

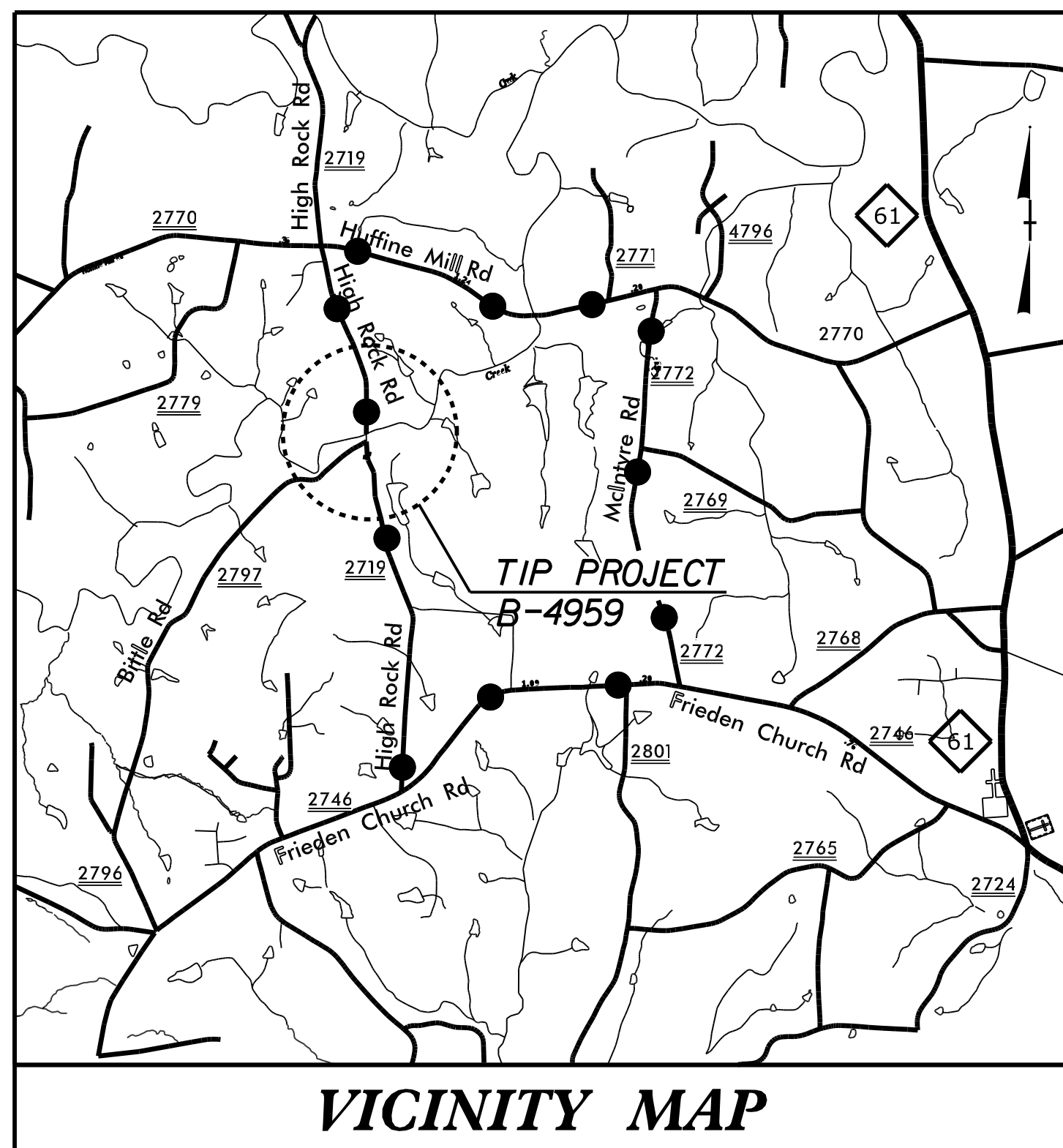
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CONTRACT: C203625 TIP PROJECT: B-4959

STRUCTURE



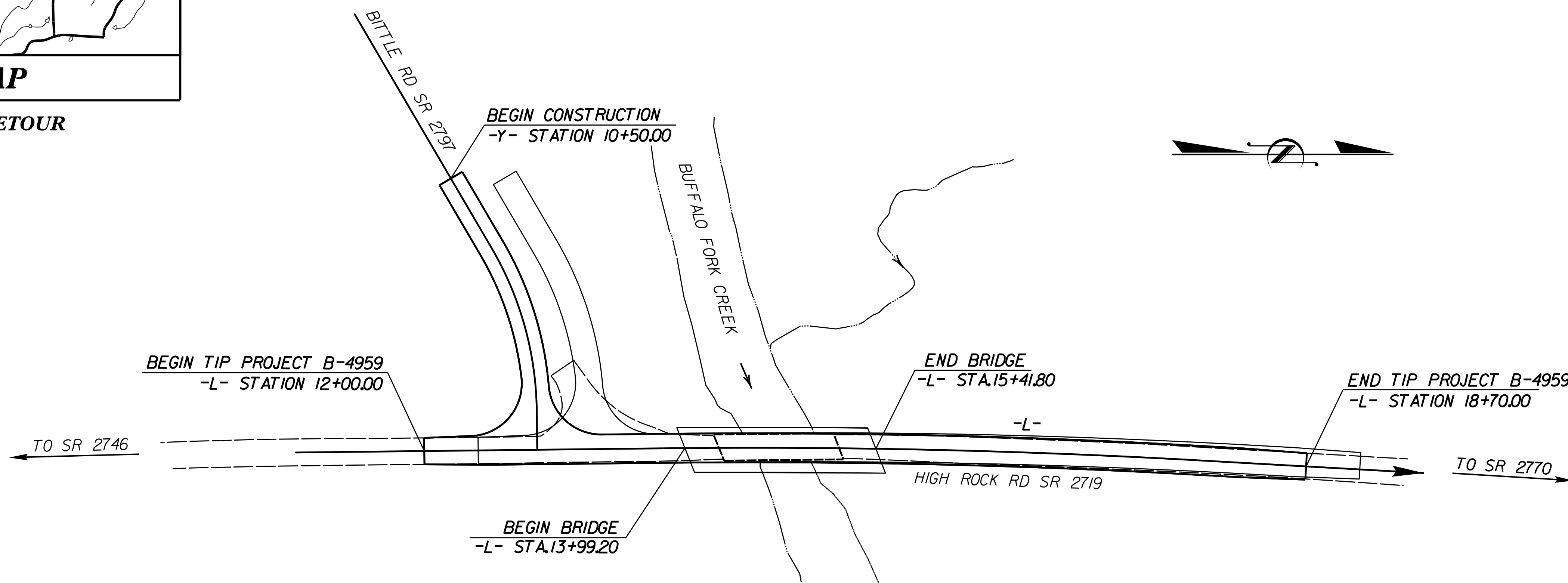
VICINITY MAP

●●●●● OFFSITE DETOUR

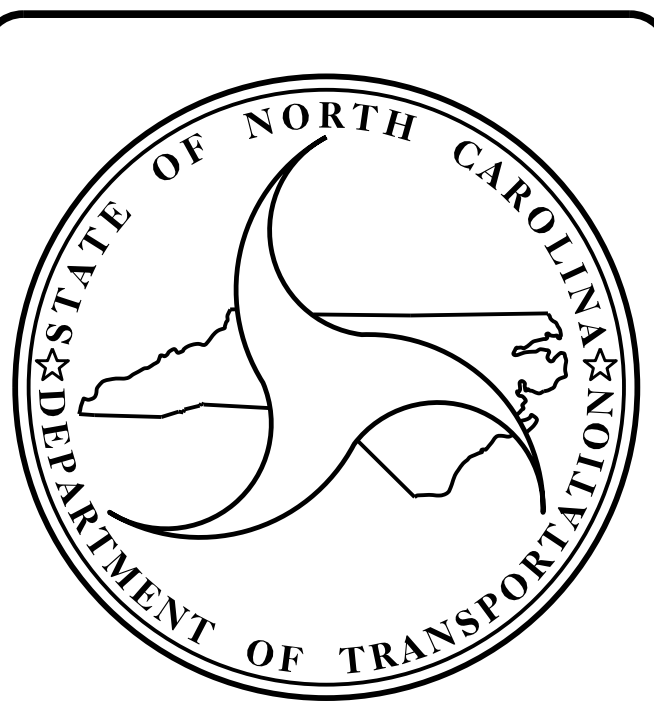
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
GUILFORD COUNTY

LOCATION: BRIDGE NO. 193 OVER BUFFALO FORK CREEK ON SR 2719 (HIGH ROCK ROAD)

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4959		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
40151.1.1	BRZ-2719 (1)	PE	
40151.2.1	BRZ-2719 (1)	UTIL. & RW	
40151.3.2	BRZ-2719 (1)	CONST.	



DESIGN DATA

ADT 2015	=	770 VPD
ADT 2040	=	2900 VPD
DHV	=	11 %
D	=	55 %
T	=	14 % *
V	=	55 MPH
* TTST 1% DUAL 13%		
FUNC. CLASS =		
SUB-REGIONAL TIER		

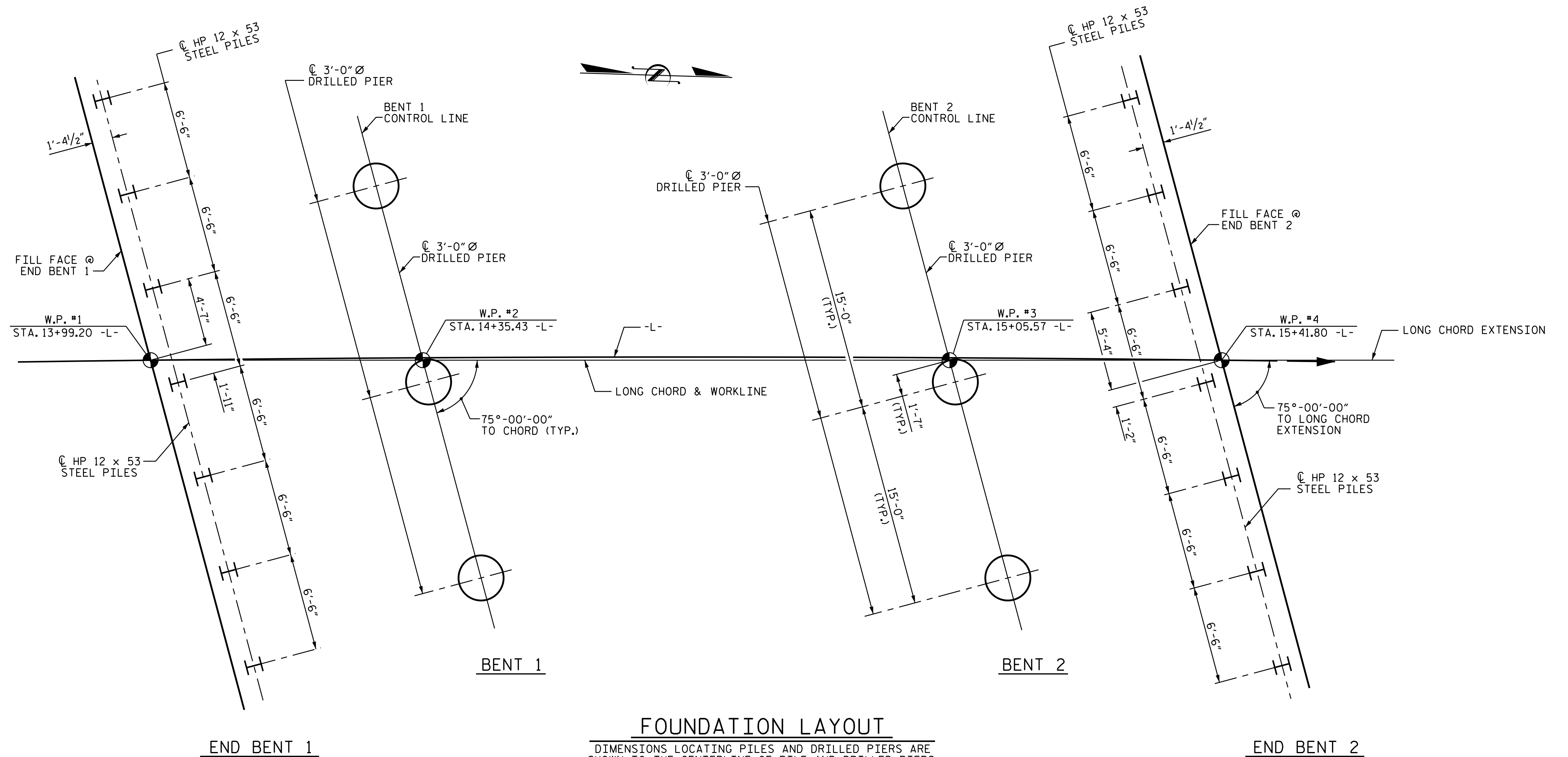
PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4959	=	0.100 MI
LENGTH STRUCTURE TIP PROJECT B-4959	=	0.027 MI
TOTAL LENGTH TIP PROJECT B-4959	=	0.127 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

<p>LETTING DATE : OCT. 20, 2015</p>	<p>J. M. BAILEY, P.E. PROJECT ENGINEER</p> <hr/> <p>T. H. FANG, P.E. PROJECT DESIGN ENGINEER</p>
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FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE SHOWN TO THE CENTERLINE OF PILE AND DRILLED PIERS.

NOTES:

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 60 TONS PER PILE.
- PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT 1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 625.94 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- CONCRETE IS REQUIRED TO FILL THE HOLES FOR PILE EXCAVATION AT END BENT 1
- DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.
- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- DRILLED PIERS AT BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 395 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 130 TSF.
- INSTALL DRILLED PIERS AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 615.5 FT. AND WITH THE REQUIRED TIP RESISTANCE.
- INSTALL DRILLED PIERS AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 610.0 FT. AND WITH THE REQUIRED TIP RESISTANCE.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENTS 1 AND 2. IF REQUIRED, DO NOT EXTEND CASING BELOW ELEVATION 624.5 FT. FOR BENT 1, ELEVATION 618.6 FT. FOR BENT 2 WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 624.1 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS ELEVATION 616.6 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

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

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.

PILE DRIVING MAY BE REQUIRED AT END BENT 1. IF REQUIRED, DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE. THE ENGINEER WILL DETERMINE THE NEED FOR PILE DRIVING.

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 2 OF 3



DocuSigned by: *T. H. Fang* 9/3/2015
 ET208840097435

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER BUFFALO
 FORK CREEK ON SR 2719
 BETWEEN SR 2770 AND SR 2797

DRAWN BY : C. YOKELEY DATE : 3/4/14
 CHECKED BY : T. H. FANG DATE : 6/15/15

REVISIONS						SHEET NO. S-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

TOTAL BILL OF MATERIAL

	CONST. MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	3'-0" Ø DRILLED PIERS IN SOIL	3'-0" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	SID INSPECTIONS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	42" OREGON RAIL	1'-9" X 10 1/2" CONCRETE CURB			
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	EA.	TON	SQ. YD.	LUMP SUM	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	LIN. FT.
SUPERSTRUCTURE																					24	840	12	840	264.6	279.6
END BENT 1			51	19							23.7		2,900		7	90		77	85							
BENT 1					16.5	26	18.5				19.0		9,118	1,145												
BENT 2					22.5	30	29.2				20.1		9,969	1,411												
END BENT 2											23.7		2,900		7	140	7	212	235							
TOTAL	LUMP SUM	LUMP SUM	51	19	39	56	47.7	2	2	LUMP SUM	86.5	LUMP SUM	24,887	2,556	14	230	7	289	320	LUMP SUM	24	840	12	840	264.6	279.6

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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.

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 14+70.50 -L-".

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS: 1 @ 26'-6", 1 @ 39'-8", 1 @ 26'-3" WITH A CLEAR ROADWAY WIDTH OF 19'-0" WITH 3" AWS AND TIMBER DECK ON I-BEAMS SHALL BE REMOVED. SUBSTRUCTURE, ABUTMENTS AND INTERIOR BENTS ALL CONSISTING OF MASS CONCRETE AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED IN ACCORDANCE WITH ARTICLE 402-2 OF STANDARD SPECIFICATION. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

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

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.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 33 FT. LEFT SIDE AND 45 FT. RIGHT SIDE OF CENTERLINE ROADWAY AT END BENT 1 AND 40 FT. EACH SIDE OF CENTERLINE ROADWAY AT END BENT 2 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 SPECIFICATION.

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 14+70.50 -L-

FOR 42" OREGON RAIL, SEE SPECIAL PROVISIONS.

FOR 1'-9" X 10 1/2" CONCRETE CURB, SEE THE OREGON RAIL SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

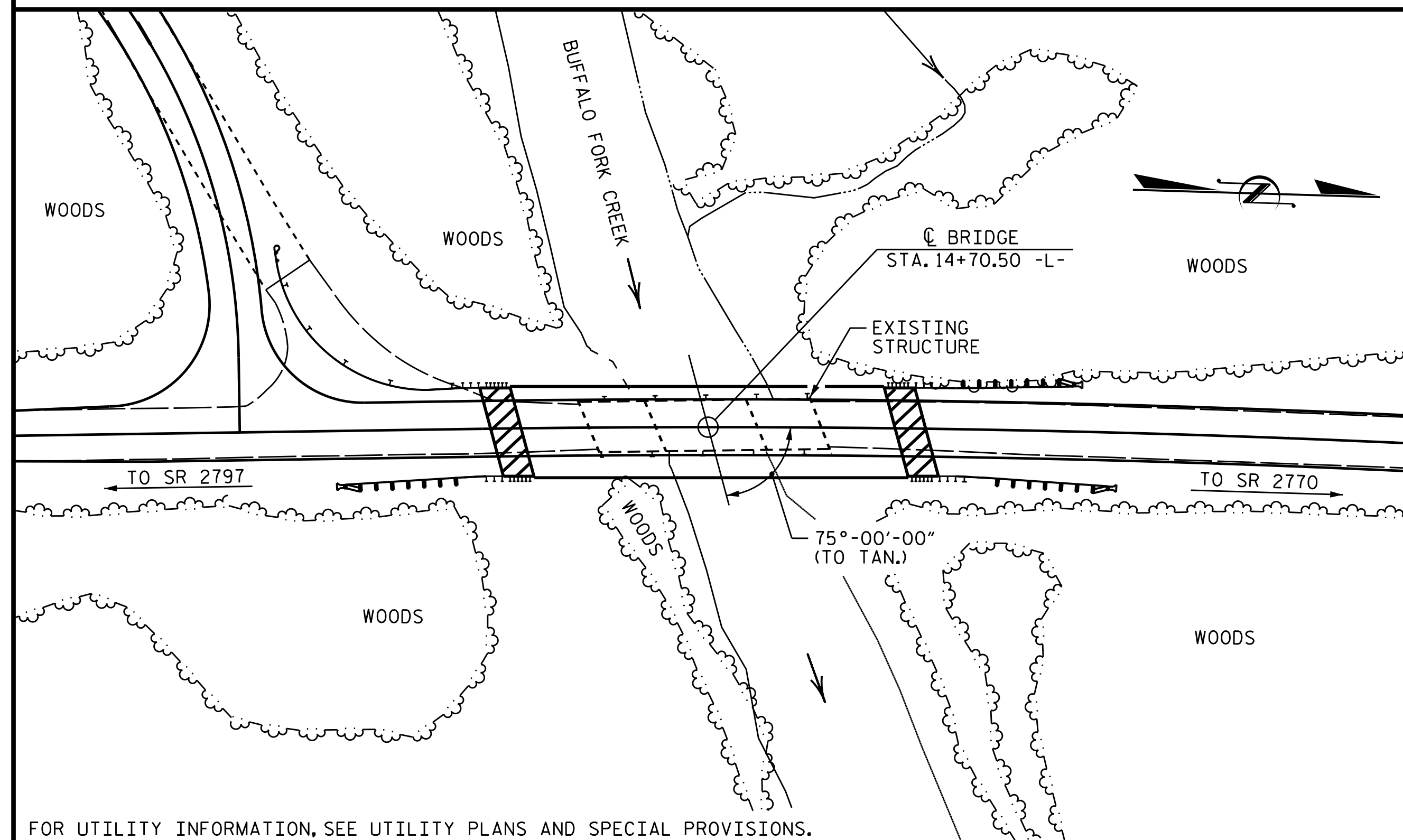
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

BM #2: RR SPIKE IN 20" SWEET GUM, -L- STA. 14+64.16, 102.63' LEFT, ELEV. 637.90'



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 6450 CFS
FREQUENCY OF DESIGN FLOOD	= 2 YR.
DESIGN HIGH WATER ELEVATION	= 641.7
DRAINAGE AREA	= 97.4 SQ.MI.
BASE DISCHARGE (Q100)	= 18,089 CFS
BASE HIGH WATER ELEVATION	= 649.16

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	> 6,490 CFS
FREQUENCY OF OVERTOPPING FLOOD	> 2 YR.
OVERTOPPING FLOOD ELEVATION	> 641.8

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 3 OF 3



DocuSigned by: *T.H. Fang* 9/3/2015
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

BRIDGE OVER BUFFALO
 FORK CREEK ON SR 2719
 BETWEEN SR 2770 AND SR 2797

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : C. YOKELEY DATE : 3/4/14
 CHECKED BY : T. H. FANG DATE : 6/15/15

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE CORED SLAB UNITS

LOAD FACTORS:

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.060	--	1.75	0.275	1.38	35'	EL	16.982	0.623	1.20	35'	EL	1.698	0.80	0.275	1.06	35'	EL	16.982		
	HL-93(0pr)	N/A	--	1.549	--	1.35	0.275	1.79	35'	EL	16.982	0.623	1.55	35'	EL	1.698	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.377	49.573	1.75	0.275	1.82	35'	EL	13.586	0.623	1.38	35'	EL	1.698	0.80	0.275	1.41	35'	EL	16.982		
	HS-20(0pr)	36.000	--	1.785	64.262	1.35	0.275	2.36	35'	EL	13.586	0.623	1.79	35'	EL	1.698	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.424	32.72	1.40	0.275	3.95	35'	EL	16.982	0.623	3.55	35'	EL	1.698	0.80	0.275	2.42	35'	EL	16.982	
		SNGARBS2	20.000	--	2.082	41.635	1.40	0.275	3.34	35'	EL	13.586	0.623	2.68	35'	EL	1.698	0.80	0.275	2.08	35'	EL	13.586	
		SNAGRIS2	22.000	--	2.076	45.668	1.40	0.275	3.31	35'	EL	13.586	0.623	2.56	35'	EL	1.698	0.80	0.275	2.08	35'	EL	13.586	
		SNCOTTS3	27.250	--	1.213	33.066	1.40	0.275	1.98	35'	EL	16.982	0.623	1.79	35'	EL	1.698	0.80	0.275	1.21	35'	EL	16.982	
		SNAGGRS4	34.925	--	1.123	39.207	1.40	0.275	1.83	35'	EL	16.982	0.623	1.60	35'	EL	1.698	0.80	0.275	1.12	35'	EL	16.982	
		SNS5A	35.550	--	1.090	38.739	1.40	0.275	1.77	35'	EL	16.982	0.623	1.69	35'	EL	1.698	0.80	0.275	1.09	35'	EL	16.982	
		SNS6A	39.950	--	1.052	42.014	1.40	0.275	1.71	35'	EL	16.982	0.623	1.58	35'	EL	1.698	0.80	0.275	1.05	35'	EL	16.982	
	SNS7B	42.000	3	1.004	42.153	1.40	0.275	1.63	35'	EL	16.982	0.623	1.62	35'	EL	1.698	0.80	0.275	1.00	35'	EL	16.982		
	TTST	TNAGRIT3	33.000	--	1.299	42.872	1.40	0.275	2.11	35'	EL	16.982	0.623	1.85	35'	EL	1.698	0.80	0.275	1.30	35'	EL	16.982	
		TNT4A	33.075	--	1.298	42.933	1.40	0.275	2.11	35'	EL	16.982	0.623	1.75	35'	EL	1.698	0.80	0.275	1.30	35'	EL	16.982	
		TNT6A	41.600	--	1.137	47.314	1.40	0.275	1.85	35'	EL	16.982	0.623	1.71	35'	EL	1.698	0.80	0.275	1.14	35'	EL	16.982	
		TNT7A	42.000	--	1.175	49.358	1.40	0.275	1.92	35'	EL	16.982	0.623	1.59	35'	EL	1.698	0.80	0.275	1.18	35'	EL	16.982	
		TNT7B	42.000	--	1.156	48.536	1.40	0.275	1.88	35'	EL	16.982	0.623	1.54	35'	EL	1.698	0.80	0.275	1.16	35'	EL	16.982	
		TNAGRIT4	43.000	--	1.170	50.308	1.40	0.275	1.89	35'	EL	13.586	0.623	1.48	35'	EL	1.698	0.80	0.275	1.17	35'	EL	16.982	
TNAGT5A		45.000	--	1.079	48.572	1.40	0.275	1.76	35'	EL	16.982	0.623	1.56	35'	EL	1.698	0.80	0.275	1.08	35'	EL	16.982		
TNAGT5B	45.000	--	1.041	46.853	1.40	0.275	1.69	35'	EL	16.982	0.623	1.40	35'	EL	1.698	0.80	0.275	1.04	35'	EL	16.982			

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.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

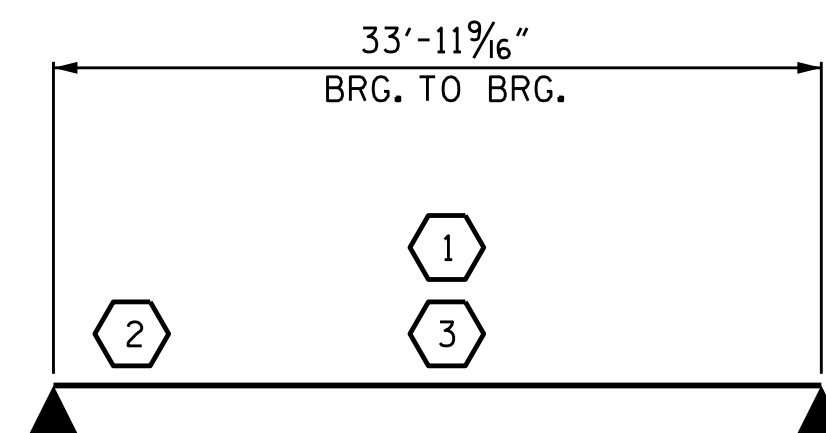
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

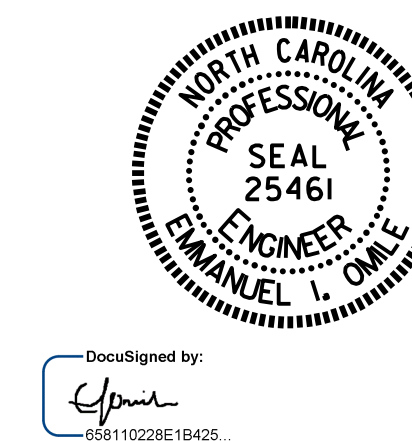
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
FOR SPANS A AND C



9/3/2015

PROJECT NO. B-4959
GUILFORD COUNTY
STATION: 14+70.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
35' CORED SLAB UNIT
75° SKEW
(NON-INTERSTATE TRAFFIC)
SPANS A & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : C. YOKEYLEY DATE : 2/10/14
CHECKED BY : T. KIRSCHBAUM DATE : 3/3/14
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

LOAD FACTORS:

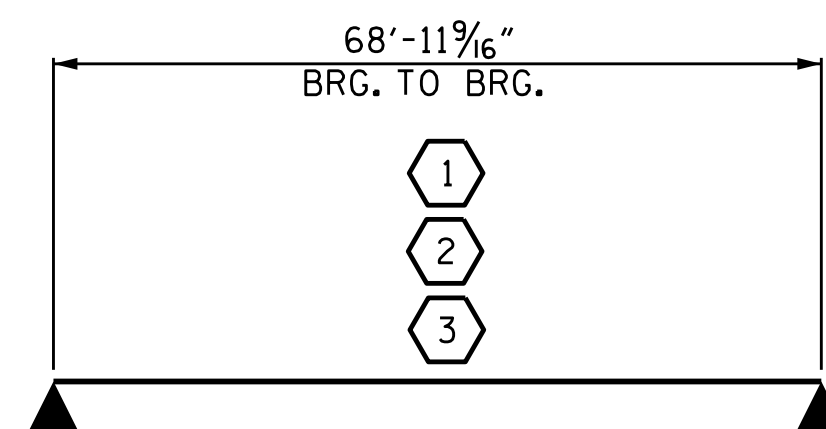
DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

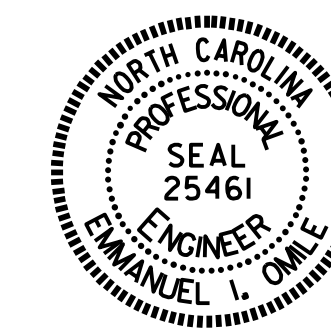
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

#	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	

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE CORED SLAB UNITS																								
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
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.014	--	1.75	0.269	1.04	70'	EL	34.482	0.608	1.10	70'	EL	3.448	0.80	0.269	1.01	70'	EL	34.482		
	HL-93(0pr)	N/A	--	1.355	--	1.35	0.269	1.35	70'	EL	34.482	0.608	1.43	70'	EL	3.448	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.315	47.356	1.75	0.269	1.36	70'	EL	34.482	0.608	1.38	70'	EL	3.448	0.80	0.269	1.32	70'	EL	34.482		
	HS-20(0pr)	36.000	--	1.757	63.236	1.35	0.269	1.76	70'	EL	34.482	0.608	1.79	70'	EL	3.448	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.938	39.656	1.40	0.269	3.78	70'	EL	34.482	0.608	4.12	70'	EL	3.448	0.80	0.269	2.94	70'	EL	34.482	
		SNGARBS2	20.000	--	2.203	44.052	1.40	0.269	2.84	70'	EL	34.482	0.608	2.93	70'	EL	3.448	0.80	0.269	2.20	70'	EL	34.482	
		SNAGRIS2	22.000	--	2.092	46.016	1.40	0.269	2.69	70'	EL	34.482	0.608	2.72	70'	EL	3.448	0.80	0.269	2.09	70'	EL	34.482	
		SNCOTTS3	27.250	--	1.462	39.844	1.40	0.269	1.88	70'	EL	34.482	0.608	2.06	70'	EL	3.448	0.80	0.269	1.46	70'	EL	34.482	
		SNAGGRS4	34.925	--	1.227	42.856	1.40	0.269	1.58	70'	EL	34.482	0.608	1.71	70'	EL	3.448	0.80	0.269	1.23	70'	EL	34.482	
		SNS5A	35.550	--	1.200	42.646	1.40	0.269	1.54	70'	EL	34.482	0.608	1.73	70'	EL	3.448	0.80	0.269	1.20	70'	EL	34.482	
		SNS6A	39.950	--	1.103	44.058	1.40	0.269	1.42	70'	EL	34.482	0.608	1.58	70'	EL	3.448	0.80	0.269	1.10	70'	EL	34.482	
	SNS7B	42.000	--	1.050	44.113	1.40	0.269	1.35	70'	EL	34.482	0.608	1.55	70'	EL	3.448	0.80	0.269	1.05	70'	EL	34.482		
	TTST	TNAGRIT3	33.000	--	1.345	44.401	1.40	0.269	1.73	70'	EL	34.482	0.608	1.88	70'	EL	3.448	0.80	0.269	1.35	70'	EL	34.482	
		TNT4A	33.075	--	1.352	44.717	1.40	0.269	1.74	70'	EL	34.482	0.608	1.83	70'	EL	3.448	0.80	0.269	1.35	70'	EL	34.482	
		TNT6A	41.600	--	1.108	46.073	1.40	0.269	1.43	70'	EL	34.482	0.608	1.65	70'	EL	3.448	0.80	0.269	1.11	70'	EL	34.482	
		TNT7A	42.000	--	1.114	46.794	1.40	0.269	1.43	70'	EL	34.482	0.608	1.62	70'	EL	3.448	0.80	0.269	1.11	70'	EL	34.482	
		TNT7B	42.000	--	1.155	48.526	1.40	0.269	1.49	70'	EL	34.482	0.608	1.51	70'	EL	3.448	0.80	0.269	1.16	70'	EL	34.482	
		TNAGRIT4	43.000	--	1.097	47.174	1.40	0.269	1.41	70'	EL	34.482	0.608	1.46	70'	EL	3.448	0.80	0.269	1.10	70'	EL	34.482	
TNAGT5A		45.000	--	1.033	46.505	1.40	0.269	1.33	70'	EL	34.482	0.608	1.45	70'	EL	3.448	0.80	0.269	1.03	70'	EL	34.482		
TNAGT5B	45.000	3	1.020	45.905	1.40	0.269	1.31	70'	EL	34.482	0.608	1.39	70'	EL	3.448	0.80	0.269	1.02	70'	EL	34.482			



LRFR SUMMARY
FOR SPAN B



DocuSigned by: *Emmanuel I. Ome* 9/3/2015

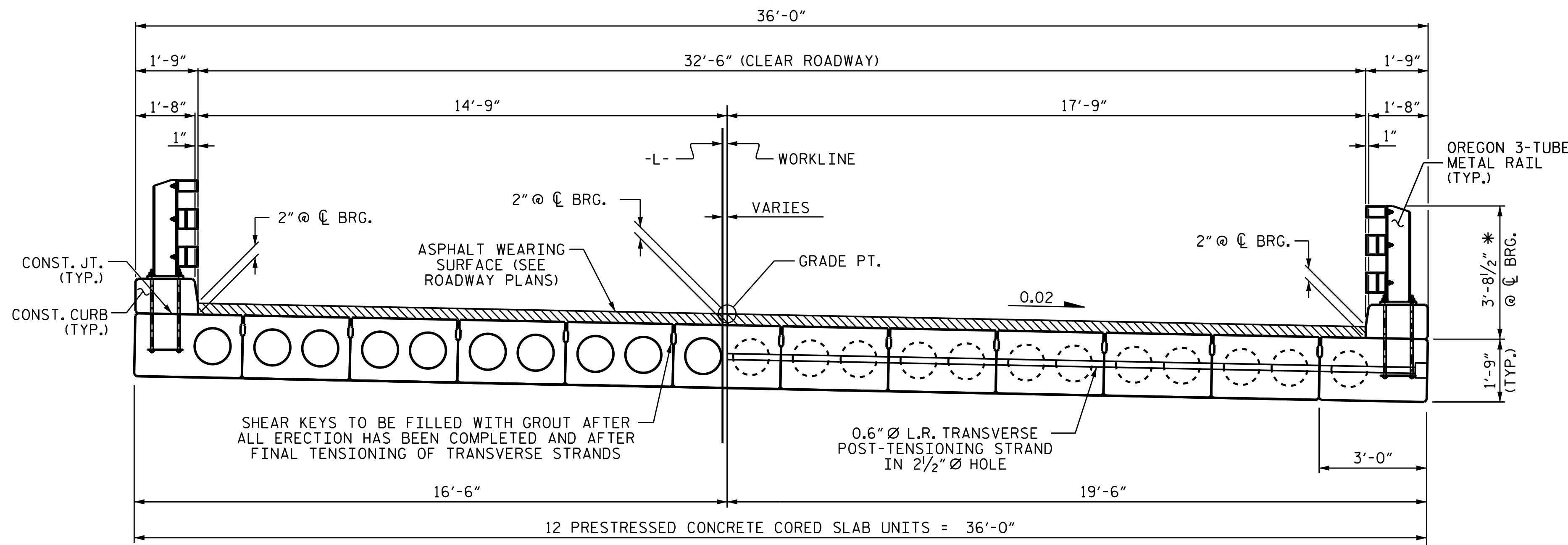
PROJECT NO. B-4959
GUILFORD COUNTY
STATION: 14+70.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
70' CORED SLAB UNIT
75° SKEW
(NON-INTERSTATE TRAFFIC)
SPAN B

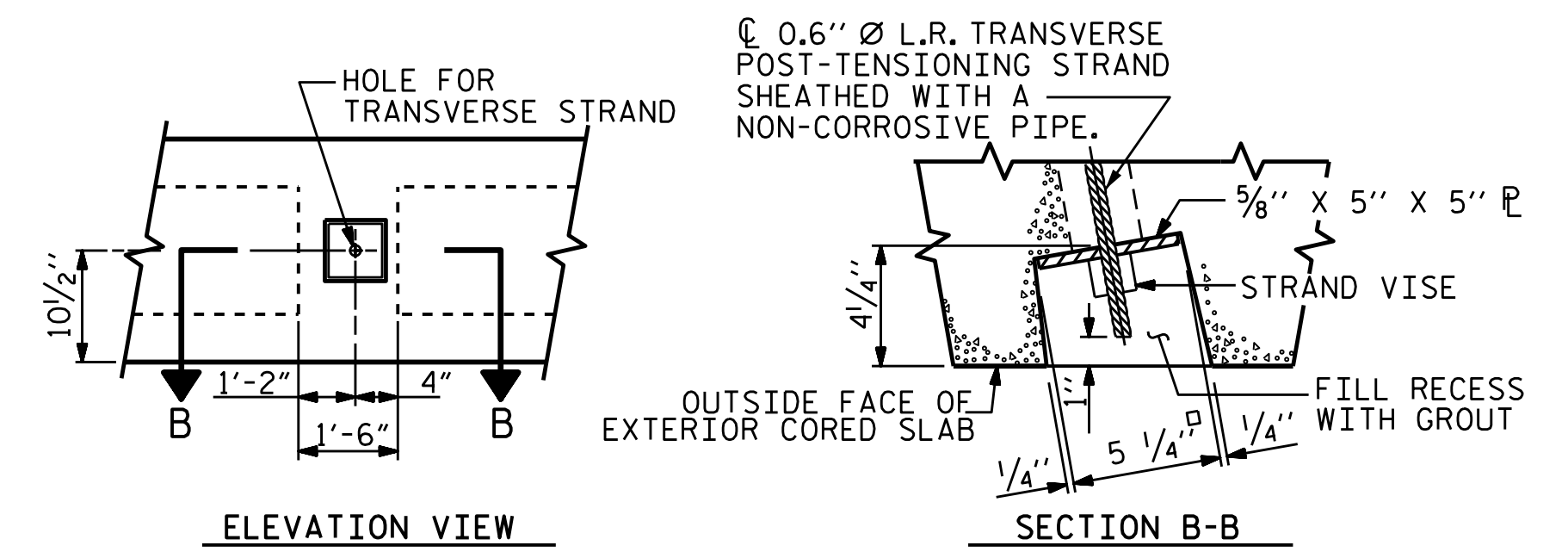
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : C. YOKEYLEY DATE : 2/10/14
CHECKED BY : T. KIRSCHBAUM DATE : 3/3/14
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

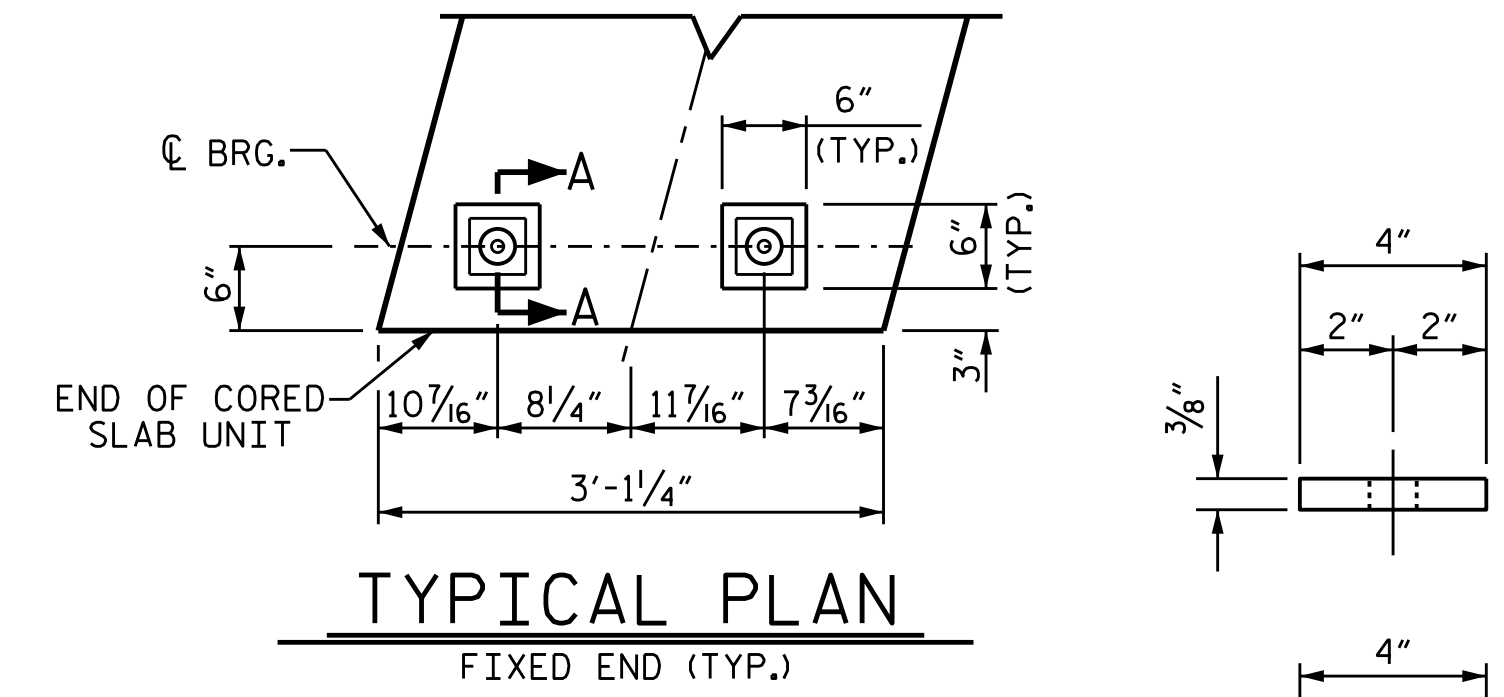


HALF SECTION THROUGH VOIDS
TYPICAL SECTION
 HALF SECTION AT INTERMEDIATE DIAPHRAGMS

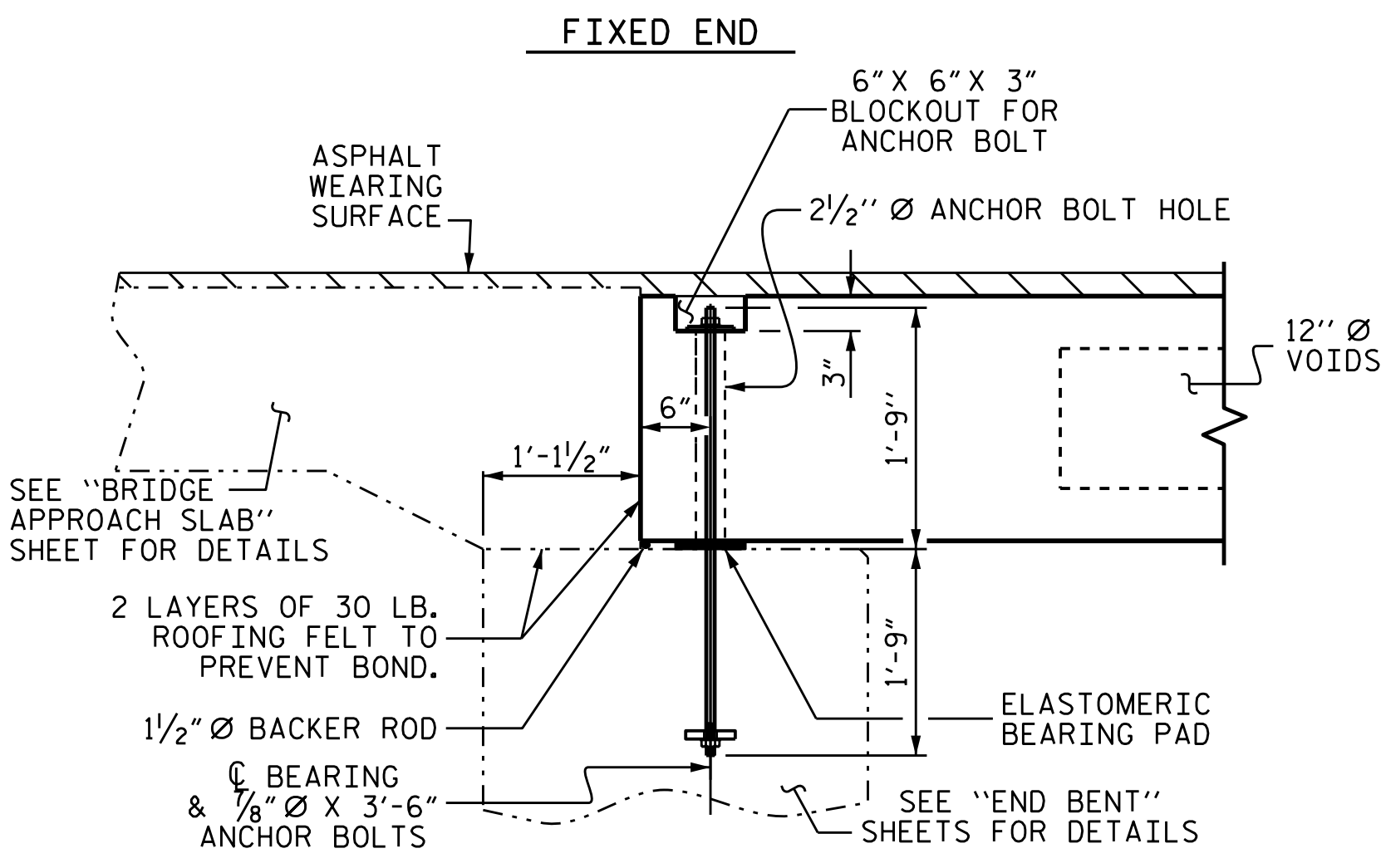
* THE MAXIMUM OREGON RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE CURB AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE CURB FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL AND CURB HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "42" OREGON RAIL SECTION" DETAIL.



