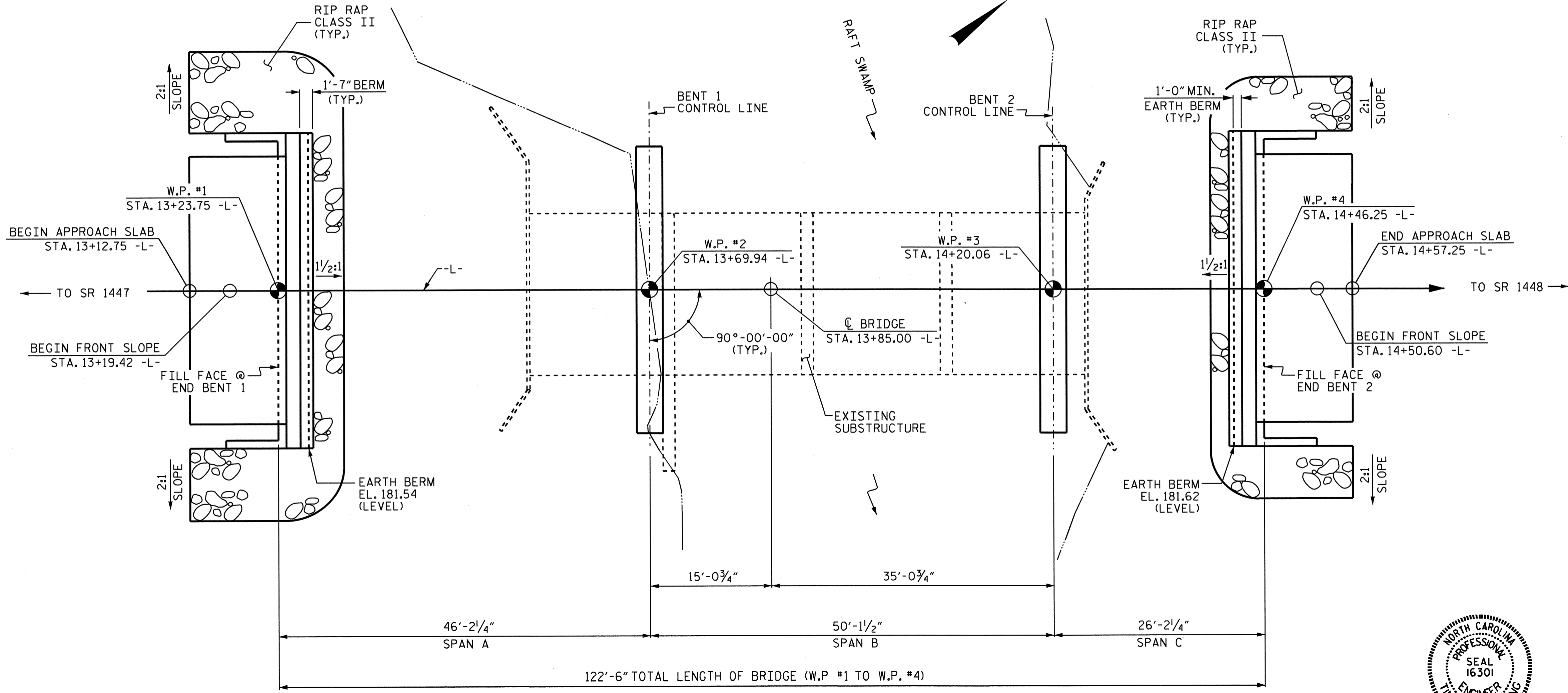


SECTION ALONG -L-
 SECTION TAKEN AT RIGHT ANGLES TO BENTS AND END BENTS

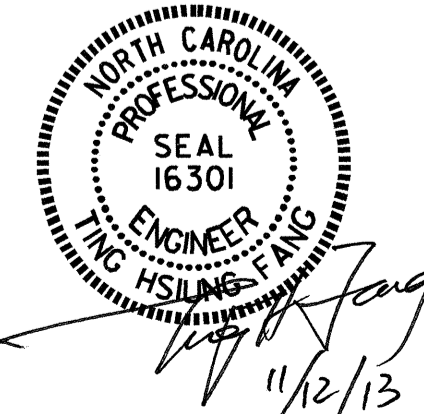
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PROJECT NO. B-5132
 HOKE COUNTY
 STATION: 13+85.00 -L-

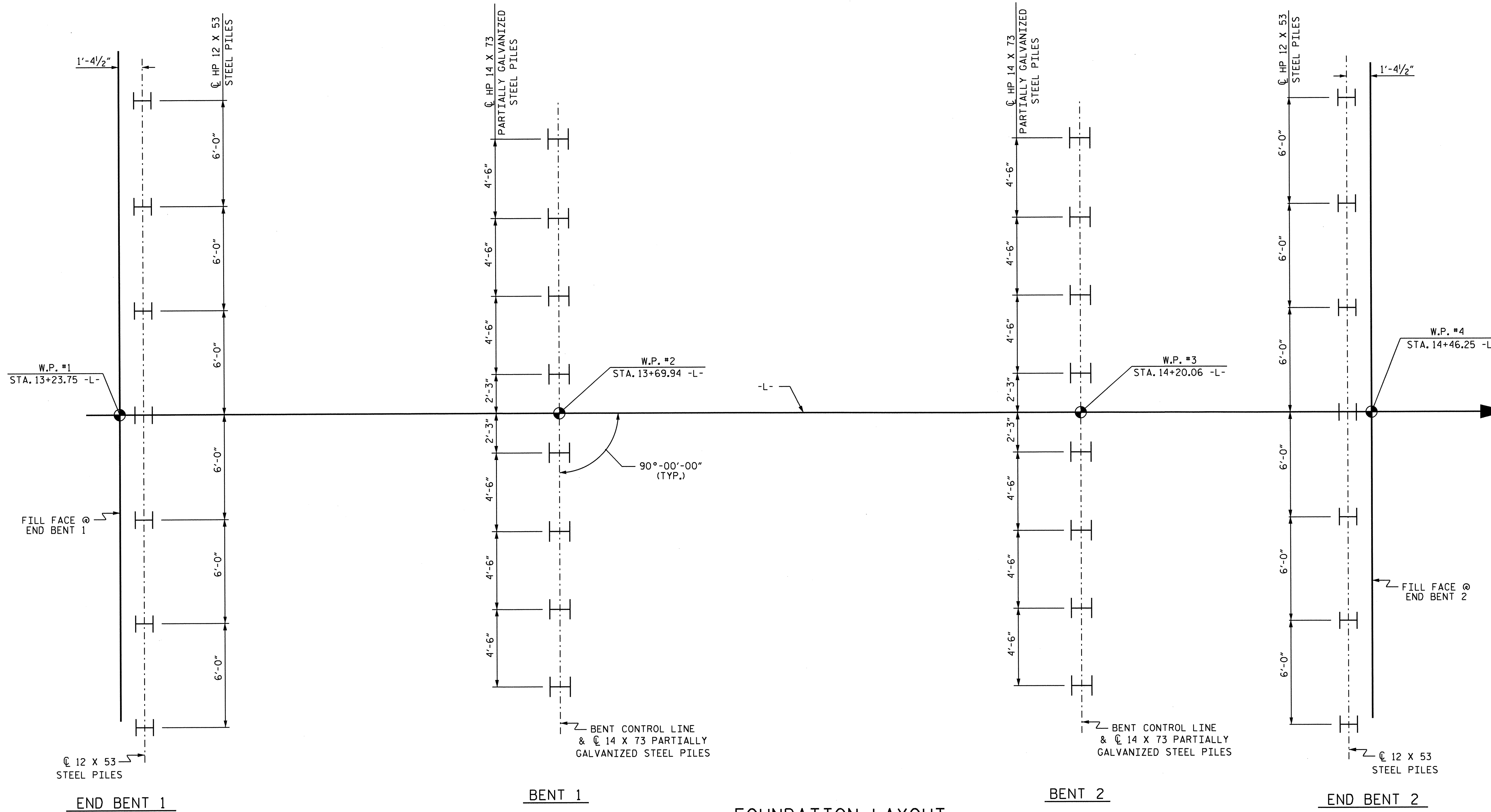
SHEET 1 OF 3 REPLACES BRIDGE NO. 37

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER RAFT SWAMP ON
 SR 1436 (BALFOUR RD.) BETWEEN
 SR 1447 AND SR 1448



DRAWN BY : S.B. WILLIAMS DATE : 7/9/12
 CHECKED BY : T.H. FANG DATE : 9/6/12

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



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES.

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 65 TONS PER PILE.
 DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 105 TONS PER PILE.

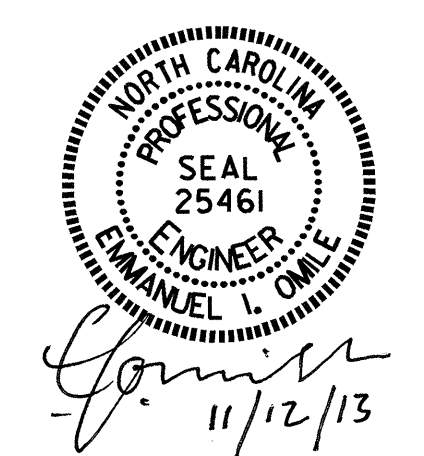
PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 50 TONS PER PILE.
 DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 80 TONS PER PILE.

PILES AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.
 DRIVE PILES AT BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.
 INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 147.0 FT.

PILES AT BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
 INSTALL PILES AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 148.0 FT.

THE SCOUR CRITICAL ELEVATION FOR BENTS 1 AND 2 IS ELEVATION 170 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

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



PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER RAFT SWAMP
 ON SR 1436 (BALFOUR RD.)
 BETWEEN SR 1447 AND SR 1448

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

DRAWN BY: E. I. OMILE DATE: 09-26-12
 CHECKED BY: W. F. PARKER DATE: 10-12-12

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	NO.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	TON	SO. YD.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE					LUMP SUM						240.50			LUMP SUM	33	1320
END BENT 1			LUMP SUM	14.3		2127	7	455				80	90			
BENT 1				10.8		2162			8	560						
BENT 2				10.8		2162			8	560						
END BENT 2			LUMP SUM	14.3		2127	7	420				55	60			
TOTAL	LUMP SUM	1	LUMP SUM	50.2	LUMP SUM	8,578	14	875	16	1,120	240.50	135	150	LUMP SUM	33	1320

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 2.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

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."

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

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 SHOULD 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 13+85.00 -L-".

THE EXISTING STRUCTURE CONSISTING OF 4 SPANS: 2 SPANS @ 17'-3", 1 @ 17'-5", 1 @ 17'-3" WITH 3" AWS AND A CLEAR ROADWAY WIDTH OF 19'-3" AND TIMBER DECK ON I-BEAMS; SUBSTRUCTURE END BENTS AND INTERIOR BENTS CONSISTING OF TIMBER CAPS AND PILES; INTERIOR BENTS 2 AND 3 HAVE W-BEAM STEEL CAP AND PILE CRUTCHES, LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

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 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 32 FT. EACH SIDE OF CENTERLINE ROADWAY AT END BENT 1 AND 25 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.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

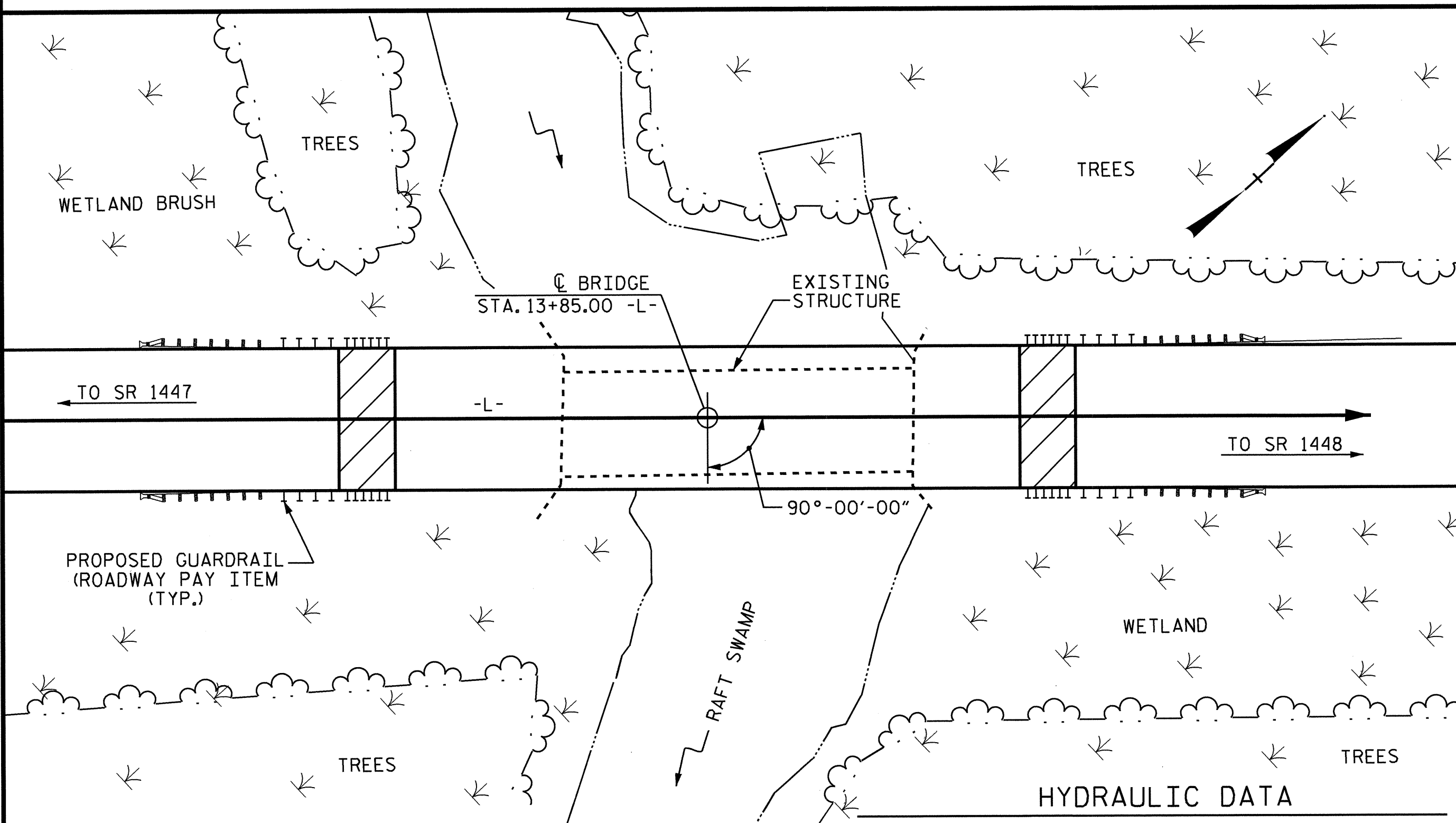
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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 BASE OF 30" PINE, N 50°-39'-27"E, DIST. 263', -L- STA 16+50 EL. 183.78



HYDRAULIC DATA

DESIGN DISCHARGE	= 1200 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 183.7
DRAINAGE AREA	= 41.75 SQ.MI.
BASIC DISCHARGE (Q100)	= 1797 CFS
BASIC HIGH WATER ELEVATION	= 184.3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	> 2100 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YR.
OVERTOPPING FLOOD ELEVATION	= 185.0

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

DRAWN BY: E. I. OMILE DATE: 09-26-12
 CHECKED BY: T. H. FANG DATE: 09-26-13



T.H. Fang
 11/2/13

PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

BRIDGE OVER RAFT SWAMP ON
 SR 1436 (BALFOUR RD.) BETWEEN
 SR 1447 AND SR 1448

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

LOAD FACTORS:

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

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	1.088	--	1.75	0.277	1.34	45'	EL	22	0.539	1.23	45'	EL	2.2	0.80	0.277	1.09	45'	EL	22		
	HL-93(0pr)	N/A	--	1.590	--	1.35	0.277	1.74	45'	EL	22	0.539	1.59	45'	EL	2.2	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.336	48.104	1.75	0.277	1.65	45'	EL	22	0.539	1.45	45'	EL	2.2	0.80	0.277	1.34	45'	EL	22		
	HS-20(0pr)	36.000	--	1.882	67.763	1.35	0.277	2.14	45'	EL	22	0.539	1.88	45'	EL	2.2	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.611	35.252	1.40	0.277	4.02	45'	EL	22	0.539	4.01	45'	EL	2.2	0.80	0.277	2.61	45'	EL	22	
		SNGARBS2	20.000	--	2.108	42.166	1.40	0.277	3.25	45'	EL	22	0.539	2.94	45'	EL	2.2	0.80	0.277	2.11	45'	EL	22	
		SNAGRIS2	22.000	--	2.067	45.466	1.40	0.277	3.15	45'	EL	17.6	0.539	2.77	45'	EL	2.2	0.80	0.277	2.07	45'	EL	22	
		SNCOTTS3	27.250	--	1.304	35.527	1.40	0.277	2.01	45'	EL	22	0.539	2.01	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		SNAGGRS4	34.925	--	1.150	40.181	1.40	0.277	1.77	45'	EL	22	0.539	1.74	45'	EL	2.2	0.80	0.277	1.15	45'	EL	22	
		SNS5A	35.550	--	1.121	39.841	1.40	0.277	1.73	45'	EL	22	0.539	1.79	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
		SNS6A	39.950	--	1.056	42.175	1.40	0.277	1.63	45'	EL	22	0.539	1.67	45'	EL	2.2	0.80	0.277	1.06	45'	EL	22	
		SNS7B	42.000	3	1.006	42.268	1.40	0.277	1.55	45'	EL	22	0.539	1.68	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22	
	TTST	TNAGRIT3	33.000	--	1.296	42.759	1.40	0.277	2.00	45'	EL	22	0.539	1.96	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		TNT4A	33.075	--	1.309	43.305	1.40	0.277	2.02	45'	EL	22	0.539	1.88	45'	EL	2.2	0.80	0.277	1.31	45'	EL	22	
		TNT6A	41.600	--	1.099	45.712	1.40	0.277	1.69	45'	EL	22	0.539	1.83	45'	EL	2.2	0.80	0.277	1.10	45'	EL	22	
		TNT7A	42.000	--	1.120	47.043	1.40	0.277	1.73	45'	EL	22	0.539	1.69	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
		TNT7B	42.000	--	1.166	48.975	1.40	0.277	1.80	45'	EL	22	0.539	1.61	45'	EL	2.2	0.80	0.277	1.17	45'	EL	22	
		TNAGRIT4	43.000	--	1.111	47.757	1.40	0.277	1.71	45'	EL	22	0.539	1.55	45'	EL	2.2	0.80	0.277	1.11	45'	EL	22	
		TNAGT5A	45.000	--	1.033	46.505	1.40	0.277	1.59	45'	EL	22	0.539	1.59	45'	EL	2.2	0.80	0.277	1.03	45'	EL	22	
		TNAGT5B	45.000	--	1.009	45.408	1.40	0.277	1.56	45'	EL	22	0.539	1.47	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22	

NOTES:

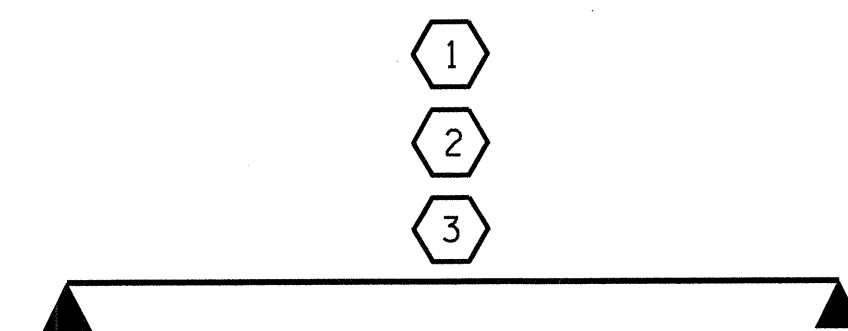
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

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

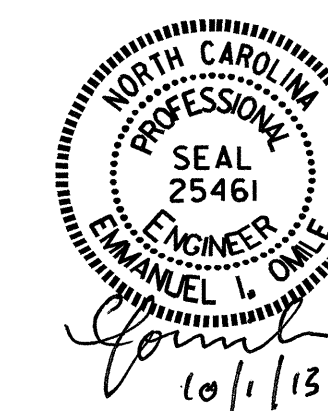
#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 45' CORED SLAB UNIT
 90° SKEW
 (NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : E.I. OMILE
 CHECKED BY : W.F. PARKER
 DATE : 09-21-12
 DATE : 10-15-12

DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

LOAD FACTORS:

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

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			
						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	1.394	--	1.75	0.276	1.57	50'	EL	24.5	0.531	1.39	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5		
	HL-93(0pr)	N/A	--	1.807	--	1.35	0.276	2.03	50'	EL	24.5	0.531	1.81	50'	EL	2.45	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.667	60.007	1.75	0.276	1.95	50'	EL	24.5	0.531	1.67	50'	EL	2.45	0.80	0.276	1.79	50'	EL	24.5		
	HS-20(0pr)	36.000	--	2.161	77.787	1.35	0.276	2.52	50'	EL	24.5	0.531	2.16	50'	EL	2.45	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.635	49.079	1.40	0.276	4.95	50'	EL	24.5	0.531	4.70	50'	EL	2.45	0.80	0.276	3.64	50'	EL	24.5	
		SNGARBS2	20.000	--	2.871	57.42	1.40	0.276	3.91	50'	EL	24.5	0.531	3.42	50'	EL	2.45	0.80	0.276	2.87	50'	EL	24.5	
		SNAGRIS2	22.000	--	2.778	61.109	1.40	0.276	3.78	50'	EL	19.6	0.531	3.21	50'	EL	2.45	0.80	0.276	2.78	50'	EL	24.5	
		SNCOTTS3	27.250	--	1.814	49.418	1.40	0.276	2.47	50'	EL	24.5	0.531	2.36	50'	EL	2.45	0.80	0.276	1.81	50'	EL	24.5	
		SNAGGRS4	34.925	--	1.577	55.063	1.40	0.276	2.15	50'	EL	24.5	0.531	2.01	50'	EL	2.45	0.80	0.276	1.58	50'	EL	24.5	
		SNS5A	35.550	--	1.537	54.657	1.40	0.276	2.09	50'	EL	24.5	0.531	2.07	50'	EL	2.45	0.80	0.276	1.54	50'	EL	24.5	
		SNS6A	39.950	--	1.438	57.43	1.40	0.276	1.96	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5	
	SNS7B	42.000	--	1.370	57.54	1.40	0.276	1.87	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.37	50'	EL	24.5		
	TTST	TNAGRIT3	33.000	--	1.761	58.118	1.40	0.276	2.40	50'	EL	24.5	0.531	2.25	50'	EL	2.45	0.80	0.276	1.76	50'	EL	24.5	
		TNT4A	33.075	--	1.777	58.759	1.40	0.276	2.42	50'	EL	24.5	0.531	2.17	50'	EL	2.45	0.80	0.276	1.78	50'	EL	24.5	
		TNT6A	41.600	--	1.480	61.558	1.40	0.276	2.01	50'	EL	24.5	0.531	2.08	50'	EL	2.45	0.80	0.276	1.48	50'	EL	24.5	
		TNT7A	42.000	--	1.502	63.087	1.40	0.276	2.05	50'	EL	24.5	0.531	1.94	50'	EL	2.45	0.80	0.276	1.50	50'	EL	24.5	
		TNT7B	42.000	--	1.566	65.773	1.40	0.276	2.13	50'	EL	24.5	0.531	1.84	50'	EL	2.45	0.80	0.276	1.57	50'	EL	24.5	
		TNAGRIT4	43.000	--	1.486	63.902	1.40	0.276	2.02	50'	EL	24.5	0.531	1.77	50'	EL	2.45	0.80	0.276	1.49	50'	EL	24.5	
TNACT5A		45.000	--	1.388	62.47	1.40	0.276	1.89	50'	EL	24.5	0.531	1.80	50'	EL	2.45	0.80	0.276	1.39	50'	EL	24.5		
TNACT5B	45.000	3	1.360	61.206	1.40	0.276	1.85	50'	EL	24.5	0.531	1.68	50'	EL	2.45	0.80	0.276	1.36	50'	EL	24.5			

NOTES:

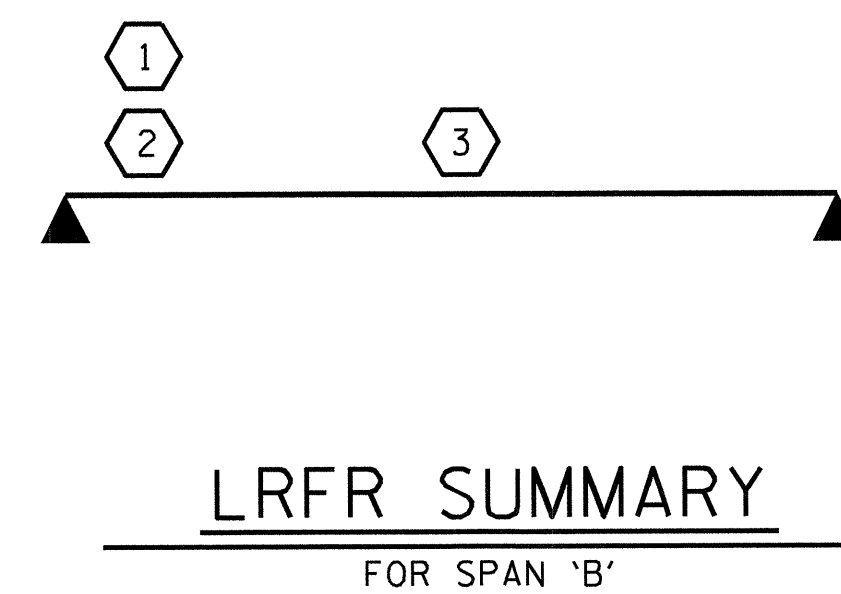
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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	



PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 50' CORED SLAB UNIT
 90° SKEW
 (NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : E.I. OMILE DATE : 09-21-12
 CHECKED BY : W.F. PARKER DATE : 10-15-12
 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

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	1.018	--	1.75	0.284	2.53	25'	EL	12	0.591	1.02	25'	EL	1.2	0.80	0.284	2.34	25'	EL	12		
	HL-93(0pr)	N/A	--	1.319	--	1.35	0.284	3.29	25'	EL	12	0.591	1.32	25'	EL	1.2	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.178	42.397	1.75	0.284	3.76	25'	EL	12	0.591	1.18	25'	EL	1.2	0.80	0.284	3.46	25'	EL	12		
	HS-20(0pr)	36.000	--	1.527	54.959	1.35	0.284	4.87	25'	EL	12	0.591	1.53	25'	EL	1.2	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.728	36.833	1.40	0.284	6.83	25'	EL	12	0.591	2.73	25'	EL	1.2	0.80	0.284	5.04	25'	EL	12	
		SNGARBS2	20.000	--	2.186	43.718	1.40	0.284	6.39	25'	EL	12	0.591	2.19	25'	EL	1.2	0.80	0.284	4.72	25'	EL	12	
		SNAGRIS2	22.000	--	2.141	47.107	1.40	0.284	6.83	25'	EL	12	0.591	2.14	25'	EL	1.2	0.80	0.284	5.04	25'	EL	12	
		SNCOTTS3	27.250	--	1.385	37.731	1.40	0.284	3.57	25'	EL	12	0.591	1.38	25'	EL	1.2	0.80	0.284	2.64	25'	EL	12	
		SNAGGRS4	34.925	--	1.332	46.511	1.40	0.284	3.56	25'	EL	12	0.591	1.33	25'	EL	1.2	0.80	0.284	2.62	25'	EL	12	
		SNS5A	35.550	--	1.392	49.477	1.40	0.284	3.45	25'	EL	12	0.591	1.39	25'	EL	1.2	0.80	0.284	2.54	25'	EL	12	
		SNS6A	39.950	--	1.334	53.31	1.40	0.284	3.23	25'	EL	12	0.591	1.33	25'	EL	1.2	0.80	0.284	2.39	25'	EL	12	
	SNS7B	42.000	--	1.344	56.455	1.40	0.284	3.23	25'	EL	12	0.591	1.34	25'	EL	1.2	0.80	0.284	2.37	25'	EL	12		
	TTST	TNAGRIT3	33.000	--	1.634	53.934	1.40	0.284	4.55	25'	EL	12	0.591	1.63	25'	EL	1.2	0.80	0.284	3.36	25'	EL	12	
		TNT4A	33.075	--	1.483	49.049	1.40	0.284	3.95	25'	EL	12	0.591	1.48	25'	EL	1.2	0.80	0.284	2.92	25'	EL	12	
		TNT6A	41.600	--	1.398	58.138	1.40	0.284	3.71	25'	EL	12	0.591	1.40	25'	EL	1.2	0.80	0.284	2.74	25'	EL	12	
		TNT7A	42.000	--	1.391	58.419	1.40	0.284	3.84	25'	EL	12	0.591	1.39	25'	EL	1.2	0.80	0.284	2.83	25'	EL	12	
		TNT7B	42.000	--	1.343	56.385	1.40	0.284	3.46	25'	EL	12	0.591	1.34	25'	EL	1.2	0.80	0.284	2.55	25'	EL	12	
		TNAGRIT4	43.000	--	1.340	57.604	1.40	0.284	3.71	25'	EL	12	0.591	1.34	25'	EL	1.2	0.80	0.284	2.73	25'	EL	12	
TNAGT5A		45.000	--	1.367	61.501	1.40	0.284	3.71	25'	EL	12	0.591	1.37	25'	EL	1.2	0.80	0.284	2.73	25'	EL	12		
TNAGT5B	45.000	3	1.239	55.766	1.40	0.284	3.65	25'	EL	9.6	0.591	1.24	25'	EL	1.2	0.80	0.284	2.71	25'	EL	9.6			

NOTES:

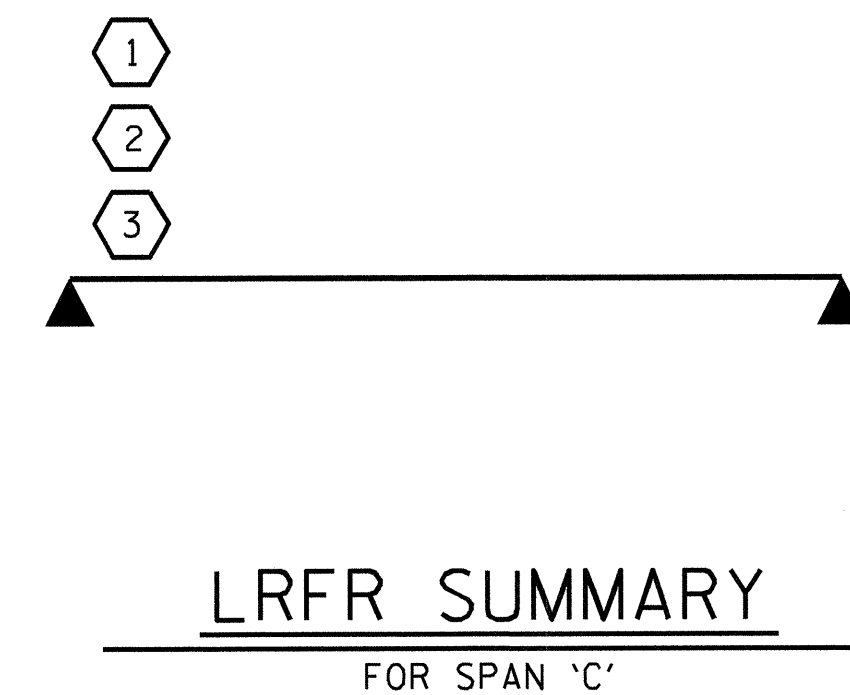
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

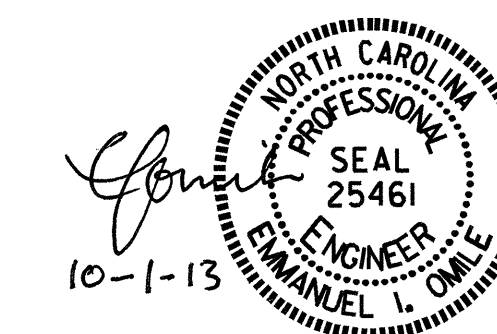
- 1.
- 2.
- 3.
- 4.

