

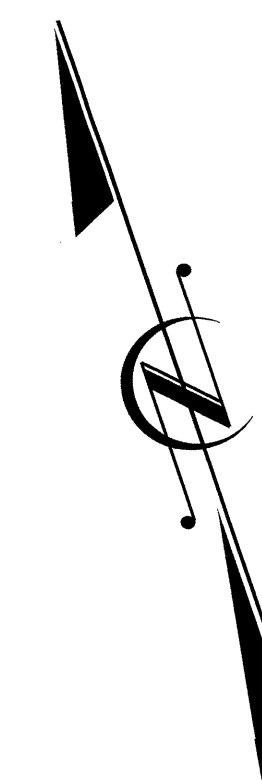
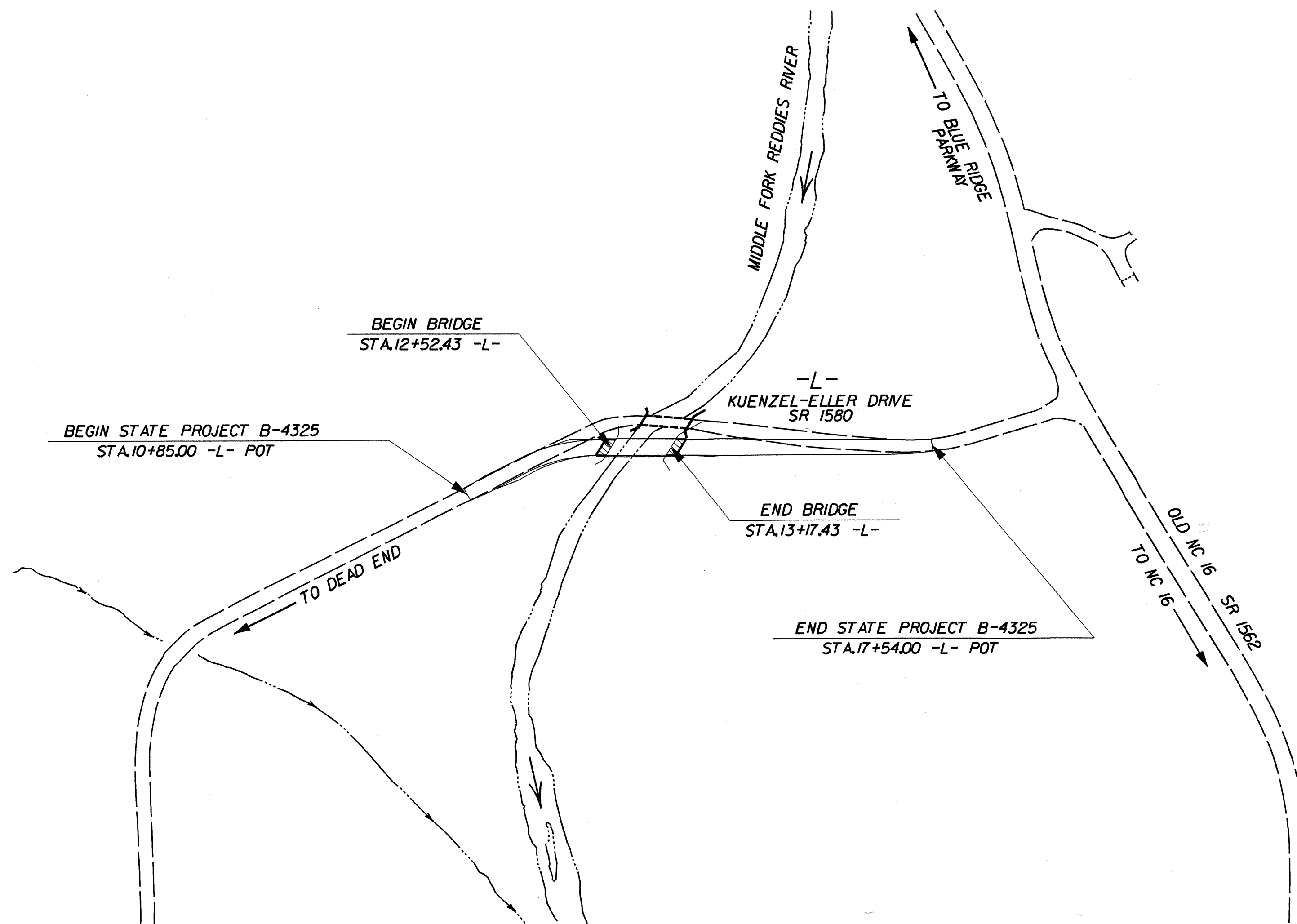
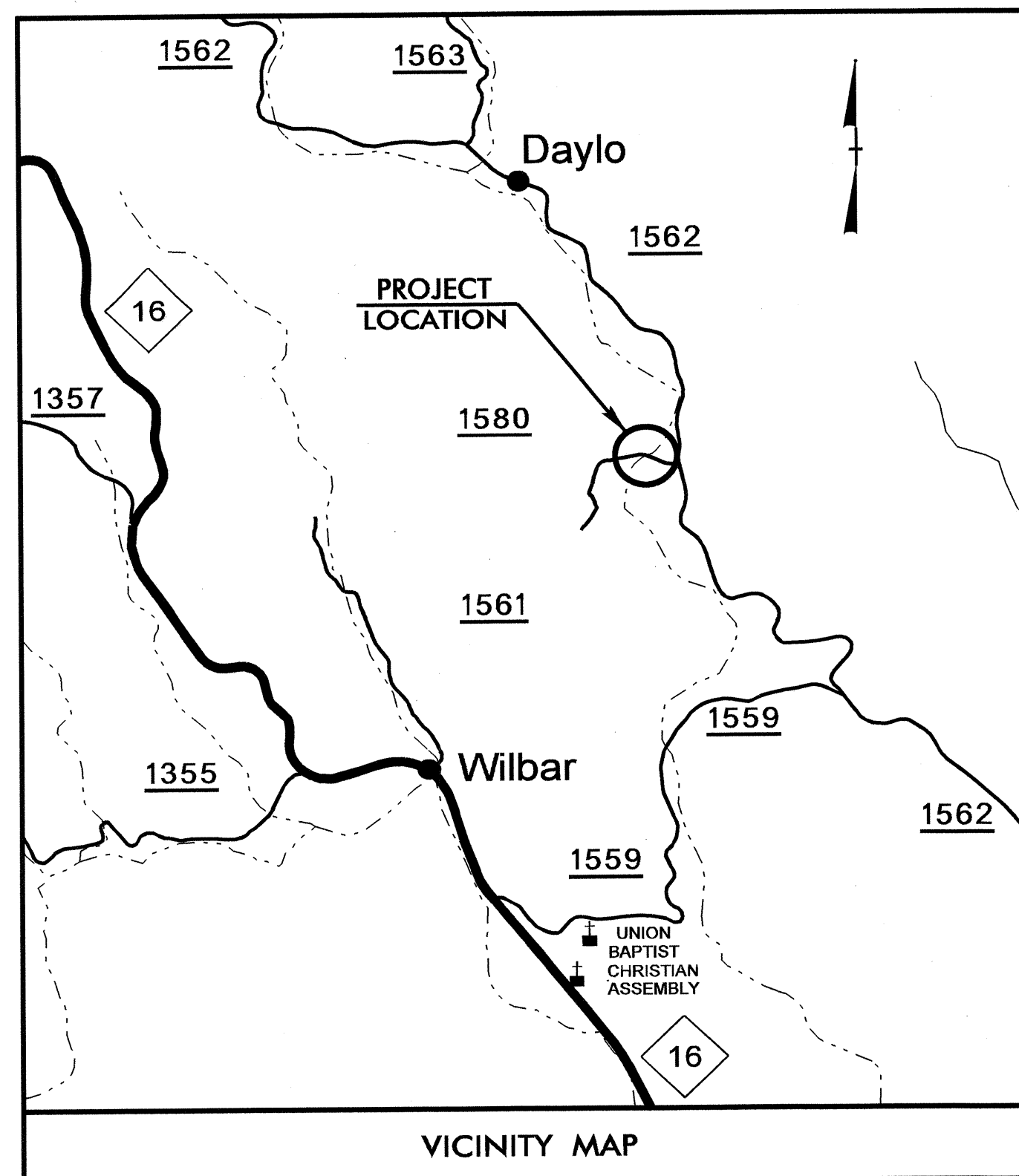
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**WILKES COUNTY**

**LOCATION: BRIDGE NO. 718 OVER MIDDLE FORK REDDIES RIVER  
ON SR 1580 (KUENZEL-ELLER DRIVE)**

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

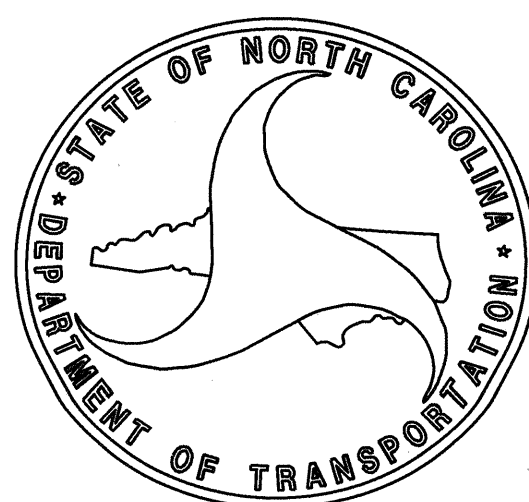
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4325		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33662.1.1	BRZ-1580 (2)	PE	
33662.2.1	BRZ-1580 (2)	RW & UTIL.	
33662.3.1	BRZ-1580 (2)	CONST.	



TIP PROJECT: B-4325

CONTRACT: C202810

STRUCTURE



**DESIGN DATA**  
 ADT 2012 = 143  
 ADT 2032 = 230  
 DHV = 10 %  
 D = 65 %  
 T = 4 % \*  
 V = 25 MPH  
 FUNCT CLASS=RURAL LOCAL  
 \* (TTST 1% + DUAL 3%)  
 SUB-REGIONAL TIER DESIGN

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4325	=	0.115 mile
LENGTH STRUCTURES TIP PROJECT B-4325	=	0.012 mile
<b>TOTAL LENGTH TIP PROJECT B-4325</b>	=	<b>0.127 mile</b>

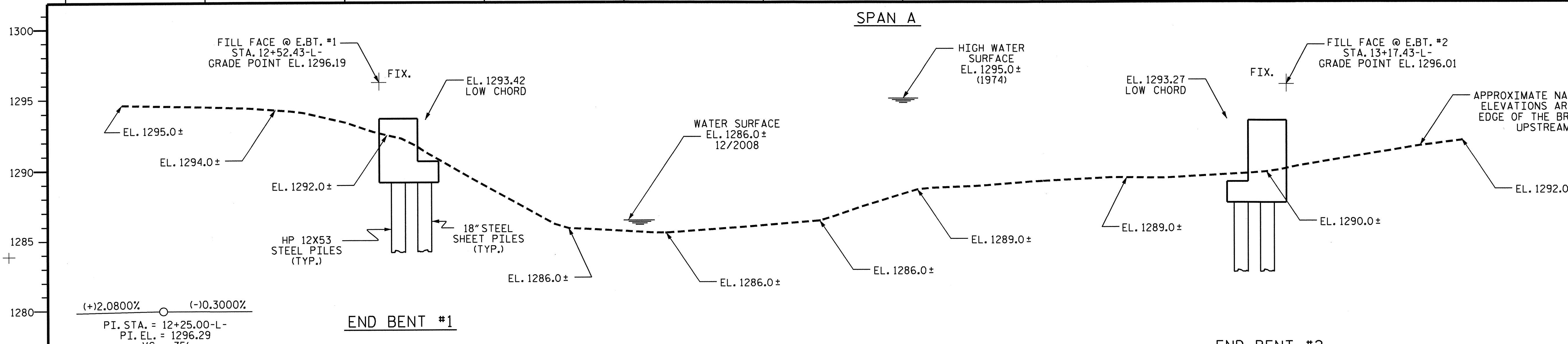
Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
 1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS	B. C. HUNT, PE PROJECT ENGINEER
LETTING DATE: APRIL 16, 2013	D. A. DAVENPORT, JR., PE PROJECT DESIGN ENGINEER

**STRUCTURES MANAGEMENT UNIT**  
 1000 Birch Ridge Dr.,  
 Raleigh NC, 27610

06-NOV-2012 11:54  
 \$\$\$\$\$\$DCN\$\$\$\$\$\$\$\$\$  
 adavenport

12+30 12+40 12+50 12+60 12+70 12+80 12+90 13+00 13+10 13+20 13+30



**GRADE DATA**

(+12.0800% (-)0.3000%

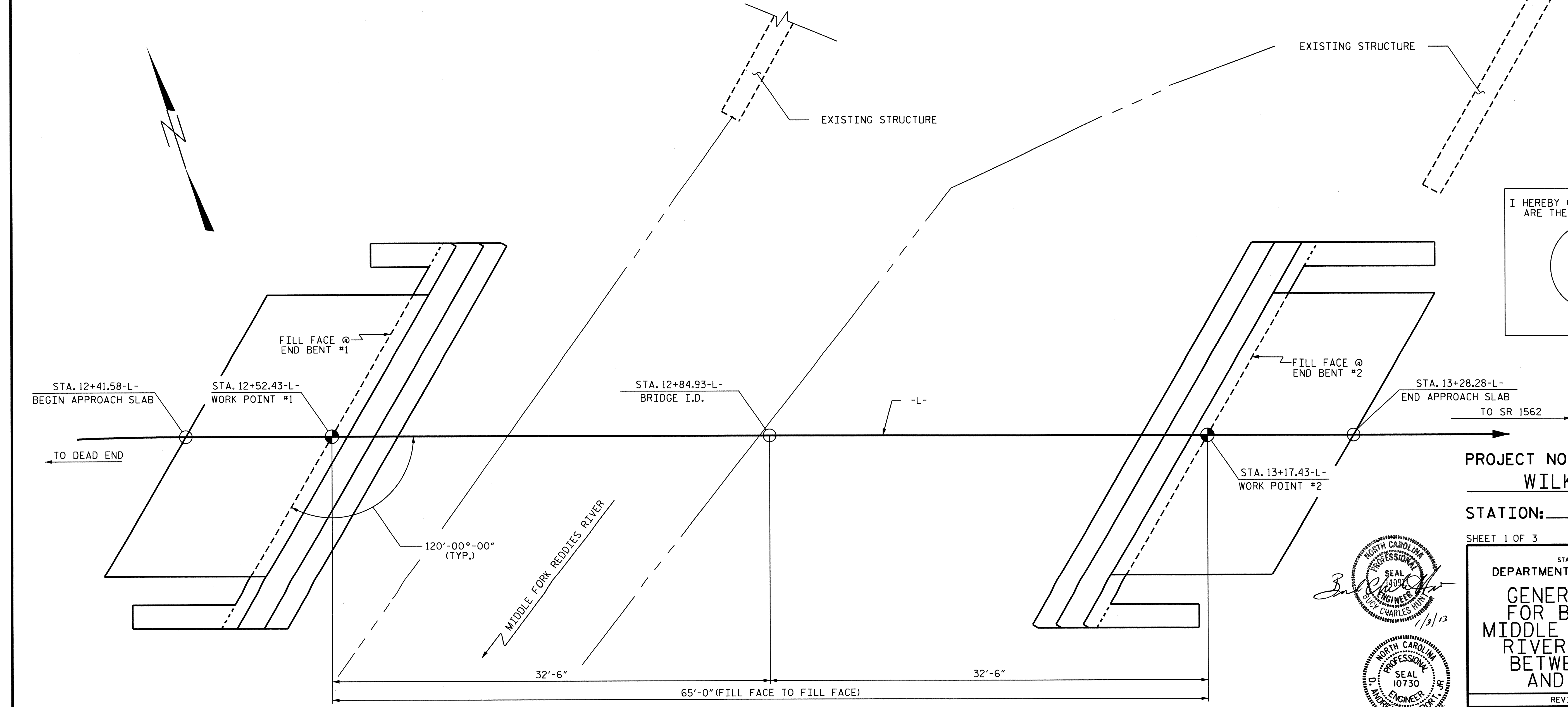
PI. STA. = 12+25.00-L-

PI. EL. = 1296.29

VC = 75'

**SECTION ALONG C-L-**

(END BENTS ON SECTION AT RIGHT ANGLES TO END BENTS)



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. B-4325

WILKES COUNTY

STATION: 12+84.93 -L-

SHEET 1 OF 3 REPLACES BRIDGE #718

**PROFESSIONAL ENGINEER**

SEAL 10730

DAVID DAVENPORT

1-2-13

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

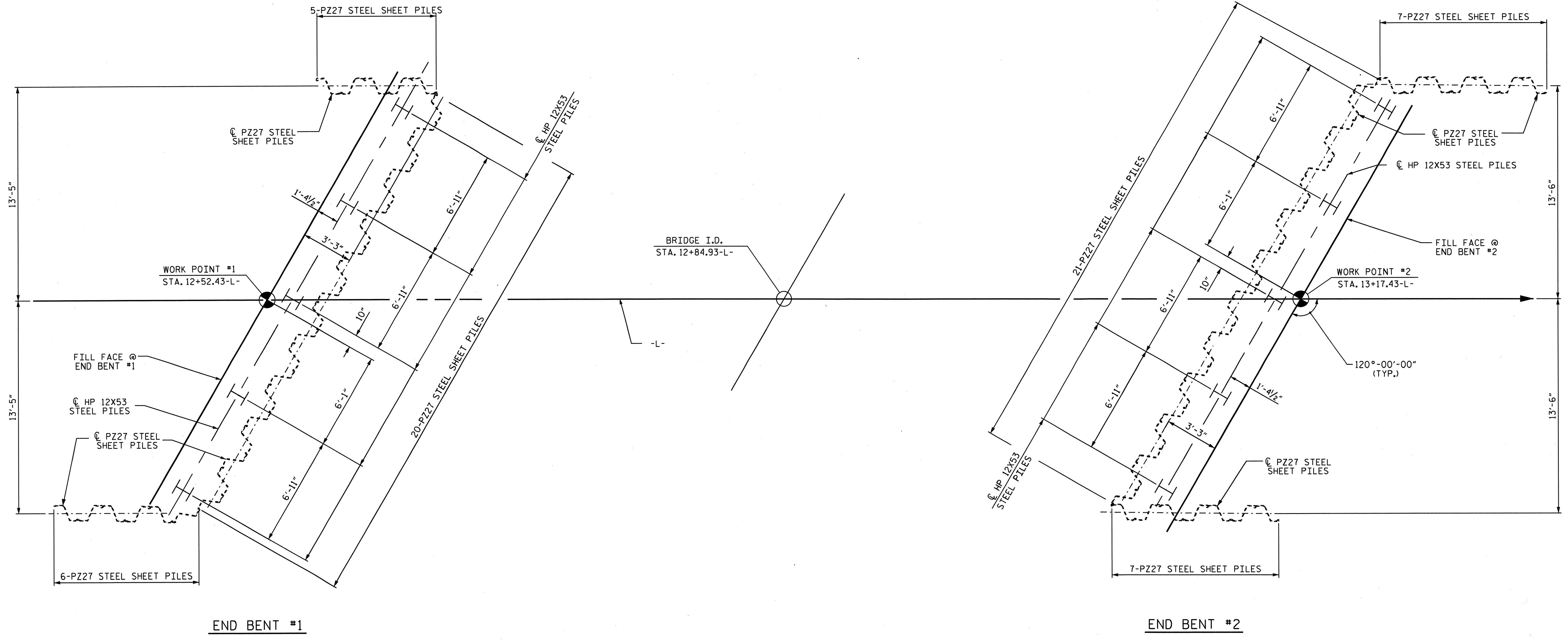
RALEIGH

**GENERAL DRAWING FOR BRIDGE OVER MIDDLE FORK REDDIES RIVER ON SR 1580 BETWEEN SR 1562 AND DEAD END**

DRAWN BY : D.A. DAVENPORT DATE : 08/16/11

CHECKED BY : M.G. SHAIKH DATE : 08/31/11

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

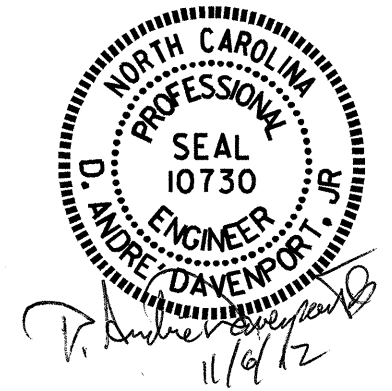


**FOUNDATION LAYOUT**

ALL DIMENSIONS LOCATING PILES ARE TO PILE CENTERLINE.  
 STEEL SHEET PILES SHALL BE DRIVEN TO EL. 1270.  
 PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR  
 A FACTORED RESISTANCE OF 60 TONS PER PILE. DRIVE PILES  
 TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.  
 FOR PILE DRIVING CRITERIA, SEE SPECIAL PROVISIONS.  
 FOR 18" STEEL SHEET PILES, SEE SPECIAL PROVISIONS.  
 STEEL SHEET PILES SHALL BE HOT ROLLED.

PROJECT NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-

SHEET 2 OF 3

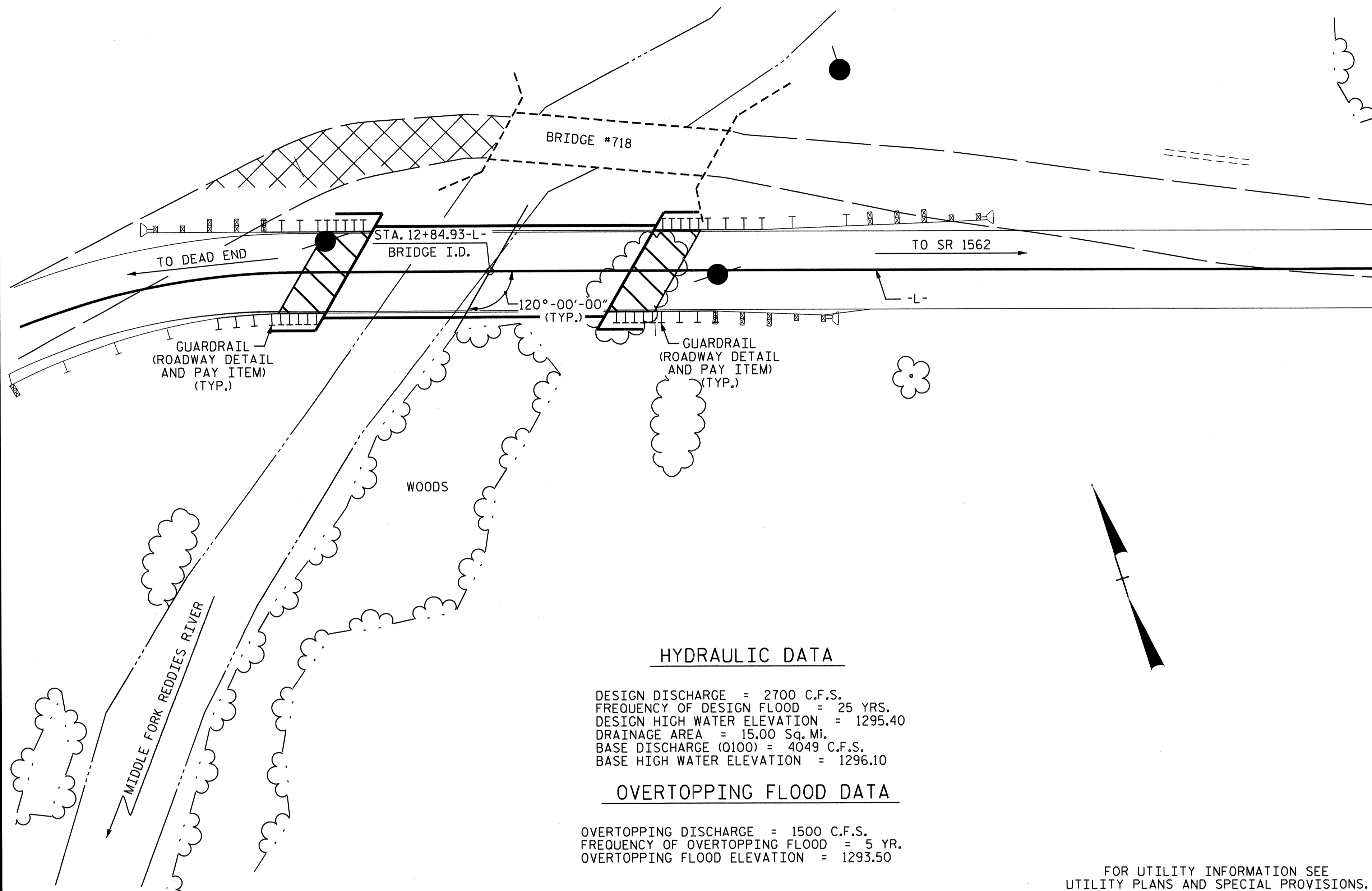


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING  
 FOR BRIDGE OVER  
 MIDDLE FORK REDDIES  
 RIVER ON SR 1580  
 BETWEEN SR 1562  
 AND DEAD END**

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

DRAWN BY : D.A. DAVENPORT DATE : 09/10/12  
 CHECKED BY : G.W. DICKEY DATE : 11/12

BENCHMARK #2: 8" SPIKE IN ROOT OF 1'-0" Ø HICKORY TREE STA. 16+09.65-L-, 48.46' LEFT ELEV. 1324.94



**HYDRAULIC DATA**

DESIGN DISCHARGE = 2700 C.F.S.  
 FREQUENCY OF DESIGN FLOOD = 25 YRS.  
 DESIGN HIGH WATER ELEVATION = 1295.40  
 DRAINAGE AREA = 15.00 Sq. Mi.  
 BASE DISCHARGE (Q100) = 4049 C.F.S.  
 BASE HIGH WATER ELEVATION = 1296.10

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE = 1500 C.F.S.  
 FREQUENCY OF OVERTOPPING FLOOD = 5 YR.  
 OVERTOPPING FLOOD ELEVATION = 1293.50

FOR UTILITY INFORMATION SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**LOCATION SKETCH**

**NOTES**

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

THE EXISTING STRUCTURE CONSISTING OF A SIMPLE SPAN, AT 50'-9", TIMBER DECK ON SALVAGED I-BEAMS; CLEAR ROADWAY WIDTH OF 11'-1" FT. ON TIMBER CAPS AND TIMBER POSTS AND SILLS, LOCATED APPROXIMATELY 28' NORTH OF THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE AT STA. 12+84.93-L-.

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 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."

THE SCOUR CRITICAL ELEVATION FOR END BENT #1 AND END BENT #2 IS ELEVATION 1282. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+84.93 -L-."

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

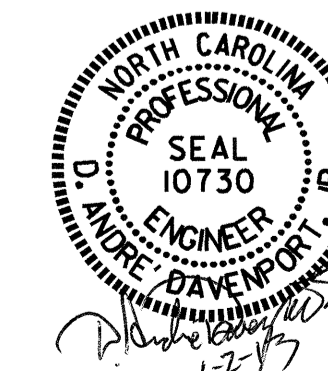
FOR TYPE T101 RAIL, SEE SPECIAL PROVISIONS.

**TOTAL BILL OF MATERIAL**

	REMOVAL OF EXISTING STRUCTURE	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12X53 STEEL PILES		ELASTOMERIC BEARINGS	FOAM JOINT SEAL	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS		TYPE T101 RAIL	18" STEEL SHEET PILES	
							NO.	LIN. FT.			NO.	LIN. FT.		LIN. FT.	NO.
	LUMP SUM	SO. FT.	SO. FT.	CU. YDS.	LUMP SUM	LBS.			LUMP SUM	LUMP SUM			LIN. FT.		
SUPERSTRUCTURE		1150	1297		LUMP SUM				LUMP SUM	LUMP SUM	7	436.807	118.000		
END BENT NO. 1				19.9		2175	5	160						31	985
END BENT NO. 2				24.8		2458	5	225						35	1035
TOTAL	LUMP SUM	1150	1297	44.7	LUMP SUM	4633	10	385	LUMP SUM	LUMP SUM	7	436.807	118.000	66	2020

PROJECT NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING  
 FOR BRIDGE OVER  
 MIDDLE FORK REDDIES  
 RIVER ON SR 1562  
 BETWEEN SR 1562  
 AND DEAD END**

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

DRAWN BY : D.A. DAVENPORT DATE : 04/29/11  
 CHECKED BY : M.G. SHAIKH DATE : 06/16/11

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{dc}$	$\gamma_{lw}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE								COMMENT NUMBER
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.04	--	1.75	0.246	1.57	A	EL	30.624	0.649	1.07	A	EL	3.062	0.80	0.246	1.04	A	EL	30.624		
	HL-93(0pr)	N/A	--	1.39	--	1.35	0.246	2.03	A	EL	30.624	0.649	1.39	A	EL	3.062	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.32	47.519	1.75	0.246	2	A	EL	30.624	0.649	1.33	A	EL	3.062	0.80	0.246	1.32	A	EL	30.624		
	HS-20(0pr)	36.000	--	1.72	62.031	1.35	0.246	2.59	A	EL	30.624	0.649	1.72	A	EL	3.062	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	2.87	38.729	1.4	0.246	5.42	A	EL	30.624	0.649	3.89	A	EL	3.062	0.80	0.246	2.87	A	EL	30.624	
		SNGARBS2	20,000	--	2.18	43.689	1.4	0.246	4.13	A	EL	30.624	0.649	2.79	A	EL	3.062	0.80	0.246	2.18	A	EL	30.624	
		SNAGRIS2	22,000	--	2.09	45.954	1.4	0.246	3.95	A	EL	30.624	0.649	2.59	A	EL	3.062	0.80	0.246	2.09	A	EL	30.624	
		SNCOTTS3	27,250	--	1.43	38.938	1.4	0.246	2.7	A	EL	30.624	0.649	1.95	A	EL	3.062	0.80	0.246	1.43	A	EL	30.624	
		SNAGGRS4	34,925	--	1.21	42.324	1.4	0.246	2.29	A	EL	30.624	0.649	1.63	A	EL	3.062	0.80	0.246	1.21	A	EL	30.624	
		SNS5A	35,550	--	1.18	42.086	1.4	0.246	2.24	A	EL	30.624	0.649	1.66	A	EL	3.062	0.80	0.246	1.18	A	EL	30.624	
		SNS6A	39,950	--	1.09	43.695	1.4	0.246	2.07	A	EL	30.624	0.649	1.52	A	EL	3.062	0.80	0.246	1.09	A	EL	30.624	
	SNS7B	42,000	--	1.04	43.758	1.4	0.246	1.97	A	EL	30.624	0.649	1.5	A	EL	3.062	0.80	0.246	1.04	A	EL	30.624		
	TTST	TNAGRIT3	33,000	--	1.34	44.088	1.4	0.246	2.52	A	EL	30.624	0.649	1.8	A	EL	3.062	0.80	0.246	1.34	A	EL	30.624	
		TNT4A	33,075	--	1.34	44.452	1.4	0.246	2.54	A	EL	30.624	0.649	1.75	A	EL	3.062	0.80	0.246	1.34	A	EL	30.624	
		TNT6A	41,600	--	1.11	46.02	1.4	0.246	2.09	A	EL	30.624	0.649	1.61	A	EL	3.062	0.80	0.246	1.11	A	EL	30.624	
		TNT7A	42,000	--	1.12	46.861	1.4	0.246	2.11	A	EL	30.624	0.649	1.56	A	EL	3.062	0.80	0.246	1.12	A	EL	30.624	
		TNT7B	42,000	--	1.16	48.896	1.4	0.246	2.2	A	EL	30.624	0.649	1.46	A	EL	3.062	0.80	0.246	1.16	A	EL	30.624	
		TNAGRIT4	43,000	--	1.10	47.305	1.4	0.246	2.08	A	EL	30.624	0.649	1.41	A	EL	3.062	0.80	0.246	1.10	A	EL	30.624	
TNAGT5A		45,000	--	1.03	46.523	1.4	0.246	1.95	A	EL	30.624	0.649	1.41	A	EL	3.062	0.80	0.246	1.03	A	EL	30.624		
TNAGT5B	45,000	3	1.02	45.825	1.4	0.246	1.92	A	EL	30.624	0.649	1.34	A	EL	3.062	0.80	0.246	1.02	A	EL	30.624			

NOTES:

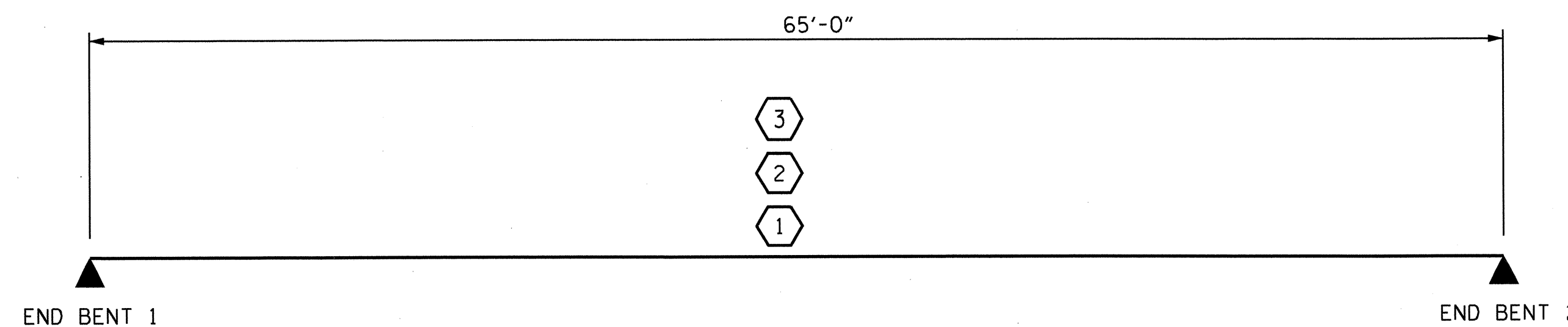
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

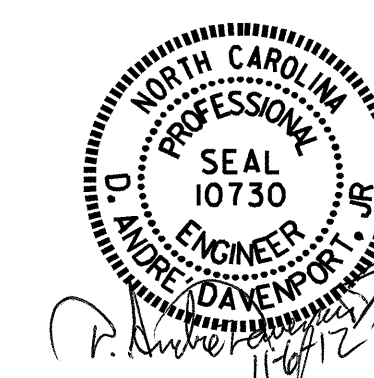
- 1.
- 2.
- 3.
- 4.