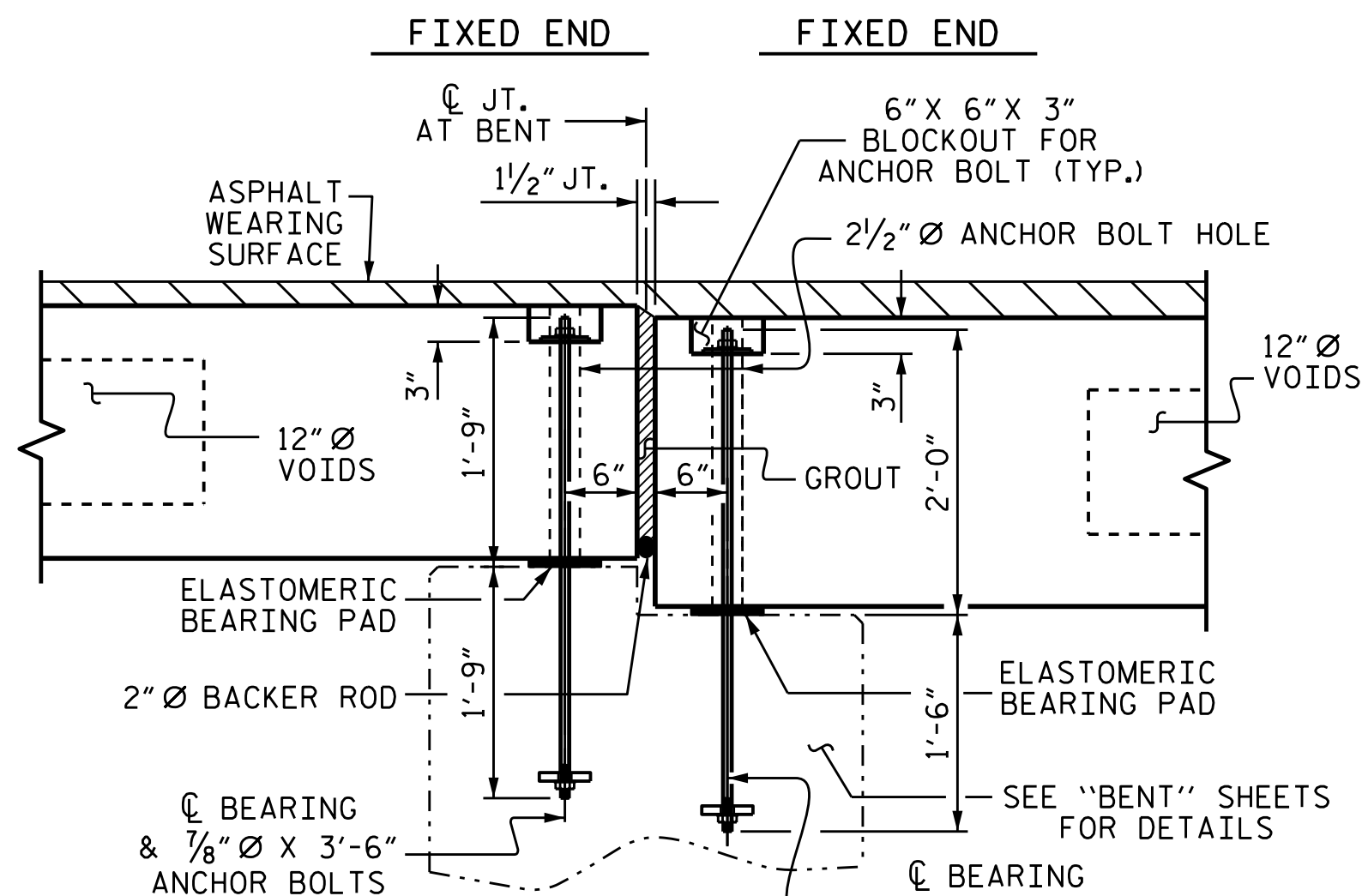
ROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



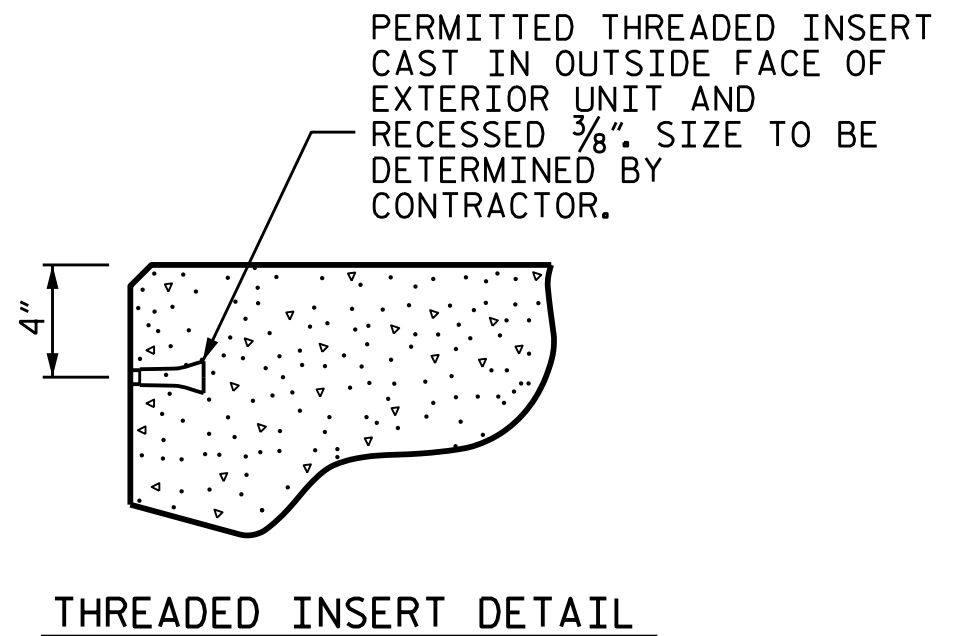
TYPICAL PLAN
 FIXED END (TYP.)



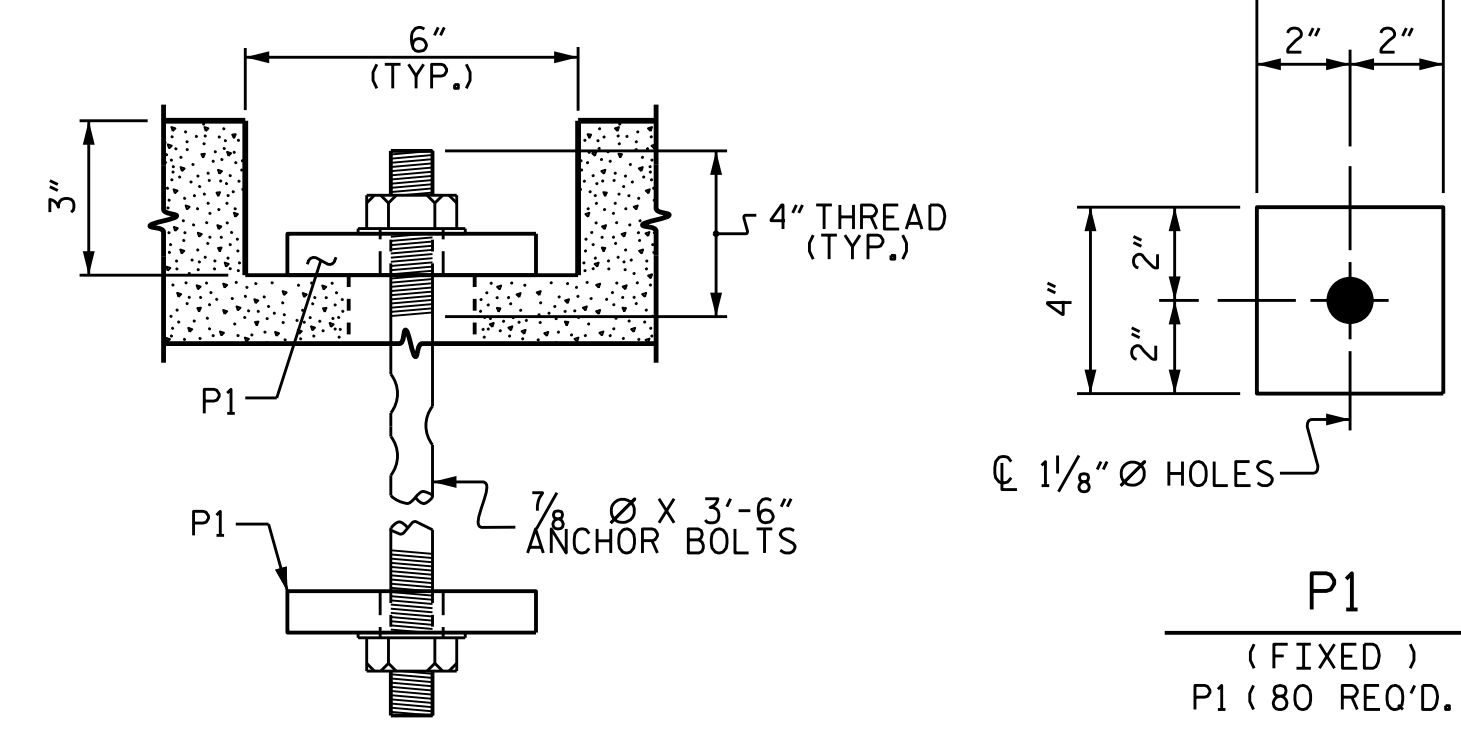
SECTION AT END BENT 1



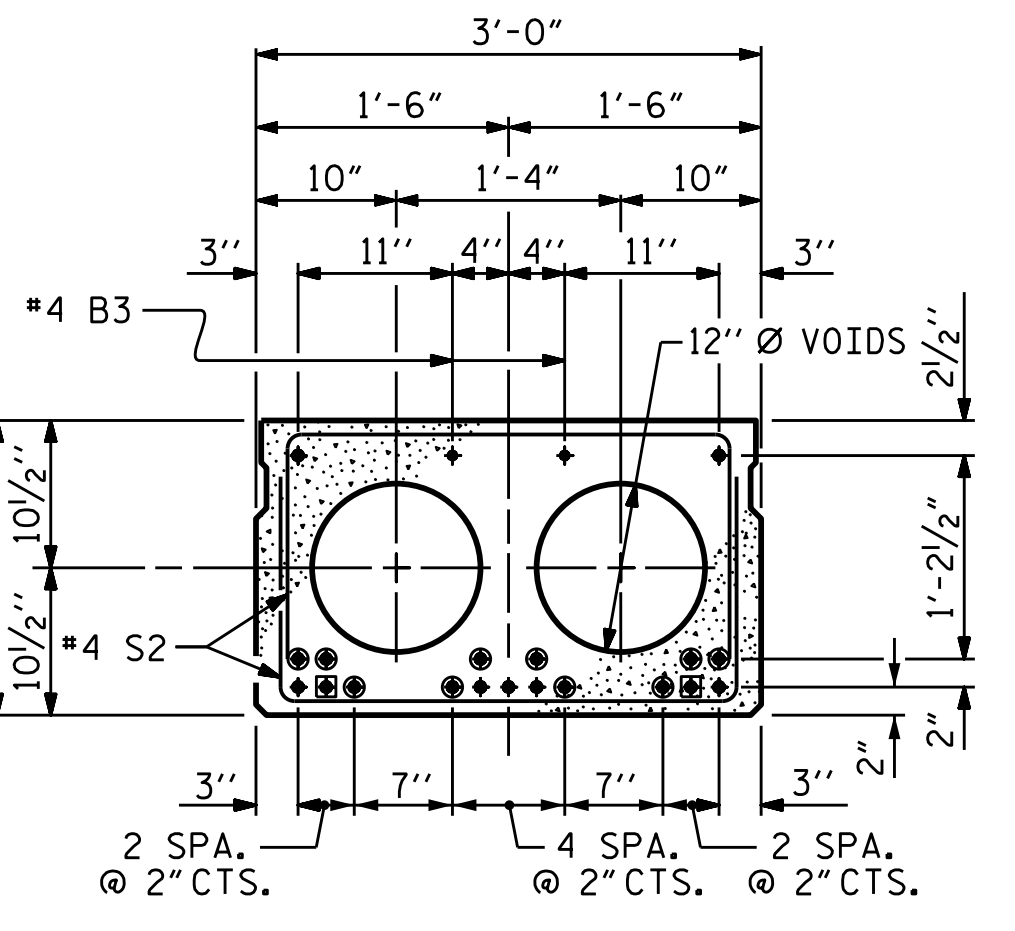
SECTION AT BENT 1



THREADED INSERT DETAIL



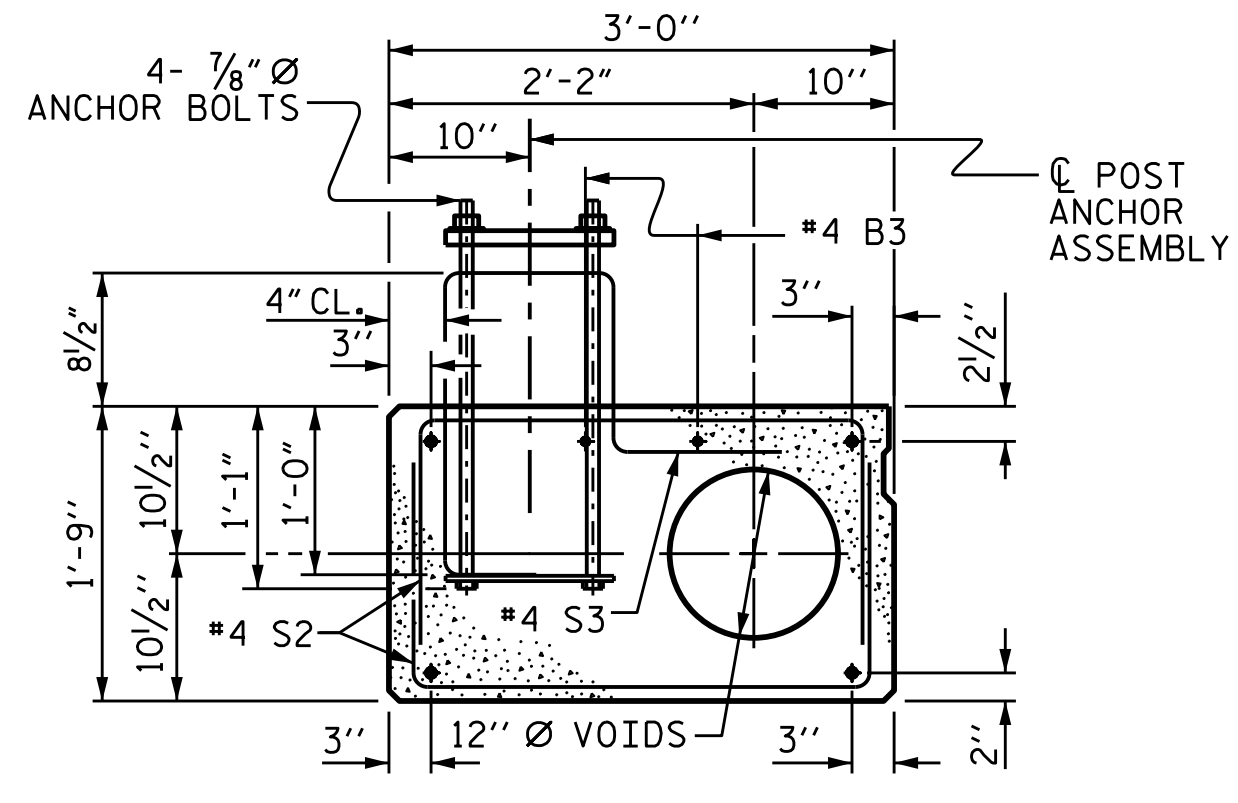
SECTION A-A PLATE DETAILS
 (FIXED)



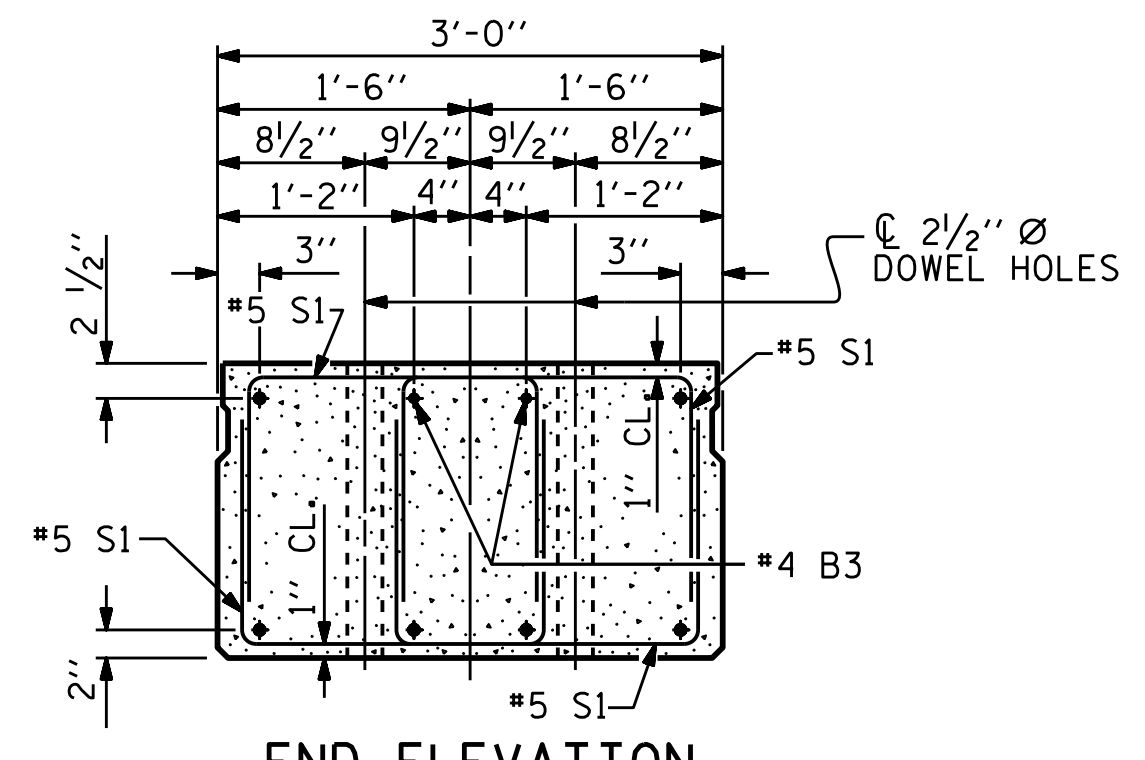
INTERIOR SLAB SECTION (35' UNIT)
 (9 STRANDS REQUIRED)
0.6" Ø LOW RELAXATION STRAND LAYOUT

- 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.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

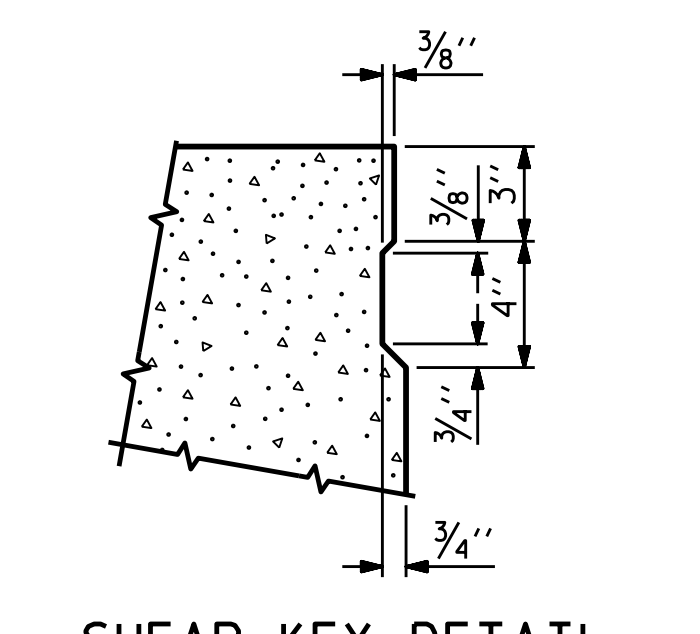
DEBONDING LEGEND



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



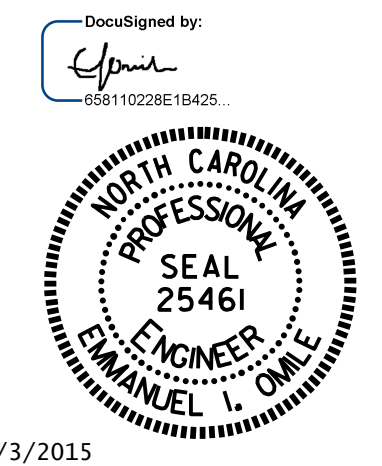
END ELEVATION
 SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)
 INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



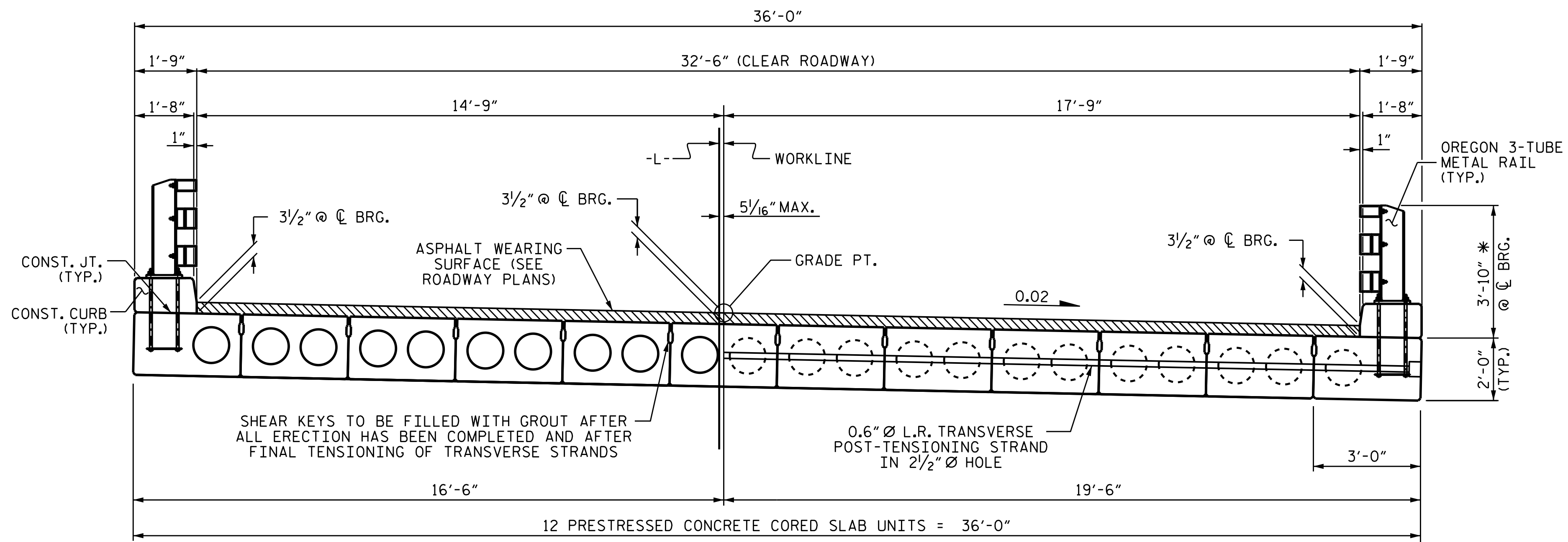
SHEAR KEY DETAIL
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-
 SHEET 1 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT					
SPANS A & C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

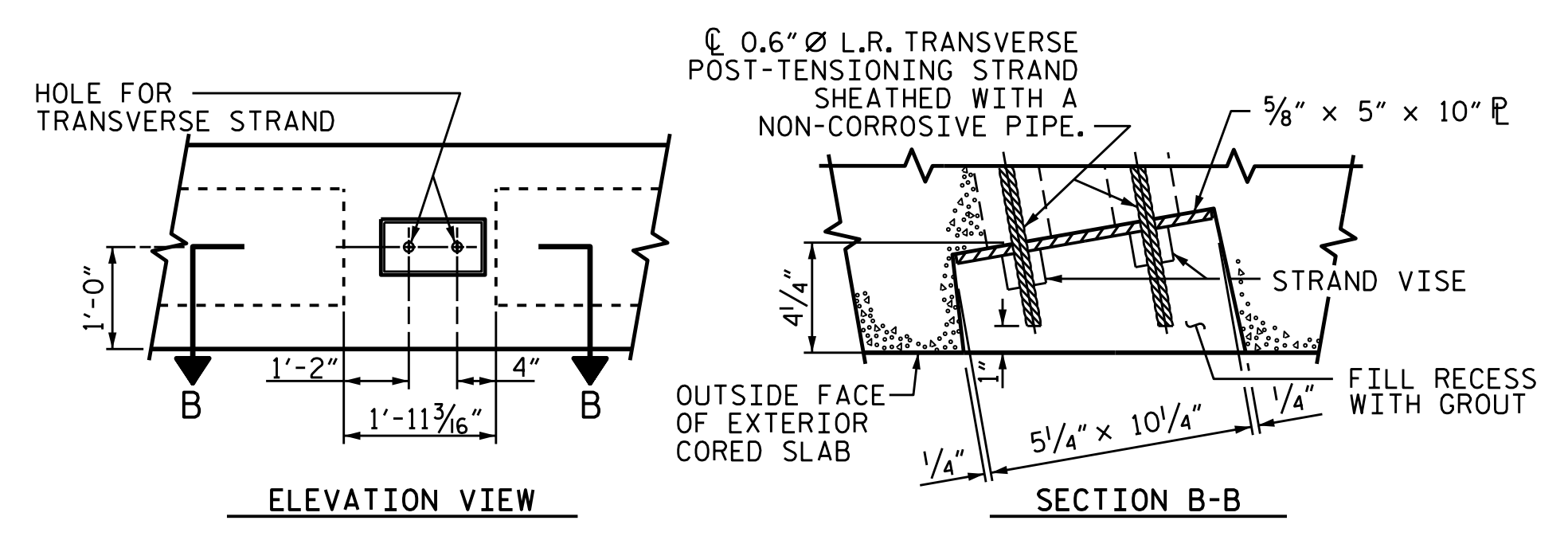


ASSEMBLED BY :	E.I. OMILE	DATE :	3/03/15
CHECKED BY :	T. H. FANG	DATE :	4/24/15
DRAWN BY :	WJH 4/89	REV. 5/1/06R	TLA/GM
CHECKED BY :	FCJ 5/89	REV. 10/1/11	MAA/GM
		REV. 1/15	RWW/TMG

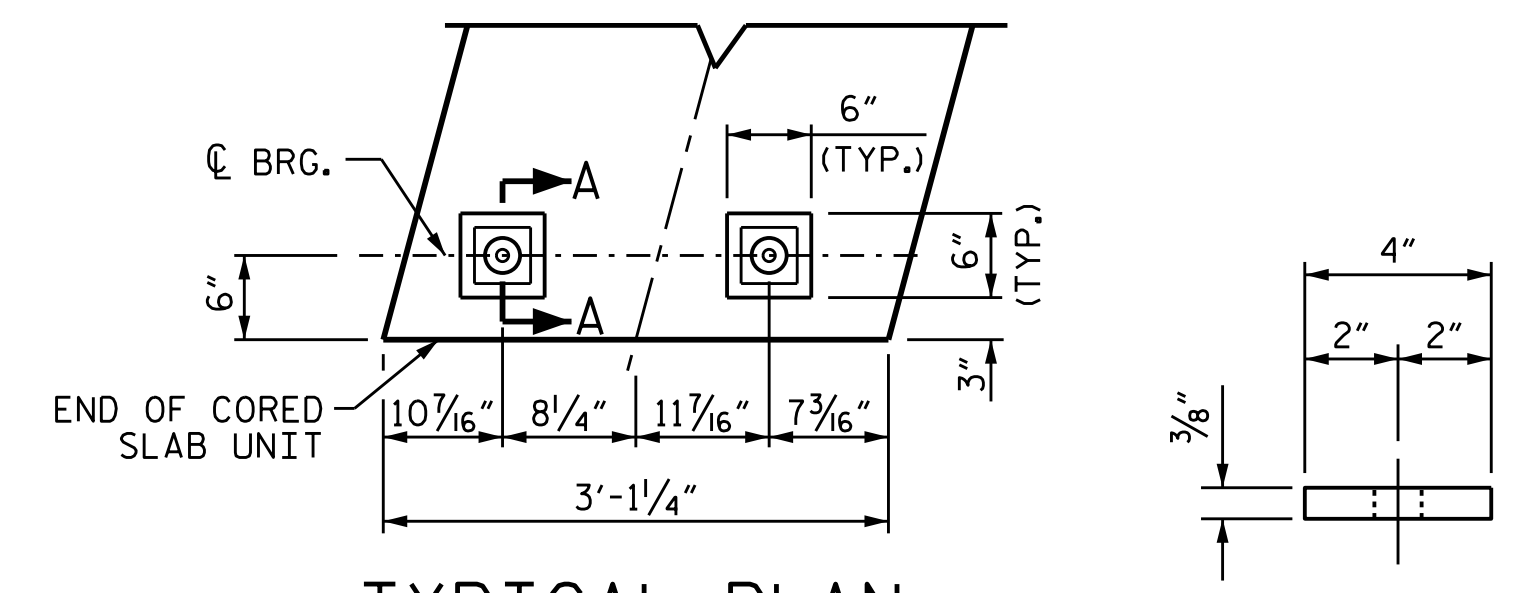


TYPICAL SECTION
 HALF SECTION THROUGH VOIDS | HALF SECTION AT INTERMEDIATE DIAPHRAGMS

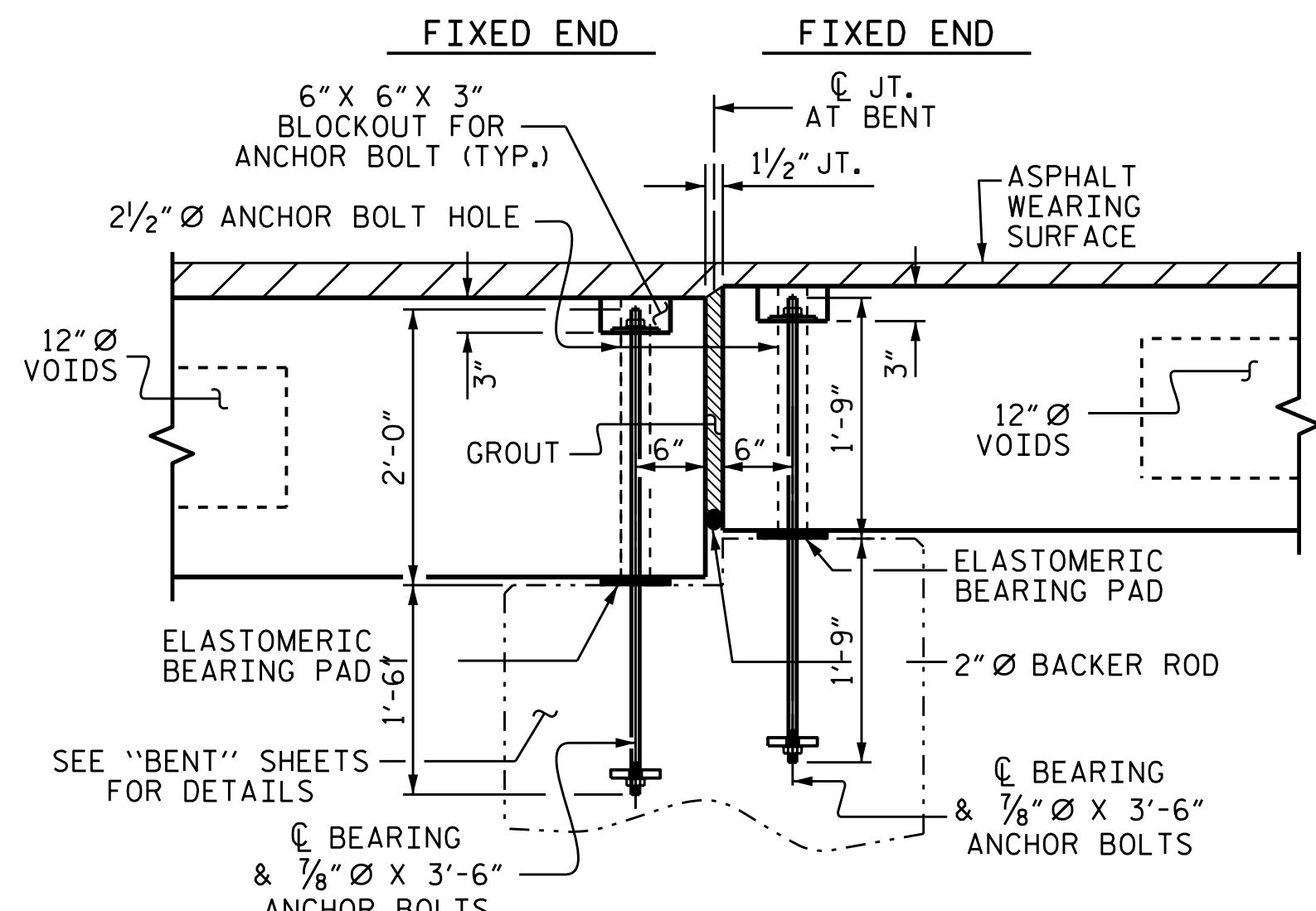
* - THE MAXIMUM OREGON RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE CURB AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE CURB FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL AND CURB HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "42" OREGON RAIL SECTION" DETAIL.



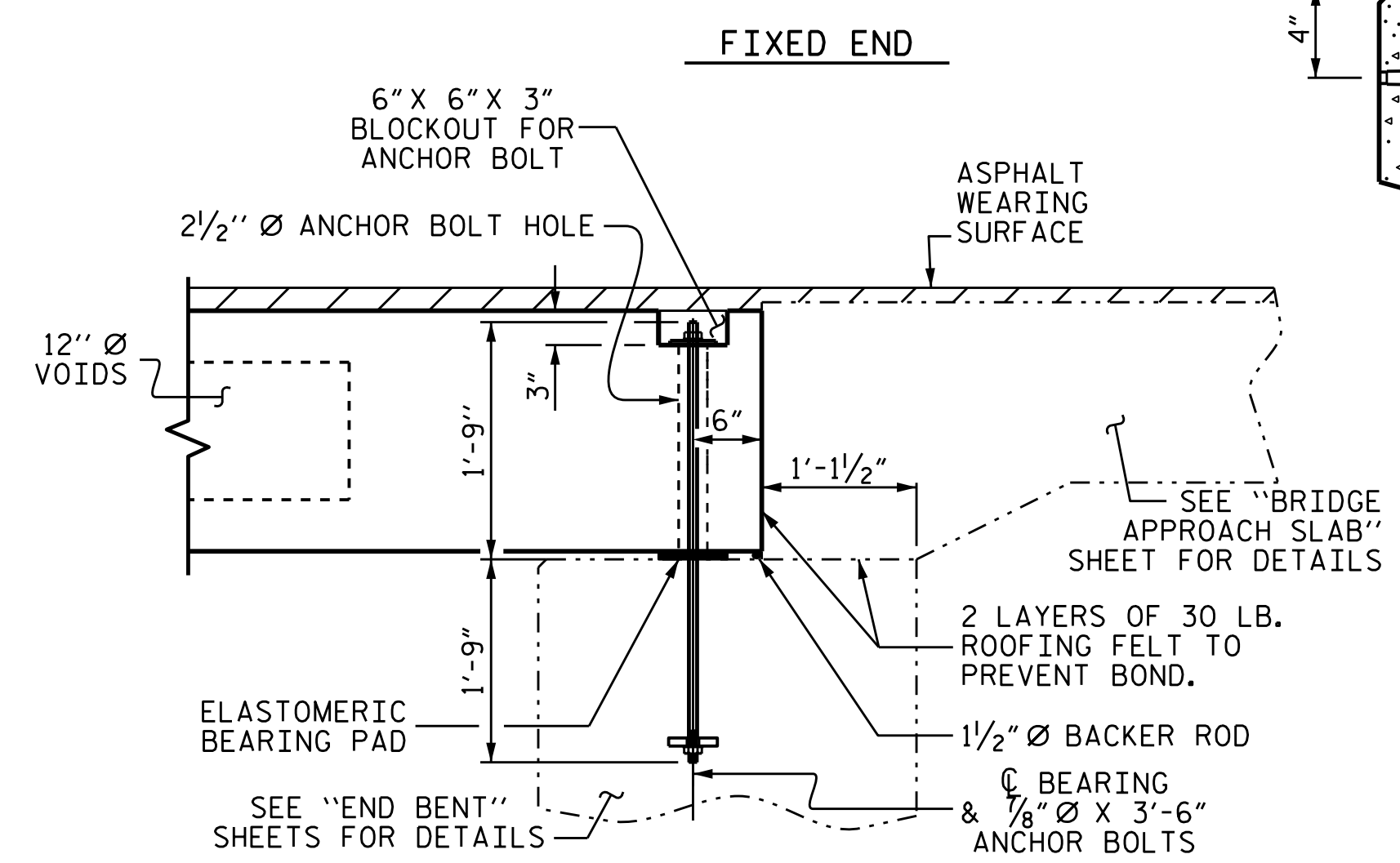
GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



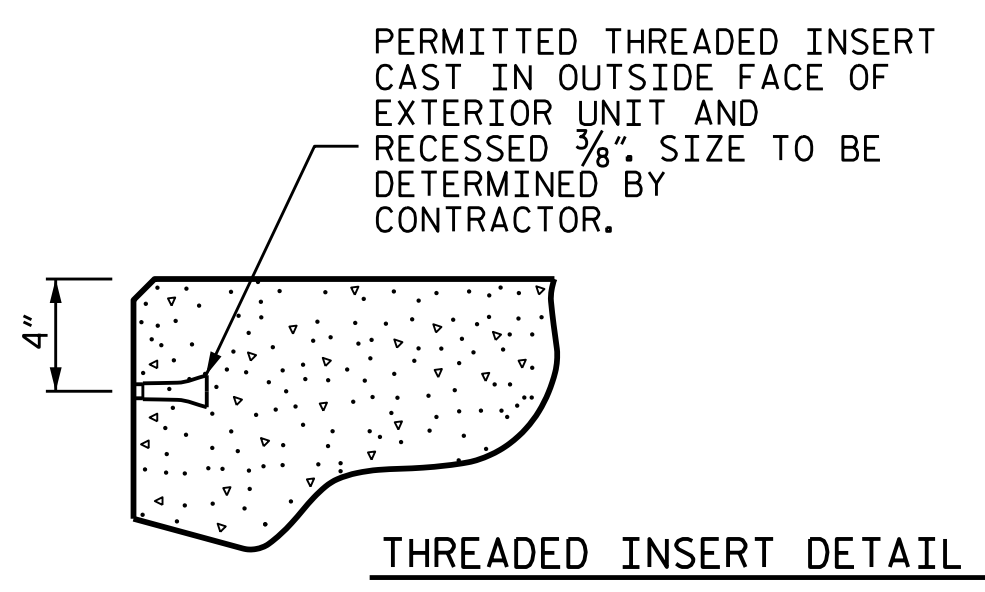
TYPICAL PLAN
 FIXED END (TYP.)