#	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	



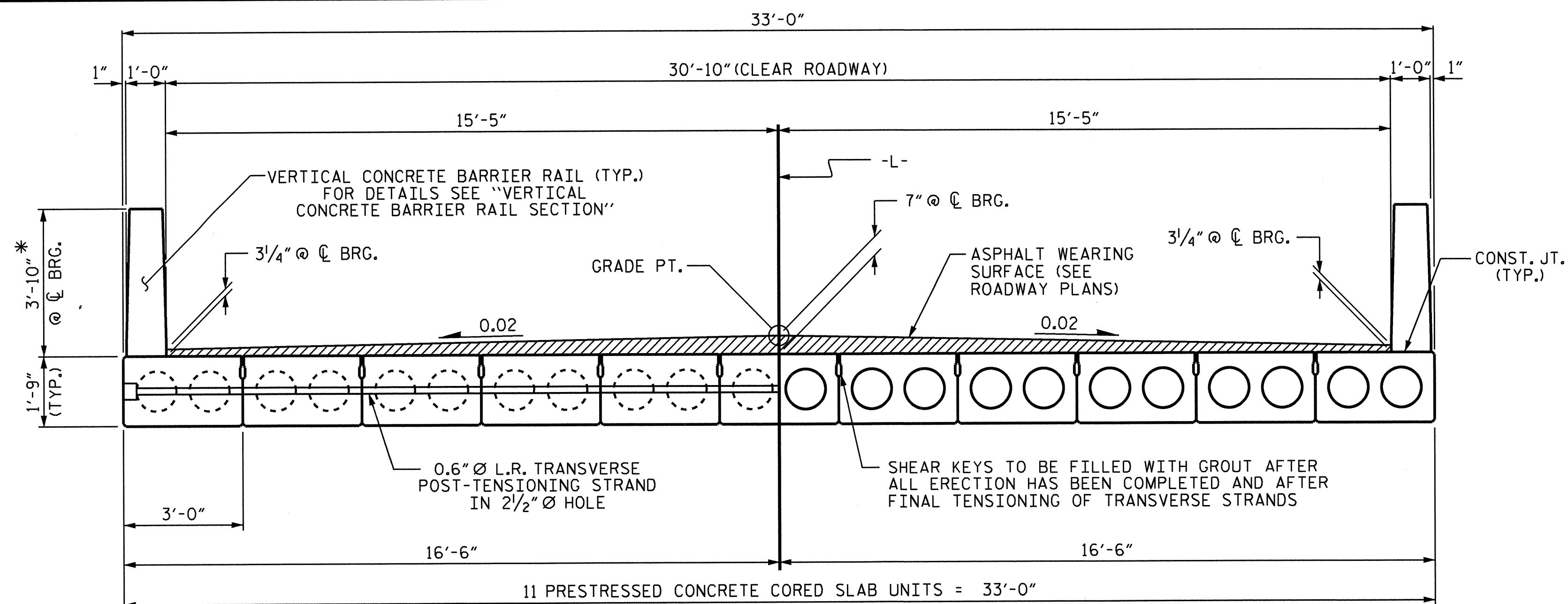
PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 3 OF 3



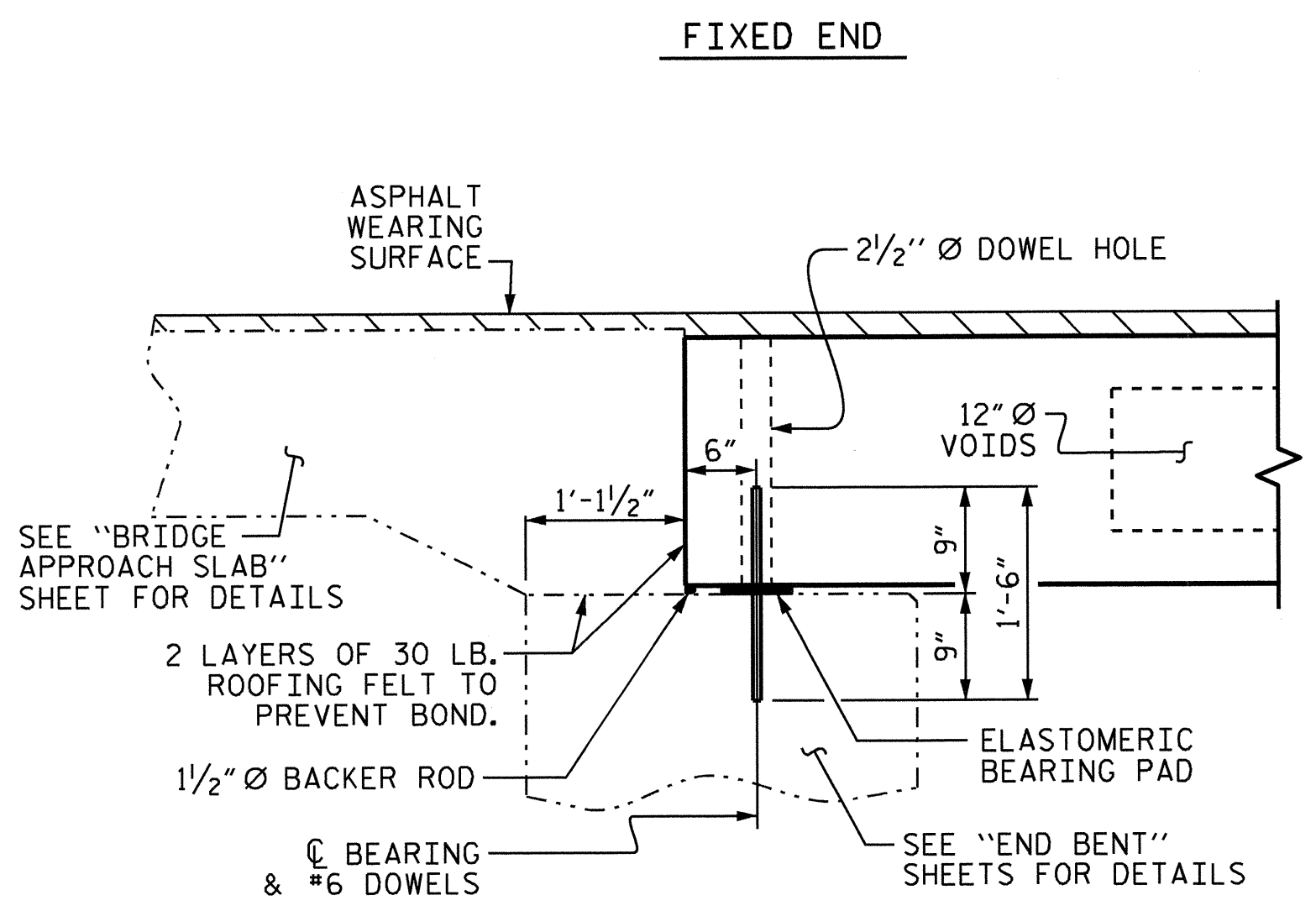
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-6
STANDARD LRFR SUMMARY FOR 25' CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)						TOTAL SHEETS 21
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : E.I. OMILE DATE : 09-21-12
 CHECKED BY : W.F. PARKER DATE : 10-15-12
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

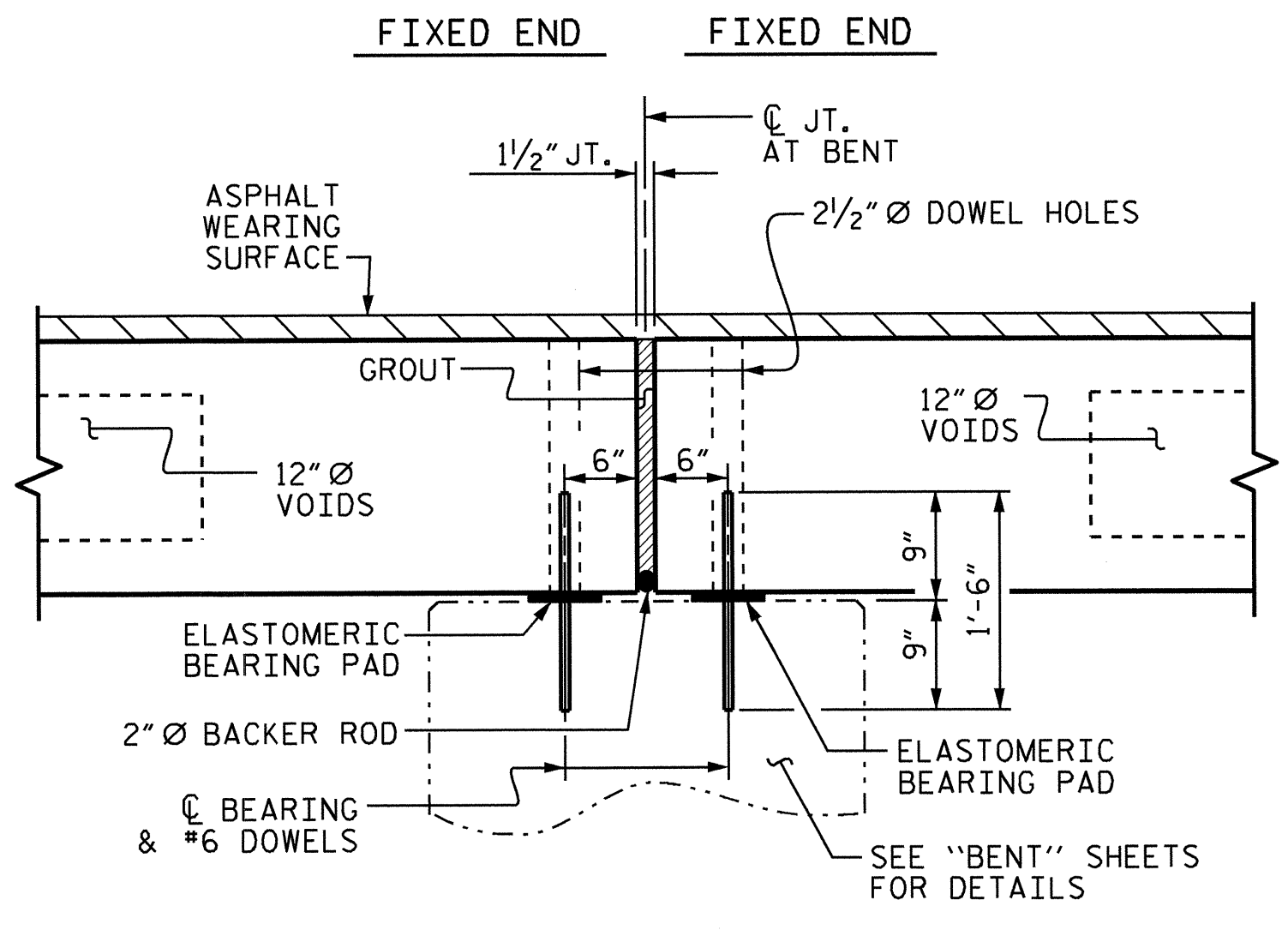


HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 HALF SECTION THROUGH VOIDS
TYPICAL SECTION

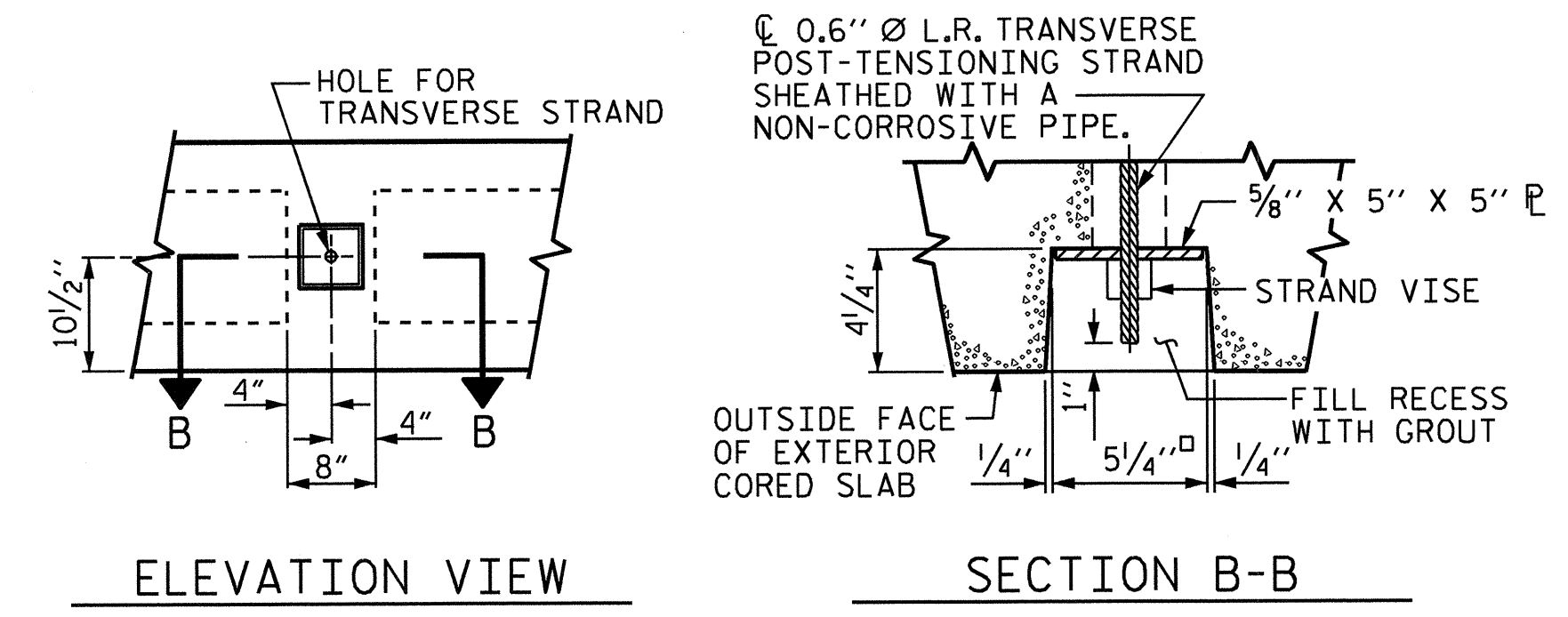
* THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



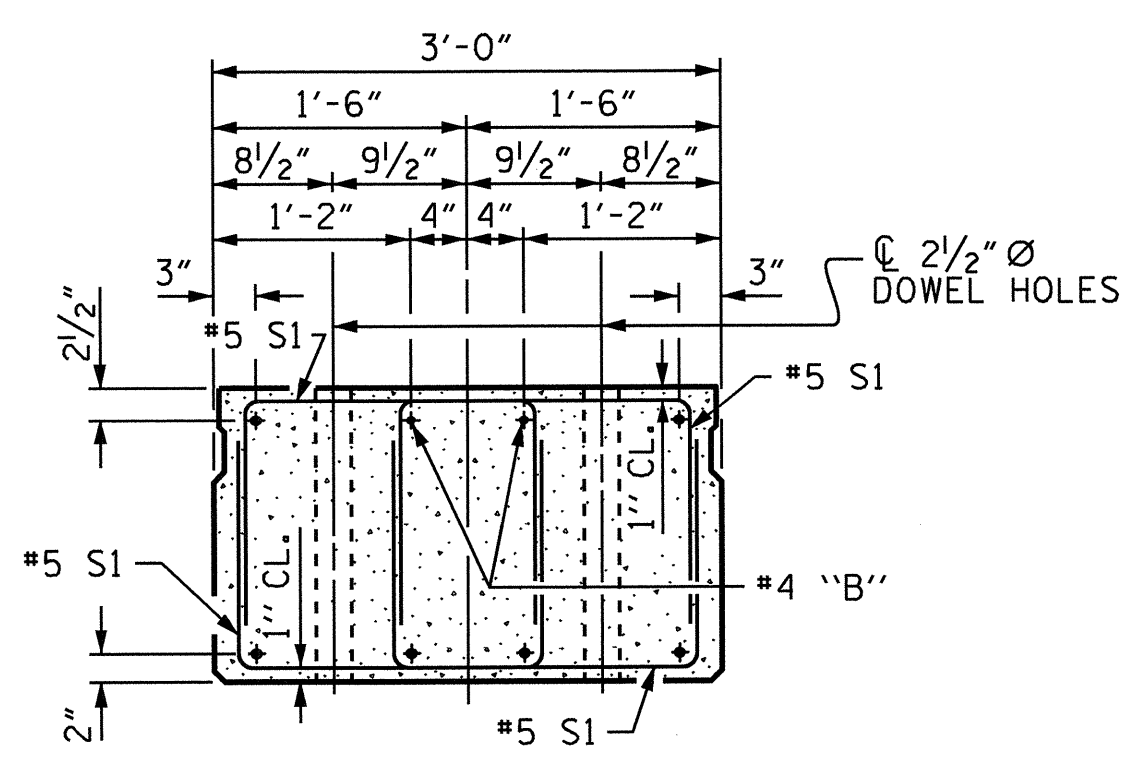
SECTION AT END BENT



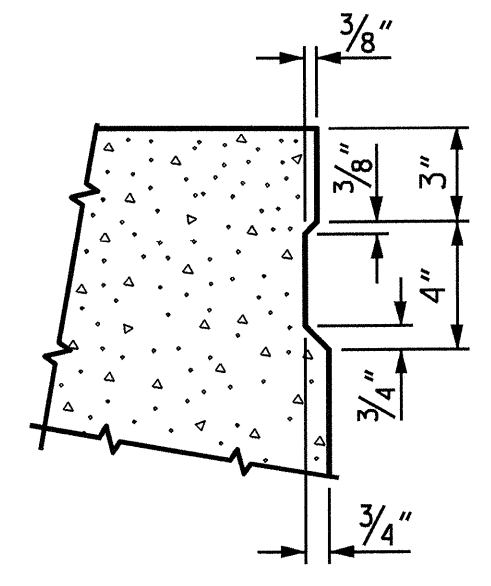
SECTION AT BENT



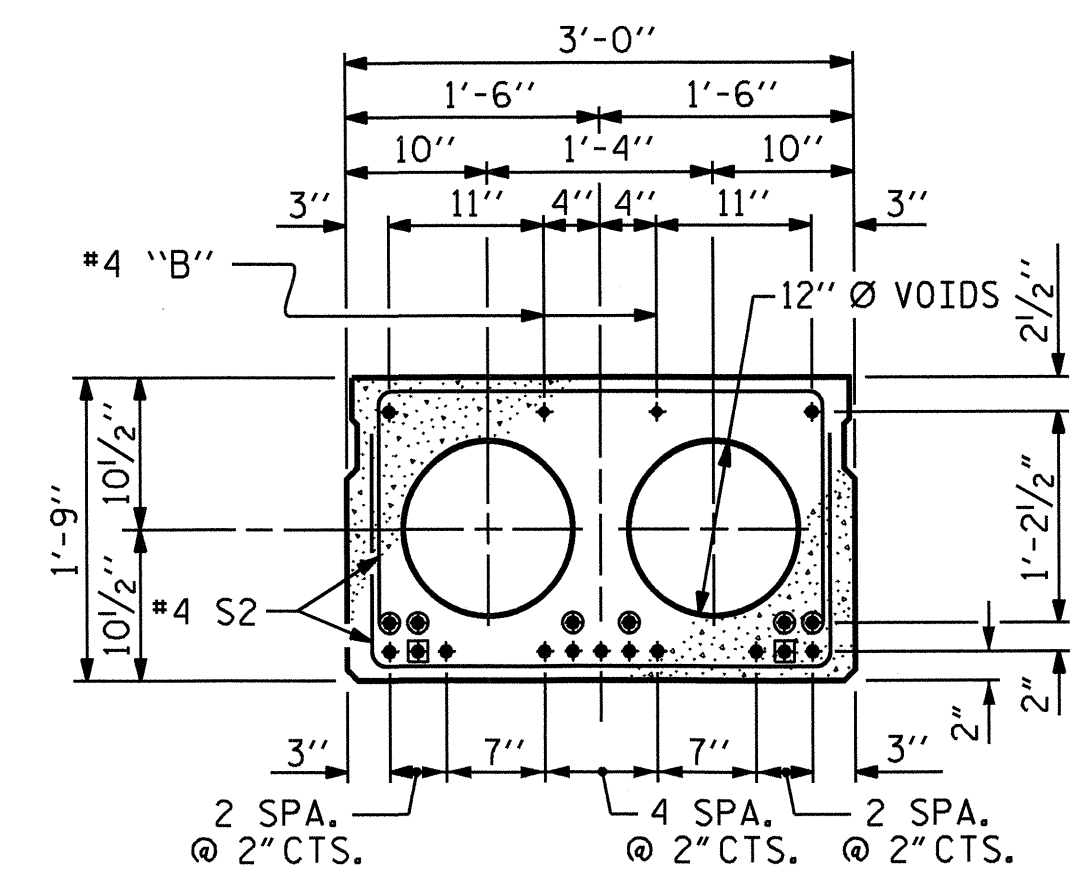
GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



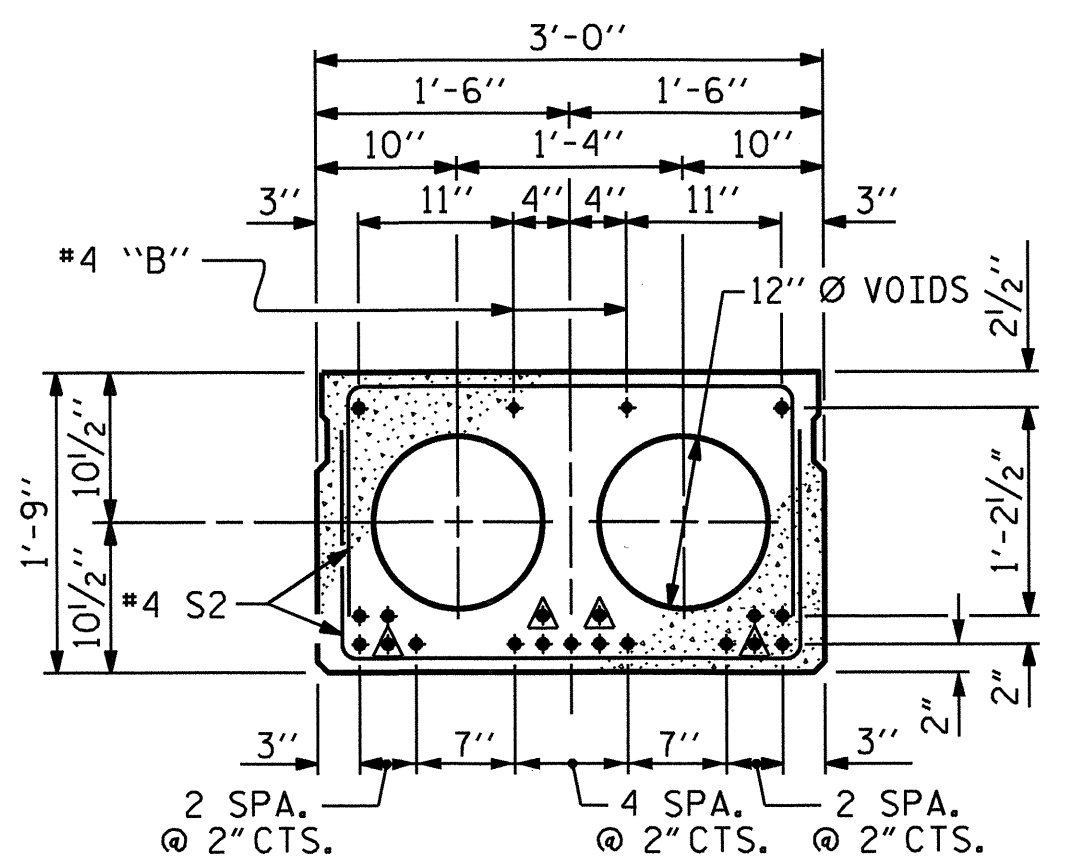
END ELEVATION



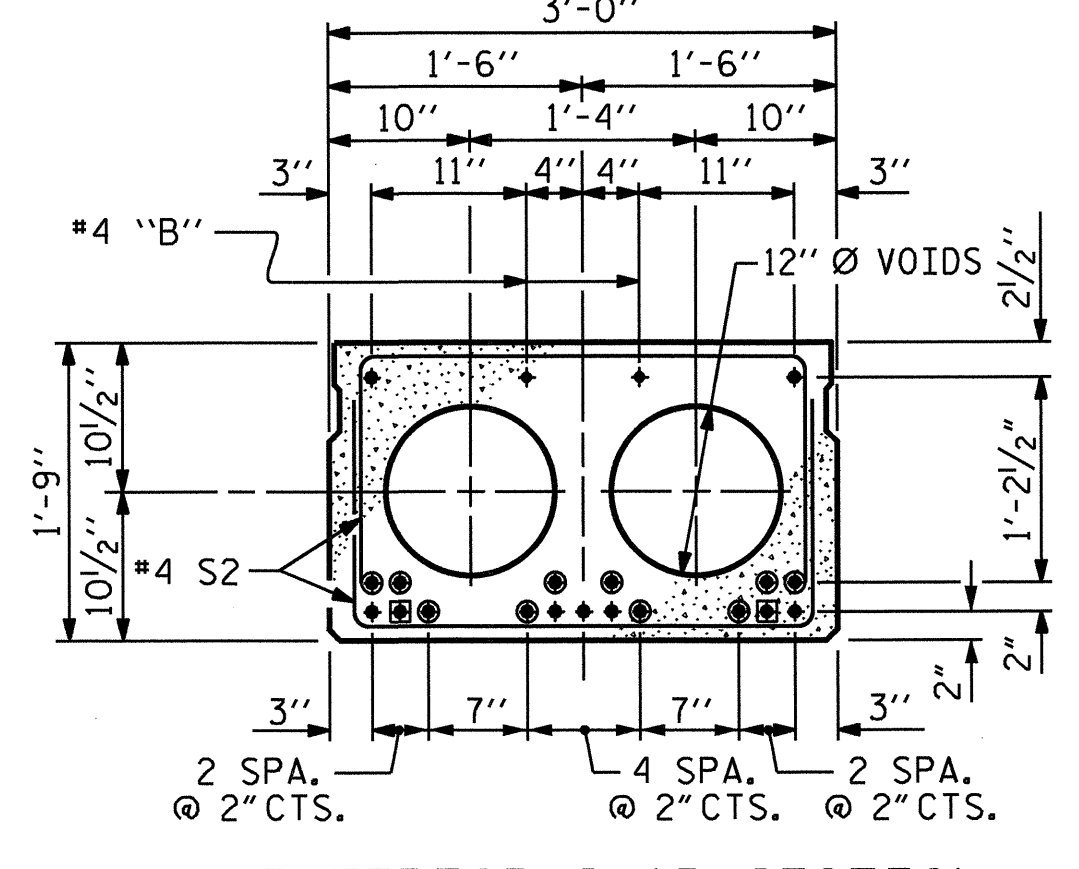
SHEAR KEY DETAIL
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