#	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

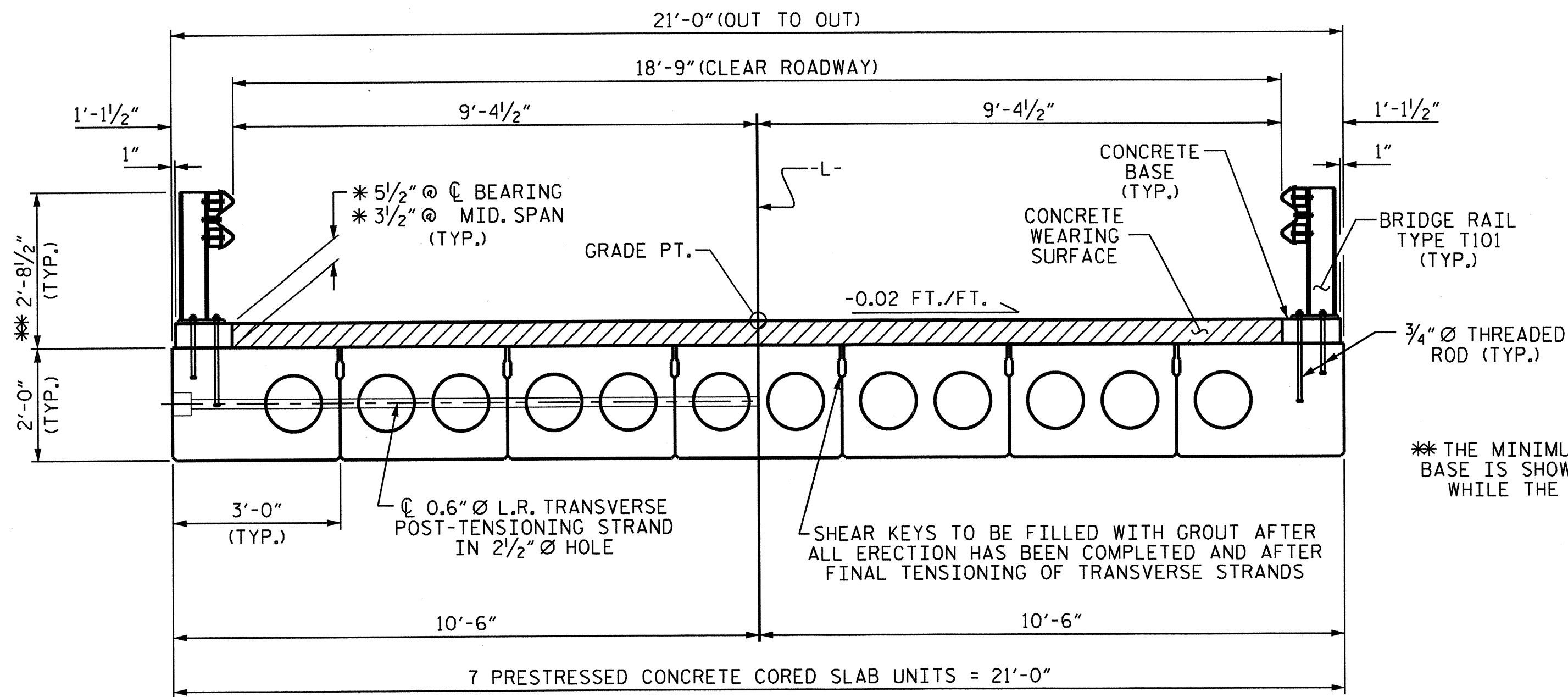
PROJECT NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-



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

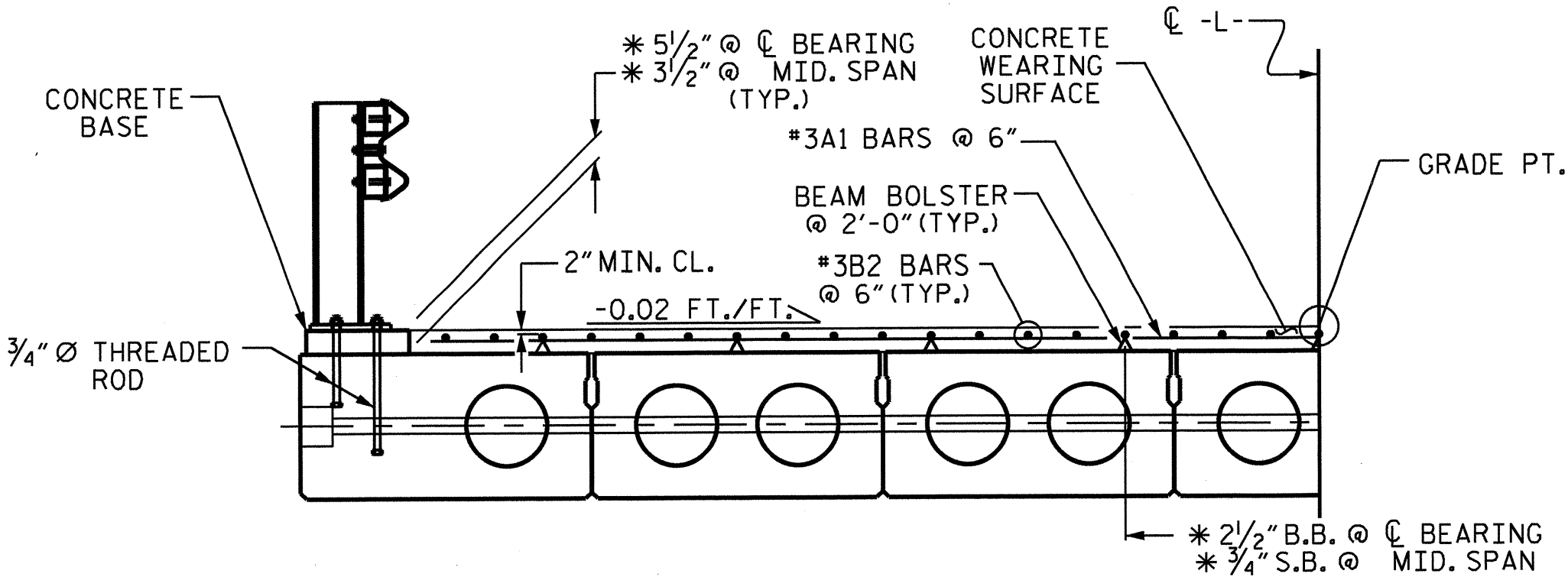
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			18

ASSEMBLED BY : D.A. DAVENPORT DATE : 05/01/11  
 CHECKED BY : M.G. SHAIKH DATE : 06/16/11  
 DRAWN BY : MAA 1/08 REV. 11/12/08R MAA/GM  
 CHECKED BY : GM/DI 2/08



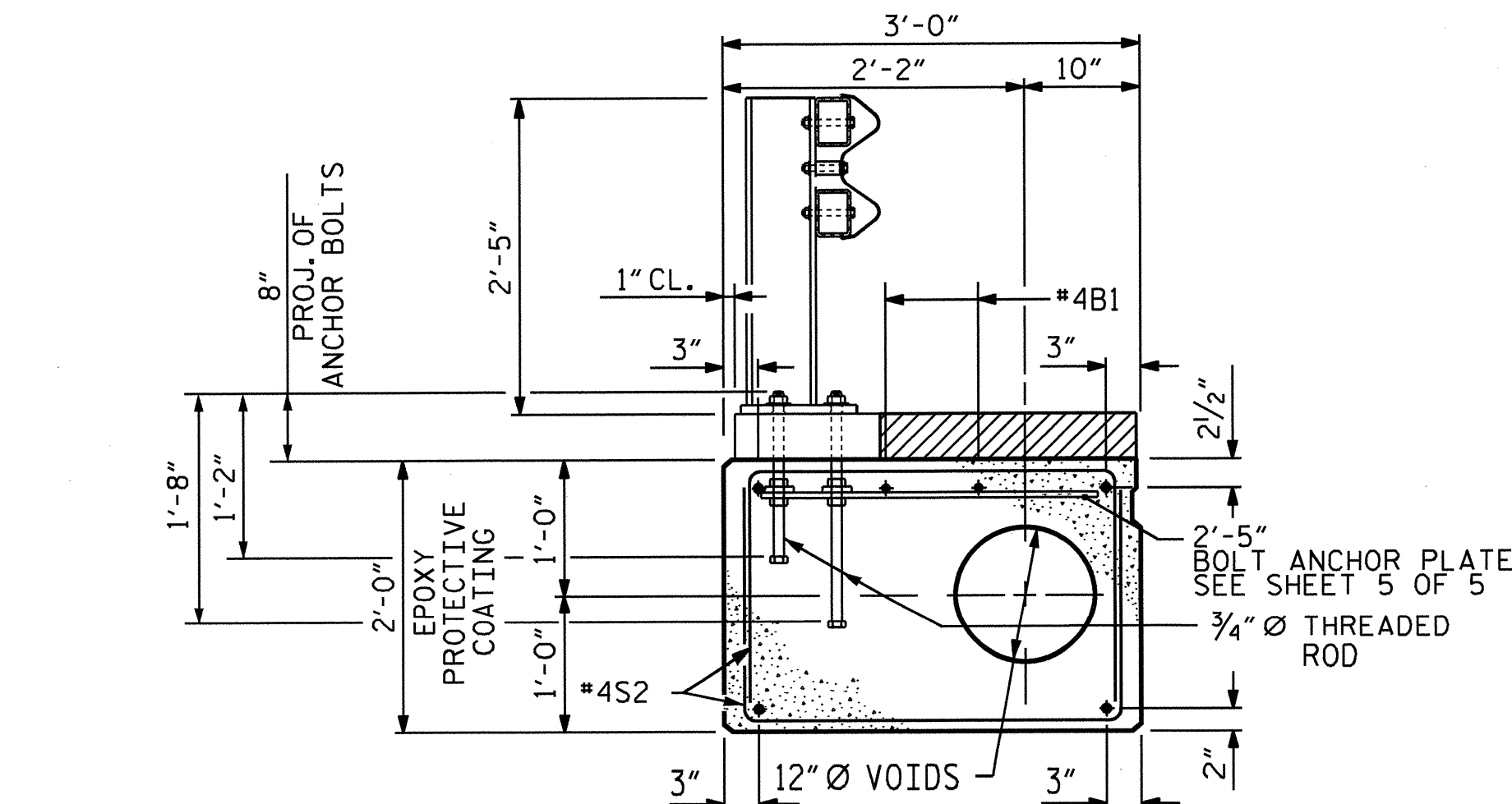
**TYPICAL SECTION**

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



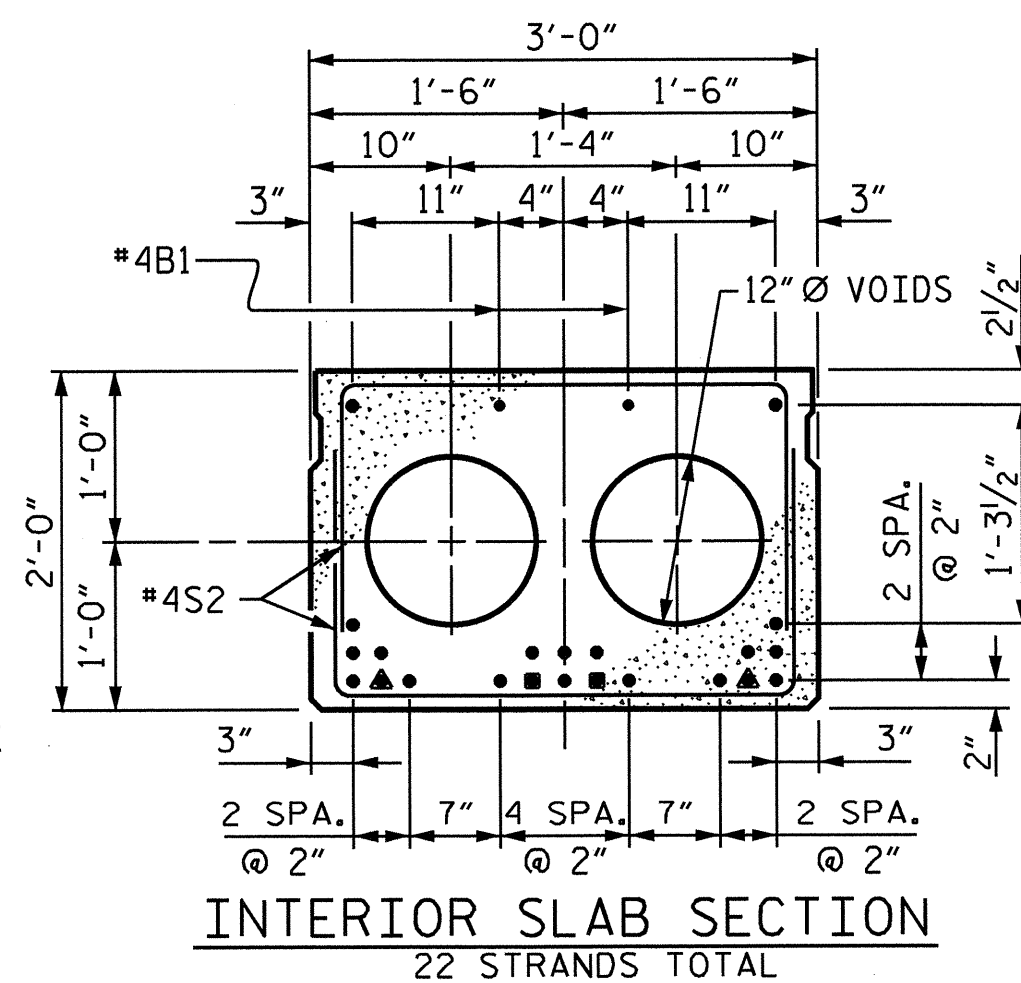
**REINFORCING FOR CONCRETE WEARING SURFACE**

(PARTIAL TYPICAL SECTION)  
(SEE "REINFORCING FOR CONCRETE WEARING SURFACE" SHEET)



**EXTERIOR SLAB SECTION**

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



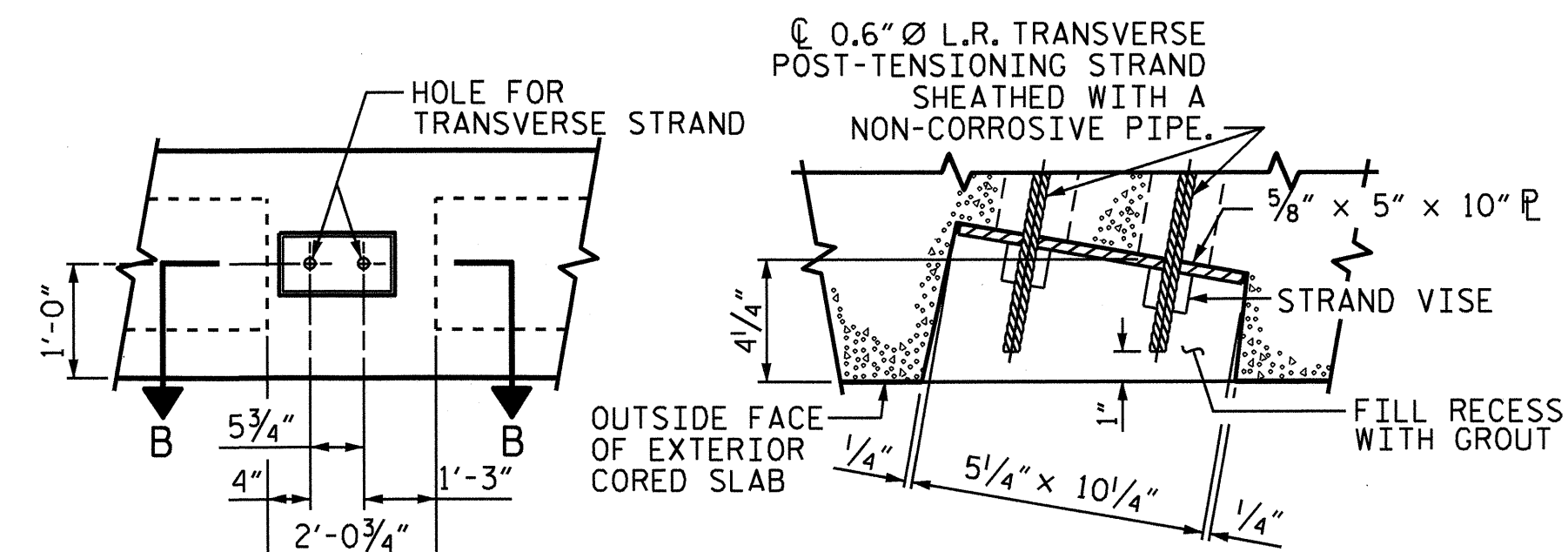
**INTERIOR SLAB SECTION**

22 STRANDS TOTAL

■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FEET FROM END OF CORED SLAB UNIT.  
▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FEET FROM END OF CORED SLAB UNIT.  
SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

**0.6" Ø LOW RELAXATION STRAND LAYOUT**

\* THE MINIMUM HEIGHT OF THE RAIL WITH THE CONCRETE BASE IS SHOWN. THE HEIGHT OF THE CONCRETE BASE VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE THEORETICAL GUTTERLINE.

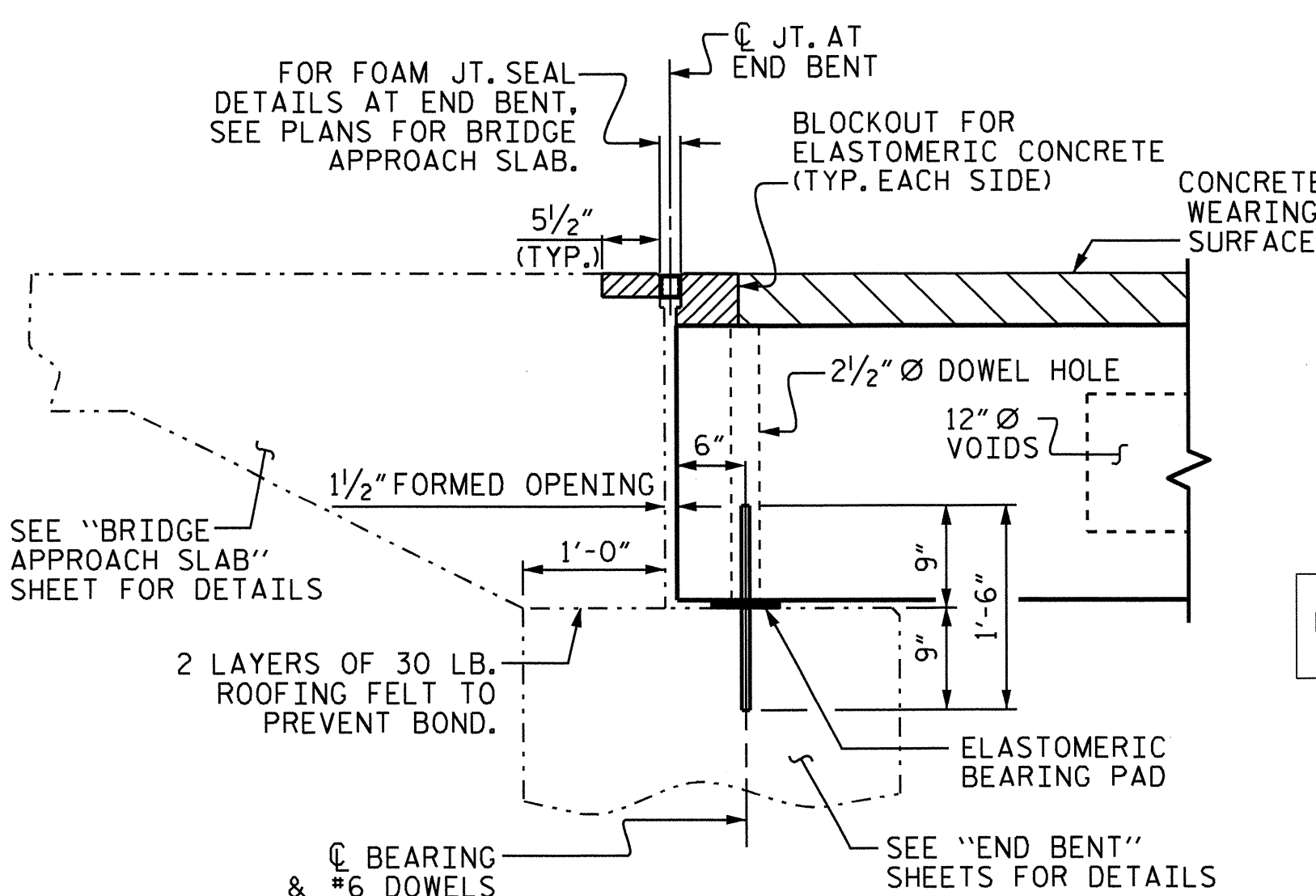


**ELEVATION VIEW**

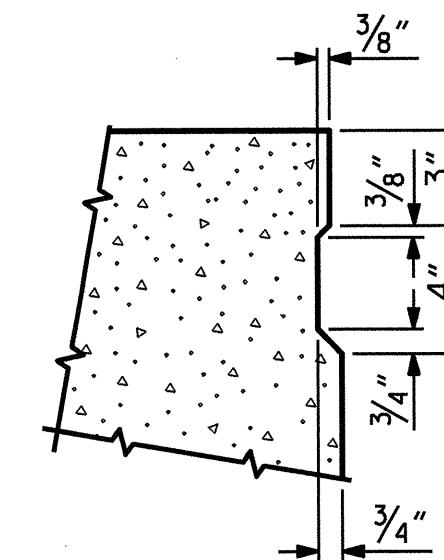
**SECTION B-B**

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

**FIXED END**

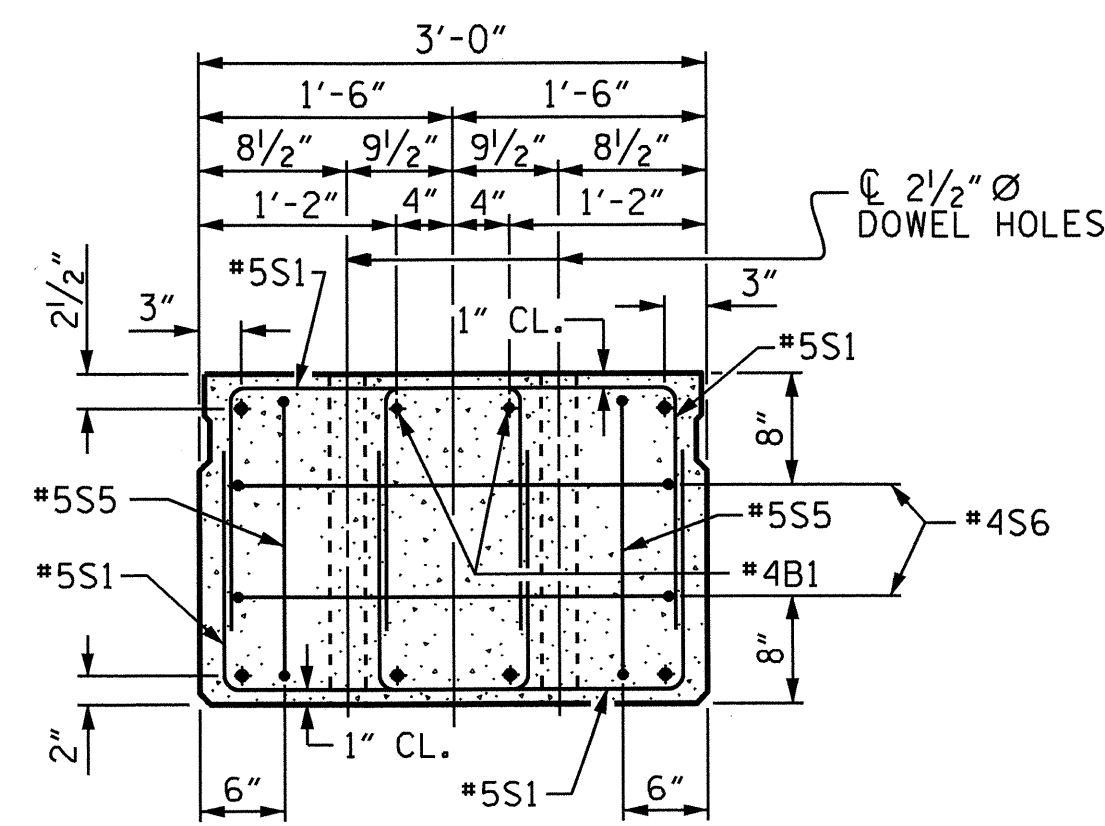


**SECTION AT END BENT**



**SHEAR KEY DETAIL**

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



**END ELEVATION**

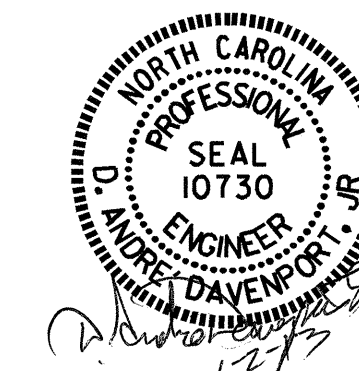
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)  
INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. B-4325  
WILKES COUNTY  
STATION: 12+84.93 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

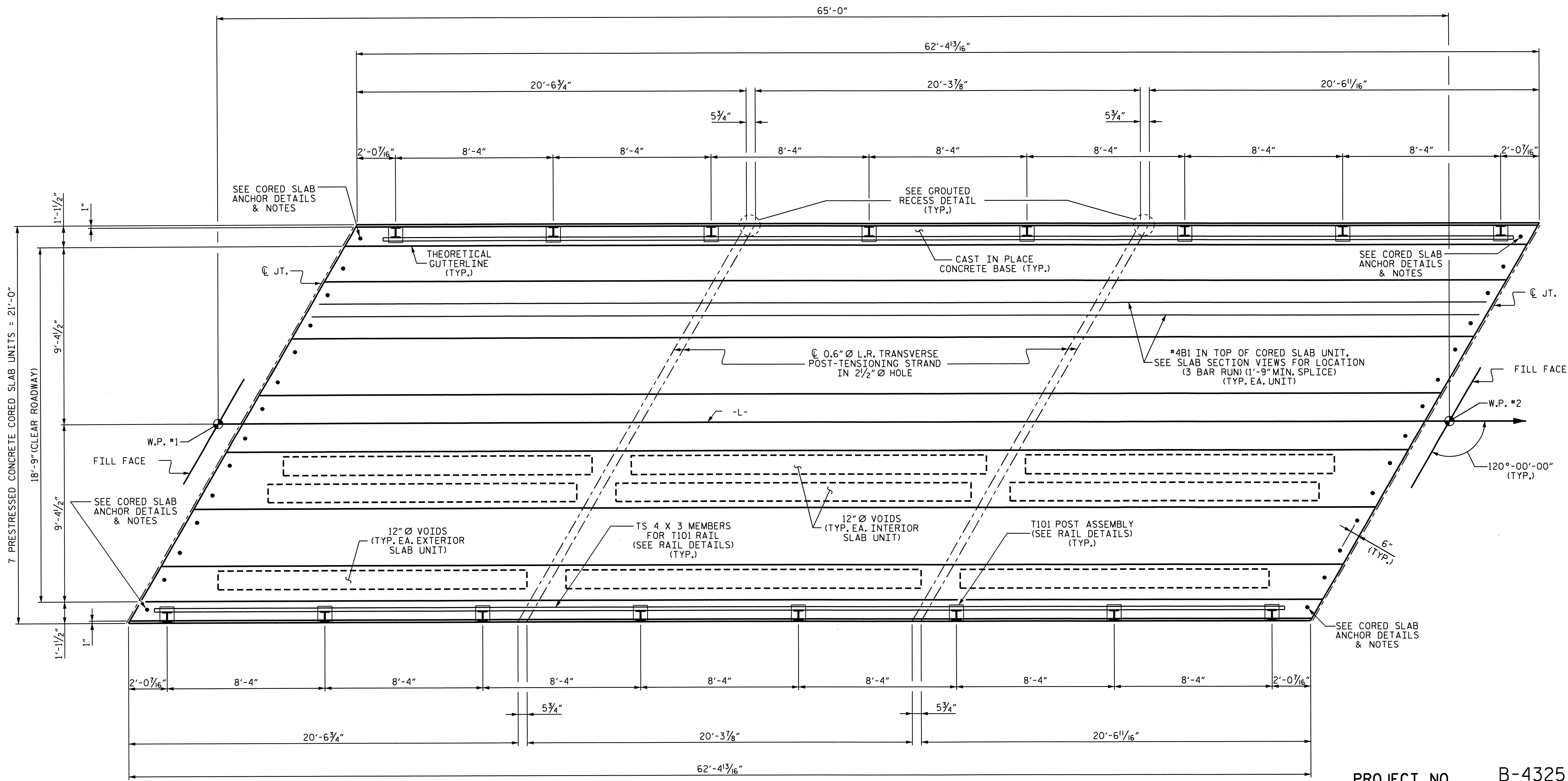
**3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT**



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS 18
2			4			

(SHT 1E) STD. NO. PCS4

ASSEMBLED BY : C.R. YARBROUGH DATE : 10/10  
CHECKED BY : E.C. LOCKLEAR DATE : 01/11  
DRAWN BY : MAA 5/10 ADDED 5/6/10  
CHECKED BY : GM 5/10



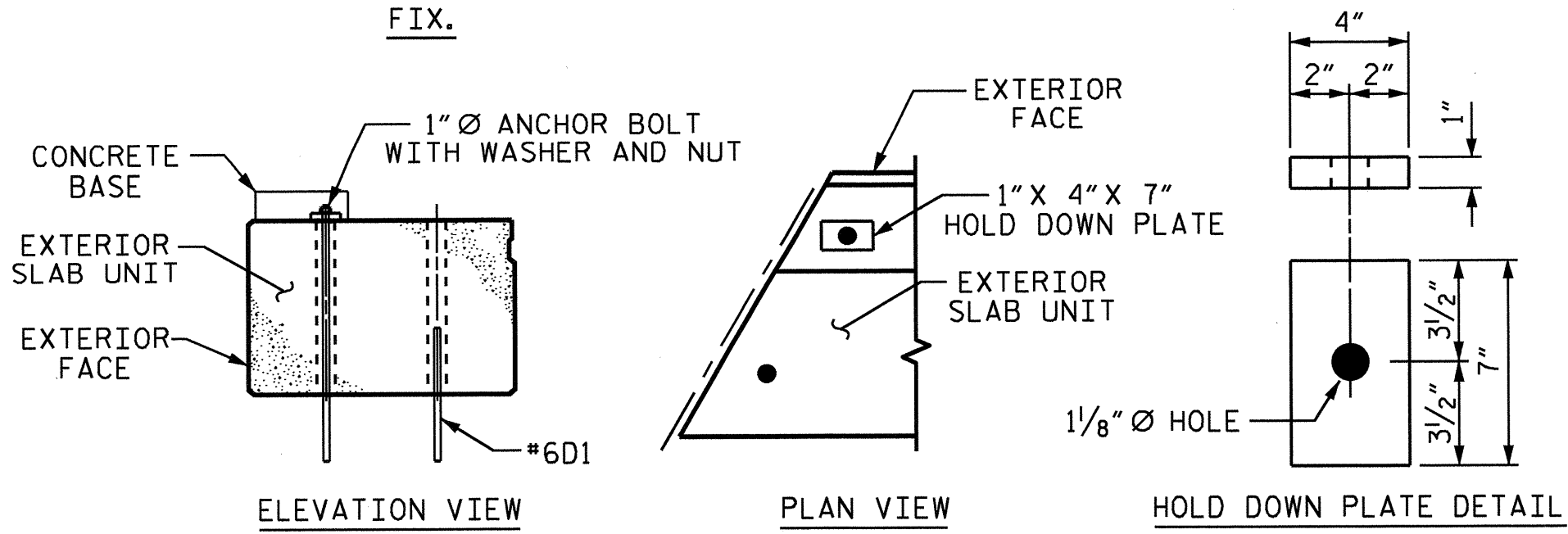
**PLAN OF SPAN A**

CORED SLAB UNITS SHALL BE ANCHORED AT THE CORNERS OF THE 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.



