

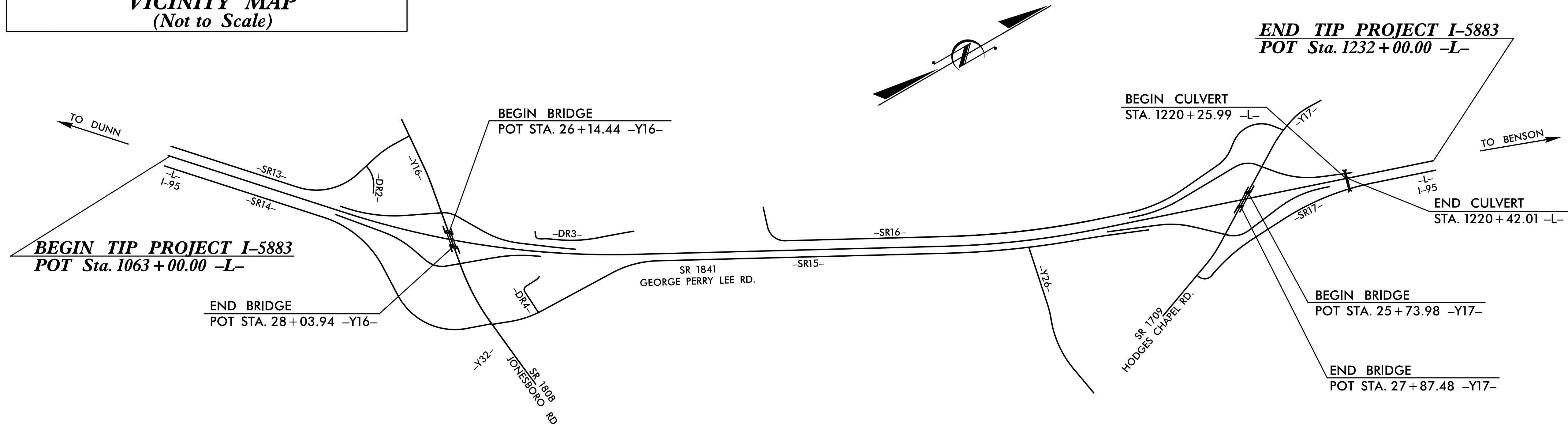
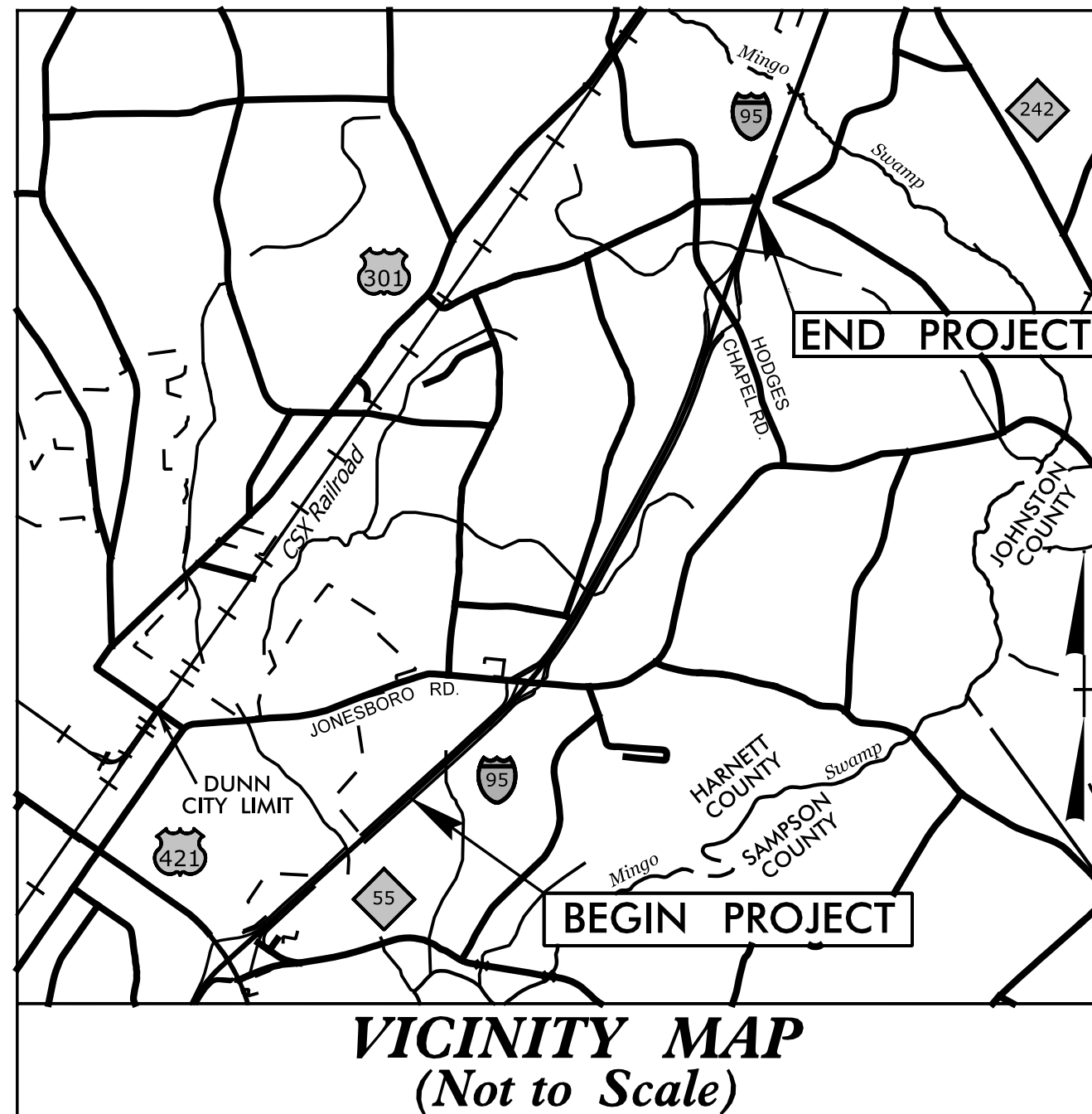
TIP PROJECT: I-5883

CONTRACT: 204543

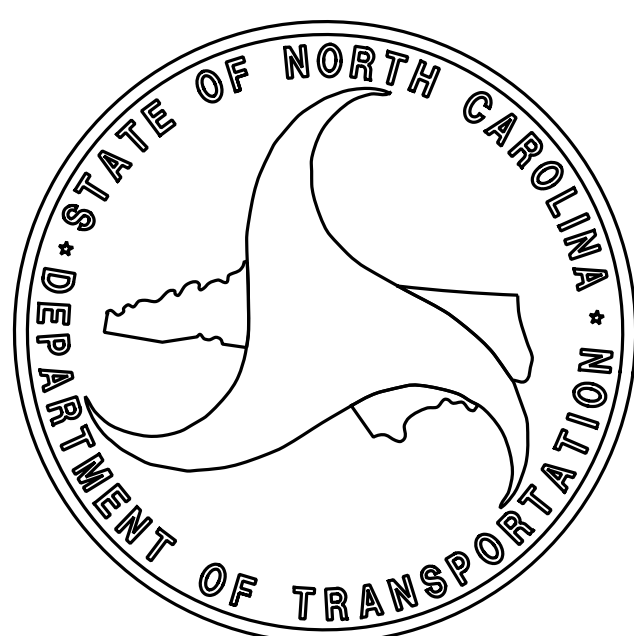
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT COUNTY

LOCATION: I-95 AT SR 1808 (JONESBORO ROAD) (EXIT 75) TO NORTH OF
SR 1709 (HODGES CHAPEL ROAD) (EXIT 77). IMPROVE
INTERCHANGES. WIDEN TO EIGHT LANES.
TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERT AND STRUCTURES



STRUCTURES



DESIGN DATA	
ADT 2020 =	58,000
ADT 2040 =	75,700
K =	7 %
D =	55 %
T =	24 % *
V =	70 MPH
* (13% TTST + 5% DUALS)	
FUNC CLASS = INTERSTATE	
STATEWIDE TIER	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT I-5883	3.201 MILES
LENGTH STRUCTURE TIP PROJECT I-5883	0.003 MILES
TOTAL LENGTH OF TIP PROJECT I-5883	3.204 MILES

Michael Baker
INTERNATIONAL

Prepared In the Office of:

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
Professional Corporation License Number:
F-1084

2018 STANDARD SPECIFICATIONS

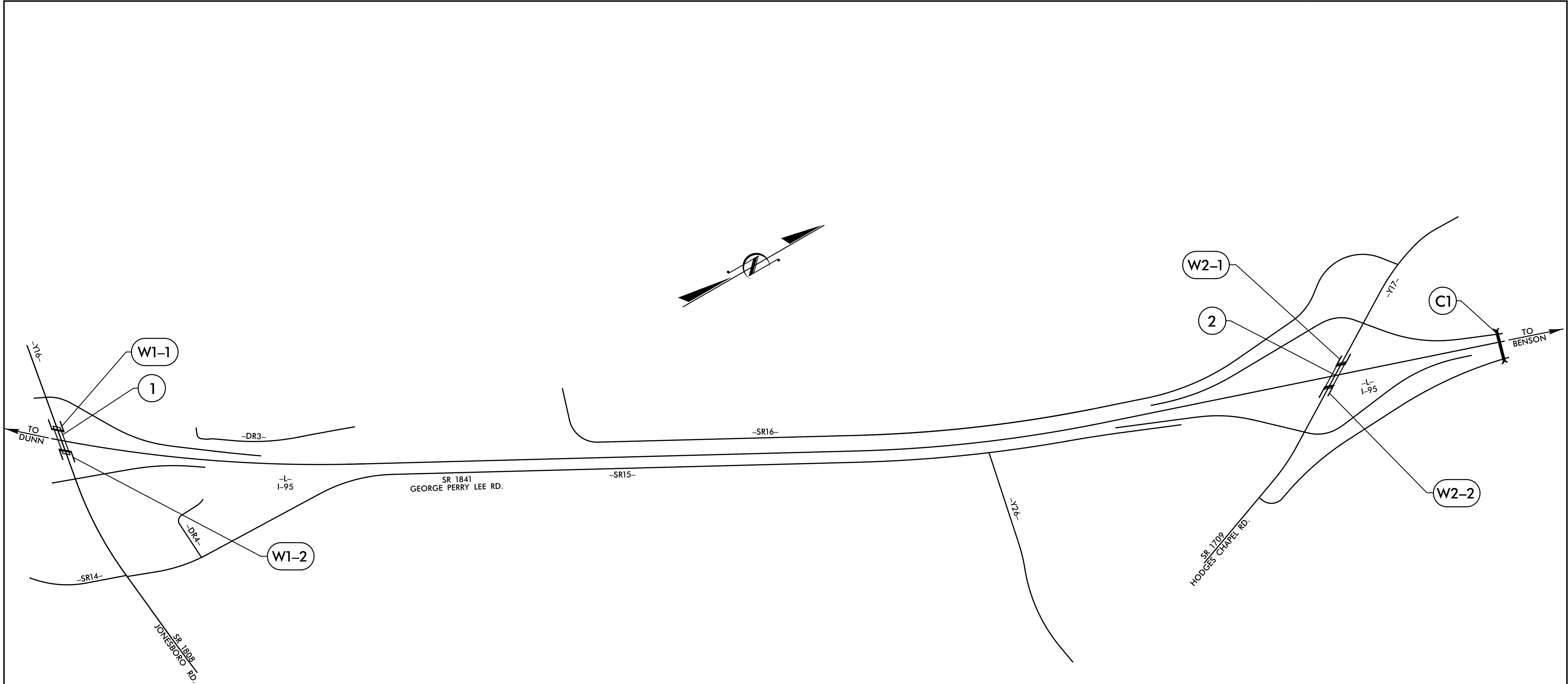
LETTING DATE:
JULY 20, 2021

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Prepared for:

DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, NC 27610

AMANDA H. SHARPE, P.E.
PROJECT ENGINEER



INDEX			
STR. NO.	STATION	DESCRIPTION	SHEET NO.
1	27+09.19 -Y16- 1101+61.98 -L-	BRIDGE ON JONESBORO RD. (SR 1808) OVER I-95 BETWEEN SR 1835 AND SR 1842	S1-1 TO S1-35
2	26+80.73 -Y17- 1206+59.51 -L-	BRIDGE ON HODGES CHAPEL RD. (SR 1709) OVER I-95 BETWEEN STEWART RD. AND SR 1808	S2-1 TO S2-33
C1	1220+34.00 -L-	DOUBLE 7 FT. X 6 FT. REINFORCED CONCRETE BOX CULVERT	C1-1 TO C1-7
W1-1	1101+61.98 -L-	MSE RETAINING WALL NO. 1 (STR. NO. 1 @ END BENT 1)	W1 TO W5 (MSE WALL PLANS FOR STR. NO. 1)
W1-2	1101+61.98 -L-	MSE RETAINING WALL NO. 2 (STR. NO. 1 @ END BENT 2)	
W2-1	1206+59.51 -L-	MSE RETAINING WALL NO. 1 (STR. NO. 2 @ END BENT 1)	W6 TO W10 (MSE WALL PLANS FOR STR. NO. 2)
W2-2	1206+59.51 -L-	MSE RETAINING WALL NO. 2 (STR. NO. 2 @ END BENT 2)	

PROJECT NO. I-5883
HARNETT COUNTY

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INDEX SHEET

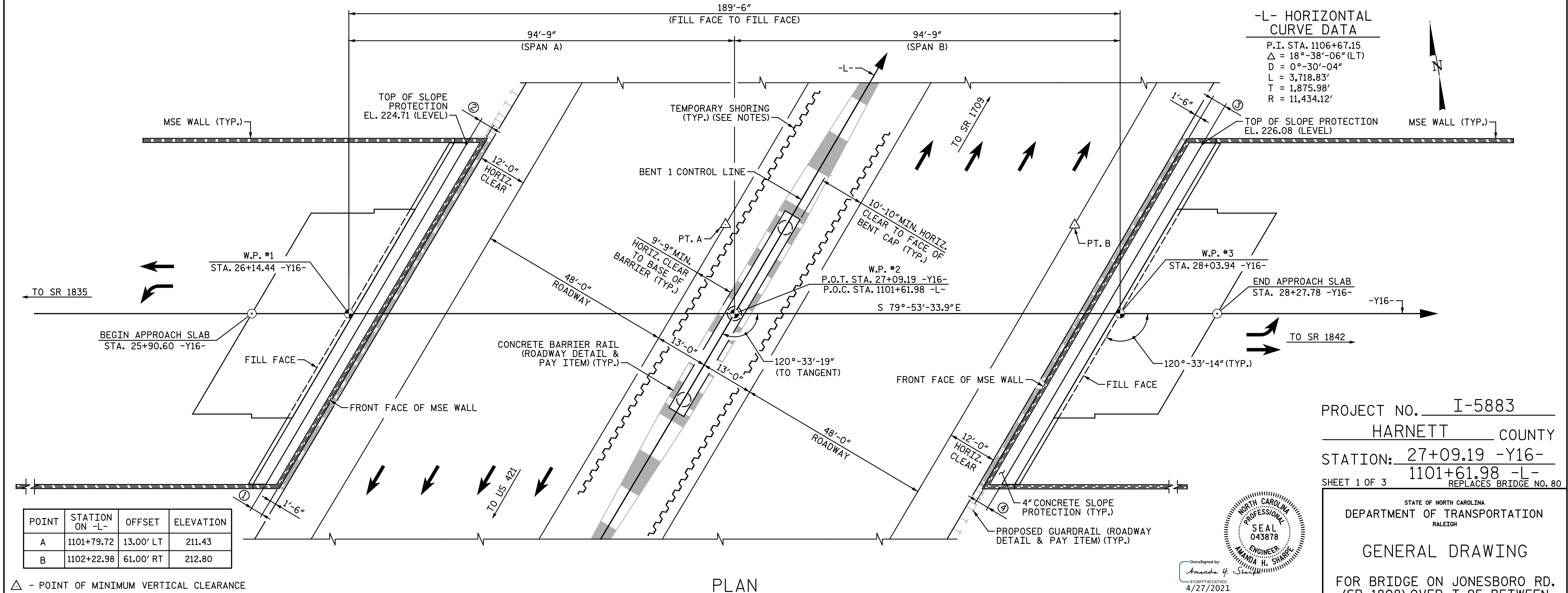
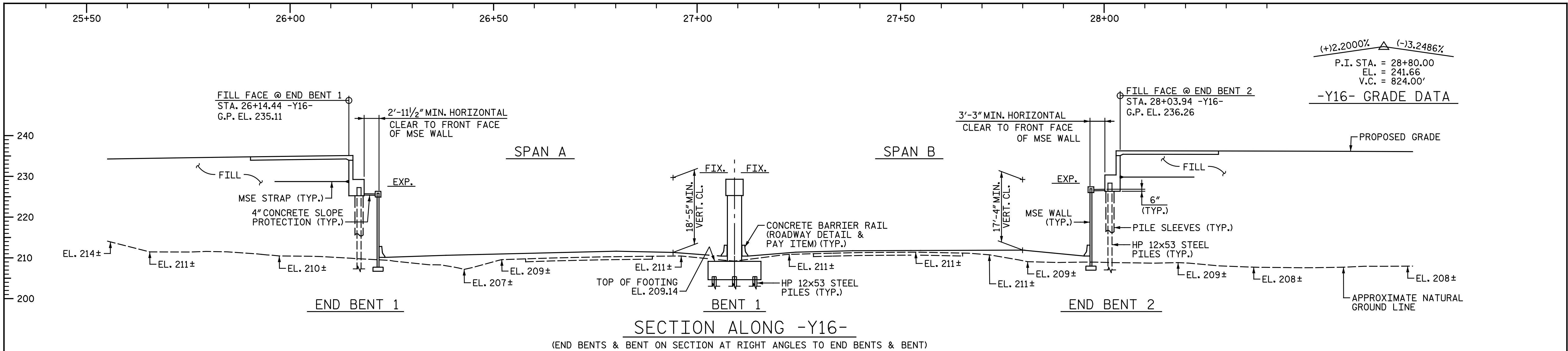
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-2
1			3			TOTAL SHEETS
2			4			2

DRAWN BY : M. D. MAYHEW DATE : 4-20-20
CHECKED BY : A. H. SHARPE DATE : 4-29-20

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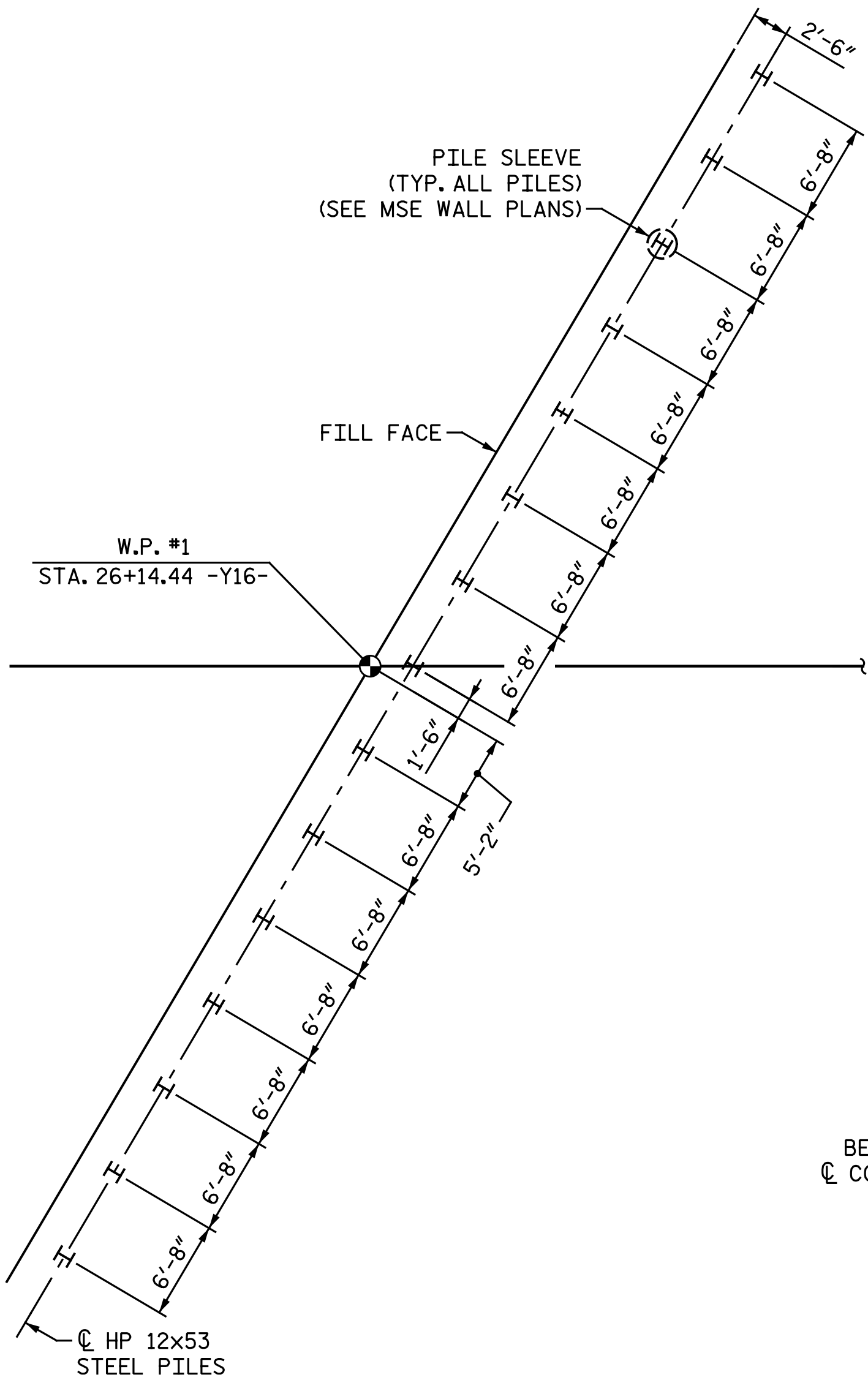
DRAWN BY : M. D. MAYHEW DATE : 11-25-19
CHECKED BY : A. H. SHARPE DATE : 4-26-21

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UNLESS ALL SIGNATURES COMPLETED

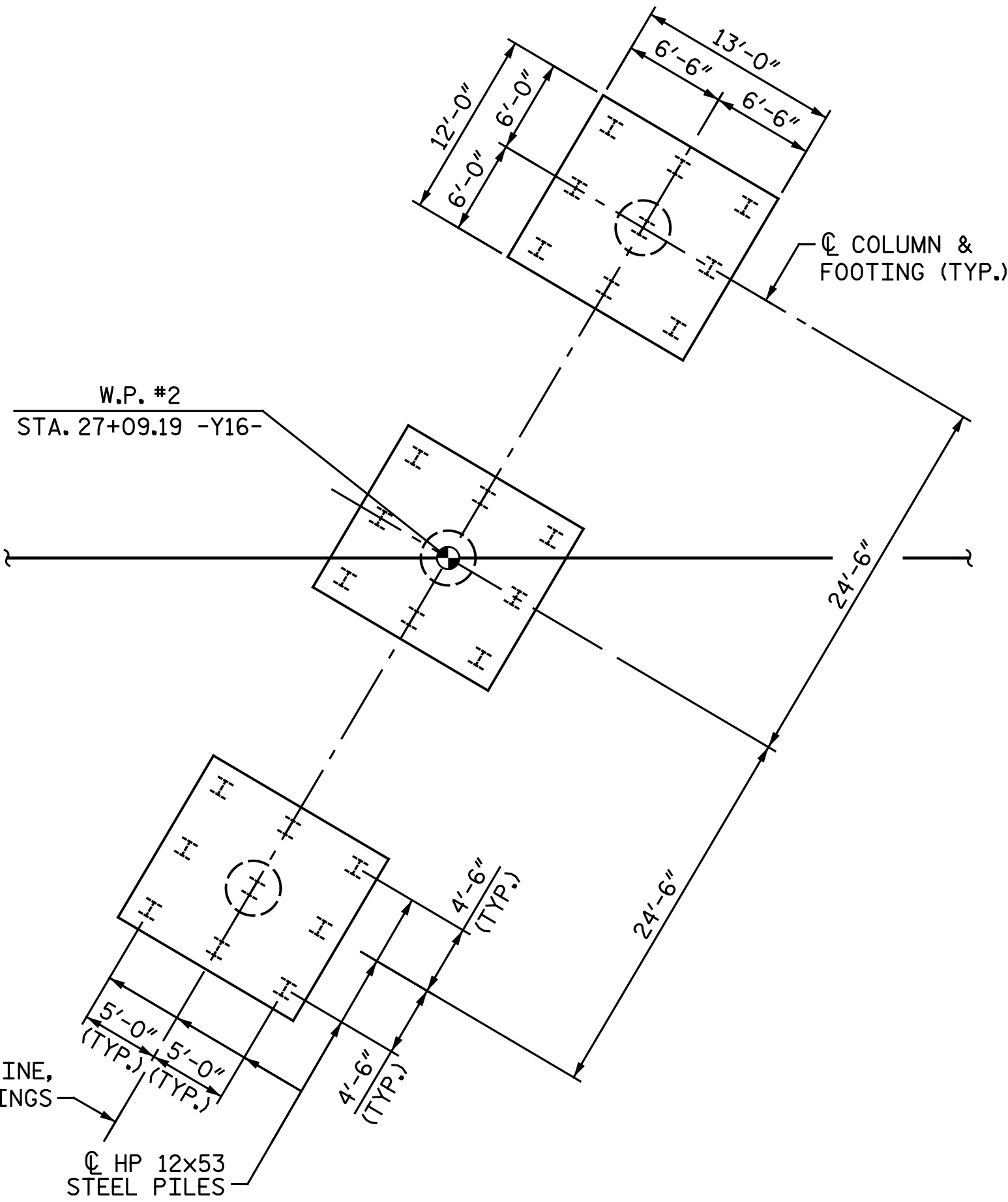
Michael Baker
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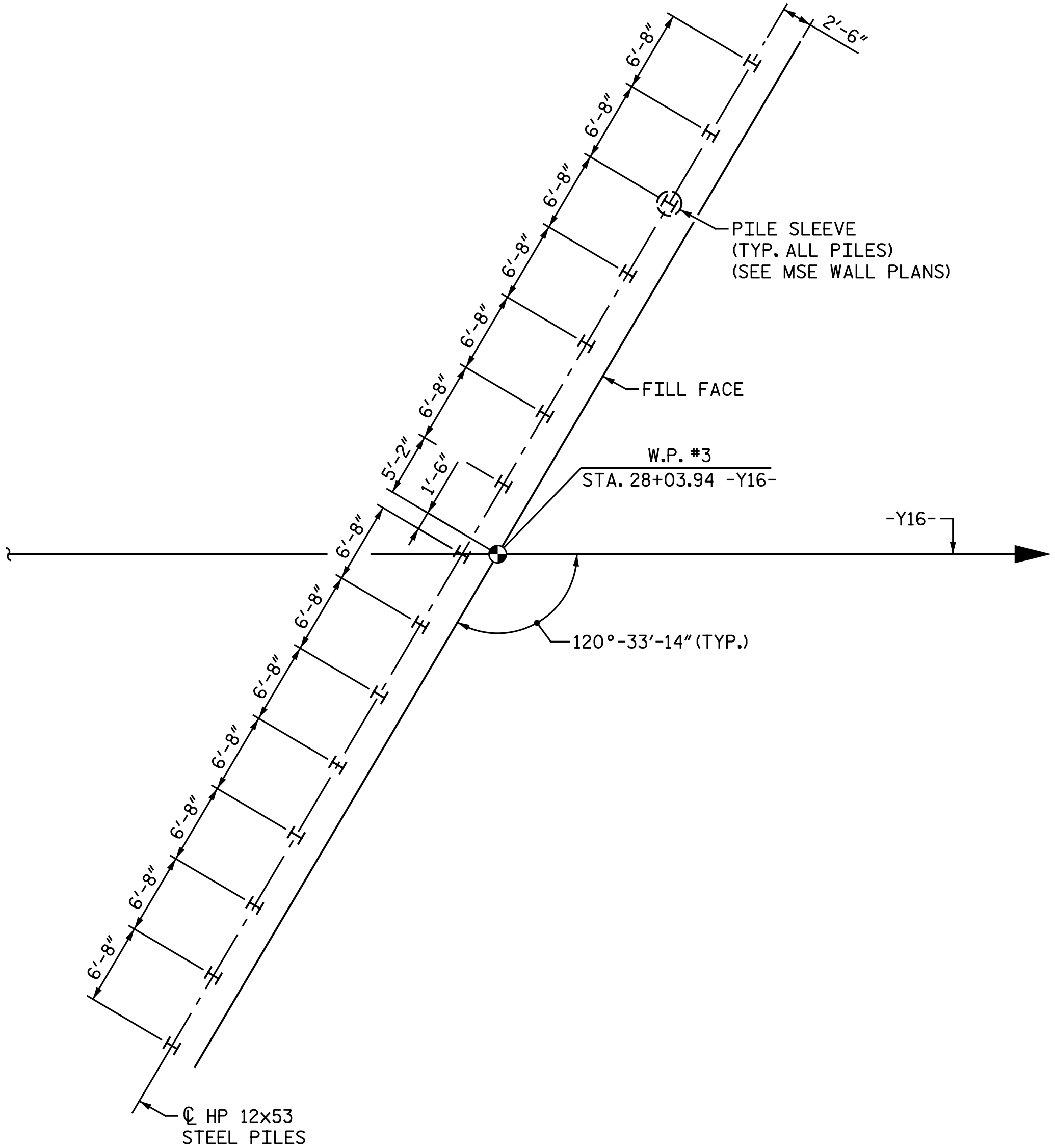
REVISIONS						SHEET NO. SI-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



END BENT 1



BENT 1



END BENT 2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.

ALL PILES ARE VERTICAL.

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

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

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 155 TONS PER PILE.

TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT END BENT NO.2 AND BENT NO.1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES REQUIRED AT END BENT NO.1 AND END BENT NO.2.

OBSERVE A 3 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL TO WITHIN 1 FT OF THE BOTTOM OF CAP ELEVATION BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO.1 AND END BENT NO.2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

DRAWN BY : M. D. MAYHEW DATE : 2-1-20
CHECKED BY : A. H. SHARPE DATE : 2-7-20

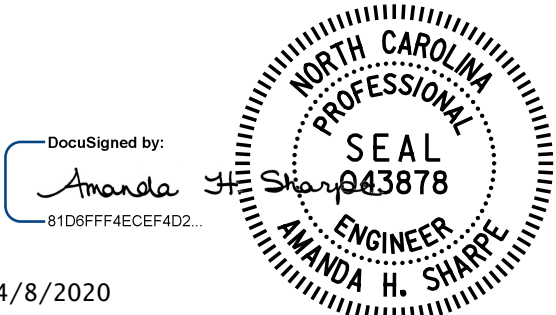
PROJECT NO. I-5883

HARNETT COUNTY

STATION: 27+09.19 -Y16-

1101+61.98 -L-

SHEET 2 OF 3



4/8/2020

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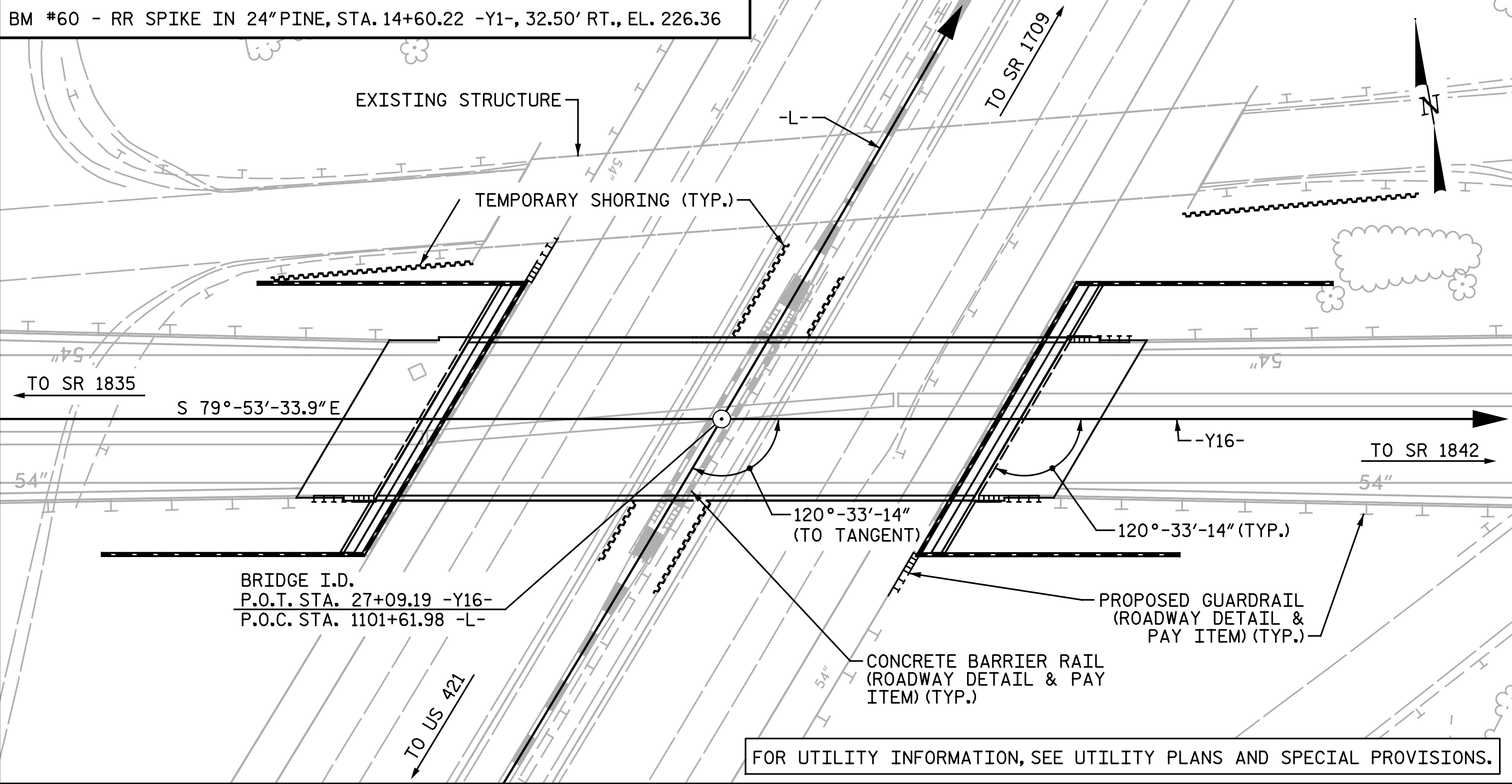
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Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON JONESBORO RD.
(SR 1808) OVER I-95 BETWEEN
SR 1835 AND SR 1842

REVISIONS						SHEET NO. SI-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

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

THE SKEWED END CONDITIONS OF SPAN A & B ARE SUCH THAT THE USE OF 4' WIDE PRESTRESSED CONCRETE DECK PANELS IS NOT POSSIBLE; USE OF 8' WIDE PRESTRESSED CONCRETE DECK PANELS IS NESCESSARY.

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

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 27+09.16".

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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 4 SPANS (1 @ 50'-0", 2 @ 62'-6" & 1 @ 50'-0") WITH STRUCTURAL STEEL I-BEAMS & REINFORCED CONCRETE DECK; 24'-3" CLEAR ROADWAY WIDTH ON REINFORCED CONCRETE END BENT CAP ON TIMBER PILES AND REINFORCED CONCRETE POST AND BEAM INTERIOR BENT CAPS ON PILE FOOTINGS AND LOCATED 68'-0"± NORTH OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

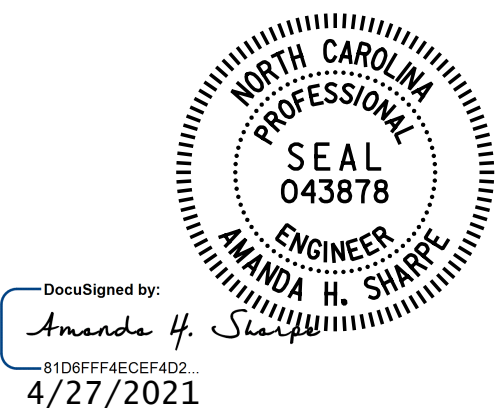
FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR MSE WALL, MSE REINFORCING STRAPS ATTACHED TO END BENTS AND PILE SLEEVES, SEE MSE WALL PLANS.

TOTAL BILL OF MATERIAL

LOCATION	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	FOUNDATION EXCAVATION FOR BENT	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES		PILE REDRIVES	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
	LUMP SUM	LUMP SUM	LUMP SUM	EA.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	EA.	NO.	LIN. FT.	EA.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	EA.
SUPERSTRUCTURE					9,587	8,853					12	1,105.68					414.11		LUMP SUM	LUMP SUM		
END BENT 1							81.7		13,332				15	15	1,125	8		26				
BENT 1			LUMP SUM				157.4		20,874	1,220			27	27	2,025	14						
END BENT 2							77.8		12,852				15	15	1,200	8		29				
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	2	9,587	8,853	316.9	LUMP SUM	47,058	1,220	12	1,105.68	57	57	4,350	30	414.11	55	LUMP SUM	LUMP SUM	LUMP SUM	2

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-
1101+61.98 -L-
SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON JONESBORO RD.
(SR 1808) OVER I-95 BETWEEN
SR 1835 AND SR 1842

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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REVISIONS

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

SHEET NO.

SI-3

TOTAL SHEETS

35

DRAWN BY : M. D. MAYHEW DATE : 11-25-19
CHECKED BY : A. H. SHARPE DATE : 4-26-21

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING ⬡#	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER	
						LIVE-LOAD FACTORS (γ _{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ _{LL})	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft+)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft+)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft+)		
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	⬡1	1.07	--	1.75	0.805	1.53	A & B	1	45.36	0.959	1.55	A & B	3	82.22	1.00	0.805	1.07	A & B	1	45.36	1, 2	
	HL-93 (OPERATING)	N/A		1.98	--	1.35	0.805	1.98	A & B	1	45.36	0.959	2.05	A & B	3	82.22	N/A	-	-	-	-	-	2	
	HS-20 (INVENTORY)	36.000	⬡2	1.48	53.28	1.75	0.805	2.11	A & B	1	45.36	0.959	2.09	A & B	3	82.22	1.00	0.805	1.48	A & B	1	45.36	1, 2	
	HS-20 (OPERATING)	36.000		2.73	98.28	1.35	0.805	2.73	A & B	1	45.36	0.959	2.74	A & B	3	82.22	N/A	-	-	-	-	-	2	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.52	47.52	1.40	0.805	6.27	A & B	1	45.36	0.959	6.96	A & B	3	63.79	1.00	0.805	3.52	A & B	1	45.36	1, 2
		SNGARBS2	20.000		2.54	50.80	1.40	0.805	4.52	A & B	1	45.36	0.959	4.88	A & B	3	63.79	1.00	0.805	2.54	A & B	1	45.36	1, 2
		SNAGRIS2	22.000		2.36	51.92	1.40	0.805	4.21	A & B	1	45.36	0.959	4.51	A & B	3	63.79	1.00	0.805	2.36	A & B	1	45.36	1, 2
		SNCOTTS3	27.250		1.73	47.14	1.40	0.805	3.08	A & B	1	45.36	0.959	3.36	A & B	3	63.79	1.00	0.805	1.73	A & B	1	45.36	1, 2
		SNAGGRS4	34.925		1.42	49.59	1.40	0.805	2.53	A & B	1	45.36	0.959	2.67	A & B	3	82.22	1.00	0.805	1.42	A & B	1	45.36	1, 2
		SNS5A	35.550		1.39	49.41	1.40	0.805	2.48	A & B	1	45.36	0.959	2.69	A & B	3	82.22	1.00	0.805	1.39	A & B	1	45.36	1, 2
		SNS6A	39.950		1.27	50.74	1.40	0.805	2.26	A & B	1	45.36	0.959	2.43	A & B	3	82.22	1.00	0.805	1.27	A & B	1	45.36	1, 2
		SNS7B	42.000		1.20	50.40	1.40	0.805	2.15	A & B	1	45.36	0.959	2.36	A & B	3	82.22	1.00	0.805	1.20	A & B	1	45.36	1, 2
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.54	50.82	1.40	0.805	2.75	A & B	1	45.36	0.959	2.88	A & B	3	82.22	1.00	0.805	1.54	A & B	1	45.36	1, 2
		TNT4A	33.075		1.54	50.94	1.40	0.805	2.75	A & B	1	45.36	0.959	2.96	A & B	3	63.79	1.00	0.805	1.54	A & B	1	45.36	1, 2
		TNT6A	41.600		1.25	52.00	1.40	0.805	2.23	A & B	1	45.36	0.959	2.48	A & B	3	82.22	1.00	0.805	1.25	A & B	1	45.36	1, 2
		TNT7A	42.000		1.25	52.50	1.40	0.805	2.24	A & B	1	45.36	0.959	2.44	A & B	3	82.22	1.00	0.805	1.25	A & B	1	45.36	1, 2
		TNT7B	42.000		1.28	53.76	1.40	0.805	2.28	A & B	1	45.36	0.959	2.32	A & B	3	82.22	1.00	0.805	1.28	A & B	1	45.36	1, 2
		TNAGRIT4	43.000		1.23	52.89	1.40	0.805	2.19	A & B	1	45.36	0.959	2.28	A & B	3	82.22	1.00	0.805	1.23	A & B	1	45.36	1, 2
		TNAGT5A	45.000		1.16	52.20	1.40	0.805	2.08	A & B	1	45.36	0.959	2.17	A & B	3	82.22	1.00	0.805	1.16	A & B	1	45.36	1, 2
		TNAGT5B	45.000	⬡3	1.15	51.75	1.40	0.805	2.06	A & B	1	45.36	0.959	2.14	A & B	3	8.51	1.00	0.805	1.15	A & B	1	45.36	1, 2

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

- A SERVICE III LIVE LOAD FACTOR OF 1.0 WAS USED TO BE CONSISTENT WITH THE VALUE USED DURING DESIGN.
- DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO CENTERLINE OF BEARING AND IS MEASURED ALONG THE CONTROLLING GIRDER.

⬡# CONTROLLING LOAD RATING

⬡1 DESIGN LOAD RATING (HL-93)

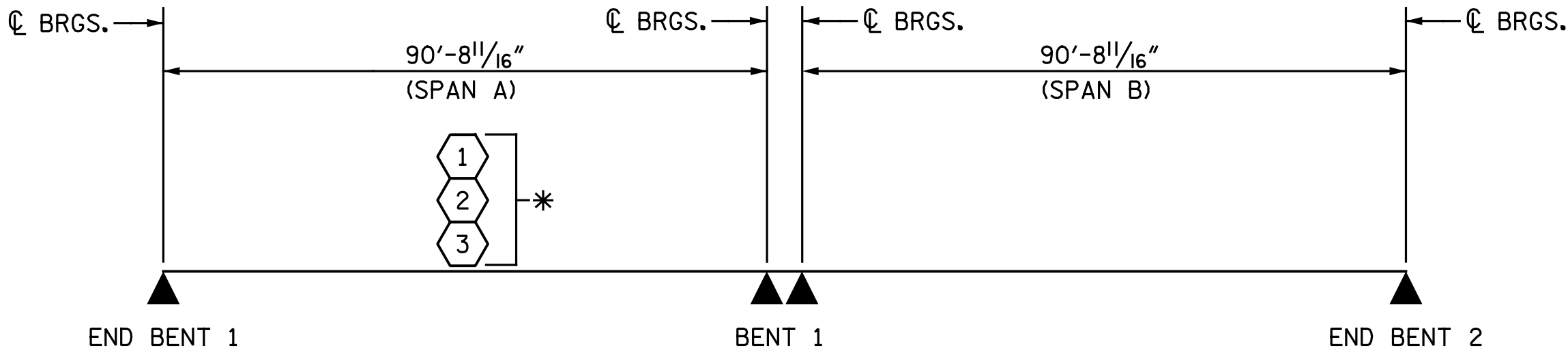
⬡2 DESIGN LOAD RATING (HS-20)

⬡3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

GIRDER LOCATION IS PROVIDED USING GIRDER NUMBER, WHERE GIRDER 1 IS THE LEFT EXTERIOR GIRDER LOOKING AHEAD STATION. SEE "GIRDER LAYOUT" SHEET FOR ALL GIRDER LOCATIONS.



LRFR SUMMARY

* TYPICAL SPANS A & B

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

DocuSigned by:
Amanda H. Sharpe
b10d9ff4ecef402

4/8/2020

SEAL
043878
ENGINEER
AMANDA H. SHARPE

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INTERNATIONAL

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

REVISIONS						SHEET NO. SI-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

ASSEMBLED BY : N. B. SPEAKS	DATE : 7-11-18
CHECKED BY : A. H. SHARPE	DATE : 7-12-18
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

NOTES:

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

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH DECK DRAINS AND STIRRUPS IN PRESTRESSED CONCRETE GIRDERS AND TO FACILITATE INSTALLATION OF CONCRETE BARRIER RAIL REINFORCEMENT.

TRANSVERSE STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH DECK DRAINS.

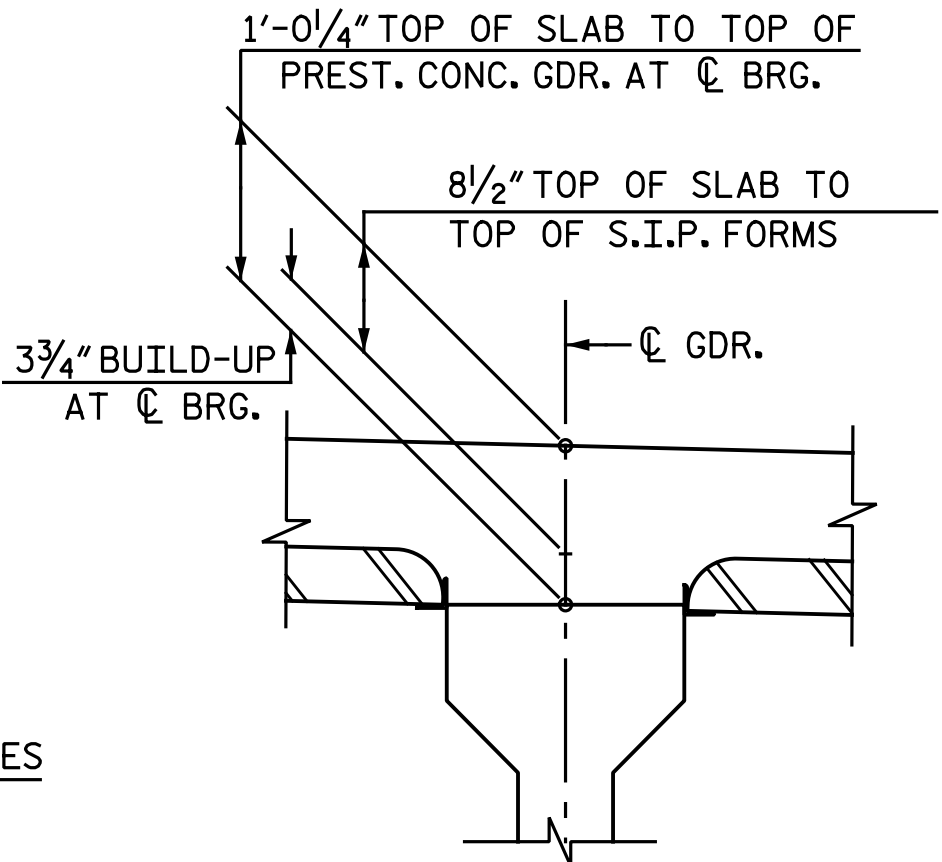
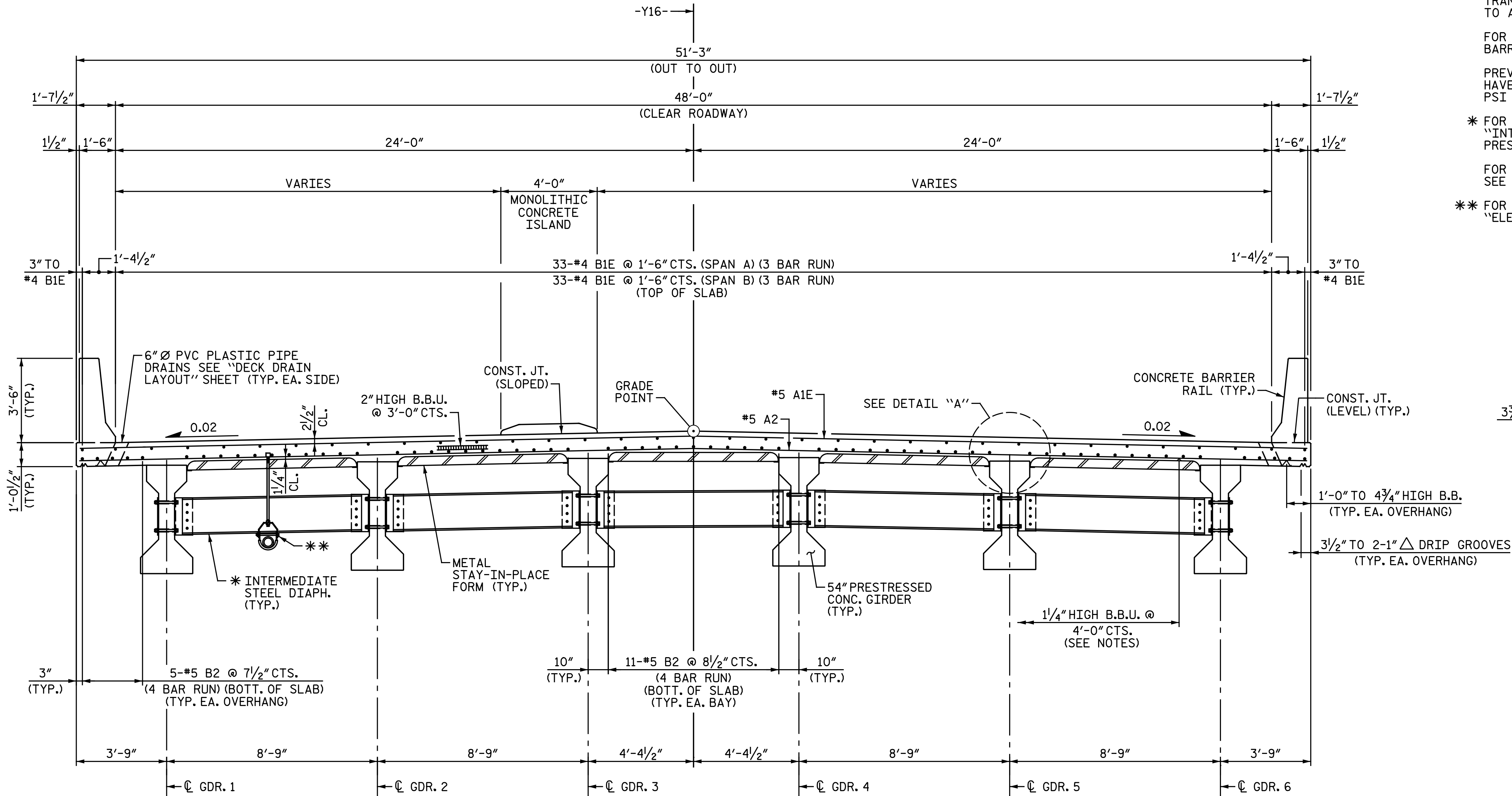
FOR CONCRETE BARRIER RAIL DETAILS, SEE "CONCRETE BARRIER RAIL" SHEET.

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.

* FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET.

FOR MONOLITHIC CONCRETE ISLAND DETAILS, SEE "MONOLITHIC CONCRETE ISLAND" SHEET.

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



DETAIL "A"

TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

SHEET 1 OF 3

Drawn by: Amanda H. Sharpe
BY: 043878

4/8/2020



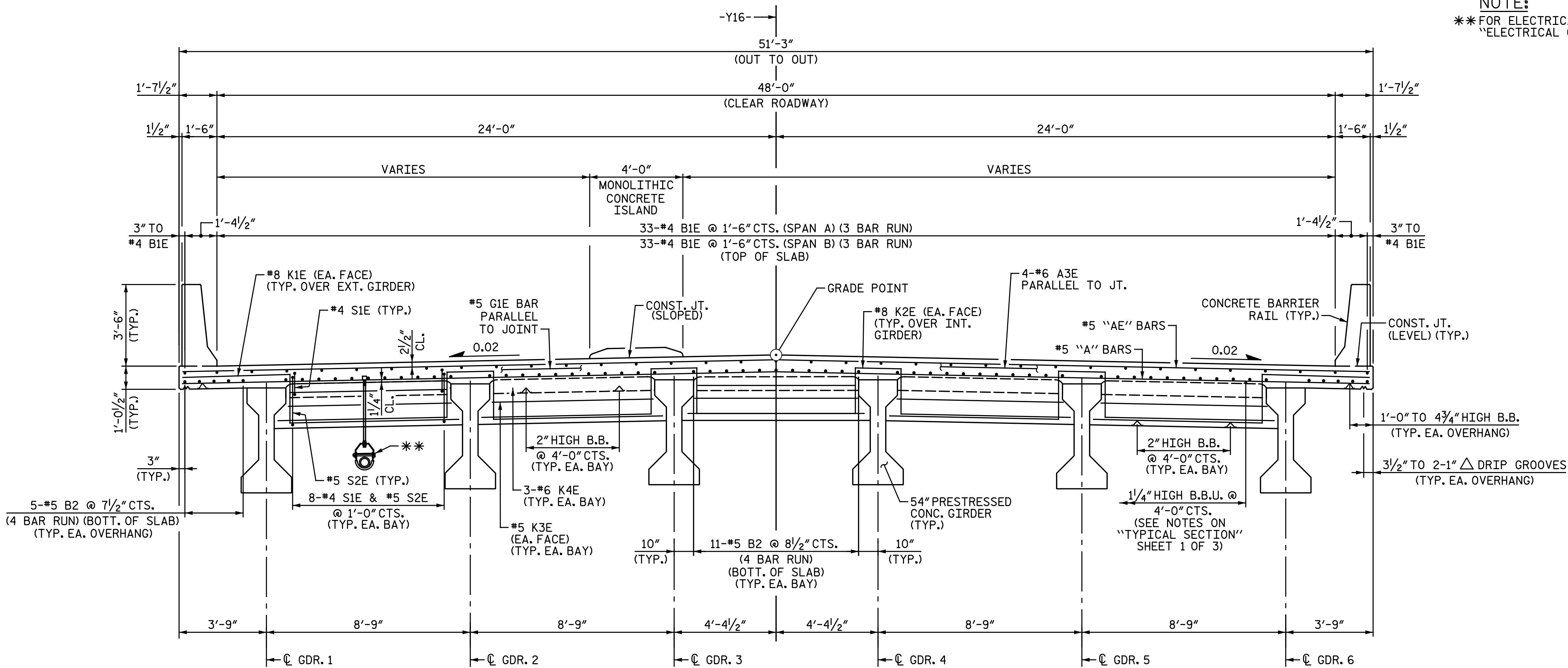
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

DOCUMENT NOT CONSIDERED FINAL
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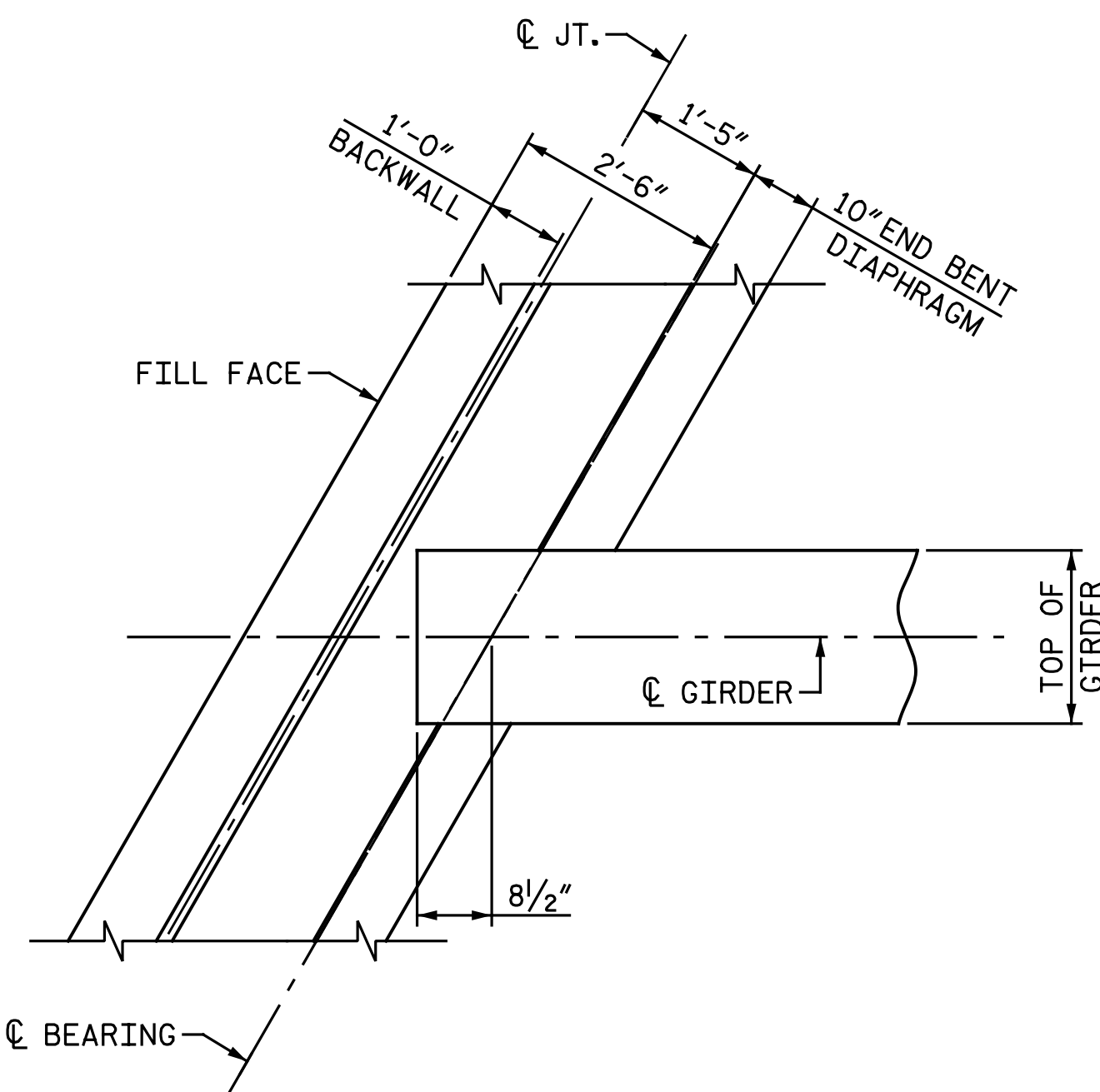
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Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

REVISIONS						SHEET NO. SI-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			35

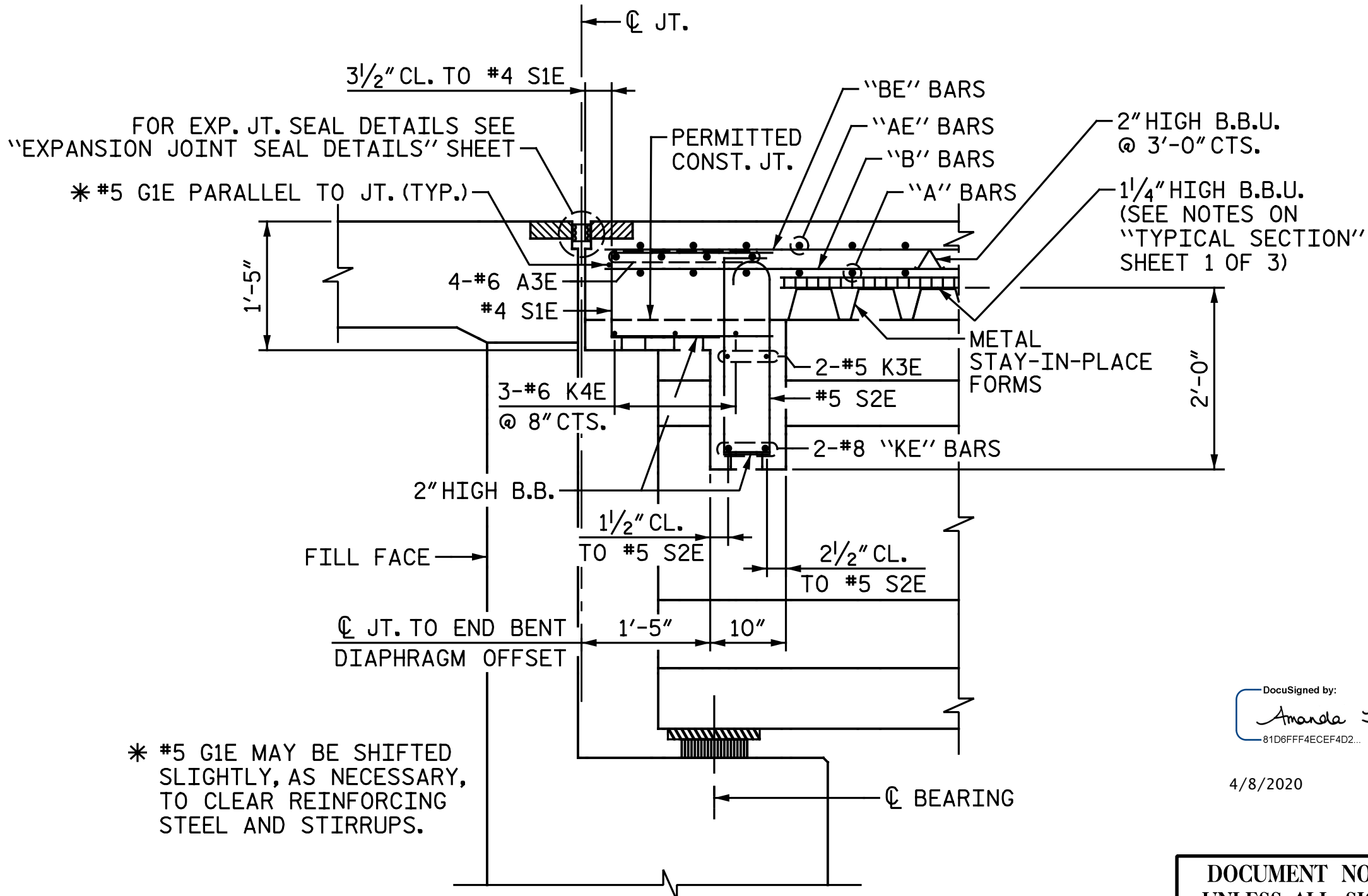
DRAWN BY : N. B. SPEAKS DATE : 1-9-19
CHECKED BY : A. H. SHARPE DATE : 1-10-19



TYPICAL SECTION @ END BENT



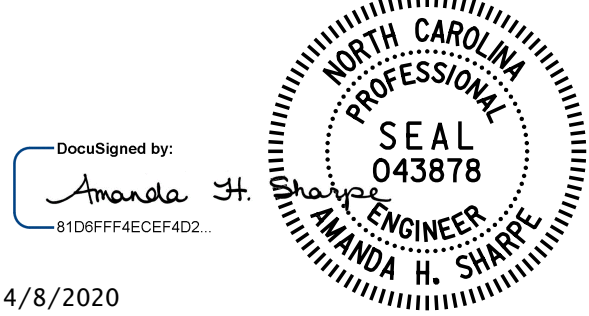
PLAN AT END BENT DIAPHRAGM
END BENT 1 SHOWN, END BENT 2 SIMILAR



SECTION THROUGH END BENT DIAPHRAGM
END BENT 1 SHOWN, END BENT 2 SIMILAR

NOTE:
**FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE
"ELECTRICAL CONDUIT SYSTEM FOR SIGNALS" SHEET.

DRAWN BY : C. E. MAYHEW DATE : 1-9-19
CHECKED BY : A. H. SHARPE DATE : 3-26-20



4/8/2020

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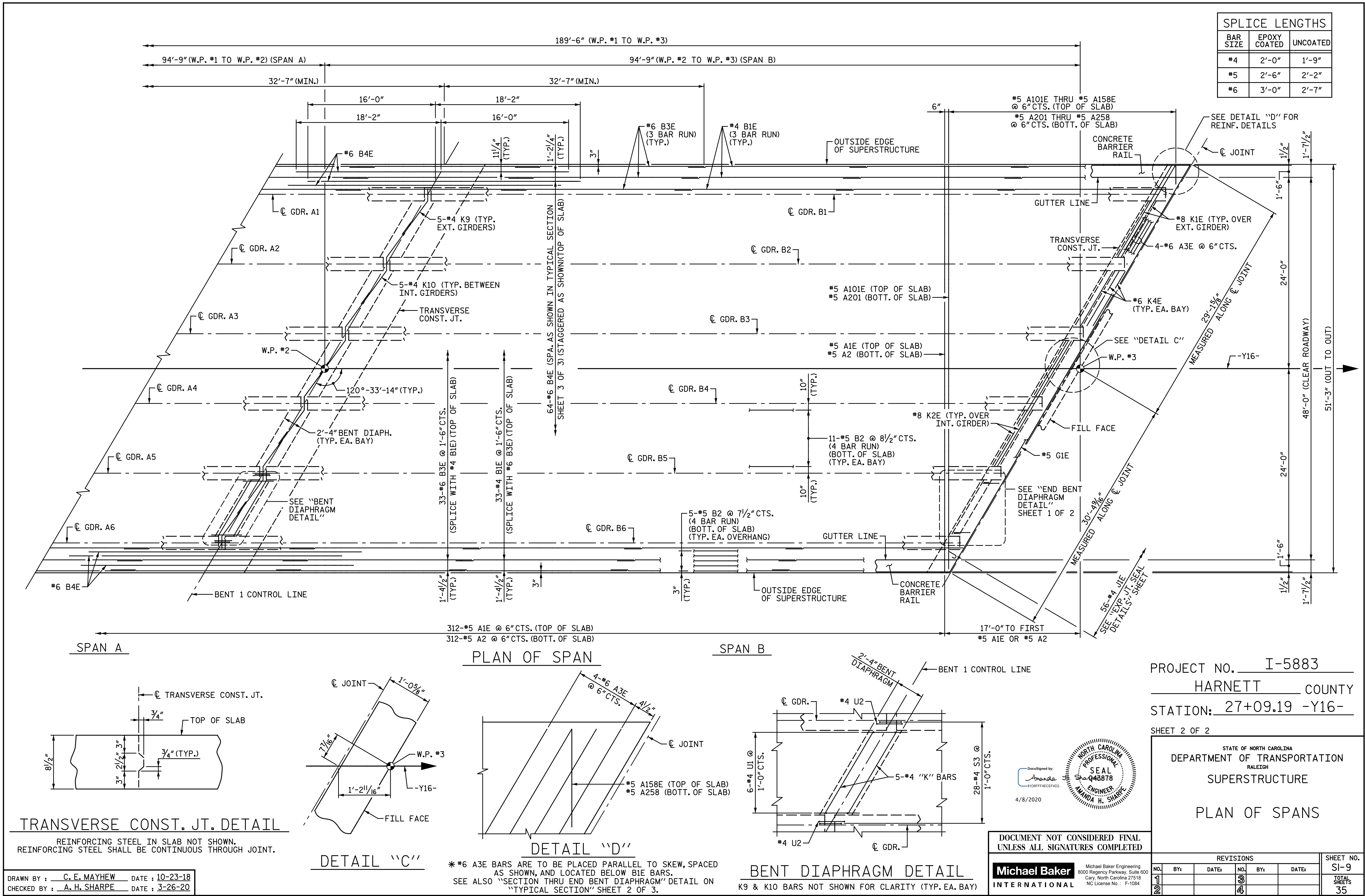
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NC License No.: F-1084

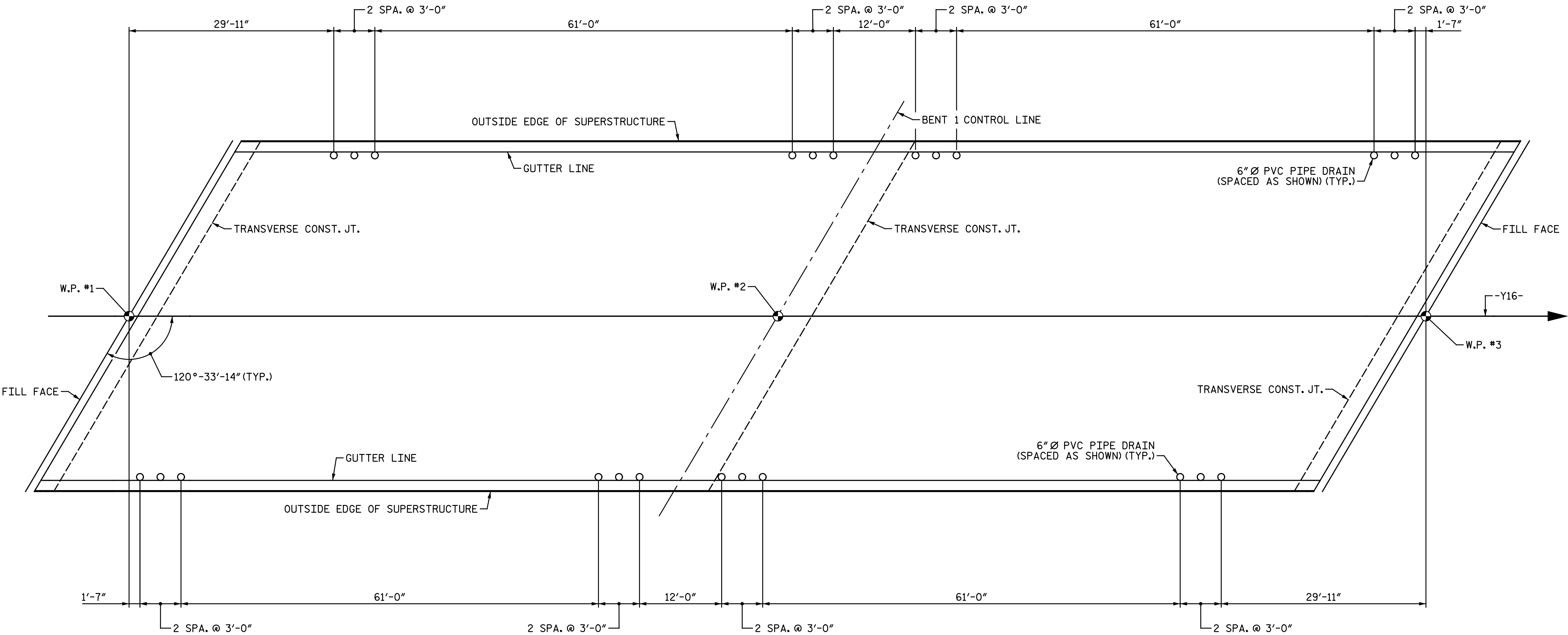
PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

SHEET 2 OF 3

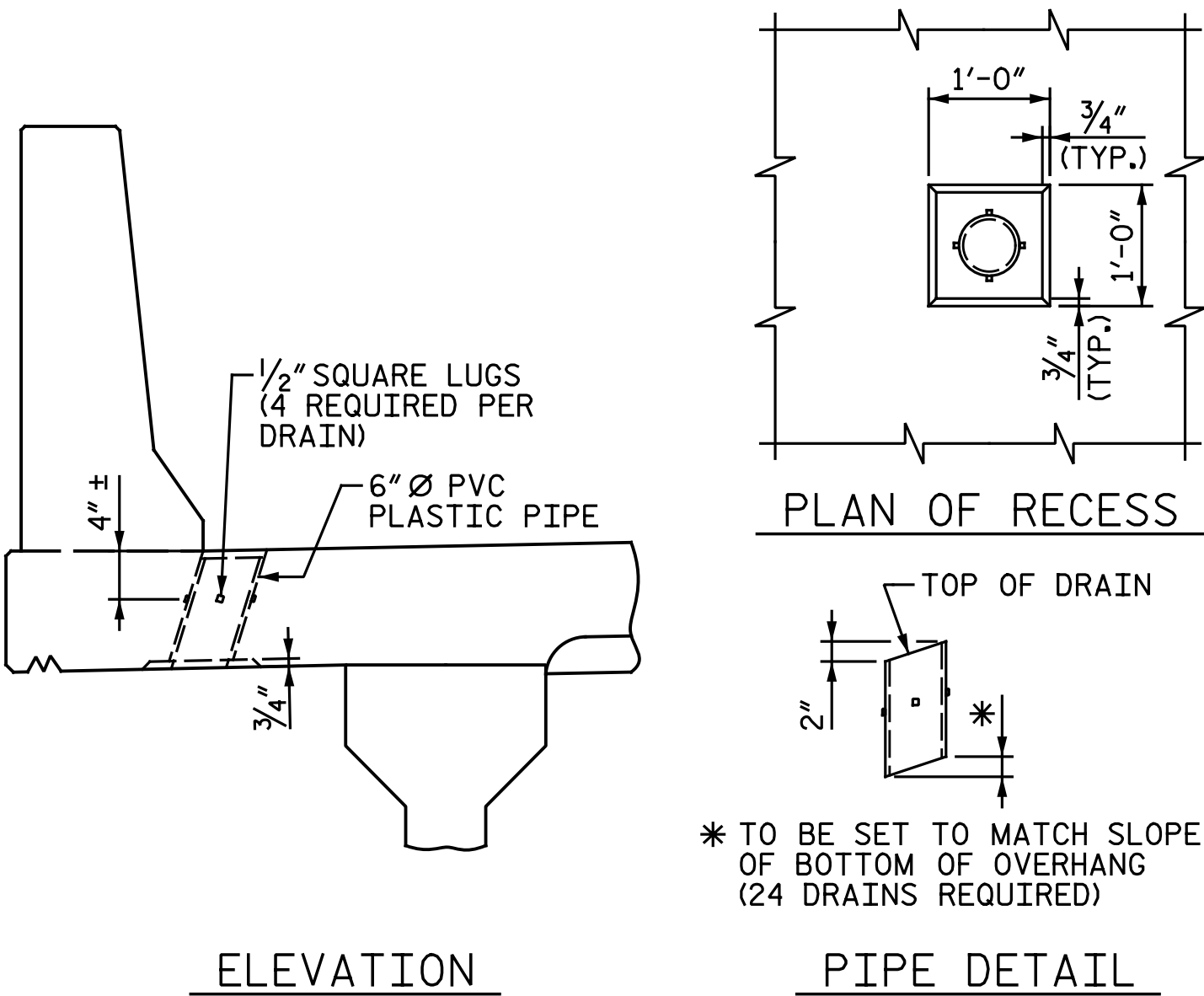
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			SI-6 TOTAL SHEETS 35
2			4			





DECK DRAIN LAYOUT

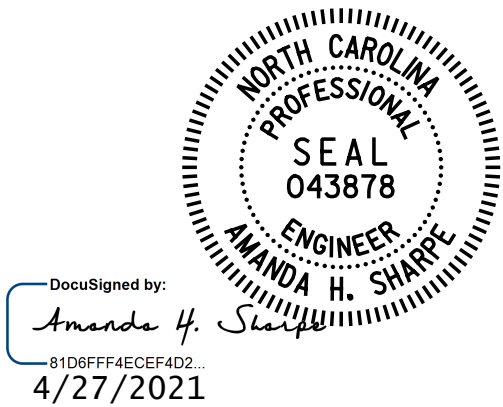


DRAIN DETAILS

NOTES:

- TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.
- 4 -1/2" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF PIPE.
- THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

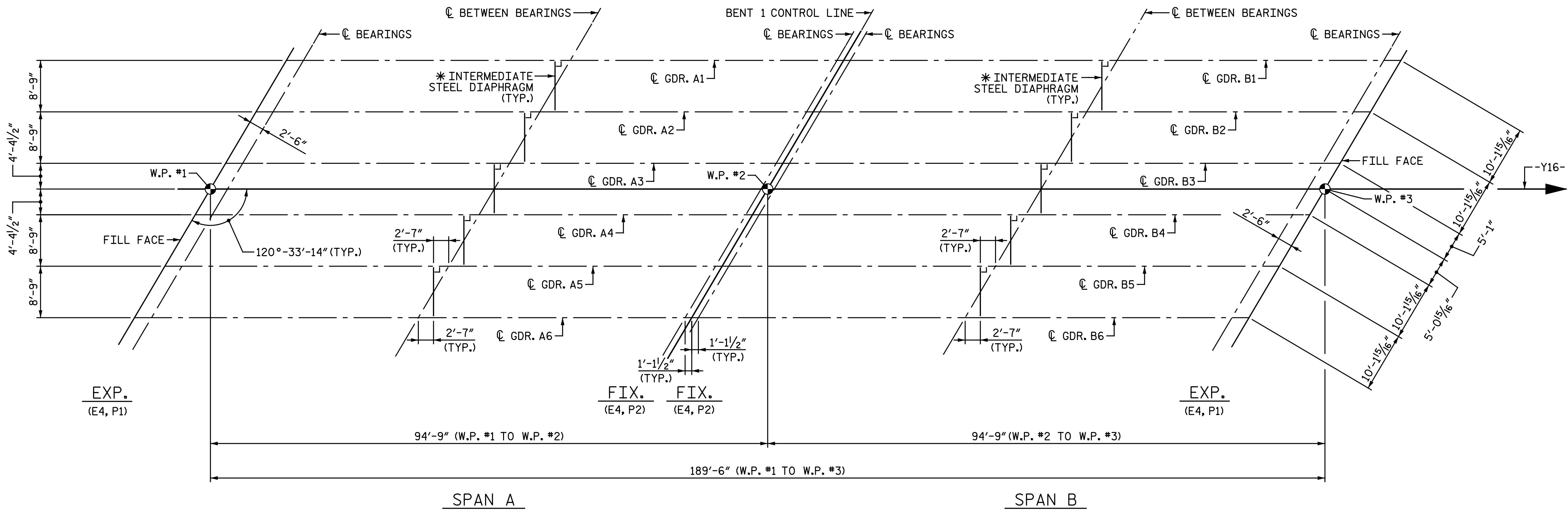


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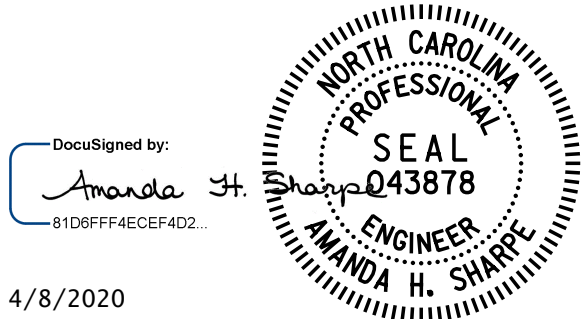
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
DECK DRAIN LAYOUT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS
SI-10					35



GIRDER LAYOUT

* SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-



4/8/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER LAYOUT

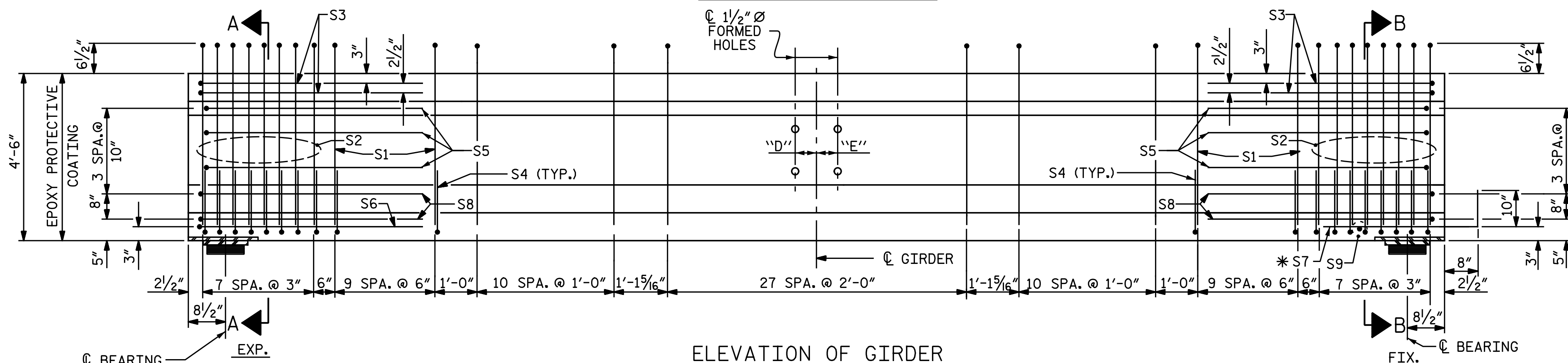
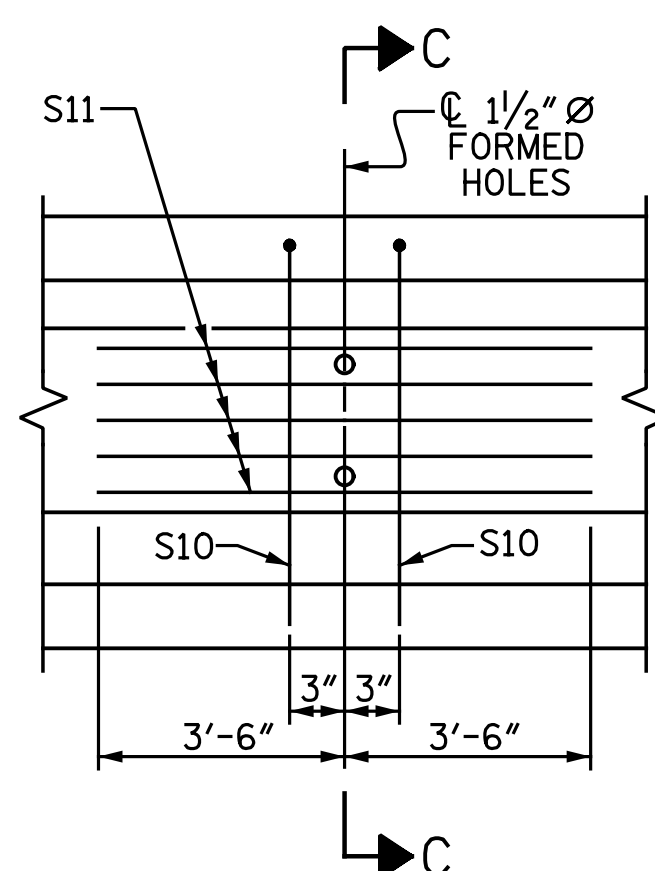
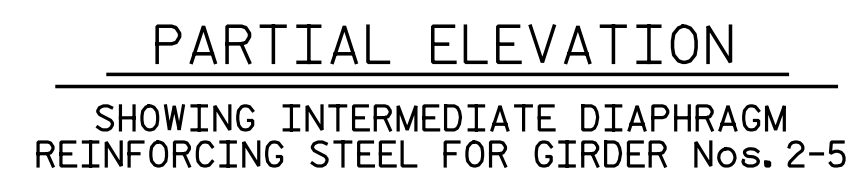
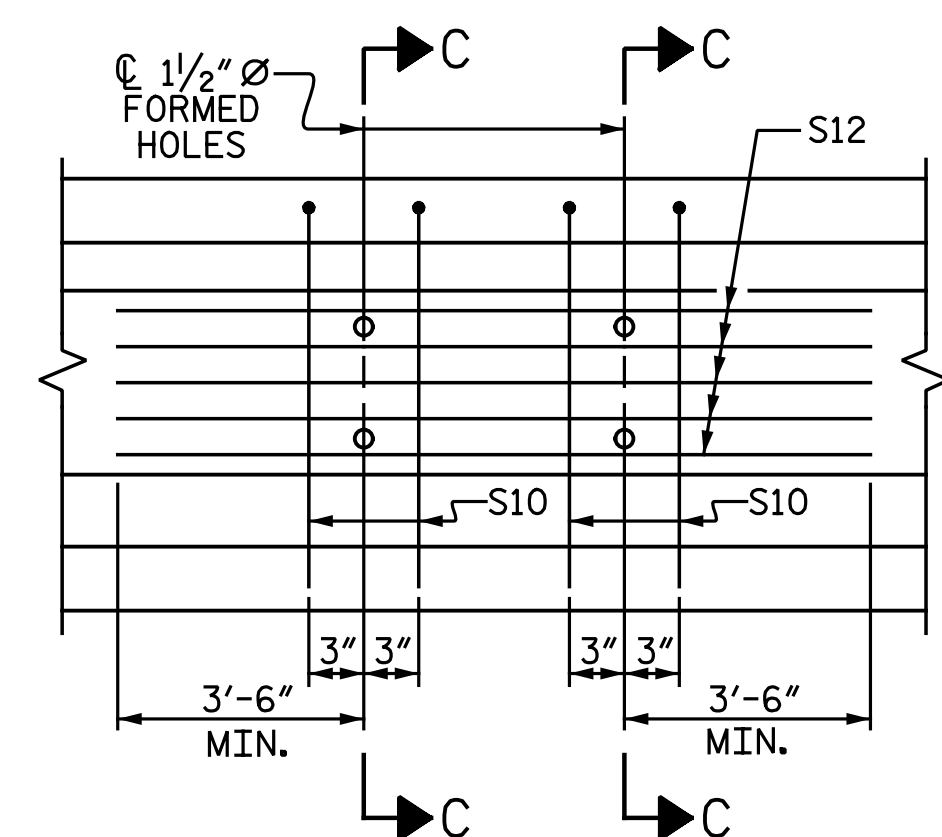
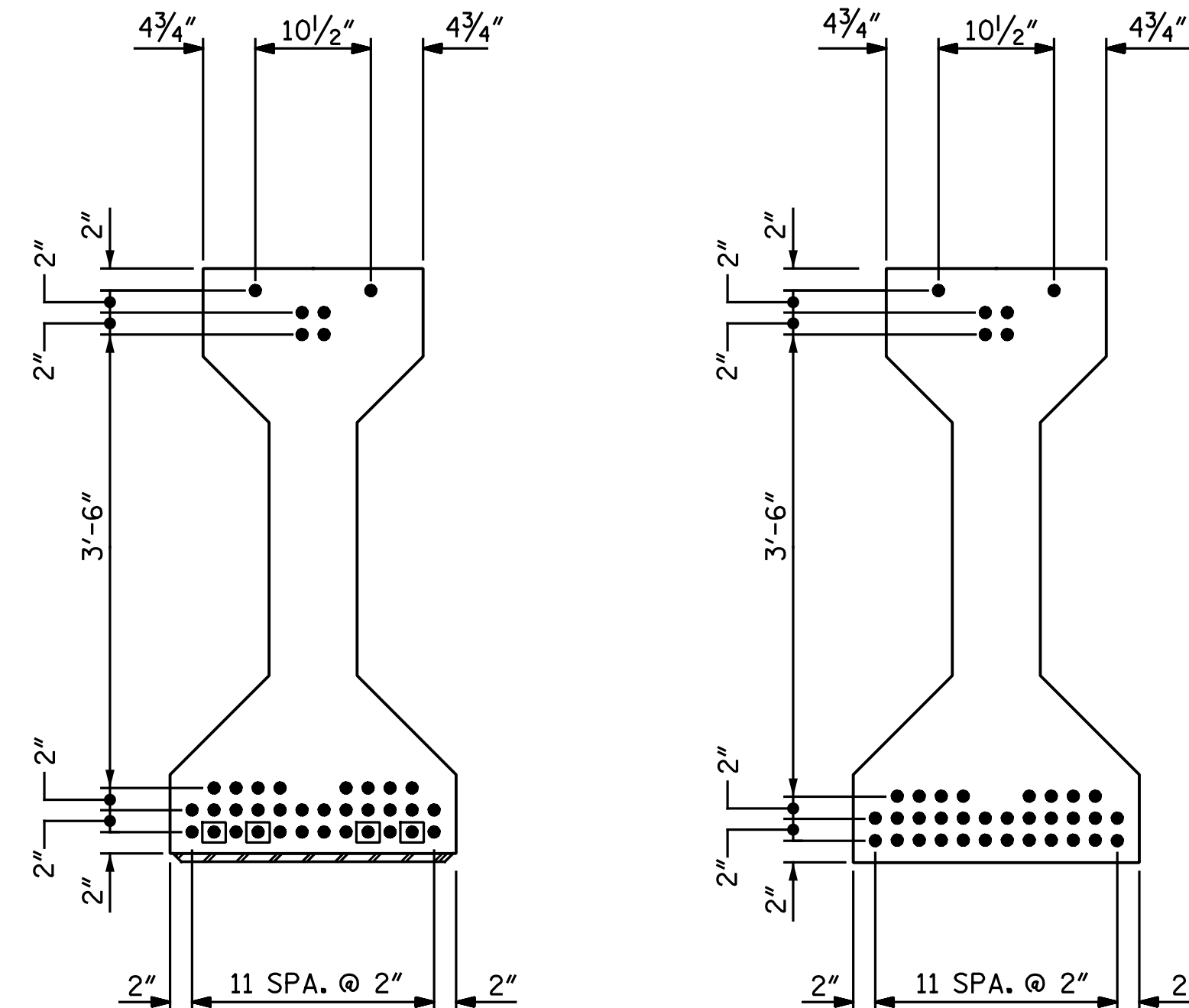
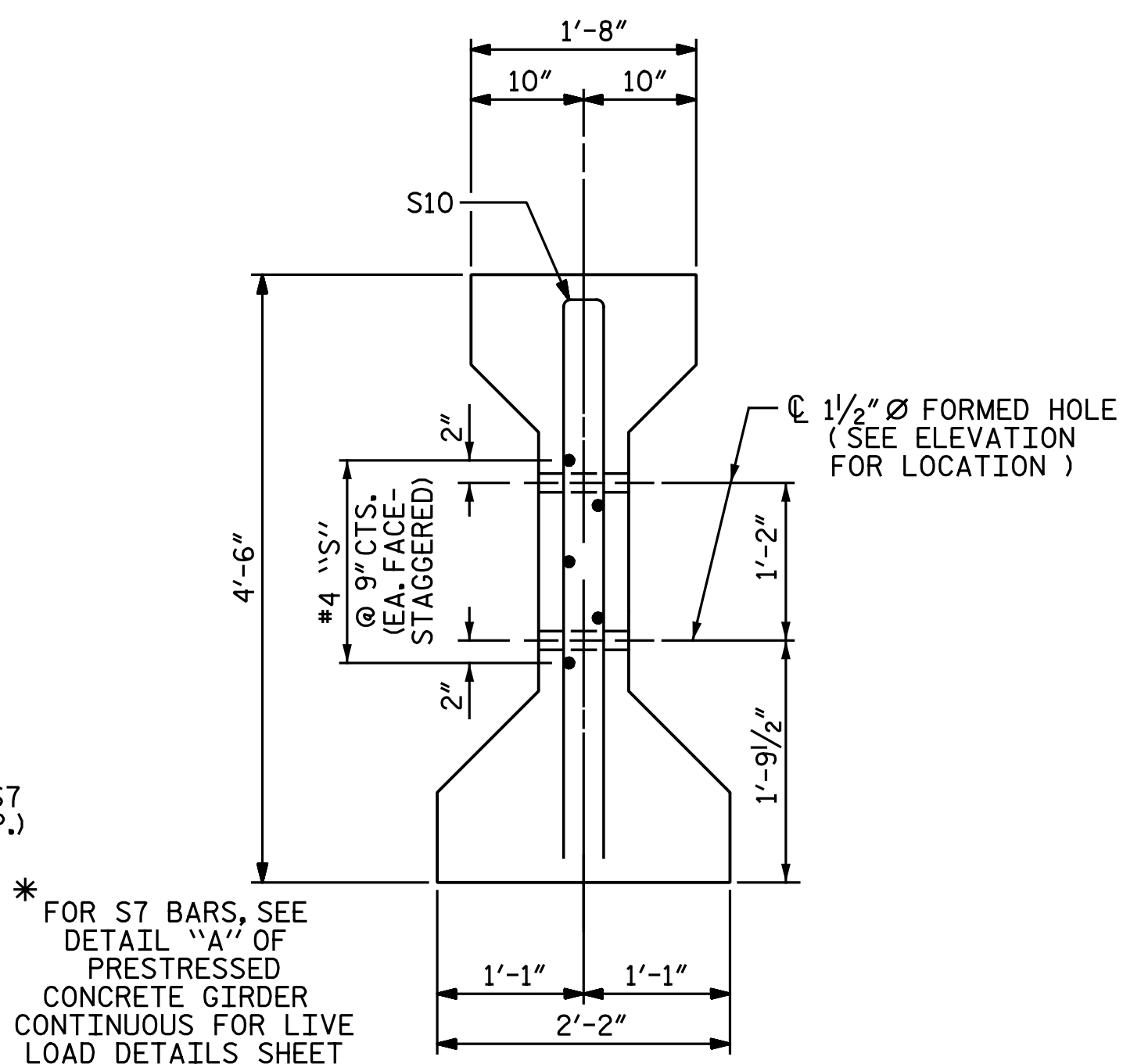
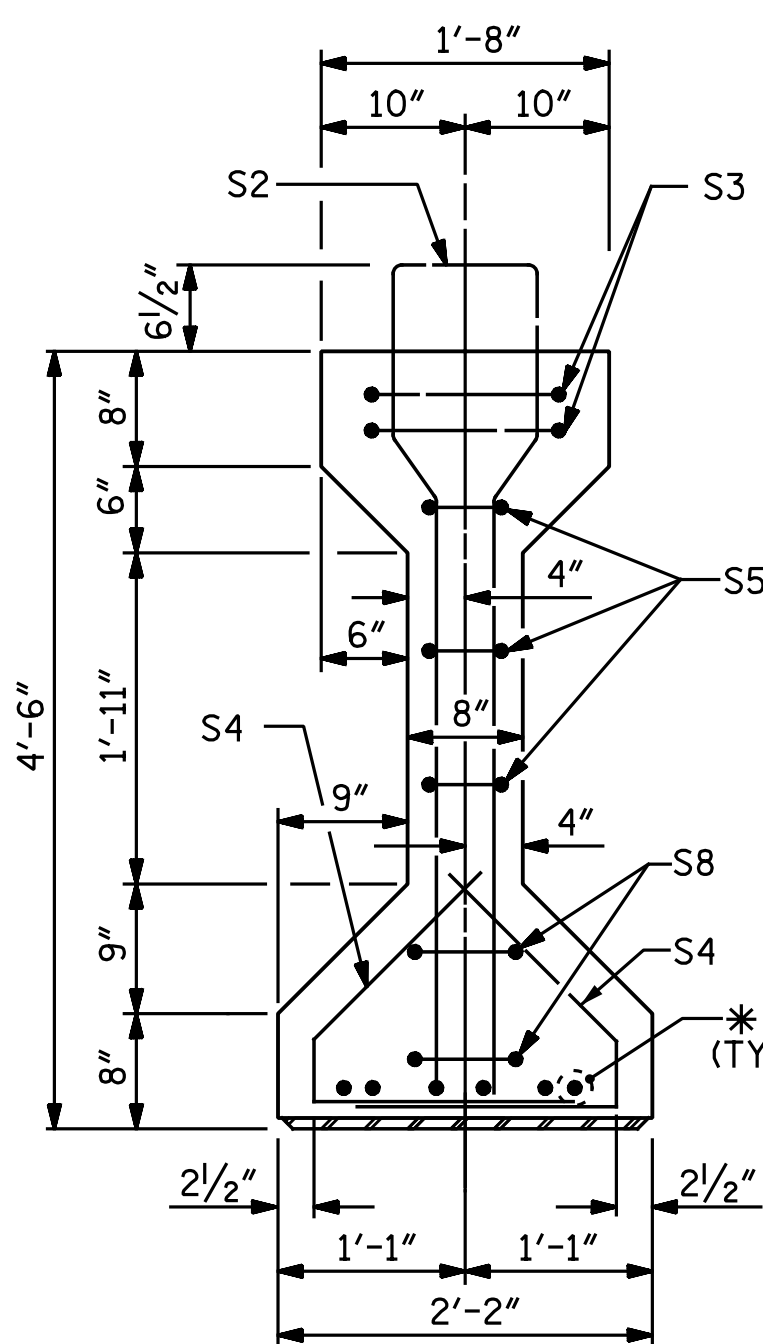
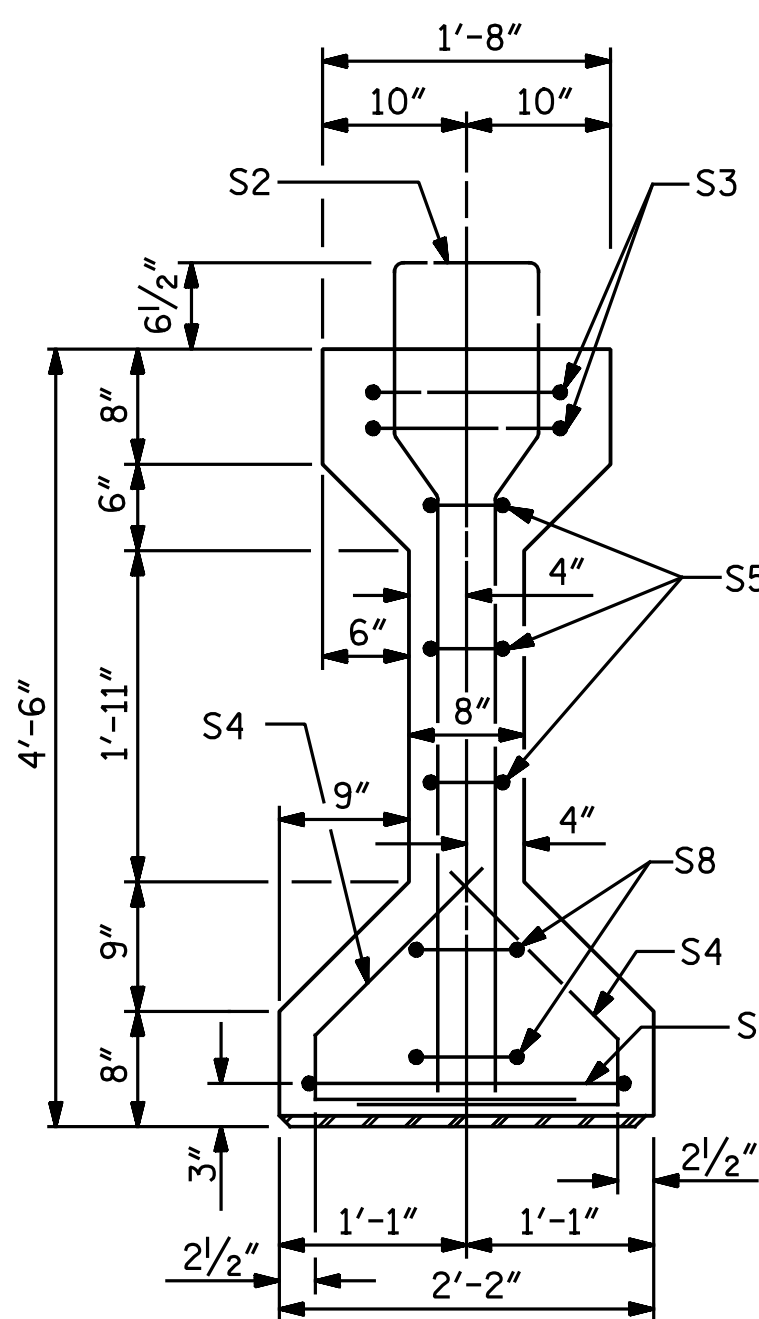
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REVISIONS						SHEET NO. SI-II
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