INTERIOR SLAB SECTION (45' UNIT) (SPAN A)
 (13 STRANDS REQUIRED)

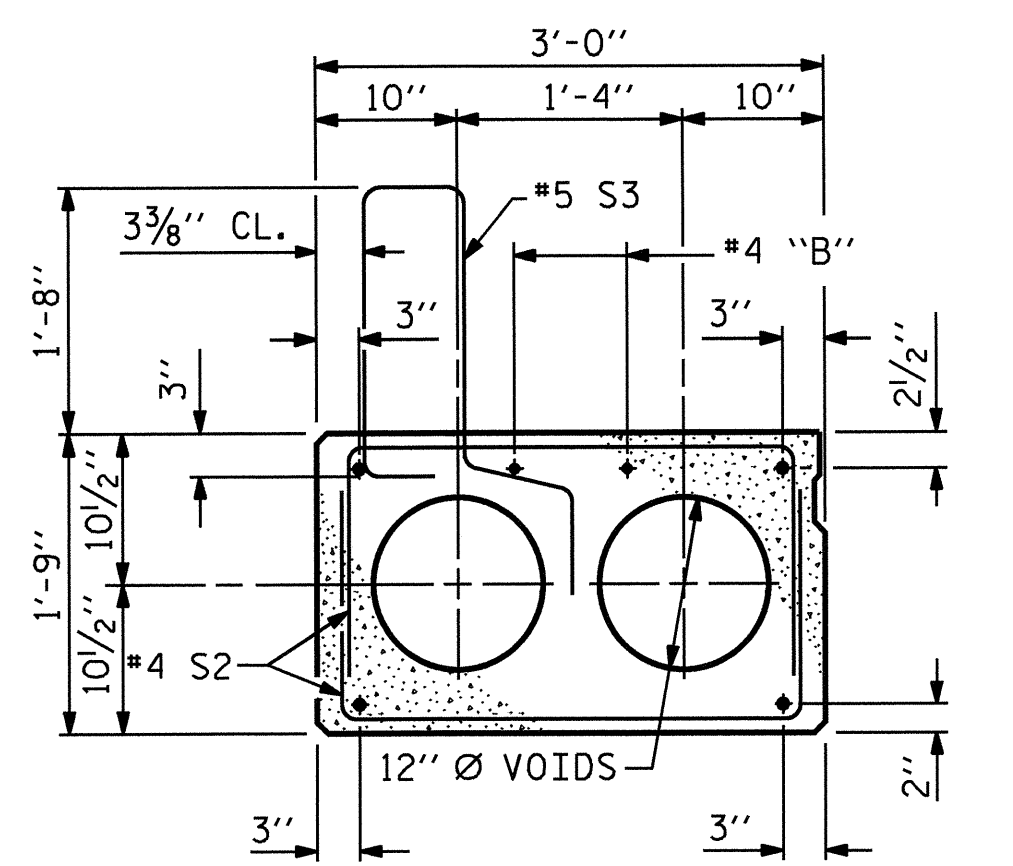


INTERIOR SLAB SECTION (50' UNIT) (SPAN B)
 (19 STRANDS REQUIRED)



INTERIOR SLAB SECTION (25' UNIT) (SPAN C)
 (9 STRANDS REQUIRED)

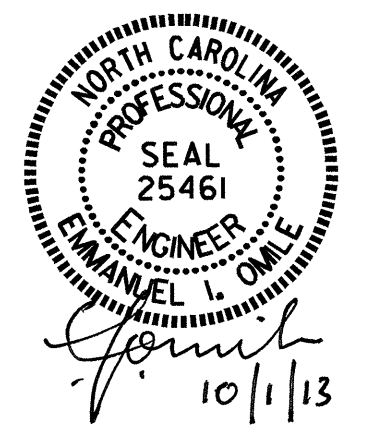
0.6" Ø LOW RELAXATION STRAND LAYOUT



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

- ▲ 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.
- 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

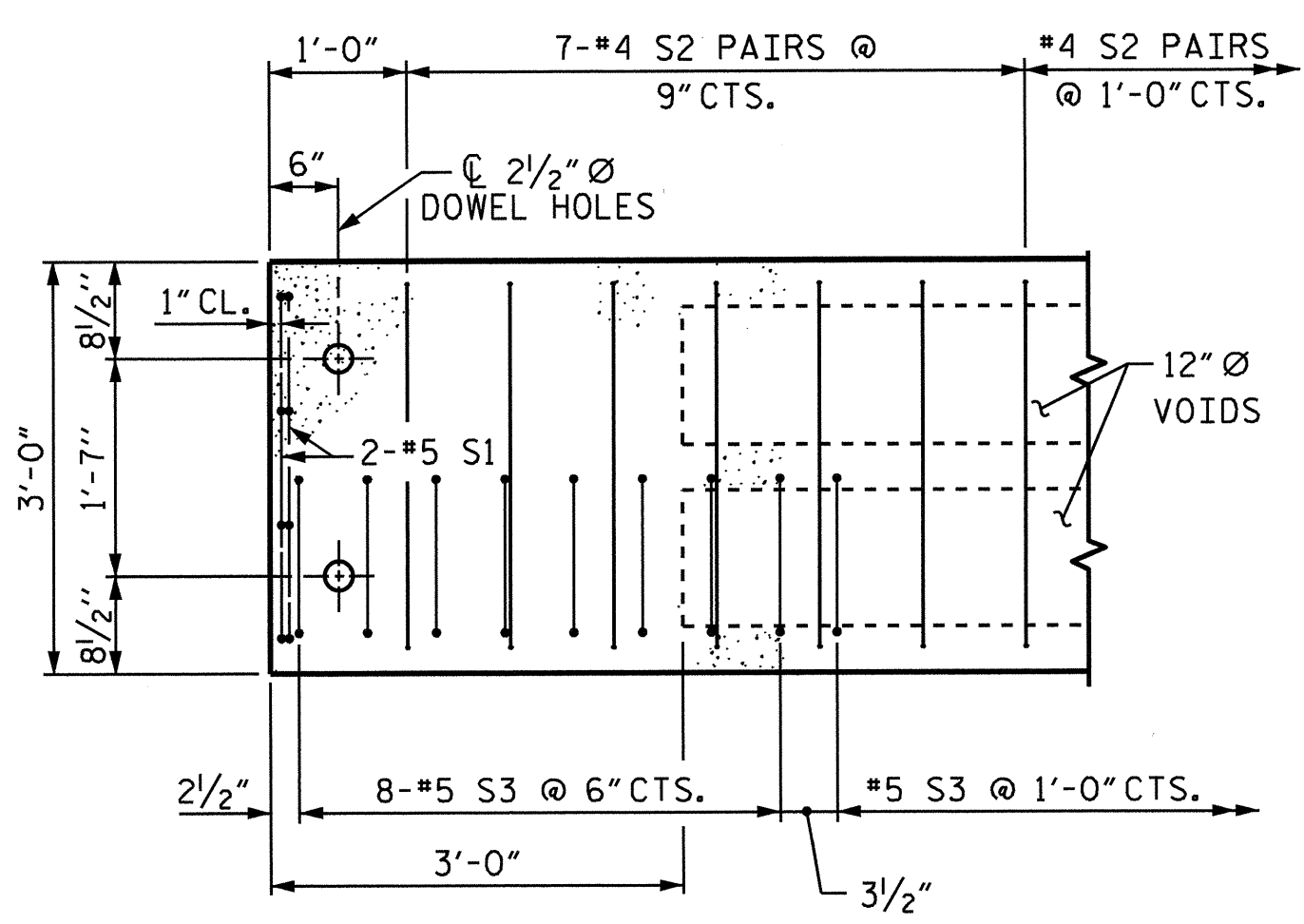
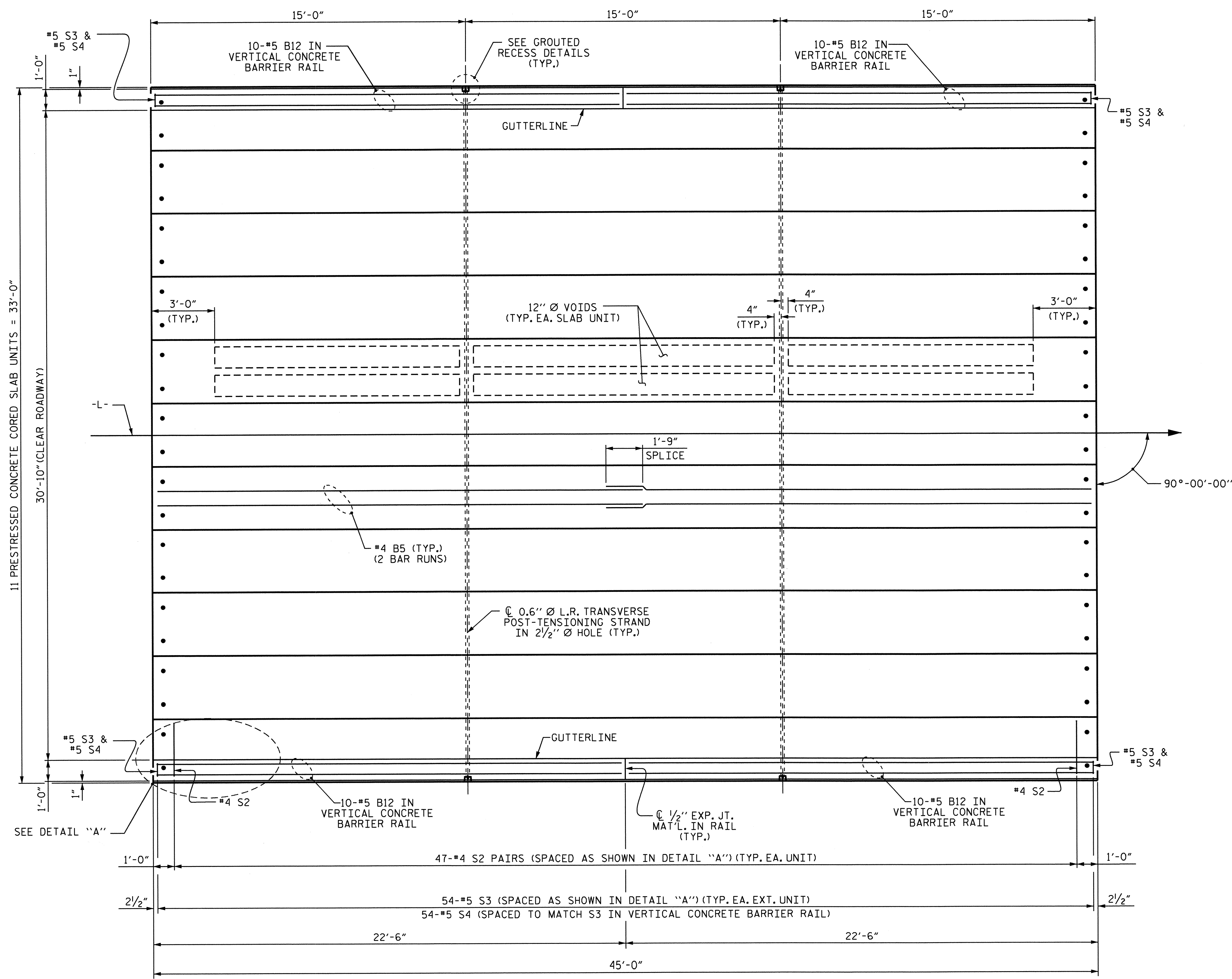


PROJECT NO. **B-5132**
 HOKE COUNTY
 STATION: **13+85.00 -L-**

SHEET 1 OF 6
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

ASSEMBLED BY : E.I. OMILE	DATE : 09-21-12
CHECKED BY : W.F. PARKER	DATE : 10-08-12
DRAWN BY : DGE 5/09	REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09	

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-7
1			3			TOTAL SHEETS
2			4			21



DETAIL "A"

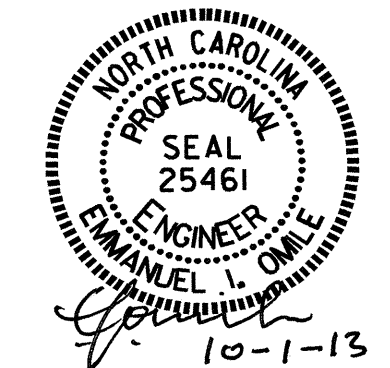
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

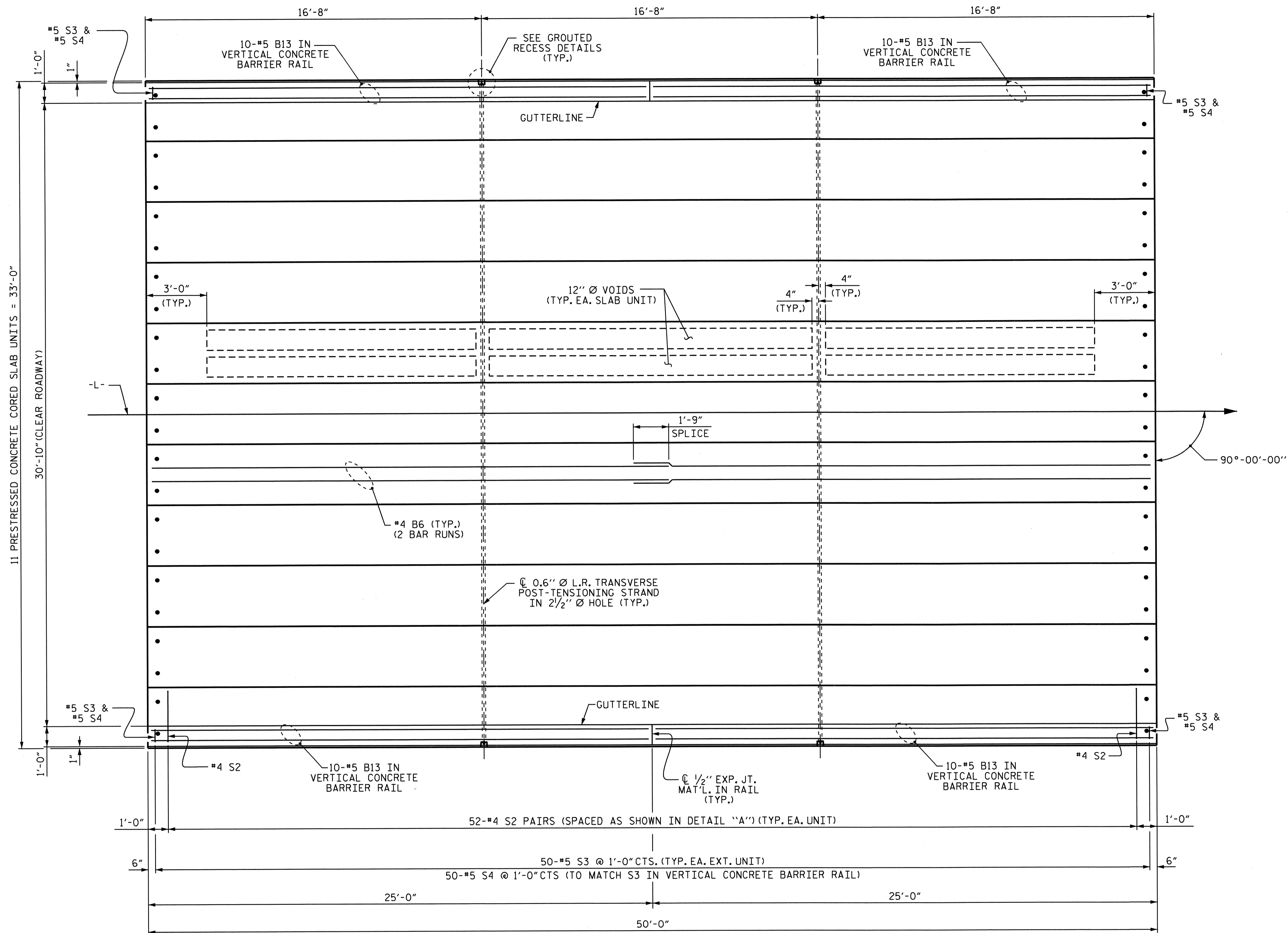
SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 45' UNIT
 30'-10" CLEAR ROADWAY
 90° SKEW
 SPAN A



ASSEMBLED BY : E.I. OMILE	DATE : 09-21-12
CHECKED BY : W.F. PARKER	DATE : 10-08-12
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	

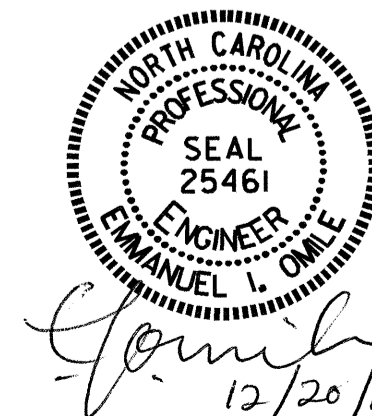
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			21



PLAN OF UNIT

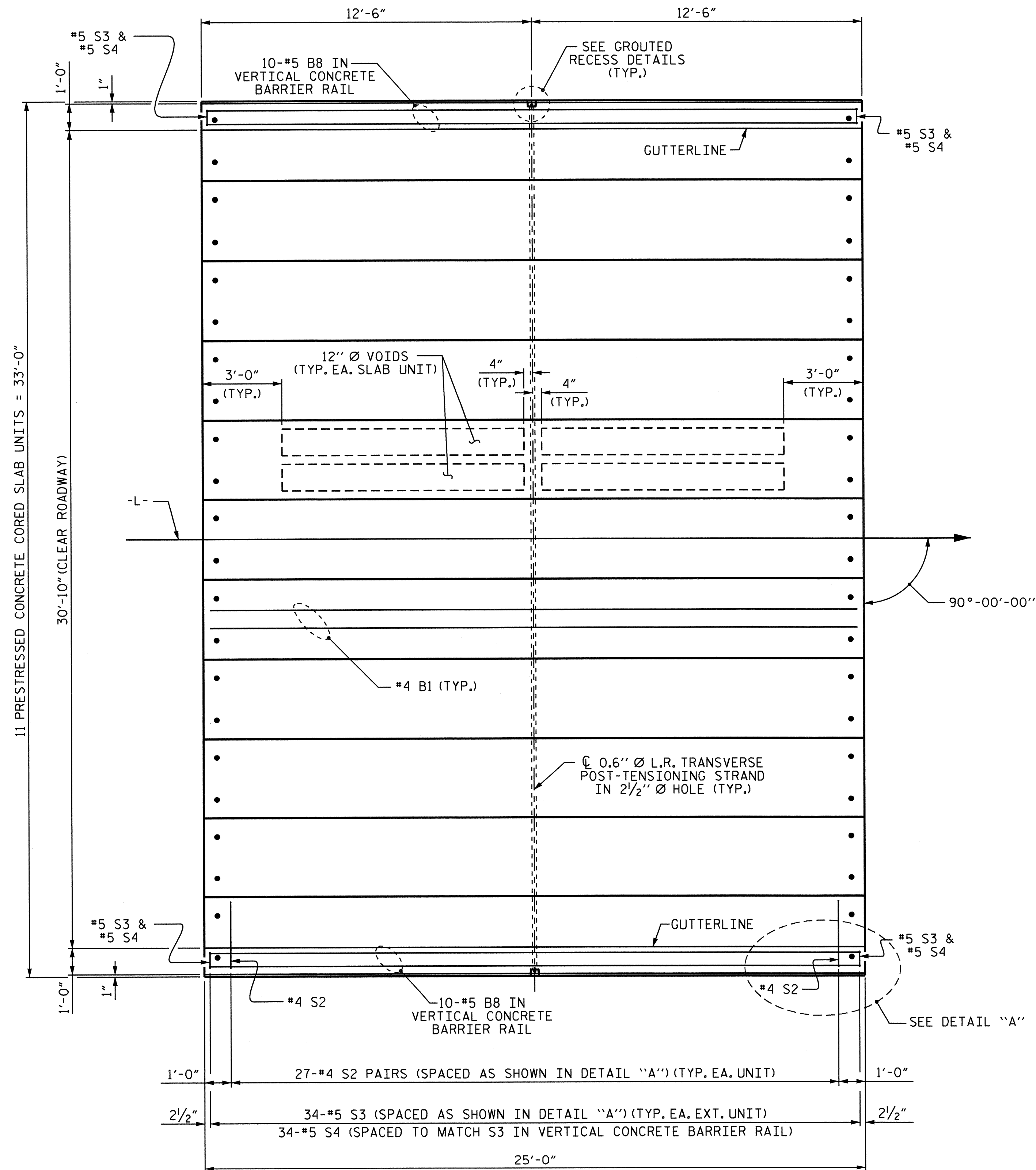
PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-
 SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 50' UNIT
 30'-10" CLEAR ROADWAY
 90° SKEW
 SPAN B

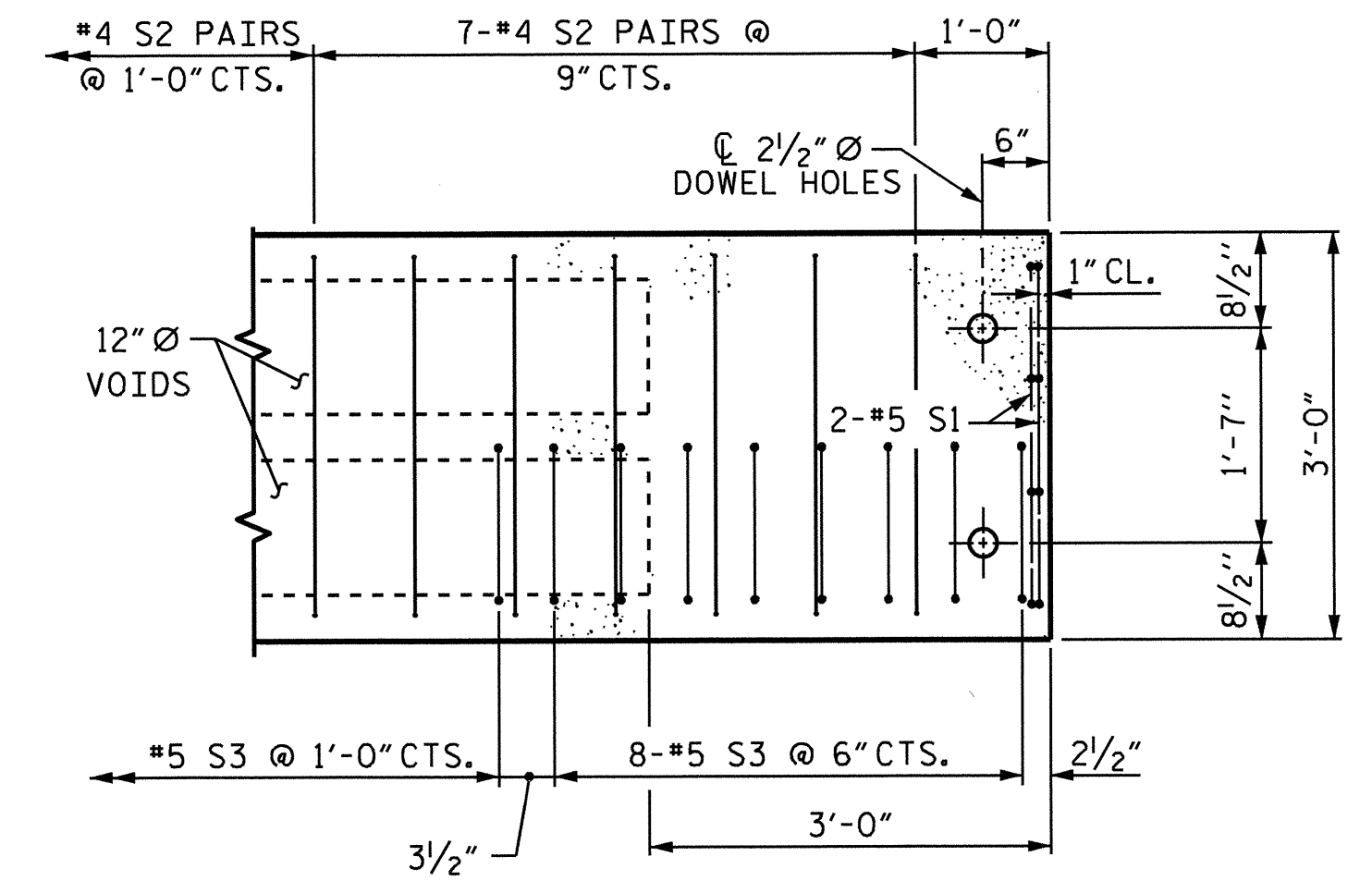


ASSEMBLED BY : E.I. OMILE DATE : 09-21-12
 CHECKED BY : W.F. PARKER DATE : 10-08-12
 DRAWN BY : DGE 3/09 REV. 12/5/11 MAA/AAC
 CHECKED BY : BCH 3/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			21



PLAN OF UNIT



DETAIL "A"

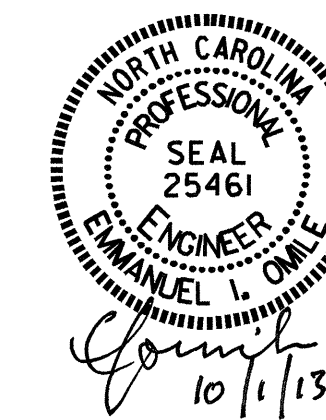
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 4 OF 6

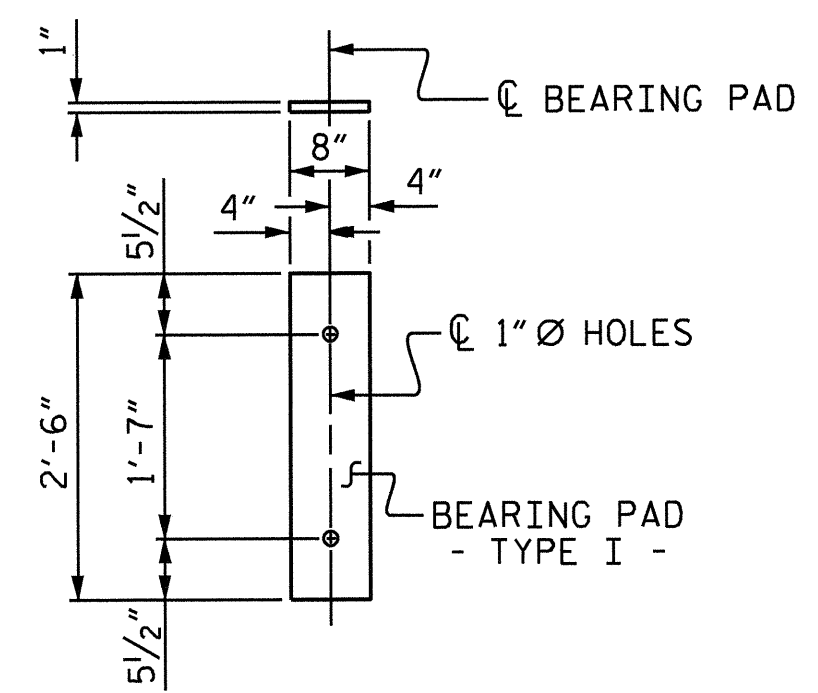
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 25' UNIT
 30'-10" CLEAR ROADWAY
 90° SKEW
 SPAN C



ASSEMBLED BY : E.I. OMILE	DATE : 09-21-12
CHECKED BY : W.F. PARKER	DATE : 10-08-12
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			21



FIXED END
(TYPE I - 66 REQ'D)

