

TIP PROJECTS: U-4401 / B-4580

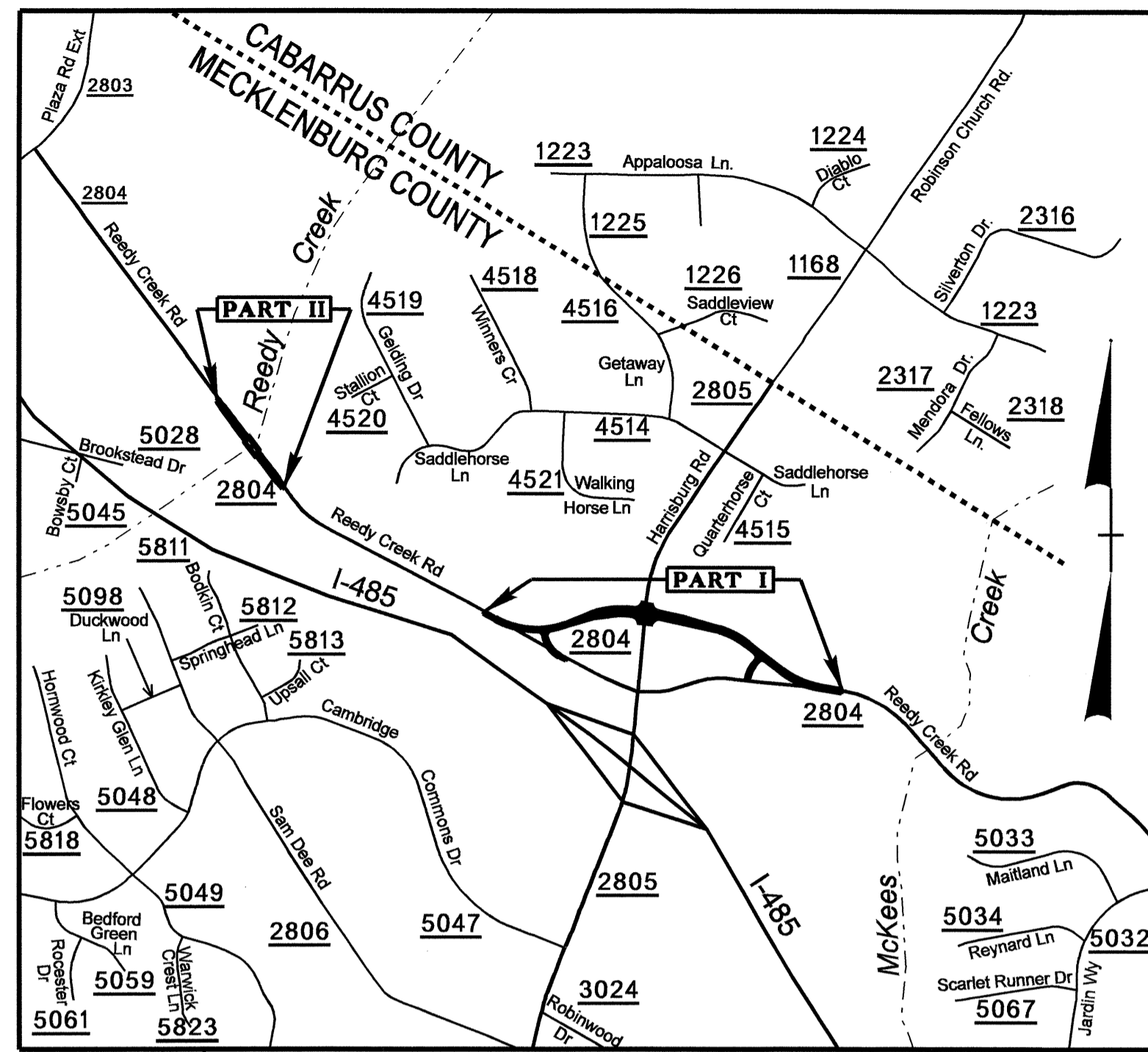
CONTRACT: C202471

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

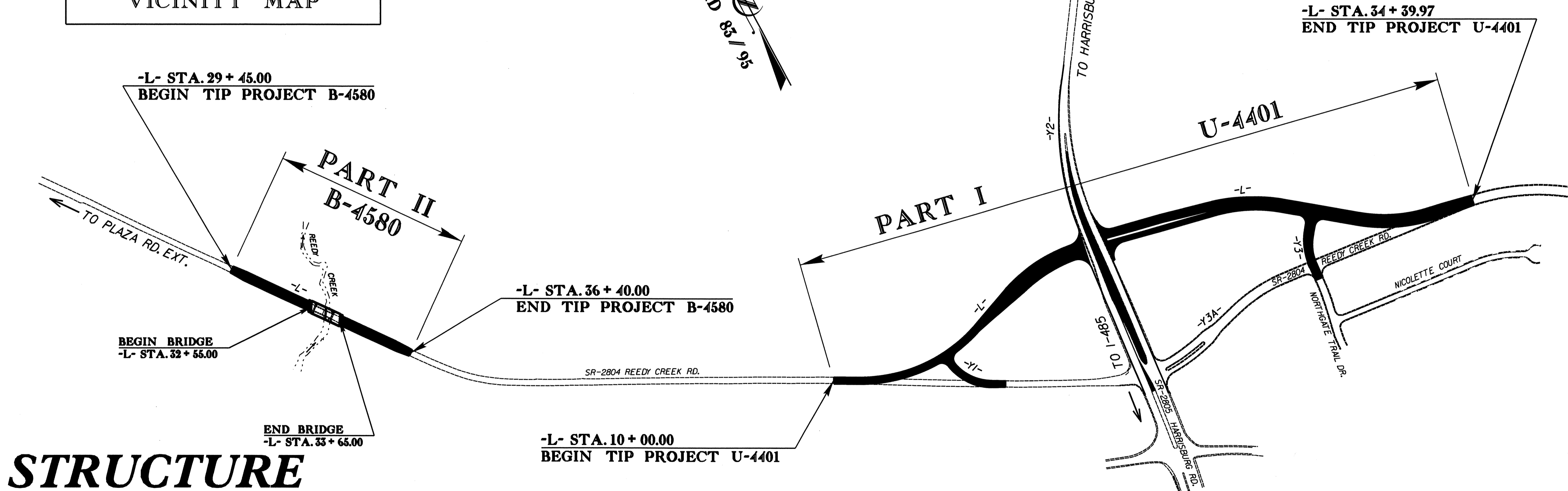
MECKLENBURG COUNTY

**LOCATION: SR 2804 (REEDY CREEK RD.) AND
SR 2805 (HARRISBURG RD.);
BRIDGE 177 OVER REEDY CREEK ON SR 2804
TYPE OF WORK: SIGNALS, GRADING, DRAINAGE, PAVING, AND STRUCTURE**

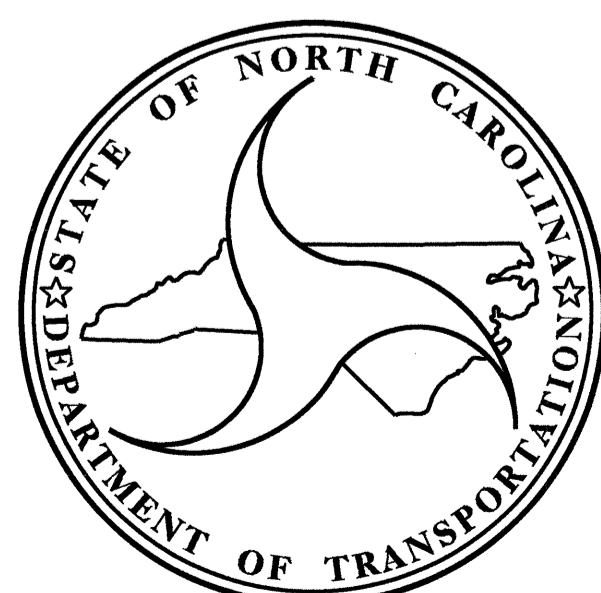
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4401/B-4580		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
36774.1.2		U-4401 (P.E.)	
33782.1.1	BRZ-2804(2)	B-4580 (P.E.)	
36774.2.1		U-4401 (R/W, UTIL.)	
33782.2.1	BRZ-2804(2)	B-4580 (R/W, UTIL.)	
36774.3.1		U-4401/B-4580 (CONST.)	
33782.3.1	BRZ-2804(2)	B-4580 (CONST.)	



VICINITY MAP



STRUCTURE



DESIGN DATA

ADT 2010 =	6,300
ADT 2030 =	10,000
DHV =	12 %
D =	55 %
T =	3 % *
V =	50 MPH
* TTST 1 %	DUAL 2 %
FUNC. CLASS = RURAL LOCAL	
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECTS U-4401 / B-4580	=	0.573 MI.
LENGTH STRUCTURE TIP PROJECTS U-4401 / B-4580	=	0.021 MI.
TOTAL LENGTH OF TIP PROJECTS U-4401 / B-4580	=	0.594 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

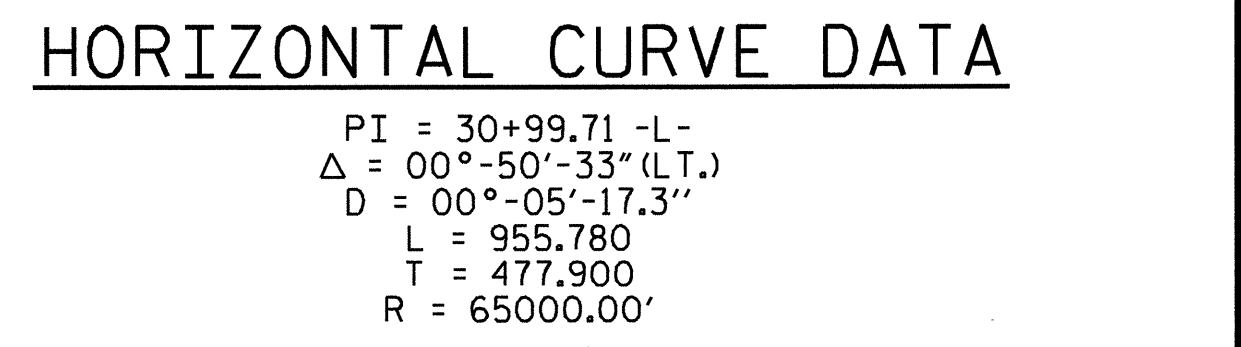
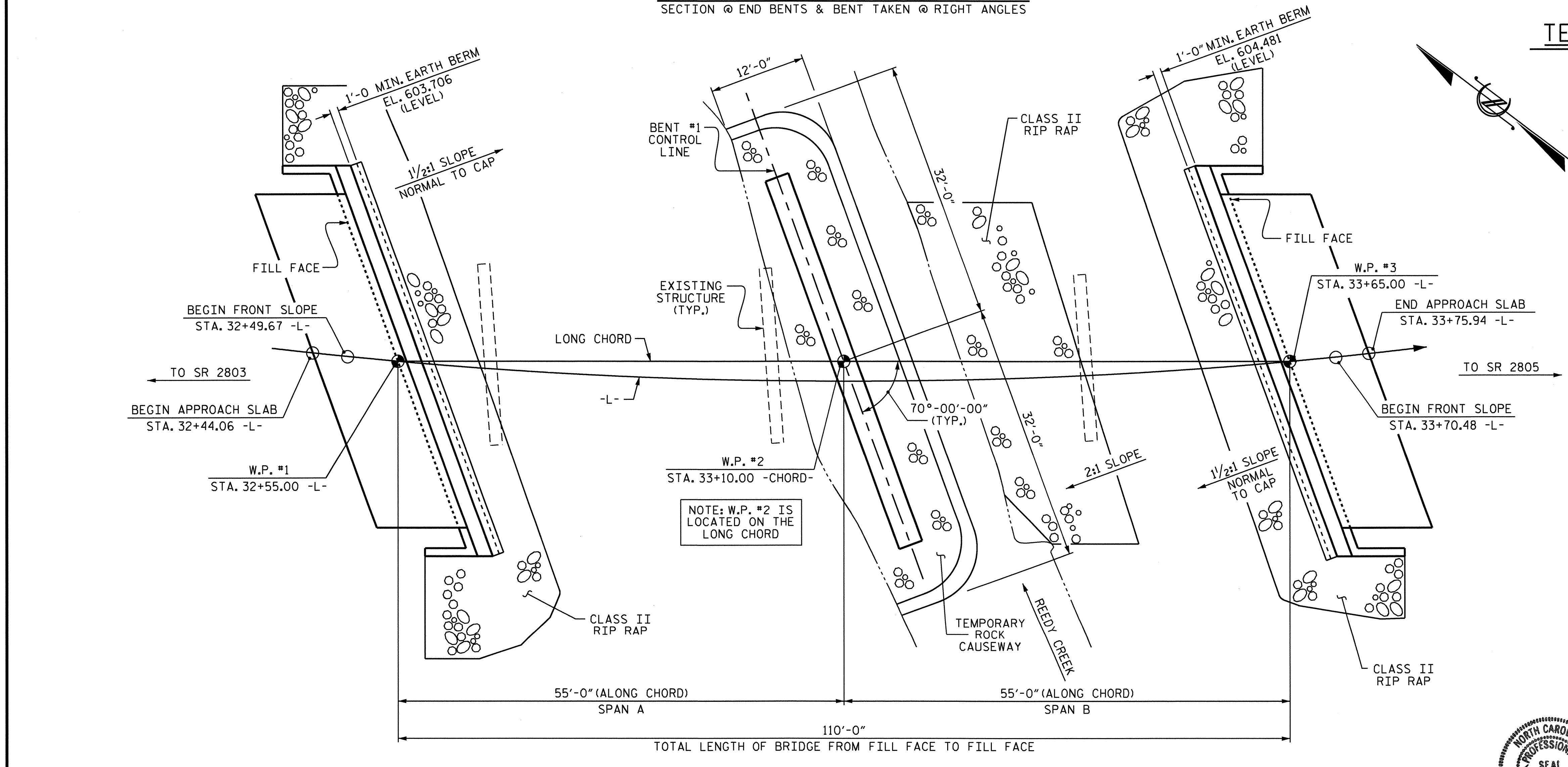
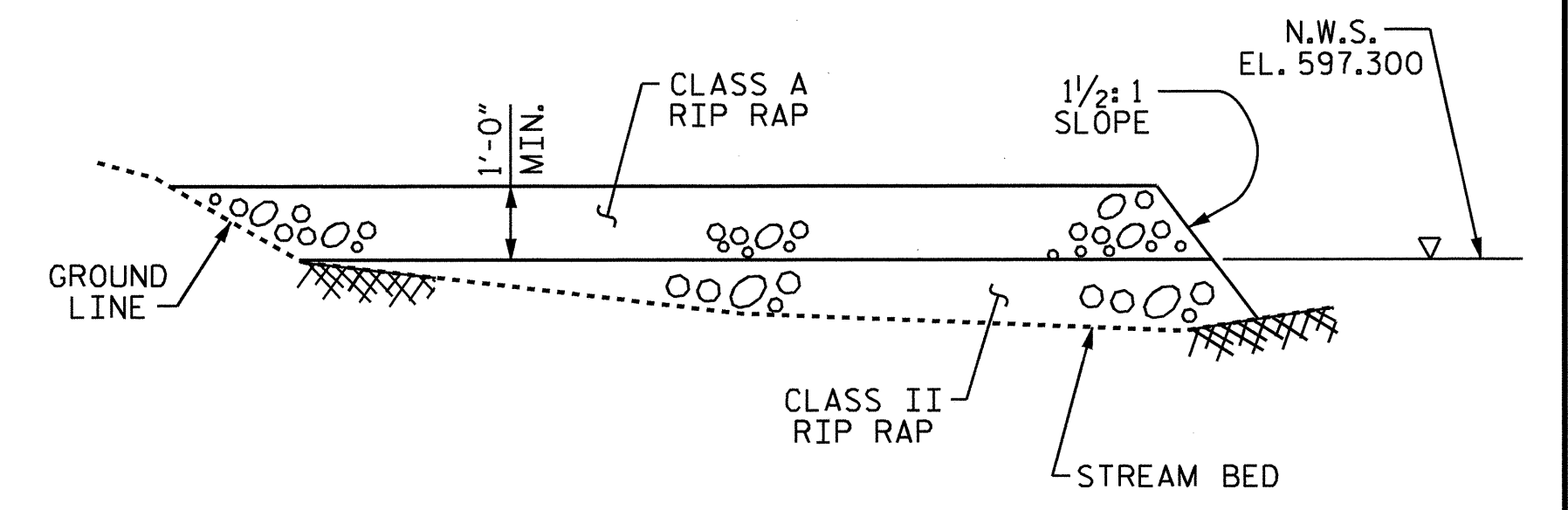
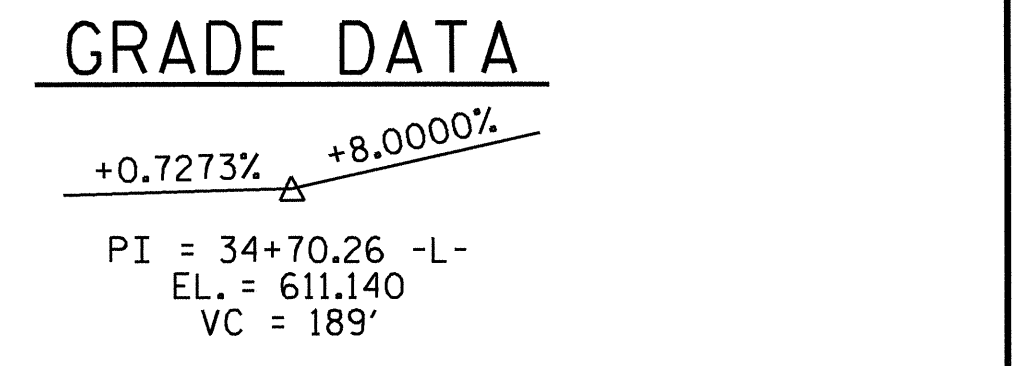
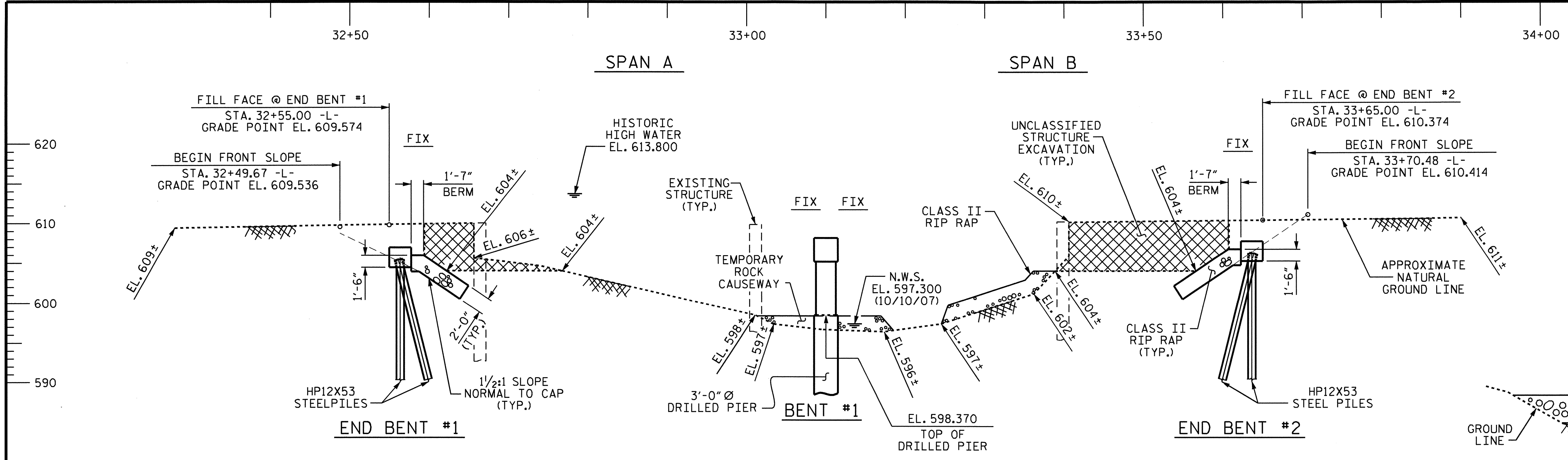
LETTING DATE:
APRIL 20, 2010

B.C. HUNT, P.E.
PROJECT ENGINEER

V.A. PATEL, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, NC 27610

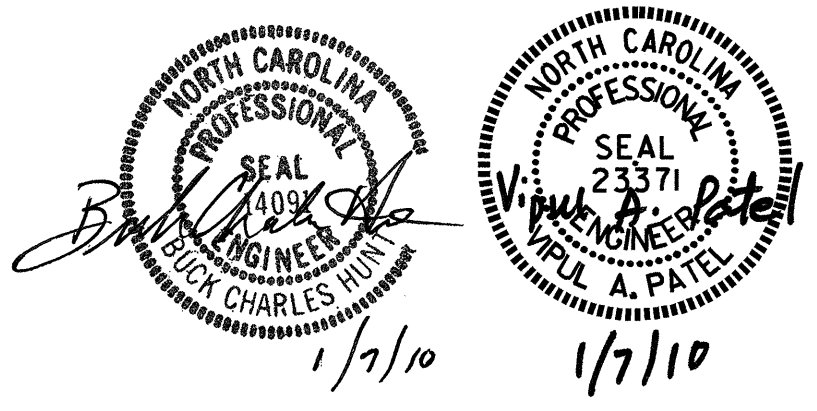
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



PROJECT NO. B-4580
MECKLENBURG COUNTY
STATION: 33+10.00 -L-
SHEET 1 OF 3 REPLACES BRIDGE #177

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

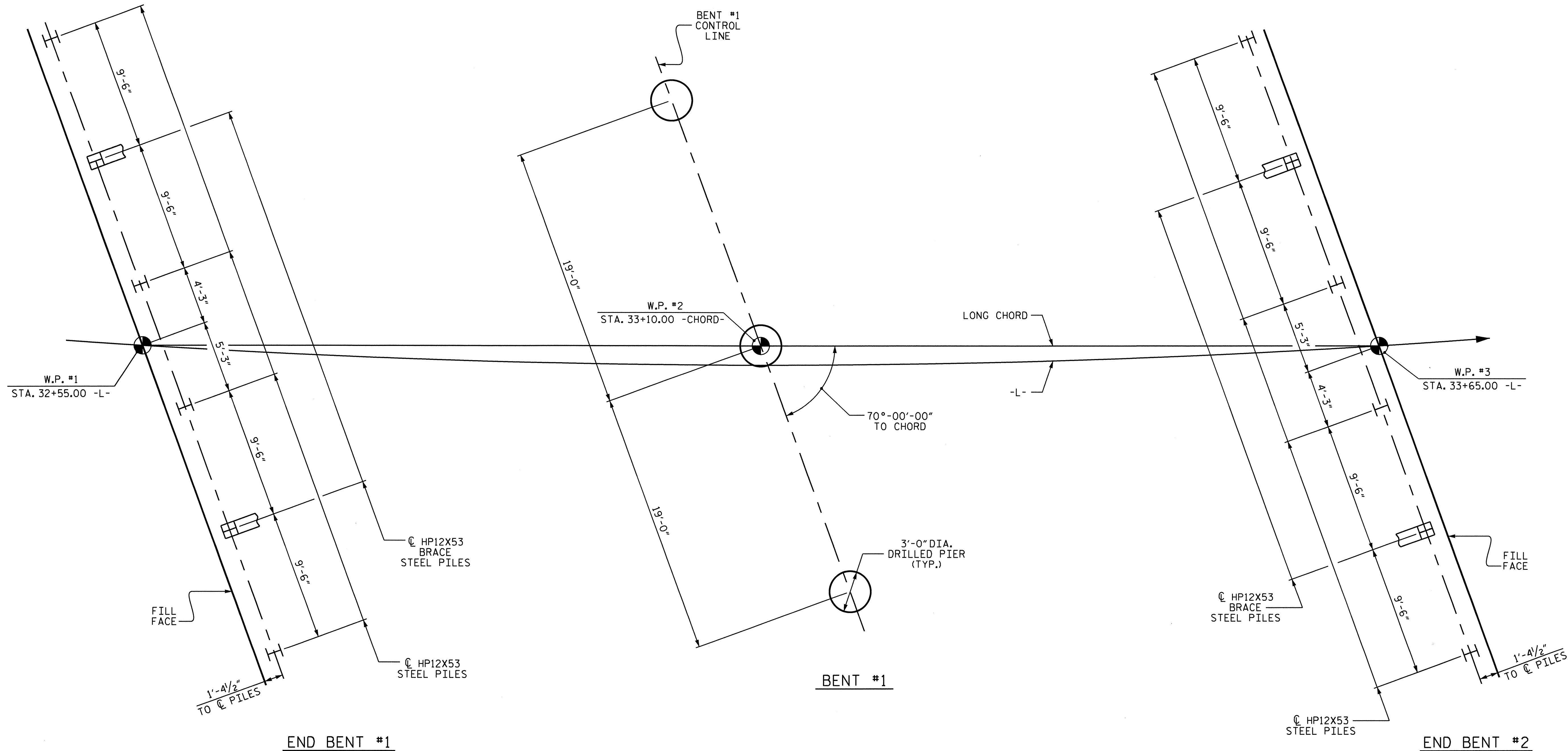
GENERAL DRAWING
FOR BRIDGE OVER REDDY CREEK ON SR 2804
(REDDY CREEK ROAD)
BETWEEN
SR 2803 AND SR 2805



DRAWN BY: J.P. ADAMS DATE: 9/29/09
CHECKED BY: K.D. LAYNE DATE: 12/7/09

PILES & DRILLED PIERS NOT SHOWN FOR CLARITY

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



FOUNDATION LAYOUT

DIMENSIONS LOCATING DRILLED PIERS ARE TO DRILLED PIER CENTER.
 ALL PILES ARE HP12X53.
 END BENT BRACE PILES ARE BATTERED 3:12.
 DIMENSIONS LOCATING PILES ARE TO THE CENTERLINE OF PILE.

NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT #1 AND END BENT #2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 167 TONS PER PILE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

DRILLED PIERS AT BENT #1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 440.0 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30.0 TSF.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT #1. IF REQUIRED, DO NOT EXTEND CASING BELOW ELEVATION 589.000 WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

INSTALL DRILLED PIERS AT BENT #1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 582.870 AND SATISFY THE REQUIRED END RESISTANCE.

THE SCOUR CRITICAL ELEVATION FOR BENT #1 IS ELEVATION 586.500. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER REEDY
 CREEK ON SR 2804
 (REEDY CREEKY ROAD)
 BETWEEN
 SR 2803 AND SR 2805



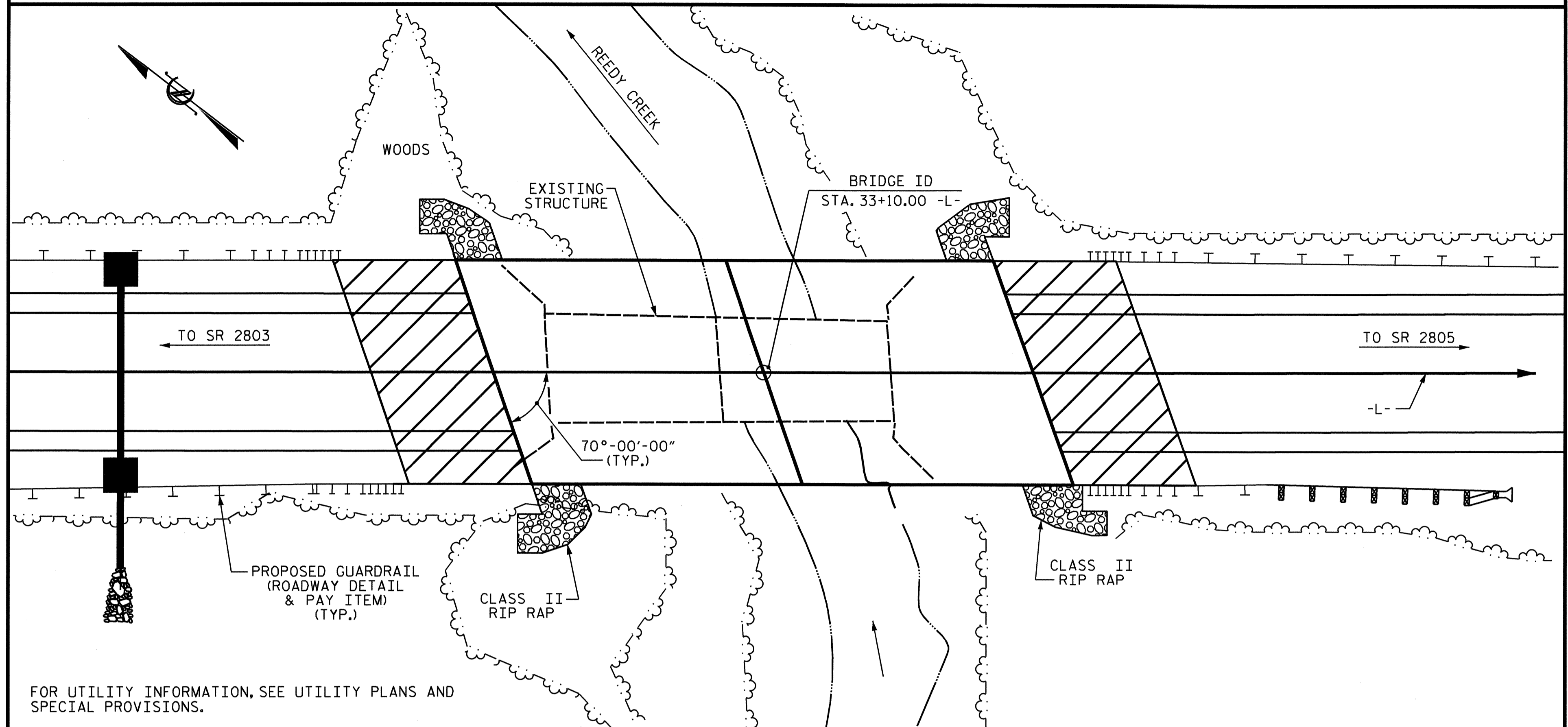
1/7/10

DRAWN BY : J.P. ADAMS DATE : 9/29/09
 CHECKED BY : K.D. LAYNE DATE : 12/7/09

07-JAN-2010 13:48
 D:\Structures\Plans\B-4580.sd.gdgn
 klayne

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

BM #10: RR SPIKE IN 18" SWEETGUM, 89' RT. OF STA. 27+10.00 -BL-, EL. 607.450



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-0" DIA. DRILLED PIERS IN SOIL	3'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.
SUPERSTRUCTURE									4212	4655	
END BENT #1											18.5
BENT #1			28.5	18.0	28.1	1	1				23.9
END BENT #2											18.6
TOTAL	LUMP SUM	LUMP SUM	28.5	18.0	28.1	1	1	LUMP SUM	4212	4655	61.0

TOTAL BILL OF MATERIAL

	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP12X53 STEEL PILES	TWO BAR METAL RAIL	1'-2" X 3'-5 1/2" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		
	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM					199.37	215.21			LUMP SUM	LUMP SUM	28	1504.56
END BENT #1		2571		6	90			80	90				
BENT #1		7687	1123										
END BENT #2		2571		6	180			225	255				
TOTAL	LUMP SUM	12829	1123	12	270	199.37	215.21	305	345	LUMP SUM	LUMP SUM	28	1504.56

DRAWN BY : J.P. ADAMS DATE : 9/29/09
 CHECKED BY : K.D. LAYNE DATE : 12/7/09

07-JAN-2010 13:48
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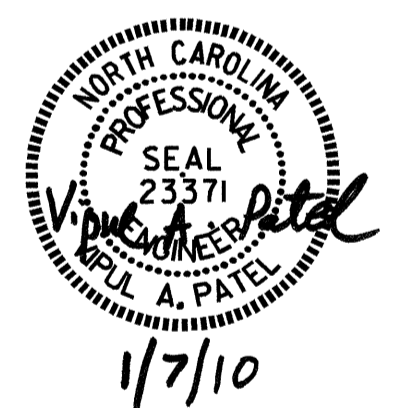
NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 35'-3" AND A CLEAR ROADWAY WIDTH OF 19.1' AND HAVING A TIMBER DECK WITH ASPHALT WEARING SURFACE ON 13 LINES OF W16X36 STEEL I-BEAMS SUPPORTED BY A SUBSTRUCTURE CONSISTING OF END BENTS WITH TIMBER CAPS, TIMBER PILES AND STEEL CRUTCH BENTS; A BENT CONSISTING OF TIMBER CAP, TIMBER PILES AND A STEEL CRUTCH BENT WITH THE TIMBER AND STEEL PILES ENCASED IN A CONCRETE MUD SILL AND LOCATED AT THE STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30.0 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
 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.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.
 THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.
 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 33+10.00 -L-."

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 33+10.00 -L-.

IF SIDEWALKS ARE ADDED TO THE STRUCTURE IN THE FUTURE, HYDRAULIC SPREAD WILL NEED TO BE RE-EVALUATED PRIOR TO THE SIDEWALK ADDITION.

- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.



HYDRAULIC DATA

DESIGN DISCHARGE = 4700 c.f.s.
 FREQUENCY OF DESIGN FLOOD = 25 YRS.
 DESIGN HIGH WATER ELEVATION = 611.500
 DRAINAGE AREA = 12.7 SQ. MI.
 BASIC DISCHARGE (Q100) = 5700 c.f.s.
 BASIC HIGH WATER ELEVATION = 612.300

PROJECT NO. B-4580
 MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 3 OF 3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 1950 c.f.s.
 FREQUENCY OF OVERTOPPING FLOOD = < 2 YRS.
 OVERTOPPING FLOOD ELEVATION = 608.800

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER REEDY
 CREEK ON SR 2804
 (REEDY CREEK ROAD)
 BETWEEN
 SR 2803 AND SR 2805

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

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (LL)	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)	LIVE-LOAD FACTORS (LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.16	--	1.75	0.28	1.30	A	ER	26.34	0.52	1.16	A	ER	2.63	0.80	0.28	1.26	A	ER	26.34	1	
	HL-93 (OPERATING)	N/A		1.51	--	1.35	0.28	1.68	A	ER	26.34	0.52	1.51	A	ER	2.63	N/A	--	--	--	--	--	1	
	HS-20 (INVENTORY)	36.000	②	1.26	45.36	1.80	0.28	1.57	A	ER	26.34	0.52	1.36	A	ER	2.63	1.00	0.28	1.26	A	ER	26.34	1	
	HS-20 (OPERATING)	36.000		1.82	65.52	1.35	0.28	2.10	A	ER	26.34	0.52	1.82	A	ER	2.63	N/A	--	--	--	--	--	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.28	44.28	1.40	0.28	4.22	A	ER	26.34	0.52	4.01	A	ER	2.63	0.80	0.28	3.28	A	ER	26.34	1
		SNGARBS2	20.000		2.55	51.00	1.40	0.28	3.29	A	ER	26.34	0.52	2.90	A	ER	2.63	0.80	0.28	2.55	A	ER	26.34	1
		SNAGRIS2	22.000		2.46	54.12	1.40	0.28	3.18	A	ER	26.34	0.52	2.71	A	ER	2.63	0.80	0.28	2.46	A	ER	26.34	1
		SNCOTTS3	27.250		1.64	44.69	1.40	0.28	2.10	A	ER	26.34	0.52	2.01	A	ER	2.63	0.80	0.28	1.64	A	ER	26.34	1
		SNAGGRS4	34.925		1.41	49.25	1.40	0.28	1.81	A	ER	26.34	0.52	1.70	A	ER	2.63	0.80	0.28	1.41	A	ER	26.34	1
		SNS5A	35.550		1.38	49.06	1.40	0.28	1.77	A	ER	26.34	0.52	1.74	A	ER	2.63	0.80	0.28	1.38	A	ER	26.34	1
		SNS6A	39.950		1.28	51.14	1.40	0.28	1.65	A	ER	26.34	0.52	1.60	A	ER	2.63	0.80	0.28	1.28	A	ER	26.34	1
		SNS7B	42.000		1.21	50.82	1.40	0.28	1.57	A	ER	26.34	0.52	1.60	A	ER	2.63	0.80	0.28	1.21	A	ER	26.34	1
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.56	51.48	1.40	0.28	2.02	A	ER	26.34	0.52	1.90	A	ER	2.63	0.80	0.28	1.56	A	ER	26.34	1
		TNT4A	33.075		1.58	52.27	1.40	0.28	2.03	A	ER	26.34	0.52	1.83	A	ER	2.63	0.80	0.28	1.58	A	ER	26.34	1
		TNT6A	41.600		1.31	54.50	1.40	0.28	1.68	A	ER	26.34	0.52	1.74	A	ER	2.63	0.80	0.28	1.31	A	ER	26.34	1
		TNT7A	42.000		1.33	55.86	1.40	0.28	1.71	A	ER	26.34	0.52	1.64	A	ER	2.63	0.80	0.28	1.33	A	ER	26.34	1
		TNT7B	42.000		1.39	58.38	1.40	0.28	1.78	A	ER	26.34	0.52	1.54	A	ER	2.63	0.80	0.28	1.39	A	ER	26.34	1
		TNAGRIT4	43.000		1.31	56.33	1.40	0.28	1.69	A	ER	26.34	0.52	1.49	A	ER	2.63	0.80	0.28	1.31	A	ER	26.34	1
TNAGT5A	45.000		1.23	55.35	1.40	0.28	1.58	A	ER	26.34	0.52	1.50	A	ER	2.63	0.80	0.28	1.23	A	ER	26.34	1		
TNAGT5B	45.000	③	1.20	54.00	1.40	0.28	1.55	A	ER	26.34	0.52	1.41	A	ER	2.63	0.80	0.28	1.20	A	ER	26.34	1		

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2010	104
FUTURE	2030	165

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. SPAN A LENGTH AND RATING FACTORS ARE EQUAL TO SPAN B LENGTH AND RATING FACTORS.

- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

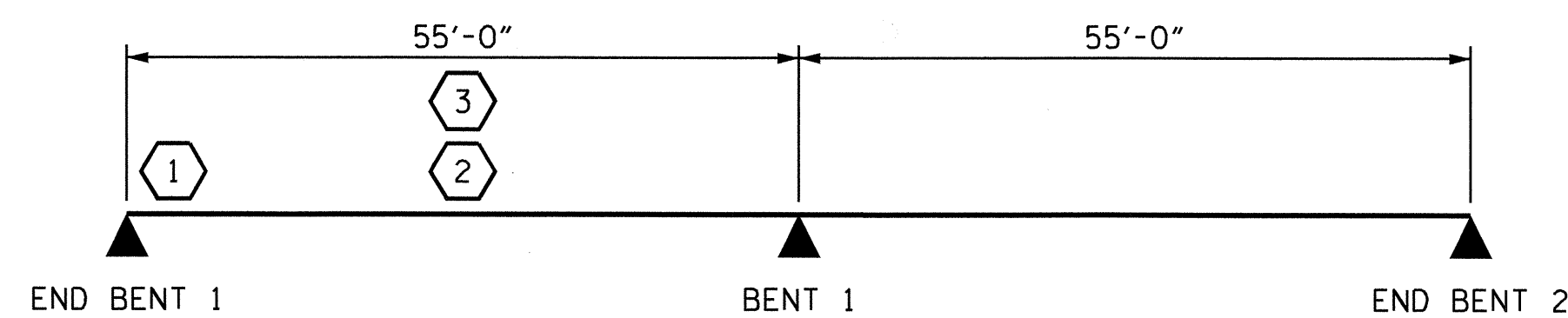
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

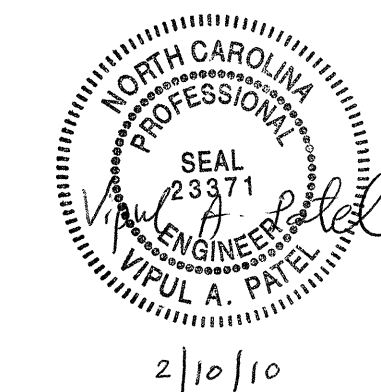
GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

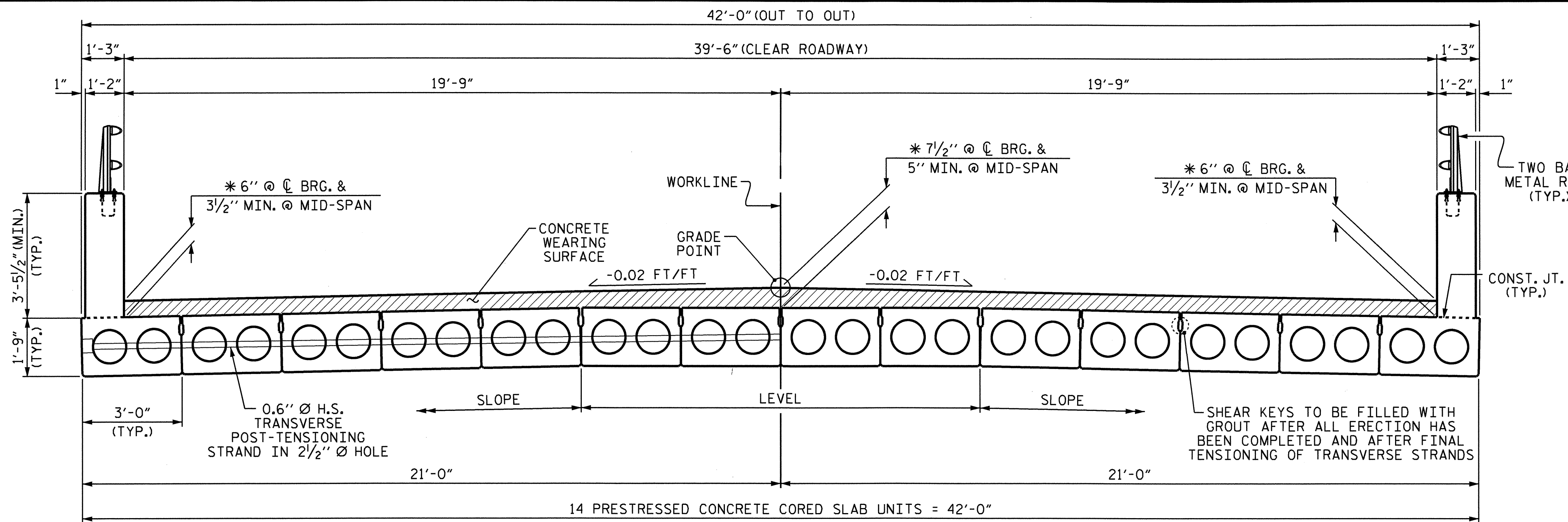


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

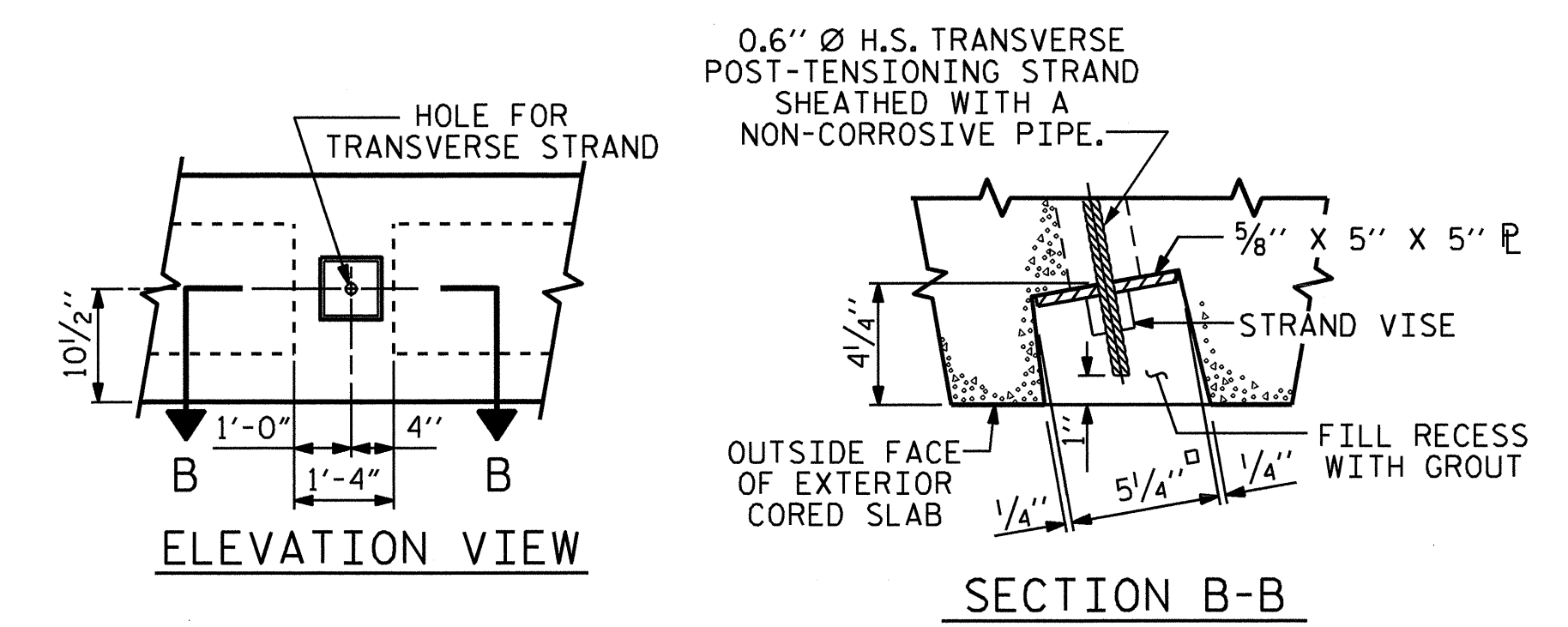
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : GMG	DATE : 10/9/09
CHECKED BY : BLG	DATE : 10/9/09
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	

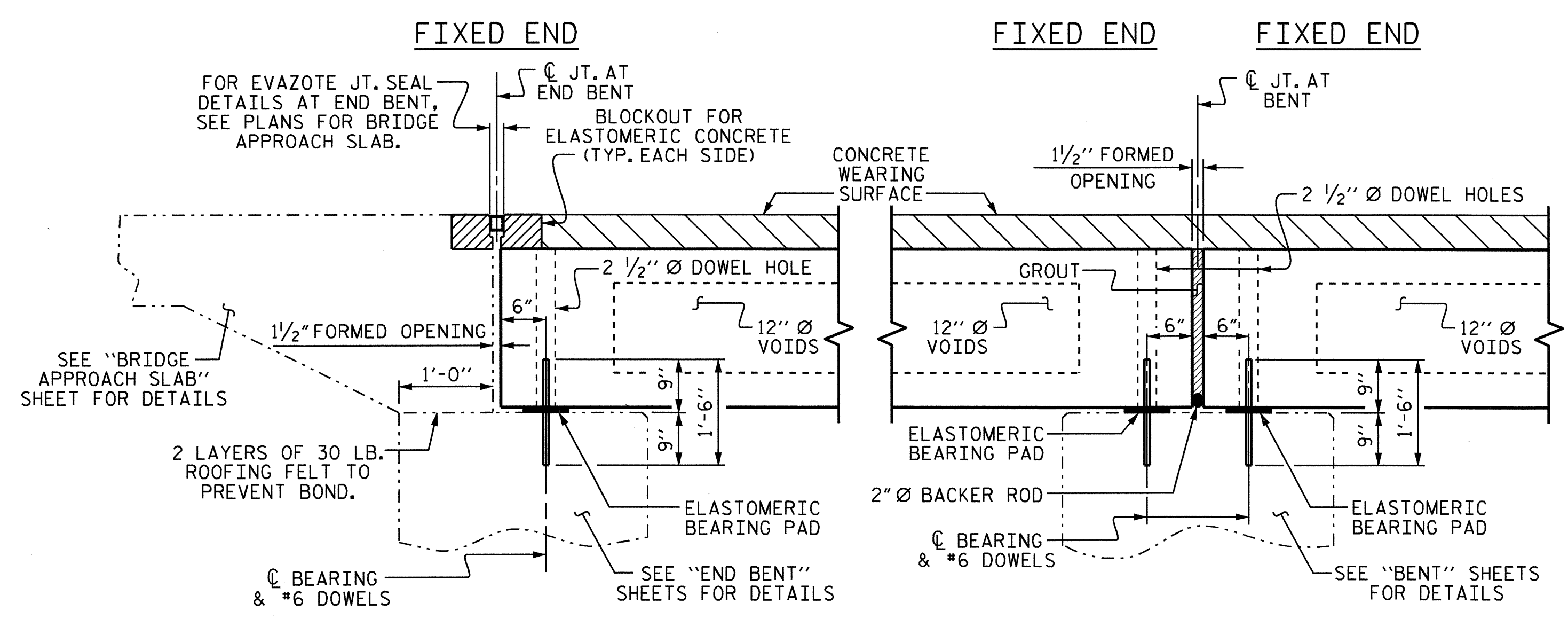


TYPICAL SECTION

*BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS



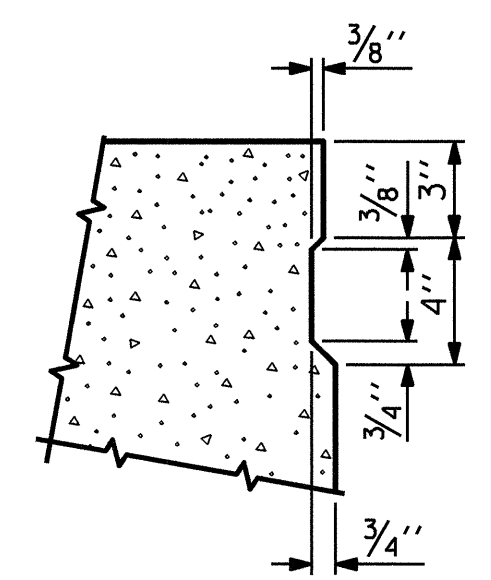
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



SECTION AT END BENT

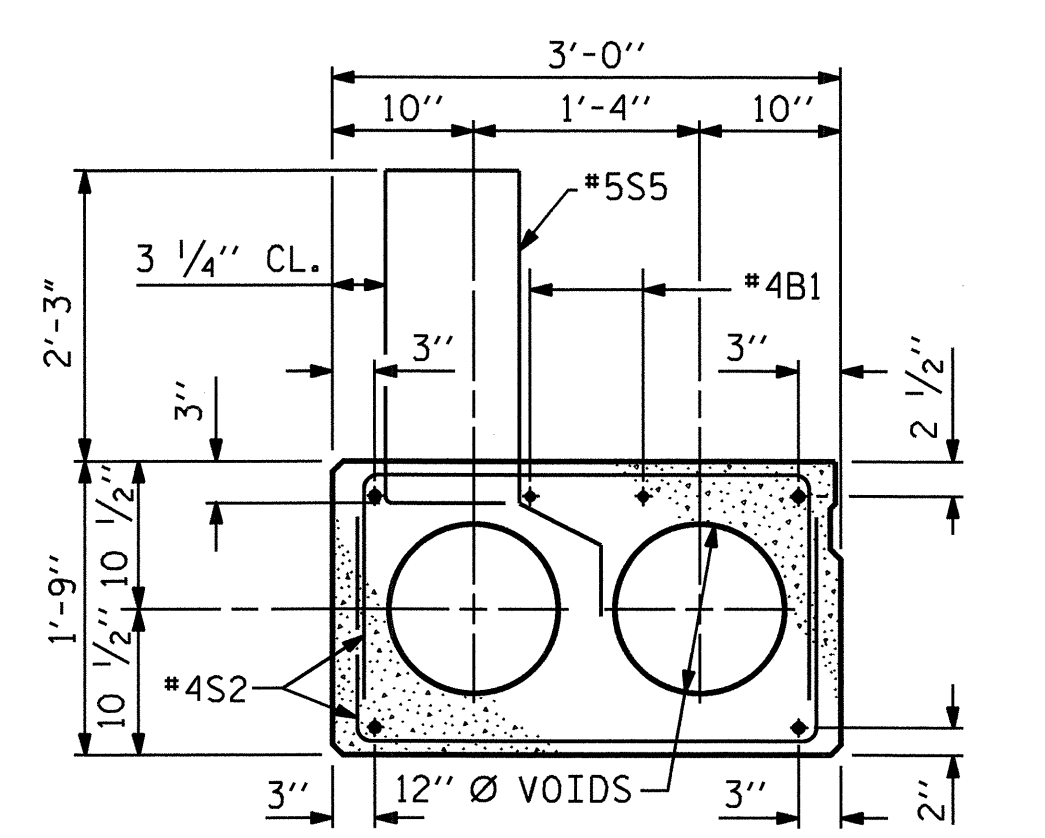
SECTION AT BENT

NOTE: SEE PLAN OF SPAN A FOR ANCHOR DETAILS FOR EXTERIOR UNITS



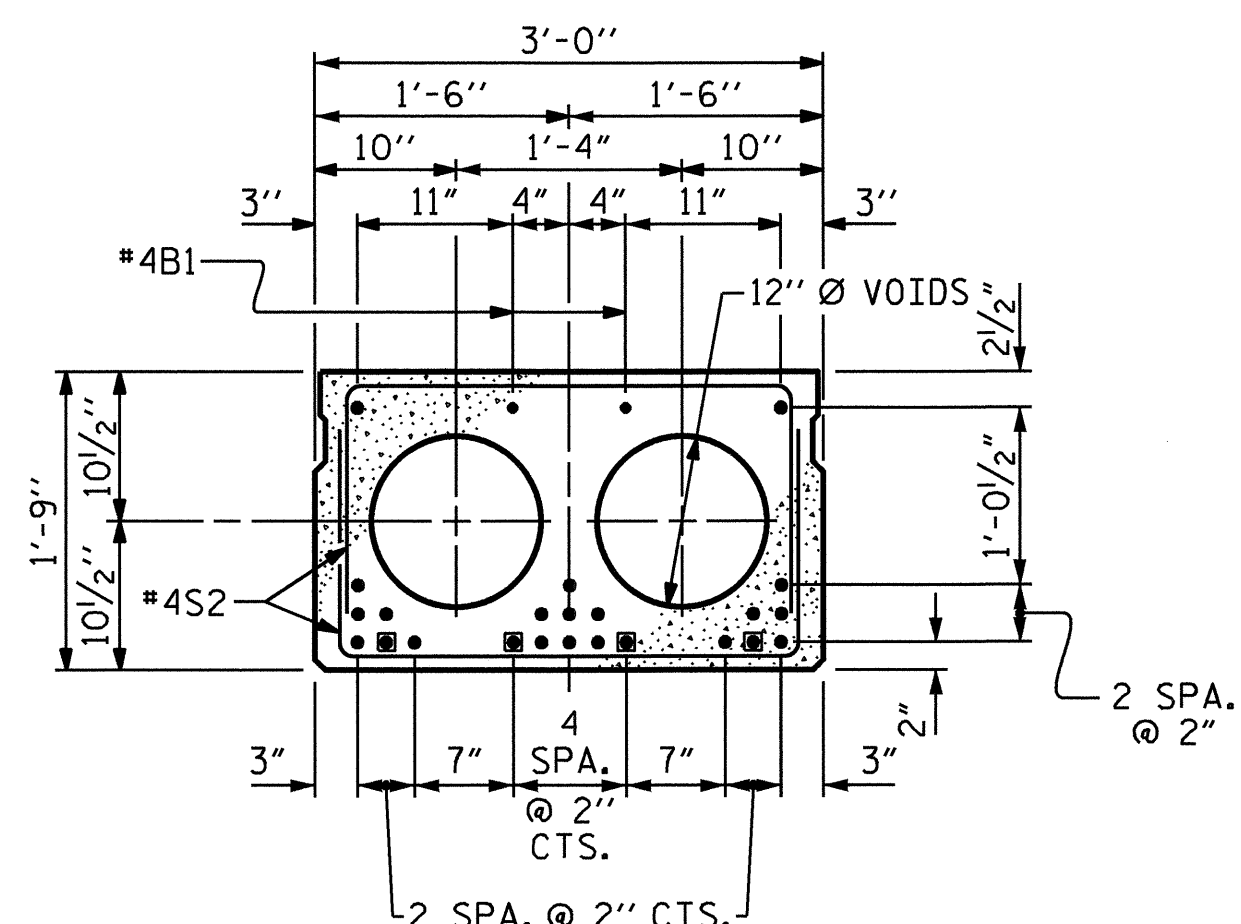
SHEAR KEY DETAIL

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



EXTERIOR SLAB SECTION

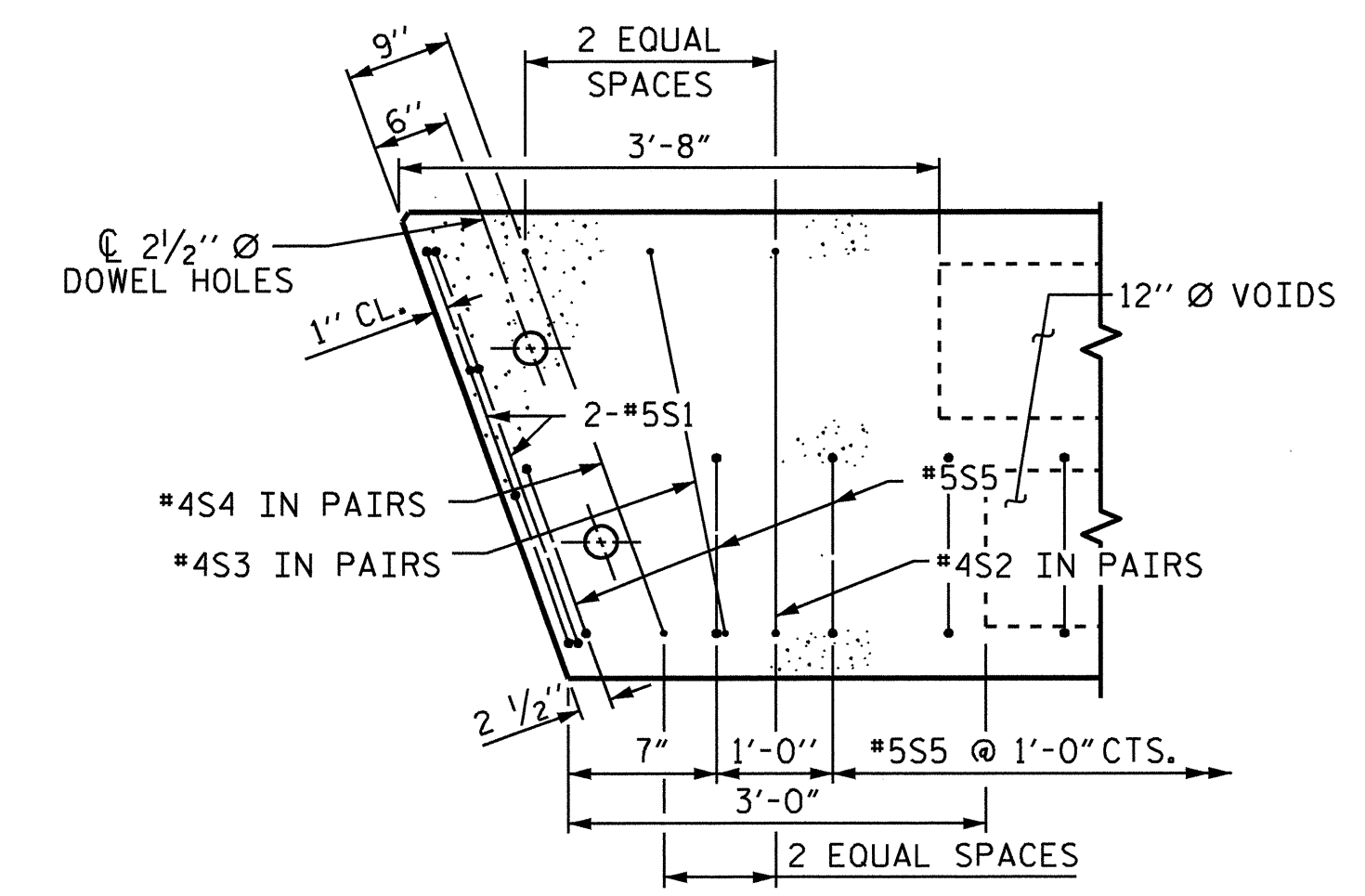
FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION



SPAN A & SPAN B INTERIOR SLAB SECTION (23 STRANDS)

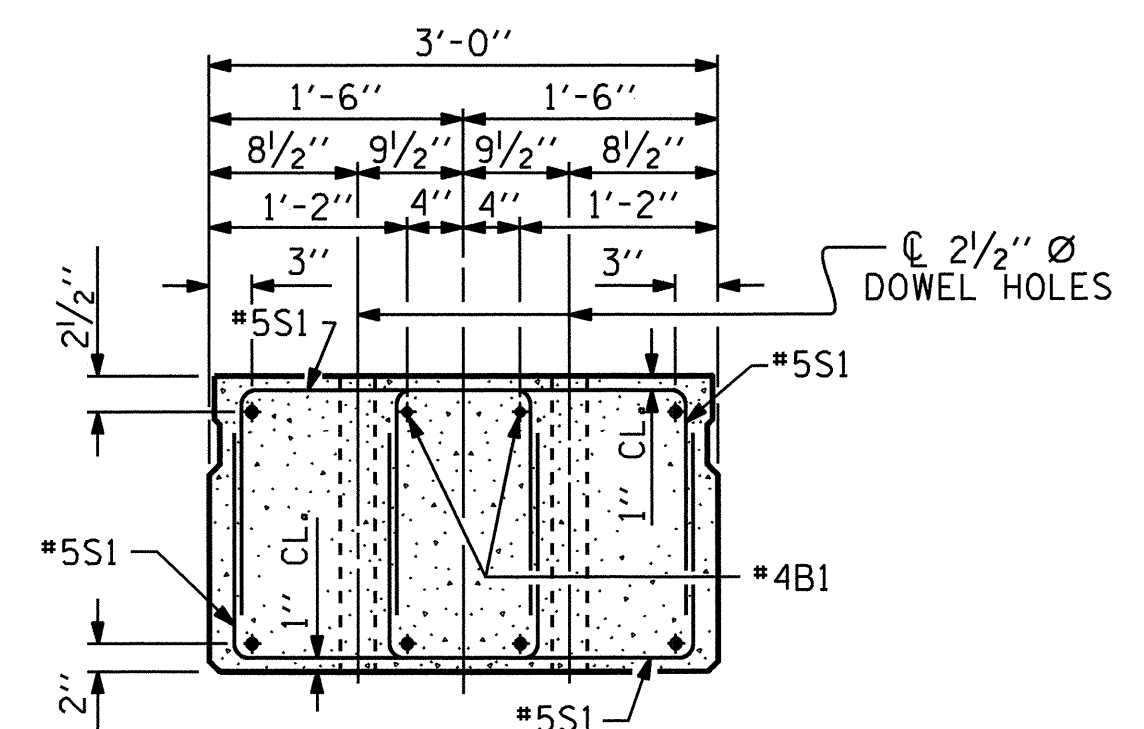
0.6" Ø LOW RELAXATION STRAND LAYOUT

● BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S5 BARS.



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 LOCATIONS.

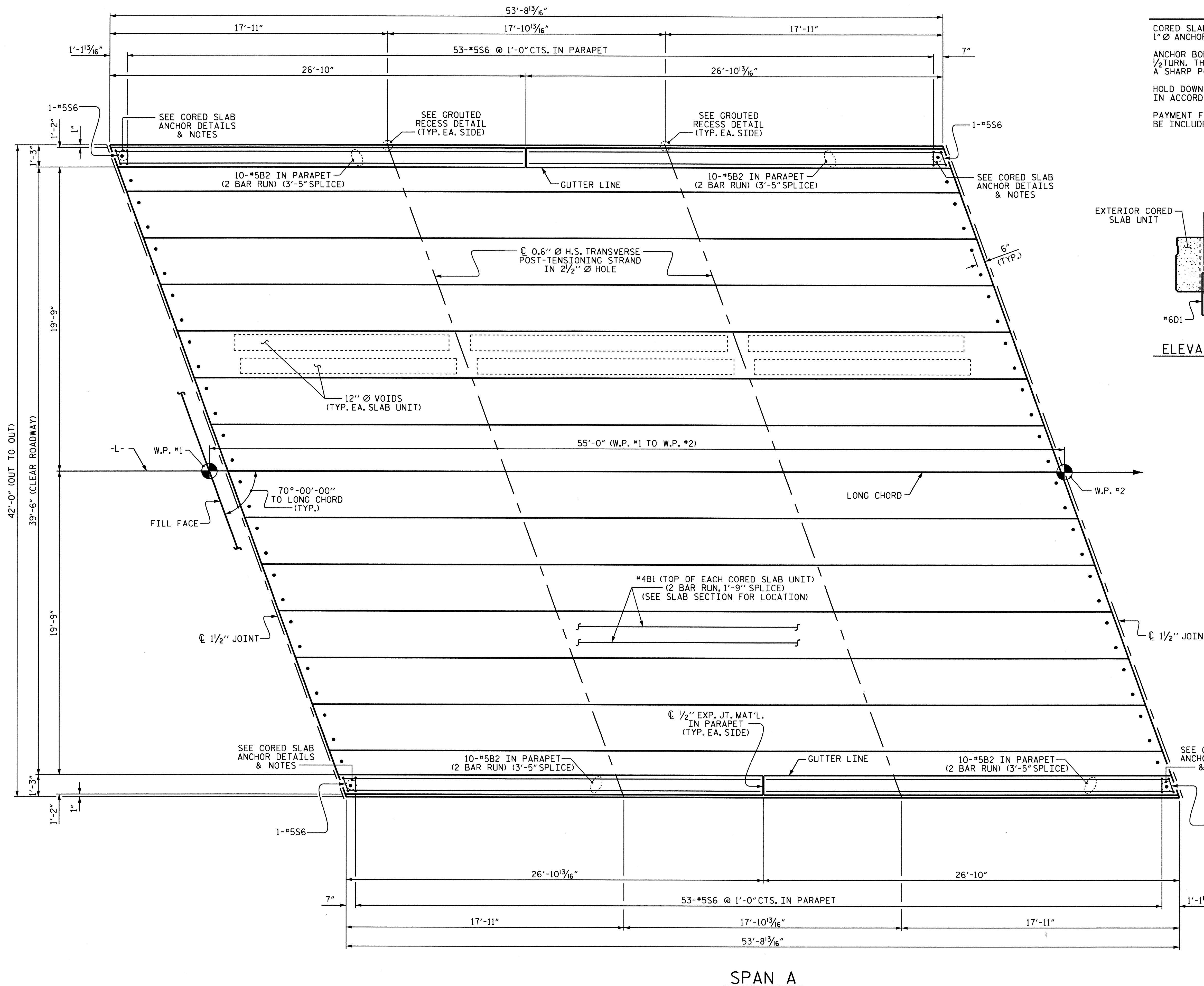
PROJECT NO. B-4580
 MECKLENBURG COUNTY
 STATION: 33+10.00 -L-



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

ASSEMBLED BY : J.P. ADAMS	DATE : 8/12/09
CHECKED BY : R.G. EMERSON	DATE : 9/14/09
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM

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



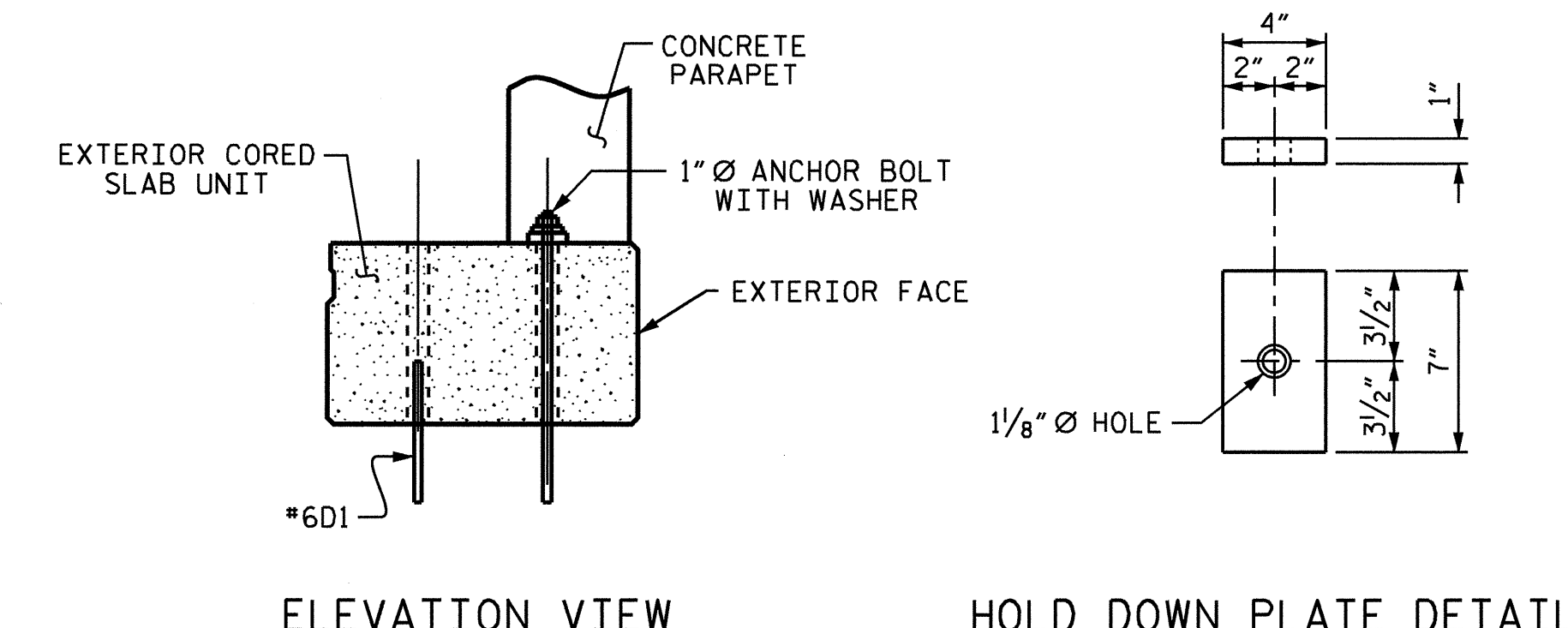
NOTES

CORED SLAB UNITS SHALL BE ANCHORED AT THE CORNERS OF EACH SPAN WITH 1" Ø ANCHOR BOLTS.

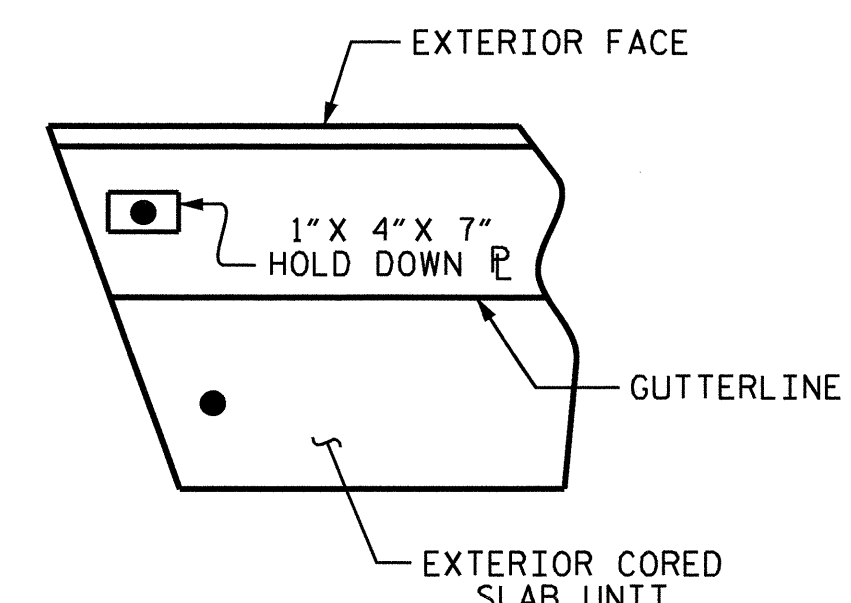
ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

PAYMENT FOR HOLD DOWN PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.



ELEVATION VIEW **HOLD DOWN PLATE DETAIL**

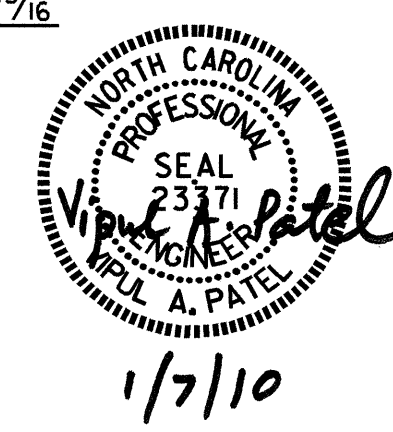


PLAN VIEW
CORED SLAB ANCHOR DETAILS

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

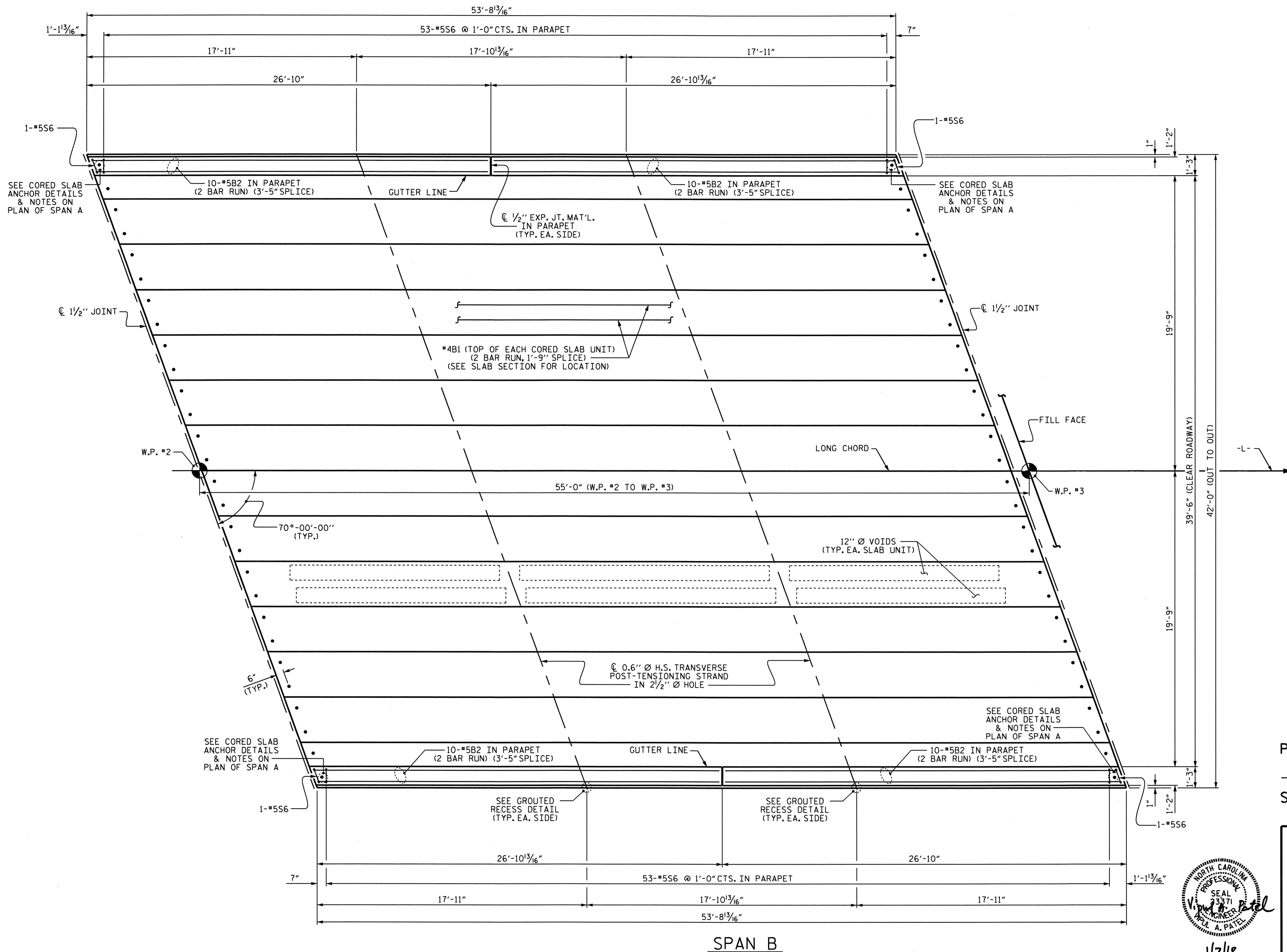
SUPERSTRUCTURE
 PLAN OF SPAN A



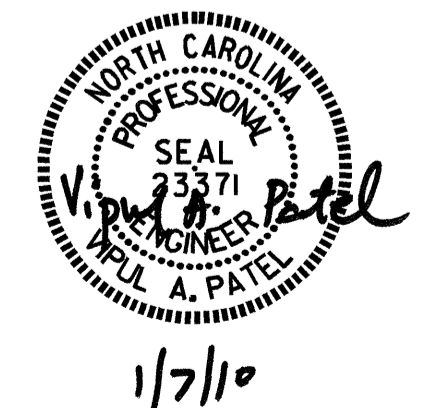
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : J.P. ADAMS DATE : 8/20/09
 CHECKED BY : R.G. EMERSON DATE : 9/14/09

SPAN A



PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-



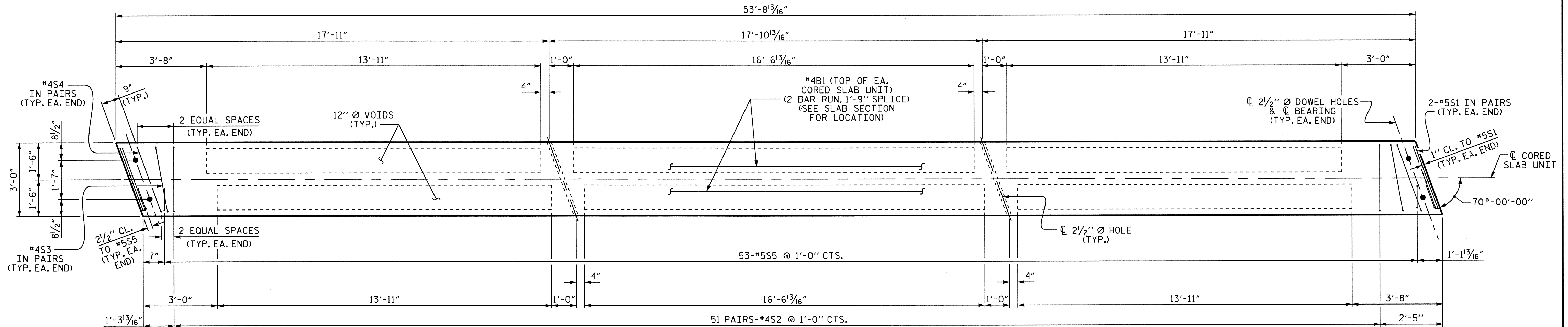
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN B

DRAWN BY : J.P. ADAMS DATE : 8/20/09
 CHECKED BY : R.G. EMERSON DATE : 9/14/09

07-JAN-2010 13:48
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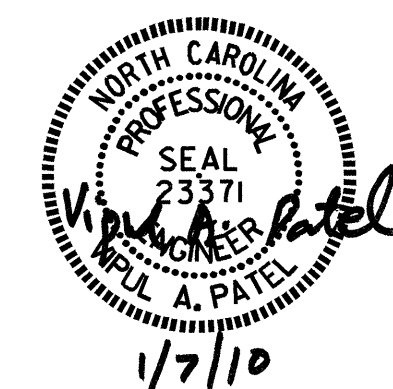
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			25



PLAN OF CORED SLAB UNIT - SPAN A & SPAN B

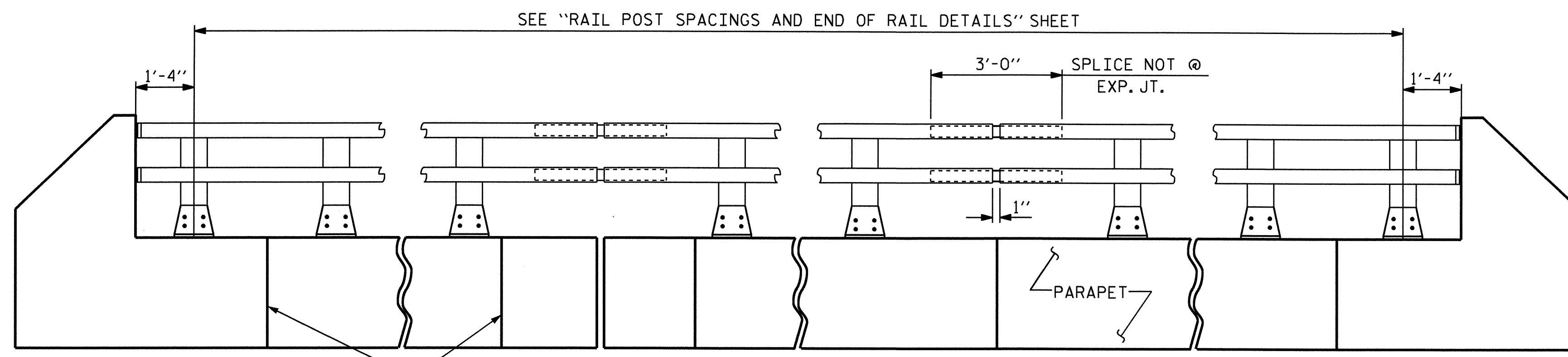
EXTERIOR CORED SLAB UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5S5 BARS.

