

12/7/2020 K:\VDT\_-\_Structures\Bridges\NC\1036500 - B-5534\Cad\Bridges\B5534\_SMU\_T\_S101\_300082.dgn

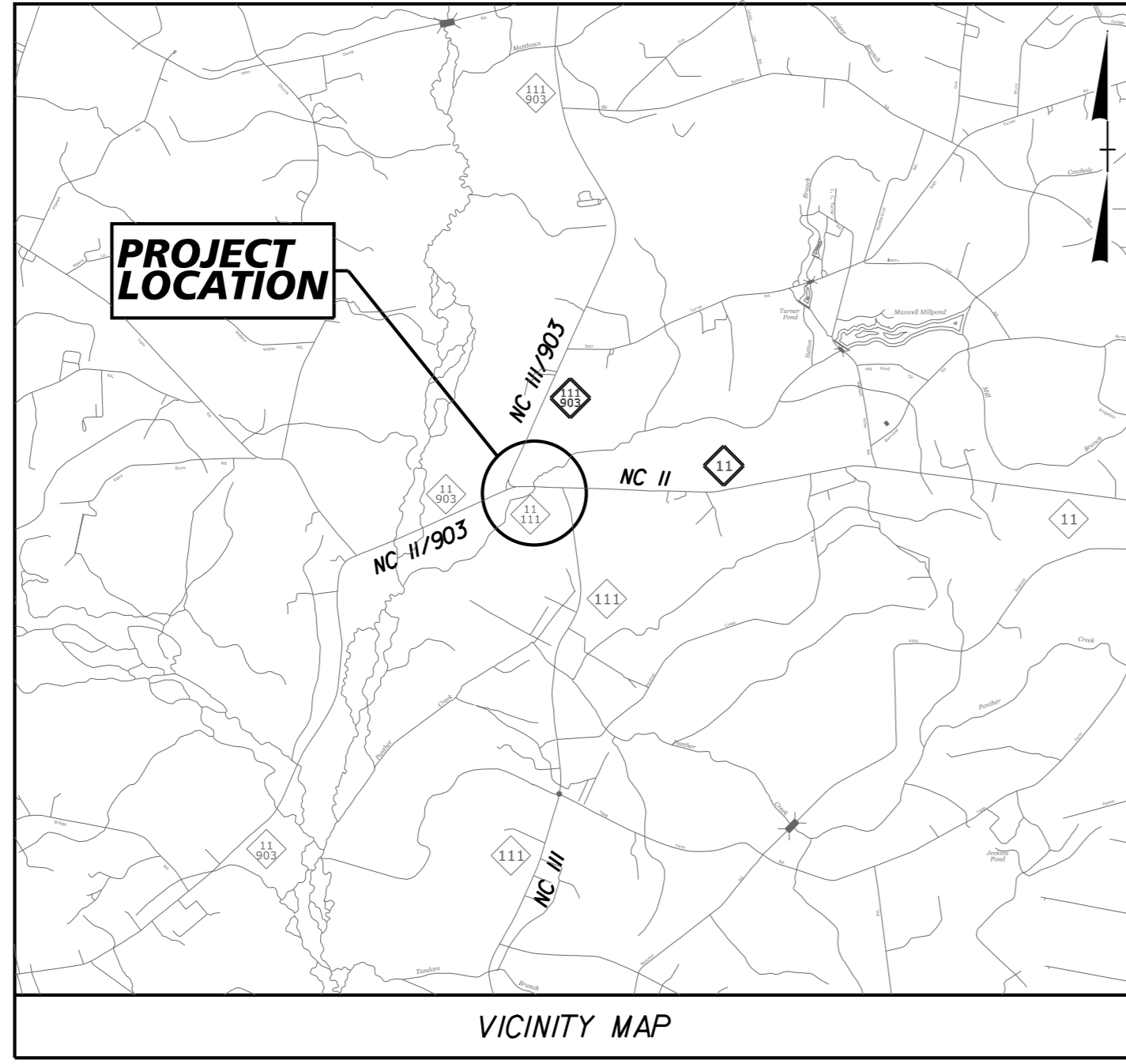
**TIP PROJECT: B-5534**

**CONTRACT: C204534**

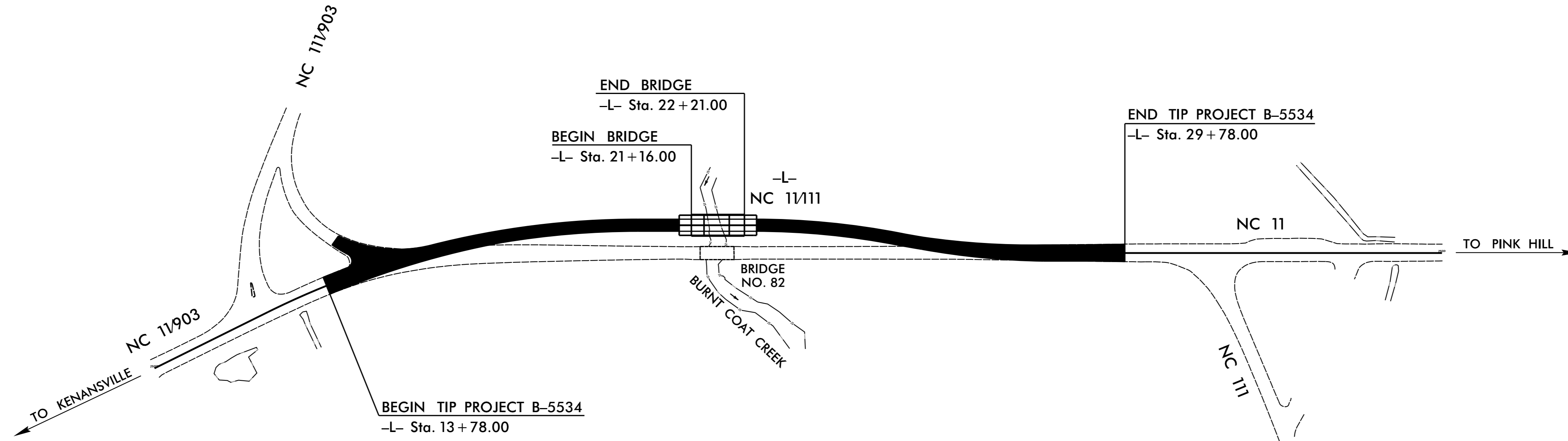
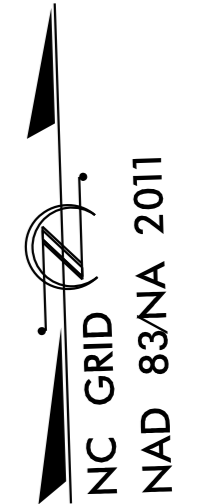
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**DUPLIN COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5534	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
55034.1.1		P.E.	
55034.2.1		R/W & UTILITIES	
55034.3.1		CONSTRUCTION	



**LOCATION: BRIDGE 82 OVER BURNT COAT CREEK ON NC 11/111**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**



**STRUCTURES**

**DESIGN DATA**

AADT 2020 =	6,100
AADT 2040 =	7,600
K =	9%
D =	55%
T =	11%*
V =	60 MPH
* (TTST 8% + DUAL 3%)	
FUNCTIONAL CLASSIFICATION:	RURAL MAJOR COLLECTOR
STATEWIDE TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-5534	=	0.283 MILES
LENGTH STRUCTURES TIP PROJECT B-5534	=	0.020 MILES
TOTAL LENGTH TIP PROJECT B-5534	=	0.303 MILES

PLANS PREPARED FOR THE NCDOT BY:

**Kimley»Horn**

2018 STANDARD SPECIFICATIONS

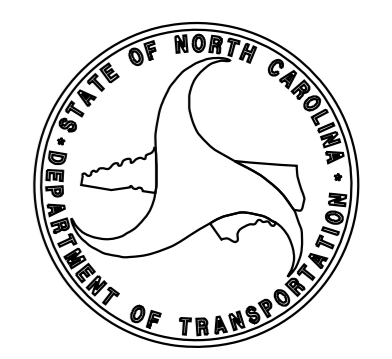
RIGHT OF WAY DATE: AUGUST 8, 2019

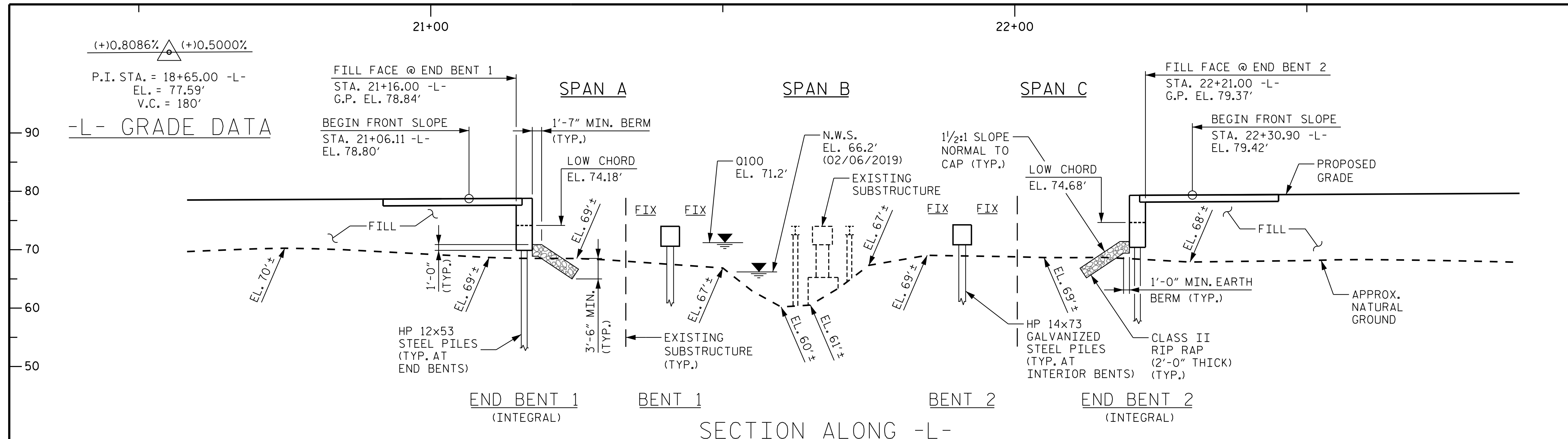
LETTING DATE: FEBRUARY 16, 2021

**SETH A. DENNEY, P.E.**  
PROJECT ENGINEER

**PATRICK D. COOKSEY, P.E.**  
PROJECT DESIGN ENGINEER

**DAVID STUTTS, P.E.**  
STRUCTURES MANAGEMENT UNIT  
PROJECT ENGINEER  
PCE/PROGRAM MANAGEMENT





**HYDRAULIC DATA**

DESIGN DISCHARGE -----1,000 CFS  
 FREQUENCY OF DESIGN FLOOD -----50-YR.  
 DESIGN HIGH WATER ELEVATION-----71.0 FT.  
 DRAINAGE AREA -----10.2 SQ. MI.  
 BASE DISCHARGE (Q100) -----1,200 CFS  
 BASE HIGH WATER ELEVATION -----71.2 FT.

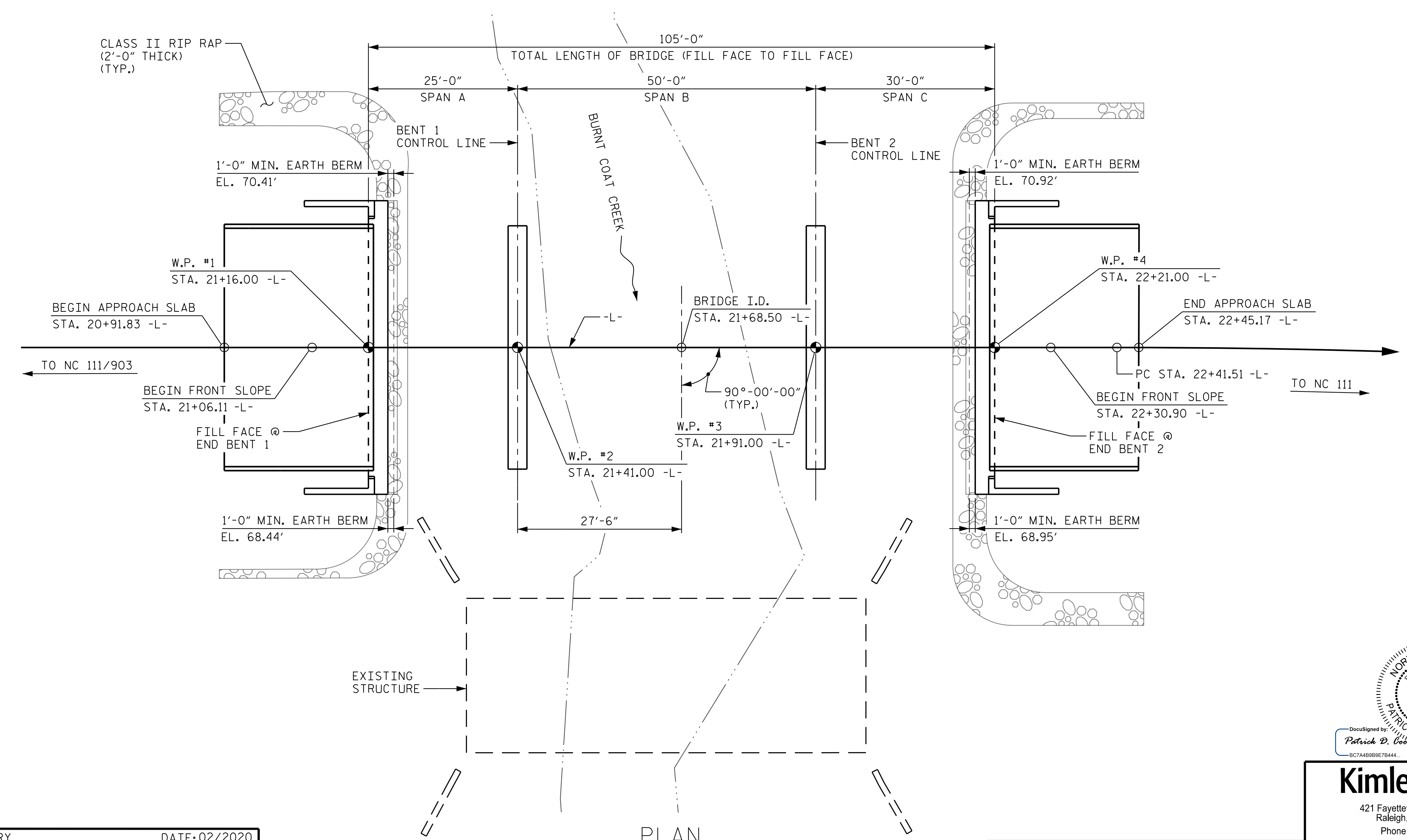
**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE -----4,400 CFS  
 FREQUENCY OF OVERTOPPING FLOOD ---> 500 YR.  
 OVERTOPPING FLOOD ELEVATION -----74.0 FT.  
 OVERTOPPING GRADE 74.0'  
 APPROX. STATION 11+70 -L-

**HORIZONTAL CURVE DATA -L-**

P.I. STA. 23+85.79  
 $\Delta = 10^\circ-59'-17.3"$  (RT)  
 D = 3°-49'-11.0"  
 L = 287.67'  
 T = 144.28'  
 R = 1,500.00'

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



PROJECT NO. B-5534  
 DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 82

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE OVER  
 BURNT COAT CREEK  
 ON NC 111/903 BETWEEN  
 NC 111/903 AND NC 111

**Kimley»Horn**

421 Fayetteville Street, Suite 600  
 Raleigh, NC 27601-1772  
 Phone (919) 677-2000

NC LICENSE # F-0102

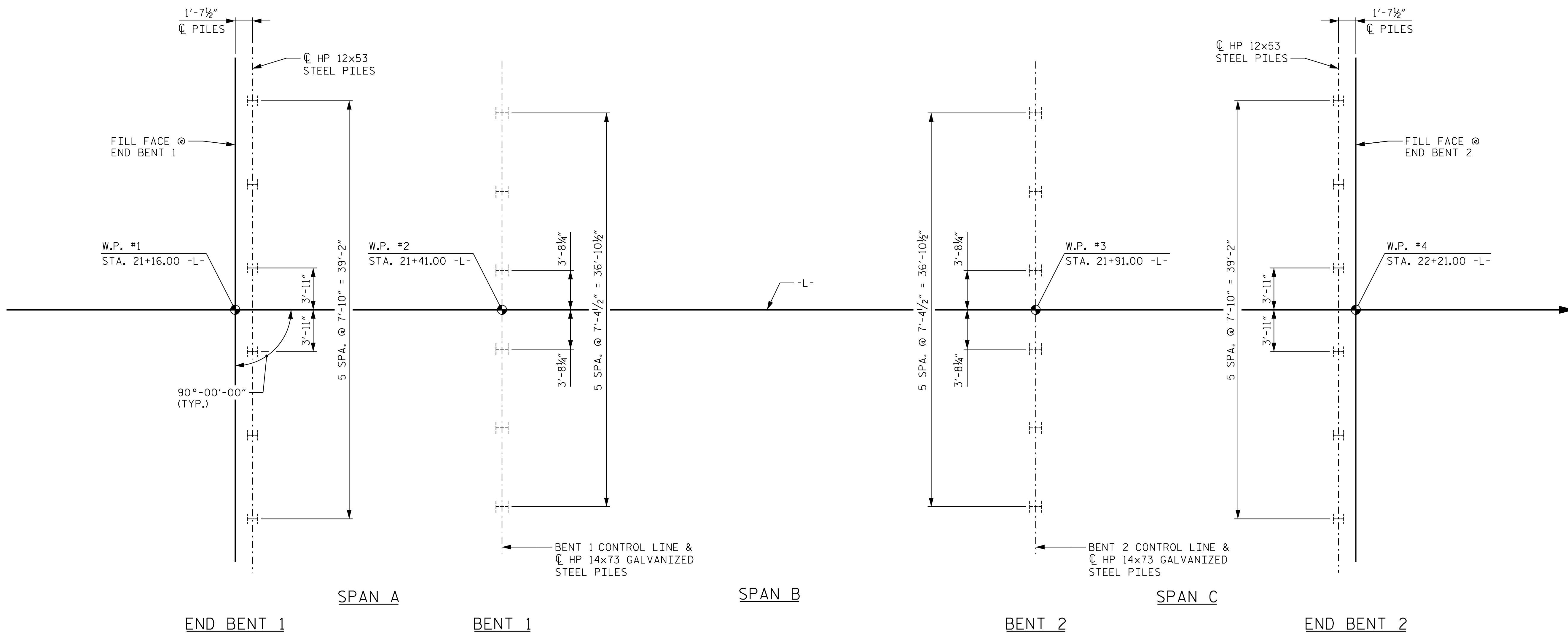
Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045140 PATRICK D. COOKSEY 4/2/2020

DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

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

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**NOTES**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAW OR SCOUR.

INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 35 FT.

PILES AT BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE.

DRIVE PILES AT BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE.

INSTALL PILES AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN 40 FT.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 57 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 62 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

**FOUNDATION LAYOUT**

(DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES AT BOTTOM OF CAP)

K:\B01\_Structures\Bridges\NC\01036500 - B-5534\Gen\Drawings\B5534\_SML-F1\_300082.dgn 2/20/2020

DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

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DocuSigned by: Patrick D. Cooksey 4/2/2020  
 -BCTA89967644-

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 421 Fayetteville Street, Suite 600  
 Raleigh, NC 27601-1772  
 Phone (919) 677-2000  
 NC LICENSE # F-0102

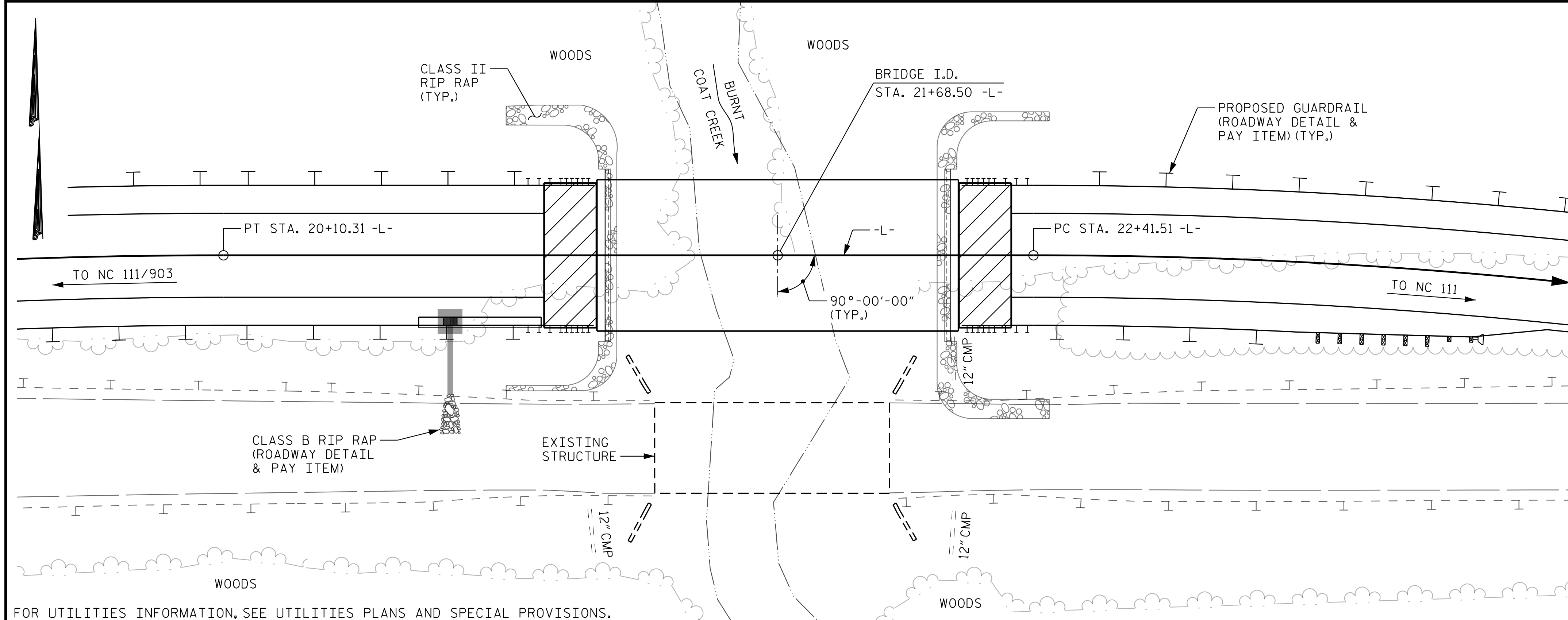
PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE OVER BURNT COAT CREEK ON NC 11/111 BETWEEN NC 111/903 AND NC 111					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-2
					TOTAL SHEETS
					34



BM #1: NAIL IN 20" OAK, 92.54' RIGHT OF STATION 17+96.90 -L-, EL. 70.33'



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 21+68.50 -L-	ASBESTOS ASSESSMENT	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE (BRIDGE)	BRIDGE APPROACH SLABS STA. 21+68.50 -L-	REINFORCING STEEL (BRIDGE)	36" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 GALVANIZED STEEL PILES	HP 12x53 STEEL PILES		HP 14x73 GALVANIZED STEEL PILES		
	LUMP SUM	LUMP SUM	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EA.	EA.	NO.	LIN. FT.	NO.	LIN. FT.
SUPERSTRUCTURE				4,470	5,637		LUMP SUM		15	512.08						
END BENT 1						34.1		5,116			6	6	360			
BENT 1						15.7		3,502			6			6	420	
BENT 2						15.7		3,502			6			6	390	
END BENT 2						34.1		5,116			6	6	330			
TOTAL	LUMP SUM	LUMP SUM	1	4,470	5,637	99.6	LUMP SUM	17,236	15	512.08	12	12	690	12	810	

CONT. TOTAL BILL OF MATERIAL

PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	FIBER OPTIC CONDUIT SYSTEM
EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LIN. FT.
	206.67			LUMP SUM	202.67
3		122	136		
3					
3		181	201		
12	206.67	303	337	LUMP SUM	202.67

NOTES CONTINUED

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

FOR FIBER OPTIC CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.

IMPERVIOUS DIKE MAY BE REQUIRED FOR THE REMOVAL OF EXISTING BRIDGE. SEE EROSION CONTROL PLANS FOR IMPERVIOUS DIKE DETAILS AND SPECIAL PROVISIONS.

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

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 21+68.50 -L-."

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 2 SPANS OF 32'-3" WITH REINFORCED CONCRETE DECK GIRDER AND A CLEAR ROADWAY WIDTH OF 26'-0" ON REINFORCED CONCRETE ABUTMENTS ON TIMBER PILES, REINFORCED CONCRETE PIERS ON TIMBER PILES WITH STEEL CAP AND PIER CRUTCH BENTS AND LOCATED APPROX. 55' DOWNSTREAM FROM 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.

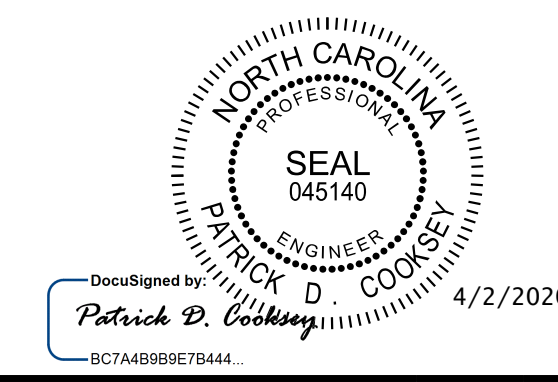
THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."

FOR INTERIOR BENTS 1 AND 2, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 3 OF 3



**Kimley»Horn**  
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 Phone (919) 677-2000  
 NC LICENSE # F-0102

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER  
 BURNT COAT CREEK  
 ON NC 111/111 BETWEEN  
 NC 111/903 AND NC 111

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

DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

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## LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								SERVICE III LIMIT STATE								COMMENT NUMBER		
						MOMENT				SHEAR				MOMENT										
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.13	--	1.75	0.789	1.23	B	EL	24.200	0.914	1.21	B	I	9.300	0.80	0.766	1.13	B	I	24.200		
	HL-93 (OPERATING)	N/A		1.59	--	1.35	0.789	1.59	B	EL	24.200	0.914	2.14	B	I	14.200	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.40	50.40	1.75	0.789	1.52	B	EL	24.200	0.914	1.77	B	I	9.300	0.80	0.766	1.40	B	I	24.200		
	HS-20 (OPERATING)	36.000		1.98	71.28	1.35	0.789	1.98	B	EL	24.200	0.914	2.54	B	I	9.300	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.88	38.88	1.40	0.789	3.90	B	EL	24.200	0.914	5.42	B	I	9.300	0.80	0.766	2.88	B	I	24.200	
		SNGARBS2	20.000		2.26	45.20	1.40	0.789	3.07	B	EL	24.200	0.914	3.99	B	I	9.300	0.80	0.766	2.26	B	I	24.200	
		SNAGRIS2	22.000		2.20	48.40	1.40	0.789	2.97	B	EL	19.200	0.914	3.76	B	I	9.300	0.80	0.766	2.20	B	I	24.200	
		SNCOTTS3	27.250		1.44	39.24	1.40	0.789	1.95	B	EL	24.200	0.914	2.62	B	I	4.300	0.80	0.766	1.44	B	I	24.200	
		SNAGGRS4	34.925		1.24	43.31	1.40	0.789	1.69	B	EL	24.200	0.914	2.31	B	I	9.300	0.80	0.766	1.24	B	I	24.200	
		SNS5A	35.550		1.21	43.02	1.40	0.789	1.65	B	EL	24.200	0.914	2.41	B	I	9.300	0.80	0.766	1.21	B	I	24.200	
		SNS6A	39.950		1.13	45.14	1.40	0.789	1.54	B	EL	24.200	0.914	2.24	B	I	9.300	0.80	0.766	1.13	B	I	24.200	
	SNS7B	42.000		1.08	45.36	1.40	0.789	1.47	B	EL	24.200	0.914	2.27	B	I	9.300	0.80	0.766	1.08	B	I	24.200		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.39	45.87	1.40	0.789	1.88	B	EL	24.200	0.914	2.64	B	I	9.300	0.80	0.766	1.39	B	I	24.200	
		TNT4A	33.075		1.40	46.31	1.40	0.789	1.90	B	EL	24.200	0.914	2.52	B	I	9.300	0.80	0.766	1.40	B	I	24.200	
		TNT6A	41.600		1.17	48.67	1.40	0.789	1.58	B	EL	24.200	0.914	2.45	B	I	39.100	0.80	0.766	1.17	B	I	24.200	
		TNT7A	42.000		1.18	49.56	1.40	0.789	1.60	B	EL	24.200	0.914	2.20	B	I	39.100	0.80	0.766	1.18	B	I	24.200	
		TNT7B	42.000		1.23	51.66	1.40	0.789	1.67	B	EL	24.200	0.914	2.16	B	I	9.300	0.80	0.766	1.23	B	I	24.200	
		TNAGRIT4	43.000		1.17	50.31	1.40	0.789	1.58	B	EL	24.200	0.914	2.07	B	I	9.300	0.80	0.766	1.17	B	I	24.200	
TNAGT5A		45.000		1.09	49.05	1.40	0.789	1.48	B	EL	24.200	0.914	2.14	B	I	9.300	0.80	0.766	1.09	B	I	24.200		
TNAGT5B	45.000	③	1.07	48.15	1.40	0.789	1.45	B	EL	24.200	0.914	1.82	B	I	14.200	0.80	0.766	1.07	B	I	24.200			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

**NOTES:**  
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
 ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**  
 1.  
 2.  
 3.  
 4.

# CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

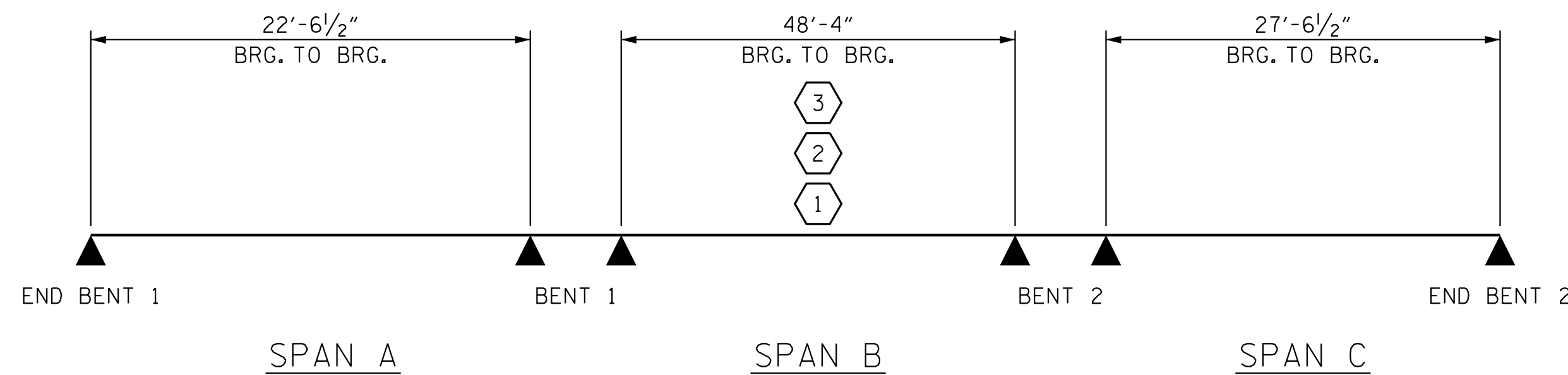
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

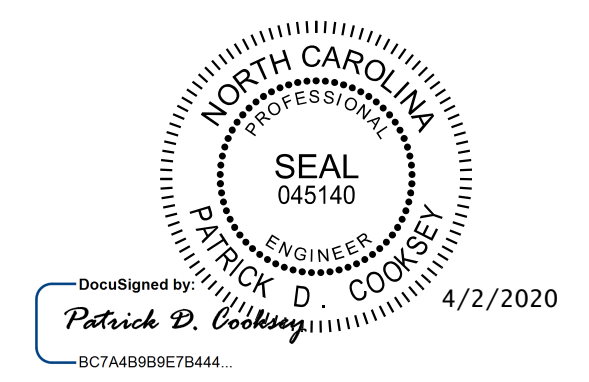
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GIRDER LOCATION

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



PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-



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

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

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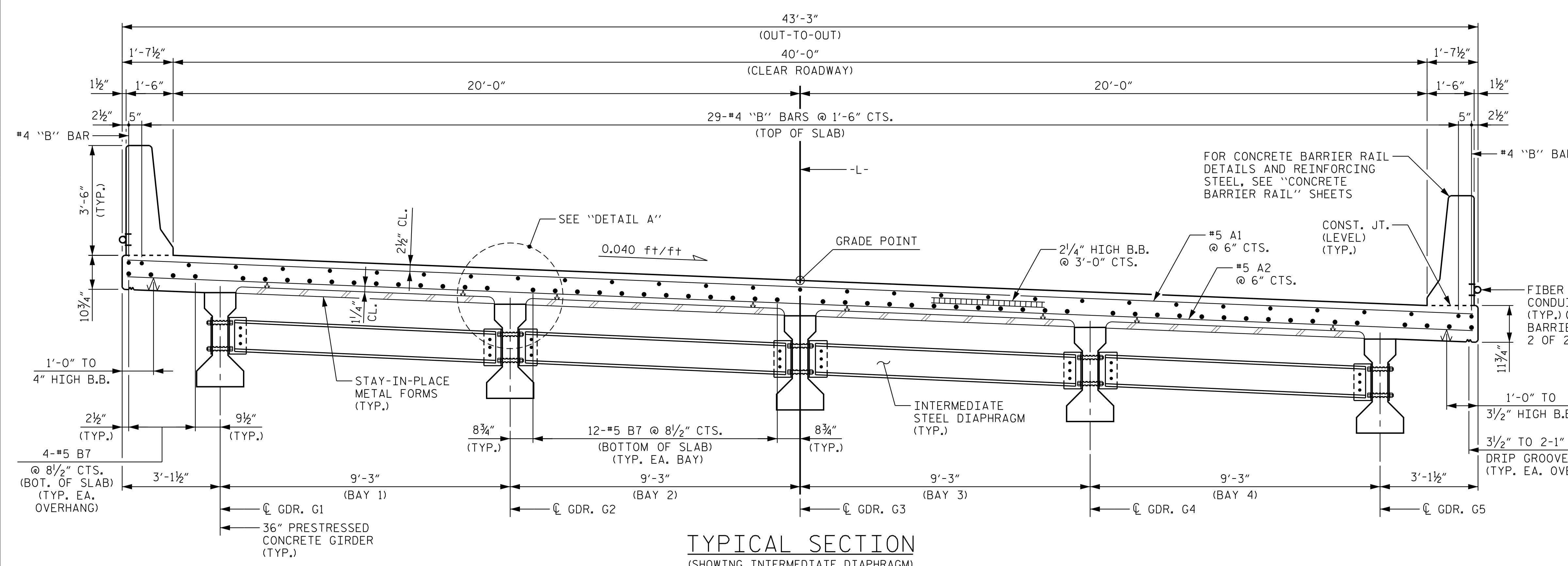
ASSEMBLED BY : D. D. LOWERY DATE : 02/2020  
 CHECKED BY : J. C. WILSON DATE : 02/2020  
 DRAWN BY : MAA 1/08 REV. 11/27/08RR MAA/GM  
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM  
 REV. 12/17 MAA/THC

NOTES

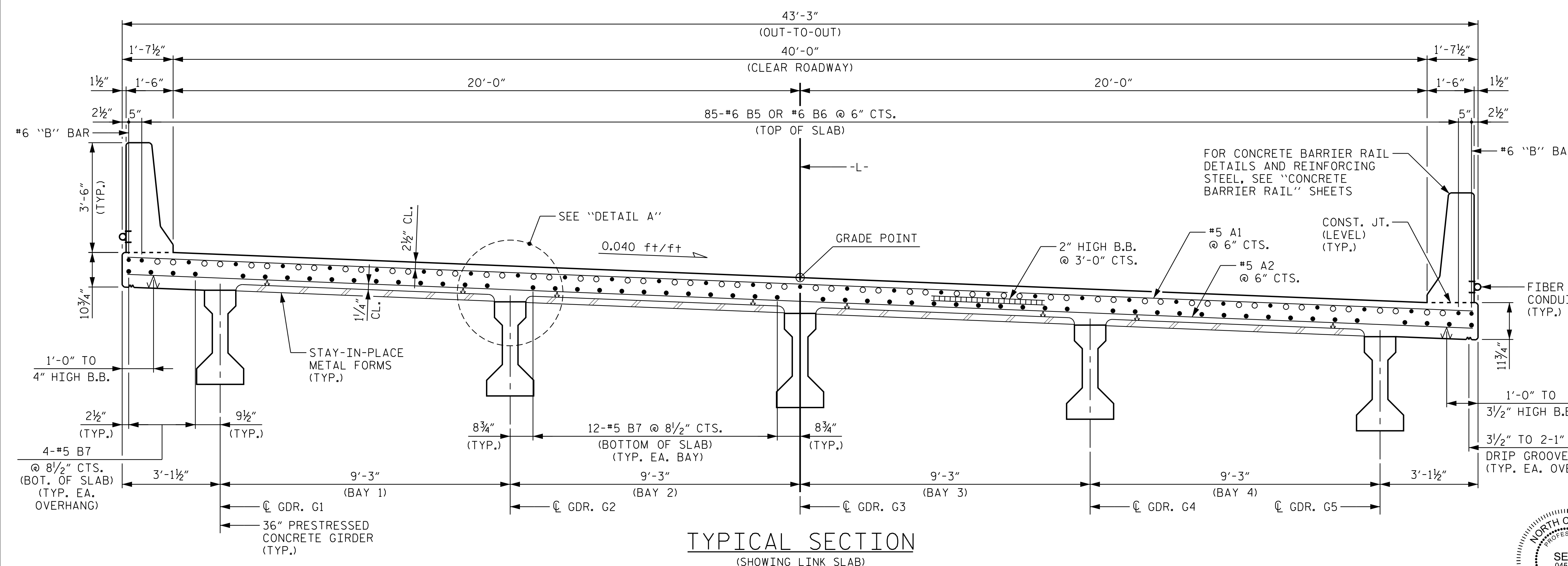
PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2"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

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

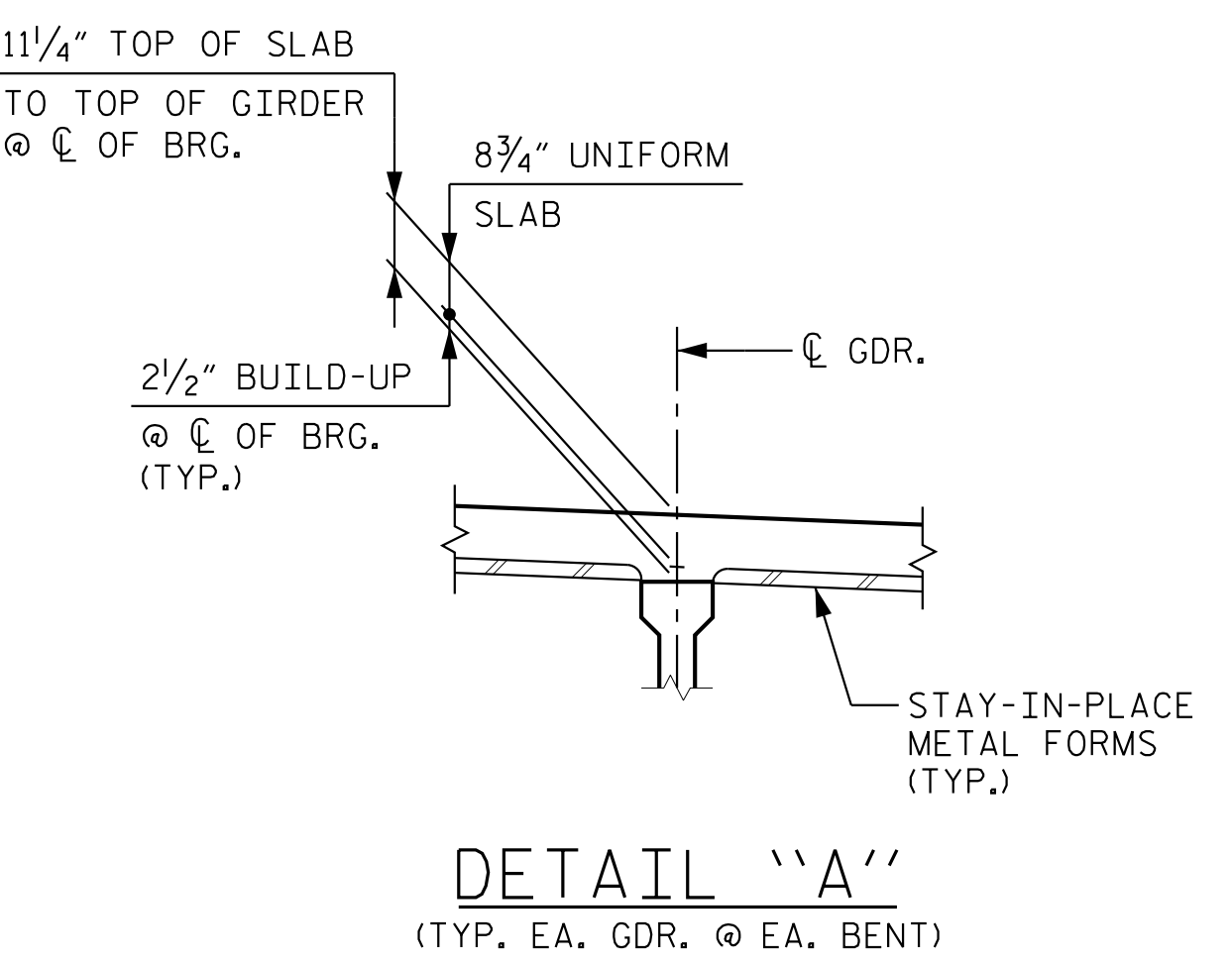
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.



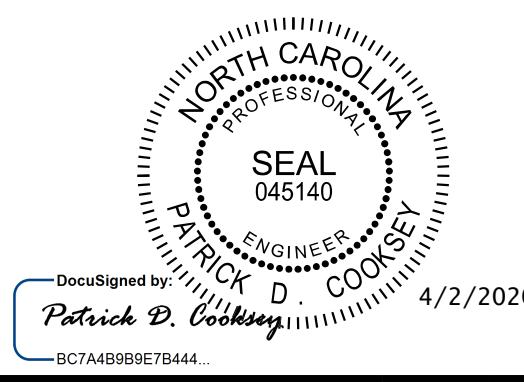
TYPICAL SECTION (SHOWING INTERMEDIATE DIAPHRAGM)



TYPICAL SECTION (SHOWING LINK SLAB)



- INDICATES NON-CONTINUOUS REINFORCING STEEL OVER LINK SLAB.
- INDICATES CONTINUOUS REINFORCING STEEL FROM END BENT 1 TO END BENT 2.



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DUPLIN COUNTY  
STATION: 21+68.50 -L-

SHEET 1 OF 3  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION

DRAWN BY: D. D. LOWERY DATE: 02/2020  
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DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

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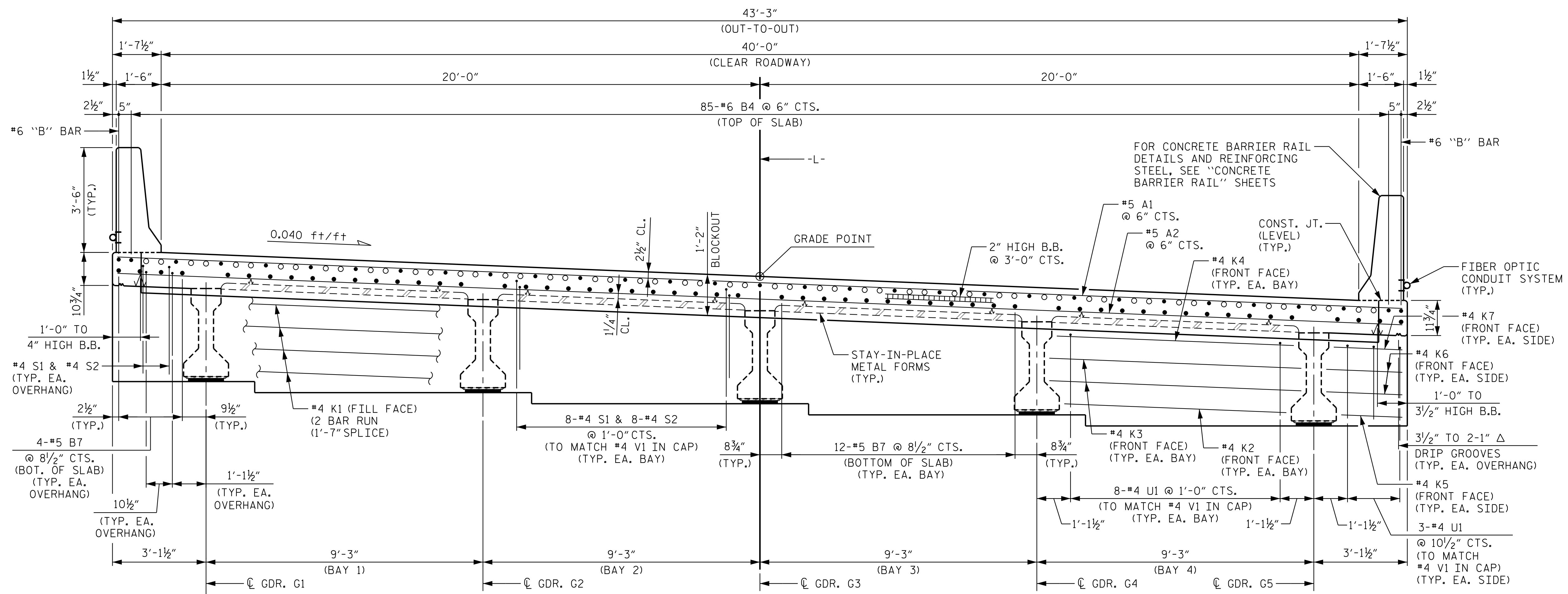
REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

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# NOTES

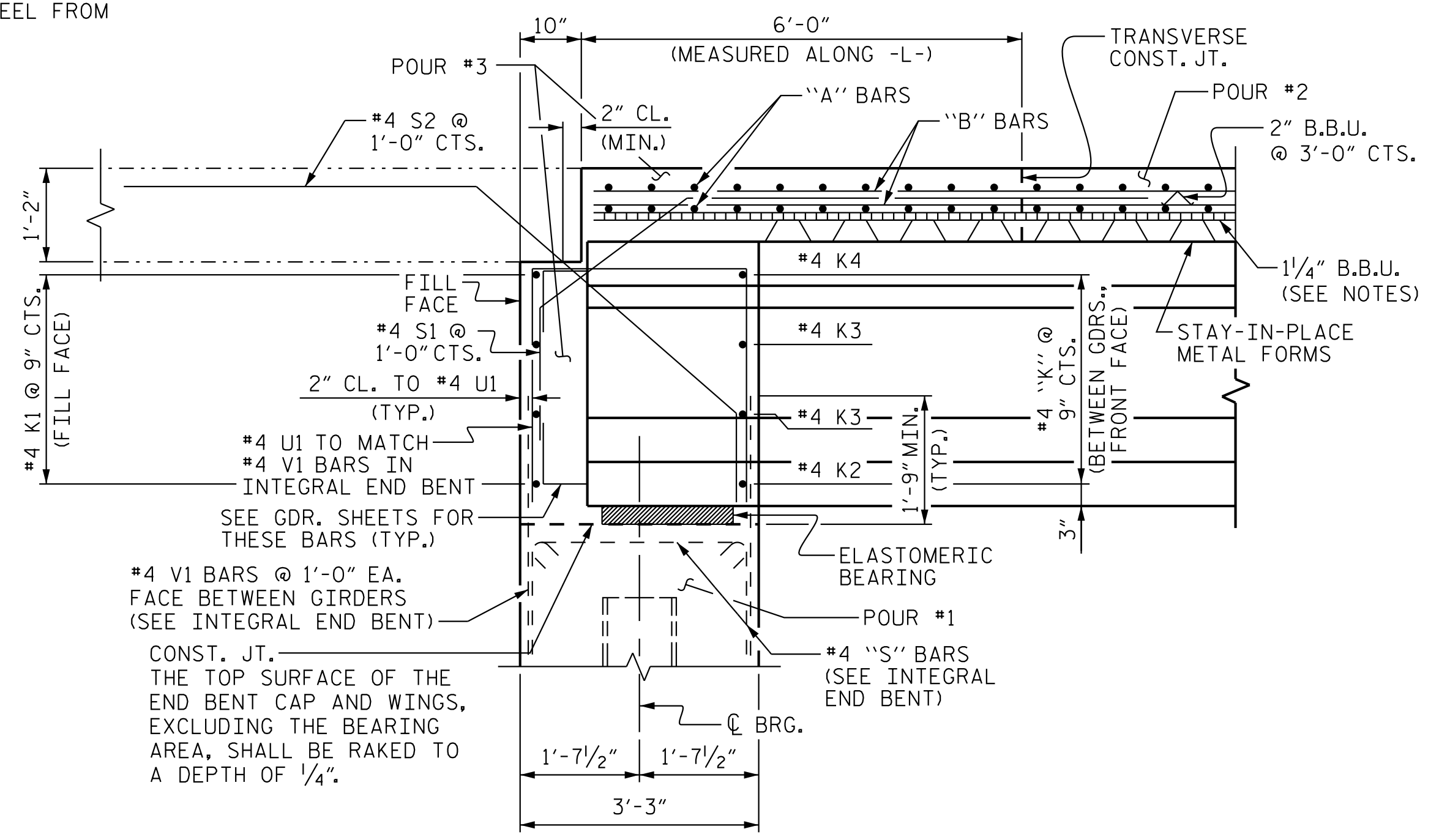
FOR SUPERSTRUCTURE NOTES, SEE "TYPICAL SECTION" SHEET 1 OF 3.



### TYPICAL SECTION

(SHOWING INTEGRAL END BENT DIAPHRAGM)

- INDICATES NON-CONTINUOUS REINFORCING STEEL OVER END BENTS.
- INDICATES CONTINUOUS REINFORCING STEEL FROM END BENT 1 TO END BENT 2.