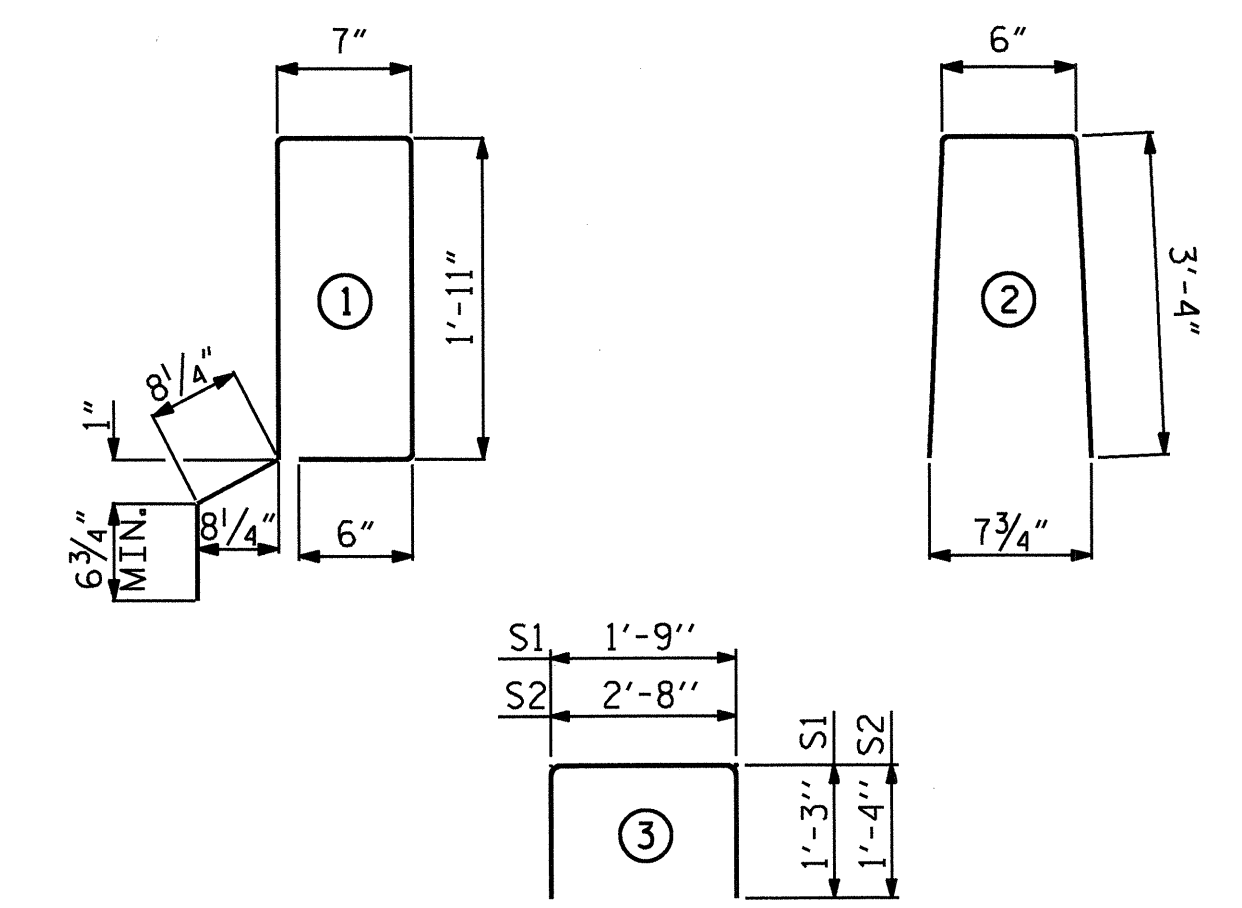
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 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
25' UNITS	4000
45' UNITS	4000
50' UNITS	4900

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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

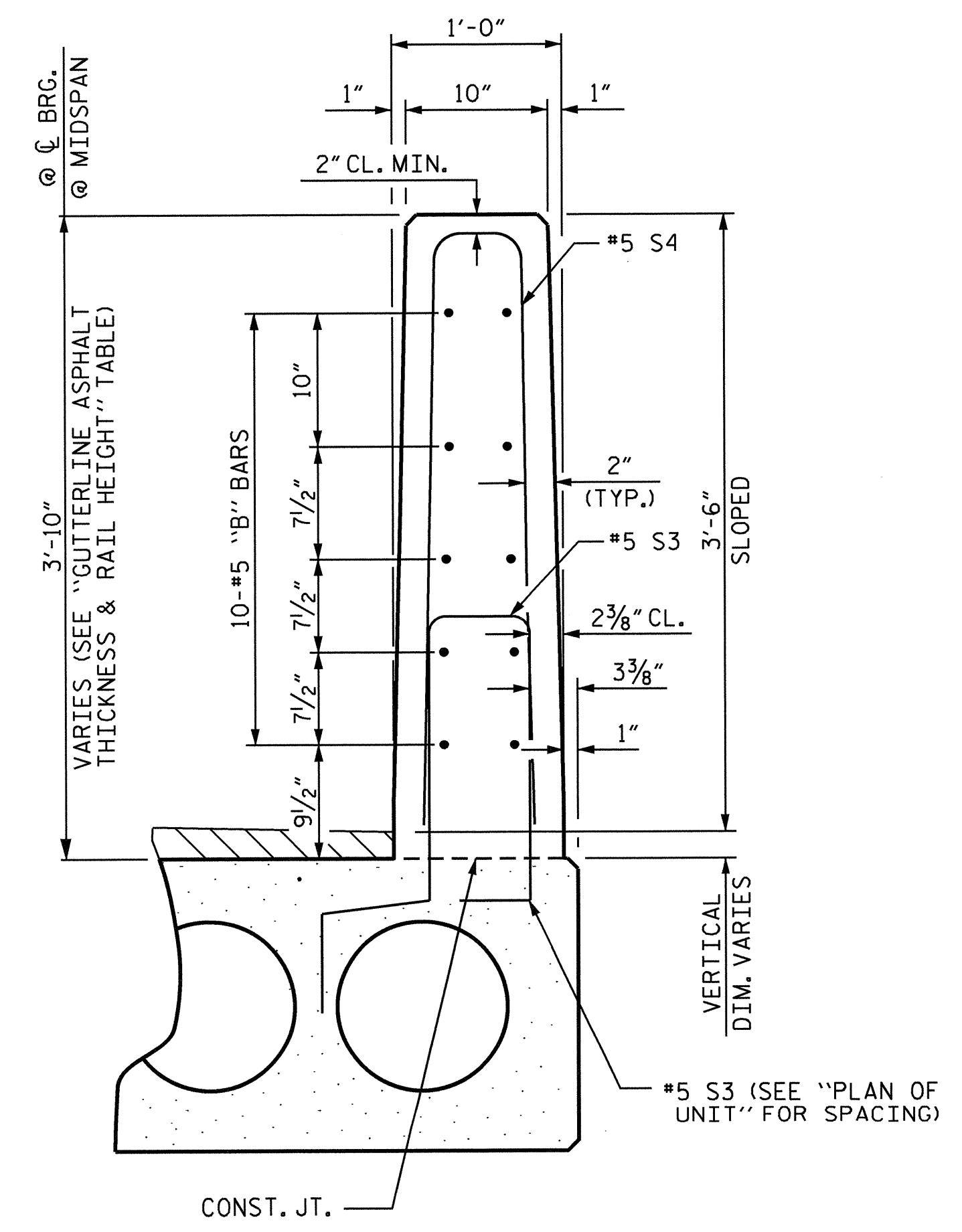
TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

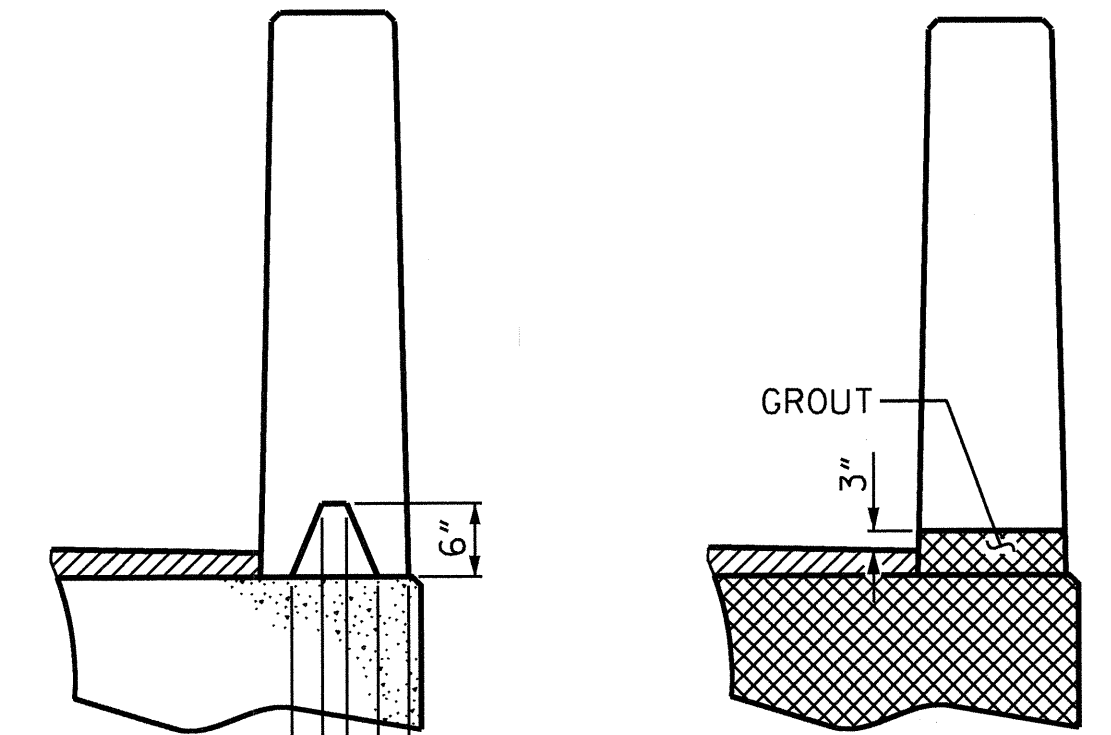
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

21" CORED SLABS REQUIRED

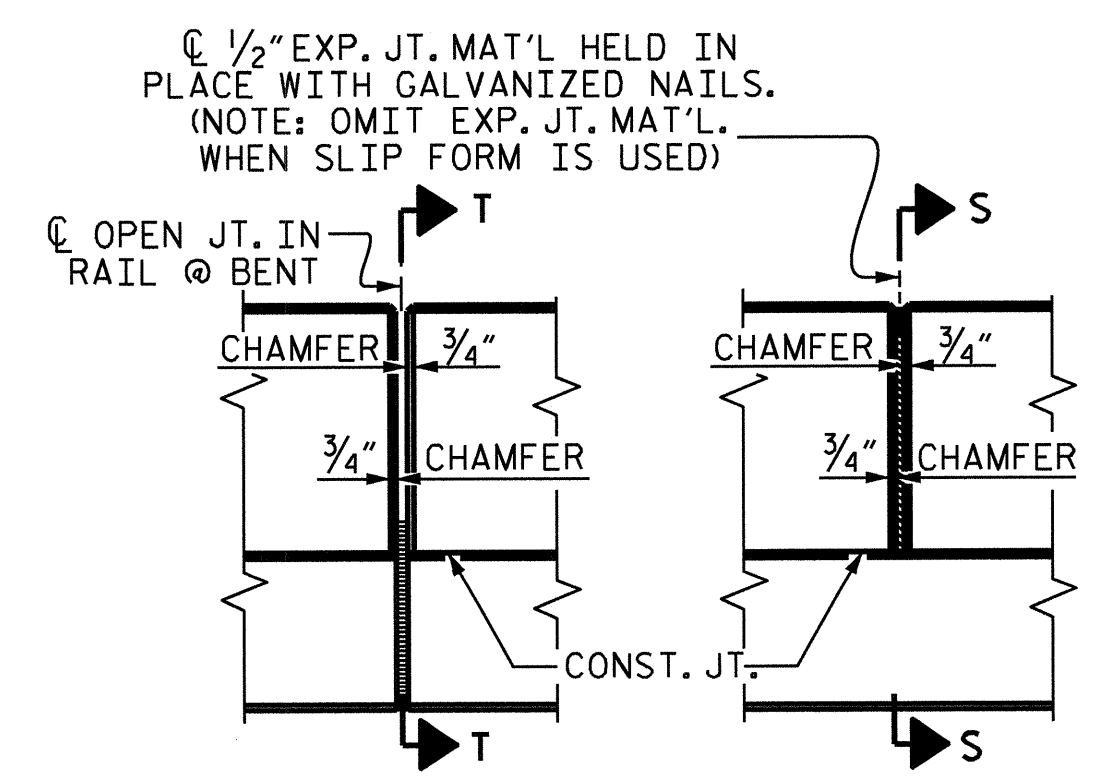
45' UNIT (SPAN A)			
	NUMBER	LENGTH	TOTAL LENGTH
45' UNIT			
EXTERIOR C.S.	2	45'-0"	90
INTERIOR C.S.	9	45'-0"	405
50' UNIT (SPAN B)			
	NUMBER	LENGTH	TOTAL LENGTH
50' UNIT			
EXTERIOR C.S.	2	50'-0"	100
INTERIOR C.S.	9	50'-0"	450
25' UNIT (SPAN C)			
	NUMBER	LENGTH	TOTAL LENGTH
25' UNIT			
EXTERIOR C.S.	2	25'-0"	50
INTERIOR C.S.	9	25'-0"	225
TOTAL	33		1320



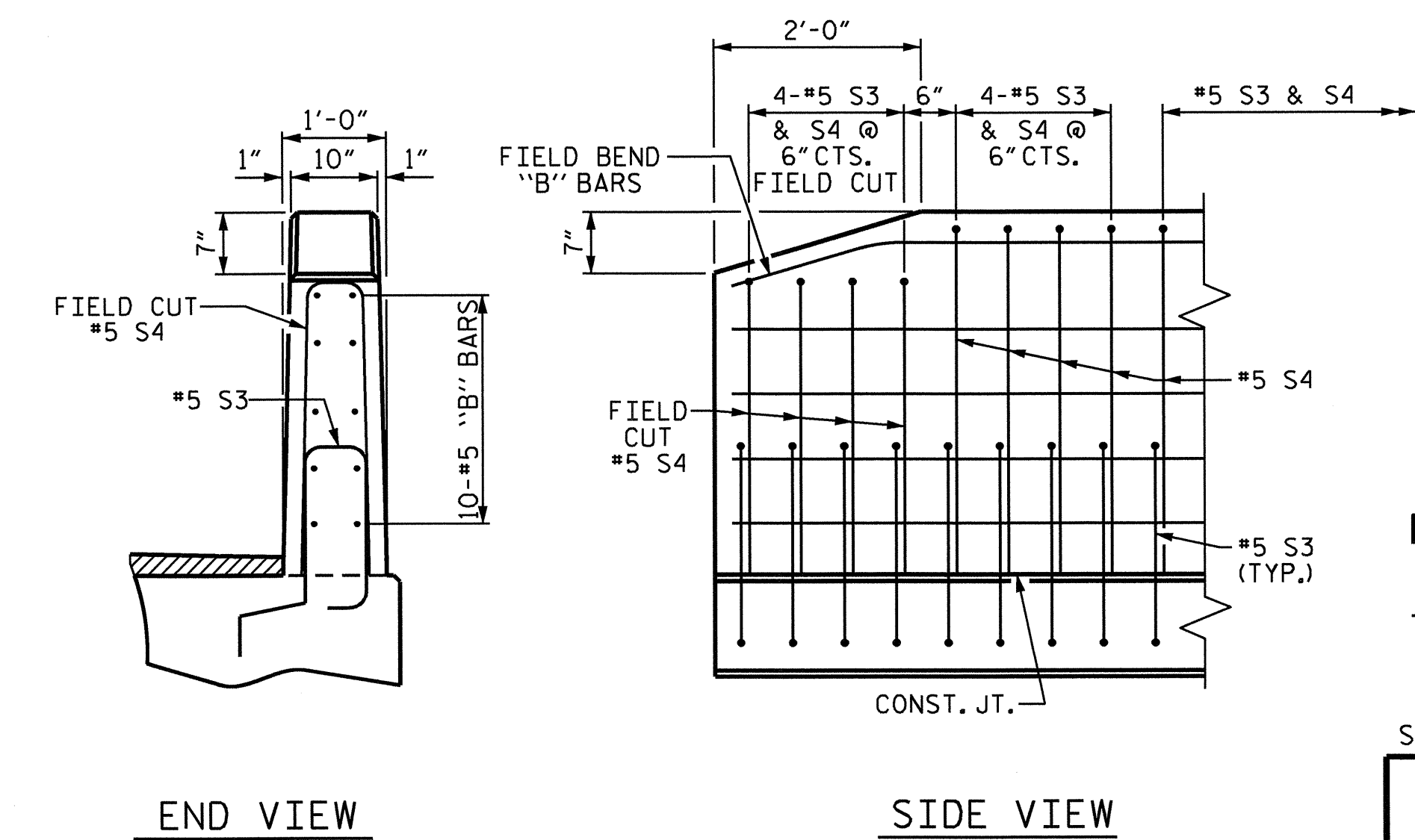
VERTICAL CONCRETE BARRIER RAIL SECTION



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



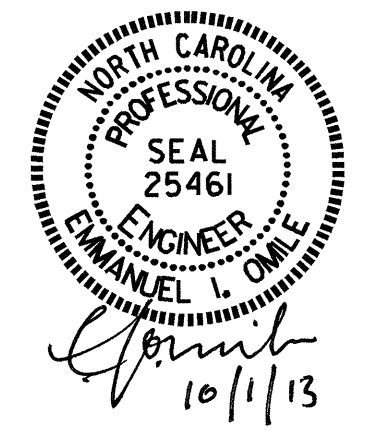
ELEVATION AT EXPANSION JOINTS



END VIEW

SIDE VIEW

END OF RAIL DETAILS



PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW						S-11
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	21
1			3			
2			4			

ASSEMBLED BY : E.I. OMILE	DATE : 09-21-12
CHECKED BY : W.F. PARKER	DATE : 10-08-12
DRAWN BY : DGE 5/09	REV. 12/11
CHECKED BY : BCH 6/09	MAA/AAC

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
45' UNIT (SPAN A)						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
45' UNIT						
*B12	40	40	#5	STR	22'-1"	921
*S4	108	108	#5	2	7'-2"	807
* EPOXY COATED REINFORCING STEEL			LBS.		1728	
CLASS AA CONCRETE			CU.YDS.		11.8	
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.		90.125	
50' UNIT (SPAN B)						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
50' UNIT						
*B13	40	40	#5	STR	24'-7"	1026
*S4	100	100	#5	2	7'-2"	748
* EPOXY COATED REINFORCING STEEL			LBS.		1774	
CLASS AA CONCRETE			CU.YDS.		13.1	
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.		100.25	
25' UNIT (SPAN C)						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
25' UNIT						
*B8	20	20	#5	STR	24'-7"	513
*S4	68	68	#5	2	7'-2"	508
* EPOXY COATED REINFORCING STEEL			LBS.		1021	
CLASS AA CONCRETE			CU.YDS.		6.6	
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.		50.125	

BILL OF MATERIAL FOR ONE CORED SLAB UNIT							
45' UNIT (SPAN A)							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	94	#4	3	5'-4"	335	5'-4"	335
*S3	54	#5	1	6'-2"	347		
REINFORCING STEEL				LBS.		432	
* EPOXY COATED REINFORCING STEEL				LBS.		347	
6500 P.S.I. CONCRETE				CU. YDS.		6.5	
0.6" Ø L.R. STRANDS				No.		13	
50' UNIT (SPAN B)							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B6	4	#4	STR	25'-9"	69	25'-9"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	104	#4	3	5'-4"	371	5'-4"	371
*S3	50	#5	1	6'-2"	322		
REINFORCING STEEL				LBS.		475	
* EPOXY COATED REINFORCING STEEL				LBS.		322	
6500 P.S.I. CONCRETE				CU. YDS.		7.1	
0.6" Ø L.R. STRANDS				No.		19	
25' UNIT (SPAN C)							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	2	#4	STR	24'-8"	33	24'-8"	33
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	54	#4	3	5'-4"	192	5'-4"	192
*S3	34	#5	1	6'-2"	219		
REINFORCING STEEL				LBS.		260	
* EPOXY COATED REINFORCING STEEL				LBS.		219	
5000 P.S.I. CONCRETE				CU. YDS.		3.7	
0.6" Ø L.R. STRANDS				No.		9	

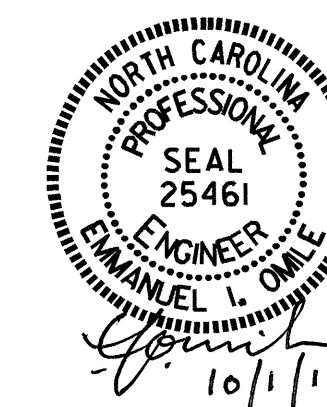
DEAD LOAD DEFLECTION AND CAMBER			
	3'-0" x 1'-9" CORED SLAB UNIT		
	45' UNIT (SPAN A)	50' UNIT (SPAN B)	25' UNIT (SPAN C)
STRAND TYPE	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↑	2/2" ↑	1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓	1/4" ↓	1/8" ↓
FINAL CAMBER	1/8" ↑	2/4" ↑	3/8" ↑

** INCLUDES FUTURE WEARING SURFACE

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
30'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
45' UNITS (SPAN A)	2 1/8"	3'-8 7/8"
50' UNITS (SPAN B)	1"	3'-7 3/4"
25' UNITS (SPAN C)	2 1/8"	3'-9 5/8"

ASSEMBLED BY : E.I. OMILE DATE : 09-21-12
 CHECKED BY : W.F. PARKER DATE : 10-08-12
 DRAWN BY : DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY : BCH 6/09

27-SEP-2013 14:44
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 ++Fang



PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			21

STD. NO. 21" PCS3_33_90S

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

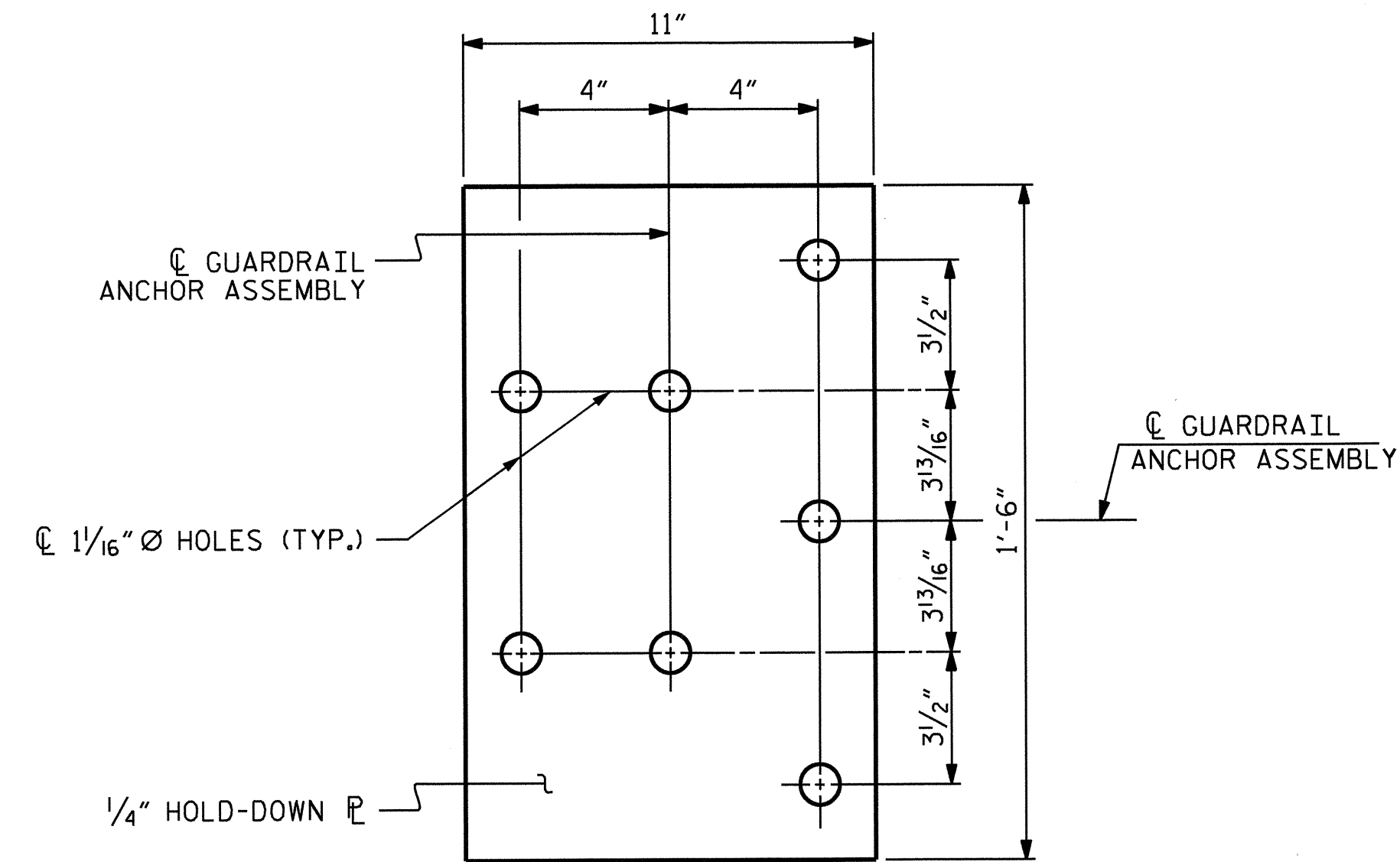
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

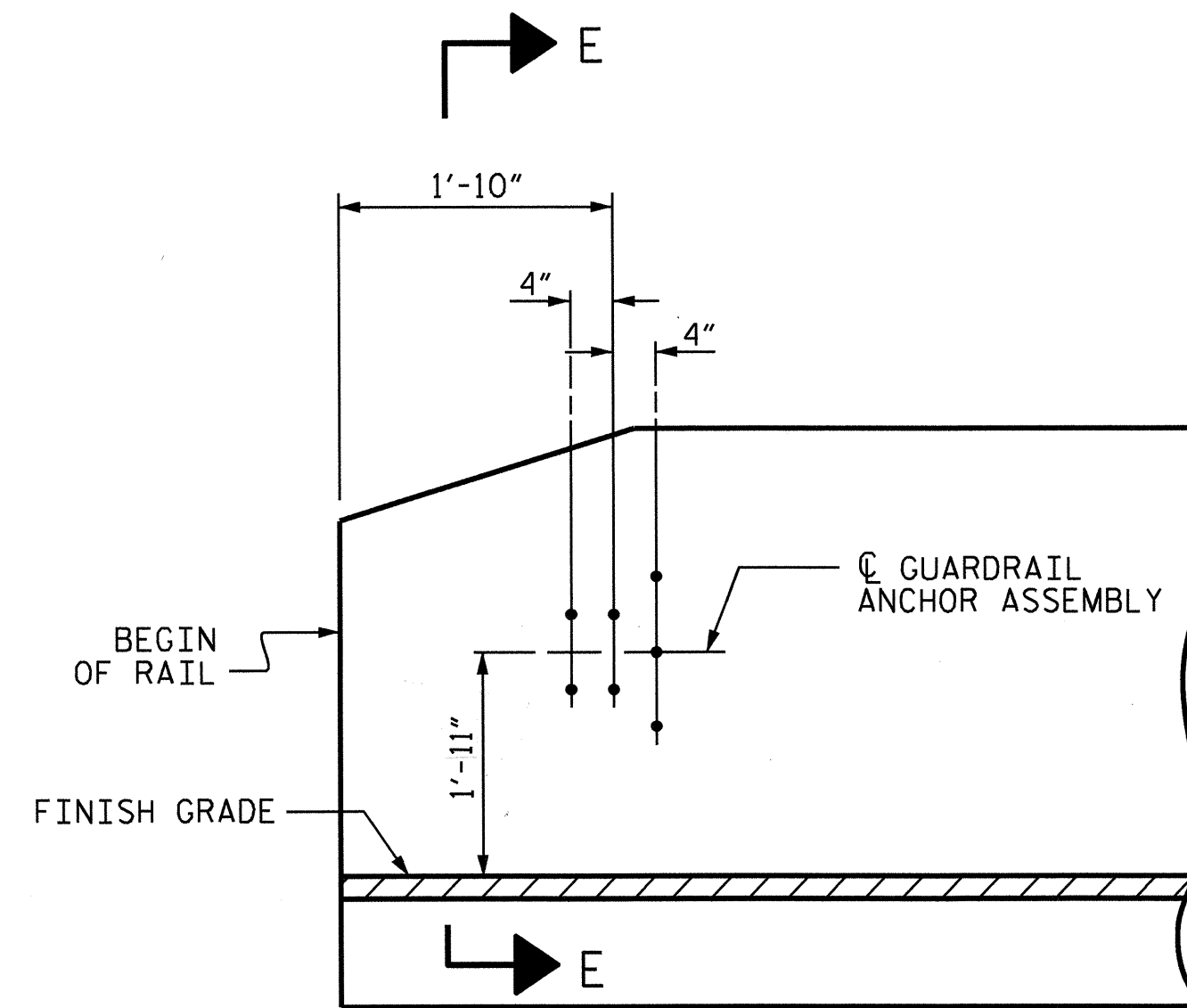
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

