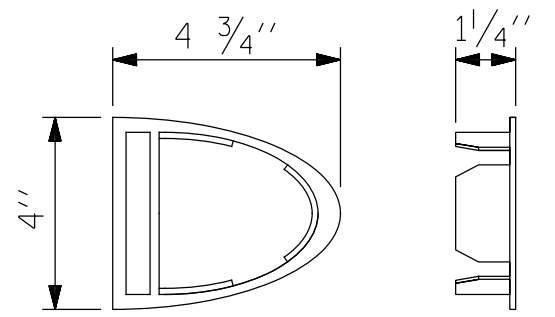


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 2 OF 3

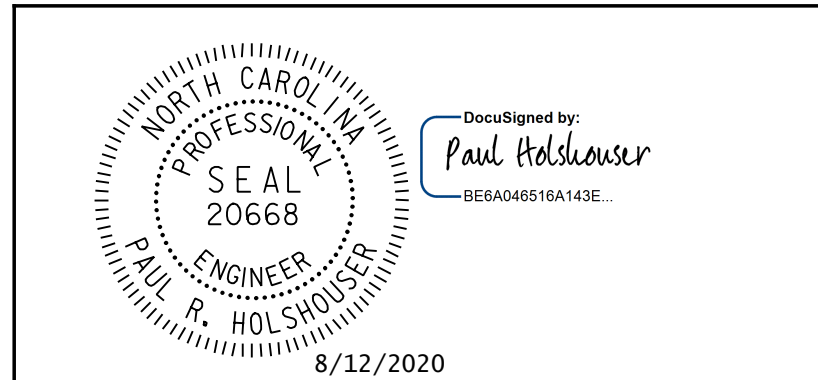
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 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

2 BAR METAL RAIL

REVISIONS

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

SHEET NO. S-58
 TOTAL SHEETS 107

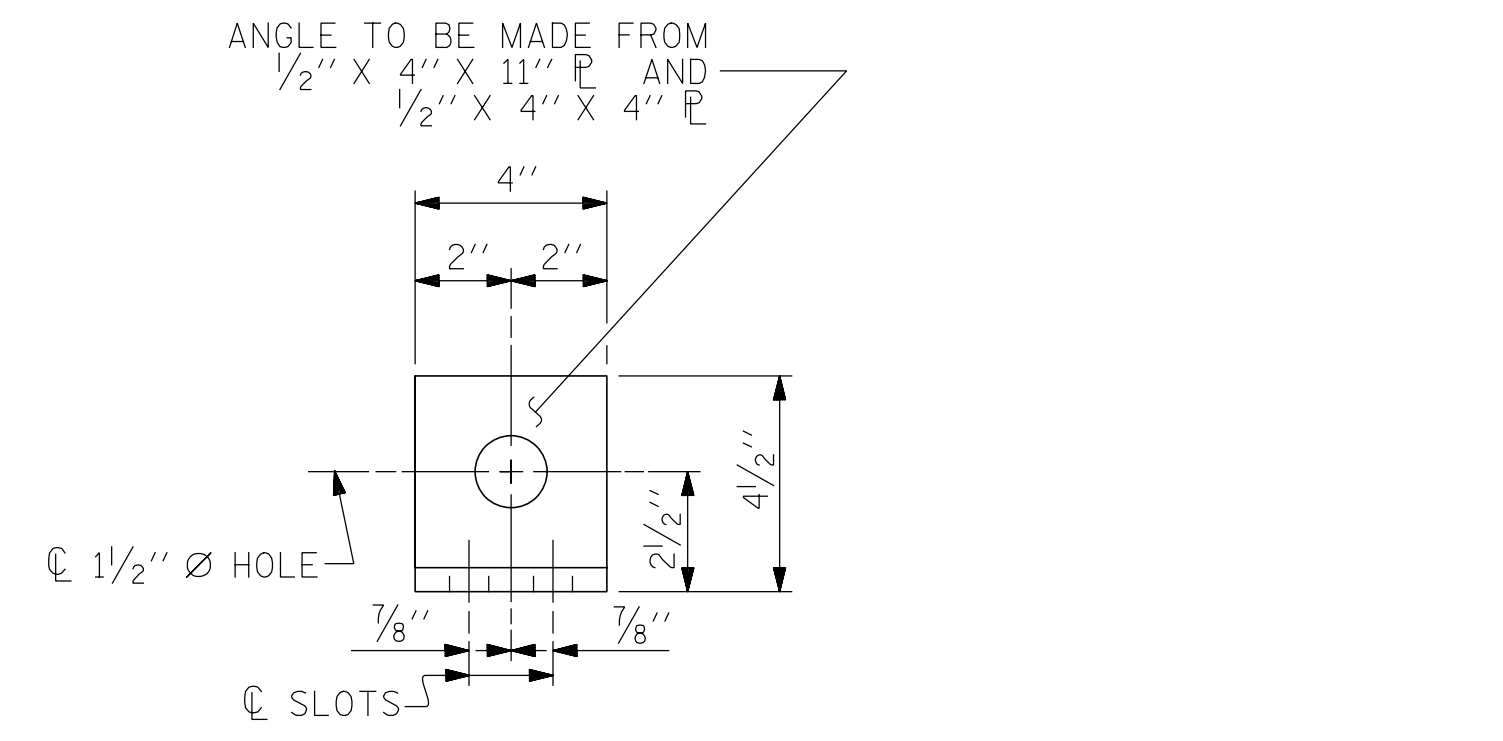


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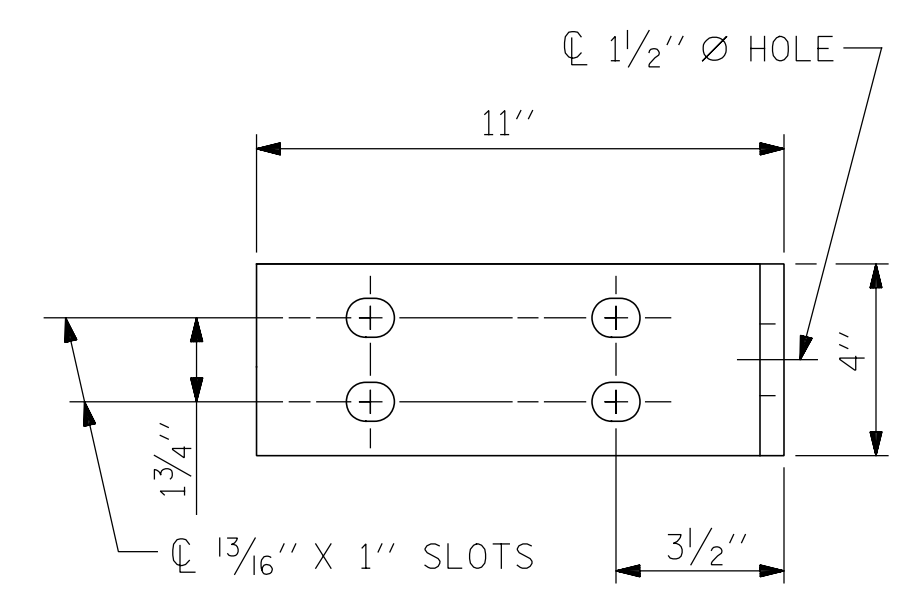
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 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

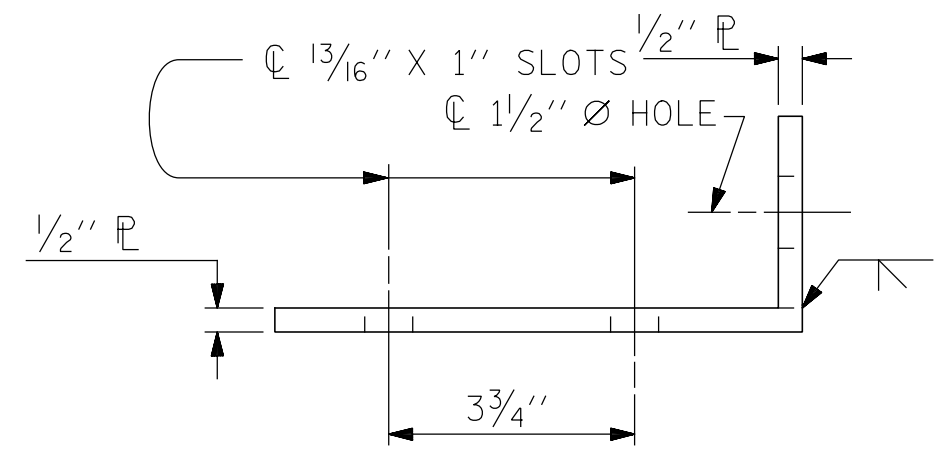
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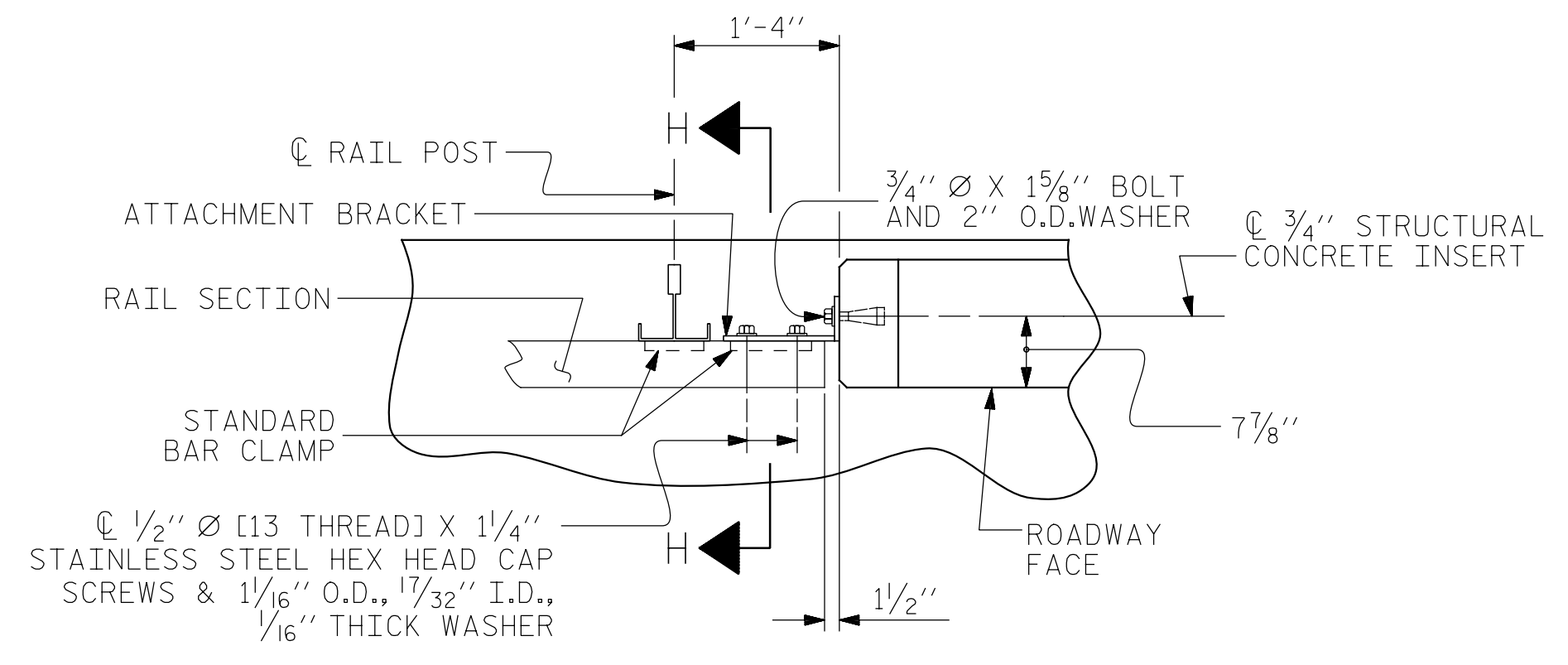
END VIEW



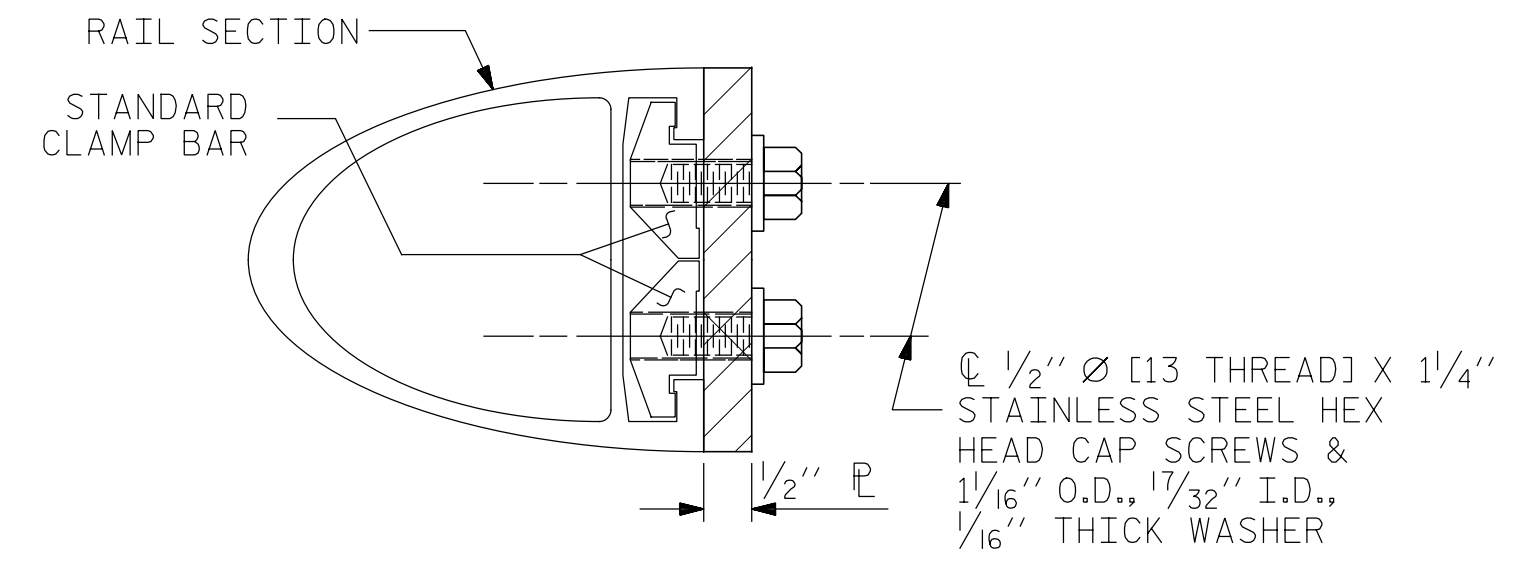
ELEVATION



TOP VIEW



PLAN - RAIL AND END POST



SECTION H-H

FIXED

DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

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

NOTES

METAL RAIL TO END POST CONNECTION

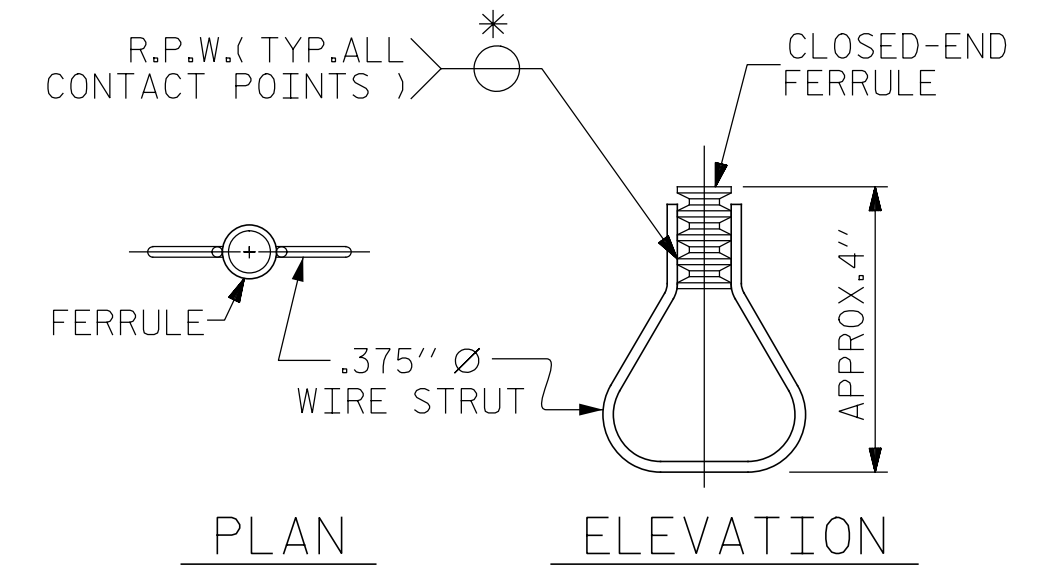
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
 - C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
 - D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



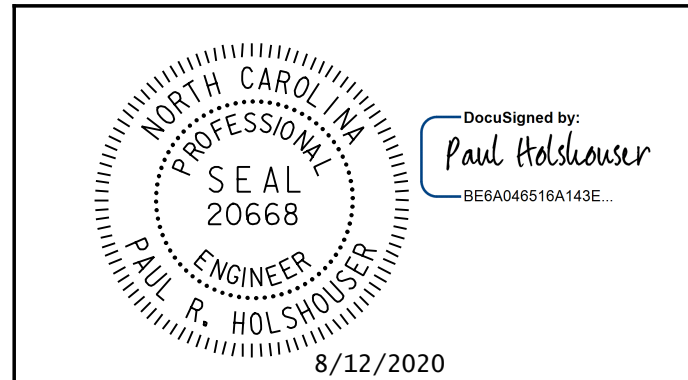
PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

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

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 3 OF 3

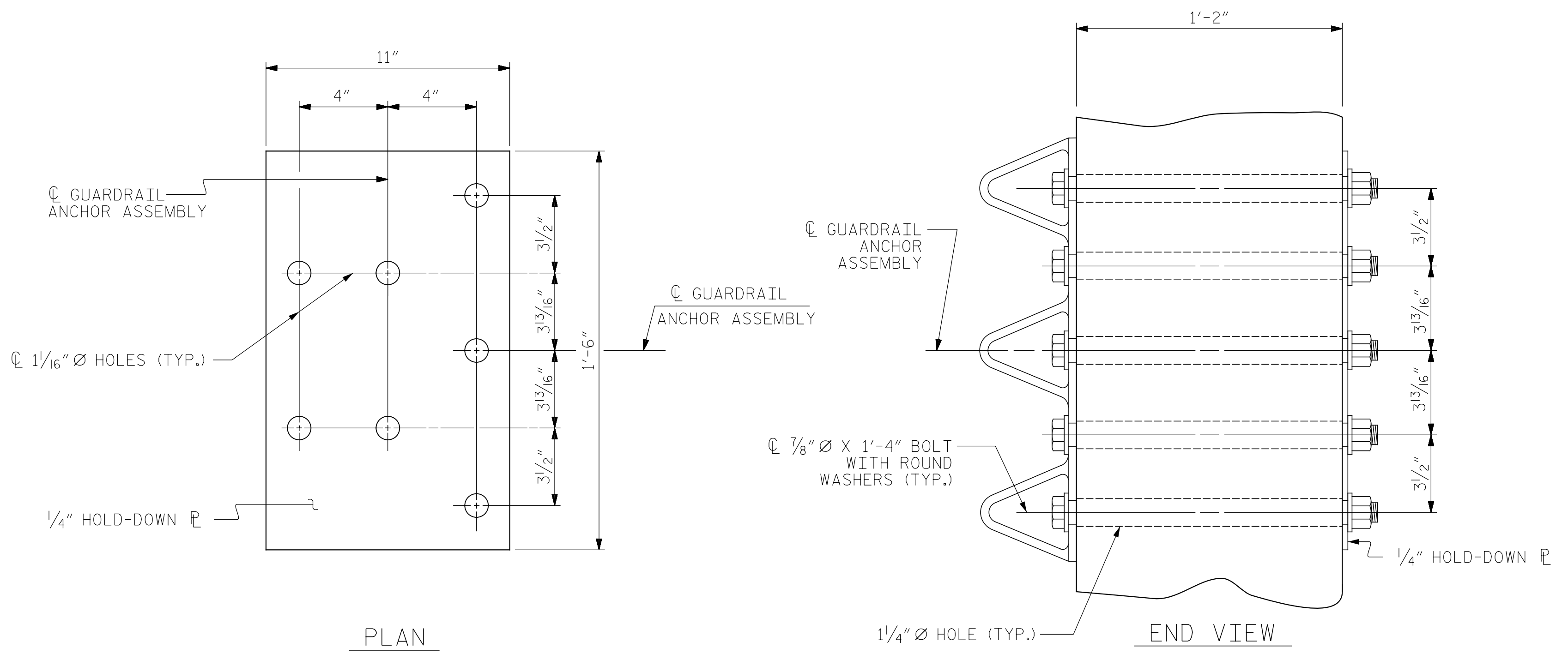


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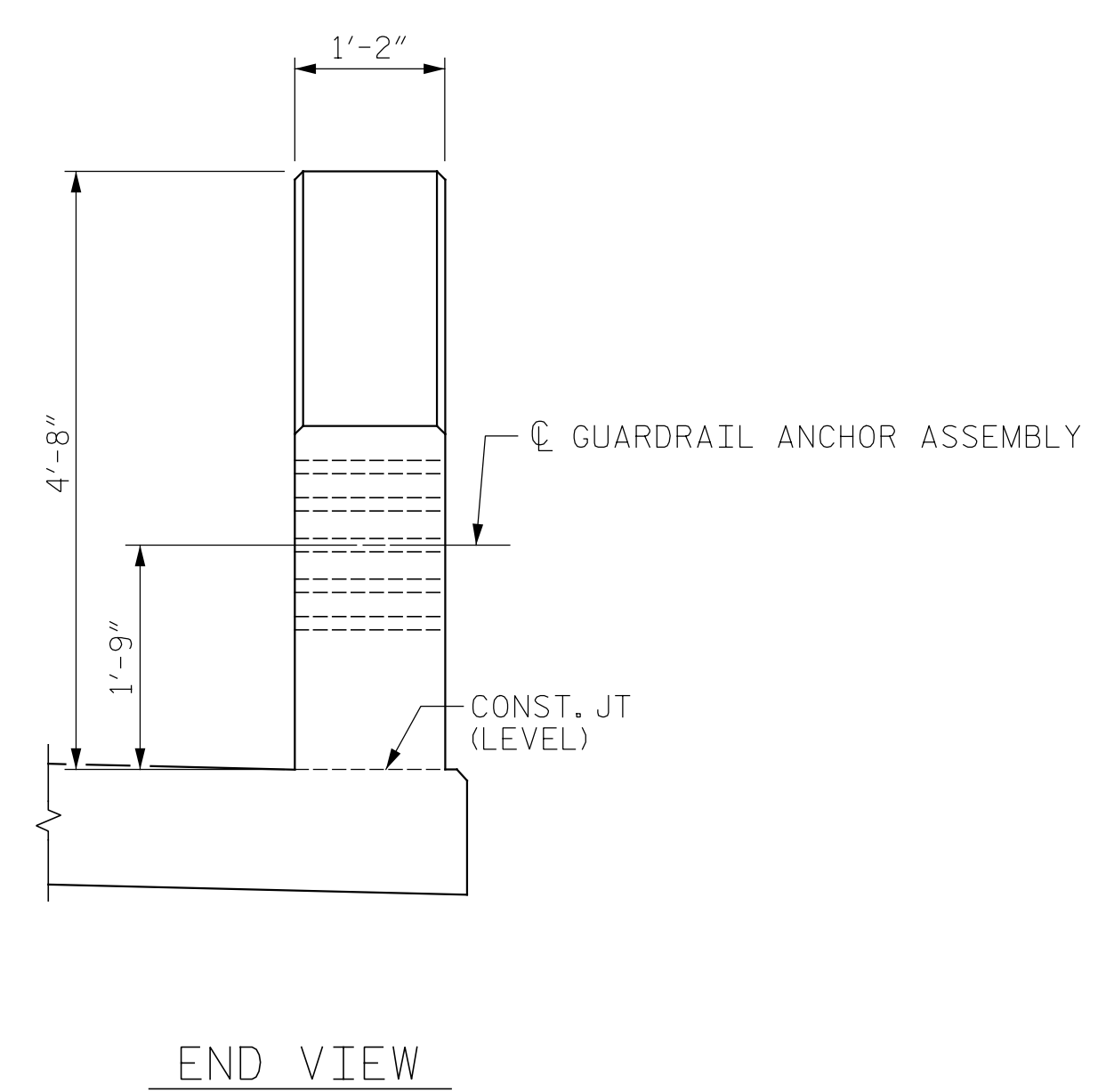
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DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUPERSTRUCTURE					
2 BAR METAL RAIL					
DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-59
TOTAL SHEETS					107

DRAWN BY : B. J. MANTEI DATE : 6-3-20
 CHECKED BY : J. N. AUSTIN DATE : 6-4-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

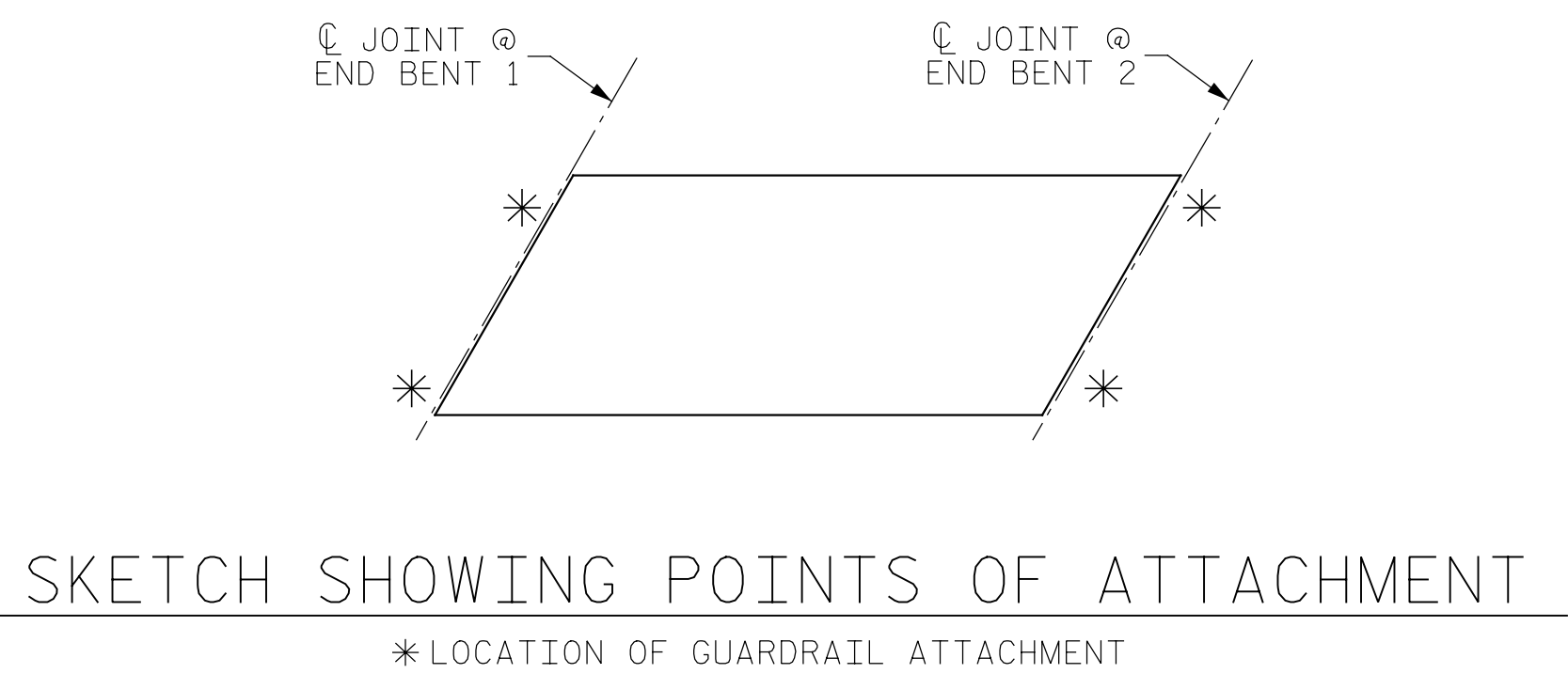
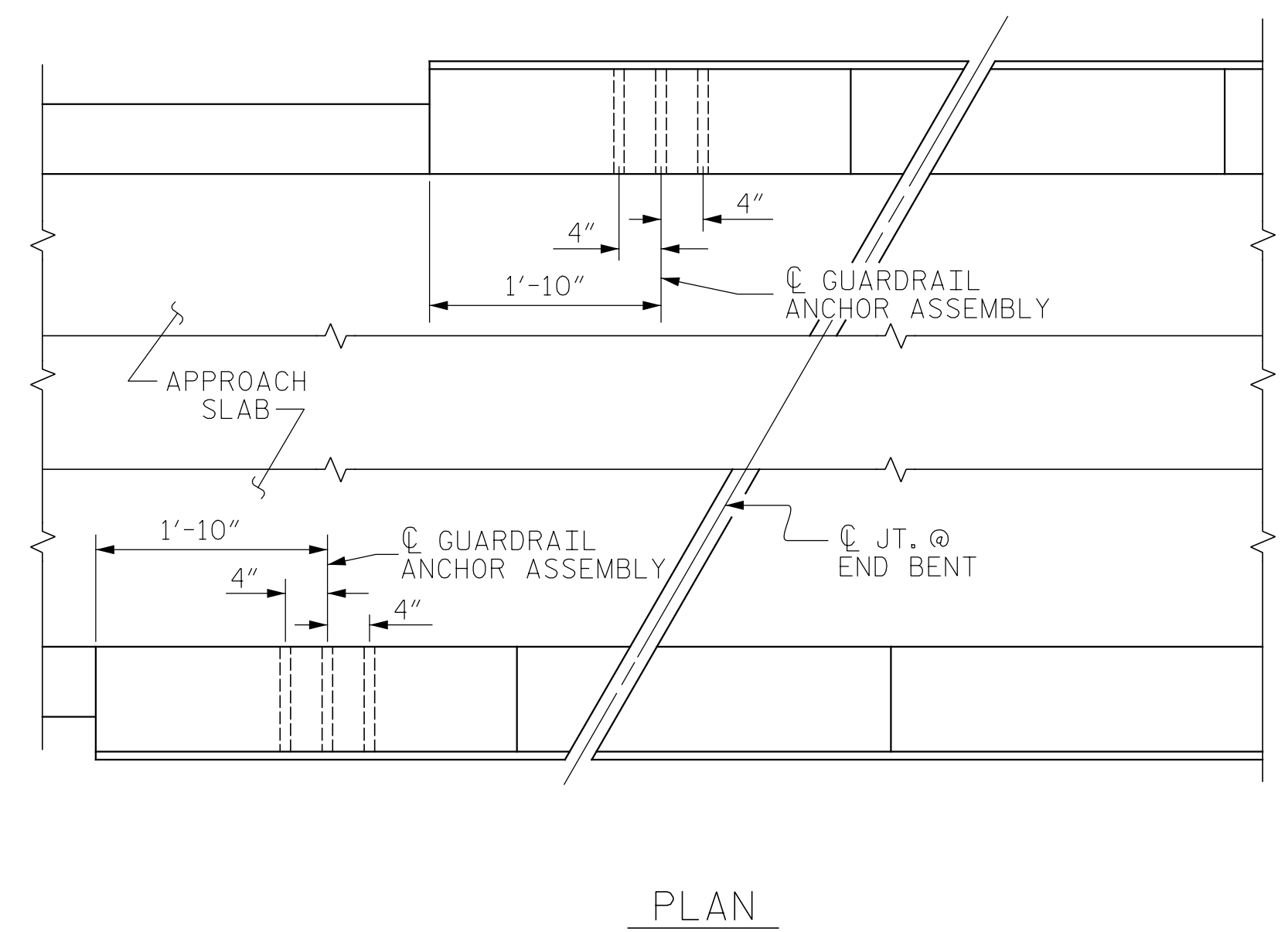
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GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR AT END POST



SKETCH SHOWING POINTS OF ATTACHMENT
* LOCATION OF GUARDRAIL ATTACHMENT

NOTES

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

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

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

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

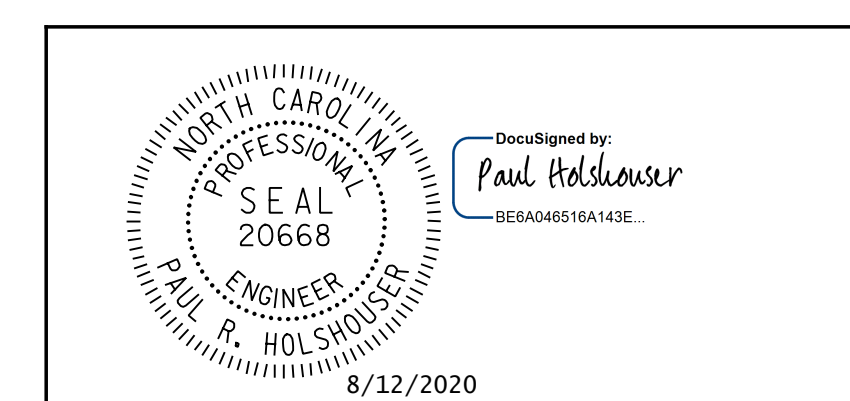
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

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

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RALEIGH

**GUARDRAIL ANCHORAGE
DETAILS
FOR METAL RAILS**

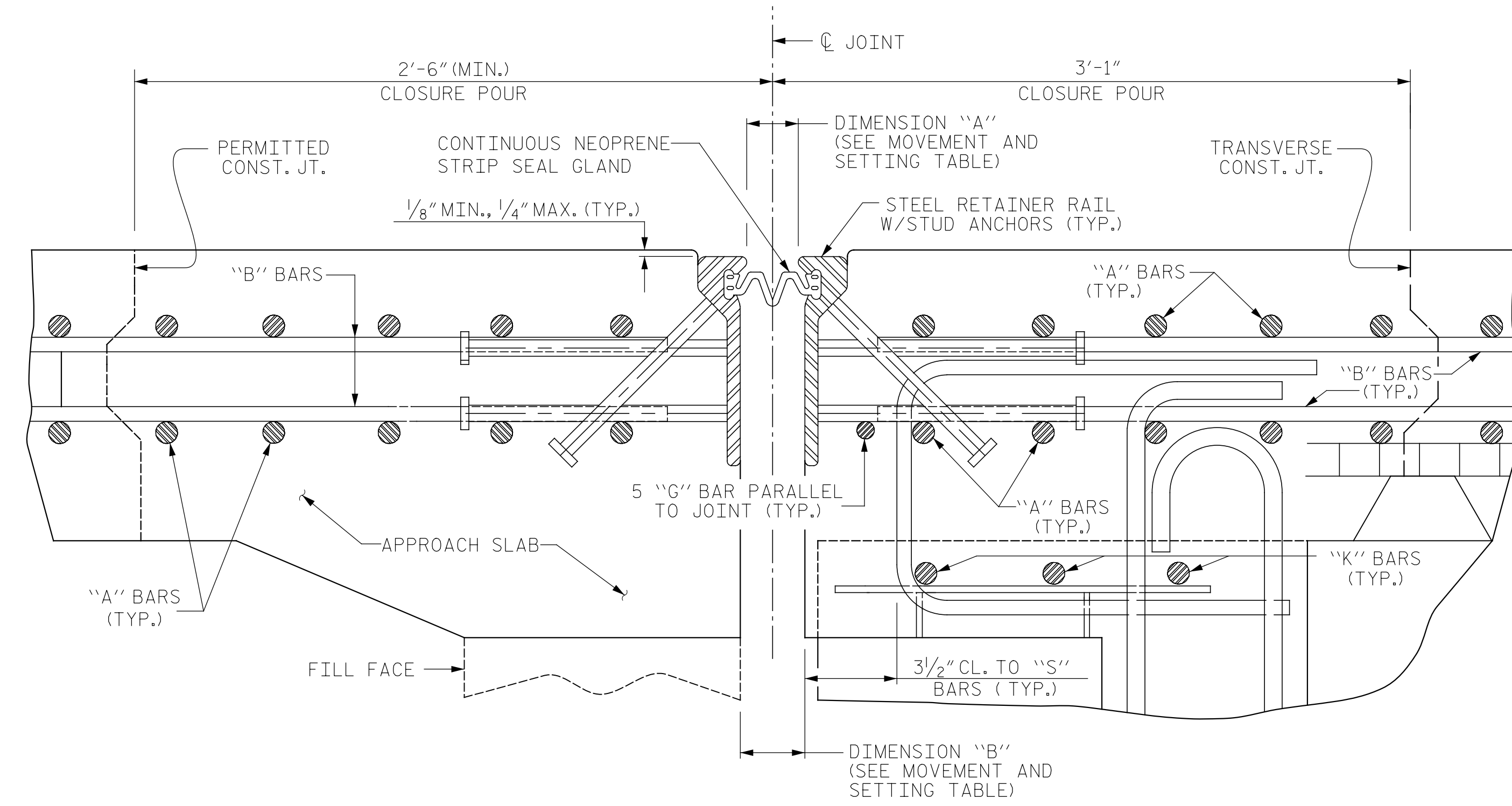
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CHECKED BY : N. REZAEI DATE : 6/11/20
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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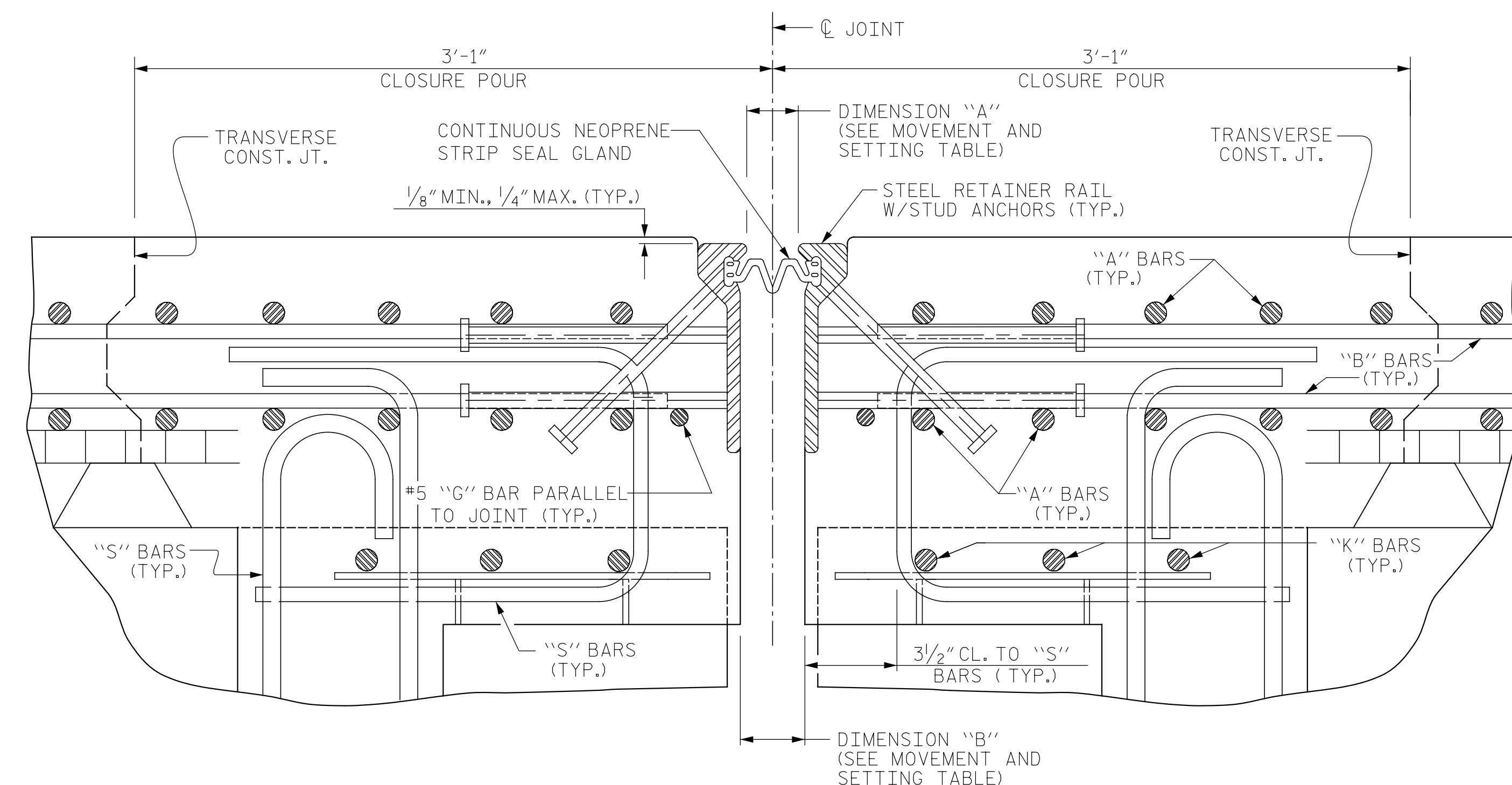
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STRIP SEAL EXPANSION JOINT DETAILS @ END BENT
(SECTION NORMAL TO C JOINT & TYP. EACH STAGE)



STRIP SEAL EXPANSION JOINT DETAILS @ INT. BENTS
(SECTION NORMAL TO C JOINT & TYP. EACH STAGE)

JOINT INSTALLATION PROCEDURE:

1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
9. PLACE APPROACH OR DECK SLAB CONCRETE.
10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT, STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.

GENERAL NOTES

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 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. MIN.

ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.

STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.

UPON COMPLETION OF SHOP FABRICATION, THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

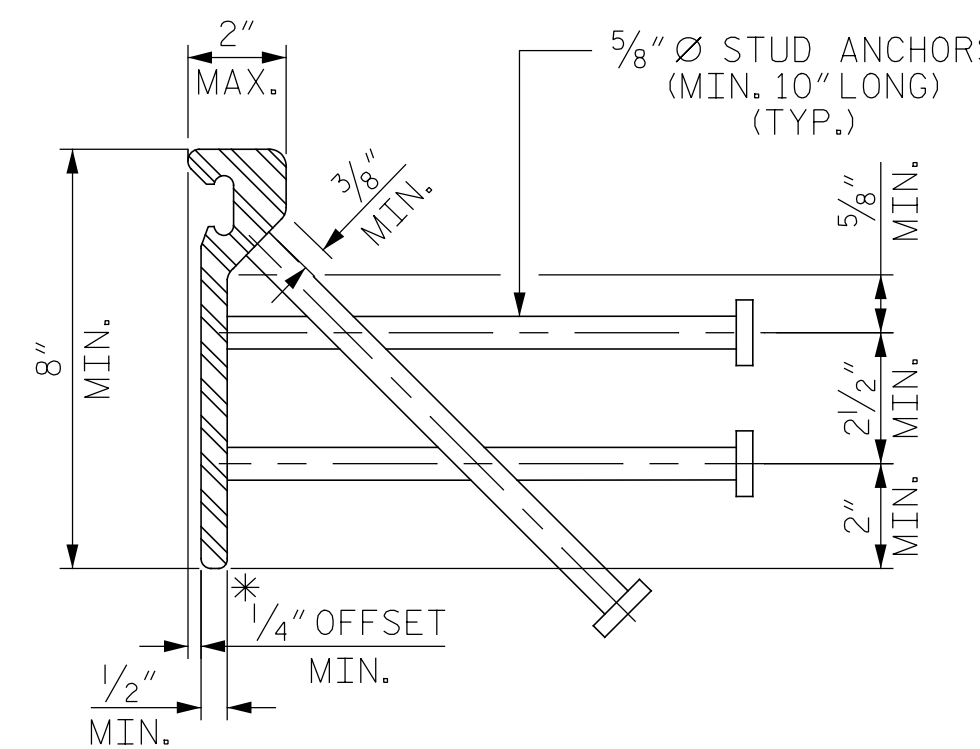
NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPICING THE GLAND IS NOT PERMITTED.

NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.

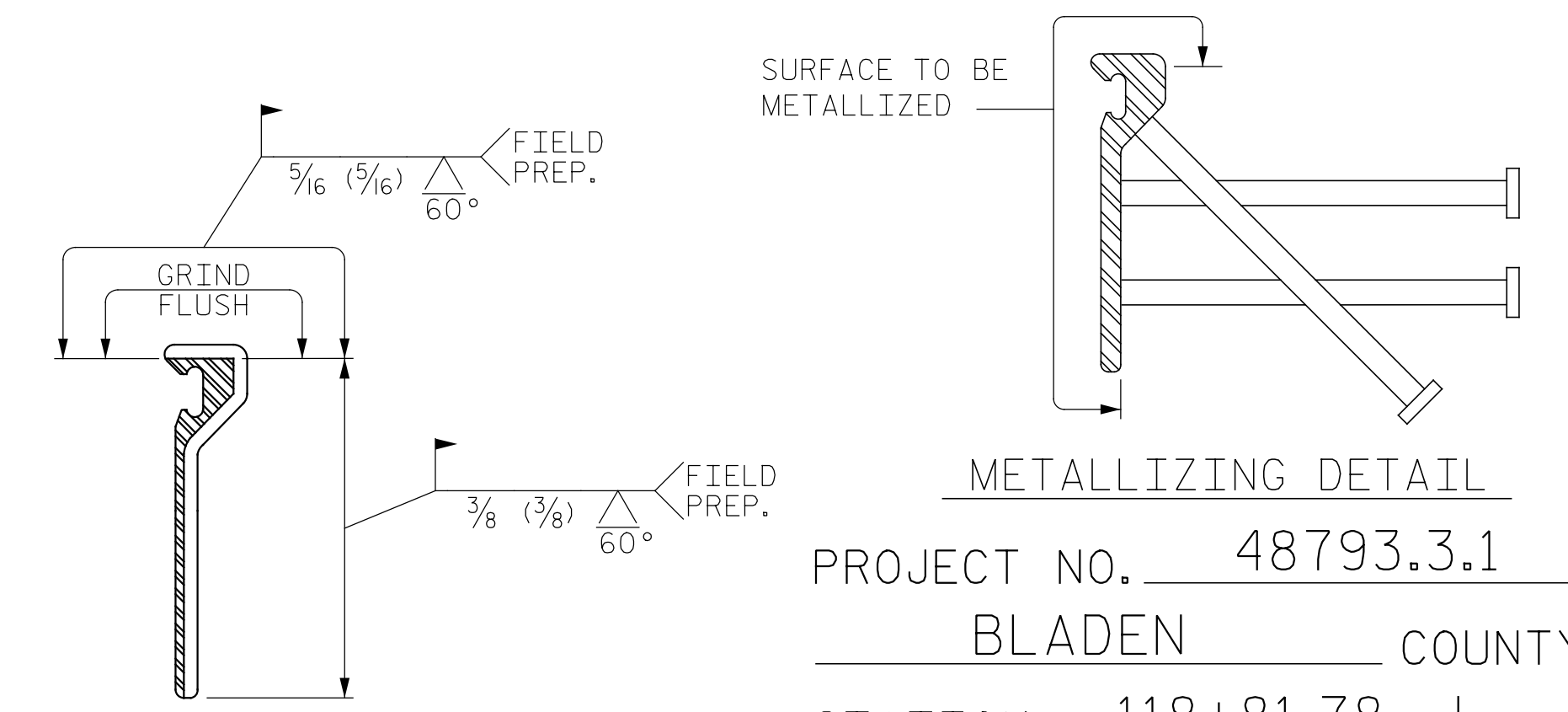
THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

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.

A TEMPORARY GLAND IS REQUIRED FOR STAGE I. NO SEPARATE PAYMENT WILL BE MADE FOR THE TEMPORARY GLAND.



TYPICAL SECTION STEEL RETAINER RAIL
* DIMENSION "B" BASED ON STEEL RETAINER RAIL TOP OFFSET TO FACE OF RAIL OF 1/4" MINIMUM. IF ACTUAL OFFSET IS GREATER ADJUST DIMENSION "B" AS REQUIRED.

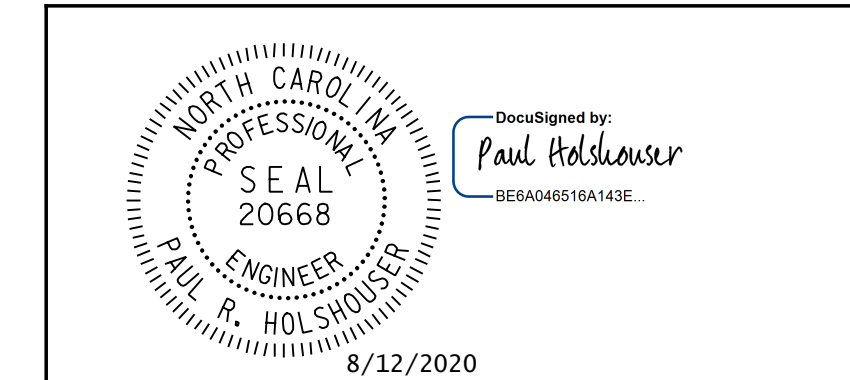


STEEL RETAINER RAIL (FIELD SPLICE DETAILS)

LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG C RDWY)	MOVEMENT AND SETTING AT JOINT					
			DIMENSION "A"			DIMENSION "B" *		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	105°-00'-00"	1 3/8"	2 1/4"	2"	1 1/2"	2 3/4"	2 1/2"	2"
BENT 3	105°-00'-00"	2 1/4"	2 5/8"	2 1/4"	1 1/2"	3 1/8"	2 3/4"	2"
BENT 5	105°-00'-00"	2 3/8"	2 5/8"	2 1/4"	1 1/2"	3 1/8"	2 3/4"	2"
END BENT 2	105°-00'-00"	1 3/8"	2 1/4"	2"	1 1/2"	2 3/4"	2 1/2"	2"

DRAWN BY : B. J. MANTEI DATE : 5-20-20
 CHECKED BY : P. R. HOLSHOUSER DATE : 5/21/20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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RALEIGH

SUPERSTRUCTURE

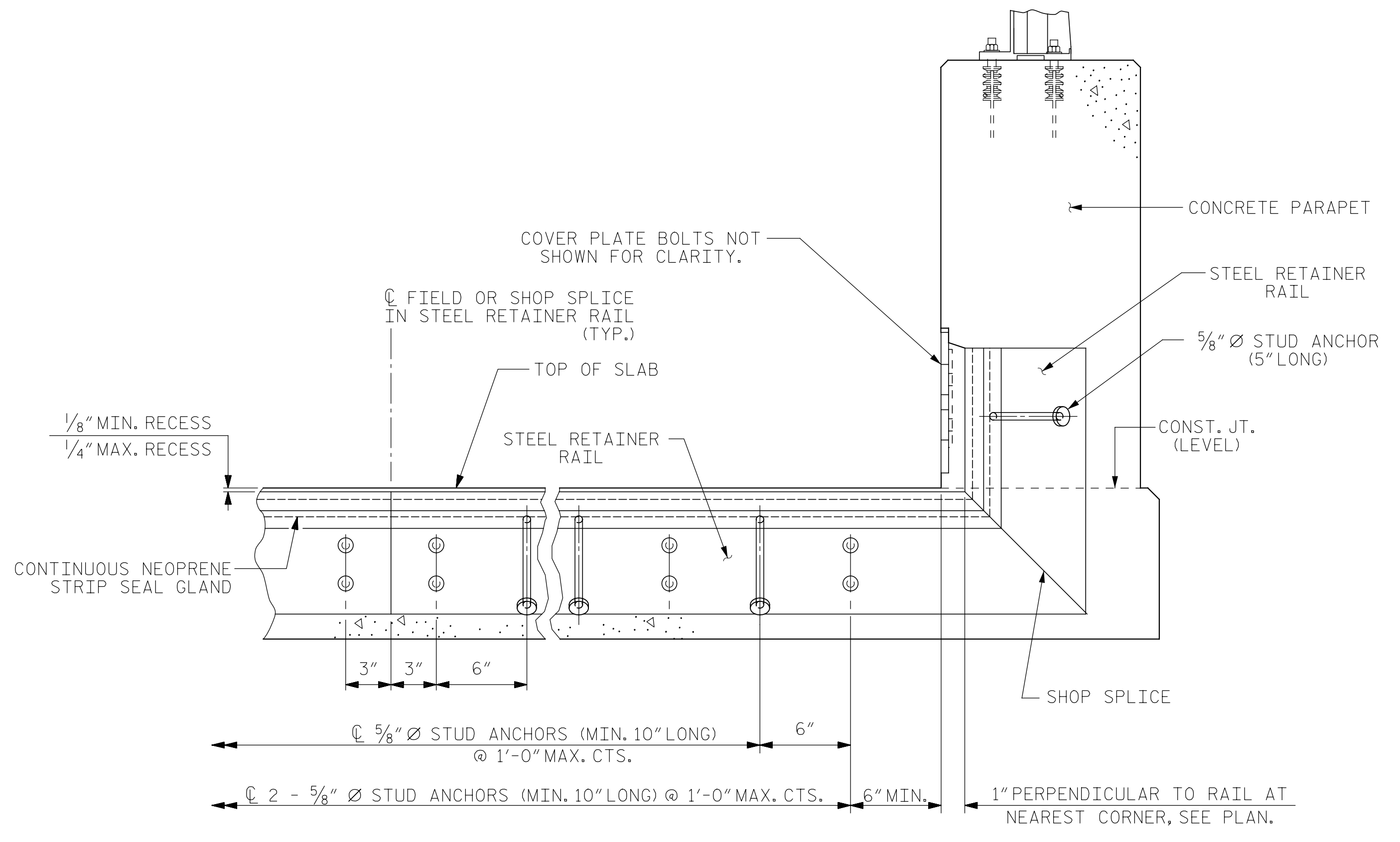
STRIP SEAL EXPANSION JOINT DETAILS

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

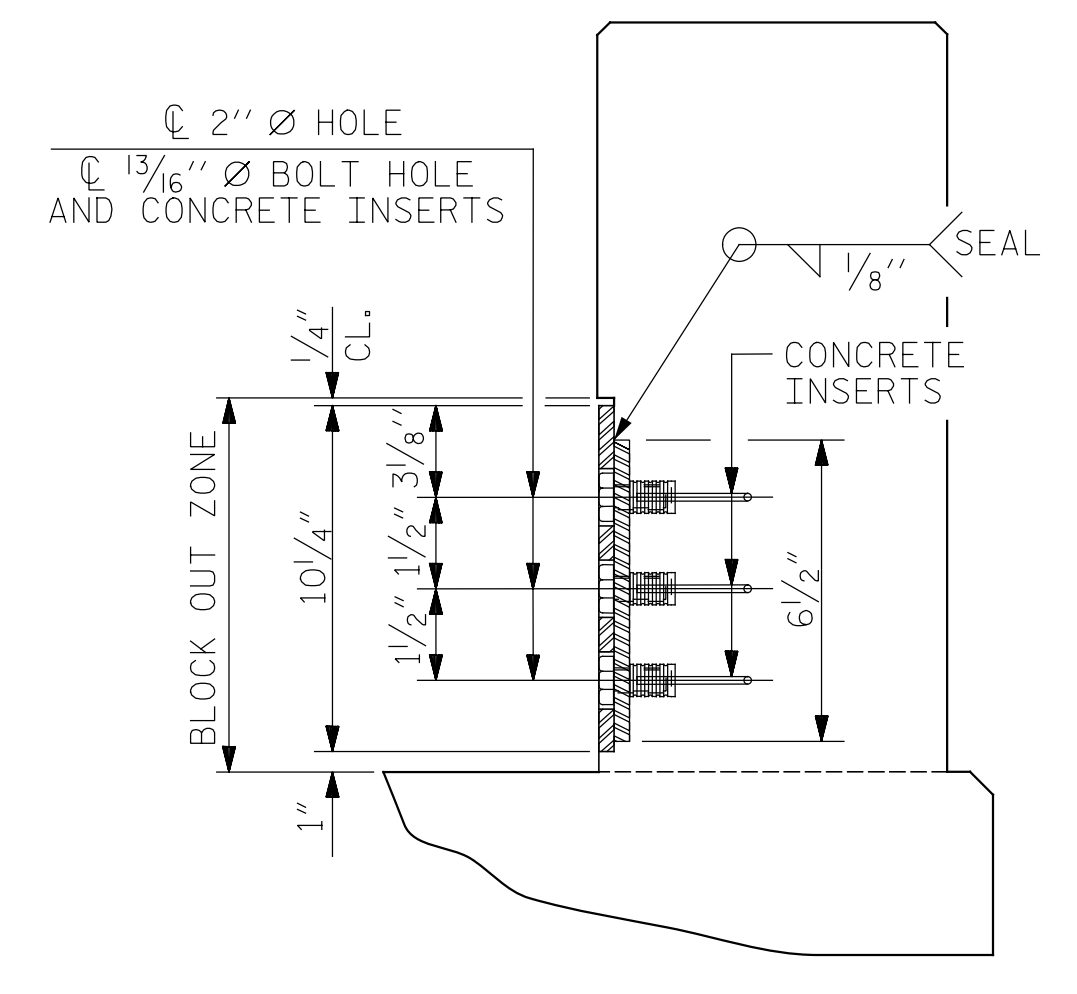
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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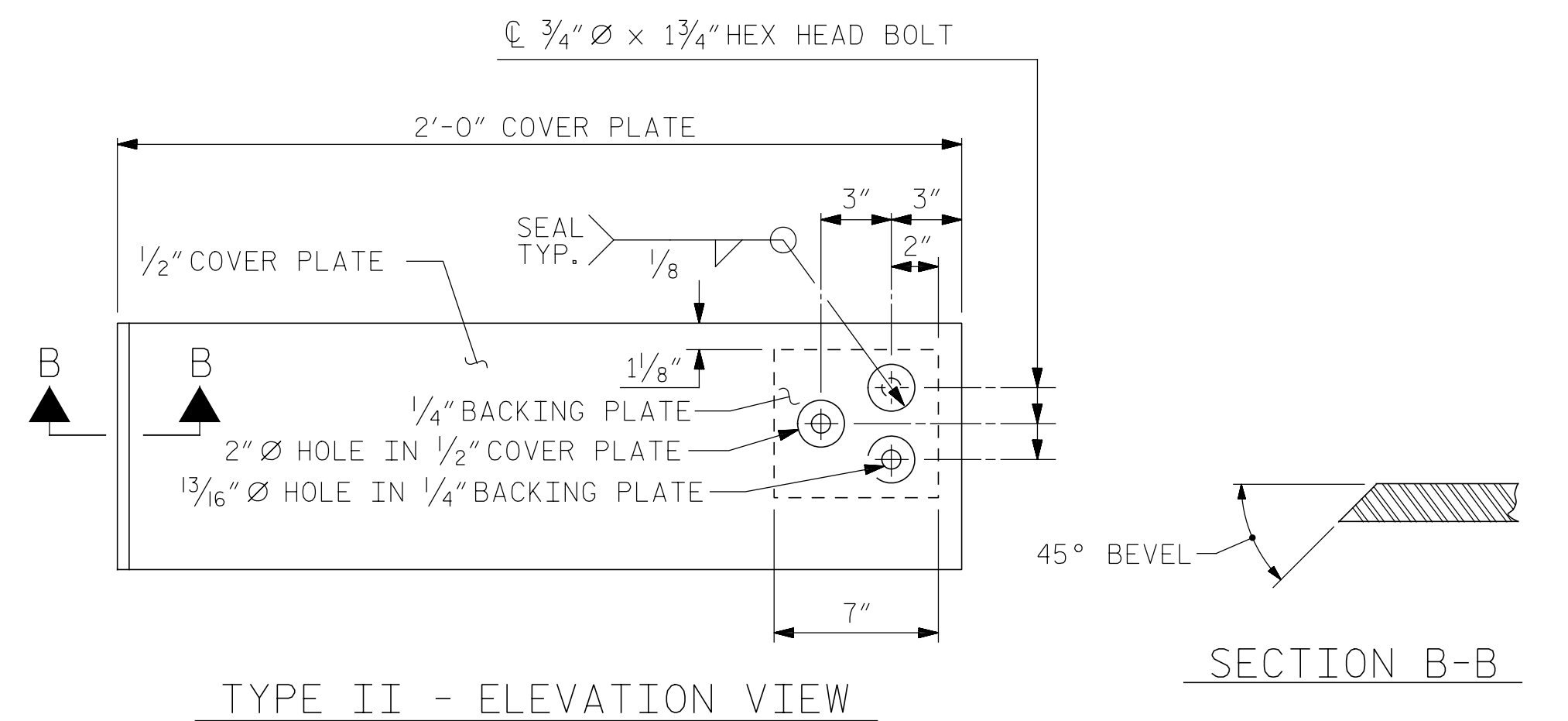
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SECTION THRU PARAPET NORMAL TO JOINT



