

TIP PROJECT: B-3819

CONTRACT: C202782

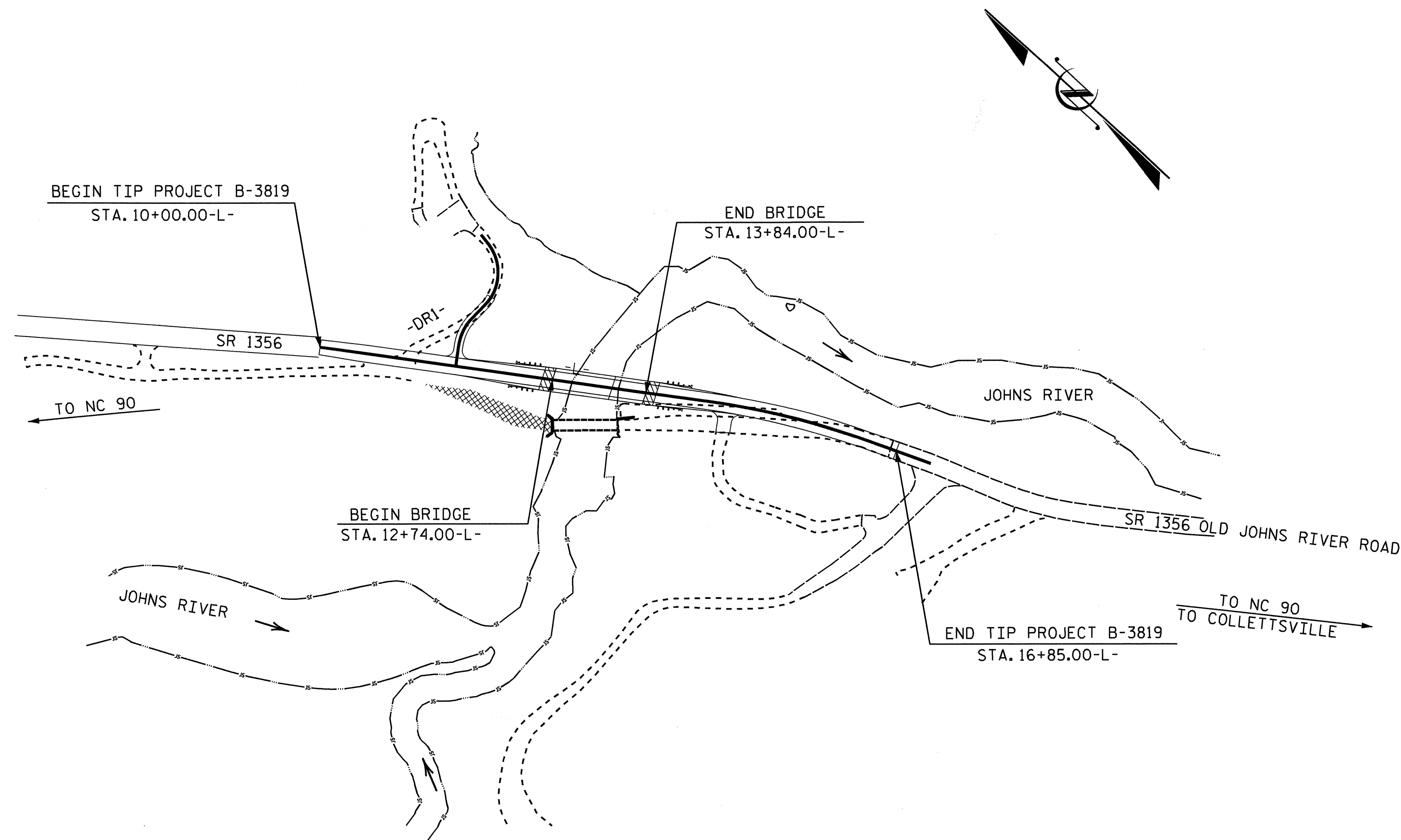
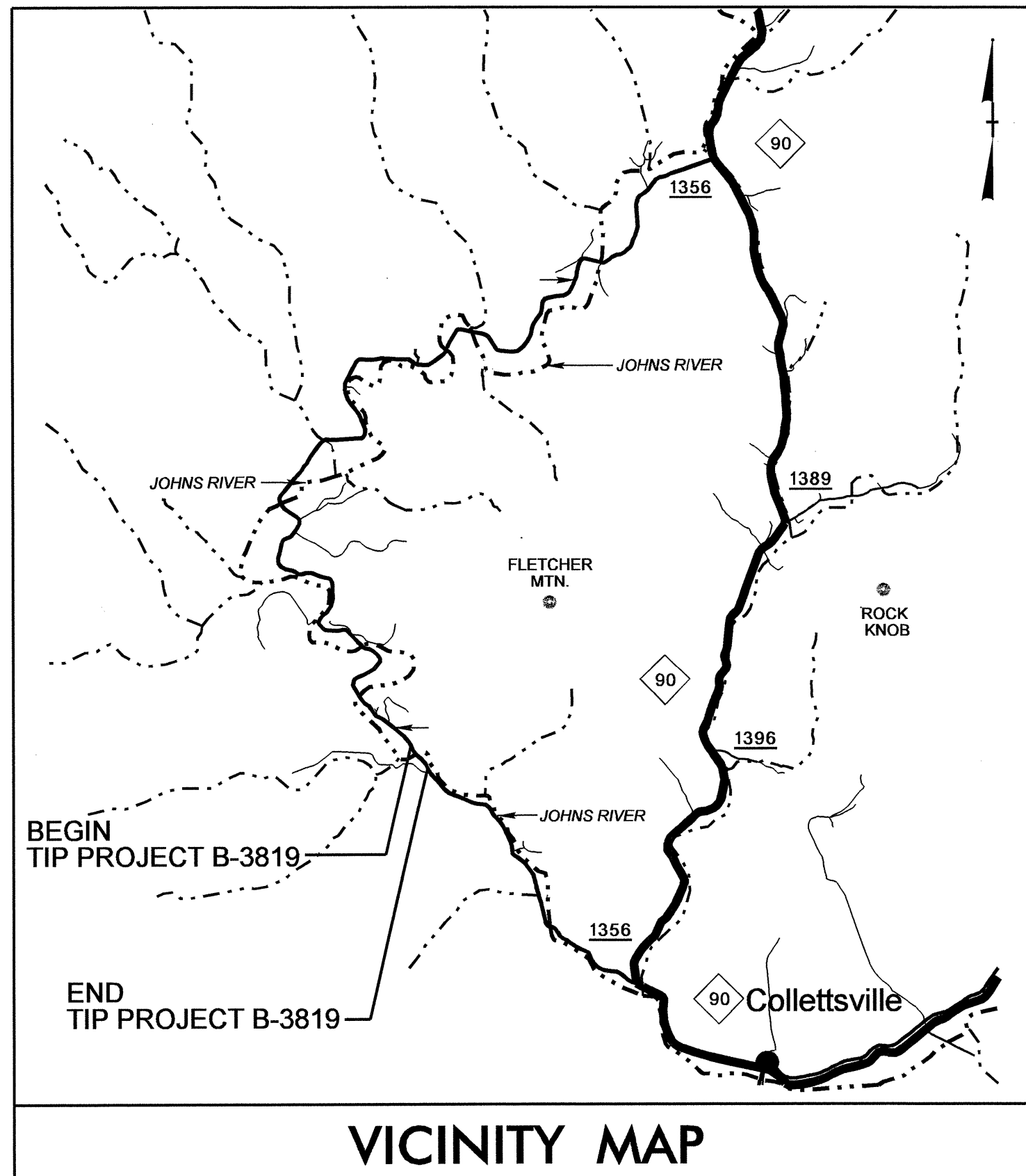
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CALDWELL COUNTY

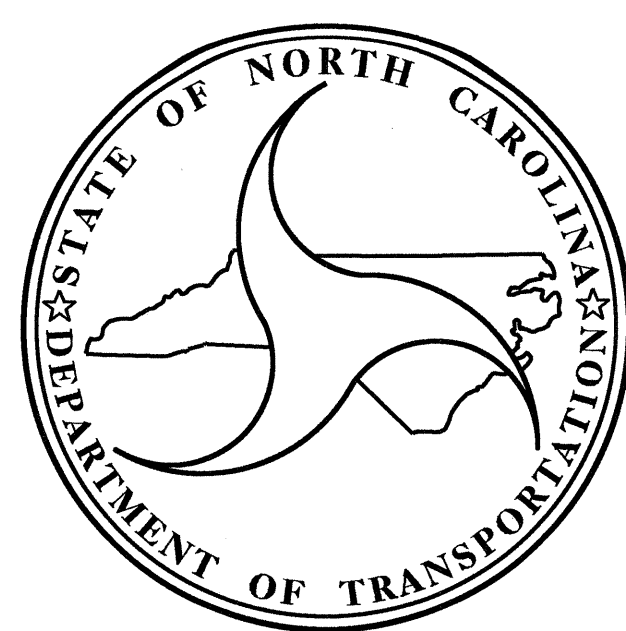
LOCATION: BRIDGE NO. 184 OVER THE JOHNS RIVER
ON SR 1356 (OLD JOHNS RIVER ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING,
AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3819		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33272.1.1	BRZ-1356 (1)	PE	
33272.2.1	BRZ-1356 (1)	ROW & UTIL	
33272.3.1	BRZ-1356 (1)	CONST.	



STRUCTURE



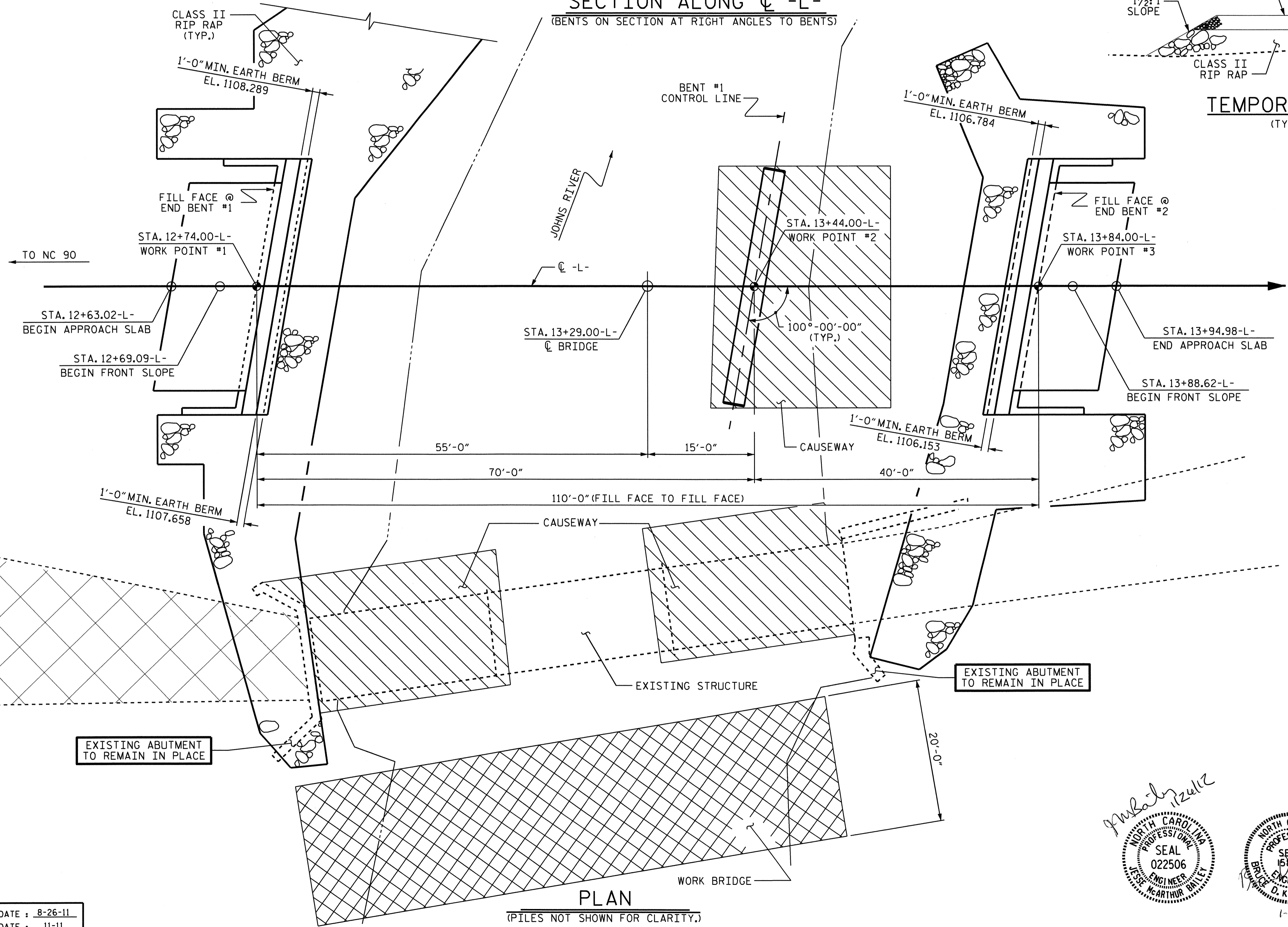
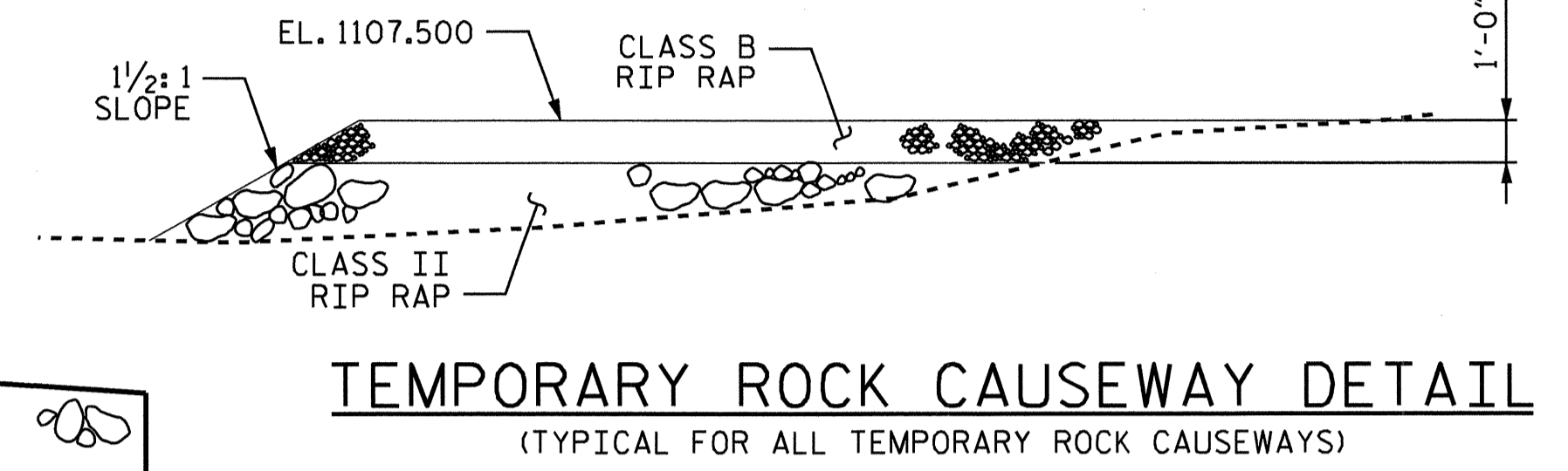
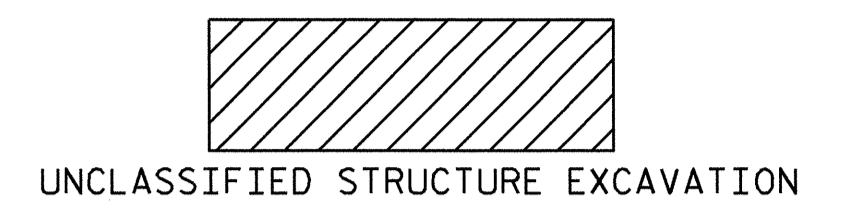
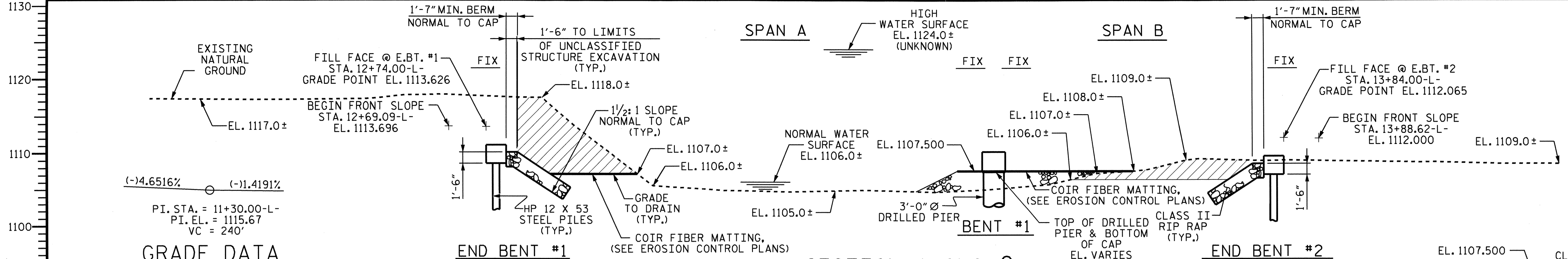
DESIGN DATA	
ADT 2012	= 515
ADT 2032	= 800
DHV	= 12 %
D	= 60 %
T	= 3 % *
V	= 35 MPH
* TTST	1 % DUAL 2 %
FUNC. CLASS	= RURAL LOCAL

PROJECT LENGTH	
LENGTH OF ROADWAY TIP PROJECT B-3819	= 0.109 MILES
LENGTH OF STRUCTURE TIP PROJECT B-3819	= 0.021 MILES
TOTAL LENGTH OF TIP PROJECT B-3819	= 0.130 MILES

Prepared in the Office of:	
DIVISION OF HIGHWAYS	
1000 Birch Ridge Dr., Raleigh NC, 27610	
2012 STANDARD SPECIFICATIONS	
LETTING DATE: MARCH 20, 2012	J. M. BAILEY, PE PROJECT ENGINEER
	B. D. KLAPPENBACH, PE PROJECT DESIGN ENGINEER

STRUCTURES MANAGEMENT UNIT	
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610	
APPROVED ENGINEER DIVISION ADMINISTRATION	
DATE	

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
STATE DESIGN ENGINEER	
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED ENGINEER DIVISION ADMINISTRATION	
DATE	



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

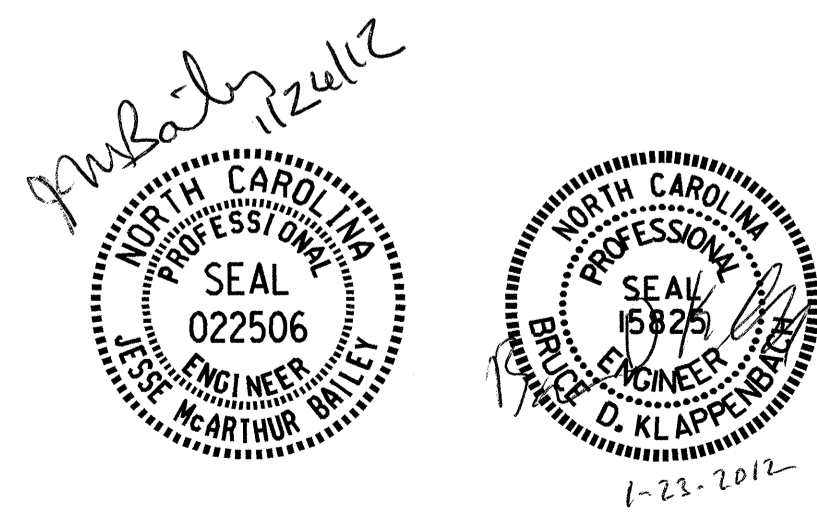
PROJECT NO. B-3819
CALDWELL COUNTY
STATION: 13+29.00-L-

SHEET 1 OF 3 REPLACES BRIDGE #184

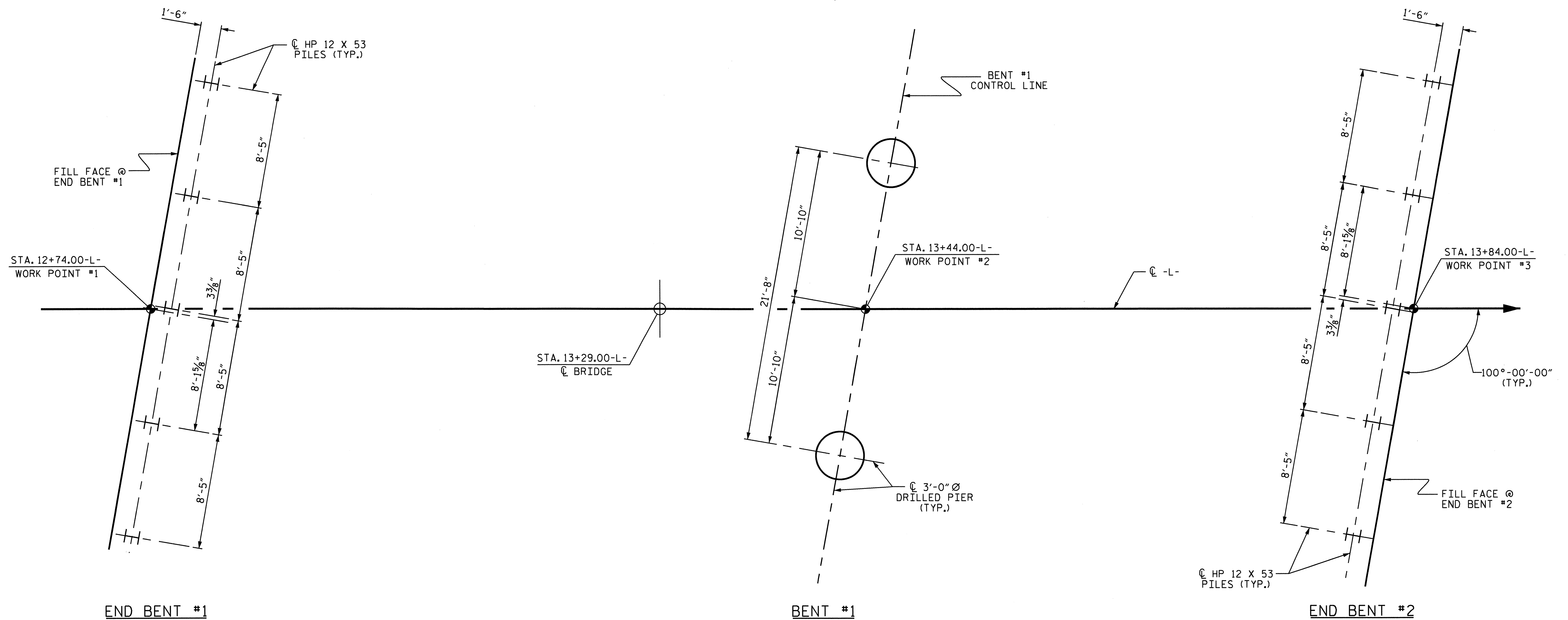
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER JOHNS RIVER ON SR 1356 BETWEEN NC 90 AND NC 90

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



DRAWN BY: H. T. BARBOUR DATE: 8-26-11
CHECKED BY: B. D. KLAPPENBACH DATE: 11-11



FOUNDATION LAYOUT

FOUNDATION NOTES

ALL PILES IN END BENTS ARE HP 12 X 53 STEEL PILES.

DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE SHOWN TO THE PILE AND DRILLED PIER CENTERLINES.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT #1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE.

DRIVE PILES AT END BENT #1 TO A REQUIRED DRIVING RESISTANCE OF 192 TONS PER PILE.

PILES AT END BENT #2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENT #2 TO A REQUIRED DRIVING RESISTANCE OF 142 TONS PER PILE.

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

DRILLED PIERS AT BENT #1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 405.0 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30.0 TSF.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT #1. DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 1099.5 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL DRILLED PIERS AT BENT #1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 1082.0 FT. (LT.) AND 1083.0 FT. (RT.) AND SATISFY THE REQUIRED TIP RESISTANCE.

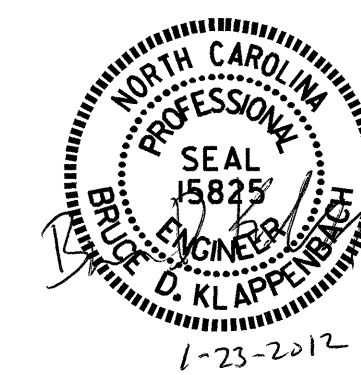
THE SCOUR CRITICAL ELEVATION FOR BENT #1 IS ELEVATION 1090.5 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00-L

SHEET 2 OF 3

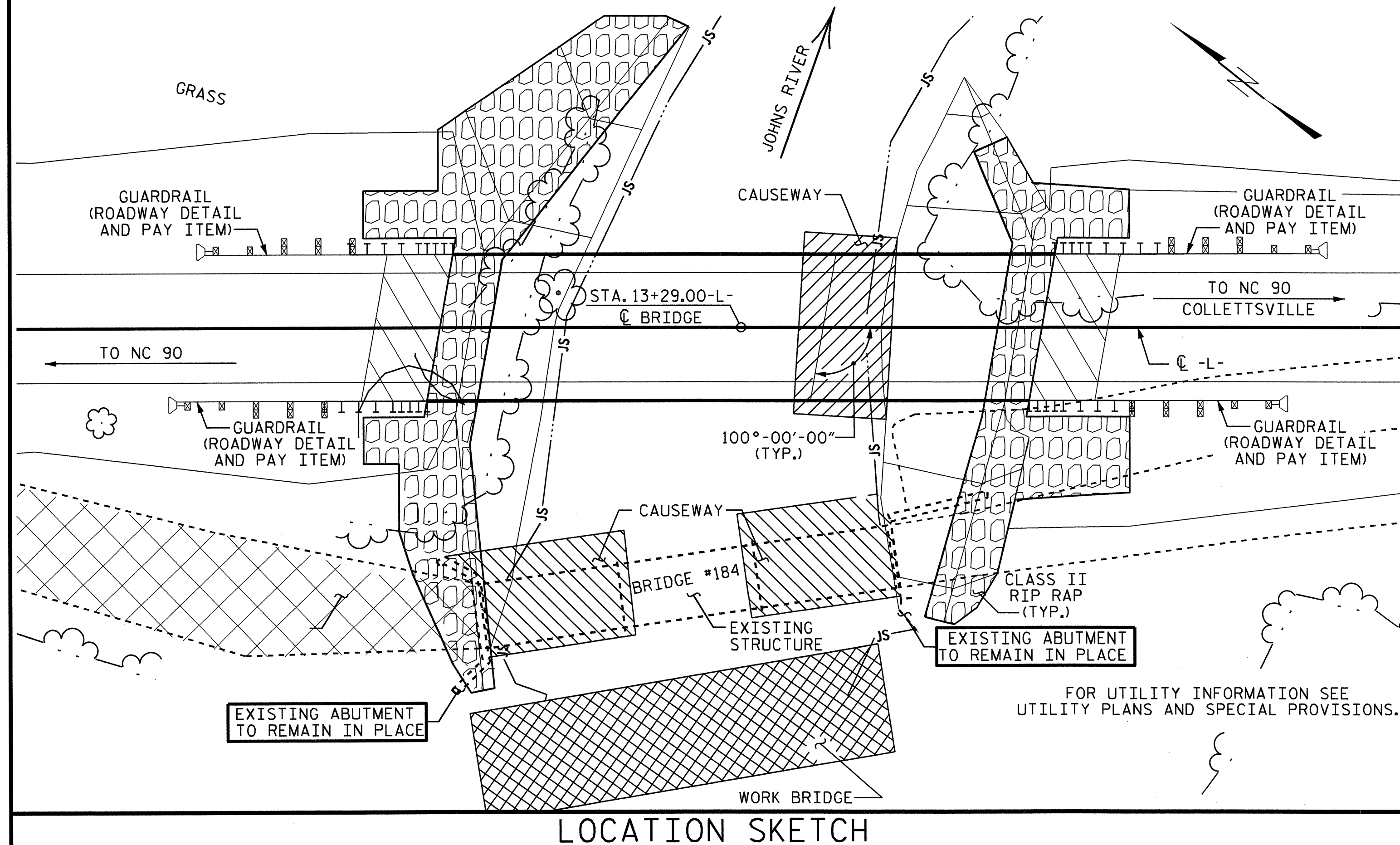


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER JOHNS RIVER ON SR 1356 BETWEEN NC 90 AND NC 90

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-2	
1			3			TOTAL SHEETS	
2			4			28	

DRAWN BY : H. T. BARBOUR DATE : 8-29-11
 CHECKED BY : B. D. KLAPPENBACH DATE : 11-11



LOCATION SKETCH

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (1 @ 25'-4", 1 @ 25'-1", 1 @ 25'-4") WITH A 1.5" ASPHALT WEARING SURFACE ON A 4 X 8 TIMBERS ON 5 LINES OF 12" I-BEAMS AND A CLEAR ROADWAY WIDTH OF 11.6', ON I-BEAM CAPS ON REINFORCED CONCRETE ABUTMENTS AND I-BEAM CAPS ON REINFORCED CONCRETE PIERS, LOCATED 50 FT. UPSTREAM FROM THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISION FOR REMOVAL OF EXISTING STRUCTURE AT STATION 13+29.00-L-.

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 13+29.00-L-."

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 CONCRETE WEARING SURFACE, SEE SPECIAL PROVISION.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 13+29.00-L-.

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.

TEMPORARY CAUSEWAYS SHALL BE CONSTRUCTED TO NOT CONSTRICT MORE THAN HALF OF THE CHANNEL WIDTH AT ANY TIME.

THE BRIDGE IS LOCATED IN SEISMIC ZONE 1.

TOTAL BILL OF MATERIAL

	CONST. MAINT. AND REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-0" DIA DRILLED PIERS IN SOIL	3'-0" DIA DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	SID INSPECTIONS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	LUMP SUM	SQ. FEET	SQ. FEET
SUPERSTRUCTURE									2998.0	3253.0
END BENT NO. 1										
BENT NO. 1			28.6	21.0	15.6	2				
END BENT NO. 2										
TOTAL	LUMP SUM	LUMP SUM	28.6	21.0	15.6	2	1	LUMP SUM	2998.0	3253.0

TOTAL BILL OF MATERIAL

	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	ONE BAR METAL RAIL	1'-0" X 2'-0 1/2" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS
	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE		LUMP SUM								LUMP SUM	1075.83
END BENT NO. 1	13.5		2061		5	50		230	255		
BENT NO. 1	12.6		6489	894							
END BENT NO. 2	13.5		1878		5	75		140	155		
TOTAL	39.6	LUMP SUM	10428	894	10	125	200.07	215.17	370	410	LUMP SUM 1075.83

HYDRAULIC DATA

DESIGN DISCHARGE = 1300 C.F.S.
 FREQUENCY OF DESIGN FLOOD = <2 YRS.
 DESIGN HIGH WATER ELEVATION = 1111.30
 DRAINAGE AREA = 62.30 Sq. MI.
 BASE DISCHARGE (Q100) = 19178 C.F.S.
 BASE HIGH WATER ELEVATION = 1126.10

OVERTOPPING FLOOD DATA

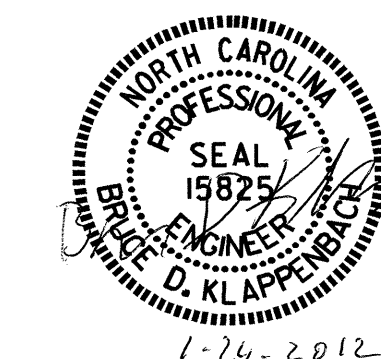
OVERTOPPING DISCHARGE = 1300 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = <2 YRS
 OVERTOPPING FLOOD ELEVATION = 1110.90

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER JOHNS
 RIVER ON SR 1356 BETWEEN
 NC 90 AND NC 90



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

DRAWN BY: H.T. BARBOUR DATE: 8-29-11
 CHECKED BY: B.D. KLAPPENBACH DATE: 11-11

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.009	--	1.75	0.274	1.06	A	EL	33.889	0.589	1.01	A	EL	3.389	0.80	0.274	1.03	A	EL	33.889		
	HL-93(0pr)	N/A	--	1.308	--	1.35	0.274	1.37	A	EL	33.889	0.589	1.31	A	EL	3.389	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.267	45.597	1.75	0.274	1.37	A	EL	33.889	0.589	1.27	A	EL	6.778	0.80	0.274	1.33	A	EL	33.889		
	HS-20(0pr)	36.000	--	1.642	59.107	1.35	0.274	1.77	A	EL	33.889	0.589	1.64	A	EL	6.778	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.96	39.964	1.4	0.274	3.8	A	EL	33.889	0.589	3.73	A	EL	6.778	0.80	0.274	2.96	A	EL	33.889	
		SNGARBS2	20.000	--	2.224	44.487	1.4	0.274	2.85	A	EL	33.889	0.589	2.67	A	EL	6.778	0.80	0.274	2.22	A	EL	33.889	
		SNAGRIS2	22.000	--	2.114	46.514	1.4	0.274	2.71	A	EL	33.889	0.589	2.48	A	EL	6.778	0.80	0.274	2.11	A	EL	33.889	
		SNCOTTS3	27.250	--	1.474	40.157	1.4	0.274	1.89	A	EL	33.889	0.589	1.87	A	EL	6.778	0.80	0.274	1.47	A	EL	33.889	
		SNAGGRS4	34.925	--	1.238	43.254	1.4	0.274	1.59	A	EL	33.889	0.589	1.56	A	EL	6.778	0.80	0.274	1.24	A	EL	33.889	
		SNS5A	35.550	--	1.211	43.038	1.4	0.274	1.55	A	EL	33.889	0.589	1.58	A	EL	6.778	0.80	0.274	1.21	A	EL	33.889	
		SNS6A	39.950	--	1.114	44.493	1.4	0.274	1.43	A	EL	33.889	0.589	1.44	A	EL	6.778	0.80	0.274	1.11	A	EL	33.889	
	SNS7B	42.000	--	1.061	44.55	1.4	0.274	1.36	A	EL	33.889	0.589	1.42	A	EL	3.389	0.80	0.274	1.06	A	EL	33.889		
	TTST	TNAGRIT3	33.000	--	1.359	44.846	1.4	0.274	1.74	A	EL	33.889	0.589	1.72	A	EL	6.778	0.80	0.274	1.36	A	EL	33.889	
		TNT4A	33.075	--	1.366	45.173	1.4	0.274	1.75	A	EL	33.889	0.589	1.67	A	EL	6.778	0.80	0.274	1.37	A	EL	33.889	
		TNT6A	41.600	--	1.12	46.573	1.4	0.274	1.44	A	EL	33.889	0.589	1.51	A	EL	3.389	0.80	0.274	1.12	A	EL	33.889	
		TNT7A	42.000	--	1.127	47.319	1.4	0.274	1.45	A	EL	33.889	0.589	1.48	A	EL	3.389	0.80	0.274	1.13	A	EL	33.889	
		TNT7B	42.000	--	1.169	49.11	1.4	0.274	1.5	A	EL	33.889	0.589	1.39	A	EL	6.778	0.80	0.274	1.17	A	EL	33.889	
		TNAGRIT4	43.000	--	1.110	47.711	1.4	0.274	1.42	A	EL	33.889	0.589	1.34	A	EL	6.778	0.80	0.274	1.11	A	EL	33.889	
TNAGT5A		45.000	--	1.045	47.019	1.4	0.274	1.34	A	EL	33.889	0.589	1.34	A	EL	3.389	0.80	0.274	1.04	A	EL	33.889		
TNAGT5B	45.000	3	1.031	46.399	1.4	0.274	1.32	A	EL	33.889	0.589	1.27	A	EL	6.778	0.80	0.274	1.03	A	EL	33.889			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	Y _{dc}	Y _{ow}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

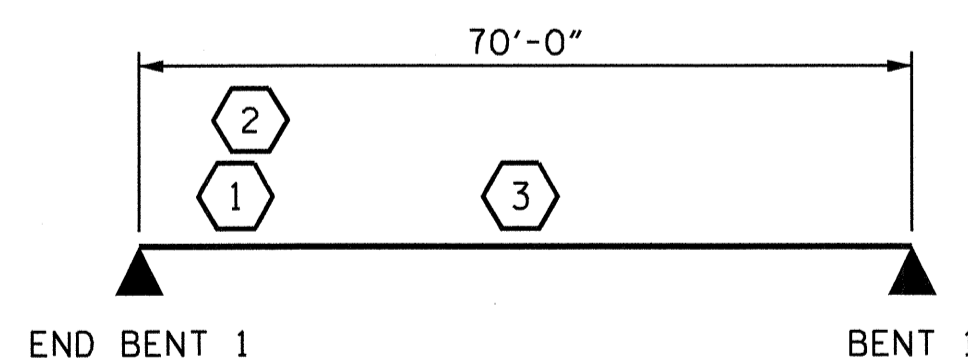
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPAN A

ASSEMBLED BY : M. ALI DATE : 11-15-2011
 CHECKED BY : B. D. KLAPPENBACH DATE : 11-21-2011
 DRAWN BY : MAA 1/08 REV. 11/12/08R MAA/GM
 CHECKED BY : GM/DI 2/08

13-DEC-2011 09:19
 R:\Structures\Rating\B-3819.SD.Ratng.dgn
 bklappenbach



PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 12+32.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 2'-0"
 PRESTRESS CONCRETE
 CORED SLAB UNIT
 SPAN A RATING
 (NON-INTERSTATE TRAFFIC)

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

STD. NO. LRFR1

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.573	--	1.75	0.274	1.78	40'	EL	19.482	0.62	1.6	40'	EL	1.948	0.80	0.274	1.57	40'	EL	19.482		
	HL-93(OPr)	N/A	--	2.078	--	1.35	0.274	2.31	40'	EL	19.482	0.62	2.08	40'	EL	1.948	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.873	67.422	1.75	0.274	2.23	40'	EL	19.482	0.62	1.87	40'	EL	1.948	0.80	0.274	1.96	40'	EL	19.482		
	HS-20(OPr)	36.000	--	2.428	87.4	1.35	0.274	2.9	40'	EL	19.482	0.62	2.43	40'	EL	1.948	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.642	49.163	1.4	0.274	5.16	40'	EL	19.482	0.62	4.8	40'	EL	7.793	0.80	0.274	3.64	40'	EL	19.482	
		SNGARBS2	20.000	--	2.995	59.897	1.4	0.274	4.24	40'	EL	15.586	0.62	3.65	40'	EL	7.793	0.80	0.274	2.99	40'	EL	19.482	
		SNAGRIS2	22.000	--	2.951	64.924	1.4	0.274	4.14	40'	EL	15.586	0.62	3.49	40'	EL	7.793	0.80	0.274	2.95	40'	EL	15.586	
		SNCOTTS3	27.250	--	1.82	49.605	1.4	0.274	2.58	40'	EL	19.482	0.62	2.42	40'	EL	7.793	0.80	0.274	1.82	40'	EL	19.482	
		SNAGGRS4	34.925	--	1.639	57.231	1.4	0.274	2.32	40'	EL	19.482	0.62	2.18	40'	EL	7.793	0.80	0.274	1.64	40'	EL	19.482	
		SNS5A	35.550	--	1.594	56.664	1.4	0.274	2.26	40'	EL	19.482	0.62	2.3	40'	EL	7.793	0.80	0.274	1.59	40'	EL	19.482	
	TTST	SNS6A	39.950	--	1.517	60.592	1.4	0.274	2.15	40'	EL	19.482	0.62	2.16	40'	EL	1.948	0.80	0.274	1.52	40'	EL	19.482	
		SNS7B	42.000	3	1.446	60.751	1.4	0.274	2.05	40'	EL	19.482	0.62	2.2	40'	EL	1.948	0.80	0.274	1.45	40'	EL	19.482	
		TNAGRIT3	33.000	--	1.866	61.588	1.4	0.274	2.65	40'	EL	19.482	0.62	2.52	40'	EL	1.948	0.80	0.274	1.87	40'	EL	19.482	
		TNT4A	33.075	--	1.89	62.524	1.4	0.274	2.68	40'	EL	19.482	0.62	2.38	40'	EL	7.793	0.80	0.274	1.89	40'	EL	19.482	
		TNT6A	41.600	--	1.603	66.702	1.4	0.274	2.27	40'	EL	19.482	0.62	2.34	40'	EL	7.793	0.80	0.274	1.60	40'	EL	19.482	
		TNT7A	42.000	--	1.644	69.051	1.4	0.274	2.33	40'	EL	19.482	0.62	2.17	40'	EL	1.948	0.80	0.274	1.64	40'	EL	19.482	
TNT7B	42.000	--	1.681	70.584	1.4	0.274	2.38	40'	EL	19.482	0.62	2.09	40'	EL	1.948	0.80	0.274	1.68	40'	EL	19.482			
TNAGRIT4	43.000	--	1.635	70.321	1.4	0.274	2.31	40'	EL	15.586	0.62	2	40'	EL	1.948	0.80	0.274	1.64	40'	EL	19.482			
TNAGT5A	45.000	--	1.513	68.098	1.4	0.274	2.14	40'	EL	19.482	0.62	2.08	40'	EL	1.948	0.80	0.274	1.51	40'	EL	19.482			
TNAGT5B	45.000	--	1.47	66.159	1.4	0.274	2.08	40'	EL	19.482	0.62	1.9	40'	EL	1.948	0.80	0.274	1.47	40'	EL	19.482			

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:

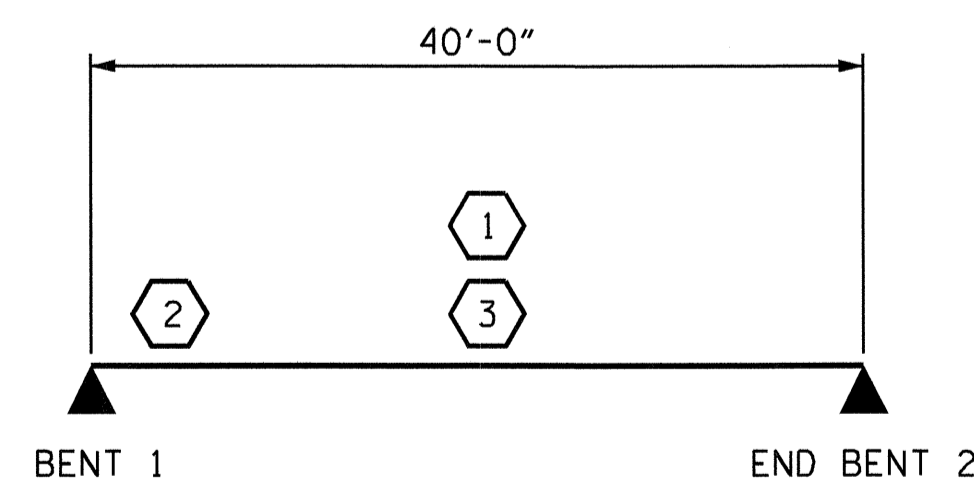
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

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

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



LRFR SUMMARY
FOR SPAN B

PROJECT NO. B-3819
CALDWELL COUNTY
STATION: 13+29.00-L-

ASSEMBLED BY : M. ALI DATE :11-15-2011
CHECKED BY : B.D. KLAPPENBACH DATE :11-23-2011
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

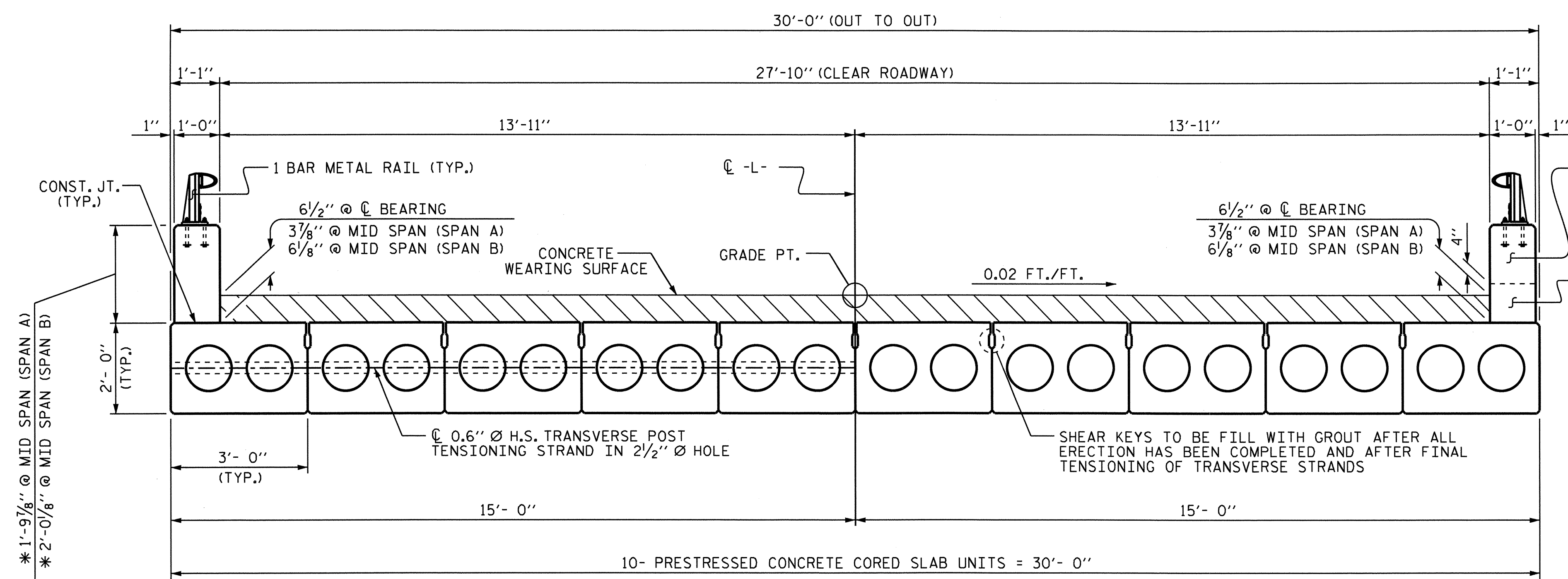
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TBARBOUR



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

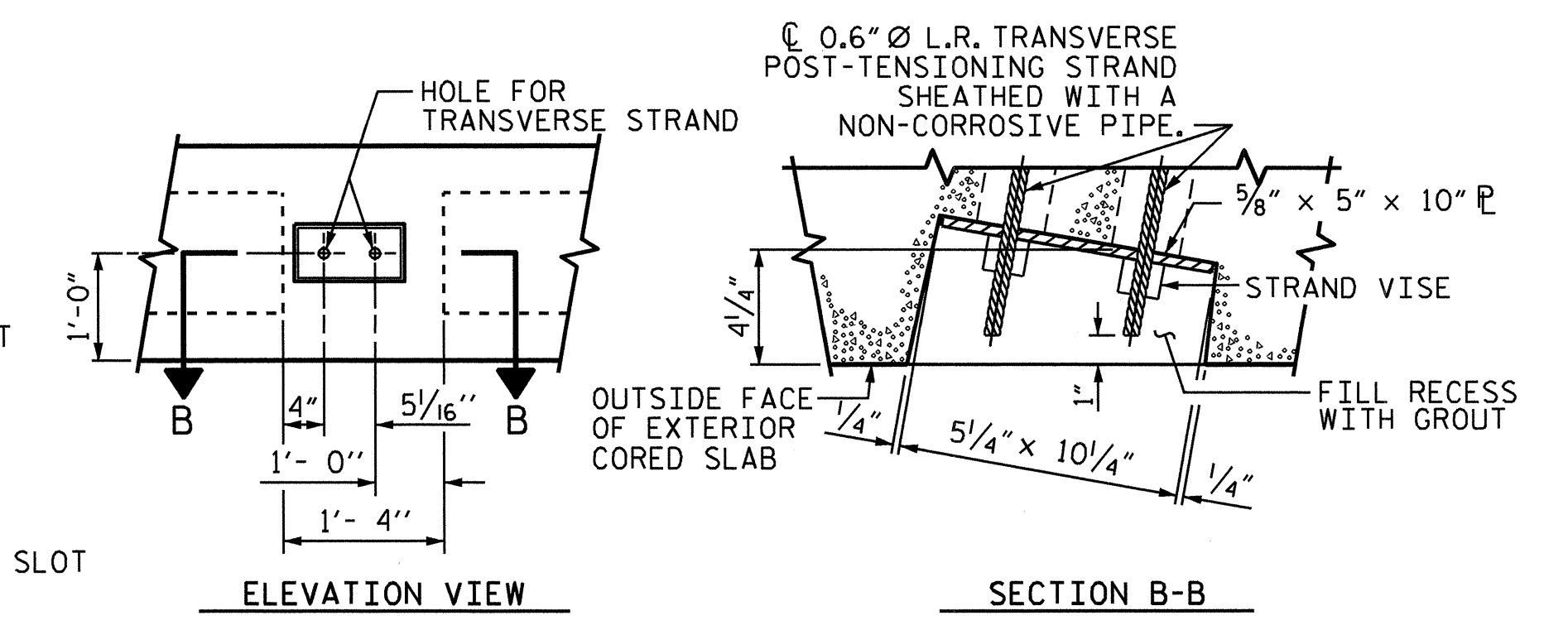
3'-0" x 2'-0"
PRESTRESS CONCRETE
CORED SLAB UNIT
SPAN B RATING
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			28

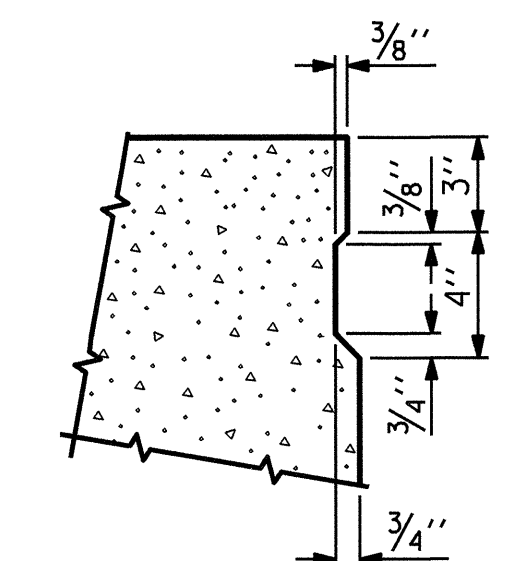


TYPICAL SECTION

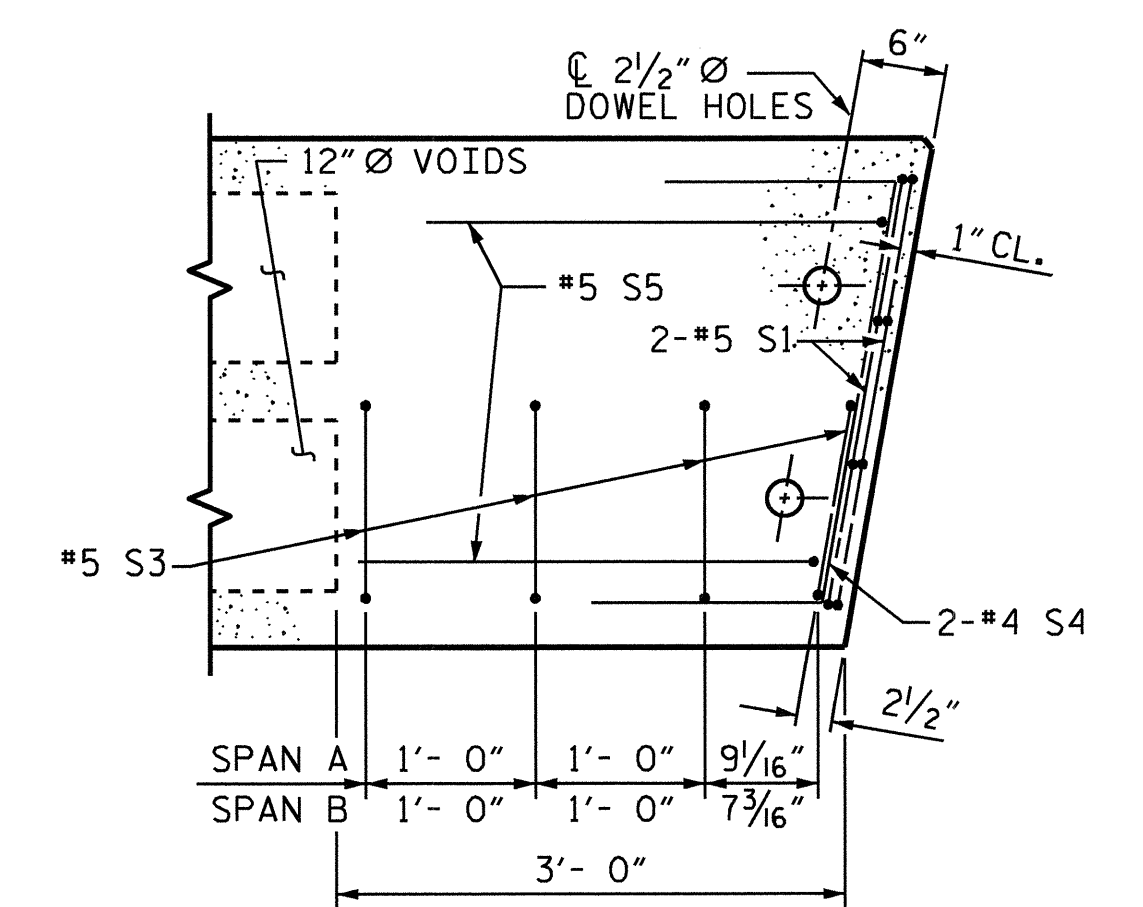
* THE MINIMUM HEIGHT OF THE PARAPET IS SHOWN. THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE. SEE "CONCRETE PARAPET DETAILS".