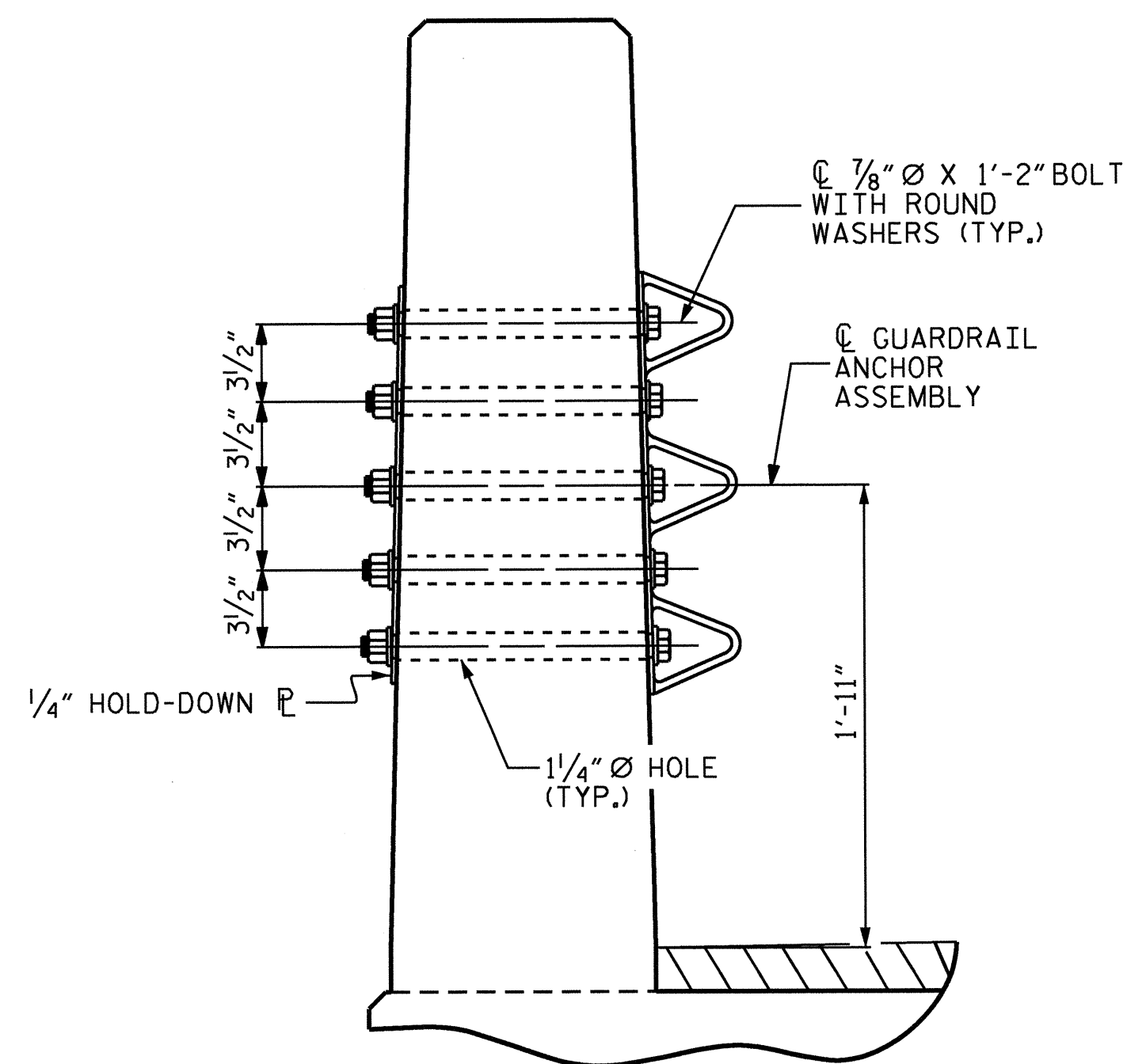
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



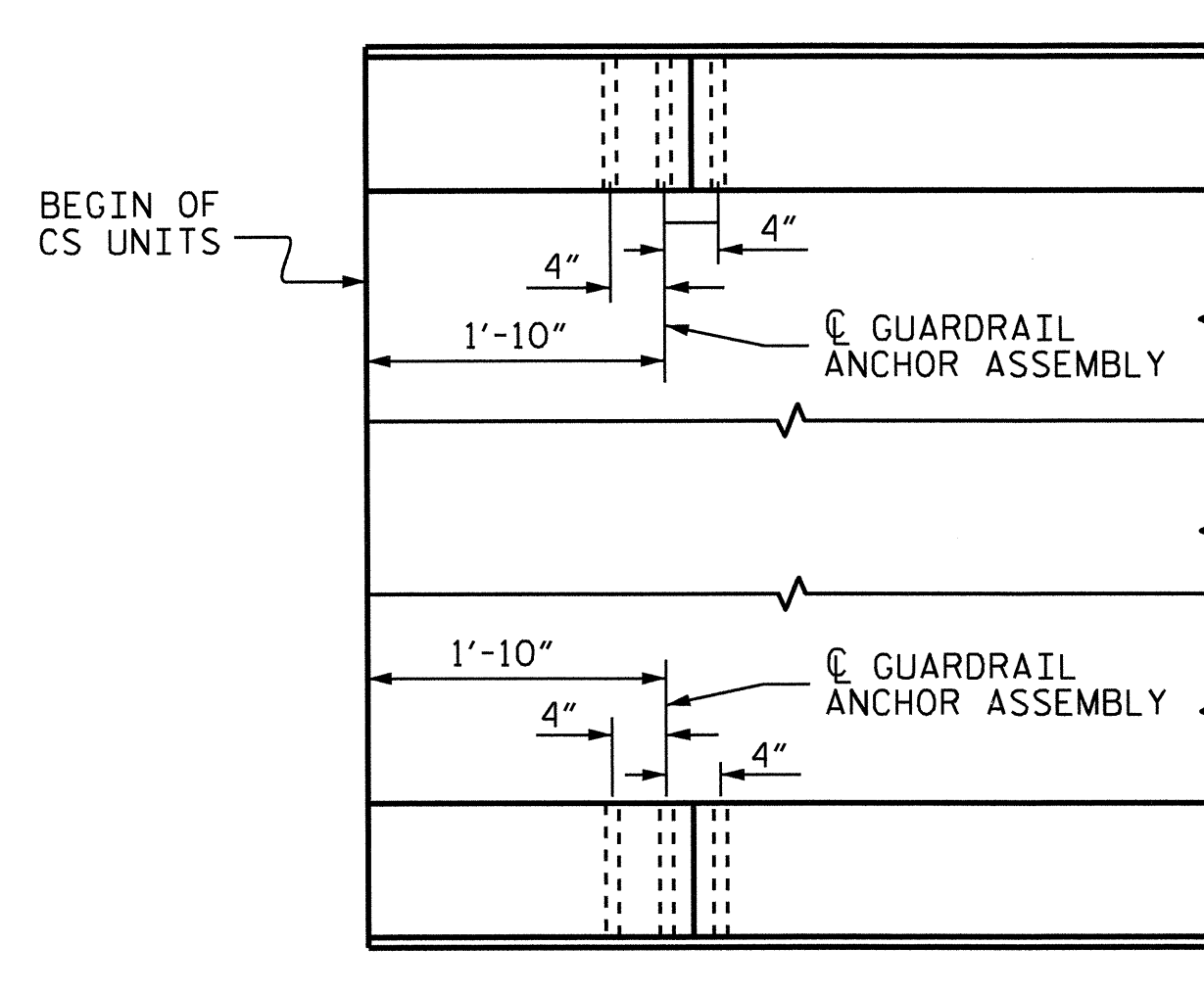
PLAN



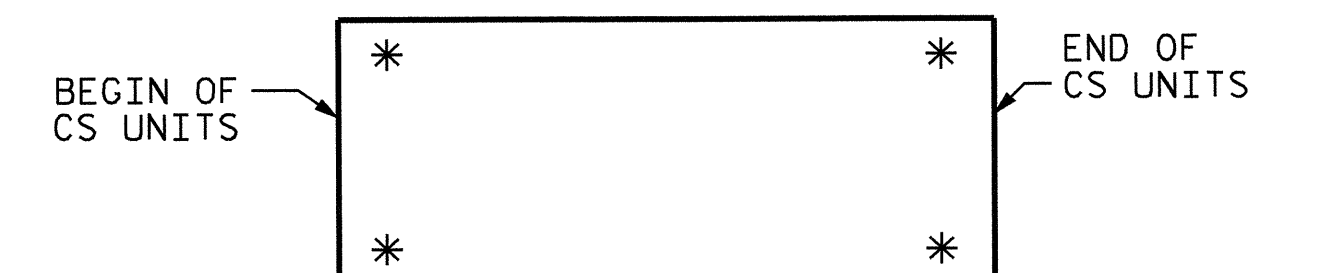
ELEVATION



SECTION E-E



PLAN



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

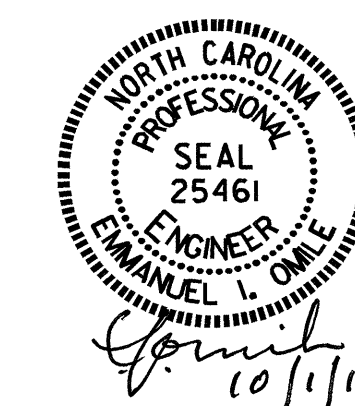
LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

GUARDRAIL ANCHOR ASSEMBLY DETAILS

ASSEMBLED BY : E.I. OMILE	DATE : 9-21-12
CHECKED BY : T. H. FANG	DATE : 9-26-13
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11
	REV. 12/5/11

27-SEP-2013 14:44 \\dot\dfsroot01\Proj\TIPProjects-B\B5132\Structures\Plans\FinalPlans\b5132.21cs.std.dgn tfrang



PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00-L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-13
STANDARD GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL						TOTAL SHEETS 21
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

NOTES

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

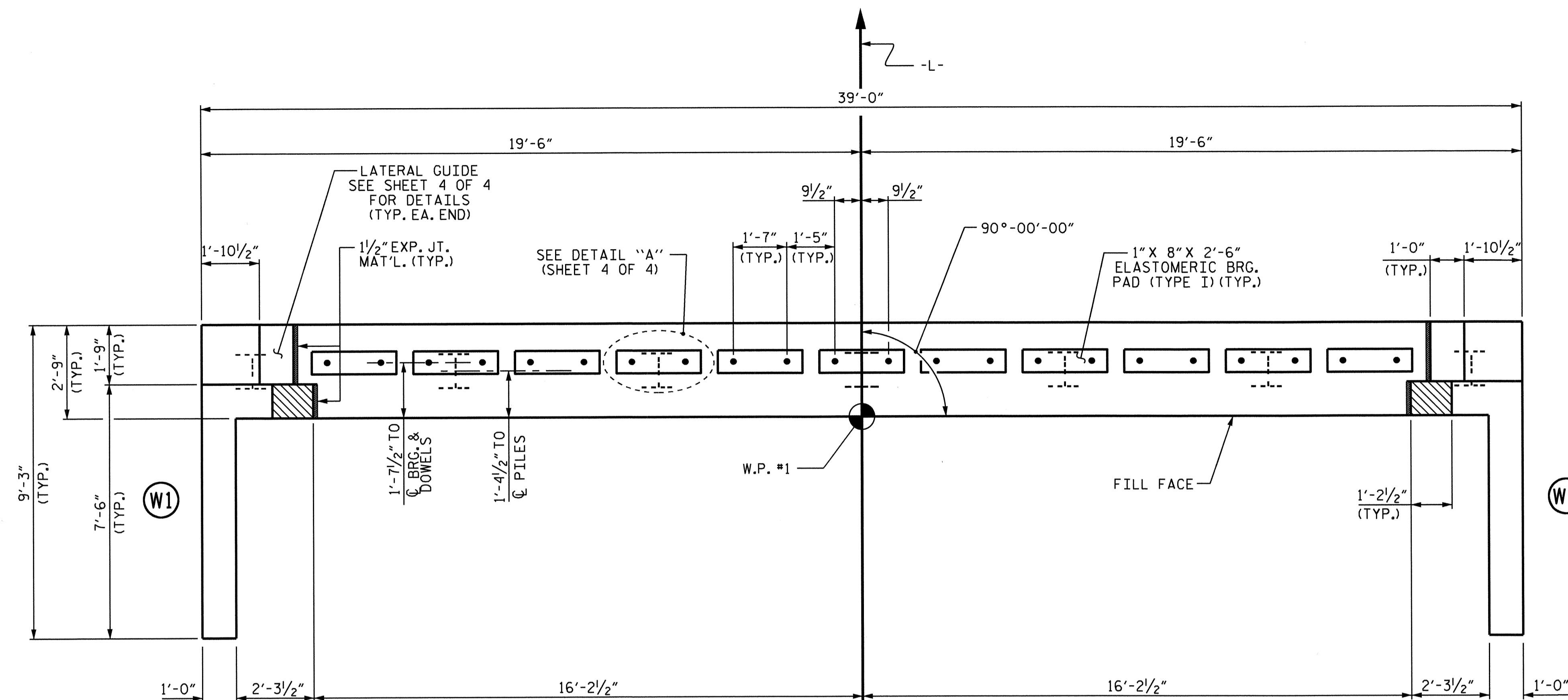
THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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

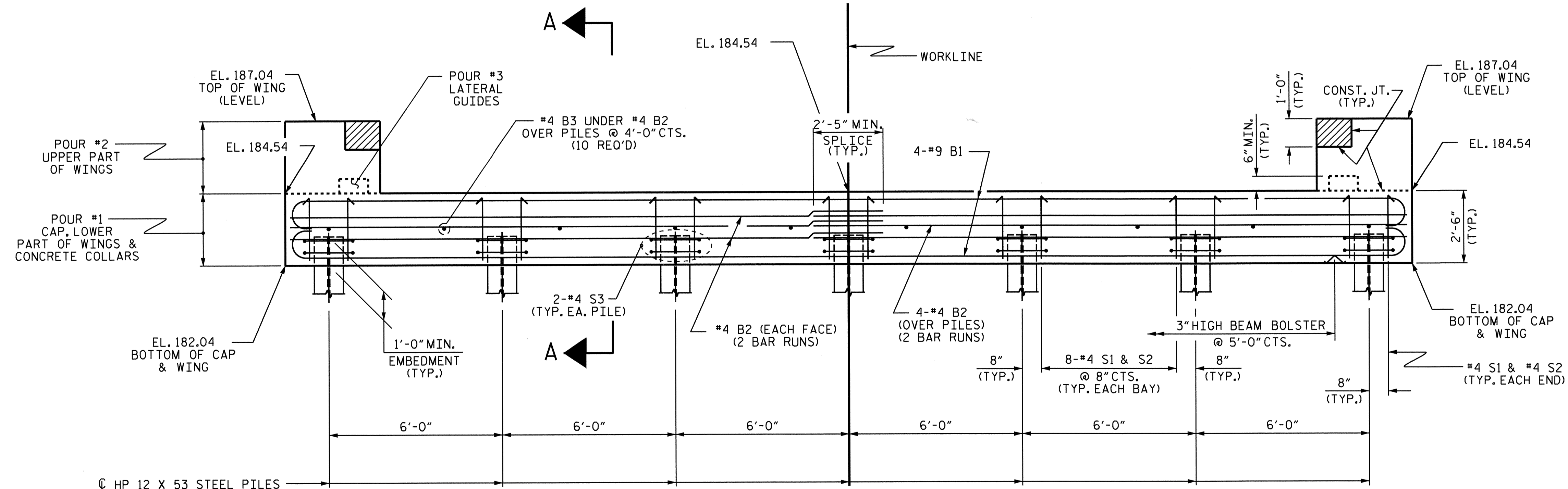
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



PLAN



ELEVATION

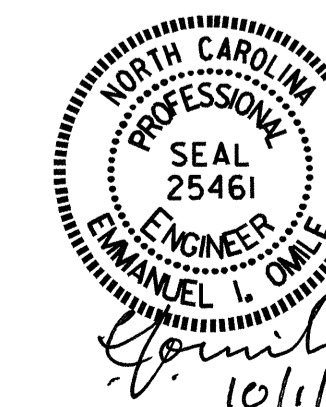
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. B-5132
 HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 1 OF 4

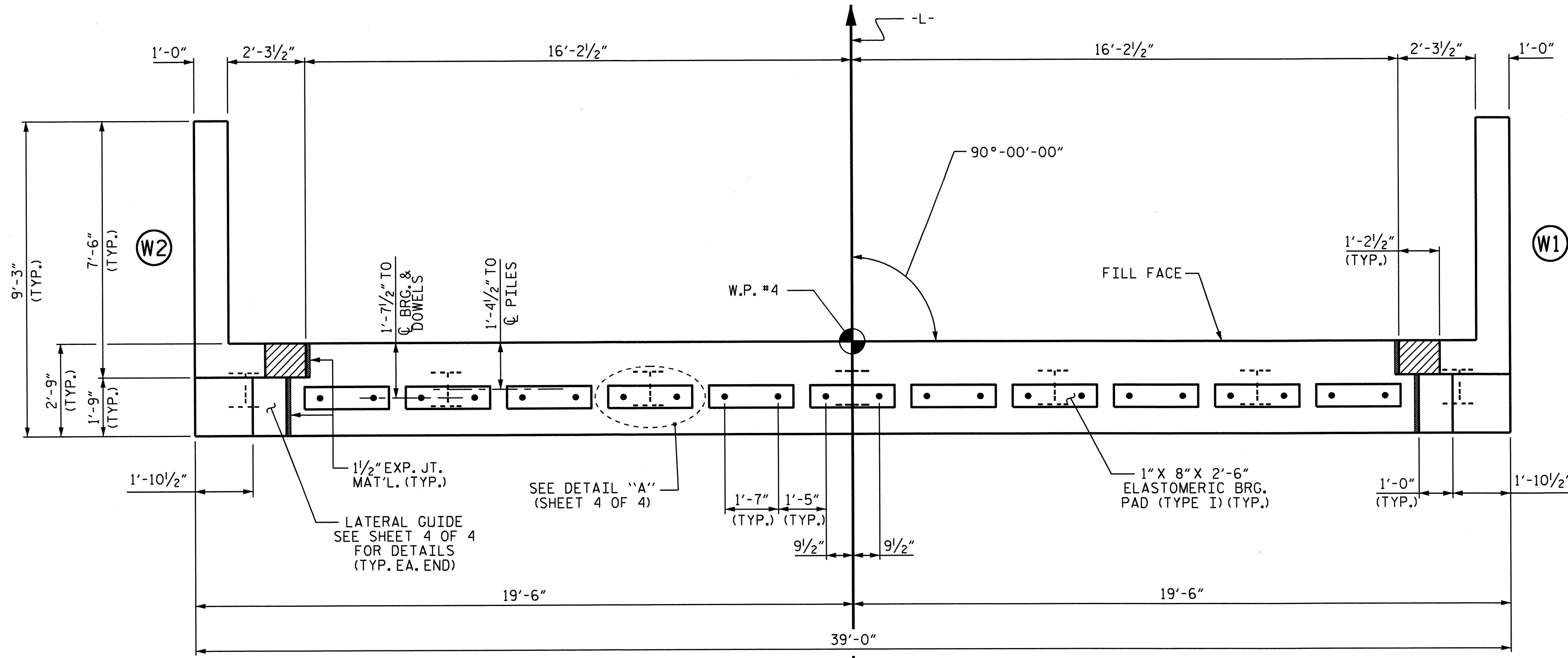
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

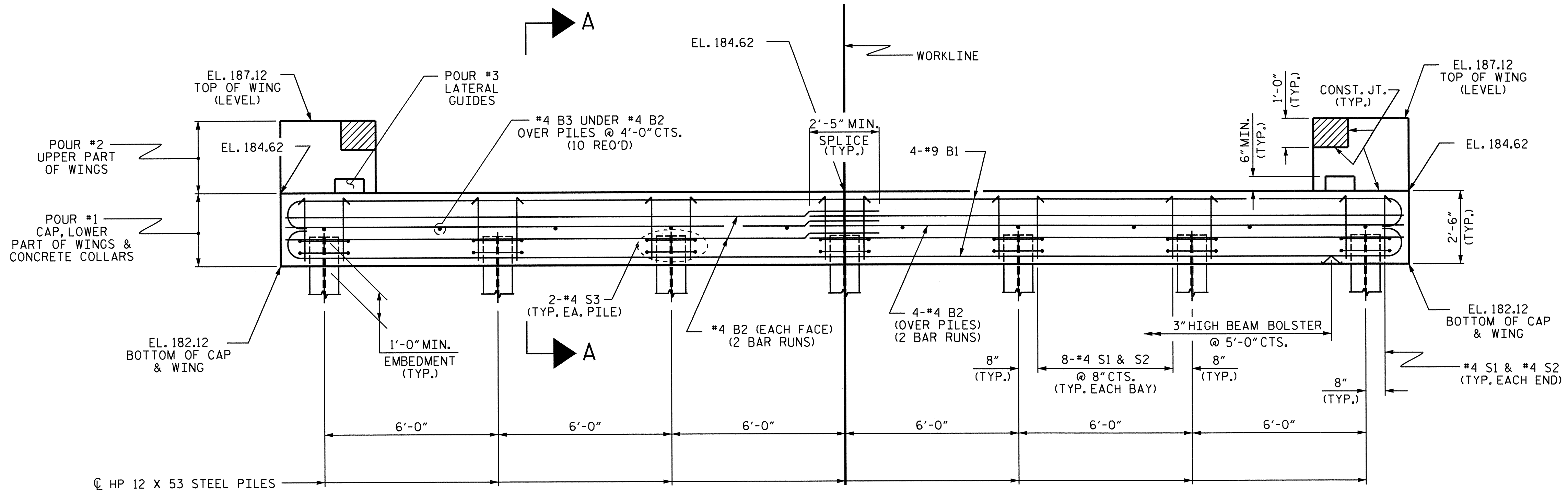


ASSEMBLED BY : E.I. OMILE DATE : 9-22-12
 CHECKED BY : W.F. PARKER DATE : 10-08-12
 DRAWN BY : DGE 02/10
 CHECKED BY : MKT 02/10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			21



PLAN



ELEVATION

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.

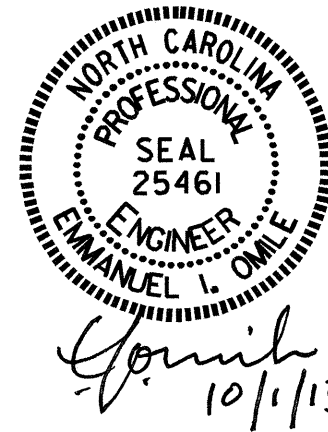
NOTES

- 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 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.
- THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

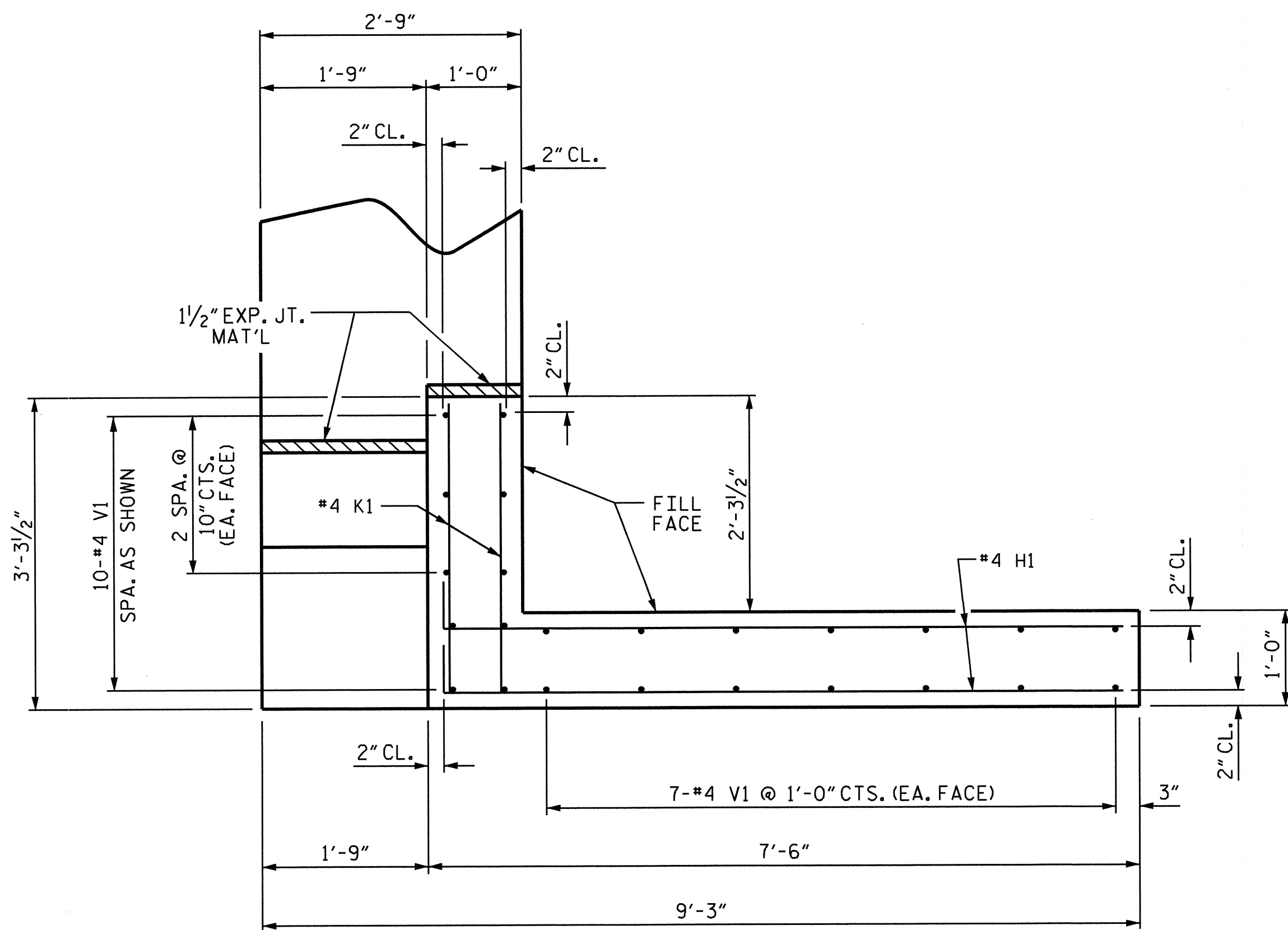
PROJECT NO. B-5132
 HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 2 OF 4

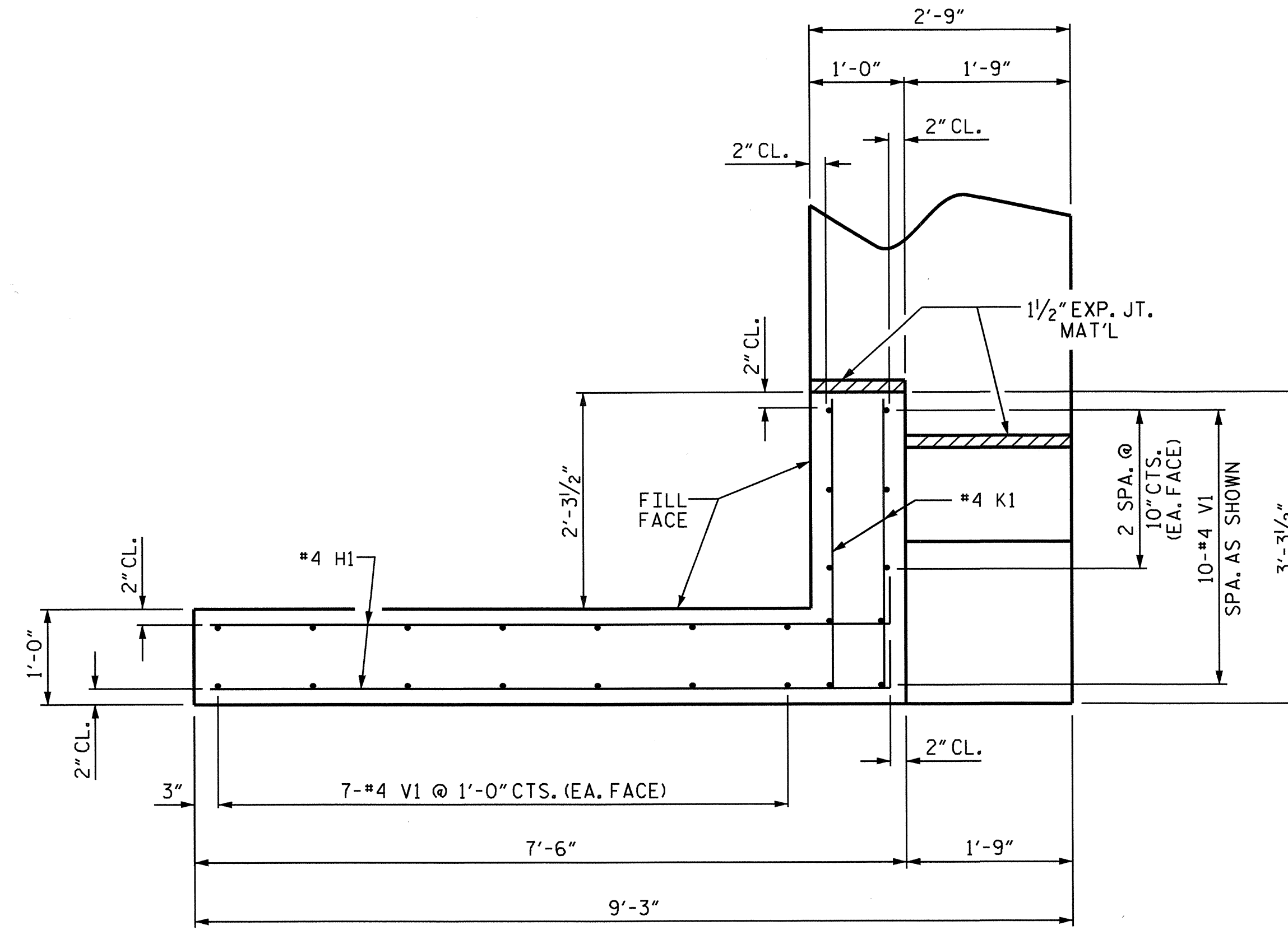
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS 21
2			4			