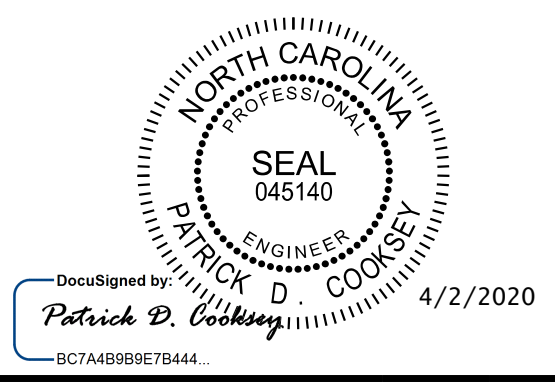


### SECTION THRU INTEGRAL END BENT

(END BENT 1 SHOWN, END BENT 2 SIMILAR)

PROJECT NO. B-5534  
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SHEET 2 OF 3



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 TYPICAL SECTION

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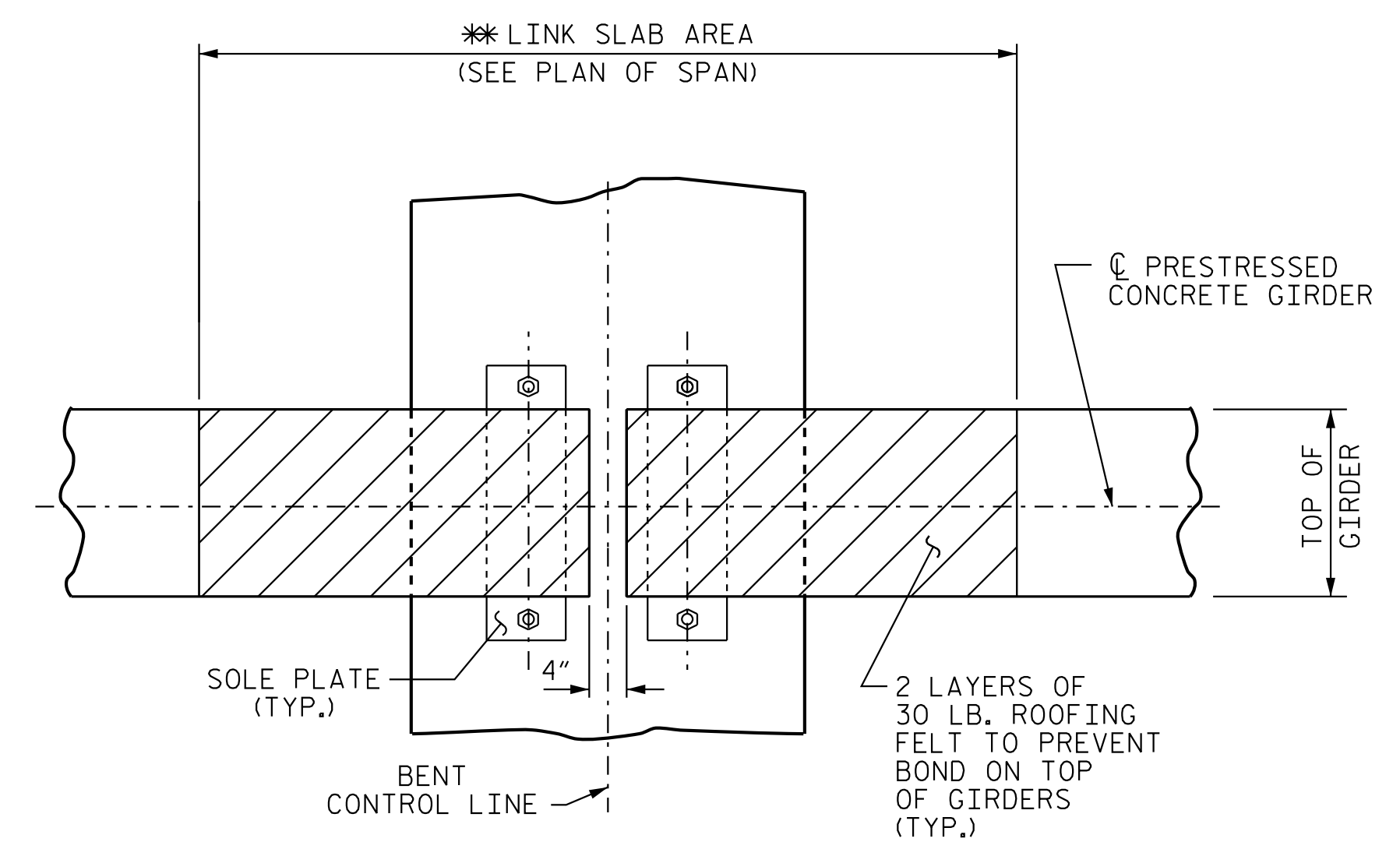
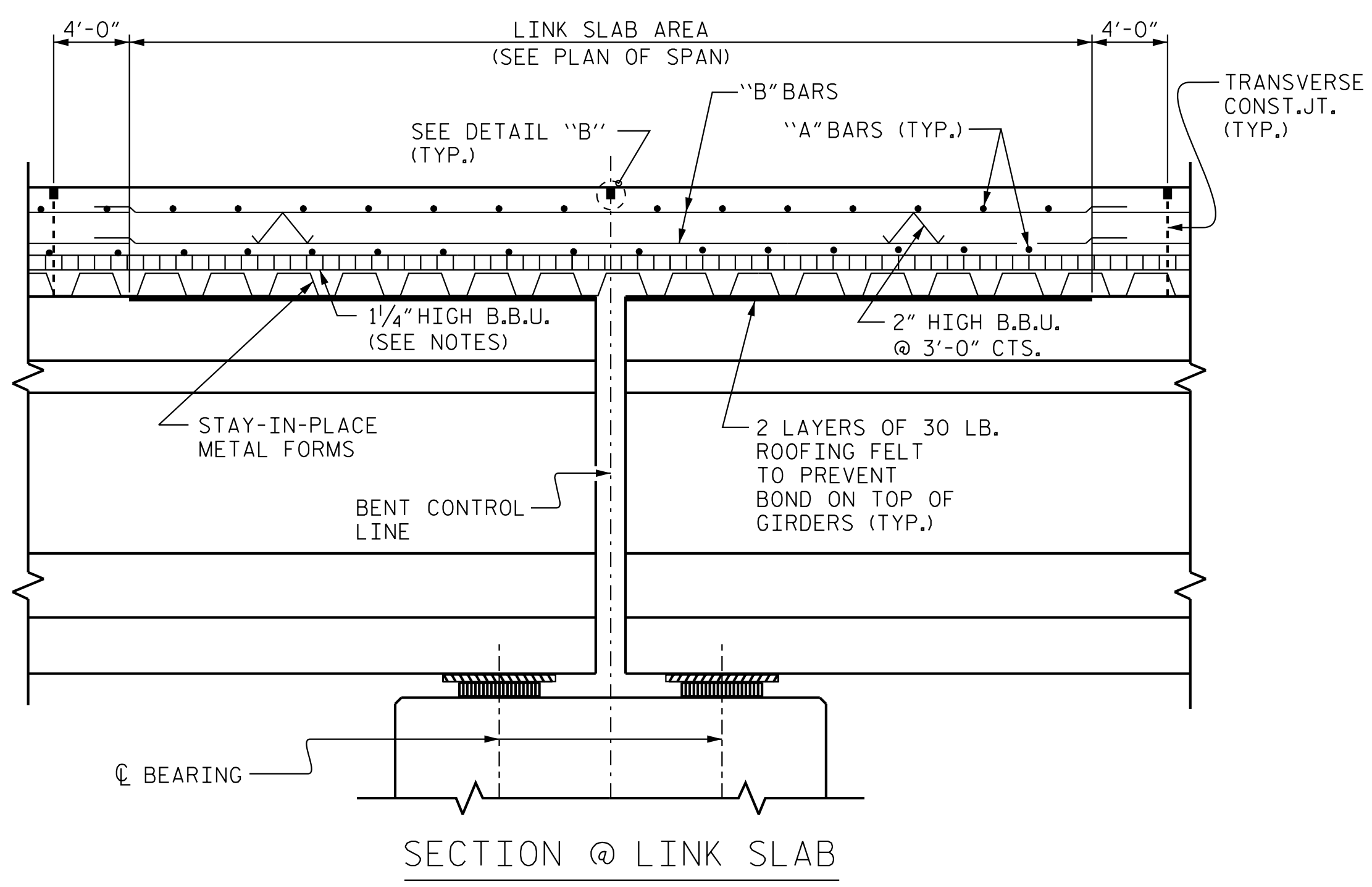
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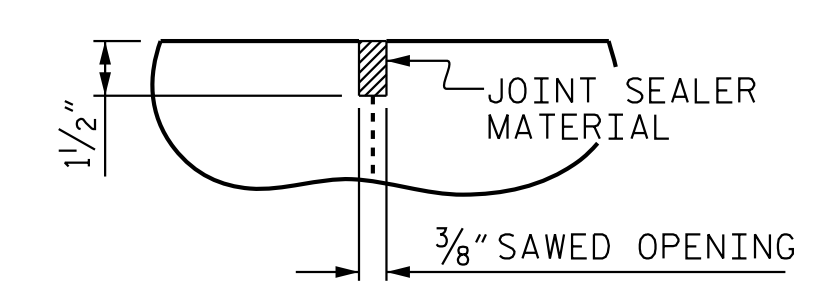
**NOTES**

FOR TRANSVERSE CONSTRUCTION JOINT DETAIL SEE "BILL OF MATERIAL" SHEET.  
 NO WELDING OF FORMS OR FALSEWORK TO THE TOP OF THE GIRDER WILL BE PERMITTED IN THE LINK SLAB AREA.



**PLAN @ BENT**

\*\* THE TOP OF THE BEAM IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH AND FREE OF STIRRUPS OR ANCHOR STUDS.



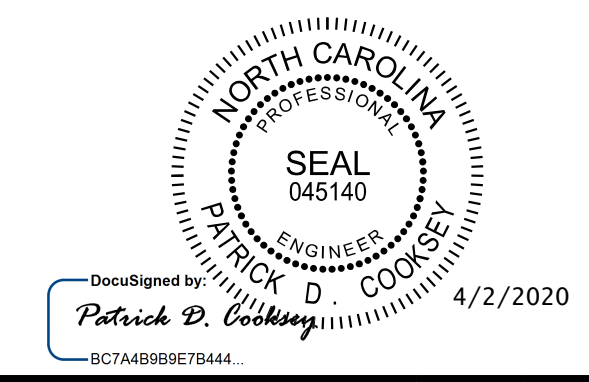
**DETAIL "B"**

A 1/2" DEEP CONTRACTION JOINT AT BENT CONTROL LINE SHALL BE SAWN WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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PROJECT NO. B-5534  
DUPLIN COUNTY  
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SHEET 3 OF 3



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 SUPERSTRUCTURE  
 LINK SLAB DETAILS

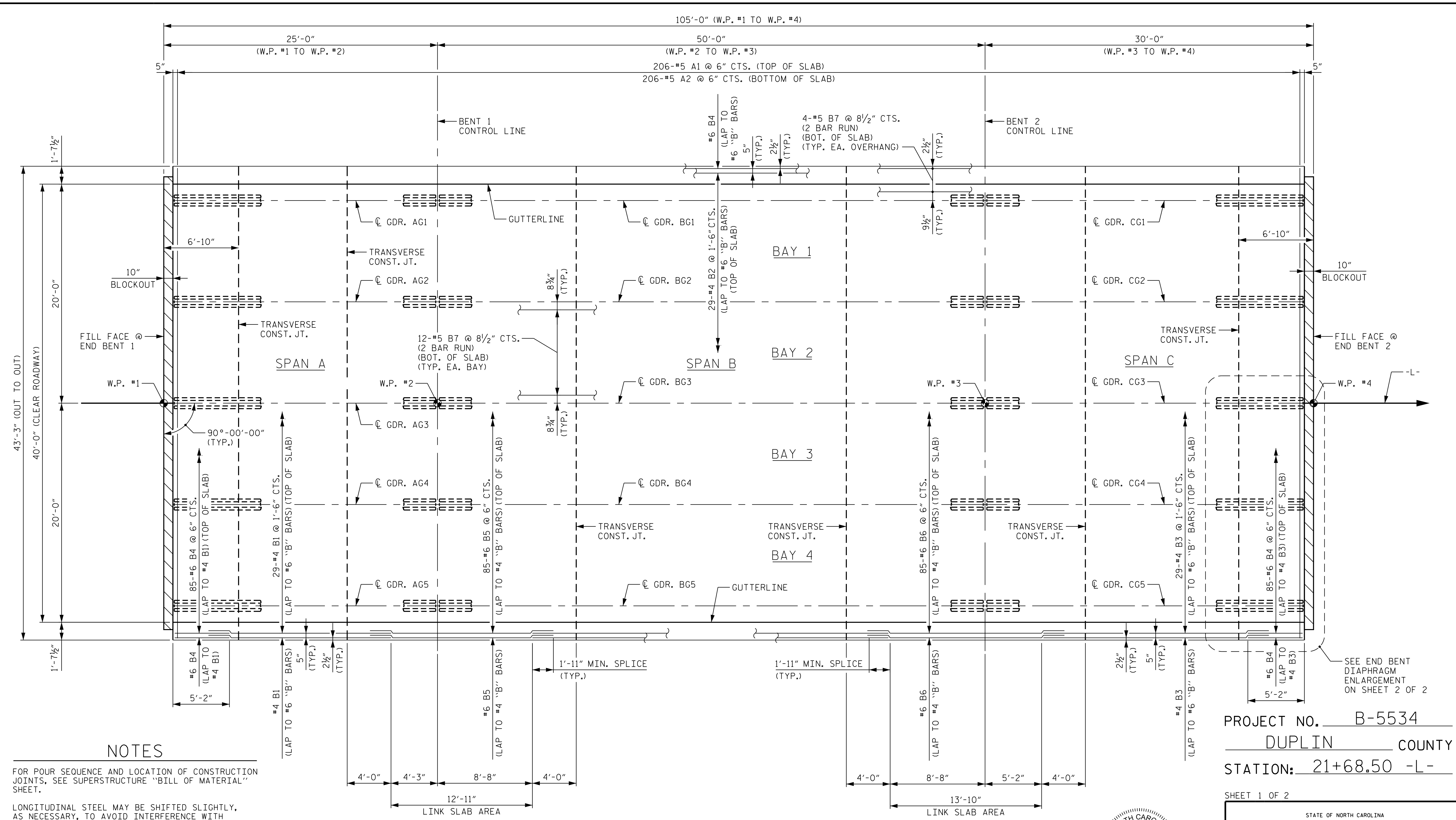
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 CHECKED BY: J. C. WILSON DATE: 02/2020  
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2			4			34

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### NOTES

FOR POUR SEQUENCE AND LOCATION OF CONSTRUCTION JOINTS, SEE SUPERSTRUCTURE "BILL OF MATERIAL" SHEET.

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

FOR CONCRETE BARRIER RAIL REINFORCING STEEL, SEE "CONCRETE BARRIER RAIL" SHEETS.

INTERMEDIATE DIAPHRAGMS NOT SHOWN FOR CLARITY, SEE "FRAMING PLAN" SHEET.

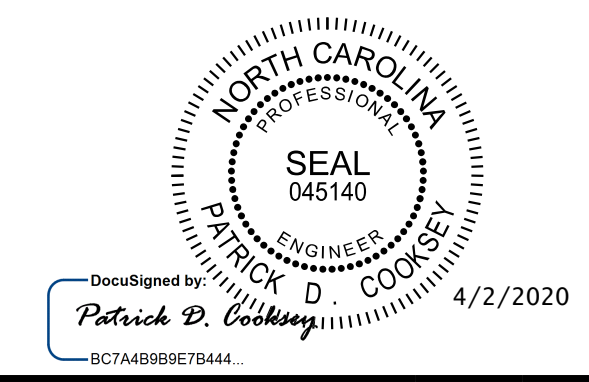
FOR LINK SLAB DETAILS, SEE "LINK SLAB DETAILS" SHEET.

### PLAN OF SPAN

PROJECT NO. B-5534  
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 STATION: 21+68.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-8
TOTAL SHEETS					34

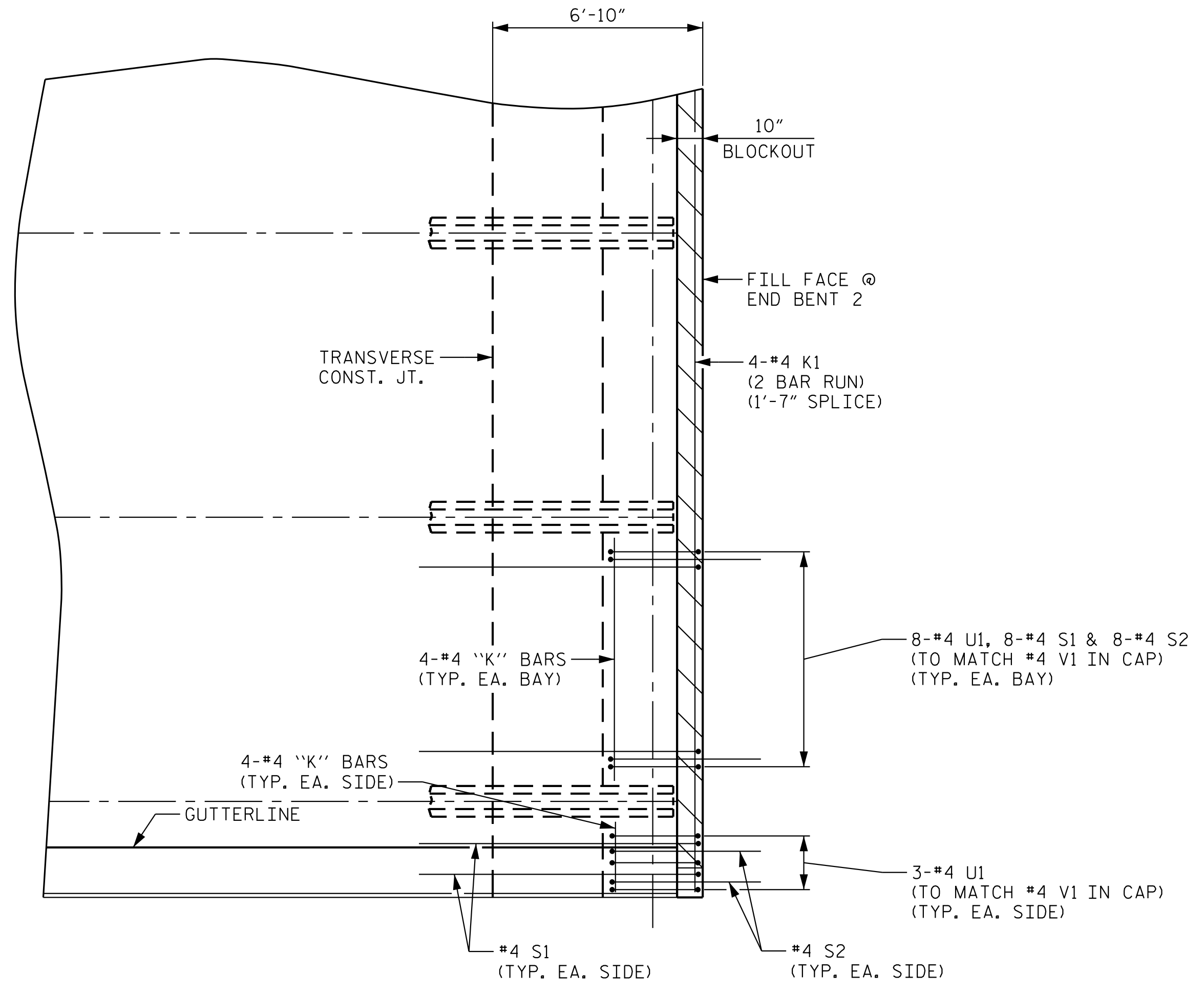


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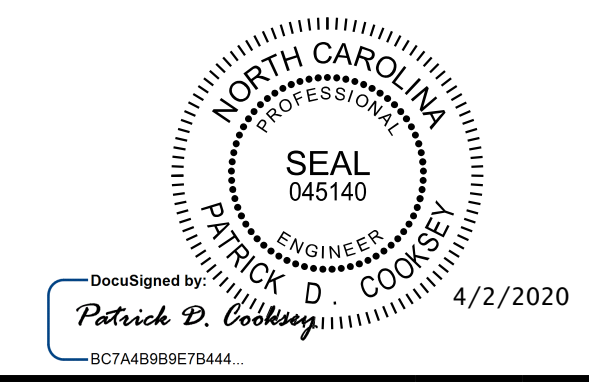
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 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020



**END BENT DIAPHRAGM ENLARGEMENT**  
 (END BENT 2 SHOWN, END BENT 1 SIMILAR)

PROJECT NO. B-5534  
DUPLIN COUNTY  
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SHEET 2 OF 2



STATE OF NORTH CAROLINA  
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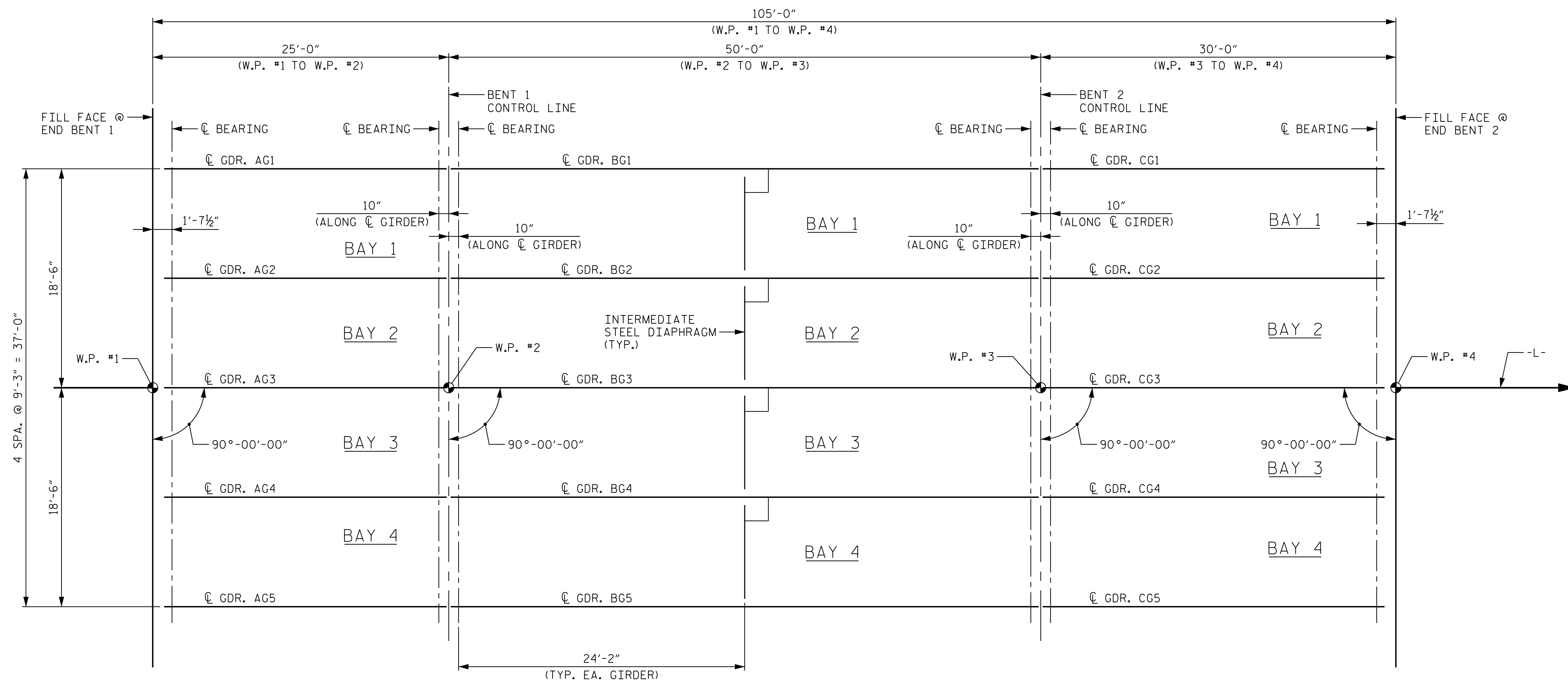
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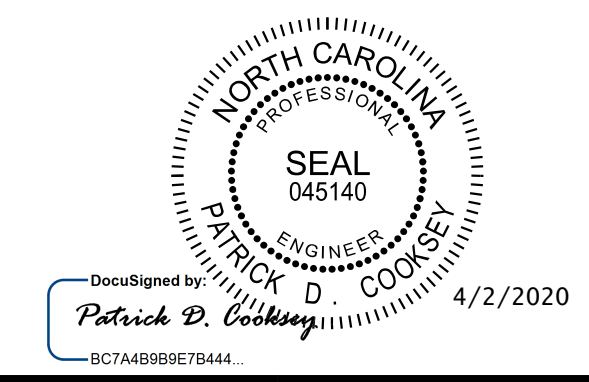
**NOTES**

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



**FRAMING PLAN**

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 SUPERSTRUCTURE  
 FRAMING PLAN

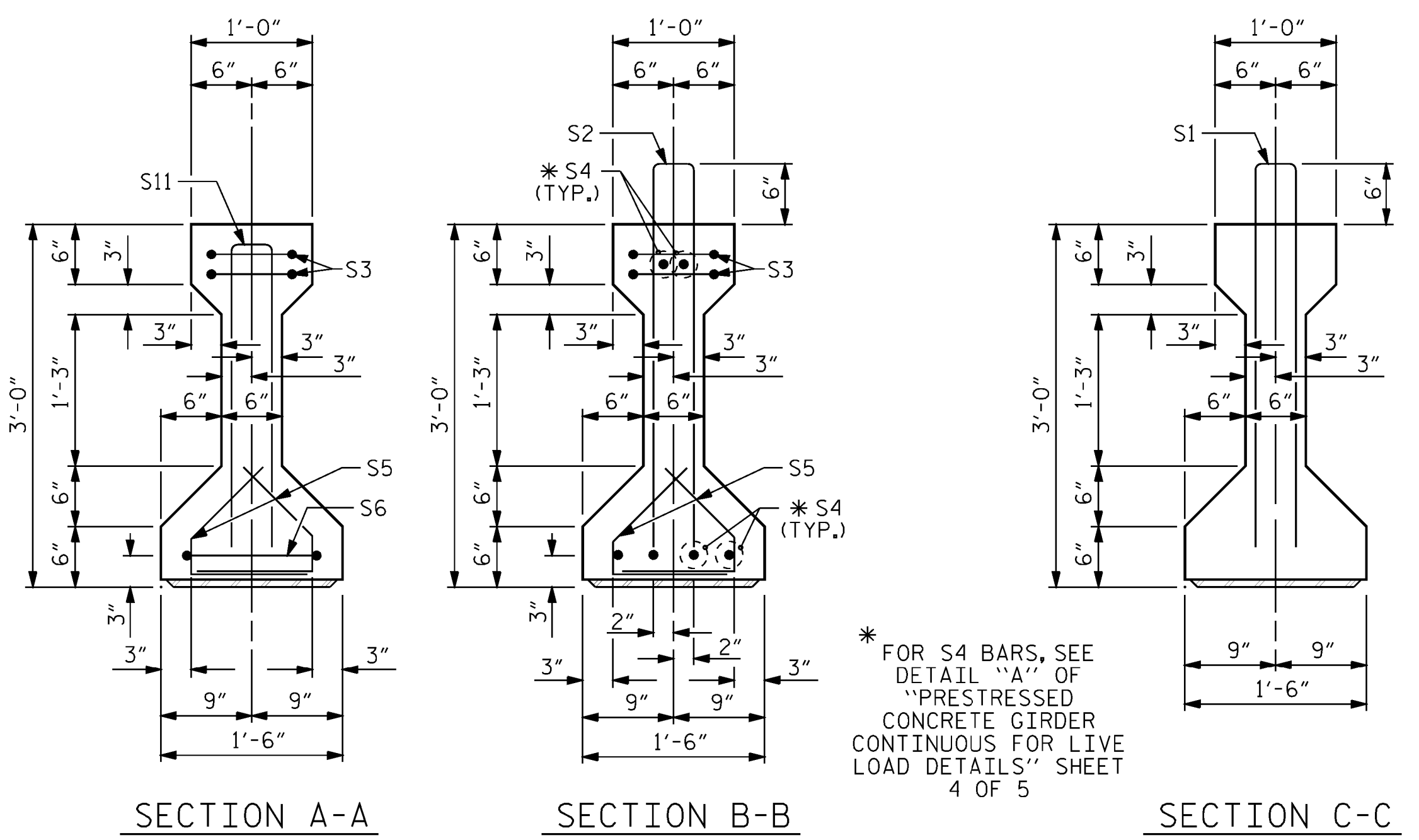
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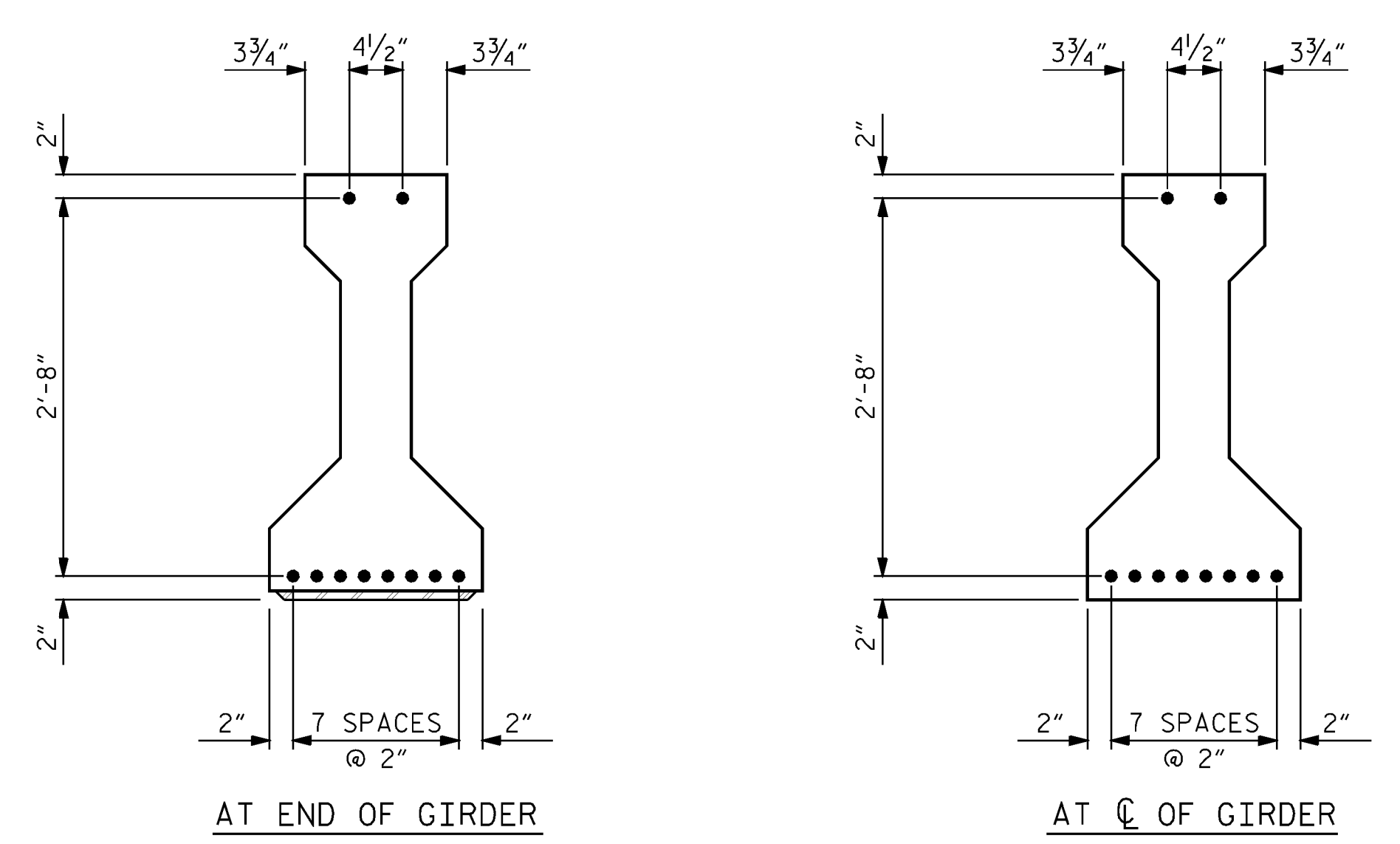
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\* FOR S4 BARS, SEE  
DETAIL "A" OF  
"PRESTRESSED  
CONCRETE GIRDER  
CONTINUOUS FOR LIVE  
LOAD DETAILS" SHEET  
4 OF 5



0.6" Ø LOW RELAXATION STRAND LAYOUT

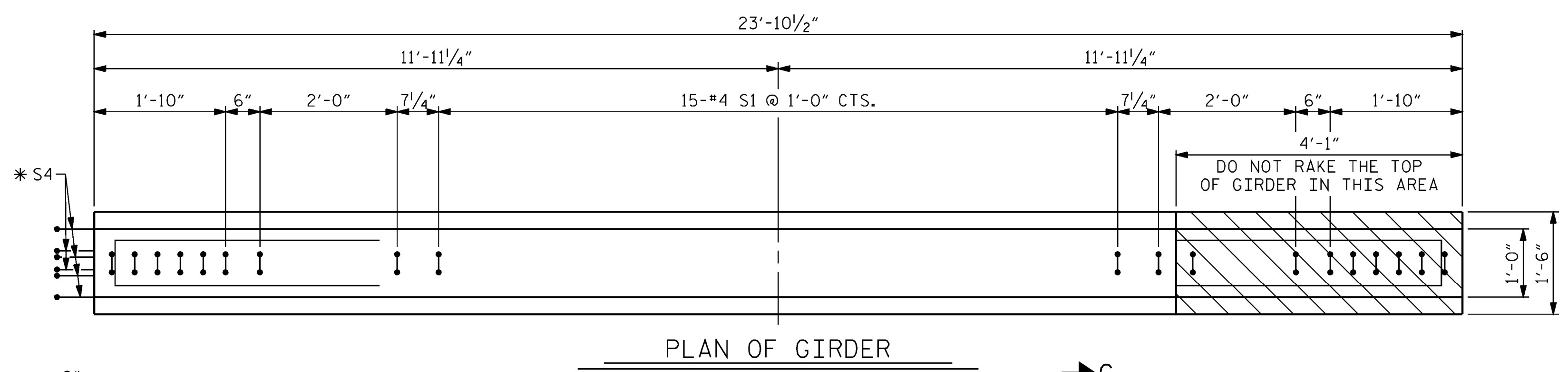
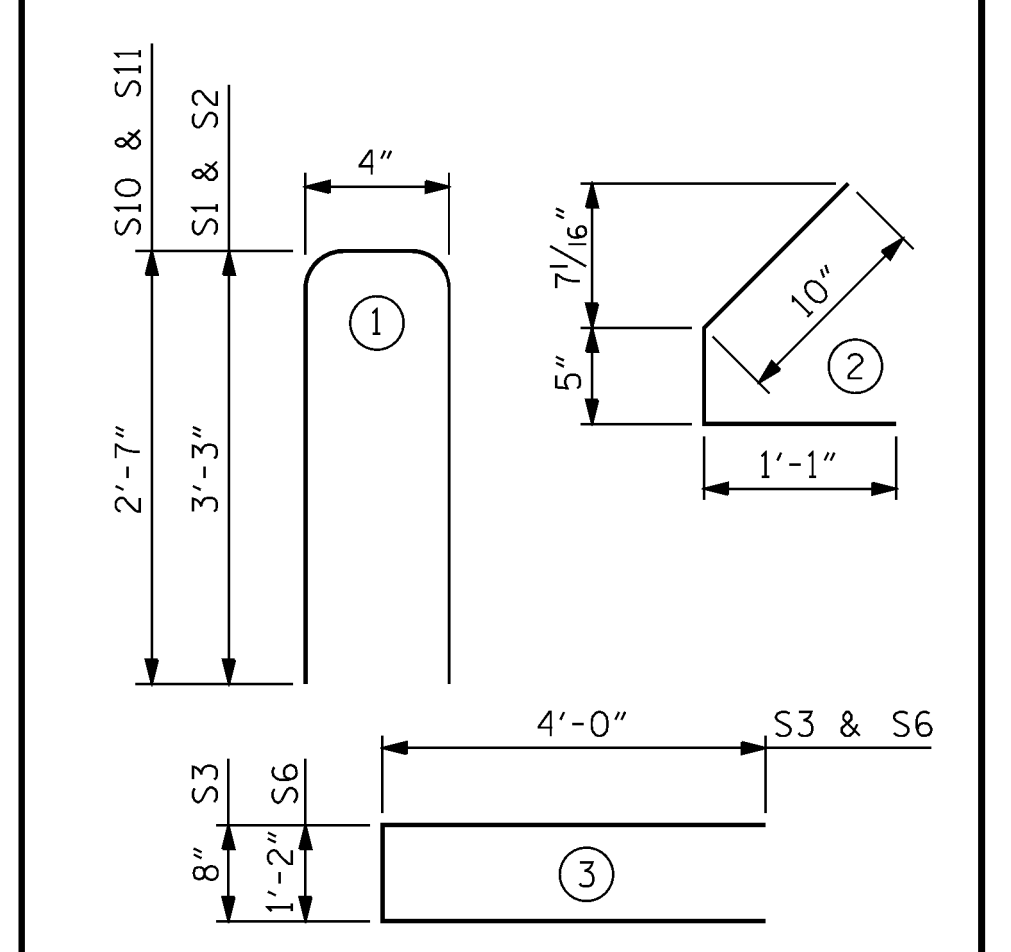
DEBONDING LEGEND  
● FULLY BONDED STRANDS

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

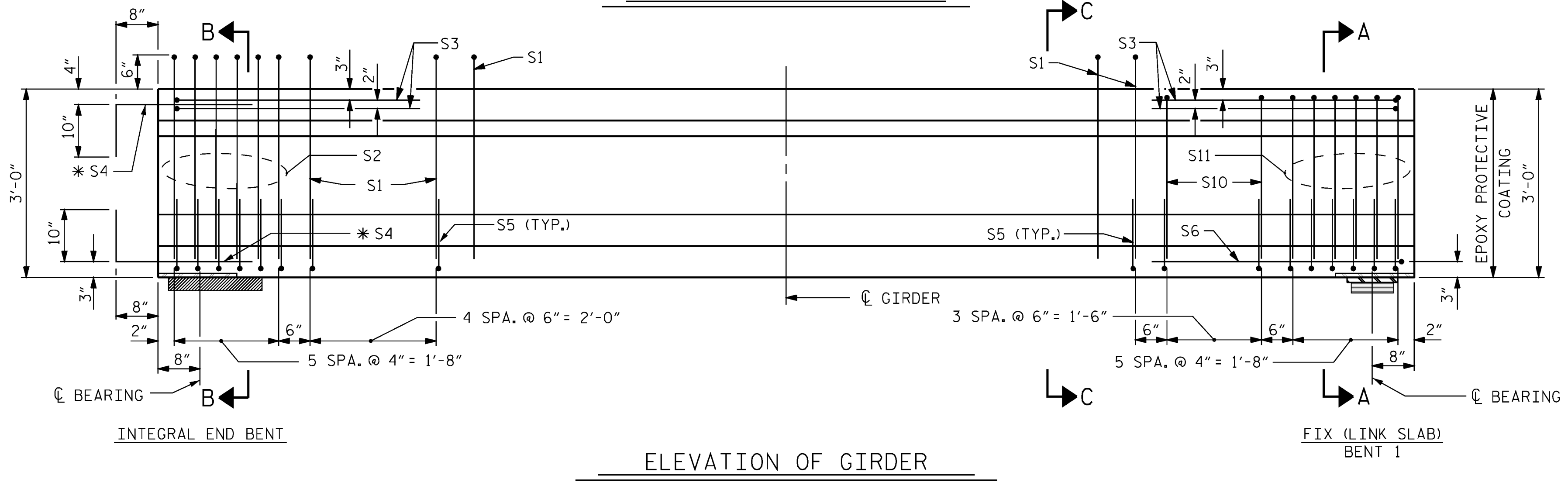
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	21	#4	1	6'-10"	96
S2	6	#5	1	6'-10"	43
S3	4	#4	3	8'-8"	23
* S4	6	#5	STR	3'-8"	23
S5	44	#4	2	2'-4"	69
S6	1	#4	3	9'-2"	6
S10	4	#4	1	5'-6"	15
S11	6	#5	1	5'-6"	34

\* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES  
ALL BAR DIMENSIONS ARE OUT-TO-OUT



PLAN OF GIRDER



ELEVATION OF GIRDER

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	6,000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
GDR, AG1-AG5	309	2.3	10

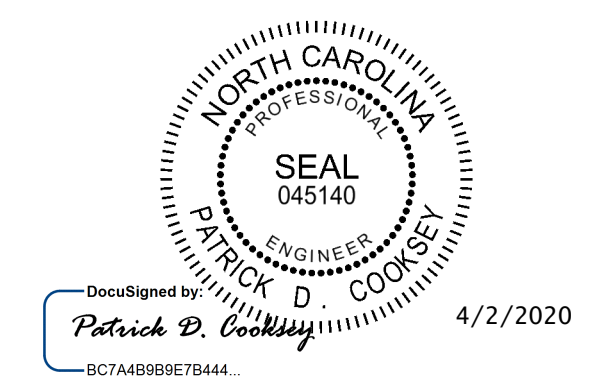
  

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	23'-10 1/2"	119'-4 1/2"

PROJECT NO. B-5534  
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 STATION: 21+68.50 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA  
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 STANDARD  
 AASHTO TYPE II  
 PRESTRESSED CONCRETE GIRDER  
 CONTINUOUS FOR LIVE LOAD  
 SPAN A



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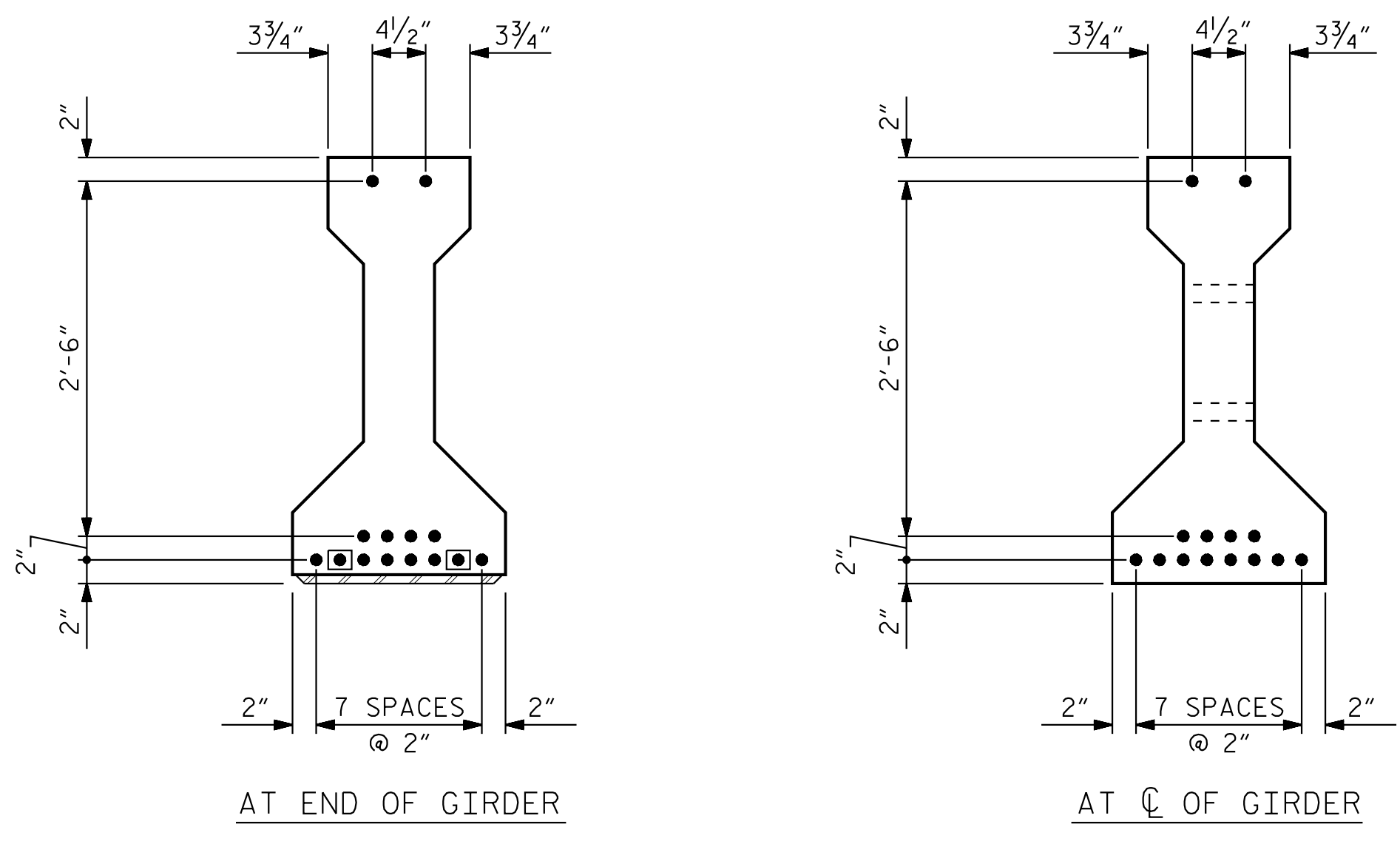
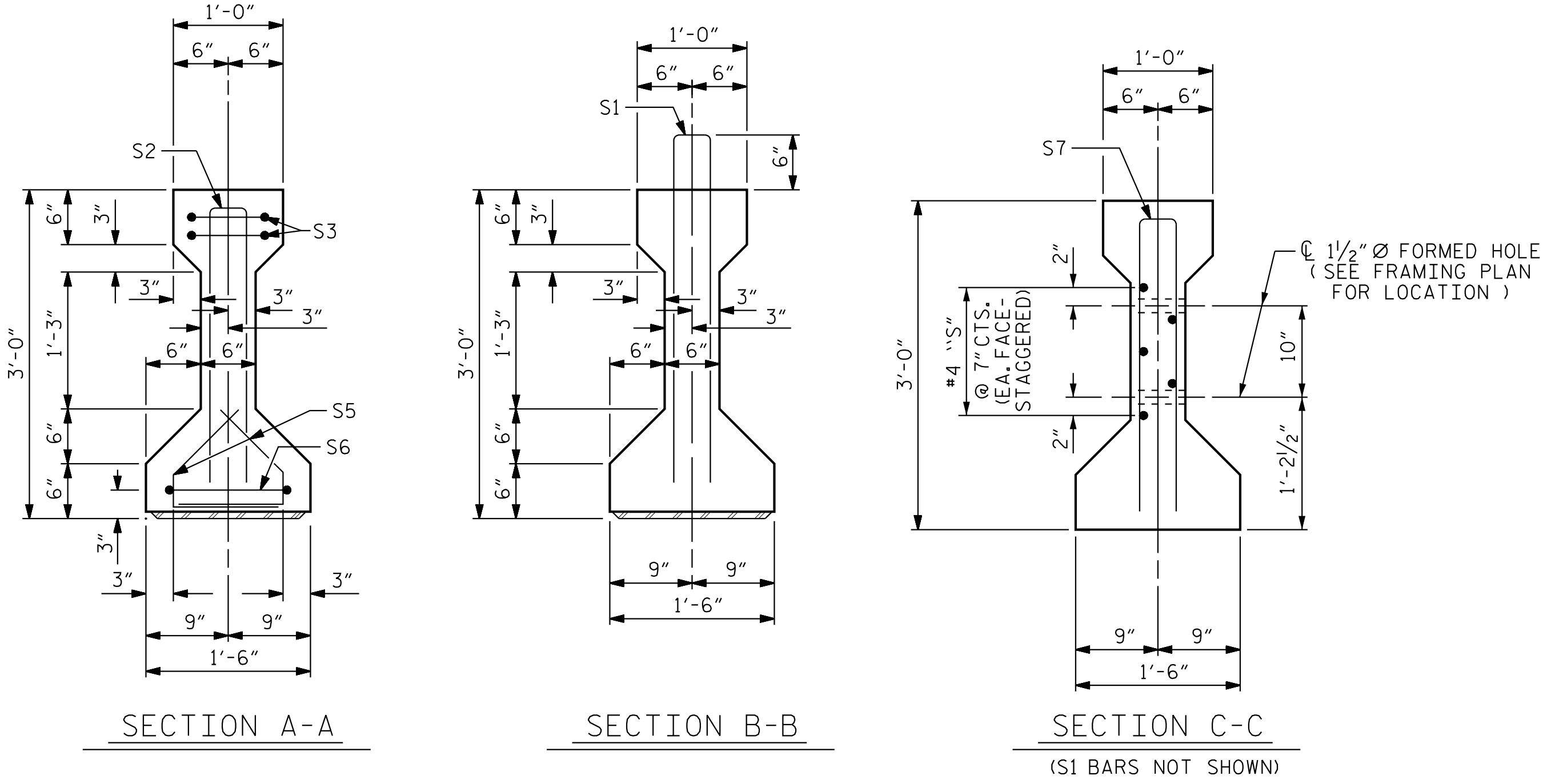
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1			3			TOTAL SHEETS
2			4			34

STD. NO. PCG4

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CHECKED BY : P. D. COOKSEY	DATE : 02/2020
DRAWN BY : ELR 8/91	REV. 10/1/11 MAA/GM
CHECKED BY : GRP 8/91	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

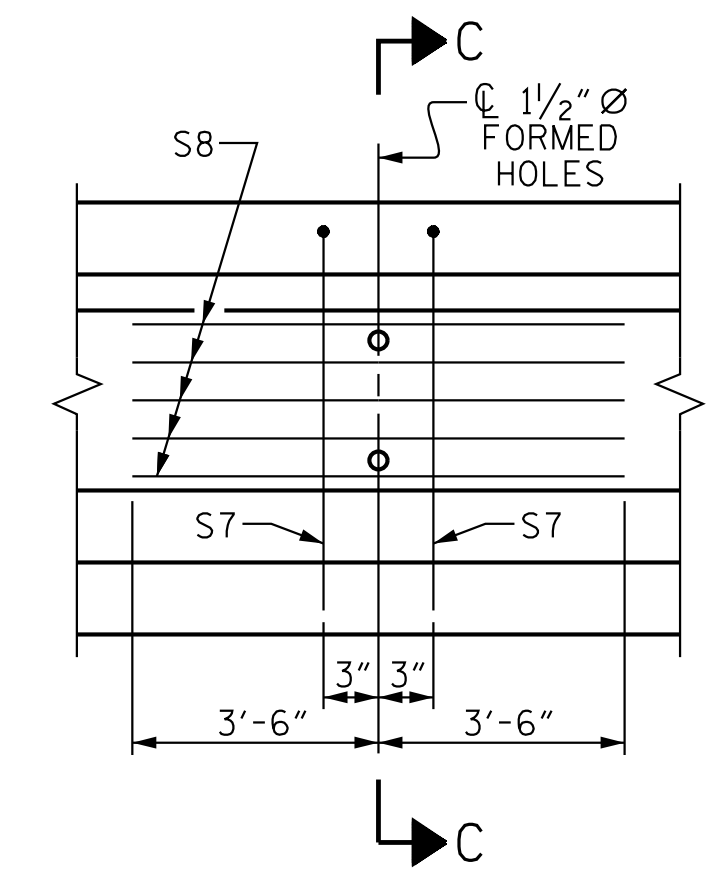
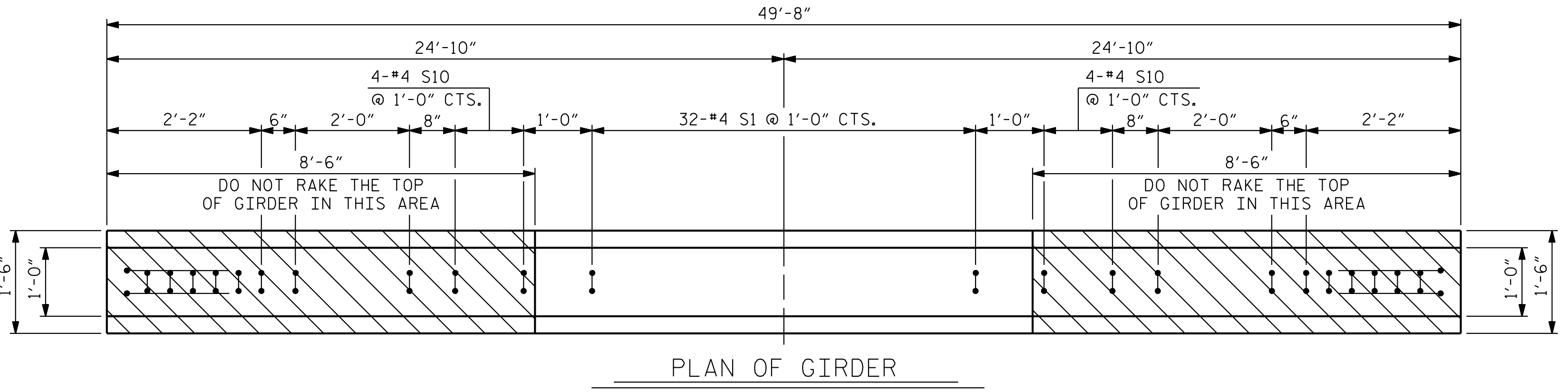
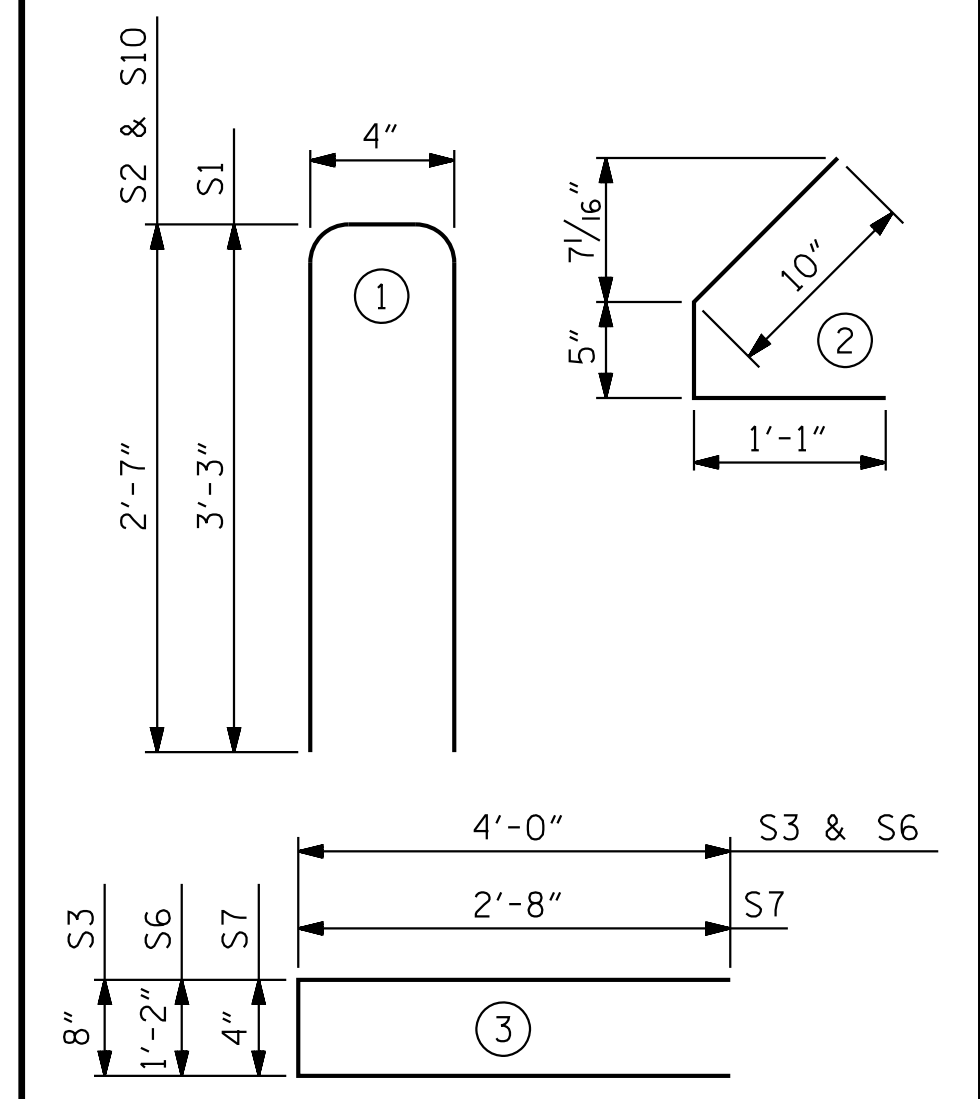