GRouted RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



SHEAR KEY DETAIL
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

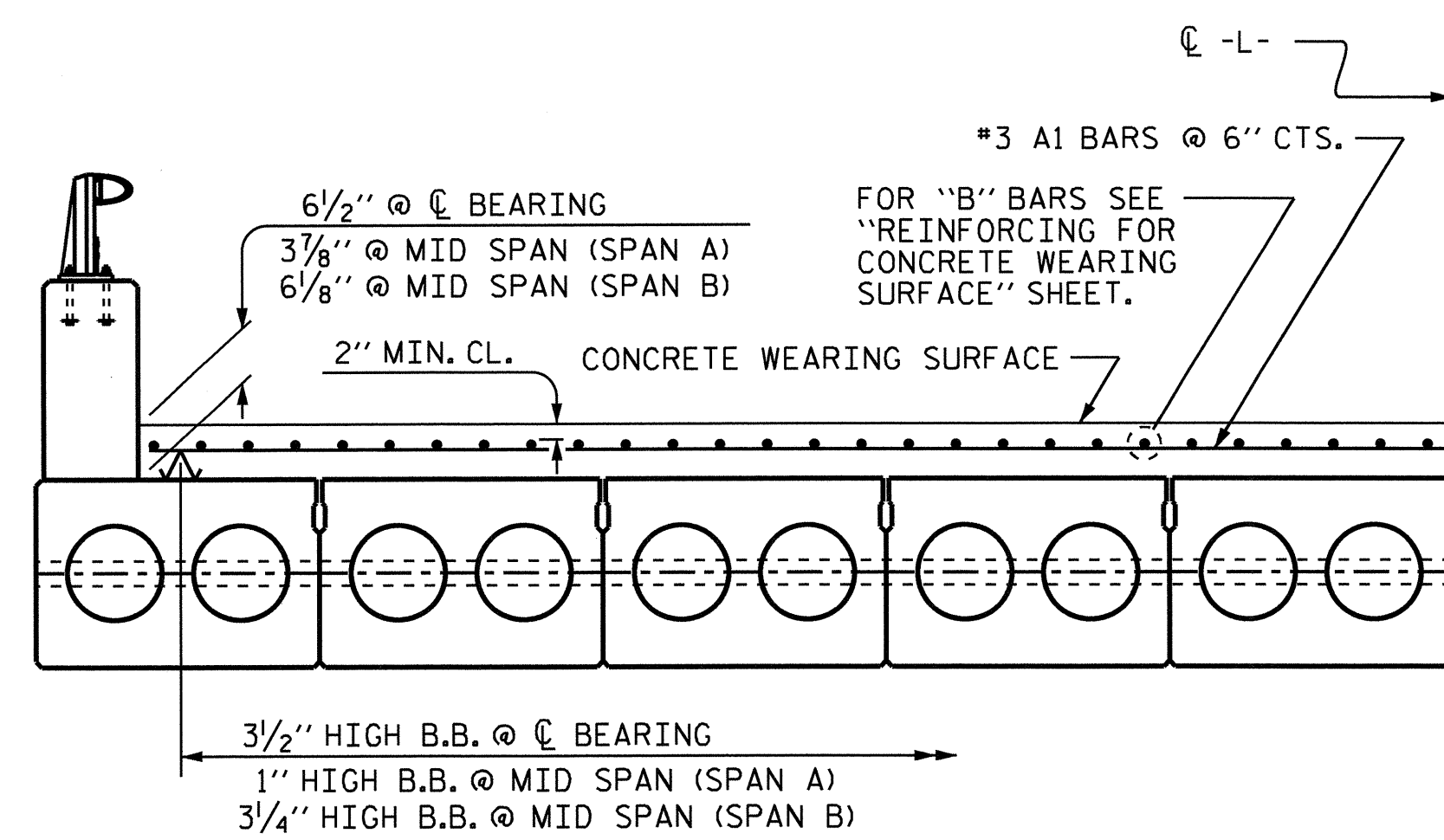
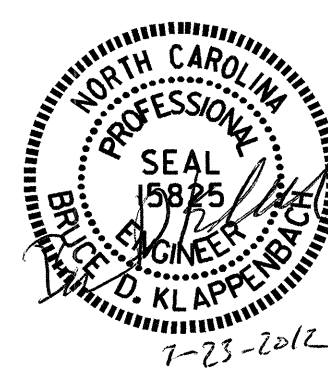


PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.

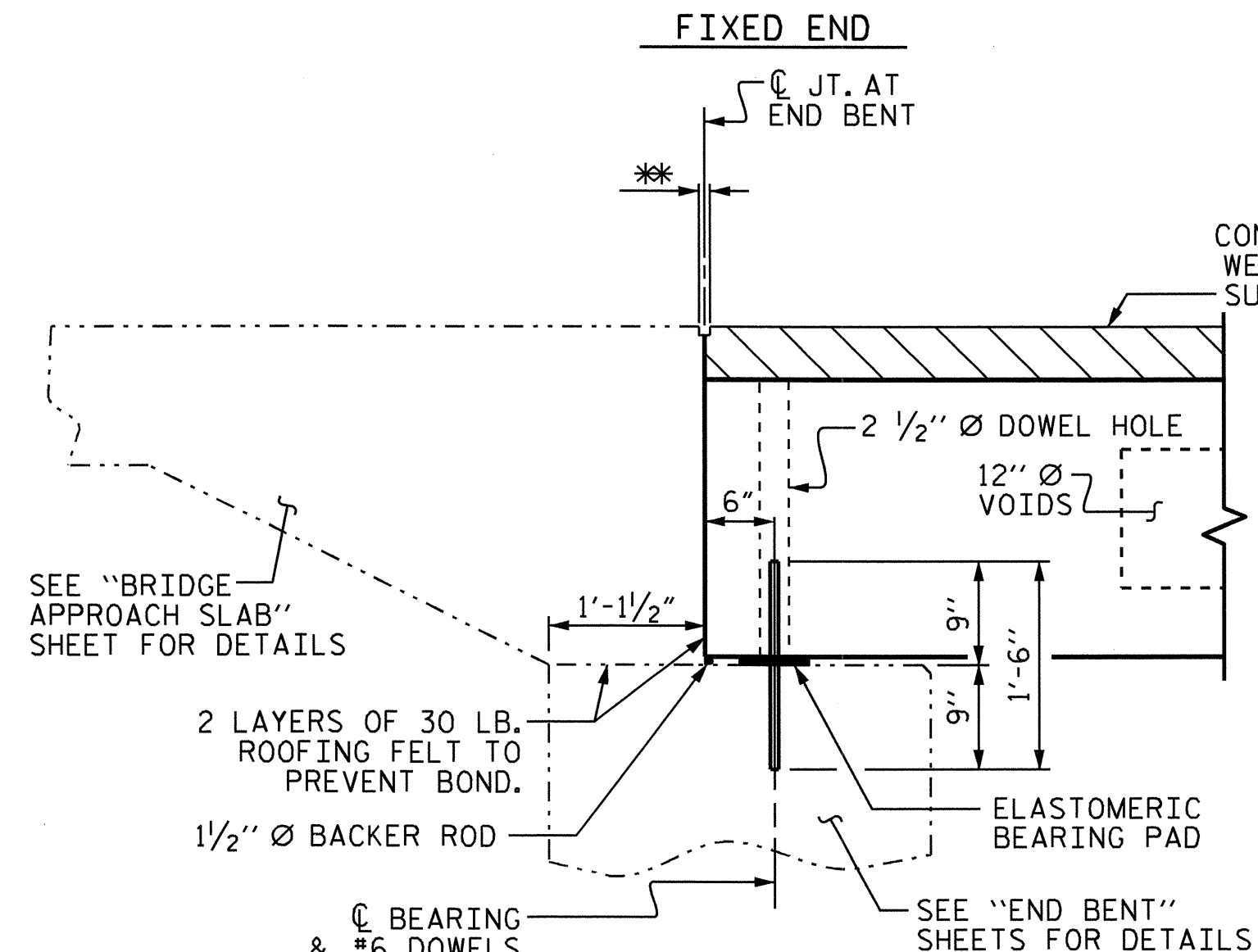
- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

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

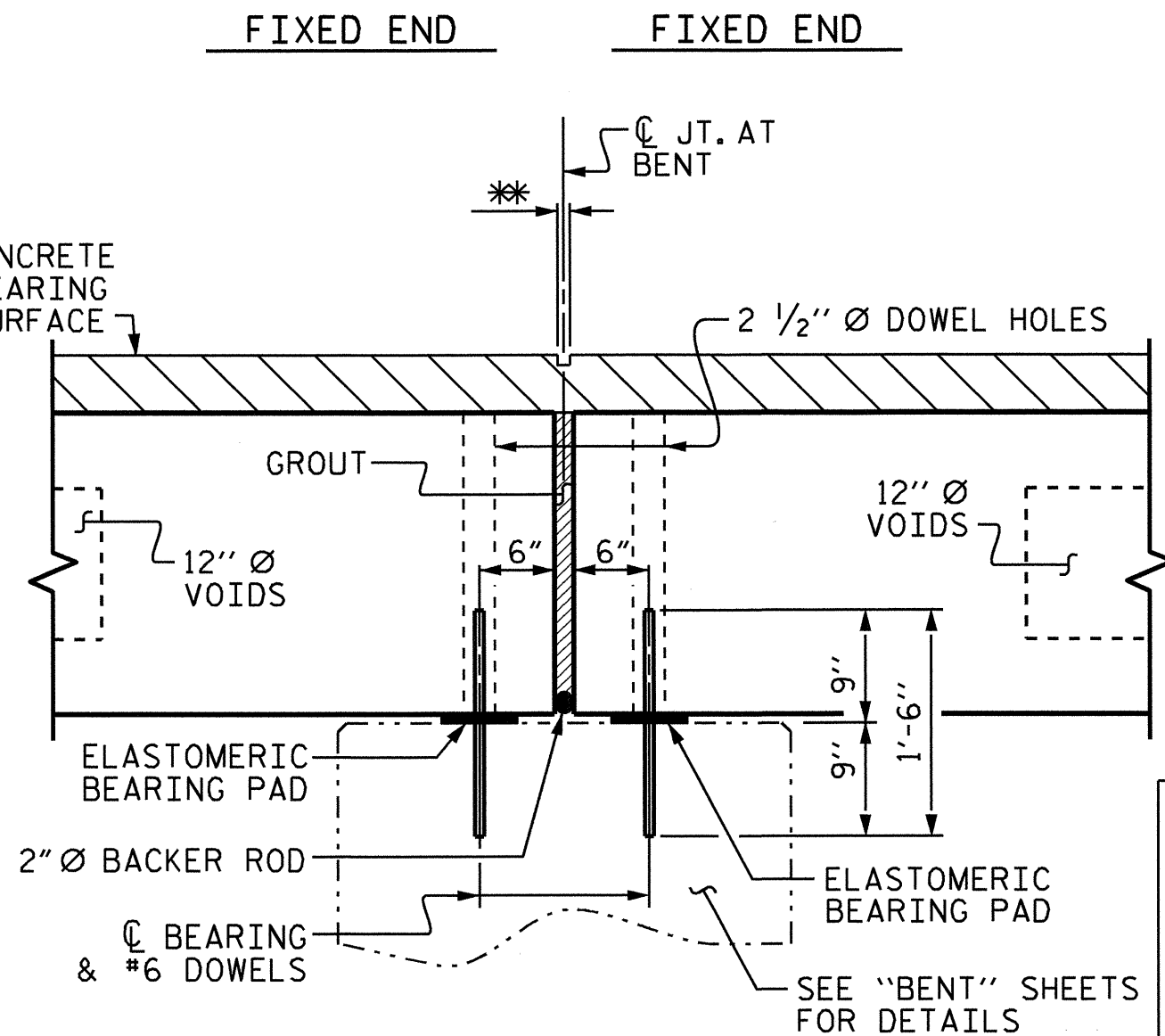


REINFORCING FOR CONCRETE WEARING SURFACE (PART TYPICAL SECTION)

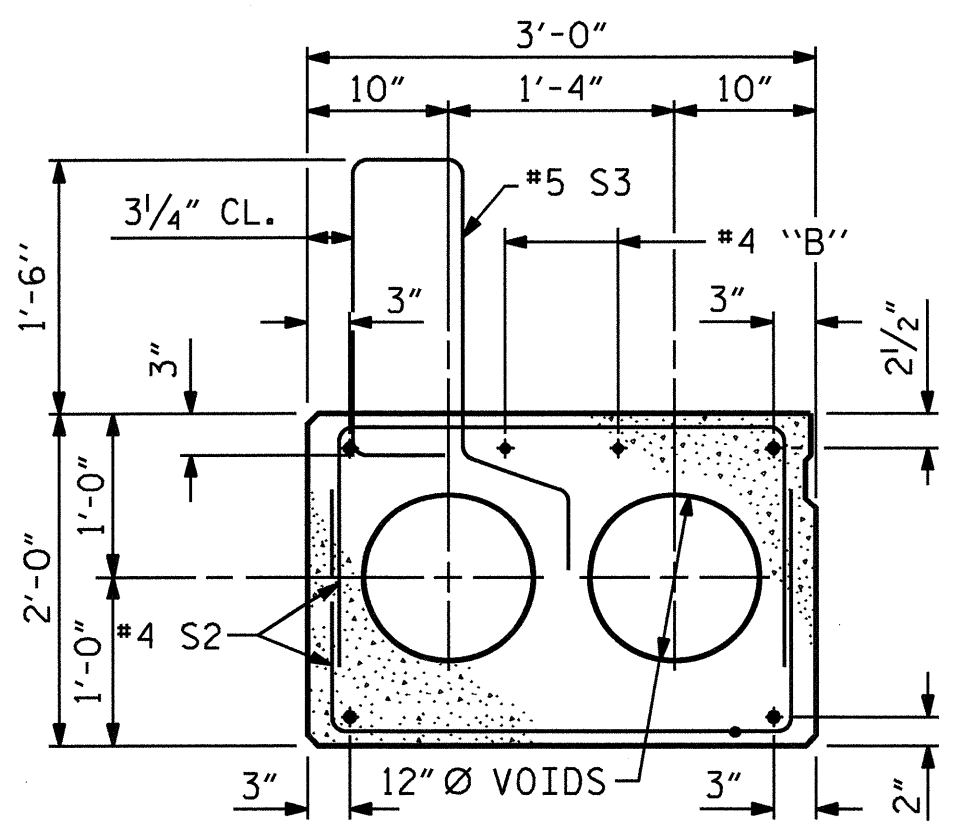
(SEE "REINFORCING FOR CONCRETE WEARING SURFACE" SHEET)



SECTION AT END BENT

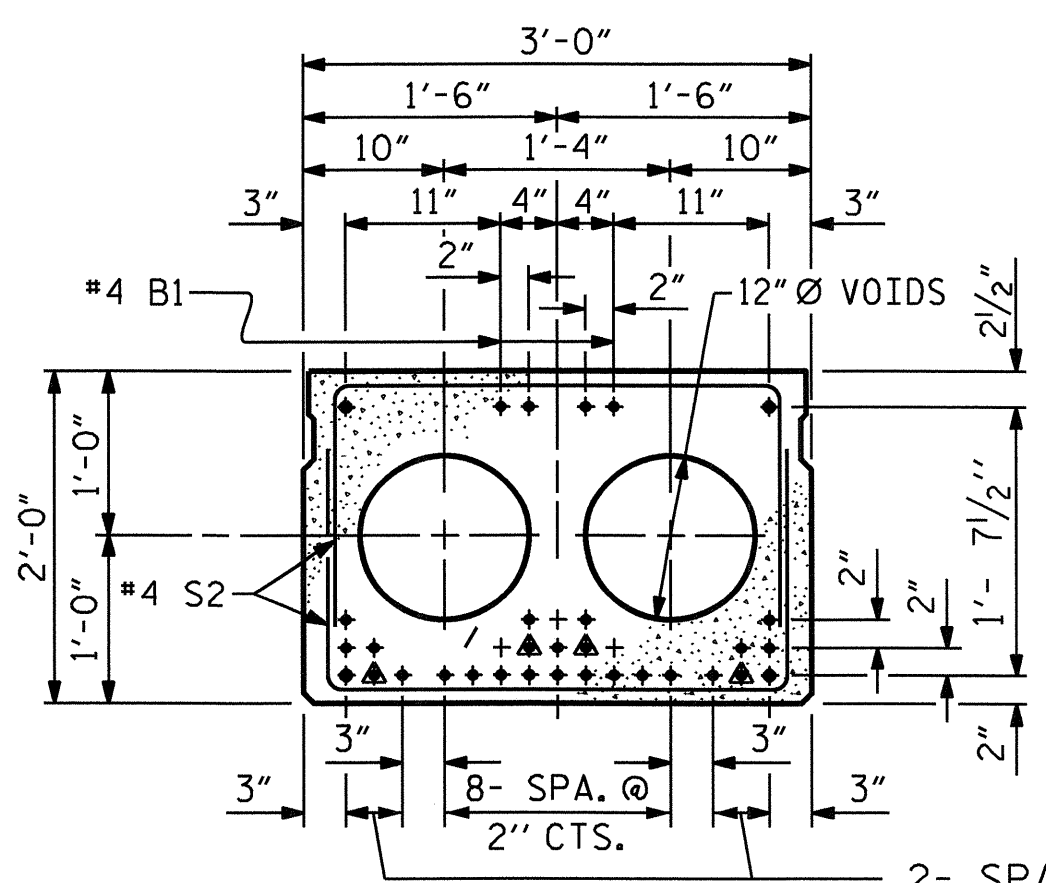


SECTION AT BENT



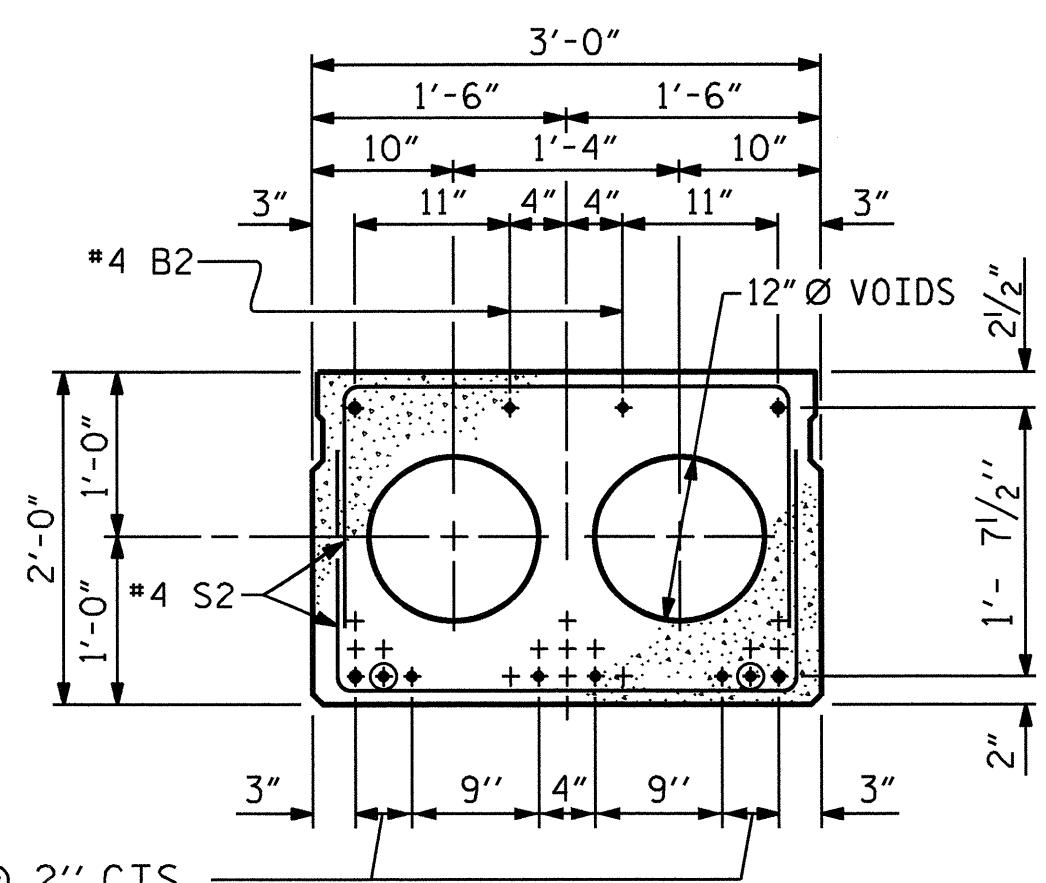
EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



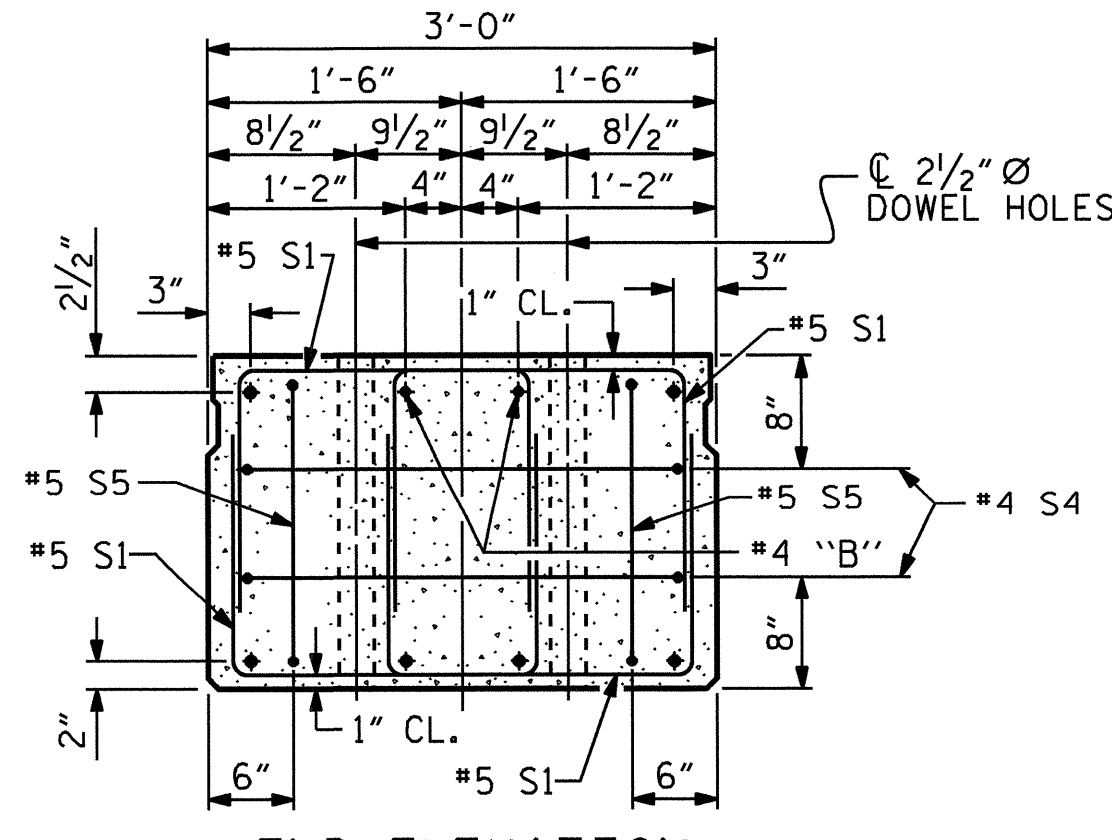
INTERIOR SLAB SECTION (SPAN A)

(30 STRANDS REQUIRED)



INTERIOR SLAB SECTION (SPAN B)

(10 STRANDS REQUIRED)



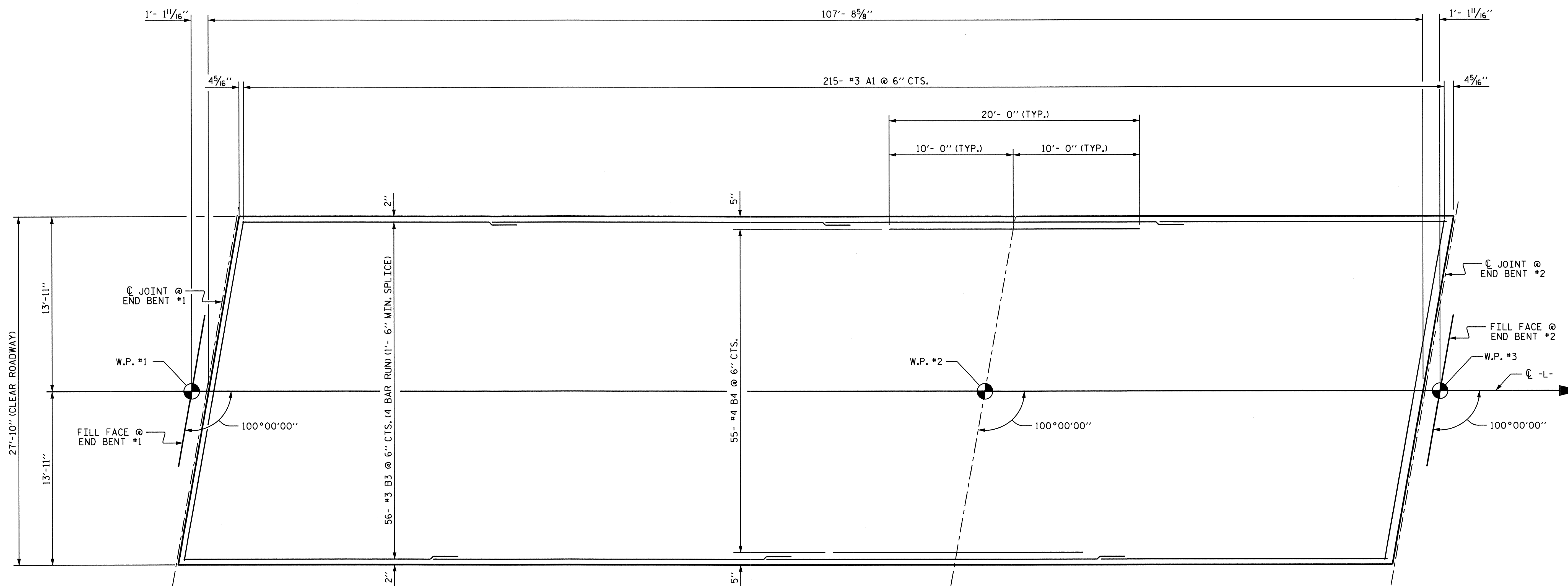
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

ASSEMBLED BY: D. A. GLADDEN	DATE: 7-15-10
CHECKED BY: M. G. SHAIKH	DATE: 8-10-10
DRAWN BY: MAA	5/10
CHECKED BY: GM	5/10
ADDED	5/6/10

PROJECT NO. B-3819
CALDWELL COUNTY
STATION: 13+29.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT					
SHEET NO. S-6					
TOTAL SHEETS 28					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



PLAN OF REINFORCING CONCRETE WEARING SURFACE

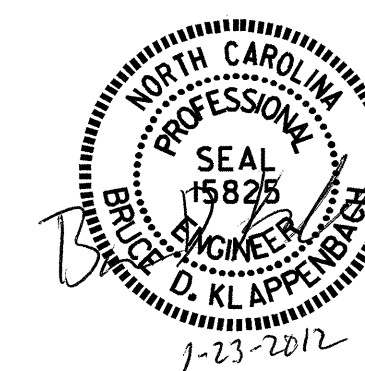
NOTE : PLACEMENT OF THE CONCRETE OVERLAY SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 2 OF 12

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

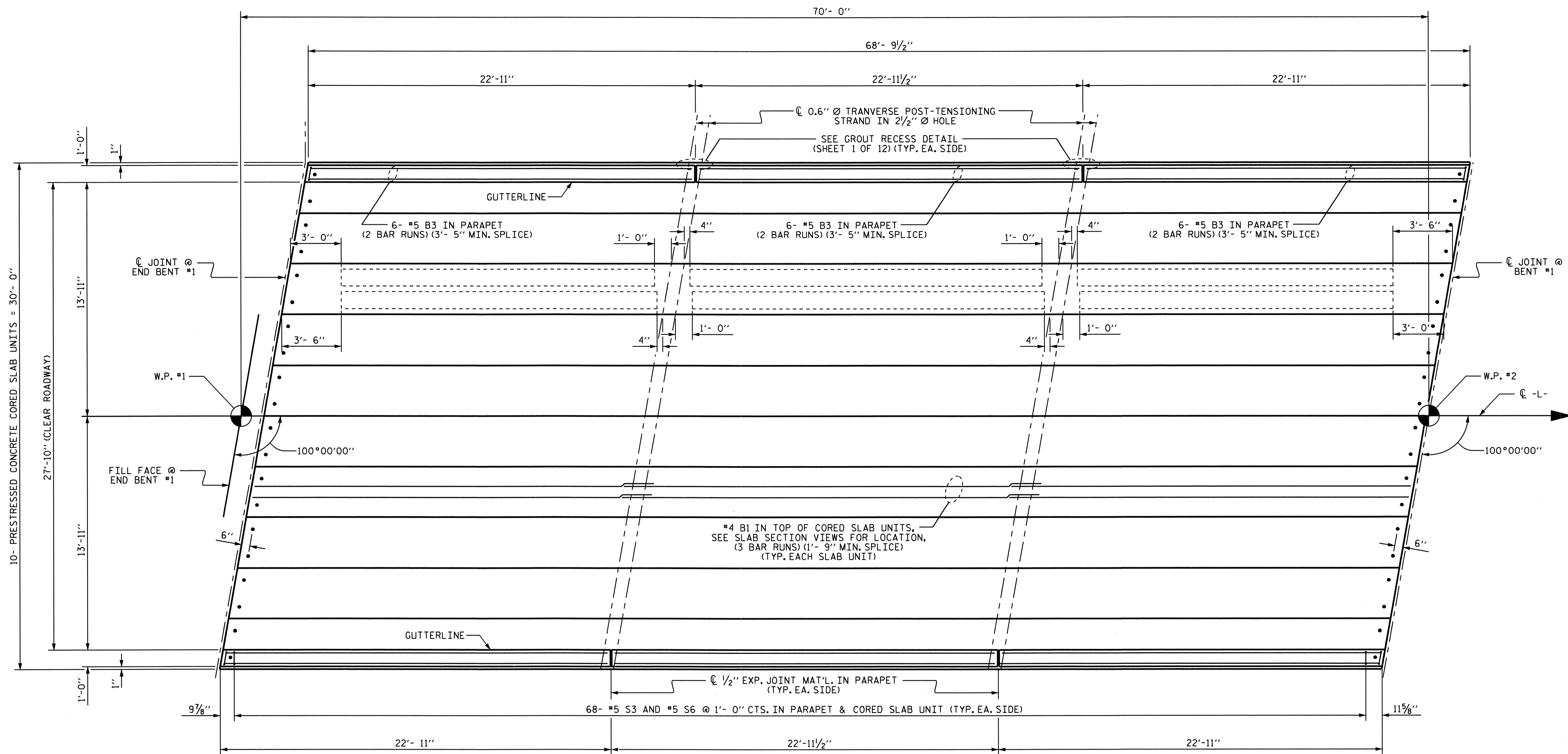
REINFORCING FOR
 CONCRETE WEARING
 SURFACE



DRAWN BY : D. A. GLADDEN DATE : 7-15-10
 CHECKED BY : M. G. SHAIKH DATE : 8-10-10

23-JAN-2012 12:19
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 dgladden

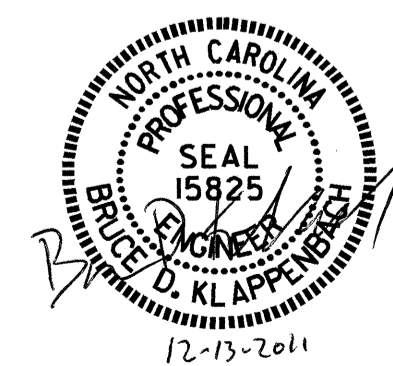
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			28



PLAN OF SPAN A

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 3 OF 12



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SPAN A)

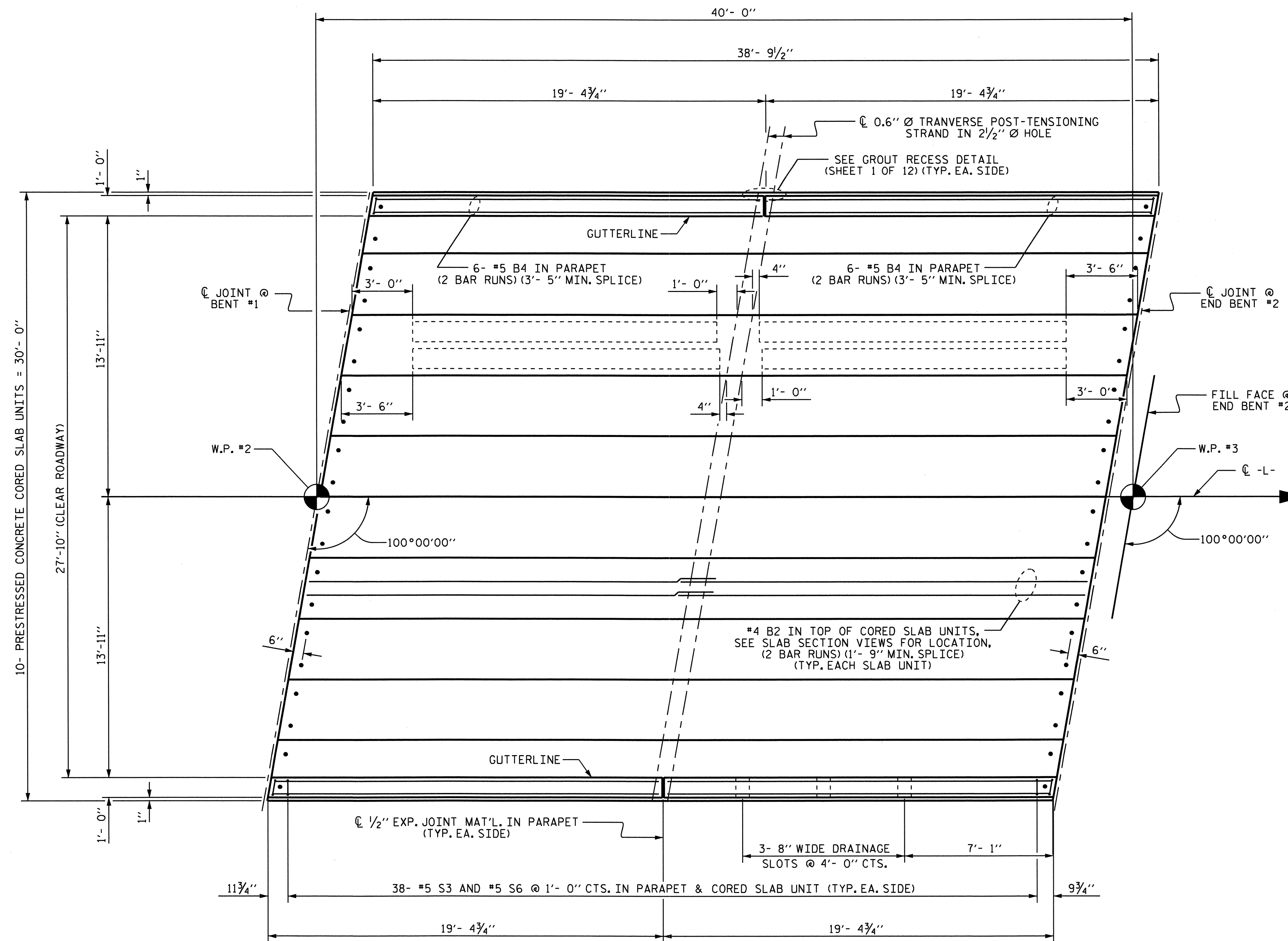
REVISIONS

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

SHEET NO.
S-8
TOTAL SHEETS 28

DRAWN BY : D. A. GLADDEN DATE : 7-15-10
 CHECKED BY : M. G. SHAIKH DATE : 8-10-10

13-DEC-2011 10:08
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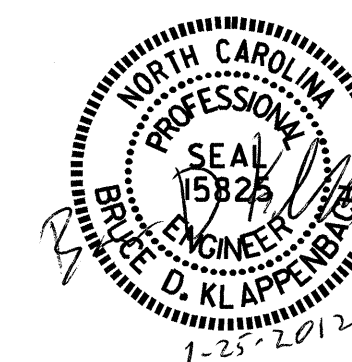


PLAN OF SPAN B

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 4 OF 12

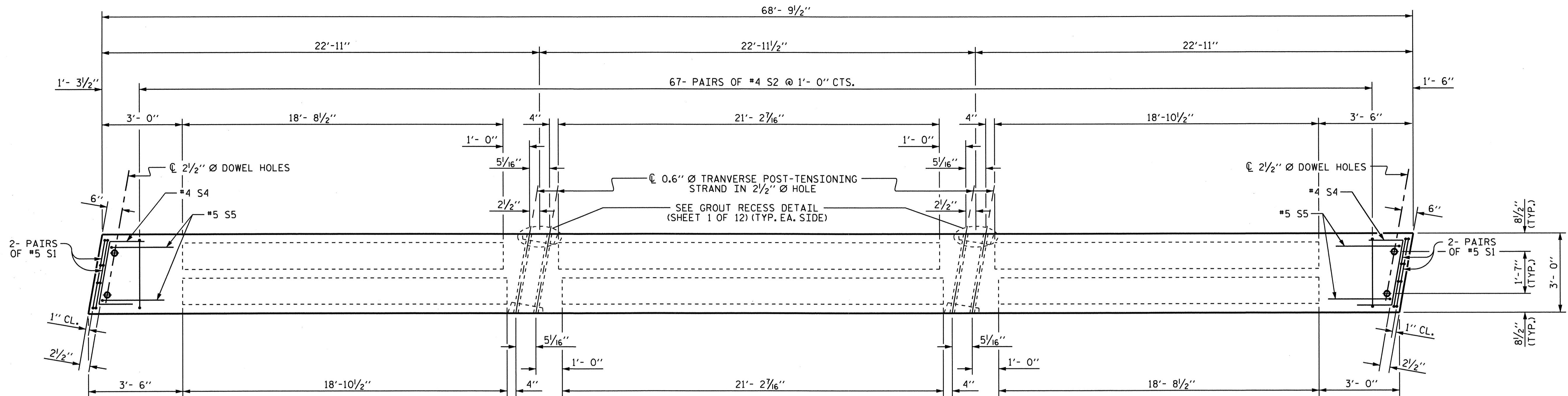
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SPAN B)



DRAWN BY : D. A. GLADDEN DATE : 7-15-10
 CHECKED BY : M. G. SHAIKH DATE : 8-10-10

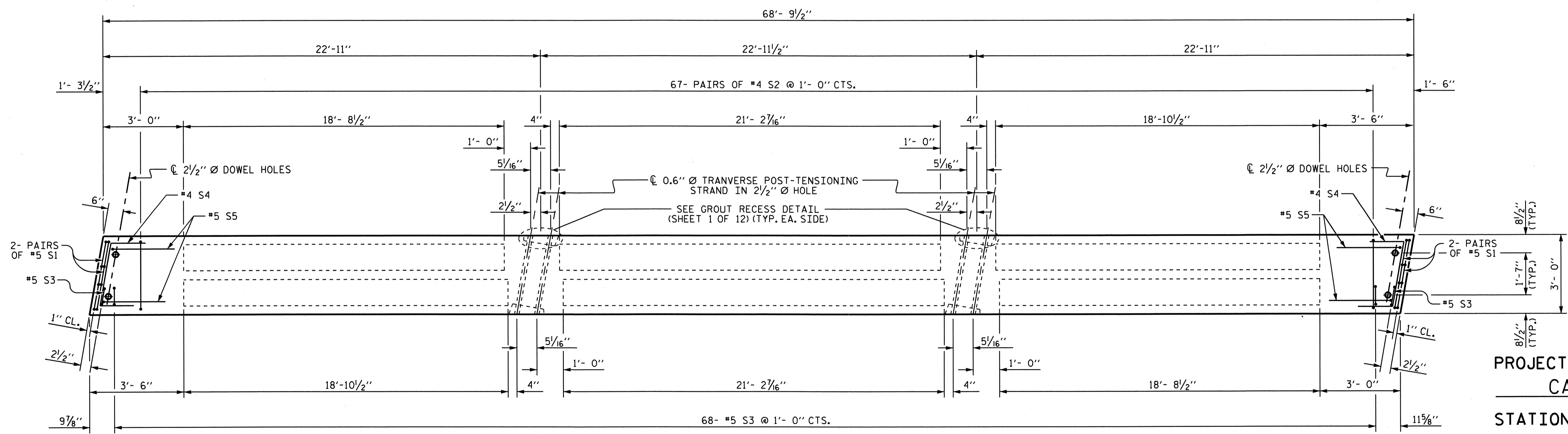
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 bkappenbach

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			28



PLAN OF INTERIOR CORED SLAB UNIT (SPAN A)

#4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS.



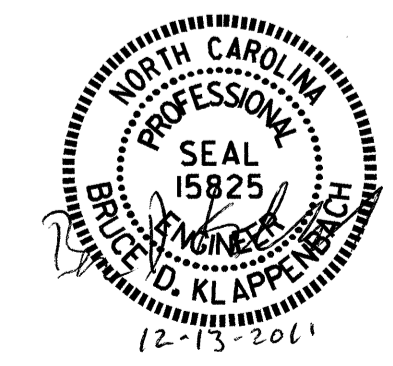
PLAN OF EXTERIOR CORED SLAB UNIT (SPAN A)

#4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS.

