

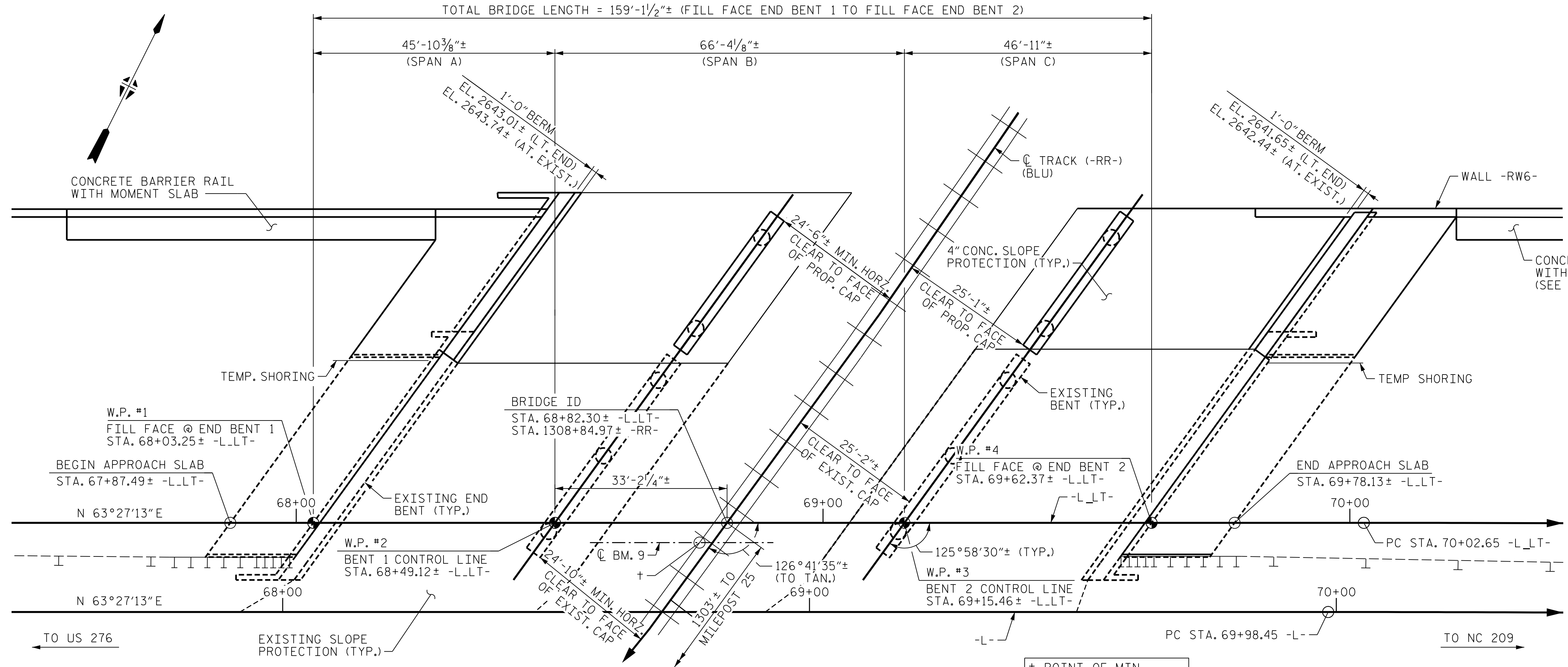
RAILROAD TYPICAL SECTION
(LOOKING IN DIRECTION OF INCREASING STATIONS ON RAILROAD)

NOTES
GRADE DATA, ELEVATIONS, DIMENSIONS, AND STATIONS WERE DETERMINED USING THE BEST INFORMATION AVAILABLE AND ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL SURVEY THE EXISTING STRUCTURE AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.

SECTION ALONG -L-LT-
(SECTIONS AT END BENTS AND BENTS SHOWN 30' LEFT OF -L-LT- AND AT RIGHT ANGLES TO BENTS)

TOP OF RAIL ELEVATIONS (STATIONS ALONG -RR-)			
LEFT RAIL		RIGHT RAIL	
STATION	ELEVATION	STATION	ELEVATION
1307+85.91	2619.31	1307+85.64	2619.29
1308+12.07	2620.04	1308+11.90	2620.05
1308+35.68	2620.71	1308+35.62	2620.71
1308+60.44	2621.54	1308+60.34	2621.47
1308+84.39	2622.21	1308+84.38	2622.15
1309+08.50	2622.88	1309+08.47	2622.80

THE RAILROAD TRACK TOP OF RAIL ELEVATIONS SHOWN ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.



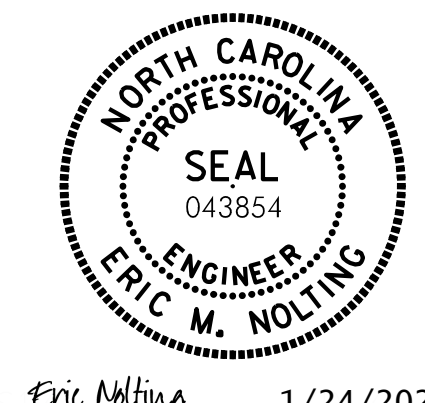
PLAN
(PILES NOT SHOWN FOR CLARITY)

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30± -L-LT-
1308+84.97± -RR-

MILEPOST 24.76
SHEET 1 OF 5 WIDENING OF BRIDGE NO. 430110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON -L-LT- (US 19/23/74 WB)
OVER THE BLUE RIDGE SOUTHERN RAILROAD
(BLU) BETWEEN US 276 AND NC 209



Eric M. Nolting 1/24/2022

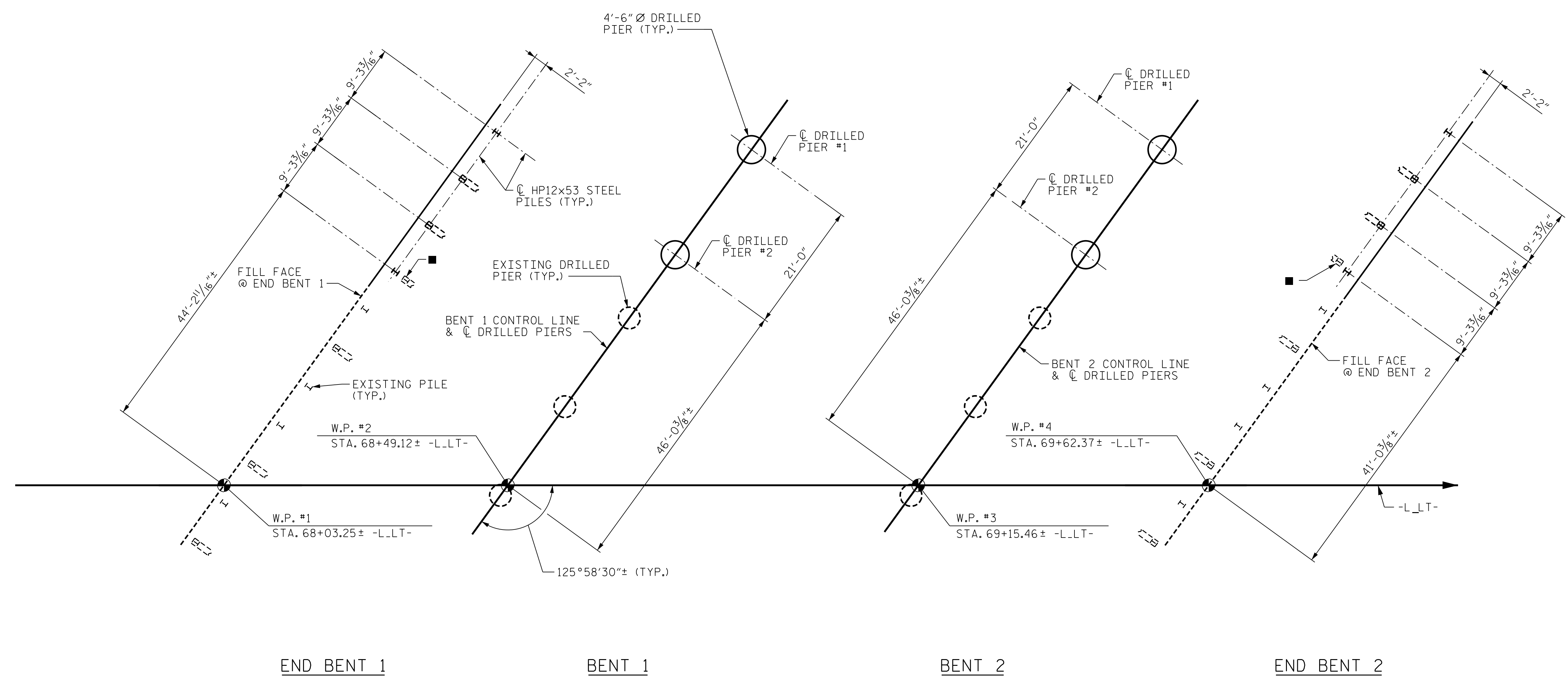
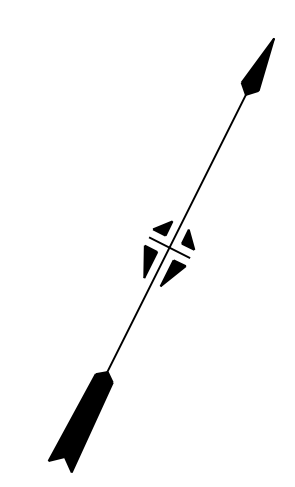
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2	--	--	4	--	--	

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PLOT DRIVER: NCDOT STRUCTURES DEFAULT PLOTTER.plt
PENTABLE: NCDOT STRUCTURES DEFAULT PEN.tbl
USER: PETERSON DATE: 1/24/2022 TIME: 1:42:17 PM
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DES BY: E. NOLTING DATE: 03/21
DES CHK: B. ROGERS DATE: 03/21
DWG BY: B. PETERSON DATE: 03/21
CHK BY: B. ROGERS DATE: 03/21



FOUNDATION LAYOUT

■ CUT OFF TOP PORTION OF EXISTING BATTERED PILE IN ORDER TO DRIVE PROPOSED VERTICAL PILE. SEE DETAIL ON "SUBSTRUCTURE END BENT 1 WINGWALL" SHEET AND "SUBSTRUCTURE END BENT 2 SECTIONS AND DETAILS" SHEET.

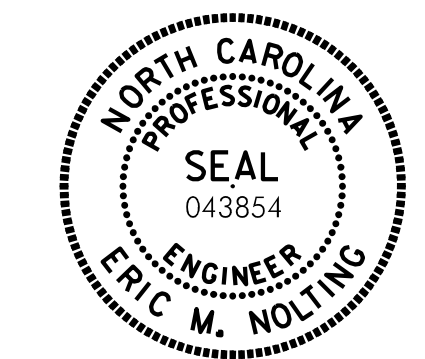
NOTES

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENTS NO. 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.
- DRIVE PILES AT END BENTS NO. 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENTS NO. 1 AND 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- 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 (AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION).
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- DRILLED PIERS AT BENTS NO. 1 AND 2 ARE DESIGNED FOR FACTORED RESISTANCE OF 335 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 20 TSF.

- INSTALL DRILLED PIERS AT BENT NO. 1 AND 2 TO A TIP ELEVATION NO HIGHER THAN 2582 FT AND WITH THE REQUIRED TIP RESISTANCE AND PENETRATION OF AT LEAST 7 FT INTO WEATHERED ROCK/ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
- SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- WEATHERED ROCK ELEVATIONS ARE ANTICIPATED TO BE AT 2583 FEET AT BENTS NO. 1 AND 2. DRILLED PIER TIP ELEVATIONS ARE ANTICIPATED TO BE AT 2576 FEET AT BENTS NO. 1 AND 2. THE CONTRACTOR CAN RAISE DRILLED PIER TIP ELEVATIONS IF WEATHERED ROCK IS ENCOUNTERED HIGHER THAN 2583 FEET AS LONG AS DRILLED PIERS PENETRATES AT LEAST 7 FEET OF WEATHERED ROCK/ROCK.

LEGEND

- H HP12X53 VERTICAL PILE
- H-3 HP12X53 BRACE PILE (BATTER 3H:12V)



Eric Nolting 1/24/2022

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**GENERAL DRAWING
 FOUNDATION LAYOUT**

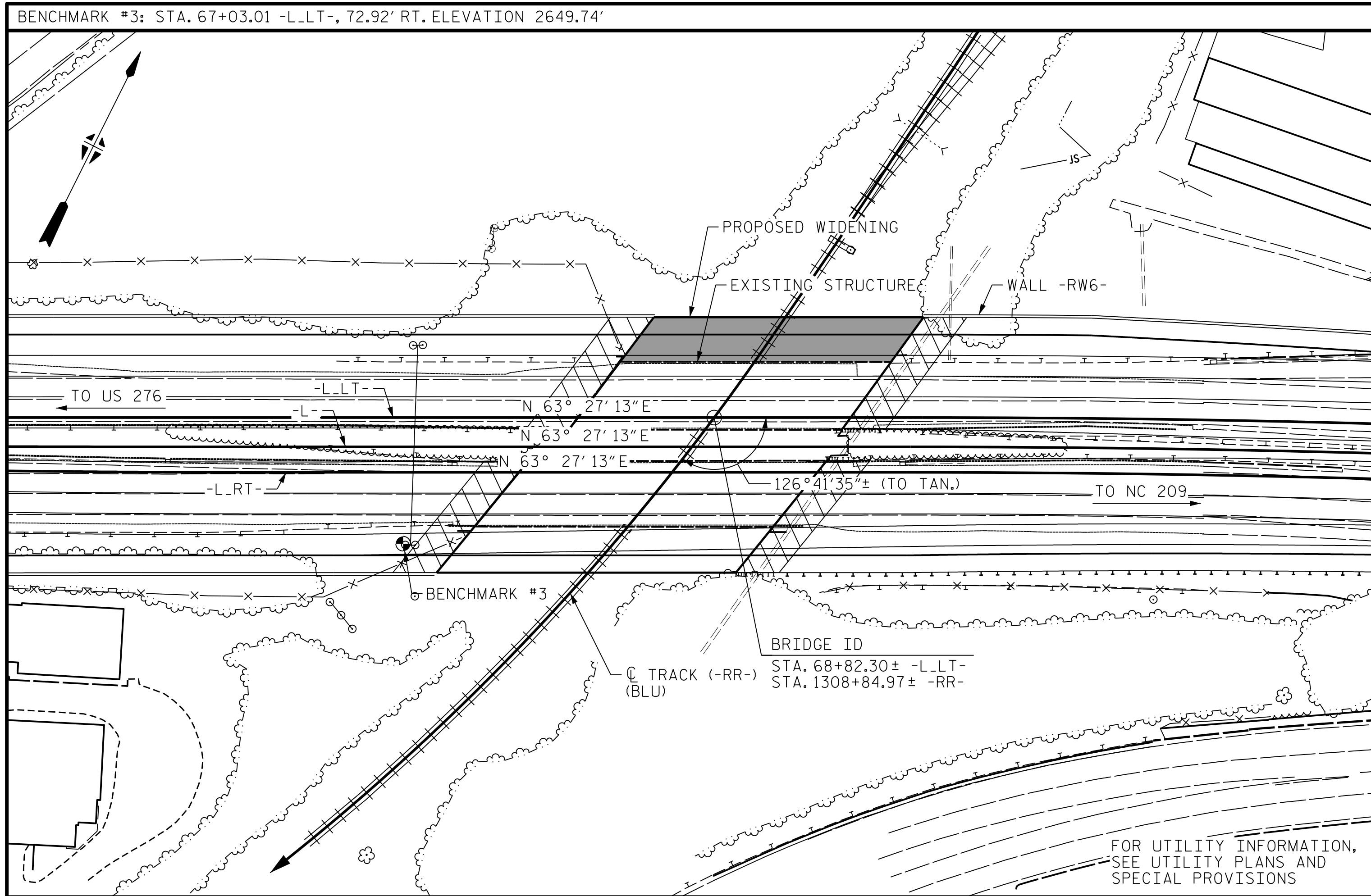
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DES BY: <u>F. CORDOVA</u>	DATE: <u>07/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>07/21</u>
DES CHK: <u>E. NOLTING</u>	DATE: <u>07/21</u>	CHK BY: <u>E. NOLTING</u>	DATE: <u>07/21</u>



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



LOCATION SKETCH

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

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

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 "STANDARD NOTES" SHEET.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- THE RAILROAD TRACK TOP OF RAIL ELEVATIONS ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.
- PROVIDE THE TOP SURFACE OF THE CAST-IN-PLACE CONCRETE BRIDGE DECK AND APPROACH SLABS WITH A RAKED FINISH OR OTHER APPROVED FINISH TO PROVIDE AN ADEQUATE BOND WITH THE LATEX-MODIFIED CONCRETE OVERLAY. AS SOON AS THE CONDITION OF THE CAST-IN-PLACE CONCRETE PERMITS, RAKE THE TOP SURFACE OF THE CONCRETE MAKING DEPRESSIONS OF APPROXIMATELY 1/4" INCH. TAKE CARE WHEN RAKING NOT TO CATCH AND PULL THE COARSE AGGREGATE.
- STEEL SHEET PILING REQUIRED FOR SHORING SHALL BE HOT ROLLED.
- TEMPORARY SHORING WILL BE REQUIRED IN THE AREA INDICATED IN THE PLAN VIEW.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.
- FOR LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.
- FOR PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIRS, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEAL FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.
- WORK ON THE BRIDGES SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.
- FOR TRAFFIC CONTROL AND LIMITS OF PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, CLASS II AND CLASS III SURFACE PREPARATION, SEE SPECIAL PROVISIONS.
- AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT ITEMS LISTED BELOW WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT THE FOLLOWING ITEMS LISTED, OR OTHER WORK WILL BE NECESSARY TO PROPERLY COMPLETE THE INTENDED BRIDGE PRESERVATION/REHABILITATION WORK. THE CONTRACTOR SHALL BE PREPARED TO PERFORM SUCH WORK IN A TIMELY MANNER, AS DETERMINED IN THE FIELD. SUCH WORK SHALL BE CONSIDERED EXTRA WORK AND SHALL BE ADDRESSED AS PER ARTICLE 104-7 OF THE STANDARD SPECIFICATIONS. PROJECT SPECIAL PROVISIONS THAT OUTLINE REQUIREMENTS FOR THESE POTENTIAL ADDITIONAL WORK ITEMS HAVE BEEN PROVIDED IN THE PROJECT DOCUMENTS, BUT NO QUANTITIES HAVE BEEN LISTED. ACTUAL PAY ITEMS, QUANTITIES, AND COSTS WILL BE ESTABLISHED, AS REQUIRED, IF EXTRA WORK IS ENCOUNTERED. UNANTICIPATED ITEMS:
CLASS III SURFACE PREPARATION
CONCRETE FOR DECK REPAIR
- FOR LIMITS OF PARTIAL REMOVAL OF EXISTING STRUCTURE, SEE APPLICABLE SUPERSTRUCTURE AND SUBSTRUCTURE PLAN SHEETS. "REMOVAL OF EXISTING STRUCTURE" INCLUDES THE EXISTING OVERHANG, RAIL, SLAB AND PARTIAL REMOVAL OF END BENTS.
- FOR EPOXY COATING AND DEBRIS REMOVAL ON EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE SPECIAL PROVISIONS.
- DIMENSIONS AND ELEVATIONS SHOWN IN THESE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL INDEPENDENTLY SURVEY THE EXISTING STRUCTURE AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS. THE CONTRACTOR SHALL HAVE NO CLAIM AGAINST THE DEPARTMENT FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE INFORMATION SHOWN IN THESE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- CONTRACTOR SHALL MATCH EXISTING SPAN LENGTHS, SUBSTRUCTURE SKEWS, DECK ELEVATIONS AND SUPERELEVATION. CONTRACTOR SHALL SURVEY EXISTING BRIDGE AND NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30± -L-LT-

SHEET 3 OF 5

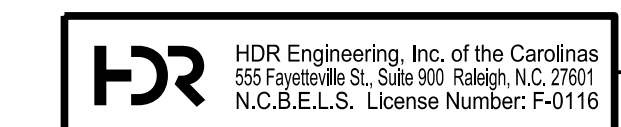


Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
LOCATION SKETCH
AND NOTES

REVISIONS						SHEET NO. SO3L-03
NO.	BY:	DATE:	NO.	BY:	DATE:	
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DES BY: E. NOLTING DATE: 03/21 DWG BY: B. PETERSON DATE: 03/21
DES CHK: G. MYERS DATE: 07/21 CHK BY: G. MYERS DATE: 07/21

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TOTAL BILL OF MATERIAL												
	REMOVAL OF EXISTING STRUCTURE @ STA. 68+82.30± -L-LT-	4'-6" DIA. DRILLED PIERS IN SOIL	4'-6" DIA. DRILLED PIERS NOT IN SOIL	PDA TESTING	SID INSPECTIONS	CSL TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS @ STA. 68+82.30± -L-LT-	REINFORCING STEEL	
	LUMP SUM	LIN. FT.	LIN. FT.	EA.	EA.	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LB.	
SUPERSTRUCTURE							4638	11344		LUMP SUM		
END BENT 1									25.6		4029	
BENT 1		79.0	7.0						33.1		17932	
BENT 2		74.8	7.0						33.9		17662	
END BENT 2									22.1		3516	
TOTAL	LUMP SUM	153.8	14.0	1	1	1	4638	11344	114.7	LUMP SUM	43139	
	SPIRAL COLUMN REINFORCING STEEL	APPROX. 113,000 LBS STRUCTURAL STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP12x53 STEEL PILES	HP12x53 STEEL PILES	STEEL PILE POINTS	CONCRETE BARRIER RAIL	CONCRETE BARRIER RAIL WITH MOMENT SLAB	4" SLOPE PROTECTION	CLASS II SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY	PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY	
	LB.	LUMP SUM	EA.	NO.	LIN. FT.	EA.	LIN. FT.	LIN. FT.	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.
SUPERSTRUCTURE		LUMP SUM					193.8	73.1		12.8	70.3	1355.0
END BENT 1			4	4	240	4			214.6			
BENT 1	3813											
BENT 2	3775											
END BENT 2			4	4	300	4		171.5				
TOTAL	7588	LUMP SUM	8	8	540	8	193.8	73.1	386.1	12.8	70.3	1355.0
	ELASTOMERIC BEARINGS	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS @ STA. 68+82.30± -L-LT-	VOLUMETRIC MIXER	FOAM JOINT SEALS FOR PRESERVATION	ELASTOMERIC CONCRETE FOR PRESERVATION	BRIDGE JOINT DEMOLITION	EPOXY COATING	HYDRO-DEMOLITION OF BRIDGE DECK	SCARIFYING BRIDGE DECK			
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	CU. FT.	SQ. FT.	SQ. FT.	SQ. YDS.	SQ. YDS.			
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	LUMP SUM	158.2	39.6	158.0		756.2	756.2			
END BENT 1							126.1					
BENT 1							144.3					
BENT 2							144.3					
END BENT 2							127.9					
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	158.2	39.6	158.0	542.6	756.2	756.2			

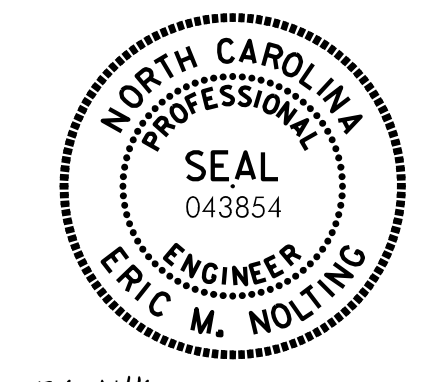
PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

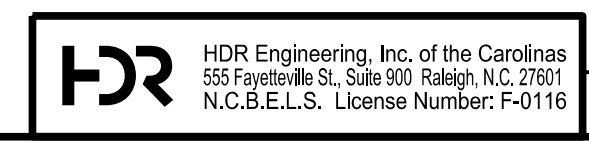
GENERAL DRAWING
TOTAL BILL
OF MATERIAL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
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2	--	--	4	--	--	44	



Eric Nolting 1/24/2022

DES BY: <u>E. NOLTING</u>	DATE: <u>09/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>09/21</u>
DES CHK: <u>G. MYERS</u>	DATE: <u>09/21</u>	CHK BY: <u>G. MYERS</u>	DATE: <u>09/21</u>



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

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{dc}	γ_{dw}
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE					COMMENT NUMBER			
						LIVE-LOAD FACTORS (γ_{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ_{LL})	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.46	--	1.75	0.58	1.46	B	E	0.00	0.78	3.54	B	I	66.34	1.30	0.58	1.75	B	E	0.00		
	HL-93 (OPERATING)	N/A		1.89	--	1.35	0.58	1.89	B	E	0.00	0.78	4.59	B	I	66.34	1.00	0.58	2.28	B	E	0.00		
	HS-20 (INVENTORY)	36.00	②	2.14	77.04	1.75	0.58	2.19	B	E	0.00	0.78	4.47	B	I	66.34	1.30	0.58	2.14	B	E	0.00		
	HS-20 (OPERATING)	36.00		2.78	100.15	1.35	0.58	2.84	B	E	0.00	0.78	5.79	B	I	66.34	1.00	0.58	2.78	B	E	0.00		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		6.51	87.89	1.40	0.58	6.69	B	E	33.17	0.90	13.09	C	I	46.20	1.30	0.58	6.51	B	E	33.17	
		SNGRBS2	20.000		4.87	97.40	1.40	0.58	4.90	B	E	0.00	0.78	9.34	B	I	66.34	1.30	0.58	4.87	B	E	0.00	
		SNAGRIS2	22.000		4.45	97.90	1.40	0.58	4.49	B	E	0.00	0.78	8.71	B	I	66.34	1.30	0.58	4.45	B	E	0.00	
		SNCOTTS3	27.250		3.28	89.38	1.40	0.58	3.37	B	E	33.17	0.90	6.55	C	I	46.20	1.30	0.58	3.28	B	E	33.17	
		SNAGGRS4	34.925		2.67	93.25	1.40	0.58	2.72	B	E	0.00	0.78	5.48	B	I	0.00	1.30	0.58	2.67	B	E	0.00	
		SNS5A	35.550		2.64	93.85	1.40	0.58	2.69	B	E	0.00	0.78	5.59	B	I	66.34	1.30	0.58	2.64	B	E	0.00	
		SNS6A	39.950		2.36	94.28	1.40	0.58	2.40	B	E	0.00	0.78	5.05	B	I	0.00	1.30	0.58	2.36	B	E	0.00	
		SNS7B	42.000		2.23	93.66	1.40	0.58	2.28	B	E	0.00	0.78	4.94	B	I	66.34	1.30	0.58	2.23	B	E	0.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.91	96.03	1.40	0.58	2.96	B	E	0.00	0.78	6.05	B	I	66.34	1.30	0.58	2.91	B	E	0.00	
		TNT4A	33.075		2.94	97.24	1.40	0.58	2.98	B	E	0.00	0.78	5.91	B	I	66.34	1.30	0.58	2.94	B	E	0.00	
		TNT6A	41.600		2.34	97.34	1.40	0.58	2.39	B	E	0.00	0.78	5.24	B	I	66.34	1.30	0.58	2.34	B	E	0.00	
		TNT7A	42.000		2.32	97.44	1.40	0.58	2.37	B	E	0.00	0.78	5.19	B	I	66.34	1.30	0.58	2.32	B	E	0.00	
		TNT7B	42.000		2.36	99.12	1.40	0.58	2.41	B	E	0.00	0.78	4.89	B	I	66.34	1.30	0.58	2.36	B	E	0.00	
		TNAGRIT4	43.000		2.22	95.46	1.40	0.58	2.27	B	E	0.00	0.78	4.71	B	I	66.34	1.30	0.58	2.22	B	E	0.00	
TNAGT5A	45.000		2.13	95.85	1.40	0.58	2.18	B	E	0.00	0.78	4.63	B	I	66.34	1.30	0.58	2.13	B	E	0.00			
TNAGT5B	45.000		③	2.08	93.60	1.40	0.58	2.13	B	E	0.00	0.78	4.47	B	I	66.34	1.30	0.58	2.08	B	E	0.00		
FATIGUE	HL-93 (INVENTORY)	$\gamma_{LL}=0.75$		--																				

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

FATIGUE RATING IS NOT REQUIRED OR REPORTED SINCE GIRDER DESIGN DOES NOT INCLUDE FATIGUE-PRONE DETAILS.
RATING IS PROVIDED FOR BEAMS 1 THROUGH 4 OF THE WIDENING ONLY.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93) **

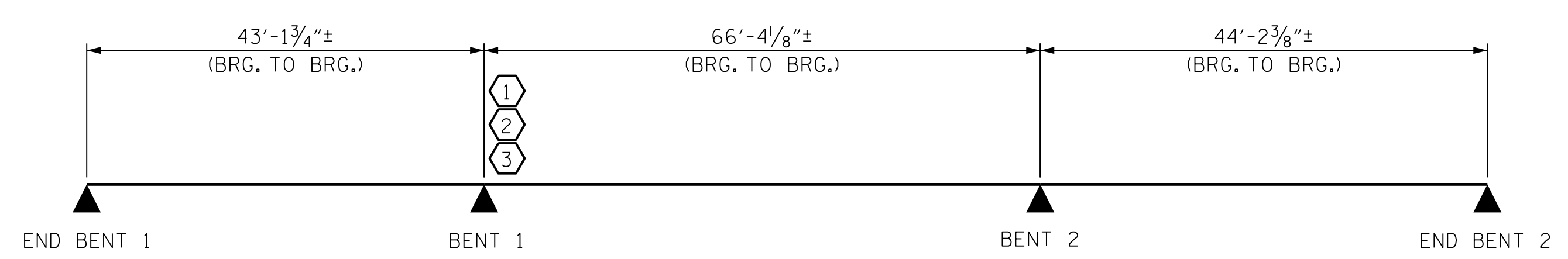
② DESIGN LOAD RATING (HS-20) **

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

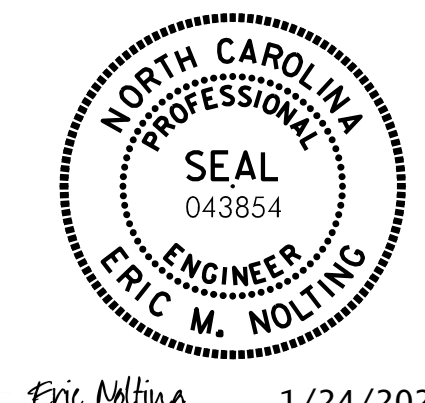
I - INTERIOR GIRDER
E - EXTERIOR GIRDER



SPAN A SPAN B SPAN C
LRFR SUMMARY

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30± -L-LT-

SHEET 5 OF 5



Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
LRFR SUMMARY FOR
STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)

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

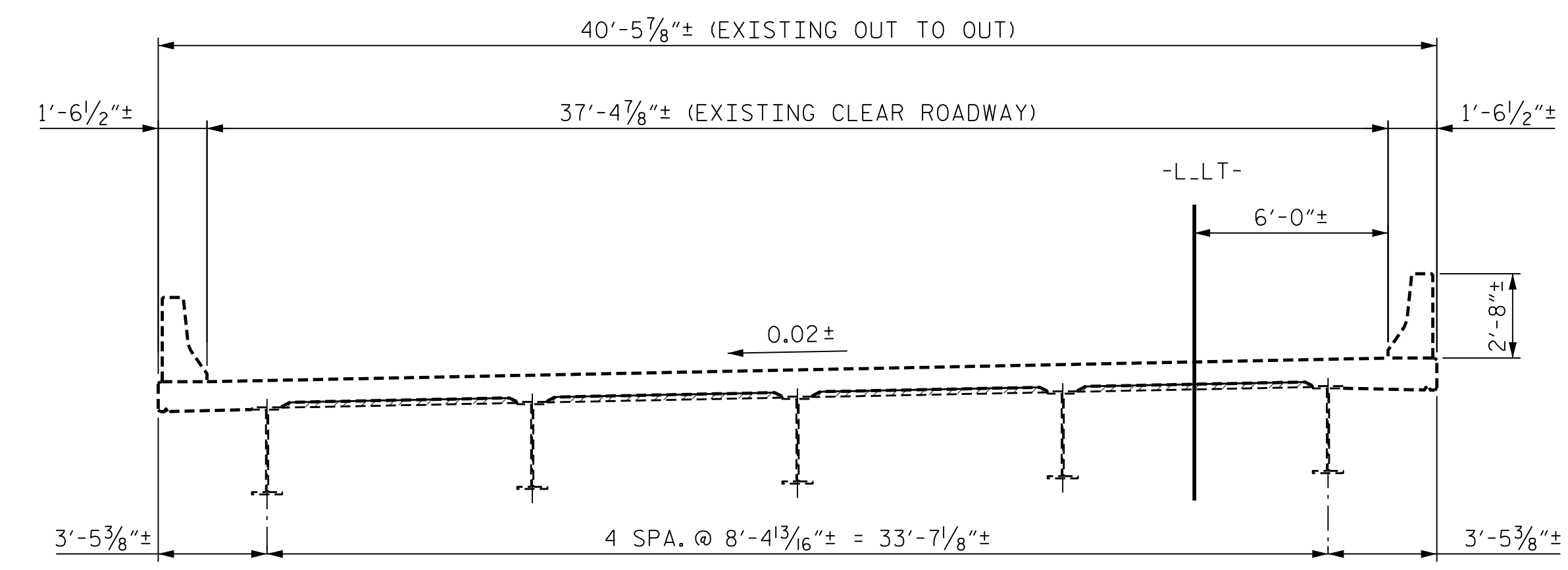
HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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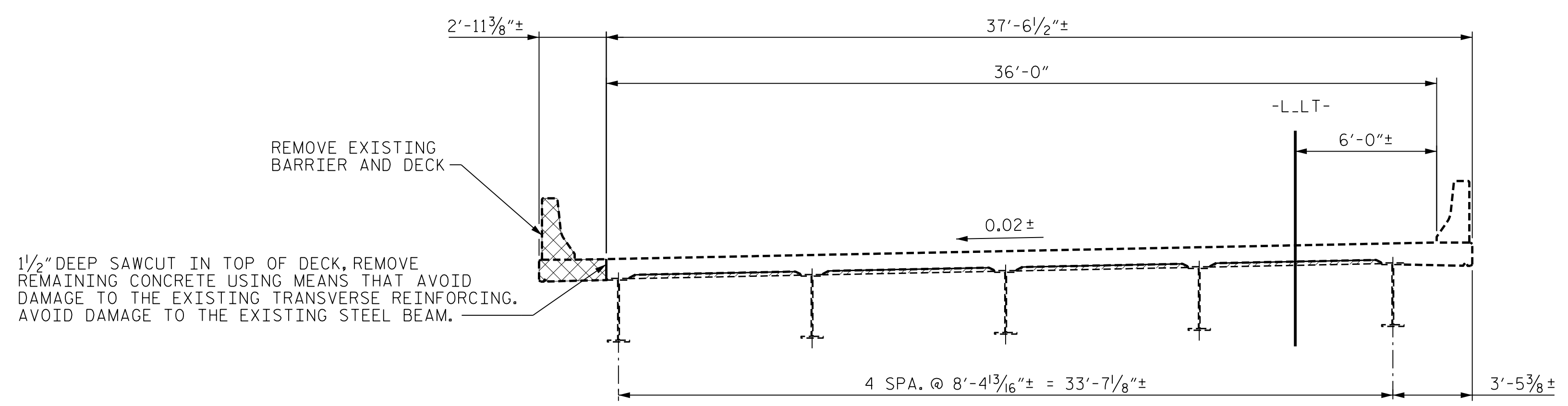
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DES BY: E. NOLTING	DATE: 07/21	DWG BY: B. PETERSON	DATE: 07/21
DES CHK: B. ROGERS	DATE: 07/21	CHK BY: B. ROGERS	DATE: 07/21

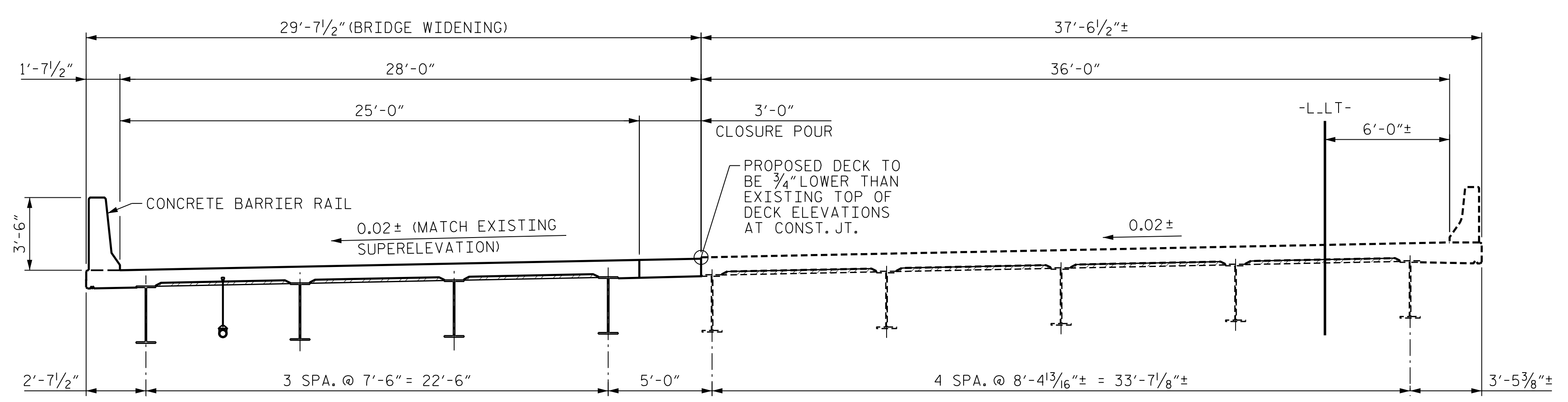
NOTES
FOR MAINTENANCE OF TRAFFIC, SEE TRANSPORTATION
MANAGEMENT PLAN (TMP).



EXISTING TYPICAL SECTION



STAGE 1
REMOVE PORTION OF EXISTING WB BRIDGE
(WB TRAFFIC SHIFTED TO EB BRIDGE)

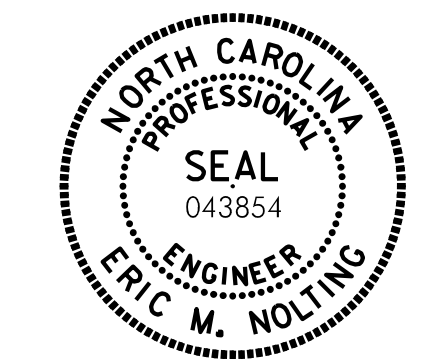


STAGE 2
CONSTRUCT SUBSTRUCTURE, ERECT BEAMS, PLACE DECK, PLACE CLOSURE POUR AND BARRIER
(WB TRAFFIC SHIFTED TO EB BRIDGE)

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PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30± -L-LT-

SHEET 1 OF 2



Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE
CONSTRUCTION SEQUENCE**

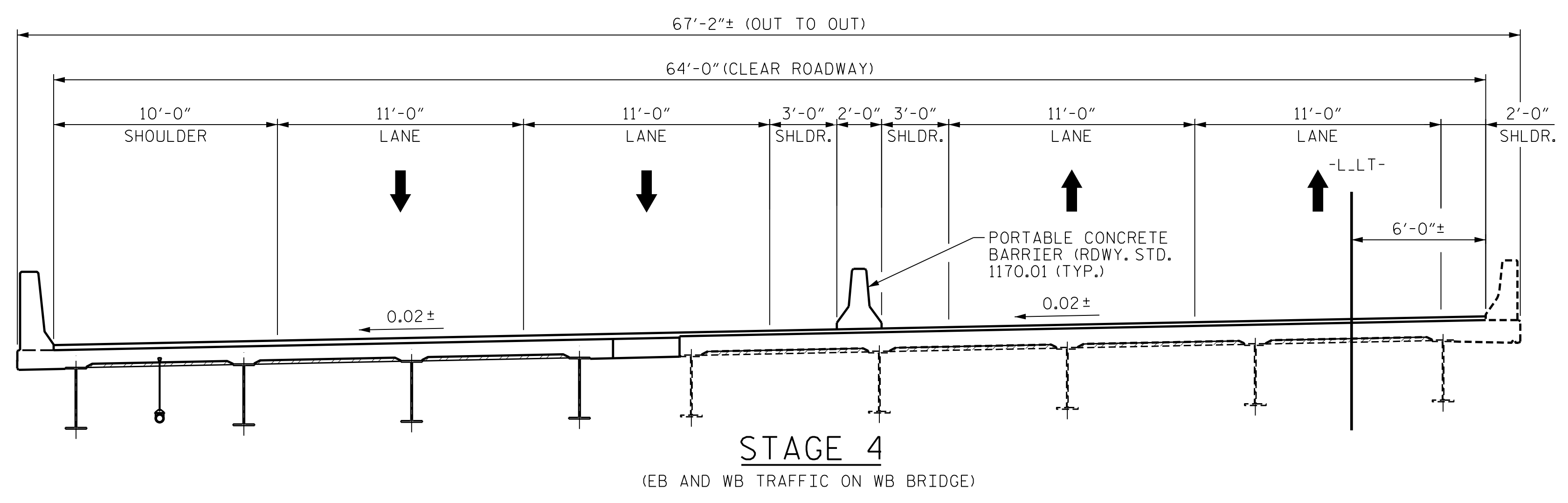
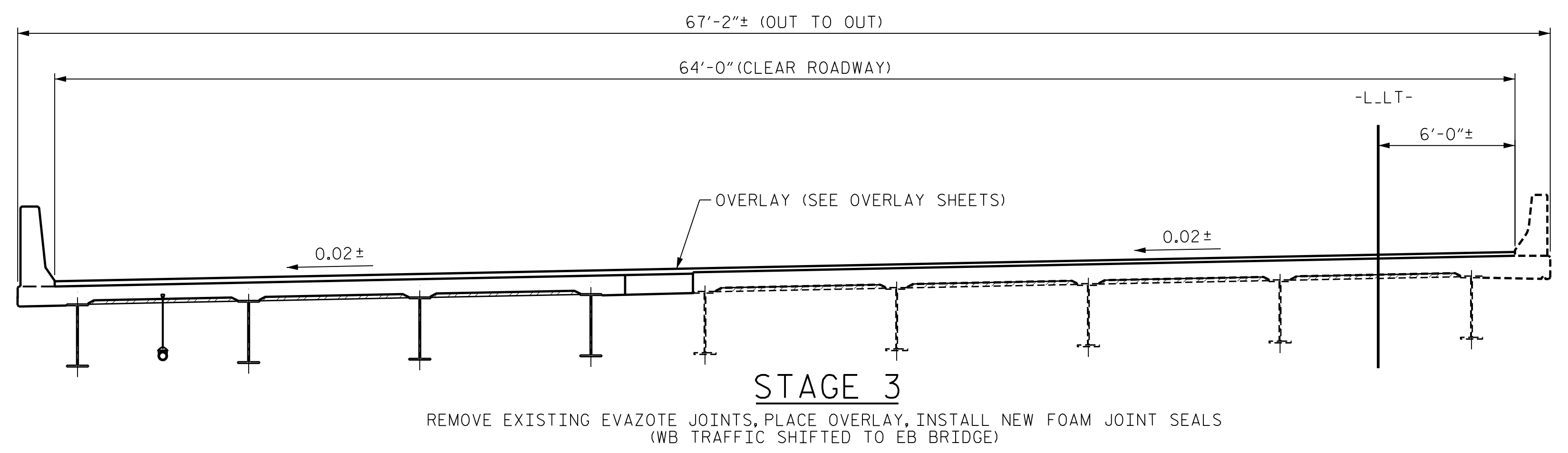
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DES BY: <u>E. NOLTING</u>	DATE: <u>03/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>03/21</u>
DES CHK: <u>B. ROGERS</u>	DATE: <u>03/21</u>	CHK BY: <u>B. ROGERS</u>	DATE: <u>03/21</u>



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UNLESS ALL SIGNATURES COMPLETED

NOTES
FOR MAINTENANCE OF TRAFFIC, SEE TRANSPORTATION
MANAGEMENT PLAN (TMP).

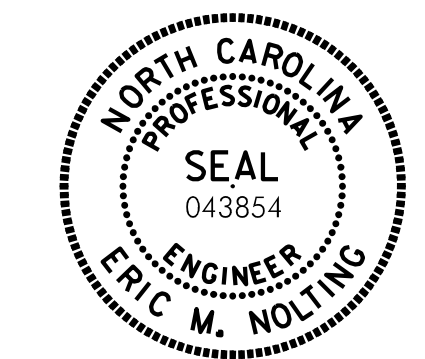


PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30± -L-LT-

SHEET 2 OF 2

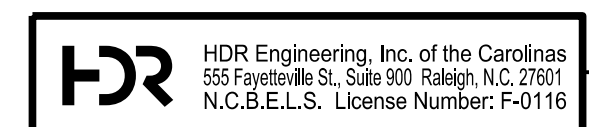
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE
CONSTRUCTION SEQUENCE**



Eric Nolting 1/24/2022

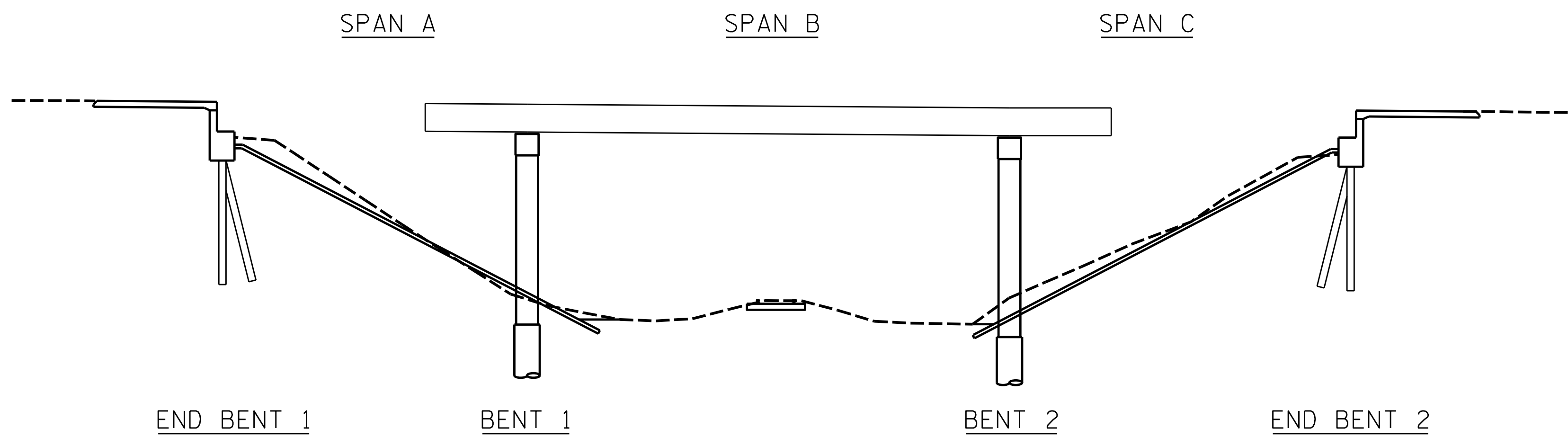
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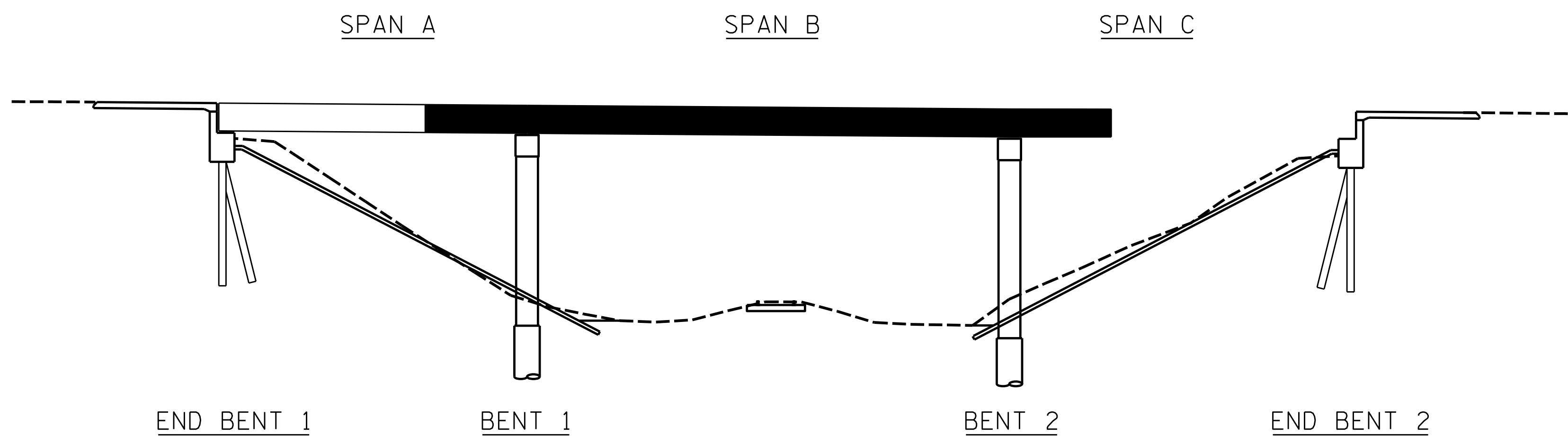
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UNLESS ALL SIGNATURES COMPLETED

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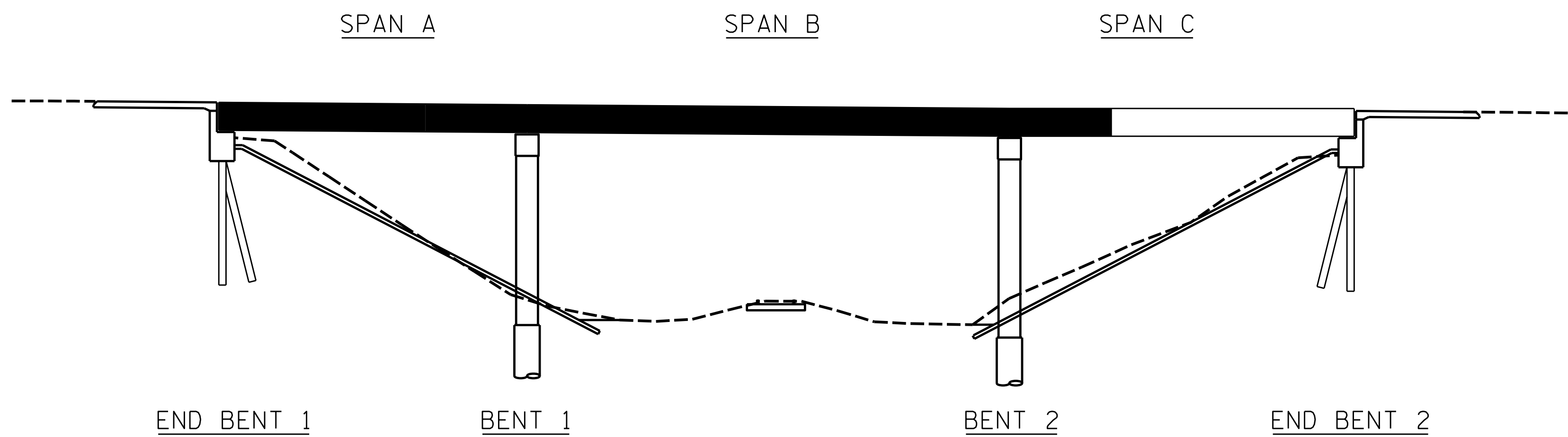
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STEP 1 BEAM ERECTION
(EXISTING BRIDGE NOT SHOWN FOR CLARITY)



STEP 2 BEAM ERECTION
(EXISTING BRIDGE NOT SHOWN FOR CLARITY)



STEP 3 BEAM ERECTION
(EXISTING BRIDGE NOT SHOWN FOR CLARITY)

ERECTION NOTES

DURING BEAM ERECTION PROCEDURE, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY LATERAL BRACING AND OTHER MEANS OF SUPPORT, AS REQUIRED TO ENSURE STABILITY OF THE BEAMS, AVOID UPLIFT OF THE BEAMS, AND TO ENSURE PLUMBNESS OF THE BEAMS IN THE FINAL POSITION.

THE CONTRACTOR MAY SUBMIT AN ALTERNATE ERECTION METHOD TO THE ENGINEER FOR REVIEW AND APPROVAL.

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PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-



Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 BEAM ERECTION
 DETAILS**

DES BY: <u>E. NOLTING</u>	DATE: <u>06/21</u>	DWG BY: <u>M. SELLS</u>	DATE: <u>06/21</u>
DES CHK: <u>B. ROGERS</u>	DATE: <u>06/21</u>	CHK BY: <u>B. ROGERS</u>	DATE: <u>06/21</u>



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 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SO3L-08
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	44

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.

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.

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

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

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

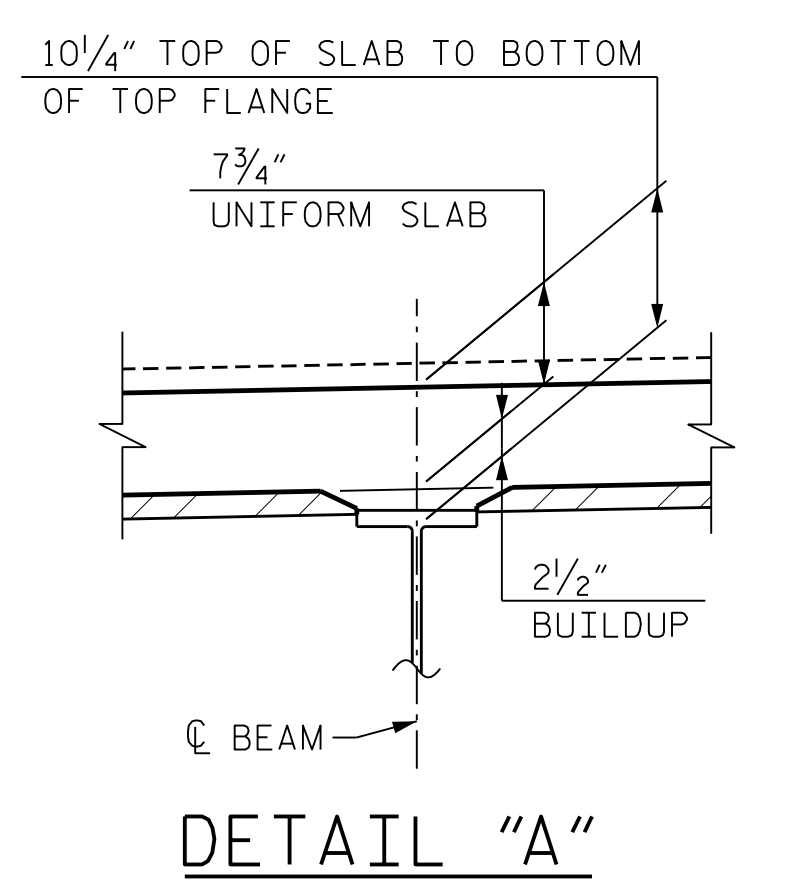
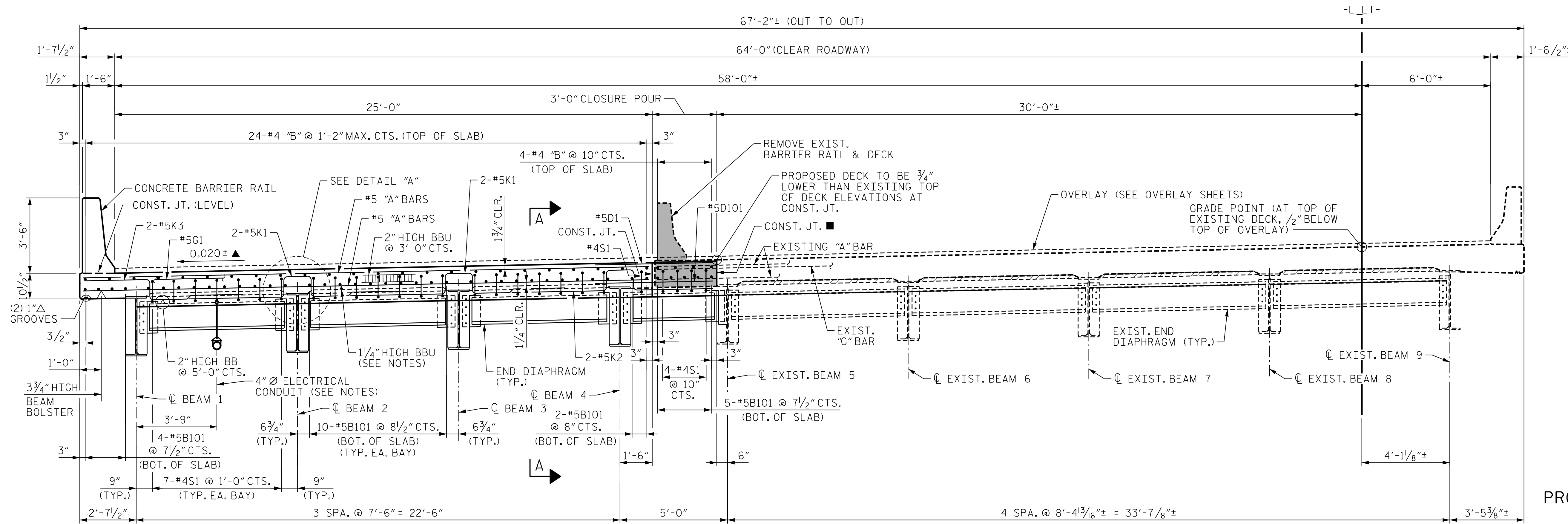
#5 "G" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

PROVIDE THE TOP SURFACE OF THE CAST-IN-PLACE CONCRETE BRIDGE DECK AND APPROACH SLABS WITH A RAKED FINISH OR OTHER APPROVED FINISH TO PROVIDE AN ADEQUATE BOND WITH THE LATEX-MODIFIED CONCRETE OVERLAY. AS SOON AS THE CONDITION OF THE CAST-IN-PLACE CONCRETE PERMITS, RAKE THE TOP SURFACE OF THE CONCRETE MAKING DEPRESSIONS OF APPROXIMATELY 1/4 INCH. TAKE CARE WHEN RAKING NOT TO CATCH AND PULL THE COARSE AGGREGATE.

FOR SECTION A-A, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 2 OF 2.

FOR ELECTRICAL CONDUIT DETAILS, SEE "ELECTRICAL CONDUIT SYSTEM FOR SIGNALS" SHEET.



TYPICAL SECTION (SHOWING END DIAPHRAGMS)

- 1/2" DEEP SAWCUT IN TOP OF DECK, REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING TRANSVERSE REINFORCING. AVOID DAMAGE TO THE EXISTING STEEL BEAM.
MATCH EXISTING SUPERELEVATION

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30 ± -L-LT-

Professional seal for Eric M. Nolting, North Carolina Professional Engineer, No. 043854. Includes project title 'SUPERSTRUCTURE TYPICAL SECTION'.

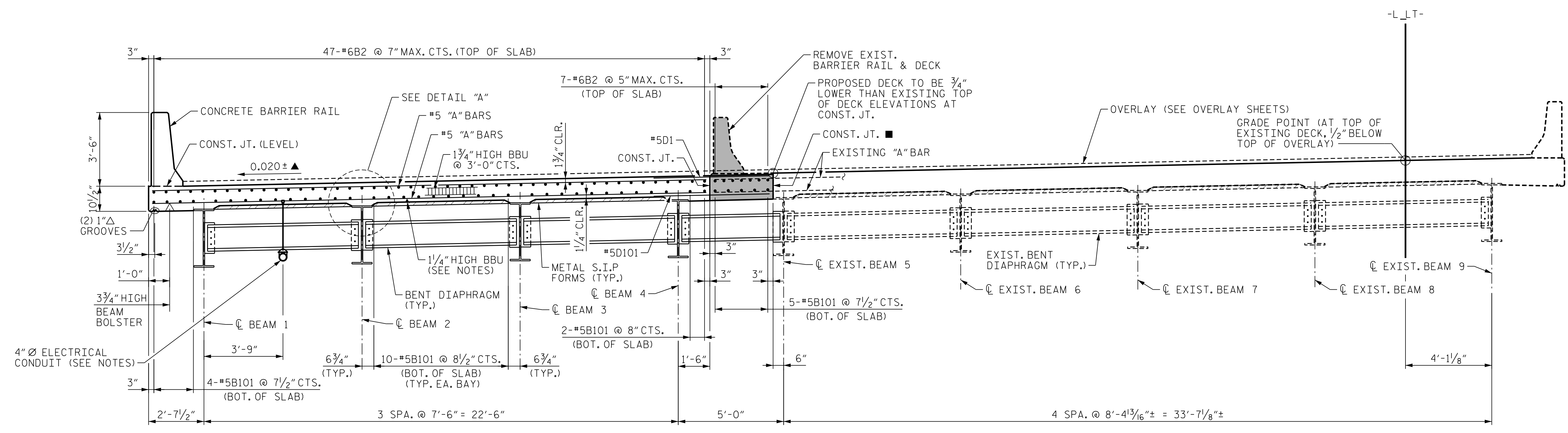
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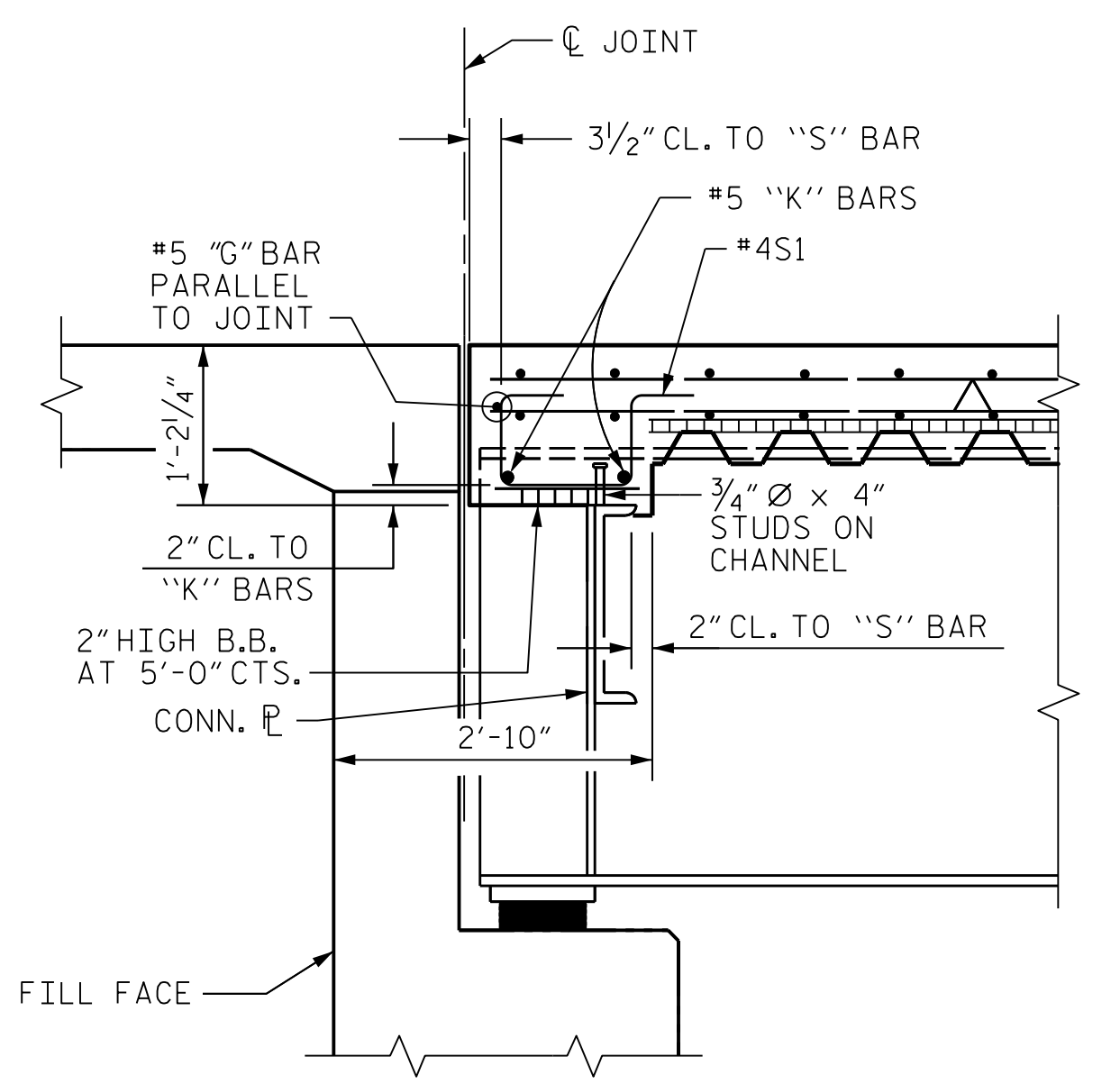
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Eric M. Nolting 1/24/2022
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TYPICAL SECTION
 (SHOWING BENT DIAPHRAGMS, INTERMEDIATE DIAPHRAGMS SIMILAR)

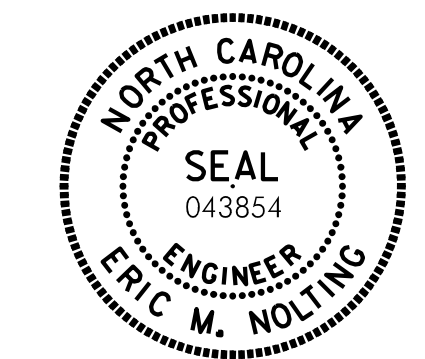


SECTION A-A
 (AT END BENTS)

■ 1 1/2" DEEP SAWCUT IN TOP OF DECK, REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING TRANSVERSE REINFORCING. AVOID DAMAGE TO THE EXISTING STEEL BEAM.
 ▲ MATCH EXISTING SUPERELEVATION

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 2 OF 2



Eric Nolting 1/24/2022

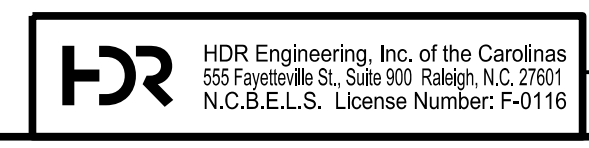
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION

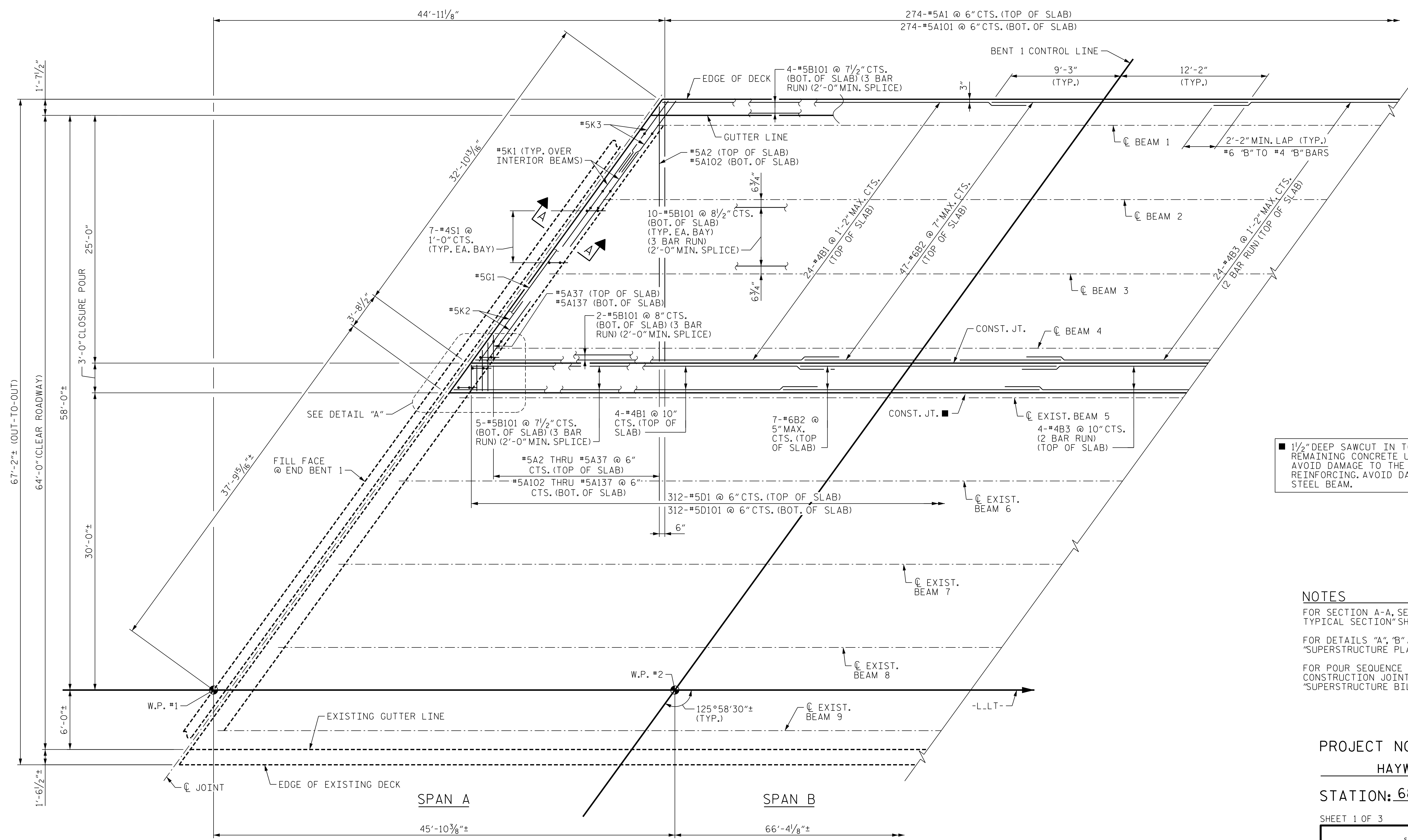
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DES BY: F. CORDOVA	DATE: 05/21	DWG BY: B. PETERSON	DATE: 03/21
DES CHK: E. NOLTING	DATE: 07/21	CHK BY: E. NOLTING	DATE: 07/21



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■ 1/2" DEEP SAWCUT IN TOP OF DECK, REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING TRANSVERSE REINFORCING. AVOID DAMAGE TO THE EXISTING STEEL BEAM.