DEBONDING LEGEND  
 ● FULLY BONDED STRANDS  
 ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER

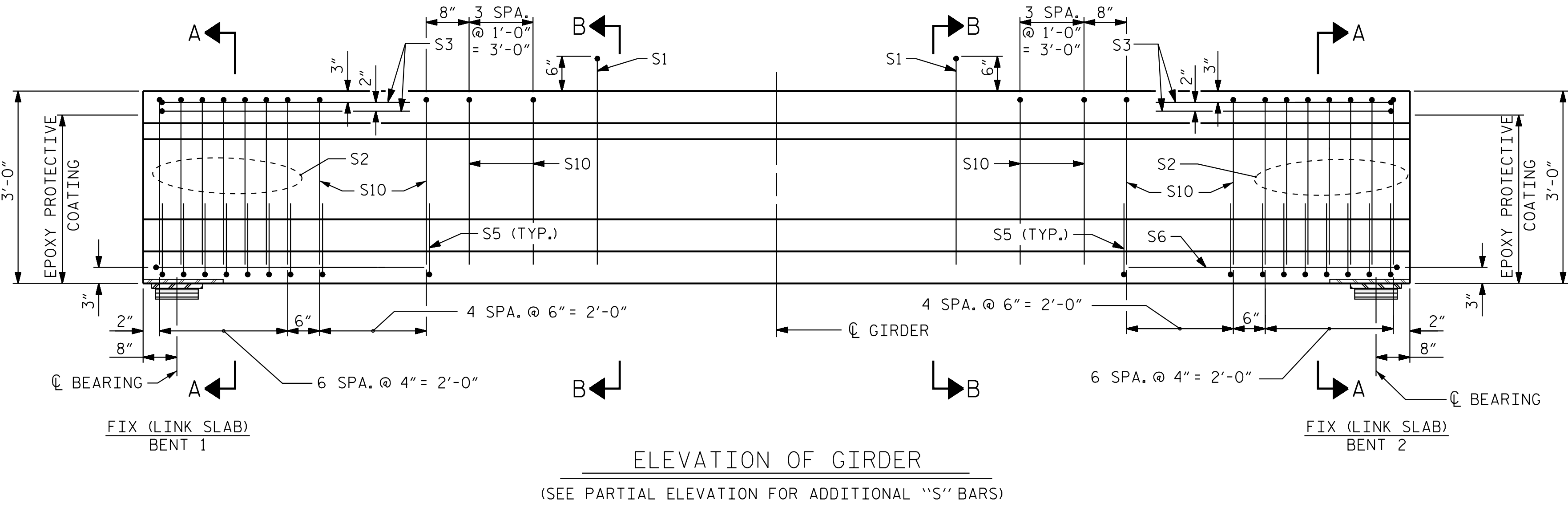
0.6" Ø L. R. GRADE 270 STRANDS					
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)			
0.217	58,600	43,950			
REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	32	#4	1	6'-10"	146
S2	14	#5	1	5'-6"	80
S3	4	#4	3	8'-8"	23
S5	48	#4	2	2'-4"	75
S6	2	#4	3	9'-2"	12
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23
S10	18	#4	1	5'-6"	66

BAR TYPES  
 ALL BAR DIMENSIONS ARE OUT-TO-OUT



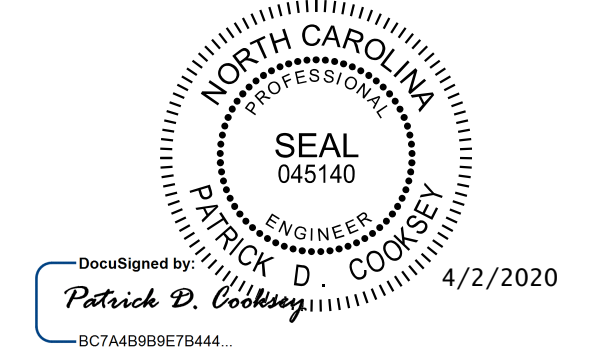
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL LB.	6,000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
GDR, BG1-BG5	437	4.8	14

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	49'-8"	248'-4"



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SHEET 2 OF 5



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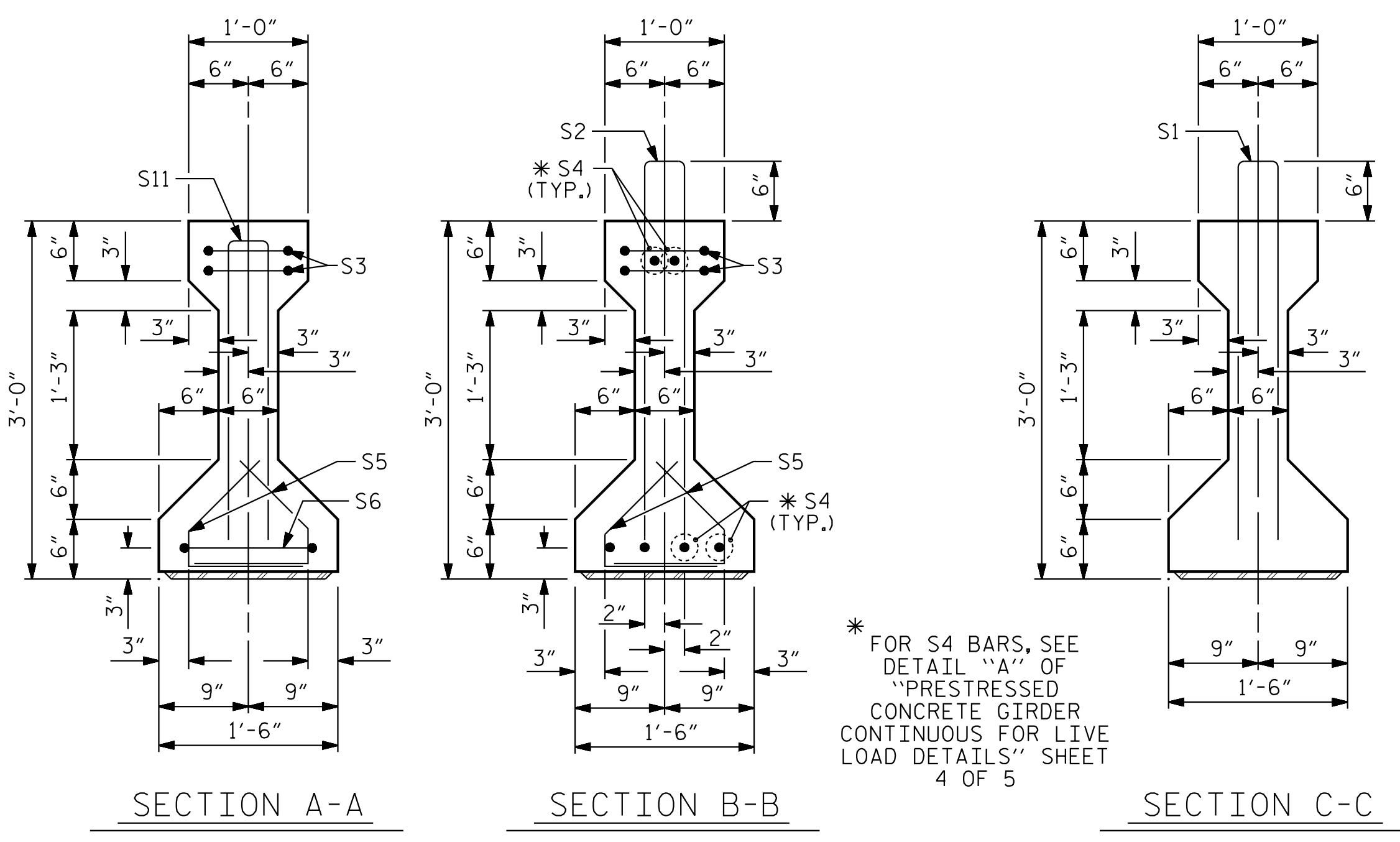
STATE OF NORTH CAROLINA  
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 RALEIGH  
 STANDARD  
 AASHTO TYPE II  
 PRESTRESSED CONCRETE GIRDER  
 CONTINUOUS FOR LIVE LOAD  
 SPAN B

REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

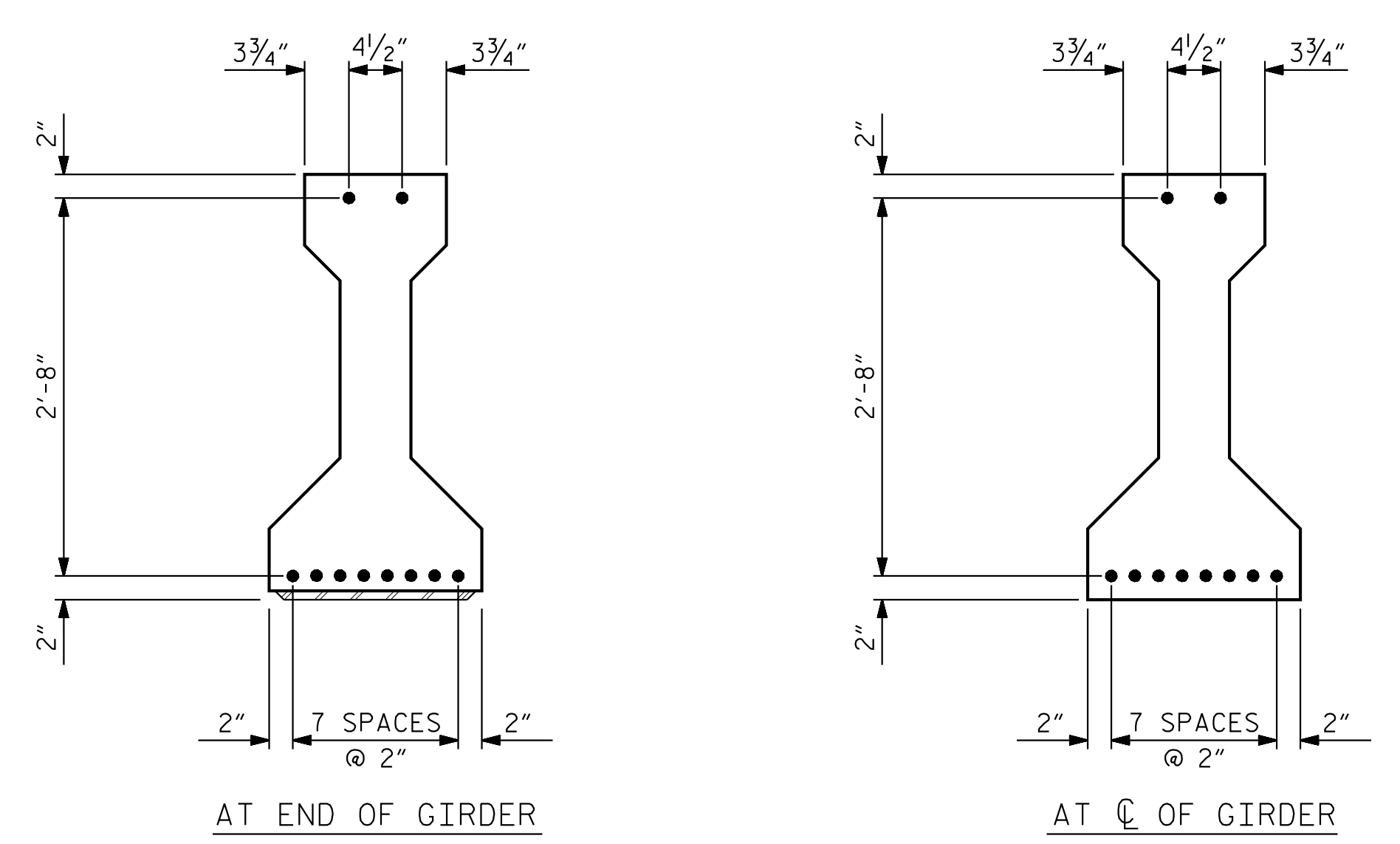
STD. NO. PCG4

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ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : P. D. COOKSEY	DATE : 02/2020
DRAWN BY : JMB 12/87	REV. 1/15 MAA/TMG
CHECKED BY : ARB 12/87	REV. 2/15 MAA/TMG
	REV. 12/17 MAA/THC



\* FOR S4 BARS, SEE  
DETAIL "A" OF  
"PRESTRESSED  
CONCRETE GIRDER  
CONTINUOUS FOR LIVE  
LOAD DETAILS" SHEET  
4 OF 5



0.6" Ø LOW RELAXATION STRAND LAYOUT

DEBONDING LEGEND  
● FULLY BONDED STRANDS

0.6" Ø L. R. GRADE 270 STRANDS

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

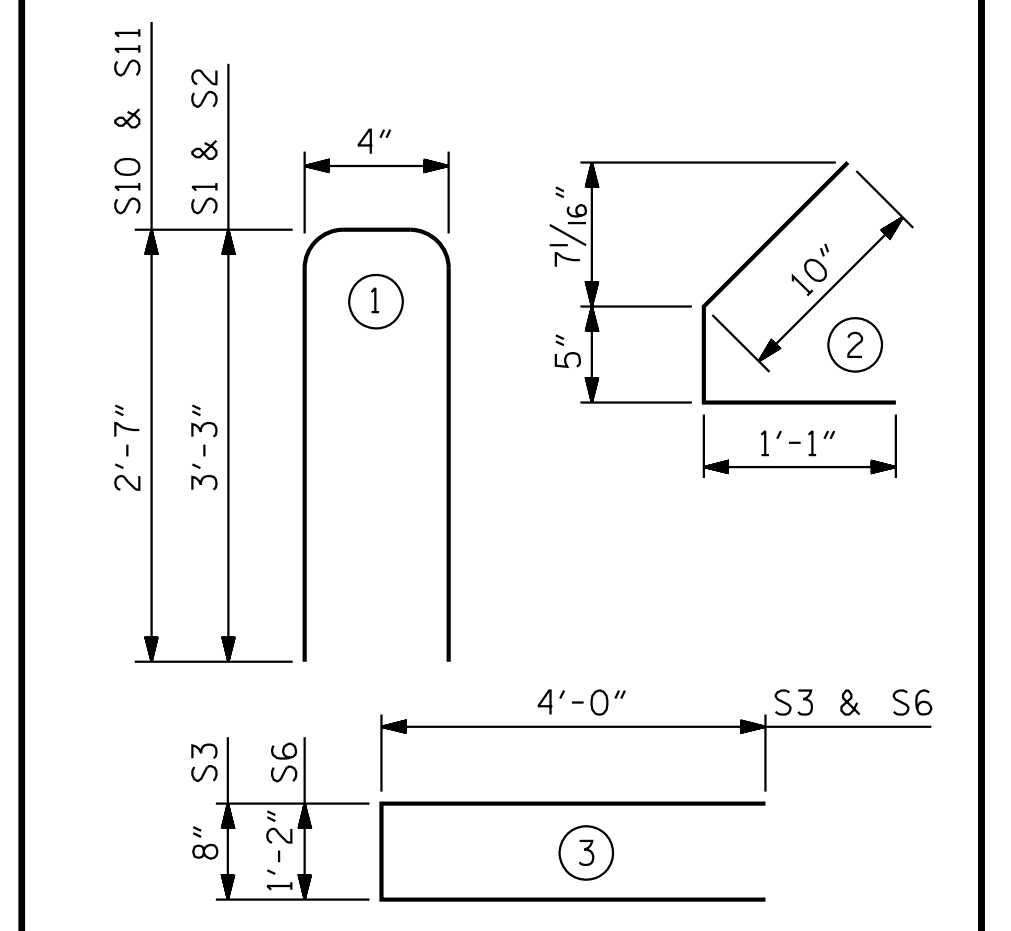
REINFORCING STEEL  
FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	24	#4	1	6'-10"	110
S2	6	#5	1	6'-10"	43
S3	4	#4	3	8'-8"	23
* S4	6	#5	STR	3'-8"	23
S5	44	#4	2	2'-4"	69
S6	1	#4	3	9'-2"	6
S10	6	#4	1	5'-6"	22
S11	6	#5	1	5'-6"	34

\* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT

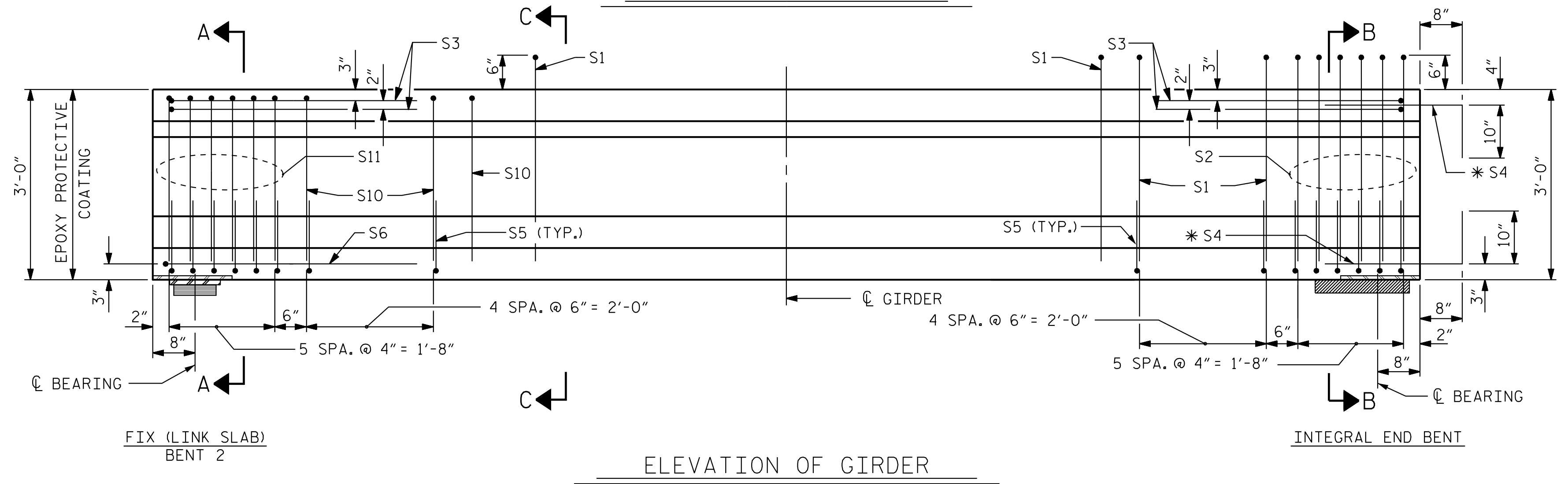
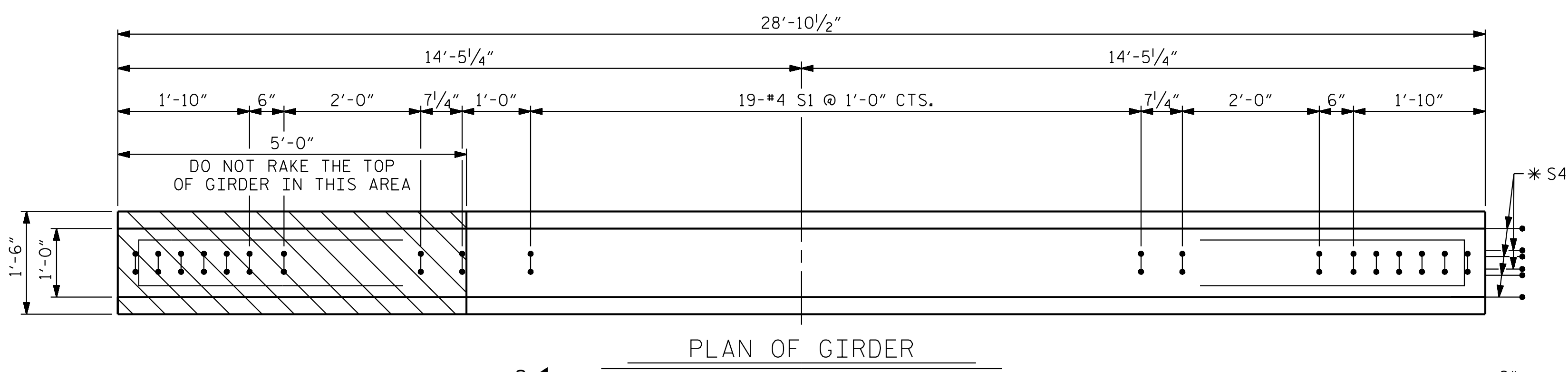


QUANTITIES FOR ONE GIRDER

GDR, CG1-CG5	REINFORCING STEEL	6,000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
	330	2.8	10

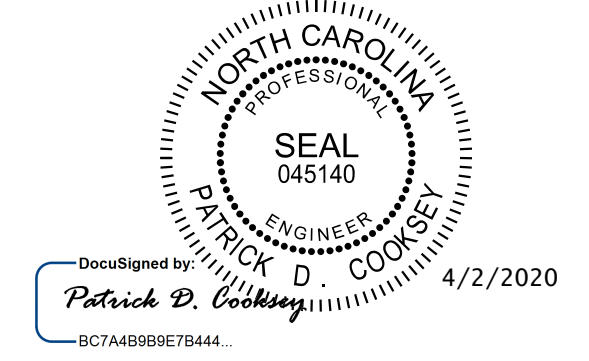
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
5	28'-10 1/2"	144'-4 1/2"



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SHEET 3 OF 5



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

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			34

STD. NO. PCG4

K:\BIDI\_Structures\Bridges\NC\01036500 - B-5534 CG1-CG5\Drawn\B5534-SML-03-300082.dgn

ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : P. D. COOKSEY	DATE : 02/2020
DRAWN BY : ELR 8/91	REV. 10/1/11 MAA/GM
CHECKED BY : GRP 8/91	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC



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.

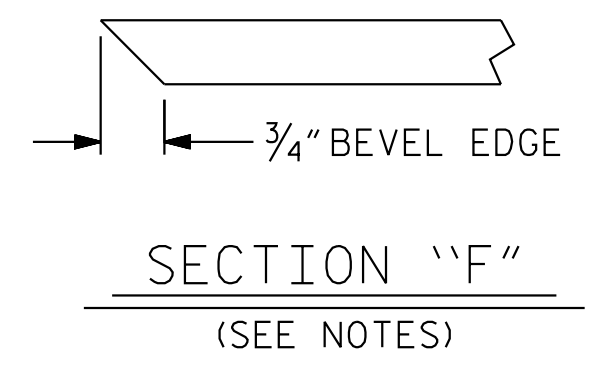
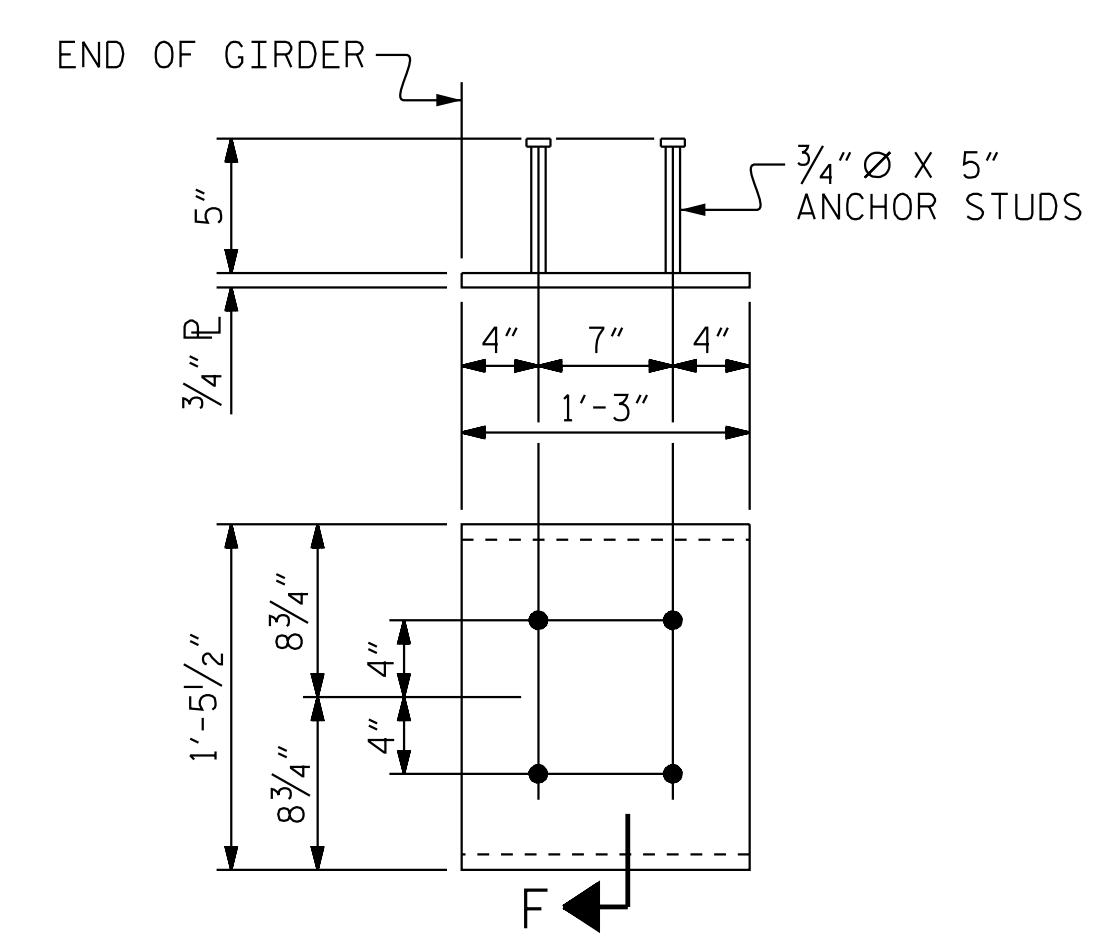
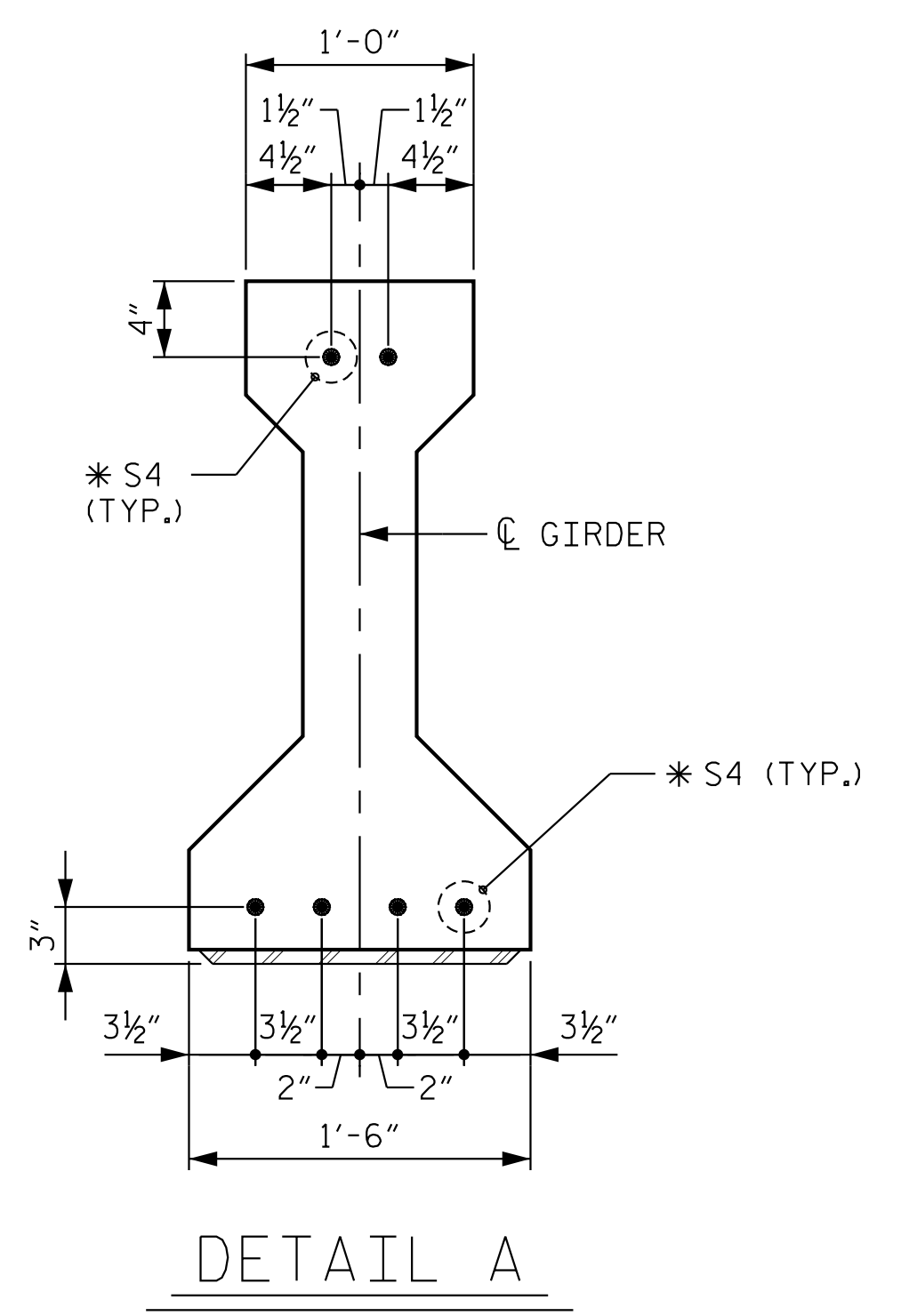
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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 5,000 PSI.

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

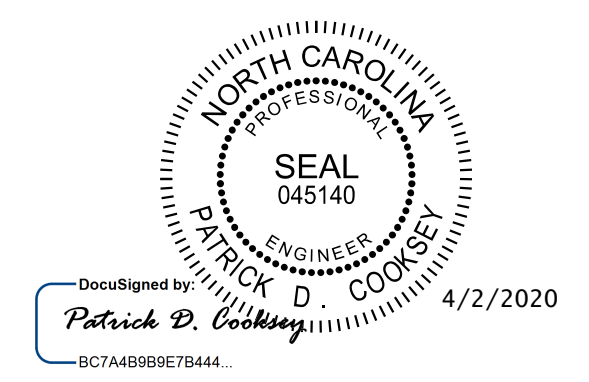
THE TOP SURFACE OF THE GIRDER EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4" EXCEPT IN THE LINK SLAB AREA SHOWN IN PLANS.



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

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SHEET 4 OF 5



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 RALEIGH  
 STANDARD  
 PRESTRESSED CONCRETE GIRDER  
 CONTINUOUS FOR LIVE LOAD  
 DETAILS

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K:\RD1\_Structures\Bridge\NC\011036500 - B-5534\Gen\Dgn\B5534\_SML\_G4\_300082.dgn

ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : P. D. COOKSEY	DATE : 02/2020
DRAWN BY : JMB 12/87	REV. 1/15 MAA/TMG
CHECKED BY : ARB 12/87	REV. 2/15 MAA/TMG
	REV. 12/17 MAA/THC

# STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

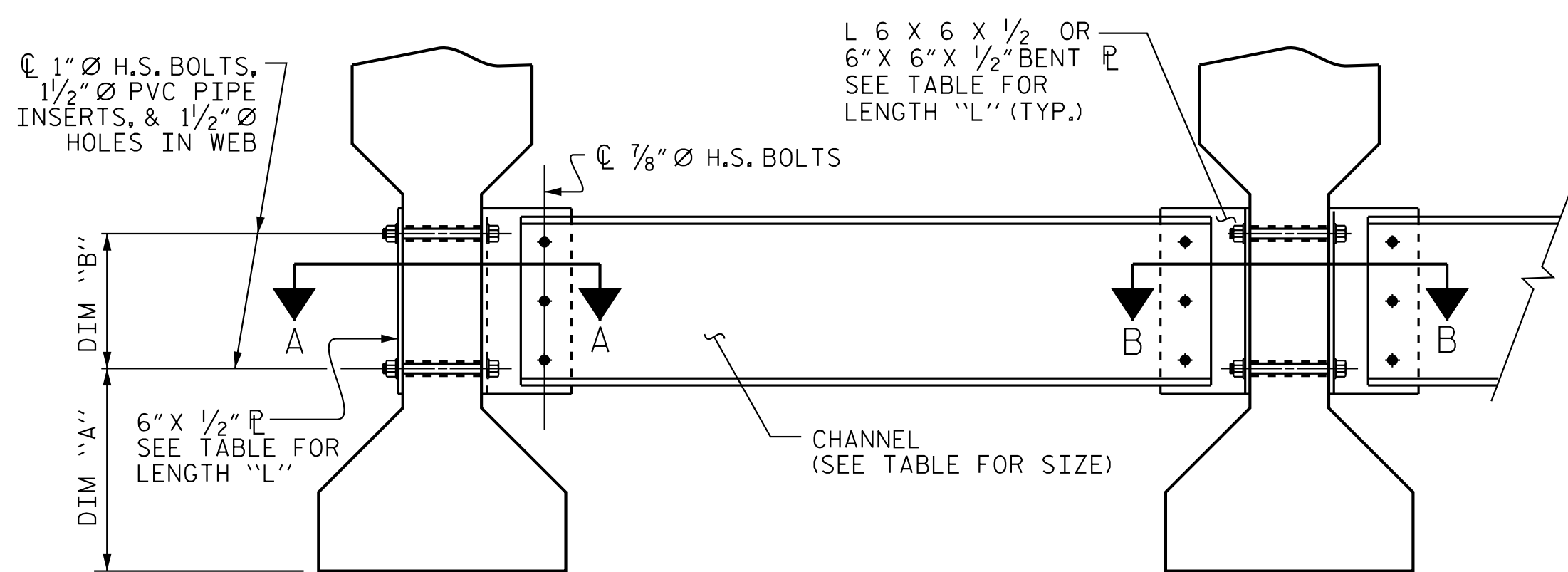
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

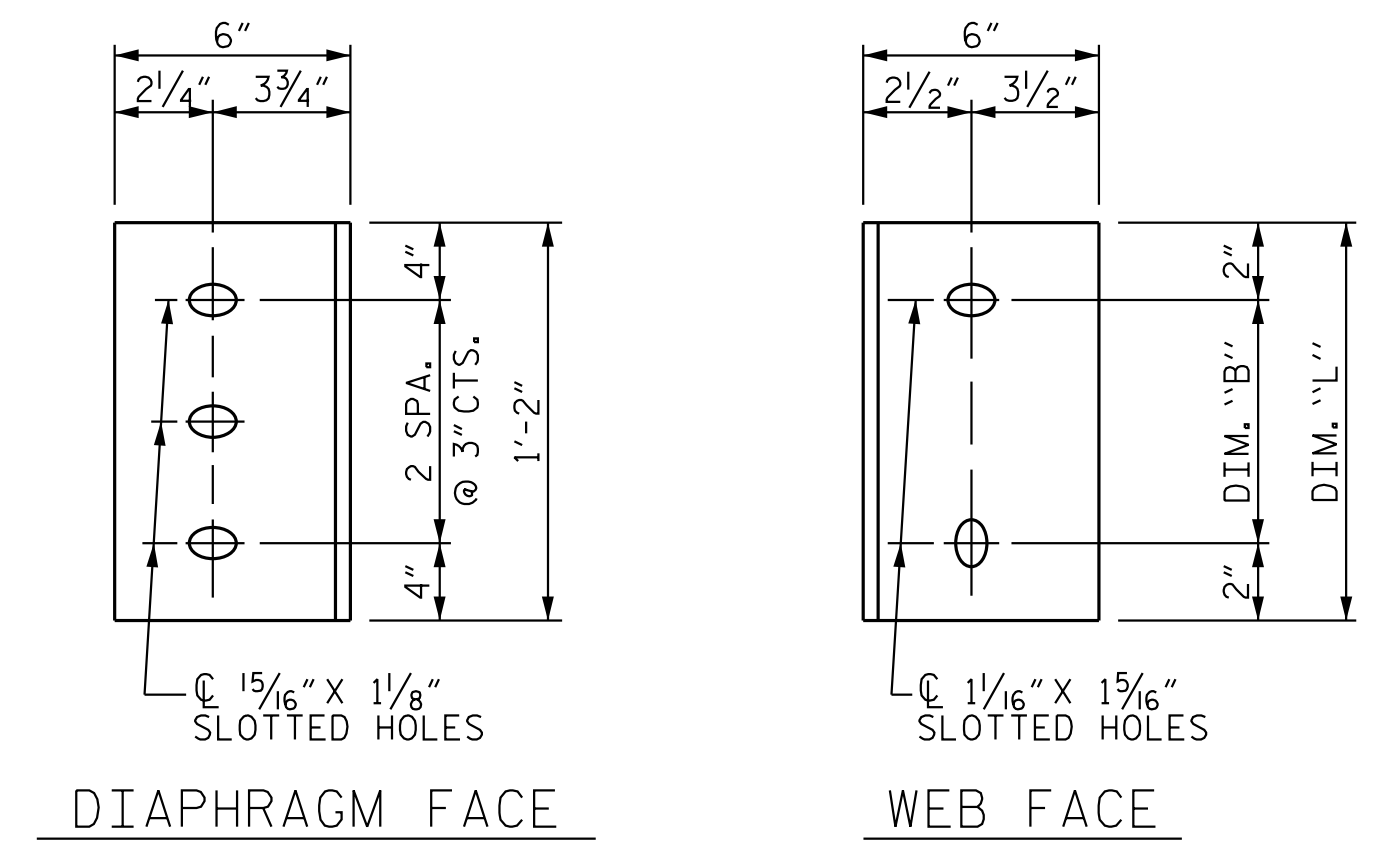
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

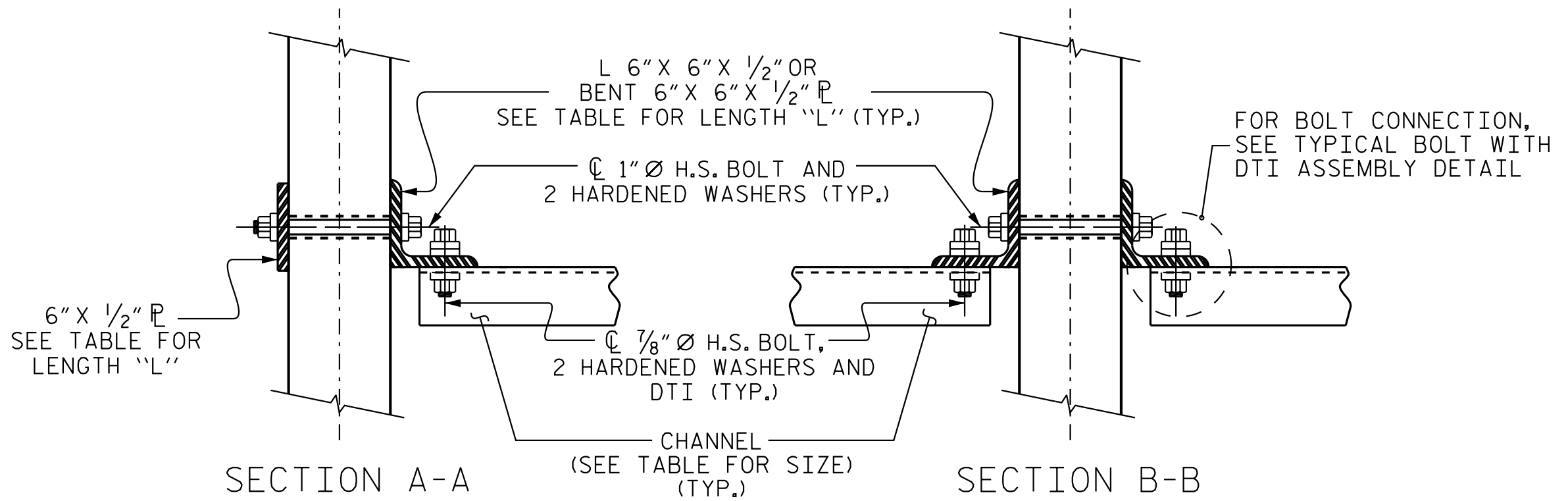
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



EXTERIOR GIRDER INTERIOR GIRDER  
PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTOR PLATE DETAILS



CONNECTION DETAILS

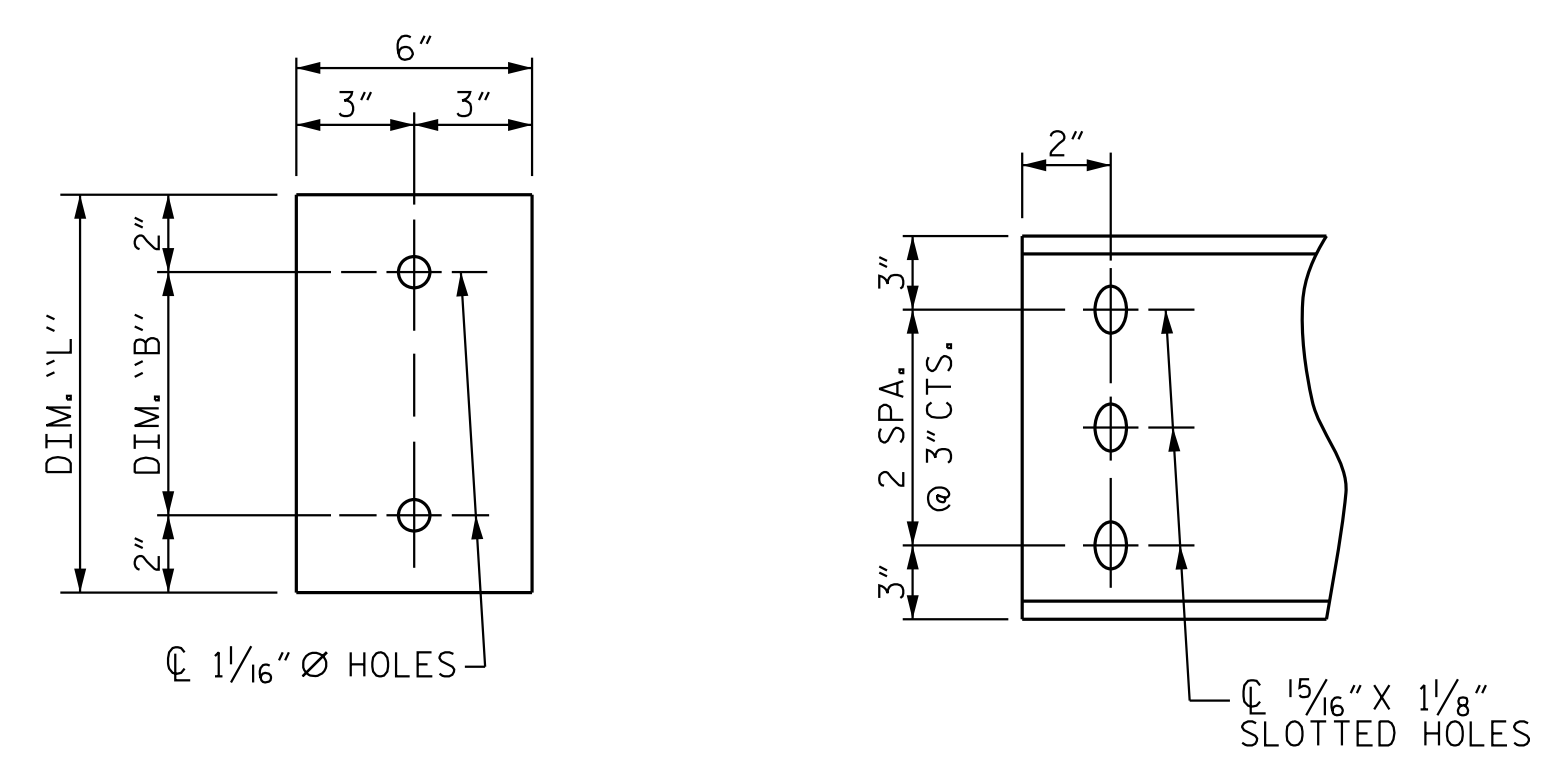
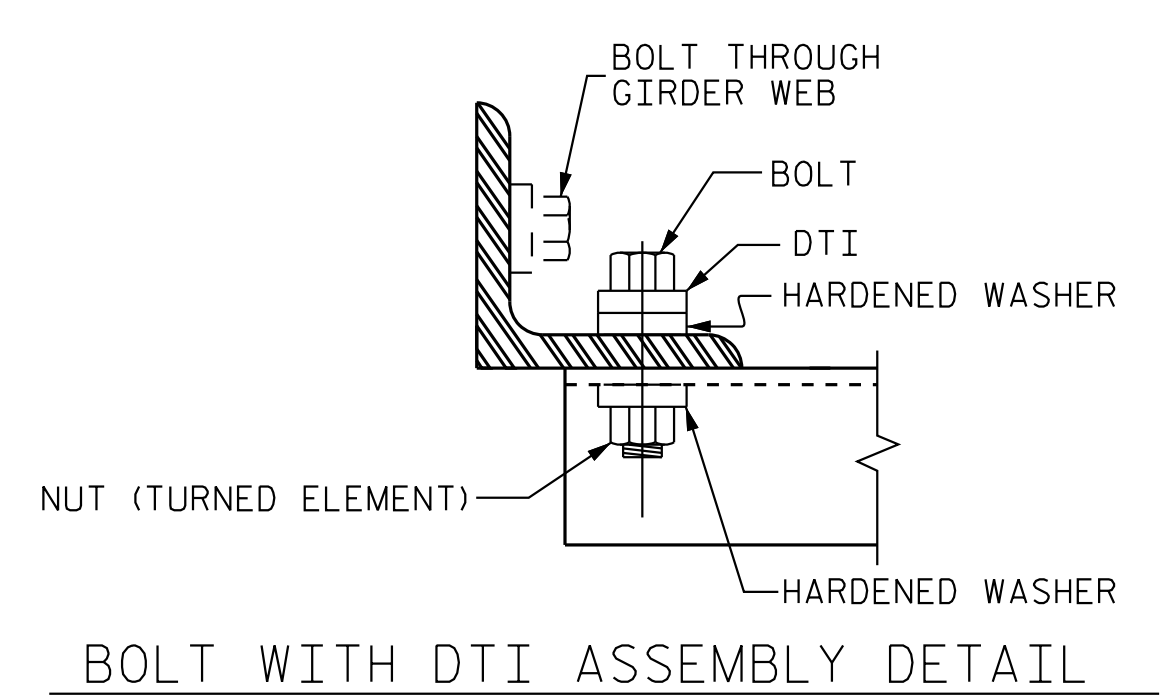


PLATE DETAILS CHANNEL END

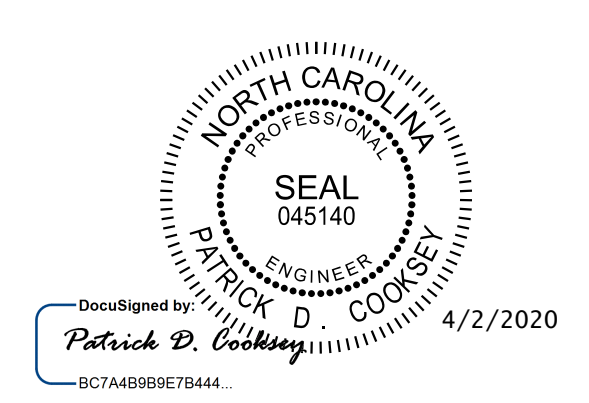
TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
II	MC 12 x 31	1'-2 1/2"	10"	1'-2"



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DUPLIN COUNTY  
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SHEET 5 OF 5



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

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2/20/2020 K:\BID Structures\Bridges\NC\01036500 - B-5534\Gen Dgn\B5534\_SML\_05\_300082.dgn

ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : P. D. COOKSEY	DATE : 02/2020
DRAWN BY : TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY : VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC



DEAD LOAD DEFLECTION TABLE FOR GIRDERS												
0.6" Ø LOW RELAXATION STRANDS	SPAN A											
	GIRDERS AG1 AND AG5											
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.005	0.010	0.014	0.016	0.017	0.016	0.014	0.010	0.005	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.000
FINAL CAMBER	↑	0	1/16"	1/8"	1/8"	3/16"	3/16"	3/16"	1/8"	1/8"	1/16"	0

\* INCLUDES FUTURE WEARING SURFACE.  
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 AG2, AG3, AND AG4											
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.005	0.010	0.014	0.016	0.017	0.016	0.014	0.010	0.005	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.001	0.001	0.002	0.002	0.003	0.002	0.002	0.001	0.001	0.000
FINAL CAMBER	↑	0	1/16"	1/8"	1/8"	3/16"	3/16"	3/16"	1/8"	1/8"	1/16"	0

\* INCLUDES FUTURE WEARING SURFACE.  
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 BG1 AND BG5											
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.028	0.053	0.073	0.085	0.089	0.085	0.073	0.053	0.028	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.014	0.028	0.039	0.046	0.048	0.046	0.039	0.028	0.014	0.000
FINAL CAMBER	↑	0	3/16"	5/16"	3/8"	1/2"	1/2"	1/2"	3/8"	5/16"	3/16"	0

\* INCLUDES FUTURE WEARING SURFACE.  
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 BG2, BG3, AND BG4											
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.028	0.053	0.073	0.085	0.089	0.085	0.073	0.053	0.028	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.015	0.031	0.044	0.052	0.054	0.052	0.044	0.031	0.015	0.000
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	3/8"	7/16"	3/8"	3/8"	1/4"	1/8"	0

\* INCLUDES FUTURE WEARING SURFACE.  
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 CG1 AND CG5											
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.007	0.014	0.019	0.022	0.023	0.022	0.019	0.014	0.007	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.001	0.003	0.004	0.005	0.005	0.005	0.004	0.003	0.001	0.000
FINAL CAMBER	↑	0	1/16"	1/8"	3/16"	3/16"	1/4"	3/16"	3/16"	1/8"	1/16"	0

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

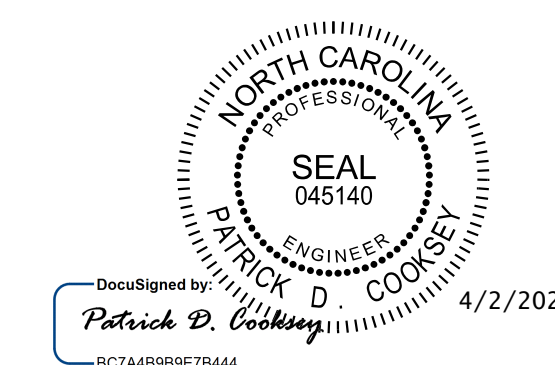
DEAD LOAD DEFLECTION TABLE FOR GIRDERS												
0.6" Ø LOW RELAXATION STRANDS	SPAN C											
	GIRDERS CG2, CG3, AND CG4											
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0.000	0.007	0.014	0.019	0.022	0.023	0.022	0.019	0.014	0.007	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0.000	0.001	0.003	0.005	0.005	0.006	0.005	0.004	0.003	0.001	0.000
FINAL CAMBER	↑	0	1/16"	1/8"	3/16"	3/16"	3/16"	3/16"	3/16"	1/8"	1/16"	0

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

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DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-



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 NC LICENSE # F-0102

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 GIRDER DEFLECTION  
 AND CAMBER SCHEDULES

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NOTES

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

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, AND WASHERS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