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 5 OF 12

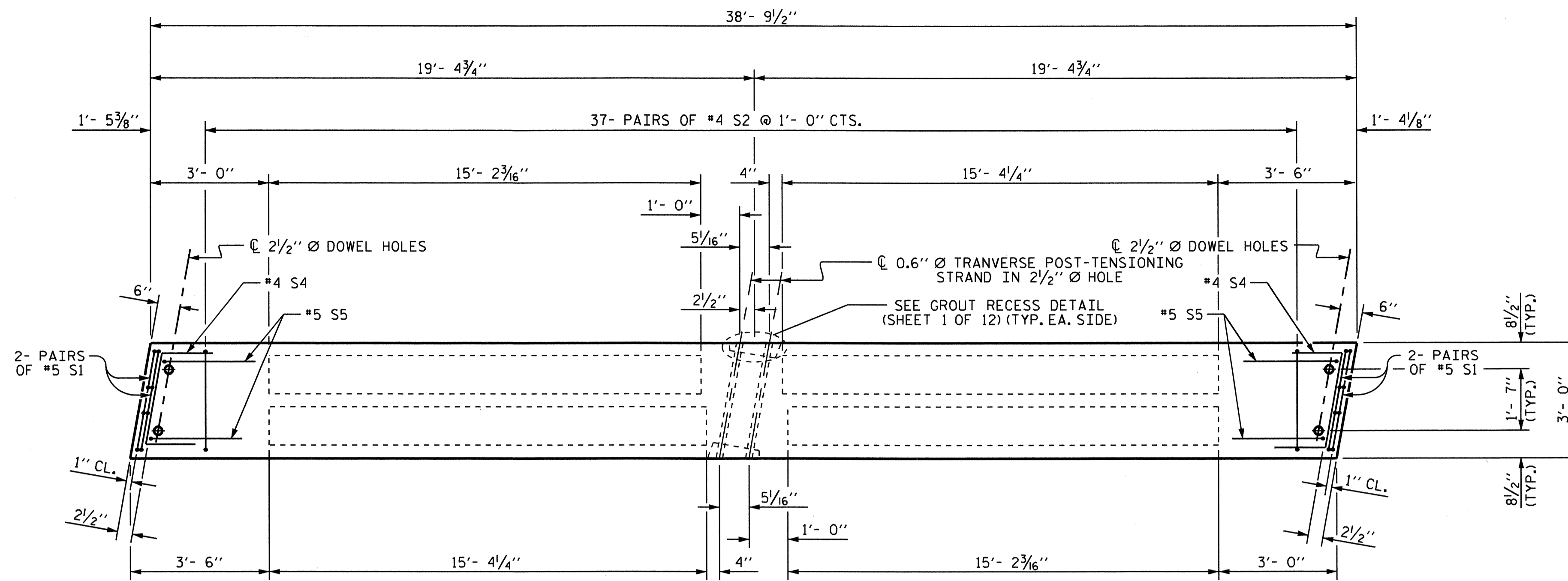
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SPAN A)



DRAWN BY : D. A. GLADDEN DATE : 7-15-10
 CHECKED BY : M. G. SHAIKH DATE : 8-10-10

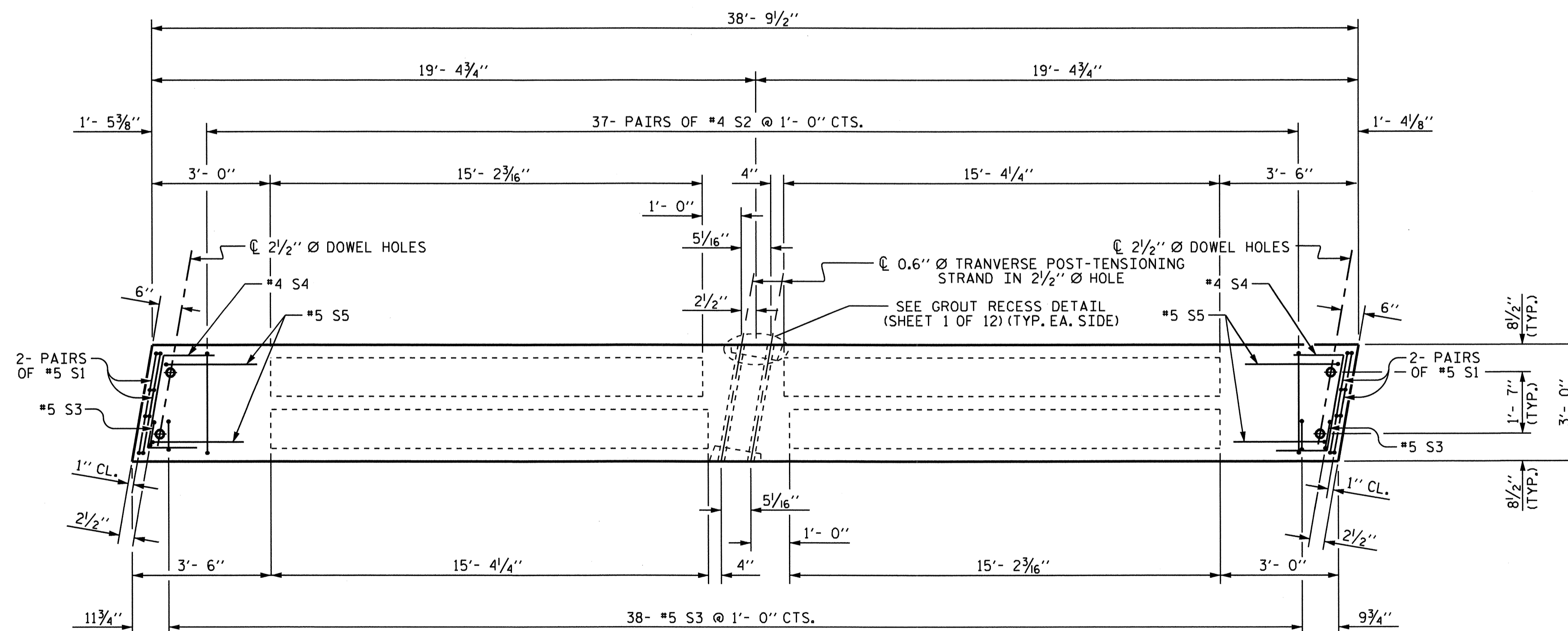
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 dgladden

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	
2			4			28	



PLAN OF INTERIOR CORED SLAB UNIT (SPAN B)

*4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS.



PLAN OF EXTERIOR CORED SLAB UNIT (SPAN B)

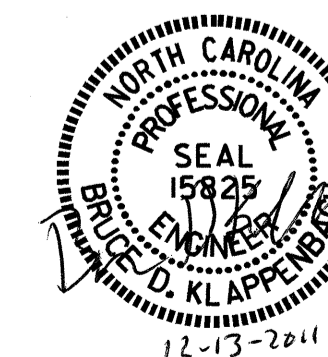
*4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS.

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 6 OF 12

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

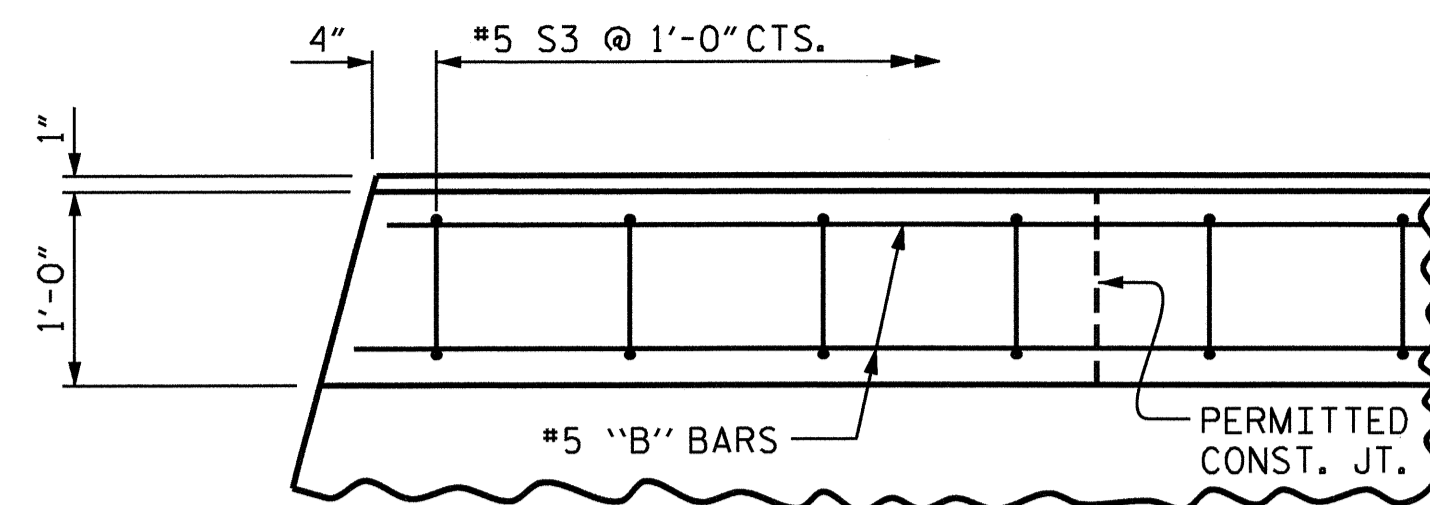
3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SPAN B)



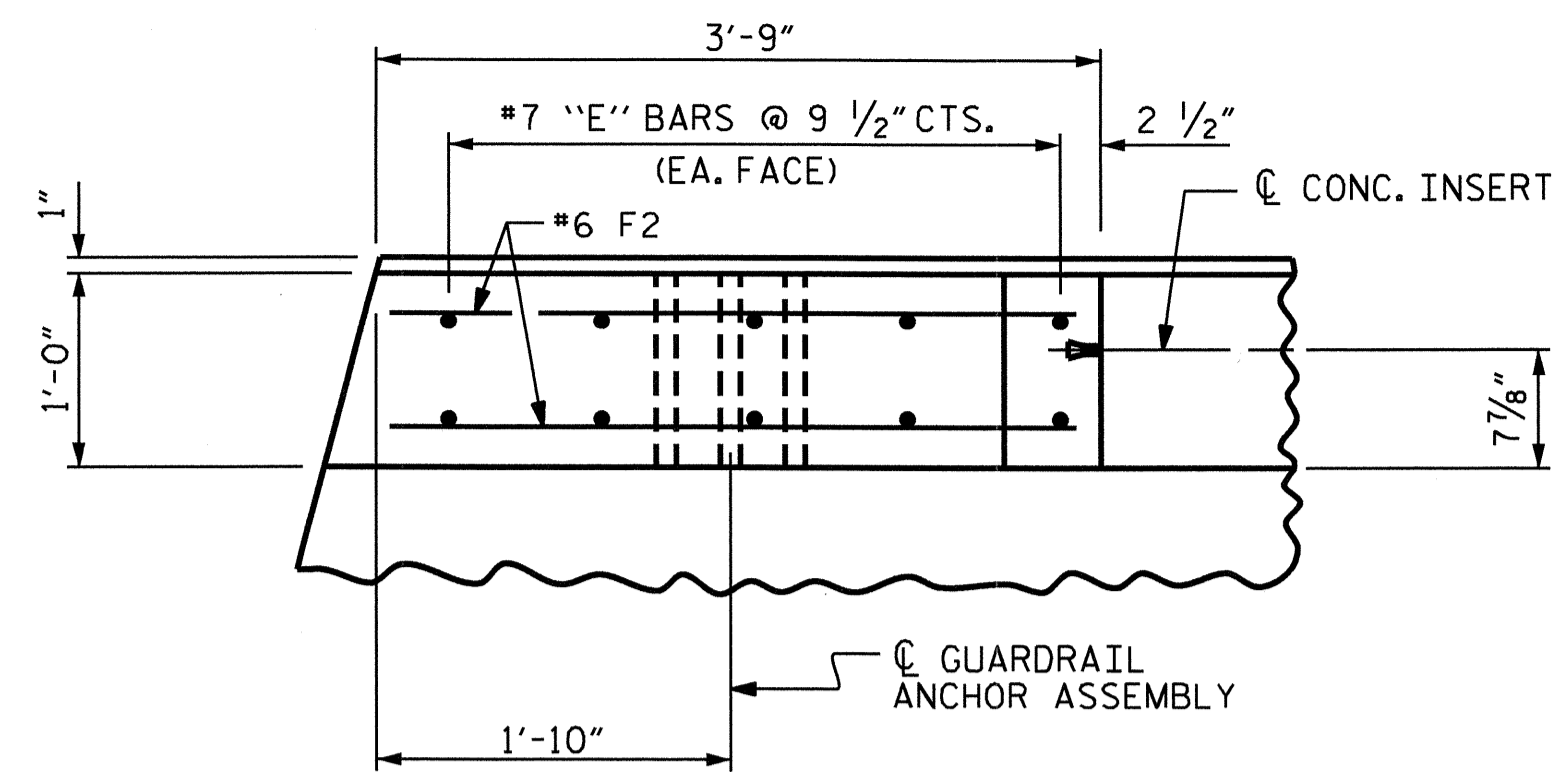
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 CHECKED BY : M. G. SHAIKH DATE : 8-10-10

13-DEC-2011 10:09
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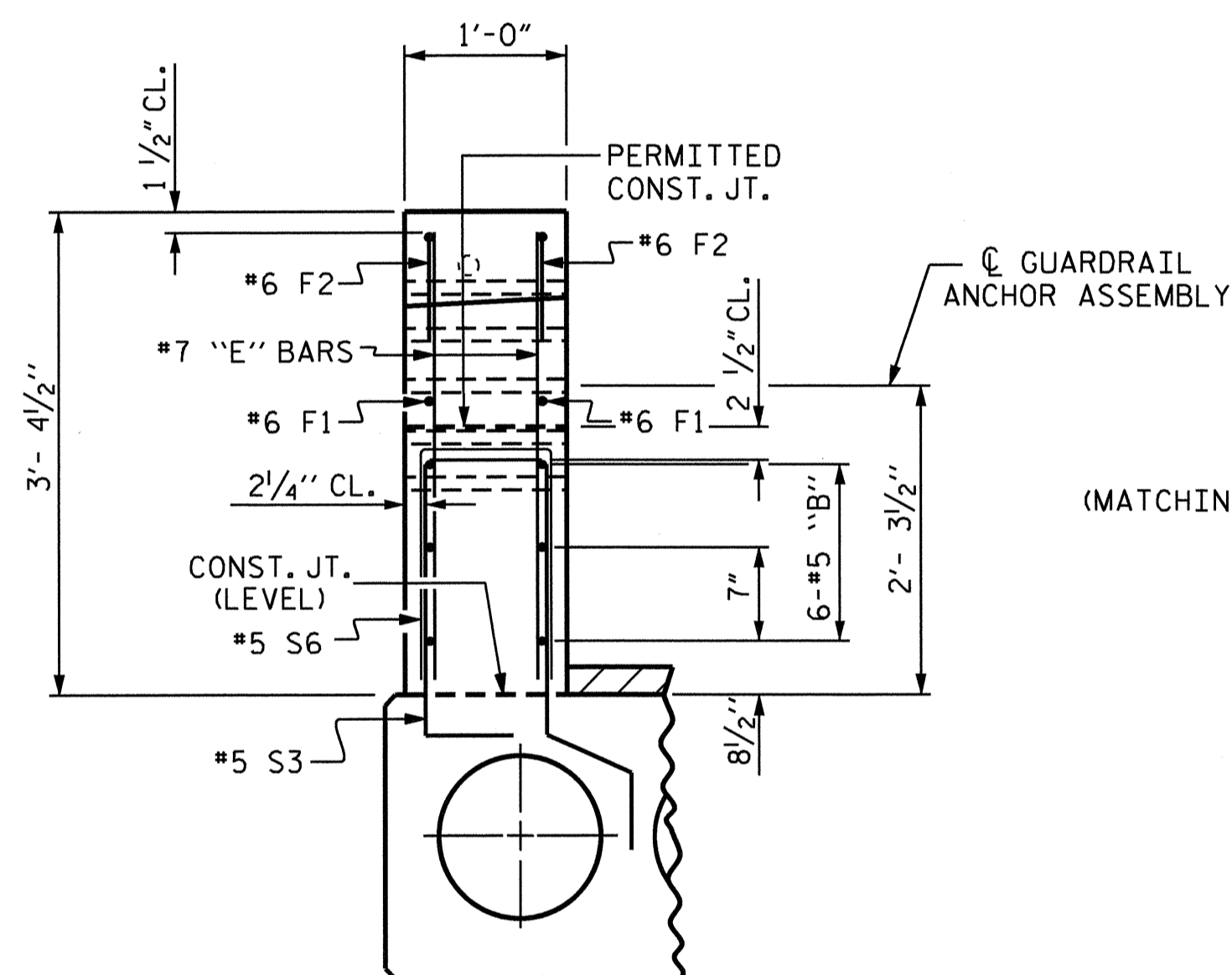
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			28



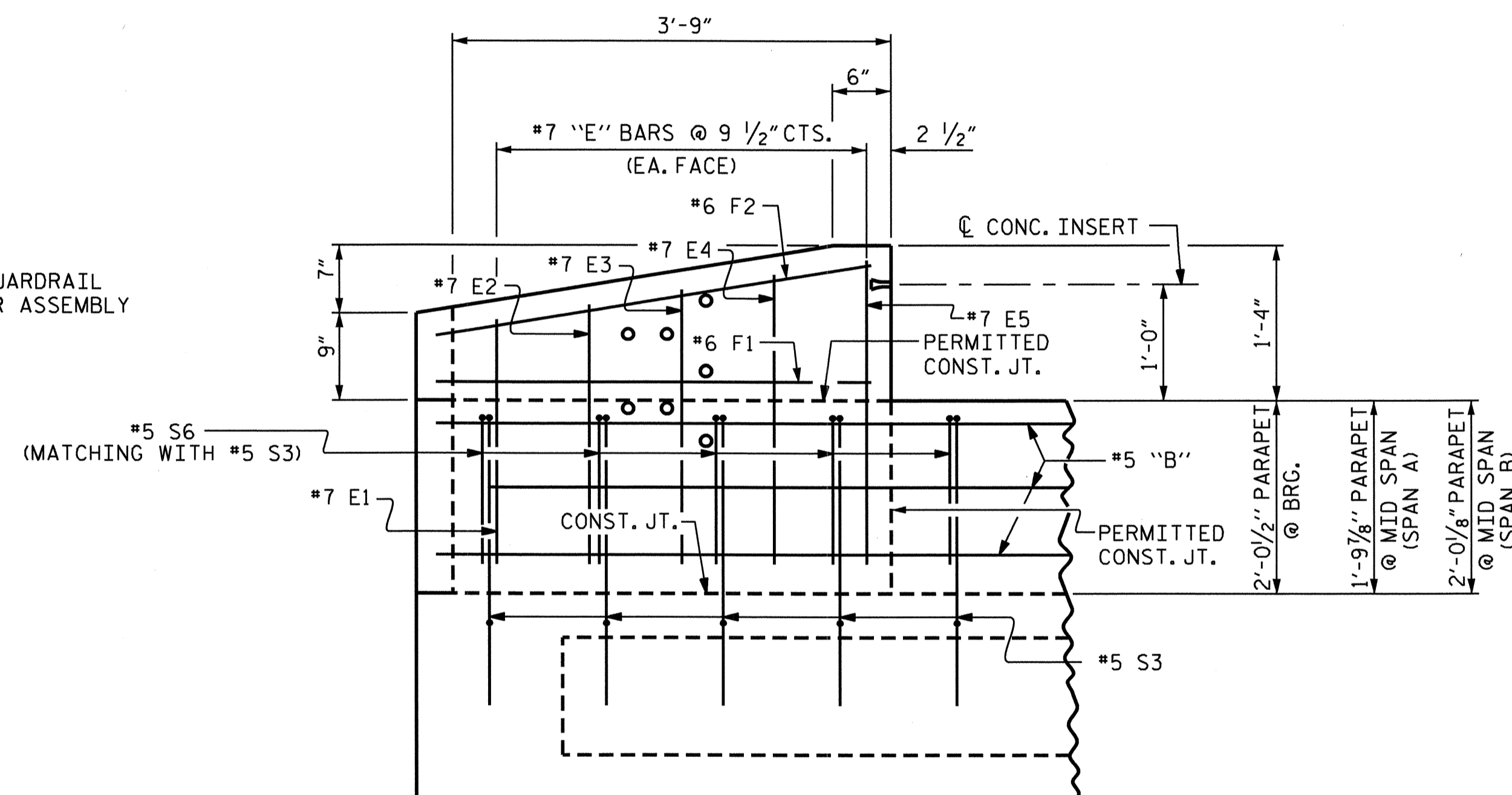
PLAN OF PARAPET



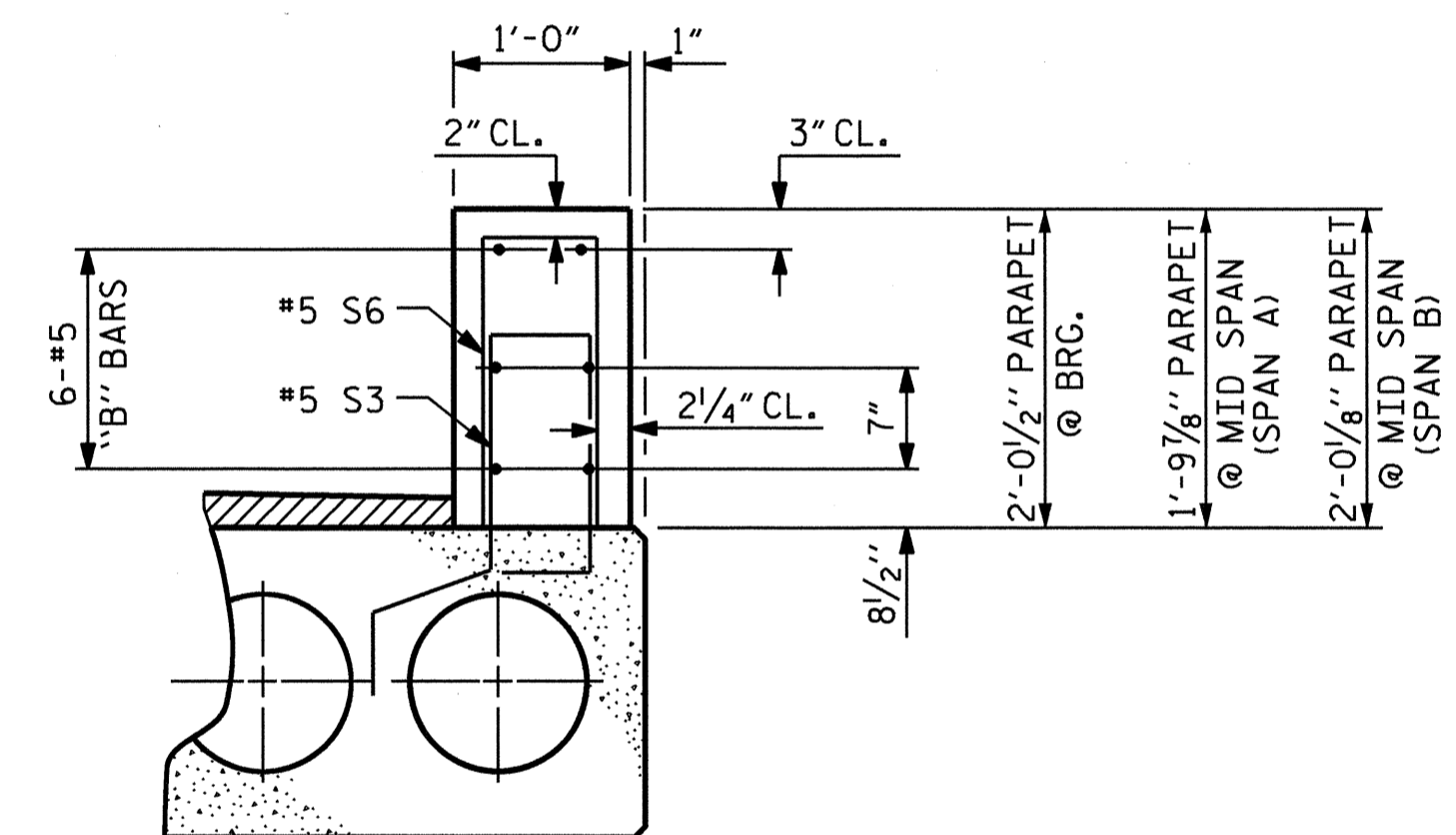
PLAN OF END POST



END VIEW



ELEVATION



SECTION THRU PARAPET

PARAPET AND END POST FOR ONE BAR RAIL

PROJECT NO. B-3819

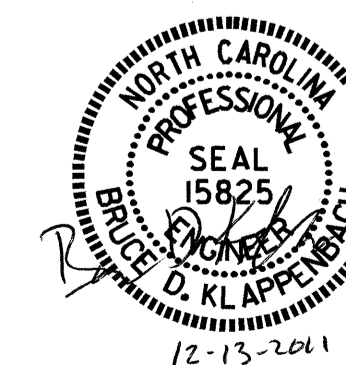
CALDWELL COUNTY

STATION: 13+29.00 -L-

SHEET 7 OF 12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
CONCRETE PARAPET
DETAILS



DRAWN BY: D. A. GLADDEN DATE: 7-15-10
CHECKED BY: M. G. SHAIKH DATE: 8-10-10

13-DEC-2011 10:14
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dgladden

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			28

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

CLOSURE PLATES: CLOSURE PLATES SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE, EACH JOINT IN RAIL LENGTH SHALL BE SPICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE SHEET 9 OF 12.

MATERIAL FOR ANCHOR STUDS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. STUDS TO BE EMBEDDED 7" IN CONCRETE. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ANCHOR SHALL BE AASHTO M270 GRADE 36.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

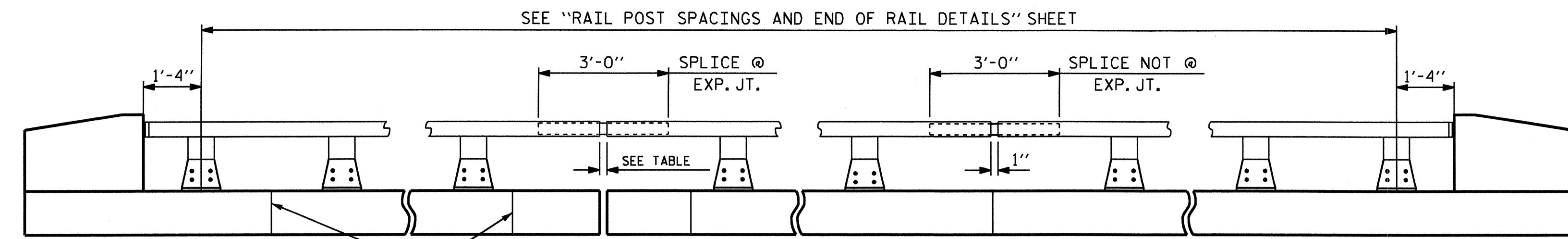
MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS, NUTS AND WASHERS SHALL MEET THE SAME REQUIREMENTS AS THE ANCHOR STUDS, NUTS AND WASHERS FOR USE WITH THE ANCHOR ASSEMBLY.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

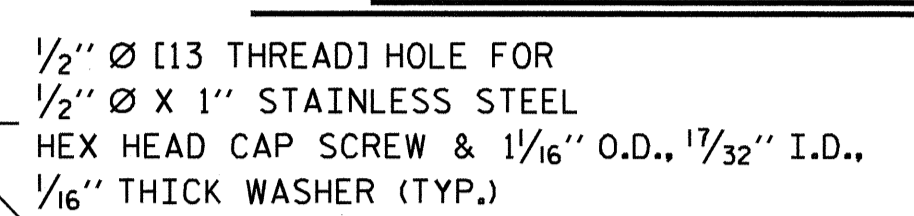
TABLE	
EXP. JT. @	RAIL OPENING
BENT No. 1	1/2"



NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE SHEET 9 OF 12.

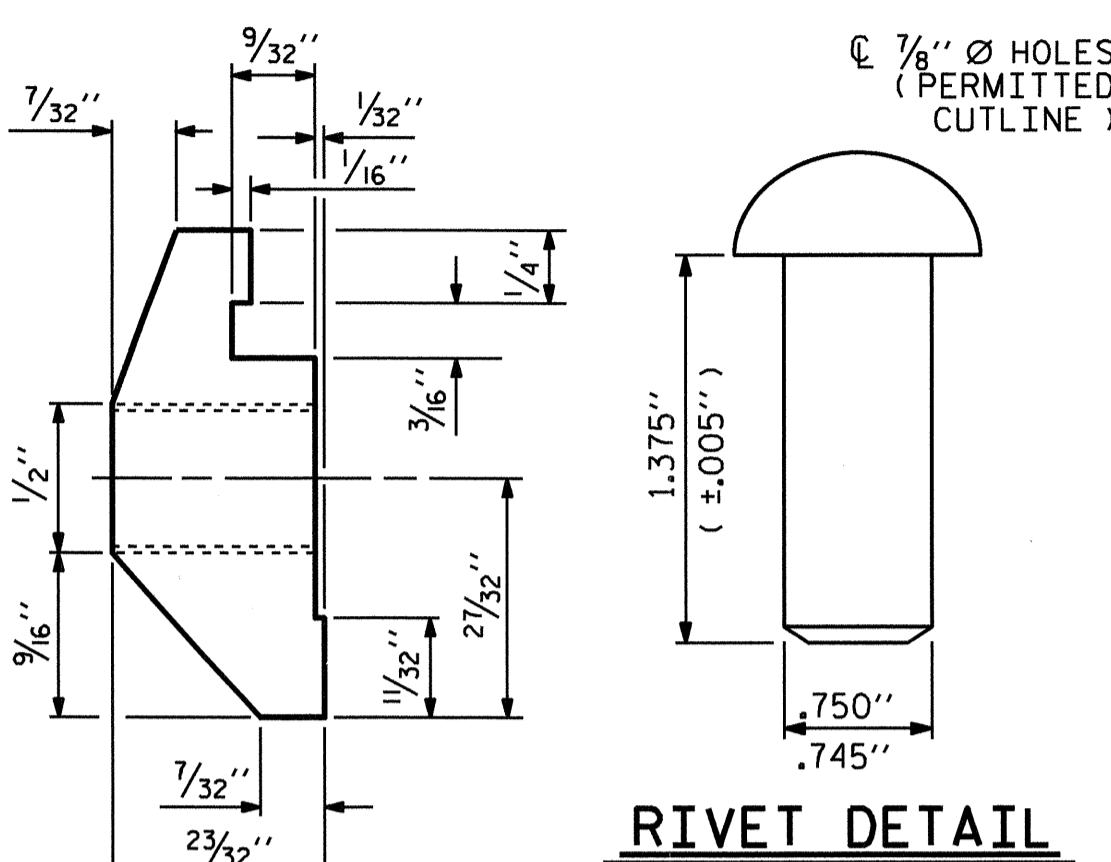
TOOLED CONTRACTION JT. (SEE NOTE)

ELEVATION



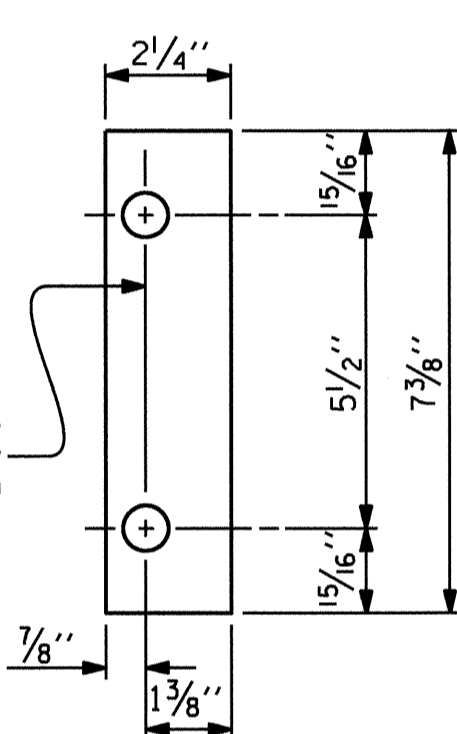
CLAMP BAR DETAIL

(2 REQUIRED PER POST)



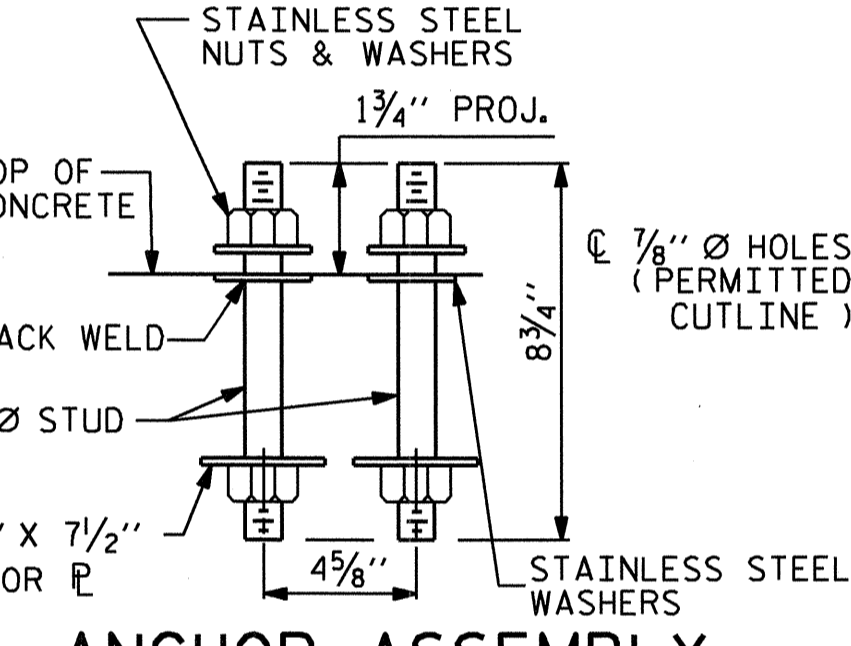
RIVET DETAIL

REAR PLATE



SHIM DETAILS

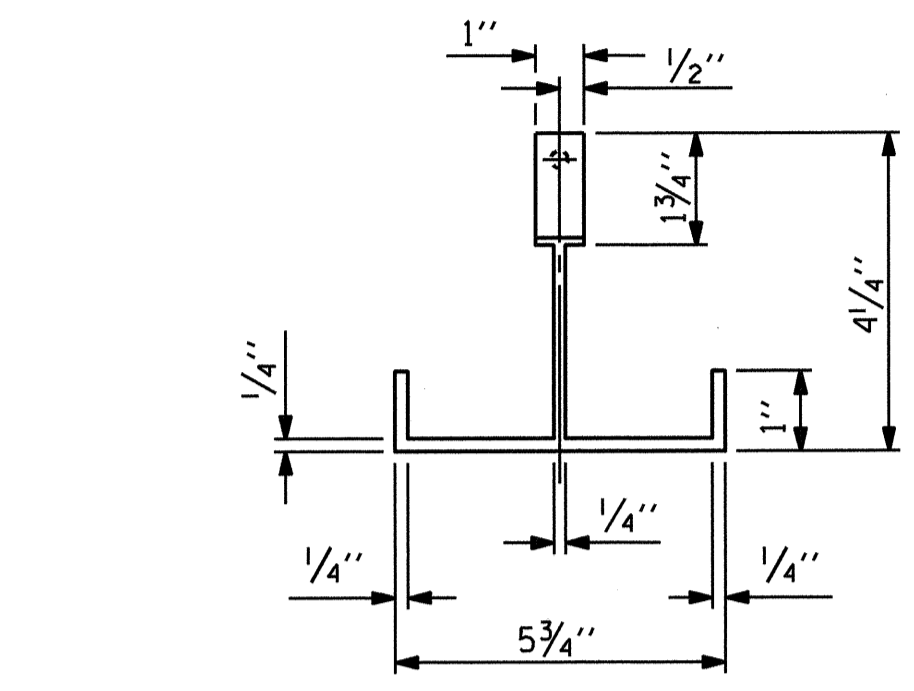
NOTE: SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



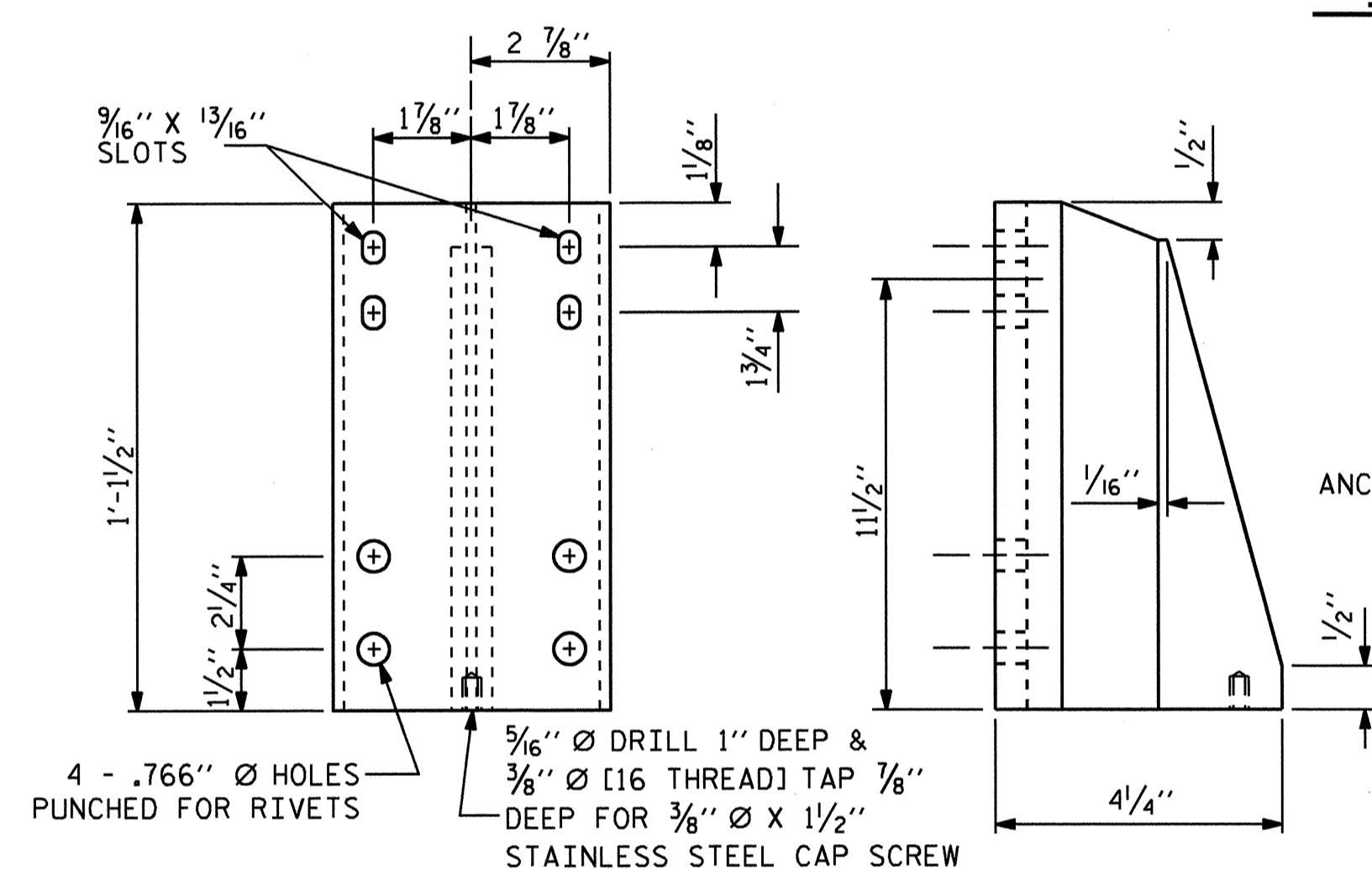
ANCHOR ASSEMBLY

FRONT PLATE

SHIM DETAILS



PLAN

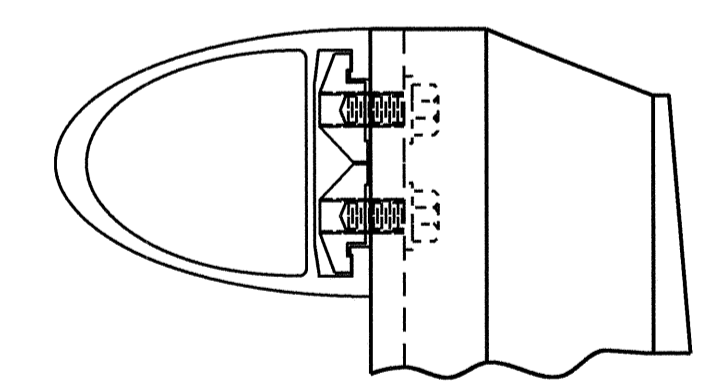


FRONT ELEVATION

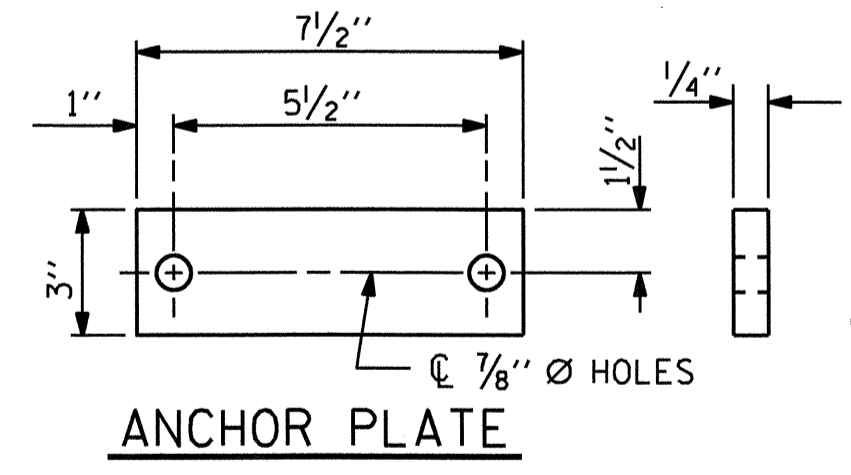
SIDE ELEVATION

DETAILS OF POST

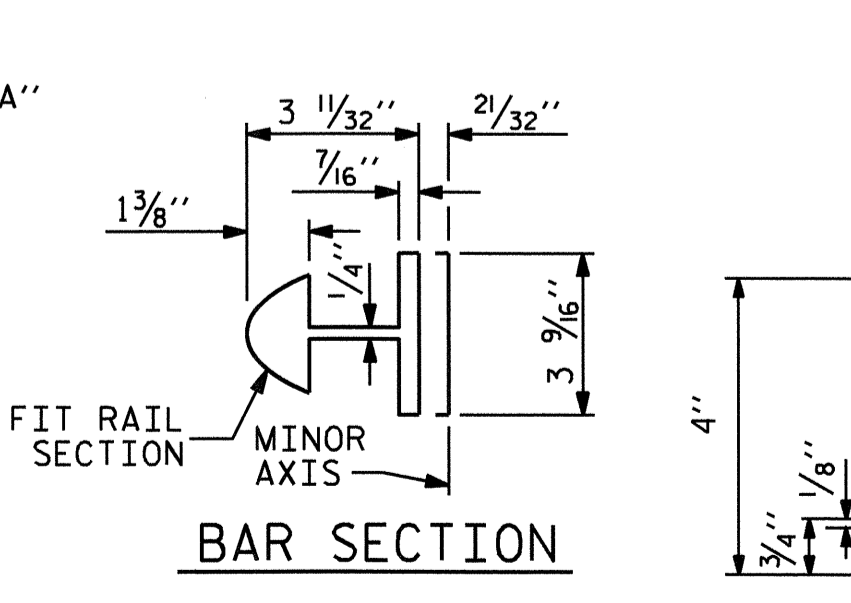
SECTION THRU PARAPET AND RAIL



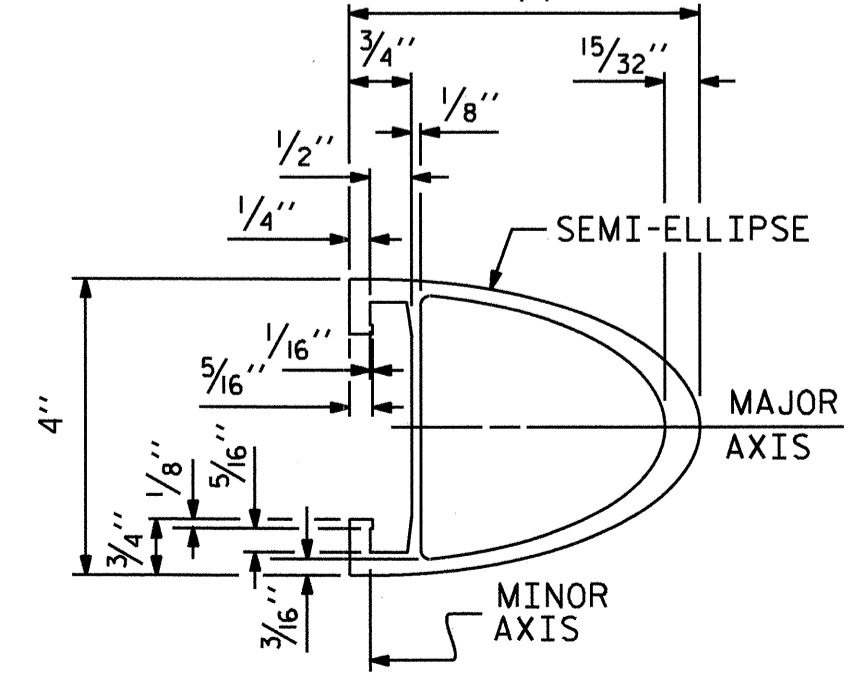
CLAMP & RAIL ASSEMBLY



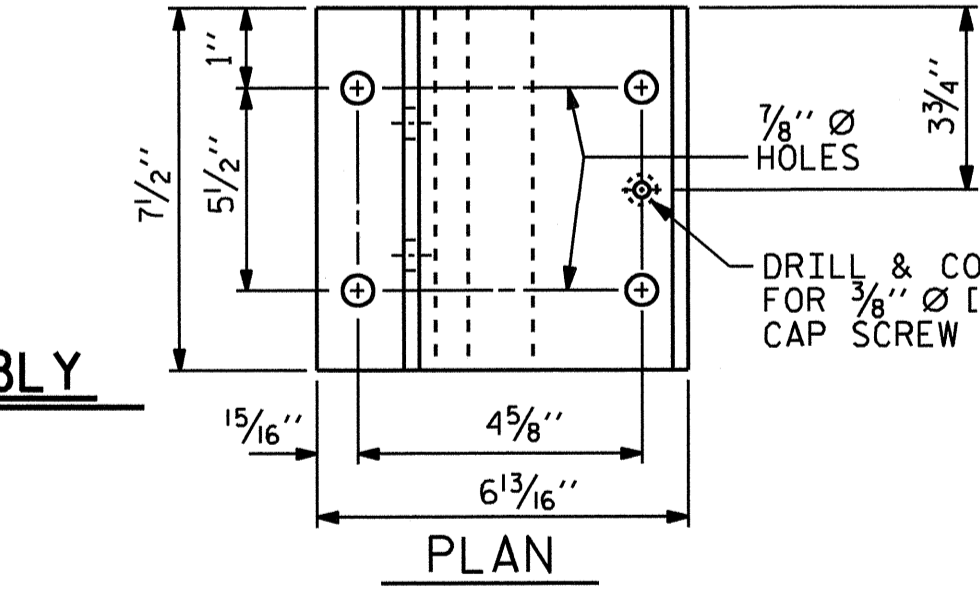
ANCHOR PLATE



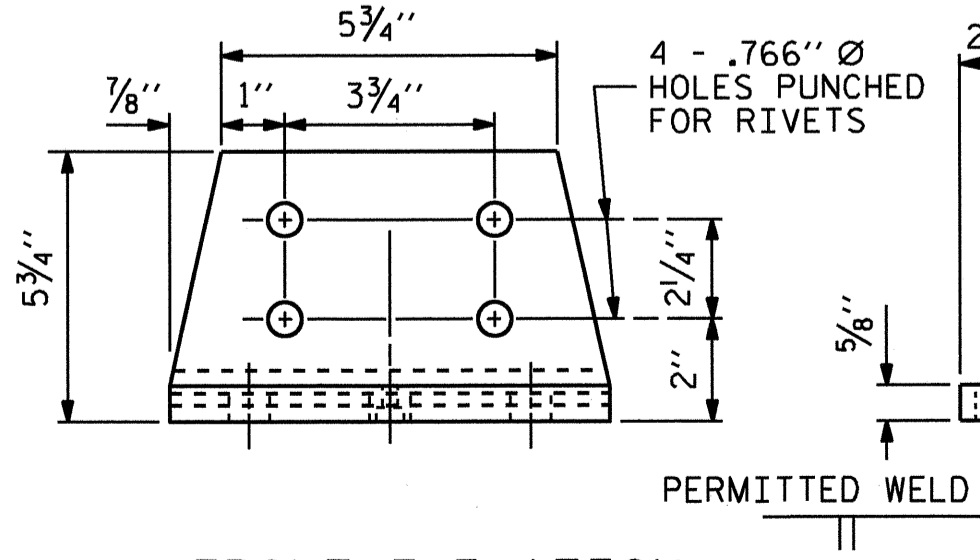
BAR SECTION



RAIL SECTION



PLAN

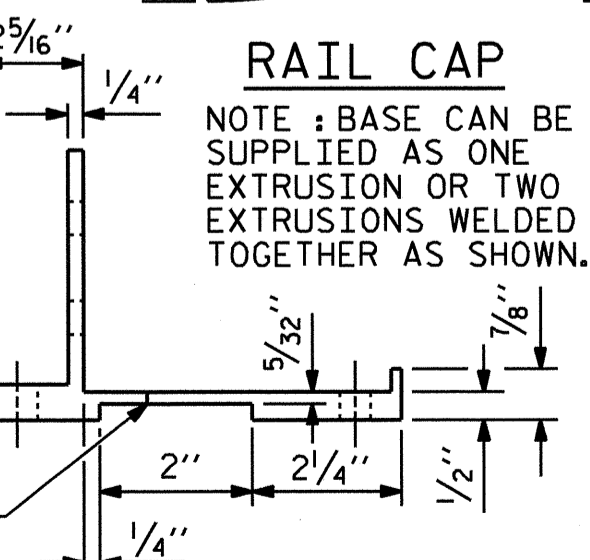


FRONT ELEVATION

PAY LENGTH = 200.07 LIN. FT.