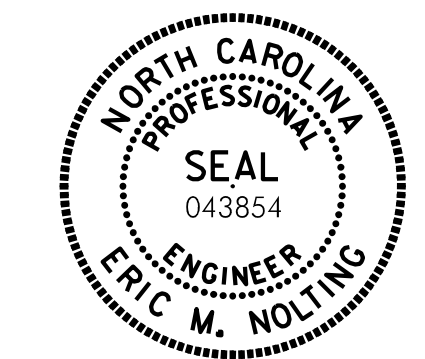
- NOTES**
- FOR SECTION A-A, SEE SHEET "SUPERSTRUCTURE TYPICAL SECTION" SHEET 2 OF 2.
 - FOR DETAILS "A", "B" AND "C" SEE SHEET "SUPERSTRUCTURE PLAN OF SPANS DETAILS".
 - FOR POUR SEQUENCE DIAGRAM AND TRANSVERSE CONSTRUCTION JOINT LOCATIONS, SEE "SUPERSTRUCTURE BILL OF MATERIALS" SHEET.

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS



Eric Nolting 1/24/2022

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NO.	BY:	DATE:	NO.	BY:	DATE:
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SHEET NO. 503L-11
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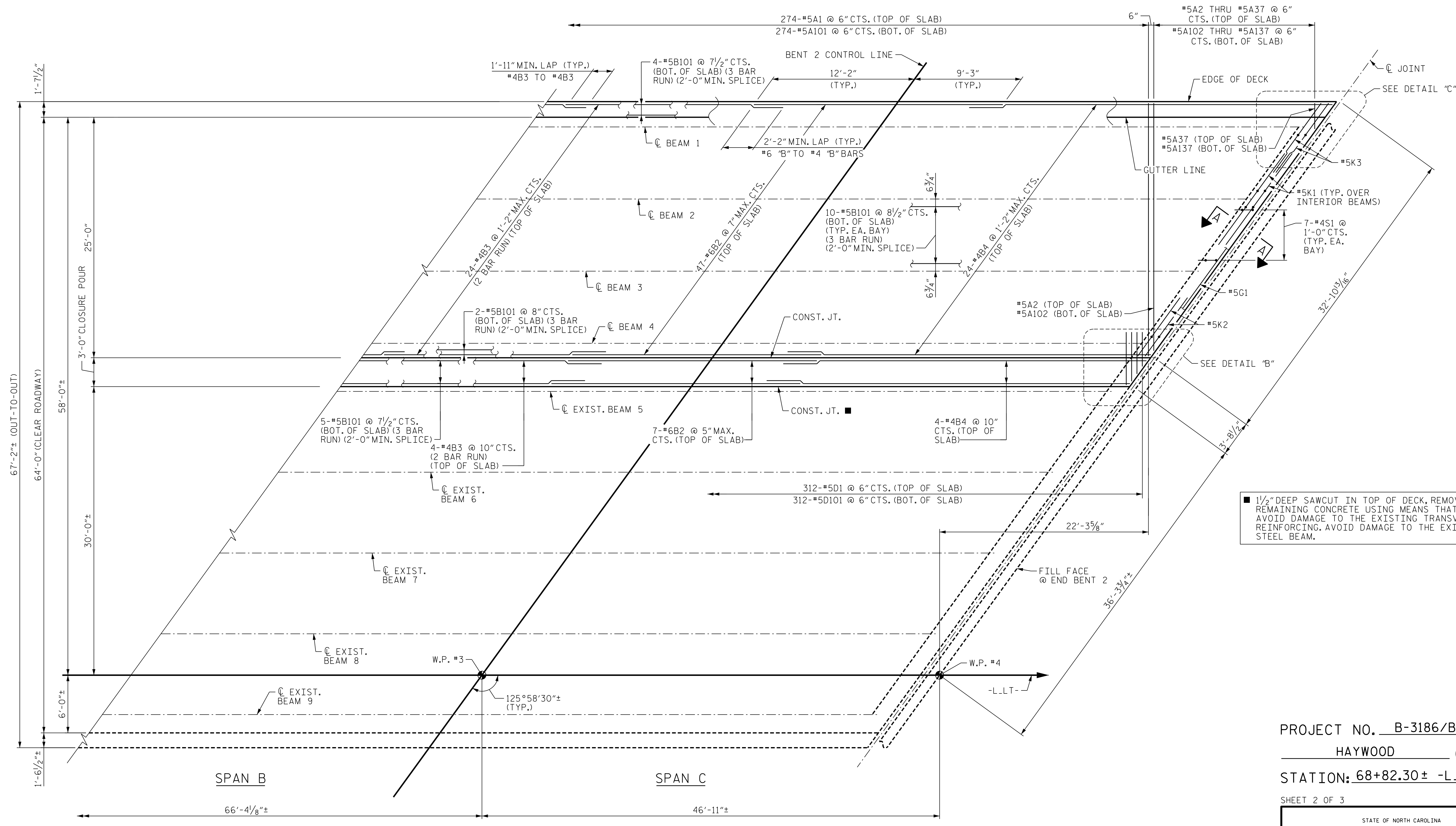
HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

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PARTIAL PLAN OF SPANS

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DES BY: F. CORDOVA	DATE: 05/21	DWG BY: B. PETERSON	DATE: 03/21
DES CHK: E. NOLTING	DATE: 07/21	CHK BY: E. NOLTING	DATE: 07/21



■ 1/2" DEEP SAWCUT IN TOP OF DECK, REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING TRANSVERSE REINFORCING. AVOID DAMAGE TO THE EXISTING STEEL BEAM.

PARTIAL PLAN OF SPANS

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPANS**



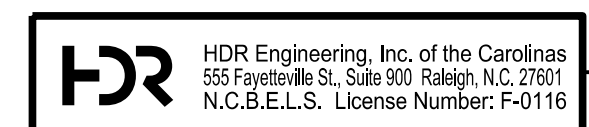
Eric Nolting 1/24/2022

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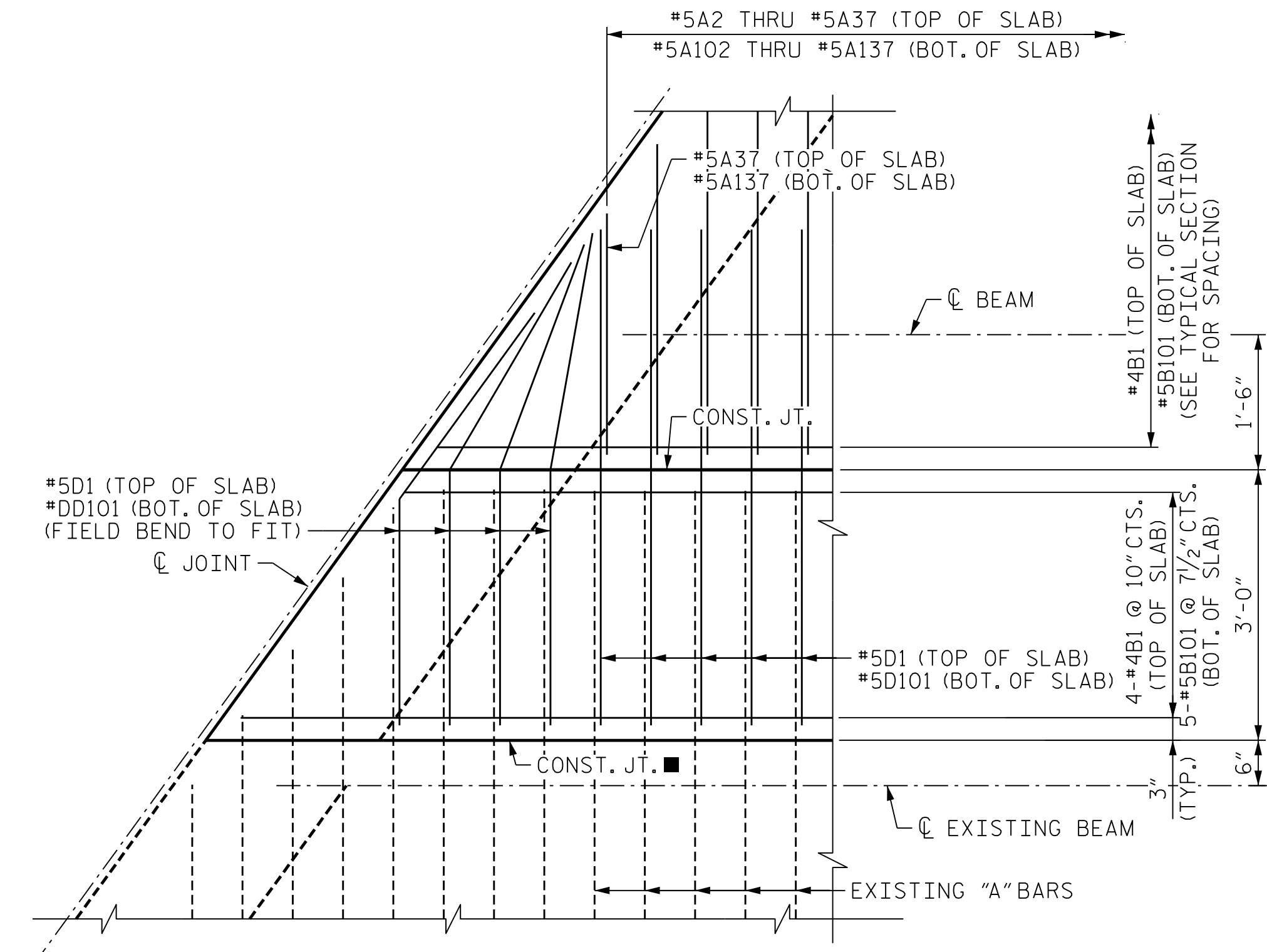
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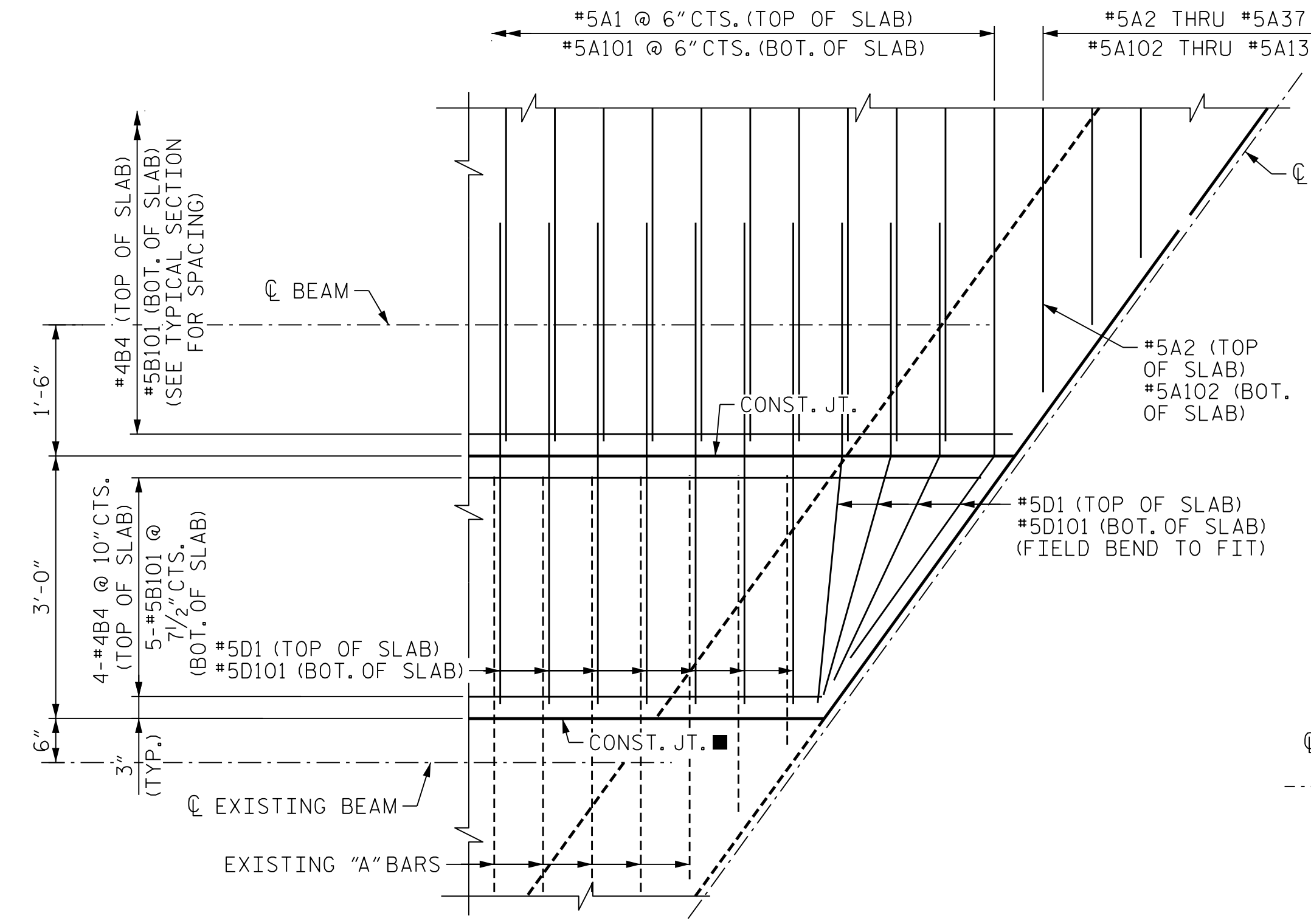


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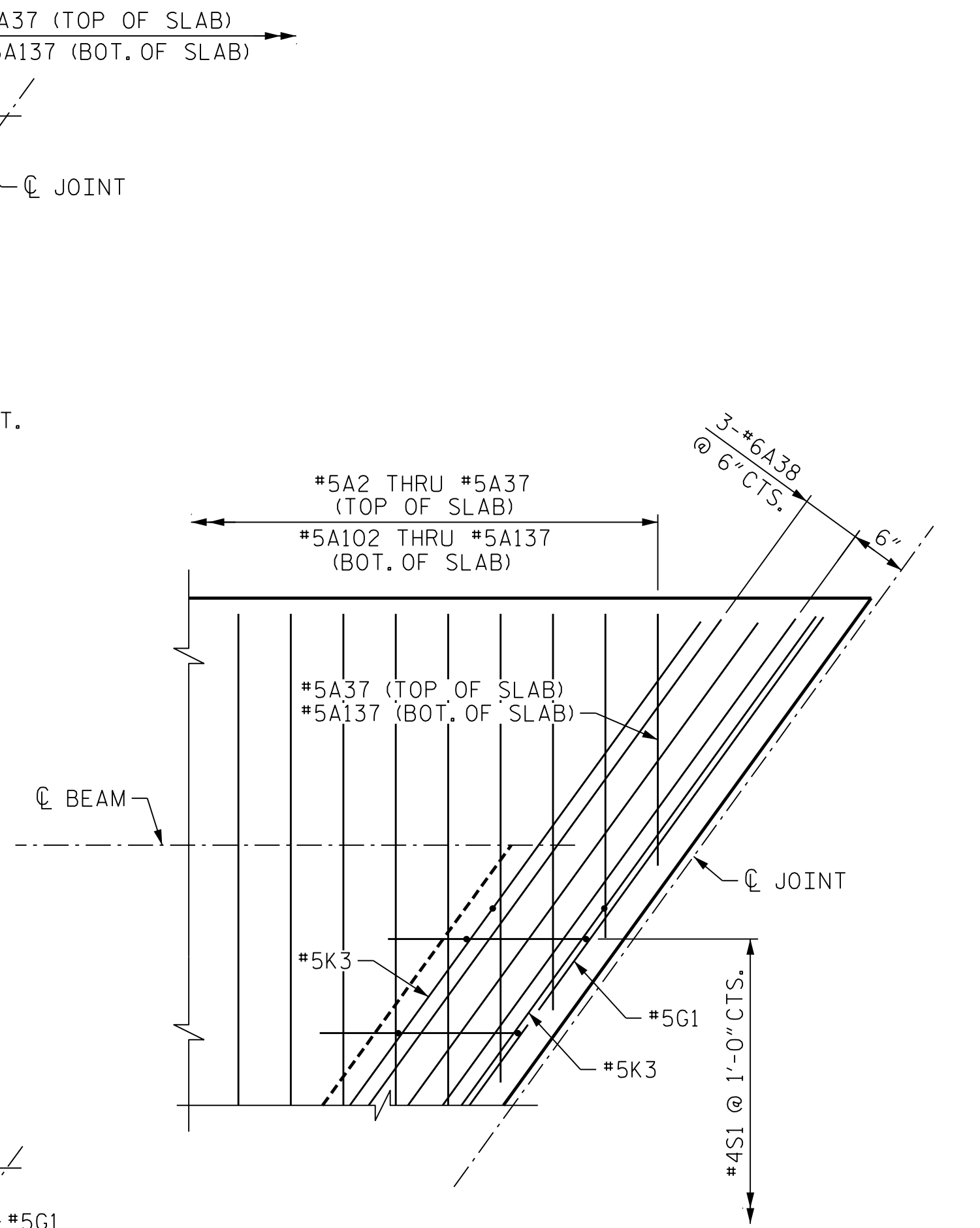
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FILE: ... \403.060.B5698B3186.SMU.S3.013.430110.dgn



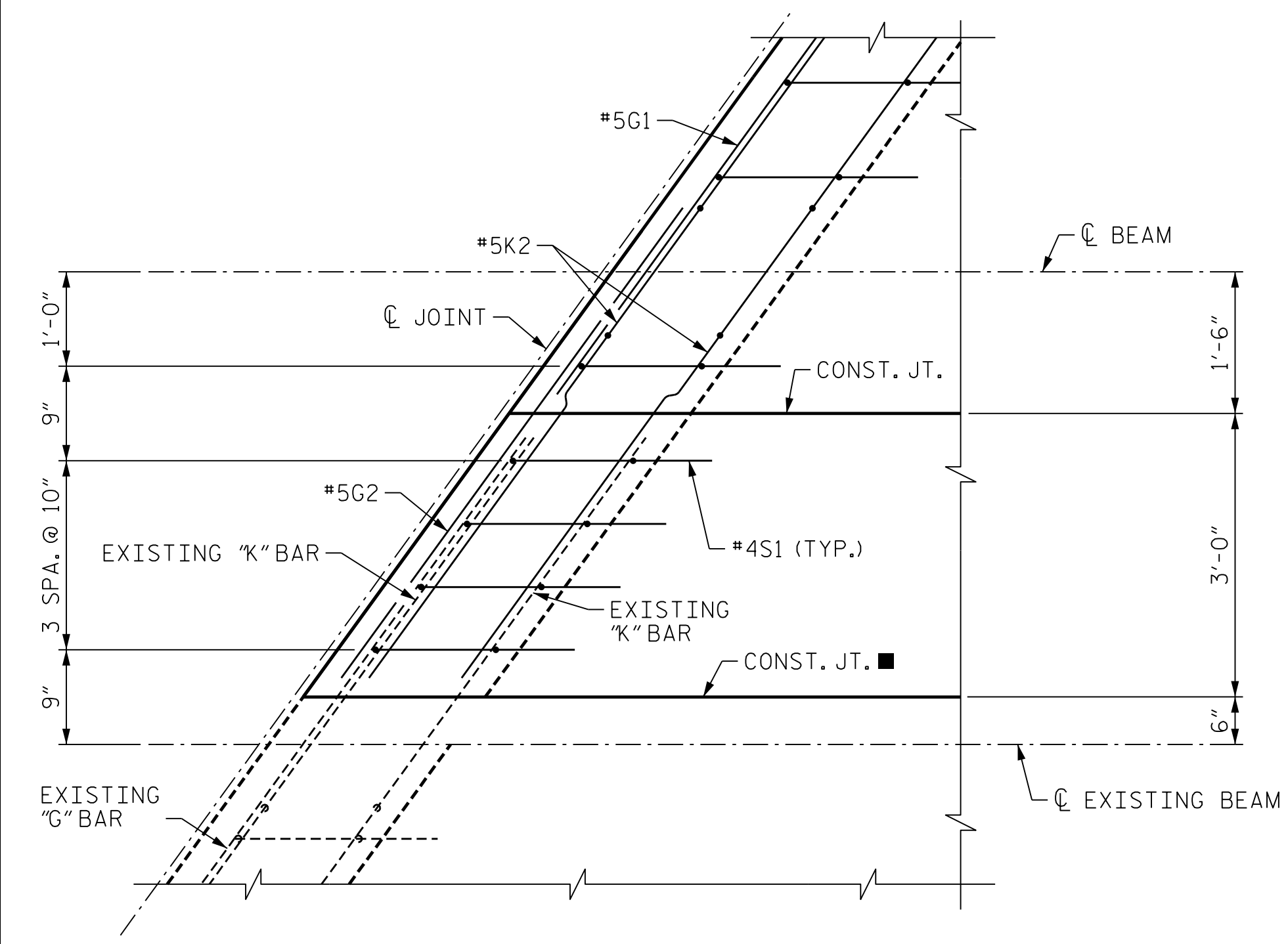
DETAIL SHOWING DECK SLAB REINFORCEMENT



DETAIL SHOWING DECK SLAB REINFORCEMENT

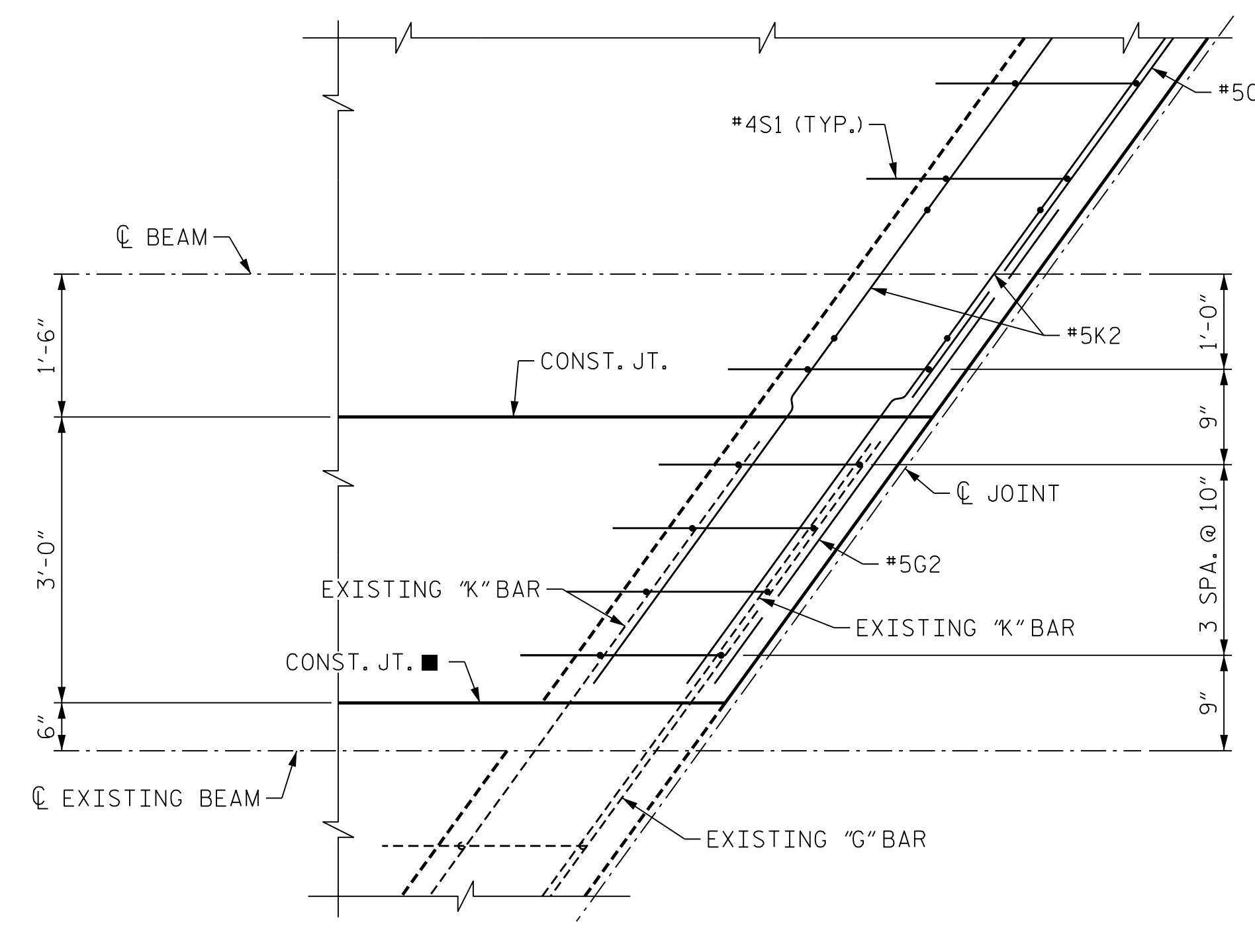


DETAIL "C"
("B" BARS NOT SHOWN FOR CLARITY)



DETAIL SHOWING DIAPHRAGM REINFORCEMENT

DETAIL "A"



DETAIL SHOWING DIAPHRAGM REINFORCEMENT

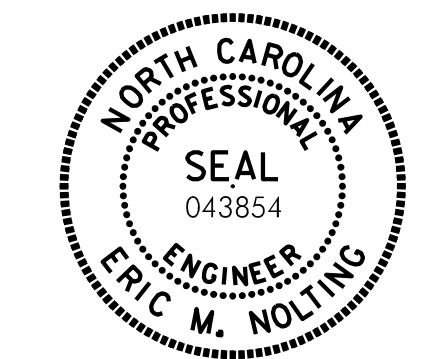
DETAIL "B"

■ 1/2" DEEP SAWCUT IN TOP OF DECK, REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING TRANSVERSE REINFORCING. AVOID DAMAGE TO THE EXISTING STEEL BEAM.

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30 ± -L-LT-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE
PLAN OF SPANS
DETAILS**



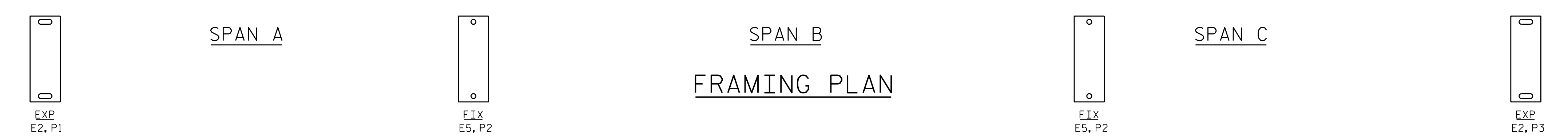
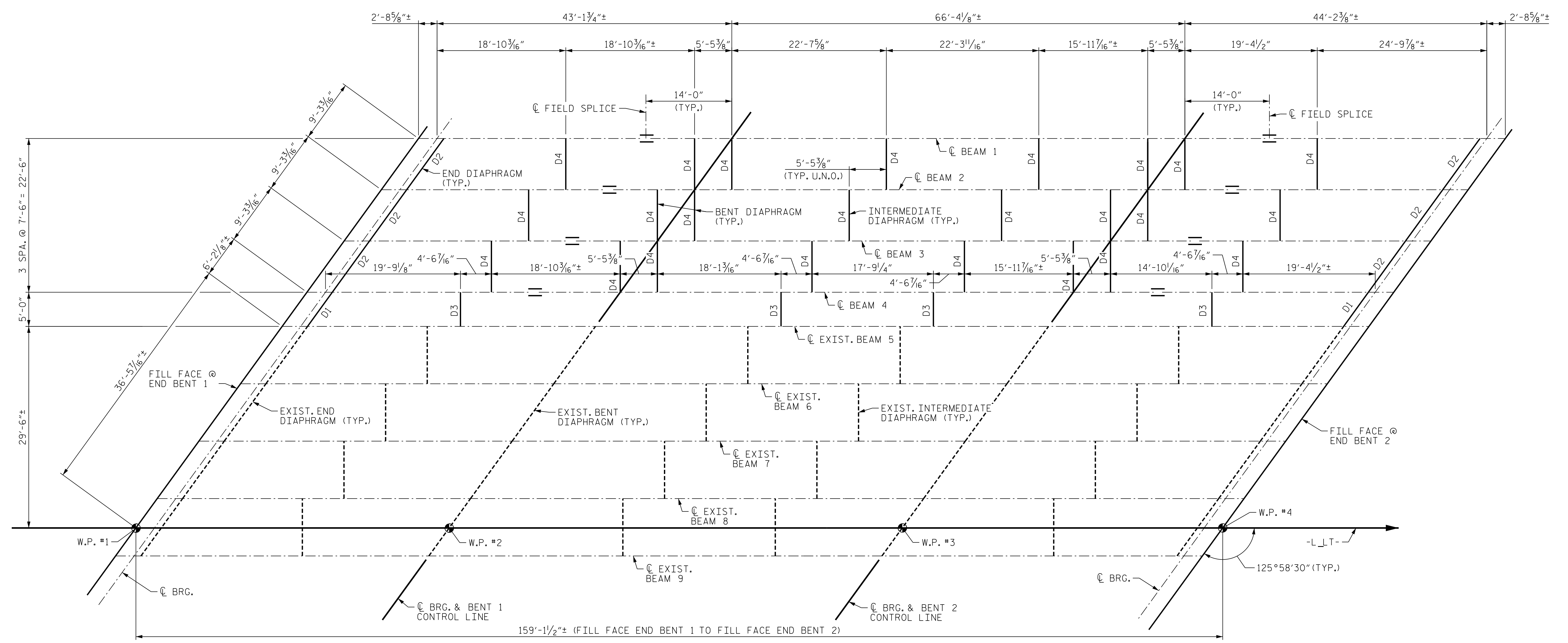
Eric Nolting 1/24/2022

DES BY: F. CORDOVA	DATE: 05/21	DWG BY: B. PETERSON	DATE: 03/21
DES CHK: E. NOLTING	DATE: 07/21	CHK BY: E. NOLTING	DATE: 07/21

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

REVISIONS						SHEET NO. S03L-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 44
2	--	--	4	--	--	

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NOTES

FOR STRUCTURAL STEEL NOTES AND DETAILS, SEE "SUPERSTRUCTURE STRUCTURAL STEEL DETAILS" SHEETS.

FOR ELASTOMERIC BEARING AND SOLE PLATE DETAILS, SEE "SUPERSTRUCTURE ELASTOMERIC BEARING DETAILS" SHEET.

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

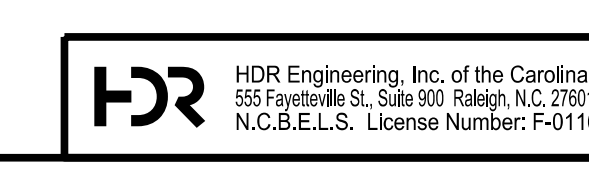
SUPERSTRUCTURE FRAMING PLAN



Eric Nolting 1/24/2022

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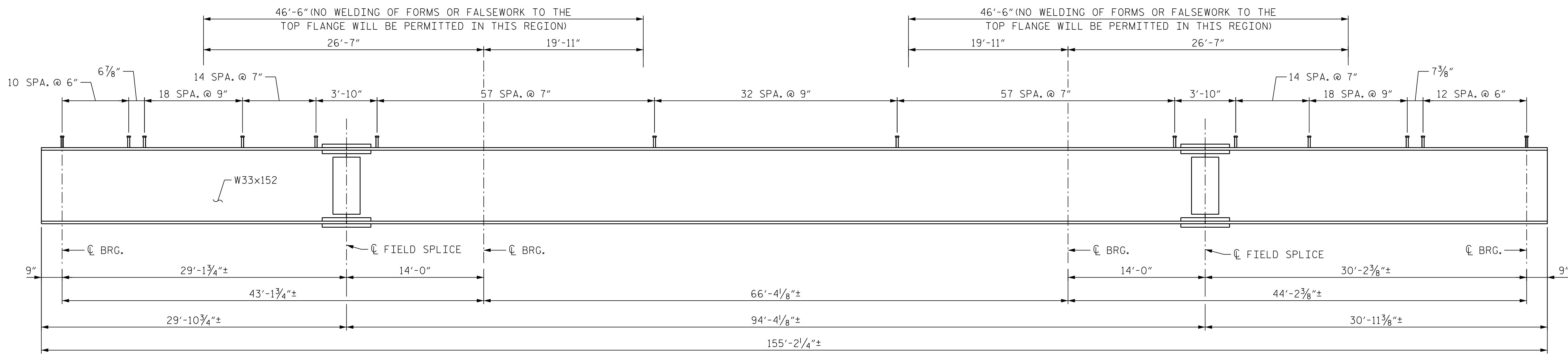
DES BY: S.RAVINDRAN	DATE: 05/21	DWG BY: B. PETERSON	DATE: 03/21
DES CHK: E. NOLTING	DATE: 06/21	CHK BY: E. NOLTING	DATE: 06/21



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

SHEET NO. 303L-14
 TOTAL SHEETS 44



ELEVATION

(DIAPHRAGM CONNECTOR PLATES NOT SHOWN FOR CLARITY)



PLAN OF BOTTOM FLANGE

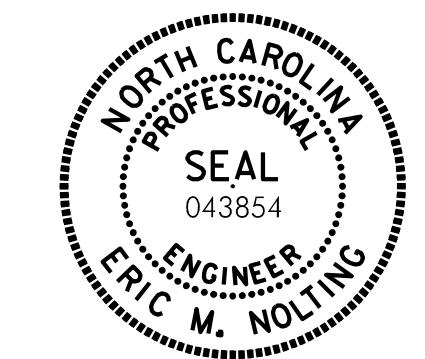
(INTERMEDIATE AND BENT DIAPHRAGM CONNECTOR PLATES NOT SHOWN FOR CLARITY)

NOTES

- ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
- ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
- STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.
- A CHARPY V-NOTCH TEST IS REQUIRED ON ALL BEAM SECTIONS AND SPLICE PLATES AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.
- WHERE DIAPHRAGMS ARE TO BE BOLTED TO EXISTING STEEL BEAMS, DO NOT REMOVE PAINT FROM THE CONTACT SURFACE.
- AT DIAPHRAGMS D1 AND D3, CONNECTION BOLTS ARE TO BE LOCATED AT THE BOTTOM OF THE CONNECTION SLOTS AND TIGHTENED TO A SNUG FIT PRIOR TO FIELD WELDING OPPOSITE END OF DIAPHRAGM. AFTER WELDING DIAPHRAGM TO CONNECTION ANGLE AND PRIOR TO THE POURING OF THE SLAB, BACK OFF BOLTS 1/2 TURN TO ALLOW FOR VERTICAL DEFLECTION OF NEW BEAM. AFTER DEFLECTIONS HAVE OCCURRED, TIGHTEN BOLTS AS REQUIRED BY THE STANDARD SPECIFICATIONS.
- TENSION ON THE ASTM A325 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.
- END OF BEAMS AND GIRDERS SHALL BE PLUMB.
- END DIAPHRAGM CONNECTOR PLATES MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.
- FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR FULL DEAD LOAD FIT UP. GIRDERS SHALL BE PLUMB AFTER THE FULL AMOUNT OF DEAD LOAD IS APPLIED.
- STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.
- AT THE CONTRACTORS OPTION, ONE OF THE TWO BOLTED FIELD SPLICES MAY BE OMITTED, PROVIDED THE CONTRACTOR OBTAINS ALL PERMITS REQUIRED FOR TRANSPORTING THE LONGER PIECE LENGTHS.

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-

SHEET 1 OF 5



Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE STRUCTURAL STEEL DETAILS

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

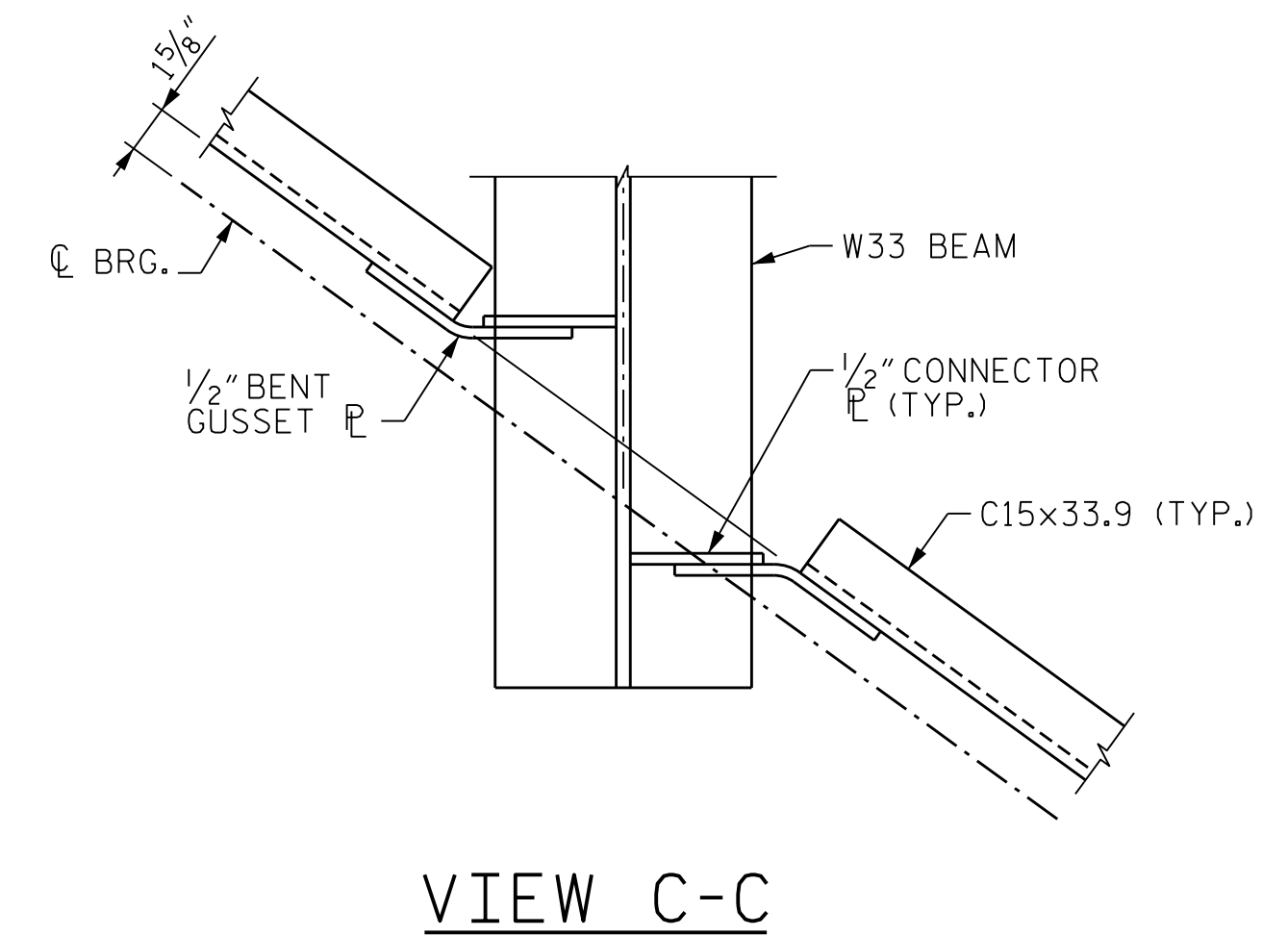
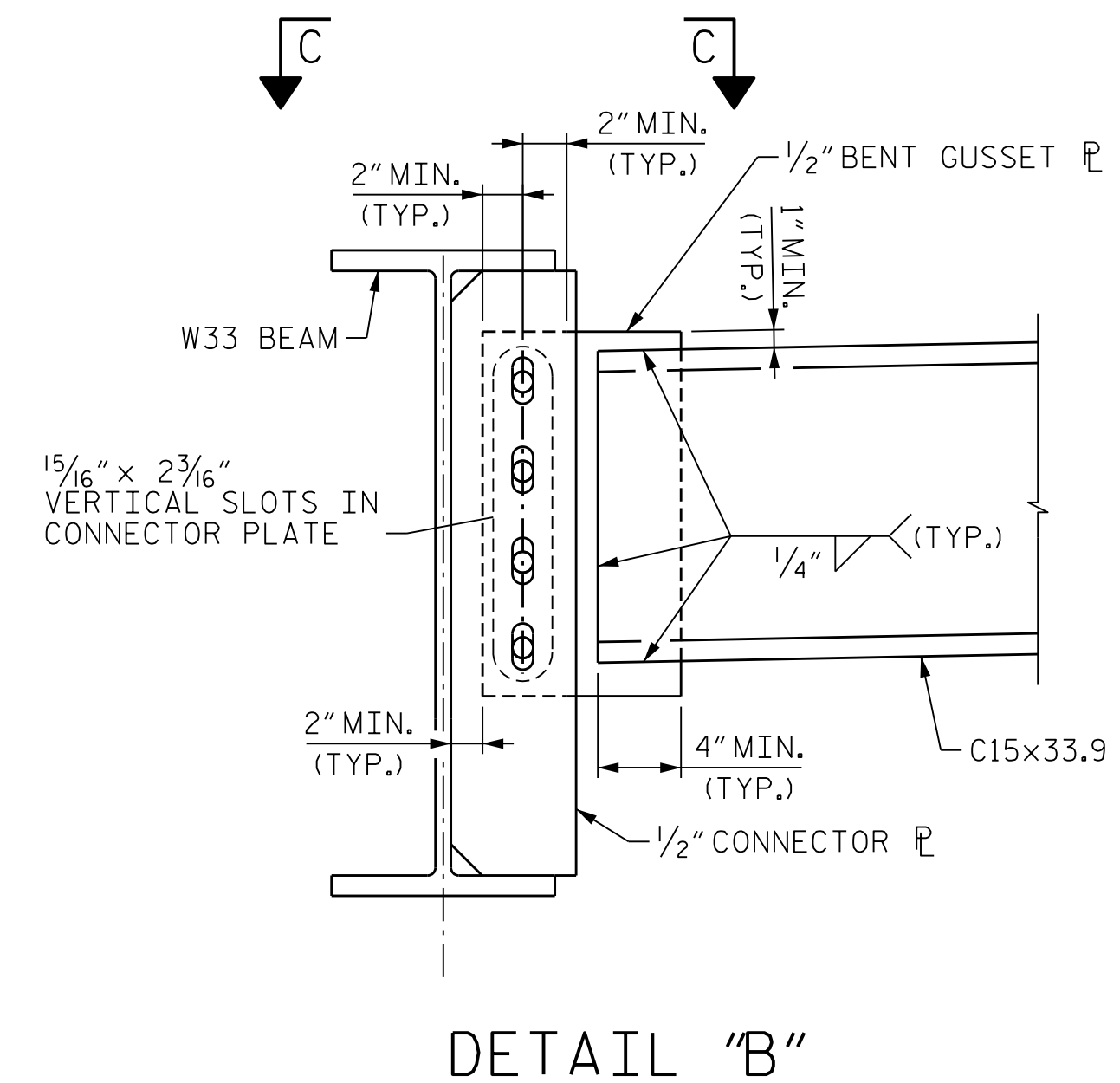
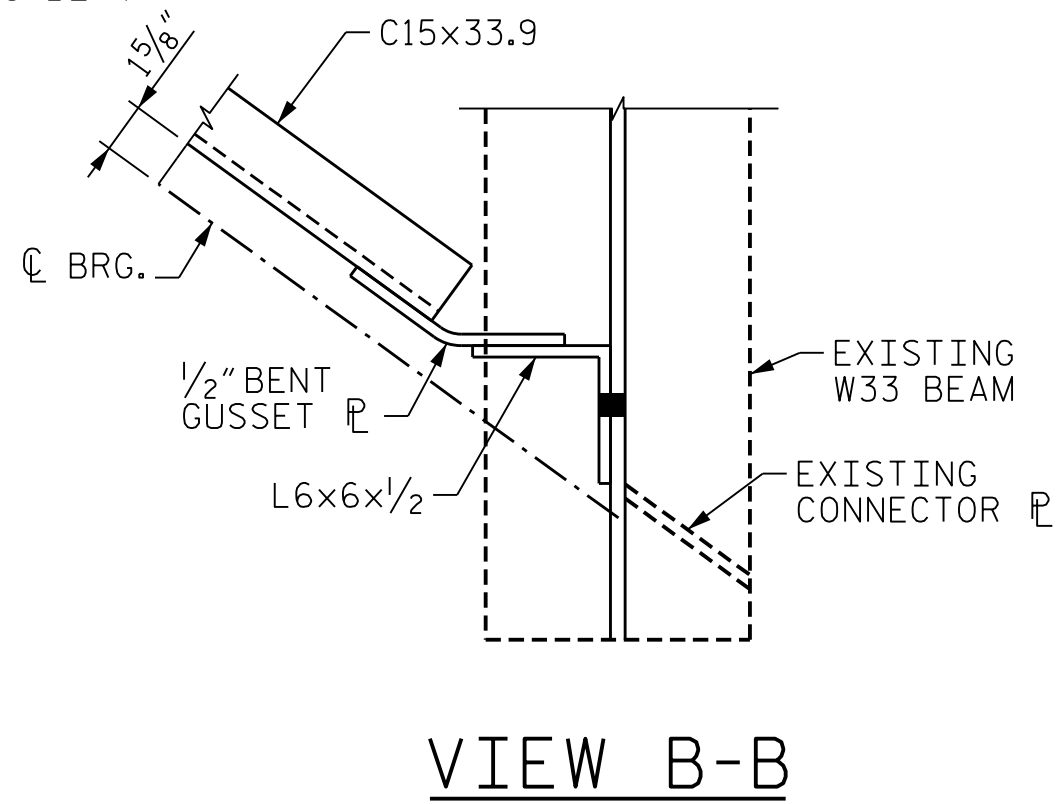
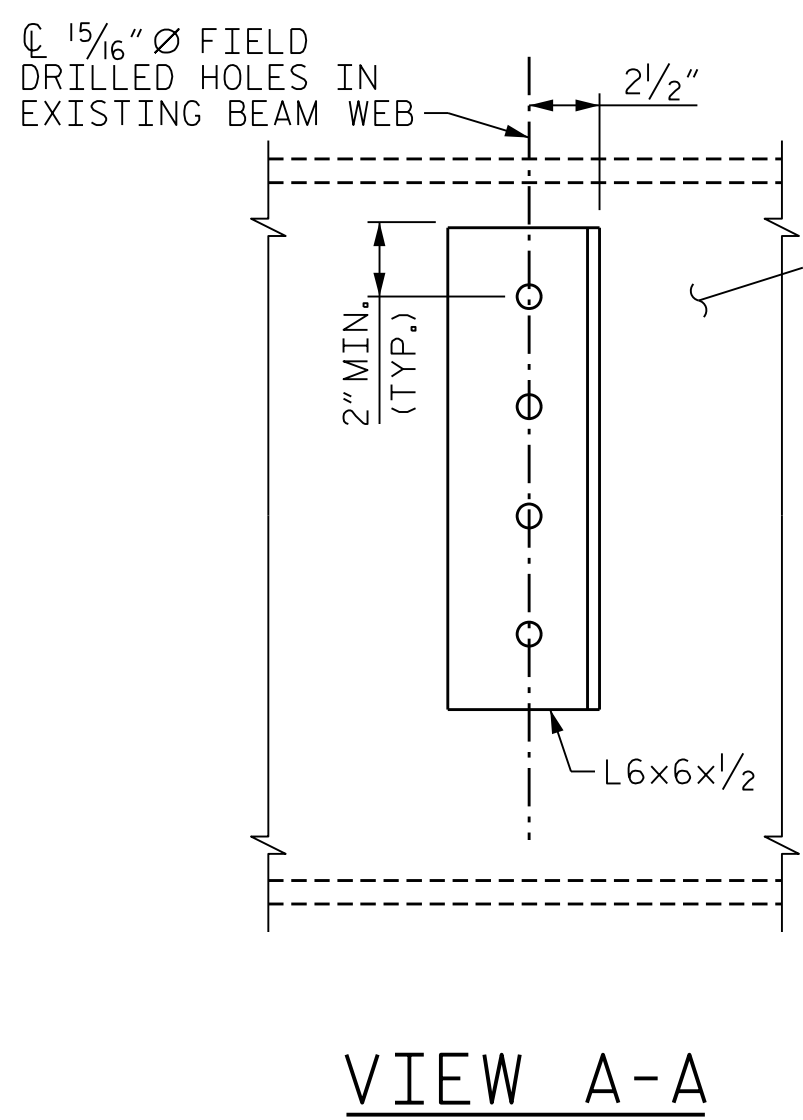
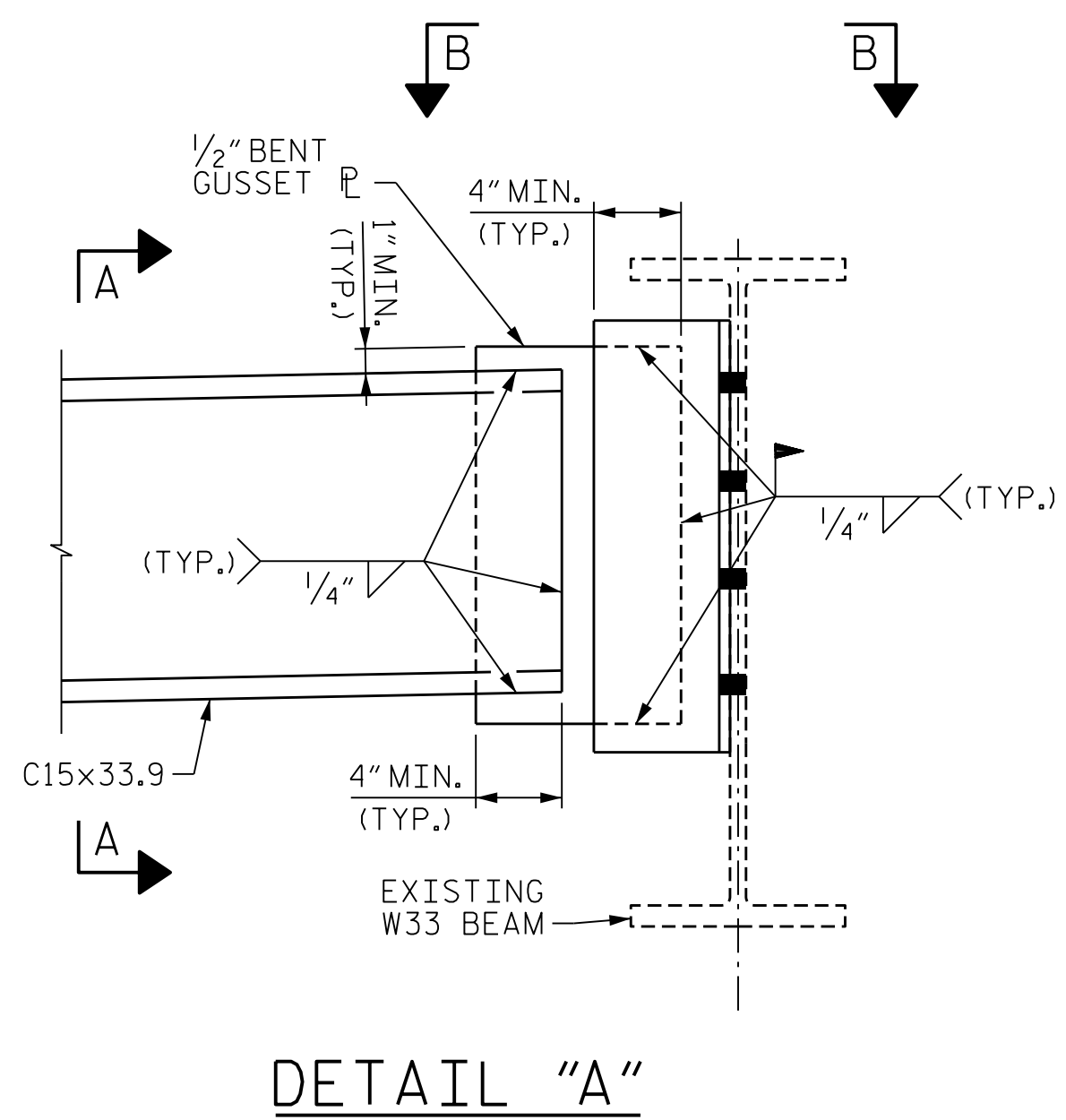
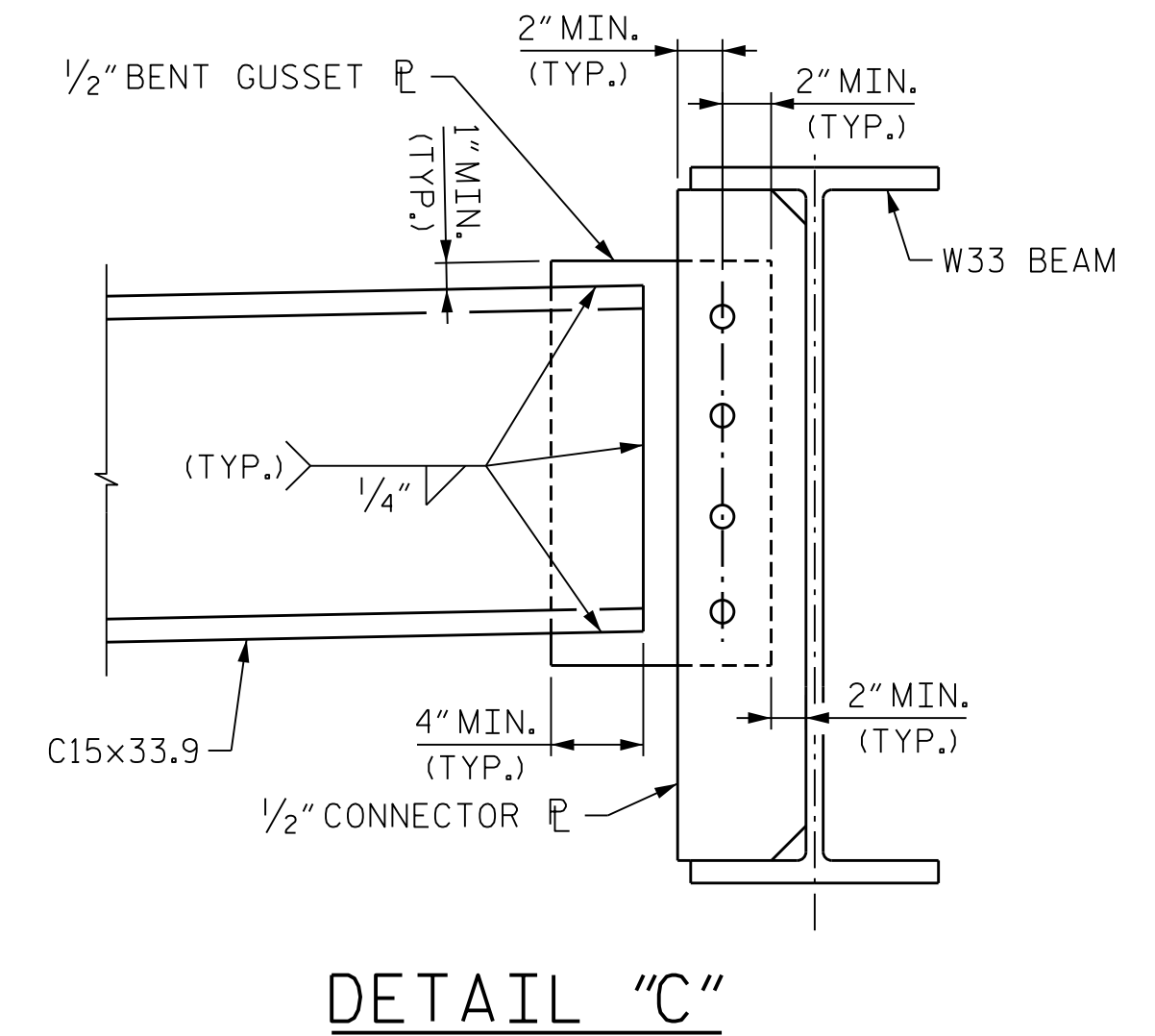
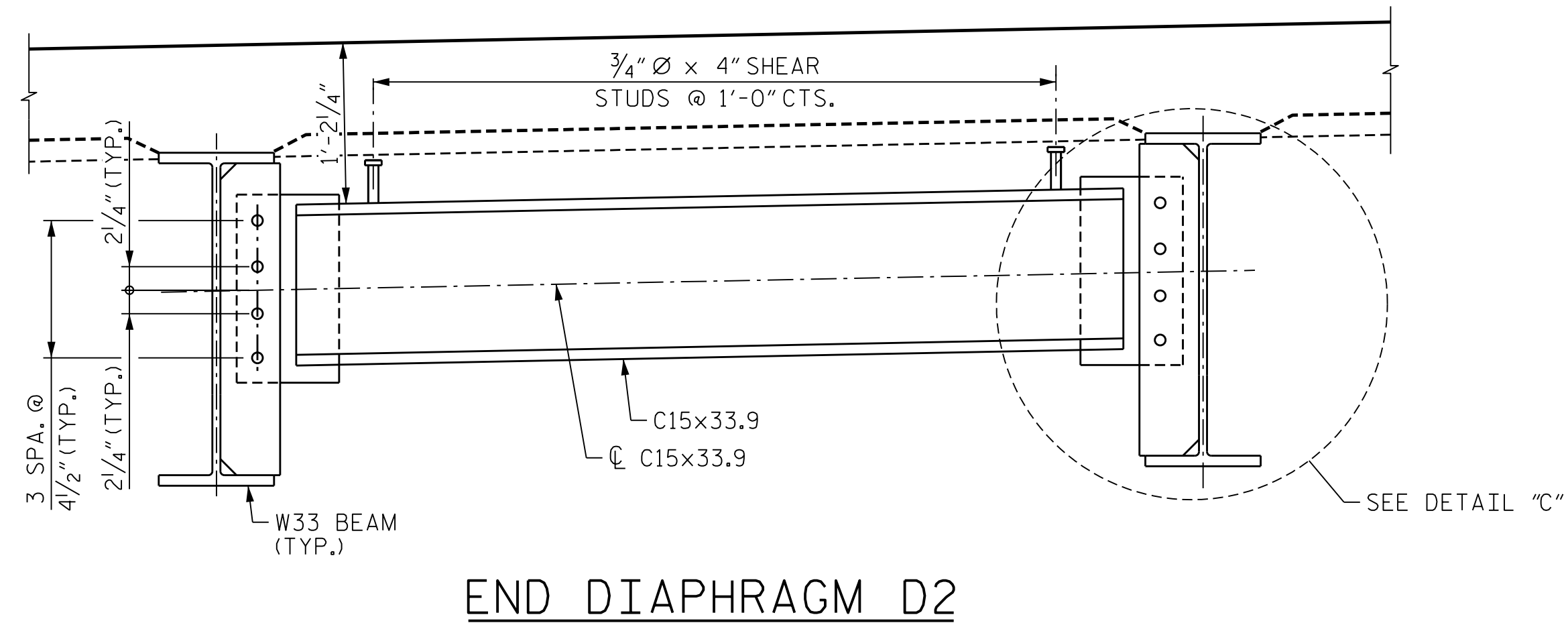
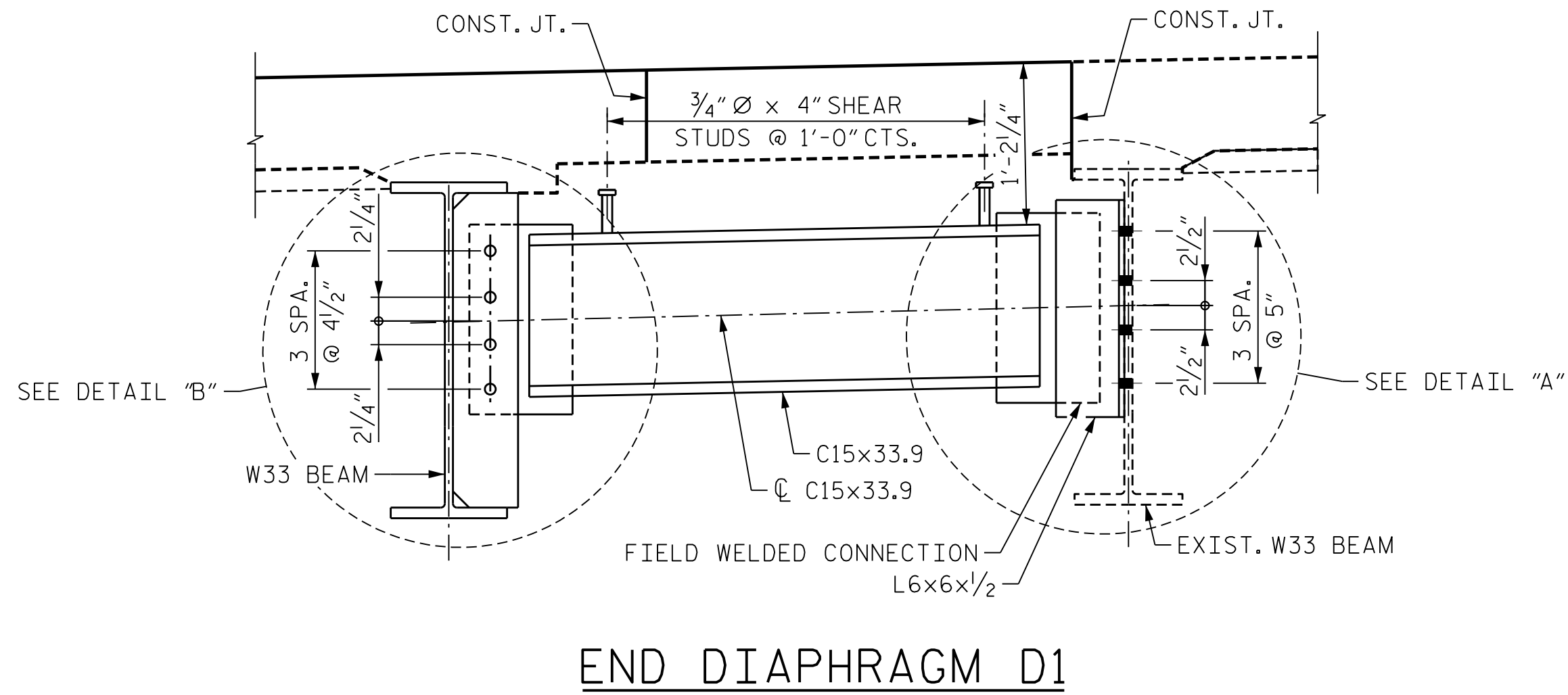
SHEET NO. S03L-15
 TOTAL SHEETS 44

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DES BY: <u>E. NOLTING</u>	DATE: <u>04/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>05/21</u>
DES CHK: <u>B. ROGERS</u>	DATE: <u>05/21</u>	CHK BY: <u>B. ROGERS</u>	DATE: <u>06/21</u>

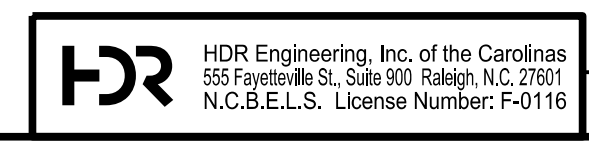


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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DES BY: E. NOLTING	DATE: 04/21	DWG BY: B. PETERSON	DATE: 06/21
DES CHK: B. ROGERS	DATE: 05/21	CHK BY: B. ROGERS	DATE: 06/21



Eric Nolting 1/24/2022

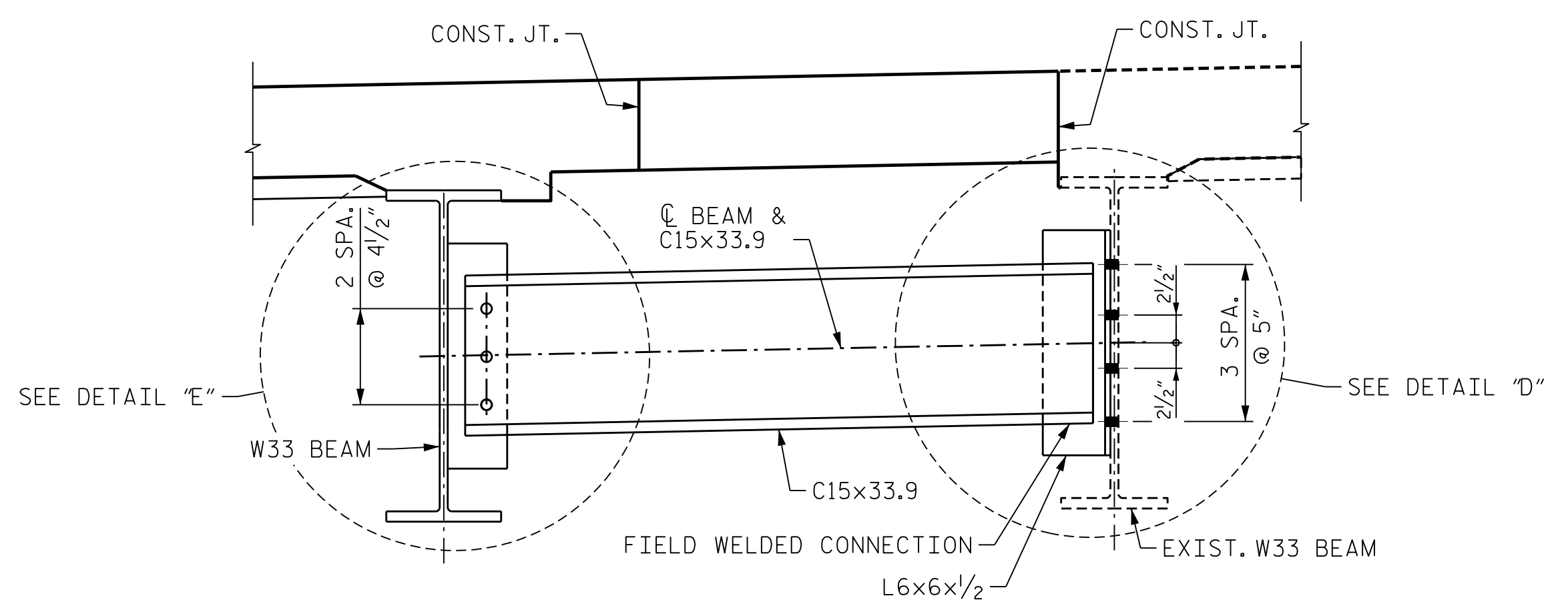
PROJECT NO. B-3186/B-5898
 HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-
 SHEET 2 OF 5

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

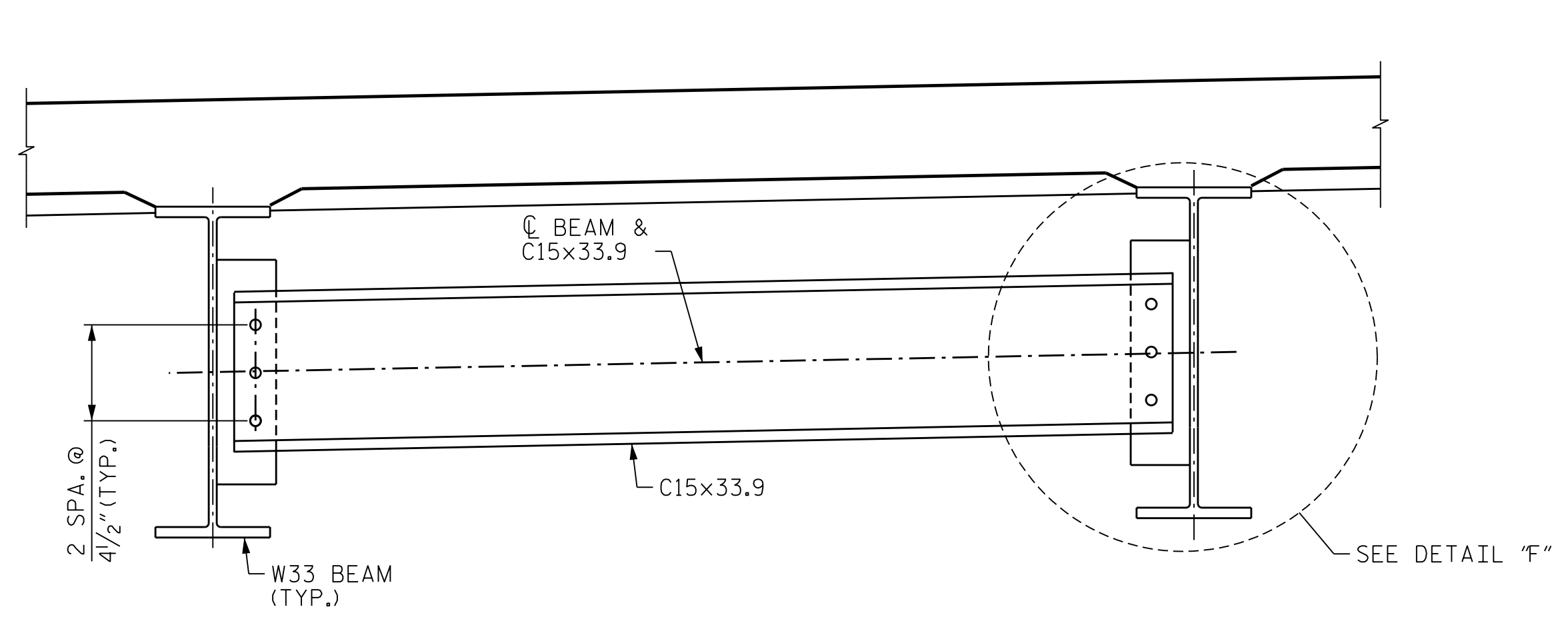
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