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

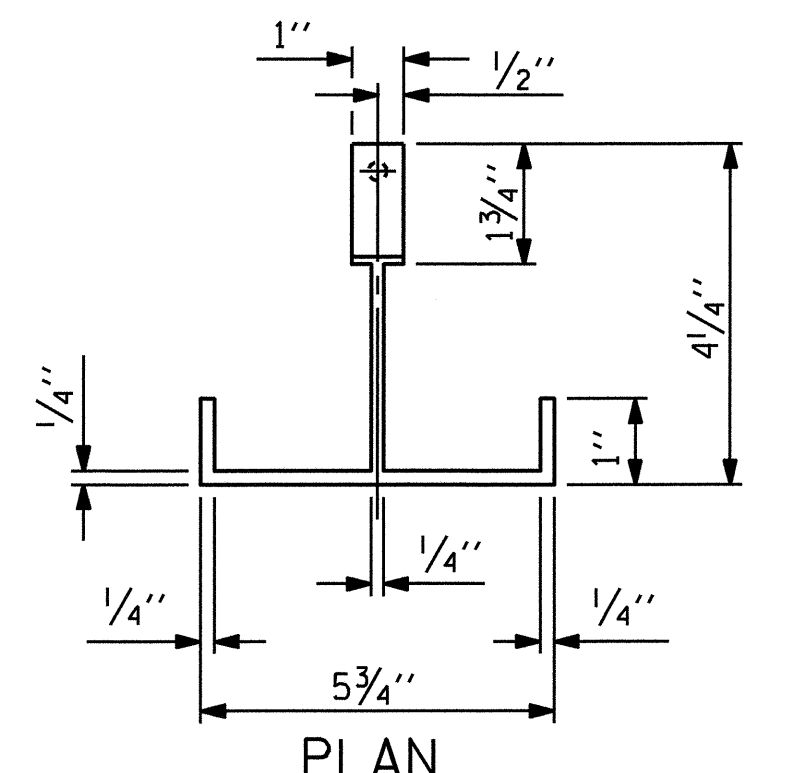


STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUPERSTRUCTURE					
PLAN OF CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-8
TOTAL SHEETS					25

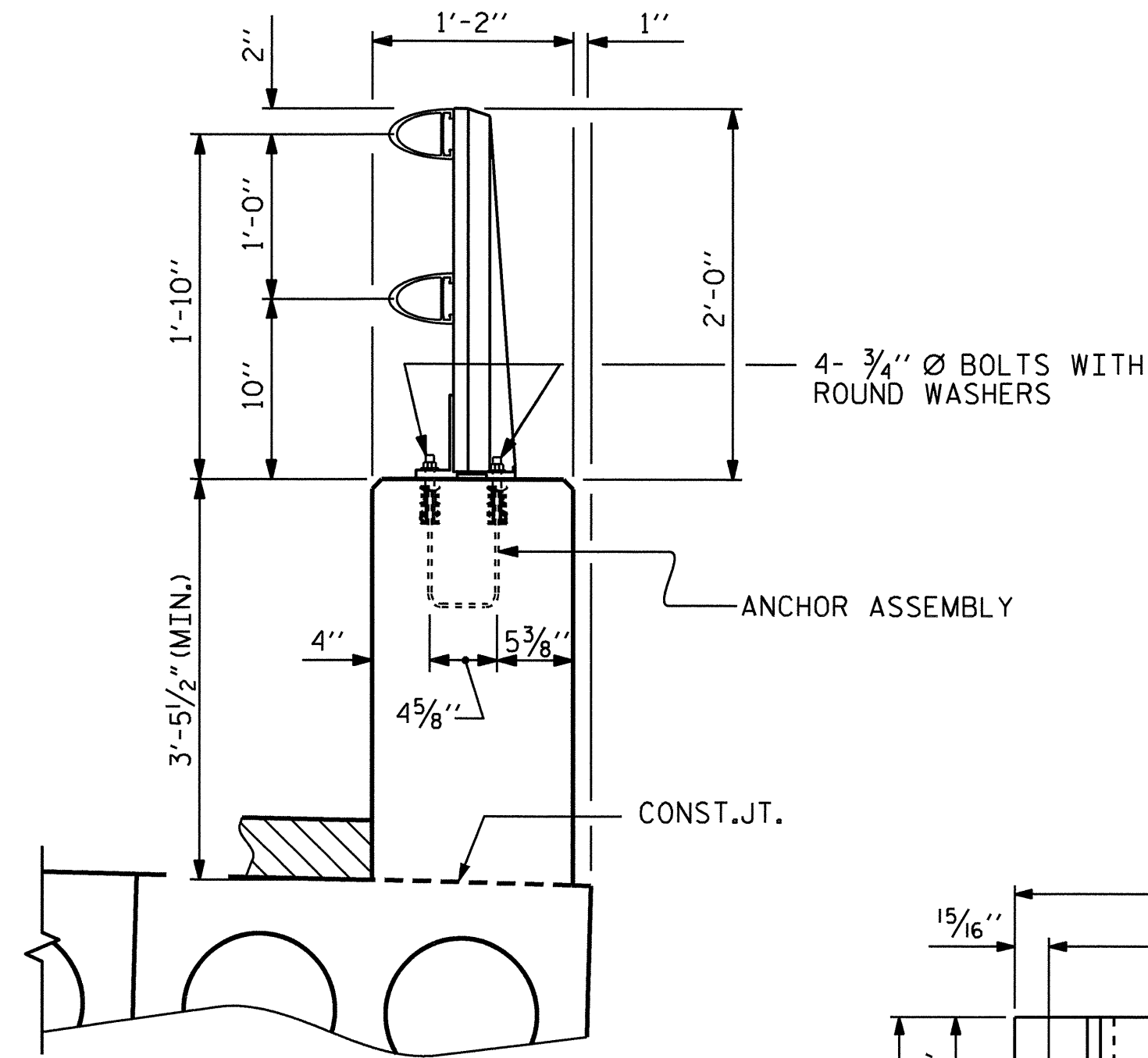
DRAWN BY : J.P. ADAMS DATE : 8/20/09
 CHECKED BY : R.G. EMERSON DATE : 9/14/09



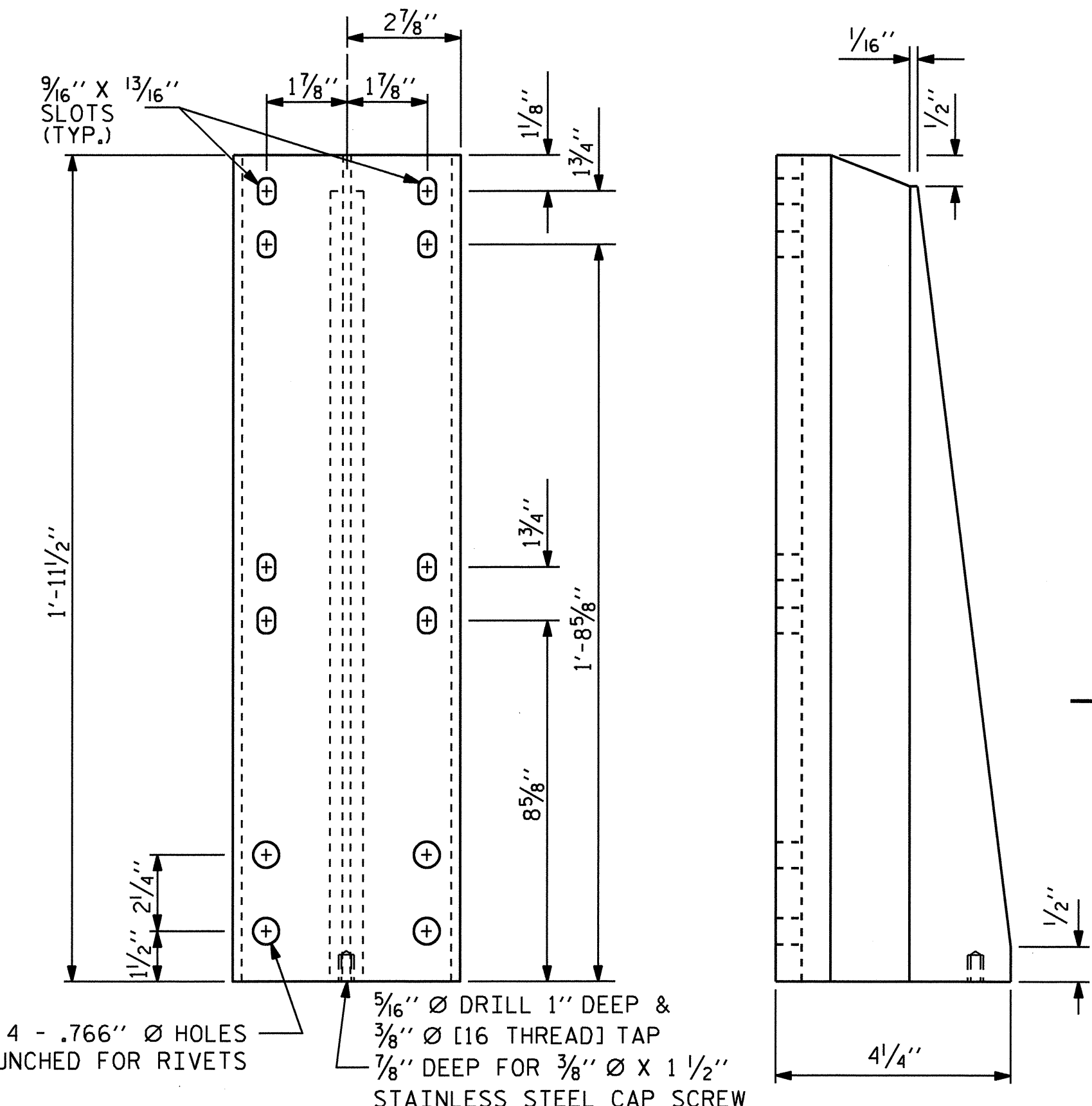
ELEVATION
 NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.



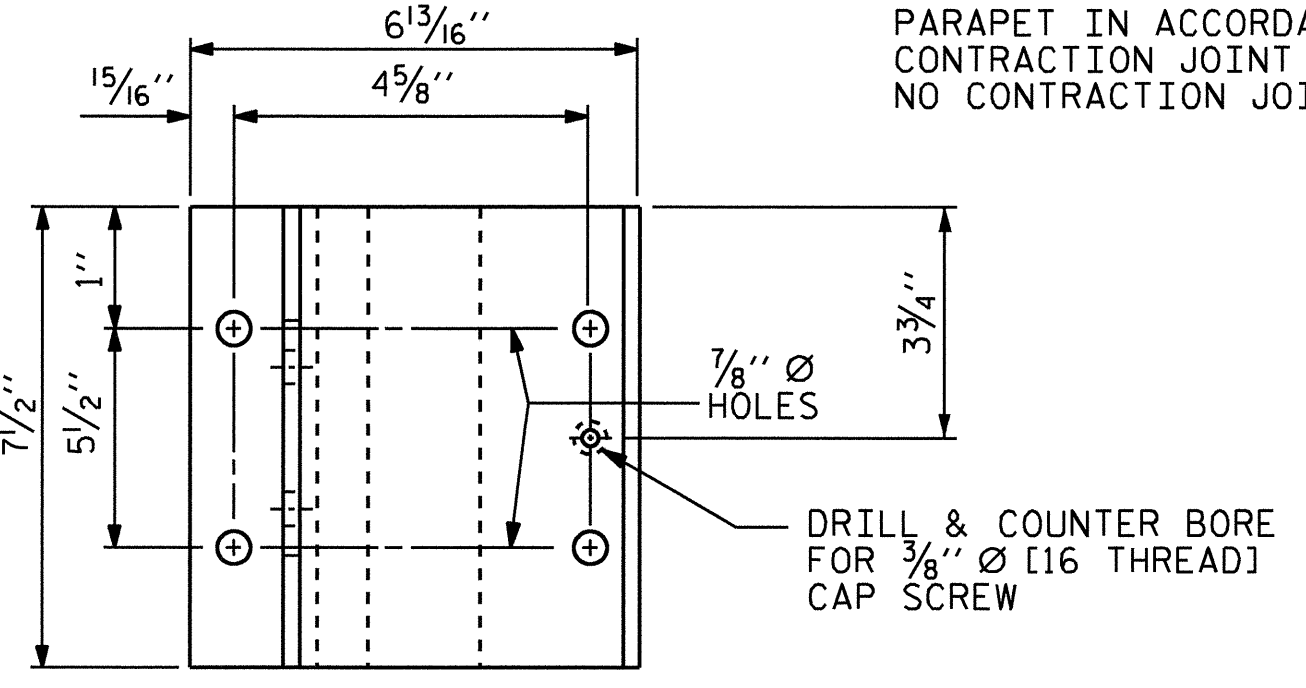
PLAN



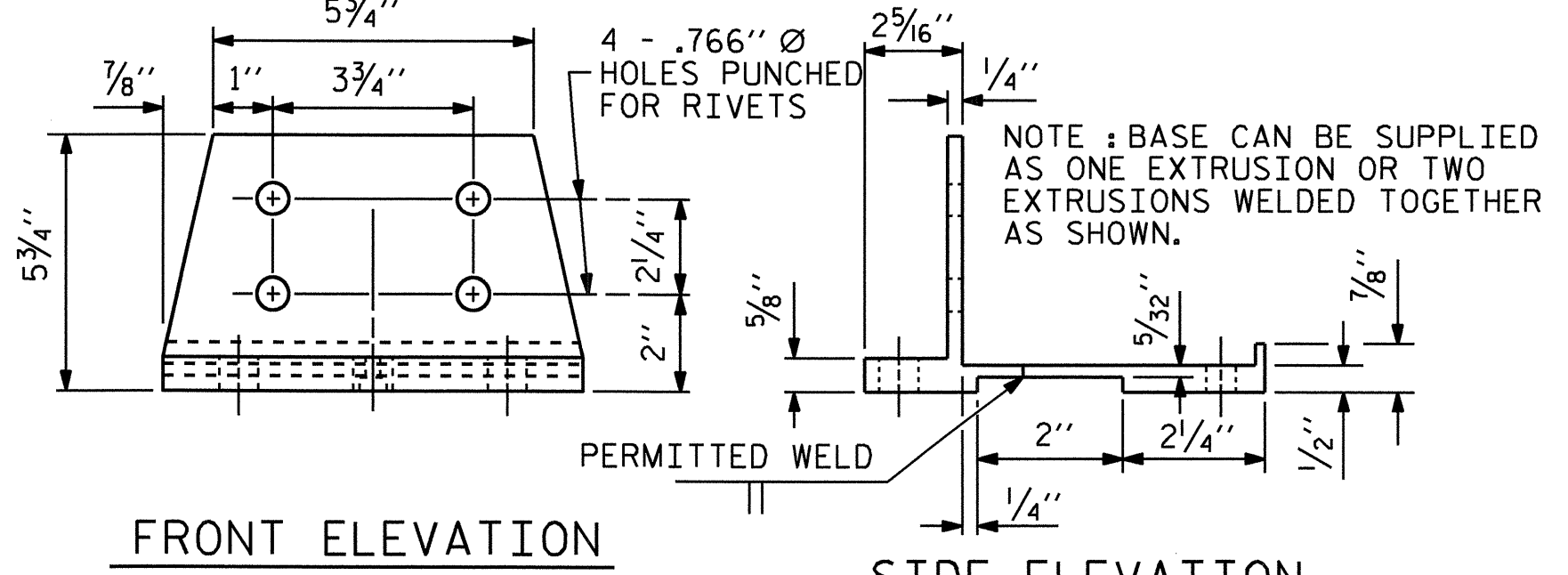
SECTION THRU PARAPET AND RAIL



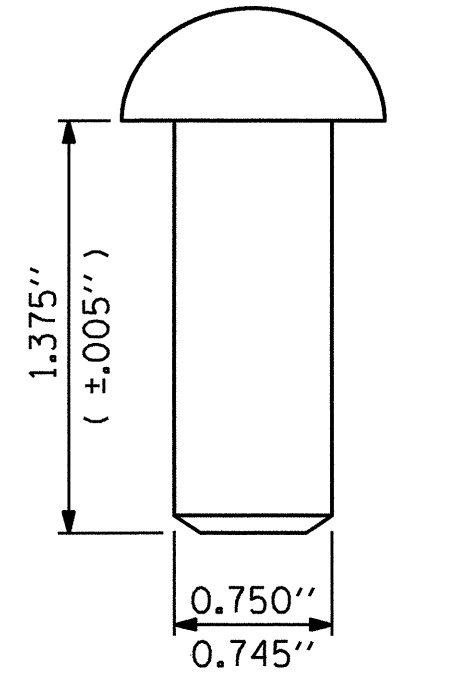
FRONT ELEVATION SIDE ELEVATION
 DETAILS OF POST



PLAN



FRONT ELEVATION SIDE ELEVATION
 POST BASE DETAILS



RIVET DETAIL

PAY LENGTH = 199.37 LIN. FT.

NOTES

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

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

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

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

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

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

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

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

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

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

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE 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. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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

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

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

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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

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

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

PROJECT NO. B-4580
 MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 1 OF 5



1/7/10

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

2 BAR METAL RAIL

ASSEMBLED BY : J.P. ADAMS	DATE : 8/17/09
CHECKED BY : R.G. EMERSON	DATE : 9/14/09
DRAWN BY : EEM 6/94	REV. 10/17/00 LES/RDR
CHECKED BY : RGW 6/94	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			25

STD. NO. BMR3

NOTES

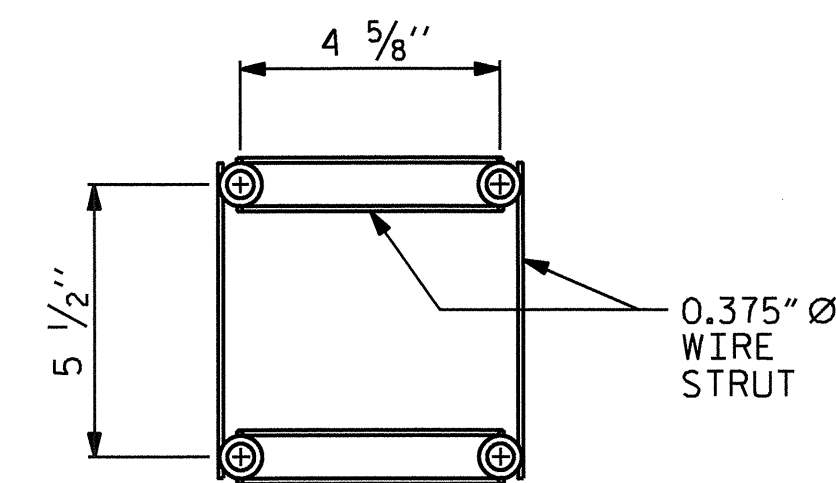
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

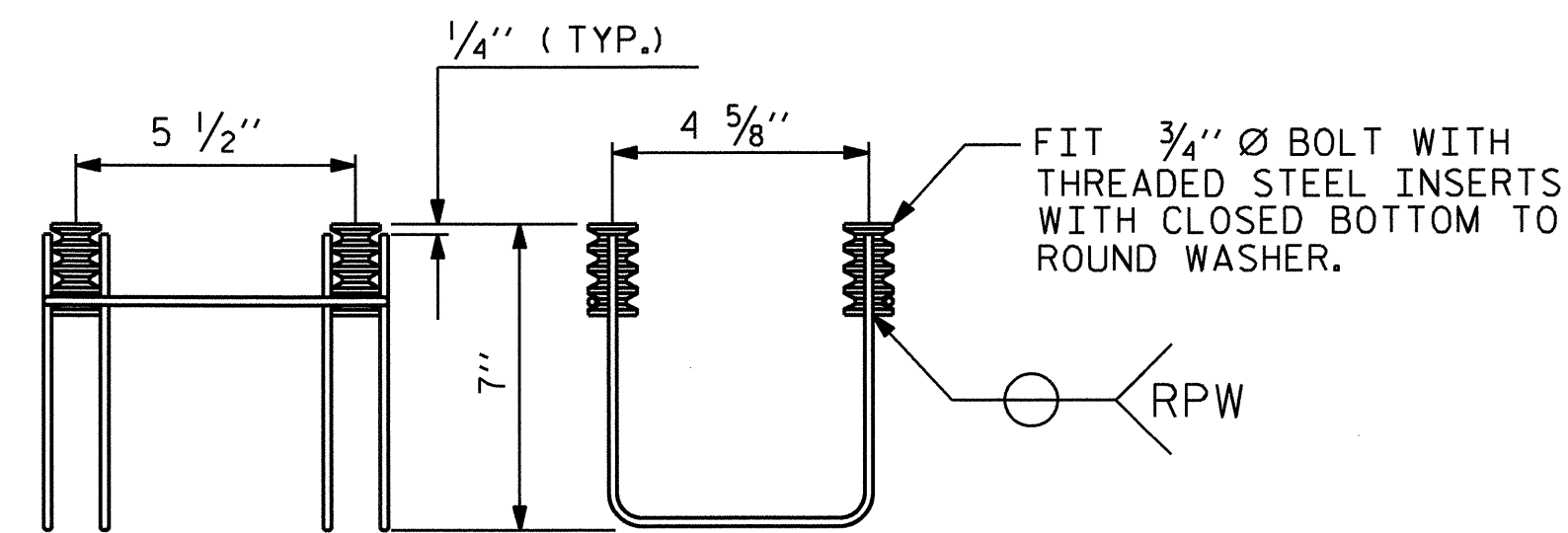
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/6" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN



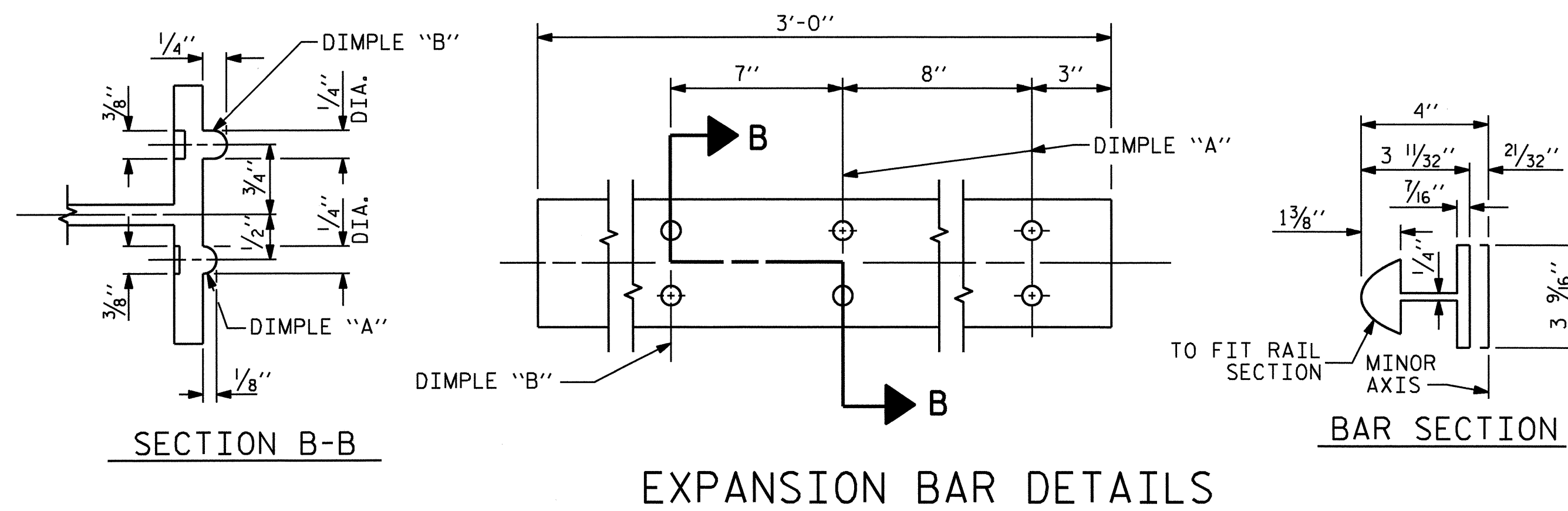
SIDE VIEW

ELEVATION

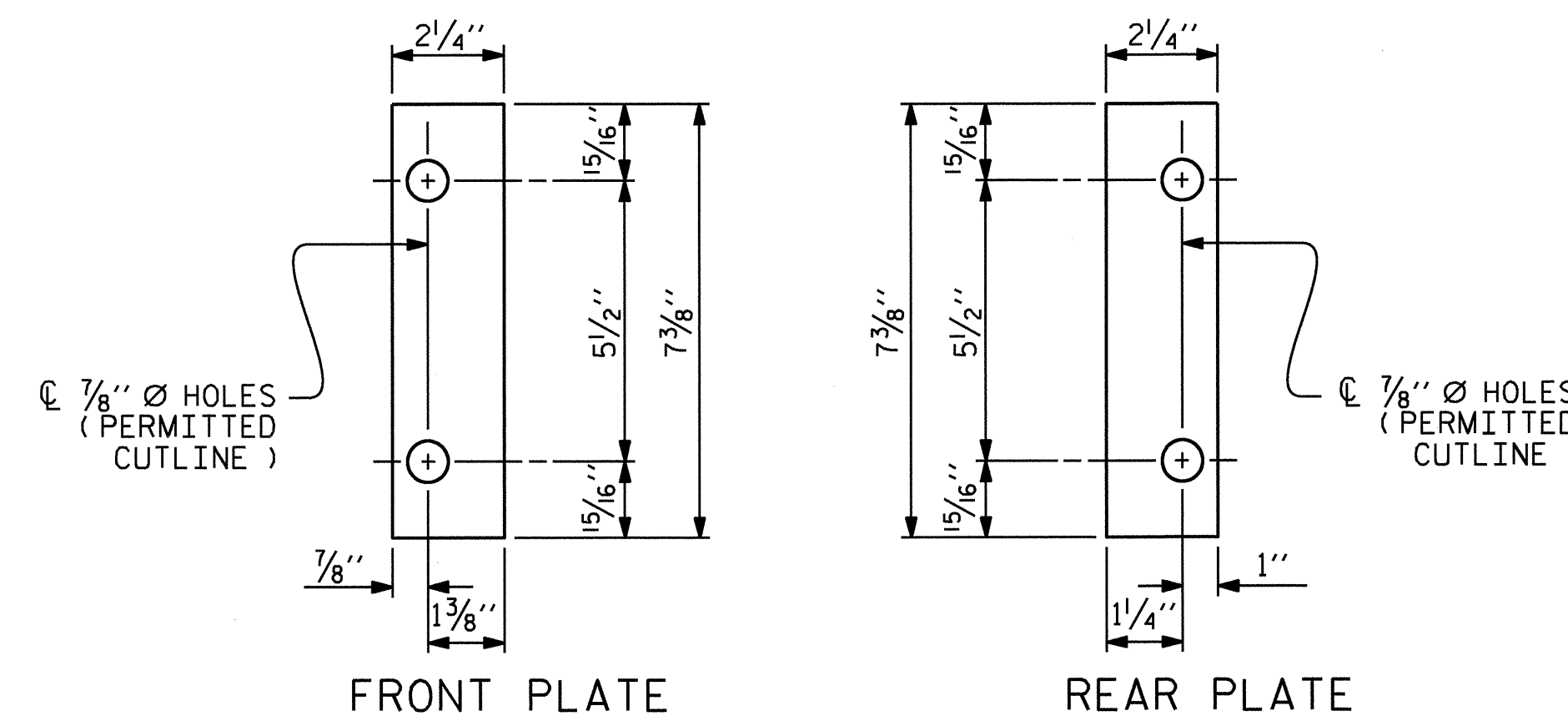
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

(36 ASSEMBLIES REQUIRED)



EXPANSION BAR DETAILS

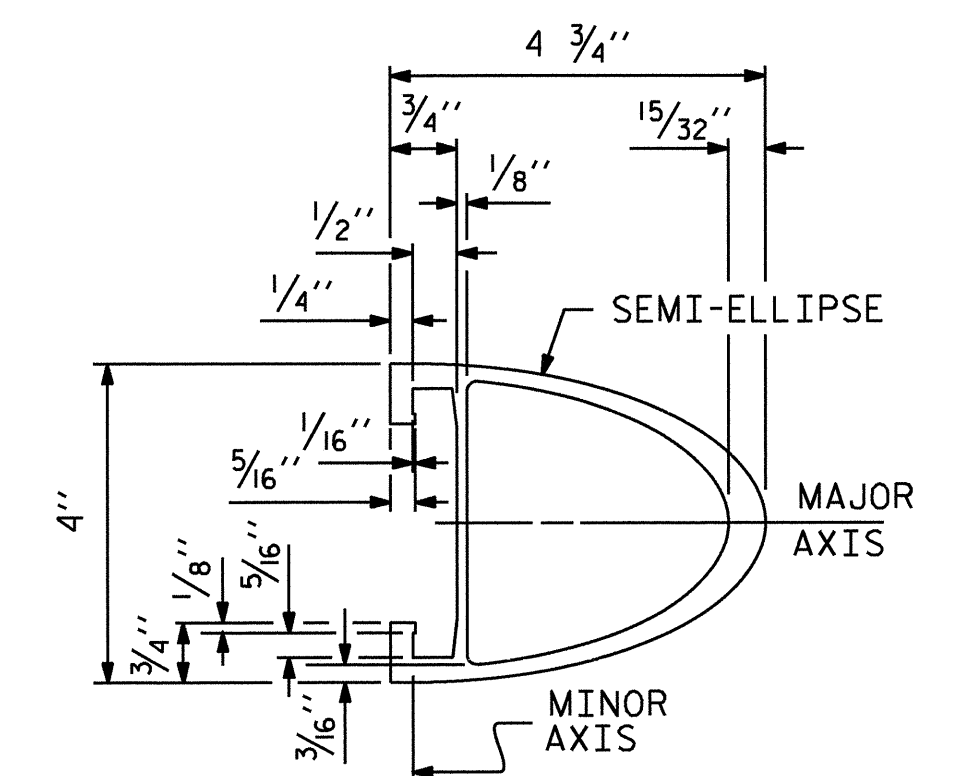


FRONT PLATE

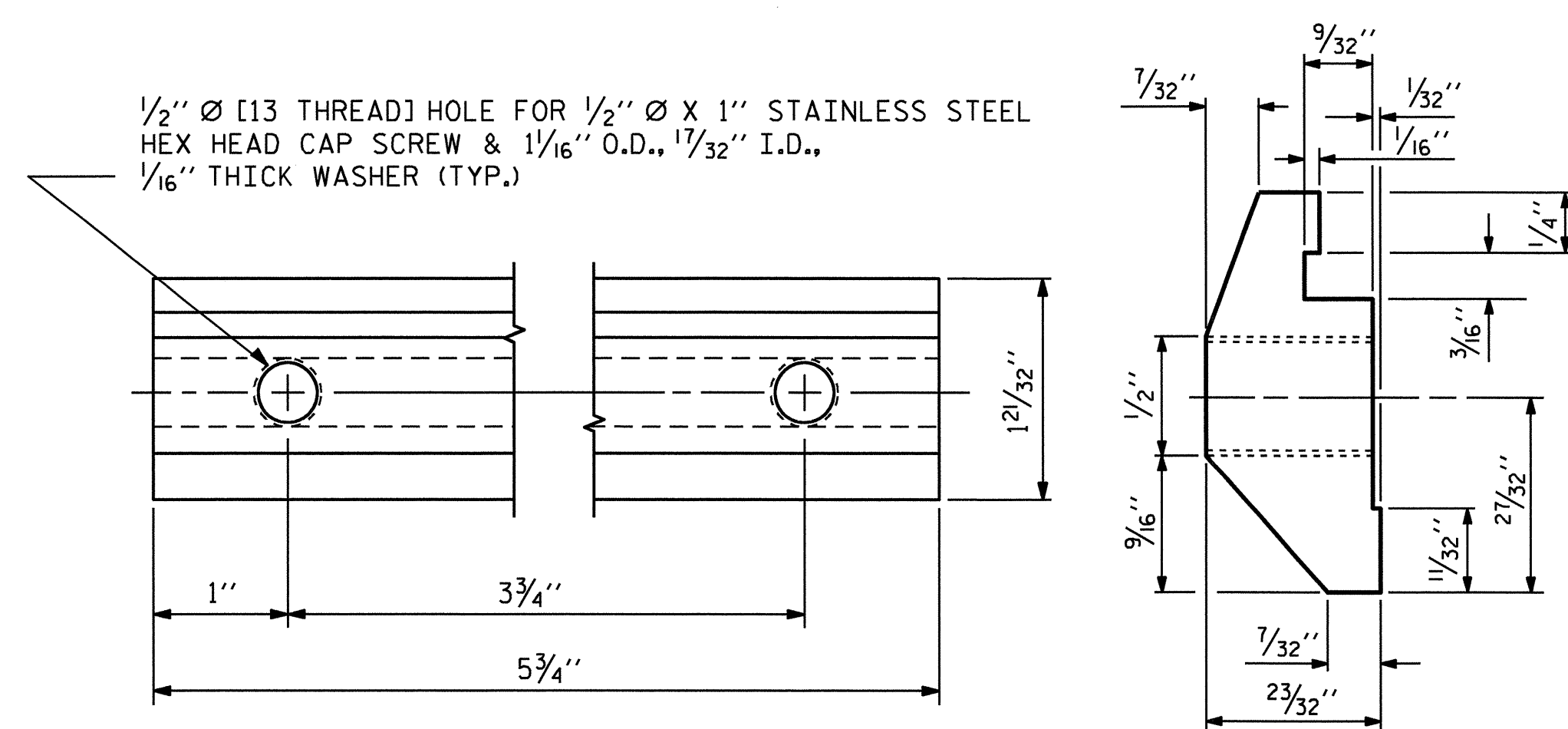
REAR PLATE

SHIM DETAILS

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

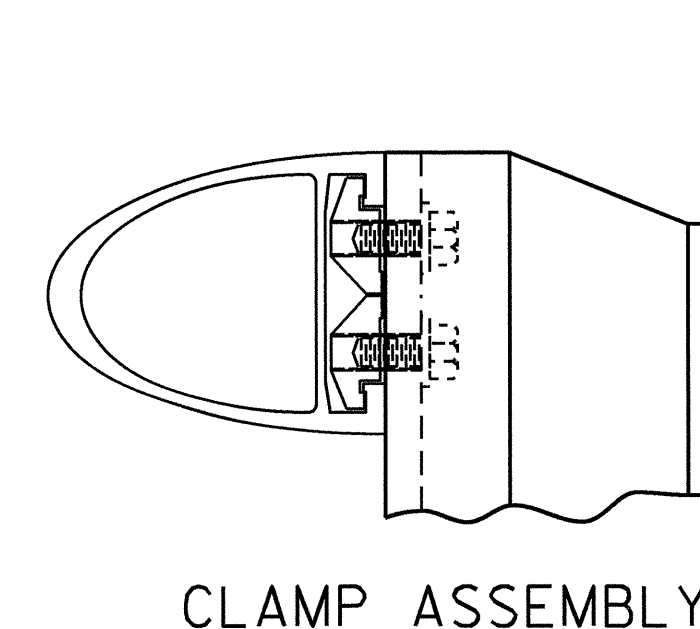


RAIL SECTION

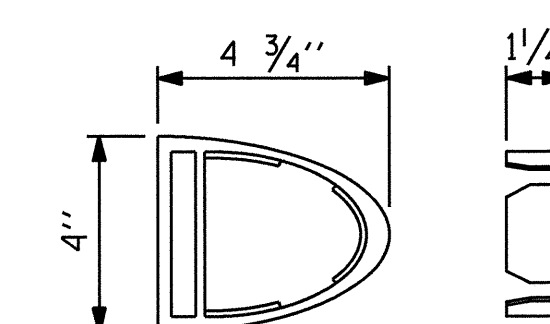


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY

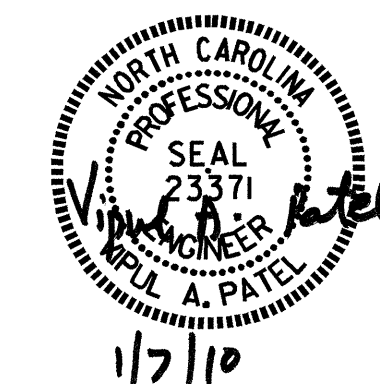


RAIL CAP

PROJECT NO. B-4580
MECKLENBURG COUNTY
STATION: 33+10.00 -L-

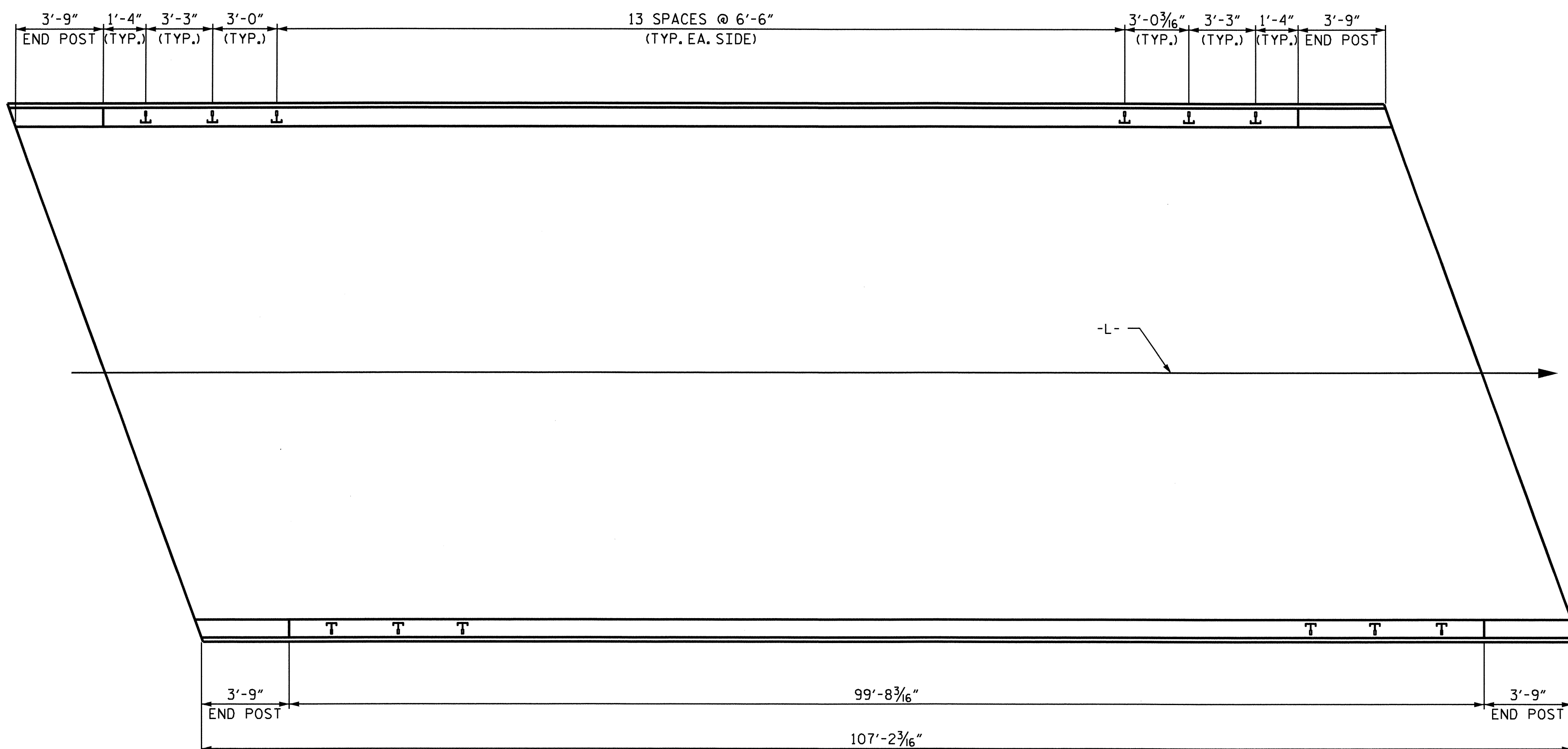
SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
2 BAR METAL RAIL

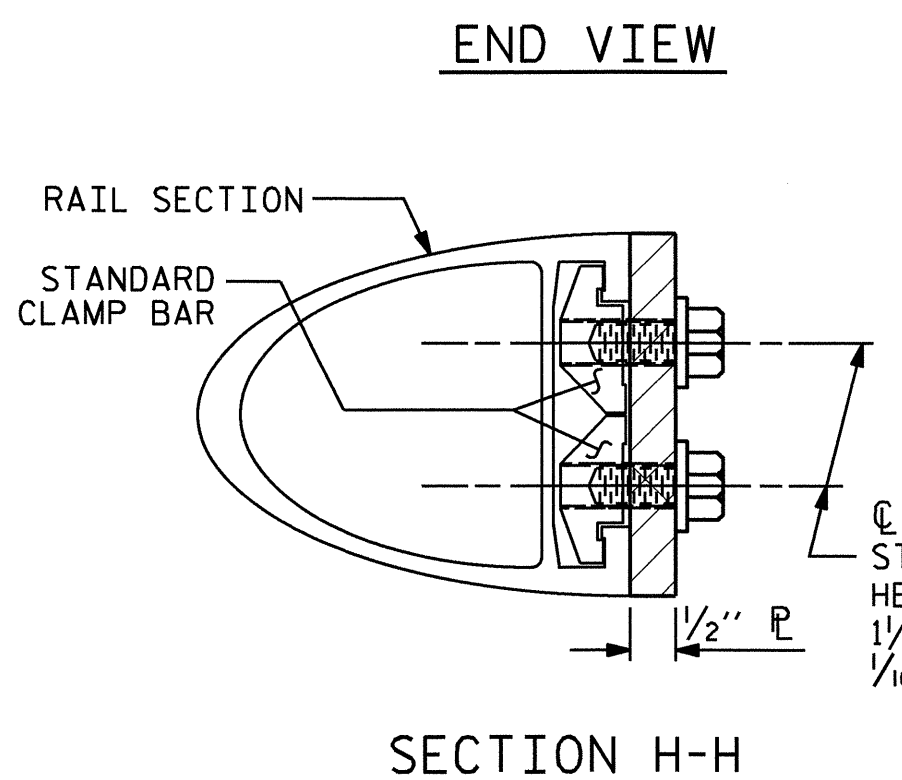
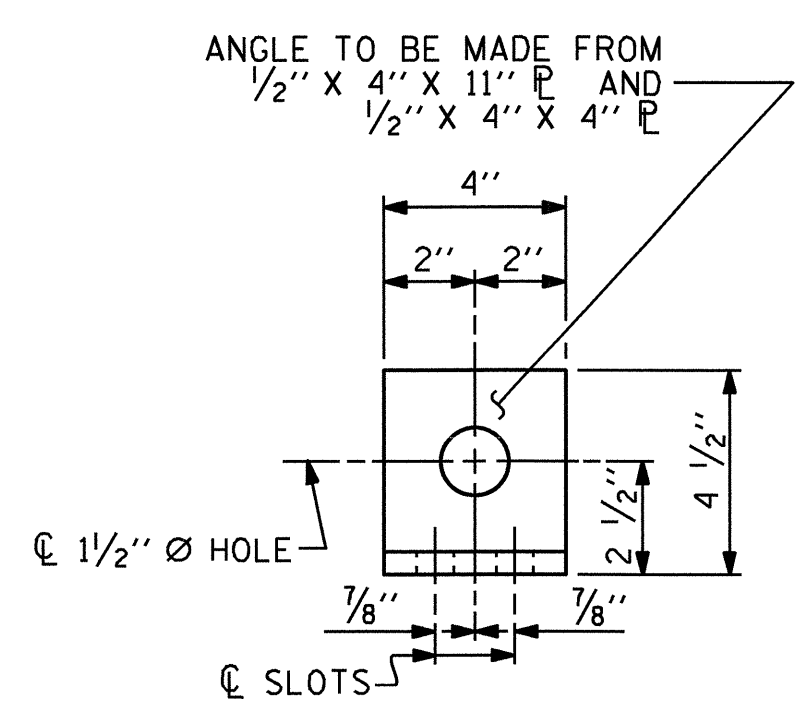
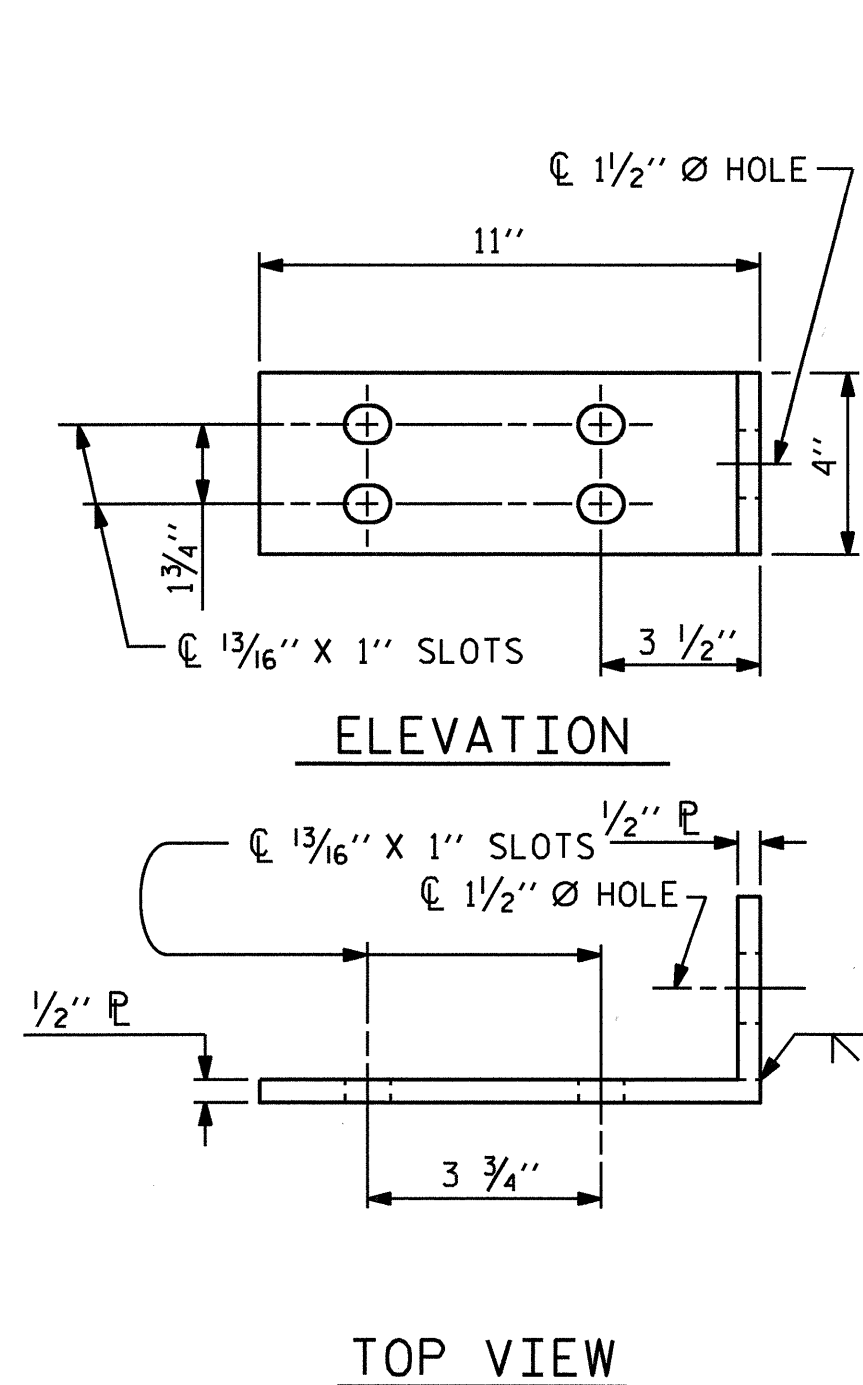