DRAWN BY : N. B. SPEAKS DATE : 10-23-18
CHECKED BY : A. H. SHARPE DATE : 10-23-18



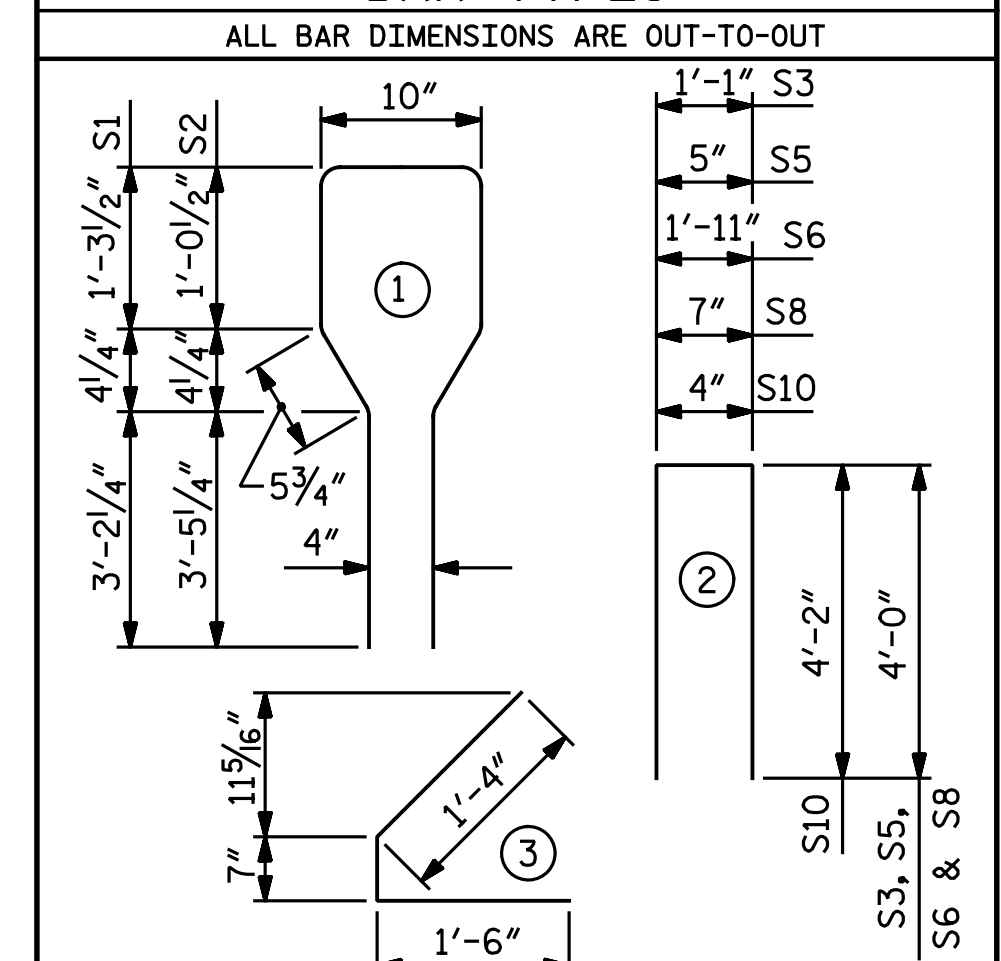
ELEVATION OF GIRDER
(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)
(SPAN A SHOWN, SPAN B SIMILAR BY ROTATION)

FORMED HOLE LOCATIONS		
GIRDER	"D"	"E"
A1 OR B1	2'-7"	N/A
A2 OR B2	2'-7"	2'-7"
A3 OR B3	2'-7"	2'-7"
A4 OR B4	2'-7"	2'-7"
A5 OR B5	2'-7"	2'-7"
A6 OR B6	N/A	2'-7"

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

		REINFORCING STEEL FOR ONE GIRDER				
	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
EXTERIOR GDR.	S1	70	#4	1	10'-9"	503
INTERIOR GDR.	S1	70	#4	1	10'-9"	503
	S2	16	#6	1	10'-9"	258
	S3	4	#4	2	9'-1"	24
	S4	72	#4	3	3'-5"	164
	S5	6	#4	2	8'-5"	34
	S6	1	#4	2	9'-11"	7
	* S7	6	#5	STR	3'-8"	23
	S8	4	#4	2	8'-7"	23
	S9	1	#3	STR	1'-10"	1
EXTERIOR GDR.	S10	2	#5	2	8'-8"	18
INTERIOR GDR.	S10	4	#5	2	8'-8"	36
EXTERIOR GDR.	S11	5	#4	STR	7'-0"	23
INTERIOR GDR.	S12	5	#4	STR	12'-2"	41

NOT BE ALLOWED:
BAR TYPES



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	8,500 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	1078	18.7	38
INTERIOR GIRDER	1114	18.7	38

PROJECT NO. I-5883
HARNETT COUNTY
 STATION: 27+09.19 -Y16-

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

SPANS A & B							SHEET NO. SI-12
REVISIONS						TOTAL SHEETS 35	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

ASSEMBLED BY : N.B. SPEAKS		DATE : 10-23-18	
CHECKED BY : A.H. SHARPE		DATE : 11-5-18	
DRAWN BY : ELR 8/91		REV. 10/1/11	MAA/GM
CHECKED BY : GRP 8/91		REV. 1/15	MAA/TMC
		REV. 12/17	MAA/THG

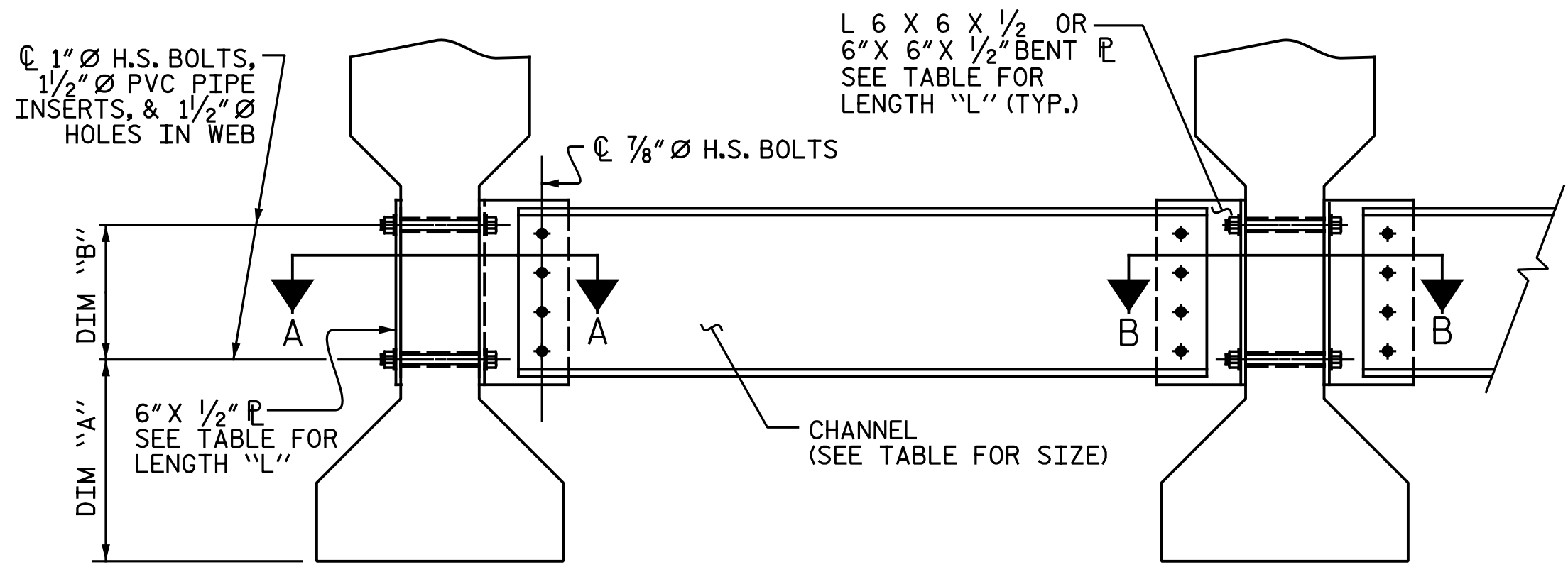
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4/8/2020

A circular professional engineer seal for the State of North Carolina. The outer ring contains the text "NORTH CAROLINA" at the top and "ENGINEER" at the bottom. The inner circle contains the word "PROFESSIONAL" at the top and "SEAL" at the bottom. In the center, the number "043878" is printed. A signature, "A. Sharpe", is written across the seal. Below the seal, the name "AMANDA H. SHARPE" is printed.

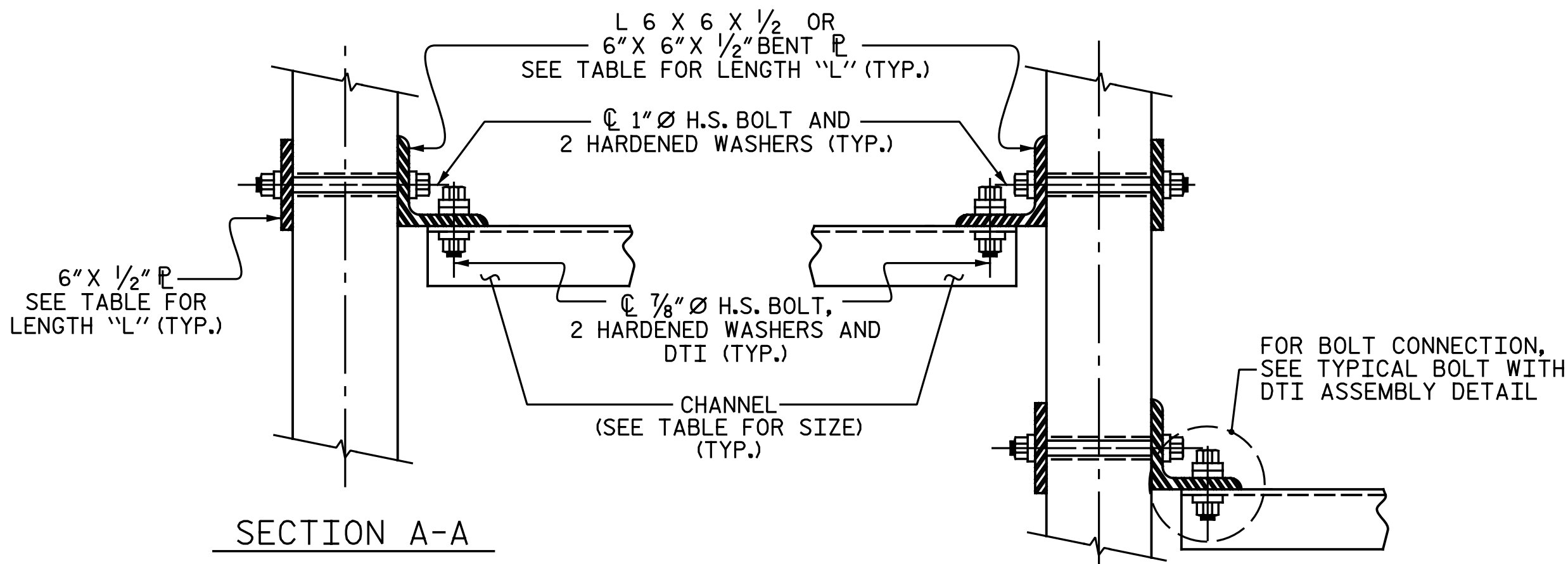
STD. NO. PCG6



EXTERIOR GIRDER

INTERIOR GIRDER

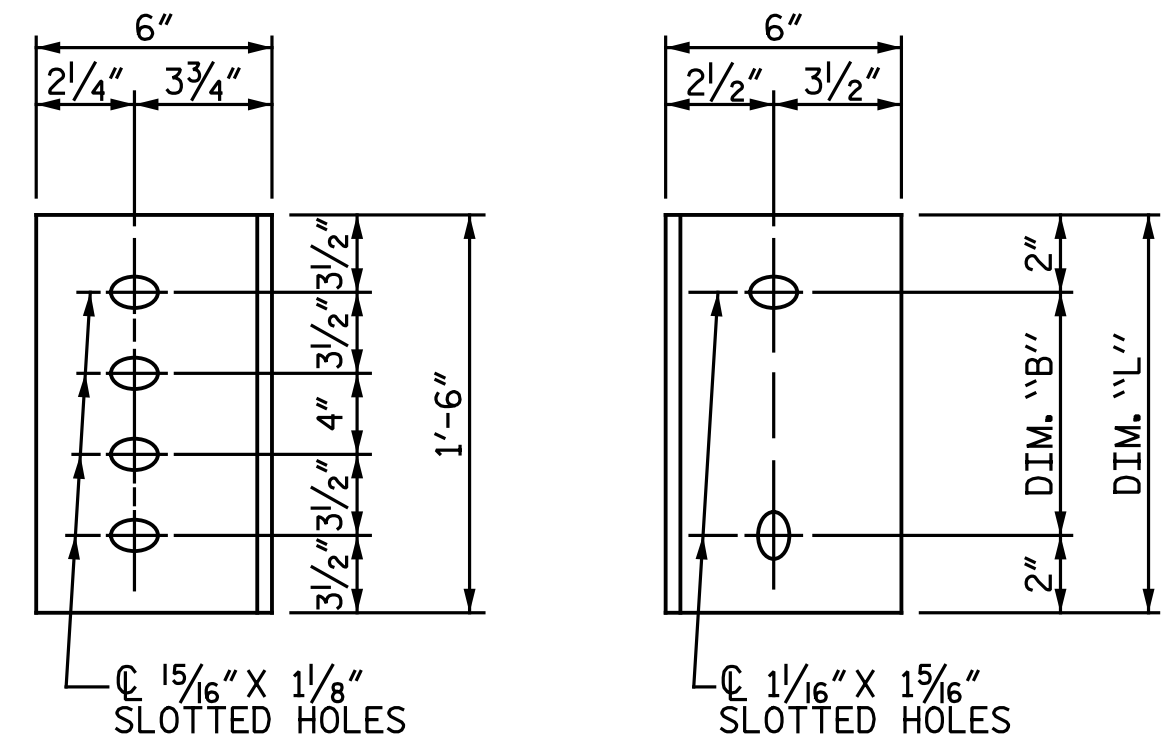
PART SECTION AT INTERMEDIATE DIAPHRAGM



SECTION A-A

SECTION B-B

CONNECTION DETAILS



DIAPHRAGM FACE

WEB FACE

CONNECTOR PLATE DETAILS

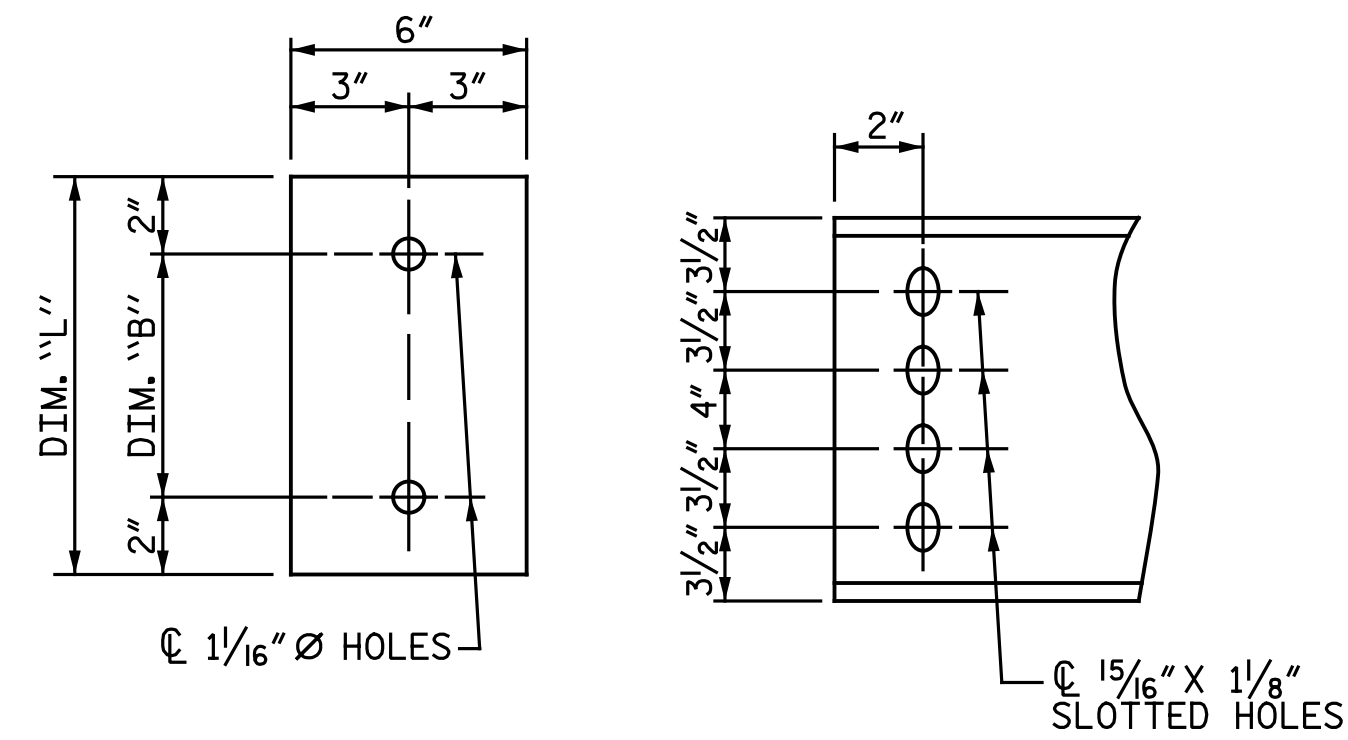
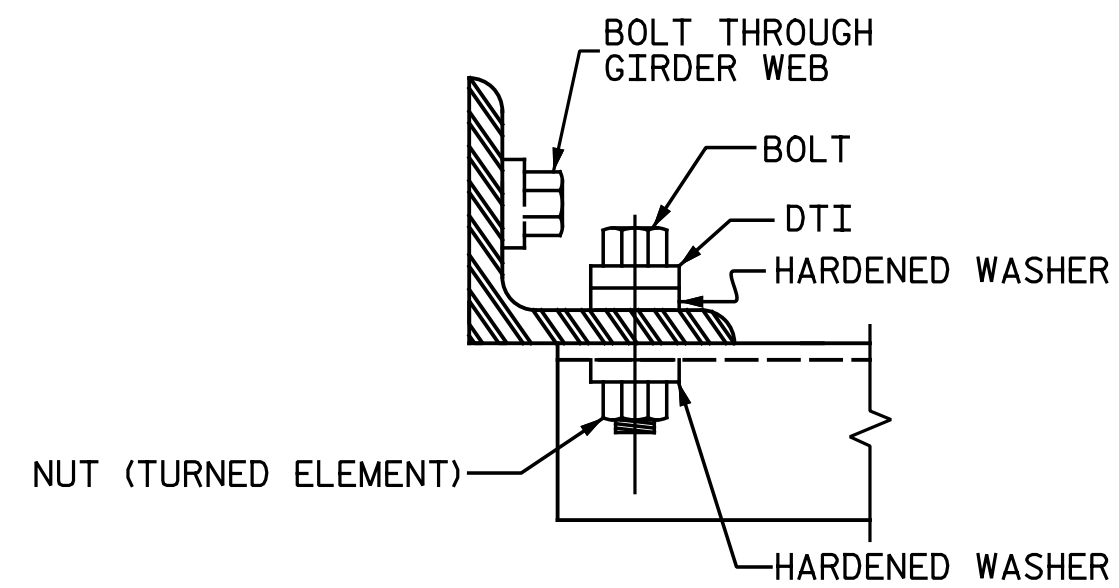


PLATE DETAILS

CHANNEL END



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

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

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

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

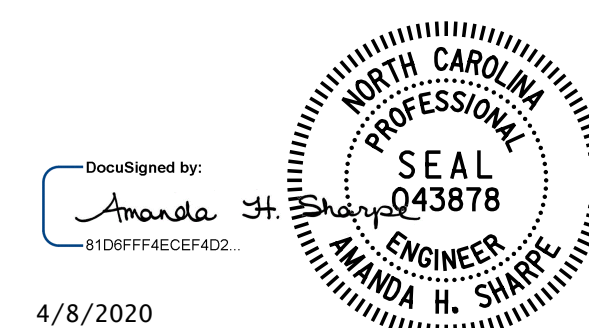
IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

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

TABLE

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

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-



4/8/2020

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. SI-13					TOTAL SHEETS 35

ASSEMBLED BY : N.B. SPEAKS	DATE : 10-23-18
CHECKED BY : A.H. SHARPE	DATE : 10-23-18
DRAWN BY : TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY : VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

STD. NO. PCG10

NOTES

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

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

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

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

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

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

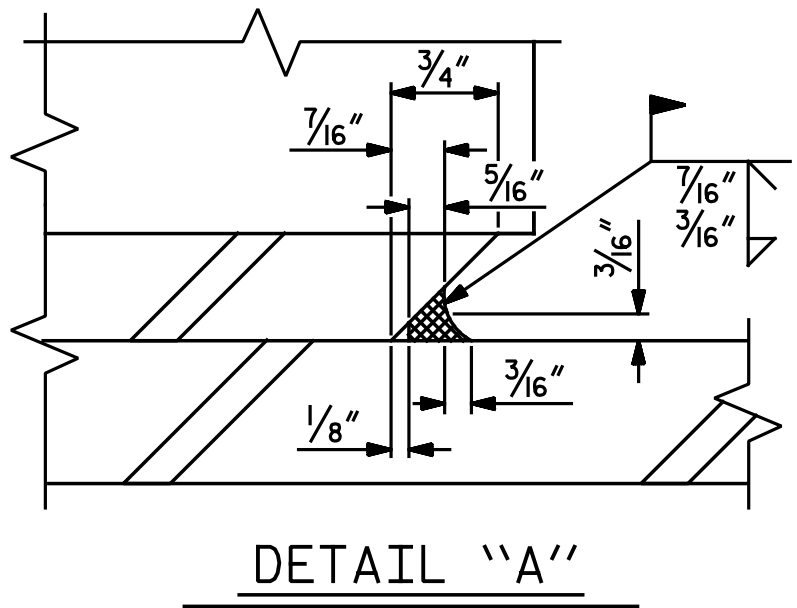
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

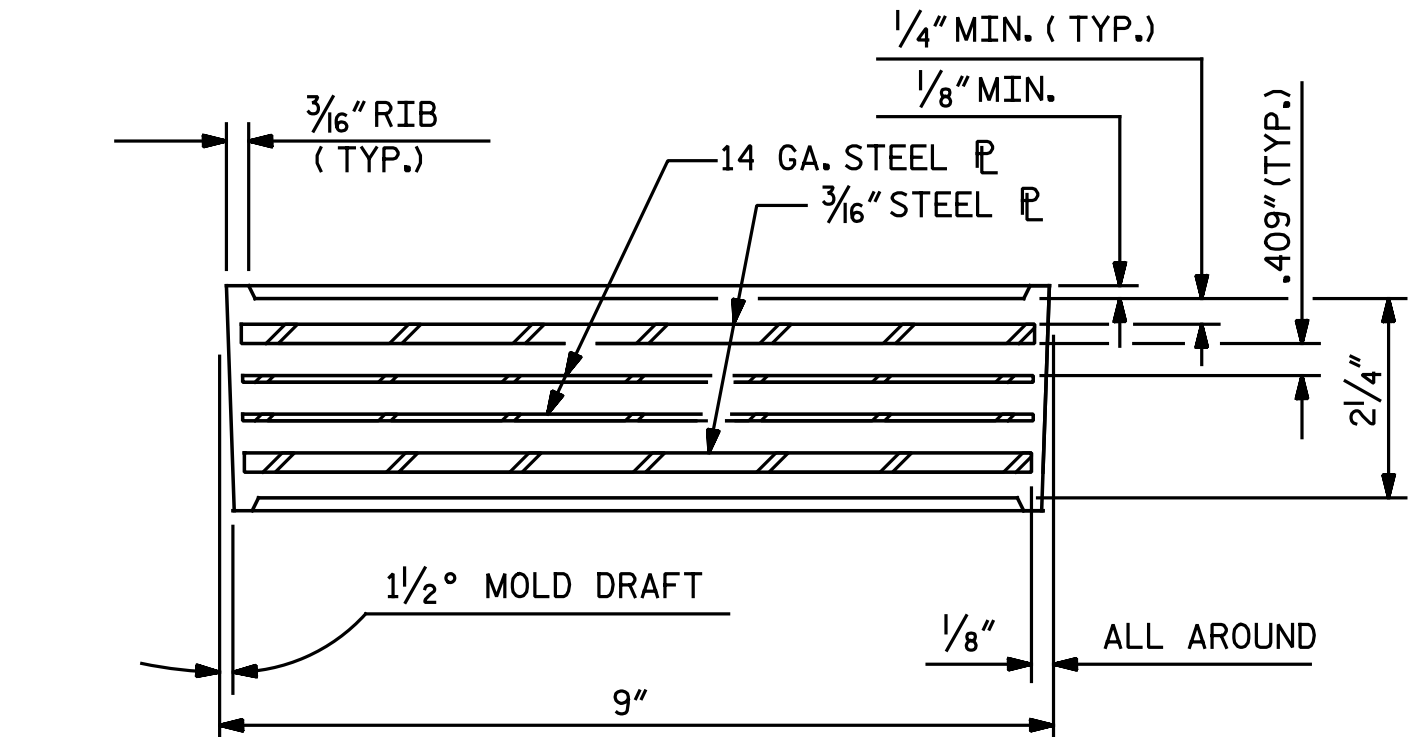
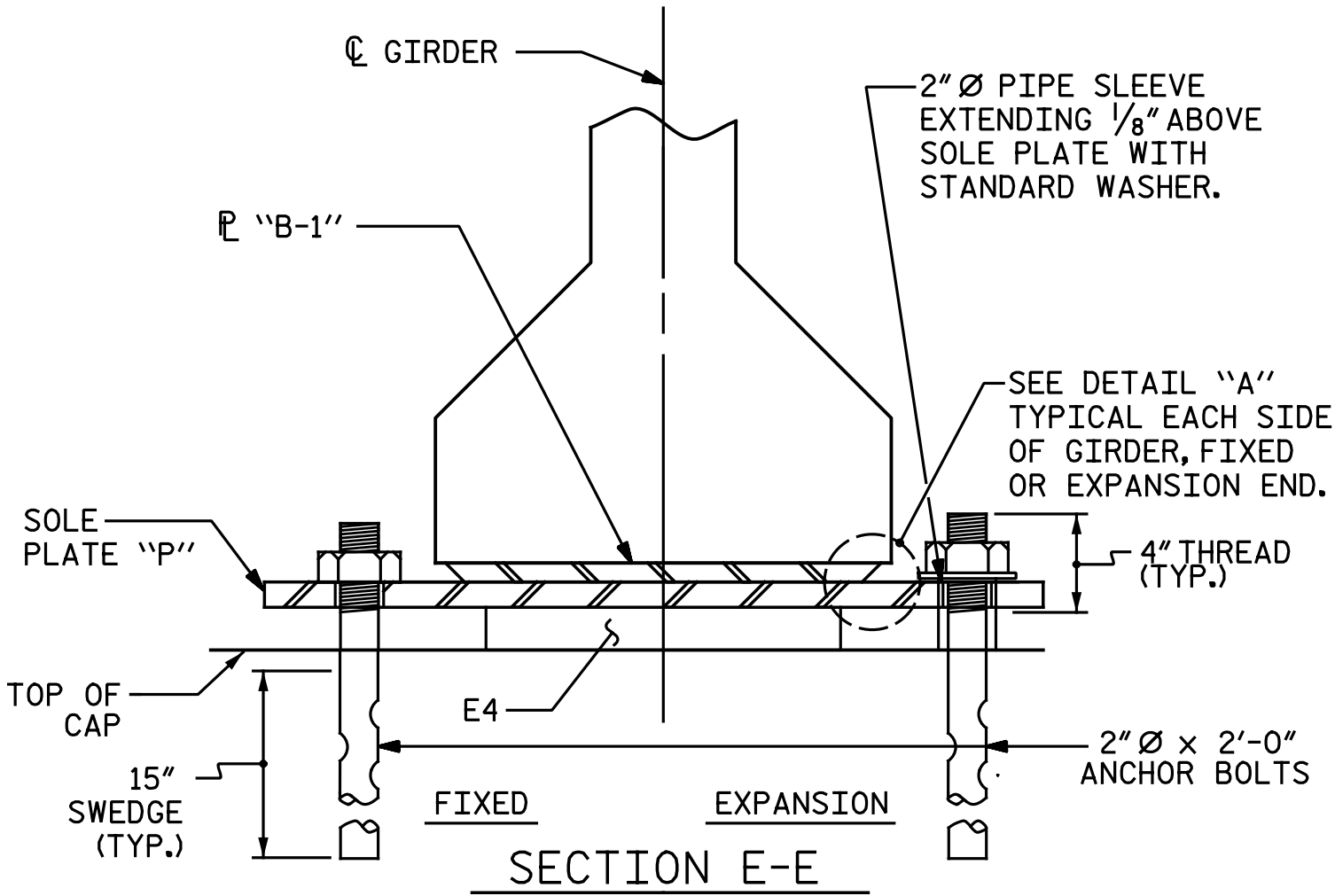
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

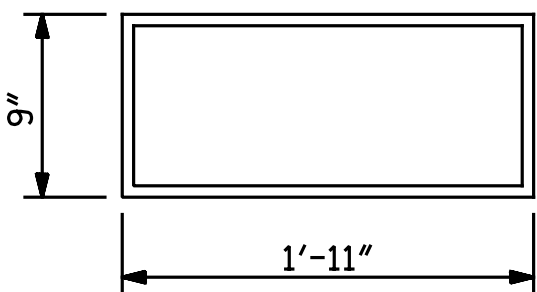
ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



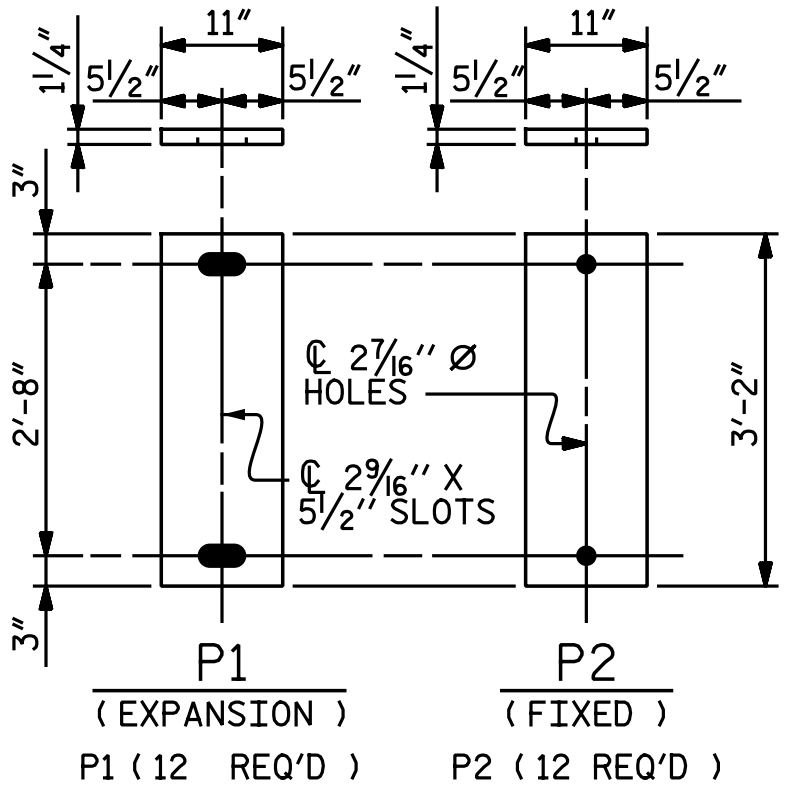
MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE V	365 k



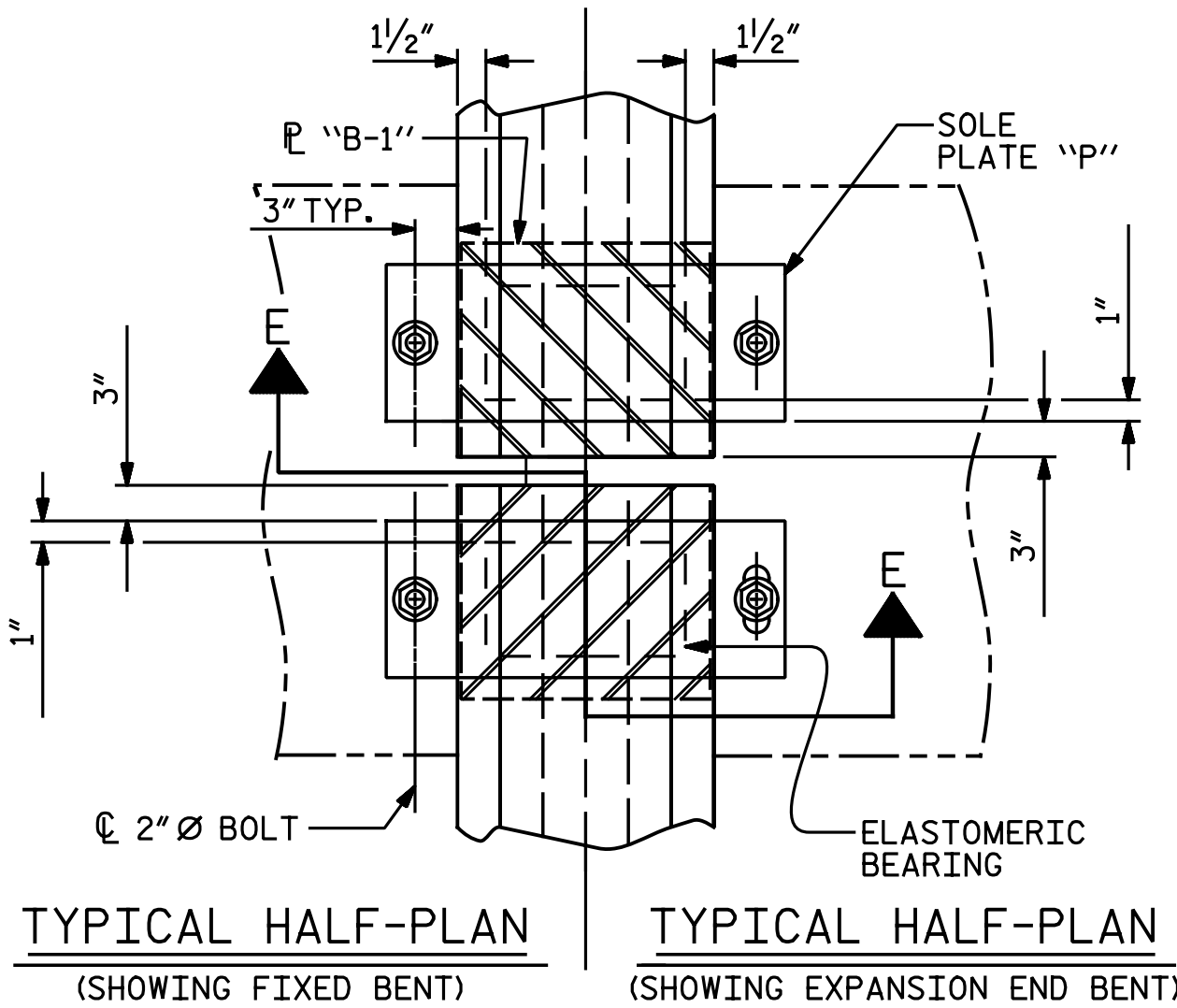
TYPICAL SECTION OF ELASTOMERIC BEARINGS



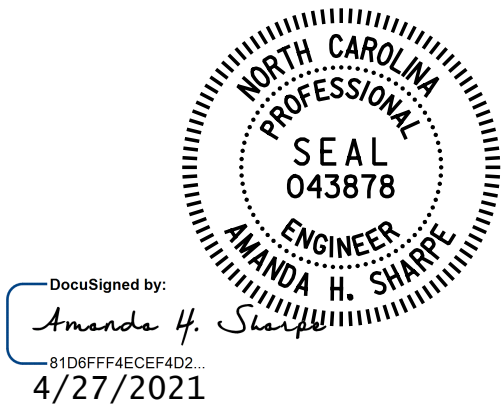
E4 (24 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE V



SOLE PLATE DETAILS ("P")



PROJECT NO. I-5883
HARNETT COUNTY
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD ELASTOMERIC BEARING DETAILS PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. SI-14					TOTAL SHEETS 35

ASSEMBLED BY : N. B. SPEAKS	DATE : 8-31-17
CHECKED BY : A. H. SHARPE	DATE : 4-26-21
DRAWN BY : EEM 2/97	REV. 6/13 AAC/MAA
CHECKED BY : VAP 2/97	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC

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

END OF GIRDER

5"

4"

8"

1'-4"

4"

3/4" Ø X 5" ANCHOR STUDS

3/4" P

2'-1 1/2"

1'-0 3/4"

8"

8"

F

SECTION "F"
(SEE NOTES)

NOTES:

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,800 PSI.

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

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL
BE RAKED TO A DEPTH OF $\frac{1}{4}$ ".

PROJECT NO. I-5883
HARNETT COUNTY
 STATION: 27+09.19 -Y16-

DocuSigned by:
Amanda H. Sharpe
81D6FF4E4CEFD2...

NORTH CAROLINA
PROFESSIONAL
SEAL
043878
ENGINEER
AMANDA H. SHARPE

4/8/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

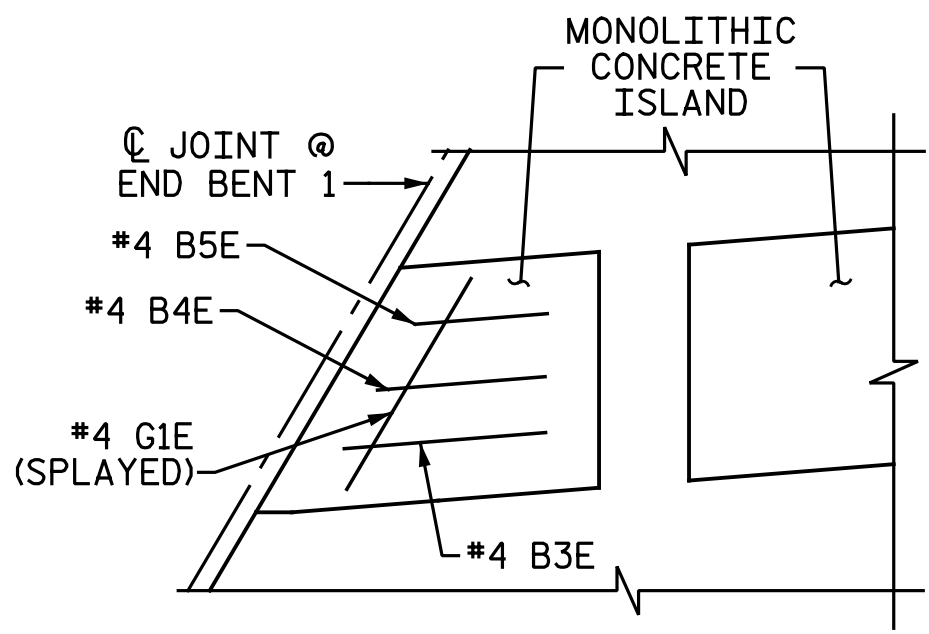
PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Michael Baker
INTERNATIONAL

Michael Baker Engineering
00 Regency Parkway, Suite 6
Cary, North Carolina 27518
NC License No. : F-1084

REVISIONS						SHEET NO. SI-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



DETAIL "A"

NOTES:

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE MONOLITHIC CONCRETE ISLAND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8FT. TO 10FT. BETWEEN FILL FACE AT END BENT 1 TO FILL FACE AT END BENT 2 AND OVER THE INTERIOR BENT. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

ALL REINFORCING STEEL IN MONOLITHIC CONCRETE ISLAND SHALL BE EPOXY COATED.

THE MONOLITHIC CONCRETE ISLAND ON A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR MATERIALS OR LABOR REQUIRED TO CONSTRUCT THE MONOLITHIC CONCRETE ISLAND. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR REINFORCED CONCRETE DECK SLAB.

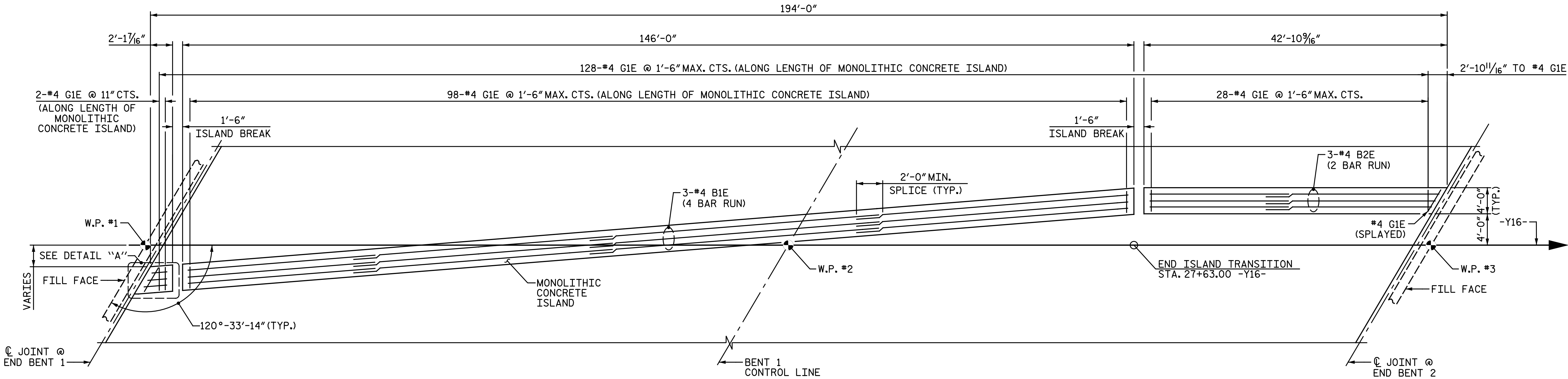
FOR MONOLITHIC CONCRETE ISLAND ON APPROACH SLAB, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.

BILL OF MATERIAL

MONOLITHIC CONCRETE ISLAND

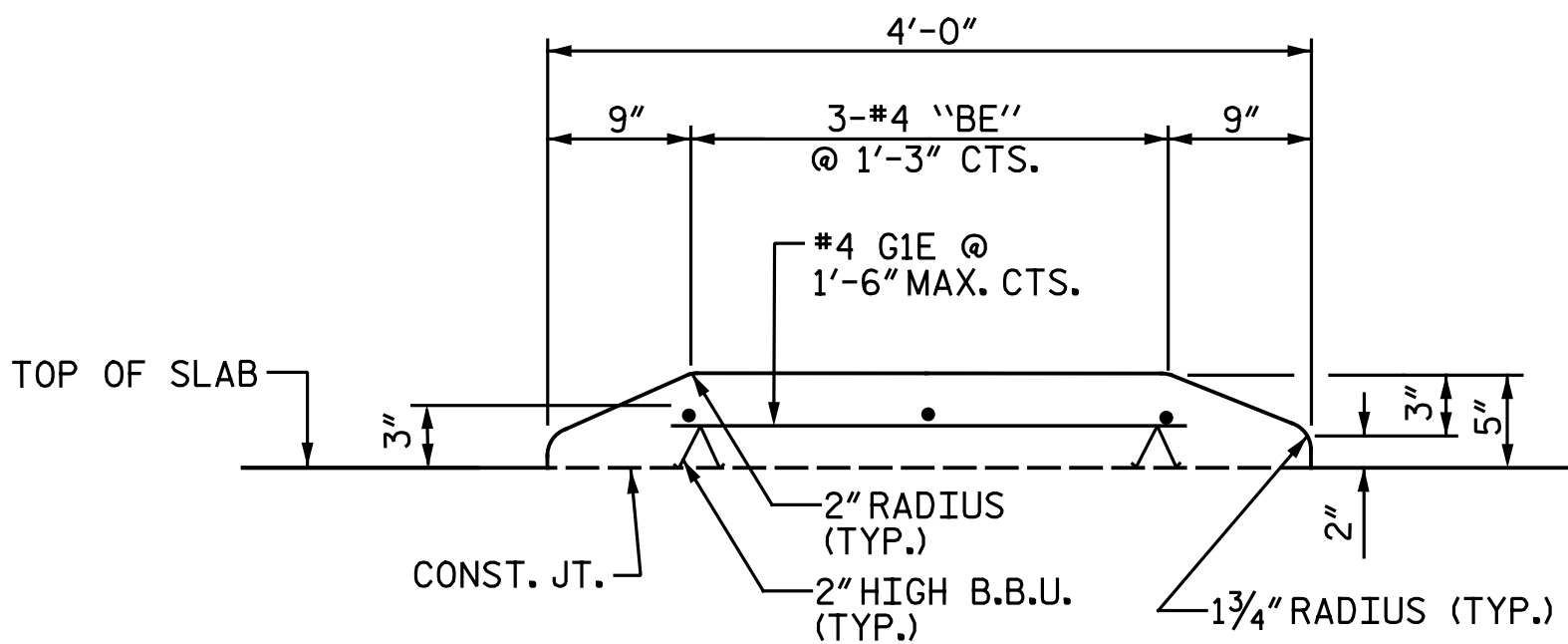
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1E	12	#4	STR.	37'-10"	303
B2E	6	#4	STR.	21'-11"	88
B3E	1	#4	STR.	2'-10"	2
B4E	1	#4	STR.	2'-0"	1
B5E	1	#4	STR.	1'-3"	1
G1E	130	#4	STR.	2'-11"	253

EPOXY COATED REINFORCING STEEL	LBS.	648
CLASS AA CONCRETE	CU. YDS.	10.5



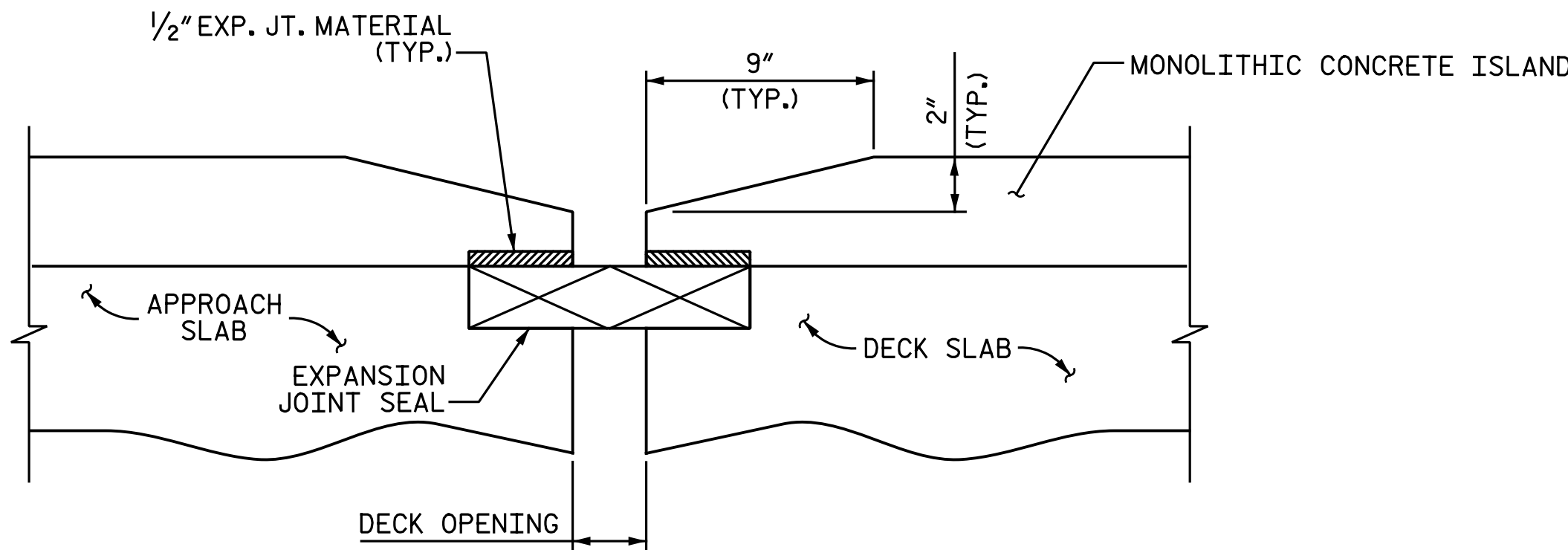
PLAN OF MONOLITHIC CONCRETE ISLAND

(SEE ROADWAY PLANS FOR BEGIN ISLAND TRANSITION STATION AND OFFSET FROM -Y16-)



SECTION THRU MONOLITHIC CONCRETE ISLAND

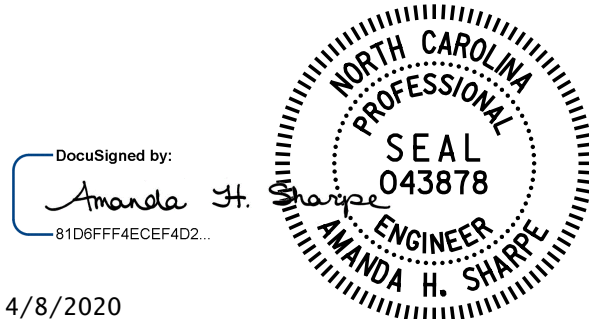
SLOPE TOP OF ISLAND TO MATCH TOP OF SLAB



SECTION THROUGH MONOLITHIC CONCRETE ISLAND AT EXP. JOINTS

CHAMFER SHOWN ON ISLAND IS SIMILAR FOR ISLAND BREAKS.

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-



4/8/2020

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
MONOLITHIC CONCRETE ISLAND

REVISIONS						SHEET NO. SI-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

DRAWN BY : N. B. SPEAKS DATE : 12-4-19
CHECKED BY : A. H. SHARPE DATE : 2-7-20

NOTES

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

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

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

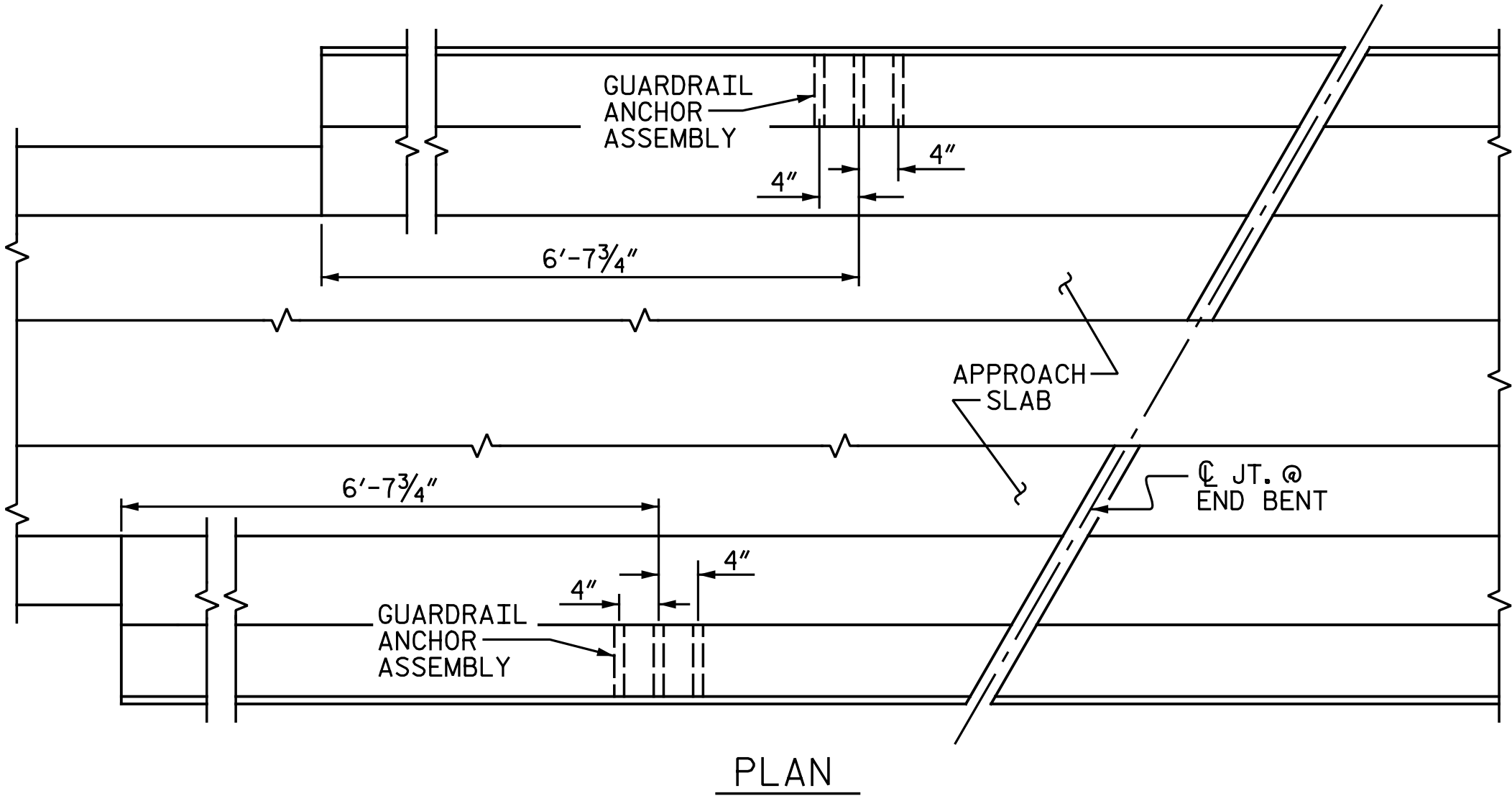
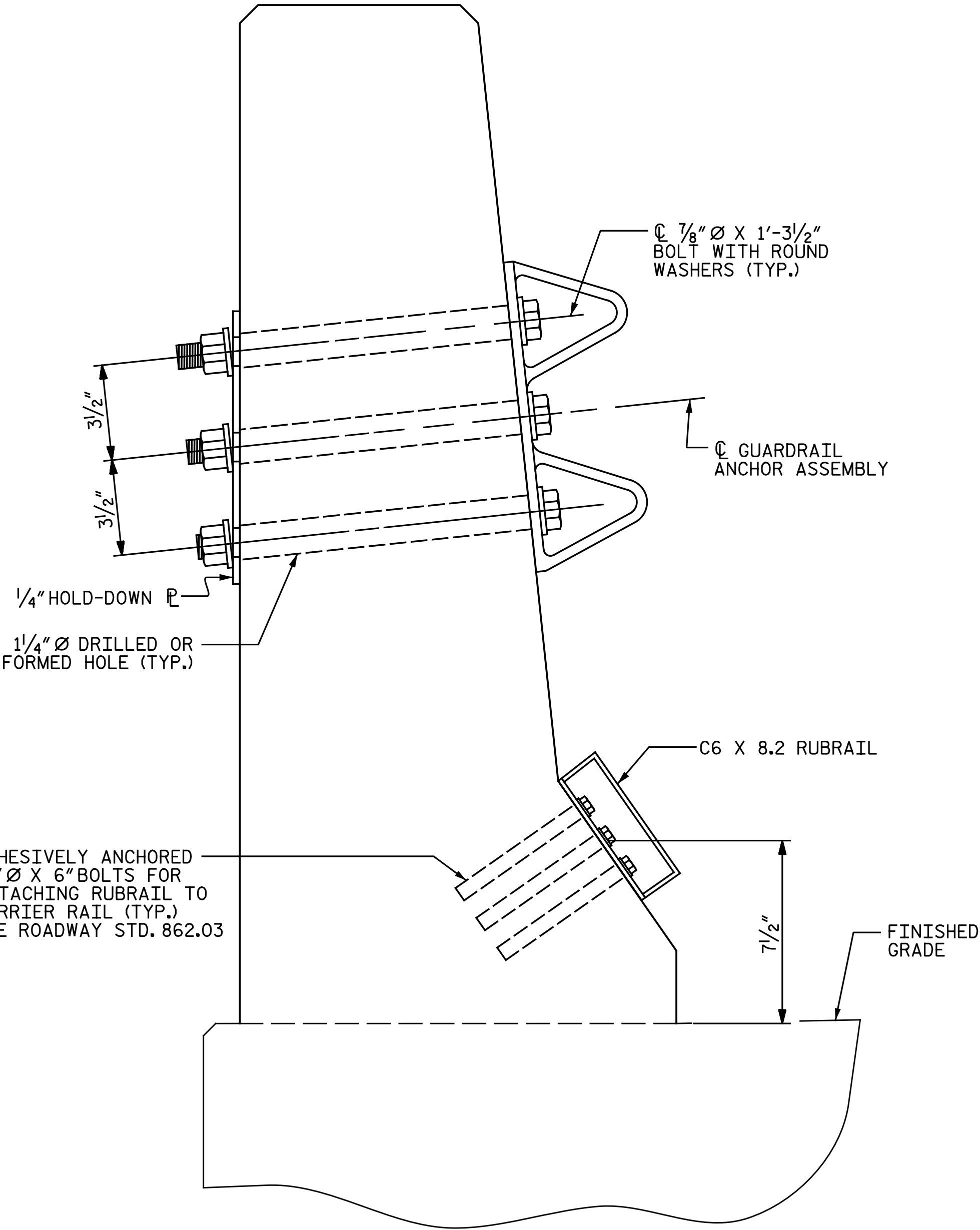
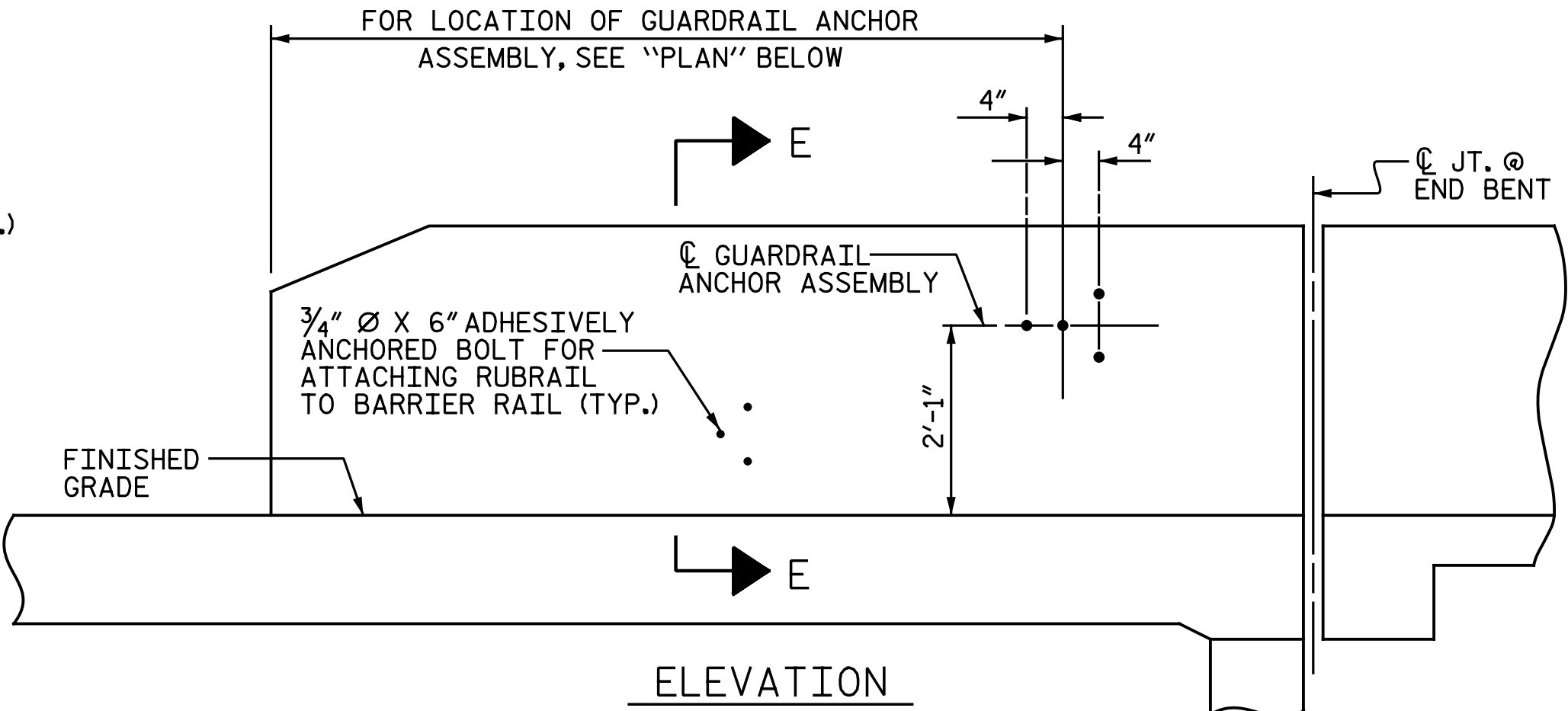
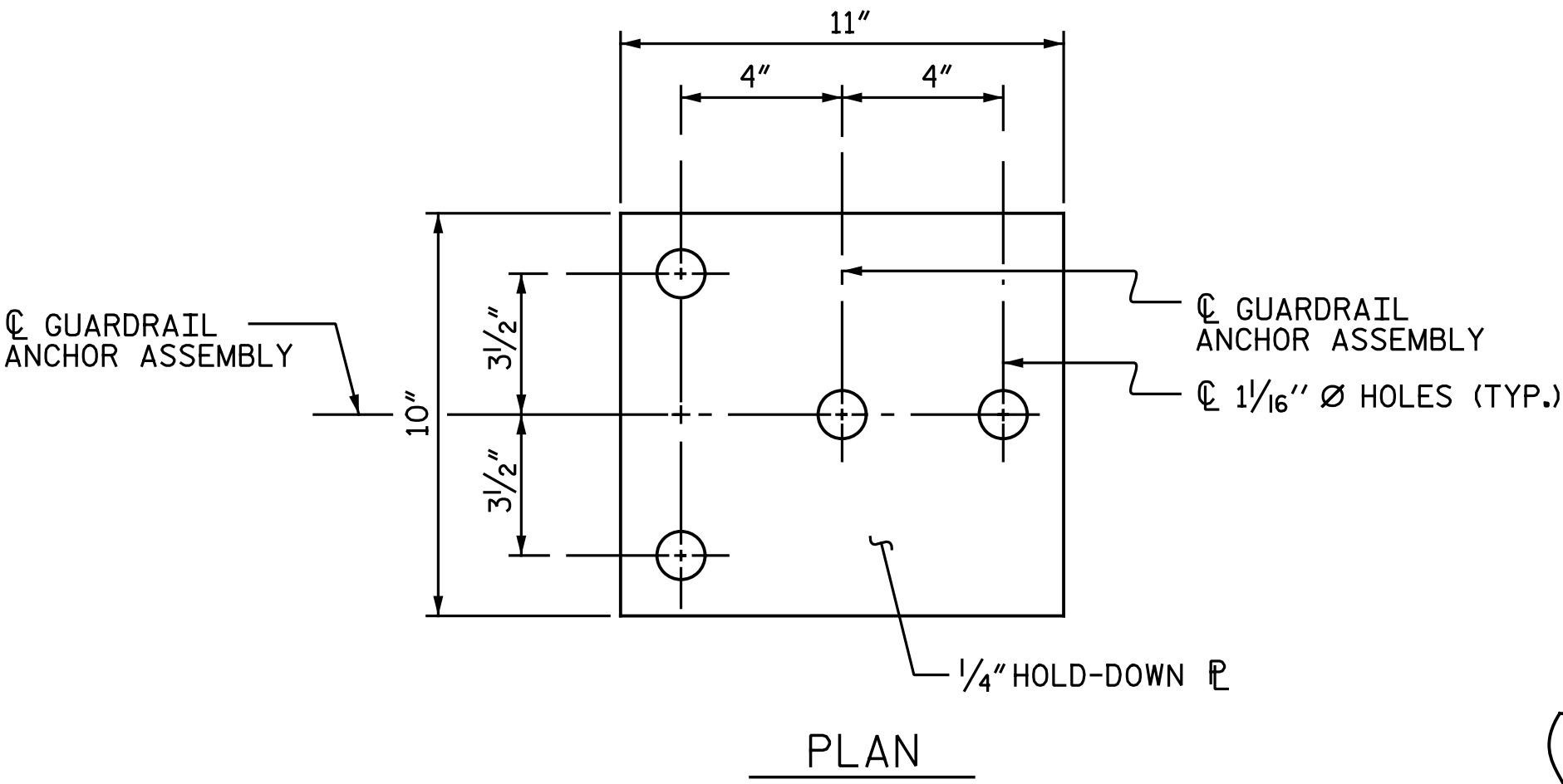
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

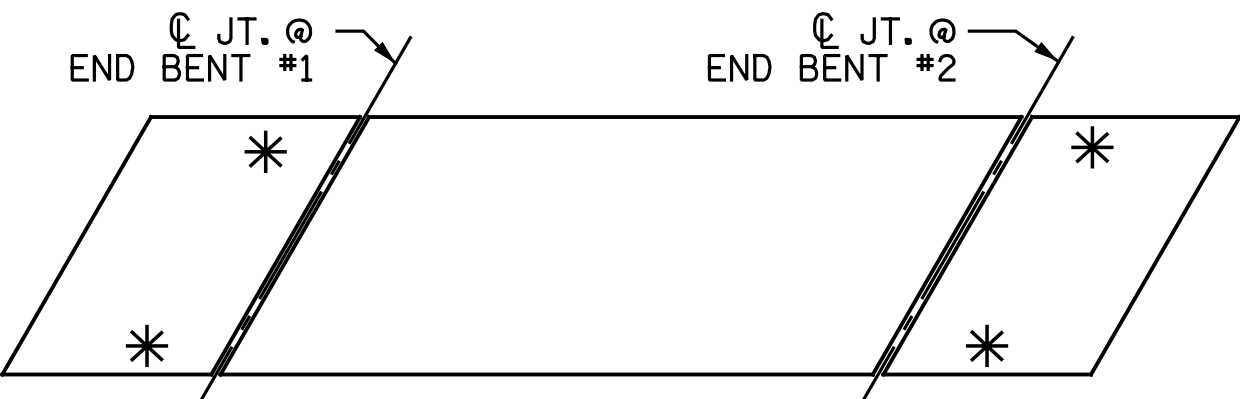
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

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



LOCATION OF ANCHORS FOR GUARDRAIL

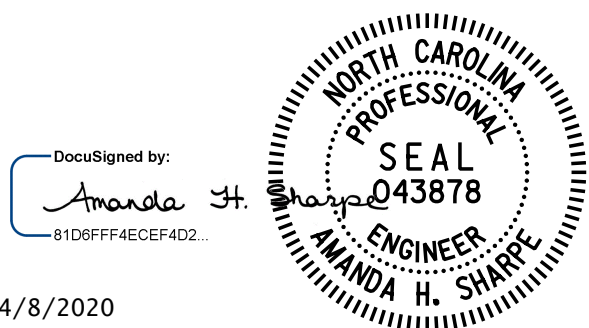
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-



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

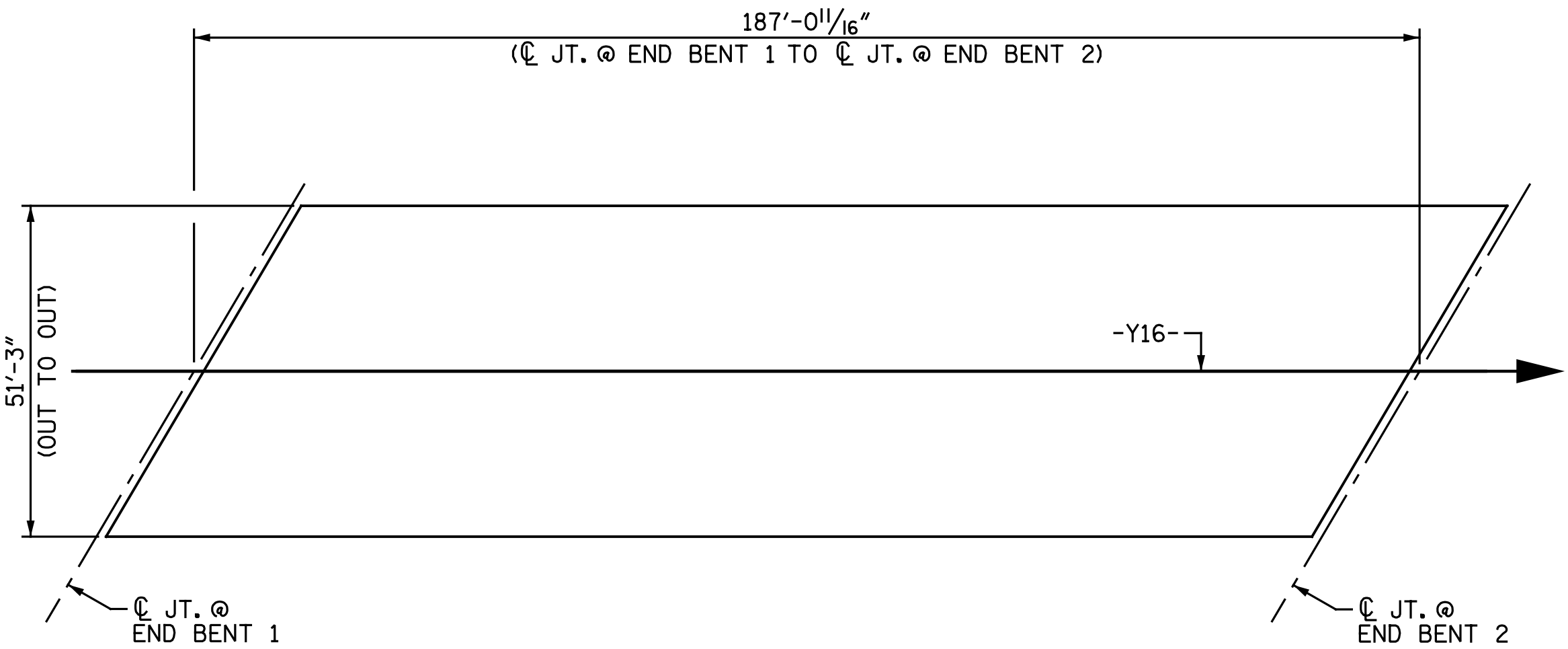
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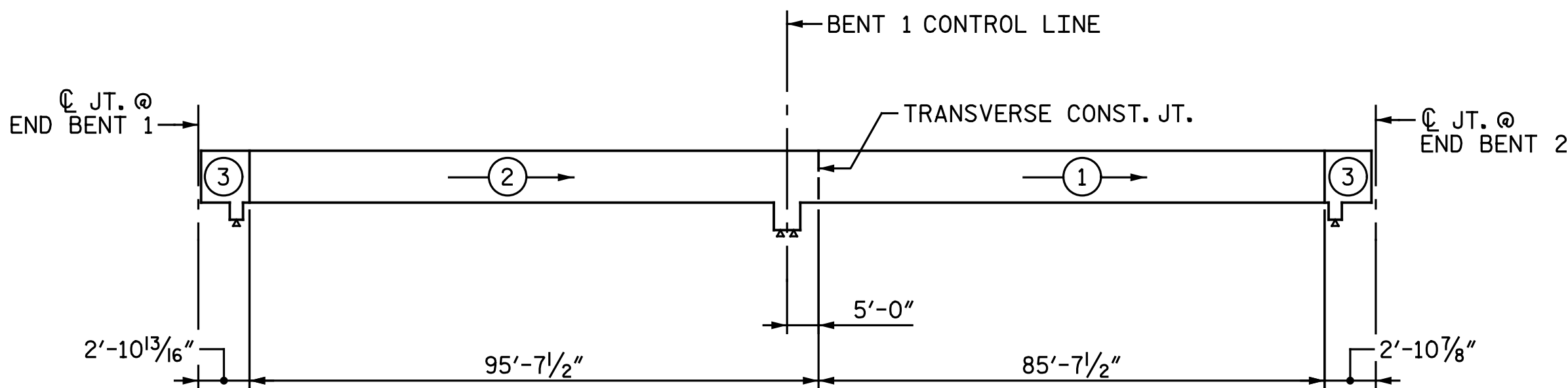
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NC License No.: F-1084

REVISIONS						SHEET NO. SI-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

ASSEMBLED BY : N. B. SPEAKS			DATE : 10-10-18		
CHECKED BY : A. H. SHARPE			DATE : 2-7-20		
DRAWN BY :	TLA	5/06	REV. 7/12	MAA/GM	
CHECKED BY :	GM	5/06	REV. 6/13	MAA/GM	
			REV. 12/17	MAA/THC	

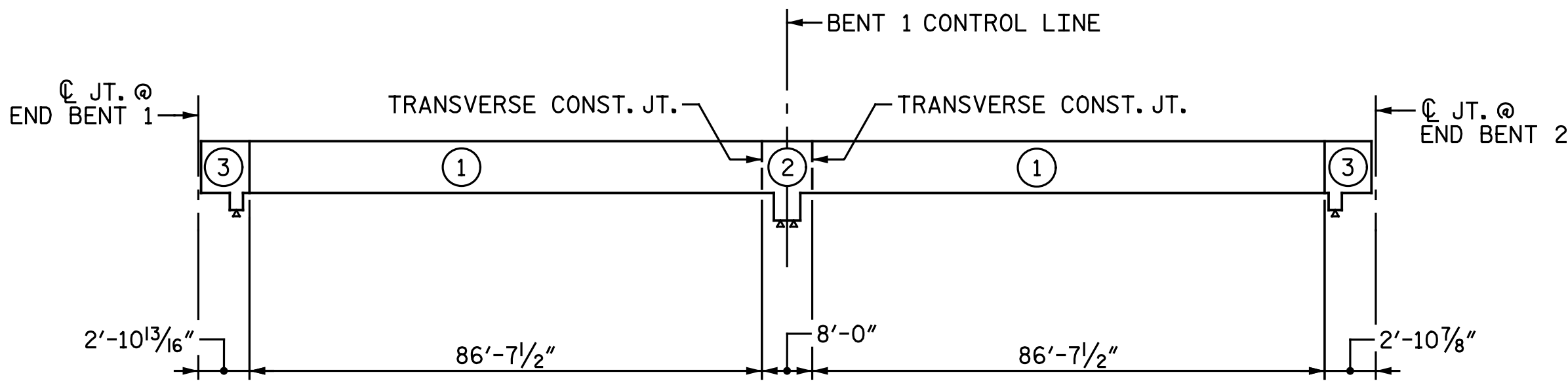


LAYOUT FOR COMPUTING AREA OF
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 9,587)



POURING SEQUENCE

⊛ DENOTES POUR NUMBER AND DIRECTION



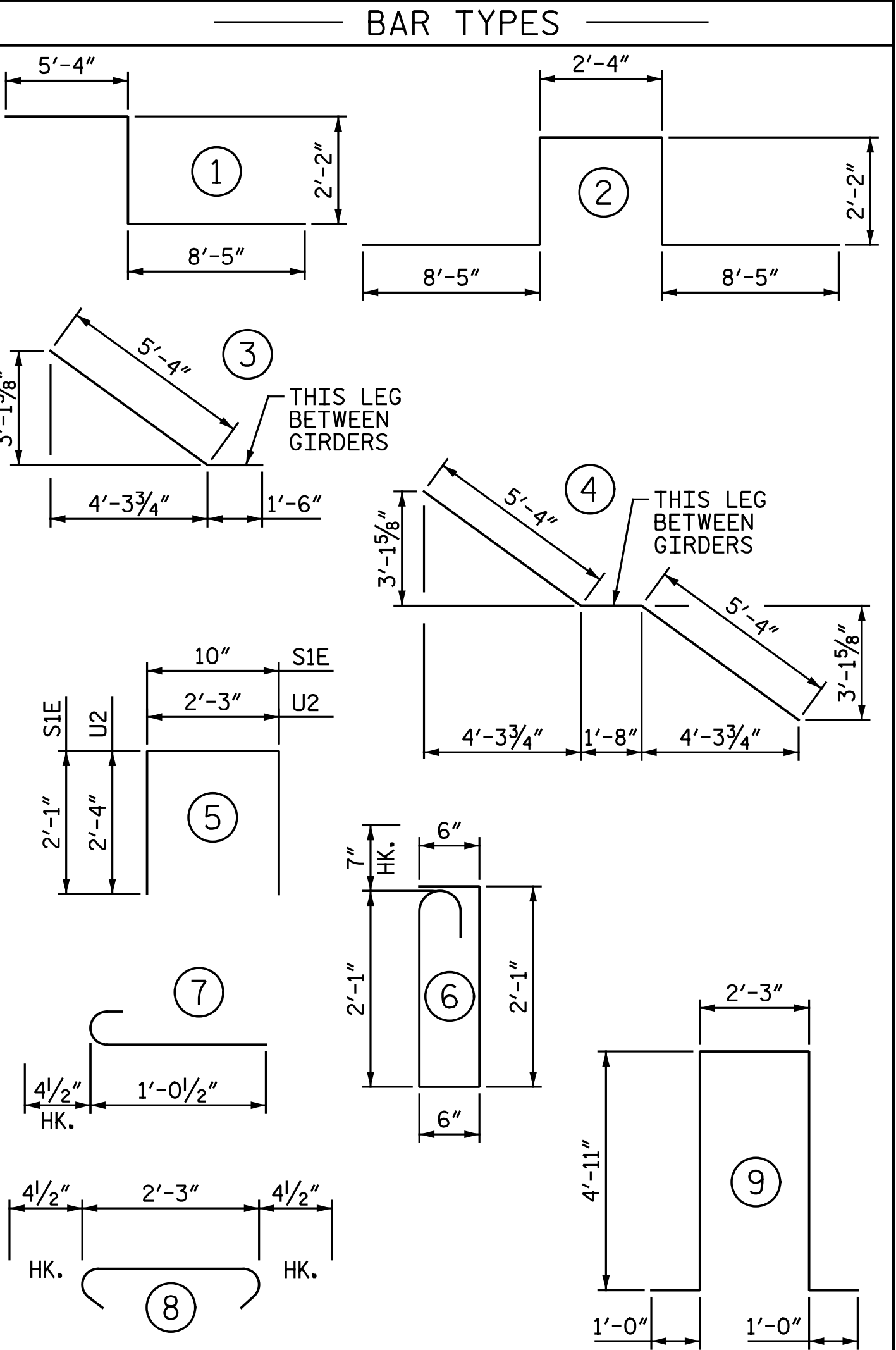
OPTIONAL POURING SEQUENCE

⊛ DENOTES POUR NUMBER

DRAWN BY : C. E. MAYHEW DATE : 1-9-19
CHECKED BY : A. H. SHARPE DATE : 1-10-19

REINFORCING BAR SCHEDULE

SPANS A & B						SPANS A & B CONT'D.					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	312	#5	STR.	50' - 11"	16,569	A221	2	#5	STR.	33' - 7"	70
A2	312	#5	STR.	50' - 11"	16,569	A222	2	#5	STR.	32' - 9"	68
A3E	8	#6	STR.	59' - 1"	710	A223	2	#5	STR.	31' - 11"	67
						A224	2	#5	STR.	31' - 1"	65
A101E	2	#5	STR.	50' - 6"	105	A225	2	#5	STR.	30' - 3"	63
A102E	2	#5	STR.	49' - 8"	104	A226	2	#5	STR.	29' - 4"	61
A103E	2	#5	STR.	48' - 10"	102	A227	2	#5	STR.	28' - 6"	59
A104E	2	#5	STR.	48' - 0"	100	A228	2	#5	STR.	27' - 8"	58
A105E	2	#5	STR.	47' - 2"	98	A229	2	#5	STR.	26' - 10"	56
A106E	2	#5	STR.	46' - 4"	97	A230	2	#5	STR.	26' - 0"	54
A107E	2	#5	STR.	45' - 5"	95	A231	2	#5	STR.	25' - 2"	52
A108E	2	#5	STR.	44' - 7"	93	A232	2	#5	STR.	24' - 3"	51
A109E	2	#5	STR.	43' - 9"	91	A233	2	#5	STR.	23' - 5"	49
A110E	2	#5	STR.	42' - 11"	90	A234	2	#5	STR.	22' - 7"	47
A111E	2	#5	STR.	42' - 1"	88	A235	2	#5	STR.	21' - 9"	45
A112E	2	#5	STR.	41' - 3"	86	A236	2	#5	STR.	20' - 11"	44
A113E	2	#5	STR.	40' - 4"	84	A237	2	#5	STR.	20' - 1"	42
A114E	2	#5	STR.	39' - 6"	82	A238	2	#5	STR.	19' - 2"	40
A115E	2	#5	STR.	38' - 8"	81	A239	2	#5	STR.	18' - 4"	38
A116E	2	#5	STR.	37' - 10"	79	A240	2	#5	STR.	17' - 6"	37
A117E	2	#5	STR.	37' - 0"	77	A241	2	#5	STR.	16' - 8"	35
A118E	2	#5	STR.	36' - 2"	75	A242	2	#5	STR.	15' - 10"	33
A119E	2	#5	STR.	35' - 3"	74	A243	2	#5	STR.	15' - 0"	31
A120E	2	#5	STR.	34' - 5"	72	A244	2	#5	STR.	14' - 1"	29
A121E	2	#5	STR.	33' - 7"	70	A245	2	#5	STR.	13' - 3"	28
A122E	2	#5	STR.	32' - 9"	68	A246	2	#5	STR.	12' - 5"	26
A123E	2	#5	STR.	31' - 11"	67	A247	2	#5	STR.	11' - 7"	24
A124E	2	#5	STR.	31' - 1"	65	A248	2	#5	STR.	10' - 9"	22
A125E	2	#5	STR.	30' - 3"	63	A249	2	#5	STR.	9' - 11"	21
A126E	2	#5	STR.	29' - 4"	61	A250	2	#5	STR.	9' - 0"	19
A127E	2	#5	STR.	28' - 6"	59	A251	2	#5	STR.	8' - 2"	17
A128E	2	#5	STR.	27' - 8"	58	A252	2	#5	STR.	7' - 4"	15
A129E	2	#5	STR.	26' - 10"	56	A253	2	#5	STR.	6' - 6"	14
A130E	2	#5	STR.	26' - 0"	54	A254	2	#5	STR.	5' - 8"	12
A131E	2	#5	STR.	25' - 2"	52	A255	2	#5	STR.	4' - 10"	10
A132E	2	#5	STR.	24' - 3"	51	A256	2	#5	STR.	3' - 11"	8
A133E	2	#5	STR.	23' - 5"	49	A257	2	#5	STR.	3' - 1"	6
A134E	2	#5	STR.	22' - 7"	47	A258	2	#5	STR.	2' - 3"	5
A135E	2	#5	STR.	21' - 9"	45						
A136E	2	#5	STR.	20' - 11"	44	B1E	210	#4	STR.	22' - 3"	3,121
A137E	2	#5	STR.	20' - 1"	42	B2	260	#5	STR.	48' - 4"	13,107
A138E	2	#5	STR.	19' - 2"	40	B3E	105	#6	STR.	23' - 9"	3,746
A139E	2	#5	STR.	18' - 4"	38	B4E	66	#6	STR.	34' - 2"	3,387
A140E	2	#5	STR.	17' - 6"	37						
A141E	2	#5	STR.	16' - 8"	35	G1E	2	#5	STR.	59' - 1"	123
A142E	2	#5	STR.	15' - 10"	33						
A143E	2	#5	STR.	15' - 0"	31	J1E	112	#4	7	1' - 5"	106
A144E	2	#5	STR.	14' - 1"	29						
A145E	2	#5	STR.	13' - 3"	28	K1E	8	#8	1	15' - 11"	340
A146E	2	#5	STR.	12' - 5"	26	K2E	16	#8	2	23' - 6"	1,004
A147E	2	#5	STR.	11' - 7"	24	K3E	20	#5	STR.	8' - 2"	170
A148E	2	#5	STR.	10' - 9"	22	K4E	30	#6	STR.	7' - 10"	353
A149E	2	#5	STR.	9' - 11"	21	K5	10	#4	STR.	7' - 10"	52
A150E	2	#5	STR.	9' - 0"	19	K6	20	#4	STR.	8' - 11"	119
A151E	2	#5	STR.	8' - 2"	17	K7	10	#4	STR.	8' - 3"	55
A152E	2	#5	STR.	7' - 4"	15	K8	10	#4	STR.	5' - 10"	39
A153E	2	#5	STR.	6' - 6"	14	K9	10	#4	3	6' - 10"	46
A154E	2	#5	STR.	5' - 8"	12	K10	20	#4	4	12' - 4"	165
A155E	2	#5	STR.	4' - 10"	10	K11	16	#4	STR.	3' - 8"	39
A156E	2	#5	STR.	3' - 11"	8						
A157E	2	#5	STR.	3' - 1"	6	S1E	80	#4	5	5' - 0"	267
A158E	2	#5	STR.	2' - 3"	5	S2E	80	#5	6	5' - 9"	480
						S3	140	#4	8	3' - 0"	281
A201	2	#5	STR.	50' - 6"	105						
A202	2	#5	STR.	49' - 8"	104	U1	30	#4	9	14' - 1"	282
A203	2	#5	STR.	48' - 10"	102	U2	10	#4	5	6' - 11"	46
A204	2	#5	STR.	48' - 0"	100						
A205	2	#5	STR.	47' - 2"	98	REINFORCING STEEL					LBS. 33,994
A206	2	#5	STR.	46' - 4"	97	EPOXY COATED REINF. STEEL					LBS. 33,570
A207	2	#5	STR.	45' - 5"	95	"E" SUFFIX DENOTES EPOXY COATED REINFORCING STEEL.					
A208	2	#5	STR.	44' - 7"	93	GROOVING BRIDGE FLOORS					
A209	2	#5	STR.	43' - 9"	91	APPROACH SLABS		1,795	SQ.FT.		
A210	2	#5	STR.	42' - 11"	90	BRIDGE DECK		7,058	SQ.FT.		
A211	2	#5	STR.	42' - 1"	88	TOTAL		8,853	SQ.FT.		
A212	2	#5	STR.	41' - 3"	86						
A213	2	#5	STR.	40' - 4"	84						
A214	2	#5	STR.	39' - 6"	82						
A215	2	#5	STR.	38' - 8"	81						
A216	2	#5	STR.	37' - 10"	79						
A217	2	#5	STR.	37' - 0"	77						
A218	2	#5	STR.	36' - 2"	75						
A219	2	#5	STR.	35' - 3"	74						
A220	2	#5	STR.	34' - 5"	72						



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
SPANS A & B		33,994	33,570
POUR 1	140.1		
POUR 2	175.9		
POUR 3	16.9		
MONOLITHIC CONC. ISLAND	10.5		644
TOTALS*	343.4	33,994	34,214

* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-



Documented by:
Amanda Sharpe
8106FFFAECF402..
4/8/2020

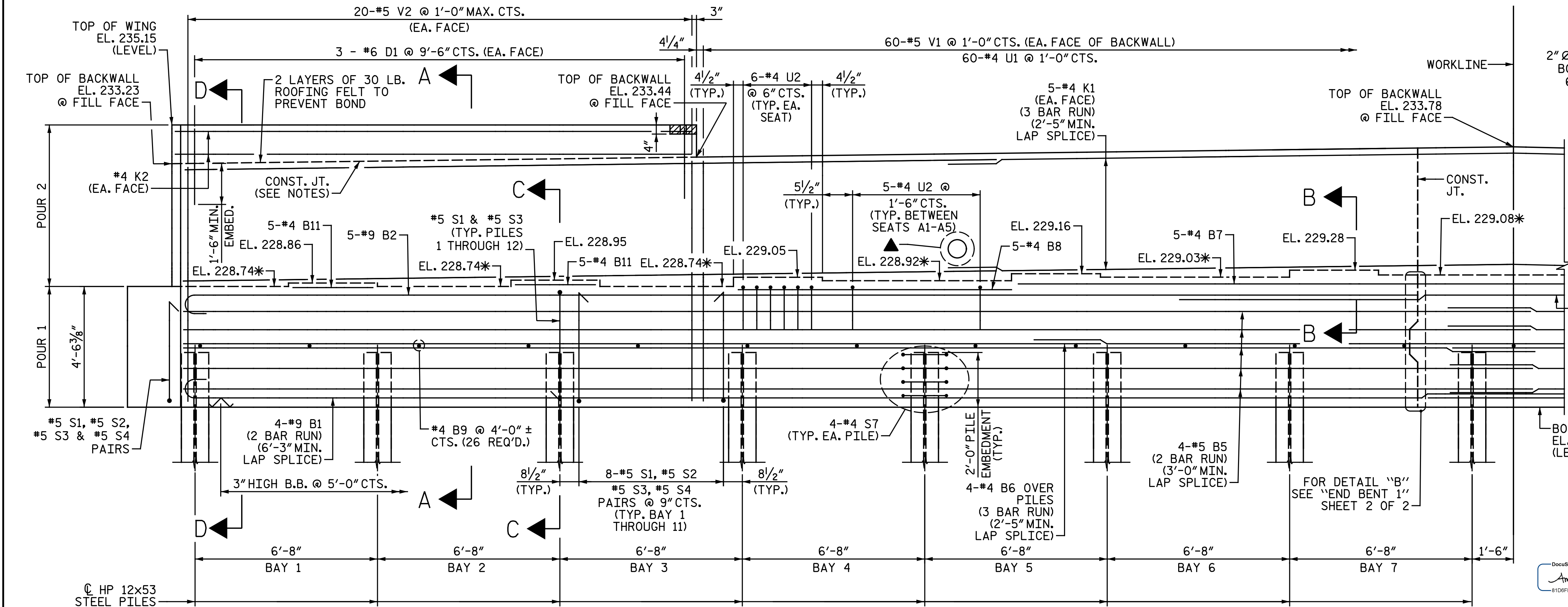
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Michael Baker
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NC License No.: F-1084

REVISIONS						SHEET NO. SI-21
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1			3			TOTAL SHEETS
2			4			35

U.N.O. - DENOTES "UNLESS NOTED OTHERWISE"
†GIRDER A1A & A2A REPRESENTS FUTURE GIRDER LINES

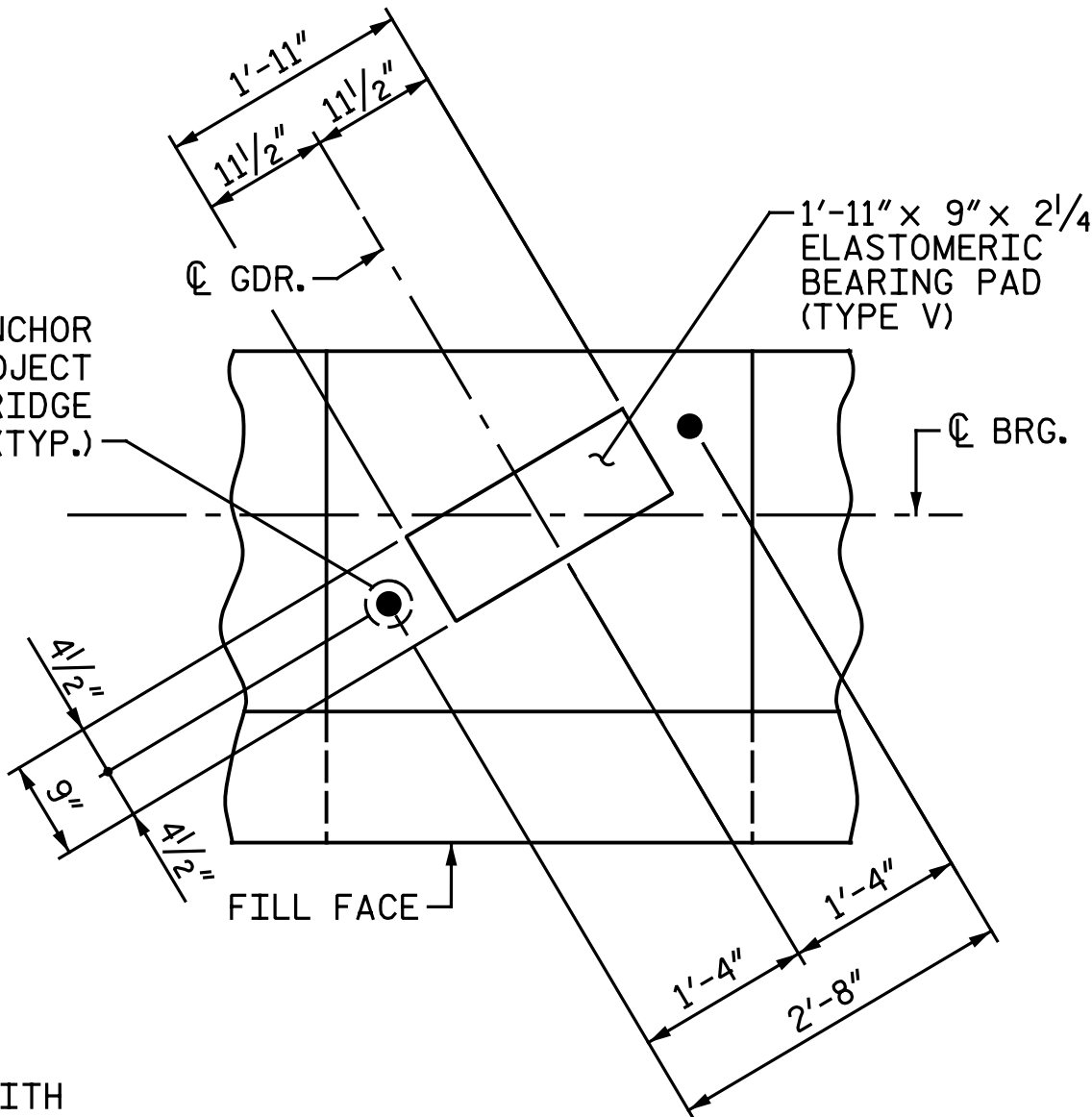


*FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS,
SEE "SECTION A-A" ON "END BENT 1 DETAILS" SHEET.