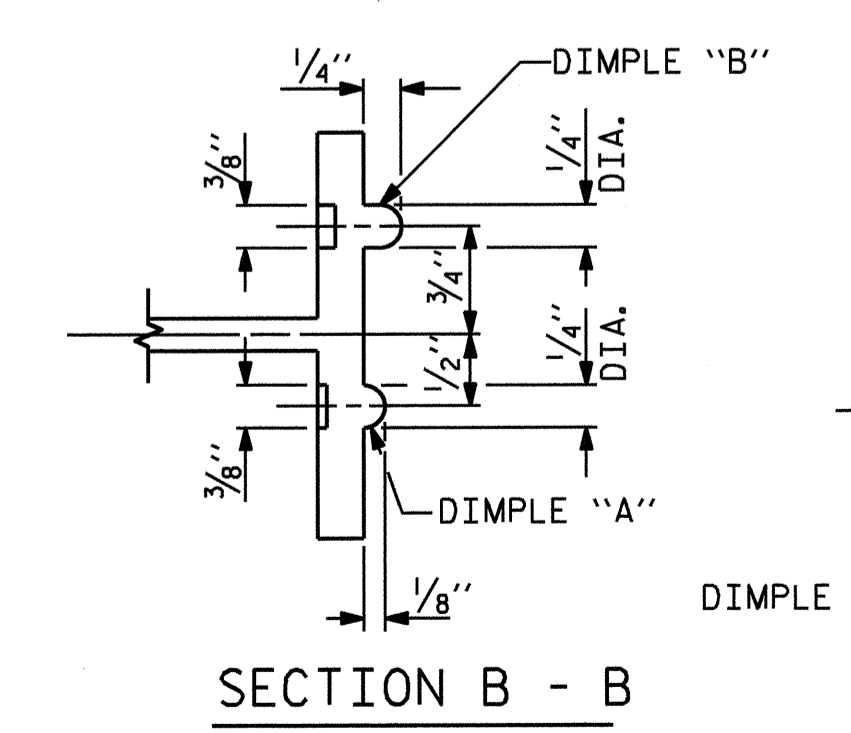
SIDE ELEVATION

POST BASE DETAILS

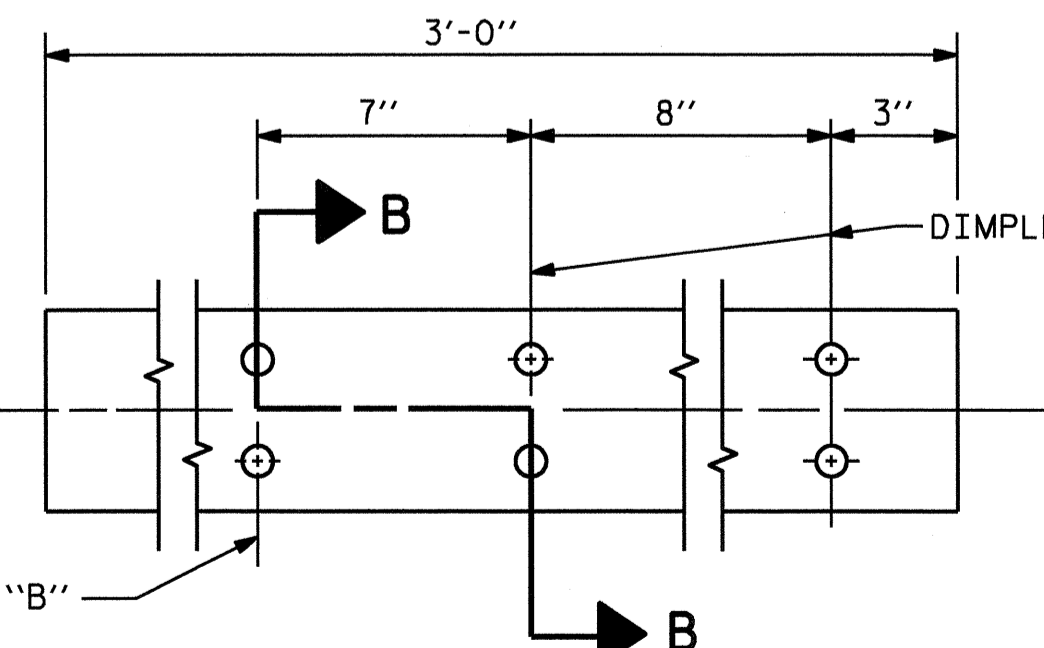


RAIL CAP

NOTE: BASE CAN BE SUPPLIED AS ONE EXTRUSION OR TWO EXTRUSIONS WELDED TOGETHER AS SHOWN.



SECTION B - B



EXPANSION BAR DETAILS

ASSEMBLED BY : D. A. GLADDEN	DATE : 7-15-10	LES/RDR
CHECKED BY : M. G. SHAIKH	DATE : 8-10-10	RHW/JTE
DRAWN BY : FCJ	1/88	REV. 10/17/00
CHECKED BY : CRK	3/89	REV. 5/7/03R
		REV. 5/1/06R

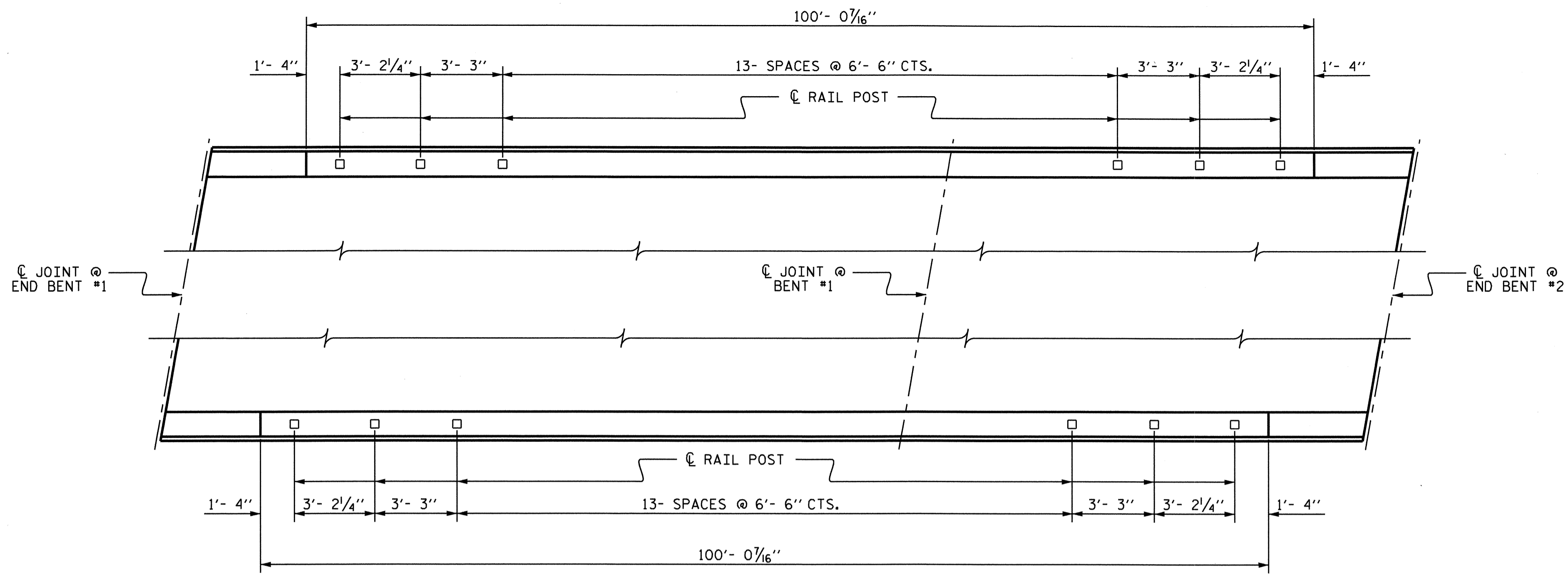


PROJECT NO. **B-3819**
CALDWELL COUNTY
 STATION: **13+29.00 -L-**

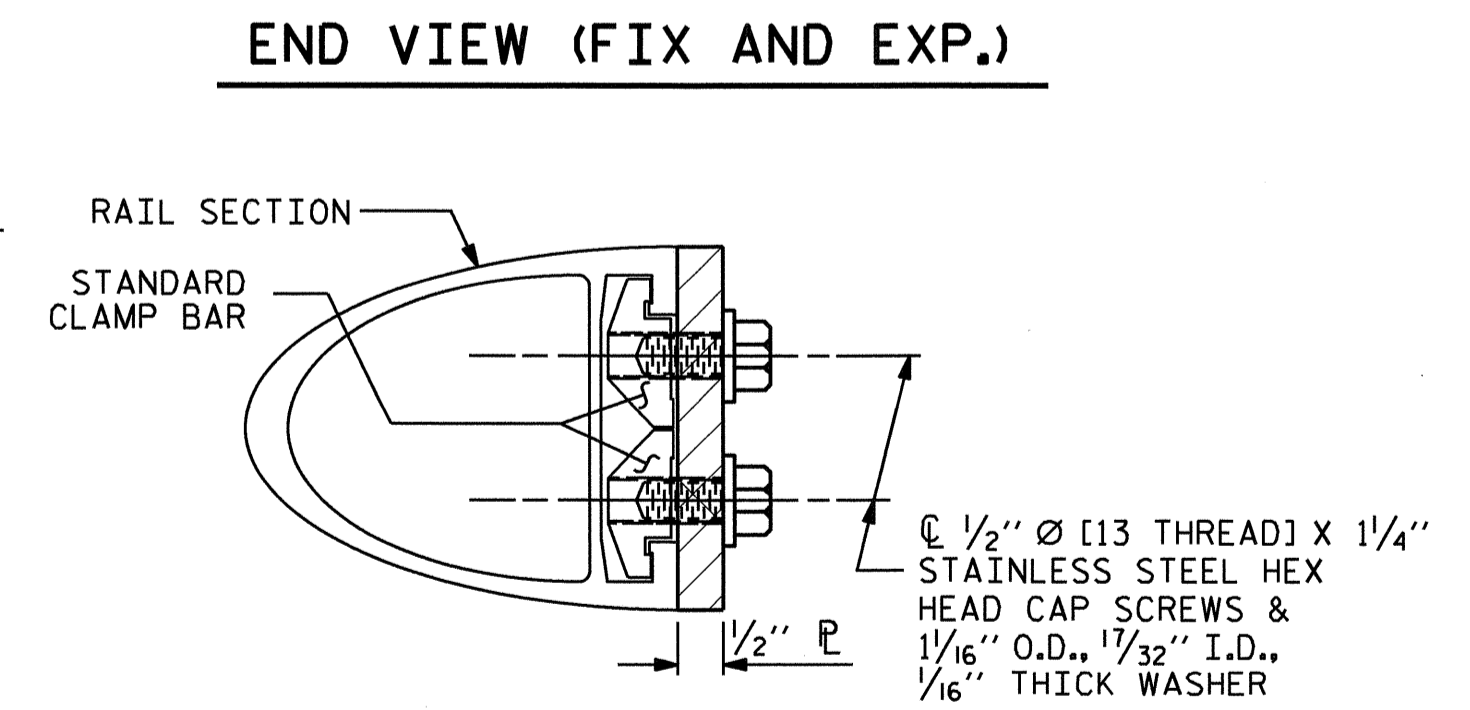
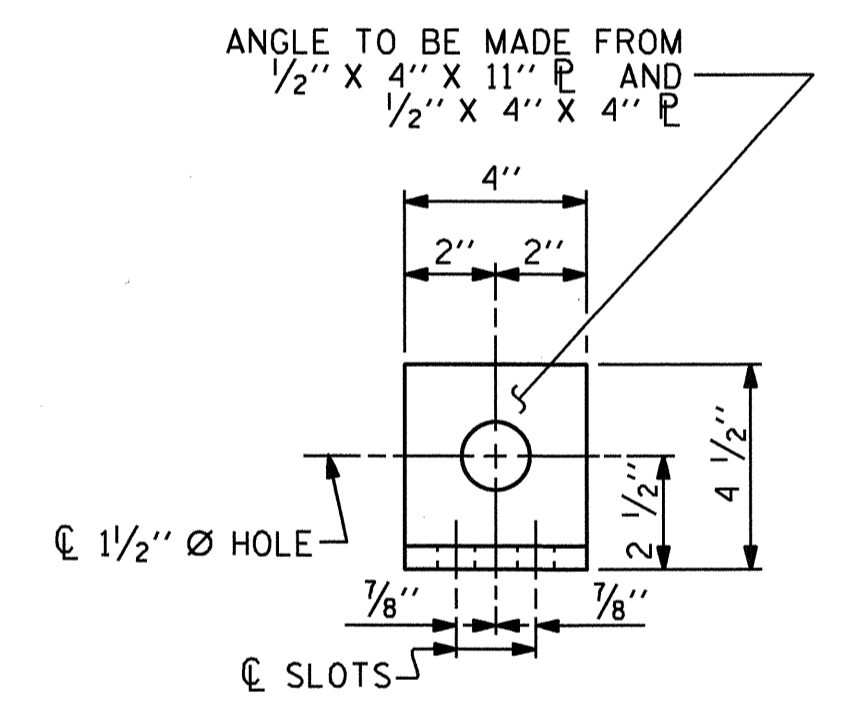
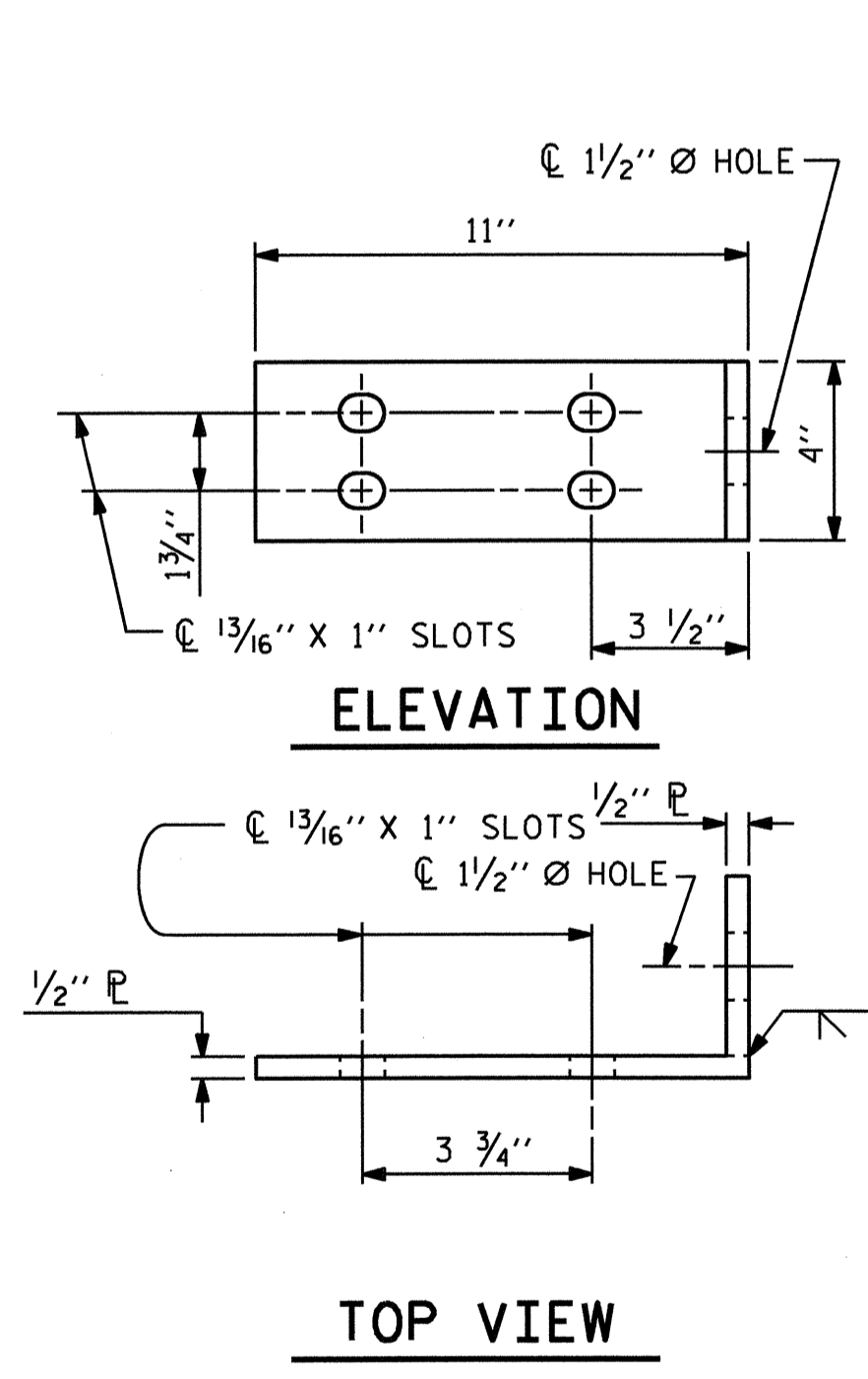
SHEET 8 OF 12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			28

STD. NO. BMR1



PLAN OF RAIL POST SPACINGS



**FIXED
DETAILS FOR ATTACHING METAL RAIL TO END POST**

NOTES

STRUCTURAL CONCRETE INSERT

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

NOTES

METAL RAIL TO END POST CONNECTION

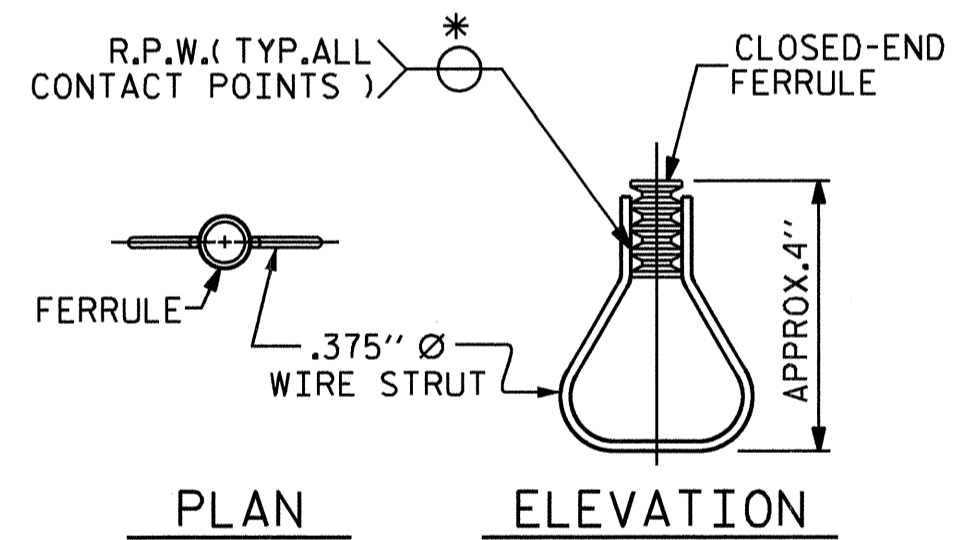
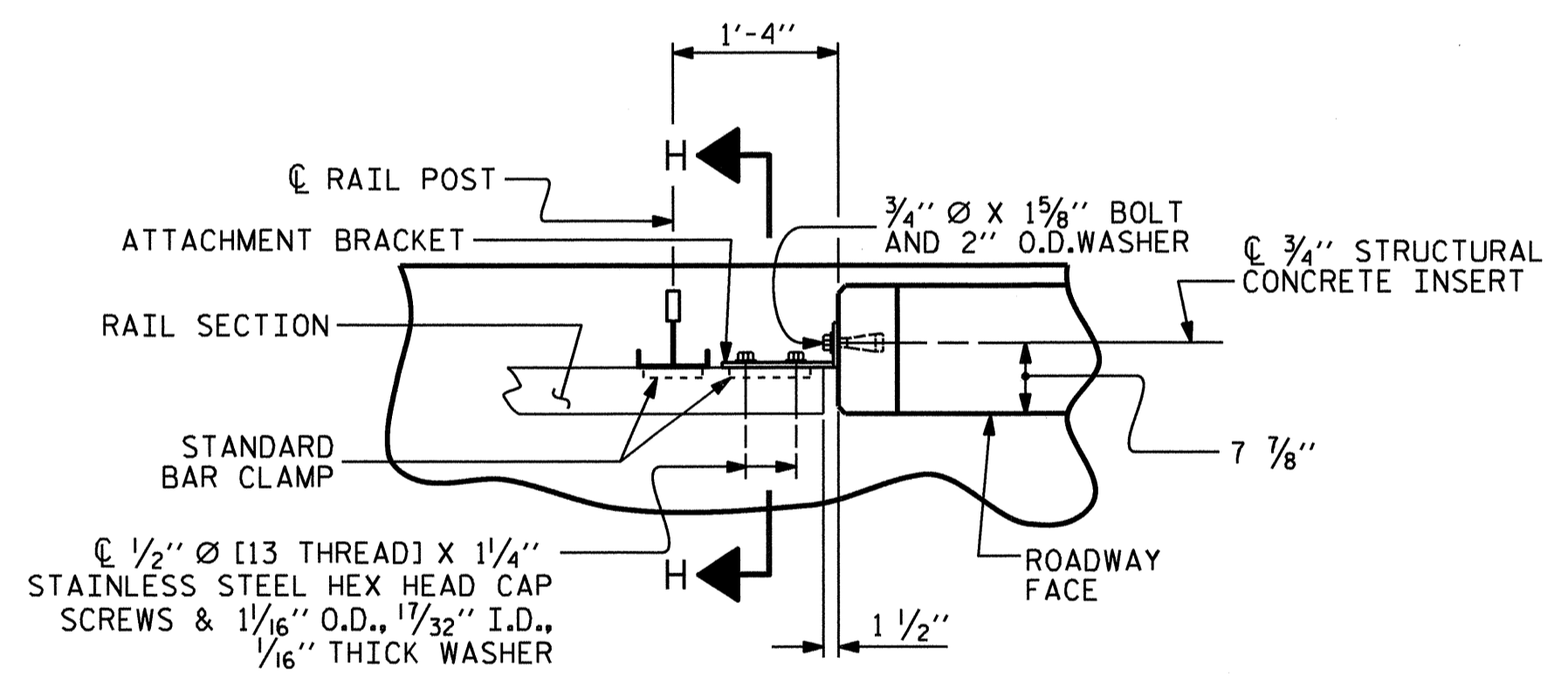
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A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

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

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

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

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



STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 9 OF 12

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS



ASSEMBLED BY : D. A. GLADDEN	DATE : 7-15-10
CHECKED BY : M. G. SHAIKH	DATE : 8-10-10
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			28

NOTES

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

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

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

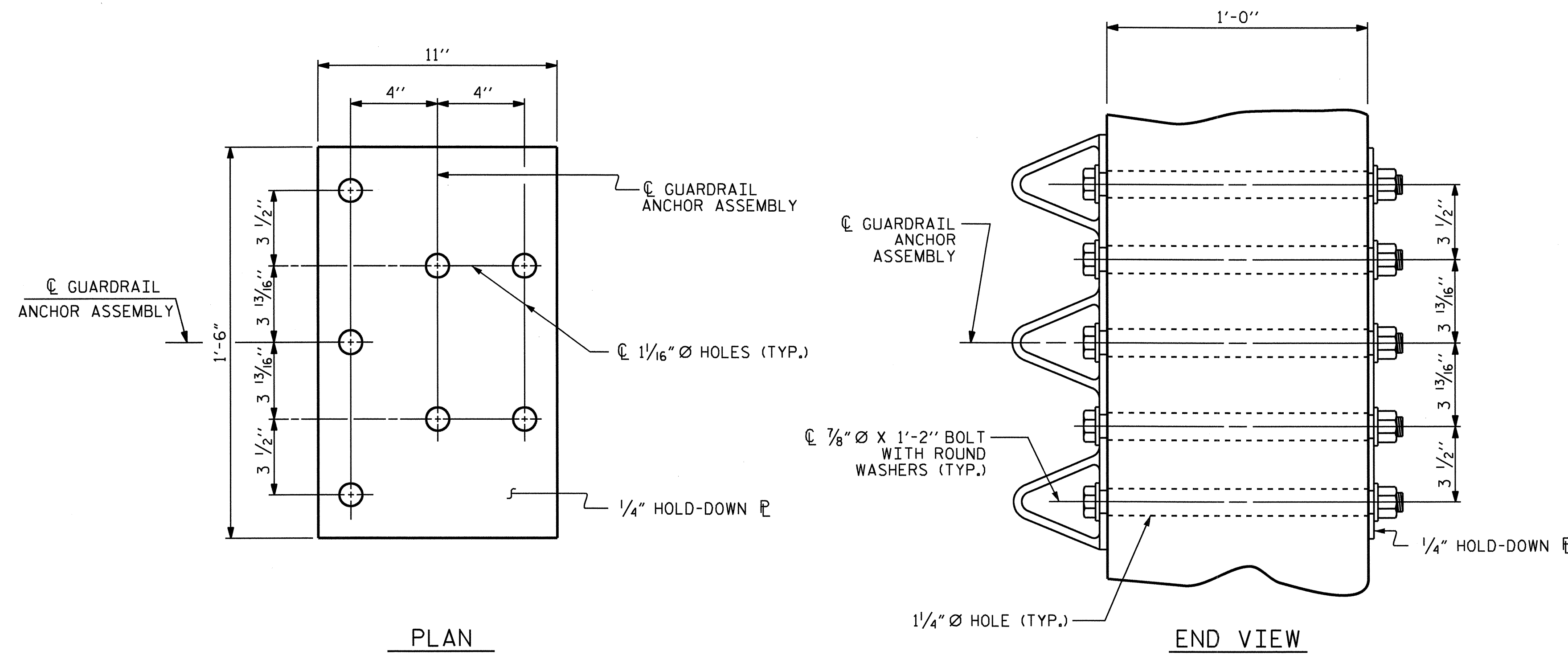
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

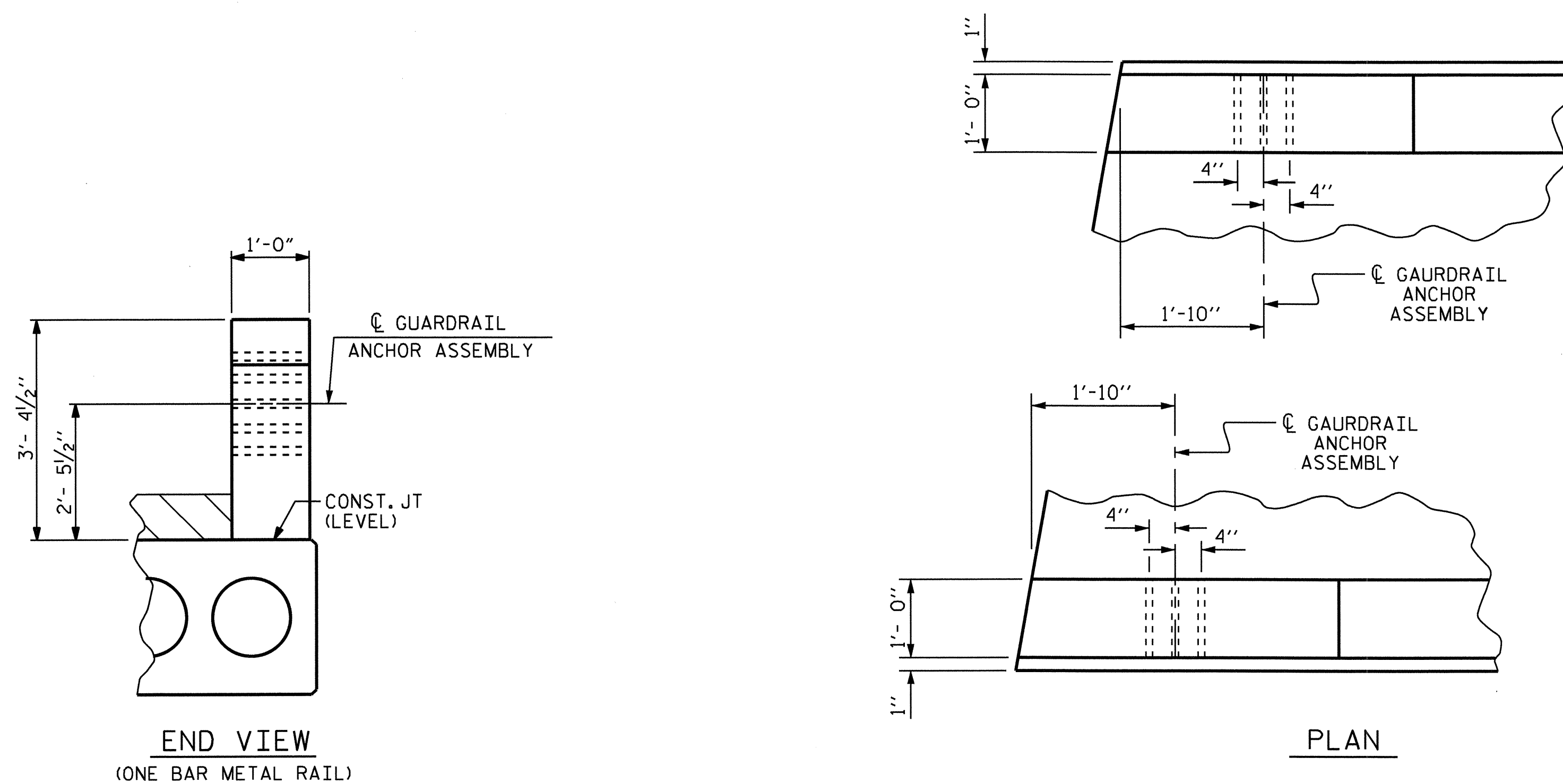
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

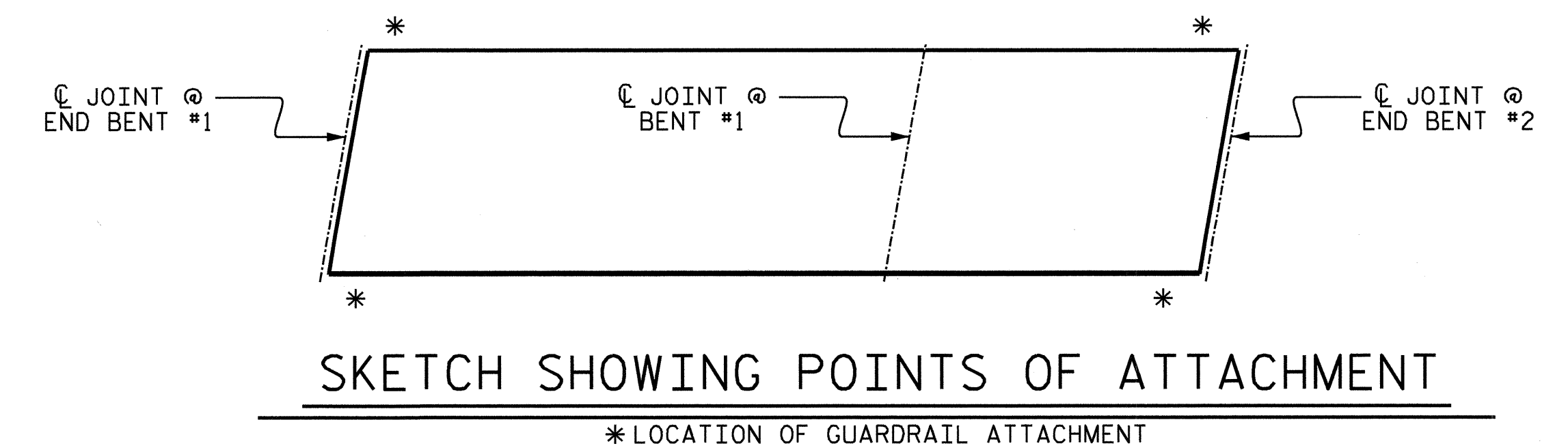
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR AT END POST

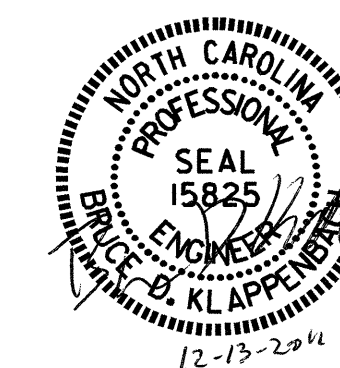


SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 10 OF 12



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS FOR METAL
 RAILS & VERTICAL
 CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			28

ASSEMBLED BY : <u>D. A. GLADDEN</u> DATE : <u>7-15-10</u>
CHECKED BY : <u>M. G. SHAIKH</u> DATE : <u>8-10-10</u>
DRAWN BY : <u>MAA</u> 5/10
CHECKED BY : <u>GM</u> 5/10
ADDED 5/6/10

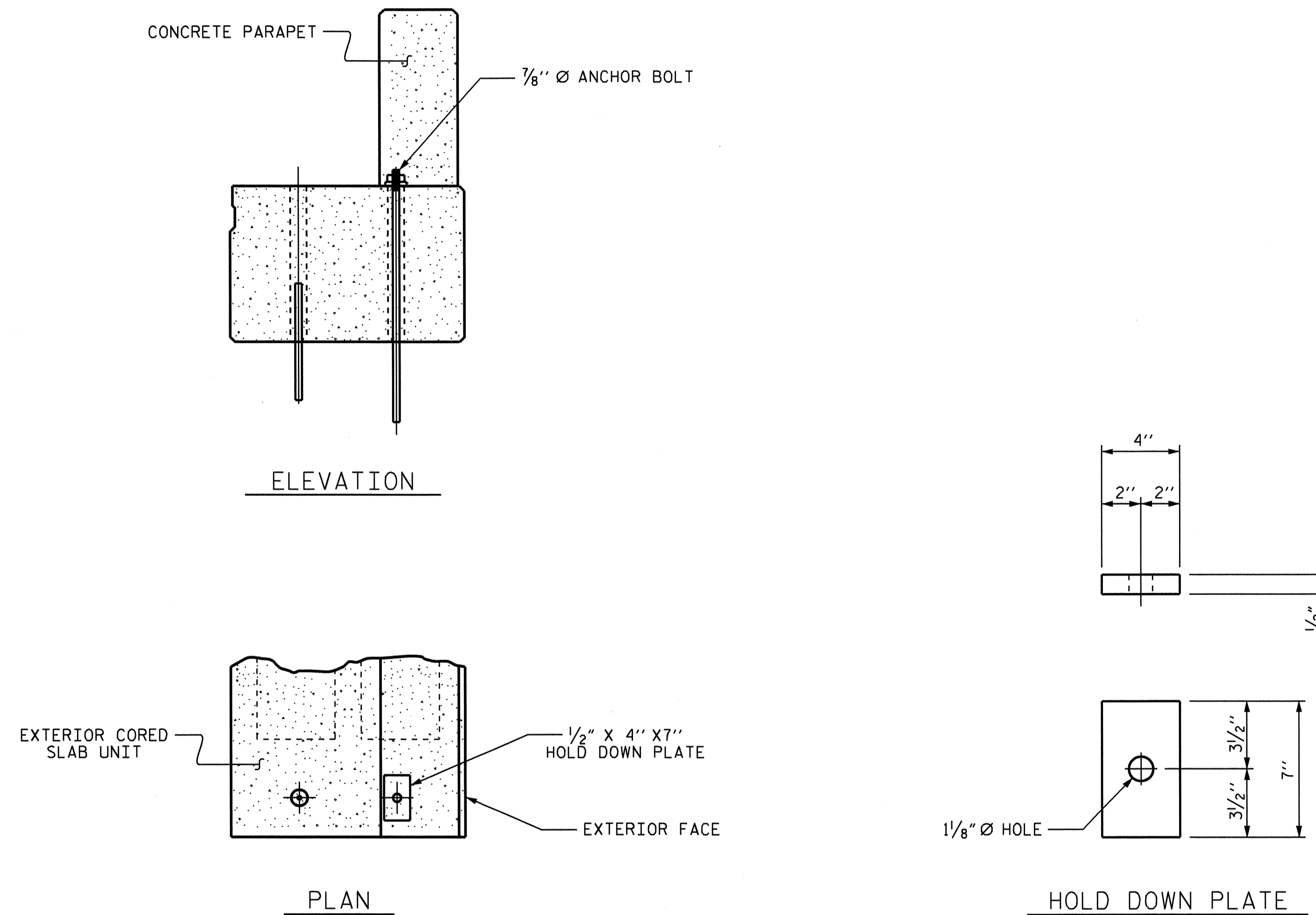
CORED SLAB ANCHOR DETAIL NOTES

EXTERIOR CORED SLAB UNITS SHALL BE ANCHORED AT THE CORNERS OF EACH SPAN WITH $\frac{7}{8}$ " \varnothing HIGH STRENGTH ANCHOR BOLTS.

HIGH STRENGTH ANCHOR BOLTS, HOLD DOWN PLATES, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449 AND SHALL BE GALVANIZED.

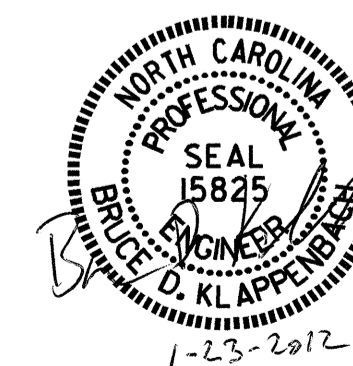
NO SEPARATE PAYMENT WILL BE MADE FOR THE ANCHOR BOLTS, HOLD DOWN PLATES, NUTS, AND WASHERS. THE COST OF MATERIALS AND INSTALLATION SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



CORED SLAB ANCHOR DETAILS

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 11 OF 12



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

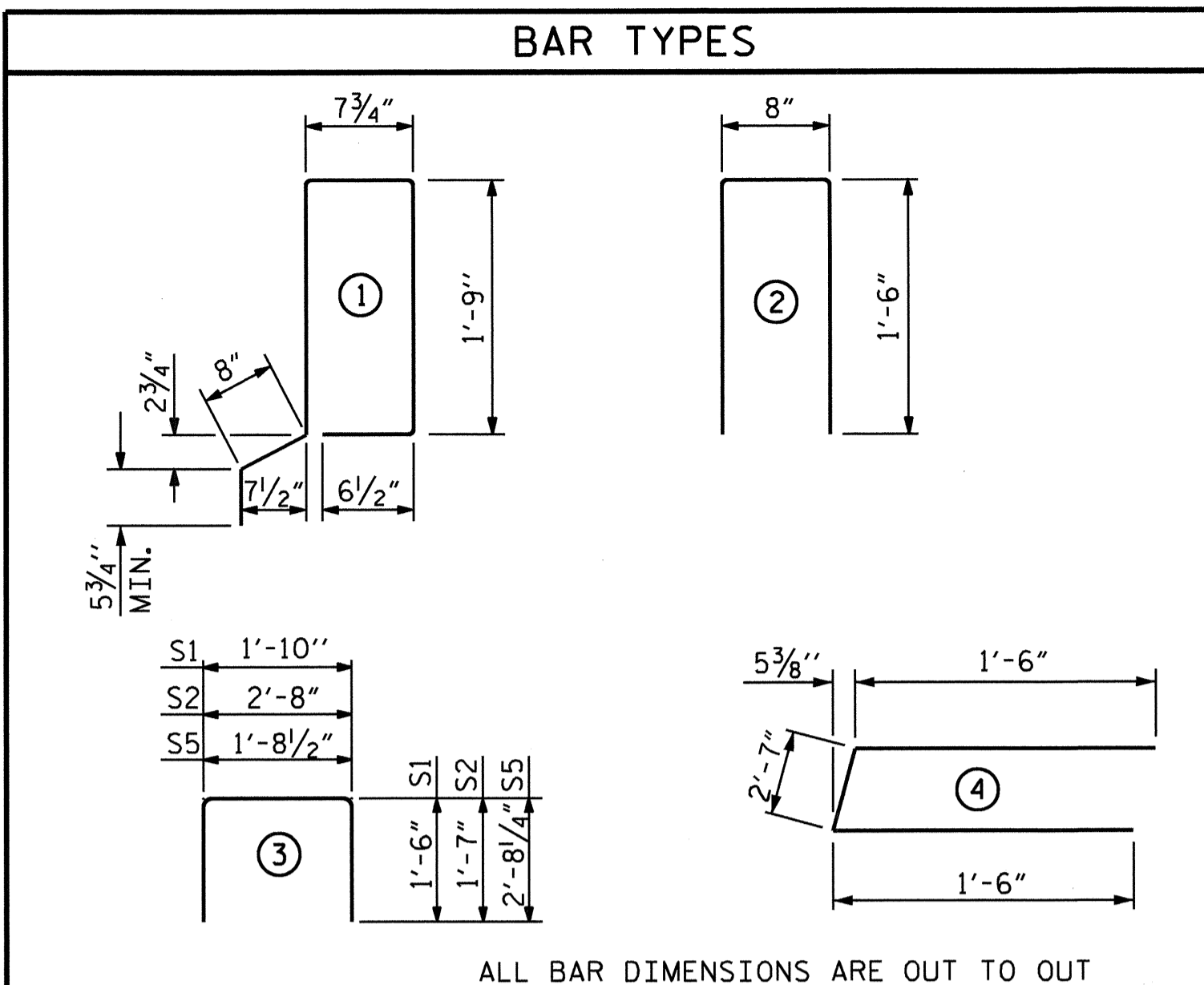
3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 ANCHOR DETAILS

ASSEMBLED BY : D. A. GLADDEN DATE : 7-15-10
 CHECKED BY : M. G. SHAIKH DATE : 8-10-10

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

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	215	# 3	STR	27'-11"	2257
* B3	224	# 3	STR	28'- 0"	2358
* B4	55	# 4	STR	20'- 0"	735
* EPOXY COATED REINFORCING STEEL					5350 LBS.
CONCRETE WEARING SURFACE					2998 SQ. FT.