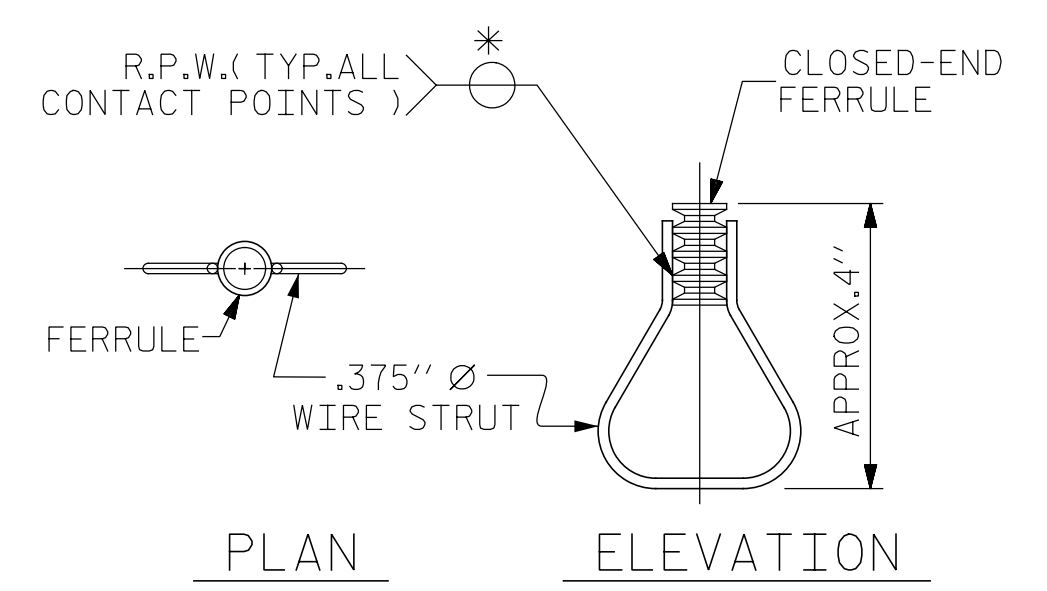
END VIEW



TYPE II - ELEVATION VIEW

SECTION B-B

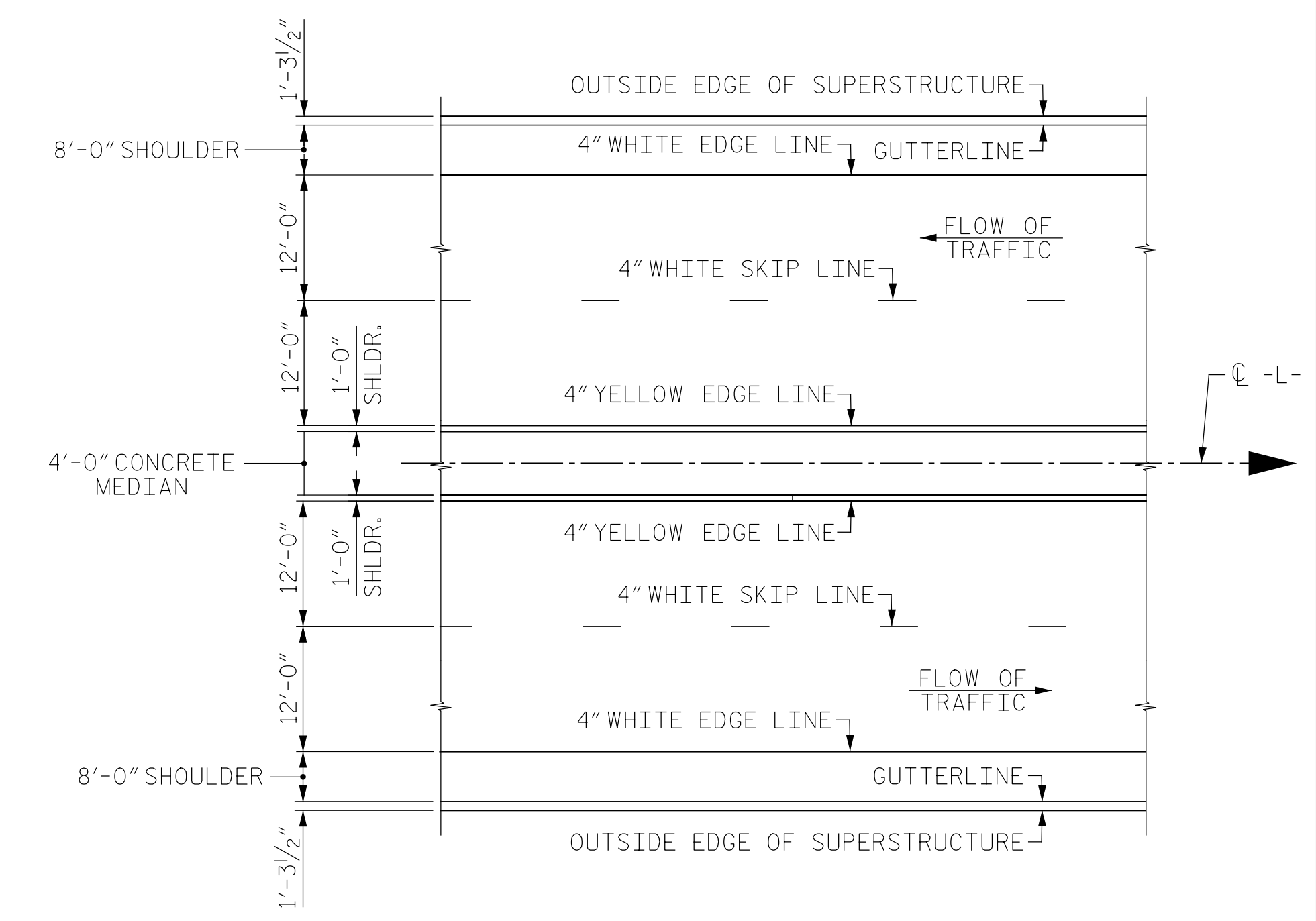
PARAPET COVER PLATE DETAILS



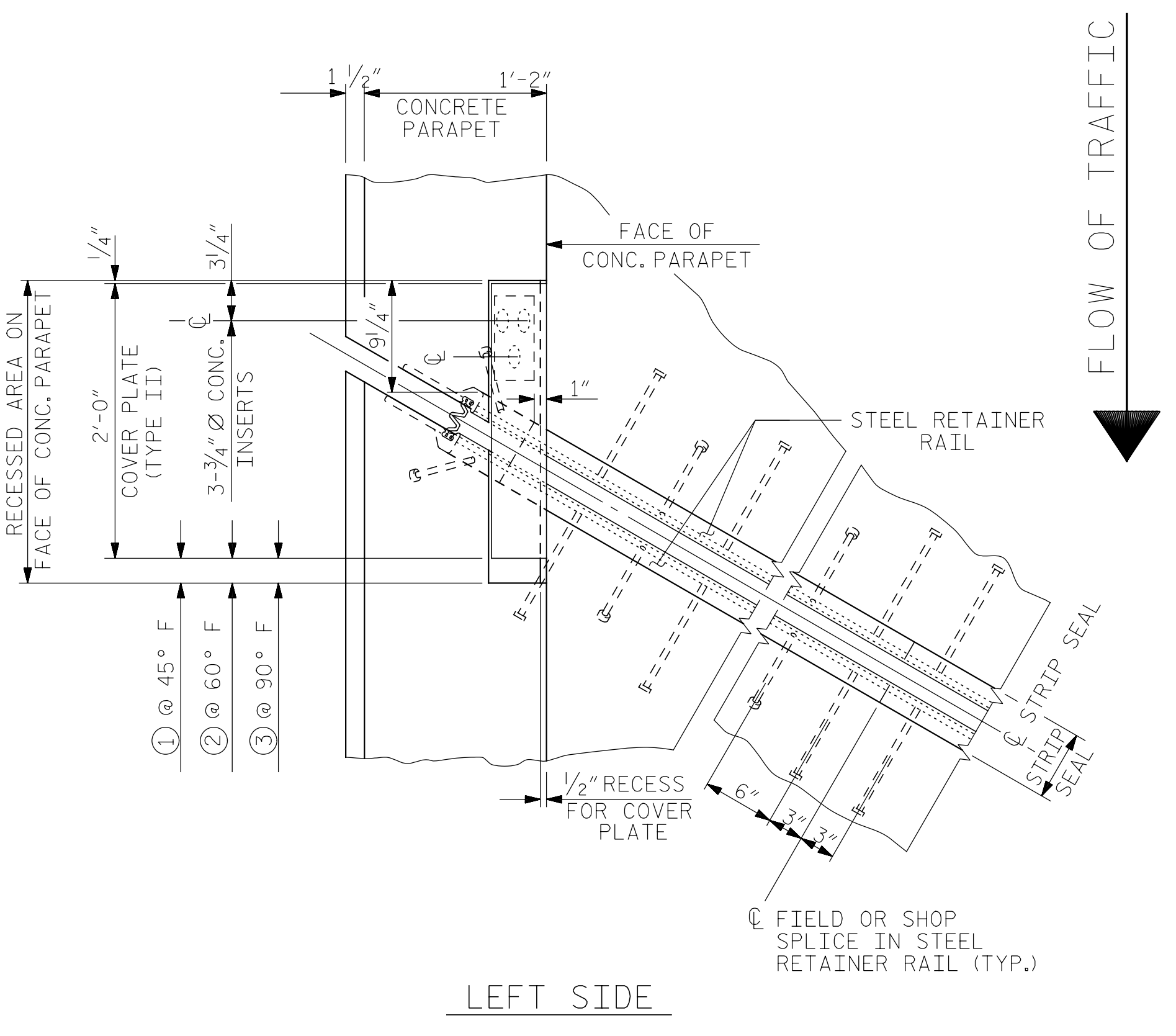
PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

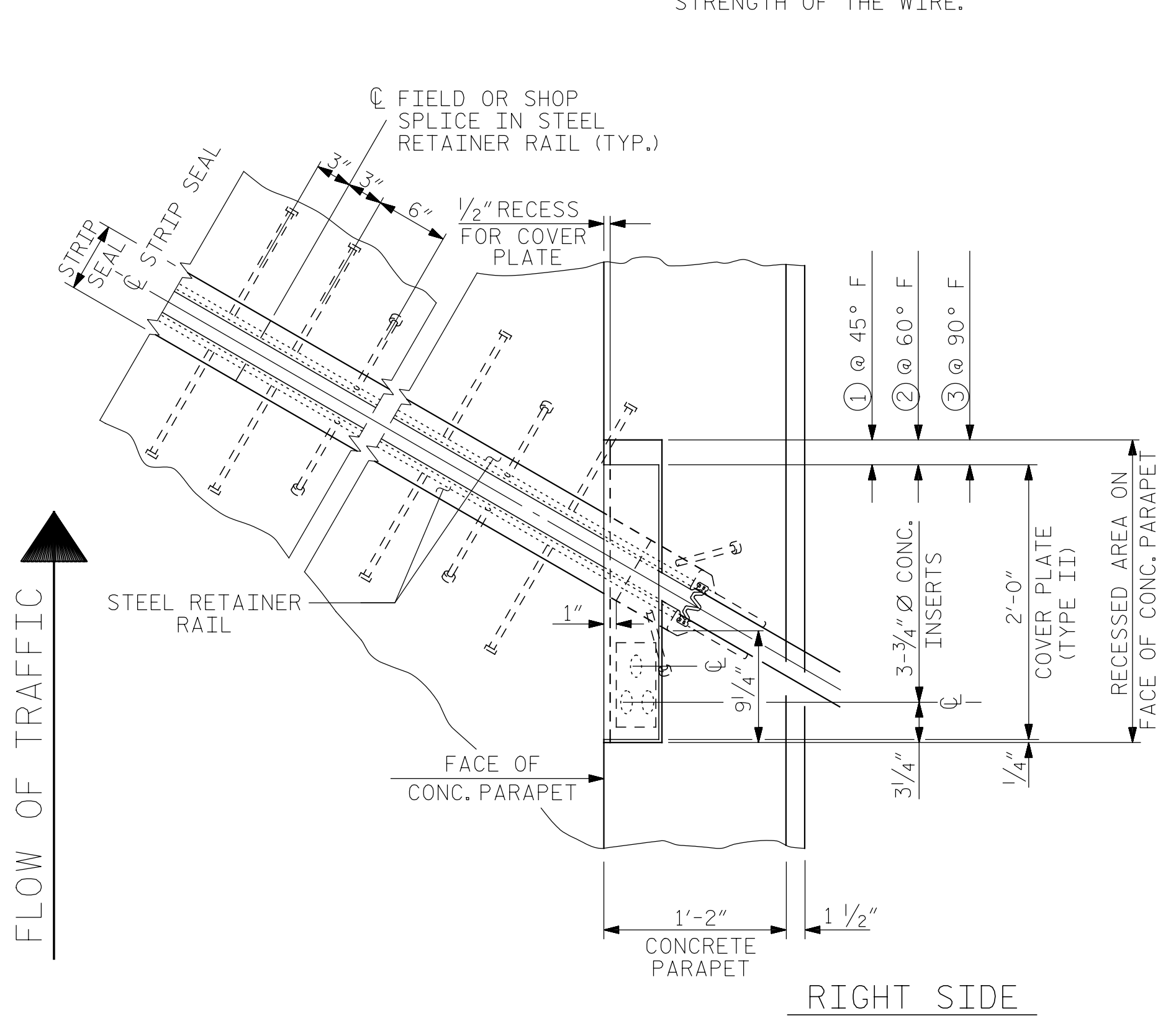
* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



PAVEMENT MARKING ALIGNMENT



LEFT SIDE

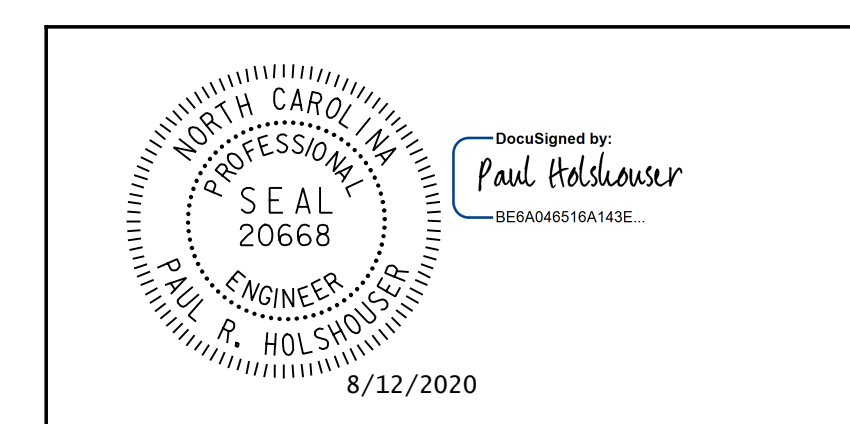


RIGHT SIDE

PLAN OF STRIP SEAL EXPANSION JOINT

RECESS AREA DIMENSIONS				
	END BENT 1	BENT 3	BENT 5	END BENT 2
①	2 1/4"	2 3/4"	2 3/4"	2 1/4"
②	2"	2 3/8"	2 3/8"	2"
③	1 1/2"	1 1/2"	1 1/2"	1 1/2"

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRIP SEAL EXPANSION
 JOINT DETAILS

DRAWN BY: B.J.M. / J.N.A. DATE: 5-12-20
 CHECKED BY: N. D'AIUTO DATE: 5/13/20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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SHEET NO. S-62
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 Plotter: HP DesignJet T1100e

REINFORCING BAR SCHEDULE - STAGE I

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
* A1	2170	5	STR	49' - 6"	112,034	* D1	2241	5	STR	5' - 4"	12,466
A2	2170	5	STR	49' - 6"	112,034	D2	2241	5	STR	5' - 4"	12,466
* A101	12	5	STR	46' - 1"	577	* G1	6	5	STR	53' - 11"	337
* A102	12	5	STR	42' - 1"	527	K1	12	8	1	14' - 5"	462
* A103	12	5	STR	38' - 0"	476	K2	12	8	2	15' - 1"	483
* A104	12	5	STR	34' - 0"	426	K3	96	8	1	13' - 0"	3,332
* A105	12	5	STR	29' - 11"	374	K4	90	6	STR	4' - 7"	620
* A106	12	5	STR	25' - 11"	324	K5	50	4	STR	4' - 3"	142
* A107	12	5	STR	21' - 10"	273	K6	100	4	STR	6' - 8"	445
* A108	12	5	STR	17' - 10"	223	K7	200	4	STR	8' - 2"	1,091
* A109	12	5	STR	13' - 9"	172	K8	35	4	3	5' - 7"	131
* A110	12	5	STR	9' - 9"	122	K9	140	4	4	11' - 0"	1,029
* A111	12	5	STR	5' - 8"	71	K10	35	4	4	9' - 5"	220
* A112	6	5	STR	3' - 8"	23						
A201	12	5	STR	46' - 1"	577	* S1	150	5	5	5' - 9"	900
A202	12	5	STR	42' - 1"	527	* S2	150	4	6	5' - 2"	518
A203	12	5	STR	38' - 0"	476	S3	50	4	7	12' - 11"	431
A204	12	5	STR	34' - 0"	426	S4	1000	4	8	2' - 9"	1,837
A205	12	5	STR	29' - 11"	374	U1	125	4	9	15' - 8"	1,308
A206	12	5	STR	25' - 11"	324						
A207	12	5	STR	21' - 10"	273						
A208	12	5	STR	17' - 10"	223						
A209	12	5	STR	13' - 9"	172						
A210	12	5	STR	9' - 9"	122						
A211	12	5	STR	5' - 8"	71						
A212	6	5	STR	3' - 8"	23						
* EPOXY COATED REINFORCING STEEL										LBS.	232,492
REINFORCING STEEL										LBS.	191,544
CONCRETE BREAKDOWN											
CLASS AA CONCRETE											
	UNIT 1	UNIT 2	UNIT 3	TOTAL							
POUR #1	185.1	227.1	229.8	C.Y.	642.0						
POUR #2	270.4	293.1	275.7	C.Y.	839.2						
POUR #3	289.3		288.3	C.Y.	577.6						
POUR #4	14.6	14.6	14.6	C.Y.	43.8						
TOTAL				C.Y.	2,102.6						

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

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

SUPERSTRUCTURE BILL OF MATERIAL - STAGE I CONSTRUCTION

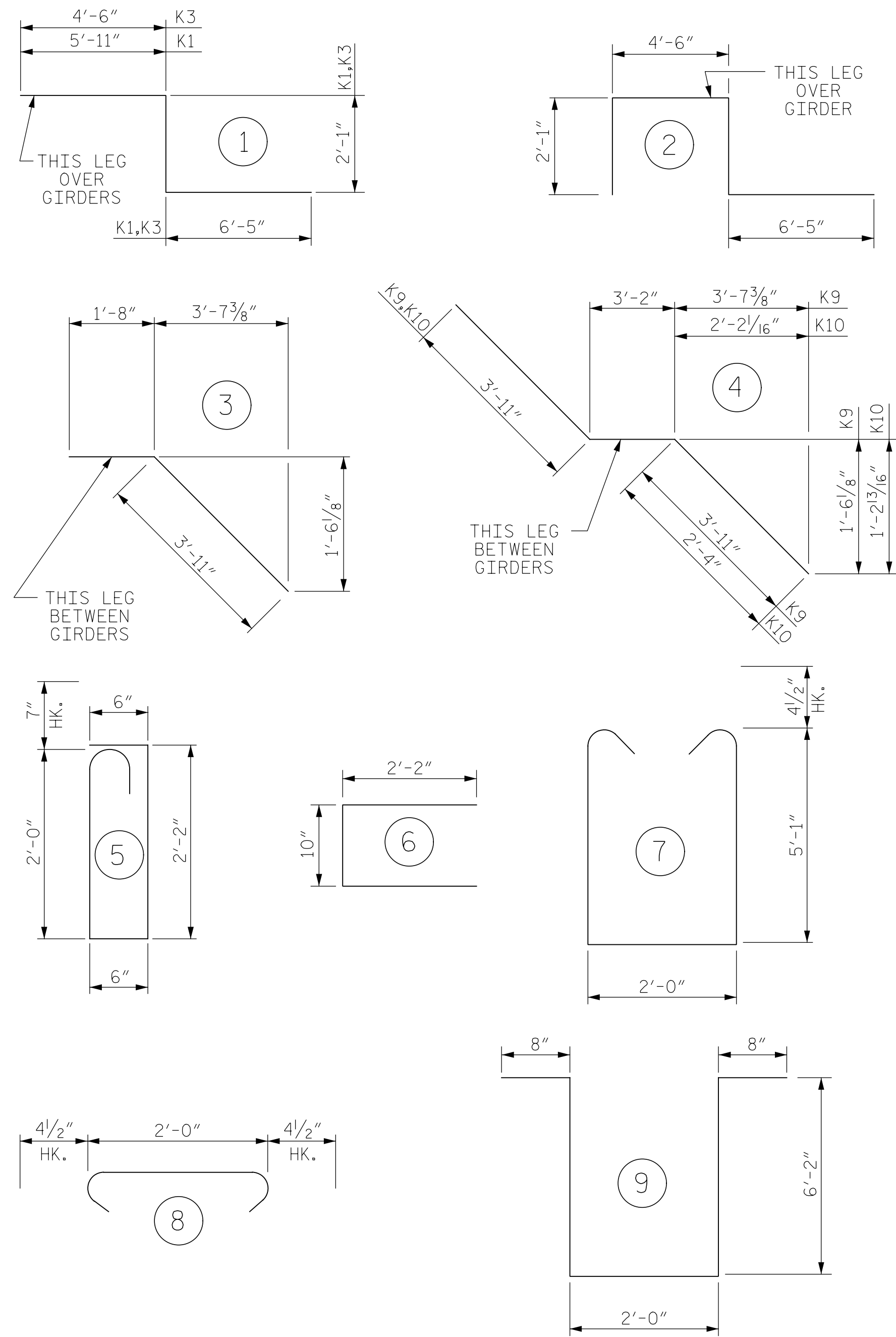
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
UNIT 1	759.4		
UNIT 2	534.8		
UNIT 3	808.4		
TOTALS**	2,102.6	191,544	232,492

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

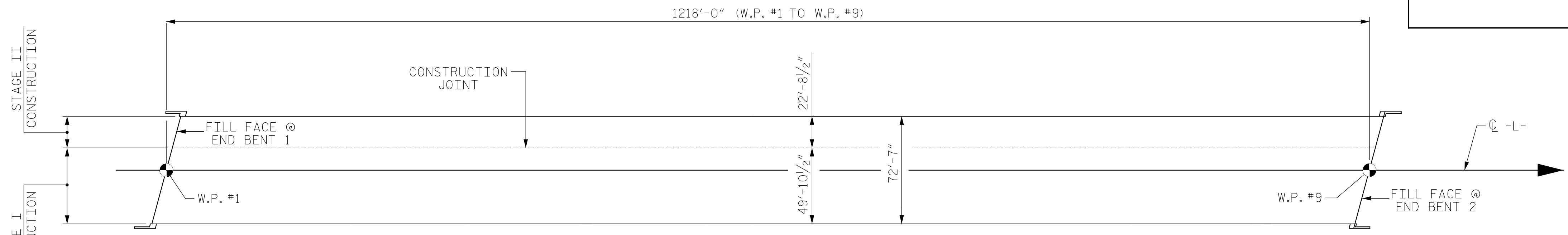
GROOVING BRIDGE FLOORS STAGE I CONSTRUCTION

APPROACH SLABS	2,256	SQ.FT.
BRIDGE DECK	57,118	SQ.FT.
TOTAL	59,374	SQ.FT.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.



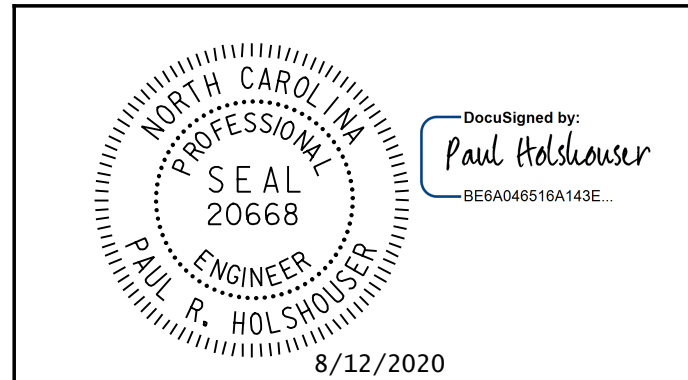
LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB

STAGE I=	60,748	SQ. FT
STAGE II=	27,659	SQ. FT
TOTAL=	88,407	SQ. FT

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BILL OF MATERIAL
STAGE I CONSTRUCTION



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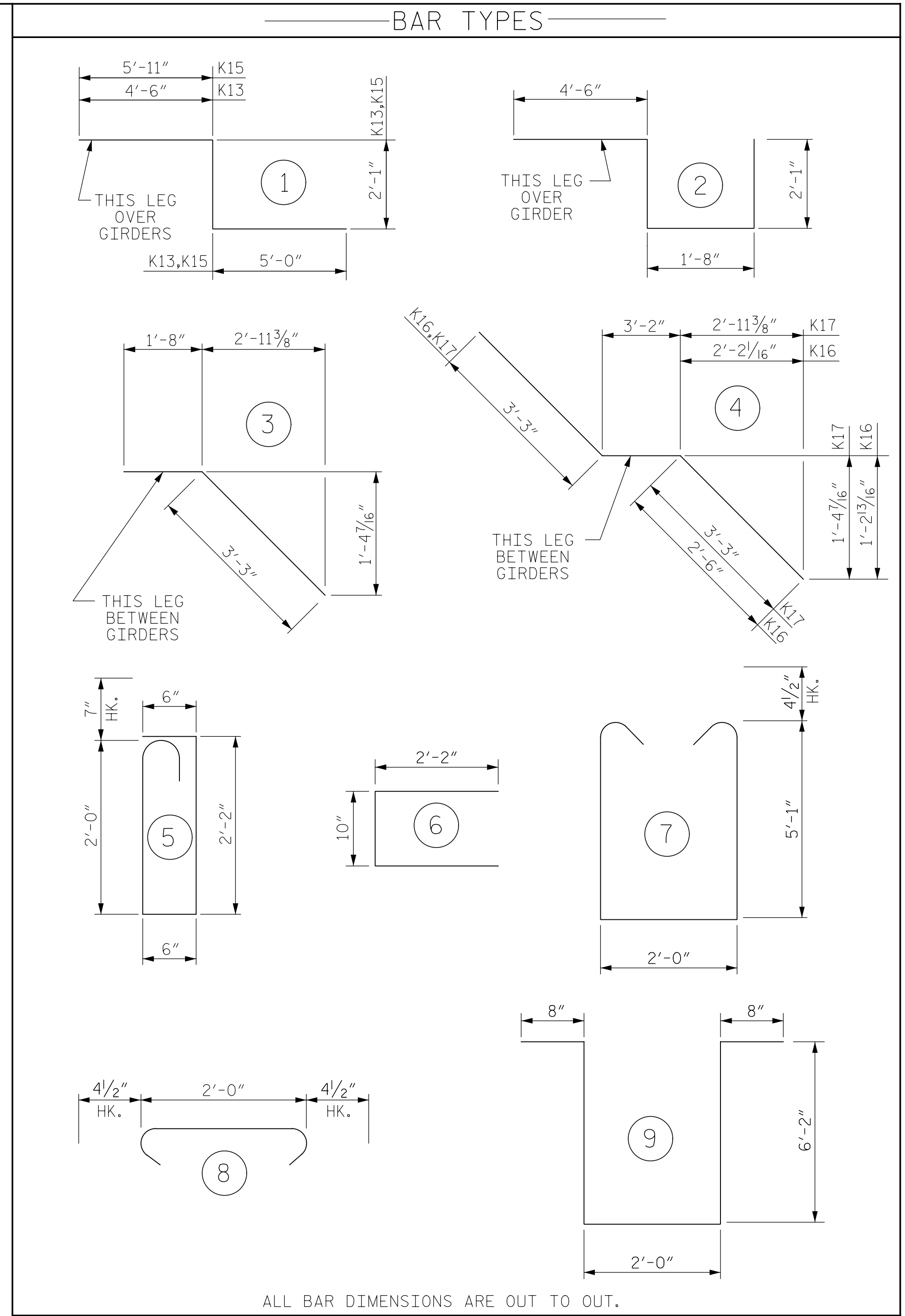
REINFORCING BAR SCHEDULE - STAGE II											
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
* A3	2215	5	STR	22' - 4"	51,595	K14	36	6	STR	3' - 3"	176
A4	2215	5	STR	22' - 4"	51,595	K15	12	8	1	13' - 0"	417
* A301	12	5	STR	15' - 11"	199	K16	35	4	4	8' - 11"	208
* A302	12	5	STR	11' - 10"	148	K17	70	4	4	9' - 8"	452
* A303	12	5	STR	7' - 9"	97	K18	35	4	3	4' - 11"	115
* A304	12	5	STR	3' - 9"	47	K19	80	4	STR	6' - 9"	361
A401	12	5	STR	15' - 11"	199	K20	40	4	STR	5' - 2"	138
A402	12	5	STR	11' - 10"	148	K21	40	4	STR	5' - 3"	140
A403	12	5	STR	7' - 9"	97	K22	20	4	STR	3' - 9"	50
A404	12	5	STR	3' - 9"	47	K23	10	4	STR	1' - 4"	9
						K24	20	4	STR	2' - 11"	39
* B1	38	5	STR	41' - 7"	1,648	* S1	60	5	5	5' - 9"	360
* B2	38	5	STR	55' - 4"	2,193	* S2	60	4	6	5' - 2"	207
* B3	76	5	STR	55' - 10"	4,426	S3	30	4	7	12' - 11"	259
* B4	38	5	STR	49' - 1"	1,945	S4	450	4	8	2' - 9"	827
* B5	38	5	STR	54' - 1"	2,144	U1	50	4	9	15' - 8"	523
* B6	38	5	STR	53' - 9"	2,130	* EPOXY COATED				LBS.	117,721
* B7	285	6	STR	36' - 9"	15,732	REINFORCING STEEL					
* B8	240	6	STR	50' - 1"	18,054	REINFORCING STEEL				LBS.	96,569
B9	152	5	STR	57' - 4"	9,089	CONCRETE BREAKDOWN					
B10	40	5	STR	47' - 3"	1,971						
B11	114	5	STR	52' - 6"	6,242	CLASS AA CONCRETE					
B12	152	5	STR	60' - 0"	9,512						
* B13	36	4	STR	38' - 10"	934	UNIT 1 UNIT 2 UNIT 3 TOTAL					
* B14	24	4	STR	39' - 9"	637						POUR #1
* B15	39	4	STR	37' - 7"	979	POUR #2	102.0	110.7	104.0	C.Y.	316.7
						POUR #3	109.2	108.8	108.8	C.Y.	218.0
* D1	2241	5	STR	5' - 4"	12,466	POUR #4	2.5	2.5	2.5	C.Y.	7.5
D2	2241	5	STR	5' - 4"	12,466	POUR #5	97.1	70.5	104.4	C.Y.	272.0
* G2	6	5	STR	23' - 6"	147	MEDIAN **				C.Y.	66.7
* G3	815	4	STR	3' - 0"	1,633	TOTAL				C.Y.	1,125.6
K11	12	8	2	10' - 4"	331	** QUANTITIES FOR MEDIAN ON APPROACH SLABS NOT INCLUDED.					
K12	18	6	STR	1' - 8"	45						
K13	36	8	1	11' - 7"	1,113						

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

SUPERSTRUCTURE BILL OF MATERIAL - STAGE II CONSTRUCTION					
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL		
	(CU. YDS.)	(LBS.)	(LBS.)		
UNIT 1	381.4				
UNIT 2	270.2				
UNIT 3	407.3				
MEDIAN	66.7				
TOTALS**	1,125.6	96,569	117,721		

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS STAGE II CONSTRUCTION		
APPROACH SLABS	954	SQ.FT.
BRIDGE DECK	24,162	SQ.FT.
TOTAL	25,116	SQ.FT.



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 2 OF 2

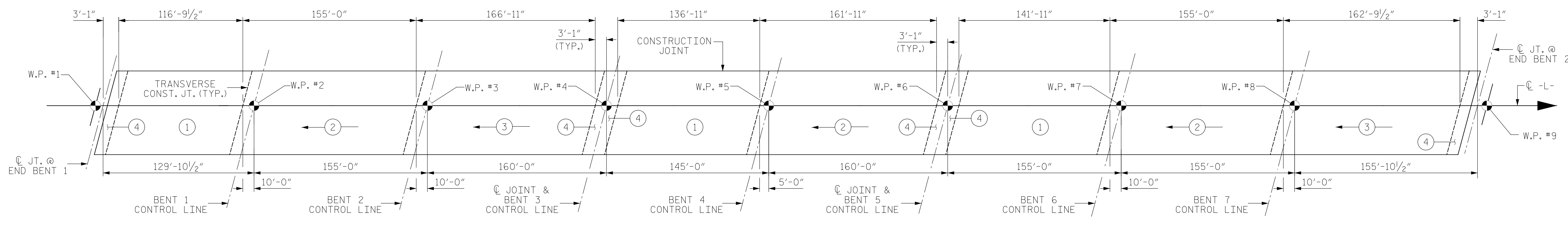
DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
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 STAGE II CONSTRUCTION

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1			3			TOTAL SHEETS
2			4			107

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 CHECKED BY : N. D'AIUTO DATE : 8-6-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

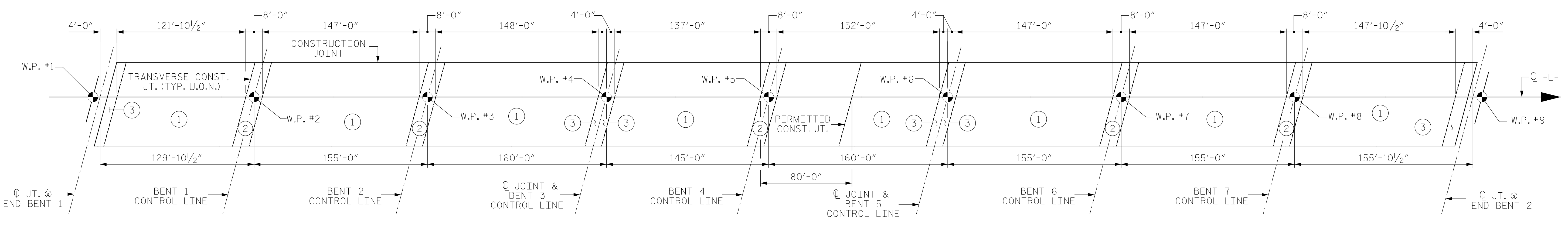
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POUR SEQUENCE - STAGE I

⊕ DENOTES POUR NUMBER AND DIRECTION
 ALL DIMENSIONS ARE ALONG CL -L-



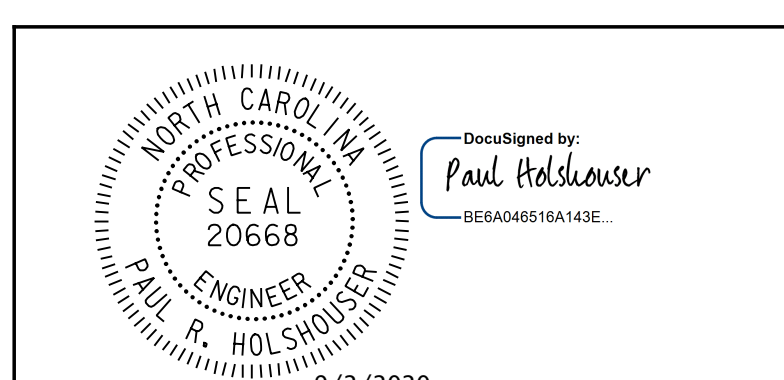
OPTIONAL POUR SEQUENCE - STAGE I

⊕ DENOTES POUR NUMBER
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 U.O.N. - DENOTES UNLESS OTHERWISE NOTED

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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 POURING SEQUENCE
 STAGE I CONSTRUCTION



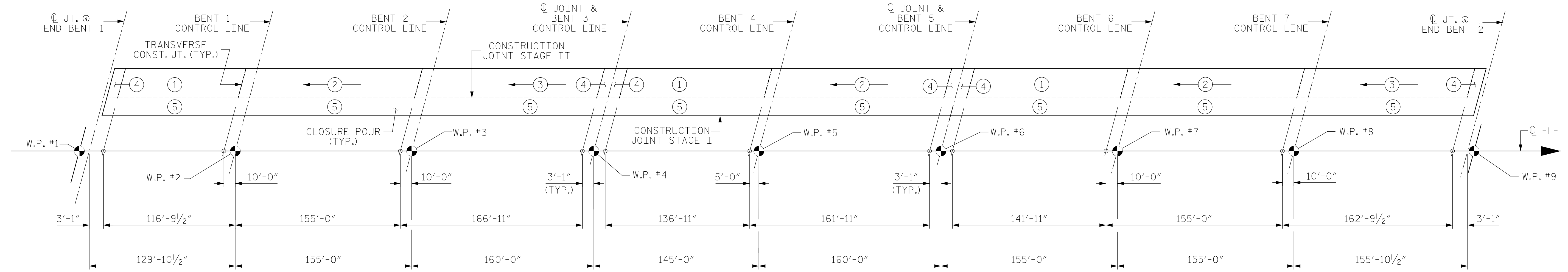
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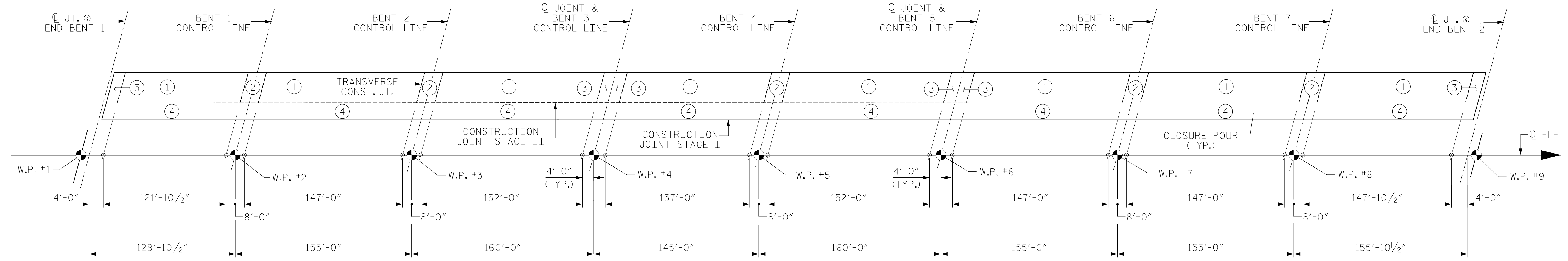
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 CHECKED BY : N. D'AIUTO DATE : 7-22-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20



POUR SEQUENCE - STAGE II

⊕ DENOTES POUR NUMBER AND DIRECTION
 ALL DIMENSIONS ARE ALONG CL-L-



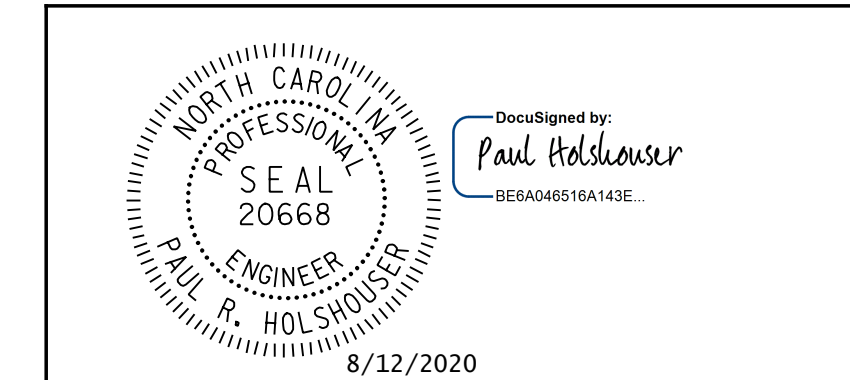
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⊕ DENOTES POUR NUMBER
 ALL DIMENSIONS ARE ALONG CL-L-

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
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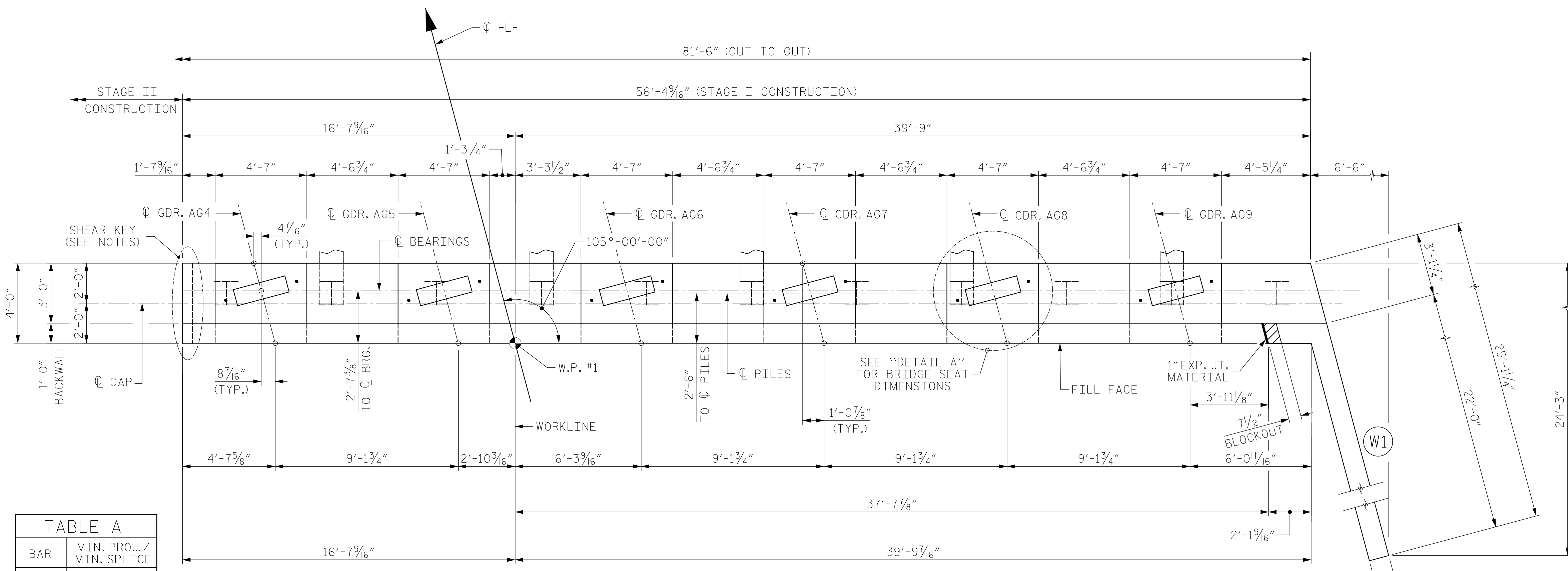


TABLE A	
BAR	MIN. PROJ./MIN. SPLICE
#10 B1	6'-0"
#4 B4	2'-5"
#4 K2	2'-5"
#5 B2	3'-0"
#4 B5	2'-5"

PLAN
WING (W1) BRACE PILE NOT SHOWN FOR CLARITY.

NOTES:

STIRRUPS MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR PILE SPLICE DETAILS, SEE SHEET 6 OF 6.

BACKWALL SHALL BE PLACED BEFORE APPLYING EPOXY PROTECTIVE COATING.

THE TOP SURFACE 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 CAP, EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE FRONT FACE AT A RATE OF 2%.

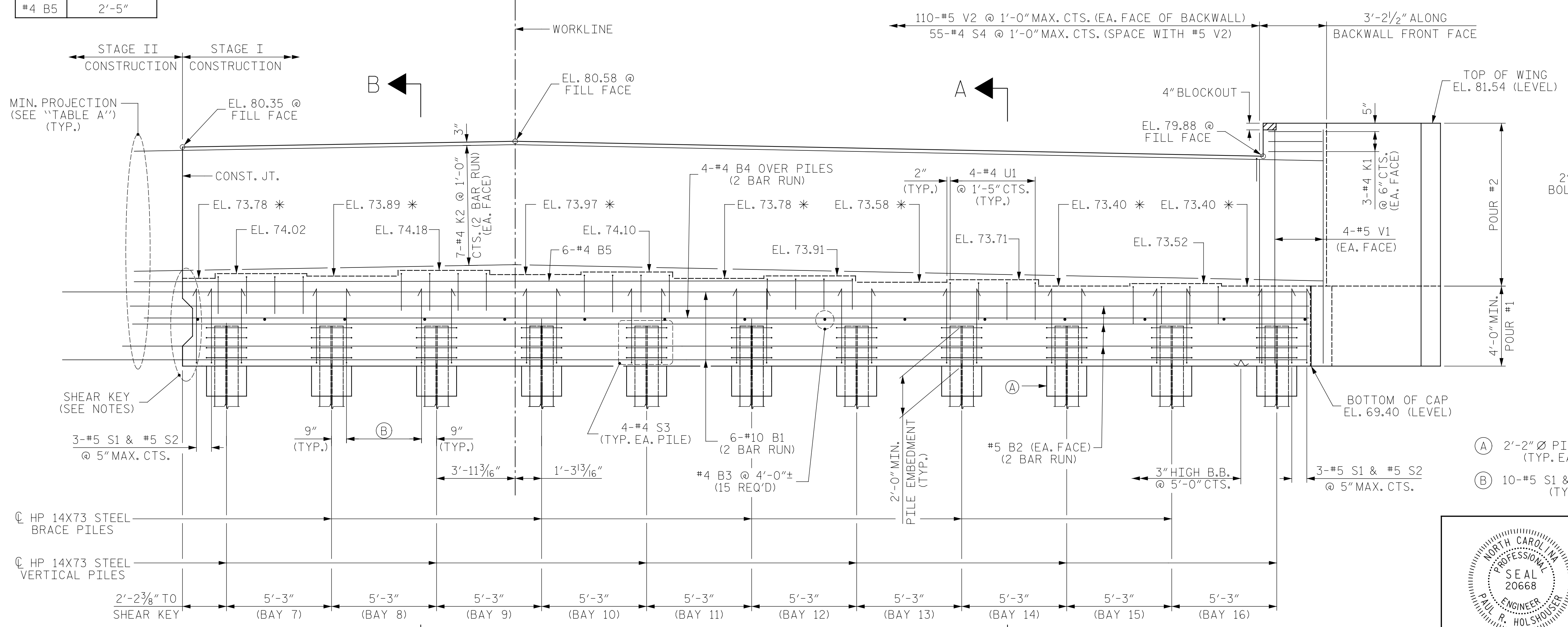
HATCHED AREA OF THE BACKWALL SHALL NOT BE POURED UNTIL THE CONCRETE PARAPET RAIL HAS BEEN CAST IF SLIP FORM CONSTRUCTION OF THE CONCRETE PARAPET IS USED.

FOR LOCATION OF ELEVATION BETWEEN BRIDGE SEATS, SEE "SECTION A-A" OR "SECTION B-B", SHEET 5 OF 6.

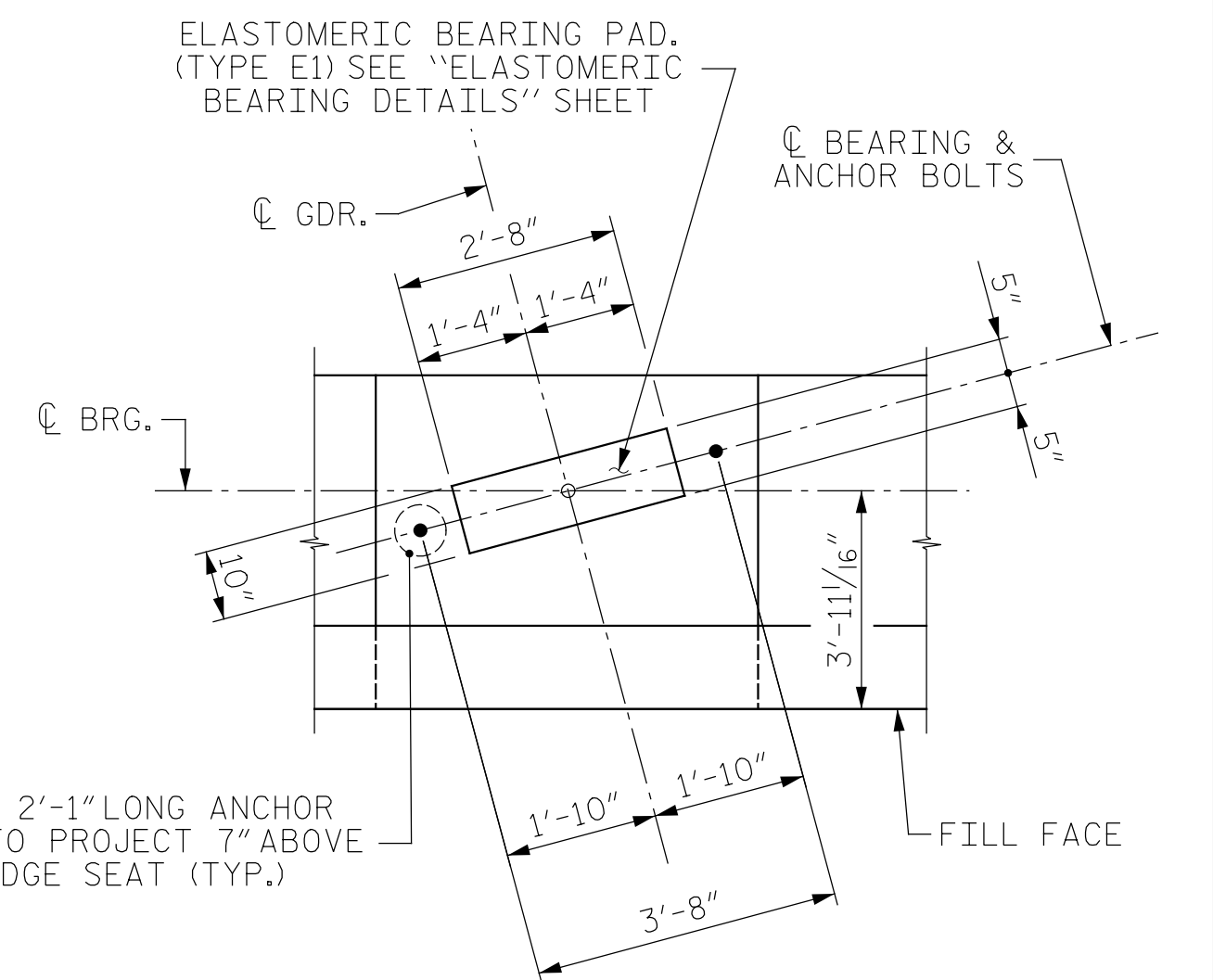
FOR SHEAR KEY DETAIL, SEE SHEET 2 OF 6.

FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING", SHEET 4 OF 7.

FOR WING (W1) DETAILS, SEE SHEET 3 OF 6.



ELEVATION
BAR SPLICES NOT SHOWN FOR CLARITY.