SHEET NO. S03L-16
 TOTAL SHEETS 44

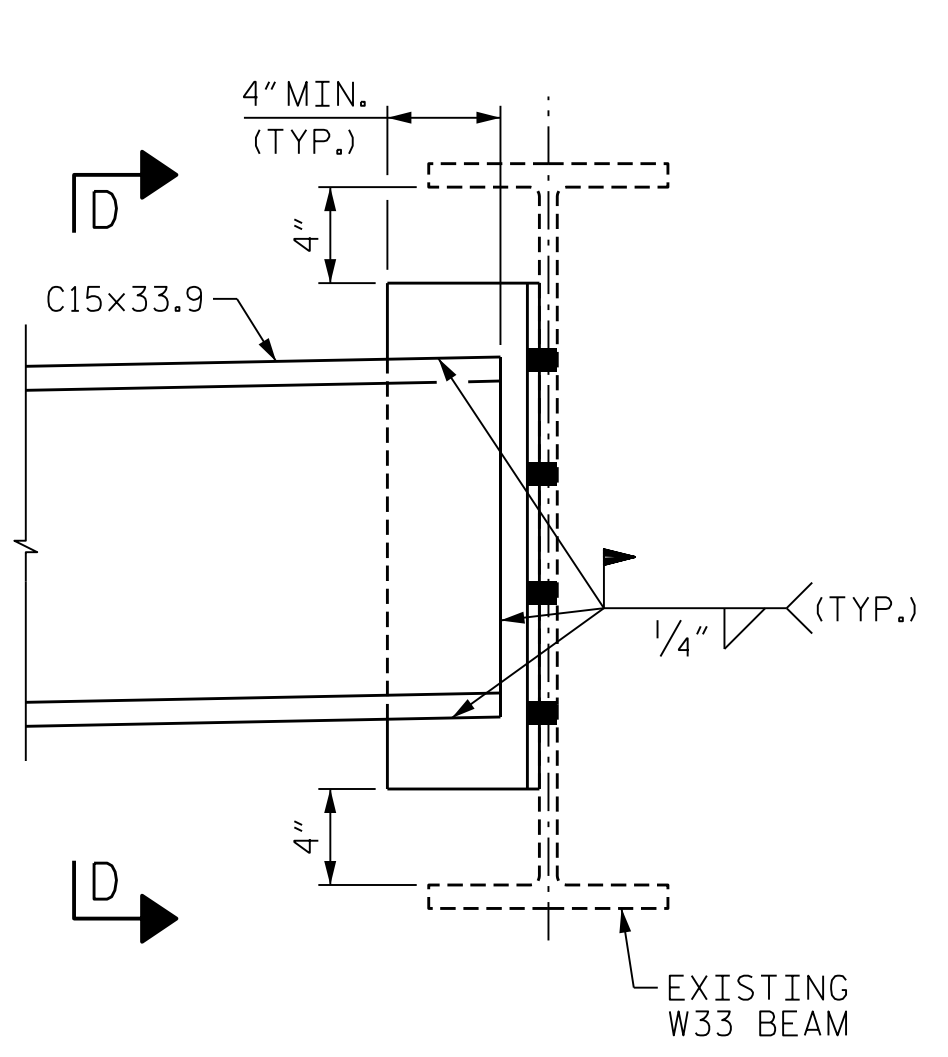
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



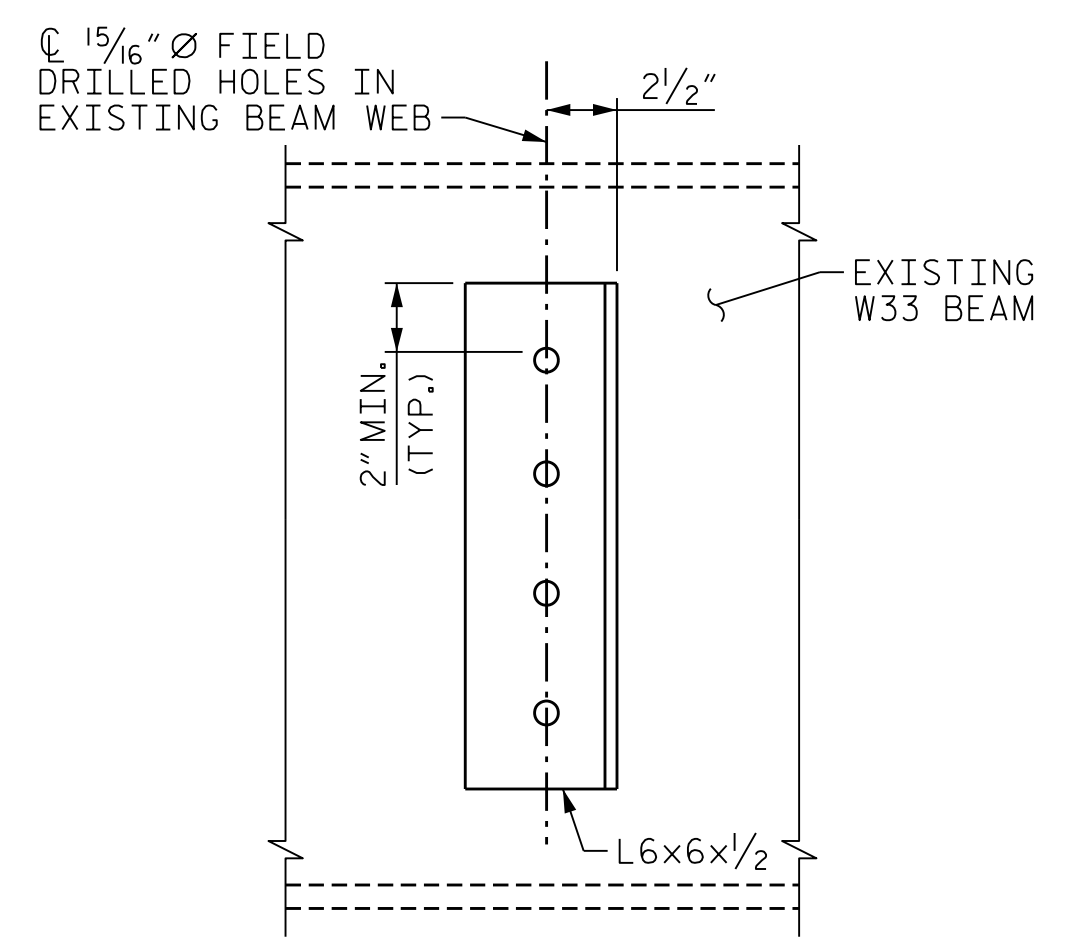
INTERMEDIATE DIAPHRAGM D3



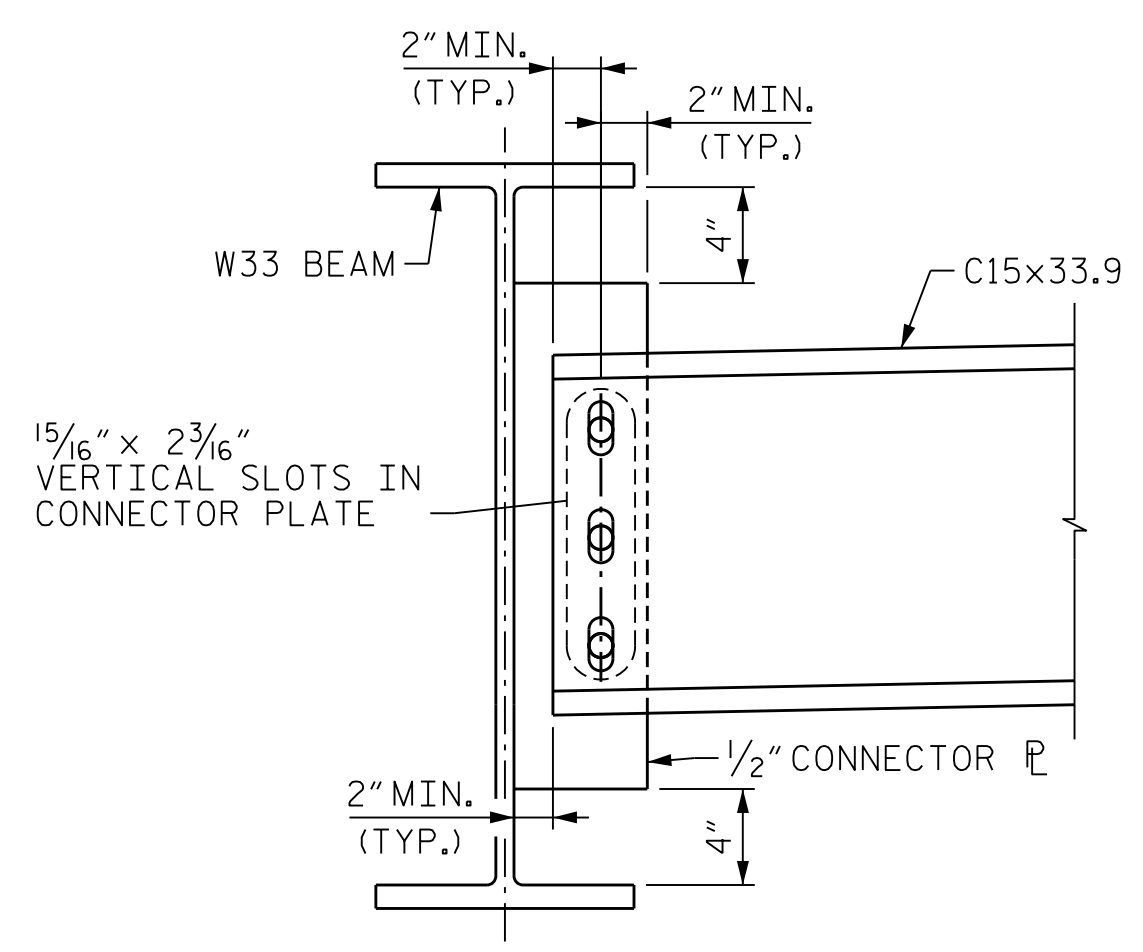
INTERMEDIATE AND BENT DIAPHRAGM D4



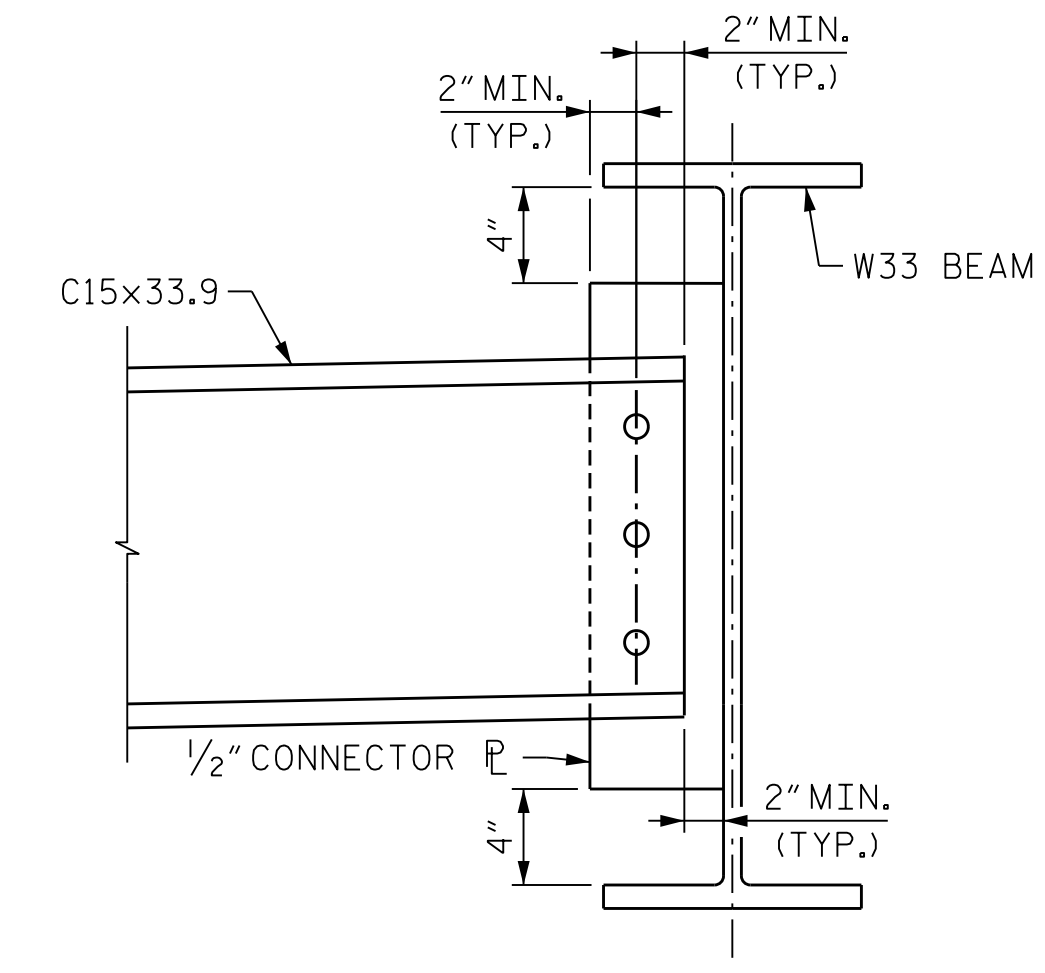
DETAIL "D"



VIEW D-D



DETAIL "E"



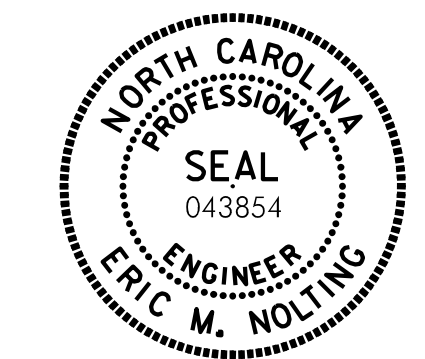
DETAIL "F"

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS



Eric Nolting 1/24/2022

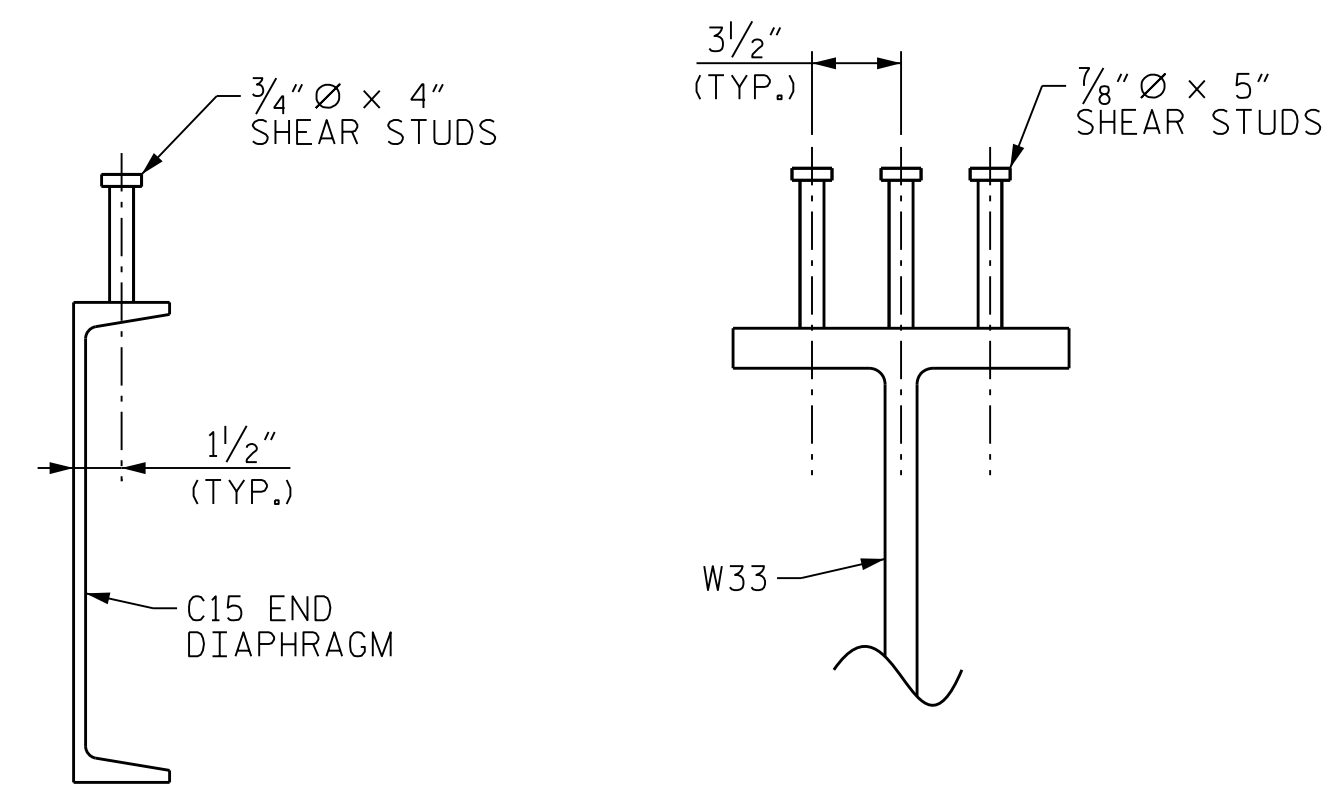
DES BY: E. NOLTING	DATE: 04/21	DWG BY: B. PETERSON	DATE: 05/21
DES CHK: B. ROGERS	DATE: 05/21	CHK BY: B. ROGERS	DATE: 06/21



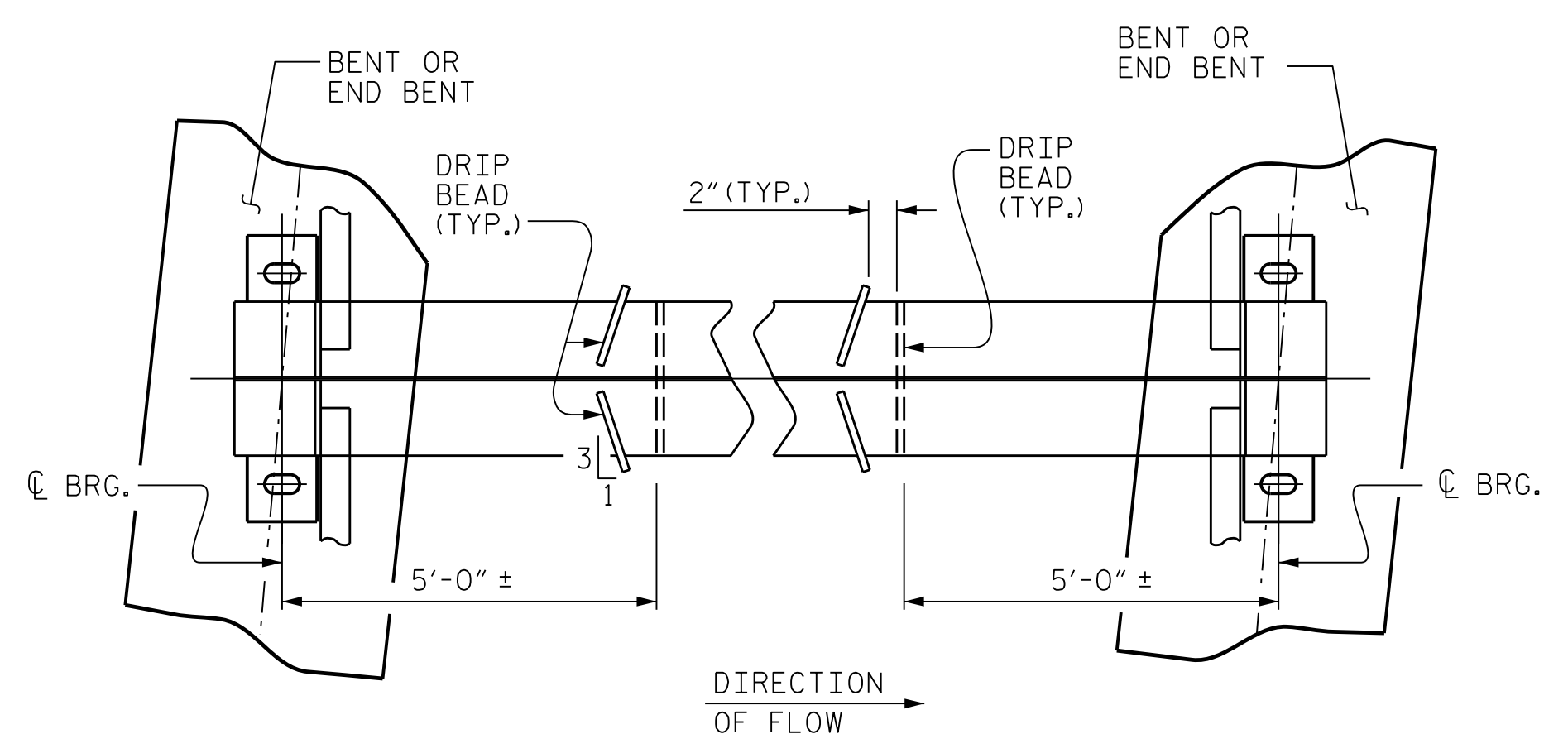
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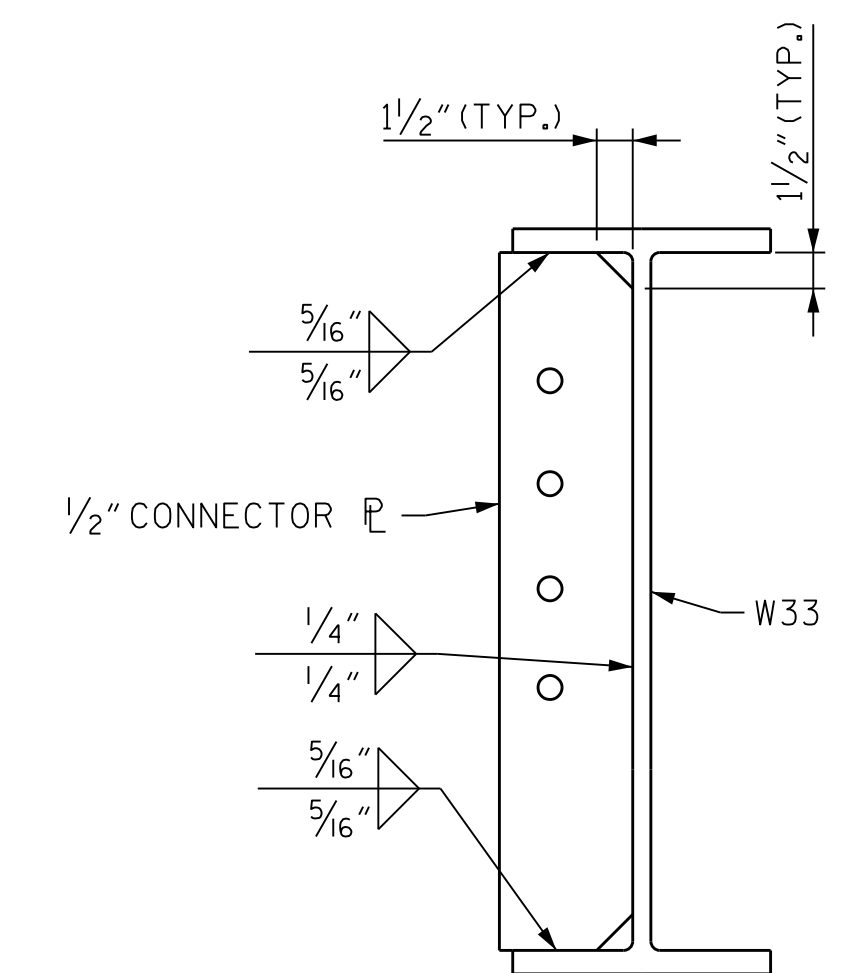
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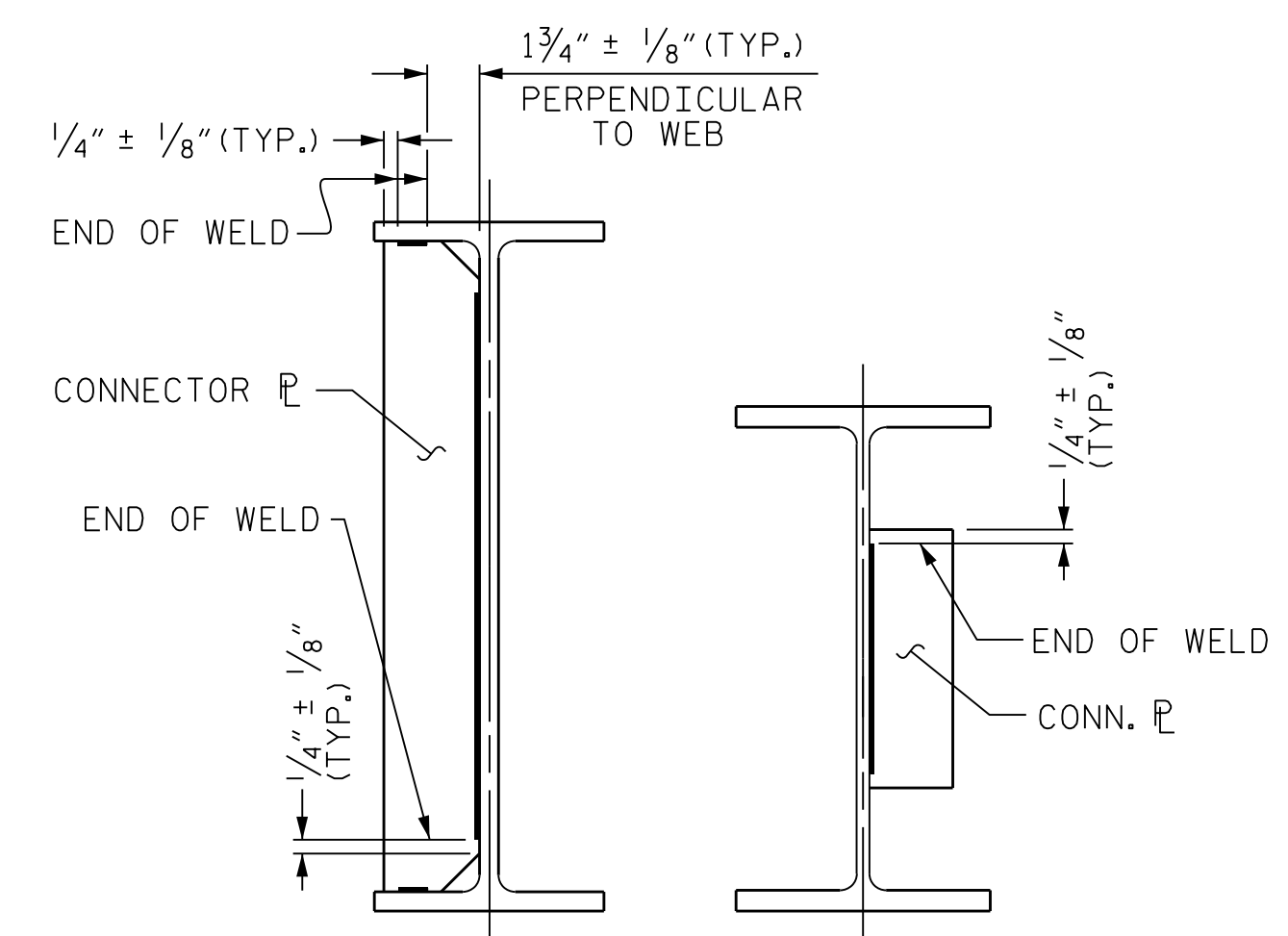
SHEAR STUD DETAILS



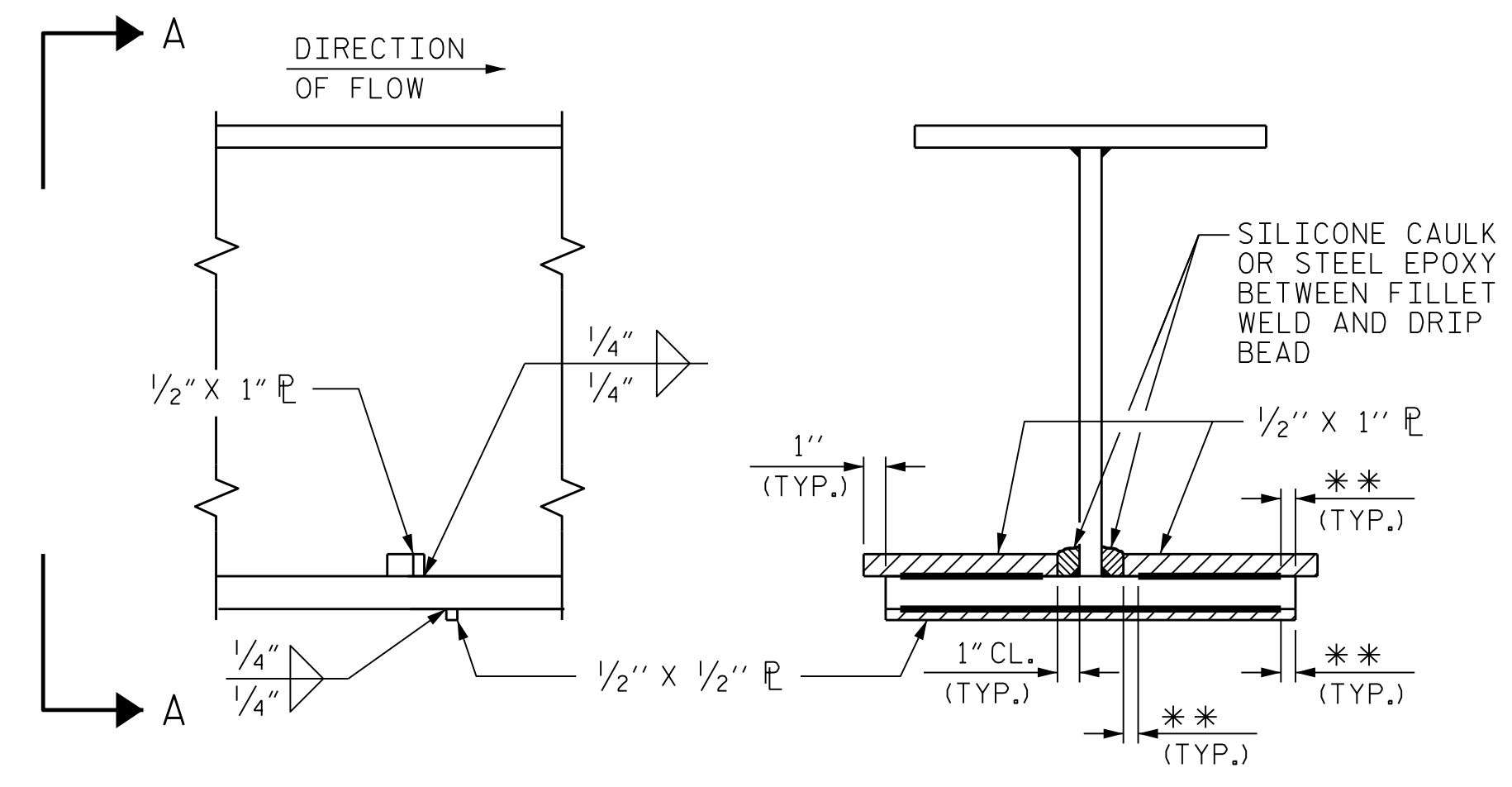
PART PLAN - BOTTOM FLANGE



END DIAPHRAGM CONNECTOR PLATE

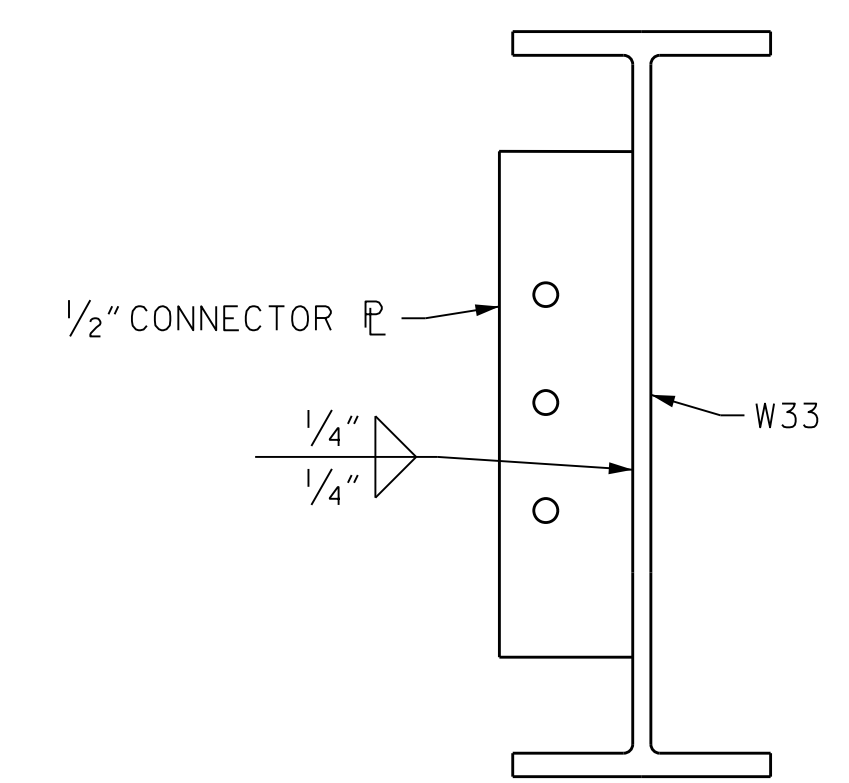


CONNECTOR PLATE CONNECTIONS
WELD TERMINATION DETAILS



SECTION
VIEW A-A
** SEE "WELD TERMINATION DETAILS"

DRIP BEAD DETAILS



INTERMEDIATE DIAPHRAGM CONNECTOR PLATE

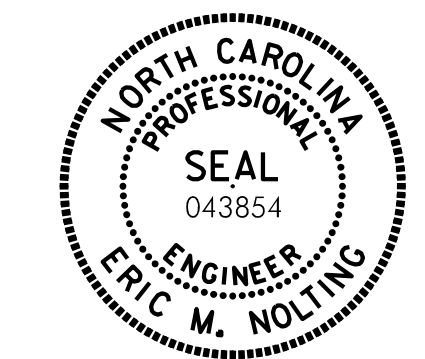
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PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30 ± -L-LT-

SHEET 4 OF 5

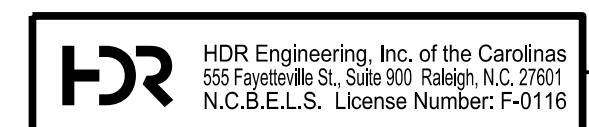
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS**



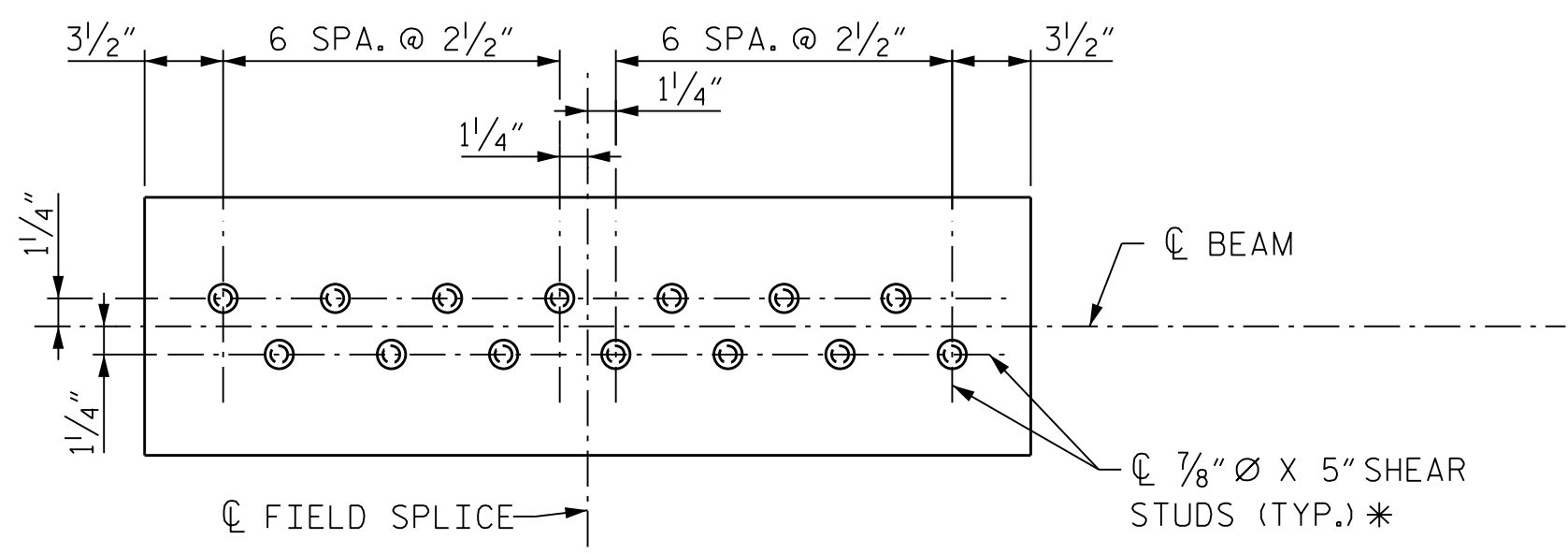
Eric Nolting 1/24/2022

DES BY: E. NOLTING	DATE: 04/21	DWG BY: B. PETERSON	DATE: 05/21
DES CHK: B. ROGERS	DATE: 05/21	CHK BY: B. ROGERS	DATE: 06/21

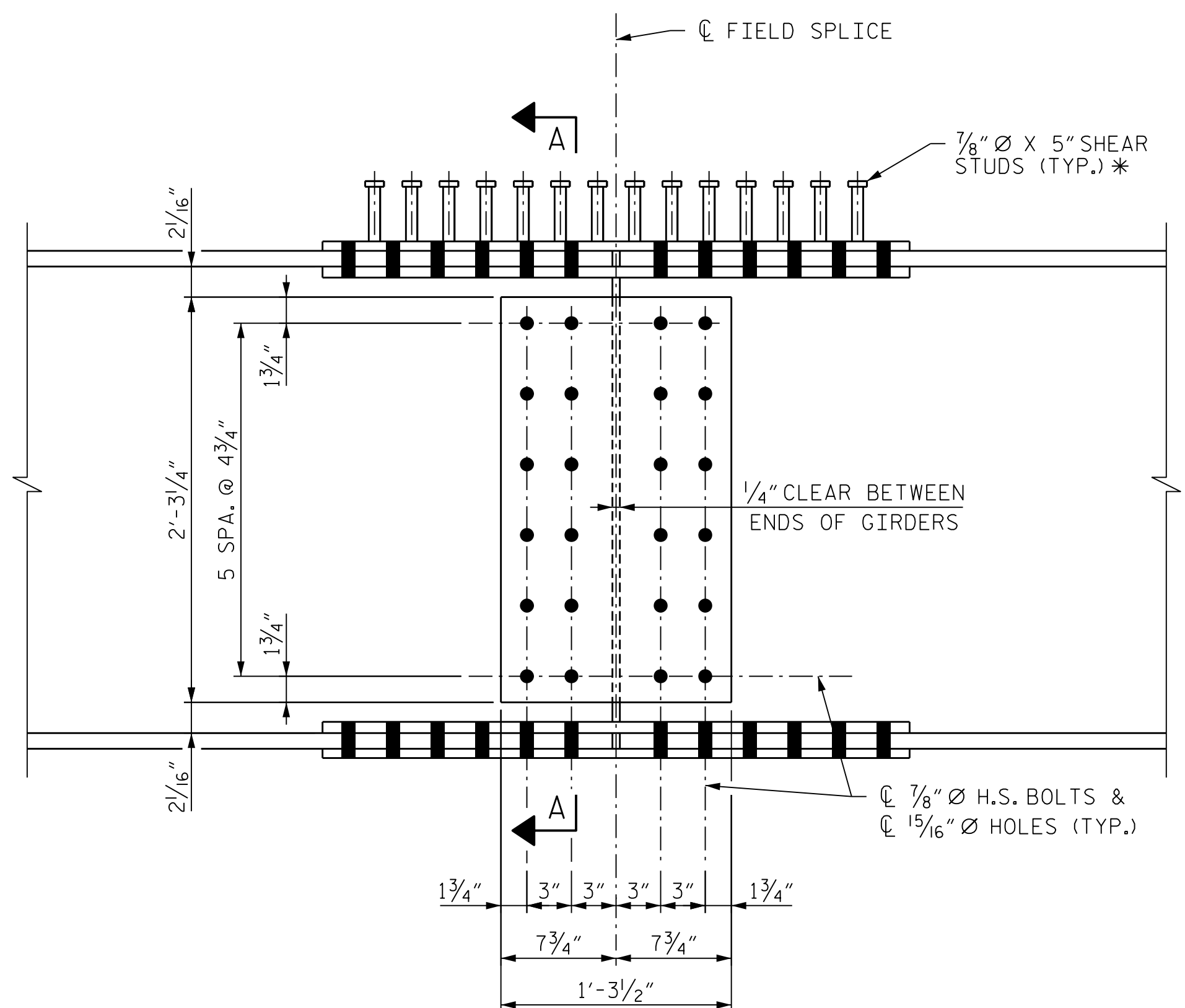


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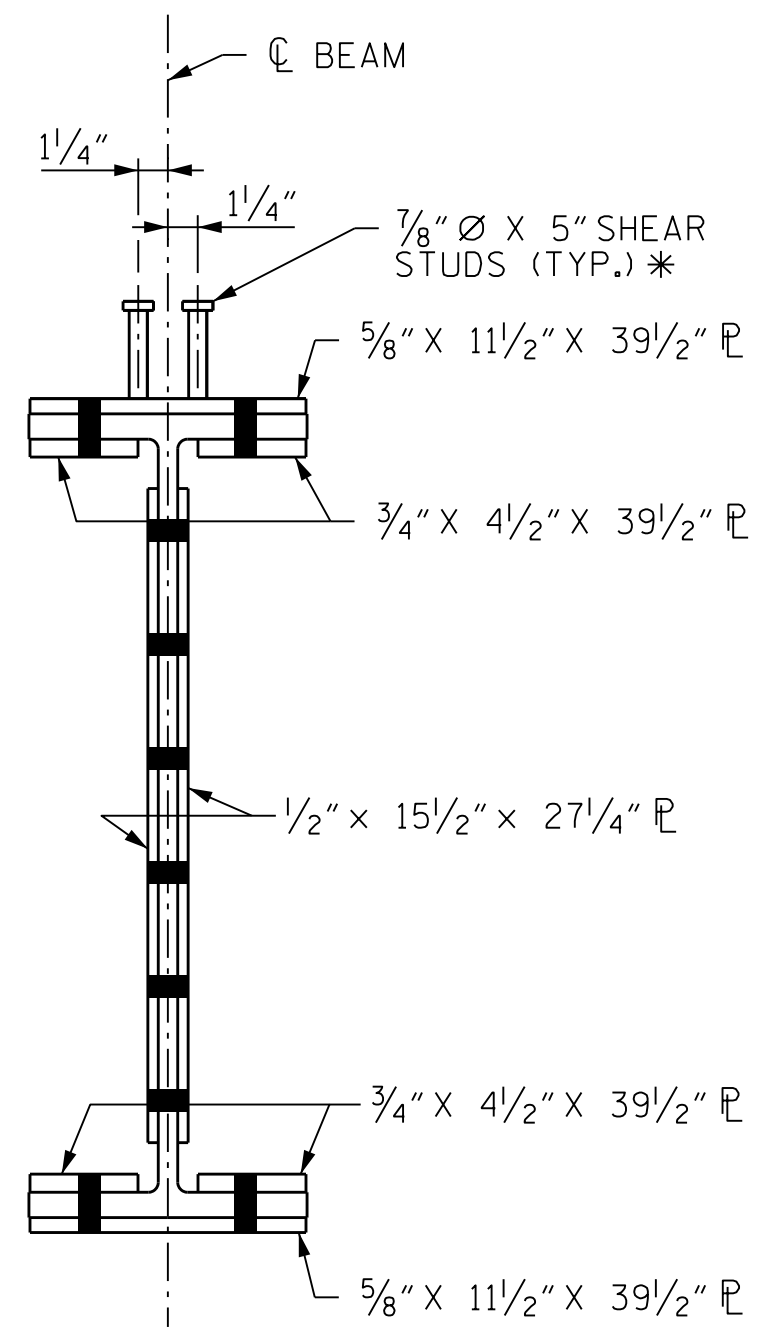


SHEAR STUD PLAN

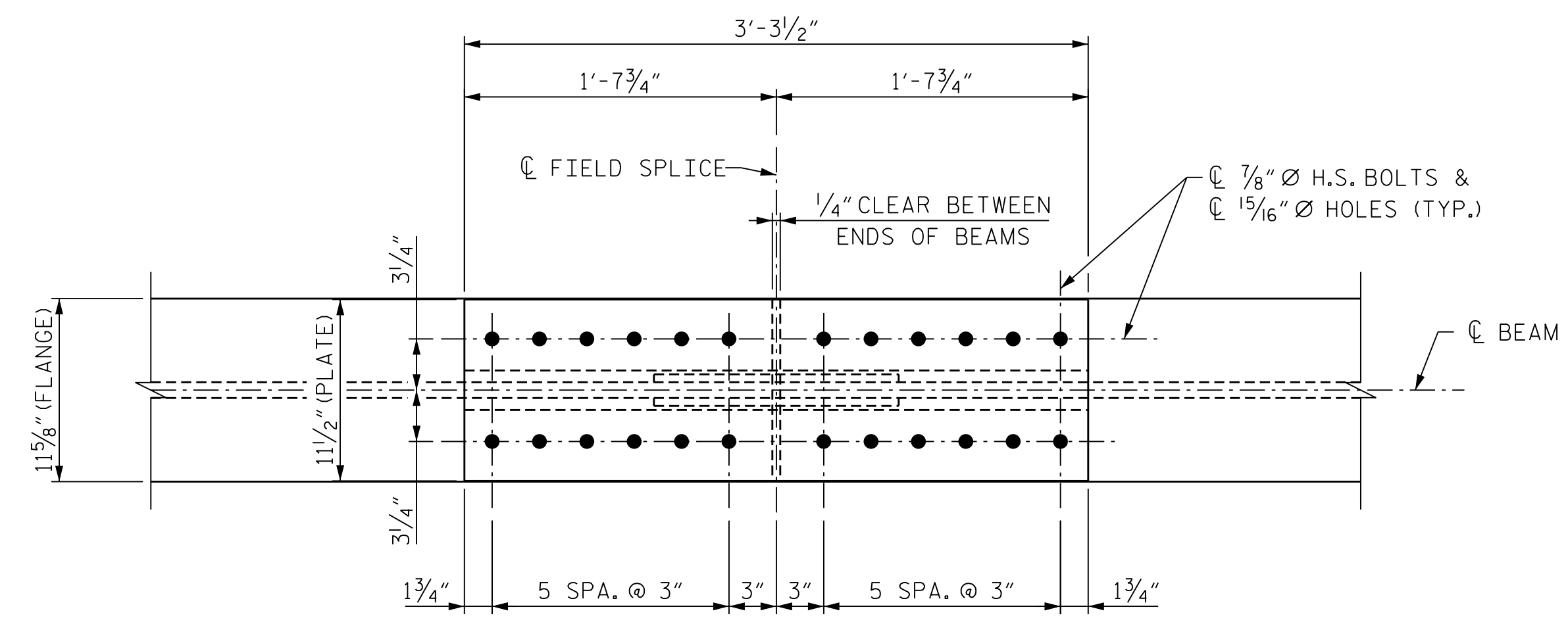


ELEVATION

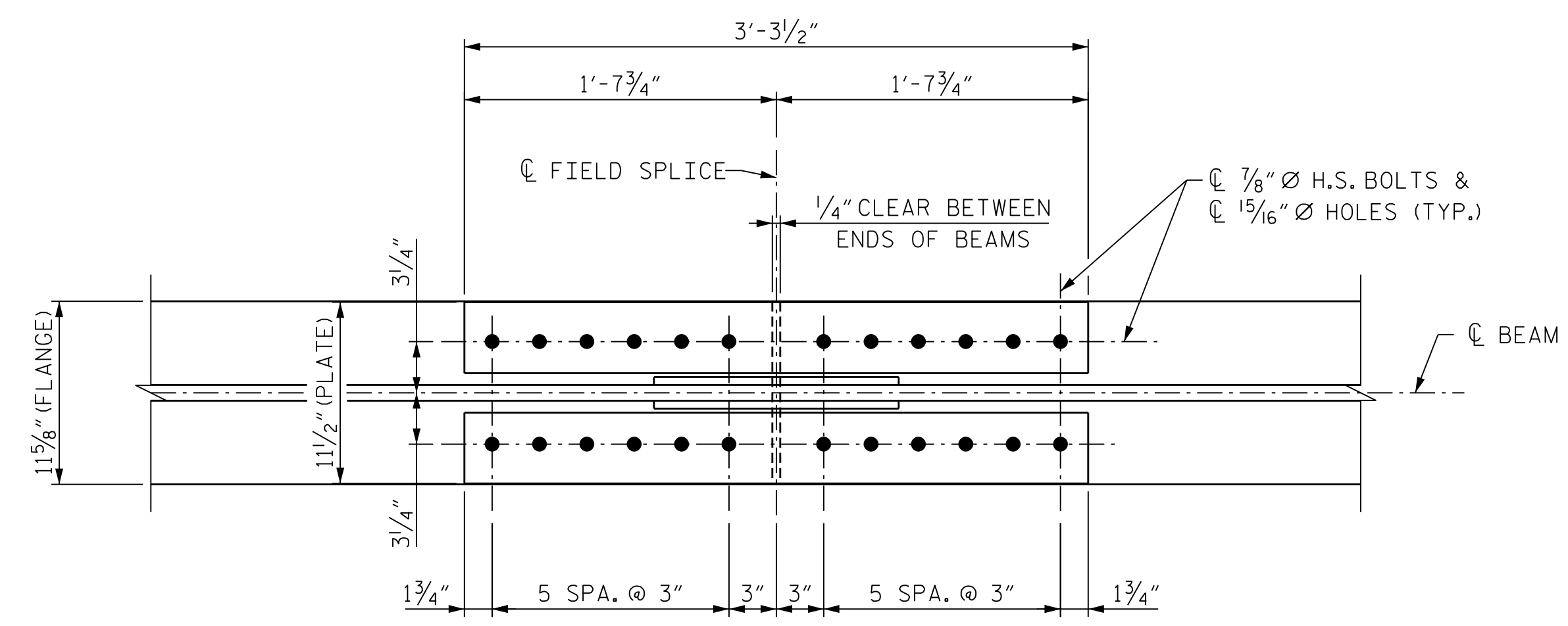
* SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY



SECTION A-A



PLAN (TOP OF TOP FLANGE)
(STUDS NOT SHOWN FOR CLARITY)

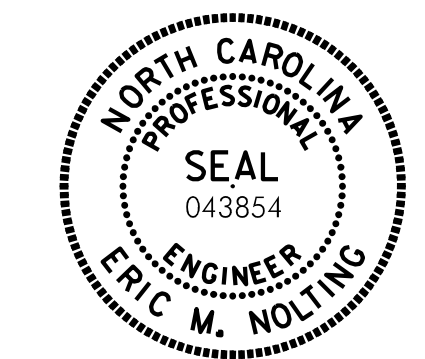


PLAN (TOP OF BOTTOM FLANGE)

BOLTED FIELD SPLICE DETAILS

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 5 OF 5



Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS**

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

SHEET NO. S03L-19
 TOTAL SHEETS 44

HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

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 UNLESS ALL SIGNATURES COMPLETED

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DES BY: <u>E. NOLTING</u>	DATE: <u>04/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>05/21</u>
DES CHK: <u>B. ROGERS</u>	DATE: <u>05/21</u>	CHK BY: <u>B. ROGERS</u>	DATE: <u>06/21</u>

Table with 22 columns (20th points to 2.00) and 6 rows (Deflection due to weight of girder, slab, barrier rail, total dead load deflection, vertical curve ordinate).

Table with 22 columns (20th points to 2.00) and 6 rows (Deflection due to weight of girder, slab, barrier rail, total dead load deflection, vertical curve ordinate).

Table with 22 columns (20th points to 2.00) and 6 rows (Deflection due to weight of girder, slab, barrier rail, total dead load deflection, vertical curve ordinate).

Table with 22 columns (20th points to 3.00) and 6 rows (Deflection due to weight of girder, slab, barrier rail, total dead load deflection, vertical curve ordinate).

Table with 22 columns (20th points to 3.00) and 6 rows (Deflection due to weight of girder, slab, barrier rail, total dead load deflection, vertical curve ordinate).

Table with 22 columns (20th points to 3.00) and 6 rows (Deflection due to weight of girder, slab, barrier rail, total dead load deflection, vertical curve ordinate).

* = INCLUDES SLAB, BUILDUPS, AND STAY-IN-PLACE FORMS.

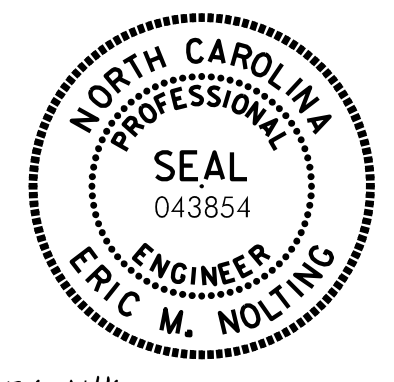
NOTES
VALUES GIVEN ARE AT TWENTIETH POINTS BETWEEN CENTERLINE OF BEARINGS.
DEFLECTIONS AND ORDINATES ARE IN FEET (DECIMAL FORM).
NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.
VERTICAL CURVE ORDINATES WERE DETERMINED USING THE BEST INFORMATION AVAILABLE AND ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL SURVEY THE EXISTING STRUCTURE AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.
DOWNWARD DEFLECTION IS INDICATED WITH A "-" SIGN.

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PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30 ± -L-LL-

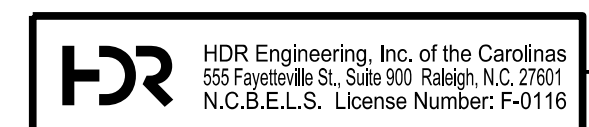
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE DEAD LOAD DEFLECTION SPANS A AND B



Eric Nolting 1/24/2022

DES BY: E. NOLTING DATE: 05/21
DES CHK: B. ROGERS DATE: 06/21
DWG BY: B. PETERSON DATE: 06/21
CHK BY: B. ROGERS DATE: 06/21



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Table with 6 columns: NO., BY, DATE, NO., BY, DATE. Includes revision history and sheet count.

SPAN C																					
BEAM 1																					
20TH POINTS	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.55	3.60	3.65	3.70	3.75	3.80	3.85	3.90	3.95	4.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.001	0.001	0.001	0.001	0.000	-0.001	-0.002	-0.003	-0.004	-0.005	-0.005	-0.006	-0.006	-0.005	-0.005	-0.004	-0.003	-0.002	-0.001	0.000
DEFLECTION DUE TO WT. OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.001	0.002	0.002	0.001	0.000	-0.001	-0.003	-0.004	-0.005	-0.006	-0.007	-0.008	-0.008	-0.007	-0.007	-0.006	-0.005	-0.003	-0.002	0.000
VERTICAL CURVE ORDINATE	0.000	0.004	0.008	0.010	0.010	0.010	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.008	0.007	0.006	0.005	0.003	0.002	0.000

SPAN C																					
BEAMS 2 AND 3																					
20TH POINTS	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.55	3.60	3.65	3.70	3.75	3.80	3.85	3.90	3.95	4.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.001	0.002	0.001	0.001	0.000	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.006	-0.006	-0.006	-0.006	-0.005	-0.004	-0.003	-0.001	0.000
DEFLECTION DUE TO WT. OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.001	0.002	0.002	0.001	0.000	-0.001	-0.003	-0.004	-0.006	-0.007	-0.007	-0.008	-0.008	-0.008	-0.007	-0.006	-0.005	-0.004	-0.002	0.000
VERTICAL CURVE ORDINATE	0.000	0.003	0.006	0.010	0.013	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.012	0.011	0.010	0.009	0.007	0.006	0.004	0.002	0.000

SPAN C																					
BEAM 4																					
20TH POINTS	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45	3.50	3.55	3.60	3.65	3.70	3.75	3.80	3.85	3.90	3.95	4.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.001	0.001	0.001	0.001	0.000	-0.001	-0.002	-0.002	-0.003	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.003	-0.003	-0.002	-0.001	0.000
DEFLECTION DUE TO WT. OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.001	0.001	0.001	0.001	0.000	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.006	-0.006	-0.006	-0.005	-0.005	-0.004	-0.003	-0.001	0.000
VERTICAL CURVE ORDINATE	0.000	0.003	0.005	0.007	0.009	0.012	0.013	0.015	0.017	0.019	0.021	0.019	0.017	0.015	0.014	0.012	0.010	0.007	0.005	0.003	0.000

* = INCLUDES SLAB, BUILDUPS, AND STAY-IN-PLACE FORMS.

NOTES

VALUES GIVEN ARE AT TWENTIETH POINTS BETWEEN CENTERLINE OF BEARINGS.

DEFLECTIONS AND ORDINATES ARE IN FEET (DECIMAL FORM).

NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.

VERTICAL CURVE ORDINATES WERE DETERMINED USING THE BEST INFORMATION AVAILABLE AND ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL SURVEY THE EXISTING STRUCTURE AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.

DOWNWARD DEFLECTION IS INDICATED WITH A "-" SIGN.

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PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

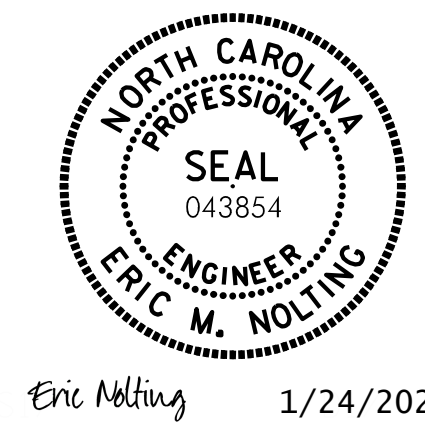
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 DEAD LOAD DEFLECTION
 SPAN C**

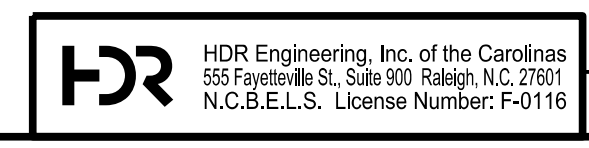
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SHEET NO. 5031-21
 TOTAL SHEETS 44

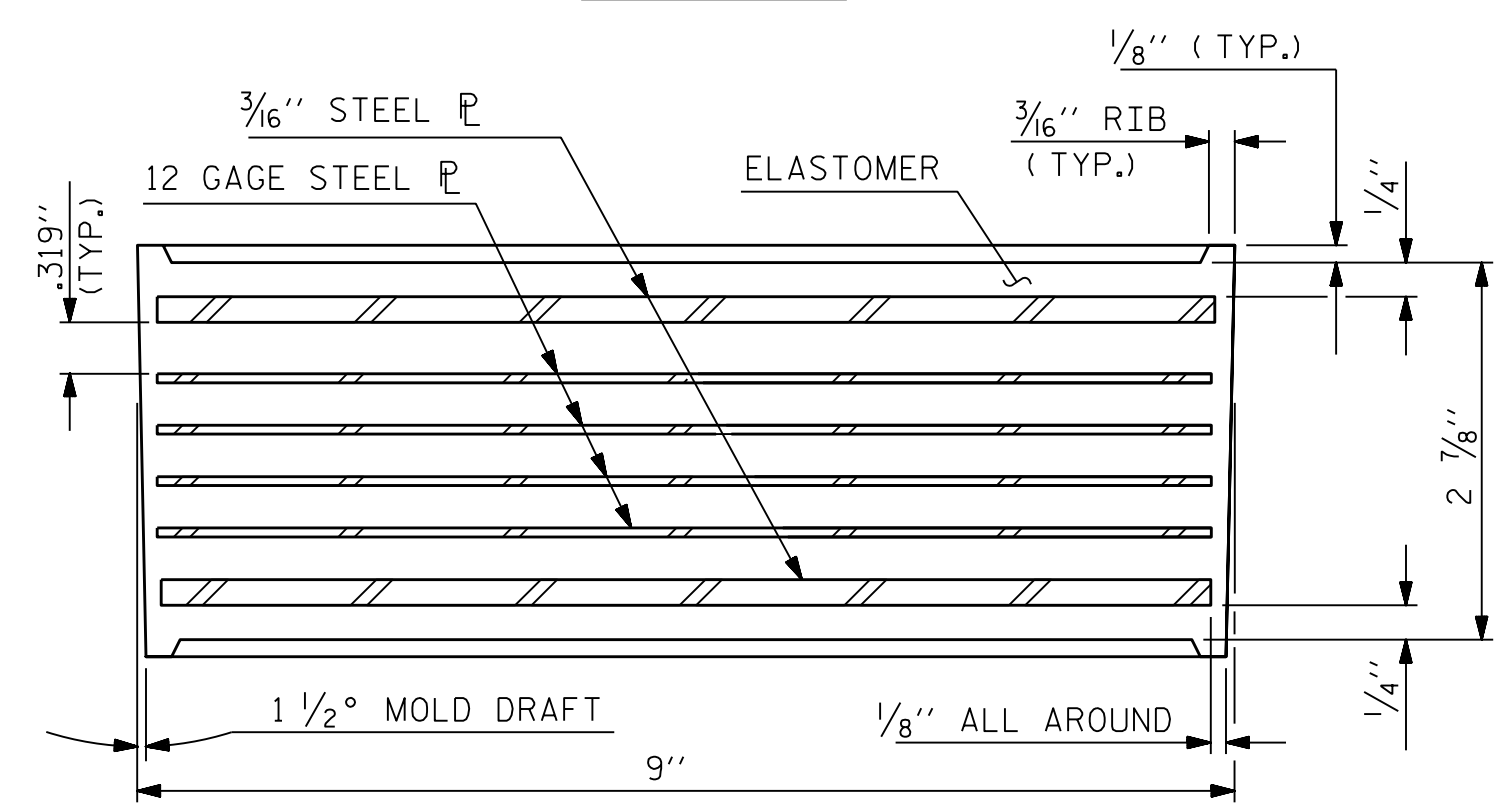
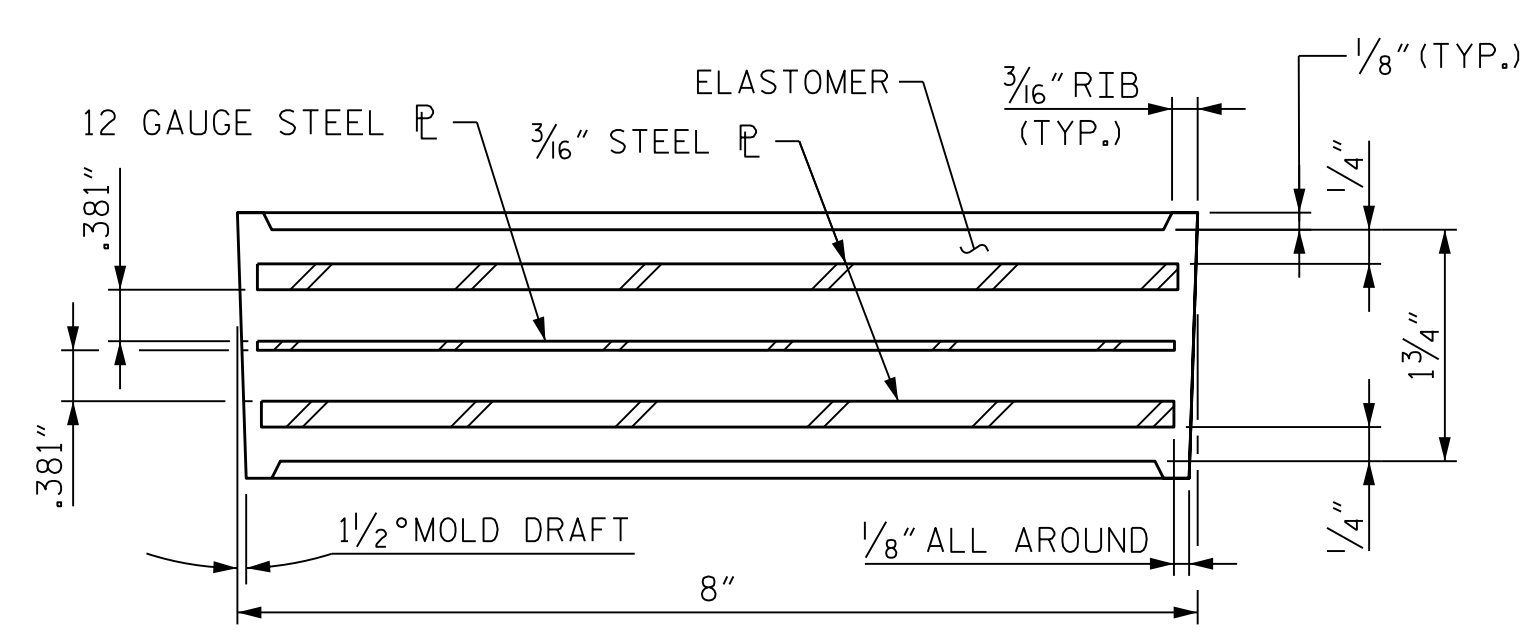
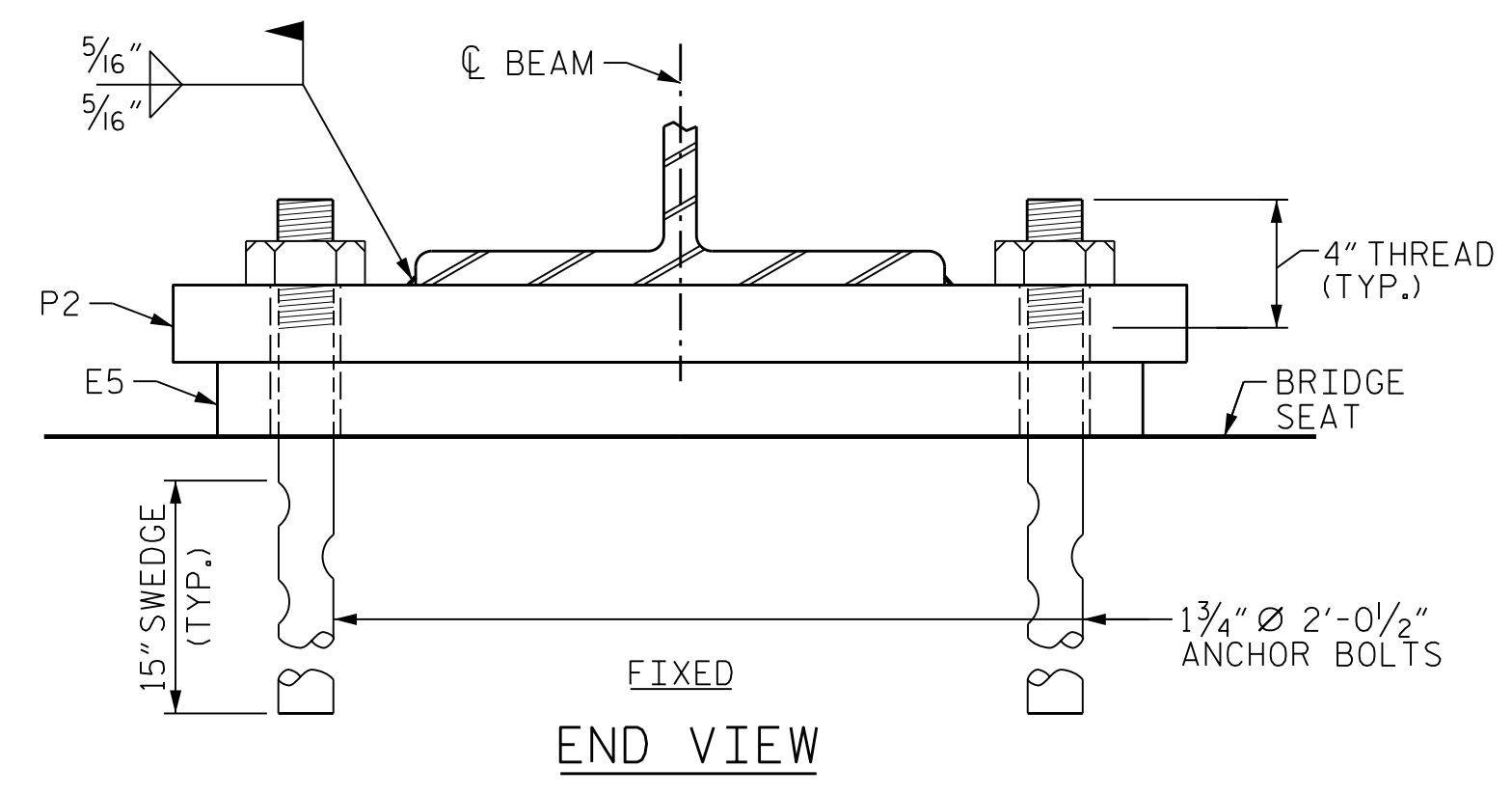
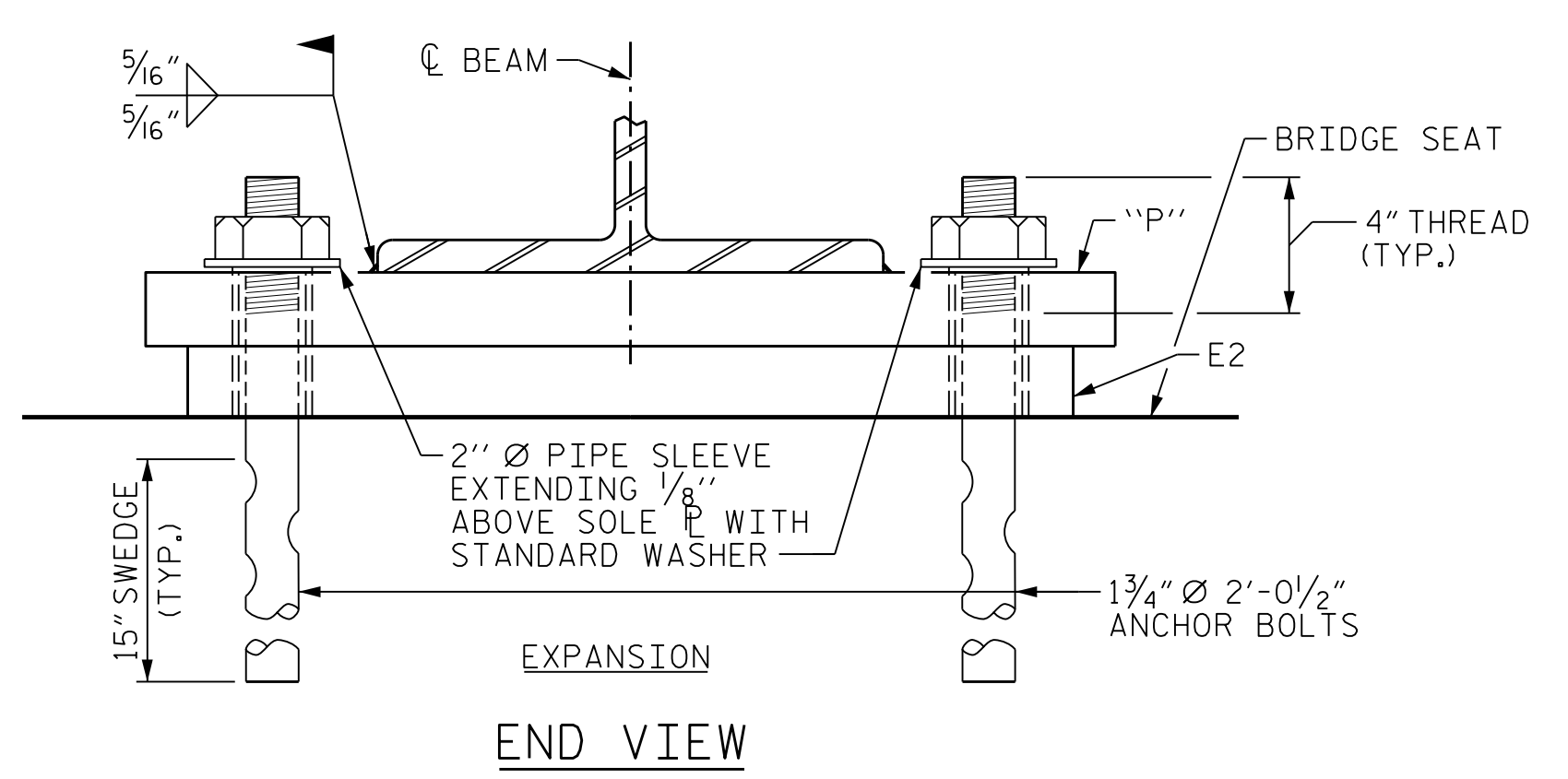