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



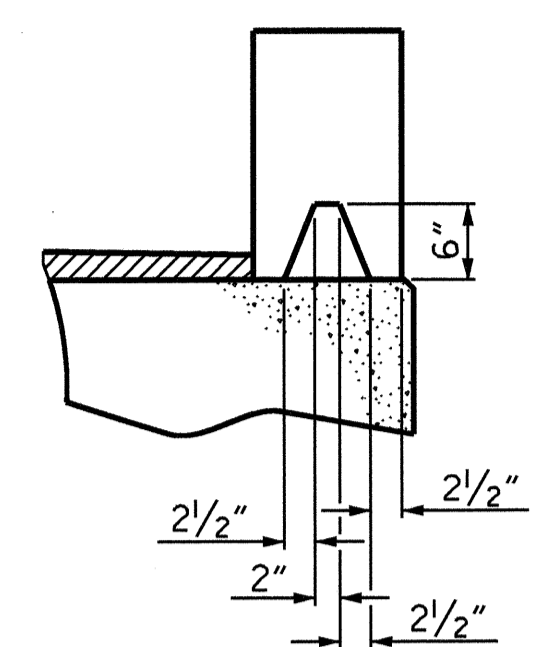
DEAD LOAD DEFLECTION AND CAMBER			
	SPAN A	SPAN B	
	3'-0" x 2'-0"	3'-0" x 2'-0"	
	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND	
CAMBER (SLAB ALONE IN PLACE)	↑ 3 1/2"	↑ 1/2"	
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	↓ 7/8"	↓ 1/8"	
FINAL CAMBER	↑ 2 5/8"	↑ 3/8"	

** INCLUDES FUTURE WEARING SURFACE

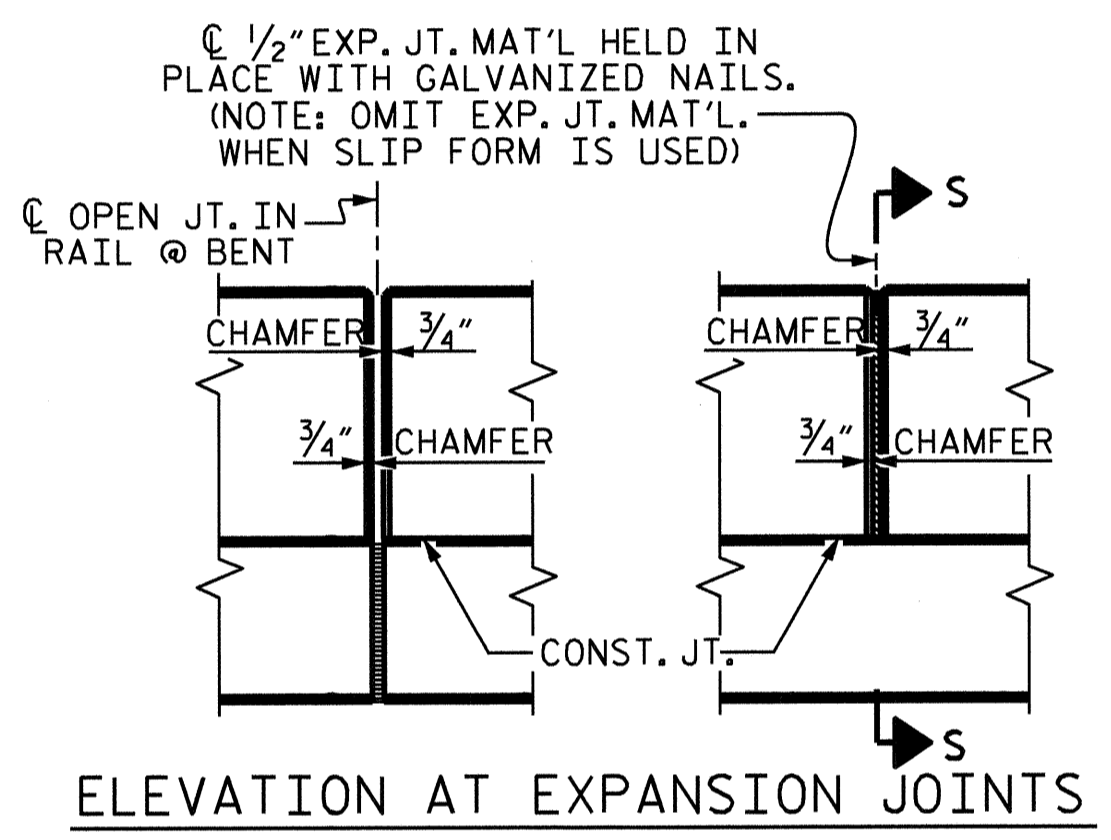
BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	6	#4	STR	24'- 0"	96	24'- 0"	96
S1	8	#5	3	4'-10"	40	4'-10"	40
S2	134	#4	3	5'-10"	522	5'-10"	522
* S3	70	#5	1	5'-10"	426		
S4	4	#4	4	5'- 7"	15	5'- 7"	15
S5	4	#5	3	7'- 1"	30	7'- 1"	30
REINFORCING STEEL				703 LBS.		703 LBS.	
* EPOXY COATED REINFORCING STEEL				426 LBS.			
7800 P.S.I. CONCRETE				11.8 CU. YDS.		11.7 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 30		No. 30	

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	20'- 2"	54	20'- 2"	54
S1	8	#5	3	4'-10"	40	4'-10"	40
S2	74	#4	3	5'-10"	288	5'-10"	288
* S3	40	#5	1	5'-10"	243		
S4	4	#4	4	5'- 7"	15	5'- 7"	15
S5	4	#5	3	7'- 1"	30	7'- 1"	30
REINFORCING STEEL				427 LBS.		427 LBS.	
* EPOXY COATED REINFORCING STEEL				243 LBS.			
5000 P.S.I. CONCRETE				6.8 CU. YDS.		6.7 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 10		No. 10	



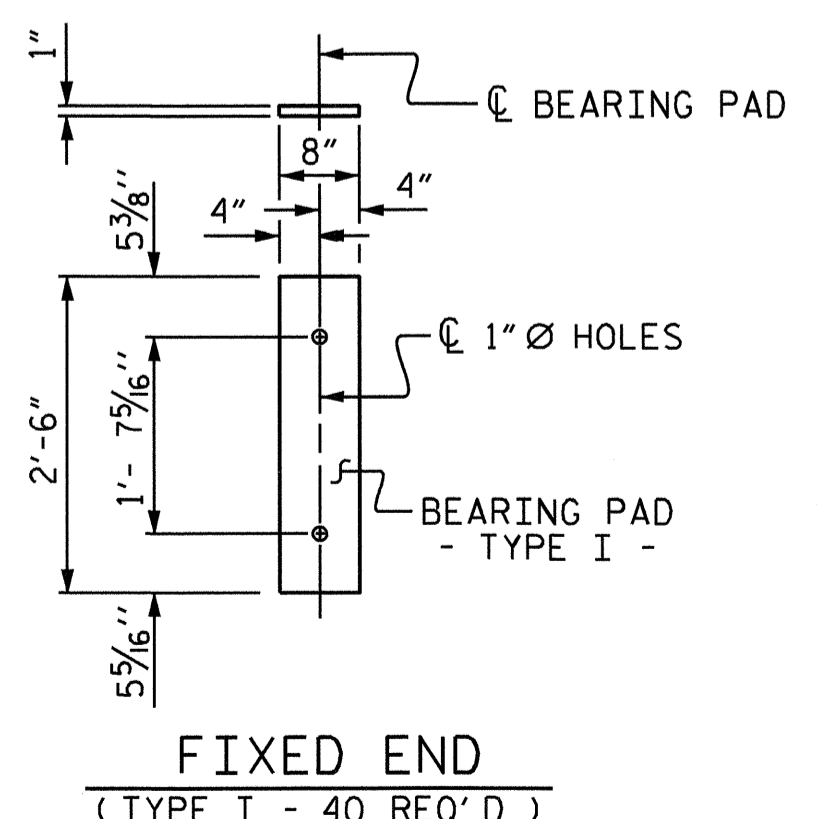
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

BILL OF MATERIAL FOR PARAPET & END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B3	72	# 5	STR	13'- 2"	989
* B4	48	# 5	STR	11'- 4"	567
* E1	8	# 7	STR	2'- 6"	41
* E2	8	# 7	STR	2'- 8"	44
* E3	8	# 7	STR	2'- 9"	45
* E4	8	# 7	STR	2'-11"	48
* E5	8	# 7	STR	3'- 0"	49
* F1	8	# 6	STR	3'- 5"	41
* F2	8	# 6	STR	3'- 6"	42
* S6	220	# 5	2	3'-8"	841
* EPOXY COATED REINFORCING STEEL					LBS. 2707
CLASS AA CONCRETE					CU.YDS. 16.9
1'-0" X 2'-0 1/2" CONCRETE PARAPET					215.17 LF



ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

CORED SLABS REQUIRED			
SPAN A			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	68'- 9 1/2"	137'- 7"
INTERIOR C.S.	8	68'- 9 1/2"	550'- 4"
TOTAL	10		687'-11"
SPAN B			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	38'- 9 1/2"	77'- 7"
INTERIOR C.S.	8	38'- 9 1/2"	310'- 4"
TOTAL	10		387'-11"

GROOVING BRIDGE FLOORS	
BRIDGE DECK	2667 SQ. FT.
APPROACH SLABS	586 SQ. FT.
TOTAL	3253 SQ. FT.

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 CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT IN SPAN A, SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6200 PSI.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT IN SPAN B, SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN PARAPETS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

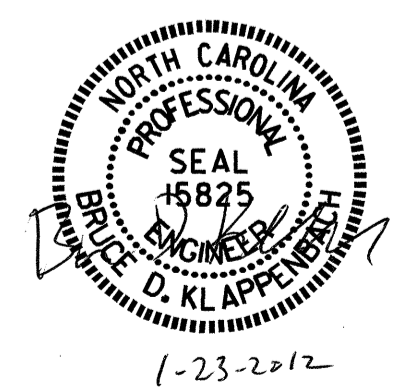
THE #4 S2 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

PROJECT NO. B-3819
CALDWELL COUNTY
STATION: 13+29.00 -L-

SHEET 12 OF 12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			



ASSEMBLED BY : D. A. GLADDEN DATE : 7-15-10
CHECKED BY : M. C. SHAIKH DATE : 8-10-10
DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
REV. 5/1/06R TLA/GM

NOTES

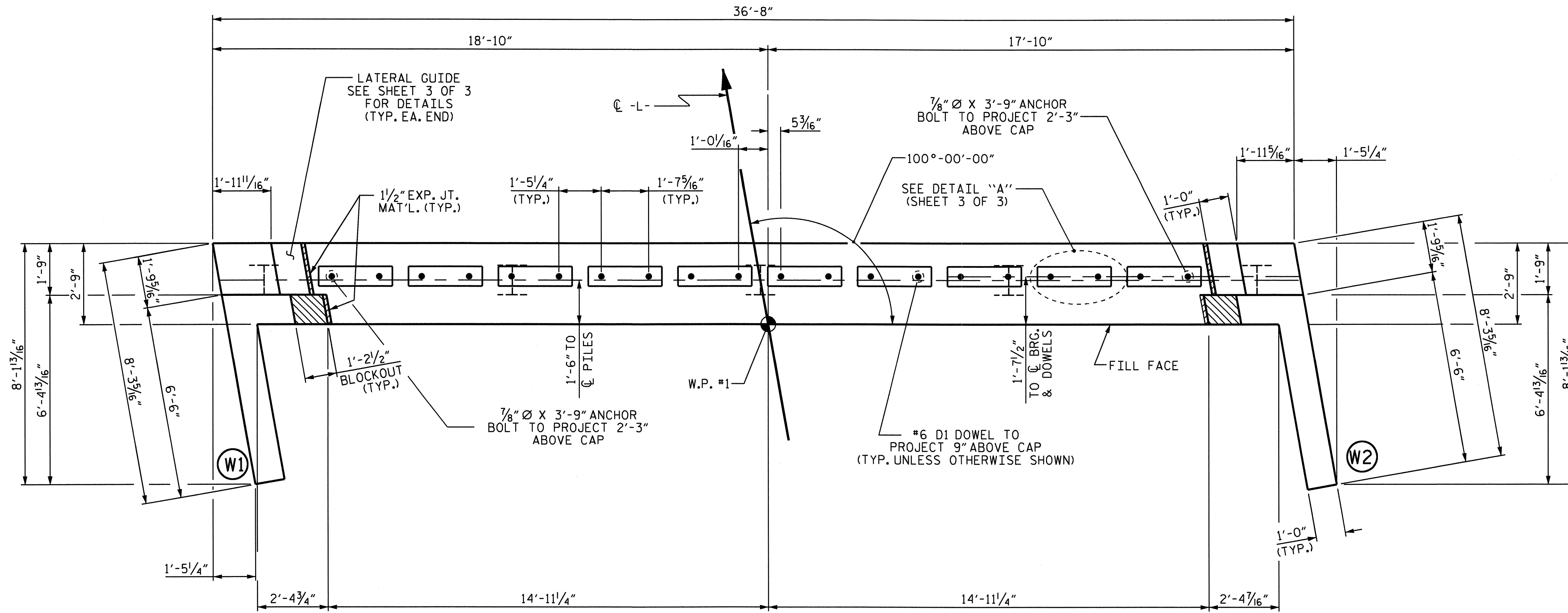
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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

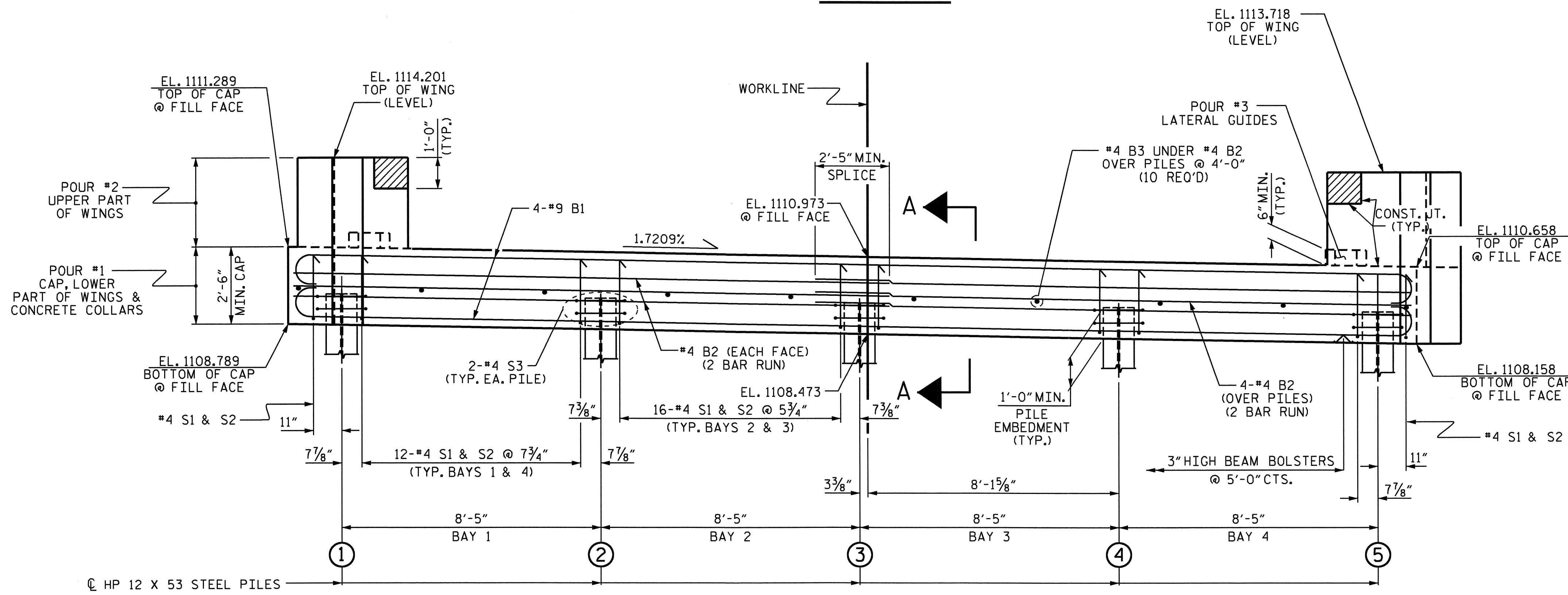
FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN

TOP OF PILE ELEVATIONS	
①	EL. 1109.777
②	EL. 1109.633
③	EL. 1109.490
④	EL. 1109.347
⑤	EL. 1109.204



ELEVATION

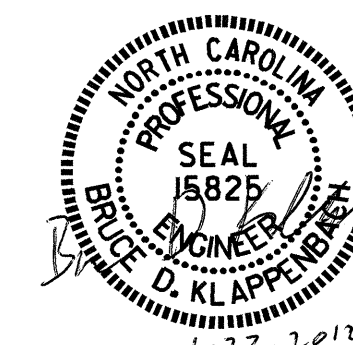
FOR SECTION A-A, SEE SHEET 3 OF 3.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

PROJECT NO. B-3819
 CALDWELL COUNTY
 STATION: 13+29.00-L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

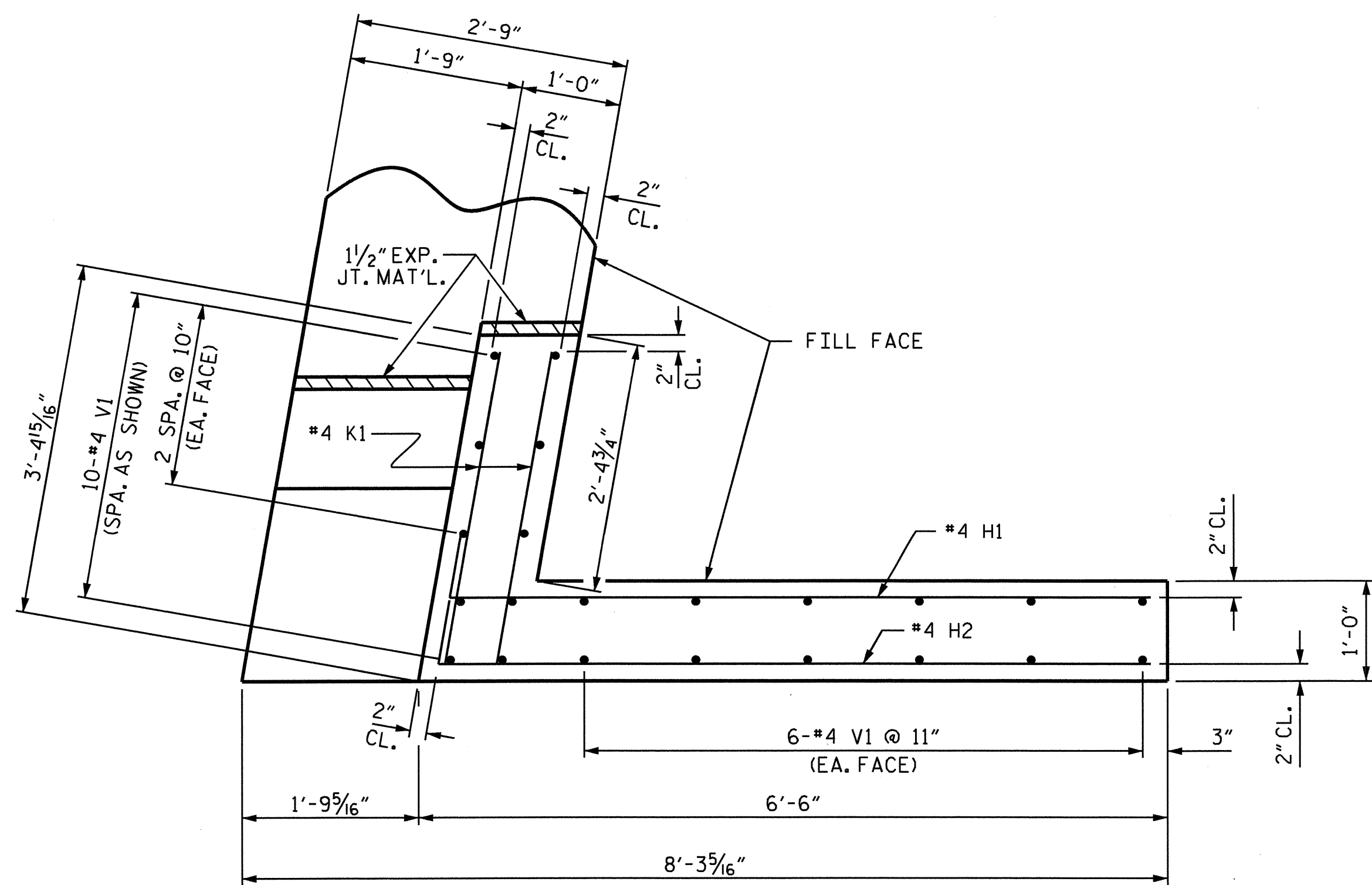
SUBSTRUCTURE
 END BENT #1



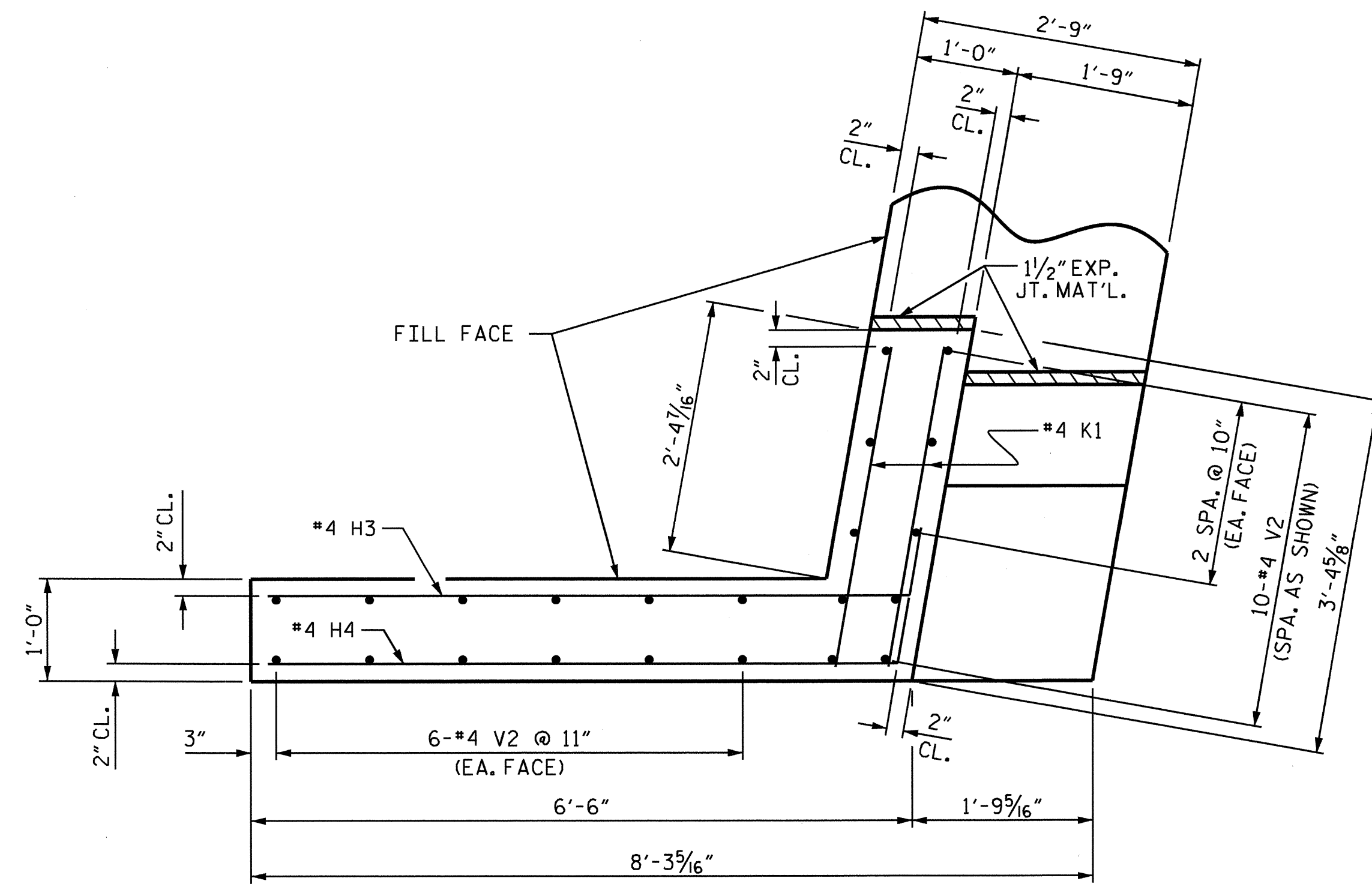
DRAWN BY: H. T. BARBOUR DATE: 8-31-11
 CHECKED BY: E. C. LOCKLEAR DATE: 9-11

23-JAN-2012 10:50
 R:\Structures\barbour\Microstation\B3819.SD.E*.dgn
 TBARBOUR

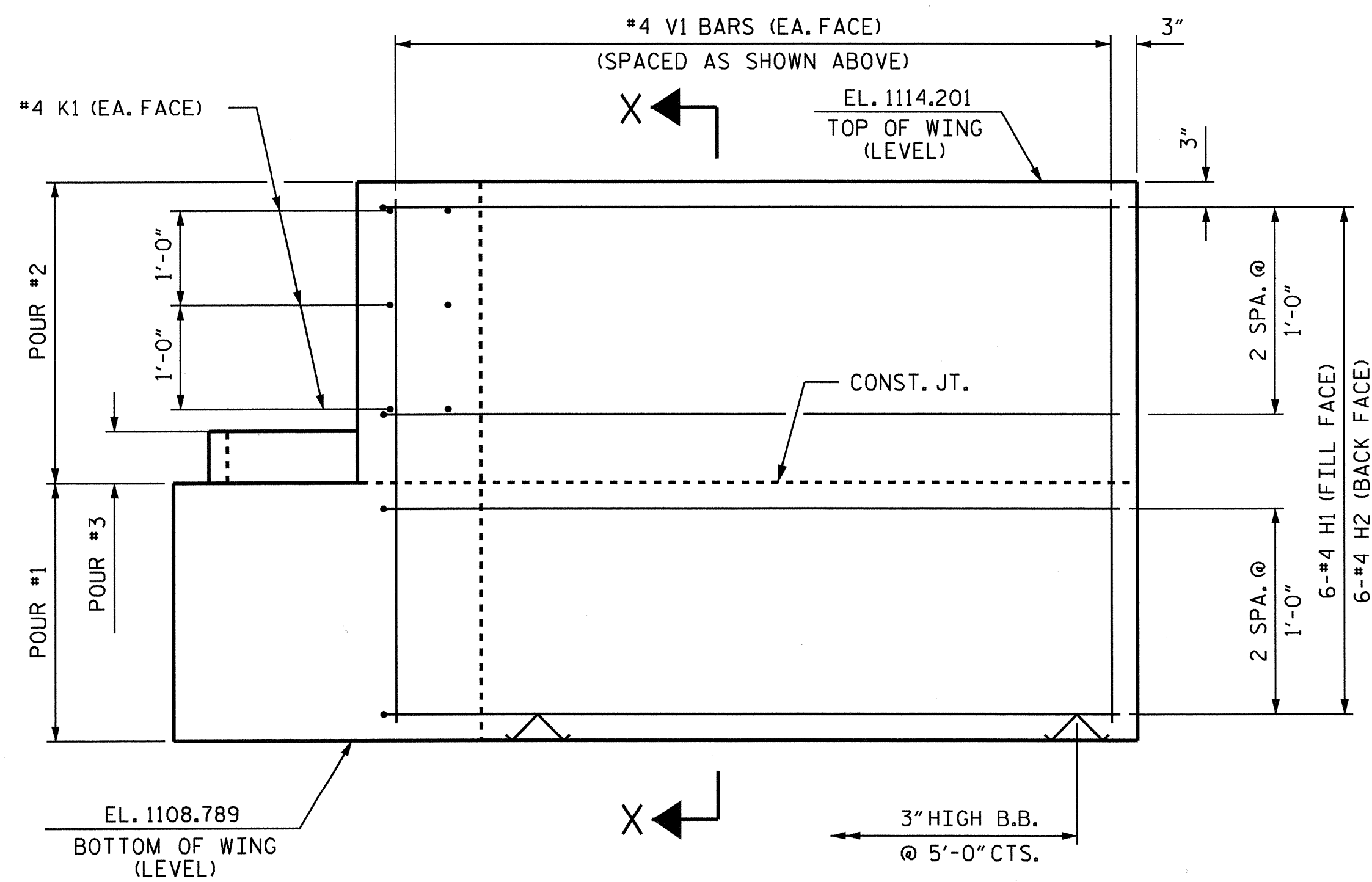
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
1			3			TOTAL SHEETS	
2			4			28	



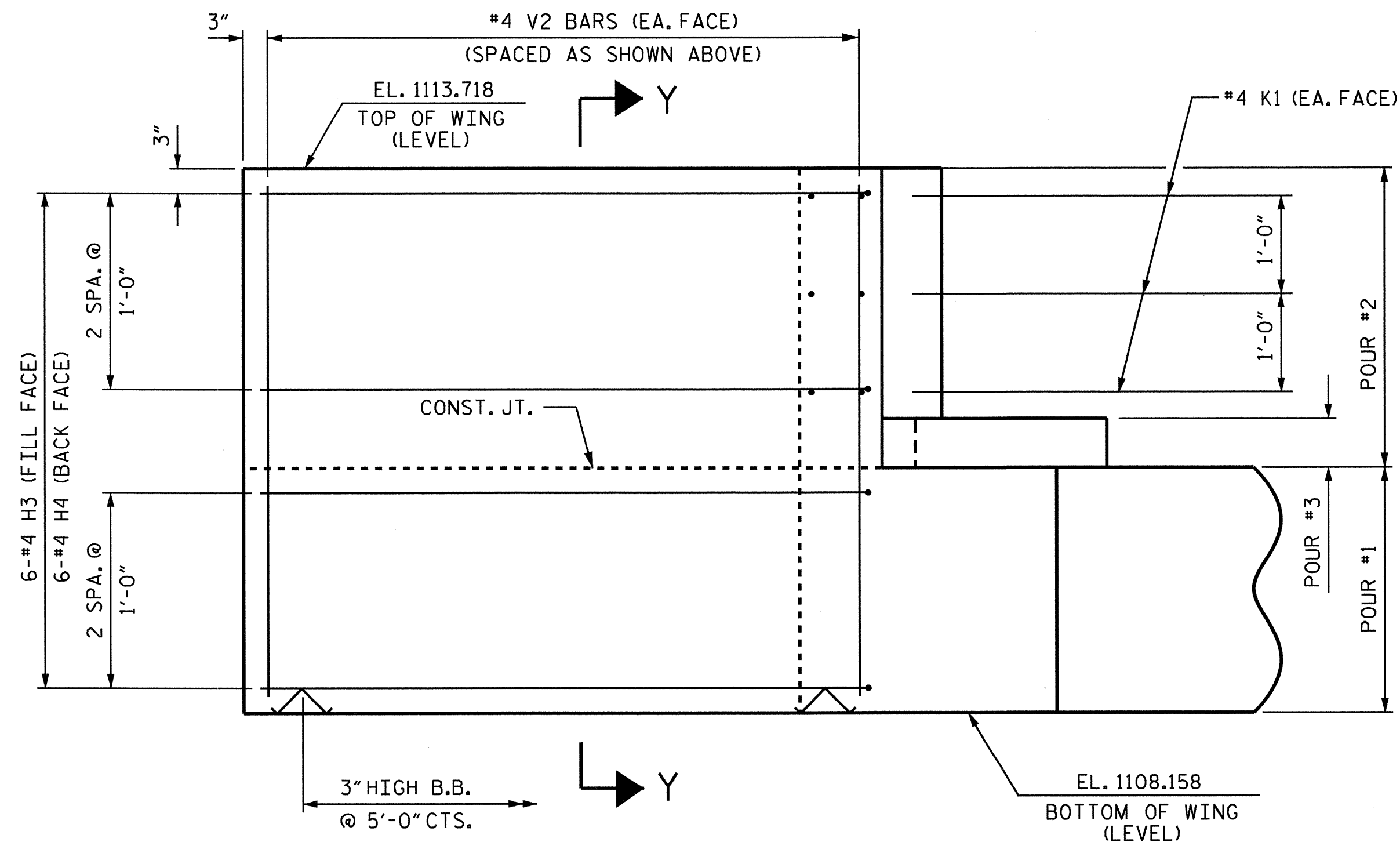
PLAN OF WING (W1)



PLAN OF WING (W2)

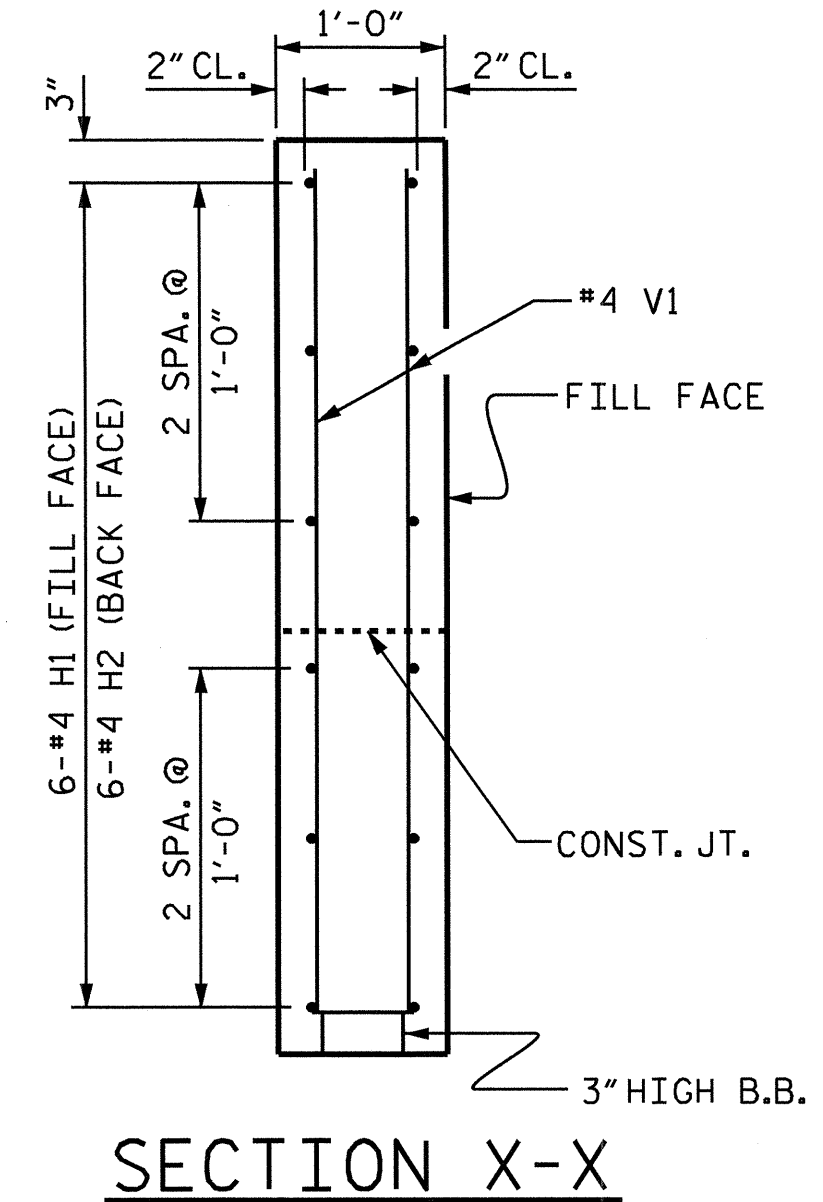


ELEVATION OF WING (W1)

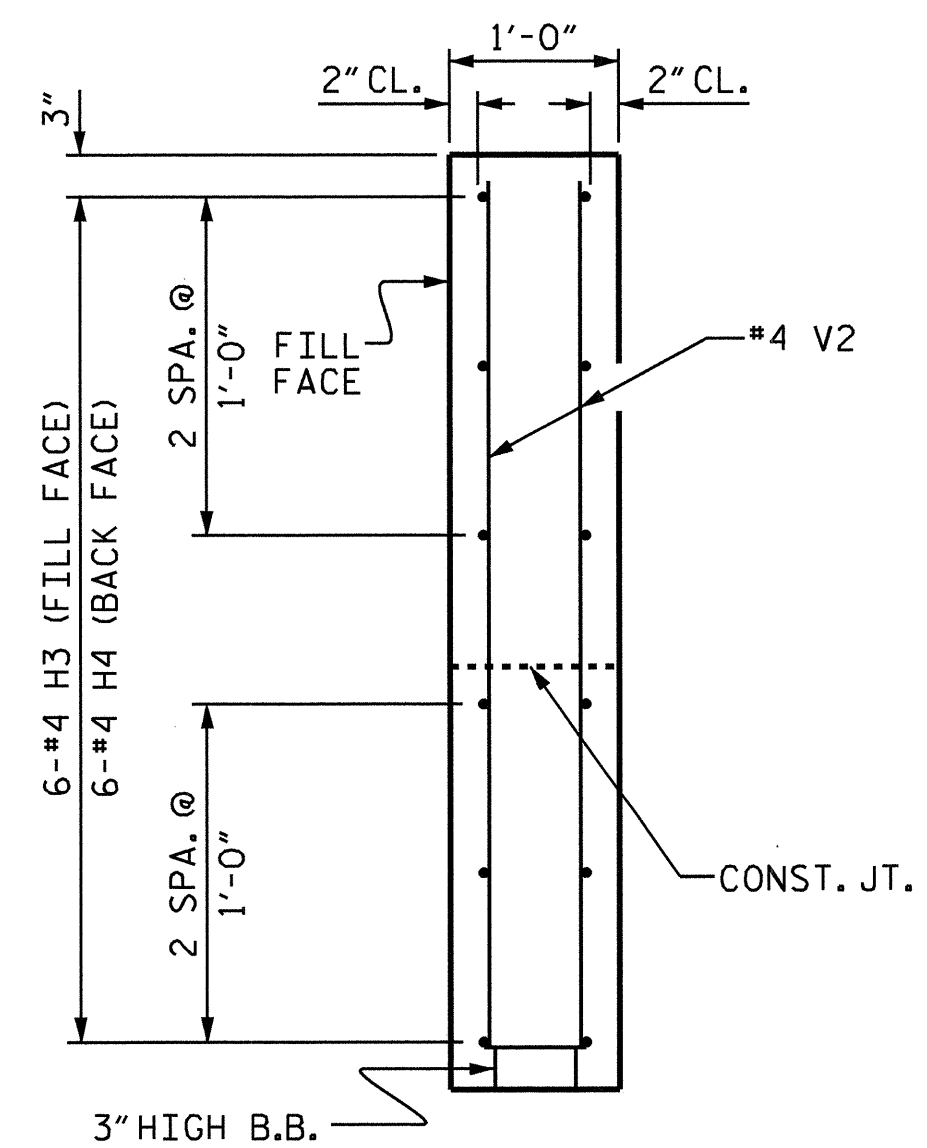


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



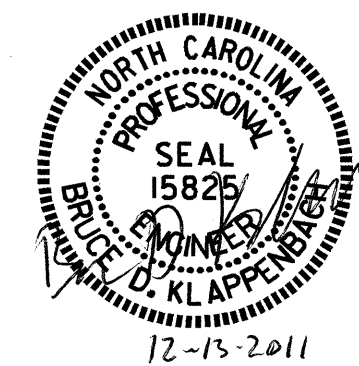
SECTION Y-Y

PROJECT NO. B-3819
 CALDWELL COUNTY
 STATION: 13+29.00-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

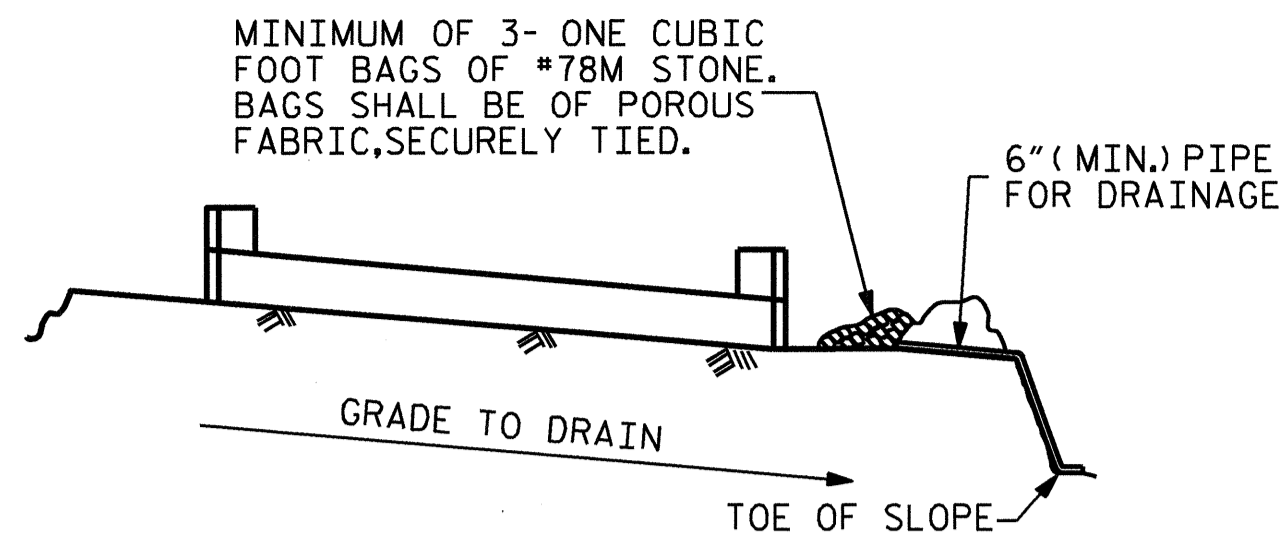
SUBSTRUCTURE
 END BENT #1
 WING DETAILS



DRAWN BY: H. T. BARBOUR DATE: 8-31-11
 CHECKED BY: E. C. LOCKLEAR DATE: 9-11

13-DEC-2011 10:14
 R:\Structures\Tbarbour\Microstation\B3819.SD.E*.dgn
 tbarbour

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			28

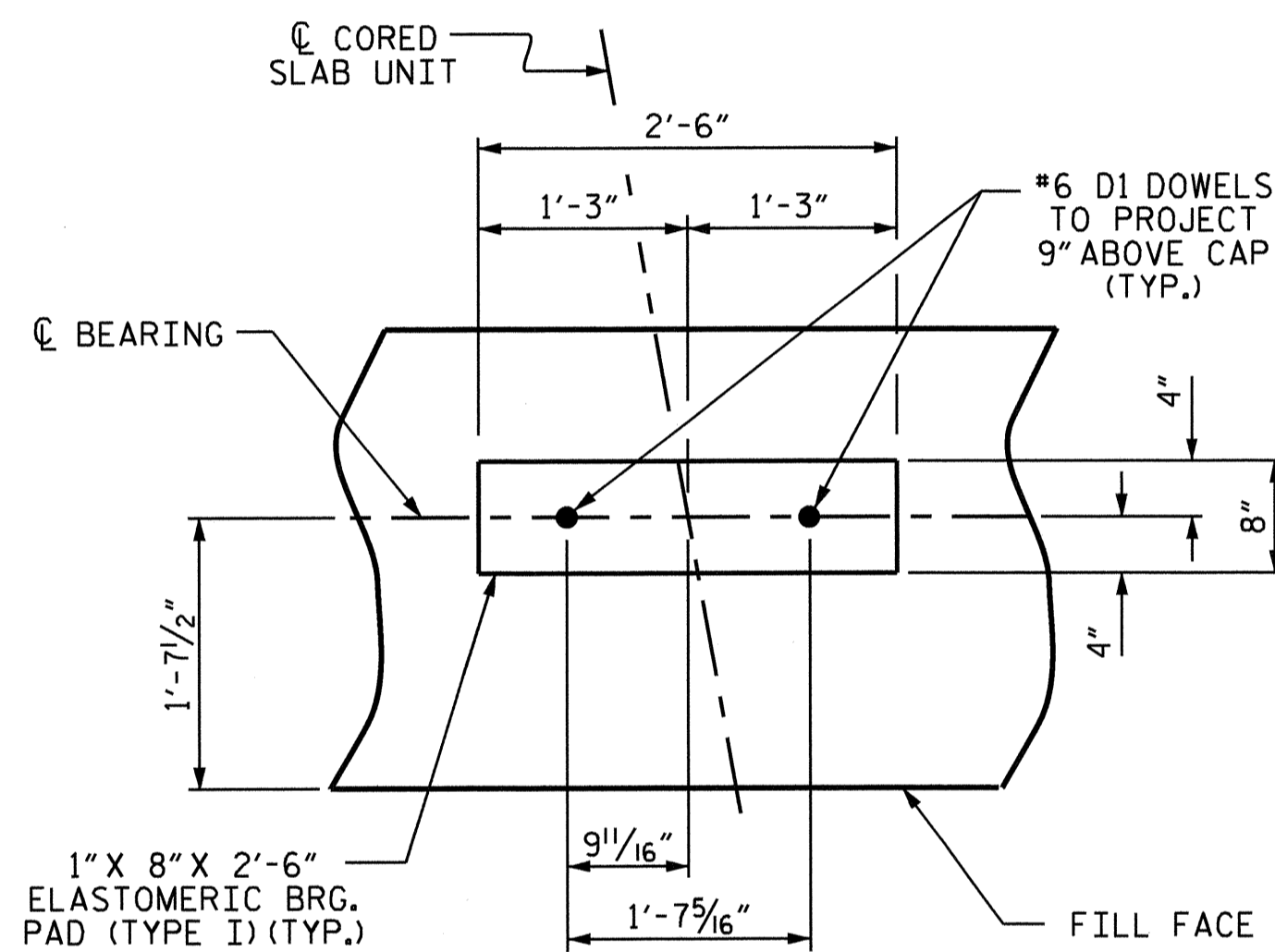


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

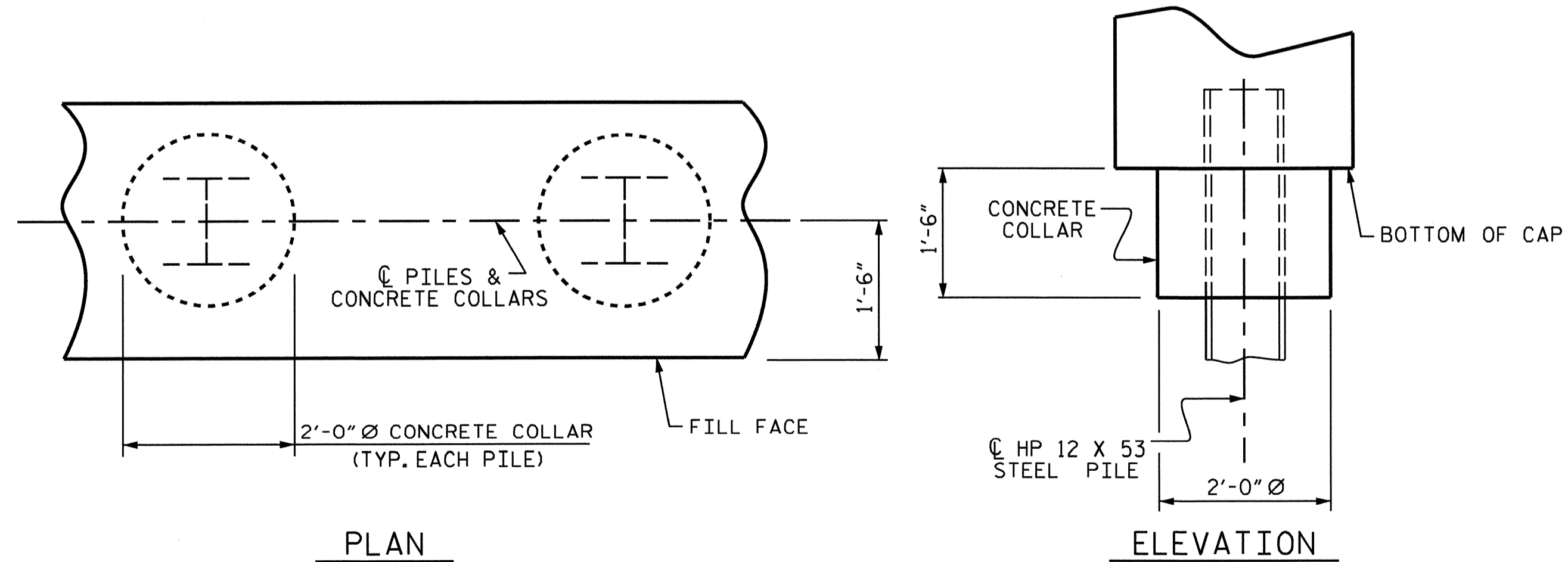
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

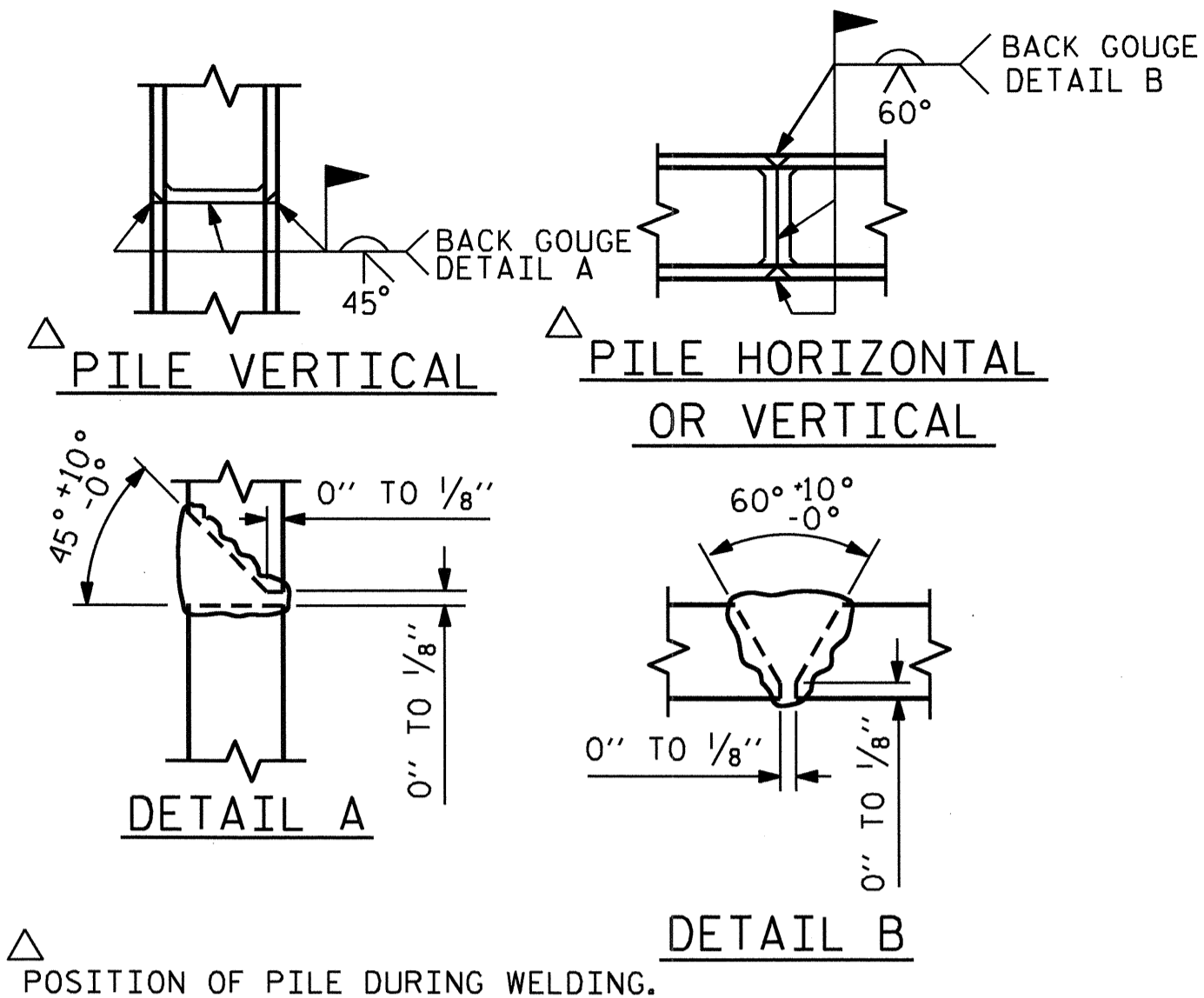


DETAIL "A"

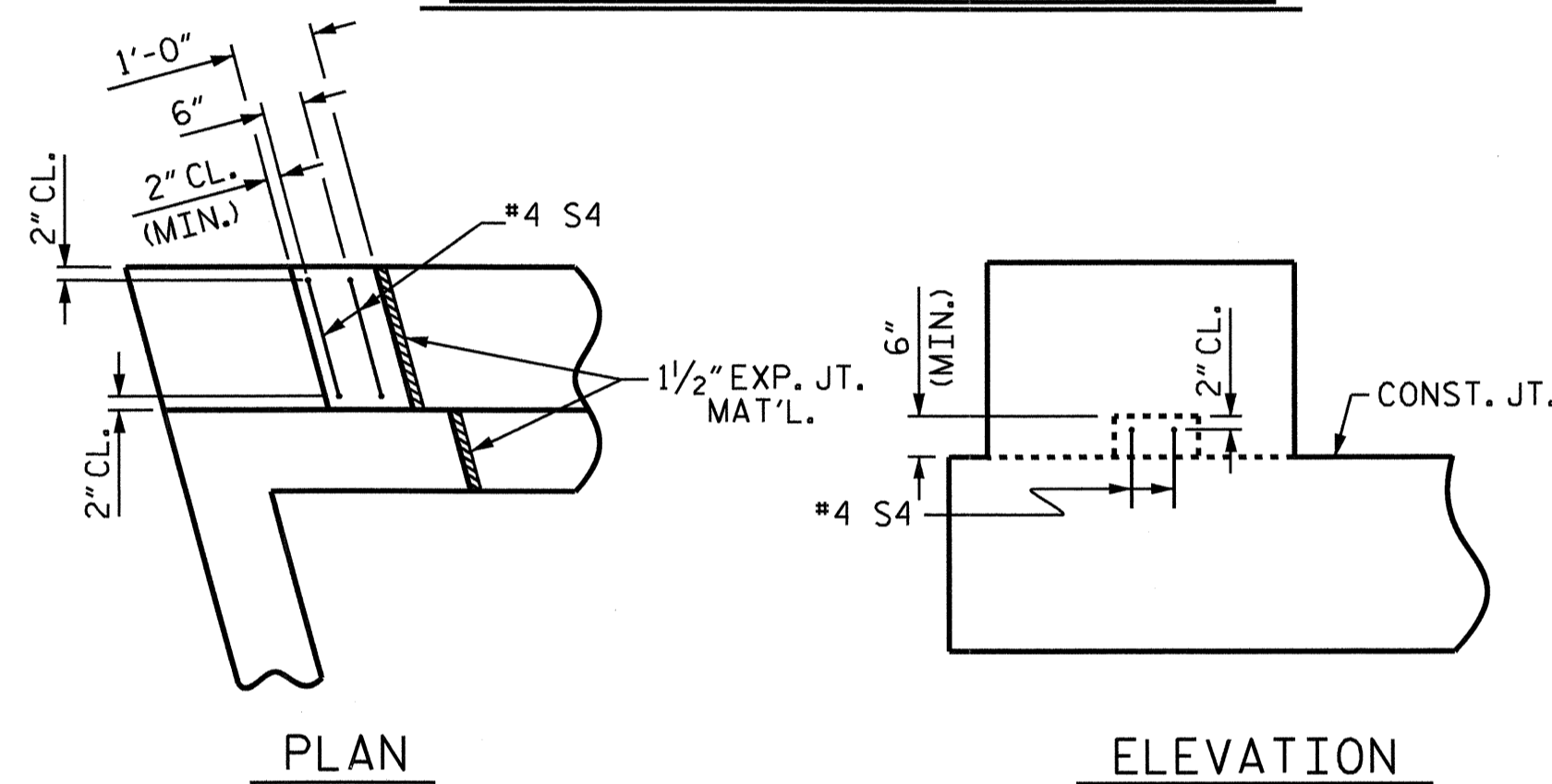
(SEE PLAN VIEW ON SHEET 1 OF 3 FOR LOCATION OF ANCHOR BOLT IN EXTERIOR CORED SLAB UNITS.)