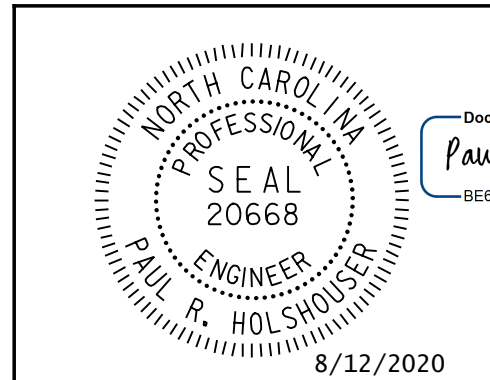


DETAIL A
ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

PROJECT NO. 48793.3.1
BLADEN COUNTY
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SHEET 1 OF 6

DRAWN BY: N. D'AIUTO DATE: 7-01-20
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DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



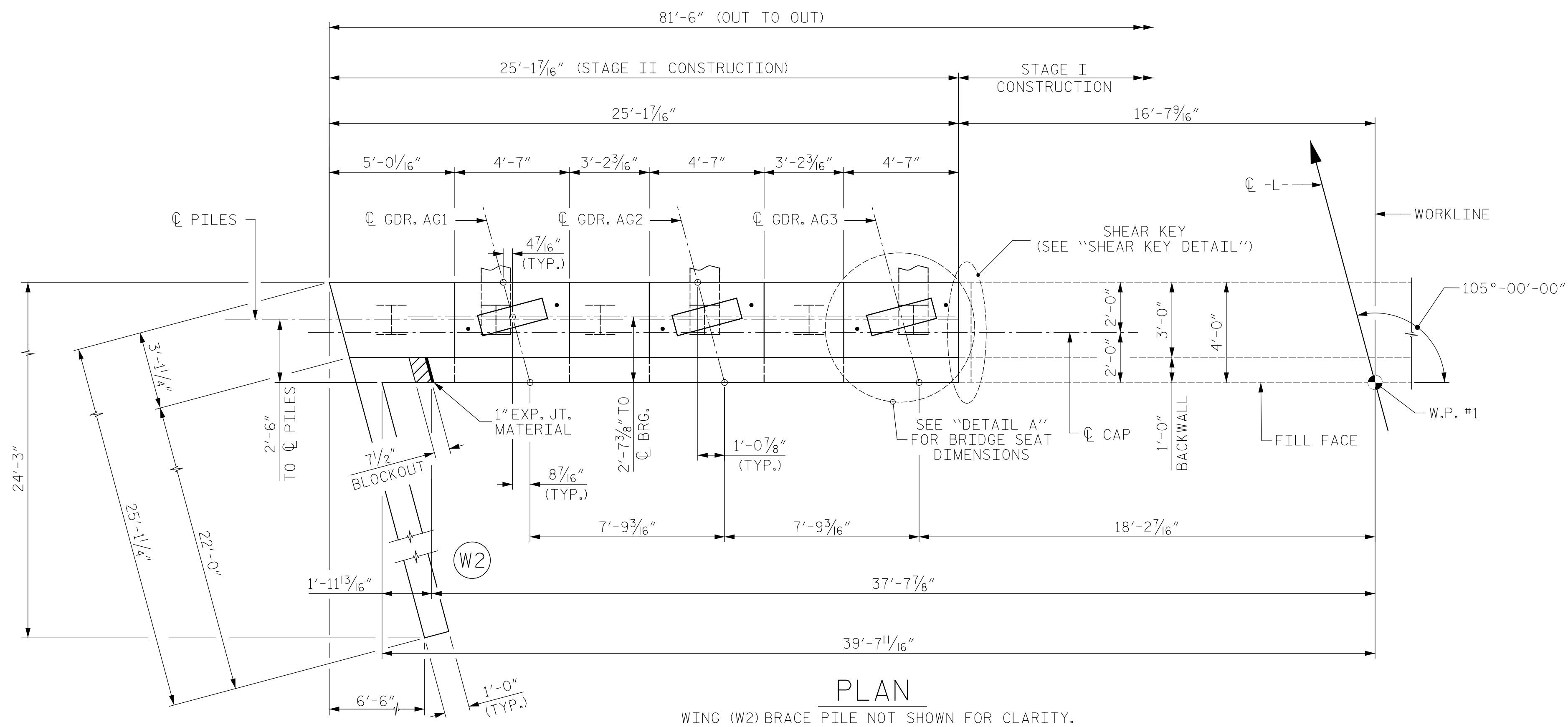
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SUPERSTRUCTURE					
END BENT 1					
STAGE I CONSTRUCTION					
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SHEET NO. S-67				
TOTAL SHEETS 107				

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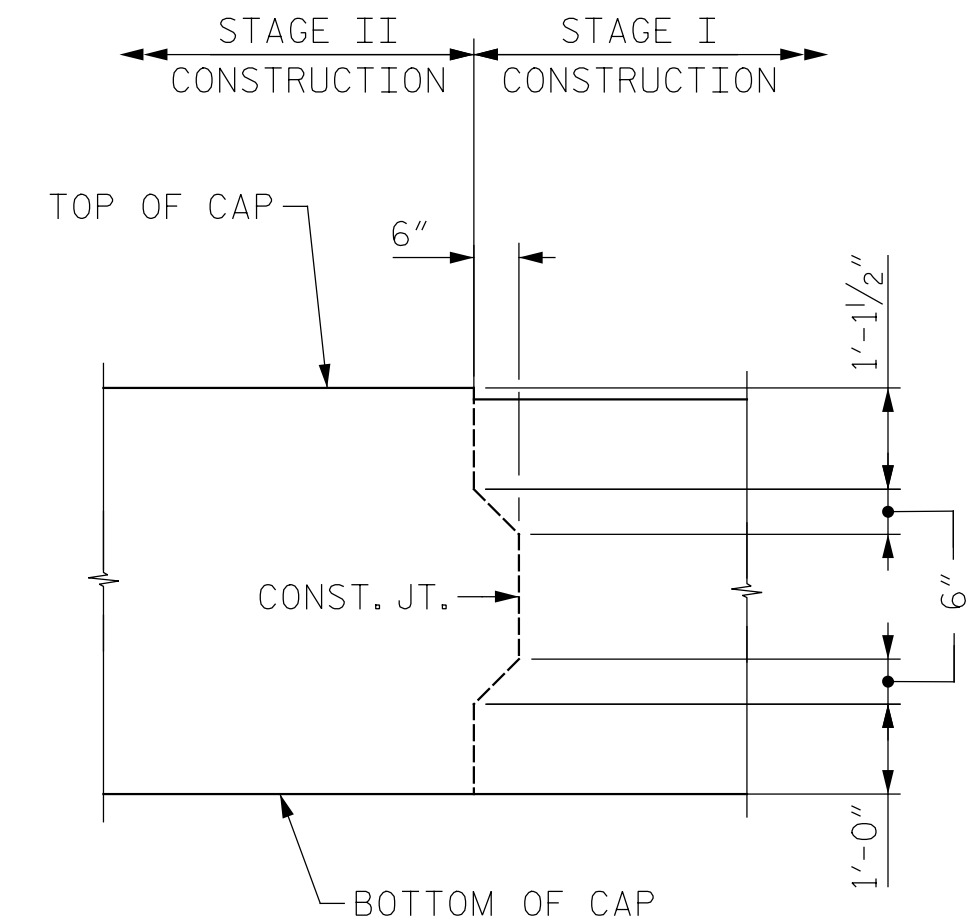
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PLAN
WING (W2) BRACE PILE NOT SHOWN FOR CLARITY.

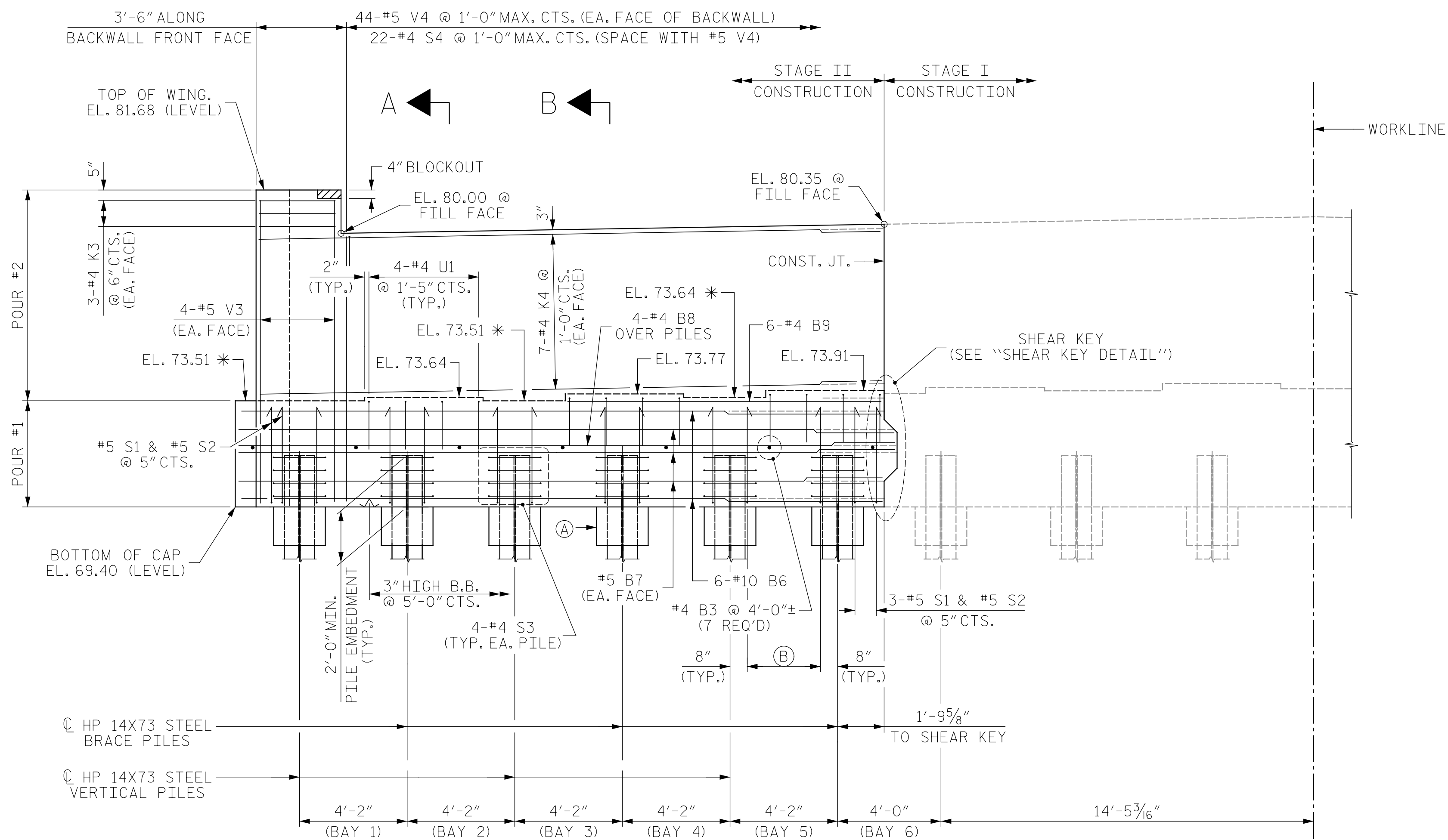
NOTES:

FOR ADDITIONAL NOTES, SEE SHEET 1 OF 6.
FOR "DETAIL A", SEE SHEET 1 OF 6.



SHEAR KEY DETAIL

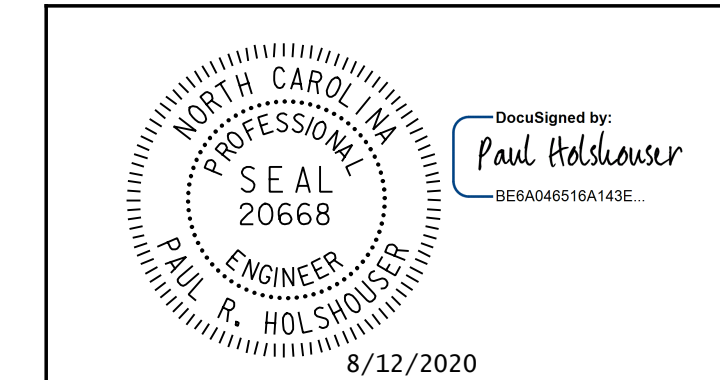
REINFORCING STEEL NOT SHOWN FOR CLARITY.
SEE ELEVATION VIEW ON SHEET 1 OF 6 FOR LOCATION OF SHEAR KEY.
REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.



ELEVATION

- (A) 2'-2" Ø PILE COLLAR (TYP. EA. PILE)
- (B) 8-#5 S1 & #5 S2 @ 5" CTS. (TYP. EA. BAY)

PROJECT NO. 48793.3.1
BLADEN COUNTY
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SHEET 2 OF 6



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1					
STAGE II CONSTRUCTION					
REVISIONS					
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1			3		
2			4		

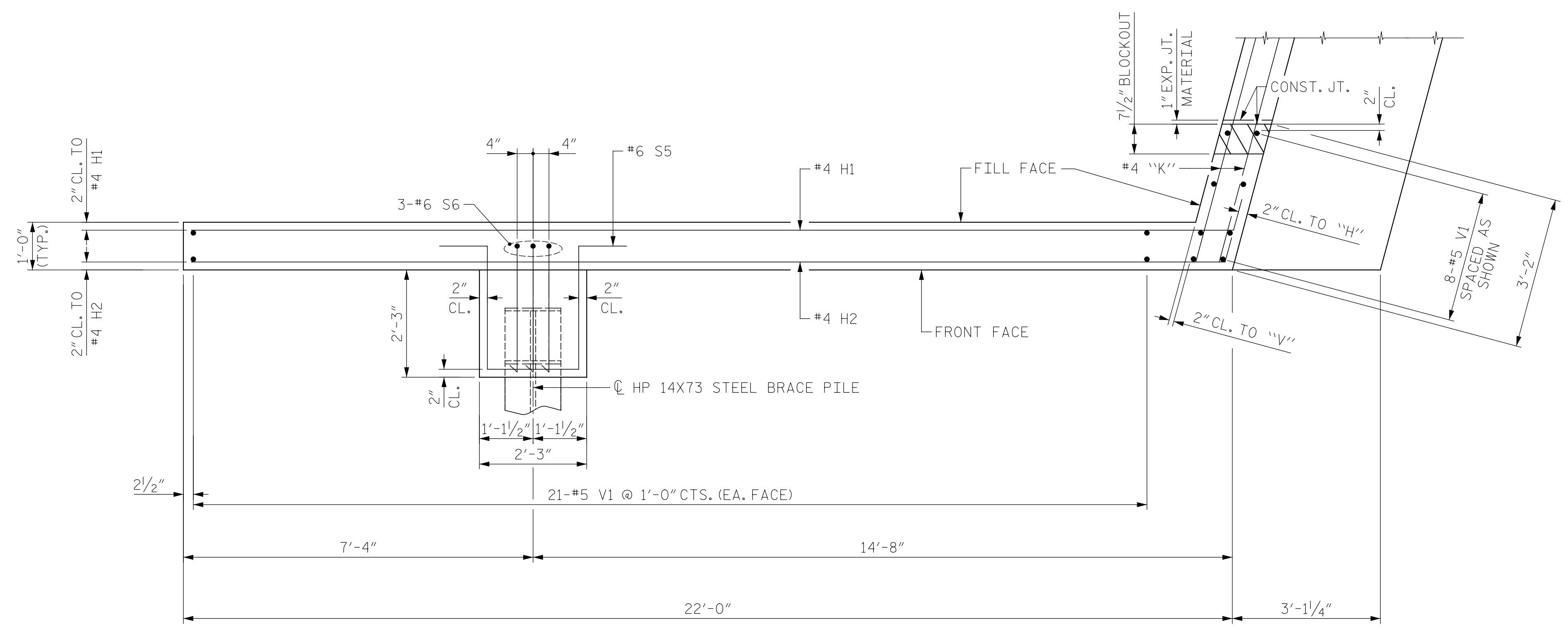
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DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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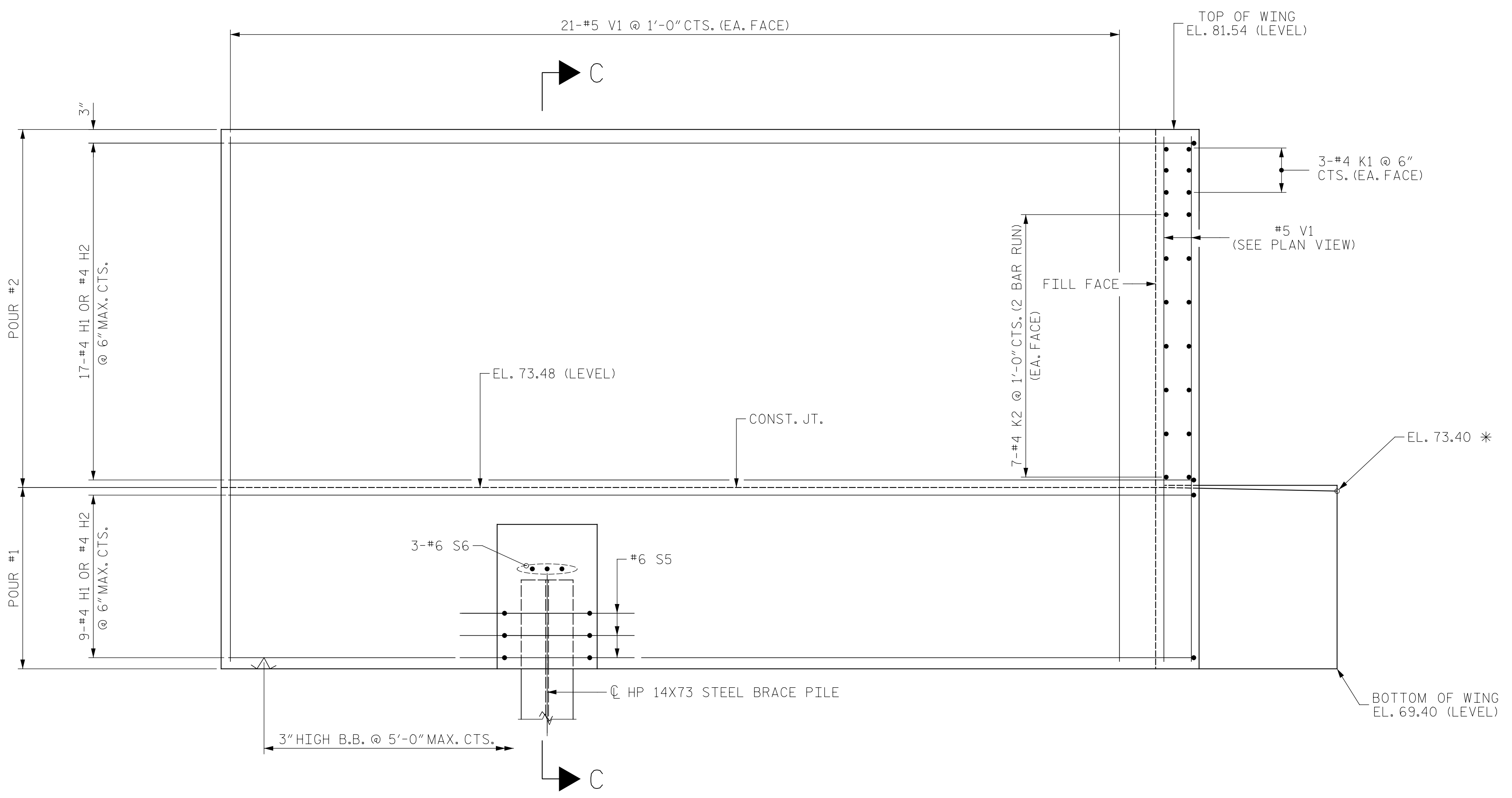
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SHEET NO. S-68
TOTAL SHEETS 107

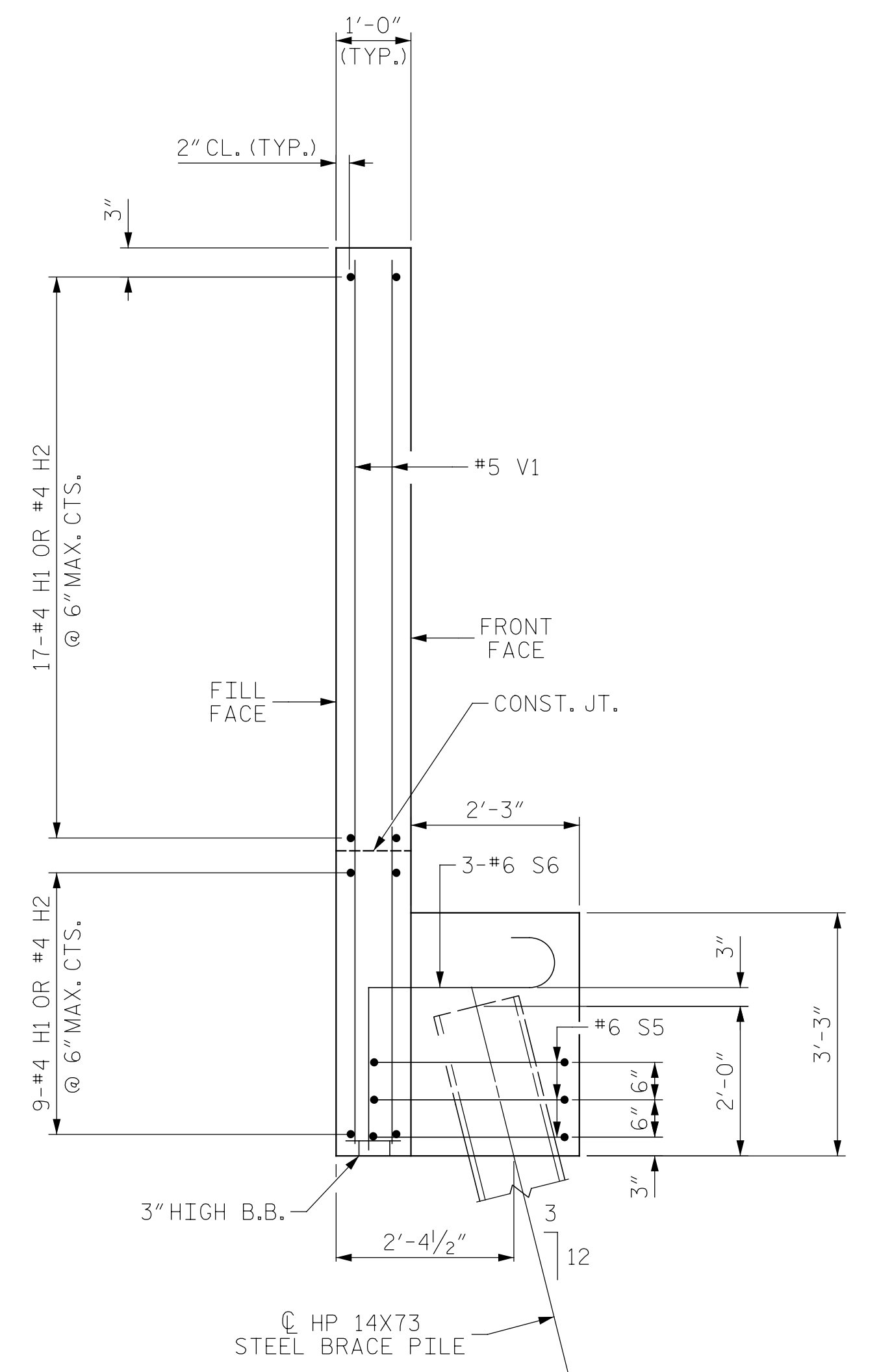
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PLAN OF RIGHT WING (W1)

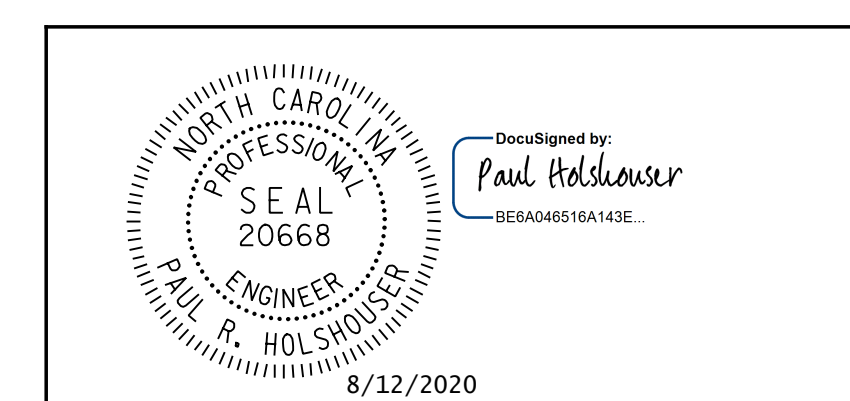


ELEVATION OF RIGHT WING (W1)



SECTION C-C

PROJECT NO. 48793.3.1
 BLADEN COUNTY
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 SHEET 3 OF 6



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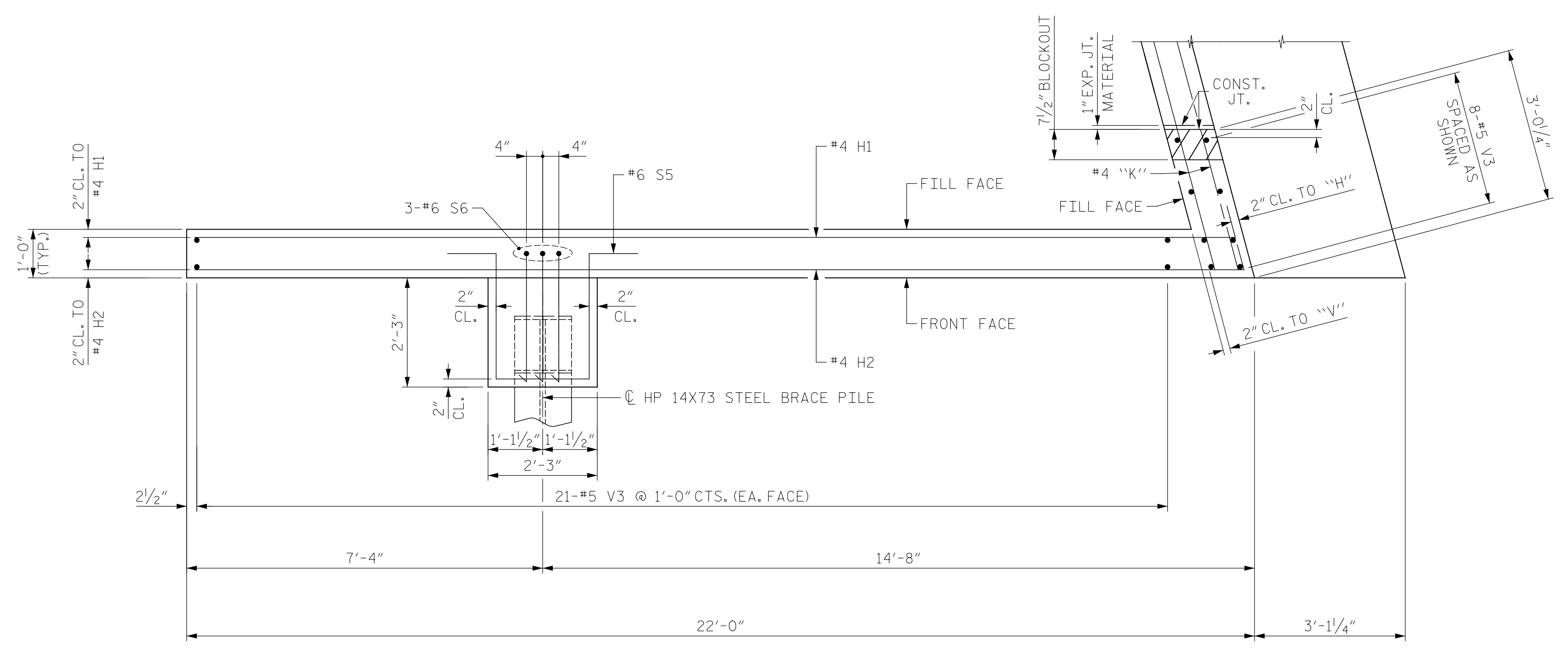
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
WING WALL (W1)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-69
 TOTAL SHEETS 107

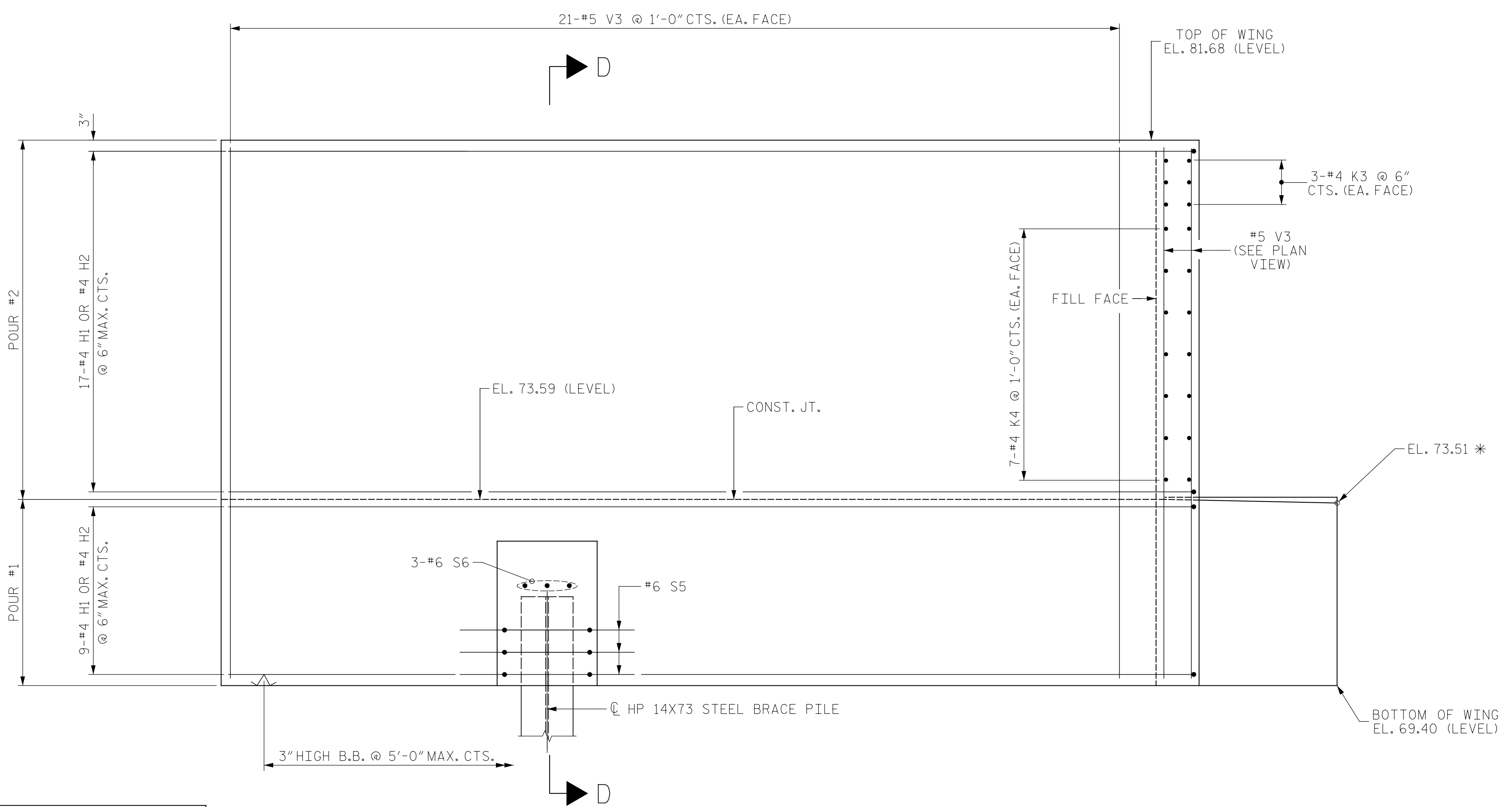
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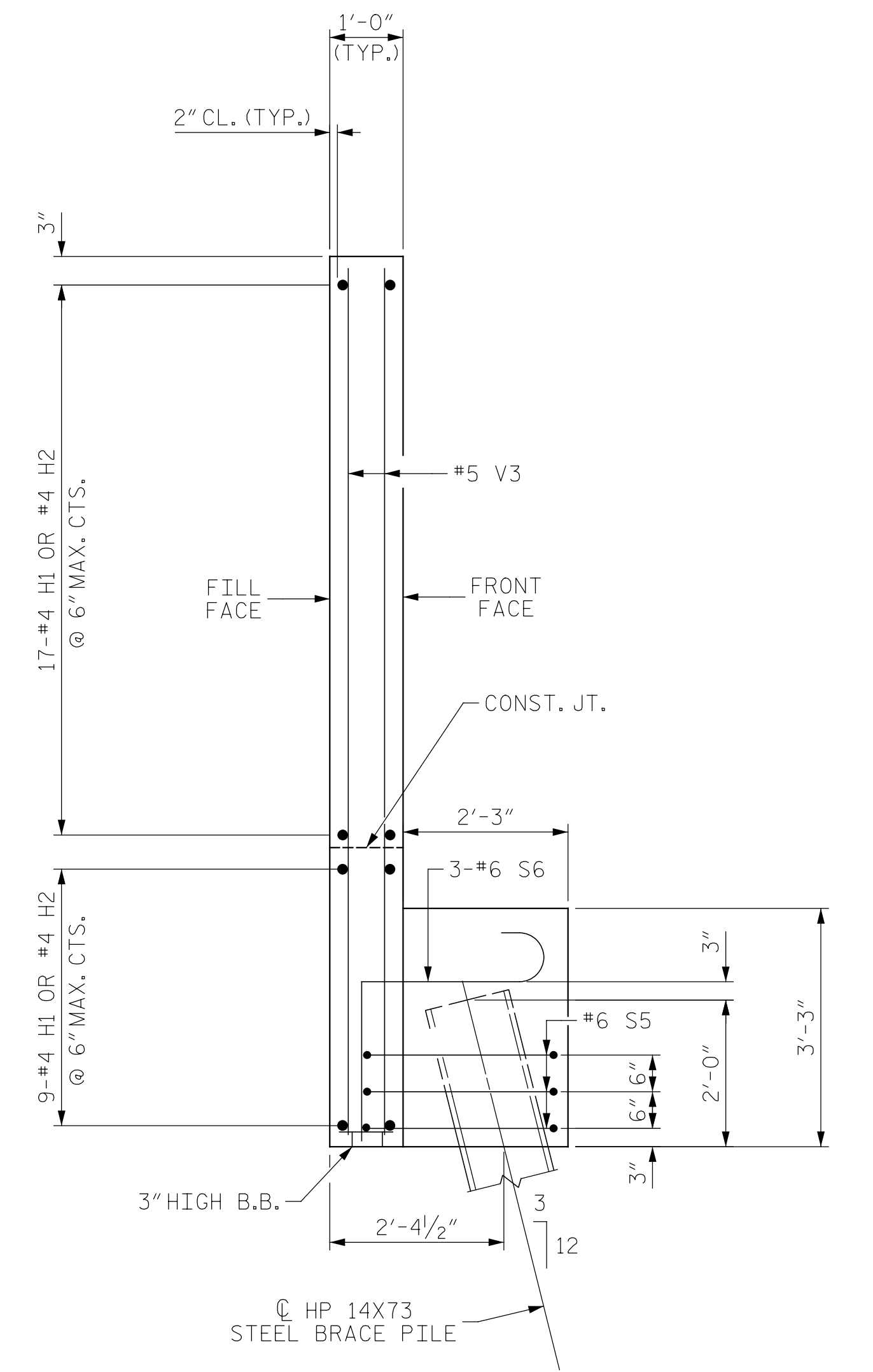
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 CHECKED BY: K. C. SAMUDRALA DATE: 7-09-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



PLAN OF LEFT WING (W2)

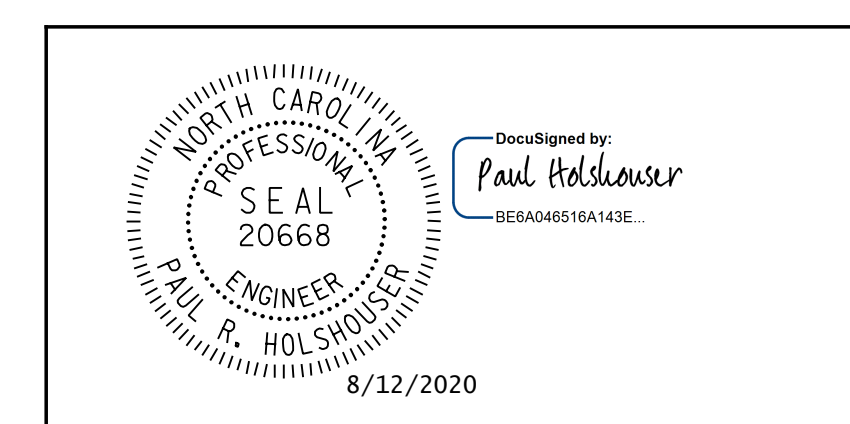


ELEVATION OF LEFT WING (W2)



SECTION D-D

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 4 OF 6



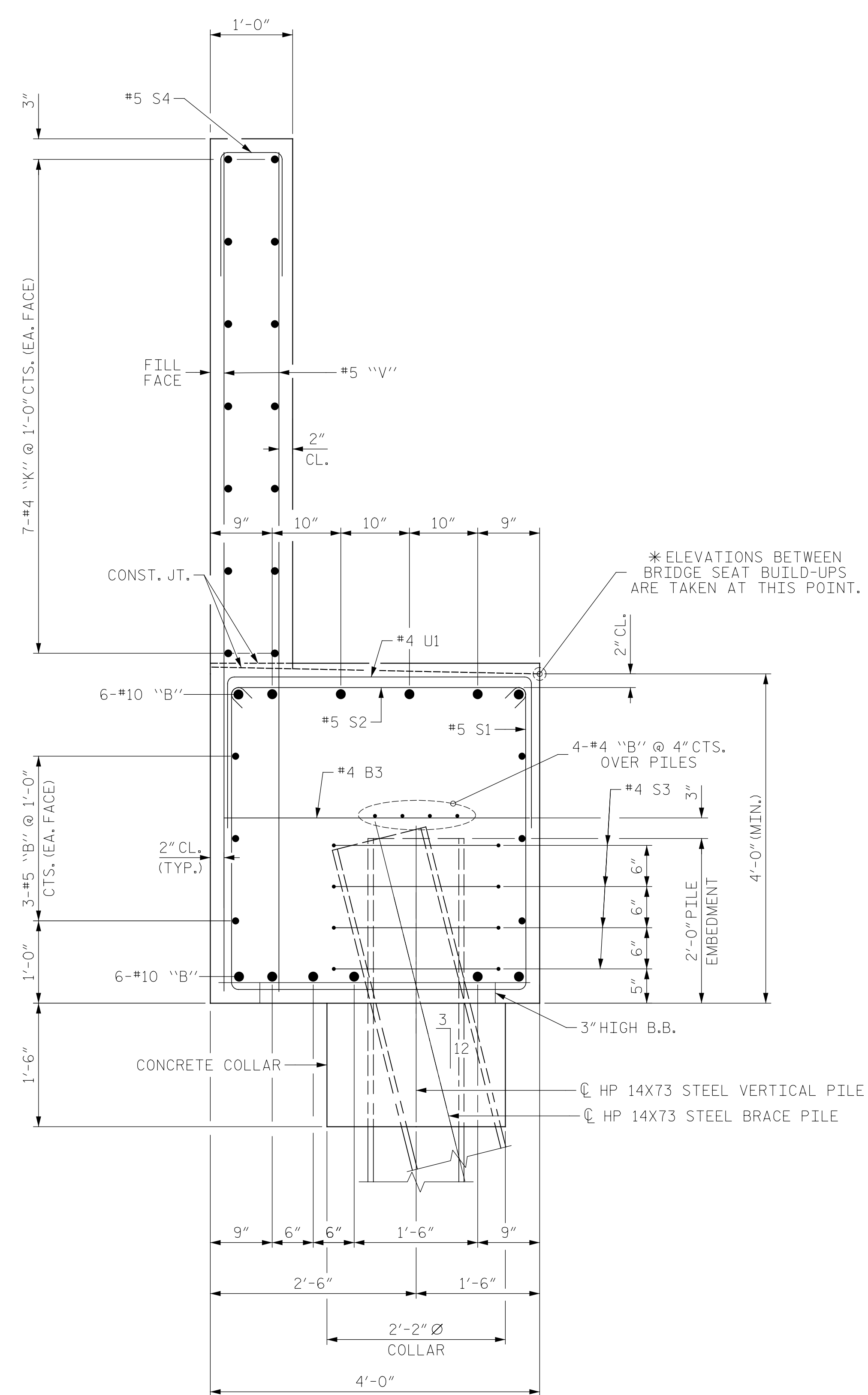
ICE of Carolinas, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
WING WALL (W2)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-70					TOTAL SHEETS 107

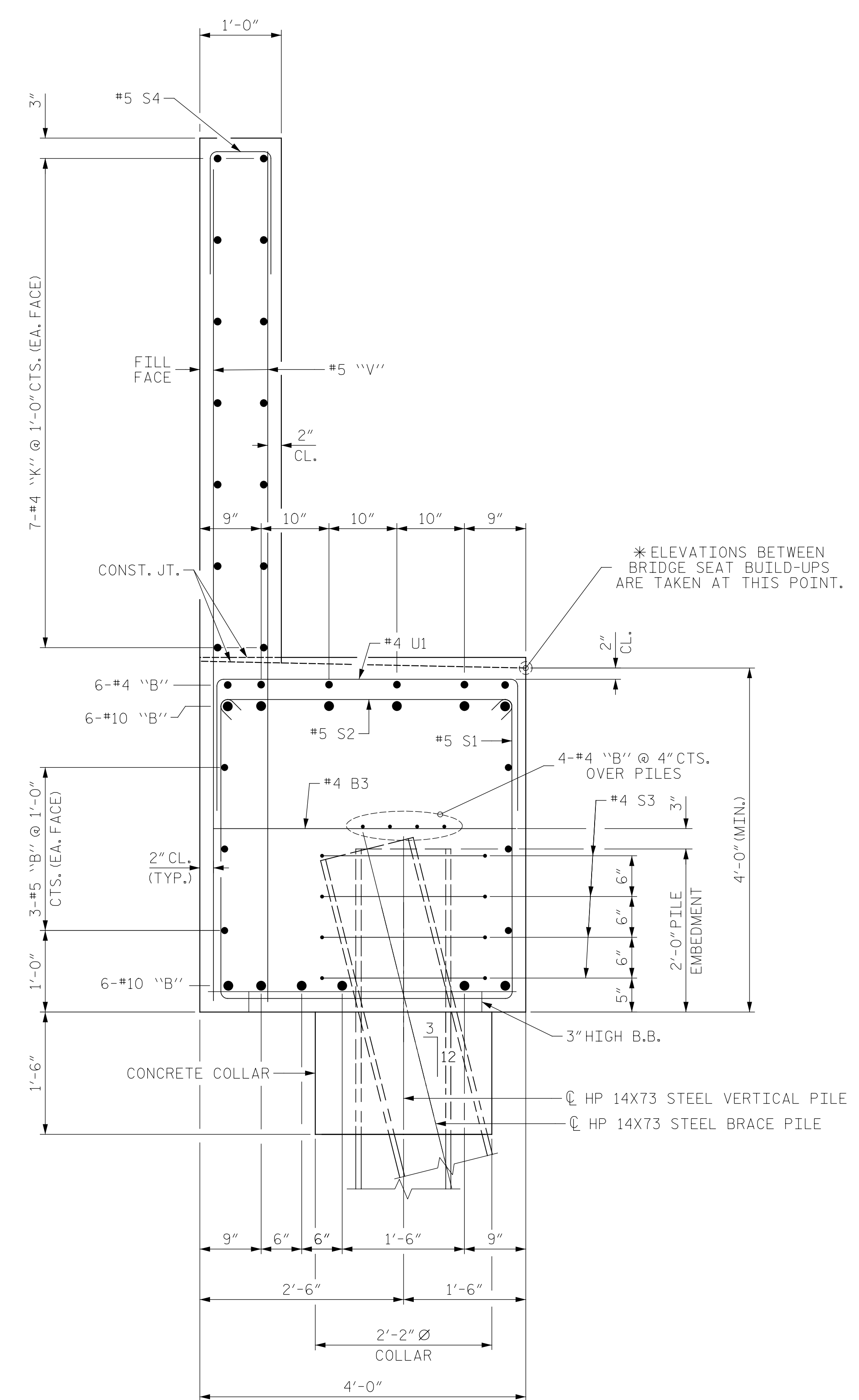
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DRAWN BY: N.D. AIUTO DATE: 7-01-20
 CHECKED BY: K. C. SAMUDRALA DATE: 7-09-20
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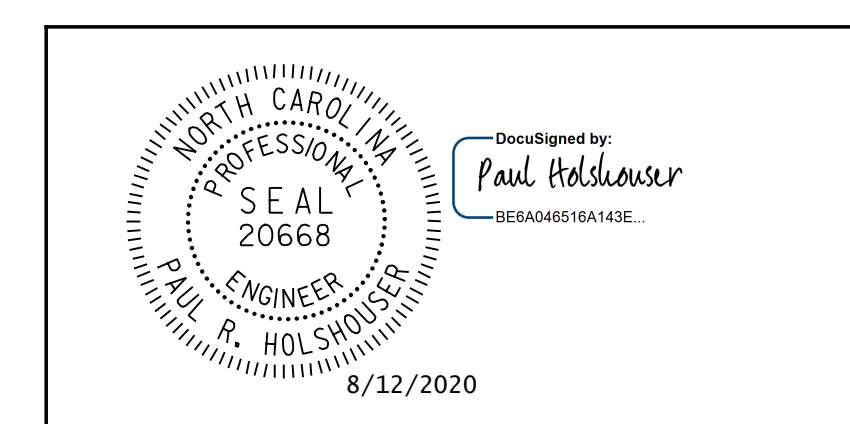


SECTION A-A



SECTION B-B

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 5 OF 6



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

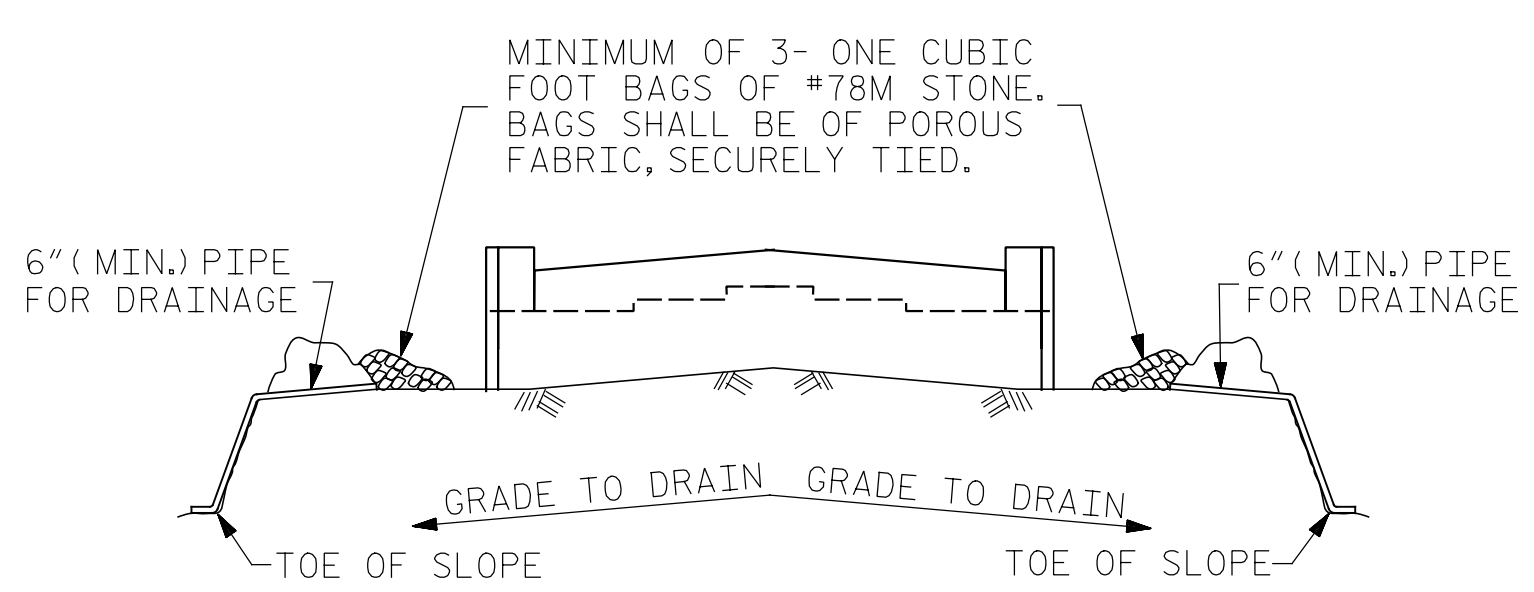
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 CHECKED BY : K. C. SAMUDRALA DATE : 7-09-20
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SHEET NO. S-71
 TOTAL SHEETS 107

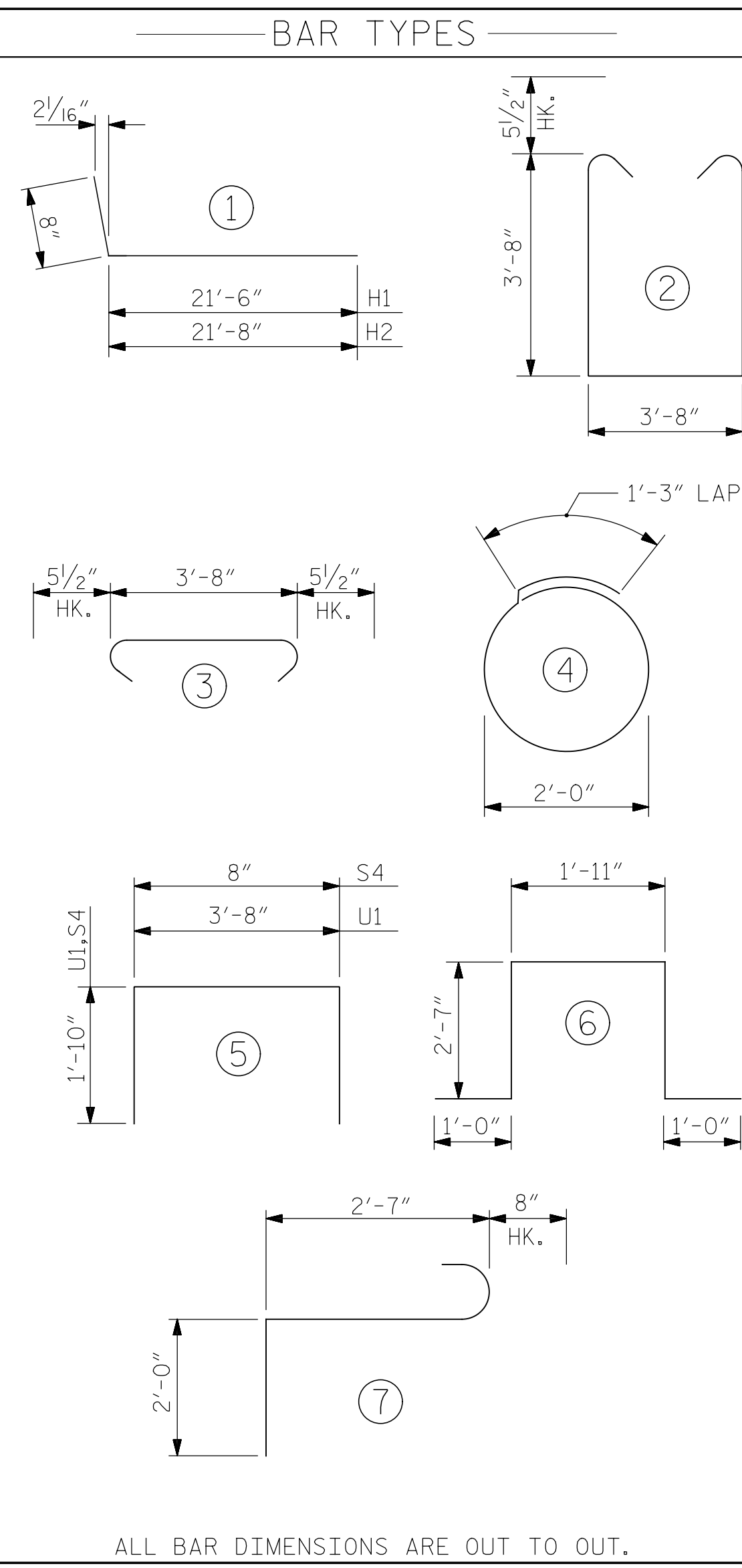


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT



BILL OF MATERIAL

END BENT 1 - STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	24	10	STR	34' - 8"	3,580
B2	12	5	STR	31' - 8"	396
B3	15	4	STR	3' - 8"	37
B4	8	4	STR	30' - 10"	165
B5	6	4	STR	35' - 11"	144
H1	26	4	1	22' - 2"	385
H2	26	4	1	22' - 4"	388
K1	6	4	STR	2' - 10"	11
K2	28	4	STR	29' - 4"	549
S1	106	5	2	11' - 11"	1,317
S2	106	5	3	4' - 7"	507
S3	44	4	4	7' - 7"	223
S4	55	4	5	4' - 4"	159
S5	3	6	6	9' - 1"	41
S6	3	6	7	5' - 3"	24
U1	24	4	5	7' - 4"	118
V1	50	5	STR	11' - 9"	613
V2	110	5	STR	10' - 2"	1,166

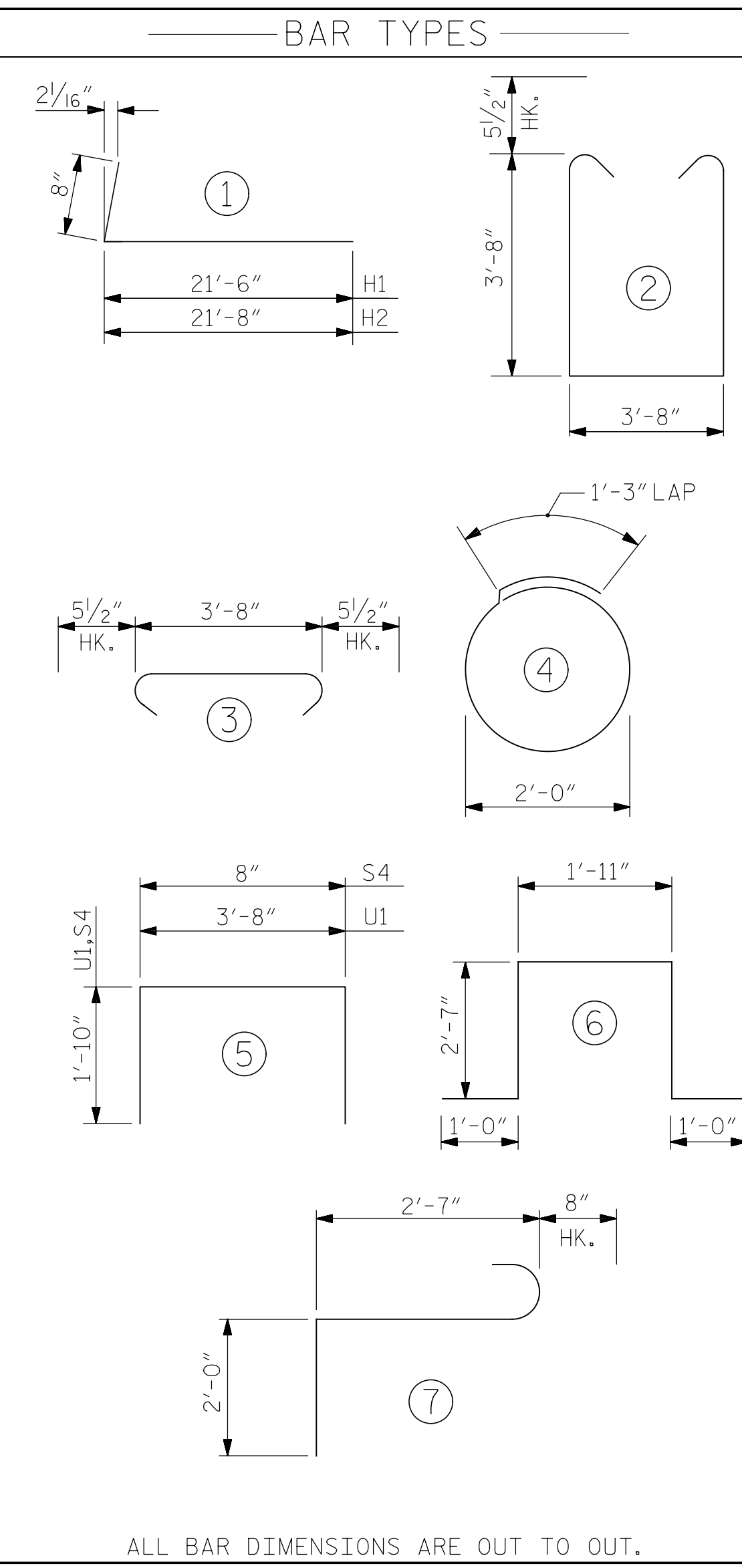
REINFORCING STEEL LBS. 9,823

CLASS "A" CONCRETE BREAKDOWN

POUR #1 - CAP, COLLARS & LOWER WING WALLS	C.Y.	42.1
POUR #2 - BACKWALL & UPPER WING WALLS	C.Y.	21.6
TOTAL CLASS "A" CONCRETE	C.Y.	63.7

HP 14X73 STEEL PILES

NO.	12	LIN. FT.	1260.00
PDA TESTING	EA.	1	
PILE REDRIVES	EA.	4	
PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	EA.	12	



BILL OF MATERIAL

END BENT 1 - STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B6	12	10	STR	23' - 9"	1,226
B7	6	5	STR	23' - 10"	149
B3	7	4	STR	3' - 8"	17
B8	4	4	STR	24' - 6"	65
B9	6	4	STR	12' - 2"	49
H1	26	4	1	22' - 2"	385
H2	26	4	1	22' - 4"	388
K3	6	4	STR	2' - 8"	11
K4	14	4	STR	23' - 11"	224
S1	45	5	2	11' - 11"	559
S2	45	5	3	4' - 7"	215
S3	24	4	4	7' - 7"	122
S4	22	4	5	4' - 4"	64
S5	3	6	6	9' - 1"	41
S6	3	6	7	5' - 3"	24
U1	12	4	5	7' - 4"	59
V3	50	5	STR	11' - 11"	621
V4	44	5	STR	10' - 3"	470

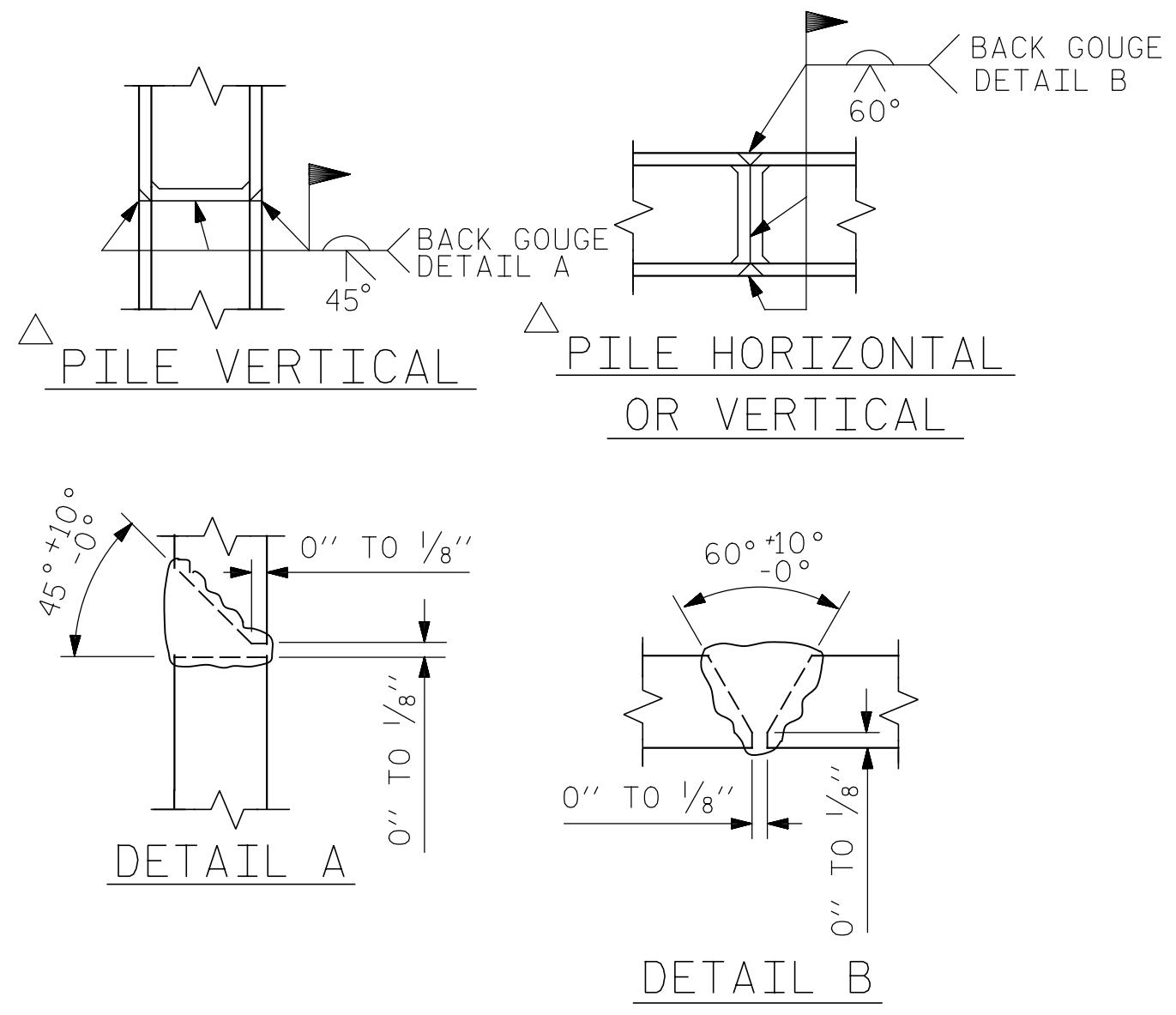
REINFORCING STEEL LBS. 4,689

CLASS "A" CONCRETE BREAKDOWN

POUR #1 - CAP, COLLARS & LOWER WING WALLS	C.Y.	20.9
POUR #2 - BACKWALL & UPPER WING WALLS	C.Y.	12.6
TOTAL CLASS "A" CONCRETE	C.Y.	33.5

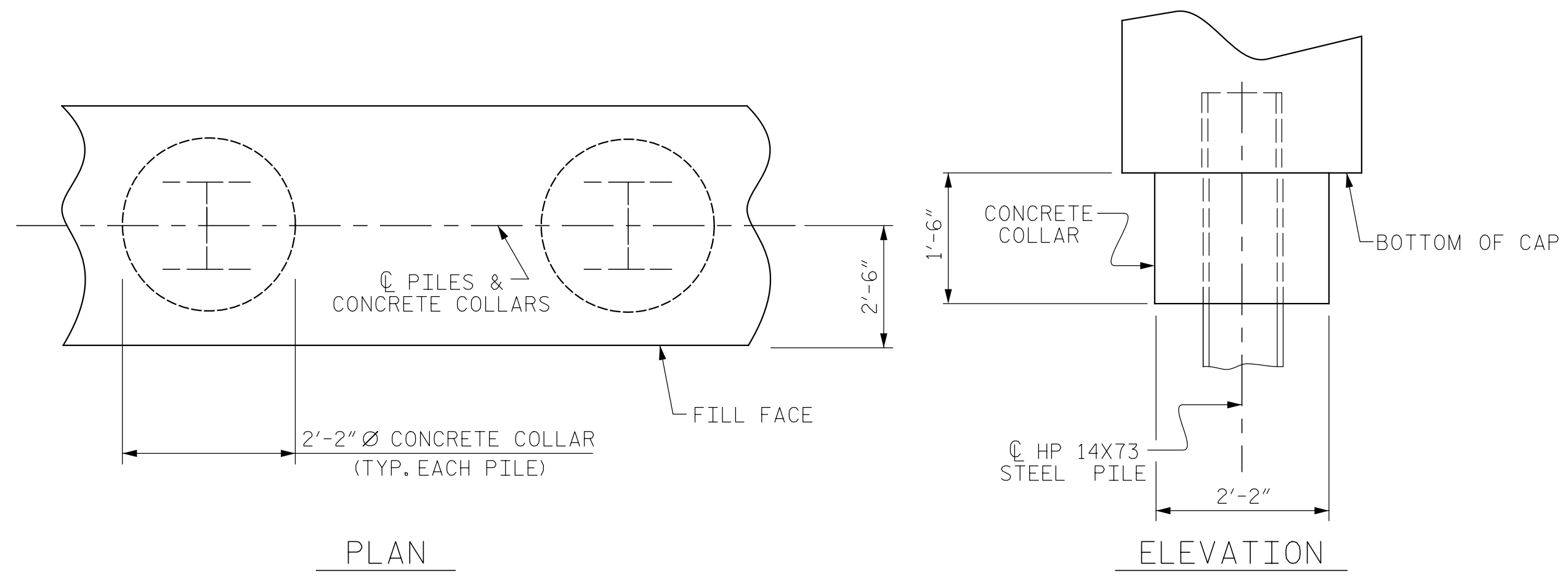
HP 14X73 STEEL PILES

NO.	7	LIN. FT.	735.00
PDA TESTING	EA.	1	
PILE REDRIVES	EA.	4	
PILE DRIVING EQUIPMENT SETUP FOR HP 14X73 STEEL PILES	EA.	7	



PILE SPLICE DETAILS

△ POSITION OF PILE DURING WELDING.