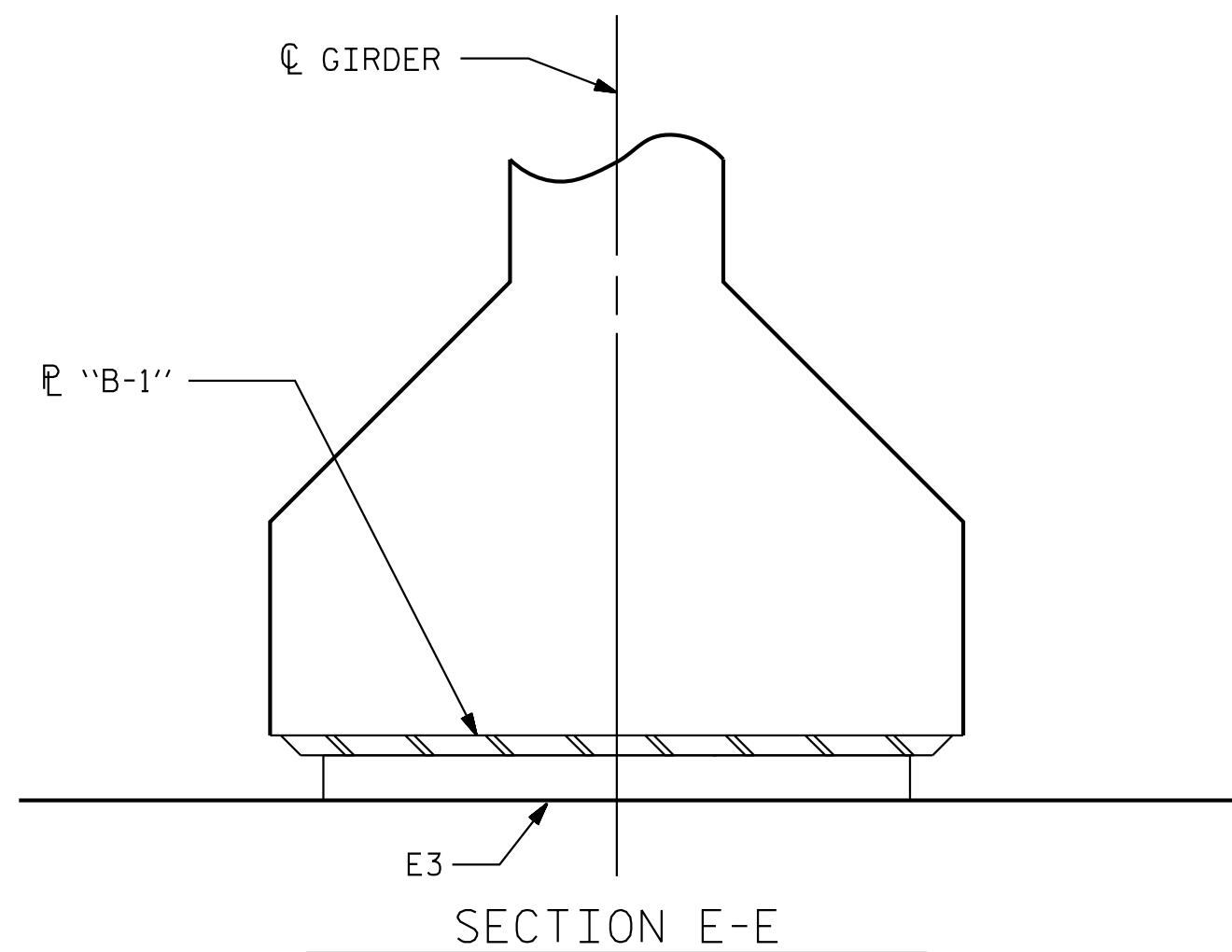
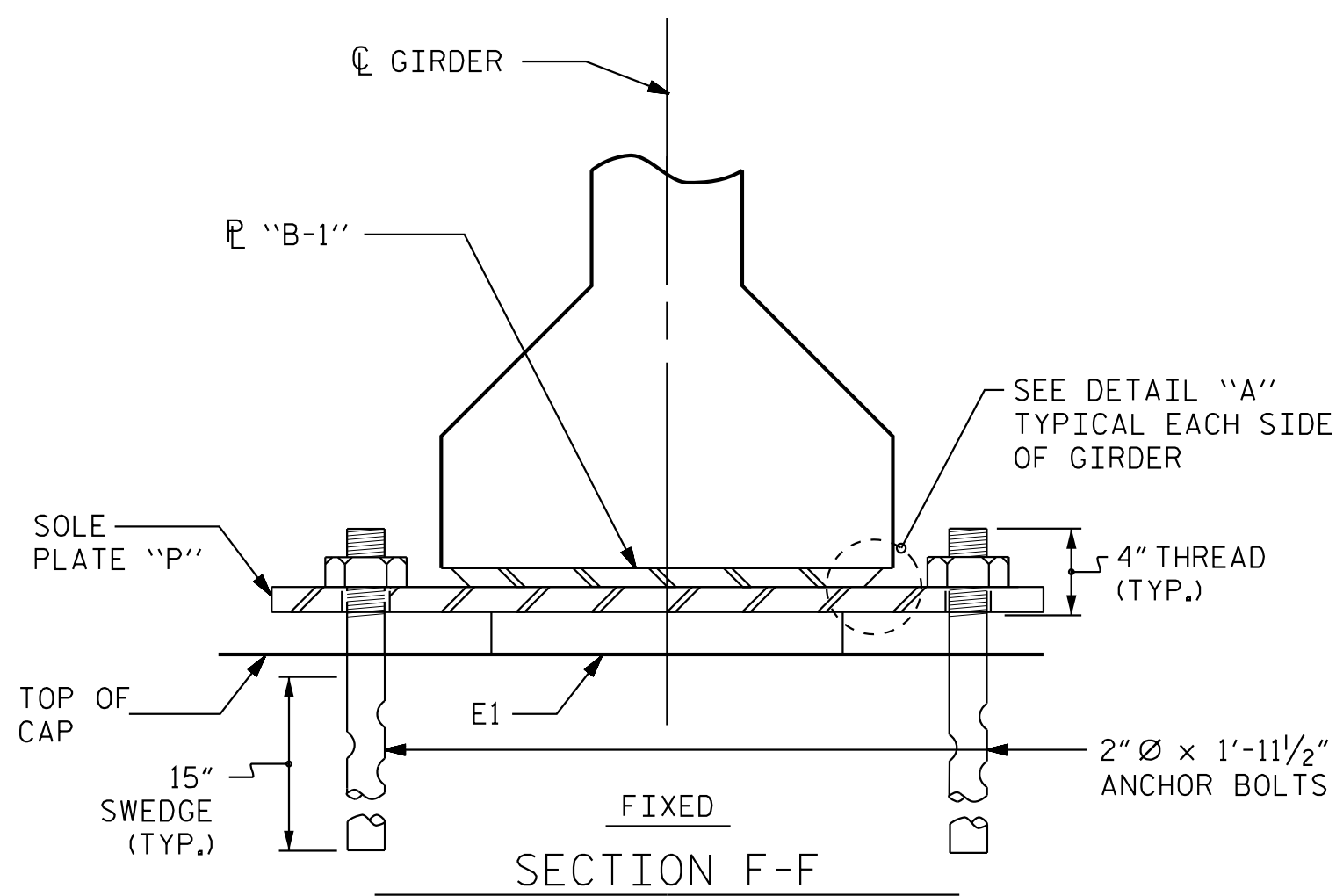
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

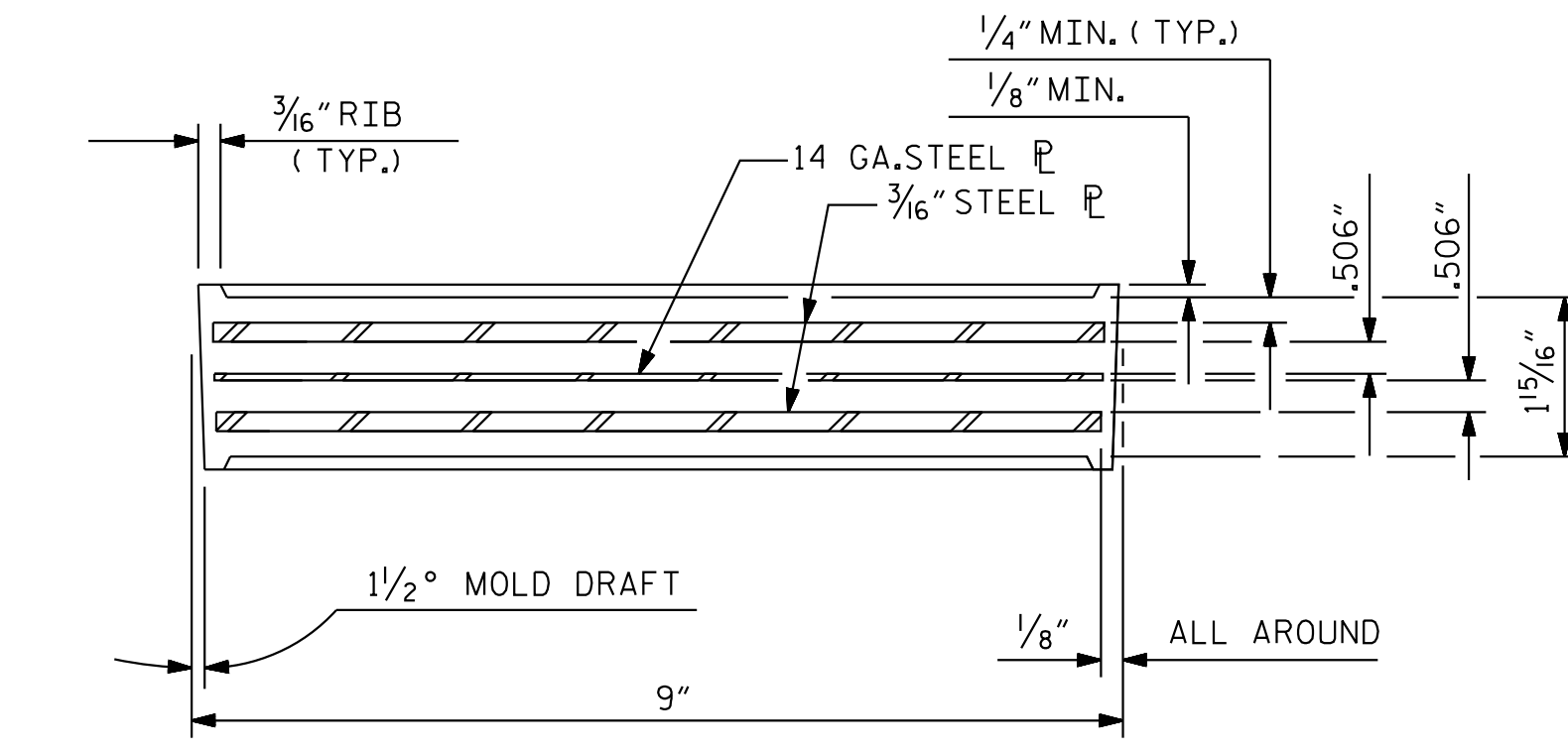
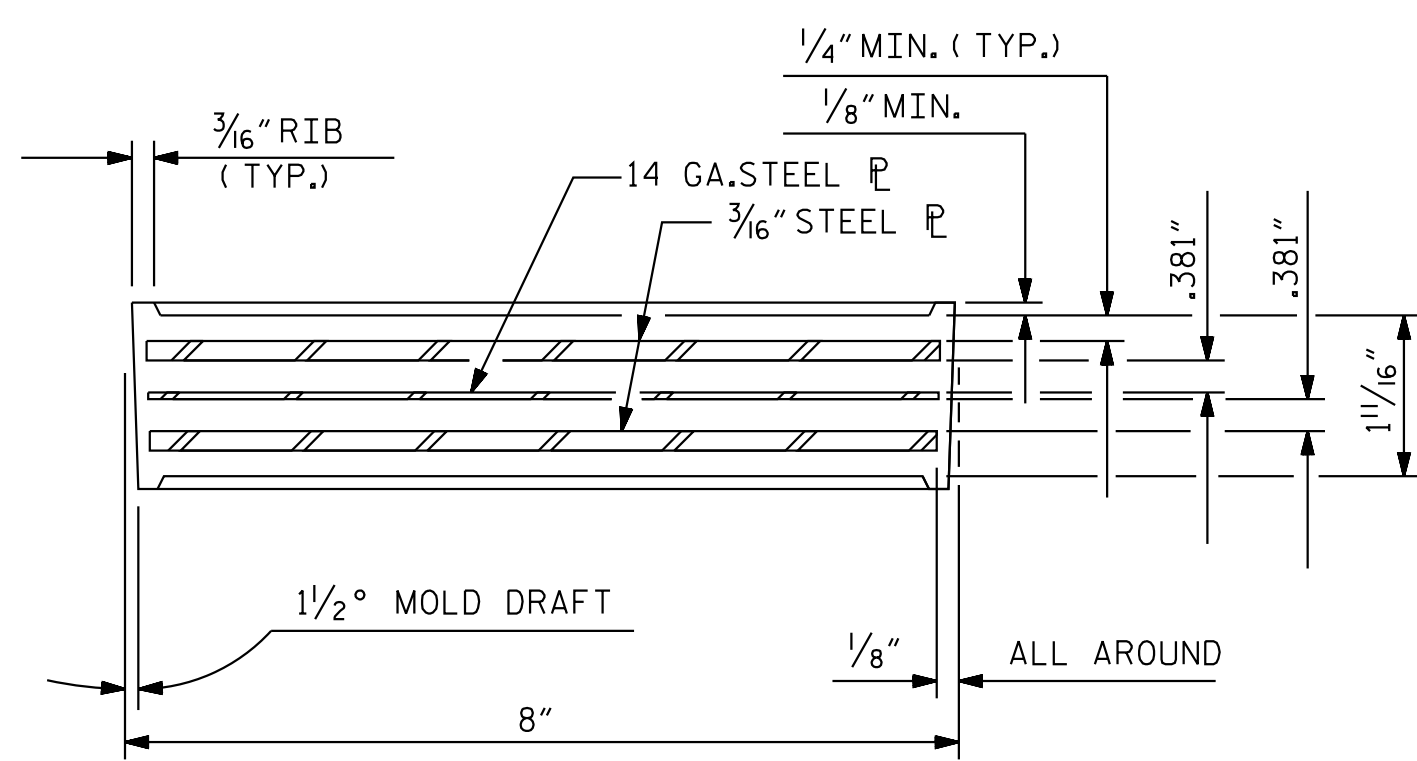
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

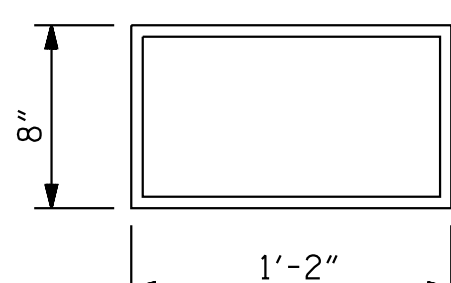


MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE II	145 k
TYPE IV	225 k



TYPICAL SECTION OF ELASTOMERIC BEARINGS

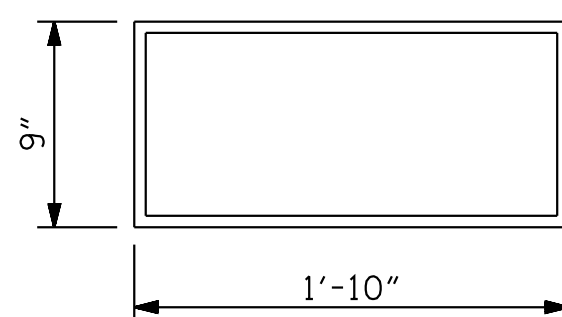
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E1 (20 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

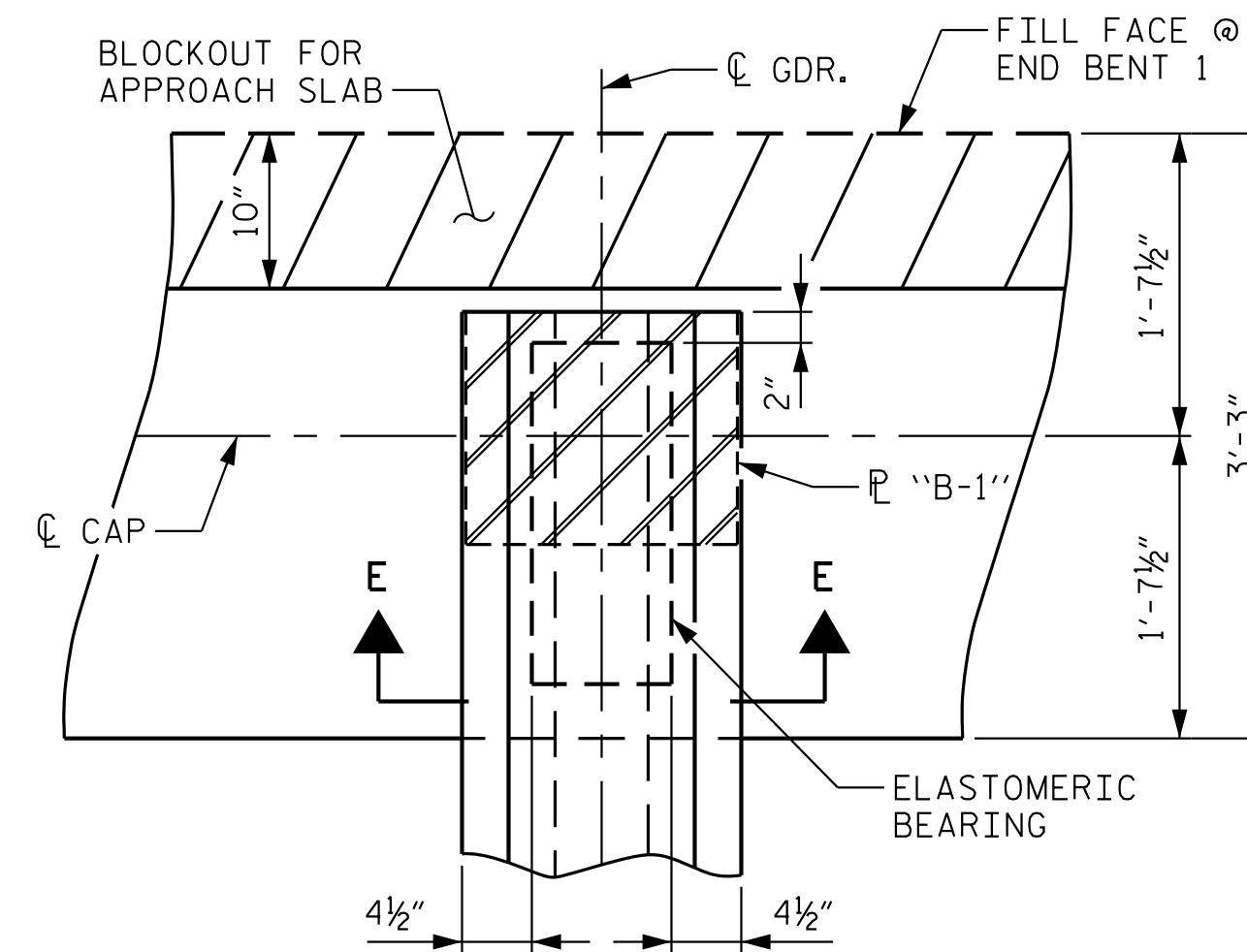
TYPE II



E3 (10 REQ'D)

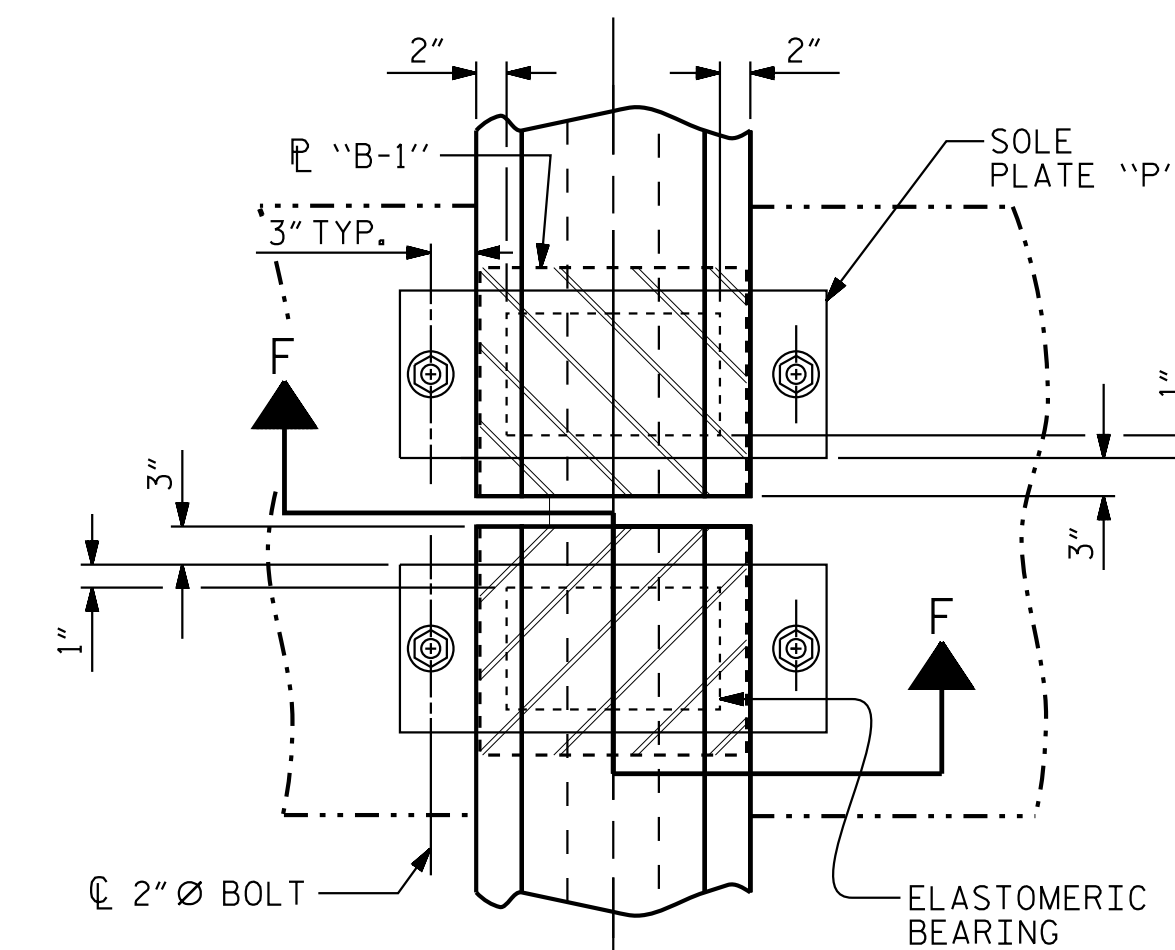
PLAN VIEW OF ELASTOMERIC BEARING

TYPE IV

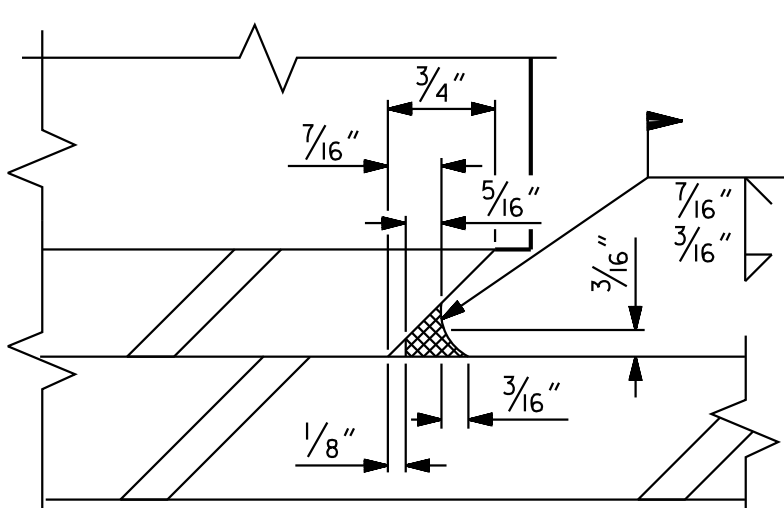


TYPICAL PLAN

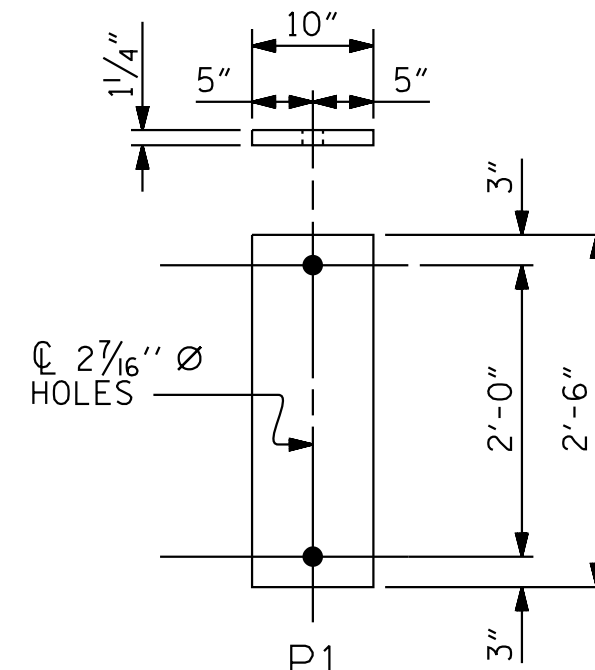
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



TYPICAL PLAN

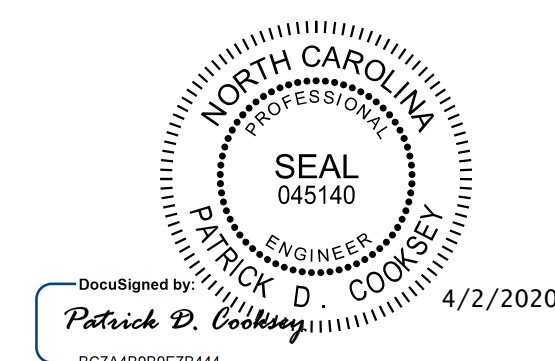


DETAIL "A"



P1 (FIXED)  
P1 (20 REQ'D)

SOLE PLATE DETAILS ("P")



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PROJECT NO. B-5534  
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STATION: 21+68.50 -L-

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

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			34

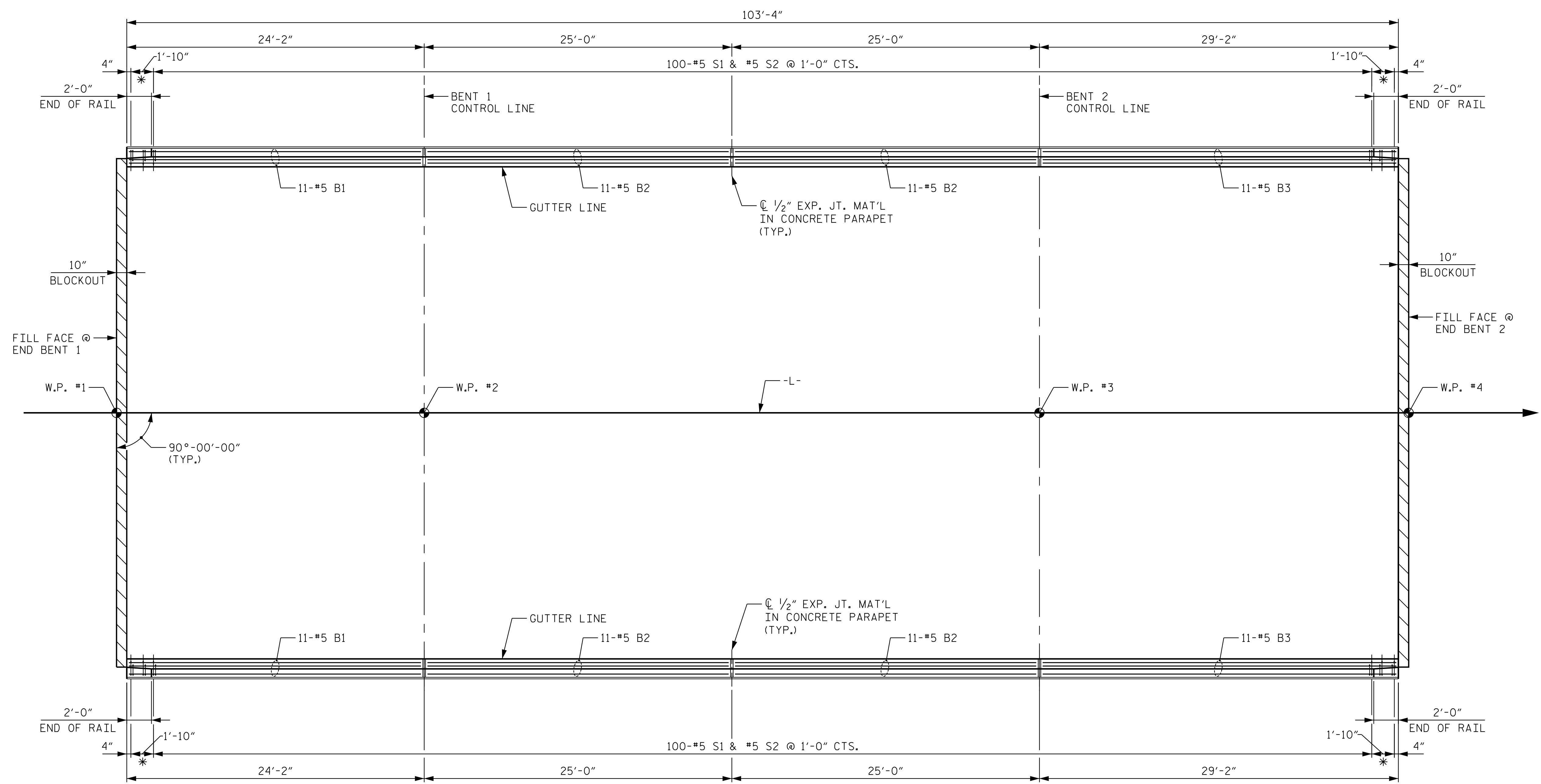
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ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : J. C. WILSON	DATE : 02/2020
DRAWN BY : WJH 8/89	REV. 6/13 AAC/MAA
CHECKED BY : CRK 8/89	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC





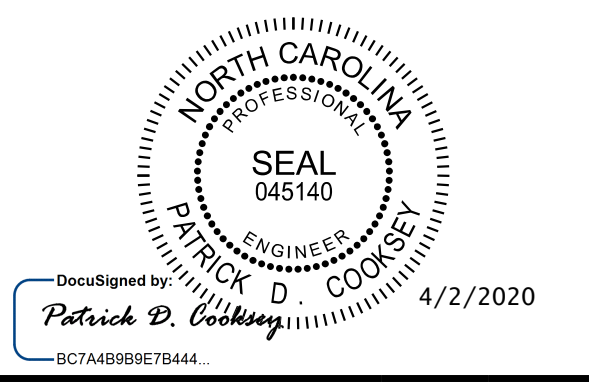
**PLAN**

\* SEE "END OF RAIL DETAILS" ON SHEET 2 OF 2 FOR SPACING OF S1 AND S3 BARS

K:\RDI-Structures\Bridges\NC\01036500 - B-5534\Con Dgn\B5534-SMU-BRI\_300082.dgn

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SHEET 1 OF 2



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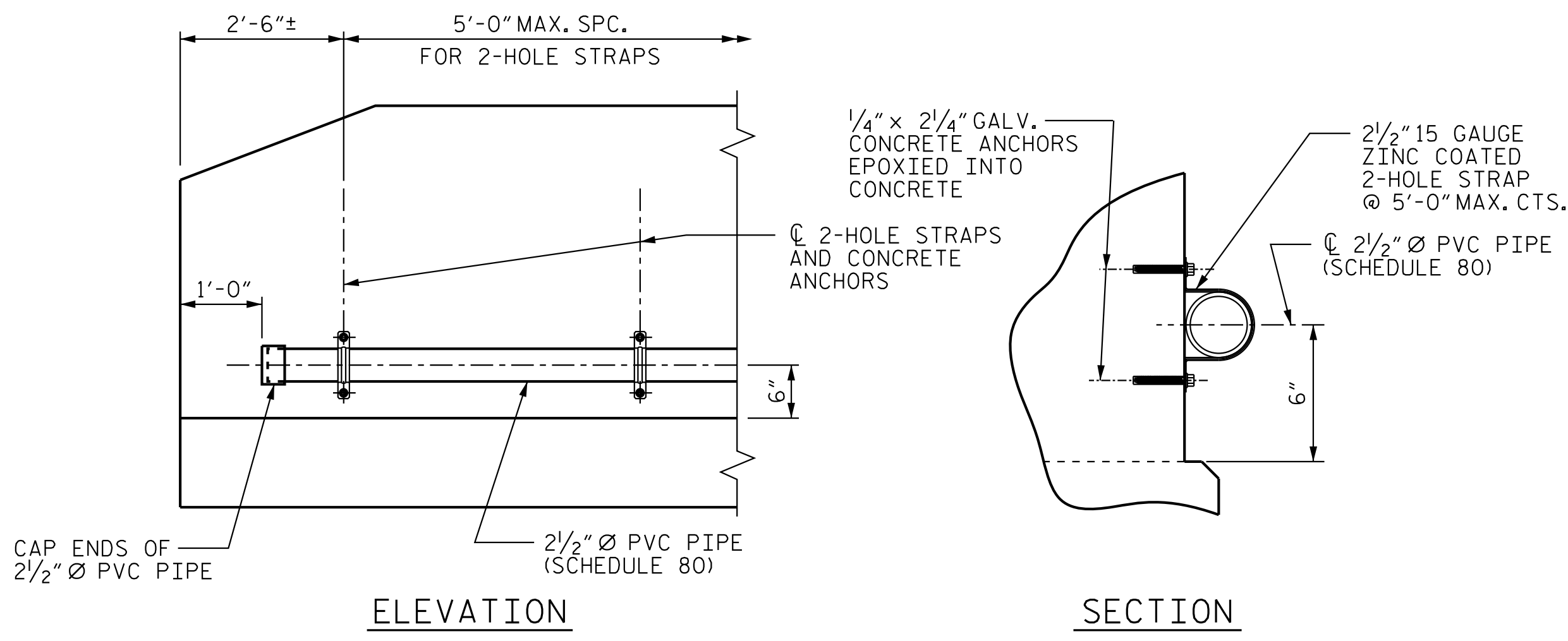
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 CONCRETE BARRIER RAIL  
 LAYOUT

DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

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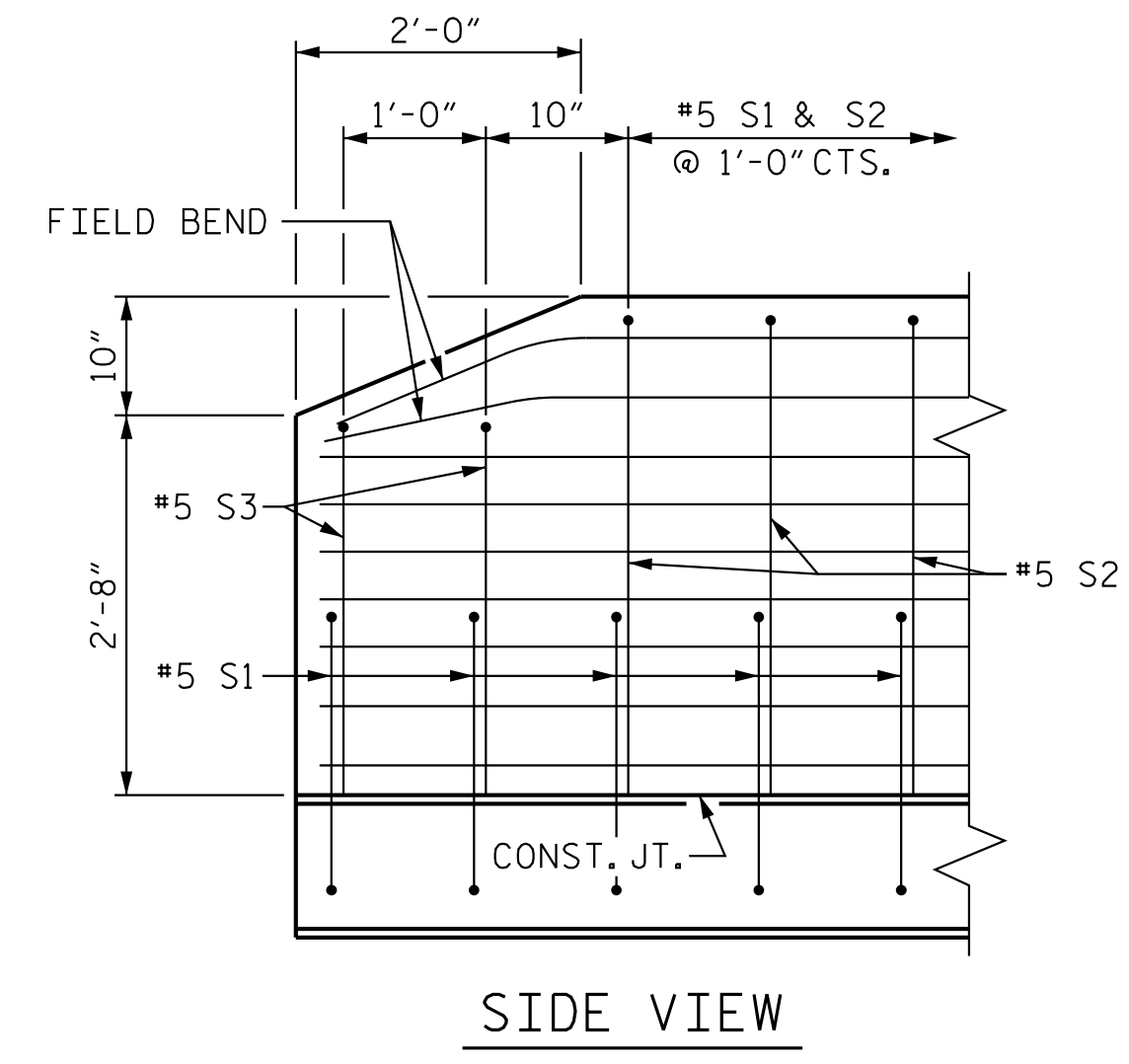
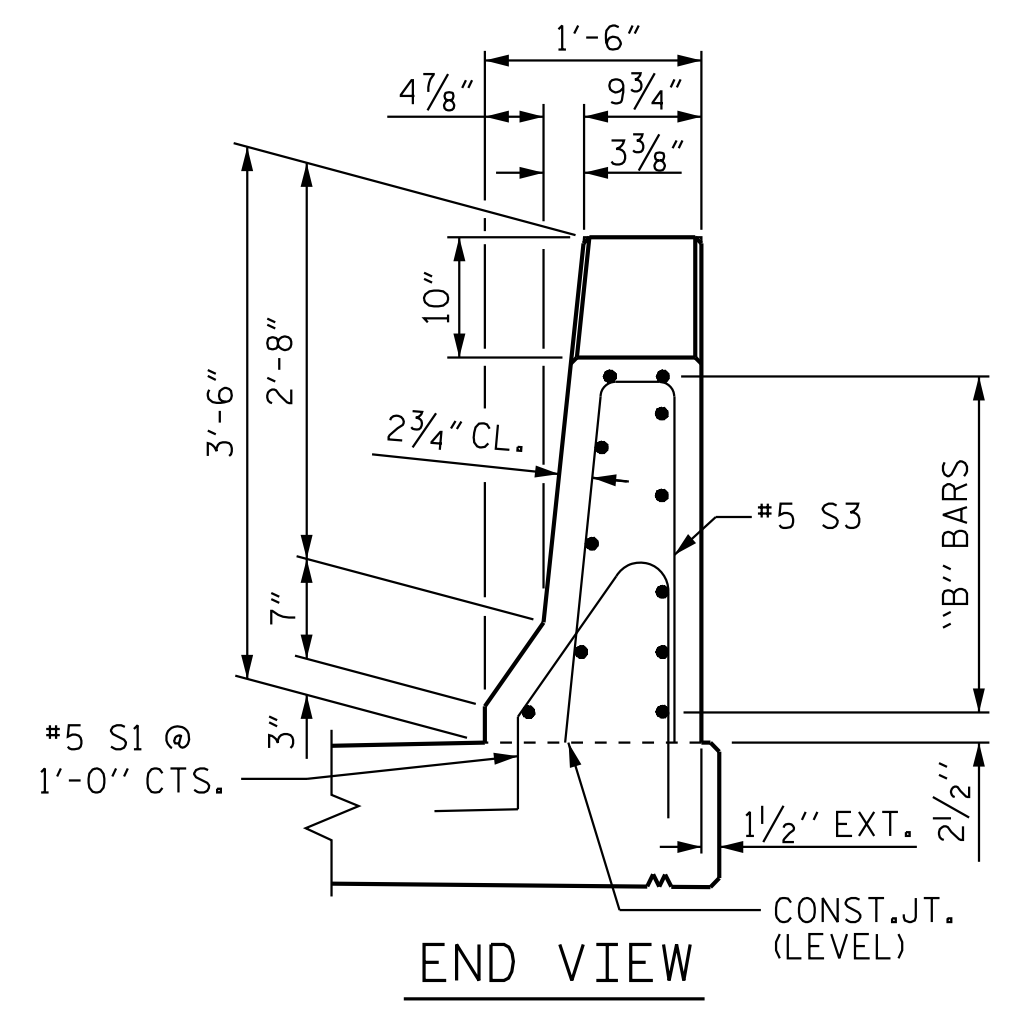
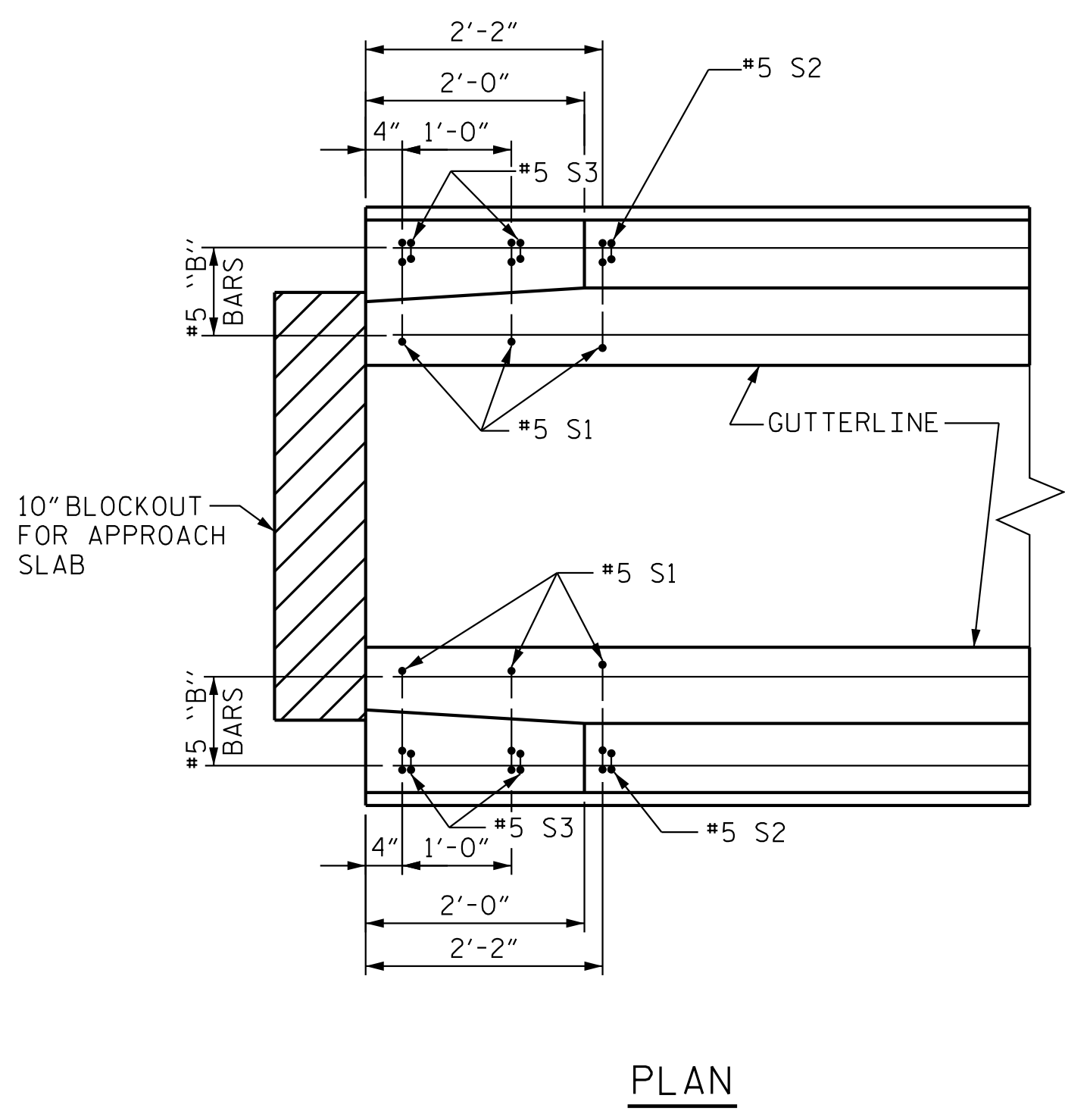
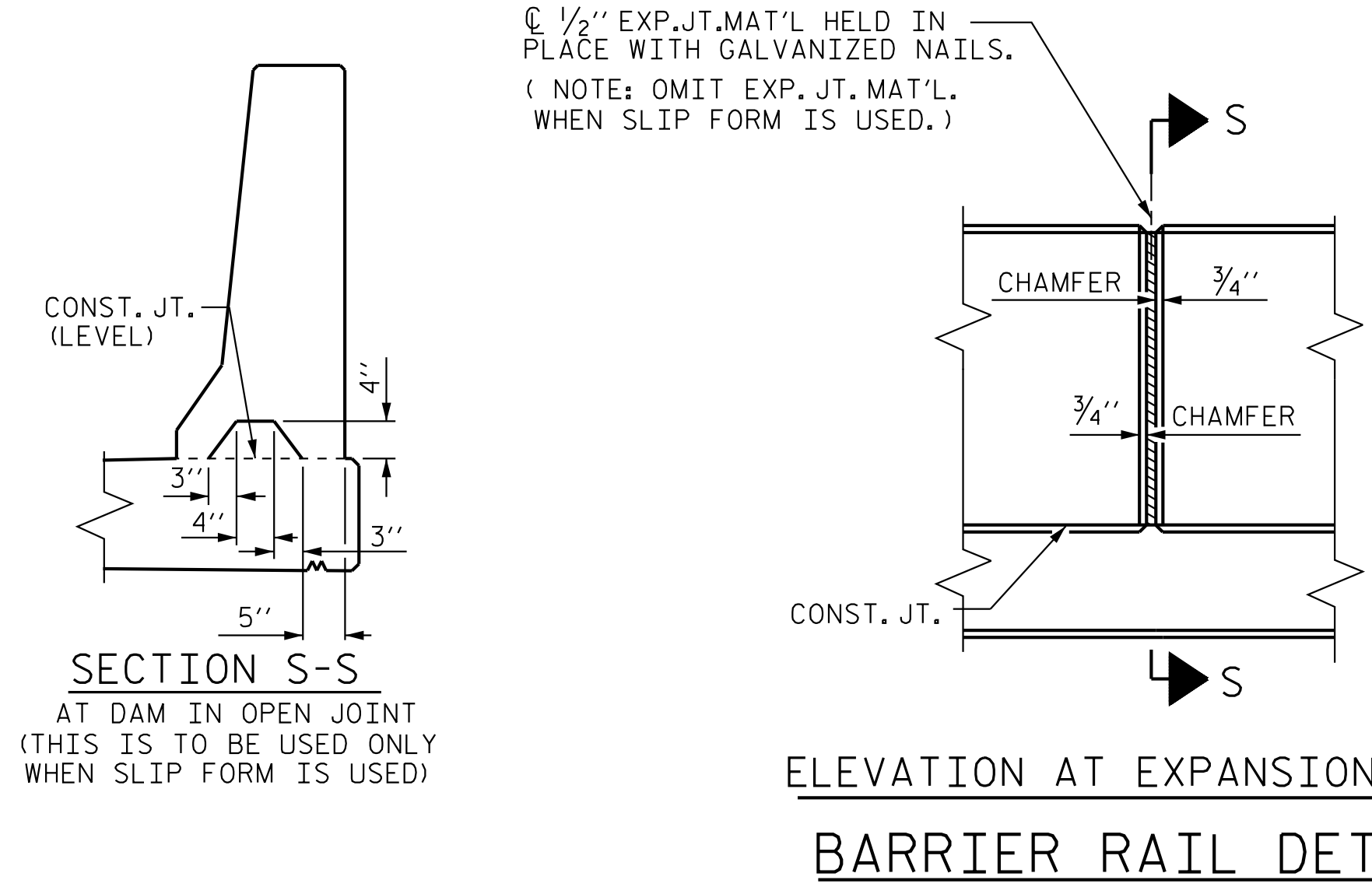
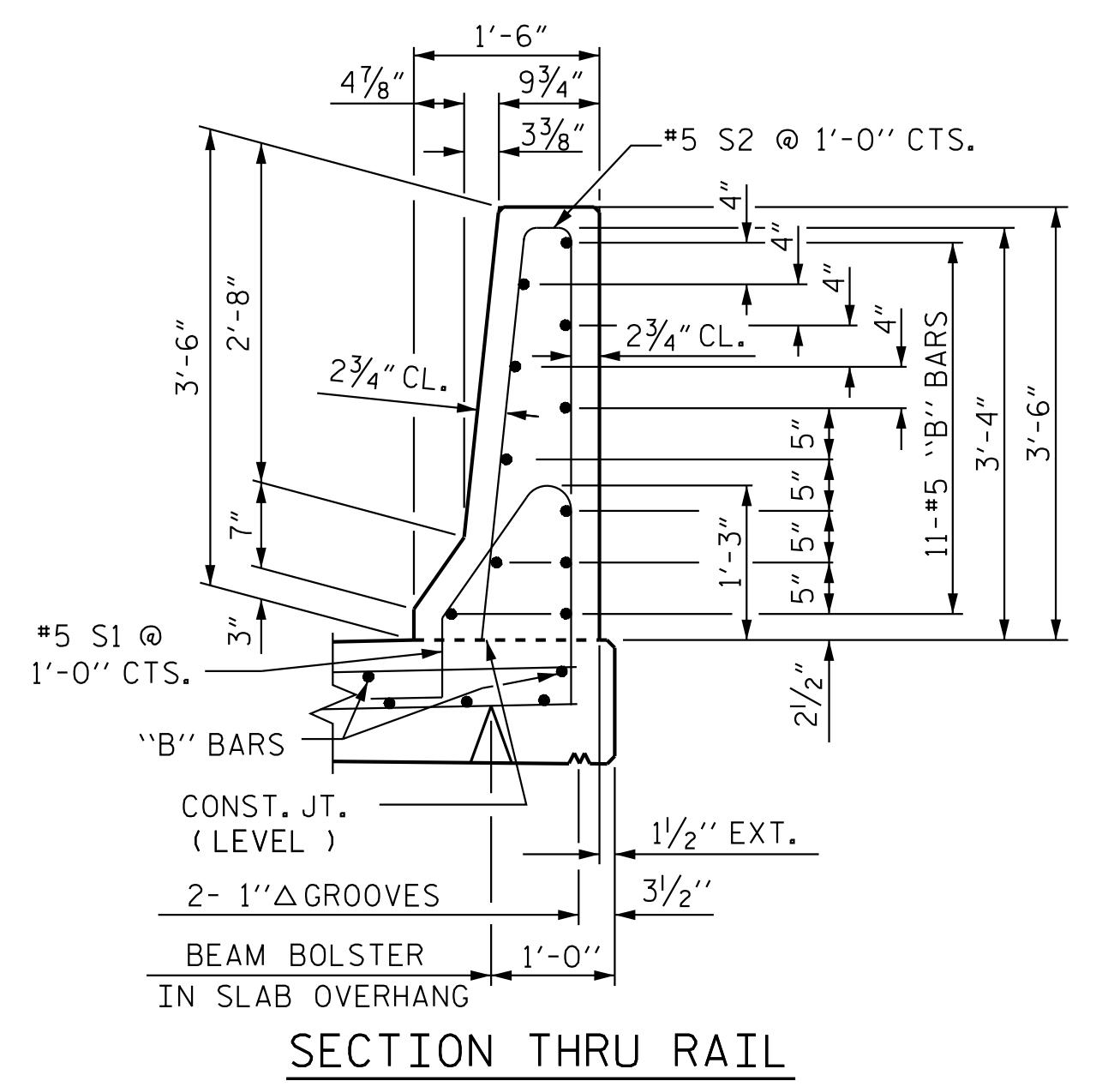
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**FIBER OPTIC CONDUIT SYSTEM DETAILS**

2 1/2" Ø SCHEDULE 80 PVC PIPE ATTACHED TO THE BACK OF BOTH RAILS FOR FUTURE FIBER OPTIC CABLE.



**END OF RAIL DETAILS**

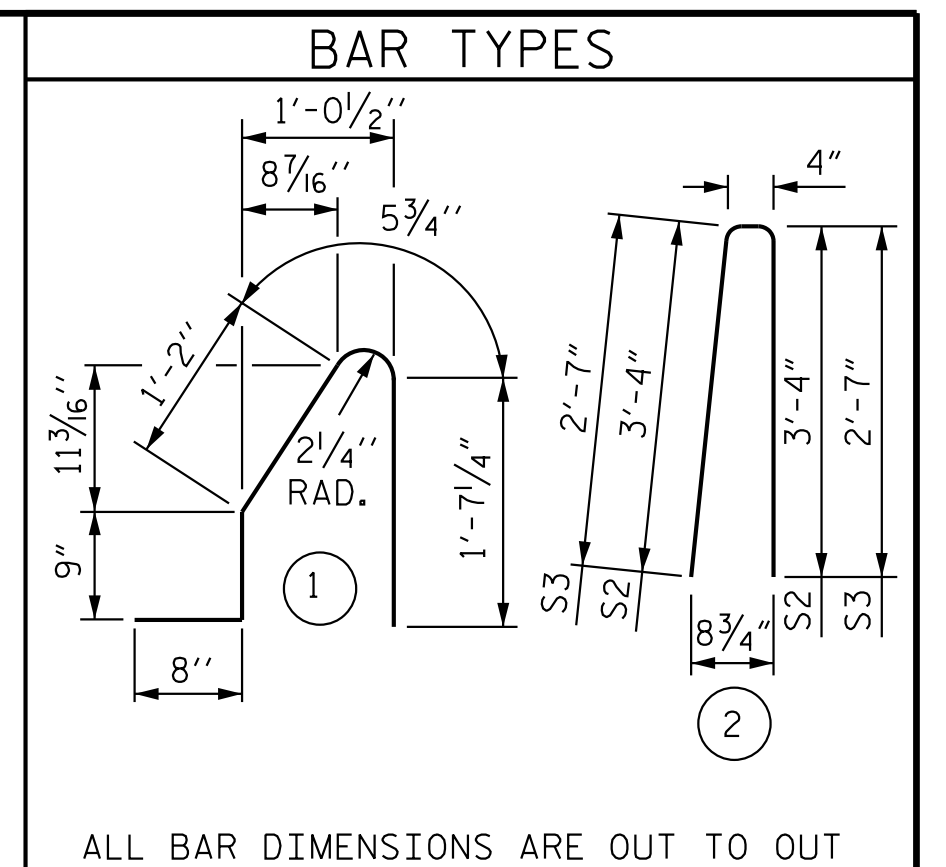
FOR ADHESIVE ANCHORING AT SAWED JOINTS

**NOTES**

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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



ALL BAR DIMENSIONS ARE OUT TO OUT

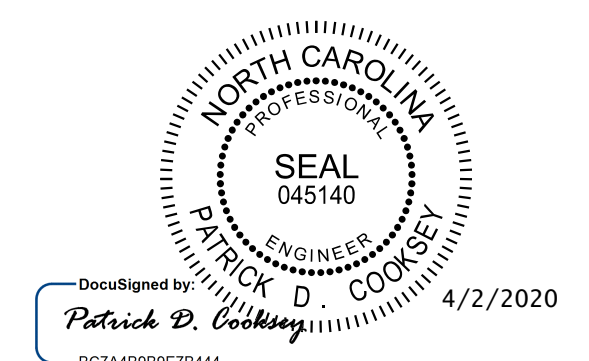
**BILL OF MATERIAL**  
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	22	#5	STR	23'-9"	545
* B2	44	#5	STR	24'-7"	1,128
* B3	22	#5	STR	28'-9"	660
* S1	208	#5	1	4'-8"	1,012
* S2	200	#5	2	7'-0"	1,460
* S3	8	#5	2	5'-6"	46

\* EPOXY COATED REINFORCING STEEL 4,851 LBS.  
CLASS AA CONCRETE 28.1 CU. YDS.  
CONCRETE BARRIER RAIL 206.67 LIN. FT.  
FIBER OPTIC CONDUIT SYSTEM 202.67 LIN. FT.