SECTION AT BENT 2



SECTION AT END BENT 2



THREADED INSERT DETAIL

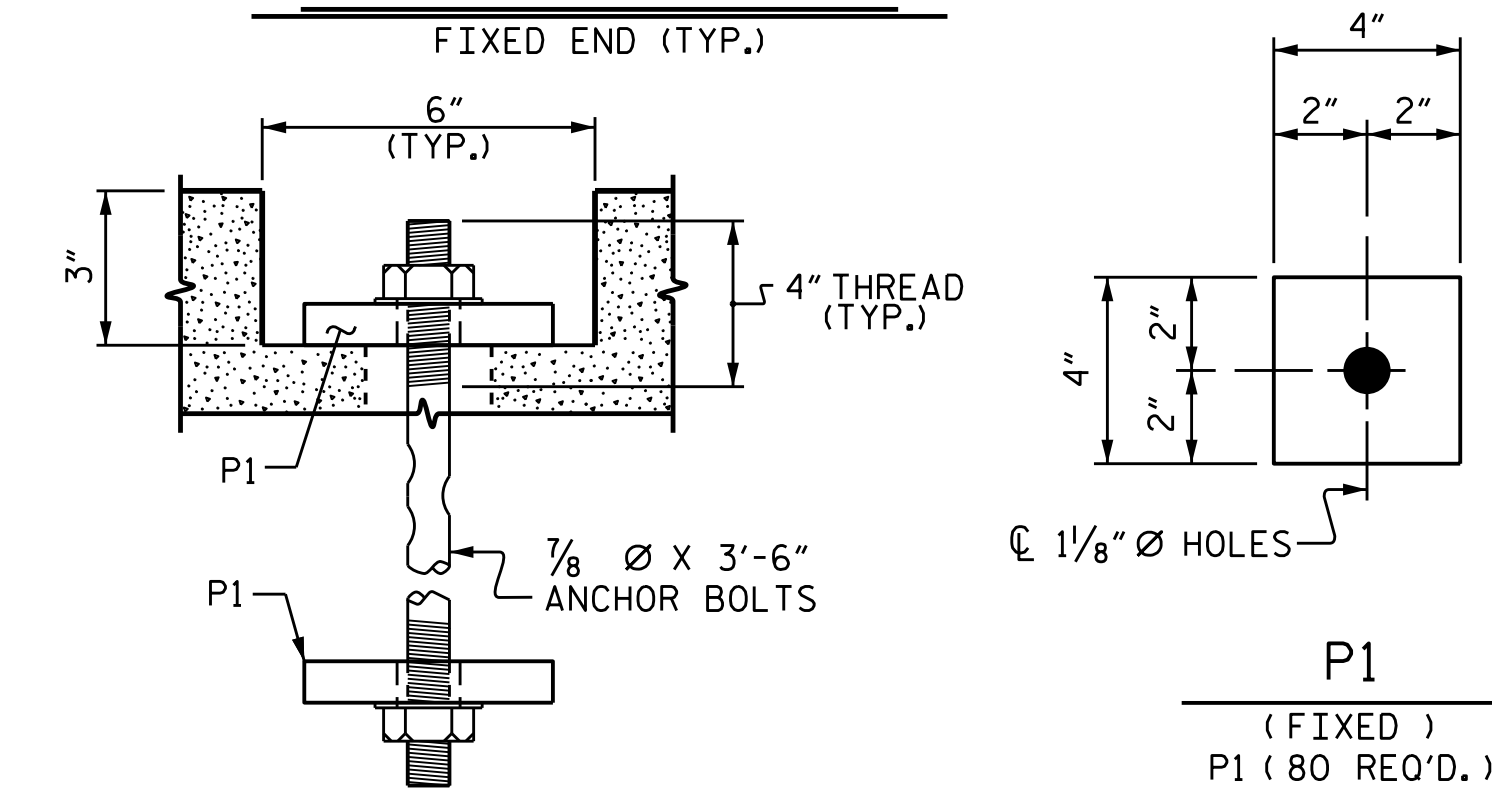
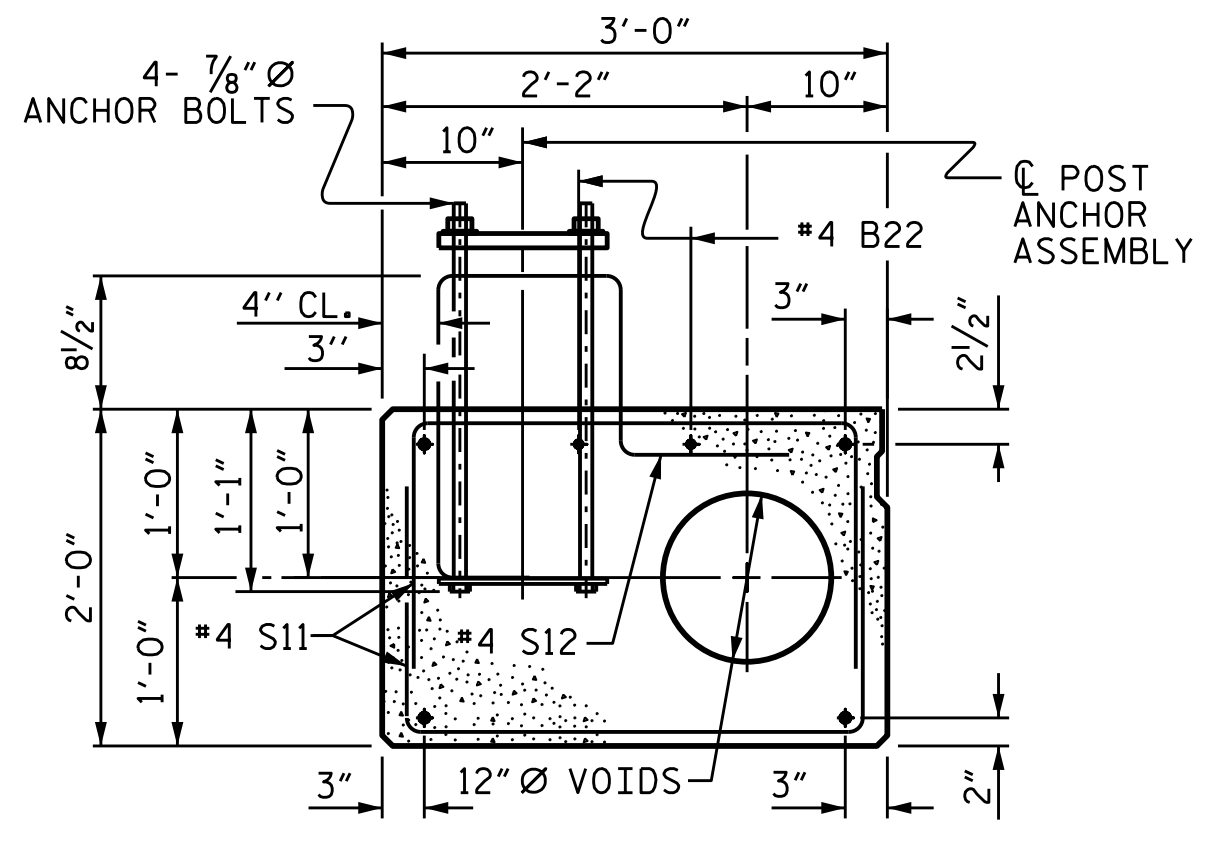
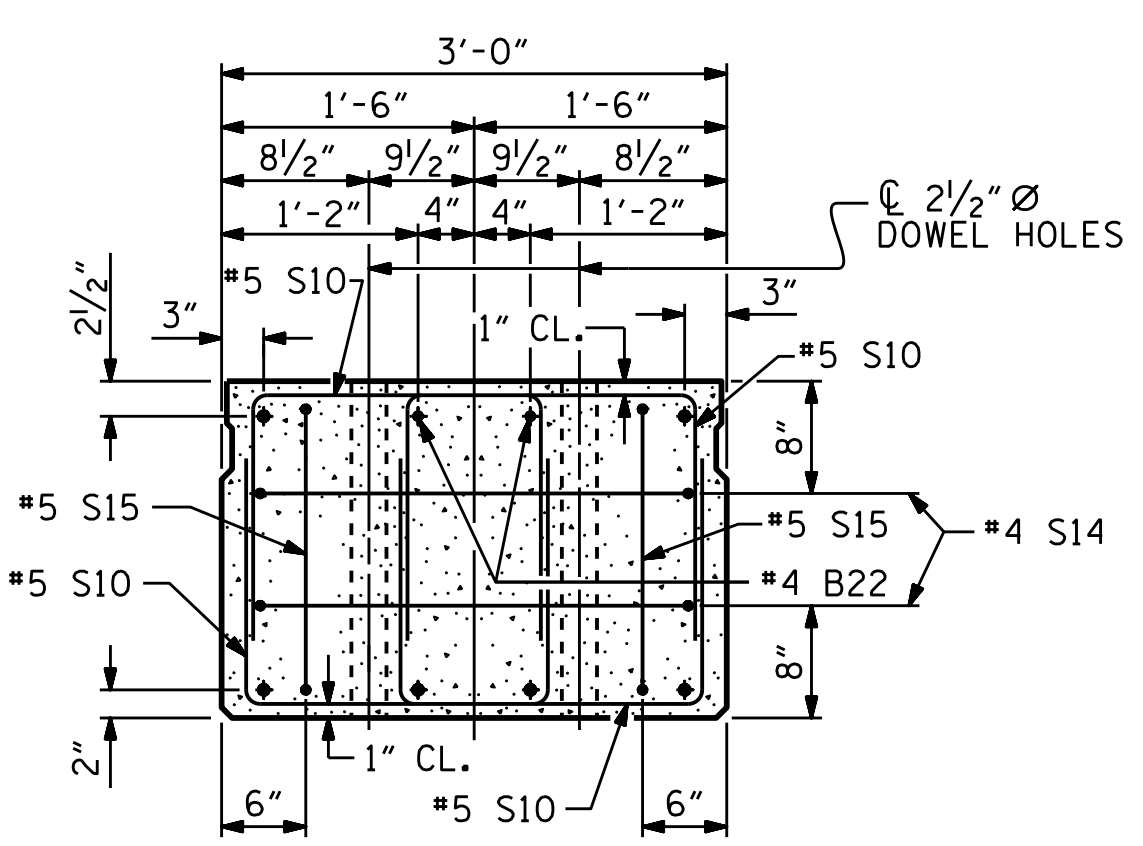


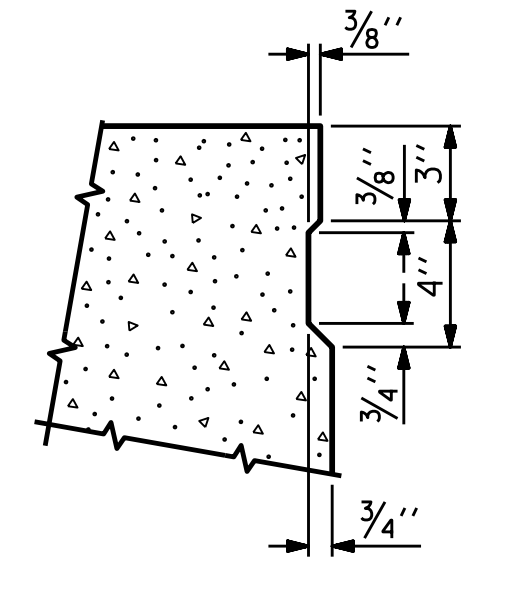
PLATE DETAILS



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

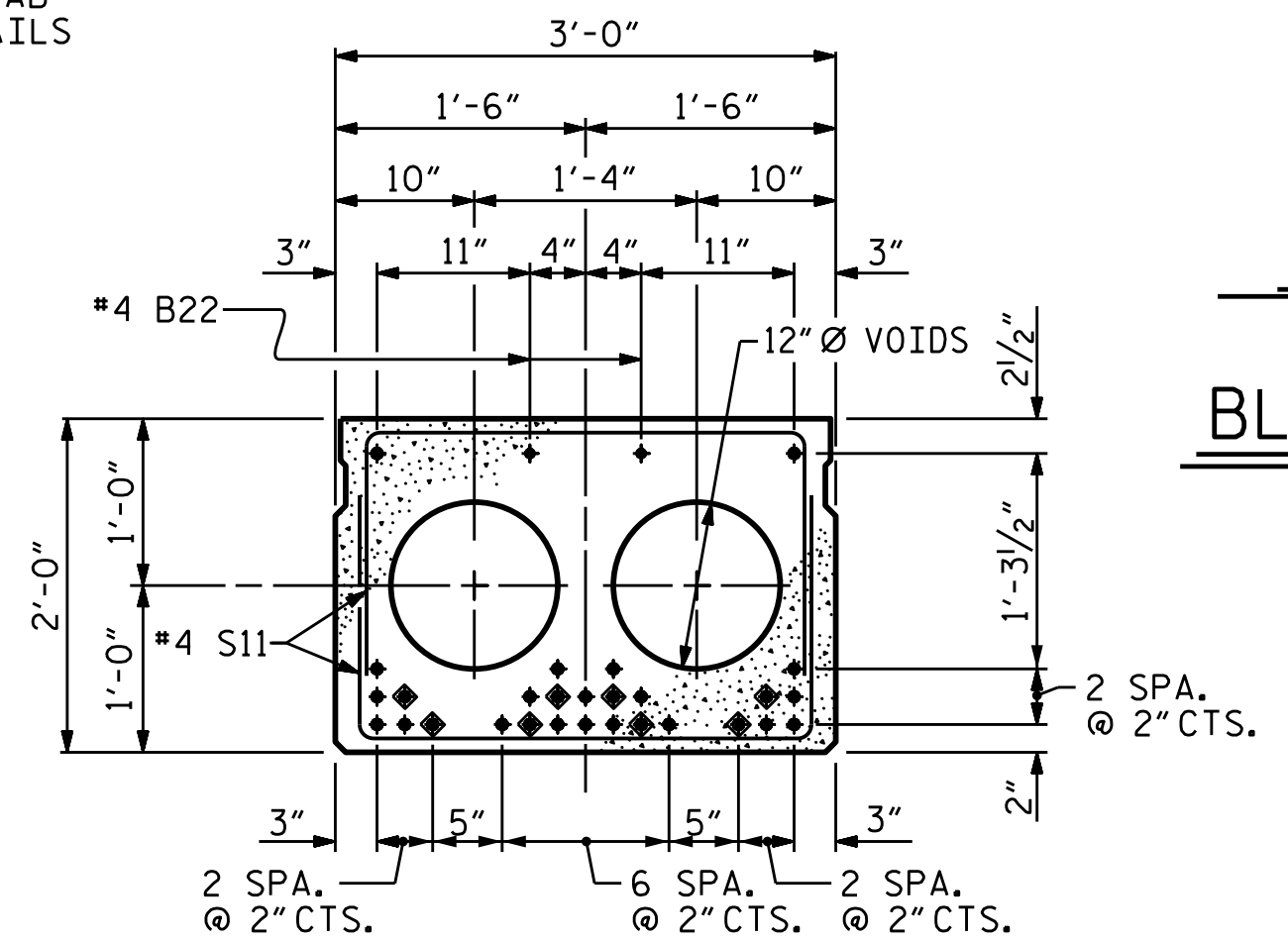


END ELEVATION



SHEAR KEY DETAIL

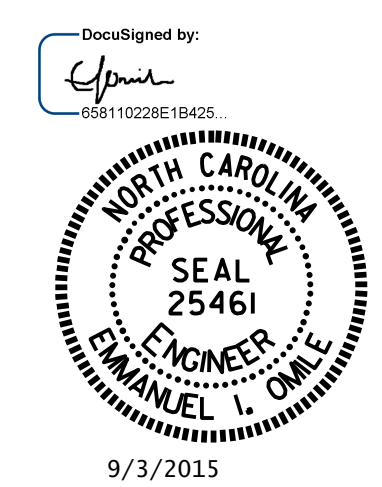
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



INTERIOR SLAB SECTION (70' UNIT)
 (28 STRANDS REQUIRED)
0.6" Ø LOW RELAXATION STRAND LAYOUT

♦ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



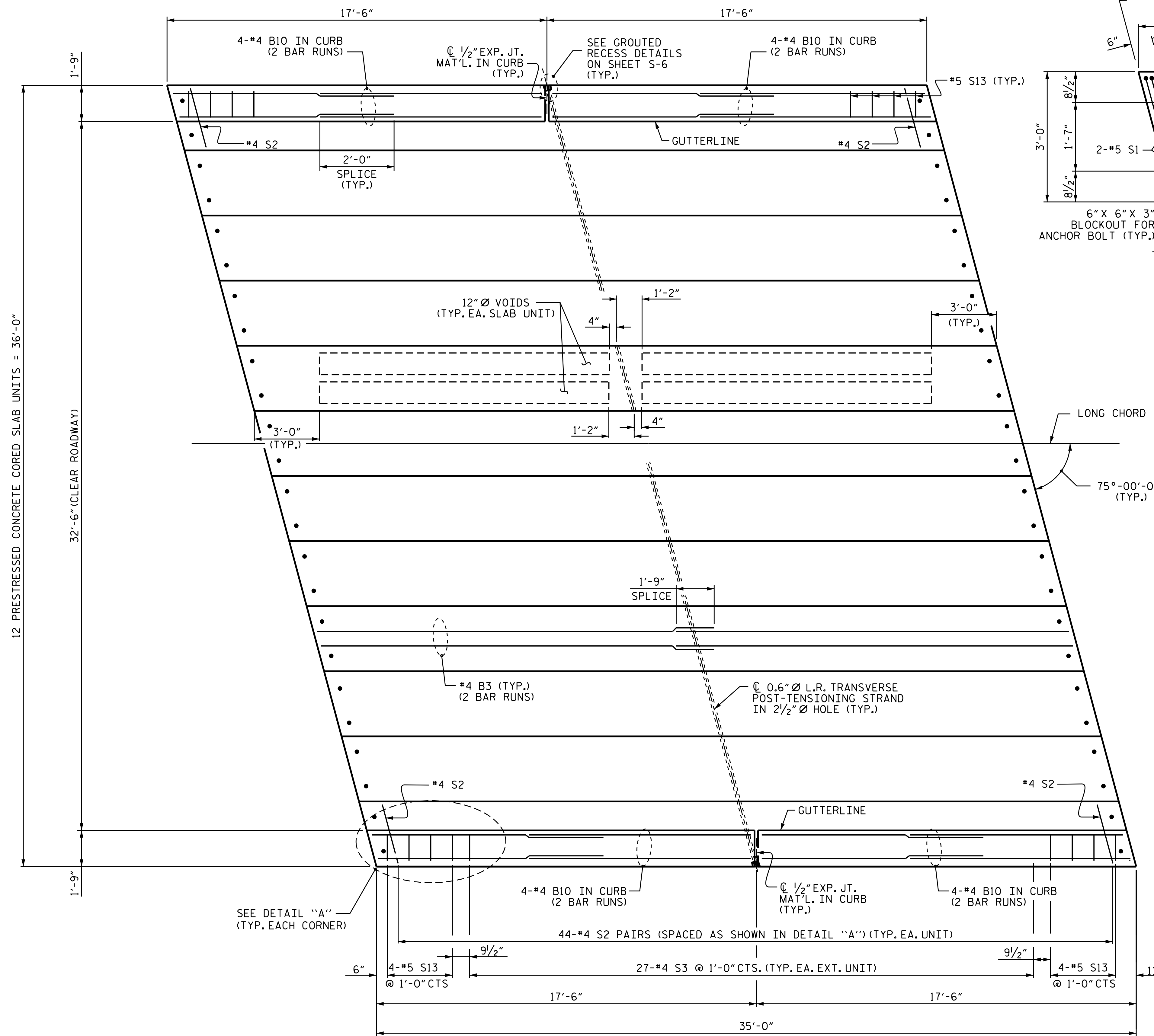
PROJECT NO. B-4959
 GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT SPAN B					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

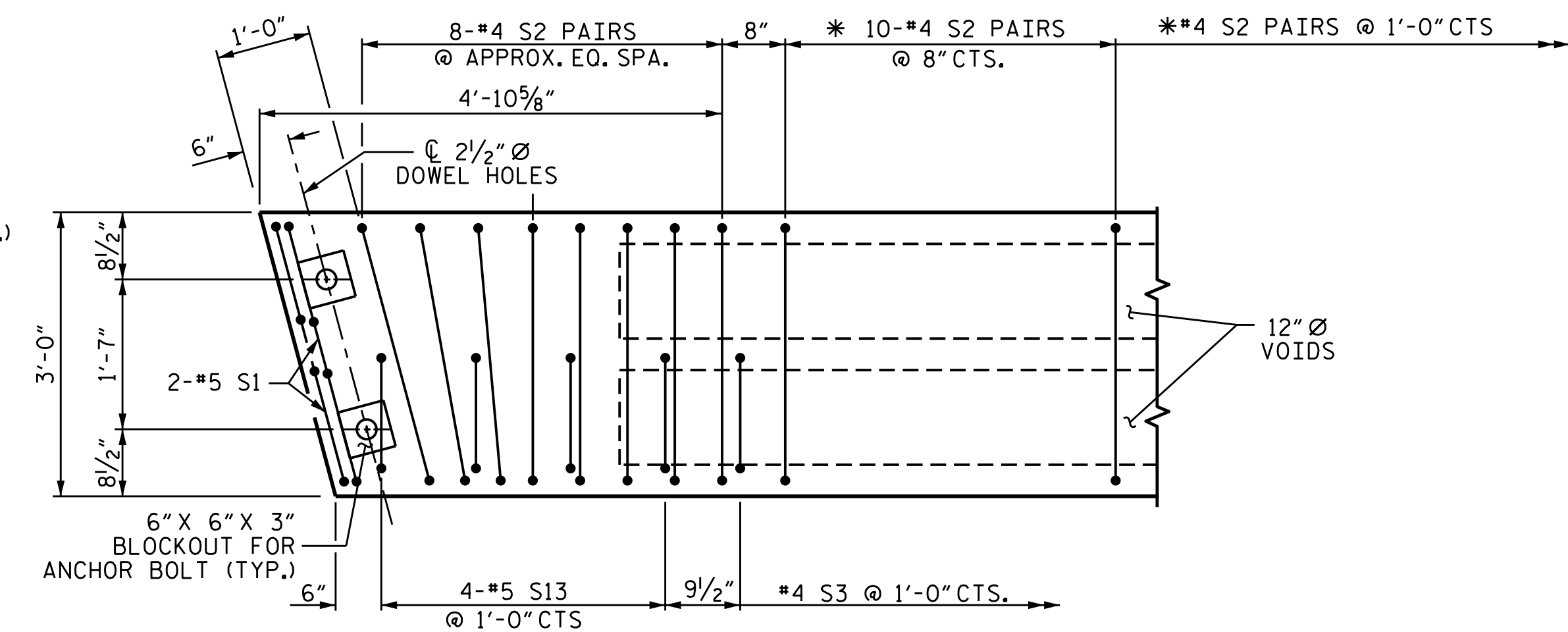
SHEET NO. S-7
 TOTAL SHEETS 25

ASSEMBLED BY: E.I. OMILE DATE: 3/03/15
 CHECKED BY: T.H. FANG DATE: 4/24/15
 DRAWN BY: MAA 5/10 DATE: 5/6/10
 CHECKED BY: GM 5/10 REV. 10/1/11 MAA/GM
 REV. 1/15 RWW/TMG



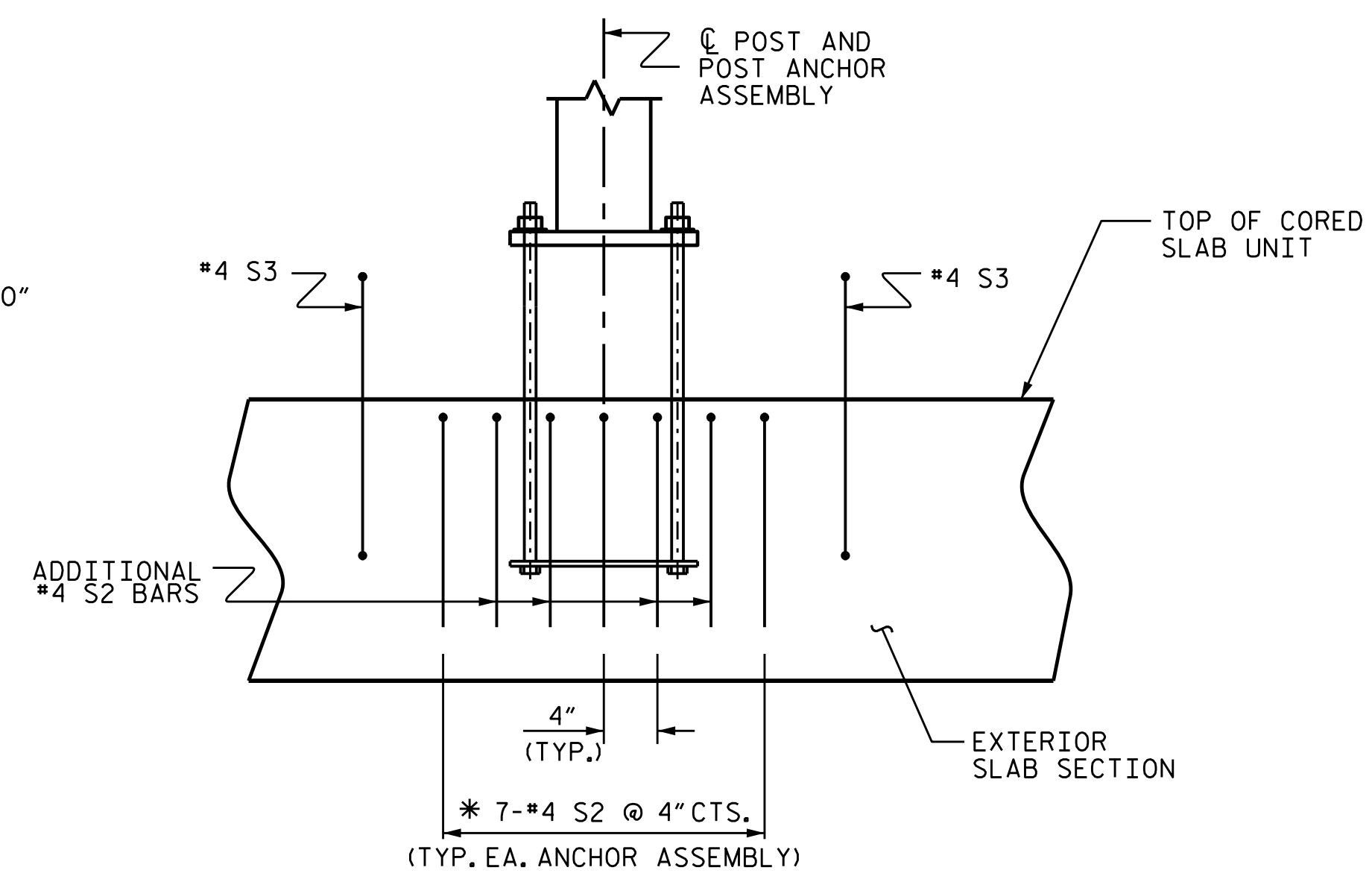
PLAN OF UNIT

BLOCKOUTS FOR ANCHOR BOLTS NOT SHOWN FOR CLARITY.



DETAIL "A"
EXTERIOR UNIT SHOWN - INTERIOR UNIT
SIMILAR EXCEPT OMIT #4 S3 & #5 S13 BARS.

* ADDITIONAL 4-#4 S2 (TOP ONLY)
REQUIRED FOR A TOTAL OF
7-#4 S2 SPACED @ 4" AT
EACH POST ASSEMBLY LOCATION.
(FOR LOCATION OF RAIL POST
SEE SHEET S-13)

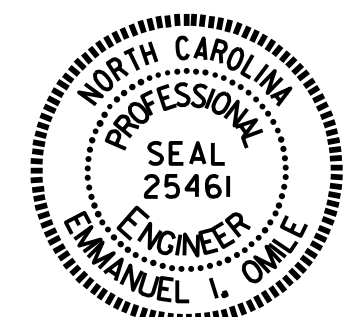


SIDE VIEW AT POST LOCATION
(SHOWING ADDITIONAL S2 BARS AT EACH POST ASSEMBLY)

PROJECT NO. B-4959
GUILFORD COUNTY
STATION: 14+70.50 -L-

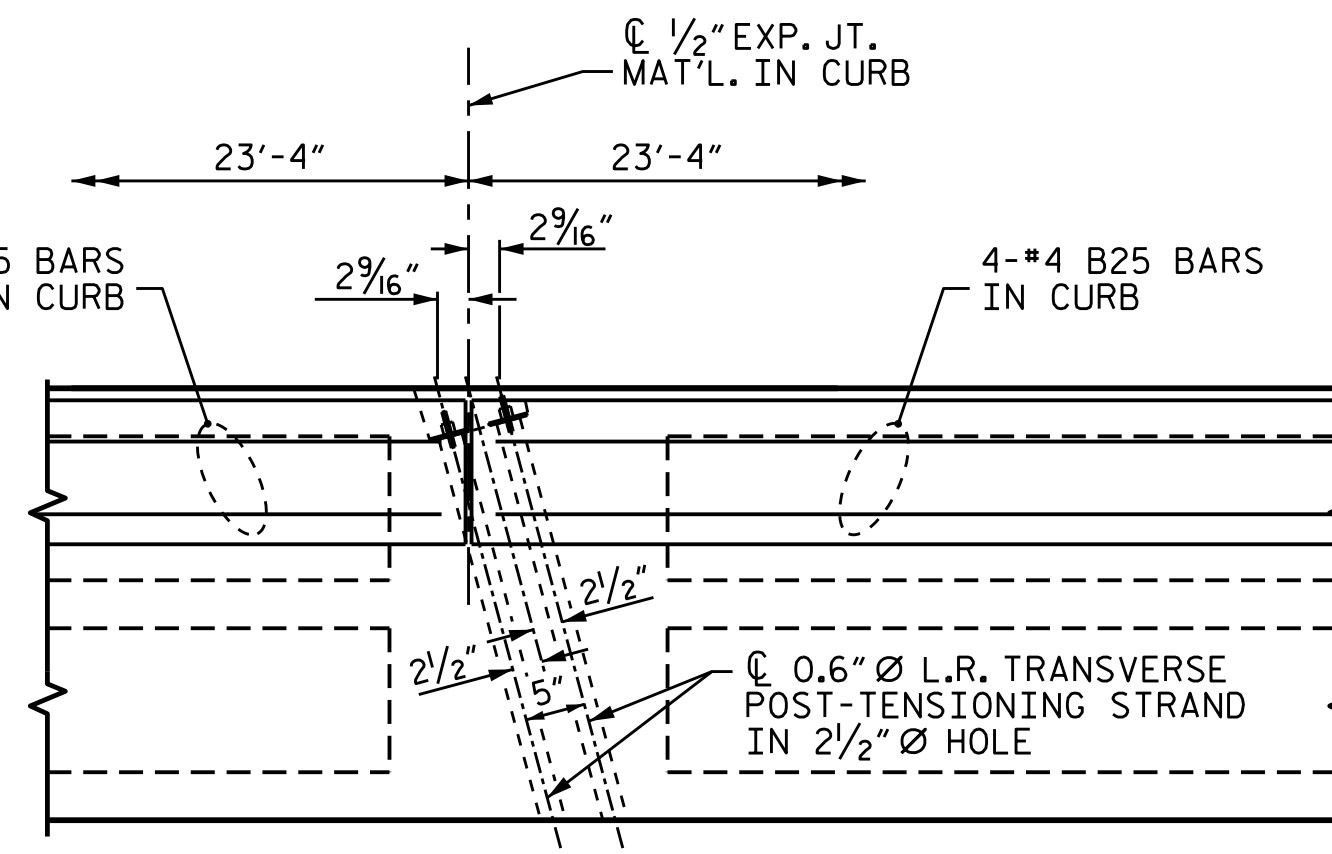
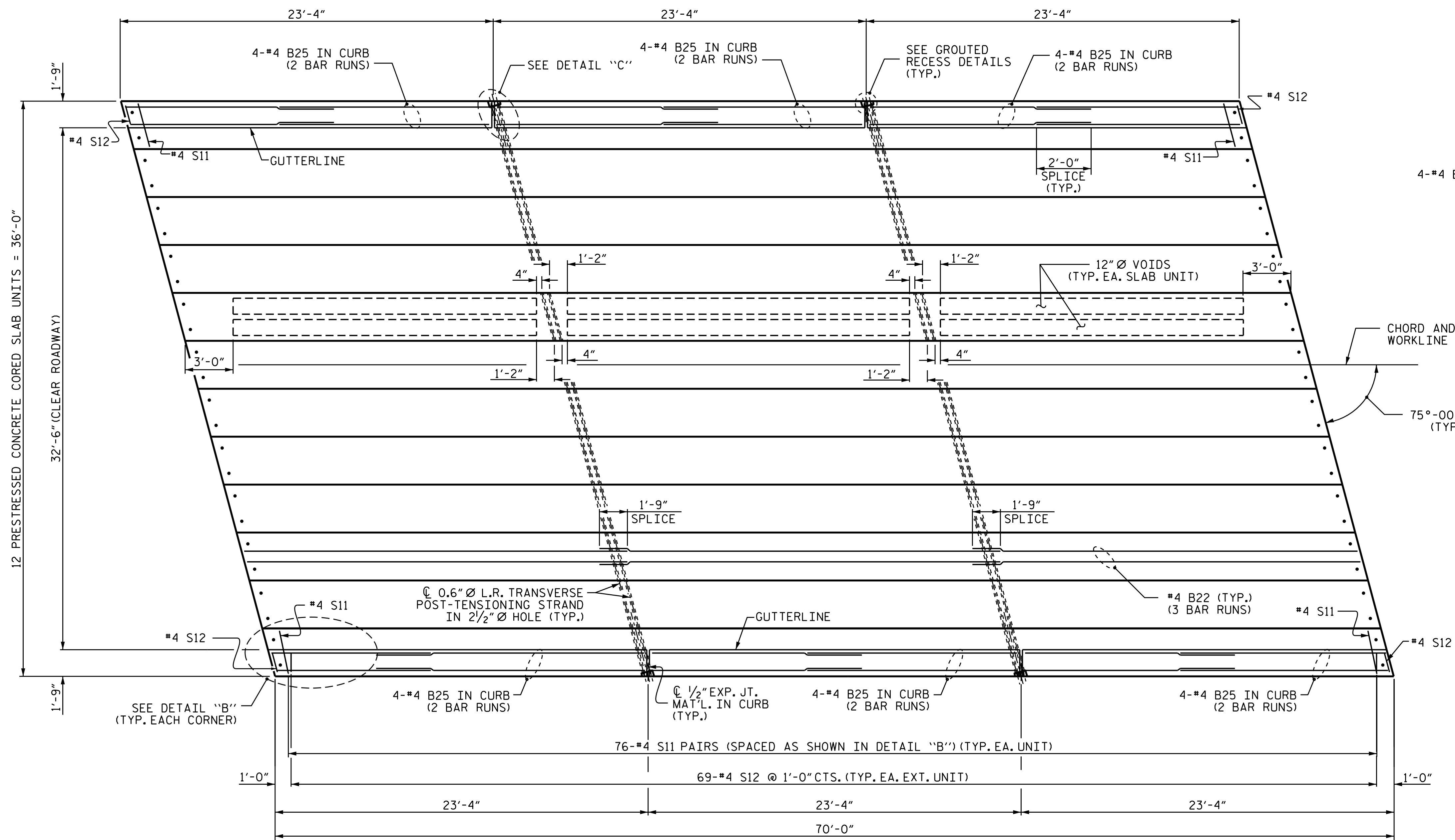
SHEET 3 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF 35' UNIT 32'-6" CLEAR ROADWAY 75° SKEW SPANS A & C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



DocuSigned by: *Emanuel I. Ome*
9/3/2015

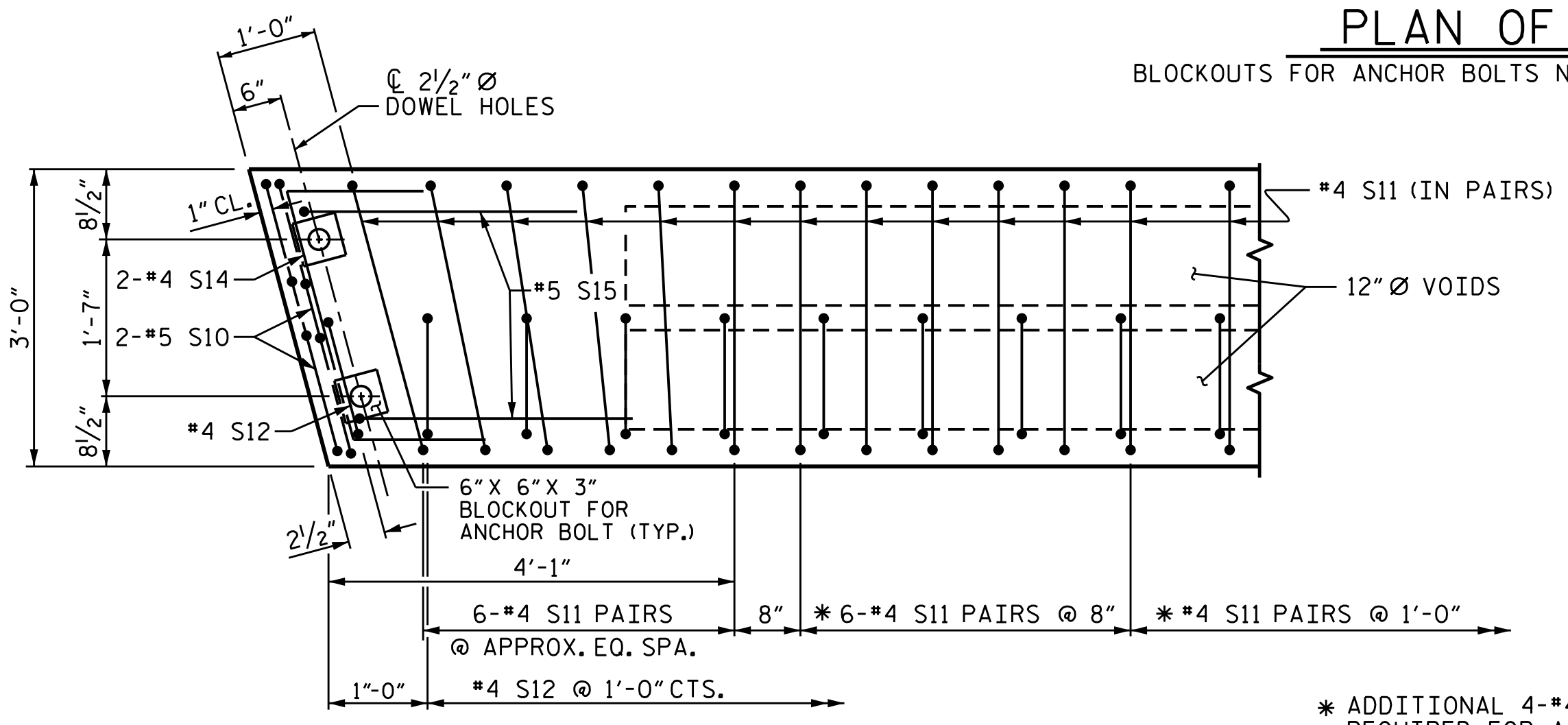
ASSEMBLED BY : E.I. OMILE DATE : 3-17-15
CHECKED BY : T.H. FANG DATE : 4/24/15
DRAWN BY : DGE 5/09 REV. 12/5/11 MAA/AAC
CHECKED BY: BCH 6/09



DETAIL "C"
 #4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

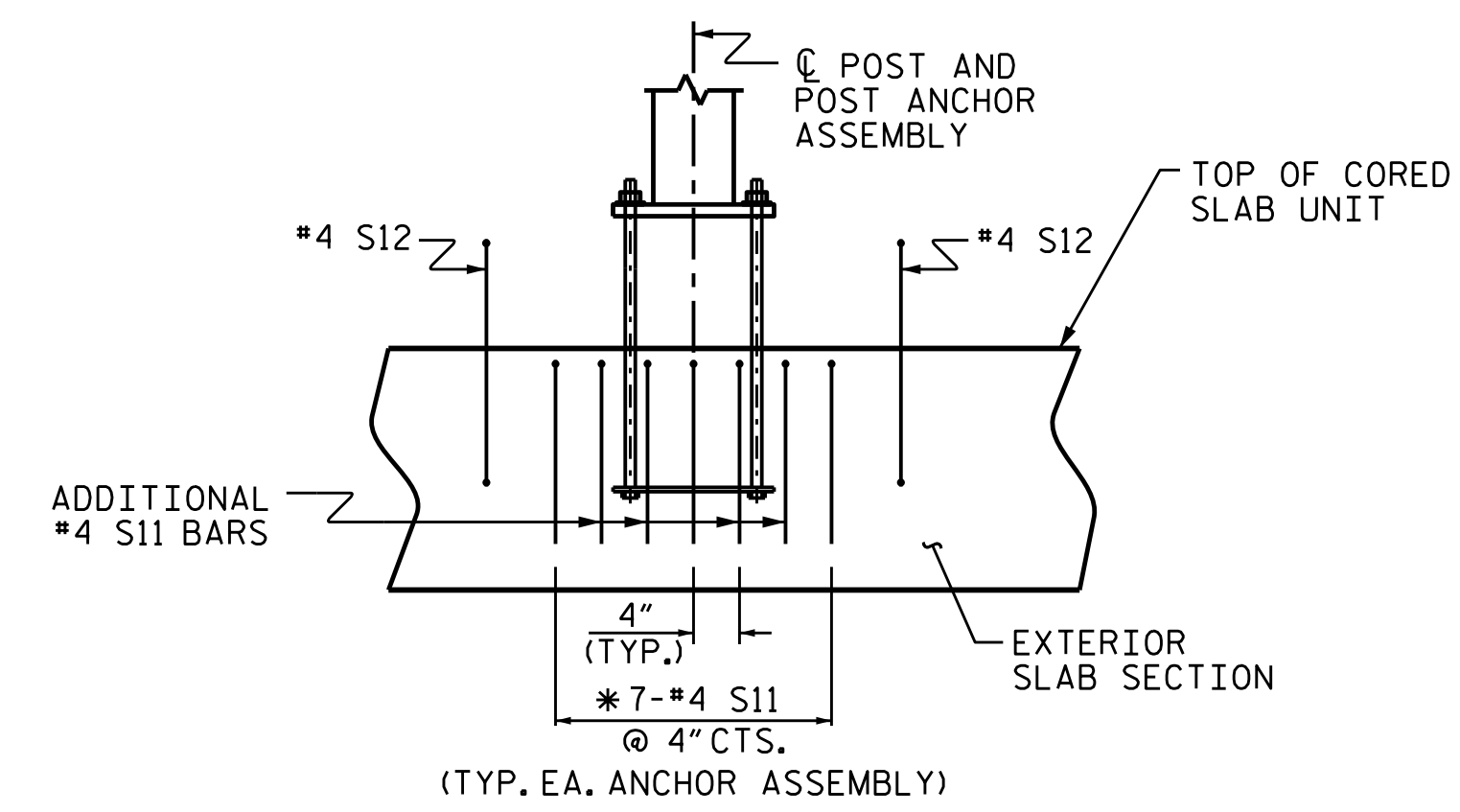
PLAN OF UNIT

BLOCKOUTS FOR ANCHOR BOLTS NOT SHOWN FOR CLARITY.



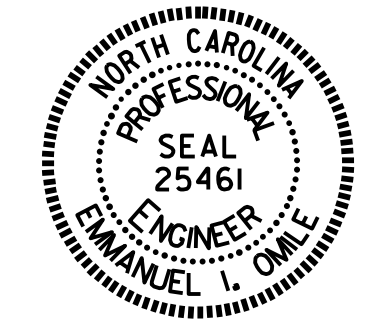
DETAIL "B"

EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #4 S12 BARS.