▲ CONDUIT OPENING. SEE DETAIL "E" ON "END BENT 1 DETAILS" SHEET.

DRAWN BY : N. B. SPEAKS DATE : 1-10-19
CHECKED BY : A. H. SHARPE DATE : 3-27-20

CONSTRUCTION JOINTS IN THE BACK WALL HAVE BEEN
ADDED TO AID IN THE REMOVAL OF THE UPPER PORTION
FOR FUTURE WIDENING.



(TYP. EA. BRIDGE SEAT)

PROJECT NO. I-5883
HARNETT COUNTY
 STATION: 27+09.19 -Y16-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

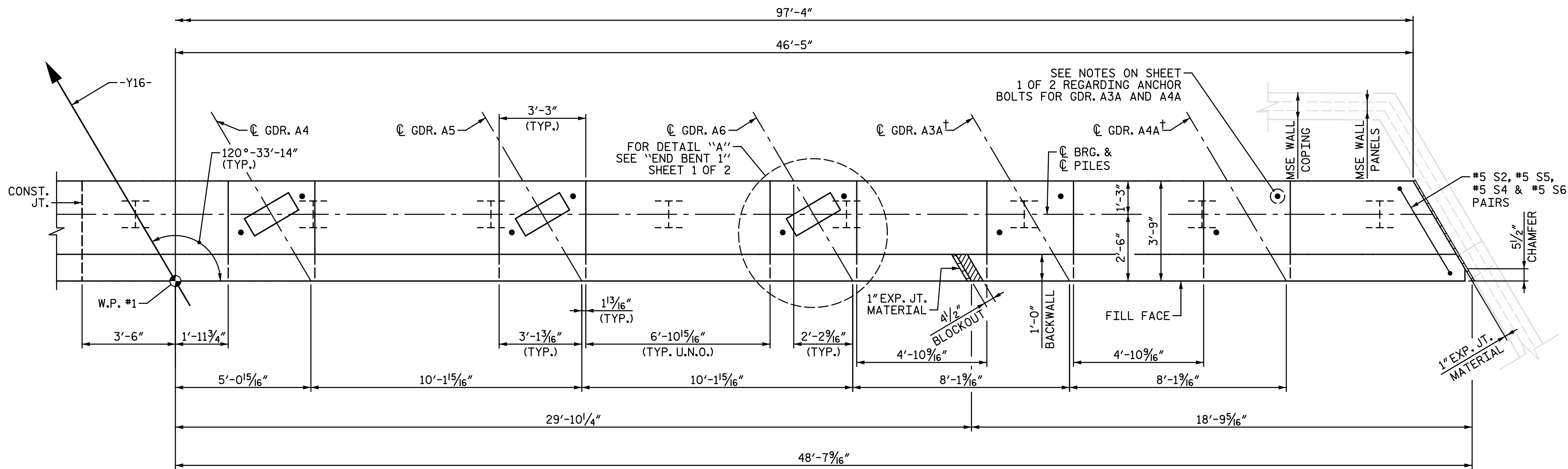
END BENT 1

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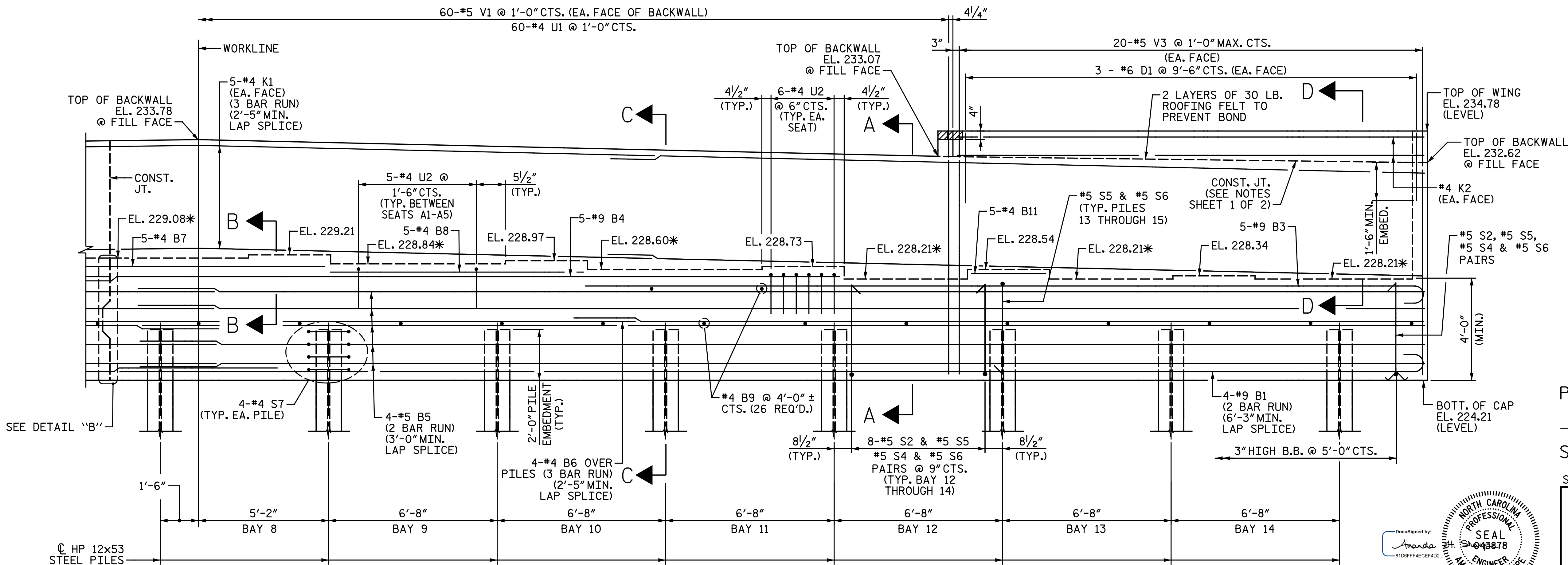
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1000 Regency Parkway, Suite
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REVISIONS						SHEET NO. SI-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



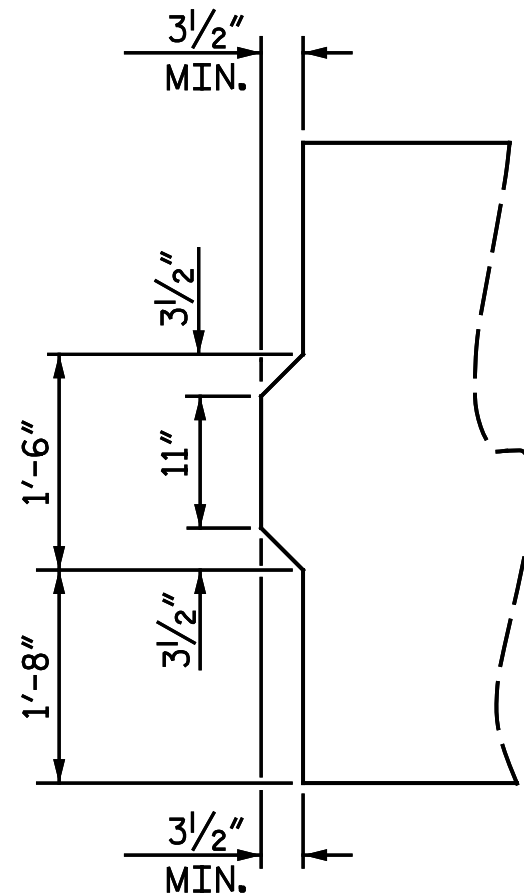
PLAN

U.N.O. - DENOTES "UNLESS NOTED OTHERWISE"
†GIRDER A3A & A4A REPRESENTS FUTURE GIRDER LINES



ELEVATION

*FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS,
SEE "SECTION A-A" ON "END BENT 1 DETAILS" SHEET.



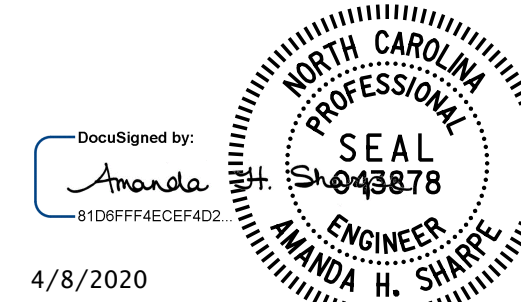
DETAIL "B"

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1



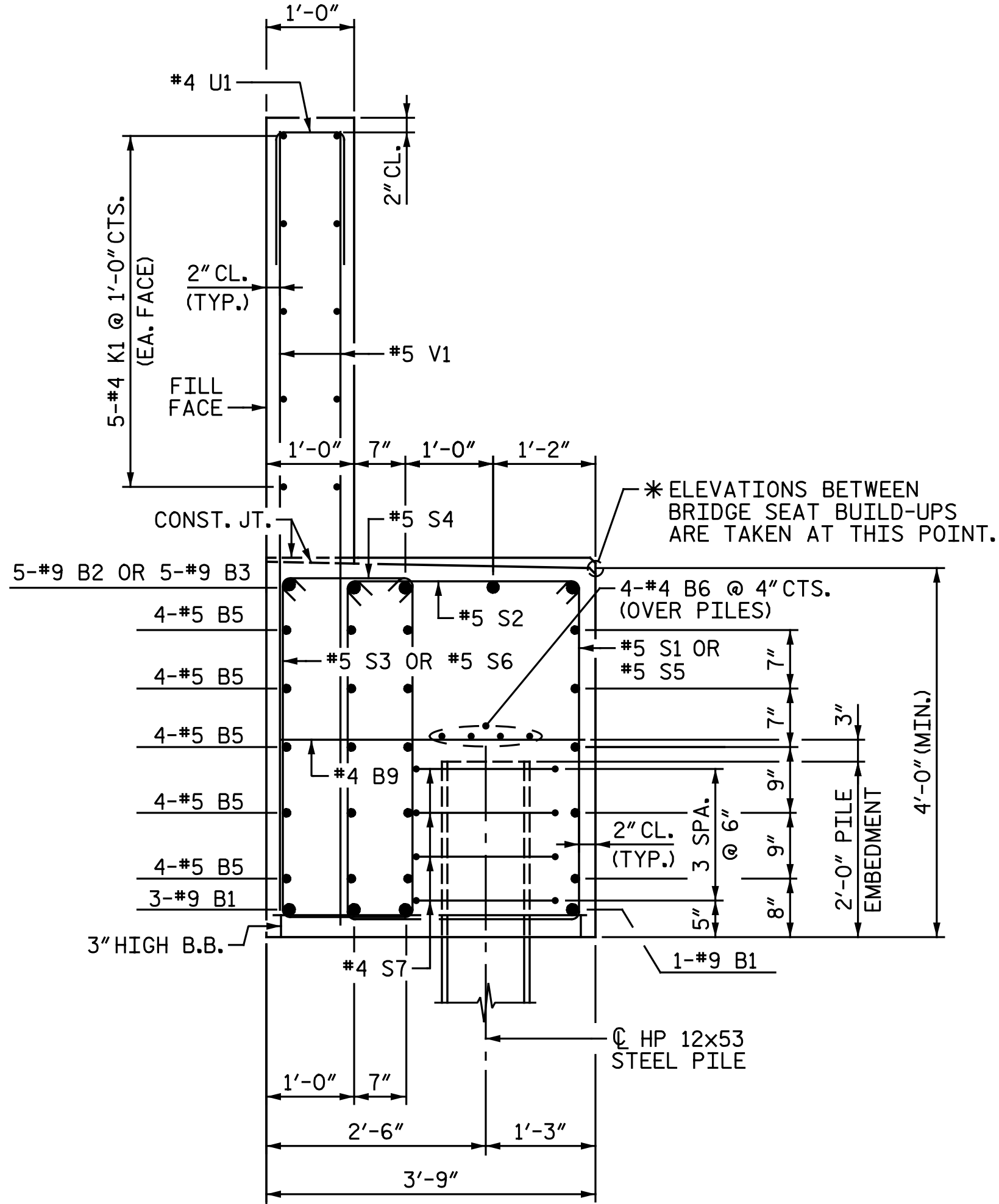
4/8/2020

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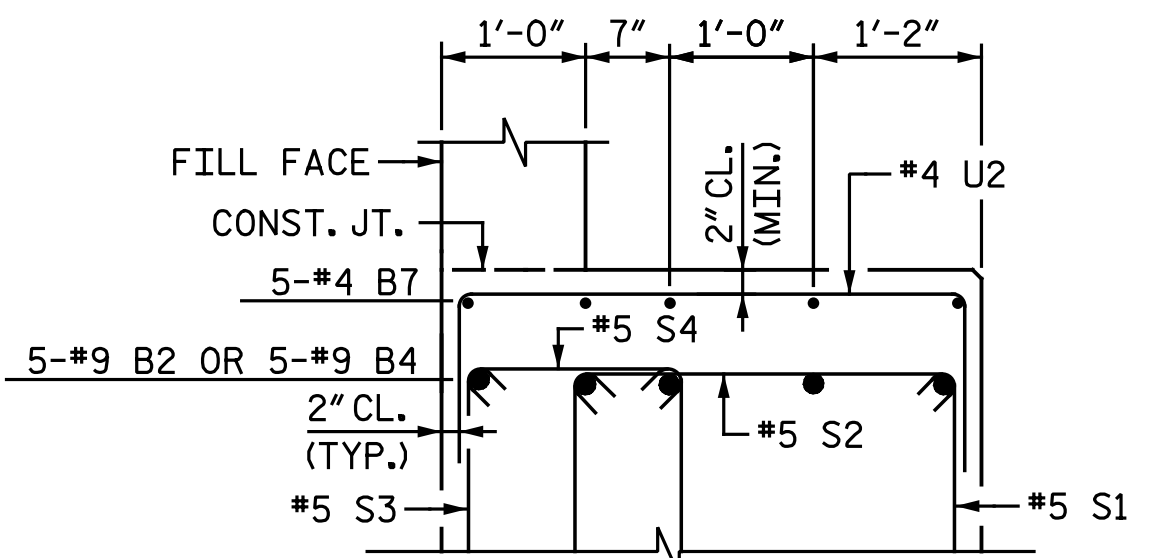
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Cary, North Carolina 27518
NC License No.: F-1084

REVISIONS						SHEET NO. SI-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

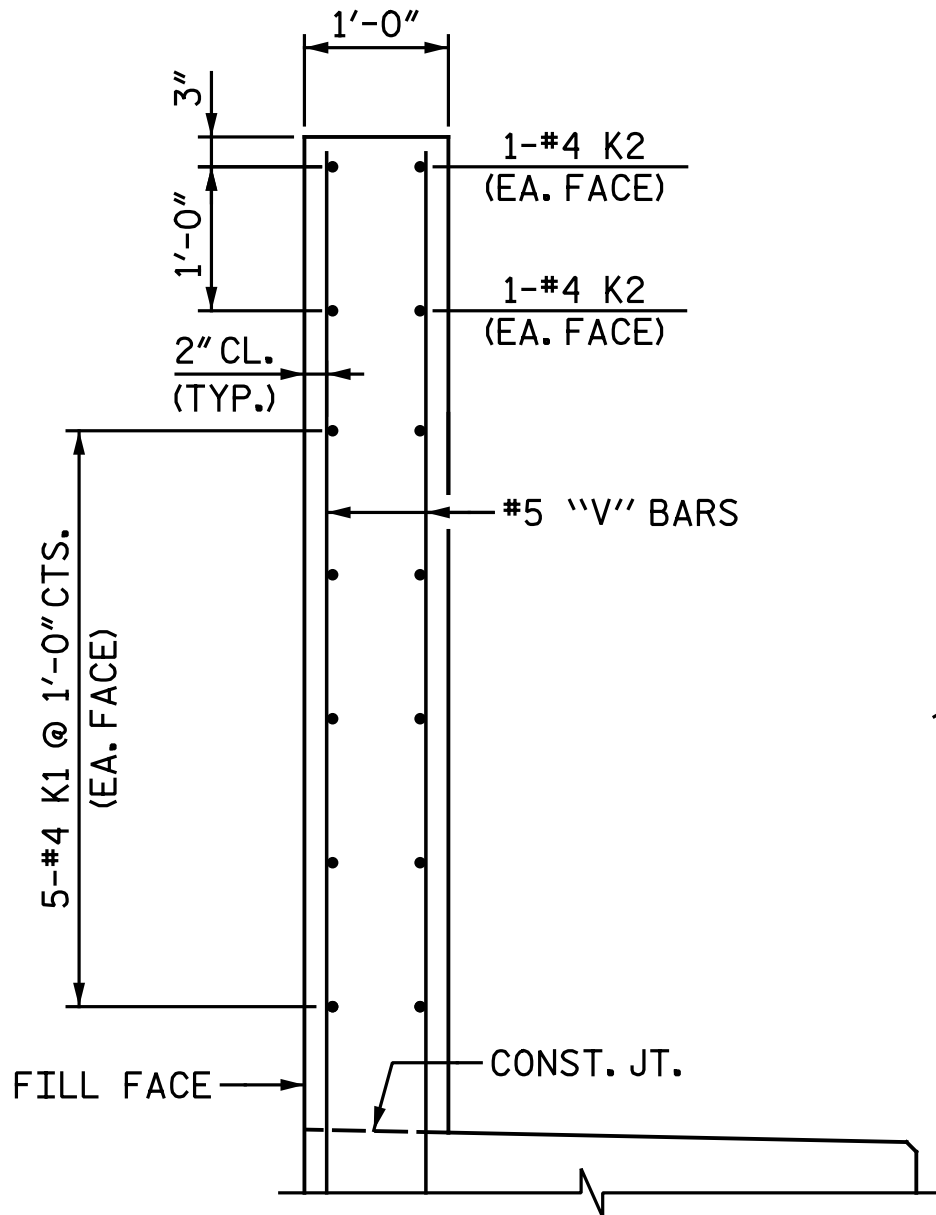
DRAWN BY : N. B. SPEAKS DATE : 8-8-18
CHECKED BY : A. H. SHARPE DATE : 3-26-20



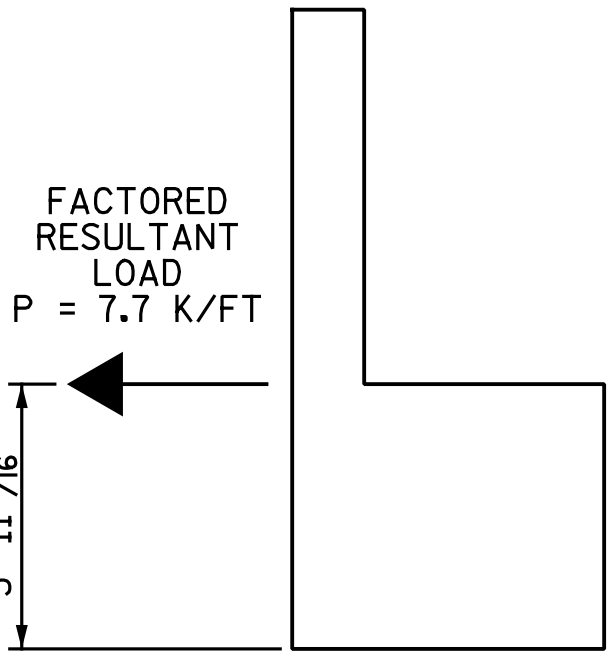
SECTION A-A



PARTIAL SECTION B-B
V1 BARS NOT SHOWN FOR CLARITY.

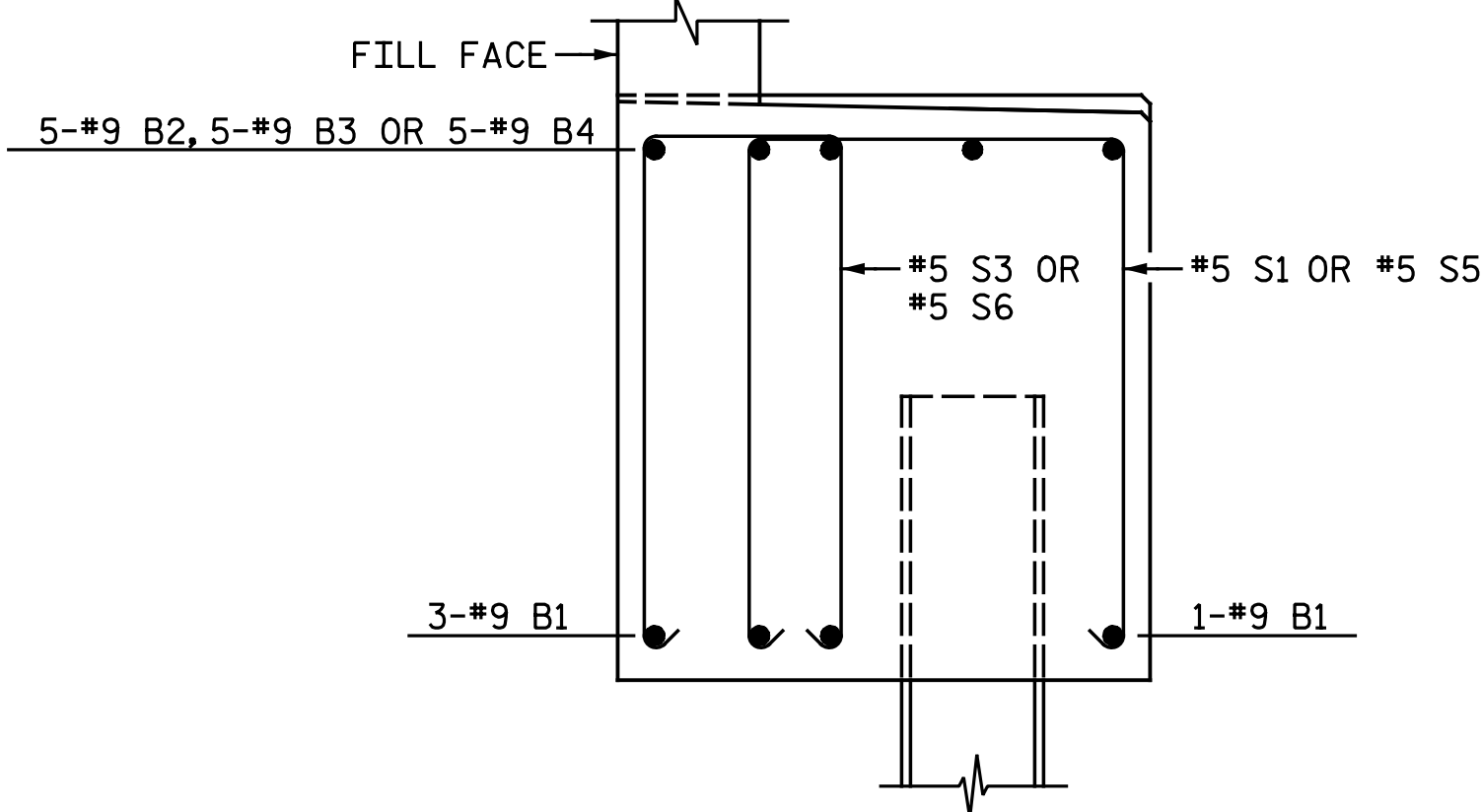


PARTIAL SECTION D-D



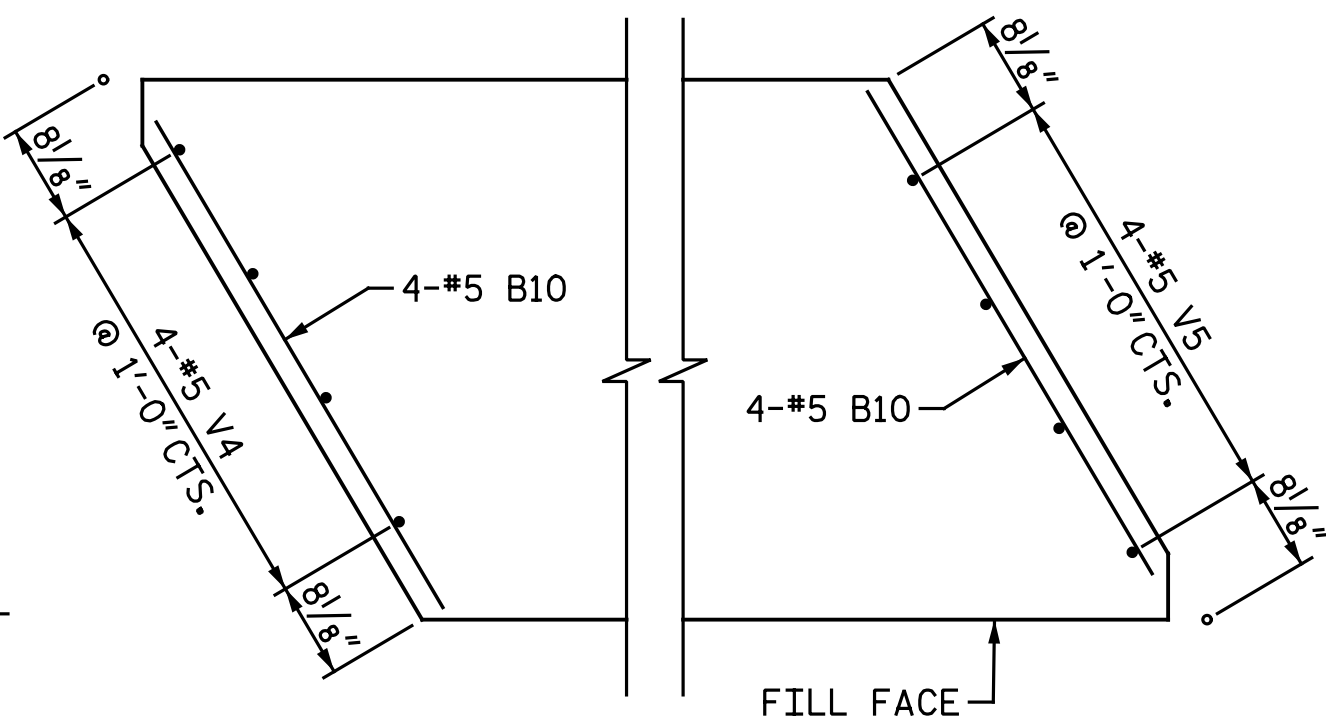
MSE REINFORCING STRAP LOAD DETAIL

MSE REINFORCING STRAPS SHALL BE ATTACHED TO THE END BENT CAP AND/OR BACKWALL. FOR DESIGN CRITERIA AND DETAILS, SEE MSE WALL SHEETS AND SPECIAL PROVISIONS.

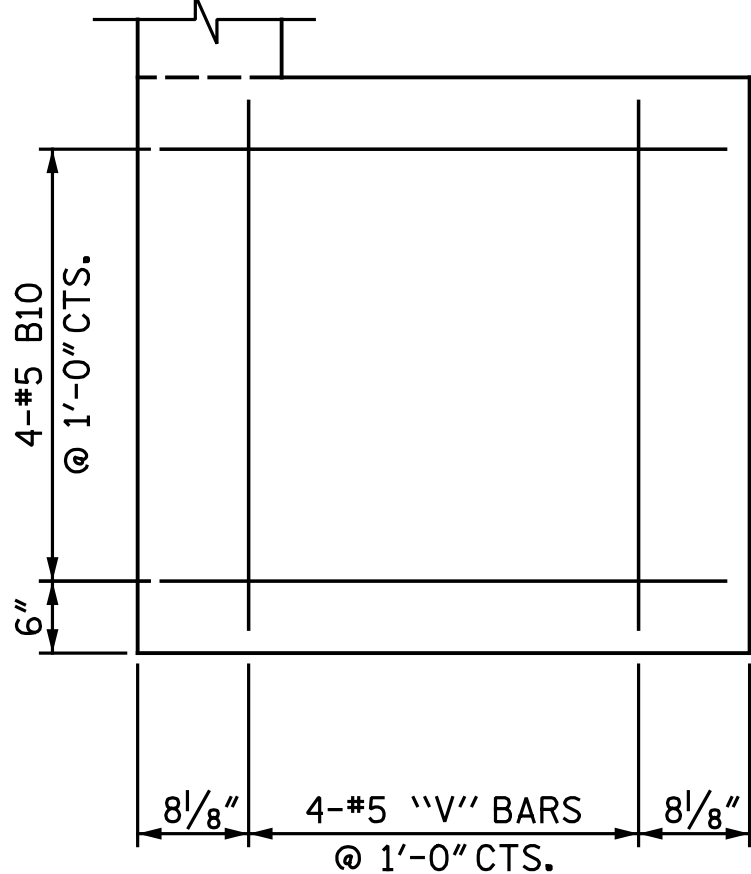


PARTIAL SECTION C-C

ONLY B1, B2, B3, B4, S1, S3, S5 & S6 BARS SHOWN FOR CLARITY.

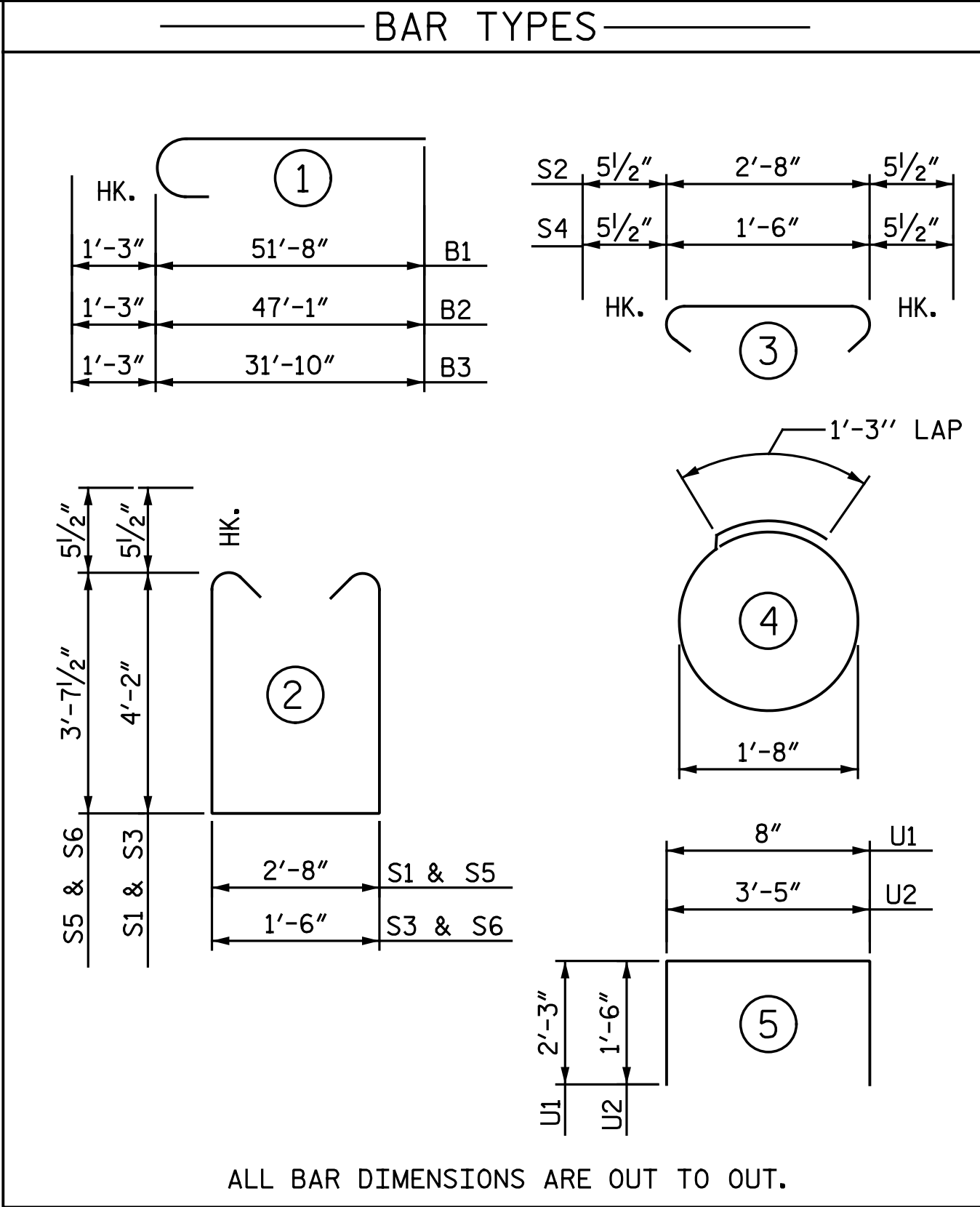


PLAN

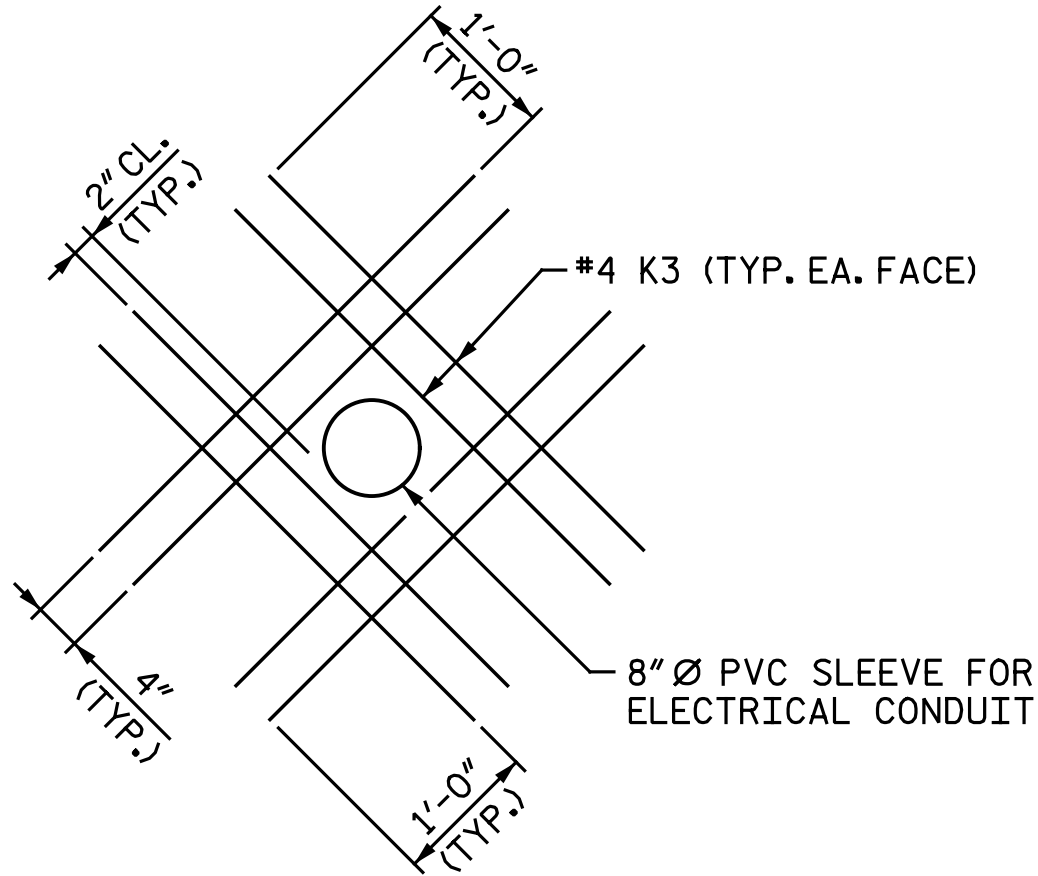


END VIEW

END OF CAP



ALL BAR DIMENSIONS ARE OUT TO OUT.



DETAIL 'E'

THE PVC SLEEVE THROUGH THE BACKWALL SHALL BE LOCATED BY THE ENGINEER. THE K3 BARS MAY BE SHIFTED AS NECESSARY TO CLEAR TOP OF CAP.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	52' - 11"	1,439
B2	5	#9	1	48' - 8"	827
B3	5	#9	1	33' - 1"	562
B4	5	#9	STR.	37' - 11"	645
B5	40	#5	STR.	50' - 0"	2,086
B6	12	#4	STR.	34' - 0"	273
B7	5	#4	STR.	23' - 2"	77
B8	10	#4	STR.	10' - 2"	68
B9	26	#4	STR.	3' - 5"	59
B10	8	#5	STR.	3' - 8"	31
B11	15	#4	STR.	2' - 11"	29
D1	12	#6	STR.	3' - 6"	63
K1	30	#4	STR.	34' - 0"	681
K2	8	#4	STR.	18' - 3"	98
K3	16	#4	STR.	3' - 8"	39
S1	101	#5	2	11' - 11"	1,255
S2	122	#5	3	3' - 7"	456
S3	101	#5	2	10' - 9"	1,132
S4	122	#5	3	2' - 5"	308
S5	28	#5	2	10' - 10"	316
S6	28	#5	2	9' - 8"	282
S7	60	#4	4	6' - 6"	261
U1	60	#4	5	5' - 2"	207
U2	80	#4	5	6' - 5"	343
V1	120	#5	STR.	8' - 6"	1,064
V2	40	#5	STR.	8' - 8"	362
V3	40	#5	STR.	8' - 1"	337
V4	4	#5	STR.	4' - 2"	17
V5	4	#5	STR.	3' - 8"	15
REINFORCING STEEL					LBS. 13,332
CLASS A CONCRETE					
POUR 1 - CAP				C.Y.	62.1
POUR 2 - BACKWALL & WINGS				C.Y.	19.6
TOTAL				C.Y.	81.7
PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES					EA. 15
HP 12x53 STEEL PILES					
NO. 15				LIN. FT.	1125
PILE REDRIVES				EA.	8

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

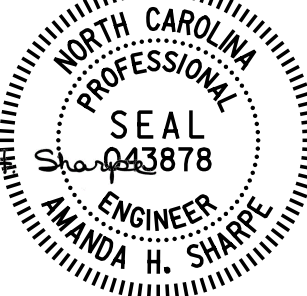
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1
DETAILS

DocuSigned by:
Amanda H. Sharpe
b1d8fffa4ecef402

4/8/2020



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INTERNATIONAL

Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

REVISIONS

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

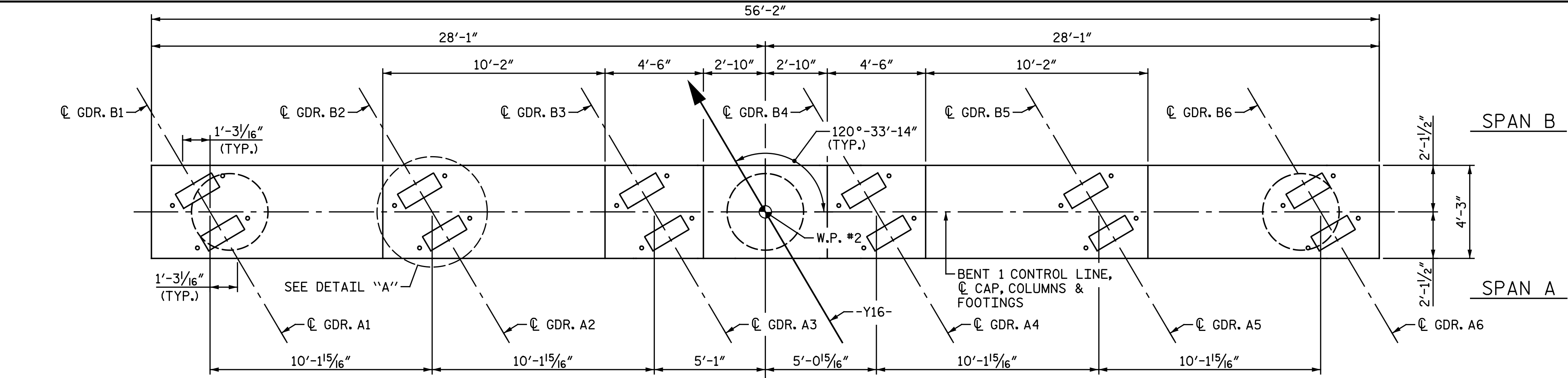
SHEET NO.

SI-24

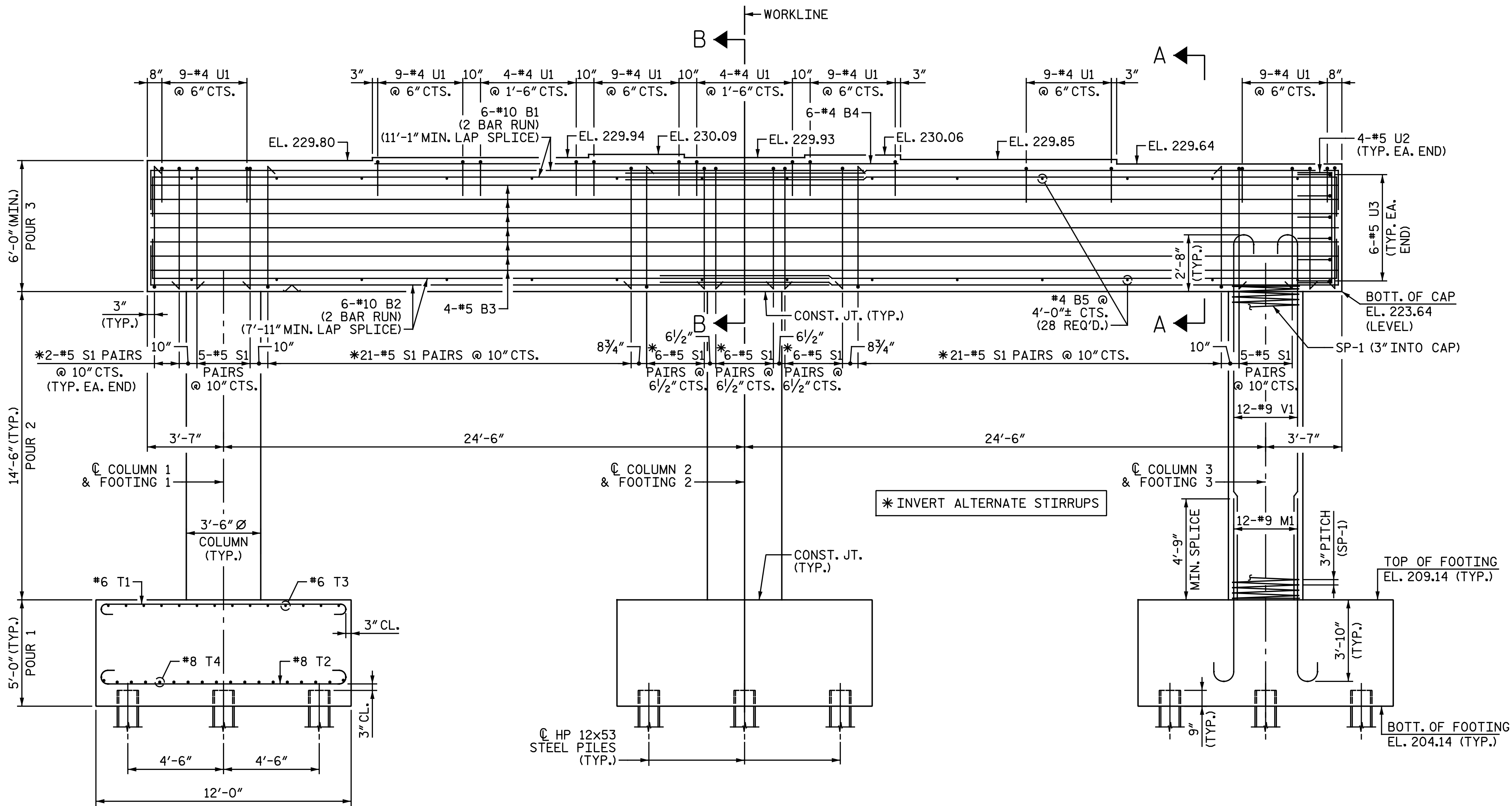
TOTAL
SHEETS

35

DRAWN BY : N. B. SPEAKS DATE : 1-10-19
CHECKED BY : A. H. SHARPE DATE : 3-26-20



PLAN



ELEVATION

REINFORCING STEEL DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING.

DIMENSIONS AND PILE LOCATIONS ARE TYPICAL FOR EACH FOOTING.

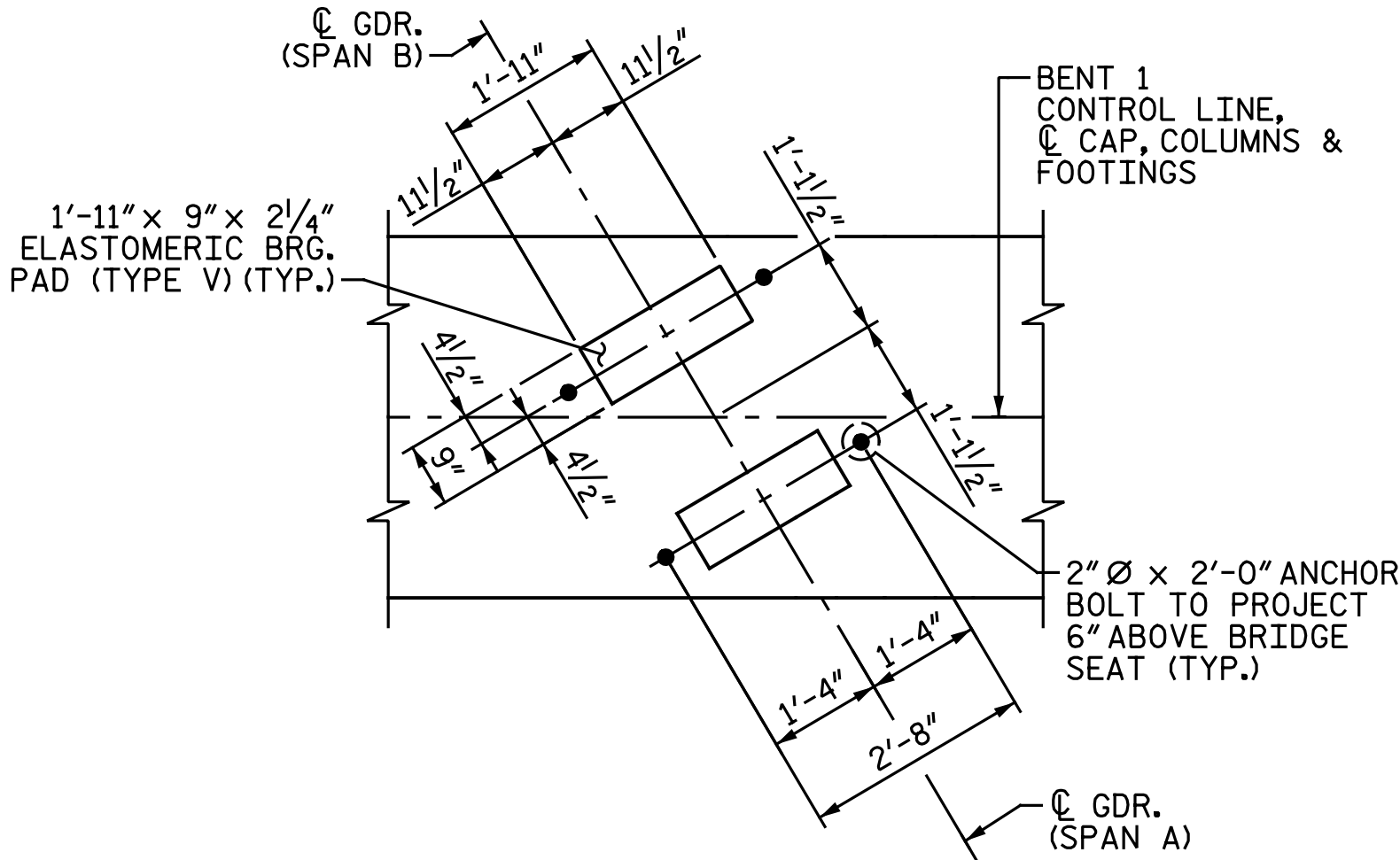
NOTES:

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

FOR "SECTION A-A", "SECTION B-B", SEE "BENT 1 DETAILS" SHEET 2 OF 2.

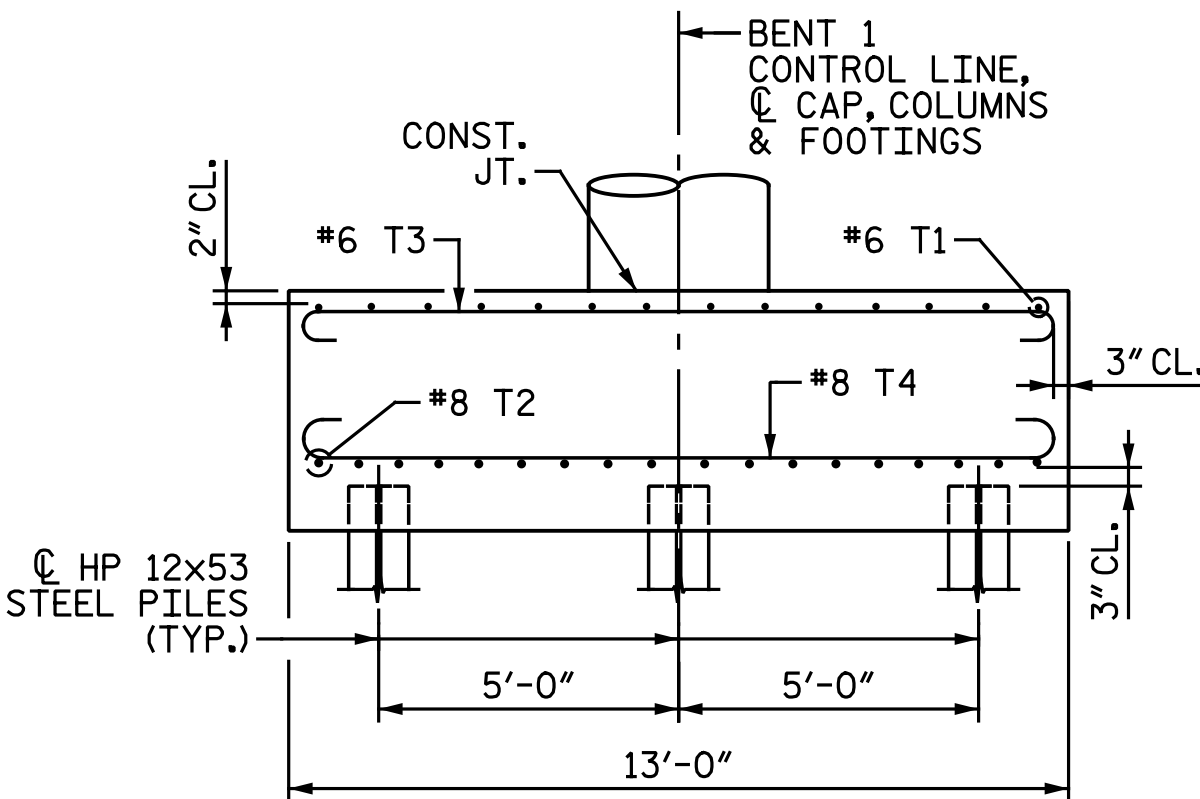
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR PILE SPLICE DETAILS, SEE "END BENT 2 DETAILS" SHEET.



DETAIL "A"

(TYP. EA. BRIDGE SEAT)



PARTIAL END ELEVATION

(FOR COLUMN REINFORCING STEEL, SEE ELEVATION)

PROJECT NO. I-5883

HARNETT COUNTY

STATION: 27+09.19 -Y16-

DocuSigned by:

Amanda H. Sharpe

81D0FFFACECF4D2...

4/8/2020



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

BENT 1

REVISIONS

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

SHEET NO.

SI-25

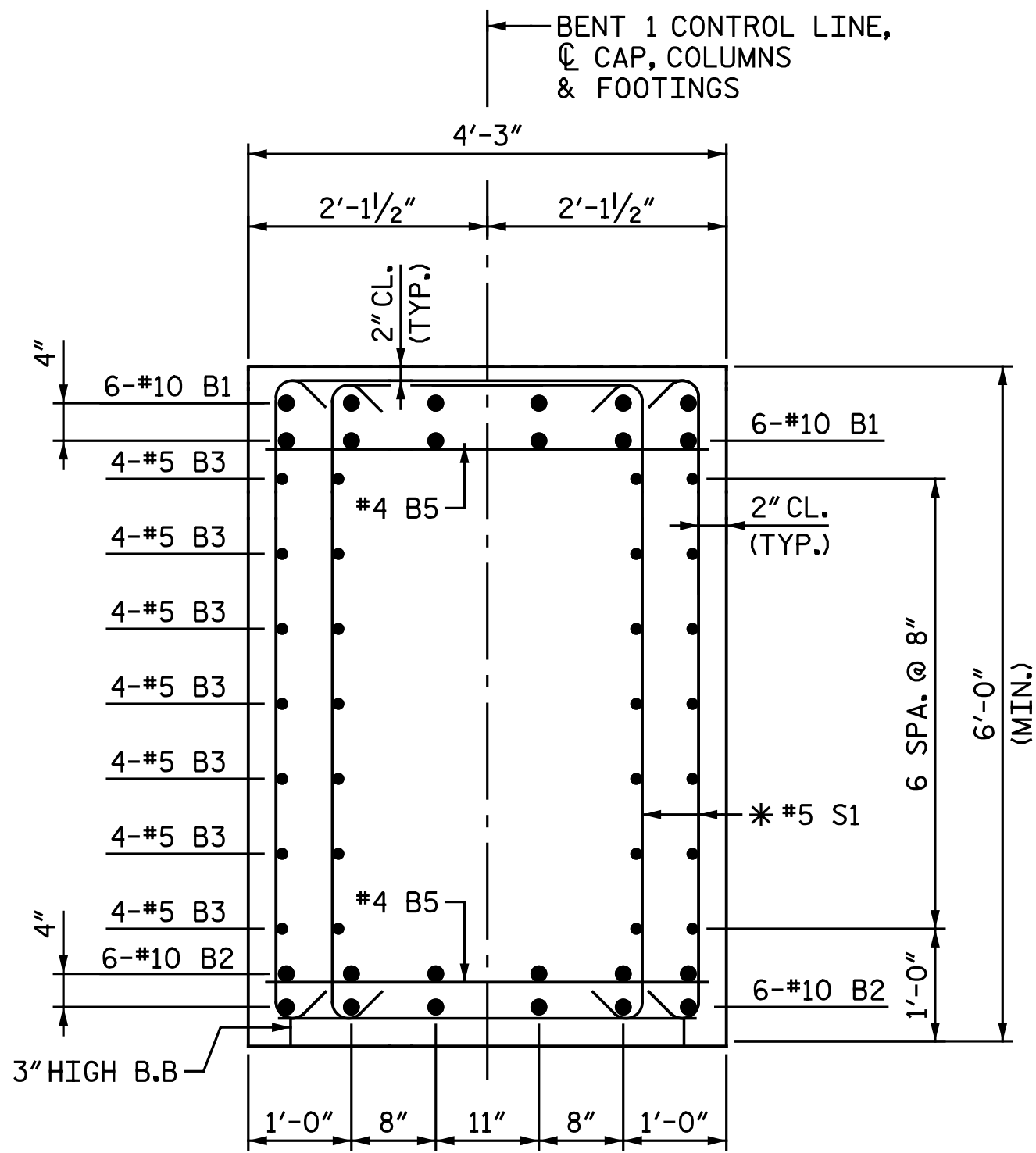
TOTAL SHEETS

35

DRAWN BY : M. D. MAYHEW
CHECKED BY : A. H. SHARPE

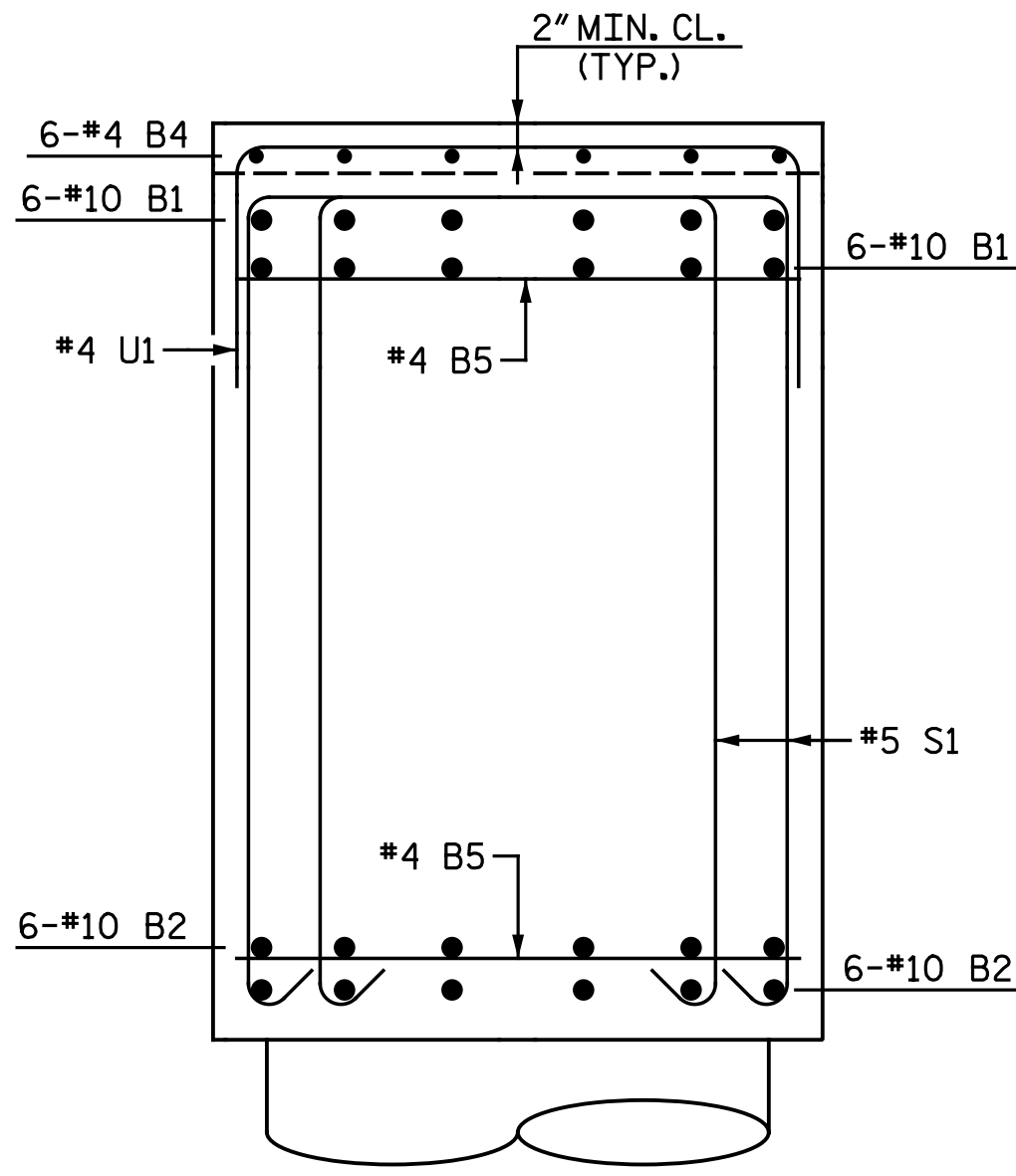
DATE : 2-1-20

DATE : 3-27-20



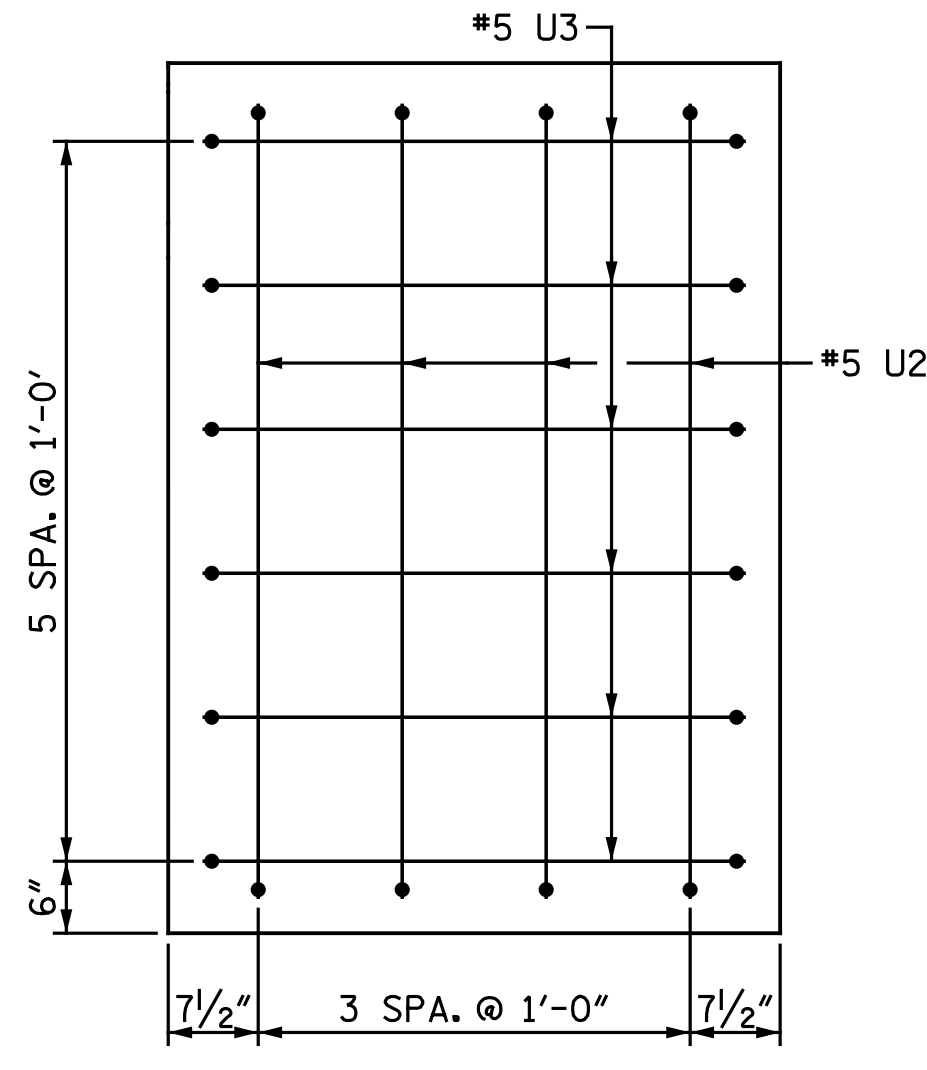
SECTION A-A

* INVERT ALTERNATE STIRRUPS



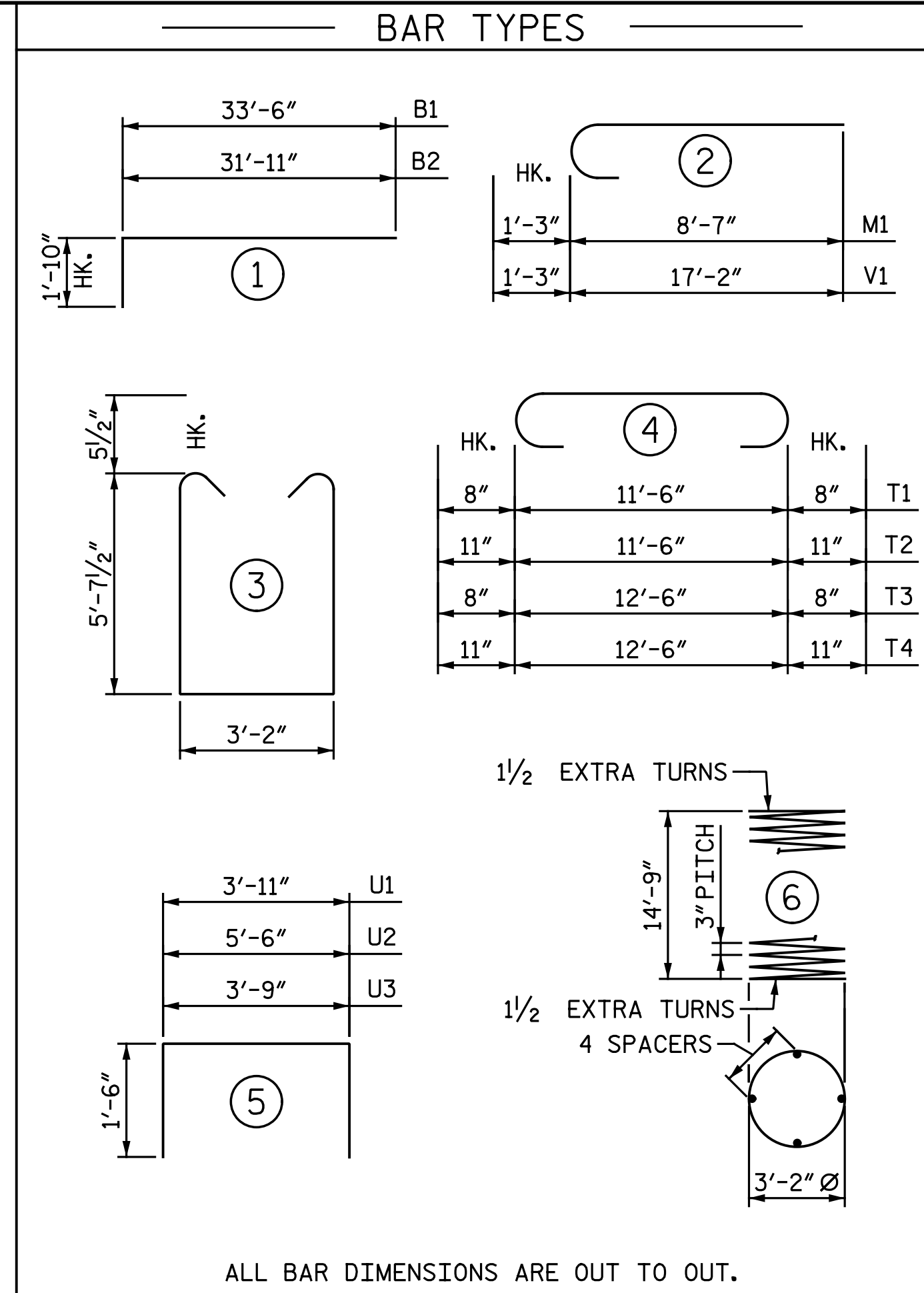
SECTION B-B

B3 BARS NOT SHOWN FOR CLARITY.



END VIEW

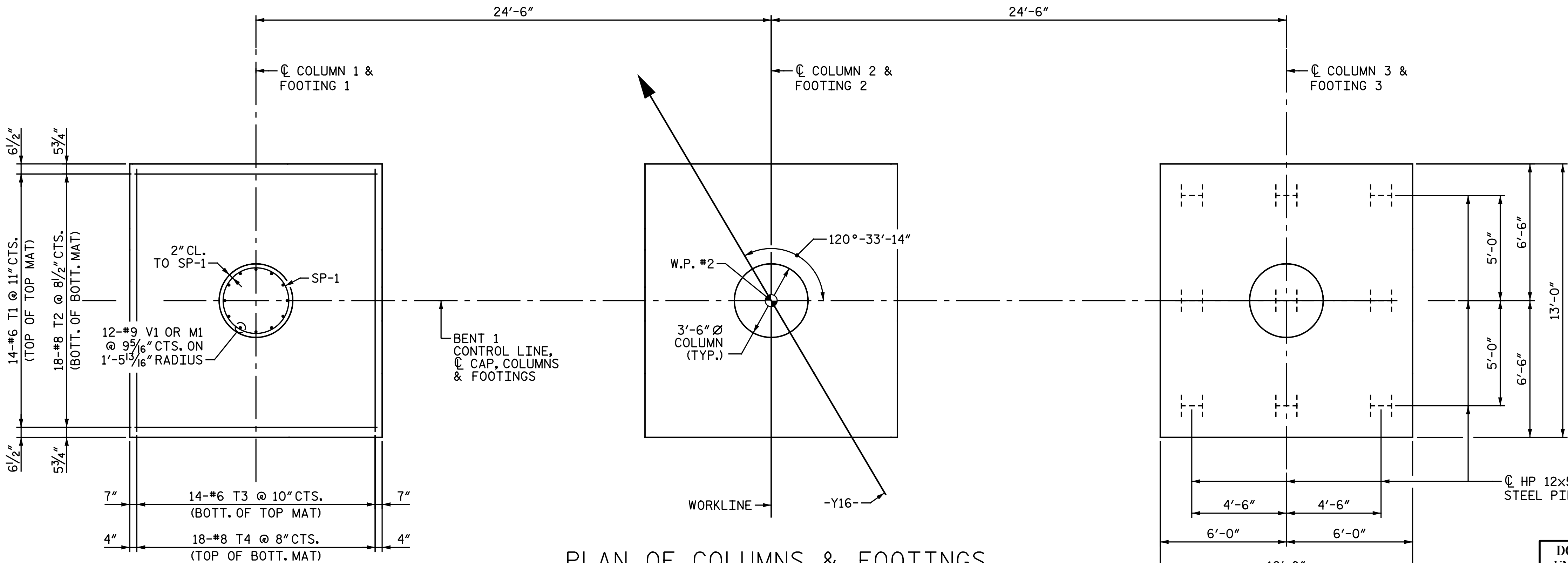
(TYP. EA. END)



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	24	#10	1	35' - 4"	3,649
B2	24	#10	1	33' - 9"	3,485
B3	28	#5	STR.	55' - 10"	1,631
B4	6	#4	STR.	24' - 6"	98
B5	28	#4	STR.	3' - 11"	73
M1	36	#9	2	9' - 10"	1,204
S1	148	#5	3	15' - 4"	2,367
T1	42	#6	4	12' - 10"	810
T2	54	#8	4	13' - 4"	1,922
T3	42	#6	4	13' - 10"	873
T4	54	#8	4	14' - 4"	2,067
U1	62	#4	5	6' - 11"	286
U2	8	#5	5	8' - 6"	71
U3	12	#5	5	6' - 9"	84
V1	36	#9	2	18' - 5"	2,254
REINFORCING STEEL					LBS. 20,874
SP-1	3	**	6	608' - 11"	1,220
SPIRAL COLUMN REINFORCING STEEL					LBS. 1,220
CLASS A CONCRETE					
POUR 1 - FOOTINGS				C.Y.	86.7
POUR 2 - COLUMNS				C.Y.	15.6
POUR 3 - CAP				C.Y.	55.1
TOTAL CLASS A CONCRETE					C.Y. 157.4
FOUNDATION EXCAVATION FOR BENT					LUMP SUM
PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES					EA. 27
HP 12x53 STEEL PILES NO. 27					LIN. FT. 2,025
PILE REDRIVES					EA. 14



PLAN OF COLUMNS & FOOTINGS

REINFORCING STEEL DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING.

DIMENSIONS AND PILE LOCATIONS ARE TYPICAL FOR EACH FOOTING.

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-



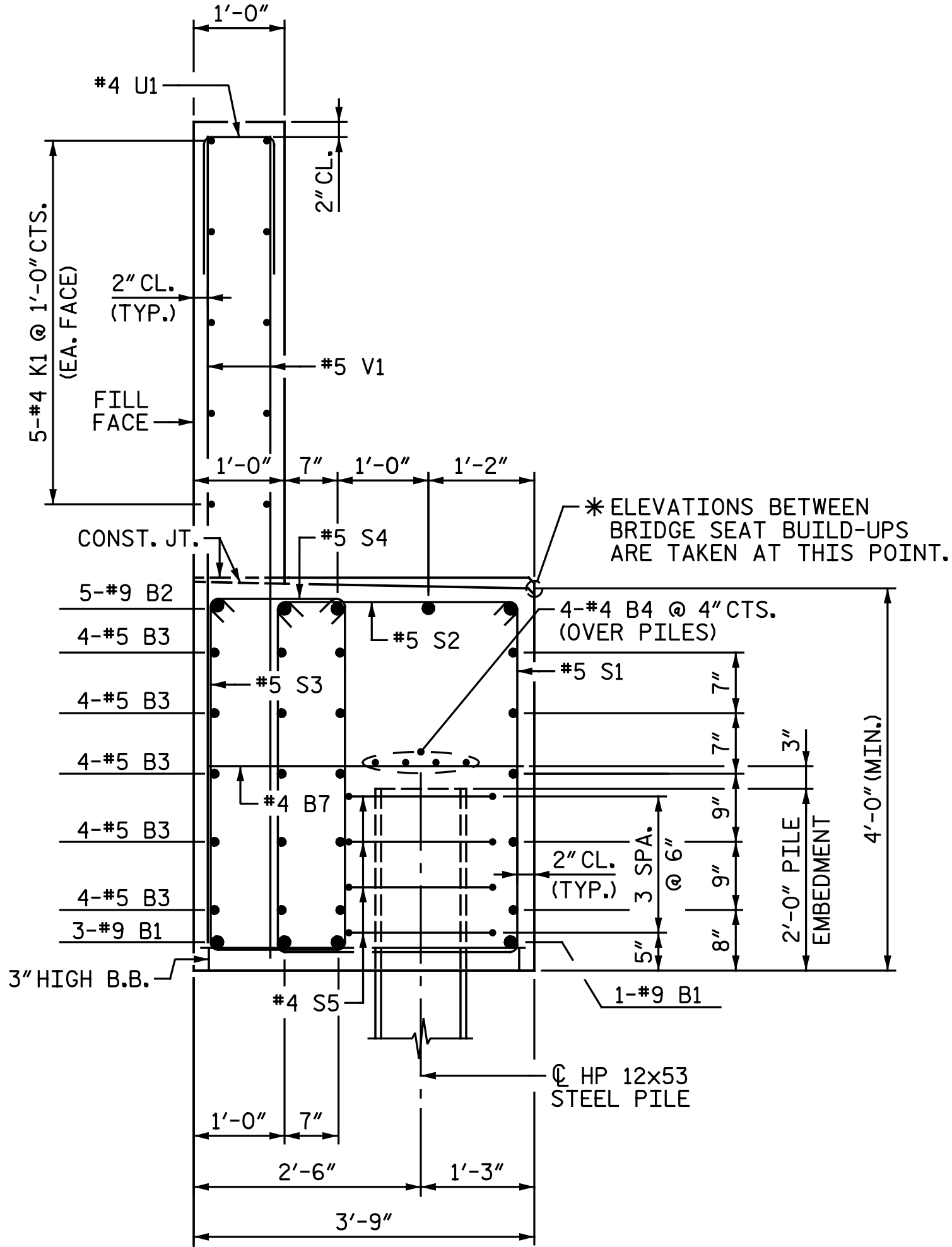
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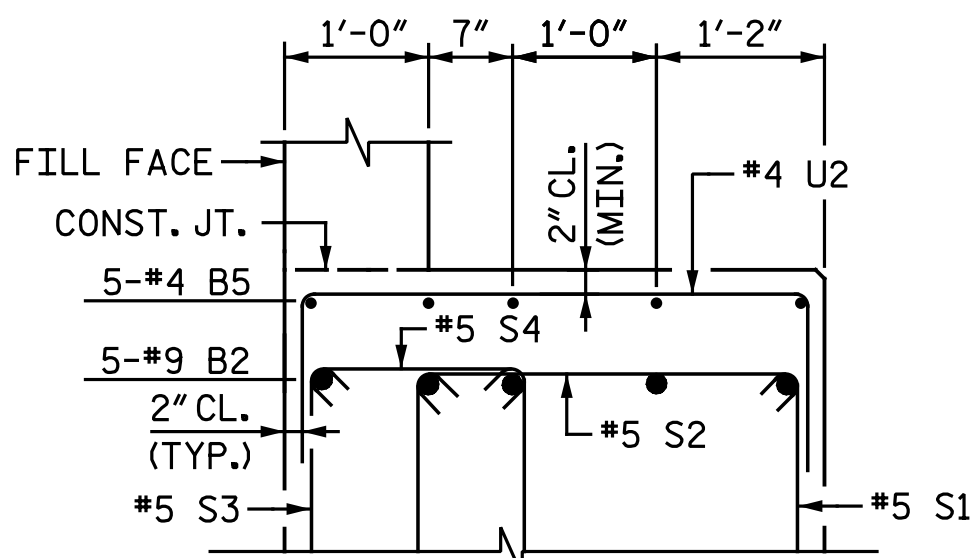
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE BENT 1 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. SI-26					TOTAL SHEETS 35

DRAWN BY : M. D. MAYHEW DATE : 2-1-20
CHECKED BY : A. H. SHARPE DATE : 3-26-20

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	SI-27	
1			3			TOTAL SHEETS 35	
2			4				

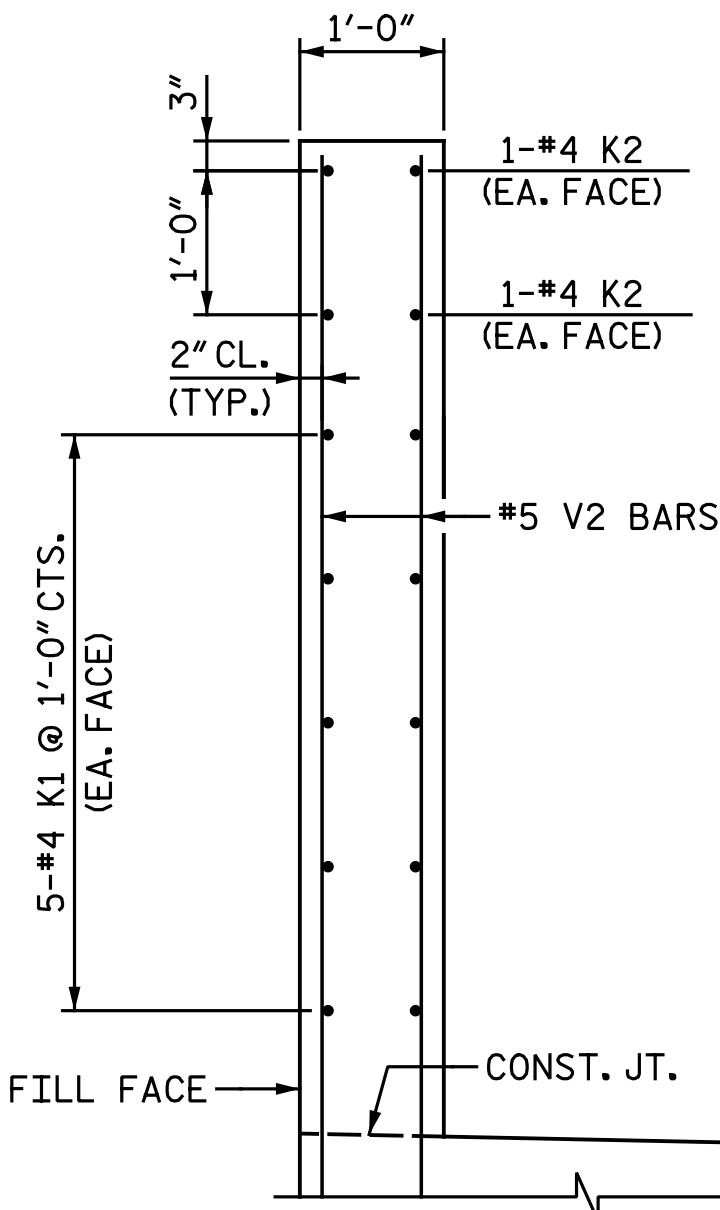


SECTION A-A

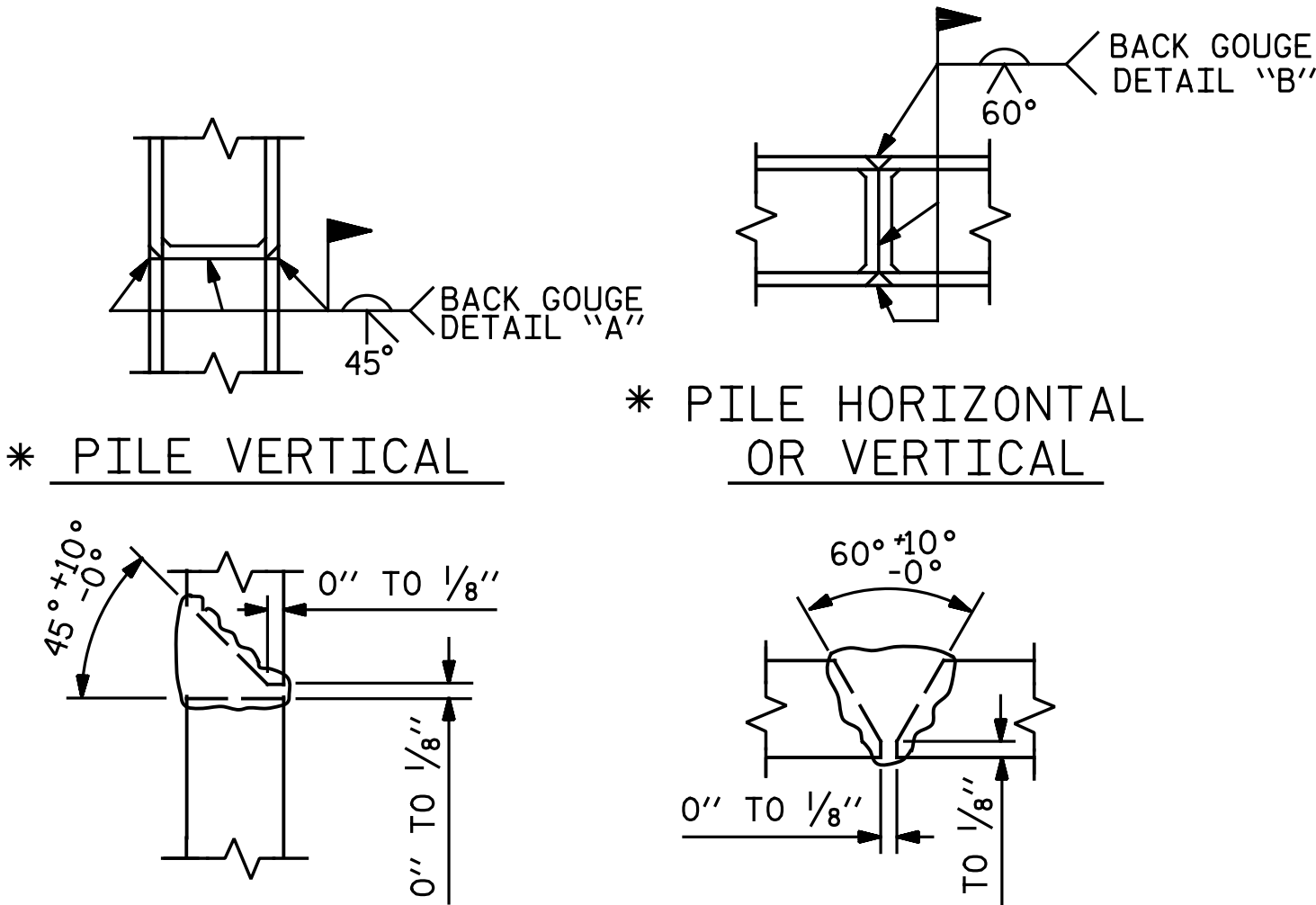


PARTIAL SECTION B-B

V1 BARS NOT SHOWN FOR CLARITY.