**CORED SLAB ANCHOR DETAILS**

DRAWN BY : C.R. YARBROUGH DATE : 10/10  
 CHECKED BY : E. C. LOCKLEAR DATE : 01/11

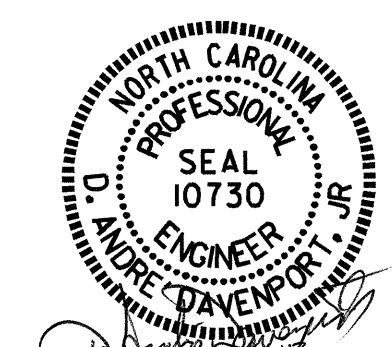
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PROJECT NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-

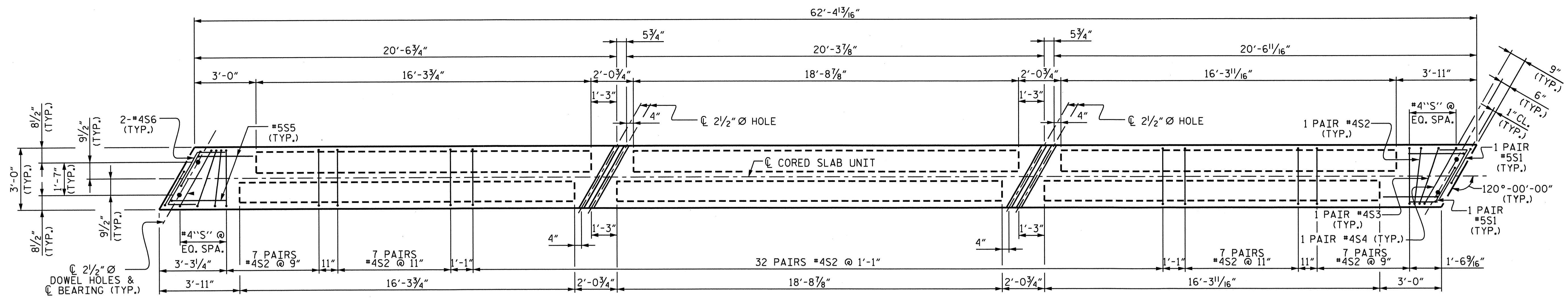
SHEET 2 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

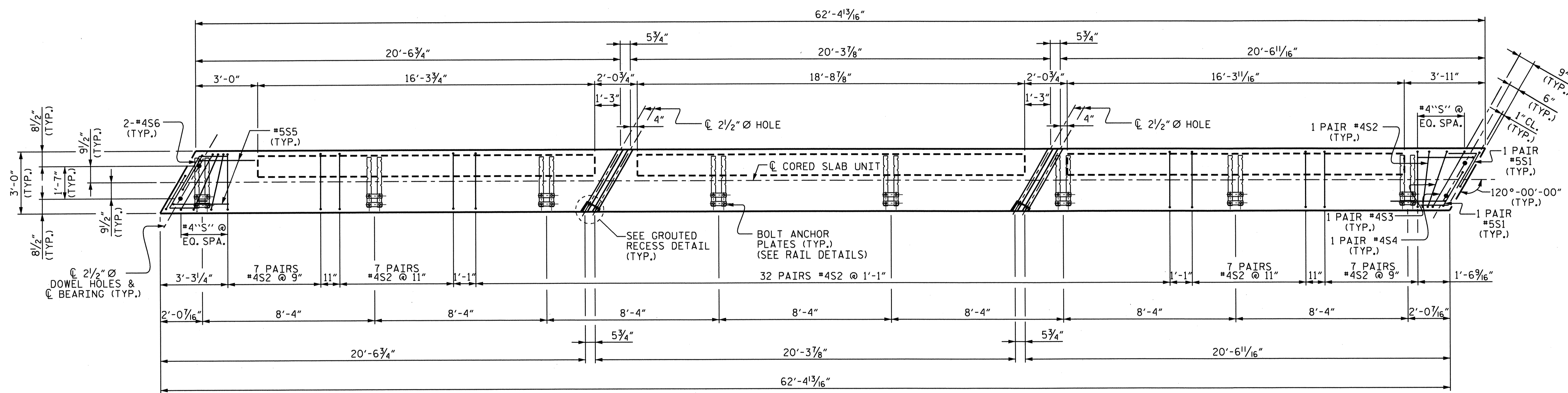
**SUPERSTRUCTURE  
 PLAN OF SPAN A**



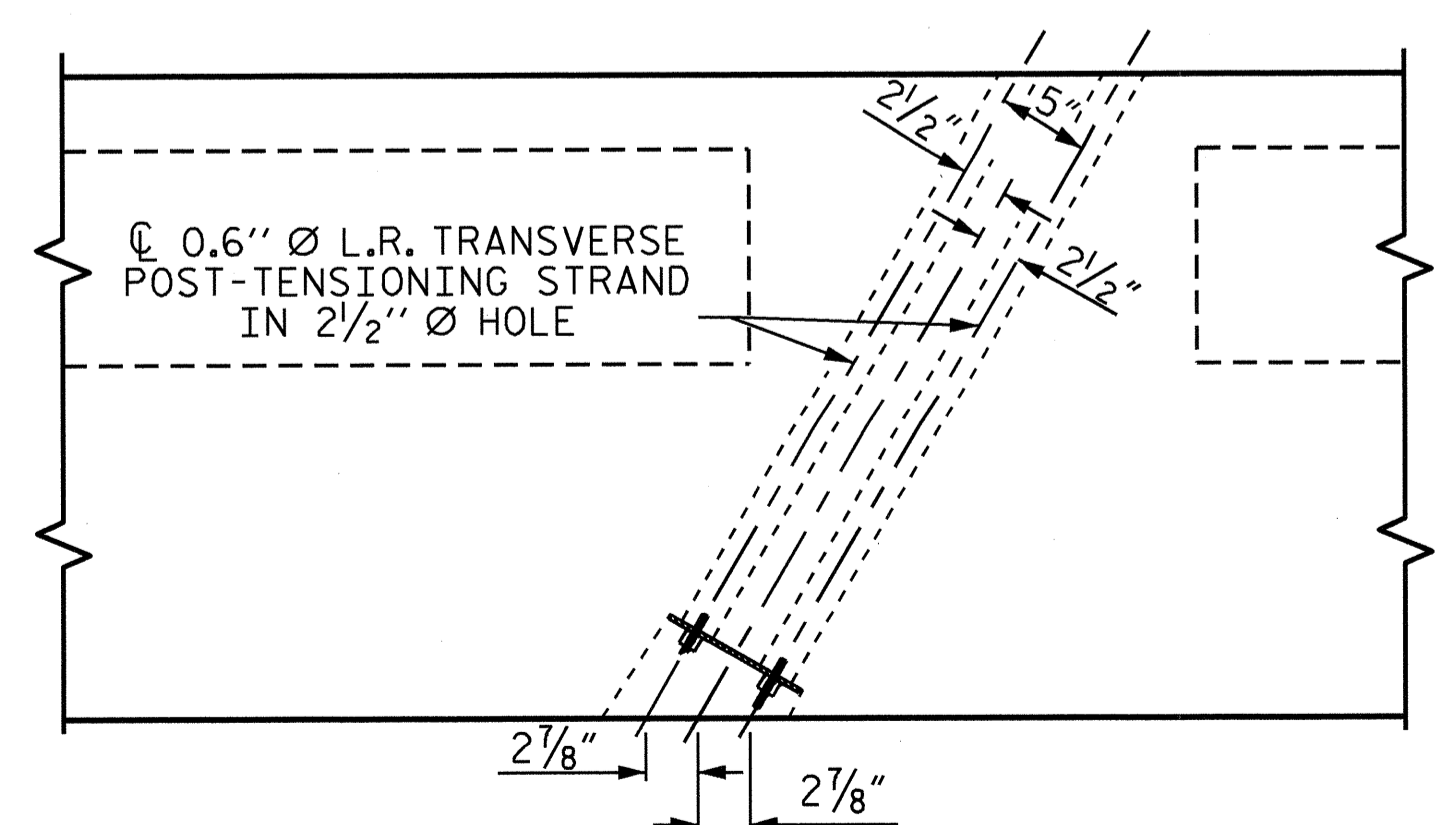
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
1			3			TOTAL SHEETS 18	
2			4				



**PLAN OF INTERIOR CORED SLAB UNIT**



**PLAN OF EXTERIOR CORED SLAB UNIT**

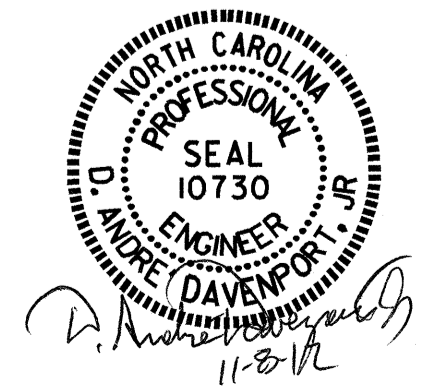


**GROUTED RECESS DETAIL**  
 #4S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1\"/>

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SHEET 3 OF 5  
 STATE OF NORTH CAROLINA  
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 RALEIGH

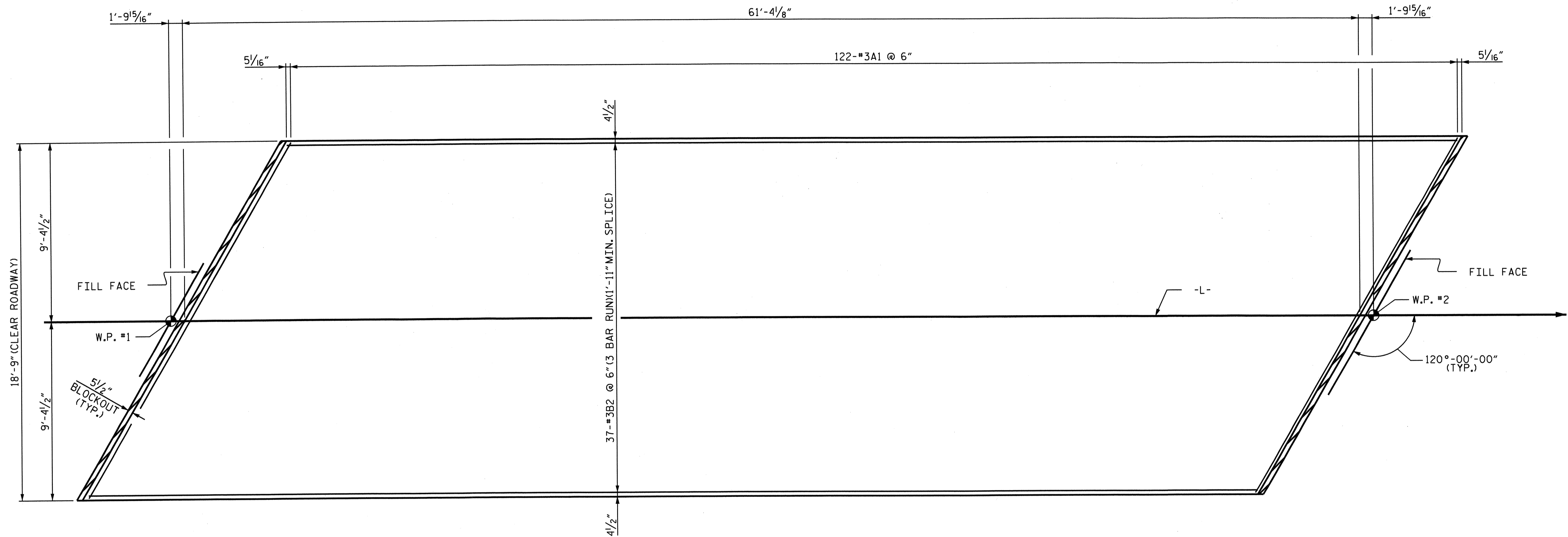
**SUPERSTRUCTURE  
 PLAN OF SPAN A**



DRAWN BY: C.R. YARBROUGH DATE: 10/10  
 CHECKED BY: E. C. LOCKLEAR DATE: 01/11

REVISIONS						SHEET NO. S-7 TOTAL SHEETS 18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

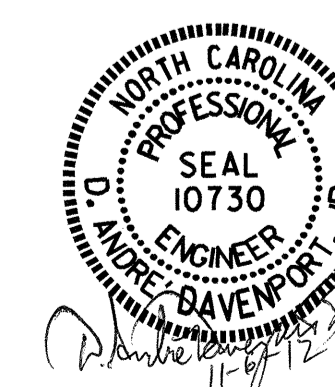




PLAN OF REINFORCING STEEL FOR CONCRETE WEARING SURFACE

PROJECT NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-

SHEET 4 OF 5



STATE OF NORTH CAROLINA  
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REINFORCING STEEL  
 FOR CONCRETE  
 WEARING SURFACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			18

DRAWN BY : C.R. YARBROUGH DATE : 10/10  
 CHECKED BY : E. C. LOCKLEAR DATE : 01/11

**NOTES**

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

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

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4700 PSI.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS AND EXTERIOR SIDE OF EXTERIOR UNITS.

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

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

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

THE CONCRETE BASE WILL BE INSTALLED ON SITE AFTER THE CORED SLAB UNITS ARE IN PLACE AND BEFORE THE CONCRETE WEARING SURFACE IS PLACED. THE CONCRETE BASE WILL BE INCLUDED IN THE COST OF THE TYPE T101 RAIL.

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

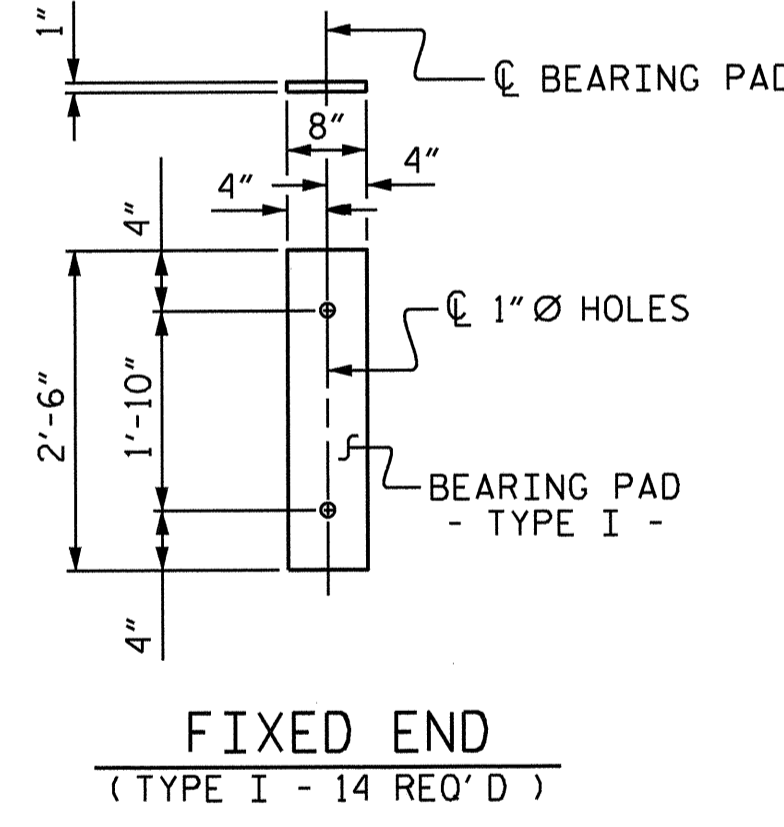
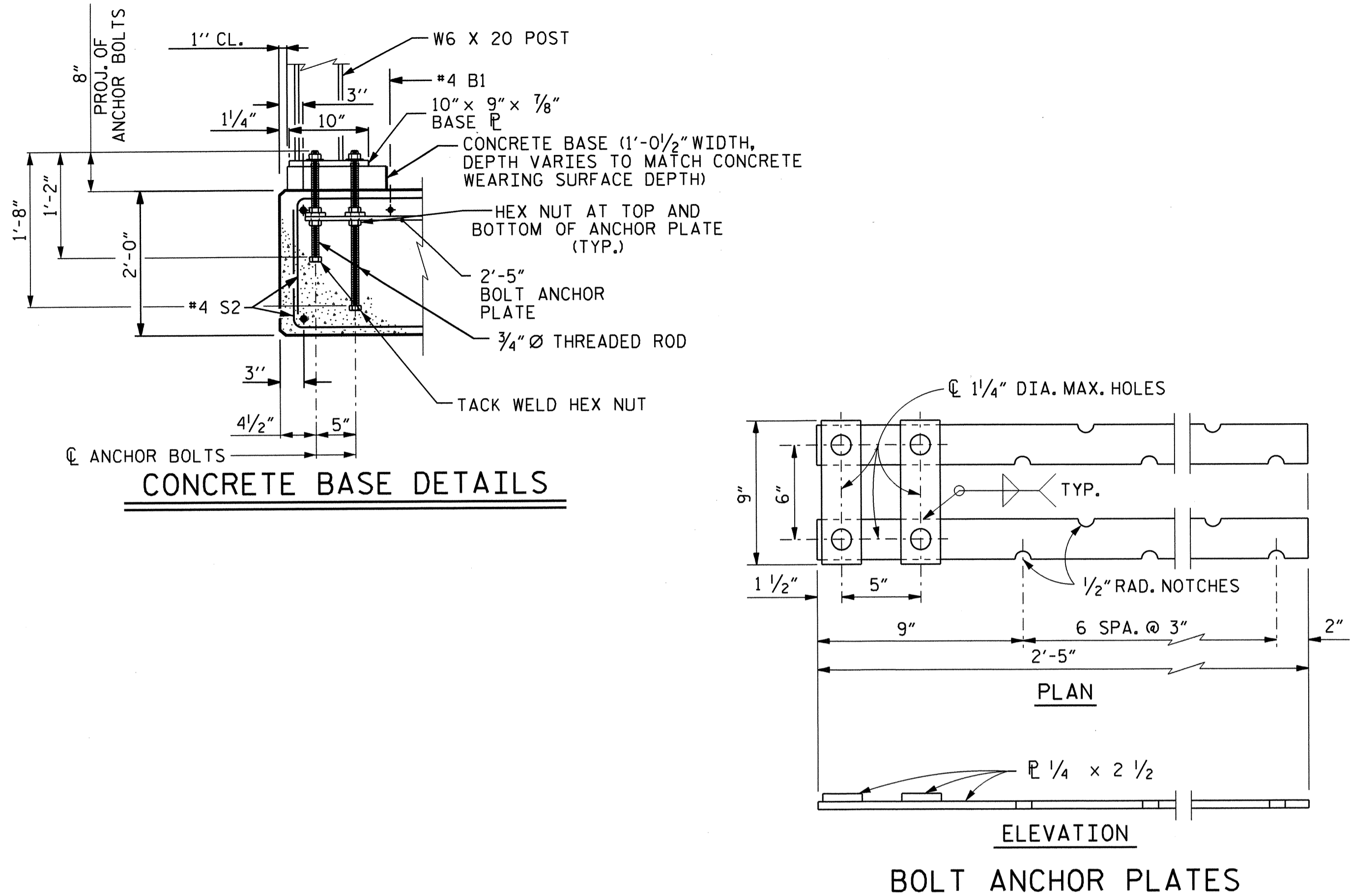
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

COST OF THE BOLT ANCHOR PLATES AND THREADED RODS SHALL BE INCLUDED IN THE PAY ITEM FOR THE "3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS."

BOLT ANCHOR PLATE SHALL BE ASTM A36.

INSTALL ONE ANCHORAGE PLATE ASSEMBLY IN EXTERIOR SLAB UNIT AT EACH RAIL POST. DO NOT GALVANIZE OR OIL THIS ASSEMBLY.

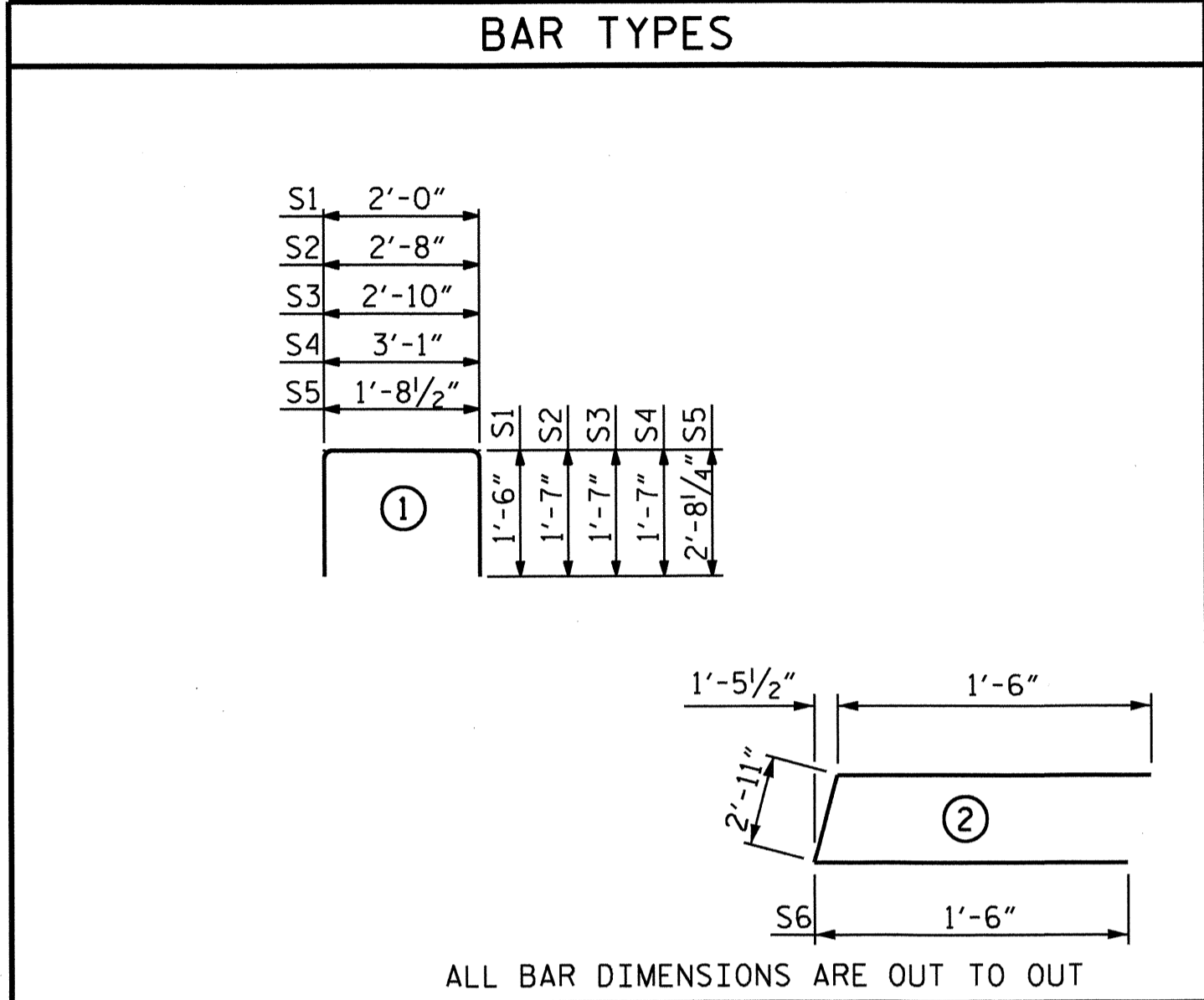
ANCHOR BOLTS SHALL BE 3/4" DIAMETER ASTM A321 THREADED RODS WITH ONE TACK WELDED HEX NUT AT EMBEDMENT END, TWO HEX NUTS AT ANCHOR PLATE ASSEMBLY AND ONE HEX NUT AND ONE 2" O.D. WASHER (0.153" MIN. THICK) PLUS ONE 1/2" O.D. HARDENED WASHER (0.122" MIN. THICK) AT EACH BOLT. NUTS SHALL CONFORM TO A563 REQUIREMENTS.



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

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*A1	122	#3	STR	21'-3"	975
*B2	111	#3	STR	21'-8"	904
*EPOXY COATED REINFORCING STEEL					LBS. 1879
CONCRETE WEARING SURFACE (SQ. FT.)					1150

GRADE 270 STRANDS	
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 SECTION							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	6	#4	STR	21'-11"	88	21'-11"	88
S1	8	#5	1	5'-0"	42	5'-0"	42
S2	124	#4	1	5'-10"	483	5'-10"	483
S3	4	#4	1	6'-0"	16	6'-0"	16
S4	4	#4	1	6'-3"	17	6'-3"	17
S5	4	#5	1	7'-1"	30	7'-1"	30
S6	4	#4	2	5'-11"	16	5'-11"	16
REINFORCING STEEL				692 LBS.		692 LBS.	
7000 P.S.I. CONCRETE				12.3 CU. YDS.		10.8 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 22		22	

DEAD LOAD DEFLECTION AND CAMBER		
	EXT. UNITS	INT. UNITS
	3'-0" x 2'-0"	3'-0" x 2'-0"
	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	↑ 2 9/16"	↑ 2 9/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	↓ 1/16"	↓ 5/16"
FINAL CAMBER	↑ 2 7/8"	↑ 2 1/4"

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	62'-4 13/16"	124'-9 5/8"
INTERIOR C.S.	5	62'-4 13/16"	312'-0 1/16"
TOTAL	7		436'-9 11/16"

GROOVING BRIDGE FLOORS	
CONCRETE OVERLAY	960 SQ. FT.
APPROACH SLABS	337 SQ. FT.
TOTAL	1297 SQ. FT.