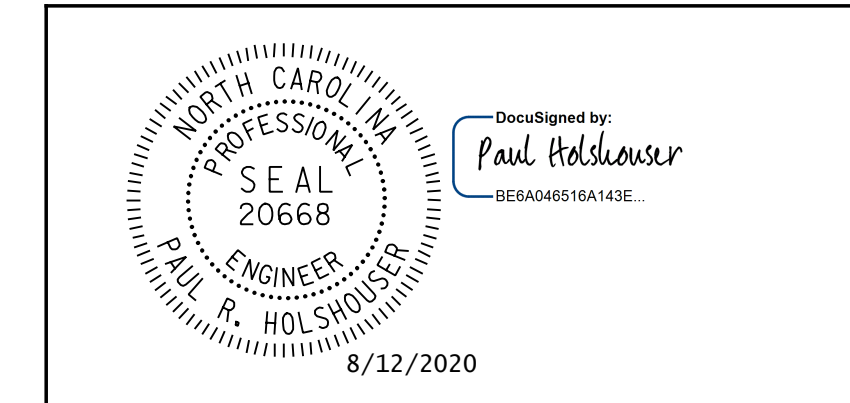
CORROSION PROTECTION FOR STEEL PILES DETAIL

PROJECT NO. 48793.3.1

BLADEN COUNTY

STATION: 118+81.78 -L-

SHEET 6 OF 6



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-72
1			3			TOTAL SHEETS 107
2			4			

DRAWN BY : N.D. AIUTO DATE : 7-02-20

CHECKED BY : K. C. SAMUDRALA DATE : 7-09-20

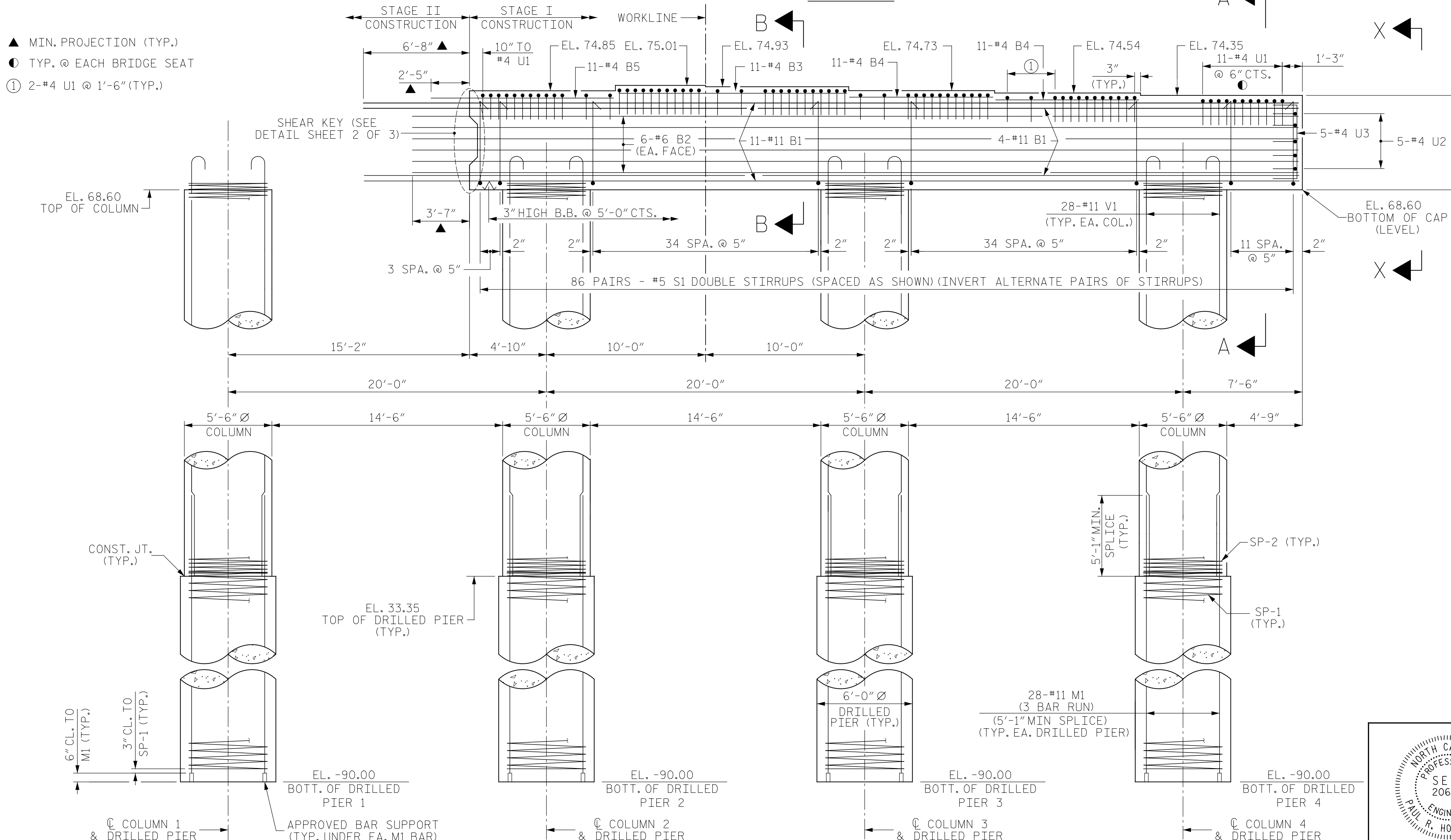
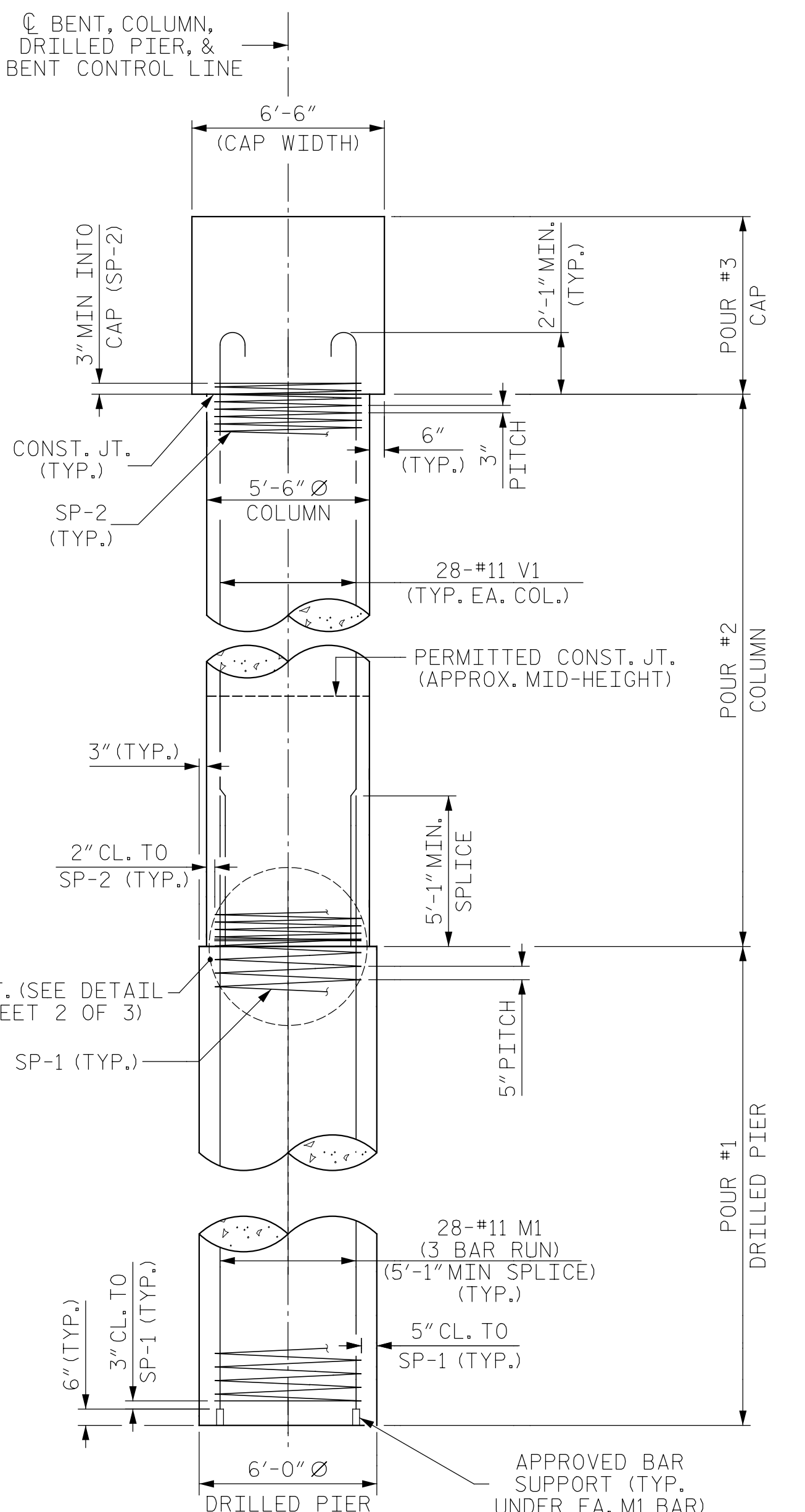
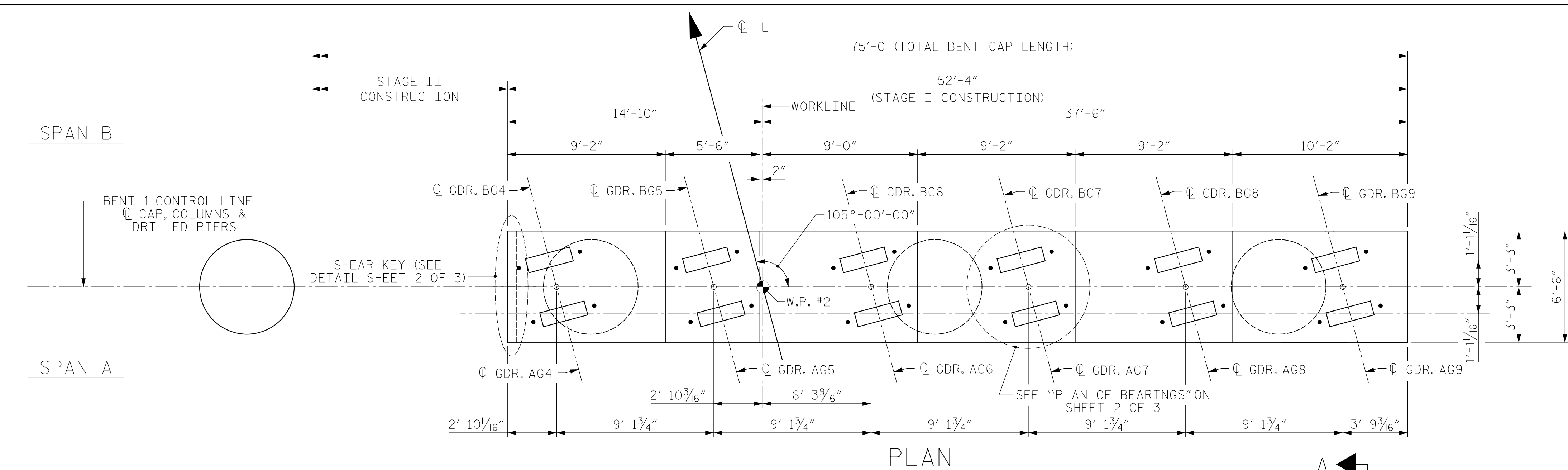
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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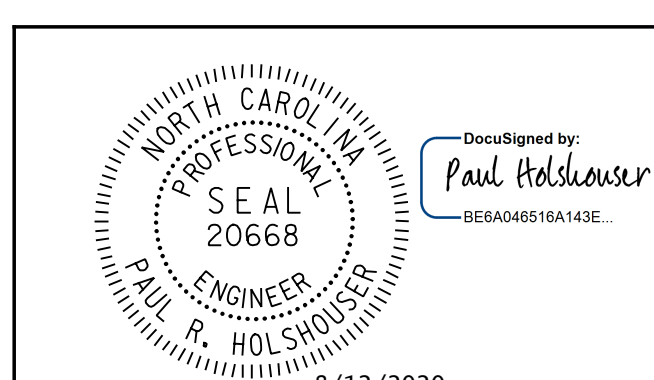
NOTES:
FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 3 OF 3.
FOR "VIEW X-X", SEE SHEET 3 OF 3
FOR NOTES, SEE SHEET 3 OF 3.



- ▲ MIN. PROJECTION (TYP.)
- TYP. @ EACH BRIDGE SEAT
- ① 2-#4 U1 @ 1'-6" (TYP.)

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 1
PLAN & ELEVATION
STAGE I CONSTRUCTION



DRAWN BY: B. J. MANTEI DATE: 5-17-20
CHECKED BY: N. D'AIUTO DATE: 7-17-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

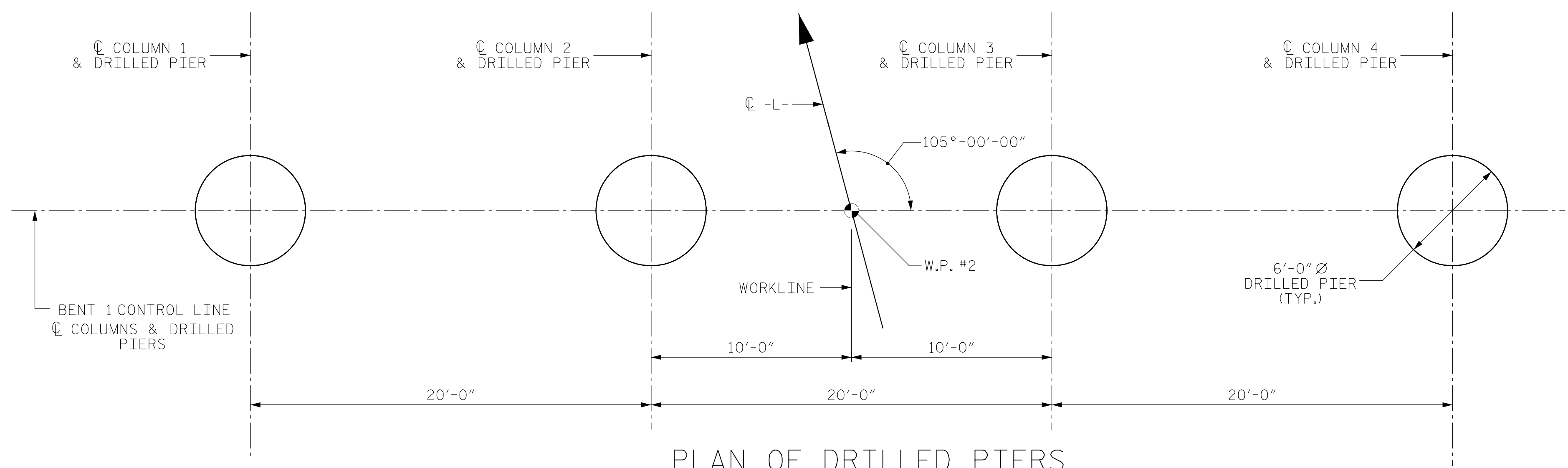
ALL DIMENSIONS AND DETAILS SHOWN FOR DRILLED PIERS ARE TYPICAL FOR EACH PIER UNLESS OTHERWISE NOTED.

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

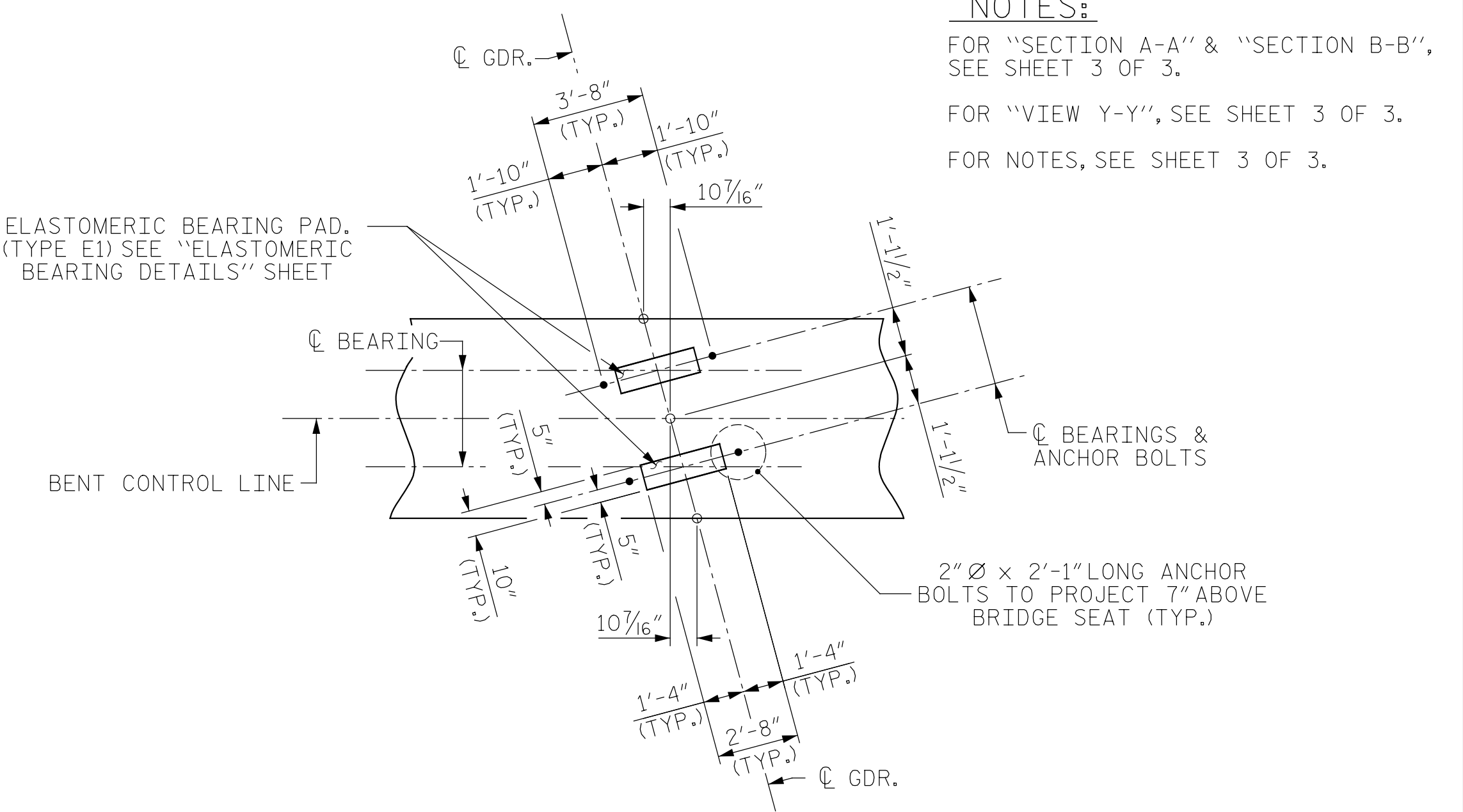
ICE of Carolinas, PLLC
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Raleigh, North Carolina 27609
Phone: 919-822-0333
License #: P-0999

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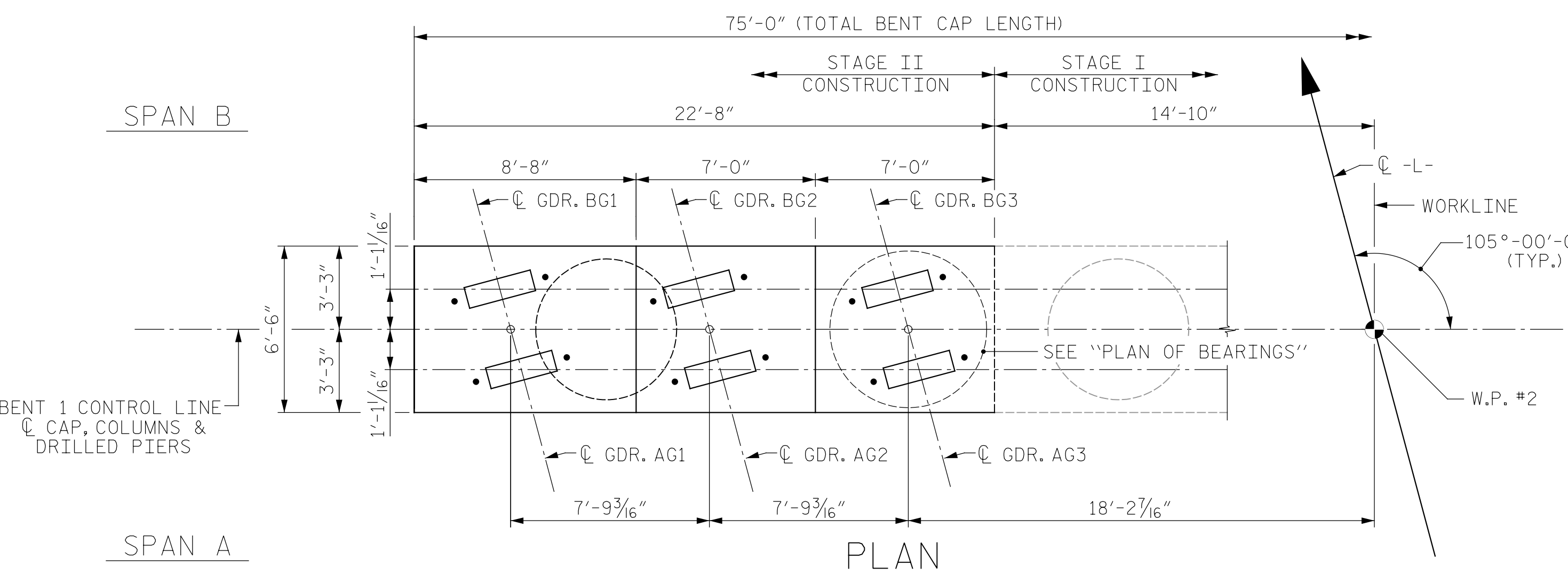
PLAN OF DRILLED PIERS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR DRILLED PIERS UNLESS NOTED OTHERWISE

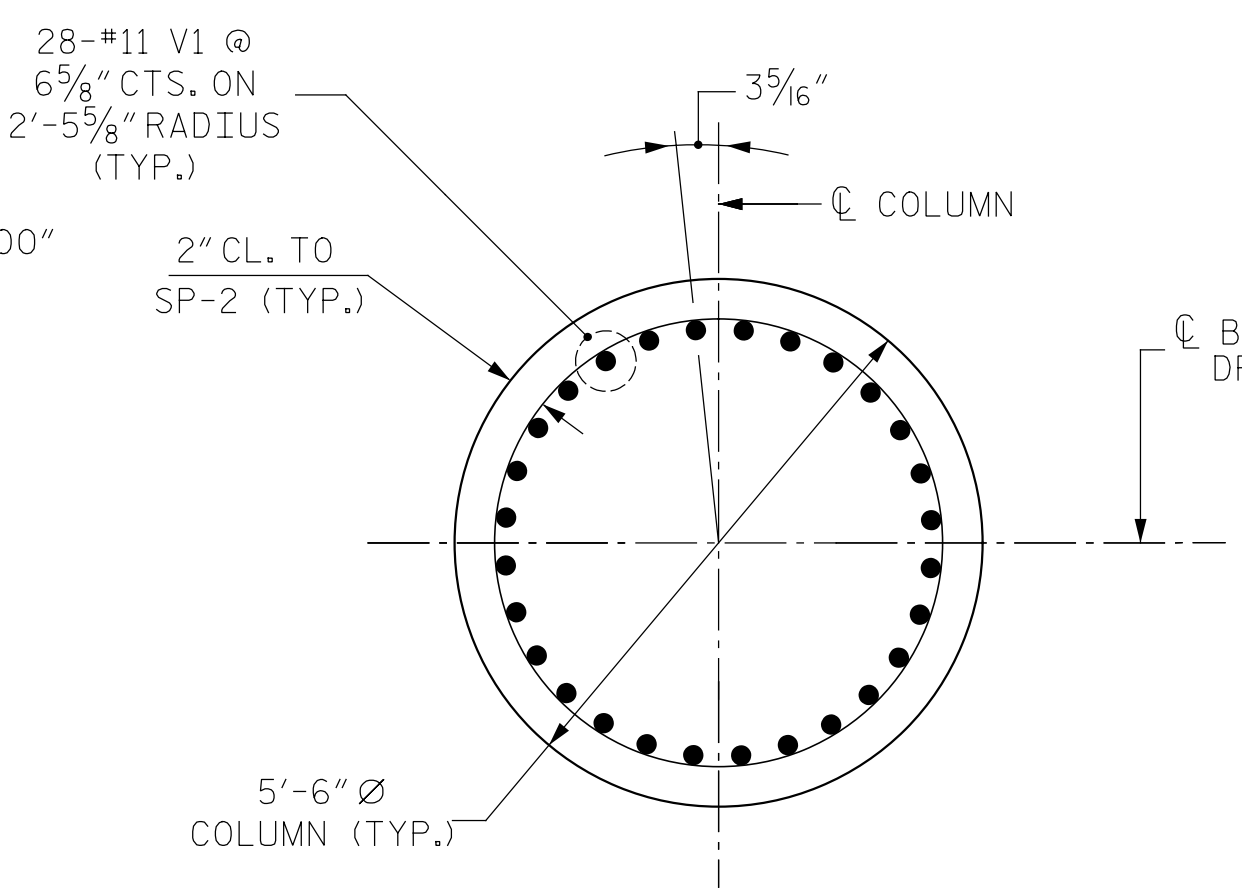


PLAN OF BEARINGS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

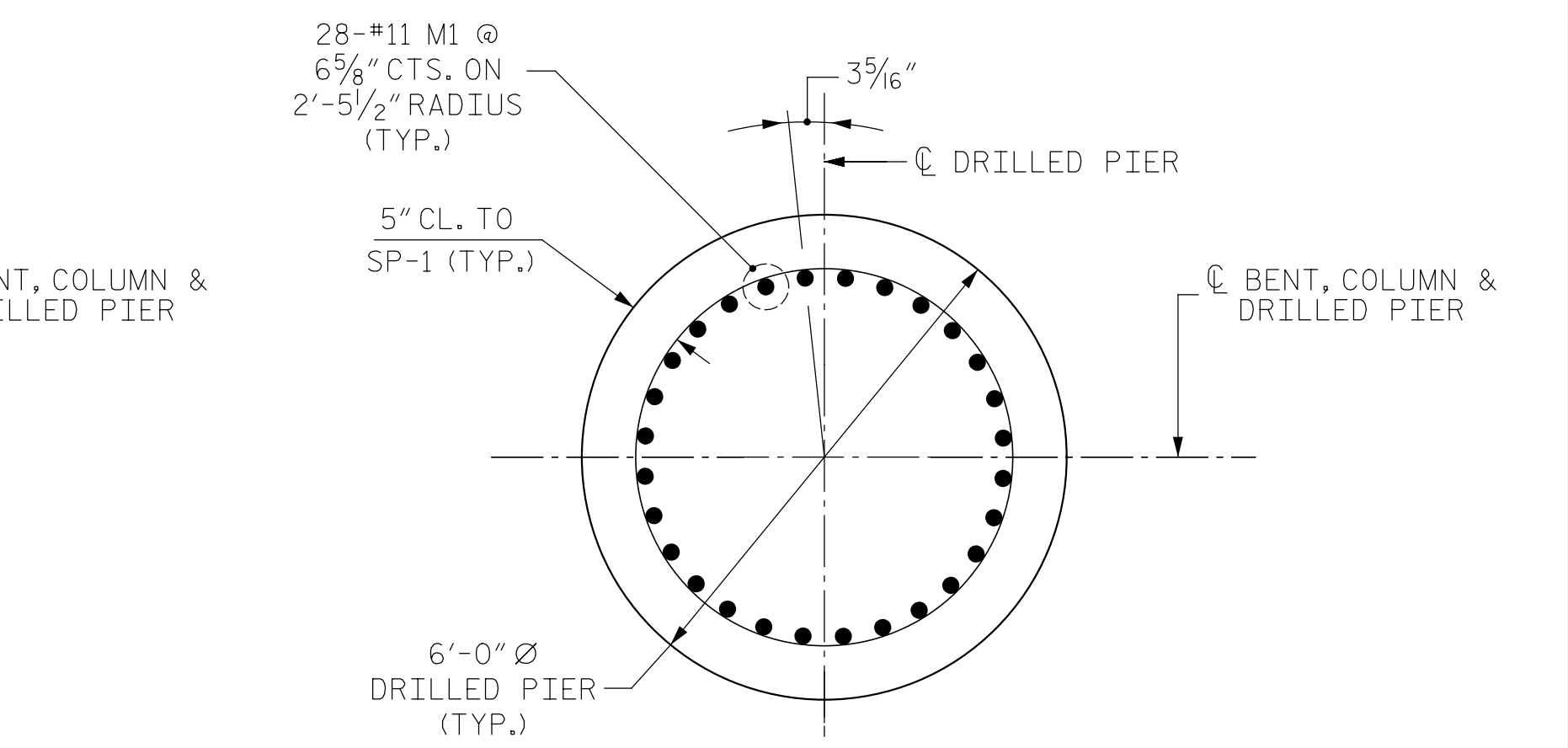


PLAN



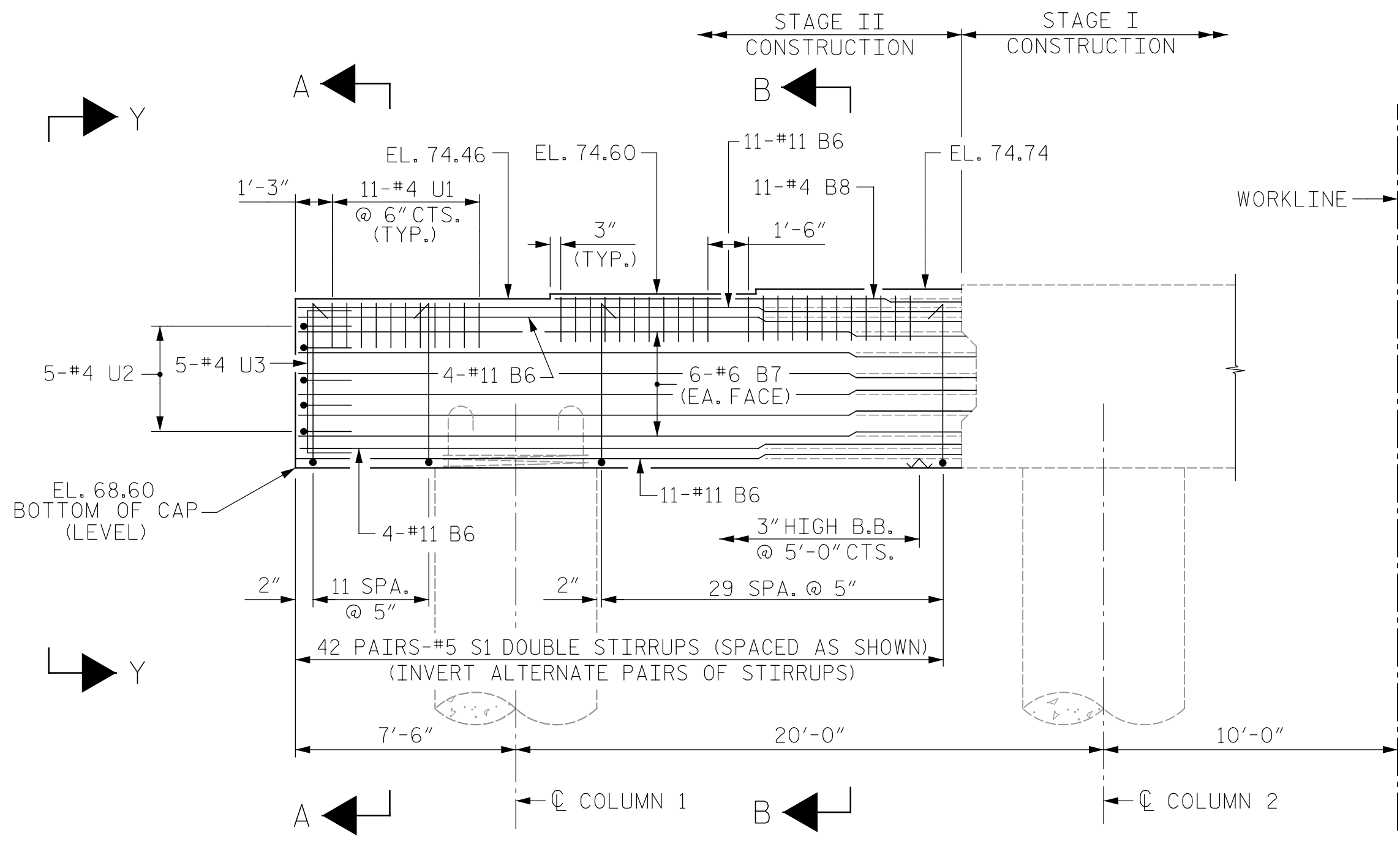
SECTION THRU COLUMN

(TYP. EA. COLUMN)

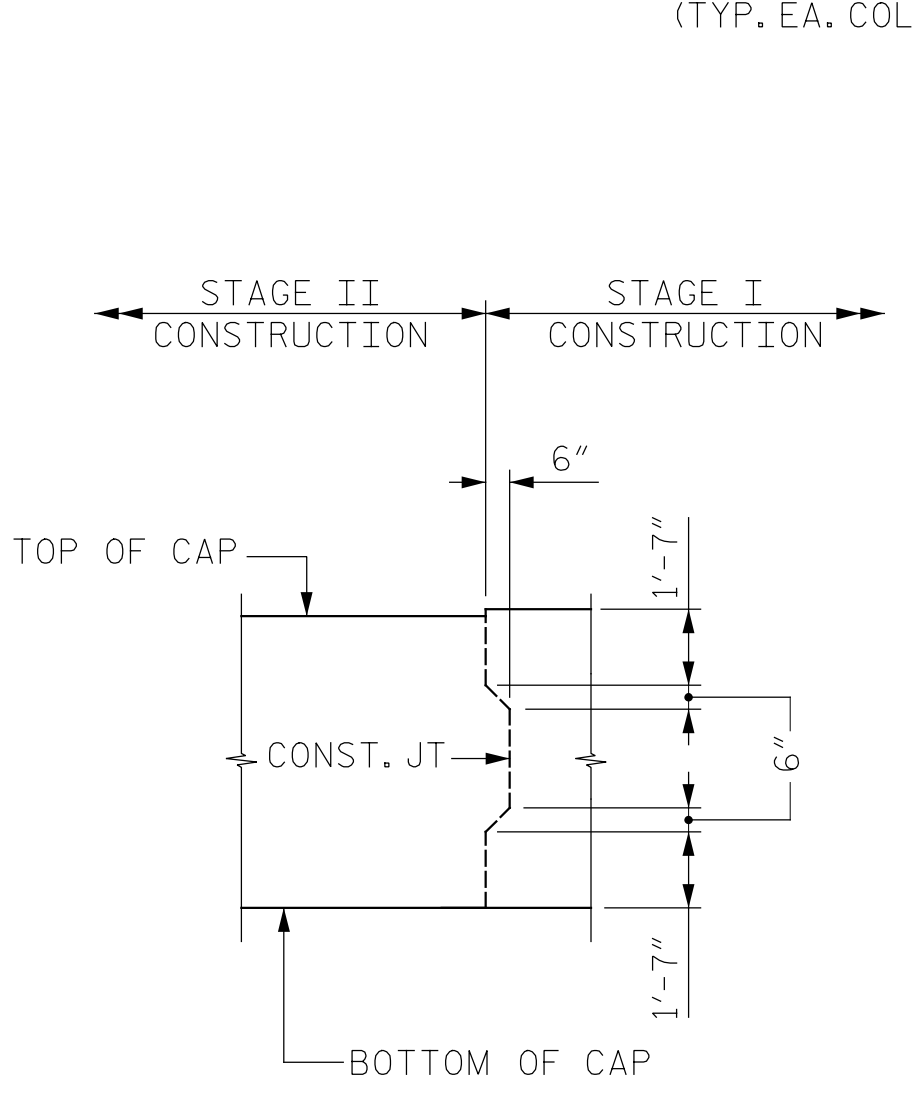


SECTION THRU DRILLED PIER

(TYP. EA. DRILLED PIER)

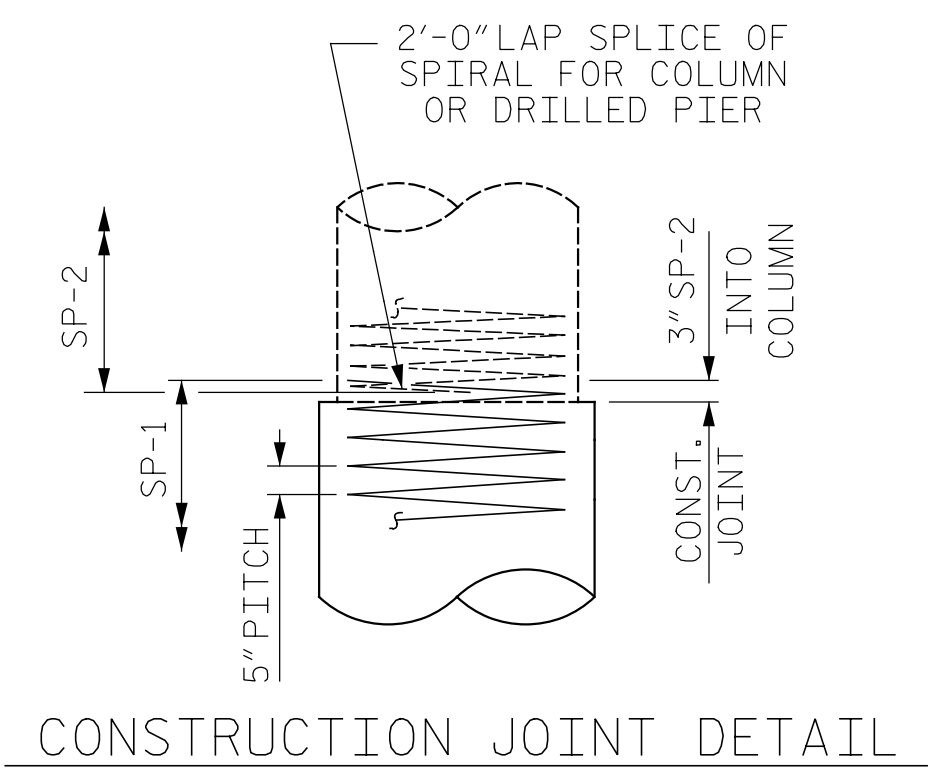


ELEVATION



SHEAR KEY DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE ELEVATION VIEW FOR LOCATION OF SHEAR KEY. REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.

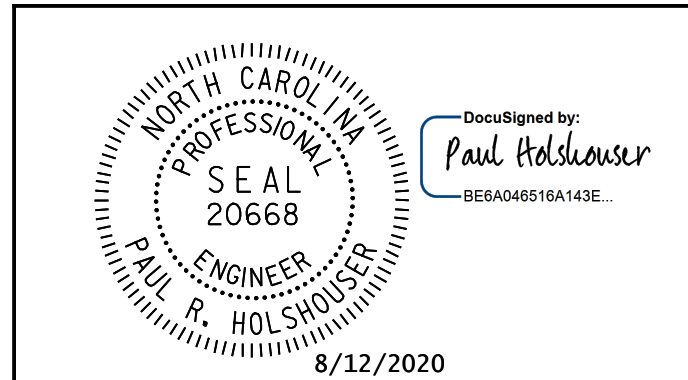


CONSTRUCTION JOINT DETAIL

NOTES:
 FOR "SECTION A-A" & "SECTION B-B", SEE SHEET 3 OF 3.
 FOR "VIEW Y-Y", SEE SHEET 3 OF 3.
 FOR NOTES, SEE SHEET 3 OF 3.

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3

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



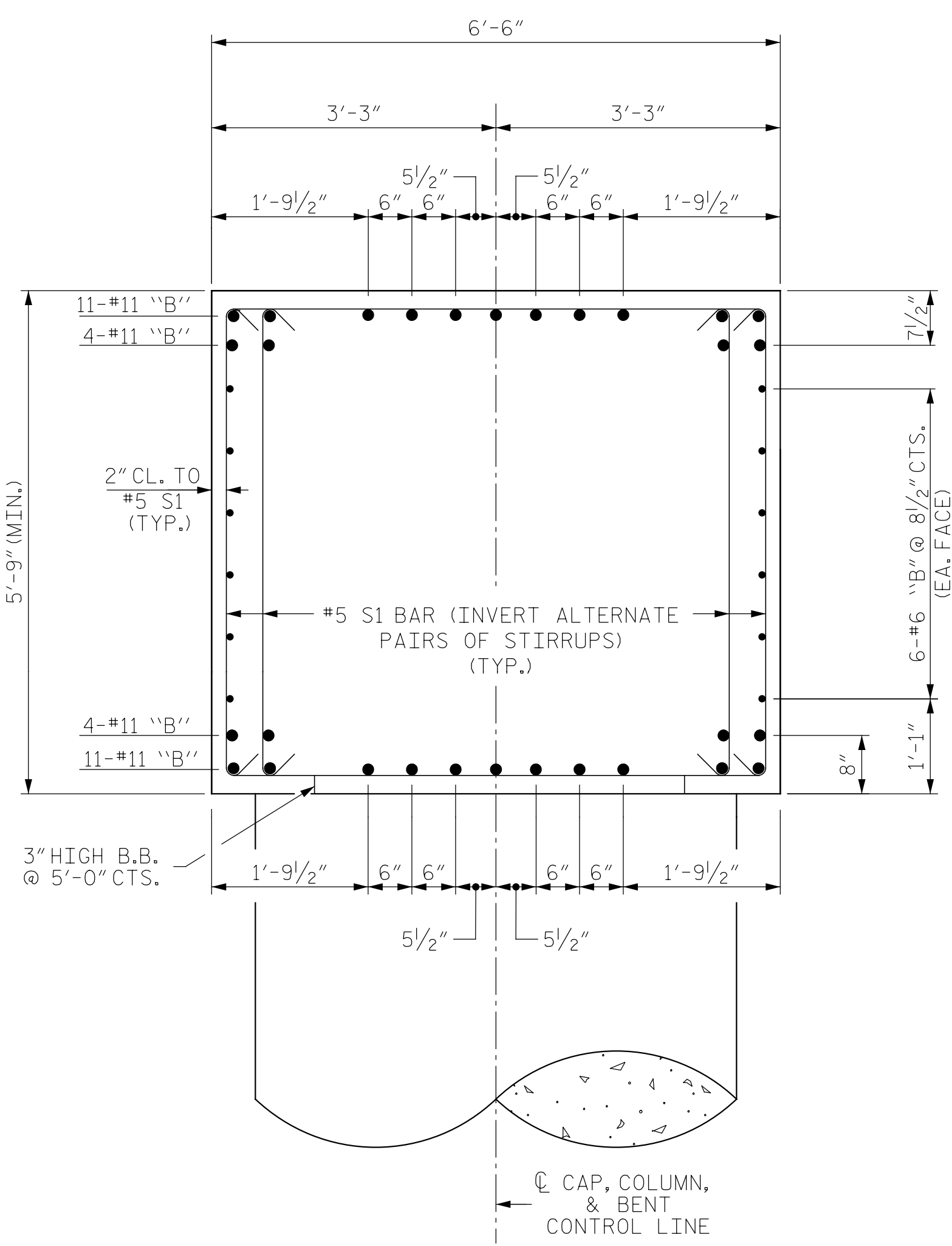
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 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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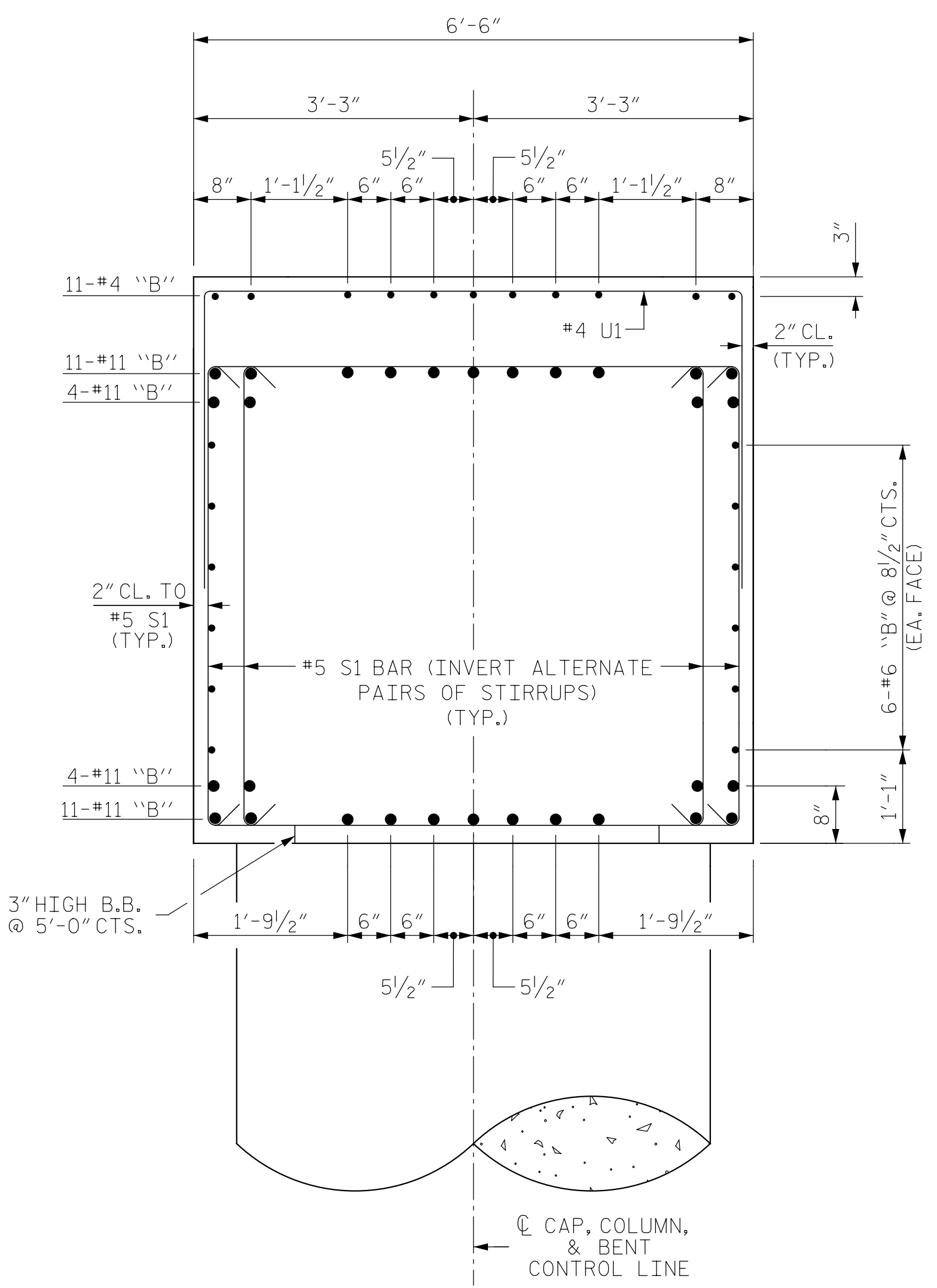
ICE of CAROLINAS, PLLC
 4505 Falls of Neuse Road, Suite 110
 Raleigh, North Carolina 27609
 Phone: 919-822-0333
 License #: P-0999

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-74
1			3			TOTAL SHEETS
2			4			107