SIDE VIEW AT POST LOCATION

(SHOWING ADDITIONAL S11 BARS AT EACH POST ASSEMBLY)



DocuSigned by: *Emmanuel L. Omile* 9/3/2015

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-9
PLAN OF 70' UNIT 32'-6" CLEAR ROADWAY 75° SKEW SPAN B						TOTAL SHEETS 25
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY :	E.I. OMILE	DATE :	3-17-15
CHECKED BY :	T.H. FANG	DATE :	4/24/15
DRAWN BY :	MAA 6/10	REV.	12/5/11 MAA/AAC
CHECKED BY :	MKT 7/10		

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 NON-SHRINK GROUT.

THE BACKER RODS 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.

ALL REINFORCING STEEL IN THE CURB 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 CURB AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN CURB EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF CURB SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

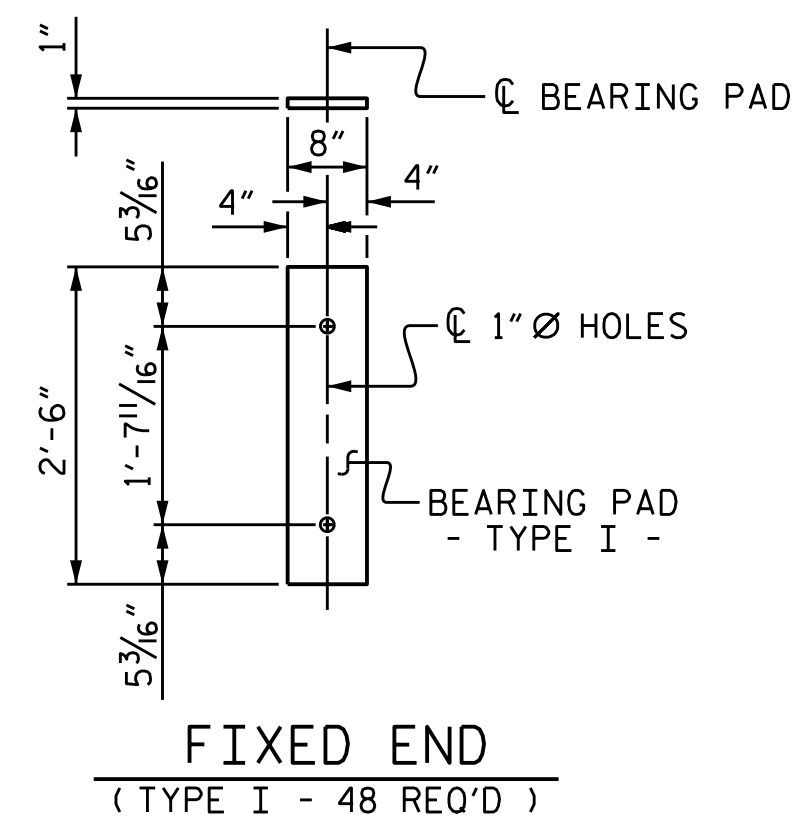
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



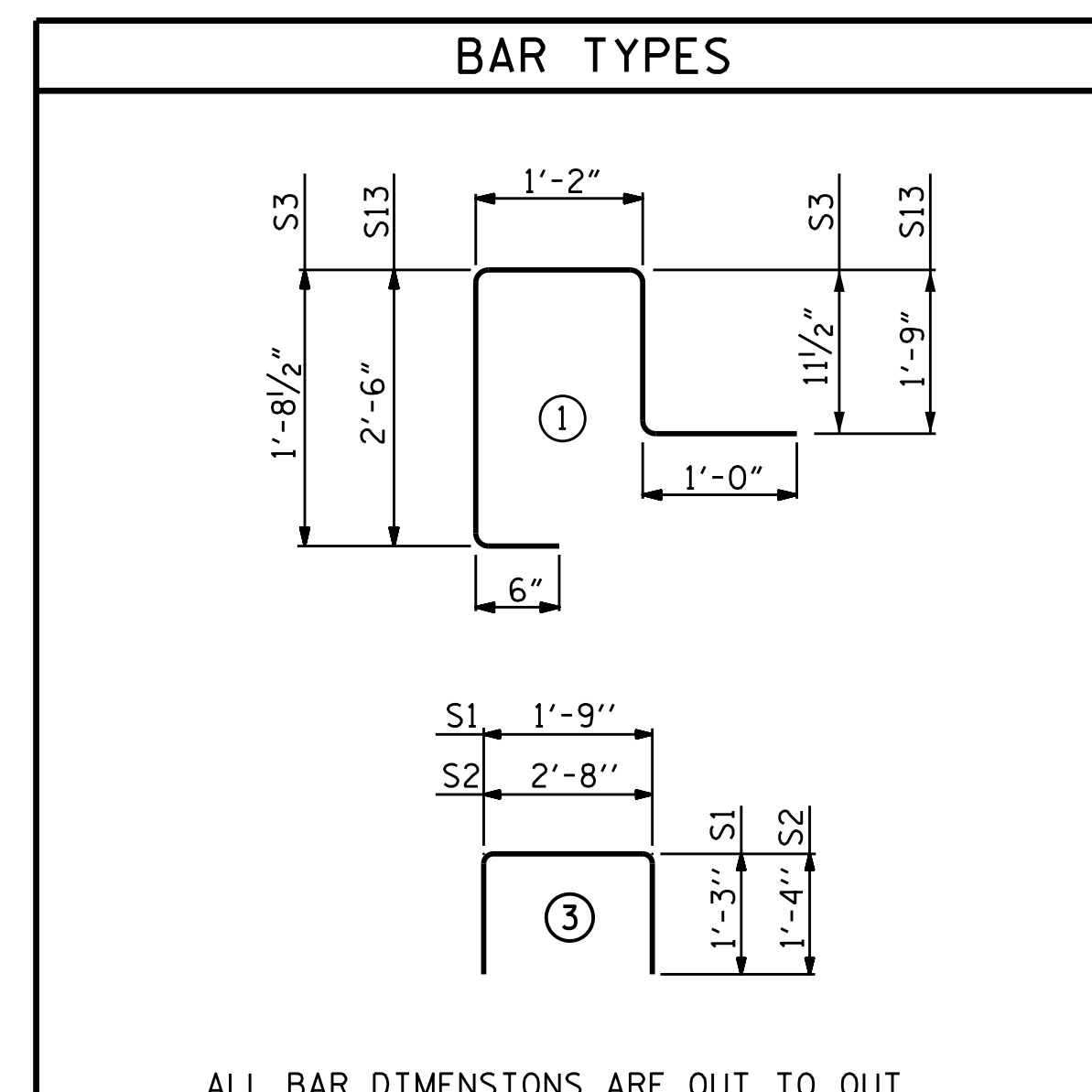
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

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

CONCRETE RELEASE STRENGTH	
UNIT	PSI
35' UNITS	4000

CORED SLABS REQUIRED			
SPANS A & C	NUMBER	LENGTH	TOTAL LENGTH
35' UNIT			
EXTERIOR C.S.	4	35'-0"	140'-0"
INTERIOR C.S.	20	35'-0"	700'-0"
TOTAL	24		840'-0"



BILL OF MATERIAL FOR ONE 35' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	18'-3"	49	18'-3"	49
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	104	#4	3	5'-4"	371		
S2	88	#4	3			5'-4"	314
* S3	27	#4	1	5'-4"	96		
* S13	8	#5	1	6'-11"	58		
REINFORCING STEEL		LBS.			455		398
* EPOXY COATED REINFORCING STEEL		LBS.			154		
5000 P.S.I. CONCRETE		CU. YDS.			6.0		5.2
0.6" Ø L.R. STRANDS		No.			9		9

FOR CURB QUANTITIES, SEE SHEET S-14.

GUTTERLINE ASPHALT THICKNESS		
32'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	
SUPERED SECTION	@ MID-SPAN	@ BEARING
35' UNITS	1 3/4"	2"

FOR CONCRETE CURB HEIGHT, SEE SHEET S-12.

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
35' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/16" ↓
FINAL CAMBER	3/16" ↑

** INCLUDES FUTURE WEARING SURFACE

NOTES

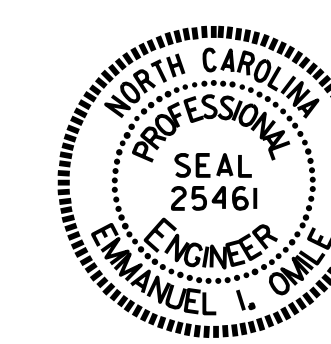
WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM, IN ADDITION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

THE PLATES "P1", ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE CORED SLAB UNITS.

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

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 5 OF 6



DocuSigned by: *E. Omile*

9/3/2015

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 SPANS A & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : E.I. OMILE DATE : 03-17-15
 CHECKED BY : T.H. FANG DATE : 4/24/15

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 NON-SHRINK GROUT.

THE BACKER RODS 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.

ALL REINFORCING STEEL IN THE CURB 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 CURB AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN CURB EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF CURB SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

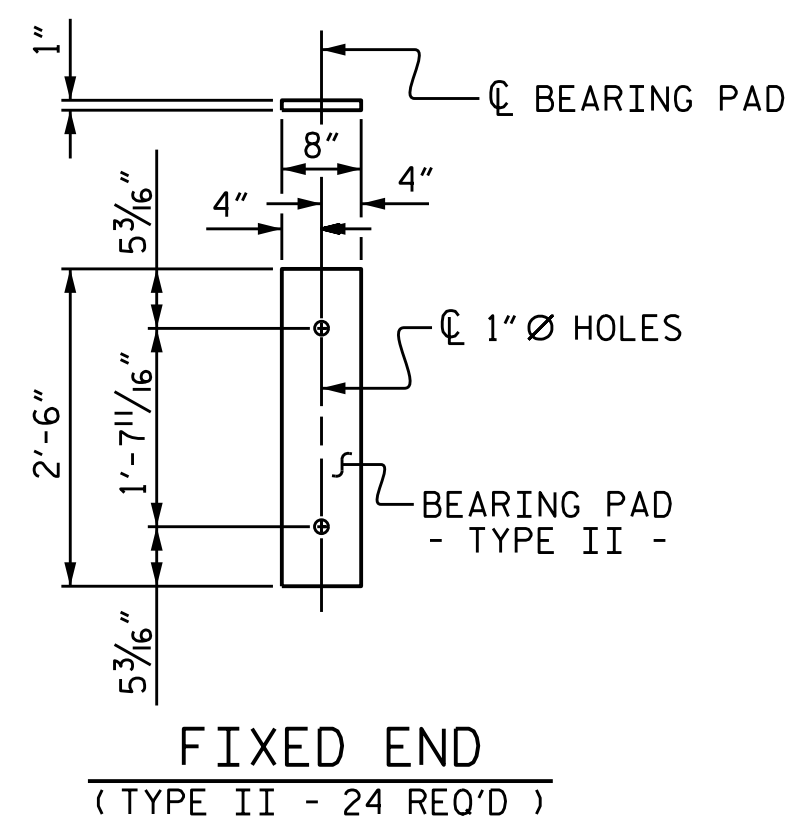
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



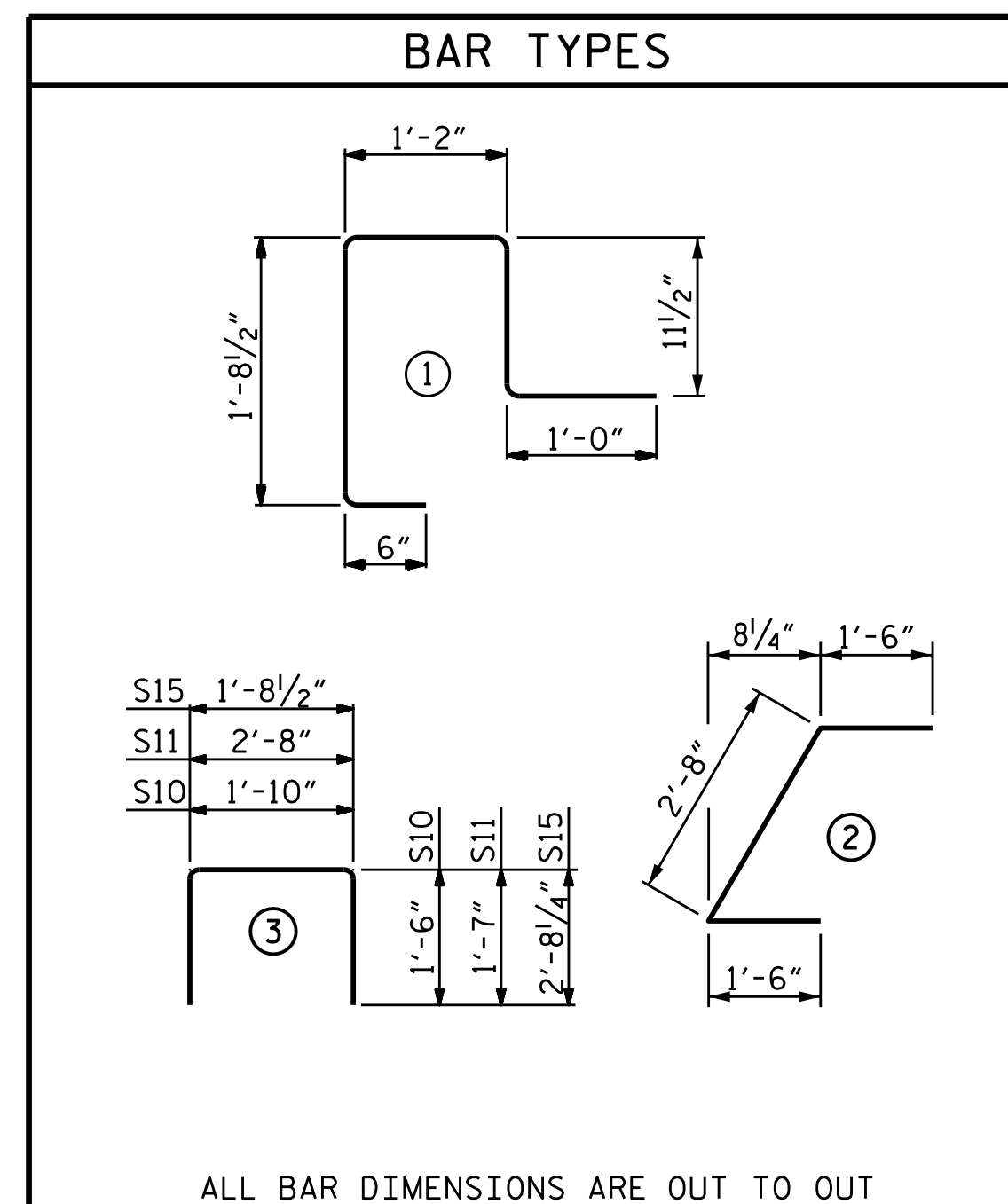
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

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

CONCRETE RELEASE STRENGTH	
UNIT	PSI
70' UNITS	5500

CORED SLABS REQUIRED			
SPAN B	NUMBER	LENGTH	TOTAL LENGTH
70' UNIT			
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	10	70'-0"	700'-0"
TOTAL	12		840'-0"



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-10"	40	4'-10"	40
S11	180	#4	3	5'-10"	701		
S11	152	#4	3			5'-10"	592
*S12	71	#4	1	5'-4"	253		
S14	4	#4	2	5'-8"	15	5'-8"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		884		775
* EPOXY COATED REINFORCING STEEL			LBS.		253		
7000 P.S.I. CONCRETE			CU. YDS.		13.7		12.0
0.6" Ø L.R. STRANDS			No.		28		28

FOR CURB QUANTITIES, SEE SHEET S-14.

GUTTERLINE ASPHALT THICKNESS		
32'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	
SUPERED SECTION	@ MID-SPAN	@ BEARING
70' UNITS	1 3/4"	3/2"

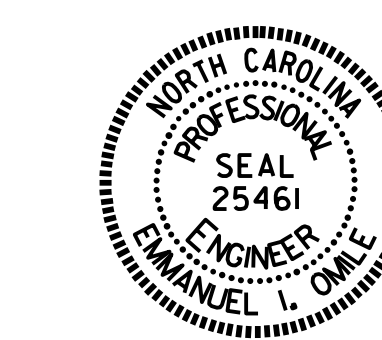
FOR CONCRETE CURB HEIGHT, SEE SHEET S-12.

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2 3/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1 1/16" ↓

** INCLUDES FUTURE WEARING SURFACE

ASSEMBLED BY : E.I. OMILE DATE : 03-17-15
CHECKED BY : T. H. FANG DATE : 4/24/15

03-SEP-2015 12:04
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tfang



DocuSigned by: Emmanuel I. Omile
9/3/2015

PROJECT NO. B-4959
GUILFORD COUNTY
STATION: 14+70.50 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT SPAN B					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-11
					TOTAL SHEETS 25

STD. NO. 24PCS3_36_75&105S

NOTES

METAL RAIL SHALL BE GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS. ALUMINUM RAIL WILL NOT BE AN OPTION.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, ANCHOR PLATES, AND RAIL SPLICE TUBES: AASHTO M270 GRADE 36 STRUCTURAL STEEL-GALVANIZED TO AASHTO M111.

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.

RAILS: ASTM A500 GRADE B - GALVANIZED TO AASHTO M111.

WELDED RAIL STUDS: ASTM A108-GALVANIZED TO AASHTO M111.

HIGH STRENGTH ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 105. HEAVY HEX NUTS SHALL CONFORM TO ASTM A563 DH, AND WASHERS TO ASTM F436, TYPE 1. NUTS AND WASHERS SHALL BE GALVANIZED TO AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED 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 STANDARD NO. BMR11.

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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.

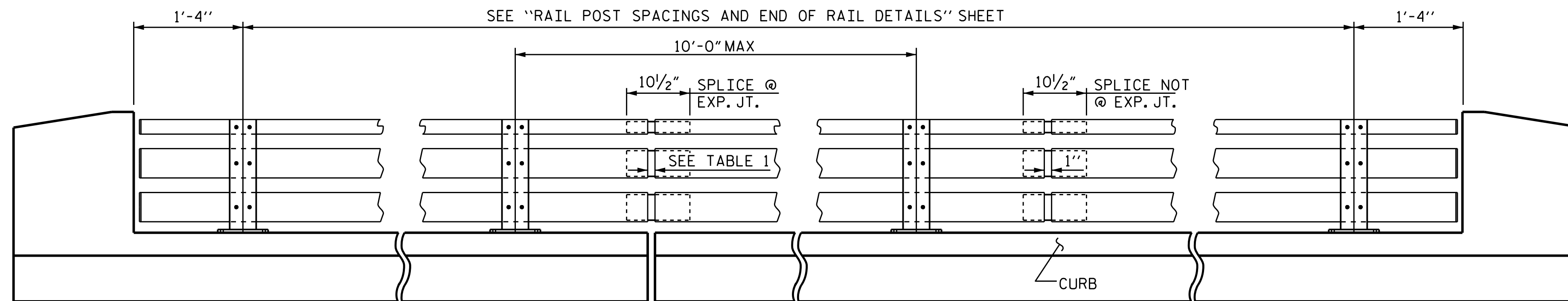
TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

THE RAIL SECTIONS SHALL BE ATTACHED TO THE POSTS BY TWO THREADED 3/4" Ø WELDED STUDS, PLATE WASHERS, LOCKWASHERS, AND NUTS.

FOR 42" OREGON RAIL, SEE THE SPECIAL PROVISIONS.

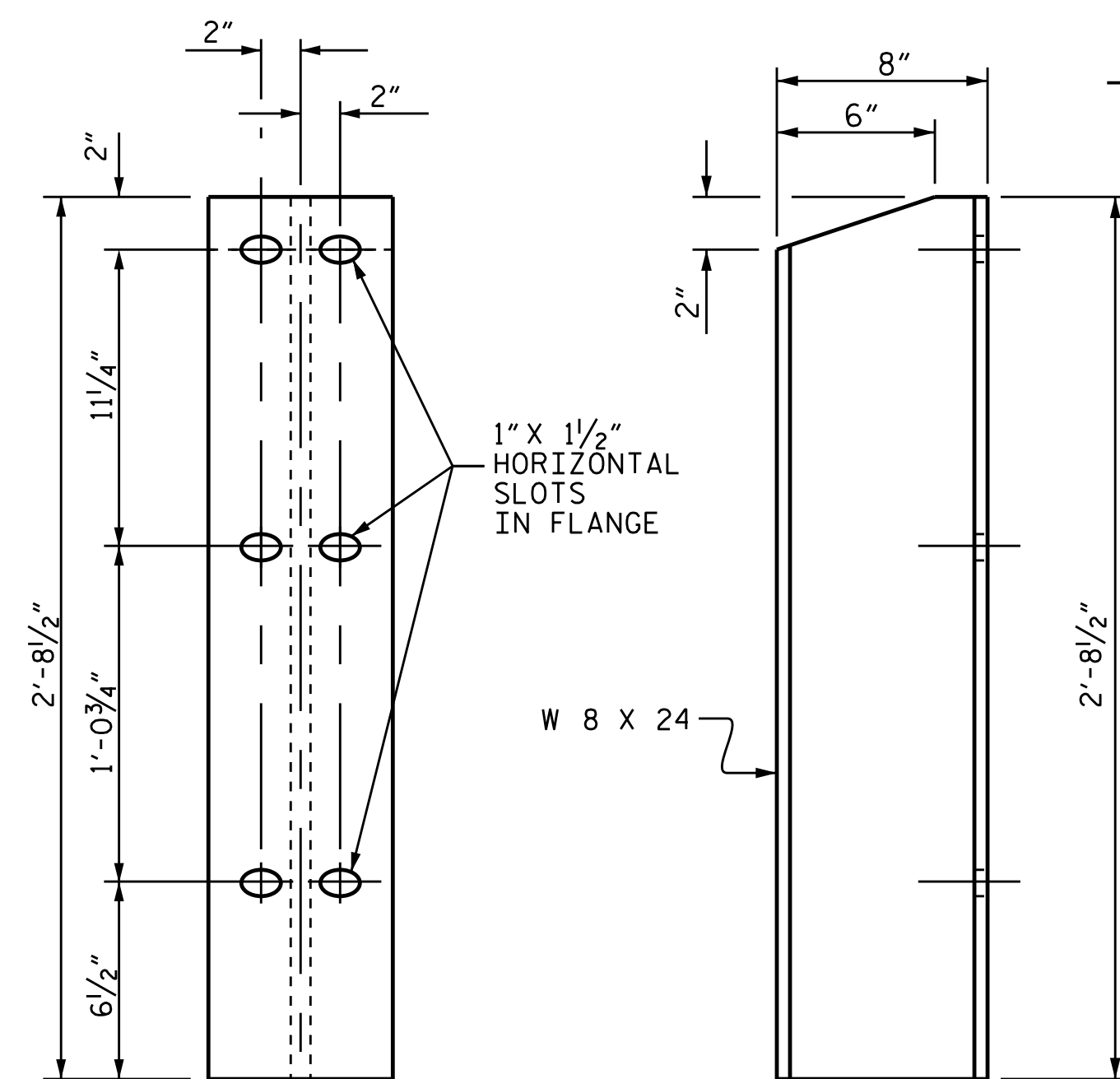
PAY LENGTH 264.6 LIN. FT.



ELEVATION

FOR ATTACHMENT OF METAL RAIL TO END POST, SEE SHEET S-13.

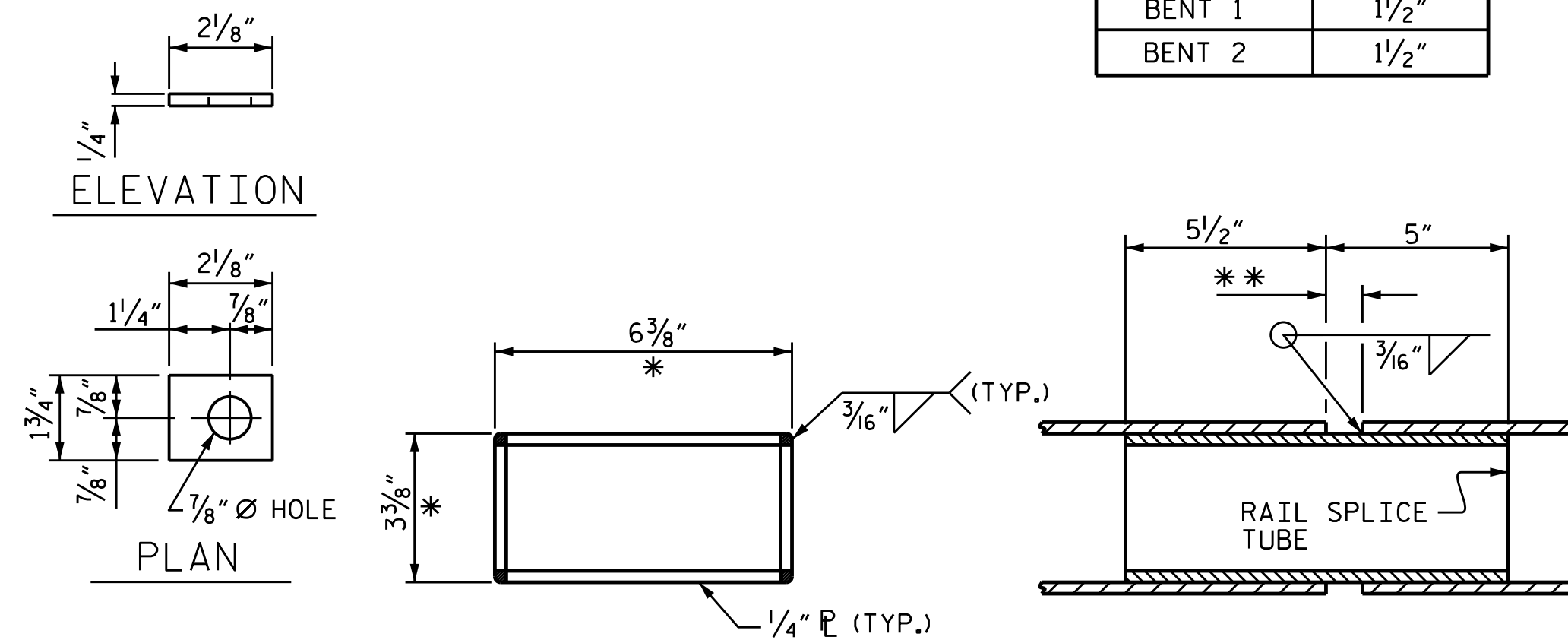
EXP. JT. @	RAIL OPENING
BENT 1	1 1/2"
BENT 2	1 1/2"



FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



ELEVATION

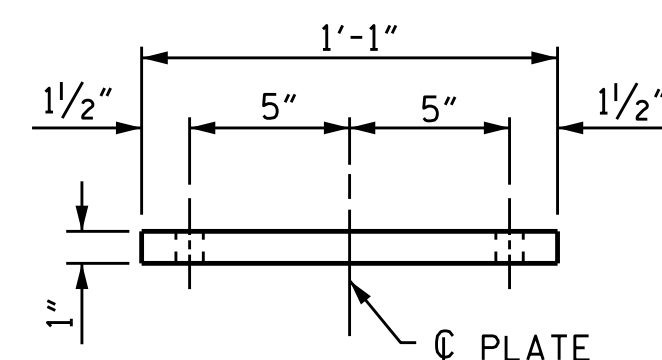
PLAN

PLATE WASHER

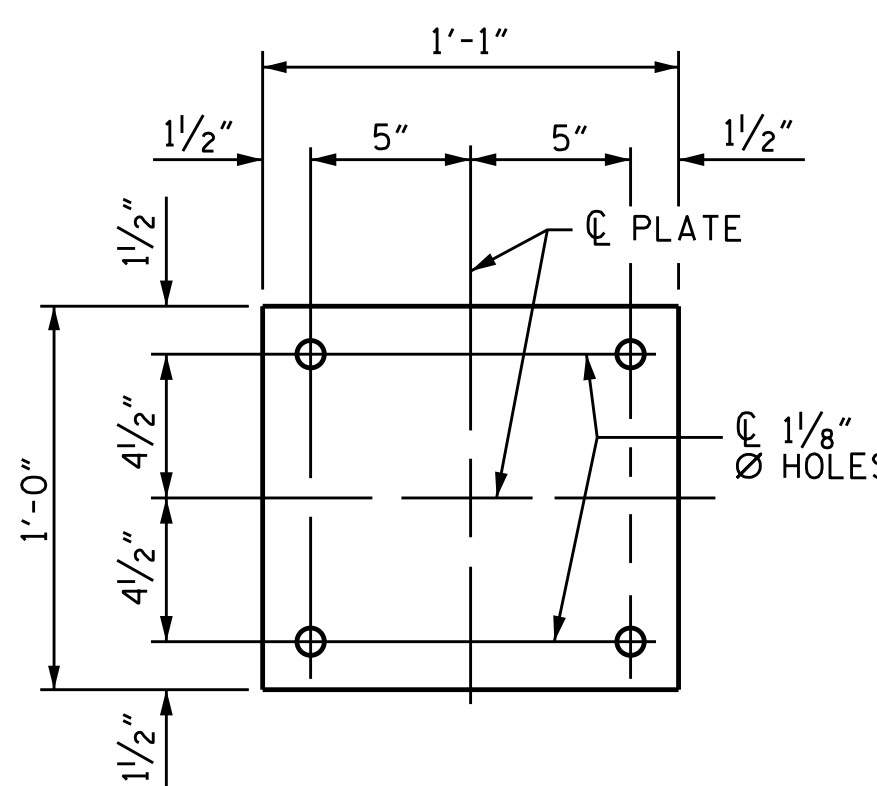
RAIL SPLICE DETAILS

* - DIMENSION AFTER GRINDING RADIUS ON CORNERS TO MATCH INSIDE OF METAL RAIL. GRIND ALL EDGES PRIOR TO GALVANIZING TO ASSURE FIT.

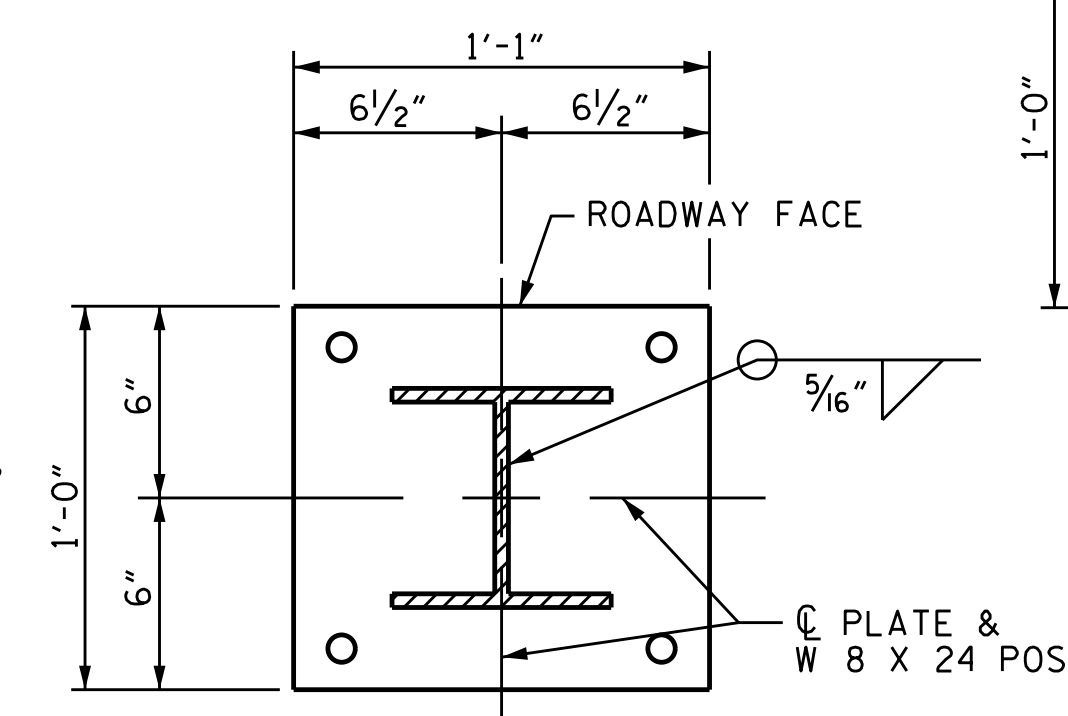
** -1" FOR SPLICE NOT AT EXPANSION JOINT; SEE TABLE 1 FOR OPENING FOR SPLICES AT EXPANSION JOINTS.



FRONT ELEVATION

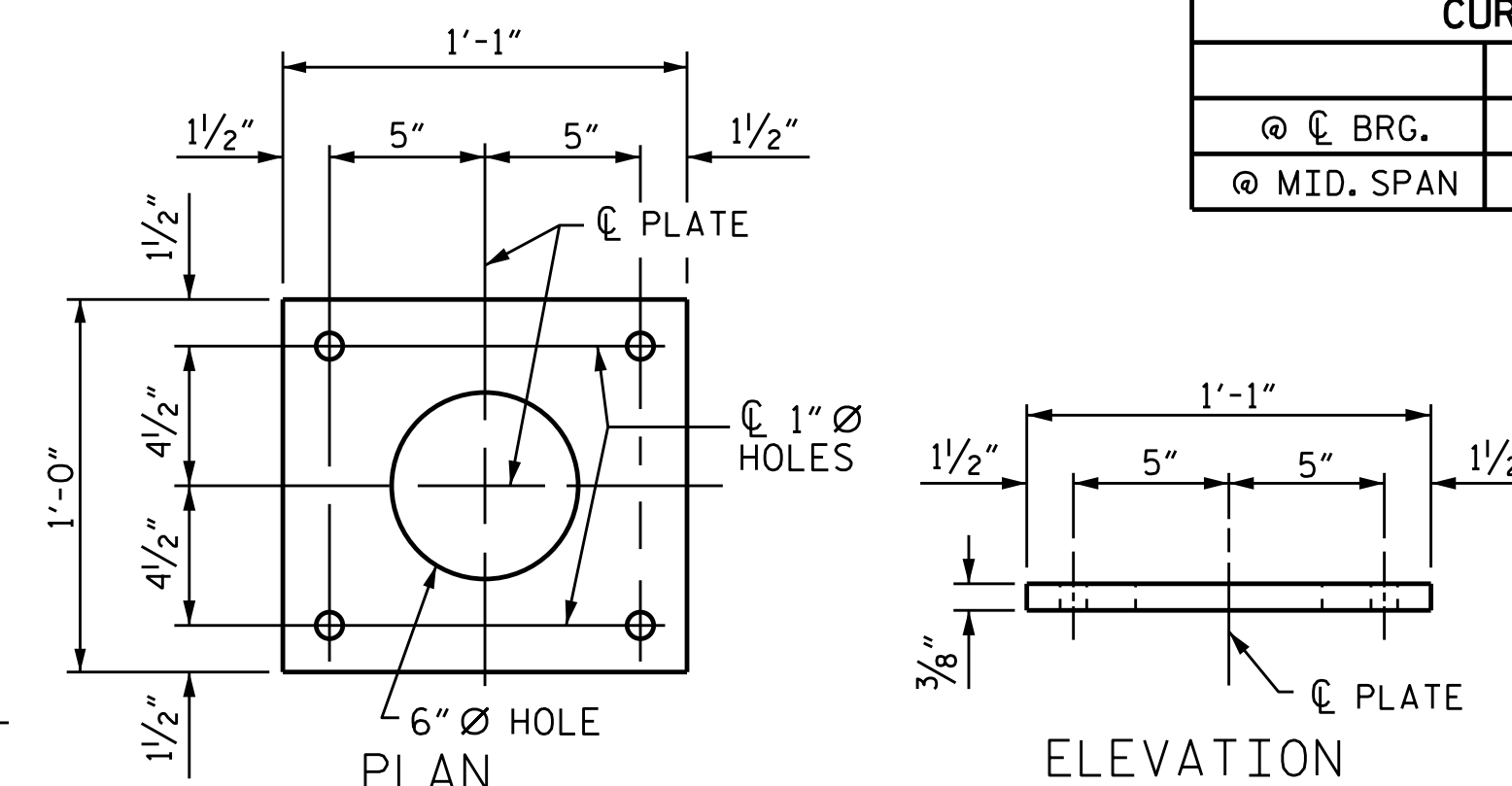


PLAN



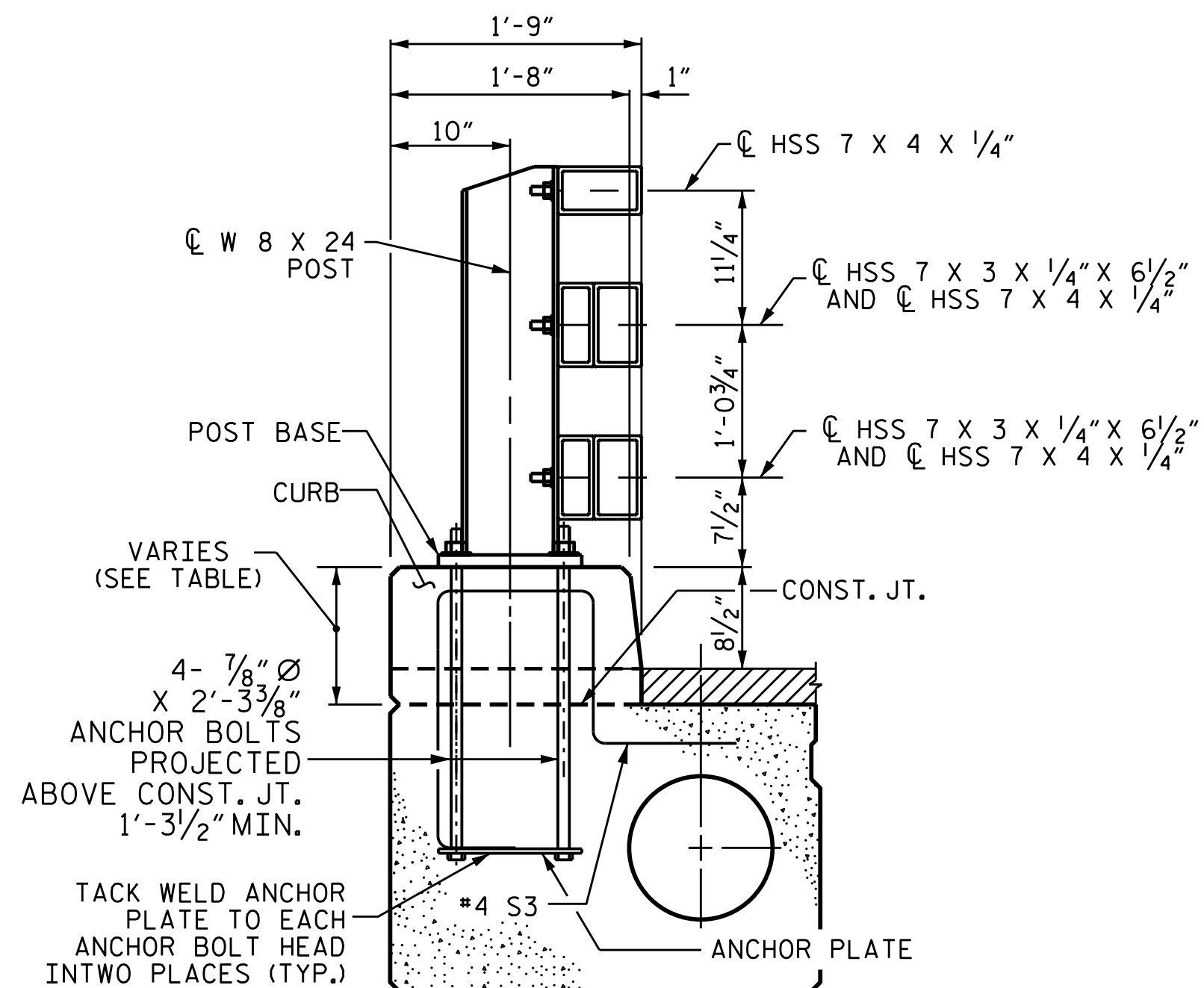
POST ATTACHMENT DETAIL

POST BASE DETAILS



ANCHOR PLATE DETAILS

	CURB HEIGHT TABLE	
	SPAN A & C	SPAN B
@ C. BRG.	10 1/2"	1'-0"
@ MID. SPAN	10 3/8"	10 1/2"



SECTION THRU RAIL

#4 "B" BARS IN CURB NOT SHOWN FOR CLARITY

ASSEMBLED BY :	E.I. OMILE	DATE :	03/01/15
CHECKED BY :	T. H. FANG	DATE :	6/8/15
DRAWN BY :	RWW 7/14	ADDED	1/15
CHECKED BY :	TMC 7/14		