ASSEMBLED BY : J.P. ADAMS	DATE : 8/17/09
CHECKED BY : R.G. EMERSON	DATE : 9/14/09
DRAWN BY : EEM 6/94	REV. 2/6/97 EEM/RGW
CHECKED BY : RGW 6/94	REV. 8/16/99 MAB/LES
	REV. 5/1/06R KMM/GM

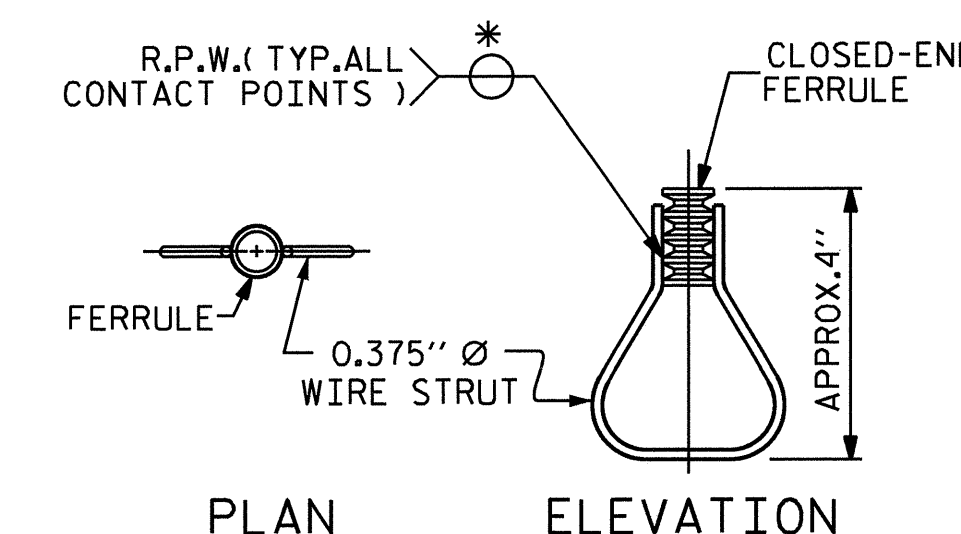
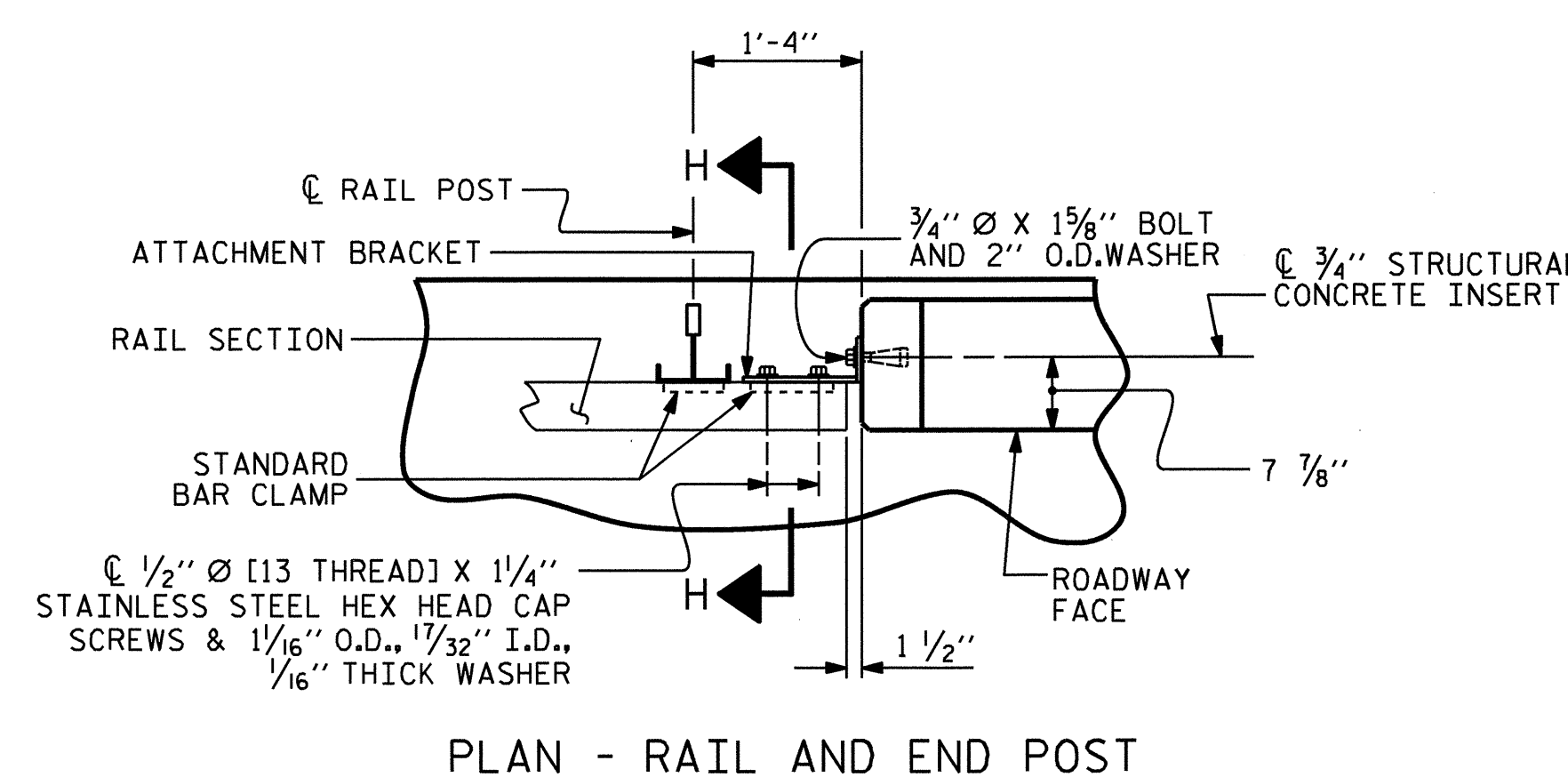
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			25



PLAN OF RAIL POST SPACINGS



DETAILS FOR ATTACHING METAL RAIL TO END POST



STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 3 OF 5



1/7/10

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

RAIL POST SPACINGS
AND
END OF RAIL DETAILS
 FOR TWO BAR METAL RAILS

REVISIONS

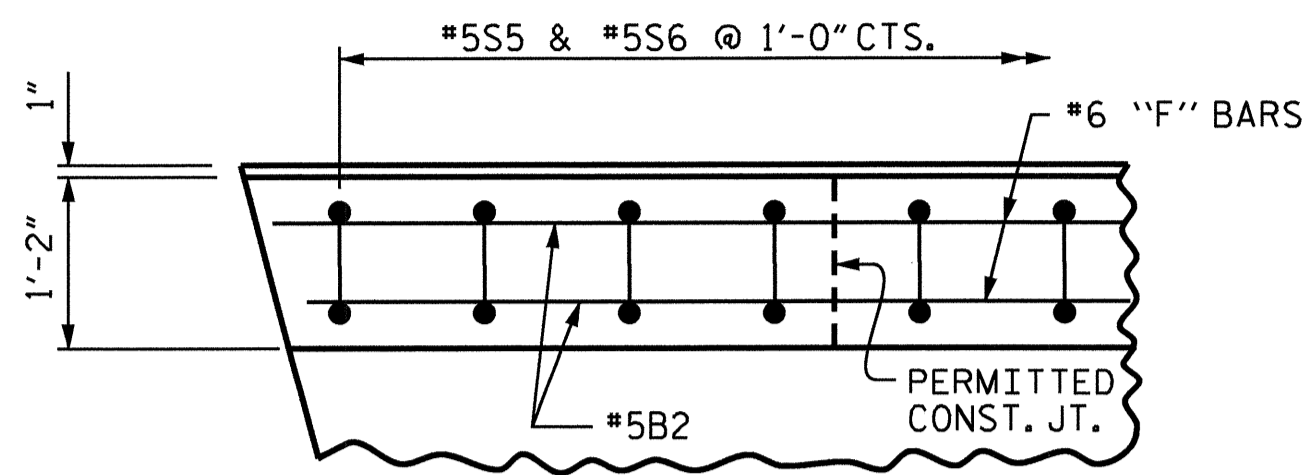
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2			4		

SHEET NO.
S-11
 TOTAL SHEETS
25

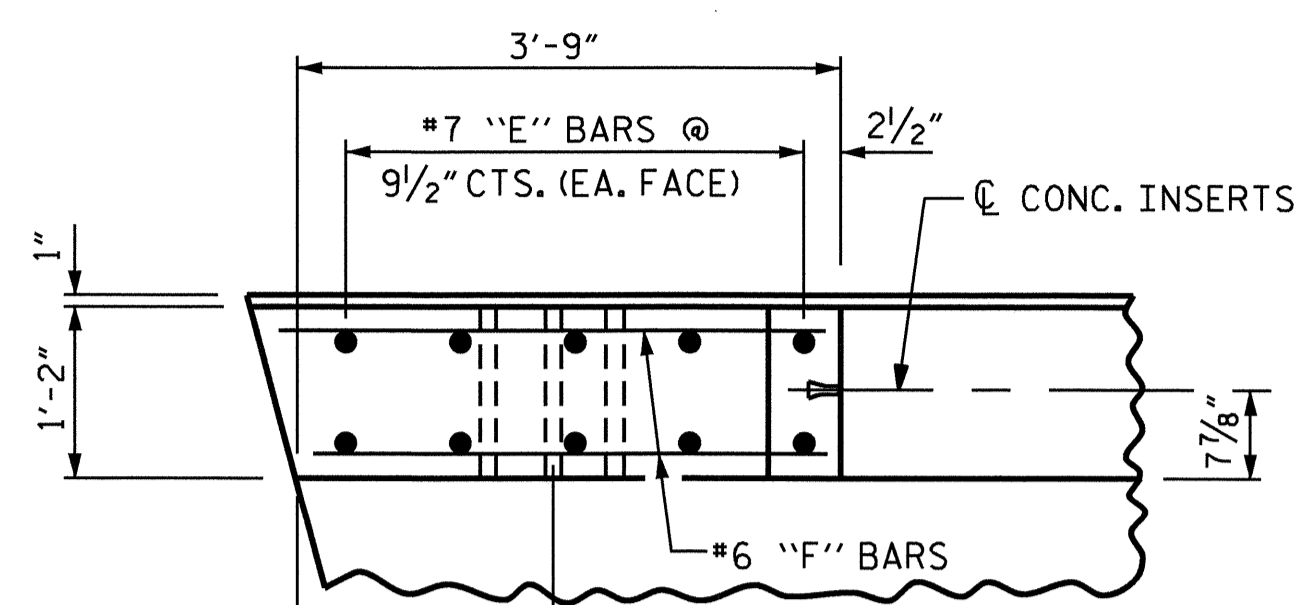
STD. NO. BMR2

ASSEMBLED BY : J.P. ADAMS	DATE : 8/17/09
CHECKED BY : R.G. EMERSON	DATE : 9/14/09
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

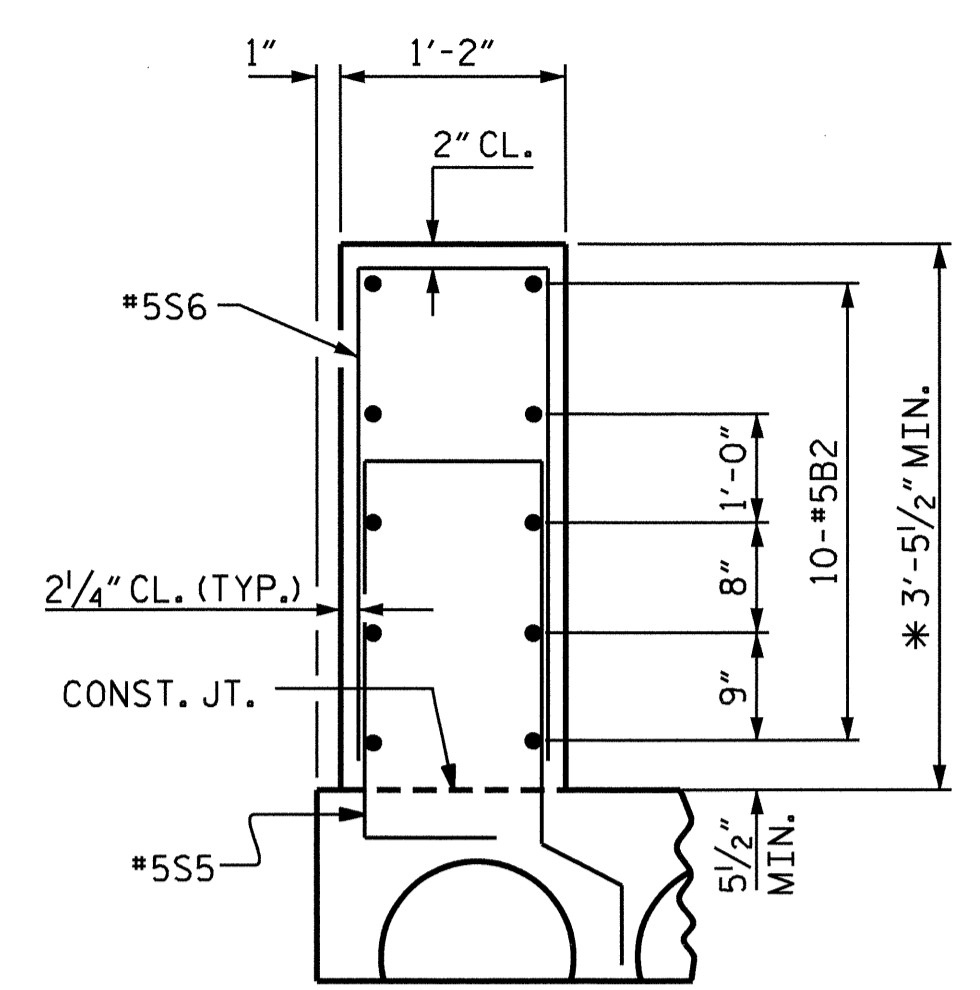
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PLAN OF PARAPET

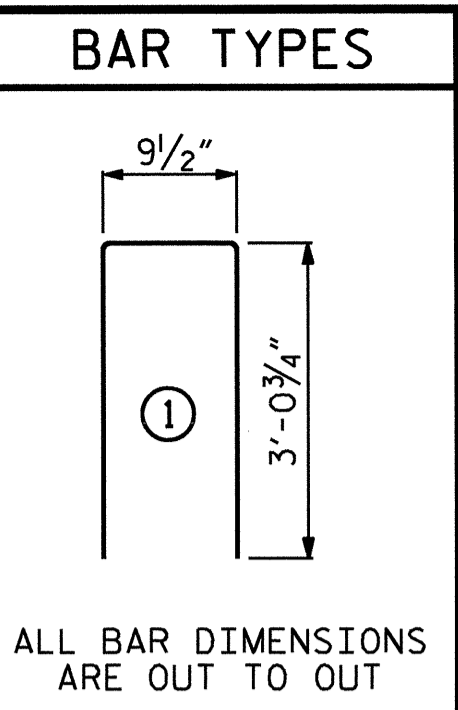


PLAN OF END POST

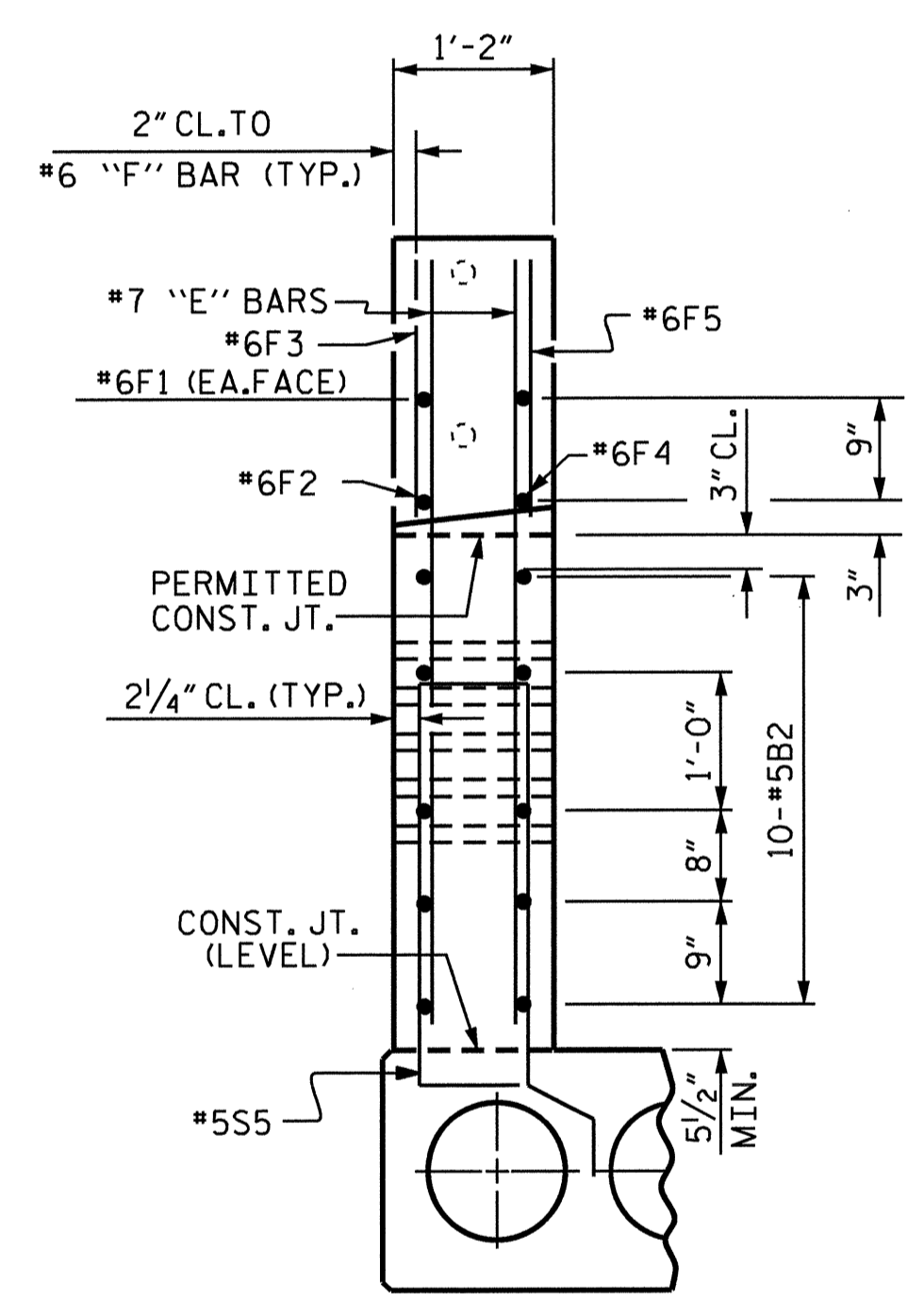


SECTION THRU PARAPET

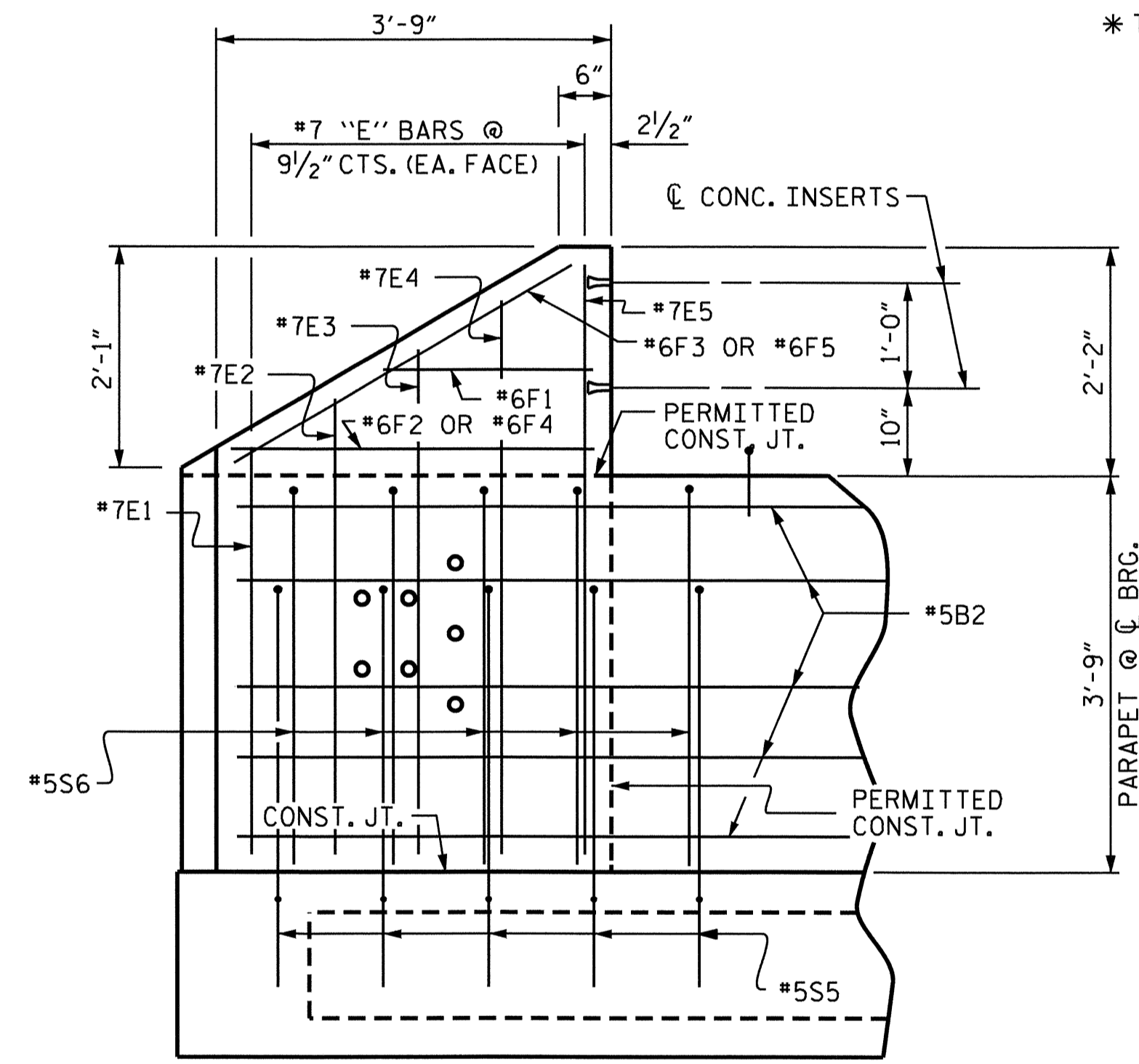
* THE MINIMUM HEIGHT OF THE PARAPET IS SHOWN. THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.



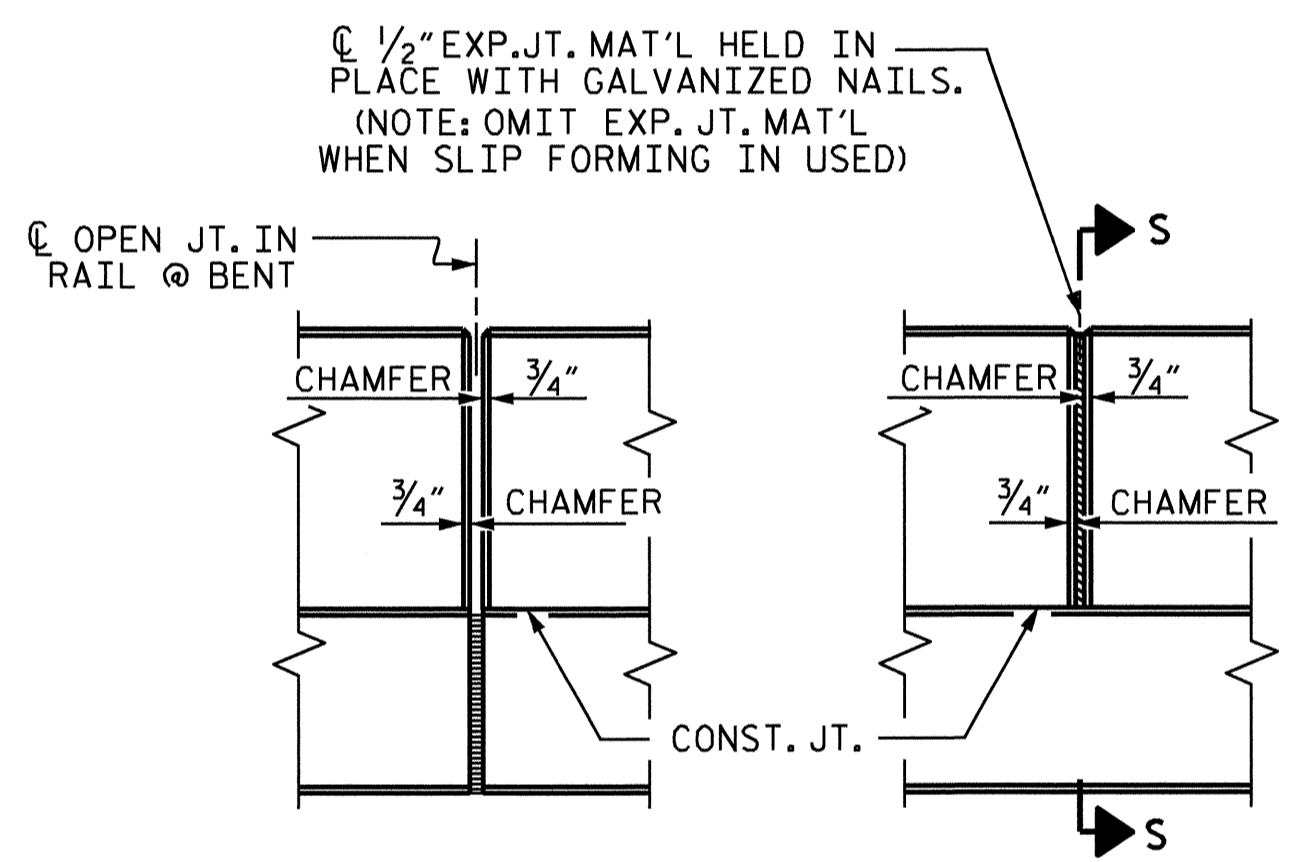
BILL OF MATERIAL FOR PARAPET & END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	160	# 5	STR	15'-3"	2545
*E1	8	# 7	STR	3'-11"	64
*E2	8	# 7	STR	4'-4"	71
*E3	8	# 7	STR	4'-9"	78
*E4	8	# 7	STR	5'-3"	86
*E5	8	# 7	STR	5'-7"	91
*F1	8	# 6	STR	2'-0"	24
*F2	4	# 6	STR	3'-2"	19
*F3	4	# 6	STR	3'-11"	24
*F4	4	# 6	STR	3'-0"	18
*F5	4	# 6	STR	3'-9"	23
*S6	220	# 5	1	6'-11"	1587
* EPOXY COATED REINFORCING STEEL					4630 LBS.
CLASS AA CONCRETE					35.70 CU.YDS.
1'-2" X 3'-5 1/2" CONCRETE PARAPET					215.21 LIN. FT.



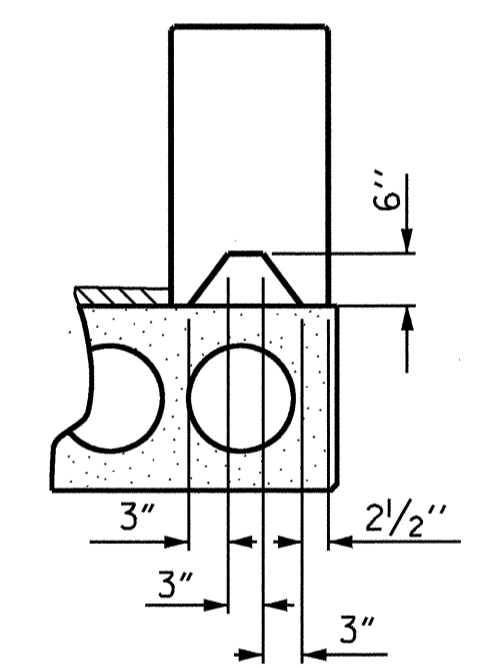
END VIEW



ELEVATION



ELEVATION AT EXPANSION JOINTS

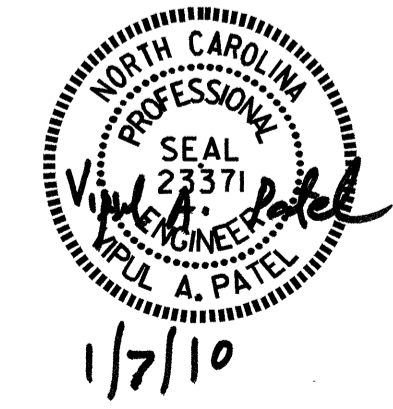


SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

PARAPET DETAILS

PARAPET AND END POST FOR TWO BAR RAIL

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-
 SHEET 4 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 END POSTS
 &
 PARAPET DETAILS

DRAWN BY : J.P. ADAMS DATE : 8/17/09
 CHECKED BY : R.G. EMERSON DATE : 9/14/09

07-JAN-2010 13:47
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REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

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.

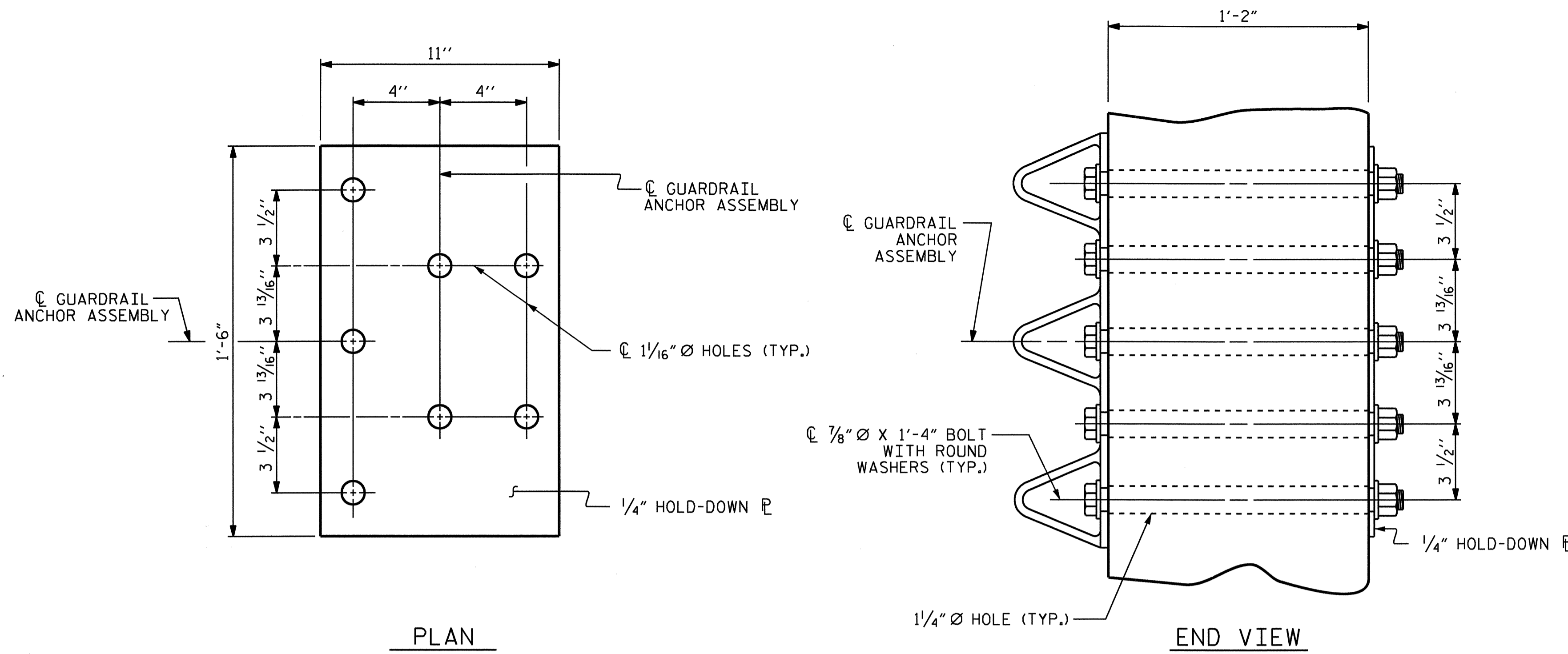
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

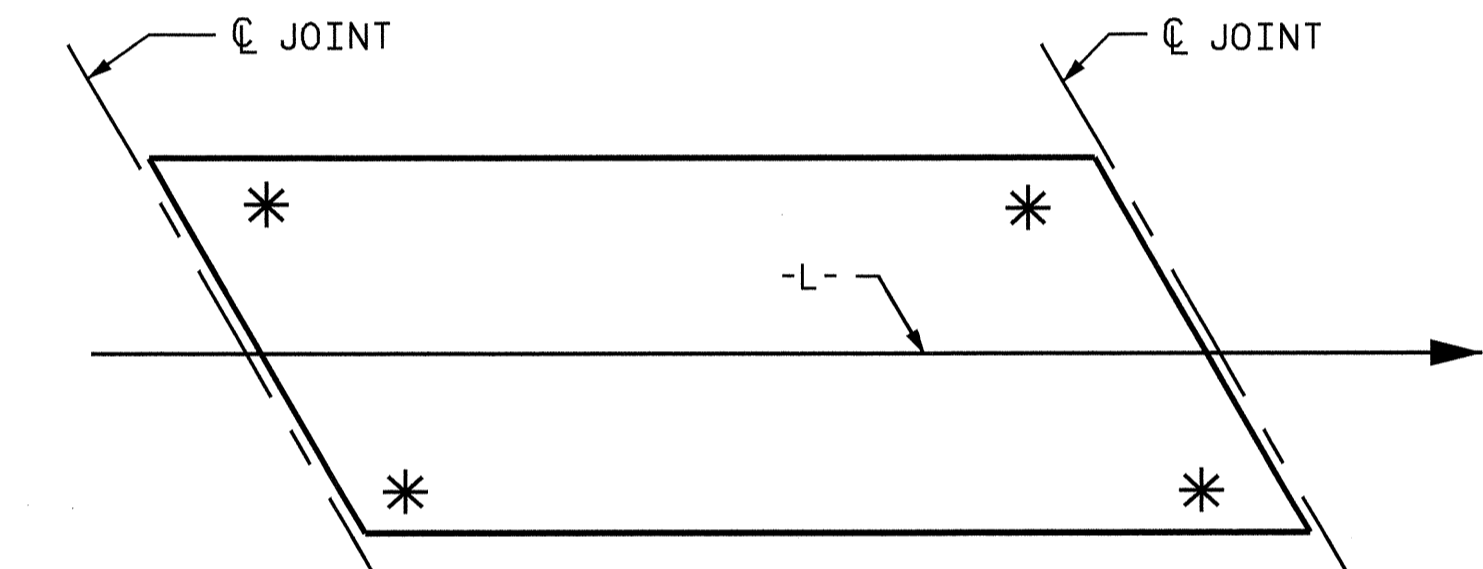
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

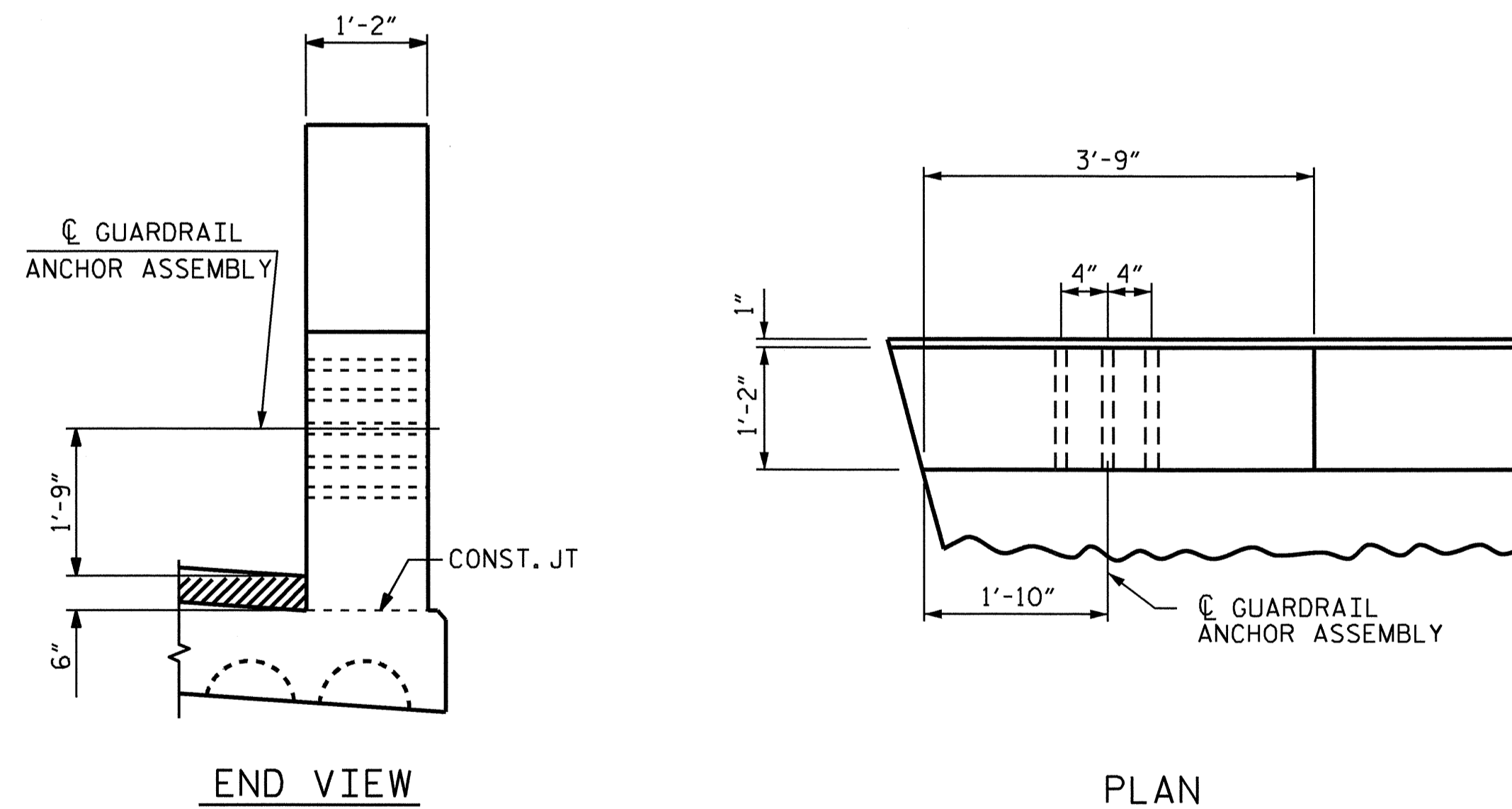
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 5 OF 5