Eric Nolting 1/24/2022

DES BY: E. NOLTING DATE: 05/21 DWG BY: B. PETERSON DATE: 06/21
 DES CHK: B. ROGERS DATE: 06/21 CHK BY: B. ROGERS DATE: 06/21

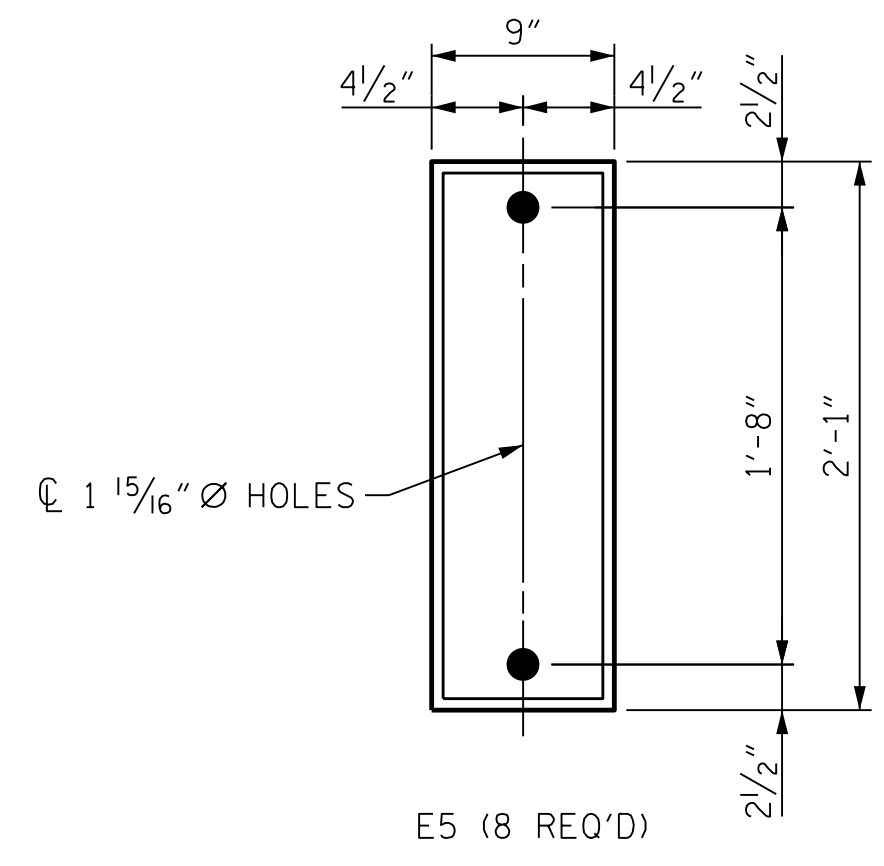
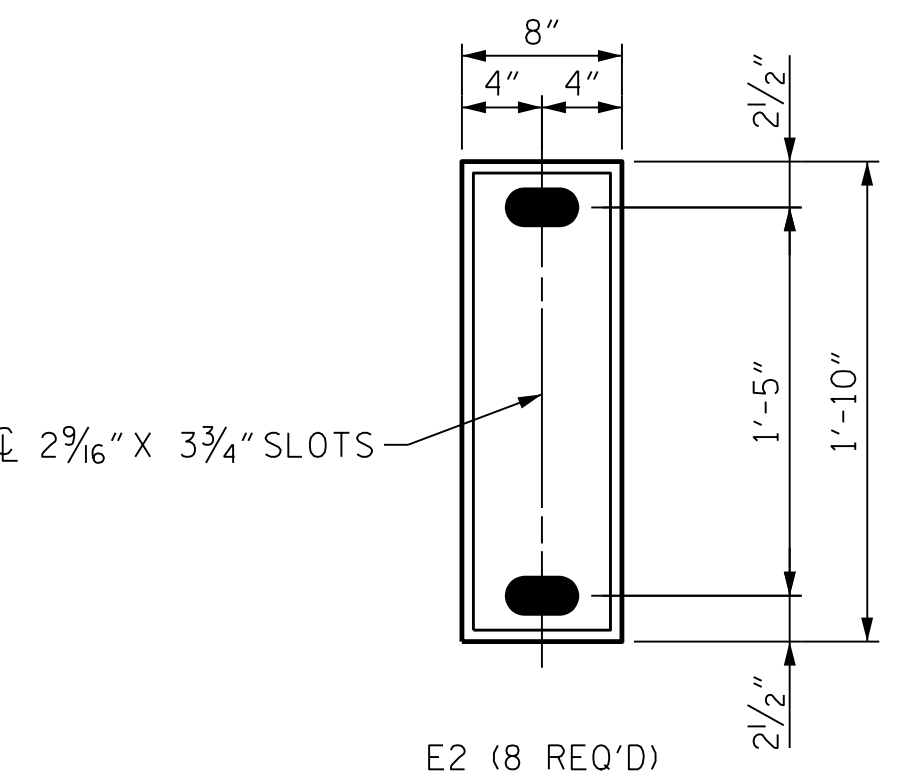


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 UNLESS ALL SIGNATURES COMPLETED**



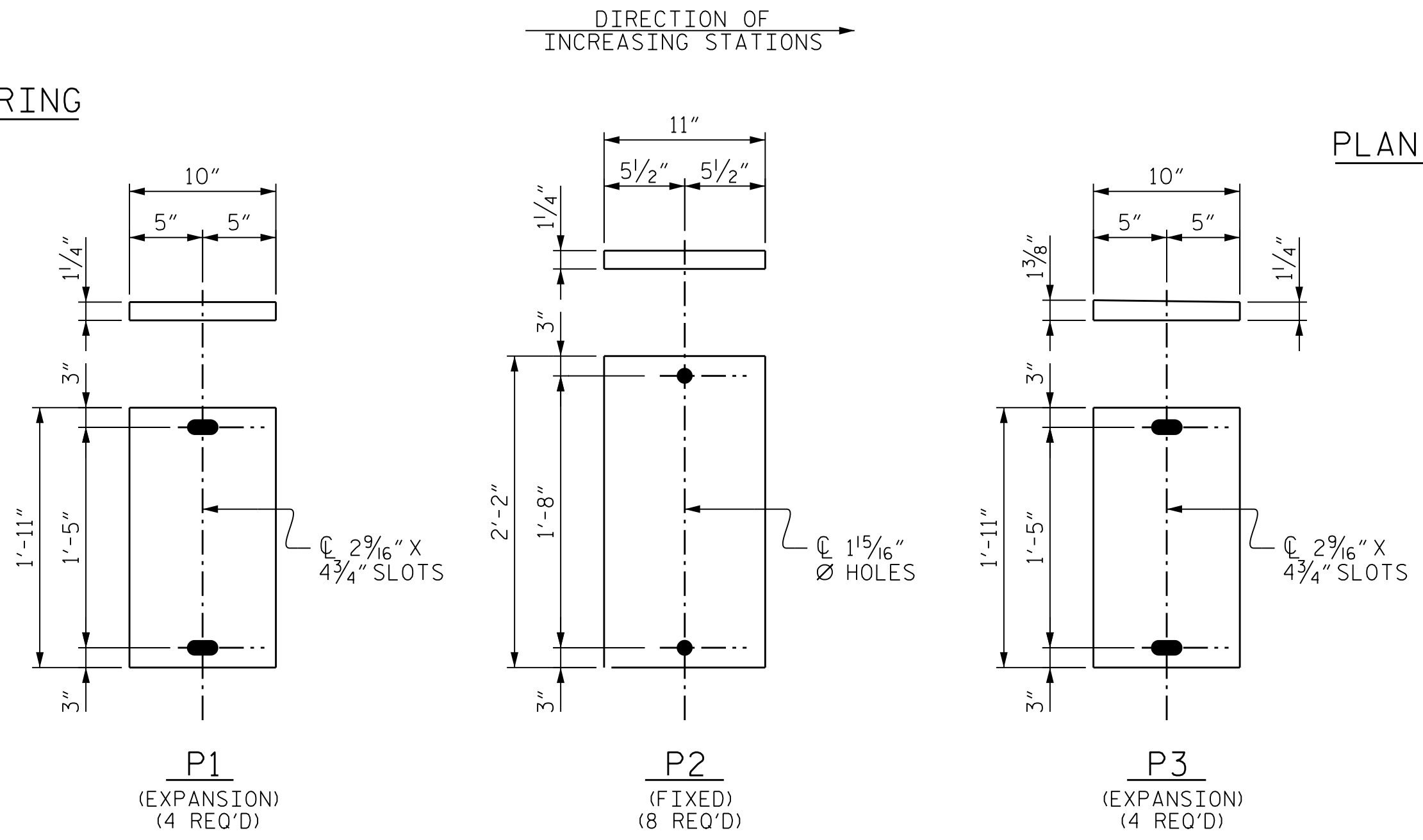
TYPICAL SECTION OF ELASTOMERIC BEARINGS

TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING
TYPE I

PLAN VIEW OF ELASTOMERIC BEARING
TYPE III



SOLE PLATE DETAILS ("P")

NOTES

- AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.
- THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.
- THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.
- FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- 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 BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.
- WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, 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.
- 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.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURE, WHICH MAY BE REQUIRED BY THE ENGINEER, TO RESET ELASTOMERIC BEARINGS DUE TO GIRDER TRANSLATION AND END ROTATION:
 - ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ELASTOMERIC BEARING SLOTS CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.
- THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

MAXIMUM ALLOWABLE SERVICE LOADS	
TYPE I	140 k
TYPE III	255 k

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 ELASTOMERIC BEARING
 DETAILS**

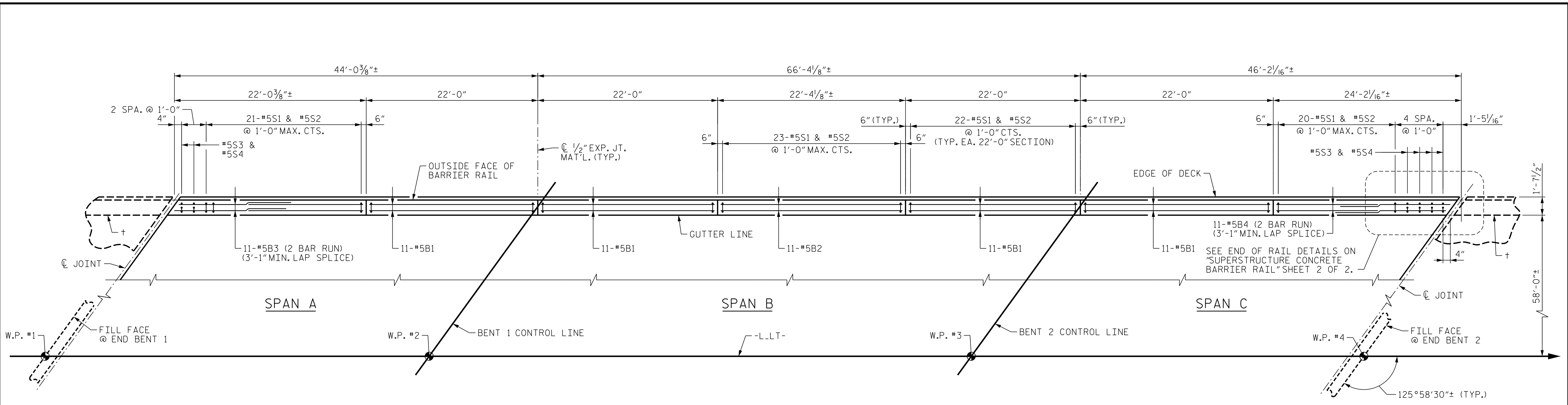
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DES BY: B. ROGERS	DATE: 03/21	DWG BY: M. SELLS	DATE: 03/21
DES CHK: E. NOLTING	DATE: 04/21	CHK BY: E. NOLTING	DATE: 06/21

HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

Eric Nolting 1/24/2022
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PLAN OF BARRIER RAIL

(ALL DIMENSIONS MEASURED ALONG BACK FACE OF BARRIER RAIL)

† SEE "BRIDGE APPROACH SLAB DETAILS" SHEET FOR DETAILS OF BARRIER RAIL TO BE BUILT ON APPROACH SLAB AT END BENTS 1 AND 2.

NOTES

SEE "SUPERSTRUCTURE CONCRETE BARRIER RAIL" SHEET 2 OF 2 FOR NOTES.

PROJECT NO. B-3186/B-5898

HAYWOOD COUNTY

STATION: 68+82.30 ± -L-LT-

SHEET 1 OF 2



Eric Nolting 1/24/2022

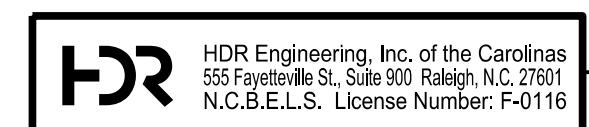
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 CONCRETE BARRIER
 RAIL**

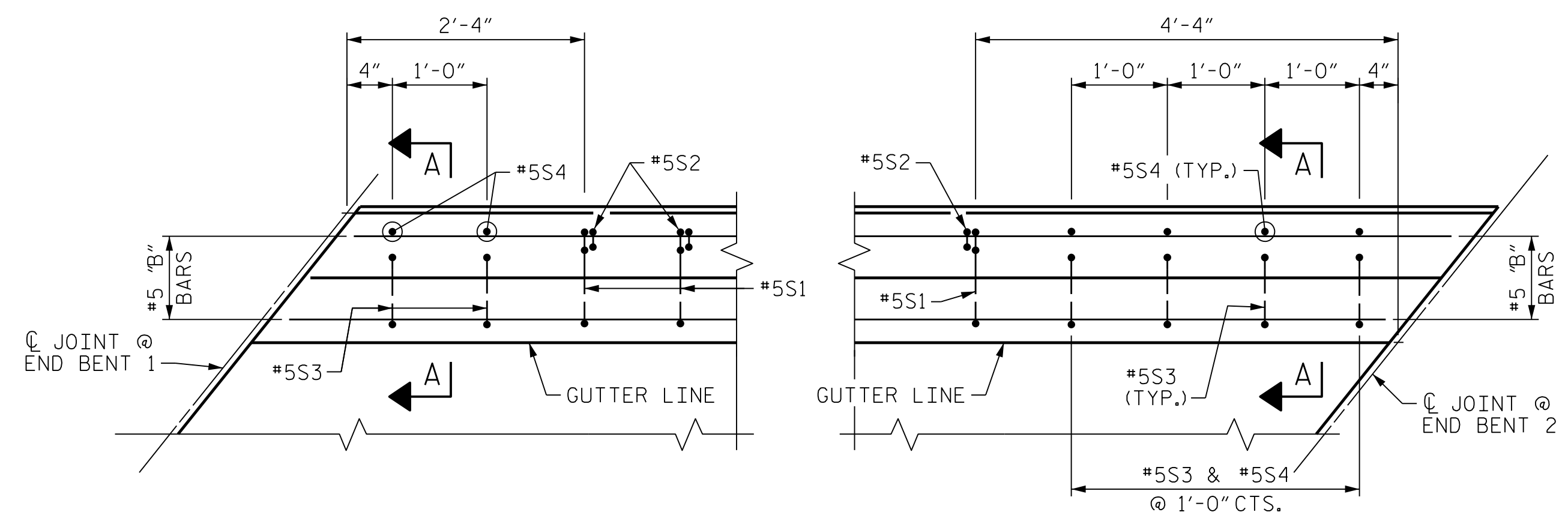
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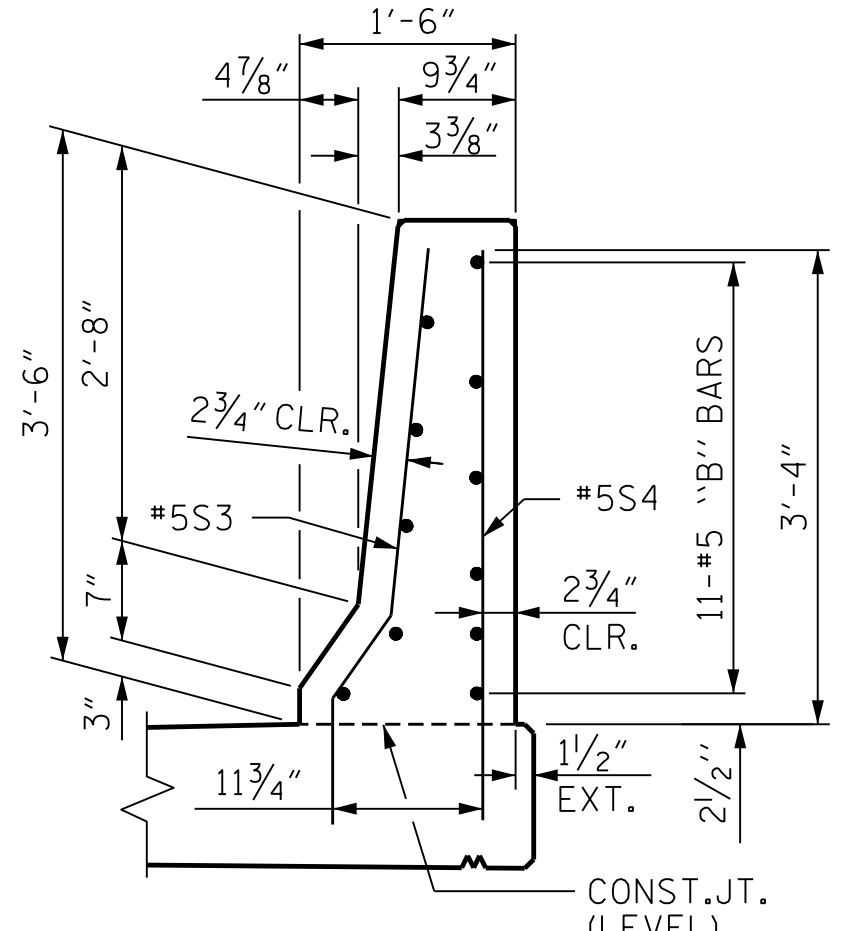
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DES CHK: <u>G. MYERS</u>	DATE: <u>06/21</u>	CHK BY: <u>G. MYERS</u>	DATE: <u>07/21</u>



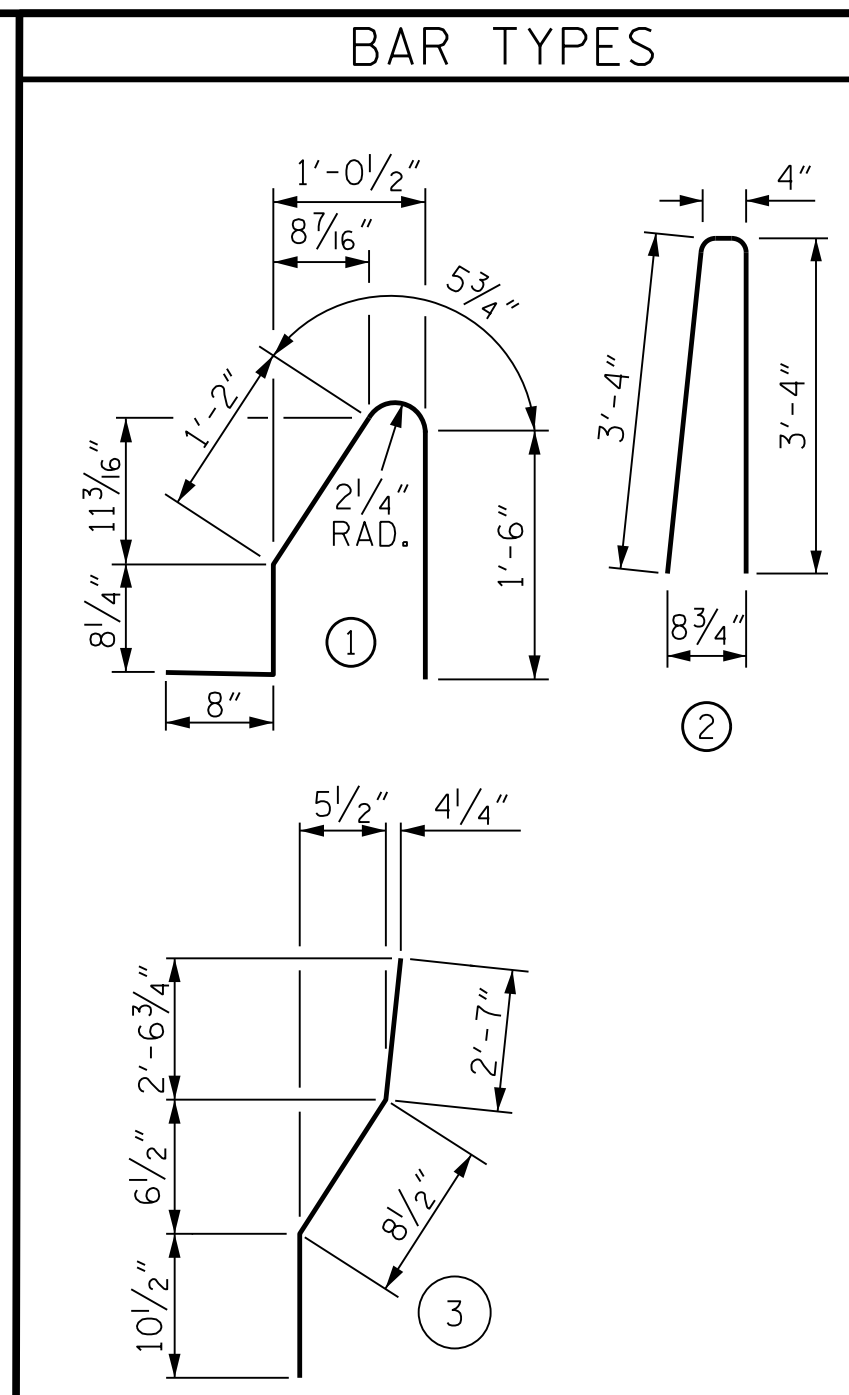
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 UNLESS ALL SIGNATURES COMPLETED**



PLAN AT END BENT 1
 PLAN AT END BENT 2
END OF RAIL DETAILS

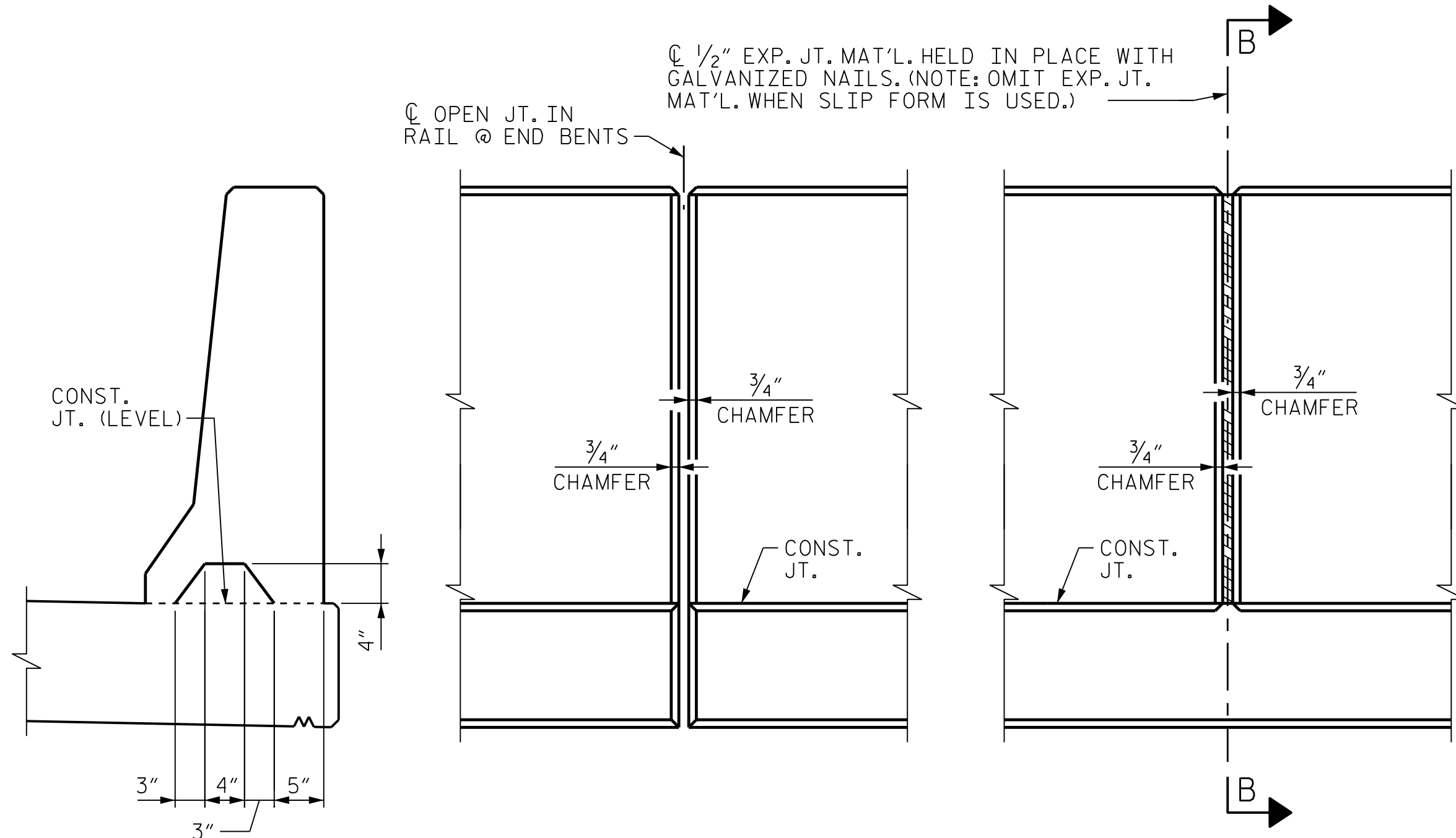


SECTION A-A



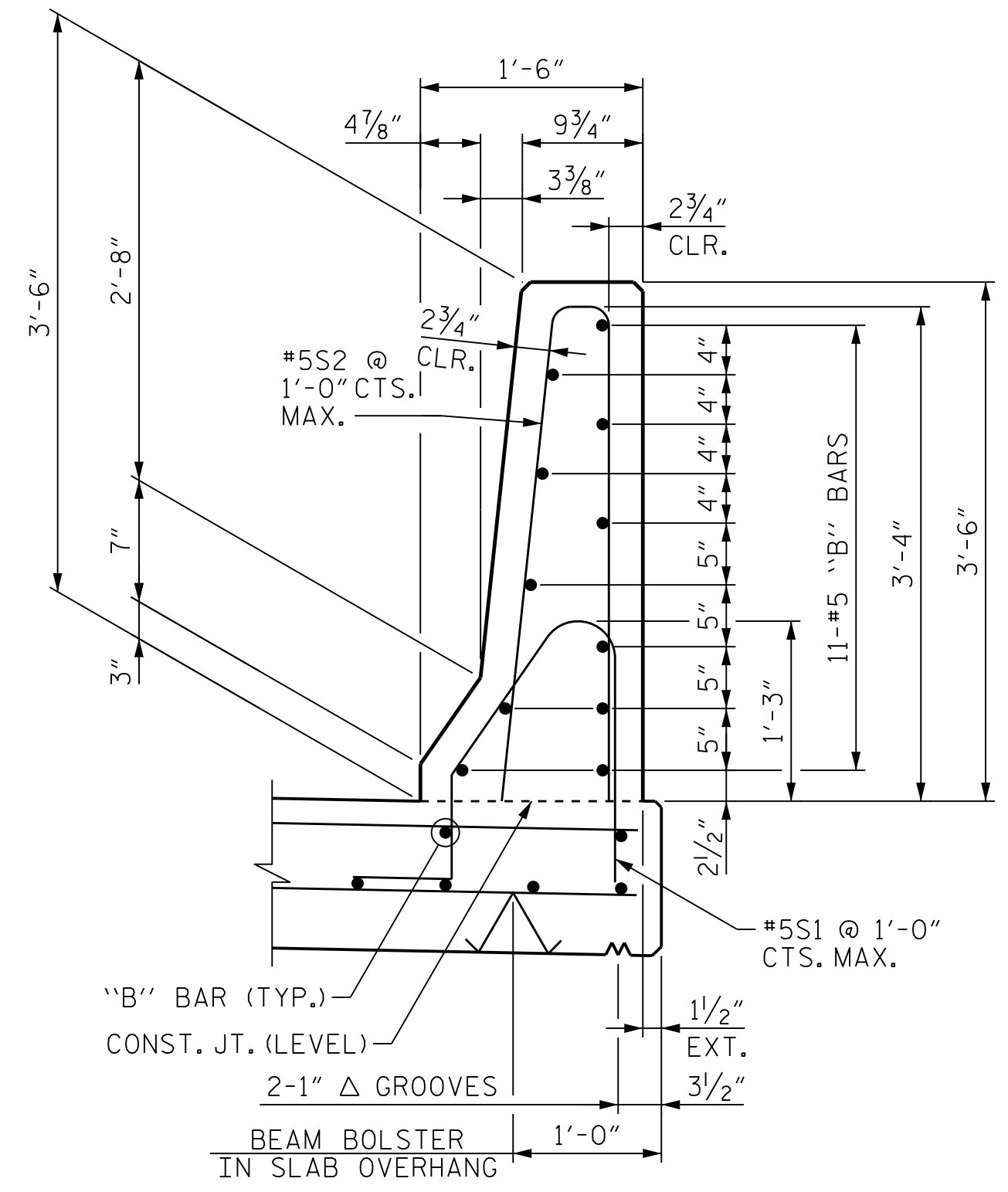
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	44	#5	STR	21'-7"	991
* B2	11	#5	STR	21'-11"	252
* B3	22	#5	STR	12'-11"	297
* B4	22	#5	STR	13'-6"	310
* S1	152	#5	1	4'-6"	714
* S2	152	#5	2	7'-0"	1110
* S3	6	#5	3	4'-2"	27
* S4	6	#5	STR	4'-0"	26
* EPOXY COATED REINFORCING STEEL					3,727 LBS.
CLASS AA CONCRETE					21.3 CU. YDS.
CONCRETE BARRIER RAIL					156.5 LIN. FT.



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

ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS



SECTION THRU RAIL

NOTES

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

WHEN FOAM JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

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.

THE #5S3 AND #5S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. YIELD LOAD FOR THE #5S3 AND #5S4 BARS IS 18.6 KIIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

THE #5 "S" BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN THE BARRIER RAIL.

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 2 OF 2



Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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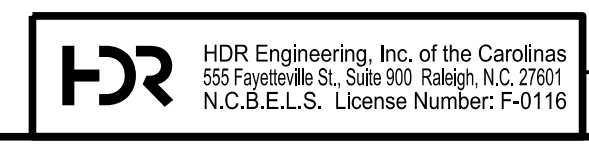
**SUPERSTRUCTURE
 CONCRETE BARRIER
 RAIL DETAILS**

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SHEET NO. SO3L-24
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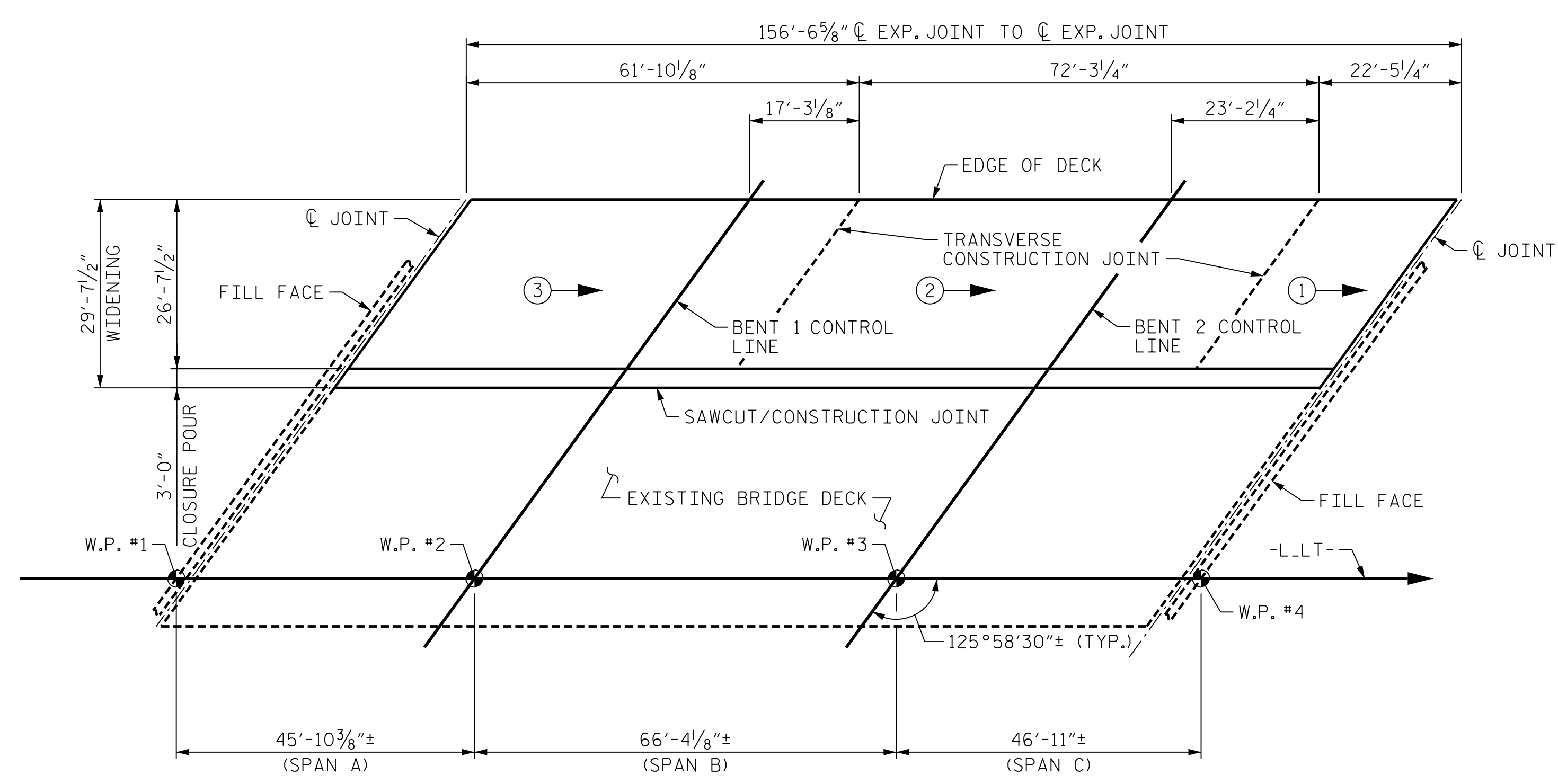
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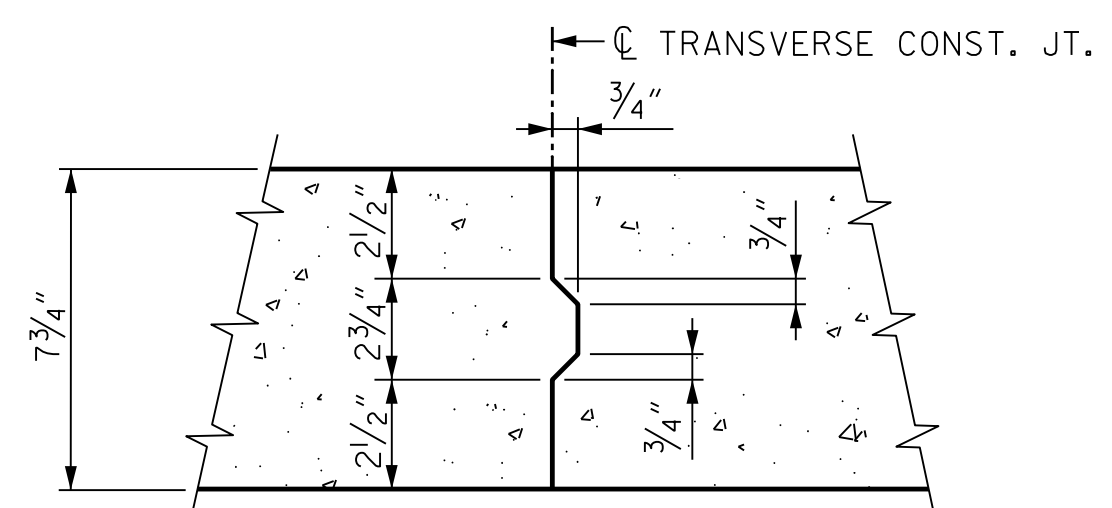


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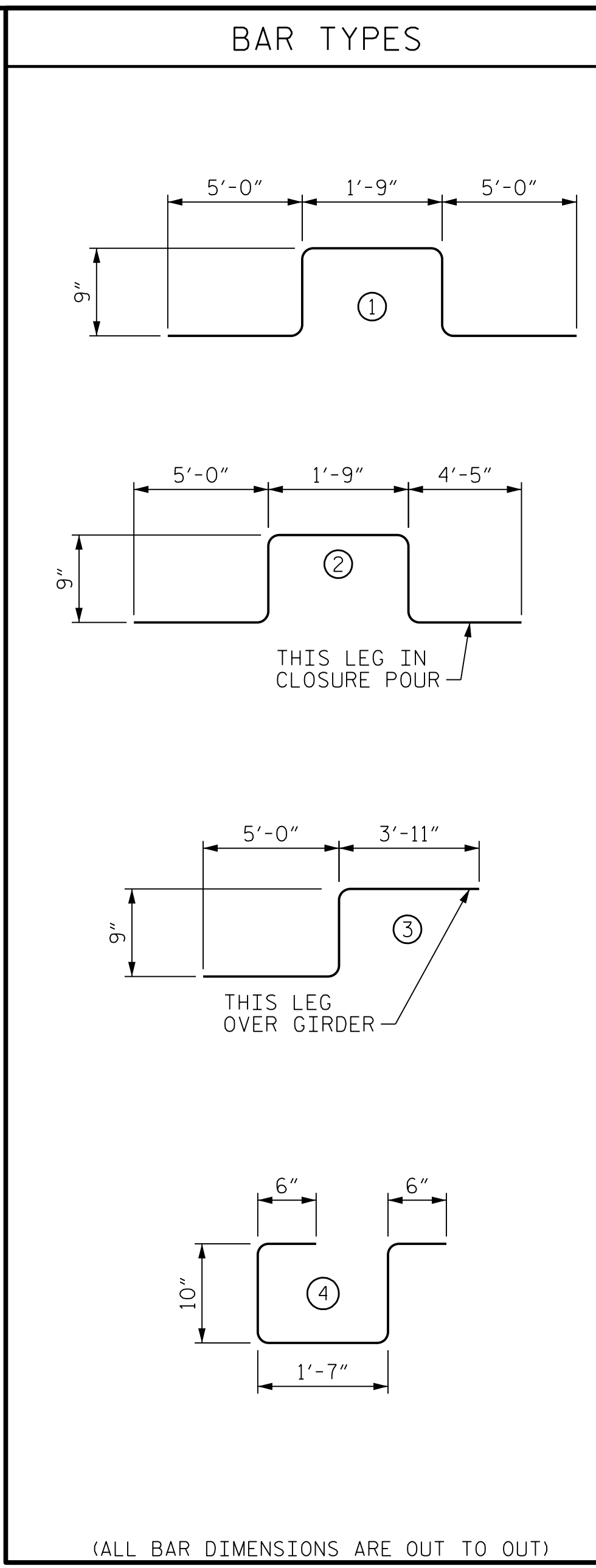
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**CONCRETE POURING SEQUENCE AND LAYOUT FOR
 COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB**
 (SQ. FT. = 4,638)



TRANSVERSE CONSTRUCTION JOINT
 (REINFORCING STEEL IN SLAB NOT SHOWN)
 (LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT)



(ALL BAR DIMENSIONS ARE OUT TO OUT)

BAR TYPES						BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	274	#5	STR	26'-3"	7502	A111	2	#5	STR	19'-8"	42
* A2	2	#5	STR	25'-10"	54	A112	2	#5	STR	19'-0"	40
* A3	2	#5	STR	25'-2"	53	A113	2	#5	STR	18'-4"	39
* A4	2	#5	STR	24'-6"	52	A114	2	#5	STR	17'-7"	37
* A5	2	#5	STR	23'-10"	50	A115	2	#5	STR	16'-11"	36
* A6	2	#5	STR	23'-1"	49	A116	2	#5	STR	16'-3"	34
* A7	2	#5	STR	22'-5"	47	A117	2	#5	STR	15'-6"	33
* A8	2	#5	STR	21'-9"	46	A118	2	#5	STR	14'-10"	31
* A9	2	#5	STR	21'-1"	44	A119	2	#5	STR	14'-2"	30
* A10	2	#5	STR	20'-4"	43	A120	2	#5	STR	13'-6"	29
* A11	2	#5	STR	19'-8"	42	A121	2	#5	STR	12'-9"	27
* A12	2	#5	STR	19'-0"	40	A122	2	#5	STR	12'-1"	26
* A13	2	#5	STR	18'-4"	39	A123	2	#5	STR	11'-5"	24
* A14	2	#5	STR	17'-7"	37	A124	2	#5	STR	10'-9"	23
* A15	2	#5	STR	16'-11"	36	A125	2	#5	STR	10'-0"	21
* A16	2	#5	STR	16'-3"	34	A126	2	#5	STR	9'-4"	20
* A17	2	#5	STR	15'-6"	33	A127	2	#5	STR	8'-8"	19
* A18	2	#5	STR	14'-10"	31	A128	2	#5	STR	8'-0"	17
* A19	2	#5	STR	14'-2"	30	A129	2	#5	STR	7'-3"	16
* A20	2	#5	STR	13'-6"	29	A130	2	#5	STR	6'-7"	14
* A21	2	#5	STR	12'-9"	27	A131	2	#5	STR	5'-11"	13
* A22	2	#5	STR	12'-1"	26	A132	2	#5	STR	5'-2"	11
* A23	2	#5	STR	11'-5"	24	A133	2	#5	STR	4'-6"	10
* A24	2	#5	STR	10'-9"	23	A134	2	#5	STR	3'-10"	8
* A25	2	#5	STR	10'-0"	21	A135	2	#5	STR	3'-2"	7
* A26	2	#5	STR	9'-4"	20	A136	2	#5	STR	2'-5"	6
* A27	2	#5	STR	8'-8"	19	A137	2	#5	STR	1'-9"	4
* A28	2	#5	STR	8'-0"	17						
* A29	2	#5	STR	7'-3"	16	* B1	28	#4	STR	37'-3"	697
* A30	2	#5	STR	6'-7"	14	* B2	108	#6	STR	21'-5"	3475
* A31	2	#5	STR	5'-11"	13	* B3	56	#4	STR	24'-2"	905
* A32	2	#5	STR	5'-2"	11	* B4	28	#4	STR	38'-4"	717
* A33	2	#5	STR	4'-6"	10	B101	123	#5	STR	53'-5"	6853
* A34	2	#5	STR	3'-10"	8						
* A35	2	#5	STR	3'-2"	7	* D1	312	#5	STR	5'-5"	1763
* A36	2	#5	STR	2'-5"	6	D101	312	#5	STR	4'-7"	1492
* A37	2	#5	STR	1'-9"	4						
* A38	3	#6	STR	13'-0"	59	* G1	2	#5	STR	32'-5"	68
						* G2	2	#5	STR	6'-2"	13
A101	274	#5	STR	26'-3"	7502						
A102	2	#5	STR	25'-10"	54	* K1	8	#5	1	13'-3"	111
A103	2	#5	STR	25'-2"	53	* K2	4	#5	2	12'-8"	53
A104	2	#5	STR	24'-6"	52	* K3	4	#5	3	9'-8"	41
A105	2	#5	STR	23'-10"	50						
A106	2	#5	STR	23'-1"	49	* S1	52	#4	4	4'-3"	148
A107	2	#5	STR	22'-5"	47	REINFORCING STEEL 16,902 LB					
A108	2	#5	STR	21'-9"	46	* EPOXY COATED REINFORCING STEEL 16,607 LB					
A109	2	#5	STR	21'-1"	44	* DENOTES EPOXY COATED REINFORCING STEEL					
A110	2	#5	STR	20'-4"	43						

**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"			



Eric M. Nolting 1/24/2022

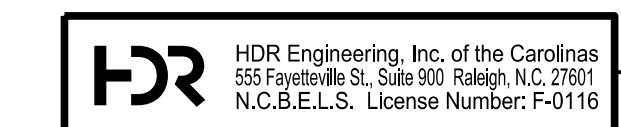
POUR NO.	CY
POUR 1	45.7
POUR 2	53.5
POUR 3	16.6
CLOSURE POUR	14.5
TOTAL (#)	130.3

(#) QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

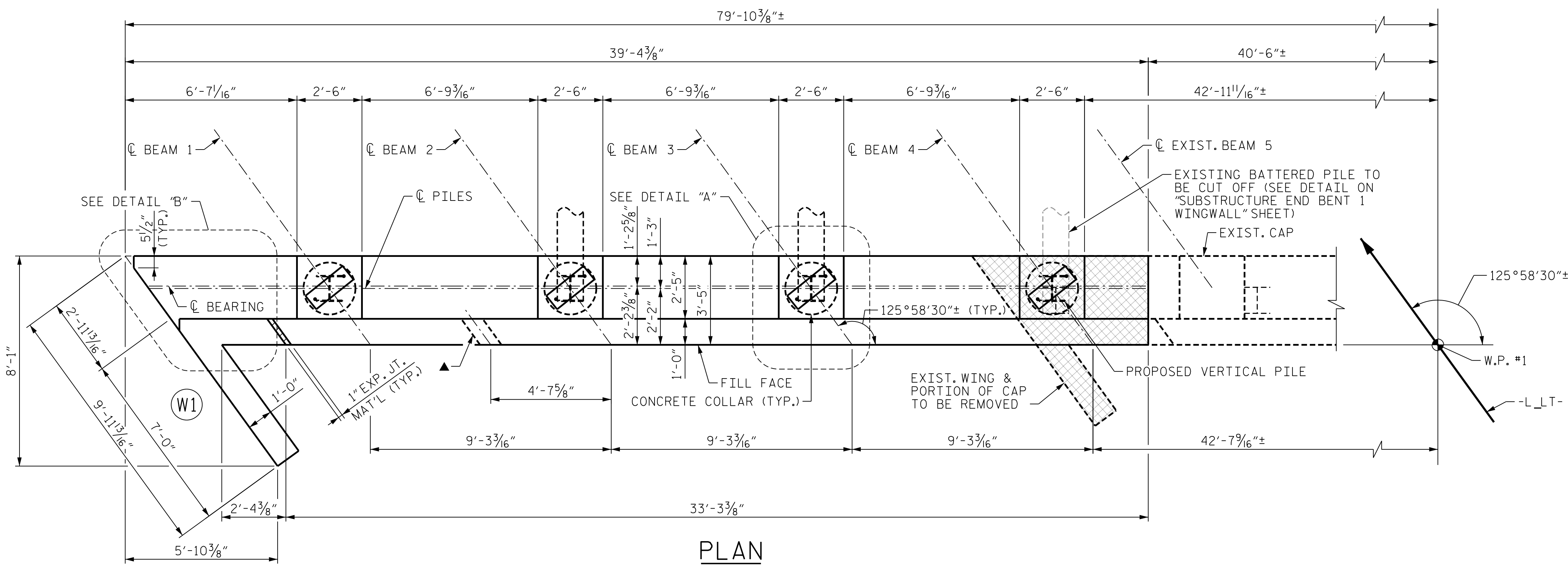
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 BILL OF MATERIAL**

DES BY: F. CORDOVA	DATE: 05/21	DWG BY: B. PETERSON	DATE: 03/21
DES CHK: E. NOLTING	DATE: 07/21	CHK BY: E. NOLTING	DATE: 07/21

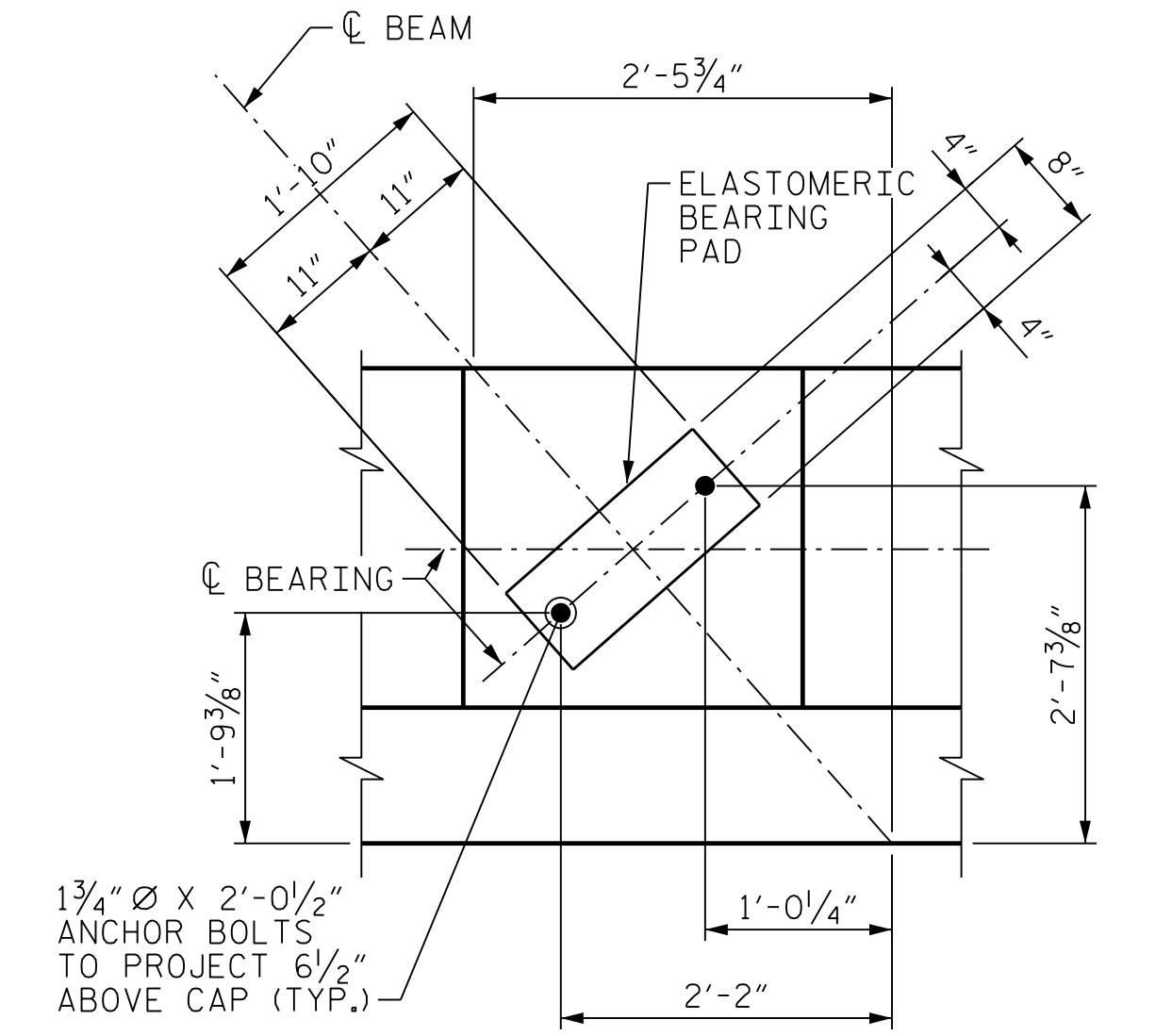


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. SO3L-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2	--	--	4	--	--	



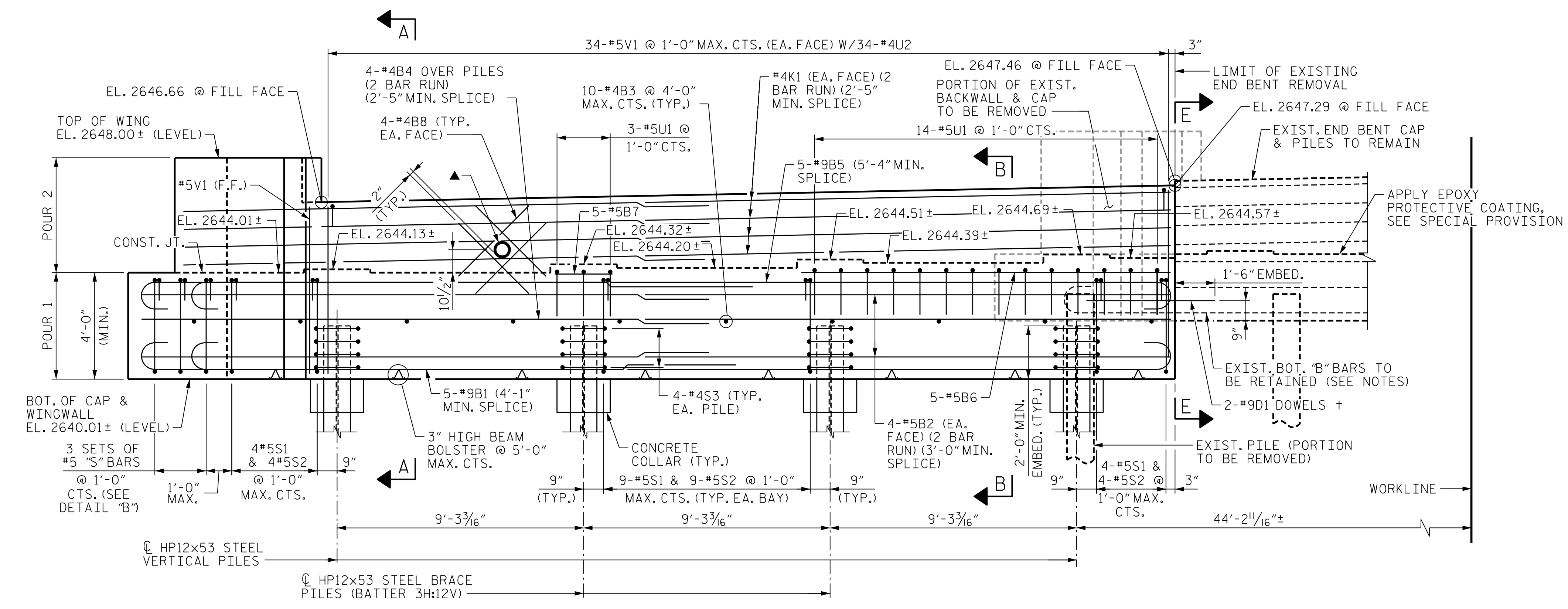
PLAN



DETAIL "A"

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BOTTOM #9 BARS SHALL BE RETAINED PAST THE SAW CUT LINE AND WILL BECOME PART OF THE WIDENED END BENT. THE EXISTING REINFORCING STEEL MAY BE BENT AS REQUIRED FOR FITTING INTO THE PROPOSED END BENT CAP.
- FOR SECTIONS A-A AND B-B, VIEW E-E, AND DETAIL "B", SEE "SUBSTRUCTURE END BENT 1 SECTIONS AND DETAILS" SHEET.
- COAT EXPOSED ENDS OF EXISTING REBAR WITH EPOXY AFTER EXISTING BACKWALL AND CAP ARE REMOVED.
- GRADE DATA, ELEVATIONS, DIMENSIONS, AND STATIONS WERE DETERMINED USING THE BEST INFORMATION AVAILABLE AND ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL SURVEY THE EXISTING STRUCTURE AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.
- IN REMOVING EXISTING END BENT, MAKE A 1 1/2" MIN. DEPTH SAWCUT AROUND PERIMETER OF CAP AND BACKWALL. REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING BOTTOM "B" BARS.
- EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS.



ELEVATION

+ #9D1 DOWELS PLACED IN THE EXISTING CAP SHALL BE INSTALLED WITH FIELD-DRILLED HOLES AND AN EPOXY ADHESIVE ANCHORING SYSTEM. LEVEL ONE FIELD TESTING IS REQUIRED AND THE YIELD LOAD OF THE DOWEL IS 60.0 KIPS. EMBEDMENT LENGTH TO BE DETERMINED BY THE MANUFACTURER OF THE ADHESIVELY ANCHORED ANCHOR SYSTEM. #9D1 BAR LENGTH WAS BASED ON A 1'-6" EMBEDMENT LENGTH. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SECTION 420-13 OF THE STANDARD SPECIFICATIONS.

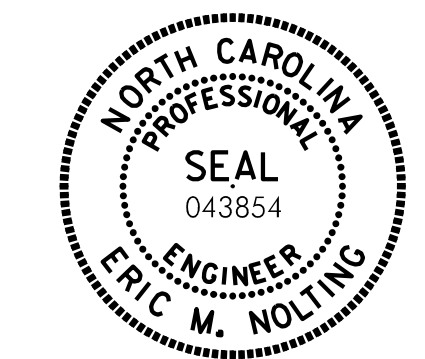
▲ PVC SLEEVE FOR ELECTRICAL CONDUIT, SEE "ELECTRICAL CONDUIT SYSTEM FOR SIGNALS" SHEET FOR DETAILS

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-

SHEET 1 OF 3

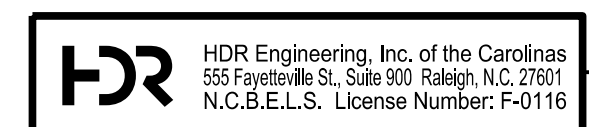
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1
 PLAN AND ELEVATION



Eric Nolting 1/24/2022

REVISIONS						SHEET NO. SO3L-26
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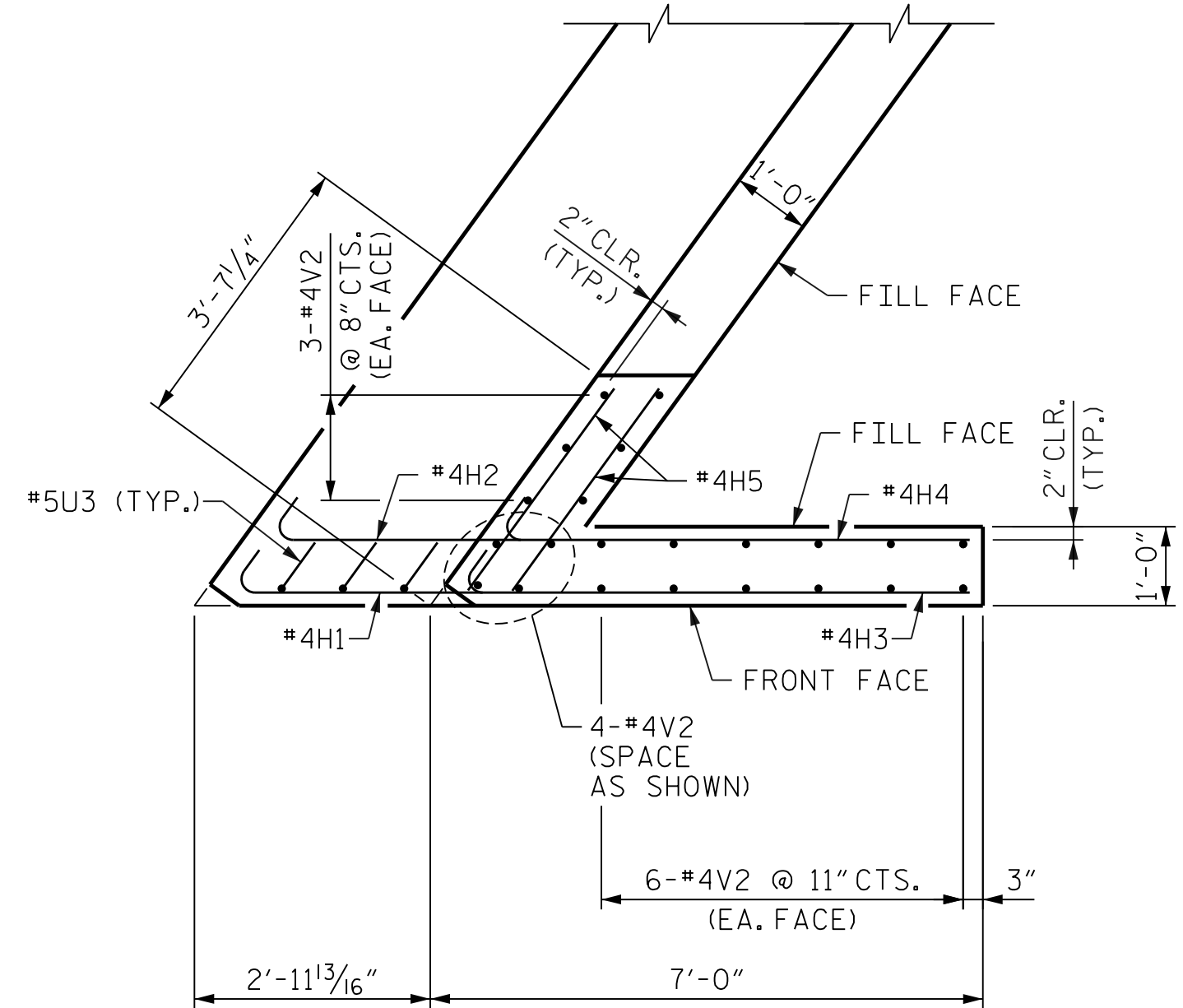


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 UNLESS ALL SIGNATURES COMPLETED

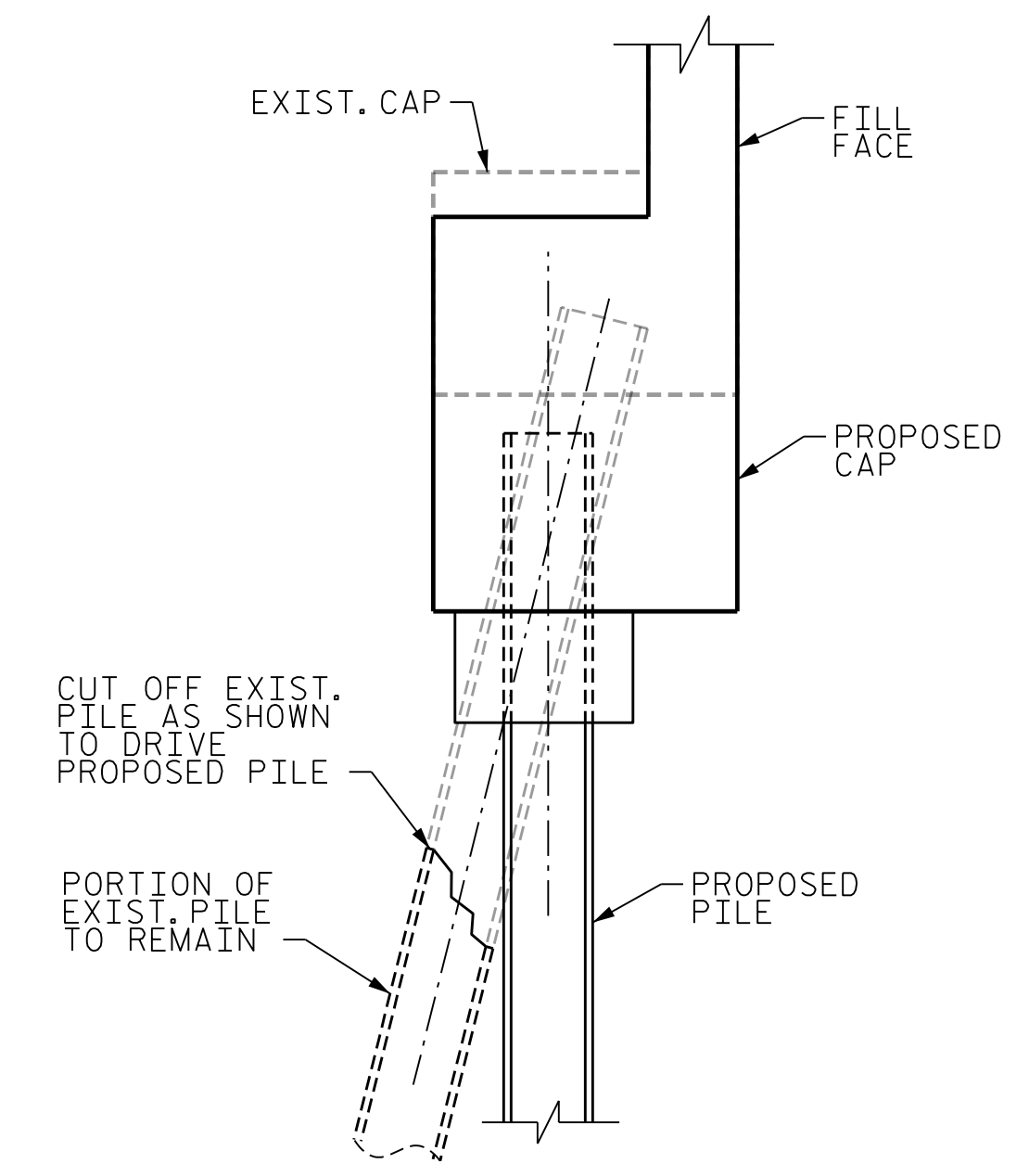
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DES BY: <u>B. ROGERS</u>	DATE: <u>06/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>06/21</u>
DES CHK: <u>F. CORDOVA</u>	DATE: <u>06/21</u>	CHK BY: <u>F. CORDOVA</u>	DATE: <u>06/21</u>

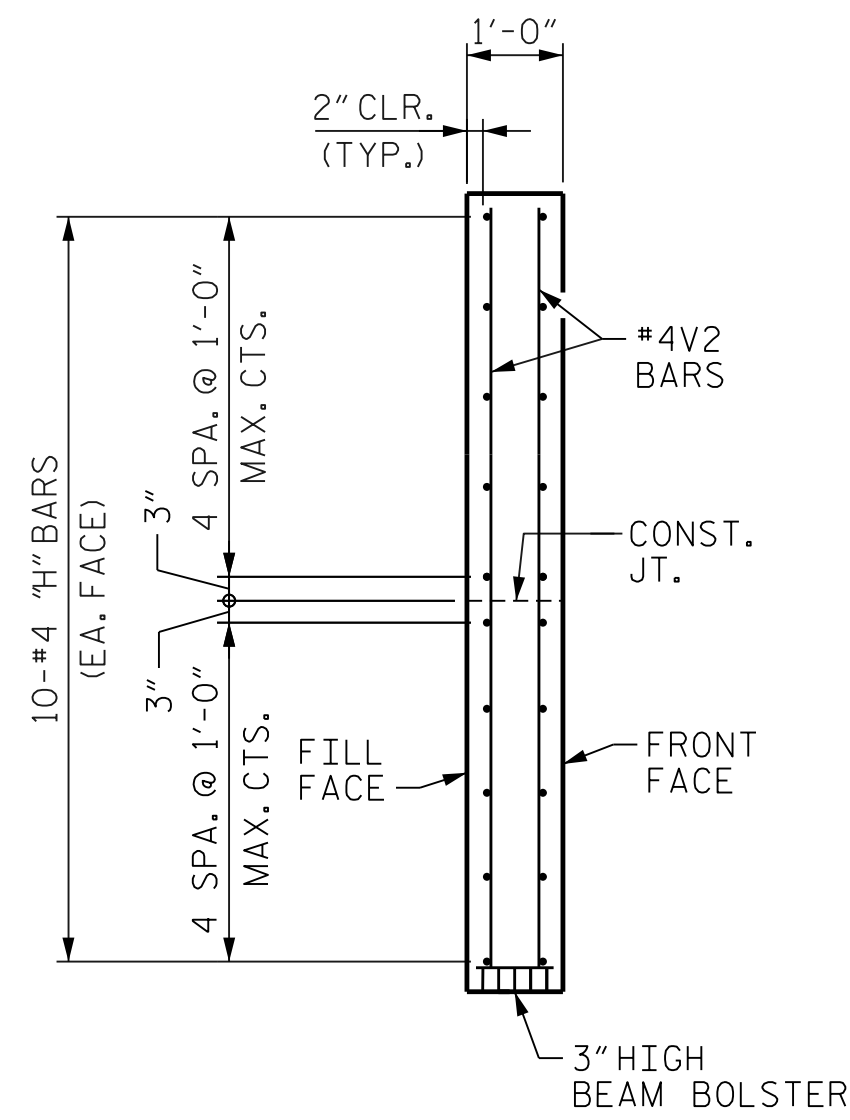
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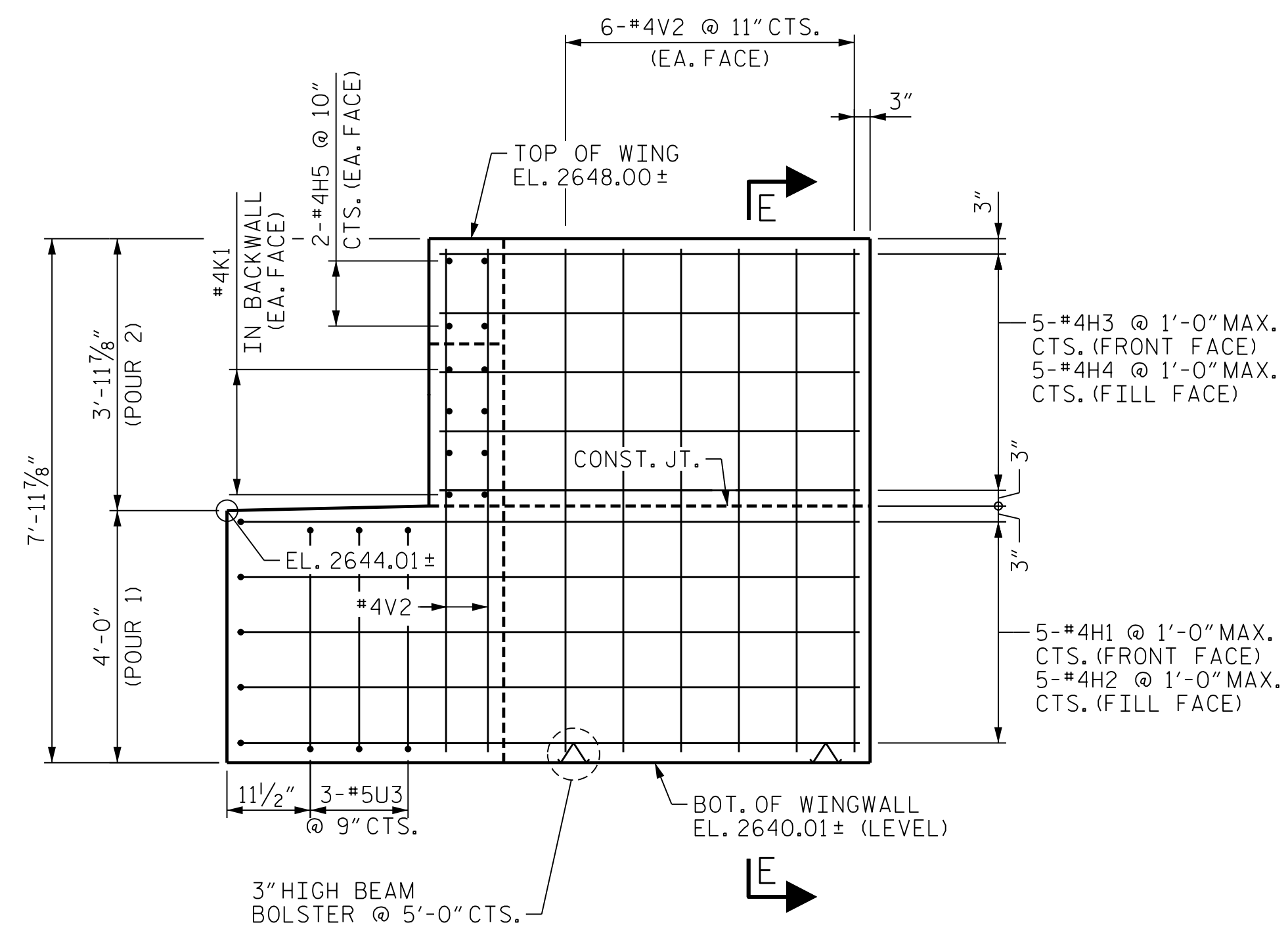
PLAN - WINGWALL (W1)