02-SEP-2015 16:08
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t.fang

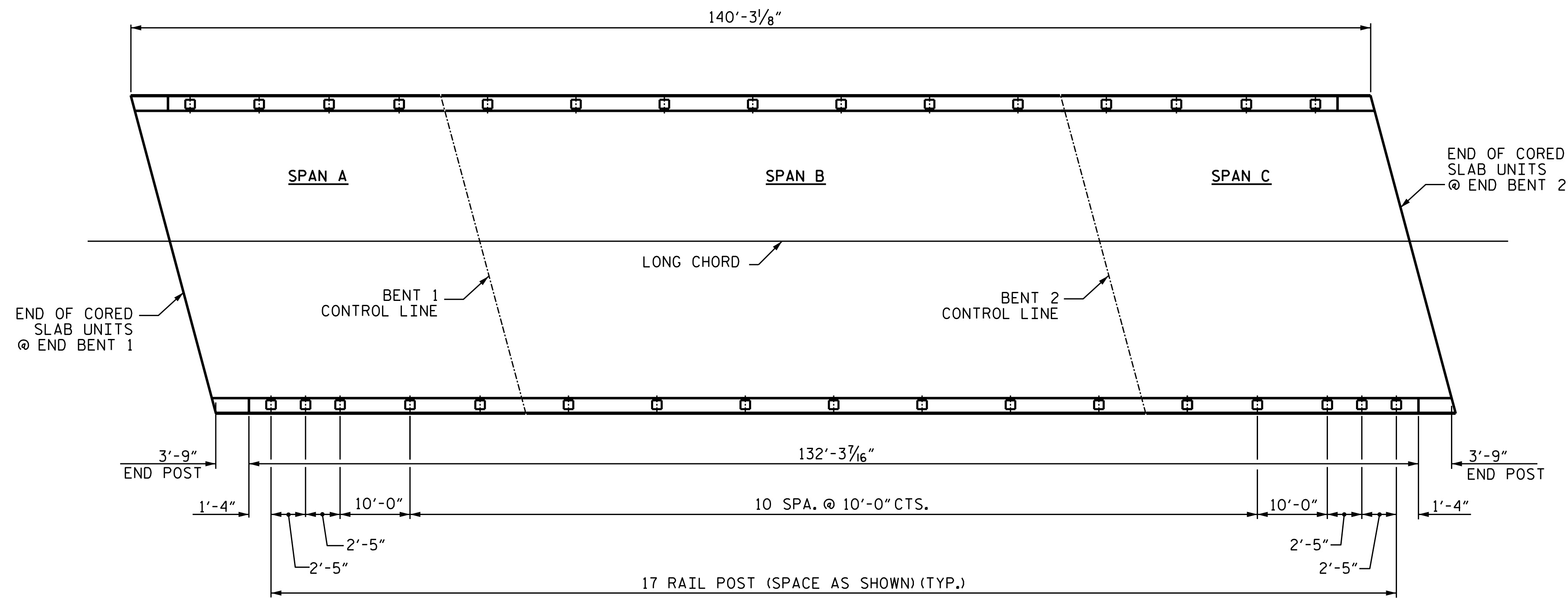


PROJECT NO. B-4959
GUILFORD COUNTY
STATION: 14+70.50 -L-

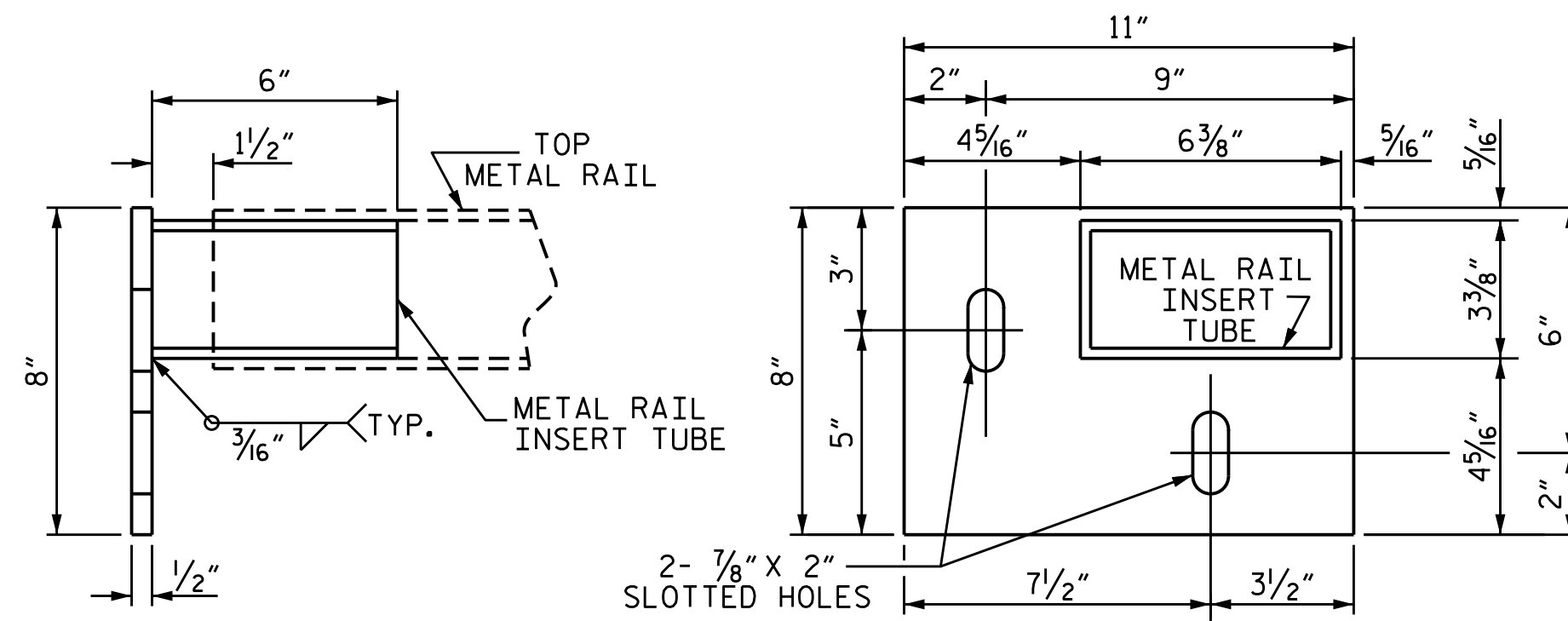
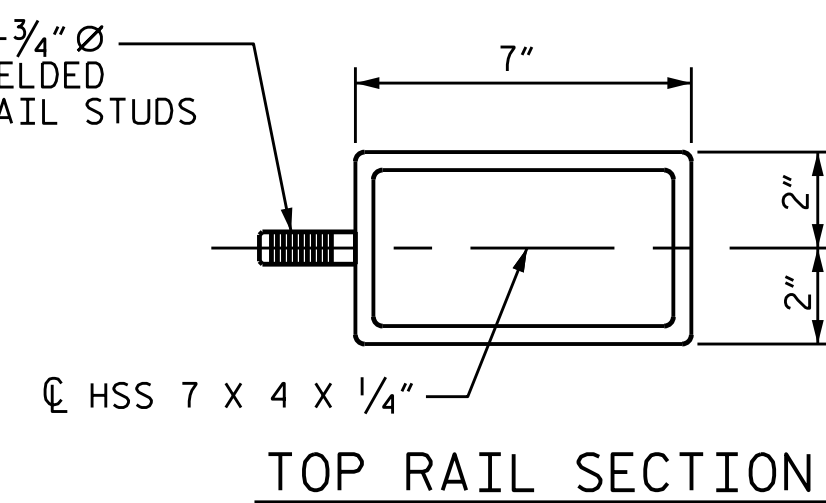
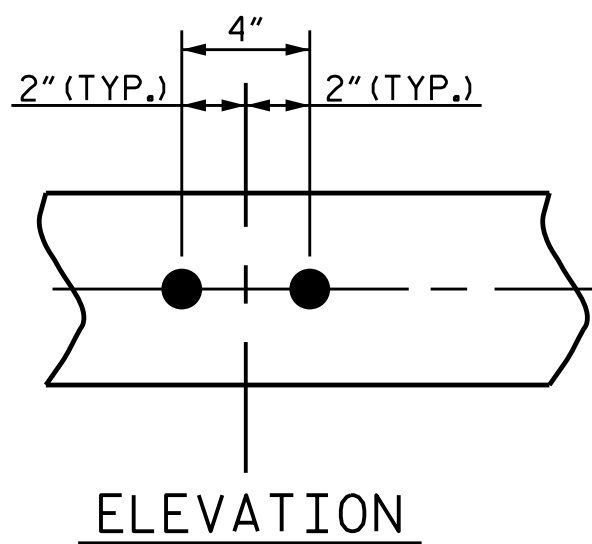
SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 42" OREGON RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-12
					TOTAL SHEETS 25

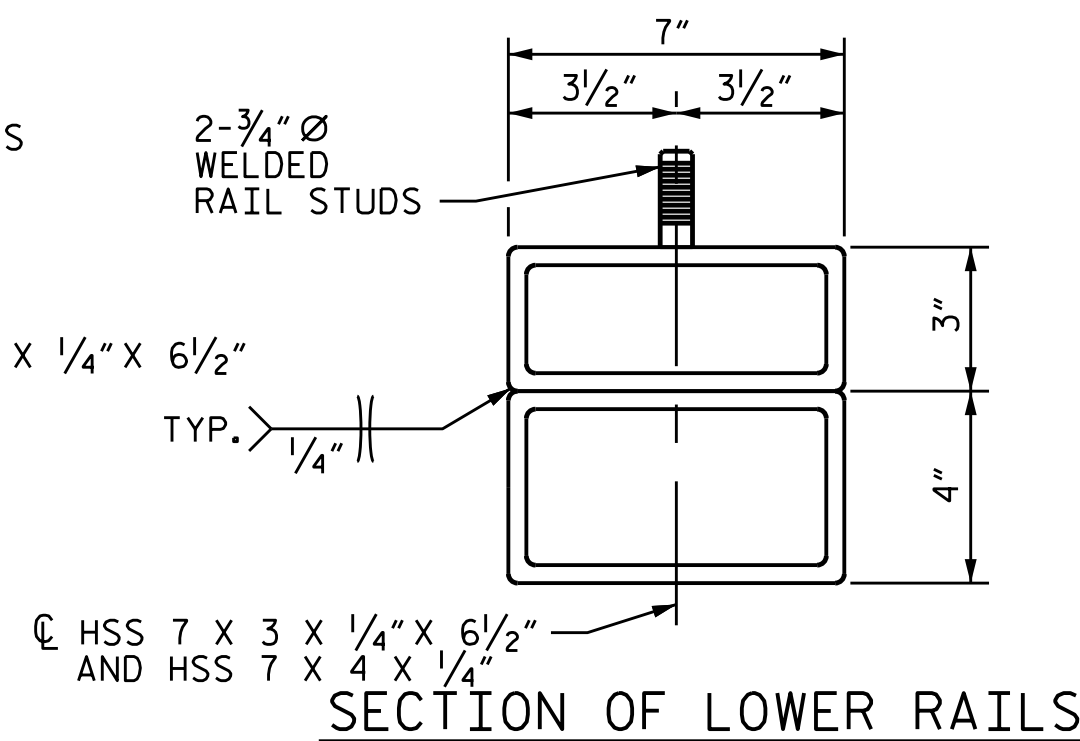
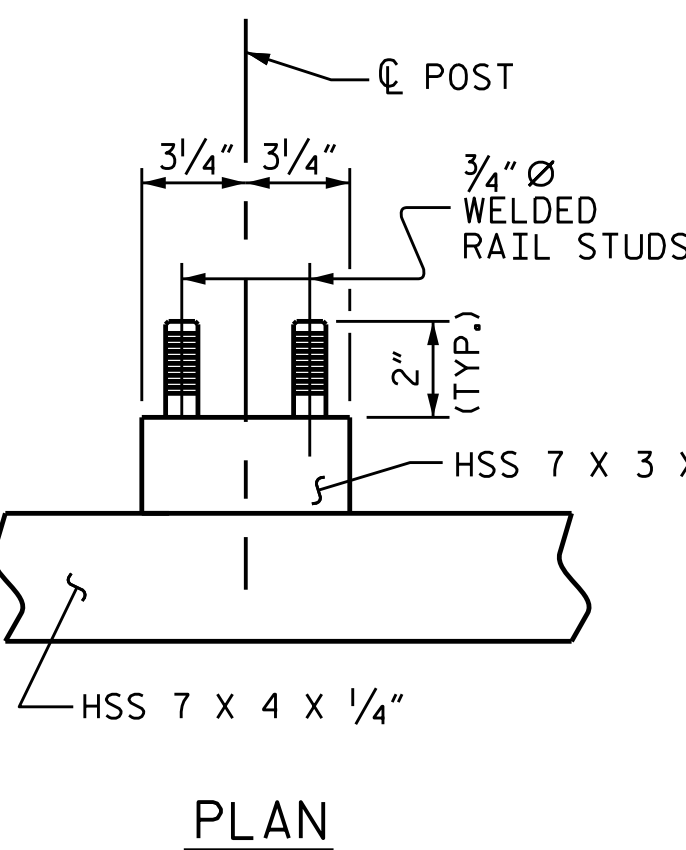
STD. NO. BMR10



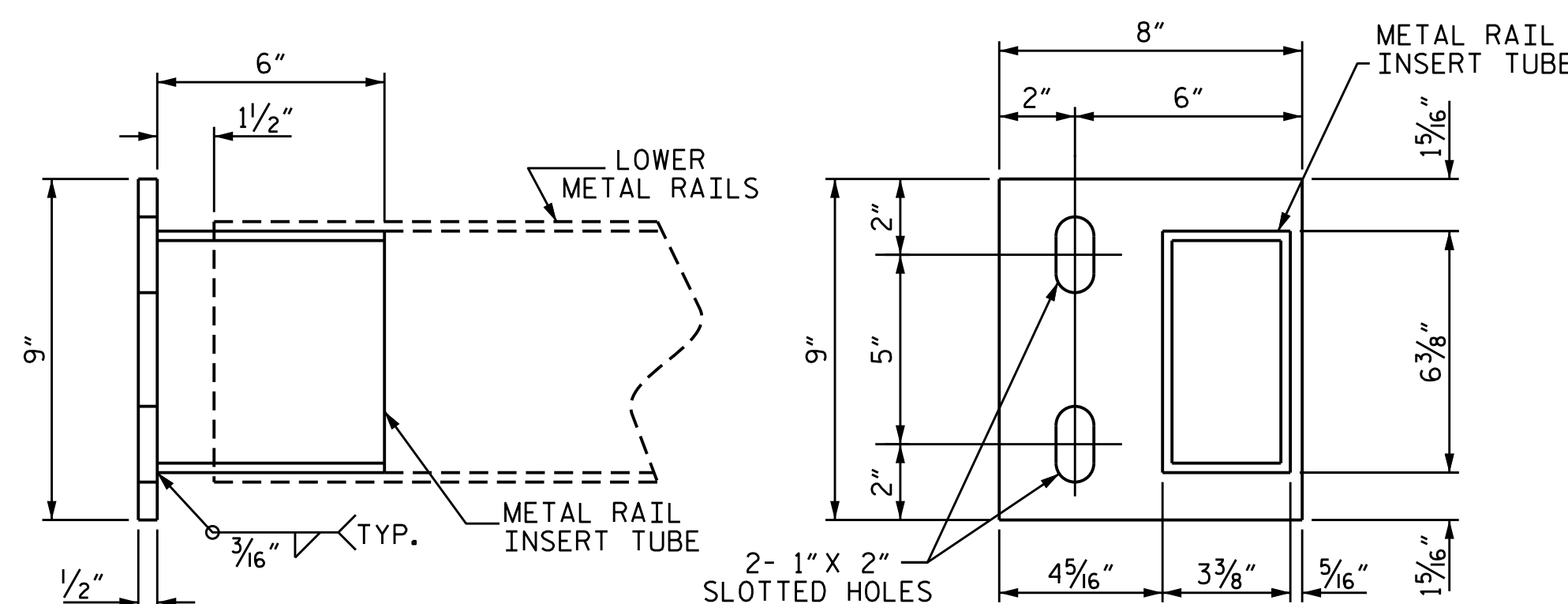
PLAN OF RAIL POST SPACINGS
RAIL POST DIMENSIONS TYPICAL EACH SIDE



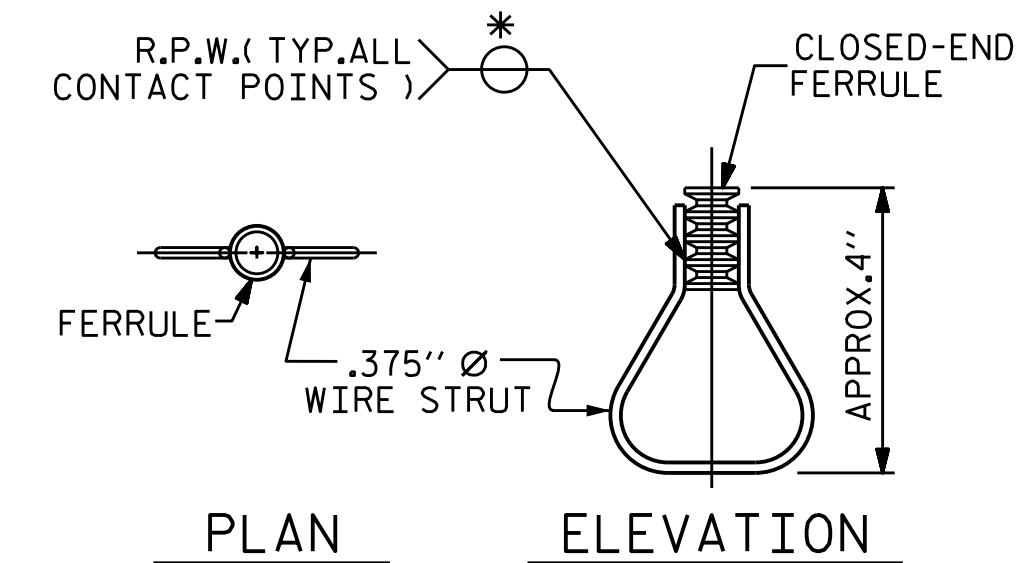
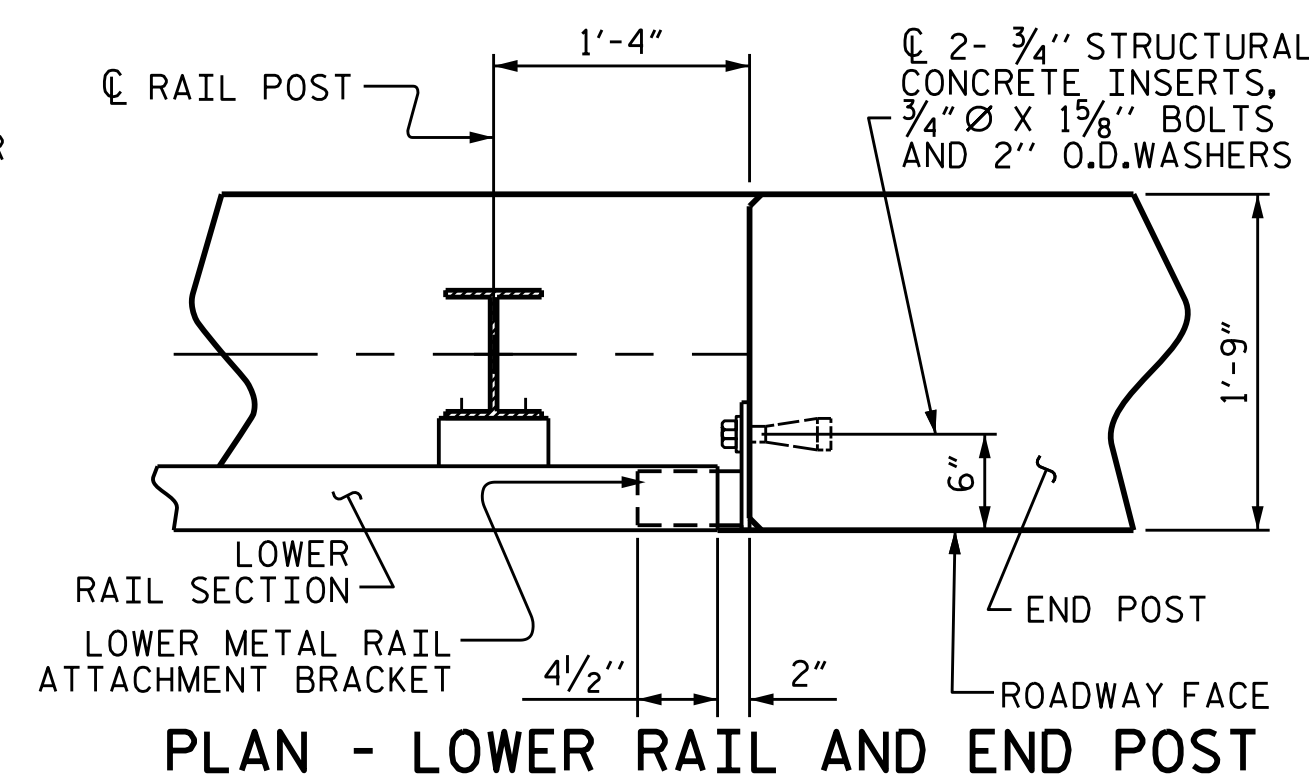
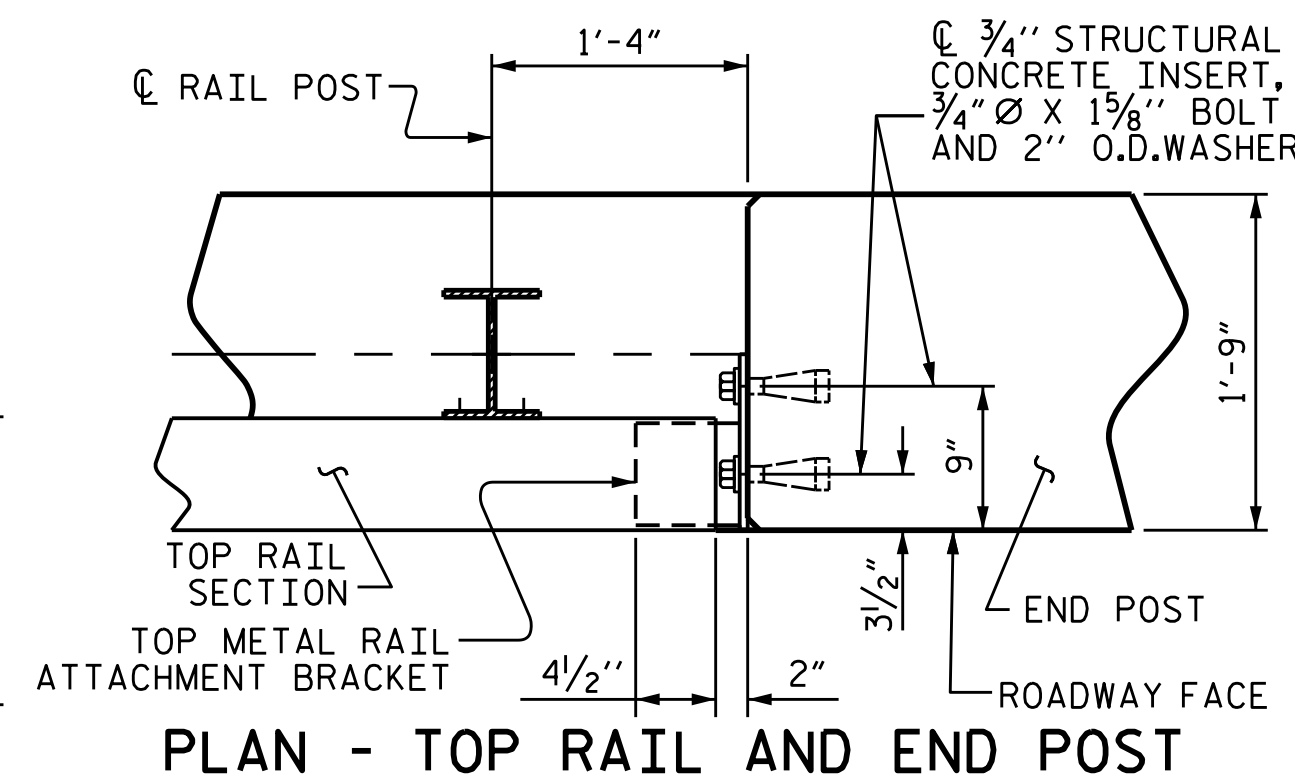
TOP METAL RAIL ATTACHMENT BRACKET
THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM 1/4" PLATES.



RAIL STUD DETAILS



LOWER METAL RAILS ATTACHMENT BRACKET
THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM 1/4" PLATES.



STRUCTURAL CONCRETE INSERT

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



DocuSigned by: Epon 9/3/2015 65611028E1B425

NOTES

STRUCTURAL CONCRETE INSERT

EACH STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULE 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 STRUCTURAL CONCRETE INSERT DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 3/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

EACH METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. 1/2" METAL BRACKET PLATE AND 1/4" METAL RAIL INSERT TUBE SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO AASHTO M111.
- B. 3/4" STRUCTURAL CONCRETE INSERTS 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.

THE 3/4" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT, THE 1/2" BRACKET PLATES, AND THE RAIL INSERT TUBES 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" BOLTS WITH WASHERS SHALL BE REPLACED WITH 3/4" Ø x 6 1/2" BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø x 1 5/8" BOLTS SHALL APPLY TO THE 3/4" Ø x 6 1/2" BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. B-4959
GUILFORD COUNTY
STATION: 14+70.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR 42" OREGON RAIL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13	
1			3			TOTAL SHEETS	
2			4			25	

ASSEMBLED BY: E.I. OMILE	DATE: 03/01/15
CHECKED BY: T.H. FANG	DATE: 6-8-15
DRAWN BY: RWW 7/14	ADDED 1/15
CHECKED BY: TMG 7/14	

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.

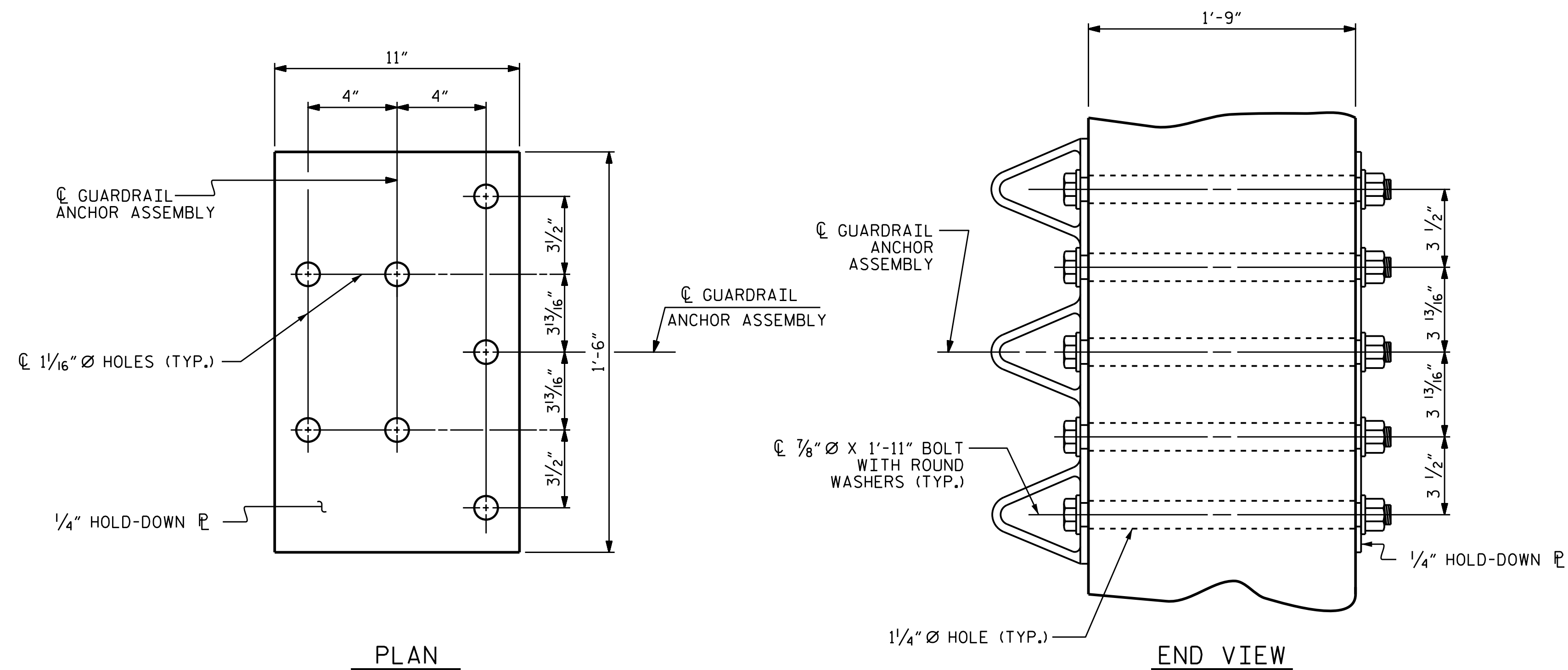
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

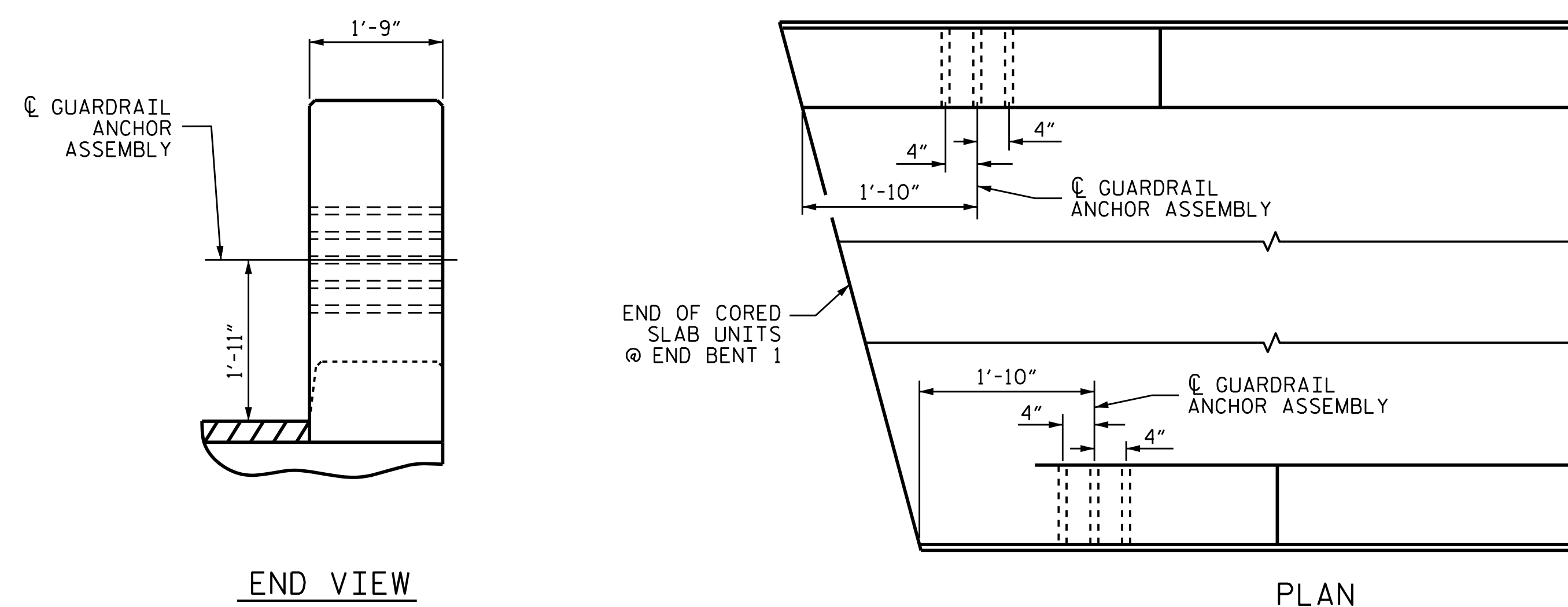


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY



LOCATION OF GUARDRAIL ANCHOR AT END POST

END BENT 1 SHOWN, END BENT 2 SIMILAR

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-



9/3/2015

DocuSigned by: *Emmanuel L. Omile*

ASSEMBLED BY :	E. I. OMILE	DATE :	03-17-15
CHECKED BY :	T. H. FANG	DATE :	6-8-15
DRAWN BY :	MAA 5/10	REV. 12/5/11	MAA/GM
CHECKED BY :	GM 5/10	REV. 6/13	MAA/GM
		REV. 1/15	MAA/TMG

REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			25

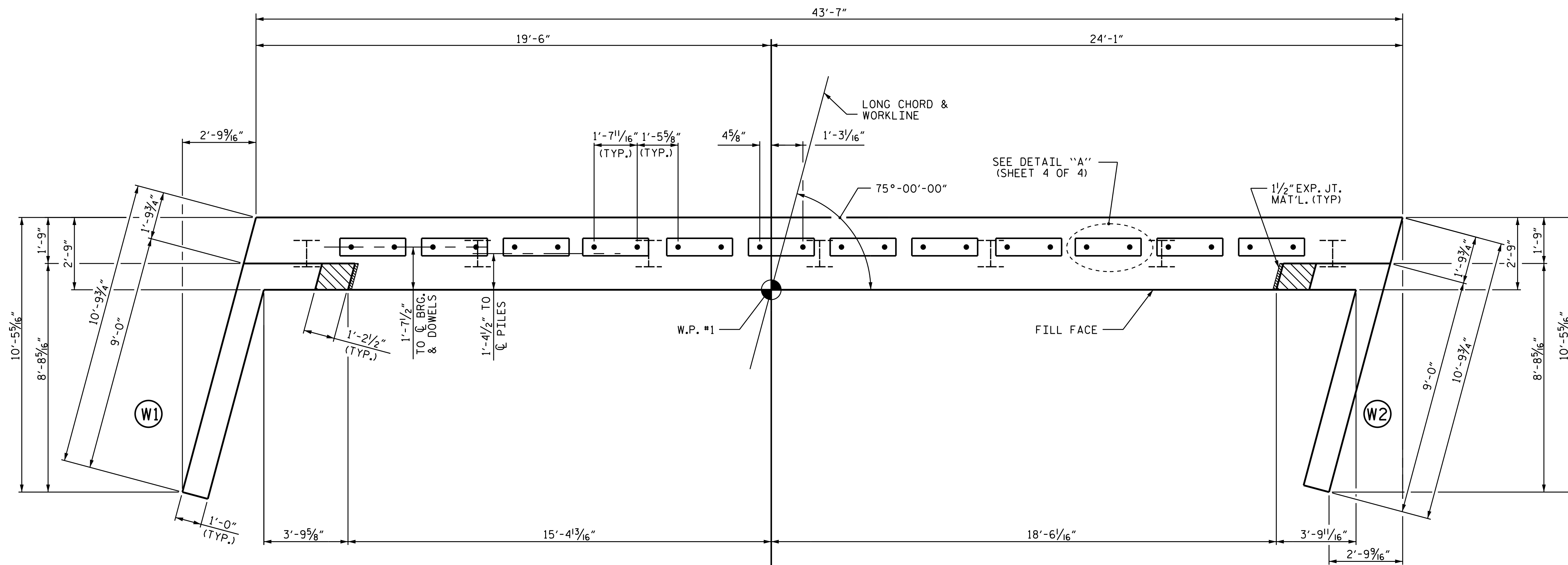
NOTES

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

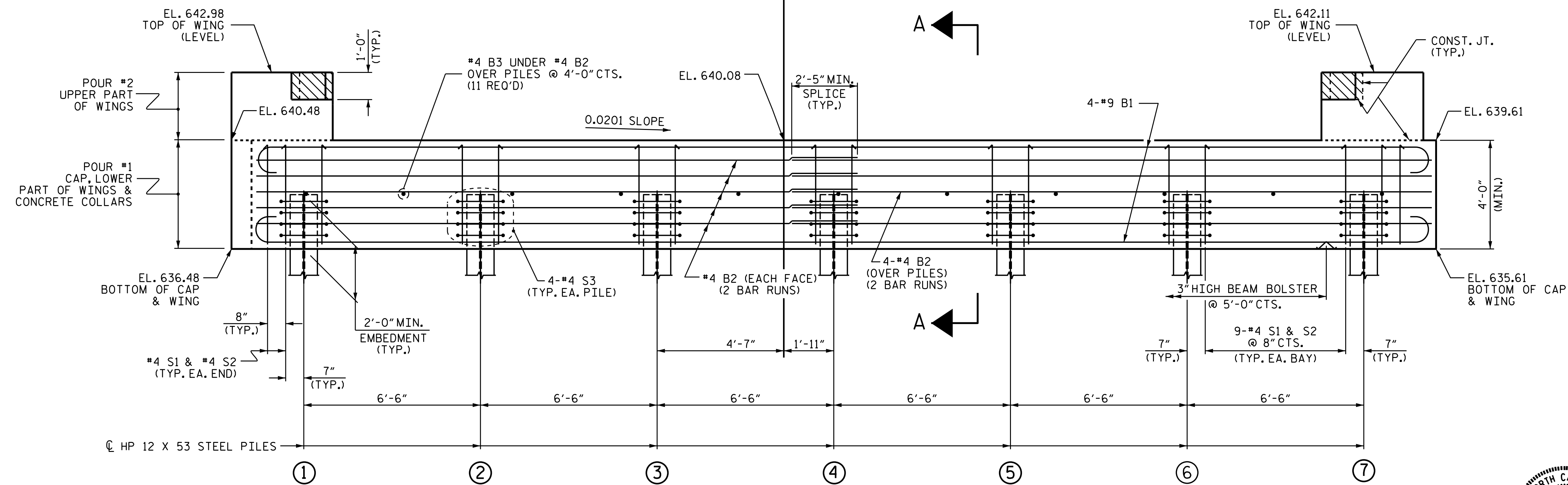
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
①	638.43
②	638.30
③	638.17
④	638.04
⑤	637.90
⑥	637.77
⑦	637.64

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : C. YOKELEY DATE : 2/10/14
 CHECKED BY : T. KIRSCHBAUM DATE : 3/3/14

DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11

WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

DocuSigned by:
 [Signature]

9/3/2015

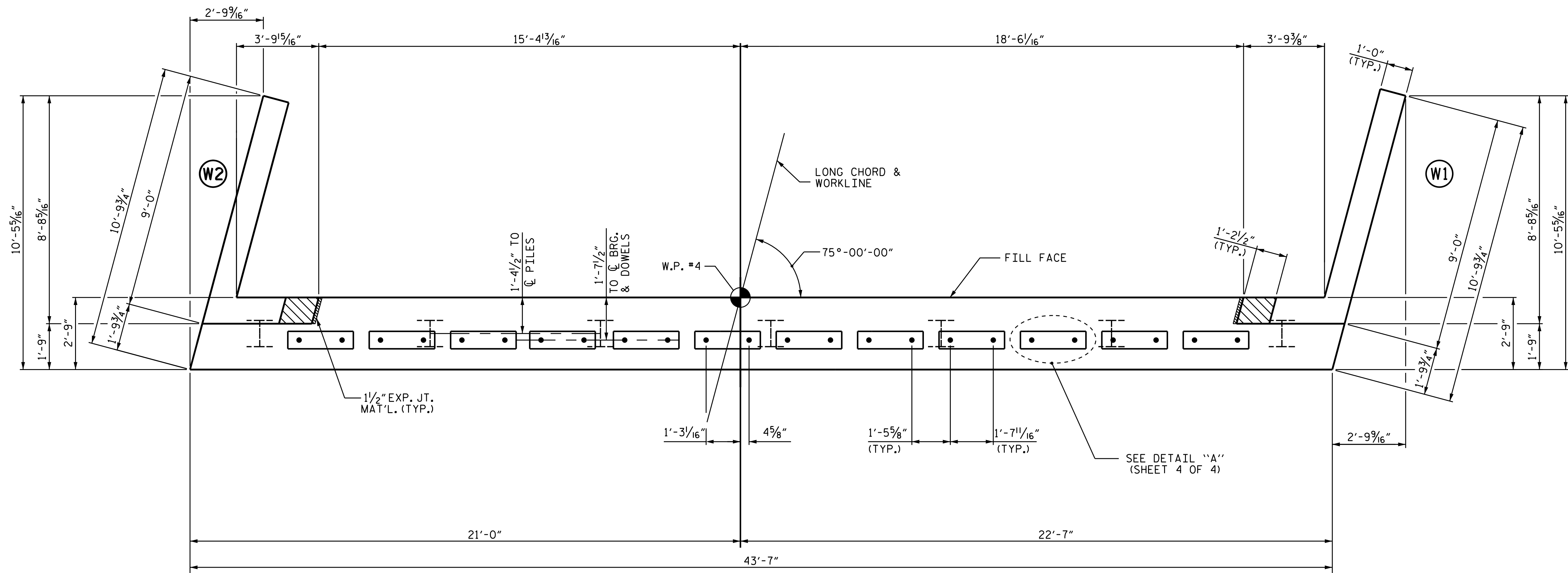
NOTES

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

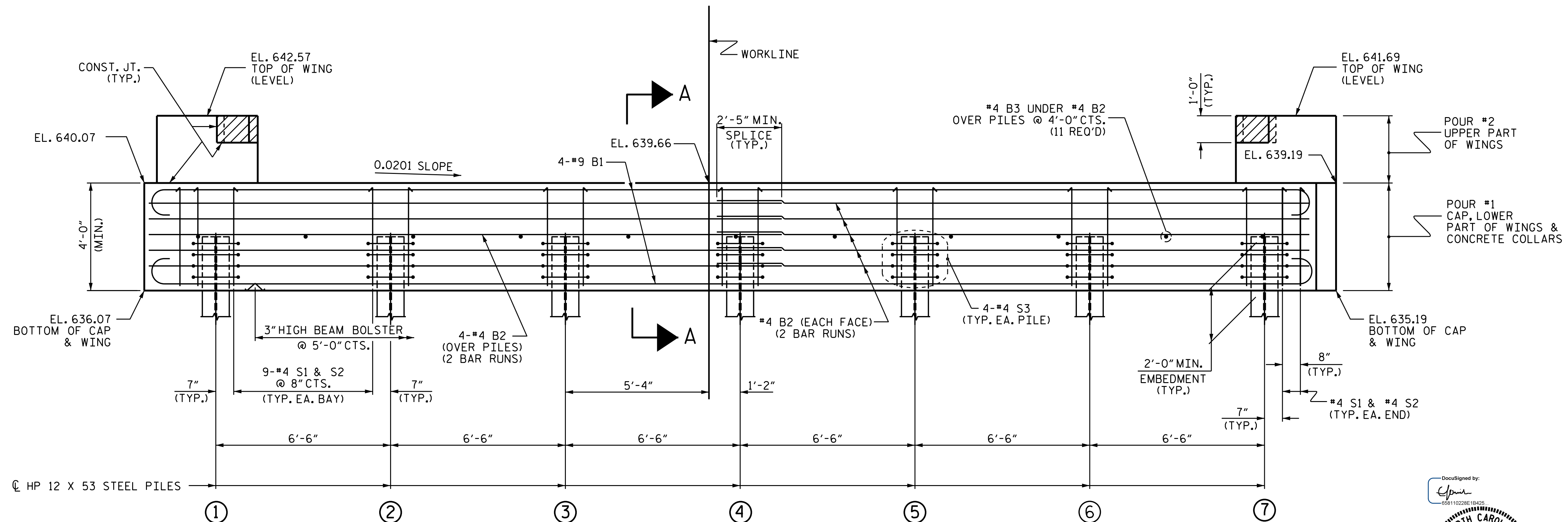
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