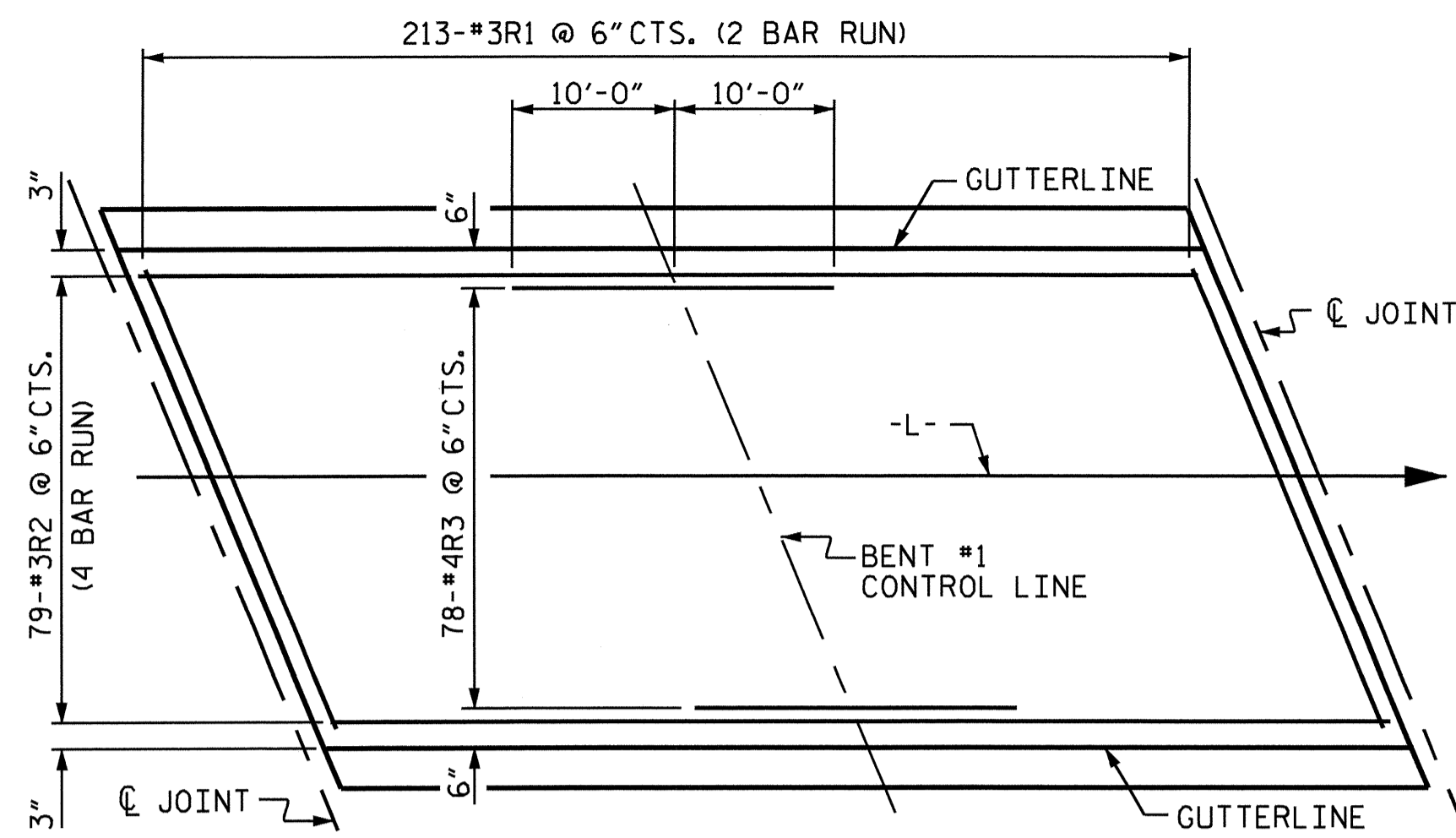
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

ASSEMBLED BY : J.P. ADAMS	DATE : 8/17/09
CHECKED BY : R.G. EMERSON	DATE : 9/14/09
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

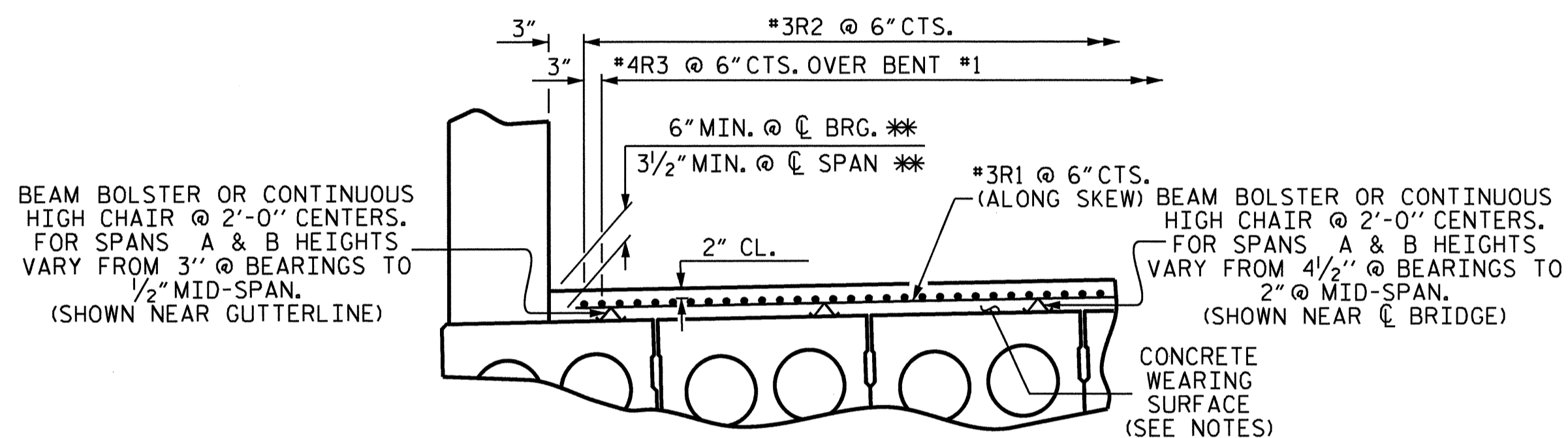
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			25

STD. NO. BMR8



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL



REINFORCING FOR CONCRETE WEARING SURFACE

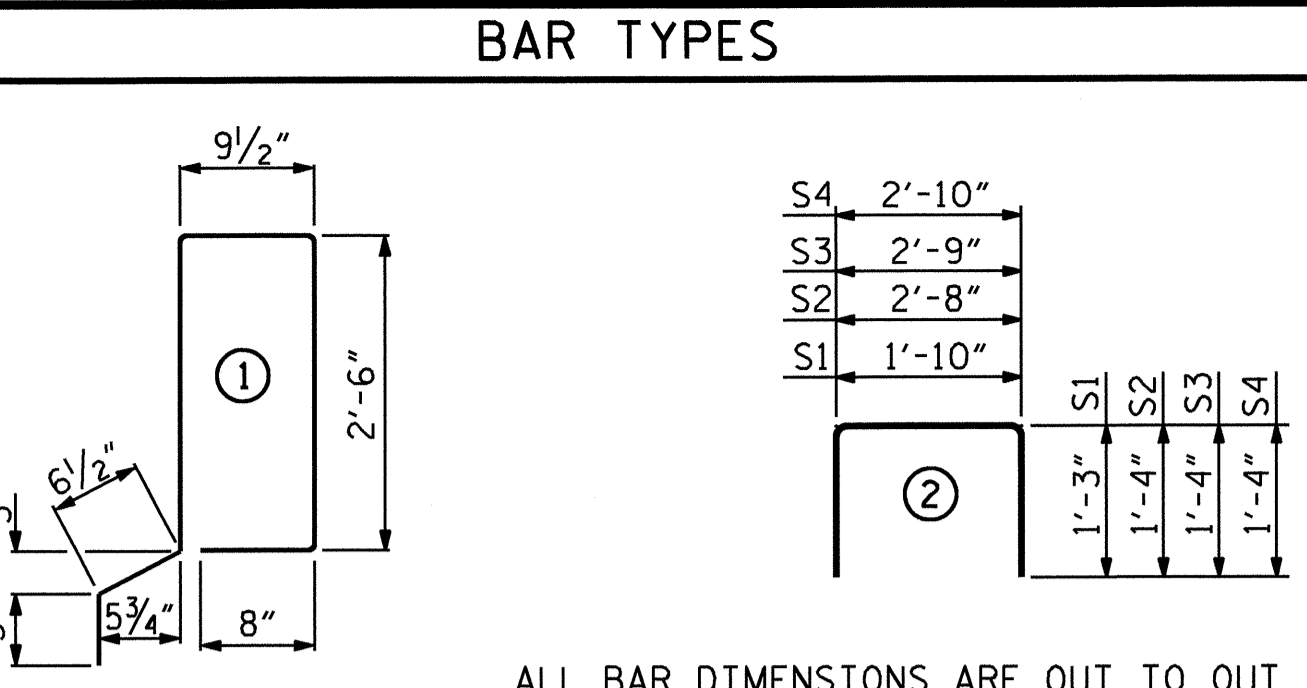
** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	426	#3	STR	21'-6"	3444
*R2	316	#3	STR	27'-6"	3267
*R3	78	#4	STR	20'-0"	1042
* EPOXY COATED REINFORCING STEEL				LBS.	7753
CONCRETE WEARING SURFACE				SQ. FT.	4212

SPLICE LENGTH CHART	
BAR SIZE	EPOXY COATED
#3	1'-3"
#4	1'-8"

GROOVING BRIDGE FLOORS		
APPROACH SLABS	776	SO.FT.
BRIDGE DECK	3879	SO.FT.
TOTAL	4655	SO.FT.

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

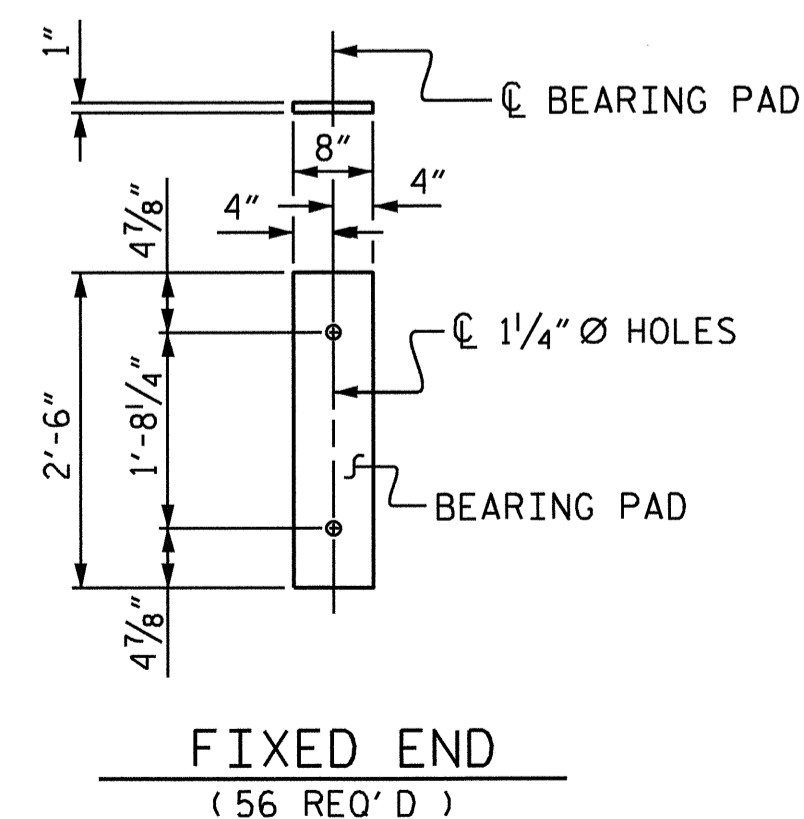


BILL OF MATERIAL FOR ONE CORED SLAB UNIT SPAN A & SPAN B

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	27'-7"	74	27'-7"	74
S1	8	#5	2	4'-4"	36	4'-4"	36
S2	102	#4	2	5'-4"	363	5'-4"	363
S3	4	#4	2	5'-5"	14	5'-5"	14
S4	4	#4	2	5'-6"	15	5'-6"	15
*S5	55	#5	1	7'-5"	425		
REINFORCING STEEL					502 LBS.		502 LBS.
* EPOXY COATED REINFORCING STEEL					425 LBS.		
7500 P.S.I. CONCRETE					7.9 CU. YDS.		7.9 CU. YDS.
0.6" Ø L.R. STRANDS					No. 23		No. 23

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

CORED SLABS REQUIRED			
SPAN A	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	53'-8 13/16"	107.47
INTERIOR C.S.	12	53'-8 13/16"	644.81
TOTAL	14	53'-8 13/16"	752.28
SPAN B	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	53'-8 13/16"	107.47
INTERIOR C.S.	12	53'-8 13/16"	644.81
TOTAL	14	53'-8 13/16"	752.28
TOTAL LENGTH (SPAN A & B)	28		1504.56



ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

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 JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

ALL REINFORCING STEEL IN PARAPETS AND END POSTS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING OF THE CONCRETE PARAPET. THE COST OF THE #3 AND #4 BARS CAST WITH CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

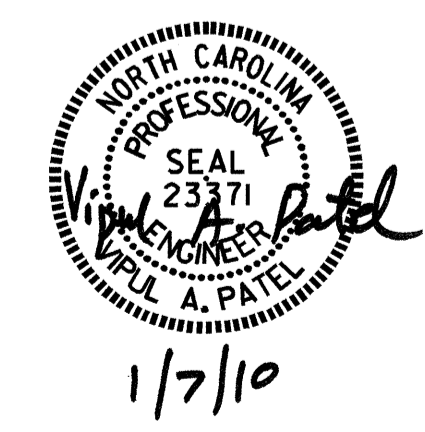
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

THE STRUCTURE HAS BEEN DESIGNED FOR THE ADDITIONAL DEAD LOAD OF SIDEWALKS IN THE FUTURE.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE STRANDS SHALL BE 0.6" Ø AND TENSIONED TO 43,950 POUNDS.

THE MINIMUM HEIGHT OF THE PARAPET IS SHOWN. THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-14
2			4			25

ASSEMBLED BY : J.P. ADAMS DATE : 8/18/09
 CHECKED BY : R.G. EMERSON DATE : 9/14/09
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LJS
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06R TLA/GM

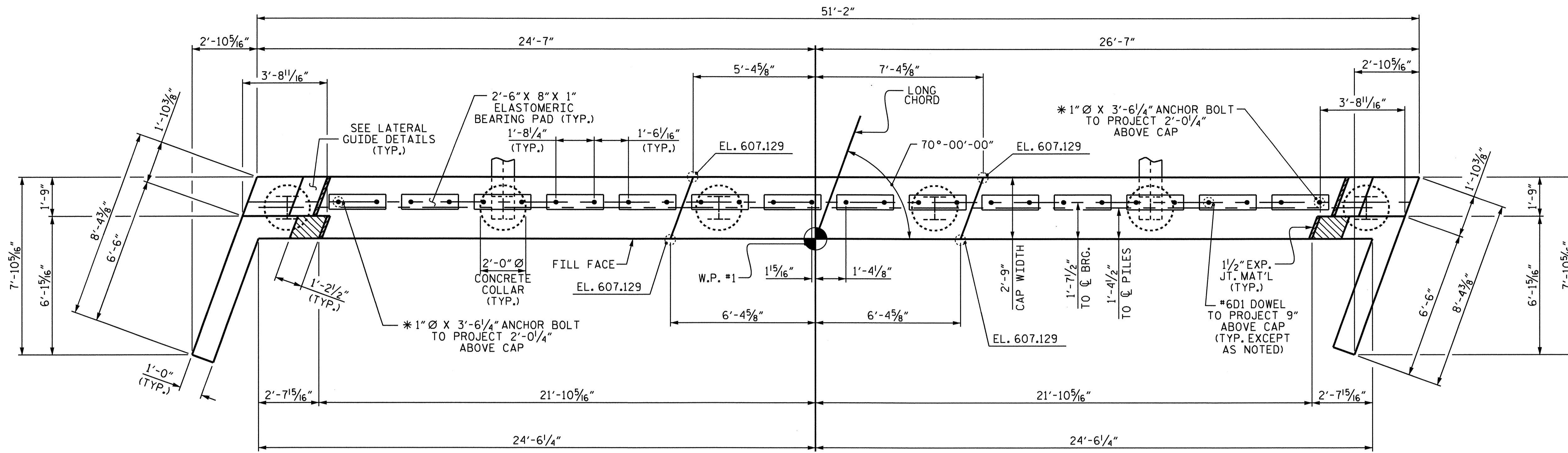
NOTES

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

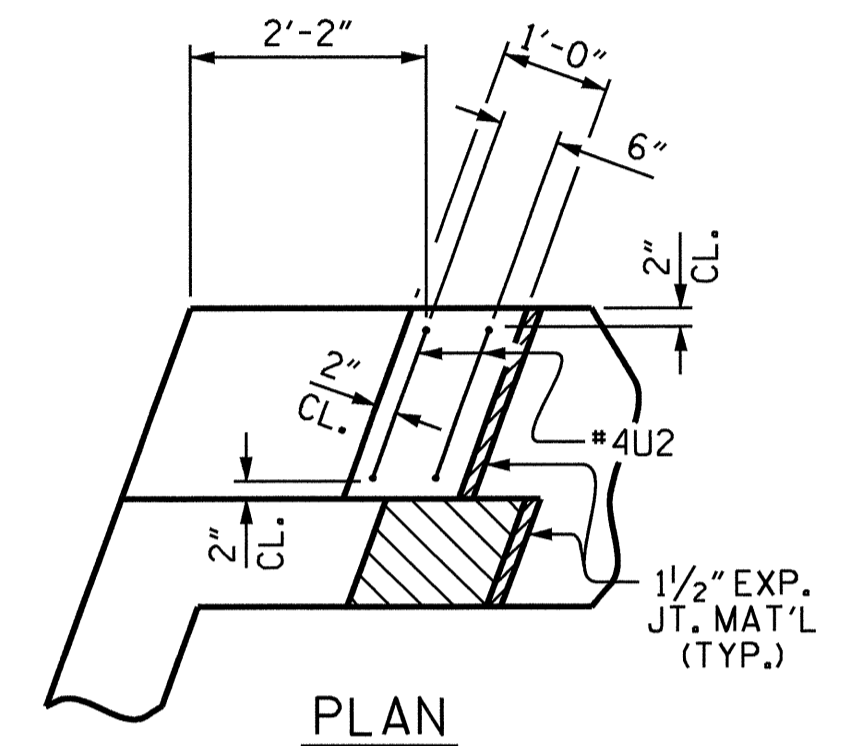
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

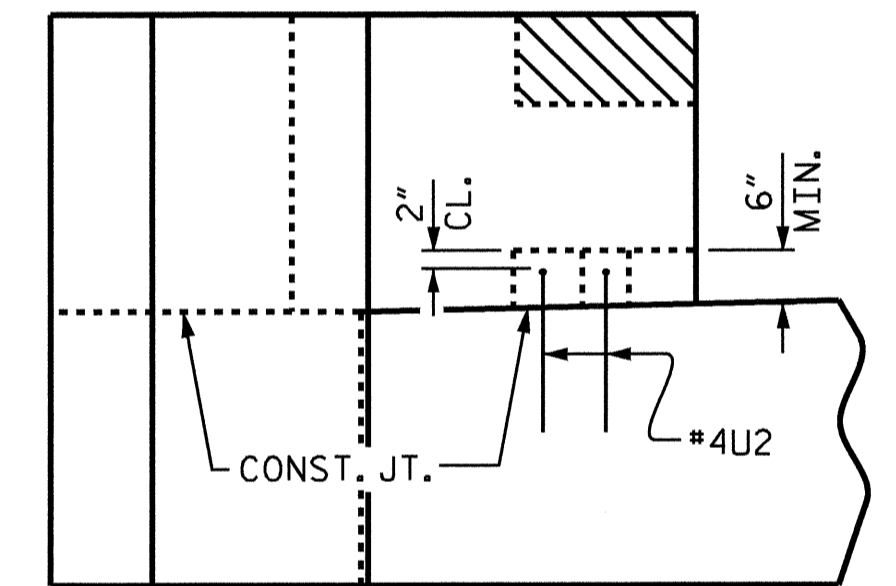
* THE COST OF 1" Ø ANCHOR BOLTS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.



PLAN



PLAN



ELEVATION

LATERAL GUIDE DETAILS

EACH END SIMILAR

PROJECT NO. B-4580
 MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

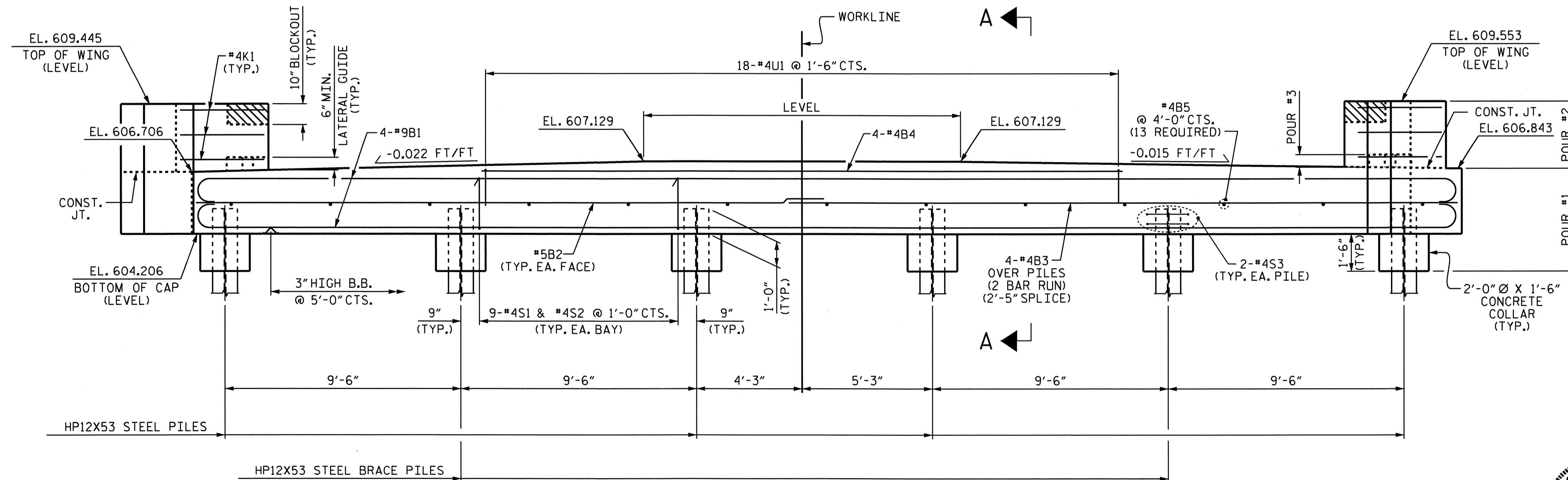


1/7/10

REVISIONS

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

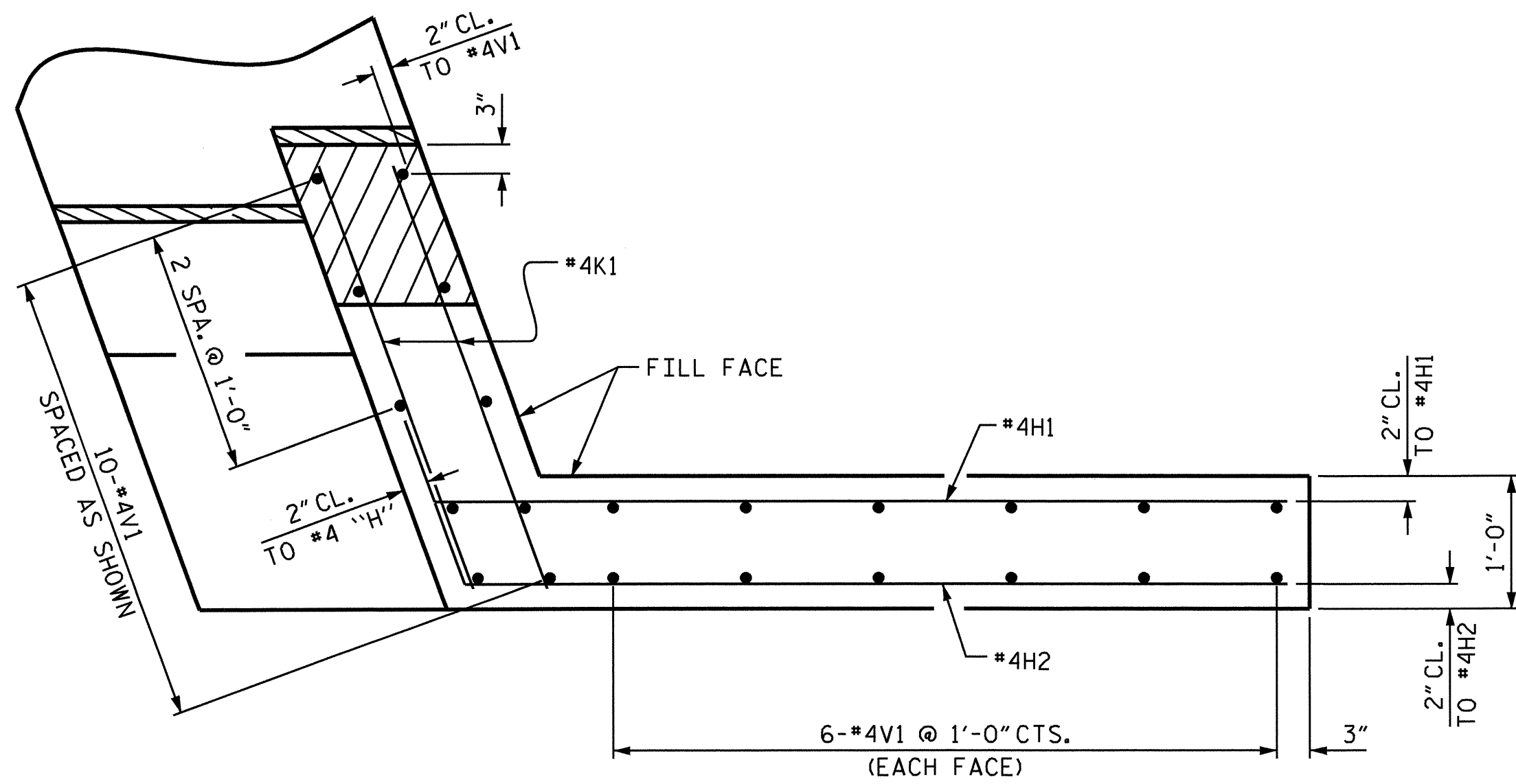
SHEET NO.	S-15
TOTAL SHEETS	25



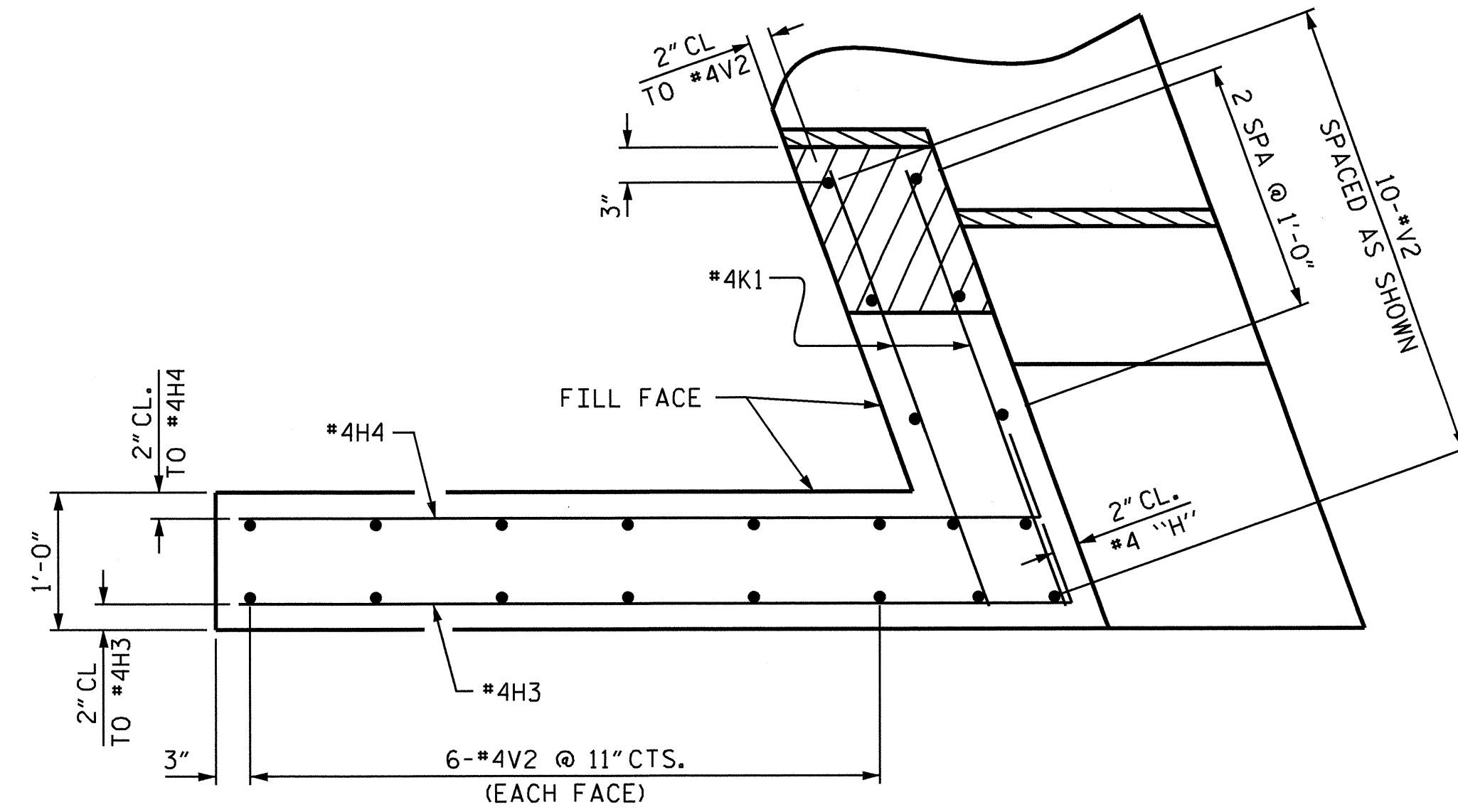
ELEVATION

DRAWN BY: J.P. ADAMS DATE: 9/23/09
 CHECKED BY: R.L. CHESSON DATE: 10/28/09

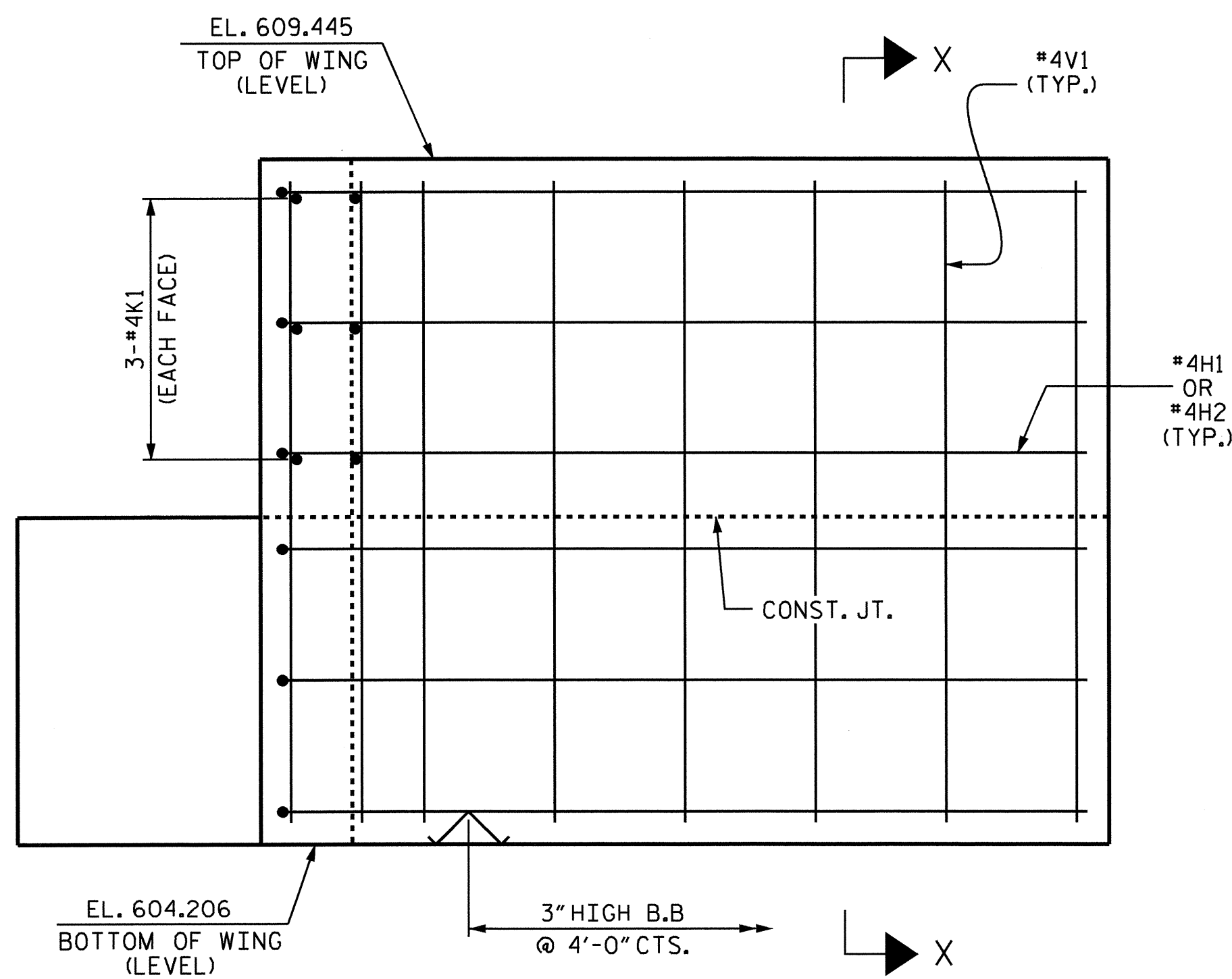
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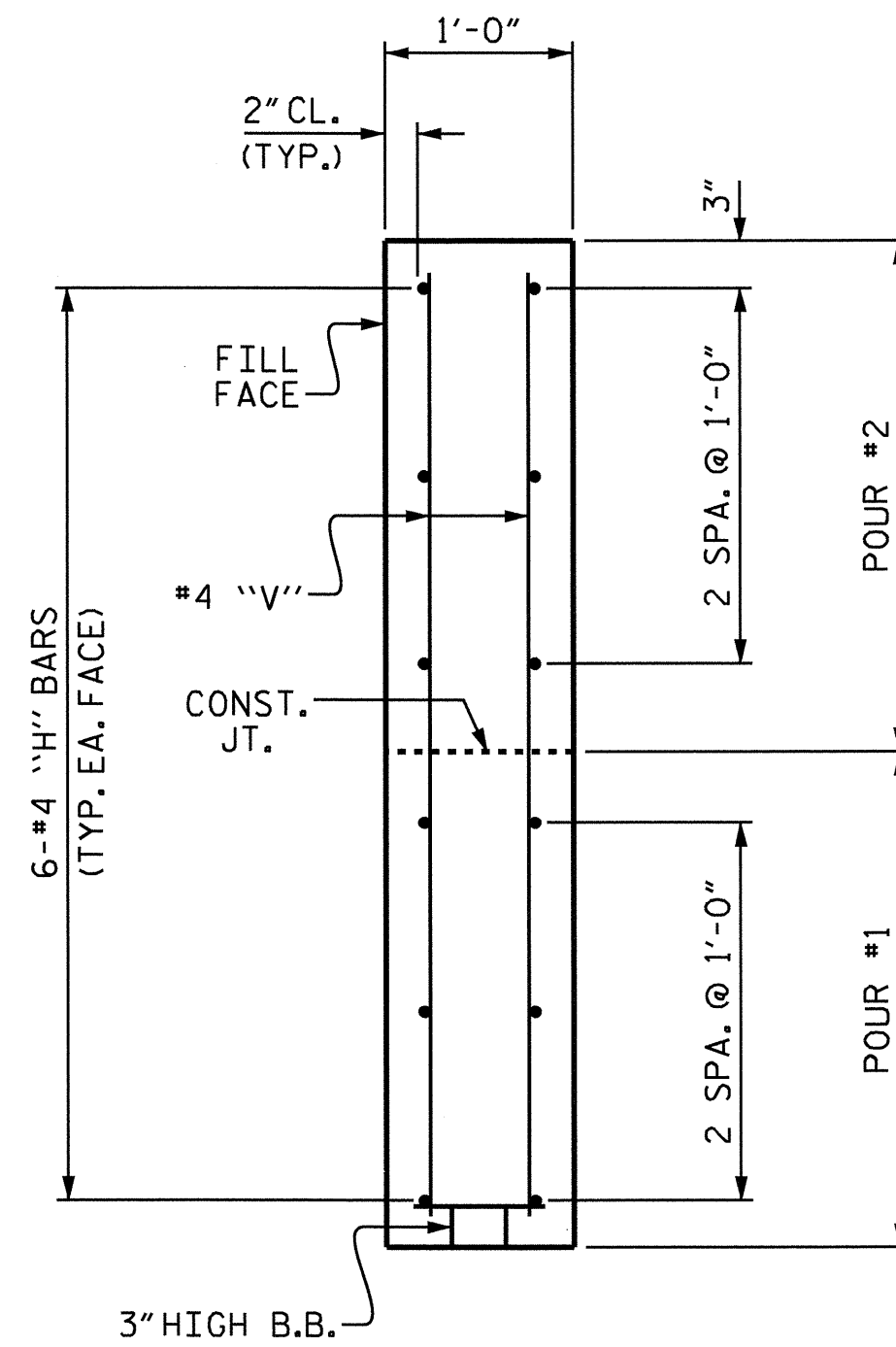
PLAN OF LEFT WING



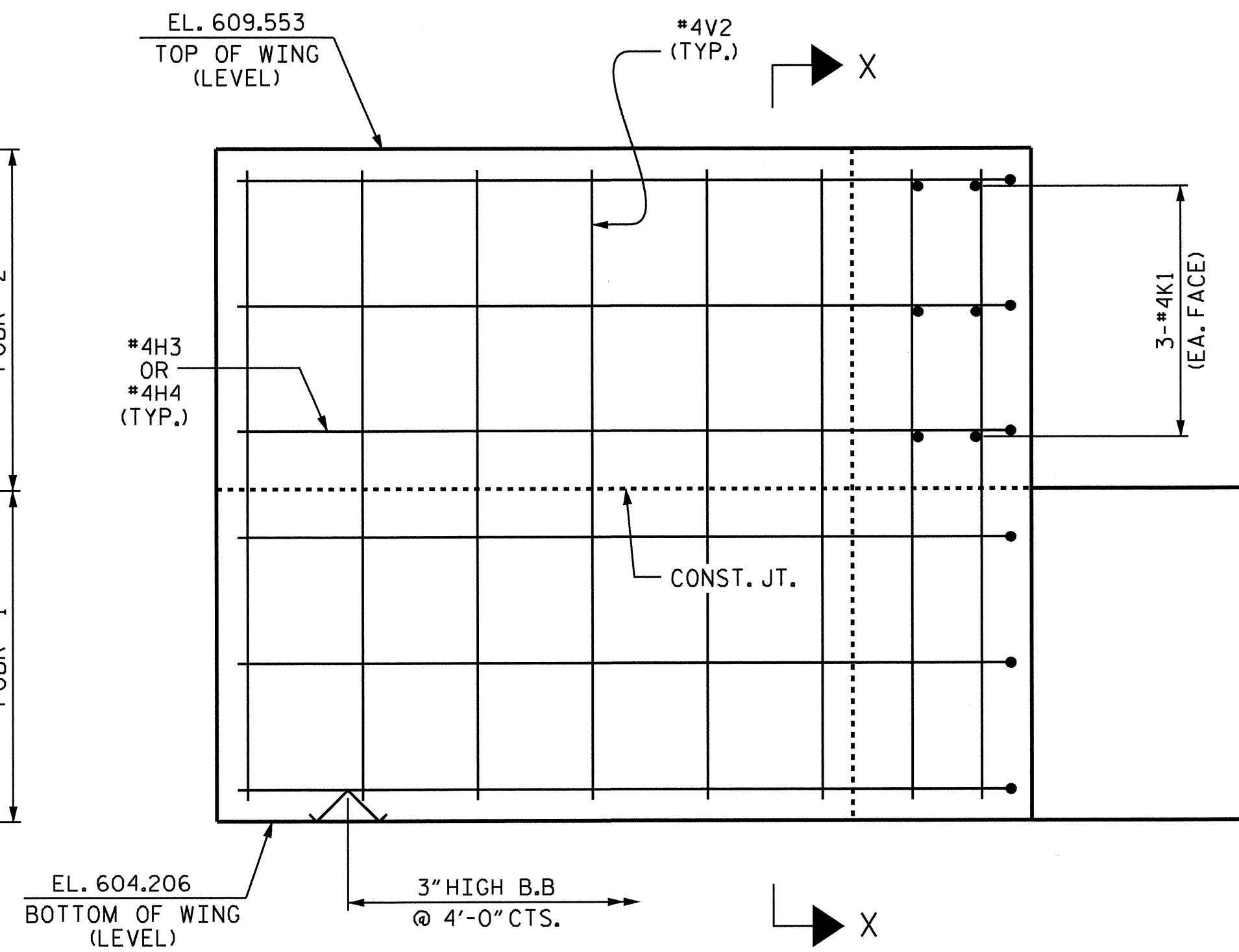
PLAN OF RIGHT WING



ELEVATION OF LEFT WING



SECTION X-X



ELEVATION OF RIGHT WING

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 2 OF 3



1/7/10

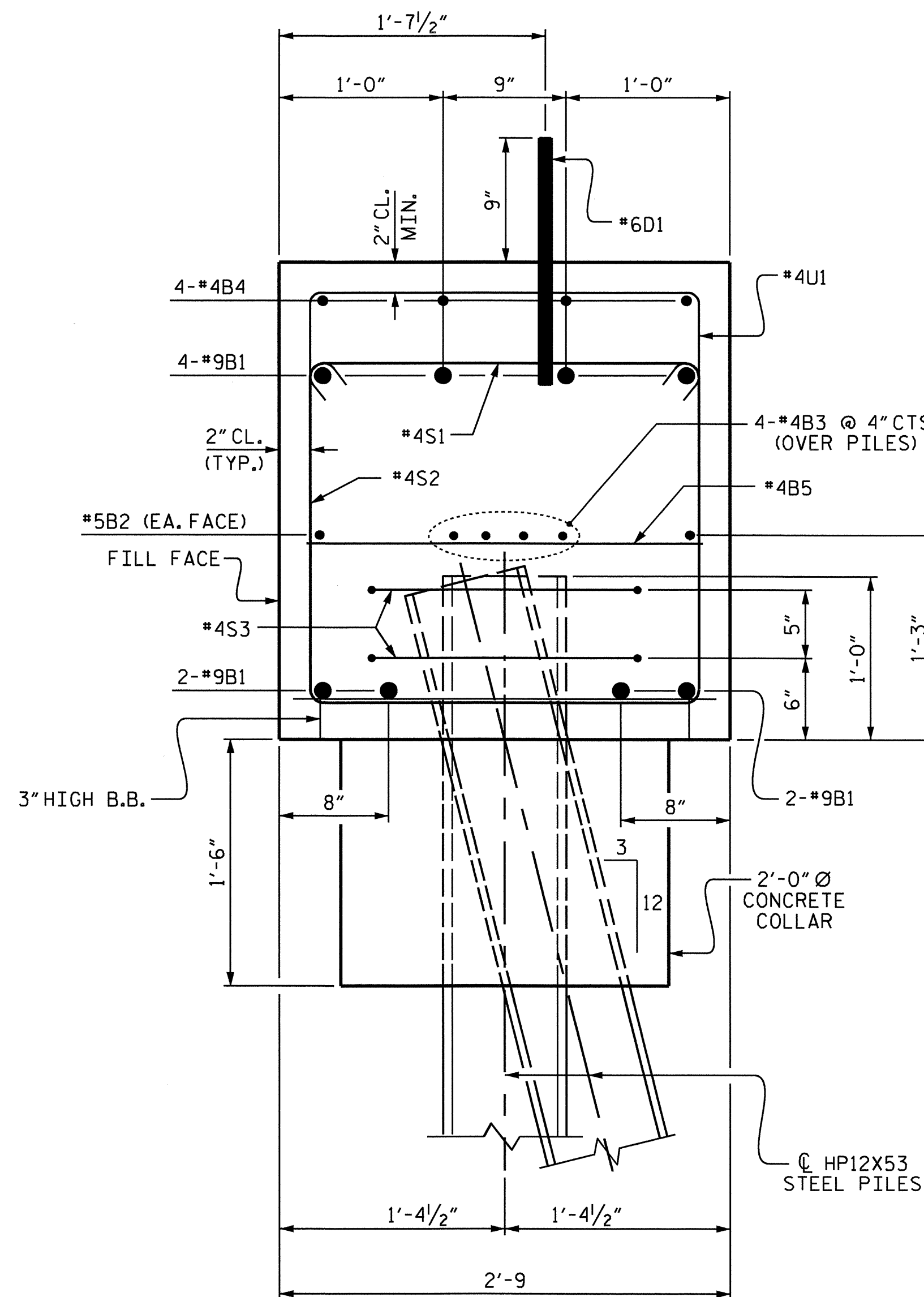
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