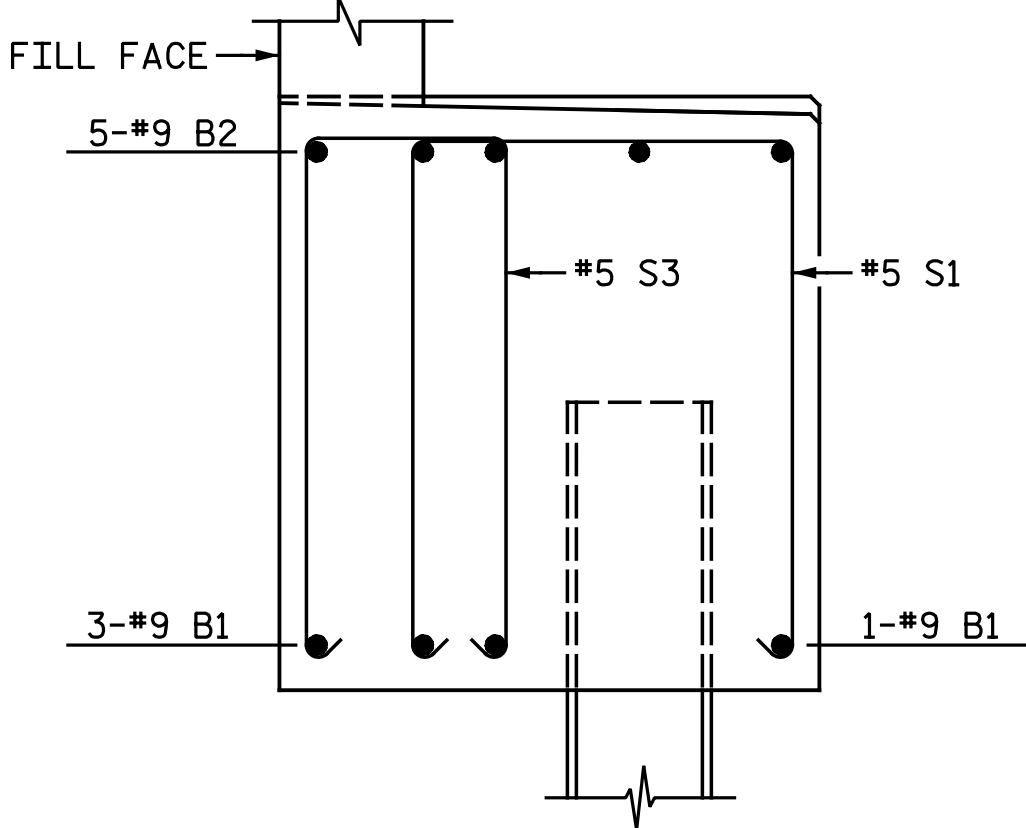


PARTIAL SECTION D-D



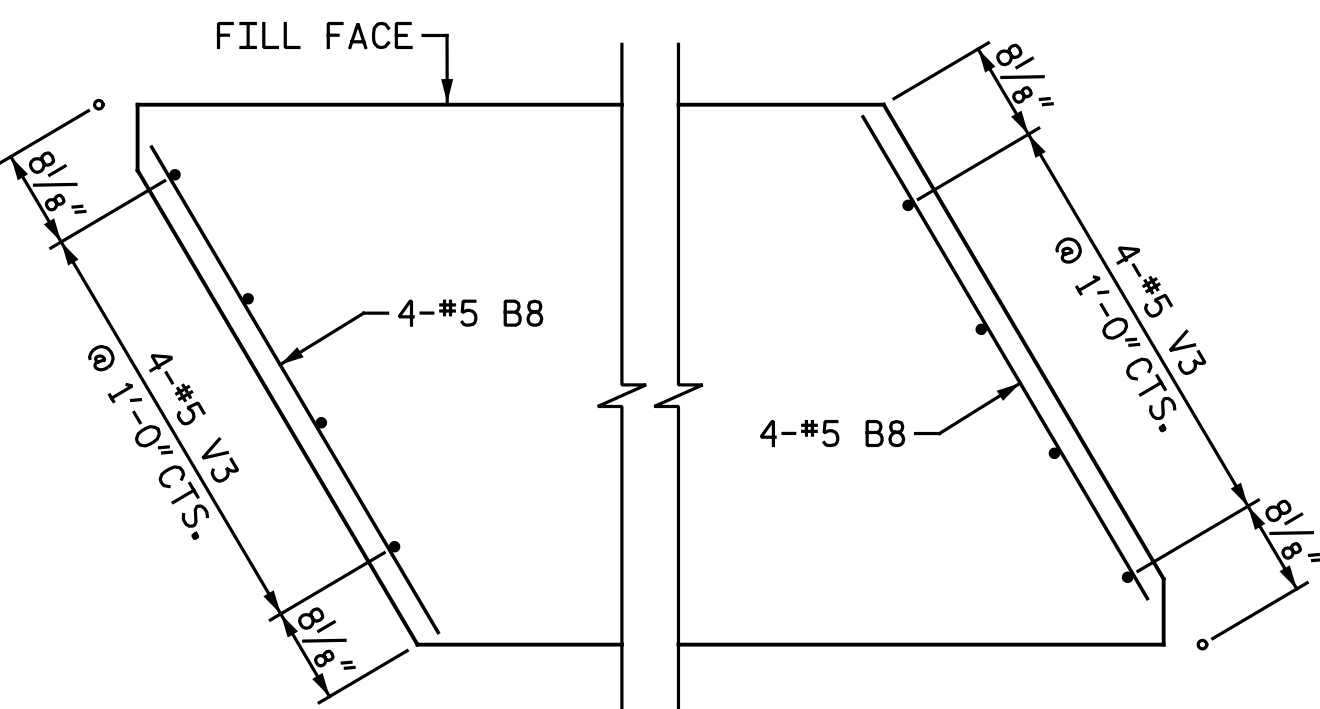
PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

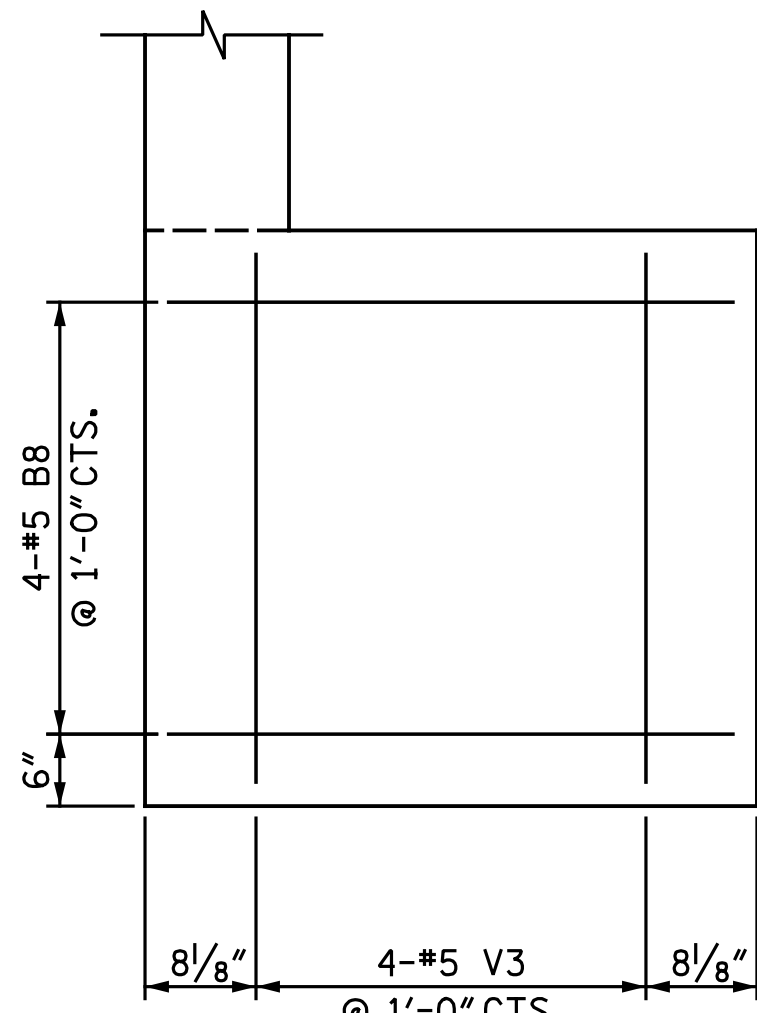


PARTIAL SECTION C-C

ONLY B1, B2, S1 & S3 BARS SHOWN FOR CLARITY.

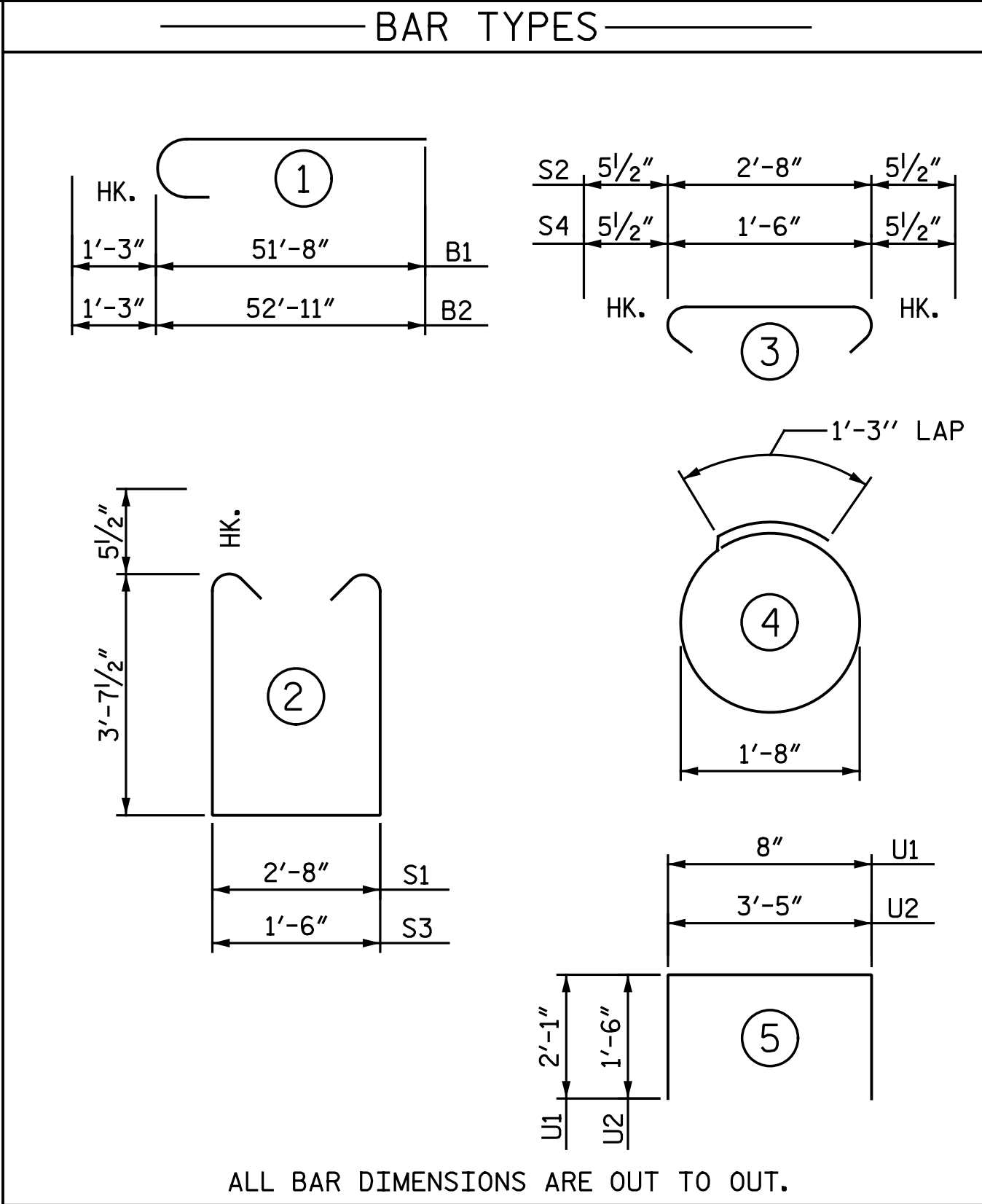


PLAN



END VIEW

END OF CAP



ALL BAR DIMENSIONS ARE OUT TO OUT.

NOTE:

FOR MSE REINFORCING STRAP DETAIL, SEE "END BENT 1 DETAILS" SHEET.

BILL OF MATERIAL

END BENT 2

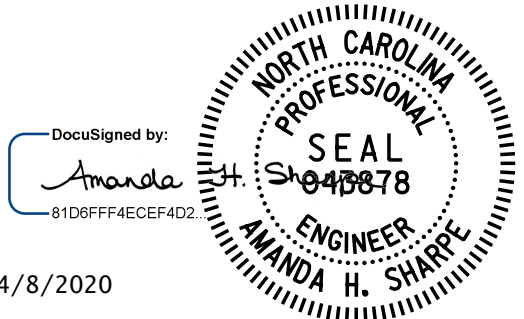
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	52' - 11"	1,439
B2	10	#9	1	54' - 2"	1,842
B3	40	#5	STR.	50' - 0"	2,086
B4	12	#4	STR.	34' - 0"	273
B5	5	#4	STR.	13' - 0"	43
B6	20	#4	STR.	10' - 0"	134
B7	24	#4	STR.	3' - 5"	55
B8	8	#5	STR.	3' - 8"	31
B9	10	#4	STR.	2' - 11"	19
D1	12	#6	STR.	3' - 6"	63
K1	30	#4	STR.	34' - 0"	681
K2	8	#4	STR.	18' - 3"	98
K3	16	#4	STR.	3' - 8"	39
S1	129	#5	2	10' - 10"	1,458
S2	114	#5	3	3' - 7"	426
S3	129	#5	2	9' - 8"	1,301
S4	114	#5	3	2' - 5"	287
S5	60	#4	4	6' - 6"	261
U1	60	#4	5	4' - 10"	194
U2	85	#4	5	6' - 5"	364
V1	120	#5	STR.	8' - 5"	1,053
V2	80	#5	STR.	8' - 1"	674
V3	8	#5	STR.	3' - 8"	31
REINFORCING STEEL					LBS, 12,852
CLASS A CONCRETE					
POUR 1 - CAP					C.Y. 58.2
POUR 2 - BACKWALL & WINGS					C.Y. 19.6
TOTAL					C.Y. 77.8
PILE DRIVING EQUIPMENT SETUP					
FOR HP 12x53 STEEL PILES					EA. 15
HP 12x53 STEEL PILES					
NO. 15					LIN. FT. 1200
PILE REDRIVES					EA. 8

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
DETAILS



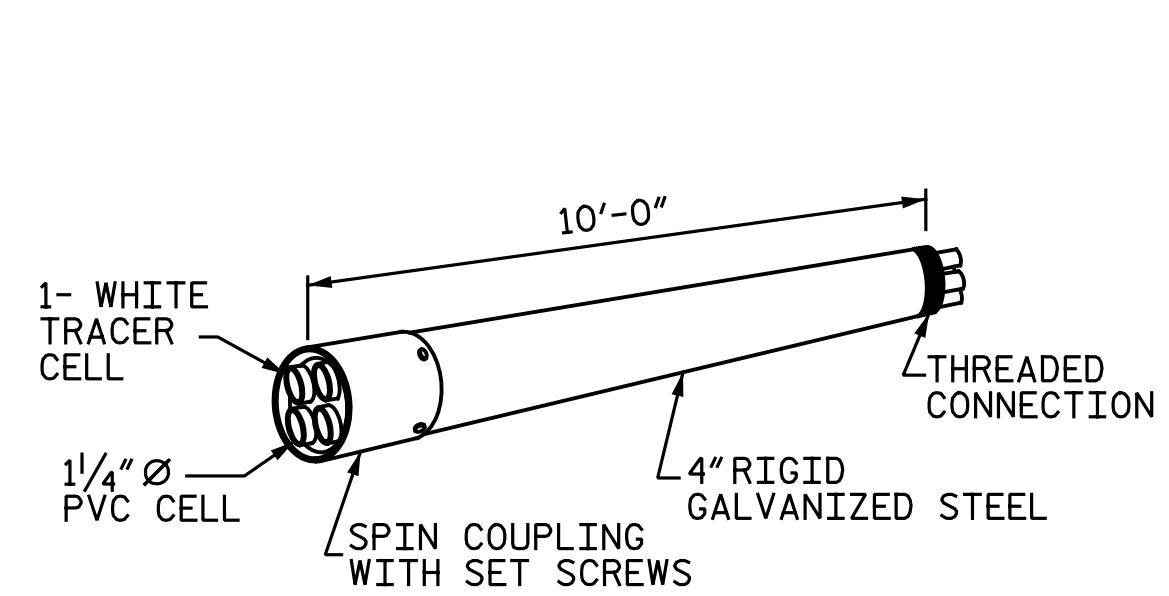
4/8/2020

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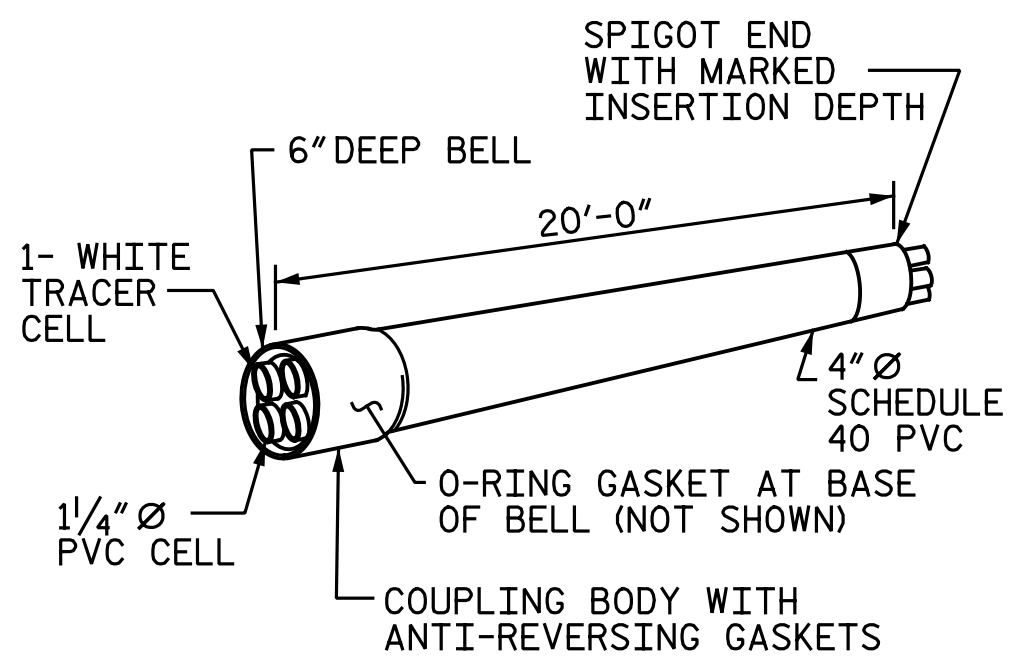
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Cary, North Carolina 27518
NC License No.: F-1084

REVISIONS						SHEET NO. SI-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

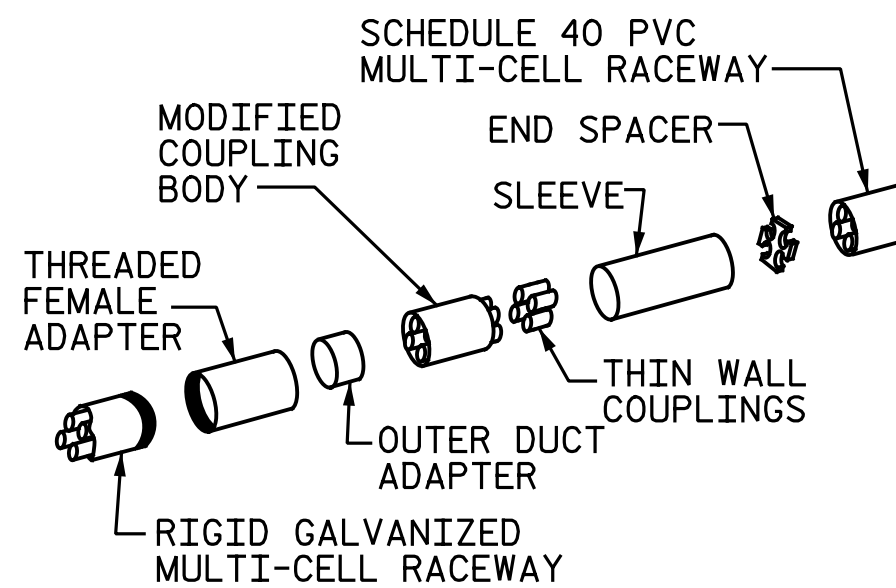
DRAWN BY : N. B. SPEAKS DATE : 1-10-19
CHECKED BY : A. H. SHARPE DATE : 3-4-20



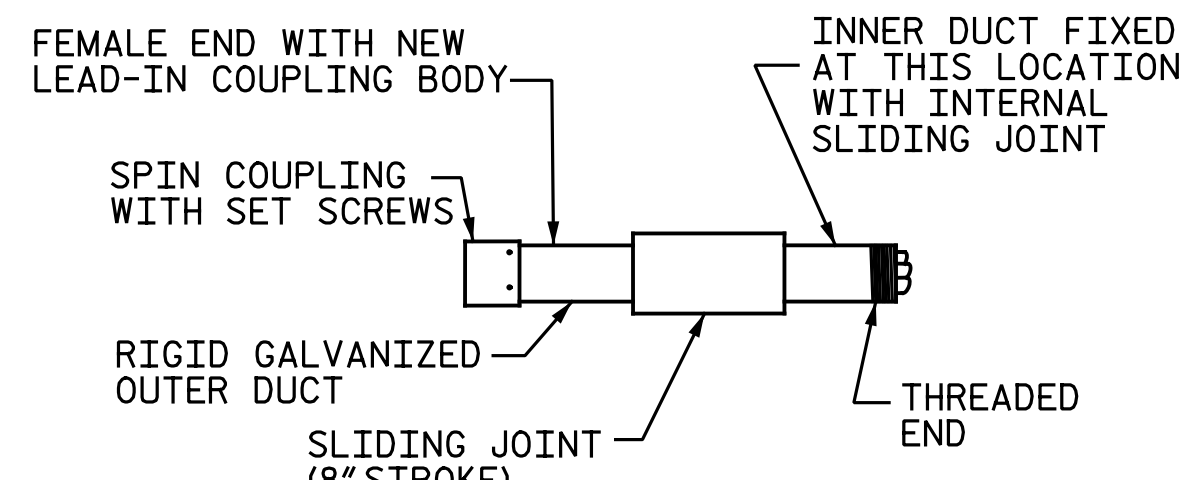
RIGID GALVANIZED (RGC)
MULTI-CELL RACEWAY



SCHEDULE 40 PVC
MULTI-CELL RACEWAY



TRANSITION ADAPTER



EXPANSION JOINT FITTING

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.

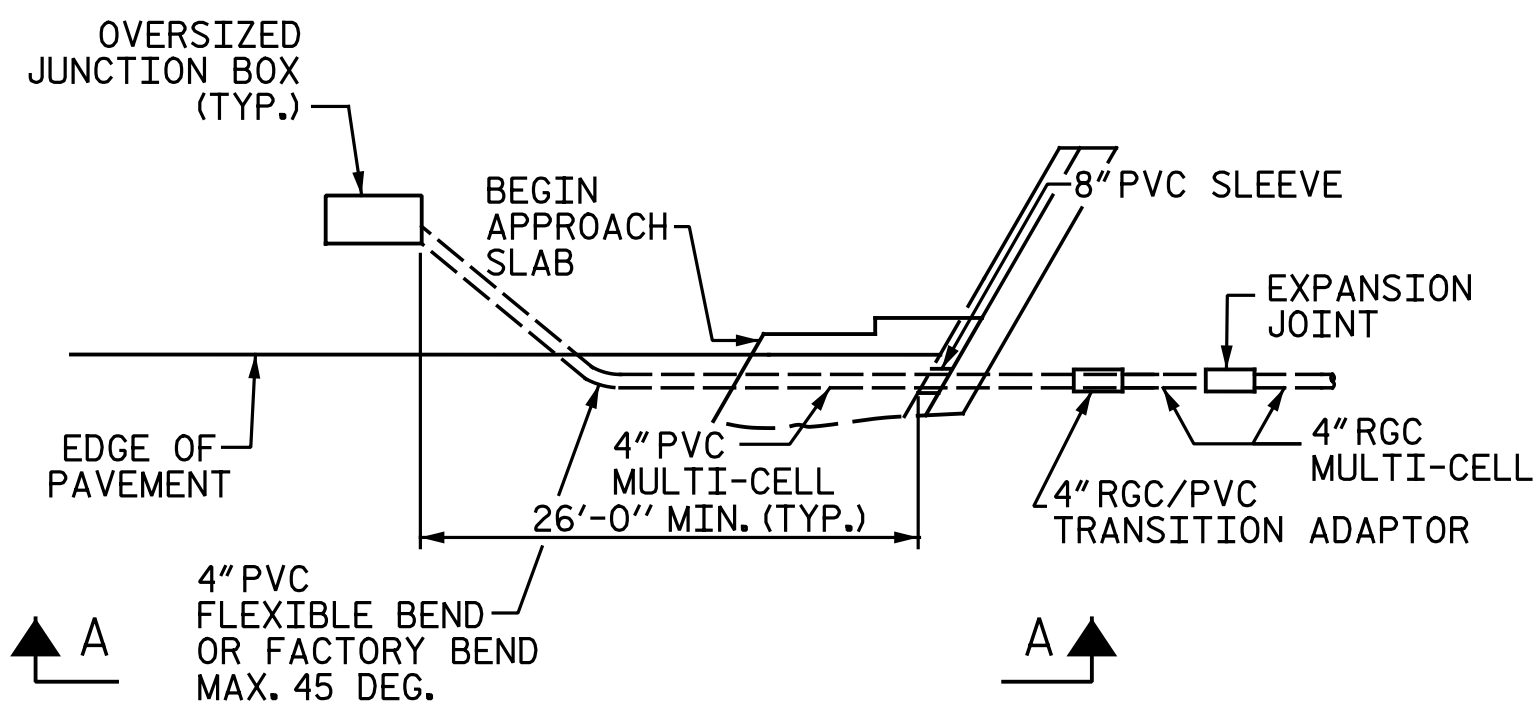
PROVIDE TRANSITION ADAPTOR AND EXPANSION JOINT FOR CONDUIT
AT END BENT 1 AND END BENT 2.

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

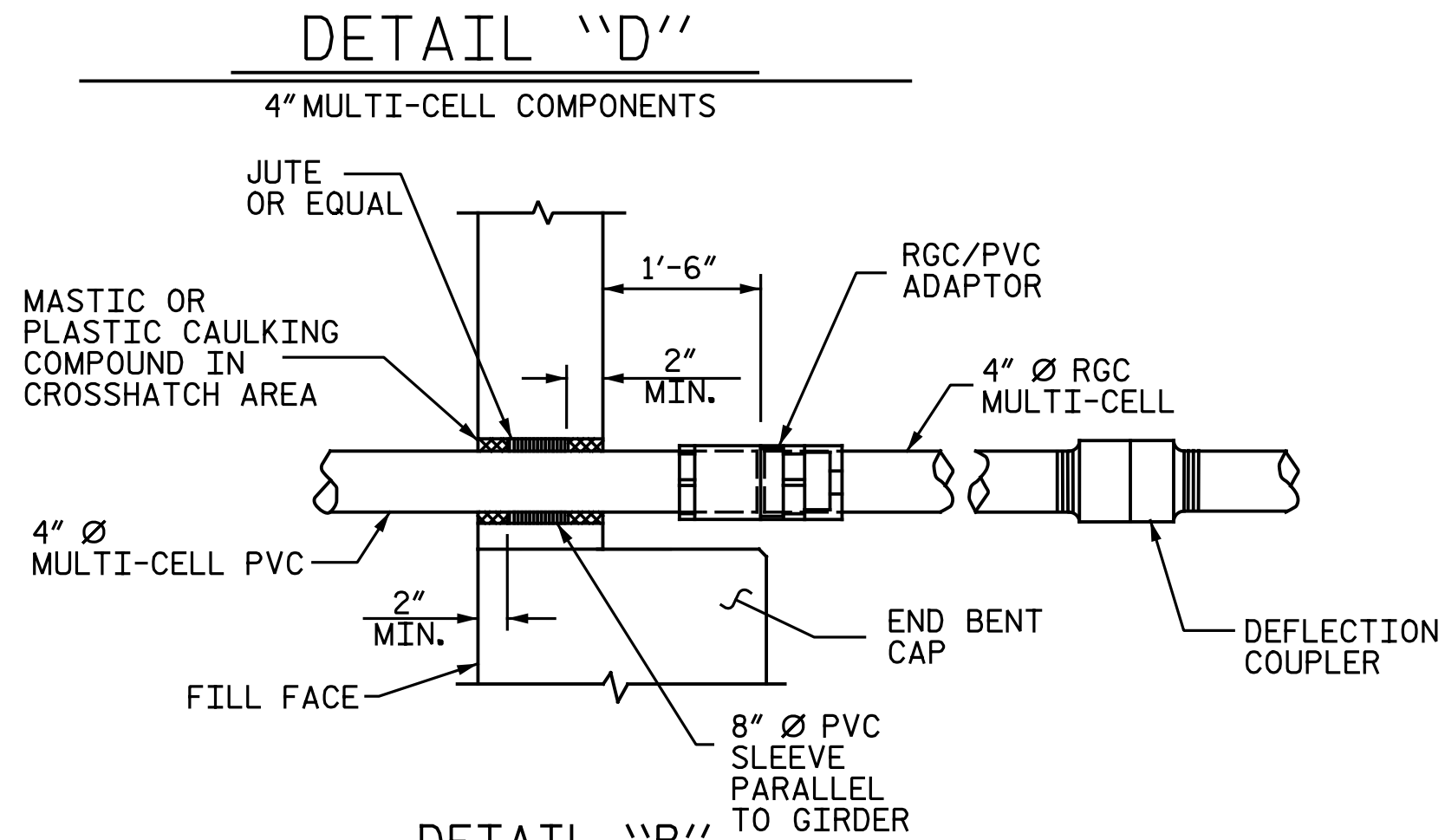
THE CONCRETE SCREW INSERT SHALL HAVE A ROD SIZE OF $\frac{5}{8}$ " AND A PULL FORCE OF 1260 lbs.

FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE SPECIAL PROVISIONS

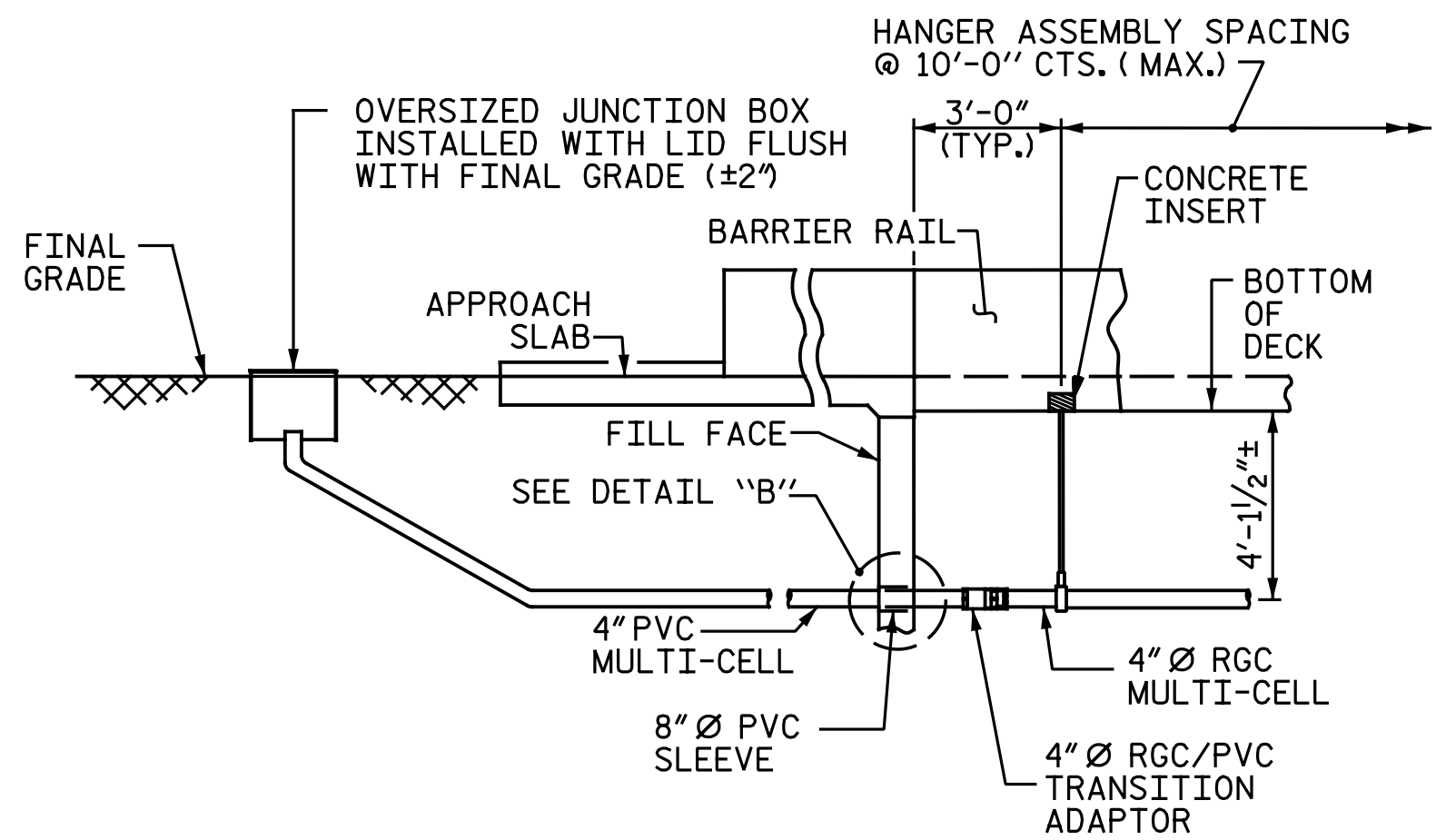
FOR OVERSIZED JUNCTION BOX, SEE ARTICLE 1098-5 OF THE STANDARD SPECIFICATIONS.



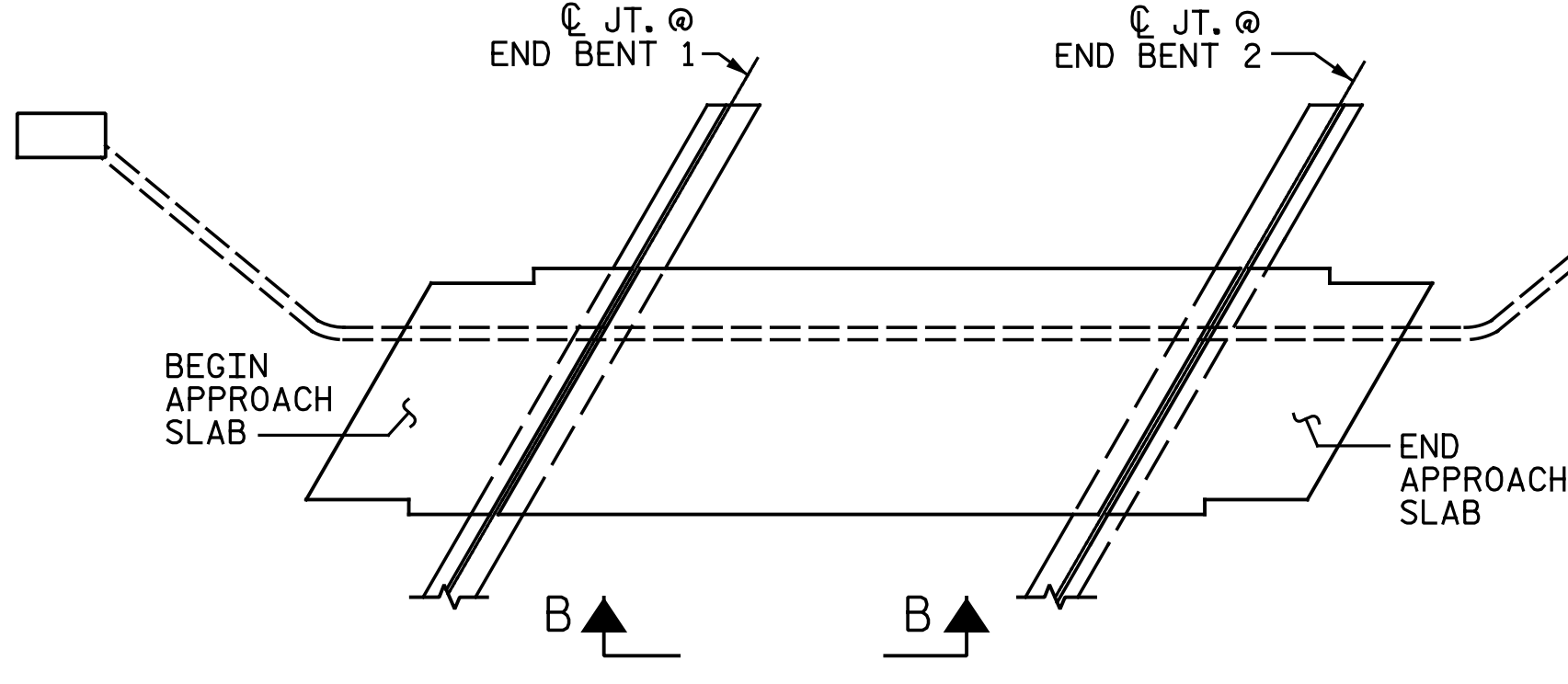
DETAIL "A"
TERMINATION OF CONDUIT AT
OVERSIZED JUNCTION BOX



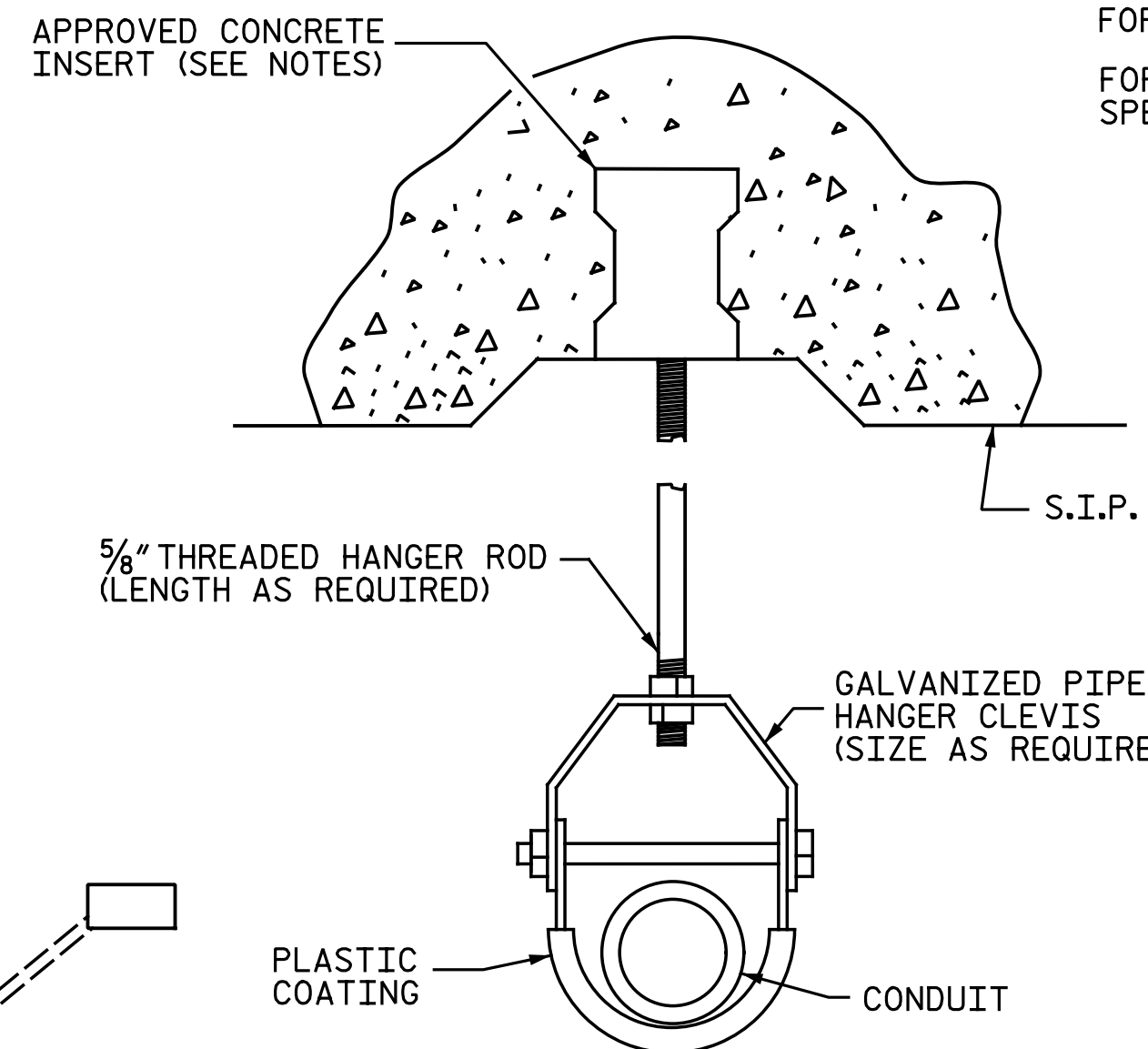
DETAIL "B" TO GIRDER
PVC SLEEVE INSTALLATION & RGC/PVC
ADAPTOR AT BACKWALL.



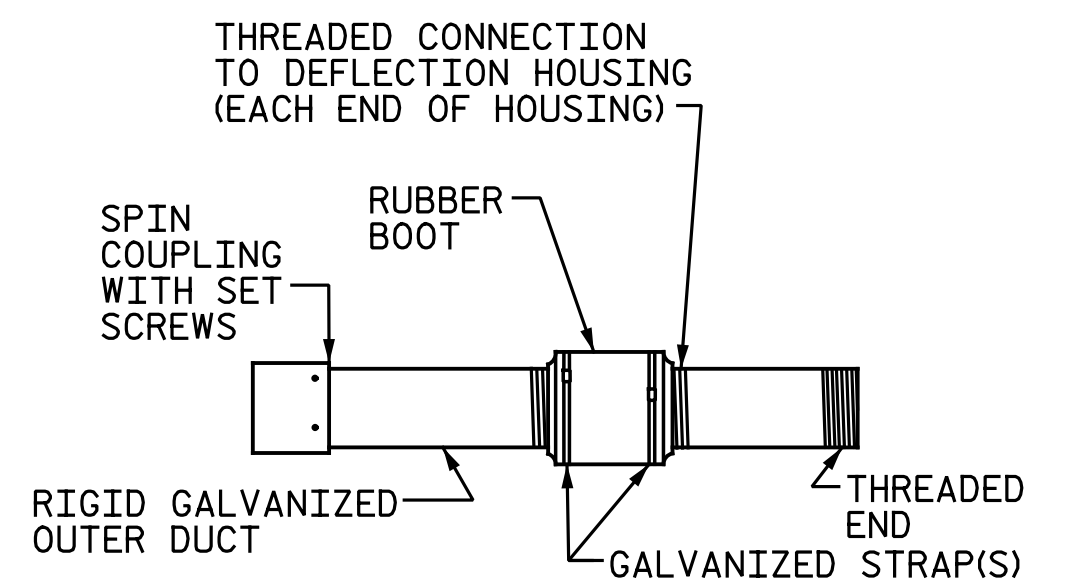
VIEW A-A



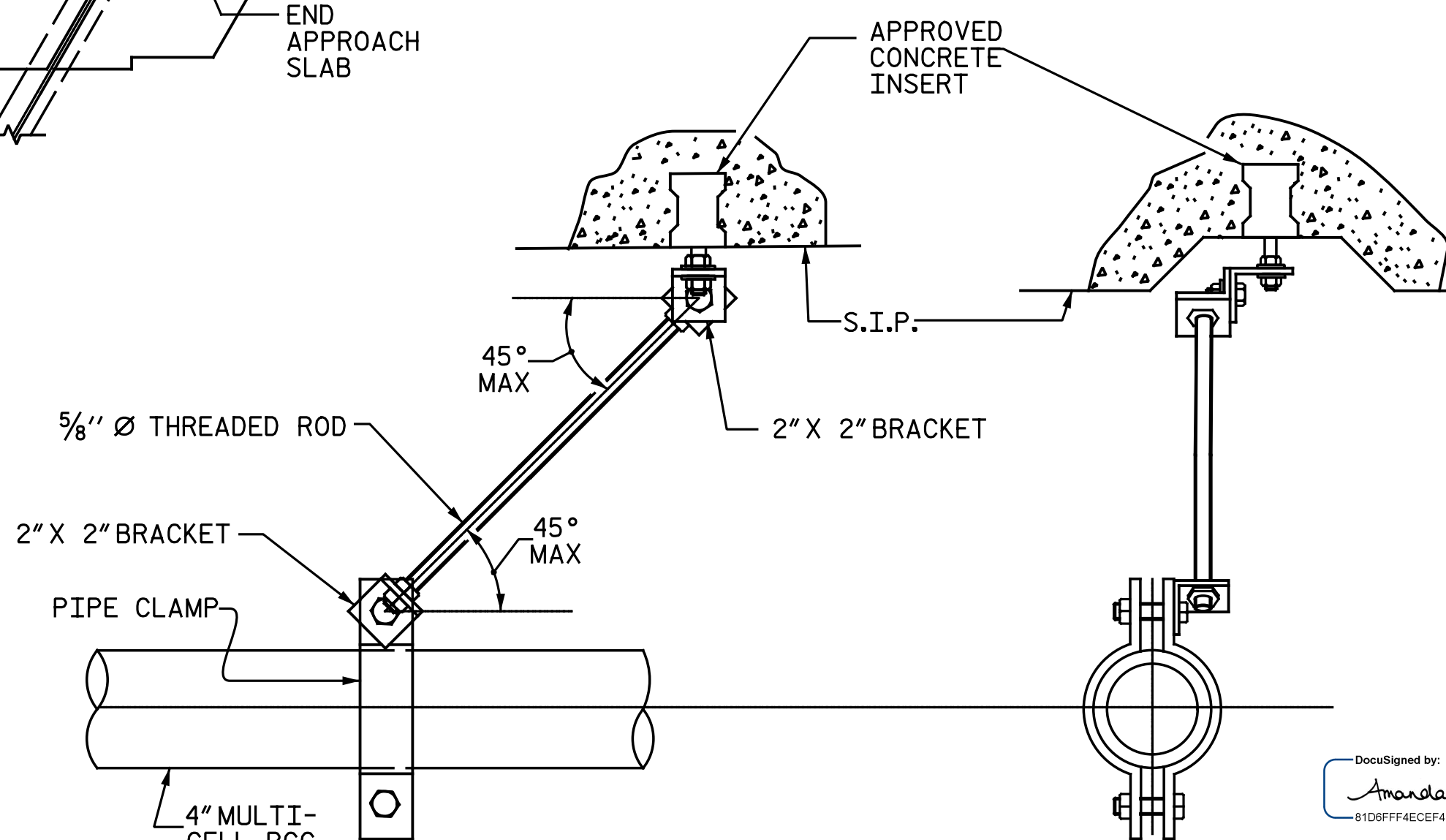
CONDUIT LAYOUT



DETAIL "C"
HANGER ASSEMBLY

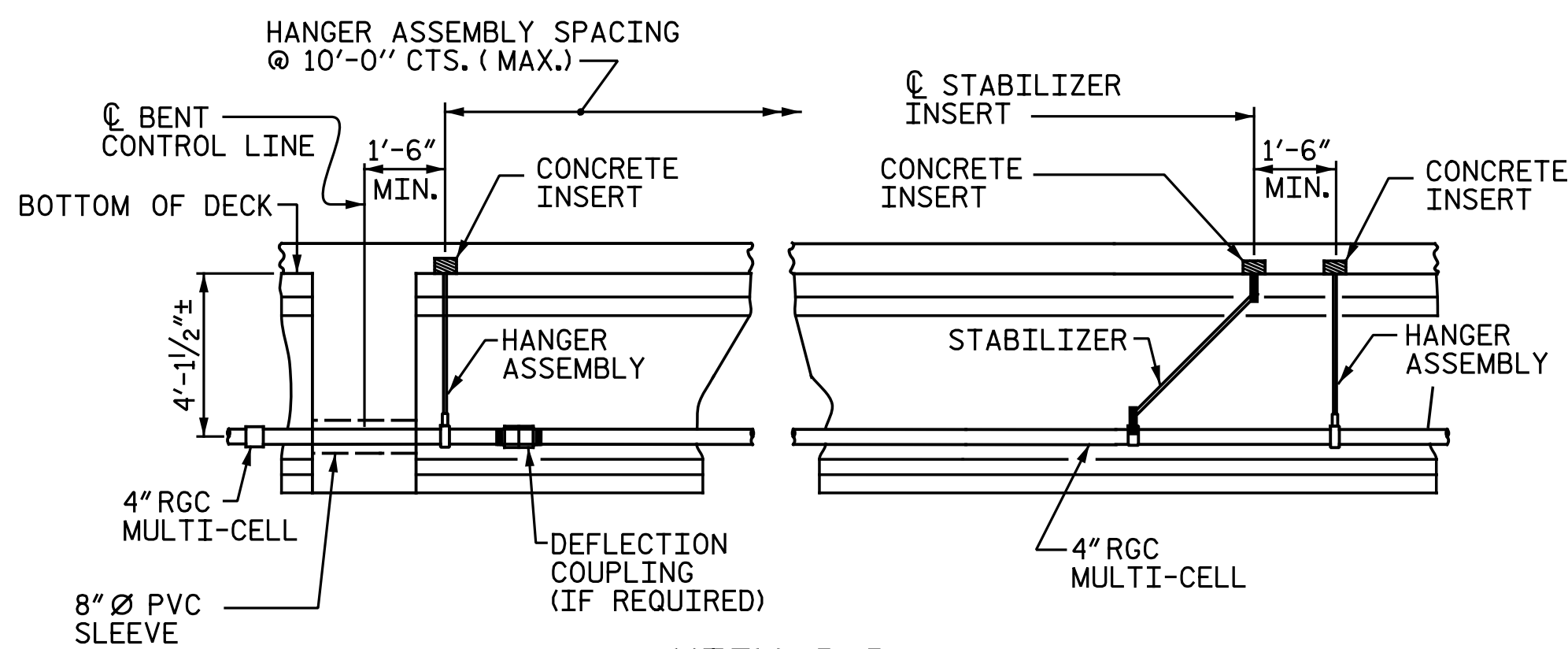


DETAIL "F"
DEFLECTION COUPLING



DETAIL "E"

STABILIZER



VIEW B-B
PRESTRESSED GIRDERS
CONTINUOUS FOR LIVE LOAD

ASSEMBLED BY : N.B. SPEAKS		DATE : 1-9-19	
CHECKED BY : A. H. SHARPE		DATE : 2-10-20	
DRAWN BY : RWW	2-4-03	REV. 5/1/06	TLA/GM
CHECKED BY : DBM	2-4-03	REV. 10/1/11	MAA/GM
		REV. 12/17	MAA/THC

ELECTRIC CONDUIT DETAILS

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NC License No. : F-1084

REVISIONS						SHEET NO. SI-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

STD. NO. ECS1

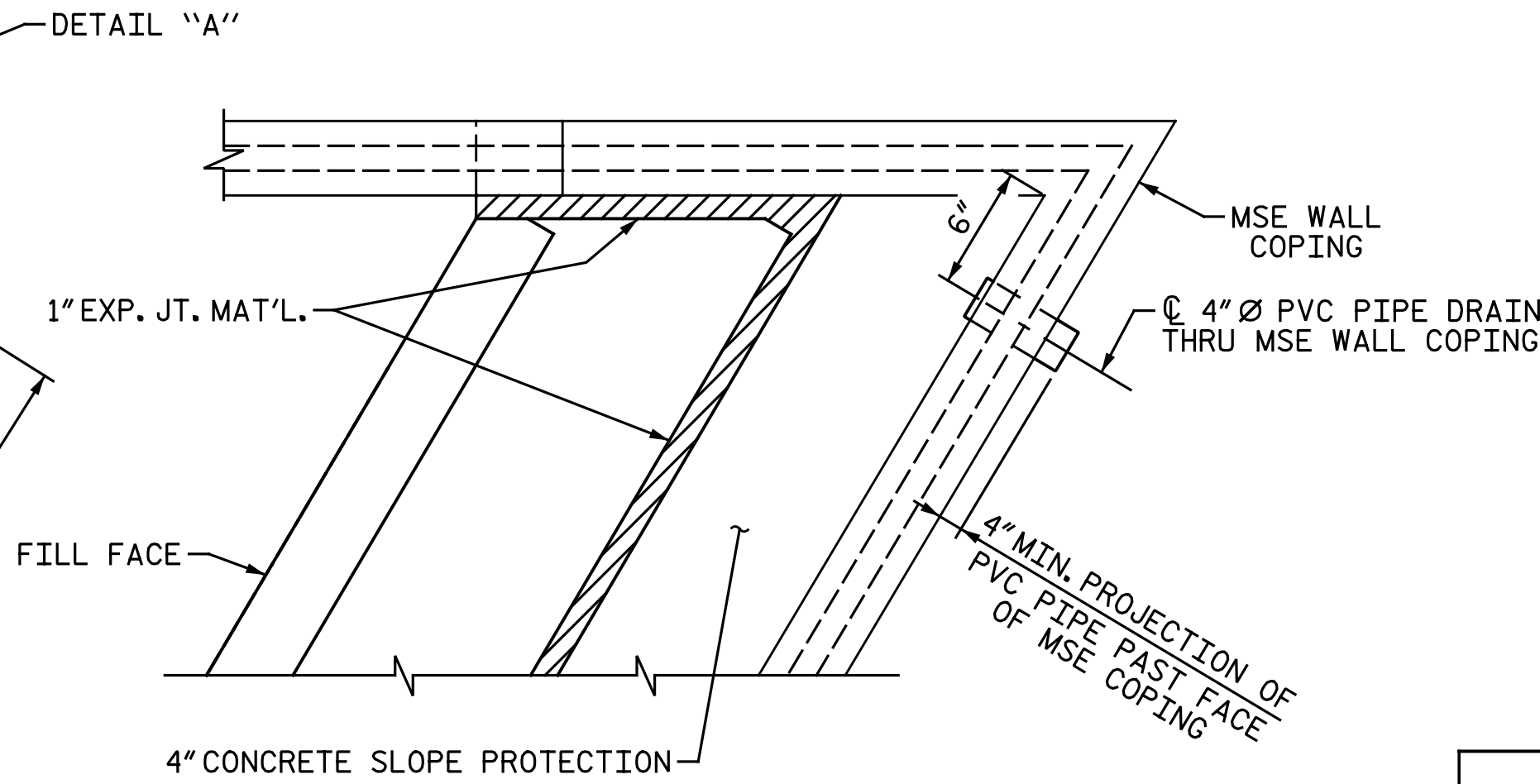
NOTES:
SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

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

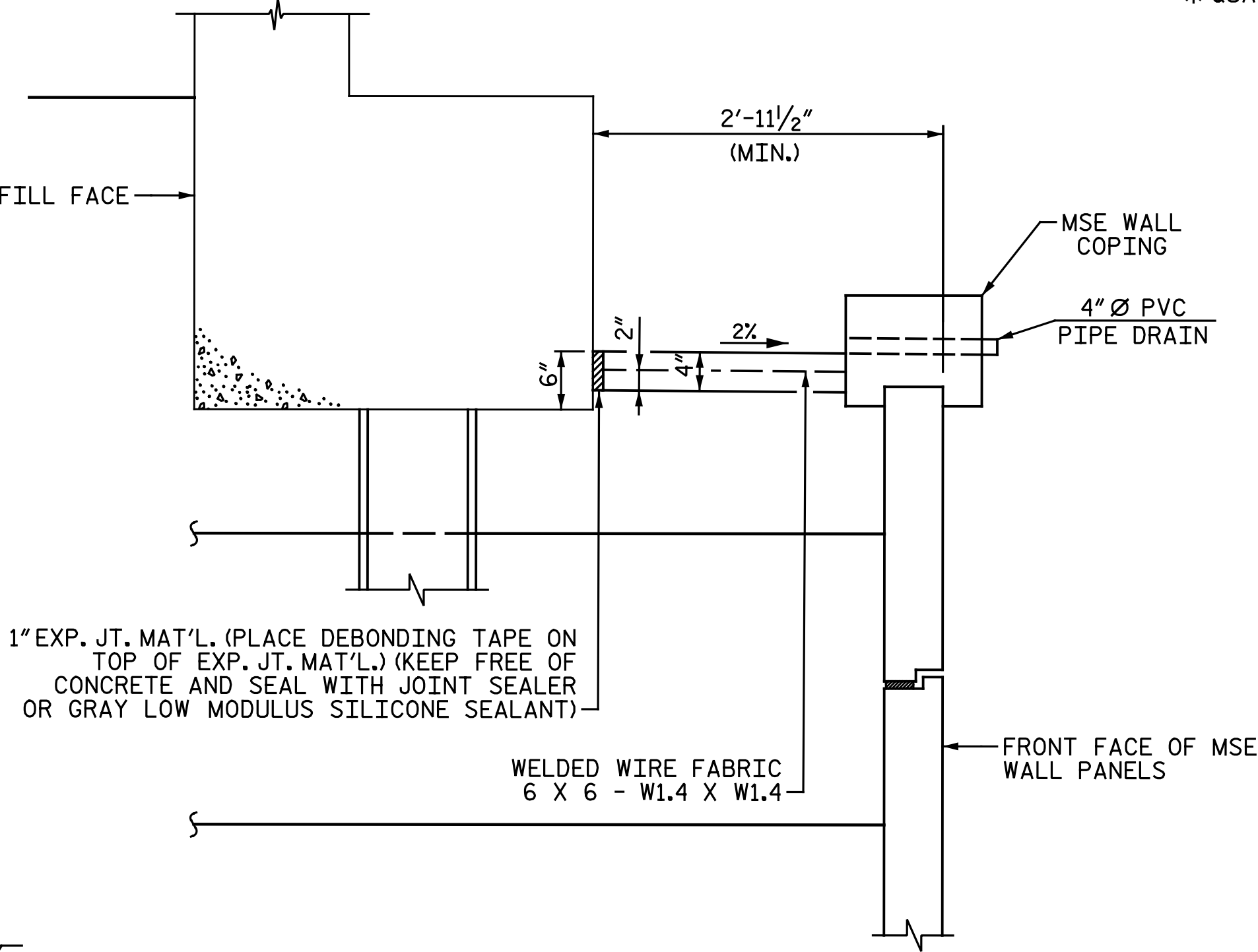
SEE "SLOPE PROTECTION DETAILS" SHEET 2 OF 2 FOR END BENT 2 QUANTITIES.

BRIDGE @ STA. 27+09.19 -Y16-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	26	52

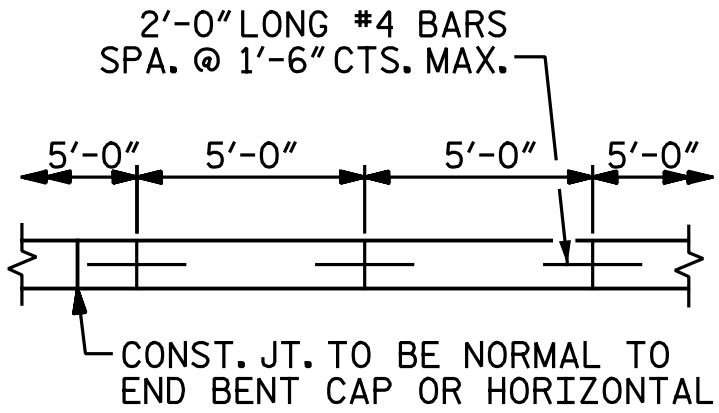
* QUANTITY SHOWN IS BASED ON 5' POURS.



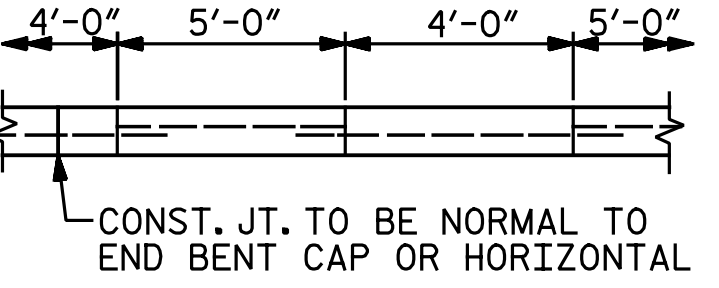
DETAIL "A"



SECTION B-B



POURING DETAIL



OPTIONAL POURING DETAIL

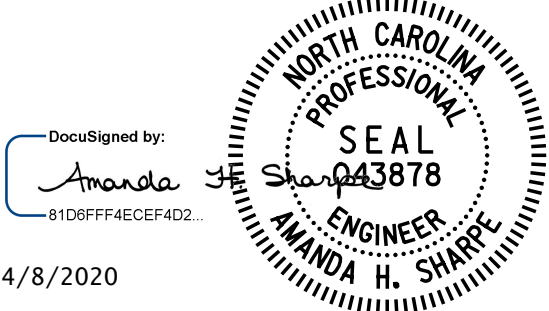
POUR A 4'-0" STRIP FIRST.

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SLOPE PROTECTION
DETAILS



DocuSigned by:
Amanda H. Sharpe
81D8FF4ECEF4D2

4/8/2020

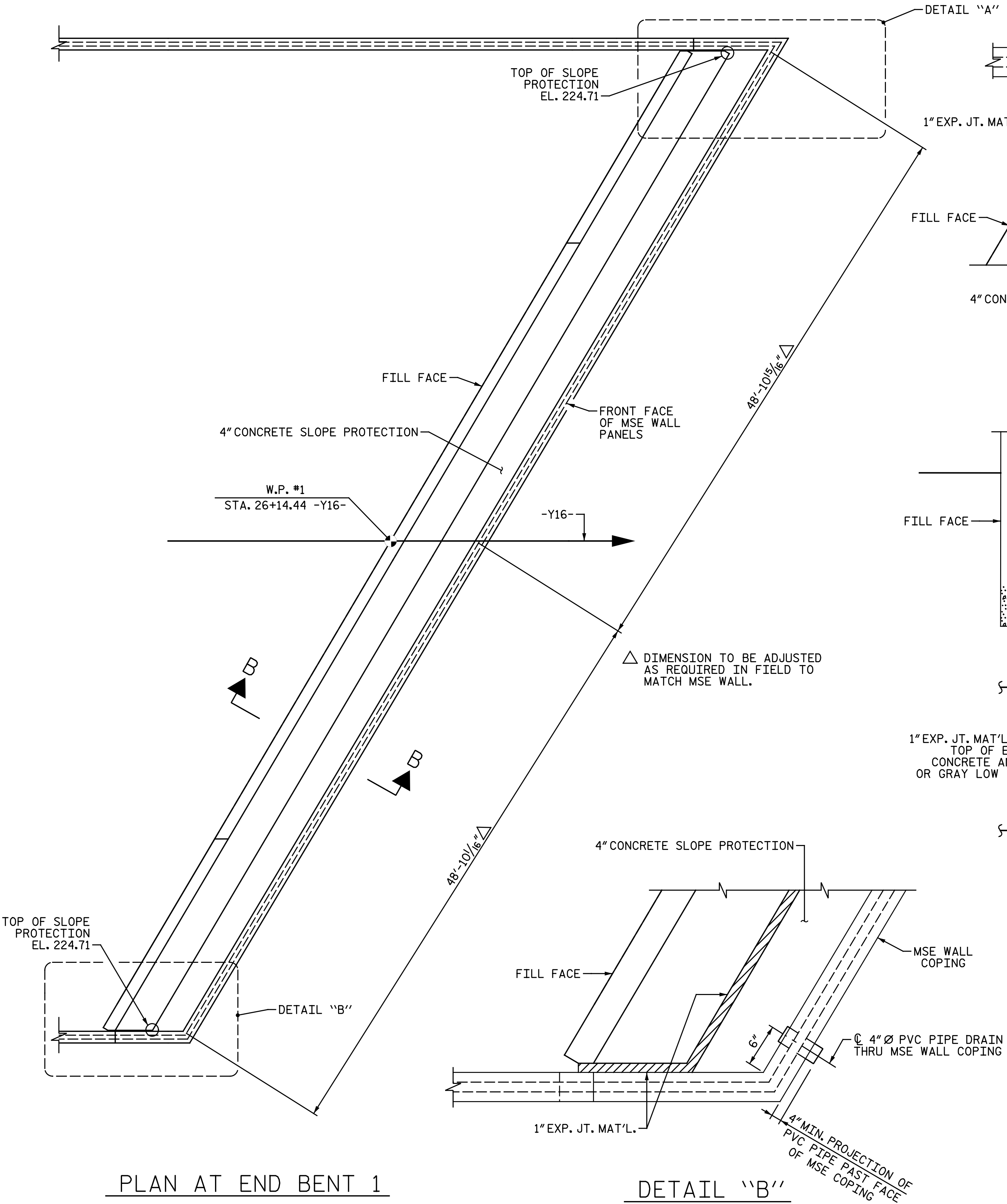
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NC License No.: F-1084

REVISIONS						SHEET NO. SI-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

DRAWN BY : N. B. SPEAKS DATE : 10-5-18
CHECKED BY : A. H. SHARPE DATE : 2-7-20



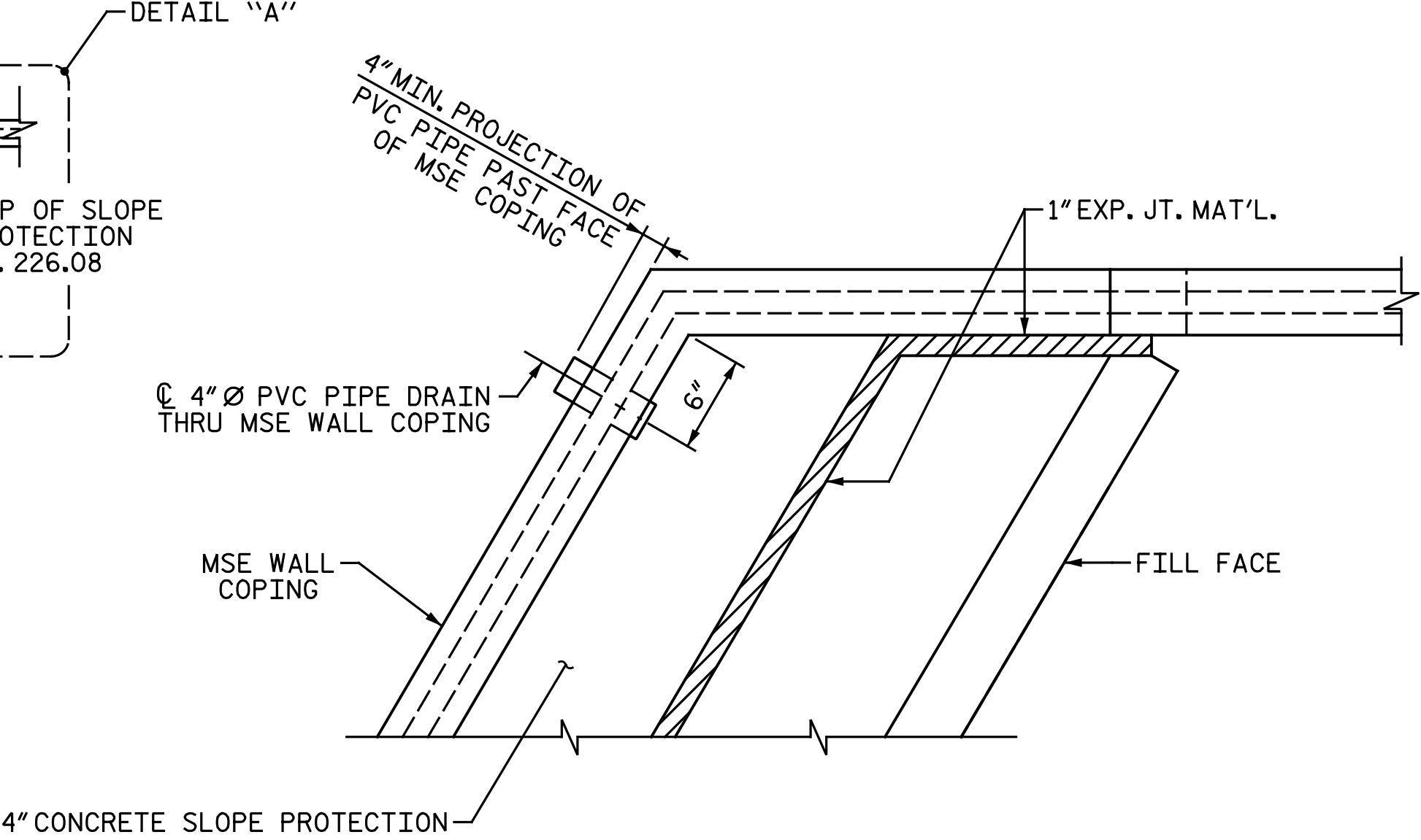
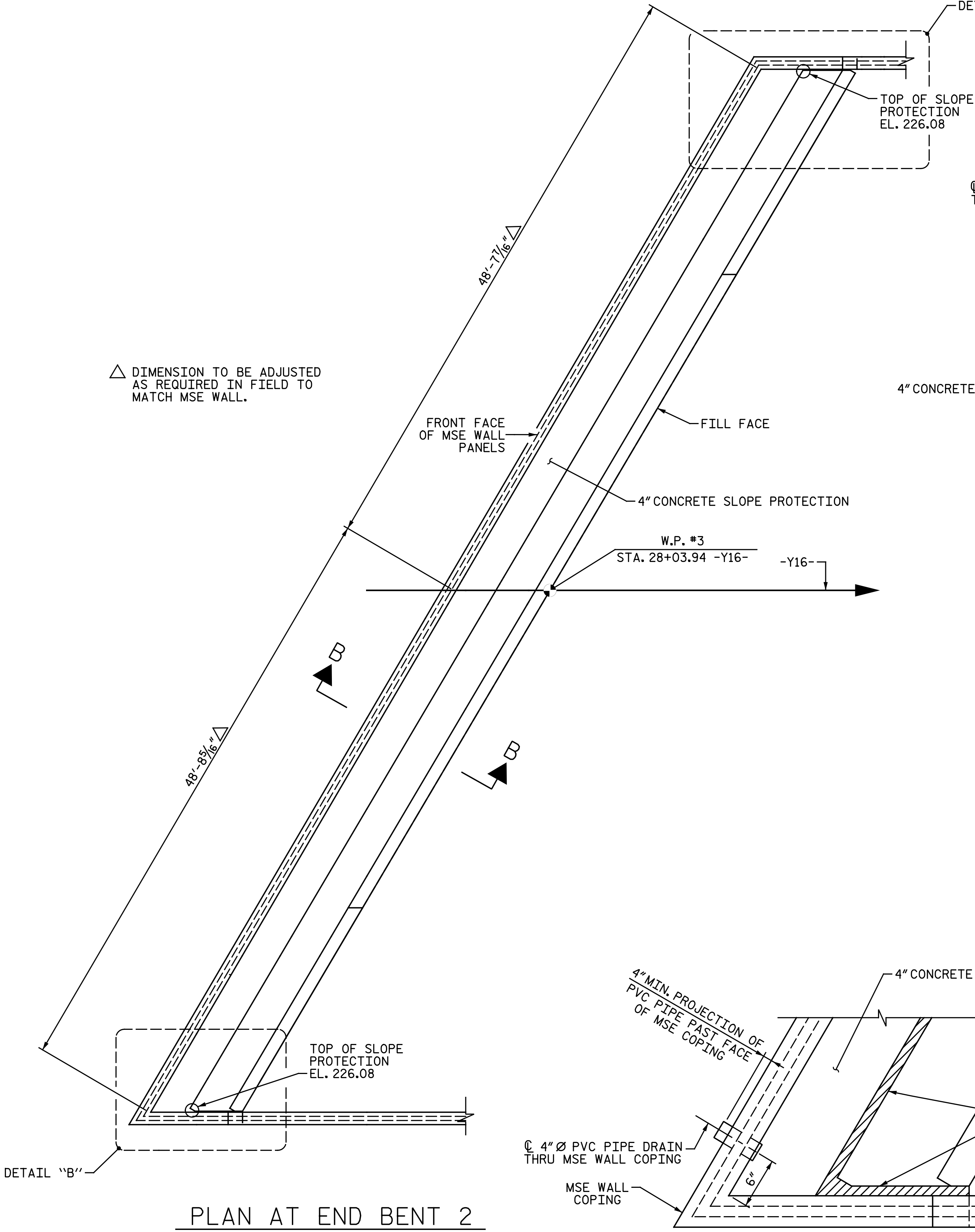
PLAN AT END BENT 1

DETAIL "B"

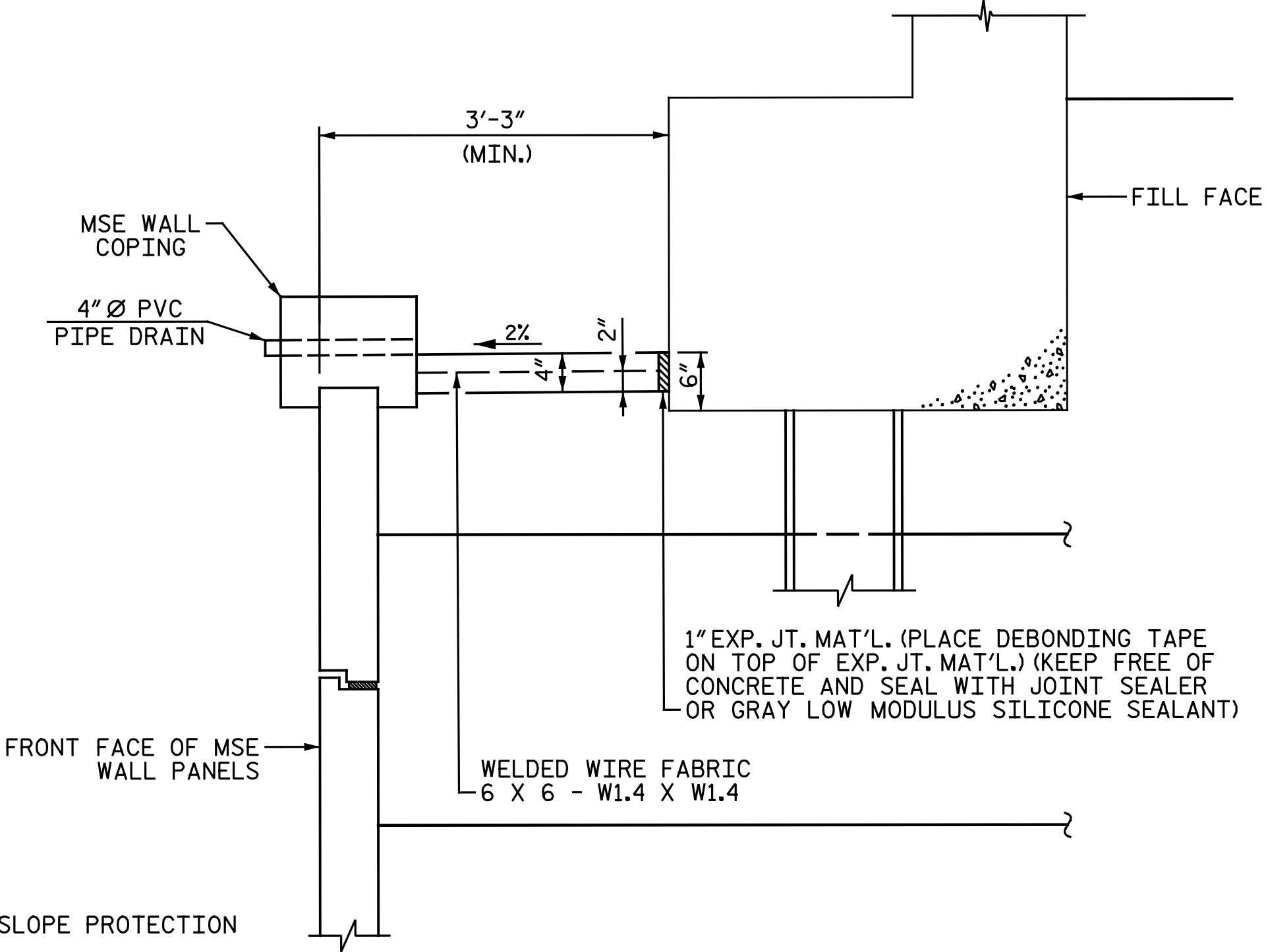
NOTES:
SEE NOTES ON "SLOPE PROTECTION DETAILS", SHEET 1 OF 2.

BRIDGE @ STA. 27+09.19 -Y16-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 2	29	58

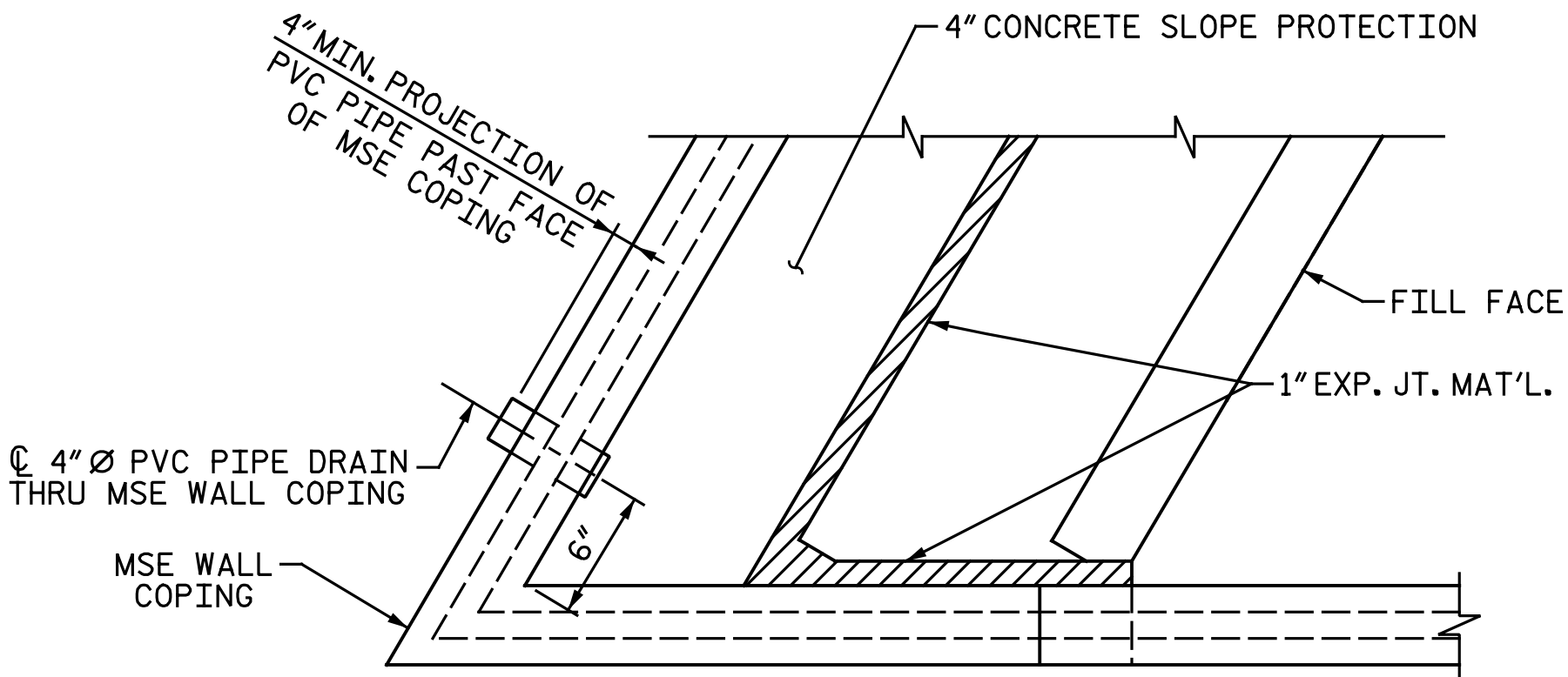
* QUANTITY SHOWN IS BASED ON 5' POURS.



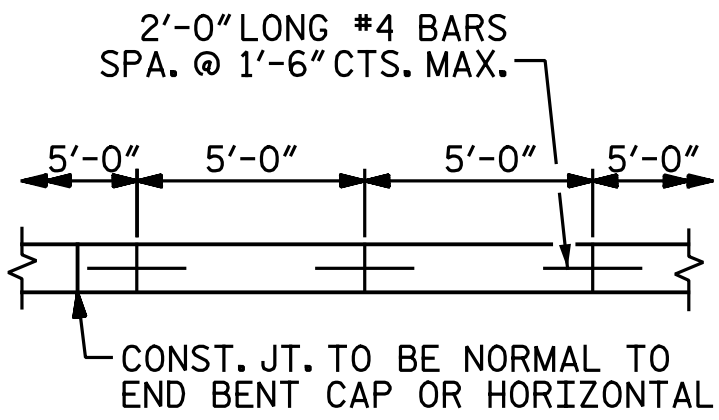
DETAIL "A"



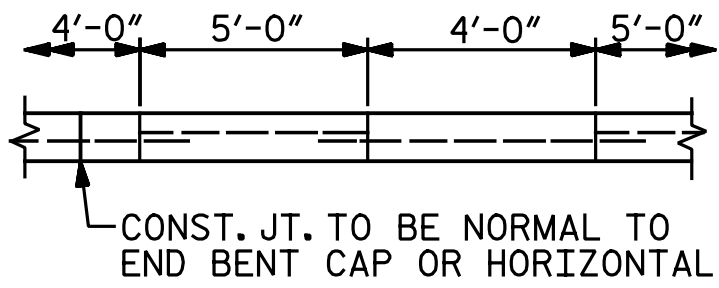
SECTION B-B



DETAIL "B"



POURING DETAIL



OPTIONAL POURING DETAIL

POUR A 4'-0" STRIP FIRST.

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

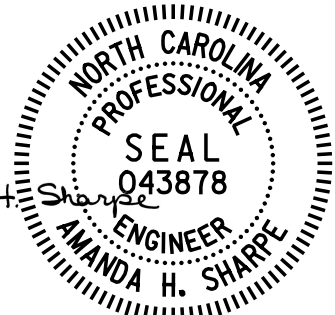
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SLOPE PROTECTION
DETAILS

DocuSigned by:
Amanda H. Sharpe
81D8FF4ECEF4D2

4/8/2020



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REVISIONS						SHEET NO. SI-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

DRAWN BY : N. B. SPEAKS DATE : 10-5-18
CHECKED BY : A. H. SHARPE DATE : 2-10-20

NOTES

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

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

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

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

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

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

THE QUANTITY OF #4 J1E BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1E BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1E BARS SPECIFIED, ADDITIONAL J1E BARS WILL NOT BE REQUIRED.