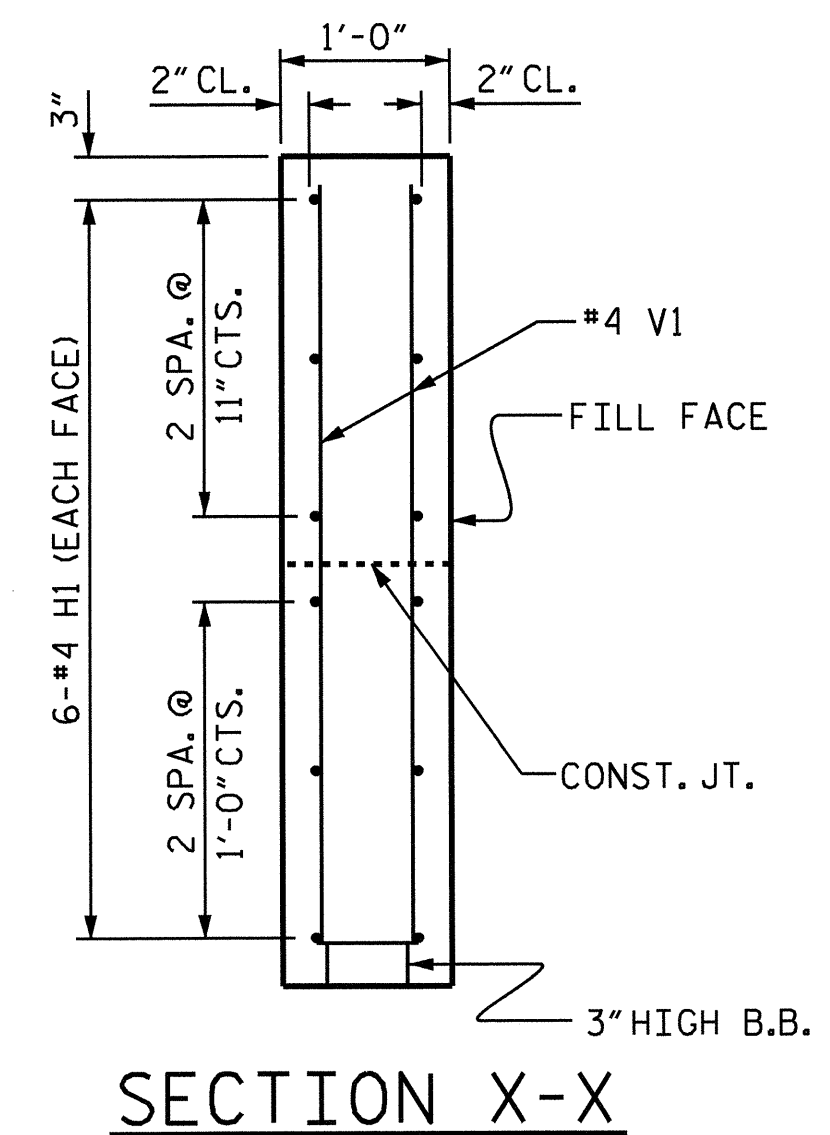
ASSEMBLED BY : E. I. OMILE DATE : 09-22-12
 CHECKED BY : W. F. PARKER DATE : 09-22-12
 DRAWN BY : DGE 02/10
 CHECKED BY : MKT 02/10



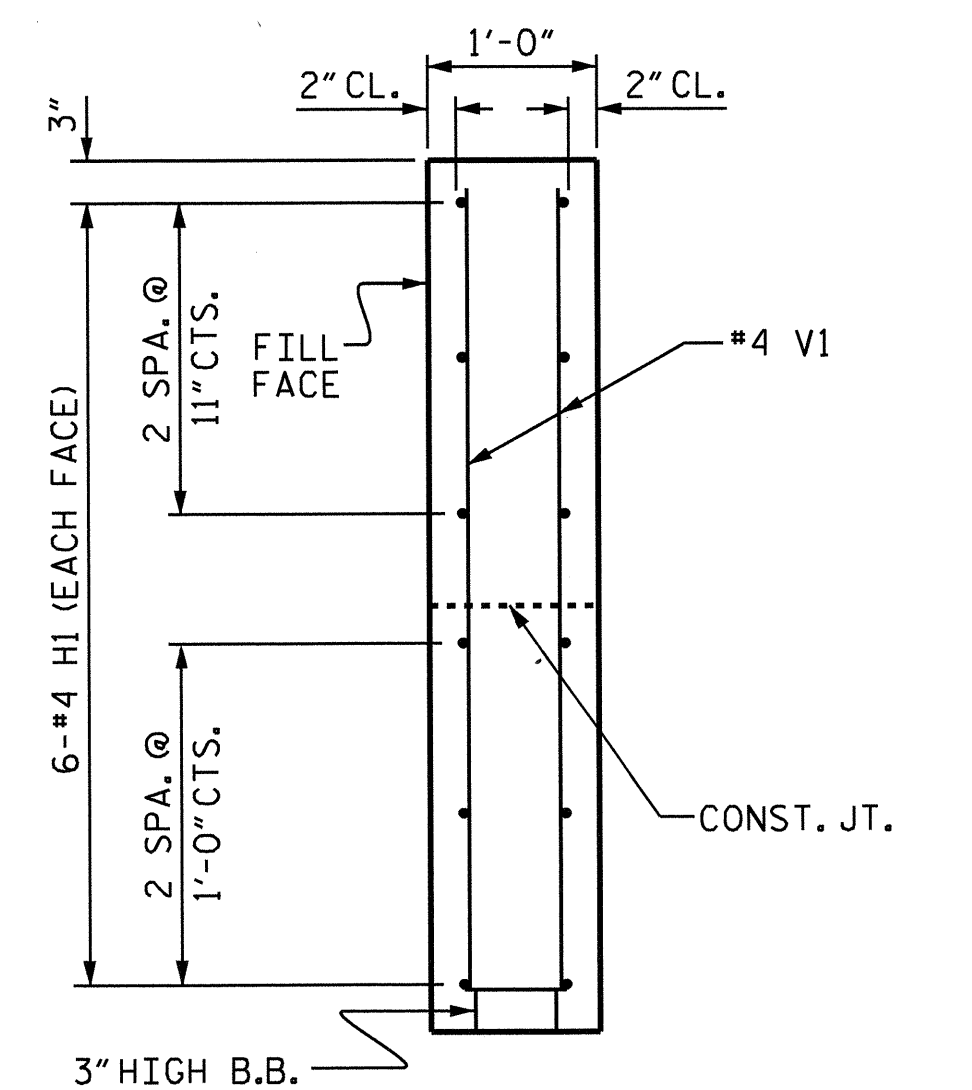
PLAN OF WING (W1)



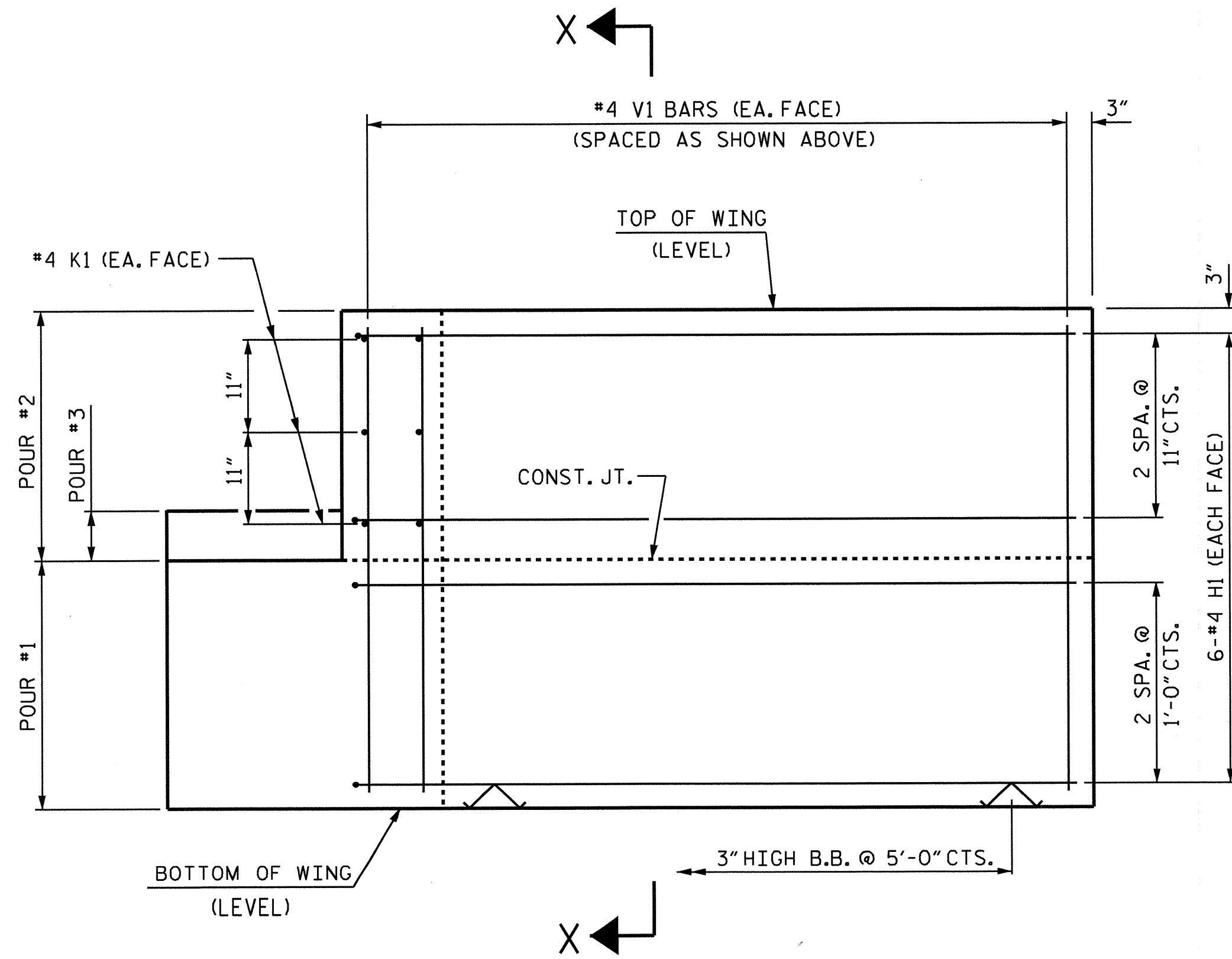
PLAN OF WING (W2)



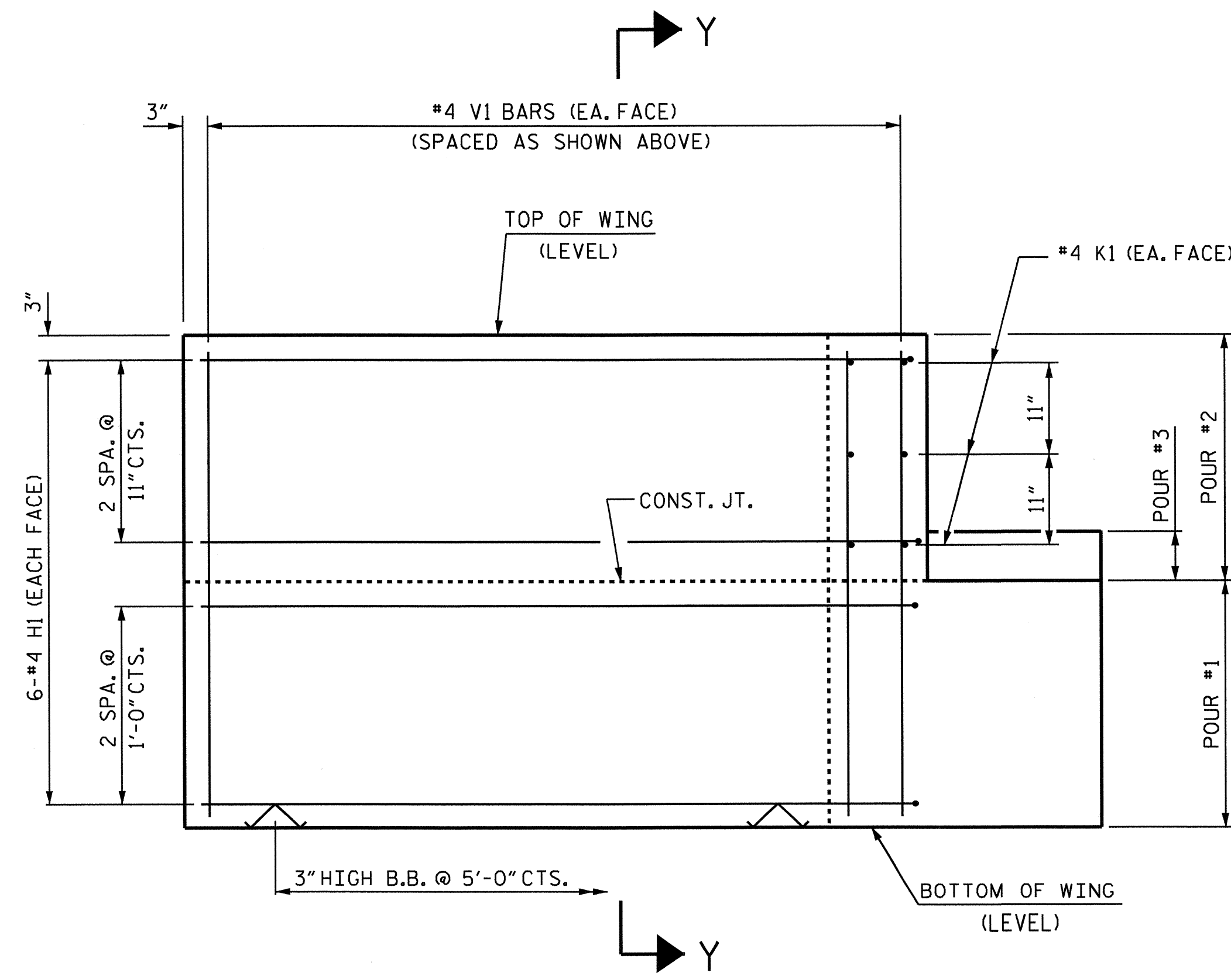
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)

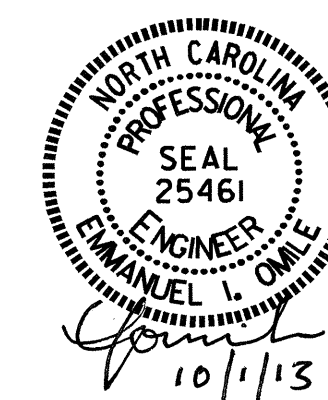


ELEVATION OF WING (W2)

WING DETAILS

ASSEMBLED BY : E.I. OMILE DATE : 09-22-12
 CHECKED BY : W. F. PARKER DATE : 10-08-12
 DRAWN BY : DGE 02/10
 CHECKED BY : MKT 02/10

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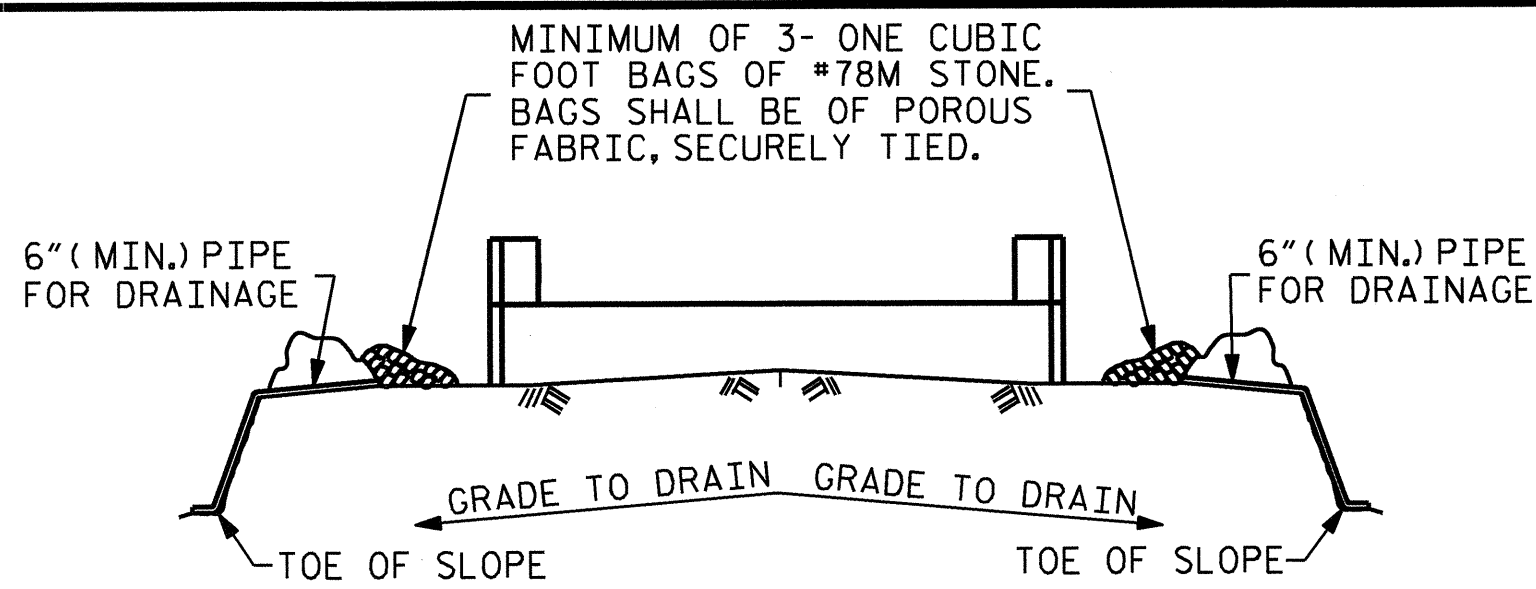


PROJECT NO. B-5132
 HOKE COUNTY
 STATION: 13+85.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-16
SUBSTRUCTURE END BENT WING DETAILS						TOTAL SHEETS 21
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STD. NO. EB_33_90S

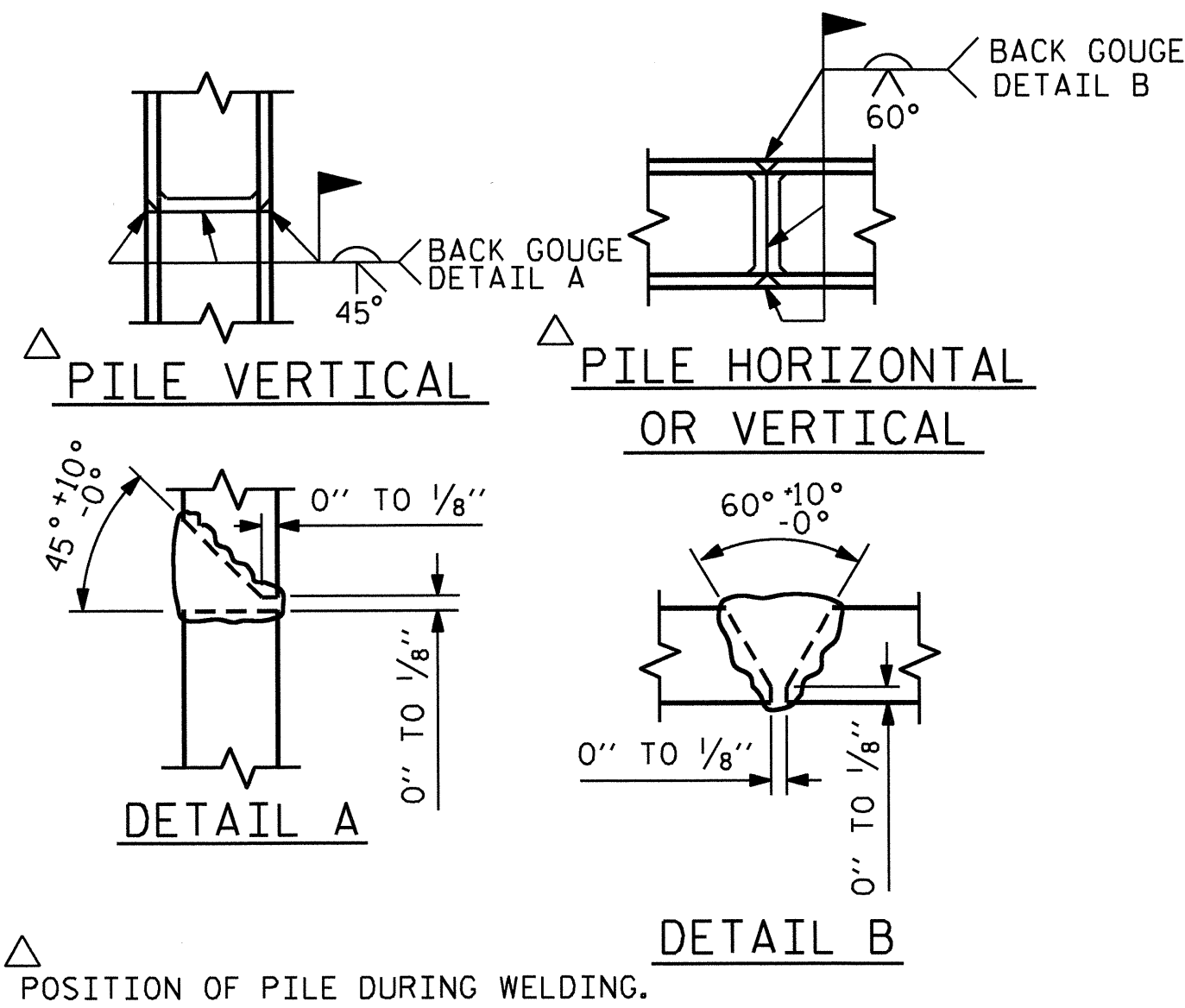


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

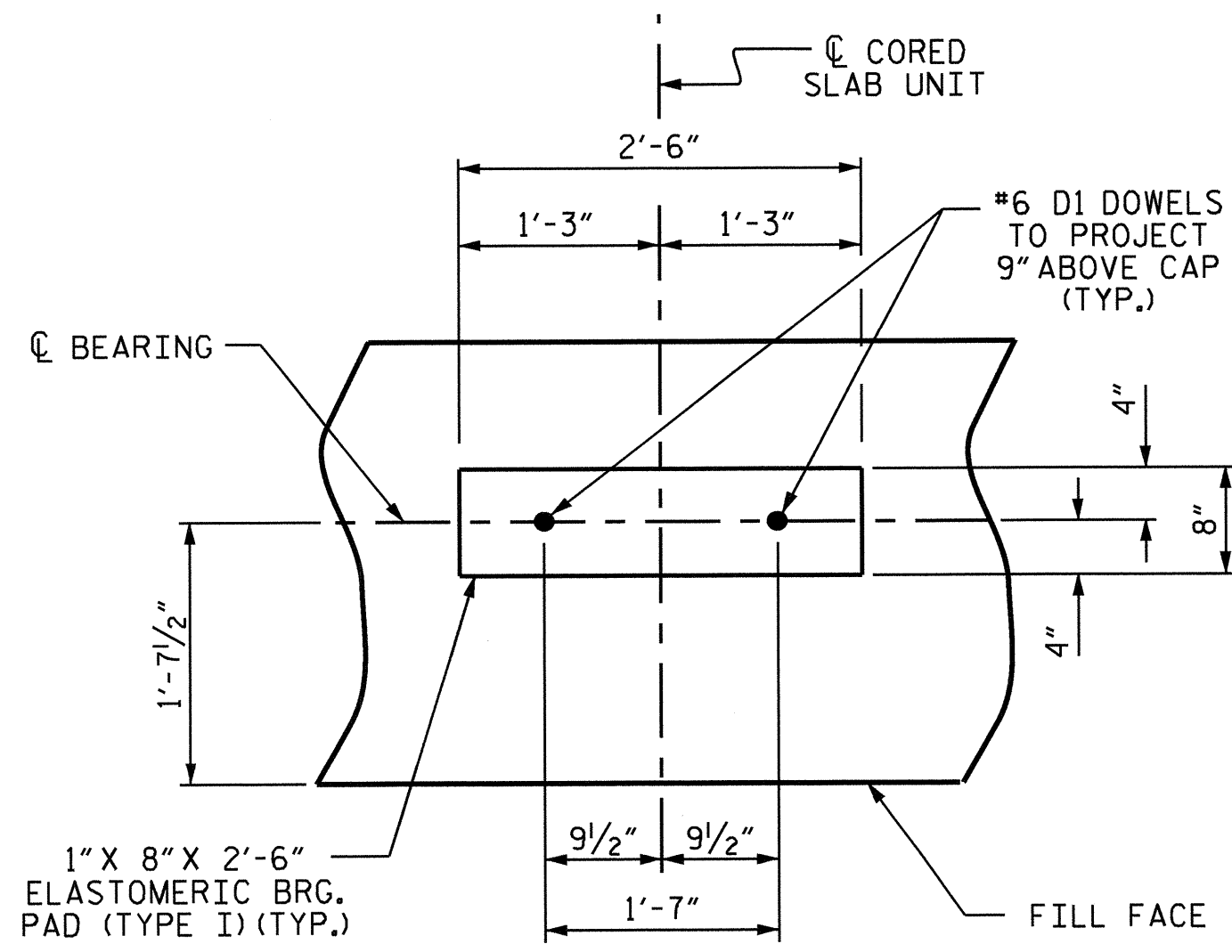
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

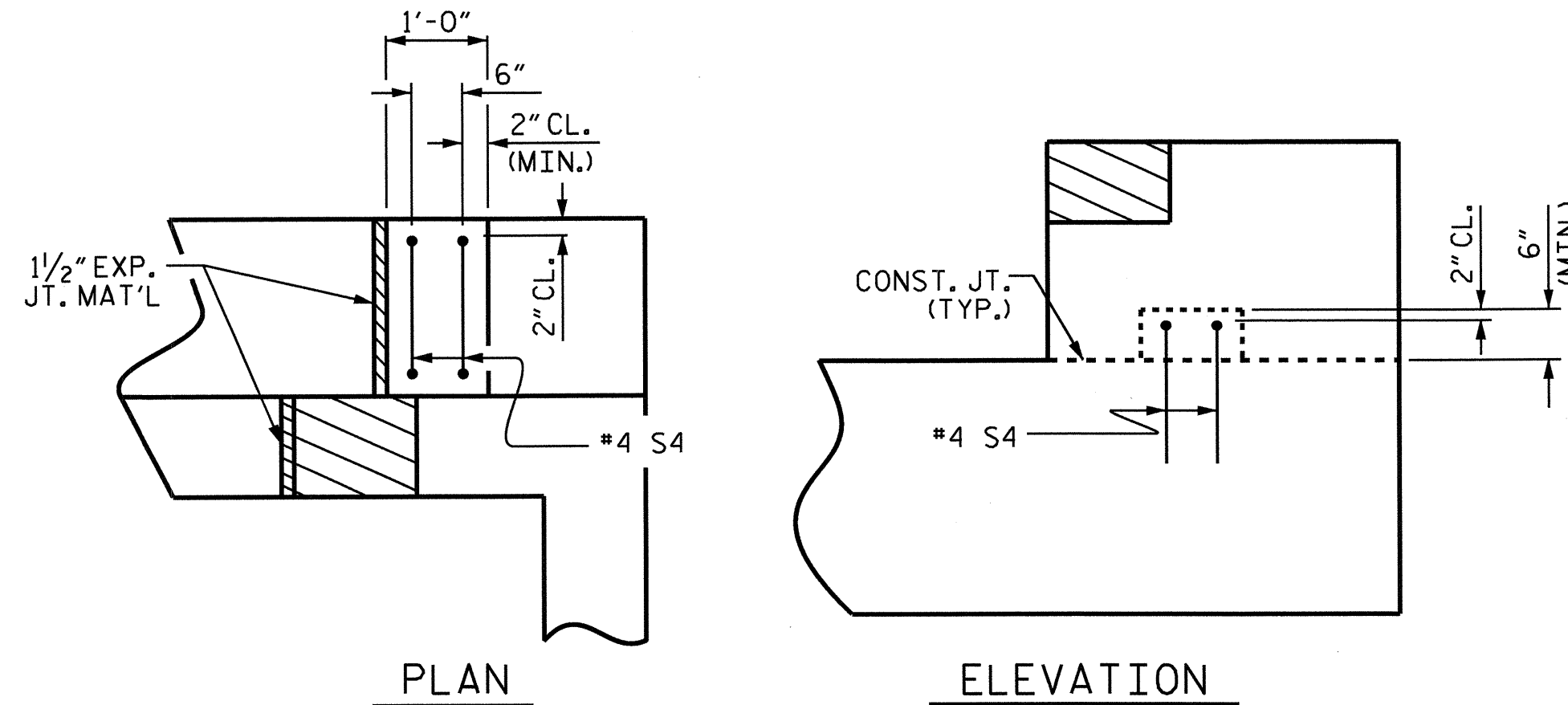
BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	16	#4	STR	20'-7"	220
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	50	#4	3	7'-5"	248
S2	50	#4	4	3'-2"	106
S3	14	#4	5	6'-6"	61
S4	4	#4	6	4'-5"	12
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					2127 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS			12.4 C.Y.	
POUR #2	UPPER PART OF WINGS			1.8 C.Y.	
POUR #3	LATERAL GUIDES			0.1 C.Y.	
TOTAL CLASS A CONCRETE					14.3 C.Y.