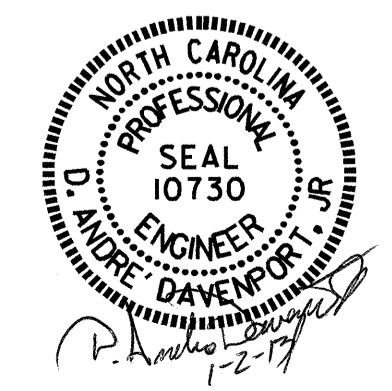
PROJECT NO. B-4325  
WILKES COUNTY  
STATION: 12+84.93 -L-

SHEET 5 OF 5

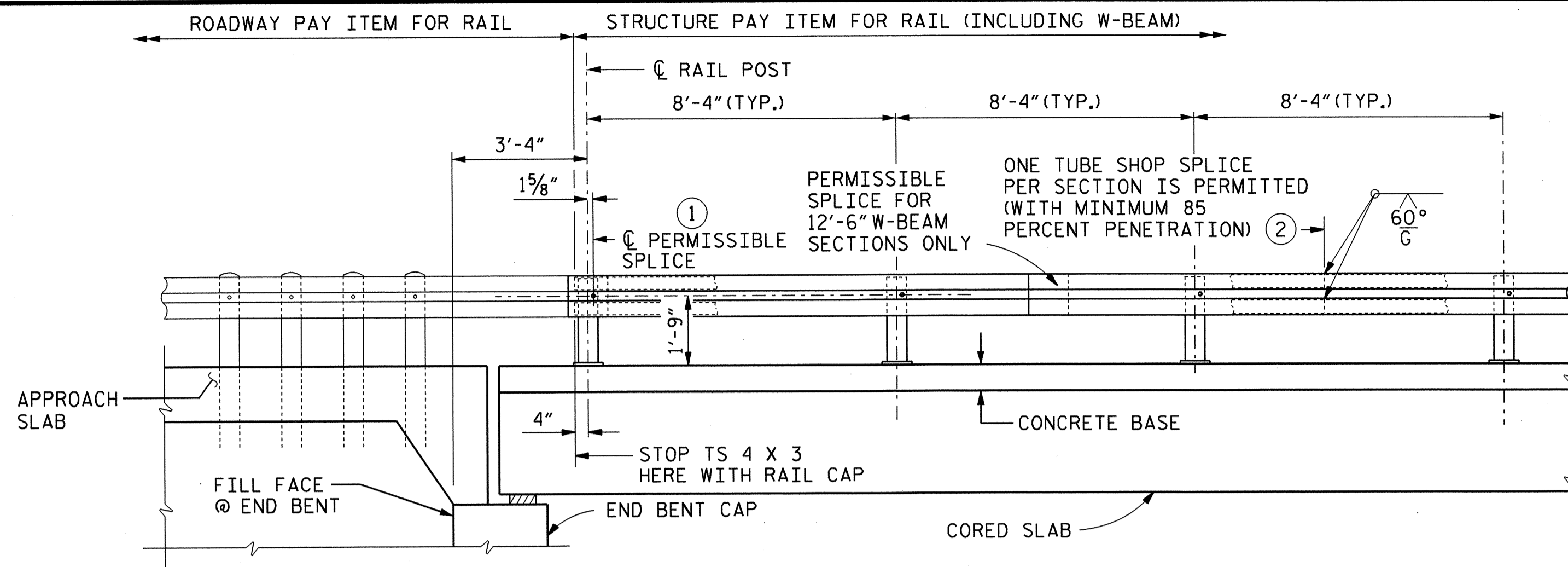
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RALEIGH

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

REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

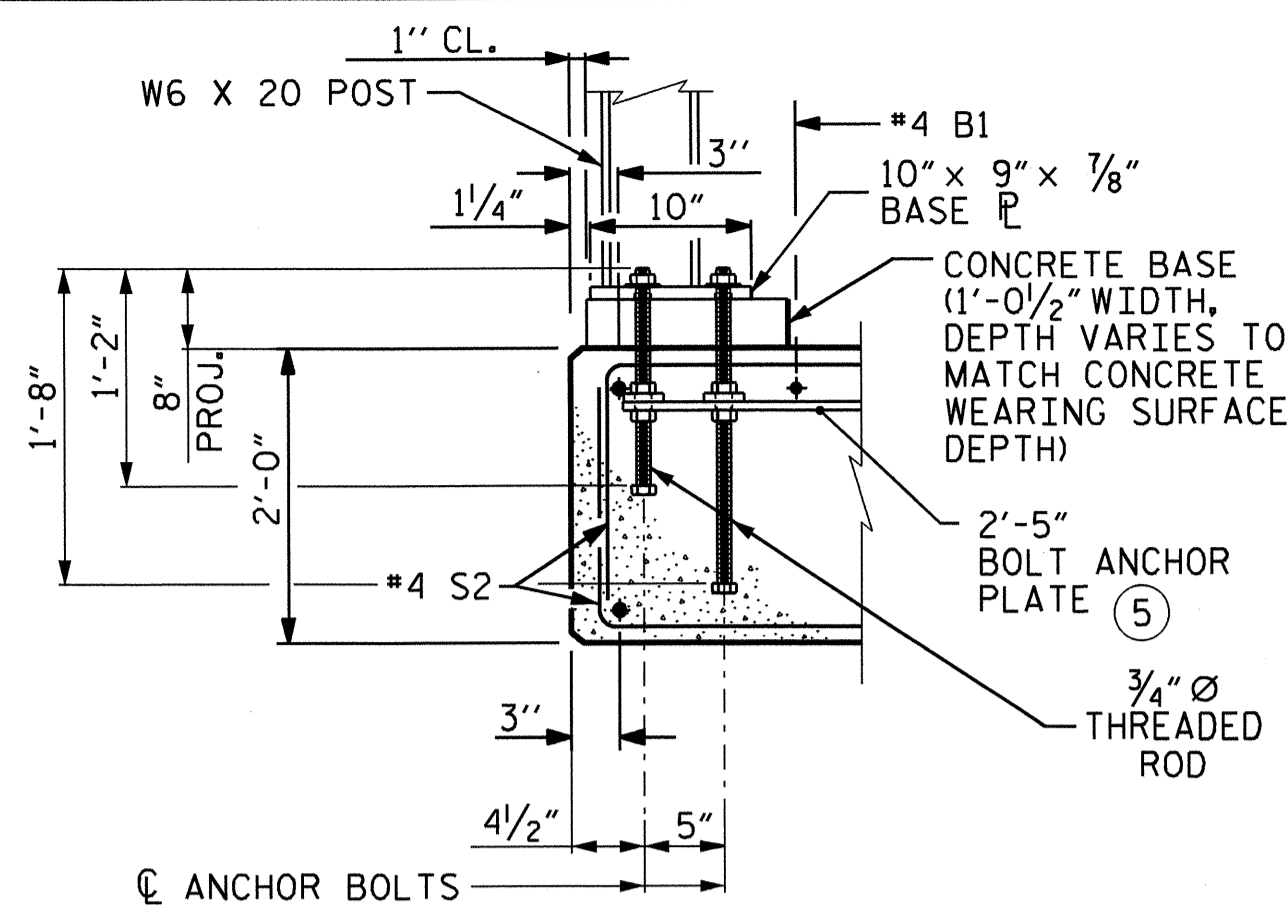


ASSEMBLED BY: C.R. YARBROUGH DATE: 10/10  
CHECKED BY: E. C. LOCKLEAR DATE: 01/11  
DRAWN BY: WJH 4/89 REV. 7/10/01 RWW/LJS  
CHECKED BY: FCJ 5/89 REV. 5/1/03RRR RWW/JTE  
REV. 5/1/06R TLA/OM



**ELEVATION OF RAIL**

(EACH END SIMILAR)



**POST MOUNTING DETAILS**

**NOTES:**

SECTION LENGTHS OF TS 4 X 3 MEMBERS SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF THREE POSTS.

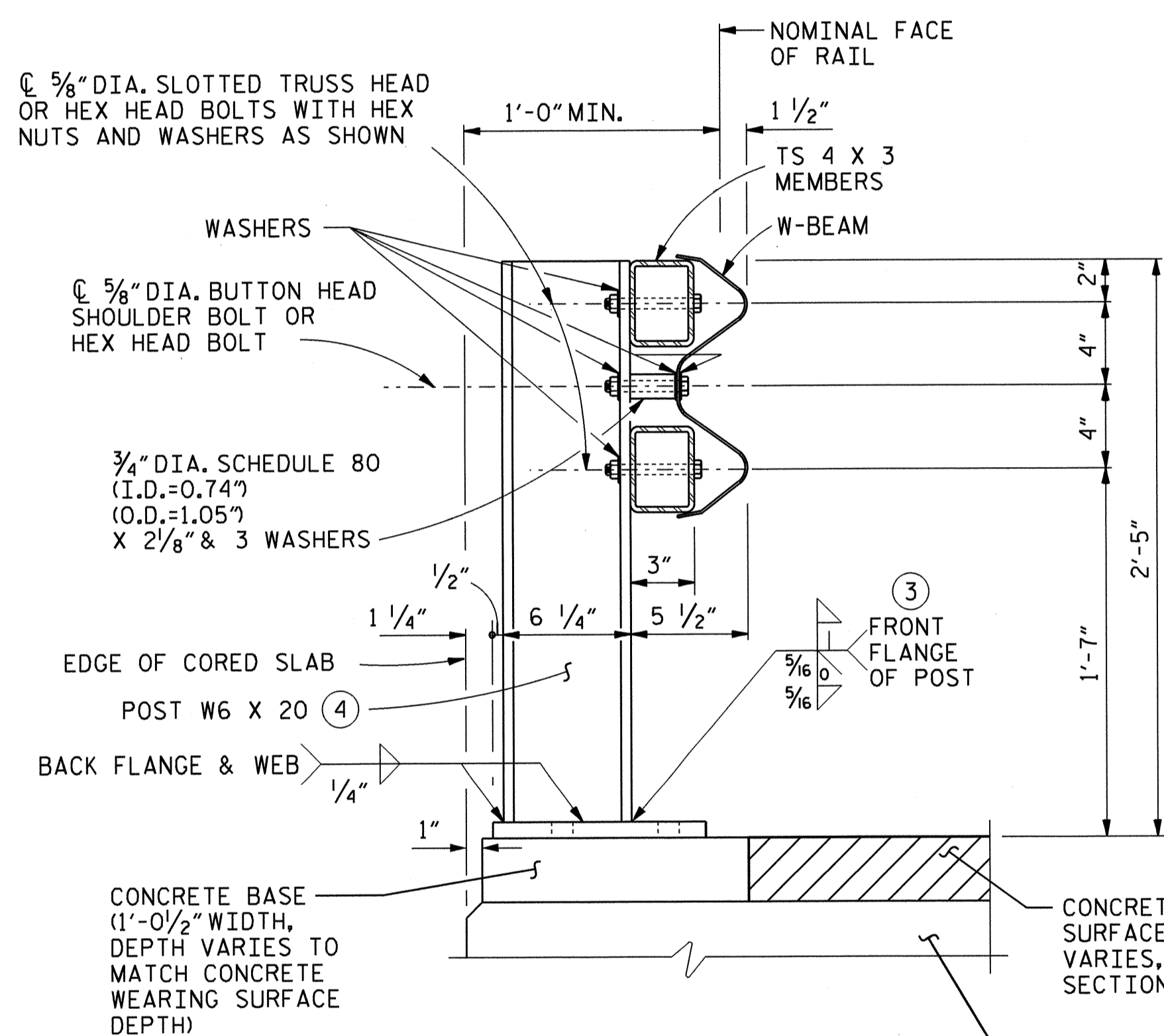
ALL STEEL COMPONENTS SHALL BE GALVANIZED UNLESS OTHERWISE SHOWN IN PLANS.

AT EXPANSION SLOTS IN W-BEAM RAIL, TIGHTEN BOLTS SNUGLY.

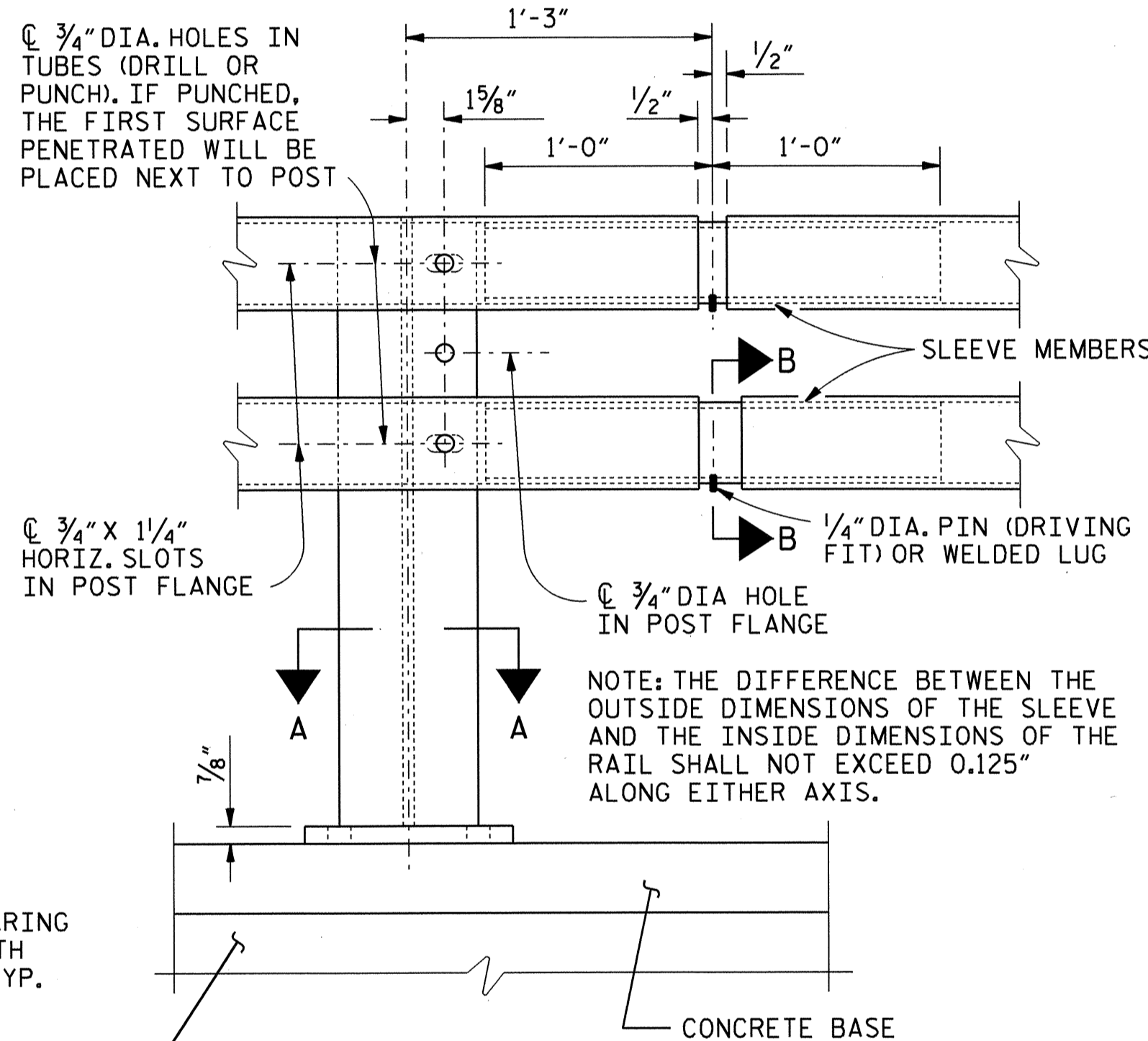
FOR ALL RAILS, ERECTION DRAWINGS SHOWING SECTION LENGTHS, SPLICE LOCATIONS, RAIL POST SPACING AND ANCHOR BOLT SETTING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

NUTS FOR ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND GIVEN AN ADDITIONAL 1/4 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

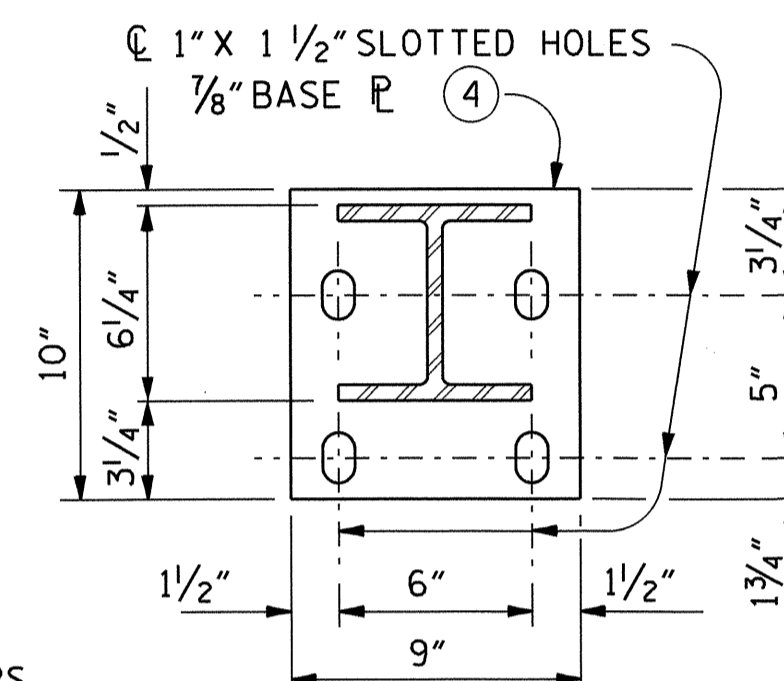
- ① SPLICE MAY BE ON EITHER SIDE OF BRIDGE RAIL POST WEB.
- ② THE WELD MAY BE SQUARE GROOVE OR SINGLE VEE GROOVE. GRIND SMOOTH
- ③ IN LIEU OF FRONT FLANGE WELD SHOWN, A 3/8" FILLET WELD ALL AROUND INCLUDING EDGES OF FLANGE MAY BE USED.
- ④ ALL STEEL POSTS AND PLATES SHALL BE ASTM A36.
- ⑤ INSTALL ONE ANCHORAGE PLATE ASSEMBLY IN SLAB AT EACH RAIL POST. SEE CORED SLAB DETAILS.
- ⑥ MEMBER SHALL BE 12 GAGE STEEL NOMINAL THICKNESS = 0.1046" EXCLUSIVE OF PROTECTIVE COATING. ACTUAL SECTION MAY VARY SLIGHTLY WITH THE MANUFACTURER AND CONFORMS TO AASHTO M-180



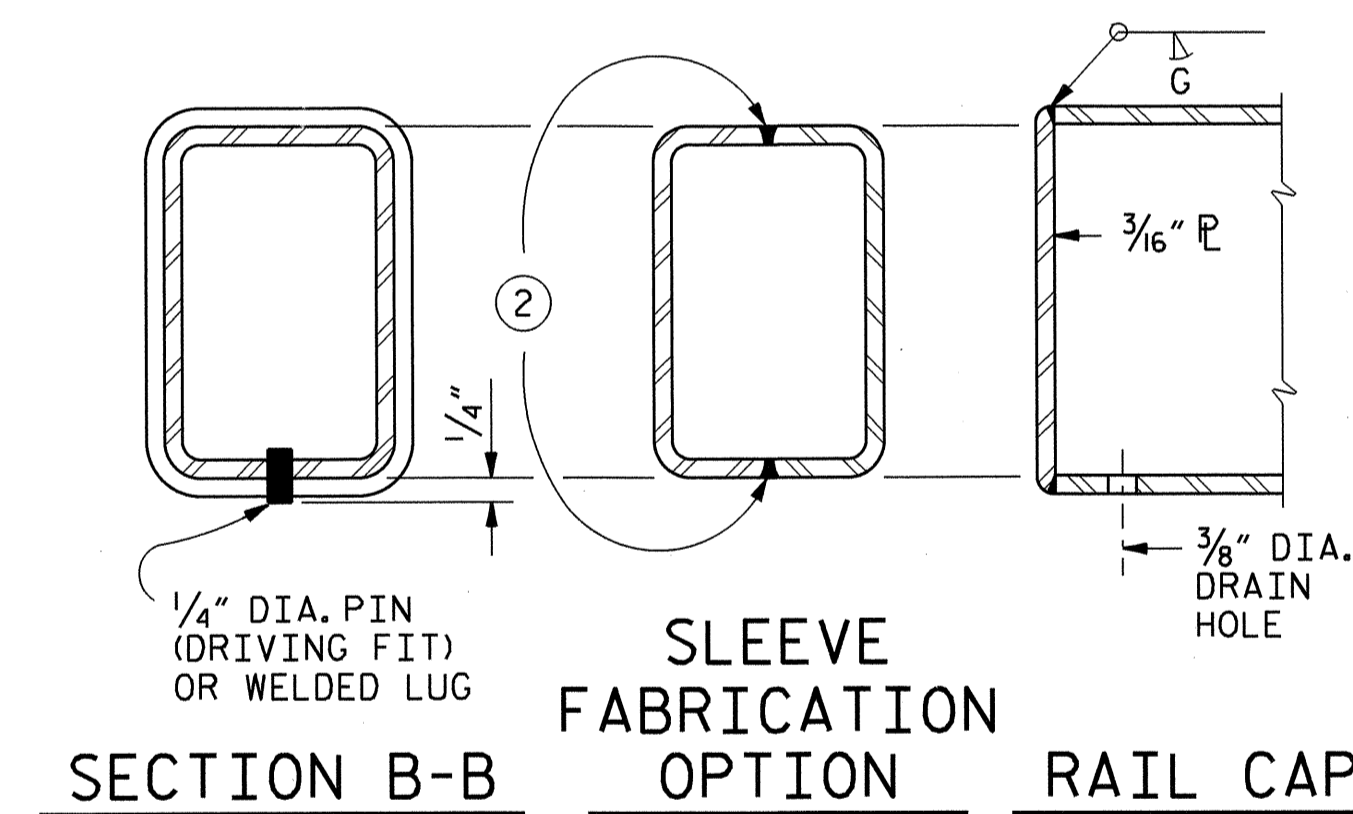
**SECTION THRU RAIL**



**TUBE SPLICE DETAILS**



**SECTION A-A**



**SECTION B-B**

**SLEEVE FABRICATION OPTION**

**RAIL CAP**

PAY LENGTH = 118.0 LIN. FT.

**TUBE & SLEEVE MEMBERS**

RAIL MEMBER		SLEEVE THICKNESS
MATERIAL	THICKNESS	MATERIAL - A36
A 500 GRADE C	0.188"	0.188"
A 500 GRADE B	0.250"	0.250"
A 500 GRADE A OR A 501	0.313"	0.250"

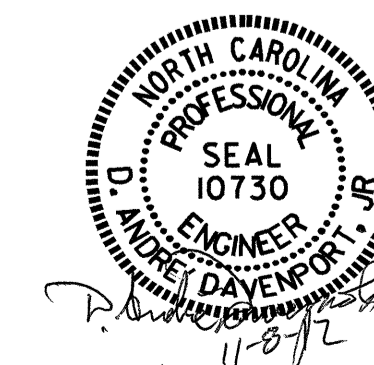
NOTE: OTHER SECTIONS OF EQUAL OR GREATER STRENGTH ARE ACCEPTABLE FOR SLEEVES.

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 RAIL DETAILS  
 (TYPE T101)**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			18

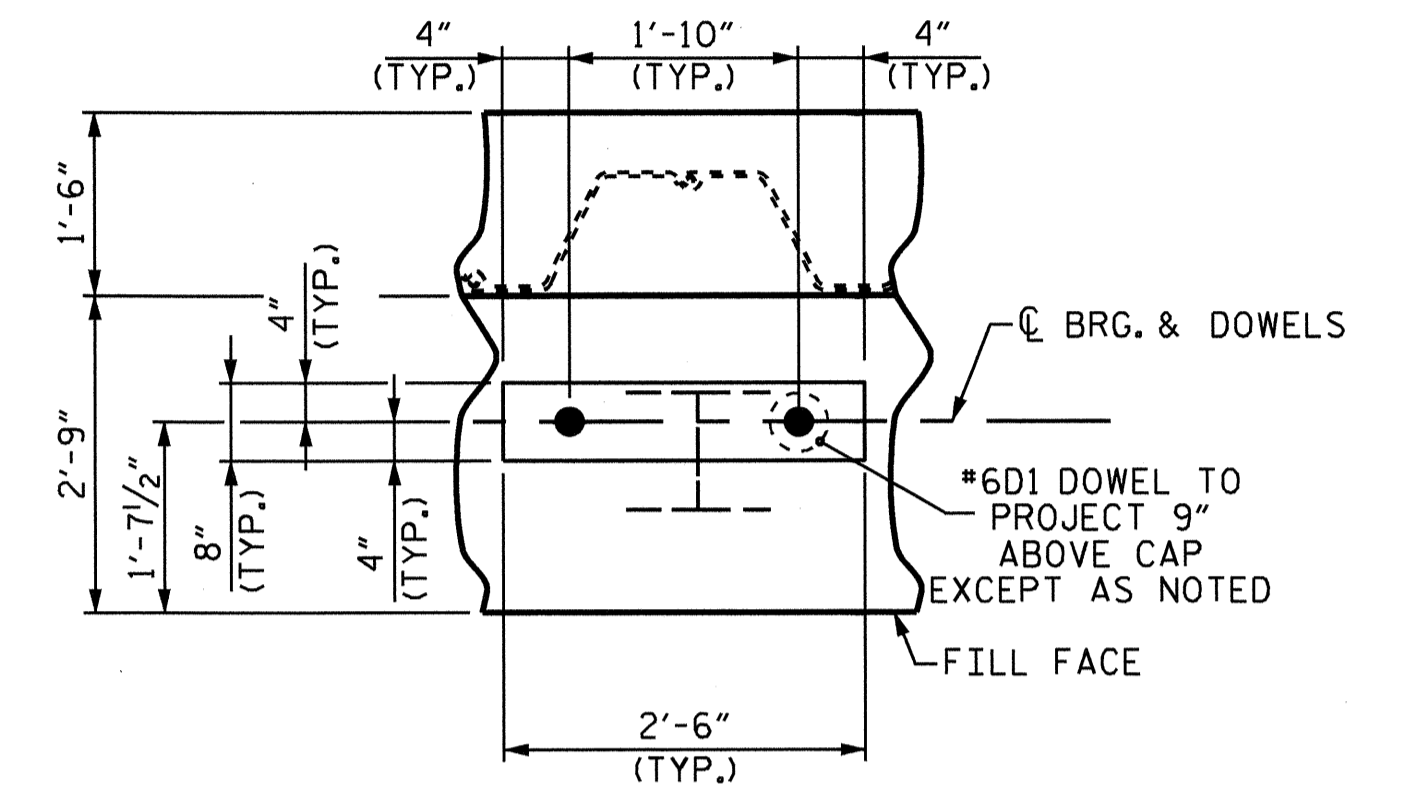
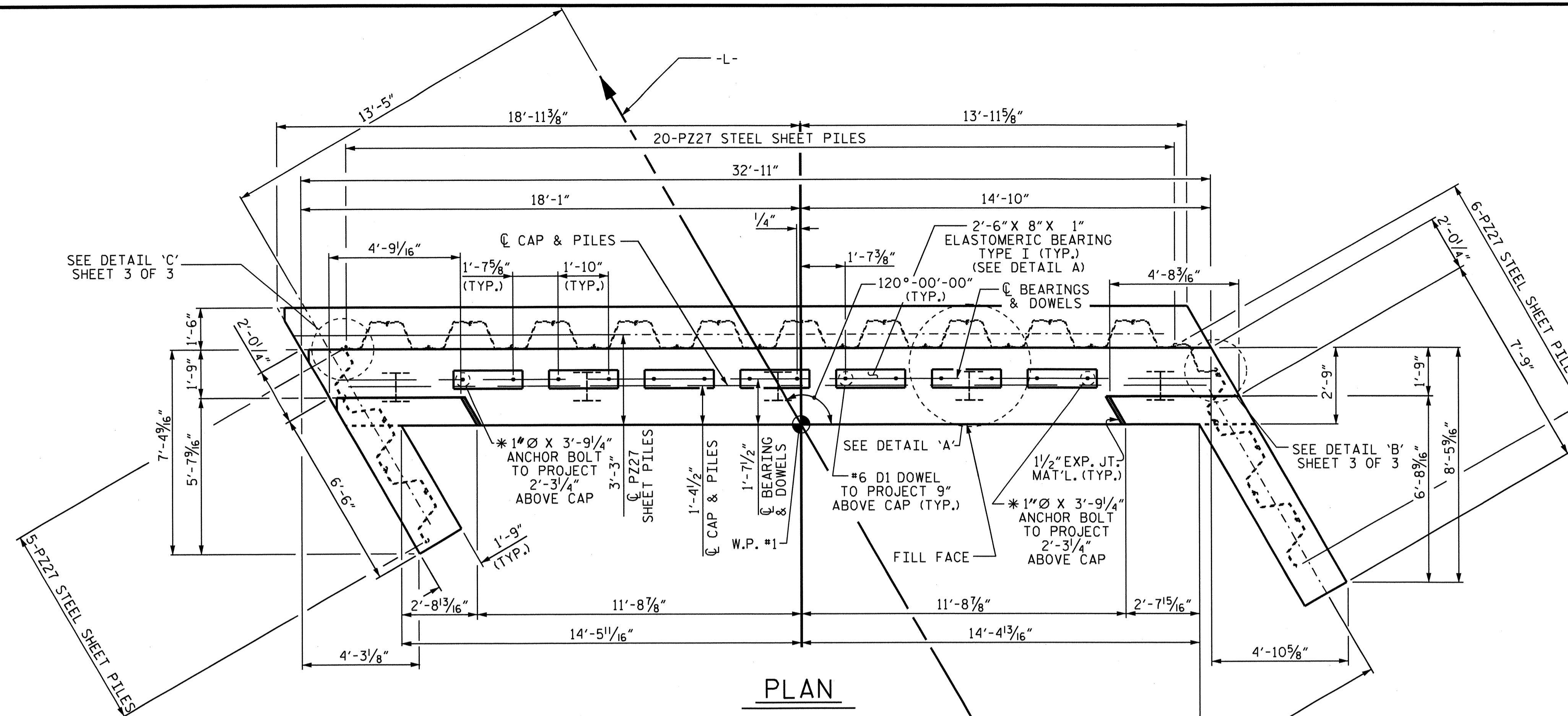


DRAWN BY: C.R. YARBROUGH DATE: 10/10  
 CHECKED BY: E.C. LOCKLEAR DATE: 01/11

**NOTES**

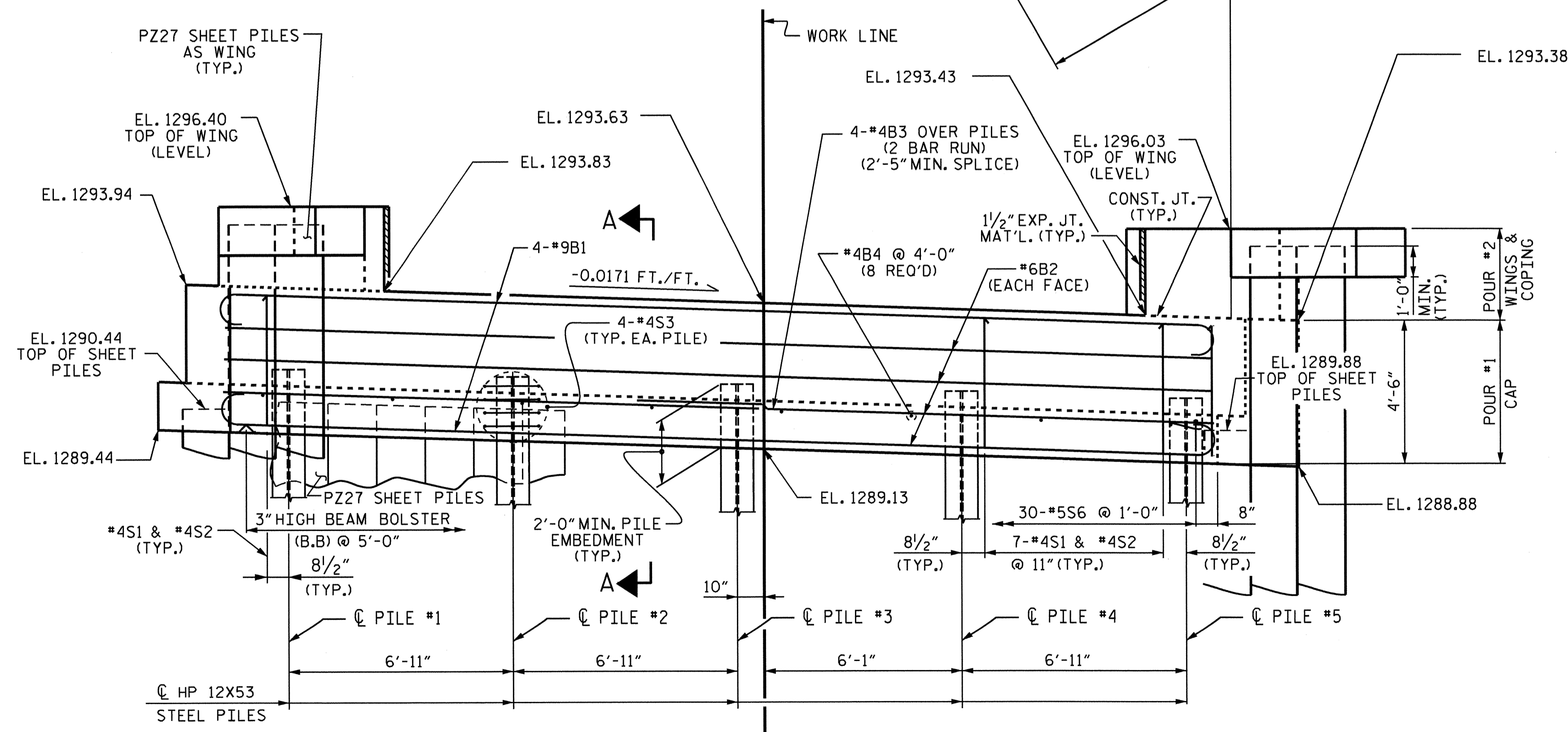
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