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	50	#4	STR.	30' - 7"	1,021
A2	52	#4	STR.	30' - 6"	1,059
B1E	98	#5	STR.	23' - 7"	2,411
B2	98	#6	STR.	24' - 7"	3,619
B3E	4	#5	STR.	9' - 7"	40
B4	4	#6	STR.	9' - 7"	58
J1E	56	#4	1	1' - 5"	53
REINFORCING STEEL **				LBS.	4,736
EPOXY COATED REINF. STEEL **				LBS.	3,525

CLASS AA CONCRETE **					
				C.Y.	55.7
APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	50	#4	STR.	30' - 7"	1,021
A2	52	#4	STR.	30' - 6"	1,059
B1E	98	#5	STR.	23' - 7"	2,411
B2	98	#6	STR.	24' - 7"	3,619
B3E	4	#5	STR.	9' - 7"	40
B4	4	#6	STR.	9' - 7"	58
J1E	56	#4	1	1' - 5"	53
REINFORCING STEEL **				LBS.	4,736
EPOXY COATED REINF. STEEL **				LBS.	3,525
CLASS AA CONCRETE **				C.Y.	55.7

BAR TYPE

1'-0 1/2"

4 1/2"

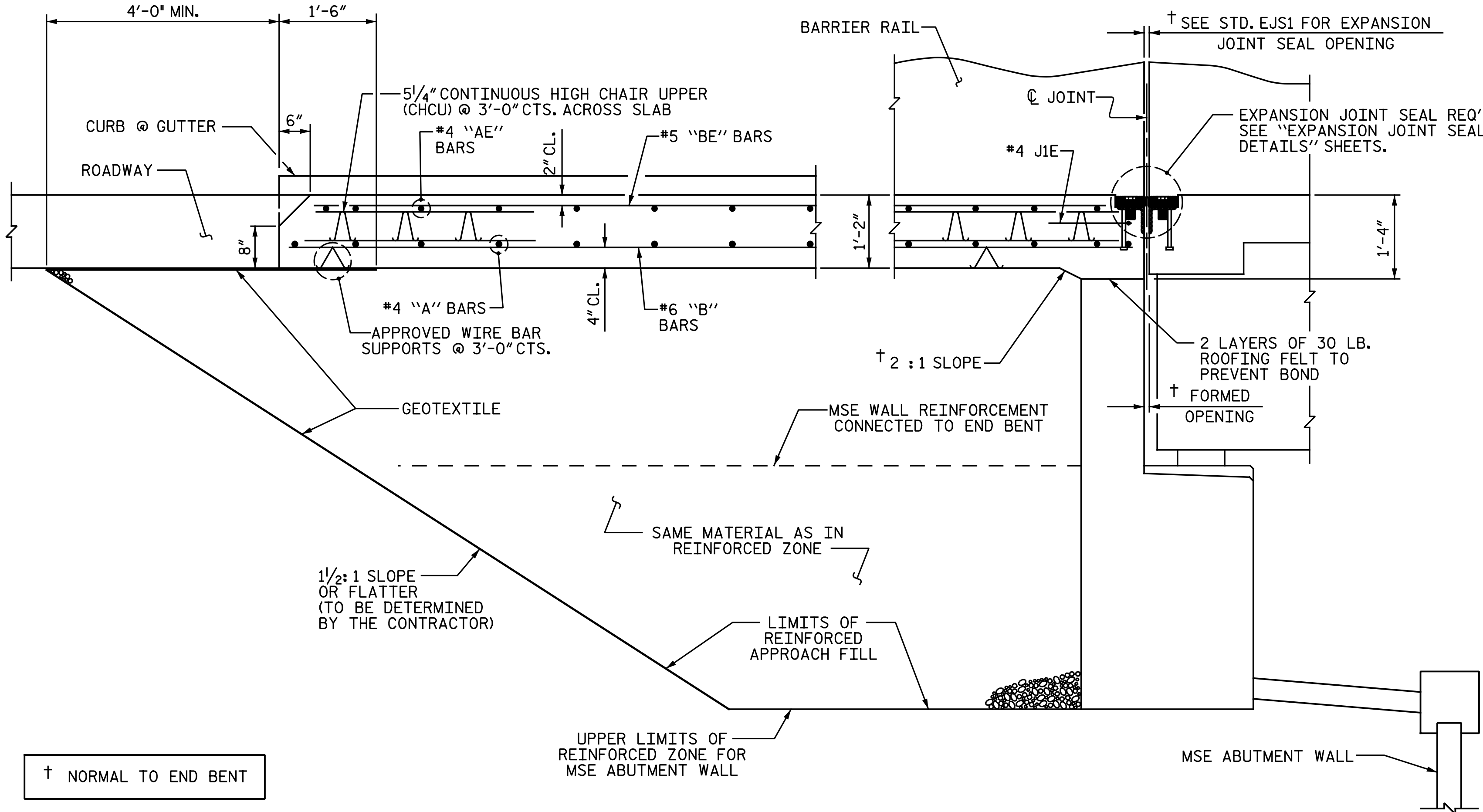
HK.

1

ALL BAR DIMENSIONS ARE OUT TO OUT

"E" SUFFIX DENOTES EPOXY COATED REINFORCING STEEL.

** QUANTITIES FOR BARRIER RAIL AND MONOLITHIC CONCRETE ISLAND ARE NOT INCLUDED. SEE "BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT", SHEET 2 OF 2 AND "BRIDGE APPROACH SLAB DETAILS" SHEET.



SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"

SECTION THRU SLAB
(TYPE III - REINFORCED APPROACH FILL)

ASSEMBLED BY : N. B. SPEAKS		DATE : 6-25-18	
CHECKED BY : A. H. SHARPE		DATE : 3-26-20	
DRAWN BY :	EEM 3/95	REV. 12/21/11	MAA/GM
CHECKED BY :	VAP 3/95	REV. 6/13	MAA/GM
		REV. 12/17	MAA/THC

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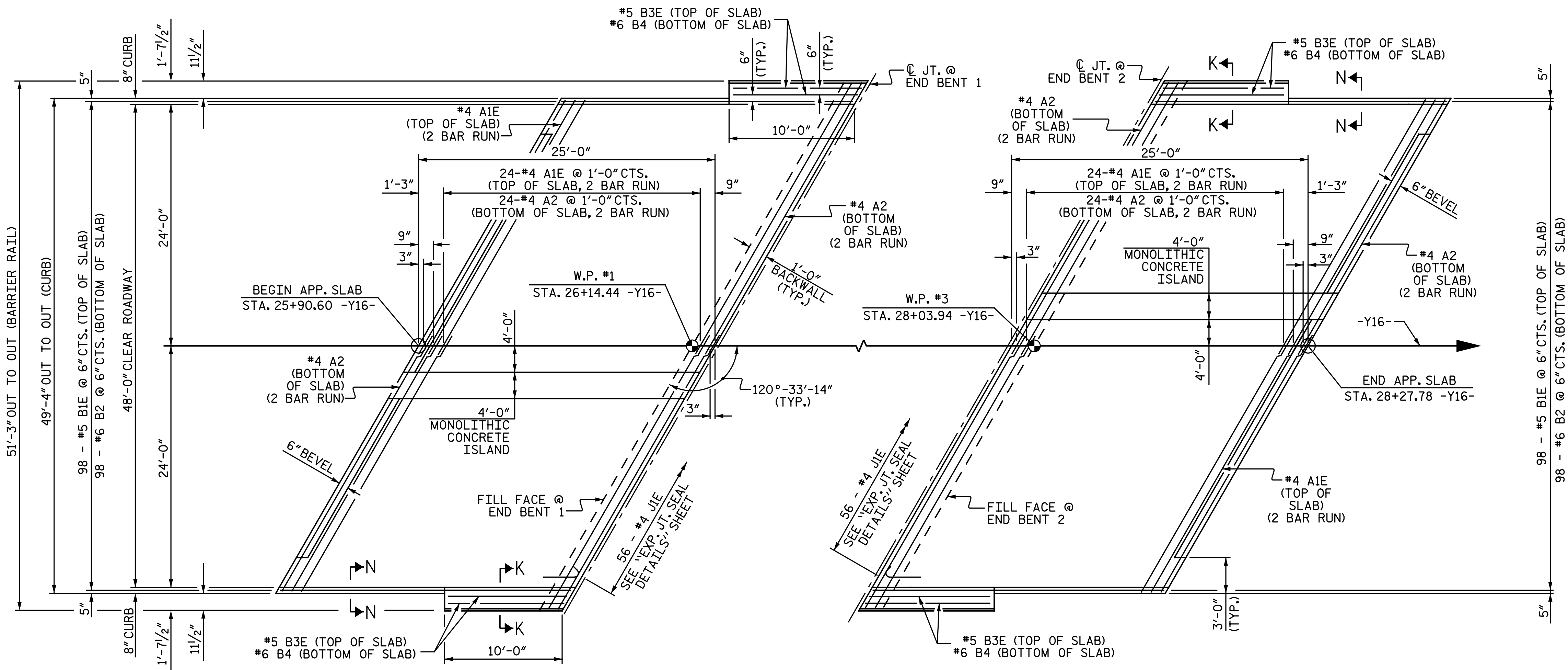
Michael Baker
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NC License No.: F-1084

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

SHEET 1 OF 2

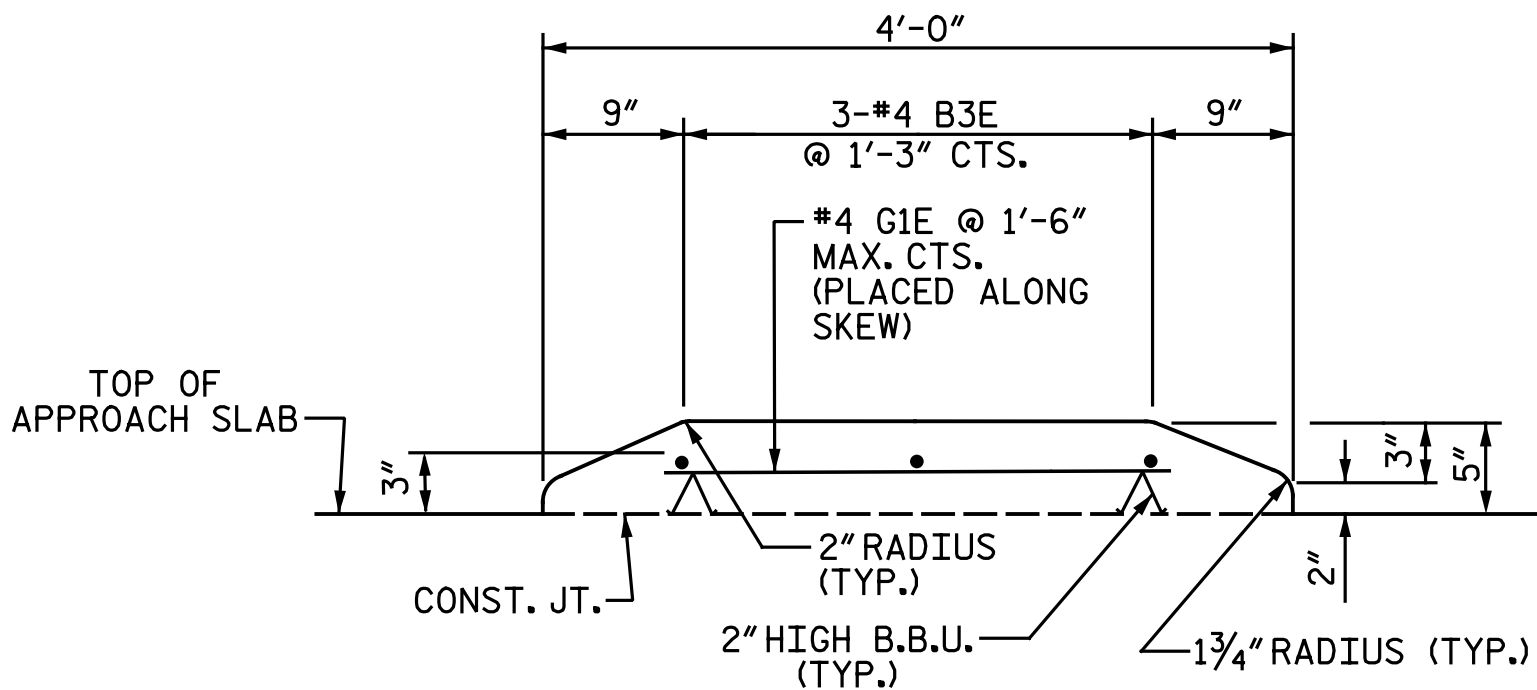
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					35



PLAN @ END BENT 1

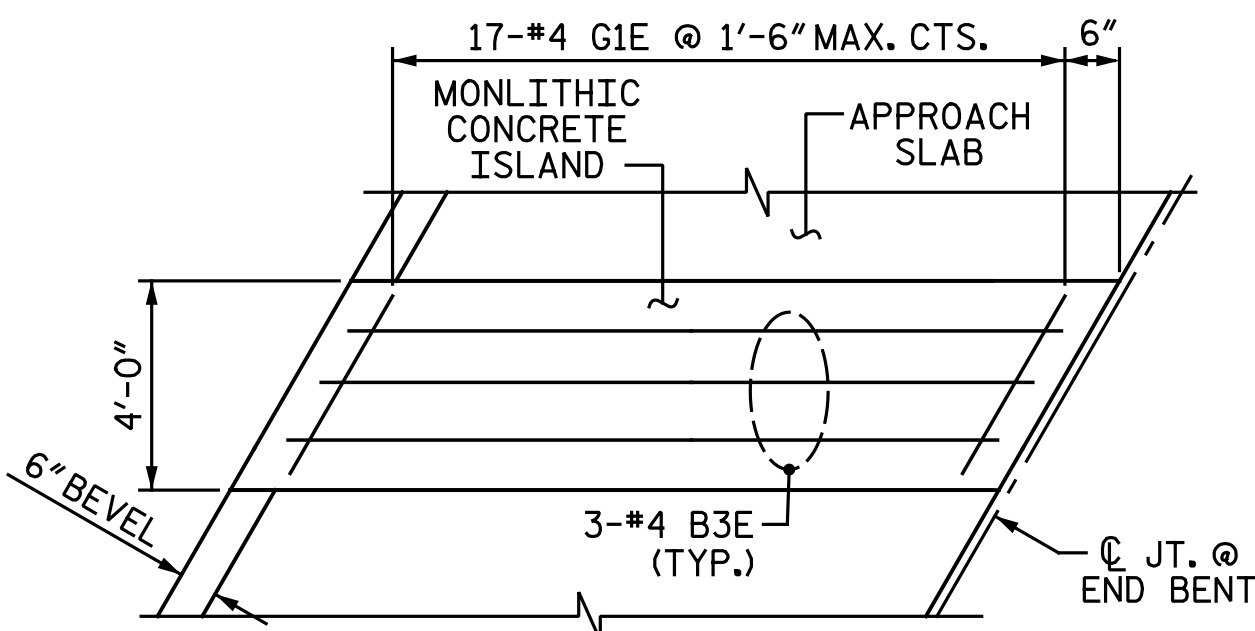
PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU MONOLITHIC CONCRETE ISLAND

SLOPE TOP OF ISLAND TO MATCH TOP OF APPROACH SLAB



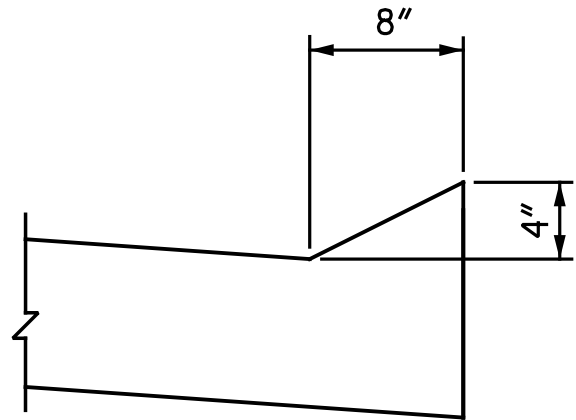
PLAN OF MONOLITHIC CONCRETE ISLAND

END BENT 1 SHOWN, END BENT 2 SIMILAR
DISCONTINUE BEVEL UNDER ISLAND

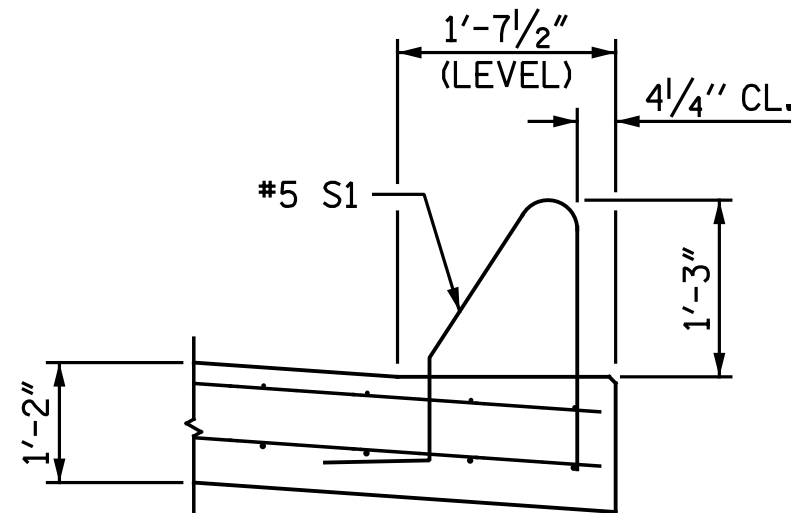
BILL OF MATERIAL					
MONOLITHIC CONCRETE ISLAND AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3E	3	#4	STR.	23' - 11"	48
G1E	17	#4	STR.	2' - 11"	33
EPOXY COATED REINF. STEEL					LBS. 81
CLASS AA CONCRETE					C.Y. 1.4
MONOLITHIC CONCRETE ISLAND AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3E	3	#4	STR.	23' - 11"	48
G1E	17	#4	STR.	2' - 11"	33
EPOXY COATED REINF. STEEL					LBS. 81
CLASS AA CONCRETE					C.Y. 1.4

NOTE:

THE COST OF THE MONOLITHIC CONCRETE ISLAND ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR "BRIDGE APPROACH SLABS".



SECTION N-N



SECTION K-K

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

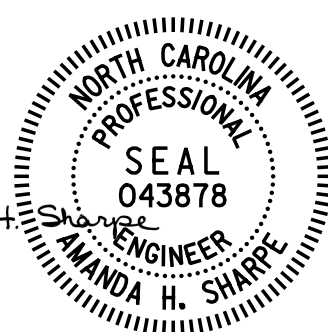
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT

DocuSigned by:
Amanda H.
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4/8/2020



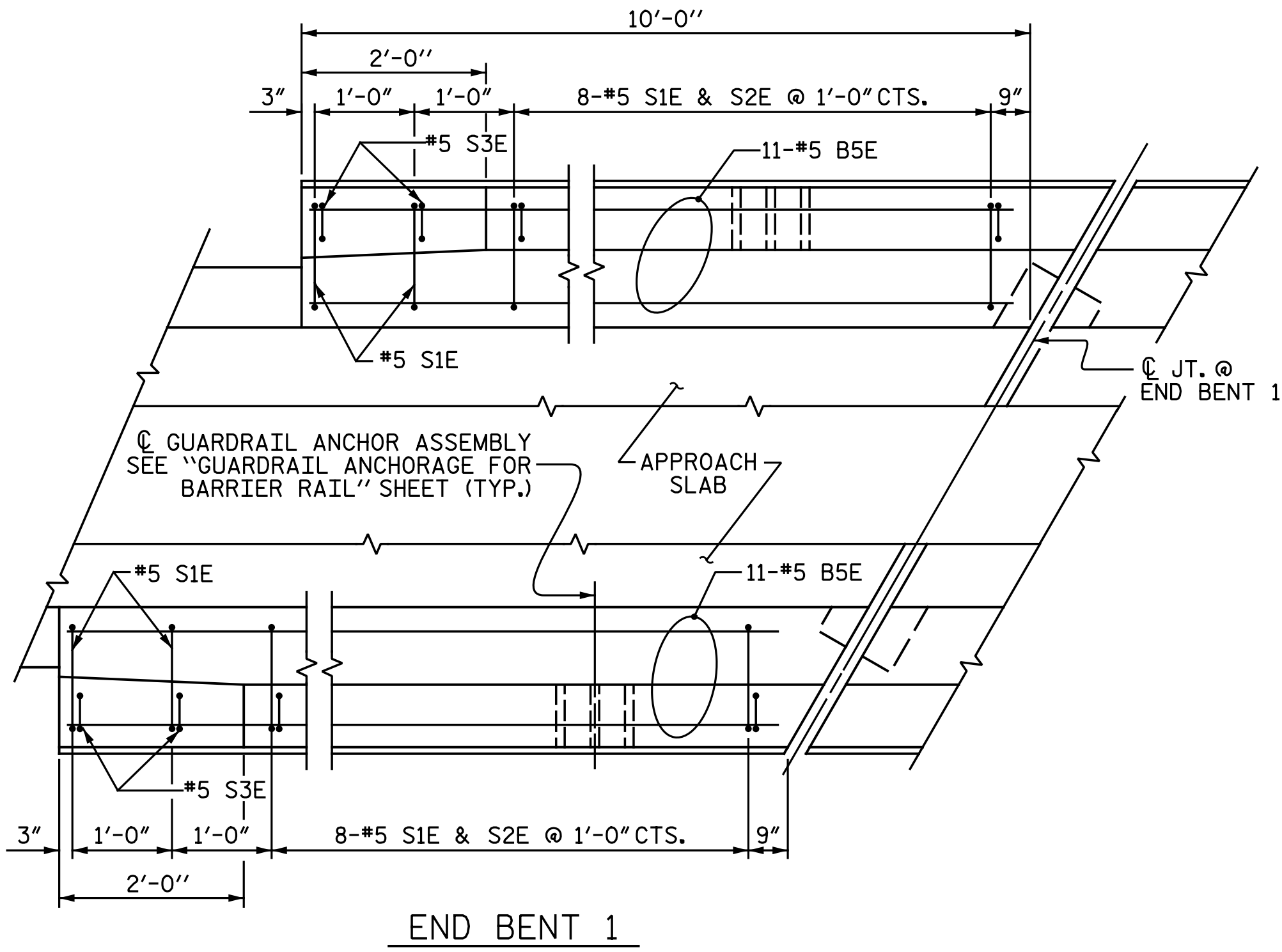
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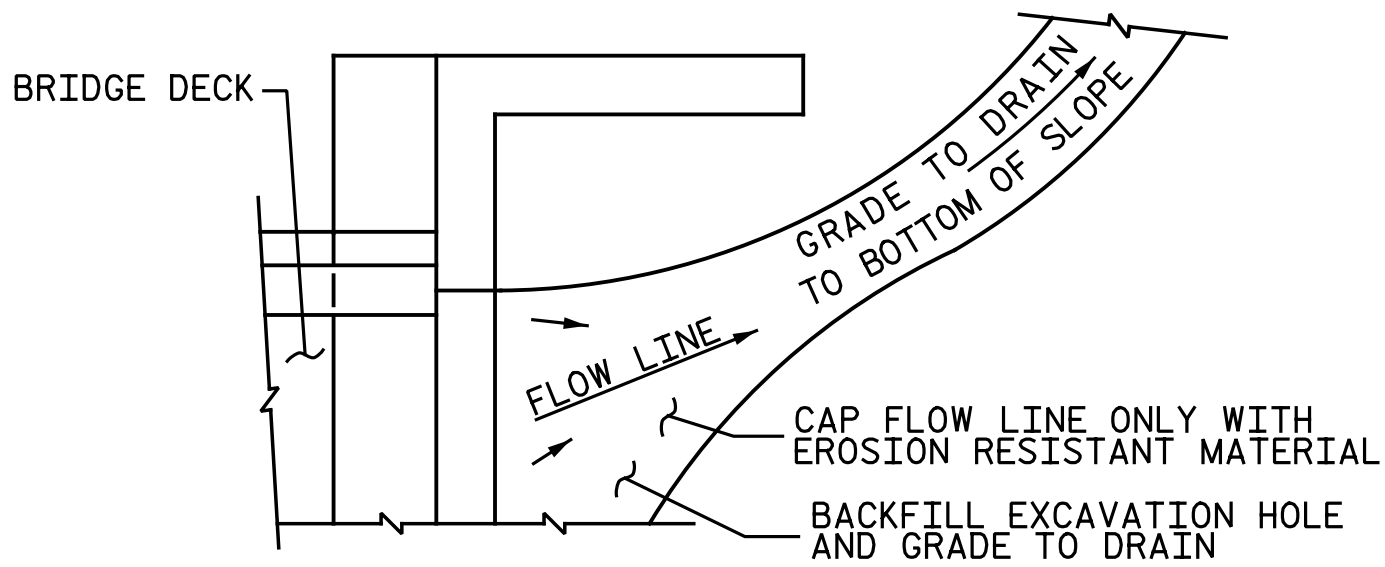
REVISIONS						SHEET NO. SI-34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

DRAWN BY : N. B. SPEAKS DATE : 6-25-18
CHECKED BY : A. H. SHARPE DATE : 3-27-20



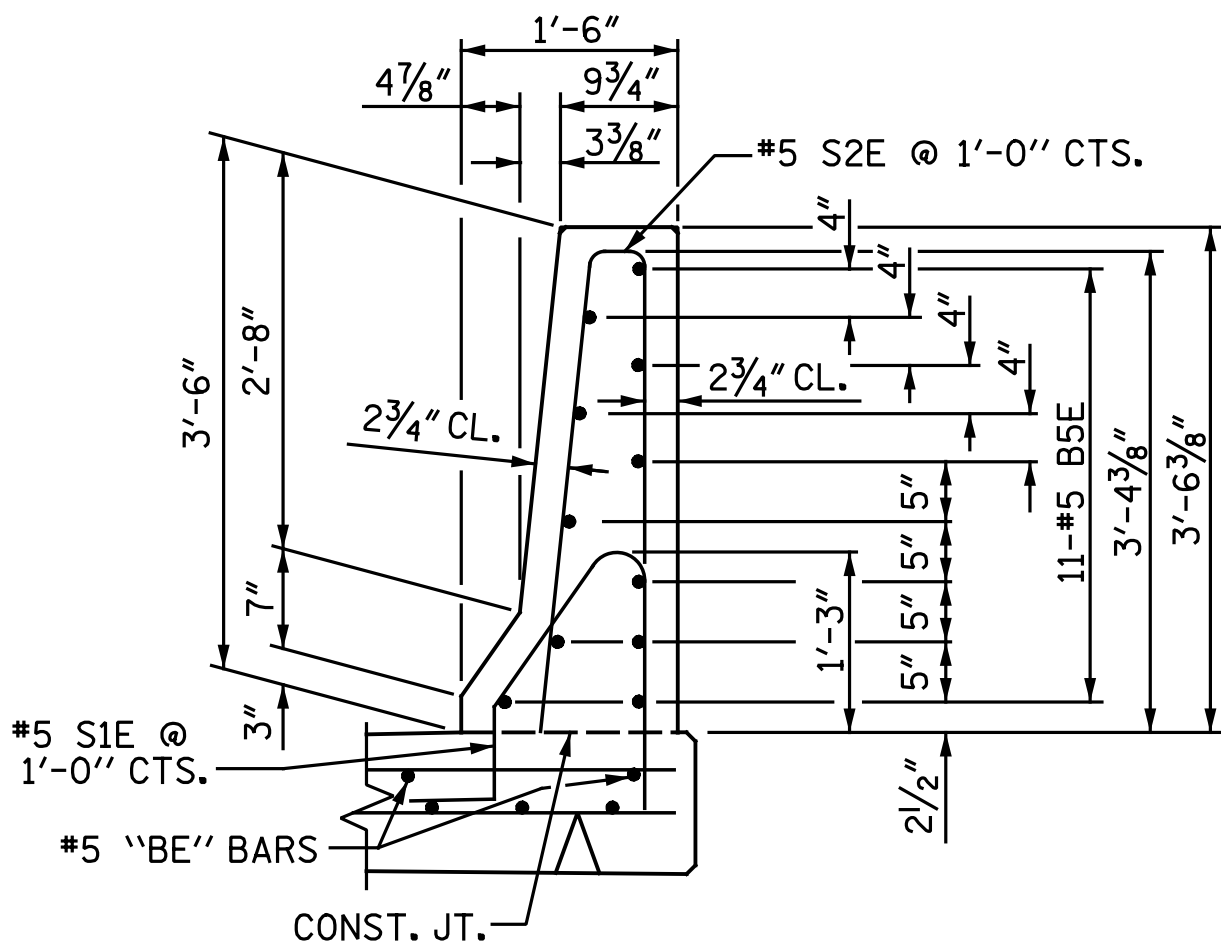
PLAN OF BARRIER RAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR

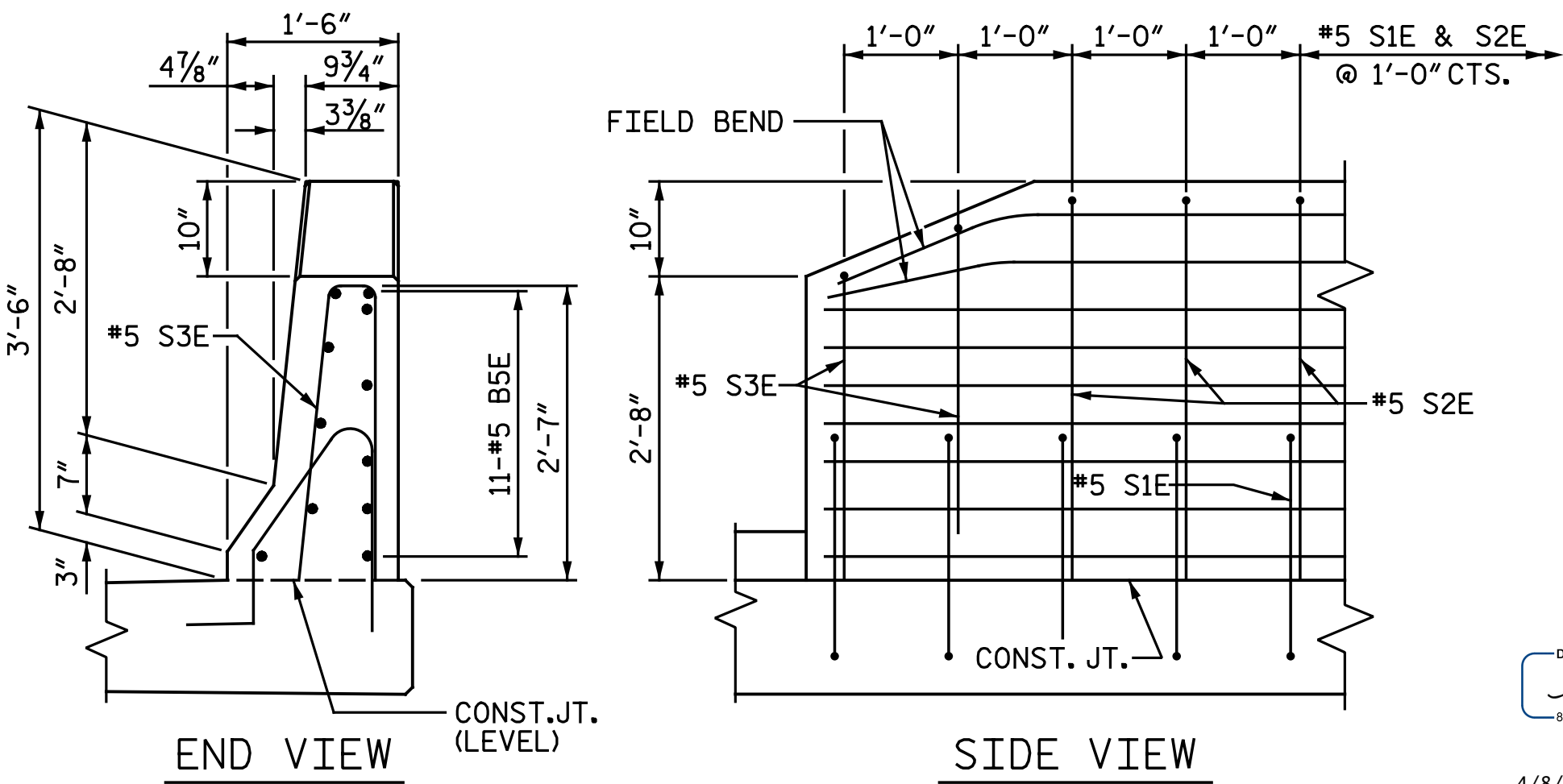


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



SECTION THRU RAIL



END OF RAIL DETAILS

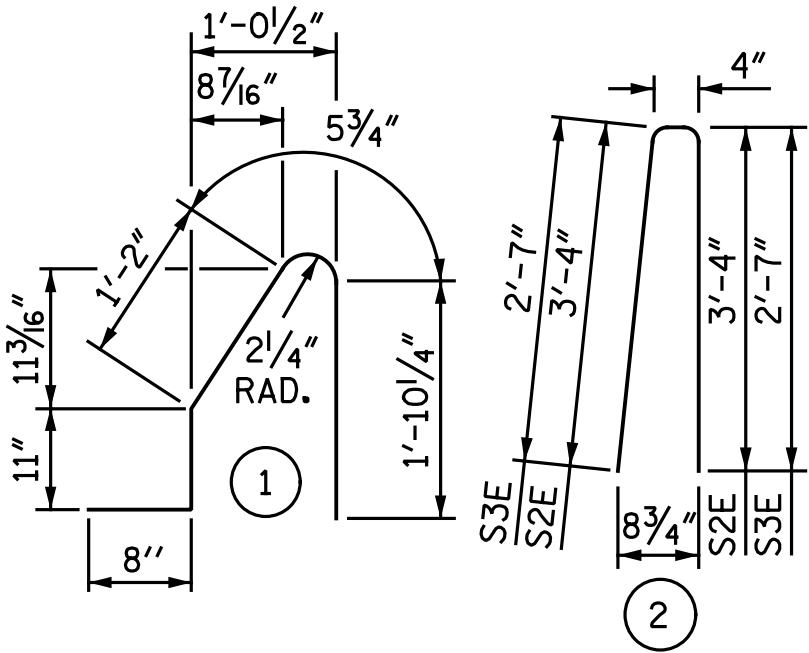
NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

THE BARRIER RAIL AND MONOLITHIC CONCRETE ISLAND 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 AND MONOLITHIC CONCRETE ISLAND SHALL BE EPOXY COATED.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B5E	44	#5	STR.	9' - 7"	440
S1E	40	#5	1	5' - 1"	212
S2E	32	#5	2	7' - 0"	234
S3E	8	#5	2	5' - 6"	46

EPOXY COATED REINFORCING STEEL LBS. 932

CLASS AA CONCRETE C.Y. 5.4

CONCRETE BARRIER RAIL L.F. 40.00

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 27+09.19 -Y16-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH
SLAB DETAILS

DocuSigned by:
Amanda H. Sharpe
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4/8/2020



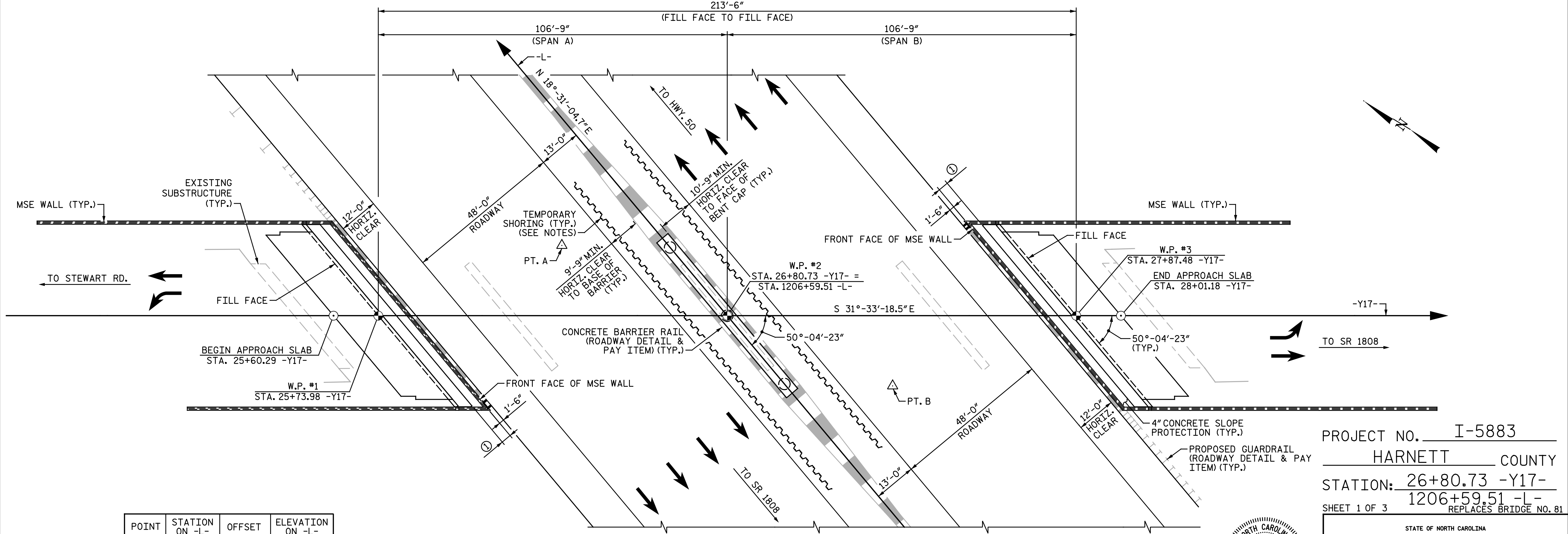
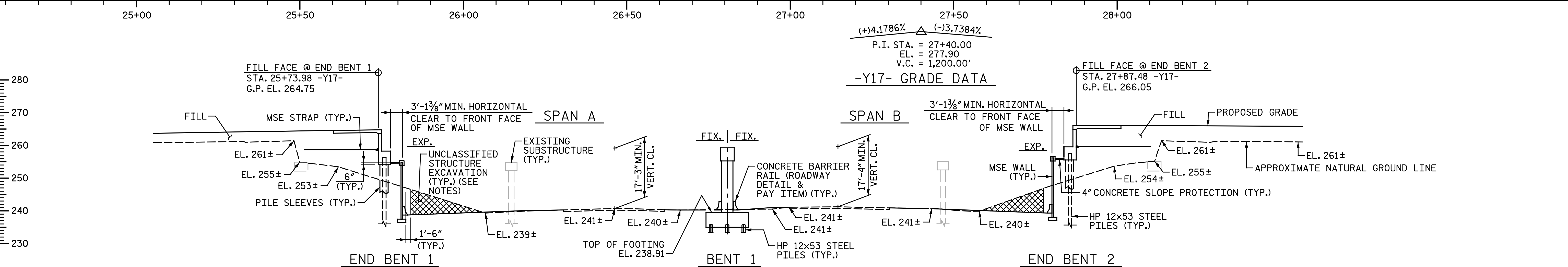
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NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			SI-35
2			4			TOTAL SHEETS 35

DRAWN BY : N. B. SPEAKS DATE : 7-10-18
CHECKED BY : A. H. SHARPE DATE : 3-26-20



POINT	STATION ON -L-	OFFSET	ELEVATION ON -L-
A	1207+08.47	25.00' LT	241.26
B	1206+10.55	25.00' RT	241.77

- △ - POINT OF MINIMUM VERTICAL CLEARANCE
① - 3'-1 3/8" HORIZONTAL CLEAR TO FRONT FACE OF MSE WALL

DRAWN BY : M. D. MAYHEW DATE : 6-12-18
CHECKED BY : A. H. SHARPE DATE : 4-26-21

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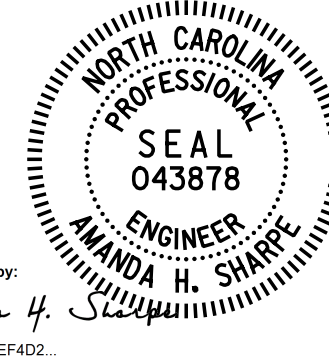
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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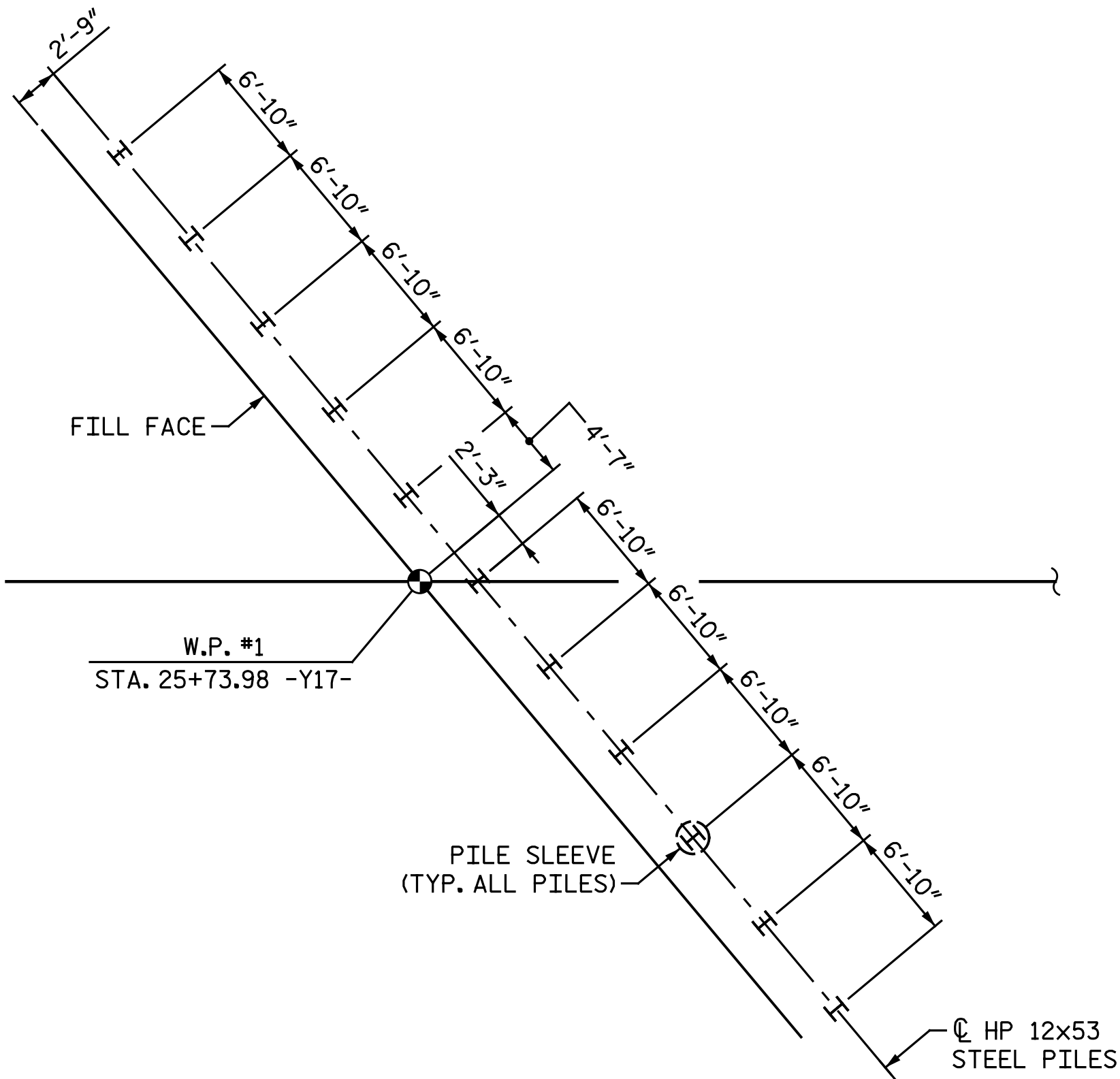
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S2-1

TOTAL SHEETS
33

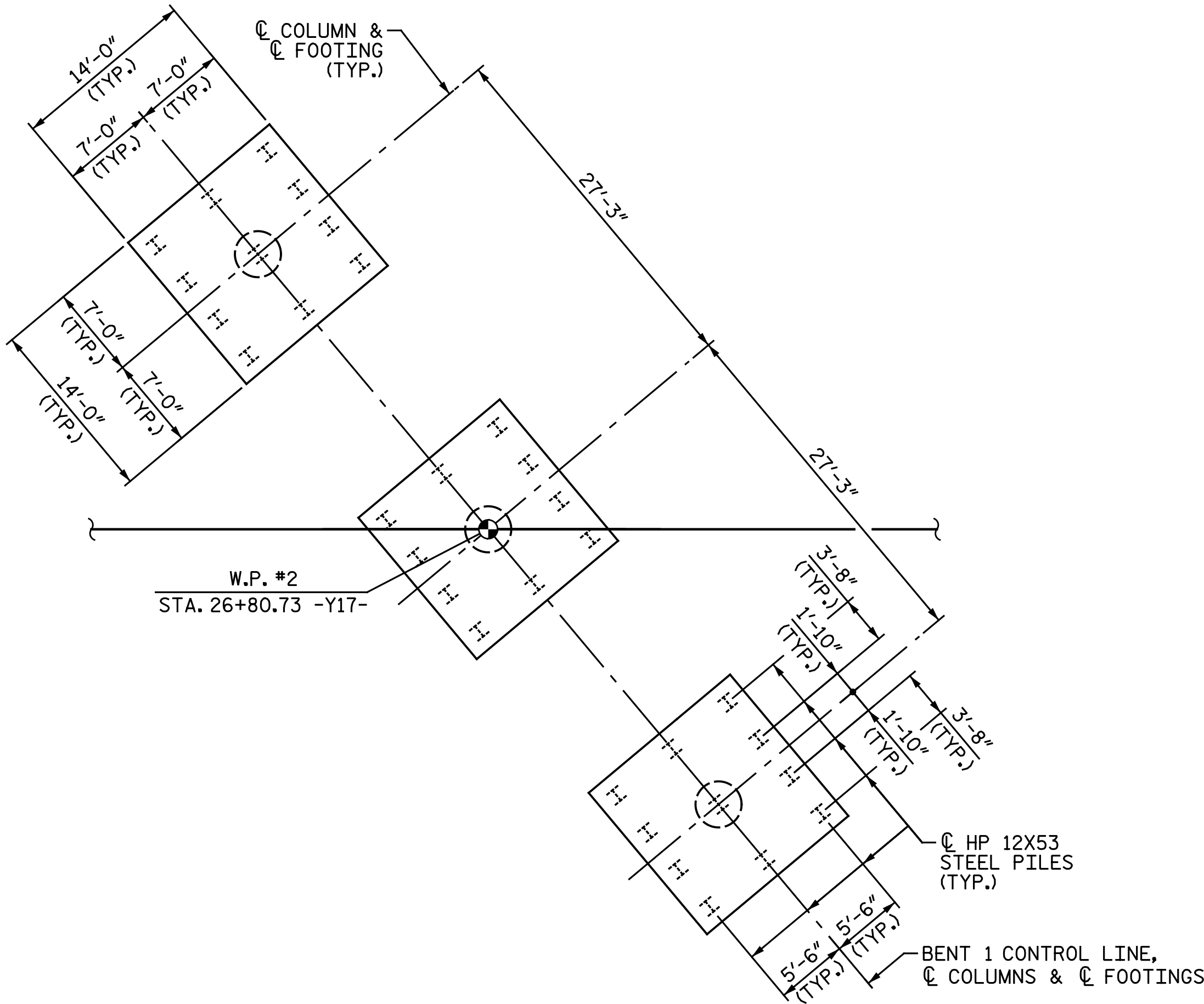
PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-
1206+59.51 -L-
SHEET 1 OF 3
REPLACES BRIDGE NO. 81



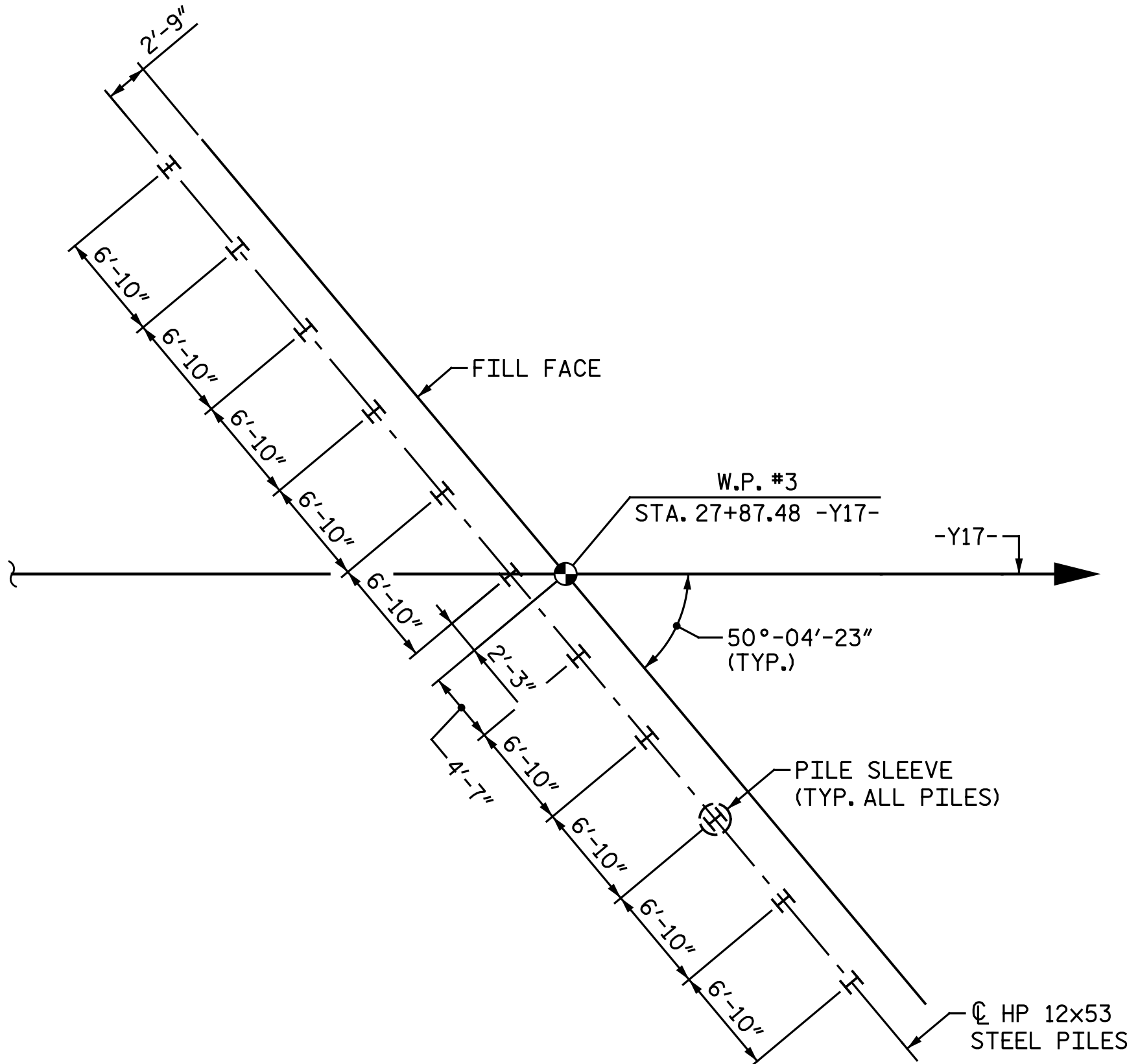
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE ON HODGES CHAPEL RD. (SR 1709) OVER I-95 BETWEEN STEWART RD. AND SR 1808



END BENT 1



BENT 1



END BENT 2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.

ALL PILES ARE VERTICAL.

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

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

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 155 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG.

DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG.

TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING IS REQUIRED AT END BENT NO.2 AND BENT NO.1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

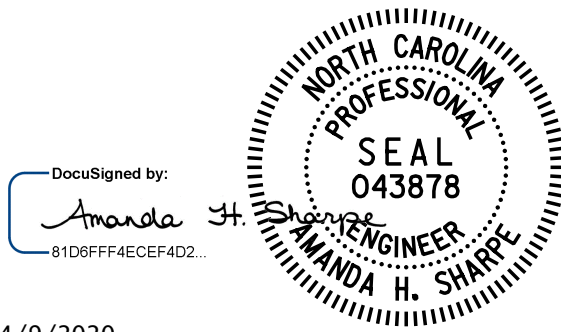
PROJECT NO. I-5883

HARNETT COUNTY

STATION: 26+80.73 -Y17-

1206+59.51 -L-

SHEET 2 OF 3



4/9/2020

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Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON HODGES CHAPEL
RD. (SR 1709) OVER I-95 BETWEEN
STEWART RD. AND SR 1808

REVISIONS

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

SHEET NO.

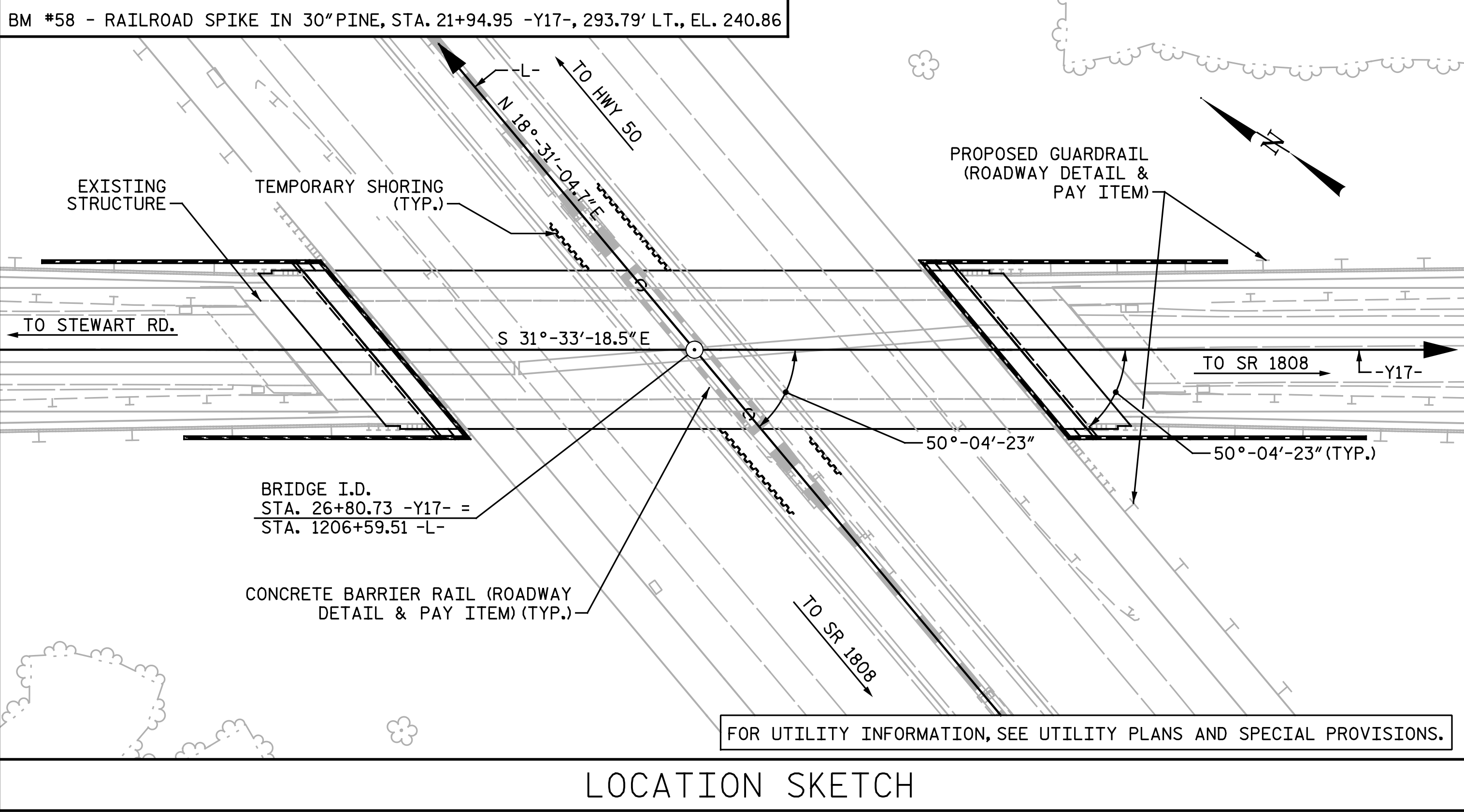
S2-2

TOTAL

SHEETS

33

DRAWN BY : M. D. MAYHEW DATE : 10-23-18
CHECKED BY : A. H. SHARPE DATE : 12-3-19



NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

THE EXISTING STRUCTURE CONSISTING OF 4 SPANS (1 @ 65'-4", 2 @ 66'-0" & 1 @ 65'-8") WITH PRESTRESSED CONCRETE GIRDERS & REINFORCED CONCRETE DECK WITH 28'-0" CLEAR ROADWAY WIDTH ON REINFORCED CONCRETE END BENT AND INTERIOR BENT CAPS ON PRESTRESSED CONCRETE PILES AND LOCATED ALONG THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

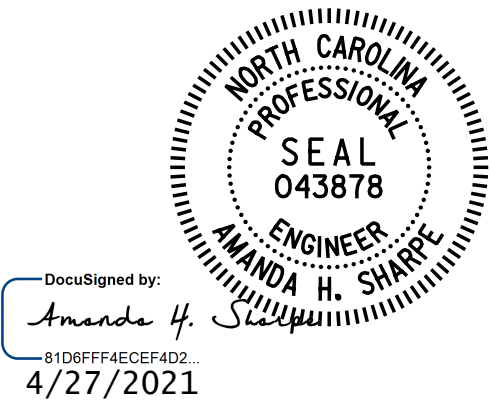
FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR MSE WALL AND MSE REINFORCING STRAPS ATTACHED TO END BENTS, SEE MSE WALL PLANS.

TOTAL BILL OF MATERIAL													
LOCATION	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	FOUNDATION EXCAVATION FOR BENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 63" PRESTRESSED CONCRETE GIRDERS	
	LUMP SUM	LUMP SUM	LUMP SUM	EA.	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.
SUPERSTRUCTURE						10,801	8,974					10	1,034.58
END BENT 1								64.7		11,205			
BENT 1			LUMP SUM					199.0		27,953	1,161		
END BENT 2								62.2		10,997			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	2	LUMP SUM	10,801	8,974	325.9	LUMP SUM	50,155	1,161	10	1,034.58

TOTAL BILL OF MATERIAL CONT'D										
LOCATION	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES		PILE REDRIVES	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
	EA.	NO.	LIN. FT.	EA.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	EA.
SUPERSTRUCTURE					461.51		LUMP SUM	LUMP SUM		
END BENT 1	11	11	715	6		19				
BENT 1	33	33	2,145	16						
END BENT 2	11	11	825	6		19				
TOTAL	55	55	3,685	28	461.51	38	LUMP SUM	LUMP SUM	LUMP SUM	2

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-
1206+59.51 -L-
SHEET 3 OF 3



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REVISIONS						SHEET NO. S2-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

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NC License No.: F-1084

DRAWN BY : M. D. MAYHEW DATE : 1-10-19
CHECKED BY : A. H. SHARPE DATE : 4-26-21

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1. A SERVICE III LIVE LOAD FACTOR OF 1.0 WAS USED TO BE CONSISTENT WITH THE VALUE USED DURING DESIGN.
2. DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO CENTERLINE OF BEARING AND IS MEASURED ALONG THE CONTROLLING GIRDER.

CONTROLLING LOAD RATING

1

DESIGN LOAD RATING (HL-93)

2

DESIGN LOAD RATING (HS-20)

3

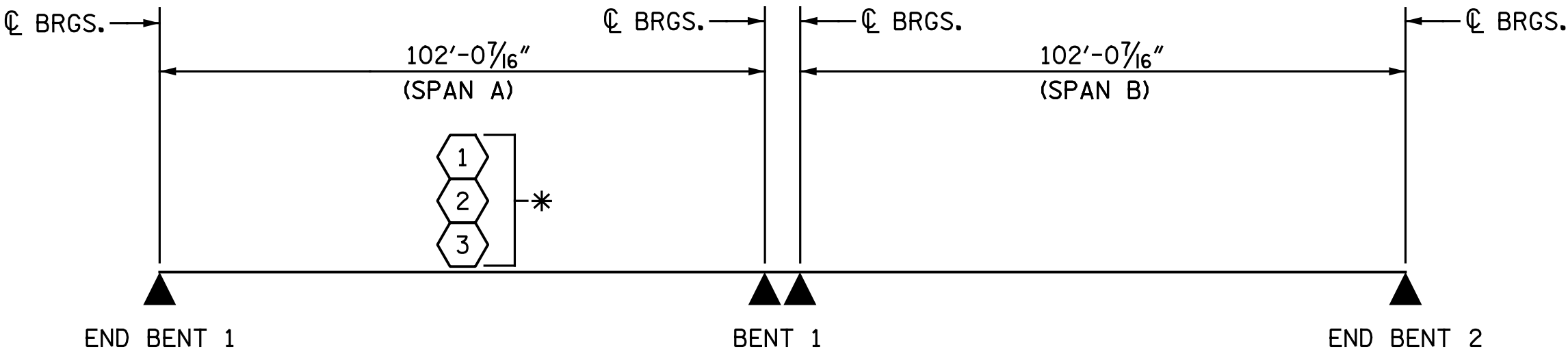
LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

GIRDER LOCATION IS PROVIDED USING GIRDER NUMBER, WHERE GIRDER 1 IS THE LEFT EXTERIOR GIRDER LOOKING AHEAD STATION. SEE "GIRDER LAYOUT" SHEET FOR ALL GIRDER LOCATIONS.

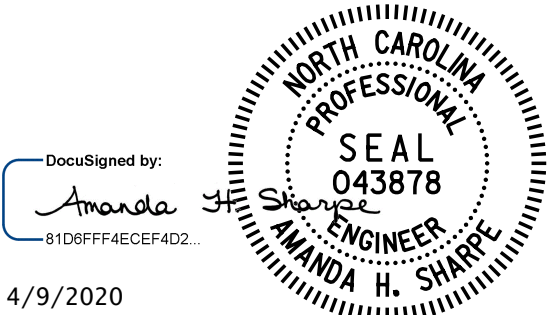
LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ _{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ _{LL})	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.05	--	1.75	0.920	1.42	A & B	1	51.02	1.149	1.20	A & B	3	61.37	1.00	0.920	1.05	A & B	1	51.02	1, 2	
	HL-93 (OPERATING)	N/A		1.63	--	1.35	0.920	1.84	A & B	1	51.02	1.149	1.63	A & B	3	92.40	N/A	-	-	-	-	-	2	
	HS-20 (INVENTORY)	36.000	2	1.49	53.64	1.75	0.920	2.01	A & B	1	51.02	1.149	1.73	A & B	3	92.40	1.00	0.818	1.49	A & B	3	51.02	1, 2	
	HS-20 (OPERATING)	36.000		2.27	81.72	1.35	0.920	2.61	A & B	1	51.02	1.149	2.27	A & B	3	92.40	N/A	-	-	-	-	-	2	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.61	48.74	1.40	0.920	6.09	A & B	1	51.02	1.149	5.84	A & B	3	92.40	1.00	0.818	3.61	A & B	3	51.02	1, 2
		SNGARBS2	20.000		2.57	51.40	1.40	0.920	4.34	A & B	1	51.02	1.149	4.06	A & B	3	92.40	1.00	0.818	2.57	A & B	3	51.02	1, 2
		SNAGRIS2	22.000		2.38	52.36	1.40	0.920	4.02	A & B	1	51.02	1.149	3.74	A & B	3	92.40	1.00	0.818	2.38	A & B	3	51.02	1, 2
		SNCOTTS3	27.250		1.77	48.23	1.40	0.920	2.98	A & B	1	51.02	1.149	2.82	A & B	3	92.40	1.00	0.818	1.77	A & B	3	51.02	1, 2
		SNAGGRS4	34.925		1.44	50.29	1.40	0.920	2.43	A & B	1	51.02	1.149	2.18	A & B	3	9.64	1.00	0.818	1.44	A & B	3	51.02	1, 2
		SNS5A	35.550		1.41	50.13	1.40	0.920	2.39	A & B	1	51.02	1.149	2.12	A & B	3	92.40	1.00	0.818	1.41	A & B	3	51.02	1, 2
		SNS6A	39.950		1.29	51.54	1.40	0.920	2.17	A & B	1	51.02	1.149	1.96	A & B	3	9.64	1.00	0.920	1.29	A & B	1	51.02	1, 2
		SNS7B	42.000		1.22	51.24	1.40	0.920	2.06	A & B	1	51.02	1.149	1.87	A & B	3	92.40	1.00	0.818	1.22	A & B	3	51.02	1, 2
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.56	51.48	1.40	0.920	2.64	A & B	1	51.02	1.149	2.34	A & B	3	92.40	1.00	0.818	1.56	A & B	3	51.02	1, 2
		TNT4A	33.075		1.57	51.93	1.40	0.920	2.65	A & B	1	51.02	1.149	2.45	A & B	3	92.40	1.00	0.818	1.57	A & B	3	51.02	1, 2
		TNT6A	41.600		1.26	52.42	1.40	0.920	2.13	A & B	1	51.02	1.149	1.94	A & B	3	92.40	1.00	0.818	1.26	A & B	3	51.02	1, 2
		TNT7A	42.000		1.27	53.34	1.40	0.920	2.14	A & B	1	51.02	1.149	1.90	A & B	3	92.40	1.00	0.920	1.27	A & B	1	51.02	1, 2
		TNT7B	42.000		1.29	54.18	1.40	0.920	2.17	A & B	1	51.02	1.149	1.82	A & B	3	92.40	1.00	0.920	1.29	A & B	1	51.02	1, 2
		TNAGRIT4	43.000		1.24	53.32	1.40	0.920	2.09	A & B	1	51.02	1.149	1.84	A & B	3	92.40	1.00	0.920	1.24	A & B	1	51.02	1, 2
		TNAGT5A	45.000		1.17	52.65	1.40	0.920	1.98	A & B	1	51.02	1.149	1.76	A & B	3	92.40	1.00	0.818	1.17	A & B	3	51.02	1, 2
		TNAGT5B	45.000	3	1.16	52.20	1.40	0.920	1.97	A & B	1	51.02	1.149	1.76	A & B	3	9.64	1.00	0.818	1.16	A & B	3	51.02	1, 2



LRFR SUMMARY

* TYPICAL SPANS A & B

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-



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

REVISIONS						SHEET NO. S2-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

ASSEMBLED BY : N. B. SPEAKS	DATE : 10-26-18
CHECKED BY : A. H. SHARPE	DATE : 10-26-18
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

NOTES:

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

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH DECK DRAINS AND STIRRUPS IN PRESTRESSED CONCRETE GIRDERS AND TO FACILITATE INSTALLATION OF CONCRETE BARRIER RAIL REINFORCEMENT.

TRANSVERSE STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH DECK DRAINS.

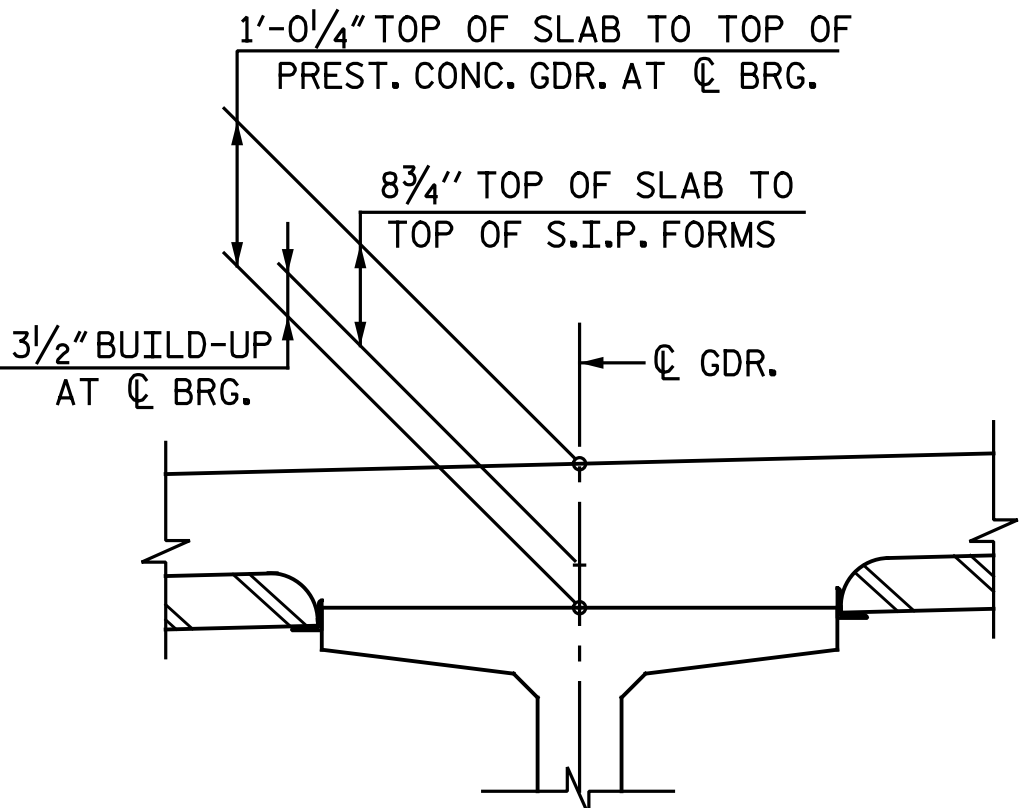
FOR CONCRETE BARRIER RAIL DETAILS, SEE "CONCRETE BARRIER RAIL" SHEET.

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.

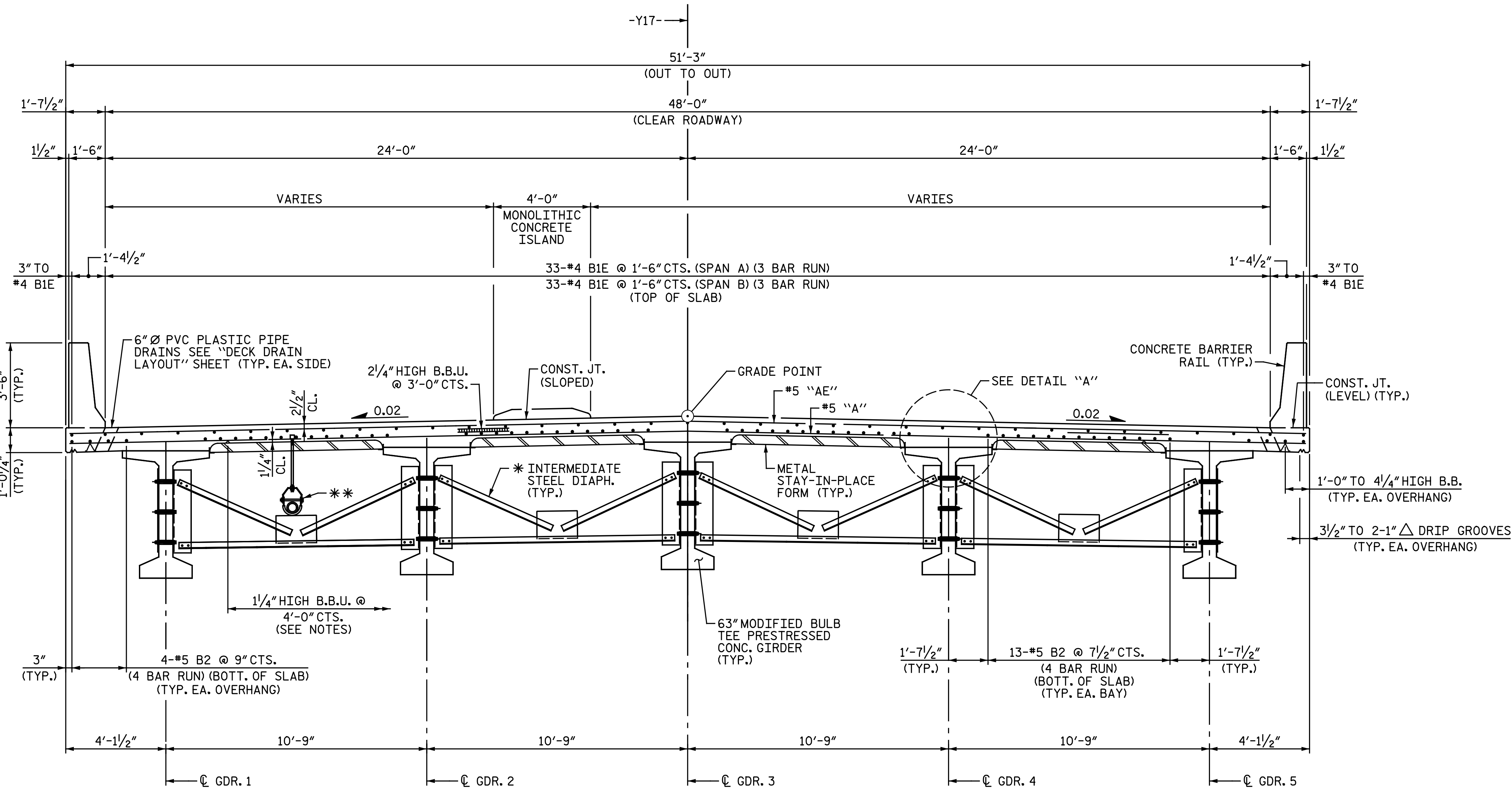
* FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

FOR MONOLITHIC CONCRETE ISLAND DETAILS, SEE "MONOLITHIC CONCRETE ISLAND" SHEET.

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



DETAIL "A"



TYPICAL SECTION AT INTERMEDIATE DIAPHRAGM

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

SHEET 1 OF 3



4/9/2020

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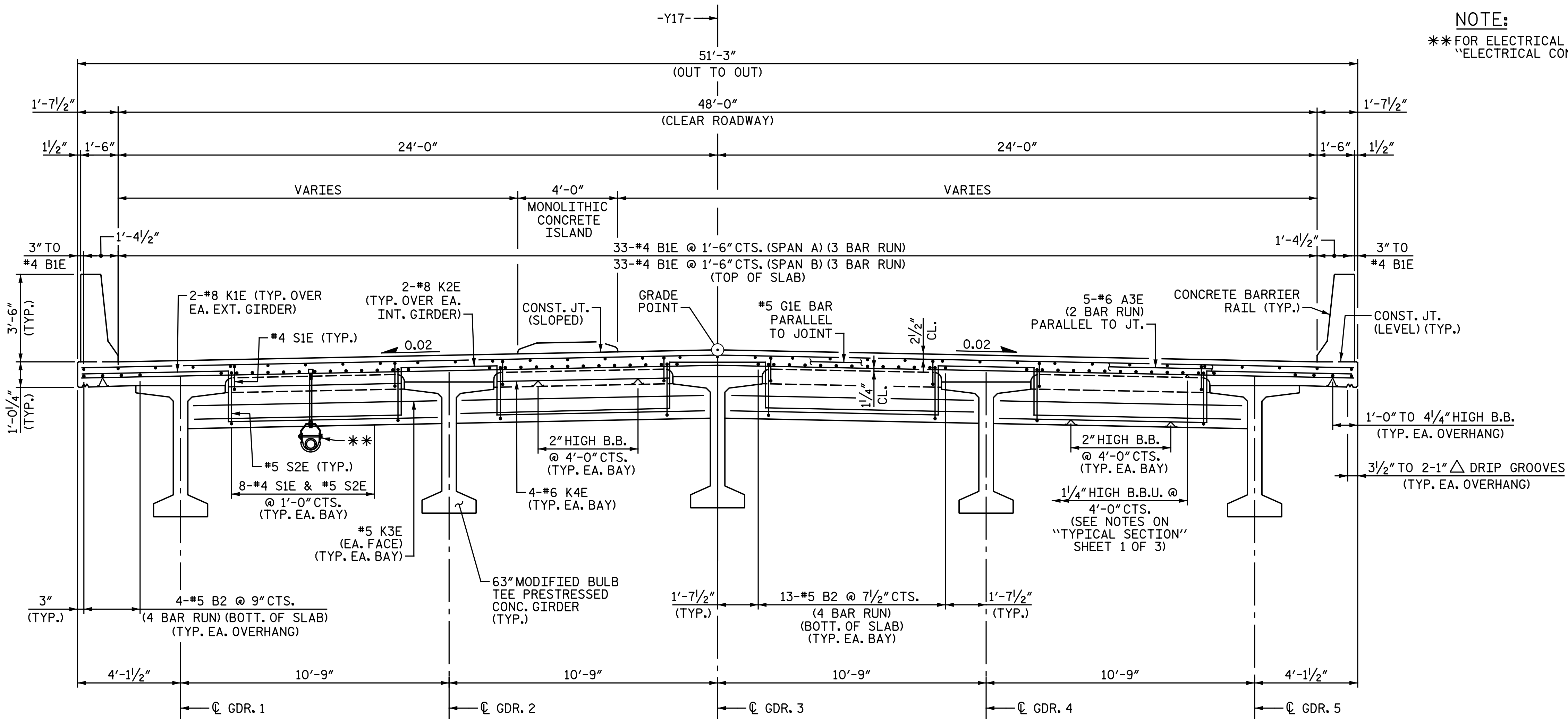
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

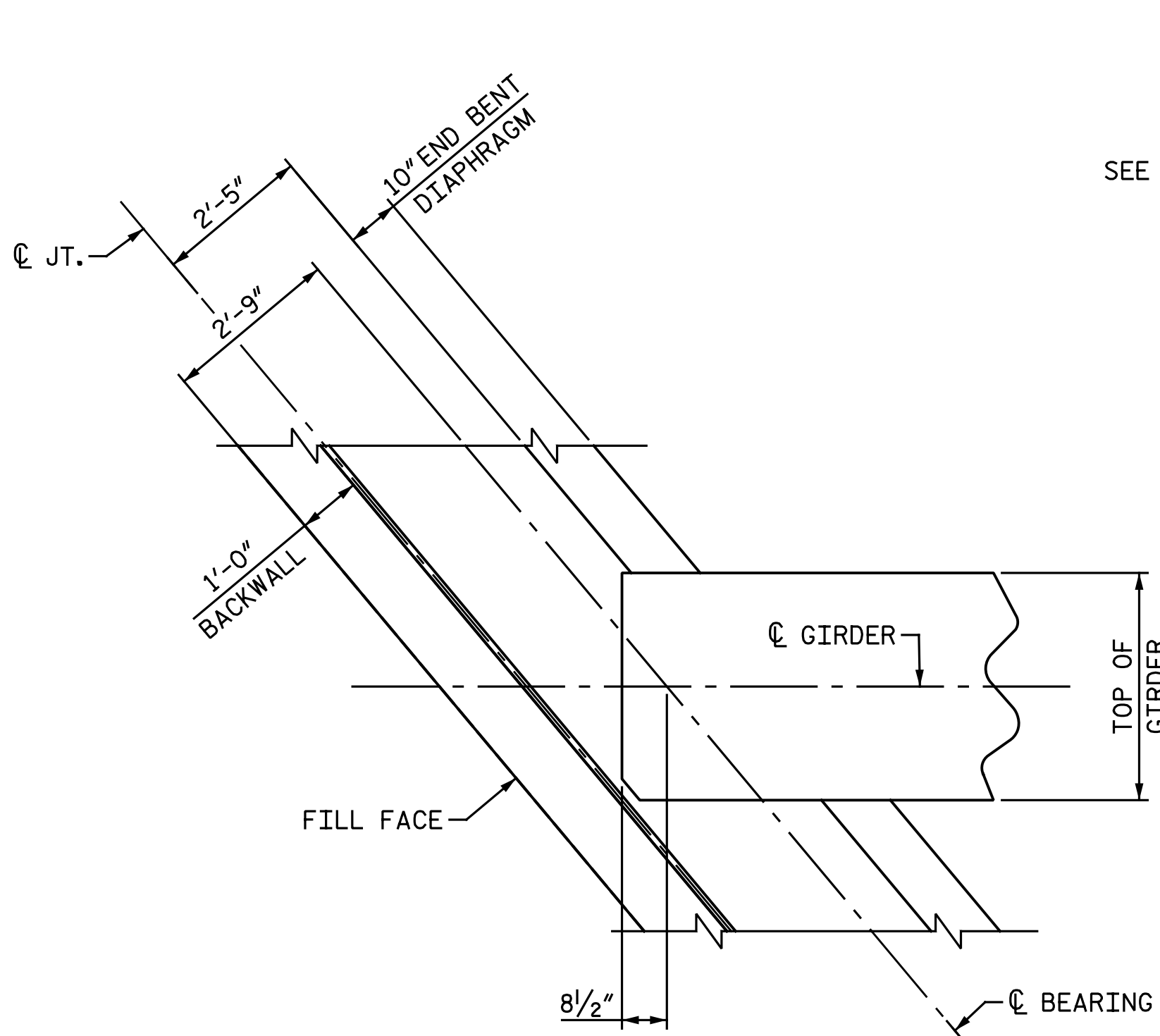
REVISIONS						SHEET NO. S2-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

DRAWN BY : C. E. MAYHEW DATE : 1-10-19
CHECKED BY : A. H. SHARPE DATE : 1-10-19



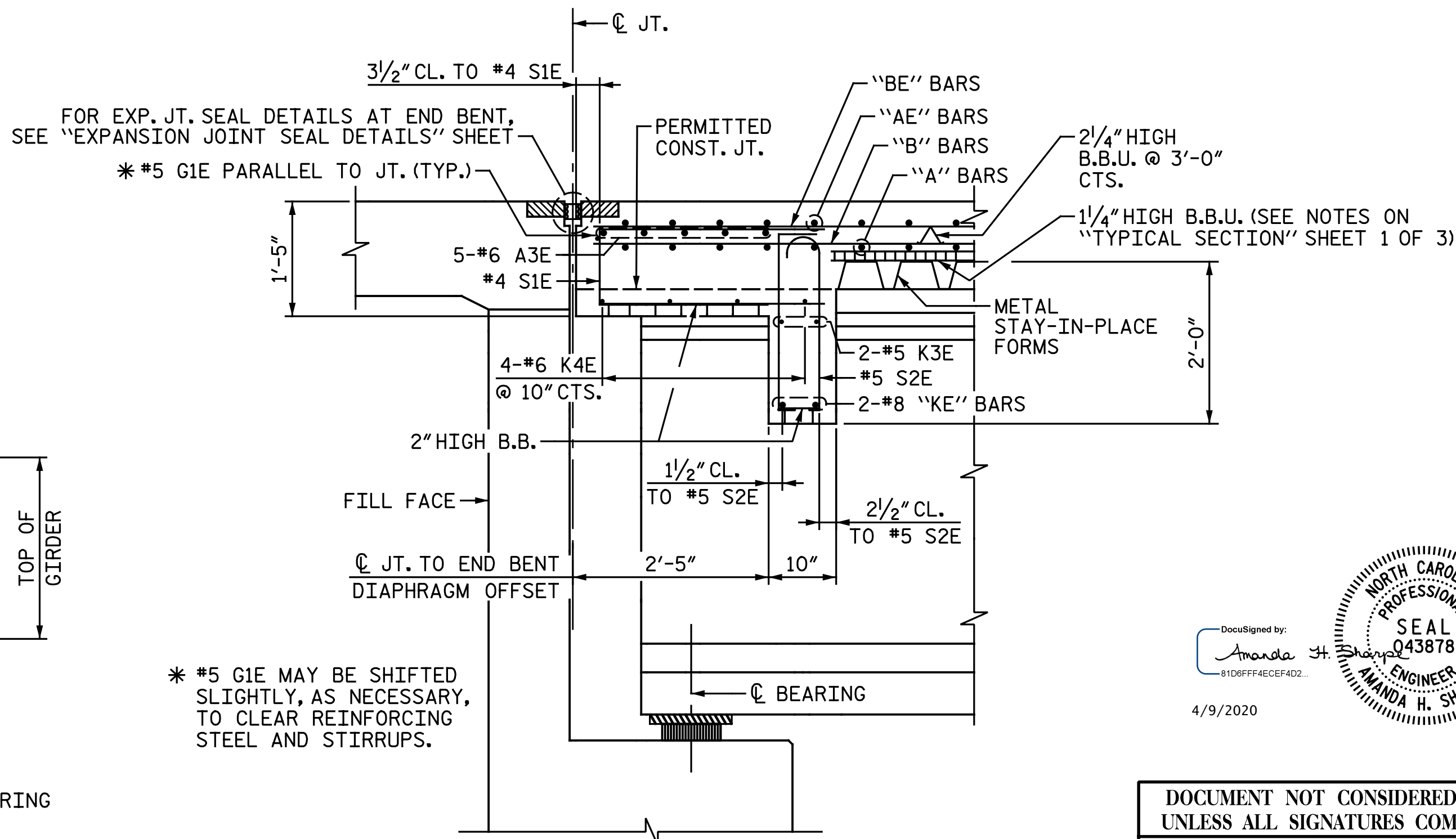
NOTE:
**FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE
"ELECTRICAL CONDUIT SYSTEM FOR SIGNALS" SHEET.

TYPICAL SECTION AT END BENT



PLAN AT END BENT DIAPHRAGM

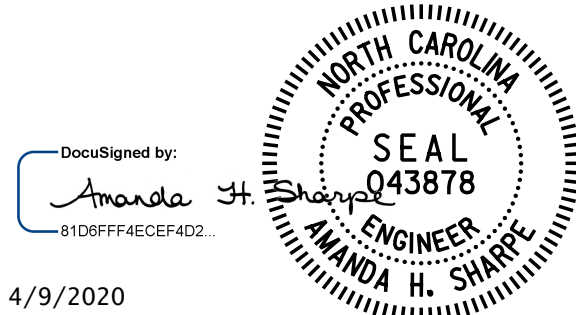
END BENT 1 SHOWN, END BENT 2 SIMILAR



SECTION THROUGH END BENT DIAPHRAGM

END BENT 1 SHOWN, END BENT 2 SIMILAR

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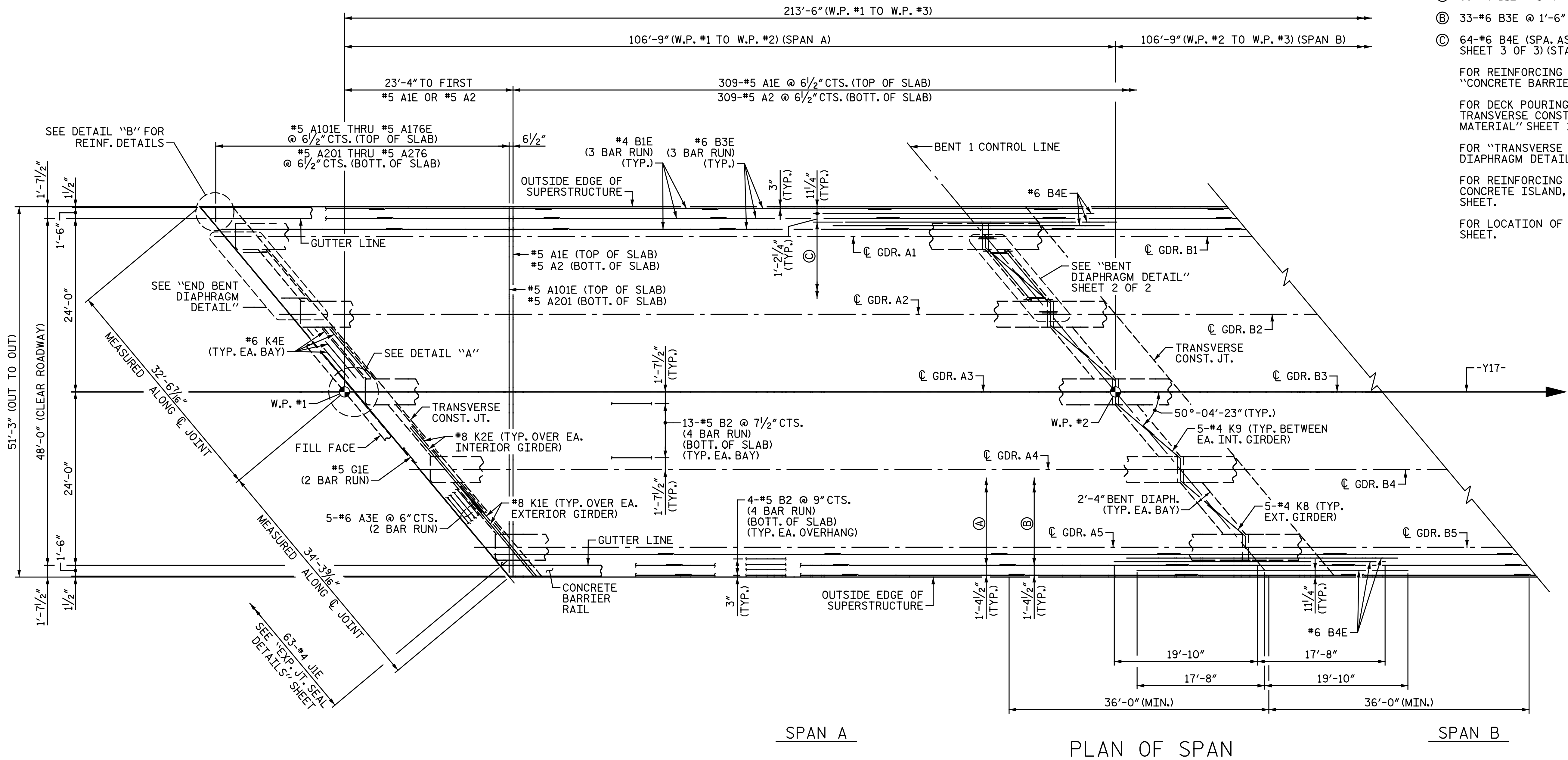
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HARNETT COUNTY
STATION: 26+80.73 -Y17-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

S2-6



NOTES:

- Ⓐ 33-#4 B1E @ 1'-6" CTS. (SPlice WITH #6 B3E) (TOP OF SLAB)
Ⓑ 33-#6 B3E @ 1'-6" CTS. (SPlice WITH #4 B1E) (TOP OF SLAB)
Ⓒ 64-#6 B4E (SPA. AS SHOWN IN "TYPICAL SECTION" SHEET 3 OF 3) (STAGGERED AS SHOWN) (TOP OF SLAB)

FOR REINFORCING STEEL IN CONCRETE BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEET.