PILE CUT-OFF DETAIL



SECTION E-E



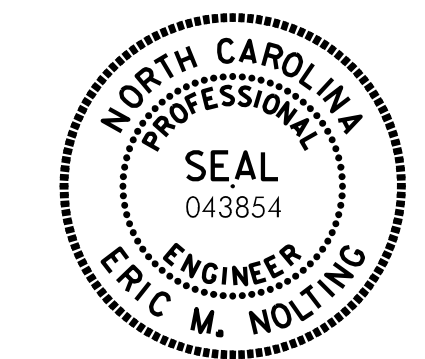
ELEVATION - WINGWALL (W1)

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30± -L-LT-

SHEET 2 OF 3

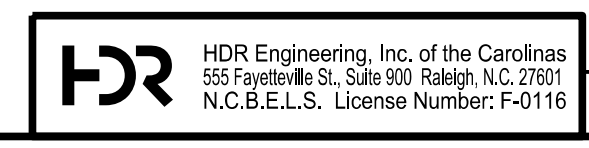
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUBSTRUCTURE
END BENT 1
WINGWALL**



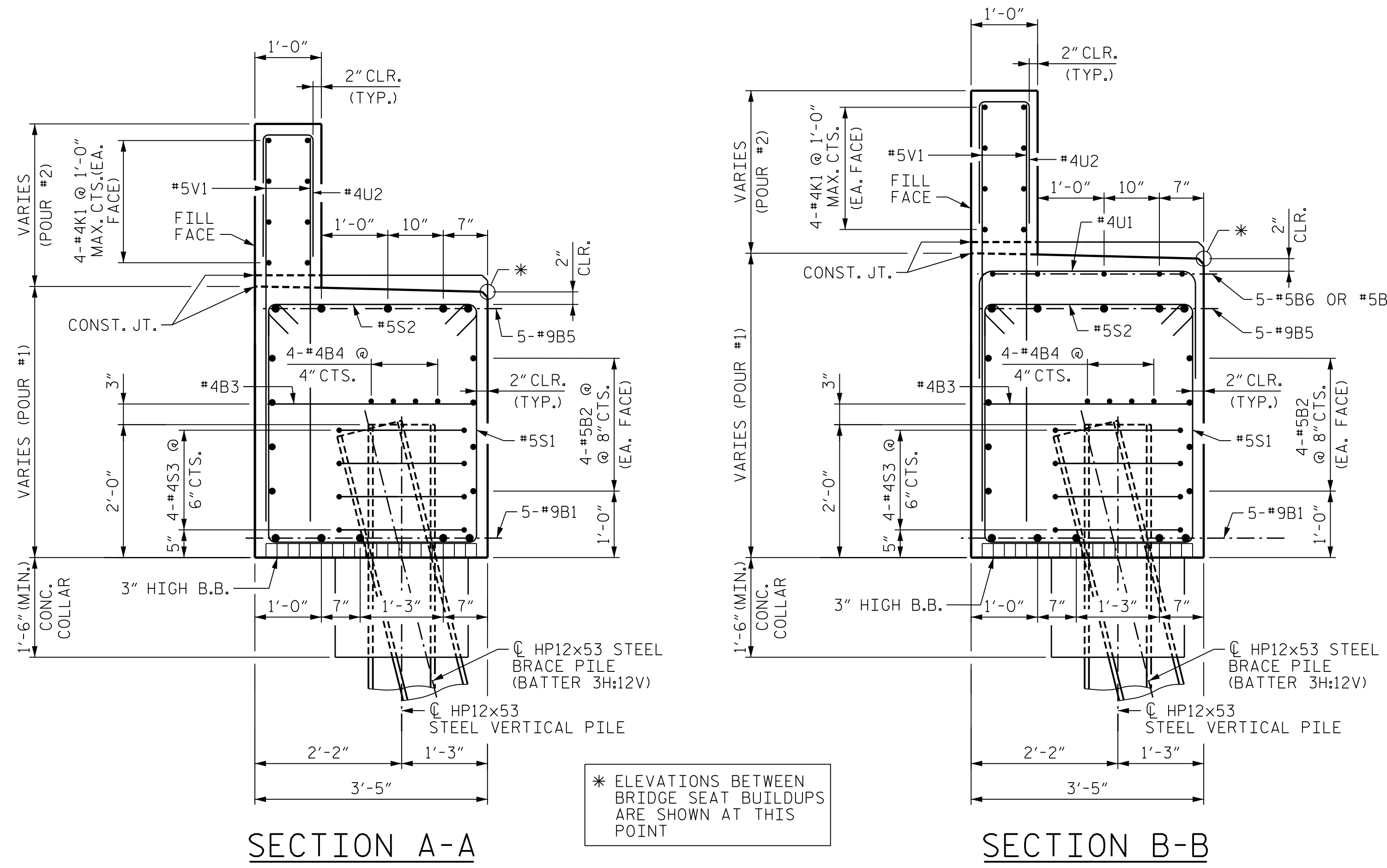
Eric Nolting 1/24/2022

DES BY: <u>B. ROGERS</u>	DATE: <u>06/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>06/21</u>
DES CHK: <u>F. CORDOVA</u>	DATE: <u>06/21</u>	CHK BY: <u>F. CORDOVA</u>	DATE: <u>06/21</u>



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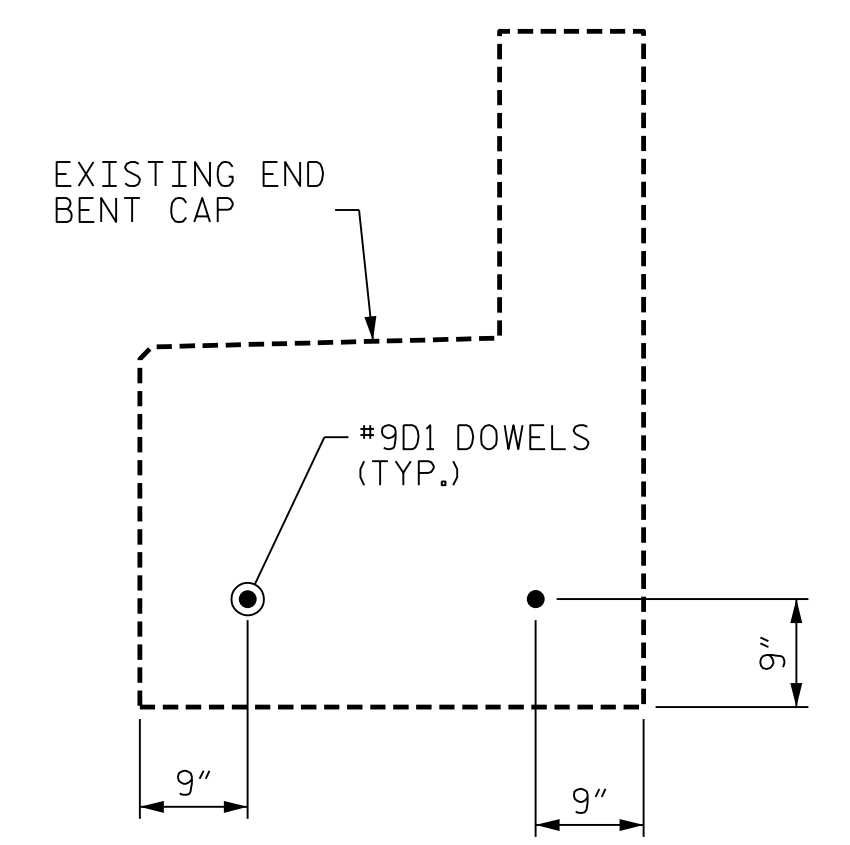
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2	--	--	4	--	--	44	



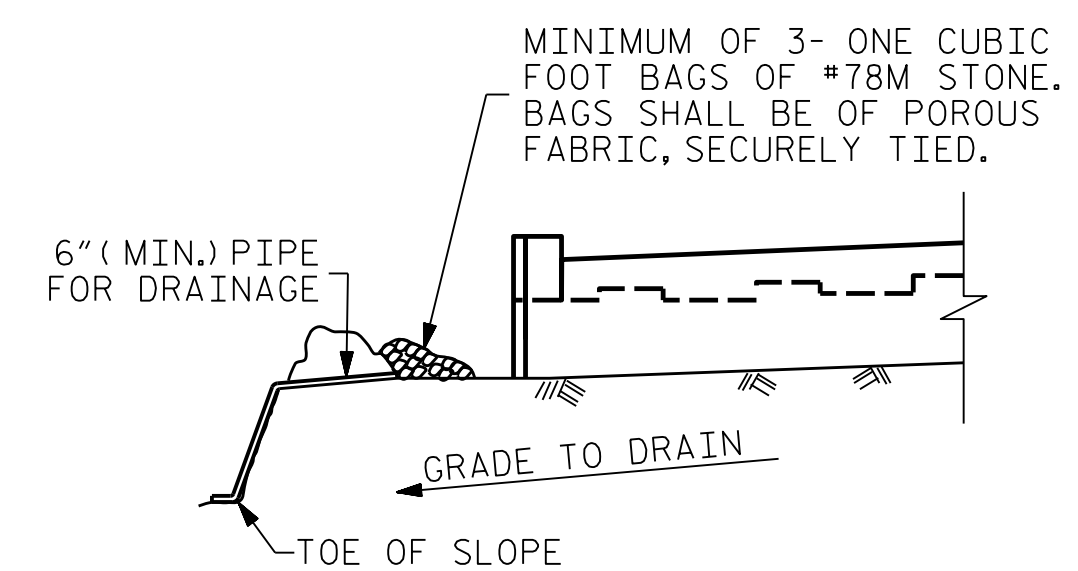
SECTION A-A

SECTION B-B

* ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS ARE SHOWN AT THIS POINT



VIEW E-E

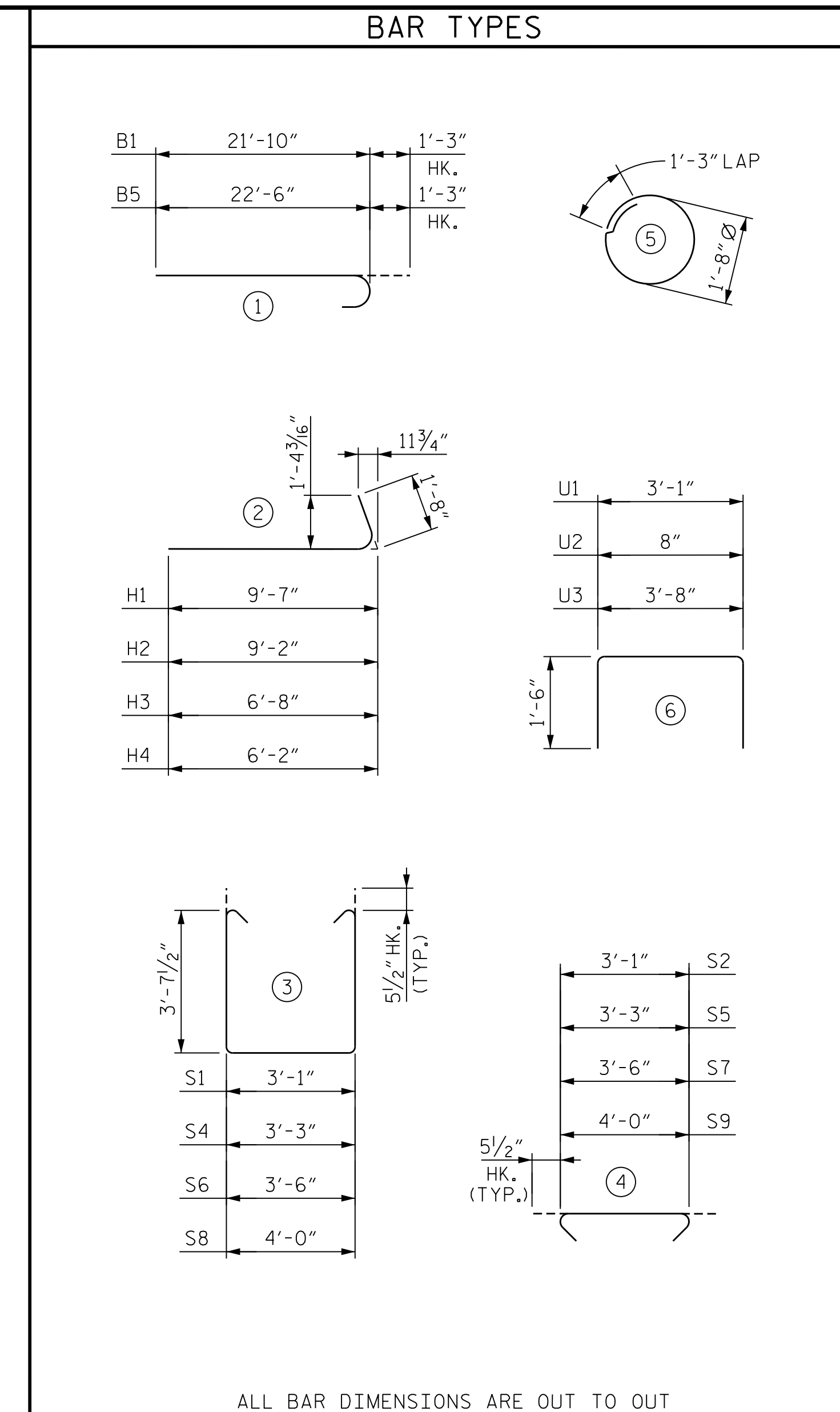


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

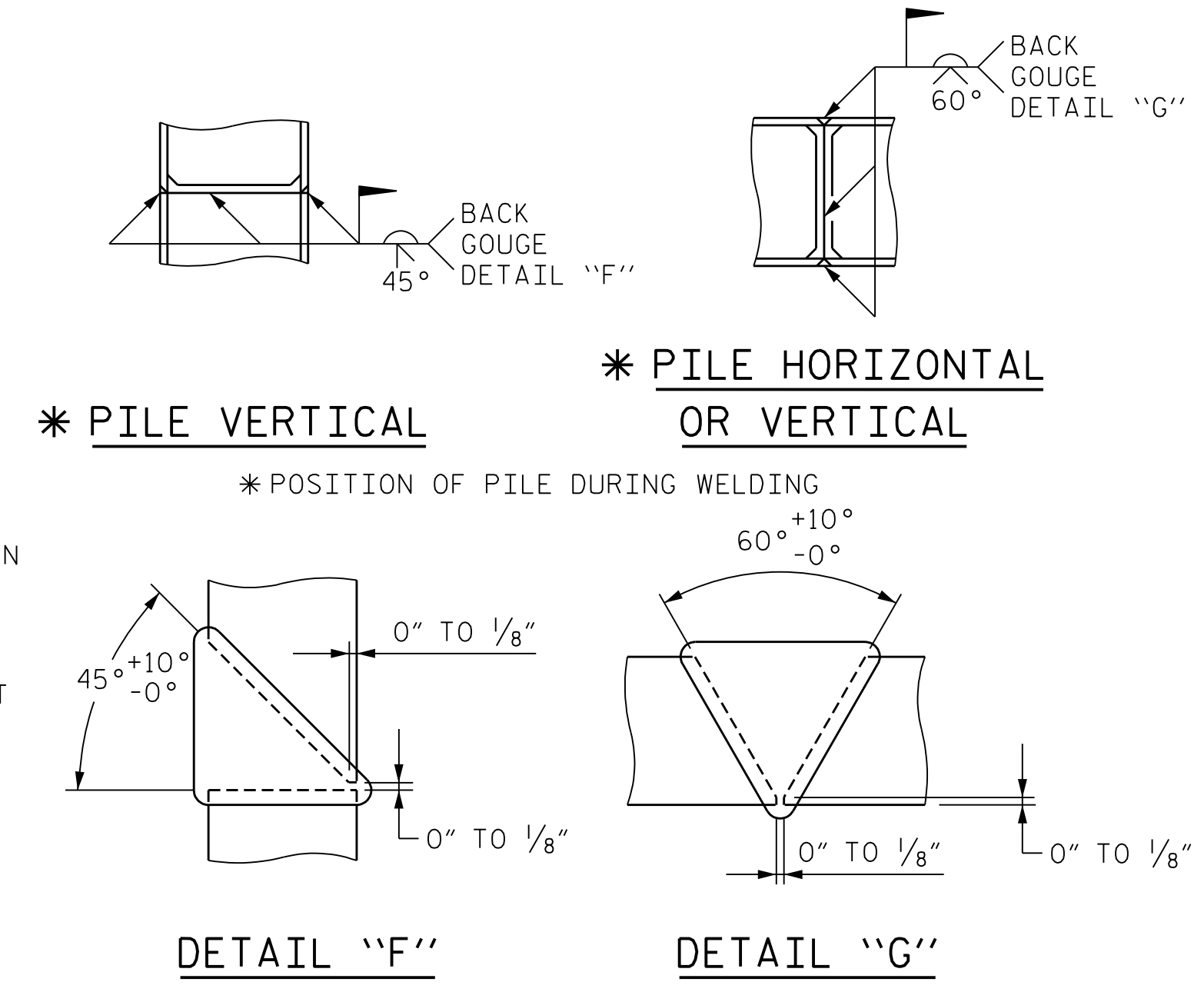


BAR TYPES

BILL OF MATERIAL						
END BENT 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	10	#9	1	23'-1"	785	
B2	16	#5	STR	21'-4"	356	
B3	10	#4	STR	3'-1"	21	
B4	8	#4	STR	21'-0"	112	
B5	10	#9	1	23'-9"	808	
B6	5	#5	STR	13'-10"	72	
B7	5	#5	STR	2'-2"	11	
B8	8	#4	STR	3'-9"	20	
D1	2	#9	STR	4'-10"	33	
H1	5	#4	2	11'-3"	38	
H2	5	#4	2	10'-10"	36	
H3	5	#4	2	8'-4"	28	
H4	5	#4	2	7'-10"	26	
H5	4	#4	STR	3'-3"	9	
K1	16	#4	STR	21'-0"	224	
S1	35	#5	3	11'-3"	411	
S2	35	#5	4	4'-0"	146	
S3	16	#4	5	6'-6"	69	
S4	1	#5	3	11'-5"	12	
S5	1	#5	4	4'-2"	4	
S6	1	#5	3	11'-8"	12	
S7	1	#5	4	4'-5"	5	
S8	1	#5	3	12'-2"	13	
S9	1	#5	4	4'-11"	5	
U1	17	#5	6	6'-1"	108	
U2	34	#4	6	3'-8"	83	
U3	3	#5	6	6'-8"	21	
V1	69	#5	STR	6'-3"	450	
V2	22	#4	STR	7'-7"	111	
REINFORCING STEEL					LBS.	4029
CLASS A CONCRETE						
POUR #1 (COLLARS, CAP, LOWER PART OF WINGS)				CU. YDS.	22.0	
POUR #2 (BACKWALL & UPPER PART OF WINGS)				CU. YDS.	3.6	
TOTAL				CU. YDS.	25.6	
▲ HP12x53 STEEL PILES					NO.	4
					LIN. FT.	240
STEEL H-PILE POINTS					NO.	4

ALL BAR DIMENSIONS ARE OUT TO OUT

▲ PILE LENGTHS ARE BASED ON ESTIMATED TIP ELEVATIONS



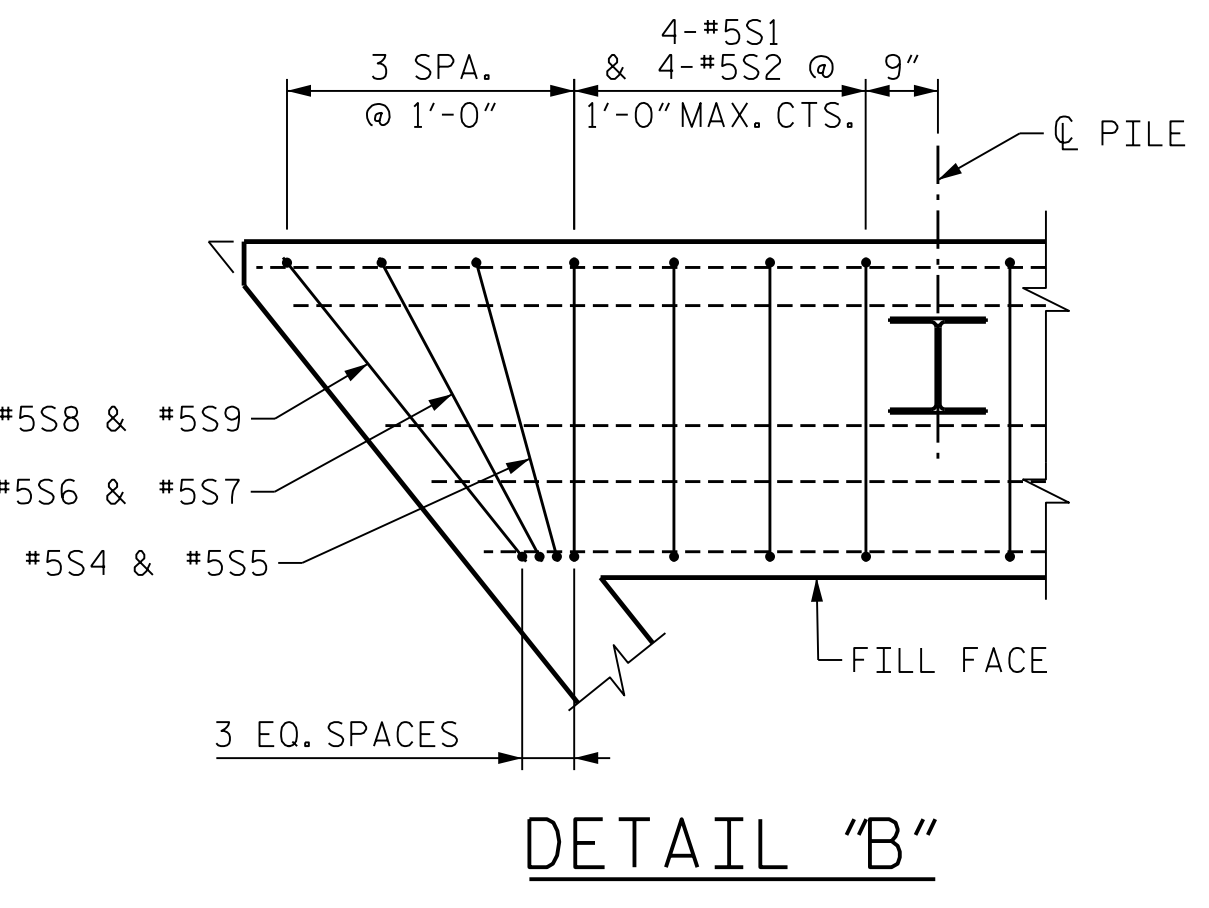
* PILE VERTICAL

* PILE HORIZONTAL OR VERTICAL

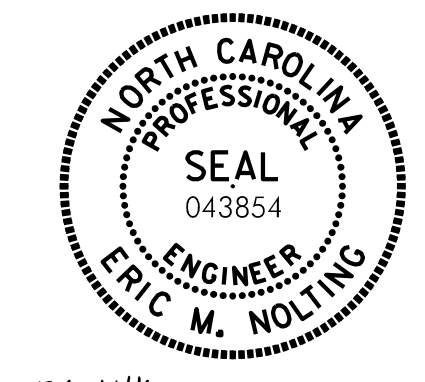
DETAIL "F"

DETAIL "G"

PILE SPLICE DETAILS



DETAIL "B"



Eric Nolting 1/24/2022

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

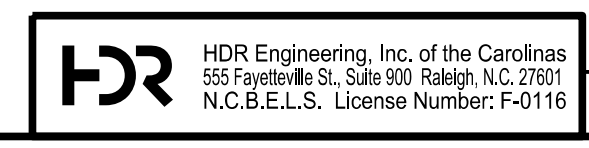
SUBSTRUCTURE
 END BENT 1
 SECTIONS AND DETAILS

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

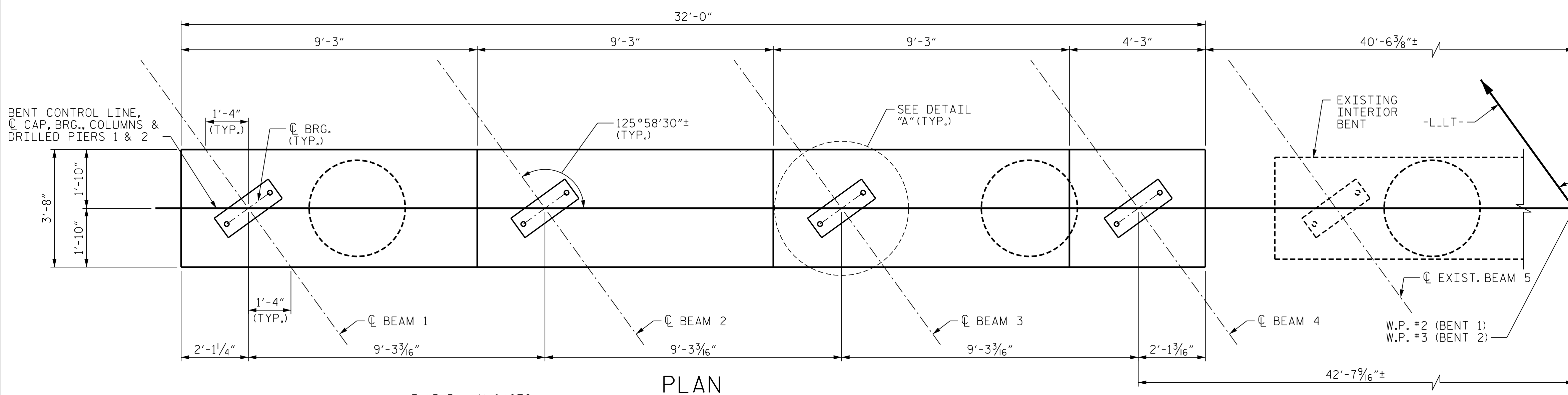
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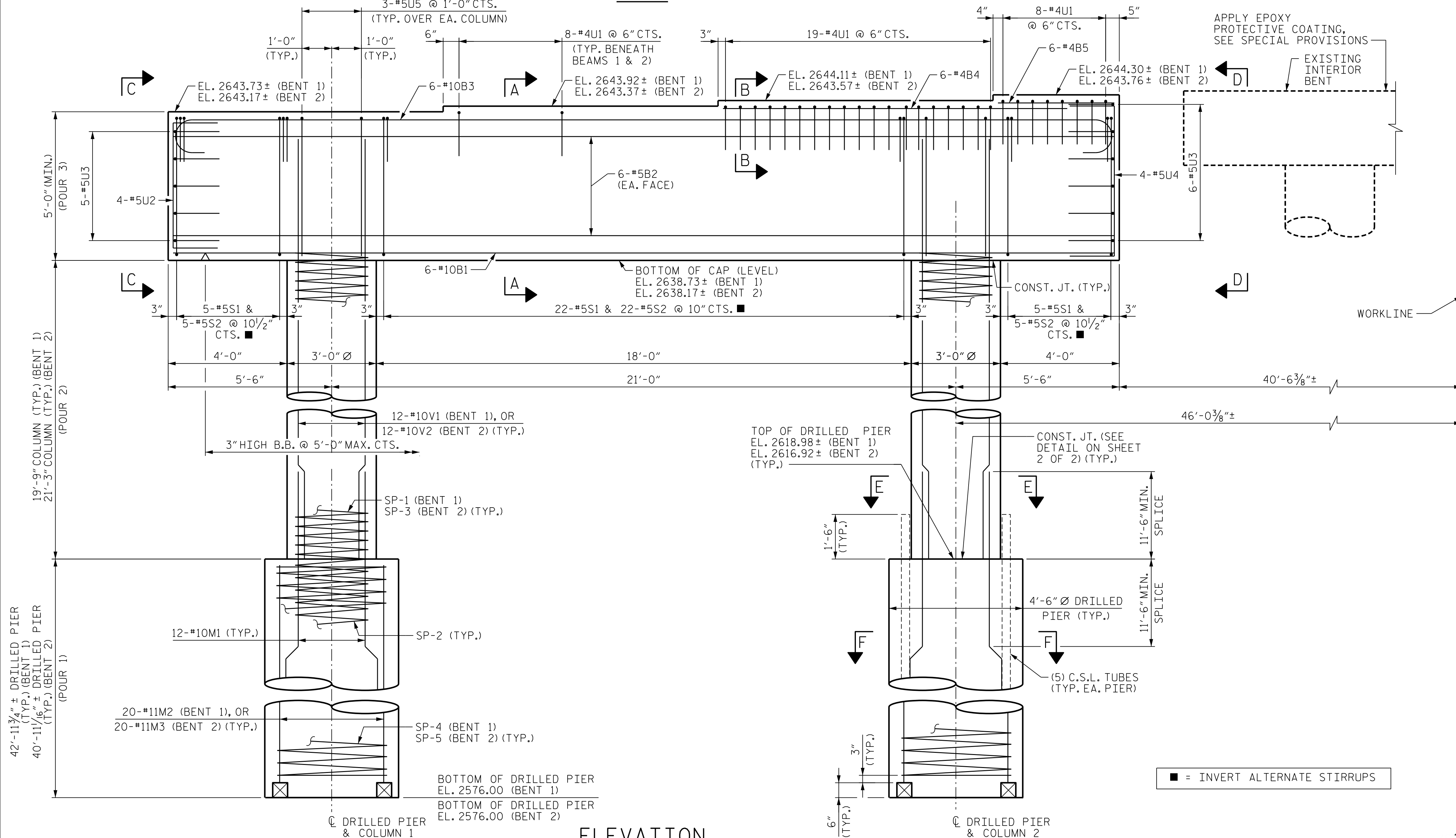
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DES CHK: <u>F. CORDOVA</u>	DATE: <u>06/21</u>	CHK BY: <u>F. CORDOVA</u>	DATE: <u>06/21</u>



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PLAN



ELEVATION

NOTES

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR ANCHOR BOLTS.

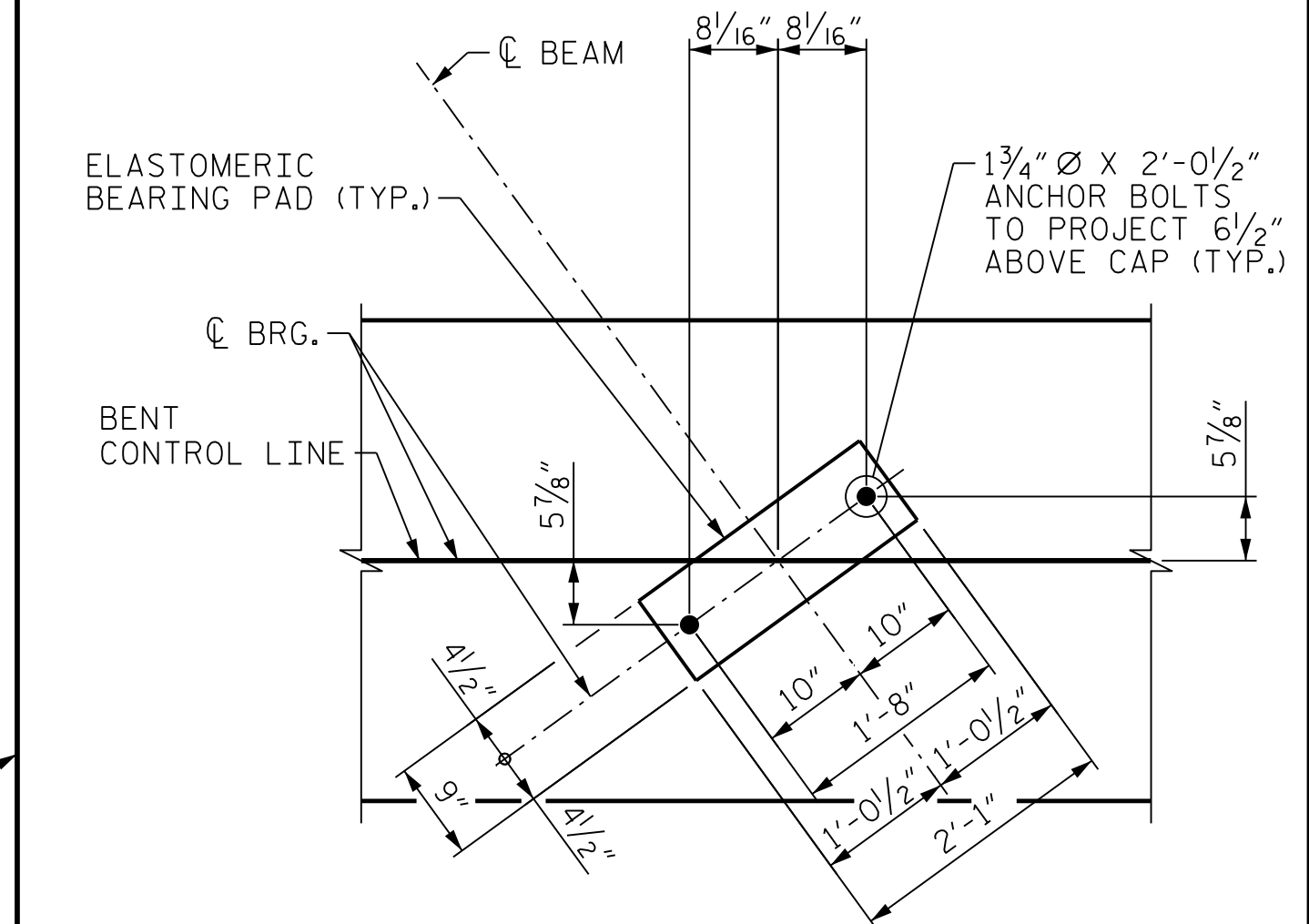
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

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

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

FOR SECTION VIEWS, SEE "SUBSTRUCTURE BENT 1 AND 2 SECTIONS AND DETAILS" SHEET.

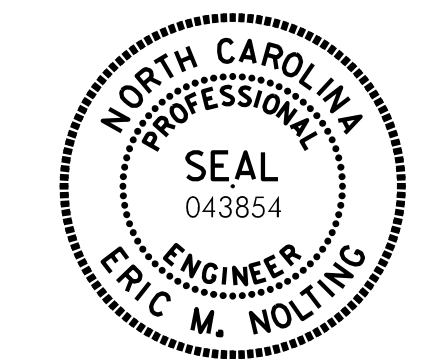
GRADE DATA, ELEVATIONS, DIMENSIONS, AND STATIONS WERE DETERMINED USING THE BEST INFORMATION AVAILABLE AND ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL SURVEY THE EXISTING STRUCTURE AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.



DETAIL "A"
(TYP. EA. BEARING)

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-

SHEET 1 OF 2



Eric Nolting 1/24/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENTS 1 & 2
 PLAN AND ELEVATION**

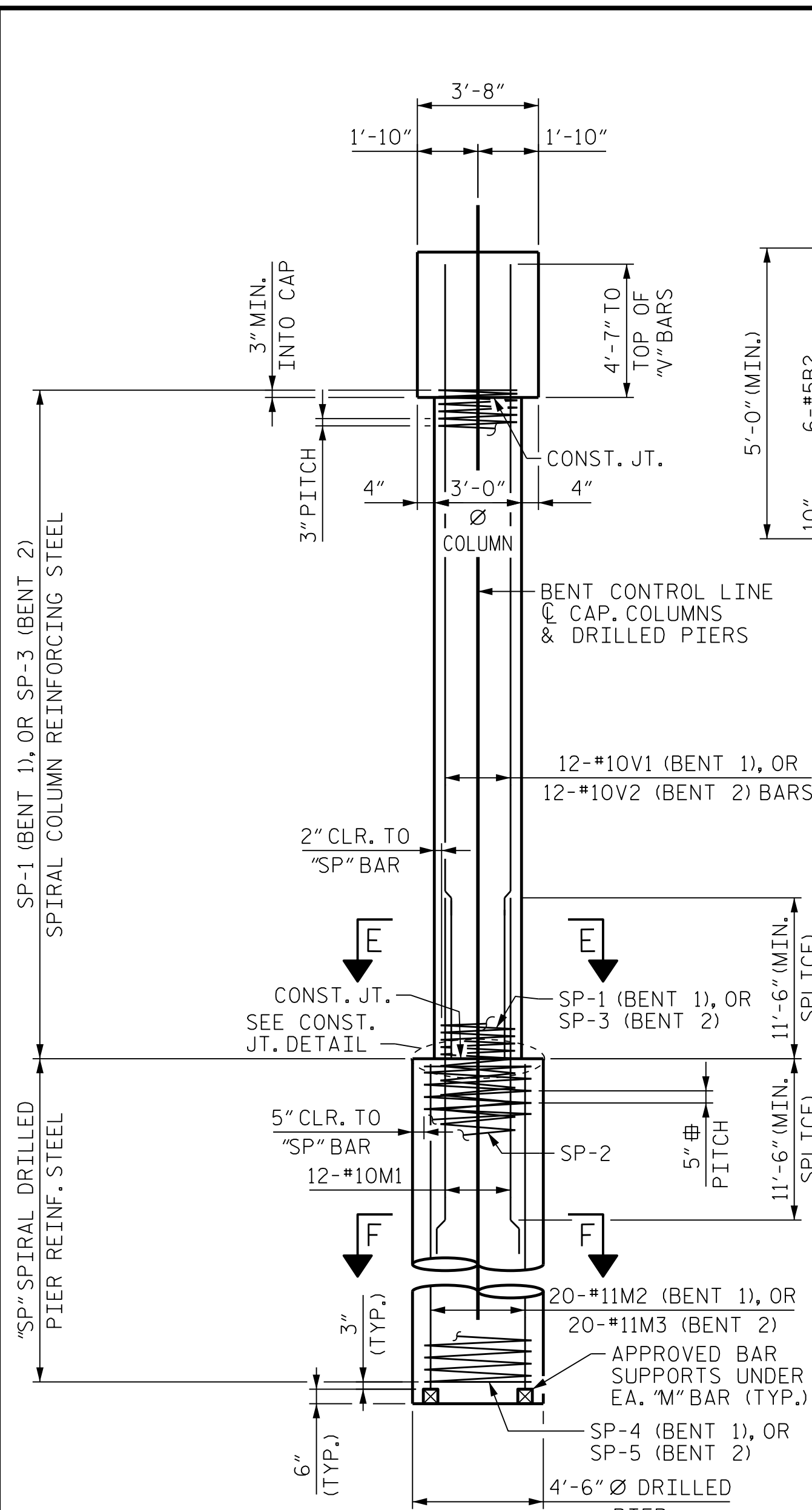
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2	--	--	4	--	--	44	

HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

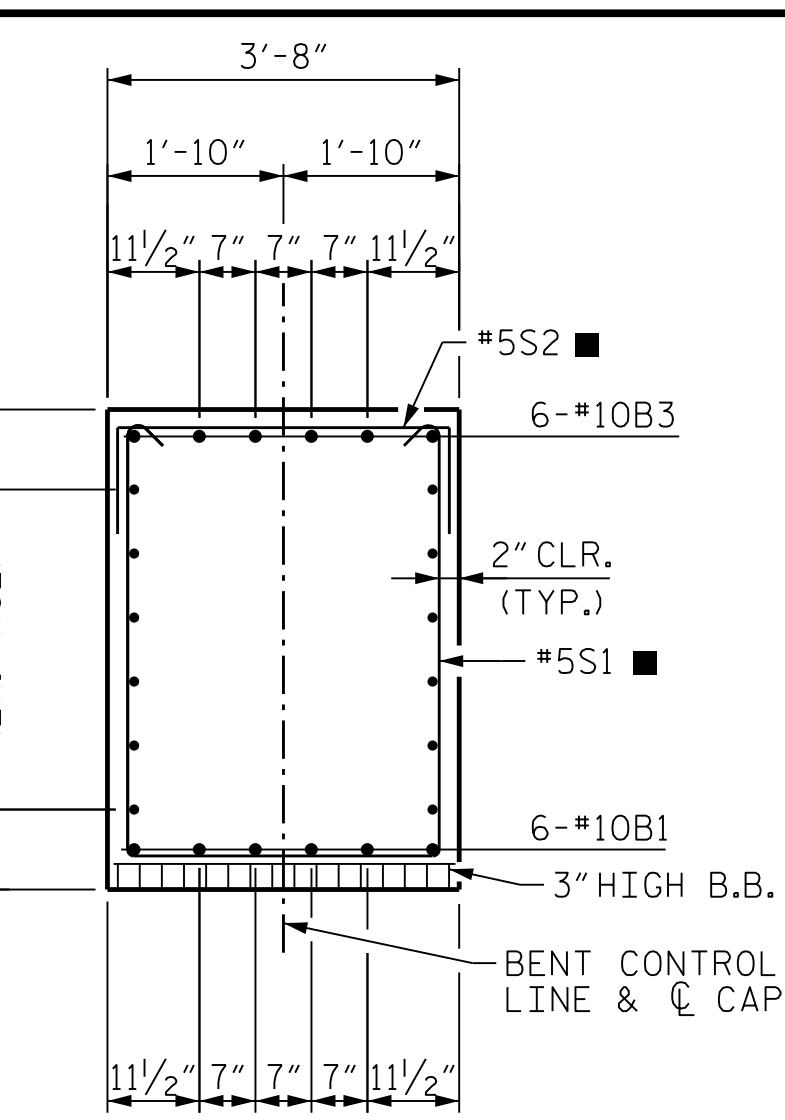
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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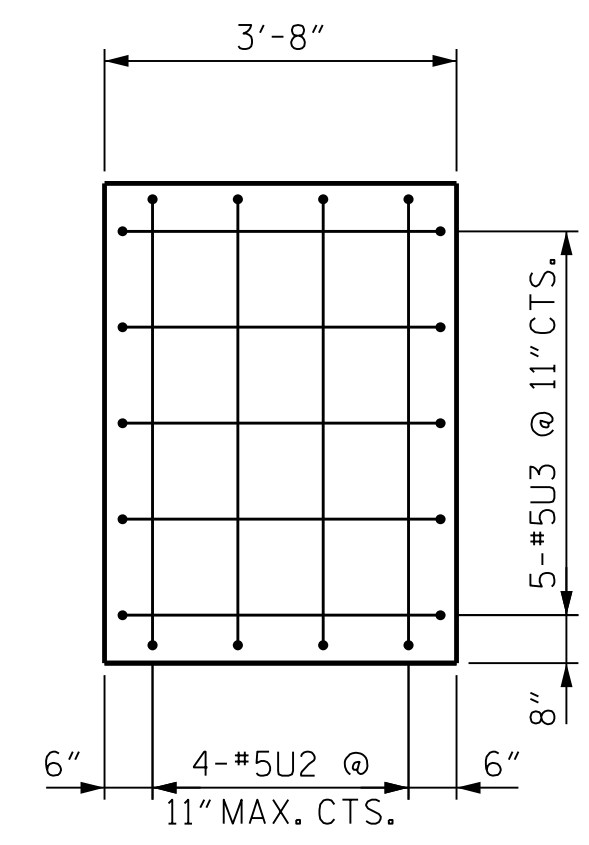
DES BY: <u>M. NEIHEISEL</u>	DATE: <u>06/21</u>	DWG BY: <u>D. CARTER</u>	DATE: <u>06/21</u>
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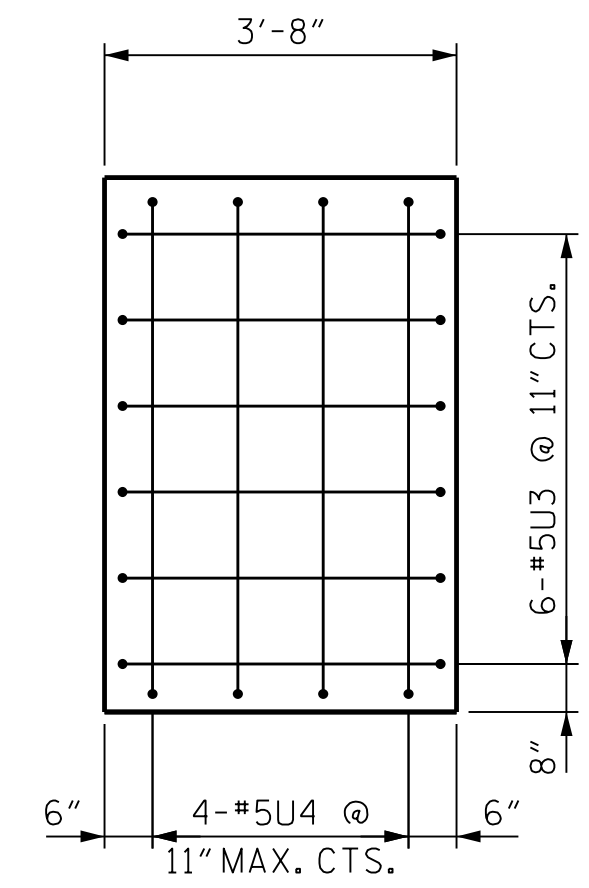
END ELEVATION
 # TYP. SP-2, SP-4 & SP-5



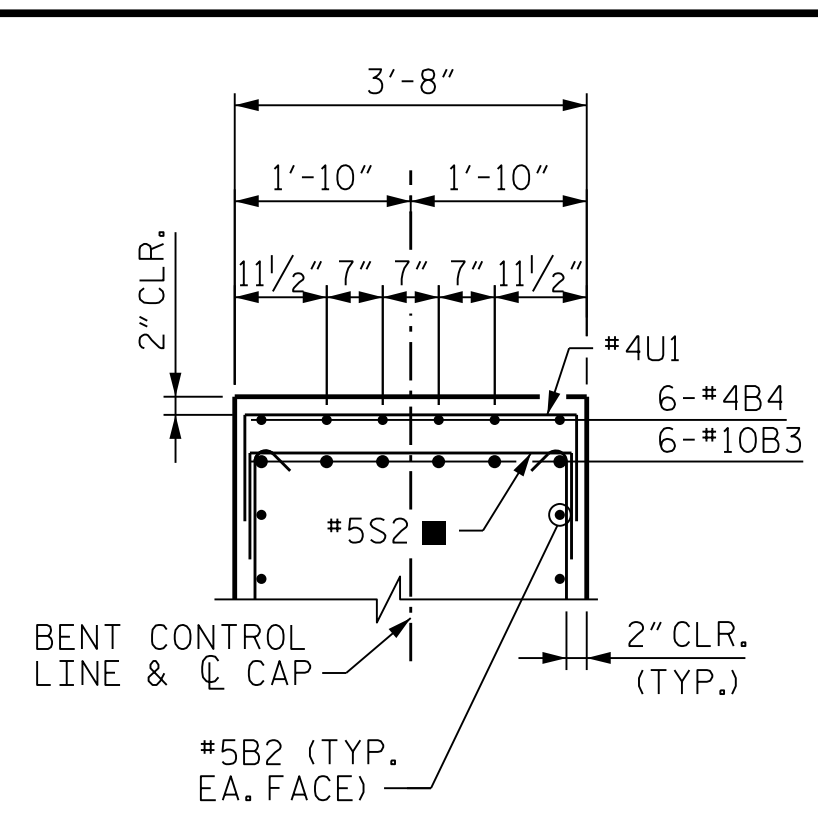
SECTION A-A



VIEW C-C

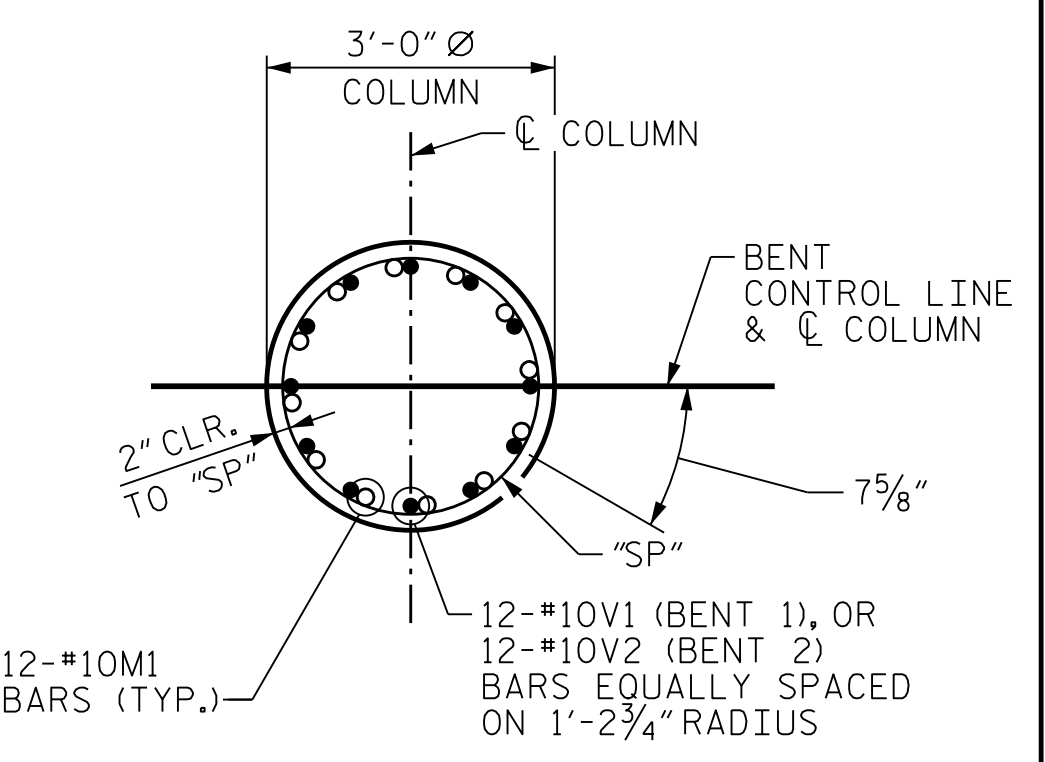


VIEW D-D

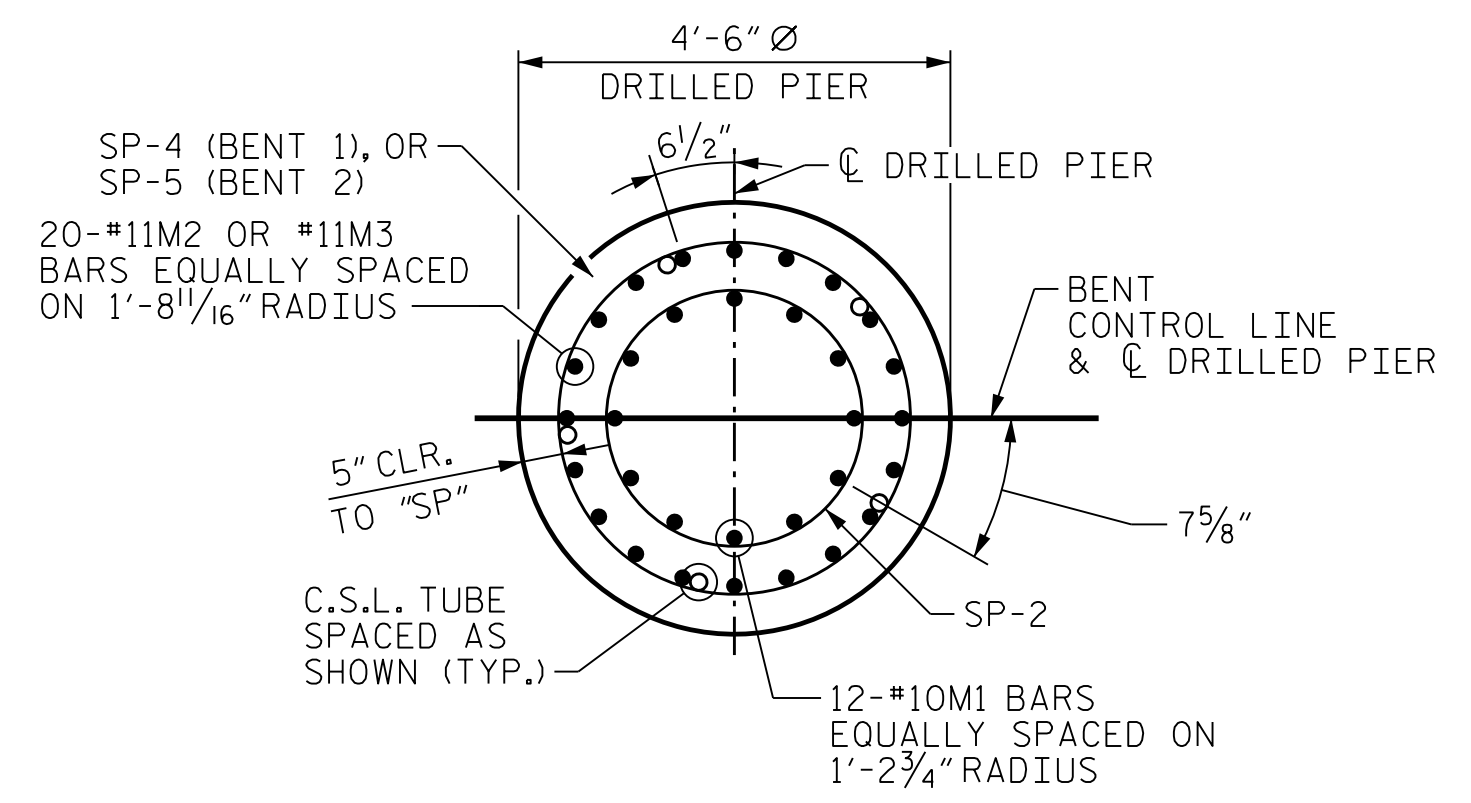


SECTION B-B

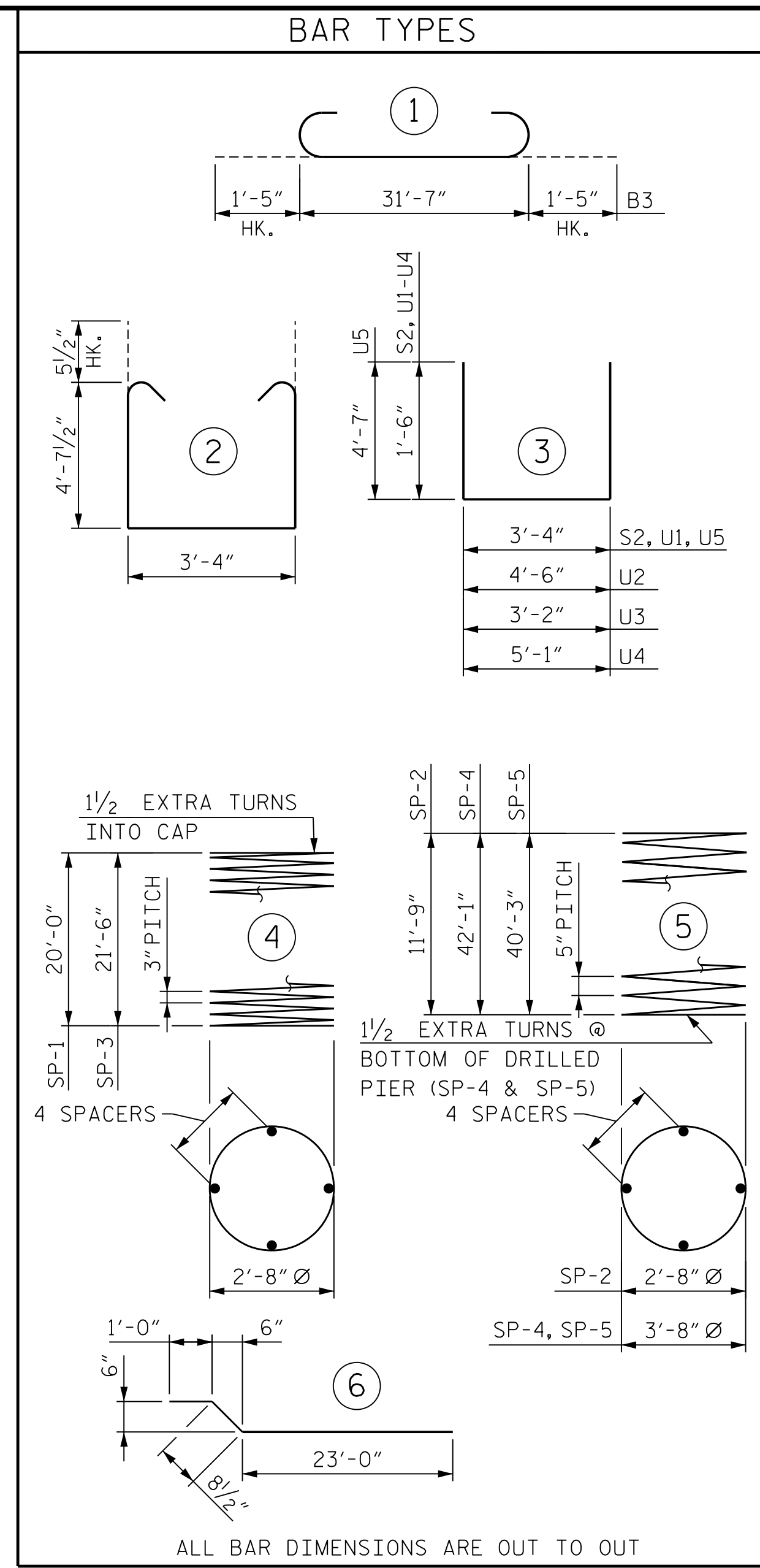
■ = INVERT ALTERNATE STIRRUPS



SECTION E-E



SECTION F-F



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL BENT 1						BILL OF MATERIAL BENT 2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	6	#10	STR	31'-8"	818	B1	6	#10	STR	31'-8"	818
B2	12	#5	STR	31'-8"	397	B2	12	#5	STR	31'-8"	397
B3	6	#10	1	34'-5"	889	B3	6	#10	1	34'-5"	889
B4	6	#4	STR	11'-8"	47	B4	6	#4	STR	11'-8"	47
B5	6	#4	STR	3'-11"	16	B5	6	#4	STR	3'-11"	16
M1	24	#10	6	24'-9"	2556	M1	24	#10	6	24'-9"	2556
M2	40	#11	STR	45'-4"	9635	M3	40	#11	STR	43'-4"	9210
S1	32	#5	2	13'-6"	451	S1	32	#5	2	13'-6"	451
S2	32	#5	3	6'-4"	212	S2	32	#5	3	6'-4"	212
U1	43	#4	3	6'-4"	182	U1	43	#4	3	6'-4"	182
U2	4	#5	3	7'-6"	32	U2	4	#5	3	7'-6"	32
U3	11	#5	3	6'-2"	71	U3	11	#5	3	6'-2"	71
U4	4	#5	3	8'-1"	34	U4	4	#5	3	8'-1"	34
U5	6	#5	3	12'-6"	79	U5	6	#5	3	12'-6"	79
V1	24	#10	STR	24'-4"	2513	V2	24	#10	STR	25'-10"	2668

REINFORCING STEEL				REINFORCING STEEL							
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
SP-1	2	*	4	672'-5"	899	SP-2	2	**	5	232'-0"	484
SP-2	2	**	5	232'-0"	484	SP-3	2	*	4	721'-11"	965
SP-4	2	**	5	1164'-9"	2430	SP-5	2	**	5	1114'-9"	2326

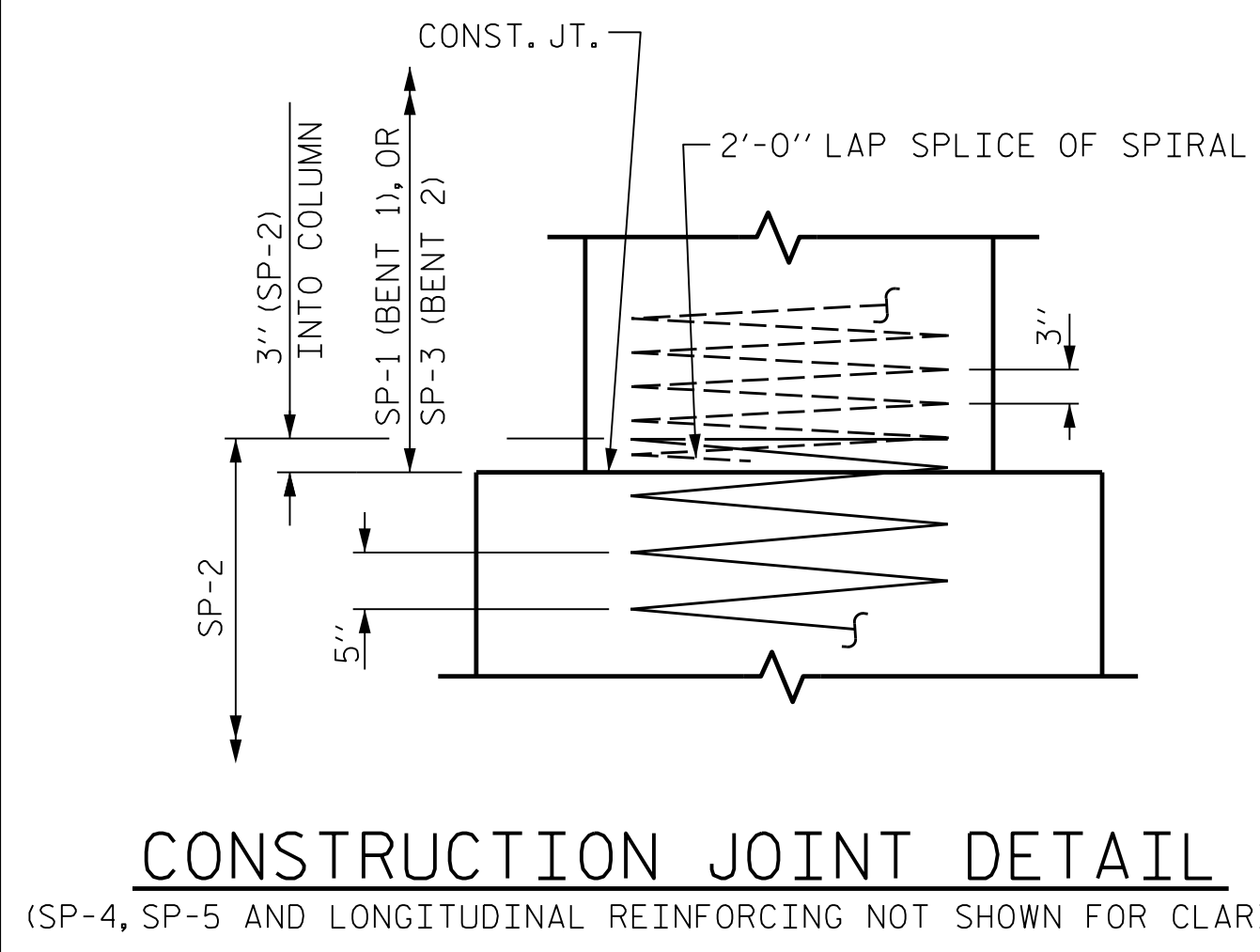
Spiral Reinf. Steel				Spiral Reinf. Steel							
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
SP-1	2	*	4	672'-5"	899	SP-2	2	**	5	232'-0"	484
SP-2	2	**	5	232'-0"	484	SP-3	2	*	4	721'-11"	965
SP-4	2	**	5	1164'-9"	2430	SP-5	2	**	5	1114'-9"	2326

CLASS A CONCRETE				CLASS A CONCRETE			
POUR	CU. YDS.	WEIGHT		POUR	CU. YDS.	WEIGHT	
POUR 2 (COLUMNS)	10.3			POUR 2 (COLUMNS)	11.1		
POUR 3 (CAP)	22.8			POUR 3 (CAP)	22.8		
TOTAL CLASS A CONCRETE	33.1			TOTAL CLASS A CONCRETE	33.9		

* THE SP-1 AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

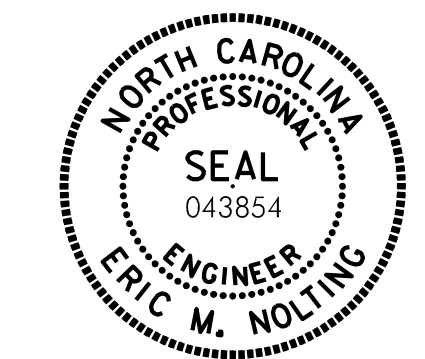
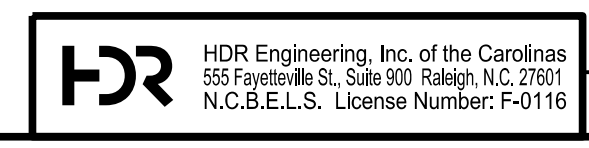
** THE SP-2, SP-4 & SP-5 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

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 USER: PETERSON DATE: 1/24/2022 TIME: 1:49:54 PM
 FILE: ... \403.145.B5898B3186.SMU.B1.030.430110.dgn



CONSTRUCTION JOINT DETAIL
 (SP-4, SP-5 AND LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY)

DES BY: M. NEHEISEL	DATE: 06/21	DWG BY: D. CARTER	DATE: 06/21
DES CHK: G. MYERS	DATE: 07/21	CHK BY: G. MYERS	DATE: 07/21



Eric Nolting 1/24/2022

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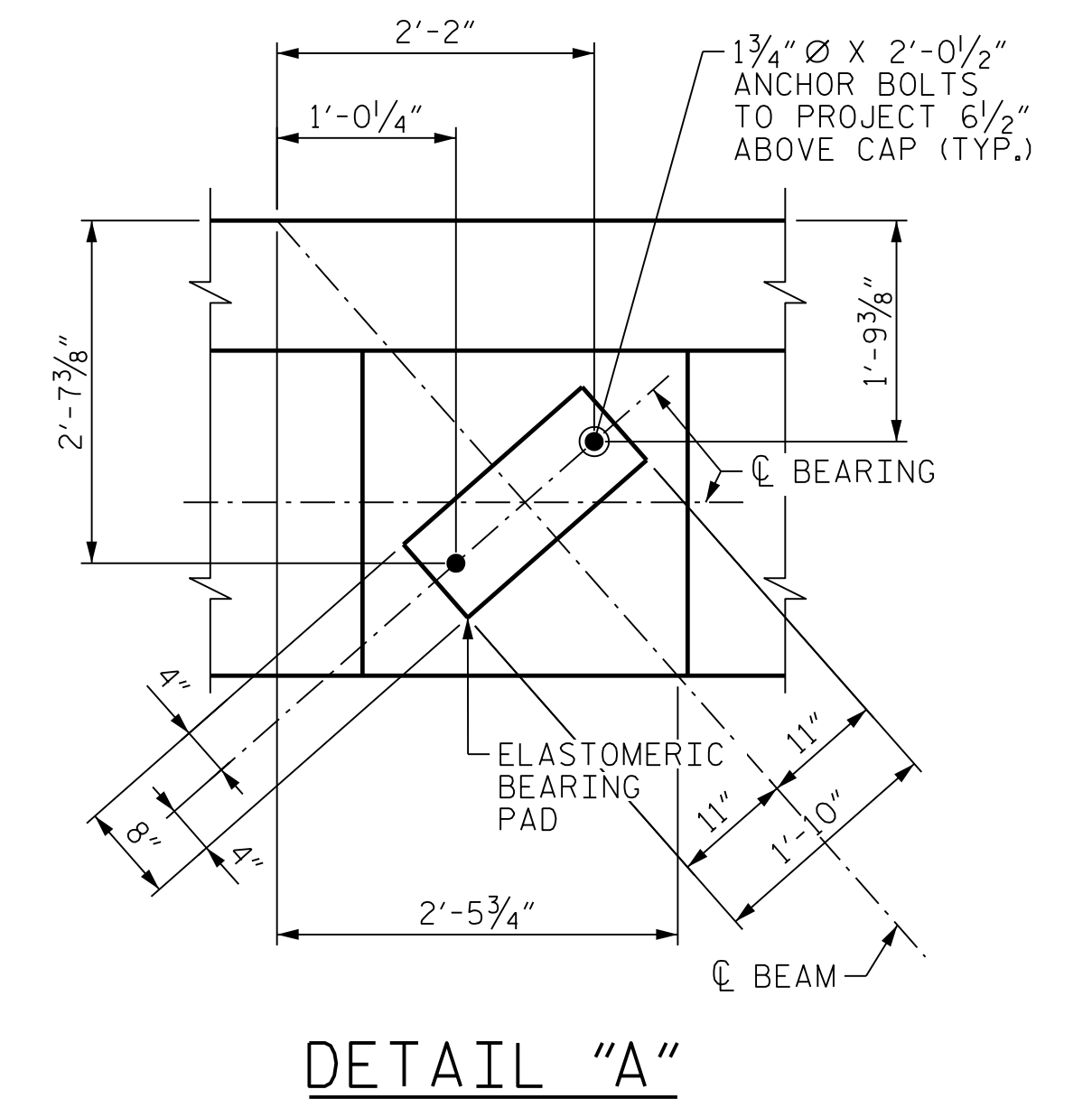
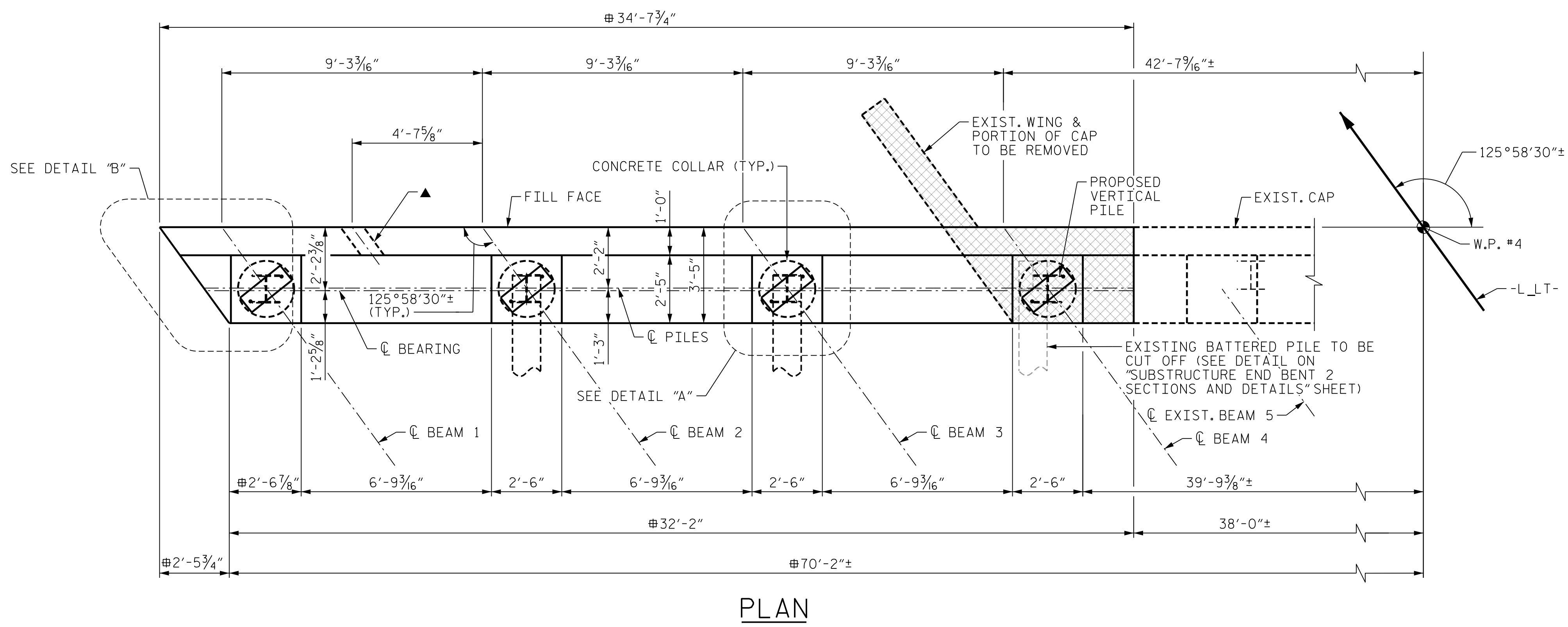
PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 2 OF 2

REVISIONS						SHEET NO. 303L-30	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 44	
1	--	--	3	--	--		
2	--	--	4	--	--		

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE BENTS 1 & 2 SECTIONS AND DETAILS



NOTES

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BOTTOM #9 BARS SHALL BE RETAINED PAST THE SAW CUT LINE AND WILL BECOME PART OF THE WIDENED END BENT. THE EXISTING REINFORCING STEEL MAY BE BENT AS REQUIRED FOR FITTING INTO THE PROPOSED END BENT CAP.