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ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : J. C. WILSON	DATE : 02/2020
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC



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SHEET 2 OF 2

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NOTES

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

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

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

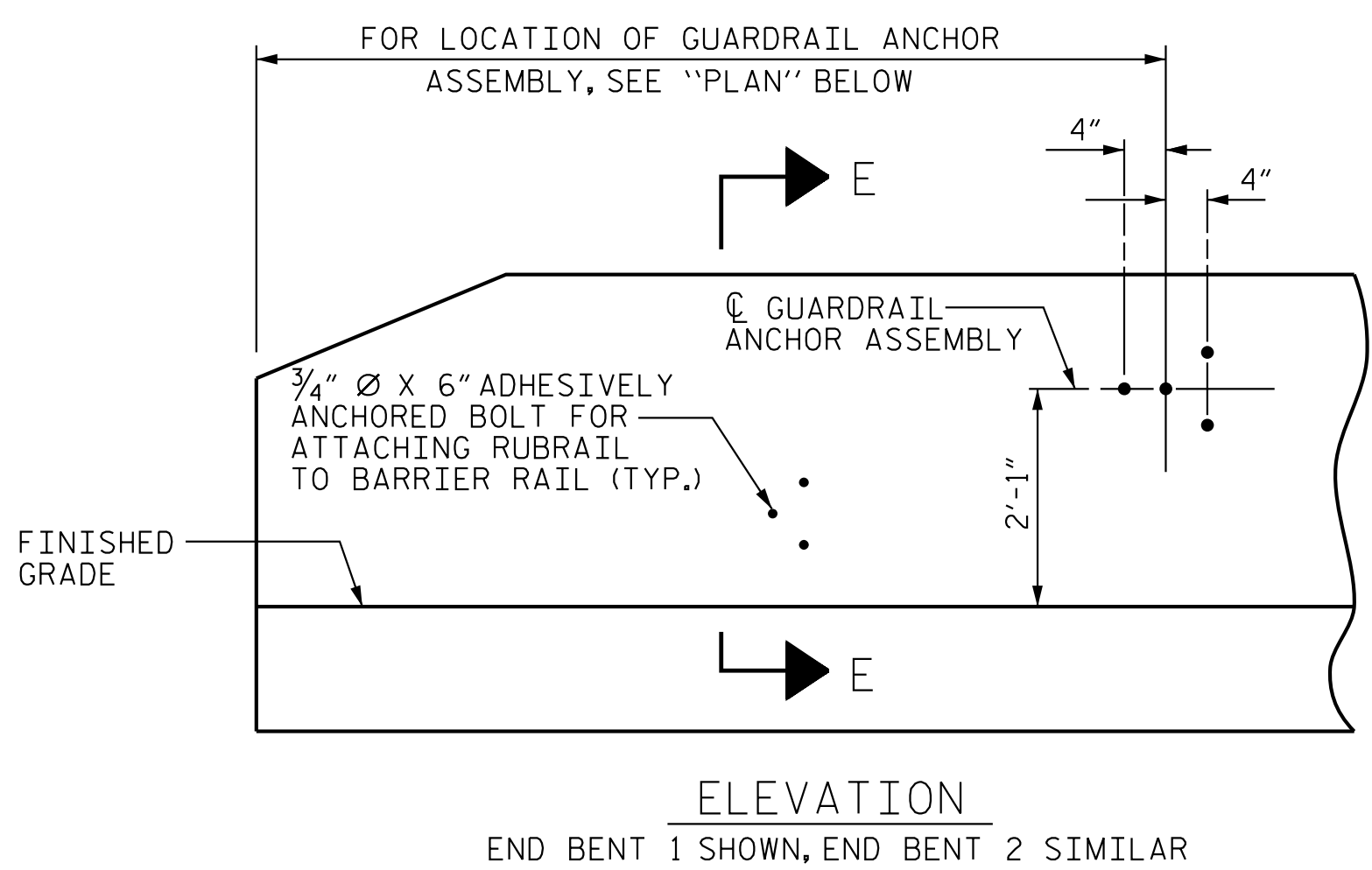
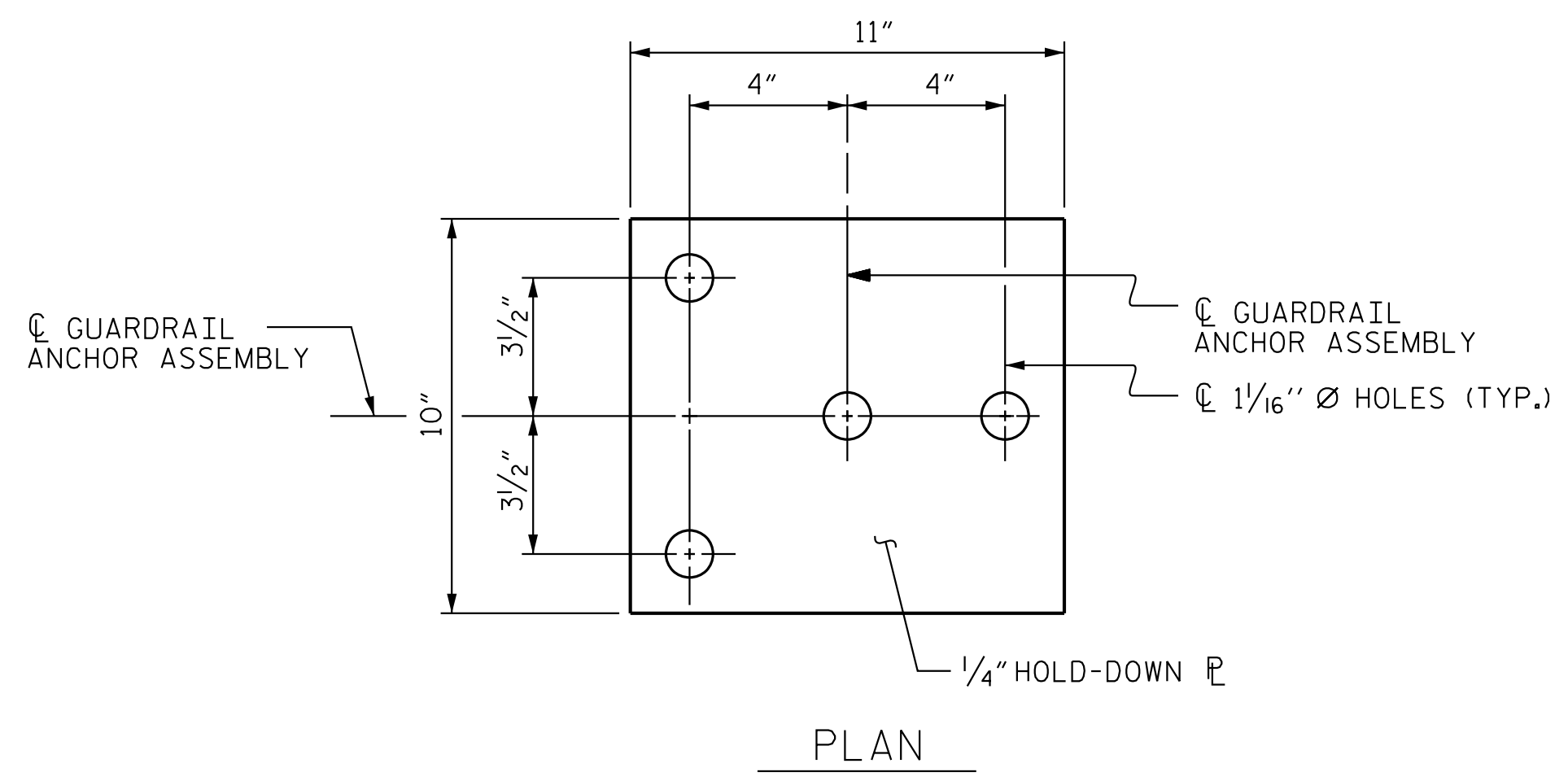
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

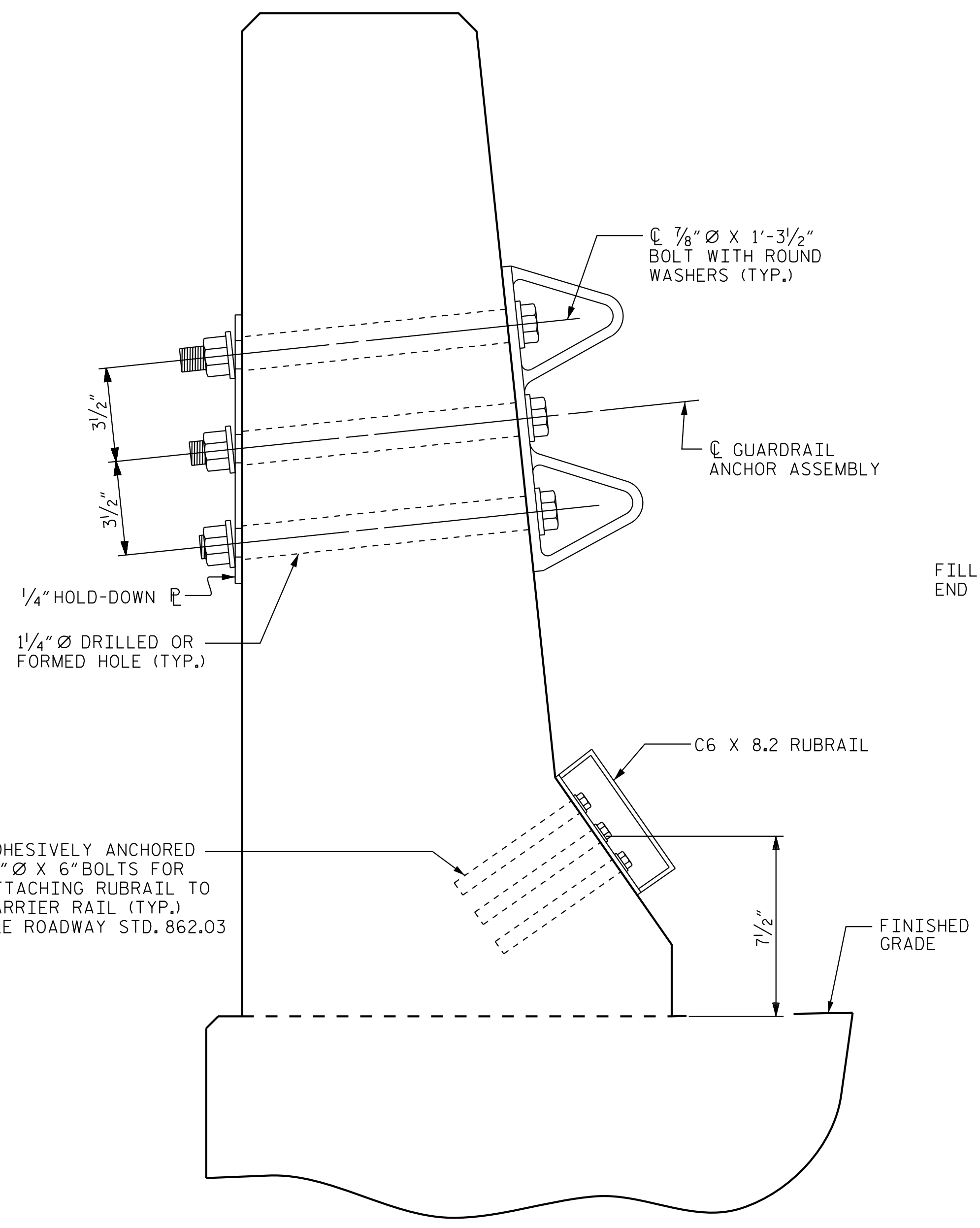
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

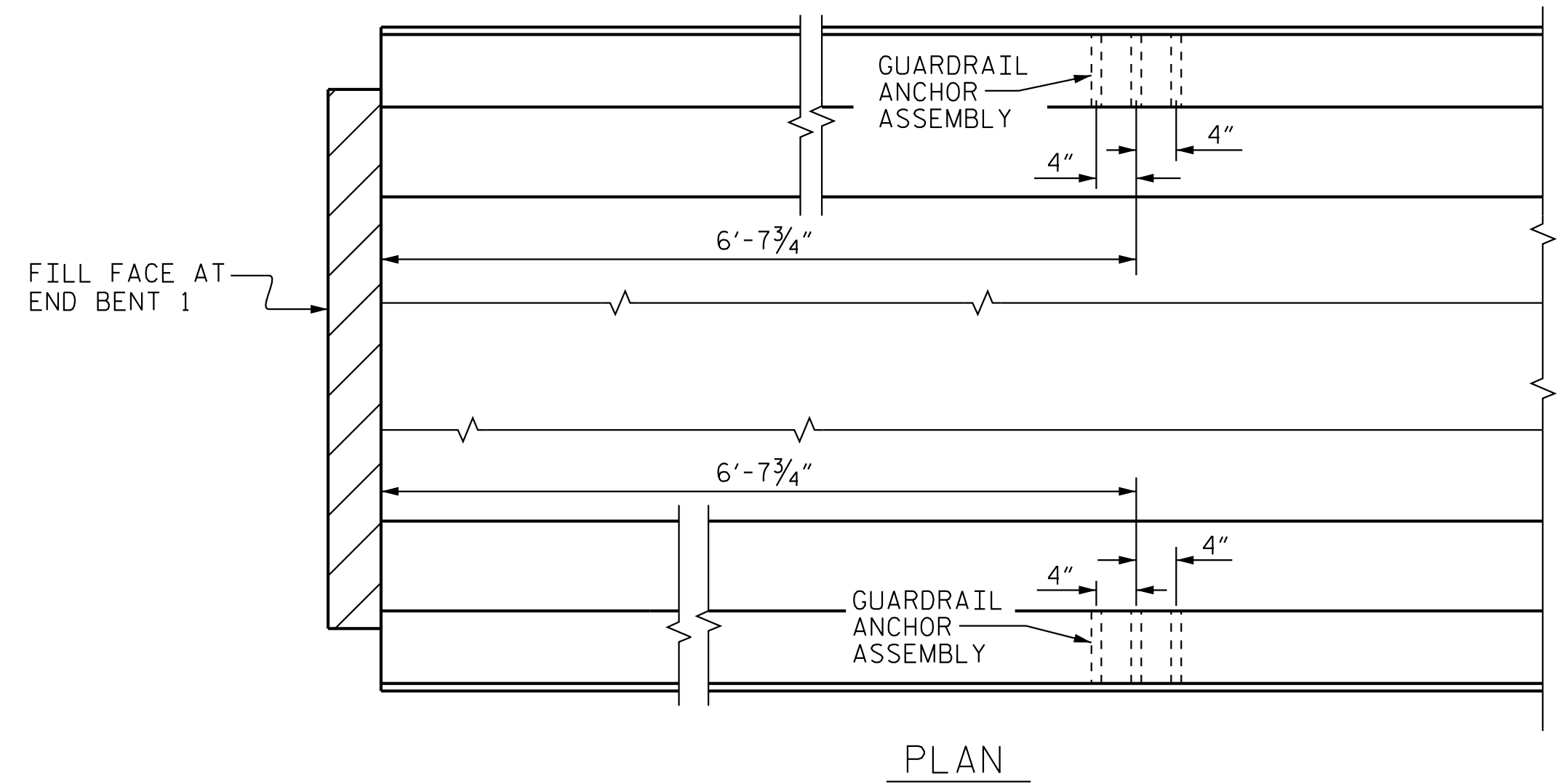
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR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



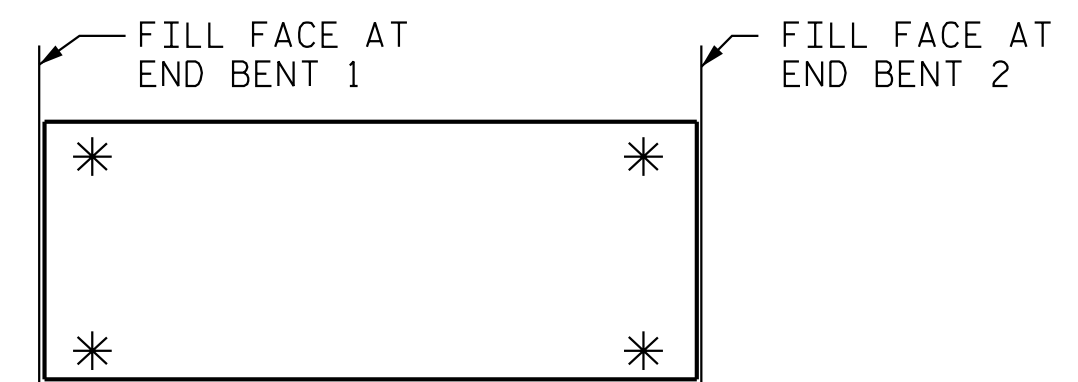
ELEVATION  
END BENT 1 SHOWN, END BENT 2 SIMILAR



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS

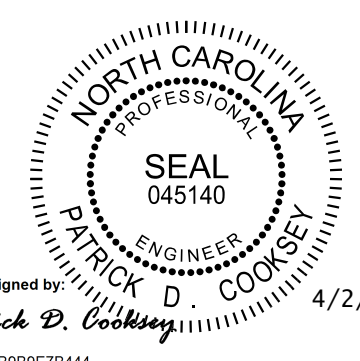


PLAN  
LOCATION OF ANCHORS FOR GUARDRAIL  
END BENT 1 SHOWN, END BENT 2 SIMILAR



SKETCH SHOWING POINTS OF ATTACHMENTS  
\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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

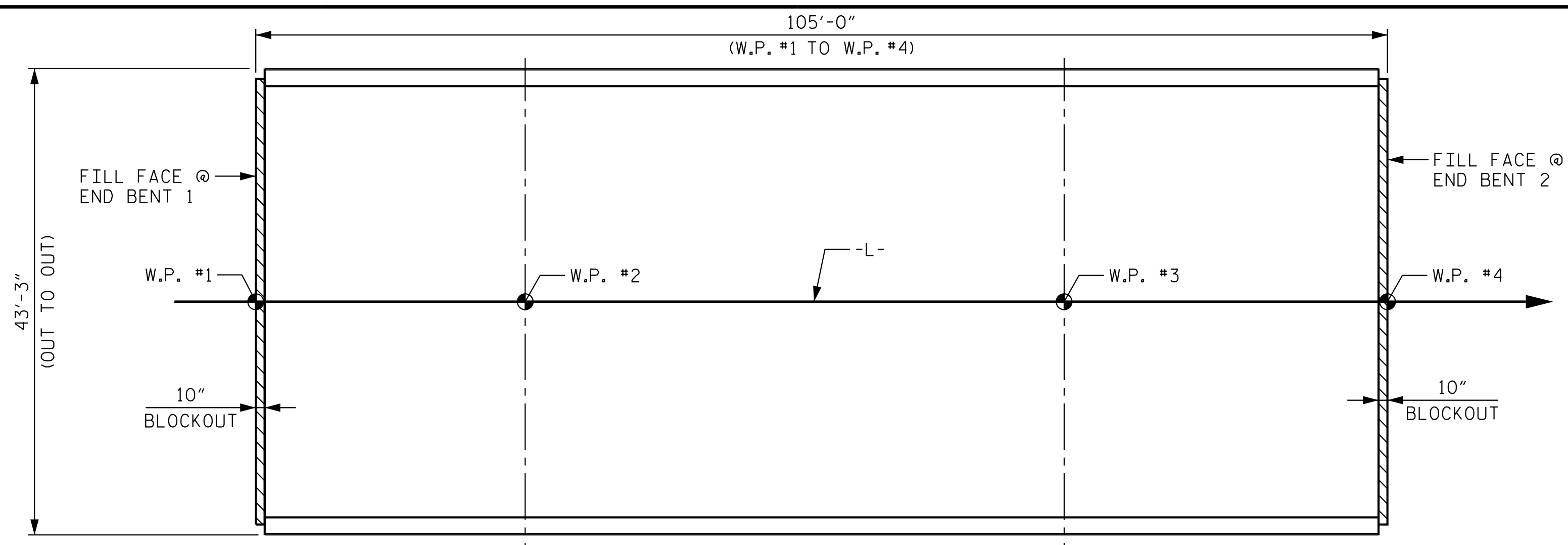
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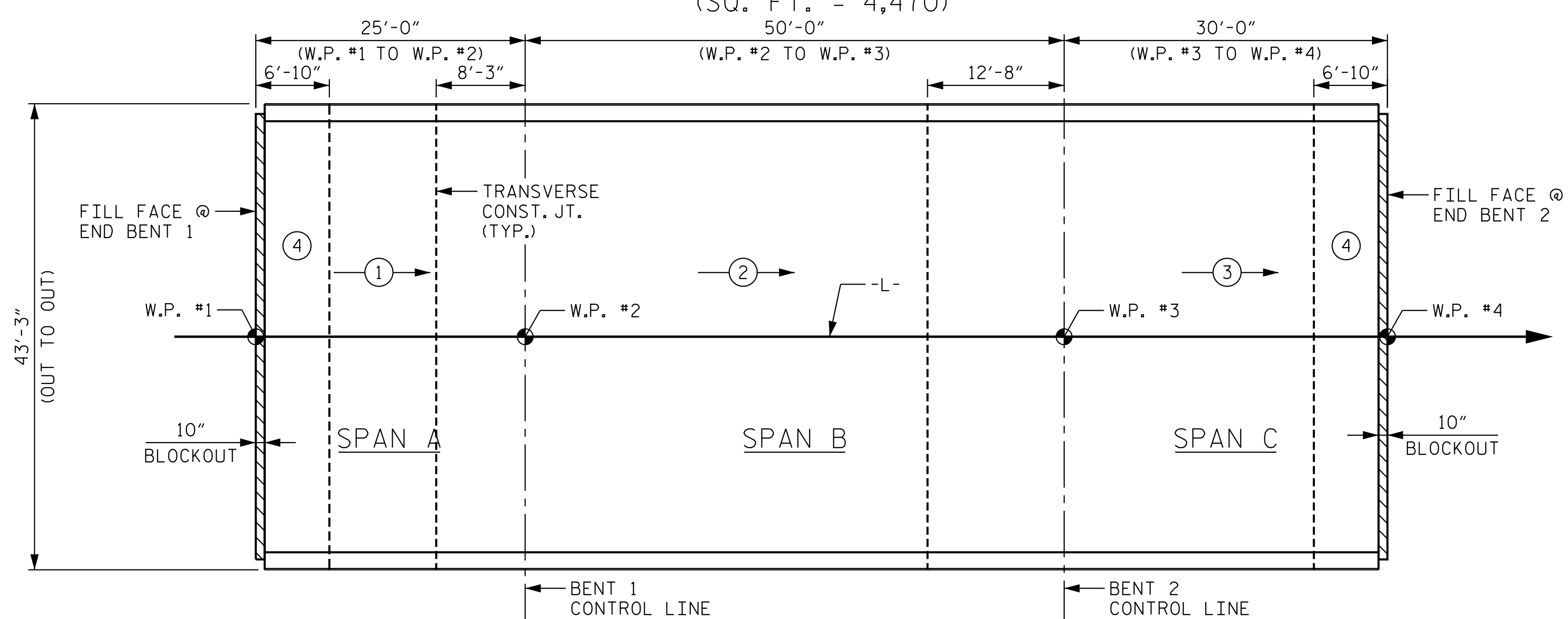
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ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : J. C. WILSON	DATE : 02/2020
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC



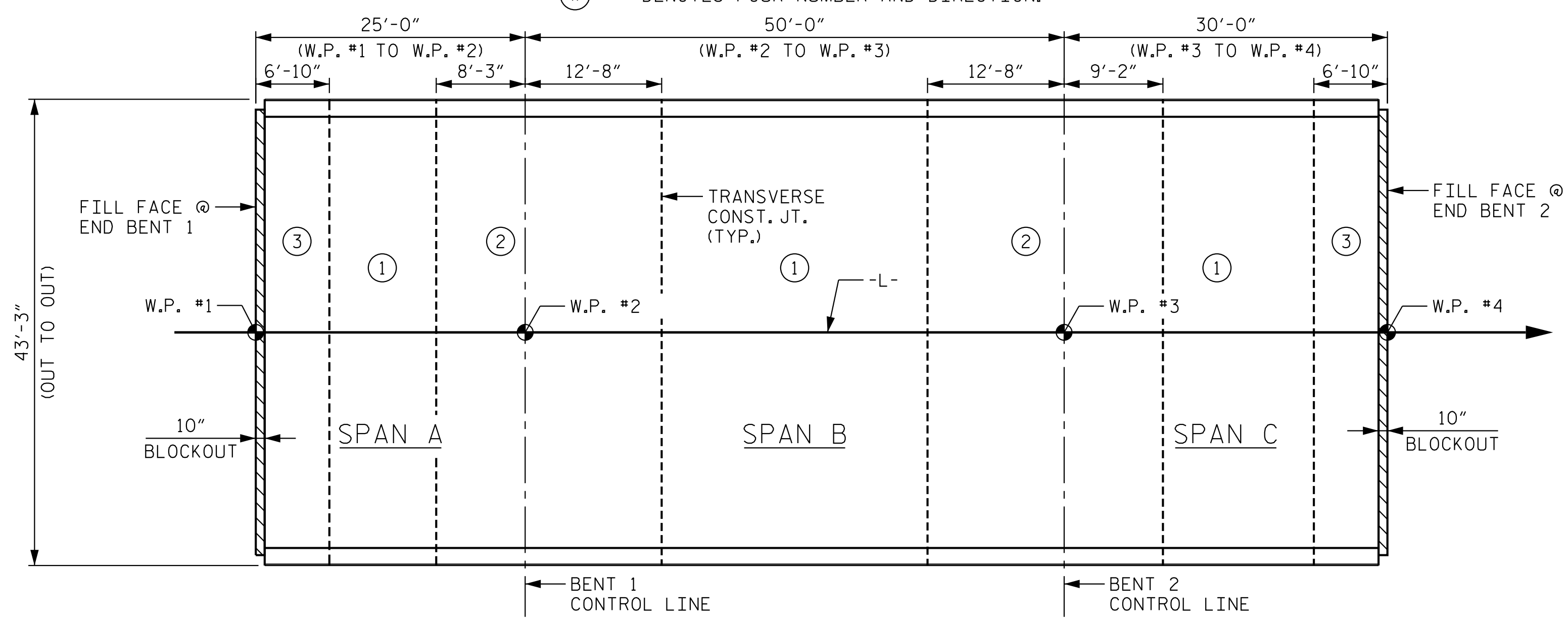
LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE SLAB

(SQ. FT. = 4,470)



POUR SEQUENCE

⊕ DENOTES POUR NUMBER AND DIRECTION.



OPTIONAL POUR SEQUENCE

⊕ DENOTES POUR NUMBER AND DIRECTION.

BAR TYPES		REINFORCING STEEL SCHEDULE					
		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
		* A1	206	5	STR	42'-11"	9,221
		A2	206	5	STR	42'-11"	9,221
		* B1	31	4	STR	16'-8"	345
		* B2	31	4	STR	32'-8"	676
		* B3	31	4	STR	20'-9"	430
		* B4	174	6	STR	5'-0"	1,307
		* B5	87	6	STR	16'-9"	2,189
		* B6	87	6	STR	17'-8"	2,309
		B7	112	5	STR	52'-6"	6,133
		K1	16	4	STR	22'-3"	238
		K2	8	4	STR	7'-5"	40
		K3	16	4	STR	8'-5"	90
		K4	8	4	STR	7'-11"	42
		K5	4	4	STR	2'-0"	5
		K6	8	4	STR	2'-6"	13
		K7	4	4	STR	2'-3"	6
		* S1	72	4	2	11'-11"	573
		* S2	72	4	2	8'-11"	429
		U1	76	4	1	8'-3"	419
REINFORCING STEEL					16,207 LBS.		
* EPOXY COATED REINFORCING STEEL					17,479 LBS.		

ALL BAR DIMENSIONS ARE OUT TO OUT

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

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	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"			

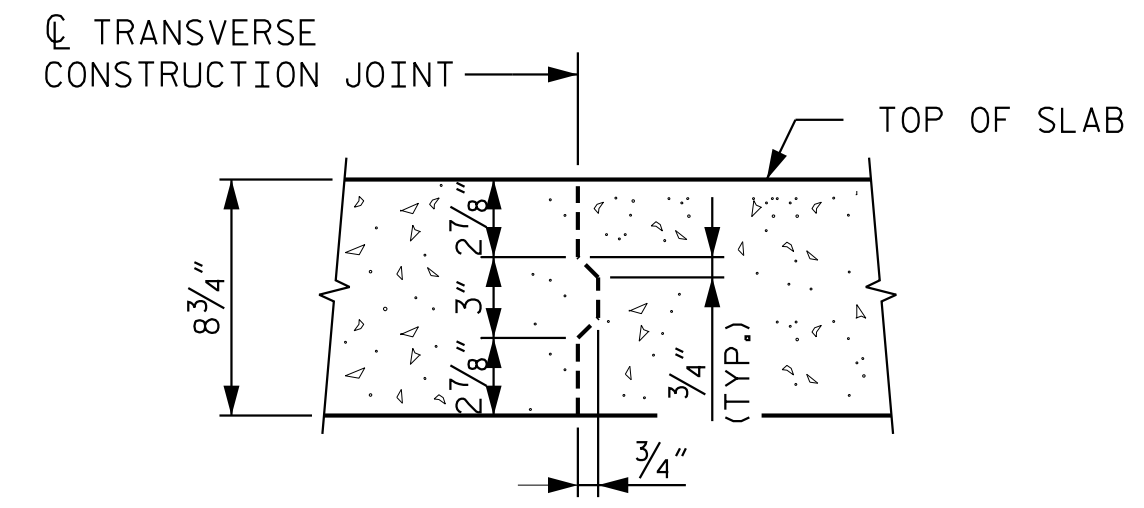
GROOVING BRIDGE FLOORS

APPROACH SLABS	1,813 SQ.FT.
BRIDGE DECK	3,824 SQ.FT.
TOTAL	5,637 SQ.FT.

SUPERSTRUCTURE BILL OF MATERIAL

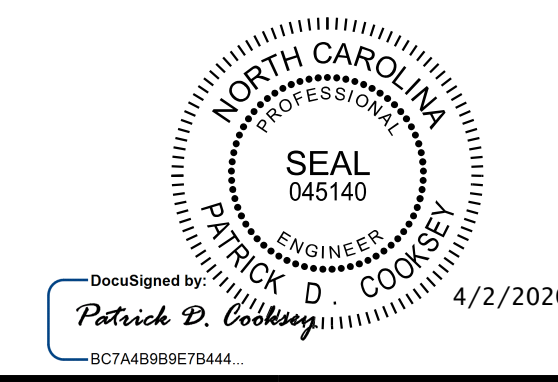
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	* EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	12.4		
POUR 2	56.9		
POUR 3	44.8		
POUR 4	46.7		
TOTALS **	160.8	16,207	17,479

\*\* QUANTITIES FOR CONCRETE BARRIER RAIL NOT INCLUDED.



TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

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



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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
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 SUPERSTRUCTURE  
 BILL OF MATERIAL

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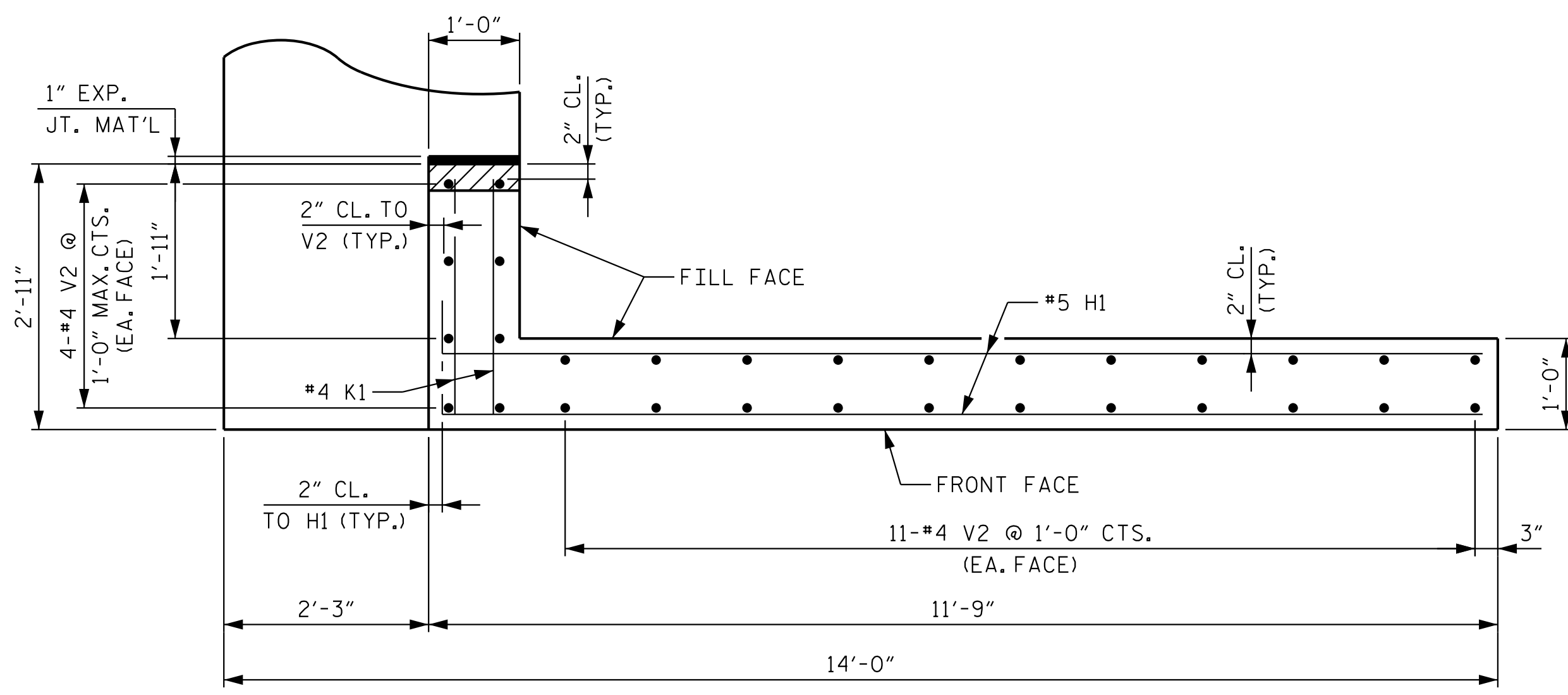
DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

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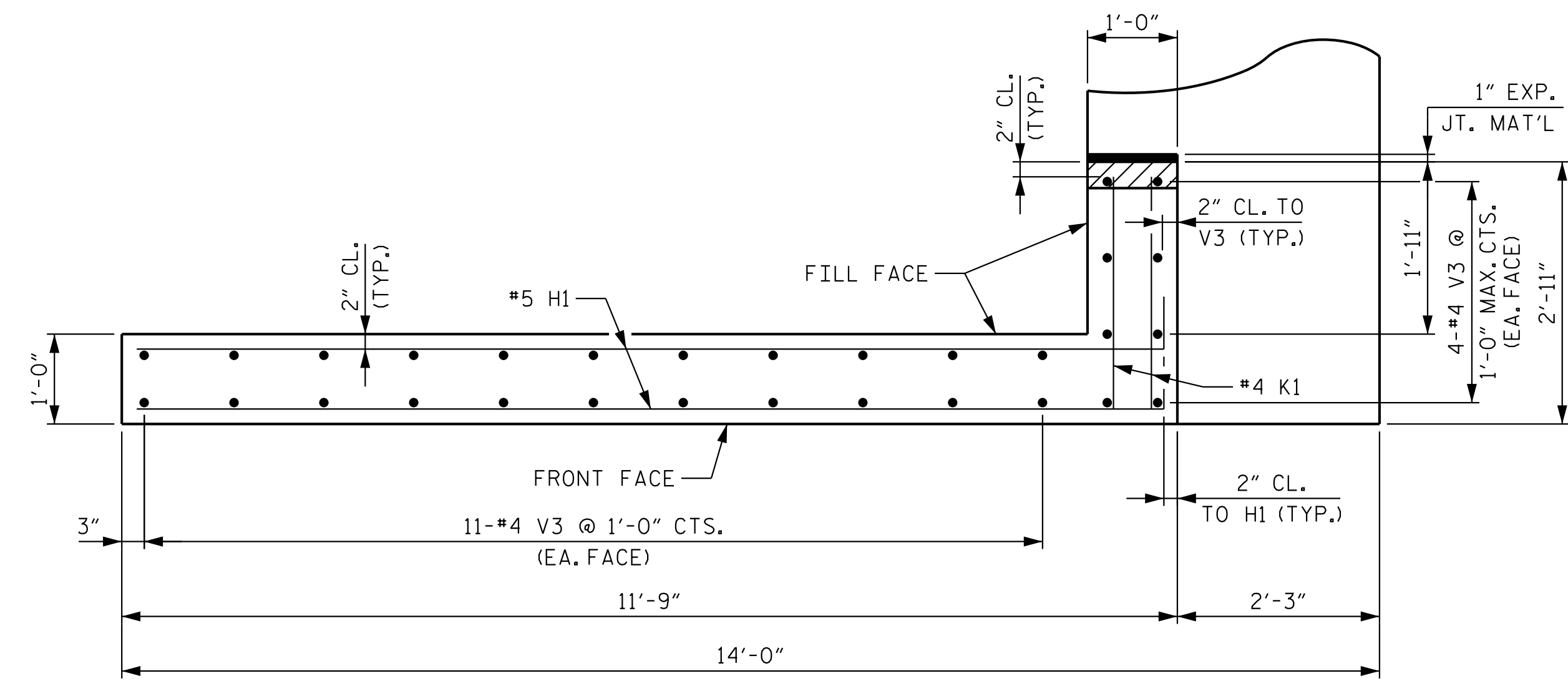
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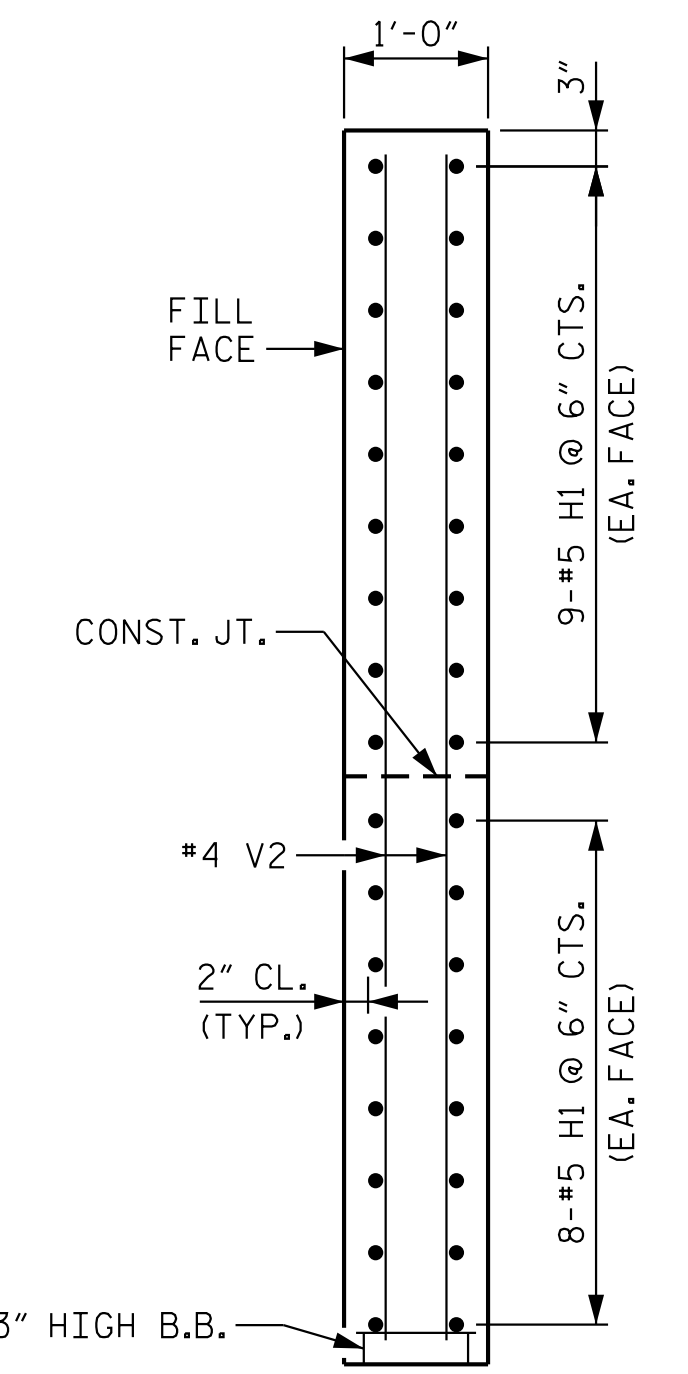




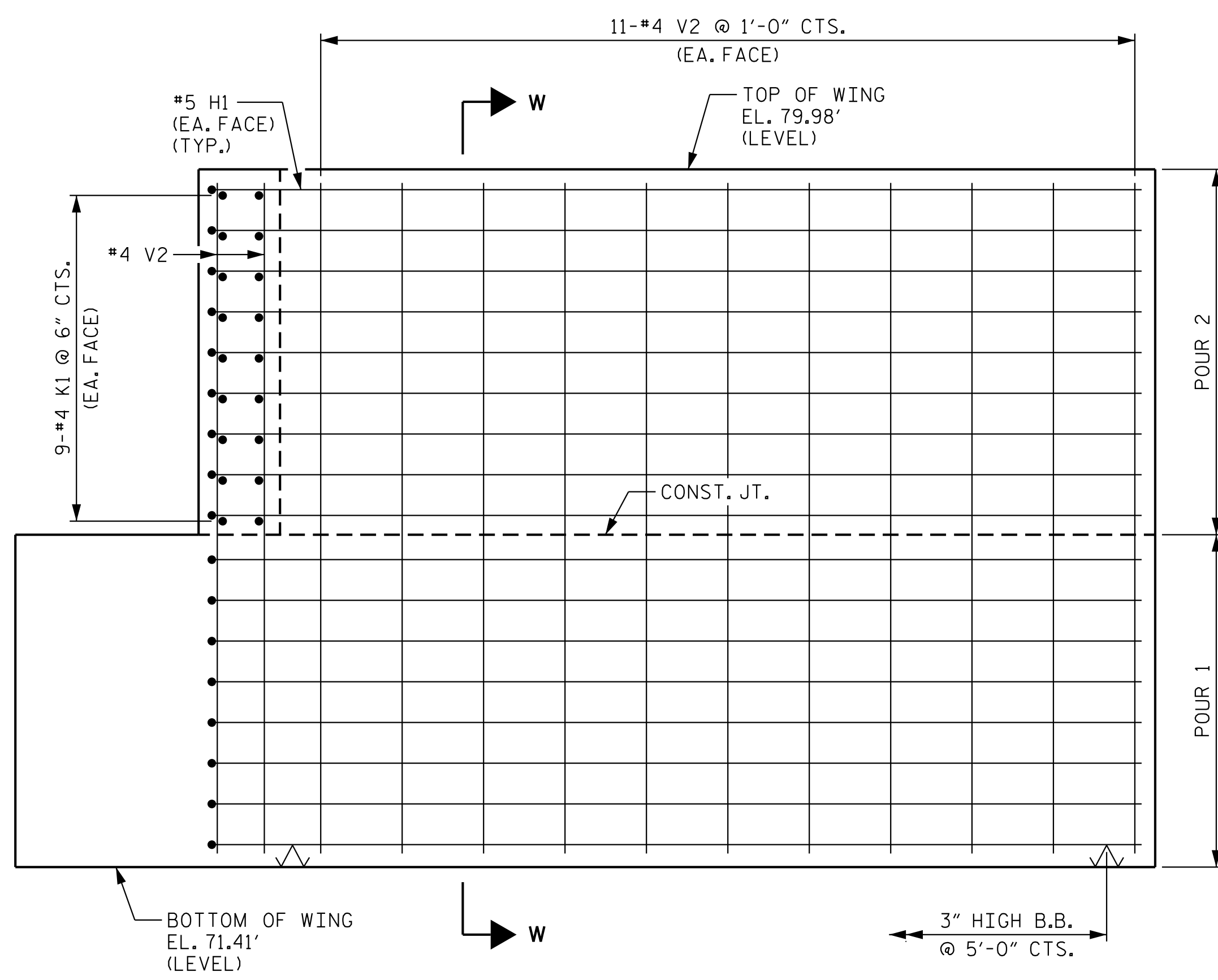
PLAN OF WING (W1)



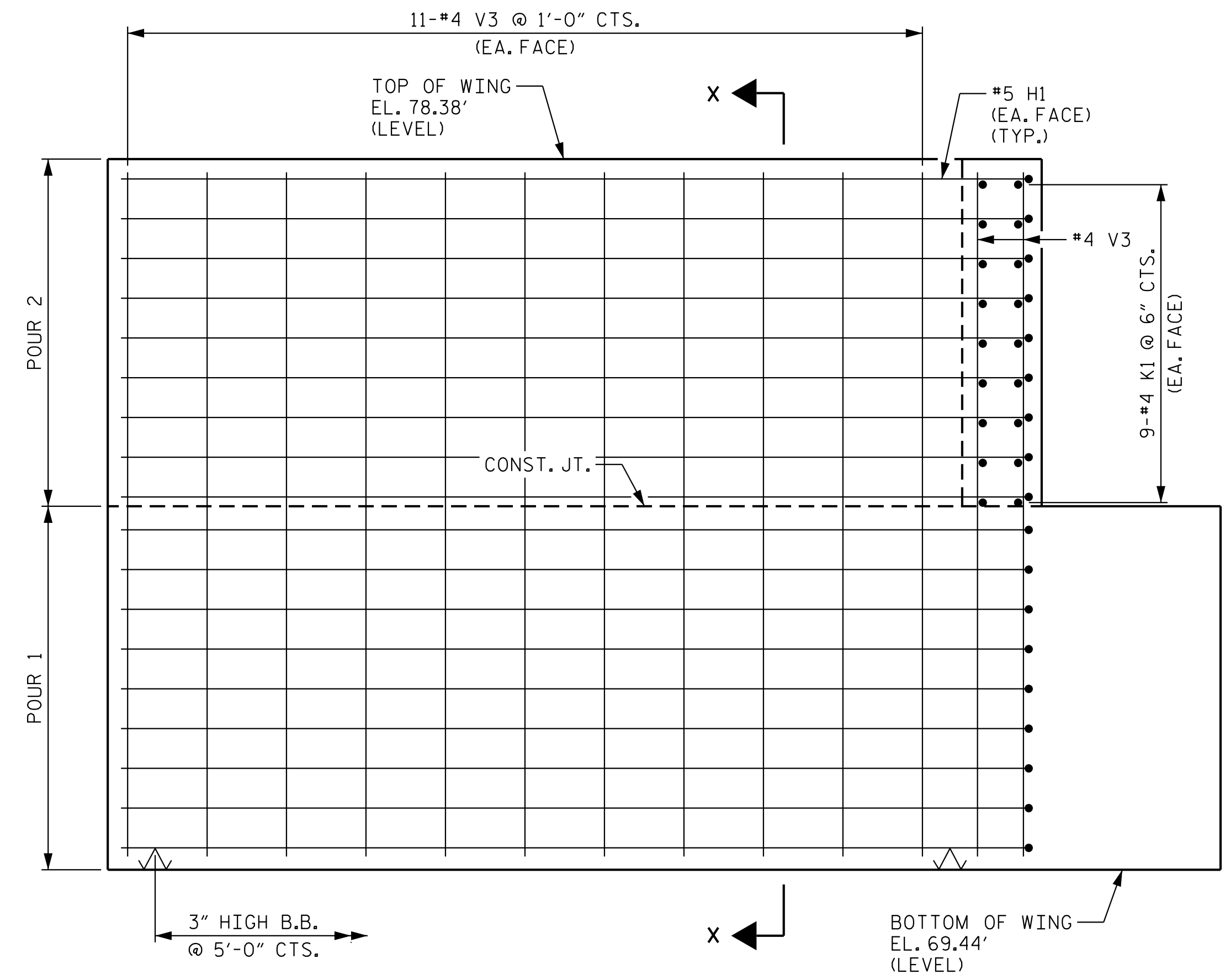
PLAN OF WING (W2)



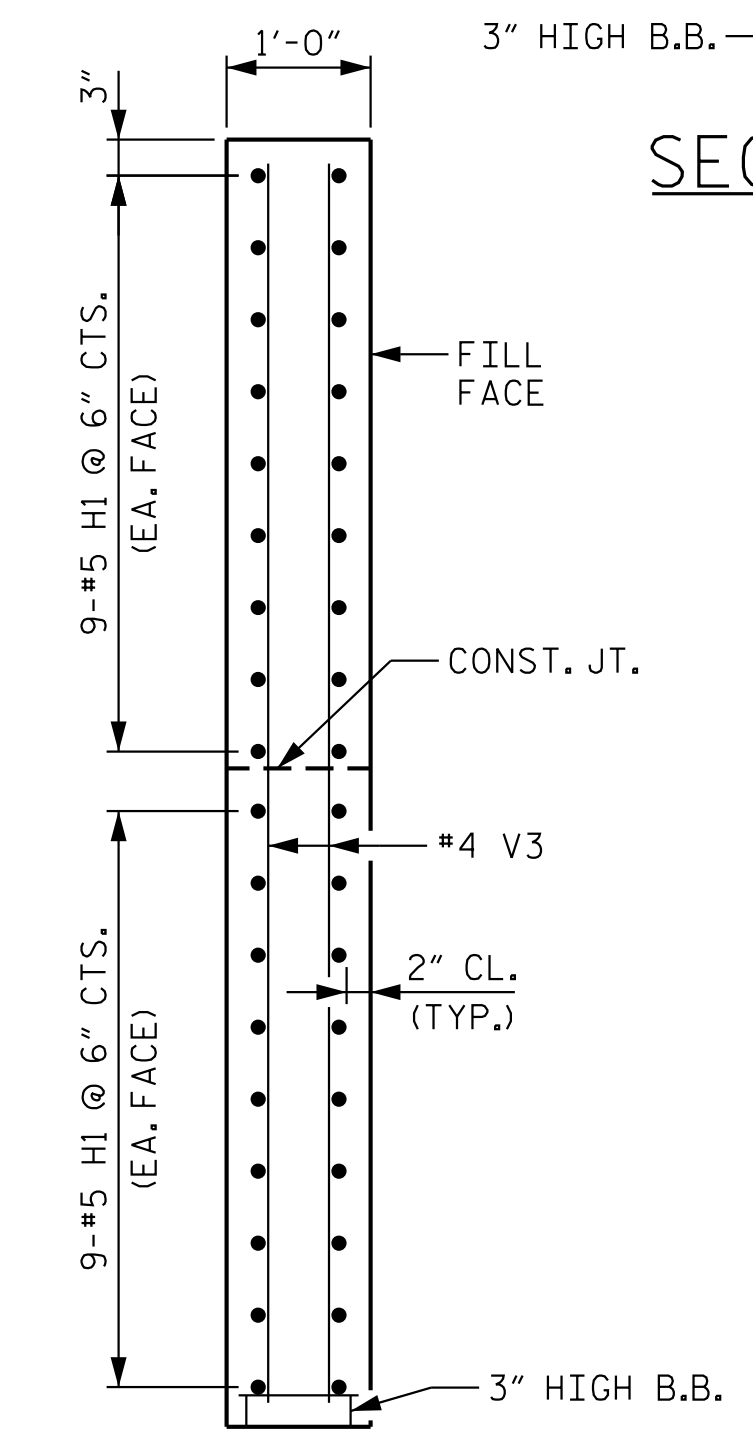
SECTION W-W



ELEVATION OF WING (W1)



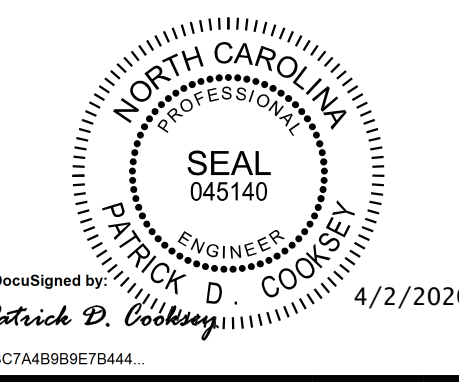
ELEVATION OF WING (W2)