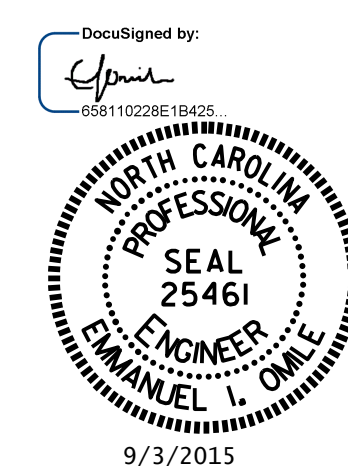
ELEVATION

TOP OF PILE ELEVATIONS	
①	638.01
②	637.88
③	637.75
④	637.62
⑤	637.49
⑥	637.36
⑦	637.23

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 2 OF 4

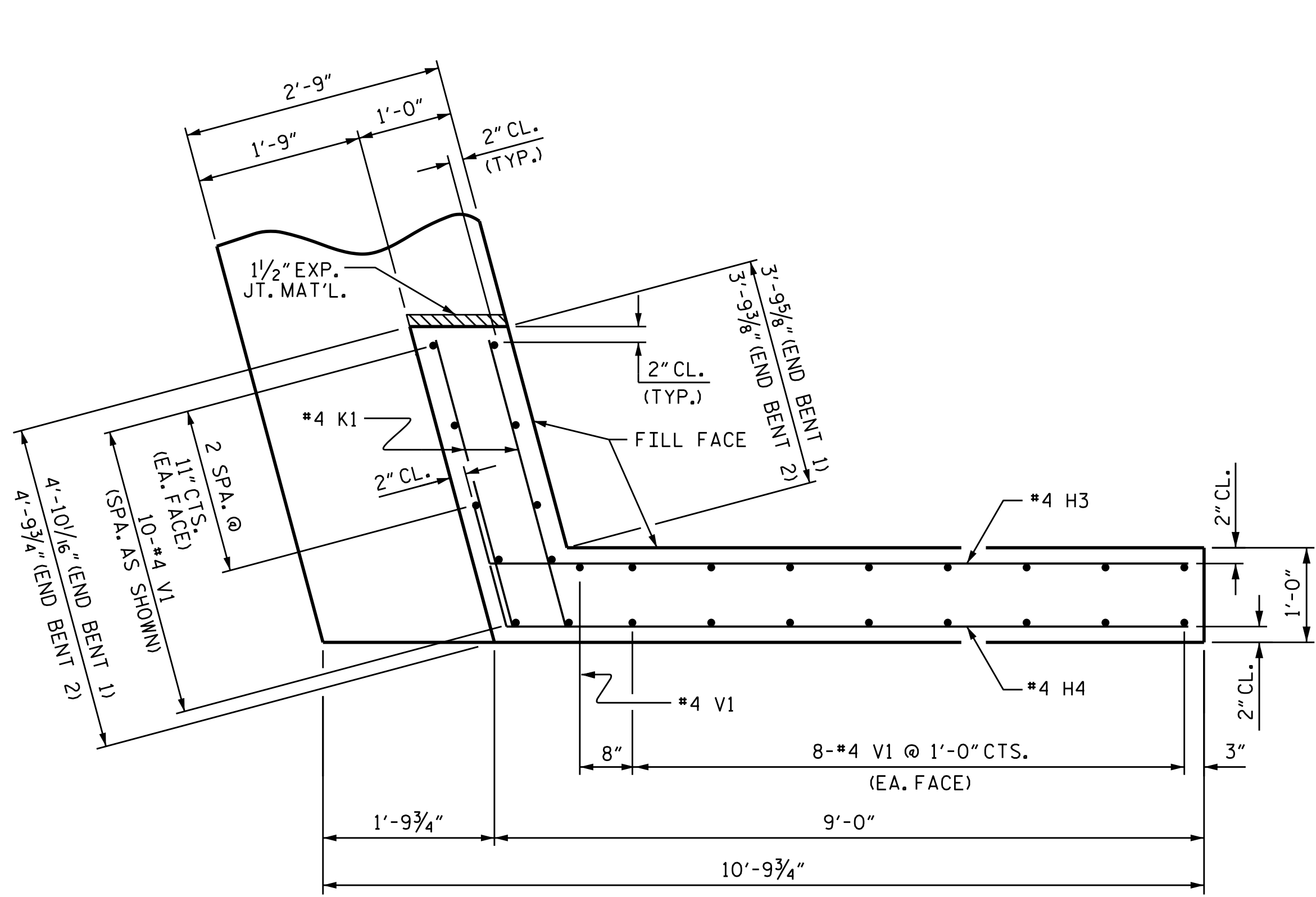
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



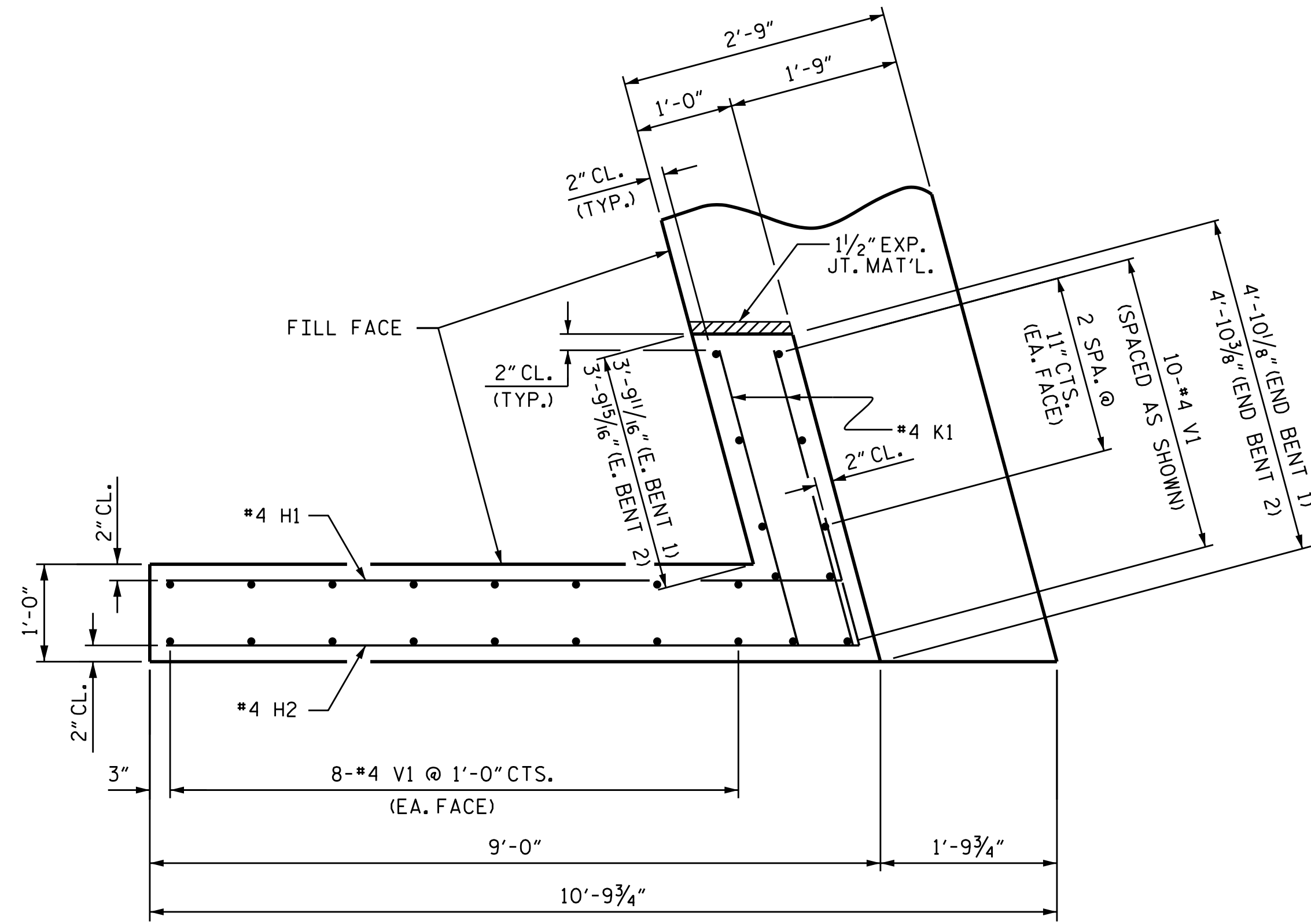
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			25

WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

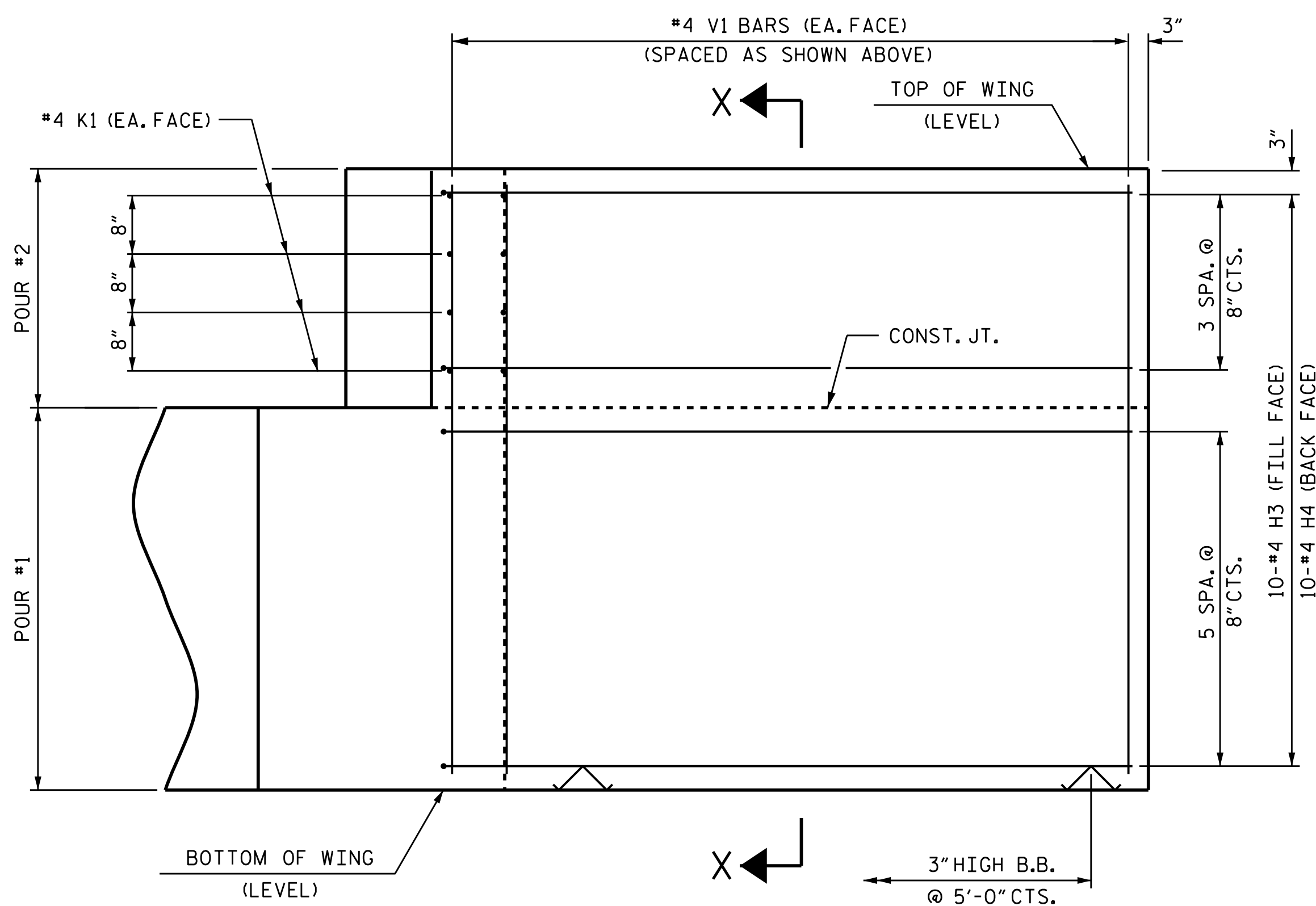
ASSEMBLED BY : C. YOKELEY DATE : 2/10/14
 CHECKED BY : T. KIRSCHBAUM DATE : 3/3/14
 DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11



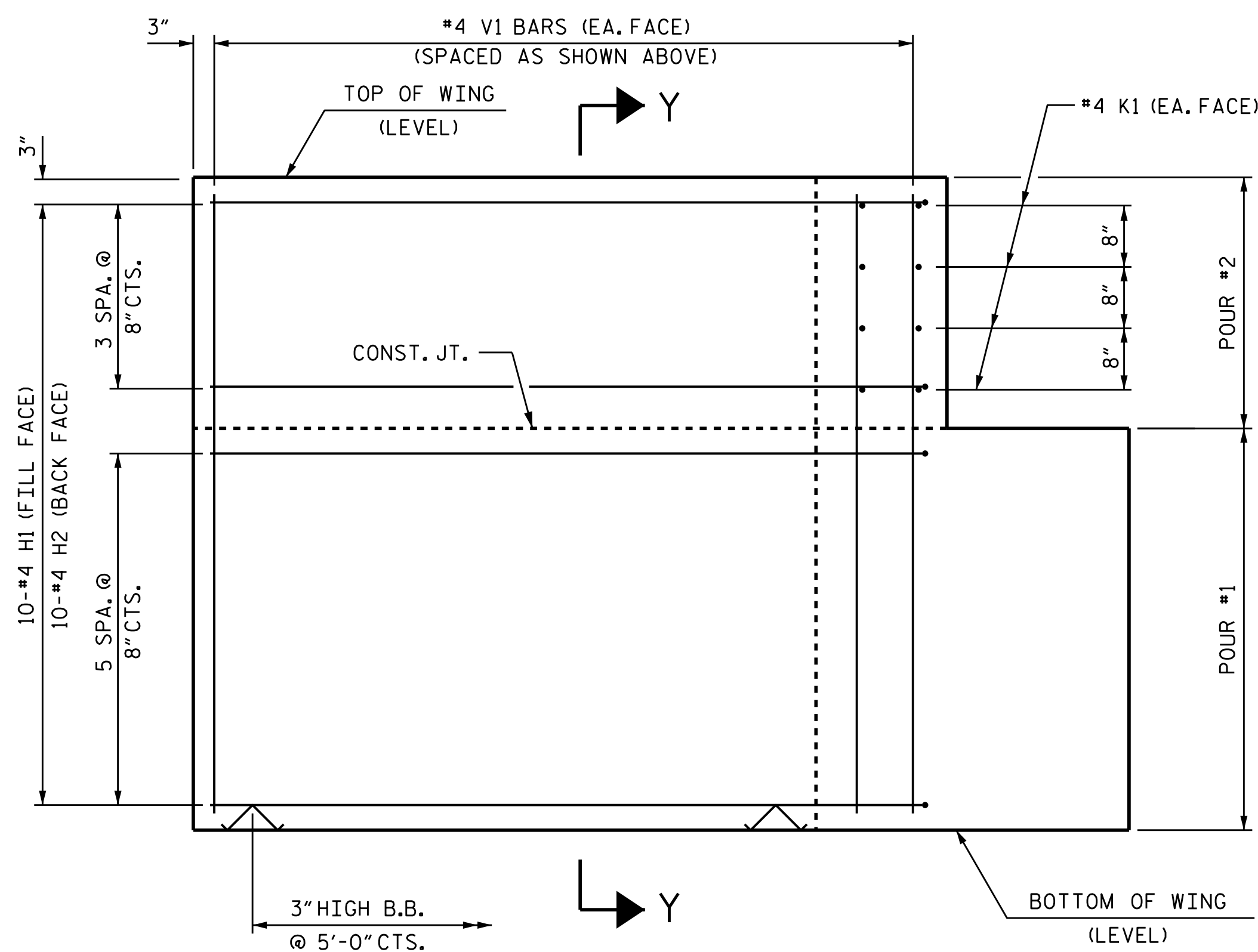
PLAN OF WING (W1)



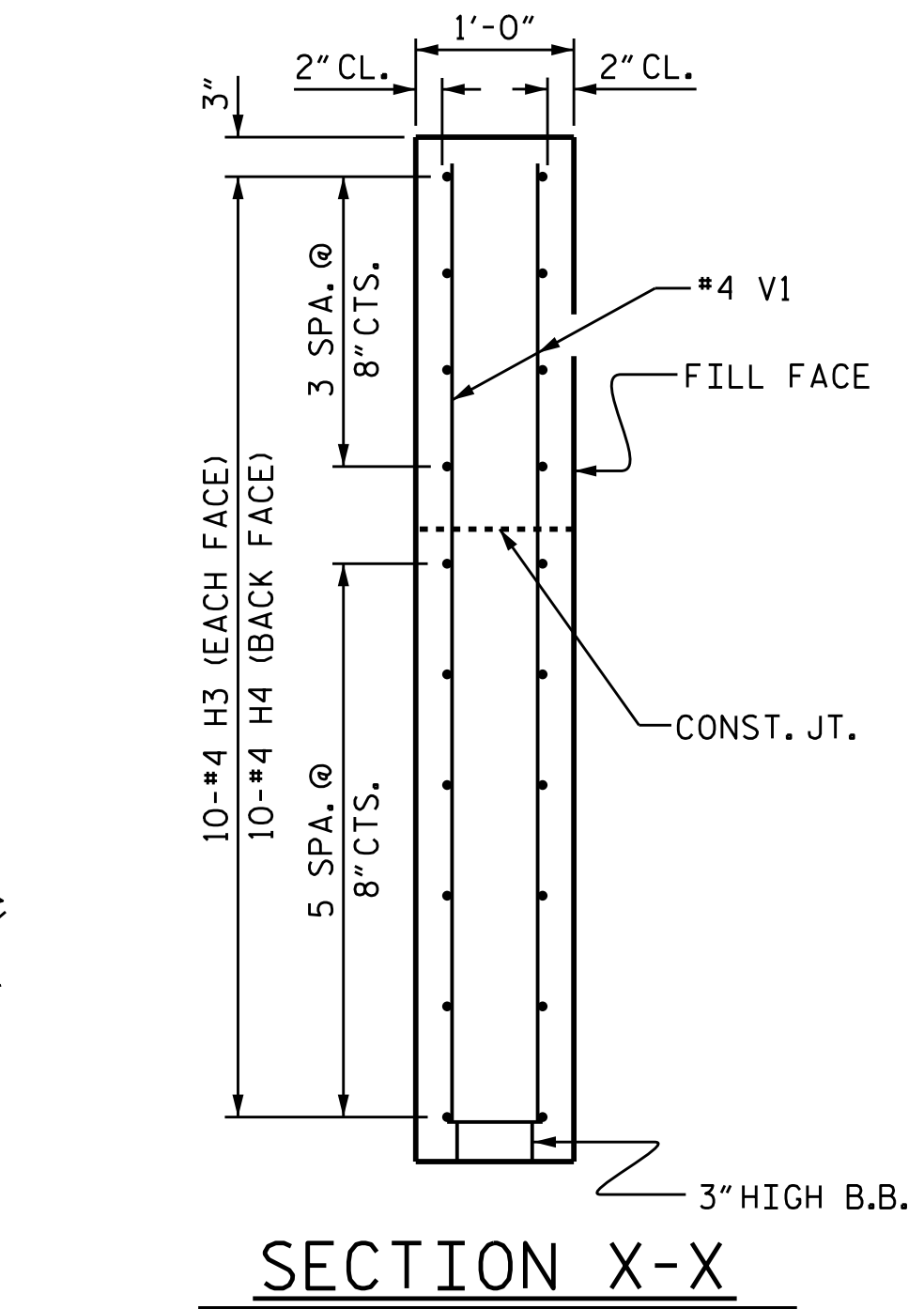
PLAN OF WING (W2)



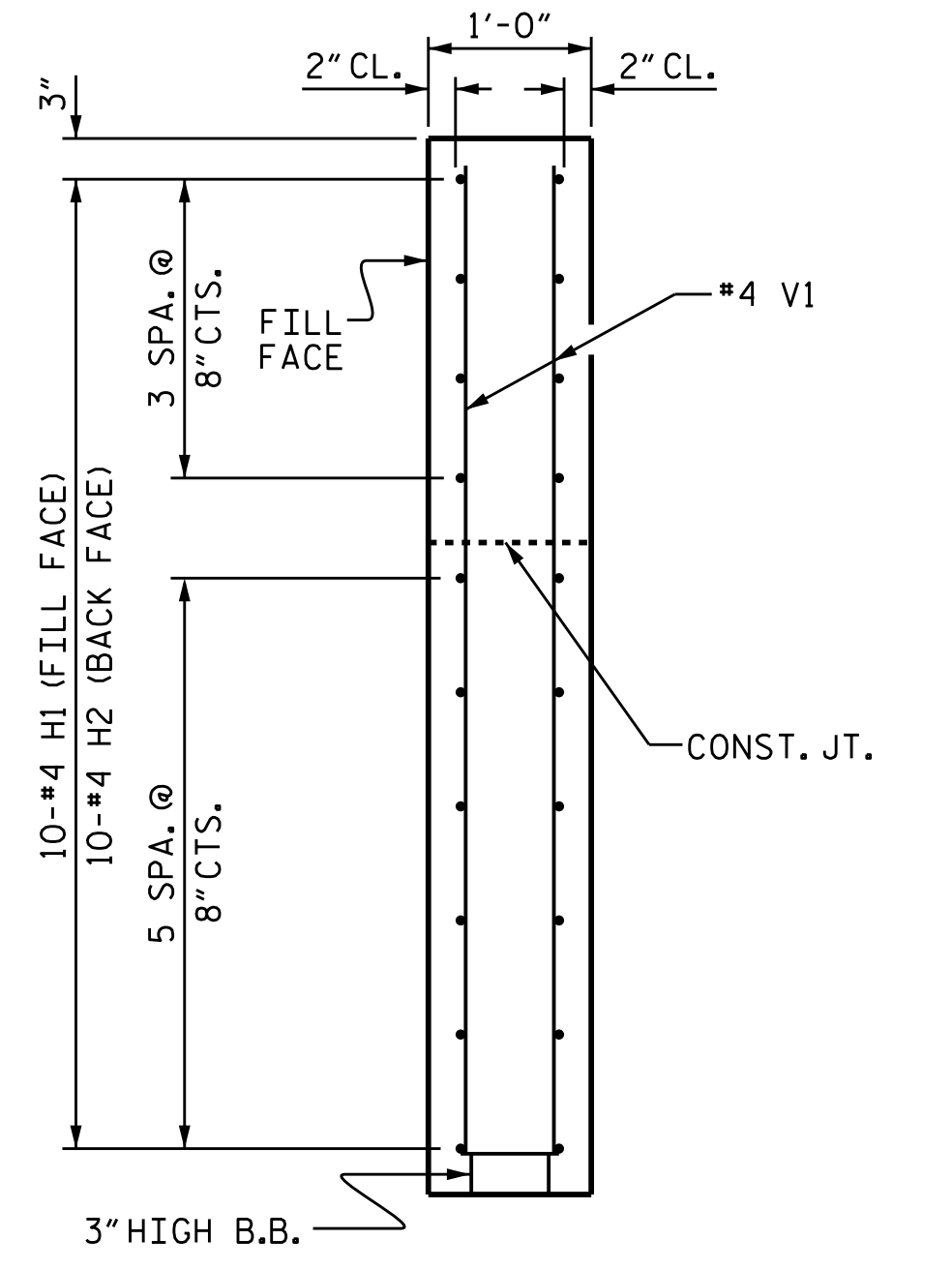
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X

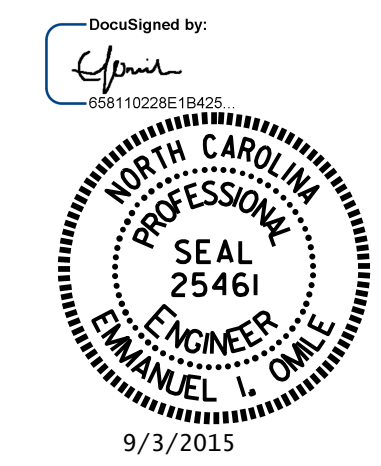


SECTION Y-Y

WING DETAILS

ASSEMBLED BY : C. YOKELEY DATE : 2/10/14
 CHECKED BY : T. KIRSCHBAUM DATE : 3/3/14
 DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11

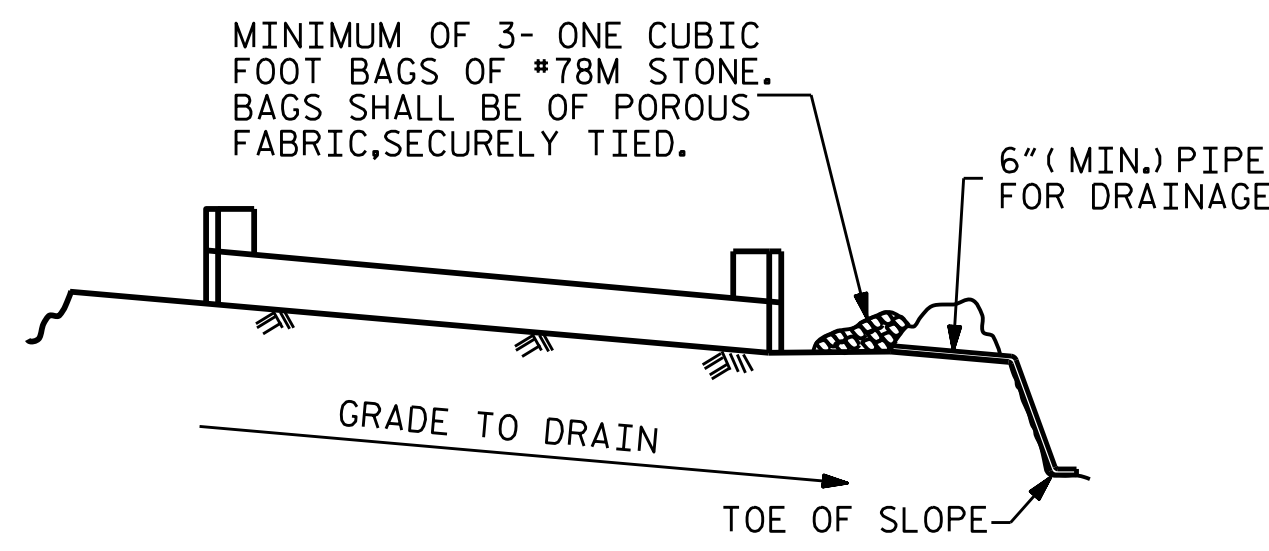
02-SEP-2015 16:08
 K:\TIP\Projects-B\B4959\Structures\Plans\Final Plan\B4959.sd.cs.oregon.dgn
 ffang



PROJECT NO. B-4959
 GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 3 OF 4

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
1			3			TOTAL	25
2			4			SHEETS	25

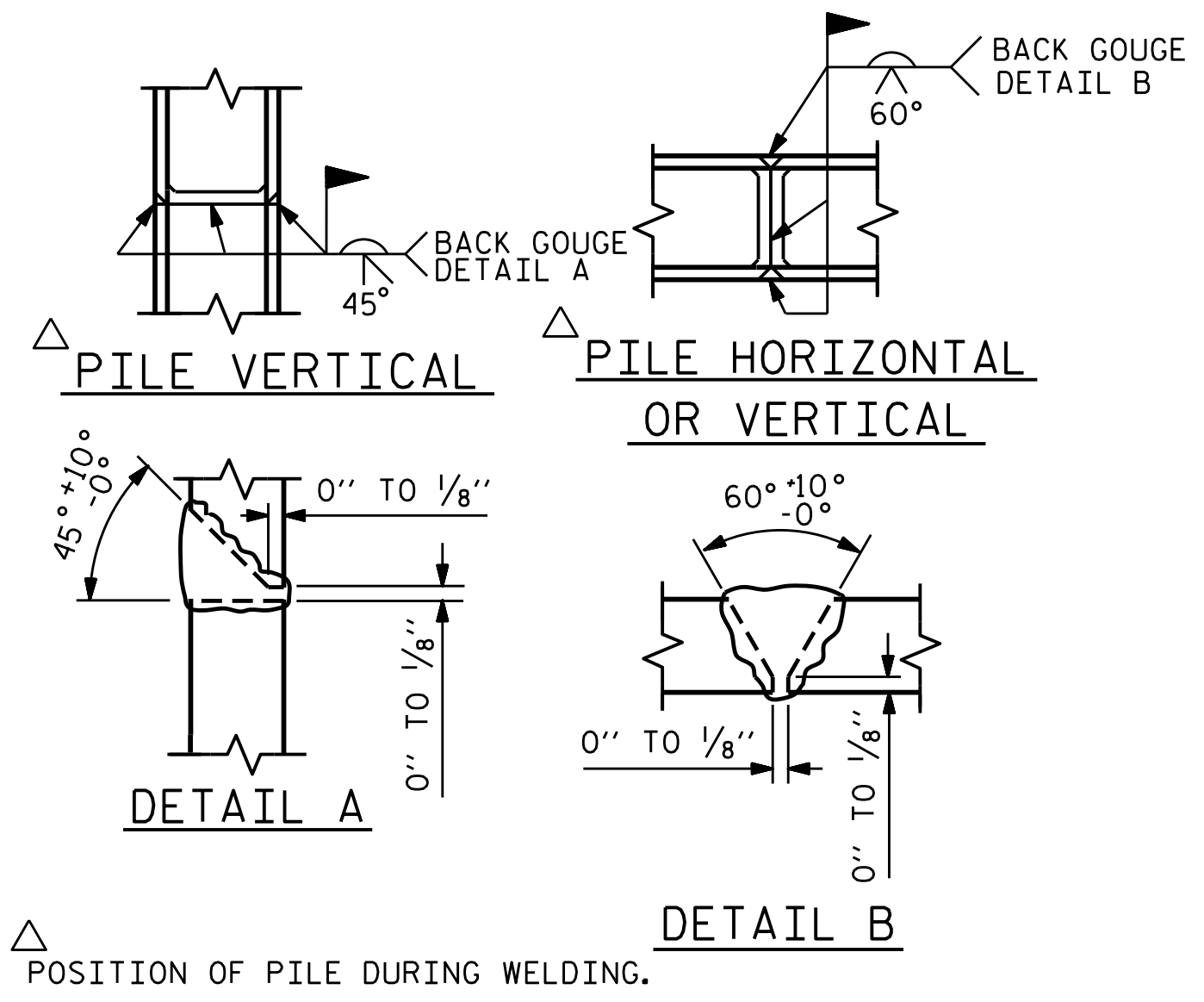


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

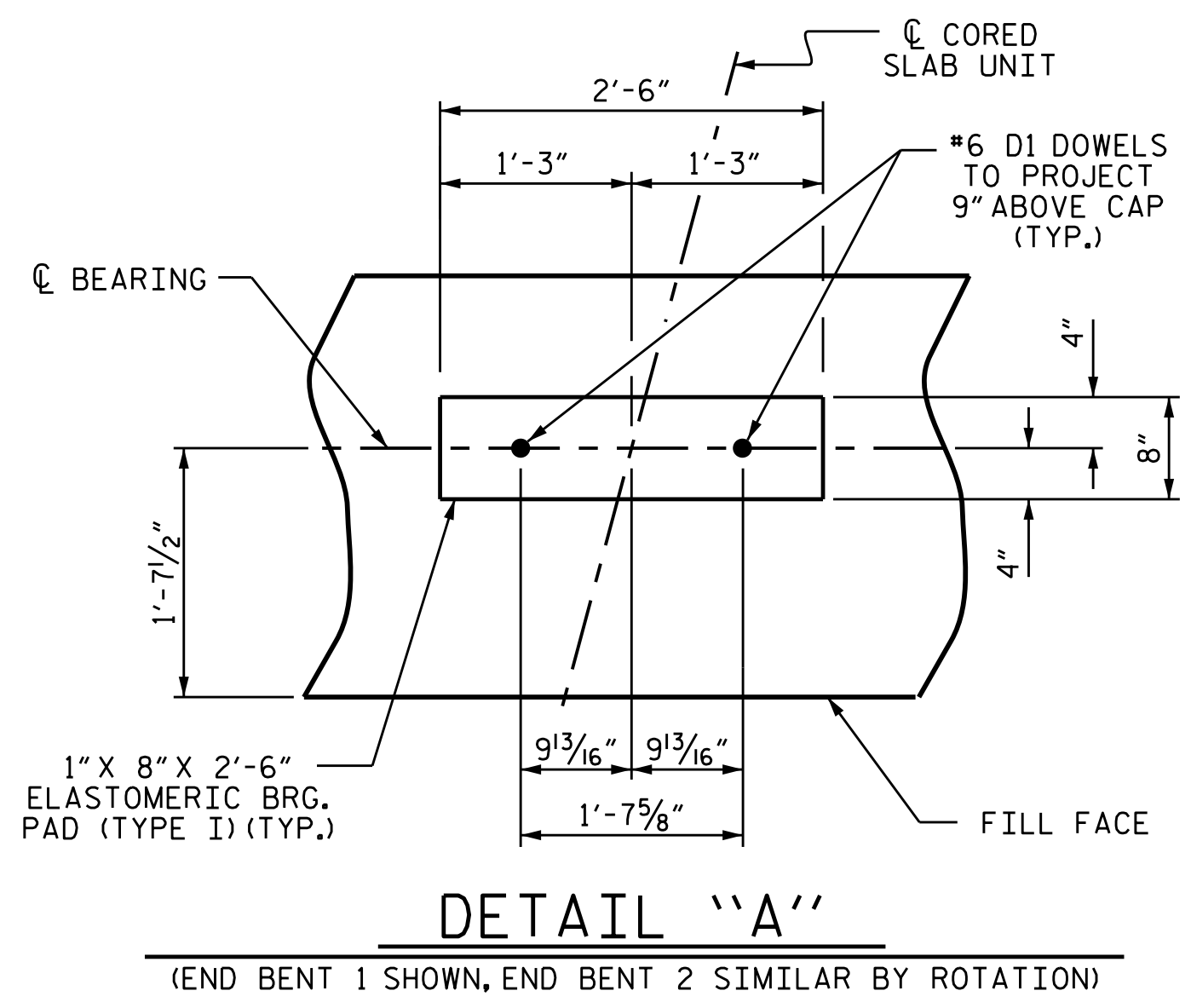
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

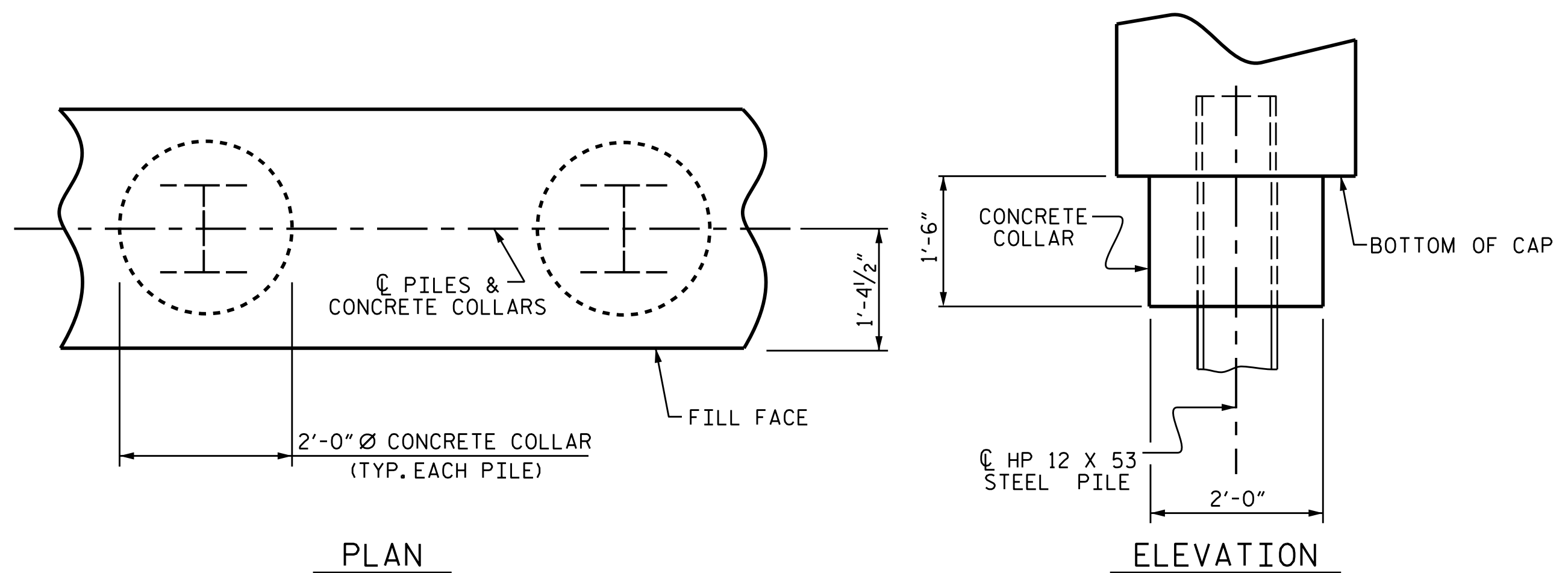
BAR TYPES		END BENT 1		END BENT 2	
①	HK. 1'-3" 43'-1" 1'-3"	HP 12 X 53 STEEL PILES	NO: 7	HP 12 X 53 STEEL PILES	NO: 7
②	2/16" 8'-5" 8'-7"	LIN. FT. = 90		LIN. FT. = 140	
③	2/16" 8'-10" 8'-8"	PILE EXCAVATION IN SOIL	LIN. FT. = 51	PILE EXCAVATION NOT IN SOIL	LIN. FT. = 19
④	4 1/2" 2'-5" 4 1/2" 2'-5"			STEEL PILE POINTS	EA. = 7
⑤	HK. 1'-8" Ø				
⑥	1'-3" LAP				

BILL OF MATERIAL					
FOR ONE END BENT (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	45'-7"	1240
B2	28	#4	STR	22'-10"	427
B3	11	#4	STR	2'-5"	18
D1	24	#6	STR	1'-6"	54
H1	10	#4	2	9'-1"	61
H2	10	#4	2	9'-3"	62
H3	10	#4	3	9'-6"	63
H4	10	#4	3	9'-4"	62
K1	16	#4	STR	4'-4"	46
S1	58	#4	4	10'-5"	404
S2	58	#4	5	3'-2"	123
S3	28	#4	6	6'-6"	122
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL					2900 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					21.3 C.Y.
POUR #2 UPPER PART OF WINGS					2.4 C.Y.
TOTAL CLASS A CONCRETE					23.7 C.Y.