FOR SECTIONS A-A AND B-B, VIEW E-E, AND DETAIL "B"; SEE "SUBSTRUCTURE END BENT 2 SECTIONS AND DETAILS" SHEET.

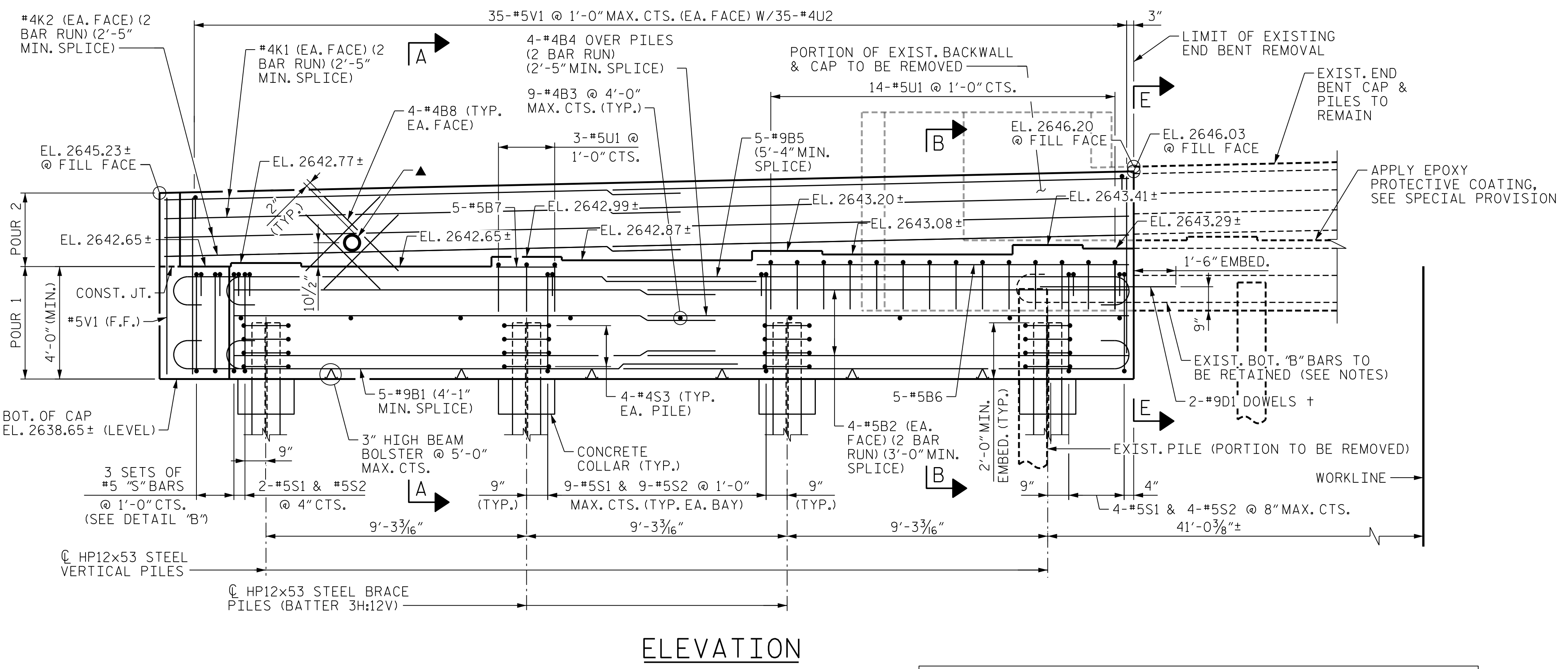
COAT EXPOSED ENDS OF EXISTING REBAR WITH EPOXY AFTER EXISTING BACKWALL AND CAP ARE REMOVED.

GRADE DATA, ELEVATIONS, DIMENSIONS, AND STATIONS WERE DETERMINED USING THE BEST INFORMATION AVAILABLE AND ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL SURVEY THE EXISTING STRUCTURE AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.

FOR PILE SPLICE DETAILS AND TEMPORARY DRAINAGE AT END BENT DETAIL, SEE "SUBSTRUCTURE END BENT 1 SECTIONS AND DETAILS" SHEET.

IN REMOVING EXISTING END BENT, MAKE A $1\frac{1}{2}"$ MIN. DEPTH SAWCUT AROUND PERIMETER OF CAP AND BACKWALL. REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING BOTTOM "B" BARS.

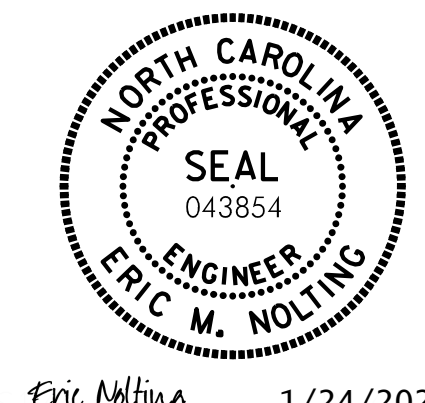
EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS.



+ #9D1 DOWELS PLACED IN THE EXISTING CAP SHALL BE INSTALLED WITH FIELD-DRILLED HOLES AND AN EPOXY ADHESIVE ANCHORING SYSTEM. LEVEL ONE FIELD TESTING IS REQUIRED AND THE YIELD LOAD OF THE DOWEL IS 60.0 KIPS. EMBEDMENT LENGTH TO BE DETERMINED BY THE MANUFACTURER OF THE ADHESIVELY ANCHORED ANCHOR SYSTEM. #9D1 BAR LENGTH WAS BASED ON A 1'-6" EMBEDMENT LENGTH. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SECTION 420-13 OF THE STANDARD SPECIFICATIONS.

CAP LENGTH TO BE FIELD ADJUSTED AS REQUIRED TO PROVIDE 1" EXP. JT. BETWEEN THE MSE WALL, THE MSE WALL COPING, AND THE CAP.

▲ PVC SLEEVE FOR ELECTRICAL CONDUIT, SEE "ELECTRICAL CONDUIT SYSTEM FOR SIGNALS" SHEET FOR DETAILS



Eric Nolting 1/24/2022

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 1 OF 2

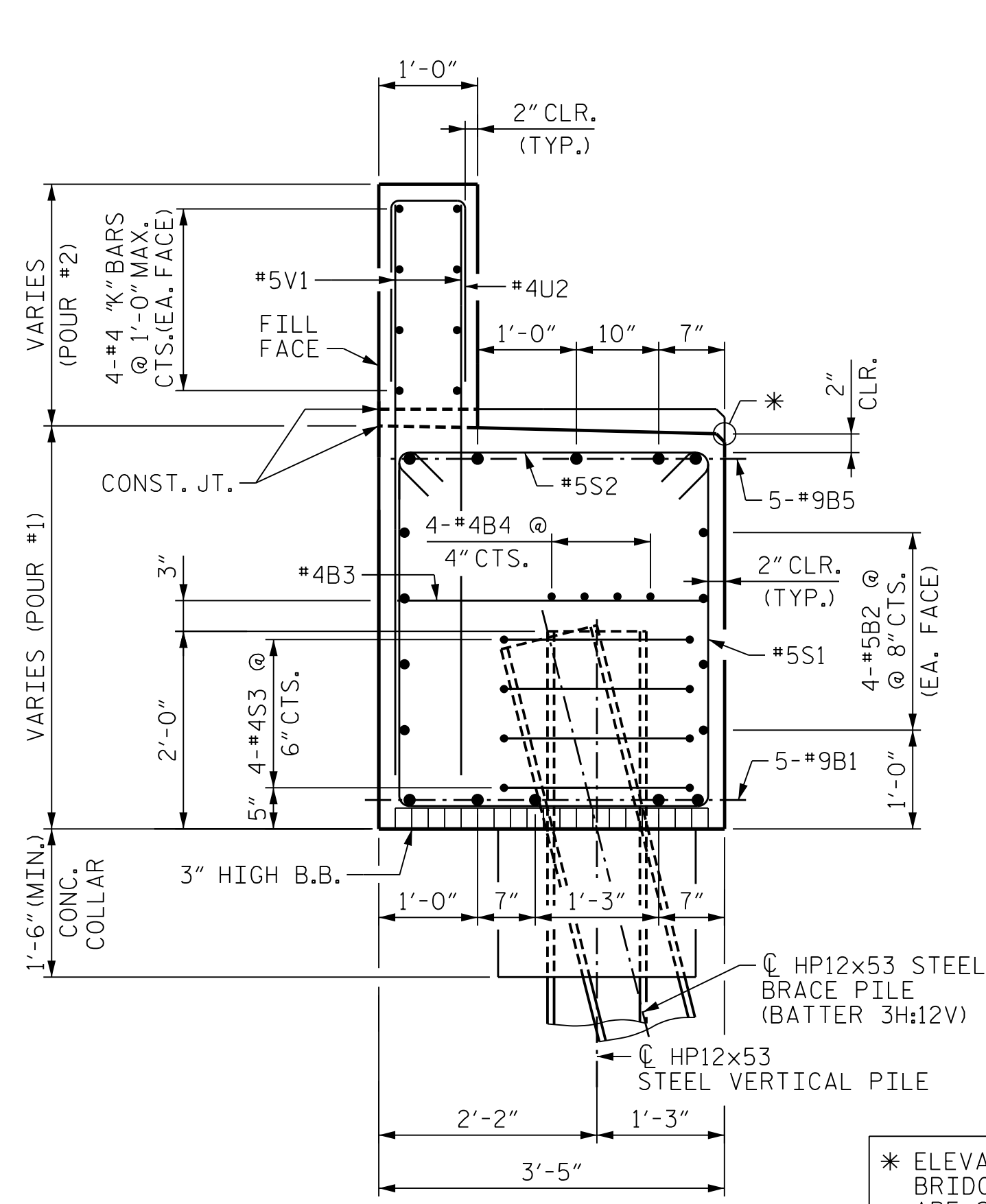
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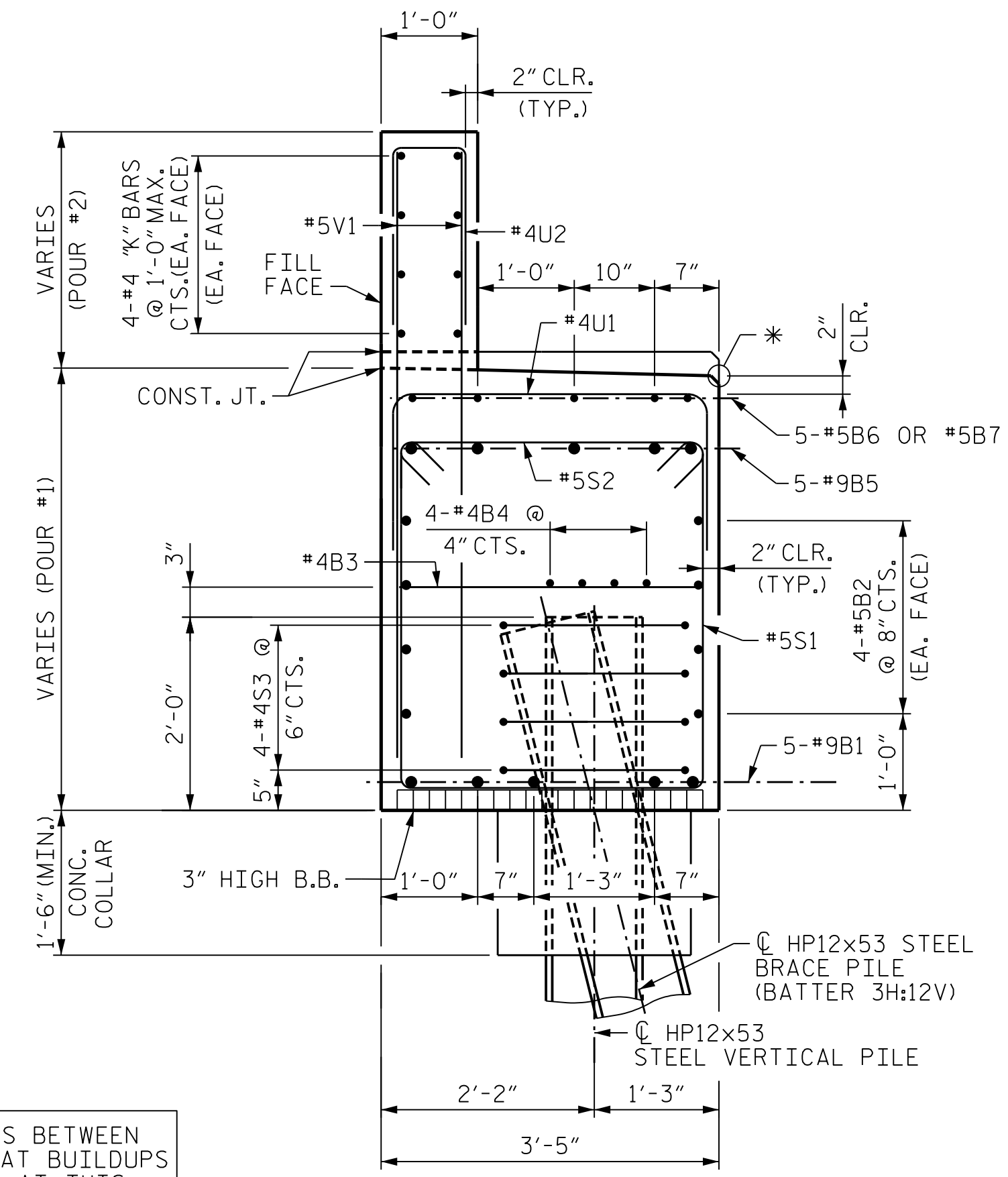
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 DES CHK: F. CORDOVA DATE: 06/21 CHK BY: F. CORDOVA DATE: 06/21

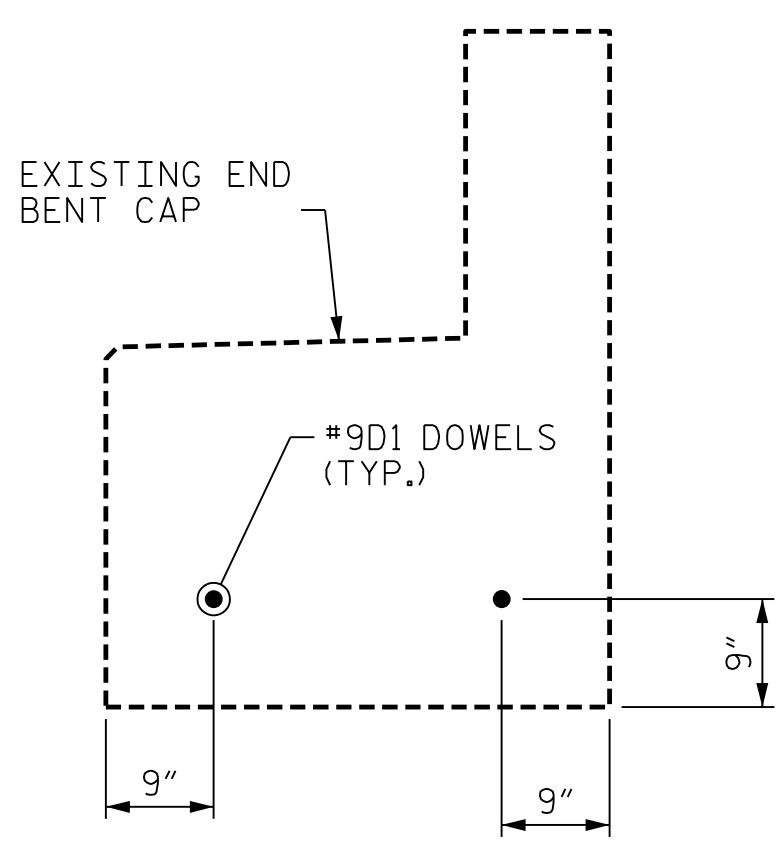


SECTION A-A

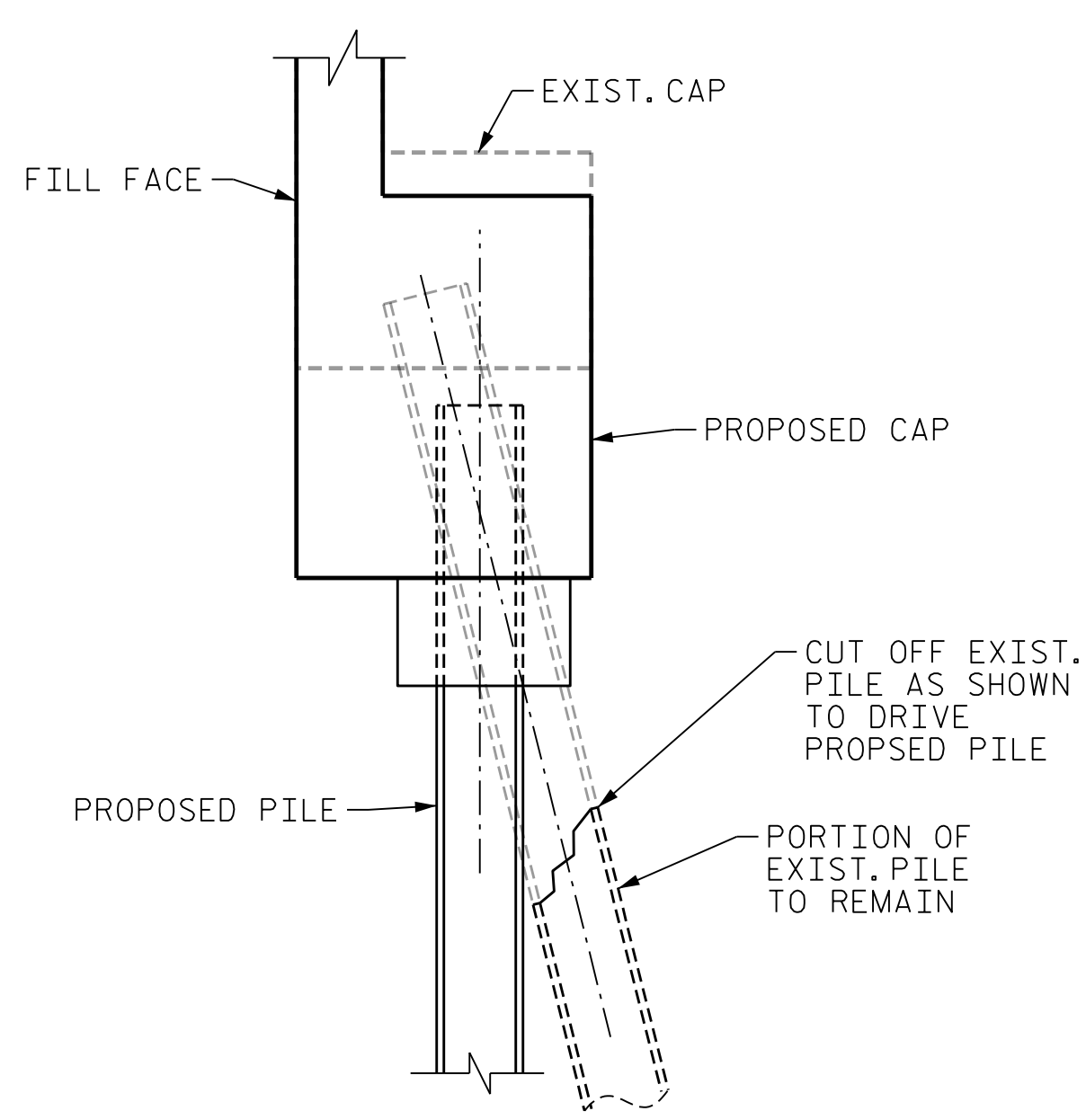
* ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS ARE SHOWN AT THIS POINT



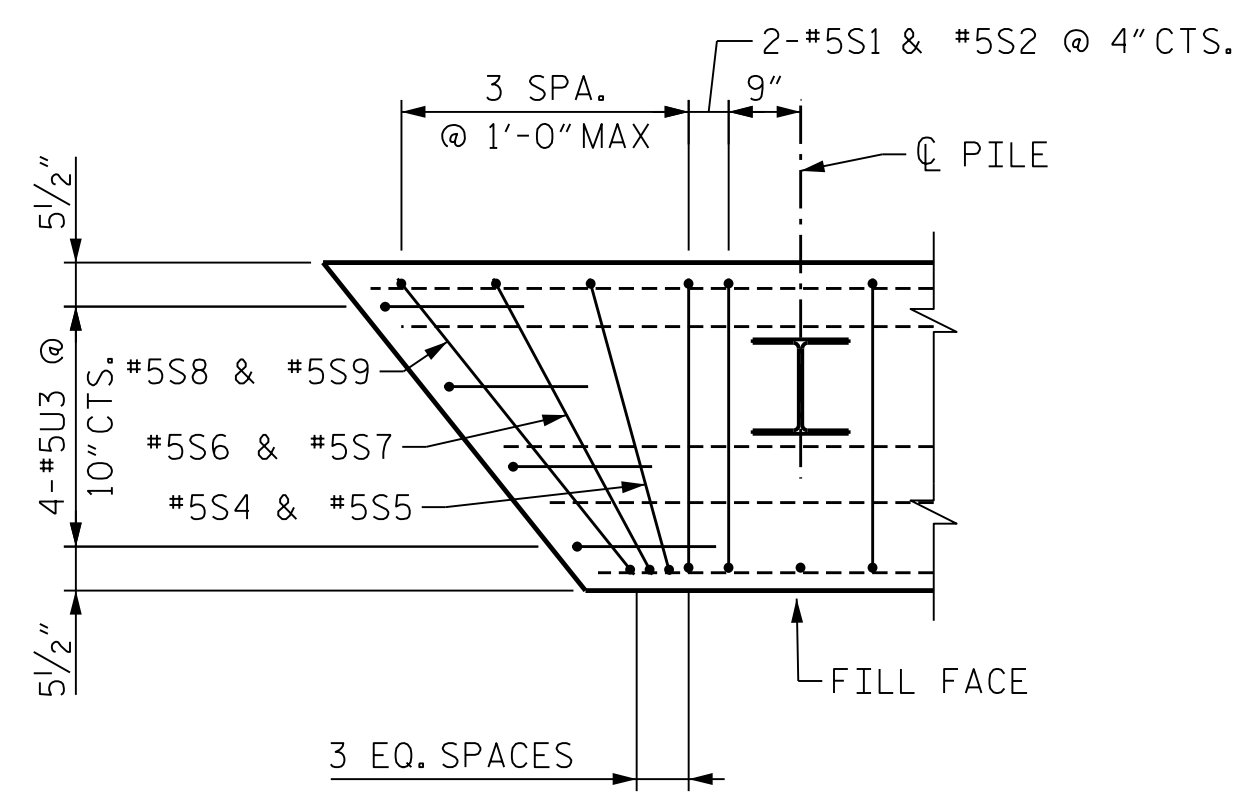
SECTION B-B



VIEW E-E

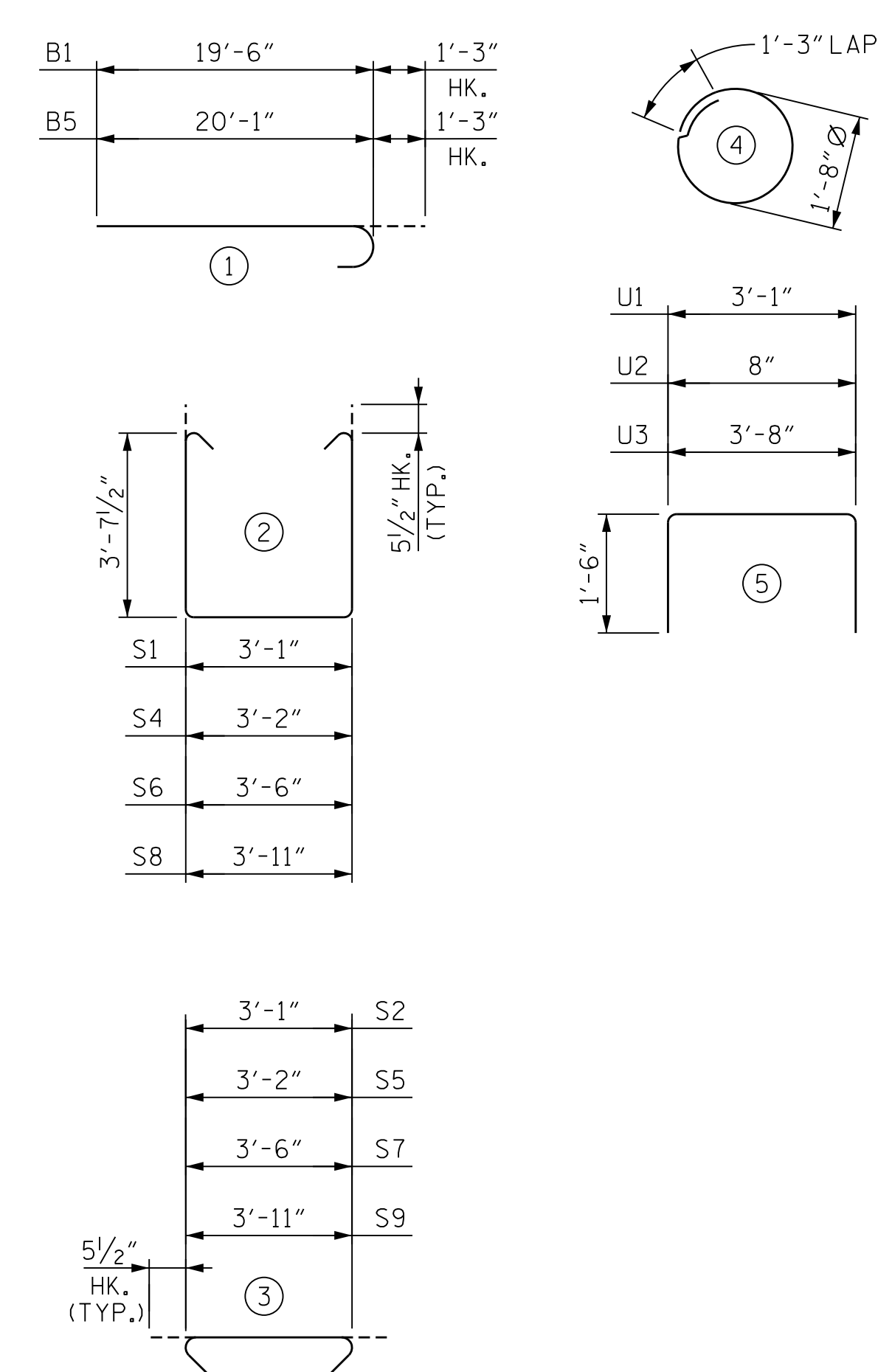


PILE CUT-OFF DETAIL



DETAIL "B"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	20'-9"	706
B2	16	#5	STR	18'-11"	316
B3	9	#4	STR	3'-1"	19
B4	8	#4	STR	18'-8"	100
B5	10	#9	1	21'-4"	725
B6	5	#5	STR	13'-2"	69
B7	5	#5	STR	2'-2"	11
B8	8	#4	STR	3'-9"	20
D1	2	#9	STR	4'-10"	33
K1	8	#4	STR	17'-4"	93
K2	8	#4	STR	18'-8"	100
S1	33	#5	2	11'-3"	387
S2	33	#5	3	4'-0"	138
S3	16	#4	4	6'-6"	69
S4	1	#5	2	11'-4"	12
S5	1	#5	3	4'-1"	4
S6	1	#5	2	11'-8"	12
S7	1	#5	3	4'-5"	5
S8	1	#5	2	12'-1"	13
S9	1	#5	3	4'-10"	5
U1	17	#5	5	6'-1"	108
U2	35	#4	5	3'-8"	86
U3	4	#5	5	6'-8"	28
V1	71	#5	STR	6'-2"	457
REINFORCING STEEL					LBS. 3516
CLASS A CONCRETE					
POUR #1 (COLLARS & CAP)				CU. YDS.	18.5
POUR #2 (BACKWALL)				CU. YDS.	3.6
TOTAL				CU. YDS.	22.1
▲ HP12x53 STEEL PILES					NO. 4
					LIN. FT. 300
STEEL H-PILE POINTS					NO. 4

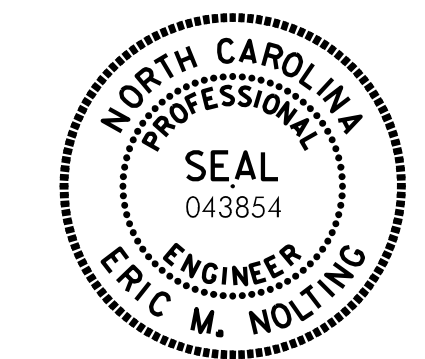
▲ PILE LENGTHS ARE BASED ON ESTIMATED TIP ELEVATIONS

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
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 RALEIGH

**SUBSTRUCTURE
 END BENT 2
 SECTIONS AND DETAILS**



Eric Nolting 1/24/2022

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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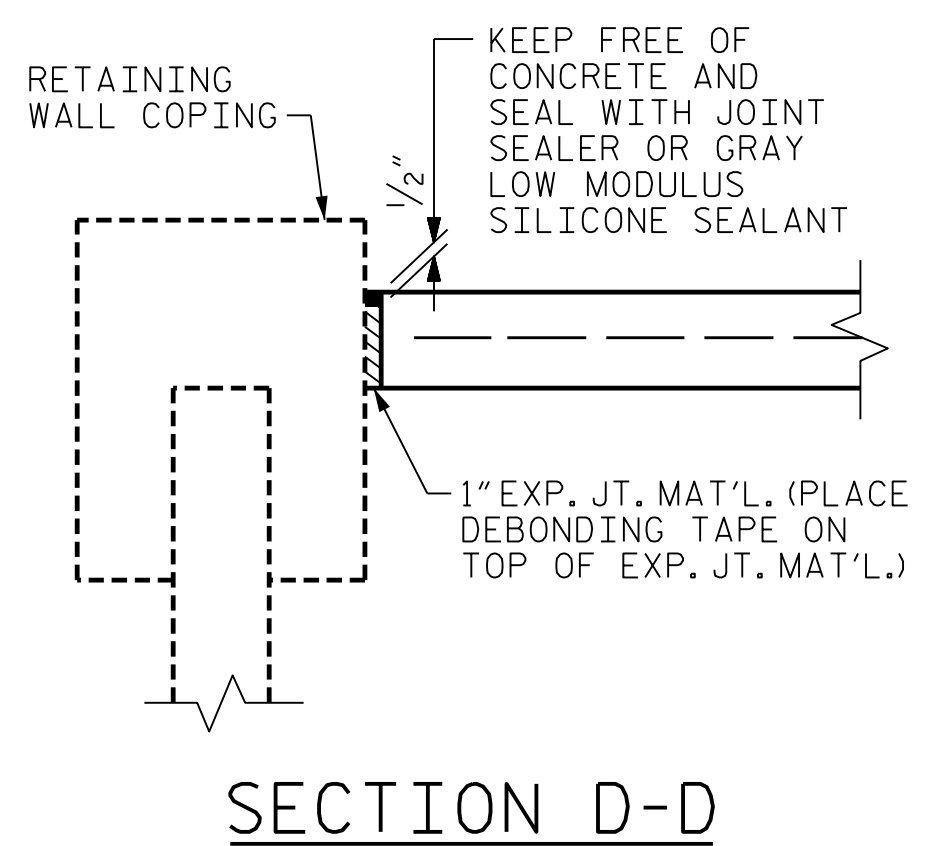
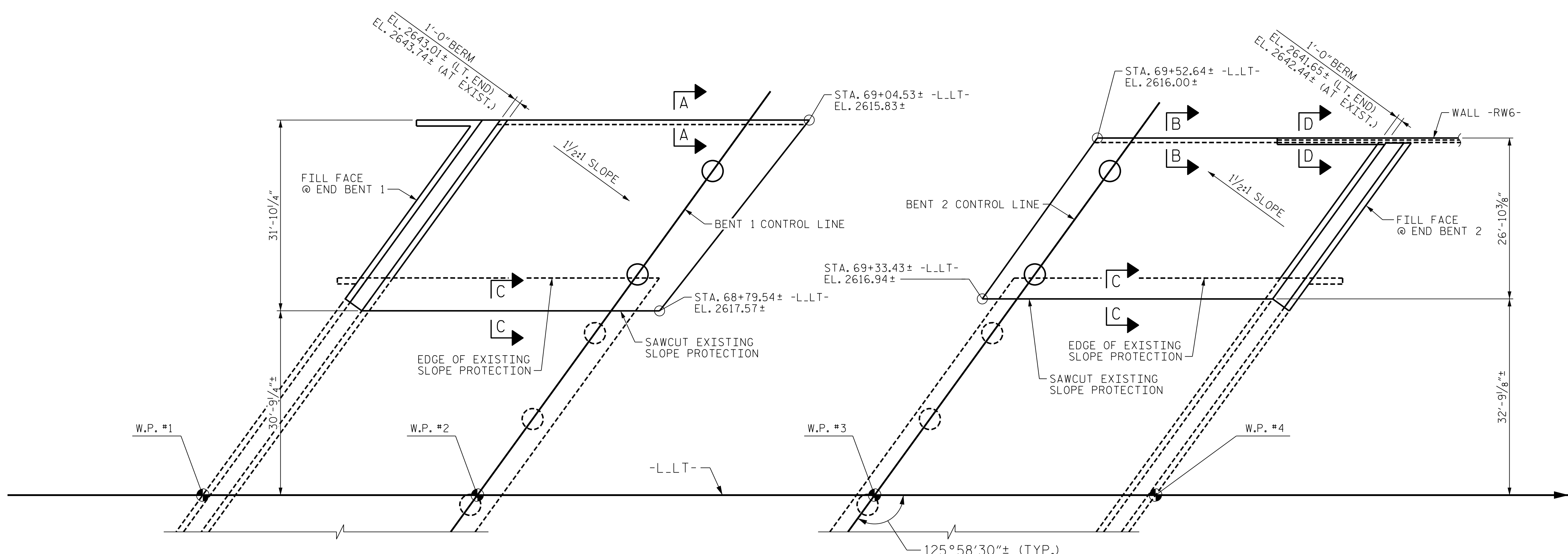
SHEET NO.
SO3L-32
TOTAL SHEETS
44



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DES BY:	B. ROGERS	DATE:	06/21	DWG BY:	B. PETERSON	DATE:	06/21
DES CHK:	F. CORDOVA	DATE:	06/21	CHK BY:	F. CORDOVA	DATE:	06/21



END BENT 1

END BENT 2

GENERAL NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

PLAN

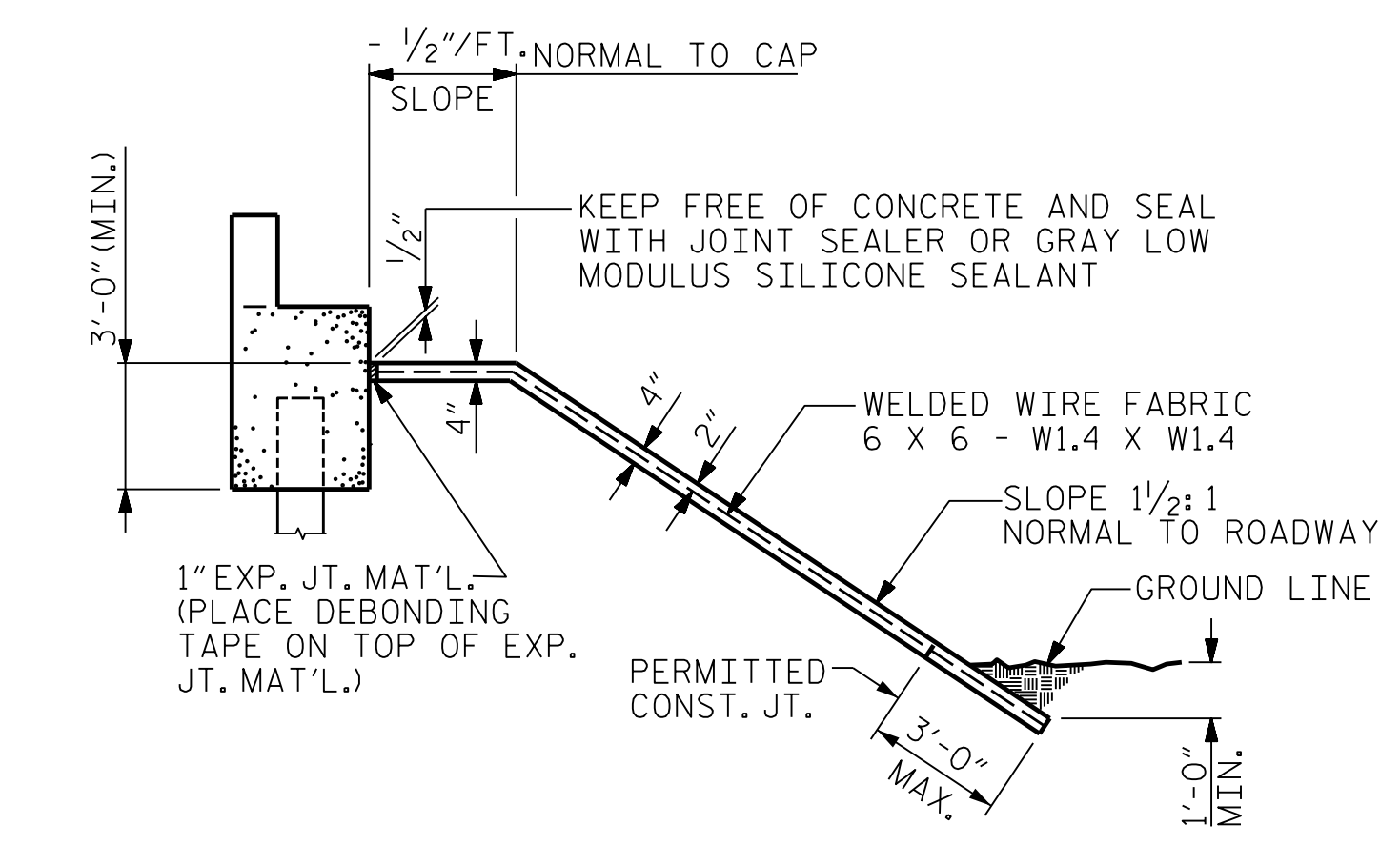
ALTERNATE "A"

ALTERNATE "A" SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

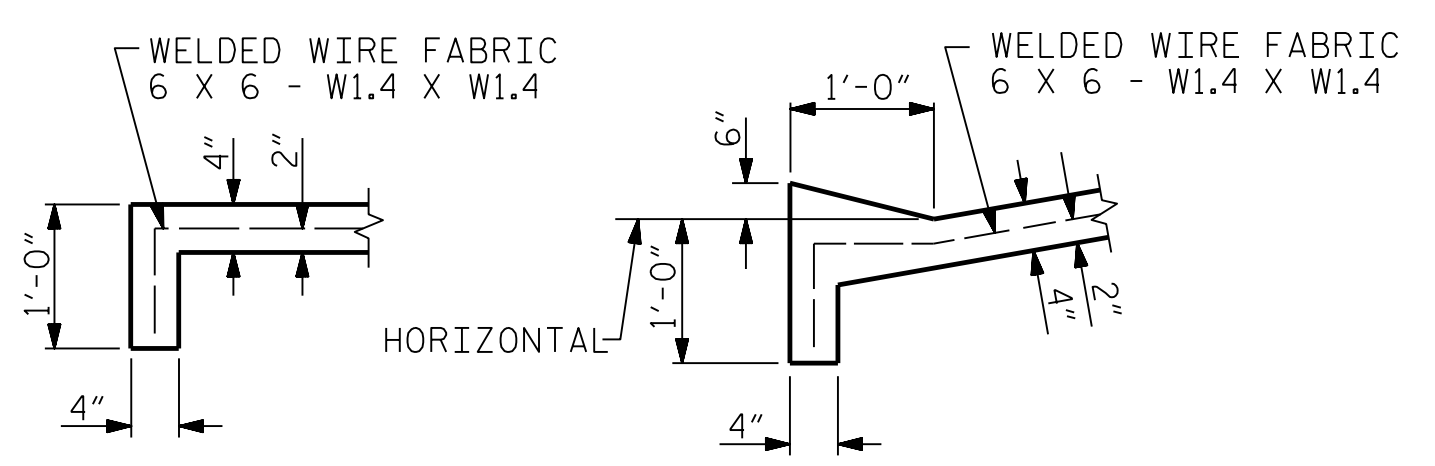
BRIDGE @ STA. 68+82.30± -L-LT-	4" INCH SLOPE PROTECTION SQUARE YARDS	*WELDED WIRE FABRIC 60 INCHES WIDE APPROX. L.F.
END BENT 1	214.6	387
END BENT 2	171.5	309

* QUANTITY SHOWN IS BASED ON 5' POURS.

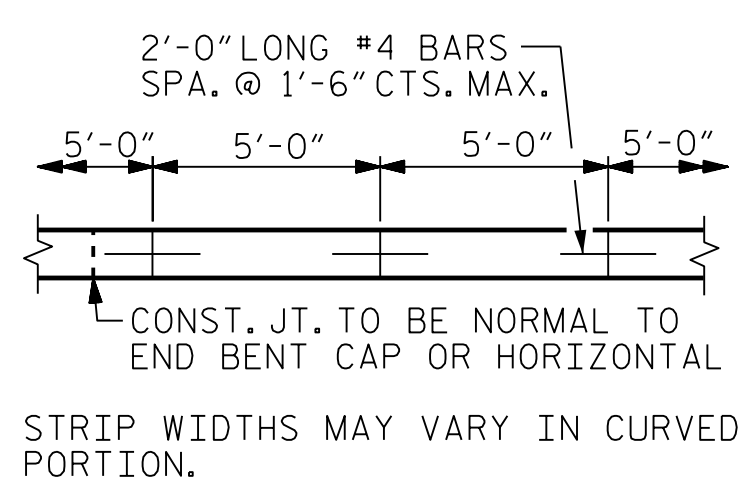
PLAN WHERE CONCRETE SLOPE PROTECTION MUST BE PLACED AROUND A BENT COLUMN



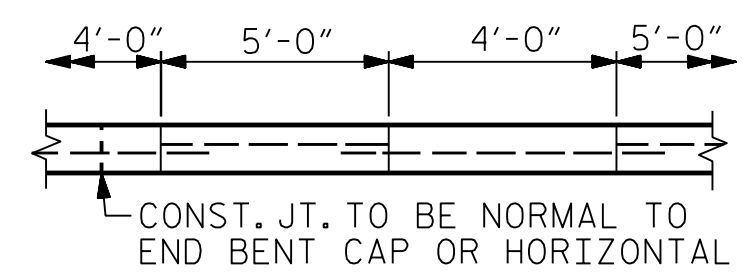
SECTION ALONG C SURVEY WHEN DITCH IS NOT PROVIDED



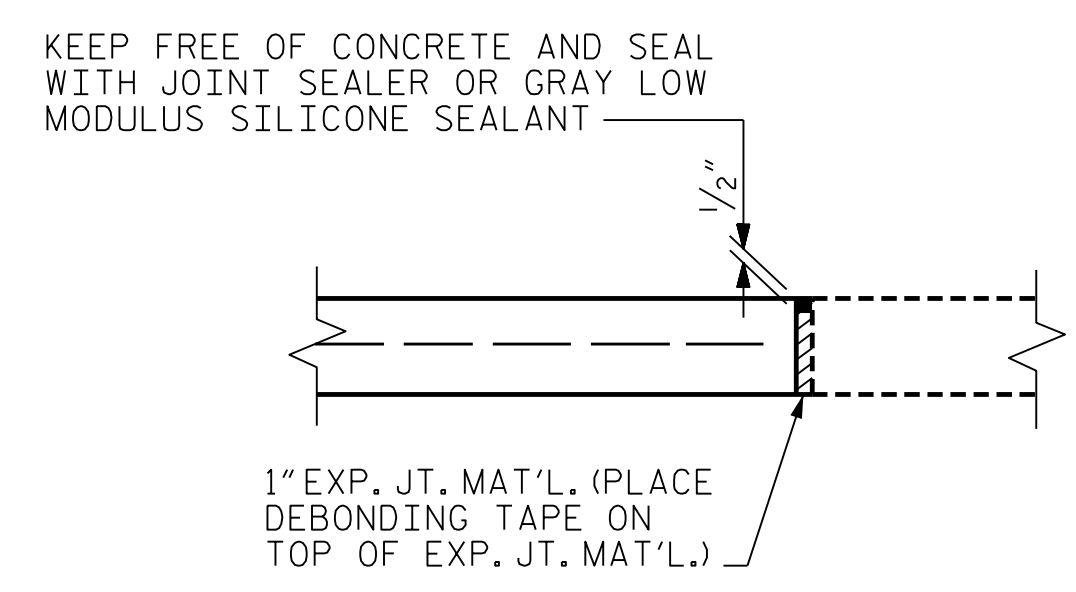
SECTION A-A SECTION B-B



POURING DETAIL



OPTIONAL POURING DETAIL

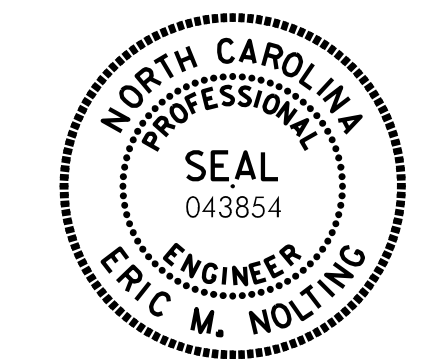


SECTION C-C

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-

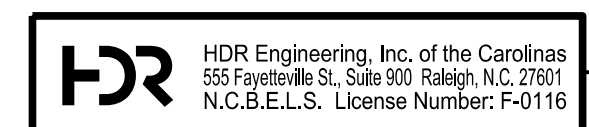
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION DETAILS



Eric M. Nolting 1/24/2022

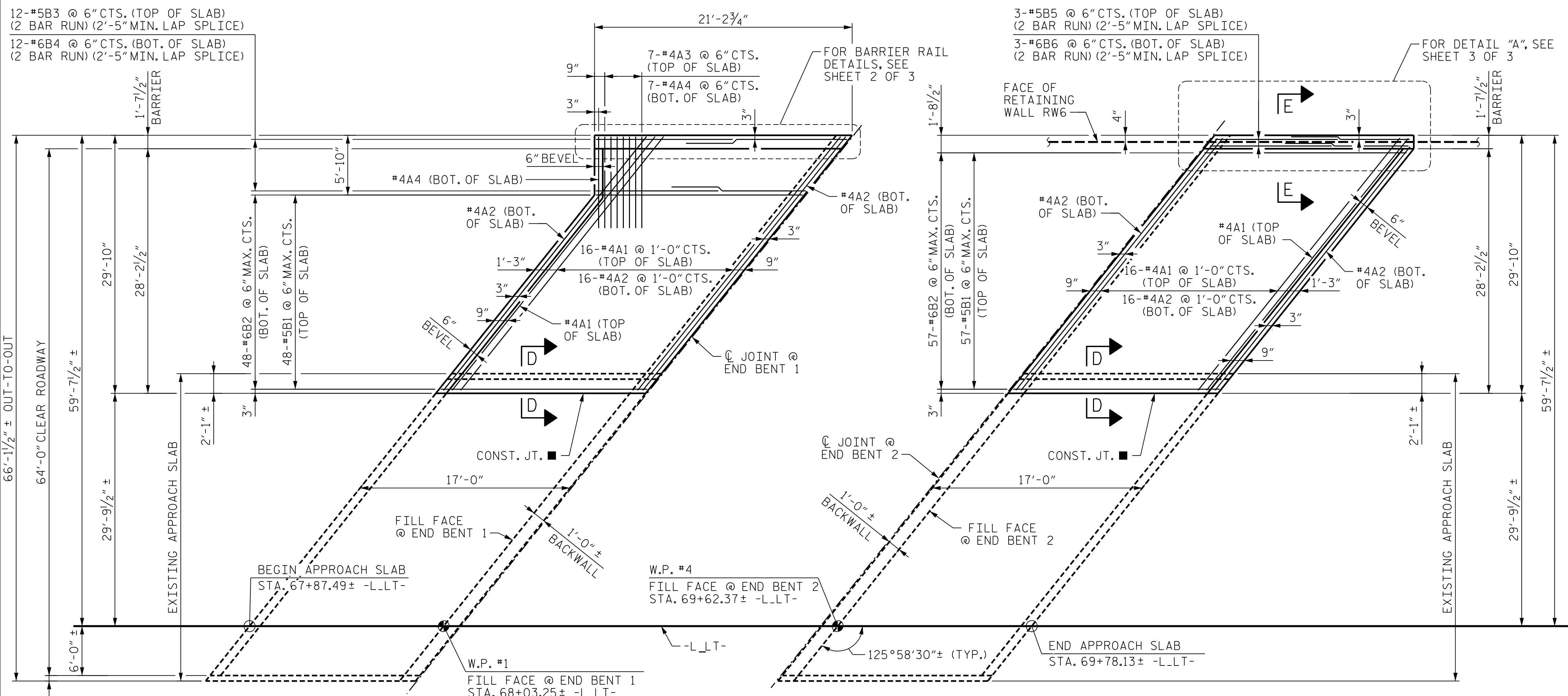
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DES BY: F. CORDOVA	DATE: 07/21	DWG BY: B. PETERSON	DATE: 07/21
DES CHK: E. NOLTING	DATE: 07/21	CHK BY: E. NOLTING	DATE: 07/21



NOTES

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

GEOTEXTILE SHALL BE TYPE I 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.

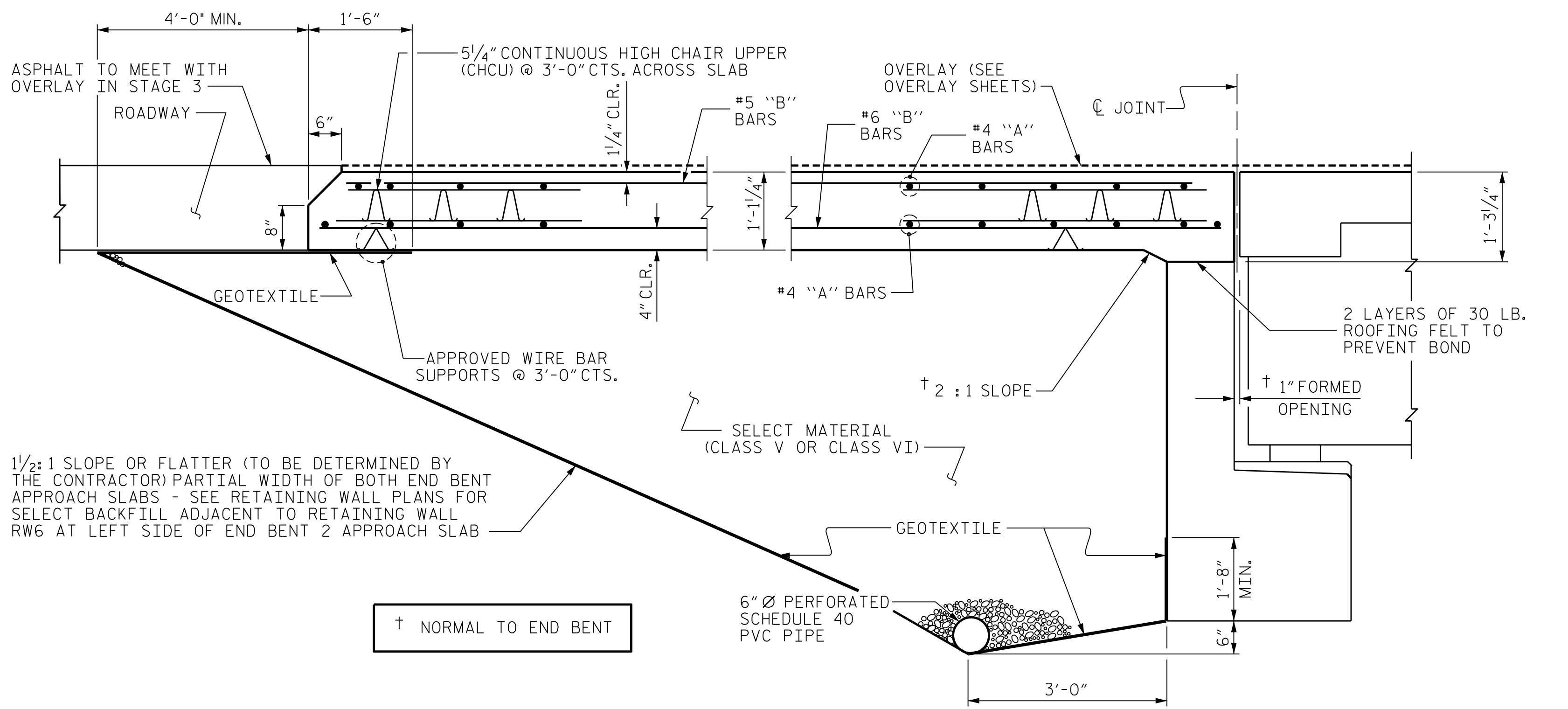
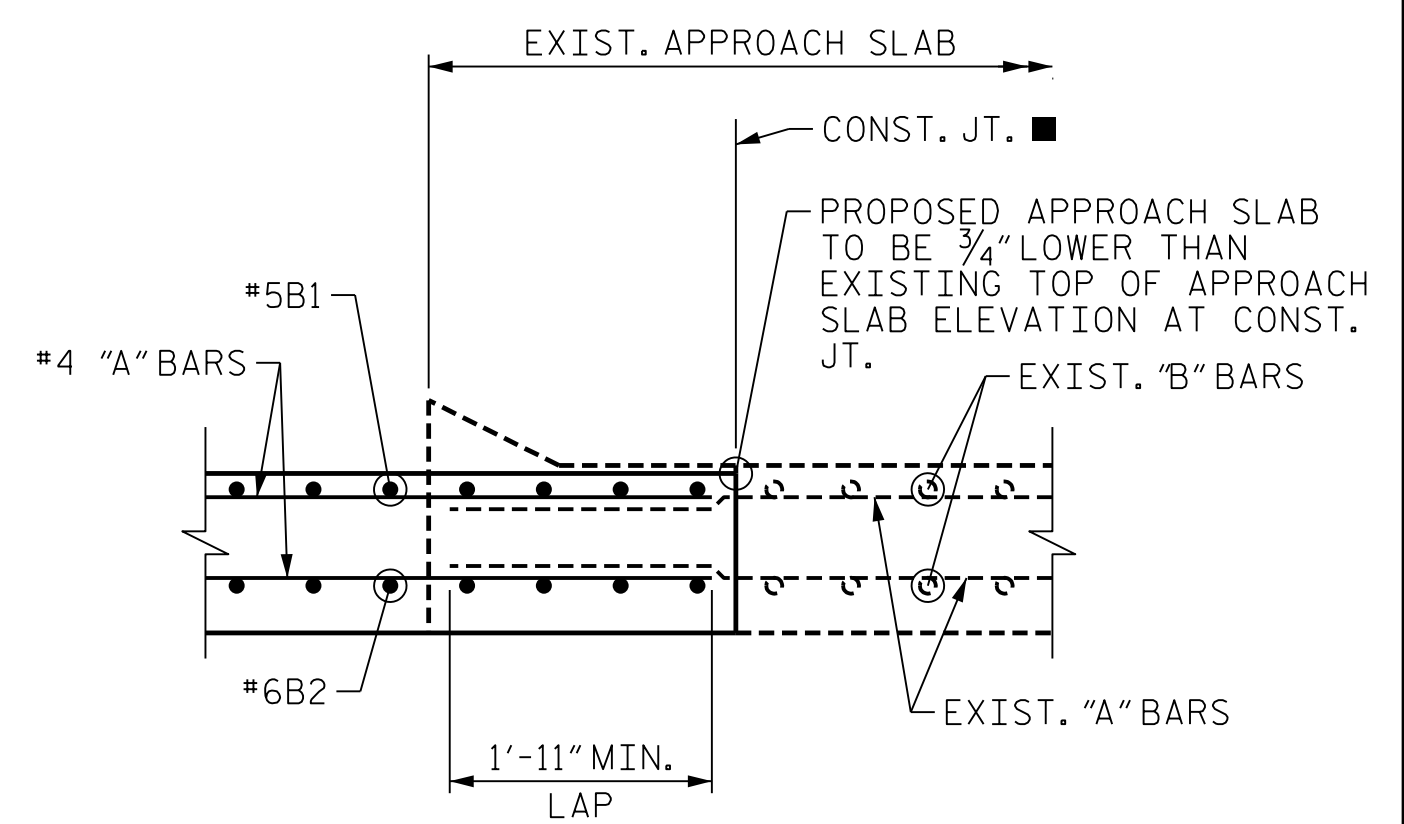
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

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.

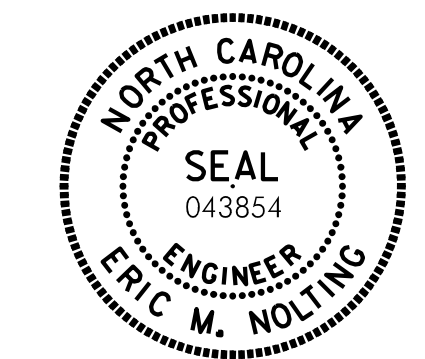
FOR DETAIL "A" AND SECTION E-E, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET 3 OF 3.



1/2" DEEP SAWCUT IN TOP OF DECK. REMOVE REMAINING CONCRETE USING MEANS THAT AVOID DAMAGE TO THE EXISTING TRANSVERSE REINFORCING.

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-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-
 SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB PLAN AND SECTION

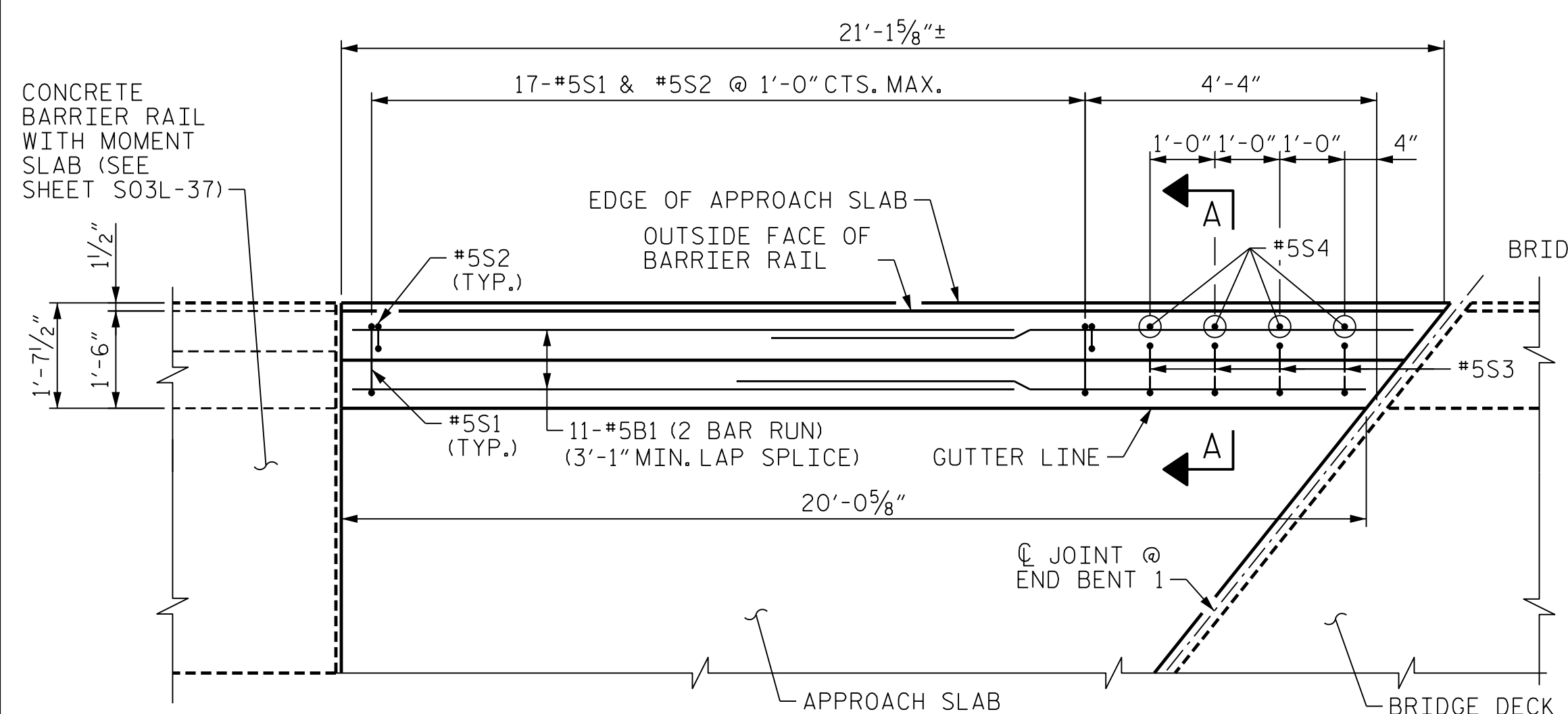
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1	--	--	3	--	--	44
2	--	--	4	--	--	

HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

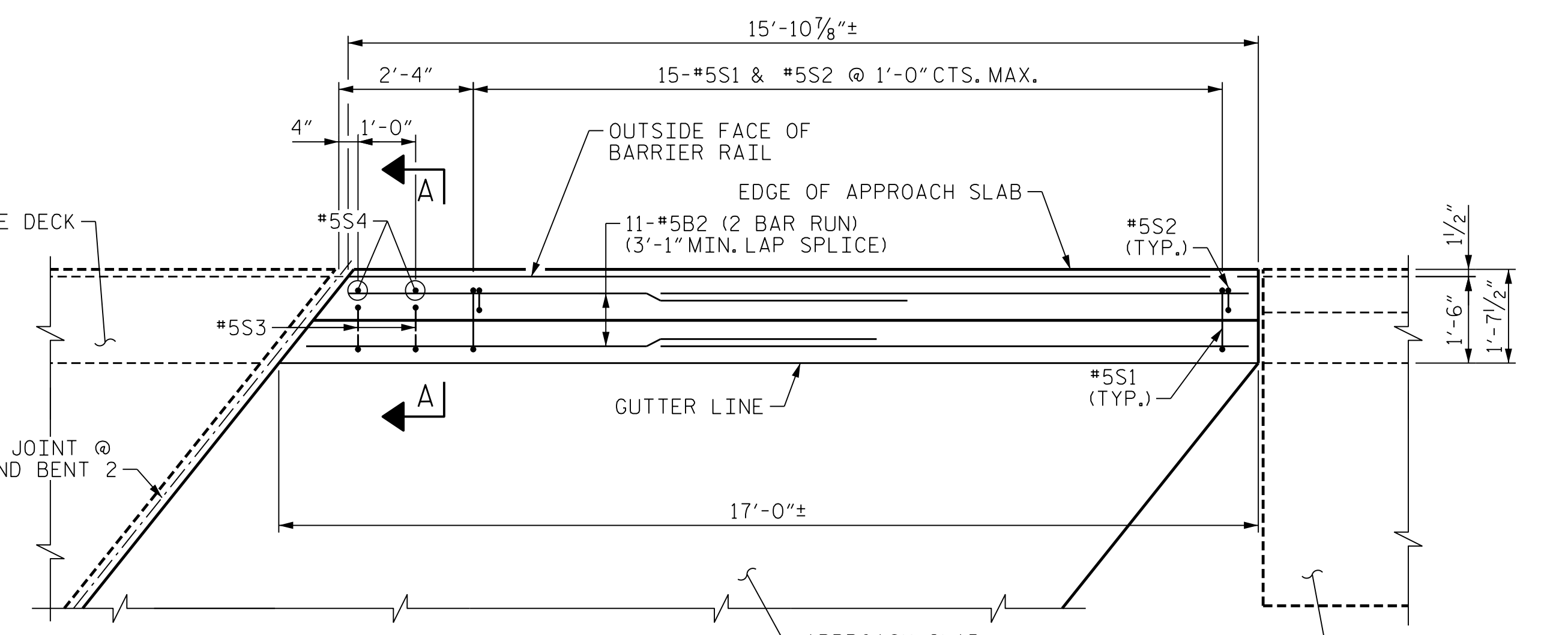
Eric Nolting 1/24/2022
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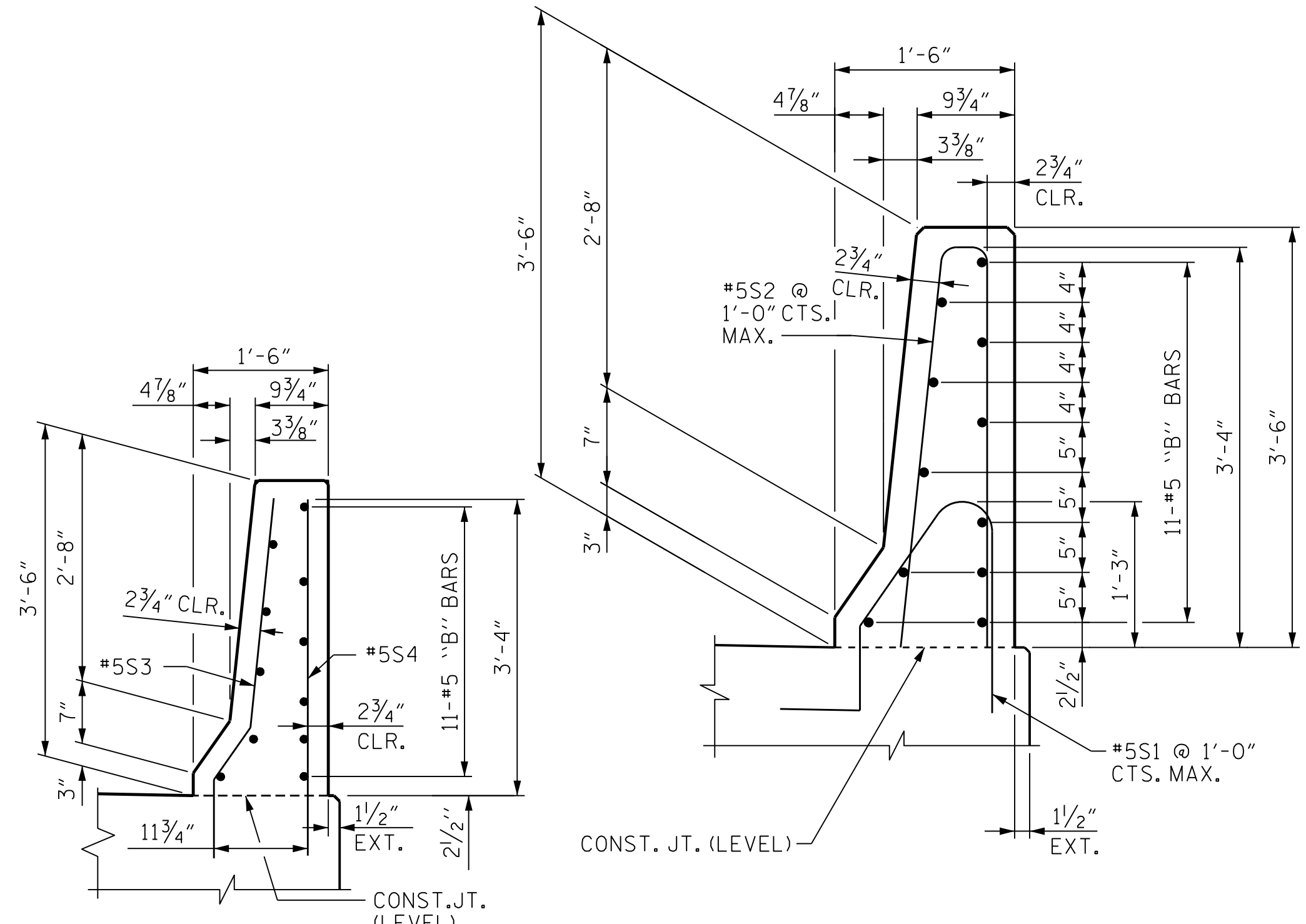
DES BY: F. CORDOVA DATE: 03/21
 DES CHK: G. MYERS DATE: 07/21
 DWG BY: B. PETERSON DATE: 03/21
 CHK BY: G. MYERS DATE: 07/21



PLAN OF BARRIER RAIL AT END BENT 1



PLAN OF BARRIER RAIL AT END BENT 2



BARRIER RAIL DETAILS

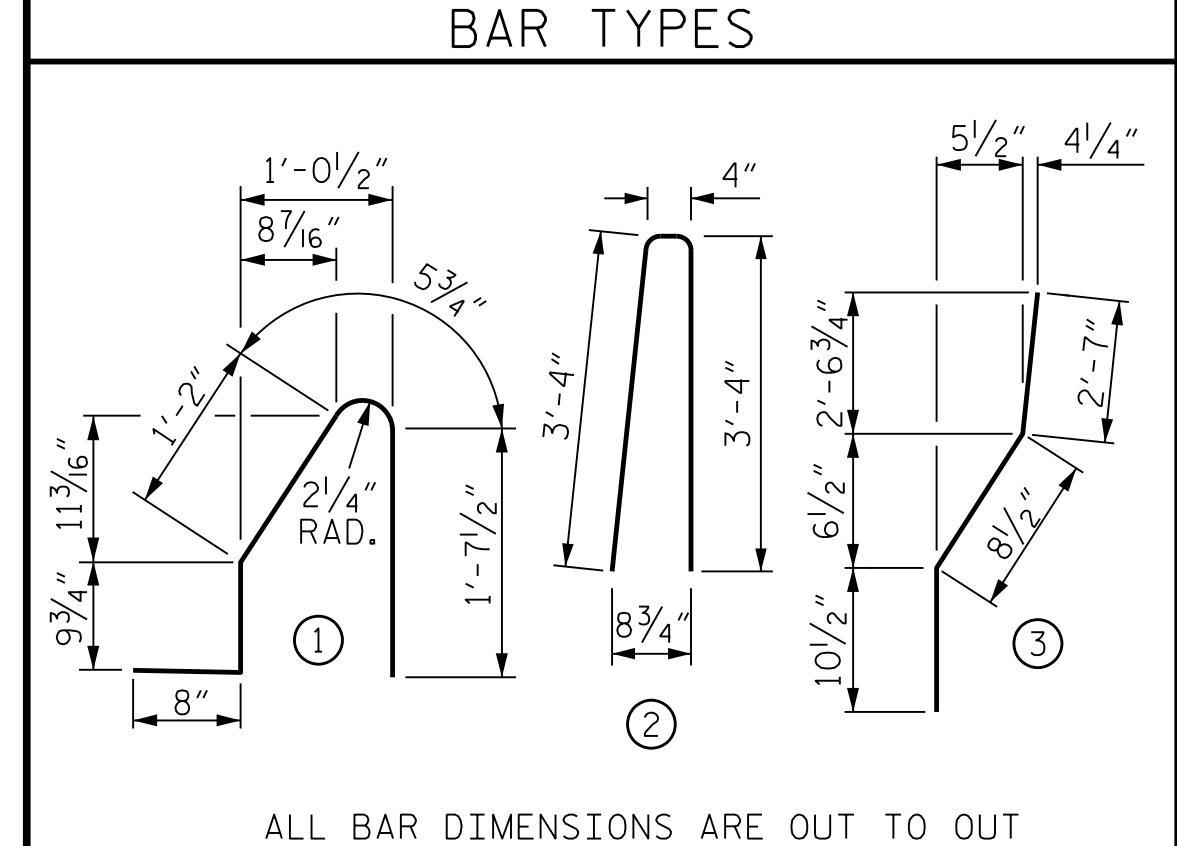
NOTES

- THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.
- THE #5S3 AND #5S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5S3 AND #5S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
- 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.
- WHEN FOAM JOINT SEAL IS REQUIRED, THE JOINT IN THE APPROACH SLAB SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.
- THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

BILL OF MATERIAL					
BARRIER RAIL AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	22	#5	STR	12'-0"	276
* S1	17	#5	1	4'-9"	85
* S2	17	#5	2	7'-0"	125
* S3	4	#5	3	4'-2"	18
* S4	4	#5	STR	4'-0"	17
* EPOXY COATED REINFORCING STEEL					LBS. 521
CLASS AA CONCRETE					C. Y. 2.9
CONCRETE BARRIER RAIL					20.3 LIN. FT.