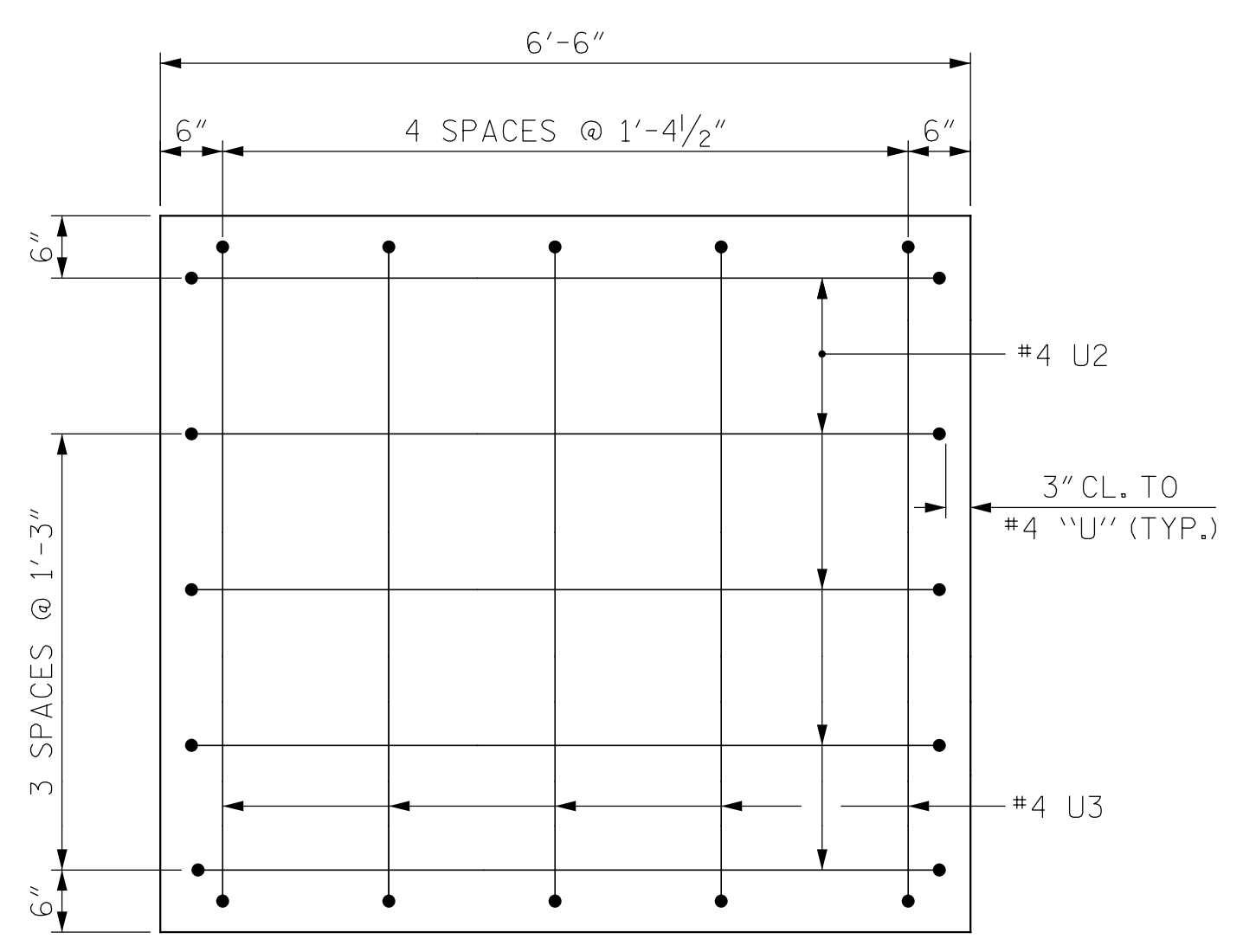
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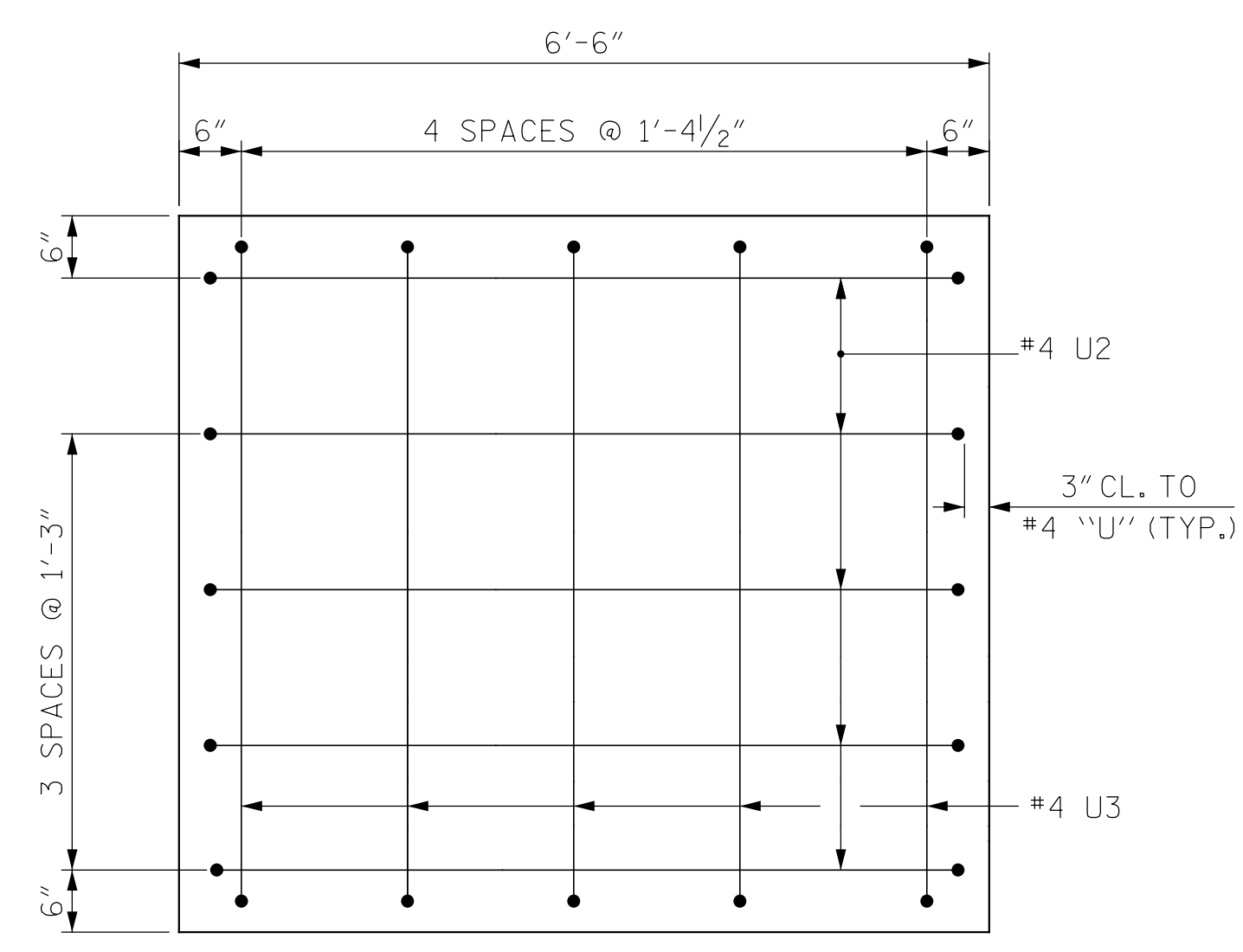
SECTION A-A



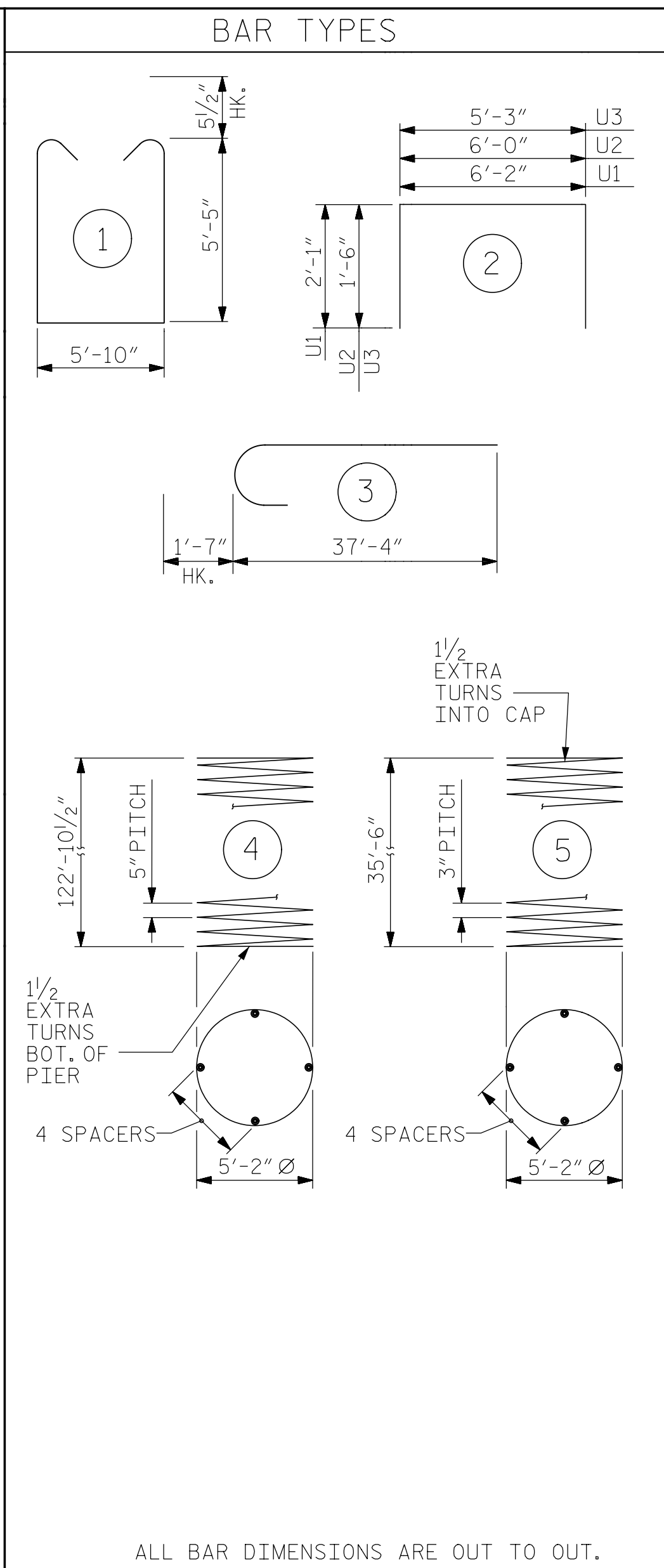
SECTION B-B
(STEPS NOT SHOWN FOR CLARITY)



VIEW X-X
(STAGE I CONSTRUCTION)



VIEW Y-Y
(STAGE II CONSTRUCTION)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
BENT 1 - STAGE I					BENT 1 - STAGE II						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	30	11	STR	58' - 9"	9,364	B6	30	11	STR	22' - 5"	3,573
B2	12	6	STR	55' - 9"	1,005	B7	12	6	STR	22' - 6"	406
B3	11	4	STR	14' - 4"	105	B8	11	4	STR	13' - 10"	102
B4	22	4	STR	9' - 0"	132						
B5	11	4	STR	11' - 6"	85	S1	84	5	1	17' - 7"	1,541
M1	336	11	STR	47' - 1"	84,052	U1	35	4	2	10' - 4"	242
S1	172	5	1	17' - 7"	3,154	U2	5	4	2	9' - 0"	30
						U3	5	4	2	8' - 3"	28
U1	74	4	2	10' - 4"	511	REINFORCING STEEL		LBS.	5,922		
U2	5	4	2	9' - 0"	30	CLASS "A" CONCRETE BREAKDOWN					
U3	5	4	2	8' - 3"	28	V1	112	11	3	38' - 11"	23,158
* SP-1	4	5	4	4760' - 11"	19,863	POUR #3 - CAP		C.Y.	33.0		
** SP-2	4	4	5	2308' - 5"	6,168	TOTAL CLASS "A" CONCRETE				C.Y.	33.0
REINFORCING STEEL				LBS.	121,624	SPIRAL COLUMN REINFORCING STEEL				LBS.	26,031
CLASS "A" CONCRETE BREAKDOWN						POUR #2 - COLUMNS				C.Y.	124.1
POUR #3 - CAP				C.Y.	76.7	TOTAL CLASS "A" CONCRETE				C.Y.	200.8
DRILLED PIERS						POUR #1 - DRILLED PIERS				C.Y.	516.7
6'-0" Ø DRILLED PIERS LIN. FT.				493.4	PERMANENT STEEL CASING FOR 6'-0" Ø DRILLED PIERS				LIN. FT.	123.9	
SID INSPECTIONS				EA.	2	DRILLED PIERS					
CSL TUBES				LIN. FT.	3032.4	6'-0" Ø DRILLED PIERS				LIN. FT.	123.9
CSL TESTING				EA.	4	SID INSPECTIONS				EA.	2

NOTES: * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

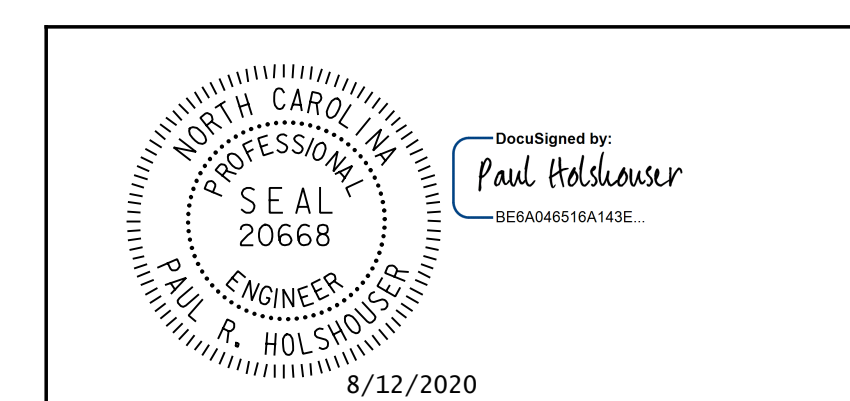
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING," SHEET 4 OF 7.

THE CONTRACTOR HAS THE OPTION TO POUR THE ENTIRE CAP IN STAGE I. NO PARTIAL DEMOLITION OF THE EXISTING BRIDGE 080017 WILL BE ALLOWED.

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 1
SECTION & DETAILS

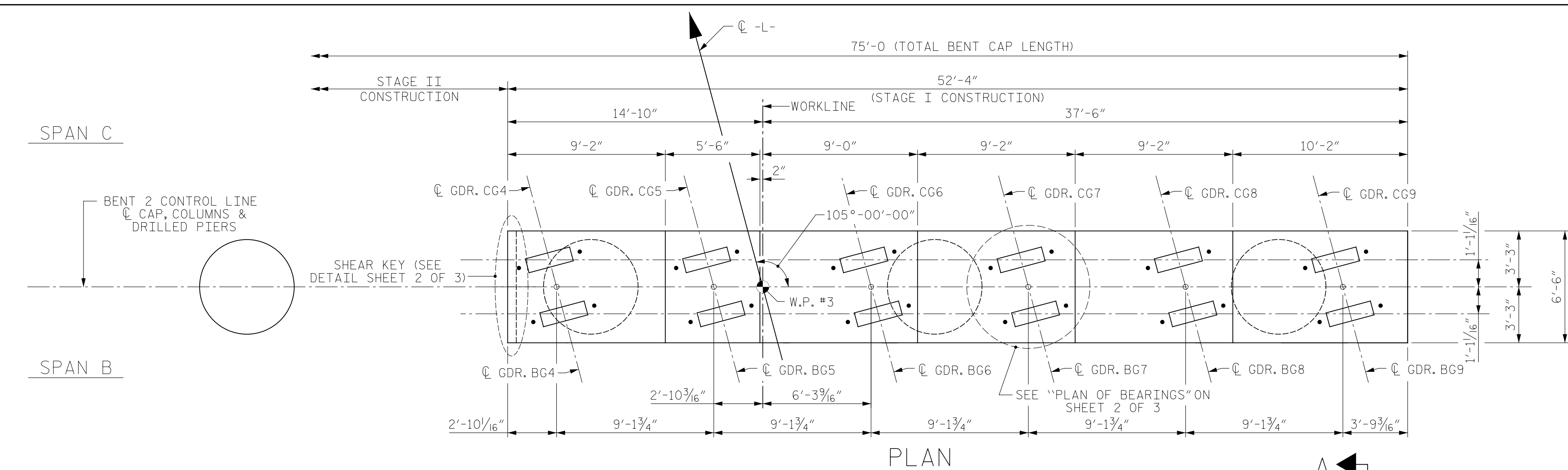
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CHECKED BY : N. D'AIUTO DATE : 7-17-20
DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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License #: P-0999

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-75	
1			3			TOTAL SHEETS	
2			4			107	

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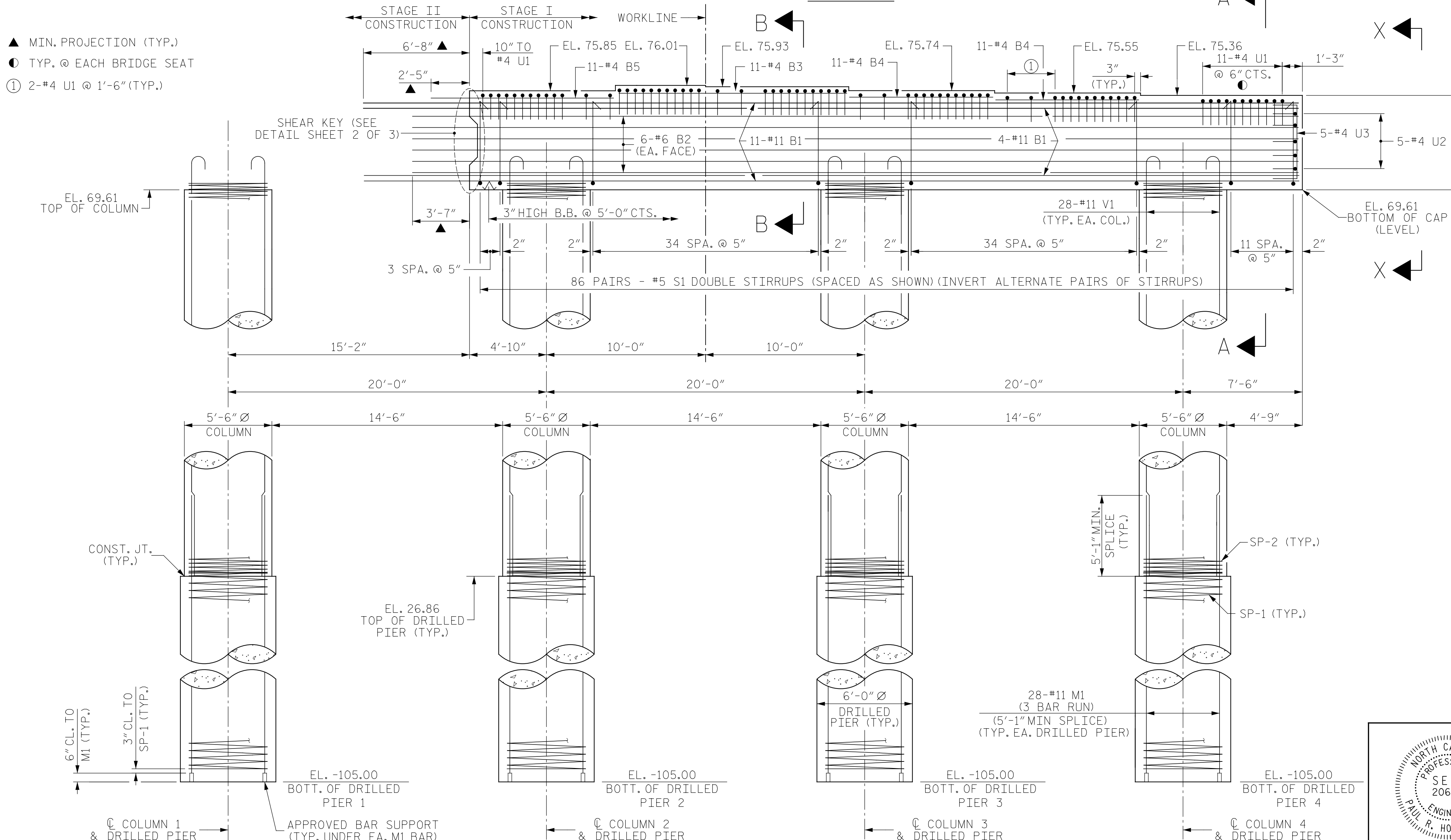
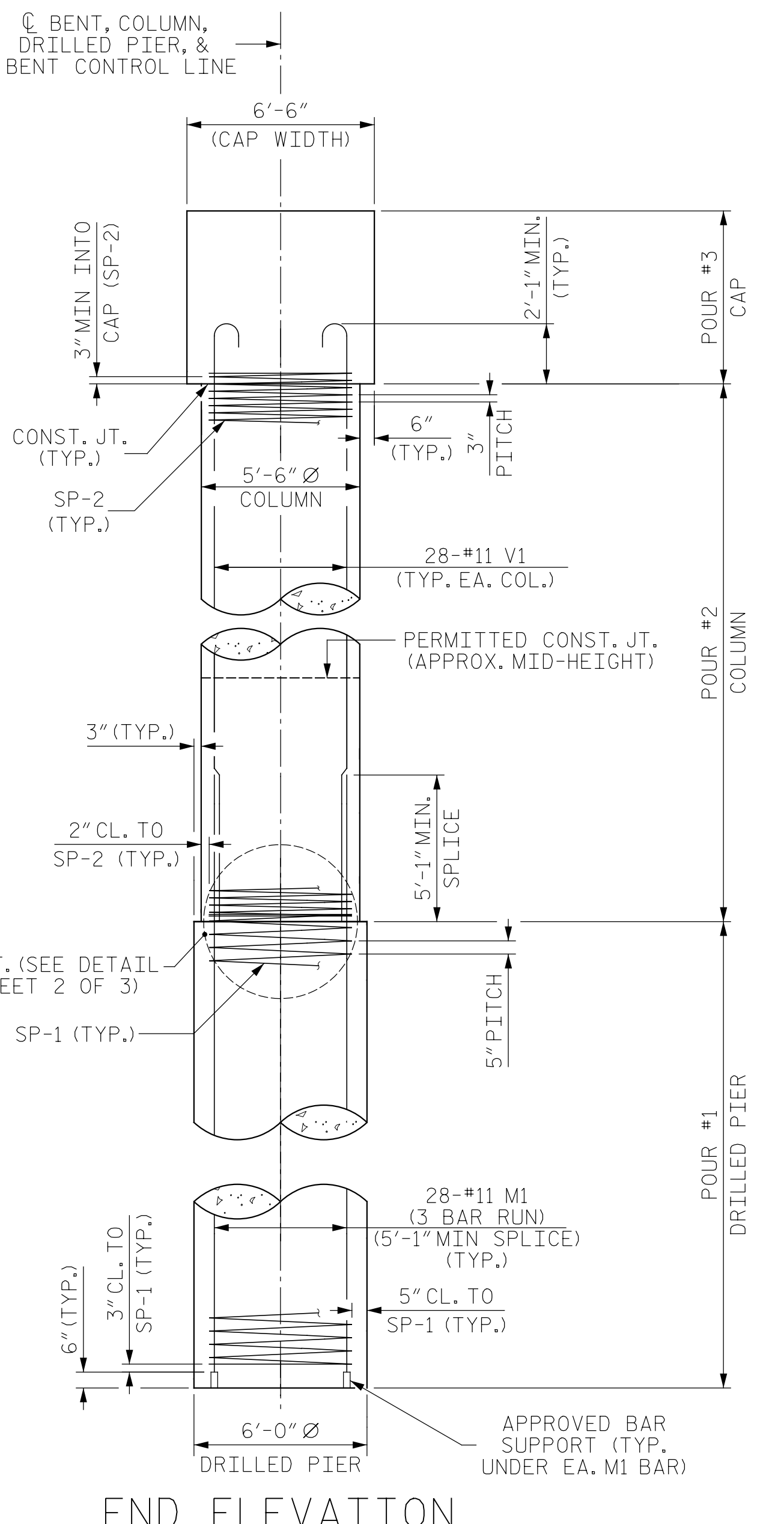


NOTES:

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

FOR "VIEW X-X", SEE SHEET 3 OF 3

FOR NOTES, SEE SHEET 3 OF 3.



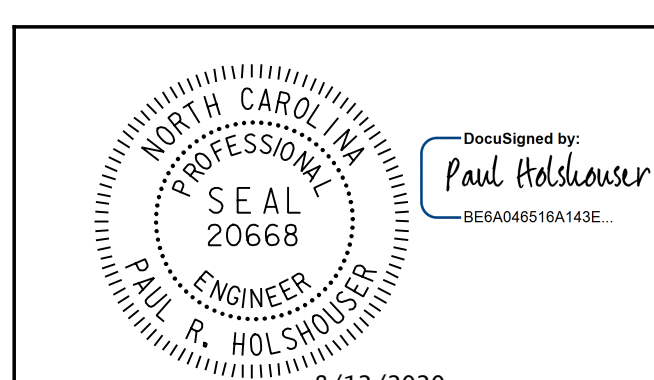
DRAWN BY: B. J. MANTEI DATE: 5-17-20

CHECKED BY: N. D'AIUTO DATE: 7-17-20

DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

ALL DIMENSIONS AND DETAILS SHOWN FOR DRILLED PIERS ARE TYPICAL FOR EACH PIER UNLESS OTHERWISE NOTED.

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PROJECT NO. 48793.3.1

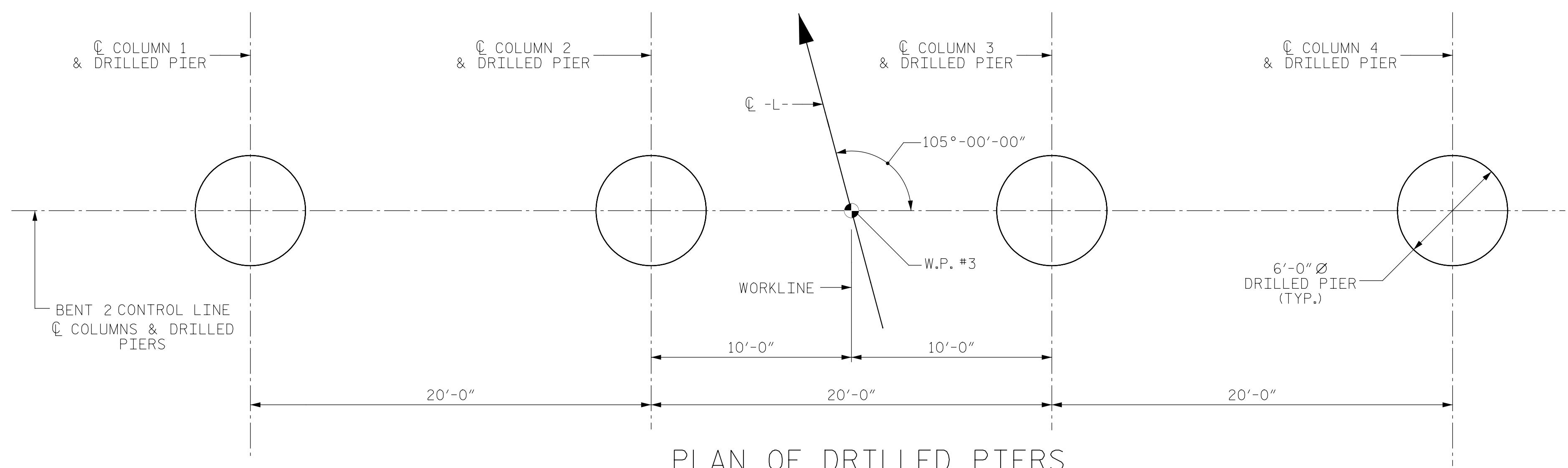
BLADEN COUNTY

STATION: 118+81.78 -L-

SHEET 1 OF 3

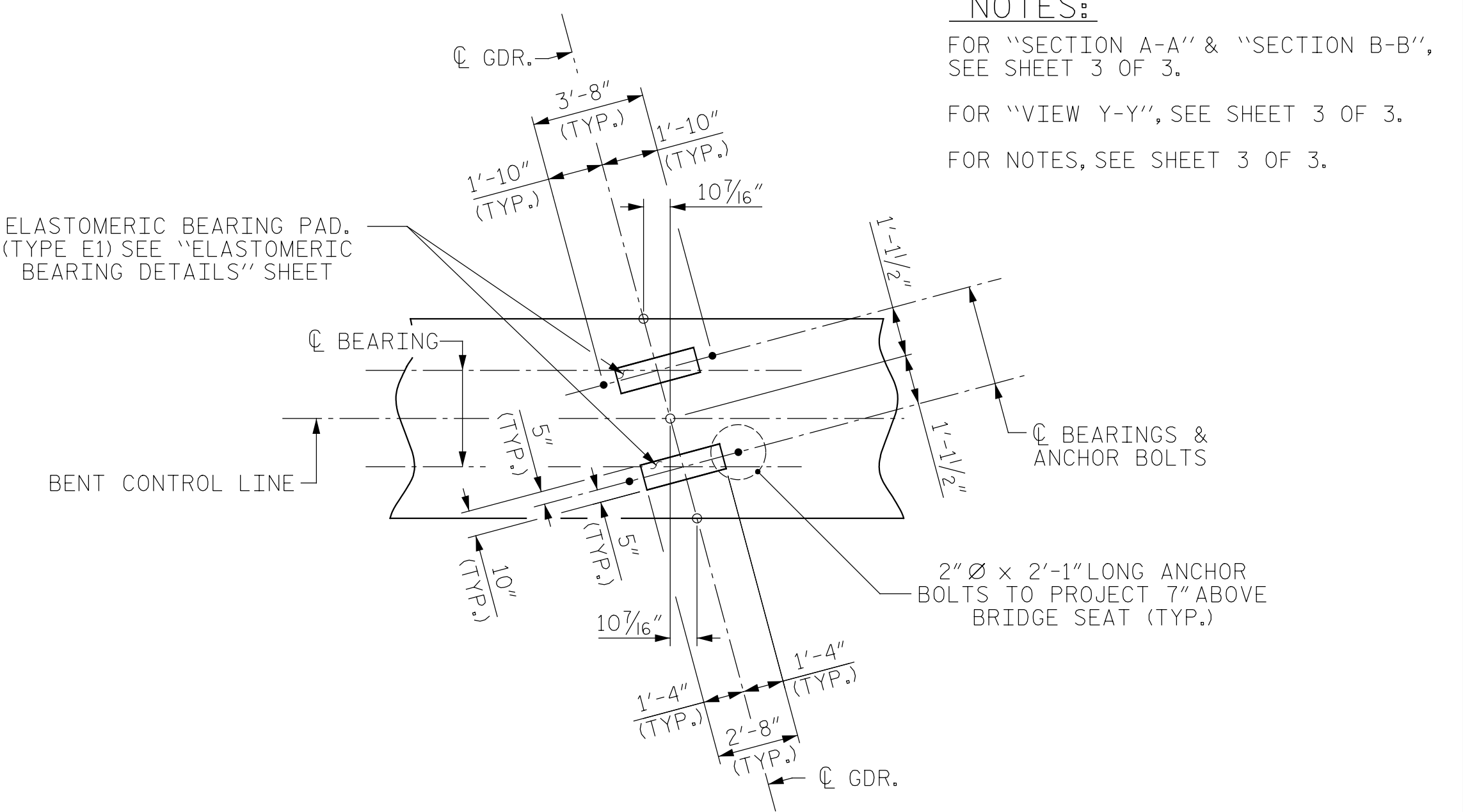
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 2 PLAN & ELEVATION					
STAGE I CONSTRUCTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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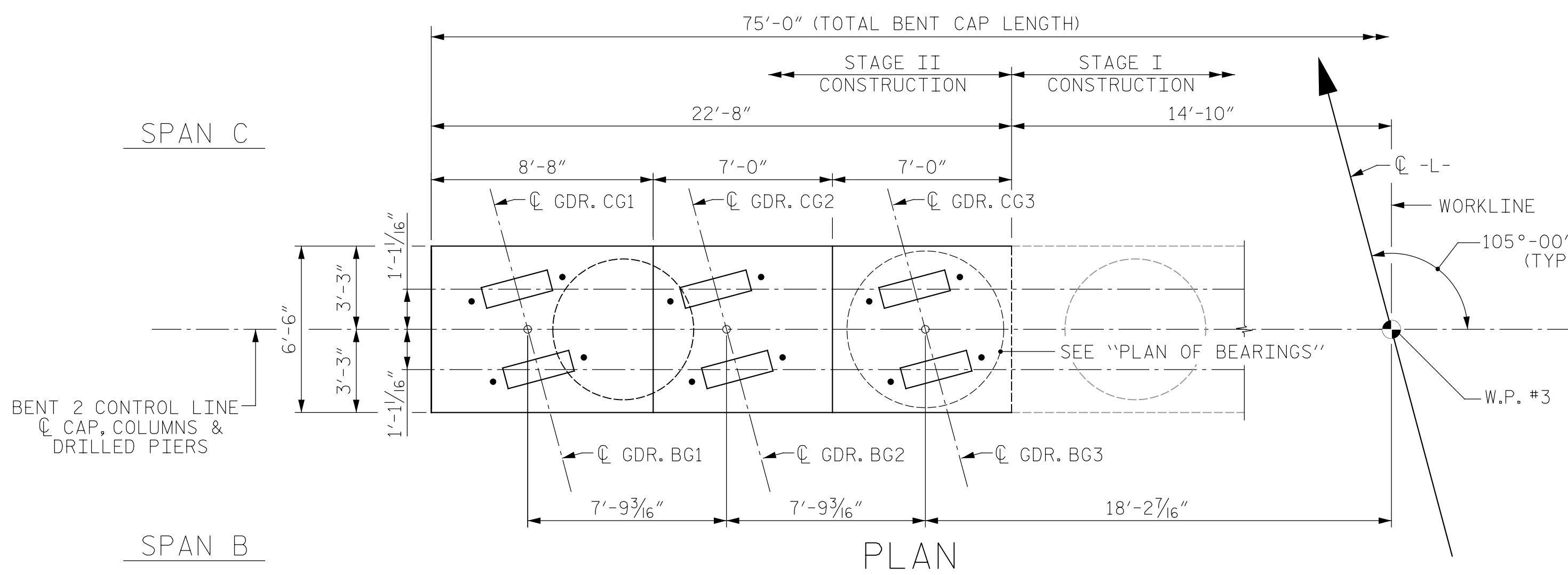
PLAN OF DRILLED PIERS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR DRILLED PIERS UNLESS NOTED OTHERWISE

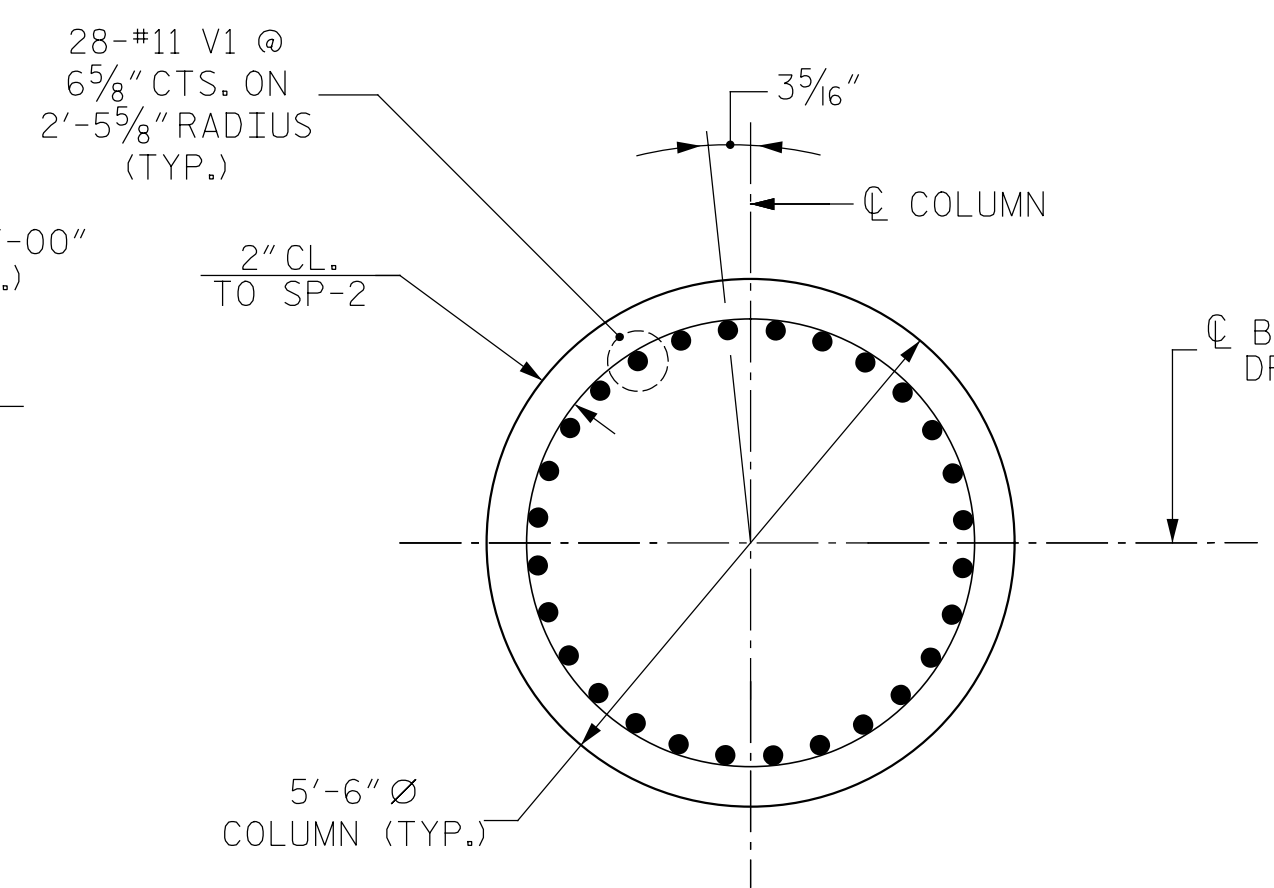


PLAN OF BEARINGS

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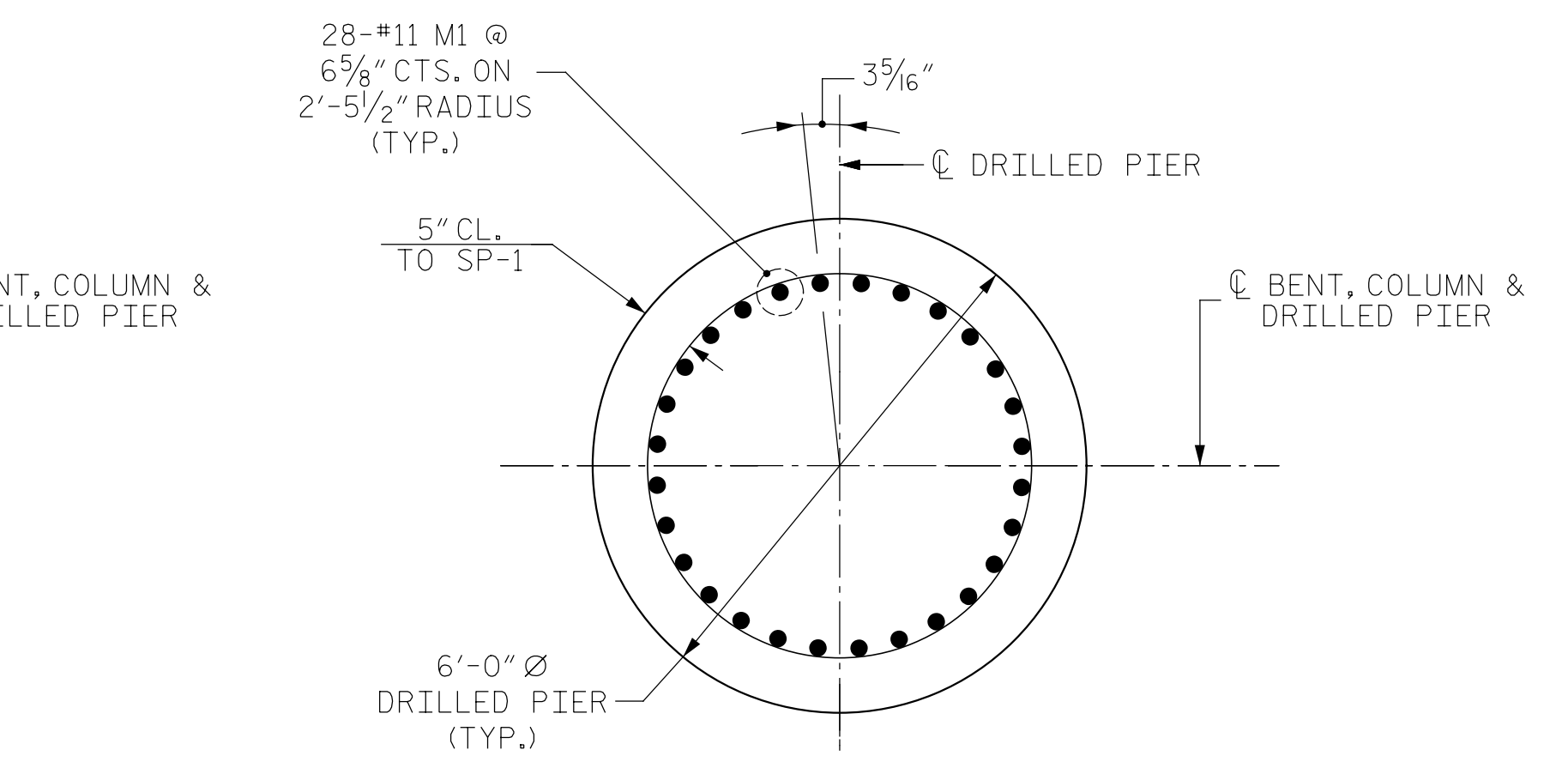


PLAN



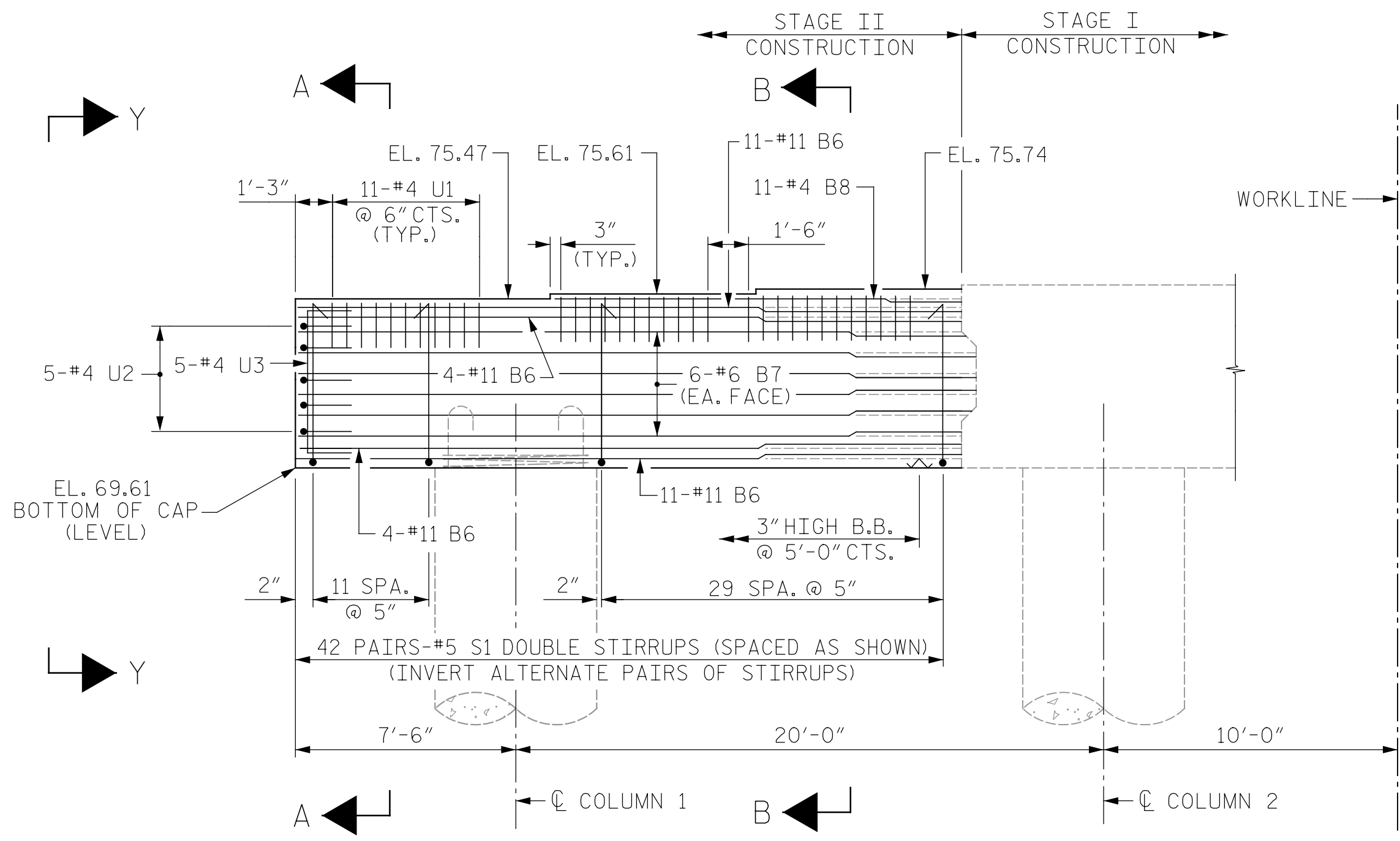
SECTION THRU COLUMN

(TYP. EA. COLUMN)

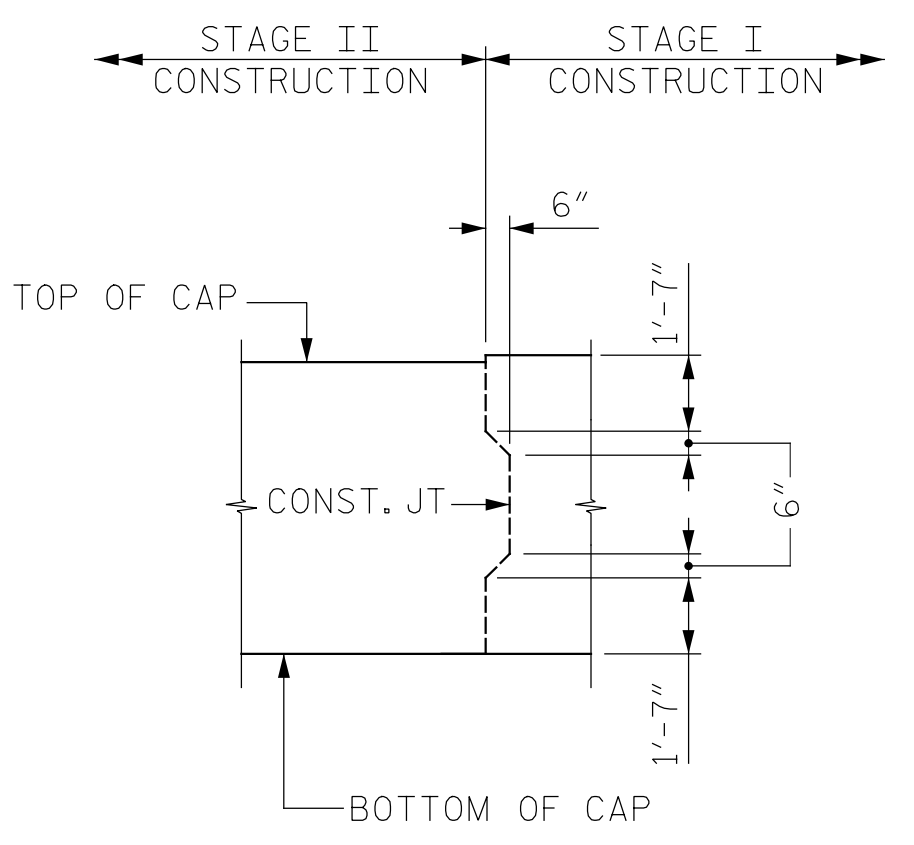


SECTION THRU DRILLED PIER

(TYP. EA. DRILLED PIER)

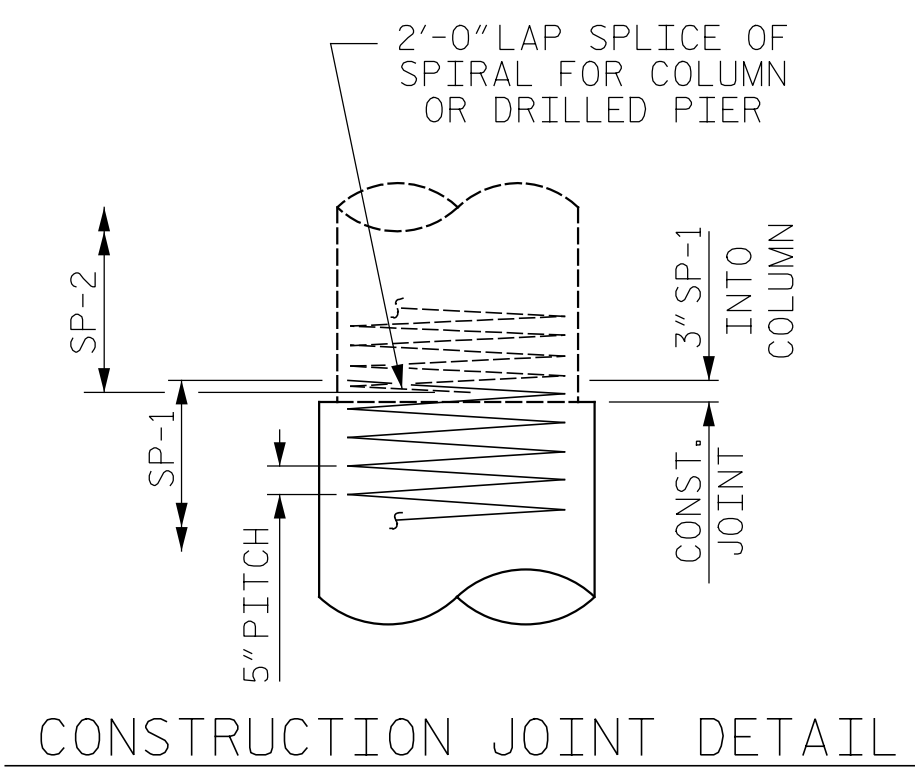


ELEVATION



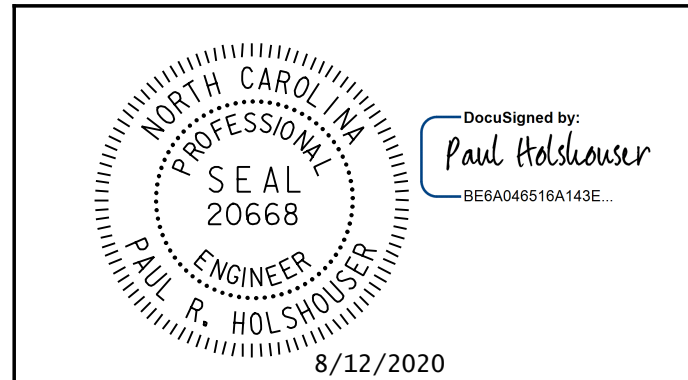
SHEAR KEY DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE ELEVATION VIEW FOR LOCATION OF SHEAR KEY. REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.