SECTION X-X

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 2 OF 3



DocuSigned by:  
 Patrick D. Cooksey  
 4/2/2020

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

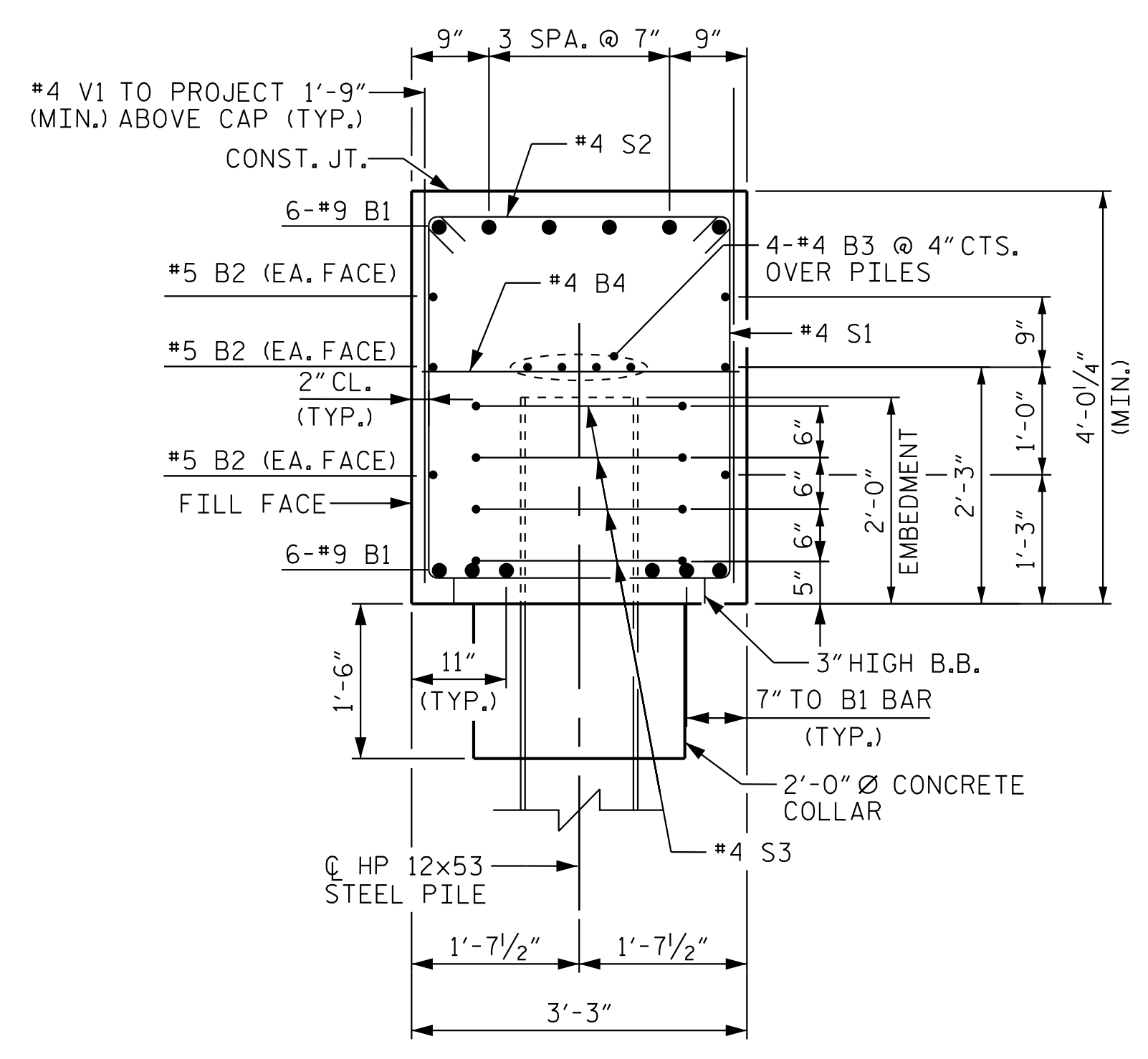
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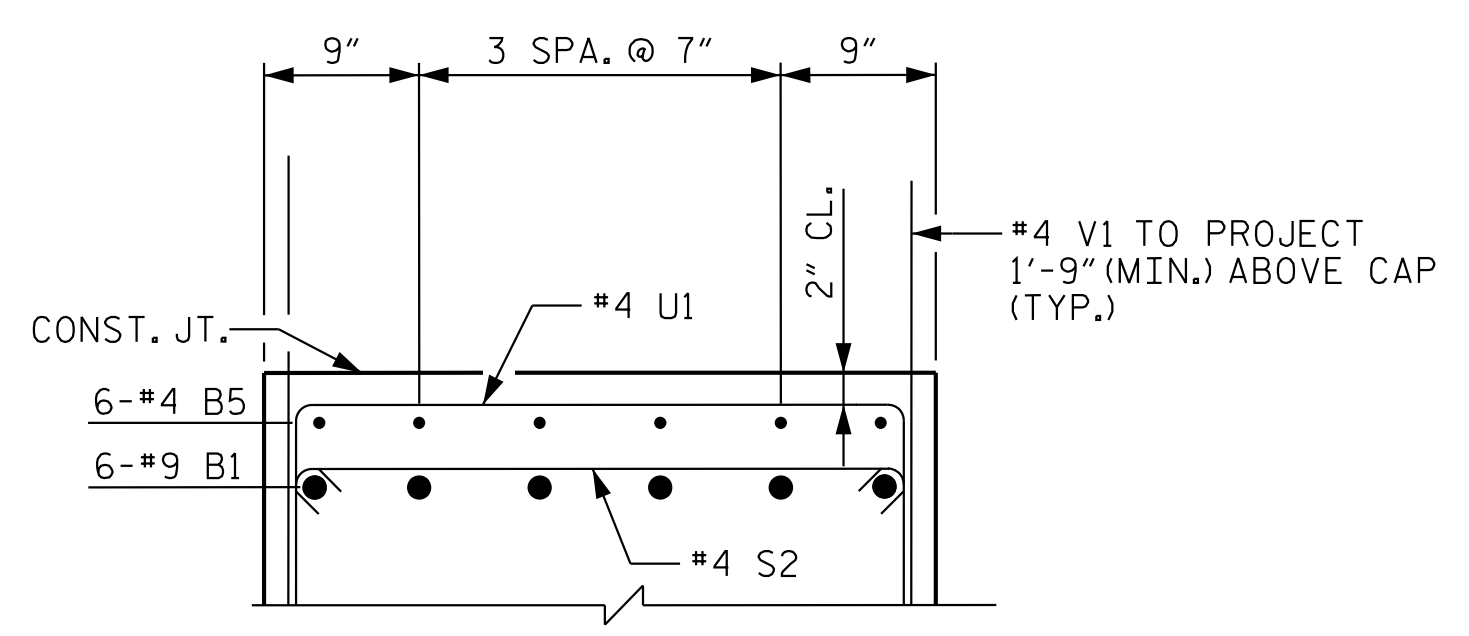
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DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

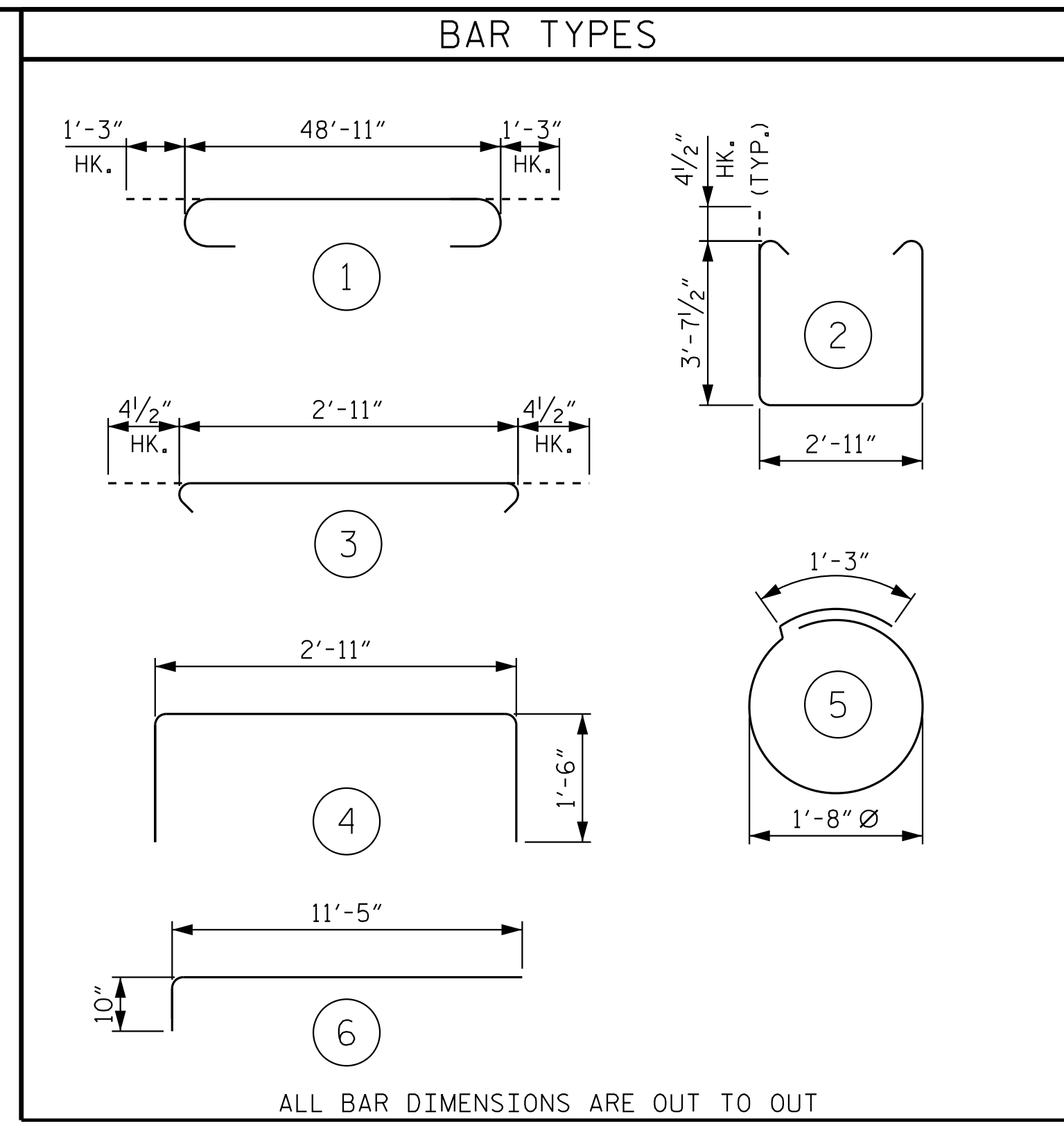




**SECTION A-A**  
(FOR LOCATION OF SECTION, SEE SHEET 1 OF 3)

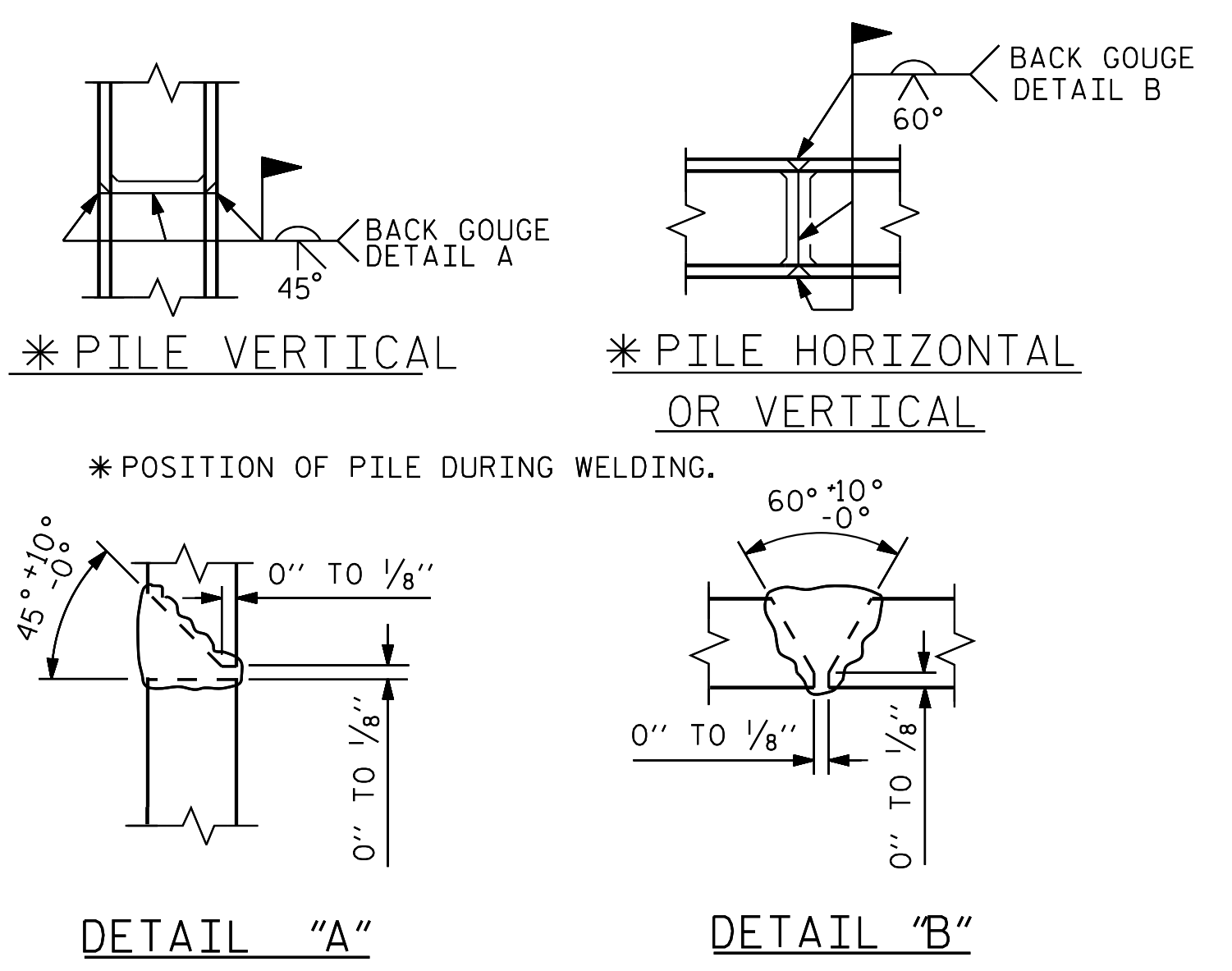


**PARTIAL SECTION B-B**  
(FOR LOCATION OF SECTION, SEE SHEET 1 OF 3)

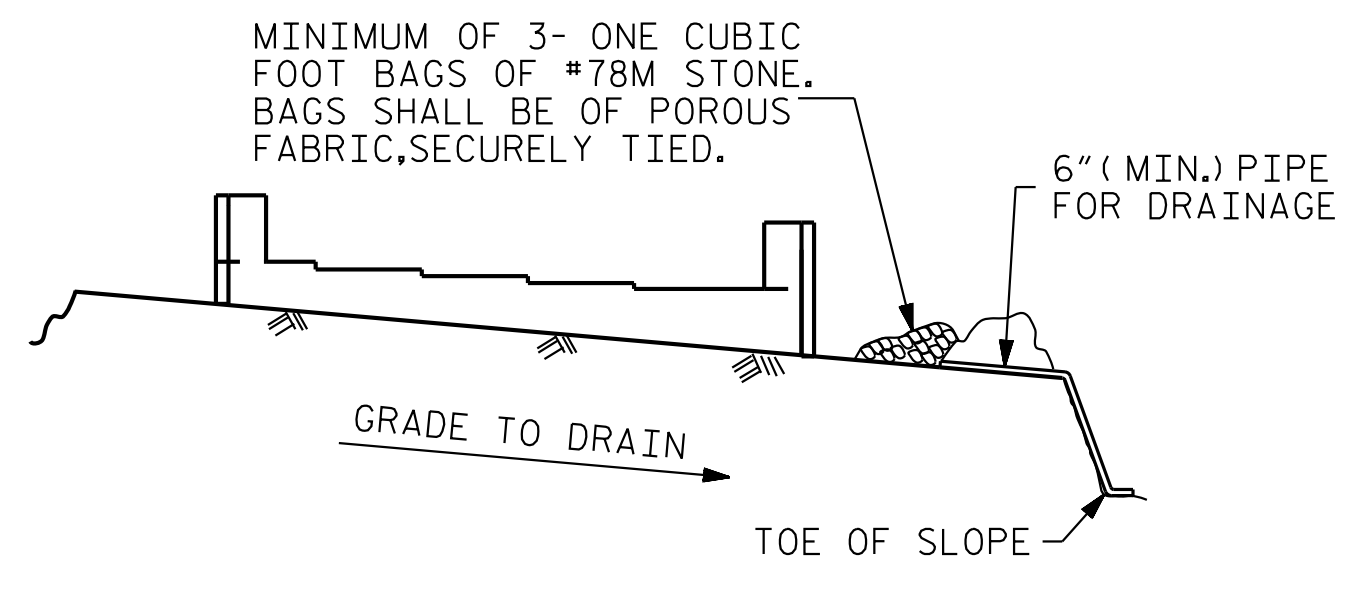


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	9	1	51'-5"	2,098
B2	6	5	STR	48'-11"	306
B3	8	4	STR	25'-8"	137
B4	13	4	STR	2'-11"	25
B5	18	4	STR	8'-0"	96
B6	6	4	STR	6'-7"	26
B7	6	4	STR	11'-0"	44
H1	70	5	6	12'-3"	894
K1	36	4	STR	2'-7"	62
S1	57	4	2	10'-11"	416
S2	57	4	3	3'-8"	140
S3	24	4	5	6'-6"	104
U1	31	4	4	5'-11"	123
V1	76	4	STR	6'-1"	309
V2	30	4	STR	8'-2"	164
V3	30	4	STR	8'-7"	172
REINFORCING STEEL					5,116 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, LOWER WING WALLS, & COLLARS)				29.6 C.Y.	
POUR #2 (UPPER WING WALLS)				4.5 C.Y.	
TOTAL CLASS A CONCRETE				34.1 C.Y.	
HP 12x53 STEEL PILES					
NO. 6				360 LIN. FT.	
PILE REDRIVES				3 EA.	
PILE DRIVING EQUIPMENT SET UP FOR HP 12x53 STEEL PILES				6 EACH	



**HP PILE SPLICE DETAILS**



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

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

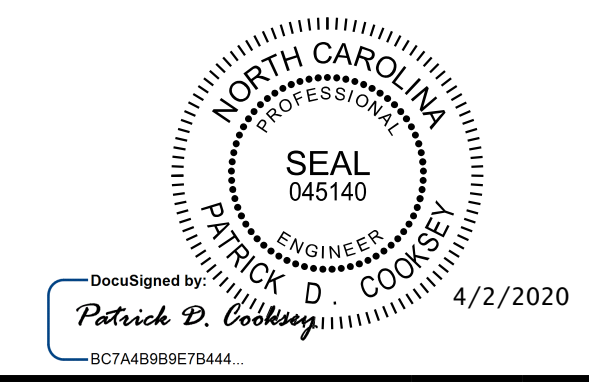
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 3 OF 3



**Kimley»Horn**  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1  
 SECTION AND DETAILS

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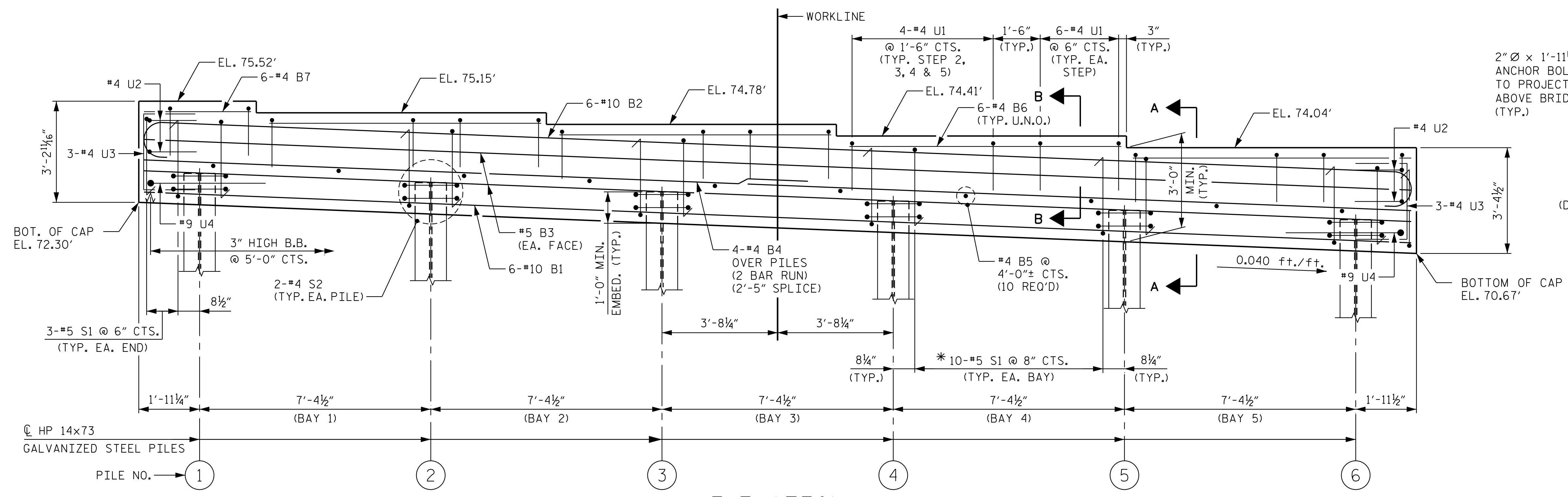
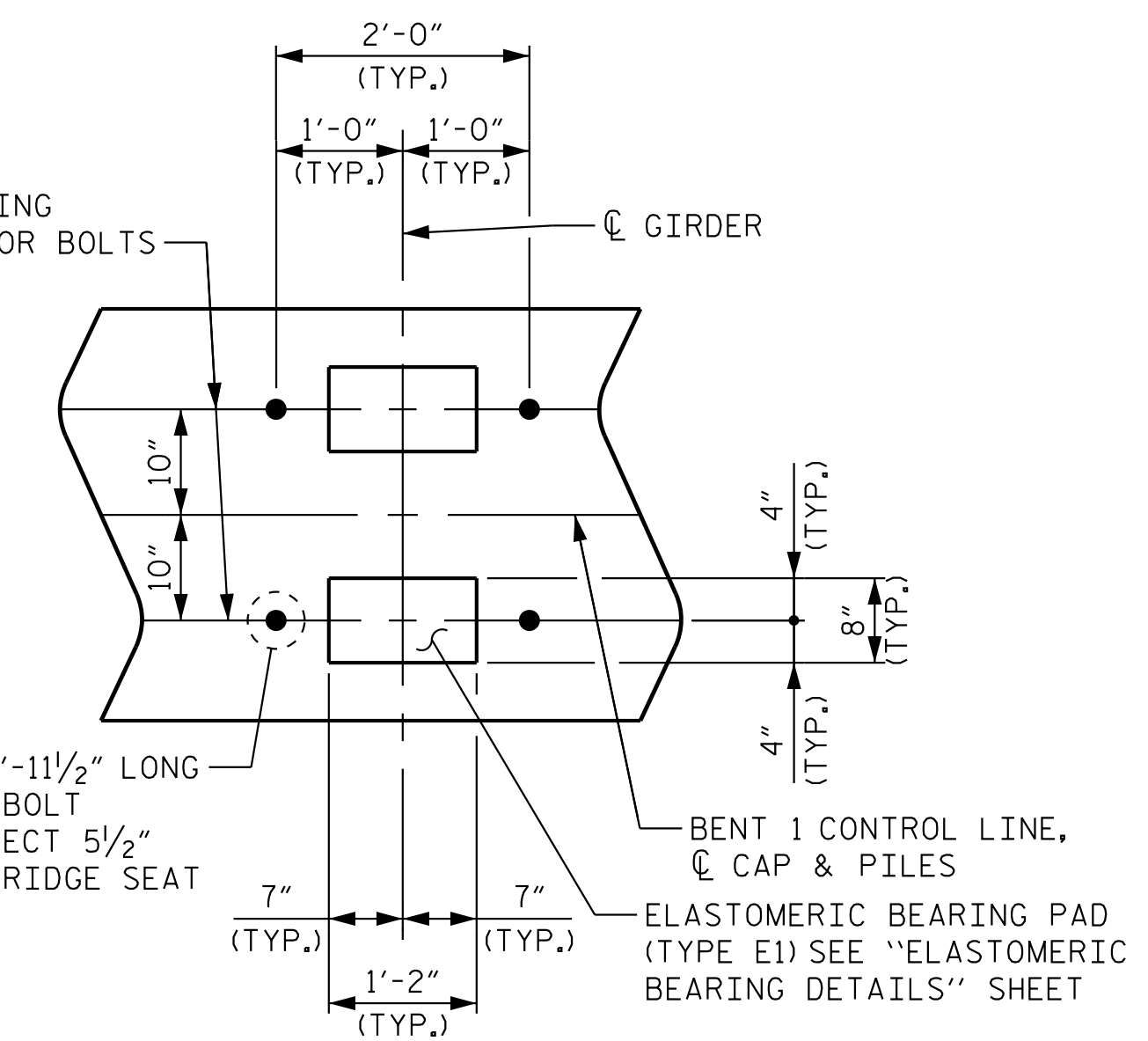
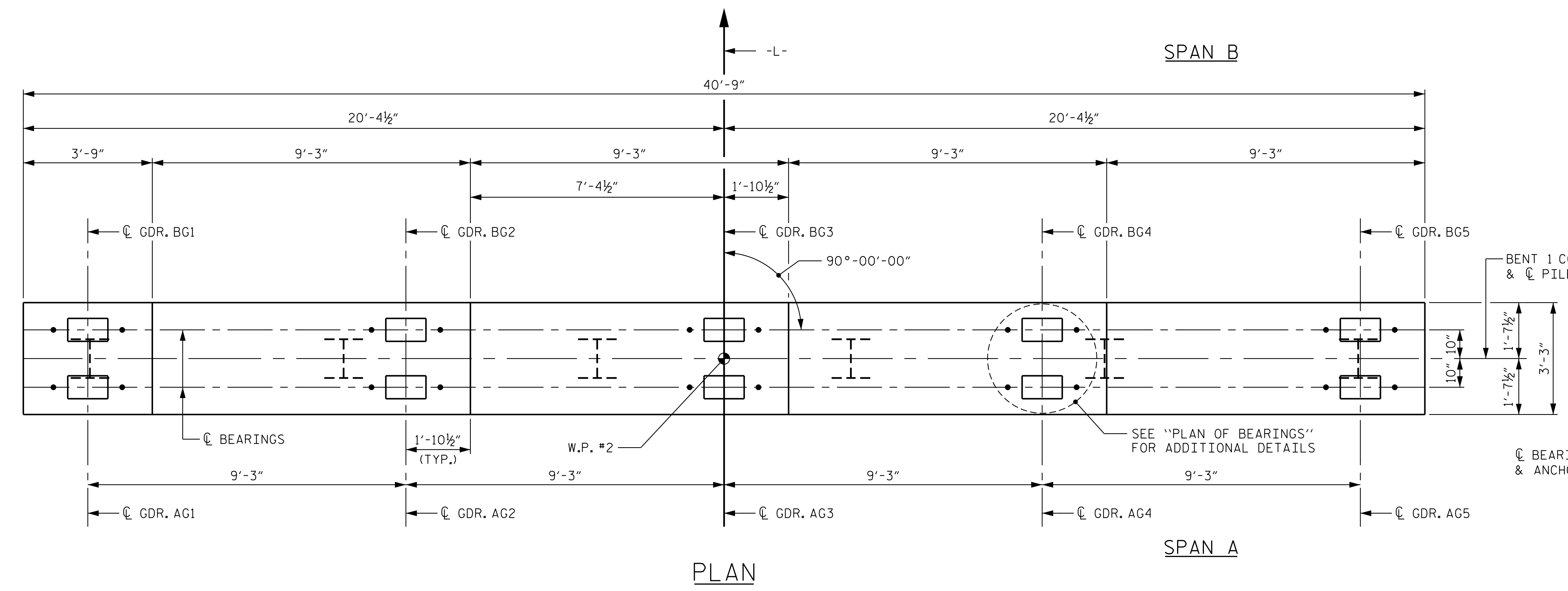
DRAWN BY: D. D. LOWERY DATE: 02/2020  
 CHECKED BY: J. C. WILSON DATE: 02/2020  
 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020

### NOTES

FOR SECTION A-A, PILE SPLICE DETAILS AND PARTIAL SECTION B-B, SEE SHEET 2 OF 2.

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

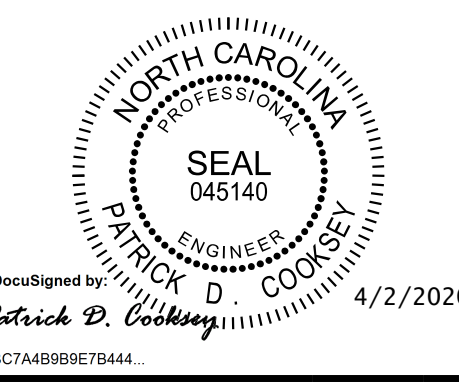
GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 27 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATION.



TOP OF PILE ELEVATIONS	
①	73.22'
②	72.93'
③	72.63'
④	72.34'
⑤	72.04'
⑥	71.75'

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 1 OF 2



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STATE OF NORTH CAROLINA  
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 RALEIGH  
 SUBSTRUCTURE  
**BENT 1**  
**PLAN AND ELEVATION**

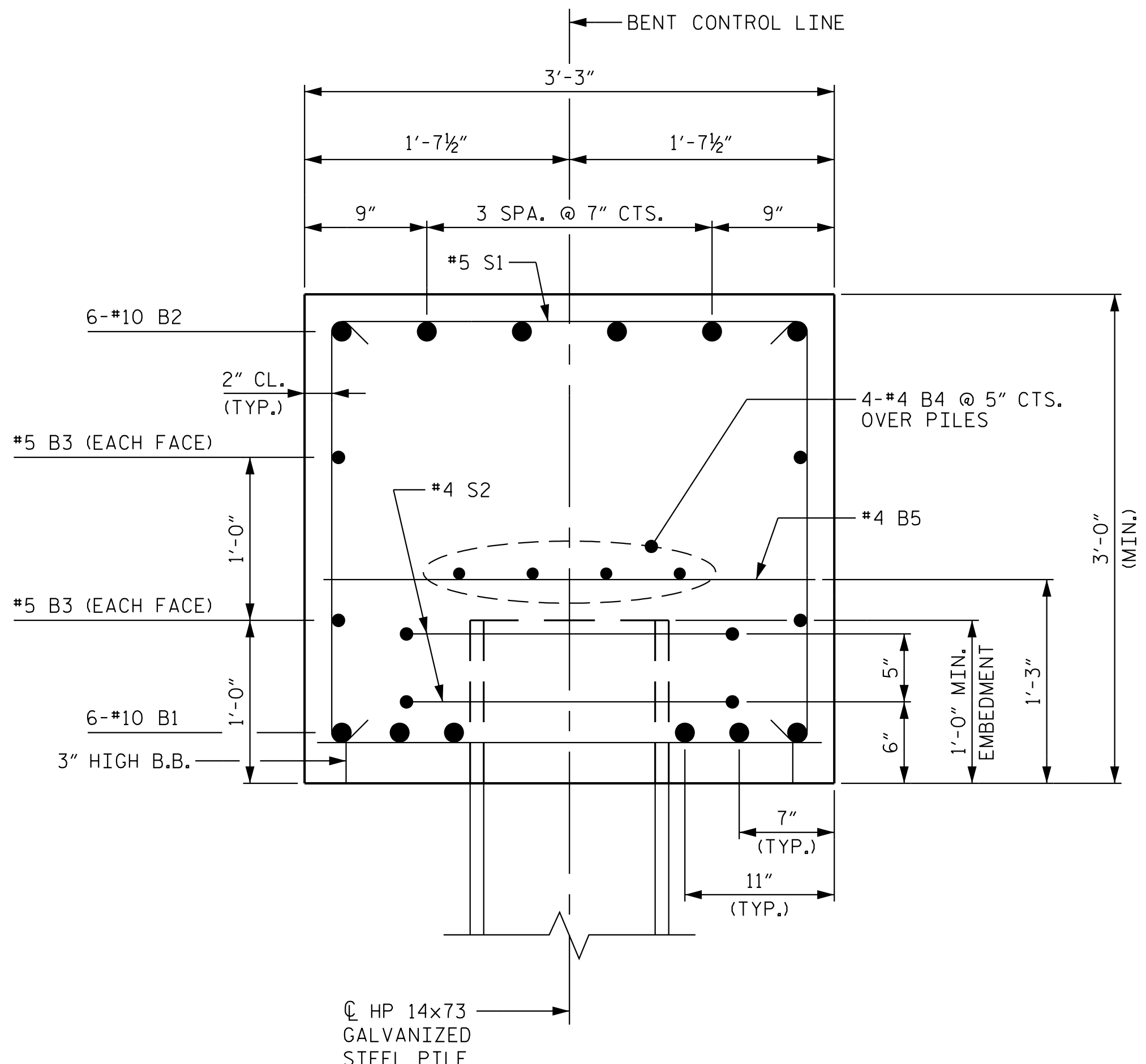
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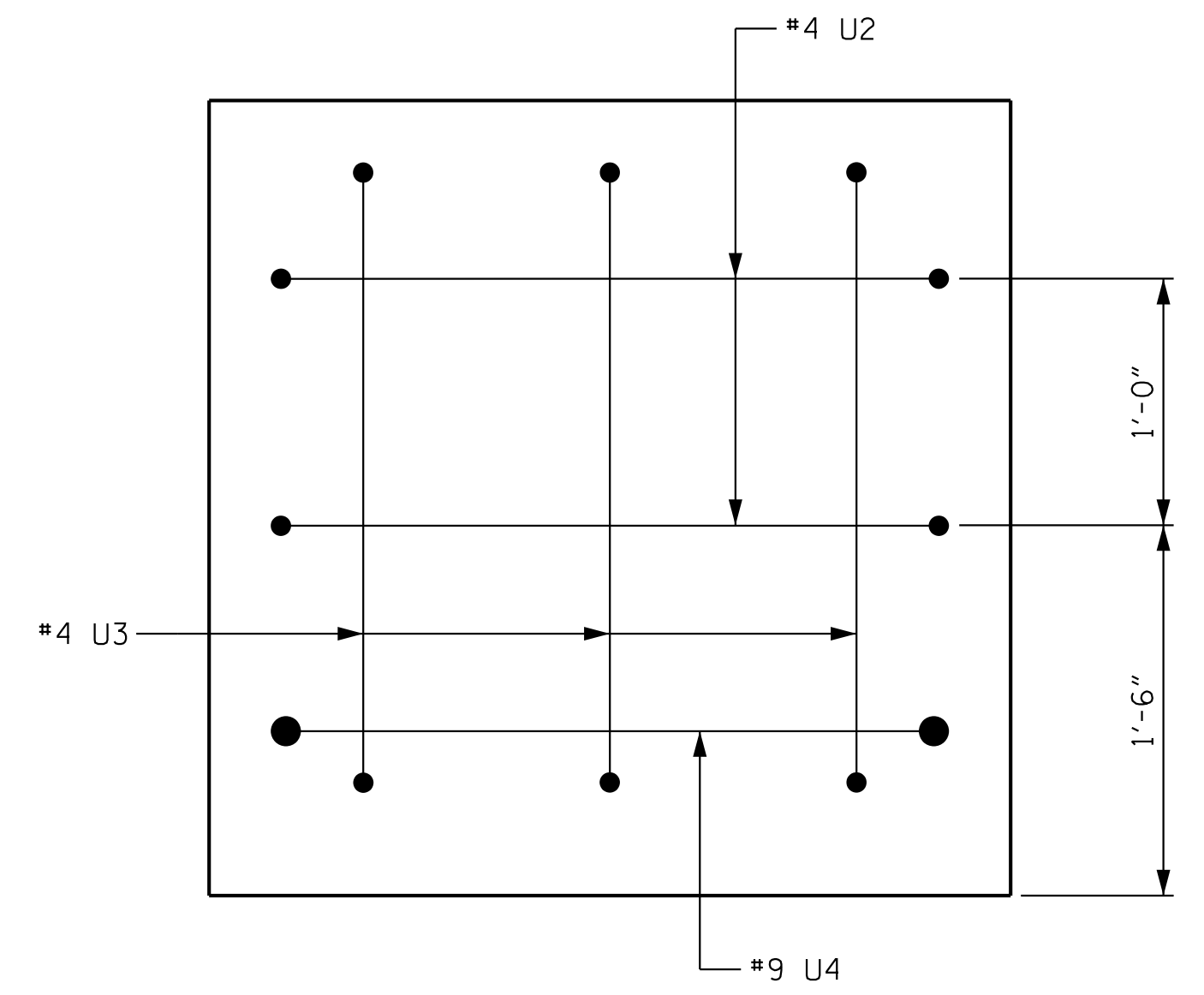
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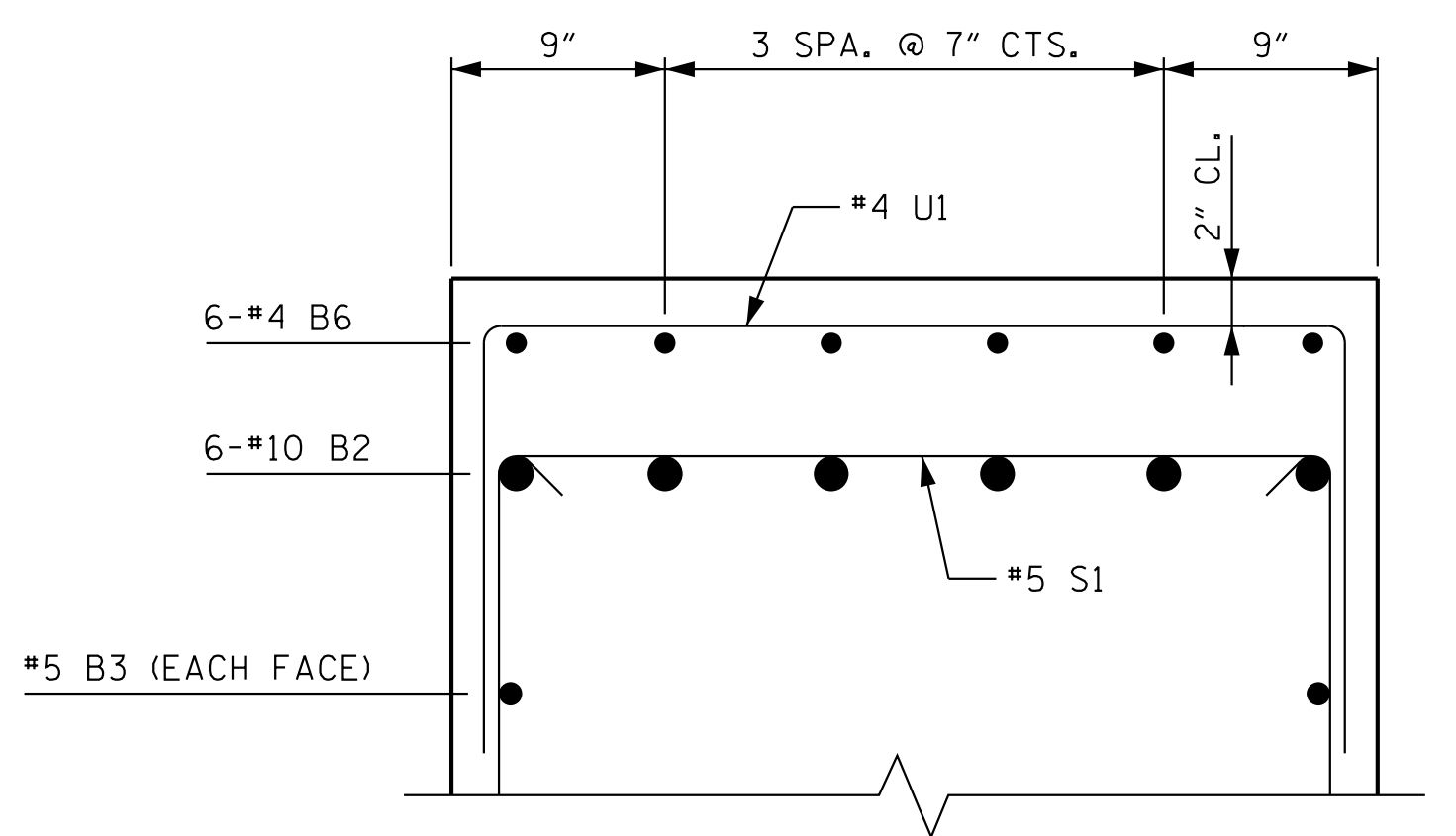




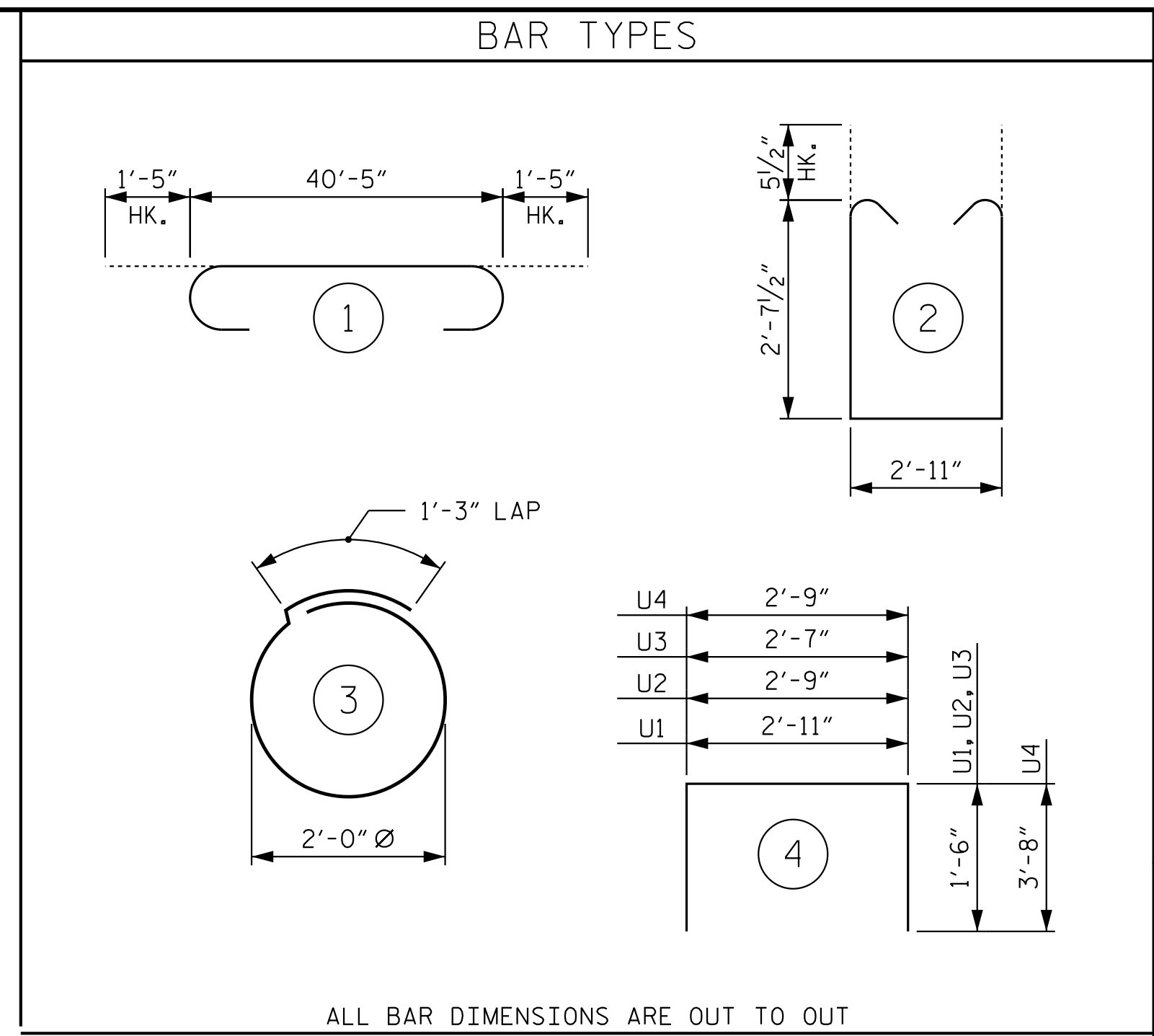
SECTION A-A



END OF CAP  
(TYPICAL BOTH ENDS)

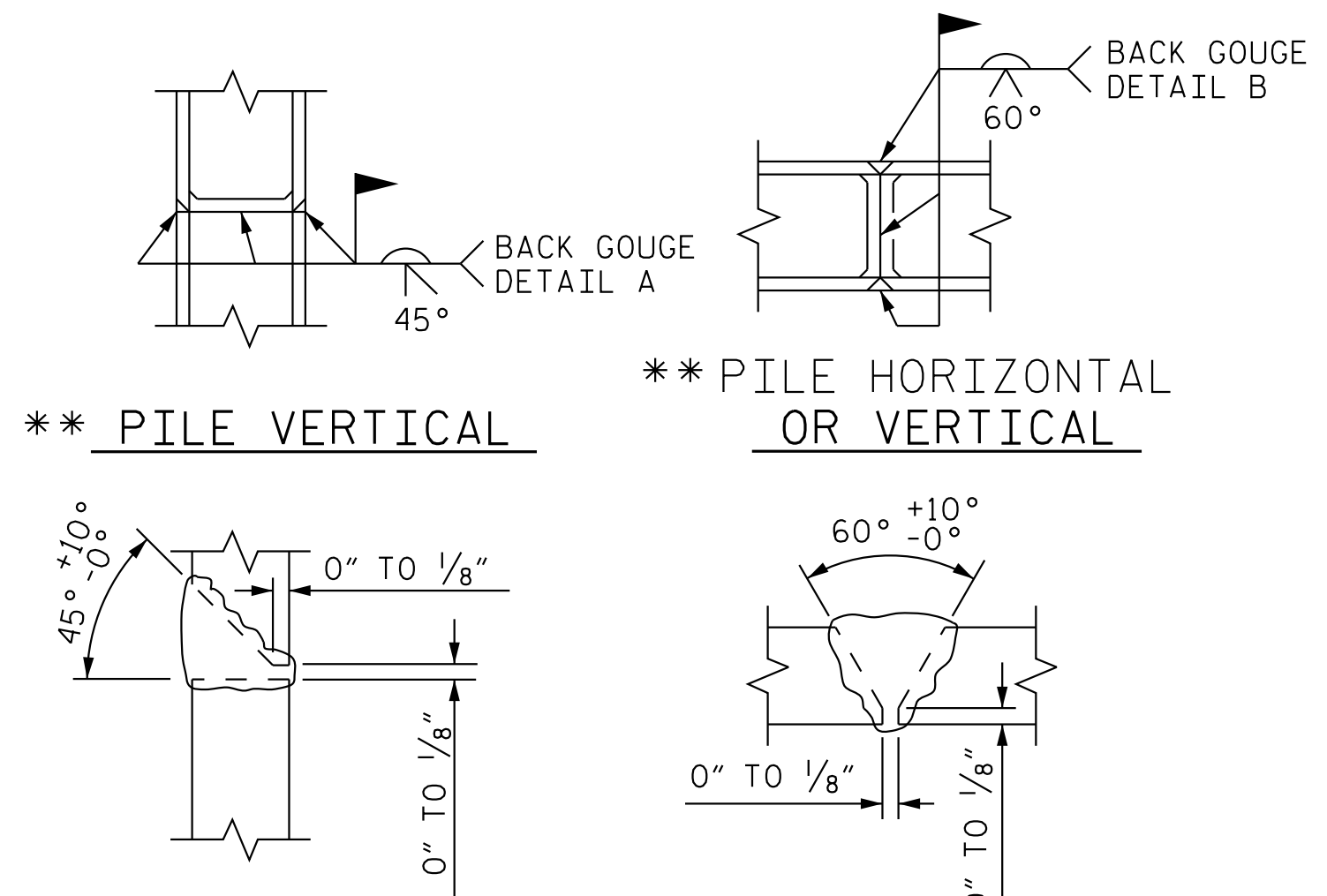


PARTIAL SECTION B-B  
(FOR LOCATION OF SECTION, SEE SHEET 1 OF 2)



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	10	STR	40'-5"	1,043
B2	6	10	1	43'-3"	1,117
B3	4	5	STR	40'-5"	169
B4	8	4	STR	21'-5"	114
B5	10	4	STR	2'-11"	19
B6	24	4	STR	9'-1"	146
B7	6	4	STR	3'-5"	14
S1	56	5	2	9'-1"	531
S2	12	4	3	7'-7"	61
U1	46	4	4	5'-11"	182
U2	4	4	4	5'-9"	15
U3	6	4	4	5'-7"	22
U4	2	9	4	10'-1"	69
REINFORCING STEEL					3,502 LBS.
CLASS "A" CONCRETE BREAKDOWN					
POUR 1 (CAP)					15.7 C.Y.
HP 14x73 GALVANIZED STEEL PILES					
NO. 6					420 LIN. FT.
PILE REDRIVES					3 EA.
PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 GALVANIZED STEEL PILES					6 EA.



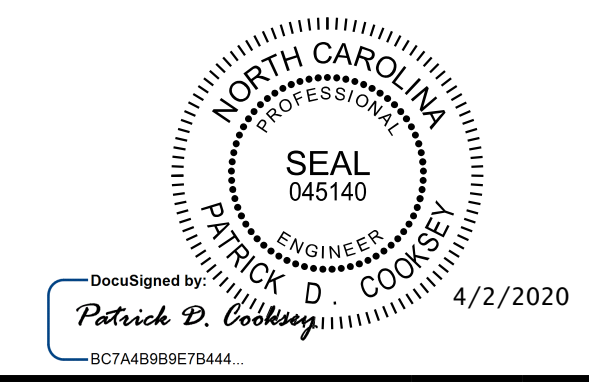
DETAIL A      DETAIL B

PILE SPLICE DETAILS

\*\* POSITION OF PILE DURING WELDING.