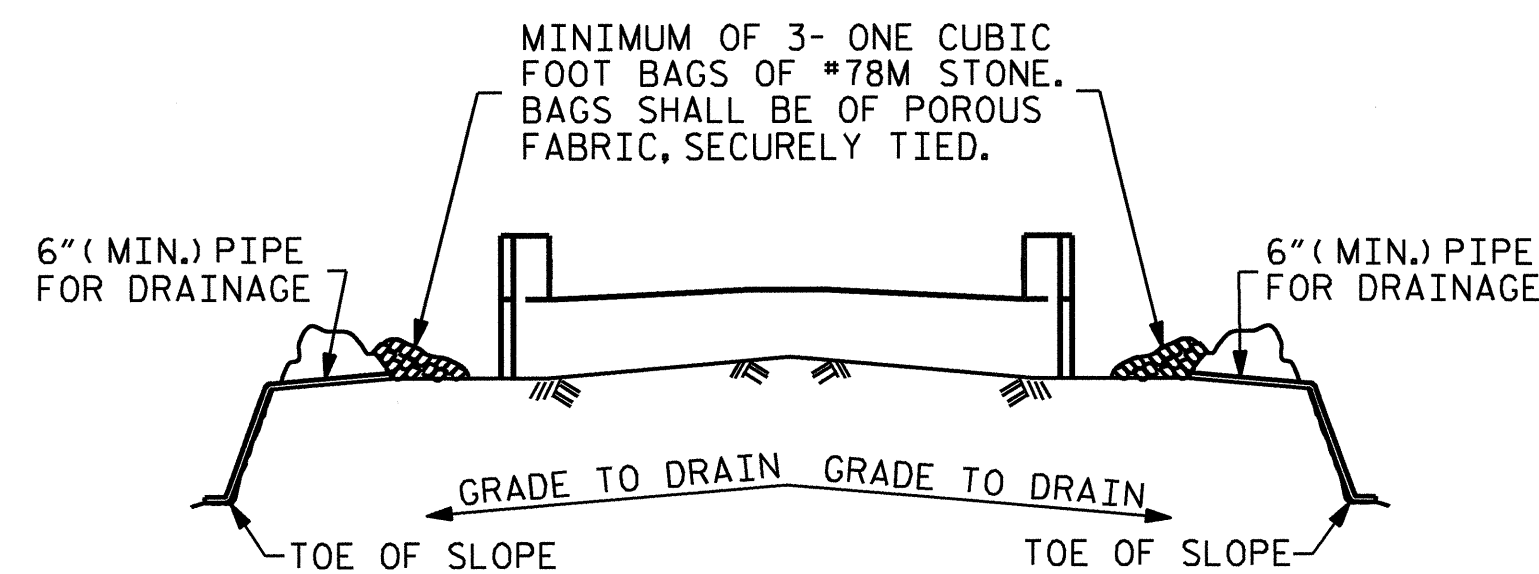
DRAWN BY: J.P. ADAMS DATE: 9/24/09
 CHECKED BY: R.L. CHESSON DATE: 10/28/09

07-JAN-2010 13:47
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			25



SECTION A-A

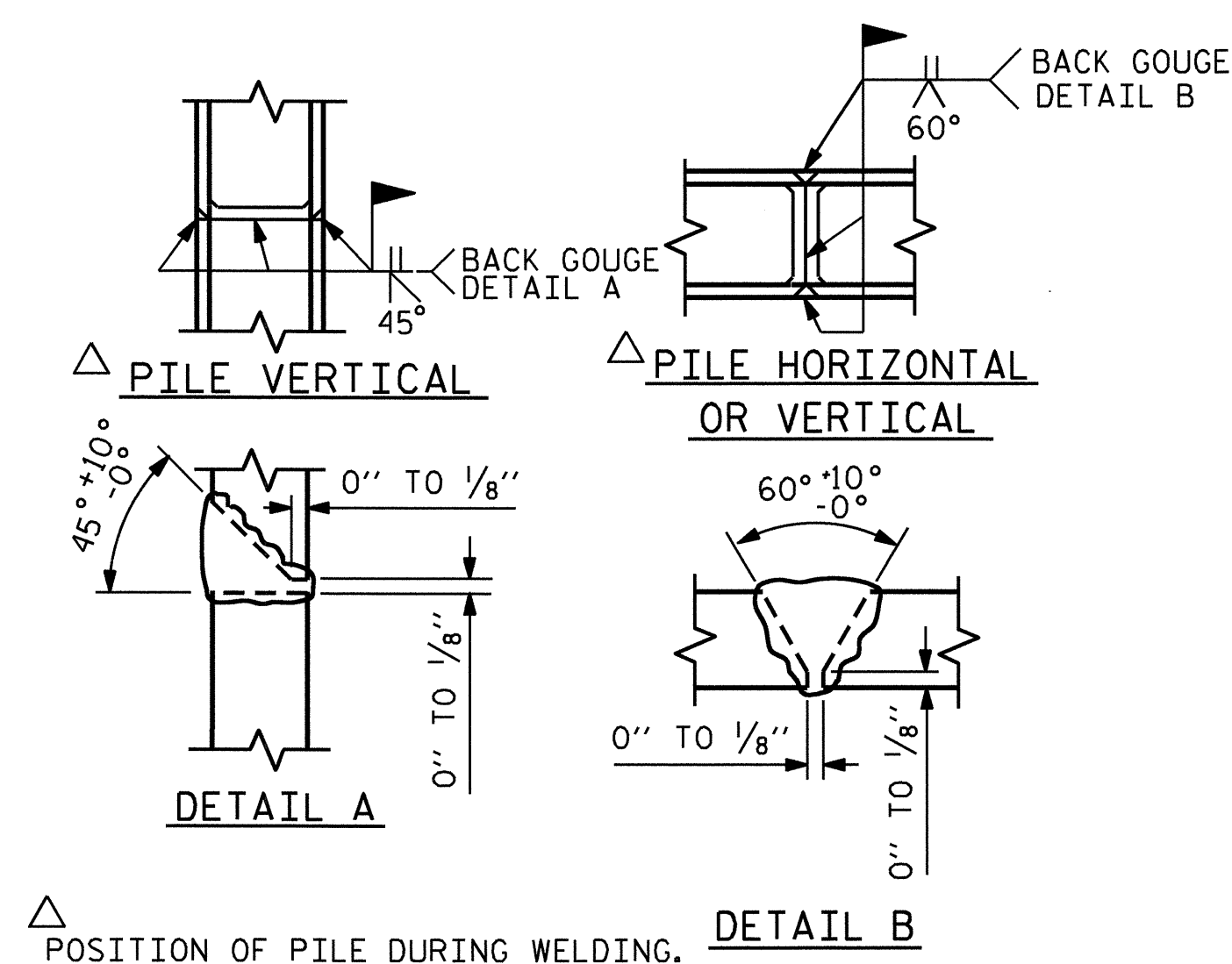


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

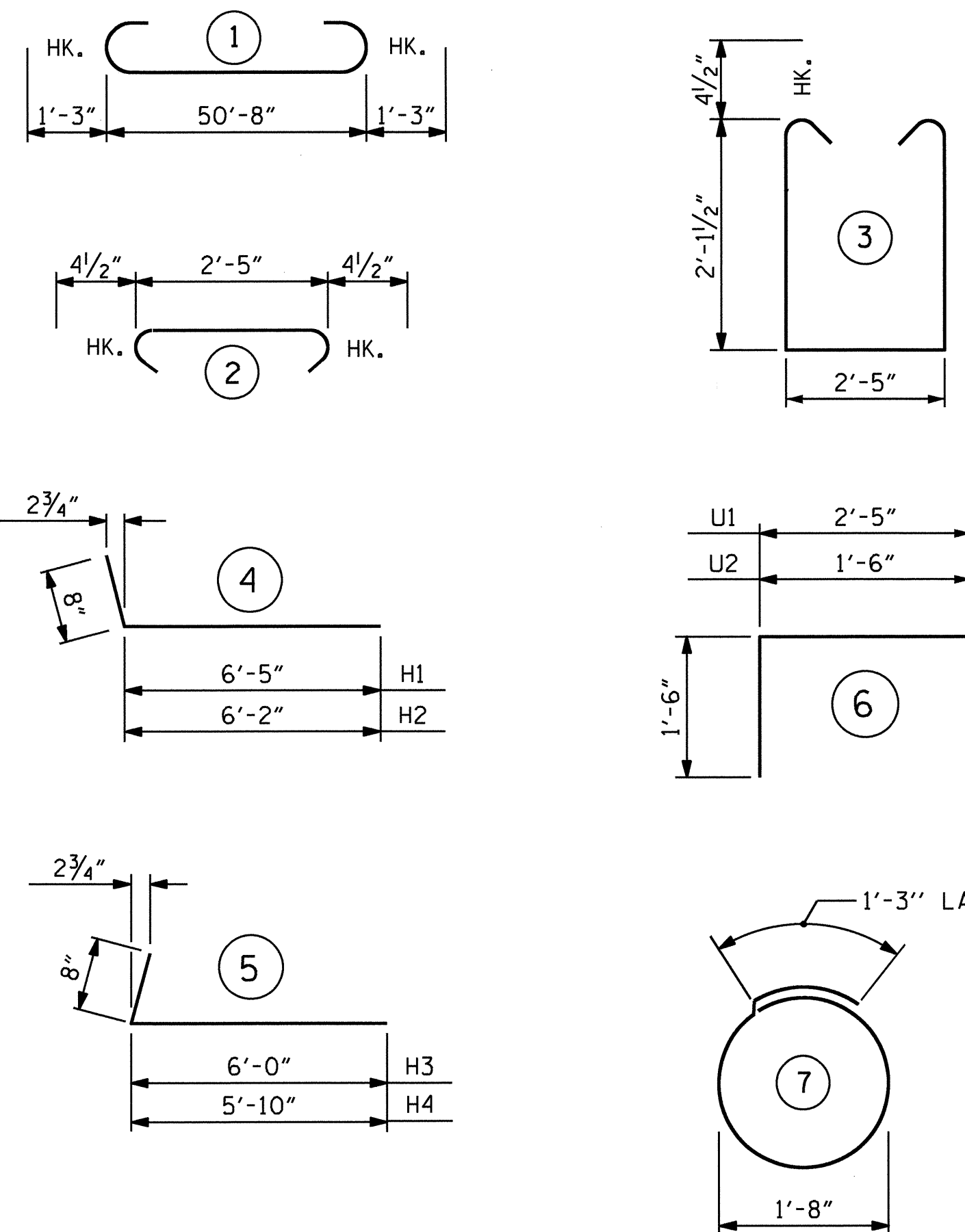
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	53'-2"	1446
B2	2	#5	STR	50'-10"	106
B3	8	#4	STR	26'-8"	143
B4	4	#4	STR	25'-10"	69
B5	13	#4	STR	2'-5"	21
D1	26	#6	STR	1'-6"	59
H1	6	#4	4	7'-1"	28
H2	6	#4	4	6'-10"	27
H3	6	#4	5	6'-8"	27
H4	6	#4	5	6'-6"	26
K1	12	#4	STR	3'-4"	27
S1	45	#4	2	3'-2"	95
S2	45	#4	3	7'-5"	223
S3	12	#4	7	6'-6"	52
U1	18	#4	6	5'-5"	65
U2	4	#4	6	4'-6"	12
V1	22	#4	STR	4'-11"	72
V2	22	#4	STR	5'-0"	73

REINFORCING STEEL LBS 2571

CLASS "A" CONCRETE BREAKDOWN

POUR #1 (CAP, COLLARS & LOWER WINGS)	16.6 C.Y.
POUR #2 (UPPER WINGS)	1.8 C.Y.
POUR #3 (LATERAL GUIDES)	0.1 C.Y.
CLASS "A" CONCRETE TOTAL	18.5 C.Y.

HP12X53 STEEL PILES NO. 6 90.0 LIN FT.

PROJECT NO. B-4580

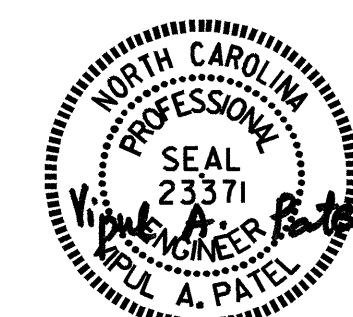
MECKLENBURG COUNTY

STATION: 33+10.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #1



1/7/10

REVISIONS

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

SHEET NO.

S-17

TOTAL SHEETS 25

DRAWN BY: J.P. ADAMS DATE: 9/24/09
CHECKED BY: R.L. CHESSON DATE: 10/28/09

NOTES

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

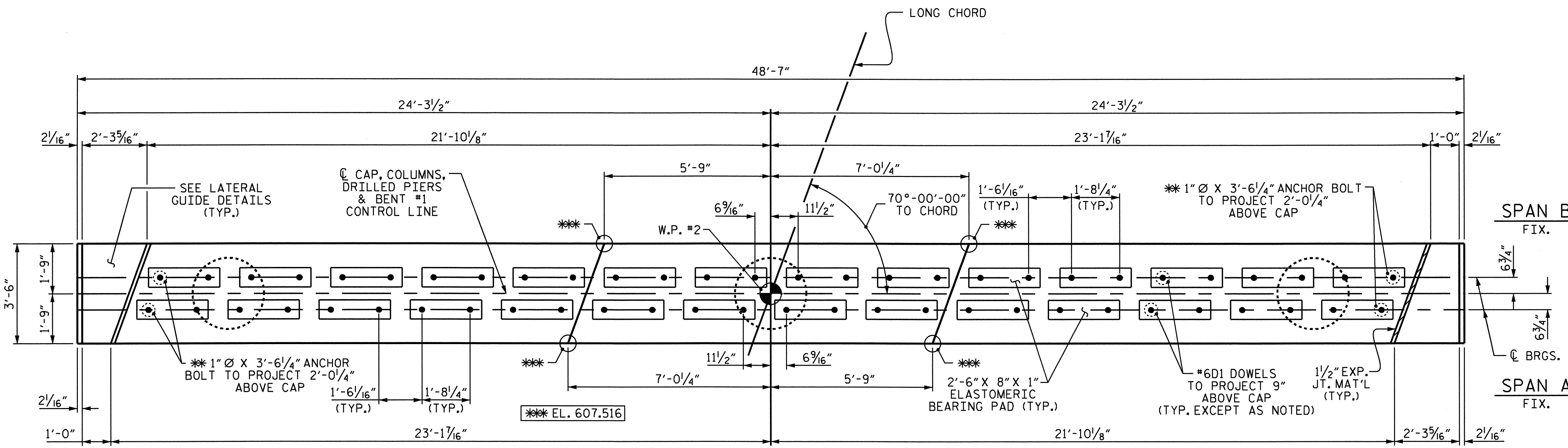
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

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

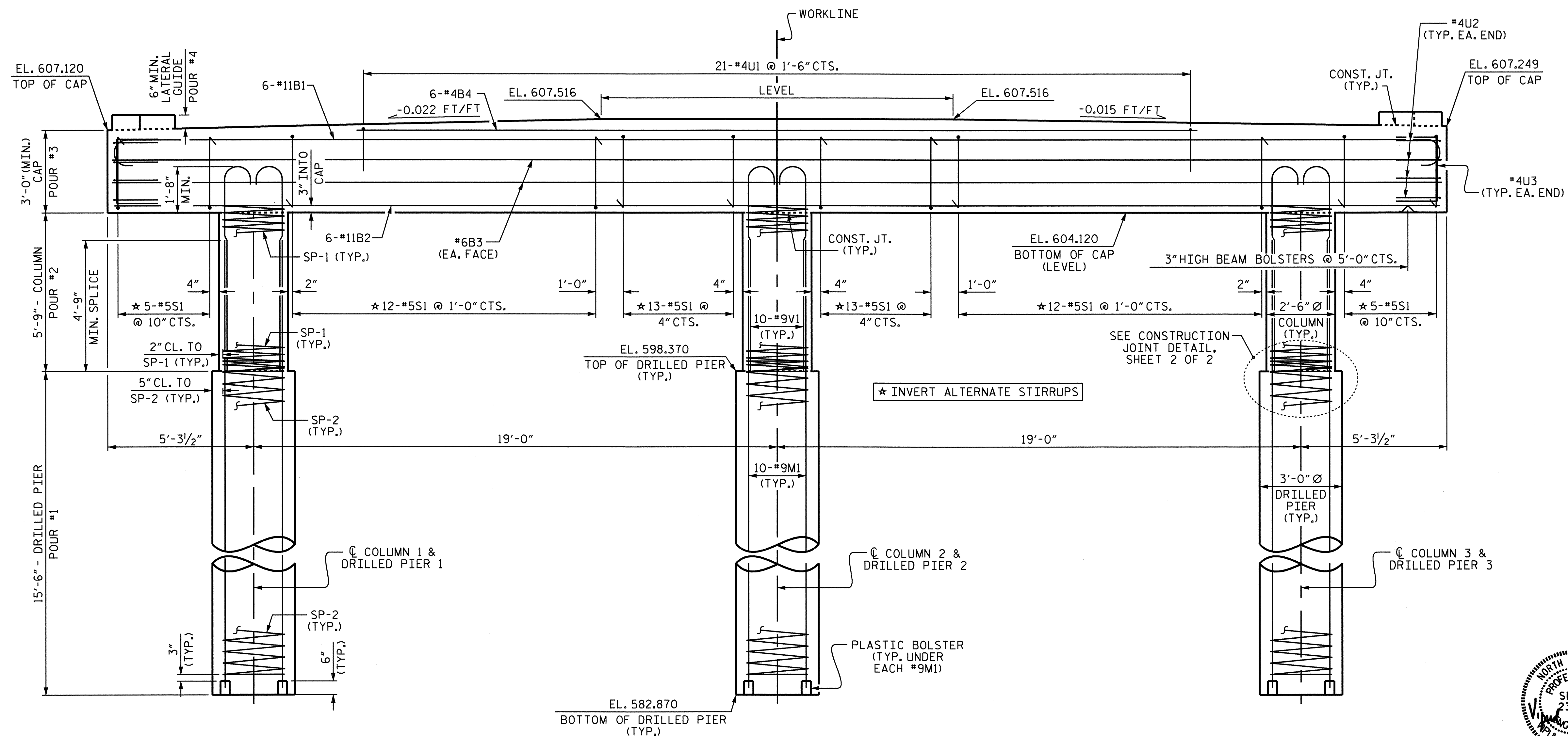
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

* THE COST OF THE 1" Ø ANCHOR BOLTS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

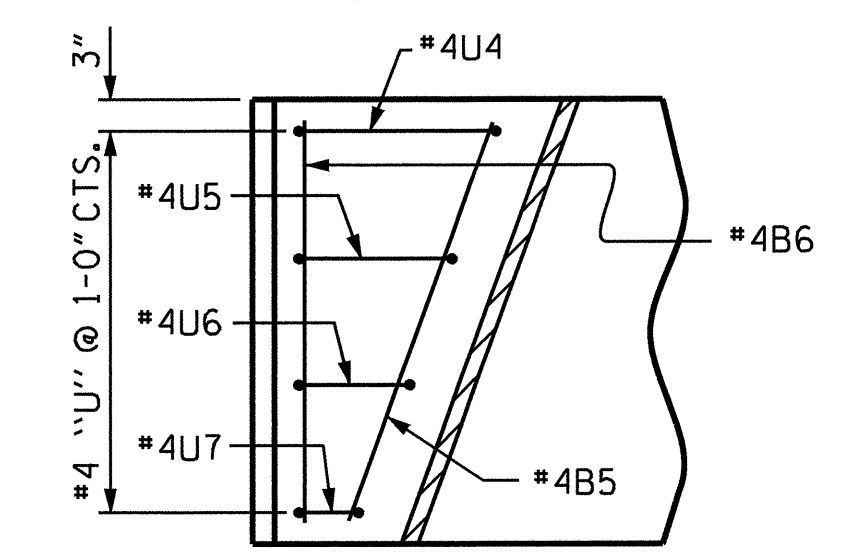


PLAN

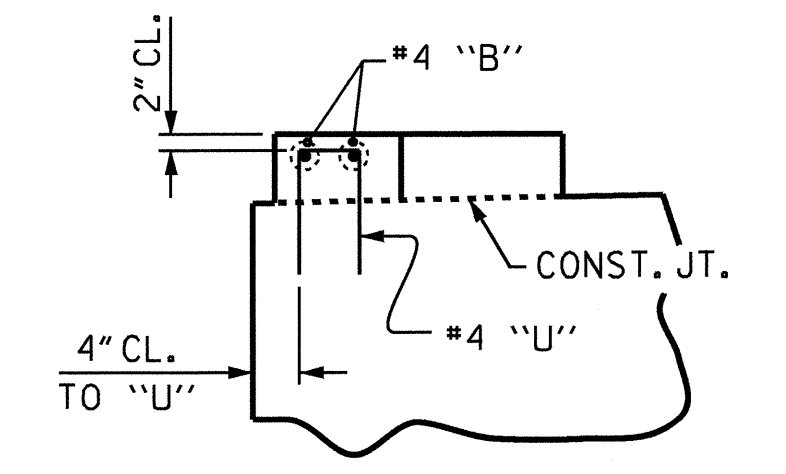


ELEVATION

DETAILS, DIMENSION & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER.



PLAN



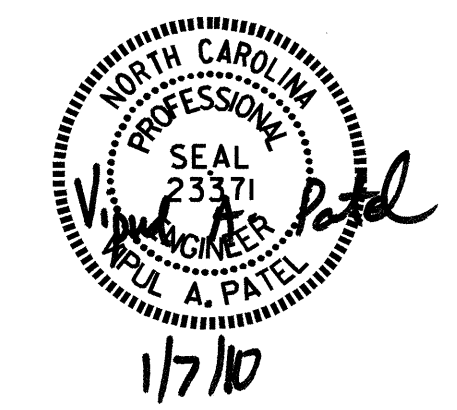
ELEVATION

LATERAL GUIDE DETAILS
(EACH END SIMILAR)

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-
 SHEET 1 OF 2

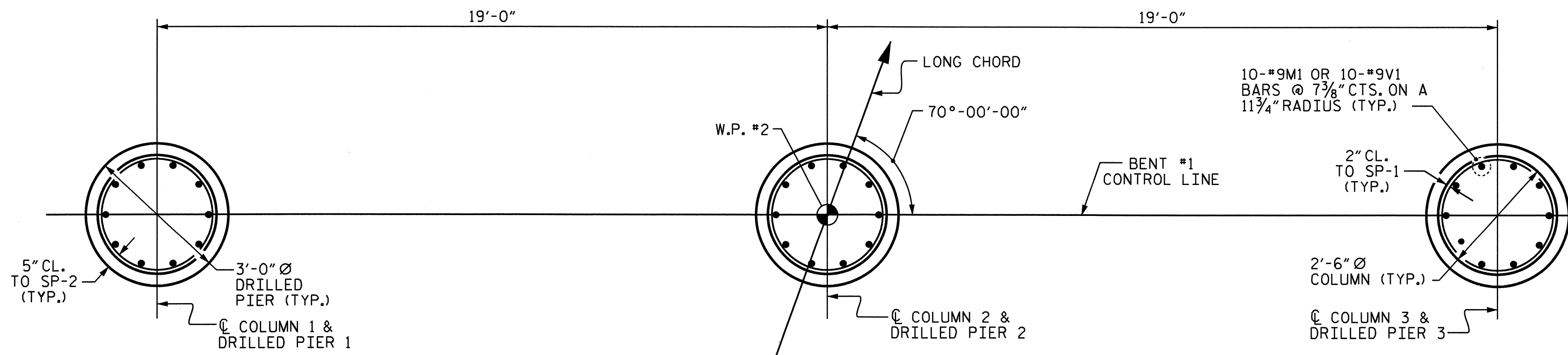
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
BENT #1

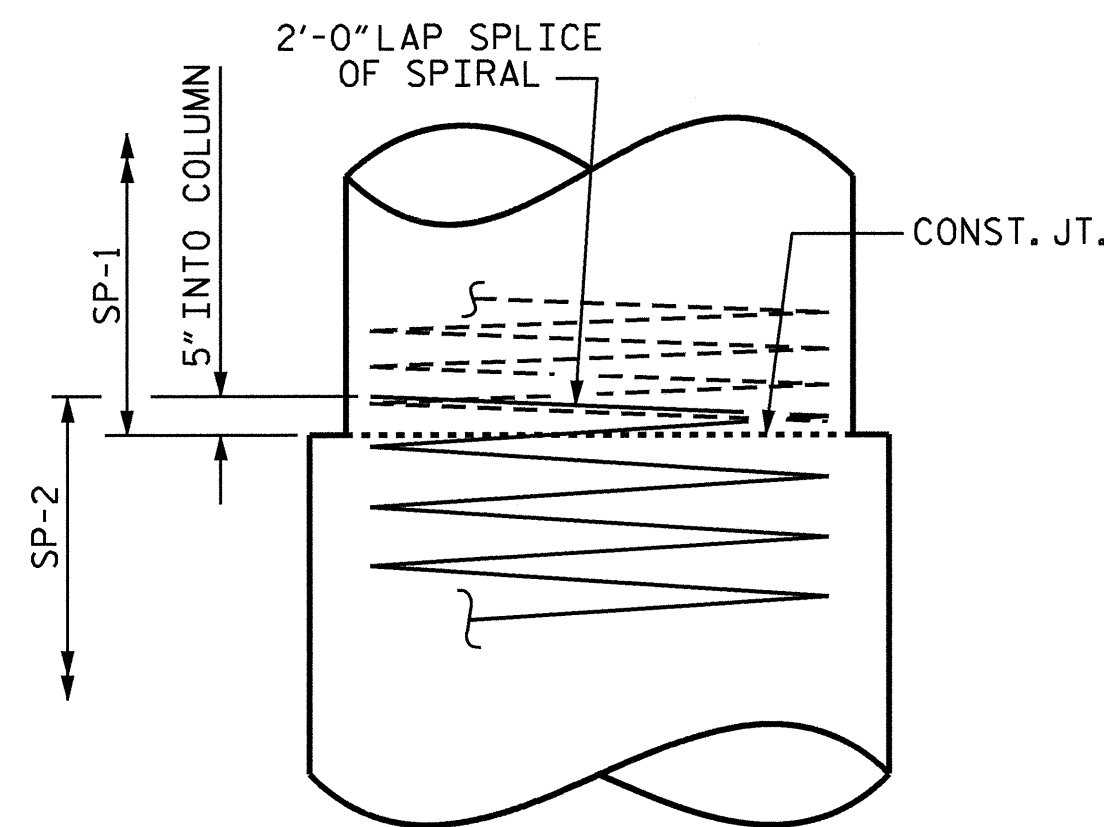


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NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			25

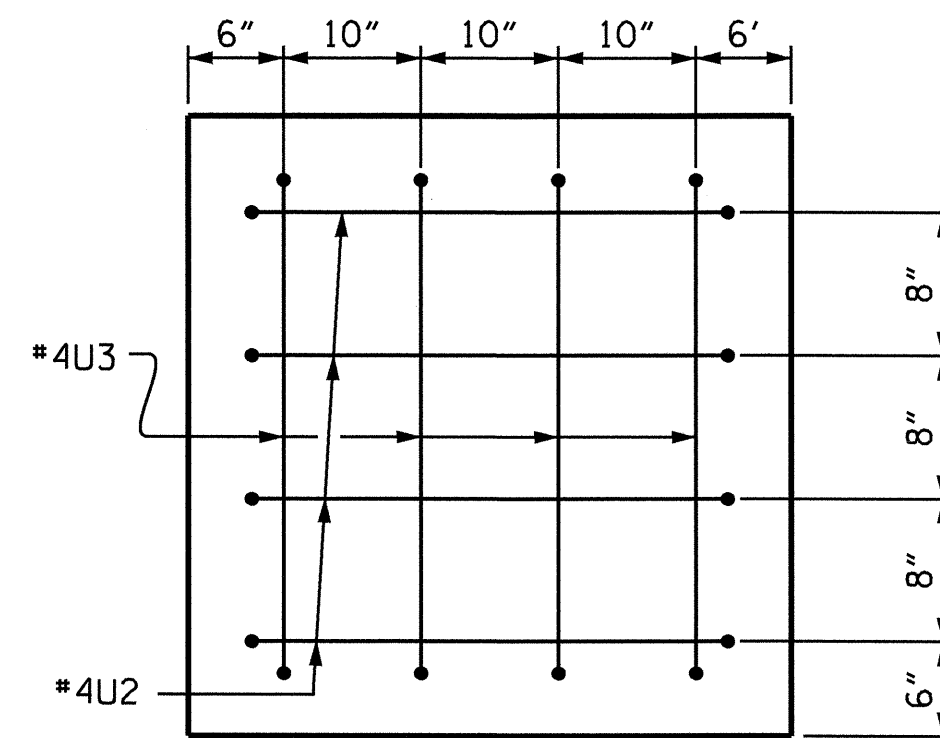
DRAWN BY: J.P. ADAMS DATE: 10/14/09
 CHECKED BY: R.L. CHESSON DATE: 10/09



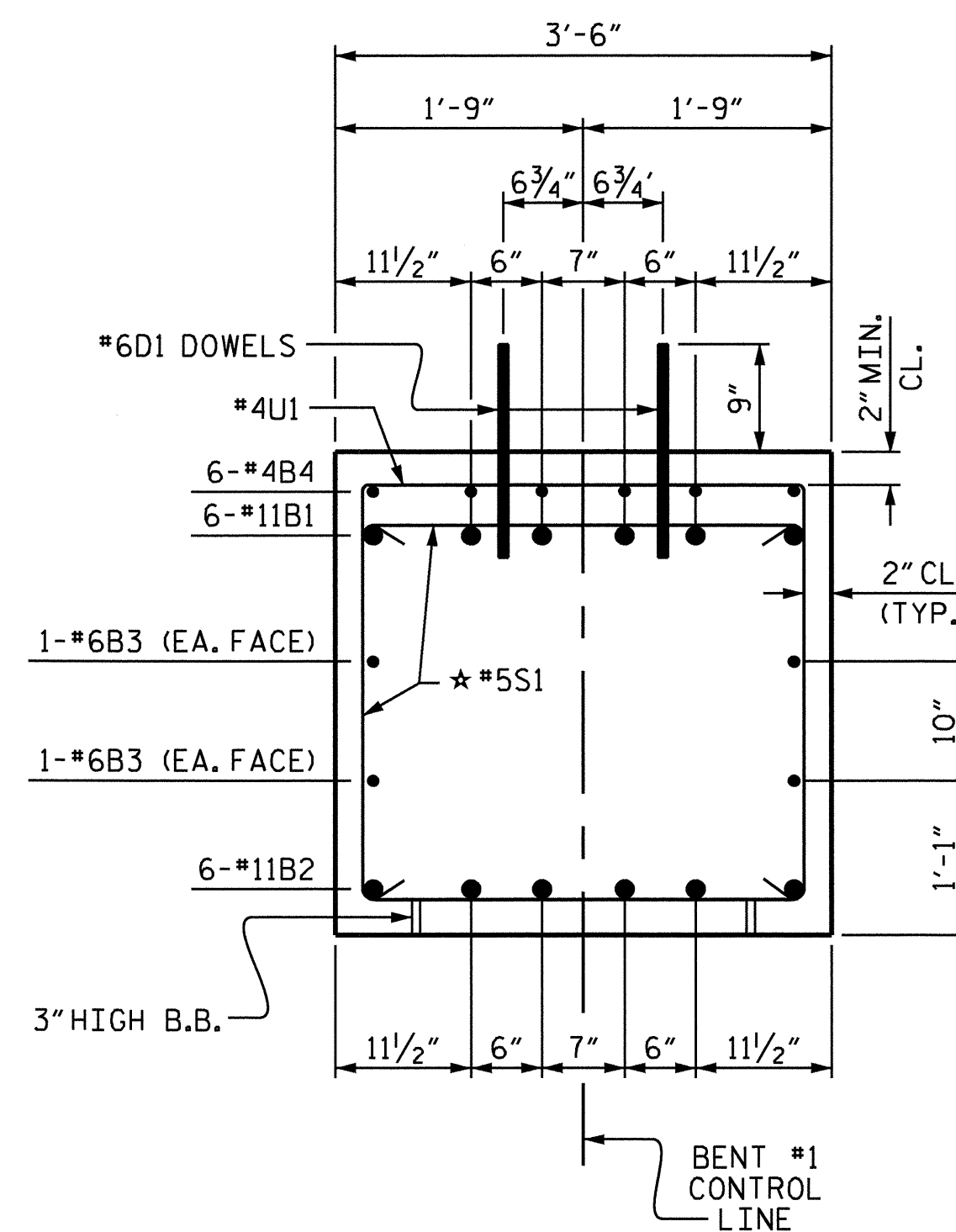
PLAN OF COLUMNS AND DRILLED PIERS



CONSTRUCTION JOINT DETAIL



END VIEW
(TYP. EA. END)

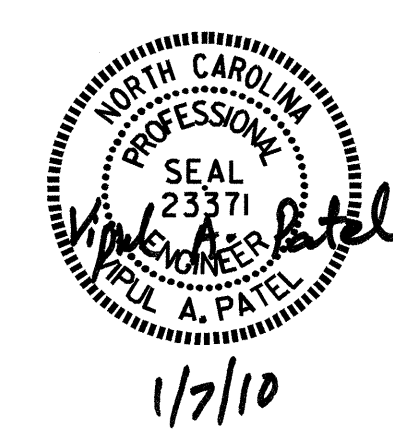


SECTION THRU CAP
* INVERT ALTERNATE STIRRUPS

BAR TYPES		BILL OF MATERIAL				
		BENT #1				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	6	#11	1	51'-3"	1634	
B2	6	#11	STR	48'-3"	1538	
B3	4	#6	STR	48'-3"	290	
B4	6	#4	STR	30'-6"	122	
B5	2	#4	STR	3'-4"	4	
B6	2	#4	STR	3'-2"	4	
D1	52	#6	STR	1'-6"	117	
M1	30	#9	STR	23'-0"	2346	
S1	60	#5	3	9'-4"	584	
U1	21	#4	4	6'-2"	87	
U2	8	#4	4	6'-0"	32	
U3	8	#4	4	5'-6"	29	
U4	2	#4	4	3'-7"	5	
U5	2	#4	4	3'-3"	4	
U6	2	#4	4	2'-11"	4	
U7	2	#4	4	2'-7"	3	
V1	30	#9	2	8'-8"	884	
REINFORCING STEEL				LBS	7687	
SP-1	3	**	5	170'-5"	342	
SP-2	3	***	6	249'-8"	781	
SPIRAL COLUMN REINFORCING STEEL				LBS	1123	
CLASS A CONCRETE (Cu. Yds.)						
POUR #2 (COLUMNS)					3.1	
POUR #3 (CAP)					20.6	
POUR #4 (LATERAL GUIDE)					0.2	
TOTAL (Cu. Yds.)					23.9	
3'-0" DIA. DRILLED PIERS						
DRILLED PIER CONCRETE						
POUR #1 (DRILLED PIERS)					12.2 Cu. Yds.	
3'-0" DIA. DRILLED PIERS IN SOIL					28.5 Lin. Ft.	
3'-0" DIA. DRILLED PIERS NOT IN SOIL					18.0 Lin. Ft.	
PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIERS					28.1 Lin. Ft.	
SID INSPECTION					1 EA.	
CROSSHOLE SONIC LOGGING					1 EA.	
CSL TUBES					216.0 Lin. Ft.	

ALL BAR DIMENSIONS ARE OUT TO OUT.
 * THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4580
 MECKLENBURG COUNTY
 STATION: 33+10.00 -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:	S-19
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2			4			25

DRAWN BY: J.P. ADAMS DATE: 10/14/09
 CHECKED BY: R.L. CHESSON DATE: 10/09

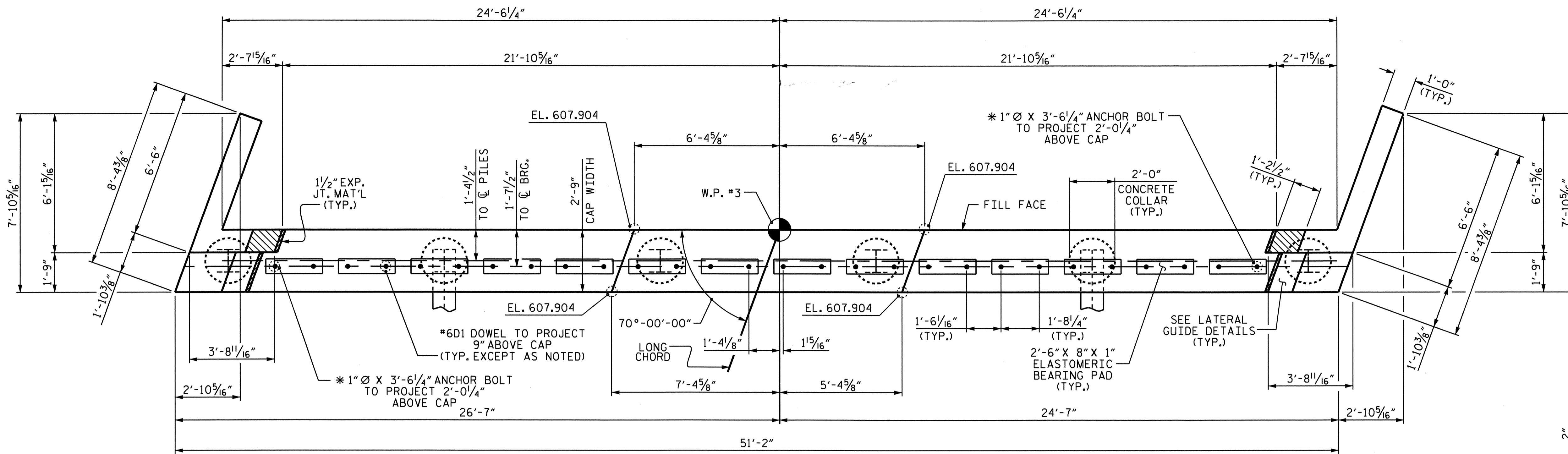
NOTES

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

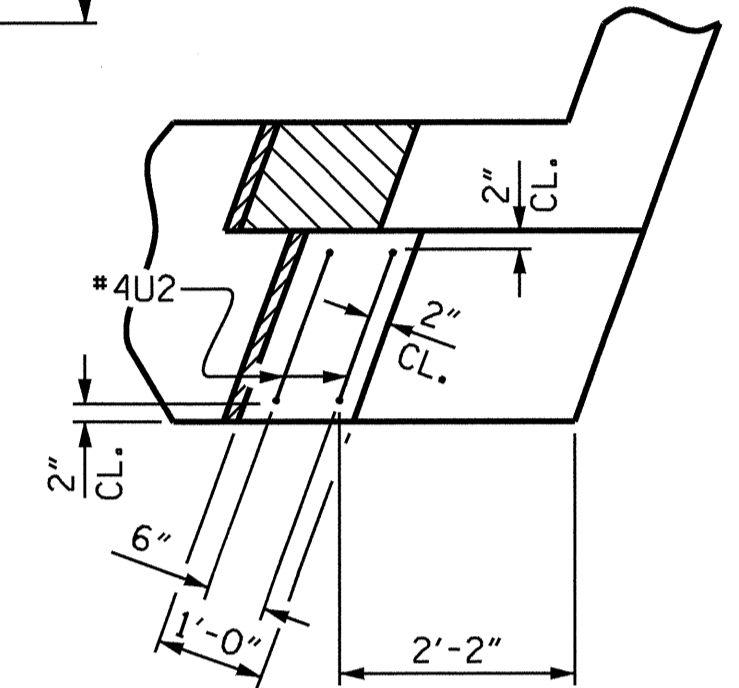
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

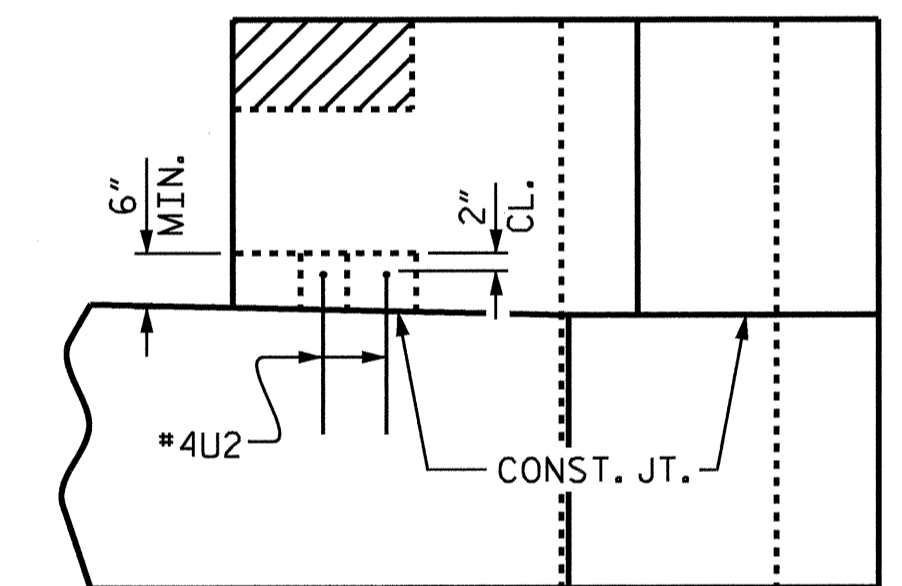
* THE COST OF THE 1" Ø ANCHOR BOLTS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.