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



**PLAN**

**DETAIL 'A'**



**ELEVATION**

PZ27 SHEET PILES NOT SHOWN

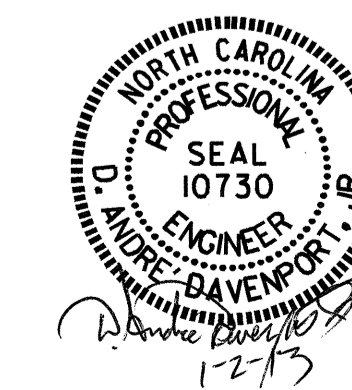
TOP OF PILE ELEVATIONS FOR END BENT #1	
PILE	ELEVATION
1	1291.39
2	1291.27
3	1291.15
4	1291.03
5	1290.91

PROJECT NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-

SHEET 1 OF 3

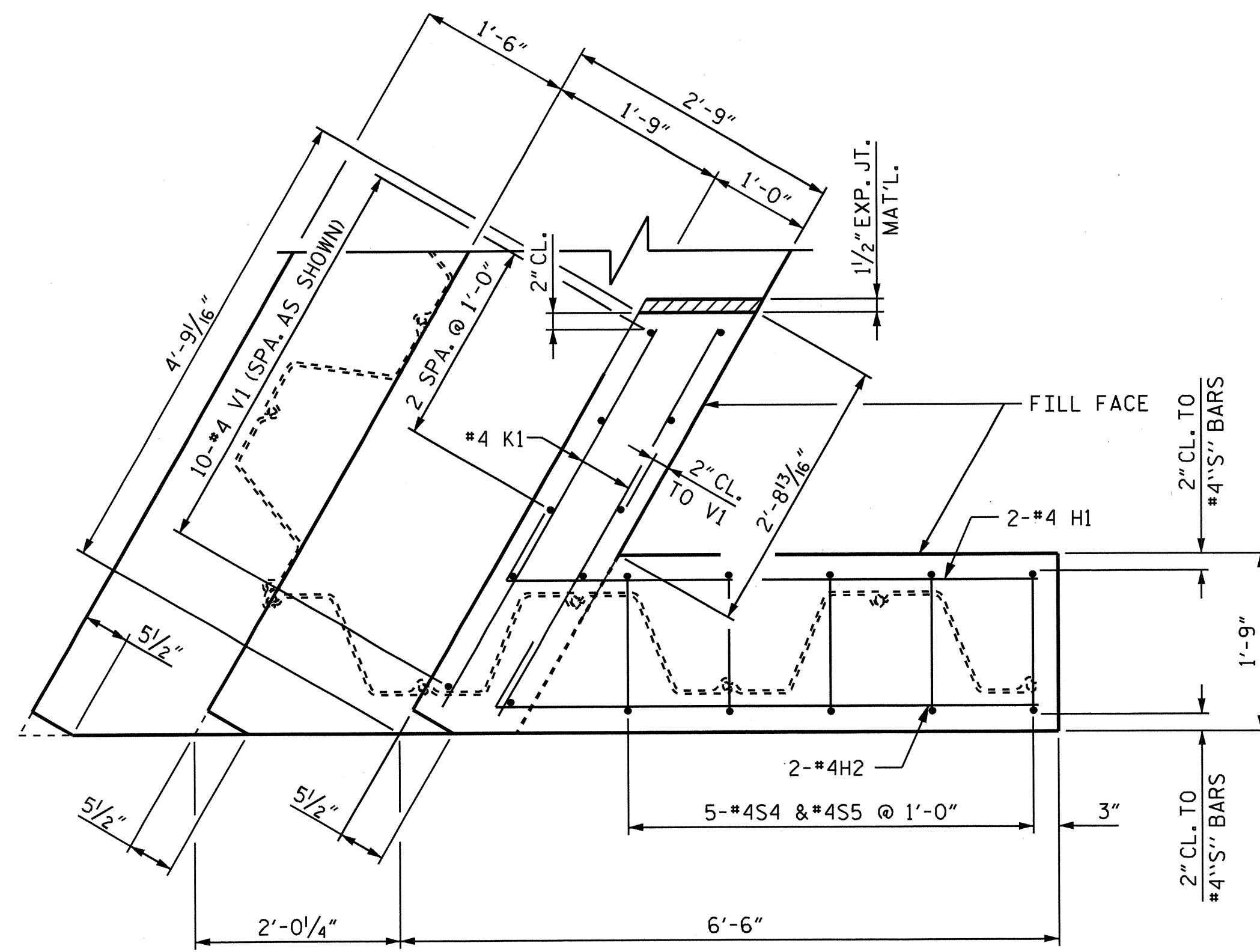
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 END BENT #1**

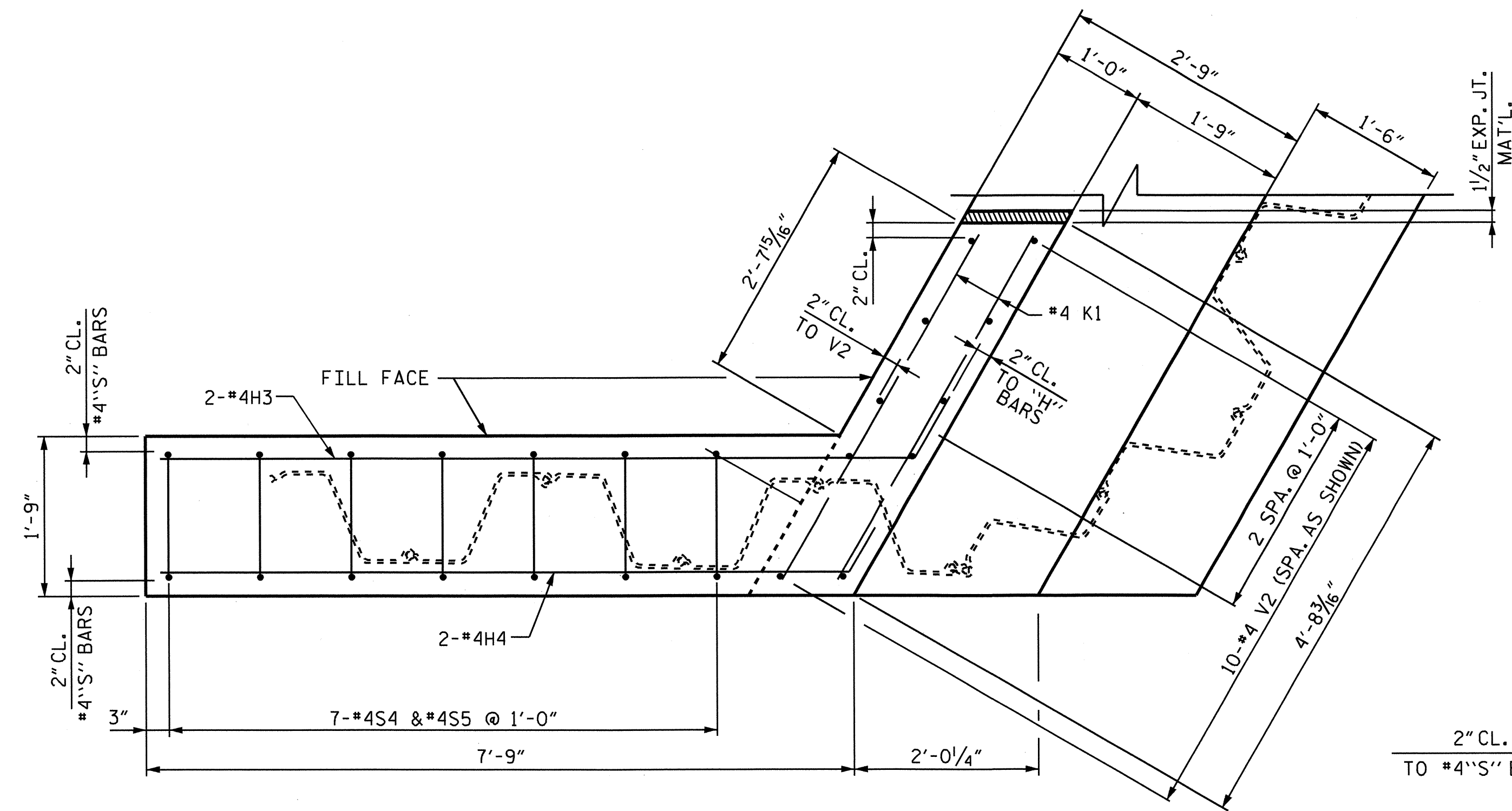


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NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			18

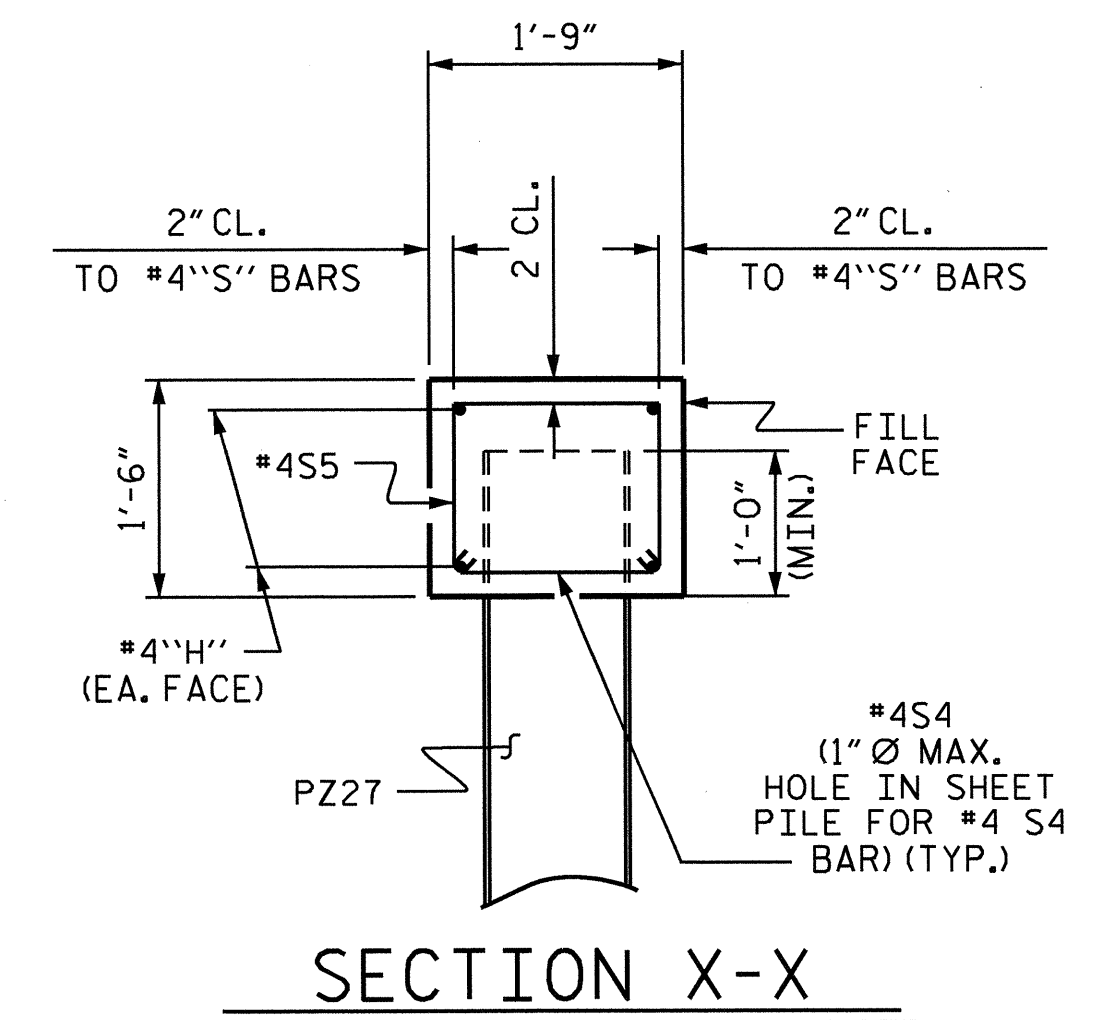
DRAWN BY : D.A. DAVENPORT DATE : 09/05/12  
 CHECKED BY : R.P. PATEL DATE : 10/23/12



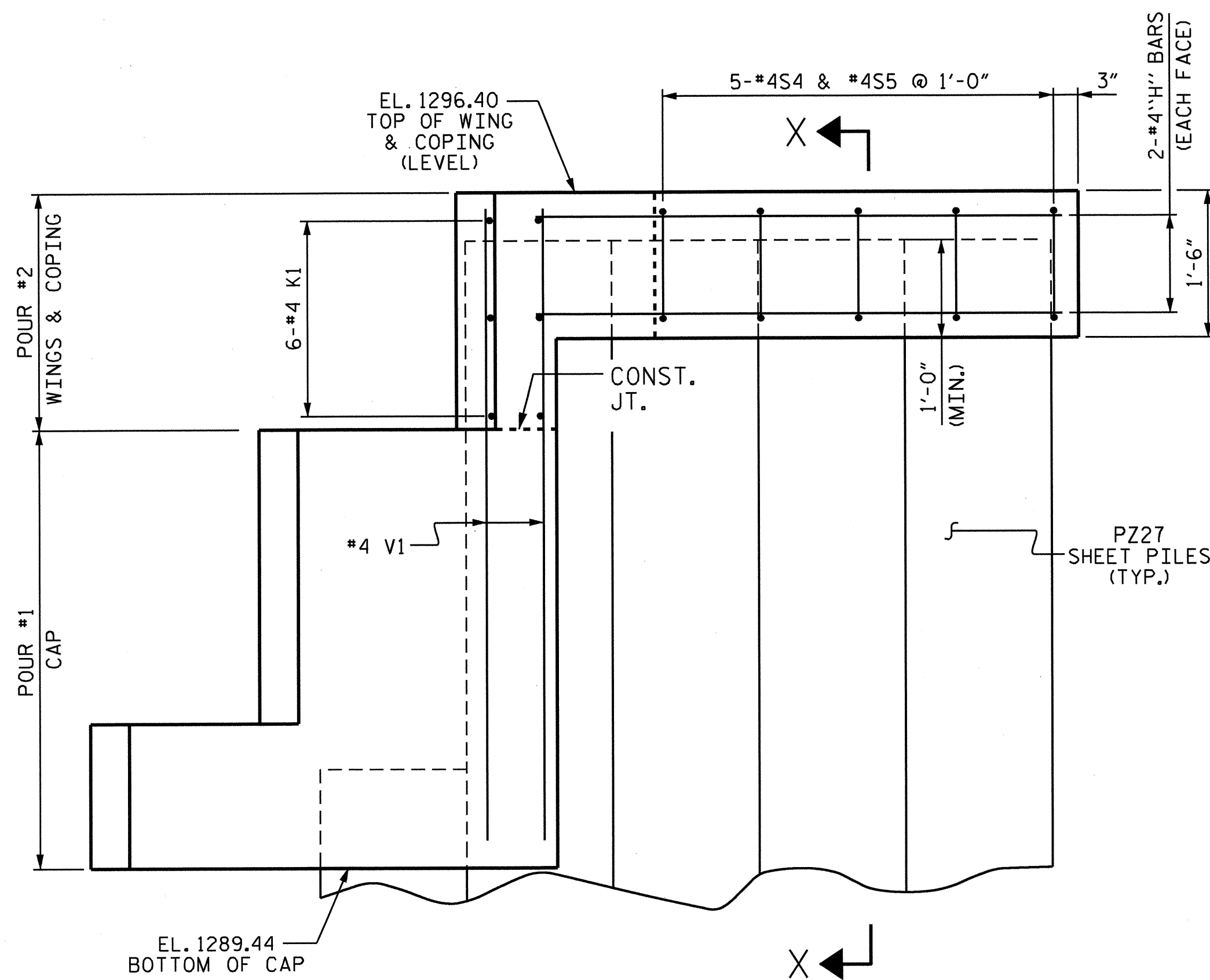
PLAN OF LEFT WING



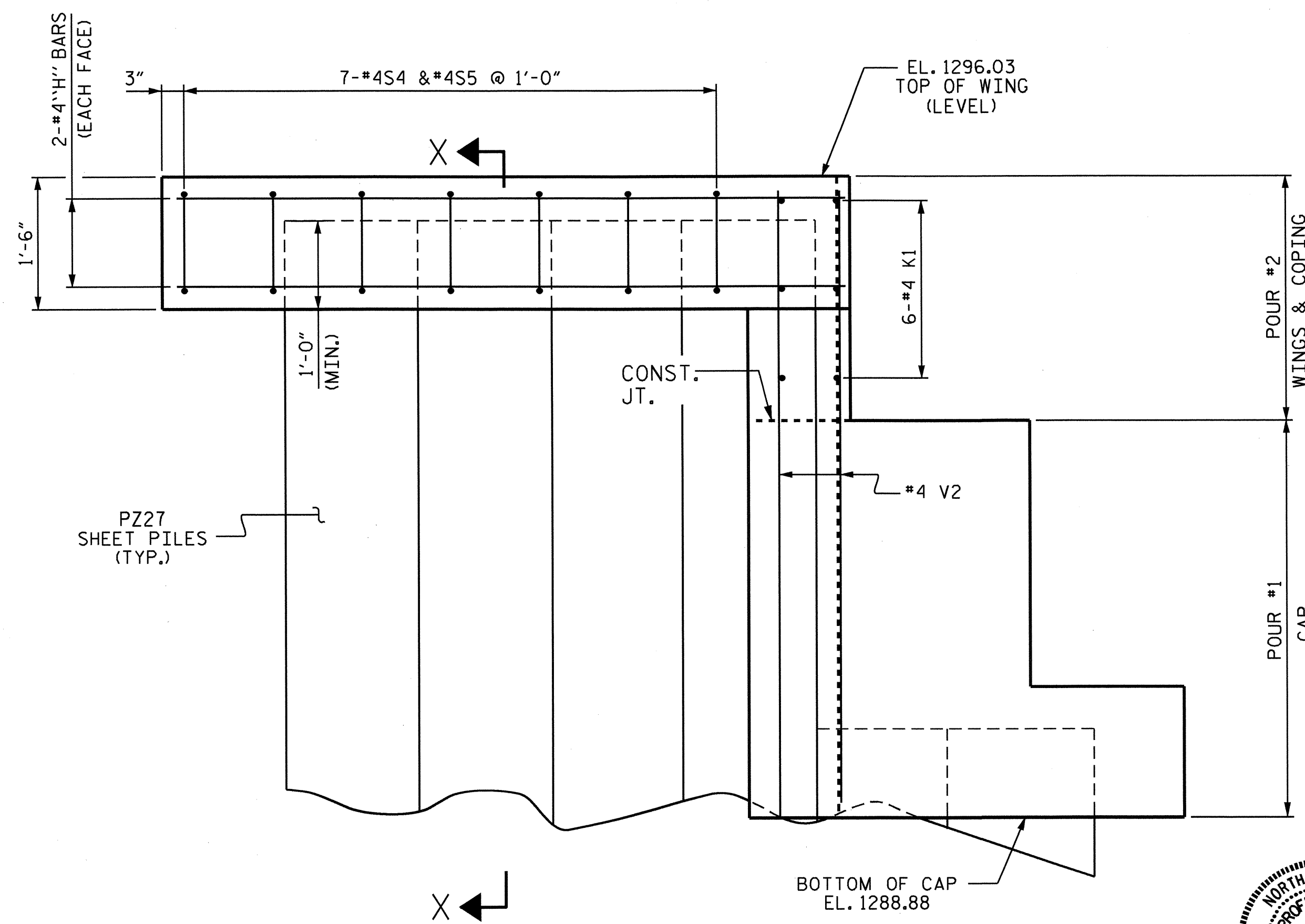
PLAN OF RIGHT WING



SECTION X-X



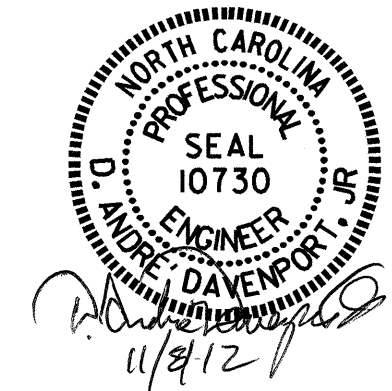
ELEVATION OF LEFT WING



ELEVATION OF RIGHT WING

DRAWN BY: D.A. DAVENPORT DATE: 09/06/12  
 CHECKED BY: R.P. PATEL DATE: 10/23/12

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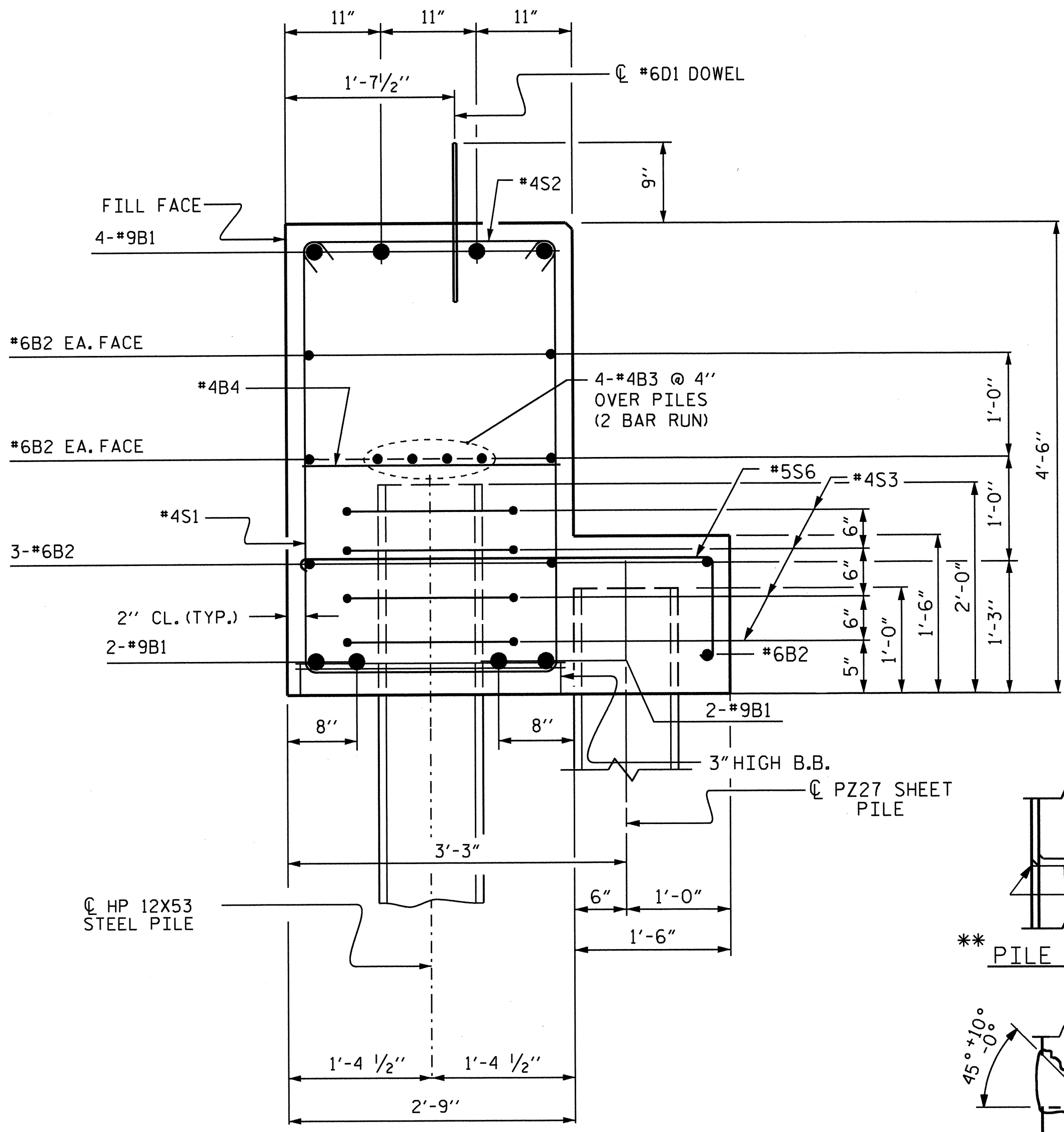


PROJECT NO. B-4325  
 WILKES COUNTY  
 STATION: 12+84.93 -L-  
 SHEET 2 OF 3

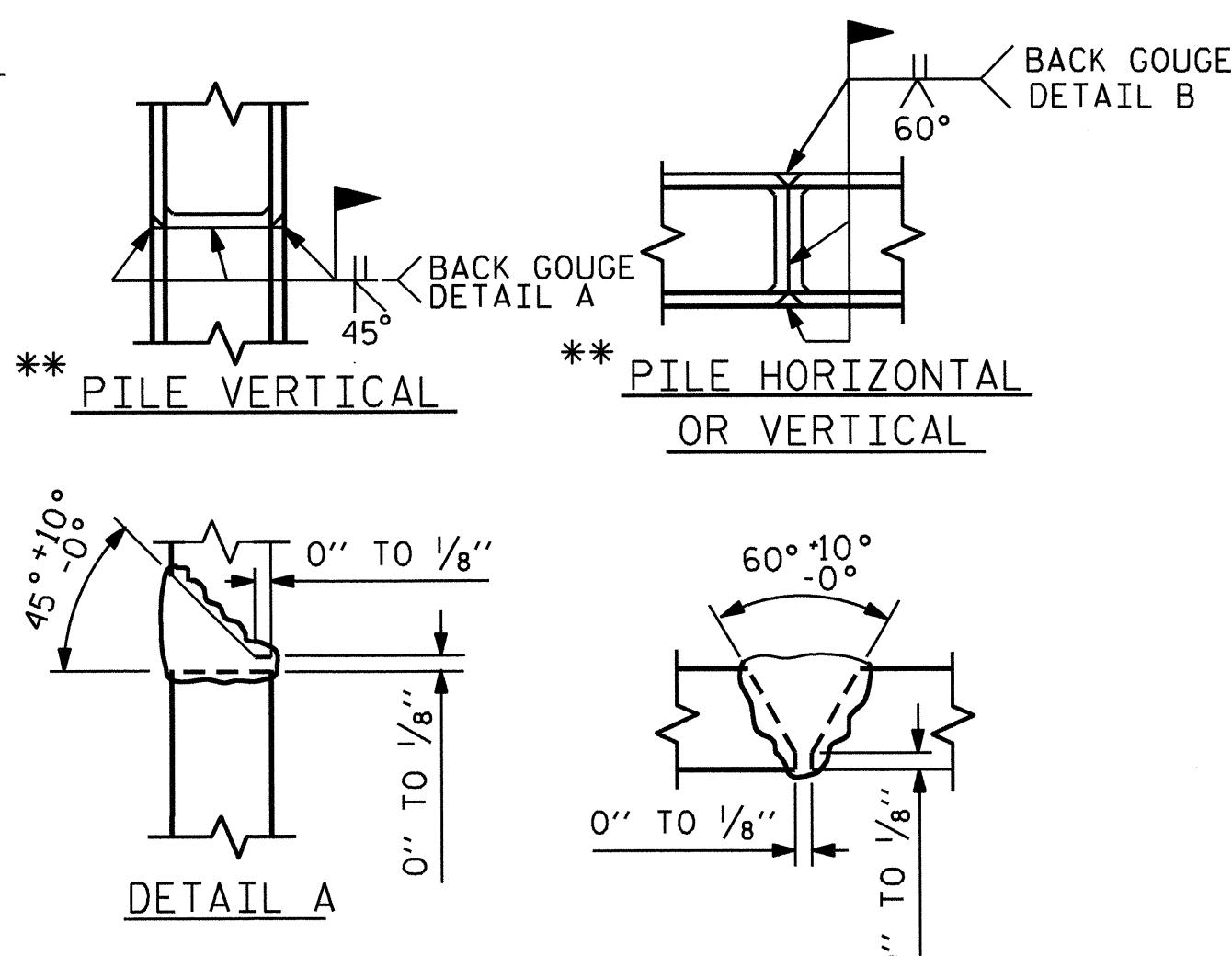
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #1

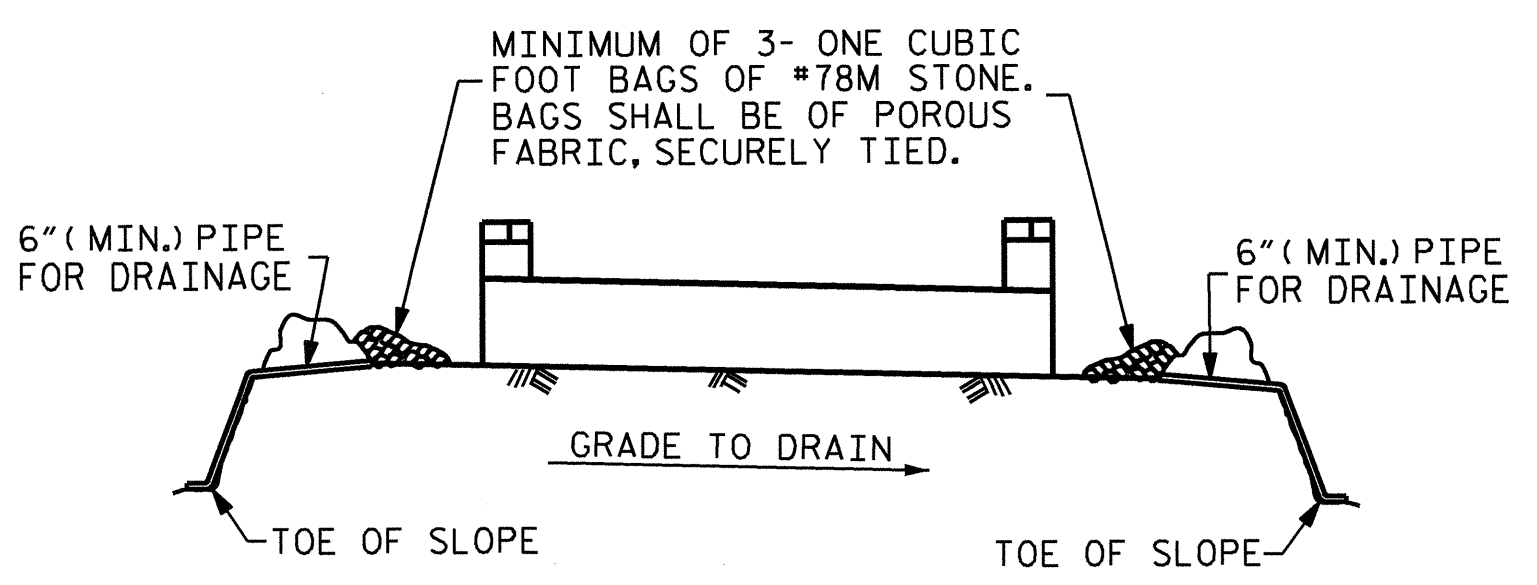
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-12
1			3			TOTAL SHEETS
2			4			18