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 2 OF 2



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 SUBSTRUCTURE  
 BENT 1  
 SECTION AND DETAILS

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1			3			TOTAL SHEETS
2			4			34

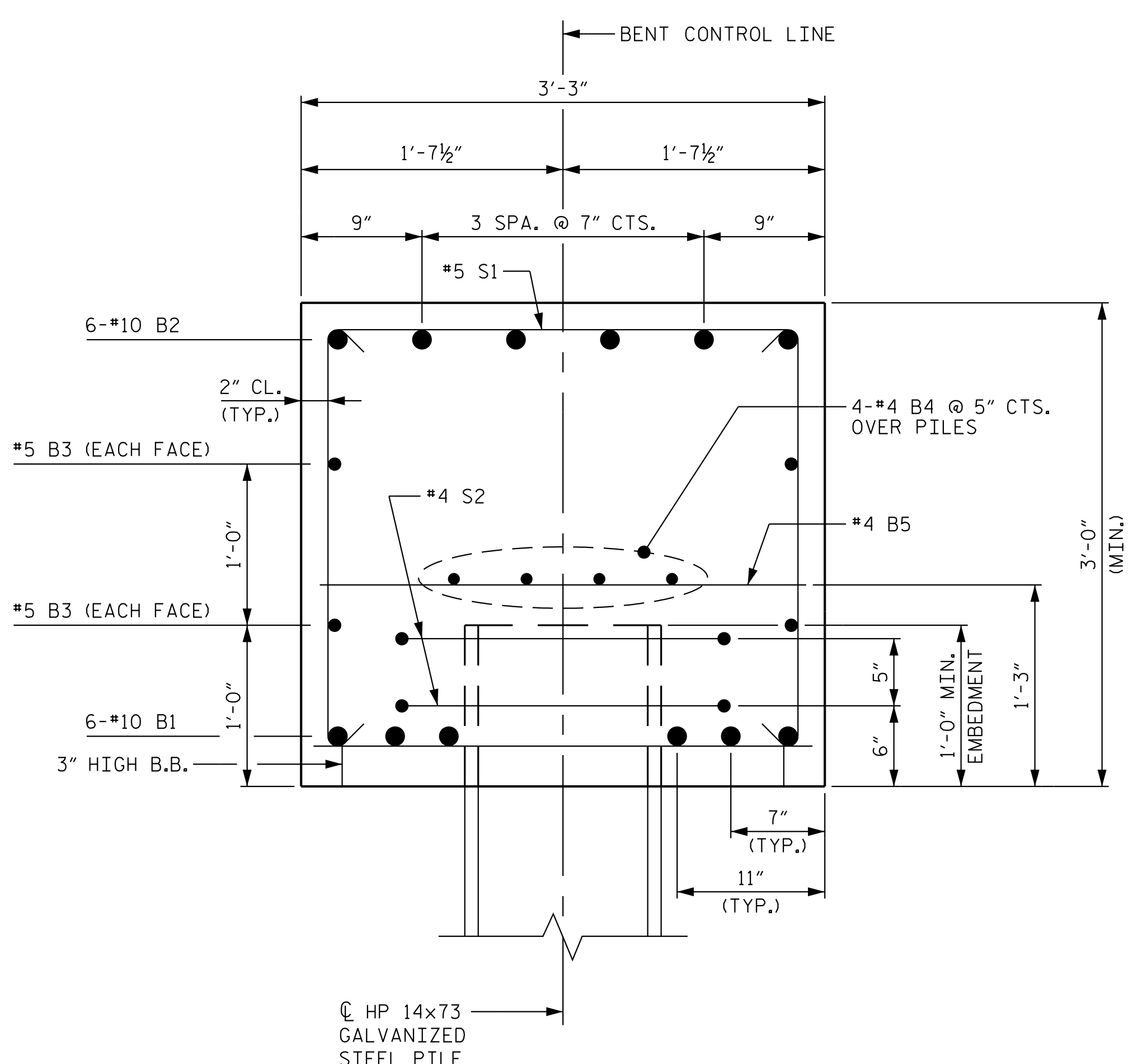
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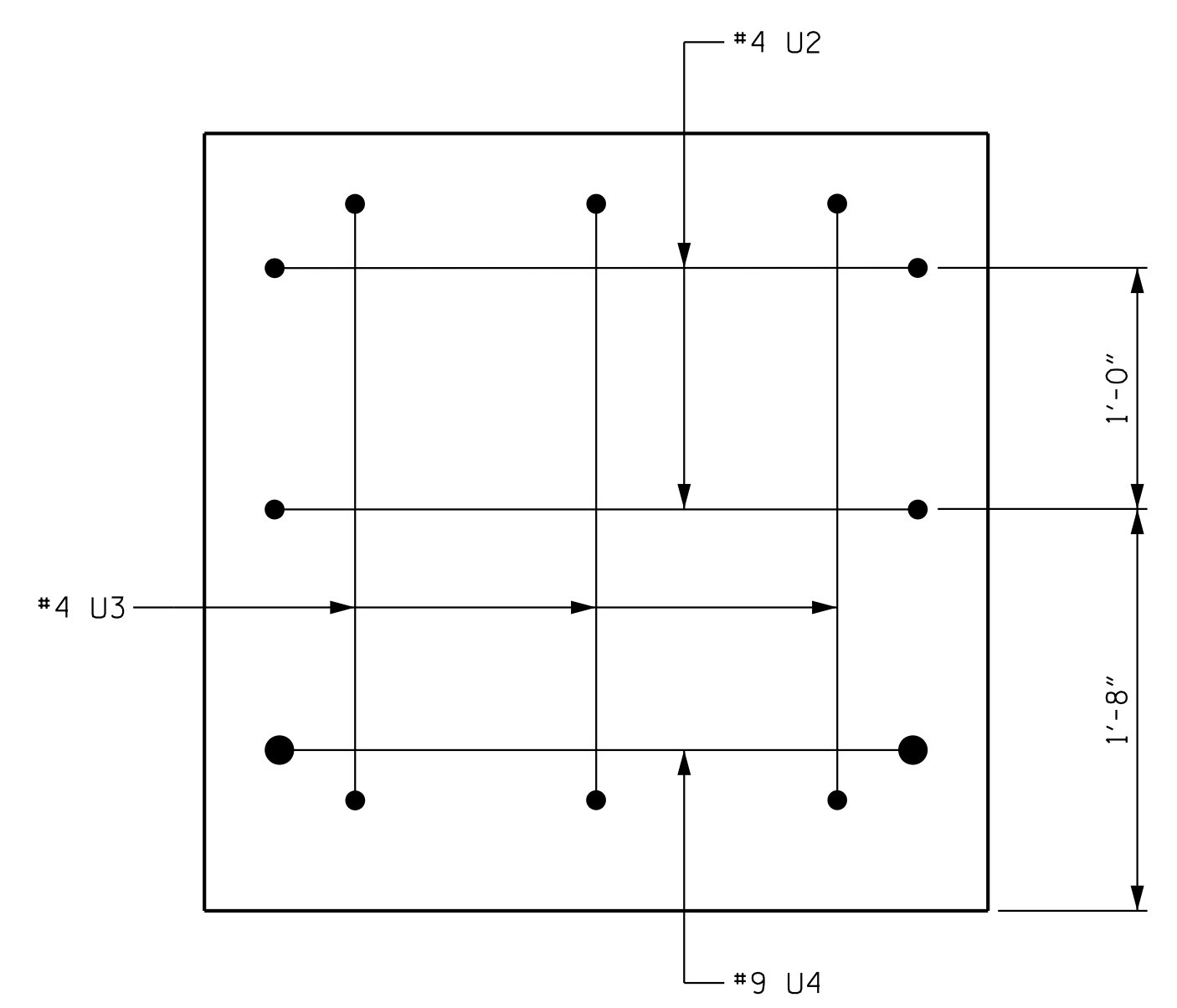
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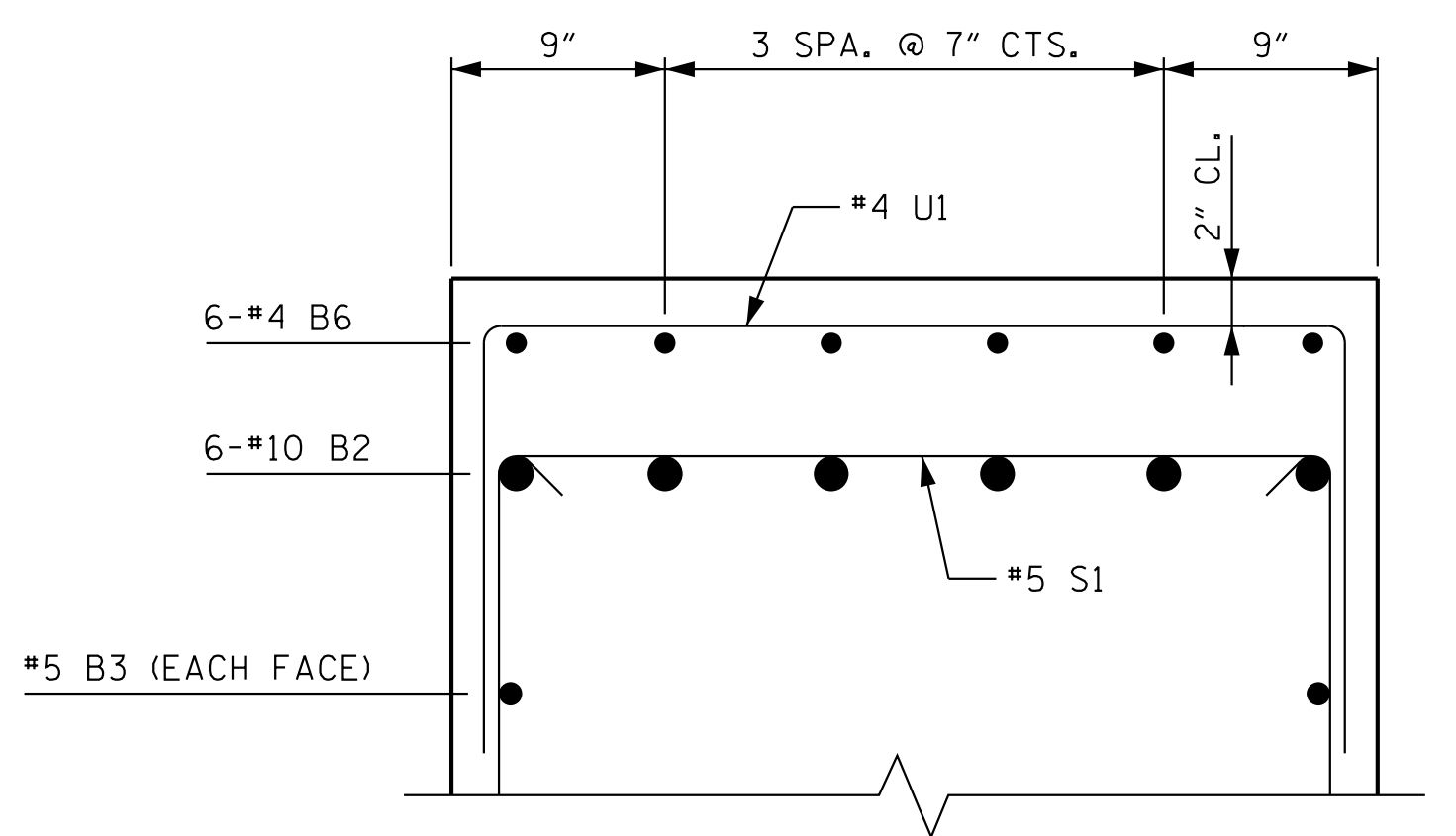




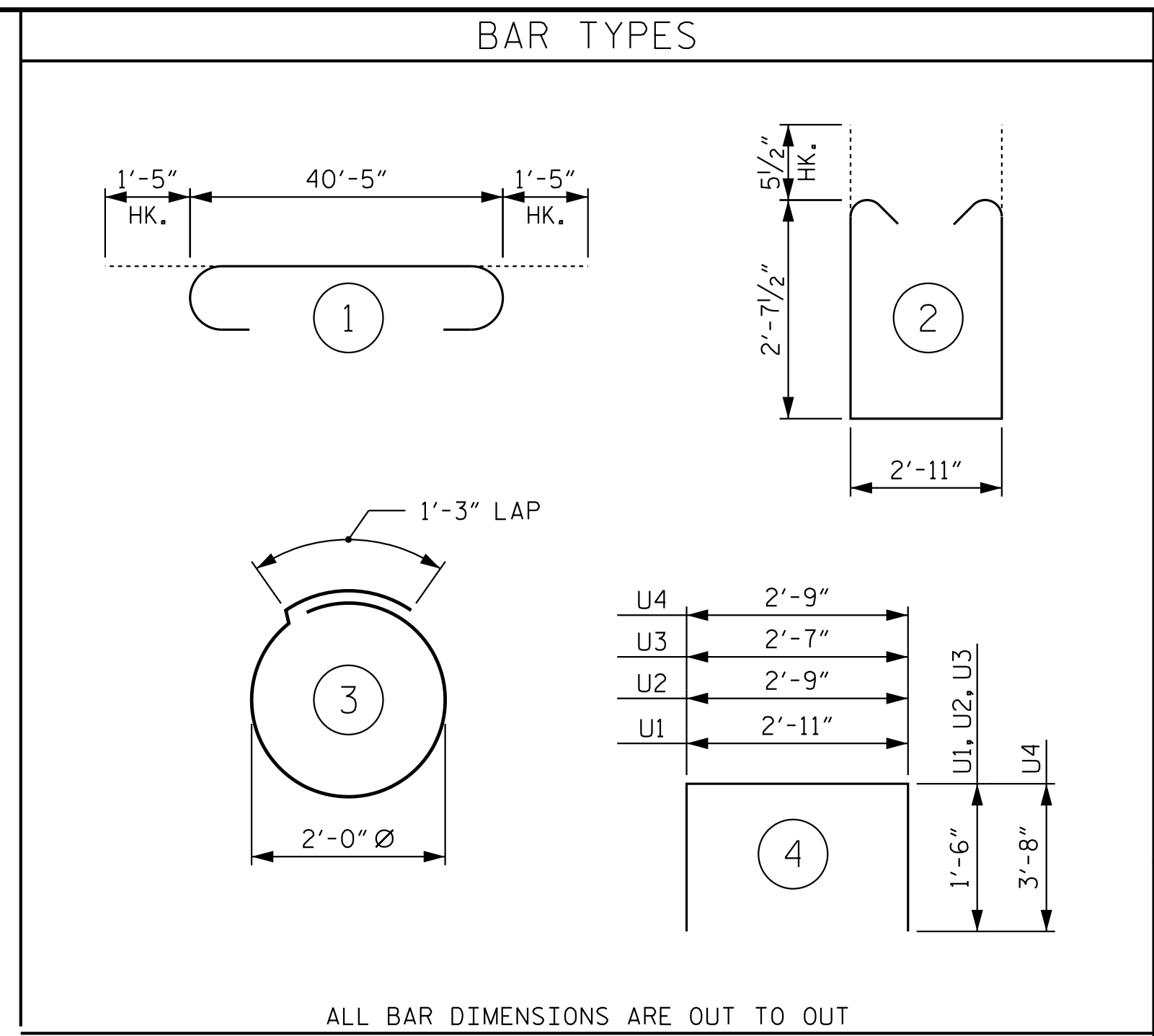
SECTION A-A



END OF CAP  
(TYPICAL BOTH ENDS)

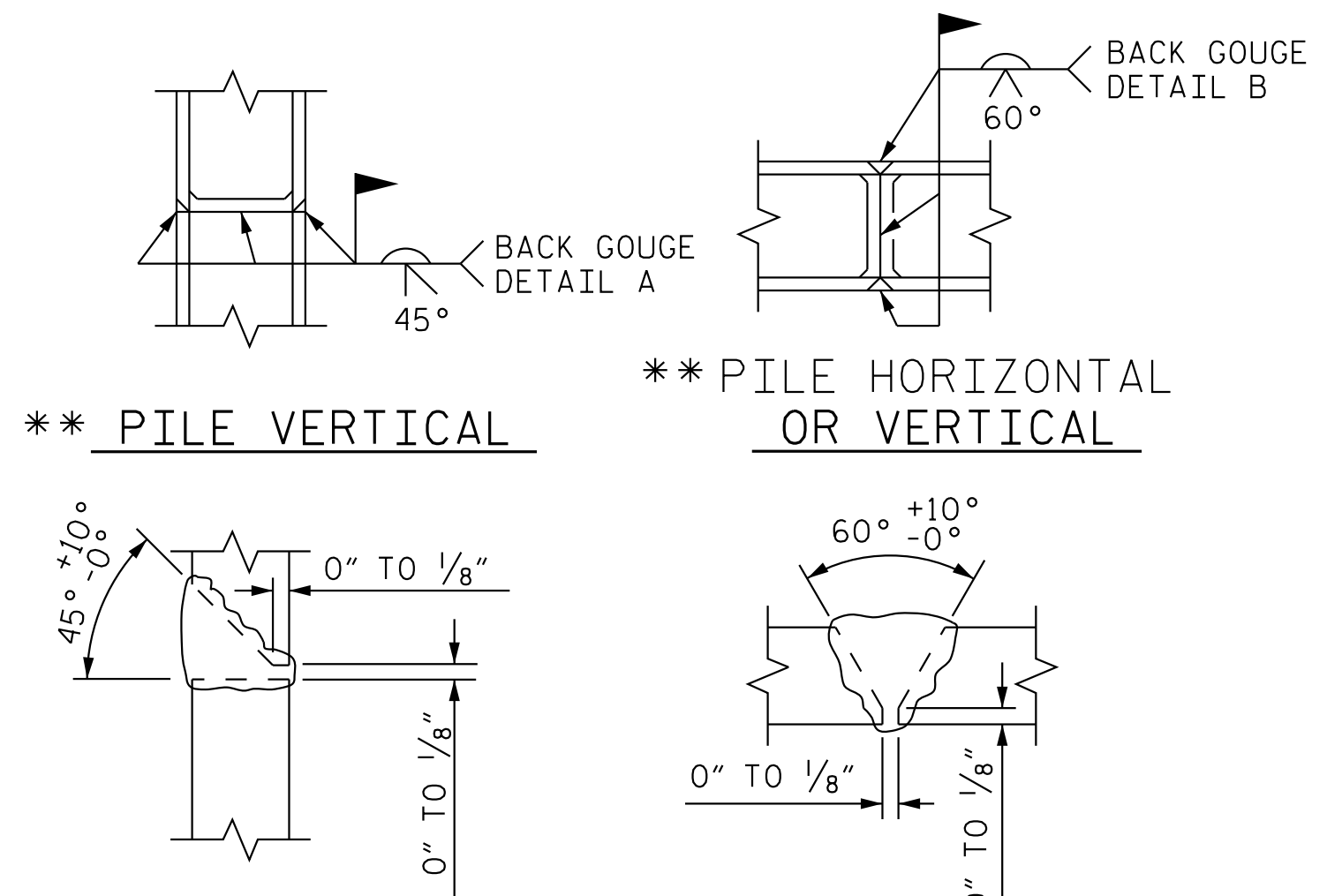


PARTIAL SECTION B-B  
(FOR LOCATION OF SECTION, SEE SHEET 1 OF 2)



ALL BAR DIMENSIONS ARE OUT TO OUT

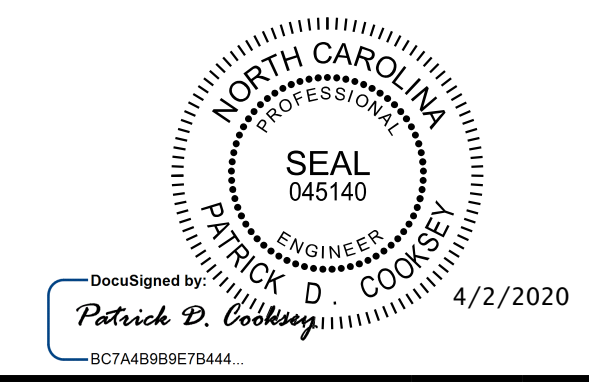
BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	10	STR	40'-5"	1,043
B2	6	10	1	43'-3"	1,117
B3	4	5	STR	40'-5"	169
B4	8	4	STR	21'-5"	114
B5	10	4	STR	2'-11"	19
B6	24	4	STR	9'-1"	146
B7	6	4	STR	3'-5"	14
S1	56	5	2	9'-1"	531
S2	12	4	3	7'-7"	61
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U3	6	4	4	5'-7"	22
U4	2	9	4	10'-1"	69
REINFORCING STEEL					3,502 LBS.
CLASS "A" CONCRETE BREAKDOWN					
POUR 1 (CAP)					15.7 C.Y.
HP 14x73 GALVANIZED STEEL PILES					
NO. 6					390 LIN. FT.
PILE REDRIVES					3 EA.
PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 GALVANIZED STEEL PILES					6 EA.



DETAIL A  
DETAIL B  
PILE SPLICE DETAILS  
\*\* POSITION OF PILE DURING WELDING.

PROJECT NO. B-5534  
DUPLIN COUNTY  
STATION: 21+68.50 -L-

SHEET 2 OF 2



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RALEIGH  
SUBSTRUCTURE  
BENT 2  
SECTION AND DETAILS

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NOTES

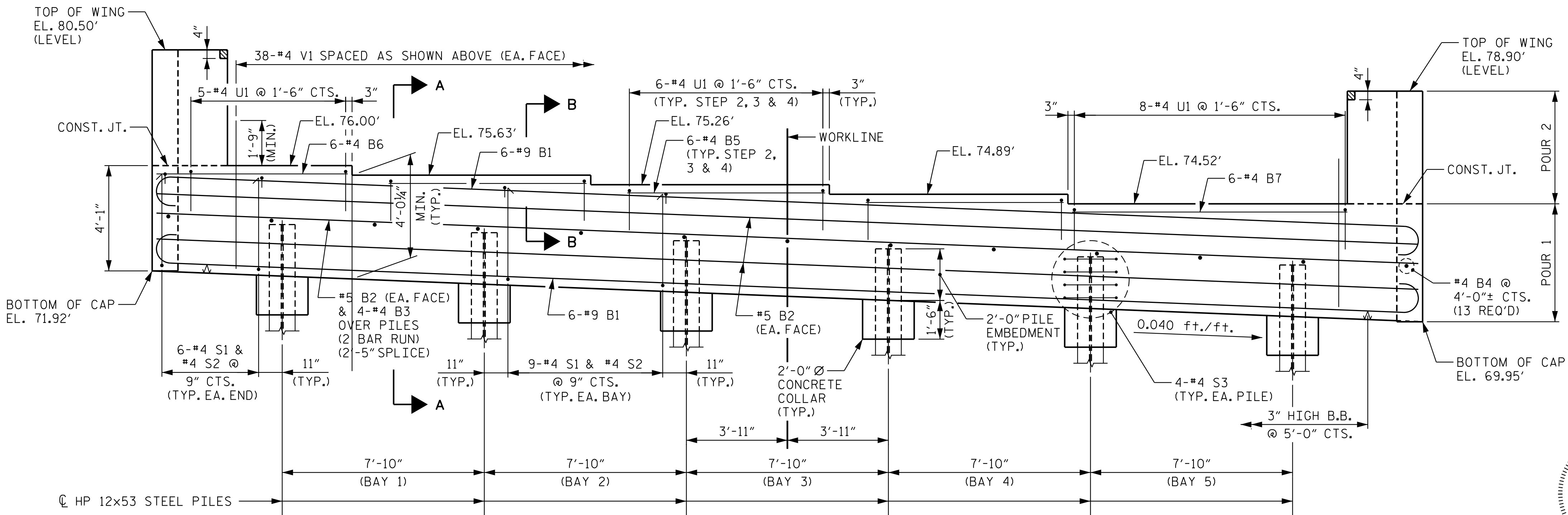
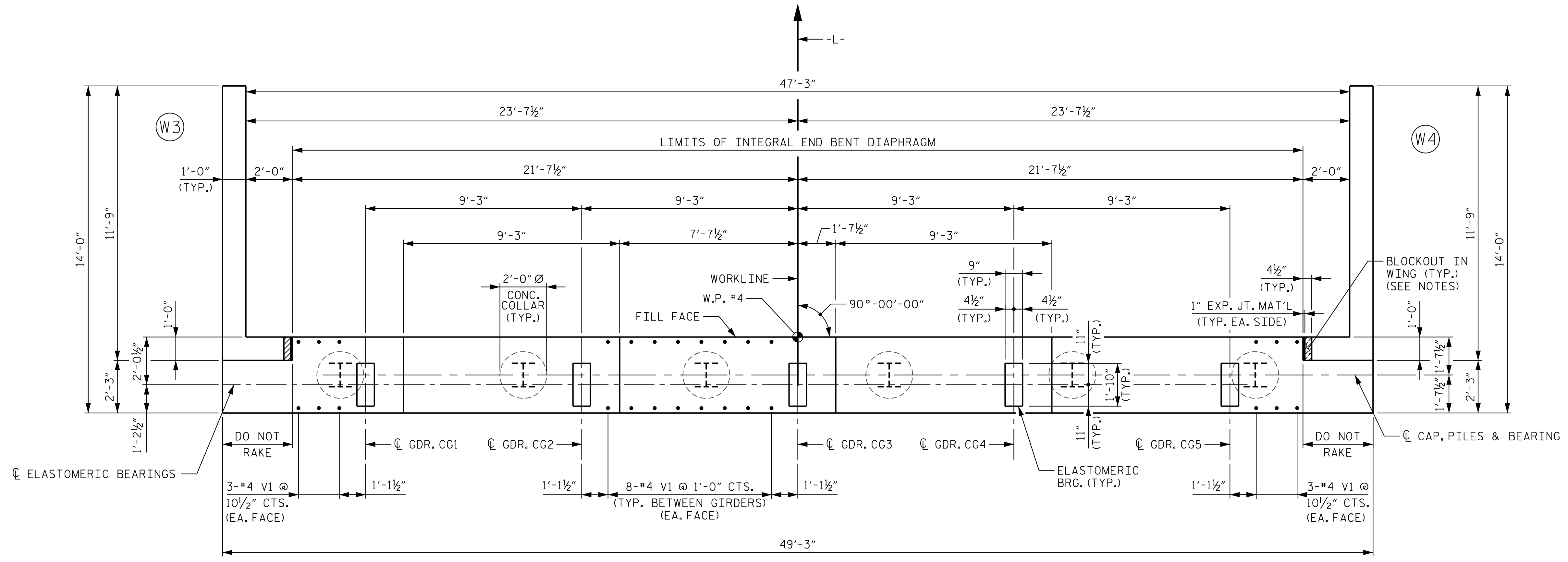
THE TOP SURFACE OF THE END BENT CAP WITHIN THE LIMITS OF THE INTEGRAL END BENT DIAPHRAGM, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".

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

FOR PILE SPLICE DETAILS, AND TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

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

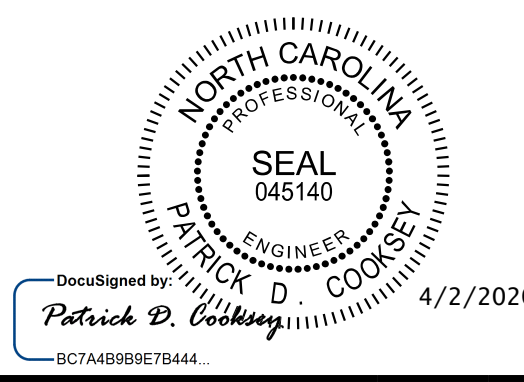
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.



TOP OF PILE ELEVATIONS	
①	73.72'
②	73.40'
③	73.09'
④	72.78'
⑤	72.46'
⑥	72.15'

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 1 OF 3



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STATE OF NORTH CAROLINA  
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 SUBSTRUCTURE  
 END BENT 2  
 PLAN AND ELEVATION

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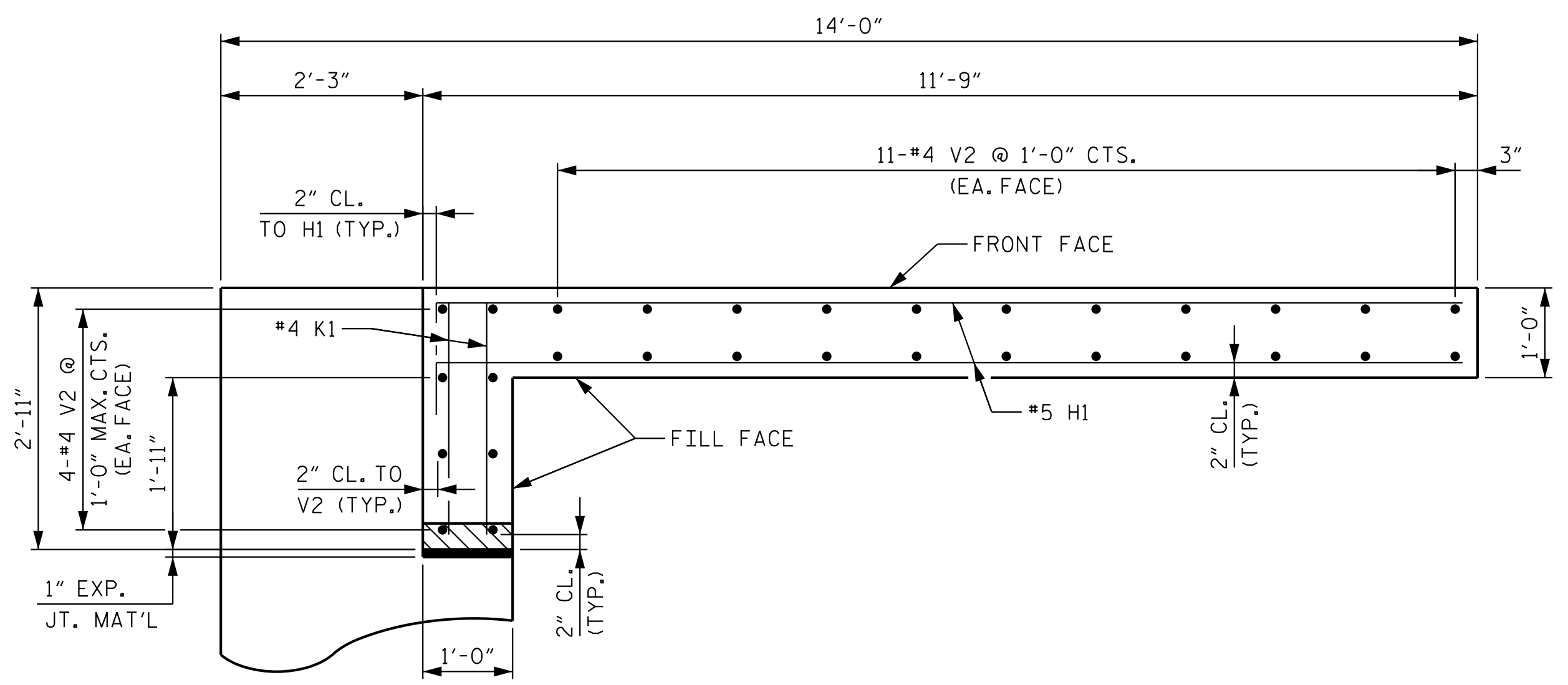
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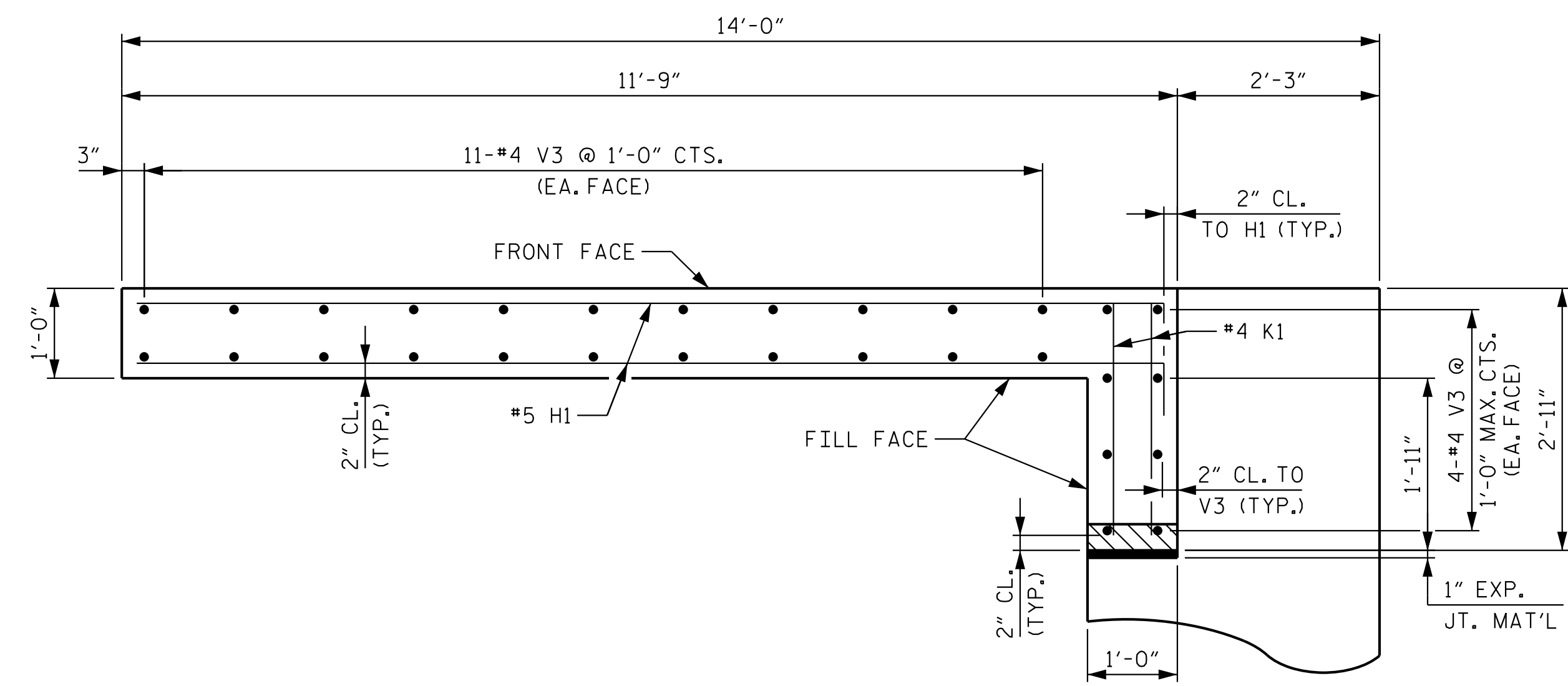
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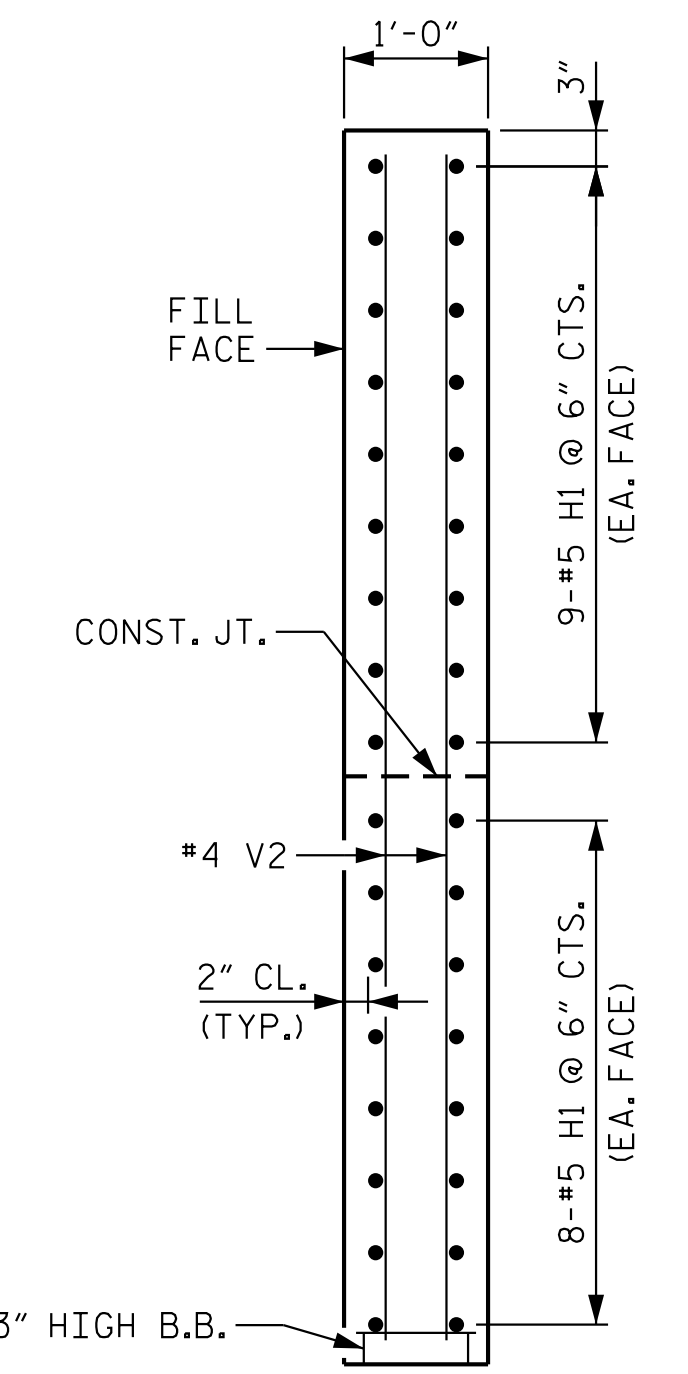




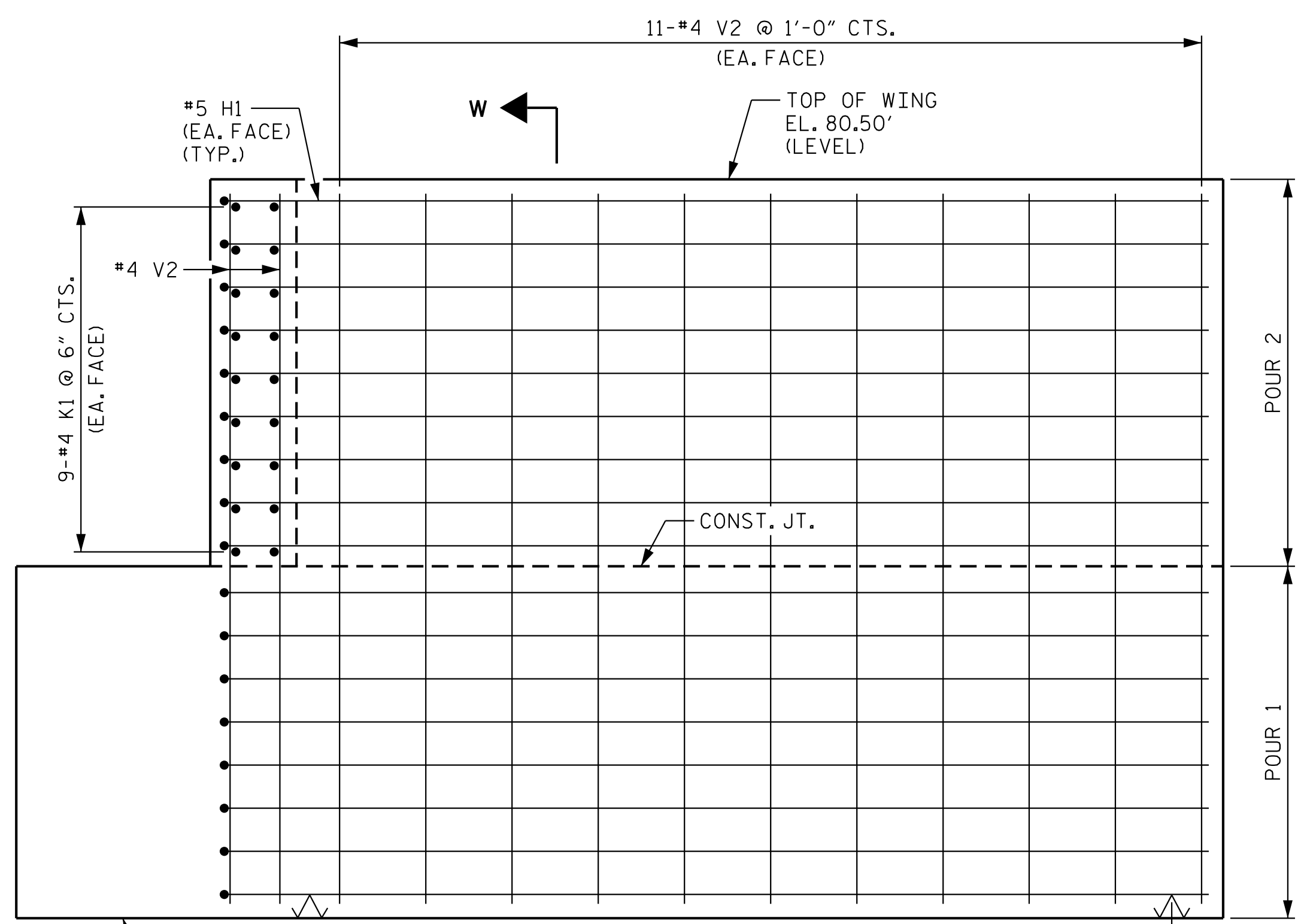
PLAN OF WING (W3)



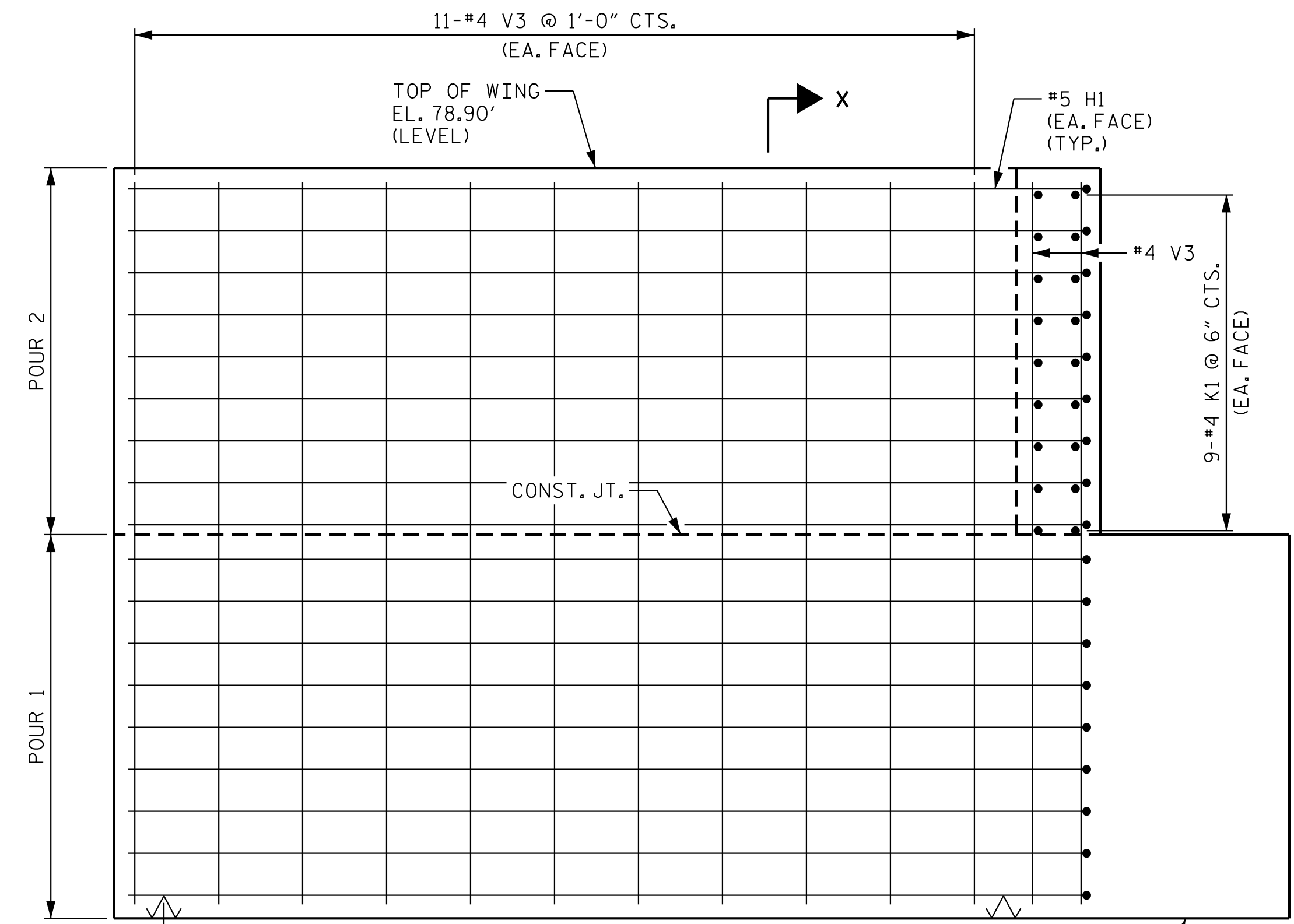
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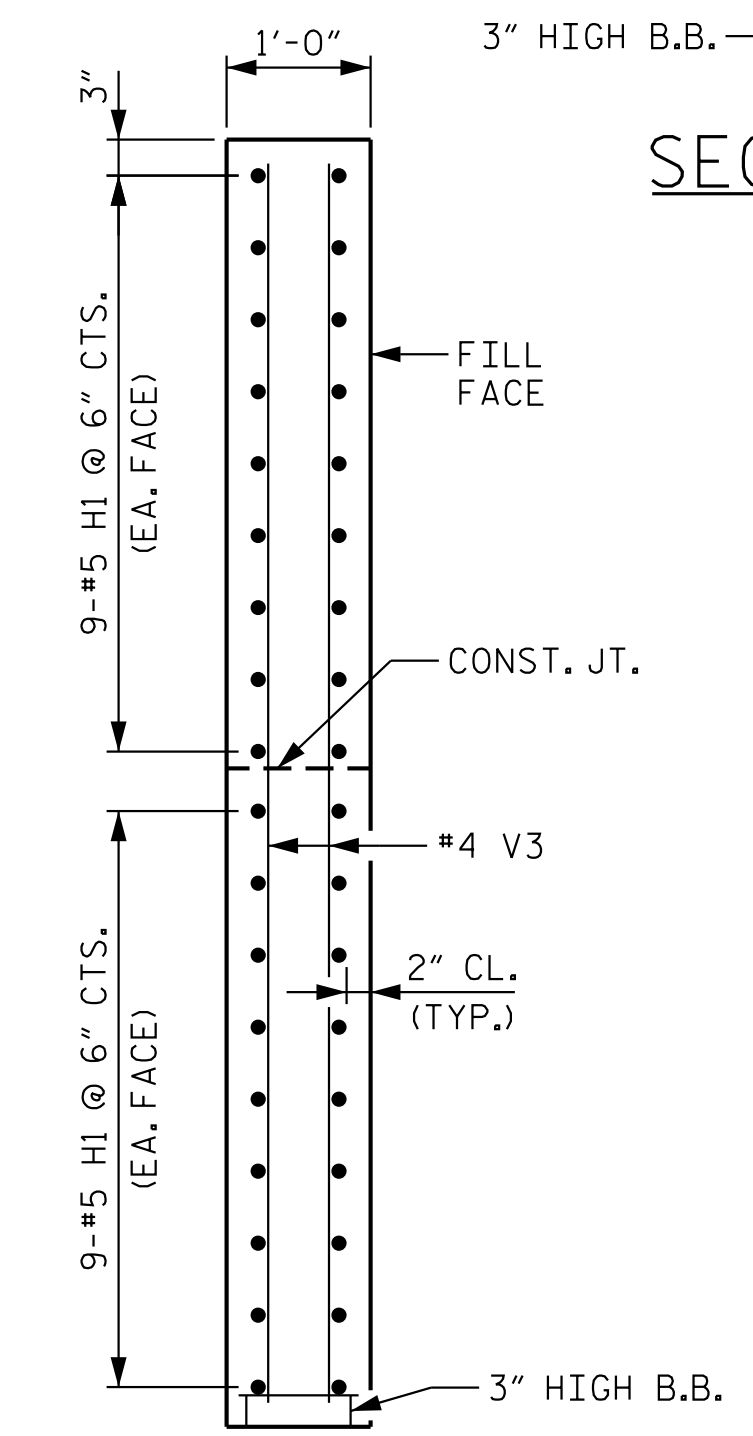
SECTION W-W



ELEVATION OF WING (W3)



ELEVATION OF WING (W4)

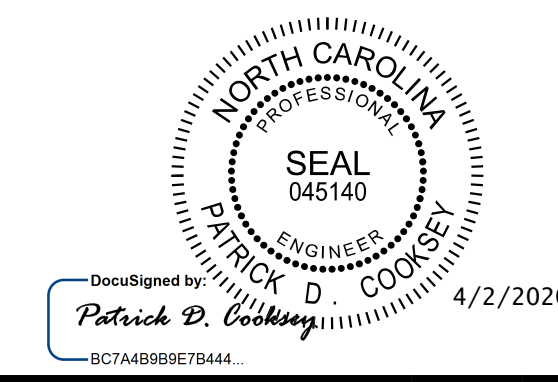


SECTION X-X

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 2 OF 3

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



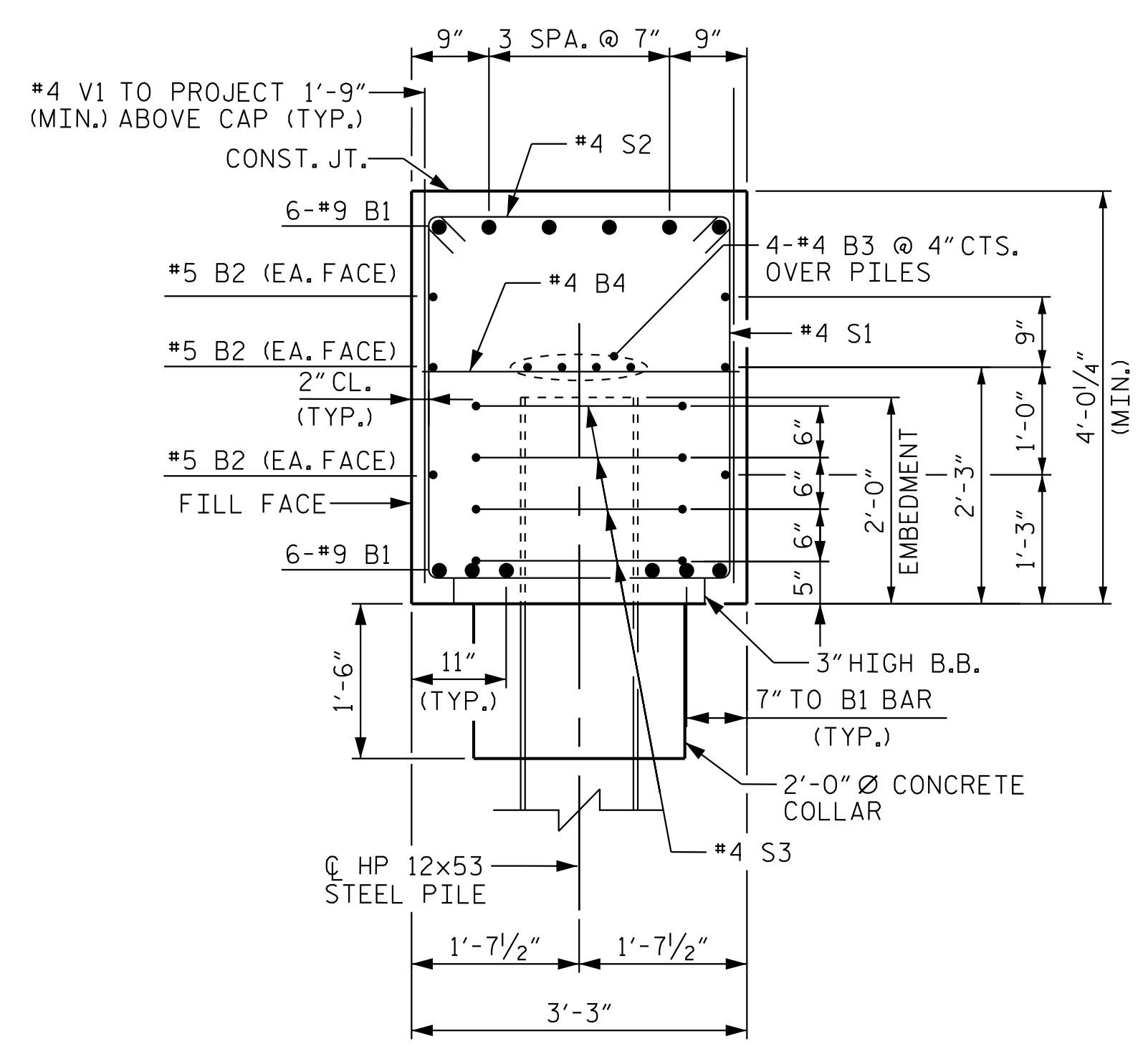
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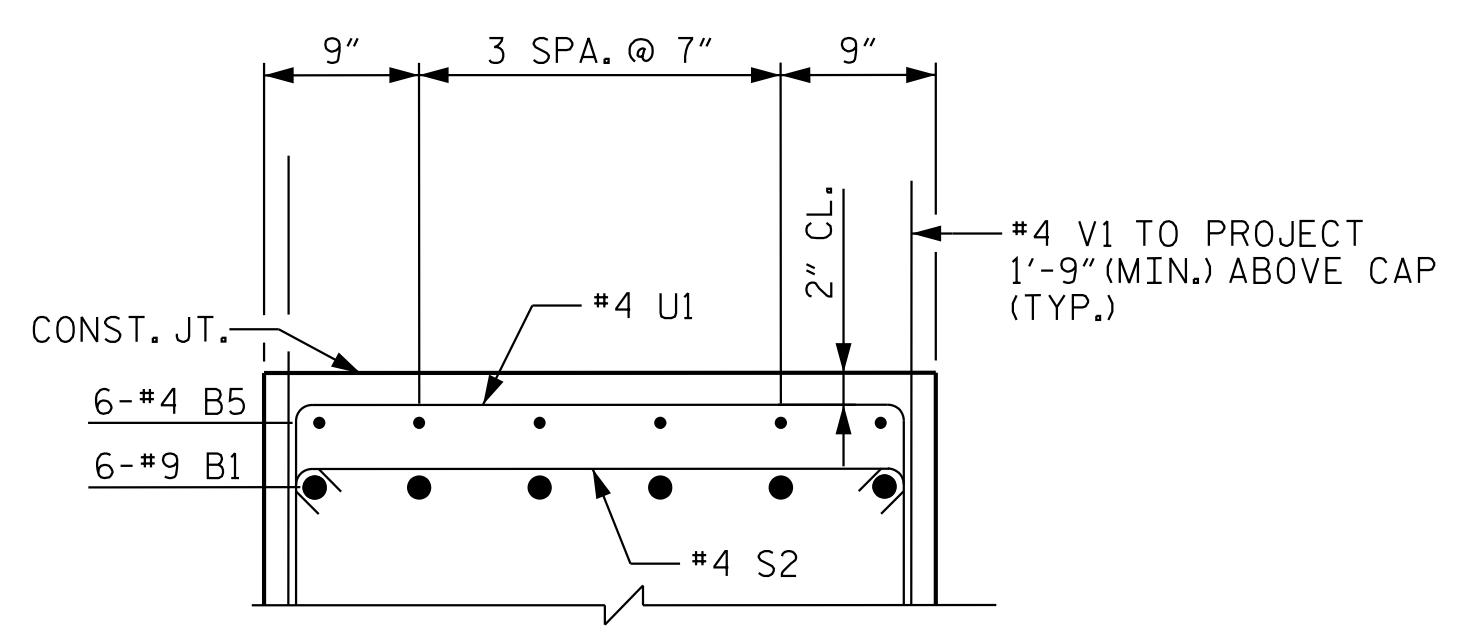
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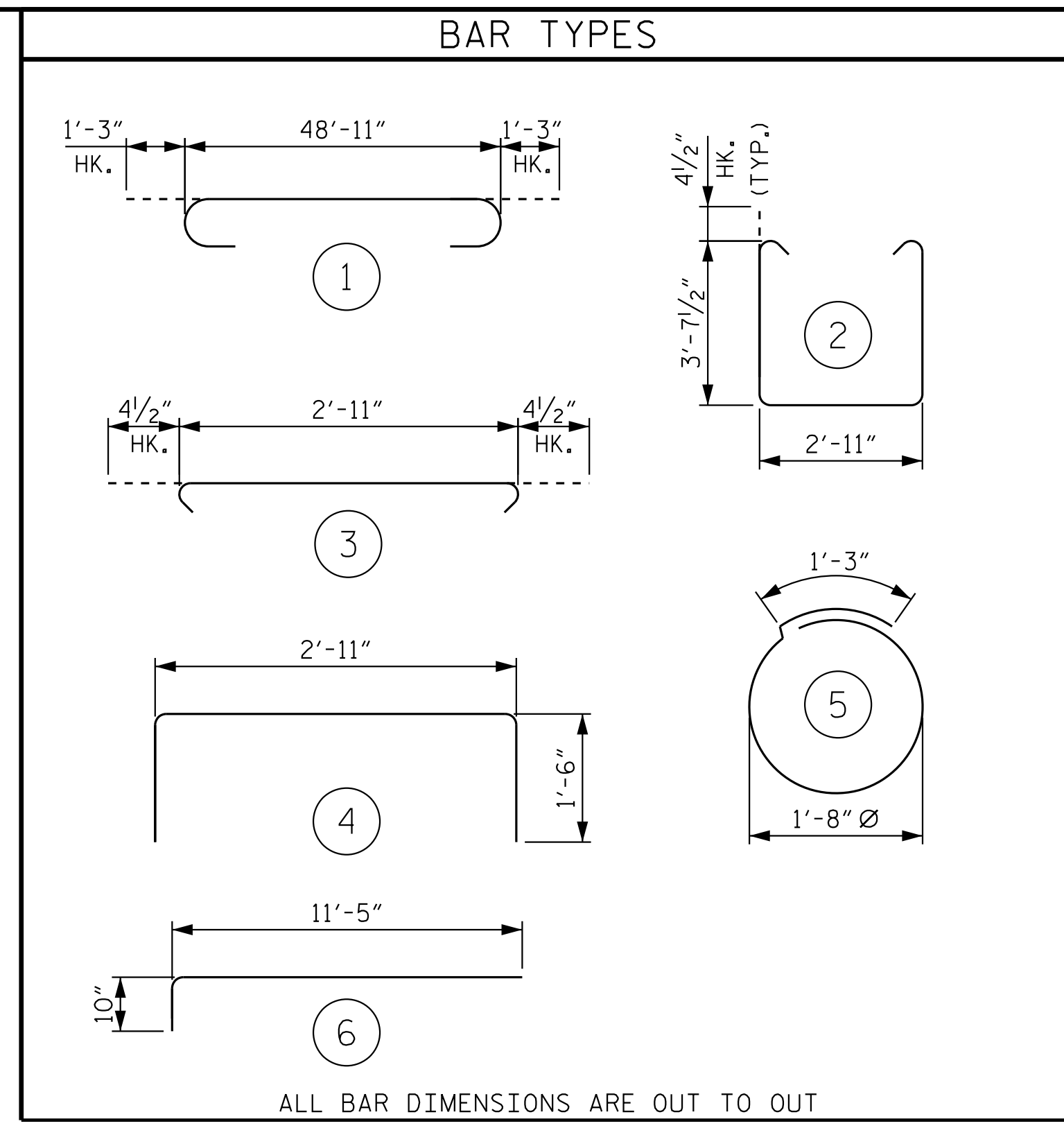
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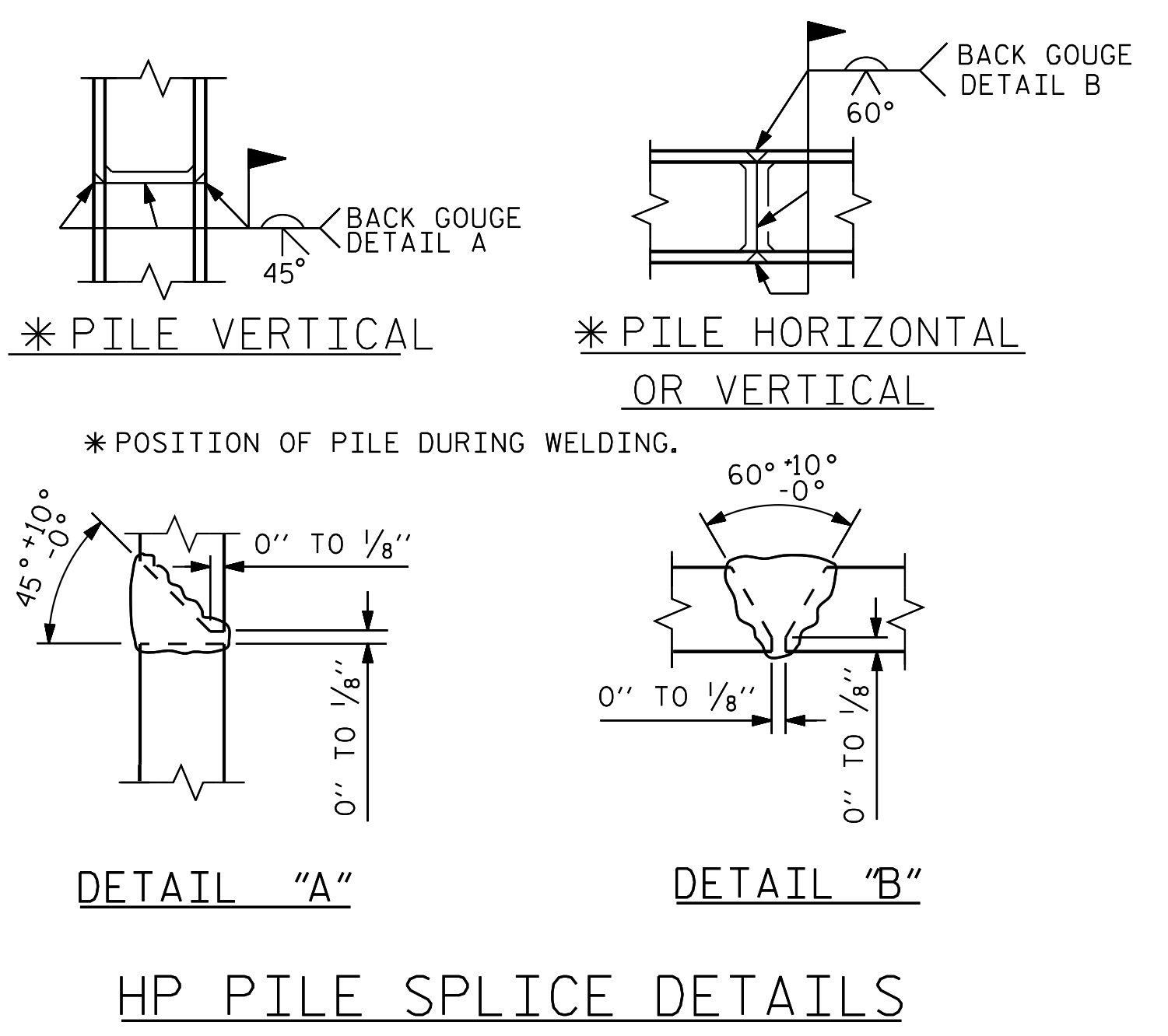
**SECTION A-A**  
(FOR LOCATION OF SECTION, SEE SHEET 1 OF 3)