CONSTRUCTION JOINT DETAIL

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3



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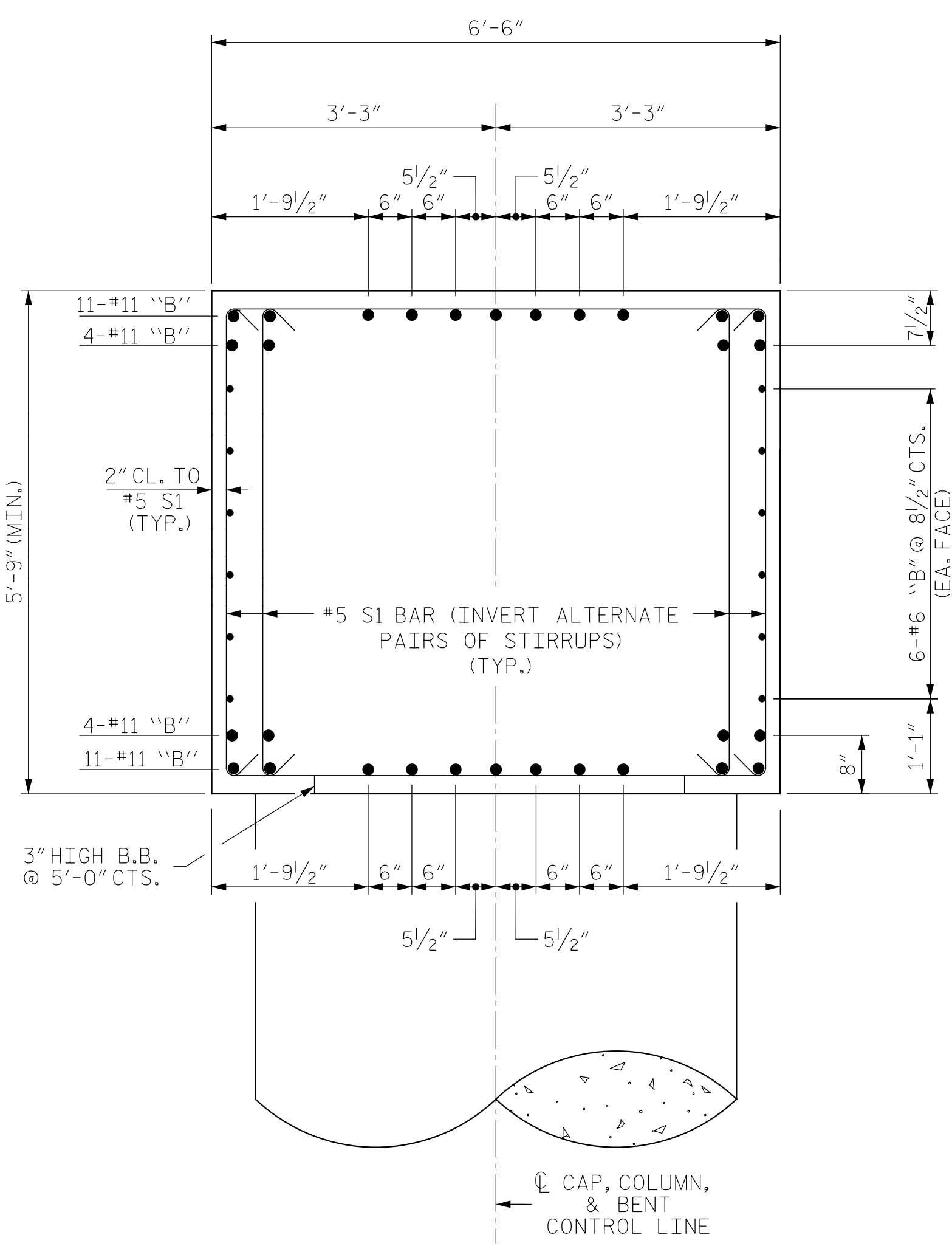
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SUBSTRUCTURE					
BENT 2 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-77				
TOTAL SHEETS 107				

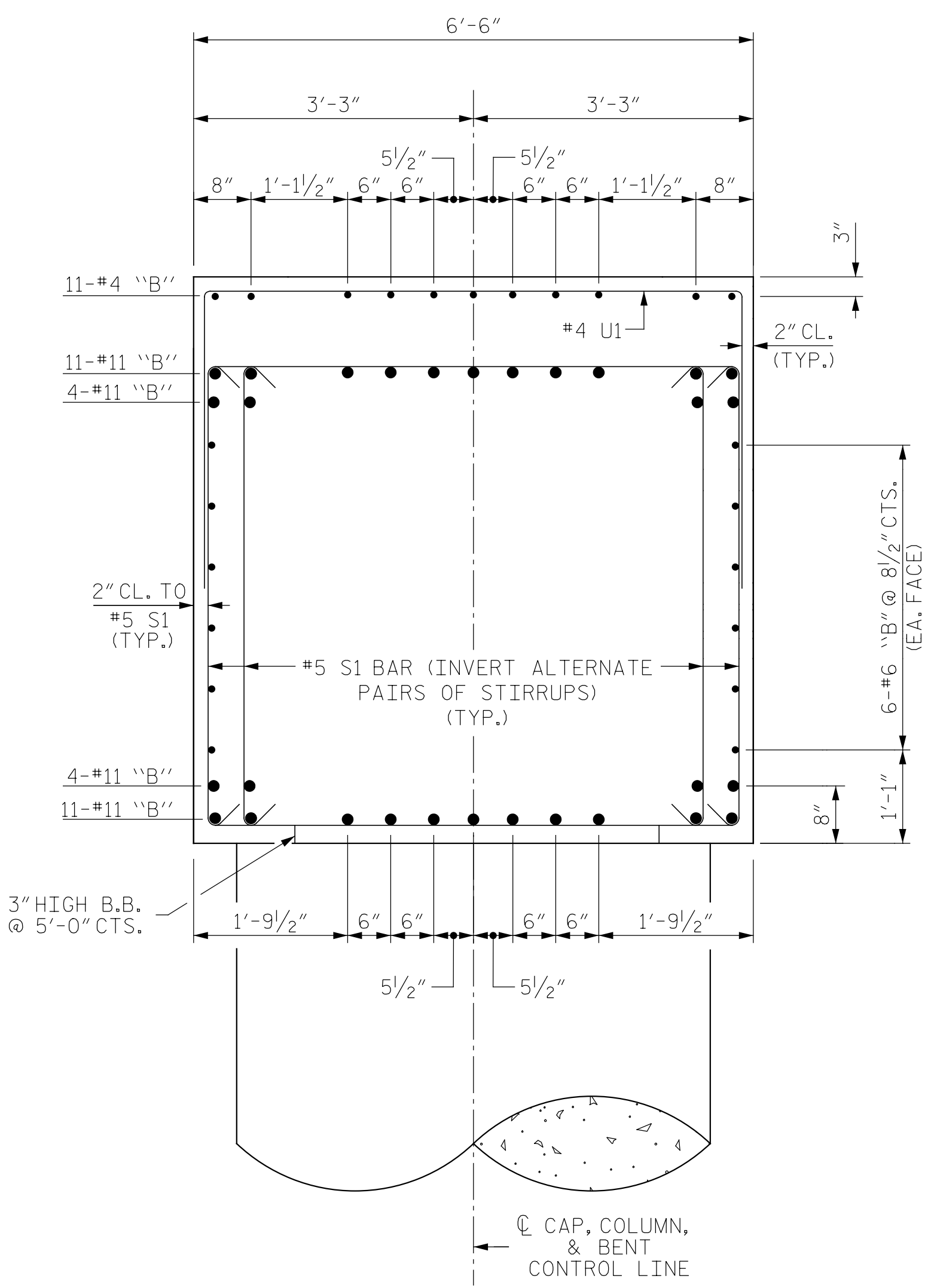
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 CHECKED BY: N. D'AIUTO DATE: 7-17-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

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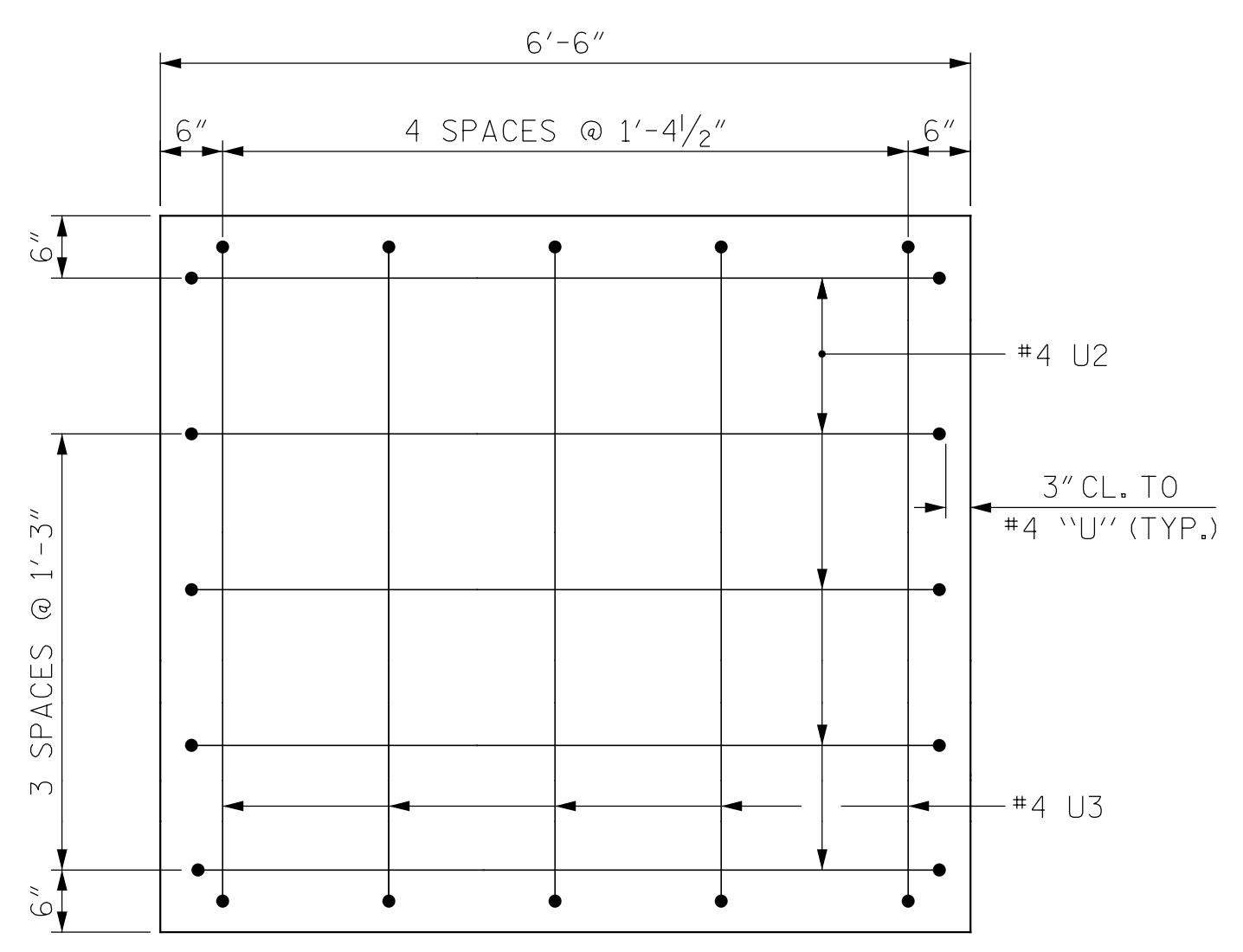
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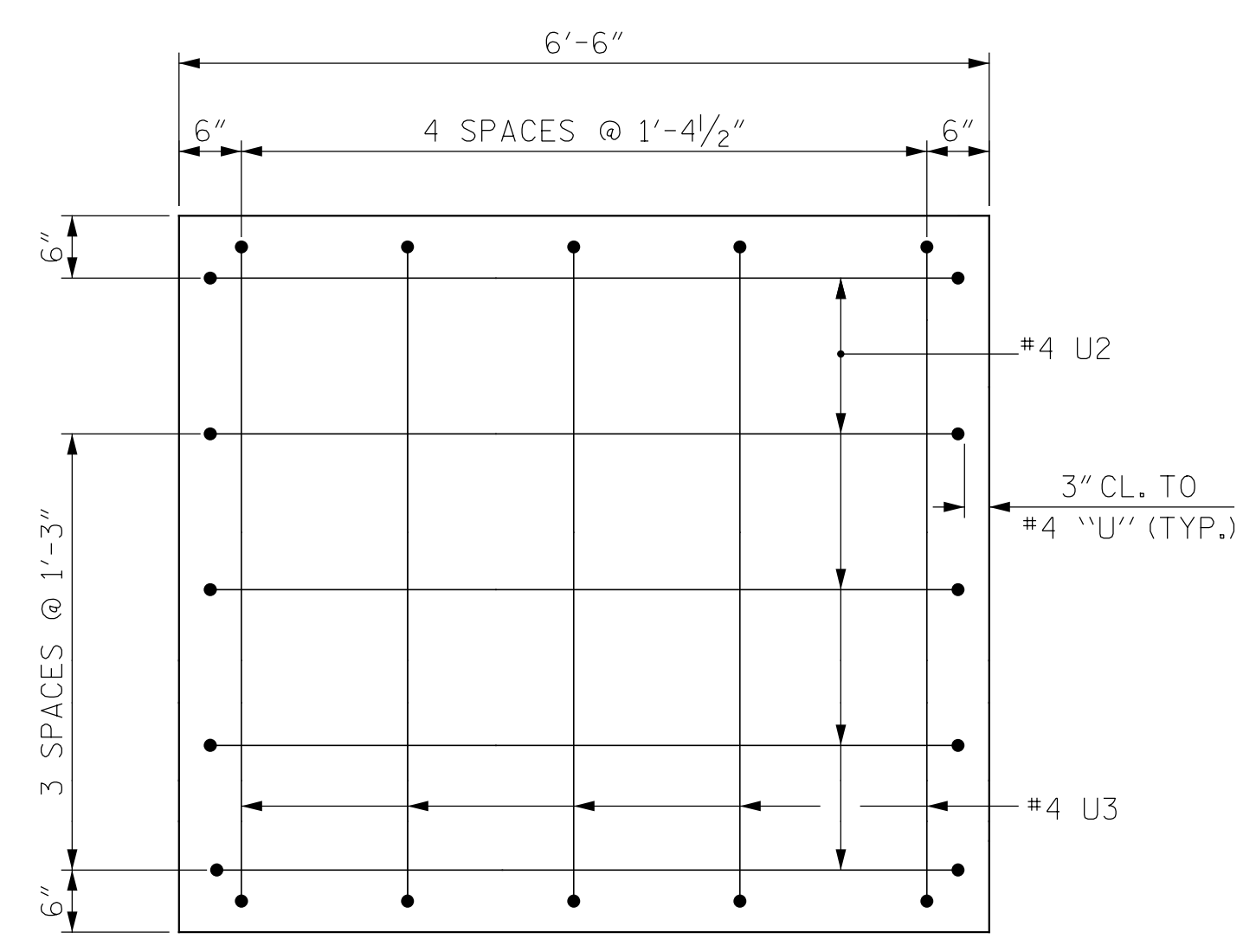
SECTION A-A



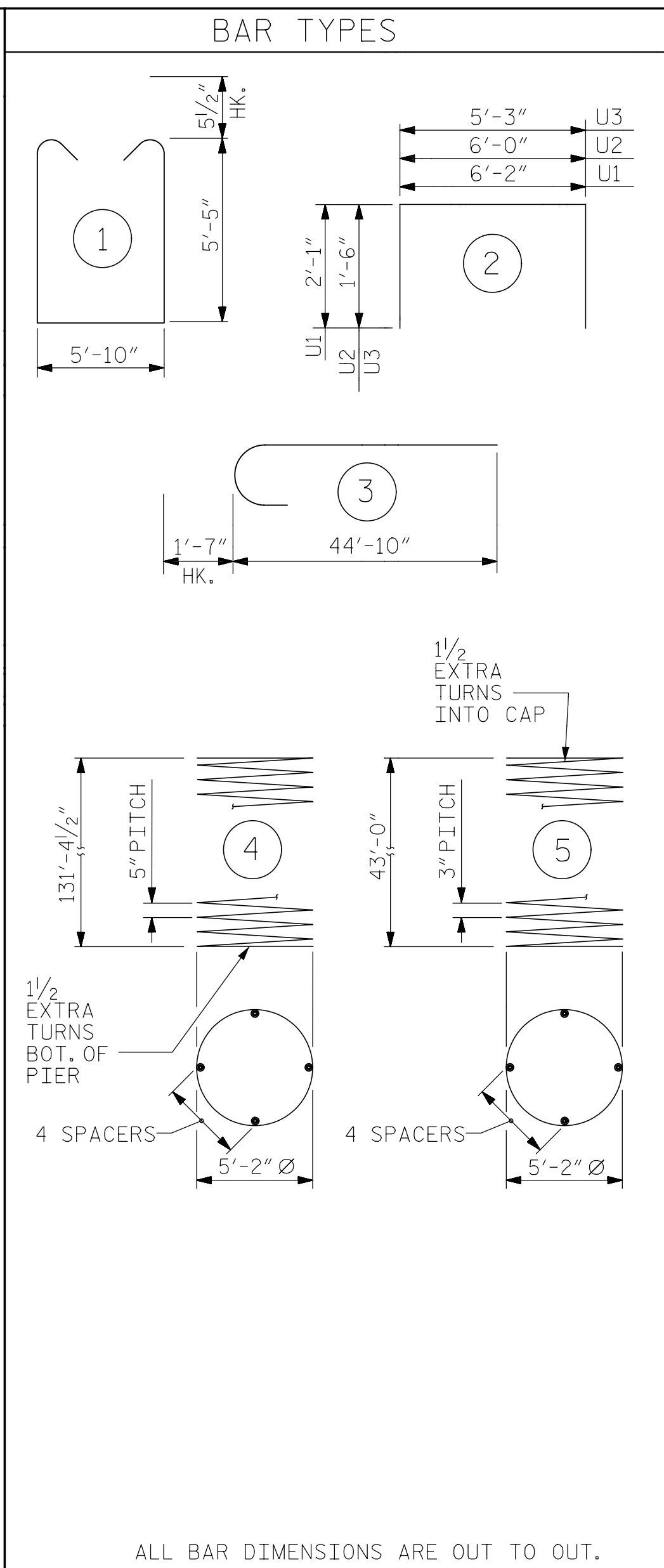
SECTION B-B
(STEPS NOT SHOWN FOR CLARITY)



VIEW X-X
(STAGE I CONSTRUCTION)



VIEW Y-Y
(STAGE II CONSTRUCTION)



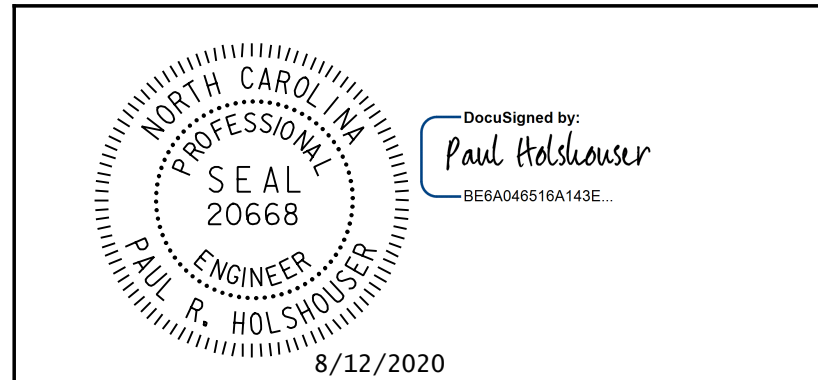
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
BENT 2 - STAGE I					BENT 2 - STAGE II						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	30	11	STR	58' - 9"	9,364	B6	30	11	STR	22' - 5"	3,573
B2	12	6	STR	55' - 9"	1,005	B7	12	6	STR	22' - 6"	406
B3	11	4	STR	14' - 4"	105	B8	11	4	STR	13' - 10"	102
B4	22	4	STR	9' - 0"	132						
B5	11	4	STR	11' - 6"	85	S1	84	5	1	17' - 7"	1,541
M1	336	11	STR	49' - 11"	89,110	U1	35	4	2	10' - 4"	242
S1	172	5	1	17' - 7"	3,154	U2	5	4	2	9' - 0"	30
						U3	5	4	2	8' - 3"	28
U1	74	4	2	10' - 4"	511	REINFORCING STEEL				LBS.	5,922
U2	5	4	2	9' - 0"	30	CLASS "A" CONCRETE BREAKDOWN					
U3	5	4	2	8' - 3"	28	V1	112	11	3	46' - 5"	27,620
* SP-1	4	5	4	5090' - 1"	21,236	POUR #3 - CAP				C.Y.	33.0
** SP-2	4	4	5	2791' - 0"	7,458	TOTAL CLASS "A" CONCRETE				C.Y.	33.0
REINFORCING STEEL				LBS.	131,144	SPIRAL COLUMN REINFORCING STEEL				LBS.	28,694
CLASS "A" CONCRETE BREAKDOWN						POUR #2 - COLUMNS				C.Y.	150.5
POUR #2 - COLUMNS				C.Y.	150.5	POUR #3 - CAP				C.Y.	76.6
TOTAL CLASS "A" CONCRETE				C.Y.	227.1	DRILLED PIERS					
POUR #1 - DRILLED PIERS				C.Y.	552.3	6'-0" Ø DRILLED PIERS LIN. FT.				527.4	
PERMANENT STEEL CASING FOR 6'-0" Ø DRILLED PIERS				LIN. FT.	95.4	SID INSPECTIONS				EA.	2
CSL TUBES				LIN. FT.	3236.6	CSL TESTING				EA.	4

NOTES:

- * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.
- FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING," SHEET 4 OF 7.
- THE CONTRACTOR HAS THE OPTION TO POUR THE ENTIRE CAP IN STAGE I. NO PARTIAL DEMOLITION OF THE EXISTING BRIDGE 080017 WILL BE ALLOWED.

PROJECT NO. 48793.3.1
BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 3



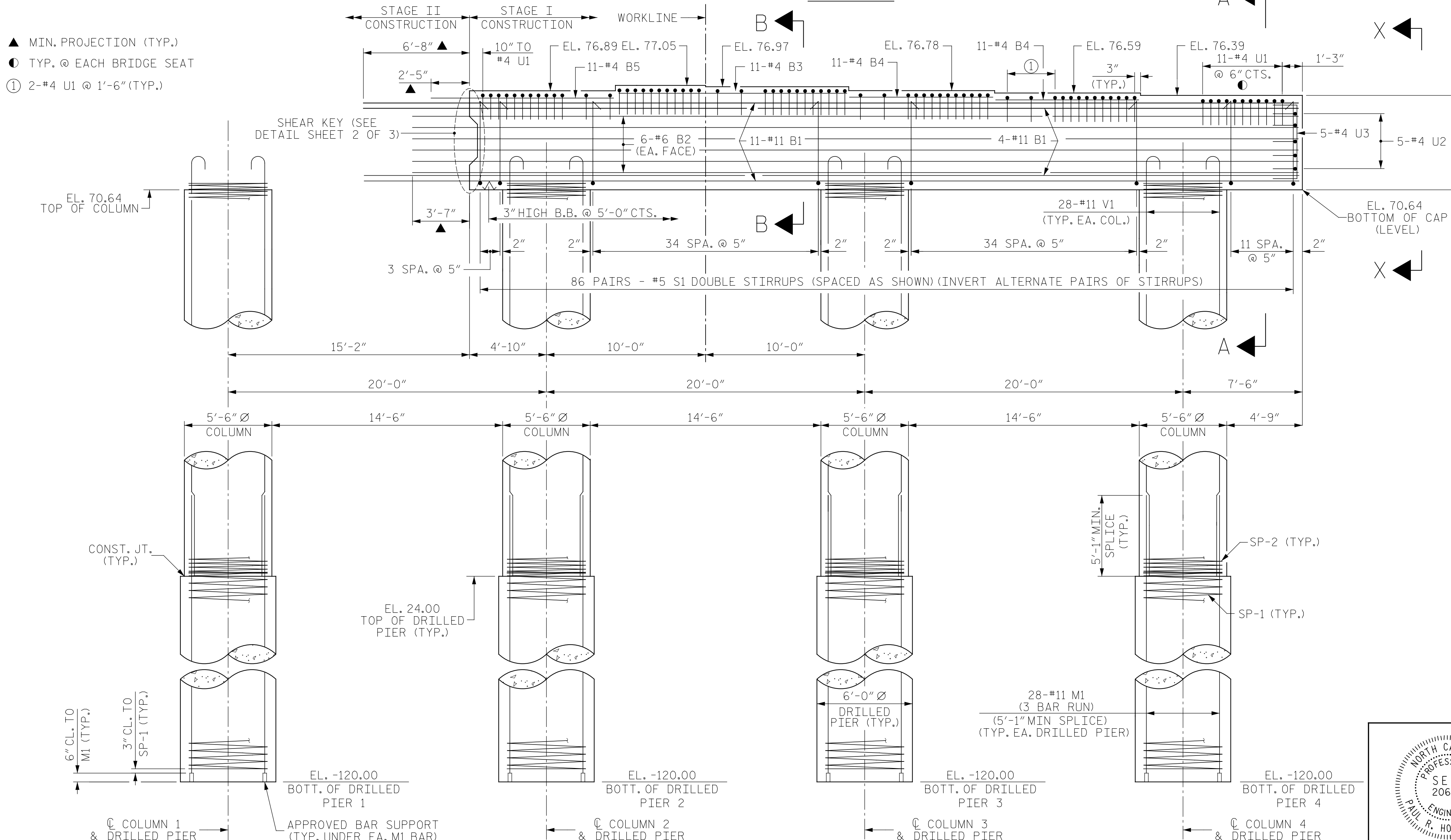
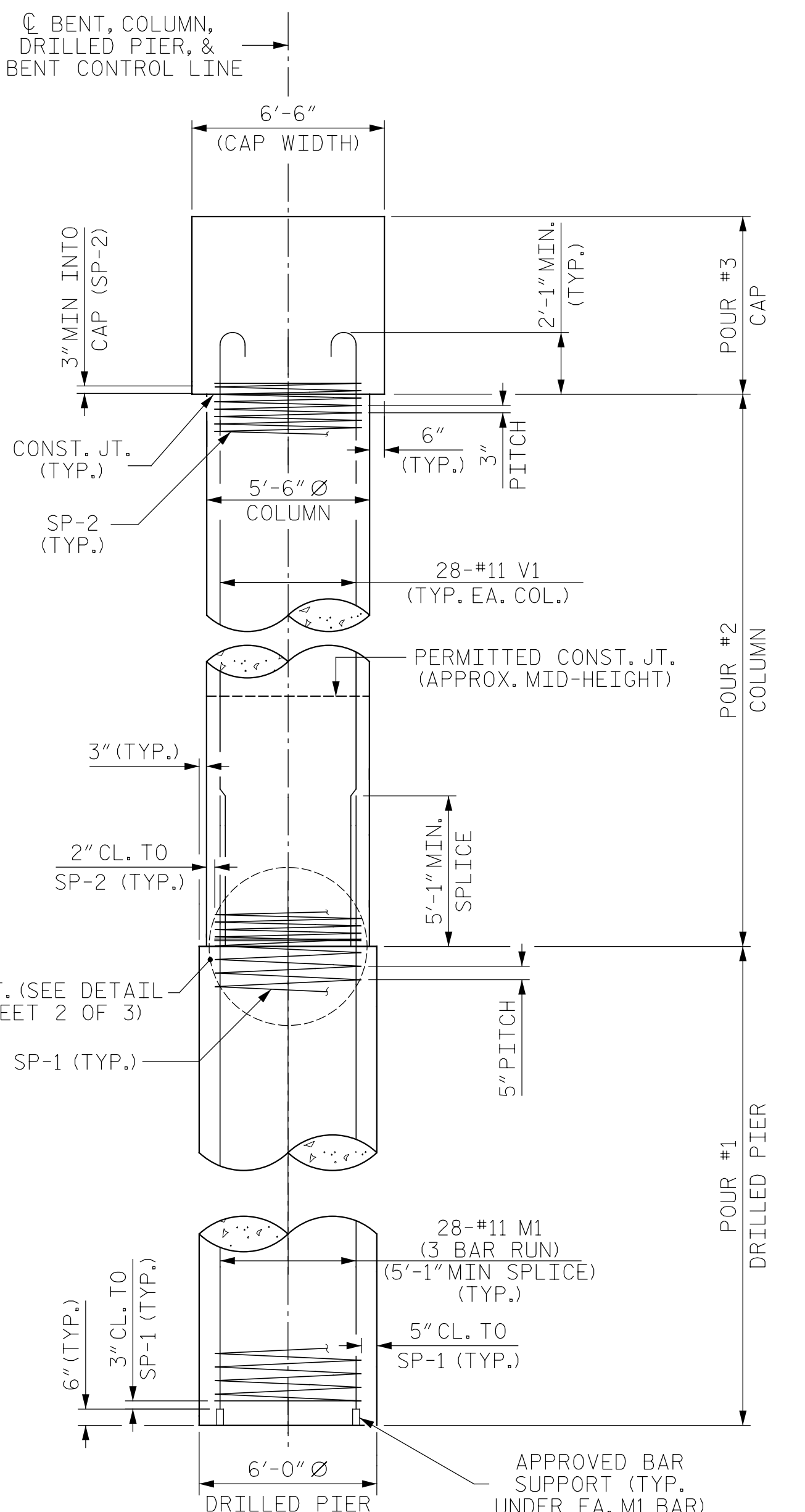
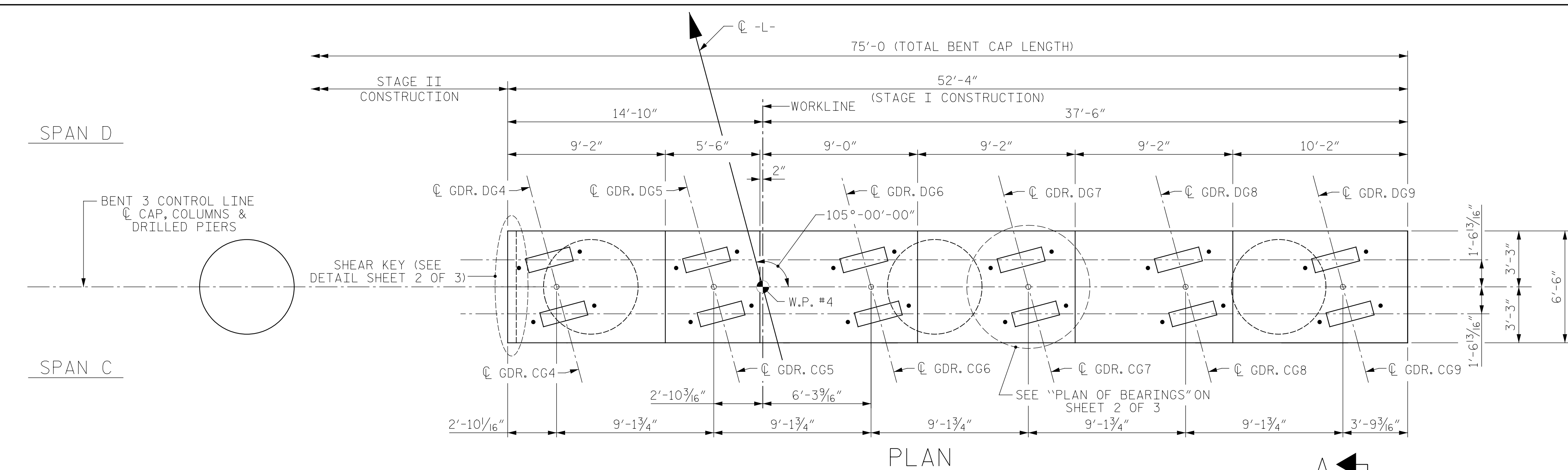
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 License #: P-0999

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 2 SECTION & DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					107

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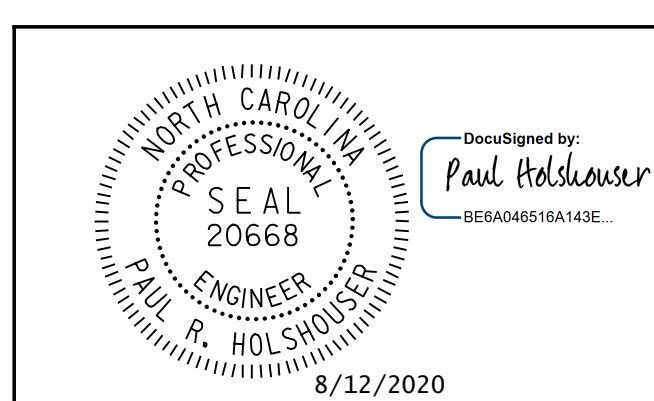
NOTES:
FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 3 OF 3.
FOR "VIEW X-X", SEE SHEET 3 OF 3
FOR NOTES, SEE SHEET 3 OF 3.



- ▲ MIN. PROJECTION (TYP.)
- TYP. @ EACH BRIDGE SEAT
- ① 2-#4 U1 @ 1'-6" (TYP.)

PROJECT NO. 48793.3.1
BLADEN COUNTY
STATION: 118+81.78 -L-
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 3
PLAN & ELEVATION
STAGE I CONSTRUCTION



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CHECKED BY: N. D'AIUTO DATE: 7-17-20
DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

ALL DIMENSIONS AND DETAILS SHOWN FOR DRILLED PIERS ARE TYPICAL FOR EACH PIER UNLESS OTHERWISE NOTED.

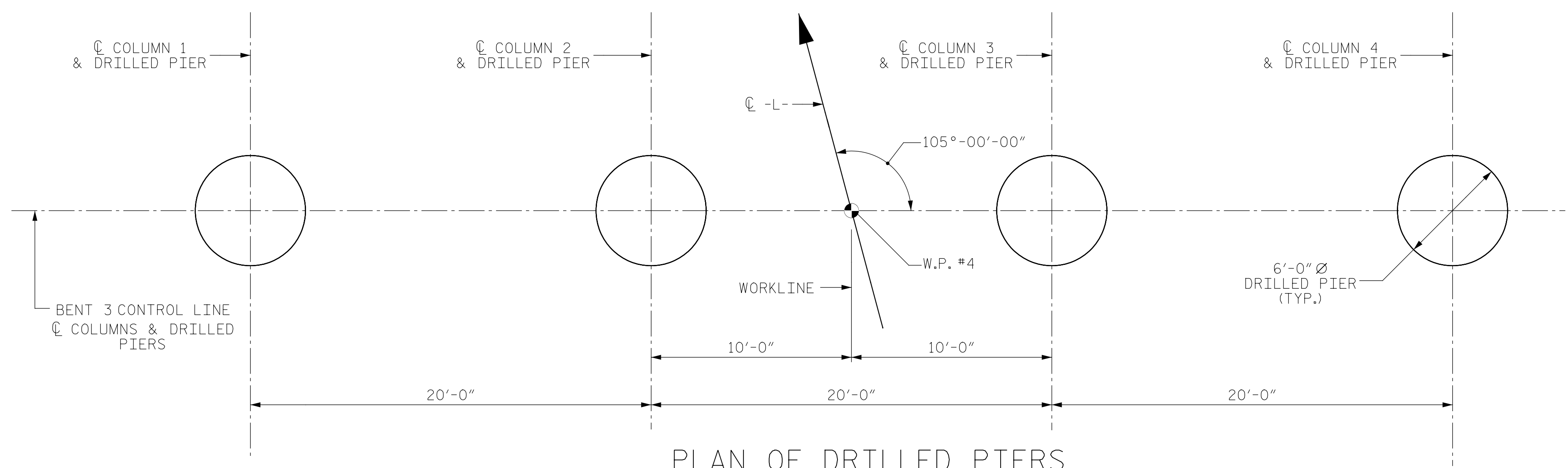
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REVISIONS		SHEET NO.			
NO.	BY:	DATE:	NO.	BY:	DATE:
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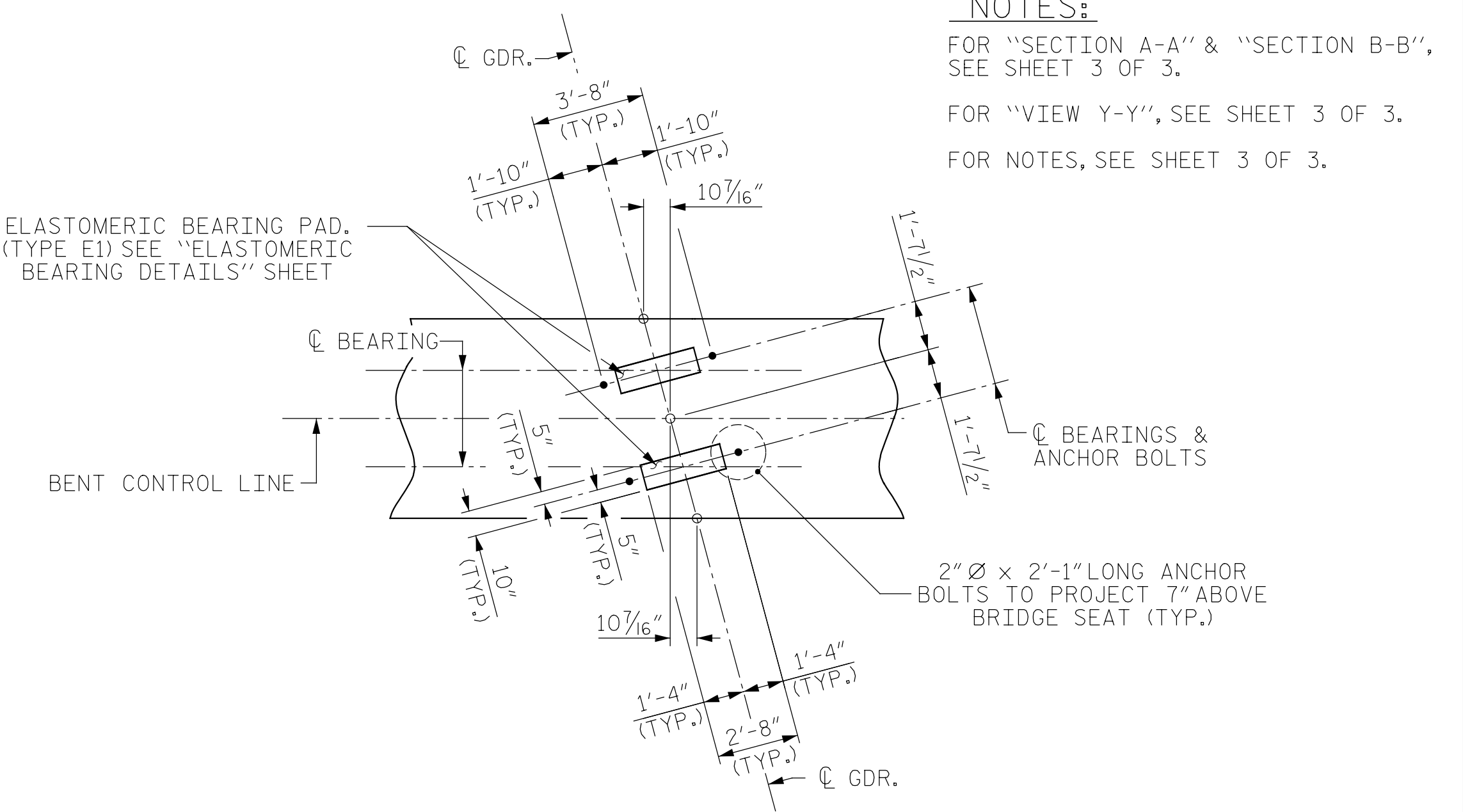
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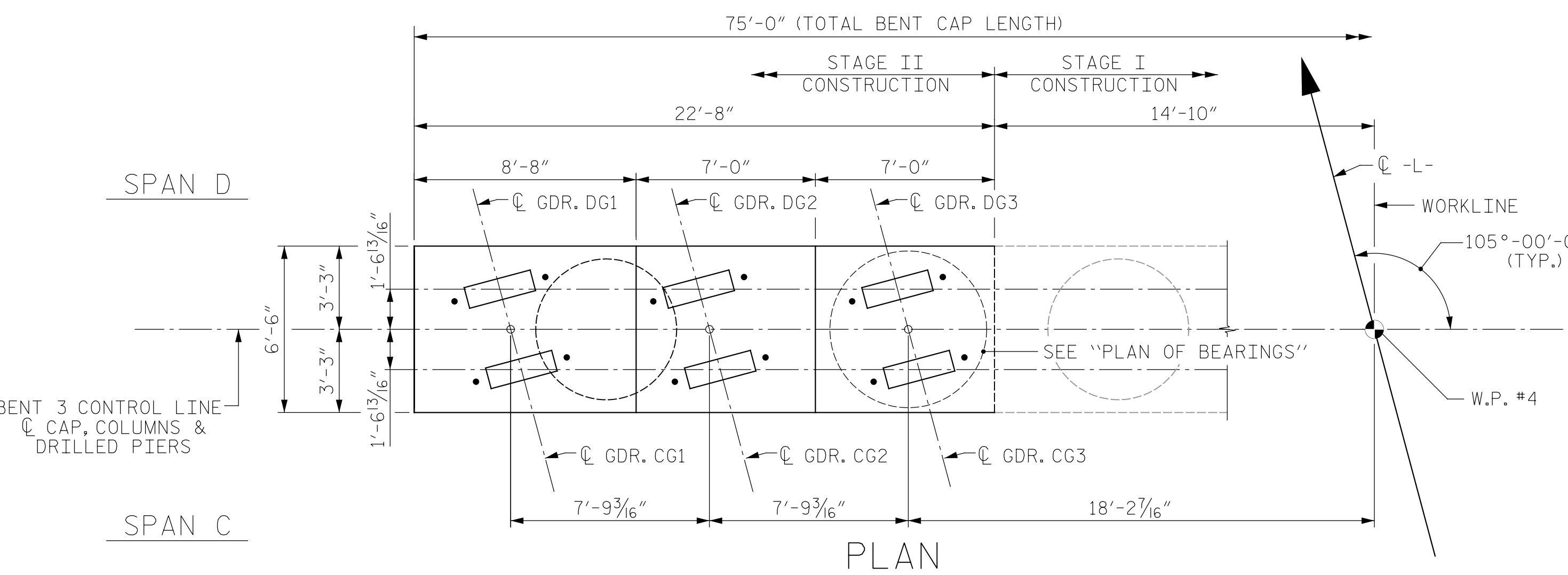
PLAN OF DRILLED PIERS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR DRILLED PIERS UNLESS NOTED OTHERWISE

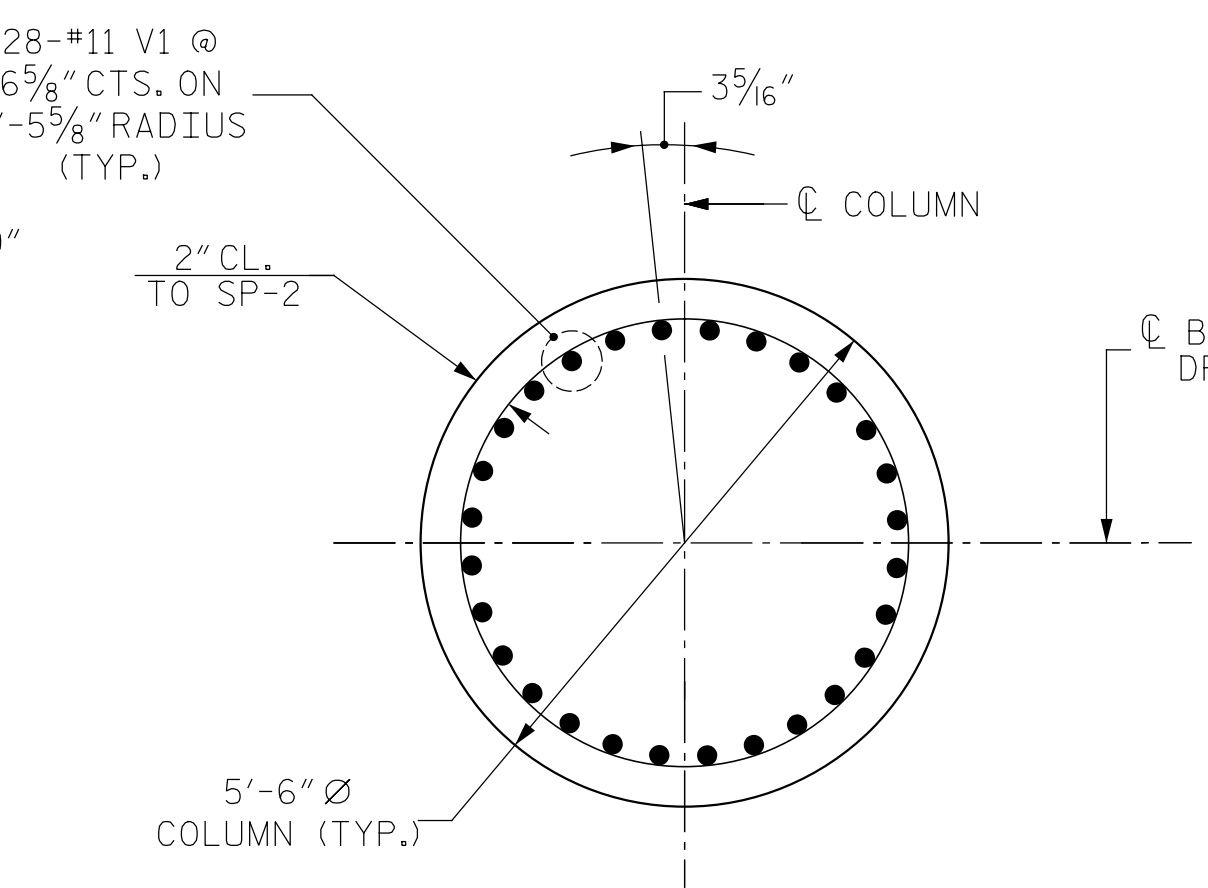


PLAN OF BEARINGS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

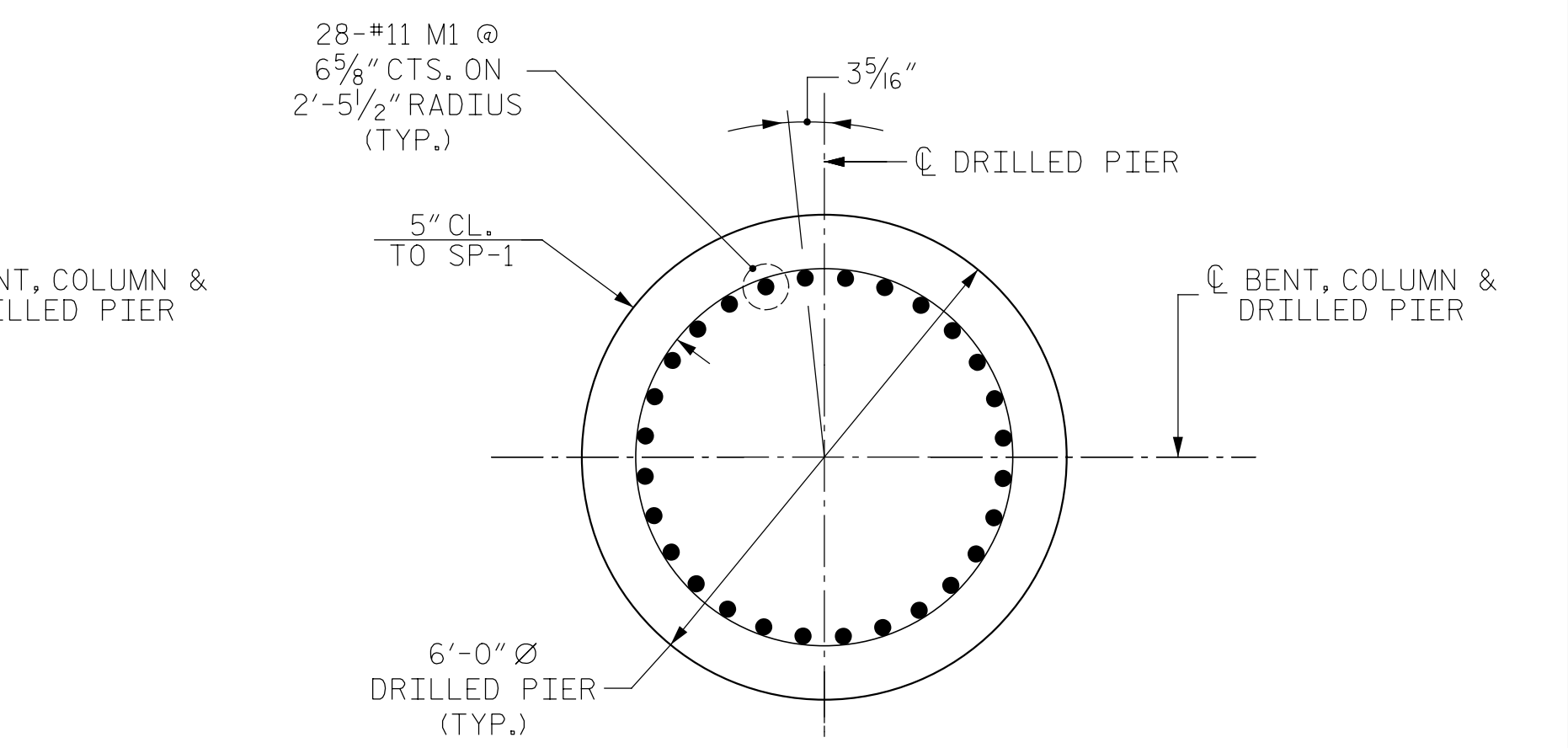


PLAN



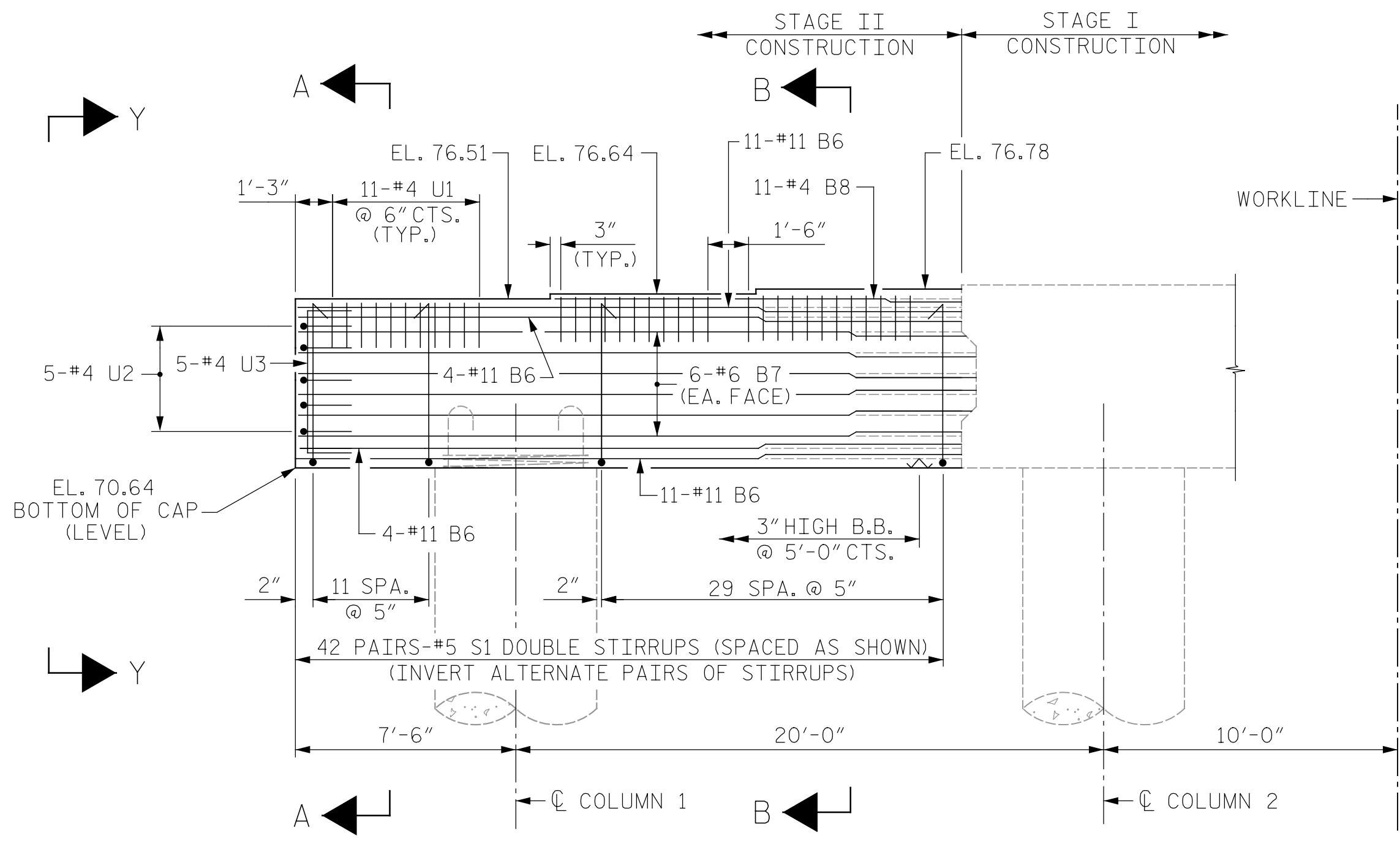
SECTION THRU COLUMN

(TYP. EA. COLUMN)

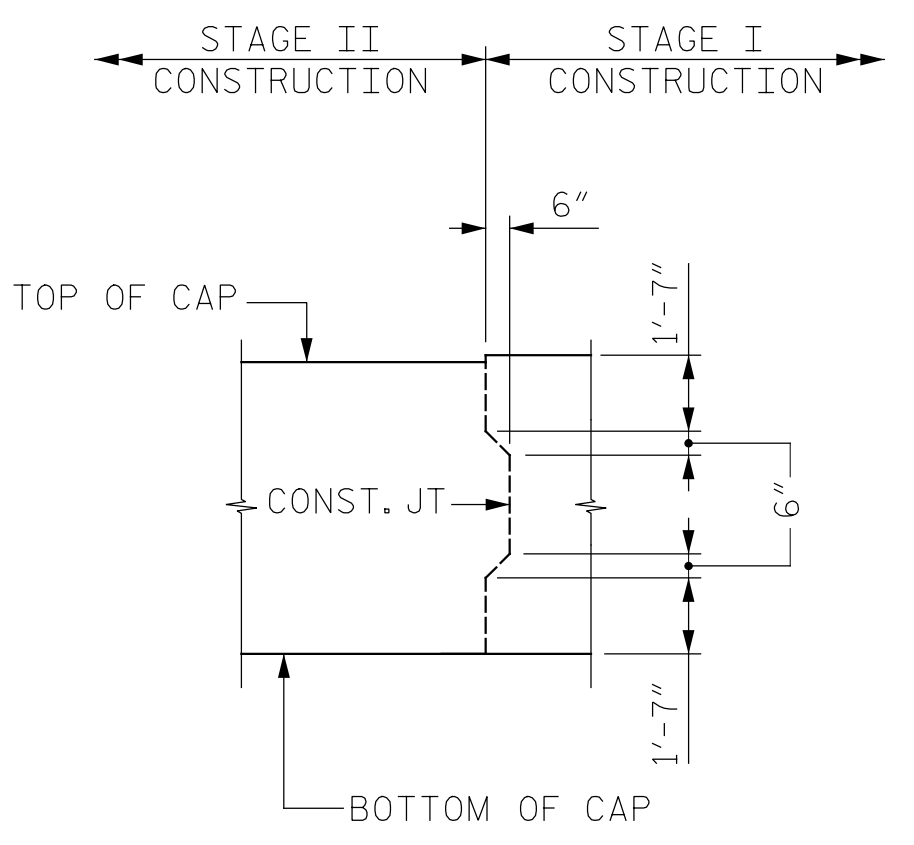


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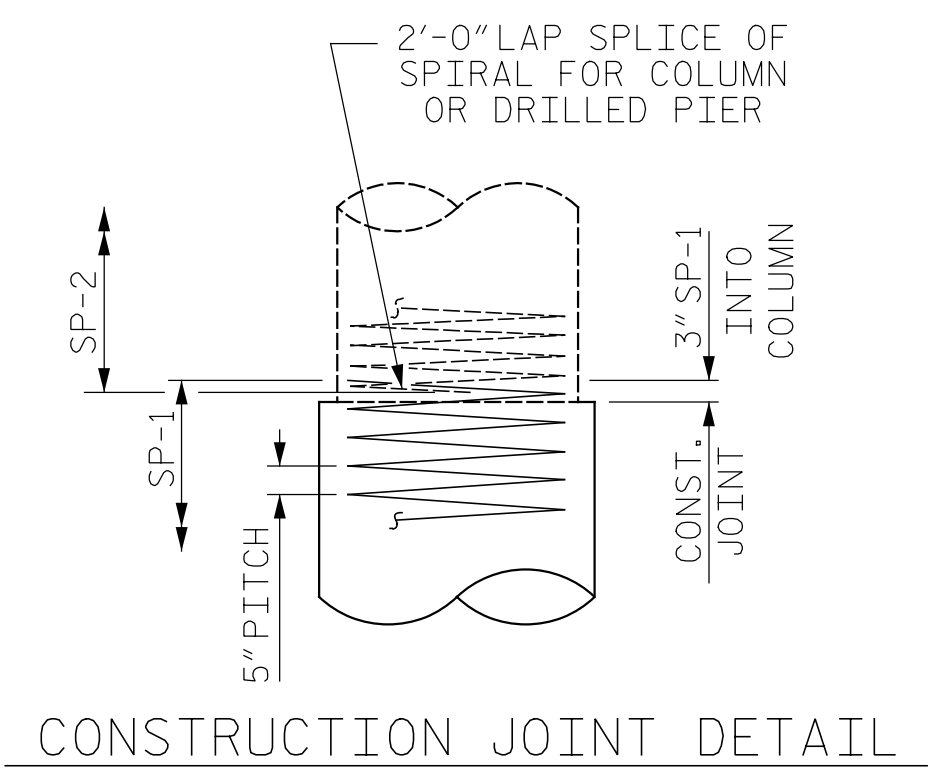


ELEVATION



SHEAR KEY DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE ELEVATION VIEW FOR LOCATION OF SHEAR KEY. REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.