BARRIER RAIL AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B2	22	#5	STR	9'-11"	228
* S1	15	#5	1	4'-9"	75
* S2	15	#5	2	7'-0"	110
* S3	2	#5	3	4'-2"	9
* S4	2	#5	STR	4'-0"	9
* EPOXY COATED REINFORCING STEEL					LBS. 531
CLASS AA CONCRETE					C. Y. 2.4
CONCRETE BARRIER RAIL					17.0 LIN. FT.

BAR TYPES					
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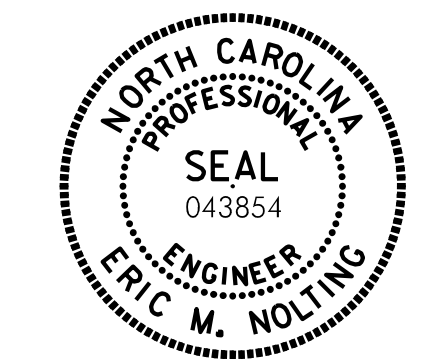
ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**



Eric Nolting 1/24/2022

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

SHEET NO. SO3L-35
 TOTAL SHEETS 44

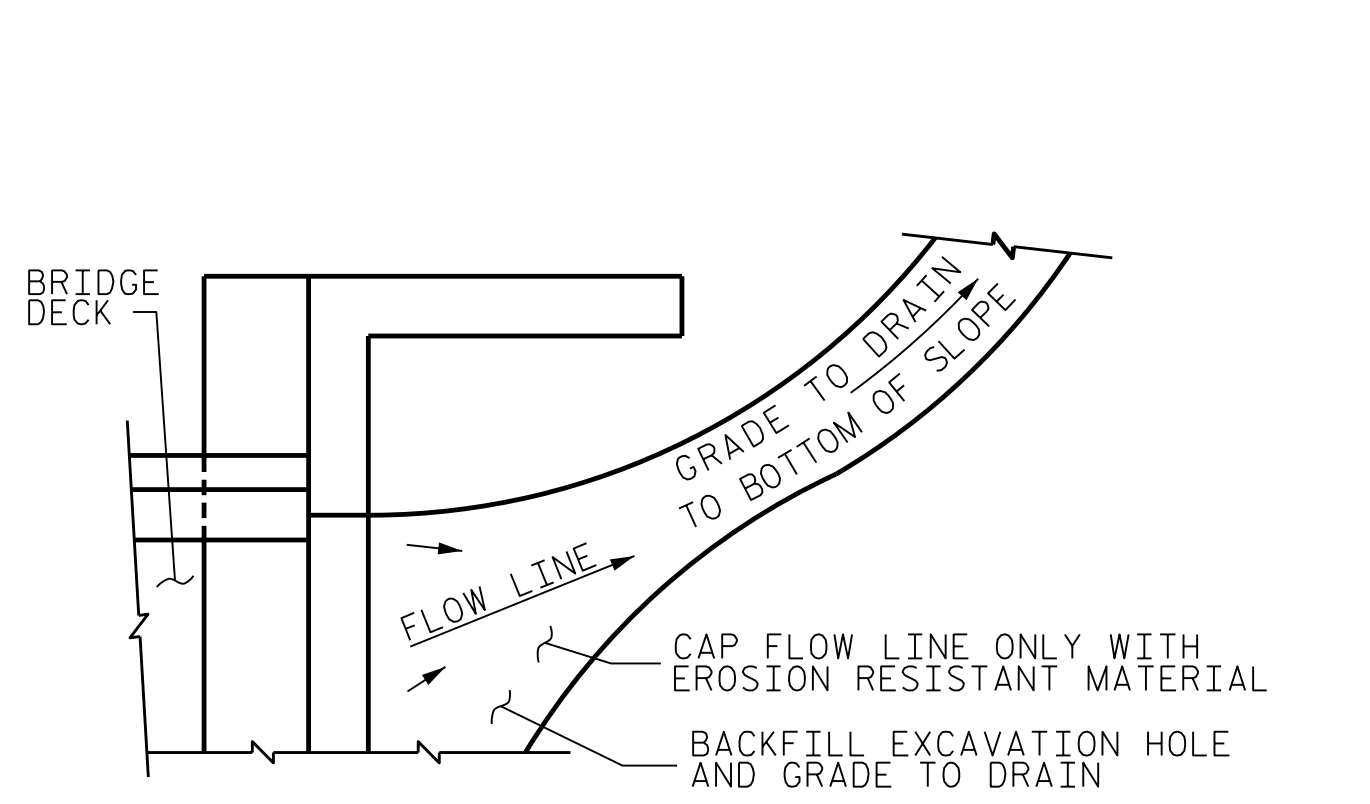


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 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
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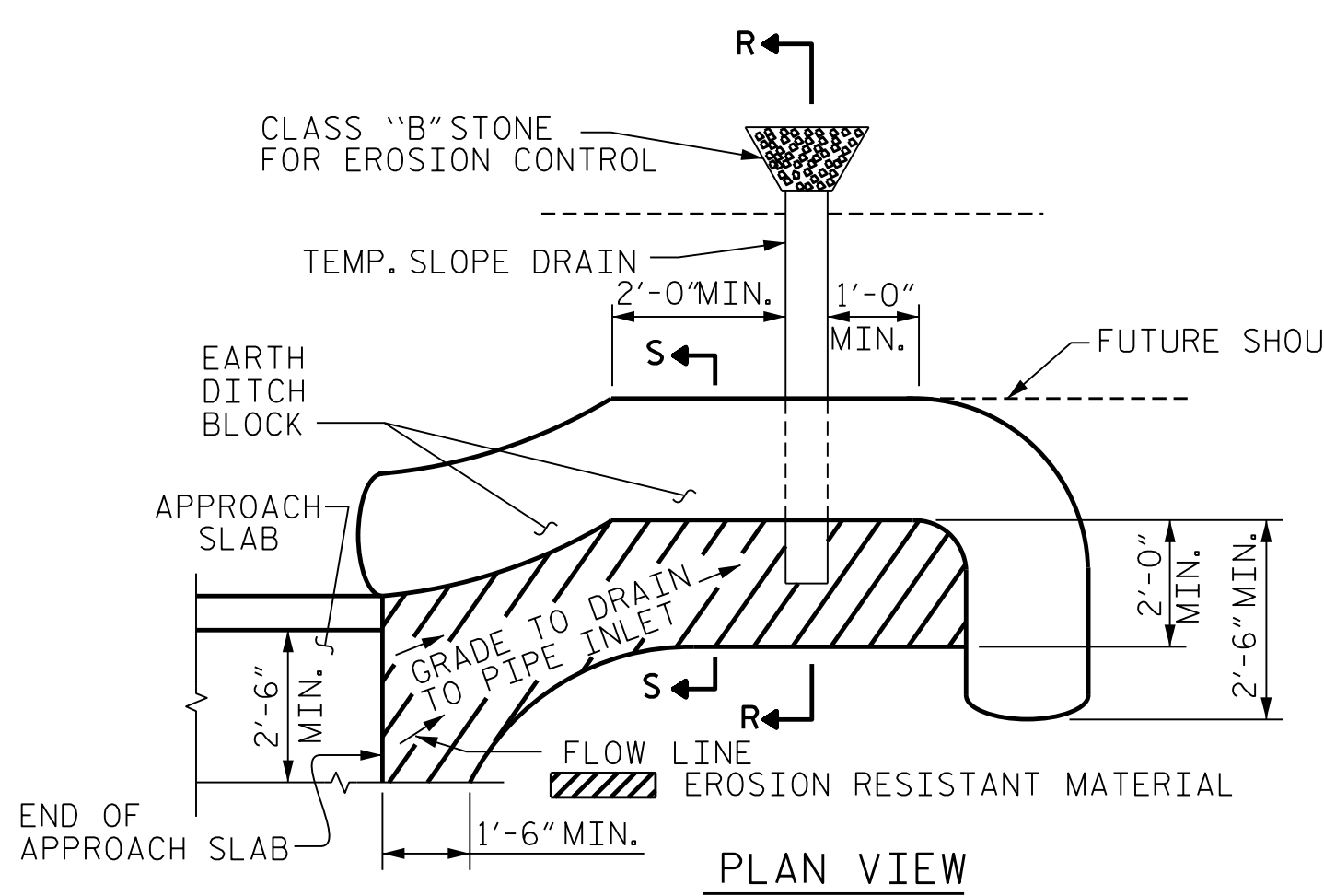
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DES BY: <u>S. RAVINDRAN</u>	DATE: <u>06/21</u>	DWG BY: <u>M. SELLS</u>	DATE: <u>06/21</u>
DES CHK: <u>G. MYERS</u>	DATE: <u>06/21</u>	CHK BY: <u>G. MYERS</u>	DATE: <u>07/21</u>

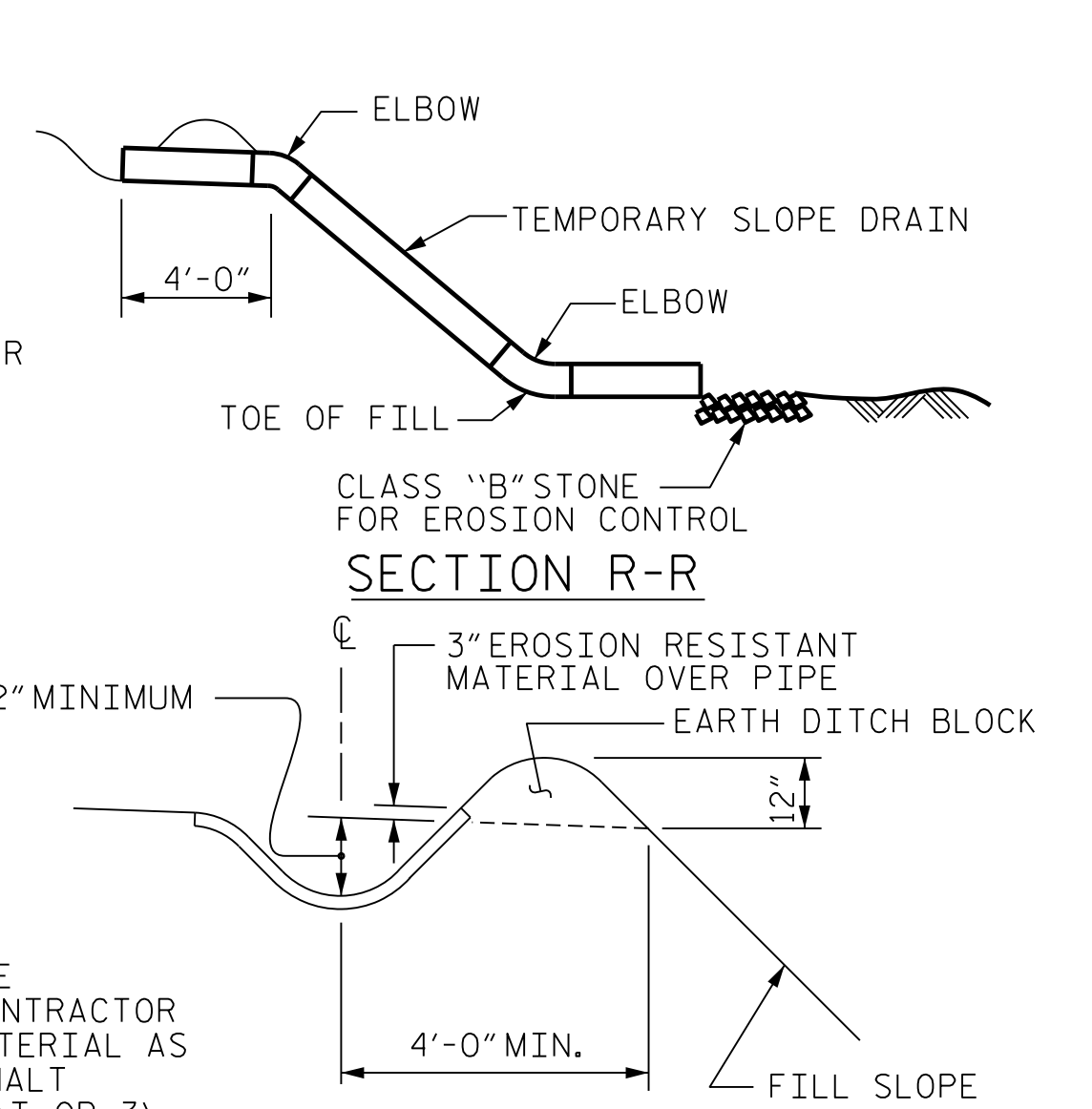


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

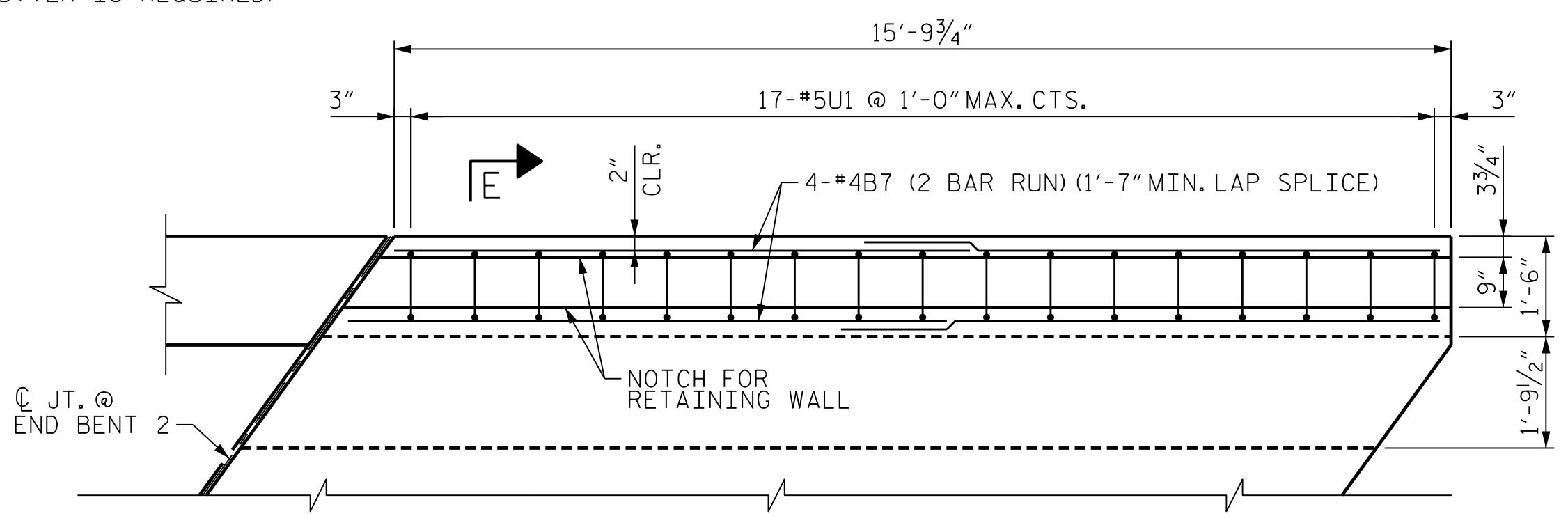


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



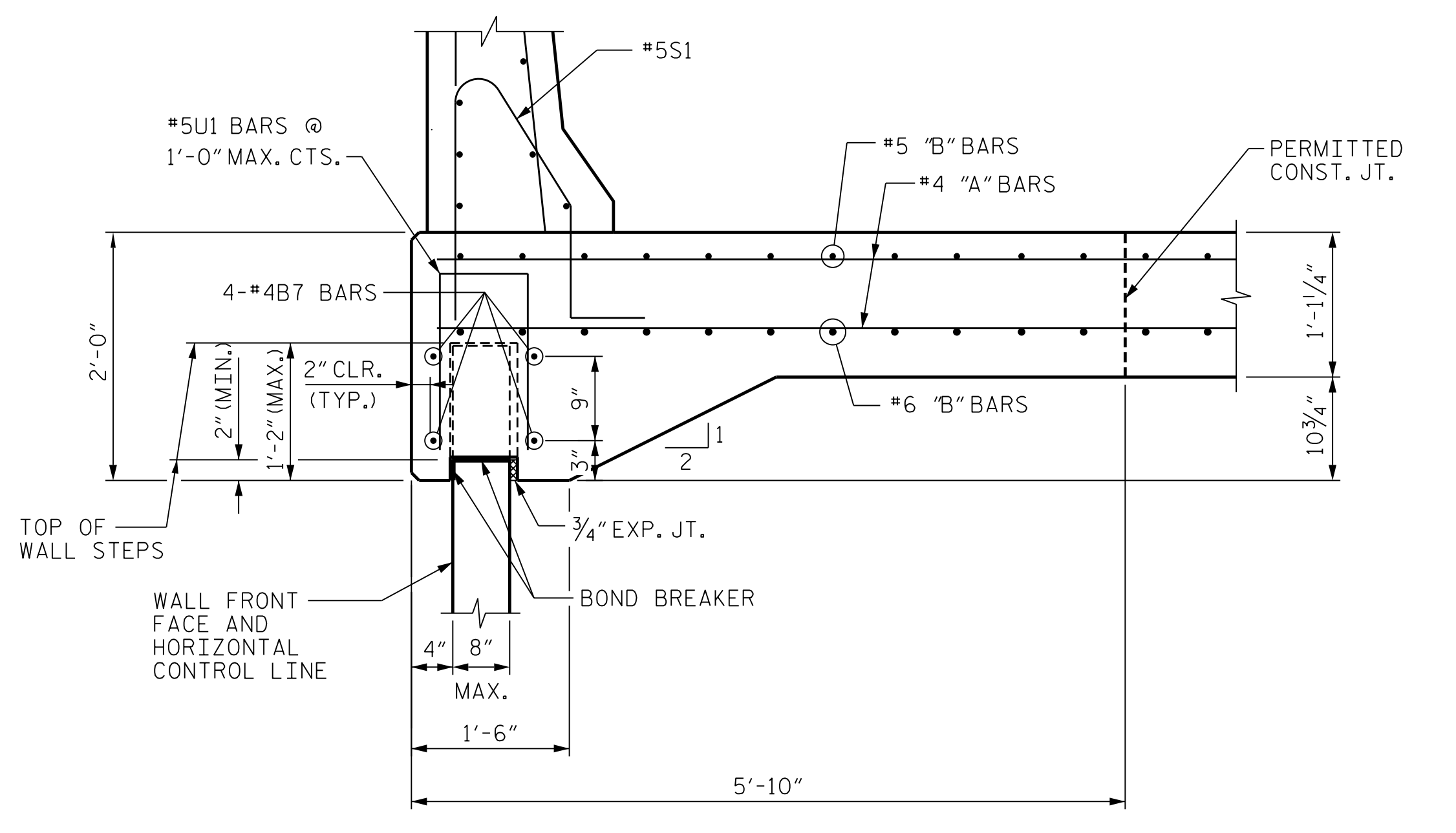
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



DETAIL "A"

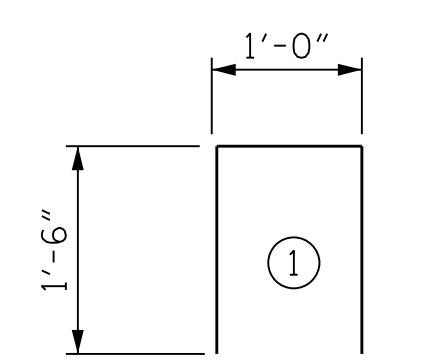
MAIN APPROACH SLAB AND BARRIER RAIL STEEL NOT SHOWN FOR CLARITY



SECTION E-E

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	17	#4	STR	36'-5"	414
A2	18	#4	STR	36'-5"	438
* A3	7	#4	STR	7'-1"	34
A4	8	#4	STR	6'-10"	37
* B1	48	#5	STR	15'-3"	764
B2	48	#6	STR	16'-6"	1190
* B3	24	#5	STR	11'-4"	284
B4	24	#6	STR	11'-7"	418
REINFORCING STEEL				LBS.	2,083
* EPOXY COATED REINFORCING STEEL				LBS.	1,496
CLASS AA CONCRETE				C. Y.	26.3
APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	17	#4	STR	36'-5"	414
A2	18	#4	STR	36'-5"	438
* B1	57	#5	STR	15'-3"	907
B2	57	#6	STR	16'-6"	1413
* B5	6	#5	STR	9'-2"	58
B6	6	#6	STR	9'-6"	86
B7	8	#4	STR	9'-1"	49
U1	17	#5	1	4'-0"	71
REINFORCING STEEL				LBS.	2,057
* EPOXY COATED REINFORCING STEEL				LBS.	1,379
CLASS AA CONCRETE				C. Y.	27.0

BAR TYPES



ALL DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**



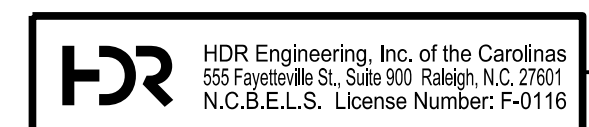
Eric Nolting 1/24/2022

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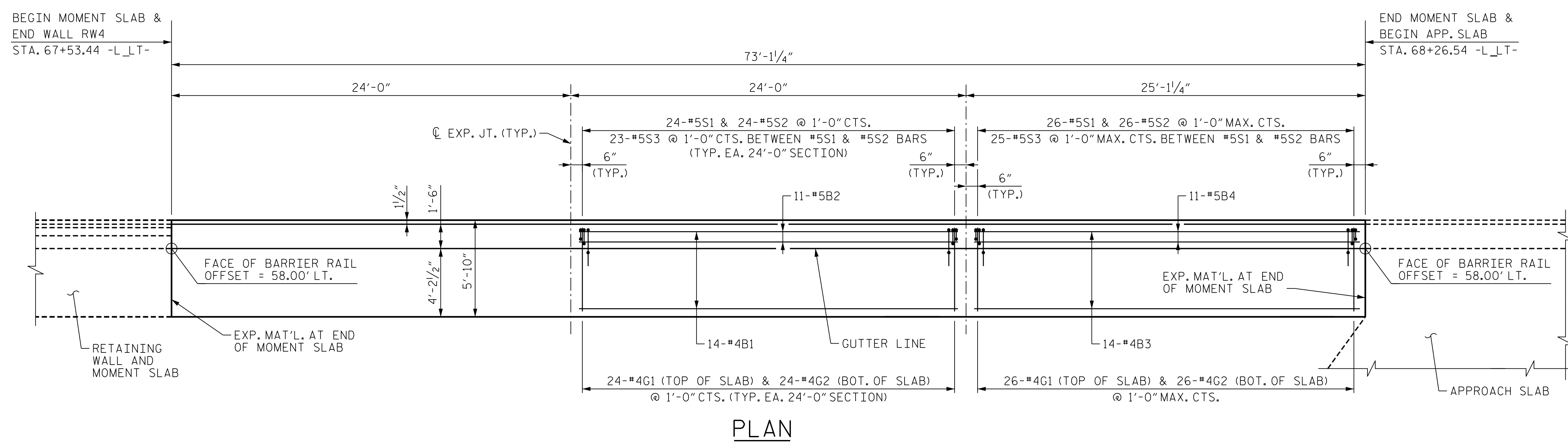
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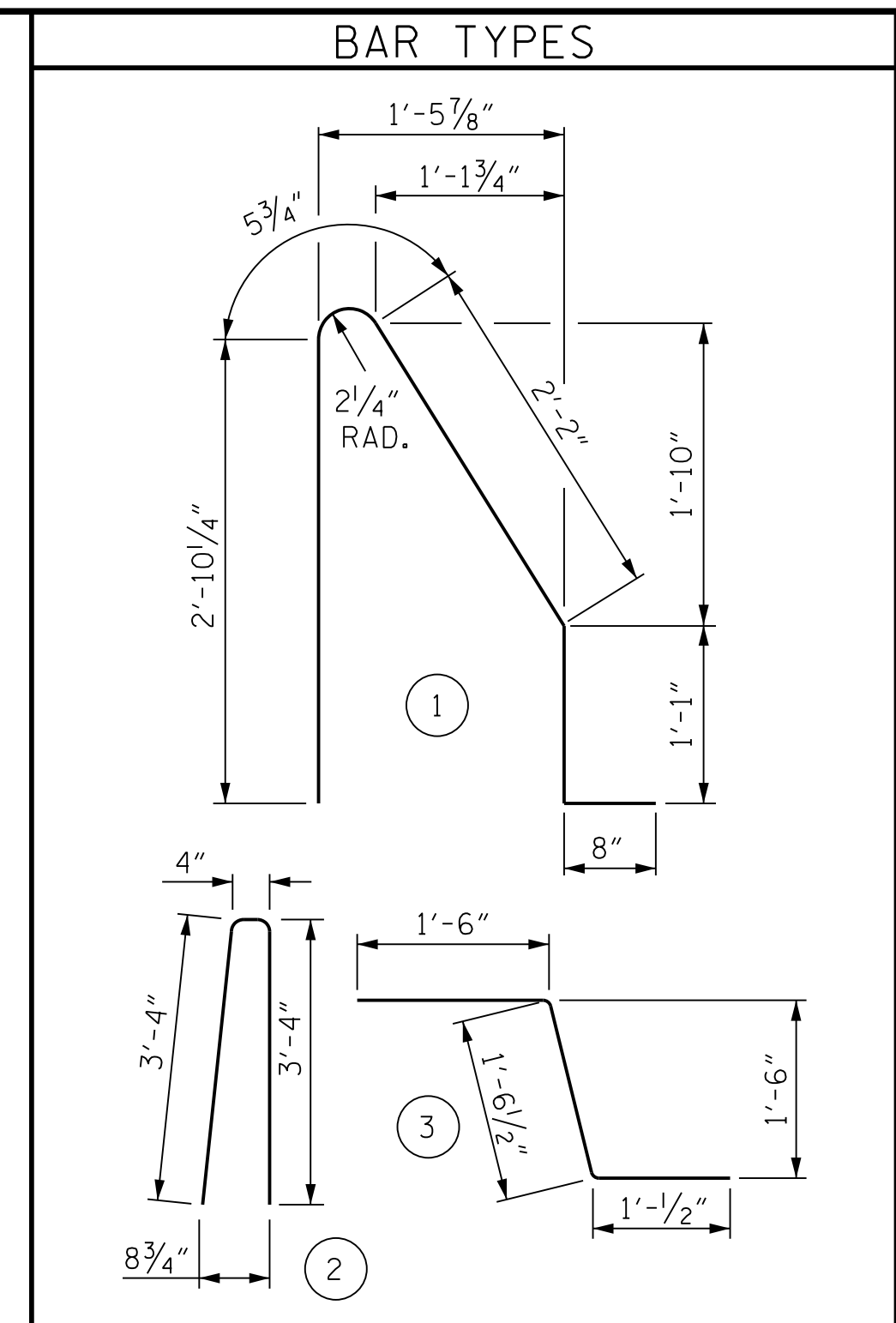
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DES CHK: <u>G. MYERS</u>	DATE: <u>07/21</u>	CHK BY: <u>G. MYERS</u>	DATE: <u>07/21</u>



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PLAN



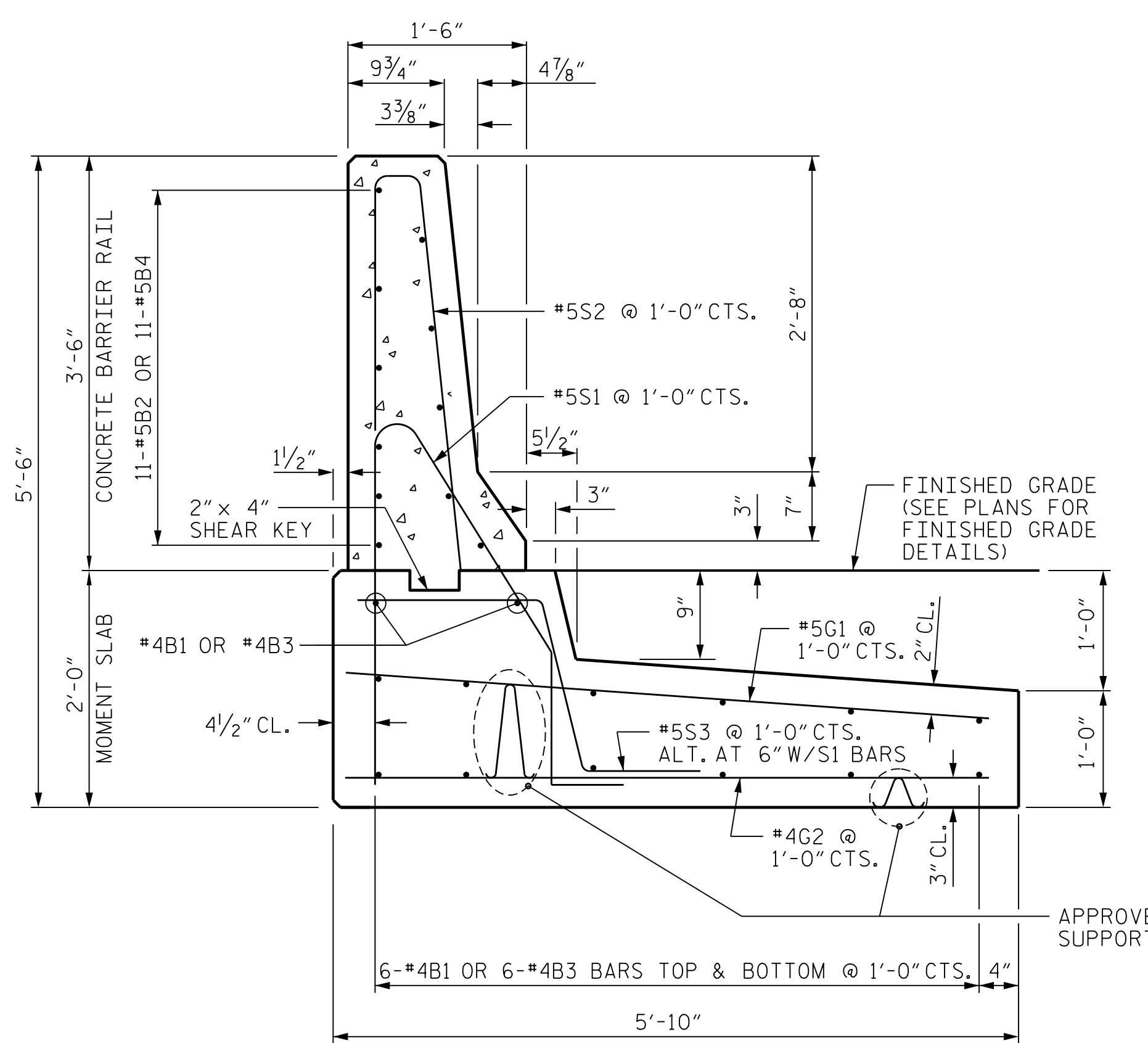
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

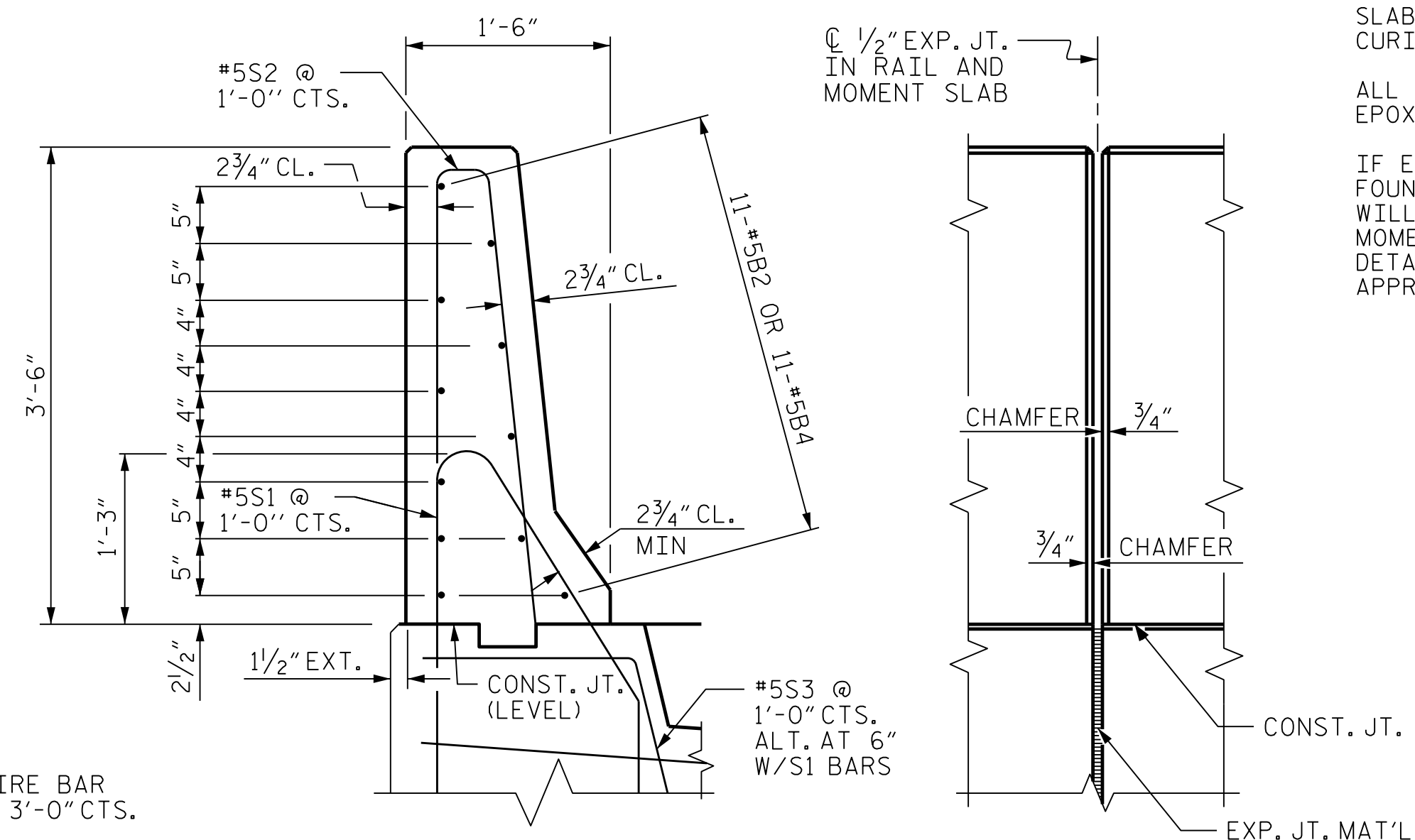
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	28	#4	STR	23'-7"	442
* B2	22	#5	STR	23'-7"	542
B3	14	#4	STR	24'-8"	231
* B4	11	#5	STR	24'-8"	284
G1	74	#5	STR	5'-6"	425
G2	74	#4	STR	5'-6"	272
* S1	74	#5	1	7'-3"	560
* S2	74	#5	2	7'-0"	541
S3	71	#5	3	4'-1"	303
REINFORCING STEEL					1673 LB
* EPOXY COATED REINFORCING STEEL					1927 LB
CLASS AA CONCRETE BARRIER RAIL					9.9 CY
CLASS A CONCRETE MOMENT SLAB					22.6 CY
CONCRETE BARRIER RAIL WITH MOMENT SLAB					73.1 LIN FT

NOTES:

- FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB, SEE SECTION 460 OF THE STANDARD SPECIFICATIONS.
- CONCRETE BARRIER RAIL WITH MOMENT SLAB SHALL BE A MINIMUM OF 15' IN LENGTH.
- EXPANSION JOINTS SHALL BE PLACED IN THE BARRIER RAIL AND MOMENT SLAB AT A MAXIMUM SPACING OF 30'.
- GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED SURFACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MID-POINT OF BARRIER RAIL SEGMENTS LESS THAN 20' IN LENGTH.
- THE BARRIER RAIL SHALL NOT BE CAST UNTIL THE MOMENT SLAB HAS ATTAINED AN AGE OF THREE CURING DAYS OR A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI. IN ADDITION, NO FILL MATERIAL, ASPHALT, OR CONSTRUCTION EQUIPMENT IS ALLOWED ON THE MOMENT SLAB PRIOR TO SATISFYING THE MINIMUM CONCRETE CURING AND STRENGTH REQUIREMENTS.
- ALL REINFORCING STEEL IN THE BARRIER RAIL SHALL BE EPOXY COATED.
- IF EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, BARRIERS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH CONCRETE BARRIER RAIL WITH MOMENT SLAB, CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS SHALL BE REVISED AND SUBMITTED FOR APPROVAL.



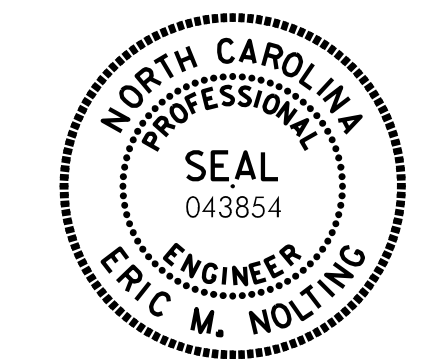
CONCRETE BARRIER RAIL WITH MOMENT SLAB



SECTION THRU RAIL

ELEV. @ EXP. JOINTS

BARRIER RAIL DETAILS



Eric Nolting 1/24/2022

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
STATION: 68+82.30± -L-LT-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
CONCRETE BARRIER RAIL WITH MOMENT SLAB
DETAILS

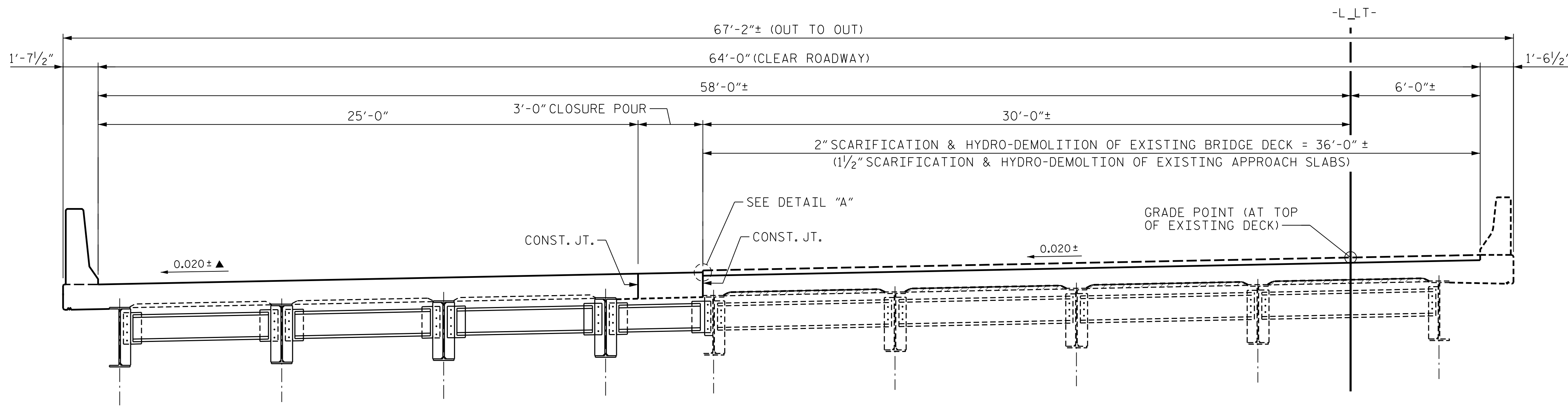
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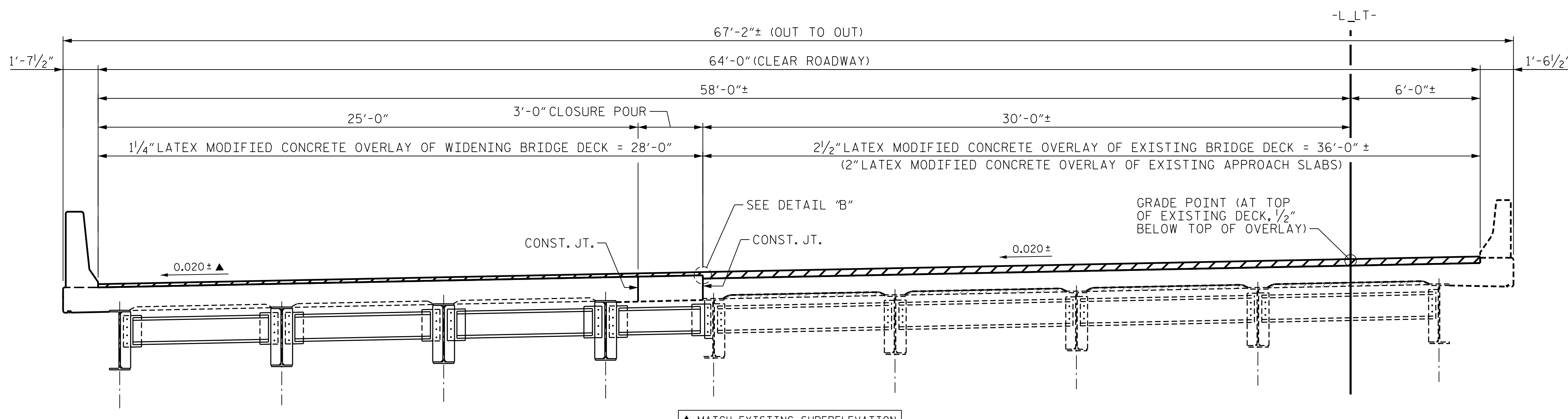
DES BY: E. NOLTING	DATE: 07/21	DWG BY: B. PETERSON	DATE: 07/21
DES CHK: F. CORDOVA	DATE: 07/21	CHK BY: F. CORDOVA	DATE: 07/21



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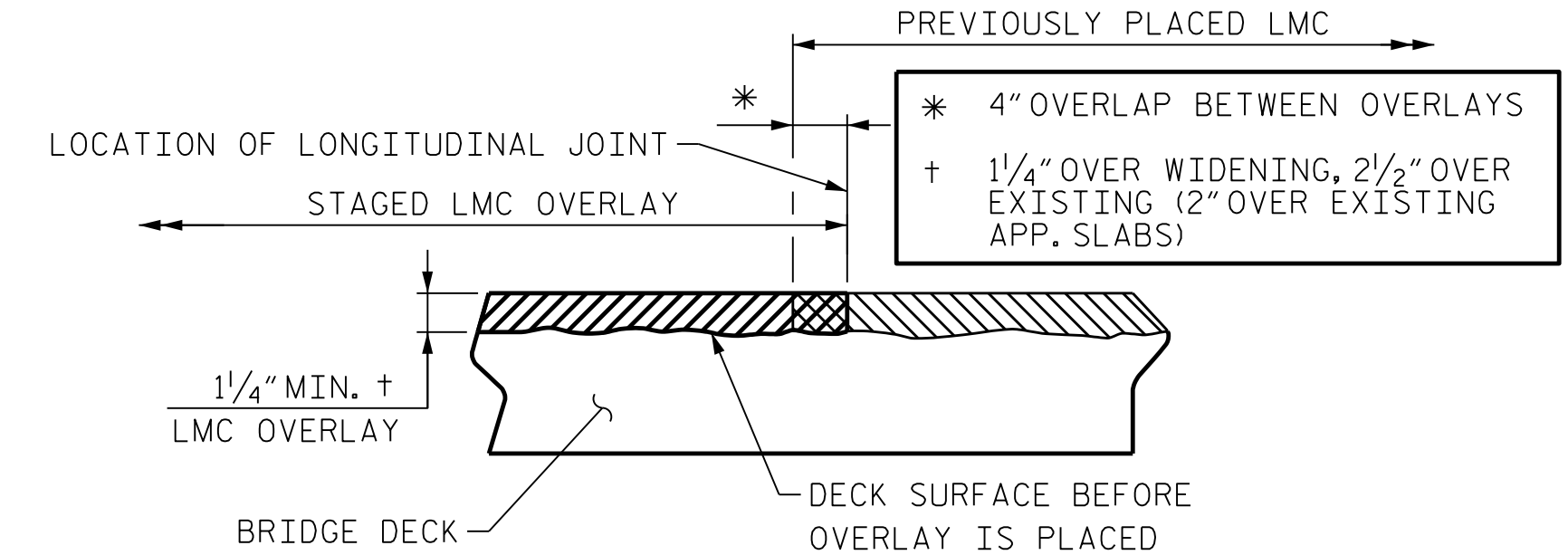
TYPICAL SECTION
(DEMOLITION OF EXISTING)



TYPICAL SECTION
(PROPOSED LMC WEARING SURFACE)

NOTES

- WORK ON THE BRIDGES SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.
- FOR TRAFFIC CONTROL AND LIMITS OF PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, AND CLASS II & CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- THE LMC CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK DURING HYDRO-DEMOLITION.
- FOR PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY, SEE LATEX MODIFIED CONCRETE SPECIAL PROVISIONS.
- LONGITUDINAL CONSTRUCTION JOINTS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIRS, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEAL FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- PREVIOUSLY PLACED LMC OVERLAY AT STAGED EDGES SHALL BE DEMOLISHED BACK A MINIMUM OF 4 INCHES AND RECAST WITH LMC. SEE STAGED LMC OVERLAY JOINT DETAIL.
- SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY, SURFACE PREPARATION AND LMC PLACEMENT.
- PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.
- FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.



SECTION THRU DECK

STAGED LMC OVERLAY JOINT

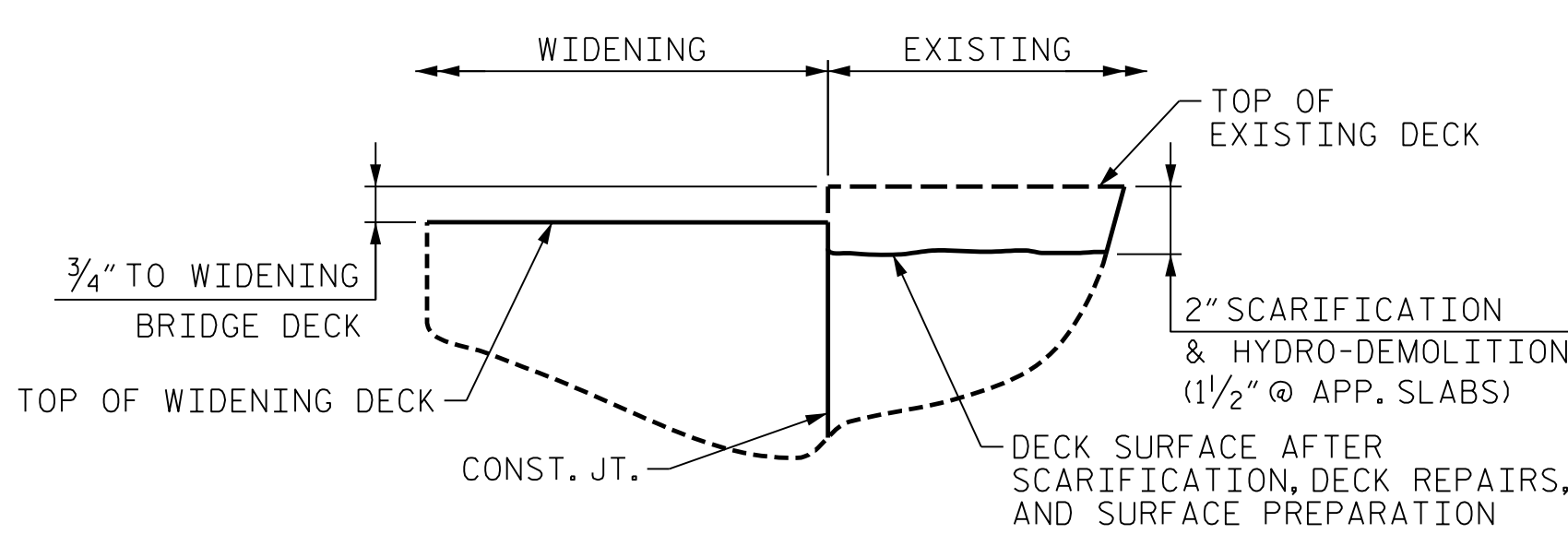
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PROJECT NO. B-3186/B-5898

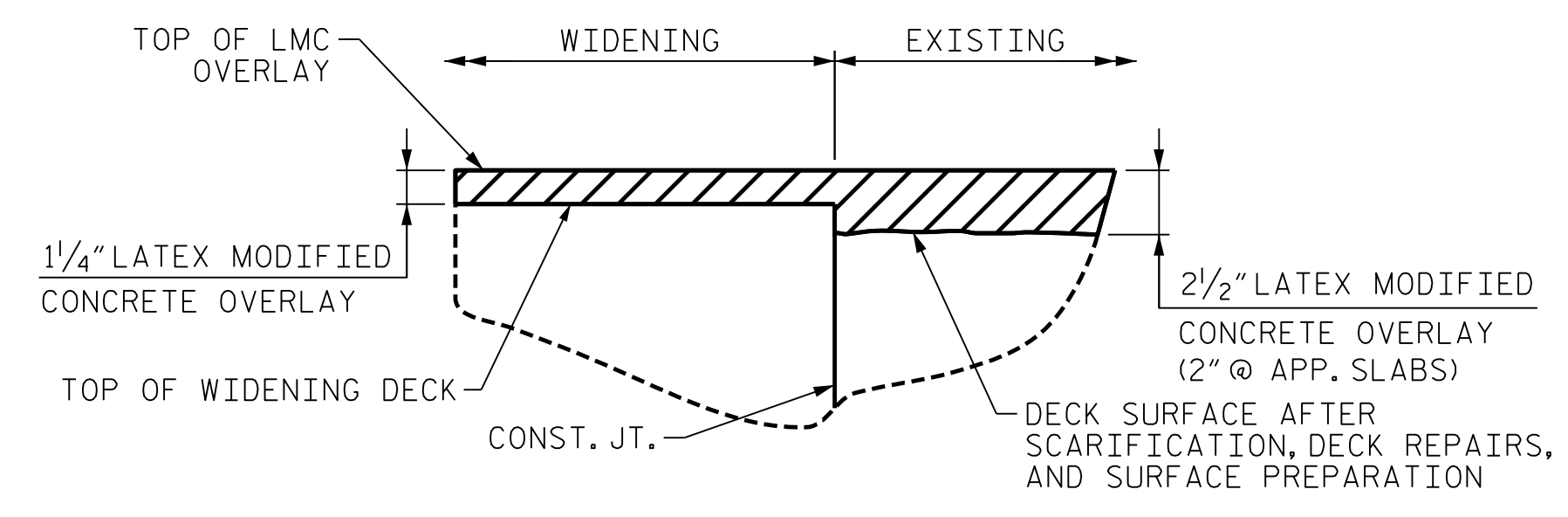
HAYWOOD COUNTY

STATION: 68+82.30± -L_LT-

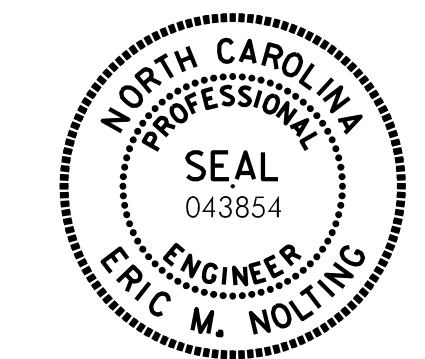
SHEET 1 OF 6



DETAIL "A"

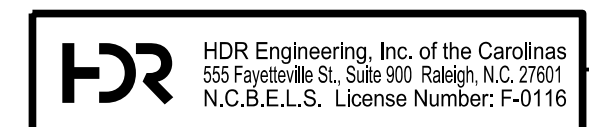


DETAIL "B"



Eric Nolting 1/24/2022

DES BY: G. MYERS	DATE: 09/21	DWG BY: B. PETERSON	DATE: 08/21
DES CHK: D. MAST	DATE: 09/21	CHK BY: D. MAST	DATE: 09/21



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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 44	
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AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR SPAN A


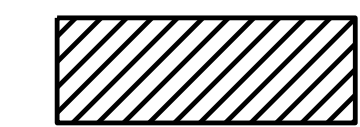
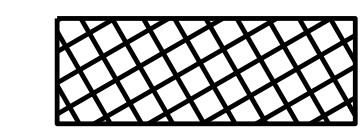
	ESTIMATE	ACTUAL
CONCRETE FOR DECK REPAIR	0.0 CU. FT.	
CLASS II SURFACE PREPARATION	7.7 SQ. YDS.	
LMC MATERIALS	16.9 CU. YDS.	
PLACING & FINISHING LMC OVERLAY	316.6 SQ. YDS.	
SCARIFYING BRIDGE DECK	178.1 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	178.1 SQ. YDS.	
GROOVING BRIDGE FLOORS	2665.8 SQ. FT.	
BRIDGE JOINT DEMOLITION	39.5 SQ. FT.	

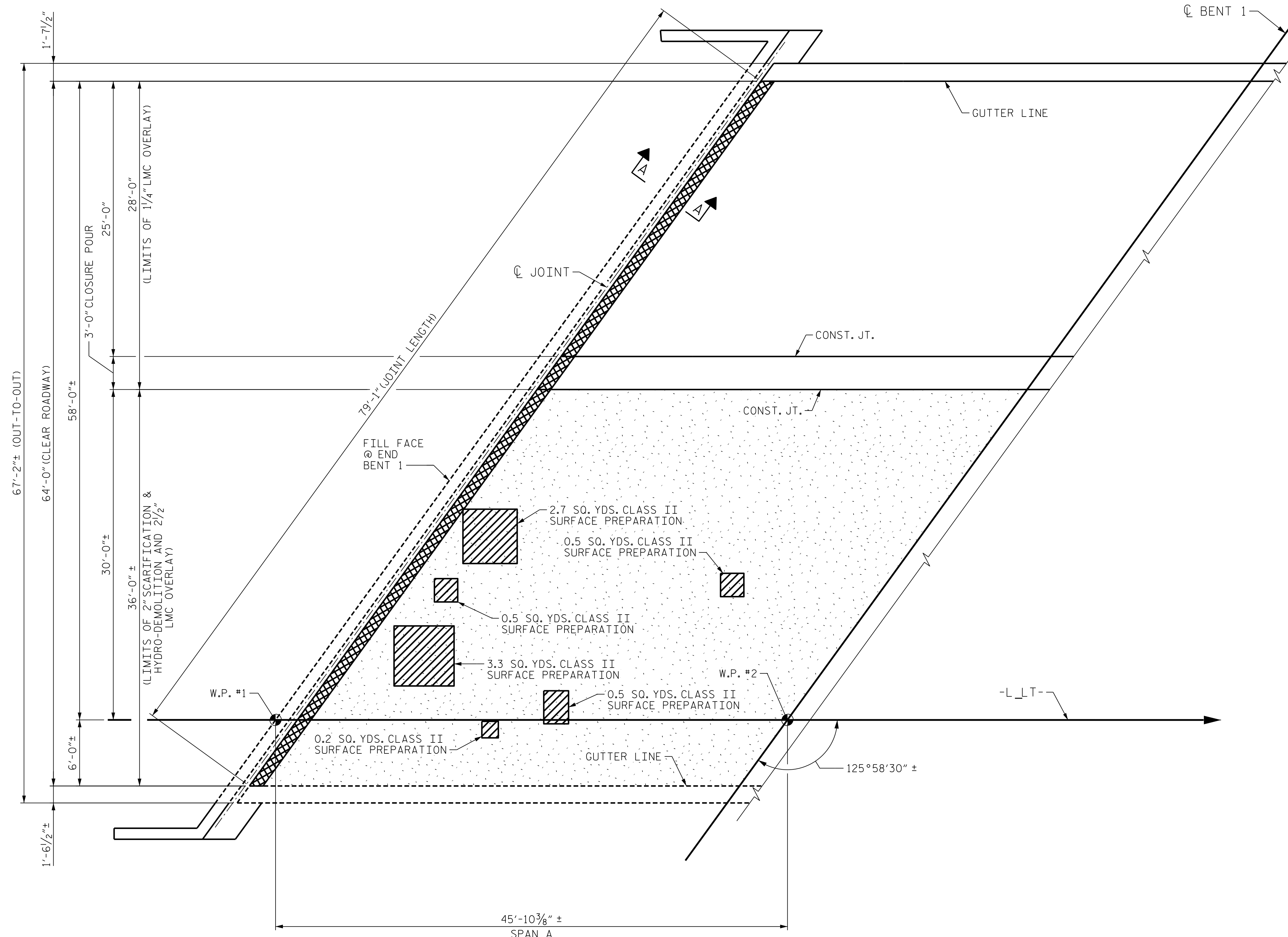
PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING INITIAL HYDRO-DEMOLITION OF THE BRIDGE DECK, SEE SPECIAL PROVISIONS

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWING THE APPROXIMATE LOCATIONS AND DESCRIPTION OF REPAIR QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION A-A, SEE "OVERLAY JOINT DETAILS" SHEET.

AFTER INITIAL HYDRO-DEMOLITION, BRIDGE DECK SHALL BE CLEANED WELL ENOUGH FOR IDENTIFICATION OF CLASS II SURFACE PREPARATION AREAS NOT SUFFICIENTLY REMOVED BY INITIAL HYDRO-DEMOLITION. A SECONDARY PASS WITH HYDRO-DEMOLITION SHALL BE USED IN THE CLASS II SURFACE PREPARATION AREAS TO REMOVE CONCRETE BRIDGE DECK TO THE REQUIRED CLASS II SURFACE PREPARATION DEPTH AND TO REMOVE DETERIORATED CONCRETE. IF THE SECONDARY HYDRO-DEMOLITION DOES NOT REMOVE PATCHES OR DETERIORATED MATERIAL TO THE REQUIRED DEPTH, COMPLETE REMOVAL IN CLASS II SURFACE PREPARATION AREAS WITH HAND TOOLS, ADDITIONAL HYDRO-DEMOLITION USED TO ACHIEVE CLASS II SURFACE PREPARATION DEPTH AND ADDITIONAL REMOVAL BY HAND TOOLS, IF NECESSARY, WILL BE PAID FOR AS CLASS II SURFACE PREPARATION.

-  SCARIFYING BRIDGE DECK
-  CLASS II SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION



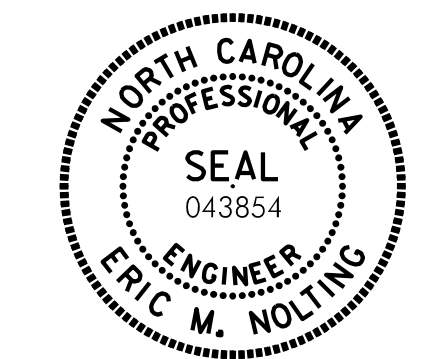
PLAN OF SPAN A

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**OVERLAY
 DECK SURFACE REPAIR
 SPAN A**



Eric Nolting 1/24/2022

REVISIONS						SHEET NO. SO3L-39
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 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
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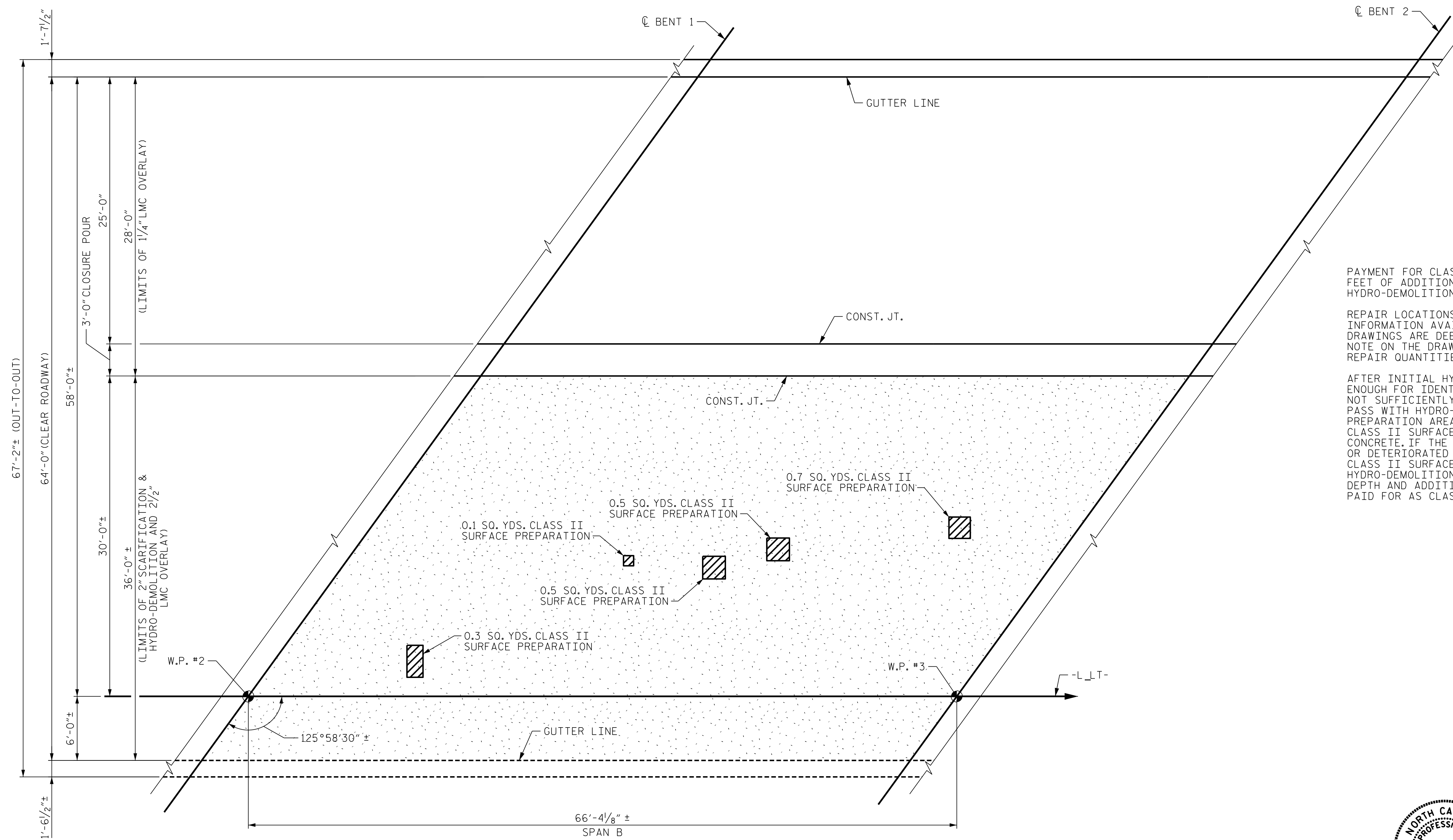
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DES BY: G. MYERS	DATE: 09/21	DWG BY: F. CORDOVA	DATE: 09/21
DES CHK: D. MAST	DATE: 09/21	CHK BY: D. MAST	DATE: 09/21

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR SPAN B

	ESTIMATE	ACTUAL
CONCRETE FOR DECK REPAIR	0.0 CU. FT.	
CLASS II SURFACE PREPARATION	2.1 SQ. YDS.	
LMC MATERIALS	25.6 CU. YDS.	
PLACING & FINISHING LMC OVERLAY	471.8 SQ. YDS.	
SCARIFYING BRIDGE DECK	265.4 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	265.4 SQ. YDS.	
GROOVING BRIDGE FLOORS	4047.0 SQ. FT.	
BRIDGE JOINT DEMOLITION	0.0 SQ. FT.	



- SCARIFYING BRIDGE DECK
- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING INITIAL HYDRO-DEMOLITION OF THE BRIDGE DECK, SEE SPECIAL PROVISIONS

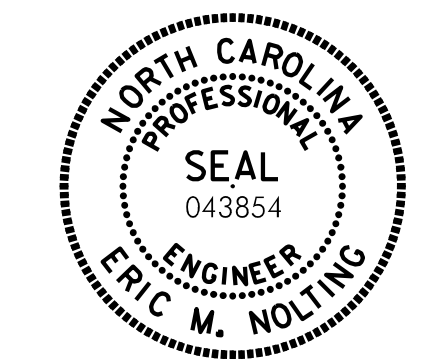
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWING THE APPROXIMATE LOCATIONS AND DESCRIPTION OF REPAIR QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

AFTER INITIAL HYDRO-DEMOLITION, BRIDGE DECK SHALL BE CLEANED WELL ENOUGH FOR IDENTIFICATION OF CLASS II SURFACE PREPARATION AREAS NOT SUFFICIENTLY REMOVED BY INITIAL HYDRO-DEMOLITION. A SECONDARY PASS WITH HYDRO-DEMOLITION SHALL BE USED IN THE CLASS II SURFACE PREPARATION AREAS TO REMOVE CONCRETE BRIDGE DECK TO THE REQUIRED CLASS II SURFACE PREPARATION DEPTH AND TO REMOVE DETERIORATED CONCRETE. IF THE SECONDARY HYDRO-DEMOLITION DOES NOT REMOVE PATCHES OR DETERIORATED MATERIAL TO THE REQUIRED DEPTH, COMPLETE REMOVAL IN CLASS II SURFACE PREPARATION AREAS WITH HAND TOOLS, ADDITIONAL HYDRO-DEMOLITION USED TO ACHIEVE CLASS II SURFACE PREPARATION DEPTH AND ADDITIONAL REMOVAL BY HAND TOOLS, IF NECESSARY, WILL BE PAID FOR AS CLASS II SURFACE PREPARATION.