PLAN



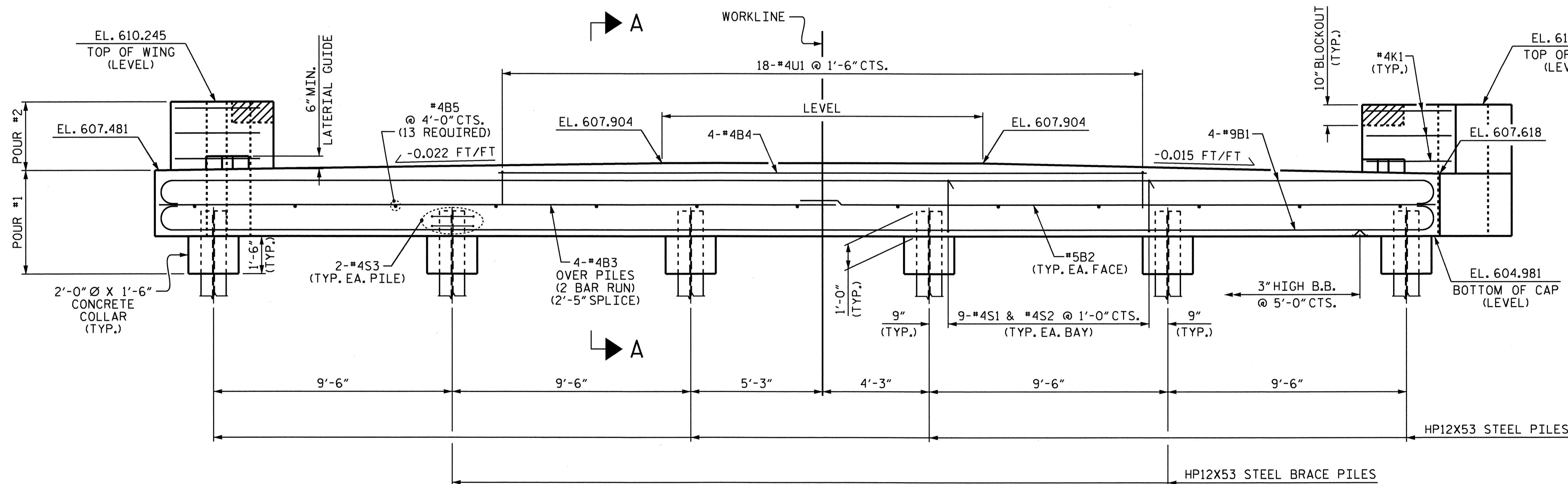
PLAN



ELEVATION

LATERAL GUIDE DETAILS

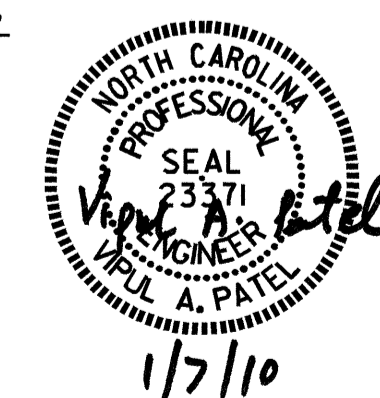
EACH END SIMILAR



ELEVATION

PROJECT NO. B-4580
 MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 1 OF 3

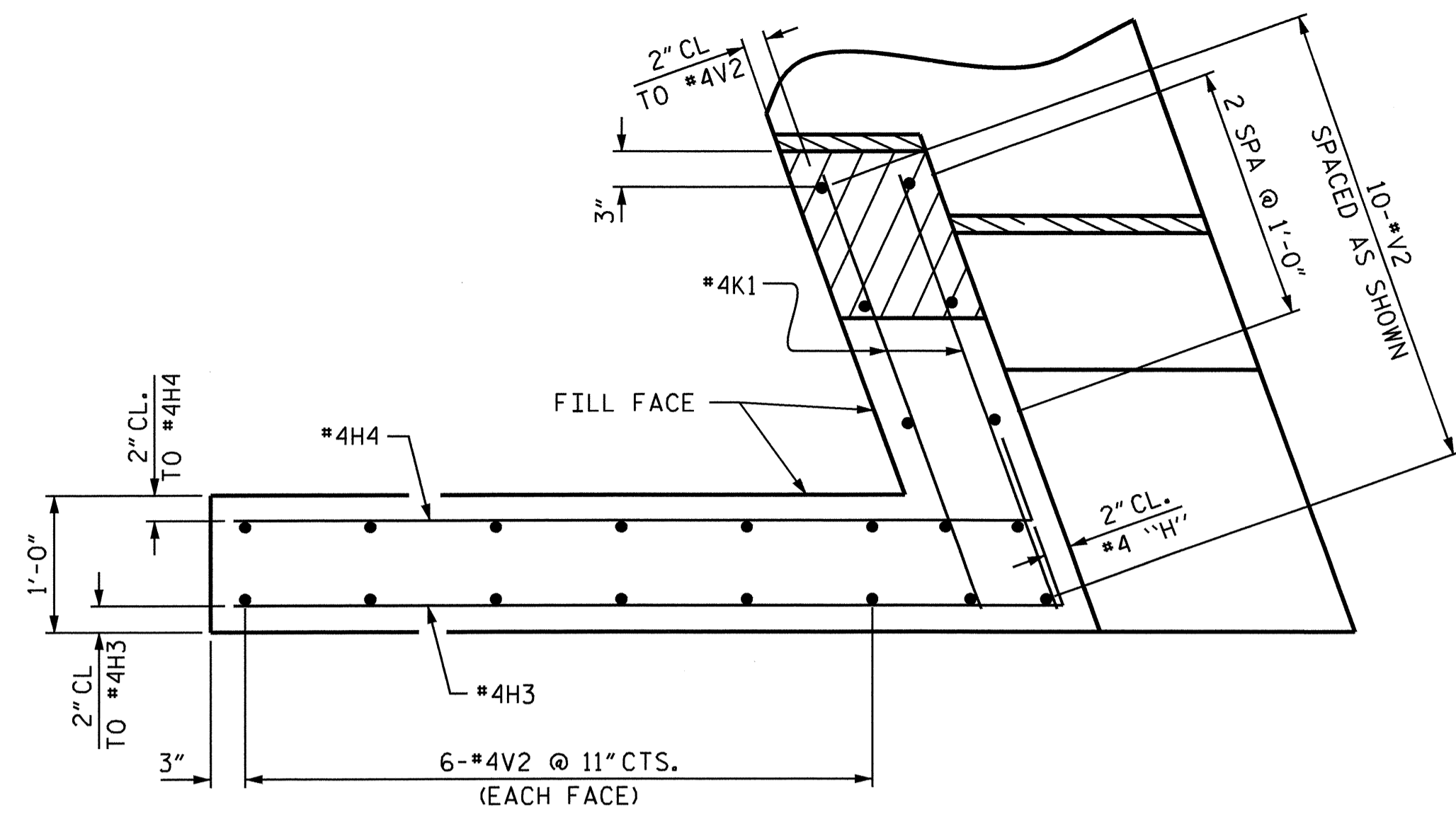


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

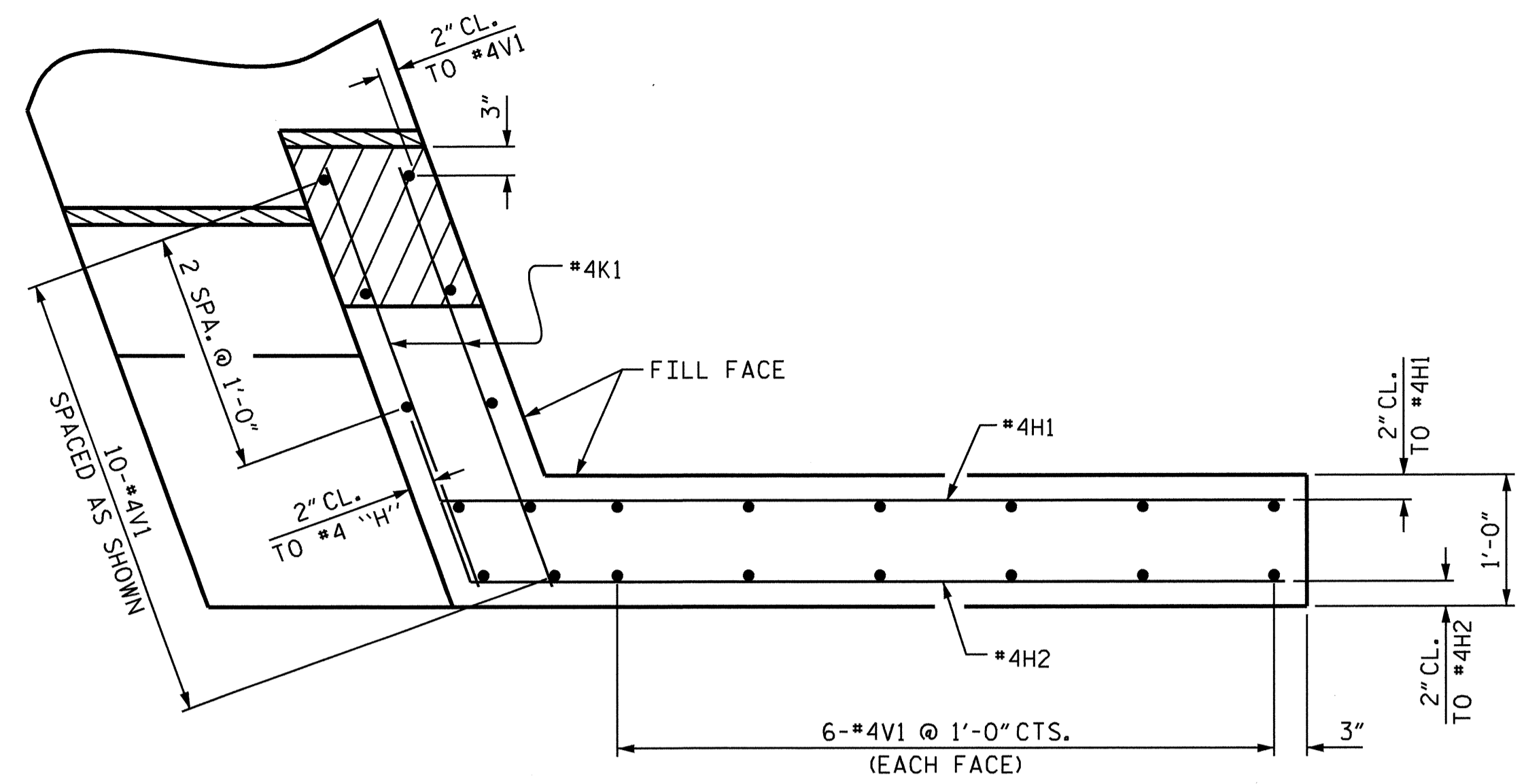
SUBSTRUCTURE
 END BENT #2

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

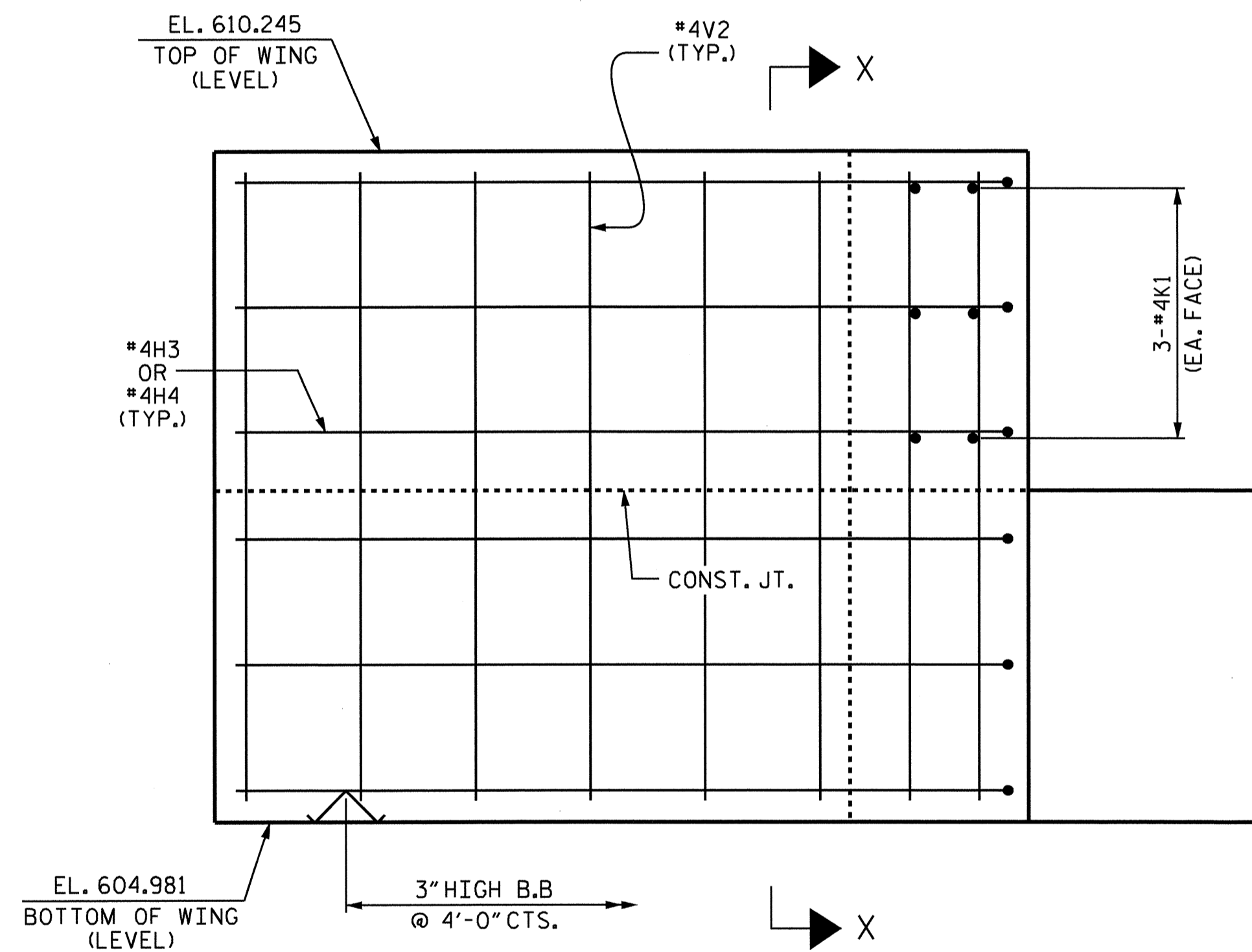
DRAWN BY: J.P. ADAMS DATE: 9/23/09
 CHECKED BY: R.L. CHESSON DATE: 10/28/09



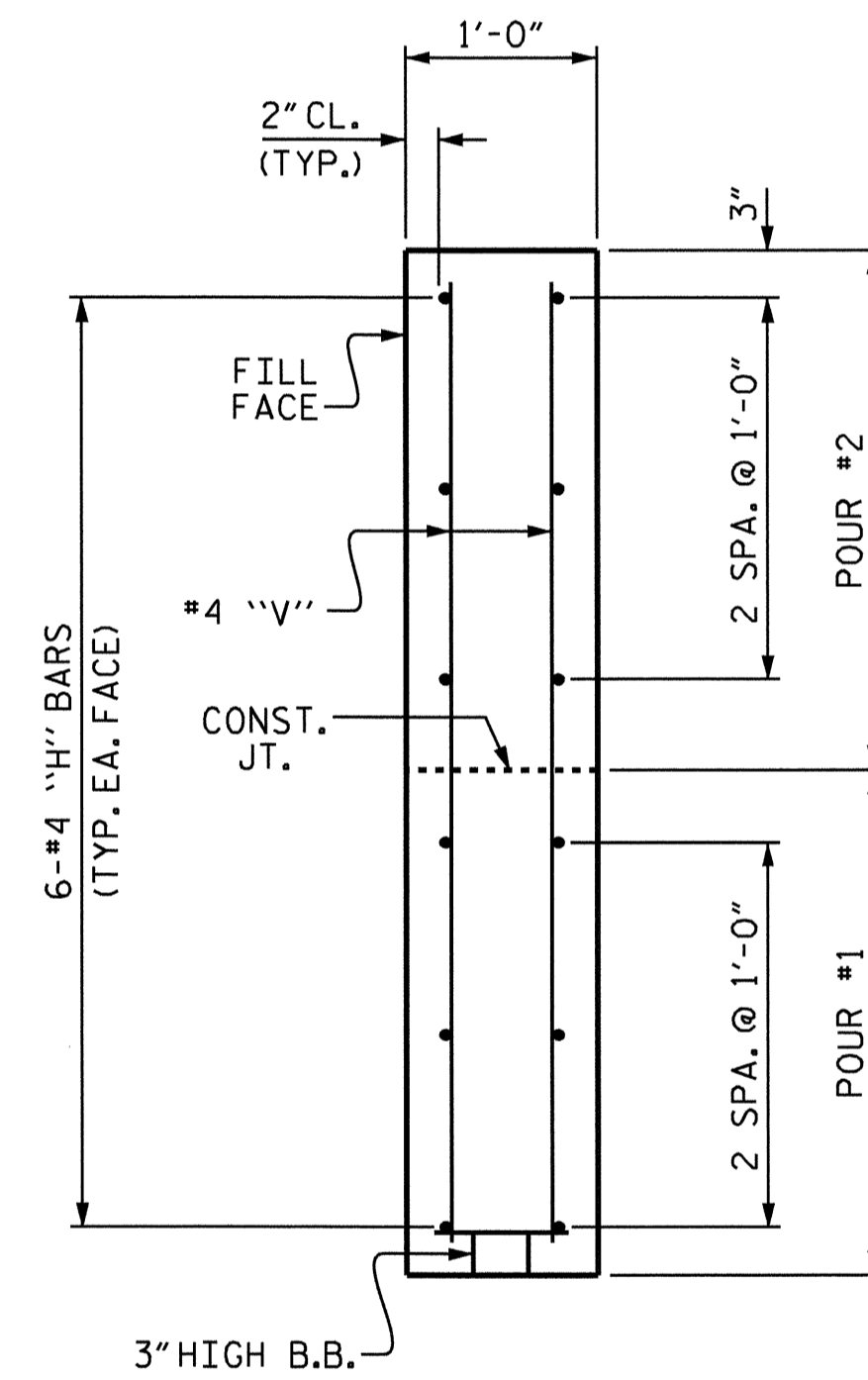
PLAN OF LEFT WING



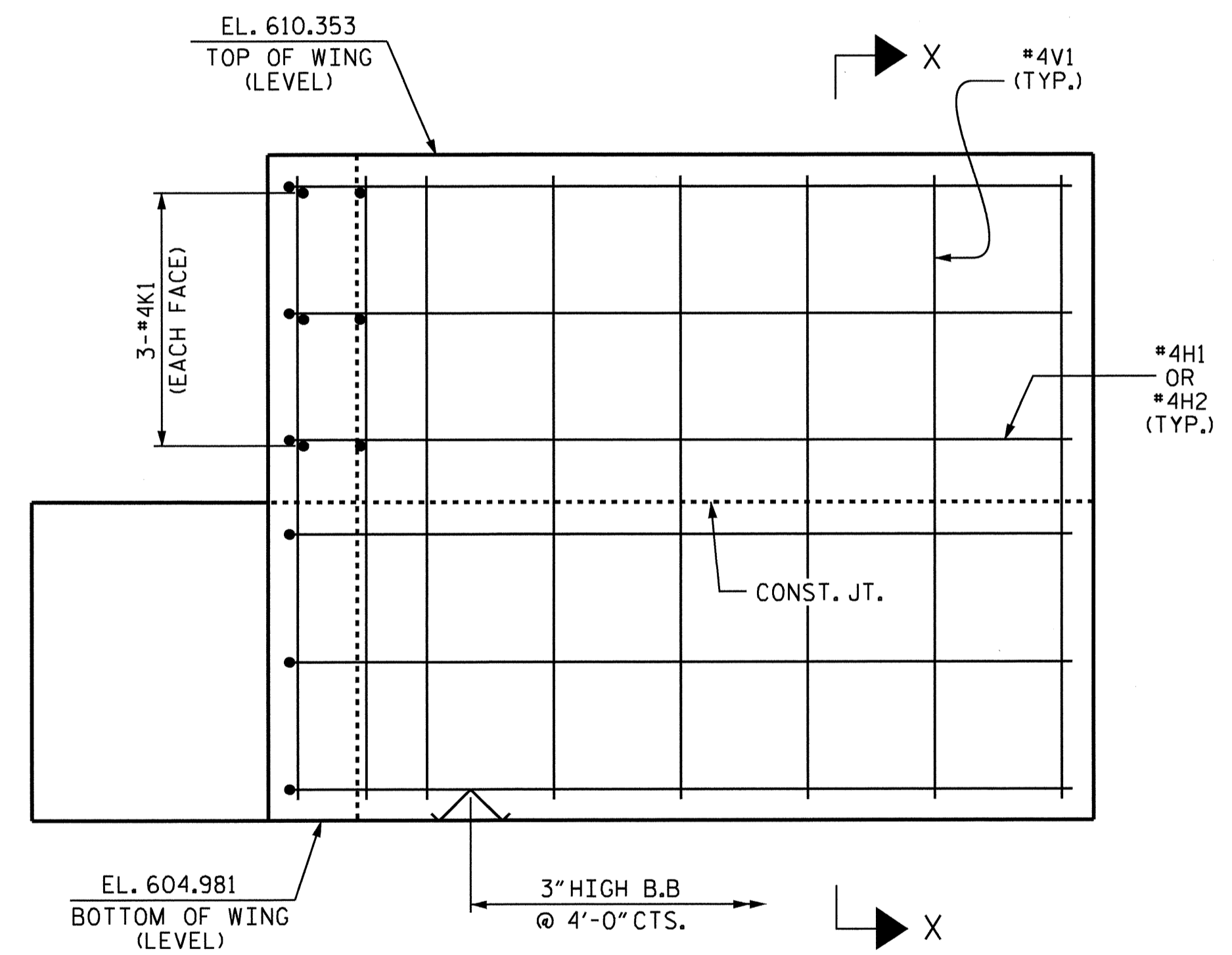
PLAN OF RIGHT WING



ELEVATION OF LEFT WING



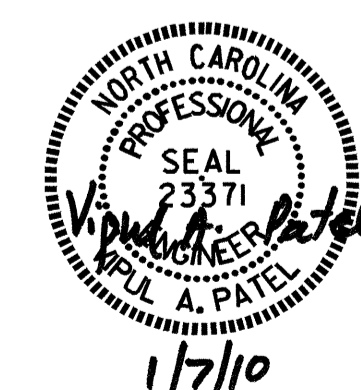
SECTION X-X



ELEVATION OF RIGHT WING

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

SHEET 2 OF 3

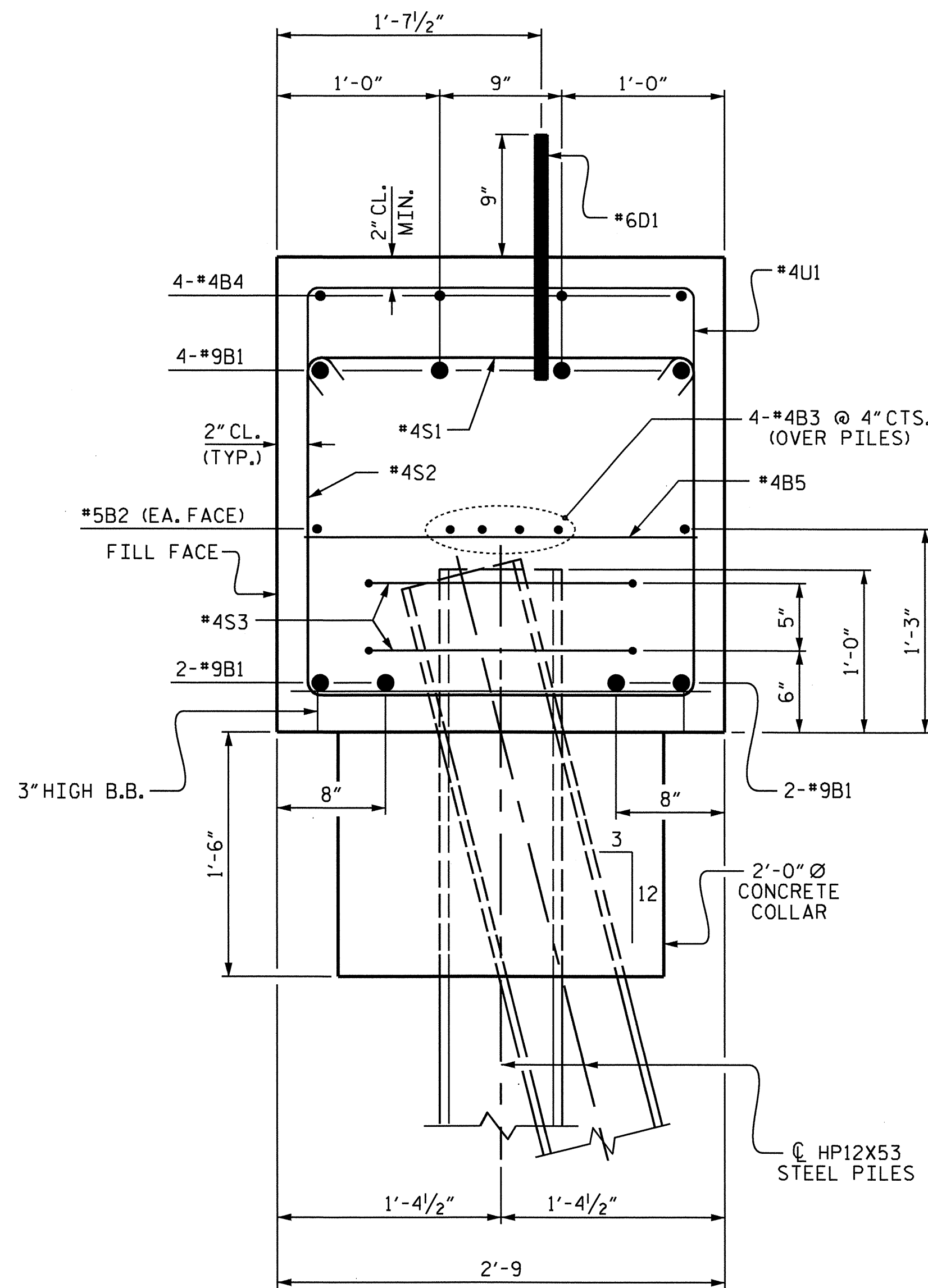


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2

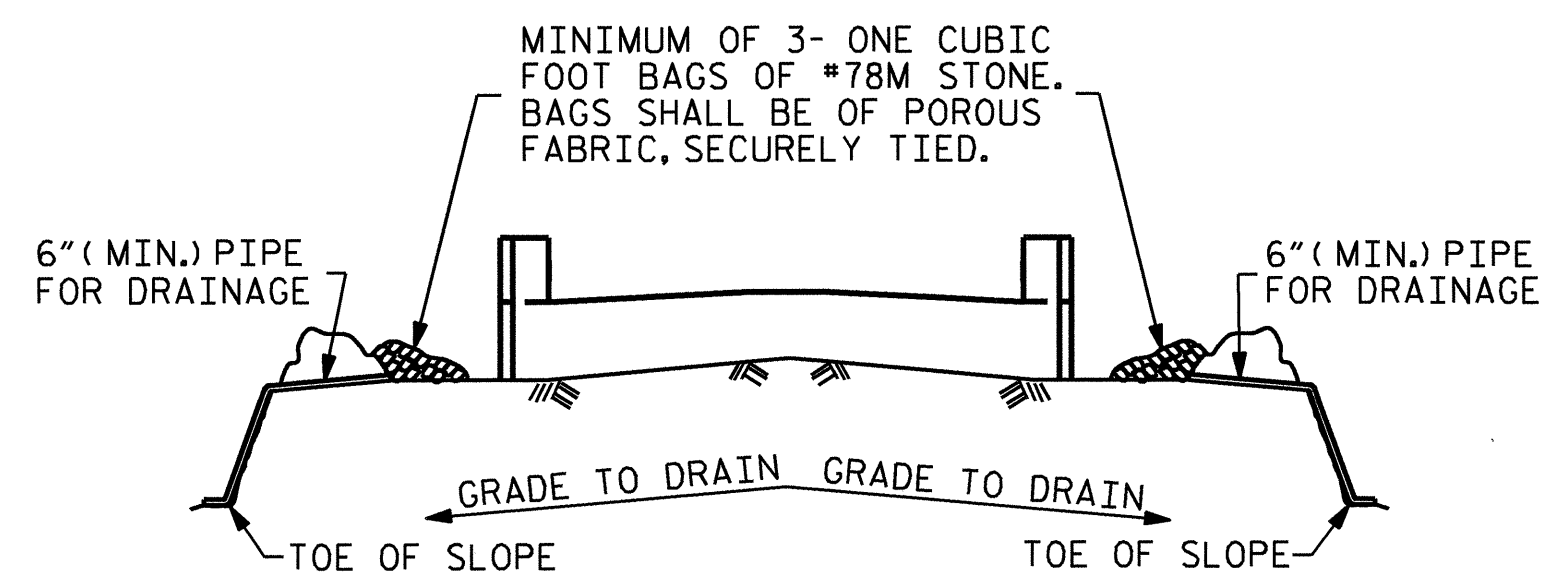
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 CHECKED BY : R.L. CHESSON DATE : 10/28/09

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REVISIONS						SHEET NO. S-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			



SECTION A-A



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

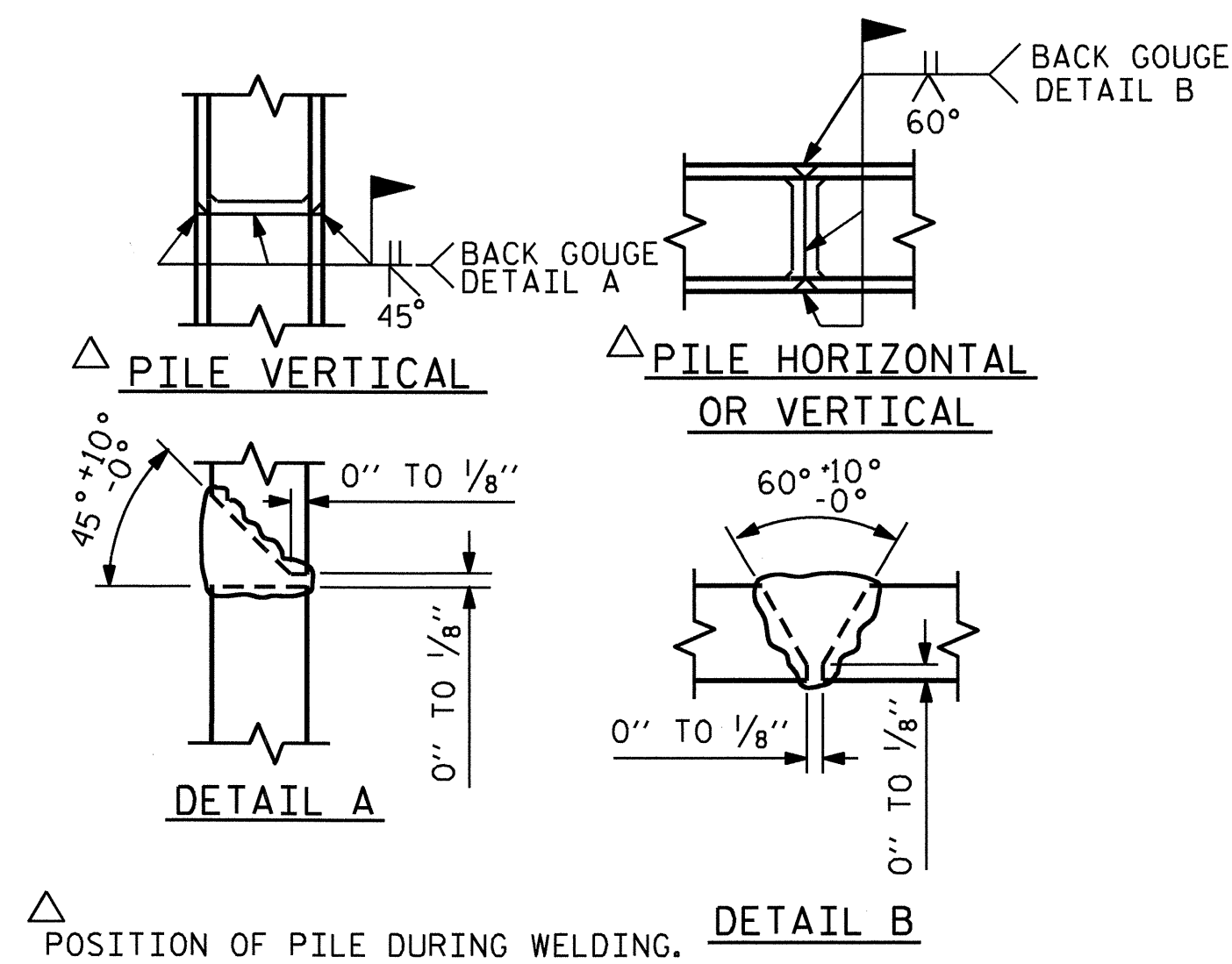
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 CHECKED BY : R.L. CHESSON DATE : 10/28/09

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BAR TYPES

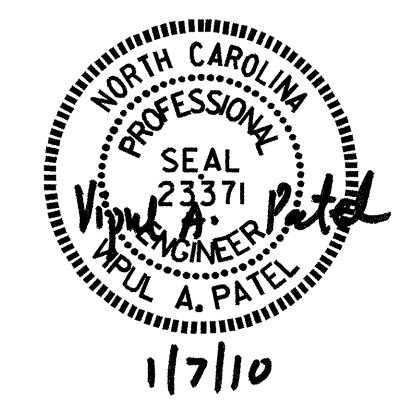
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	53'-2"	1446
B2	2	#5	STR	50'-10"	106
B3	8	#4	STR	26'-8"	143
B4	4	#4	STR	25'-10"	69
B5	13	#4	STR	2'-5"	21
D1	26	#6	STR	1'-6"	59
H1	6	#4	4	7'-1"	28
H2	6	#4	4	6'-10"	27
H3	6	#4	5	6'-8"	27
H4	6	#4	5	6'-6"	26
K1	12	#4	STR	3'-4"	27
S1	45	#4	2	3'-2"	95
S2	45	#4	3	7'-5"	223
S3	12	#4	7	6'-6"	52
U1	18	#4	6	5'-5"	65
U2	4	#4	6	4'-6"	12
V1	22	#4	STR	5'-0"	73
V2	22	#4	STR	4'-11"	72
REINFORCING STEEL					LBS 2571
CLASS "A" CONCRETE BREAKDOWN					
POUR #1 (CAP, COLLARS & LOWER WINGS)					16.6 C.Y.
POUR #2 (UPPER WINGS)					1.9 C.Y.
POUR #3 (LATERAL GUIDES)					0.1 C.Y.
CLASS "A" CONCRETE TOTAL					18.6 C.Y.
HP12X53 STEEL PILES					NO. 6 180.0 LIN FT.