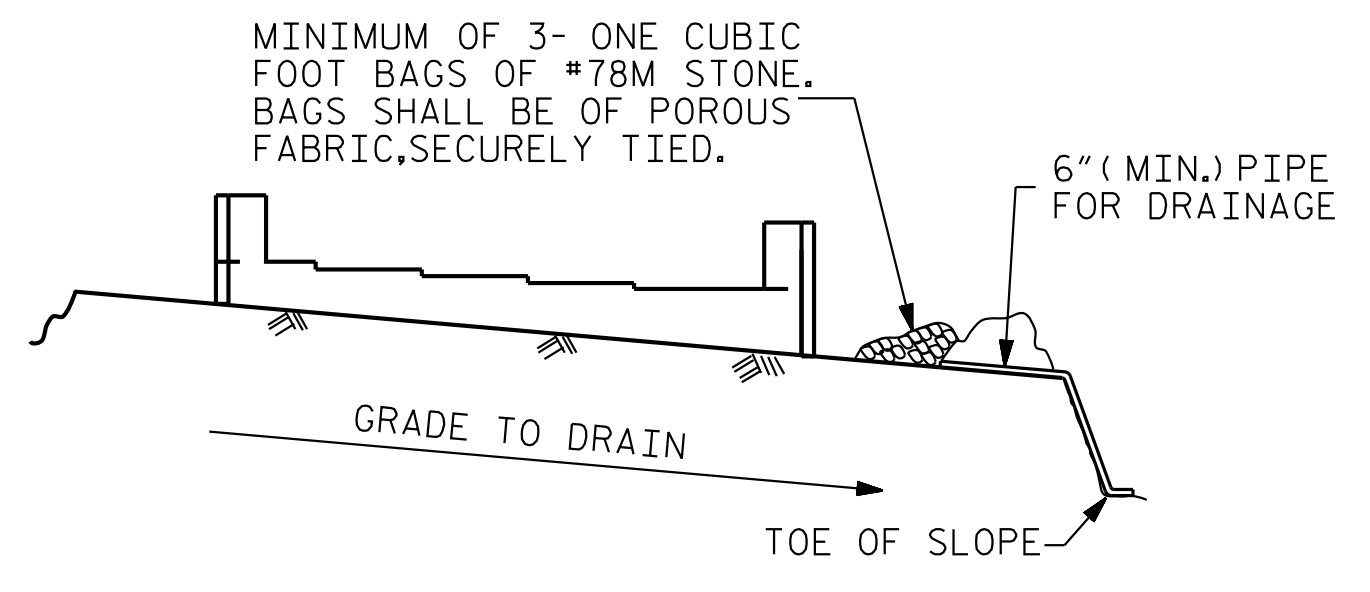
**PARTIAL SECTION B-B**  
(FOR LOCATION OF SECTION, SEE SHEET 1 OF 3)



BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	9	1	51'-5"	2,098
B2	6	5	STR	48'-11"	306
B3	8	4	STR	25'-8"	137
B4	13	4	STR	2'-11"	25
B5	18	4	STR	8'-0"	96
B6	6	4	STR	6'-7"	26
B7	6	4	STR	11'-0"	44
H1	70	5	6	12'-3"	894
K1	36	4	STR	2'-7"	62
S1	57	4	2	10'-11"	416
S2	57	4	3	3'-8"	140
S3	24	4	5	6'-6"	104
U1	31	4	4	5'-11"	123
V1	76	4	STR	6'-1"	309
V2	30	4	STR	8'-2"	164
V3	30	4	STR	8'-7"	172
REINFORCING STEEL					5,116 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, LOWER WING WALLS, & COLLARS)					29.6 C.Y.
POUR #2 (UPPER WING WALLS)					4.5 C.Y.
TOTAL CLASS A CONCRETE					34.1 C.Y.
HP 12x53 STEEL PILES					
NO. 6					330 LIN. FT.
PILE REDRIVES					3 EA.
PILE DRIVING EQUIPMENT SET UP FOR HP 12x53 STEEL PILES					6 EACH



**HP PILE SPLICE DETAILS**



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

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

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**

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
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 END BENT 2  
 SECTION AND DETAILS

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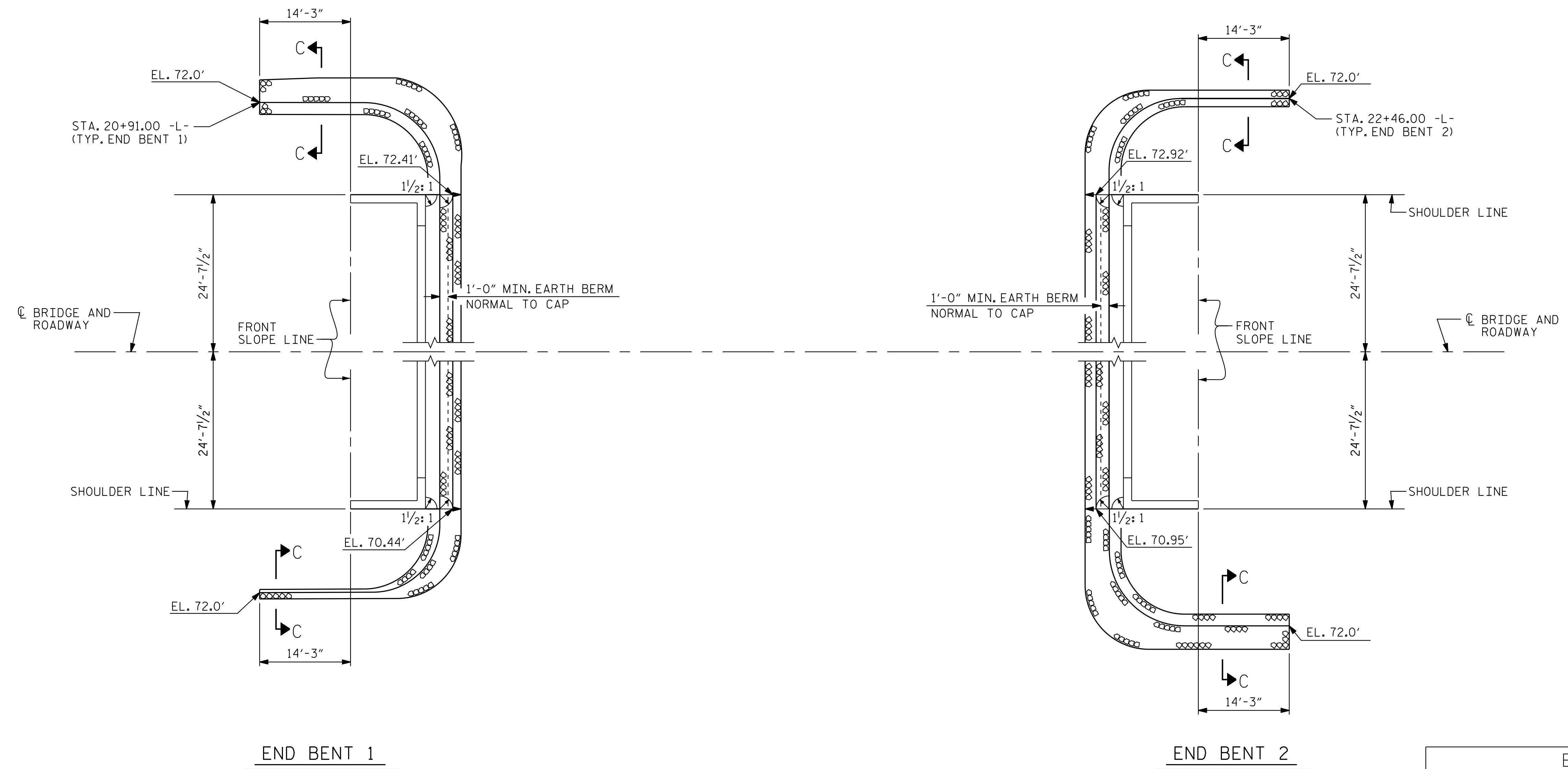
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 DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 02/2020



NOTES

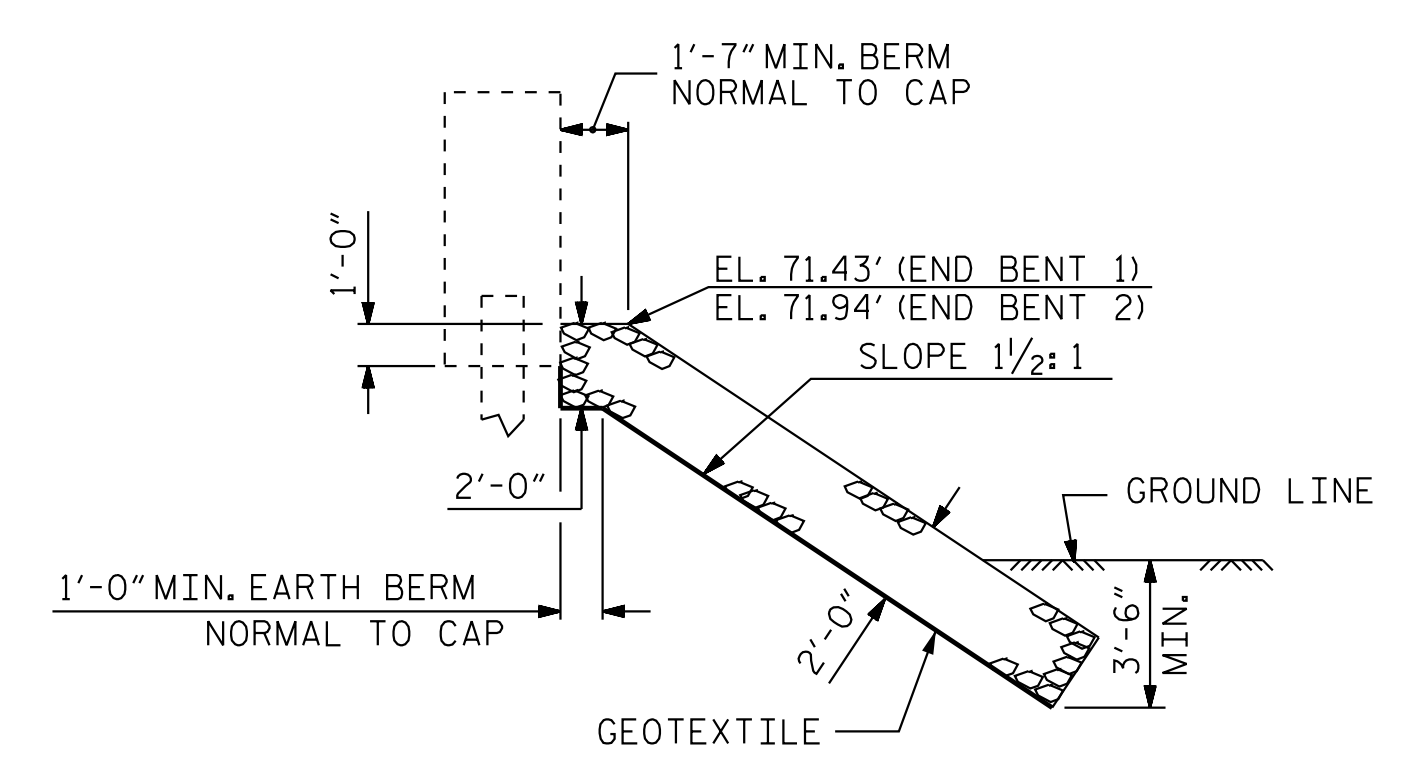
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



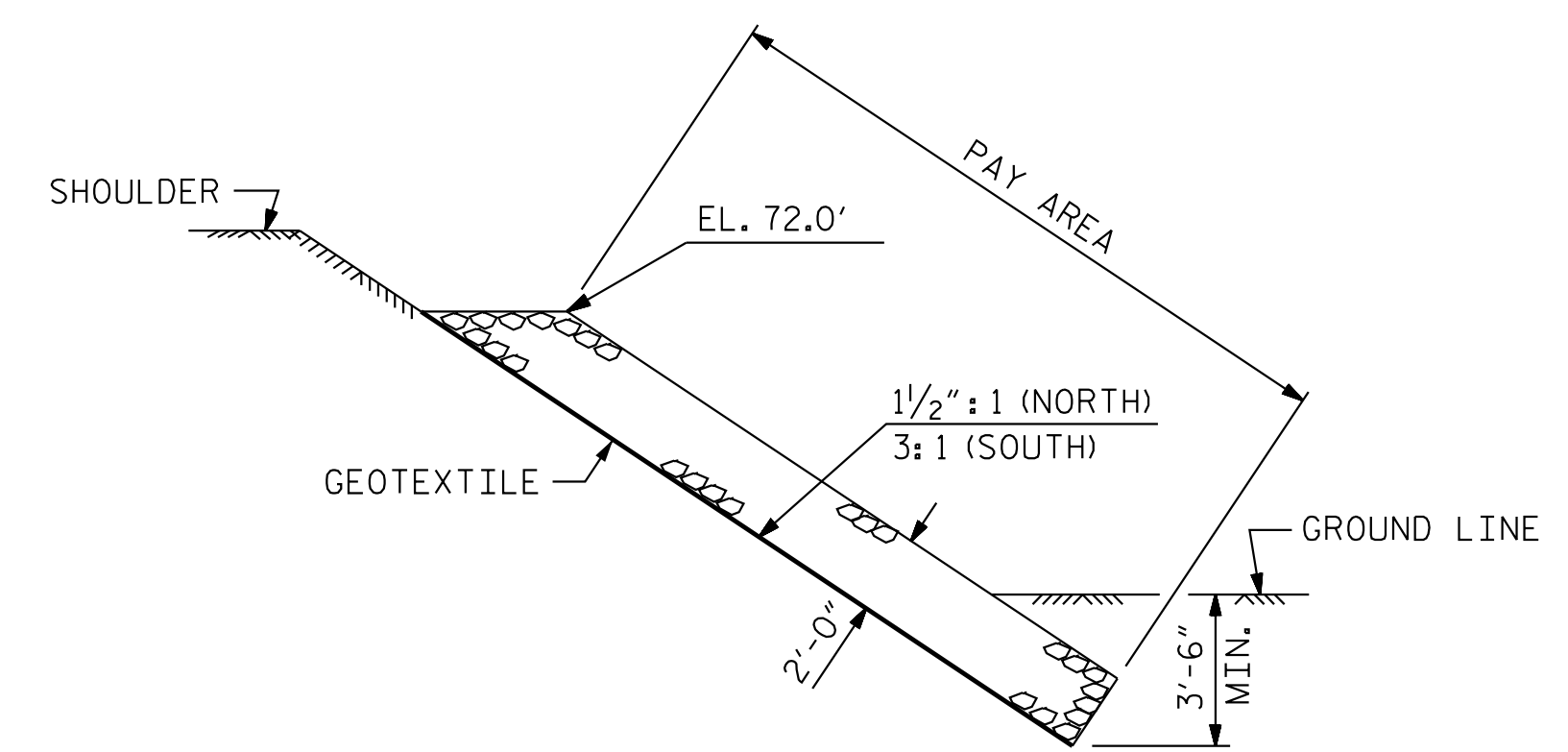
END BENT 1

END BENT 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+68.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	122	136
END BENT 2	181	201

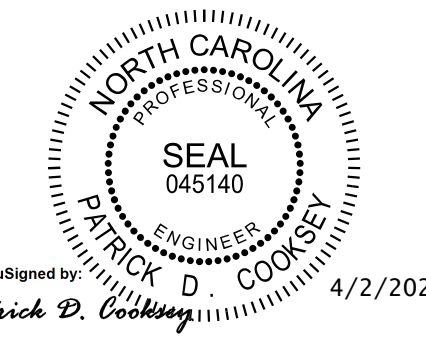


SECTION BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 RIP RAP DETAILS

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 421 Fayetteville Street, Suite 600  
 Raleigh, NC 27601-1772  
 Phone (919) 677-2000  
 NC LICENSE # F-0102

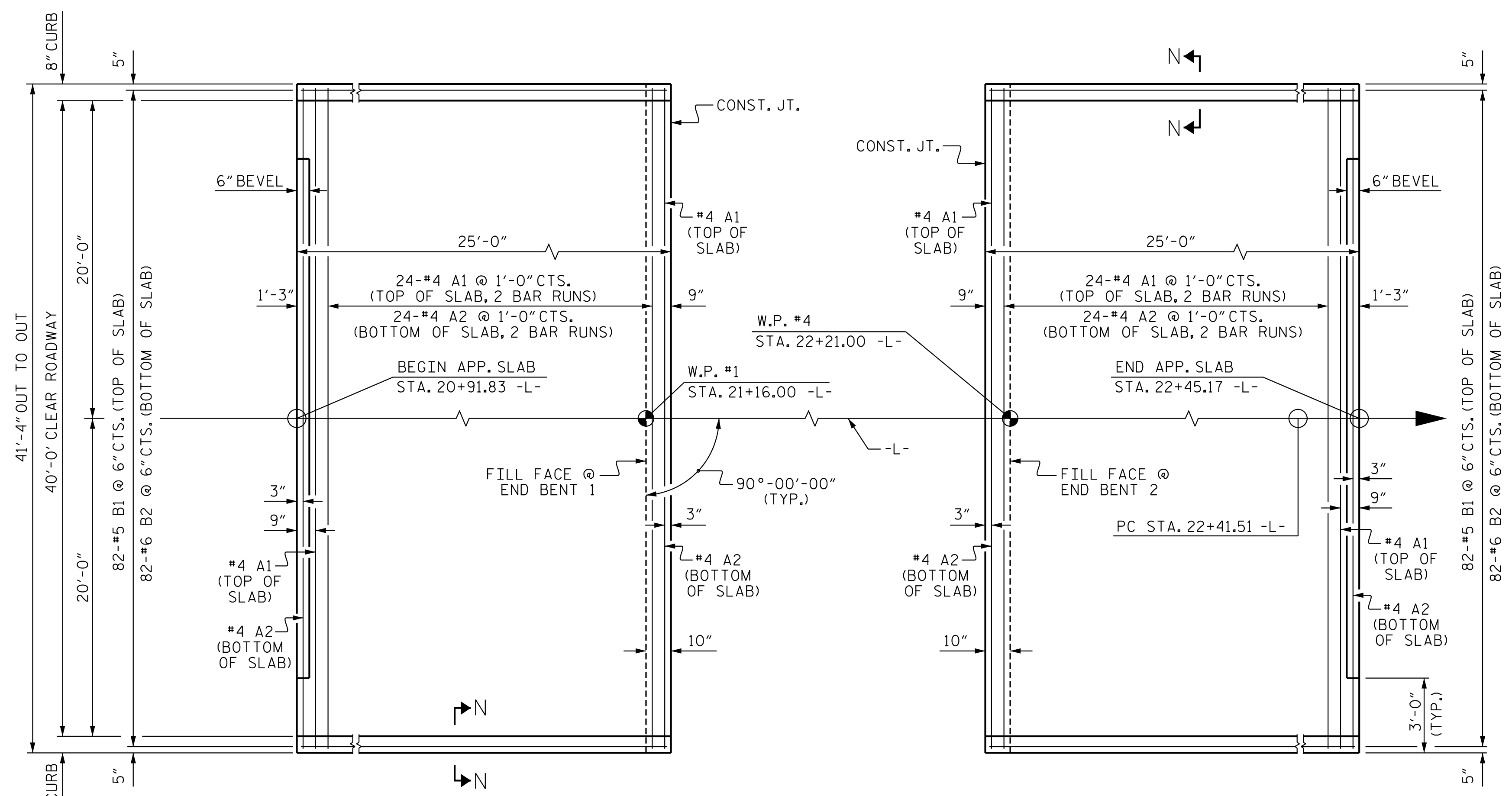
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

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

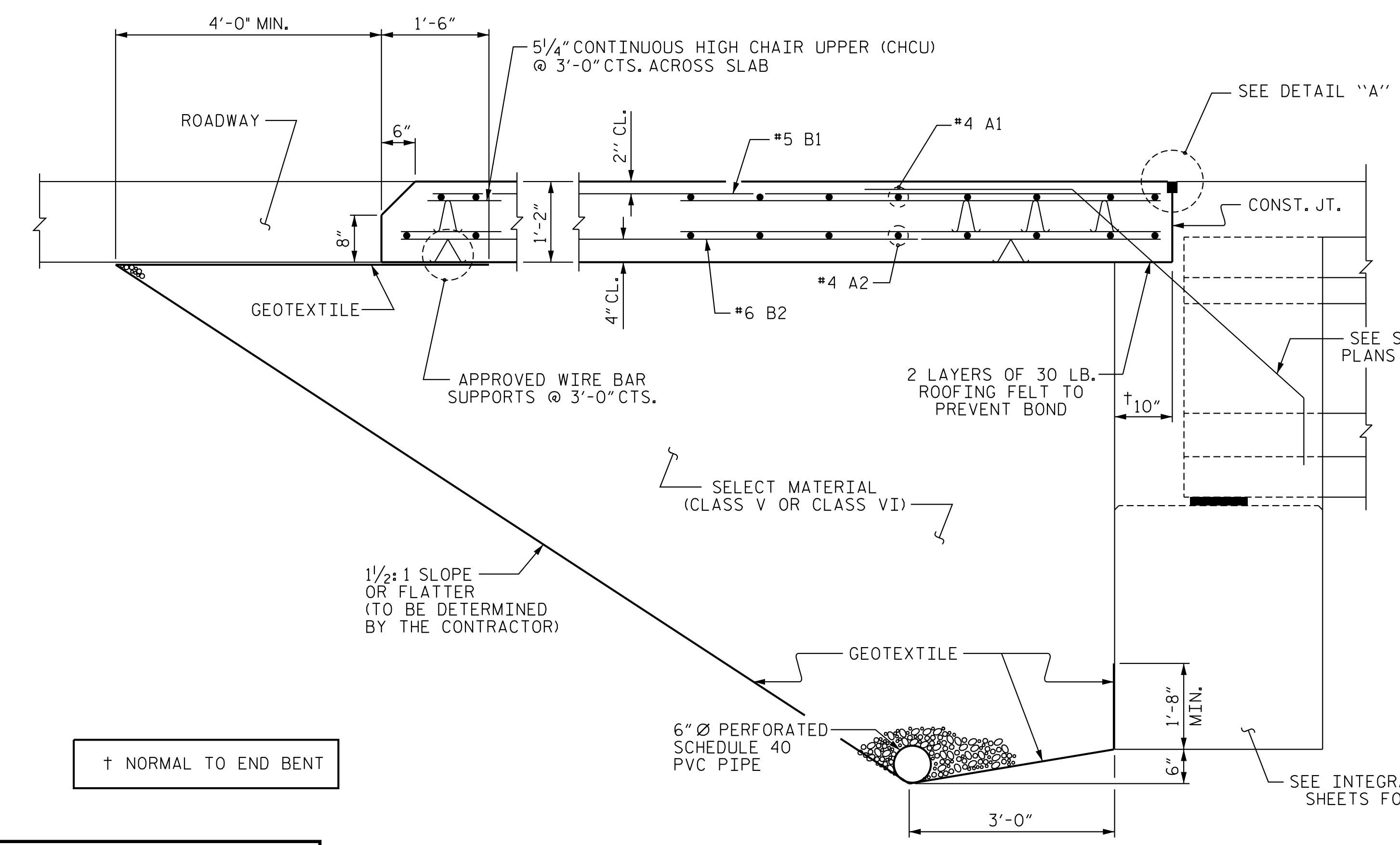
TOTAL SHEETS: 34

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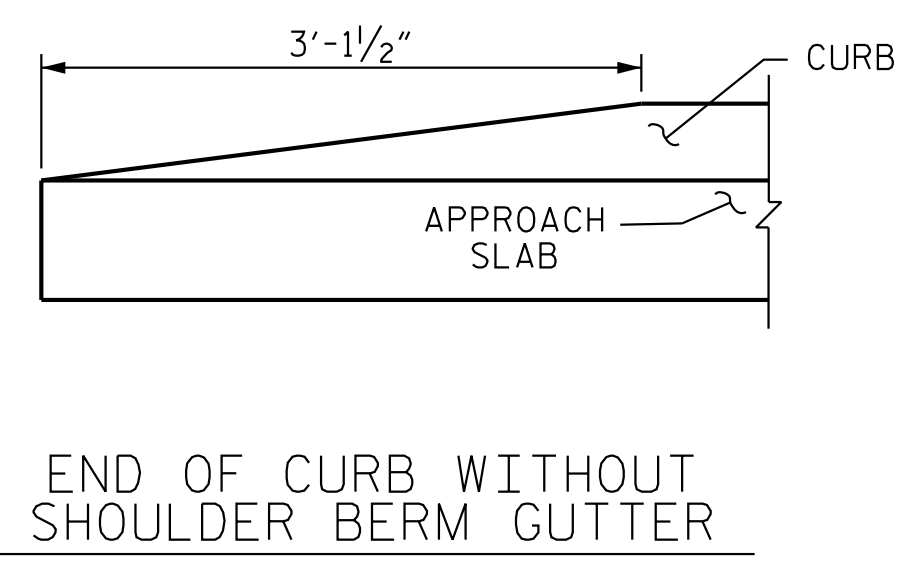
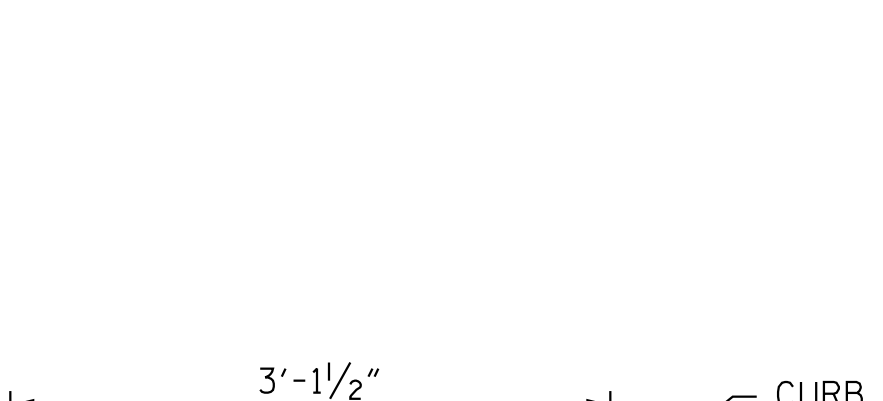
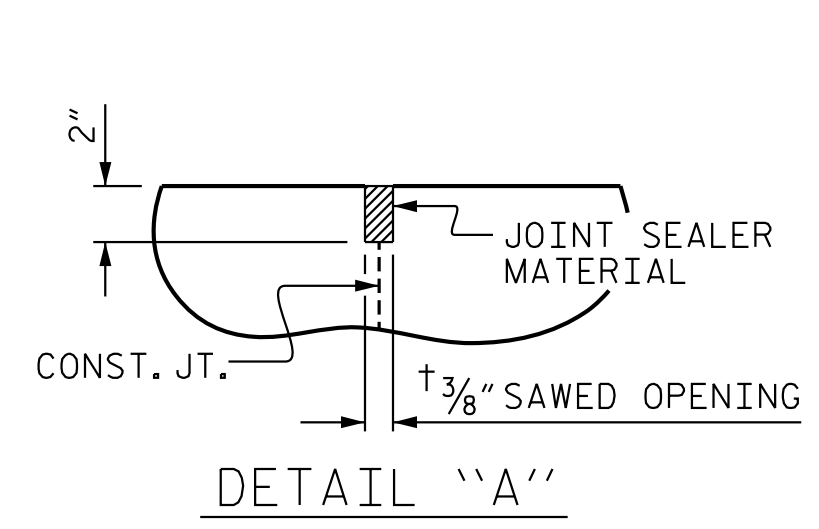
ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : J.C. WILSON	DATE : 02/2020
DRAWN BY : REK 1/84	REV. 10/1/11 MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11 MAA/GM
	REV. 12/17 MAA/THG



PLAN @ END BENT 1  
PLAN @ END BENT 2  
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB  
(TYPE I - STANDARD APPROACH FILL)



NOTES

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

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

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

AT THE CONTRACTORS OPTION, "TYPE A - ALTERNATE APPROACH FILL" IN LIEU OF "TYPE I - STANDARD APPROACH FILL" MAY BE CONSTRUCTED AT NO ADDITIONAL COST TO THE DEPARTMENT. SEE SHEET 2 OF 2 FOR DETAILS AND NOTES.

BILL OF MATERIAL  
FOR ONE APPROACH SLAB (2 REQ'D)

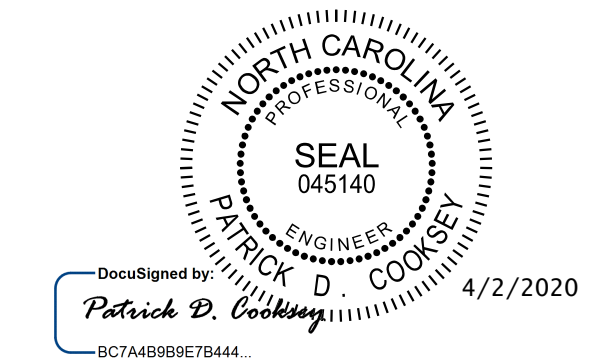
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	21'-6"	747
A2	52	#4	STR	21'-4"	741
* B1	82	#5	STR	24'-2"	2,067
B2	82	#6	STR	24'-8"	3,038
REINFORCING STEEL					3,779 LBS.
* EPOXY COATED REINFORCING STEEL					2,814 LBS.
CLASS AA CONCRETE					44.9 C. Y.

SPLICE LENGTHS

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

PROJECT NO. B-5534  
DUPLIN COUNTY  
STATION: 21+68.50 -L-

SHEET 1 OF 2



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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
BRIDGE APPROACH SLAB  
FOR INTEGRAL ABUTMENT  
WITH FLEXIBLE PAVEMENT

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

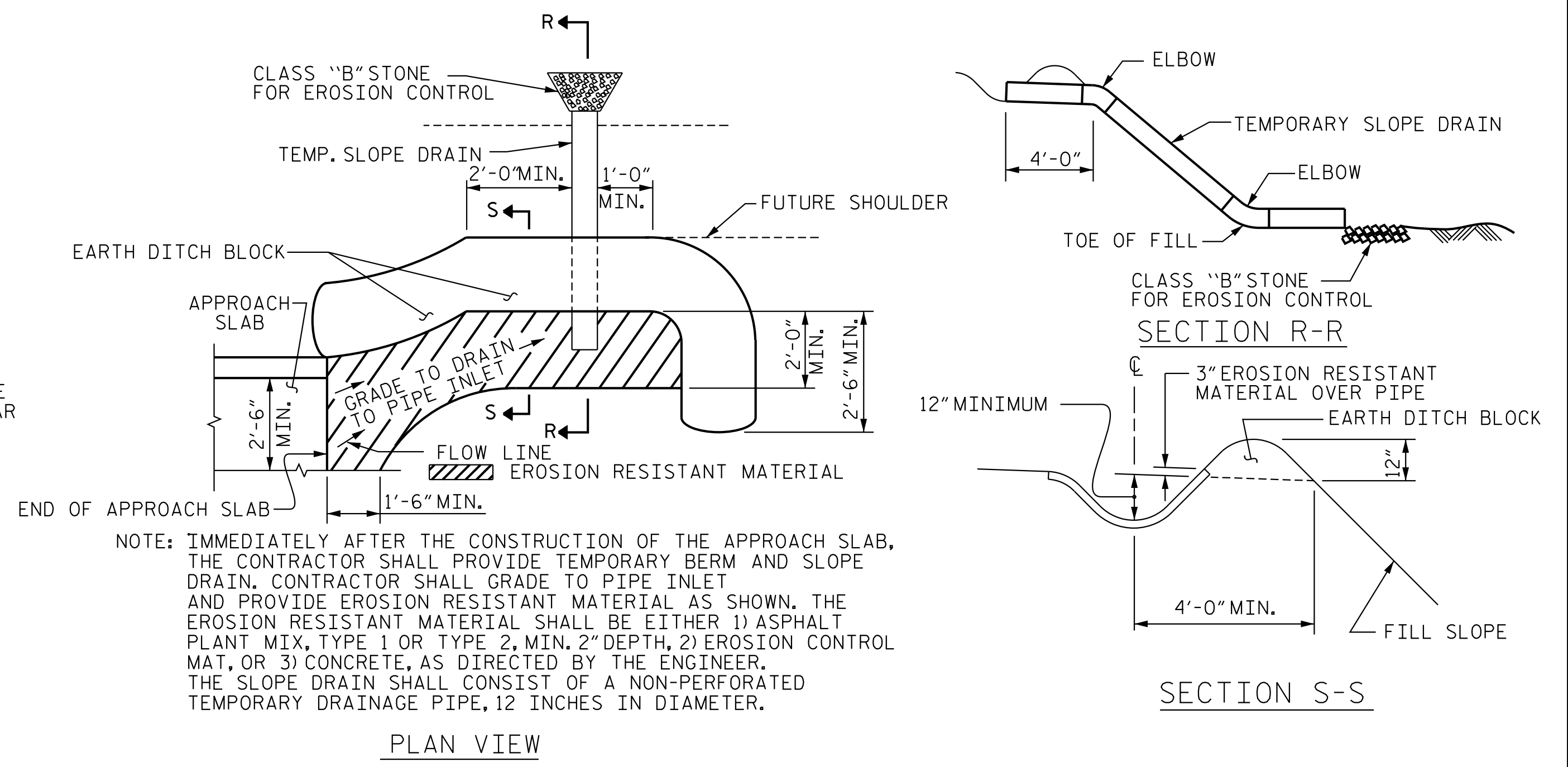
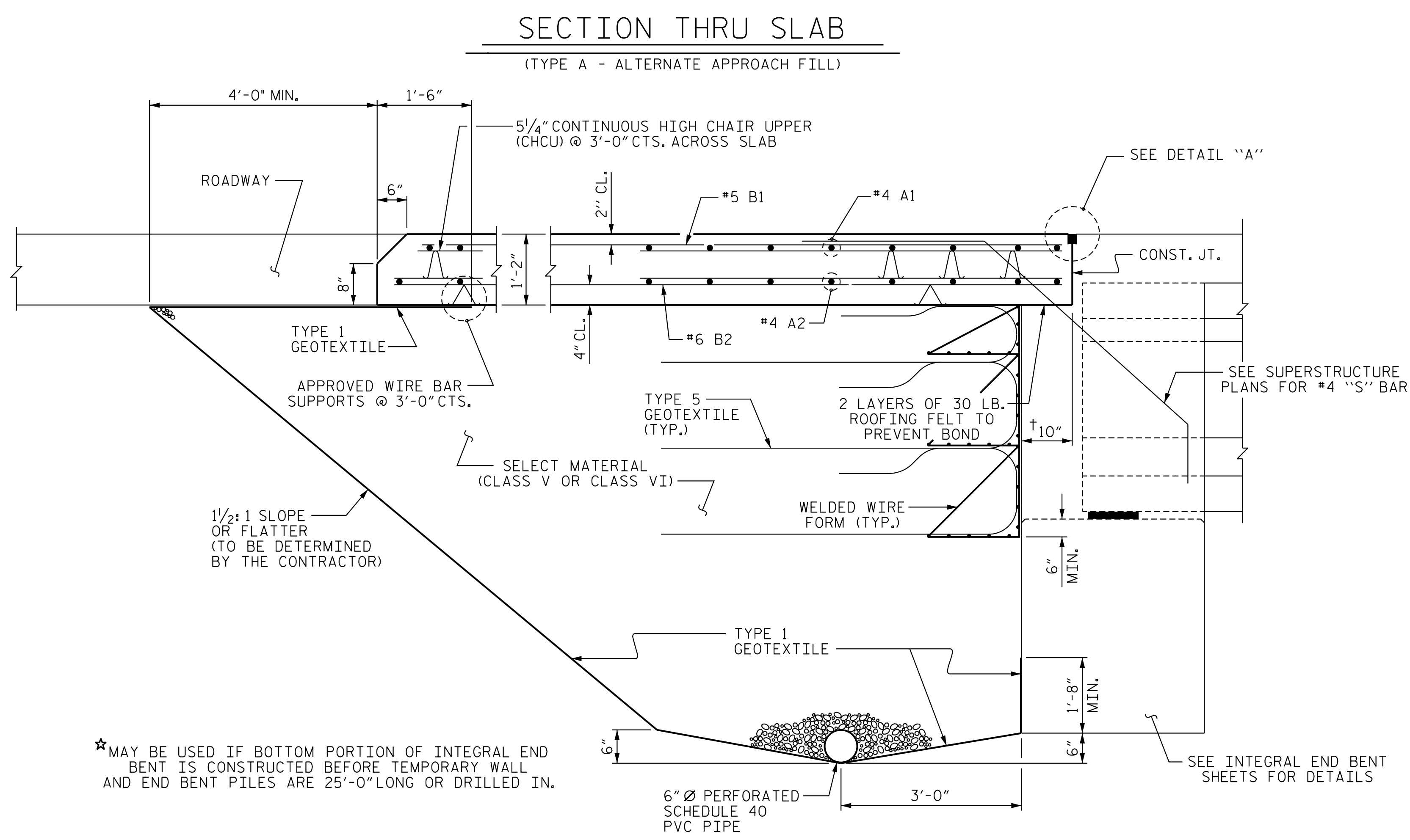
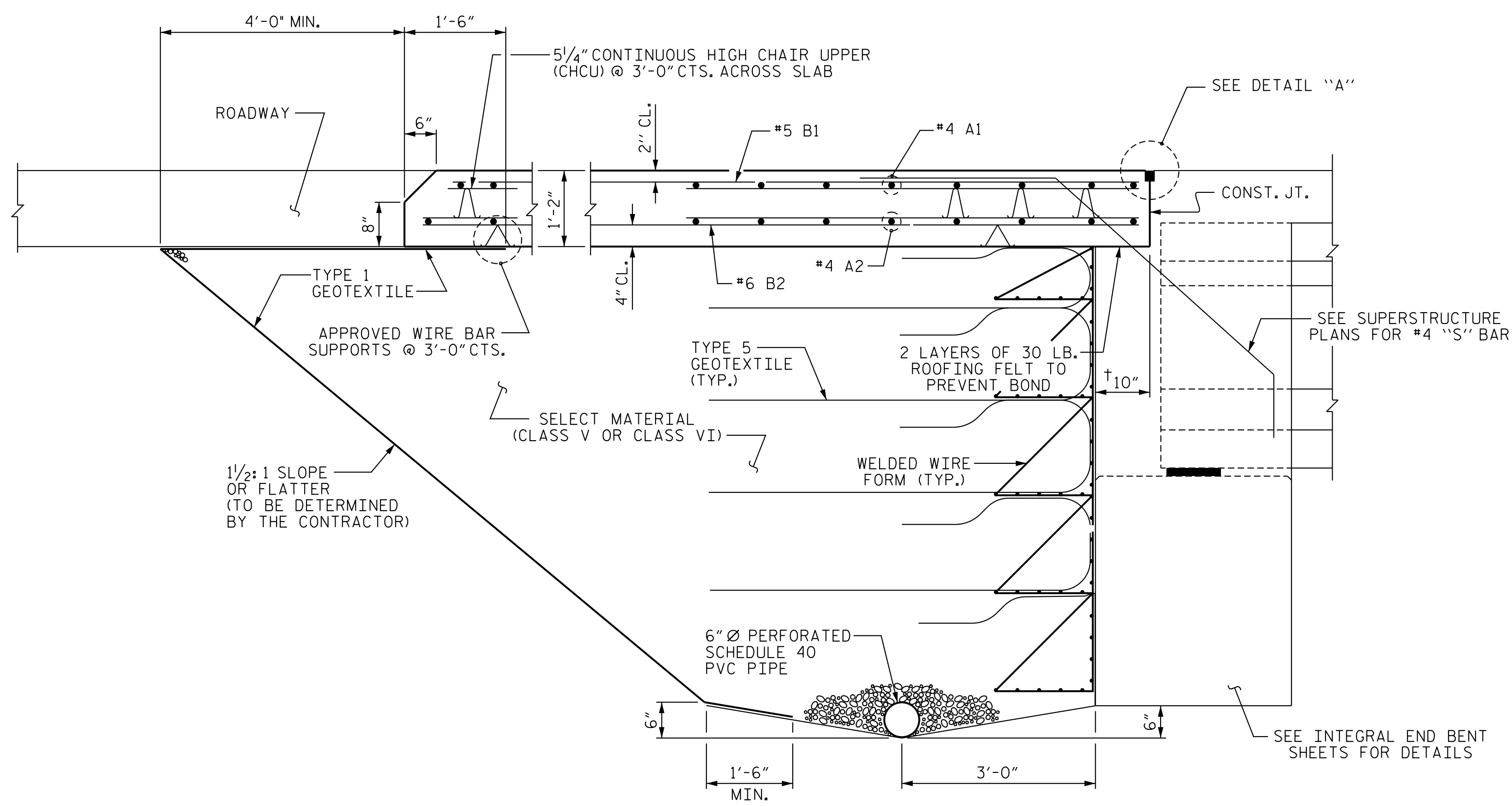
TOTAL SHEETS: 34

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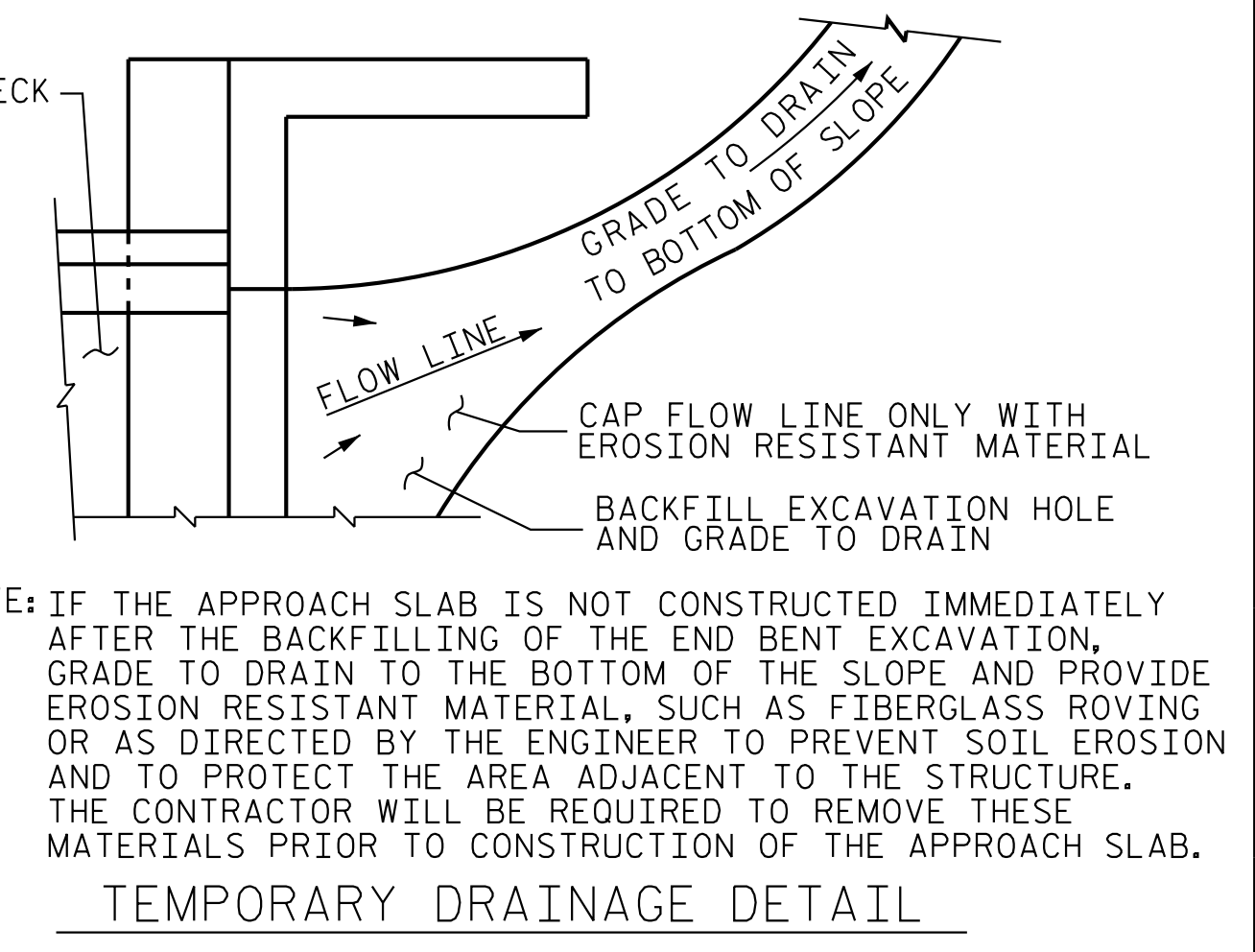
ASSEMBLED BY: D. D. LOWERY DATE: 02/2020  
CHECKED BY: J.C. WILSON DATE: 02/2020  
DRAWN BY: TLA 10/05 REV. 6/13 MAA/GM  
CHECKED BY: GM 5/06 REV. 12/17 MAA/THC  
REV. 06/19 BNB/THC





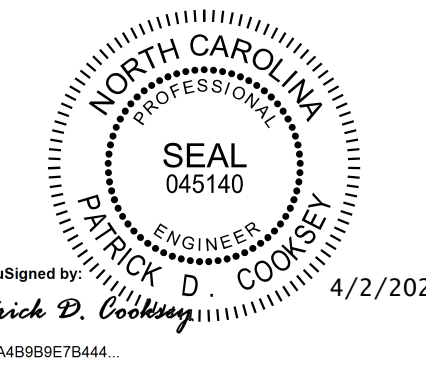
NOTES

- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- FOR TEMPORARY GEOTEXTILE WALL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, WELDED WIRE FORM, AND SELECT MATERIAL, SEE ROADWAY PLANS.
- GEOTEXTILE (TYPE 1 OR TYPE 5) SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
- SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
- SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
- FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
- AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
- THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.



PROJECT NO. B-5534  
DUPLIN COUNTY  
 STATION: 21+68.50 -L-

SHEET 2 OF 2



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH		STANDARD BRIDGE APPROACH SLAB DETAILS		SHEET NO. S-34
REVISIONS				
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
TOTAL SHEETS				34

**DOCUMENT NOT CONSIDERED FINAL  
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ASSEMBLED BY : D. D. LOWERY	DATE : 02/2020
CHECKED BY : J.C. WILSON	DATE : 02/2020
DRAWN BY : TLA 10/05	REV. 12/21/11 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

SECTION THRU SLAB  
 (TYPE A - ALTERNATE APPROACH FILL)

## STANDARD NOTES

### DESIGN DATA:

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

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

### CONCRETE:

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

### CONCRETE CHAMFERS:

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

### DOWELS:

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

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

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

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

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

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

### REINFORCING STEEL:

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

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

### STRUCTURAL STEEL:

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

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 3/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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

### HANDRAILS AND POSTS:

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

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

### SPECIAL NOTES:

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

# ENGLISH

JANUARY, 1990