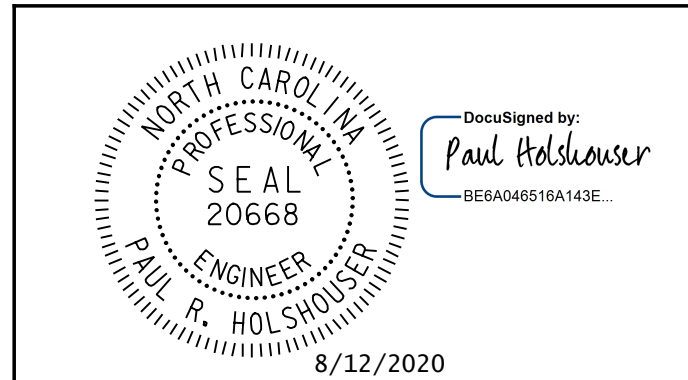


CONSTRUCTION JOINT DETAIL

NOTES:
 FOR "SECTION A-A" & "SECTION B-B", SEE SHEET 3 OF 3.
 FOR "VIEW Y-Y", SEE SHEET 3 OF 3.
 FOR NOTES, SEE SHEET 3 OF 3.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 3 DETAILS



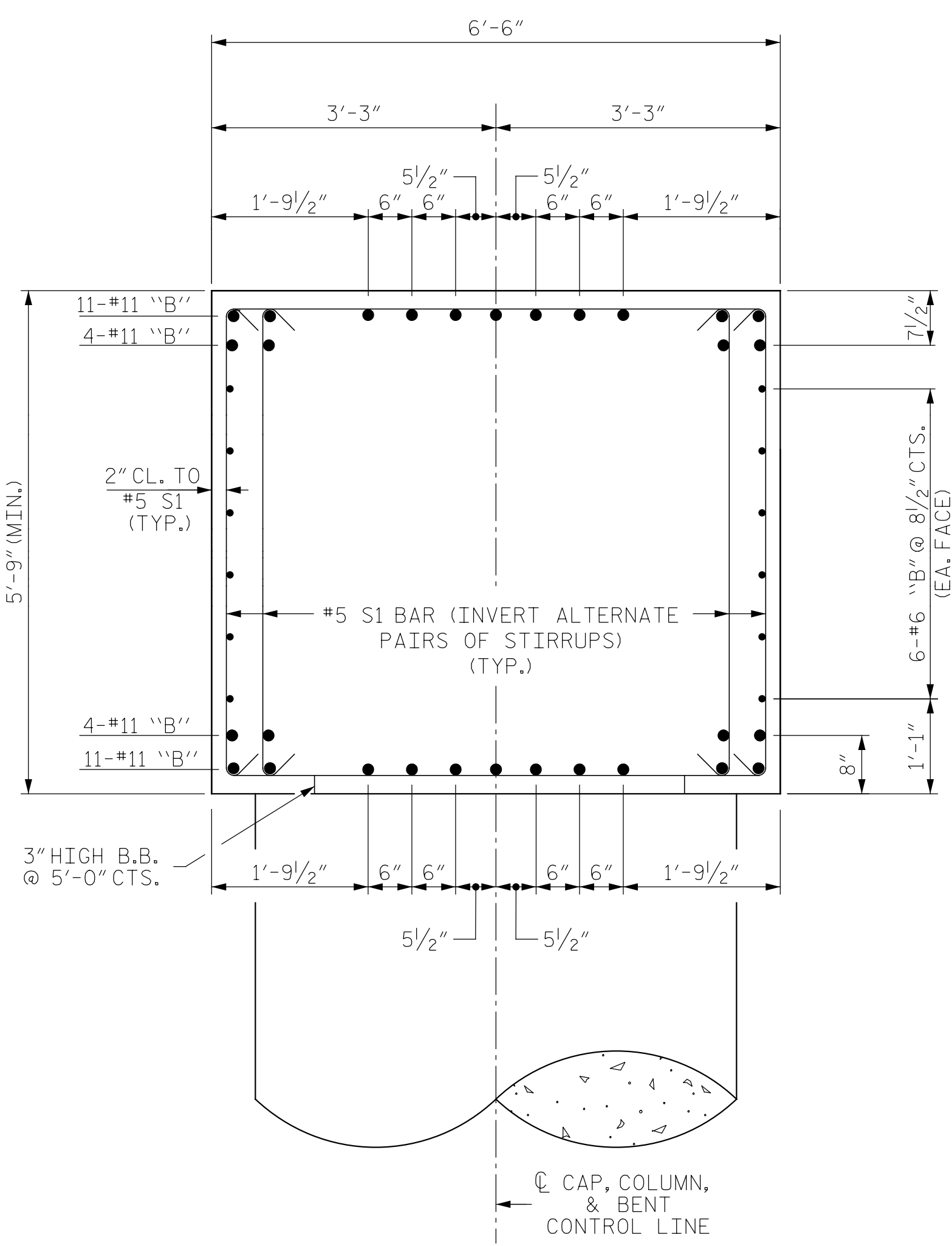
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-80
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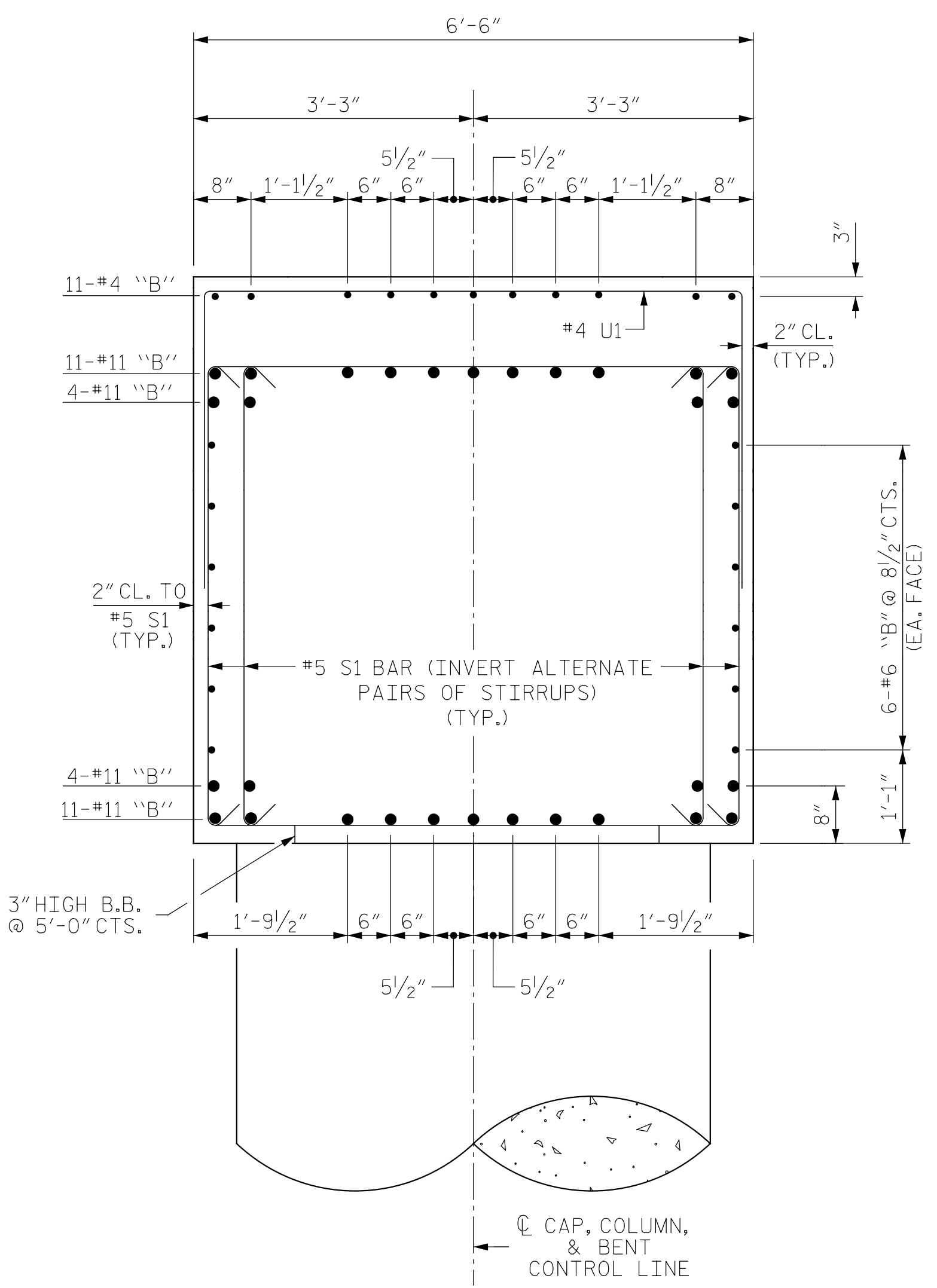
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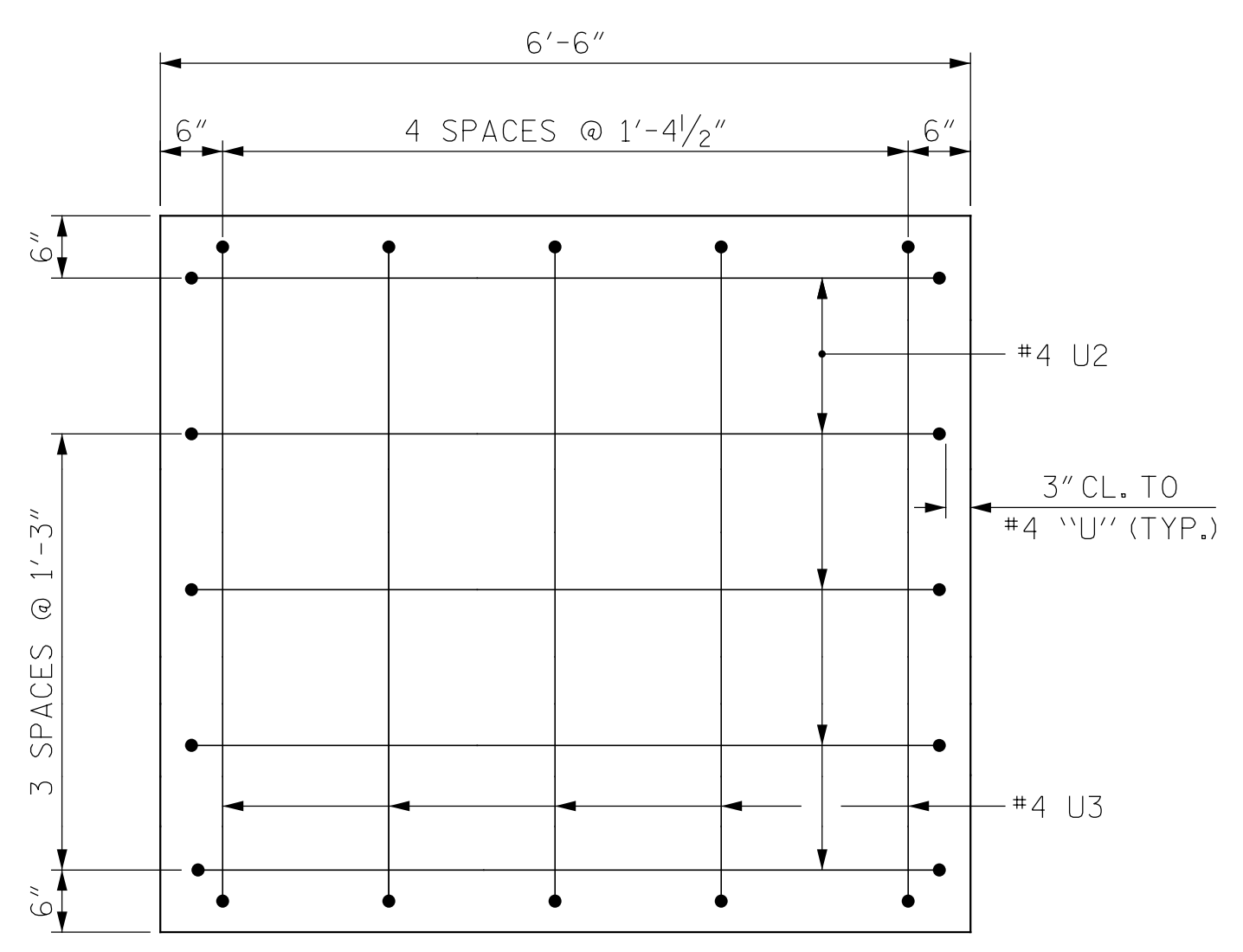
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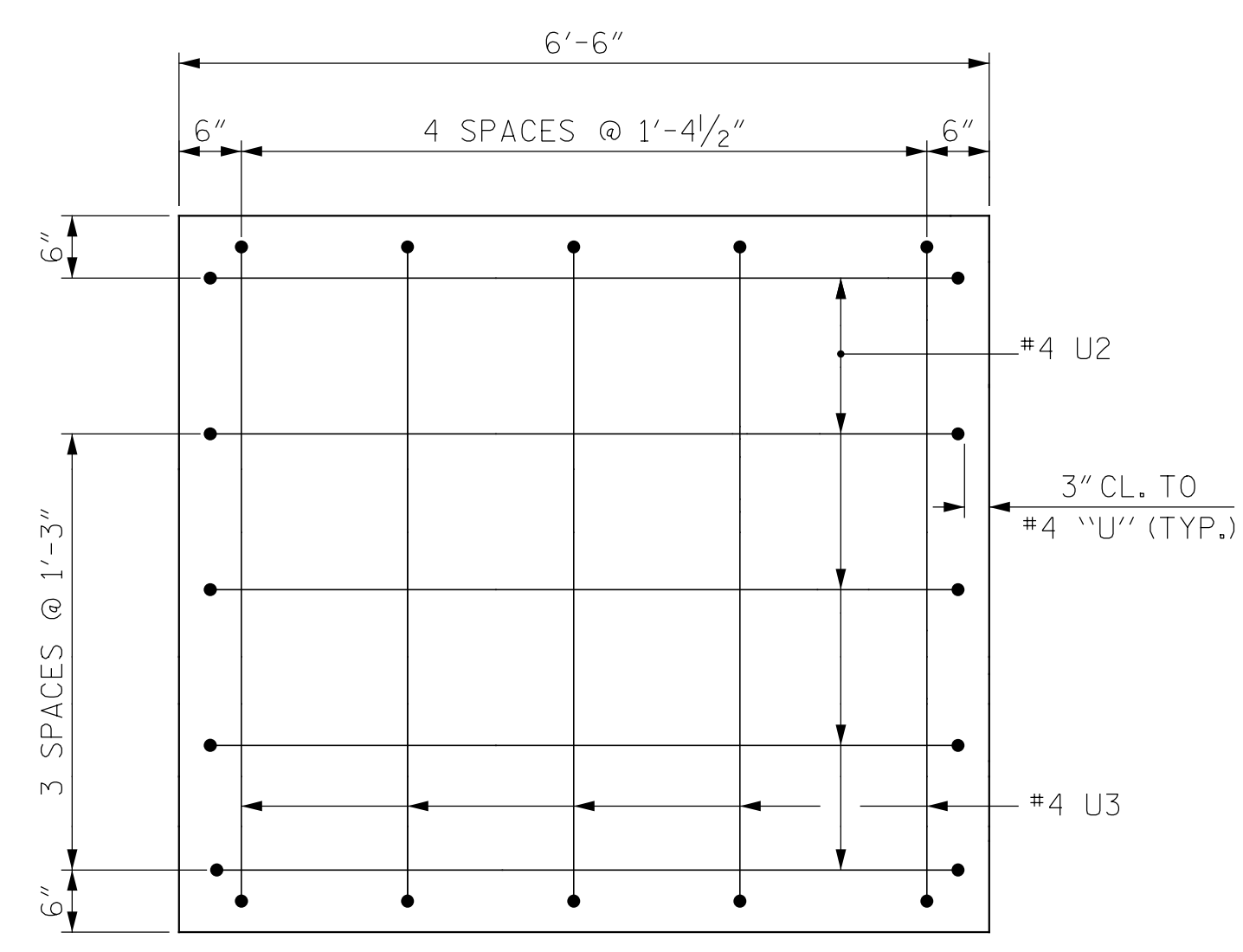
SECTION A-A



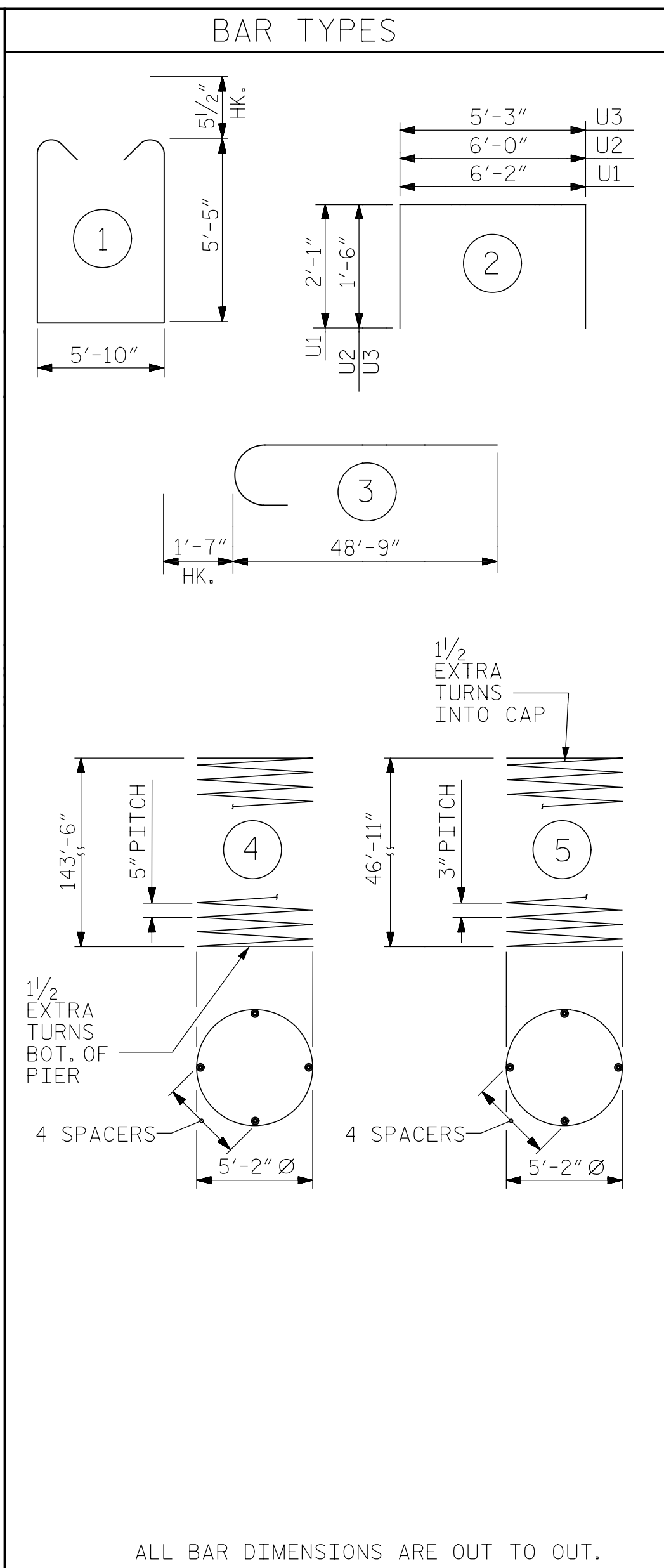
SECTION B-B
(STEPS NOT SHOWN FOR CLARITY)



VIEW X-X
(STAGE I CONSTRUCTION)



VIEW Y-Y
(STAGE II CONSTRUCTION)



ALL BAR DIMENSIONS ARE OUT TO OUT.
 * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

NOTES:

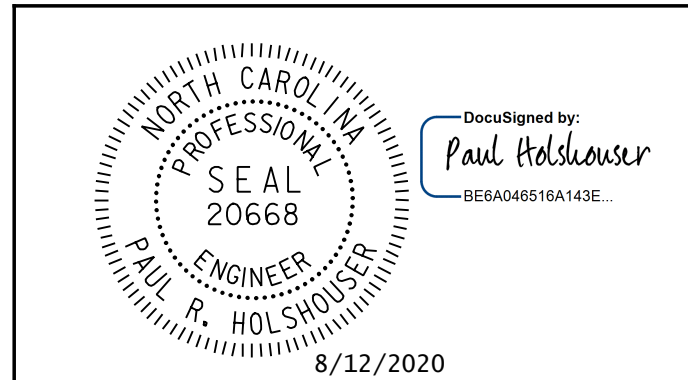
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 THE TOP SURFACE AREAS OF THE BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING," SHEET 4 OF 7.
 THE CONTRACTOR HAS THE OPTION TO POUR THE ENTIRE CAP IN STAGE I. NO PARTIAL DEMOLITION OF THE EXISTING BRIDGE 080017 WILL BE ALLOWED.

BILL OF MATERIAL											
BENT 3 - STAGE I					BENT 3 - STAGE II						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	30	11	STR	58' - 9"	9,364	B6	30	11	STR	22' - 5"	3,573
B2	12	6	STR	55' - 9"	1,005	B7	12	6	STR	22' - 6"	406
B3	11	4	STR	14' - 4"	105	B8	11	4	STR	13' - 10"	102
B4	22	4	STR	9' - 0"	132						
B5	11	4	STR	11' - 6"	85	S1	84	5	1	17' - 7"	1,541
M1	336	11	STR	53' - 11"	96,250	U1	35	4	2	10' - 4"	242
S1	172	5	1	17' - 7"	3,154	U2	5	4	2	9' - 0"	30
U1	74	4	2	10' - 4"	511	U3	5	4	2	8' - 3"	28
U2	5	4	2	9' - 0"	30	REINFORCING STEEL		LBS.		5,922	
U3	5	4	2	8' - 3"	28	CLASS "A" CONCRETE BREAKDOWN					
V1	112	11	3	50' - 4"	29,951	POUR #3 - CAP		C.Y.		33.0	
* SP-1	4	5	4	5555' - 9"	23,179	TOTAL CLASS "A" CONCRETE		C.Y.		33.0	
** SP-2	4	4	5	3048' - 5"	8,145	REINFORCING STEEL		LBS.		140,615	
SPIRAL COLUMN REINFORCING STEEL		LBS.		31,324	CLASS "A" CONCRETE BREAKDOWN						
POUR #2 - COLUMNS		C.Y.		164.2	POUR #3 - CAP		C.Y.		76.7		
TOTAL CLASS "A" CONCRETE		C.Y.		240.9	DRILLED PIERS						
POUR #1 - DRILLED PIERS		C.Y.		603.2	6'-0" Ø DRILLED PIERS LIN. FT.		576.0				
PERMANENT STEEL CASING FOR 6'-0" Ø DRILLED PIERS		LIN. FT.		136.0	SID INSPECTIONS		EA.		2		
CSL TUBES		LIN. FT.		3528.0	CSL TESTING		EA.		4		

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DRAWN BY : B. J. MANTEI DATE : 5-20-20
 CHECKED BY : N. D'AIUTO DATE : 7-17-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

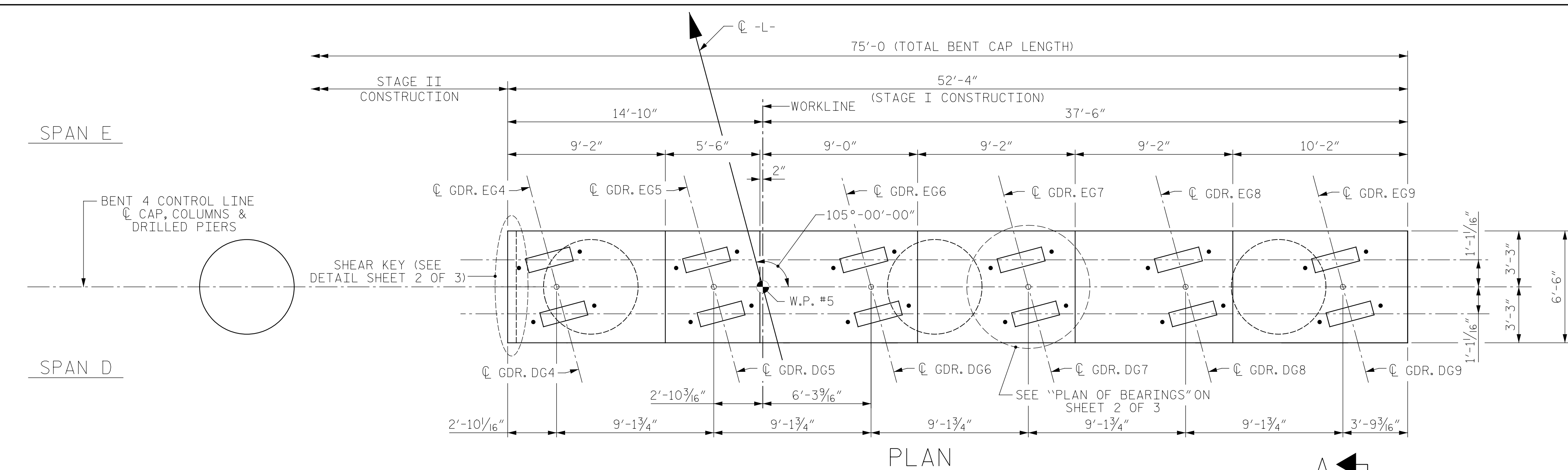
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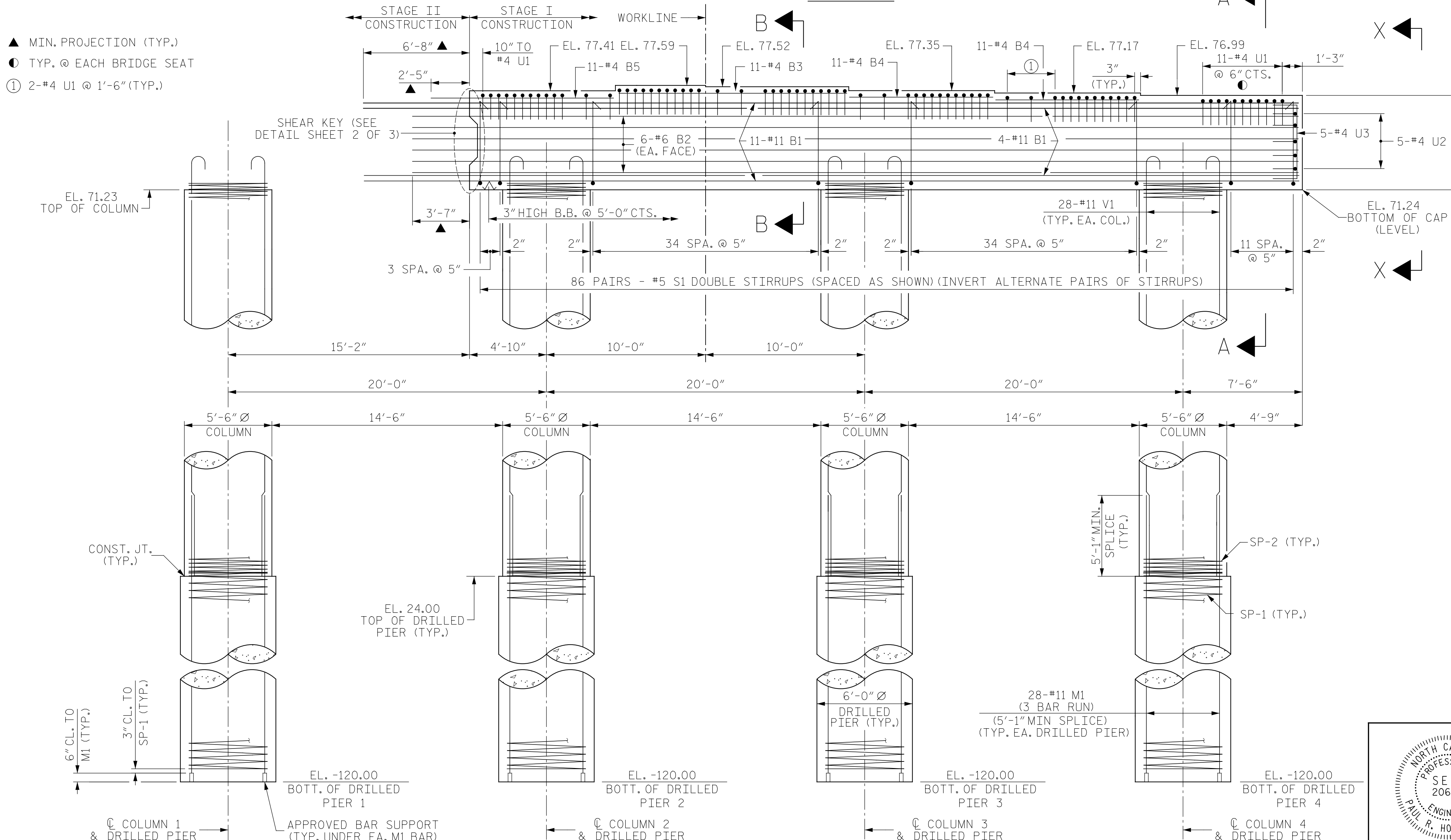
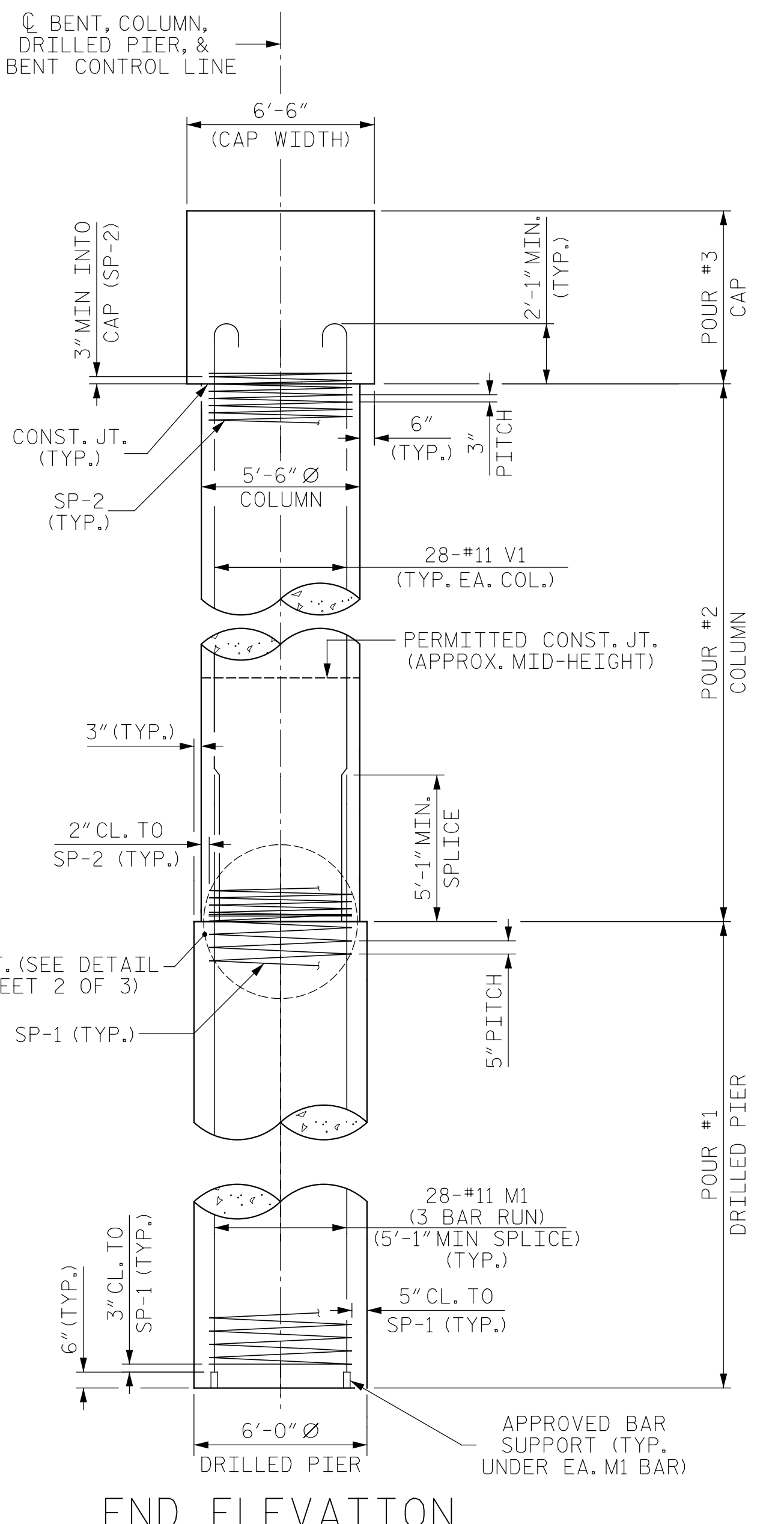
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 Phone: 919-822-0333
 License #: P-0999

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-81
1			3			TOTAL SHEETS
2			4			107



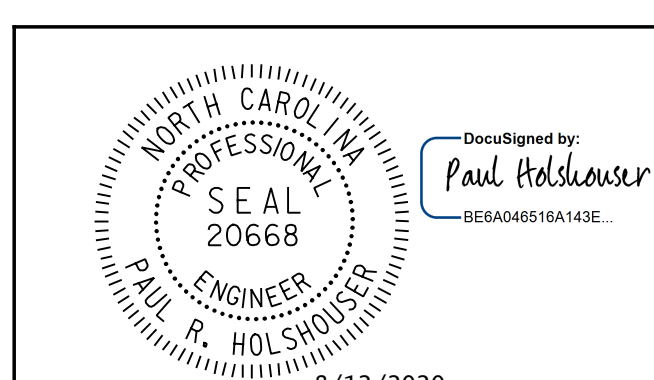
NOTES:
 FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 3 OF 3.
 FOR "VIEW X-X", SEE SHEET 3 OF 3
 FOR NOTES, SEE SHEET 3 OF 3.



- ▲ MIN. PROJECTION (TYP.)
- TYP. @ EACH BRIDGE SEAT
- ① 2-#4 U1 @ 1'-6" (TYP.)

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENT 4
 PLAN & ELEVATION
 STAGE I CONSTRUCTION



DRAWN BY: B. J. MANTEI DATE: 5-17-20
 CHECKED BY: N. D'AIUTO DATE: 7-17-20
 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

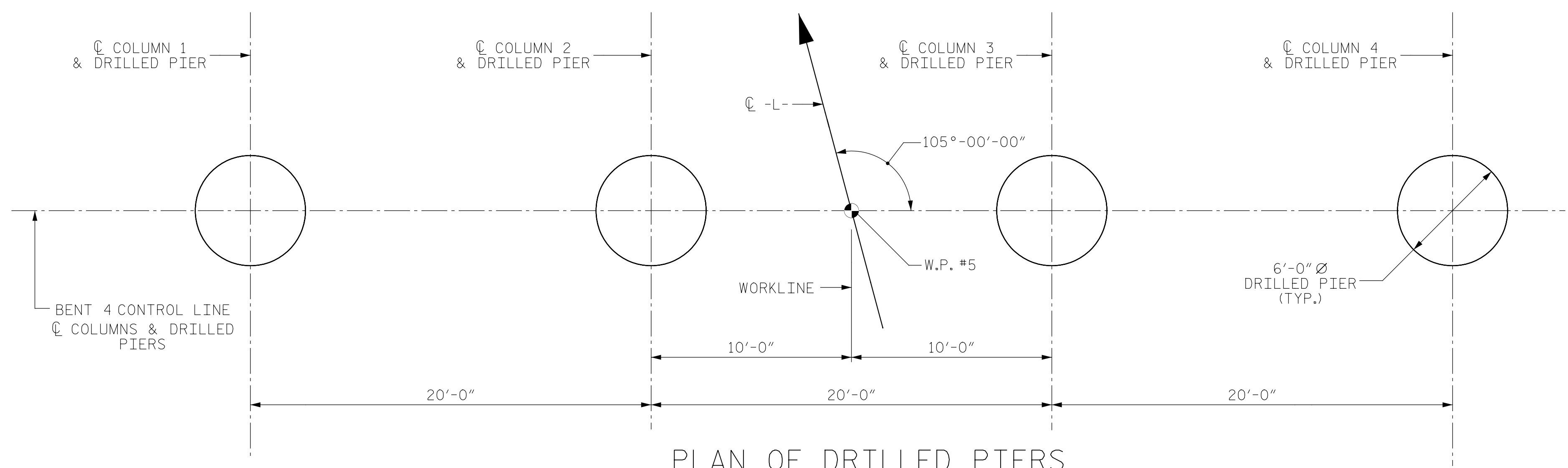
ALL DIMENSIONS AND DETAILS SHOWN FOR DRILLED PIERS ARE TYPICAL FOR EACH PIER UNLESS OTHERWISE NOTED.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NO.	BY:	DATE:	NO.
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2			4

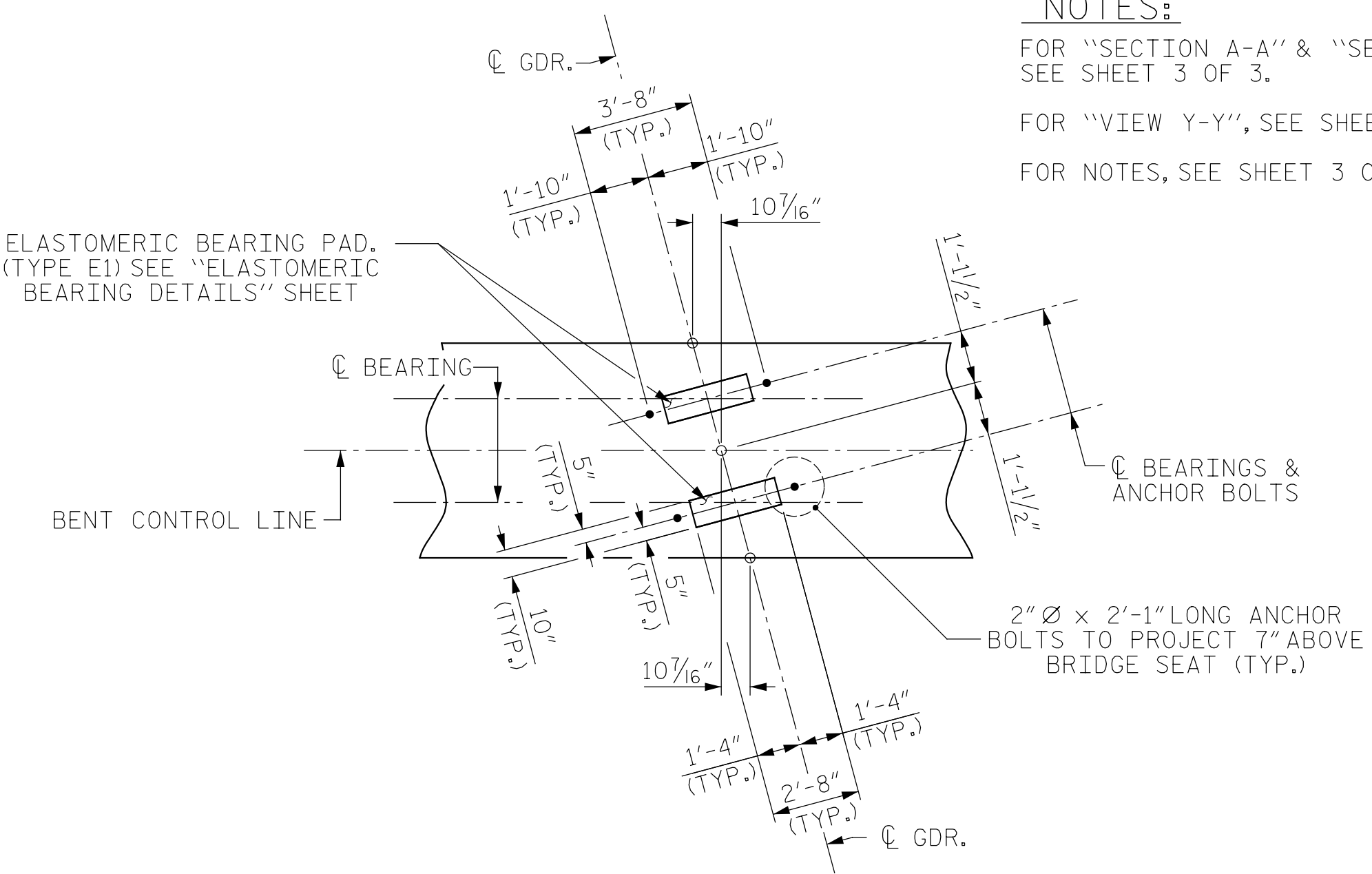
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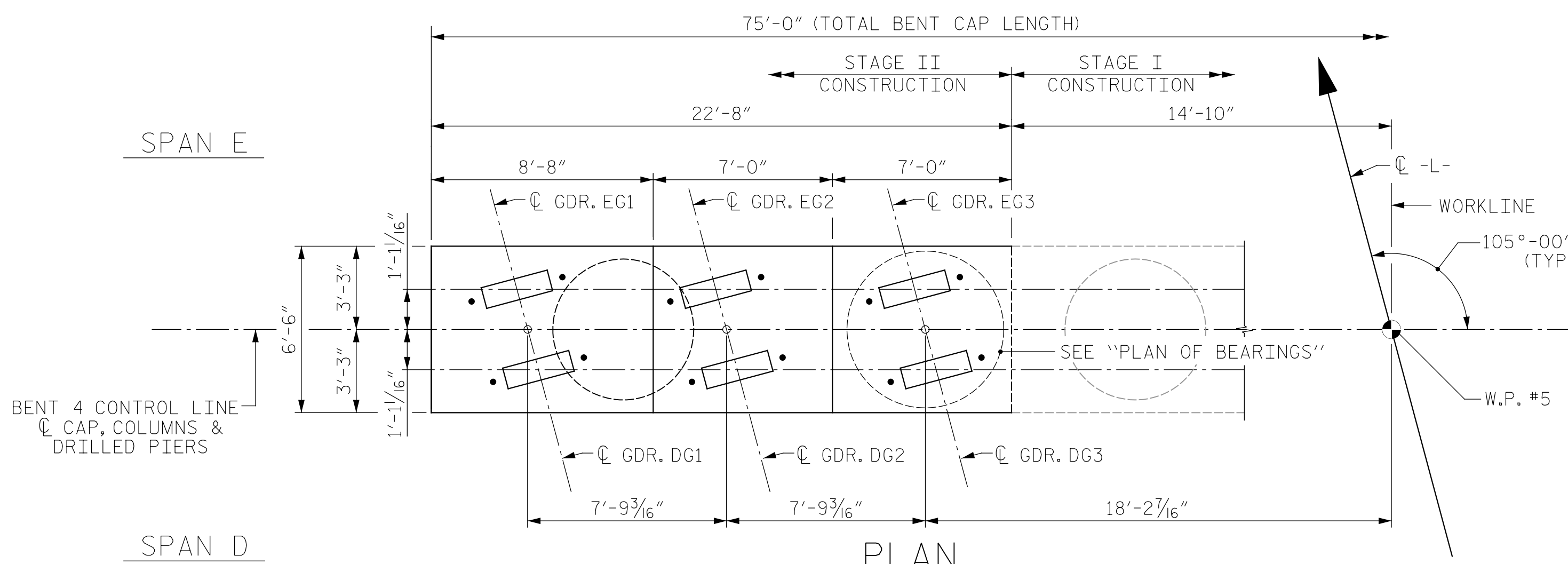
PLAN OF DRILLED PIERS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR DRILLED PIERS UNLESS NOTED OTHERWISE

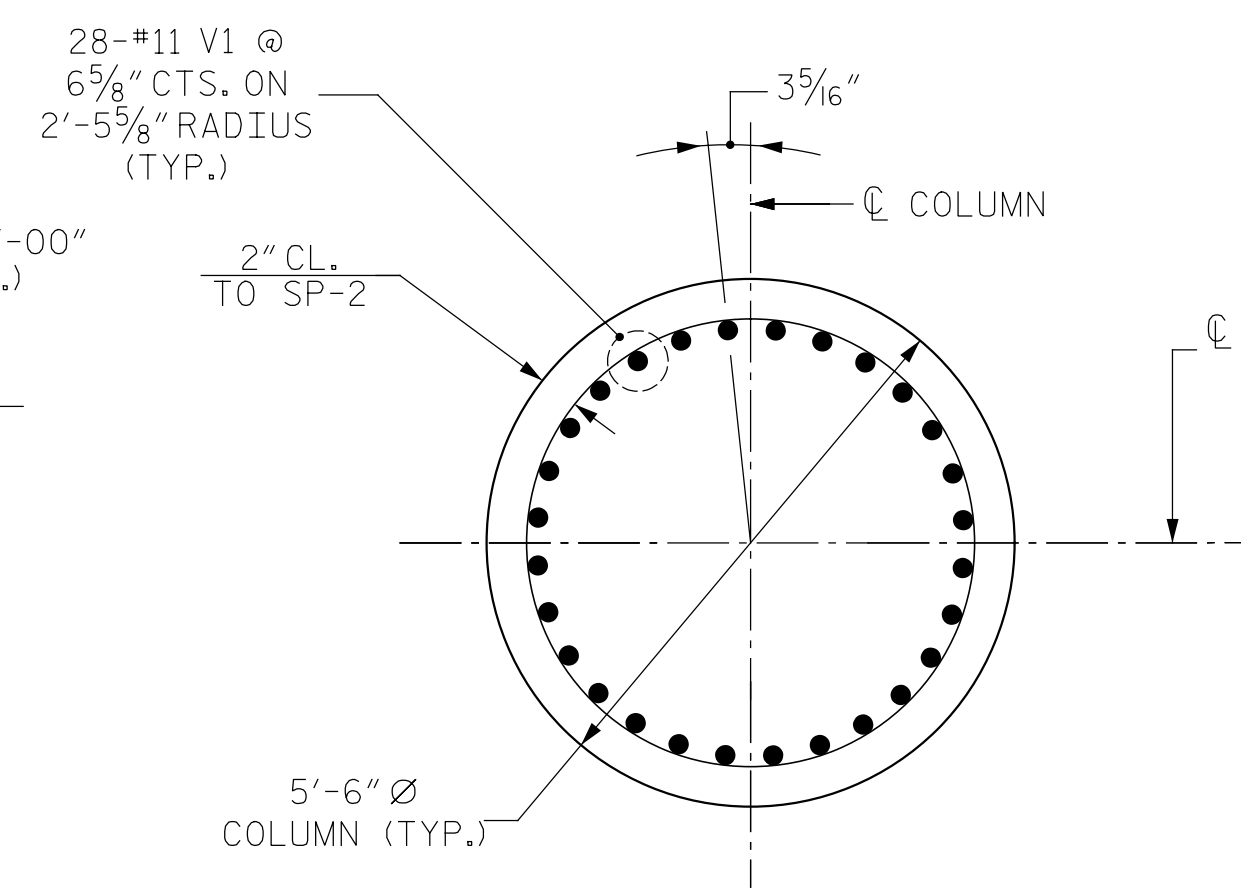


PLAN OF BEARINGS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

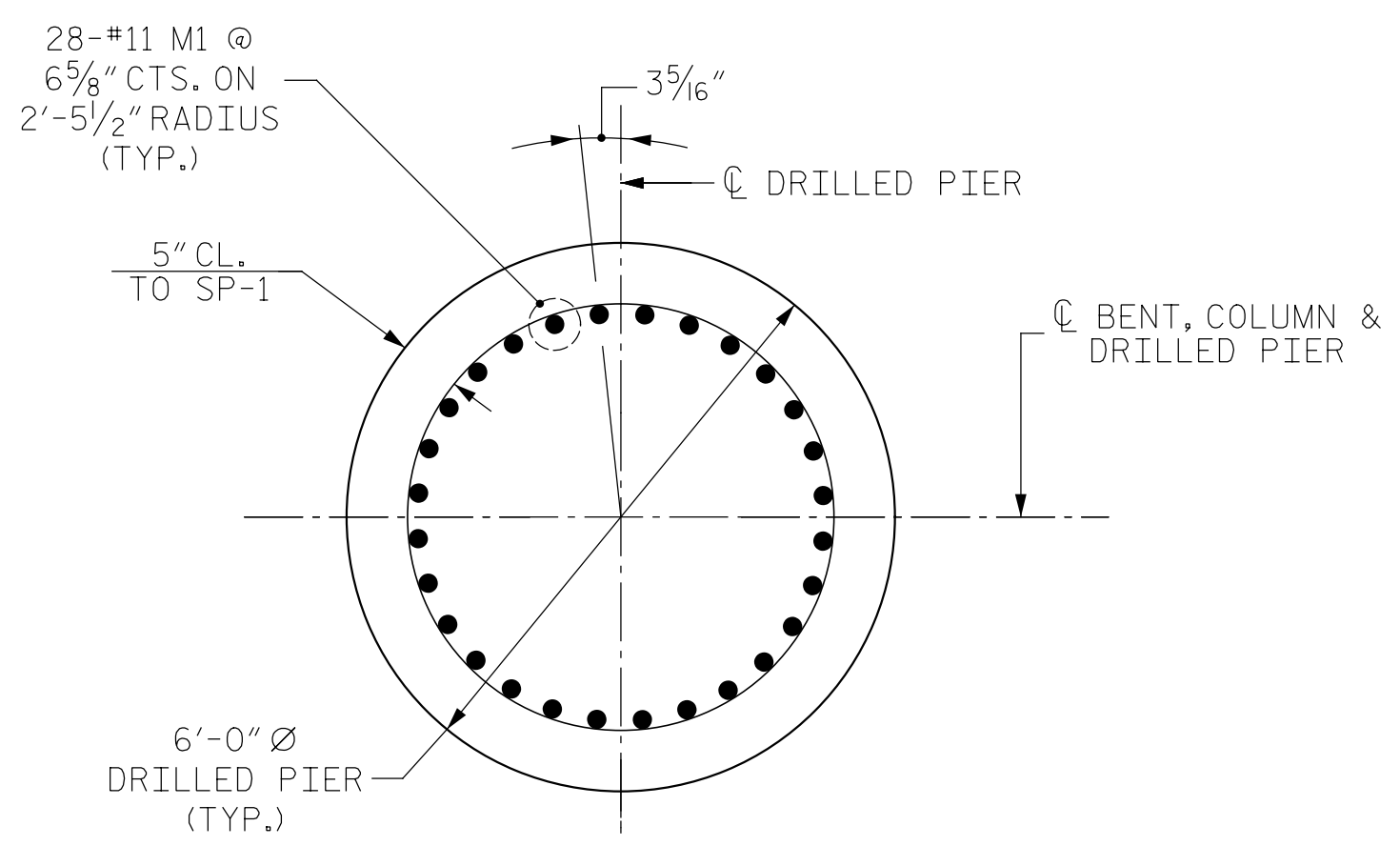


PLAN



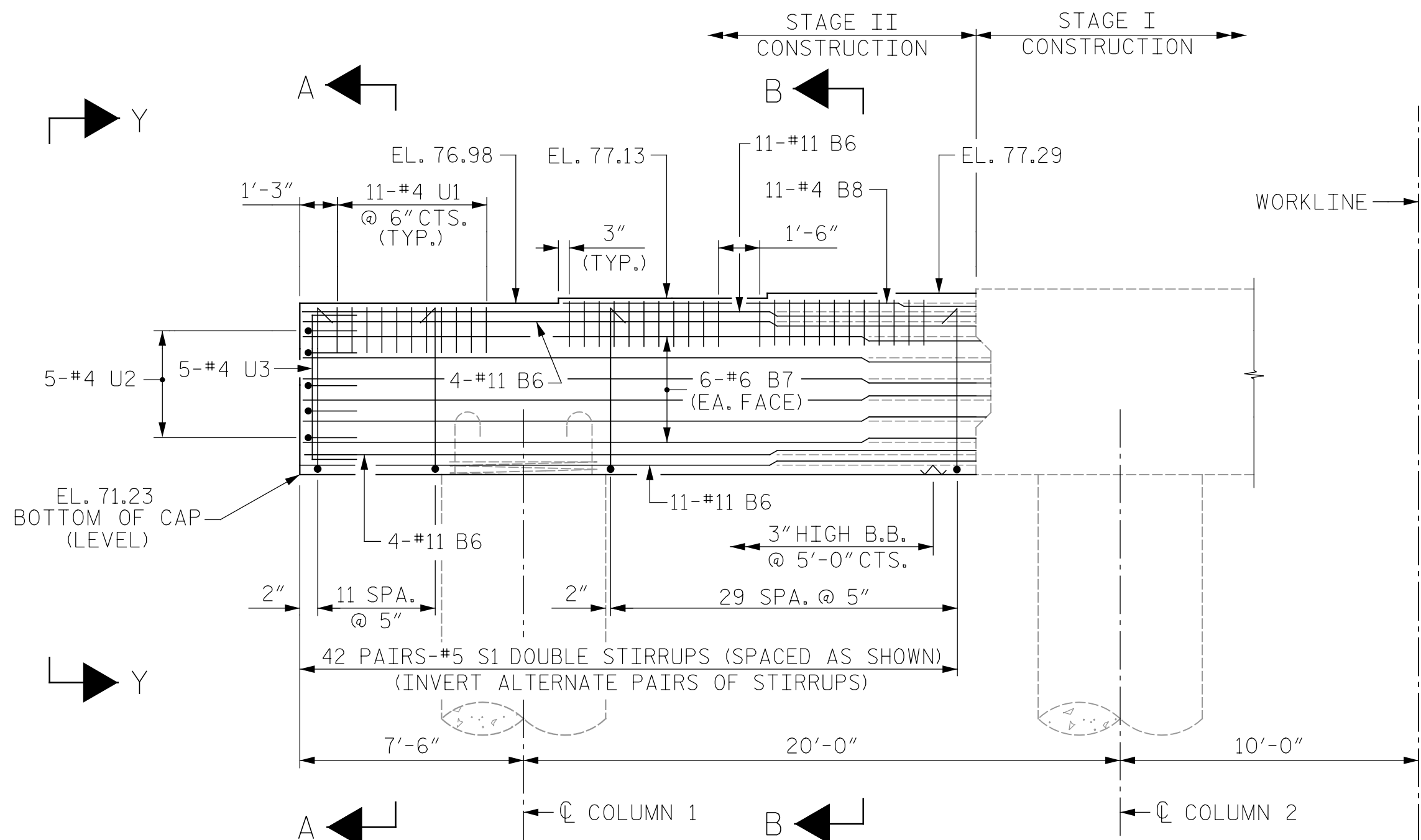
SECTION THRU COLUMN

(TYP. EA. COLUMN)

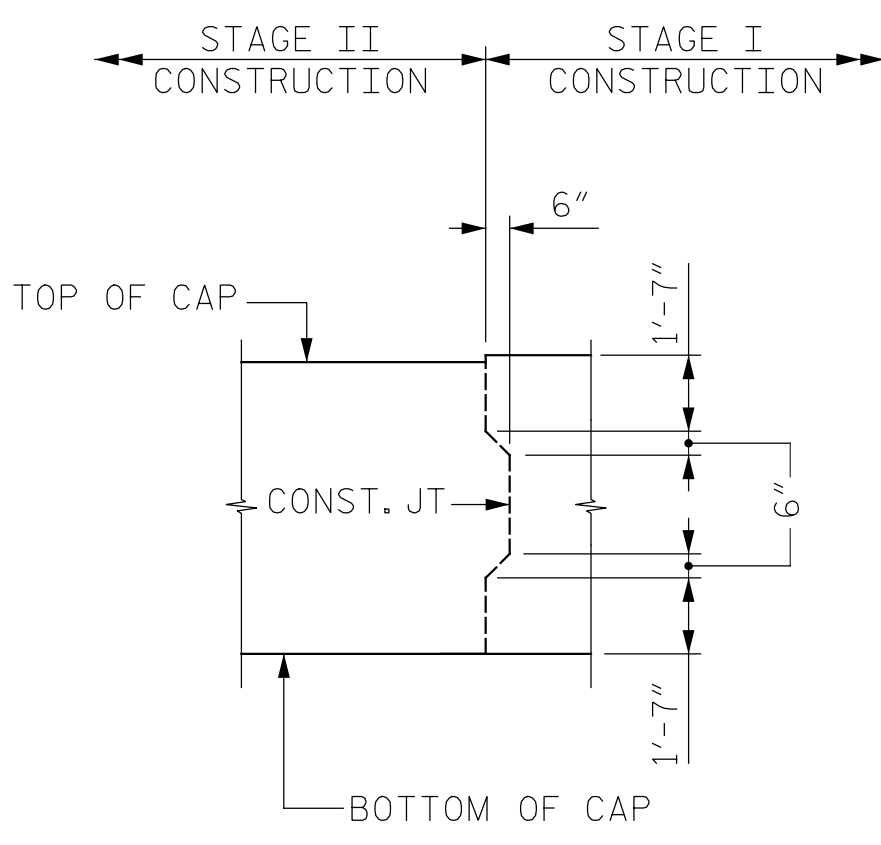


SECTION THRU DRILLED PIER

(TYP. EA. DRILLED PIER)

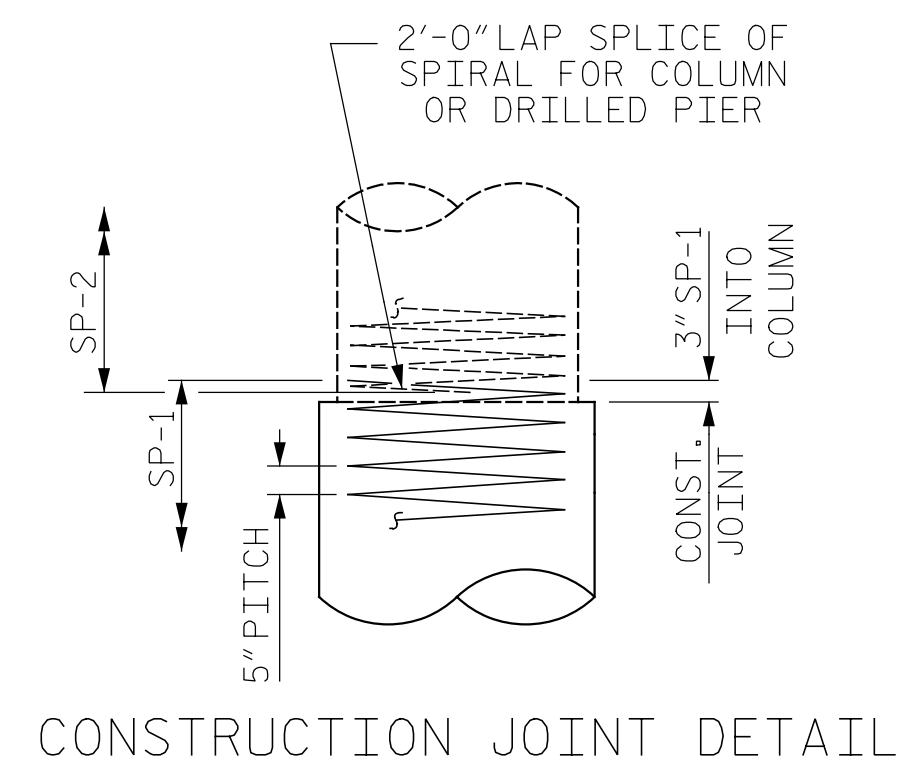


ELEVATION



SHEAR KEY DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE ELEVATION VIEW FOR LOCATION OF SHEAR KEY. REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.