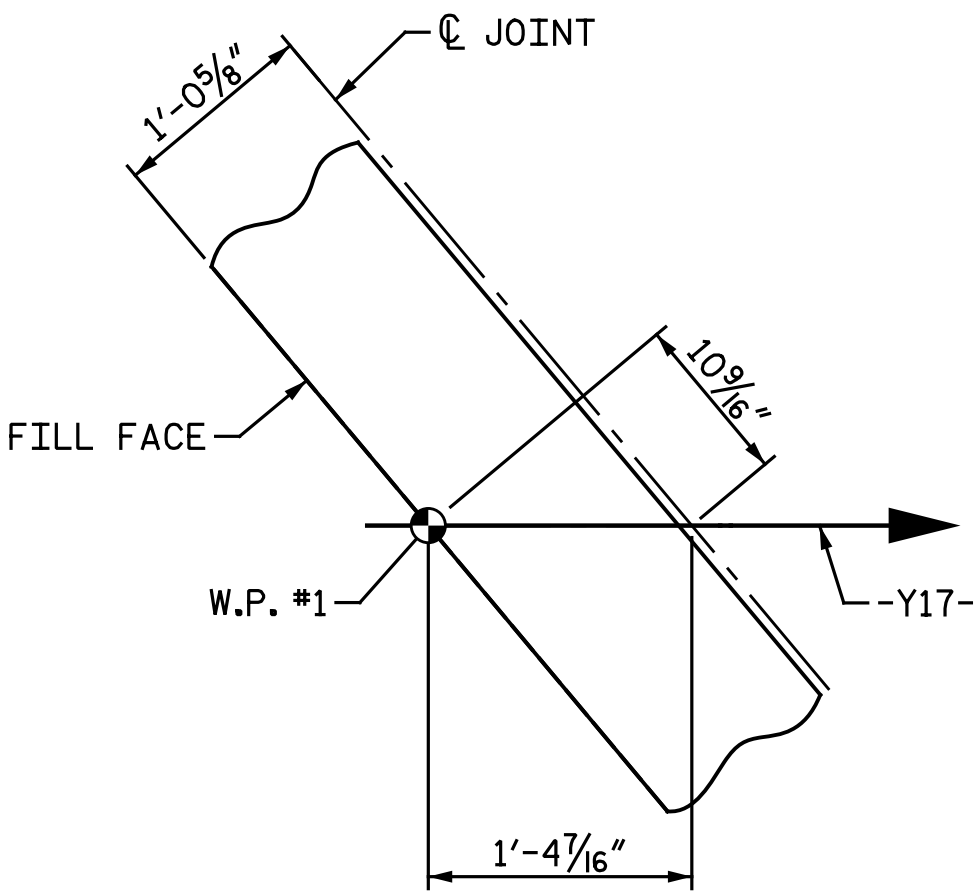
FOR DECK POURING SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE "BILL OF MATERIAL" SHEET 1 OF 2.

FOR "TRANSVERSE CONSTRUCTION JOINT DETAIL" & "BENT DIAPHRAGM DETAIL", SEE "PLAN OF SPANS" SHEET 2 OF 2.

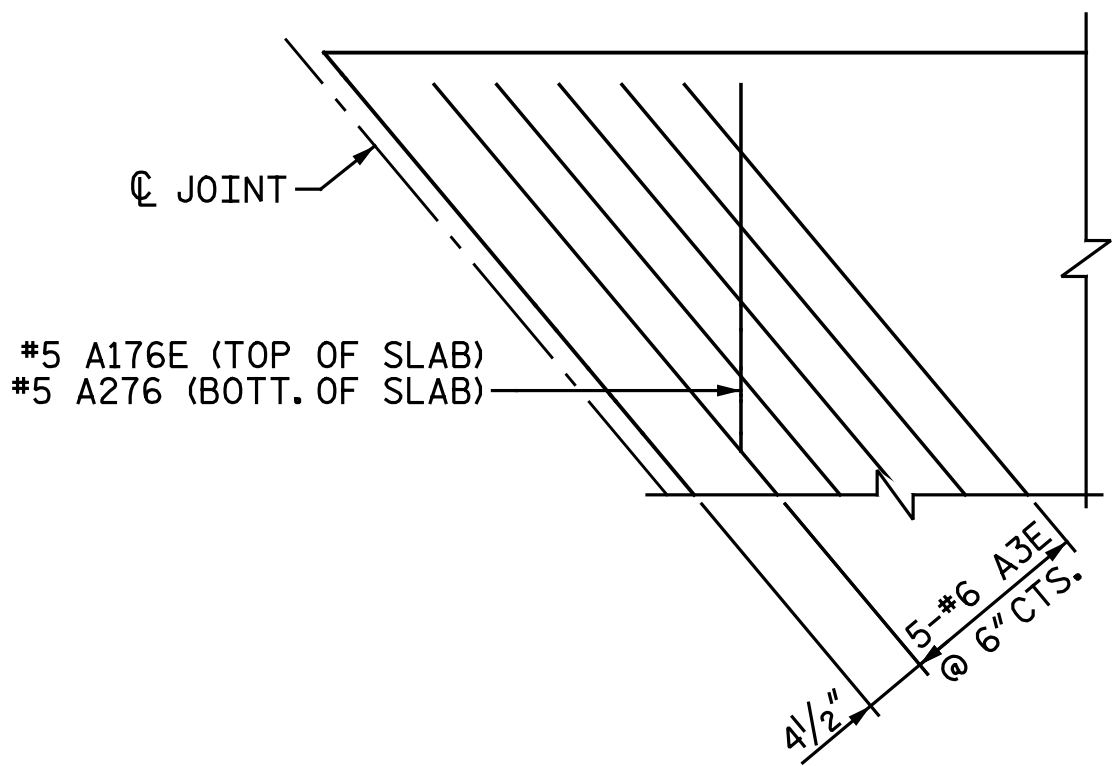
FOR REINFORCING STEEL & LOCATION OF MONOLITHIC CONCRETE ISLAND, SEE "MONOLITHIC CONCRETE ISLAND" SHEET.

FOR LOCATION OF DECK DRAINS, SEE "DECK DRAIN LAYOUT" SHEET.

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-0"	2'-7"

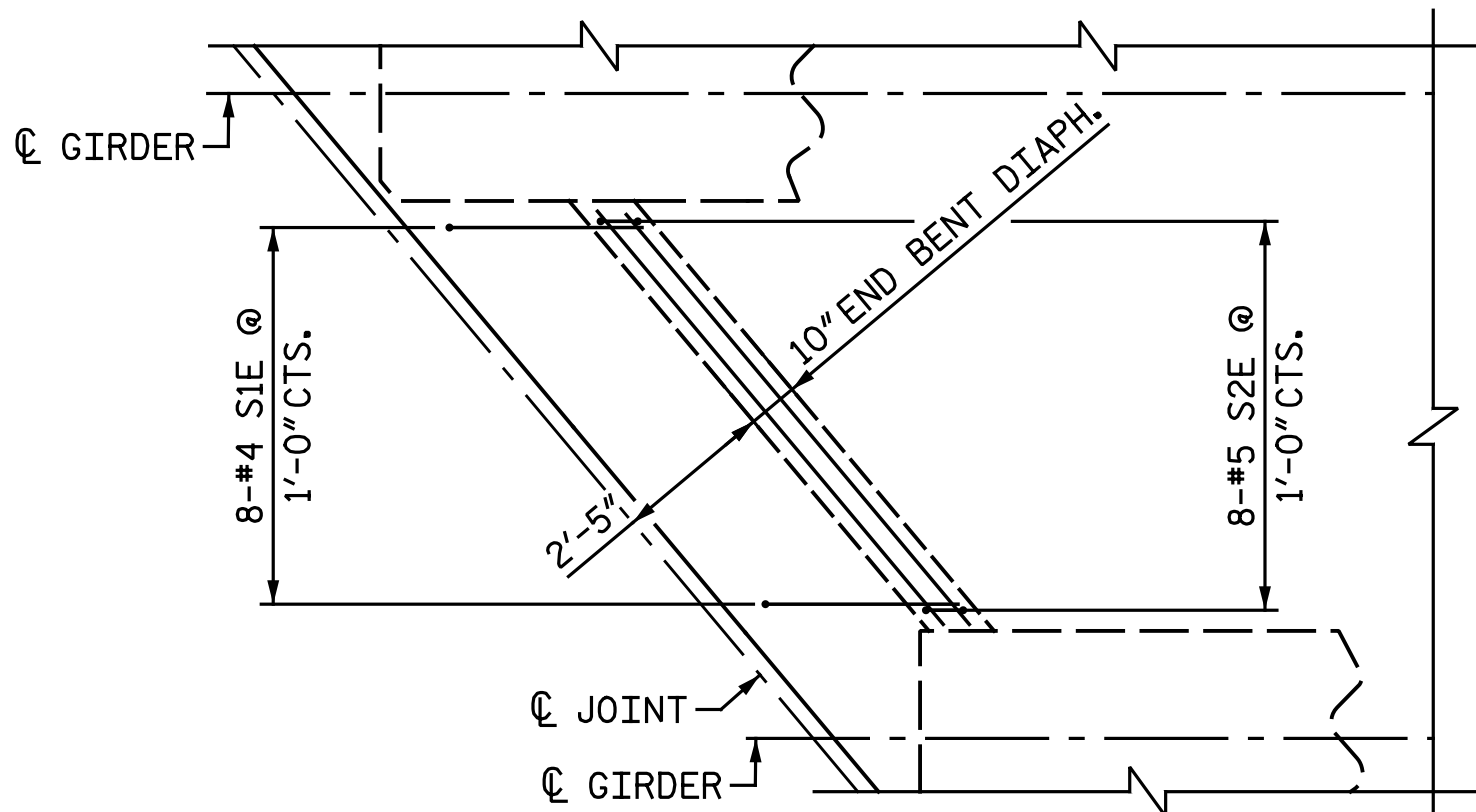


DETAIL "A"



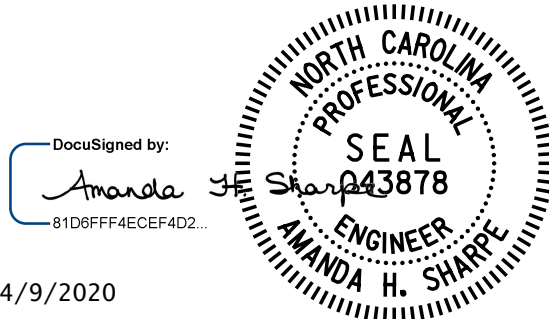
DETAIL "B"

*#6 A3E BARS ARE TO BE PLACED PARALLEL TO SKEW, SPACED AS SHOWN, AND LOCATED BELOW B1E BARS.
SEE ALSO "SECTION THRU END BENT DIAPHRAGM" DETAIL ON "TYPICAL SECTION" SHEET 2 OF 3.



END BENT DIAPHRAGM DETAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR
#8 "KE" BAR NOT SHOWN FOR CLARITY (TYP. EA. BAY)



4/9/2020

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

SHEET 1 OF 2

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

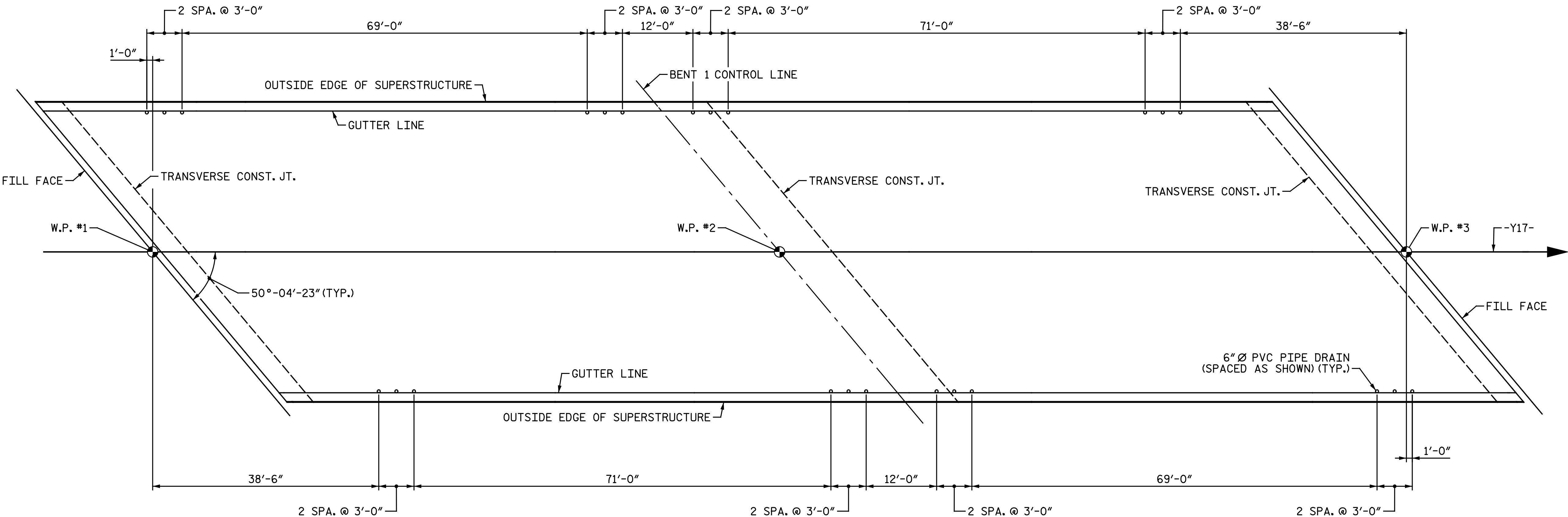
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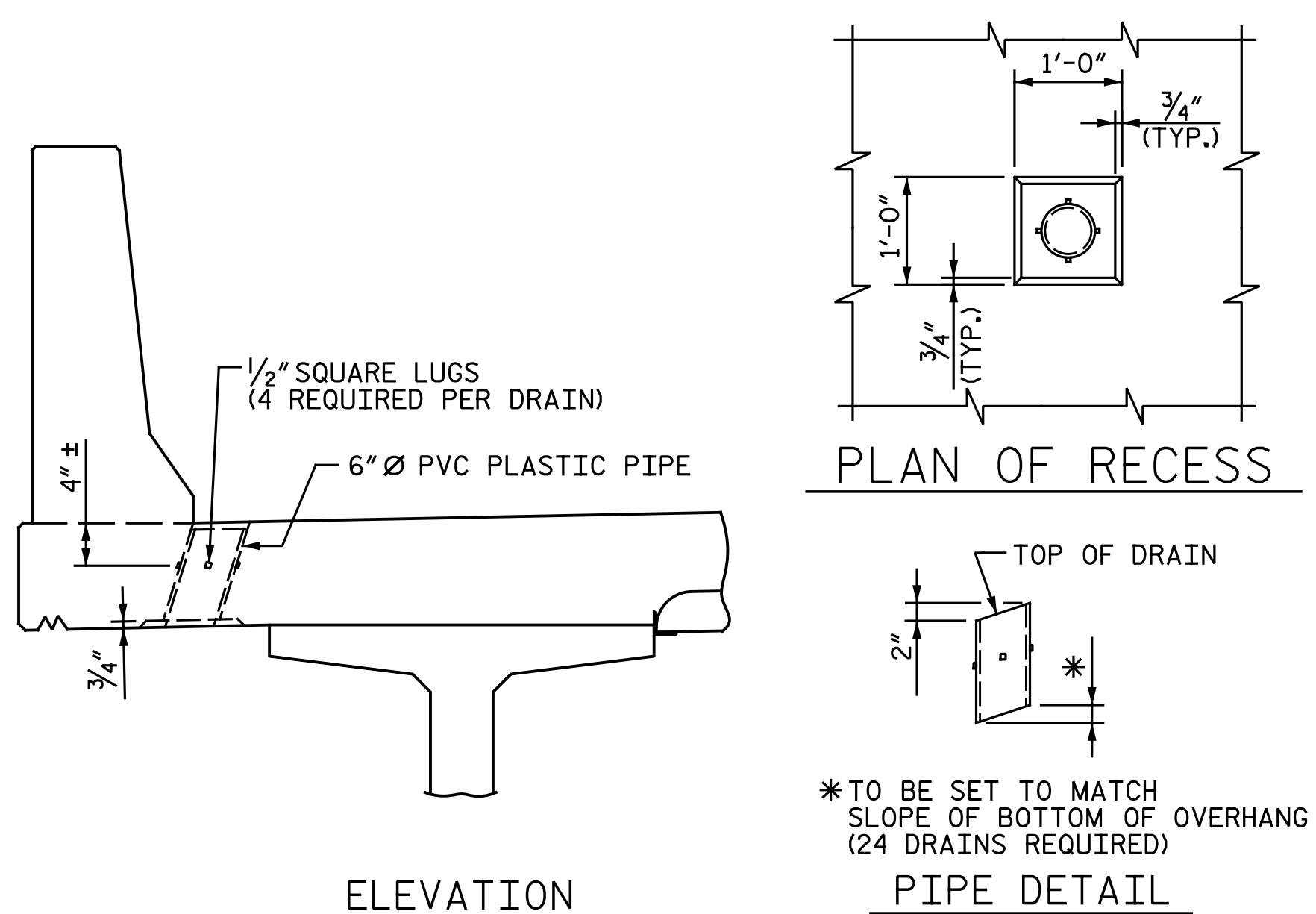
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REVISIONS						SHEET NO. S2-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			33

DRAWN BY : C. E. MAYHEW DATE : 8-31-18
CHECKED BY : A. H. SHARPE DATE : 11-8-18



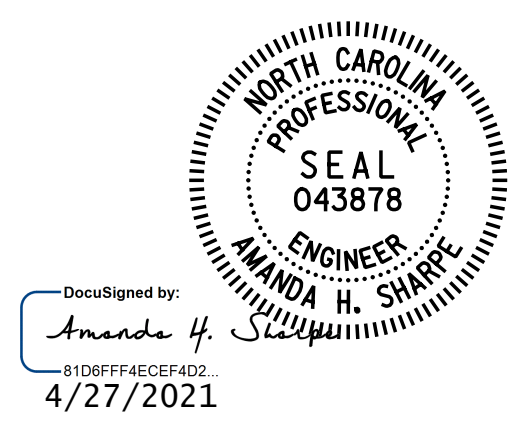
DECK DRAIN LAYOUT



DRAIN DETAILS

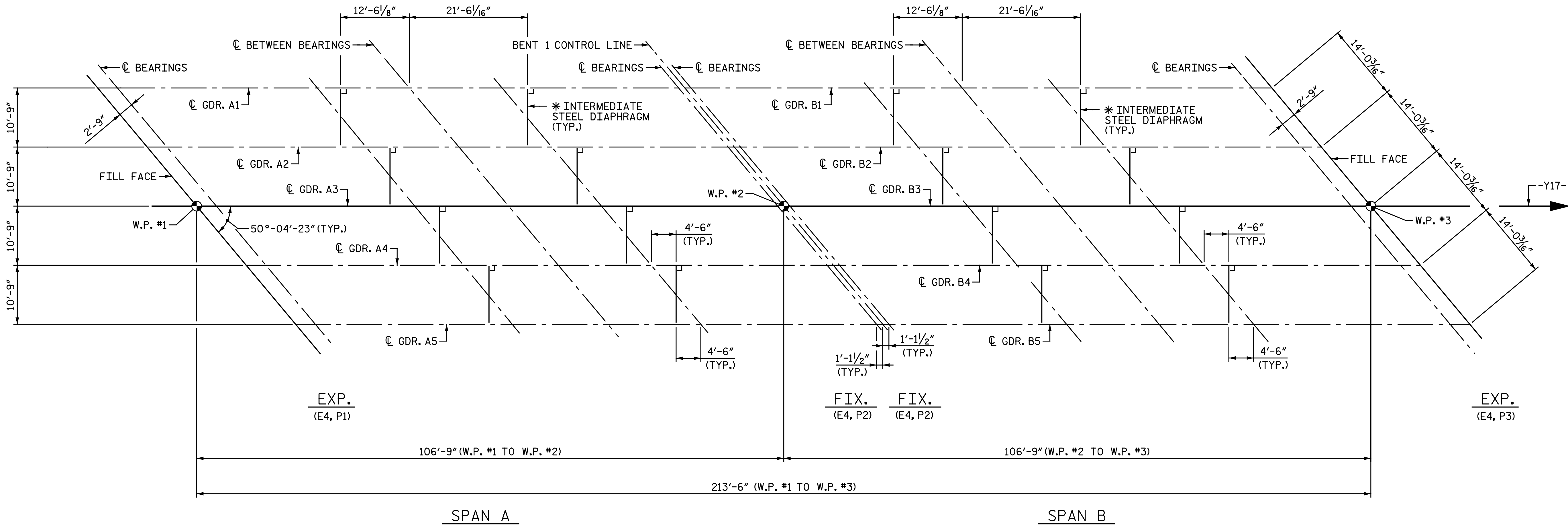
NOTES:
TOP OF FLOOR DRAIN TO BE SET 3/8" BELOW SURFACE OF SLAB.
4 -1/2" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND PIPE APPROXIMATELY 4" FROM THE TOP OF PIPE.
THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-



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						NO.	BY:	DATE:		NO.	BY:	DATE:		TOTAL SHEETS	
						1				3				33	
						2				4					

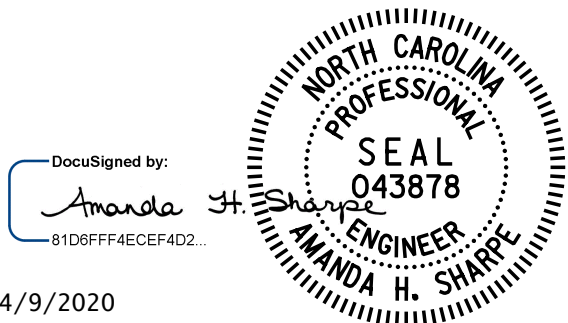
DRAWN BY : N. B. SPEAKS DATE : 10-31-18
CHECKED BY : A. H. SHARPE DATE : 4-26-21



GIRDER LAYOUT

* SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULB TEE PRESTRESSED CONC. GIRDERS" SHEET FOR DETAILS

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-



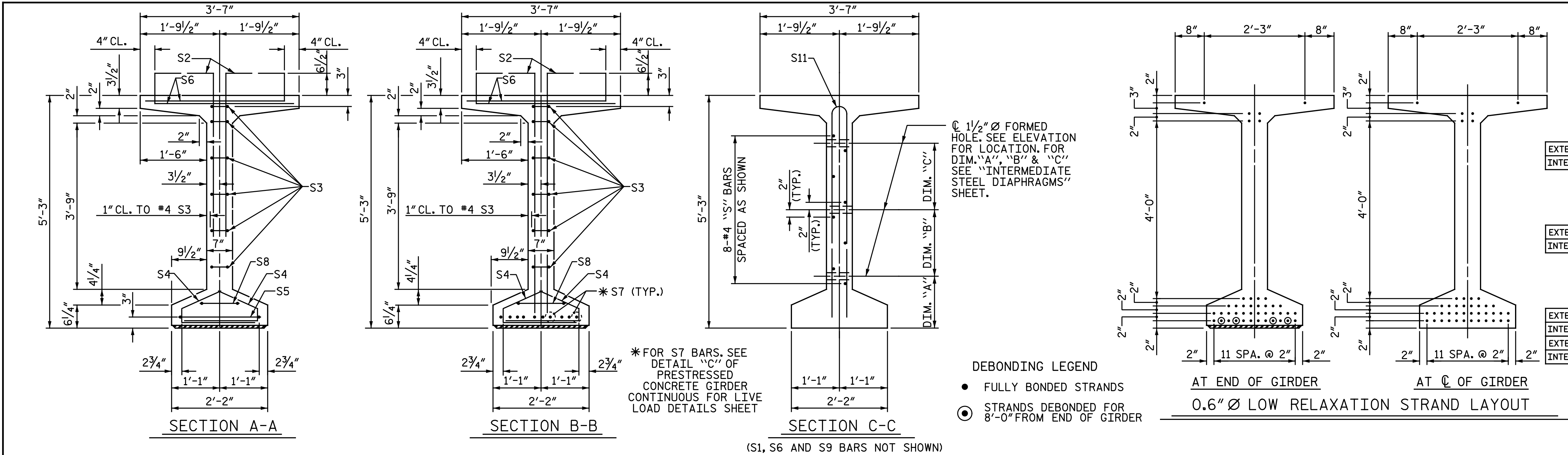
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER LAYOUT

DRAWN BY : N. B. SPEAKS DATE : 10-15-18
CHECKED BY : A. H. SHARPE DATE : 11-2-18

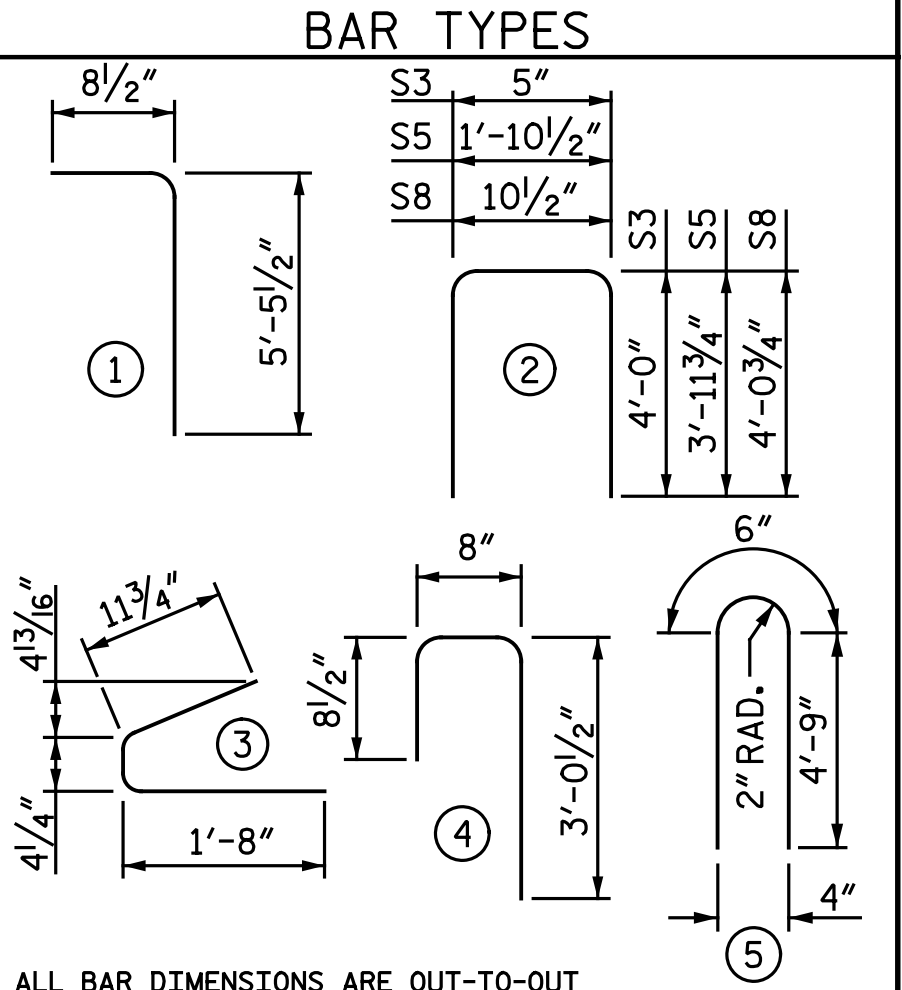
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Michael Baker
INTERNATIONAL
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

REVISIONS						SHEET NO. S2-II
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			



0.6" Ø L. R. GRADE 270 STRANDS					
AREA (SQUARE INCHES)		ULTIMATE STRENGTH (LBS. PER STRAND)		APPLIED PRESTRESS (LBS. PER STRAND)	
0.217		58,600		43,950	
REINFORCING STEEL FOR ONE GDR					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	196	#4	1	6'-2"	807
S1	196	#4	1	6'-2"	807
S2	32	#6	1	6'-2"	296
S3	12	#4	2	8'-5"	67
S4	80	#4	3	3'-0"	160
S5	1	#5	2	9'-10"	10
S6	228	#5	4	4'-5"	1,050
S6	228	#5	4	4'-5"	1,050
* S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	11	#5	STR	3'-3"	37
S10	1	#3	STR	1'-10"	1
S11	8	#5	5	10'-0"	83
S11	16	#5	5	10'-0"	167
S12	16	#4	STR	8'-0"	86
S13	16	#4	STR	17'-0"	182
* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.					



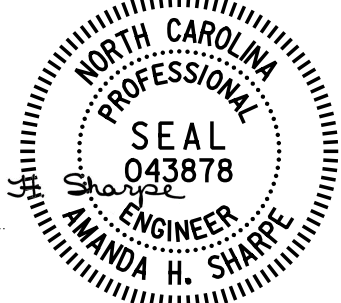
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	8,500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	2,654	20.5	42
INTERIOR GIRDER	2,834	20.5	42

GIRDERS REQUIRED			
SPAN	NUMBER	LENGTH	TOTAL LENGTH
A	5	103.46'	517.29'
B	5	103.46'	517.29'
TOTAL	10	103.46'	1034.58'

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

DocuSigned by:
Amanda
8105FF4EDEF402.

4/9/2020



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Michael Baker
INTERNATIONAL

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8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
63" PRESTRESSED CONCRETE
MODIFIED BULB TEE
CONTINUOUS FOR LIVE LOAD

SPANS A & B

REVISIONS						SHEET NO. S2-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

ASSEMBLED BY : N.B. SPEAKS
CHECKED BY : A.H. SHARPE

DATE : 11-2-18
DATE : 11-5-18

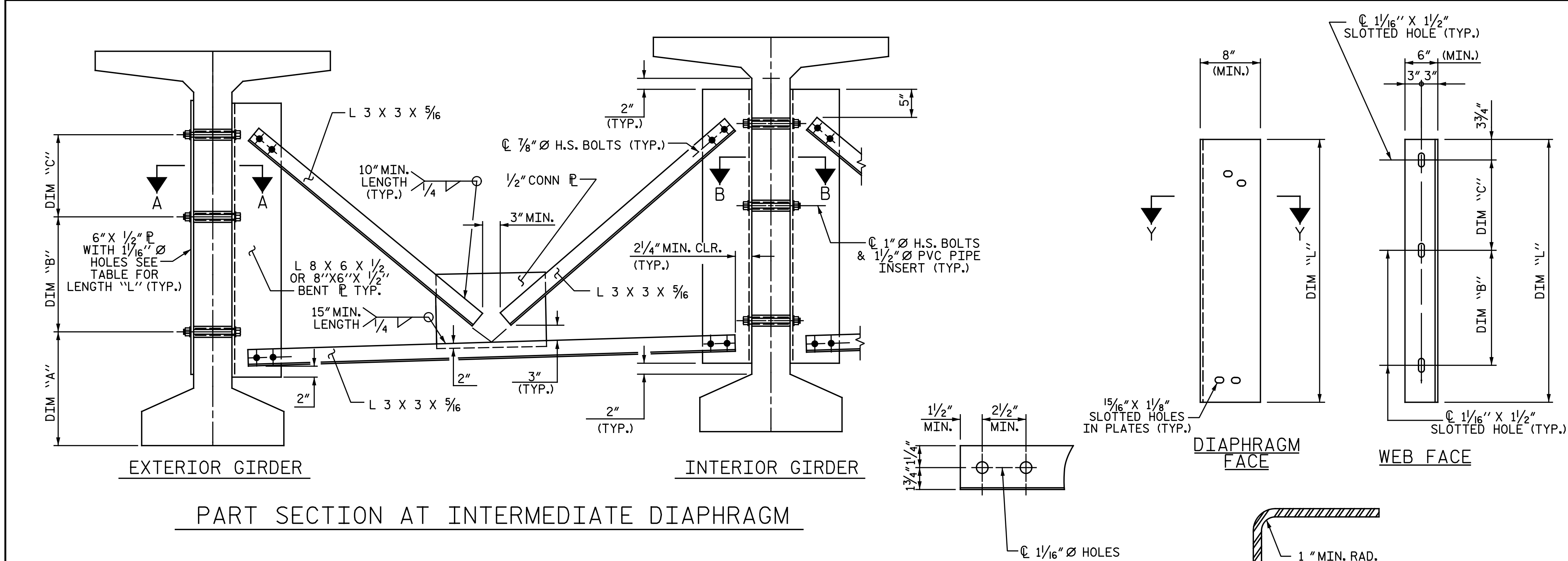
DRAWN BY : EEM 2/6/97
CHECKED BY : VAP 2/6/97

REV. 6/13
REV. 1/15
REV. 12/17

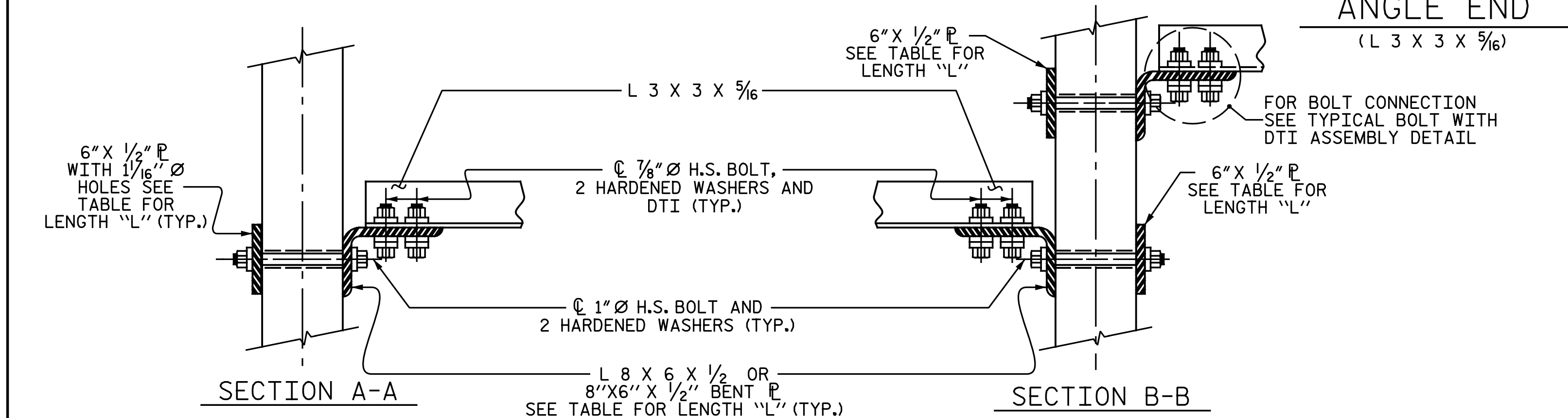
MAA/GM
MAA/TMG
MAA/THC

(SEE PARTIAL ELEVATION ON "PRESTRESSED CONCRETE GIRDER CONTINUOUS
FOR LIVE LOAD DETAILS" SHEET FOR ADDITIONAL "S" BARS)
(SPAN A SHOWN, SPAN B SIMILAR BY ROTATION)

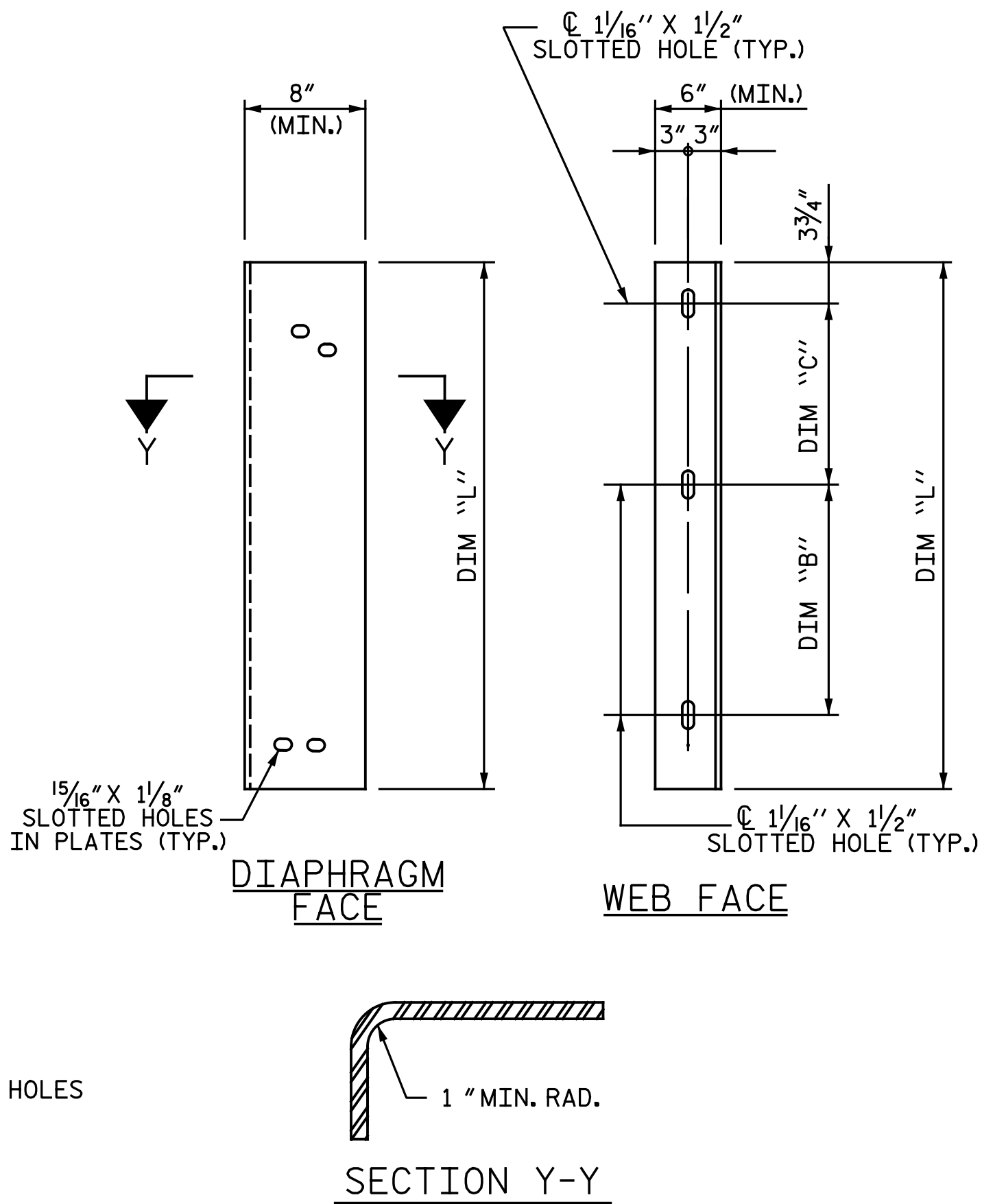
STD. NO. PCG7



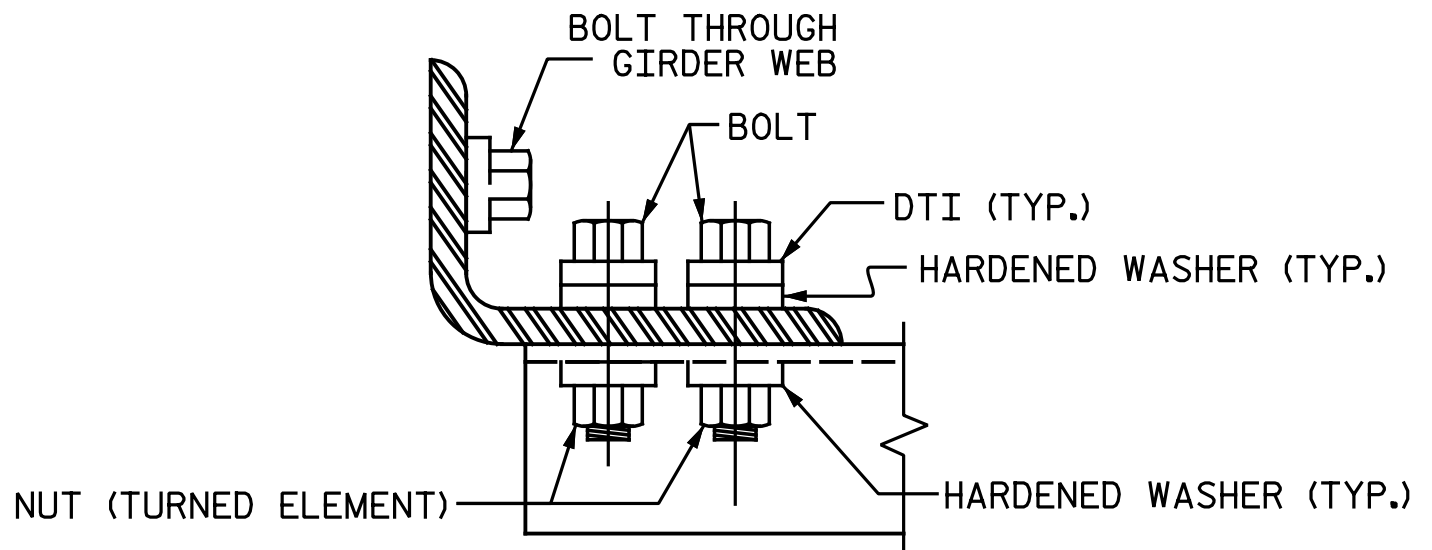
PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTION DETAILS



CONNECTOR PLATE DETAIL



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
63" BULB TEE	1'-5 3/4"	1'-4"	1'-4"	3'-5"

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

ASSEMBLED BY : N. B. SPEAKS	DATE : 10-15-18
CHECKED BY : A. H. SHARPE	DATE : 10-17-18
DRAWN BY : RWW 11/09	REV. 10/11/11
CHECKED BY : GM 11/09	REV. 12/17
	MAA/GM
	MAA/THC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Michael Baker INTERNATIONAL	Michael Baker Engineering 8000 Regency Parkway, Suite 600 Cary, North Carolina 27518 NC License No.: F-1084

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S2-13					TOTAL SHEETS 33

NOTES

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

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

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

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

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

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

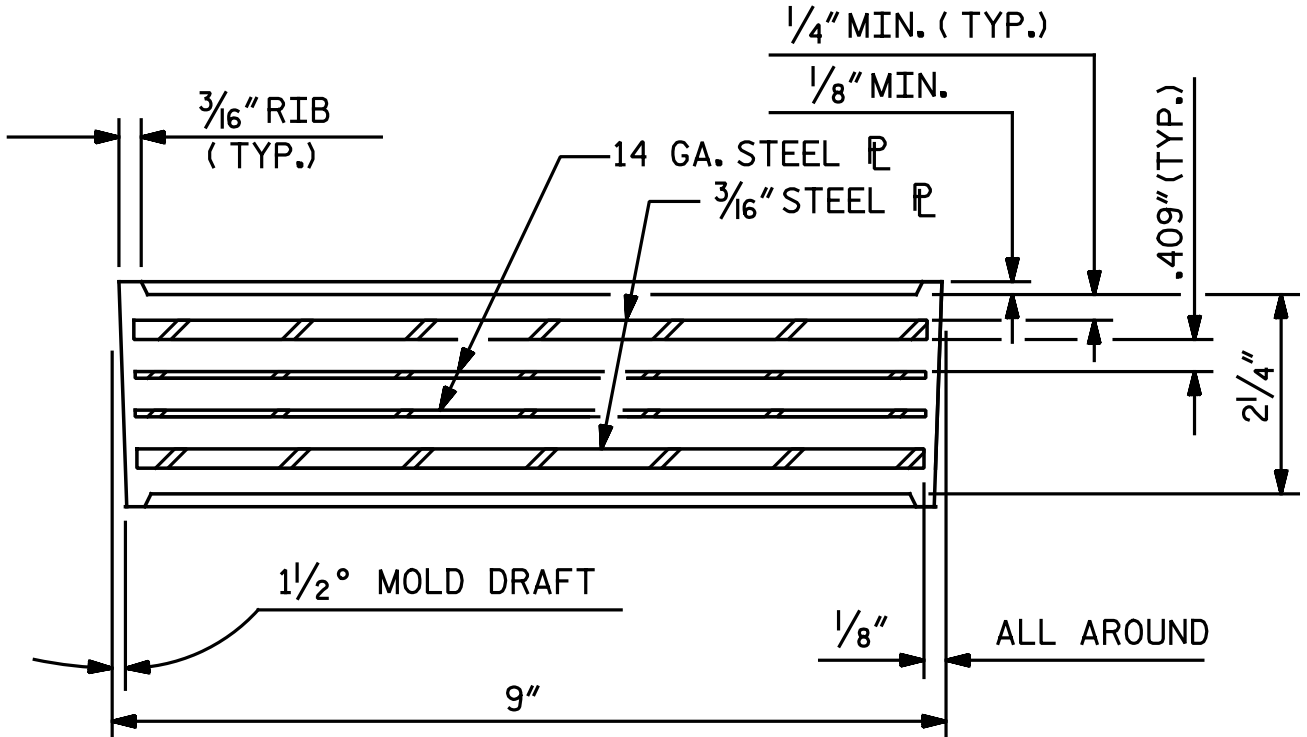
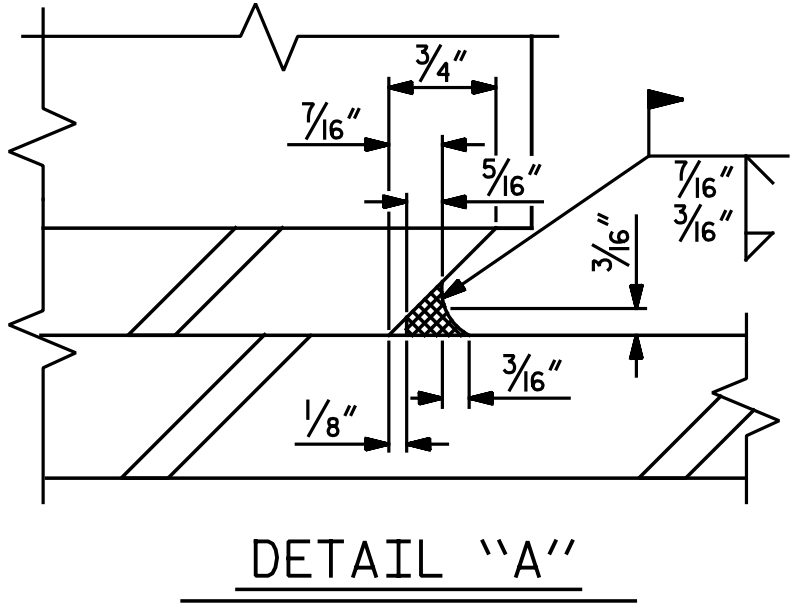
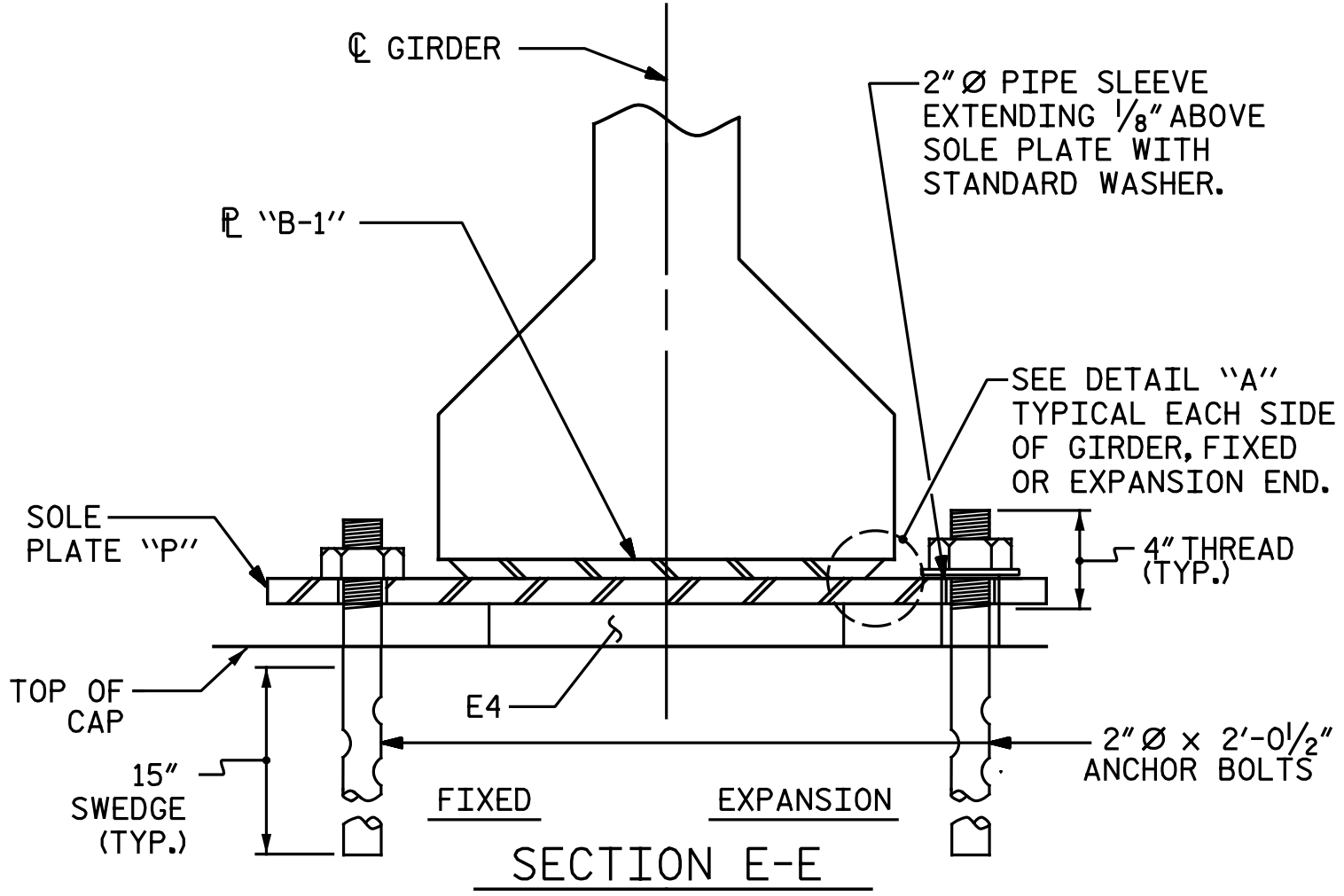
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

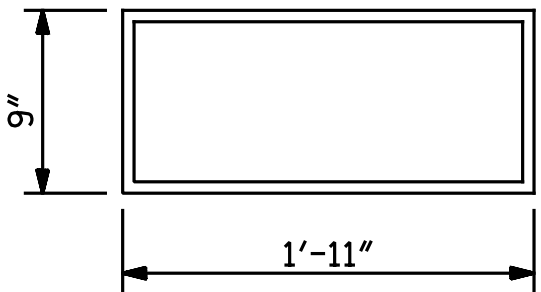
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

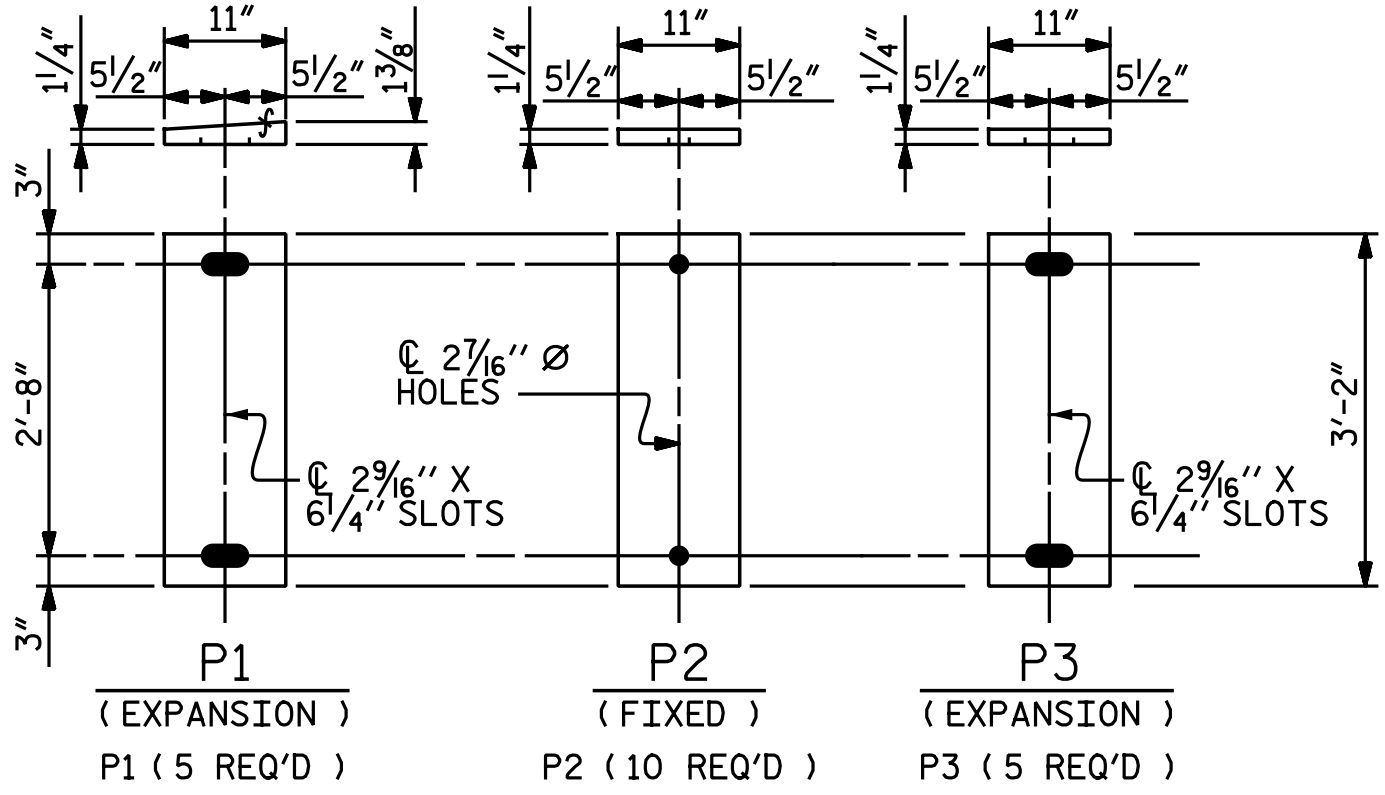
ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



TYPICAL SECTION OF ELASTOMERIC BEARINGS

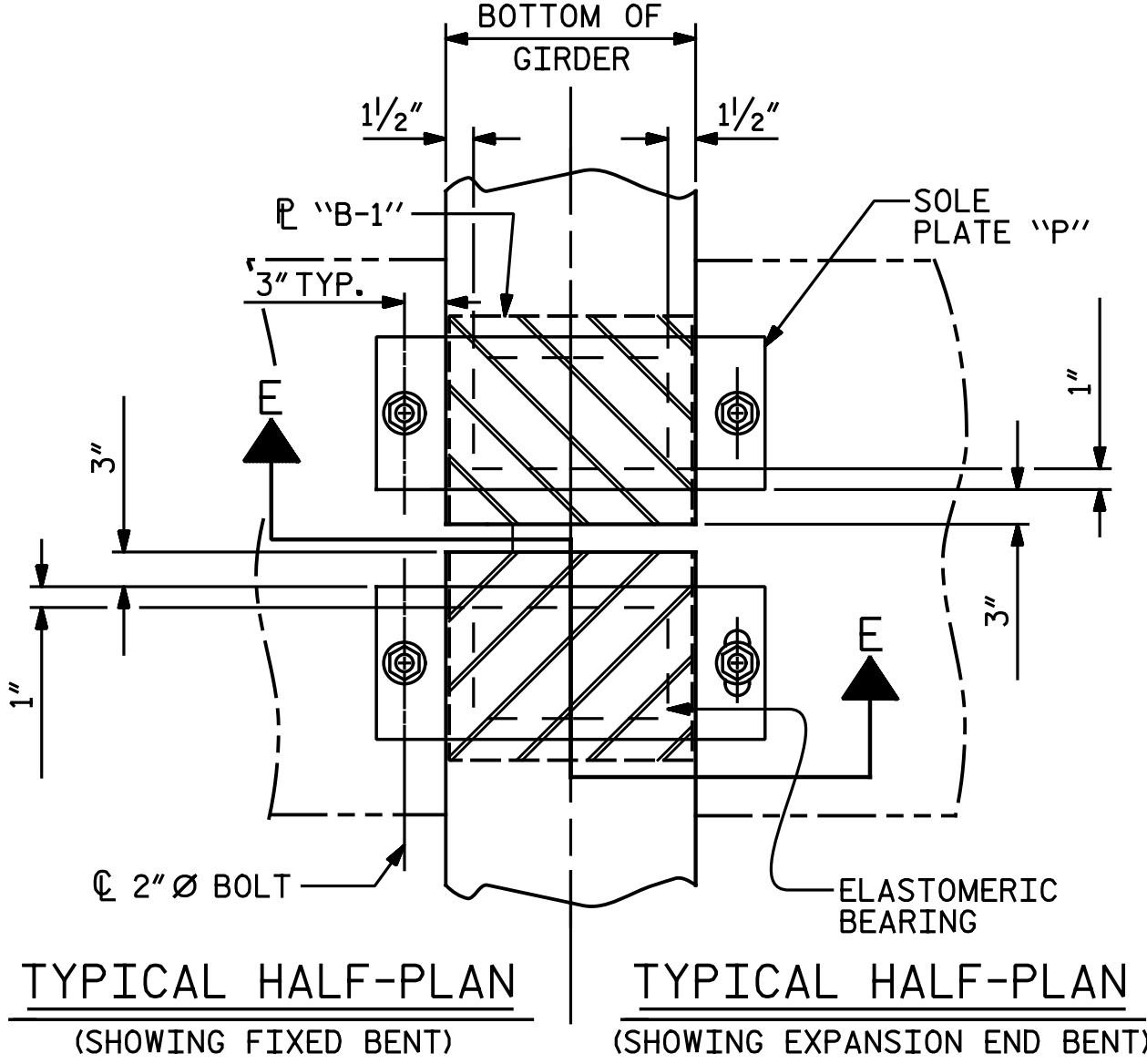


PLAN VIEW OF ELASTOMERIC BEARING
TYPE V

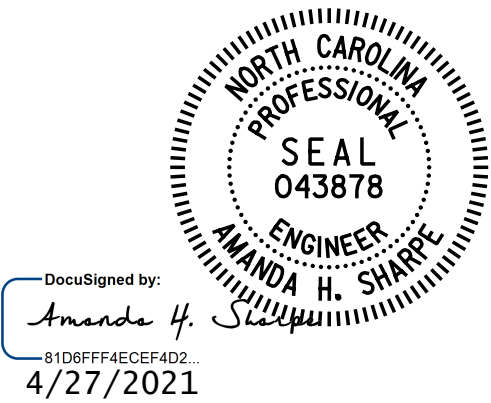


SOLE PLATE DETAILS ("P")

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE V	365 k



PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-



DocuSigned by:
Amanda H. Sharpe
81D0FFFAEDEF4D2
4/27/2021

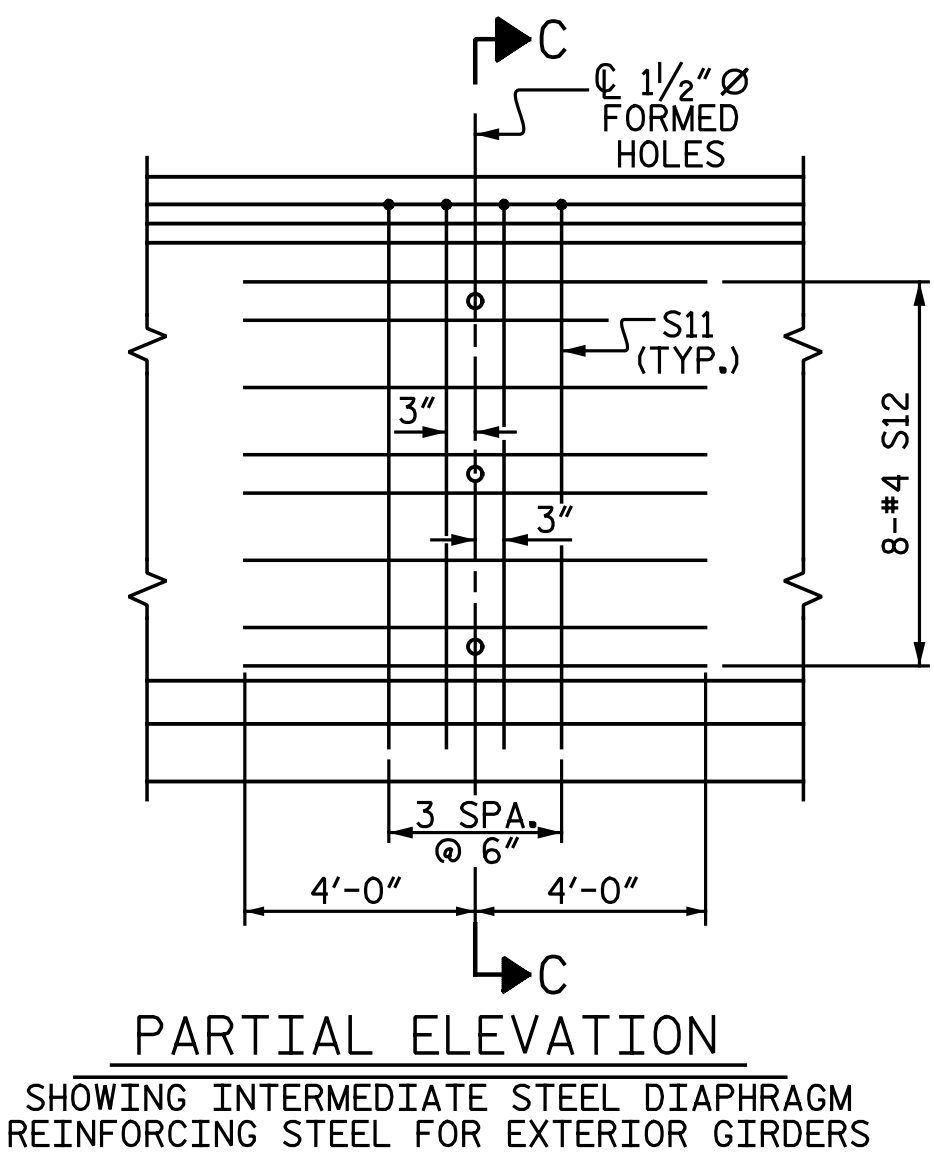
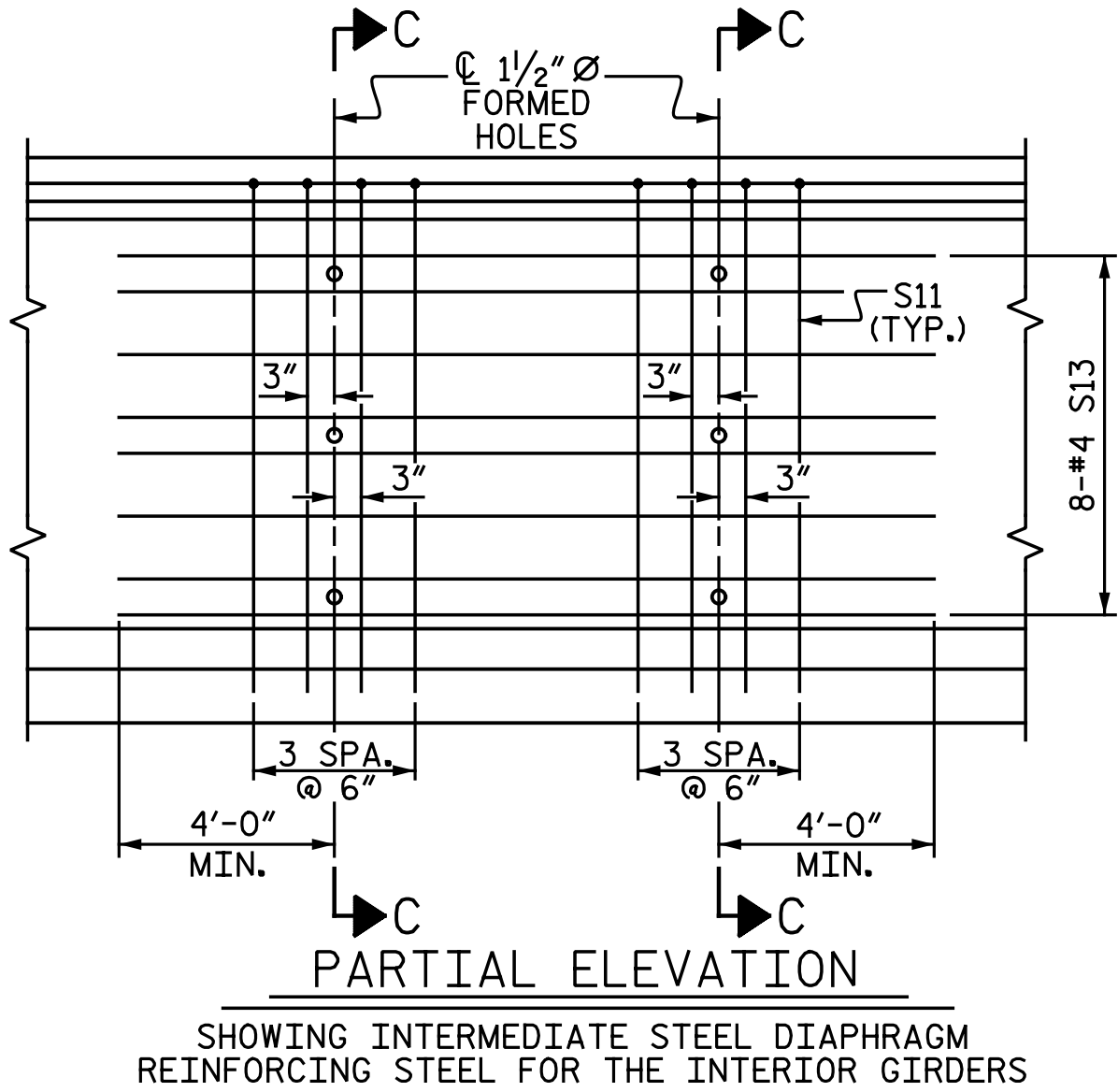
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Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD ELASTOMERIC BEARING DETAILS					
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					33

ASSEMBLED BY : N. B. SPEAKS	DATE : 10-15-18
CHECKED BY : A. H. SHARPE	DATE : 4-26-21
DRAWN BY : EEM 2/97	REV. 6/13 AAC/MAA
CHECKED BY : VAP 2/97	REV. 1/15 MAA/TMG
	REV. 12/17 MAA/THC



FOR "SECTION C-C", SEE 63"PRESTRESSED CONCRETE MODIFIED
BULB TEE CONTINUOUS FOR LIVE LOAD SHEET.

NOTES:

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,800 PSI.

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

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

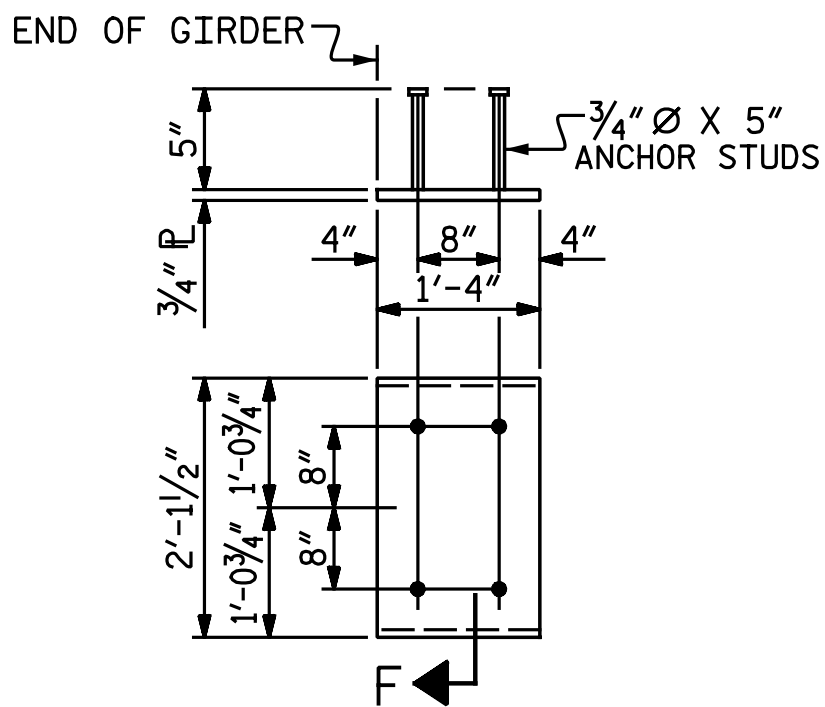
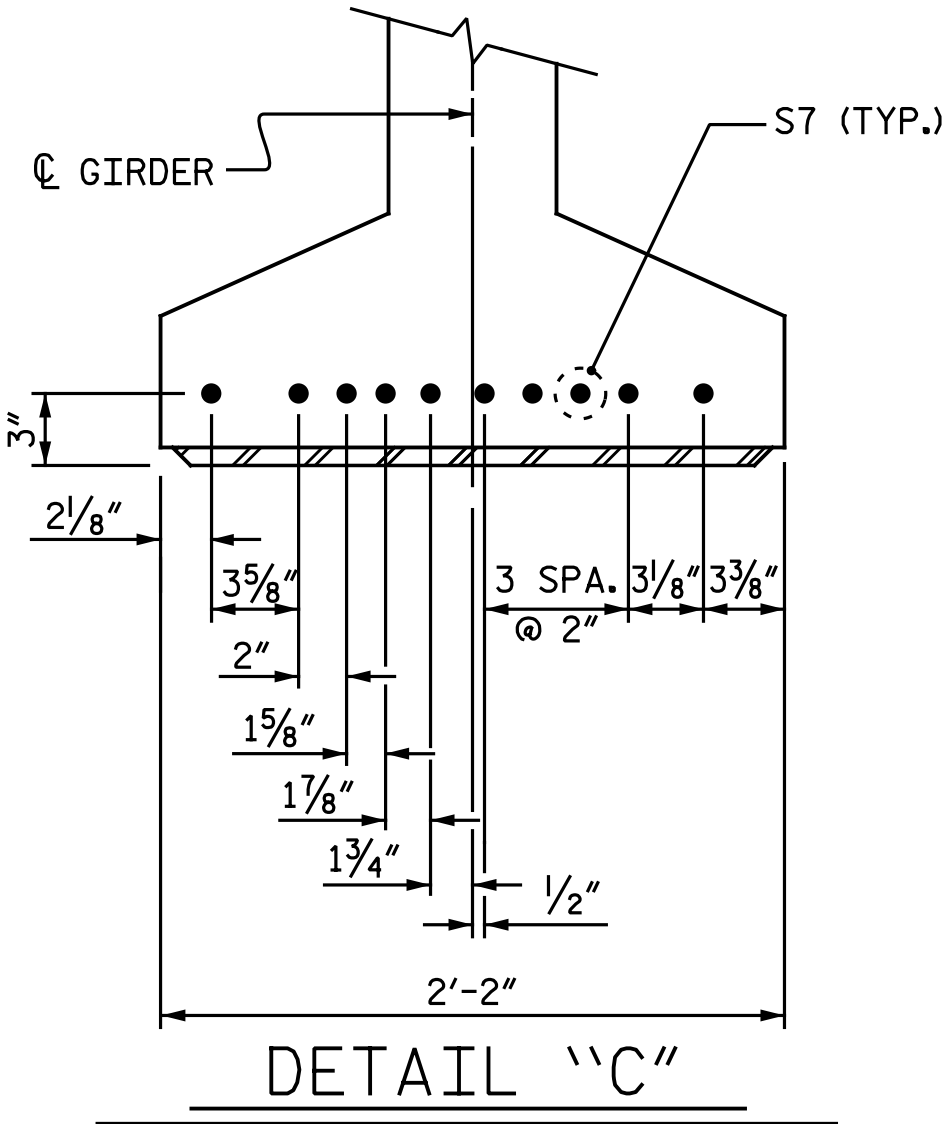
A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" AND 72" MODIFIED BULB TEES ONLY.

DEAD LOAD DEFLECTION TABLE FOR SPAN A & B																					
GIRDERS 1 & 5																					
20TH POINTS	0.00	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.040	0.079	0.116	0.150	0.180	0.206	0.226	0.241	0.250	0.253	0.250	0.241	0.226	0.206	0.180	0.150	0.116	0.079	0.040	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.023	0.044	0.068	0.086	0.105	0.119	0.132	0.140	0.145	0.147	0.145	0.140	0.132	0.119	0.105	0.086	0.068	0.044	0.023	0.000
FINAL CAMBER ↑	0''	3/16''	7/16''	9/16''	3/4''	7/8''	1 1/16''	1 1/8''	1 3/16''	1 1/4''	1 1/4''	1 1/4''	1 3/16''	1 1/8''	1 1/16''	7/8''	3/4''	9/16''	7/16''	3/16''	0''

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

DEAD LOAD DEFLECTION TABLE FOR SPAN A & B																					
GIRDERS 2 THROUGH 4																					
20TH POINTS	0.00	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.040	0.079	0.116	0.150	0.180	0.206	0.226	0.241	0.250	0.253	0.250	0.241	0.226	0.206	0.180	0.150	0.116	0.079	0.040	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. * ↓	0.000	0.026	0.048	0.074	0.094	0.115	0.130	0.144	0.153	0.159	0.161	0.159	0.153	0.144	0.130	0.115	0.094	0.074	0.048	0.026	0.000
FINAL CAMBER ↑	0''	3/16''	3/8''	1/2''	11/16''	13/16''	15/16''	1''	1 1/16''	1 1/16''	1 1/8''	1 1/16''	1 1/16''	1''	15/16''	13/16''	11/16''	1/2''	3/8''	3/16''	0''

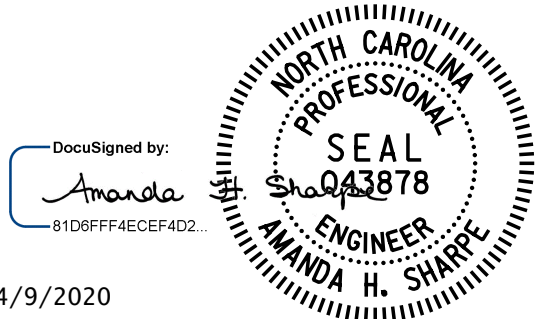
* INCLUDES FUTURE WEARING SURFACE.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXECPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).



EMBEDDED PLATE "B-1" DETAILS
FOR 63" MODIFIED BULB TEES

(2 REQUIRED PER GIRDER)

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-



4/9/2020

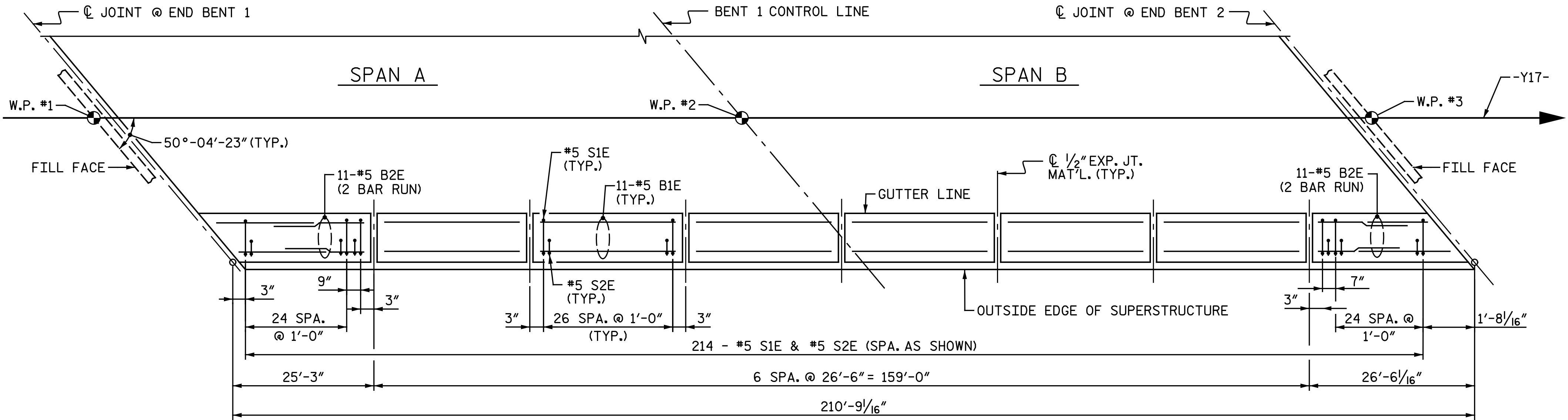
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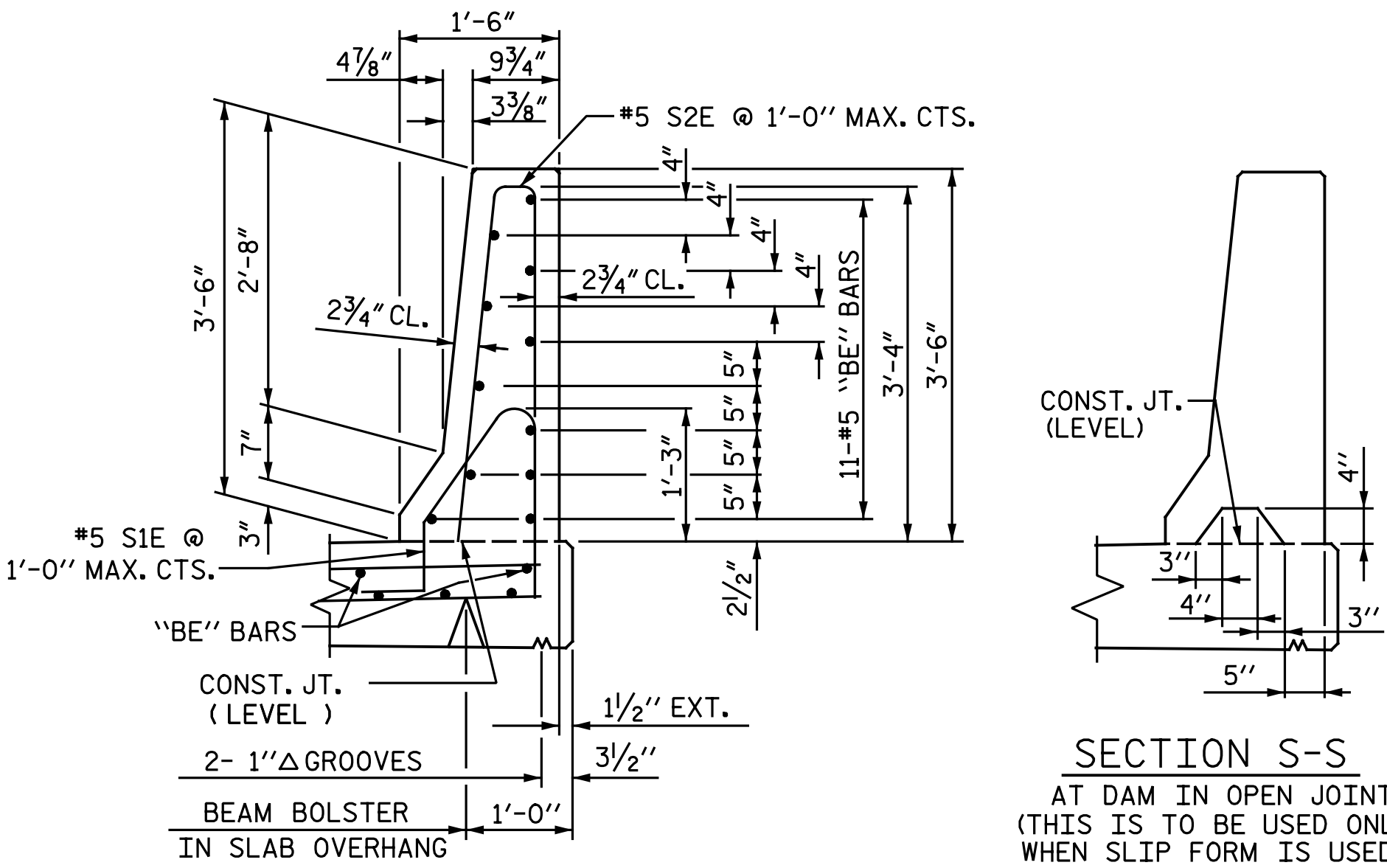
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					33

DRAWN BY : N. B. SPEAKS DATE : 10-31-18
CHECKED BY : A. H. SHARPE DATE : 10-31-18



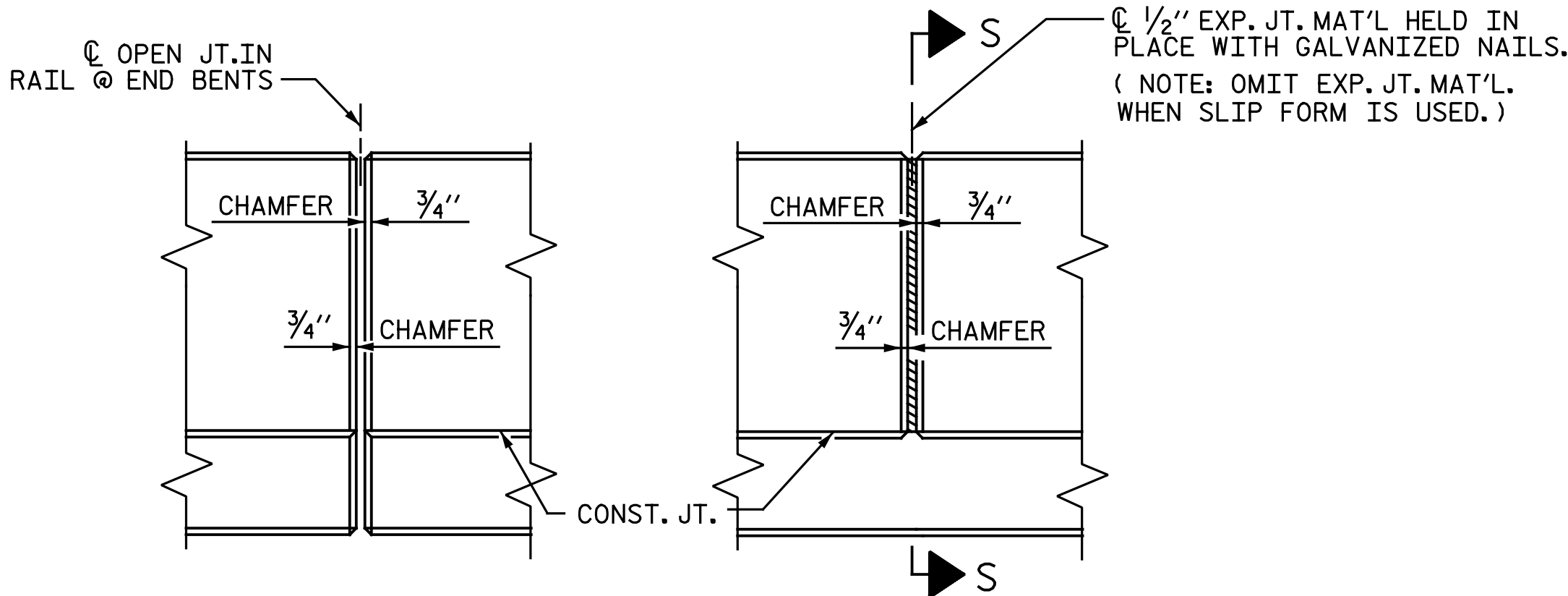
PLAN OF BARRIER RAIL
(RIGHT RAIL SHOWN, LEFT RAIL SIMILAR)



SECTION THRU RAIL

SECTION S-S

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



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

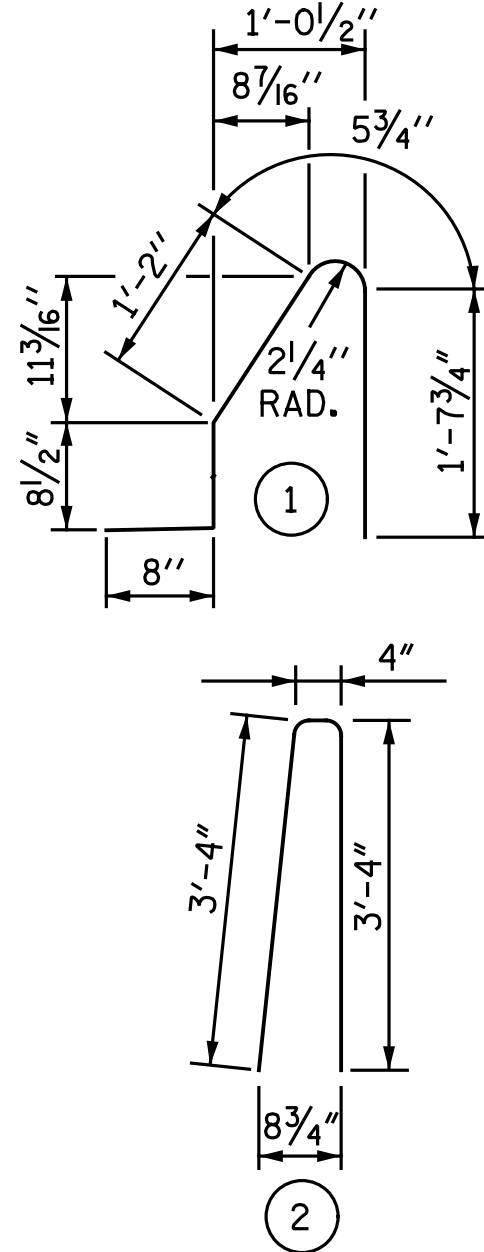
NOTES

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1E	132	#5	STR.	26' - 1"	3,591
B2E	88	#5	STR.	14' - 9"	1,354
S1E	428	#5	1	4' - 8"	2,083
S2E	428	#5	2	7' - 0"	3,125

EPOXY COATED
REINFORCING STEEL * LBS. 10,153

CLASS AA CONCRETE * CU. YDS. 57.3

CONCRETE BARRIER RAIL * L.F. 421.51

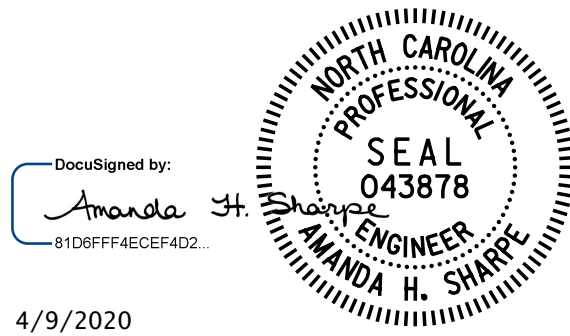
*QUANTITIES DO NOT INCLUDE BARRIER RAILS ON THE APPROACH SLABS. FOR BARRIER RAILS ON THE APPROACH SLABS, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.

"E" SUFFIX DENOTES EPOXY COATED REINFORCING STEEL

SPLICE LENGTH

BAR SIZE	EPOXY COATED
#5	3'-5"

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-



4/9/2020

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Michael Baker
INTERNATIONAL

Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE
BARRIER RAIL

REVISIONS						SHEET NO. S2-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

STD. NO. CBR1

ASSEMBLED BY : N. B. SPEAKS	DATE : 10-15-18
CHECKED BY : V. A. PATEL	DATE : 11-2-18
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

STD. NO. GRA2

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE MONOLITHIC CONCRETE ISLAND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN FILL FACE AT END BENT 1 TO FILL FACE AT END BENT 2 AND OVER THE INTERIOR BENT. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE MONOLITHIC CONCRETE ISLAND ON A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

FOR MONOLITHIC CONCRETE ISLAND ON APPROACH SLAB, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.

REVISIONS					SHEET NO.
BY:	DATE:	NO.	BY:	DATE:	S2-18
		3			TOTAL SHEETS
		4			33



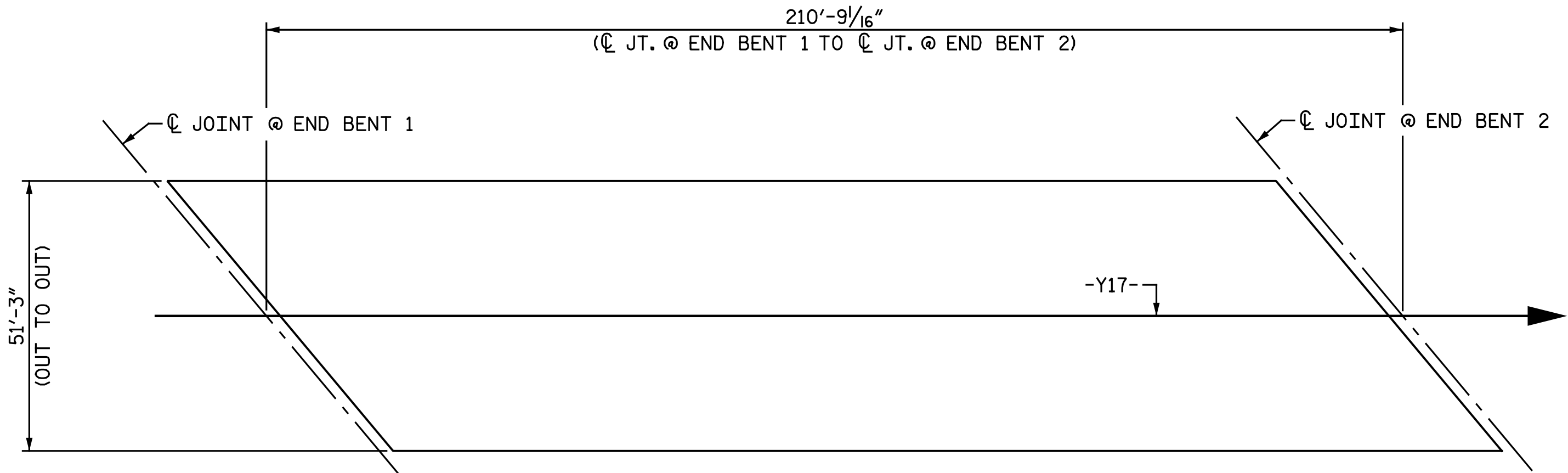
DocuSigned by:
Amanda H. Sharpe
81D6FF4ECEF402...