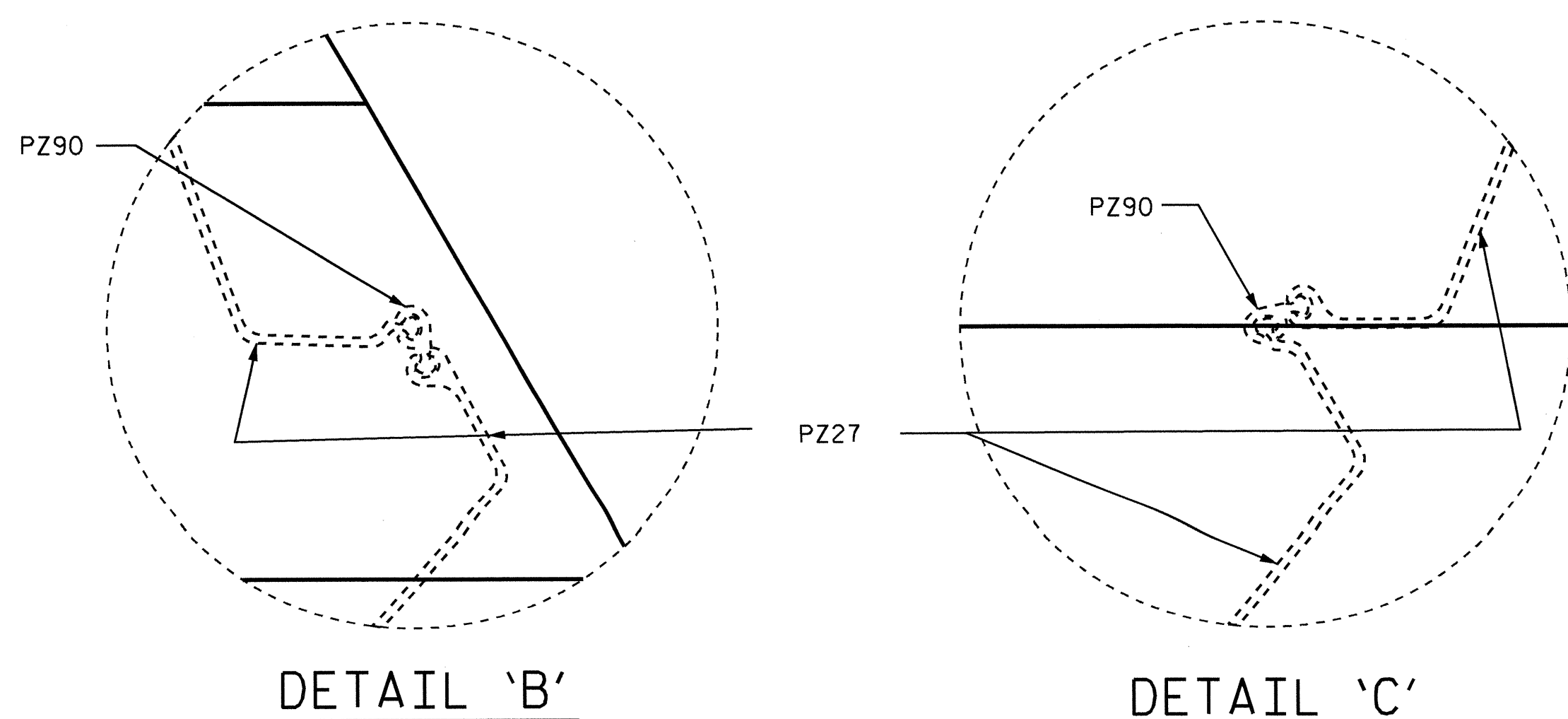
SECTION A-A



PILE SPLICE DETAILS



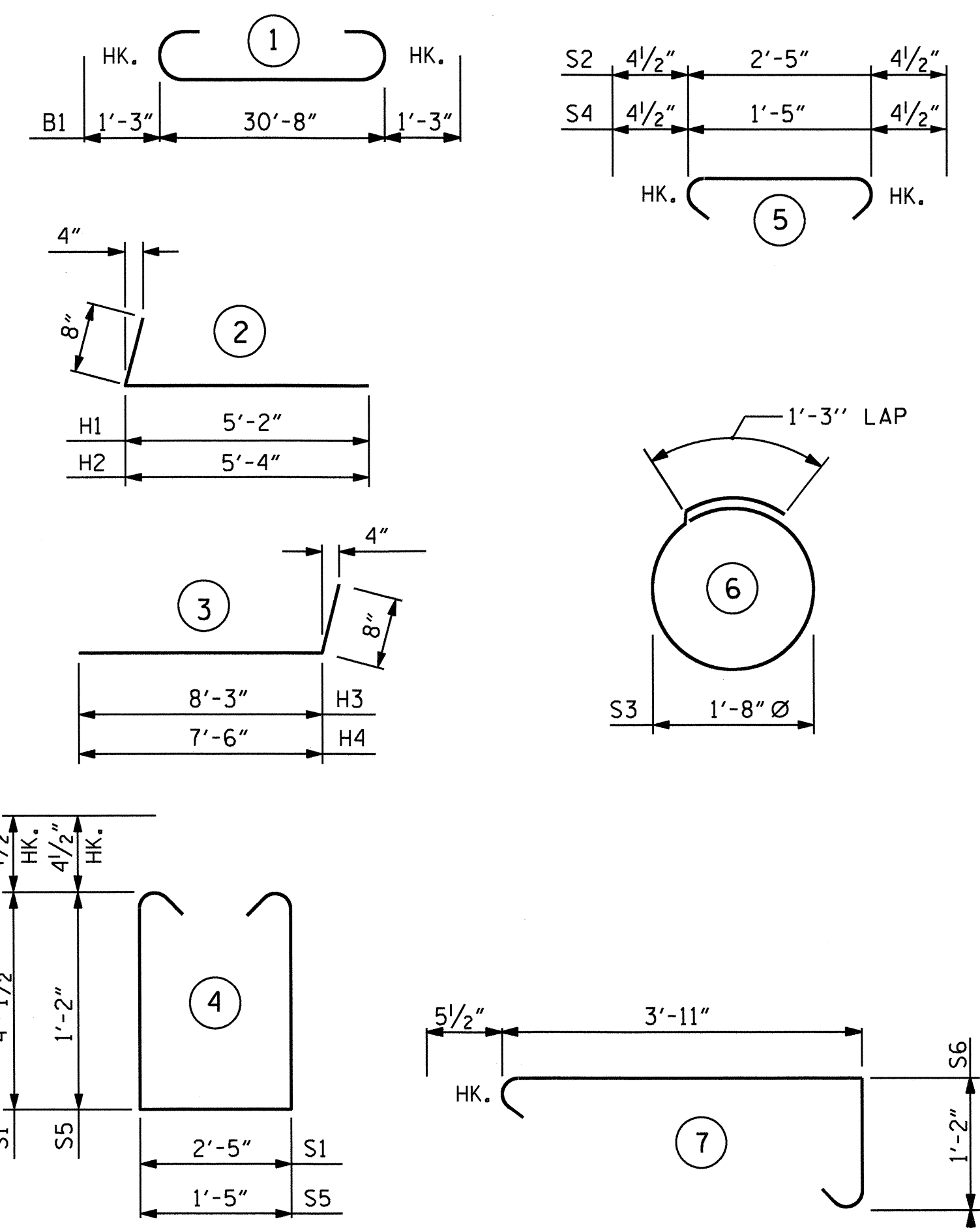
TEMPORARY DRAINAGE AT END BENT



DETAIL 'B'

DETAIL 'C'

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	33'-2"	902
B2	8	#6	STR	30'-10"	370
B3	8	#4	STR	16'-8"	89
B4	8	#4	STR	2'-5"	13
D1	12	#6	STR	1'-6"	27
H1	2	#4	2	5'-10"	8
H2	2	#4	2	6'-0"	8
H3	2	#4	3	8'-11"	12
H4	2	#4	3	8'-2"	11
K1	12	#4	STR	3'-5"	27
S1	30	#4	4	11'-5"	229
S2	30	#4	5	3'-2"	63
S3	20	#4	6	6'-6"	87
S4	12	#4	5	2'-2"	17
S5	12	#4	4	4'-6"	36
S6	30	#5	7	6'-0"	188
V1	10	#4	STR	6'-6"	43
V2	10	#4	STR	6'-8"	45
REINFORCING STEEL LBS				=	2175
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP					C.Y. 17.8
POUR #2 WINGS & COPING					C.Y. 2.1
TOTAL CLASS A CONCRETE					C.Y. 19.9
HP 12X53 STEEL PILES					
NO. 5 (LIN. FT.)					160
STEEL SHEET PILES					
NO. 31 (SQ. FT.)					985

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SHEET 3 OF 3

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SUBSTRUCTURE  
 END BENT #1

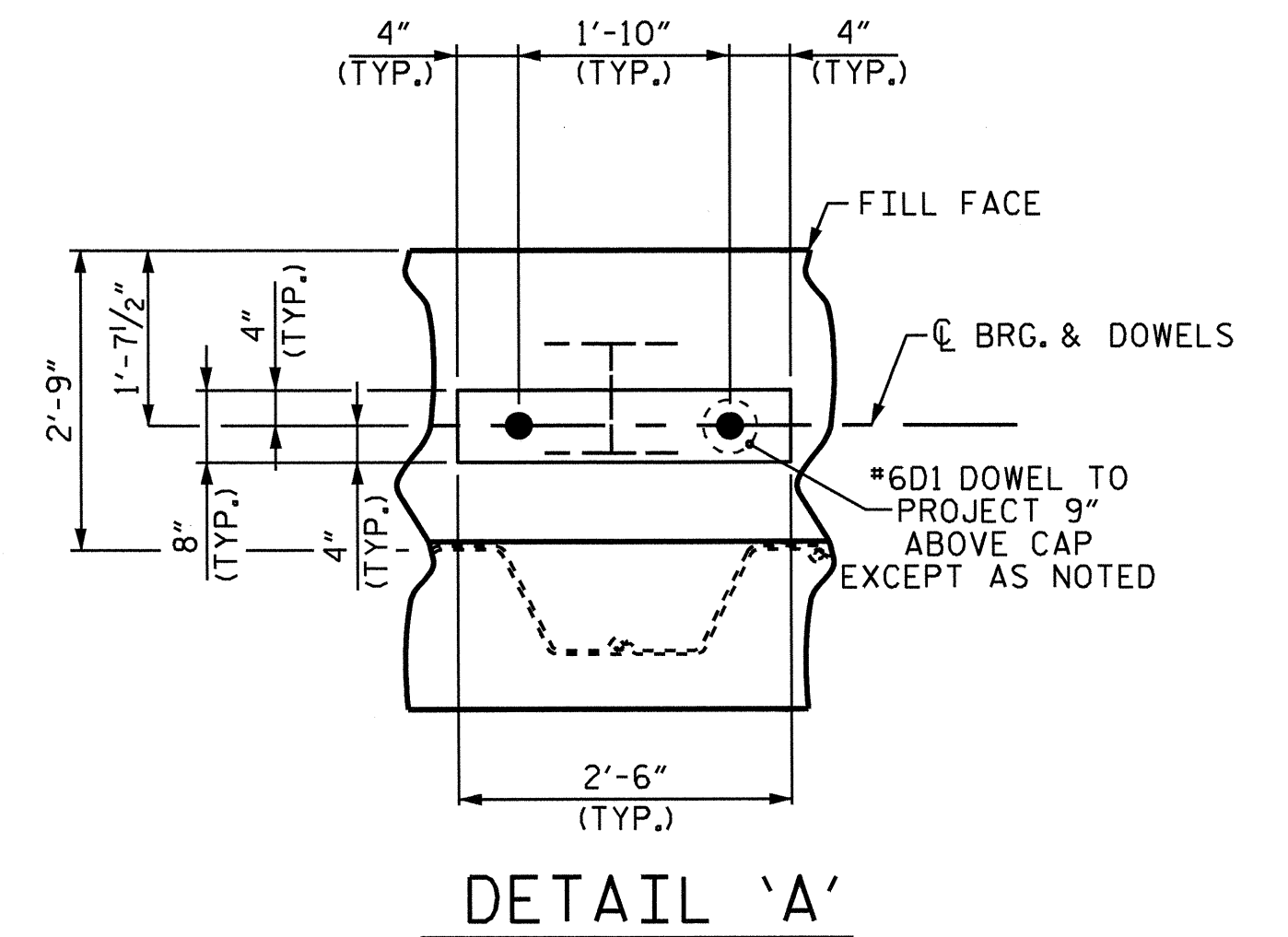
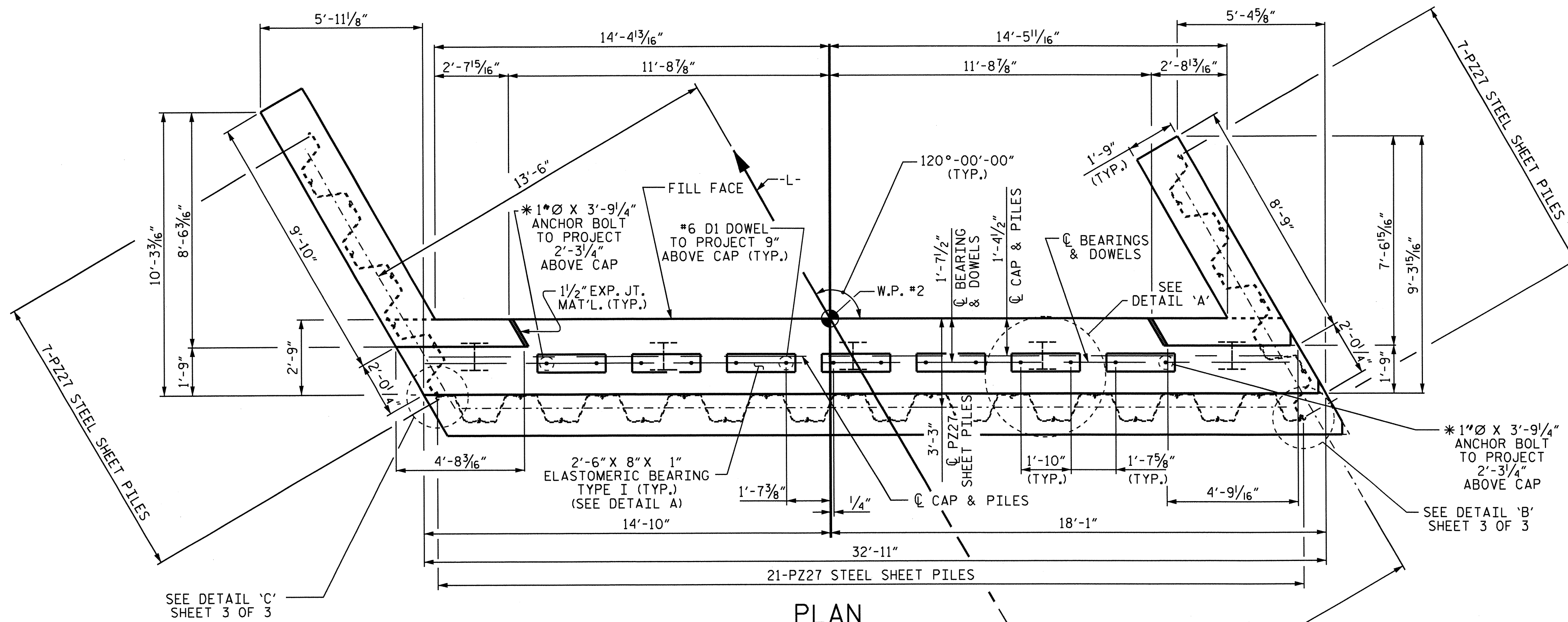
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13	
1			3			TOTAL	18
2			4			SHEETS	

DRAWN BY: D.A. DAVENPORT DATE: 09/07/12  
 CHECKED BY: R.P. PATEL DATE: 10/23/12

**NOTES**

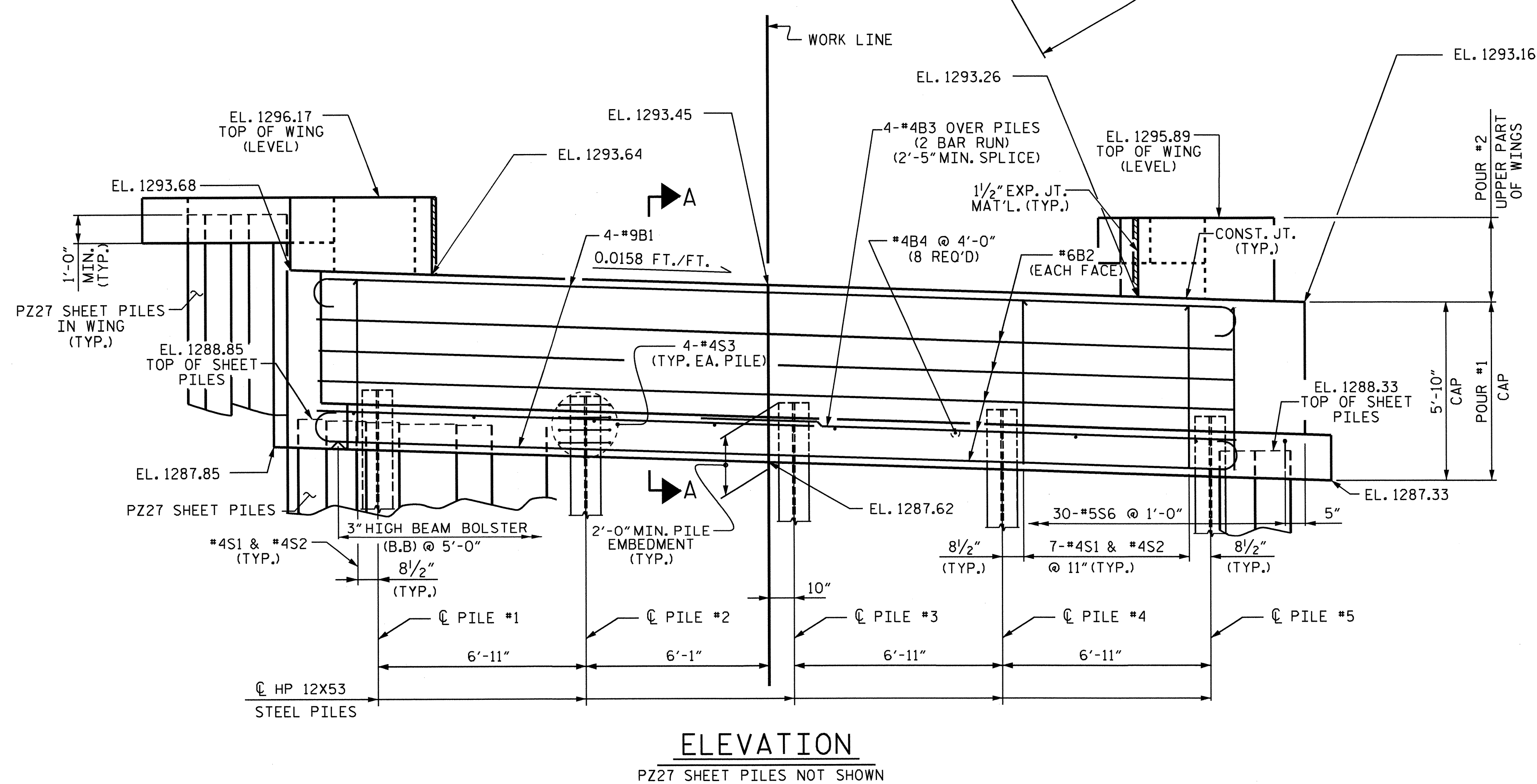
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

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



TOP OF PILE ELEVATIONS FOR END BENT #2

PILE	ELEVATION
1	1289.83
2	1289.72
3	1289.61
4	1289.50
5	1289.39



PROJECT NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-

SHEET 1 OF 3

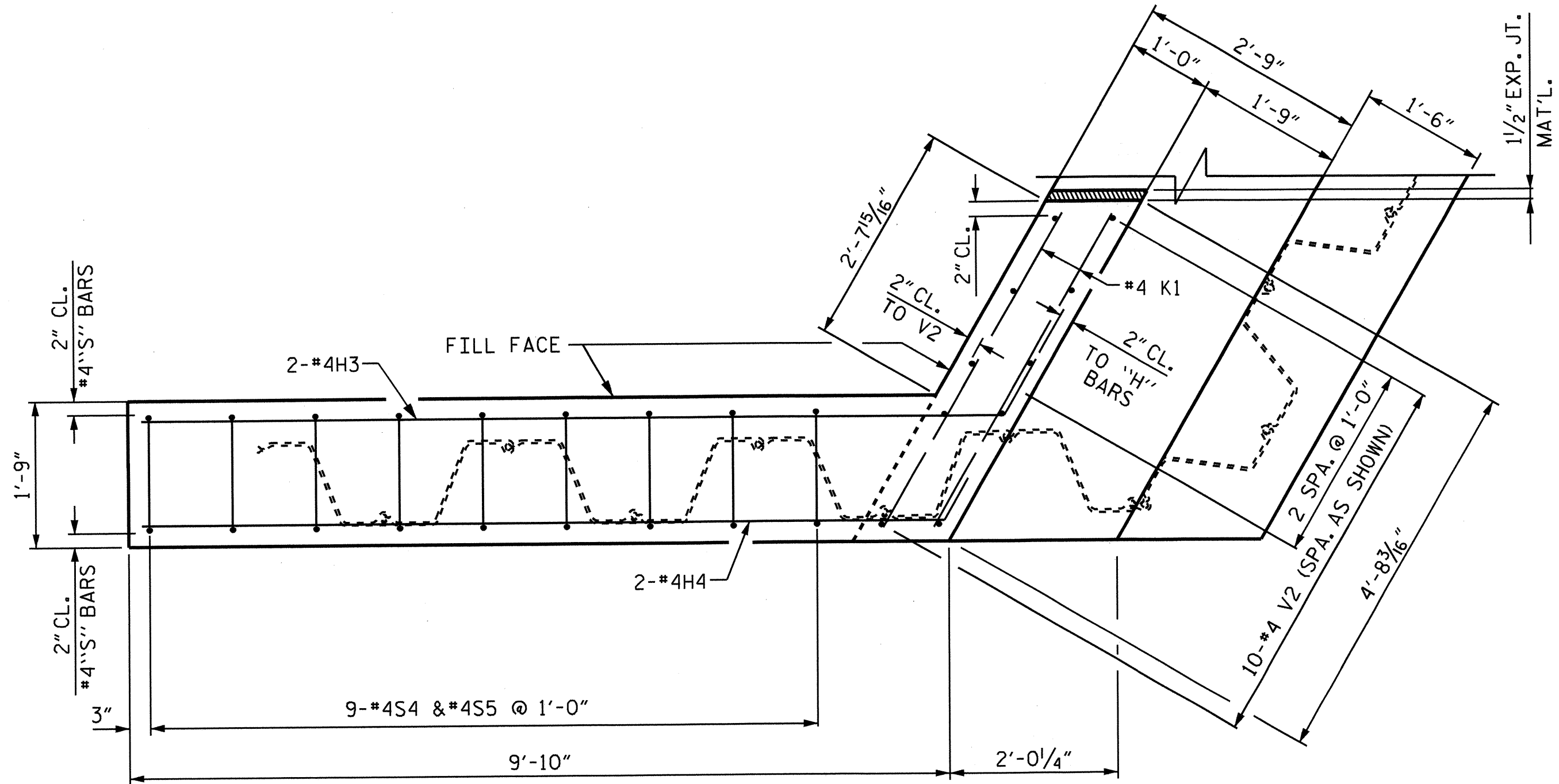
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 END BENT #2**

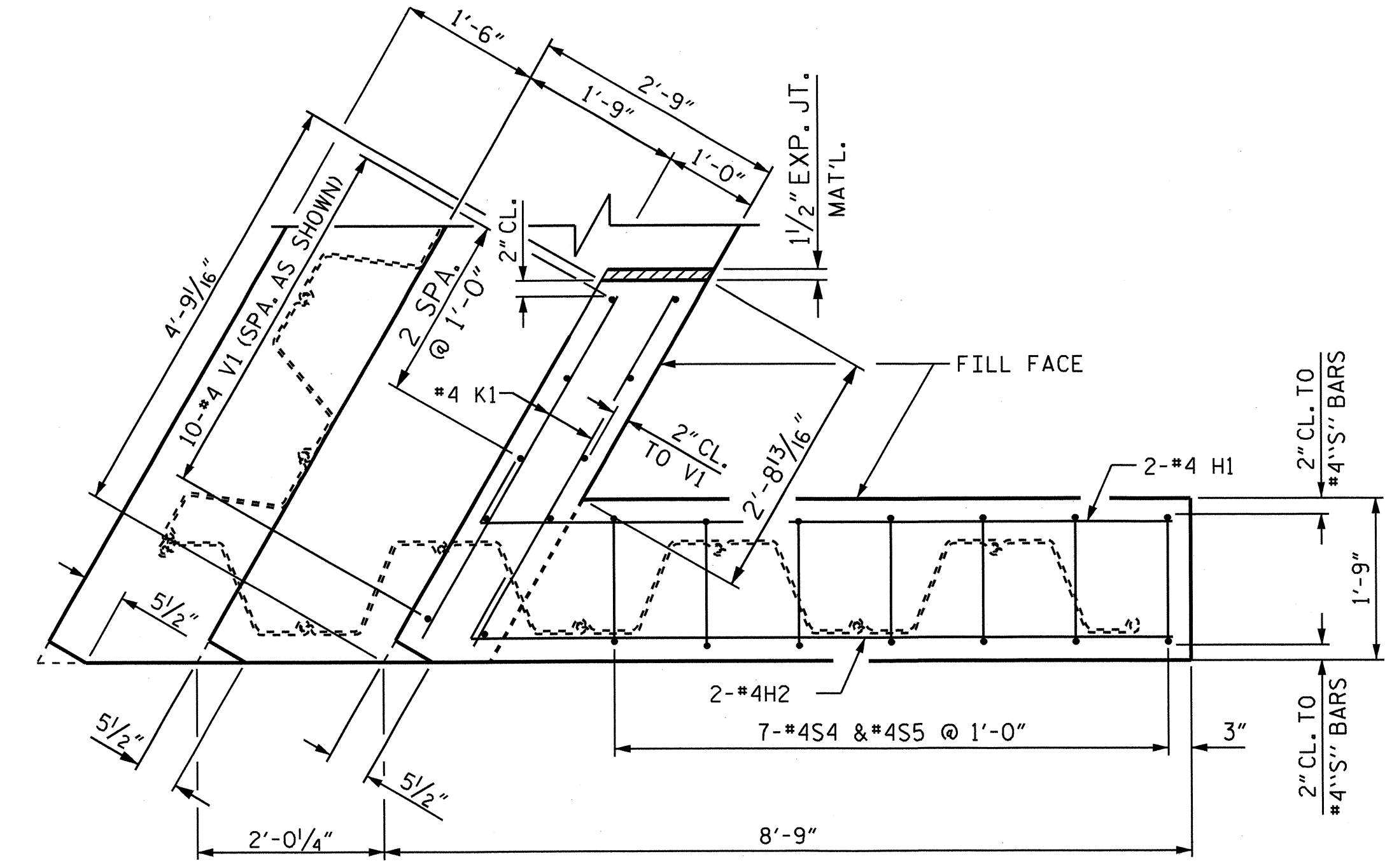
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			



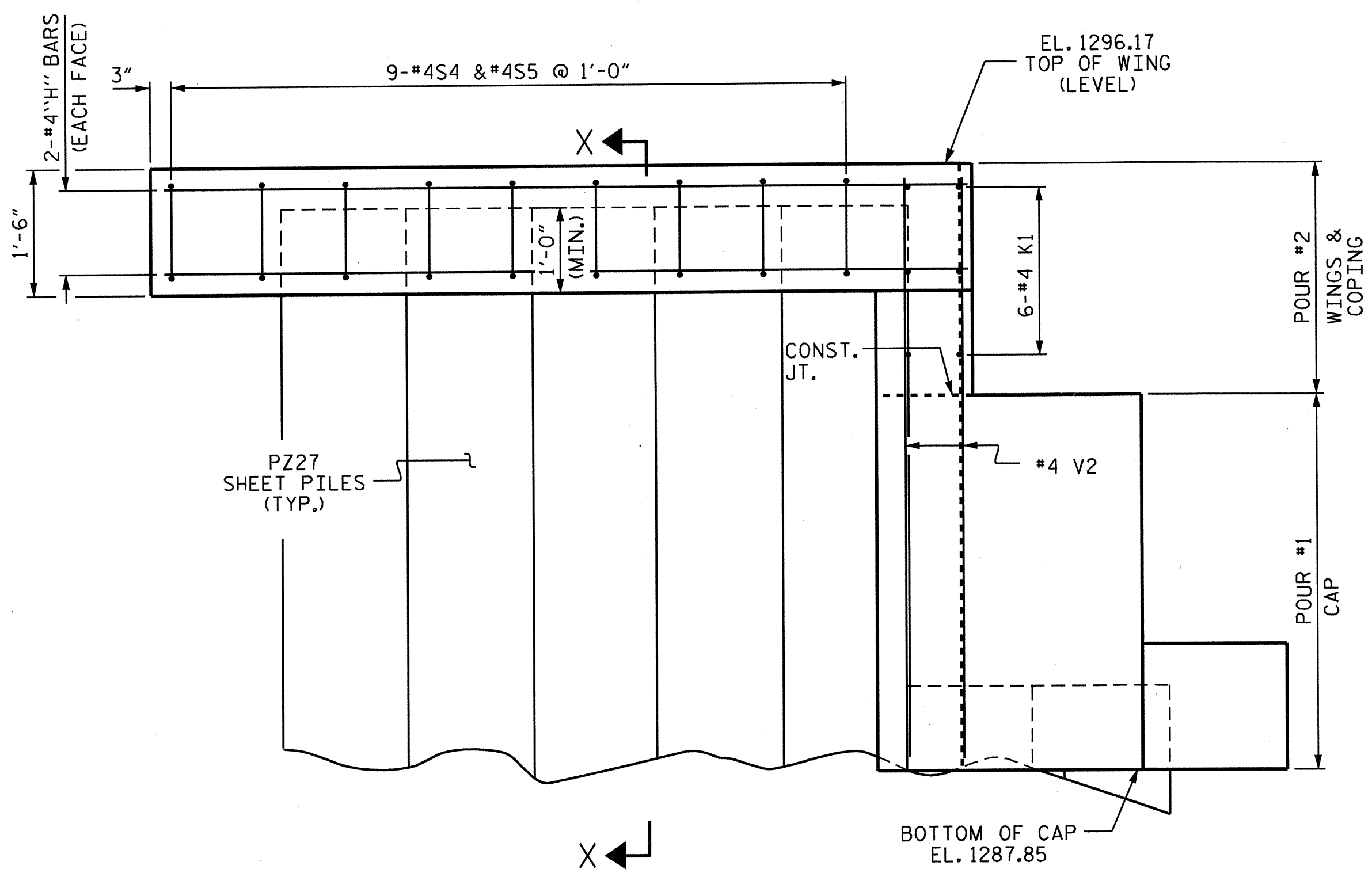
DRAWN BY : D.A. DAVENPORT DATE : 08/16/11  
 CHECKED BY : R.P. PATEL DATE : 10/23/12