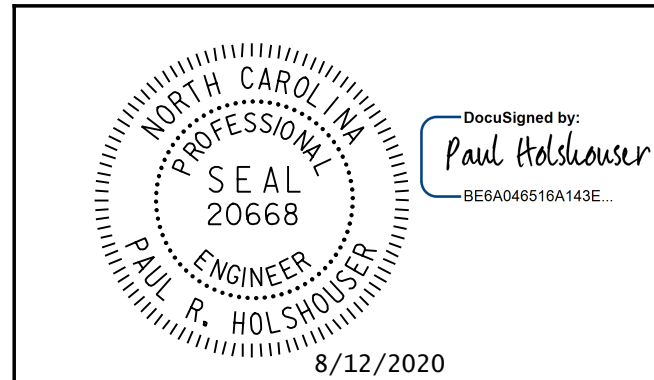


CONSTRUCTION JOINT DETAIL

NOTES:
 FOR "SECTION A-A" & "SECTION B-B", SEE SHEET 3 OF 3.
 FOR "VIEW Y-Y", SEE SHEET 3 OF 3.
 FOR NOTES, SEE SHEET 3 OF 3.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 4 DETAILS



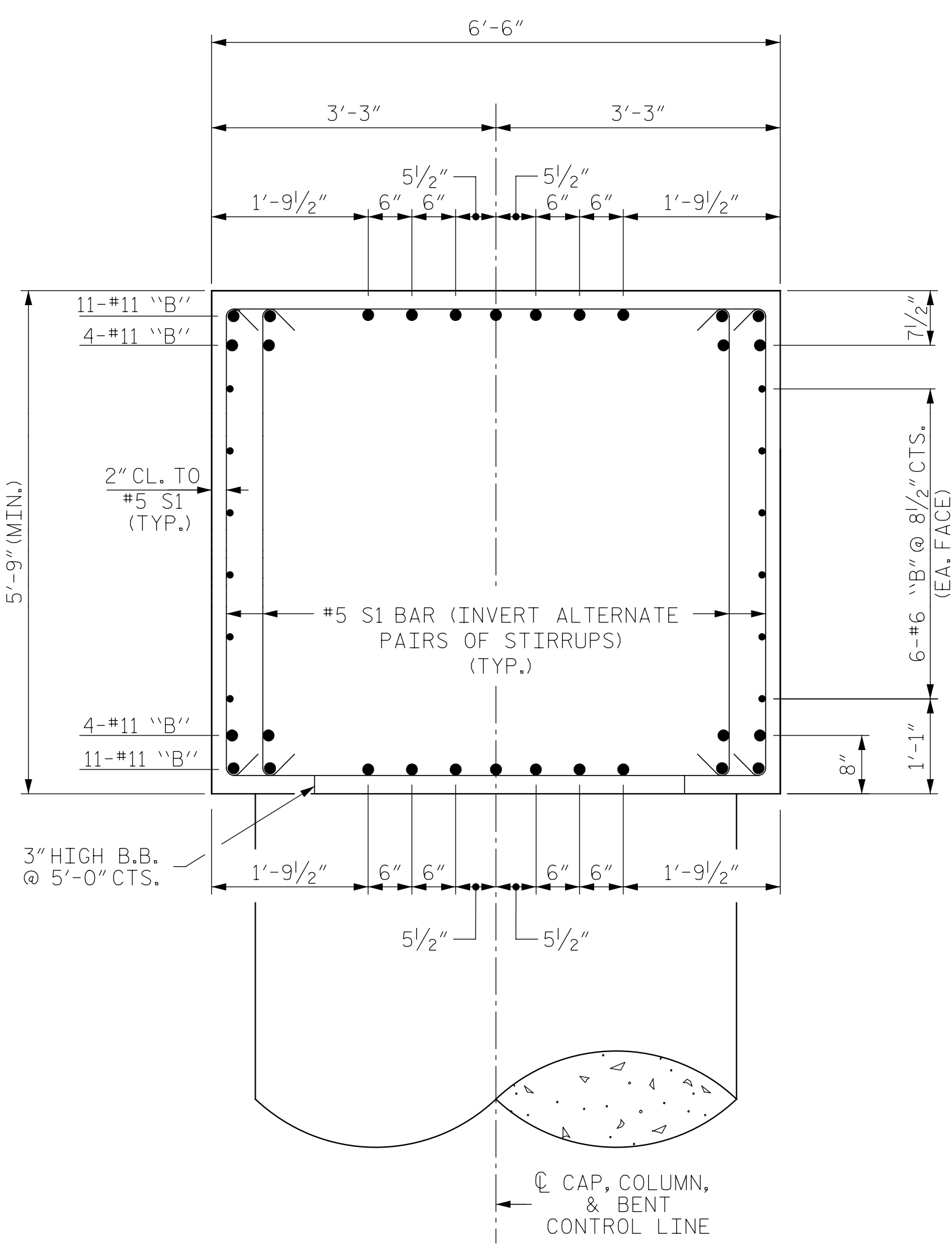
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 Phone: 919-822-0333
 License #: P-0999

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-83
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2			4			107

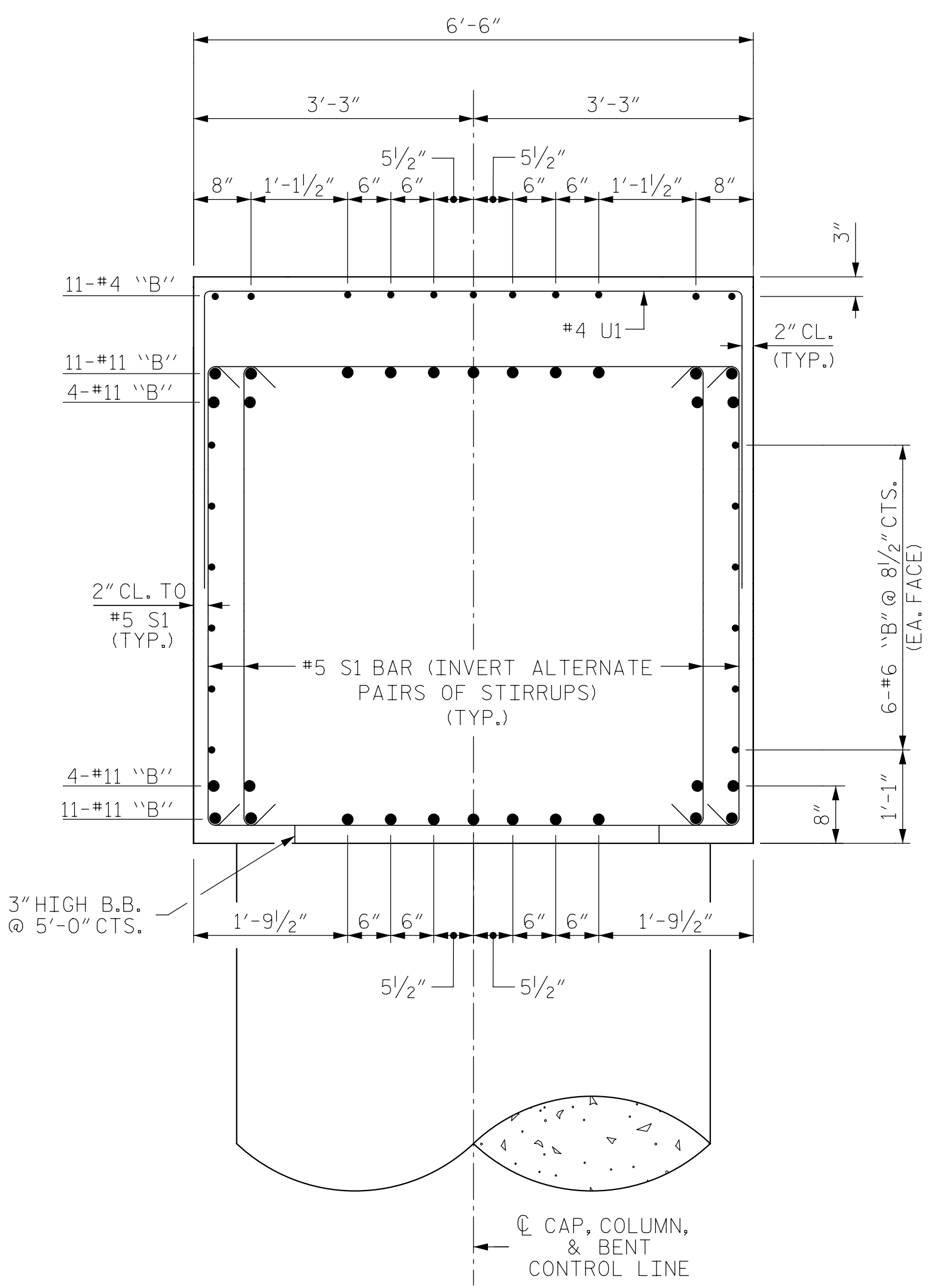
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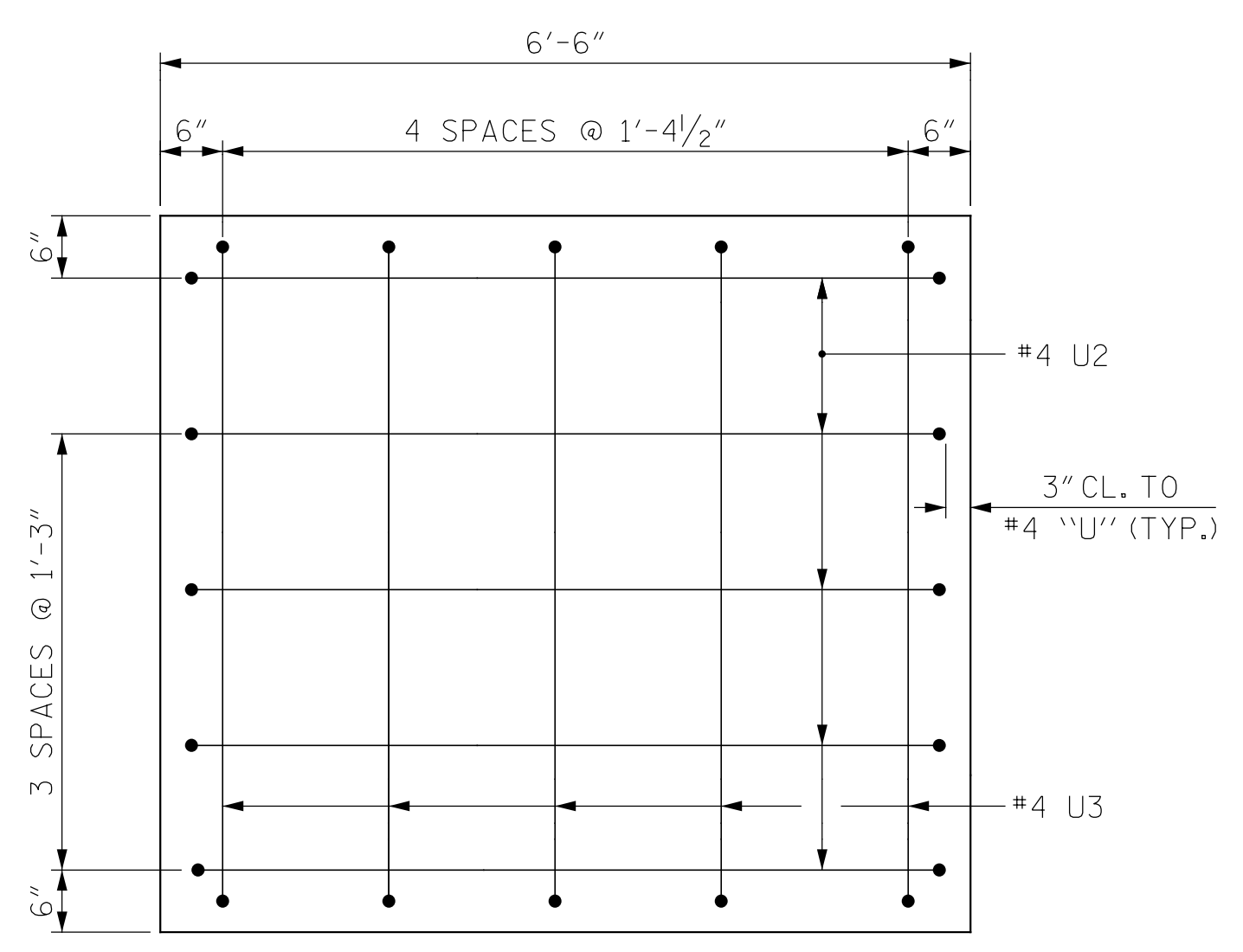
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 DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20



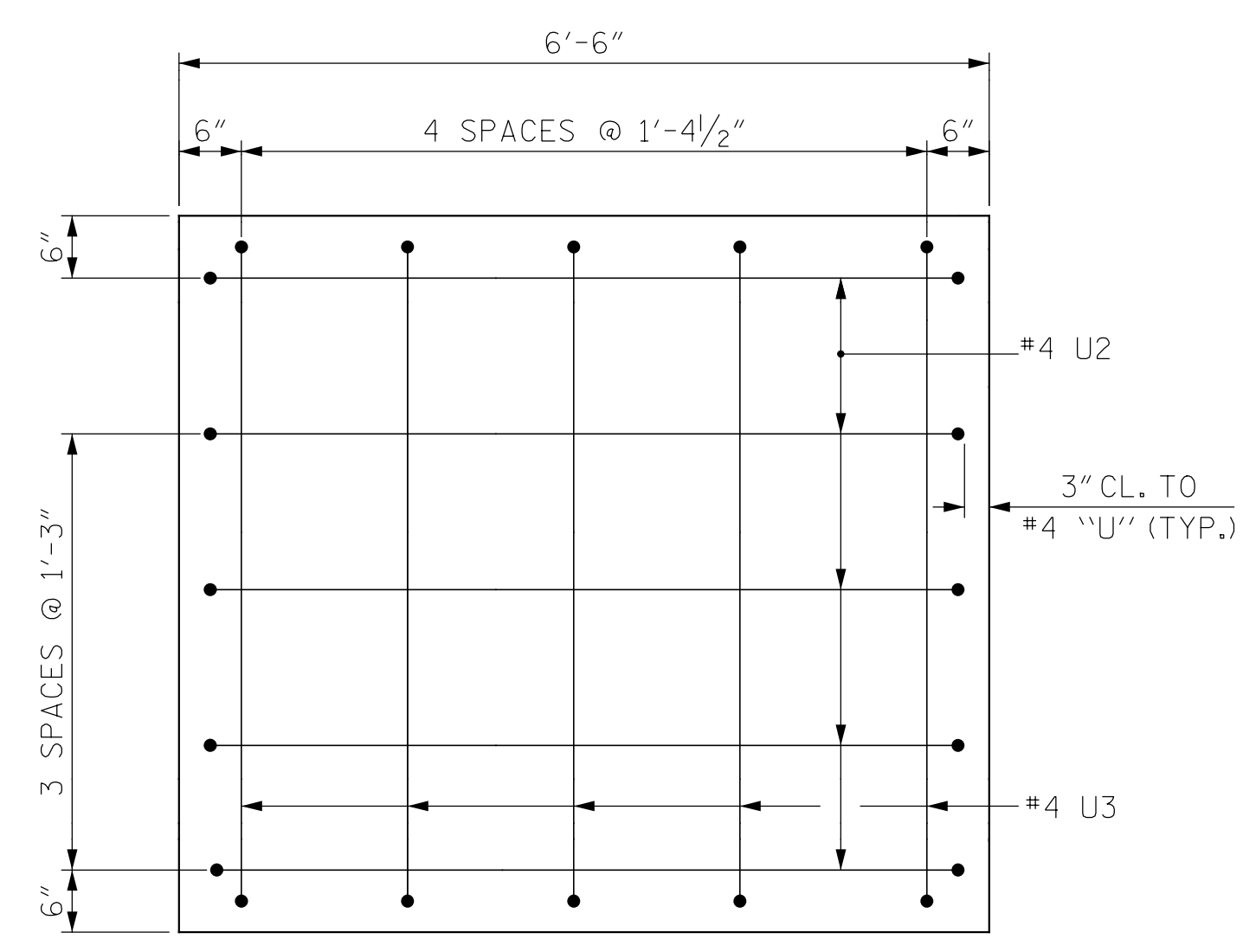
SECTION A-A



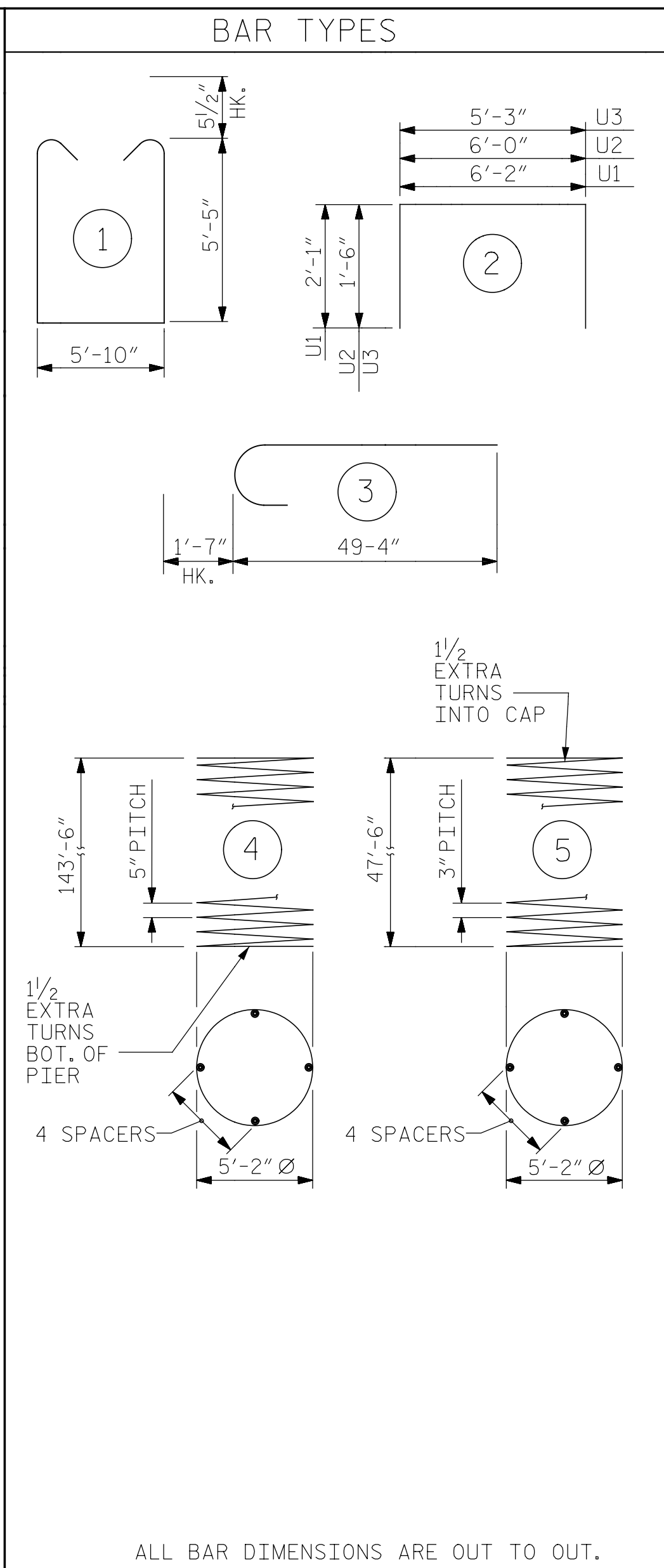
SECTION B-B
(STEPS NOT SHOWN FOR CLARITY)



VIEW X-X
(STAGE I CONSTRUCTION)



VIEW Y-Y
(STAGE II CONSTRUCTION)



ALL BAR DIMENSIONS ARE OUT TO OUT.

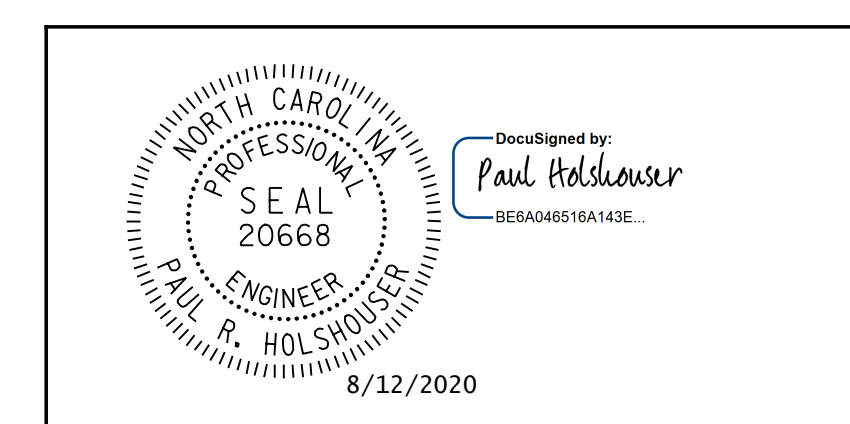
BILL OF MATERIAL												
BENT 4 - STAGE I					BENT 4 - STAGE II							
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT			
B1	30	11	STR	58' - 9"	9,364	B6	30	11	STR	22' - 5"	3,573	
B2	12	6	STR	55' - 9"	1,005	B7	12	6	STR	22' - 6"	406	
B3	11	4	STR	14' - 4"	105	B8	11	4	STR	13' - 10"	102	
B4	22	4	STR	9' - 0"	132							
B5	11	4	STR	11' - 6"	85	S1	84	5	1	17' - 7"	1,541	
M1	336	11	STR	53' - 11"	96,250	U1	35	4	2	10' - 4"	242	
S1	172	5	1	17' - 7"	3,154	U2	5	4	2	9' - 0"	30	
						U3	5	4	2	8' - 3"	28	
U1	74	4	2	10' - 4"	511	REINFORCING STEEL		LBS.	5,922			
U2	5	4	2	9' - 0"	30	CLASS "A" CONCRETE BREAKDOWN						
U3	5	4	2	8' - 3"	28	V1	112	11	3	50' - 11"	30,298	
* SP-1	4	5	4	5555' - 9"	23,179	POUR #3 - CAP		C.Y.	32.4			
** SP-2	4	4	5	3080' - 7"	8,231	TOTAL CLASS "A" CONCRETE C.Y. 32.4						
REINFORCING STEEL				LBS.	140,962	SPIRAL COLUMN REINFORCING STEEL						
SPIRAL COLUMN REINFORCING STEEL				LBS.	31,410	CLASS "A" CONCRETE BREAKDOWN						
POUR #2 - COLUMNS				C.Y.	166.2	POUR #3 - CAP				C.Y.	76.3	
TOTAL CLASS "A" CONCRETE				C.Y.	242.5	DRILLED PIERS						
POUR #1 - DRILLED PIERS				C.Y.	603.2	6'-0" Ø DRILLED PIERS LIN. FT.				576.0		
PERMANENT STEEL CASING FOR 6'-0" Ø DRILLED PIERS				LIN. FT.	196.0	SID INSPECTIONS					EA.	2
CSL TUBES				LIN. FT.	3528.0	CSL TESTING					EA.	4

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

NOTES:

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR ADDITIONAL FOUNDATION NOTES, SEE "GENERAL DRAWING," SHEET 4 OF 7.
 THE CONTRACTOR HAS THE OPTION TO POUR THE ENTIRE CAP IN STAGE I. NO PARTIAL DEMOLITION OF THE EXISTING BRIDGE 080017 WILL BE ALLOWED.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 4
 SECTION & DETAILS

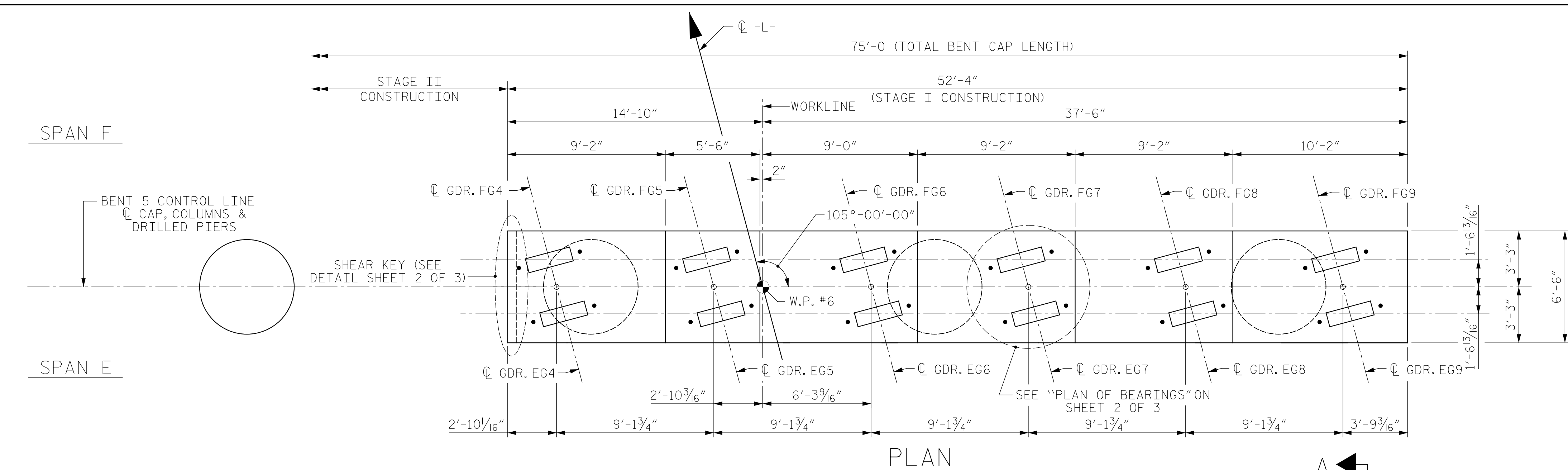
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 CHECKED BY : N. D'AIUTO DATE : 7-17-20
 DESIGN E.O.R. : P. R. HOLSHOUSER DATE : 7-23-20

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2			4			107

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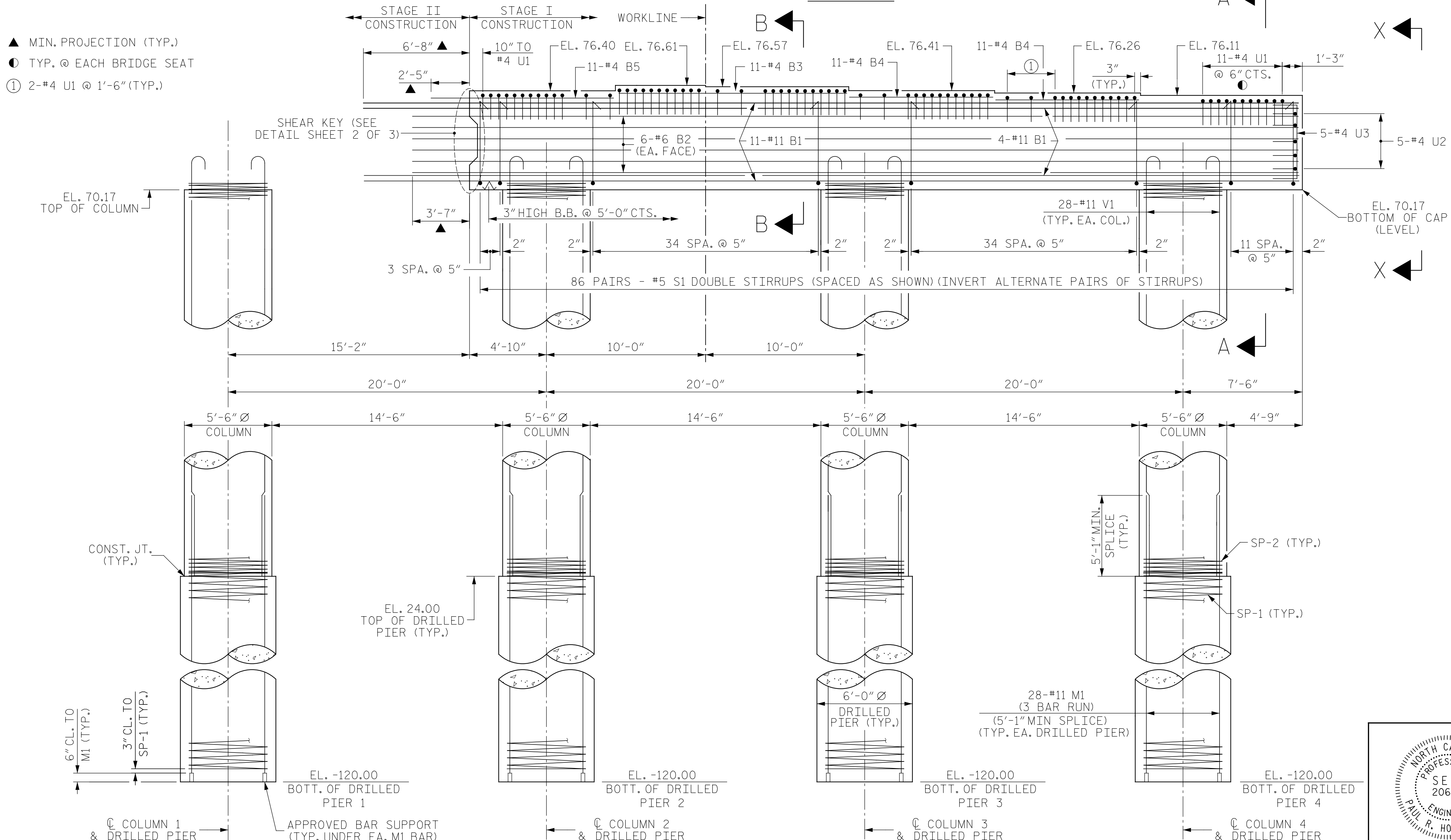
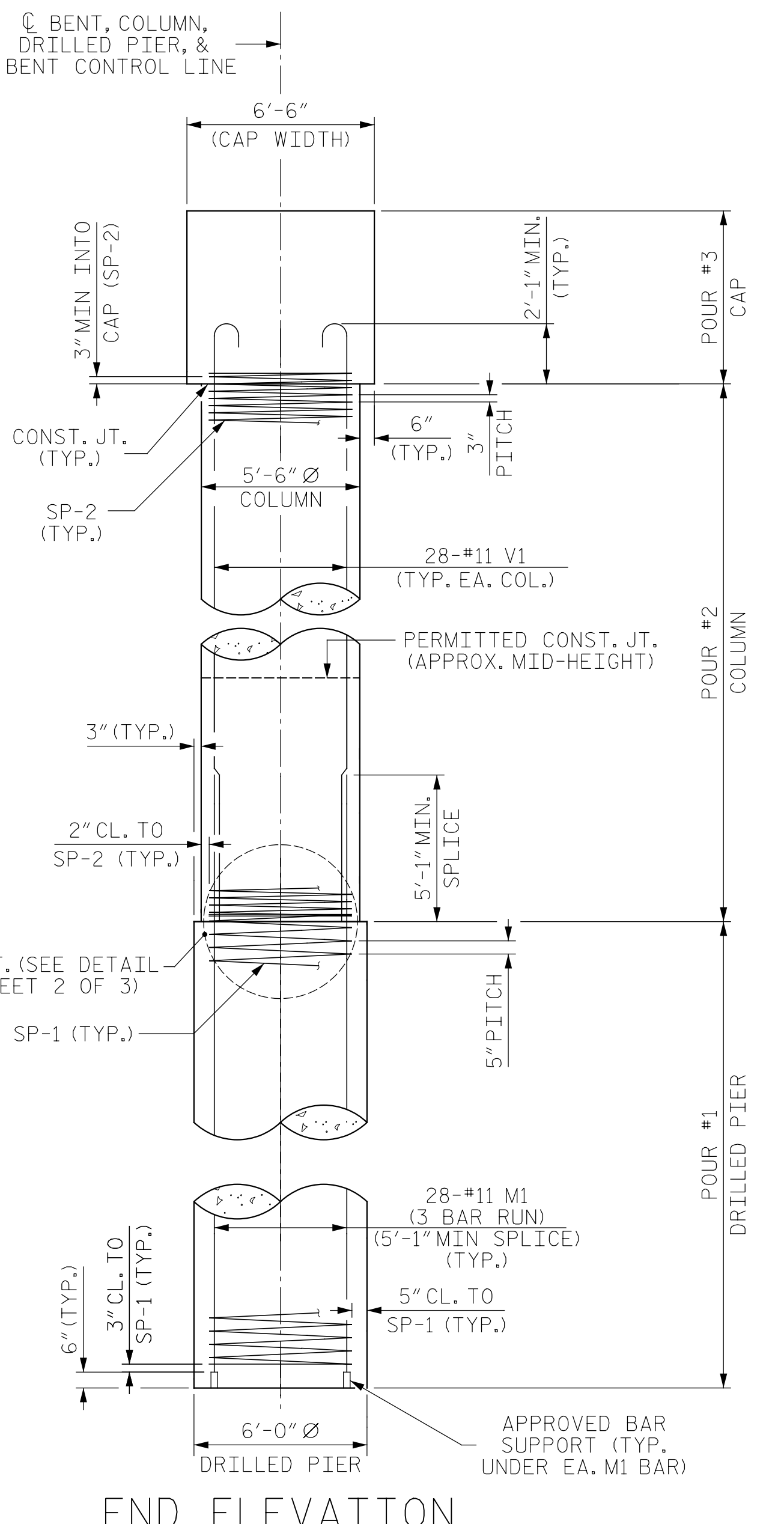


NOTES:

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

FOR "VIEW X-X", SEE SHEET 3 OF 3

FOR NOTES, SEE SHEET 3 OF 3.



- ▲ MIN. PROJECTION (TYP.)
- TYP. @ EACH BRIDGE SEAT
- ① 2-#4 U1 @ 1'-6" (TYP.)

PROJECT NO. 48793.3.1

BLADEN COUNTY

STATION: 118+81.78 -L-

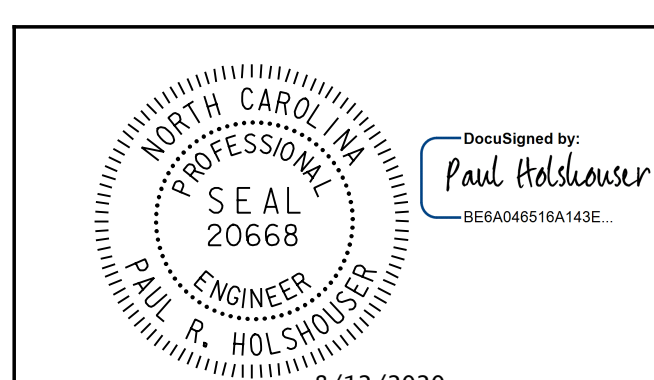
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 5
PLAN & ELEVATION

STAGE I CONSTRUCTION



DRAWN BY: B. J. MANTEI DATE: 5-17-20

CHECKED BY: N. D'AIUTO DATE: 7-17-20

DESIGN E.O.R.: P. R. HOLSHOUSER DATE: 7-23-20

ALL DIMENSIONS AND DETAILS SHOWN FOR DRILLED PIERS ARE TYPICAL FOR EACH PIER UNLESS OTHERWISE NOTED.

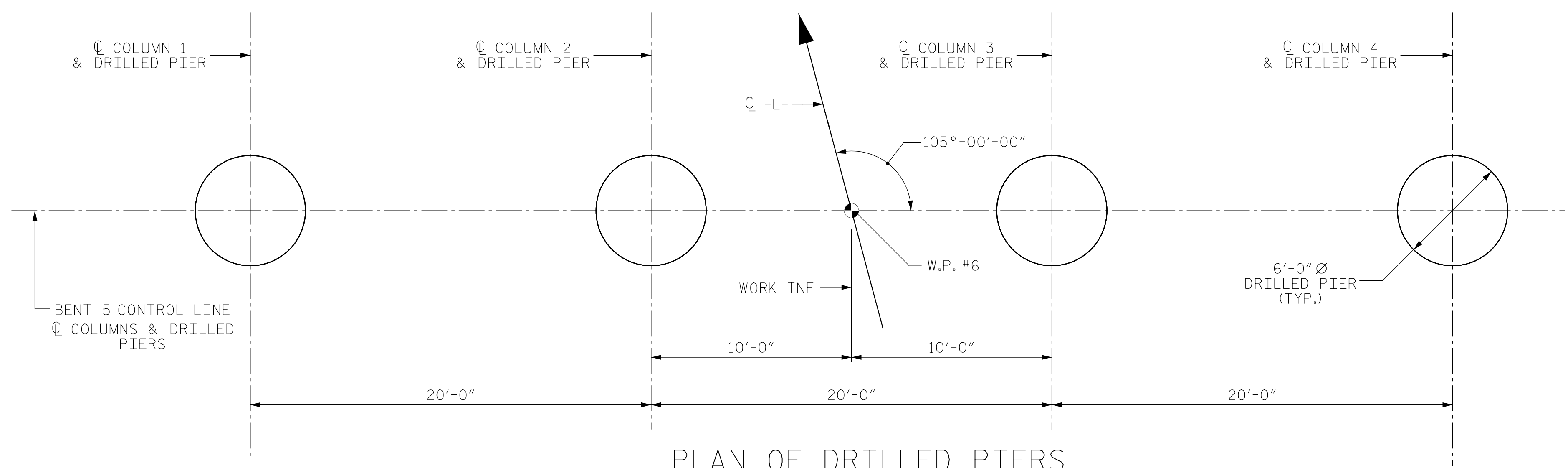
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SHEET NO. S-85

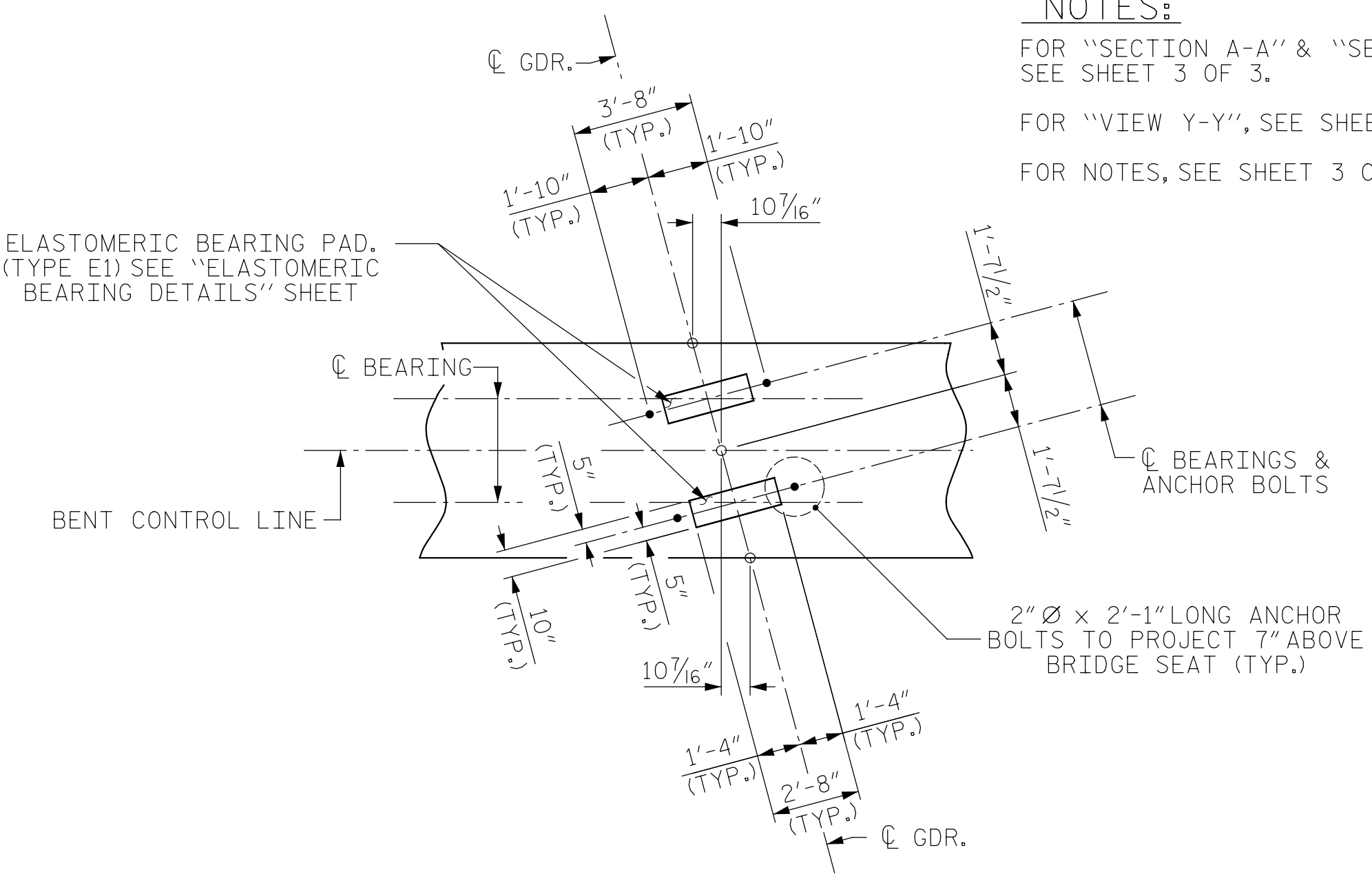
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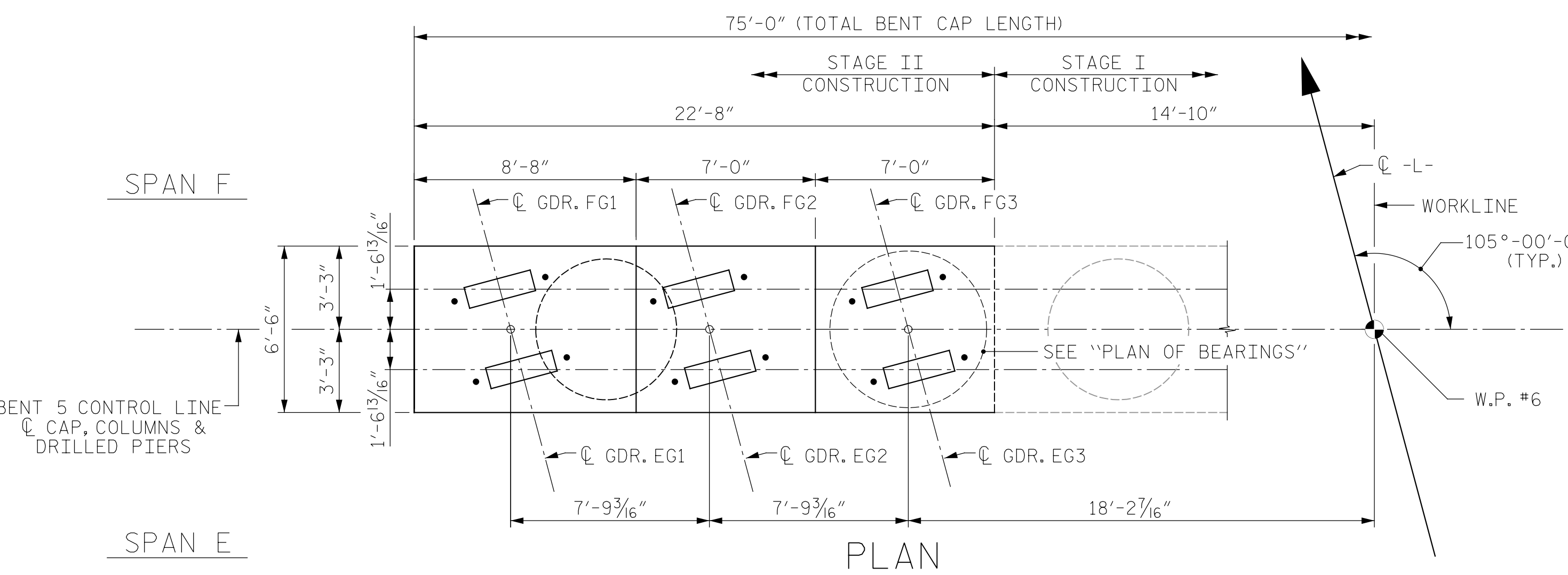
PLAN OF DRILLED PIERS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR DRILLED PIERS UNLESS NOTED OTHERWISE

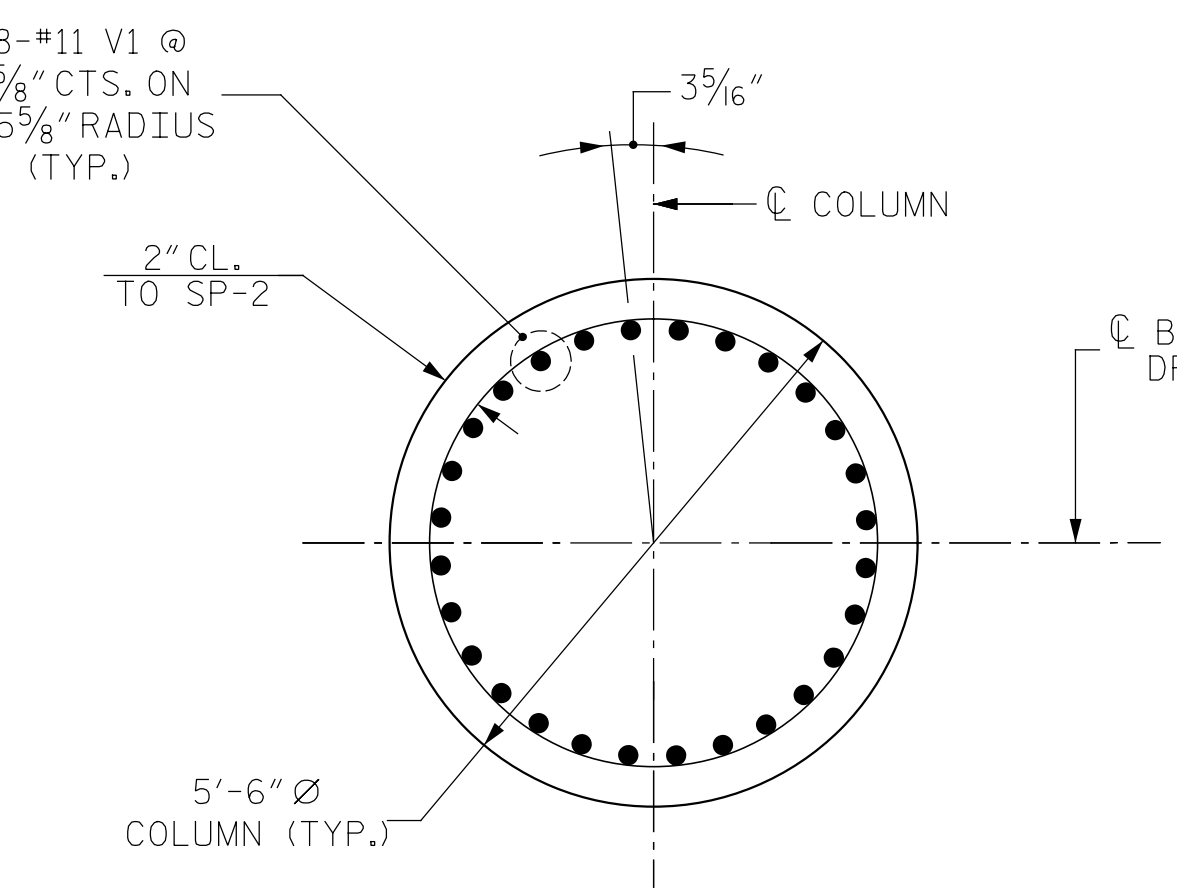


PLAN OF BEARINGS

ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.

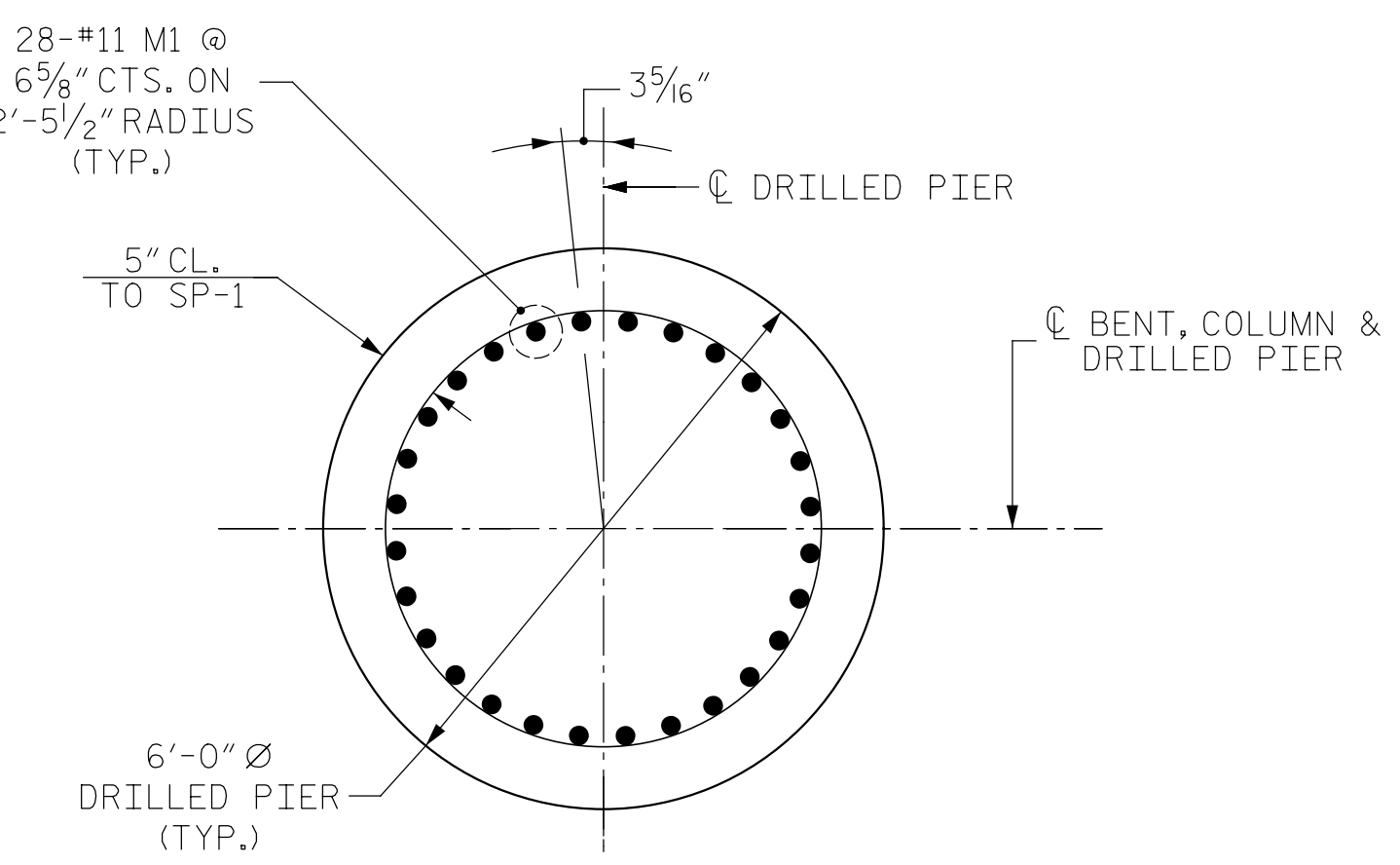


PLAN



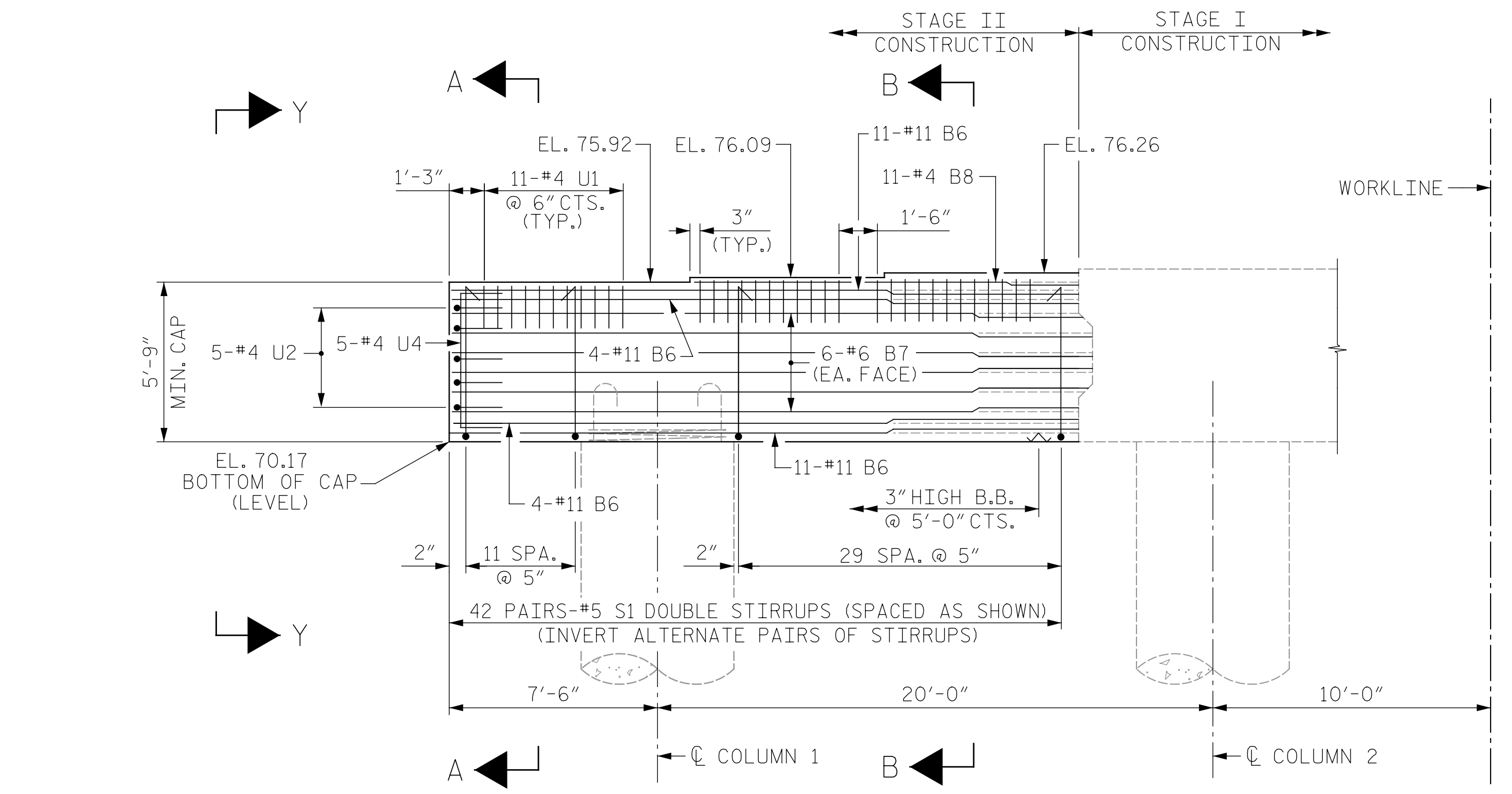
SECTION THRU COLUMN

(TYP. EA. COLUMN)

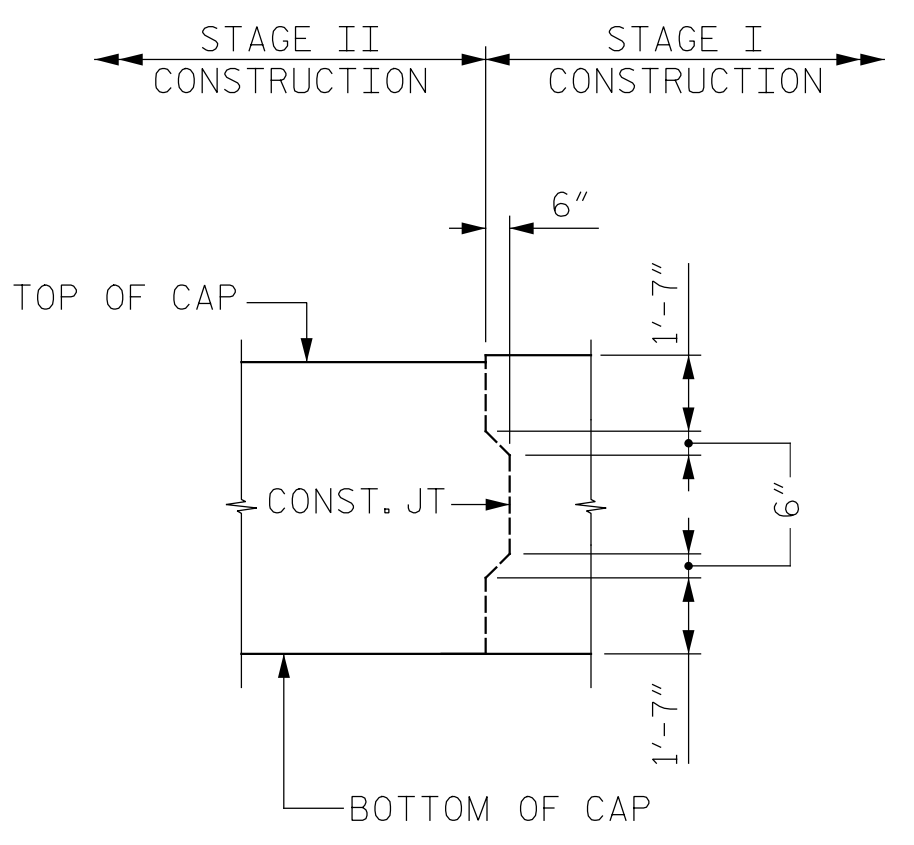


SECTION THRU DRILLED PIER

(TYP. EA. DRILLED PIER)

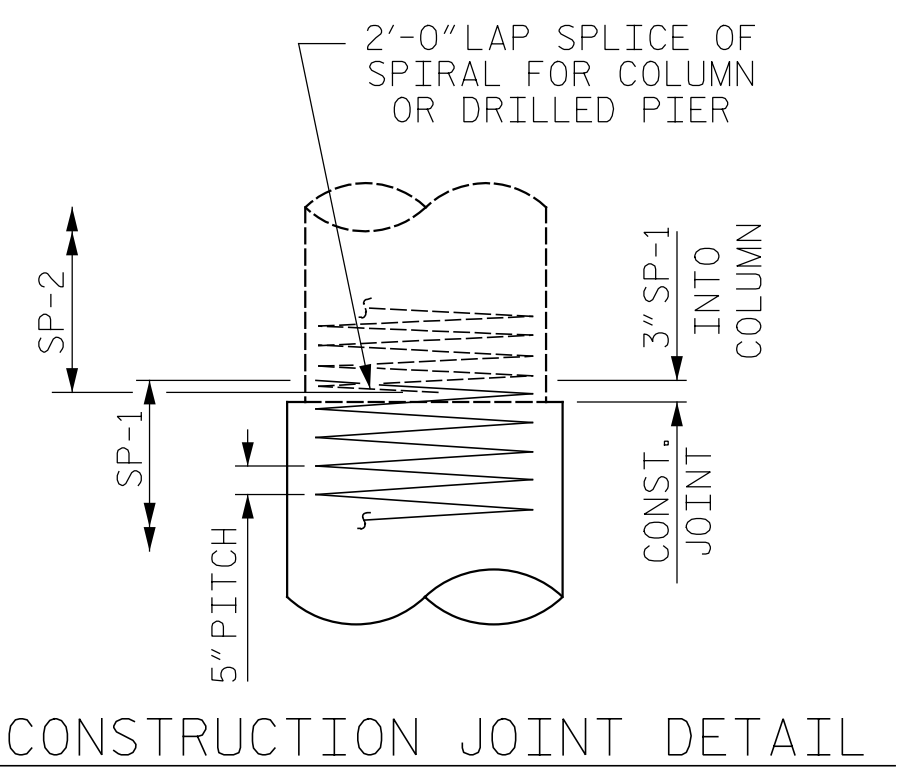


ELEVATION



SHEAR KEY DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY. SEE ELEVATION VIEW FOR LOCATION OF SHEAR KEY. REINFORCING STEEL SHALL BE CONTINUOUS THRU SHEAR KEY.

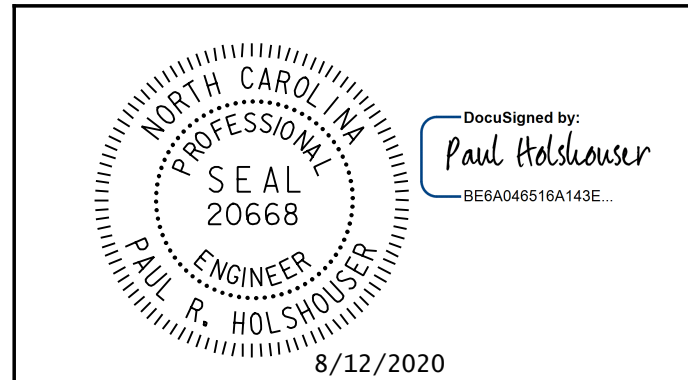


CONSTRUCTION JOINT DETAIL

NOTES:
 FOR "SECTION A-A" & "SECTION B-B", SEE SHEET 3 OF 3.
 FOR "VIEW Y-Y", SEE SHEET 3 OF 3.
 FOR NOTES, SEE SHEET 3 OF 3.

PROJECT NO. 48793.3.1
 BLADEN COUNTY
 STATION: 118+81.78 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 5 DETAILS



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 License #: P-0999

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1			3			TOTAL SHEETS
2			4			107

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DRAWN BY: B. J. MANTEI DATE: 5-19-20
 CHECKED BY: N. D'AIUTO DATE: 7-17-20
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