BAR TYPES	
END BENT 1 HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 455	END BENT 2 HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 420



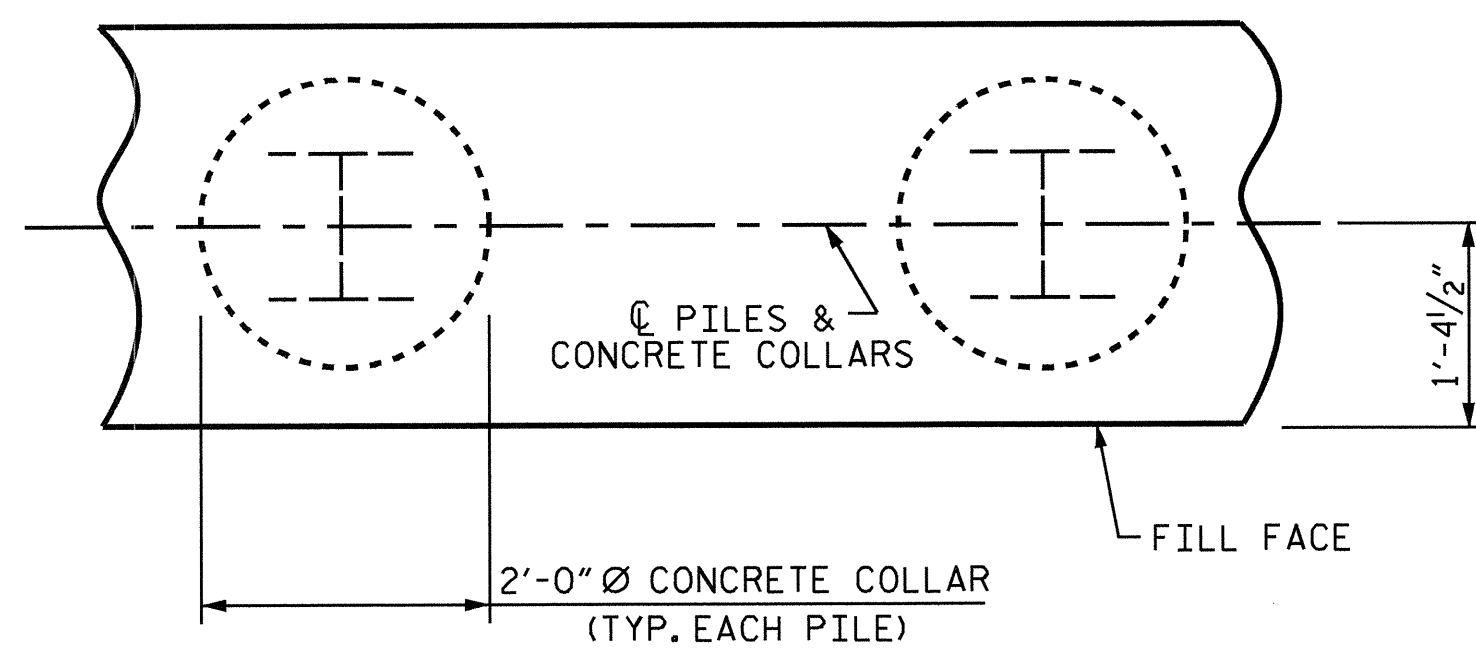
DETAIL "A"

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



LATERAL GUIDE DETAILS

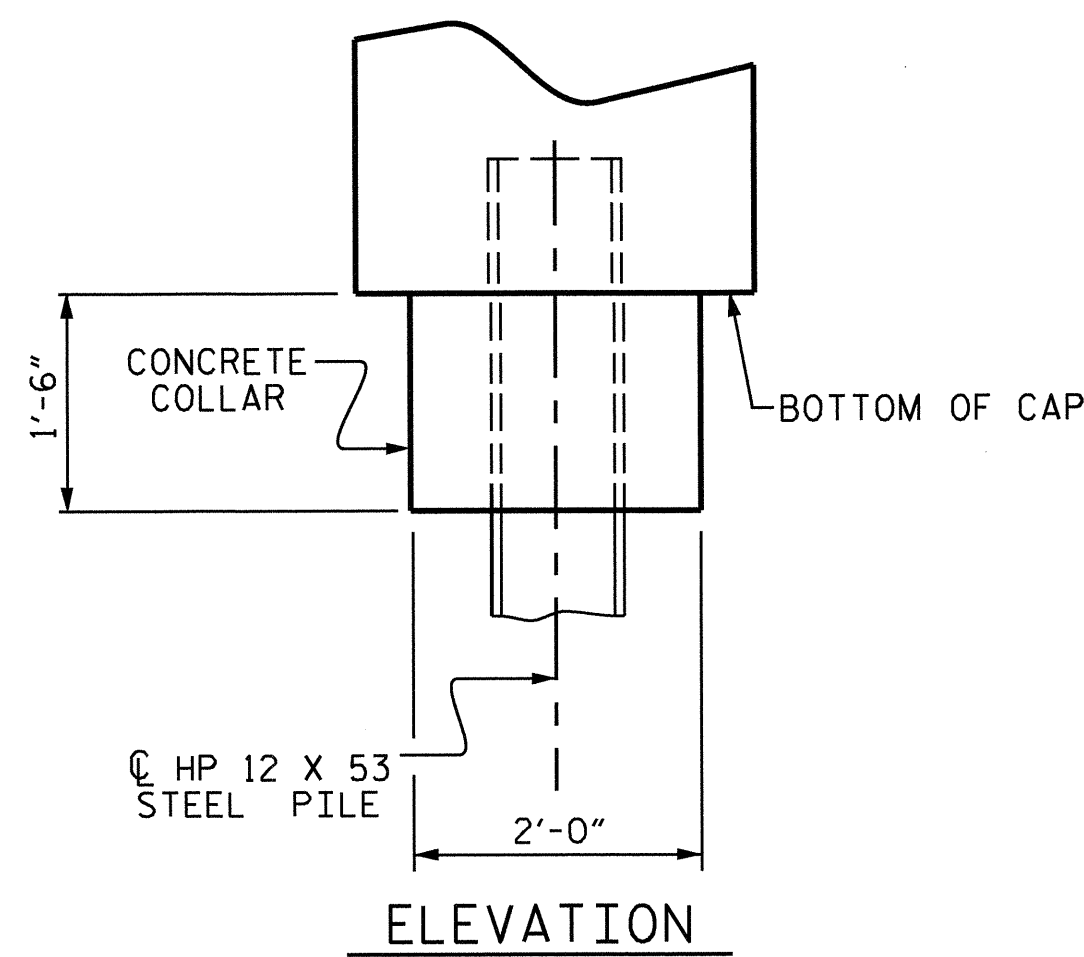
(RIGHT LATERAL GUIDE SHOWN, LEFT END SIMILAR)



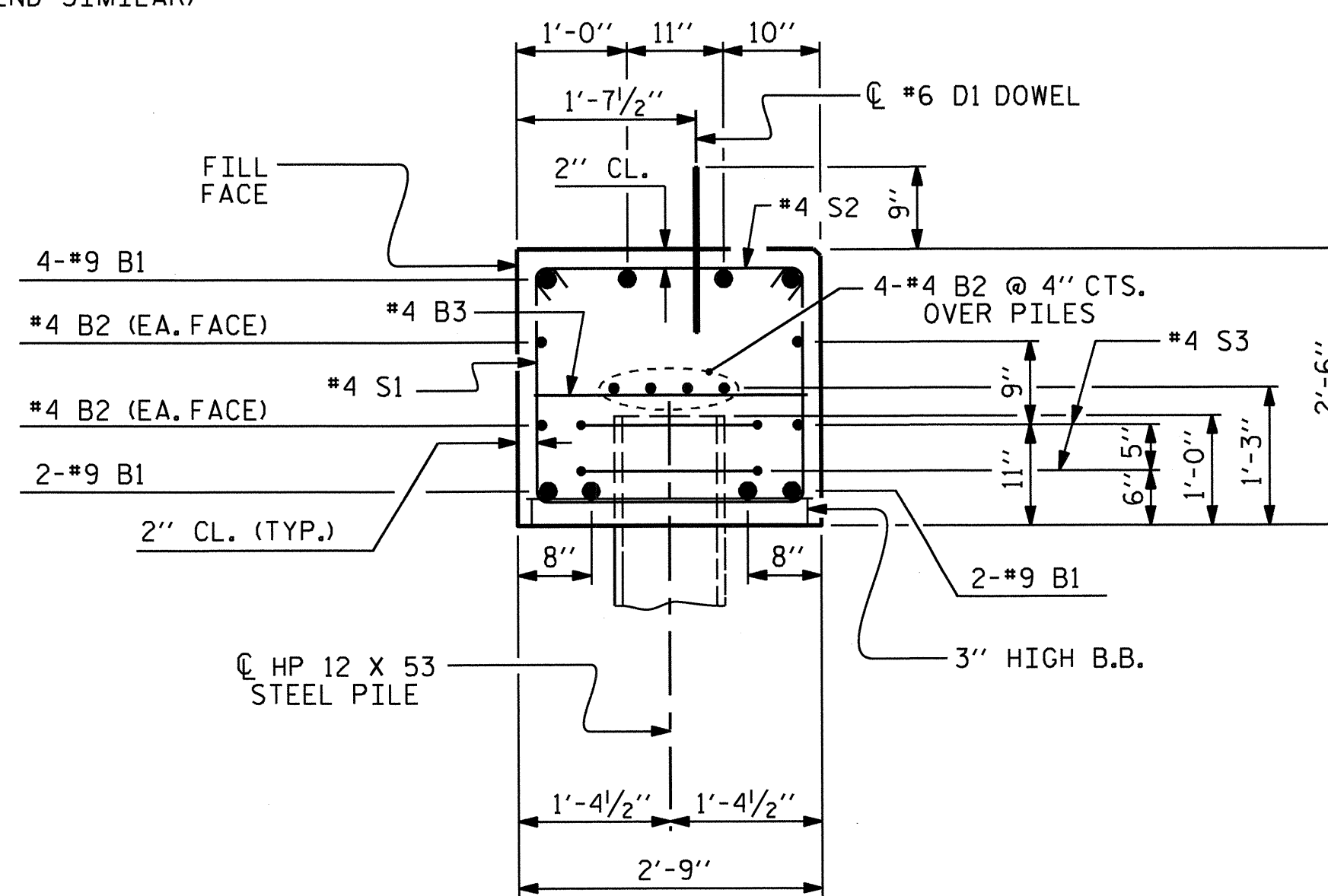
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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

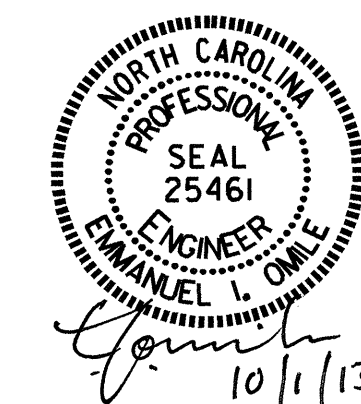


ELEVATION



SECTION A-A

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



PROJECT NO. B-5132
HOKE COUNTY
STATION: 13+85.00 -L-

SHEET 4 OF 4

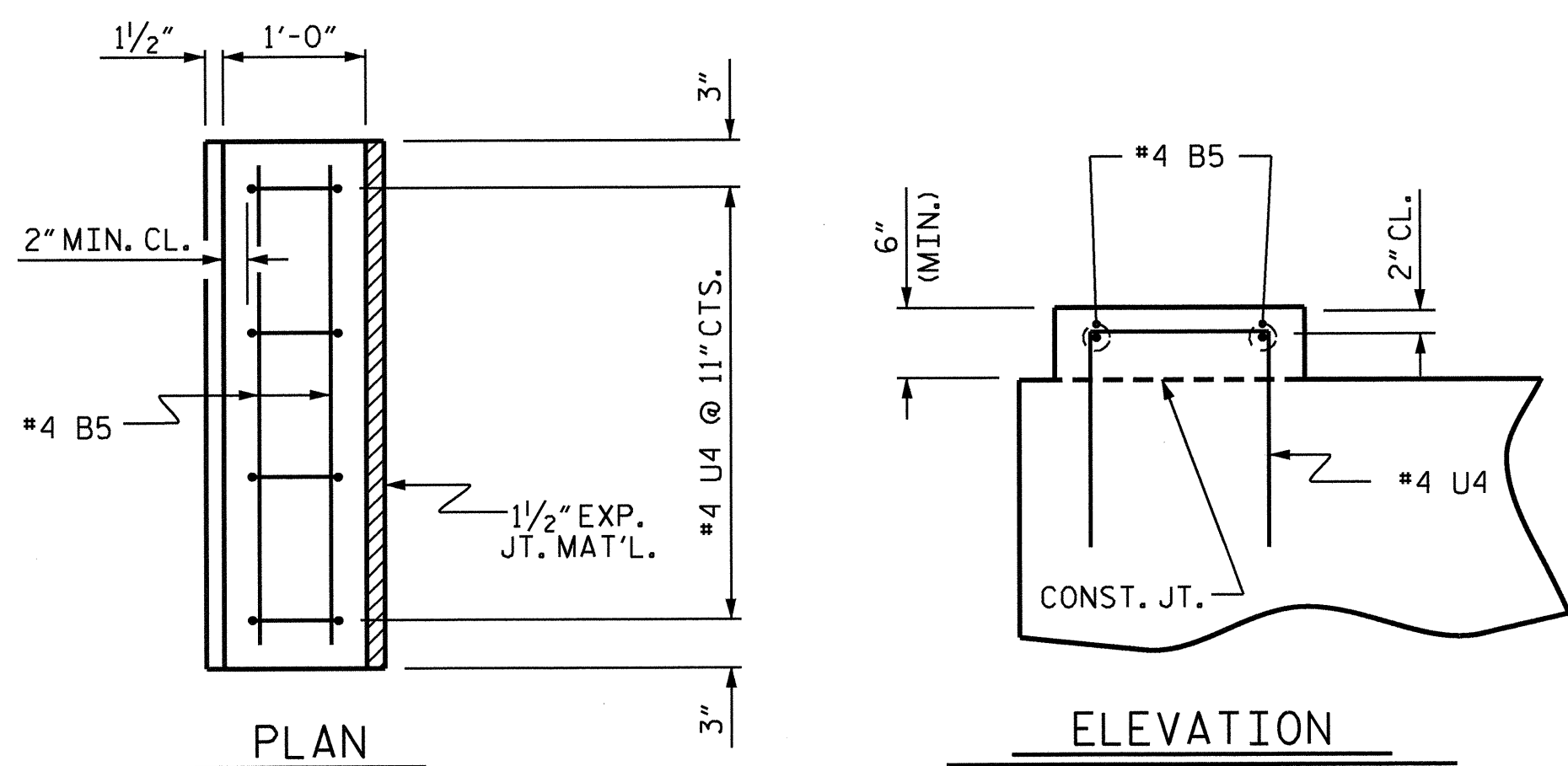
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

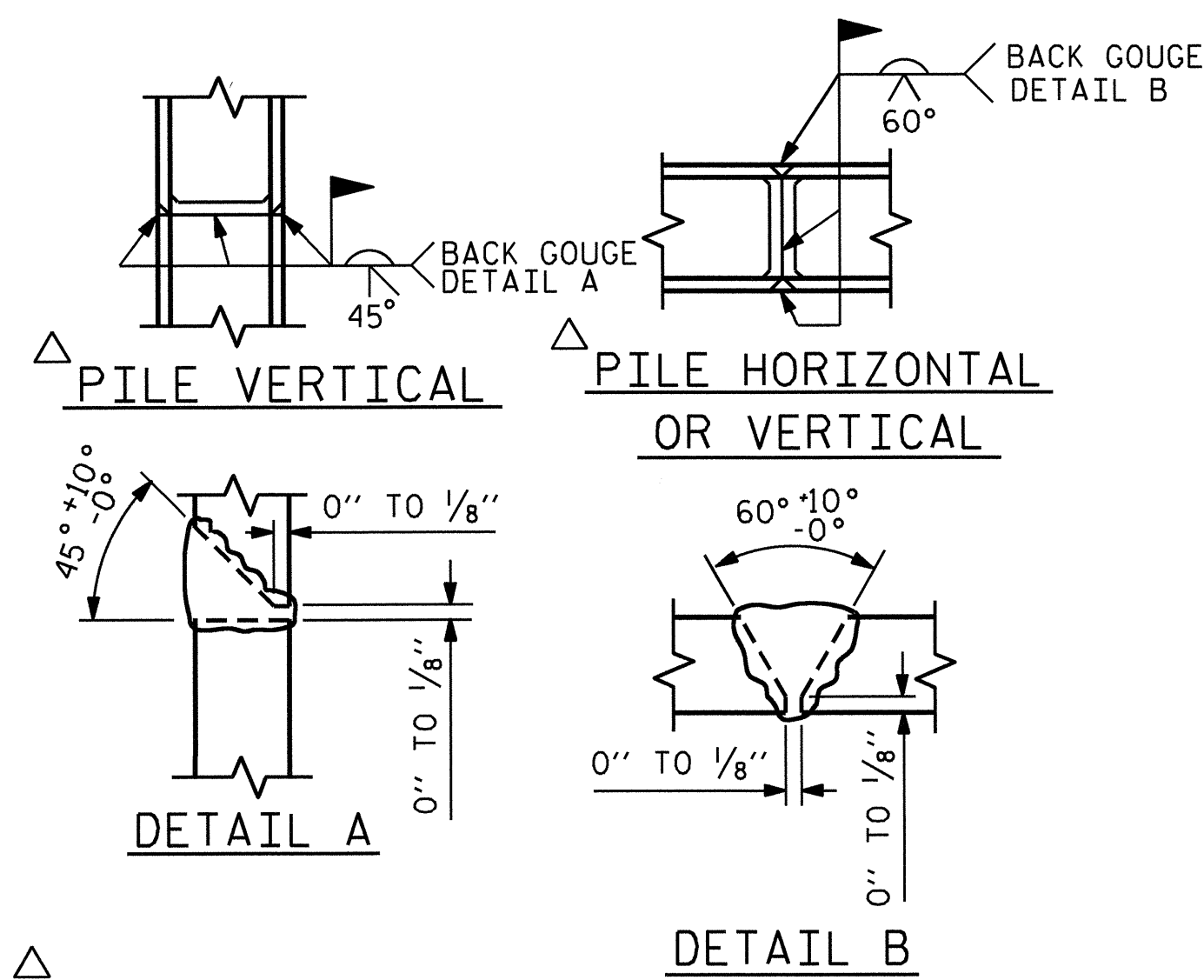
END BENT 1 & 2
DETAILS

ASSEMBLED BY : E.I. OMLIE	DATE : 09-22-12
CHECKED BY : W.F. PARKER	DATE : 10-08-12
DRAWN BY : DGE 02/10	
CHECKED BY : MKT 02/10	

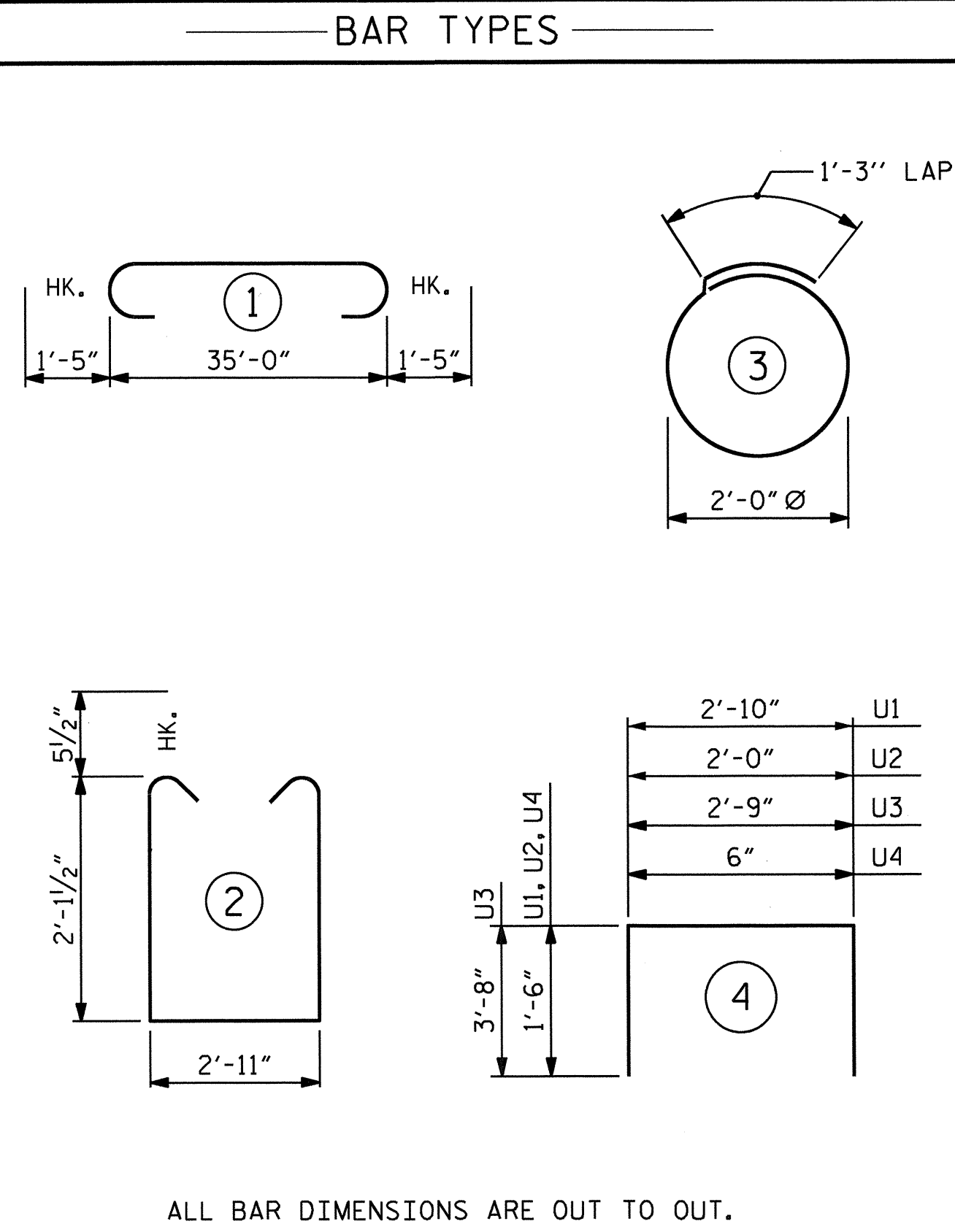
REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			



LATERAL GUIDE DETAILS
(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)

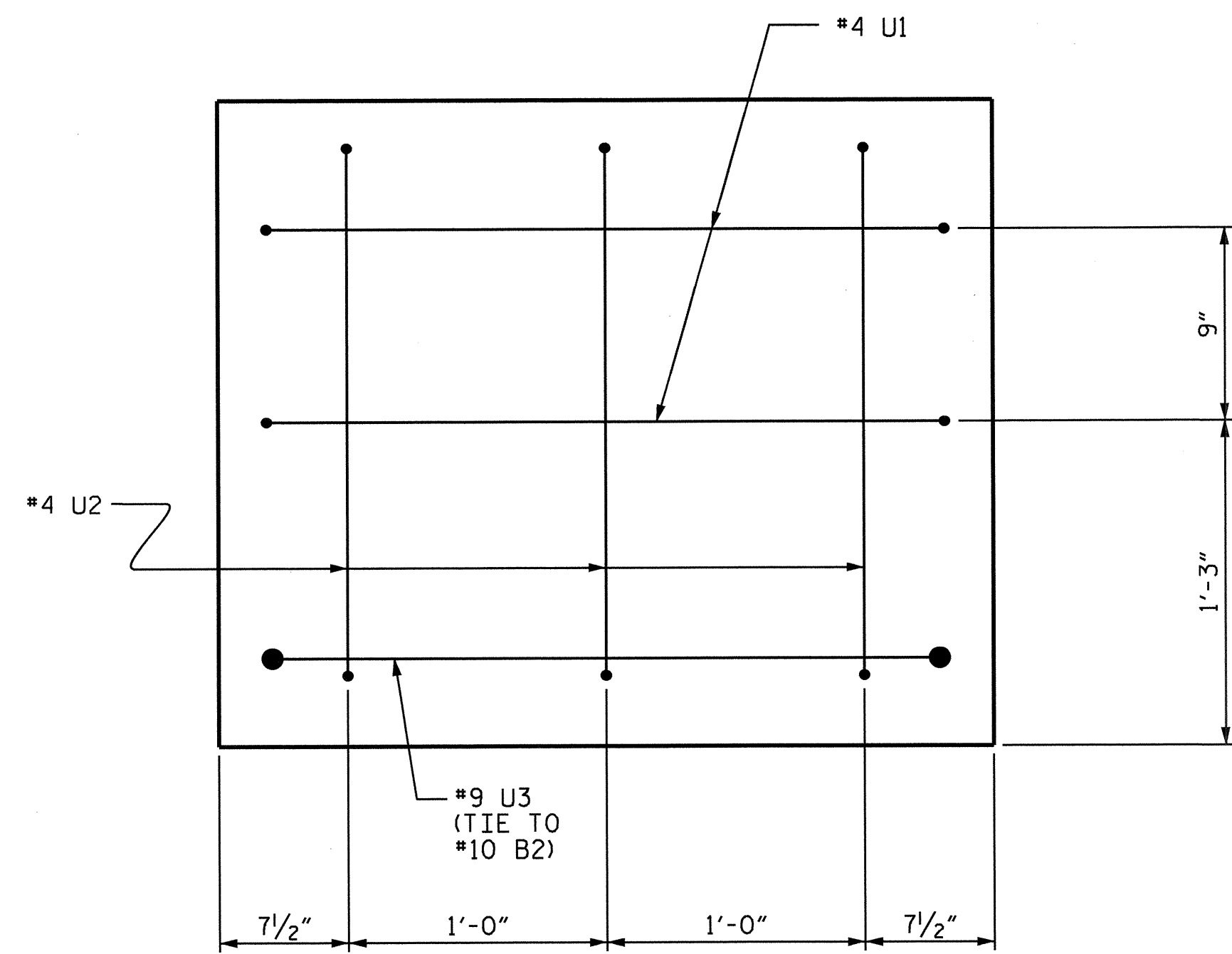


PILE SPLICE DETAILS
POSITION OF PILE DURING WELDING.

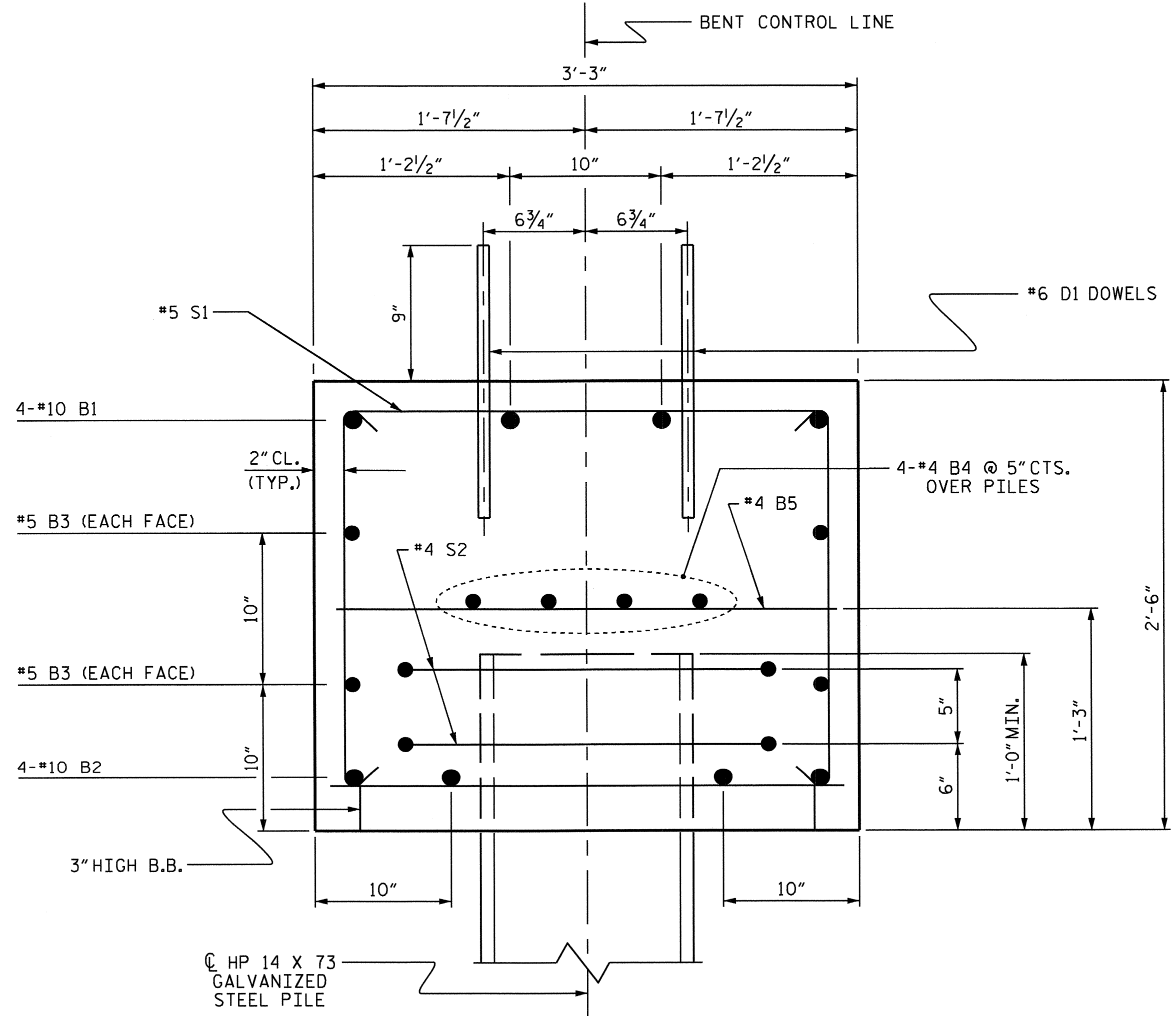


ALL BAR DIMENSIONS ARE OUT TO OUT.