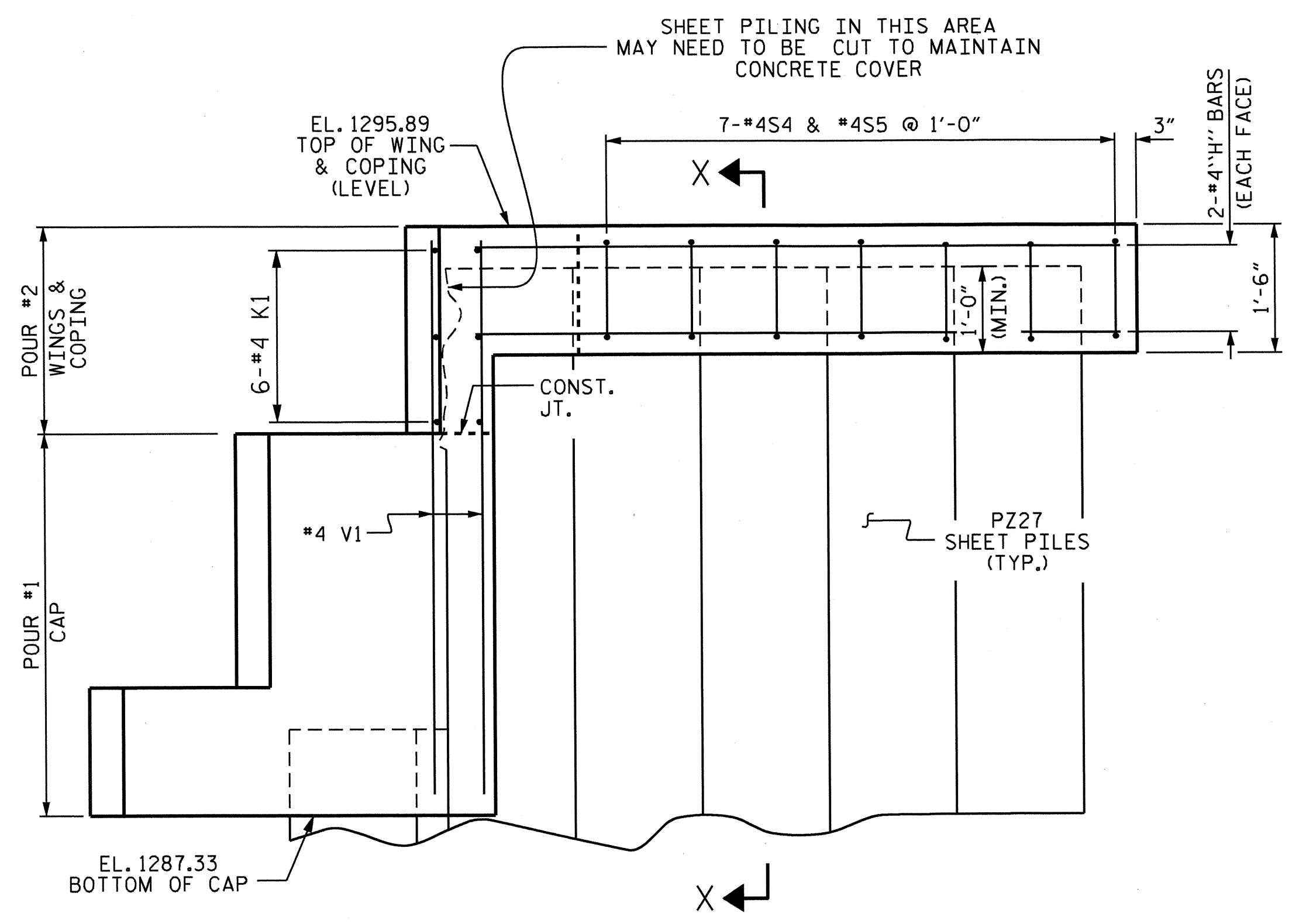
PLAN OF LEFT WING



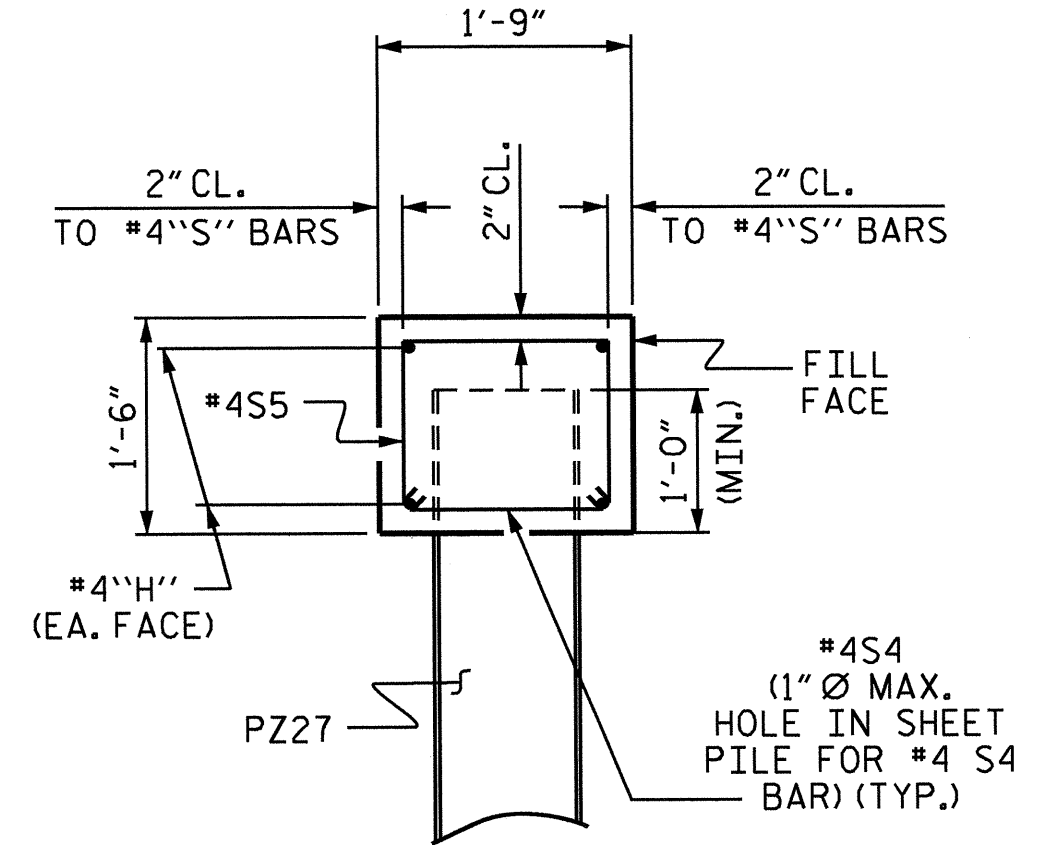
PLAN OF RIGHT WING



ELEVATION OF LEFT WING



ELEVATION OF RIGHT WING



SECTION X-X

PROJECT NO. B-4325  
 WILKES COUNTY  
 STATION: 12+84.93 -L-

SHEET 2 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

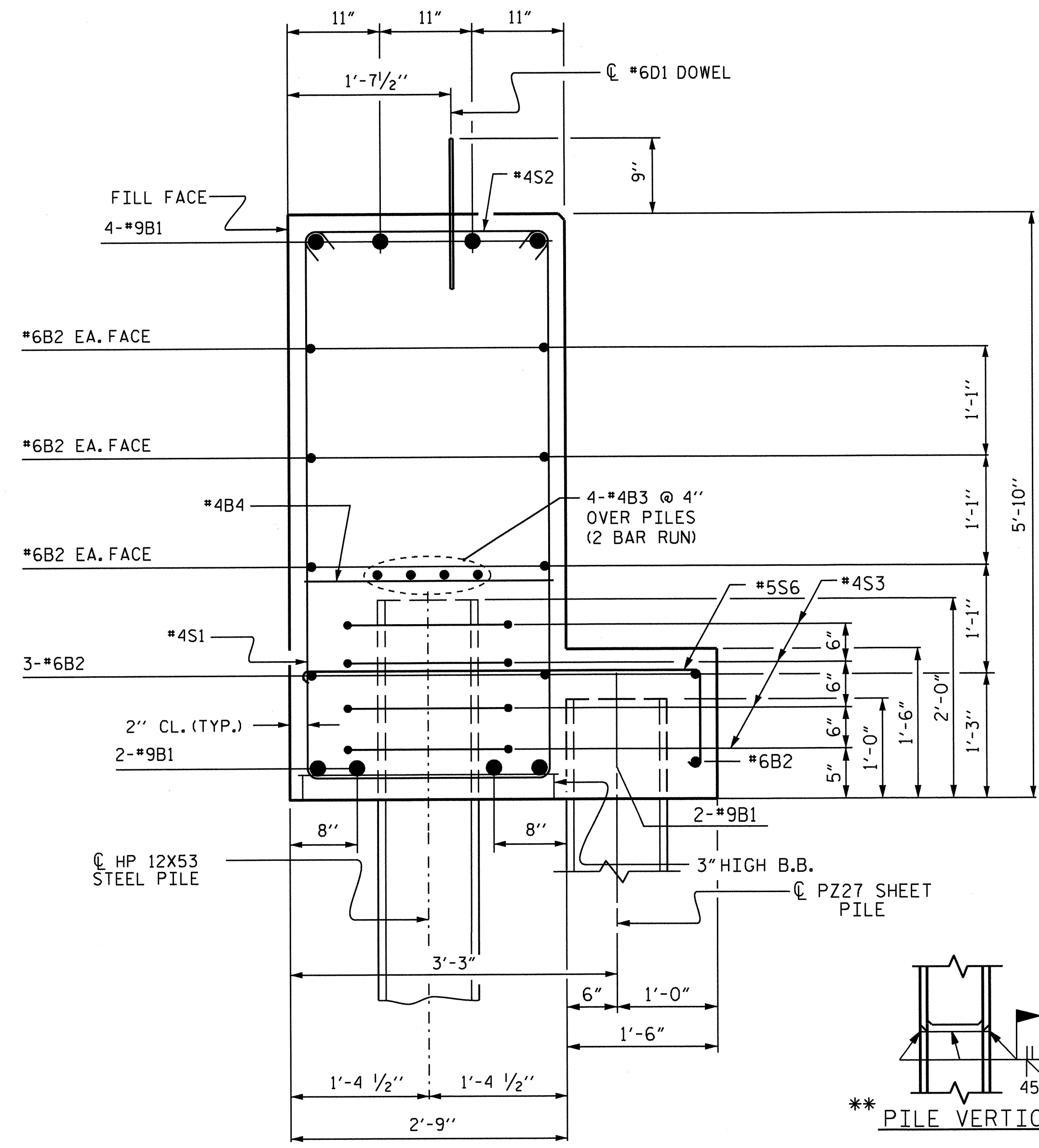
SUBSTRUCTURE  
 END BENT #2



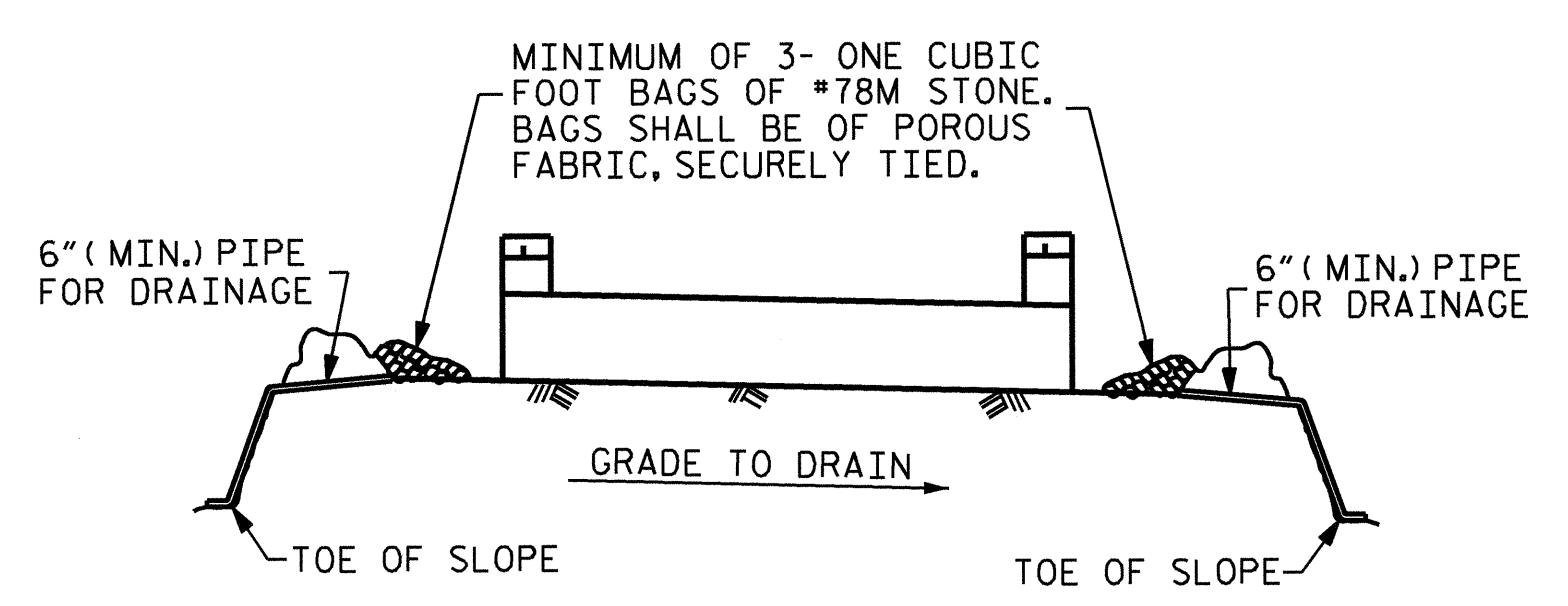
DRAWN BY: D.A. DAVENPORT DATE: 09/10/12  
 CHECKED BY: R.P. PATEL DATE: 10/23/12

REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			





**SECTION A-A**



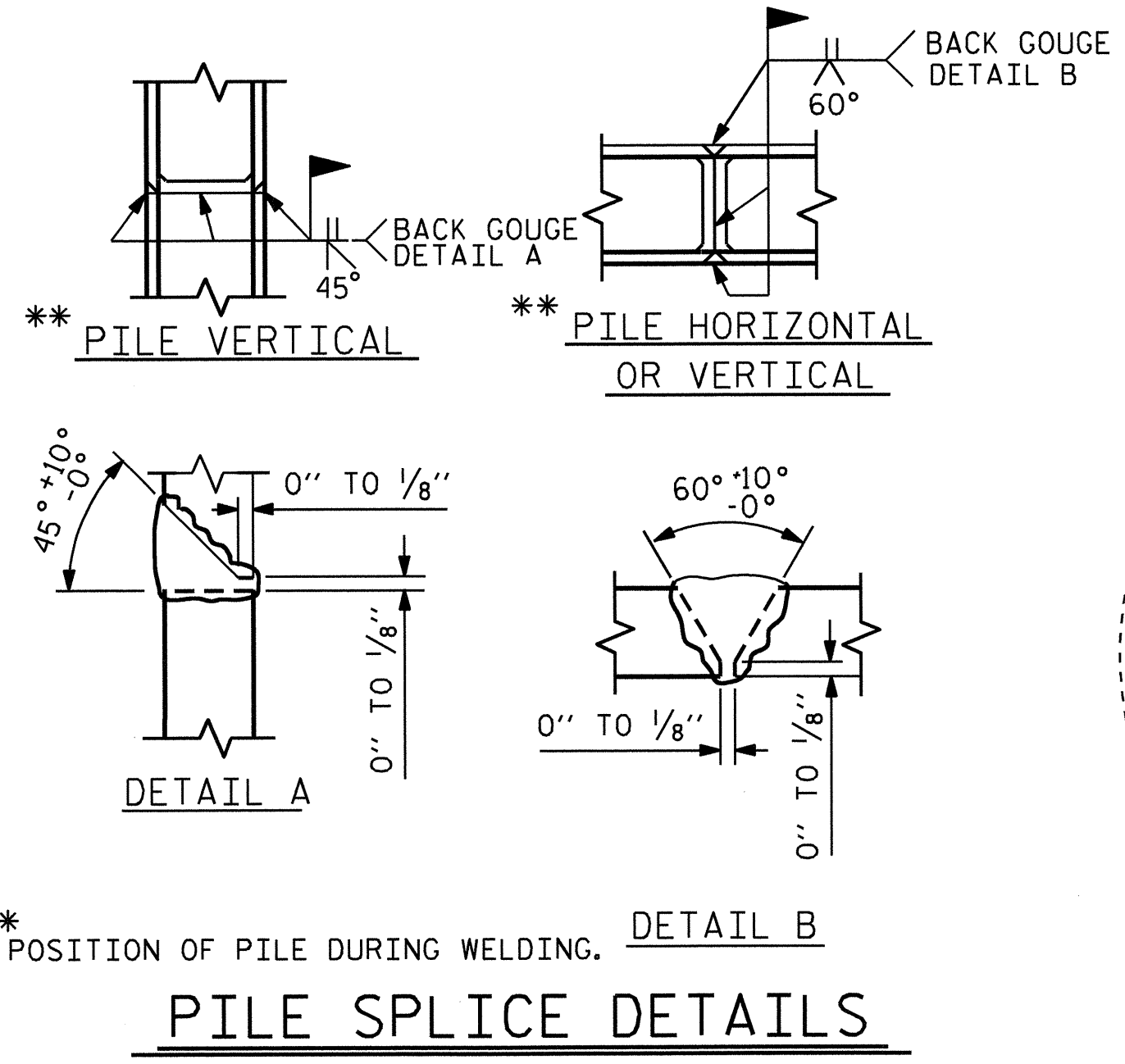
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

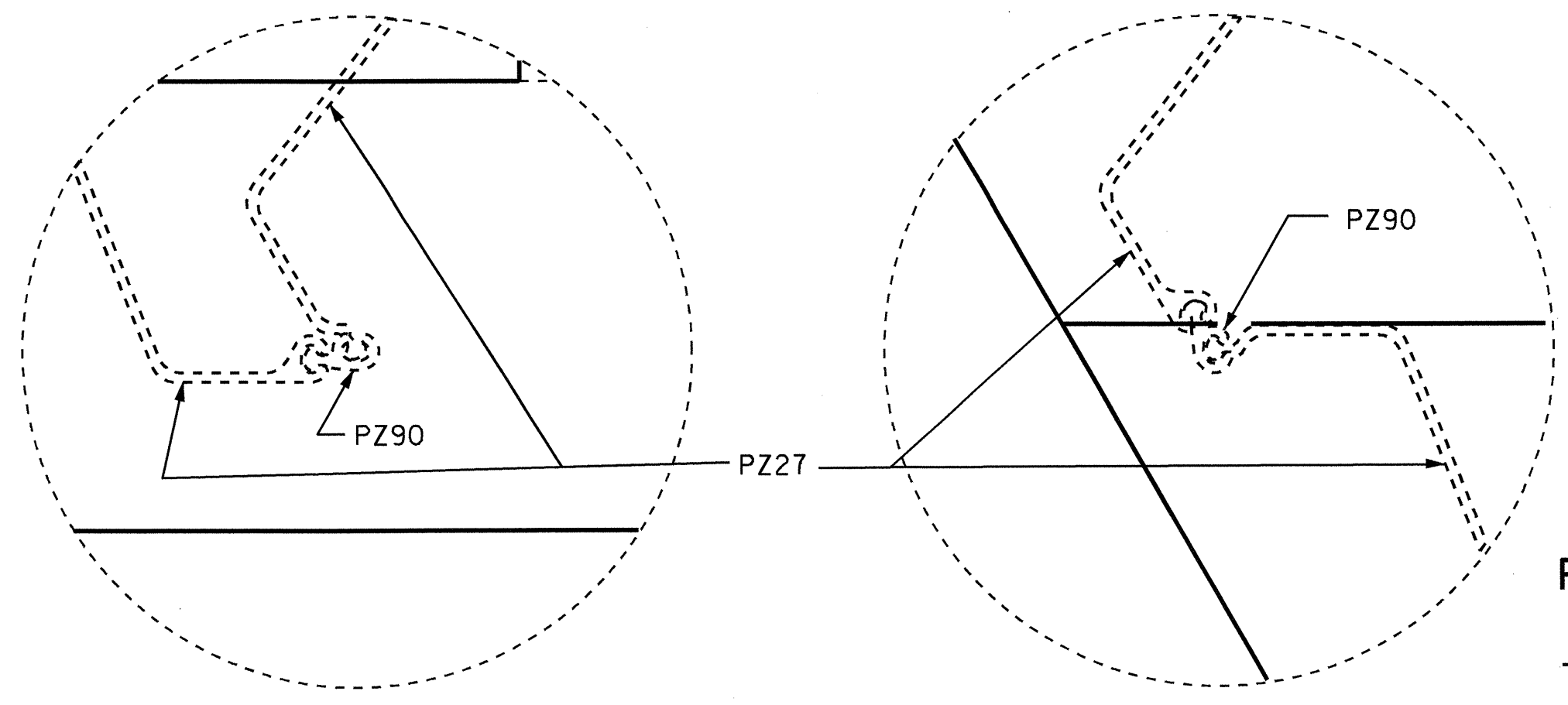
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

**TEMPORARY DRAINAGE AT END BENT**

DRAWN BY: D.A. DAVENPORT DATE: 09/10/12  
 CHECKED BY: R.P. PATEL DATE: 10/23/12

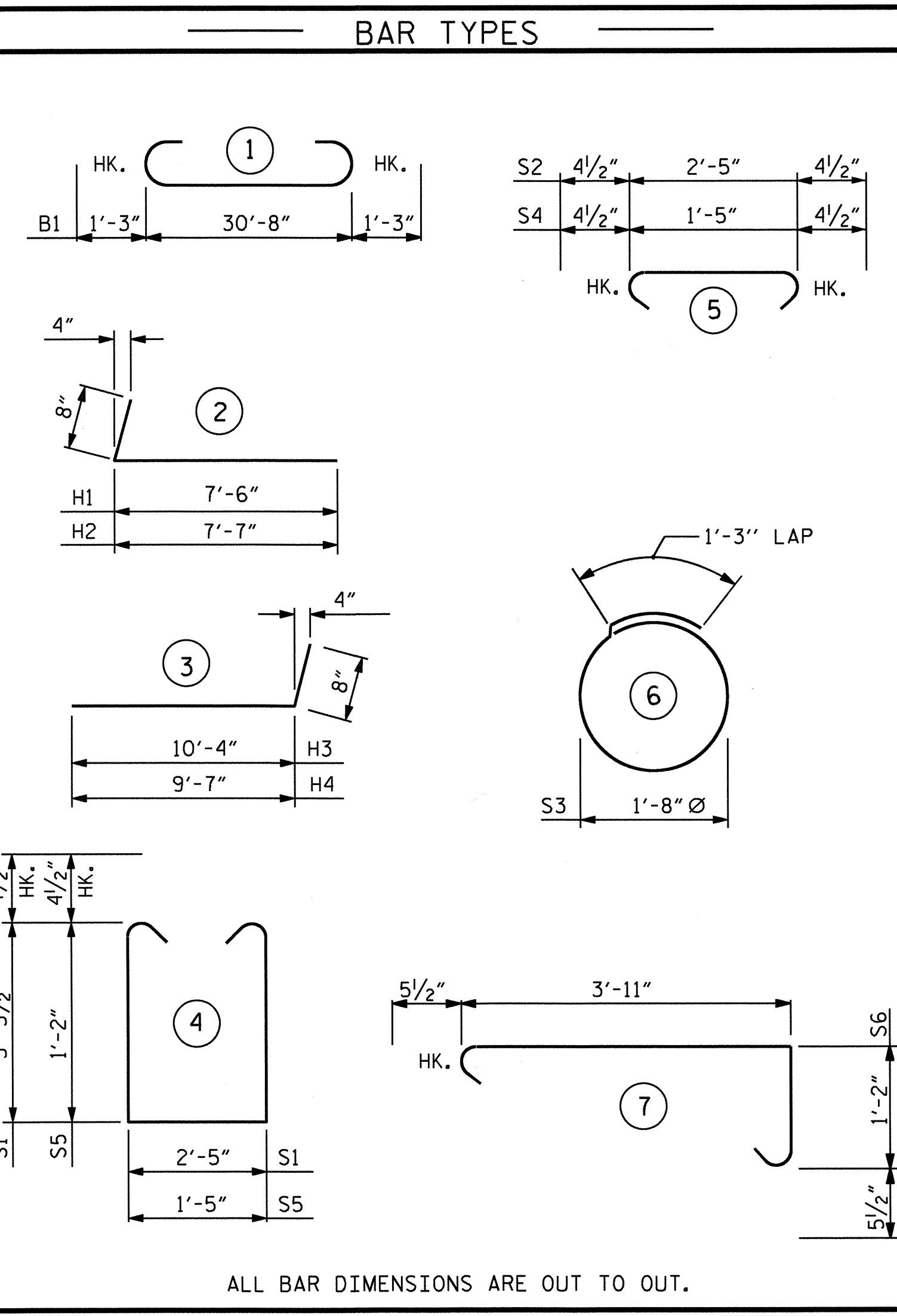


**PILE SPLICE DETAILS**



**DETAIL 'B'**

**DETAIL 'C'**



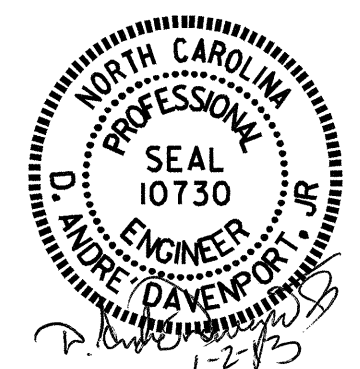
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	33'-2"	902
B2	10	#6	STR	30'-10"	463
B3	8	#4	STR	16'-8"	89
B4	8	#4	STR	2'-5"	13
D1	12	#6	STR	1'-6"	27
H1	2	#5	2	8'-2"	17
H2	2	#5	2	8'-3"	17
H3	2	#5	3	11'-0"	23
H4	2	#5	3	10'-3"	21
K1	12	#4	STR	3'-5"	27
S1	30	#4	4	14'-1"	282
S2	30	#4	5	3'-2"	63
S3	20	#4	6	6'-6"	87
S4	16	#4	5	2'-2"	23
S5	16	#4	4	4'-6"	48
S6	30	#5	7	6'-0"	188
V1	10	#5	STR	8'-2"	85
V2	10	#5	STR	7'-11"	83
REINFORCING STEEL LBS =					2458
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP					C.Y. 22.3
POUR #2 WINGS & COPING					C.Y. 2.5
TOTAL CLASS A CONCRETE					C.Y. 24.8
HP 12X53 STEEL PILES NO. 5 (LIN FT.)					225
STEEL SHEET PILES NO. 35 (SQ. FT.)					1035

PROJECT NO. B-4325  
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 STATION: 12+84.93 -L-

SHEET 3 OF 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			18



NOTES

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

FABRIC SHALL BE TYPE I 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.

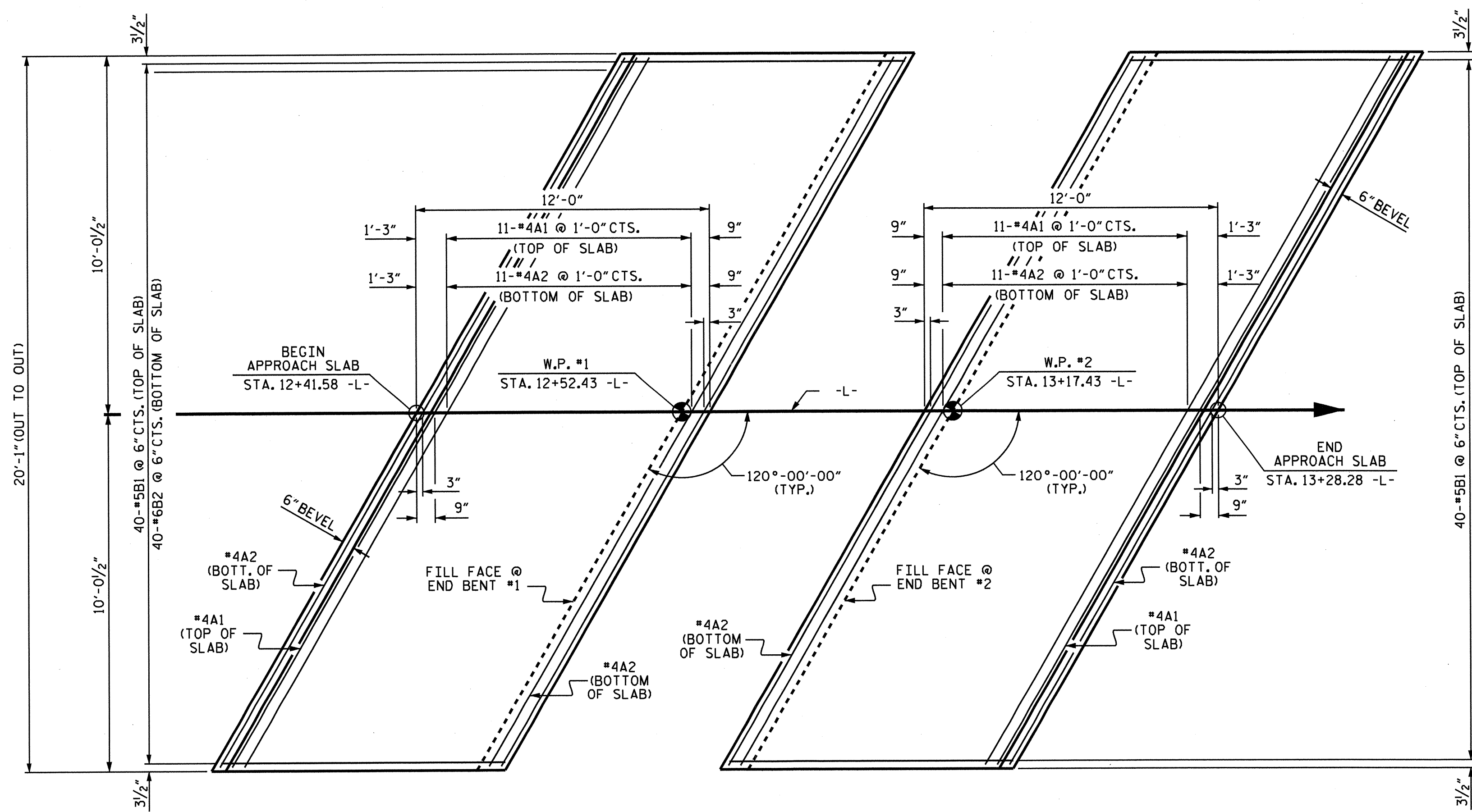
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED, SEE ROADWAY PLANS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.