PILE SPLICE DETAILS

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-
 SHEET 3 OF 3

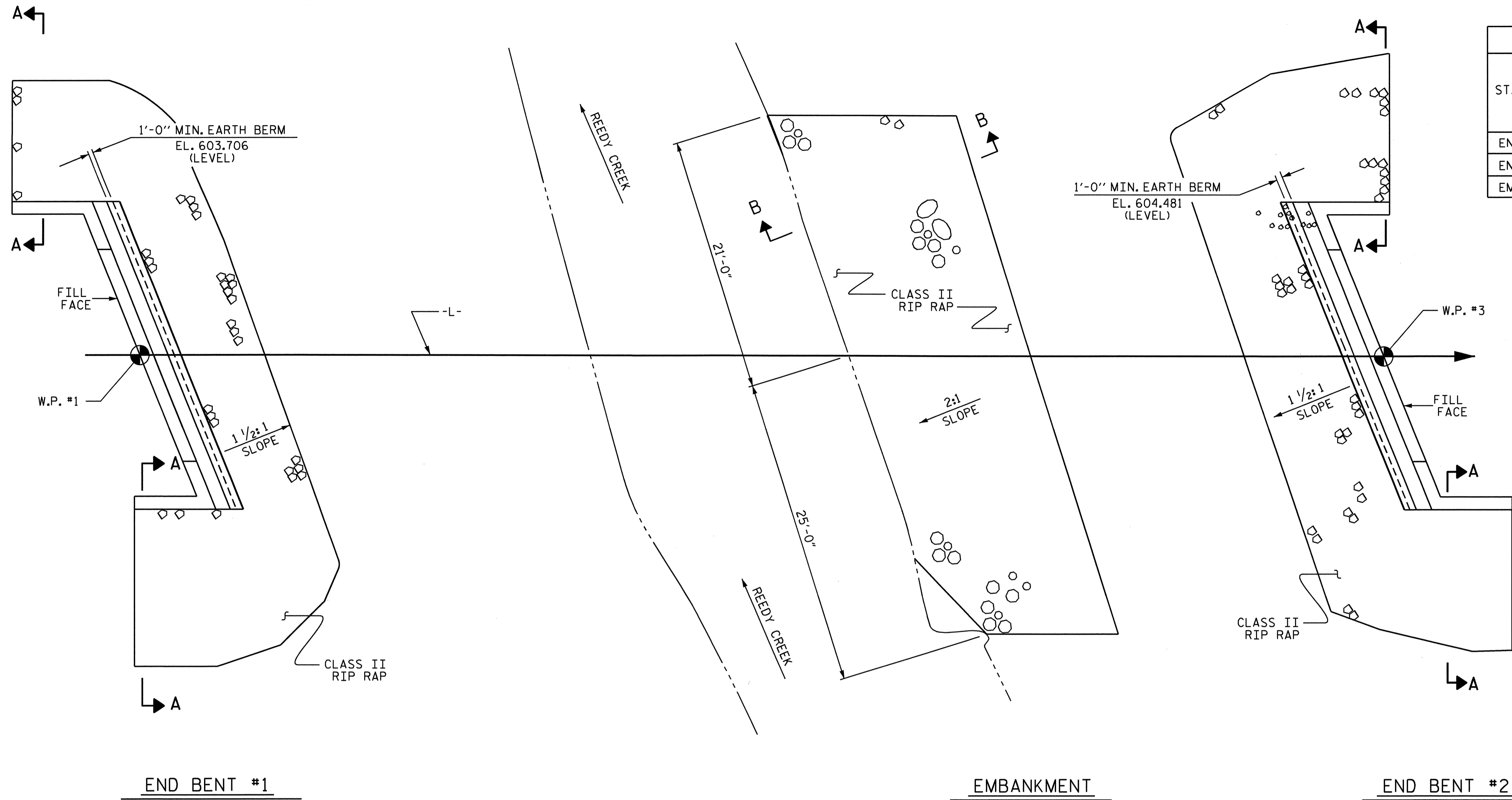


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

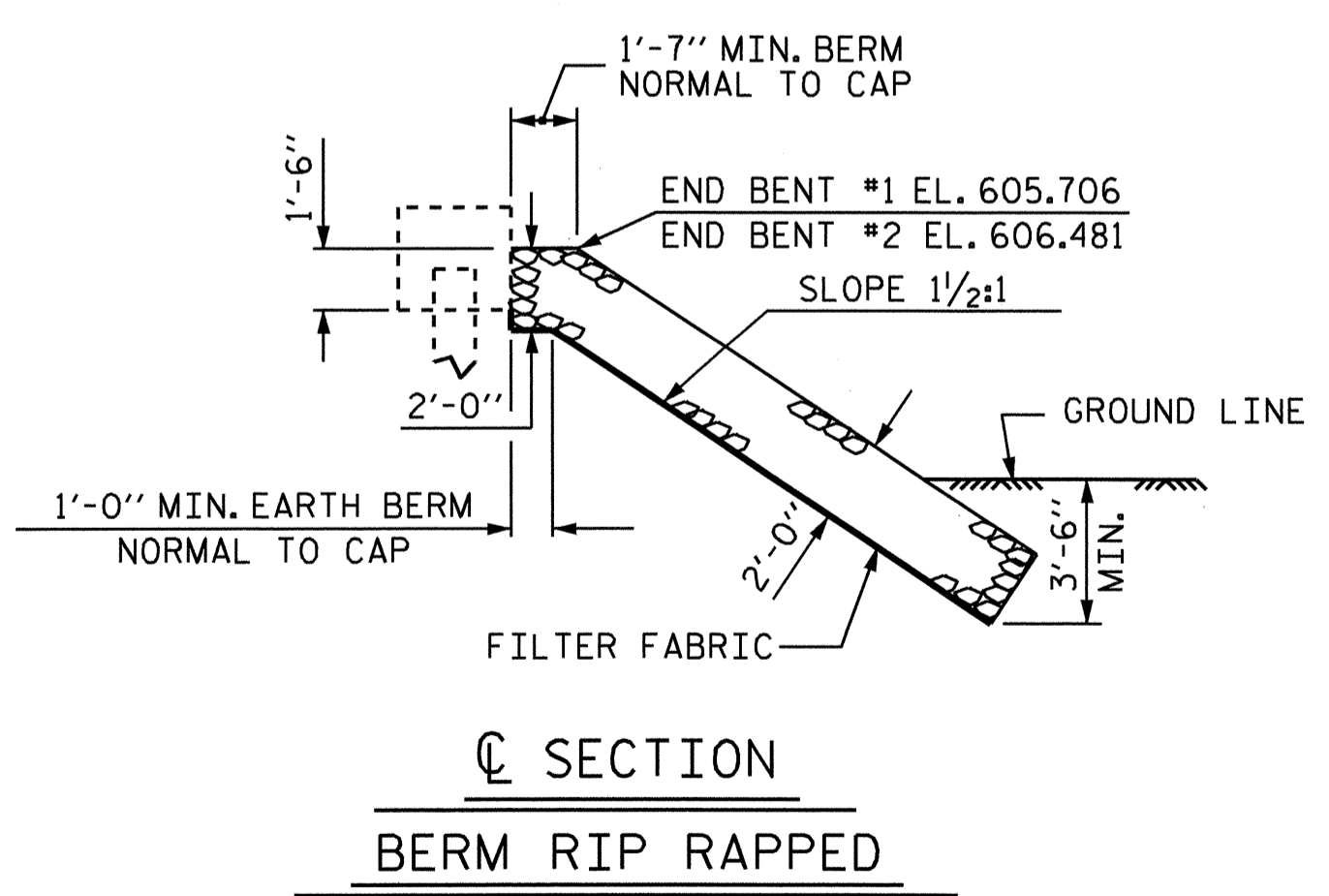
SUBSTRUCTURE
 END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
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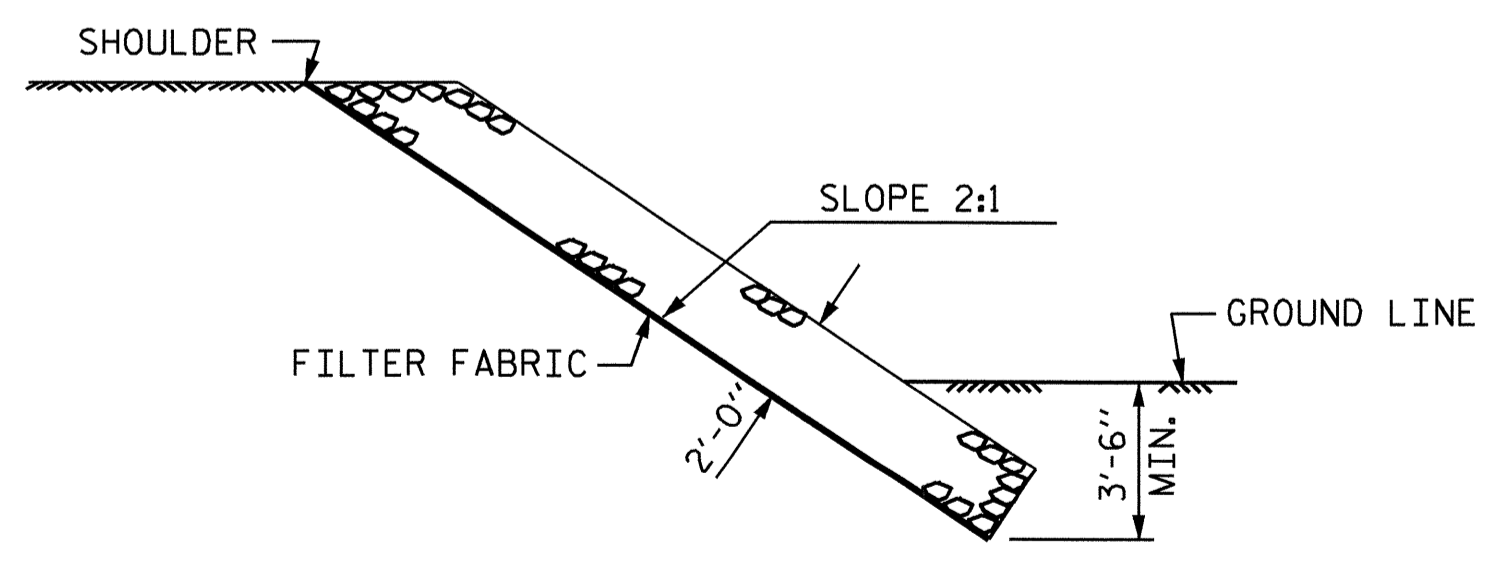
ESTIMATED QUANTITIES		
BRIDGE @ STA. 33+10.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	80	90
END BENT #2	100	115
EMBANKMENT	125	140



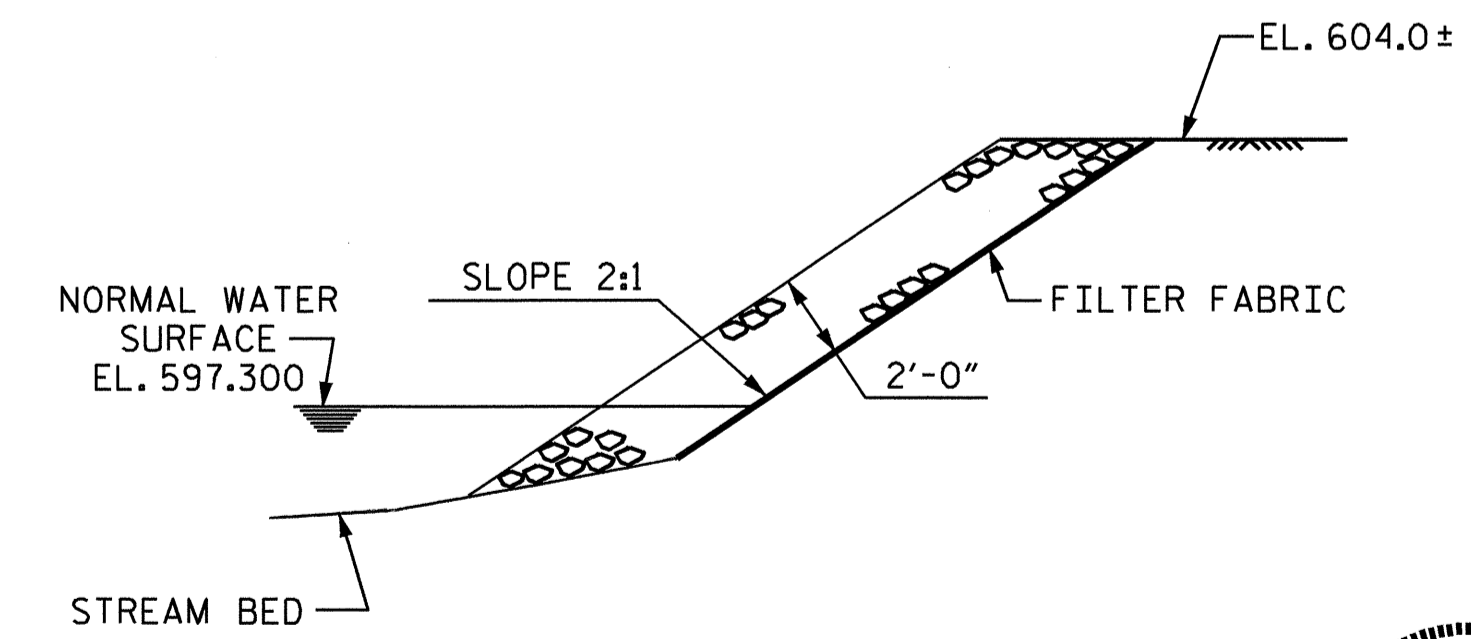
PLAN OF RIP RAP



C SECTION
BERM RIP RAPPED



SECTION A-A



SECTION B-B

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-

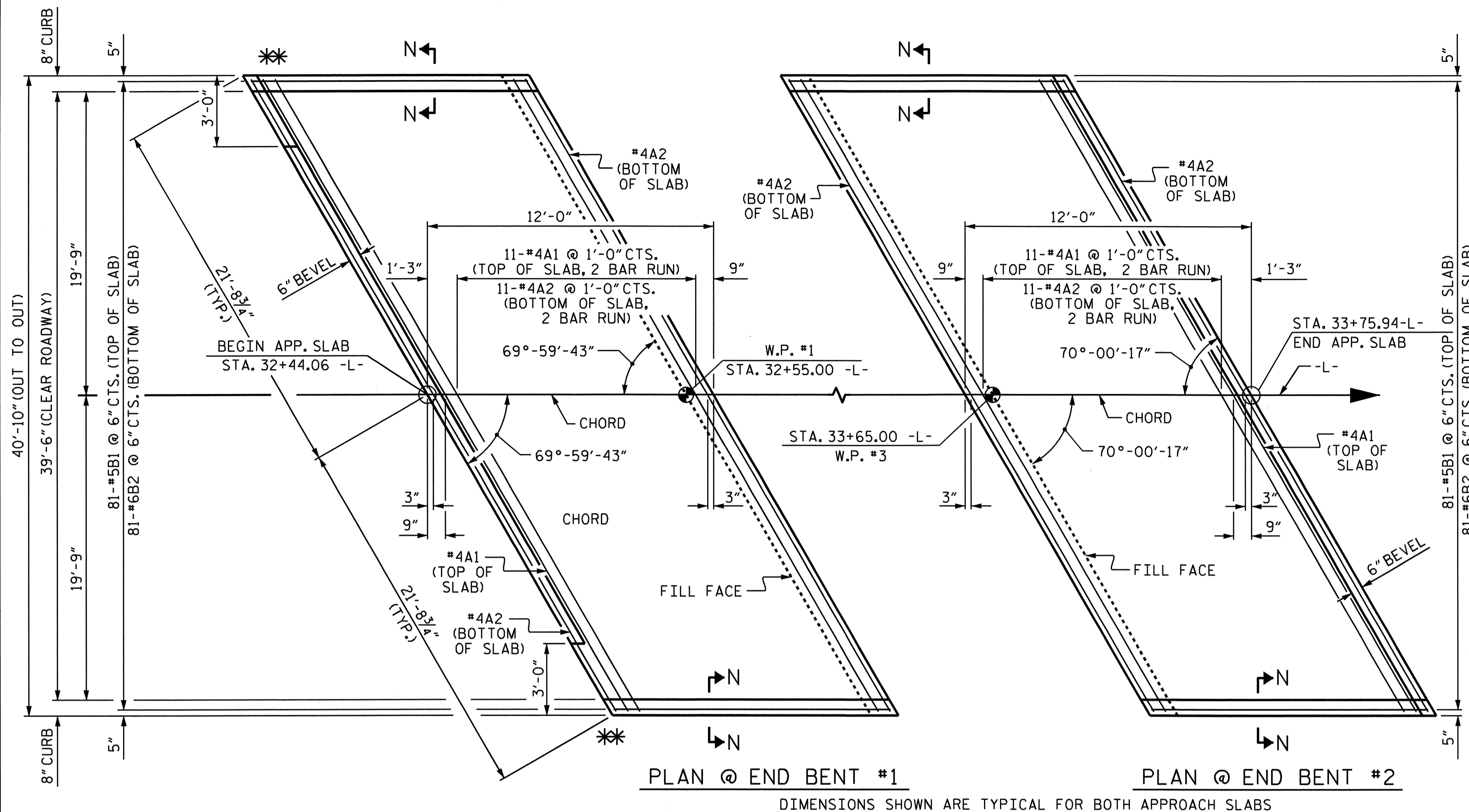


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 —RIP RAP DETAILS—

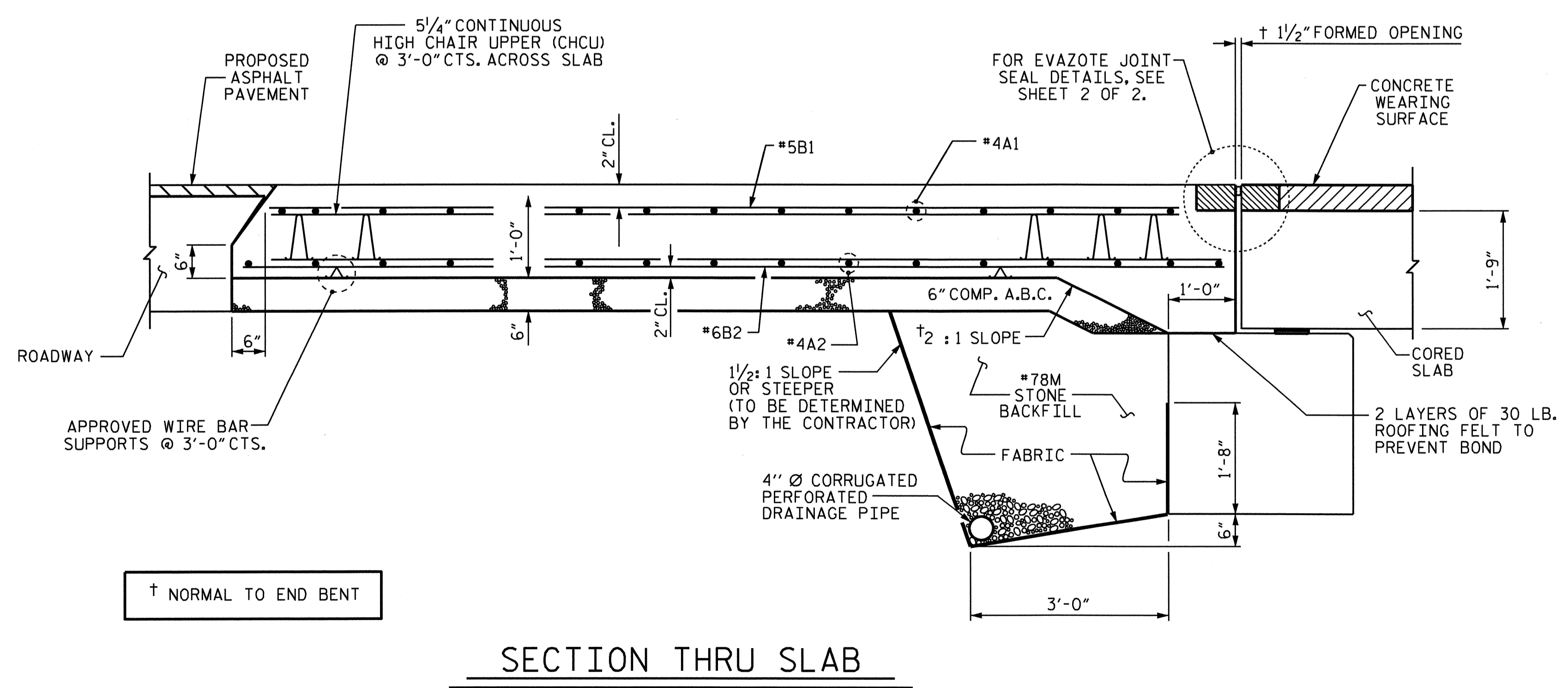
ASSEMBLED BY : R. G. EMERSON DATE : 07/09
 CHECKED BY : J. P. ADAMS DATE : 10/09
 DRAWN BY : REK 1/84 REV. 8/16/99 RWW/LES
 CHECKED BY : RDU 1/84 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			25

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



SECTION THRU SLAB

NOTES

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

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

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC 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.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR EVAZOTE JOINT SEAL, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

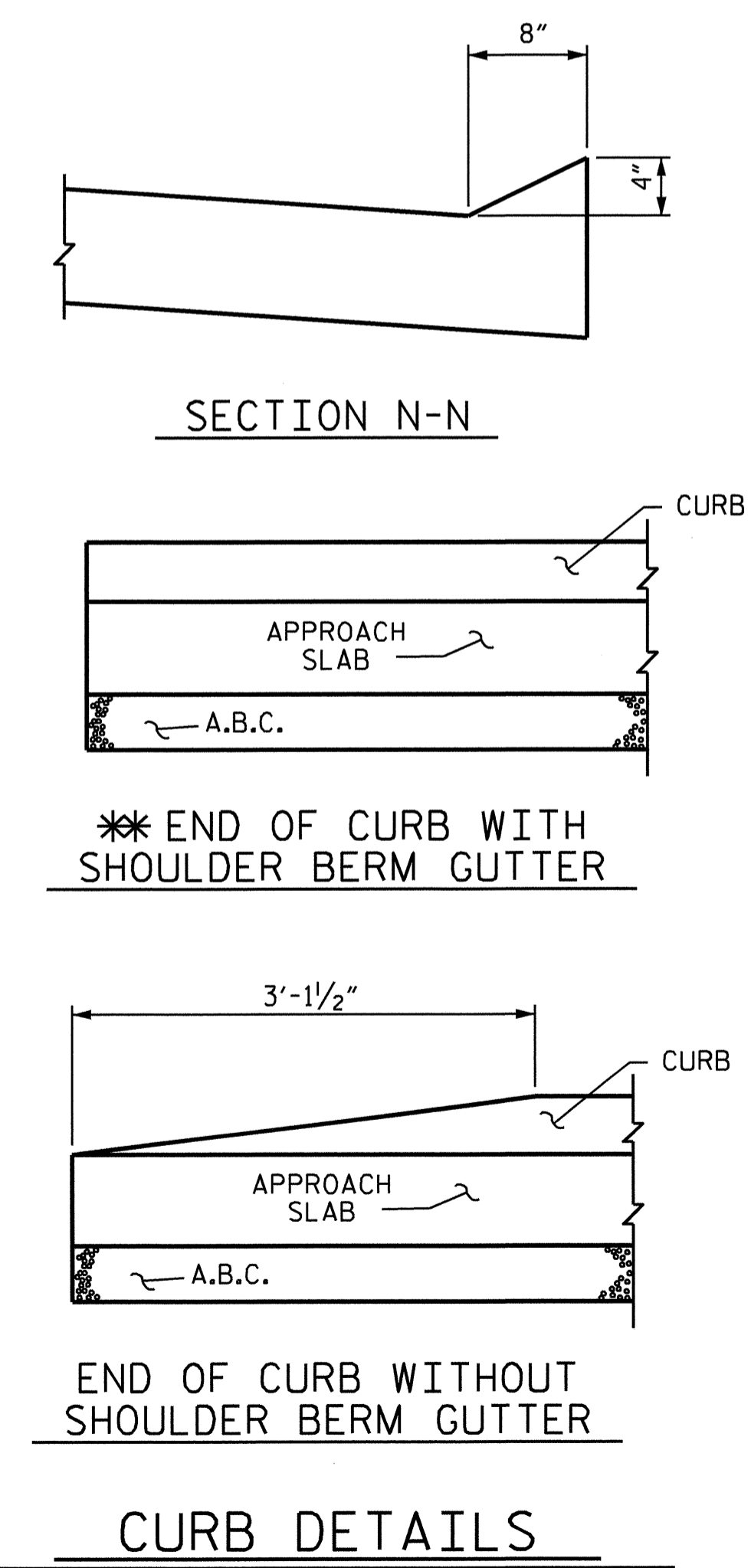
APPROACH SLABS SHALL BE POURED AFTER CONCRETE WEARING SURFACE IS POURED.

BILL OF MATERIAL FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	24	#4	STR	22'-7"	362
A2	26	#4	STR	22'-6"	391
*B1	81	#5	STR	10'-7"	894
B2	81	#6	STR	11'-7"	1409
REINFORCING STEEL				LBS.	1800
* EPOXY COATED REINFORCING STEEL				LBS.	1256
CLASS AA CONCRETE				C. Y.	20.1

SPLICE CHART

BAR	SIZE	SPLICE LENGTH
A1	#4	2'-0"
A2	#4	1'-9"



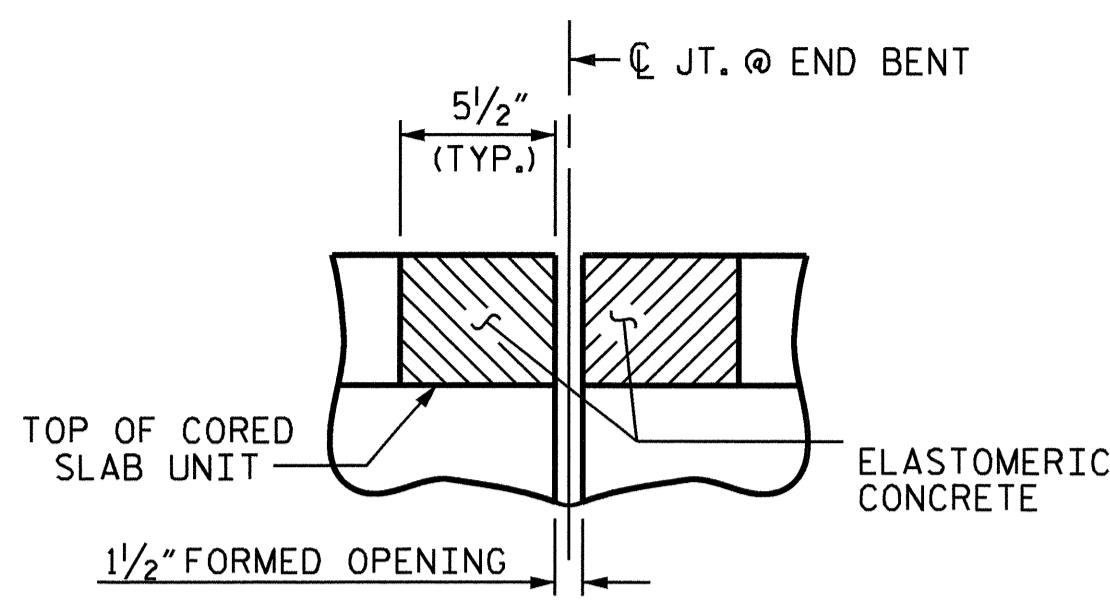
CURB DETAILS

PROJECT NO. B-4580
MECKLENBURG COUNTY
 STATION: 33+10.00 -L-
 SHEET 1 OF 2

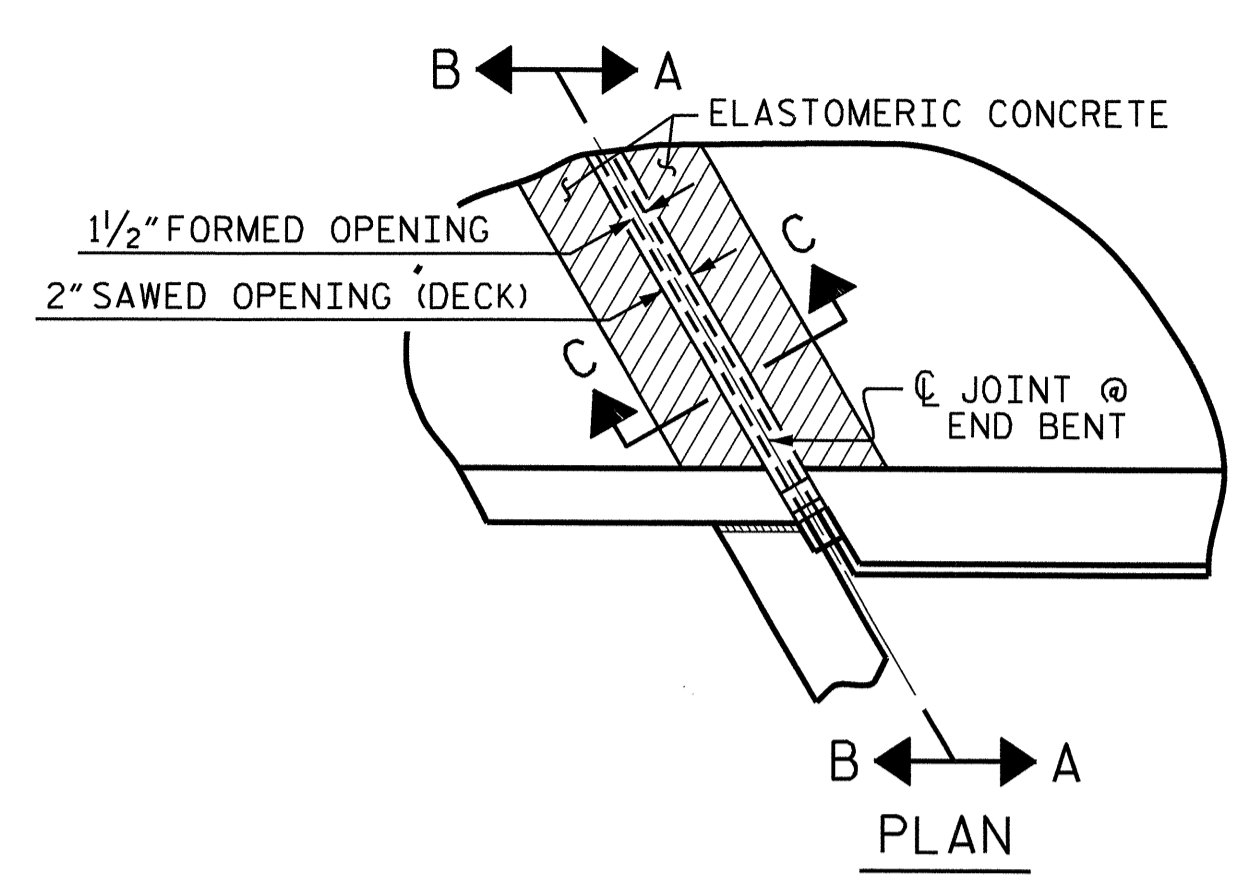
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)

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

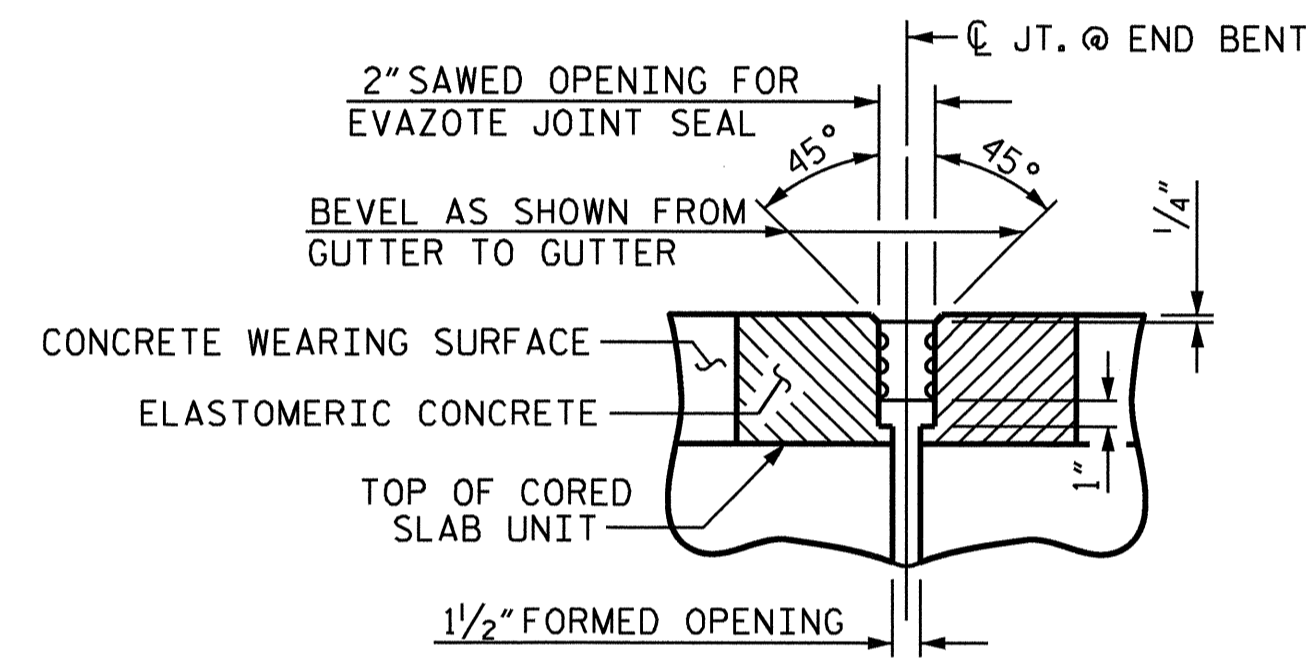
ASSEMBLED BY : J.P. ADAMS DATE : 9/21/09
 CHECKED BY : R.G. EMERSON DATE : 9/24/09
 DRAWN BY : KMM 3-08
 CHECKED BY : GM 3-08



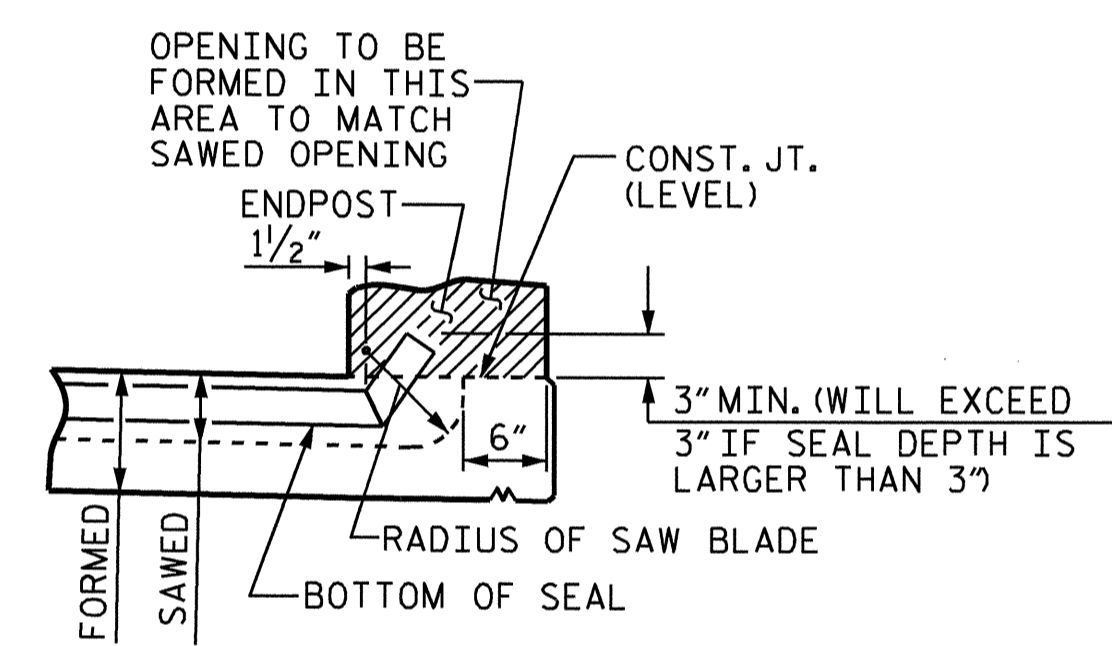
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



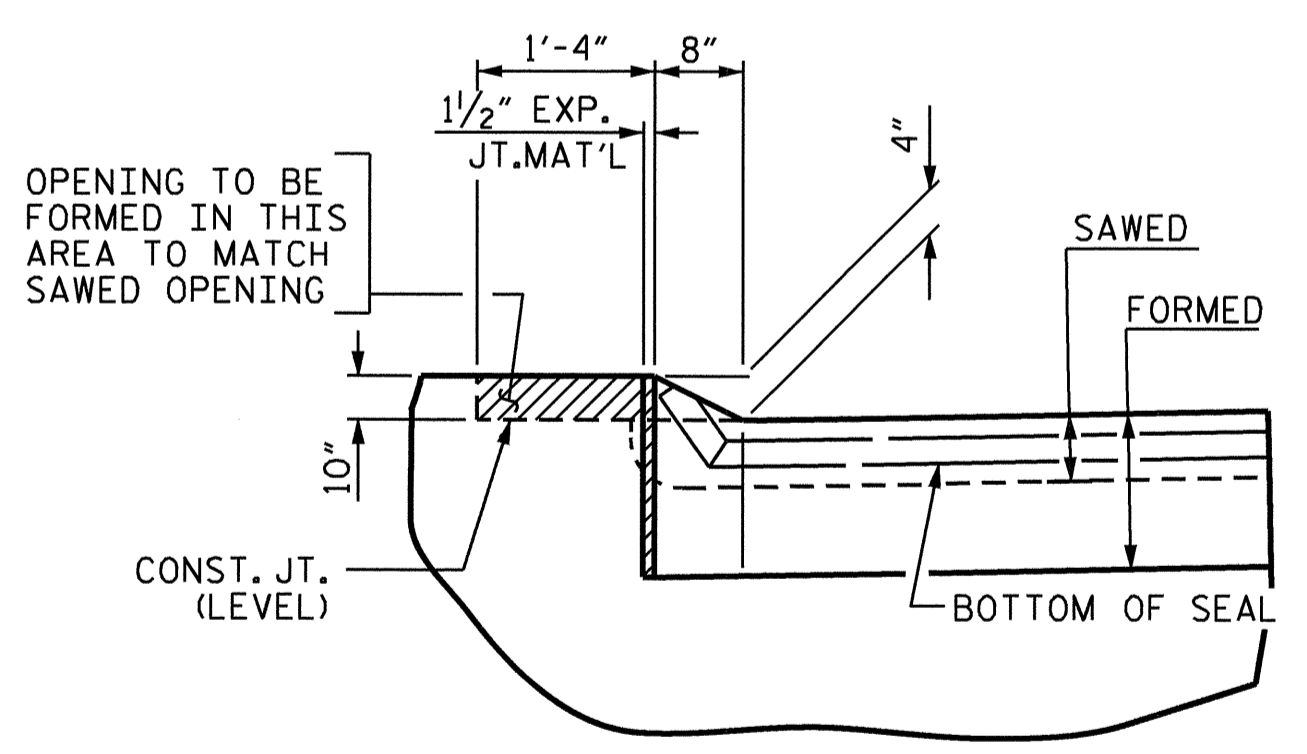
PLAN



SECTION C-C
EVAZOTE JOINT SEAL
(FIXED)



SECTION A-A

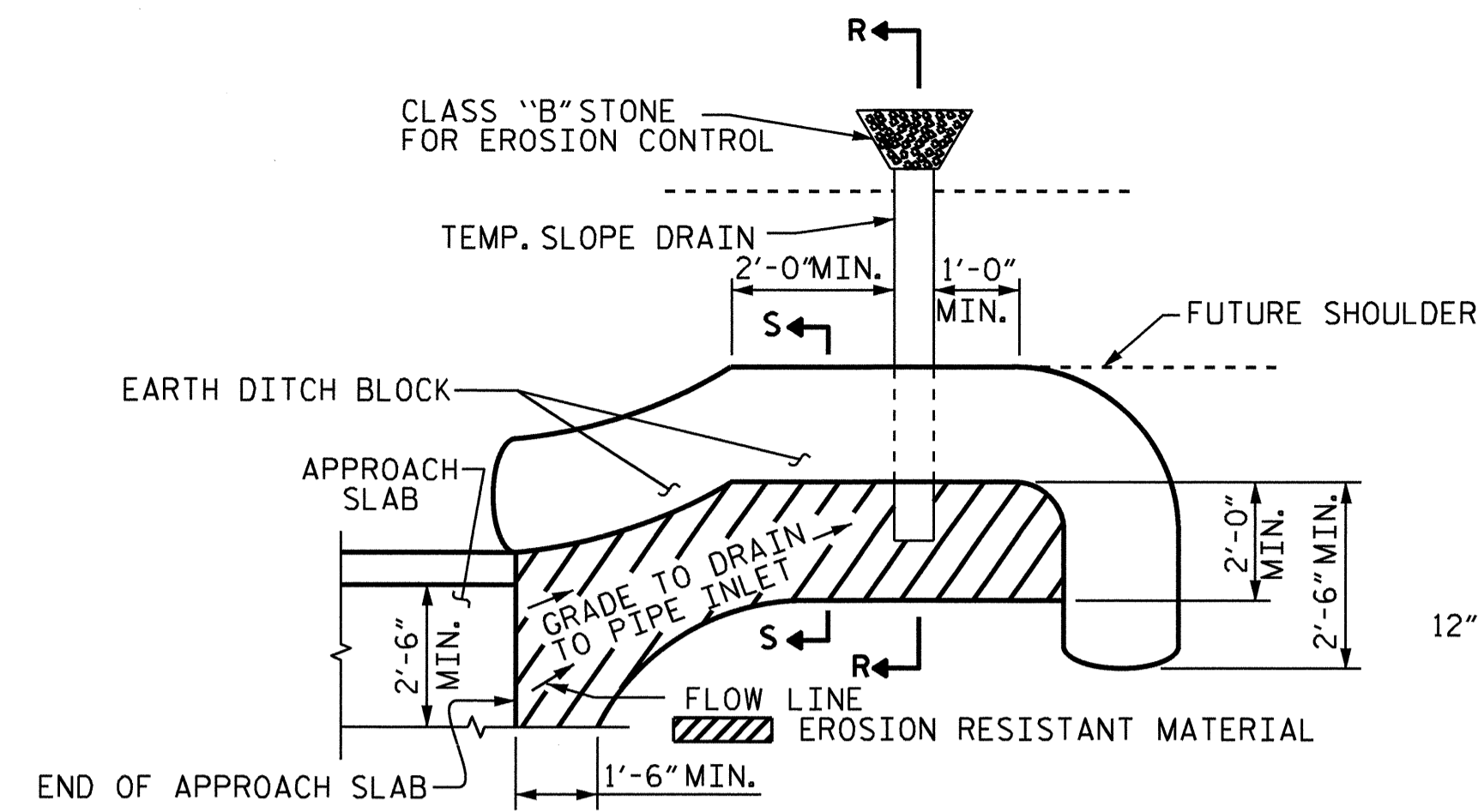


SECTION B-B

JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE PARAPET.
THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE PARAPET.

ELASTOMERIC CONCRETE	
END BENT #	ELASTOMERIC CONCRETE (CU. FT.)
1	19.3
2	19.3
TOTAL	38.6

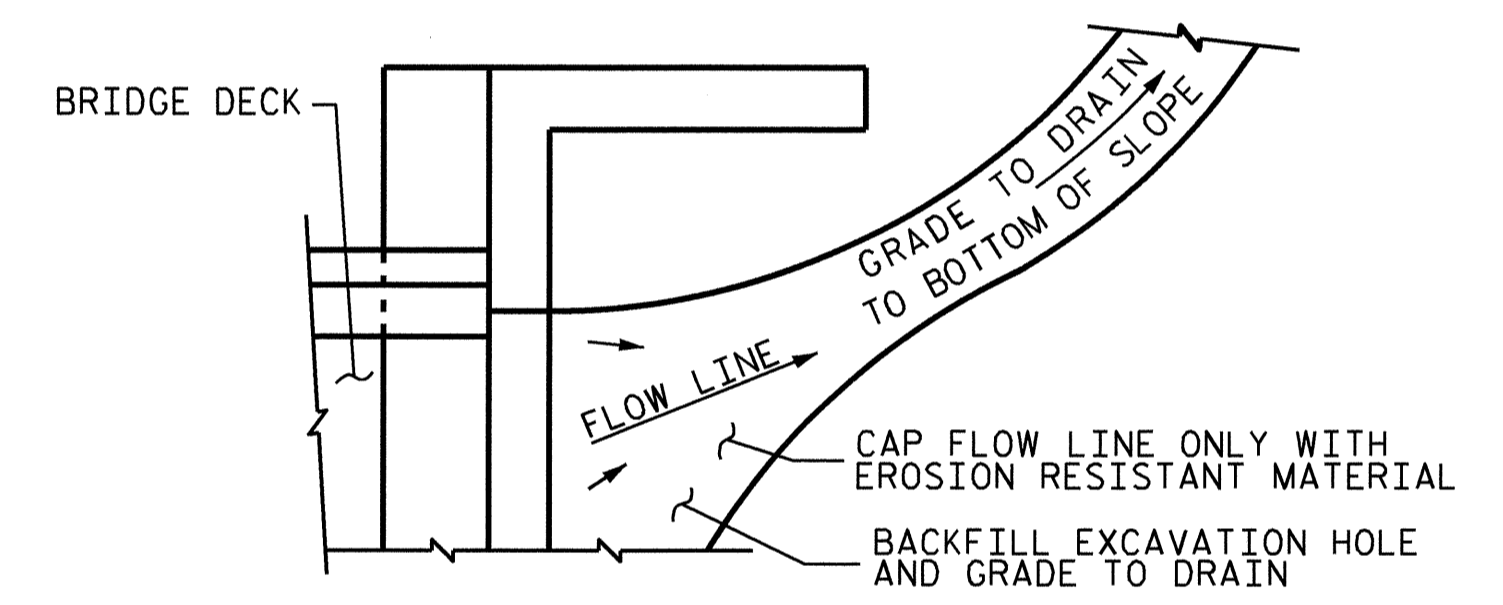


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

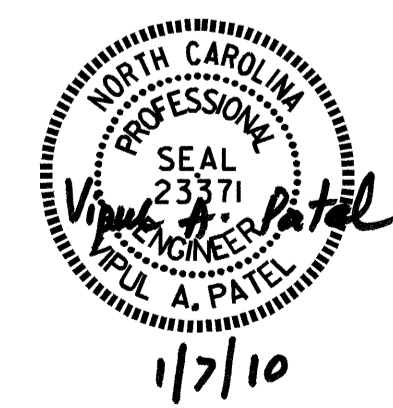


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4580
MECKLENBURG COUNTY
STATION: 33+10.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH
SLAB DETAILS

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

STD. NO. BAS10

ASSEMBLED BY : J.P. ADAMS	DATE : 9/21/09
CHECKED BY : R.G. EMERSON	DATE : 9/24/09
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS 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

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