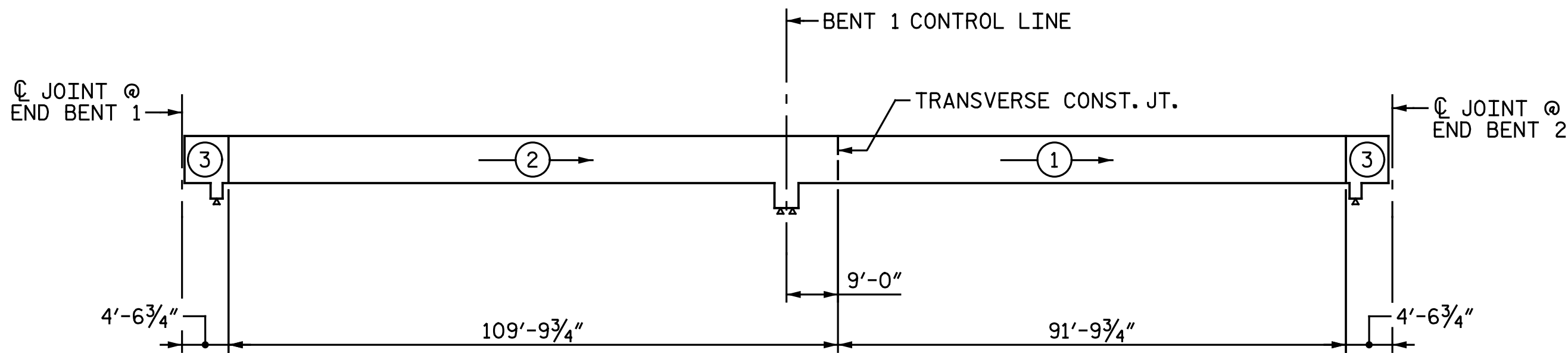
4/9/2020

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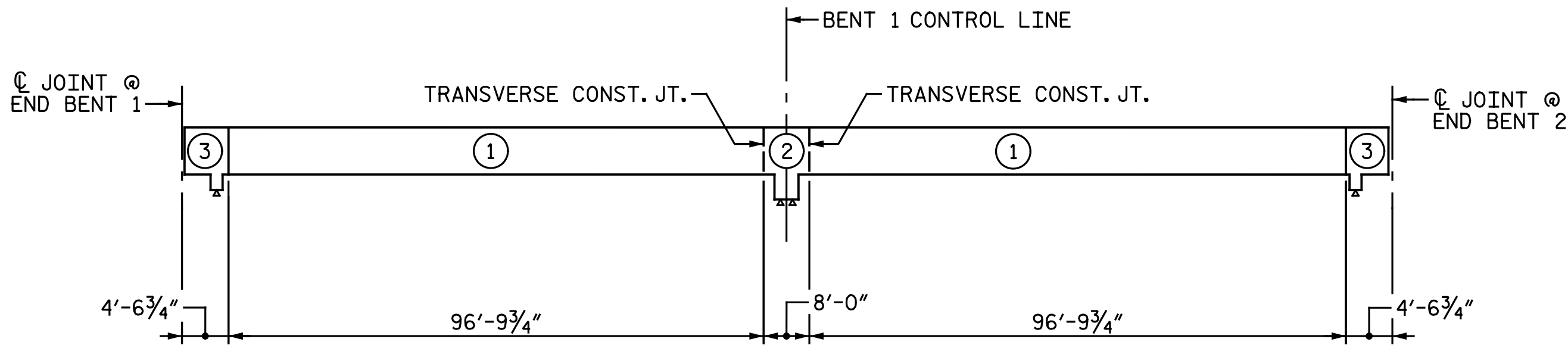
Michael Baker Engineering
8000 Regency Parkway, Suite 6
Cary, North Carolina 27518
NC License No.: F-1084



LAYOUT FOR COMPUTING AREA OF
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 10,801)



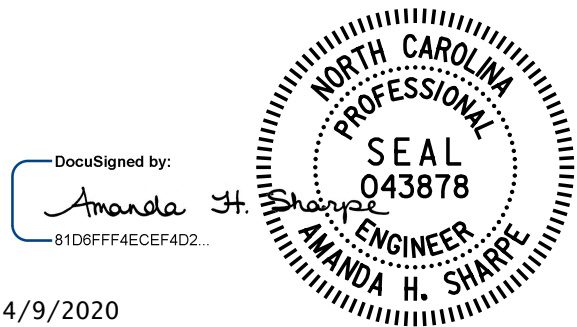
POURING SEQUENCE
→ DENOTES POUR NUMBER AND DIRECTION



OPTIONAL POURING SEQUENCE
DENOTES POUR NUMBER

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

SHEET 1 OF 2



4/9/2020

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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REVISIONS						SHEET NO. S2-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

DRAWN BY : C. E. MAYHEW DATE : 8-31-18
CHECKED BY : A. H. SHARPE DATE : 11-8-18

REINFORCING BAR SCHEDULE																	
SPANS A & B						SPANS A & B CONT'D.						SPANS A & B CONT'D.					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	309	#5	STR.	50' - 11"	16,410	A159E	2	#5	STR.	12' - 9"	27	A244	2	#5	STR.	22' - 5"	47
A2	309	#5	STR.	50' - 11"	16,410	A160E	2	#5	STR.	12' - 1"	25	A245	2	#5	STR.	21' - 9"	45
A3E	20	#6	STR.	34' - 9"	1,044	A161E	2	#5	STR.	11' - 5"	24	A246	2	#5	STR.	21' - 1"	44
						A162E	2	#5	STR.	10' - 9"	22	A247	2	#5	STR.	20' - 6"	43
A101E	2	#5	STR.	50' - 3"	105	A163E	2	#5	STR.	10' - 1"	21	A248	2	#5	STR.	19' - 10"	41
A102E	2	#5	STR.	49' - 7"	103	A164E	2	#5	STR.	9' - 6"	20	A249	2	#5	STR.	19' - 2"	40
A103E	2	#5	STR.	48' - 11"	102	A165E	2	#5	STR.	8' - 10"	18	A250	2	#5	STR.	18' - 6"	39
A104E	2	#5	STR.	48' - 4"	101	A166E	2	#5	STR.	8' - 2"	17	A251	2	#5	STR.	17' - 11"	37
A105E	2	#5	STR.	47' - 8"	99	A167E	2	#5	STR.	7' - 6"	16	A252	2	#5	STR.	17' - 3"	36
A106E	2	#5	STR.	47' - 0"	98	A168E	2	#5	STR.	6' - 11"	14	A253	2	#5	STR.	16' - 7"	35
A107E	2	#5	STR.	46' - 4"	97	A169E	2	#5	STR.	6' - 3"	13	A254	2	#5	STR.	15' - 11"	33
A108E	2	#5	STR.	45' - 9"	95	A170E	2	#5	STR.	5' - 7"	12	A255	2	#5	STR.	15' - 4"	32
A109E	2	#5	STR.	45' - 1"	94	A171E	2	#5	STR.	4' - 11"	10	A256	2	#5	STR.	14' - 8"	31
A110E	2	#5	STR.	44' - 5"	93	A172E	2	#5	STR.	4' - 4"	9	A257	2	#5	STR.	14' - 0"	29
A111E	2	#5	STR.	43' - 9"	91	A173E	2	#5	STR.	3' - 8"	8	A258	2	#5	STR.	13' - 4"	28
A112E	2	#5	STR.	43' - 2"	90	A174E	2	#5	STR.	3' - 0"	6	A259	2	#5	STR.	12' - 9"	27
A113E	2	#5	STR.	42' - 6"	89	A175E	2	#5	STR.	2' - 4"	5	A260	2	#5	STR.	12' - 1"	25
A114E	2	#5	STR.	41' - 10"	87	A176E	2	#5	STR.	1' - 8"	3	A261	2	#5	STR.	11' - 5"	24
A115E	2	#5	STR.	41' - 2"	86							A262	2	#5	STR.	10' - 9"	22
A116E	2	#5	STR.	40' - 6"	84	A201	2	#5	STR.	50' - 3"	105	A263	2	#5	STR.	10' - 1"	21
A117E	2	#5	STR.	39' - 11"	83	A202	2	#5	STR.	49' - 7"	103	A264	2	#5	STR.	9' - 6"	20
A118E	2	#5	STR.	39' - 3"	82	A203	2	#5	STR.	48' - 11"	102	A265	2	#5	STR.	8' - 10"	18
A119E	2	#5	STR.	38' - 7"	80	A204	2	#5	STR.	48' - 4"	101	A266	2	#5	STR.	8' - 2"	17
A120E	2	#5	STR.	37' - 11"	79	A205	2	#5	STR.	47' - 8"	99	A267	2	#5	STR.	7' - 6"	16
A121E	2	#5	STR.	37' - 4"	78	A206	2	#5	STR.	47' - 0"	98	A268	2	#5	STR.	6' - 11"	14
A122E	2	#5	STR.	36' - 8"	76	A207	2	#5	STR.	46' - 4"	97	A269	2	#5	STR.	6' - 3"	13
A123E	2	#5	STR.	36' - 0"	75	A208	2	#5	STR.	45' - 9"	95	A270	2	#5	STR.	5' - 7"	12
A124E	2	#5	STR.	35' - 4"	74	A209	2	#5	STR.	45' - 1"	94	A271	2	#5	STR.	4' - 11"	10
A125E	2	#5	STR.	34' - 9"	72	A210	2	#5	STR.	44' - 5"	93	A272	2	#5	STR.	4' - 4"	9
A126E	2	#5	STR.	34' - 1"	71	A211	2	#5	STR.	43' - 9"	91	A273	2	#5	STR.	3' - 8"	8
A127E	2	#5	STR.	33' - 5"	70	A212	2	#5	STR.	43' - 2"	90	A274	2	#5	STR.	3' - 0"	6
A128E	2	#5	STR.	32' - 9"	68	A213	2	#5	STR.	42' - 6"	89	A275	2	#5	STR.	2' - 4"	5
A129E	2	#5	STR.	32' - 2"	67	A214	2	#5	STR.	41' - 10"	87	A276	2	#5	STR.	1' - 8"	3
A130E	2	#5	STR.	31' - 6"	66	A215	2	#5	STR.	41' - 2"	86						
A131E	2	#5	STR.	30' - 10"	64	A216	2	#5	STR.	40' - 6"	84	B1E	210	#4	STR.	25' - 1"	3,519
A132E	2	#5	STR.	30' - 2"	63	A217	2	#5	STR.	39' - 11"	83	B2	240	#5	STR.	54' - 3"	13,580
A133E	2	#5	STR.	29' - 6"	62	A218	2	#5	STR.	39' - 3"	82	B3E	105	#6	STR.	26' - 0"	4,100
A134E	2	#5	STR.	28' - 11"	60	A219	2	#5	STR.	38' - 7"	80	B4E	66	#6	STR.	37' - 6"	3,717
A135E	2	#5	STR.	28' - 3"	59	A220	2	#5	STR.	37' - 11"	79						
A136E	2	#5	STR.	27' - 7"	58	A221	2	#5	STR.	37' - 4"	78	G1E	4	#5	STR.	34' - 6"	144
A137E	2	#5	STR.	26' - 11"	56	A222	2	#5	STR.	36' - 8"	76						
A138E	2	#5	STR.	26' - 4"	55	A223	2	#5	STR.	36' - 0"	75	J1E	126	#4	STR.	1' - 5"	119
A139E	2	#5	STR.	25' - 8"	54	A224	2	#5	STR.	35' - 4"	74						
A140E	2	#5	STR.	25' - 0"	52	A225	2	#5	STR.	34' - 9"	72	K1E	8	#8	1	20' - 7"	440
A141E	2	#5	STR.	24' - 4"	51	A226	2	#5	STR.	34' - 1"	71	K2E	12	#8	2	31' - 0"	993
A142E	2	#5	STR.	23' - 9"	50	A227	2	#5	STR.	33' - 5"	70	K3E	16	#5	STR.	12' - 9"	213
A143E	2	#5	STR.	23' - 1"	48	A228	2	#5	STR.	32' - 9"	68	K4E	32	#6	STR.	8' - 10"	425
A144E	2	#5	STR.	22' - 5"	47	A229	2	#5	STR.	32' - 2"	67	K5	32	#4	STR.	12' - 9"	273
A145E	2	#5	STR.	21' - 9"	45	A230	2	#5	STR.	31' - 6"	66	K6	8	#4	STR.	8' - 10"	47
A146E	2	#5	STR.	21' - 1"	44	A231	2	#5	STR.	30' - 10"	64	K7	8	#4	STR.	9' - 2"	49
A147E	2	#5	STR.	20' - 6"	43	A232	2	#5	STR.	30' - 2"	63	K8	10	#4	3	8' - 5"	56
A148E	2	#5	STR.	19' - 10"	41	A233	2	#5	STR.	29' - 6"	62	K9	15	#4	4	16' - 9"	168
A149E	2	#5	STR.	19' - 2"	40	A234	2	#5	STR.	28' - 11"	60	K10	16	#4	STR.	3' - 8"	39
A150E	2	#5	STR.	18' - 6"	39	A235	2	#5	STR.	28' - 3"	59						
A151E	2	#5	STR.	17' - 11"	37	A236	2	#5	STR.	27' - 7"	58	S1E	64	#4	5	7' - 10"	335
A152E	2	#5	STR.	17' - 3"	36	A237	2	#5	STR.	26' - 11"	56	S2E	64	#5	6	5' - 11"	395
A153E	2	#5	STR.	16' - 7"	35	A238	2	#5	STR.	26' - 4"	55	S3	184	#4	8	3' - 4"	410
A154E	2	#5	STR.	15' - 11"	33	A239	2	#5	STR.	25' - 8"	54						
A155E	2	#5	STR.	15' - 4"	32	A240	2	#5	STR.	25' - 0"	52	U1	32	#4	9	15' - 11"	340
A156E	2	#5	STR.	14' - 8"	31	A241	2	#5	STR.	24' - 4"	51	U2	8	#4	5	9' - 3"	49
A157E	2	#5	STR.	14' - 0"	29	A242	2	#5	STR.	23' - 9"	50						
A158E	2	#5	STR.	13' - 4"	28	A243	2	#5	STR.	23' - 1"	48						
												REINFORCING STEEL			LBS.	35,538	
												EPOXY COATED REINF. STEEL			LBS.	35,971	

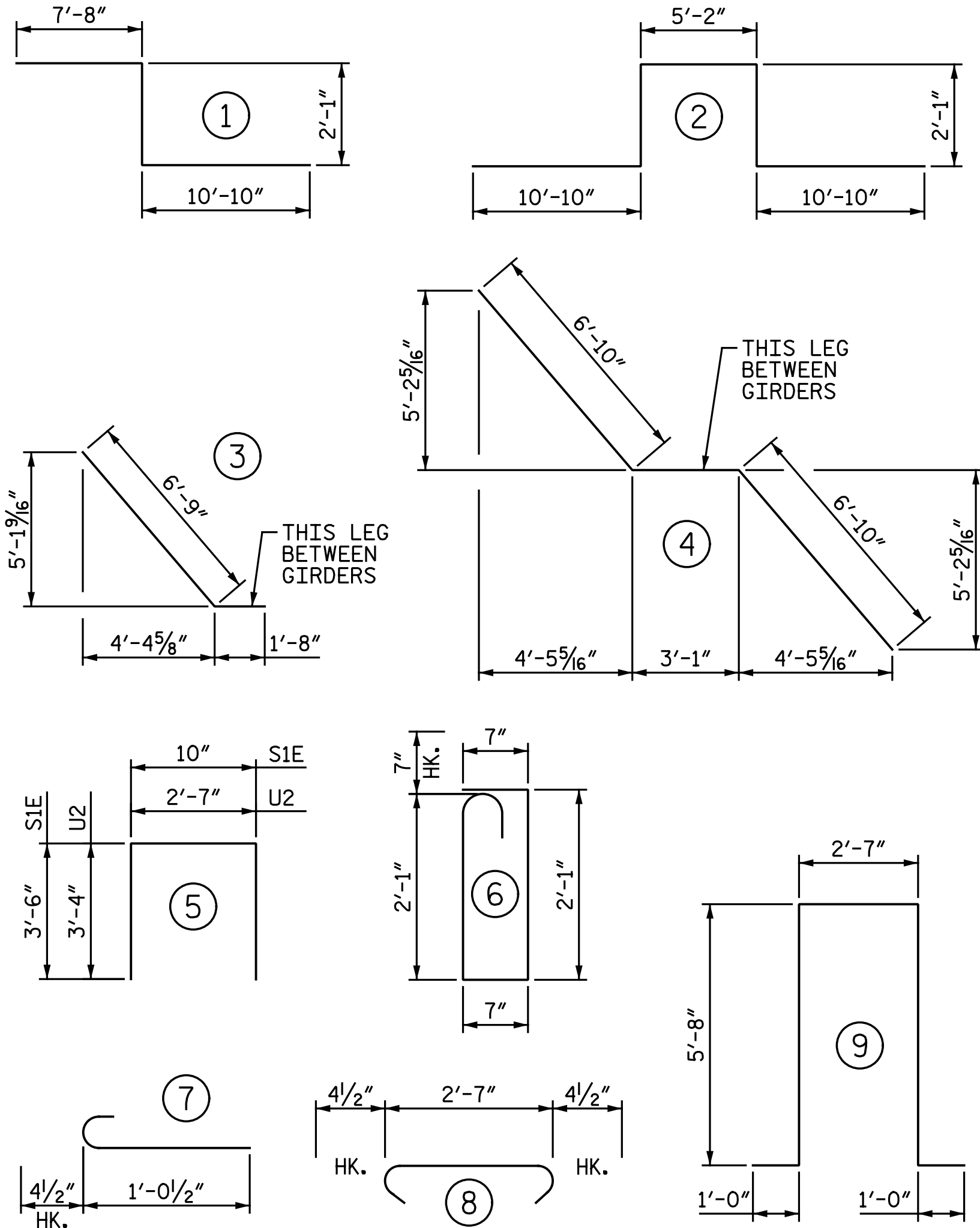
"E" SUFFIX DENOTES EPOXY COATED REINFORCING STEEL.

DRAWN BY : C. E. MAYHEW DATE : 1-10-19
CHECKED BY : A. H. SHARPE DATE : 1-10-19

GROOVING BRIDGE FLOORS

APPROACH SLABS	1,022	SQ.FT.
BRIDGE DECK	7,952	SQ.FT.
TOTAL	8,974	SQ.FT.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

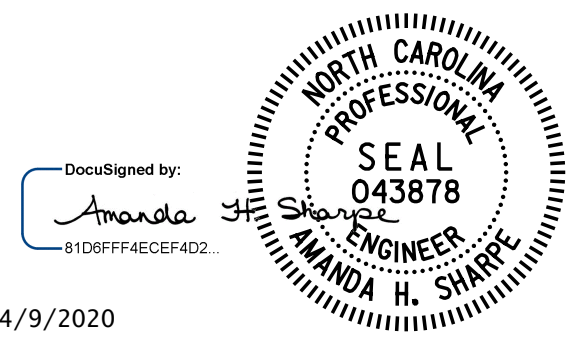
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
SPANS A & B		35,538	35,971
POUR 1	157.3		
POUR 2	213.3		
POUR 3	25.5		
MONOLITHIC CONC. ISLAND	10.9		684
TOTALS*	407	35,538	36,655

* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

SHEET 2 OF 2



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REVISIONS						SHEET NO. S2-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

V1 & K1 BARS IN BACKWALL MAY BE SHIFTED AS NECESSARY TO CLEAR CONDUIT OPENING.

Technical drawing of a bearing pad assembly. The drawing shows a cross-section of a bearing pad (Type V) with dimensions and labels. The bearing pad is 1'-11" x 9" x 2 1/4" ELASTOMERIC BEARING PAD (TYPE V). The assembly includes a GDR (Grip Drilling Rod) and a BRG (Bearing Rod). Dimensions include 9", 4 1/2", 1'-11", 1 1/2", 1 1/2", 1'-4", 2'-8", and 1'-4". The drawing also shows a FILL FACE and a GDR.

DocuSigned by
Amanda H. Sharpe
81D8FF4ECEF4

4/9/2020

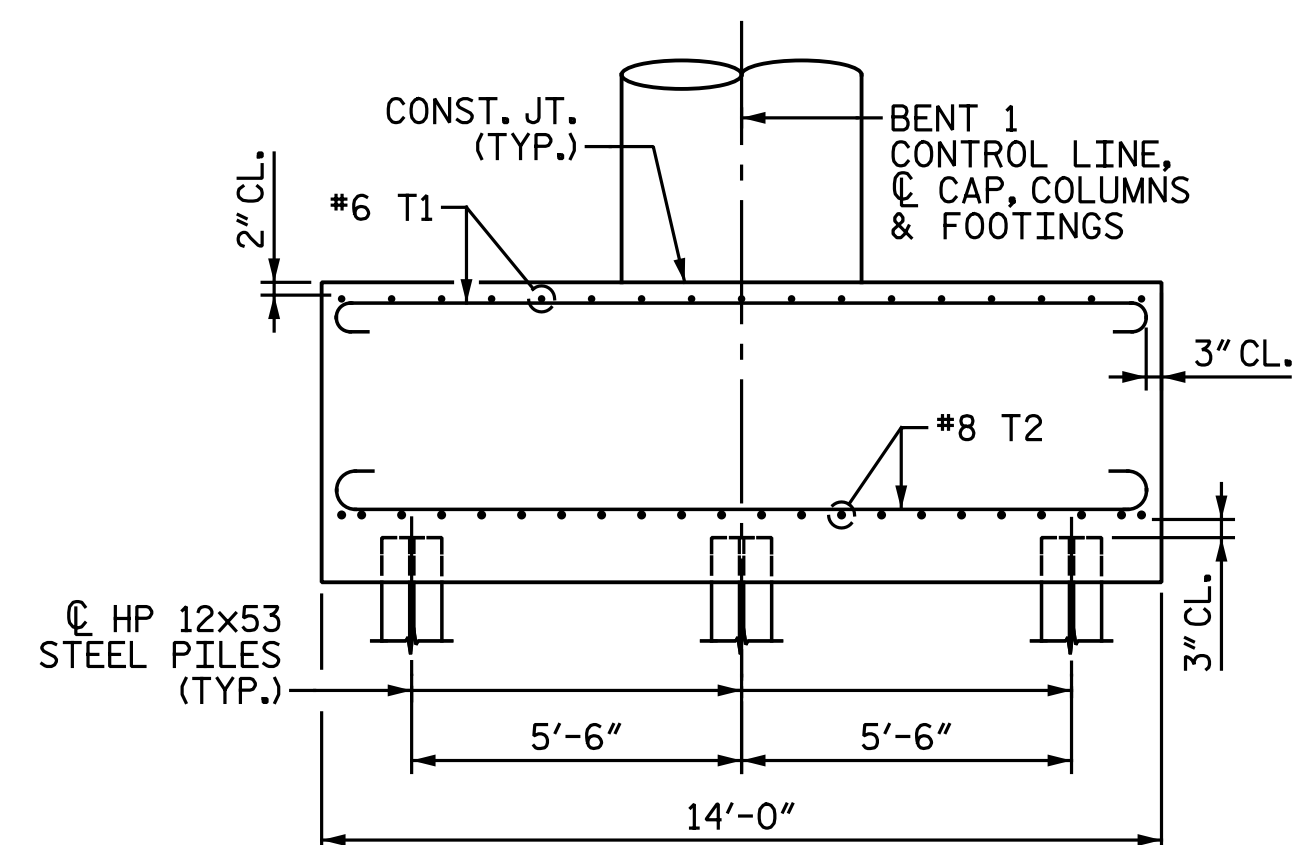
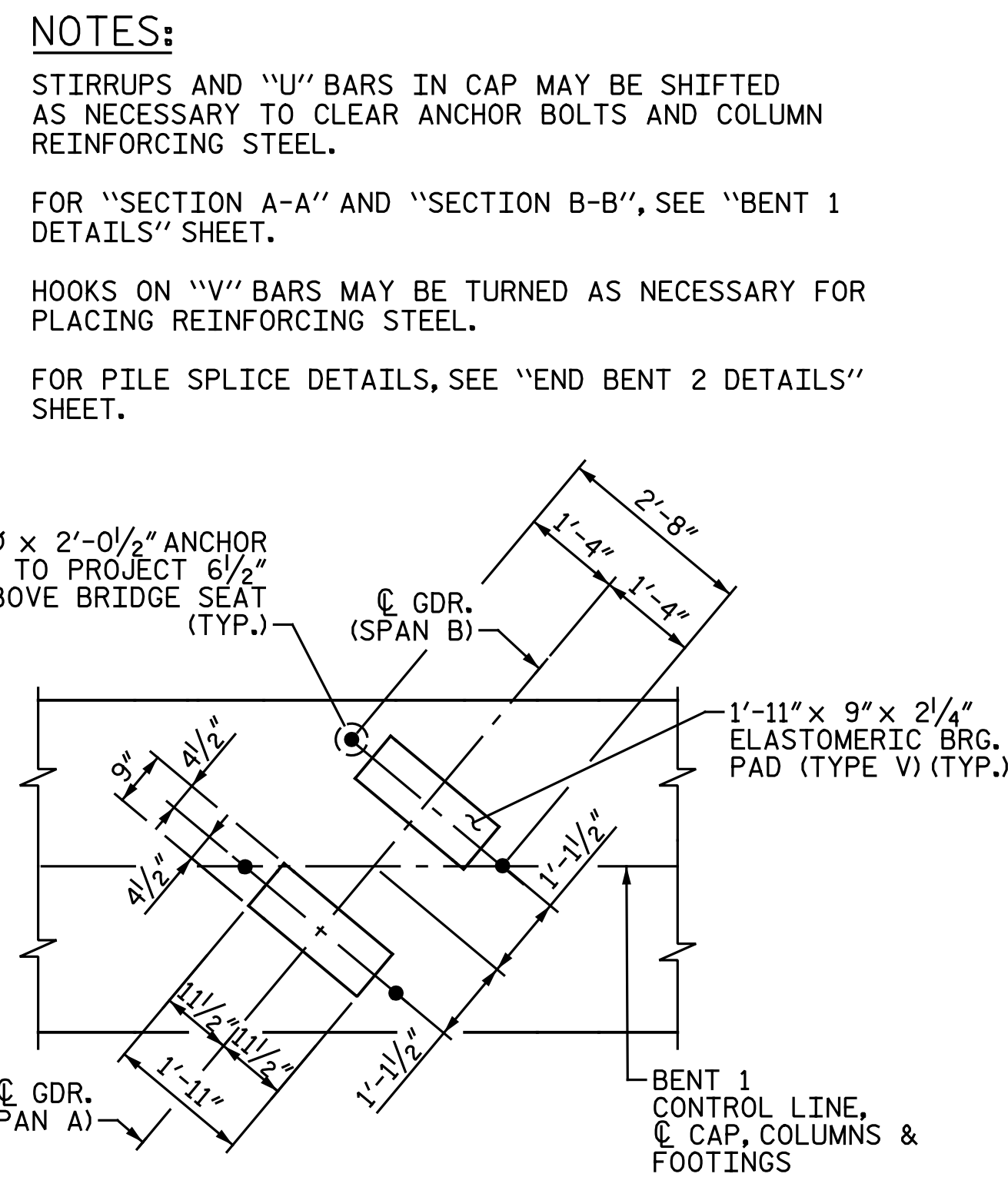
NORTH CAROLINA
PROFESSIONAL
SEAL
Q43878
H. Sharpe
ENGINEER
AMANDA H. SHARPE

REVISIONS						SHEET NO. S2-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD UPS, SEE "SECTION A-A" ON "END BENT 1 DETAILS" SHEET.
▲ CONDUIT OPENING. SEE DETAIL "E" ON "END BENT 1 DETAILS" SHEET.

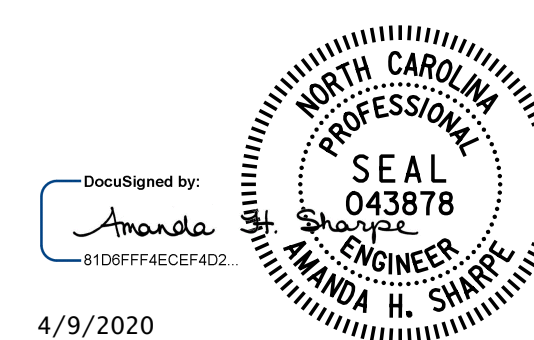
[illegible]

ELEVATION



PARTIAL END ELEVATION
(FOR COLUMN REINFORCING STEEL, SEE ELEVATION)

PROJECT NO. I-5883
HARNETT COUNTY
 STATION: 26+80.73 -Y17-



4/9/2020

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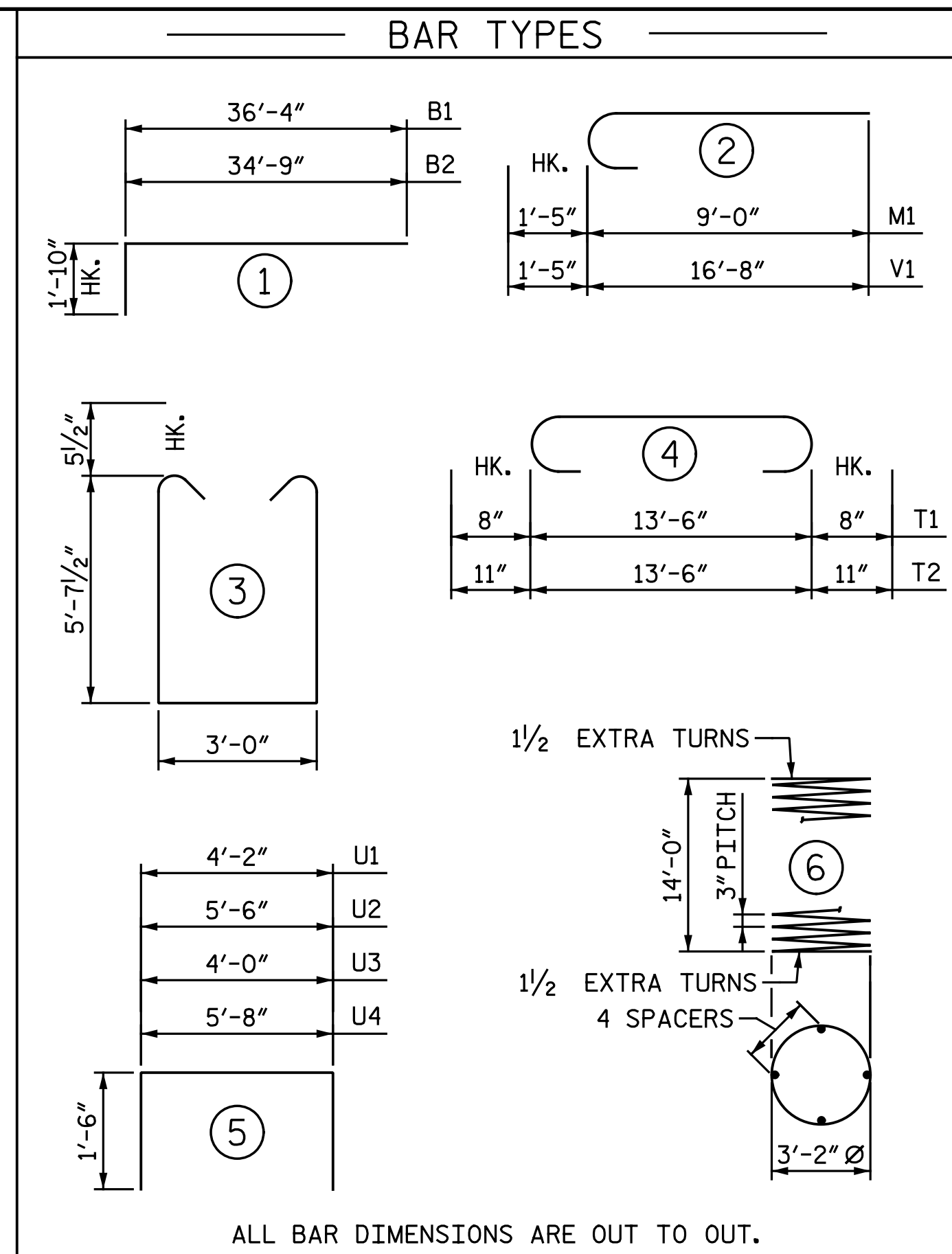
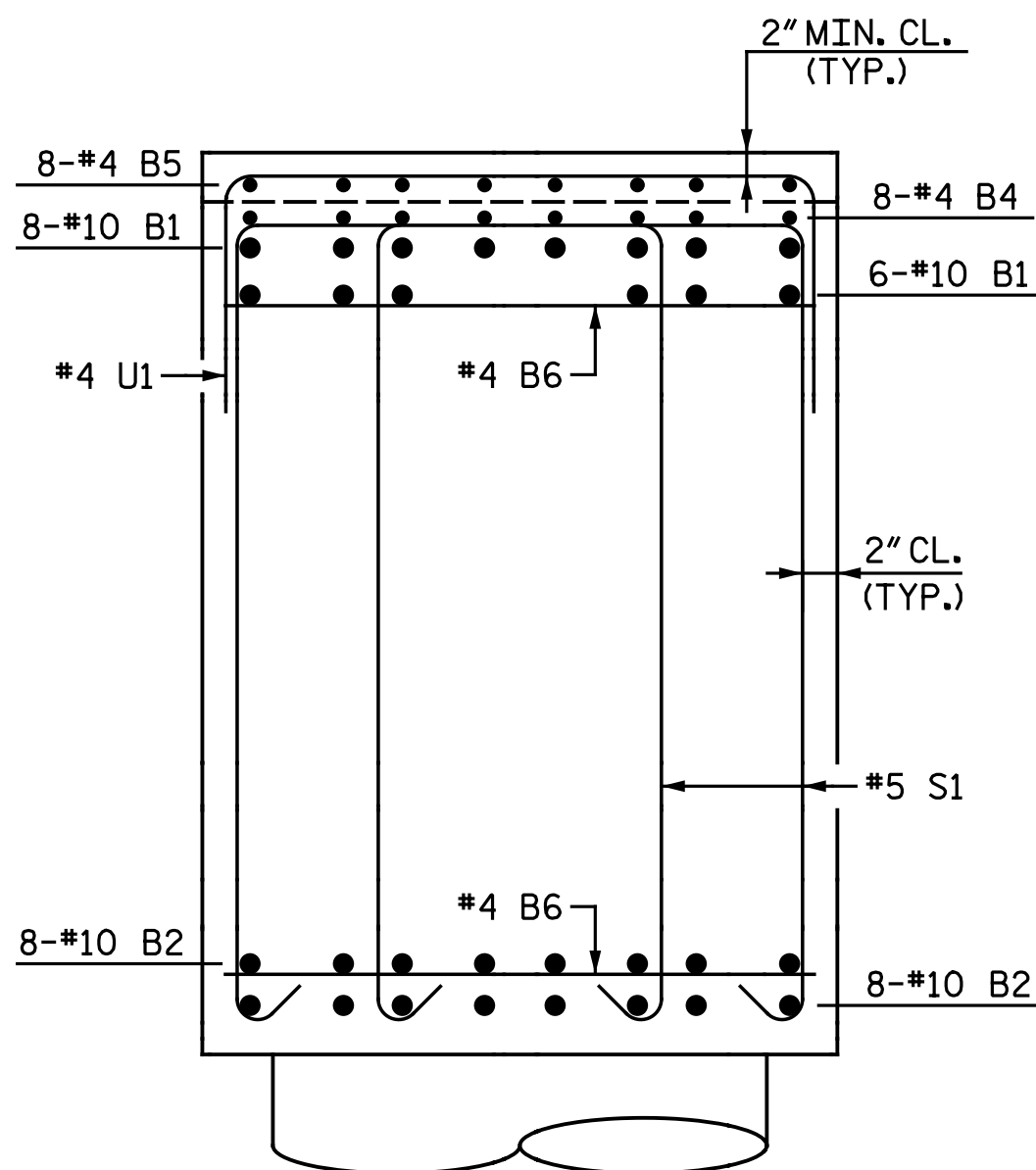
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Cary, North Carolina 27518
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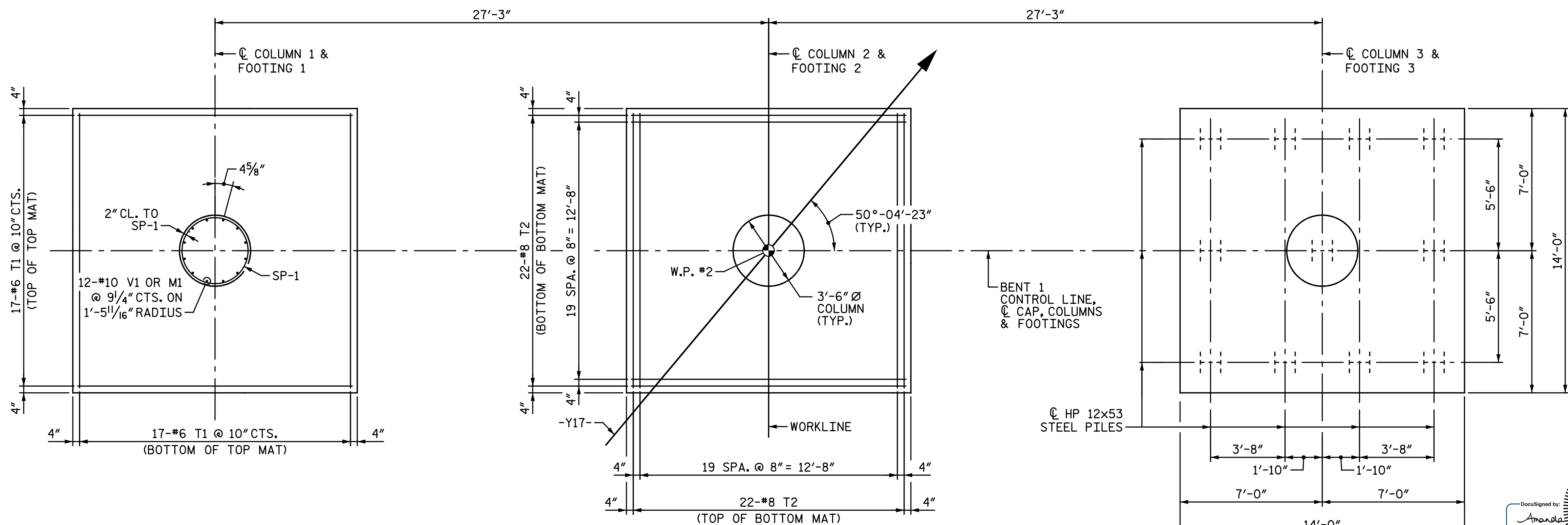
							SHEET NO. S2-25
REVISIONS							
300	NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 33
	1			3			
	2			4			

REINFORCING STEEL DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING.

DIMENSIONS AND PILE LOCATIONS ARE TYPICAL FOR EACH FOOTING.



BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	28	#10	1	38' - 2"	4,598
B2	32	#10	1	36' - 7"	5,037
B3	64	#5	STR.	31' - 10"	2,125
B4	8	#4	STR.	33' - 0"	176
B5	8	#4	STR.	4' - 10"	26
B6	34	#4	STR.	4' - 2"	95
M1	36	#10	2	10' - 5"	1,614
S1	212	#5	3	15' - 2"	3,354
T1	102	#6	4	14' - 10"	2,273
T2	132	#8	4	15' - 4"	5,404
U1	57	#4	5	7' - 2"	273
U2	5	#5	5	8' - 6"	44
U3	12	#5	5	7' - 0"	88
U4	5	#5	5	8' - 8"	45
V1	36	#10	2	18' - 1"	2,801
REINFORCING STEEL				LBS.	27,953
SP-1	3	**	6	579' - 5"	1,161
SPIRAL COLUMN REINFORCING STEEL				LBS.	1,161
CLASS A CONCRETE					
POUR 1 - FOOTINGS				C.Y.	119.8
POUR 2 - COLUMNS				C.Y.	14.7
POUR 3 - CAP				C.Y.	64.5
TOTAL CLASS A CONCRETE				C.Y.	199.0
FOUNDATION EXCAVATION FOR BENT				LUMP SUM	
PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES				EA.	33
HP 12x53 STEEL PILES					
NO. 33				LIN. FT.	2,145
PILE REDRIVES				EA.	16



REINFORCING STEEL DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING.

DIMENSIONS AND PILE LOCATIONS ARE TYPICAL FOR EACH FOOTING.

PROJECT NO. I-5883
HARNETT COUNTY
 STATION: 26+80.73 -Y17-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

BENT 1 DETAILS

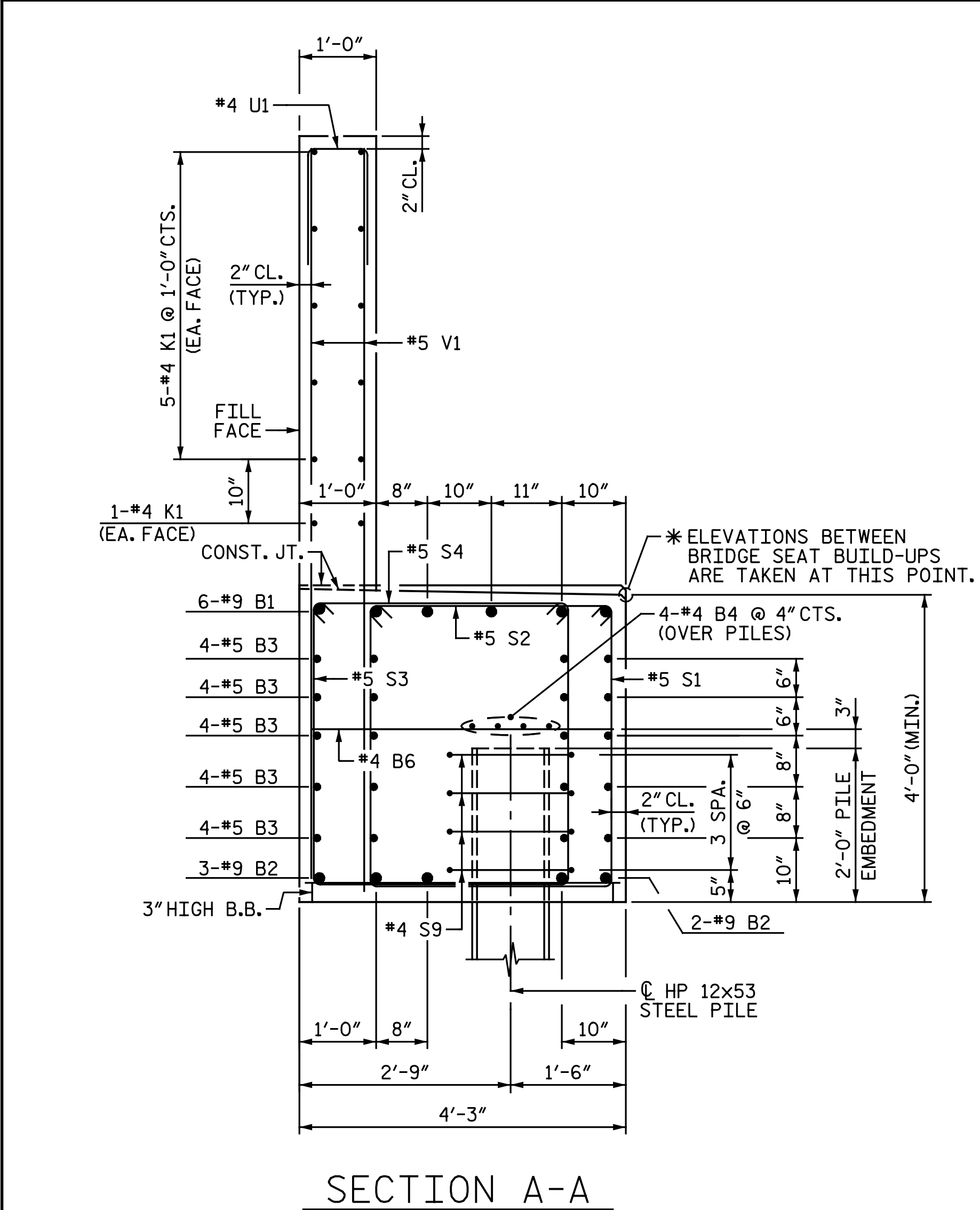
DRAWN BY : M. D. MAYHEW DATE : 11-12-19
CHECKED BY : A. H. SHARPE DATE : 12-4-19

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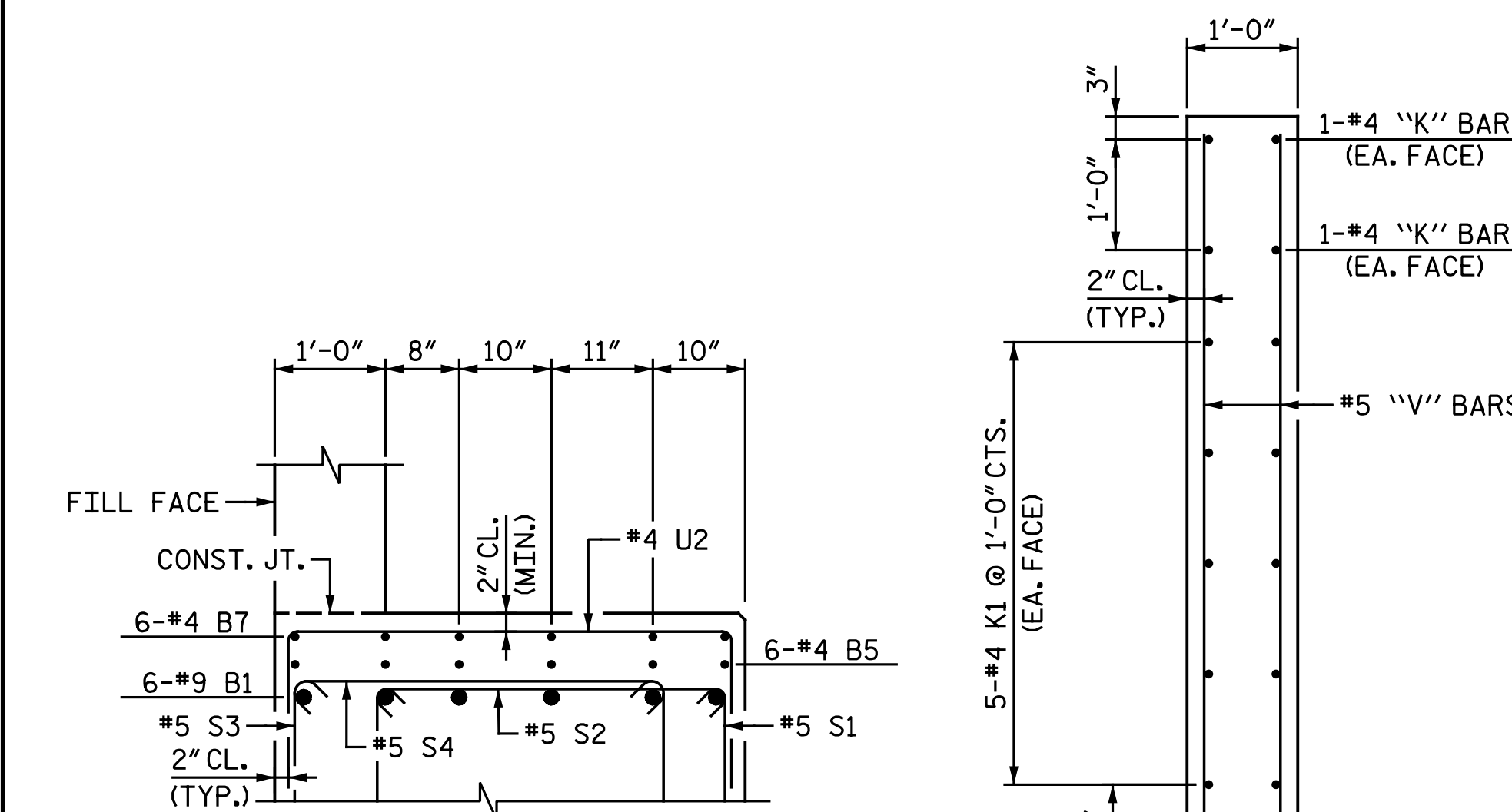
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INTERNATIONAL

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8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No. : F-1084

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-26
1			3			TOTAL SHEETS 33
2			4			

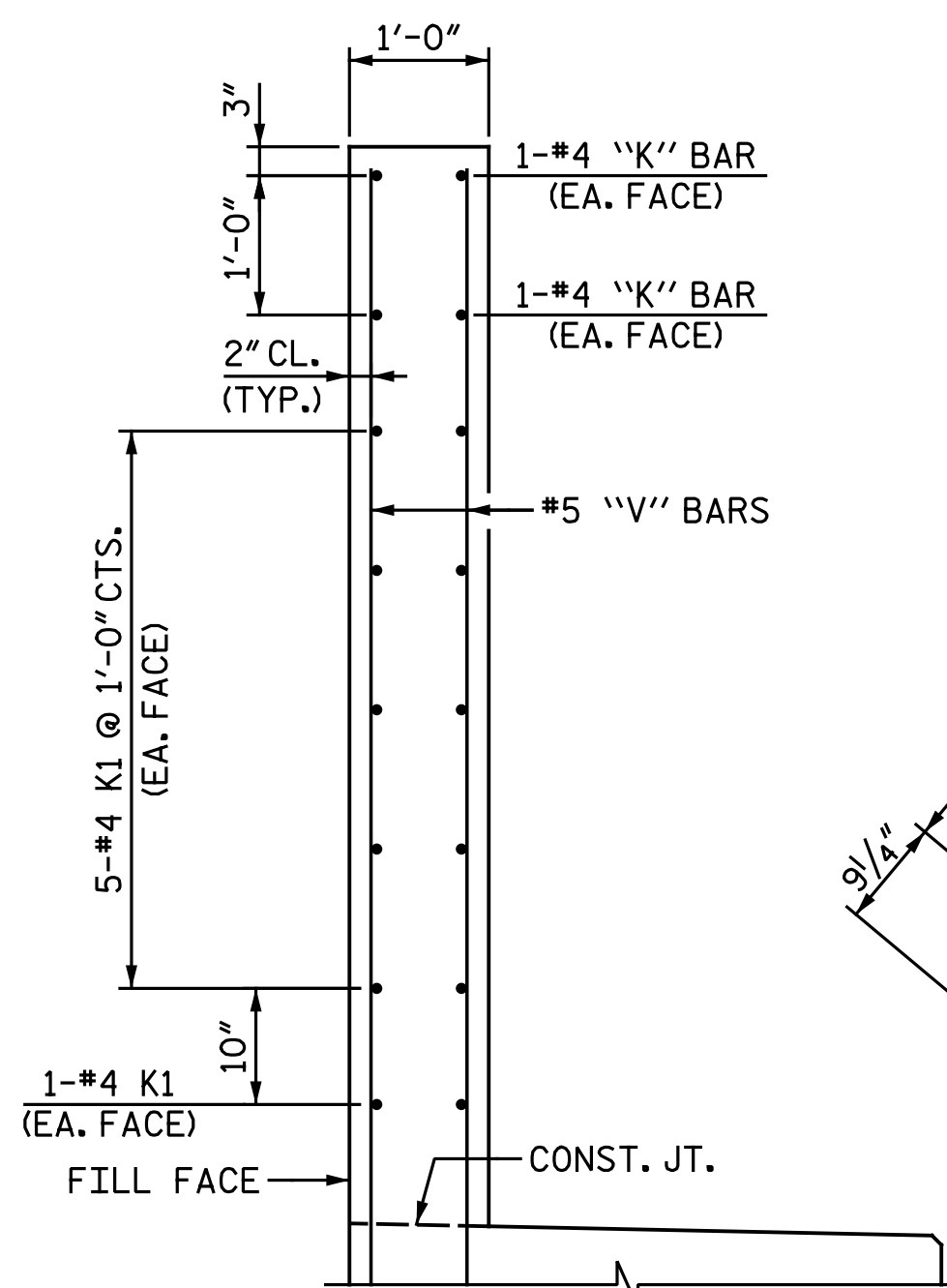


SECTION A-A

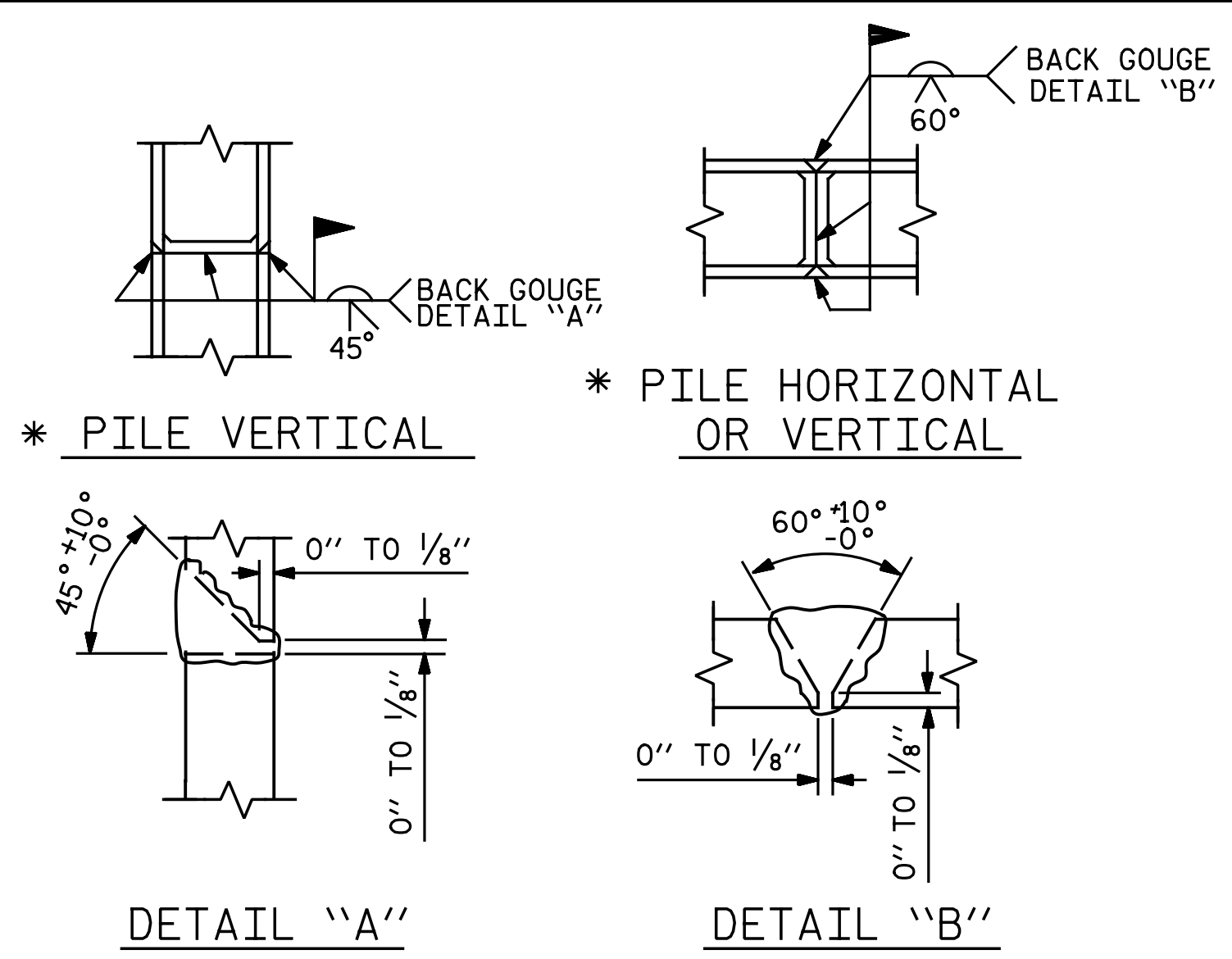


PARTIAL SECTION B-B

V1 BARS NOT SHOWN FOR CLARITY.

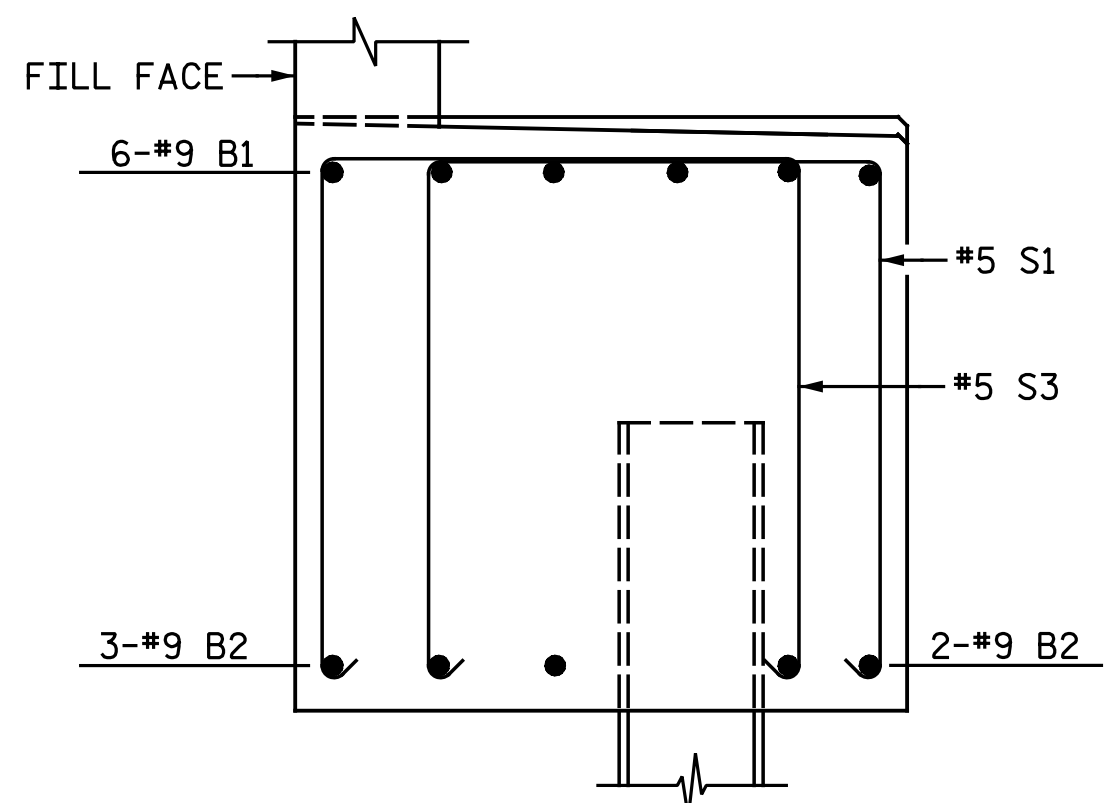


PARTIAL SECTION D-D



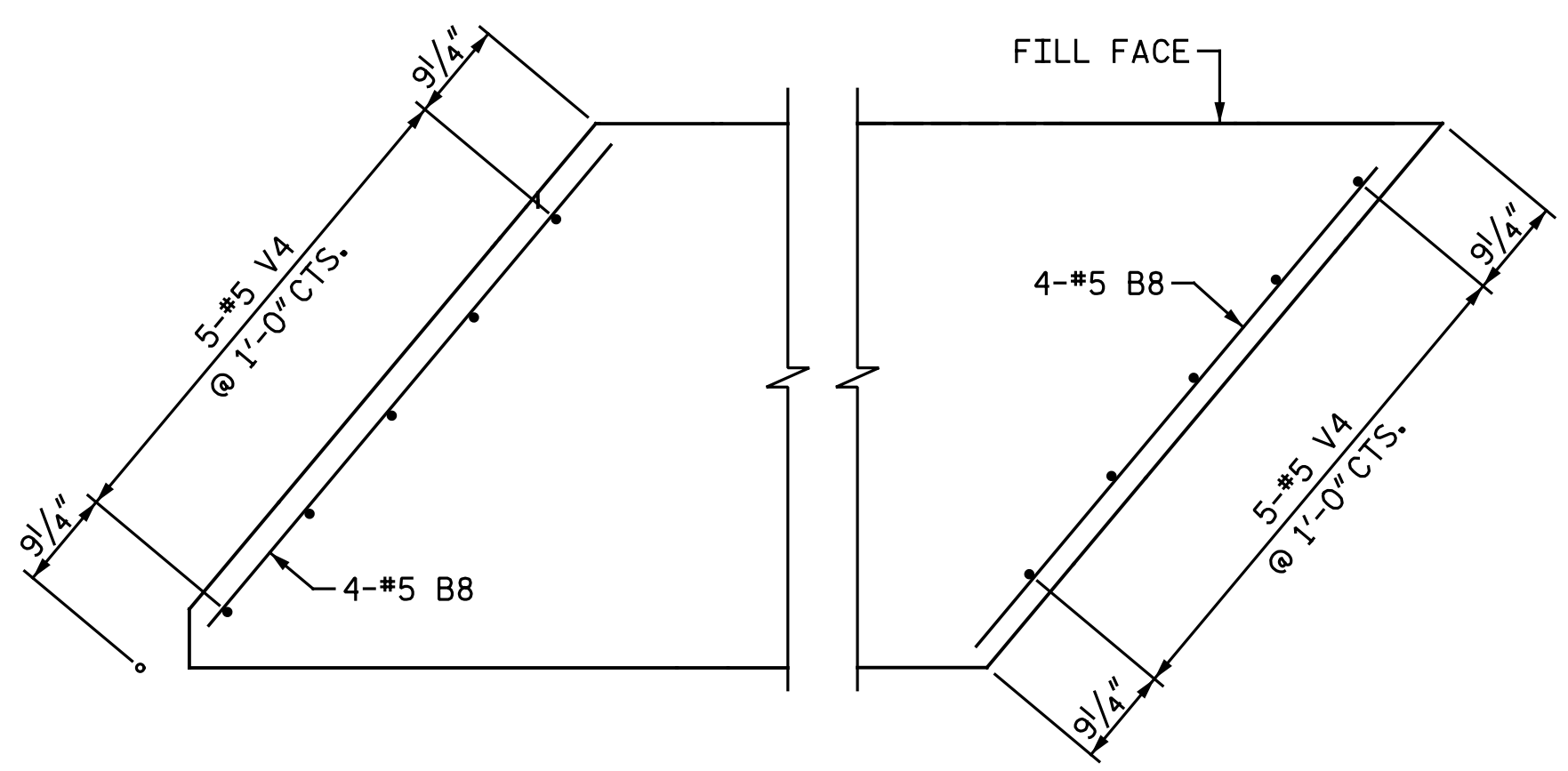
PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.



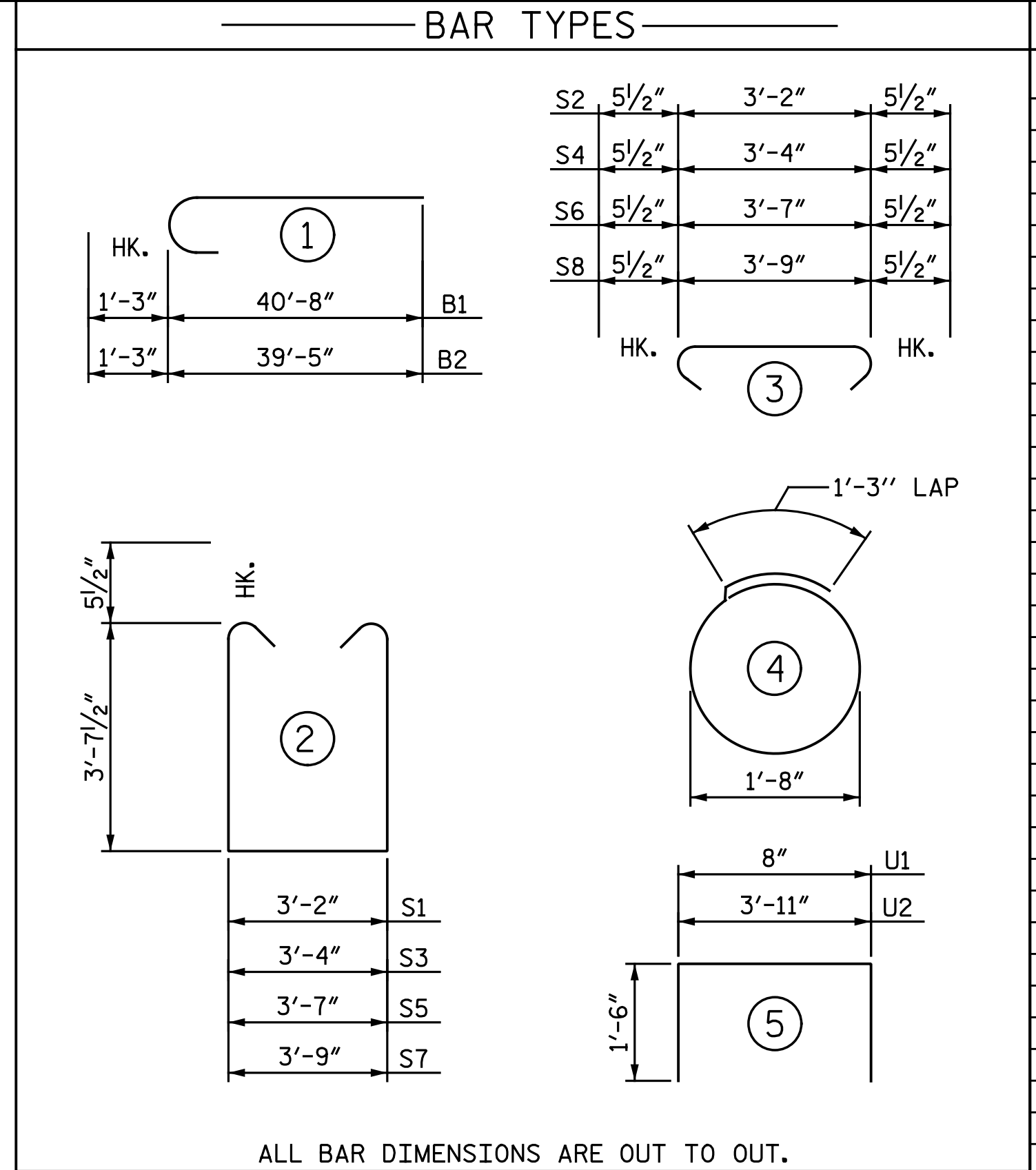
PARTIAL SECTION C-C

ONLY B1, B2, S1 & S3 BARS SHOWN FOR CLARITY.



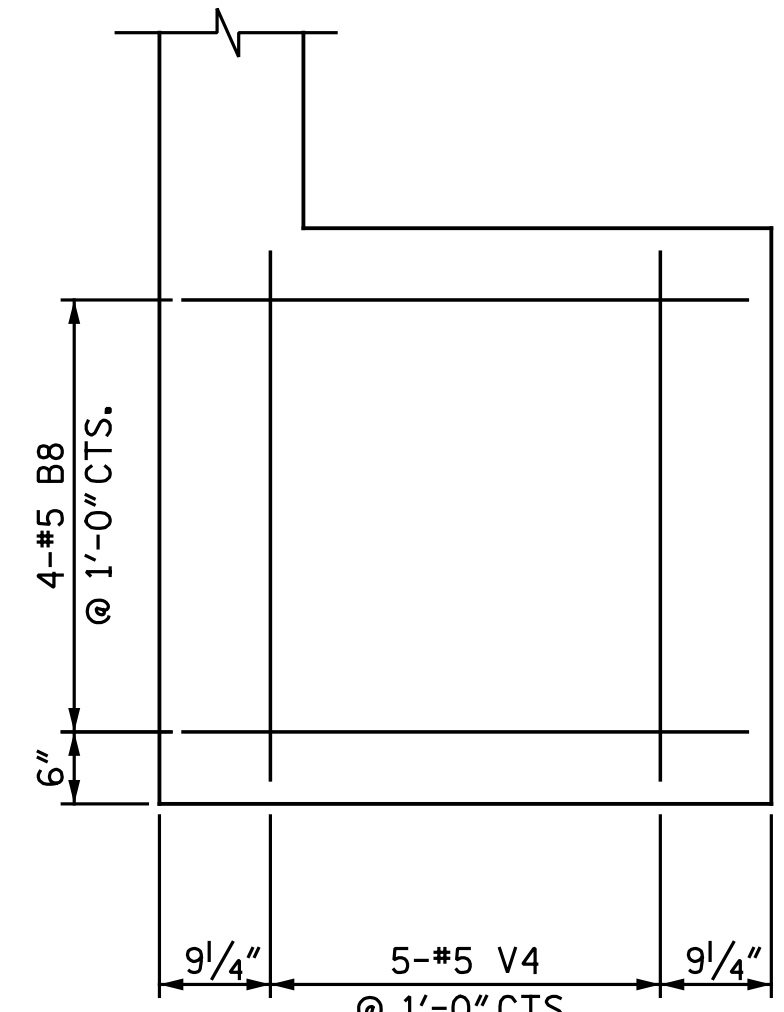
PLAN

END OF CAP

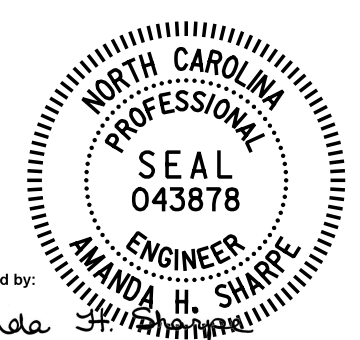


ALL BAR DIMENSIONS ARE OUT TO OUT.

NOTE:
FOR MSE REINFORCING STRAP LOAD DETAIL,
SEE "END BENT 1 DETAILS" SHEET.



END VIEW



4/9/2020

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UNLESS ALL SIGNATURES COMPLETED

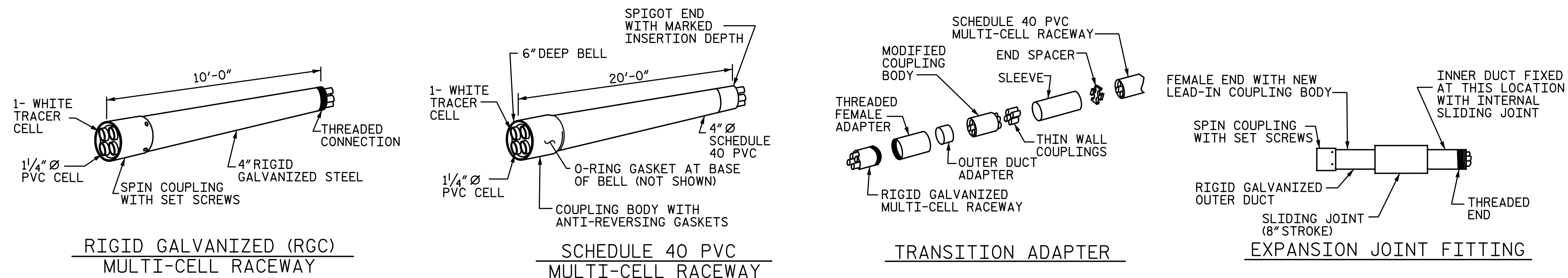
Michael Baker International
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9	1	41' - 11"	1,710
B2	10	#9	1	40' - 8"	1,383
B3	40	#5	STR.	37' - 8"	1,571
B4	8	#4	STR.	37' - 6"	200
B5	6	#4	STR.	30' - 8"	123
B6	18	#4	STR.	3' - 11"	47
B7	6	#4	STR.	2' - 8"	11
B8	8	#5	STR.	4' - 9"	40
K1	24	#4	STR.	37' - 5"	600
K2	4	#4	STR.	2' - 5"	6
K3	4	#4	STR.	2' - 0"	5
K4	16	#4	STR.	3' - 8"	39
S1	101	#5	2	11' - 4"	1,194
S2	90	#5	3	4' - 1"	383
S3	101	#5	2	11' - 6"	1,211
S4	90	#5	3	4' - 3"	399
S5	2	#5	2	11' - 9"	25
S6	2	#5	3	4' - 6"	9
S7	2	#5	2	11' - 11"	25
S8	2	#5	3	4' - 8"	10
S9	44	#4	4	6' - 6"	191
U1	67	#4	5	3' - 8"	164
U2	44	#4	5	6' - 11"	203
V1	134	#5	STR.	8' - 10"	1,235
V2	8	#5	STR.	10' - 7"	88
V3	8	#5	STR.	10' - 6"	88
V4	10	#5	STR.	3' - 7"	37
REINFORCING STEEL				LBS.	10,997
CLASS A CONCRETE					
POUR 1 - CAP				C.Y.	47.4
POUR 2 - BACKWALL & WINGS				C.Y.	14.8
TOTAL				C.Y.	62.2
PILE DRIVING EQUIPMENT SETUP					
FOR HP 12x53 STEEL PILES				EA.	11
HP 12x53 STEEL PILES					
NO. 11				LIN. FT.	825
PILE REDRIVES				EA.	6

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S2-28
TOTAL SHEETS					33

DRAWN BY : C. E. MAYHEW DATE : 1-10-19
CHECKED BY : A. H. SHARPE DATE : 12-3-19



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.

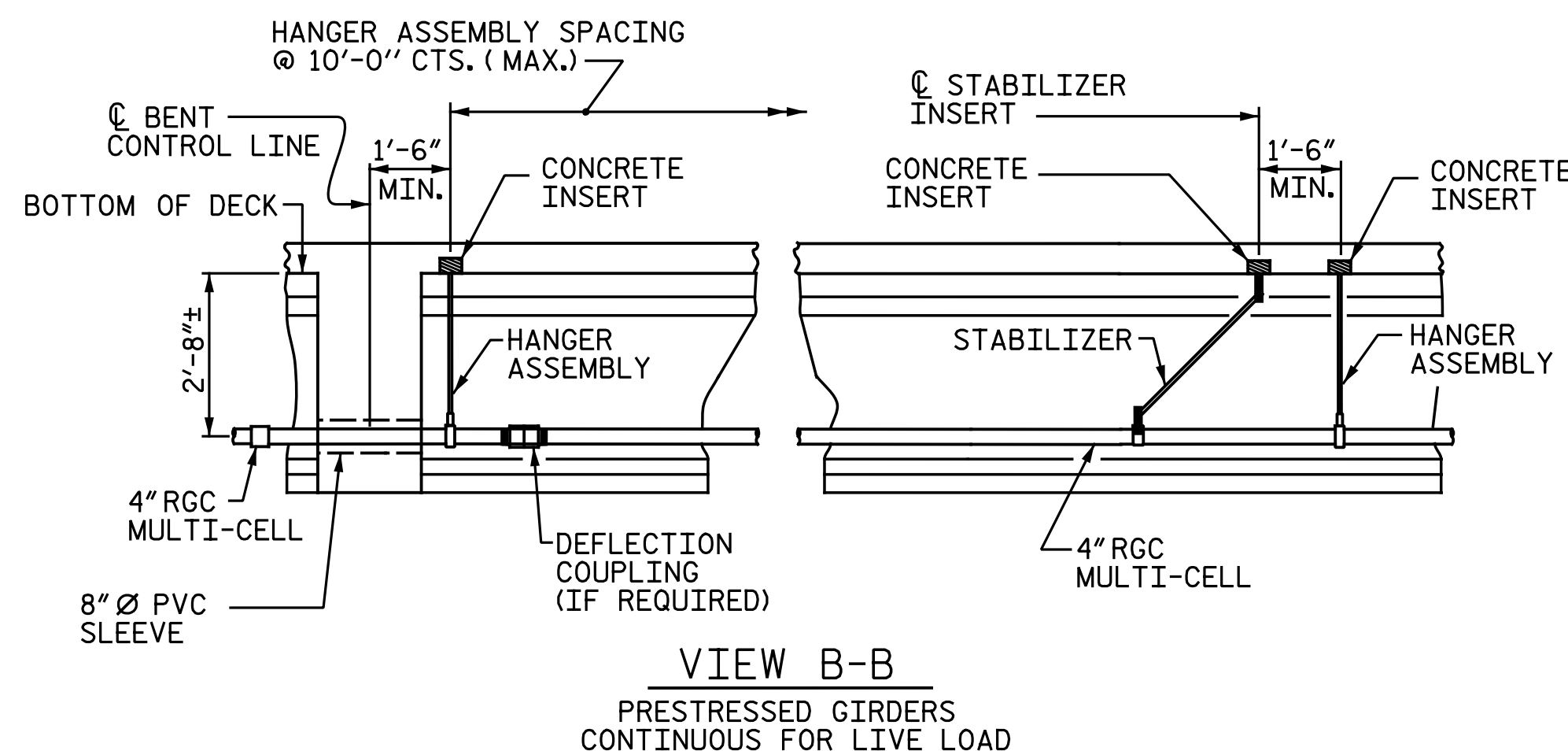
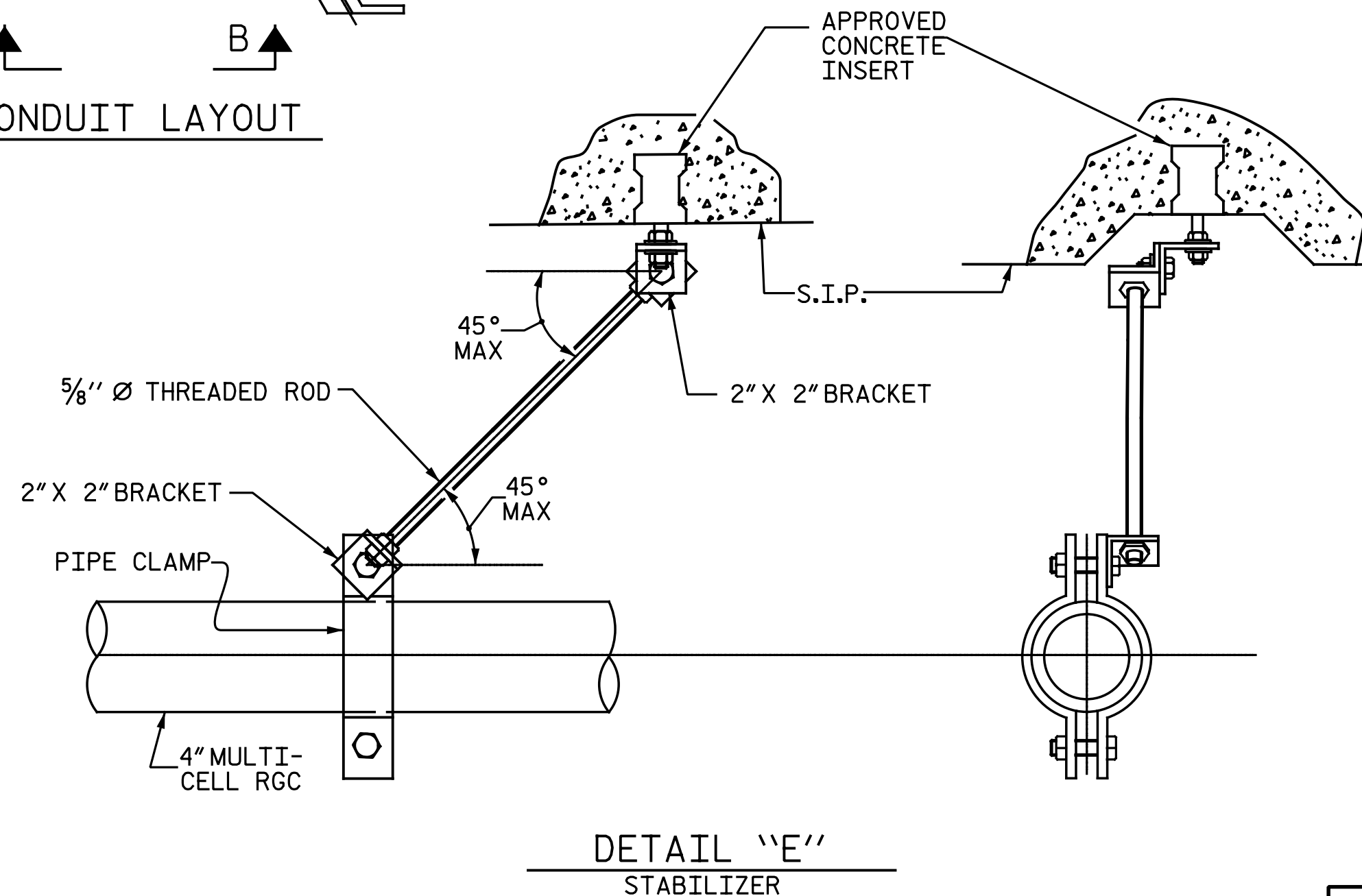
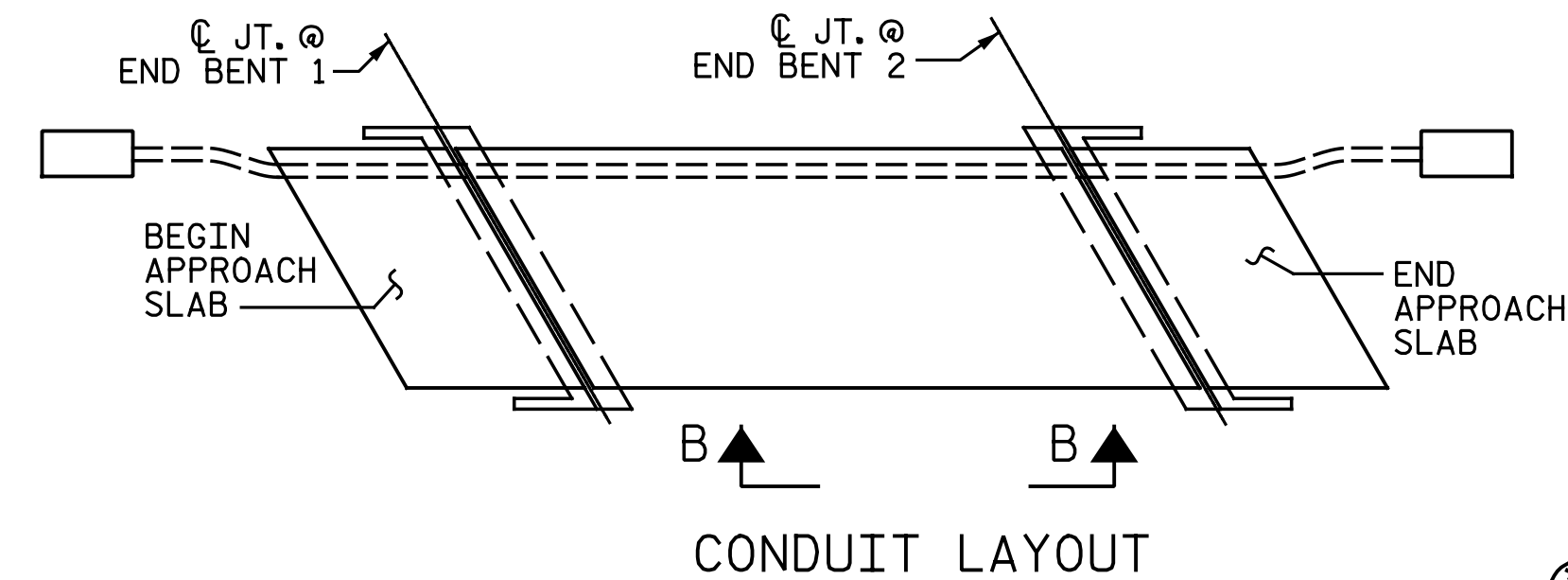
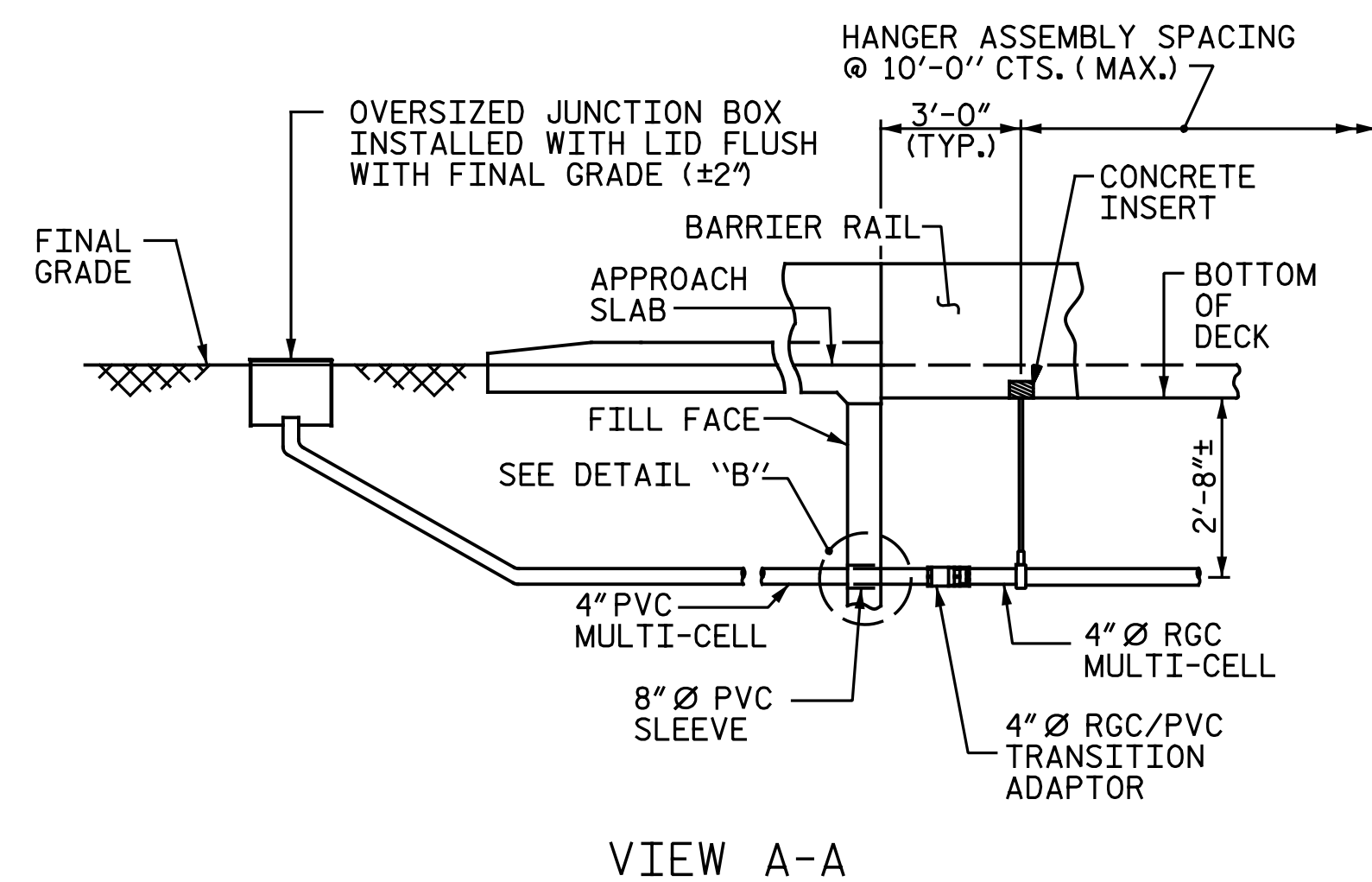
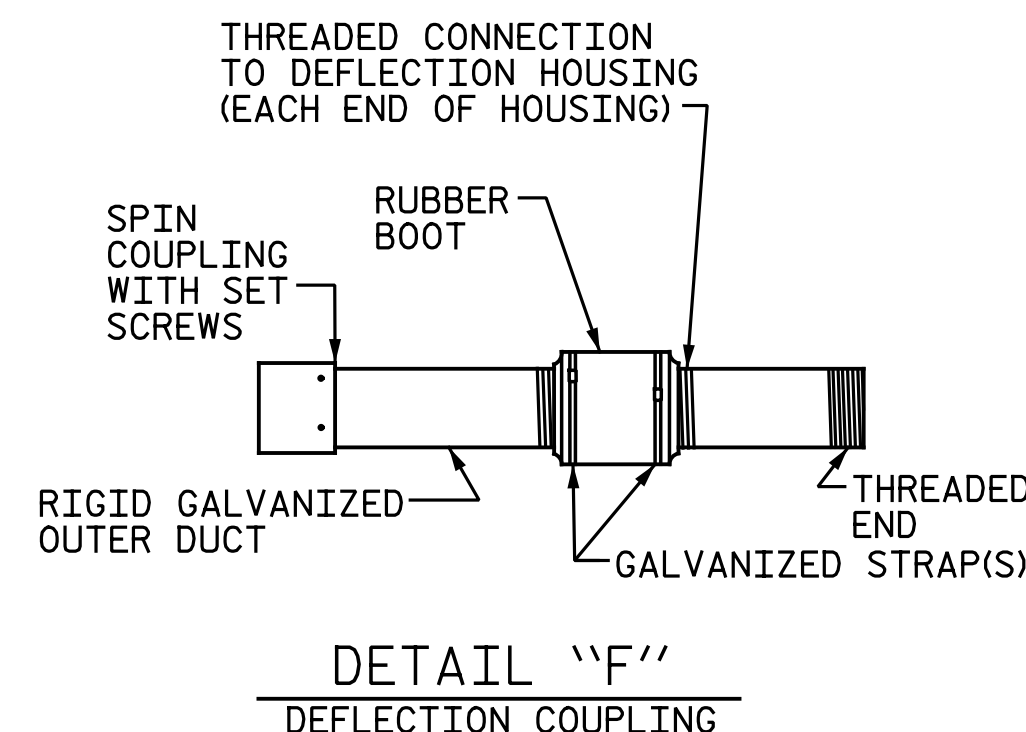
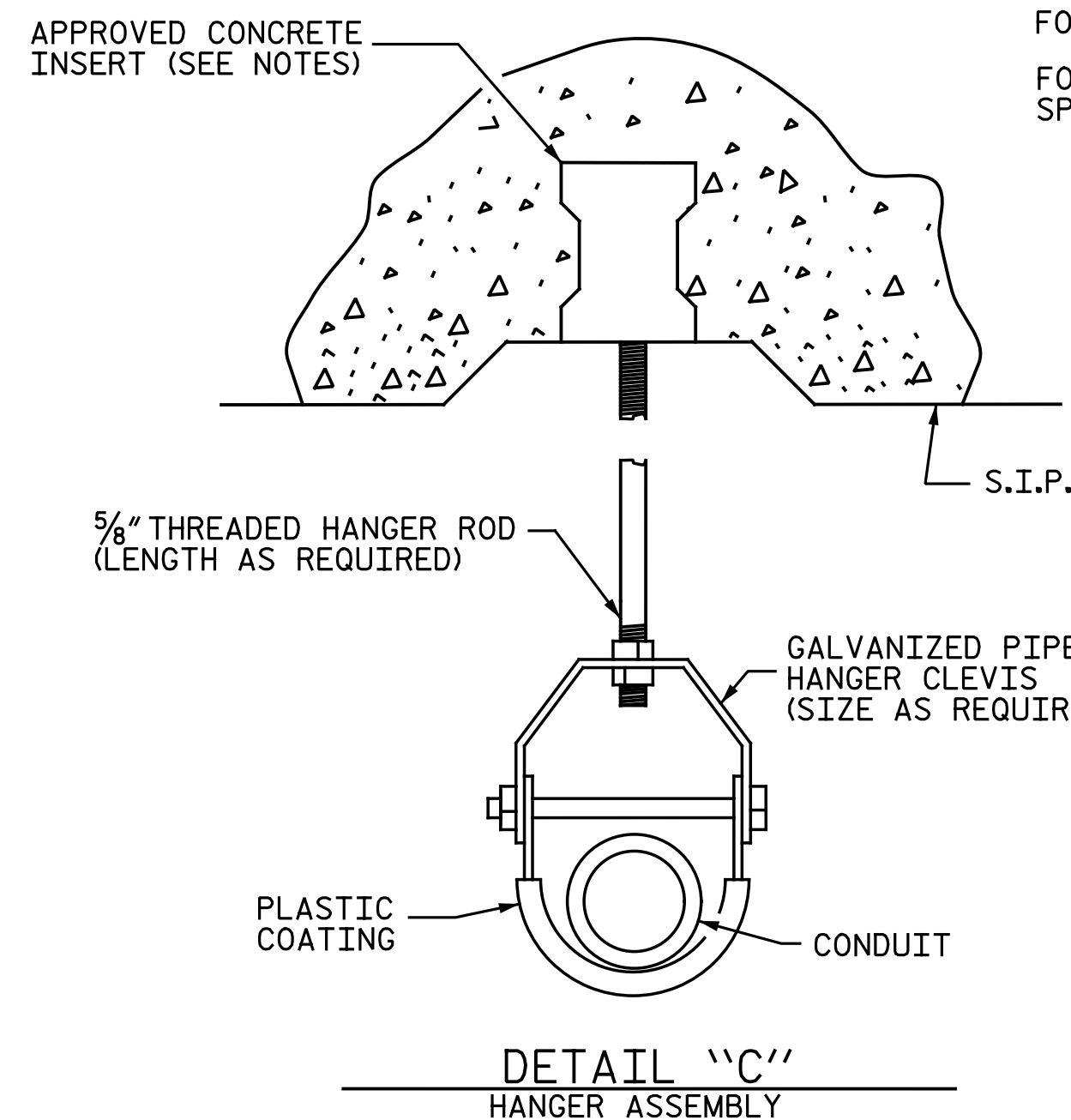
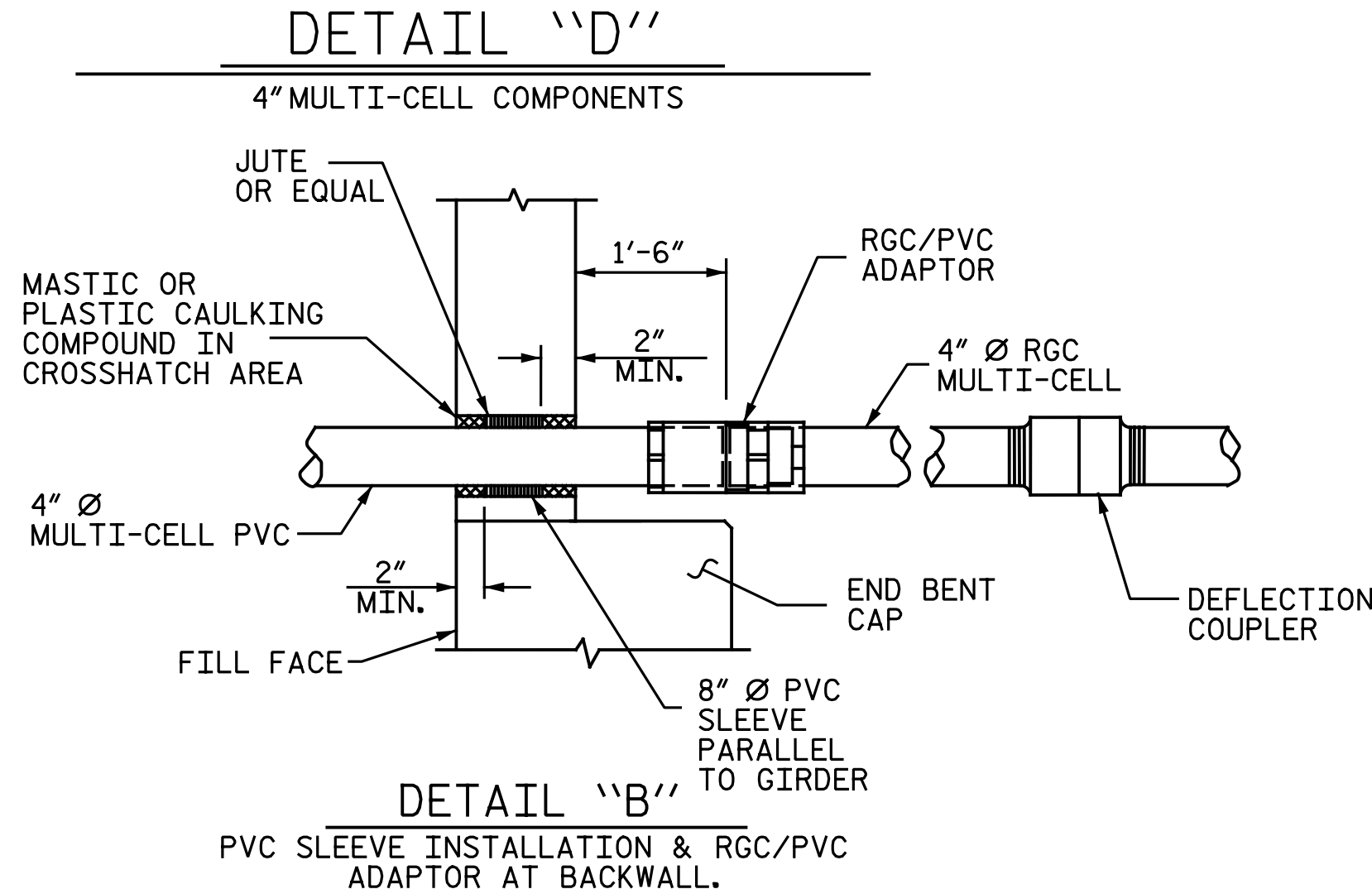
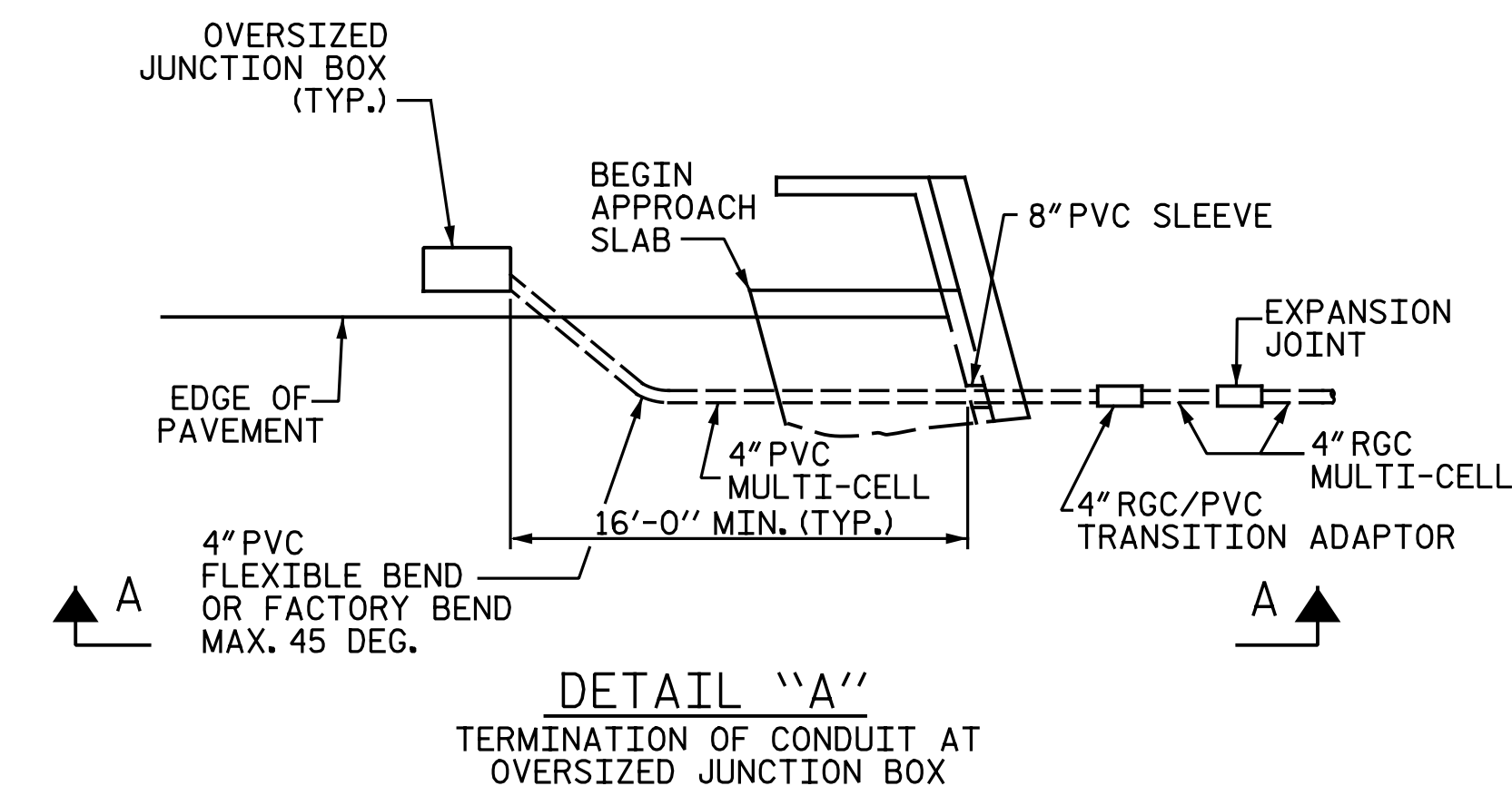
PROVIDE TRANSITION ADAPTOR AND EXPANSION JOINT FOR CONDUIT
AT END BENT 1 AND END BENT 2.