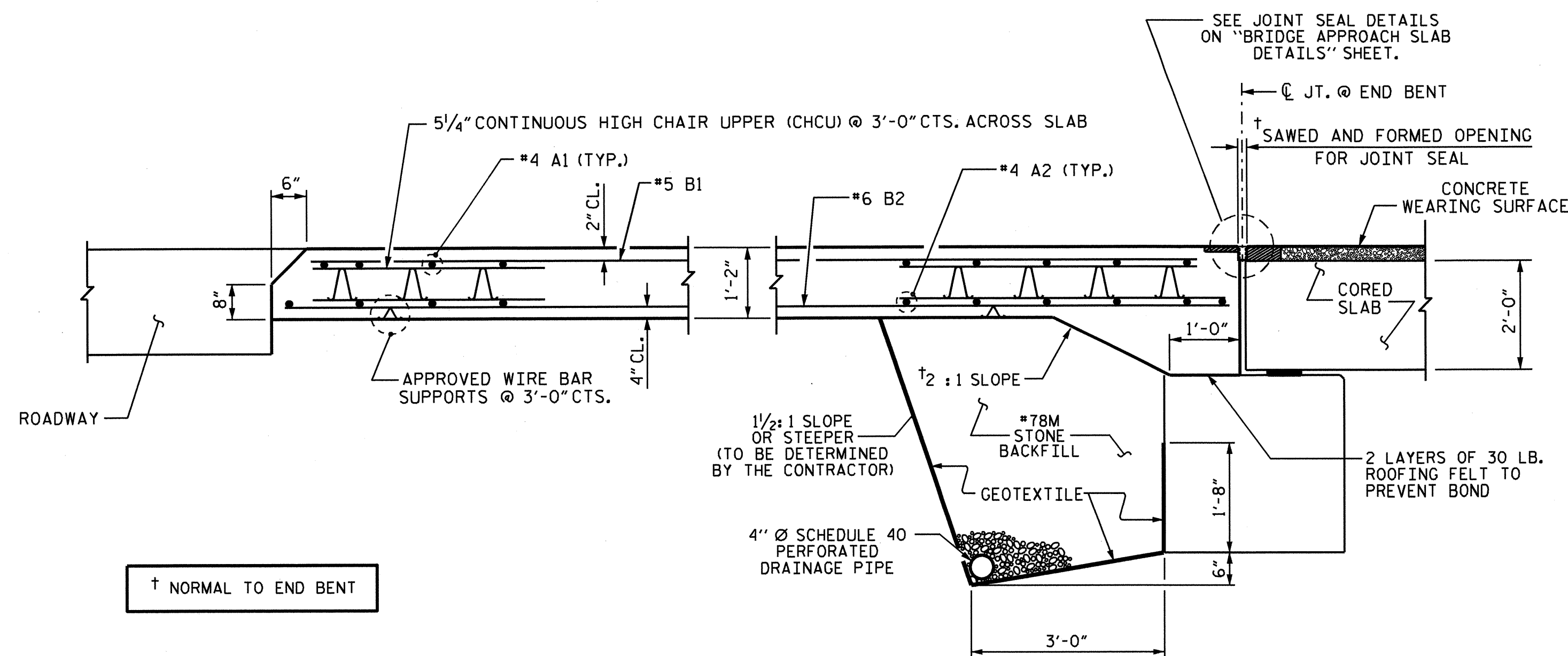
PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	12	#4	STR	22'-9"	182	
A2	13	#4	STR	22'-9"	198	
*B1	40	#5	STR	10'-8"	445	
B2	40	#6	STR	11'-7"	696	
REINFORCING STEEL					LBS.	894
* EPOXY COATED REINFORCING STEEL					LBS.	627
CLASS AA CONCRETE					C. Y.	13.0
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	12	#4	STR	22'-9"	182	
A2	13	#4	STR	22'-9"	198	
*B1	40	#5	STR	10'-8"	445	
B2	40	#6	STR	11'-7"	696	
REINFORCING STEEL					LBS.	894
* EPOXY COATED REINFORCING STEEL					LBS.	627
CLASS AA CONCRETE					C. Y.	13.0

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



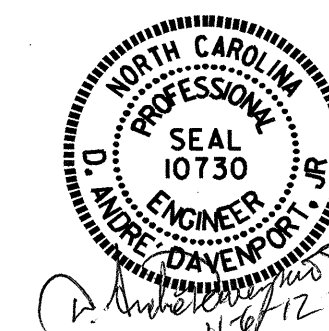
SECTION THRU SLAB

BRIDGE NO. B-4325  
WILKES COUNTY  
 STATION: 12+84.93 -L-

SHEET 1 OF 2

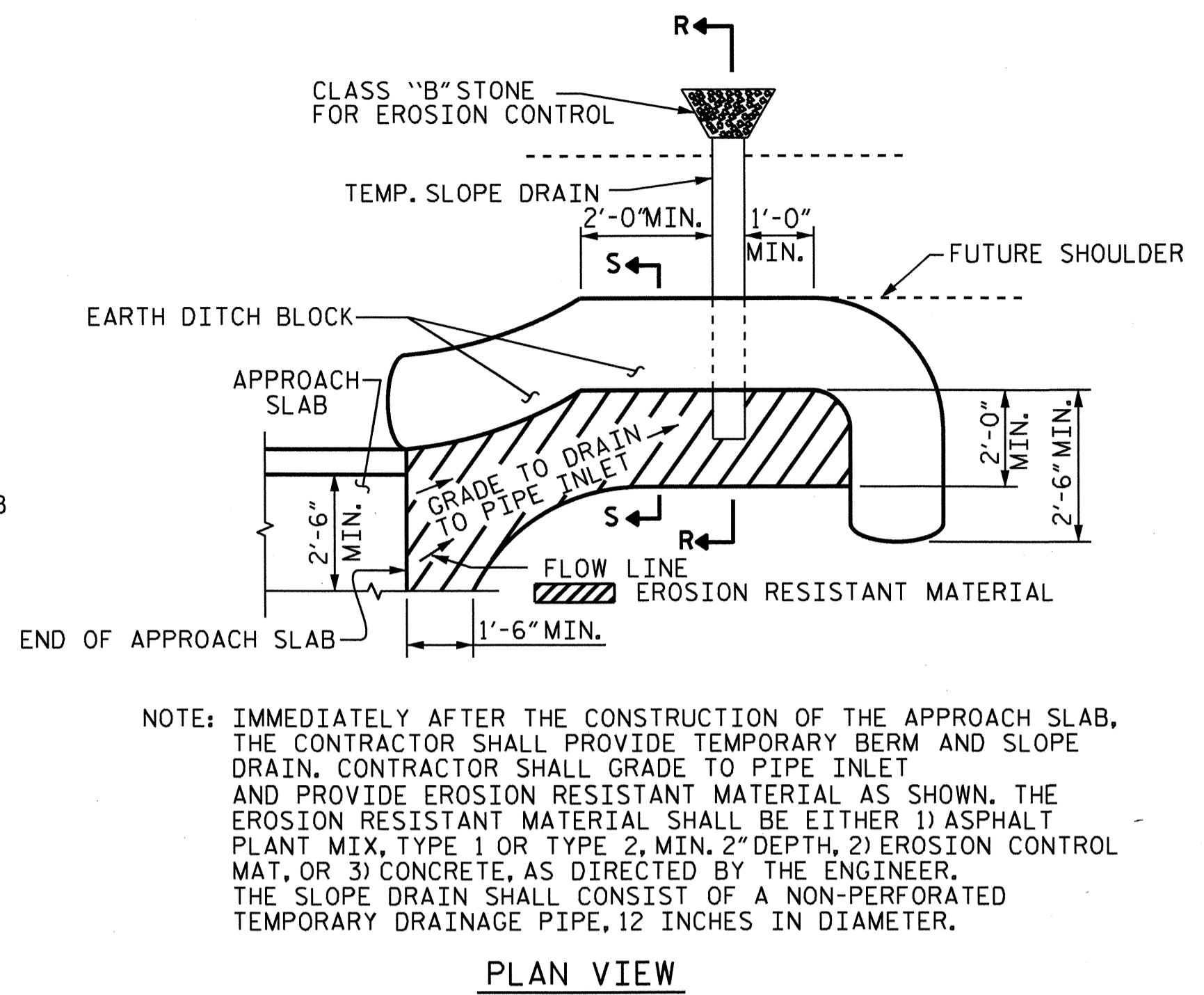
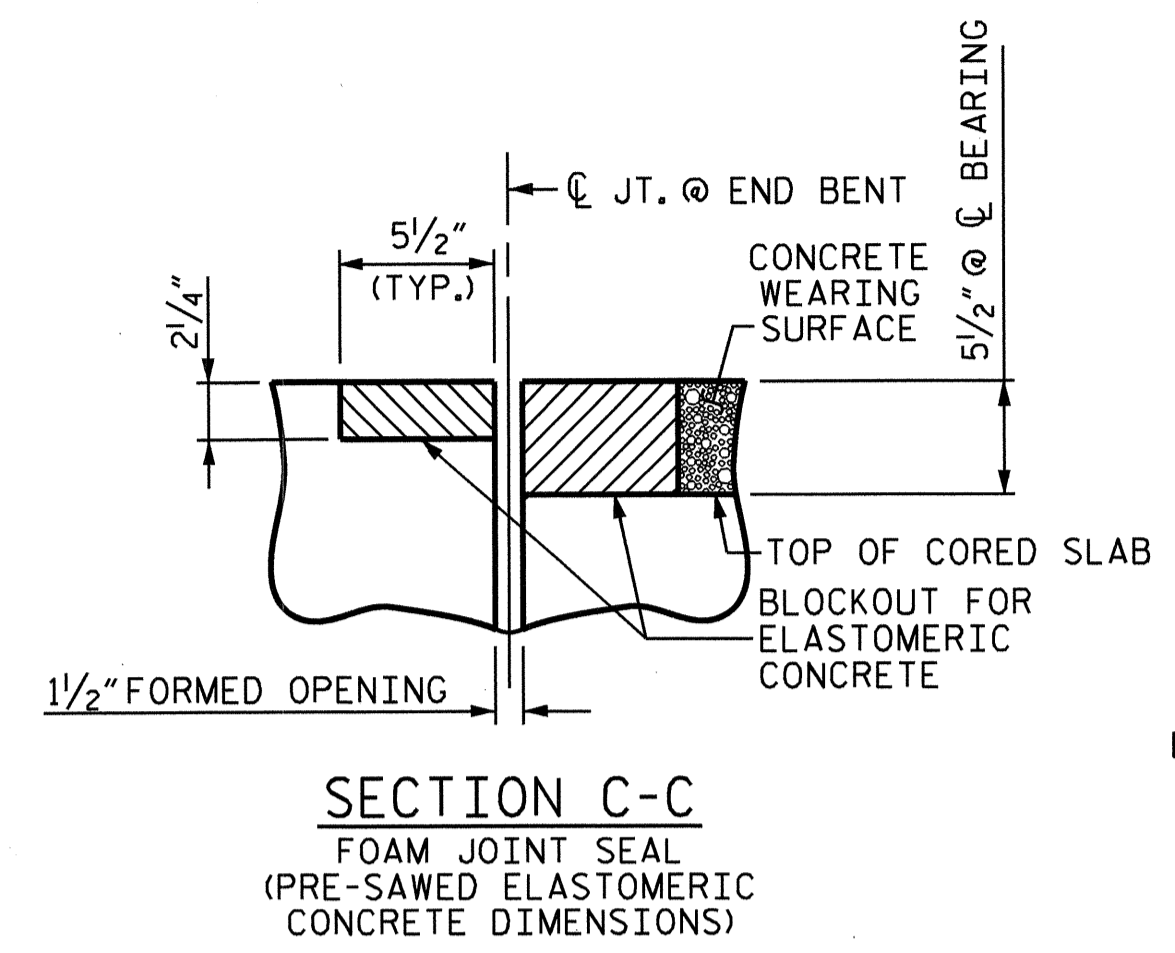
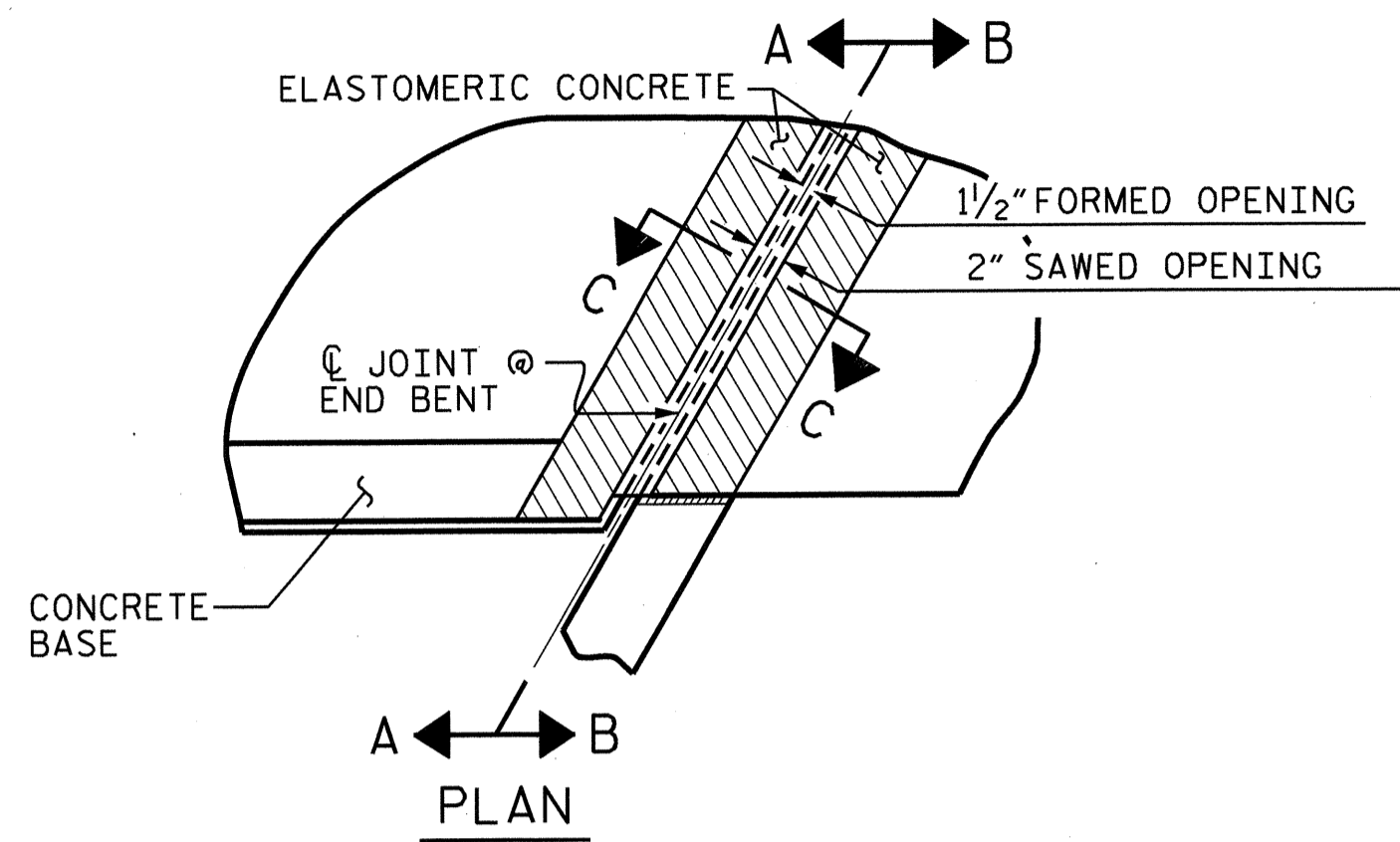
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 (SUB-REGIONAL TIER)

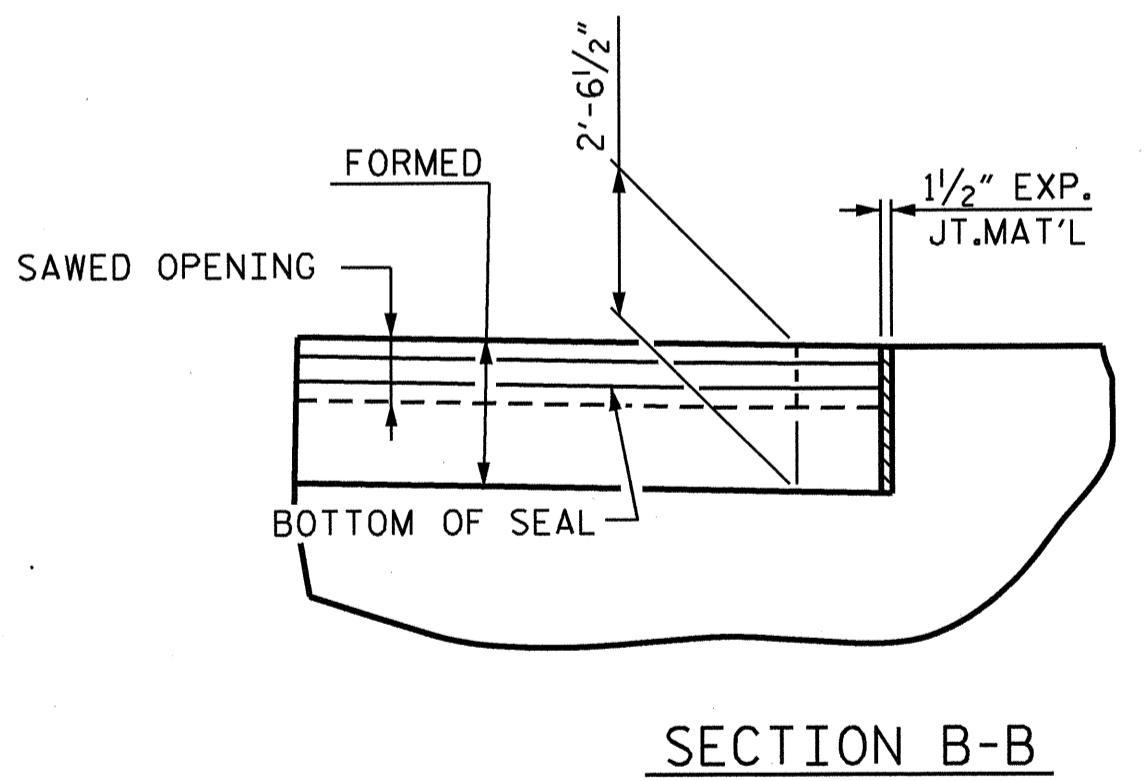
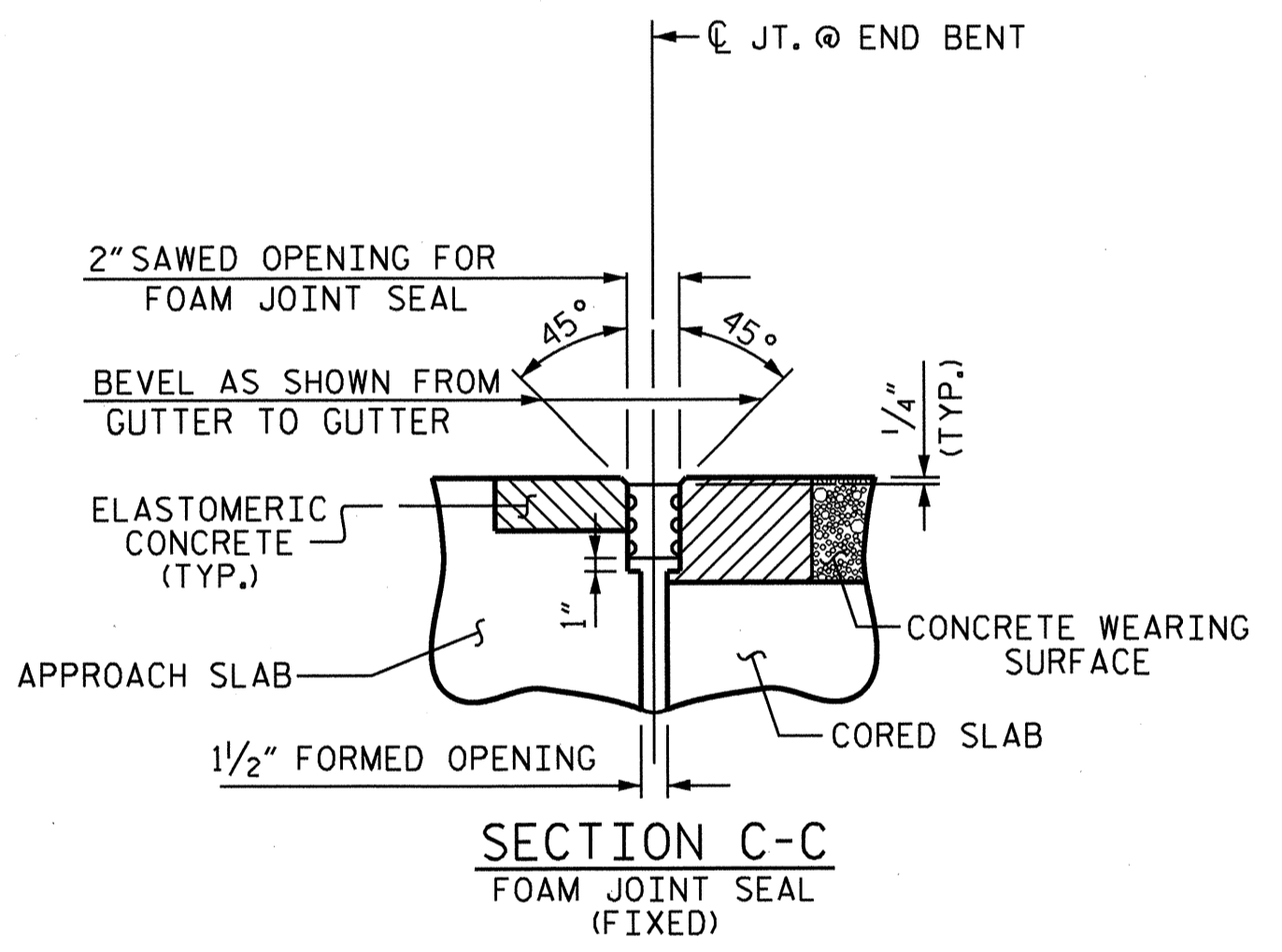
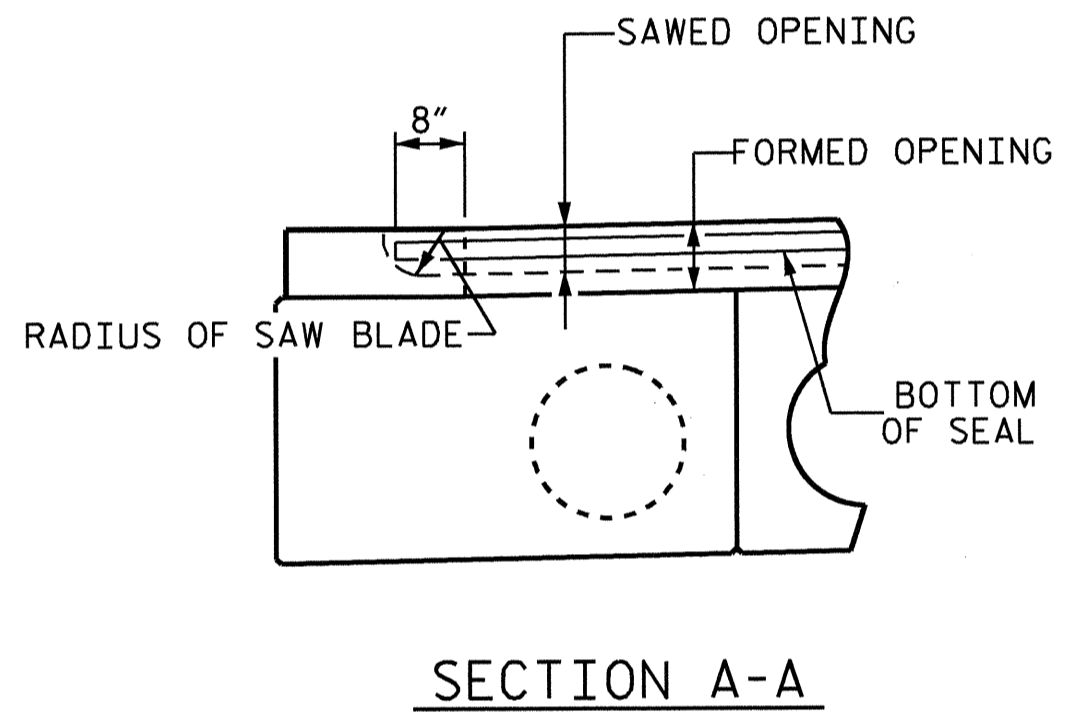
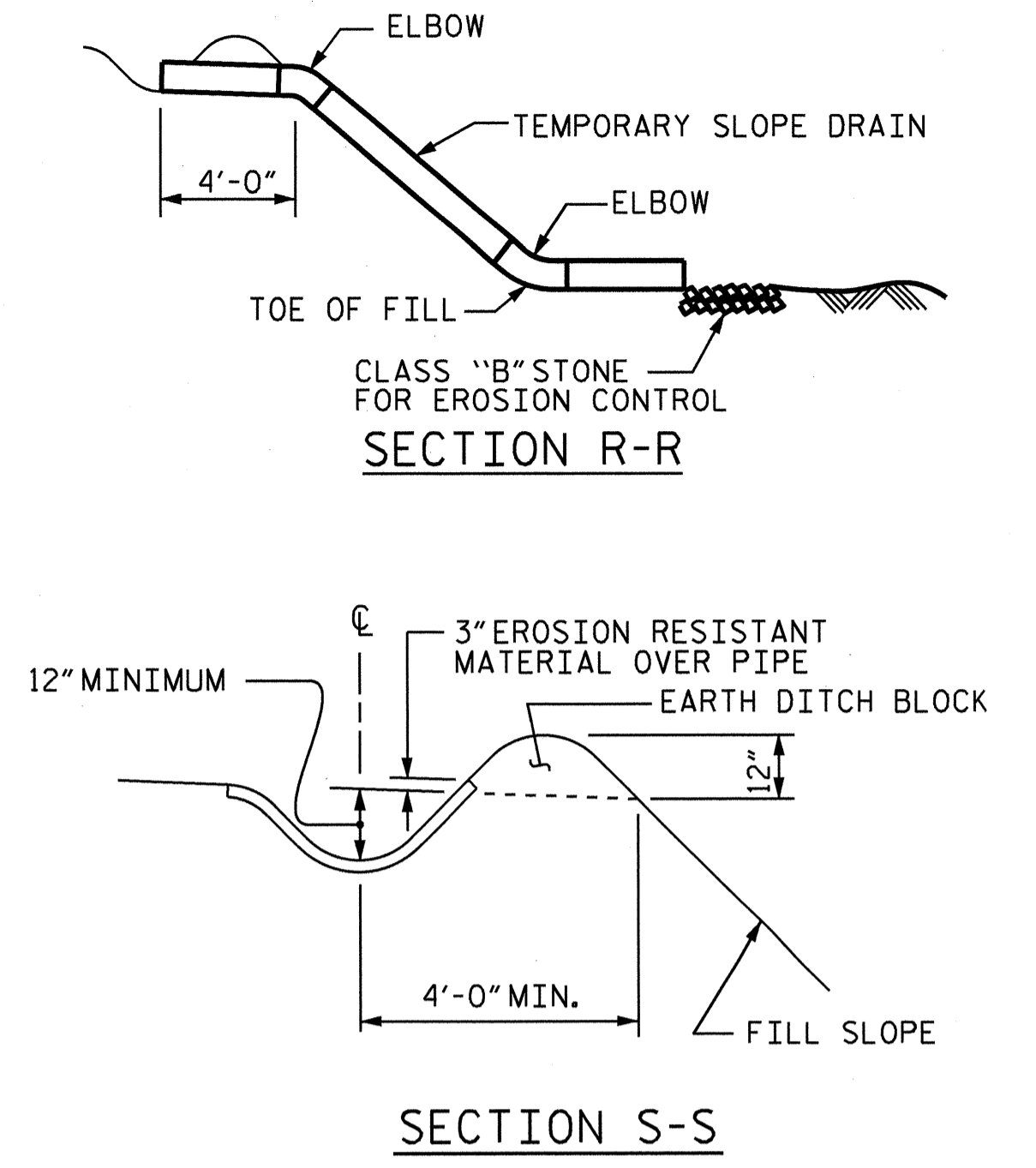


ASSEMBLED BY : W. B. HILL DATE : 05/11  
 CHECKED BY : E. C. LOCKLEAR DATE : 05/11  
 DRAWN BY : SHS/MAA 5-09  
 CHECKED BY : BCH 5-09

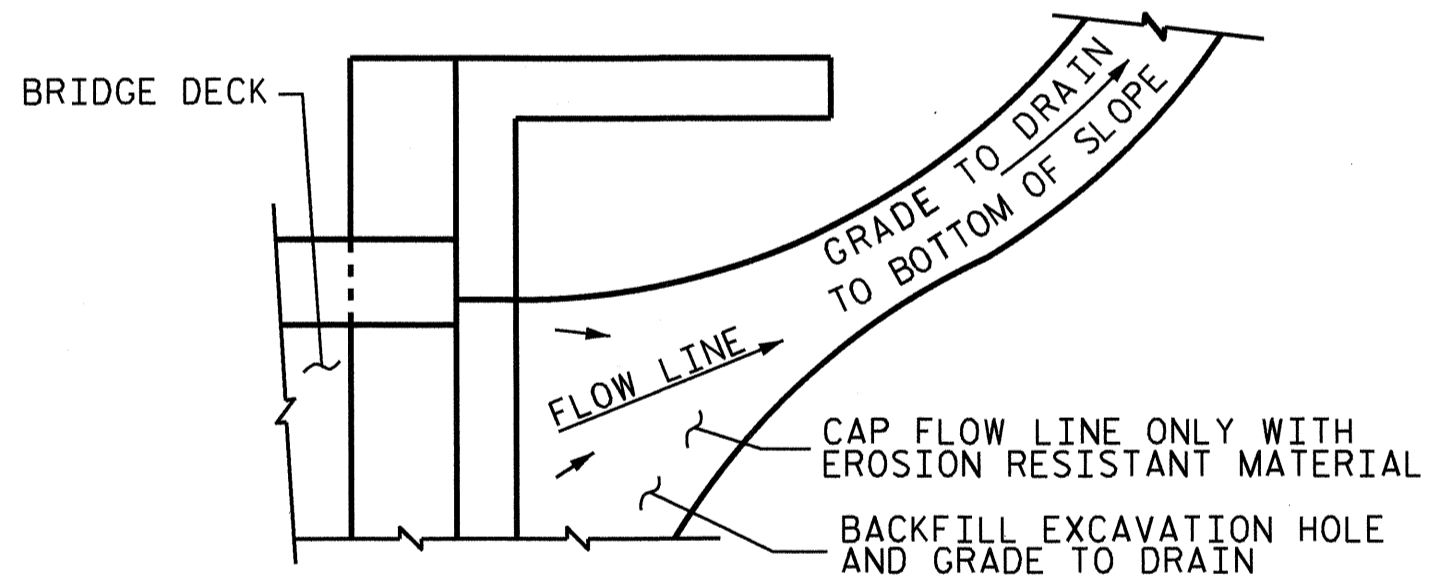
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			18
2			4			18



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



**TEMPORARY BERM AND SLOPE DRAIN DETAILS**  
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

**JOINT SEAL DETAILS @ END BENT**

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.4
2	6.4
TOTAL	12.8

\* BASED ON THE MINIMUM BLOCKOUT SHOWN.

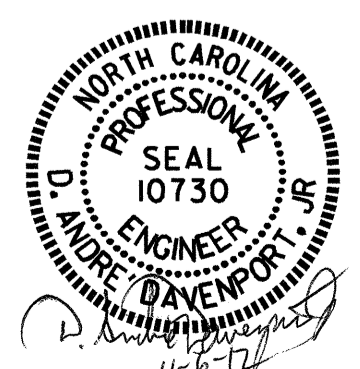
PROJECT NO. B-4325  
WILKES COUNTY  
STATION: 12+84.93 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**BRIDGE APPROACH  
SLAB DETAILS**

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



ASSEMBLED BY : W. B. HILL DATE : 05/11  
CHECKED BY : E. C. LOCKLEAR DATE : 05/11  
DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES  
CHECKED BY : ARB 11/88 REV. 5/7/03 RWW/JTE  
REV. 5/1/06 TLA/GM

## STANDARD NOTES

### DESIGN DATA:

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

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

### CONCRETE:

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

### CONCRETE CHAMFERS:

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

### DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

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

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

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

### REINFORCING STEEL:

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

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

### STRUCTURAL STEEL:

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

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

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

### HANDRAILS AND POSTS:

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

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

### SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990