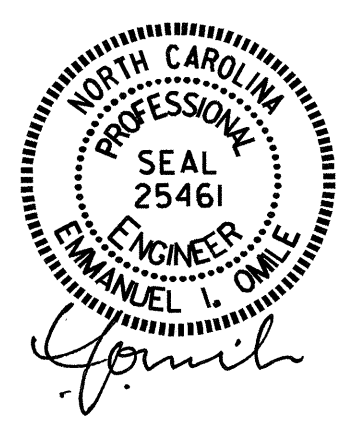
BILL OF MATERIAL					
FOR ONE BENT (TWO REQUIRED)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37'-10"	651
B2	4	#10	STR	35'-2"	605
B3	4	#5	STR	35'-2"	147
B4	8	#4	STR	18'-10"	101
B5	13	#4	STR	2'-11"	25
D1	44	#6	STR	1'-6"	99
S1	39	#5	2	8'-1"	329
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19
REINFORCING STEEL					2162 LBS
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP)					10.7 C.Y.
POUR #2 (LATERAL GUIDES)					0.1 C.Y.
TOTAL CLASS A CONCRETE					10.8 C.Y.
HP 14 X 73 GALVANIZED STEEL PILES					
No. 8					LIN. FT. 560



END OF CAP VIEW
(TYPICAL BOTH ENDS)



SECTION A-A



PROJECT NO. B-5132
HOKE COUNTY
STATION: 13+85.00 -L-

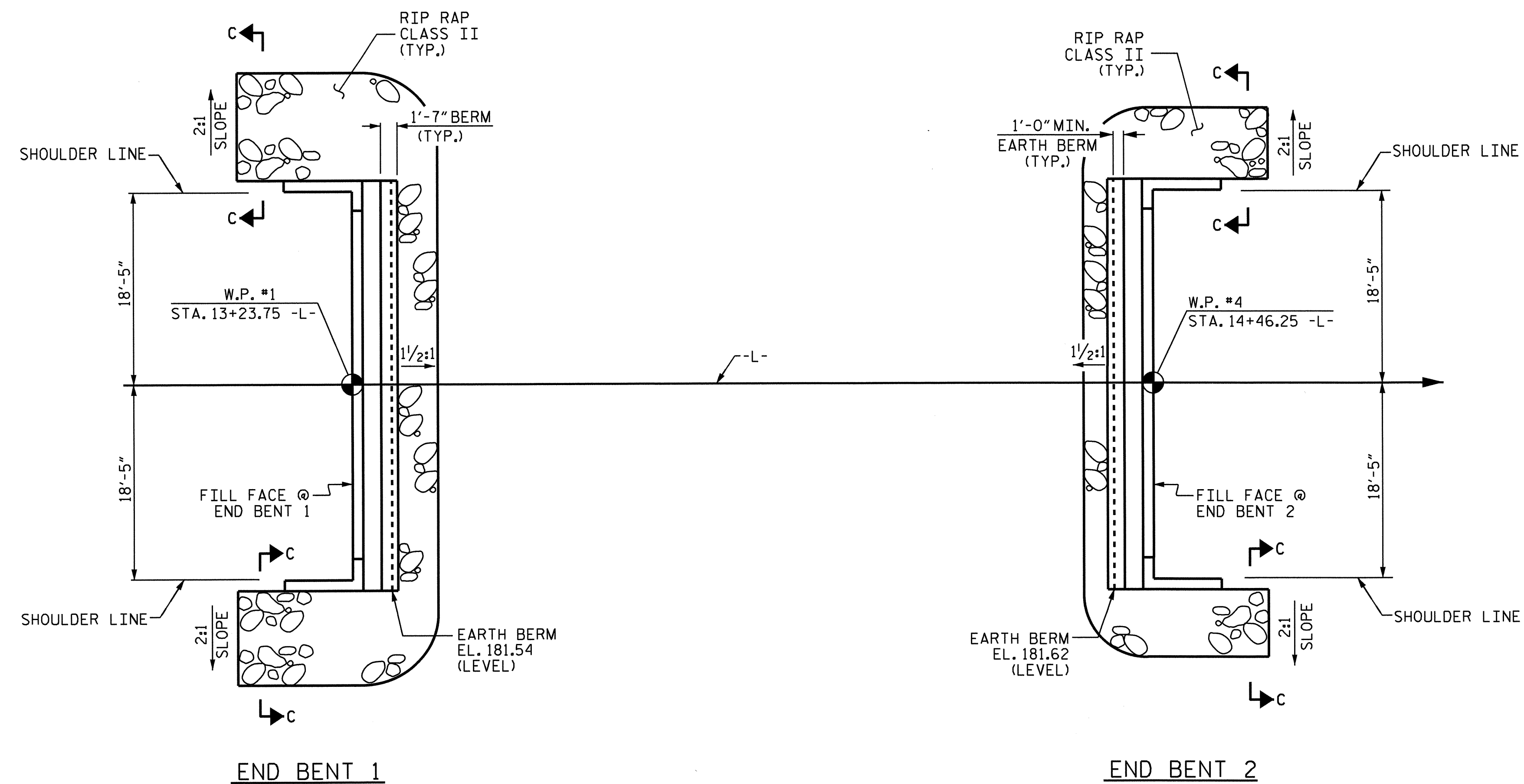
SHEET 2 OF 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS 21
2			4			

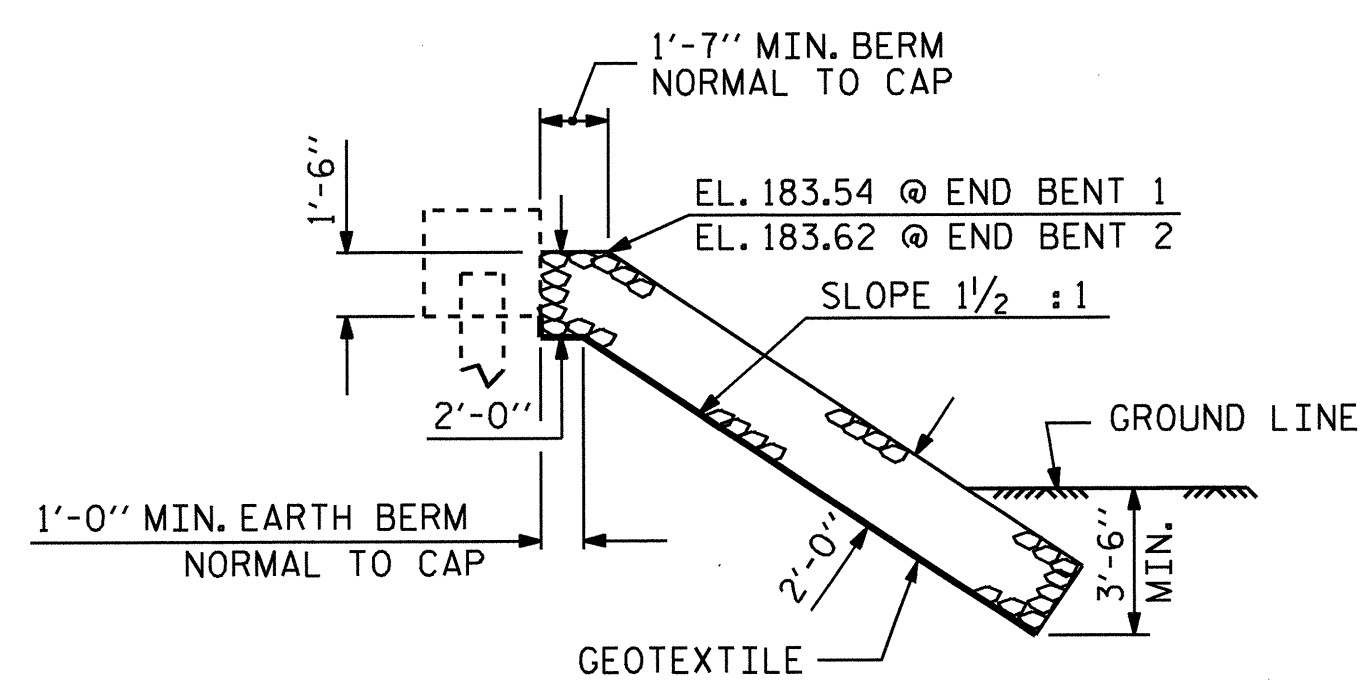
DRAWN BY : E.I. OMILE DATE : 09-24-12
CHECKED BY : W.F. PARKER DATE : 10-08-12
DRAWN BY : DGE 05/10
CHECKED BY : MKT 05/10

ESTIMATED QUANTITIES

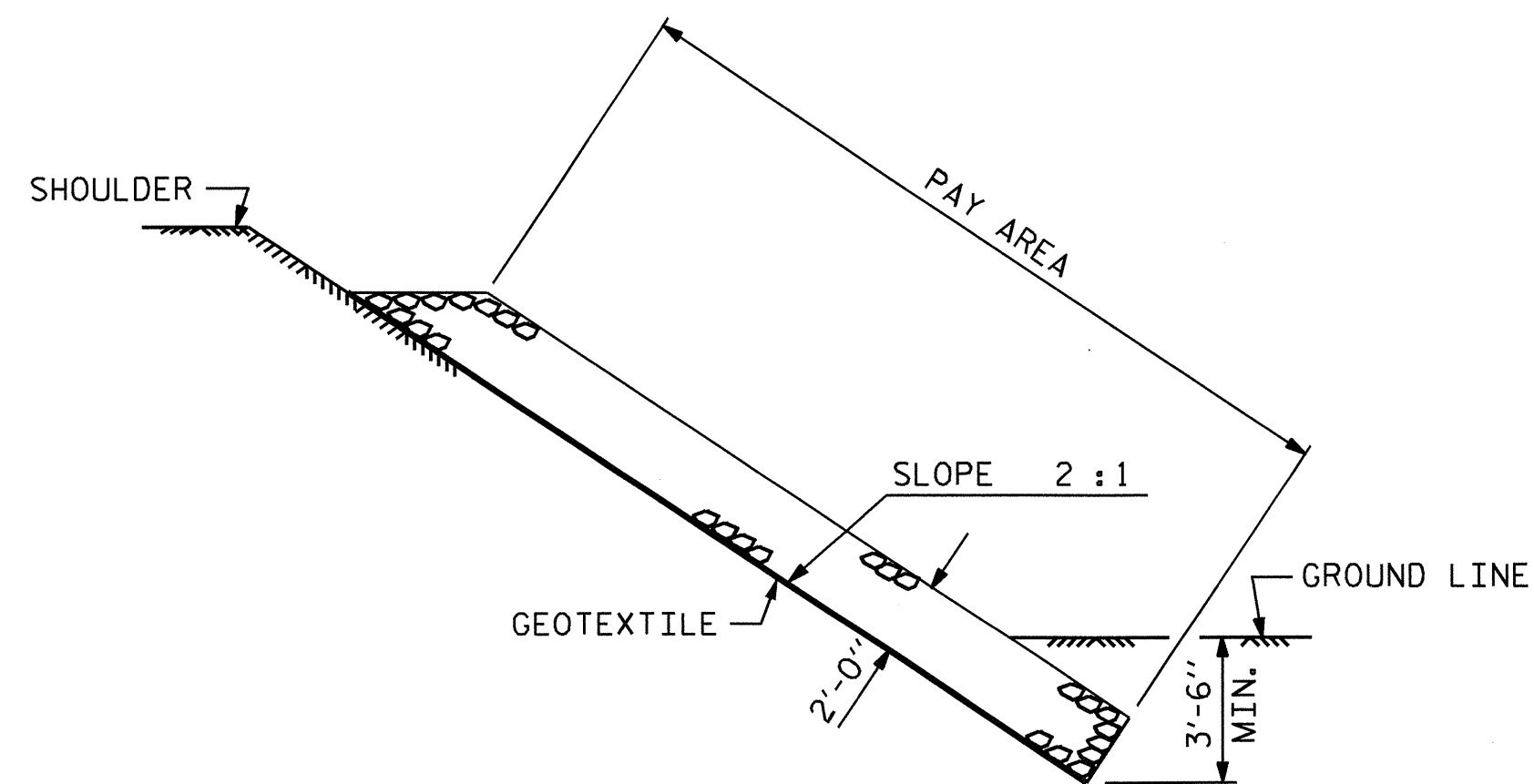
BRIDGE @ STA. 13+85.00 -L-	RIP RAP CLASS II (TONS)	GEOTEXTILE FOR DRAINAGE (SQ. YARDS)
END BENT 1	80	90
END BENT 2	55	60
TOTAL	135	150



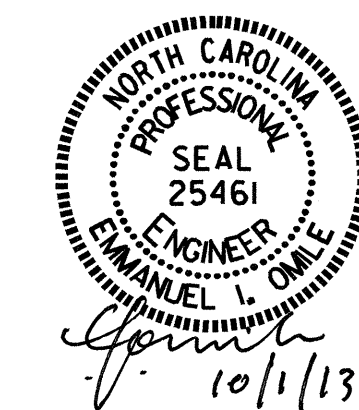
PLAN



SECTION C-C
BERM RIP RAPPED



SECTION C-C



PROJECT NO. B-5132
HOKE COUNTY
 STATION: 13+85.00 -L-

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

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

ASSEMBLED BY : E. I. OMILE	DATE : 09-25-12
CHECKED BY : W. F. PARKER	DATE : 10-08-12
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM

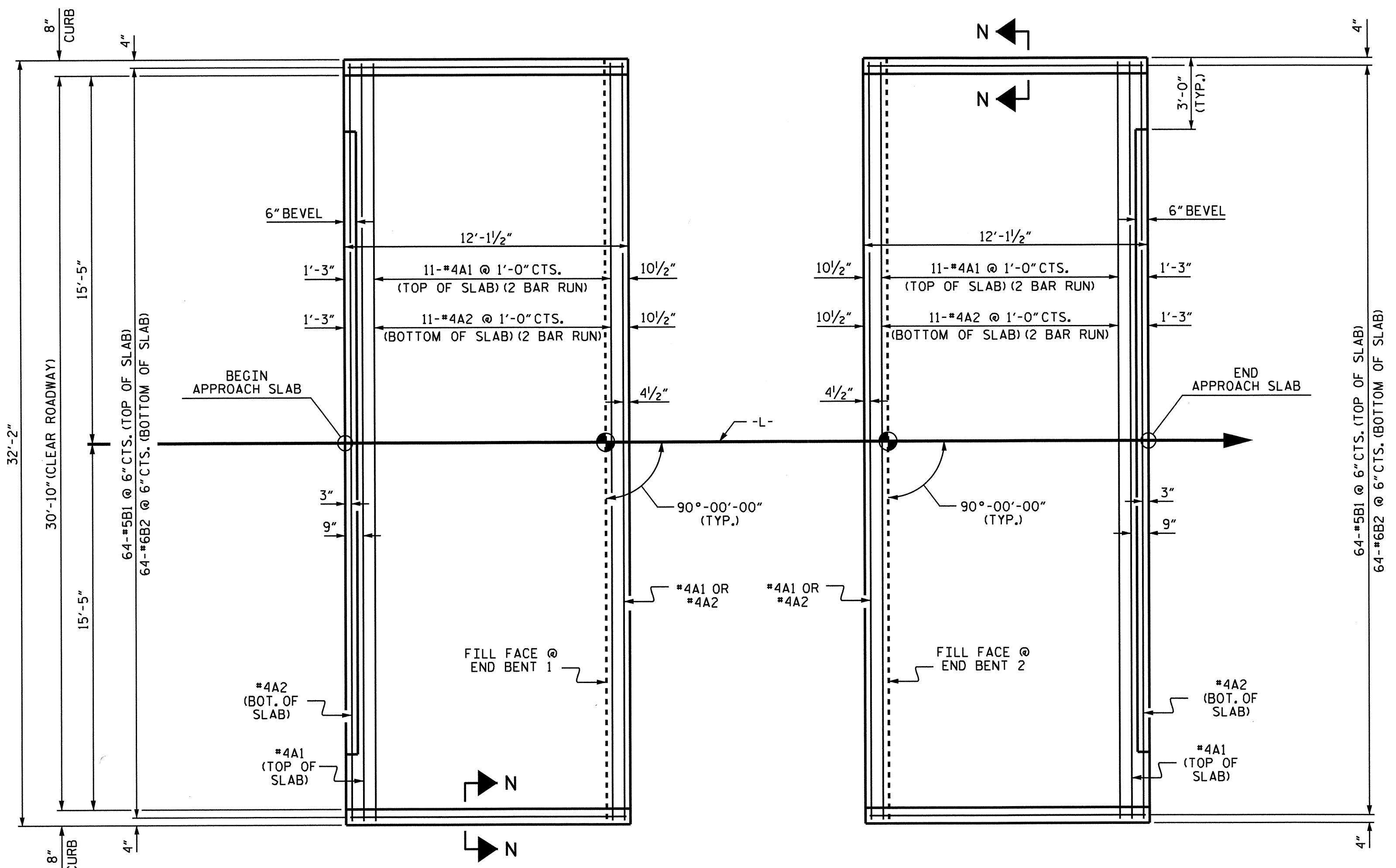
NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

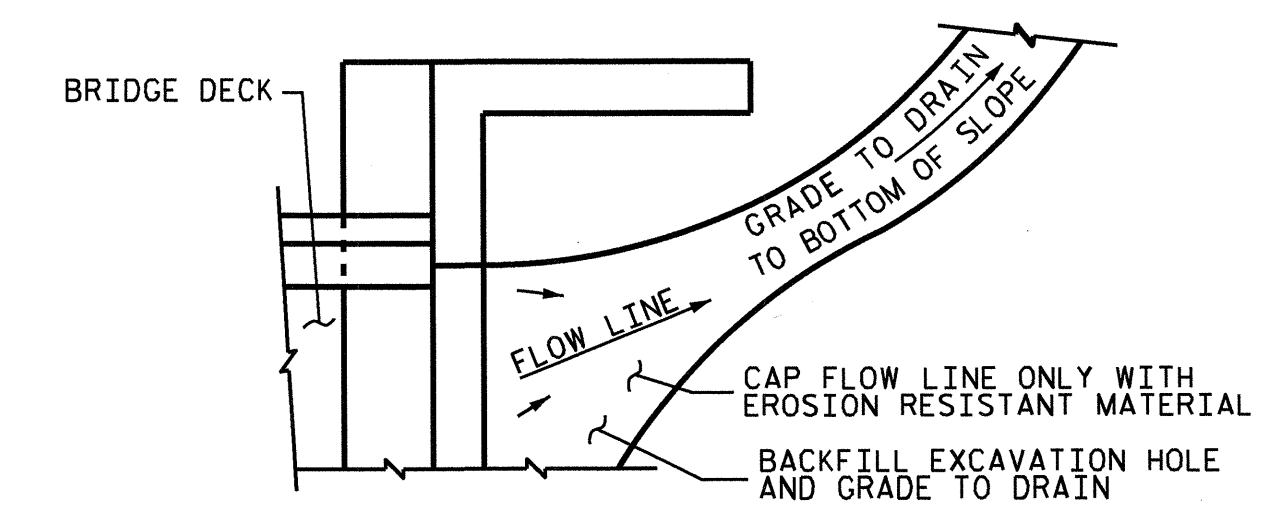
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL						
APPROACH SLAB AT EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	26	*4	STR	16'-11"	294	
A2	26	*4	STR	16'-9"	291	
* B1	64	*5	STR	11'-2"	745	
B2	64	*6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
* EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	18.6
APPROACH SLAB AT EB 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	26	*4	STR	16'-11"	294	
A2	26	*4	STR	16'-9"	291	
* B1	64	*5	STR	11'-2"	745	
B2	64	*6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
* EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	18.6



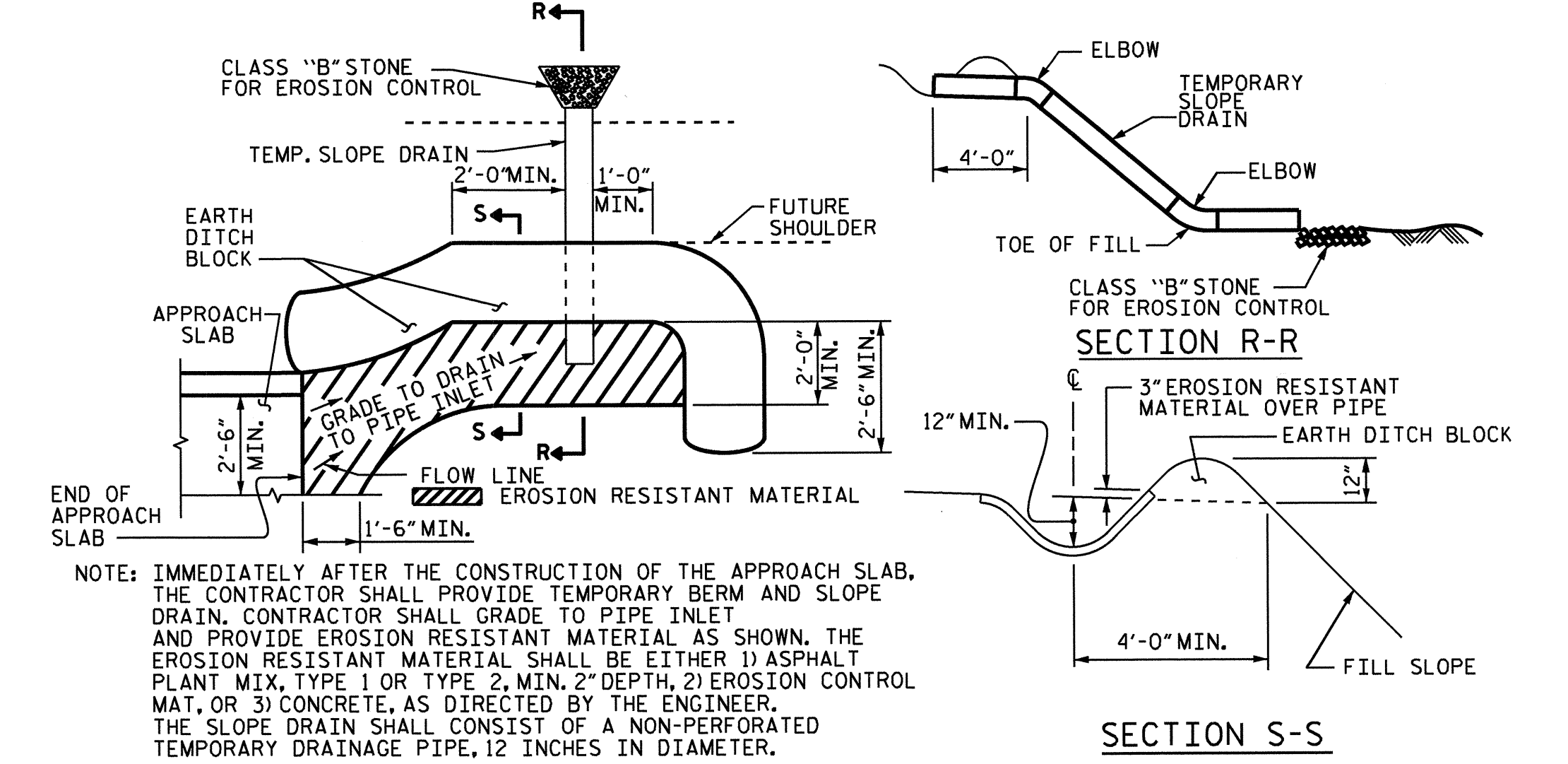
PLAN @ END BENT 1 **PLAN @ END BENT 2**
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



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.

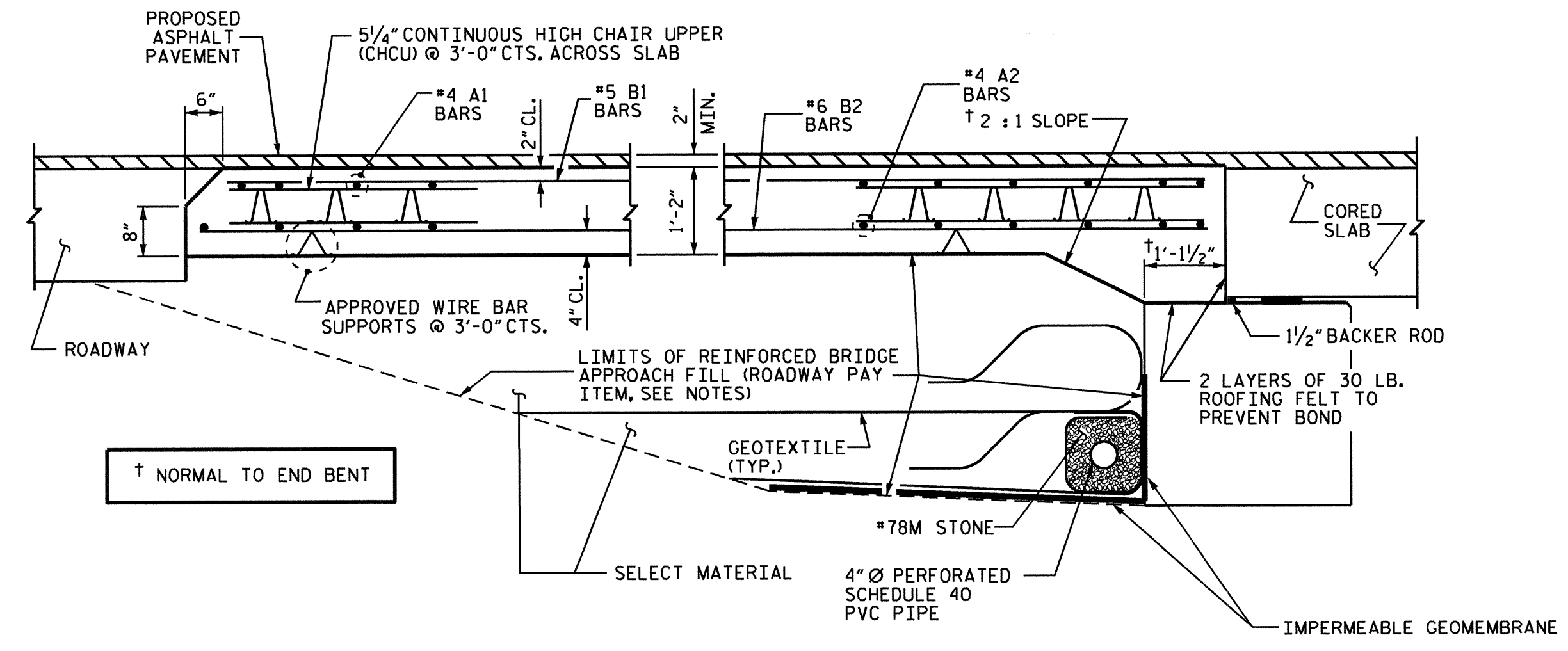
TEMPORARY DRAINAGE DETAIL

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

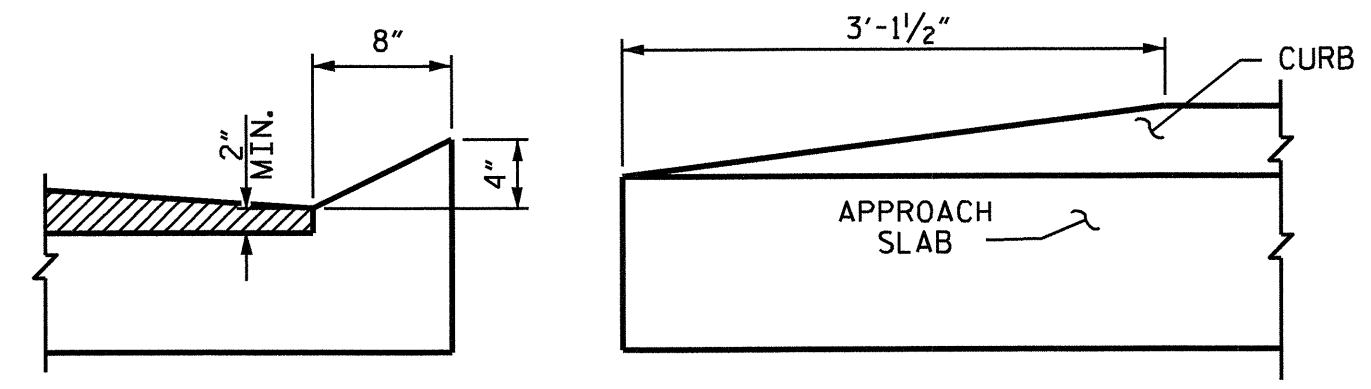


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

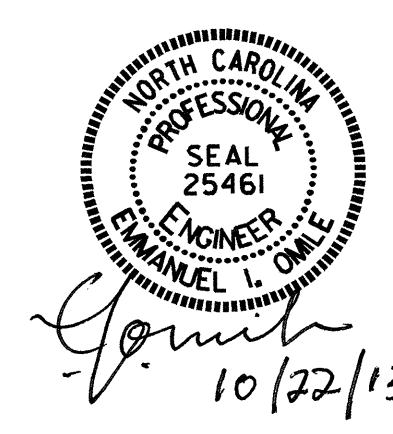


SECTION THRU SLAB



SECTION N-N **END OF CURB WITHOUT SHOULDER BERM GUTTER**
CURB DETAILS

ASSEMBLED BY : E. I. OMILE DATE : 09-26-12
CHECKED BY : W. F. PARKER DATE : 10-08-12
DRAWN BY : SHS/MAA 5-09 REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09



PROJECT NO. B-5132
HOKE COUNTY
STATION: 13+85.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 21