INSTALL STABILIZERS 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 FOR SIGNALS, SEE SPECIAL PROVISIONS.

FOR OVERSIZED JUNCTION BOX, SEE ARTICLE 1098-5 OF THE STANDARD SPECIFICATIONS.



PROJECT NO. I-5883
HARNETT COUNTY
 STATION: 26+80.73 -Y17-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

ELECTRICAL CONDUIT SYSTEM FOR SIGNALS

ASSEMBLED BY : N.B. SPEAKS		DATE : 1-10-19	
CHECKED BY : V.A. PATEL		DATE : 1-10-19	
DRAWN BY : RWW	2-4-03	REV. 5/1/06	TLA/GM
CHECKED BY : DBM	2-4-03	REV. 10/1/11	MAA/GM
		REV. 12/17	MAA/THC

ELECTRIC CONDUIT DETAILS

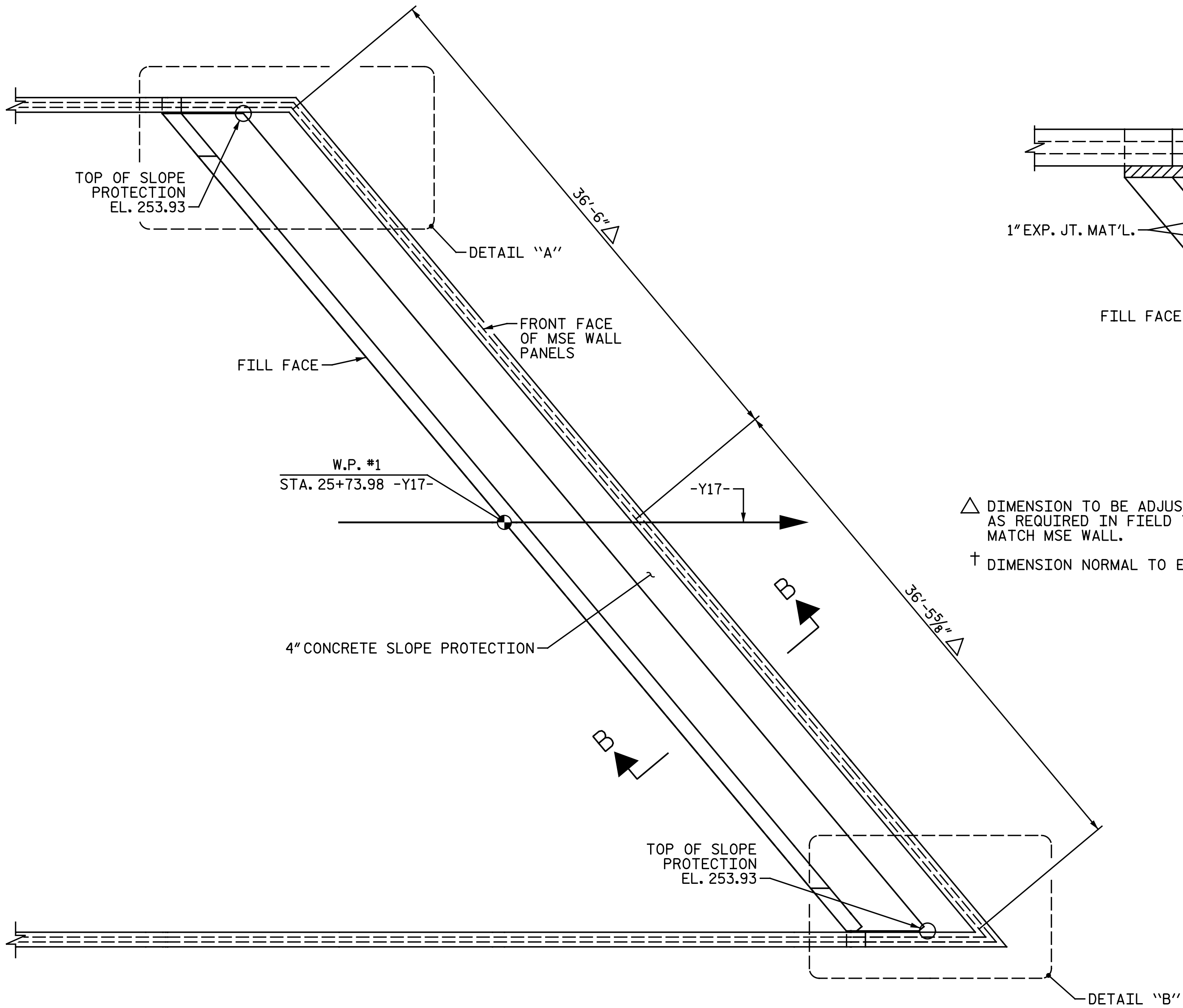
DOCUMENT NOT CONSIDERED FINAL
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INTERNATIONAL

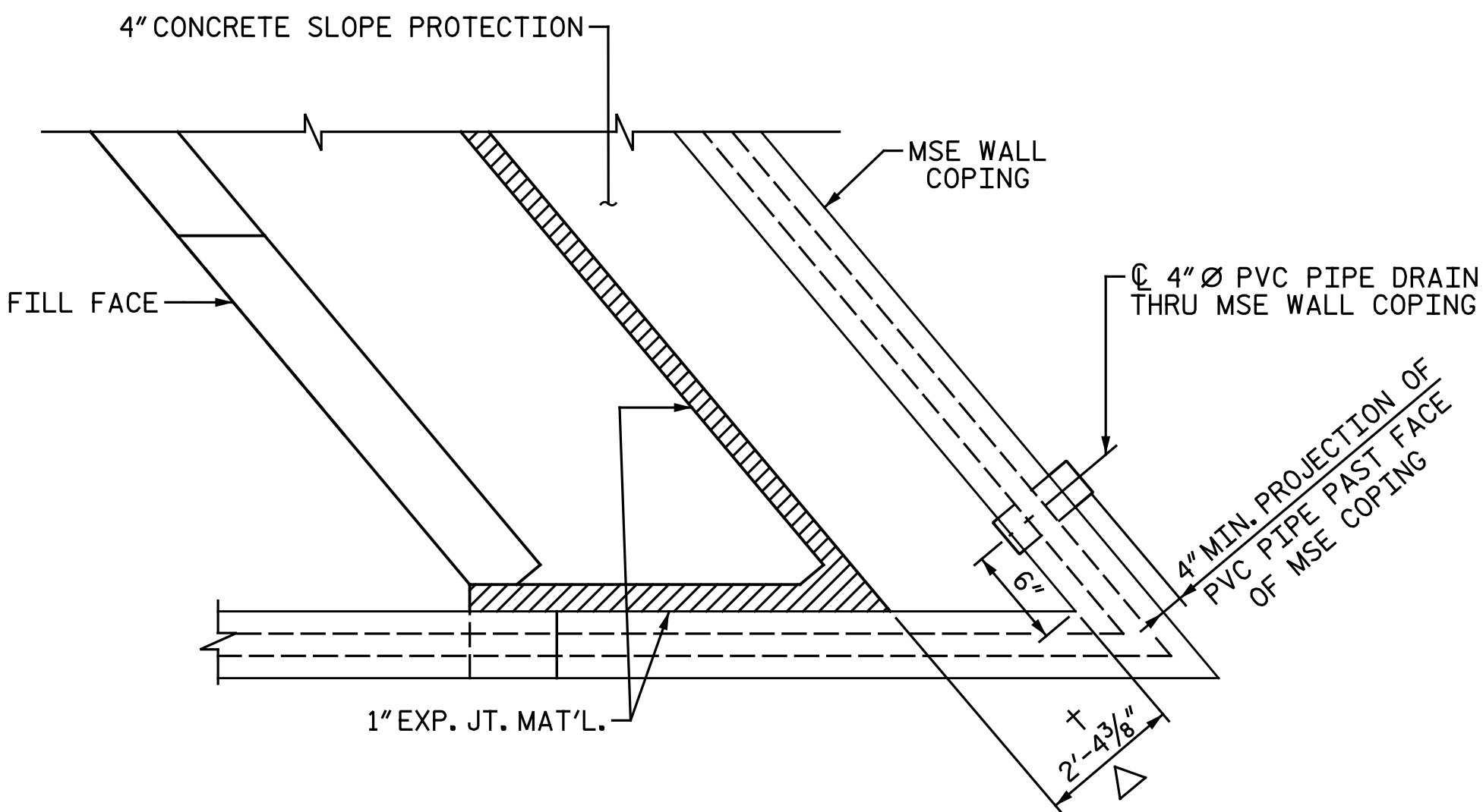
Michael Baker Engineering
8000 Regency Parkway, Suite
Cary, North Carolina 27518
NC License No. : F-1084

REVISONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S2-29
1			3				TOTAL SHEETS
2			4				33

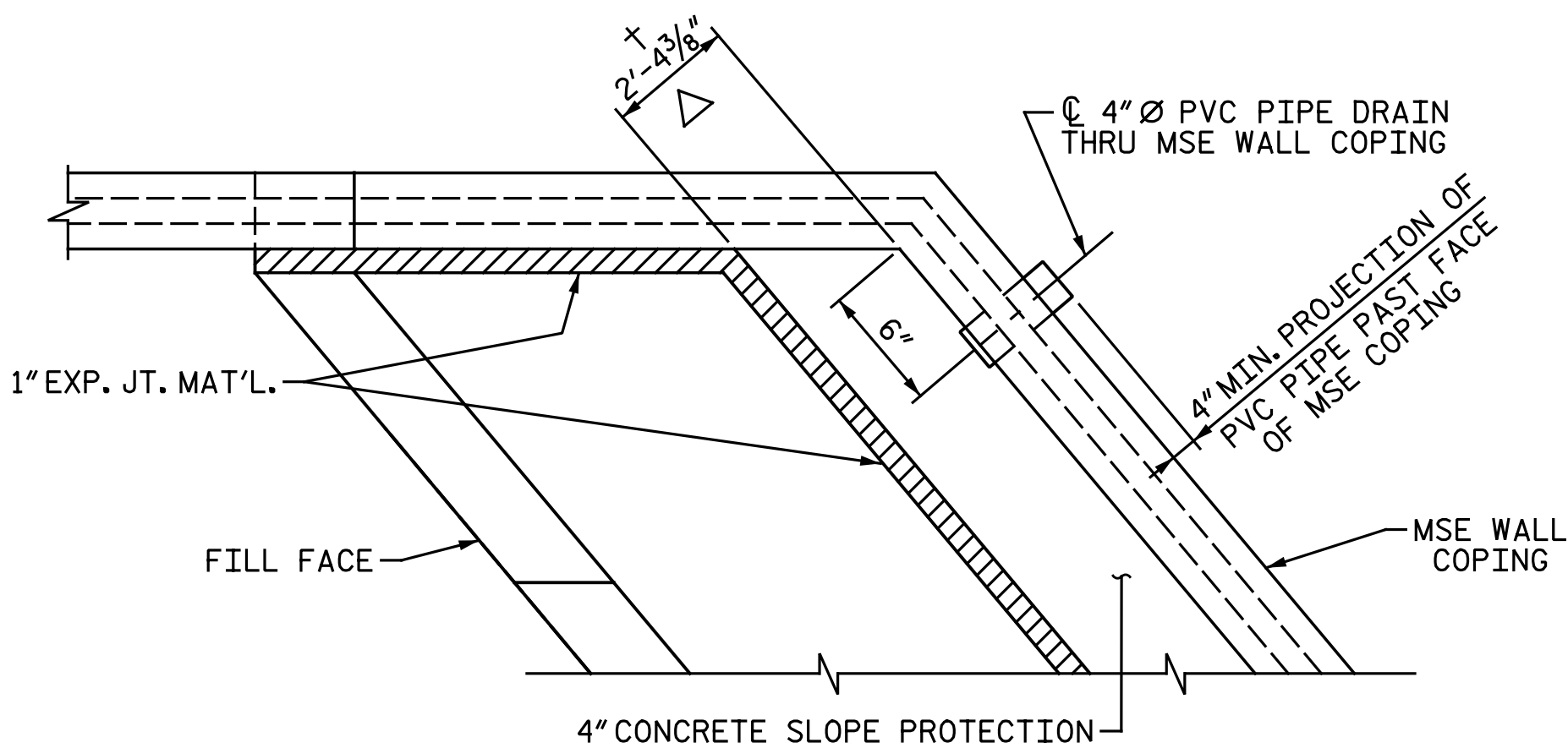
STD. NO. ECS1



PLAN AT END BENT 1

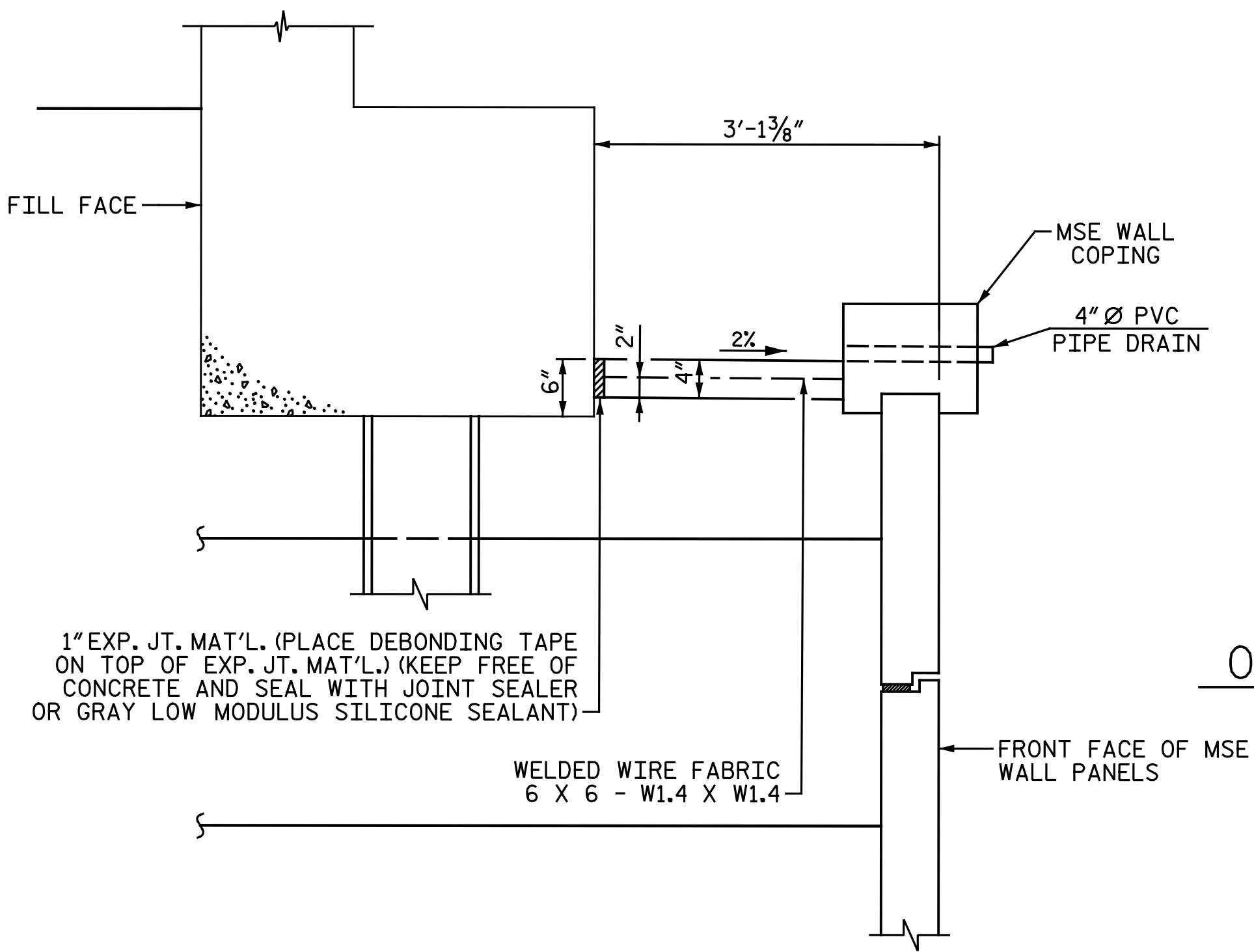


DETAIL "B"

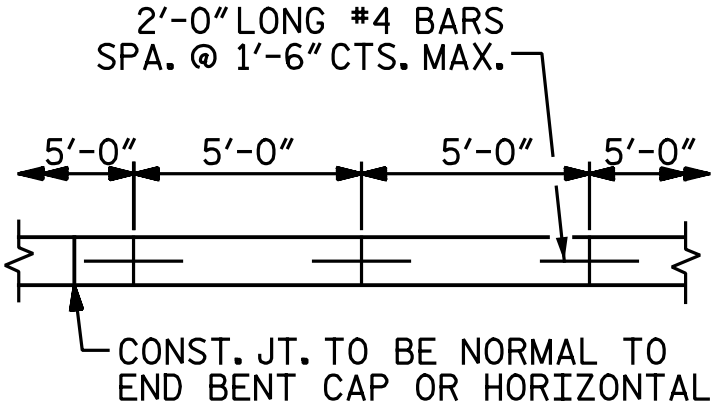


DETAIL "A"

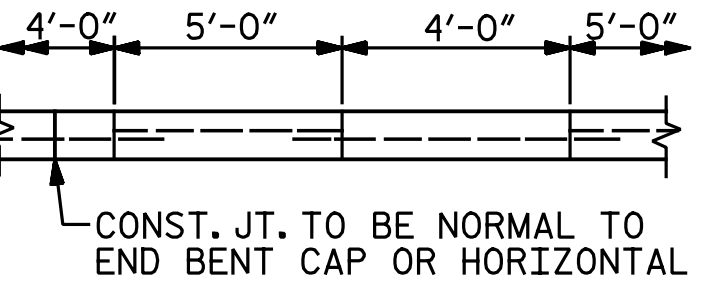
△ DIMENSION TO BE ADJUSTED
AS REQUIRED IN FIELD TO
MATCH MSE WALL.
† DIMENSION NORMAL TO END BENT



SECTION B-B



POURING DETAIL



OPTIONAL POURING DETAIL

POUR A 4'-0" STRIP FIRST.

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.

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

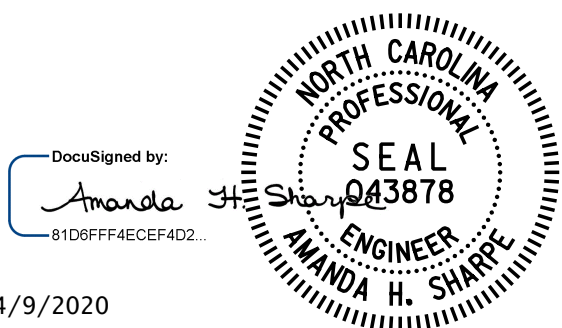
SEE "SLOPE PROTECTION DETAILS" SHEET 2 OF 2 FOR END BENT 2 QUANTITIES.

BRIDGE @ STA. 26+80.73 -Y17-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	19	38

* QUANTITY SHOWN IS BASED ON 5' POURS.

PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

SHEET 1 OF 2



4/9/2020

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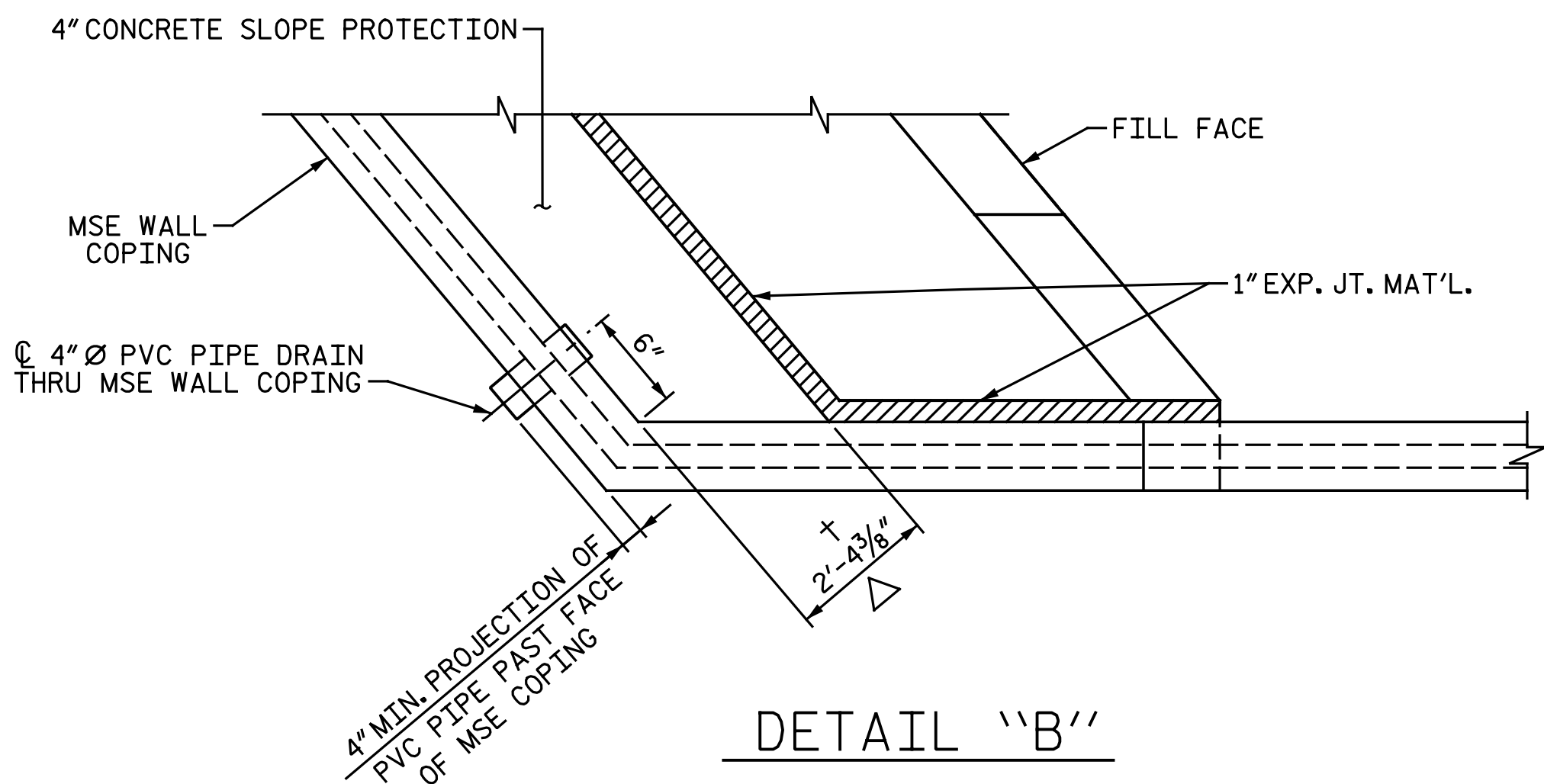
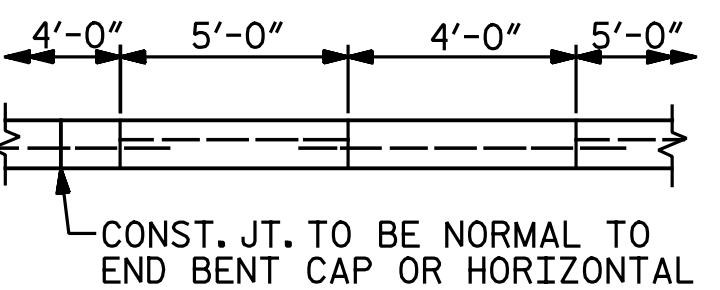
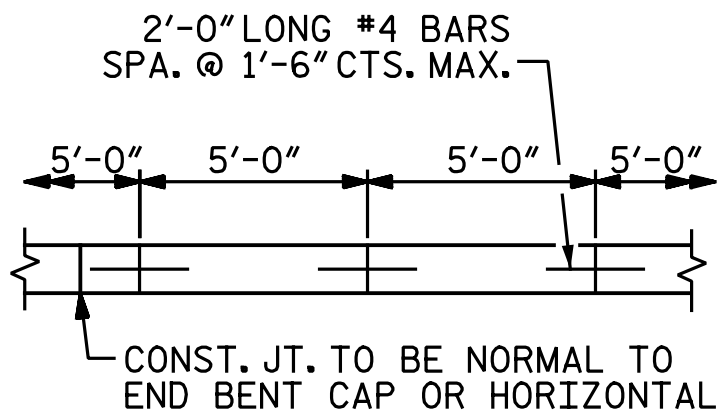
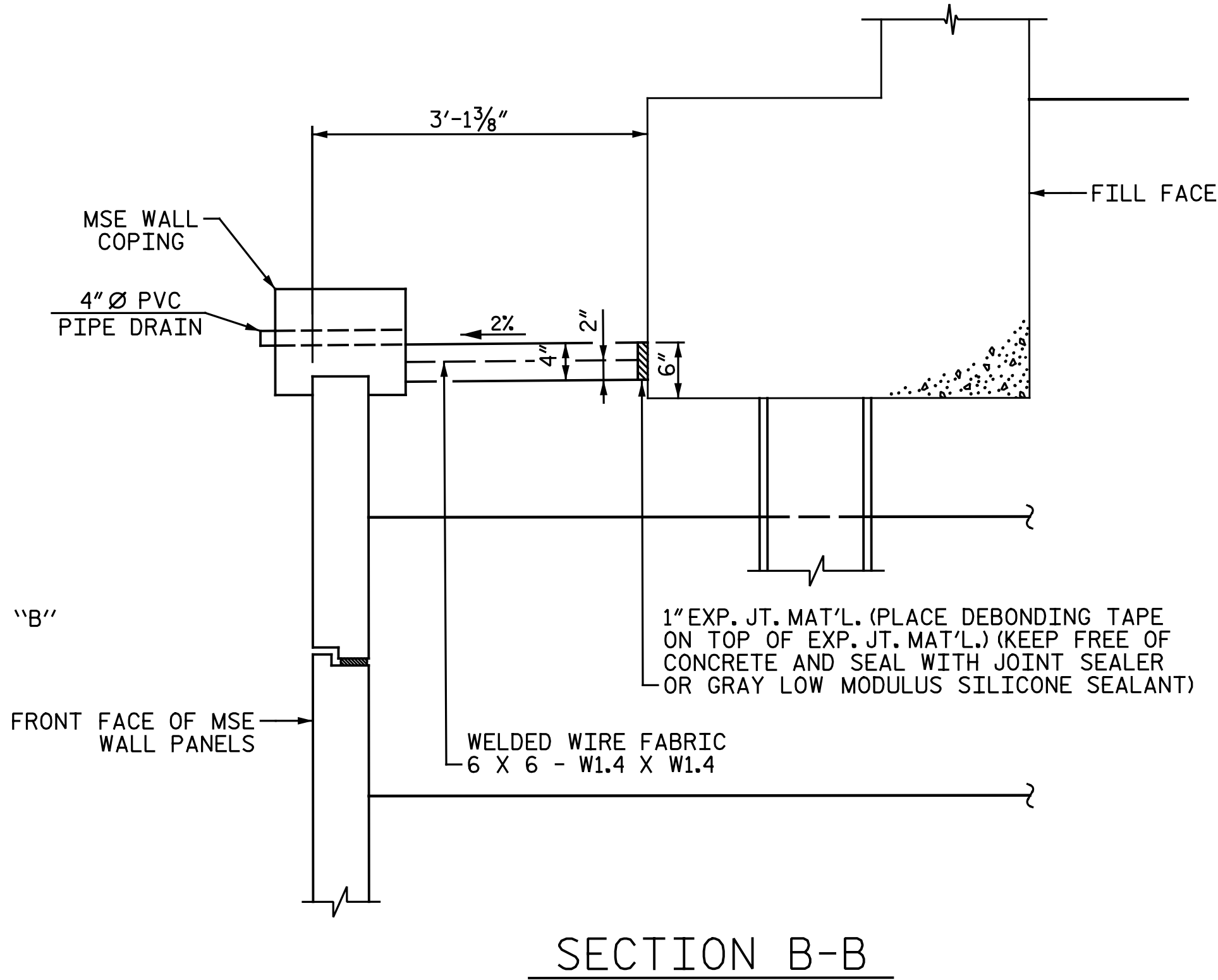
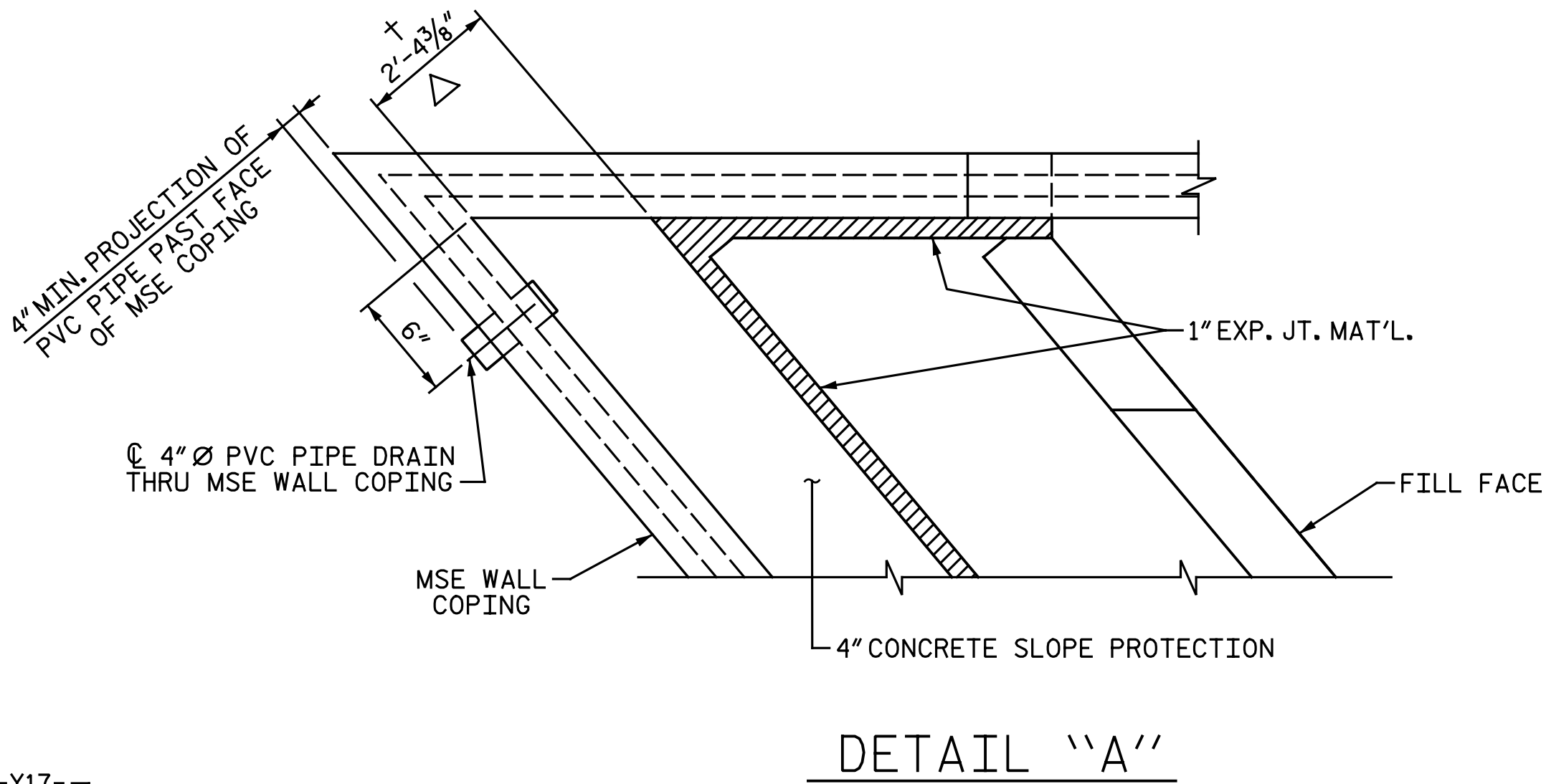
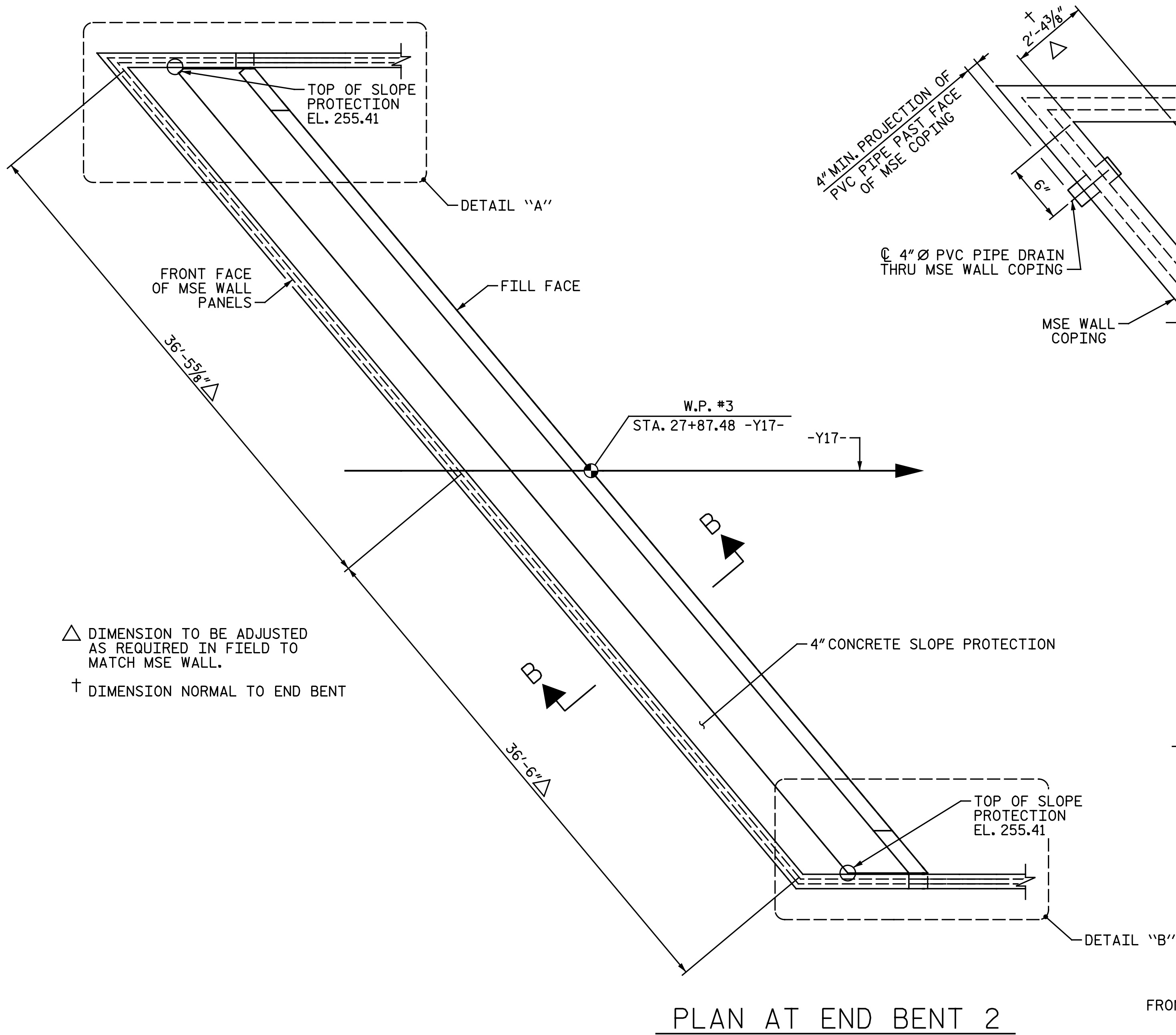
Michael Baker
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8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

REVISIONS						SHEET NO. S2-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			33

DRAWN BY : N. B. SPEAKS DATE : 11-2-18
CHECKED BY : A. H. SHARPE DATE : 11-2-18

NOTES:
SEE NOTES ON "SLOPE PROTECTION DETAILS", SHEET 1 OF 2.



DRAWN BY : N. B. SPEAKS DATE : 11-1-18
CHECKED BY : A. H. SHARPE DATE : 11-1-18

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Cary, North Carolina 27518
NC License No.: F-1084

DocuSigned by:
Amanda H. Sharpe
81D6FF4ECEF4D2...

4/9/2020

SEAL
243878
ENGINEER
AMANDA H. SHARPE

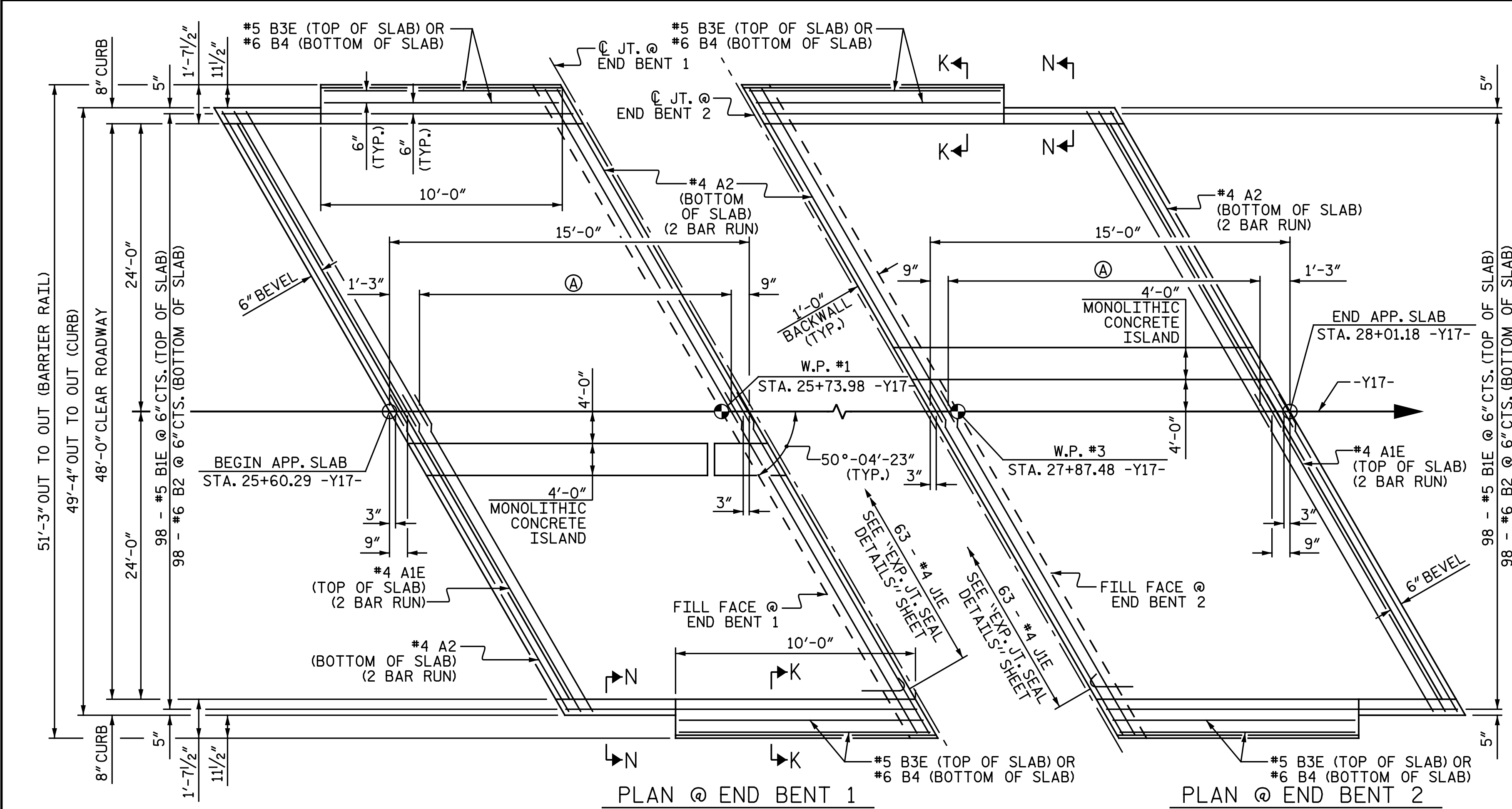
PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SLOPE PROTECTION
DETAILS

REVISIONS						SHEET NO. S2-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			



NOTES

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

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

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

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

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

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR REINFORCING STEEL IN THE MONOLITHIC CONCRETE ISLAND, SEE "BRIDGE APPROACH SLAB DETAILS" SHEET.

THE QUANTITY OF #4 J1E BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1E BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1E BARS SPECIFIED, ADDITIONAL J1E BARS WILL NOT BE REQUIRED.

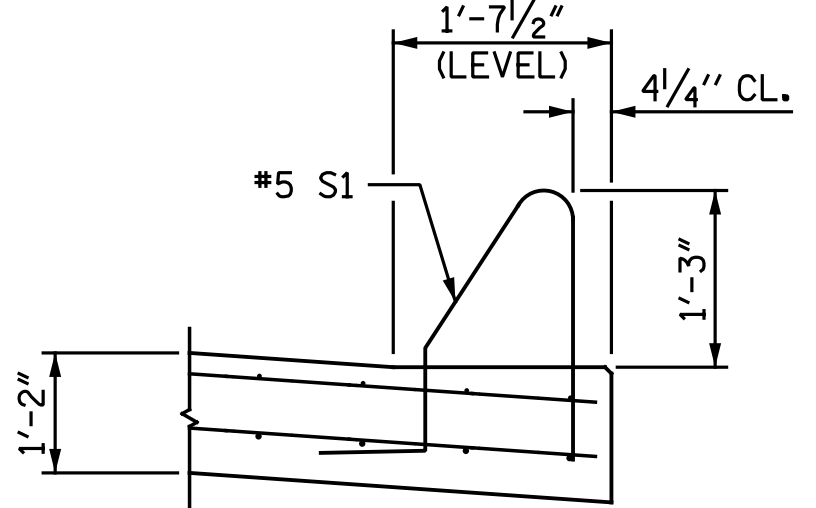
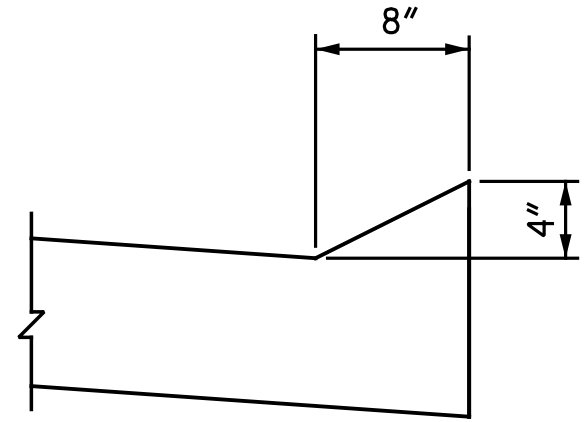
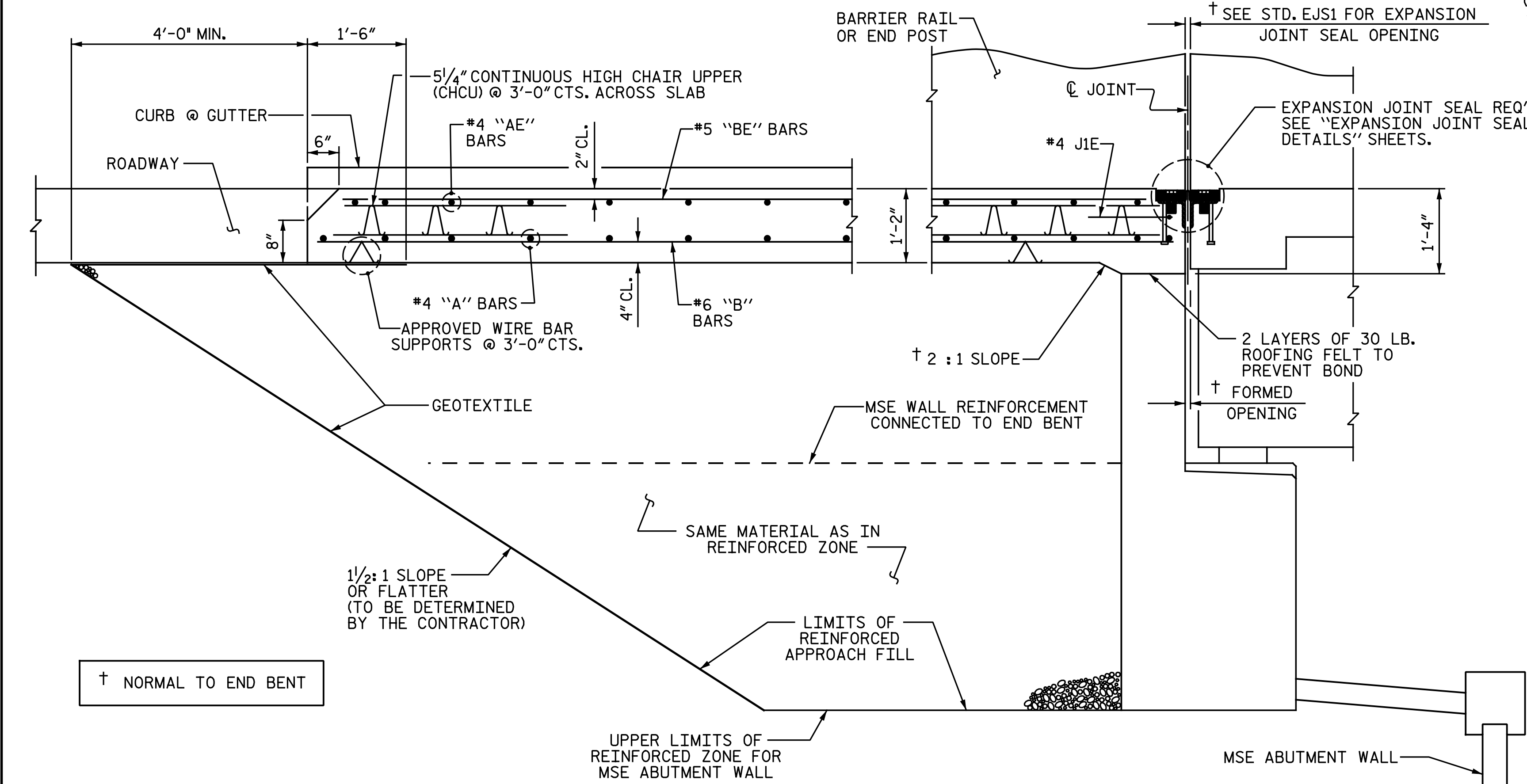
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	30	#4	STR.	34' - 3"	686
A2	32	#4	STR.	34' - 1"	729
B1E	98	#5	STR.	13' - 5"	1,371
B2	98	#6	STR.	14' - 6"	2,134
B3E	4	#5	STR.	9' - 7"	40
B4	4	#6	STR.	9' - 7"	58
J1E	63	#4	1	1' - 5"	60
REINFORCING STEEL				LBS.	2,921
EPOXY COATED REINF. STEEL				LBS.	2,157

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	30	#4	STR.	34' - 3"	686
A2	32	#4	STR.	34' - 1"	729
B1E	98	#5	STR.	13' - 5"	1,371
B2	98	#6	STR.	14' - 6"	2,134
B3E	4	#5	STR.	9' - 7"	40
B4	4	#6	STR.	9' - 7"	58
J1E	63	#4	1	1' - 5"	60
REINFORCING STEEL				LBS.	2,921
EPOXY COATED REINF. STEEL				LBS.	2,157
CLASS AA CONCRETE				C.Y.	33.1
BAR TYPE					
ALL BAR DIMENSIONS ARE OUT TO OUT					

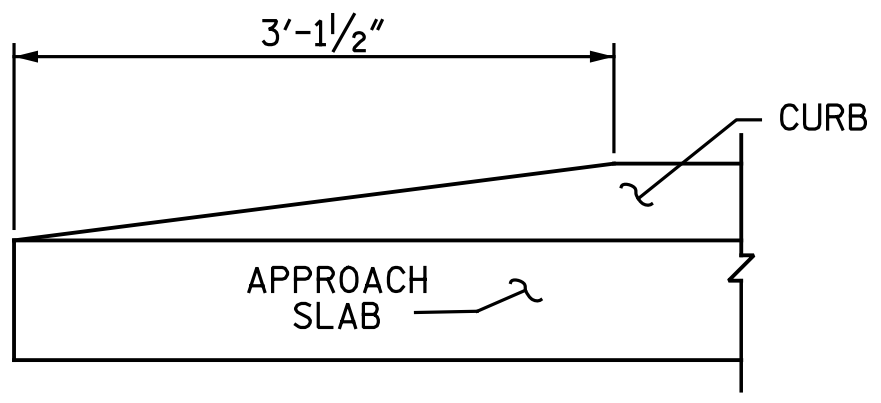
"E" SUFFIX DENOTES EPOXY COATED REINFORCING STEEL.

** QUANTITIES FOR BARRIER RAIL AND MONOLITHIC CONCRETE ISLAND ARE NOT INCLUDED. SEE "BRIDGE APPROACH SLAB DETAILS SHEET".



SECTION N-N

SECTION K-K



END OF CURB WITHOUT SHOULDER BERM GUTTER

DocuSigned by:
Amanda H. Shire
81D6FFFAE6EF4D2

4/9/2020

NORTH CAROLINA PROFESSIONAL SEAL
043878
ENGINEER
AMANDA H. SHIRE

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PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

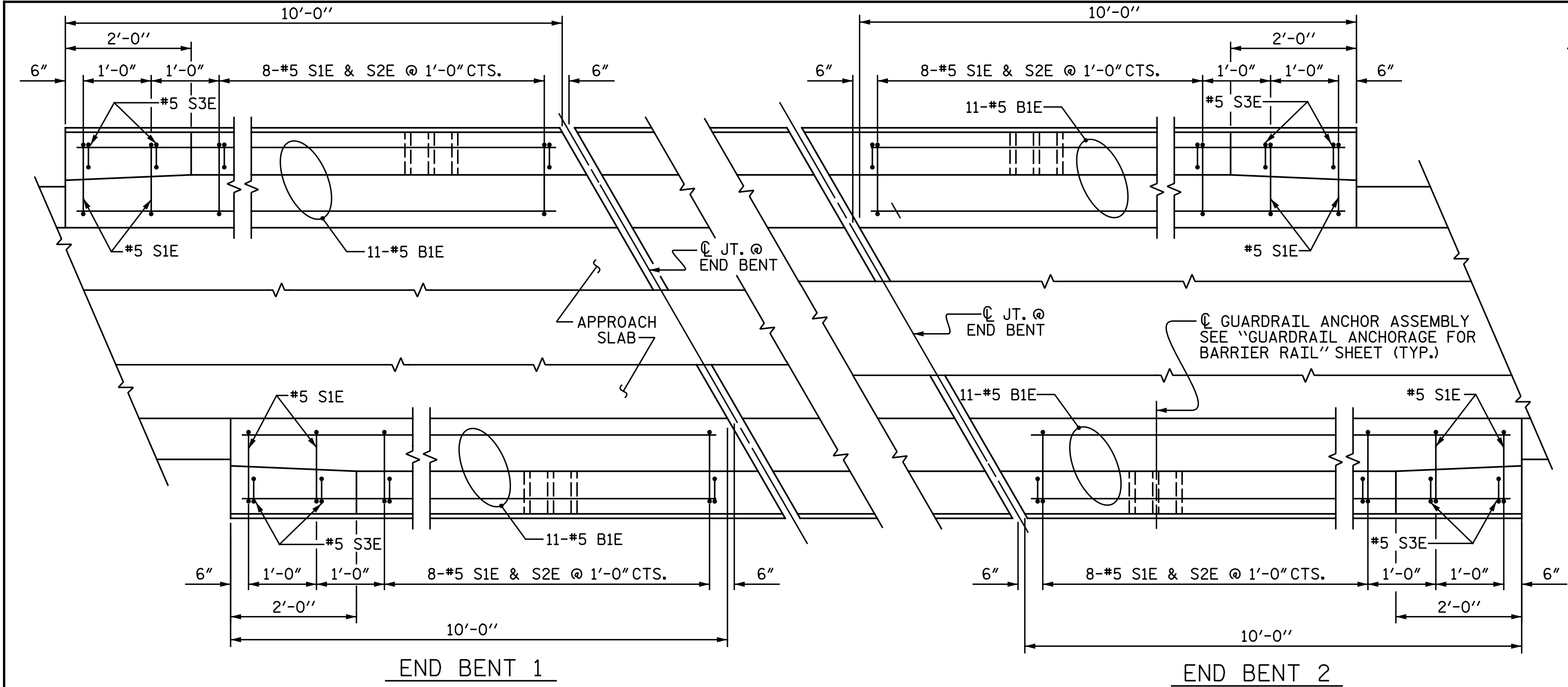
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO. S2-32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			33

ASSEMBLED BY : N. B. SPEAKS	DATE : 12-19-18
CHECKED BY : V. A. PATEL	DATE : 12-20-18
DRAWN BY : EEM 3/95	REV. 12/21/11 MAA/GM
CHECKED BY : VAP 3/95	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

SECTION THRU SLAB
(TYPE III - REINFORCED APPROACH FILL)

CURB DETAILS



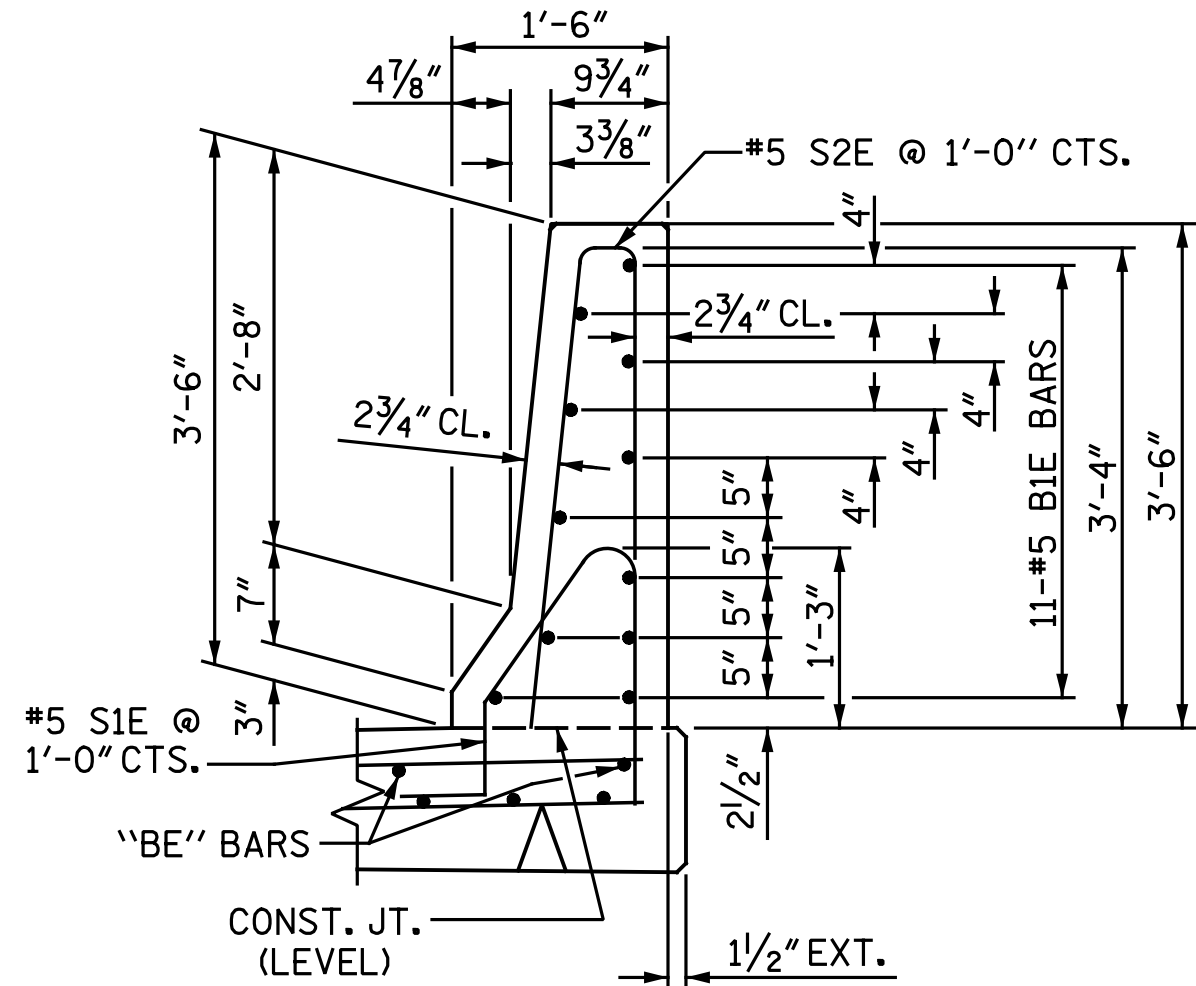
PLAN OF BARRIER RAIL

NOTES

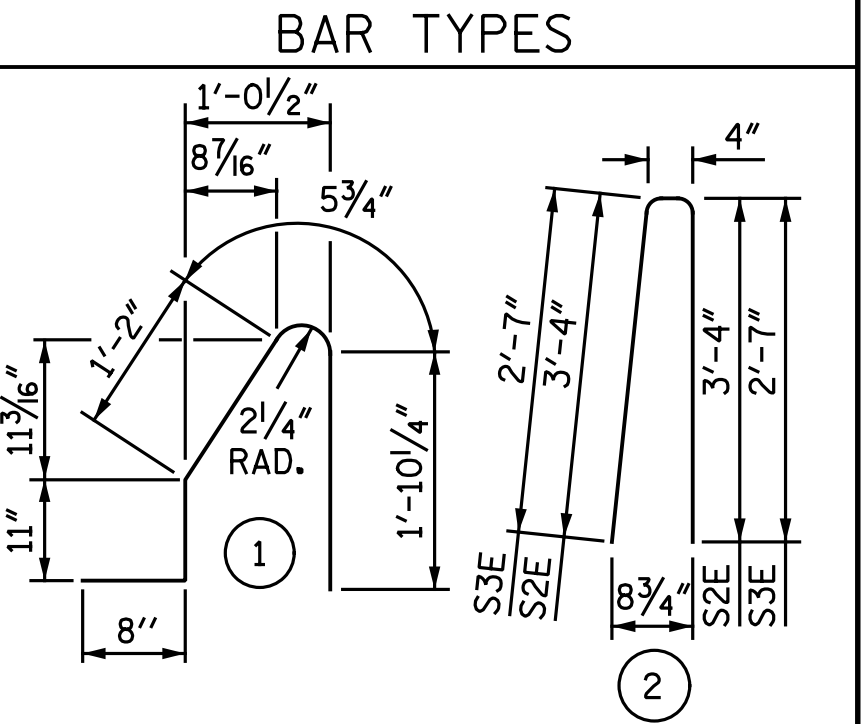
THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

THE BARRIER RAIL AND MONOLITHIC CONCRETE ISLAND 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 AND MONOLITHIC CONCRETE ISLAND SHALL BE EPOXY COATED.



SECTION THRU RAIL



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1E	44	#5	STR	9'-7"	440
S1E	40	#5	1	5'-1"	212
S2E	32	#5	2	7'-0"	234
S3E	8	#5	2	5'-6"	46

EPOXY COATED REINFORCING STEEL	LBS.	932
CLASS AA CONCRETE	C. Y.	5.4
CONCRETE BARRIER RAIL	LIN. FT.	40

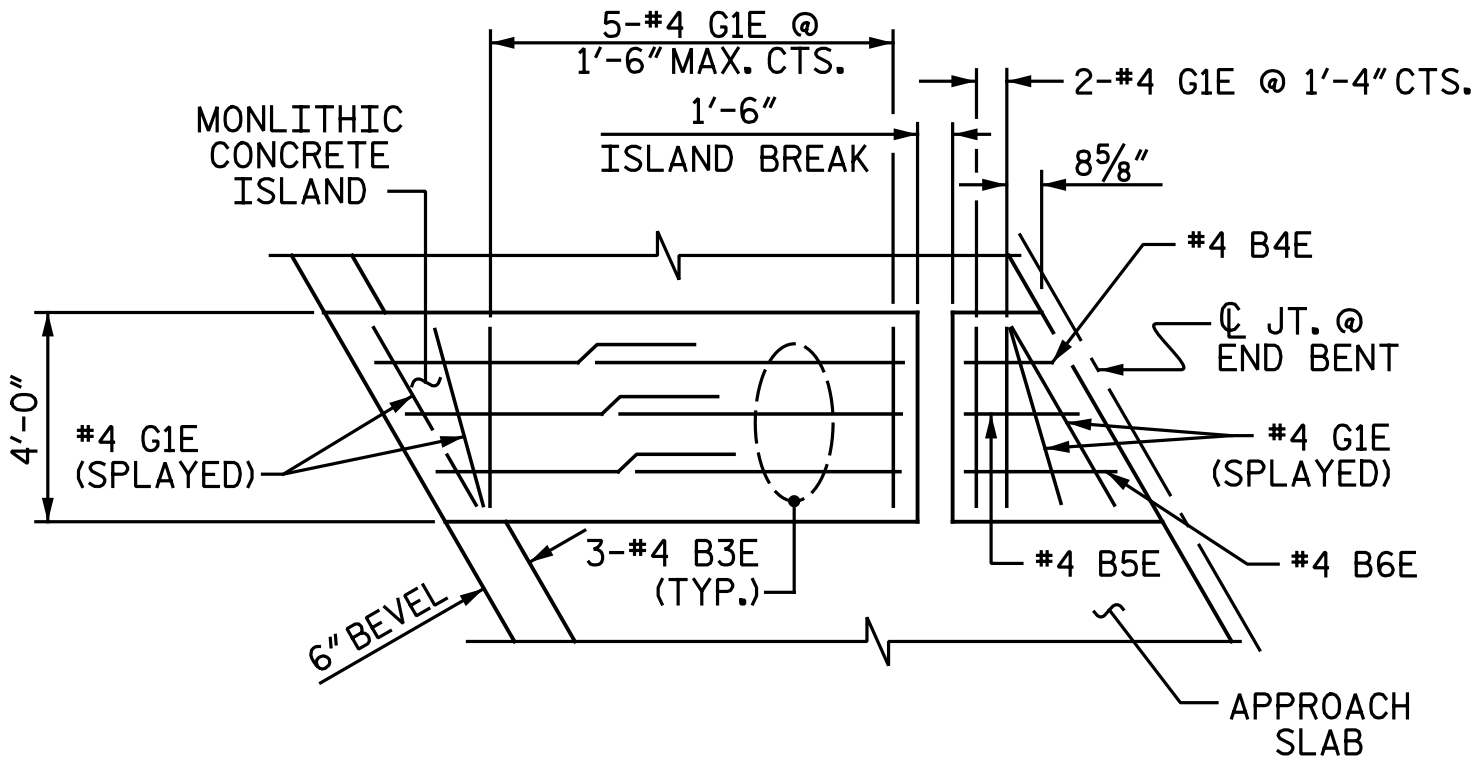
BILL OF MATERIAL					
MONOLITHIC CONCRETE ISLAND @ END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3E	6	#4	STR	6'-0"	24
B4E	1	#4	STR	2'-10"	2
B5E	1	#4	STR	3'-11"	3
B6E	1	#4	STR	4'-11"	3
G1E	11	#4	STR	2'-11"	21

EPOXY COATED REINFORCING STEEL	LBS.	53
--------------------------------	------	----

CLASS AA CONCRETE			C.Y.	0.7	
MONOLITHIC CONCRETE ISLAND @ END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2E	3	#4	STR	14'-8"	29
G1E	12	#4	STR	2'-11"	23

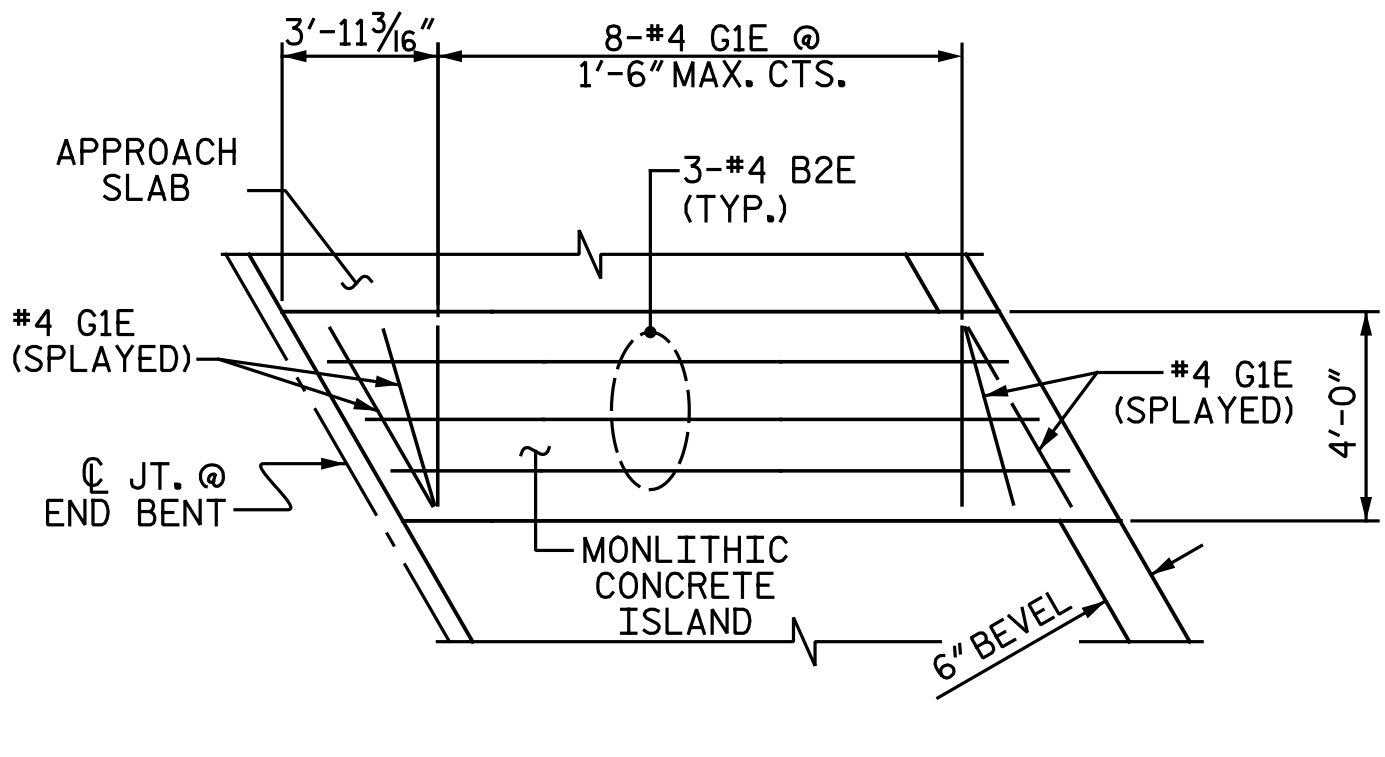
EPOXY COATED REINFORCING STEEL	LBS.	52
--------------------------------	------	----

CLASS AA CONCRETE	C.Y.	0.8
-------------------	------	-----



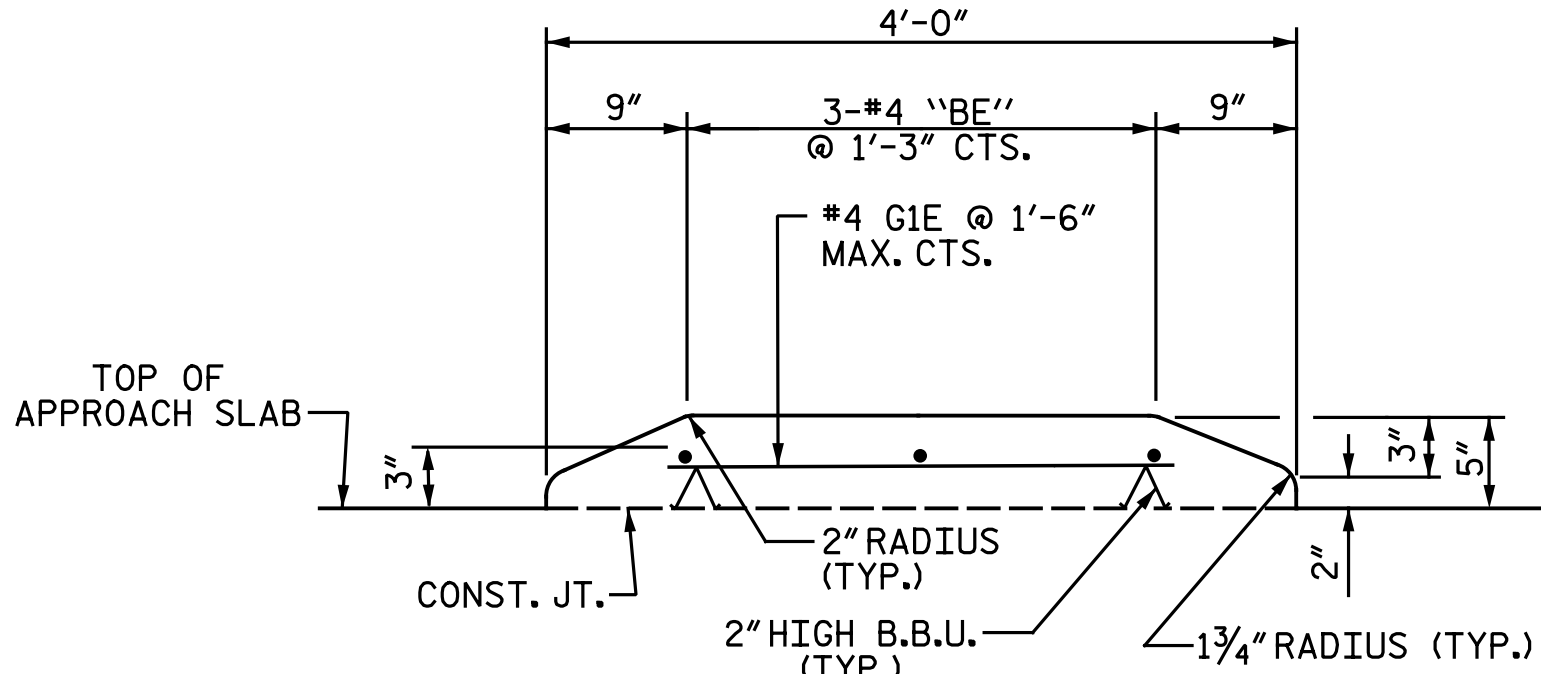
PLAN OF MONOLITHIC CONCRETE ISLAND @ END BENT 1

DISCONTINUE BEVEL UNDER ISLAND



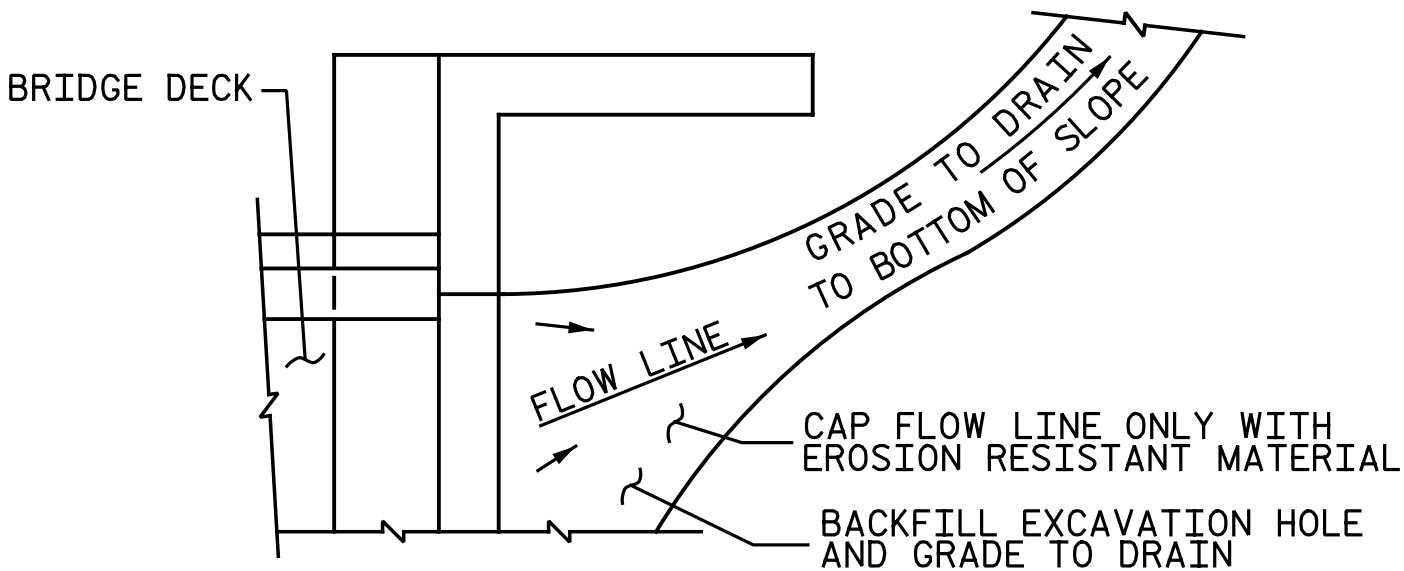
PLAN OF MONOLITHIC CONCRETE ISLAND @ END BENT 2

DISCONTINUE BEVEL UNDER ISLAND



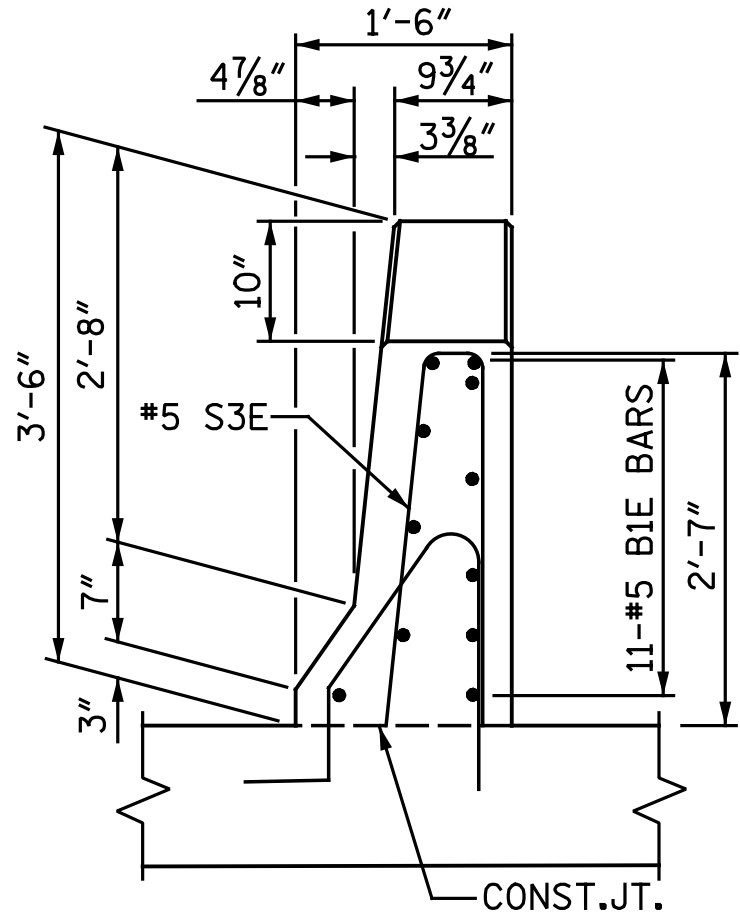
SECTION THRU MONOLITHIC CONCRETE ISLAND

SLOPE TOP OF ISLAND TO MATCH TOP OF APPROACH SLAB

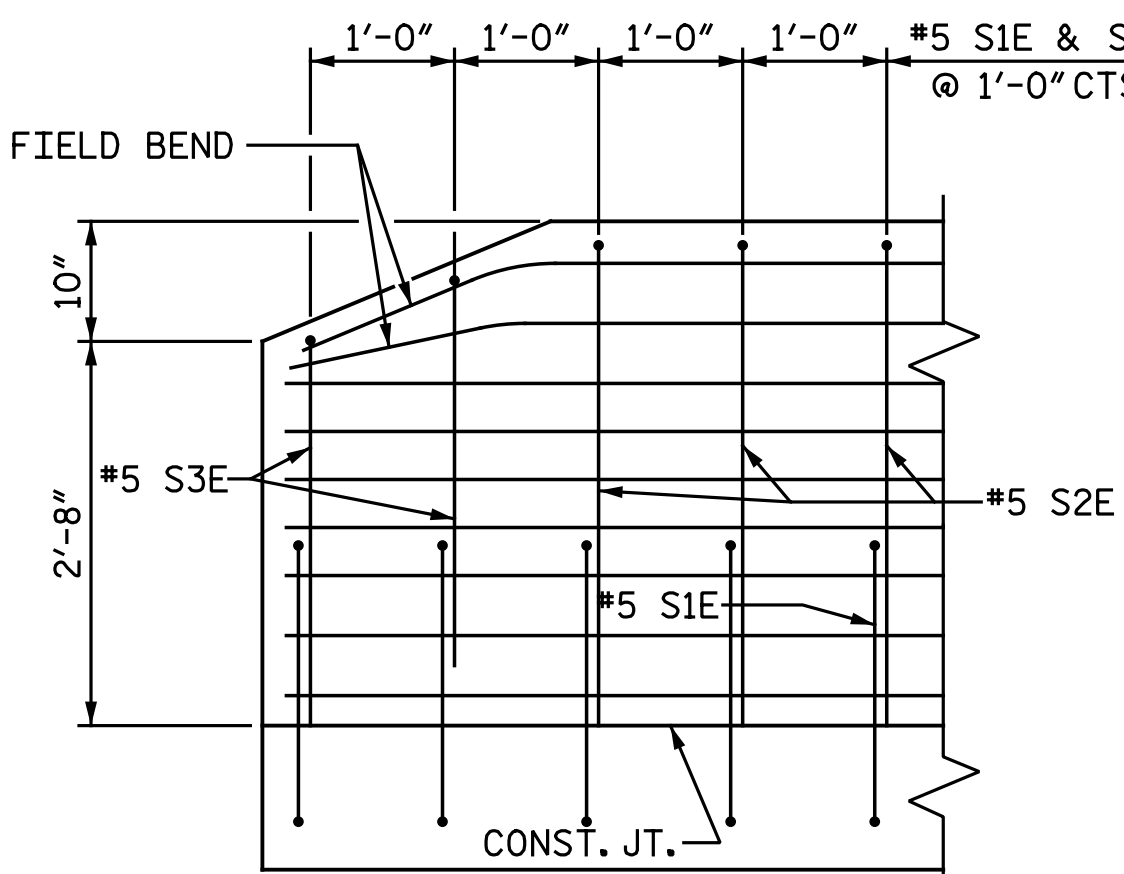


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

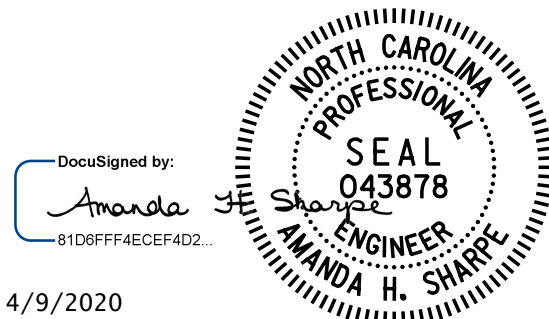


END VIEW



SIDE VIEW

END OF RAIL DETAILS



4/9/2020

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Michael Baker International
Michael Baker Engineering
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PROJECT NO. I-5883
HARNETT COUNTY
STATION: 26+80.73 -Y17-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH
SLAB DETAILS

REVISIONS						SHEET NO. S2-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

STD. NO. BAS4

ASSEMBLED BY : N.B. SPEAKS	DATE : 12-19-18
CHECKED BY : V.A. PATEL	DATE : 12-20-18
DRAWN BY : FCJ 11/88	REV. 6/13
CHECKED BY : ARB 11/88	REV. 12/17
	REV. 5/18
	MAA/GM
	MAA/THC
	MAA/THC