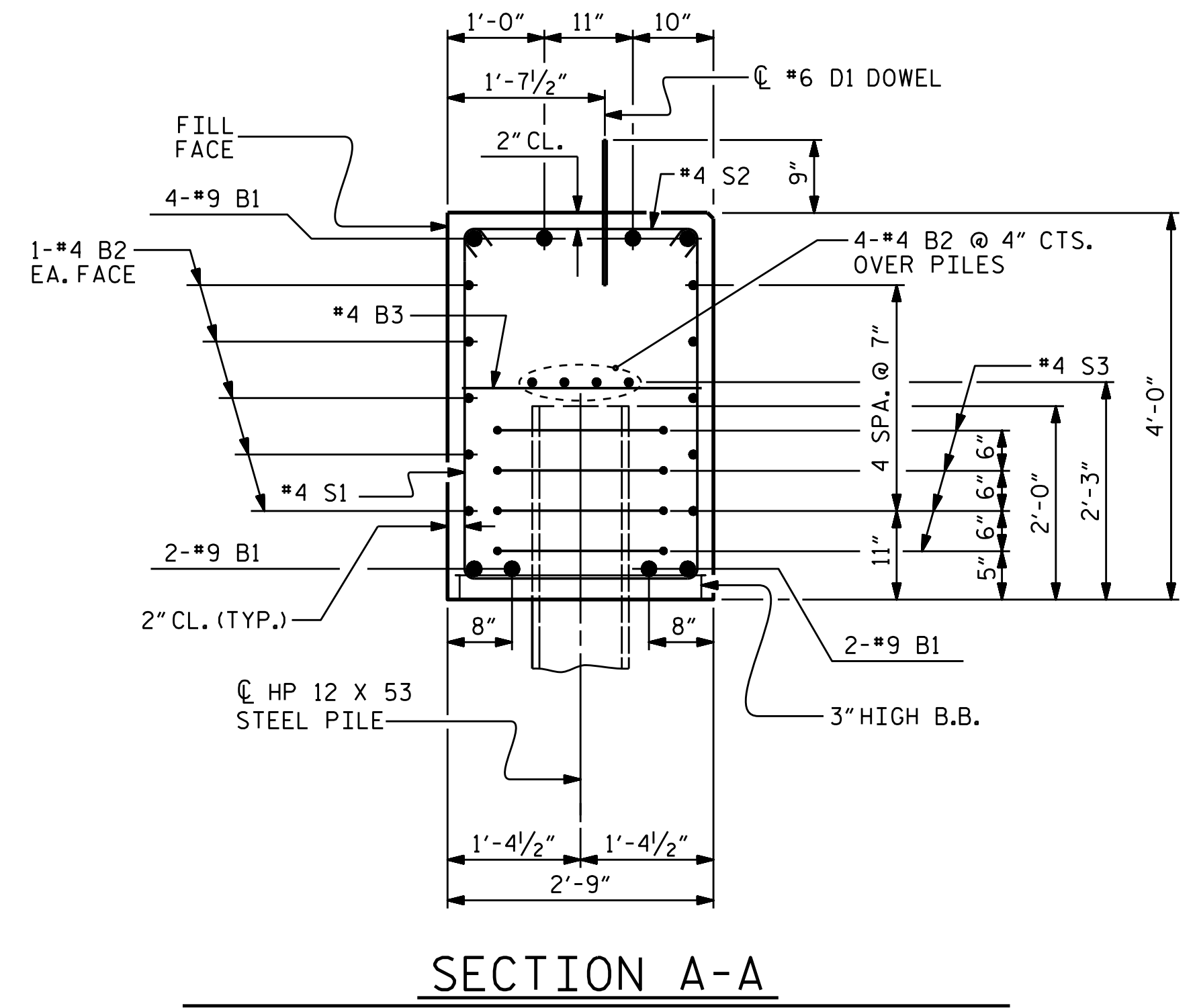
DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



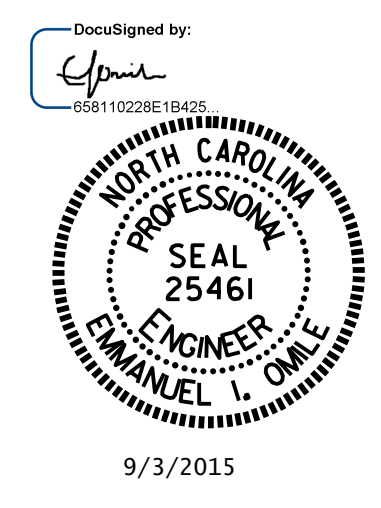
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



SECTION A-A

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



PROJECT NO. B-4959
 GUILFORD COUNTY
 STATION: 14+70.50 -L-
 SHEET 4 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENTS 1 & 2 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY : C. YOKELEY	DATE : 2/10/14
CHECKED BY : T. KIRSCHBAUM	DATE : 3/3/14
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

NOTES

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

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

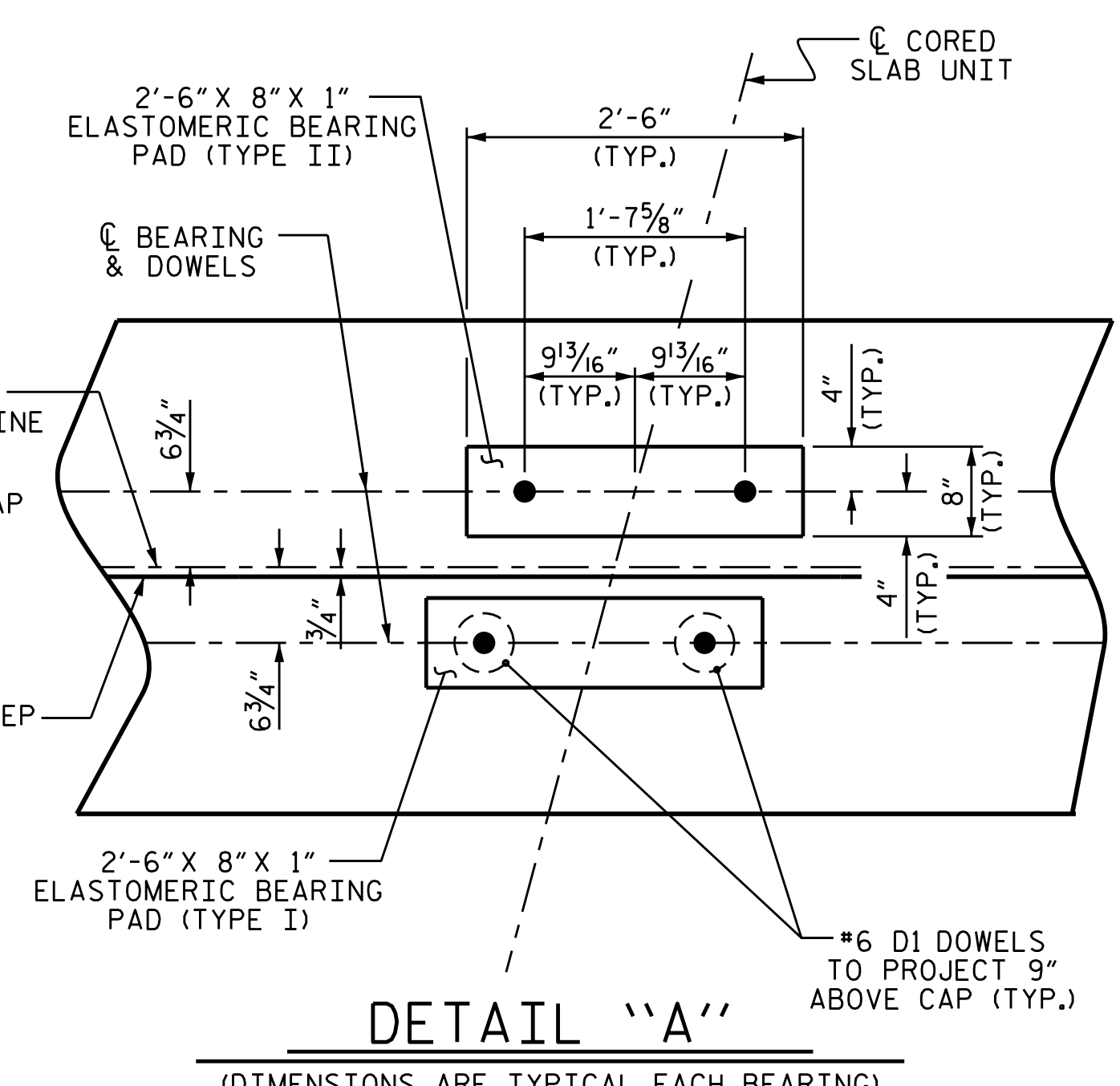
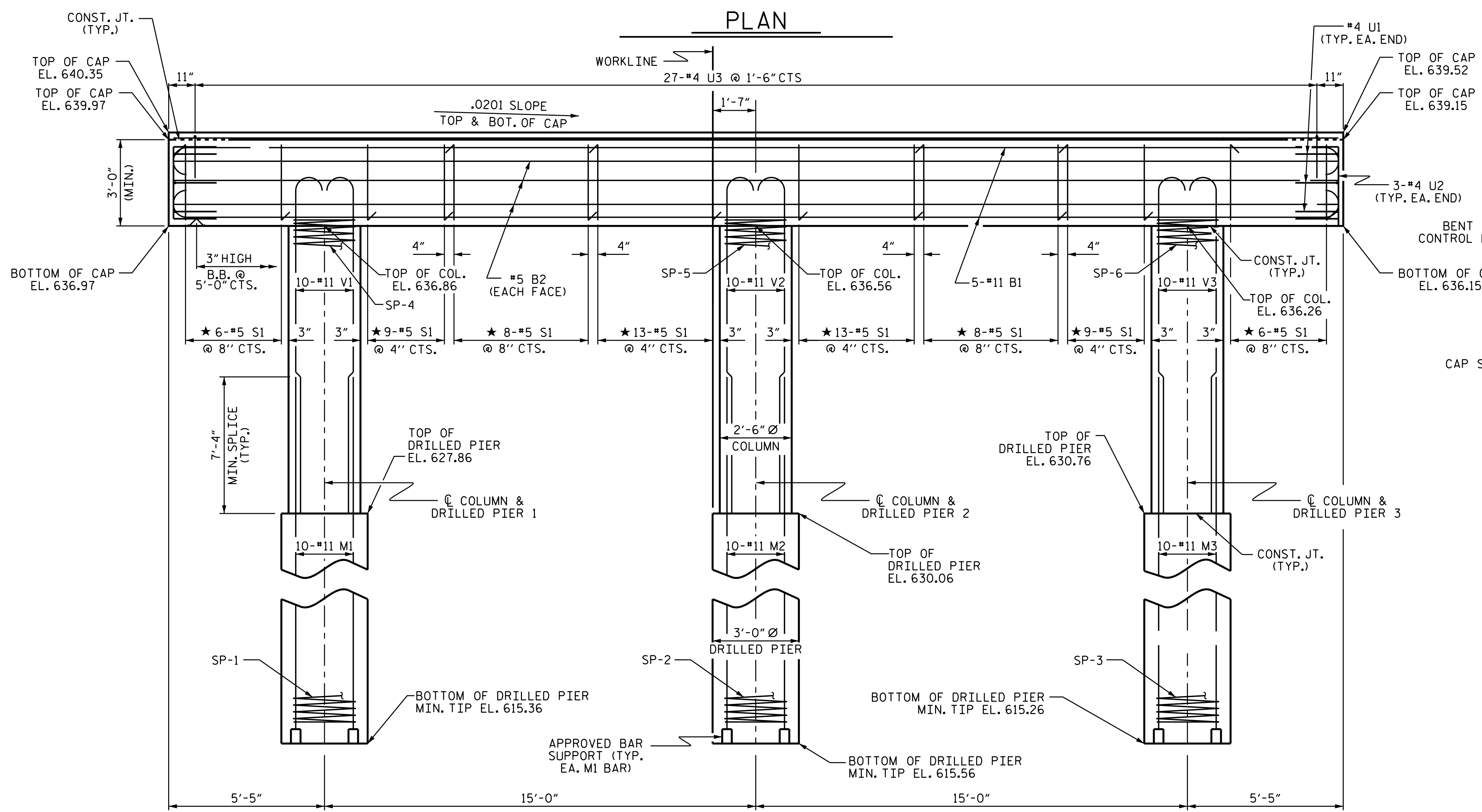
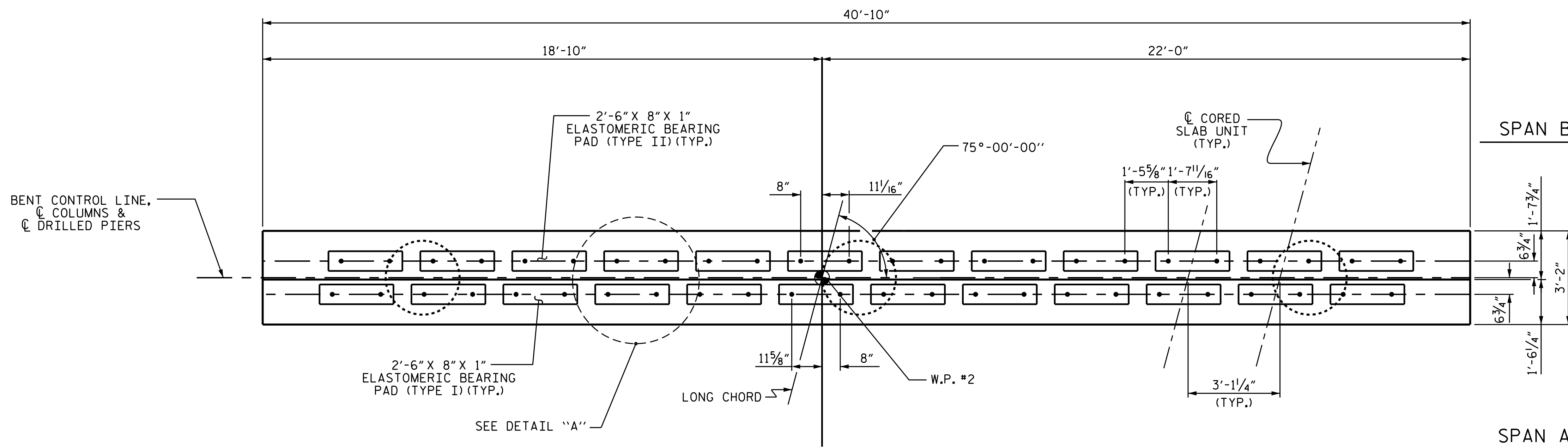
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

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

★ INVERT ALTERNATE STIRRUPS.

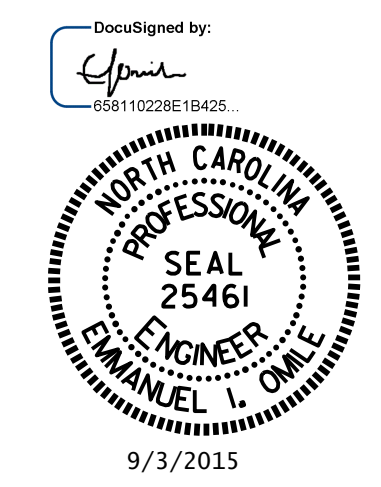
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.

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

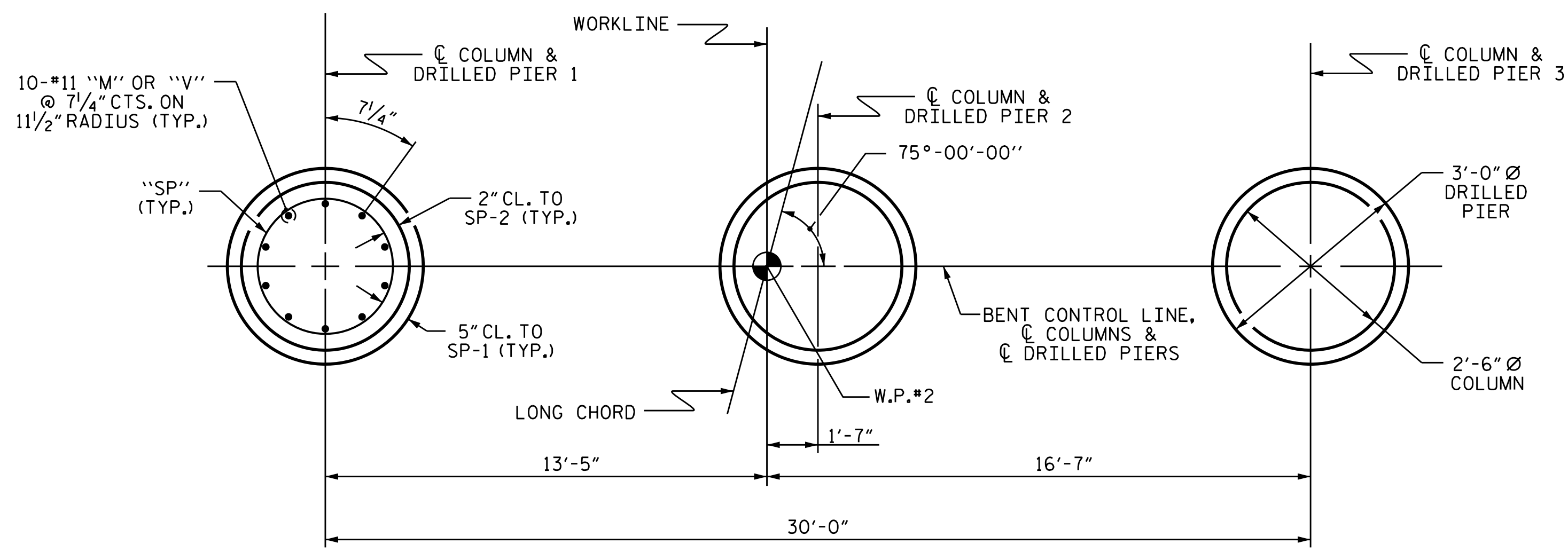


ASSEMBLED BY : C. YOKELEY DATE : 2/10/14
 CHECKED BY : T. KIRSCHBAUM DATE : 3/3/14
 DRAWN BY : DGE 04/10
 CHECKED BY : MKT 04/10

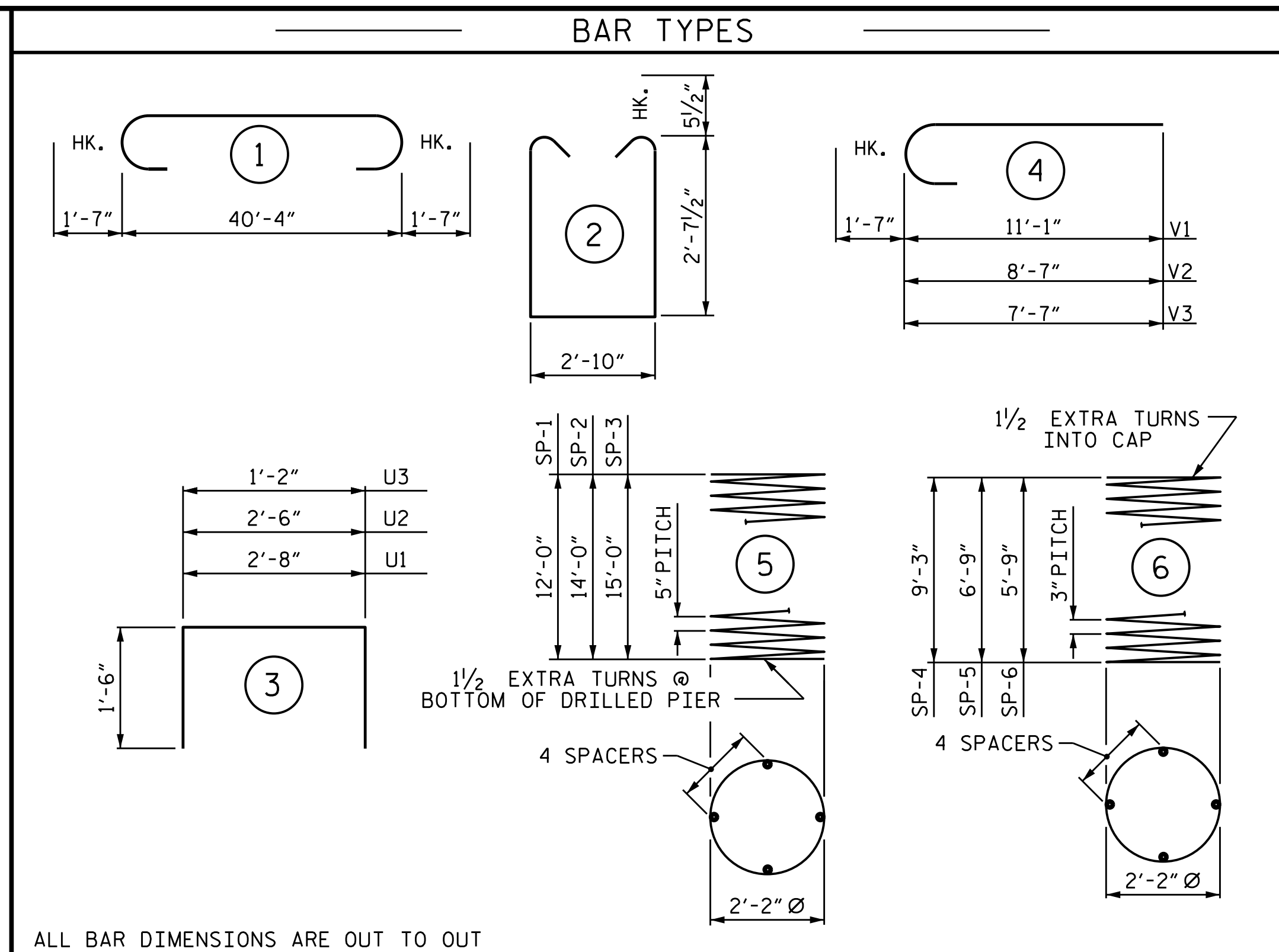
DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.



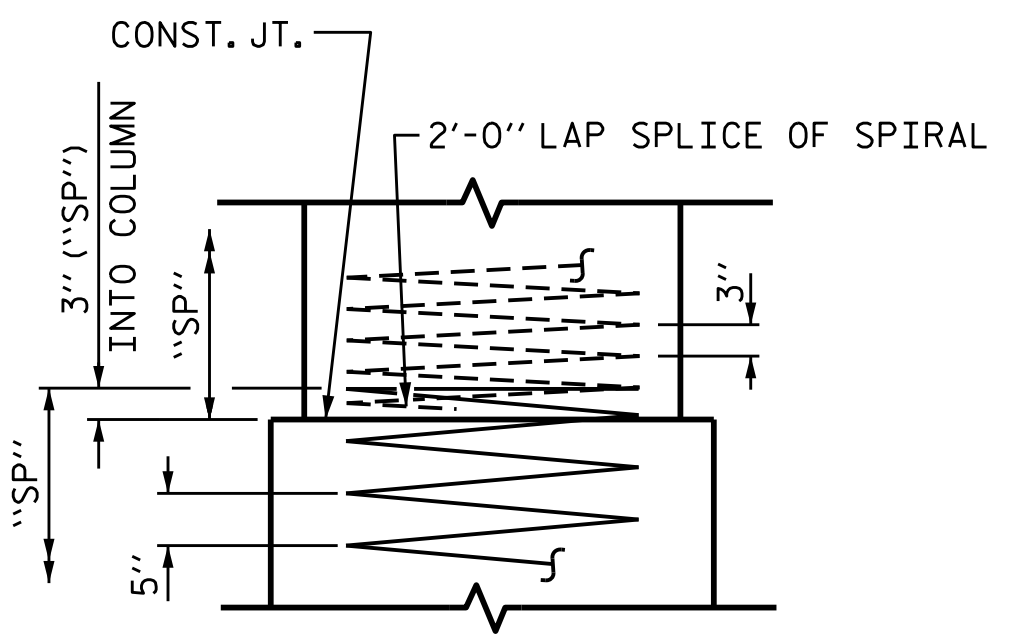
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			TOTAL SHEETS	
2			4			25	



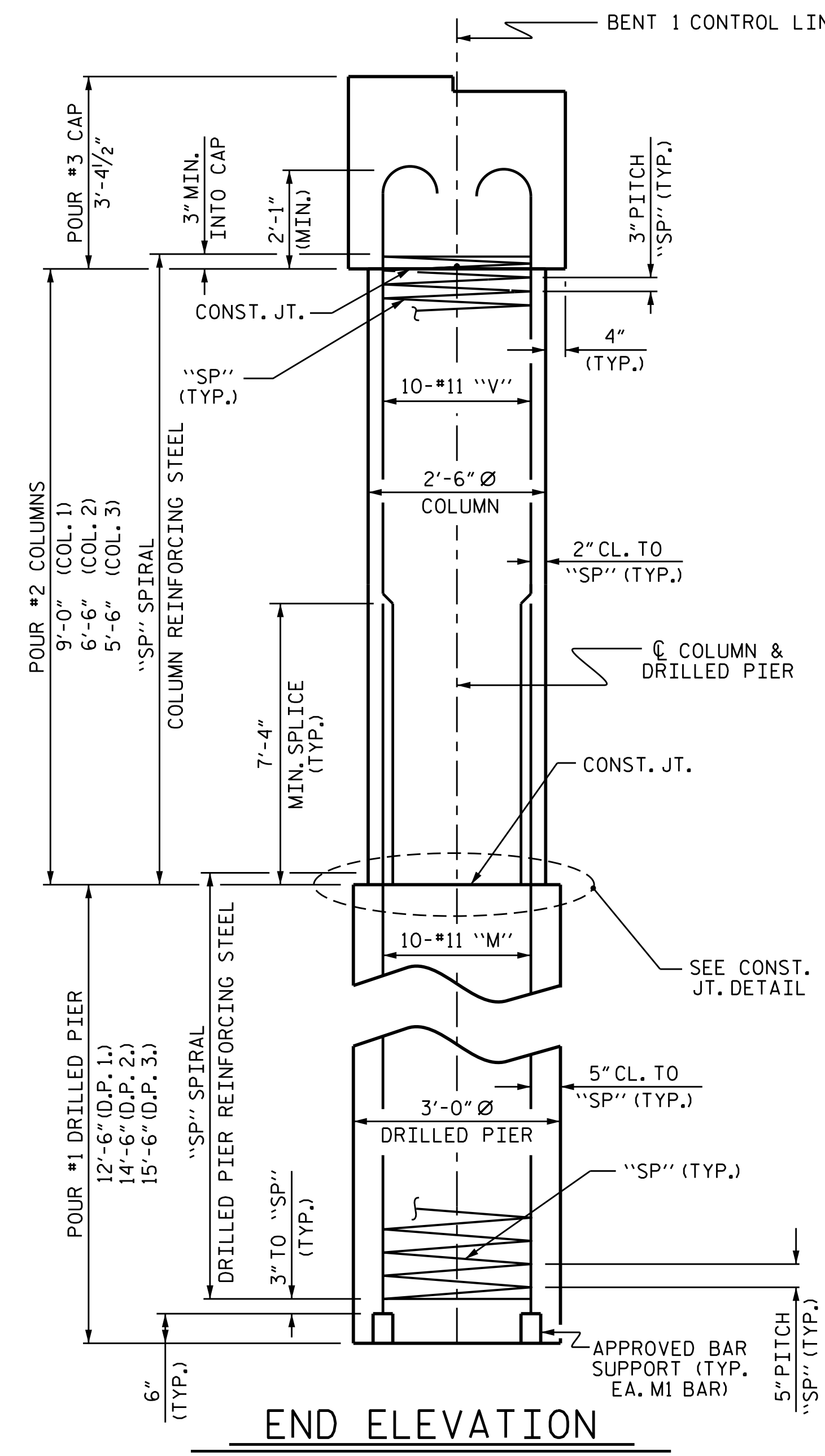
PLAN OF DRILLED PIERS & COLUMNS



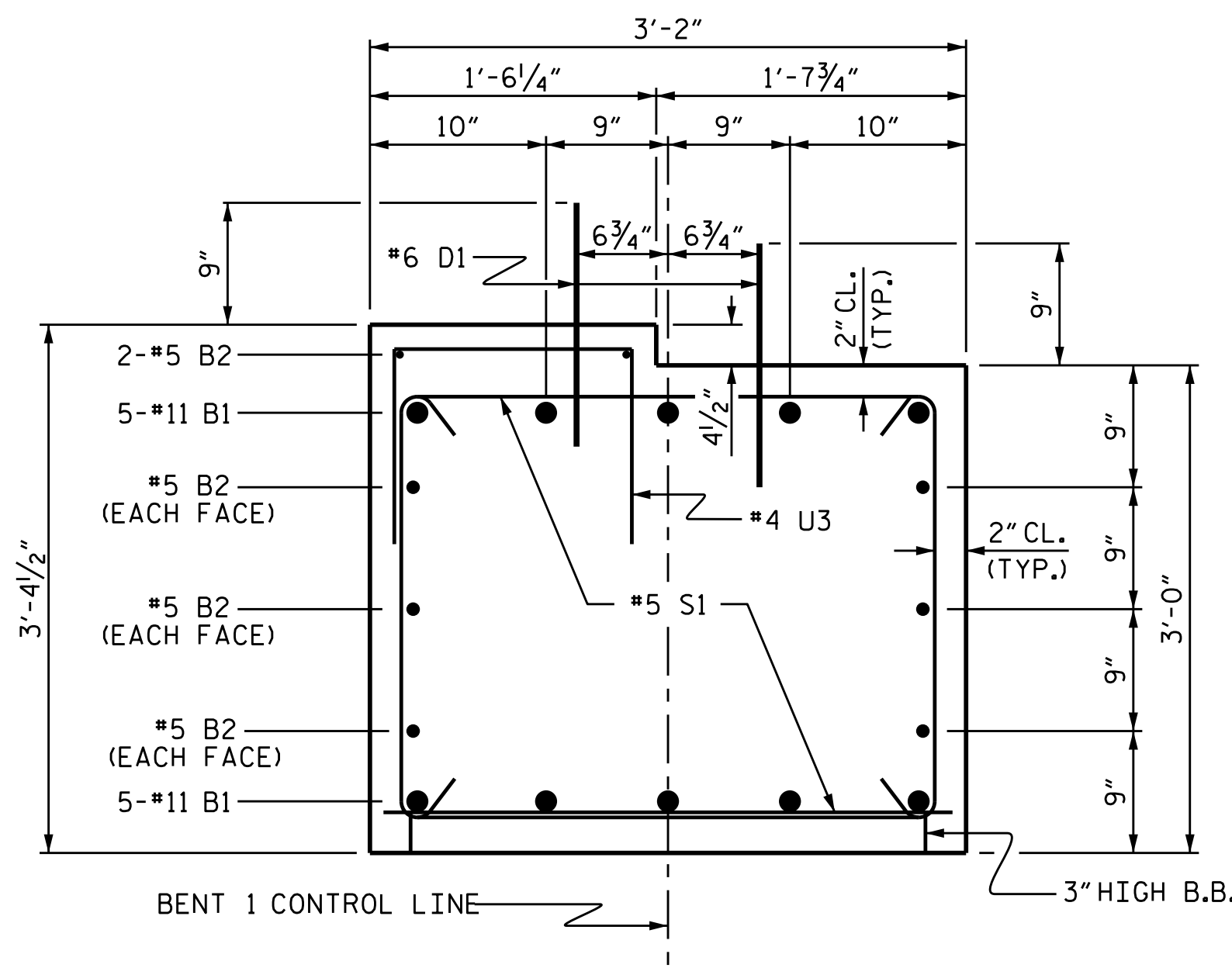
ALL BAR DIMENSIONS ARE OUT TO OUT



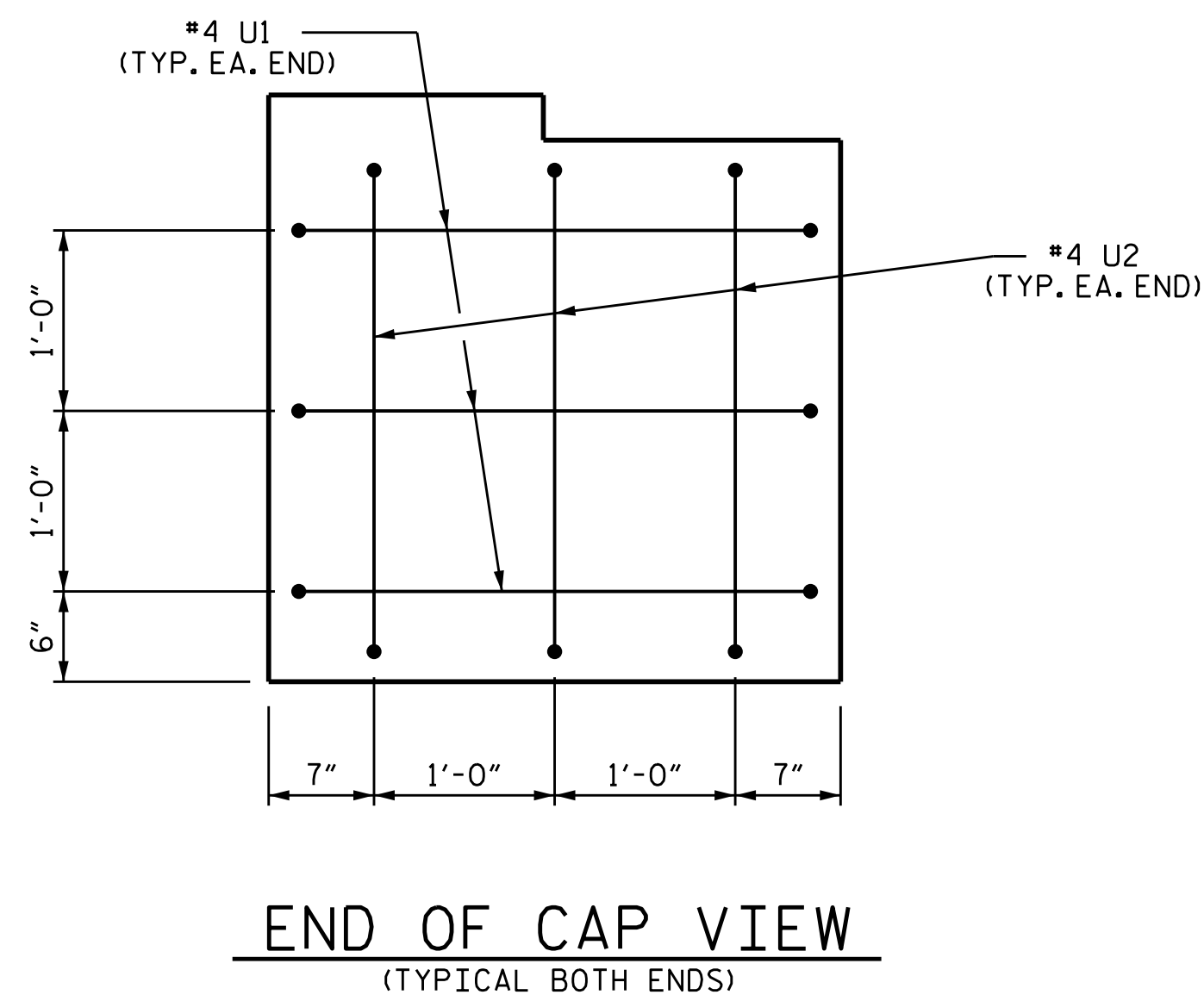
CONSTRUCTION JOINT DETAIL



END ELEVATION



SECTION THRU CAP



END OF CAP VIEW (TYPICAL BOTH ENDS)

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	43'-6"	2311
B2	8	#5	STR	40'-6"	338
D1	48	#6	STR	1'-6"	108
M1	10	#11	STR	22'-7"	1200
M2	10	#11	STR	24'-7"	1306
M3	10	#11	STR	25'-7"	1359
S1	72	#5	2	9'-0"	676
U1	6	#4	3	5'-8"	23
U2	6	#4	3	5'-6"	22
U3	27	#4	3	4'-2"	75
V1	10	#11	4	12'-8"	673
V2	10	#11	4	10'-2"	540
V3	10	#11	4	9'-2"	487
REINFORCING STEEL					9118 LBS.
SP-1	1	*	5	205'-10"	215
SP-2	1	*	5	239'-0"	249
SP-3	1	*	5	252'-4"	263
SP-4	1	**	6	261'-11"	175
SP-5	1	**	6	195'-3"	130
SP-6	1	**	6	168'-8"	113
SPIRAL COLUMN REINFORCING STEEL					1145 LBS.

* THE SP-1,2&3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR
 ** THE SP-4,5&6 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

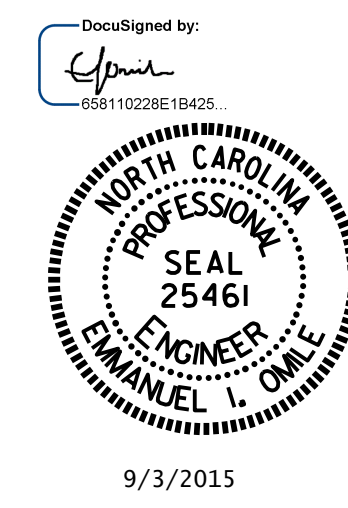
CLASS A CONCRETE BREAKDOWN	
POUR #2 (COLUMNS)	3.8 C.Y.
POUR #3 (CAP)	15.2 C.Y.
TOTAL CLASS A CONCRETE	19.0 C.Y.

DRILLED PIERS:	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	11.1 C.Y.
3'-0" Ø DRILLED PIER NOT IN SOIL	26 LIN. FT.
3'-0" Ø DRILLED PIER IN SOIL	16.5 LIN. FT.
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	18.5 LIN. FT.
CSL TUBES	188 LIN. FT.

PROJECT NO. B-4959
 GUILFORD COUNTY
 STATION: 14+70.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-21
					TOTAL SHEETS 25

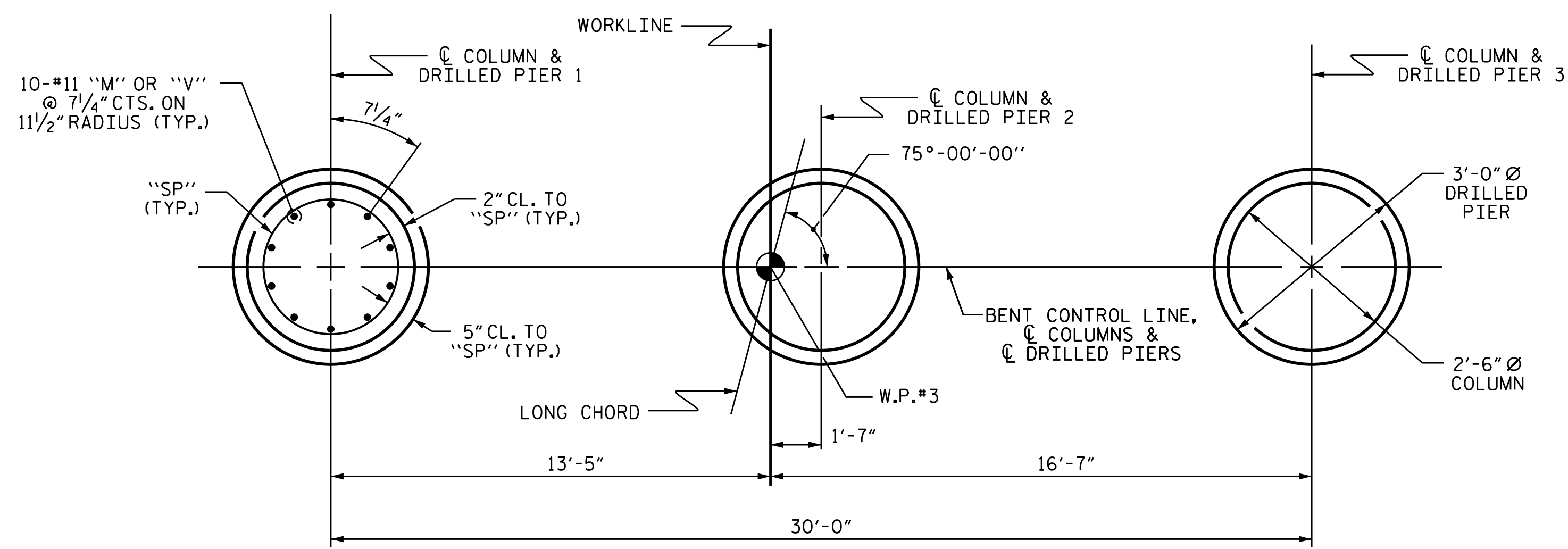


9/3/2015

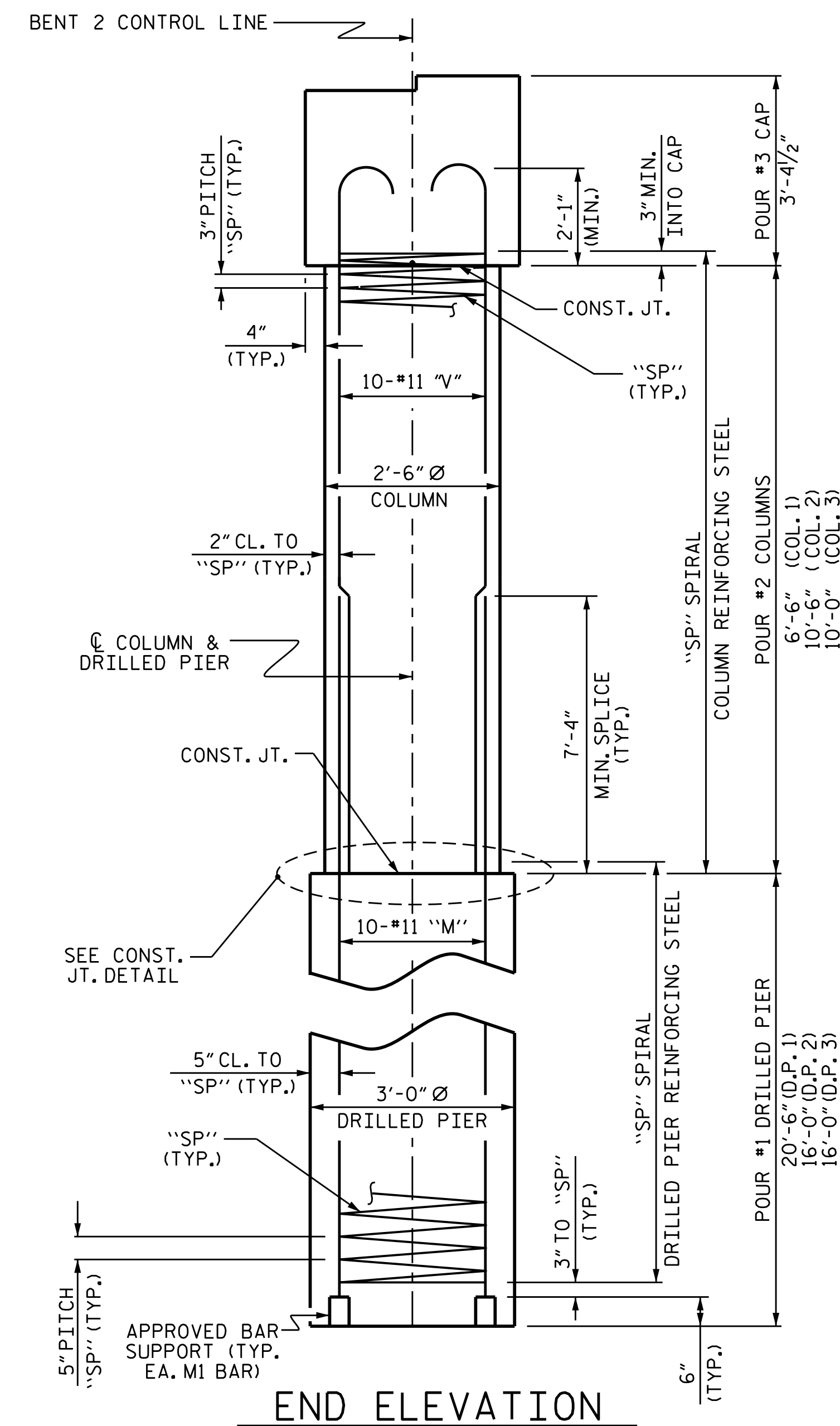
ASSEMBLED BY : C. YOKELEY DATE : 2/10/14
 CHECKED BY : T. KIRSCHBAUM DATE : 3/3/14
 DRAWN BY : DGE 03/10
 CHECKED BY : MKT 03/10

02-SEP-2015 16:09
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 f.fang

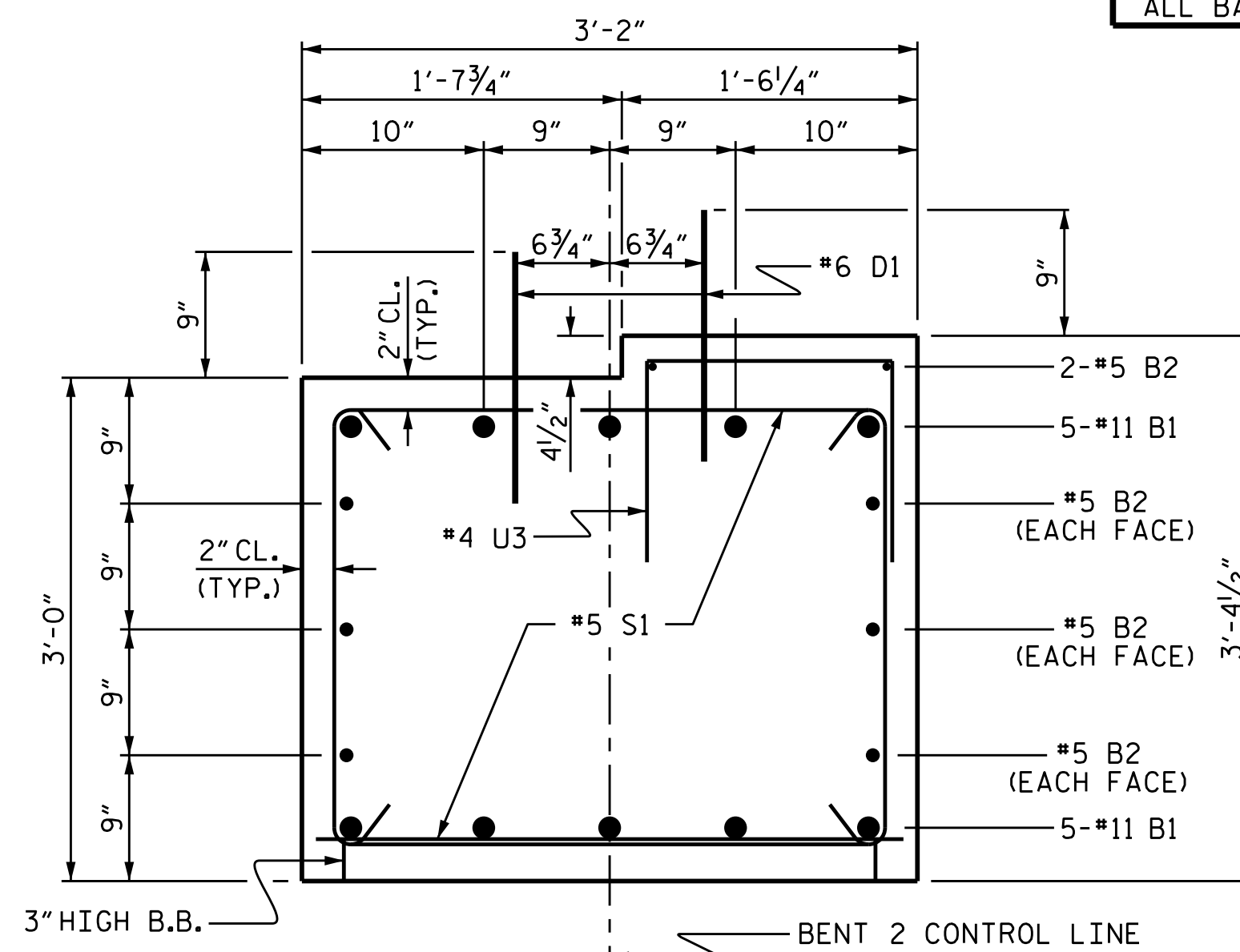
STD. NO. DP_BT_36_75S-<50'