CORROSION PROTECTION FOR STEEL PILES DETAIL

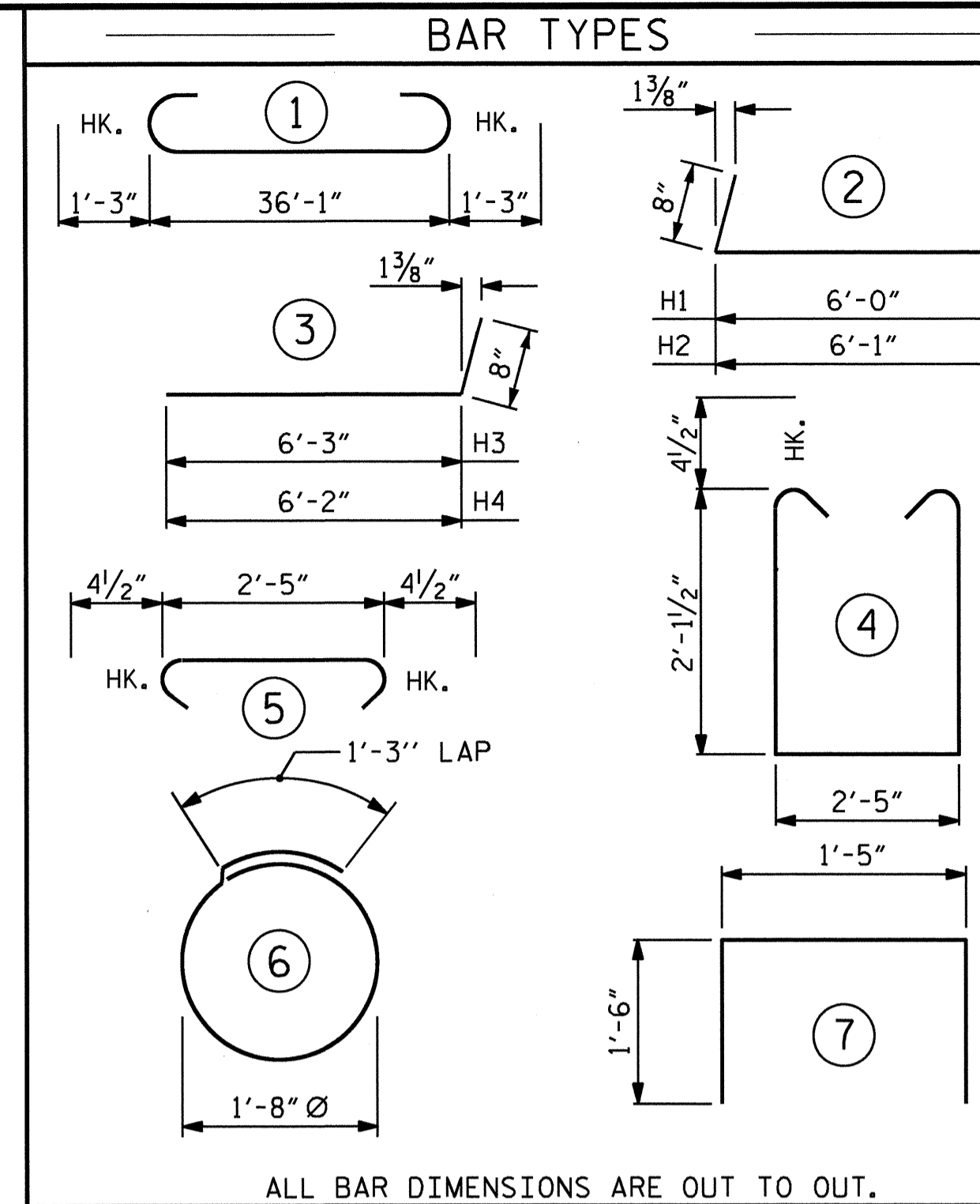


PILE SPLICE DETAILS



LATERAL GUIDE DETAILS

(LEFT LATERAL GUIDE SHOWN, RIGHT END SIMILAR)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

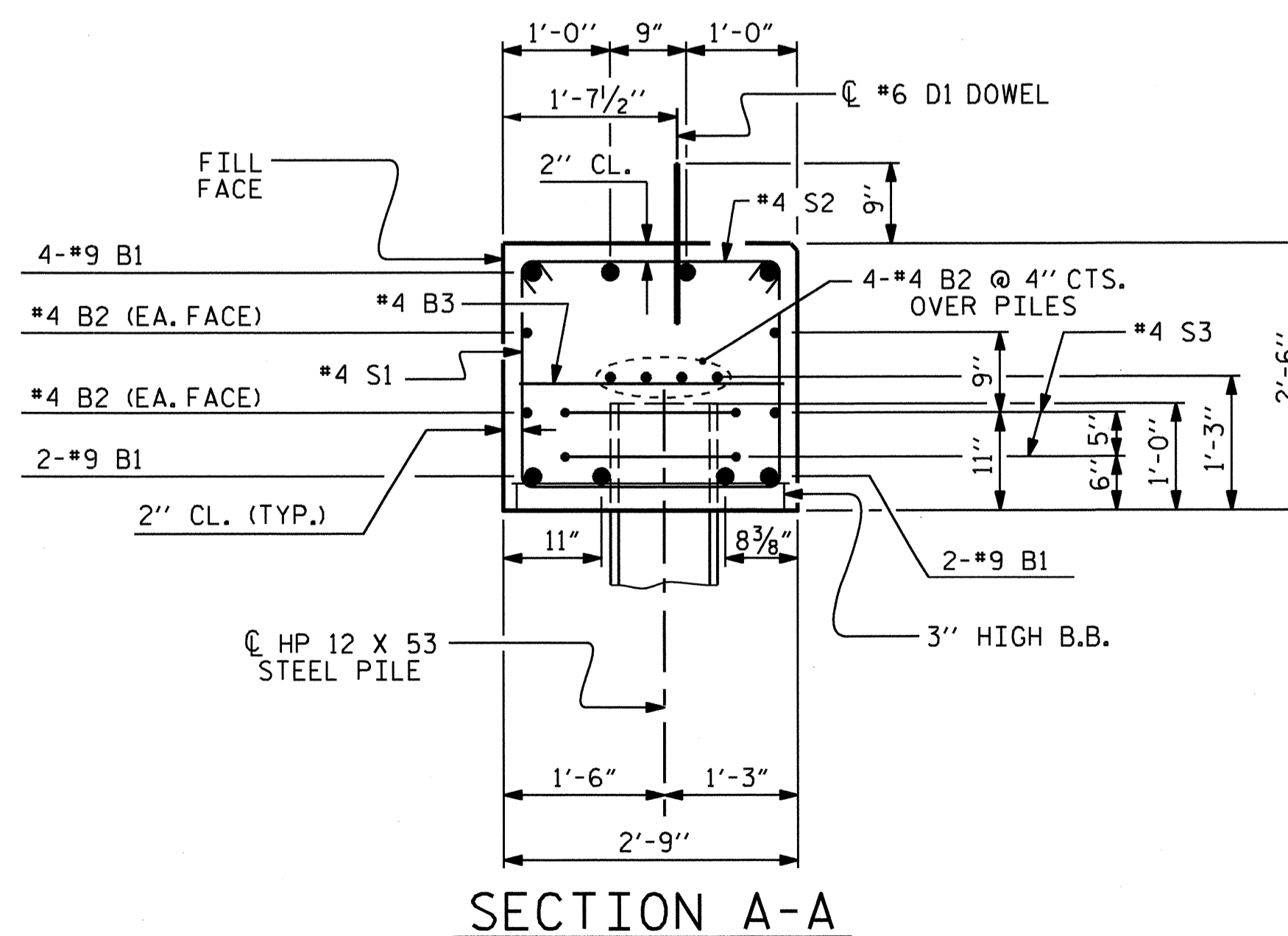
END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-7"	1049
B2	16	#4	STR	19'-5"	208
B3	10	#4	STR	2'-5"	16
D1	18	#6	STR	1'-6"	41
H1	6	#4	2	6'-8"	27
H2	6	#4	2	6'-9"	27
H3	6	#4	3	6'-11"	28
H4	6	#4	3	6'-10"	27
K1	12	#4	STR	3'-0"	24
S1	58	#4	4	7'-5"	287
S2	58	#4	5	3'-2"	123
S3	10	#4	6	6'-6"	43
S4	4	#4	7	4'-5"	12
V1	22	#4	STR	5'-0"	73
V2	22	#4	STR	5'-2"	76

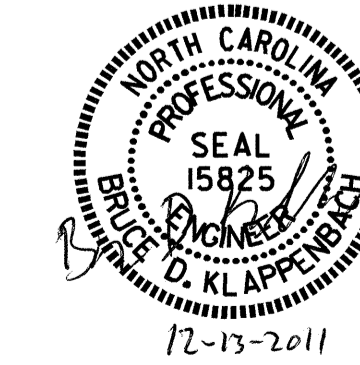
REINFORCING STEEL 2061 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	11.2 C.Y.
POUR #2	UPPER PART OF WINGS	2.2 C.Y.
POUR #3	LATERAL GUIDES	0.1 C.Y.
TOTAL CLASS A CONCRETE		13.5 C.Y.
HP 12 X 53 STEEL PILES	NO: 5	LIN. FT. = 50.0



(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE END BENT #1 DETAILS

REVISIONS

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

SHEET NO.
 S-20
 TOTAL SHEETS
 28

DRAWN BY: H. T. BARBOUR DATE: 8-31-11
 CHECKED BY: E. C. LOCKLEAR DATE: 9-11

NOTES

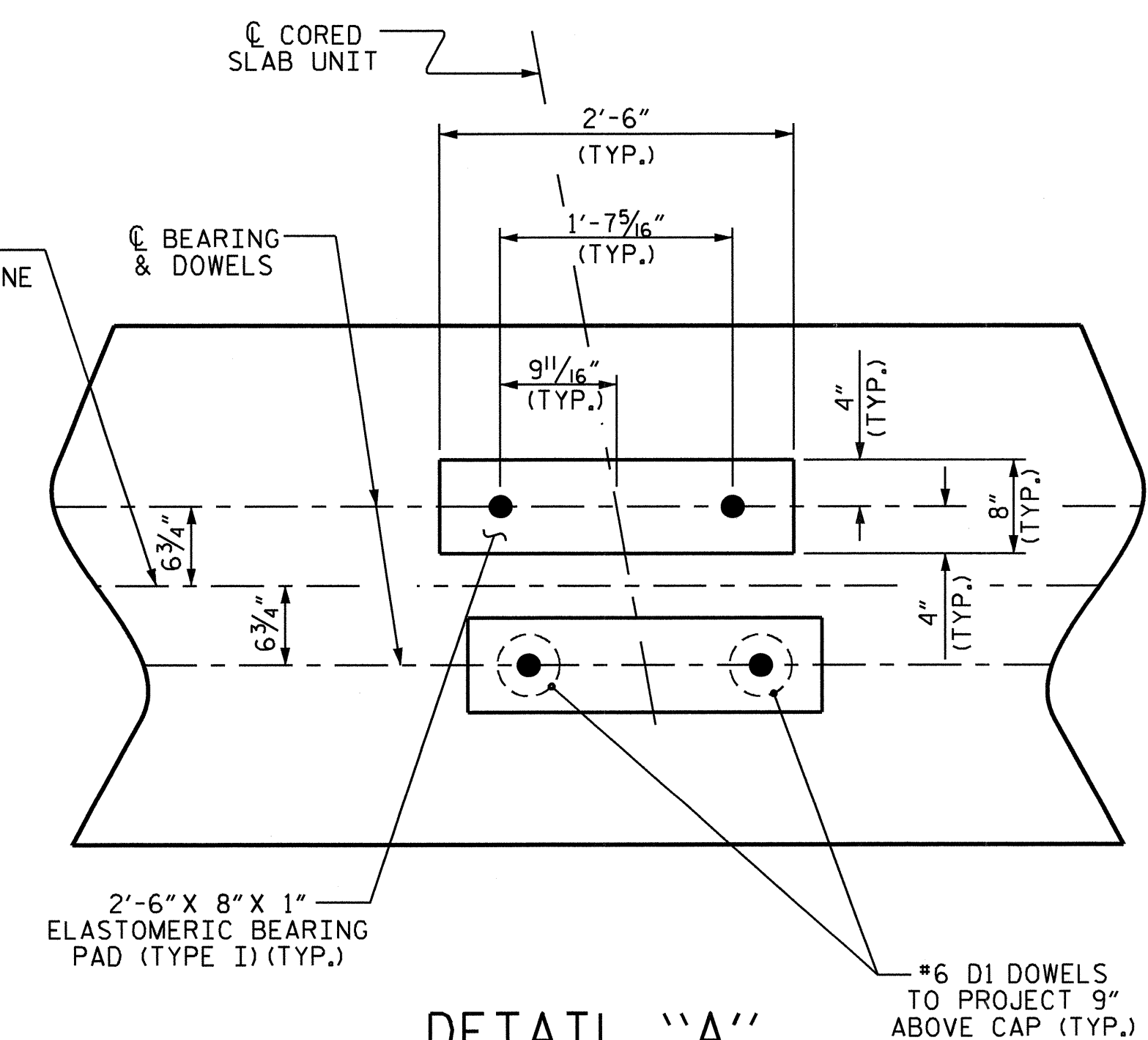
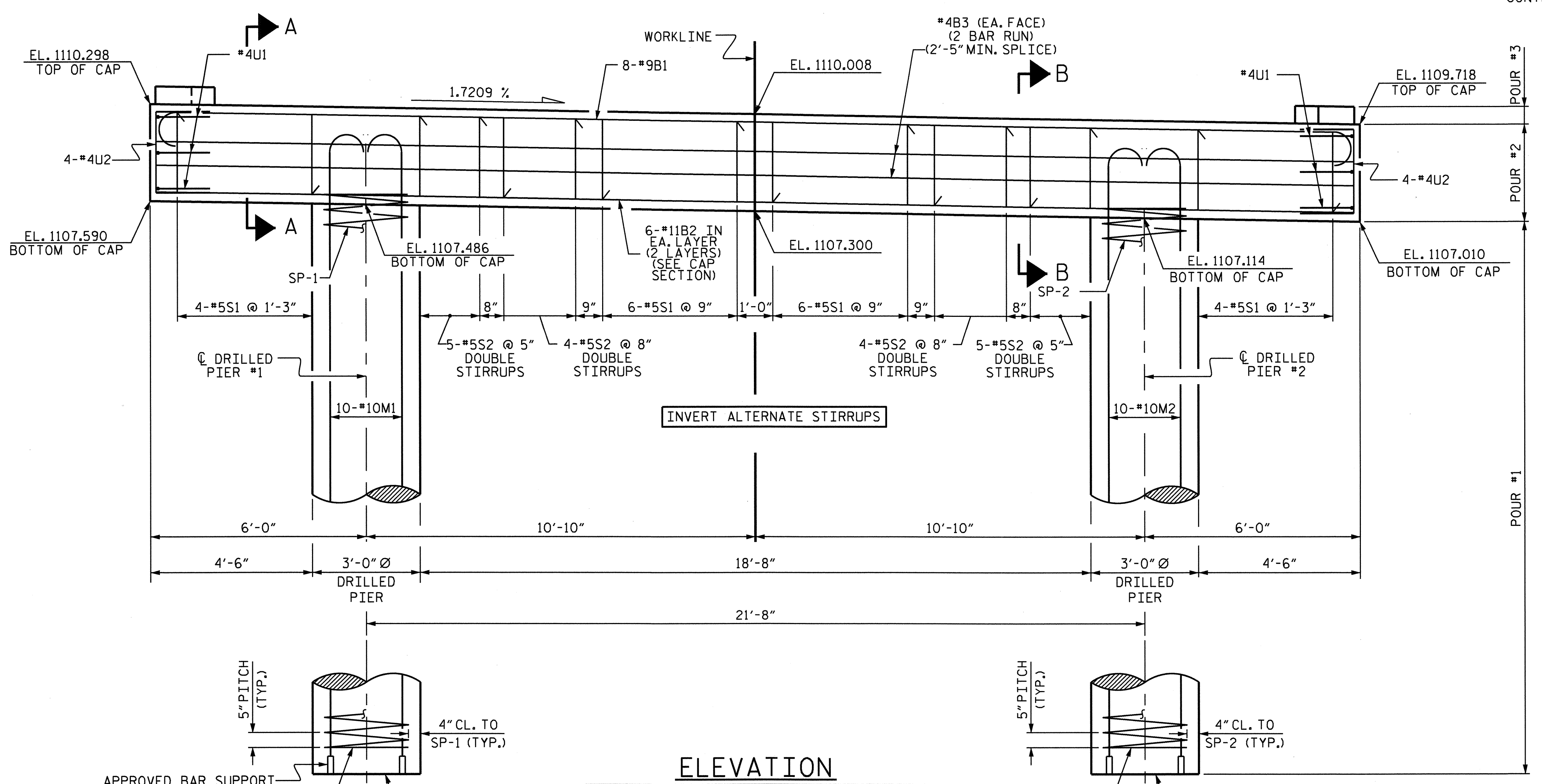
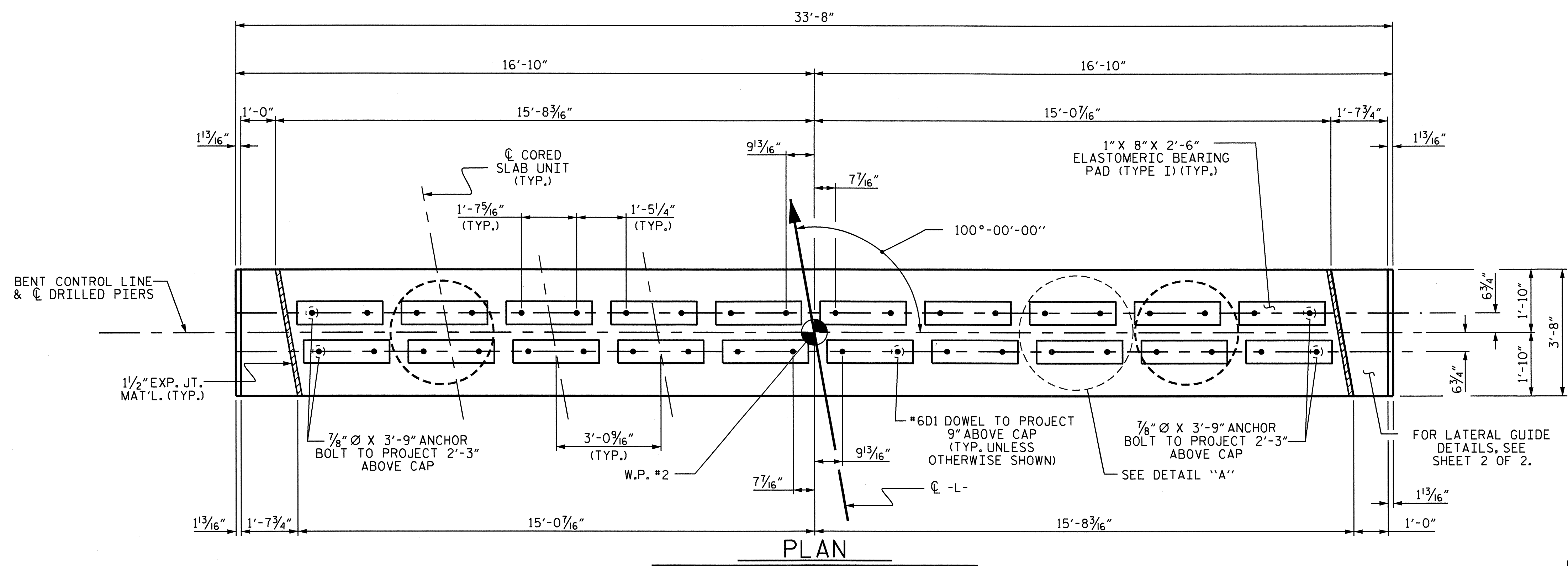
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

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

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

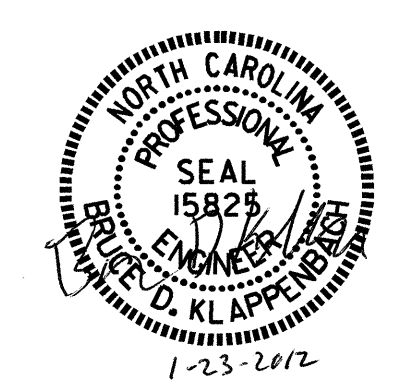
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



(DIMENSIONS ARE TYPICAL EACH INTERIOR BEARING)
(SEE PLAN VIEW FOR LOCATION OF ANCHOR BOLT IN EXTERIOR CORED SLAB UNITS.)

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00-L-

SHEET 1 OF 2

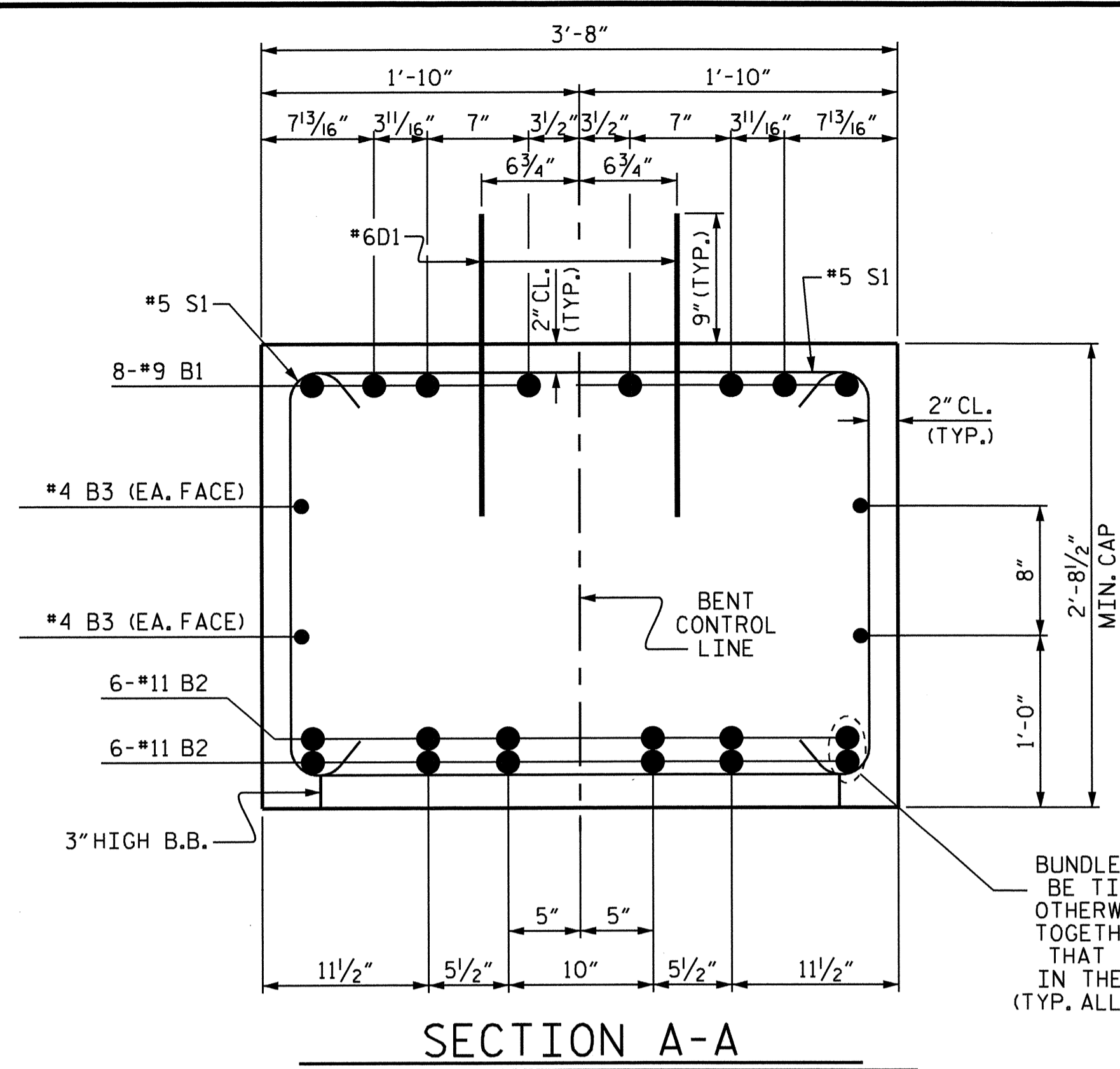


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

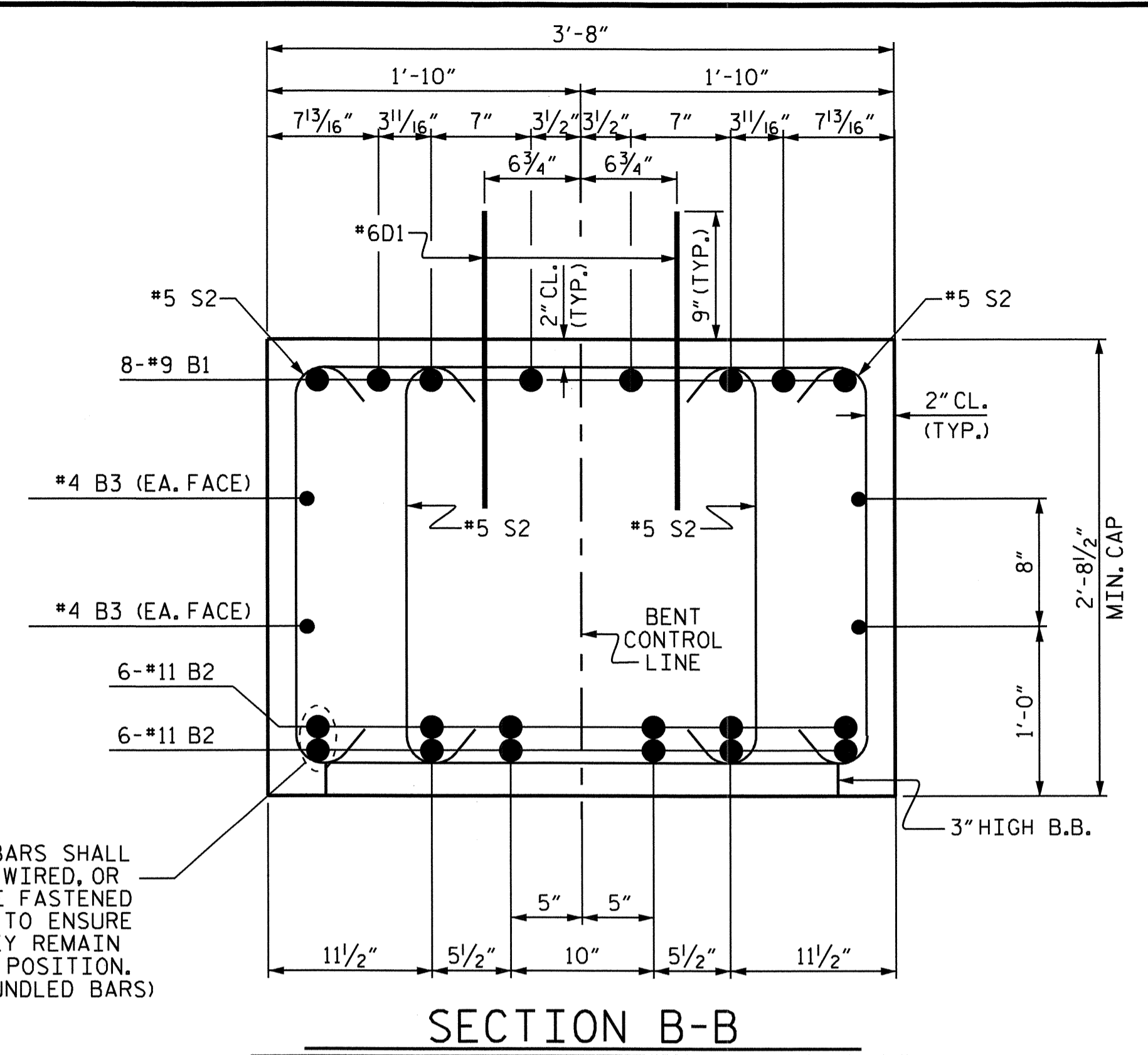
SUBSTRUCTURE BENT #1

REVISIONS						SHEET NO. 5-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			

DRAWN BY: H. T. BARBOUR DATE: 9-06-11
 CHECKED BY: E. C. LOCKLEAR DATE: 9-11

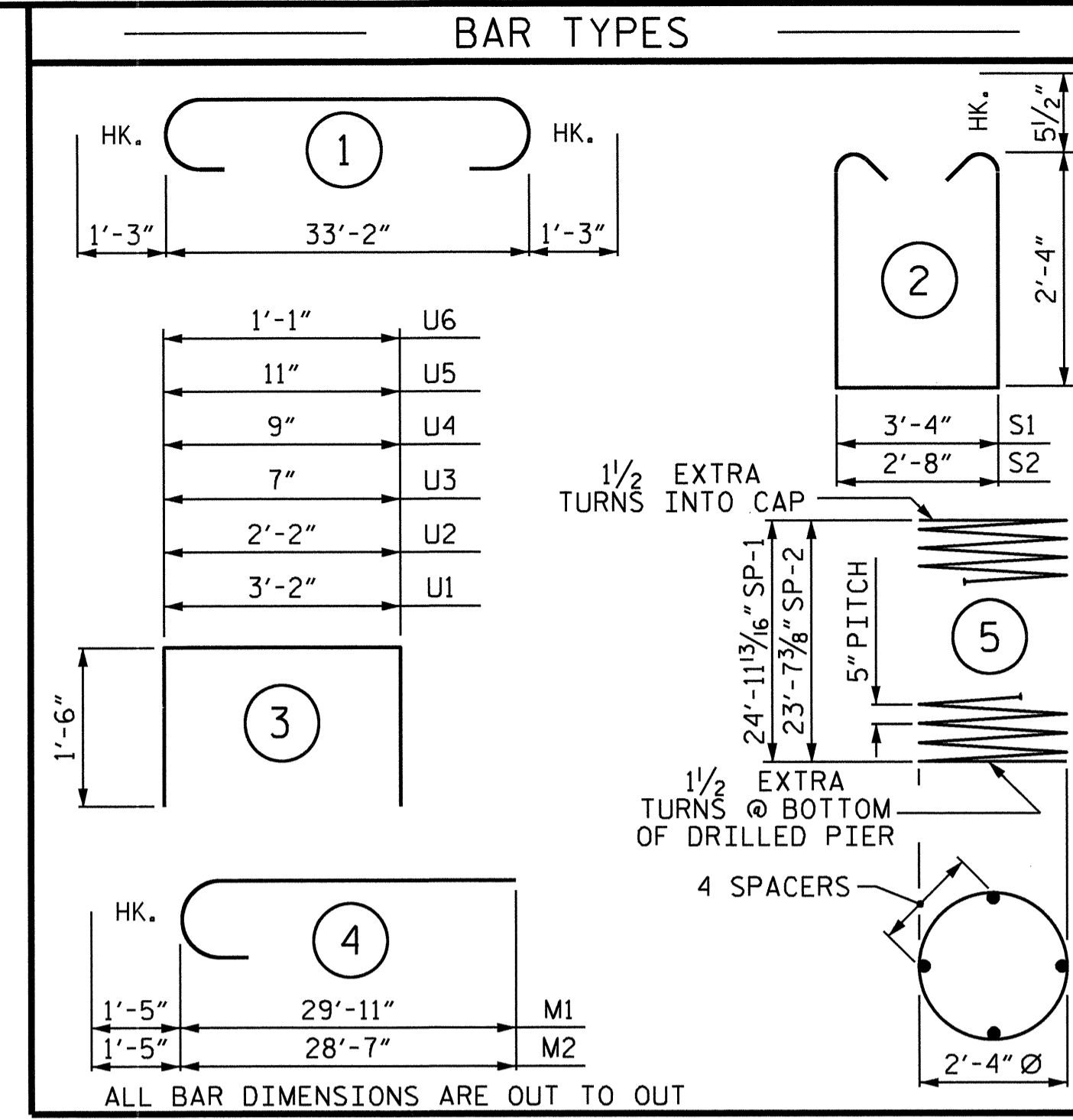


SECTION A-A



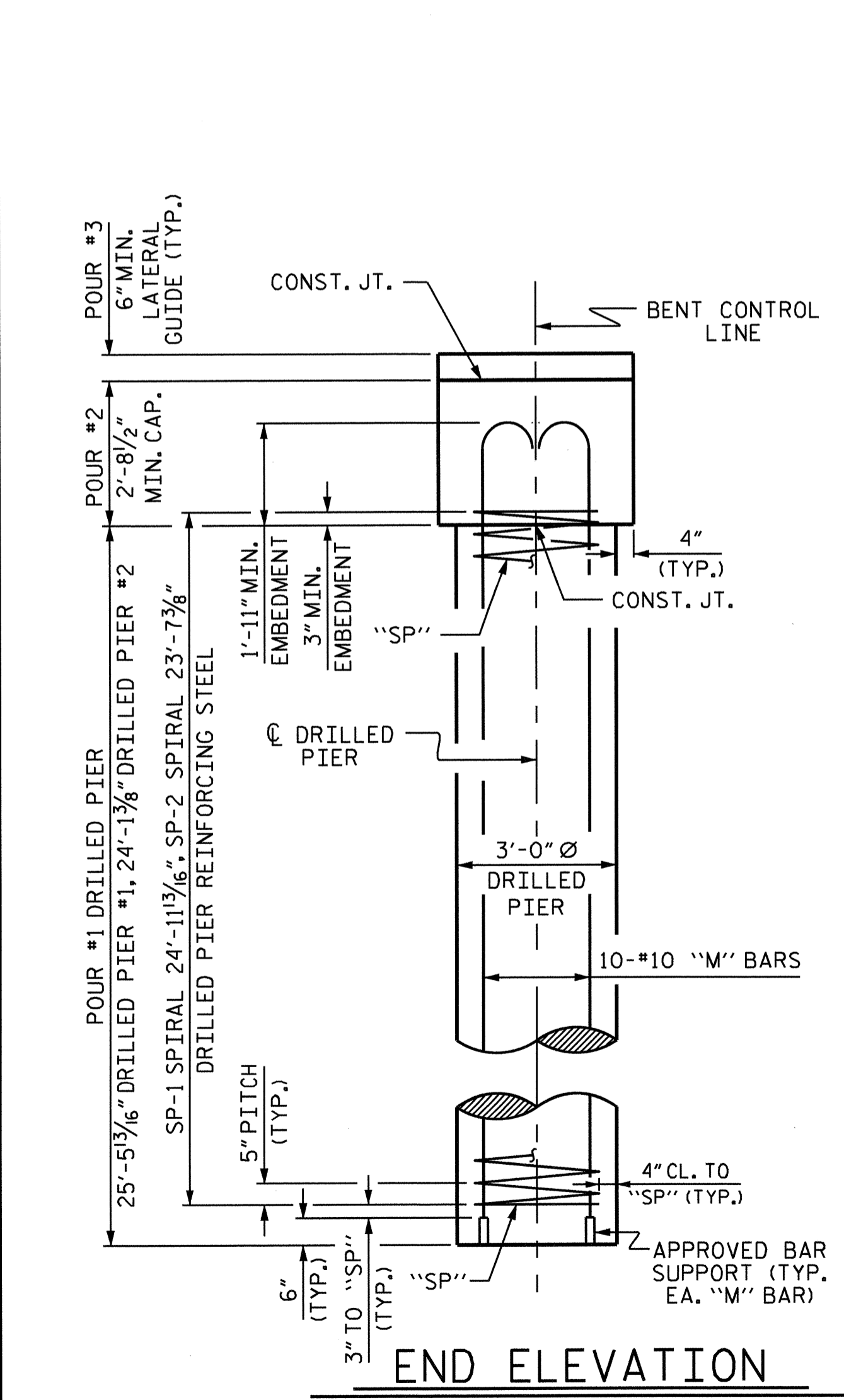
SECTION B-B

BUNDLED BARS SHALL BE TIED, WIRED, OR OTHERWISE FASTENED TOGETHER TO ENSURE THAT THEY REMAIN IN THEIR POSITION. (TYP. ALL BUNDLED BARS)

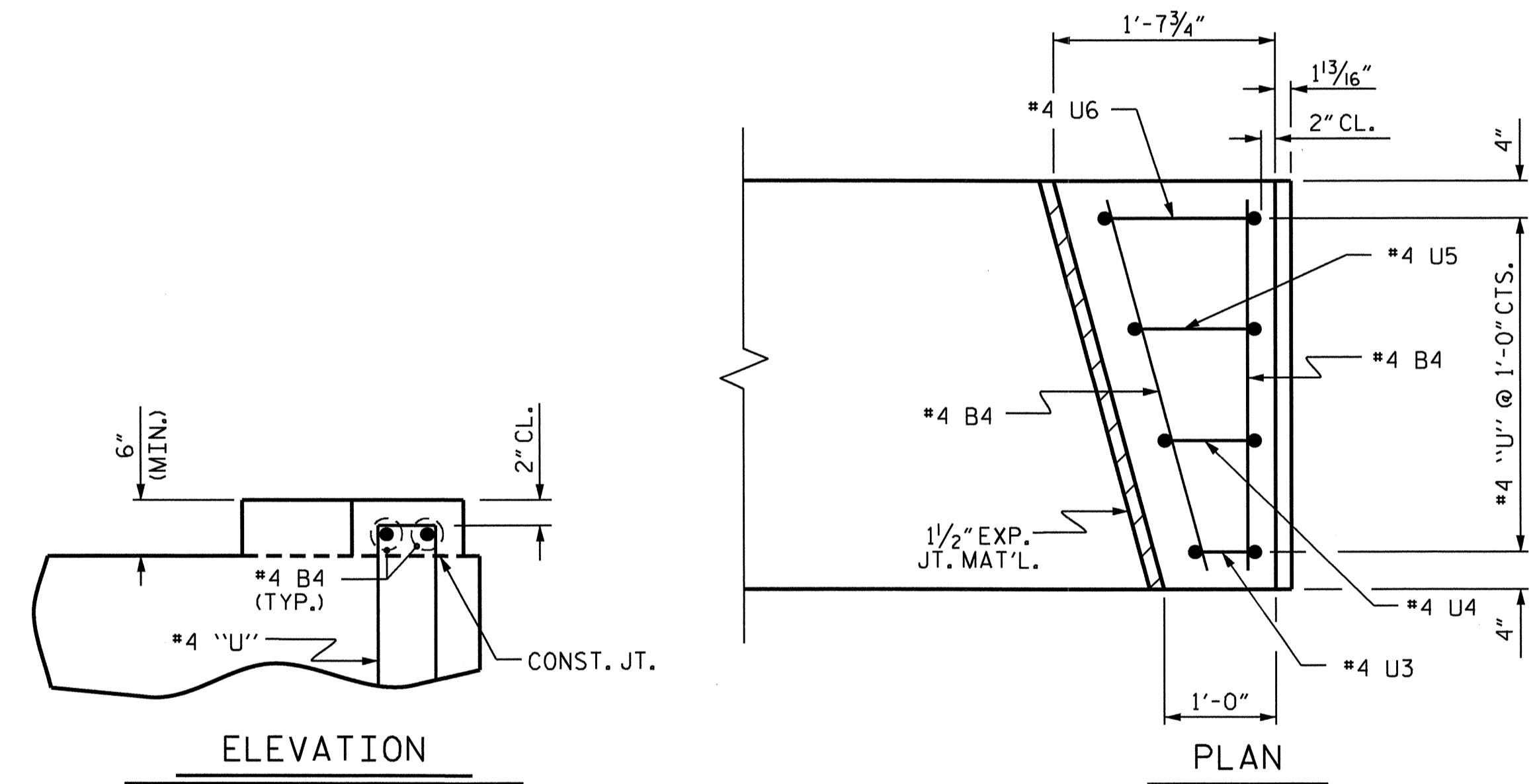


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		35'-8"	970
B2	12	#11	STR	33'-4"	2125
B3	8	#4	STR	17'-11"	96
B4	4	#4	STR	3'-4"	9
D1	36	#6	STR	1'-6"	81
M1	10	#10	4	31'-4"	1348
M2	10	#10	4	30'-0"	1291
S1	20	#5	2	8'-11"	186
S2	36	#5	2	8'-3"	310
U1	6	#4	3	6'-2"	25
U2	8	#4	3	5'-2"	28
U3	2	#4	3	3'-7"	5
U4	2	#4	3	3'-9"	5
U5	2	#4	3	3'-11"	5
U6	2	#4	3	4'-1"	5
REINFORCING STEEL					6489 LBS.
SP-1	1	*	5	440'-6"	459
SP-2	1	*	5	417'-3"	435
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					894 LBS.