PLAN OF SPAN B

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 3 OF 6

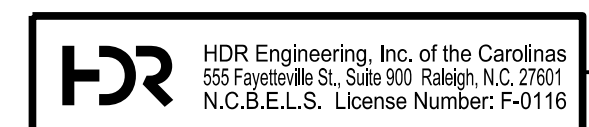


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**OVERLAY
 DECK SURFACE REPAIR
 SPAN B**

REVISIONS						SHEET NO. SO3L-40 TOTAL SHEETS 44
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2	--	--	4	--	--	

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DES BY: G. MYERS DATE: 09/21 DWG BY: F. CORDOVA DATE: 09/21
 DES CHK: D. MAST DATE: 09/21 CHK BY: D. MAST DATE: 09/21



Eric Nolting 1/24/2022
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR SPAN C


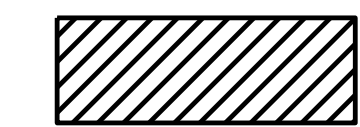
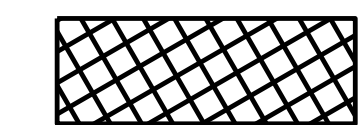
	ESTIMATE	ACTUAL
CONCRETE FOR DECK REPAIR	0.0 CU. FT.	
CLASS II SURFACE PREPARATION	3.0 SQ. YDS.	
LMC MATERIALS	17.4 CU. YDS.	
PLACING & FINISHING LMC OVERLAY	324.1 SQ. YDS.	
SCARIFYING BRIDGE DECK	182.3 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	182.3 SQ. YDS.	
GROOVING BRIDGE FLOORS	2730.0 SQ. FT.	
BRIDGE JOINT DEMOLITION	39.5 SQ. FT.	

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING INITIAL HYDRO-DEMOLITION OF THE BRIDGE DECK, SEE SPECIAL PROVISIONS

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWING THE APPROXIMATE LOCATIONS AND DESCRIPTION OF REPAIR QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION A-A, SEE "OVERLAY JOINT DETAILS" SHEET.

AFTER INITIAL HYDRO-DEMOLITION, BRIDGE DECK SHALL BE CLEANED WELL ENOUGH FOR IDENTIFICATION OF CLASS II SURFACE PREPARATION AREAS NOT SUFFICIENTLY REMOVED BY INITIAL HYDRO-DEMOLITION. A SECONDARY PASS WITH HYDRO-DEMOLITION SHALL BE USED IN THE CLASS II SURFACE PREPARATION AREAS TO REMOVE CONCRETE BRIDGE DECK TO THE REQUIRED CLASS II SURFACE PREPARATION DEPTH AND TO REMOVE DETERIORATED CONCRETE. IF THE SECONDARY HYDRO-DEMOLITION DOES NOT REMOVE PATCHES OR DETERIORATED MATERIAL TO THE REQUIRED DEPTH, COMPLETE REMOVAL IN CLASS II SURFACE PREPARATION AREAS WITH HAND TOOLS, ADDITIONAL HYDRO-DEMOLITION USED TO ACHIEVE CLASS II SURFACE PREPARATION DEPTH AND ADDITIONAL REMOVAL BY HAND TOOLS, IF NECESSARY, WILL BE PAID FOR AS CLASS II SURFACE PREPARATION.

-  SCARIFYING BRIDGE DECK
-  CLASS II SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

OVERLAY DECK SURFACE REPAIR SPAN C

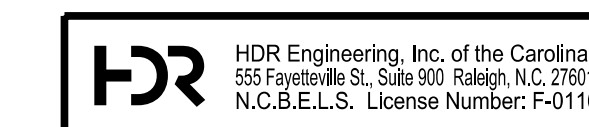


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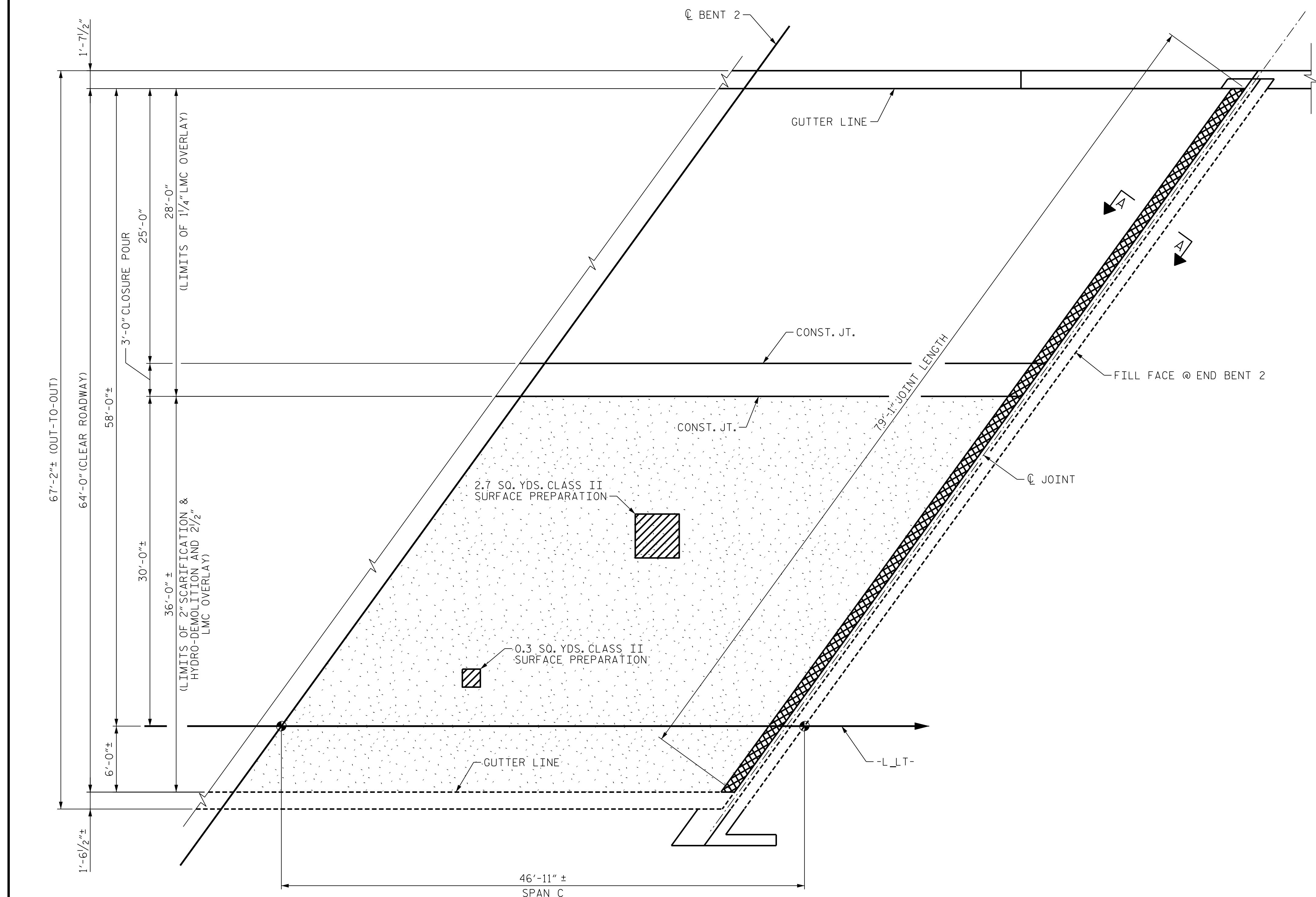
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SHEET NO. S03L-41
 TOTAL SHEETS 44



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PLAN OF SPAN C

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DES BY: <u>G. MYERS</u>	DATE: <u>09/21</u>	DWG BY: <u>F. CORDOVA</u>	DATE: <u>09/21</u>
DES CHK: <u>D. MAST</u>	DATE: <u>09/21</u>	CHK BY: <u>D. MAST</u>	DATE: <u>09/21</u>

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - APPROACH SLAB 1

	ESTIMATE	ACTUAL
CONCRETE FOR DECK REPAIR	0.0 CU. FT.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
LMC MATERIALS	5.2 CU. YDS.	
PLACING & FINISHING LMC OVERLAY	121.6 SQ. YDS.	
SCARIFYING BRIDGE DECK	65.2 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	65.2 SQ. YDS.	
GROOVING BRIDGE FLOORS	952.1 SQ. FT.	
BRIDGE JOINT DEMOLITION	39.5 SQ. FT.	

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - APPROACH SLAB 2


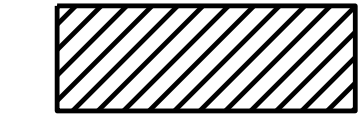
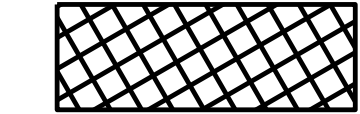
	ESTIMATE	ACTUAL
CONCRETE FOR DECK REPAIR	0.0 CU. FT.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
LMC MATERIALS	5.2 CU. YDS.	
PLACING & FINISHING LMC OVERLAY	120.9 SQ. YDS.	
SCARIFYING BRIDGE DECK	65.2 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	65.2 SQ. YDS.	
GROOVING BRIDGE FLOORS	949.1 SQ. FT.	
BRIDGE JOINT DEMOLITION	39.5 SQ. FT.	

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING INITIAL HYDRO-DEMOLITION OF THE BRIDGE DECK, SEE SPECIAL PROVISIONS

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWING THE APPROXIMATE LOCATIONS AND DESCRIPTION OF REPAIR QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION A-A, SEE "OVERLAY JOINT DETAILS" SHEET.

AFTER INITIAL HYDRO-DEMOLITION, BRIDGE DECK SHALL BE CLEANED WELL ENOUGH FOR IDENTIFICATION OF CLASS II SURFACE PREPARATION AREAS NOT SUFFICIENTLY REMOVED BY INITIAL HYDRO-DEMOLITION. A SECONDARY PASS WITH HYDRO-DEMOLITION SHALL BE USED IN THE CLASS II SURFACE PREPARATION AREAS TO REMOVE CONCRETE BRIDGE DECK TO THE REQUIRED CLASS II SURFACE PREPARATION DEPTH AND TO REMOVE DETERIORATED CONCRETE. IF THE SECONDARY HYDRO-DEMOLITION DOES NOT REMOVE PATCHES OR DETERIORATED MATERIAL TO THE REQUIRED DEPTH, COMPLETE REMOVAL IN CLASS II SURFACE PREPARATION AREAS WITH HAND TOOLS. ADDITIONAL HYDRO-DEMOLITION USED TO ACHIEVE CLASS II SURFACE PREPARATION DEPTH AND ADDITIONAL REMOVAL BY HAND TOOLS, IF NECESSARY, WILL BE PAID FOR AS CLASS II SURFACE PREPARATION.

-  SCARIFYING BRIDGE DECK
-  CLASS II SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION

PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

OVERLAY
 DECK SURFACE REPAIR
 APPROACH SLABS



Eric Nolting 1/24/2022

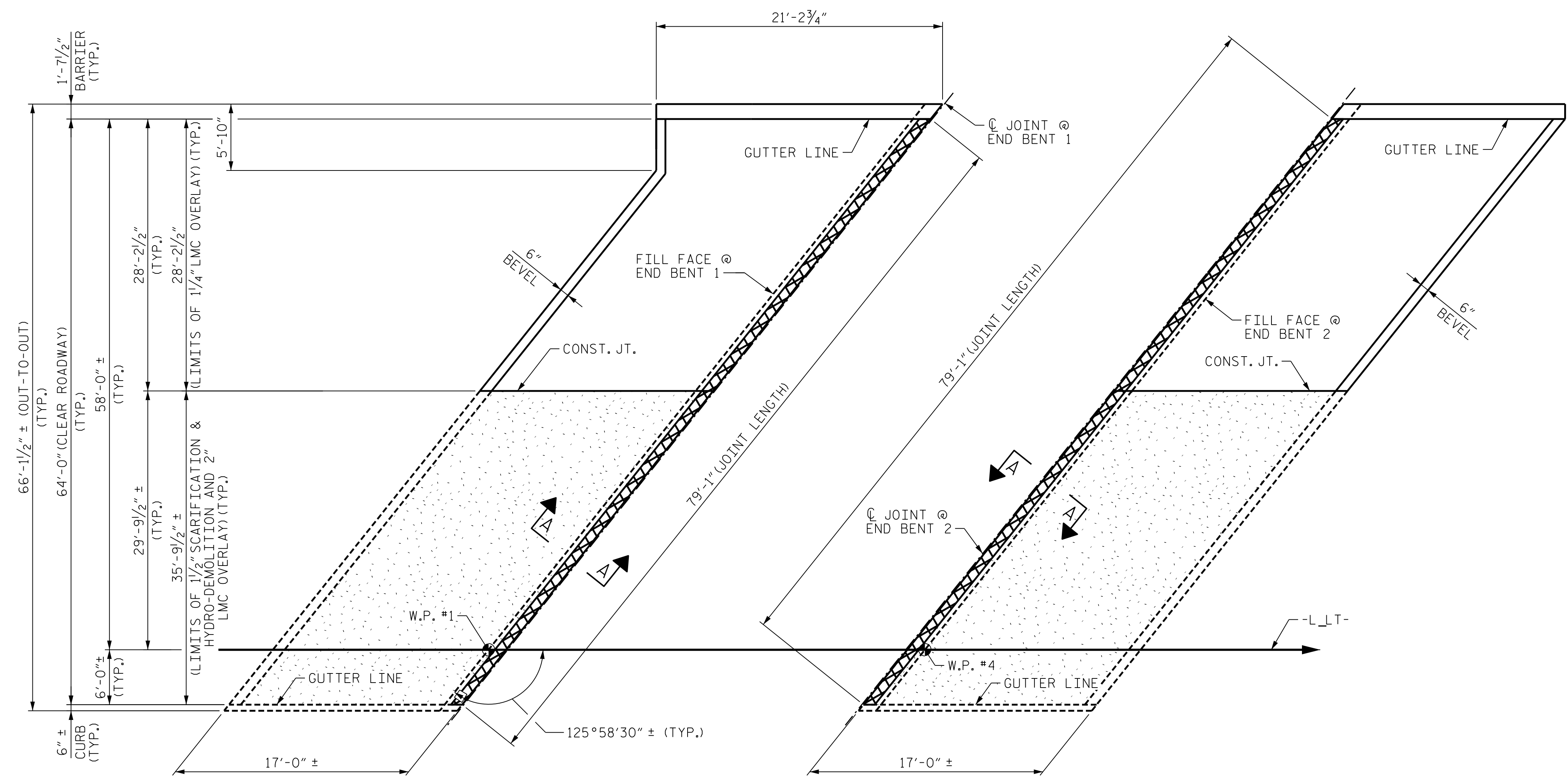
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SHEET NO. SO3L-42
 TOTAL SHEETS 44



DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



PLAN AT END BENT 1

PLAN AT END BENT 2

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DES BY: <u>G. MYERS</u>	DATE: <u>09/21</u>	DWG BY: <u>F. CORDOVA</u>	DATE: <u>09/21</u>
DES CHK: <u>D. MAST</u>	DATE: <u>09/21</u>	CHK BY: <u>D. MAST</u>	DATE: <u>09/21</u>

NOTES

THE FOAM JOINTS SHALL MEET THE MANUFACTURER'S RECOMMENDATION.

THE UNCOMPRESSED FOAM JOINT SEAL WIDTH SHALL MEET THE MANUFACTURER'S RECOMMENDATION FOR THE SIZE OF OPENING ON THE PLANS, AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF ACTUAL JOINT OPENING VARIES FROM OPENING INDICATED IN DETAIL BY MORE THAN 1/4", NOTIFY ENGINEER.

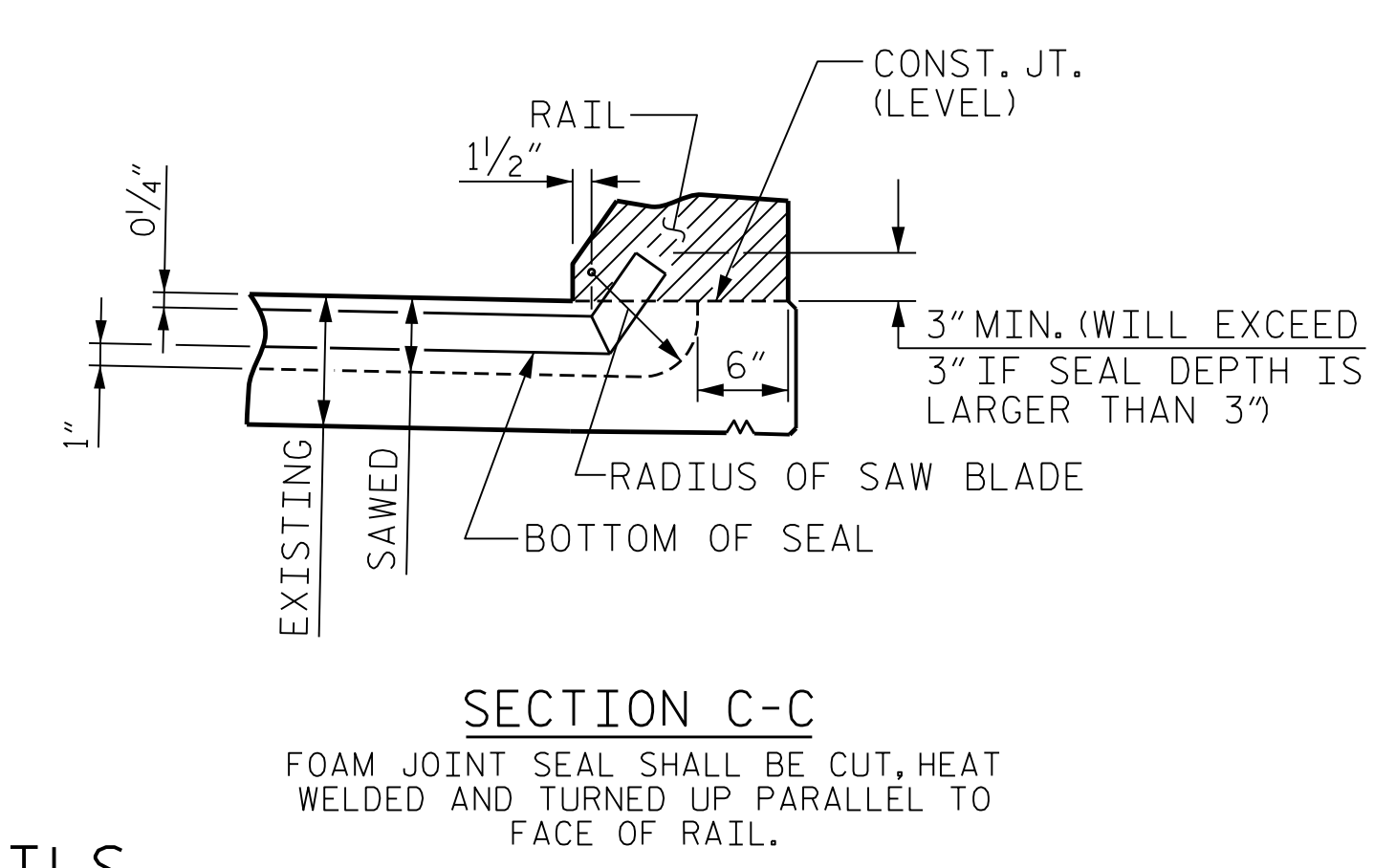
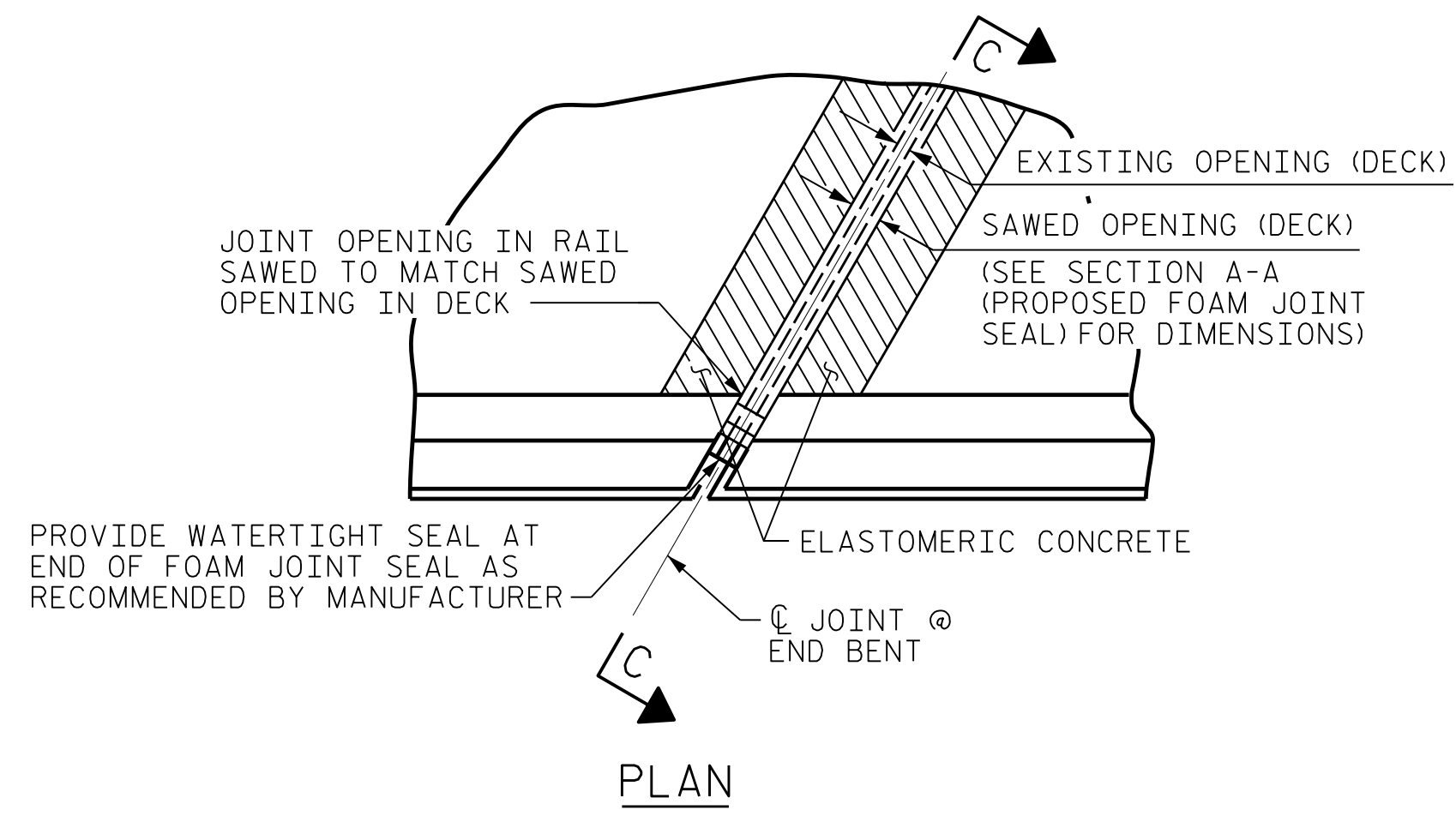
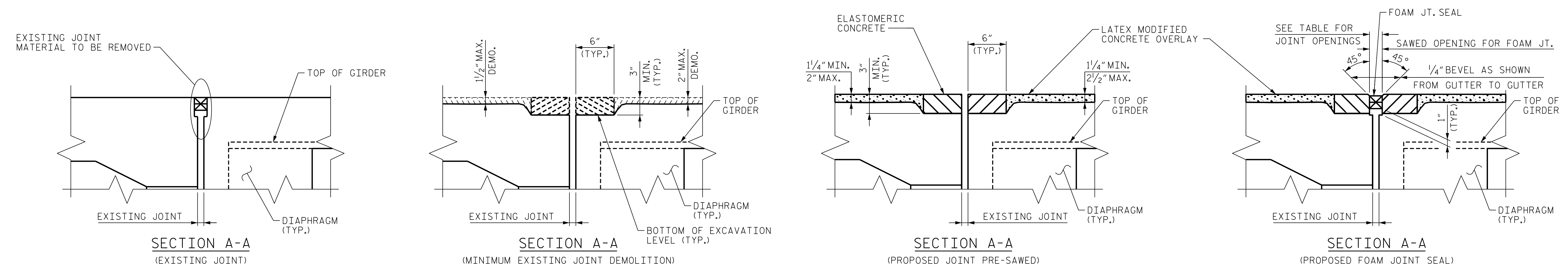
THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED CU. FT.	ACTUAL CU. FT.
END BENT 1	19.8	
END BENT 2	19.8	
TOTAL	39.6	

DEMOLISH BRIDGE JOINT AREA TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE, NOT LATEX MODIFIED CONCRETE. BOTTOM OF EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL TO PROVIDE PROPER SUBSTRATE FOR ELASTOMERIC CONCRETE HEADER.



JOINT REPAIR QUANTITY TABLE		
	ESTIMATED LIN. FT.	ACTUAL LIN. FT.
FOAM JOINT SEALS FOR PRESERVATION	158.2	

LOCATION	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
	AT 45°	AT 60°	AT 90°
END BENT 1	1 5/8"	1 9/16"	1 7/16"
END BENT 2	1 5/8"	1 9/16"	1 7/16"

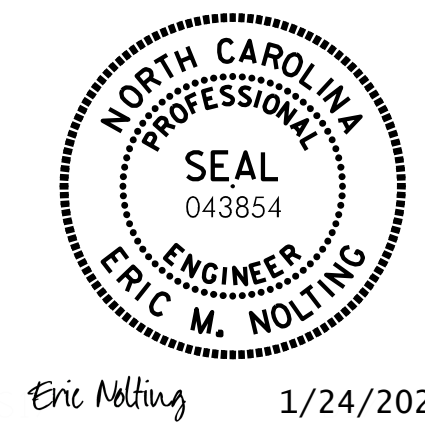
PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30± -L-LT-
 SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

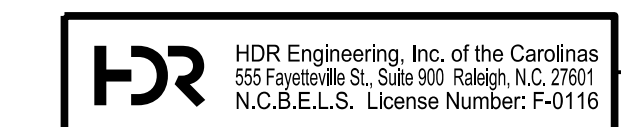
OVERLAY JOINT DETAILS

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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SHEET NO. SO3L-43
 TOTAL SHEETS 44



Eric Nolting 1/24/2022

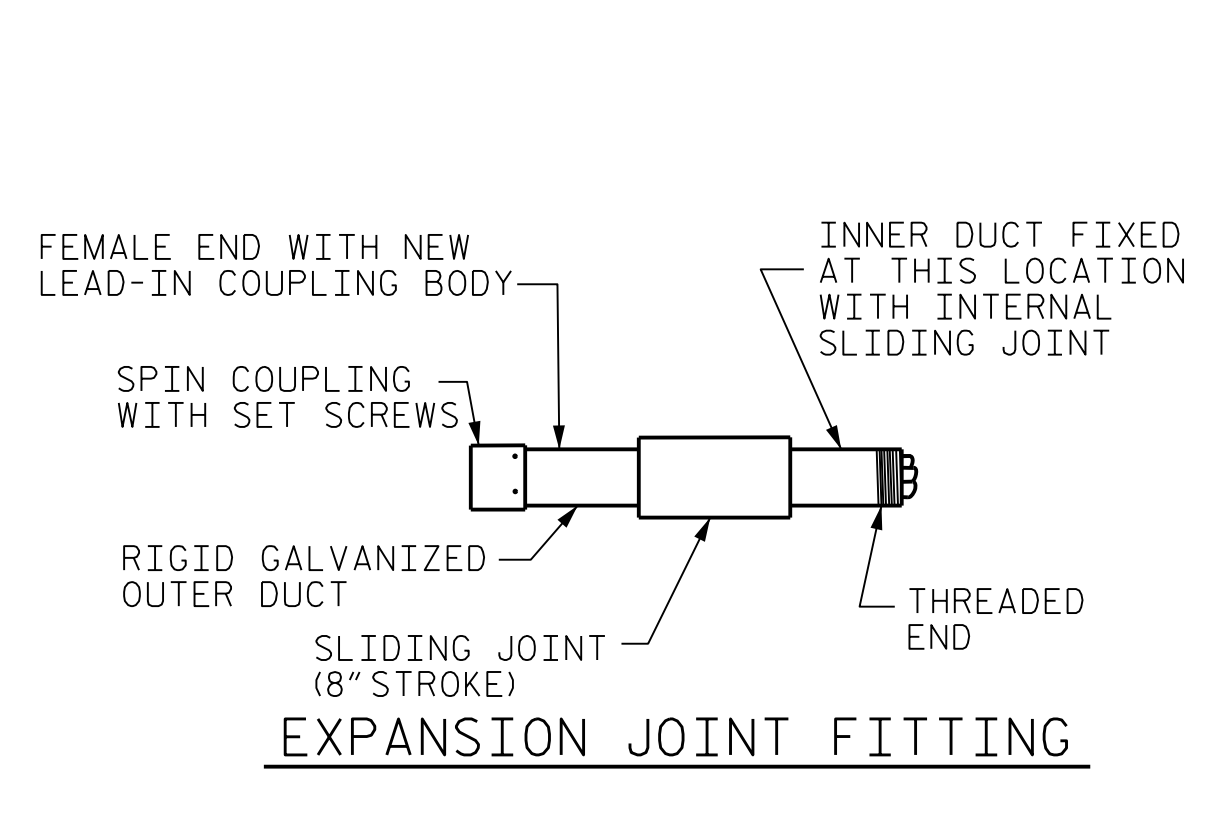
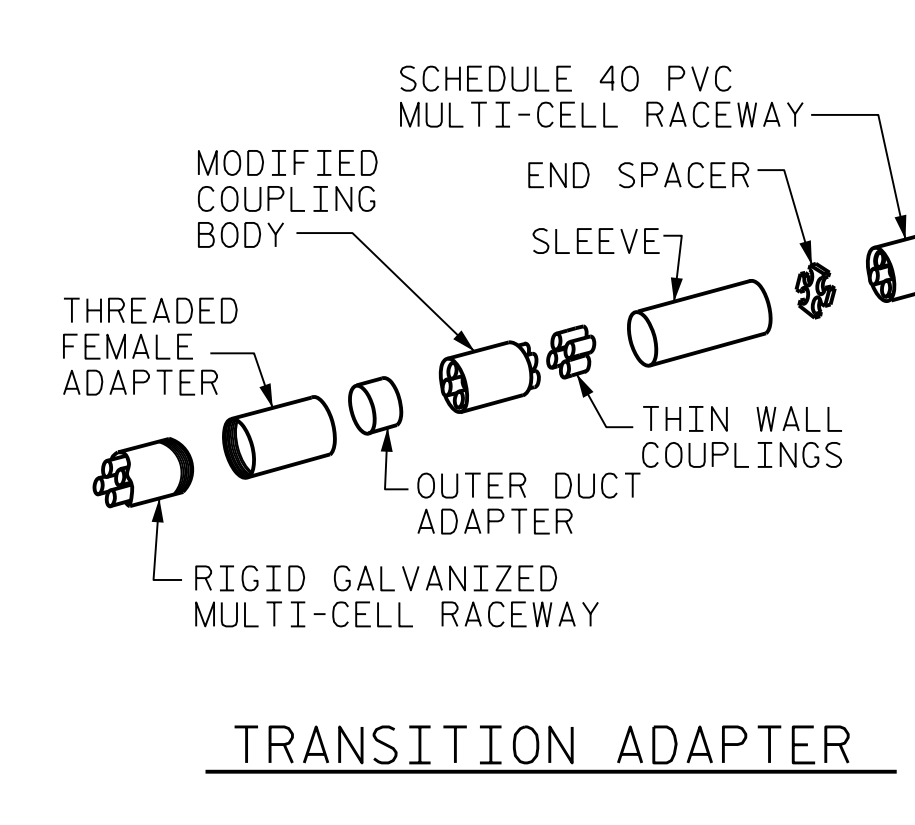
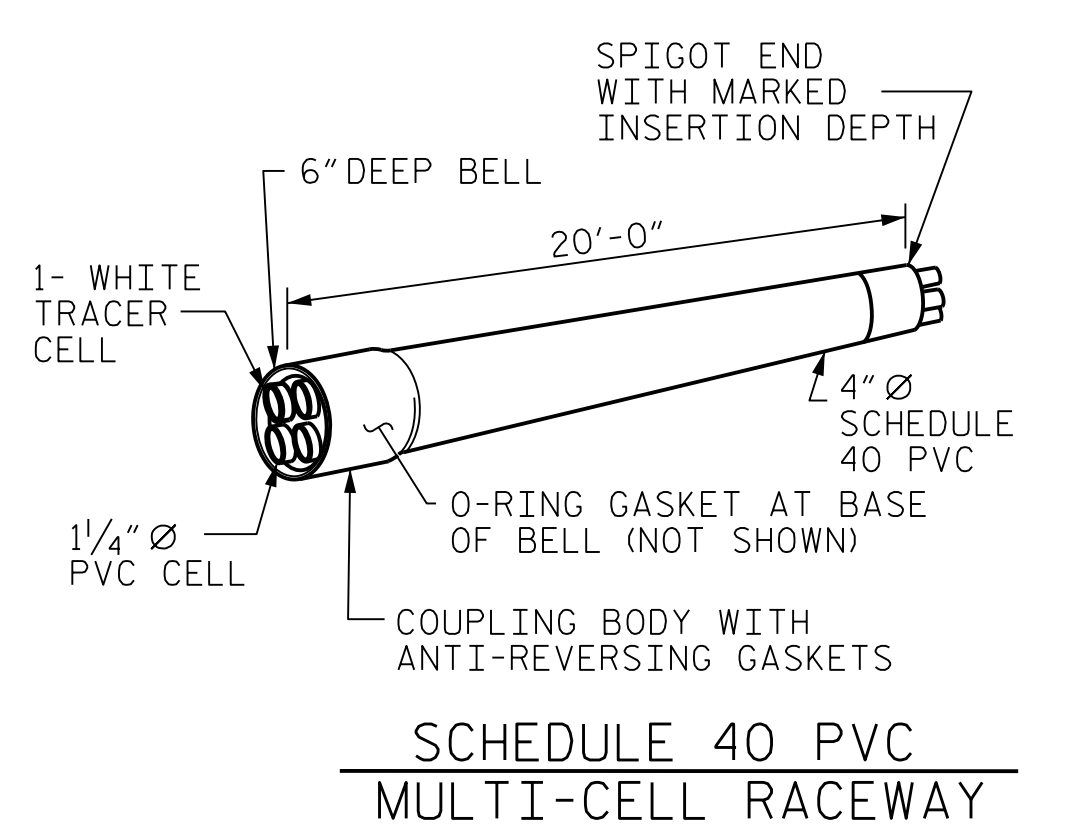
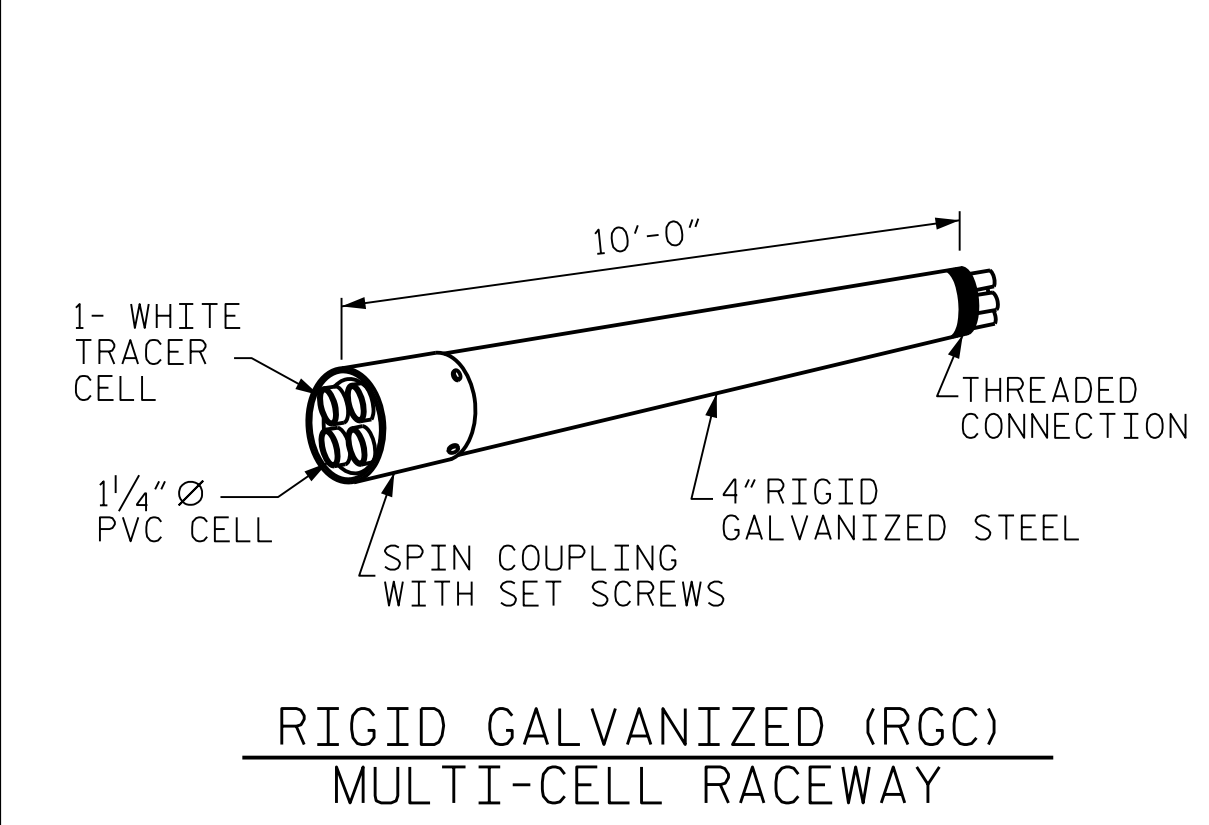


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DES BY: G. MYERS DATE: 09/21 DWG BY: B. PETERSON DATE: 09/21
 DES CHK: D. MAST DATE: 09/21 CHK BY: D. MAST DATE: 09/21

JOINT SEAL DETAILS



NOTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE TOTAL QUANTITY OF CONDUIT NEEDED TO COMPLETE THE WORK AND THAT THE CONDUIT(S) ARE PLACED AT THE NOTED DIMENSION AND ABOVE THE BOTTOM OF THE GIRDER.

THE INSTALLATION OF THE CONDUIT SYSTEM SHALL BE PAID FOR AS LUMP SUM. THE PRICE SHALL INCLUDE ALL CONDUIT, HANGERS, STABILIZERS, EXPANSION JOINTS, CONCRETE INSERTS, PVC SLEEVES AND ALL NECESSARY HARDWARE TO COMPLETE THE WORK.

THE CONTRACTOR SHALL FIELD VERIFY THAT THE CONDUIT SYSTEM IS NOT IN CONFLICT WITH THE GUARDRAIL POSTS.

SEE DETAIL "C" FOR HANGER ASSEMBLY INSTALLATION.

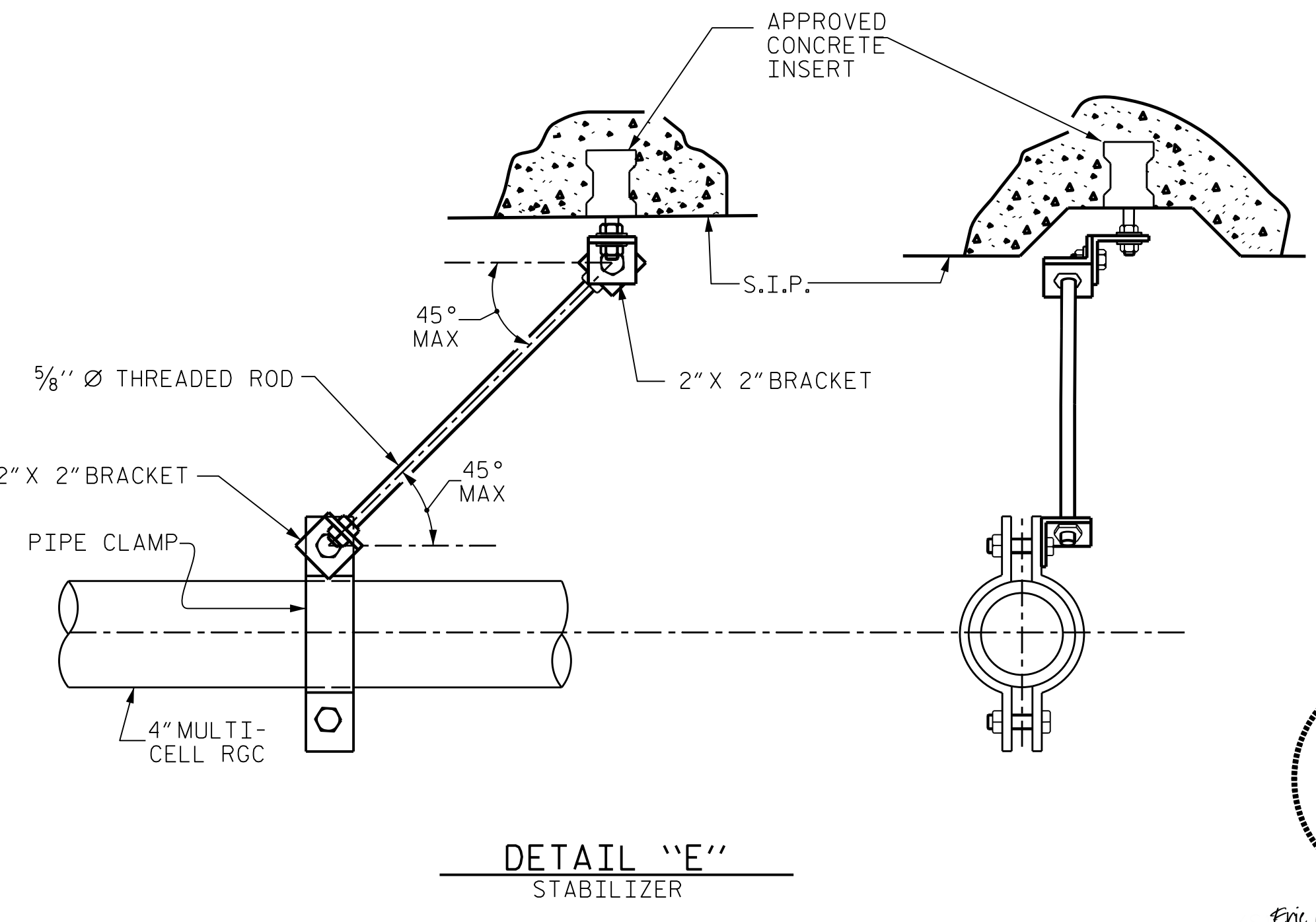
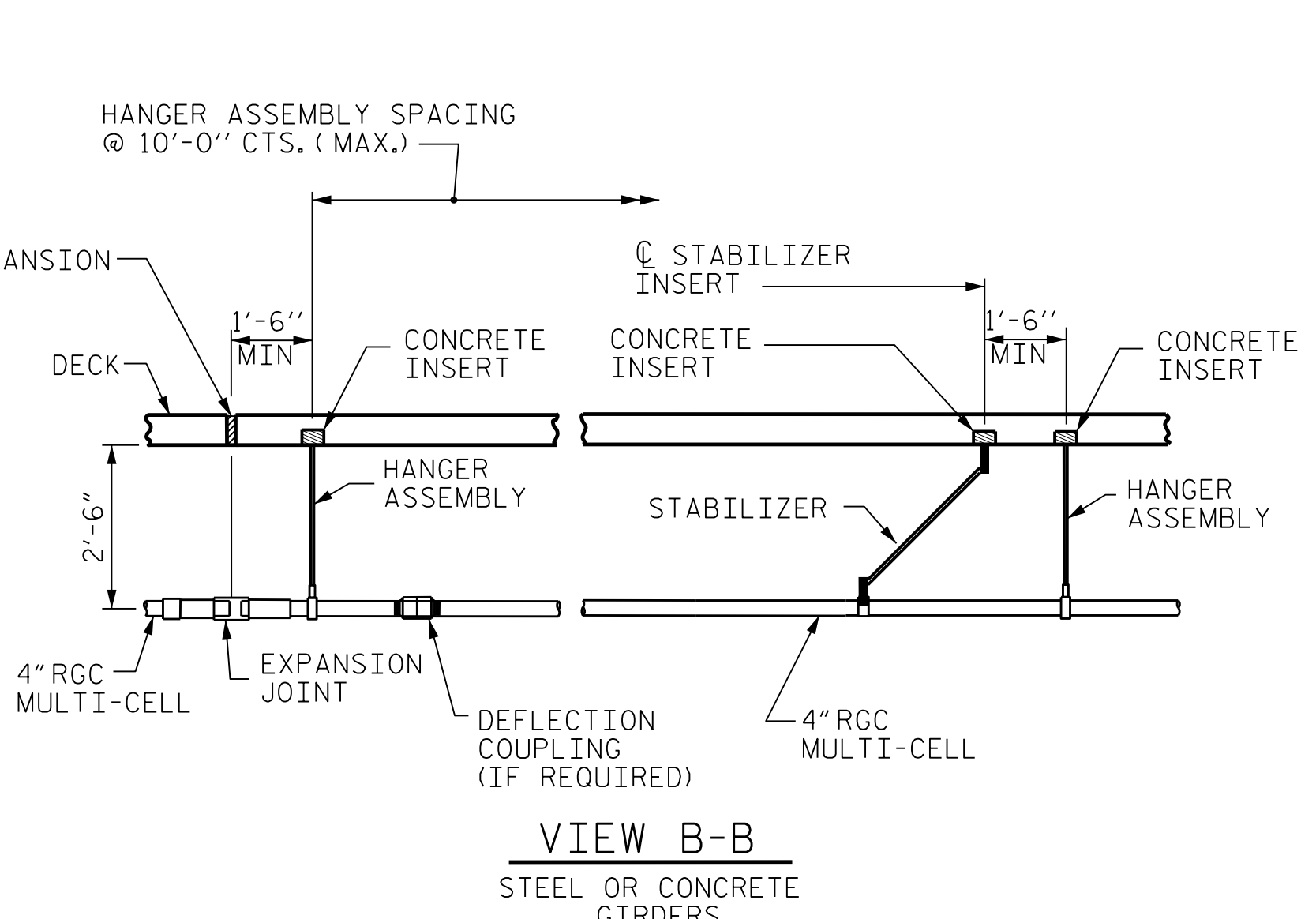
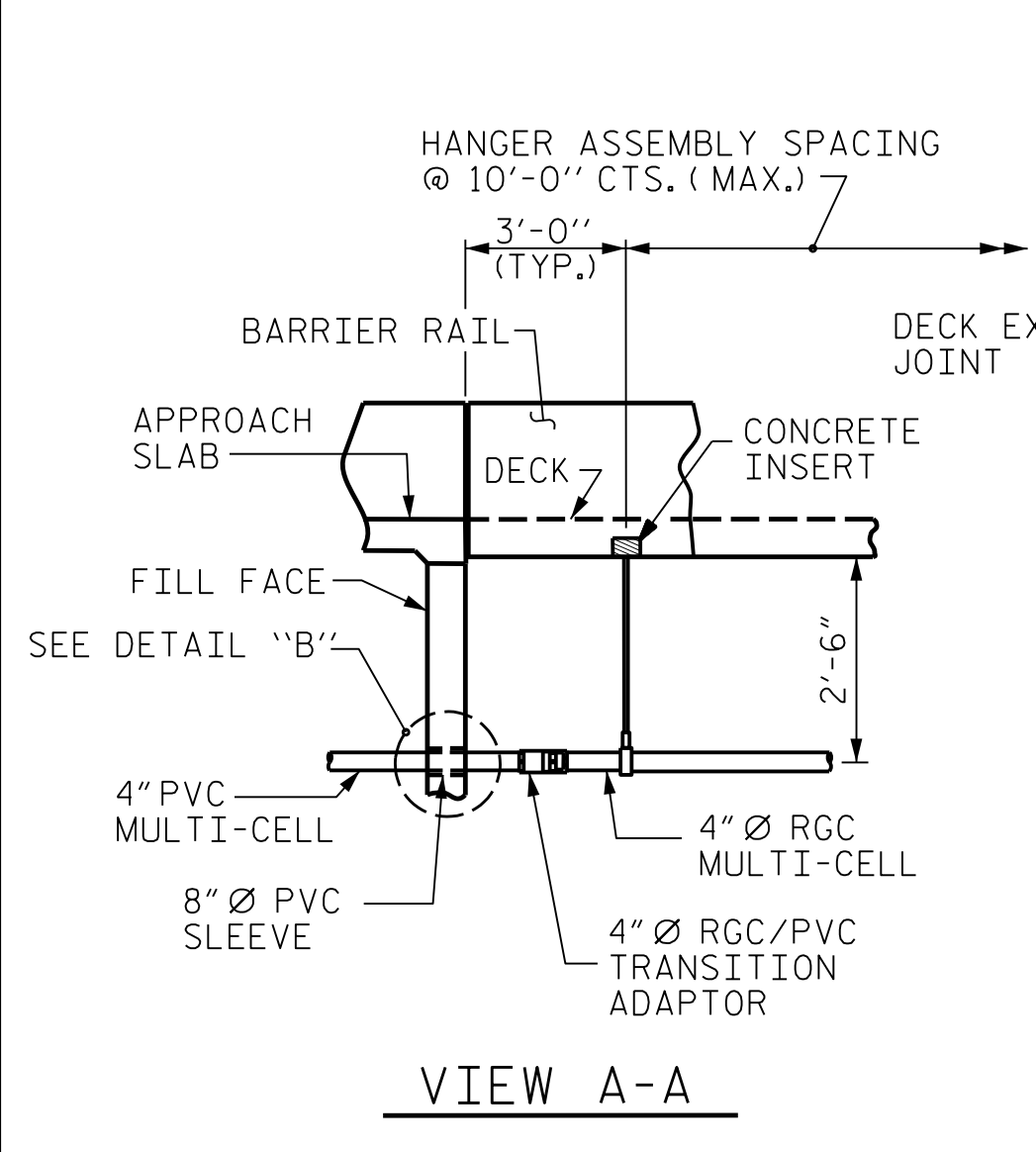
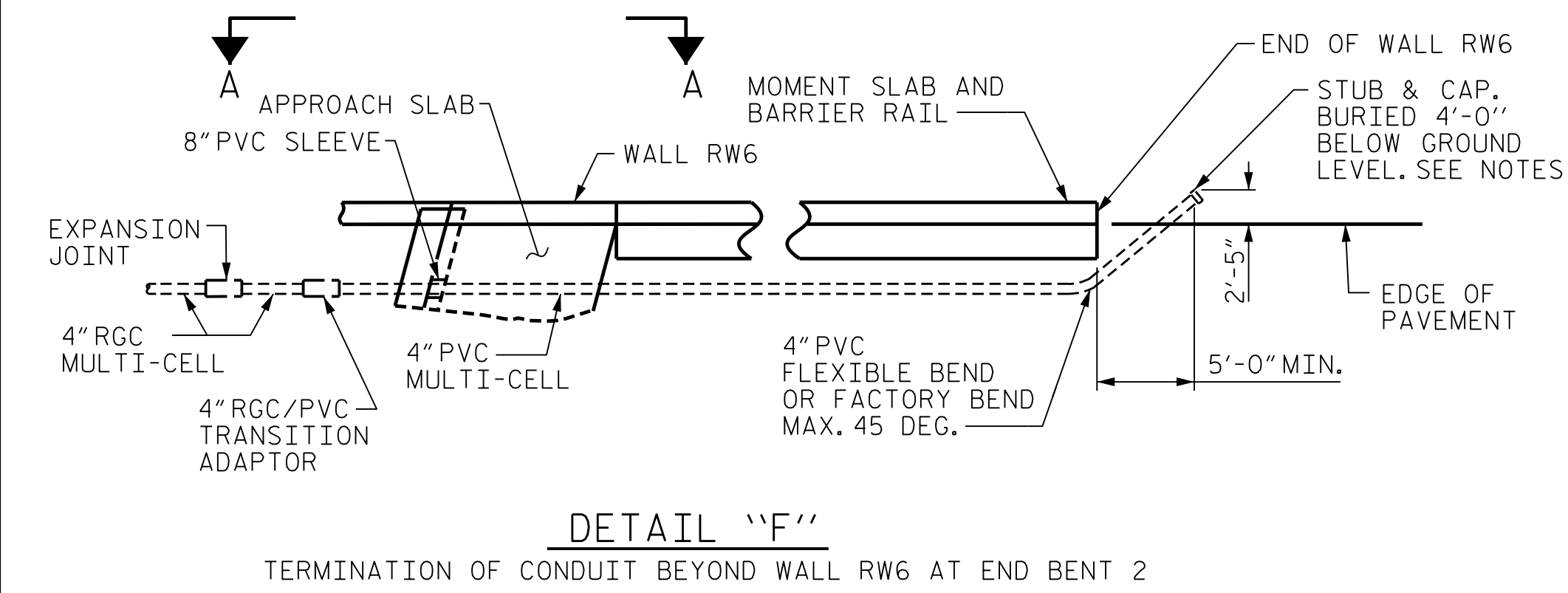
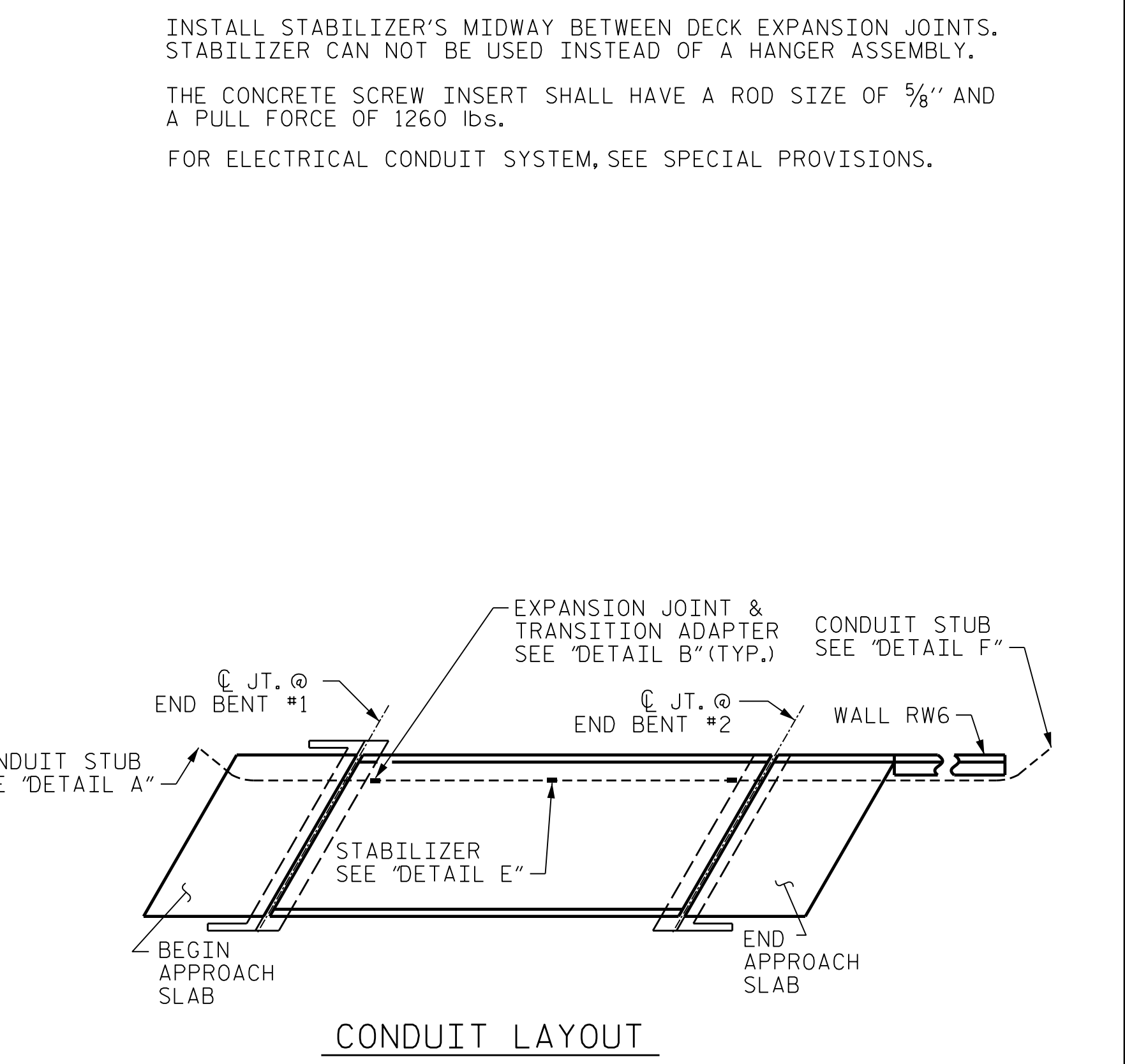
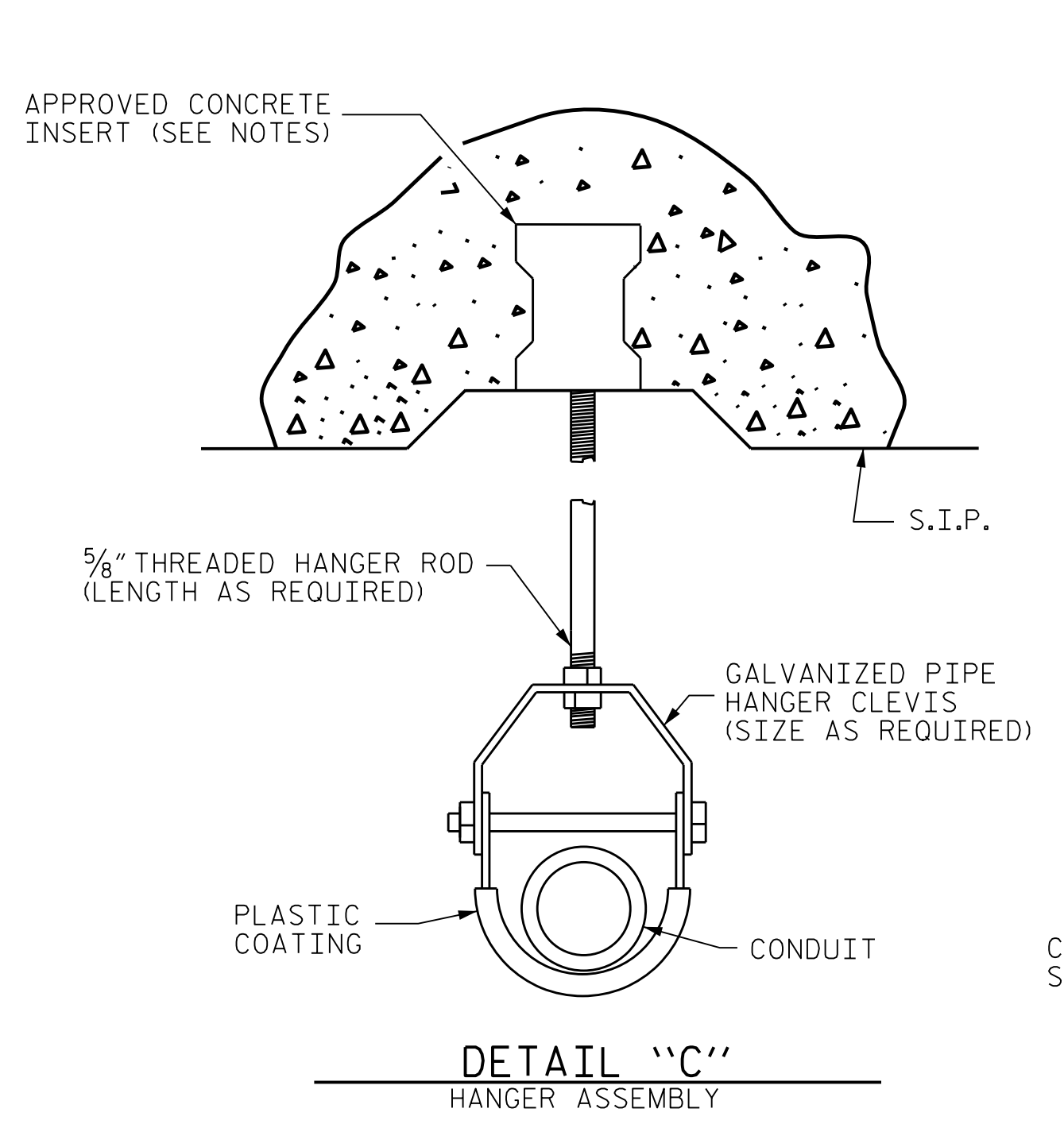
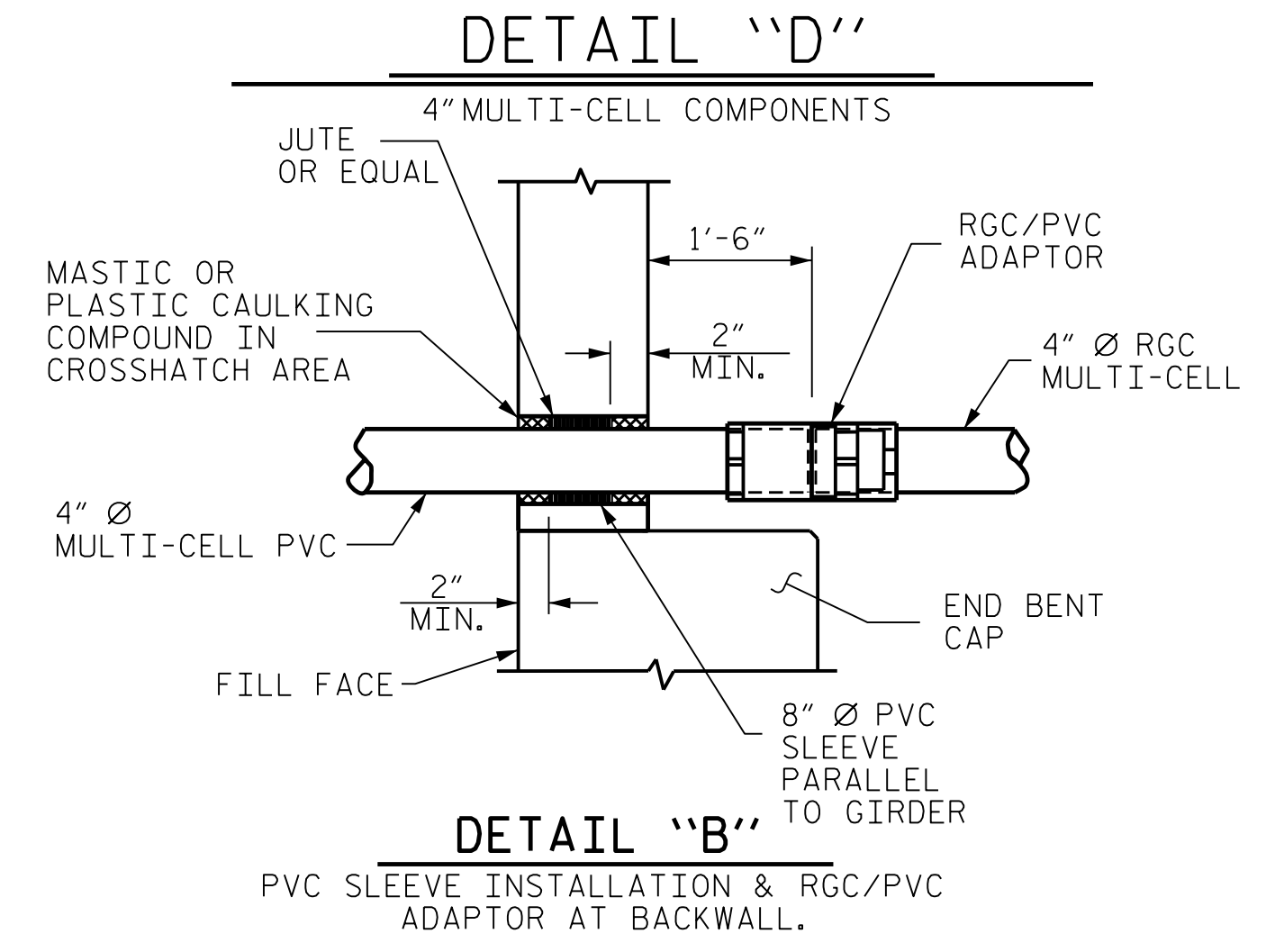
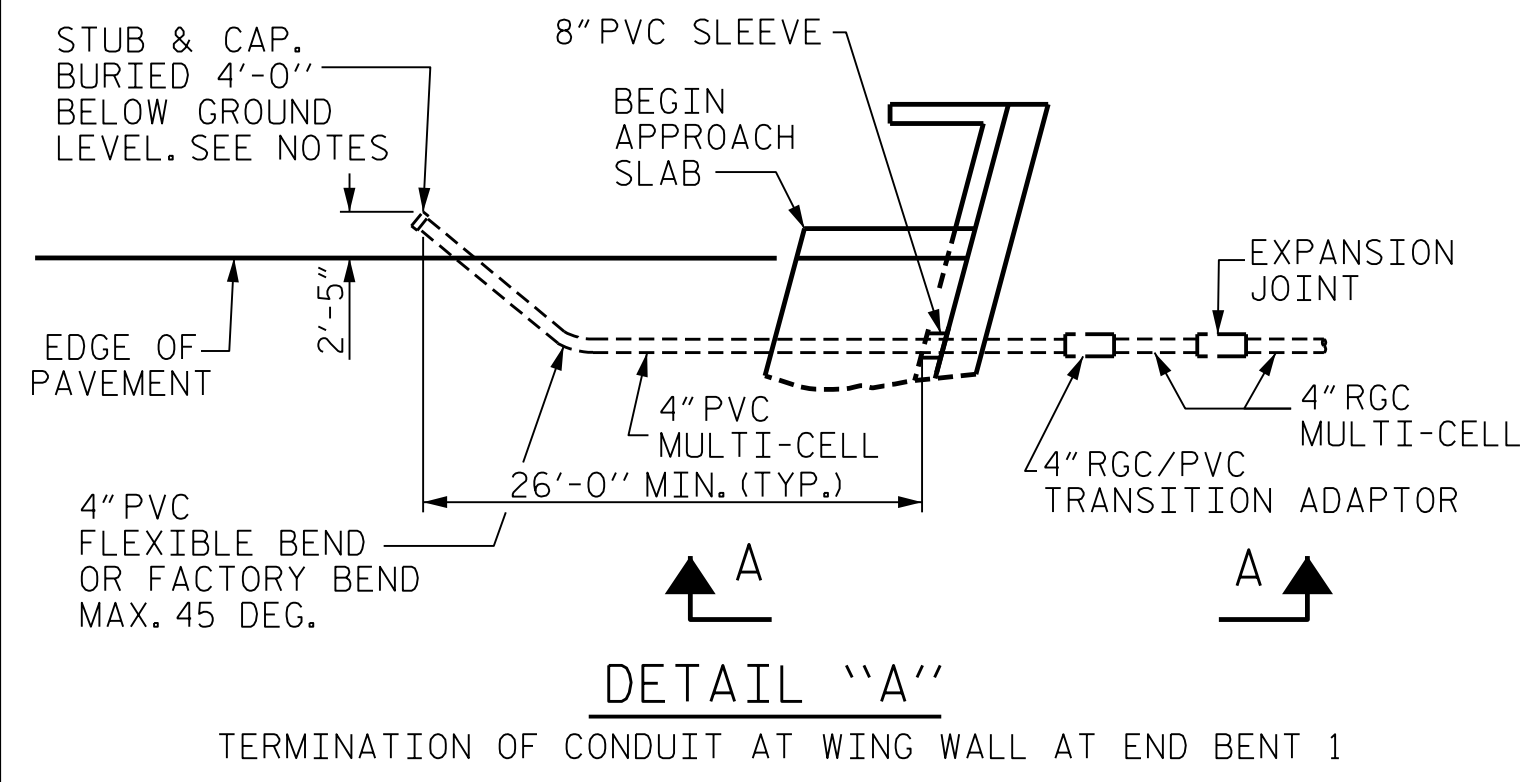
INSTALL SLEEVES PARALLEL TO GIRDERS. SEE DETAIL "B" FOR SLEEVE INSTALLATION.

PROVIDE TRANSITION ADAPTOR (AND EXPANSION JOINT) FOR CONDUIT AT END BENT 1 (AND END BENT 2).

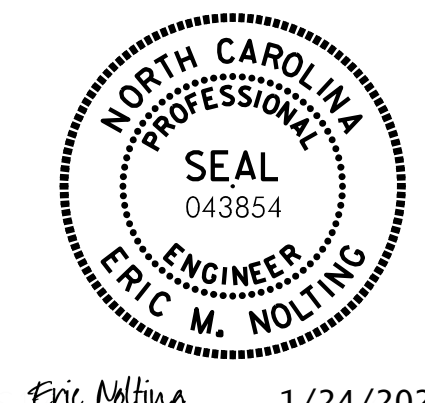
INSTALL STABILIZER'S MIDWAY BETWEEN DECK EXPANSION JOINTS. STABILIZER CAN NOT BE USED INSTEAD OF A HANGER ASSEMBLY.

THE CONCRETE SCREW INSERT SHALL HAVE A ROD SIZE OF 5/8" AND A PULL FORCE OF 1260 lbs.

FOR ELECTRICAL CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.



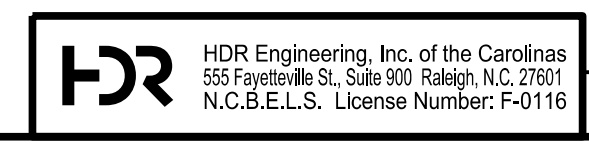
PROJECT NO. B-3186/B-5898
HAYWOOD COUNTY
 STATION: 68+82.30 ± -L-LT-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
ELECTRICAL CONDUIT SYSTEM FOR SIGNALS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	--	--	3	--	--
2	--	--	4	--	--
					SHEET NO. 303L-44
					TOTAL SHEETS 44

DES BY: <u>E. NOLTING</u>	DATE: <u>10/21</u>	DWG BY: <u>B. PETERSON</u>	DATE: <u>10/21</u>
DES CHK: <u>K. DICKENS</u>	DATE: <u>10/21</u>	CHK BY: <u>E. NOLTING</u>	DATE: <u>10/21</u>

ELECTRIC CONDUIT DETAILS



Eric Nolting 1/24/2022
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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