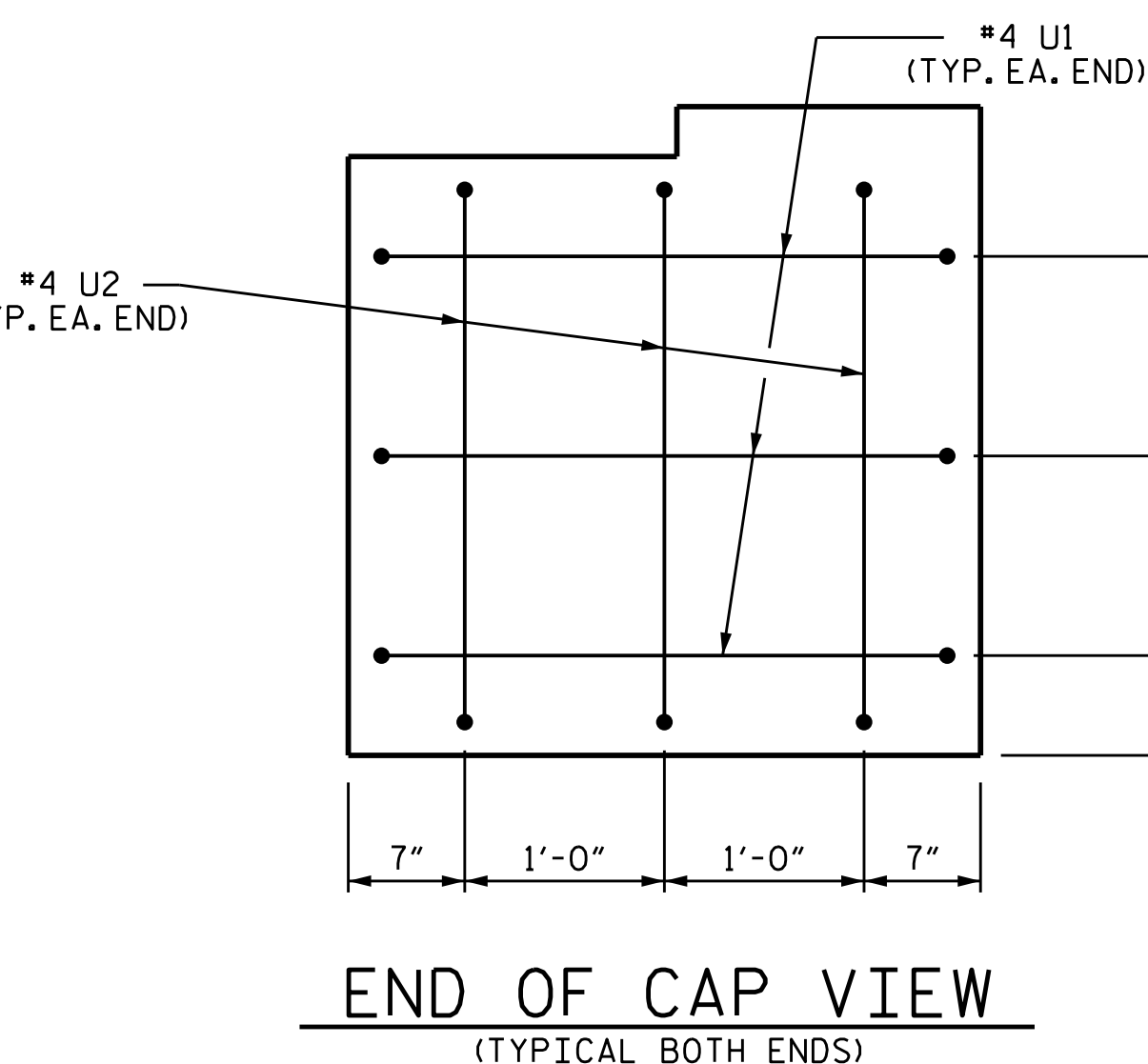
PLAN OF DRILLED PIERS & COLUMNS



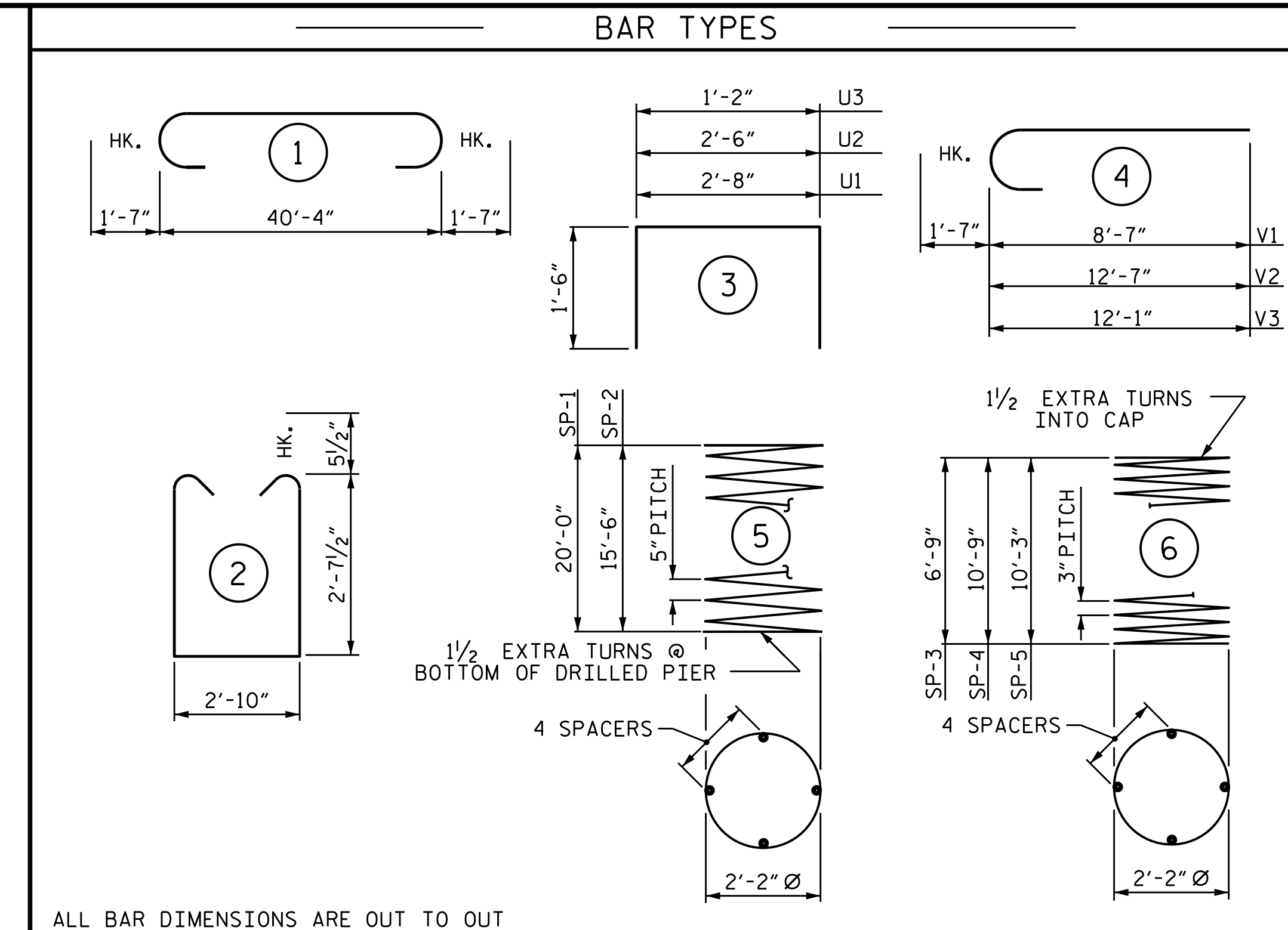
END ELEVATION



SECTION THRU CAP

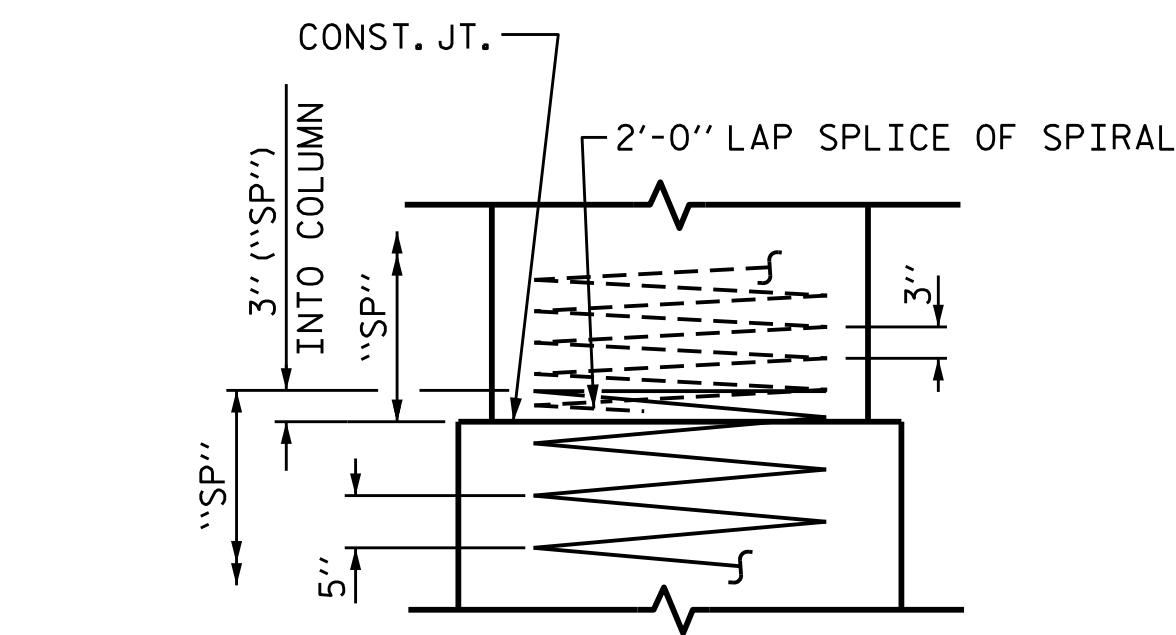


END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT

BAR TYPES



CONSTRUCTION JOINT DETAIL

BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	43'-6"	2311
B2	8	#5	STR	40'-6"	338
D1	48	#6	STR	1'-6"	108
M1	10	#11	STR	30'-7"	1625
M2	20	#11	STR	26'-1"	2772
S1	72	#5	2	9'-0"	676
U1	6	#4	3	5'-8"	23
U2	6	#4	3	5'-6"	22
U3	27	#4	3	4'-2"	75
V1	10	#11	4	10'-2"	540
V2	10	#11	4	14'-2"	753
V3	10	#11	4	13'-8"	726
REINFORCING STEEL					9969 LBS.
SPIRAL COLUMN REINFORCING STEEL					1411 LBS.

* THE SP-1&2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR
 ** THE SP-3,4&5 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

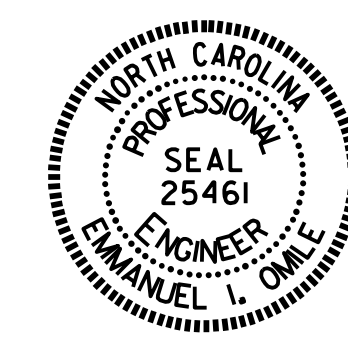
CLASS A CONCRETE BREAKDOWN	
POUR #2 (COLUMNS)	4.9 C.Y.
POUR #3 (CAP)	15.2 C.Y.
TOTAL CLASS A CONCRETE	20.1 C.Y.

DRILLED PIERS:	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	13.7 C.Y.
3'-0" Ø DRILLED PIER NOT IN SOIL	30 LIN. FT.
3'-0" Ø DRILLED PIER IN SOIL	22.5 LIN. FT.
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	29.2 LIN. FT.
CSL TUBES	228 LIN. FT.

PROJECT NO. B-4959
 GUILFORD COUNTY
 STATION: 14+70.50 -L-

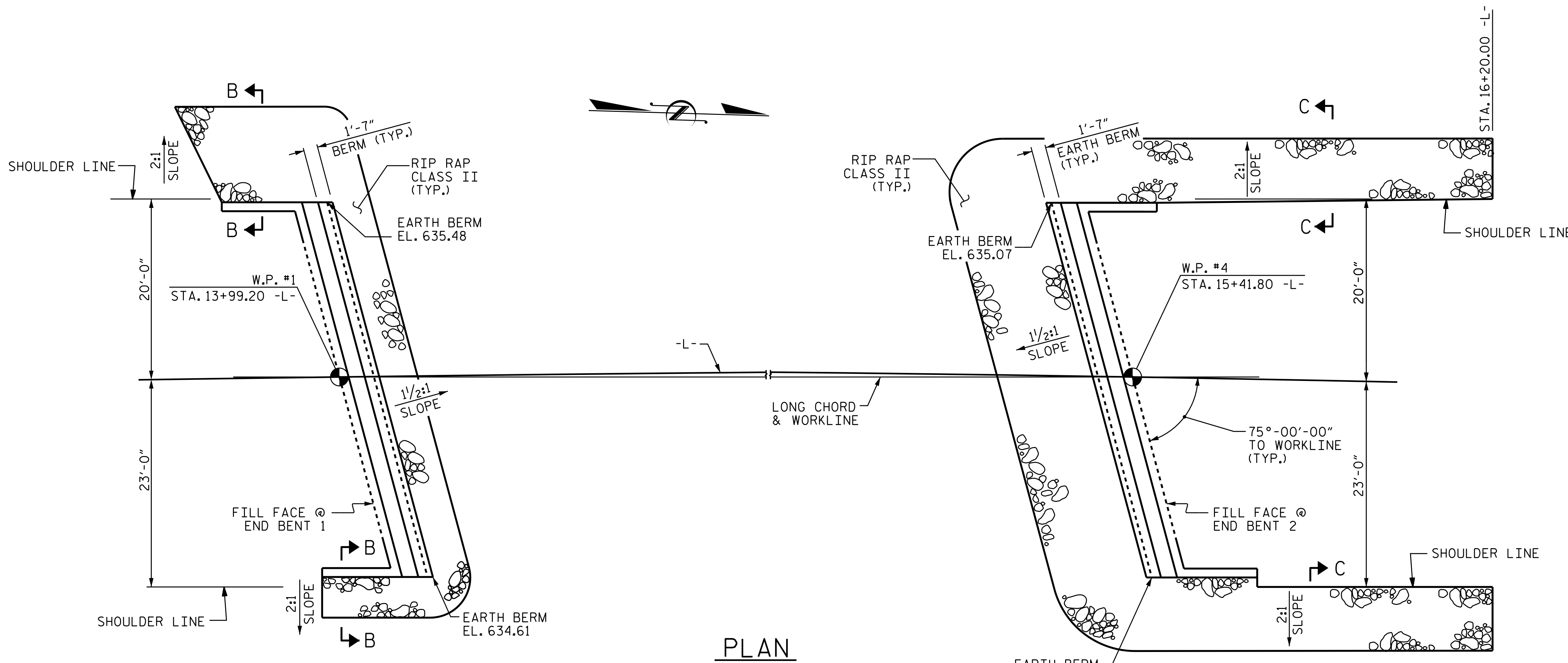
SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



ASSEMBLED BY: C. YOKELEY DATE: 2/10/14
 CHECKED BY: T. KIRSCHBAUM DATE: 3/3/14

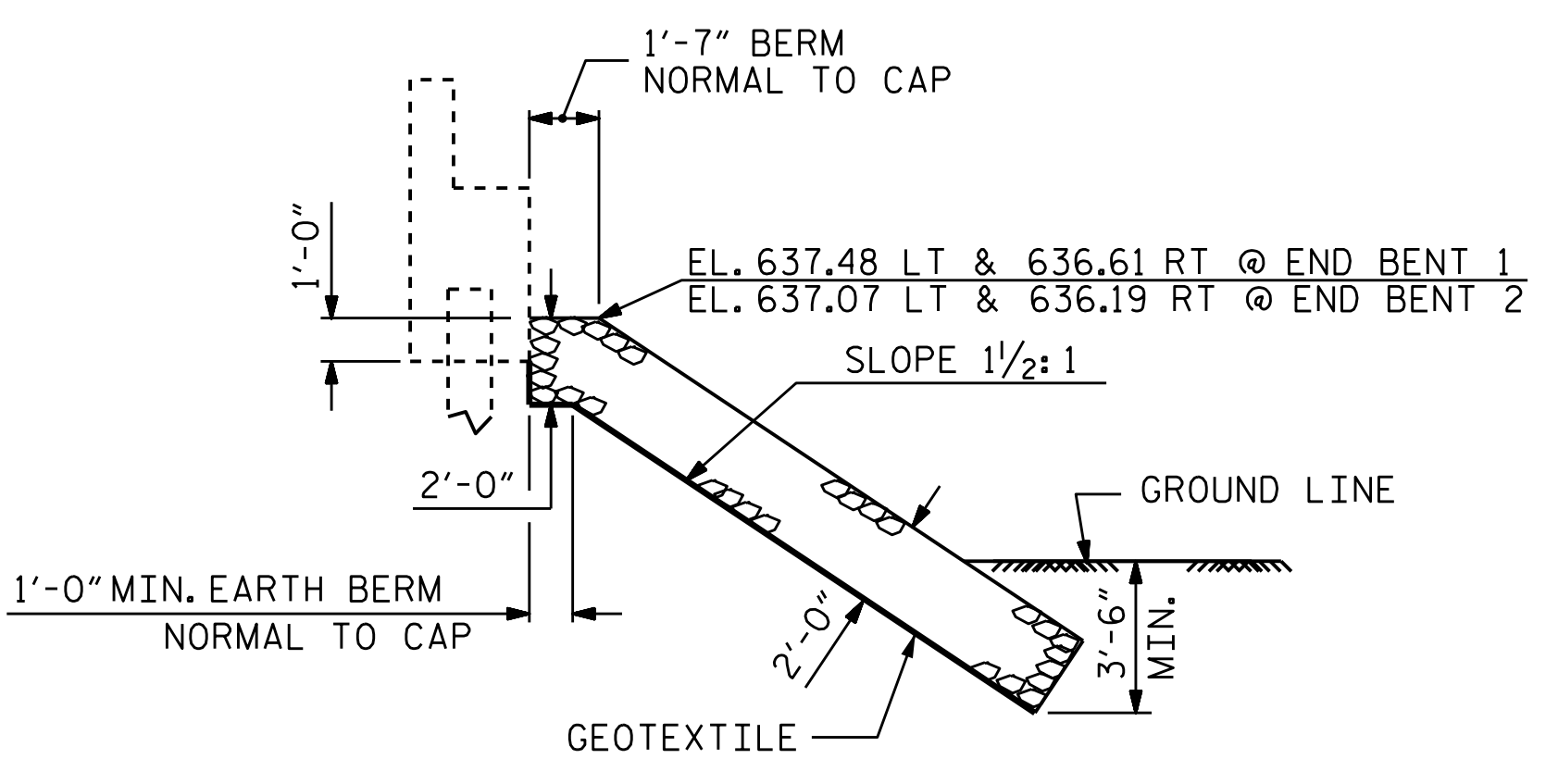
ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+70.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	77	85
END BENT 2	212	235



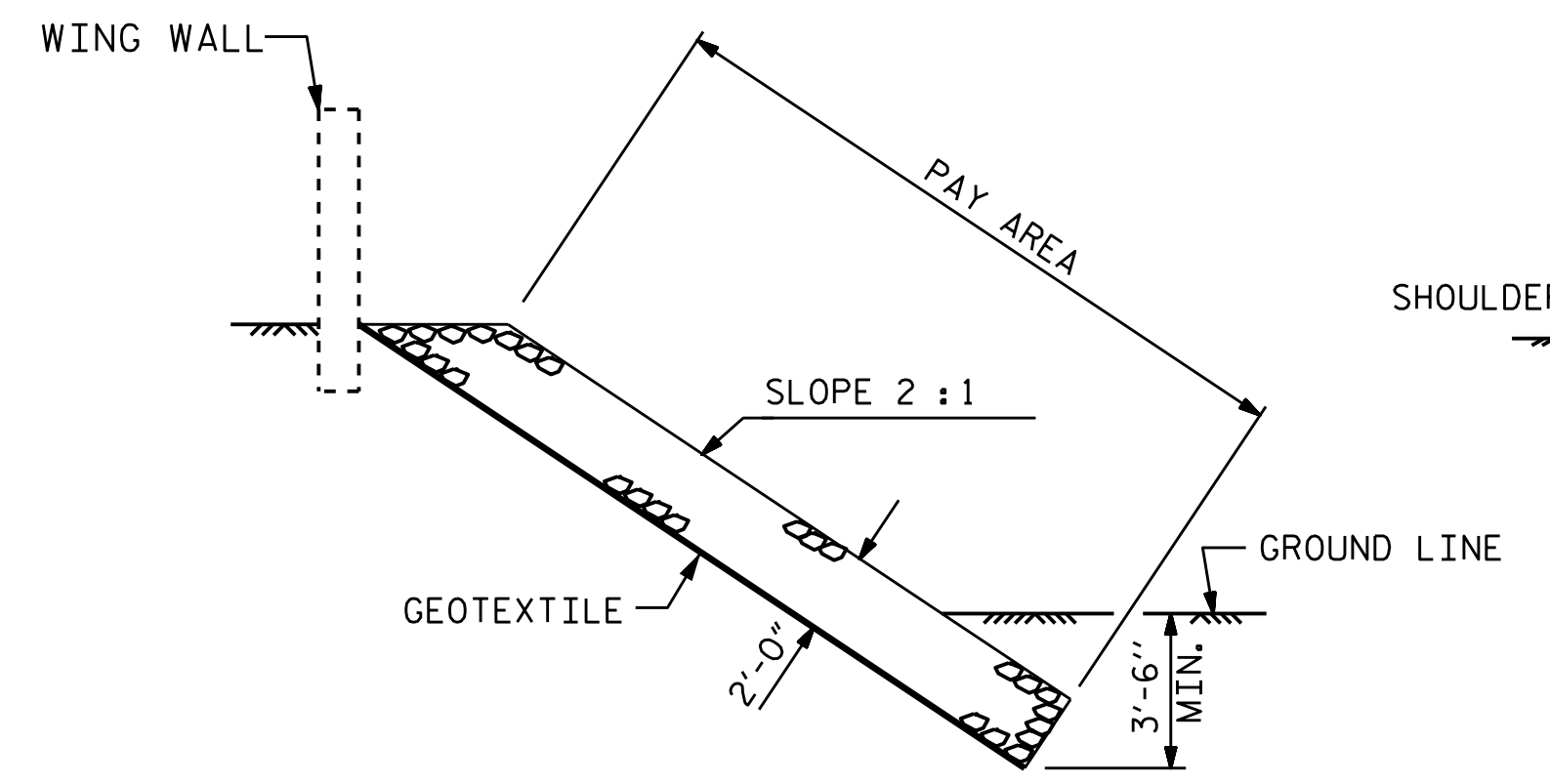
PLAN

AT END BENT 1

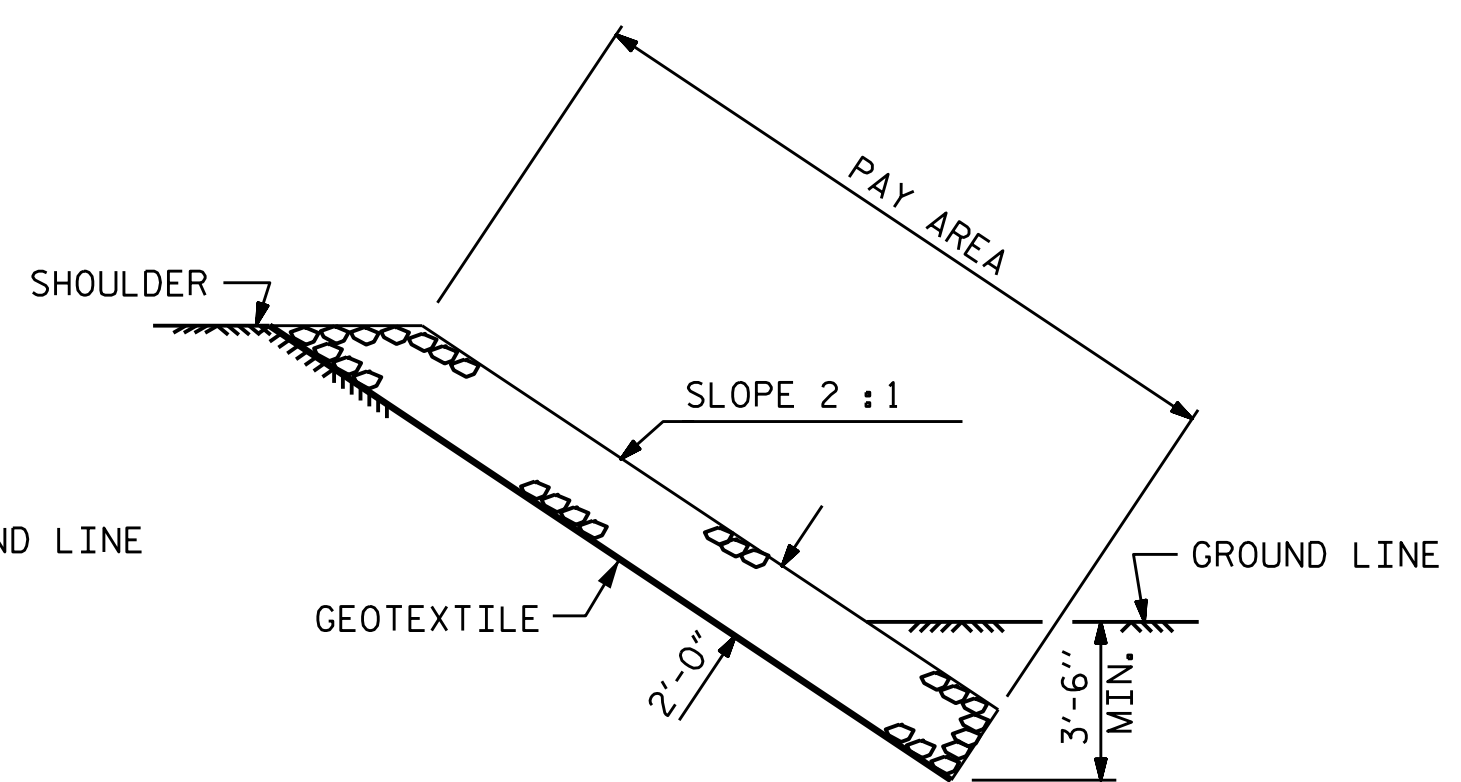
AT END BENT 2



SECTION C-C
BERM RIP RAPPED



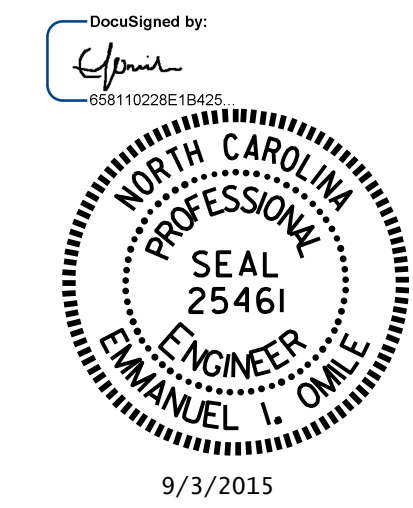
SECTION B-B



SECTION C-C

PROJECT NO. B-4959
GUILFORD COUNTY
 STATION: 14+70.50 -L-

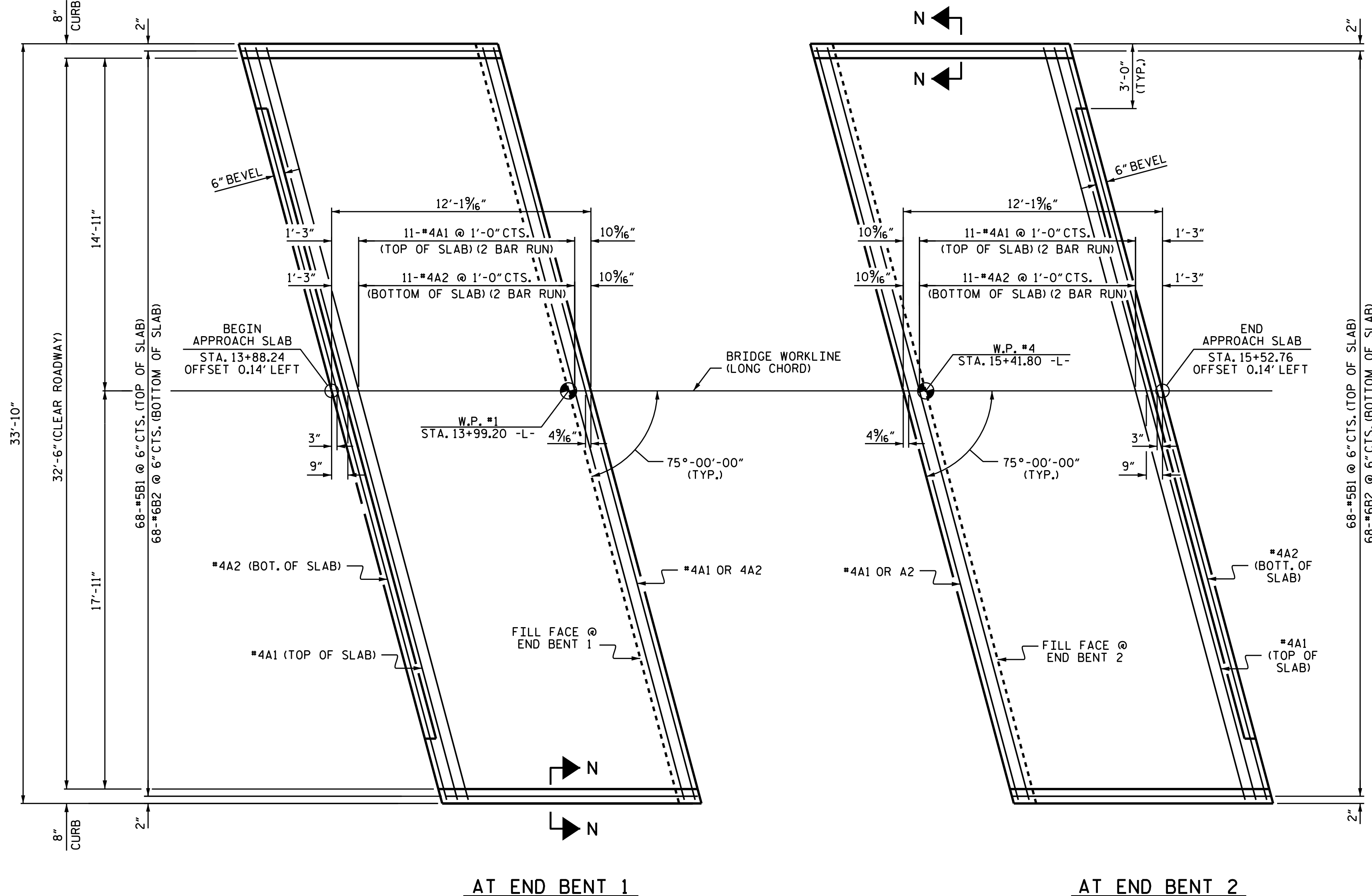
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS



REVISIONS						SHEET NO. S-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

ASSEMBLED BY : C. YOKELEY DATE : 02/10/14
 CHECKED BY : T. KIRSCHBAUM DATE : 03/03/14

02-SEP-2015 16:09
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AT END BENT 1 AT END BENT 2

PLAN

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.

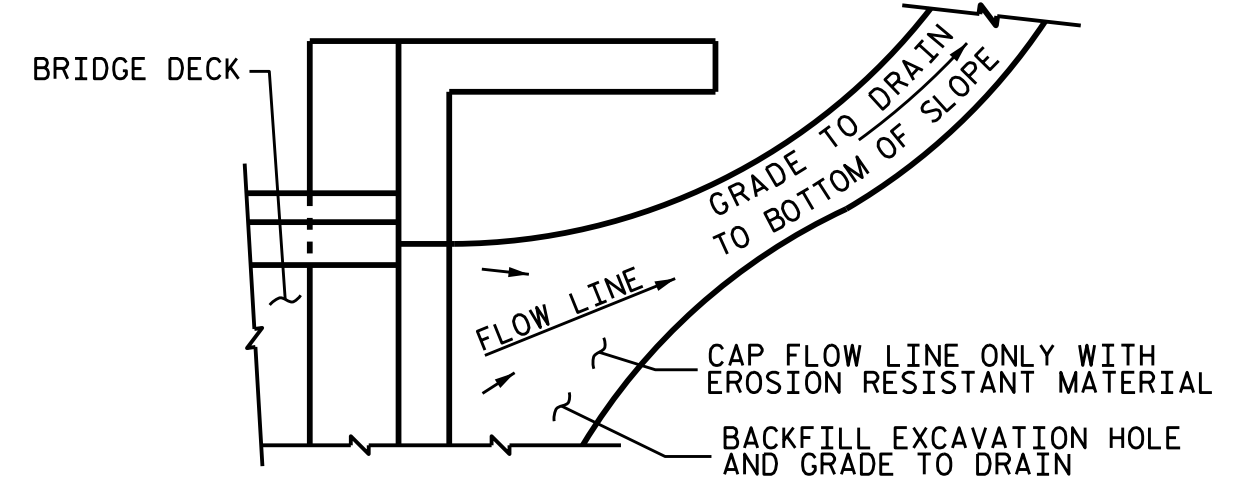
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#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.

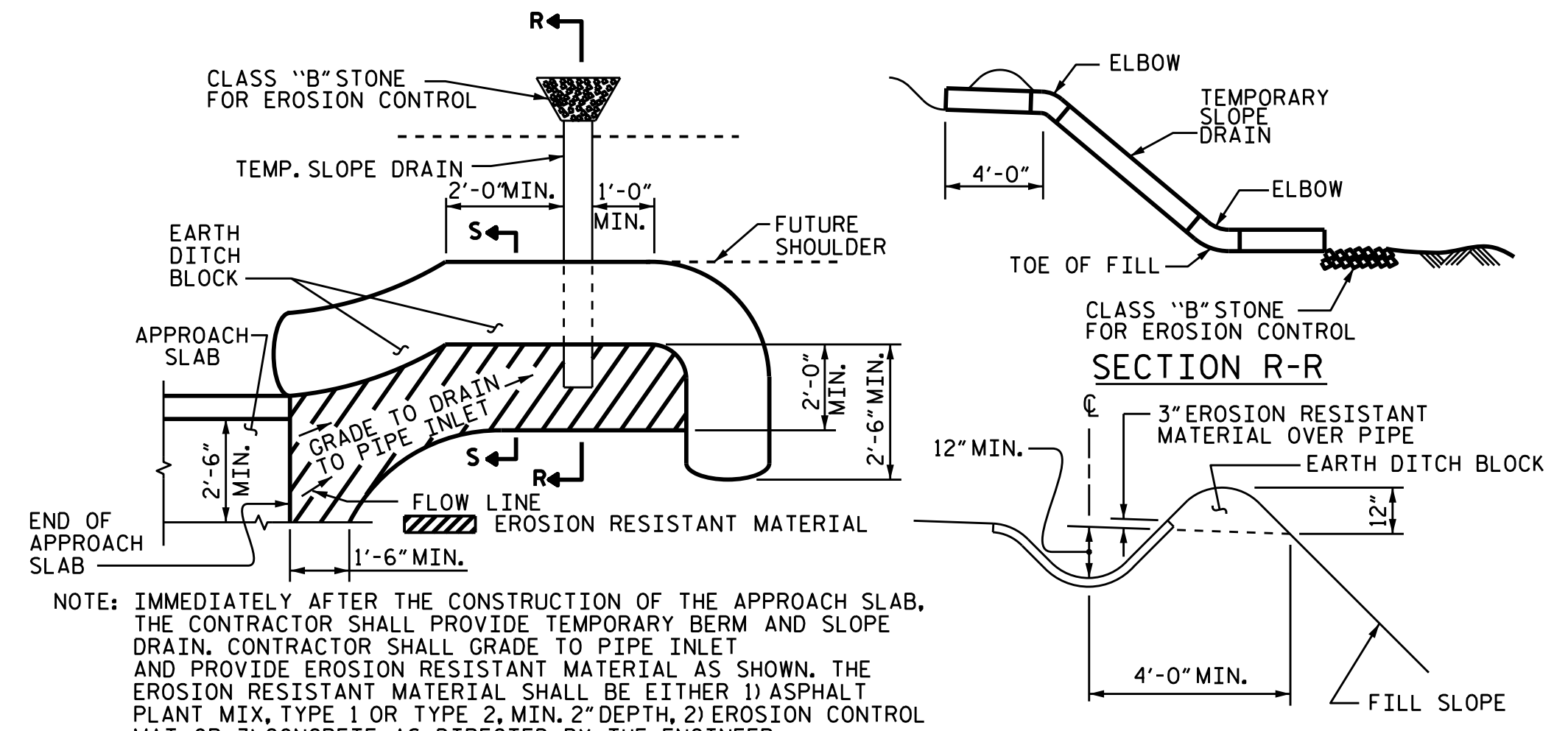
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT 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.

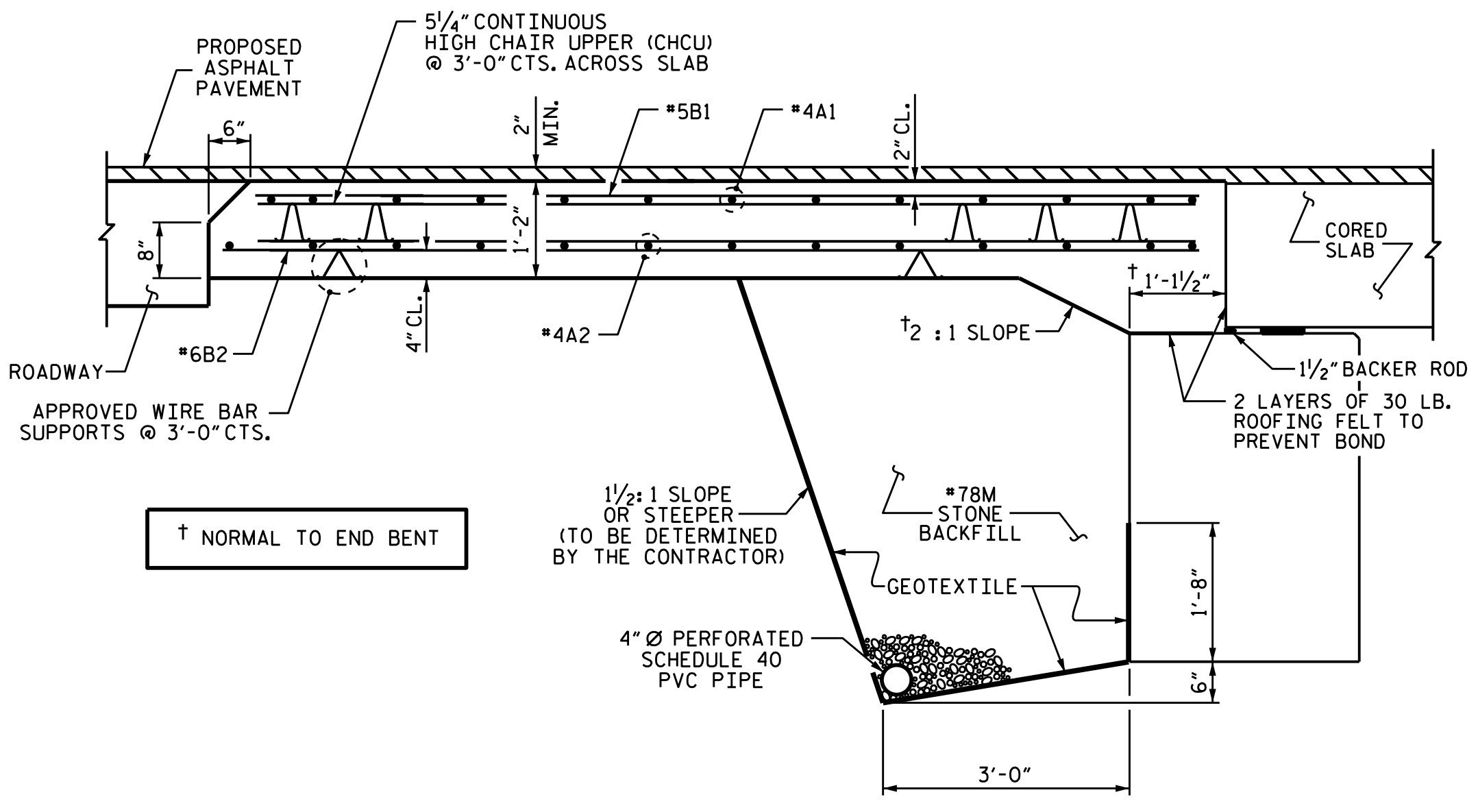
TEMPORARY DRAINAGE DETAIL



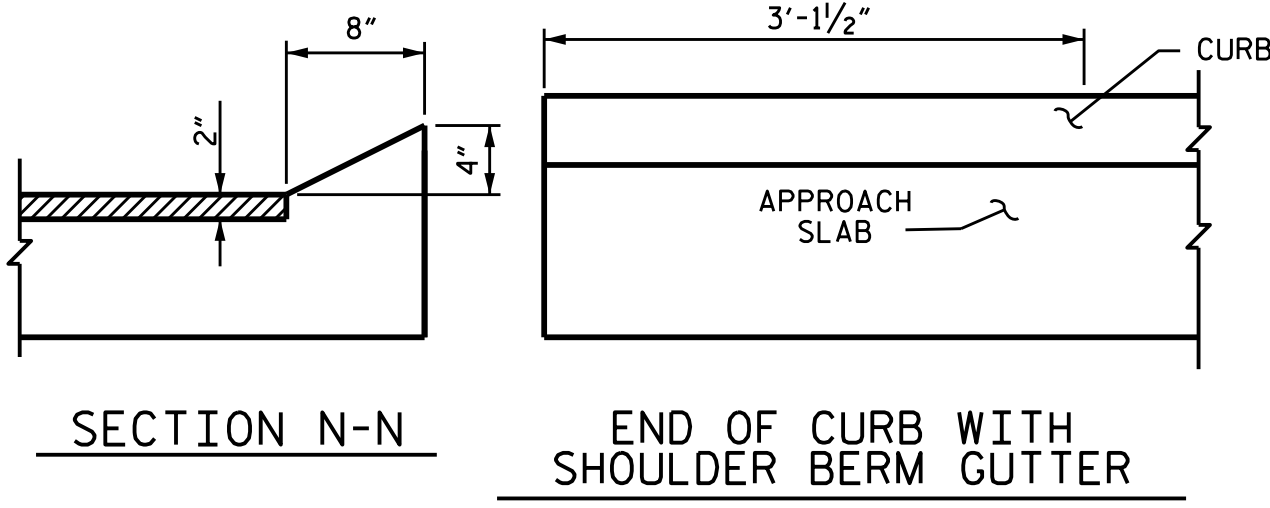
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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.

PLAN VIEW TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



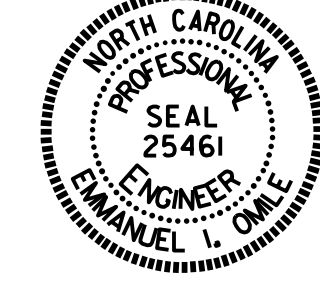
SECTION THRU SLAB



CURB DETAILS

PROJECT NO. B-4959
 GUILFORD COUNTY
 STATION: 14+70.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 75° SKEW



DocuSigned by: Emmanuel I. Omile
 9/3/2015

REVISIONS						SHEET NO. S-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

ASSEMBLED BY: E.I. OMILE DATE: 4/24/15
 CHECKED BY: T.H. FANG DATE: 6/24/15

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "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. FINISHERS 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