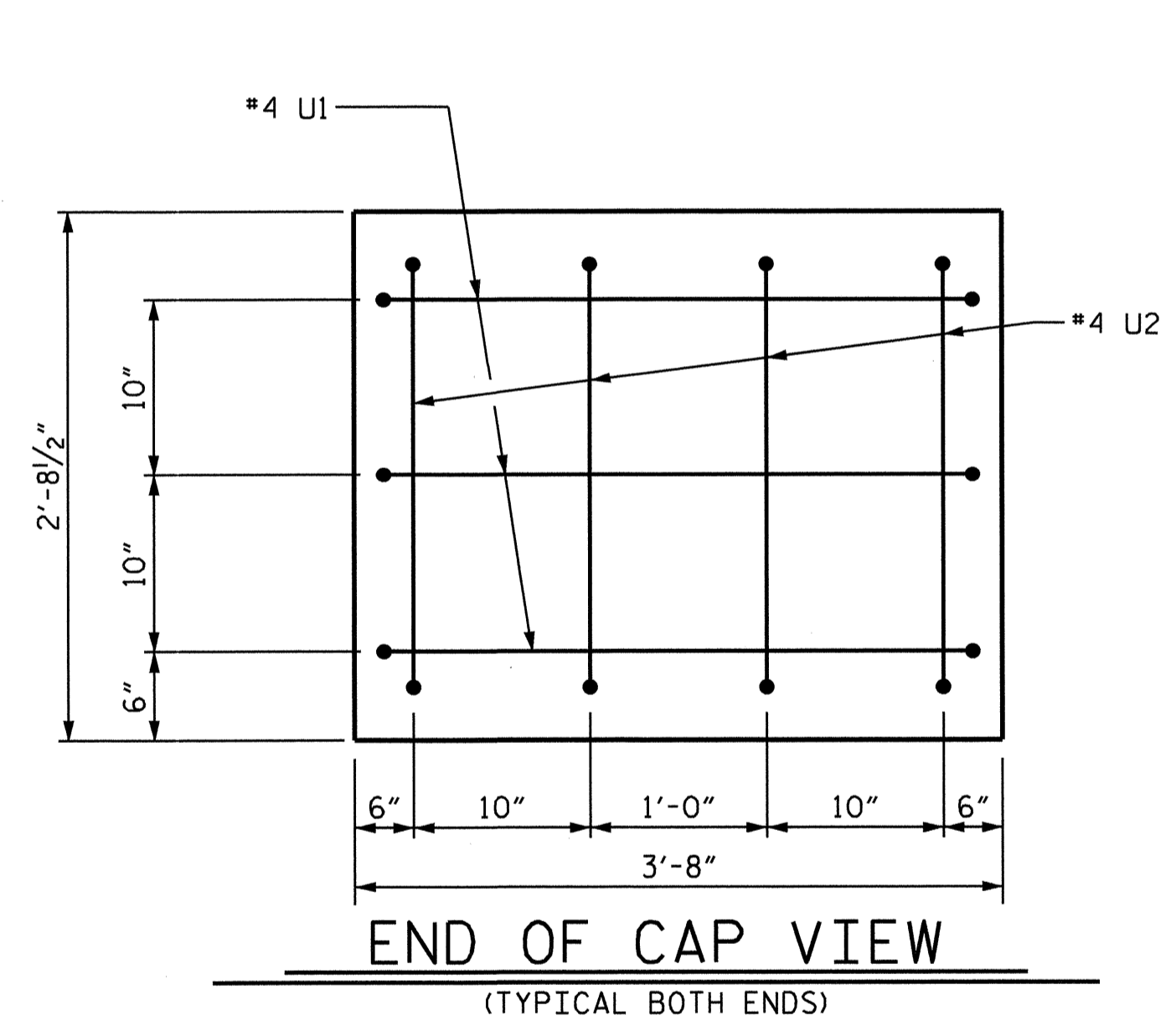


END ELEVATION



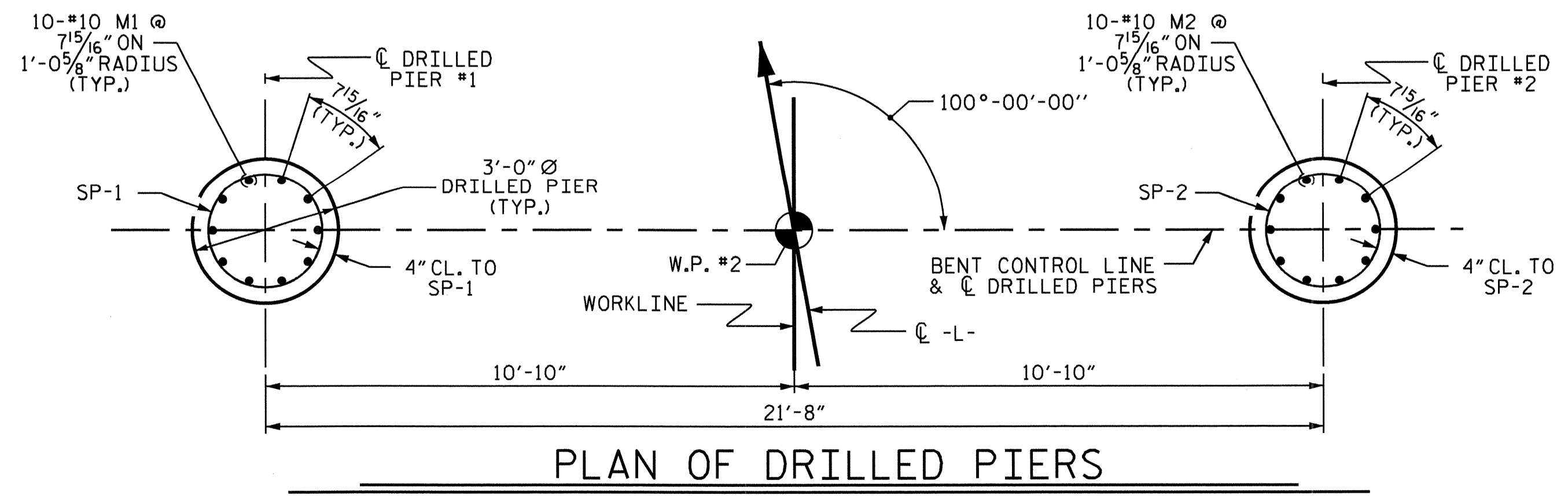
LATERAL GUIDE DETAILS

(RIGHT LATERAL GUIDE SHOWN, LEFT SIDE SIMILAR)



END OF CAP VIEW

(TYPICAL BOTH ENDS)



PLAN OF DRILLED PIERS

CLASS A CONCRETE BREAKDOWN	
POUR #2 (CAP)	12.4 C.Y.
POUR #3 (LATERAL GUIDES)	.2 C.Y.
TOTAL CLASS A CONCRETE	12.6 C.Y.

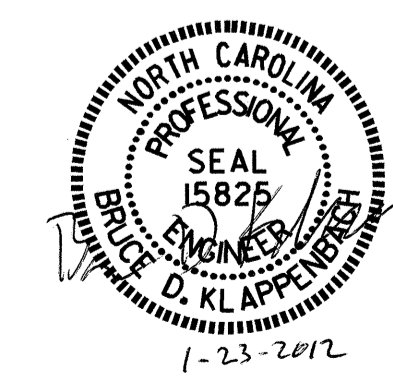
DRILLED PIERS:	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	13.0 C.Y.
3'-0" Ø DRILLED PIER NOT IN SOIL	21.0 LIN. FT.
3'-0" Ø DRILLED PIER IN SOIL	28.6 LIN. FT.
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	15.6 LIN. FT.
CSL TUBES	210.4 LIN. FT.

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE BENT #1



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

SHEET NO.	
S-22	
TOTAL SHEETS	28

DRAWN BY: H. T. BARBOUR DATE: 9-06-11
 CHECKED BY: E. C. LOCKLEAR DATE: 9-11

NOTES

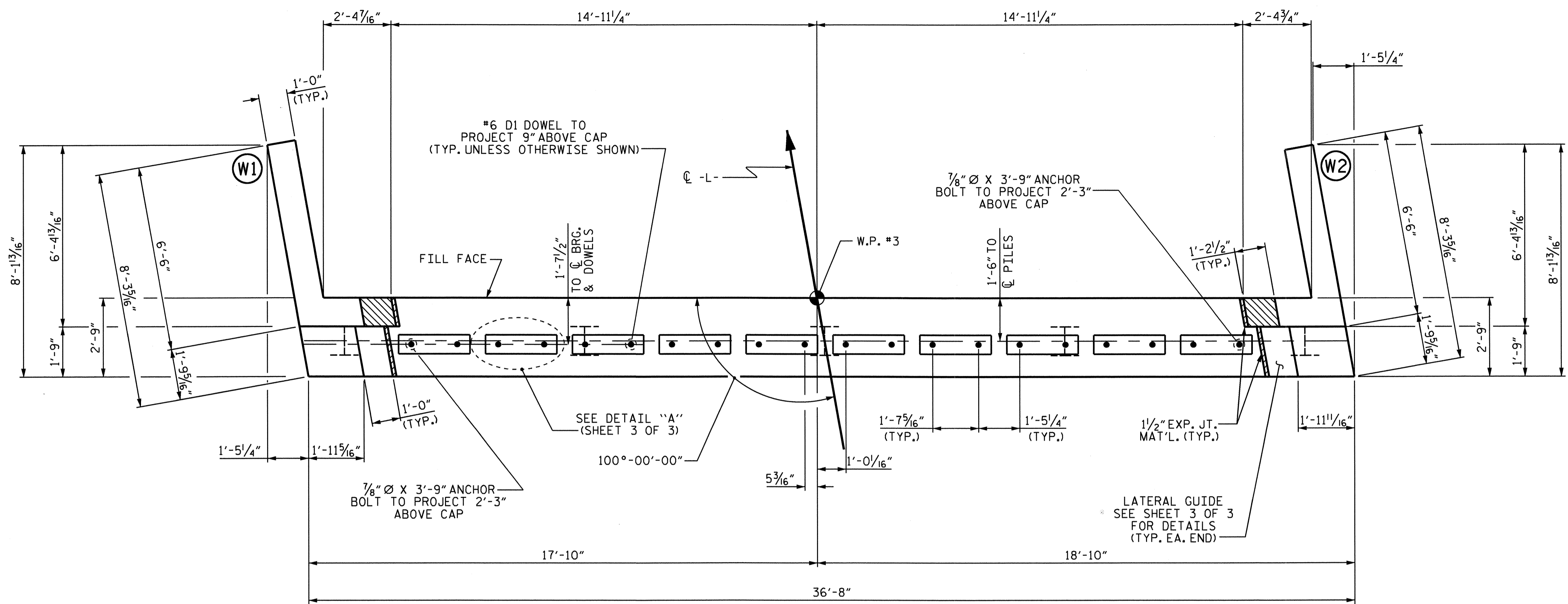
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

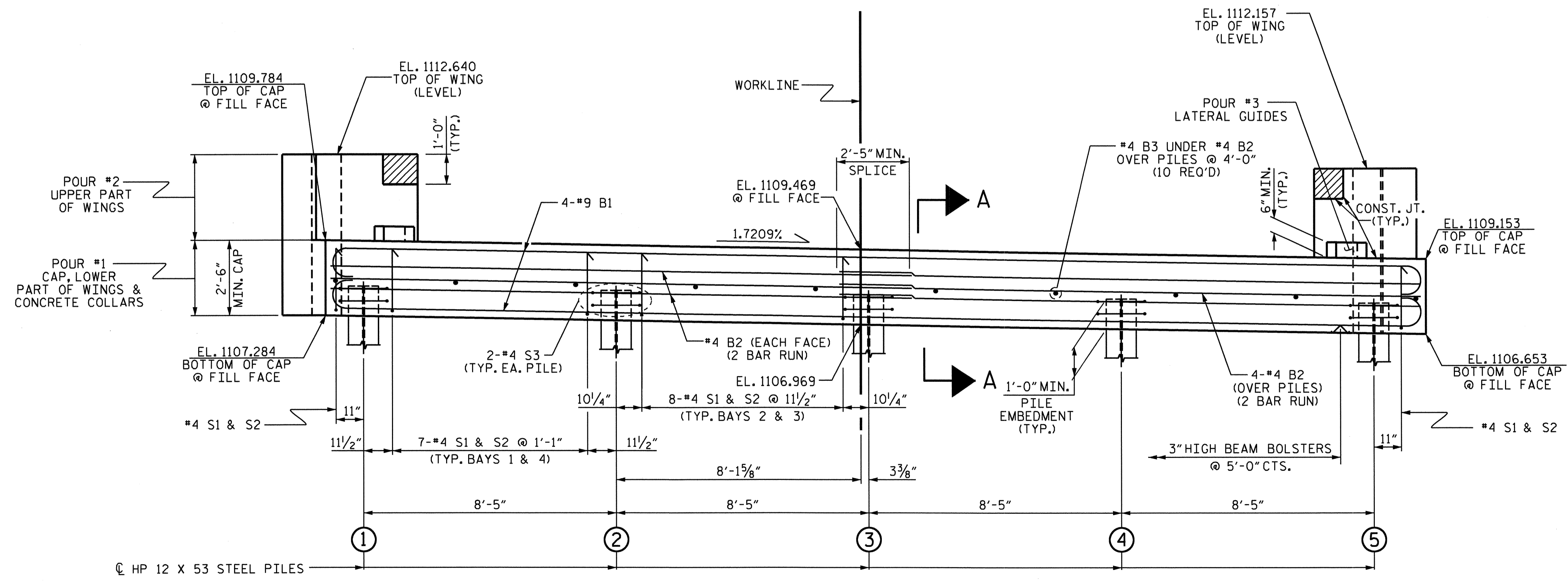
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CONCRETE PARAPET IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



TOP OF PILE ELEVATIONS	
①	EL. 1108.262
②	EL. 1108.119
③	EL. 1107.976
④	EL. 1107.833
⑤	EL. 1107.690

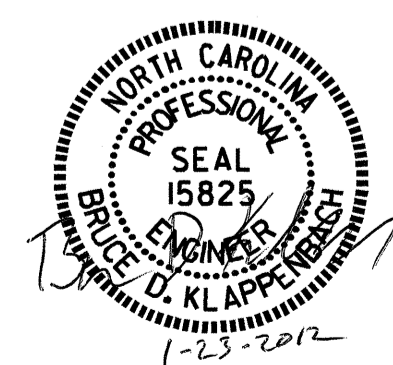


PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00-L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

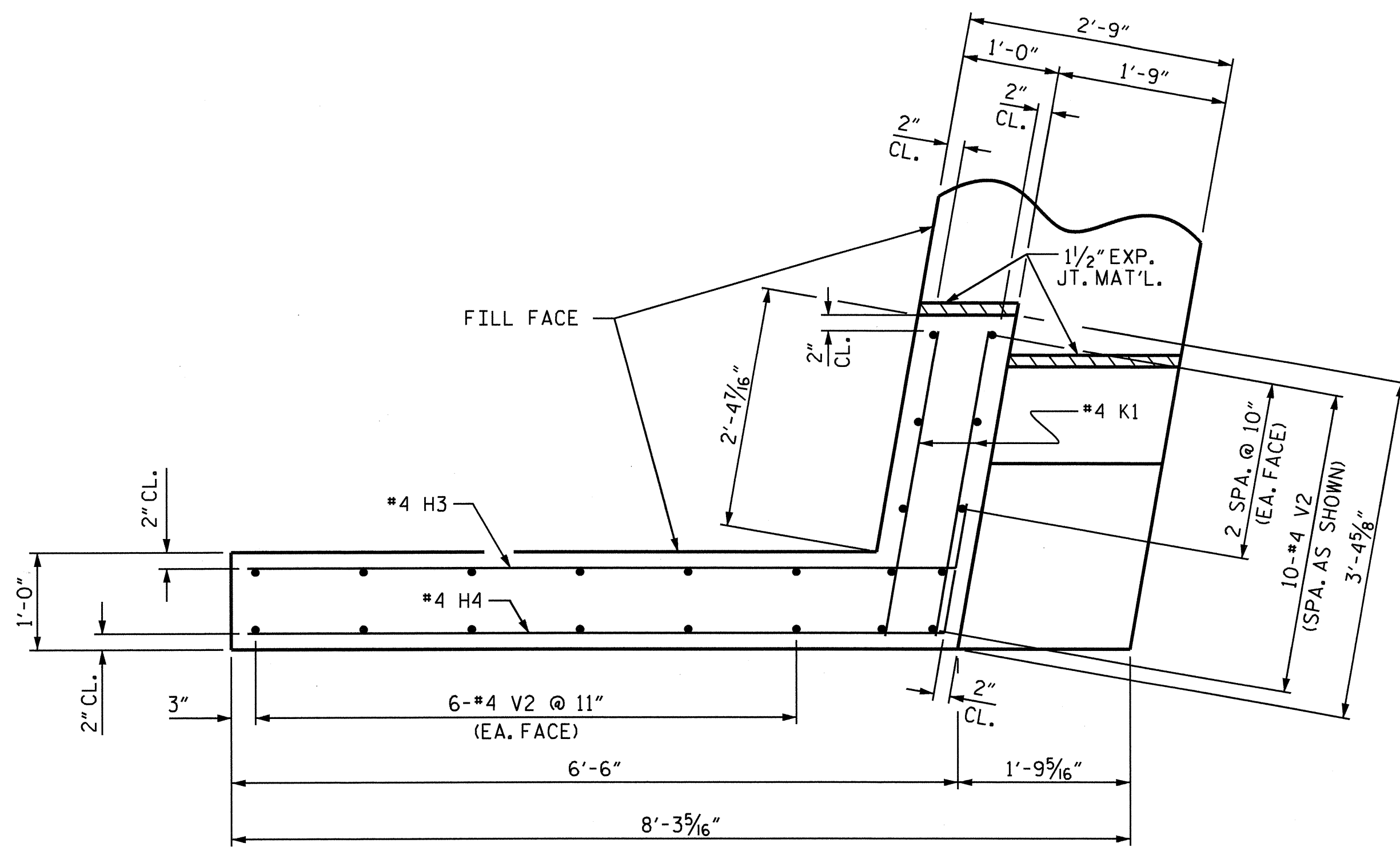
**SUBSTRUCTURE
 END BENT #2**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			28

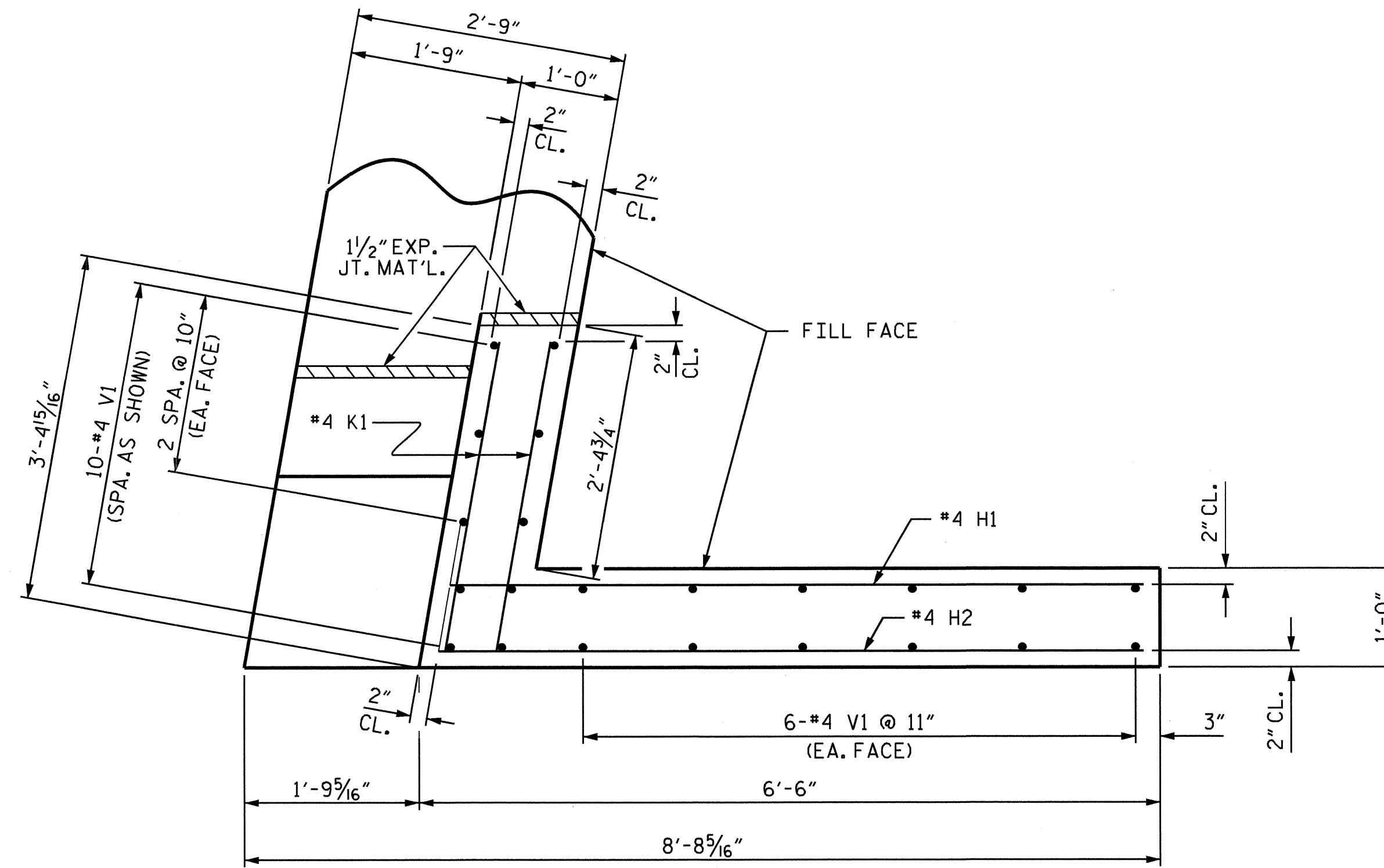


DRAWN BY : H. T. BARBOUR DATE : 9-01-11
 CHECKED BY : E. C. LOCKLEAR DATE : 9-11

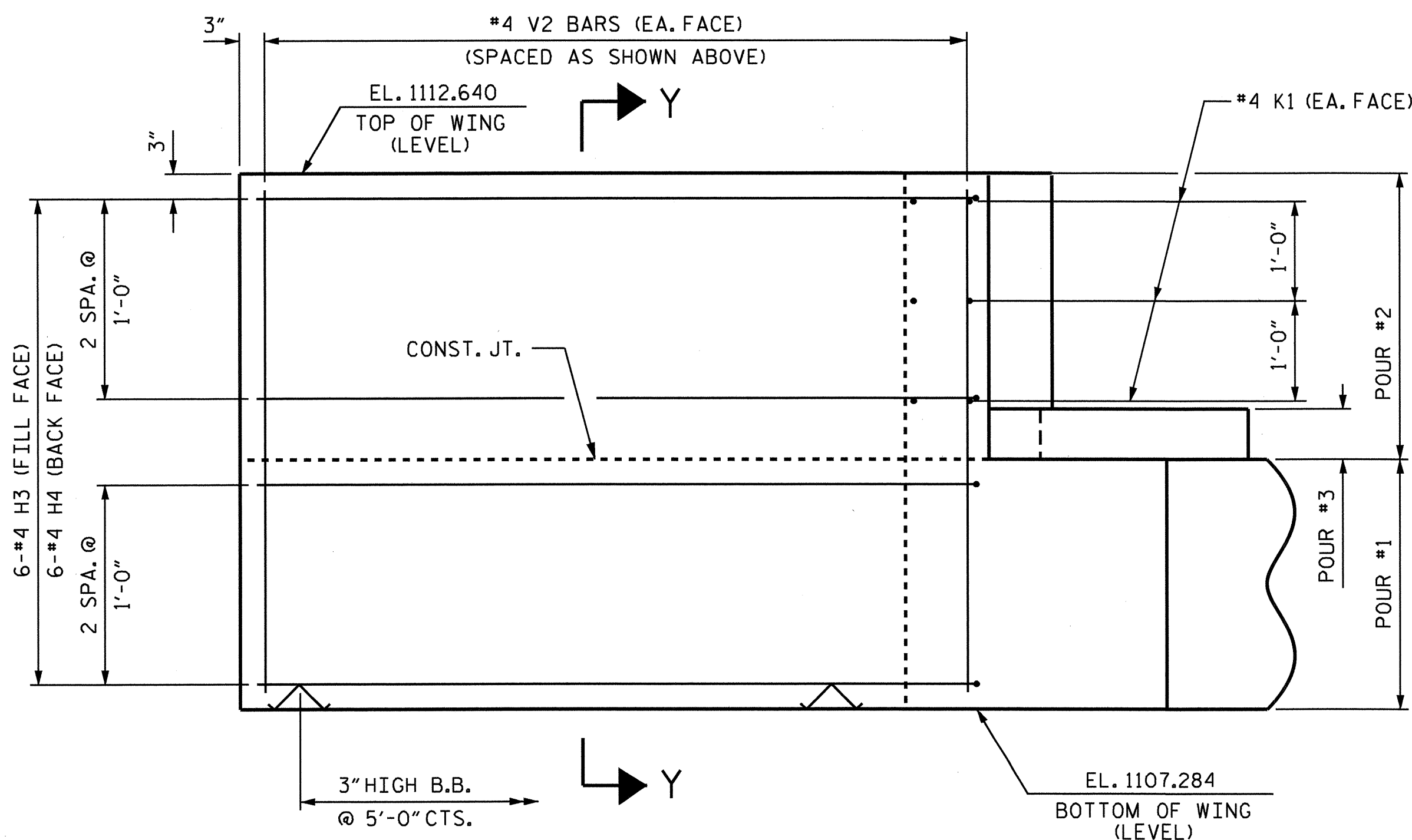
FOR SECTION A-A, SEE SHEET 3 OF 3.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.



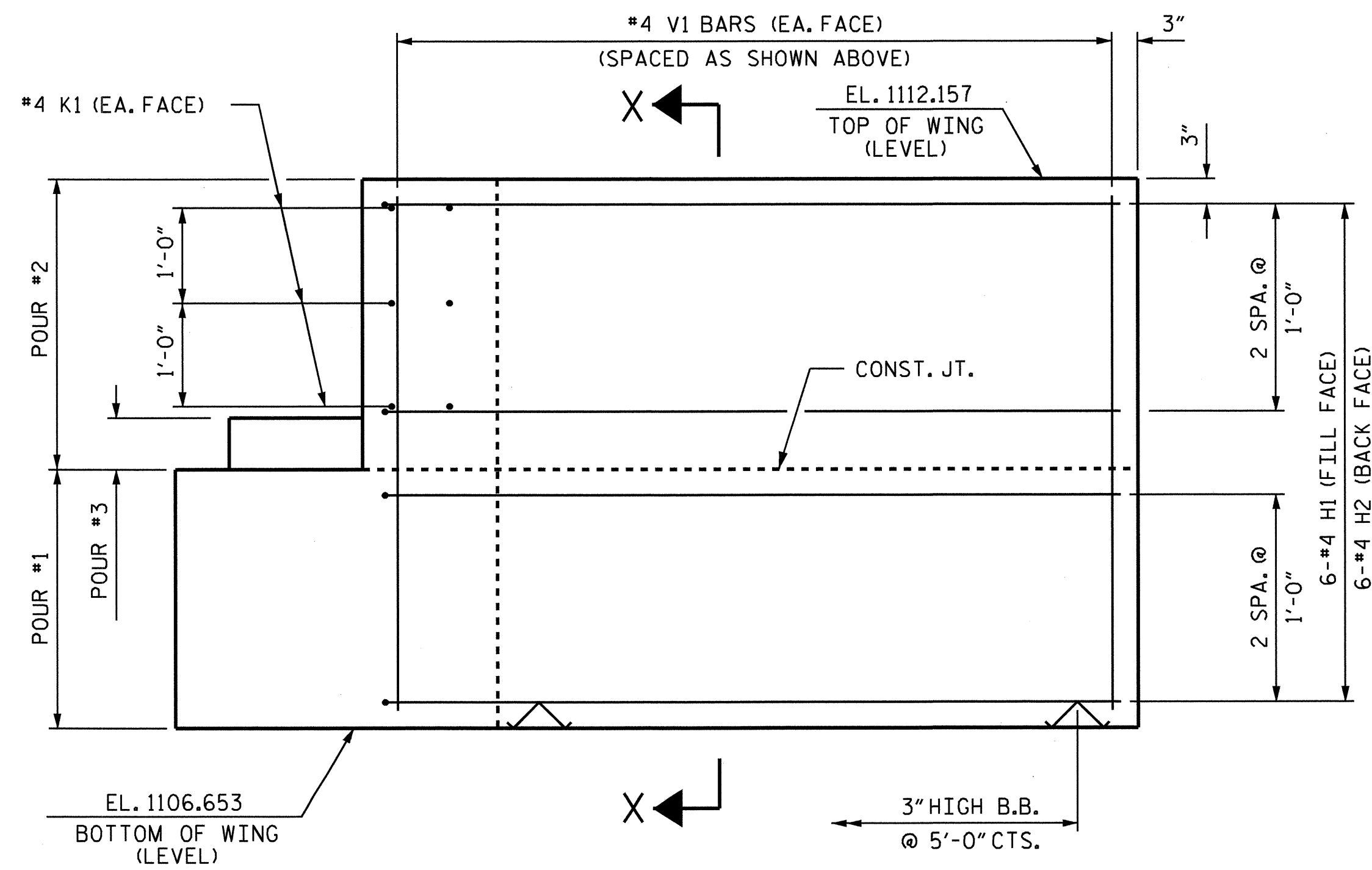
PLAN OF WING (W1)



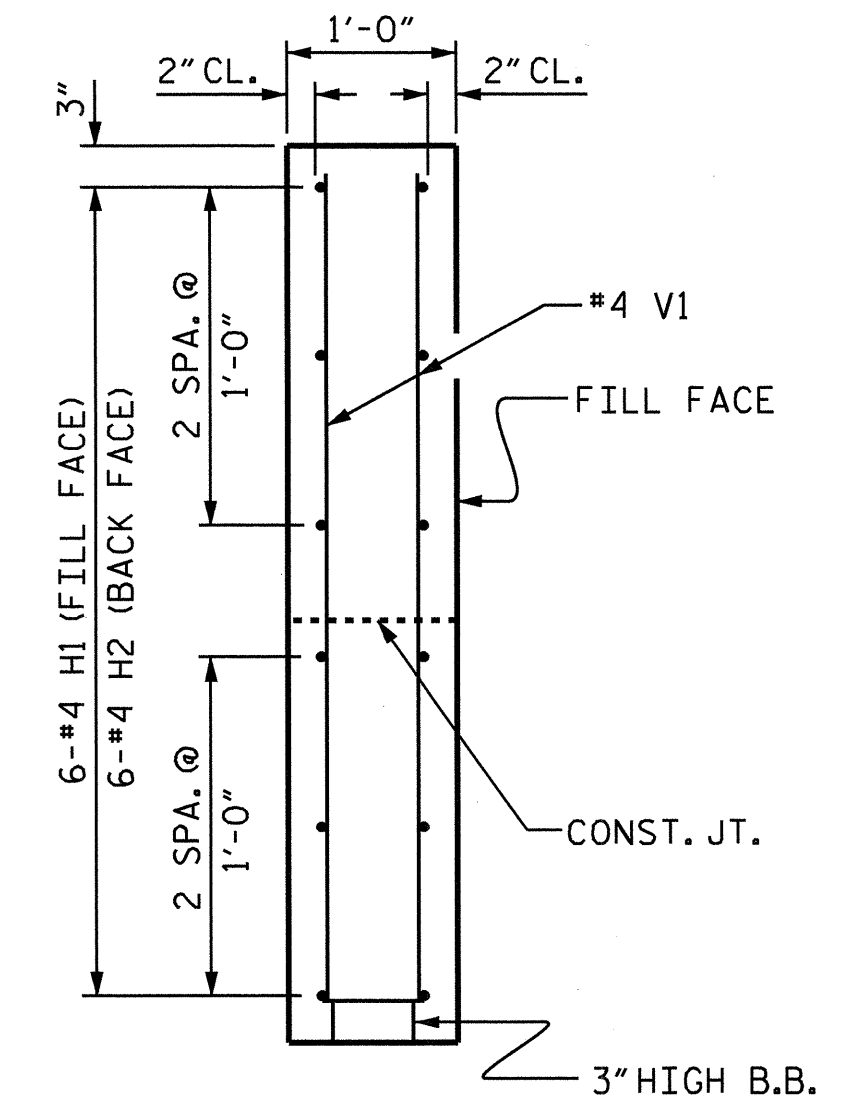
PLAN OF WING (W2)



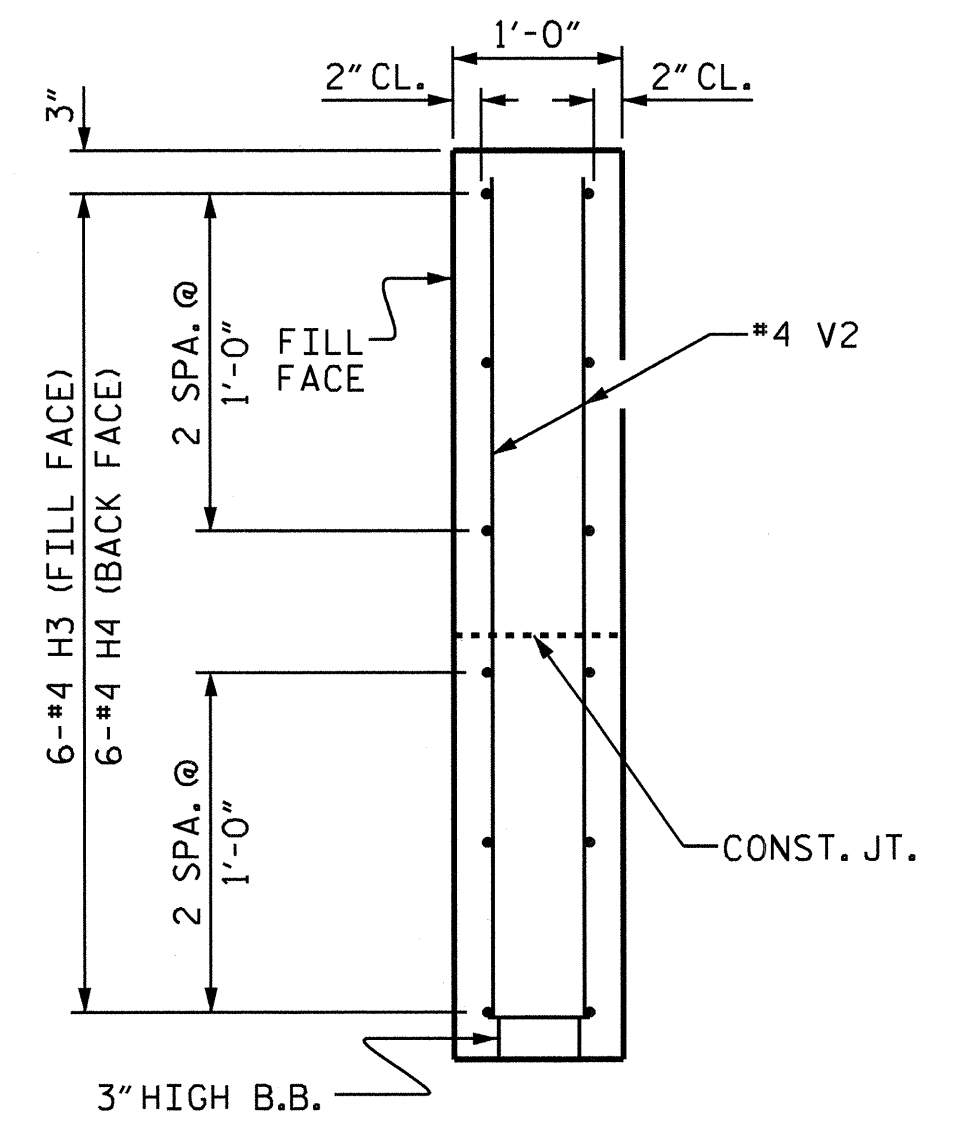
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



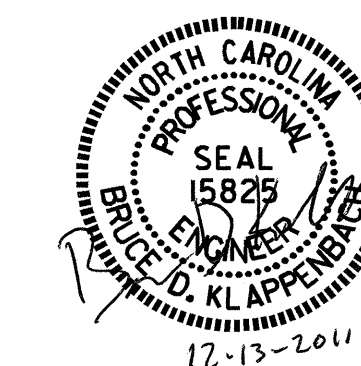
SECTION Y-Y

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2
 WING DETAILS

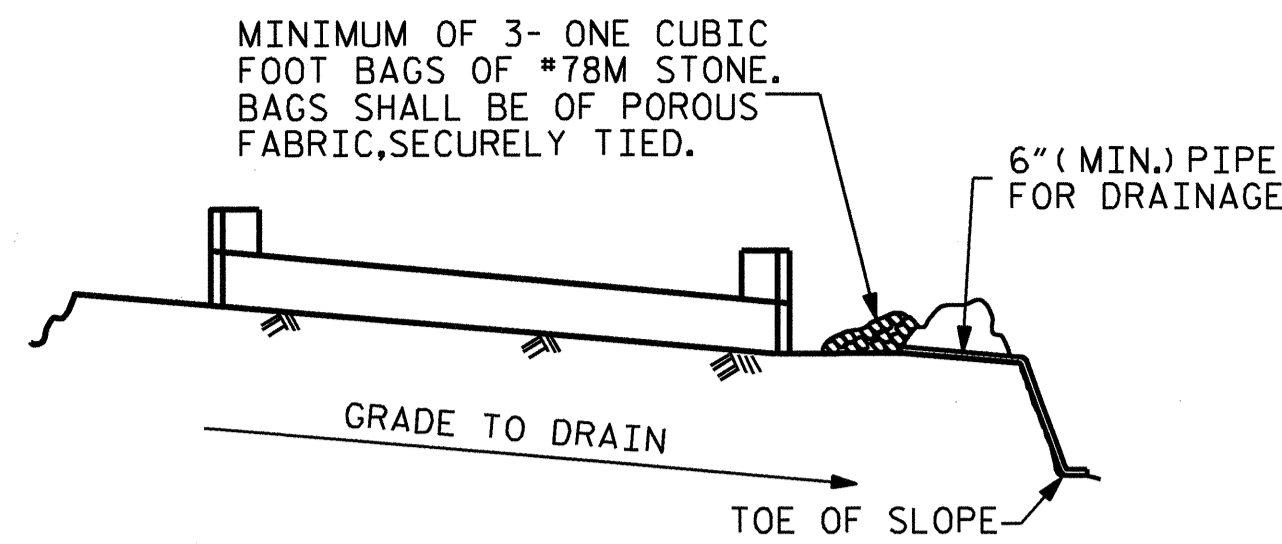


DRAWN BY : H. T. BARBOUR DATE : 9-01-11
 CHECKED BY : E. C. LOCKLEAR DATE : 9-11

13-DEC-2011 15:48
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 bklappenbach

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24	
1			3			TOTAL SHEETS	
2			4			28	

WING DETAILS

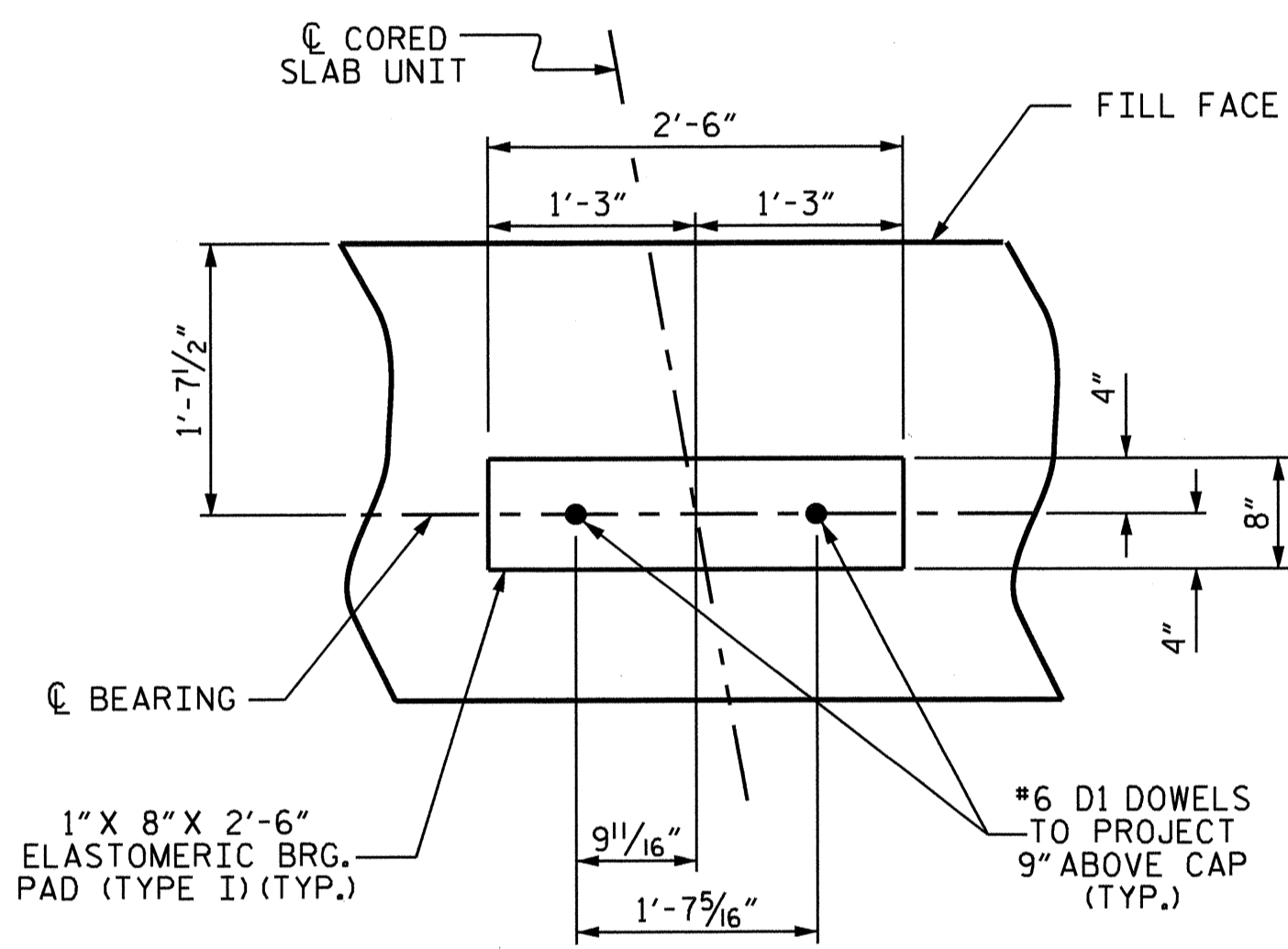


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

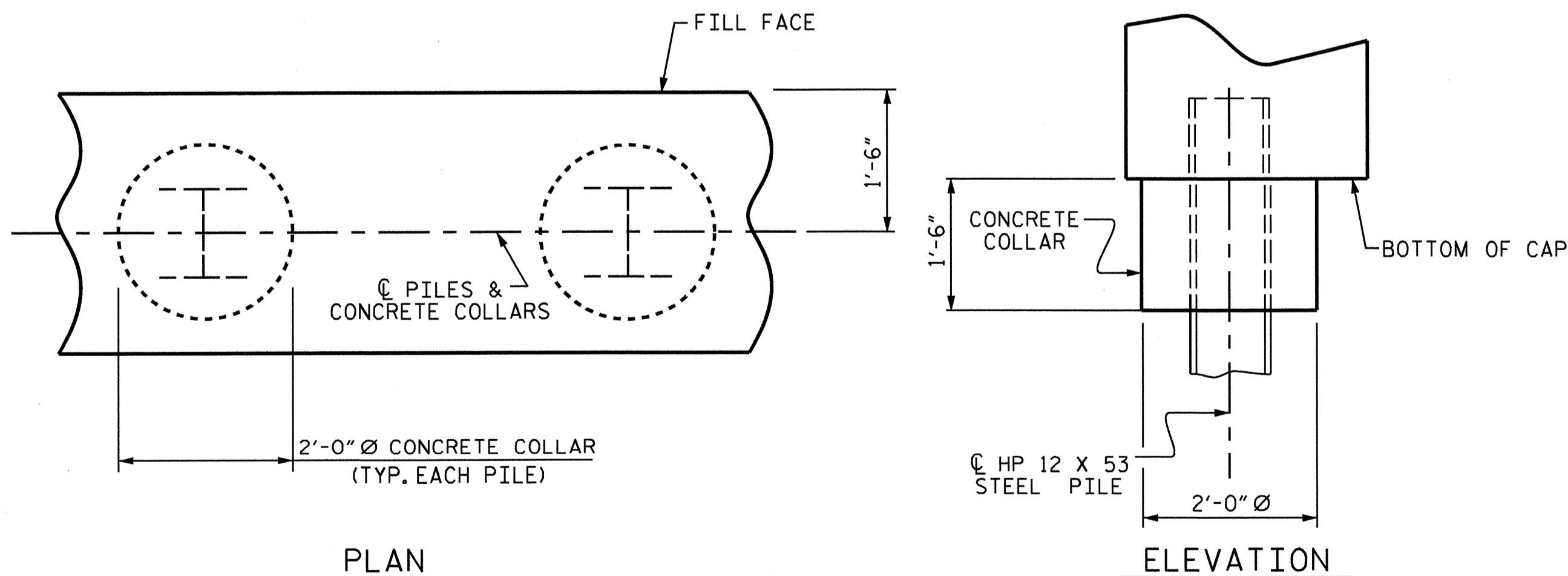
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

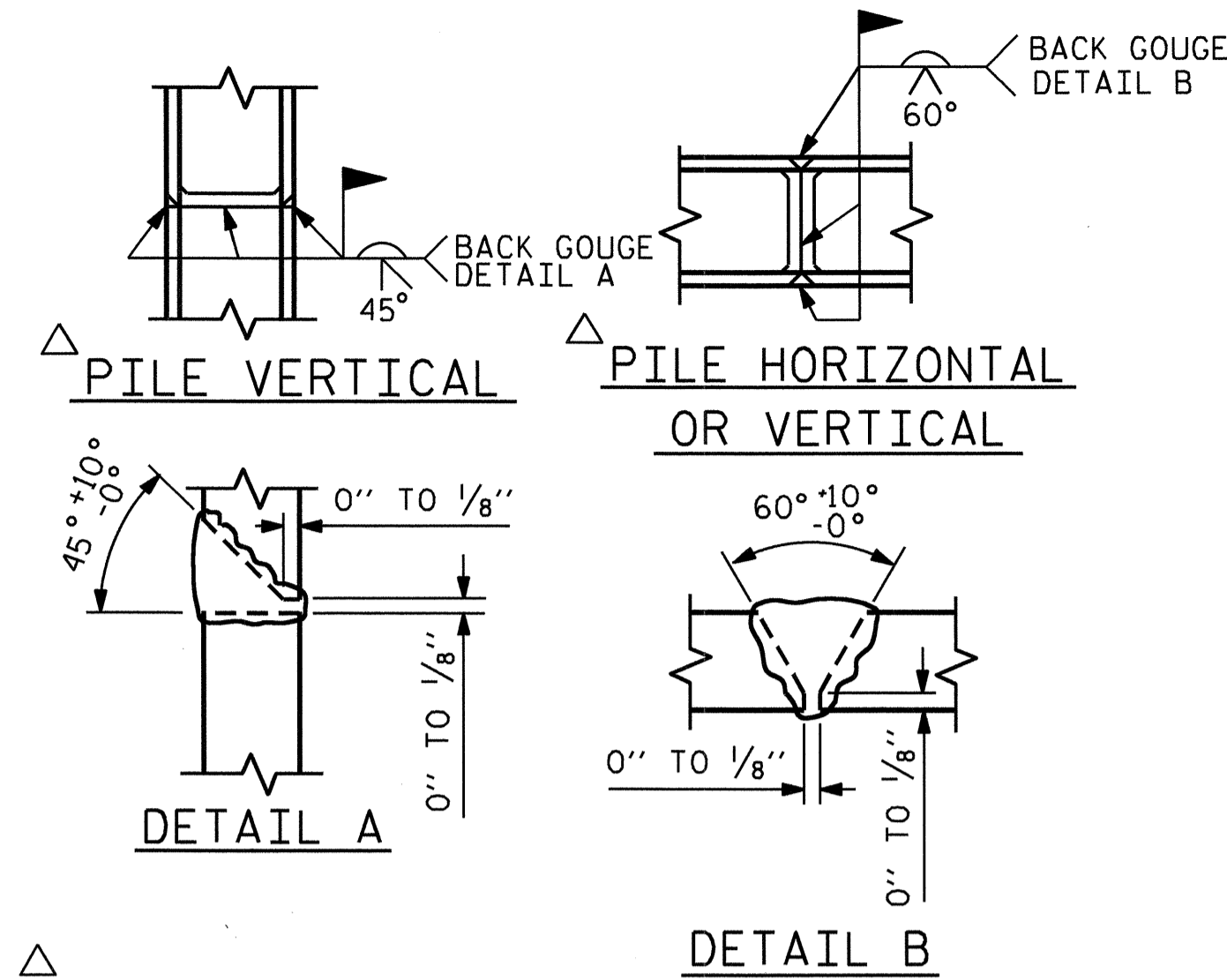


DETAIL "A"

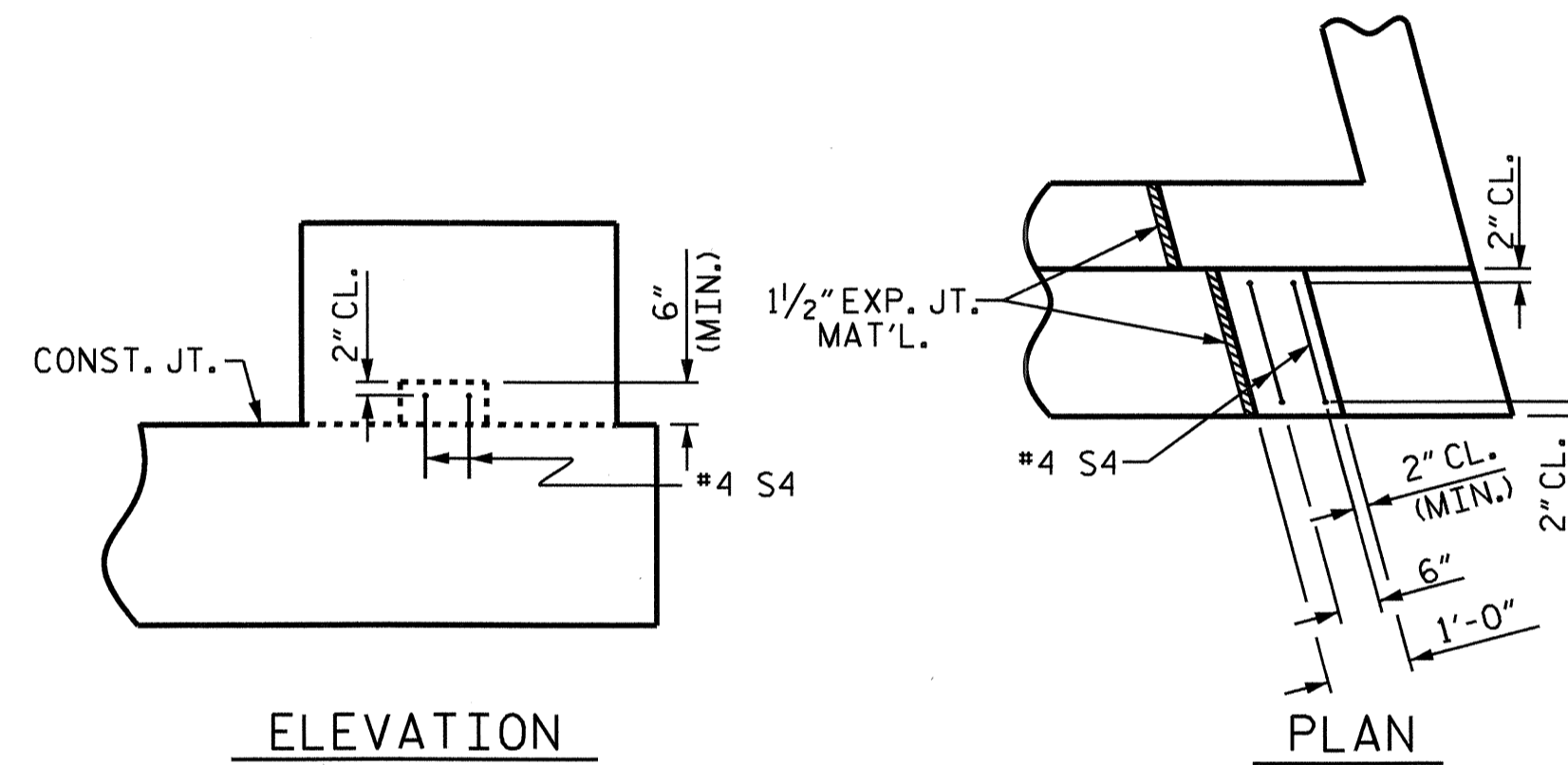
(SEE PLAN VIEW ON SHEET 1 OF 3 FOR LOCATION OF ANCHOR BOLT IN EXTERIOR CORED SLAB UNITS.)



CORROSION PROTECTION FOR STEEL PILES DETAIL



PILE SPLICE DETAILS

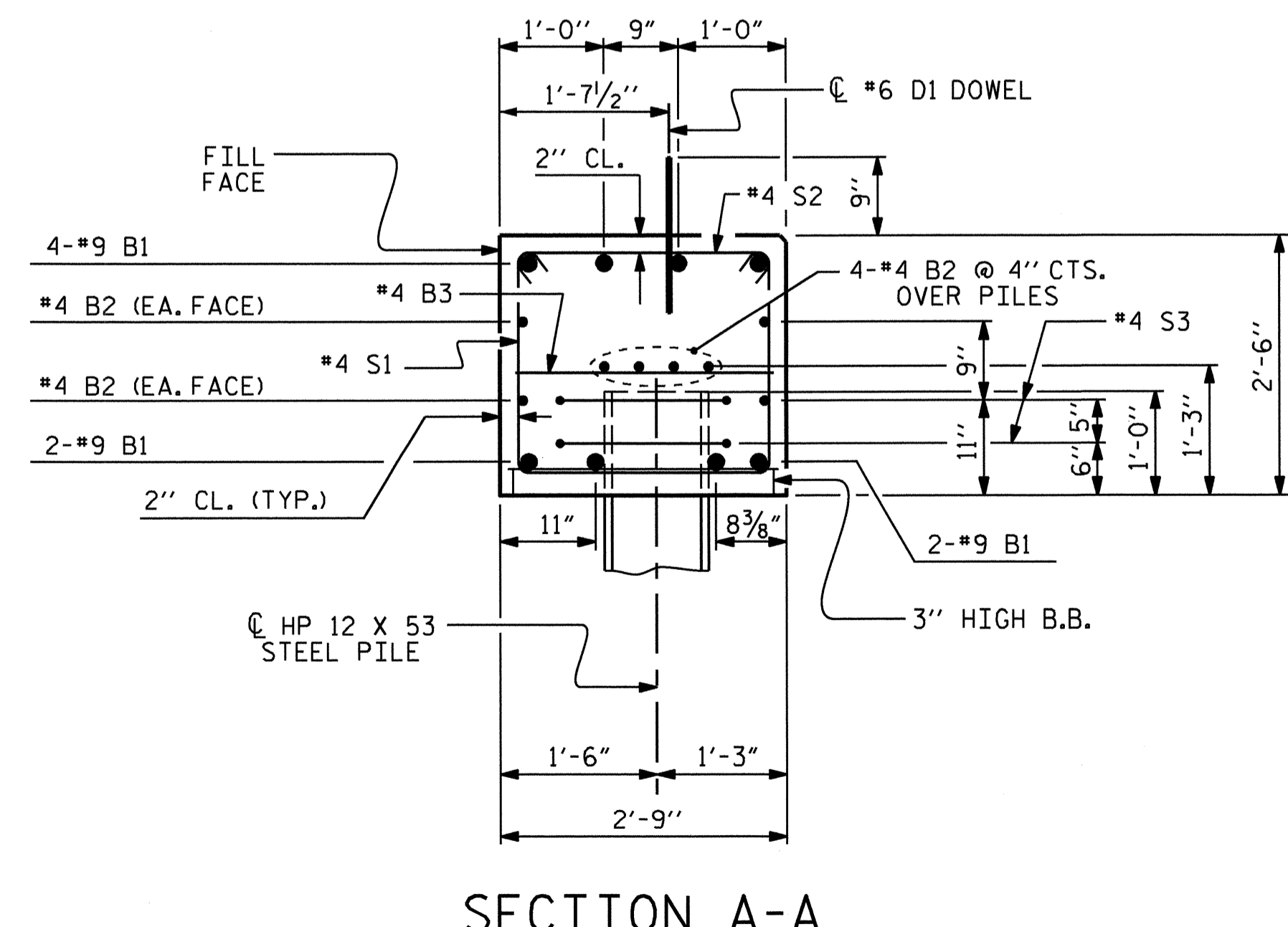


LATERAL GUIDE DETAILS

(RIGHT LATERAL GUIDE SHOWN, LEFT END SIMILAR)

BAR TYPES		BILL OF MATERIAL			
		END BENT #2			
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#9	1	38'-7"	1049	
B2	#4	STR	19'-5"	208	
B3	#4	STR	2'-5"	16	
D1	#6	STR	1'-6"	41	
H1	#4	2	6'-8"	27	
H2	#4	2	6'-9"	27	
H3	#4	3	6'-11"	28	
H4	#4	3	6'-10"	27	
K1	#4	STR	3'-0"	24	
S1	#4	4	7'-5"	159	
S2	#4	5	3'-2"	68	
S3	#4	6	6'-6"	43	
S4	#4	7	4'-5"	12	
V1	#4	STR	5'-2"	76	
V2	#4	STR	5'-0"	73	
REINFORCING STEEL				1878 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				11.2 C.Y.	
POUR #2 UPPER PART OF WINGS				2.2 C.Y.	
POUR #3 LATERAL GUIDES				0.1 C.Y.	
TOTAL CLASS A CONCRETE				13.5 C.Y.	
HP 12 X 53 STEEL PILES					
NO: 5				LIN. FT.: 75.0	

ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

PROJECT NO. B-3819
 CALDWELL COUNTY
 STATION: 13+29.00-L-
 SHEET 3 OF 3

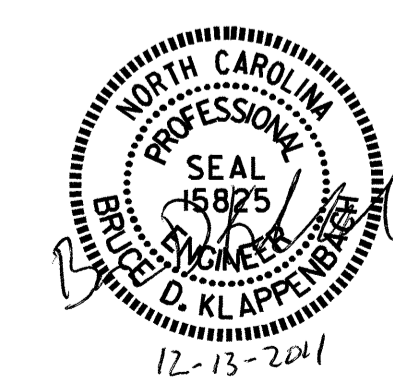
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

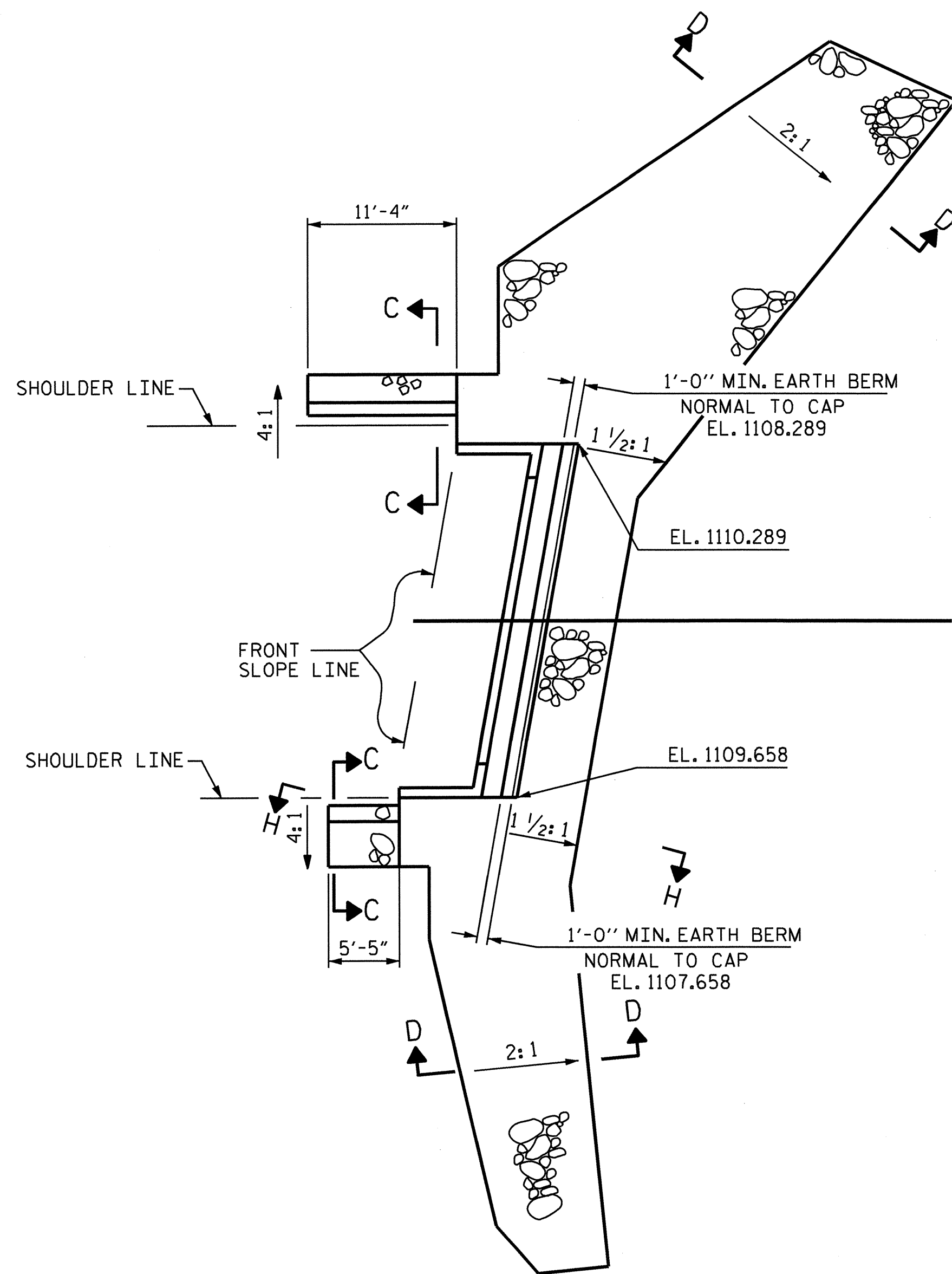
SUBSTRUCTURE
 END BENT #2
 DETAILS

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

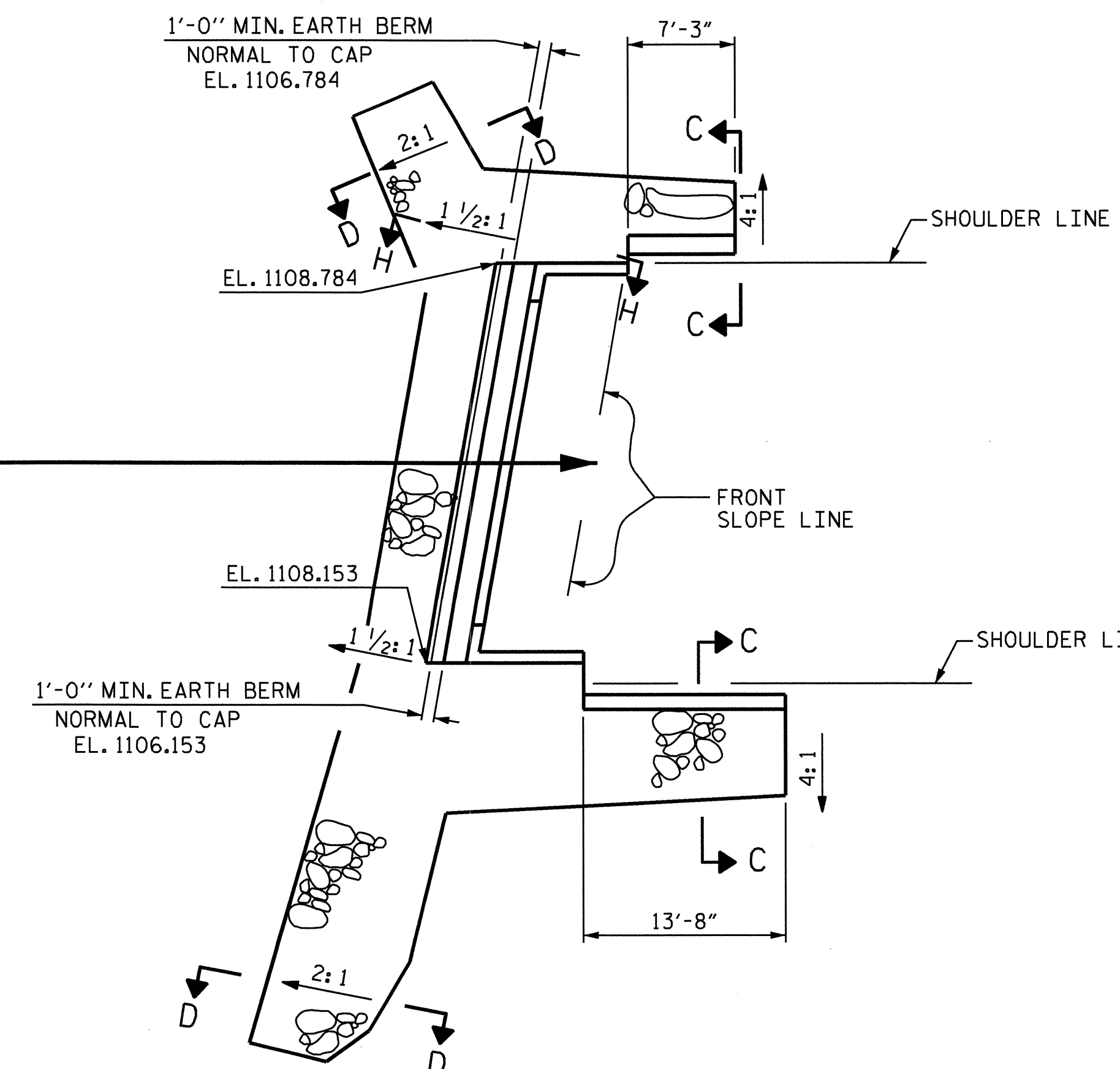
TOTAL SHEETS 28

DRAWN BY: H. T. BARBOUR DATE: 9-01-11
 CHECKED BY: E. C. LOCKLEAR DATE: 9-11



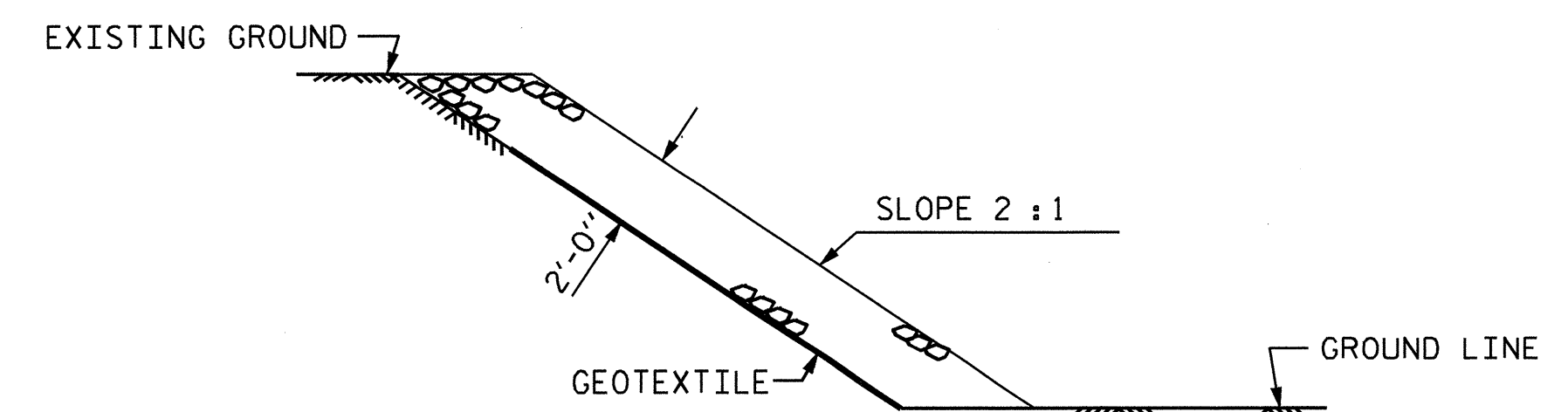


END BENT #1

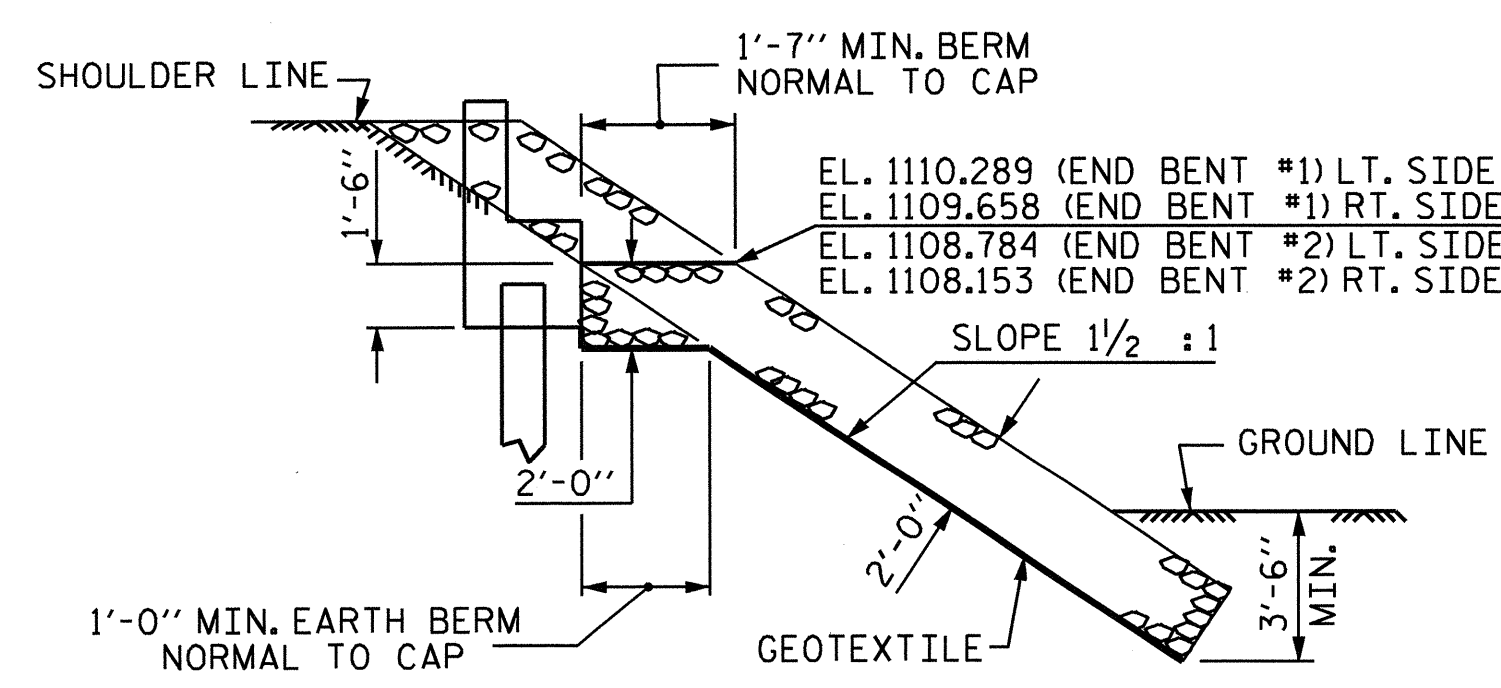


END BENT #2

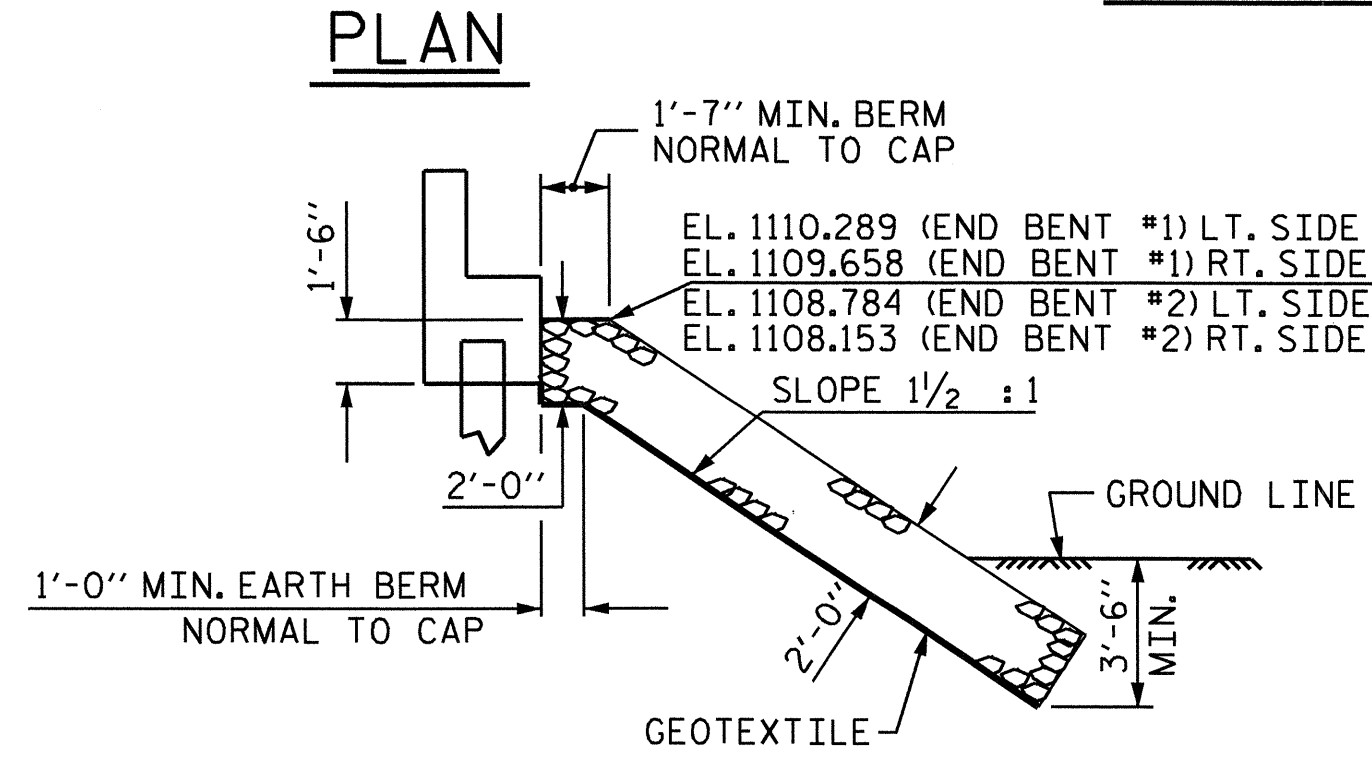
ESTIMATED QUANTITIES		
BRIDGE @ STA.13+29.00-L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	230	255
END BENT 2	140	155
TOTAL	370	410



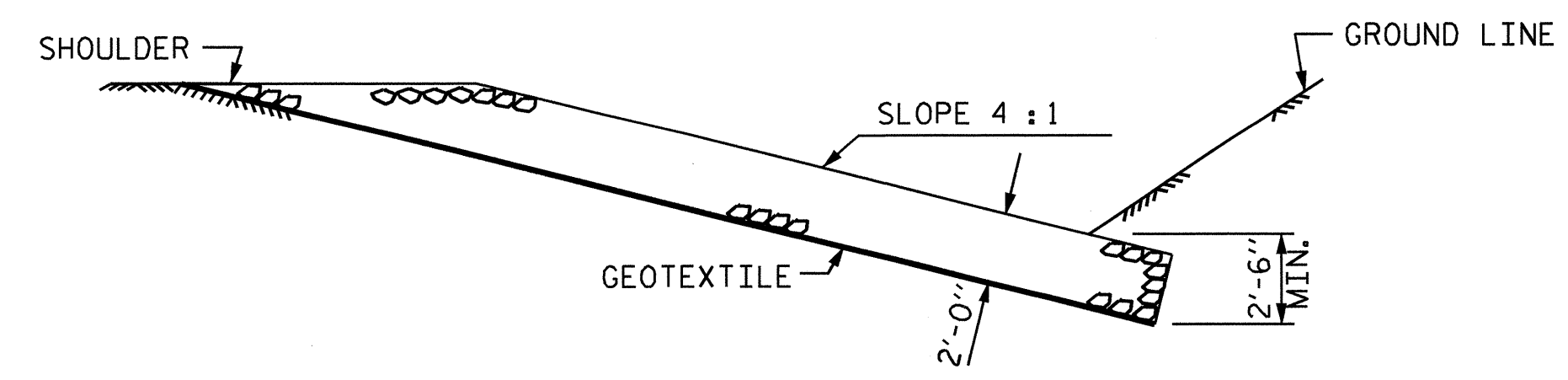
SECTION D-D



SECTION H-H



SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-3819
 CALDWELL COUNTY
 STATION: 13+29.00-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

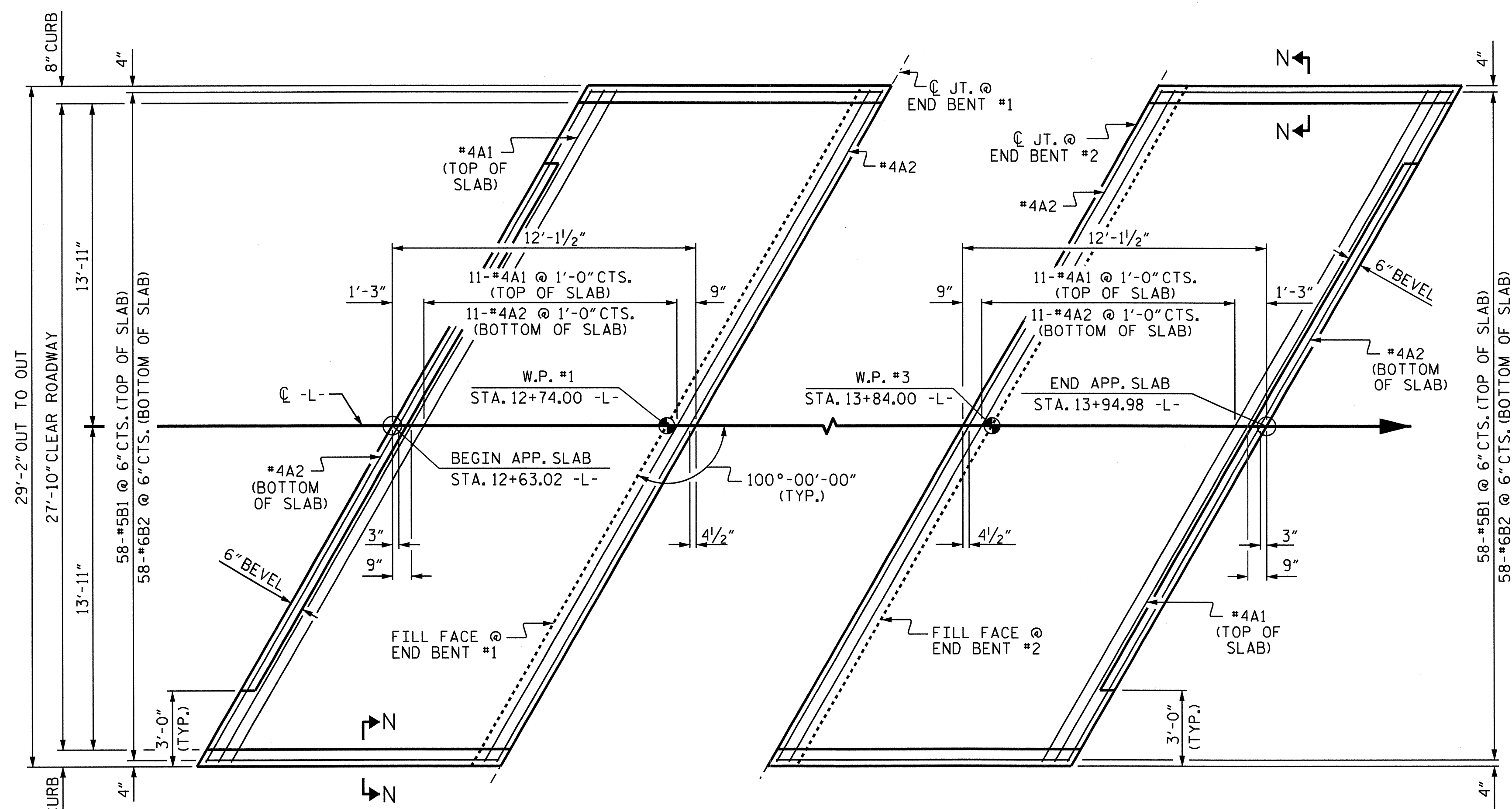
— RIP RAP DETAILS —



ASSEMBLED BY : H. T. BARBOUR DATE : 7-22-10
 CHECKED BY : C. R. YARBROUGH DATE : 3-11
 DRAWN BY : REK 1/84 REV. 8/16/99 RWW/LES
 CHECKED BY : RDU 1/84 REV. 10/17/00 RWW/LES
 REV. 5/1/06R TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS 28
2			4			

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 barbour



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

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

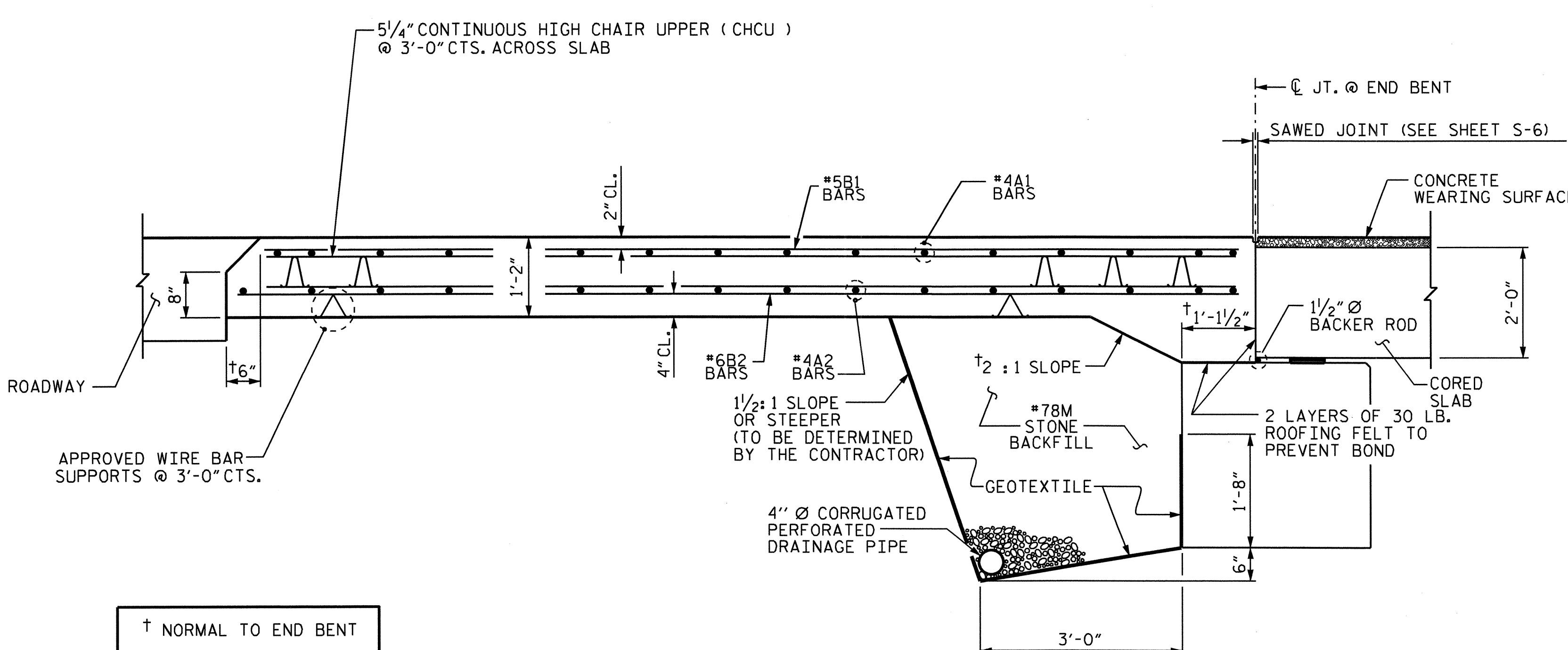
BILL OF MATERIAL

APPROACH SLAB AT EB #1

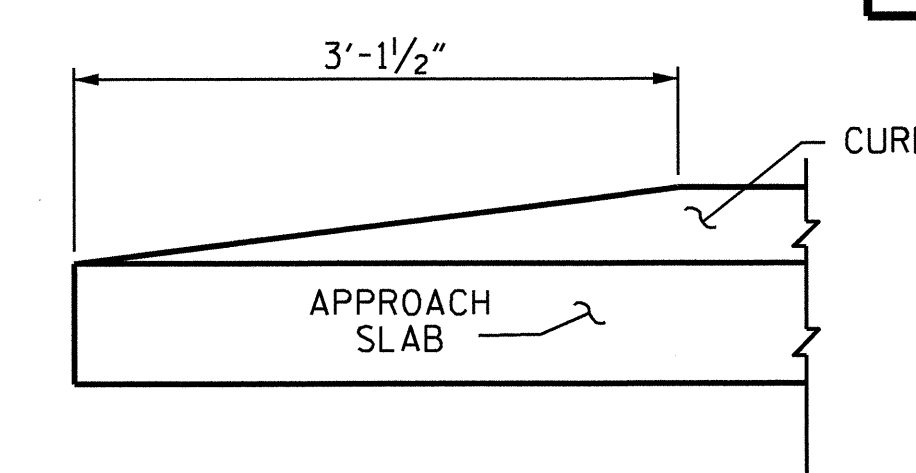
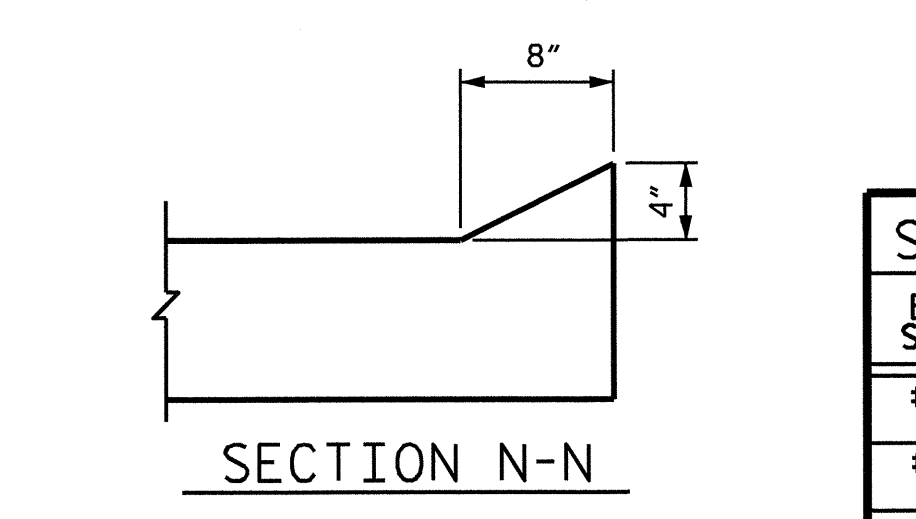
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	12	#4	STR	29'-3"	234
A2	13	#4	STR	29'-3"	254
*B1	58	#5	STR	10'-8"	645
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1270
*EPOXY COATED REINFORCING STEEL				LBS.	879
CLASS AA CONCRETE				C. Y.	19.4

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	12	#4	STR	29'-3"	234
A2	13	#4	STR	29'-3"	254
*B1	58	#5	STR	10'-8"	645
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1270
*EPOXY COATED REINFORCING STEEL				LBS.	879
CLASS AA CONCRETE				C. Y.	19.4



SECTION THRU SLAB



SPLICE LENGTHS

BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

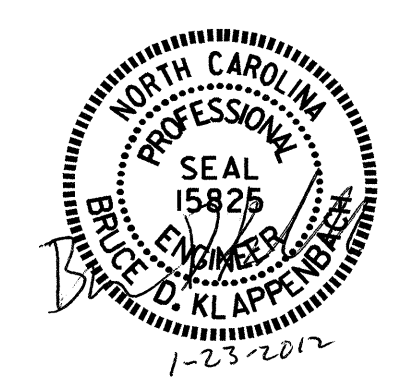
PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)

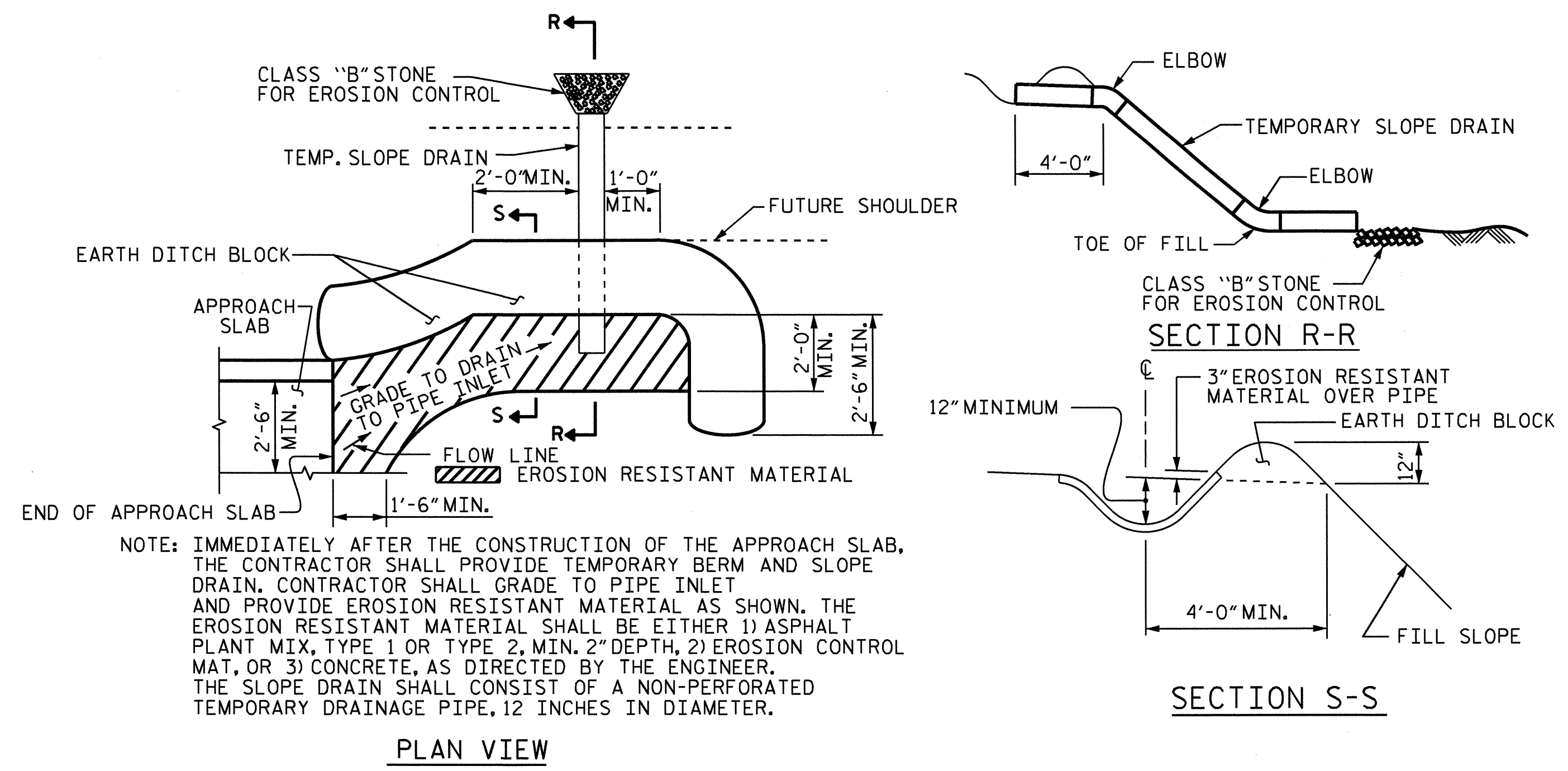
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SHEET NO. S-27
 TOTAL SHEETS 28



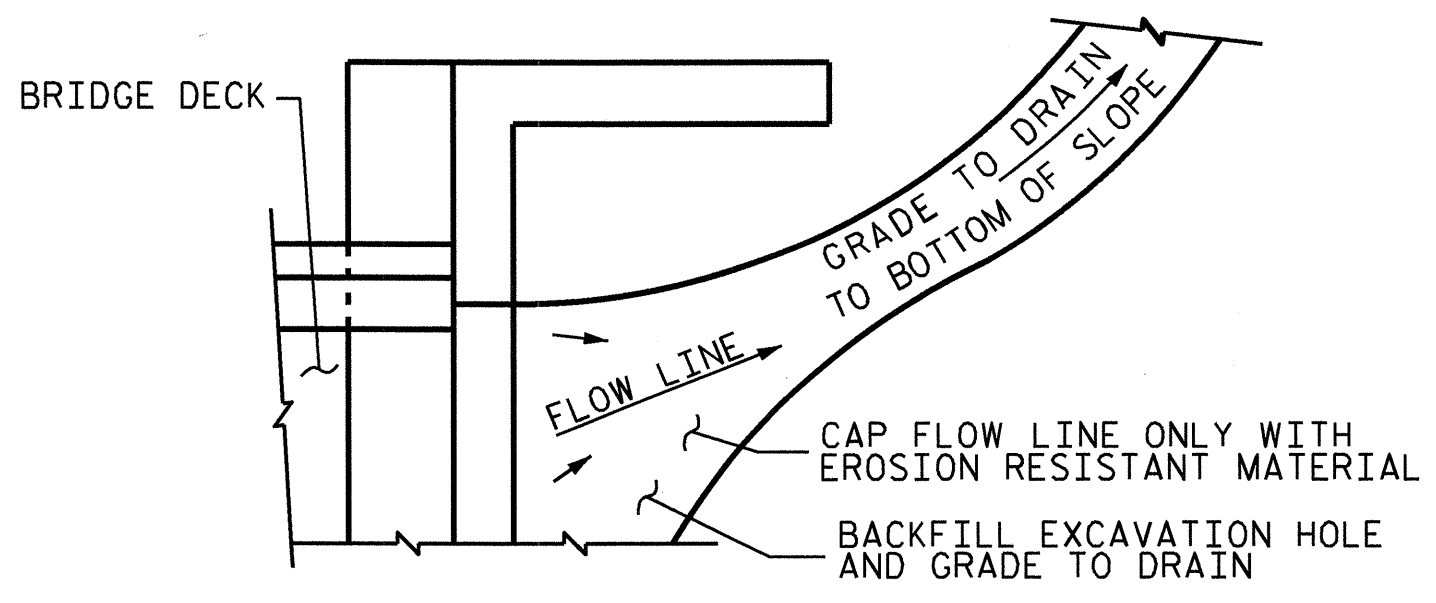
ASSEMBLED BY : H. T. BARBOUR DATE : 11-28-11
 CHECKED BY : B. D. KLAPPENBACH DATE : 11-11
 DRAWN BY : KMM 3-08 REV. 9/27/11 MAA/GM
 CHECKED BY : GM 3-08 REV. 10/1/11 MAA/GM



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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



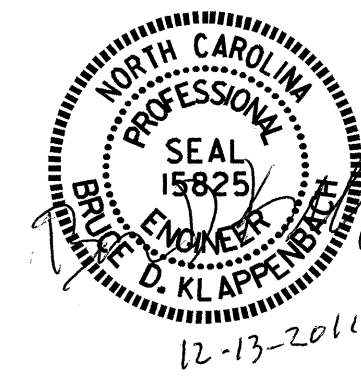
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-3819
CALDWELL COUNTY
 STATION: 13+29.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-28
STANDARD BRIDGE APPROACH SLAB DETAILS						
REVISIONS						TOTAL SHEETS 28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY : H. T. BARBOUR	DATE : 11-28-11
CHECKED BY : B. D. KLAPPENBACH	DATE : 11-11
DRAWN BY : FCJ	11/88
CHECKED BY : ARB	11/88
REV. 5/7/03	RWW/JTE
REV. 5/1/06RRR	MAA/KMM
REV. 10/1/11	MAA/GM

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN