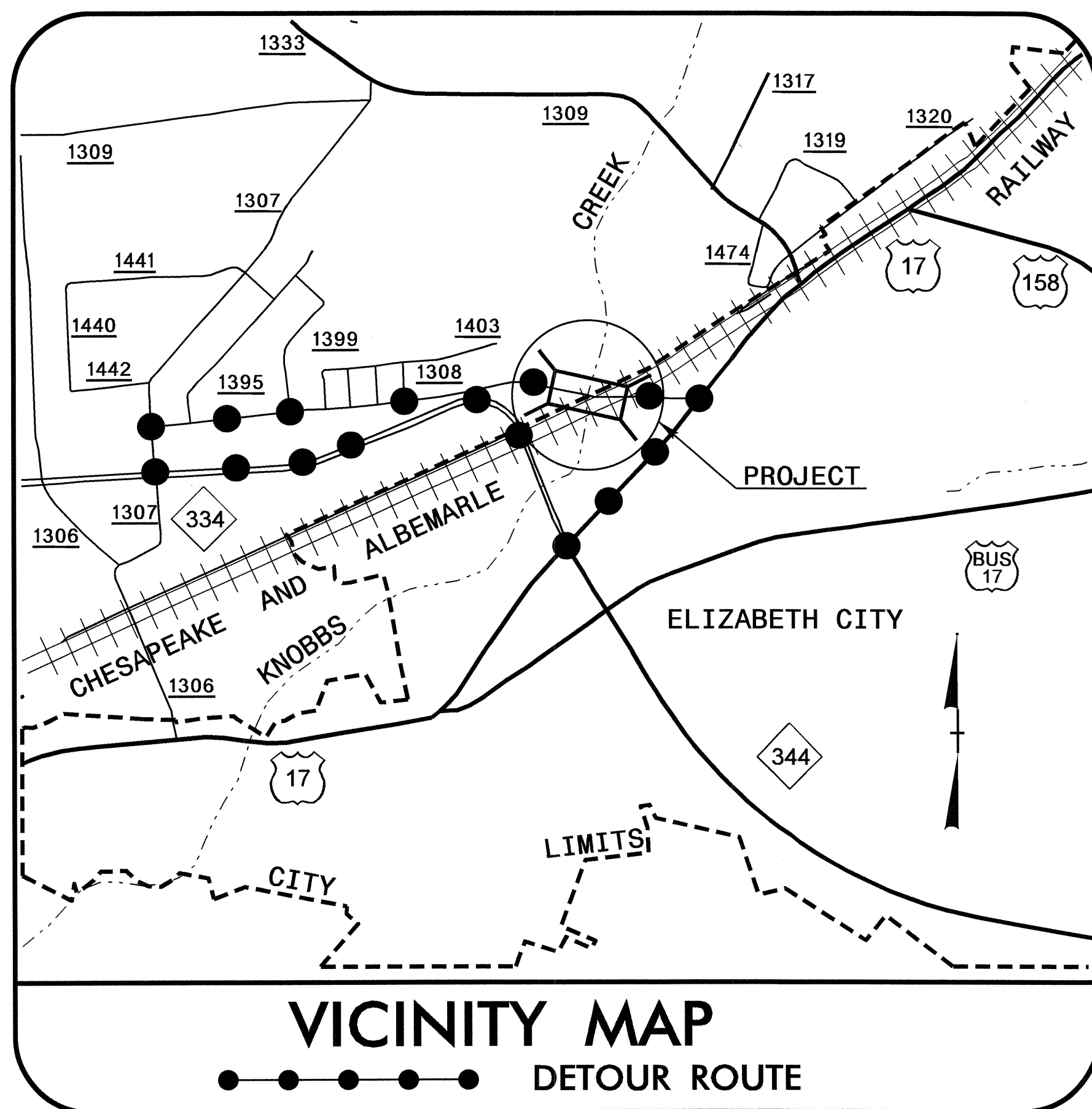


CONTRACT: C202884 TIP PROJECT: B-4922



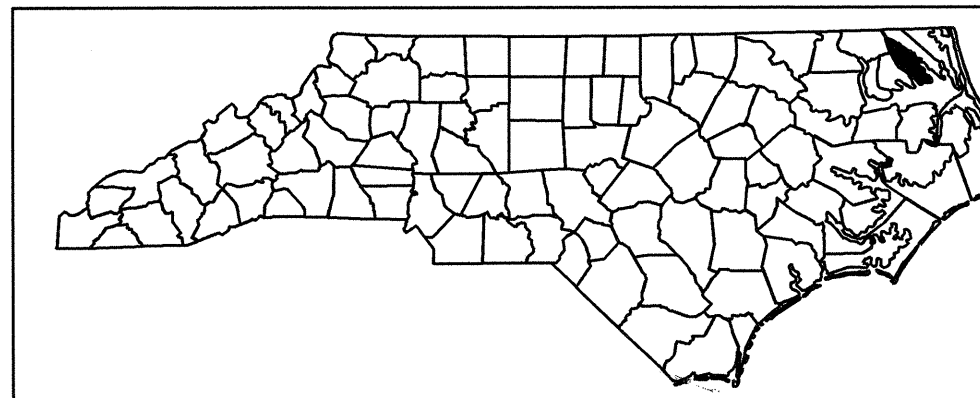
VICINITY MAP
●●●●● DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

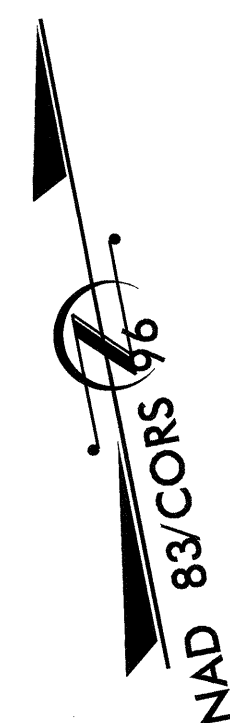
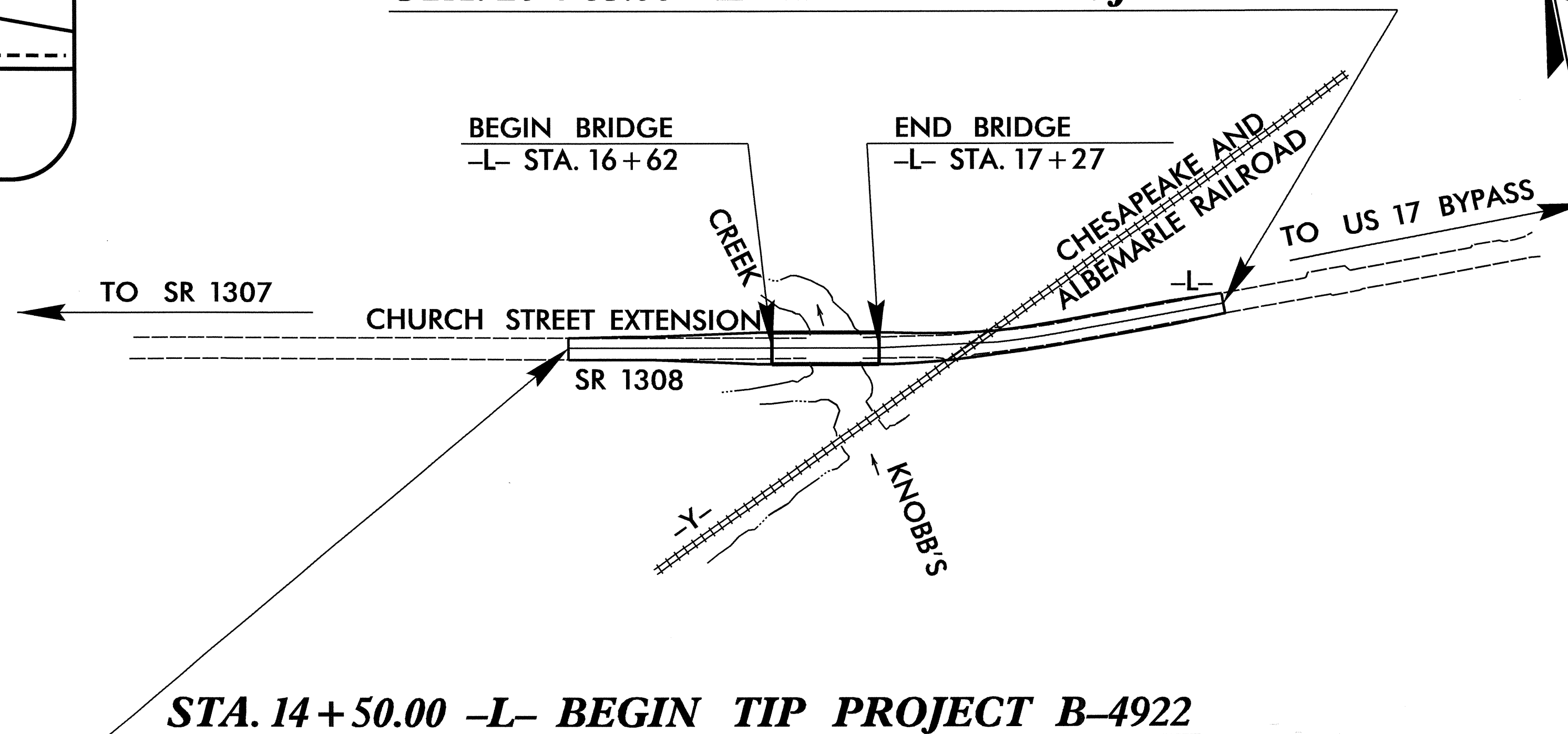
PASQUOTANK COUNTY

LOCATION: BRIDGE NO. 23 OVER KNOBB'S CREEK ON SR 1308
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

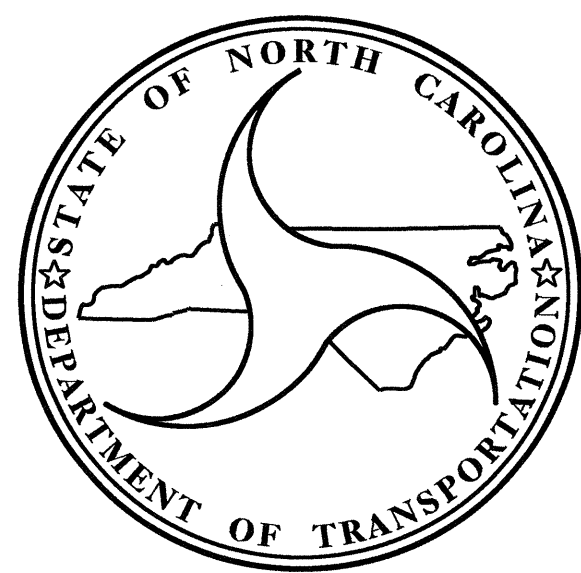
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4922		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
40177.1.1	BRZ-1308(8)	PE	
40177.2.1	BRZ-1308(8)	RW & UTIL.	
40177.3.1	BRZ-1308(8)	CONST.	



STA. 20+65.00 -L- END TIP PROJECT B-4922



STRUCTURE



DESIGN DATA	
ADT 2012	= 3,150
ADT 2032	= 3,800
DHV	= 13 %
D	= 65 %
T	= 3 % *
V	= 50 MPH
* TTST 1% DUAL 2%	
FUNC. CLASS = URBAN COLLECTOR SUB-REGIONAL TIER	

PROJECT LENGTH	
LENGTH OF ROADWAY TIP PROJECT B-4922	= 0.104 MI.
LENGTH OF STRUCTURE TIP PROJECT B-4922	= 0.012 MI.
TOTAL LENGTH OF TIP PROJECT B-4922	= 0.116 MI.

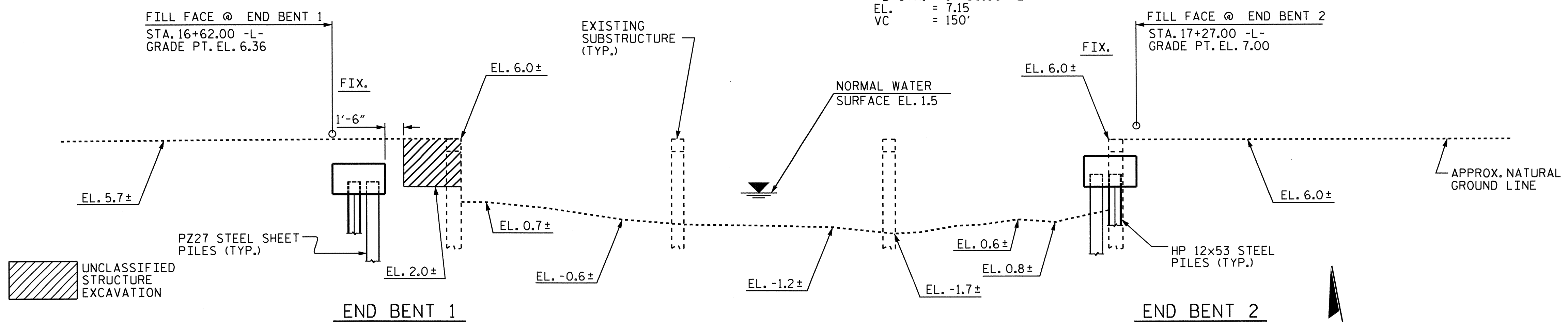
Prepared In the Office of: DIVISION OF HIGHWAYS 1000 BIRCH RIDGE DR. RALEIGH, NC 27610	
2012 STANDARD SPECIFICATIONS	
LETTING DATE: SEPTEMBER 18, 2012	O. R. AZIZI, PE PROJECT ENGINEER
	A. K. PASCHAL, PE PROJECT DESIGN ENGINEER

STRUCTURES MANAGEMENT UNIT	

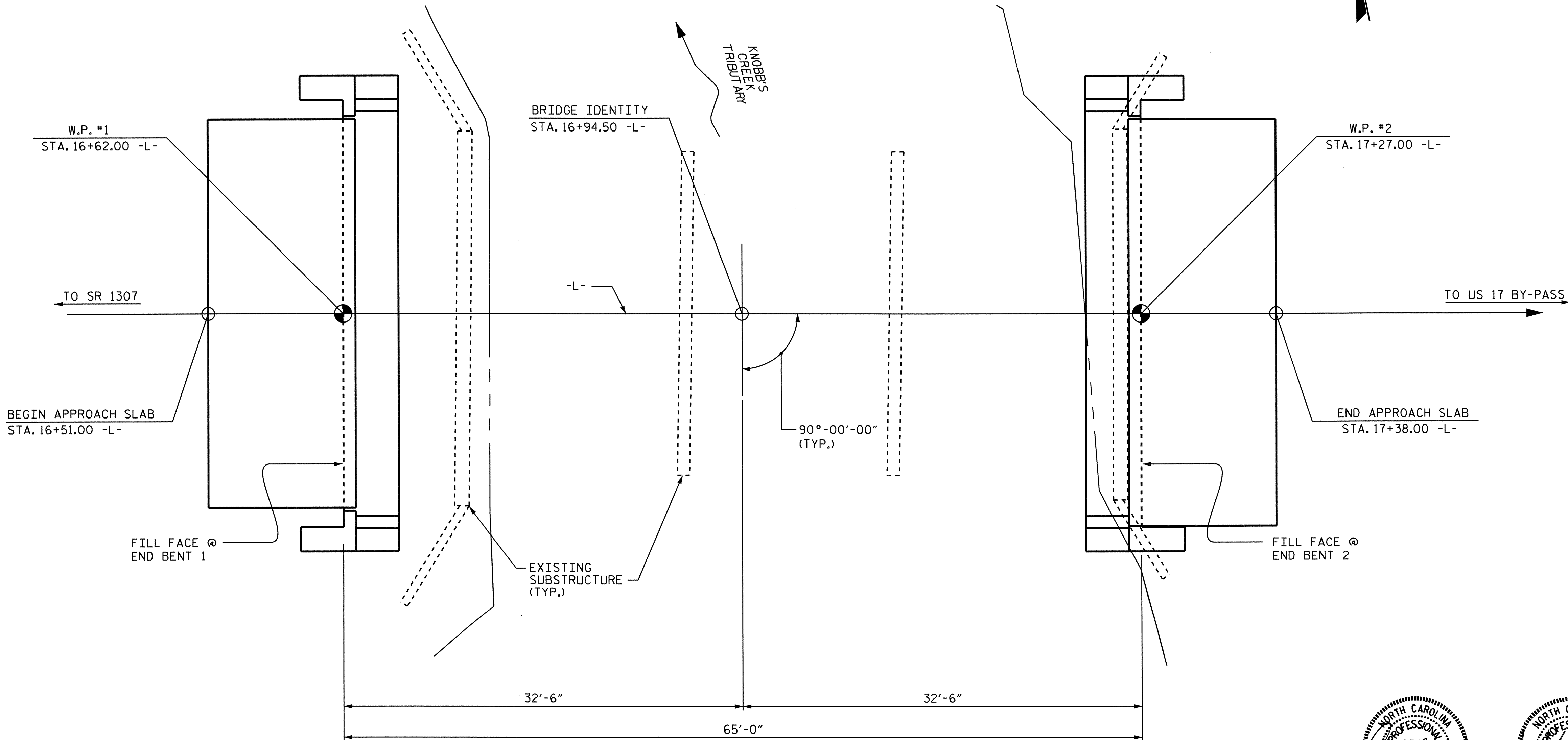
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
	P.E.
STATE DESIGN ENGINEER	
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED DIVISION ADMINISTRATOR	DATE

GRADE DATA
 +1.1667% +0.5072%

PI STA. = 17+30.00 -L-
 EL. = 7.15
 VC = 150'



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PILES AND STEEL SHEET PILES ARE NOT SHOWN FOR CLARITY.



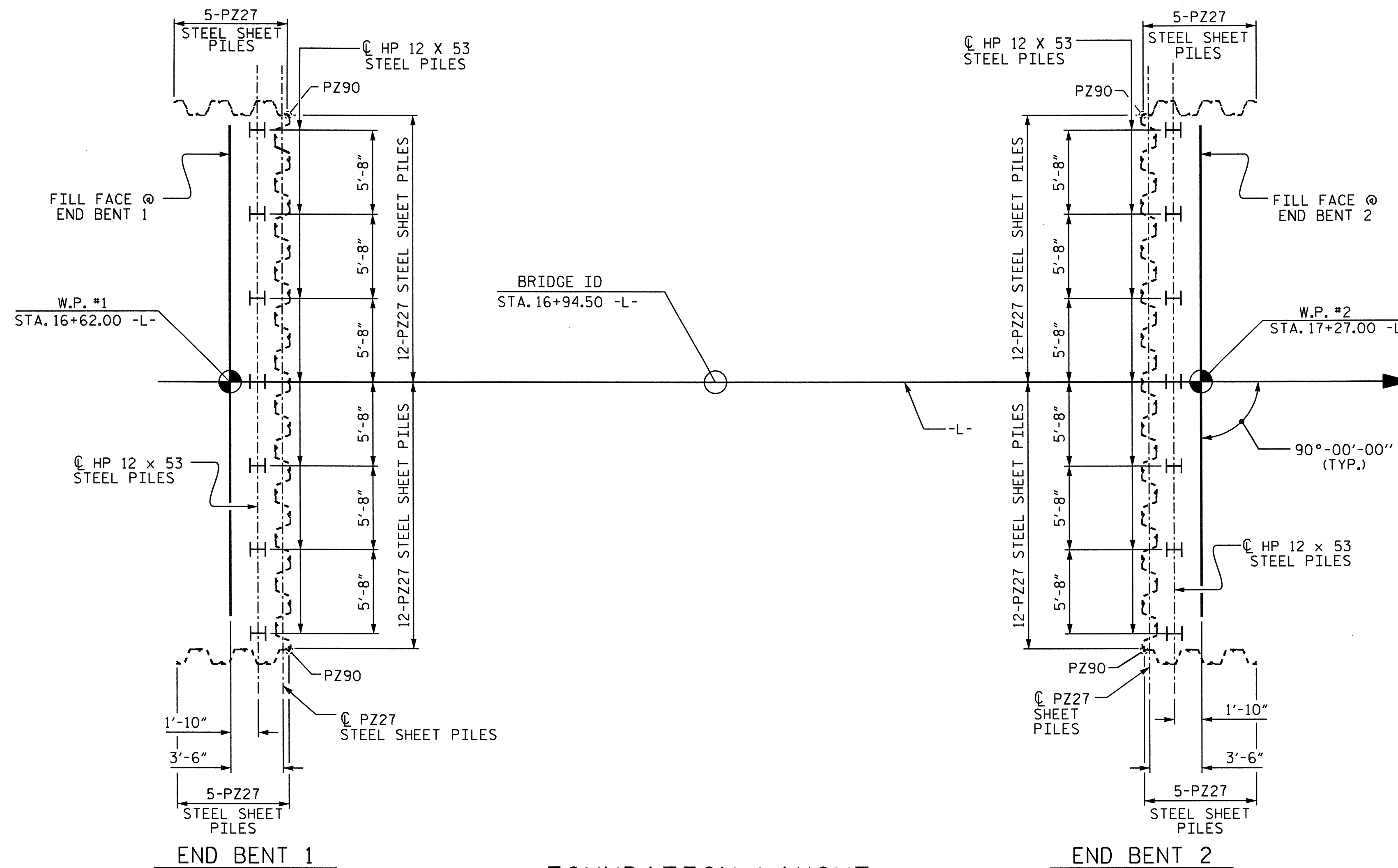
PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 23

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER KNOBB'S
 CREEK TRIBUTARY ON SR 1308
 BETWEEN SR 1307 AND
 US 17 BY-PASS

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

DRAWN BY : M. FOWLER DATE : 2/4/11
 CHECKED BY : E. K. POPE DATE : 3/14/12



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES AND STEEL SHEET PILES ARE SHOWN TO CENTERLINE OF PILES)

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 195 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAW OR SCOUR.

INSTALL PILES AT END BENT 1 AND END BENT 2 TO A TIP ELEVATION NO HIGHER THAN -45.0 FT. AND -38.0 FT., RESPECTIVELY.

THE SCOUR CRITICAL ELEVATION FOR END BENT 1 AND END BENT 2 IS ELEVATION -7.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 50-85 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT 1 AND END BENT 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

INSTALL STEEL SHEET PILES BEFORE INSTALLING PILES AT END BENT 1 AND END BENT 2.

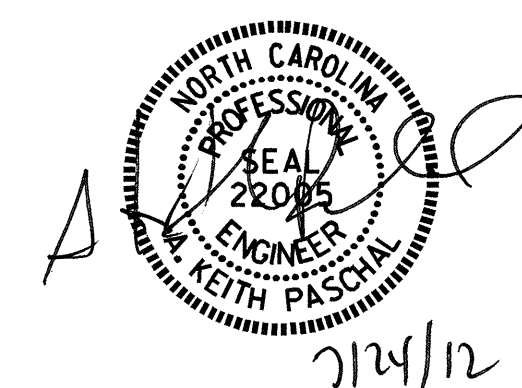
THE PZ27 STEEL SHEET PILES FOR STEEL SHEET PILE ABUTMENT WALLS AT BOTH END BENTS TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF -18.0 FT..

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER KNOBB'S
 CREEK TRIBUTARY ON SR 1308
 BETWEEN SR 1307 AND
 US 17 BY-PASS



DRAWN BY : M. FOWLER DATE : 2/8/11
 CHECKED BY : E. K. POPE DATE : 3/14/12

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

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.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS, 1 AT 17.5', 1 AT 17' AND 1 AT 17.5' REINFORCED CONCRETE SPANS WITH A 24' CLEAR ROADWAY WIDTH, WITH TIMBER JOISTS ON TIMBER CAP, PILE END BENTS AND BENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.

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.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 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 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.

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BAR SUPPORTS USED IN THE PARAPET AND END BENT CAPS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN END BENT 1 AND END BENT 2 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

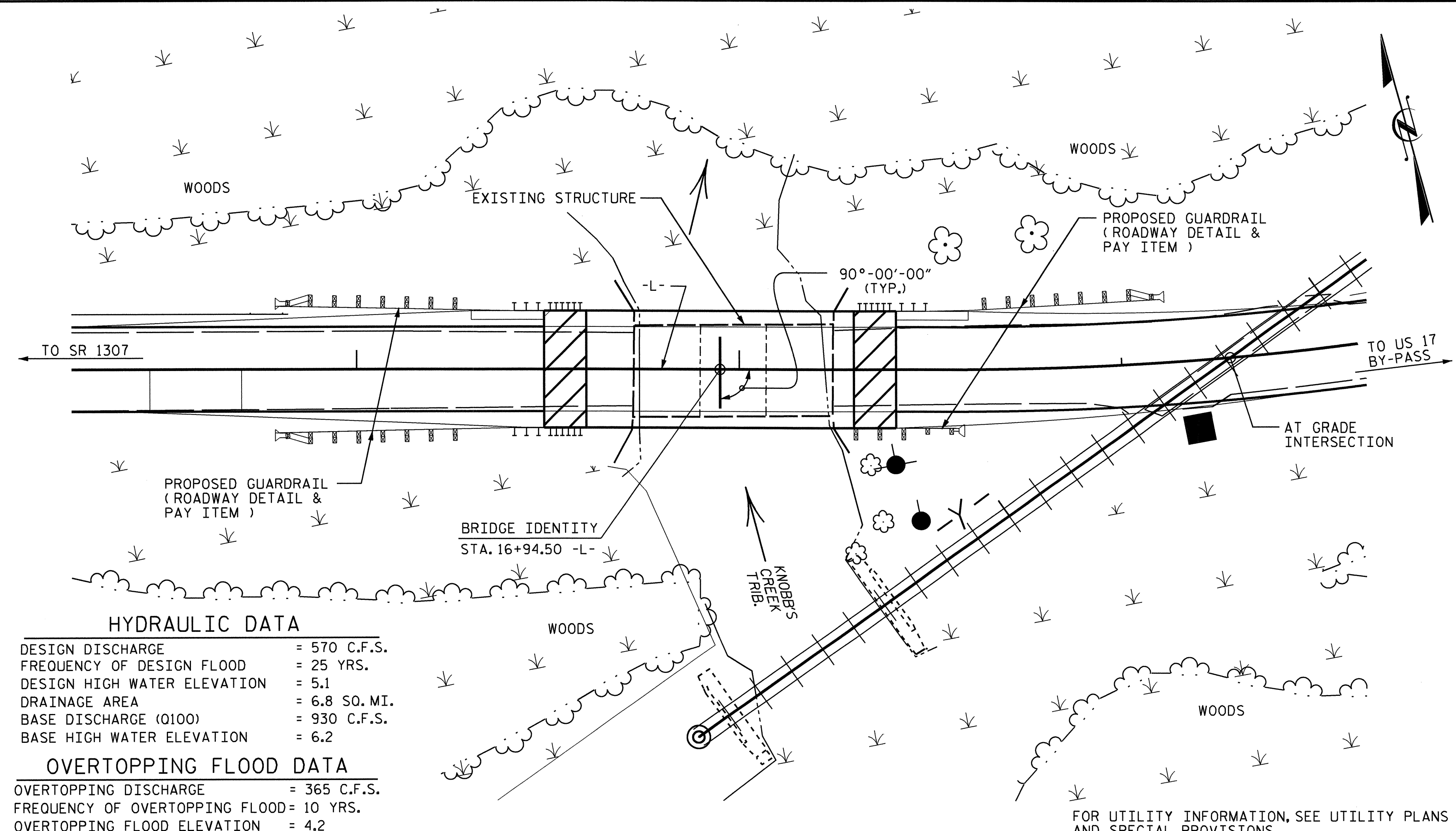
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL																
	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	HP 12 x 53 STEEL PILES	PILE REDRIVES	STEEL SHEET PILES	TWO BAR METAL RAIL	1'-2" x 2'-9 3/4" CONCRETE PARAPET	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLABS			
	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	NO.	SQ. FT.	LIN. FT.	LIN. FT.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE					LUMP SUM									LUMP SUM	11	690.25
END BENT 1			LUMP SUM	18.9		3524	7	560	7	36	1088					
END BENT 2				18.7		3506	7	630	7	36	1118					
TOTAL	LUMP SUM	1	LUMP SUM	37.6	LUMP SUM	7030	14	1190	14	72	2206	110.50	125.50	LUMP SUM	11	690.25

B.M. #10 : RR SPIKE SET IN BASE OF 6 FT. CYPRESS 43' LT. OF STA. 15+82.00 -L- ELEV. 2.87



HYDRAULIC DATA

DESIGN DISCHARGE = 570 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 25 YRS.
 DESIGN HIGH WATER ELEVATION = 5.1
 DRAINAGE AREA = 6.8 SQ. MI.
 BASE DISCHARGE (Q100) = 930 C.F.S.
 BASE HIGH WATER ELEVATION = 6.2

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 365 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 10 YRS.
 OVERTOPPING FLOOD ELEVATION = 4.2

LOCATION SKETCH

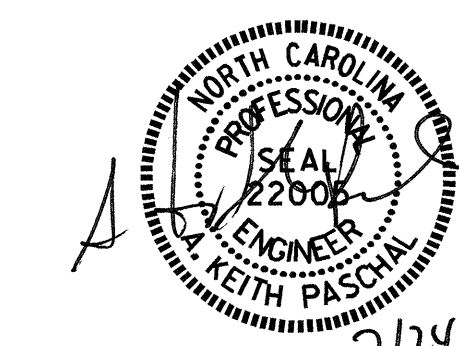
DRAWN BY : M.FOWLER DATE : 2/4/11
 CHECKED BY : E. K. POPE DATE : 3/14/12

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER KNOBB'S
 CREEK TRIBUTARY ON SR 1308
 BETWEEN SR 1307 AND
 US 17 BY-PASS



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

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (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	1.066	---	1.75	0.271	1.51	A	EL	30.875	0.512	1.18	A	EL	3.088	0.80	0.271	1.07	A	EL	30.875	
	HL-93 (OPERATING)	N/A	--	1.527	---	1.35	0.271	1.96	A	EL	30.875	0.512	1.53	A	EL	3.088	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	②	1.359	48.938	1.75	0.271	1.93	A	EL	30.875	0.512	1.46	A	EL	3.088	0.80	0.271	1.36	A	EL	30.875	
	HS-20 (OPERATING)	36.000	--	1.886	67.912	1.35	0.271	2.5	A	EL	30.875	0.512	1.89	A	EL	3.088	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	2.96	39.966	1.40	0.271	5.25	A	EL	30.875	0.512	4.27	A	EL	3.088	0.80	0.271	2.96	A	EL	30.875
		SNGARBS2	20.000	--	2.252	45.033	1.40	0.271	4	A	EL	30.875	0.512	3.05	A	EL	3.088	0.80	0.271	2.25	A	EL	30.875
		SNAGRIS2	22.000	--	2.152	47.344	1.40	0.271	3.82	A	EL	30.875	0.512	2.84	A	EL	3.088	0.80	0.271	2.15	A	EL	30.875
		SNCOTTS3	27.250	--	1.474	40.18	1.40	0.271	2.62	A	EL	30.875	0.512	2.13	A	EL	3.088	0.80	0.271	1.47	A	EL	30.875
		SNAGRS4	34.925	--	1.25	43.64	1.40	0.271	2.22	A	EL	30.875	0.512	1.78	A	EL	3.088	0.80	0.271	1.25	A	EL	30.875
		SNS5A	35.550	--	1.221	43.397	1.40	0.271	2.17	A	EL	30.875	0.512	1.81	A	EL	3.088	0.80	0.271	1.22	A	EL	30.875
		SNS6A	39.950	--	1.127	45.04	1.40	0.271	2	A	EL	30.875	0.512	1.66	A	EL	3.088	0.80	0.271	1.13	A	EL	30.875
	SNS7B	42.000	--	1.074	45.104	1.40	0.271	1.91	A	EL	30.875	0.512	1.64	A	EL	3.088	0.80	0.271	1.07	A	EL	30.875	
	TRUCK TRACTOR SEMI-TRAILER (TTS)	TNAGRIT3	33.000	--	1.377	45.441	1.40	0.271	2.44	A	EL	30.875	0.512	1.97	A	EL	3.088	0.80	0.271	1.38	A	EL	30.875
		TNT4A	33.075	--	1.385	45.812	1.40	0.271	2.46	A	EL	30.875	0.512	1.92	A	EL	3.088	0.80	0.271	1.39	A	EL	30.875
		TNT6A	41.600	--	1.14	47.411	1.40	0.271	2.02	A	EL	30.875	0.512	1.76	A	EL	3.088	0.80	0.271	1.14	A	EL	30.875
		TNT7A	42.000	--	1.149	48.268	1.40	0.271	2.04	A	EL	30.875	0.512	1.71	A	EL	3.088	0.80	0.271	1.15	A	EL	30.875
		TNT7B	42.000	--	1.199	50.341	1.40	0.271	2.13	A	EL	30.875	0.512	1.59	A	EL	3.088	0.80	0.271	1.20	A	EL	30.875
		TNAGRIT4	43.000	--	1.133	48.72	1.40	0.271	2.01	A	EL	30.875	0.512	1.54	A	EL	3.088	0.80	0.271	1.13	A	EL	30.875
TNAGT5A		45.000	--	1.065	47.924	1.40	0.271	1.89	A	EL	30.875	0.512	1.54	A	EL	3.088	0.80	0.271	1.06	A	EL	30.875	
TNAGT5B	45.000	③	1.049	47.212	1.40	0.271	1.86	A	EL	30.875	0.512	1.47	A	EL	3.088	0.80	0.271	1.05	A	EL	30.875		

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)

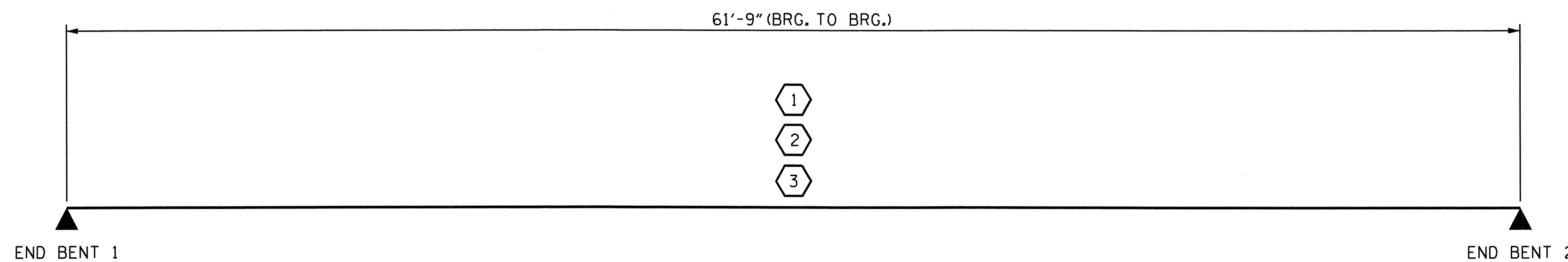
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

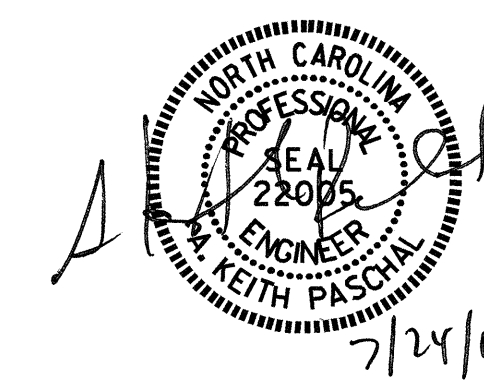


LRFR SUMMARY

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

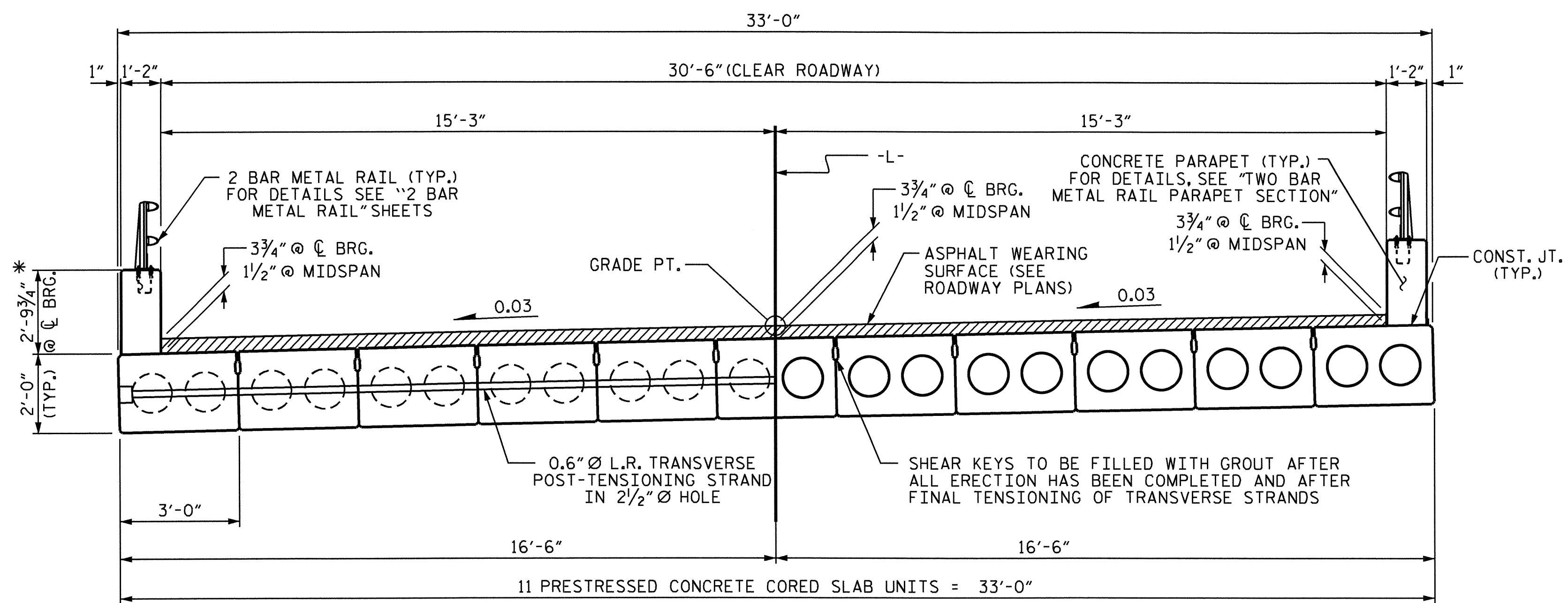
ASSEMBLED BY : E. K. POPE DATE : 5-3-12
 CHECKED BY : A. K. PASCHAL DATE : 5-20-12
 DRAWN BY : MAA 1/08 REV. 11/12/08RR MAA/GM
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM

22-JUN-2012 09:35
 R:\Structures\Final Plans\B4922.SD_CS.dgn
 kpaschal



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-4
STANDARD LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)						TOTAL SHEETS 18
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STD. NO. LRFR1

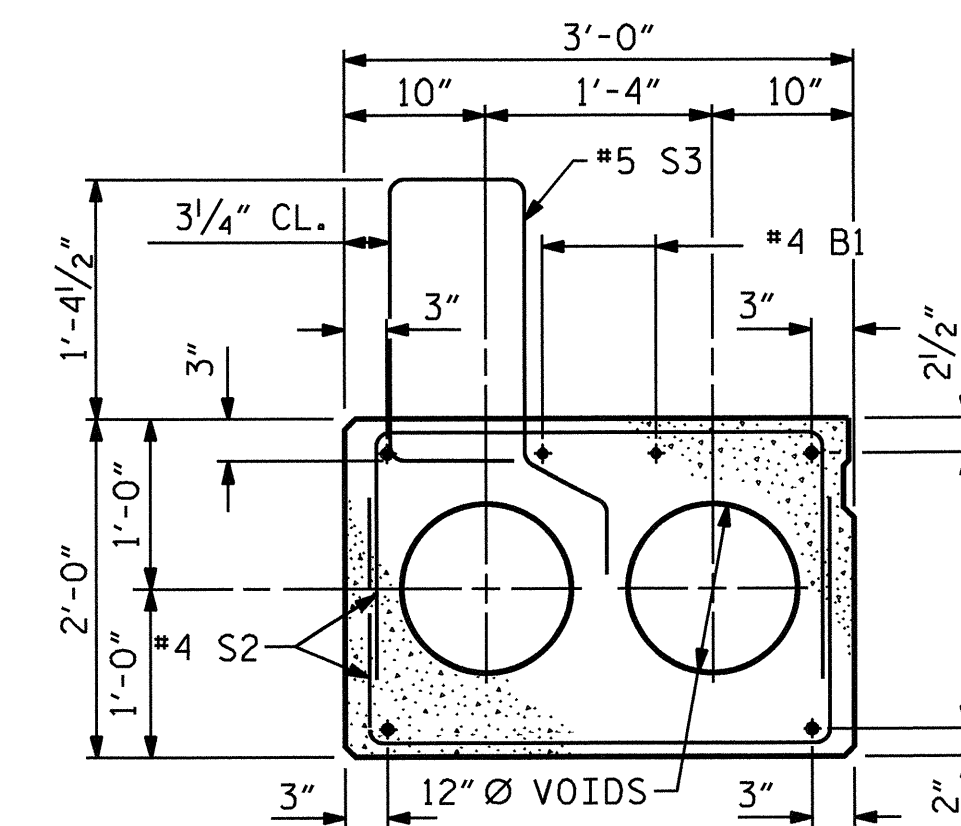


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

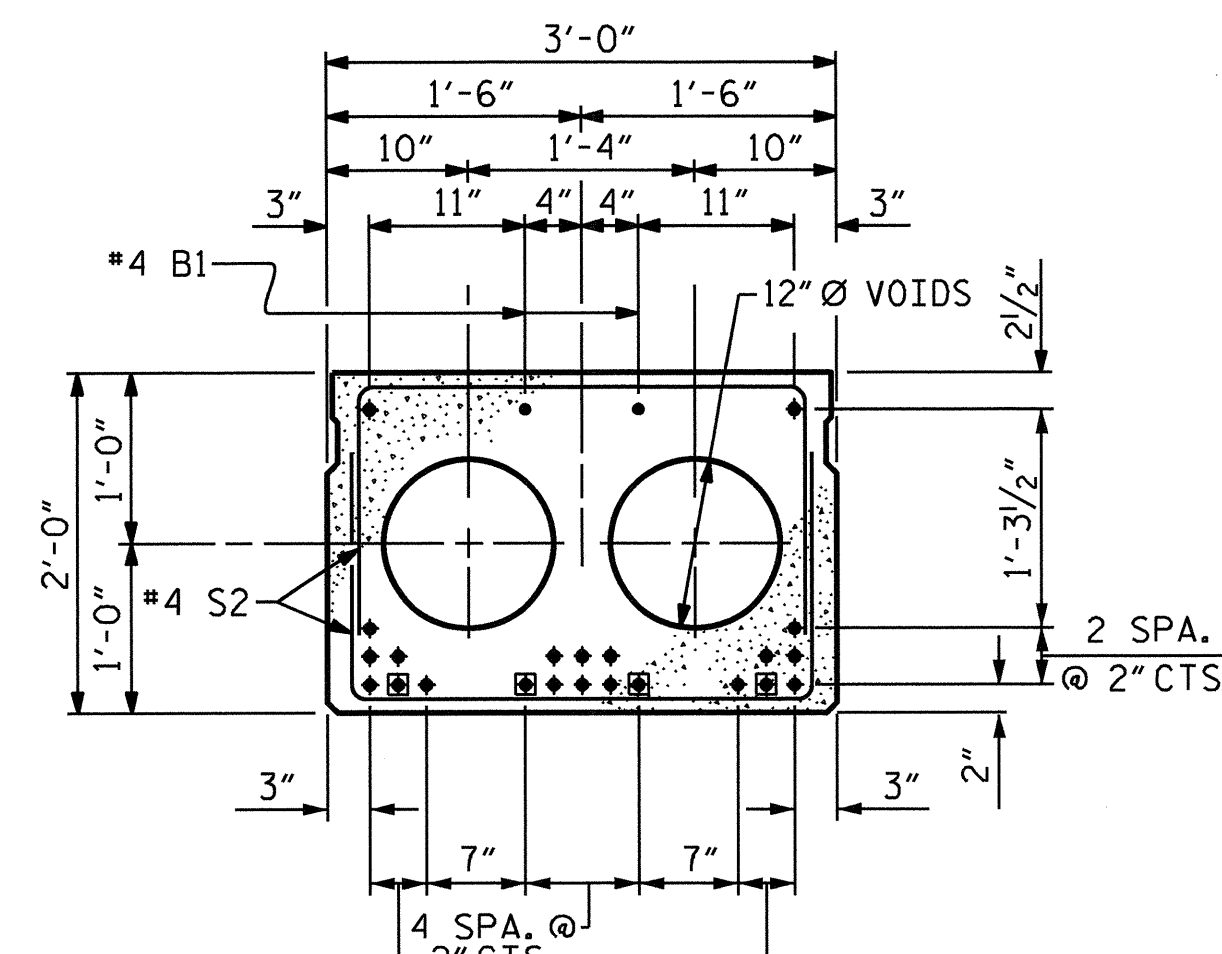
HALF SECTION
THROUGH VOIDS

* - THE MAXIMUM PARAPET HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR PARAPET HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "TWO BAR METAL RAIL SECTION" DETAIL.



EXTERIOR SLAB SECTION

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

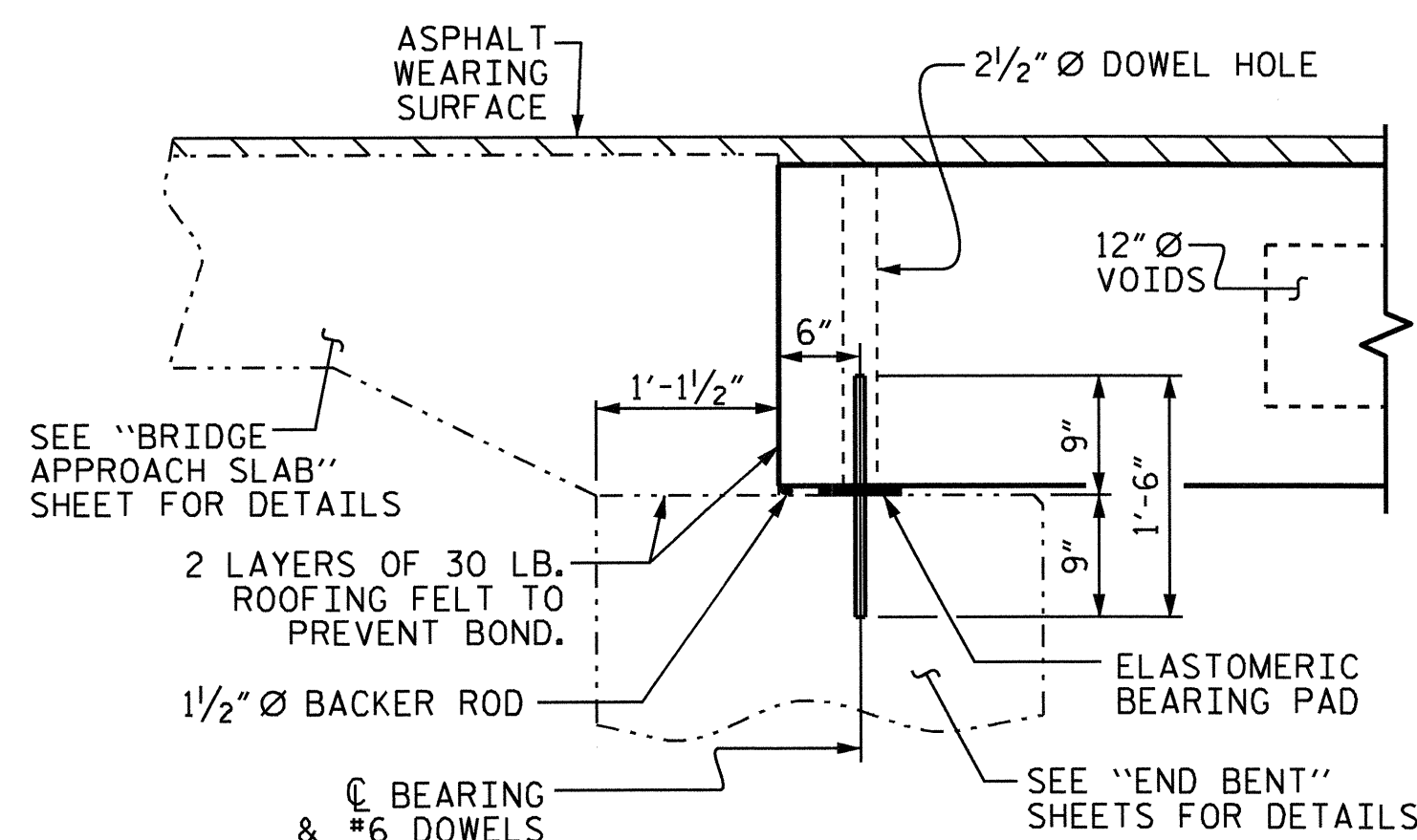


SPAN INTERIOR SLAB SECTION

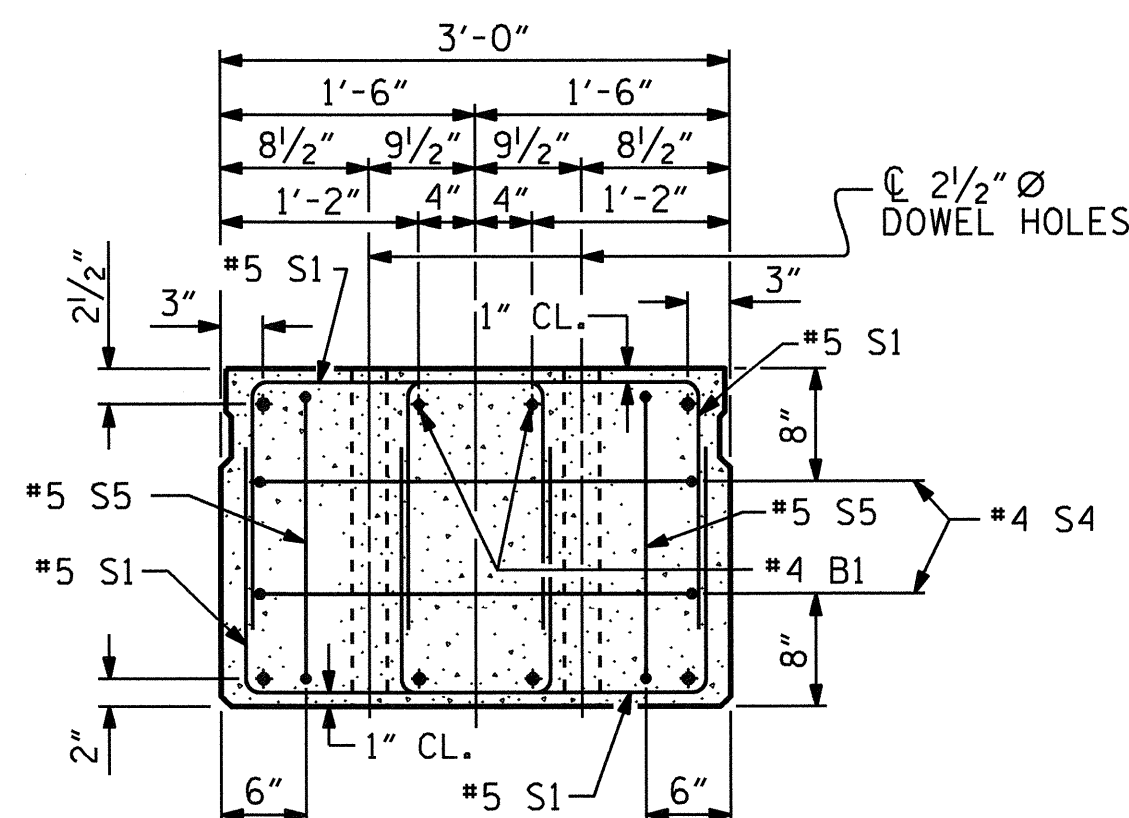
(22 STRANDS REQ'D.)

0.6" Ø LOW RELAXATION STRAND LAYOUT

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

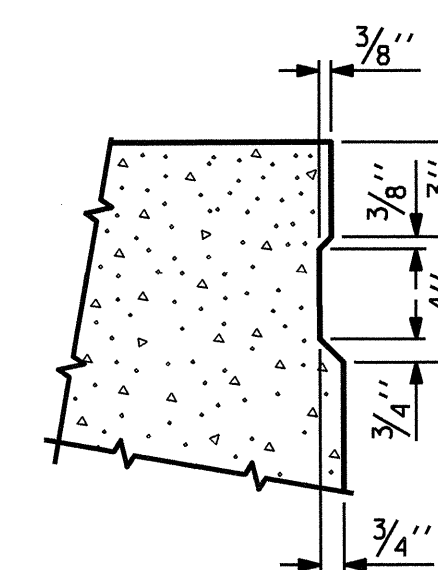


SECTION AT END BENT



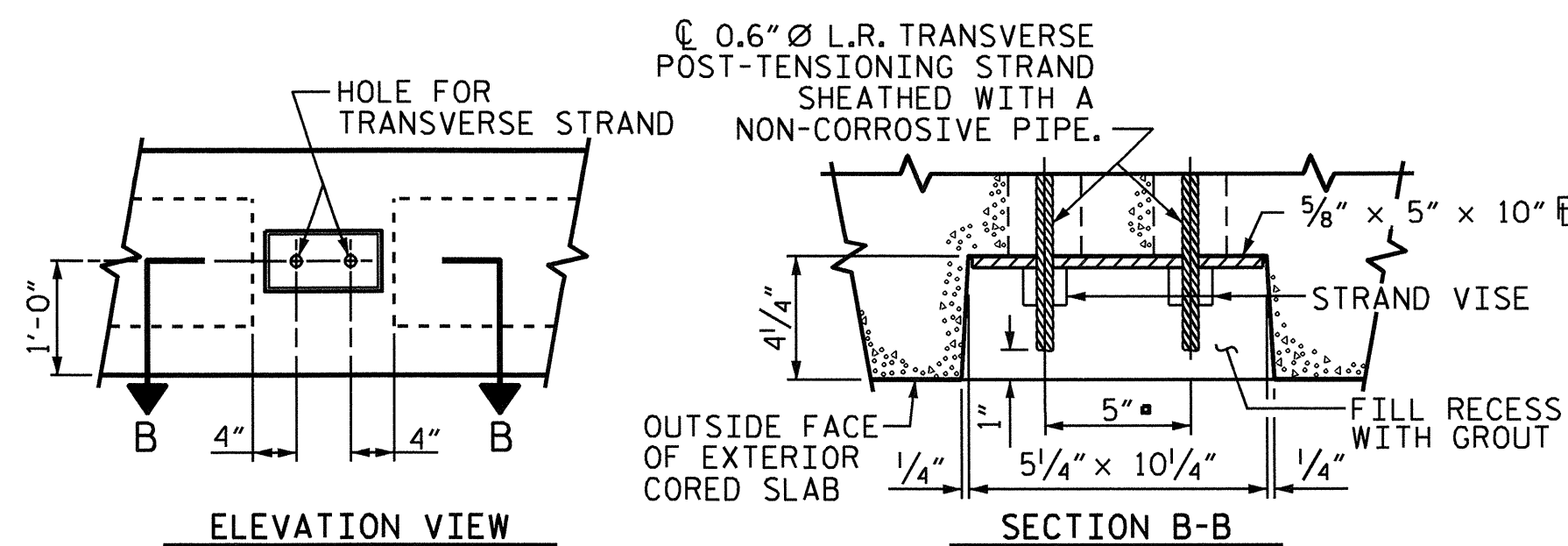
END ELEVATION

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



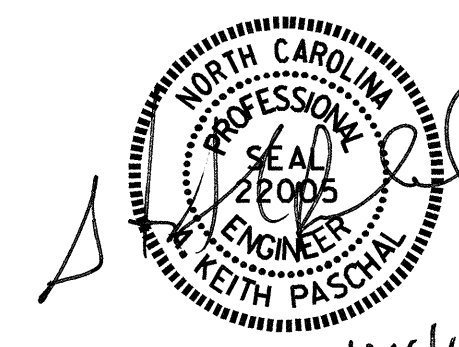
SHEAR KEY DETAIL

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



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

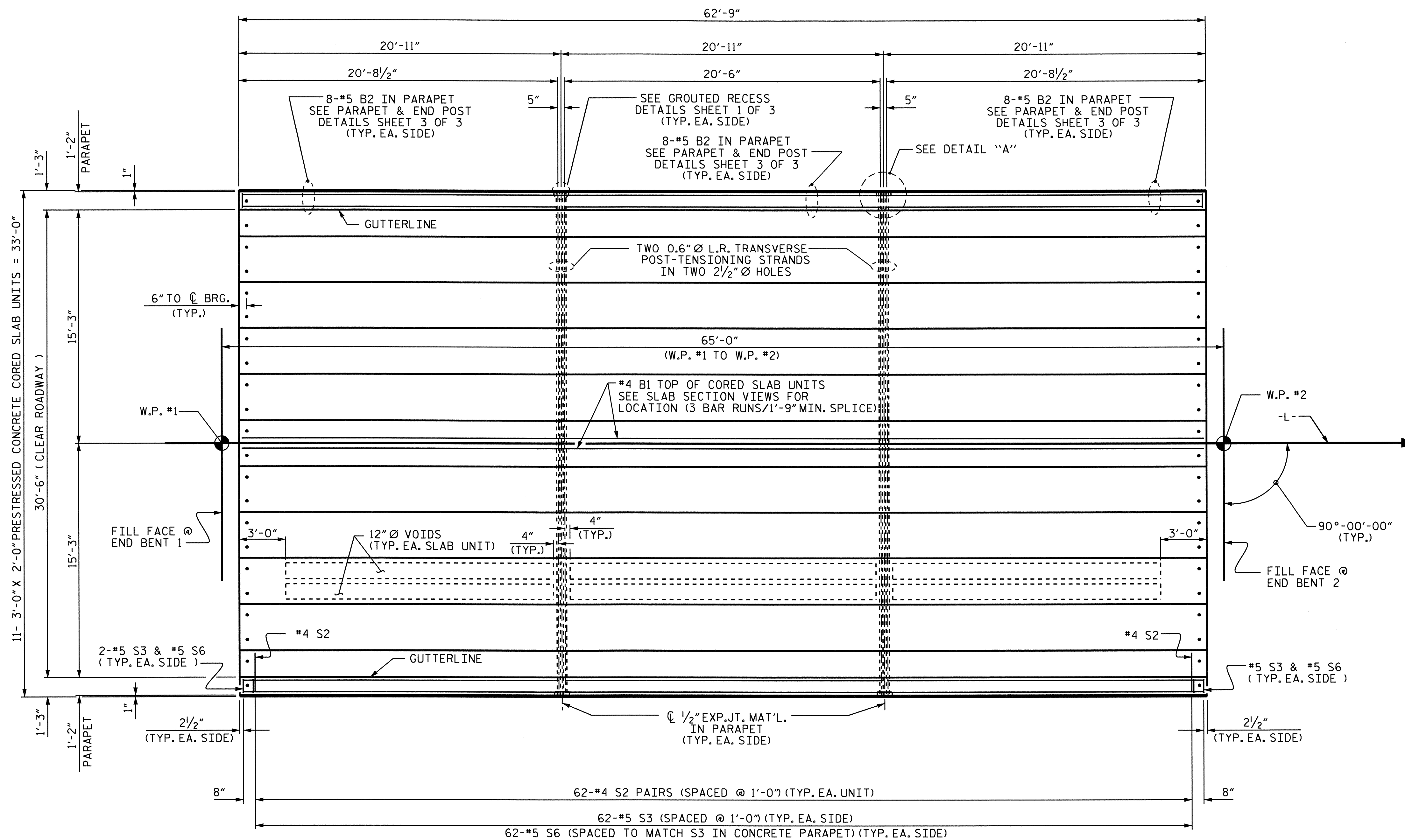
ASSEMBLED BY :	E. K. POPE	DATE :	5-3-12
CHECKED BY :	A. K. PASCHAL	DATE :	5-20-12
DRAWN BY :	MAA 6/10	REV.	12/11
CHECKED BY :	MKT 7/10		MAA/AAC



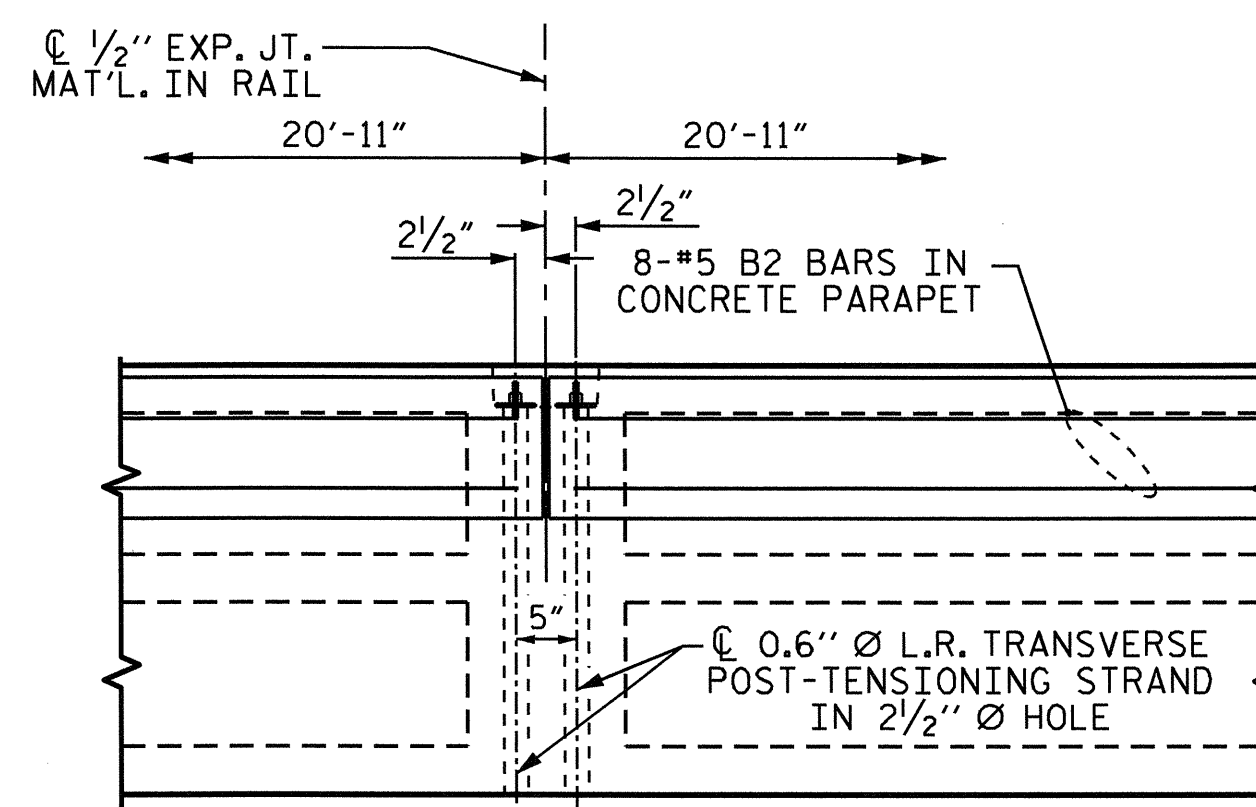
PROJECT NO. B-4922
PASQUOTANK COUNTY
STATION: 16+94.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-5
					TOTAL SHEETS 18



PLAN OF SPAN



DETAIL "A"

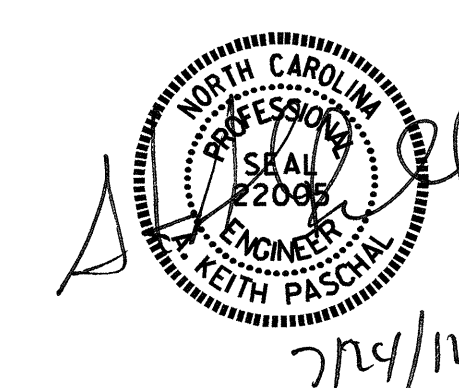
#4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

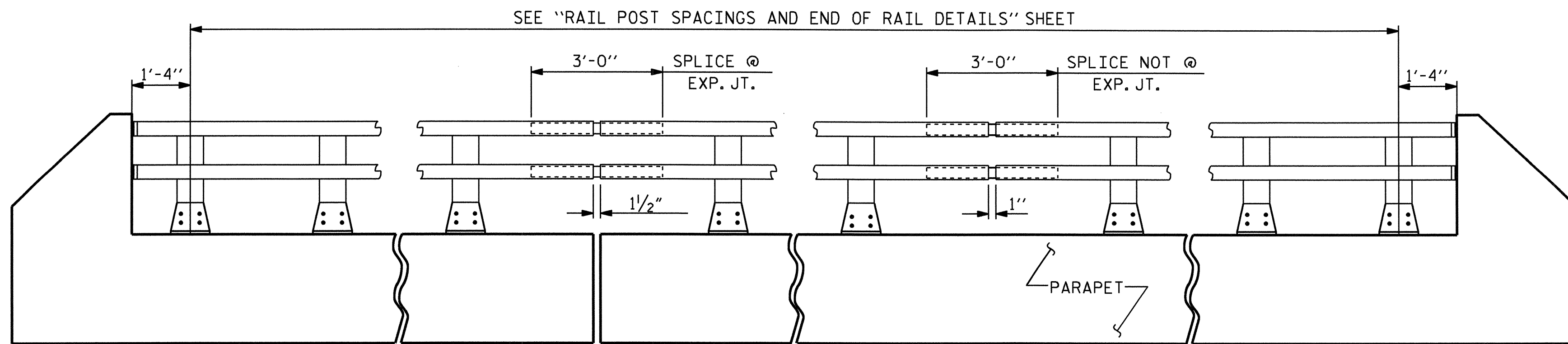
SUPERSTRUCTURE
 PLAN OF SPAN



DRAWN BY : E. K. POPE DATE : 5-3-12
 CHECKED BY : A. K. PASCHAL DATE : 5-20-12

22-JUN-2012 09:32
 R:\Structures\Final Plans\B4922.SD.CS.dgn
 kpaschal

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



ELEVATION

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

NOTES

THE METAL RAIL SHALL BE ALUMINUM AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS.

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.

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.

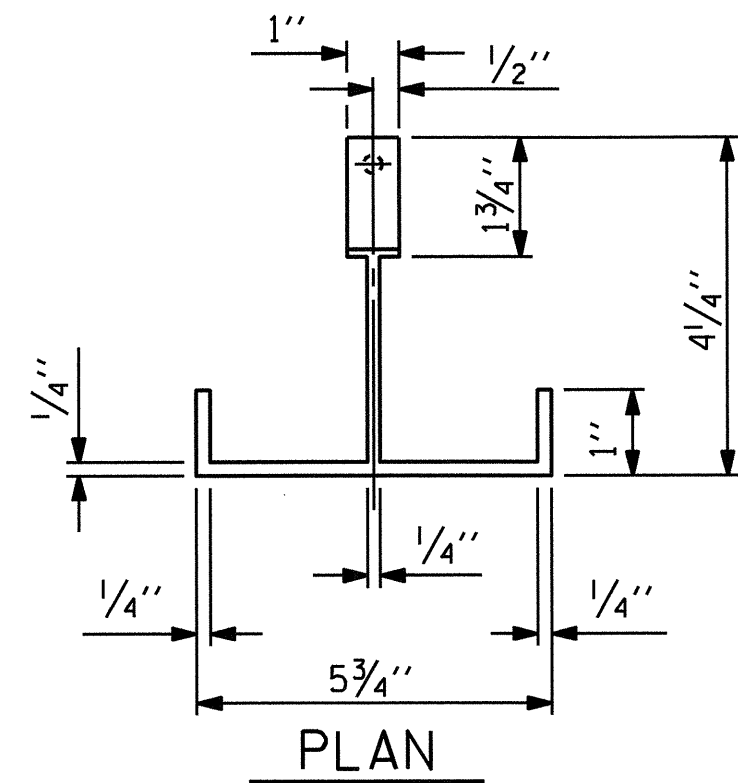
SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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

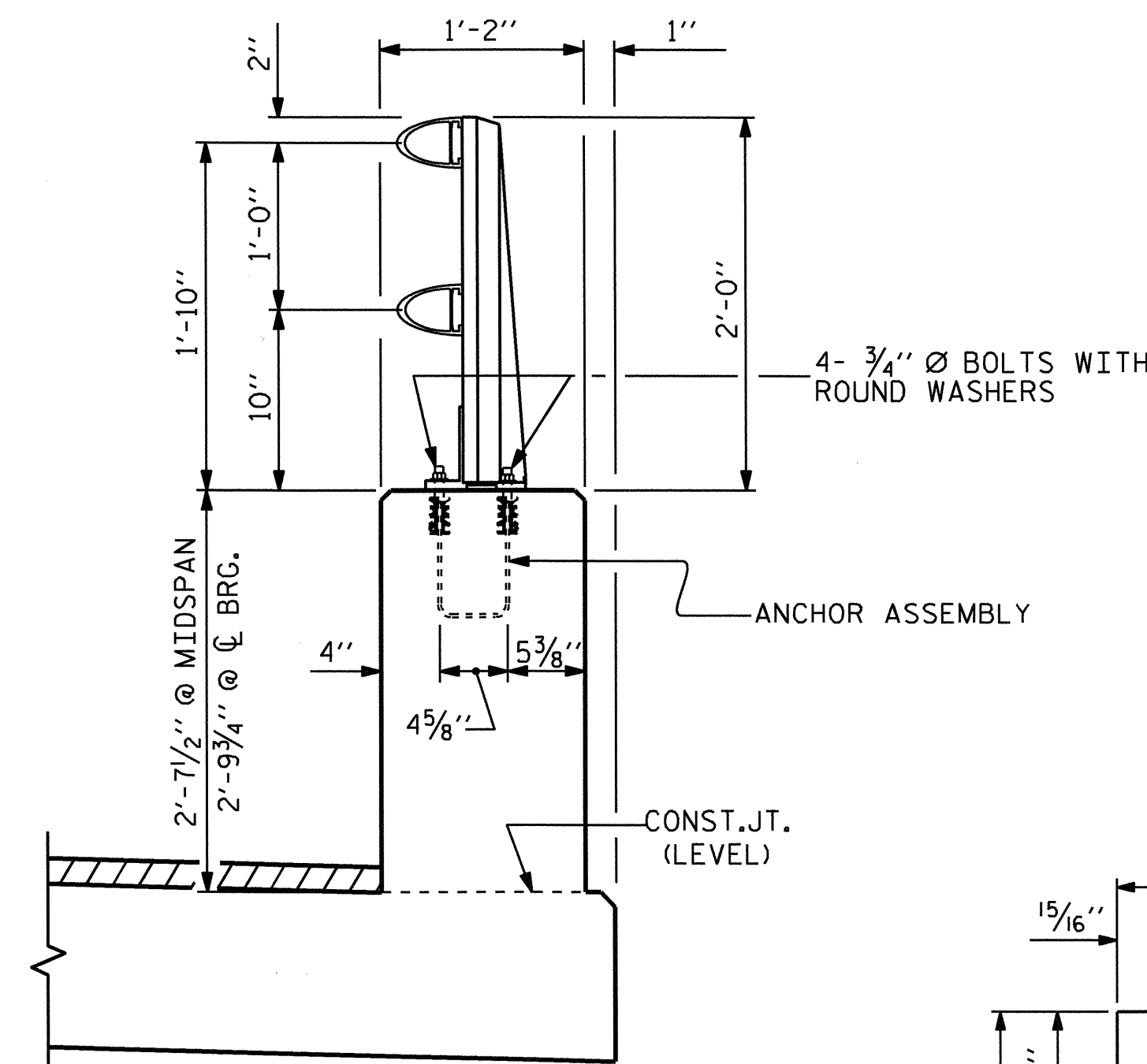
MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

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

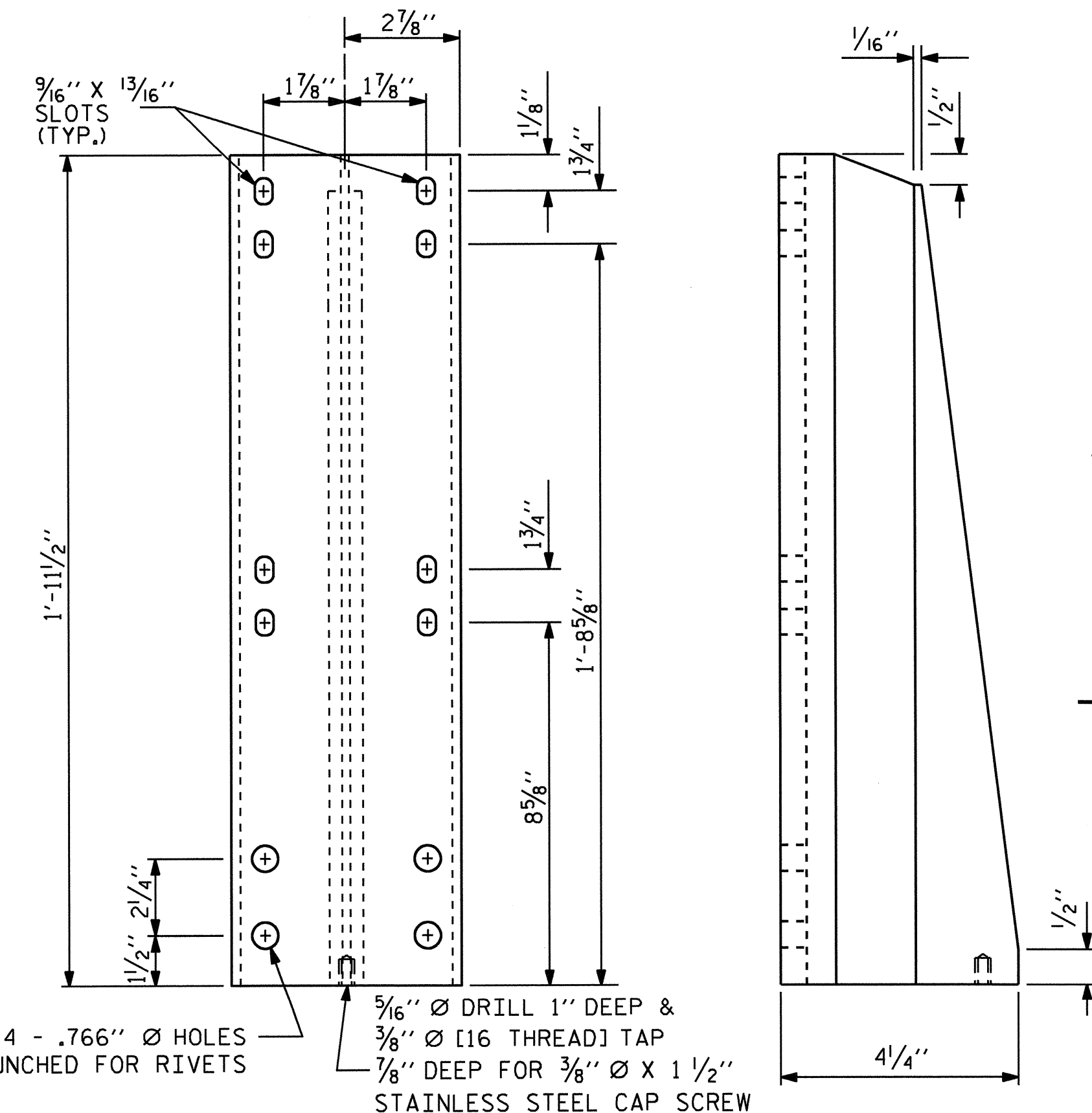
PAY LENGTH = 110.50 LIN. FT.



PLAN



SECTION THRU PARAPET AND RAIL

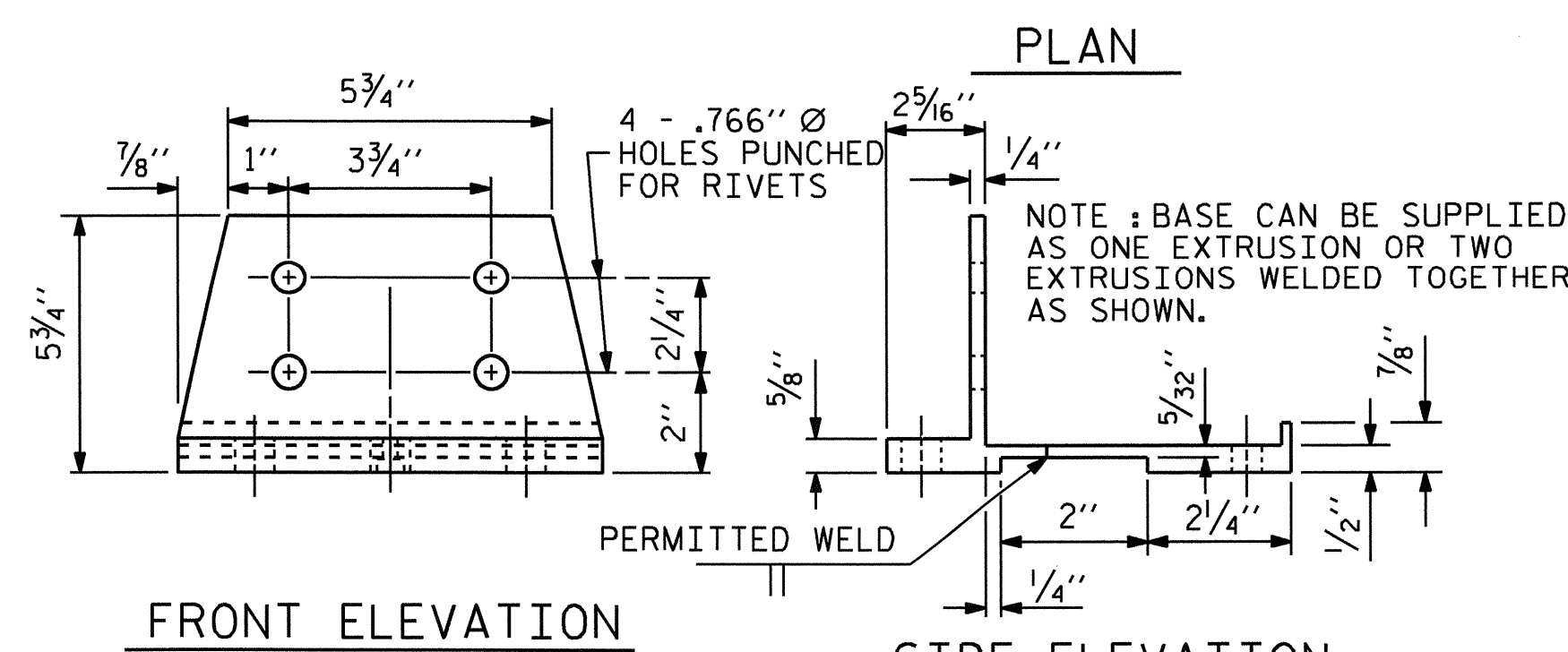


FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST

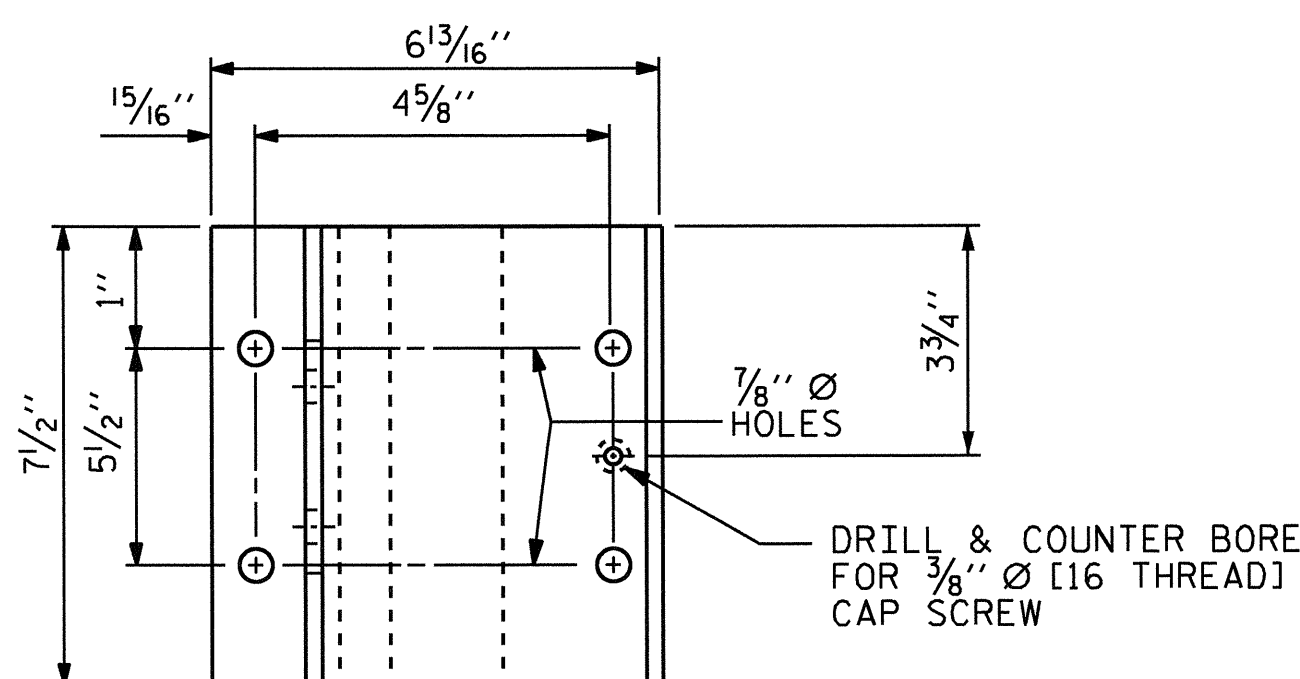
ASSEMBLED BY : E. K. POPE DATE : 5-3-12
 CHECKED BY : A. K. PASCHAL DATE : 5-20-12
 DRAWN BY : EEM 6/94 REV. 5/1/03R RWW/JTE
 CHECKED BY : RGW 6/94 REV. 5/1/06 TLA/GM
 REV. 10/1/11 MAA/GM



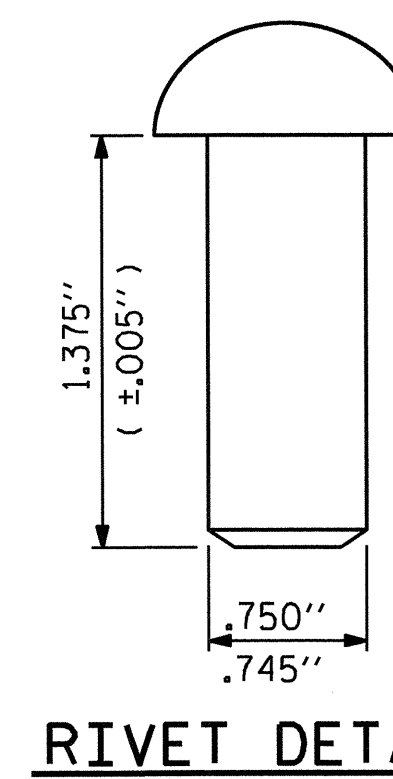
FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



PLAN



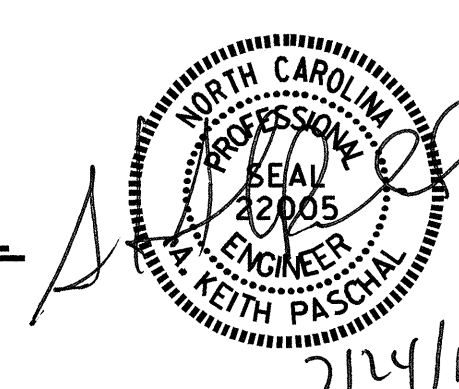
RIVET DETAIL

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 1 OF 3

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

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



NOTES

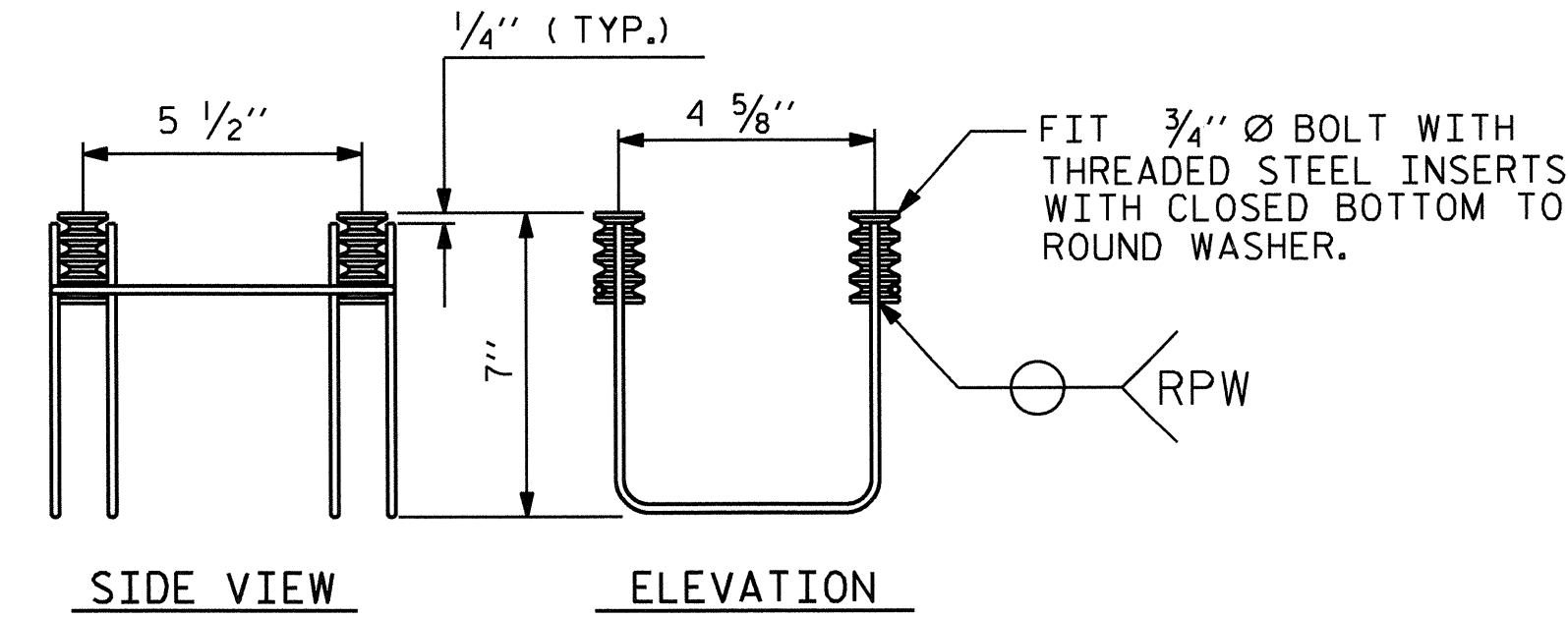
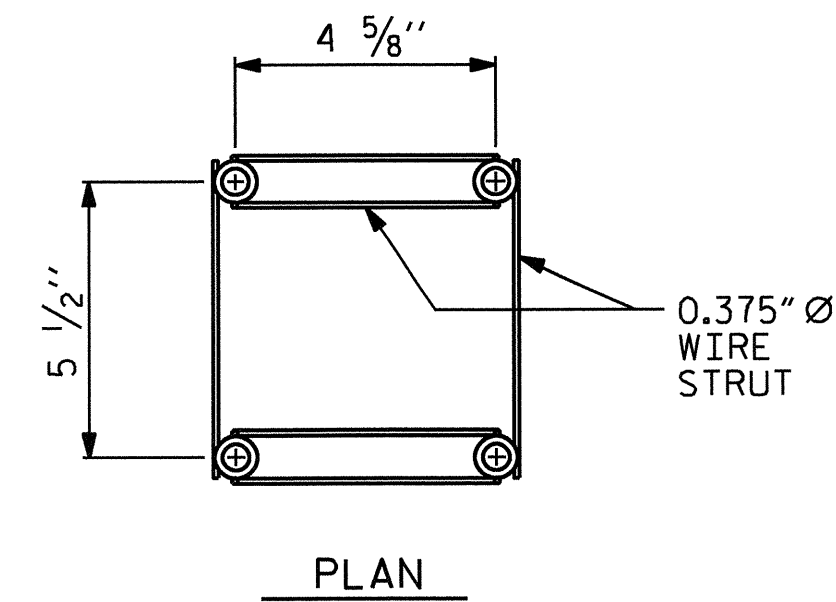
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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 7/16" 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.

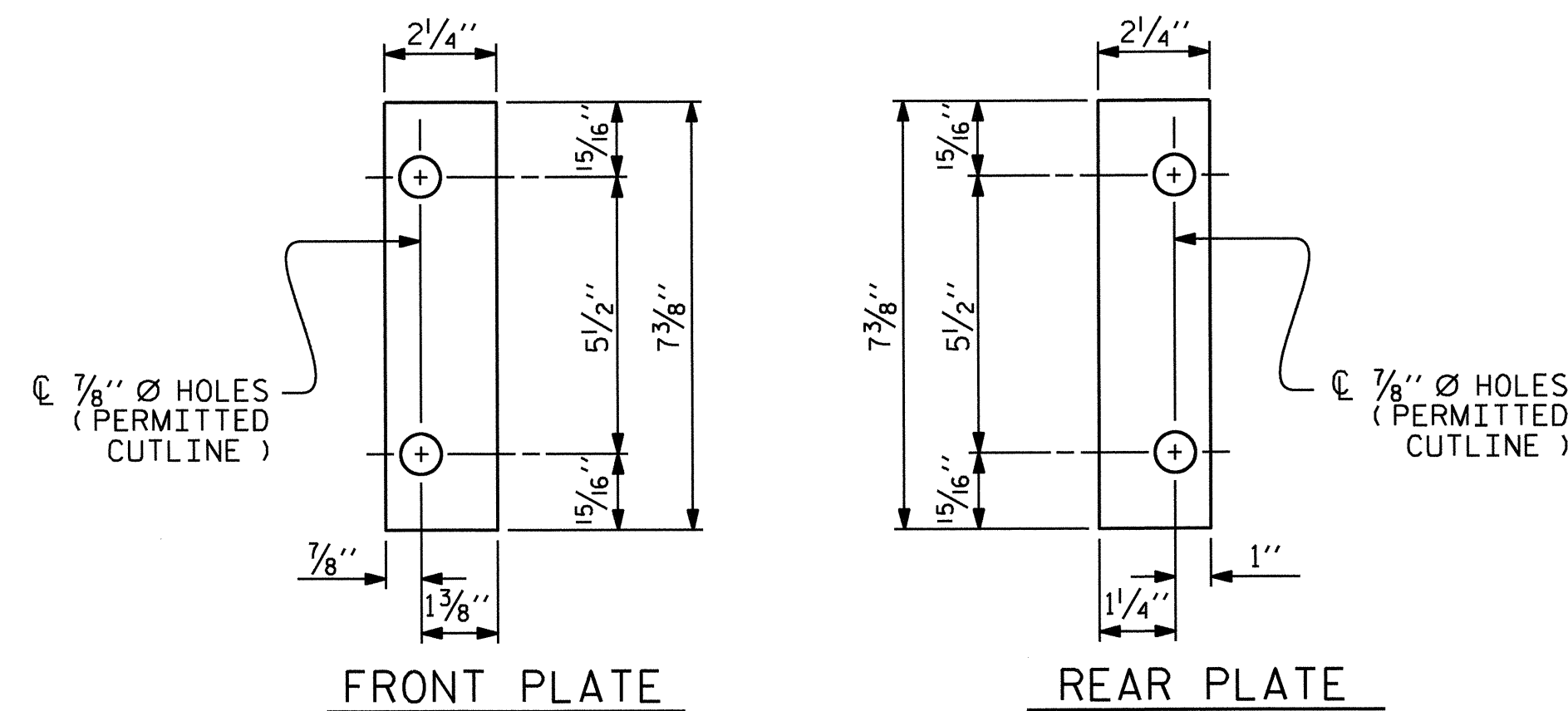
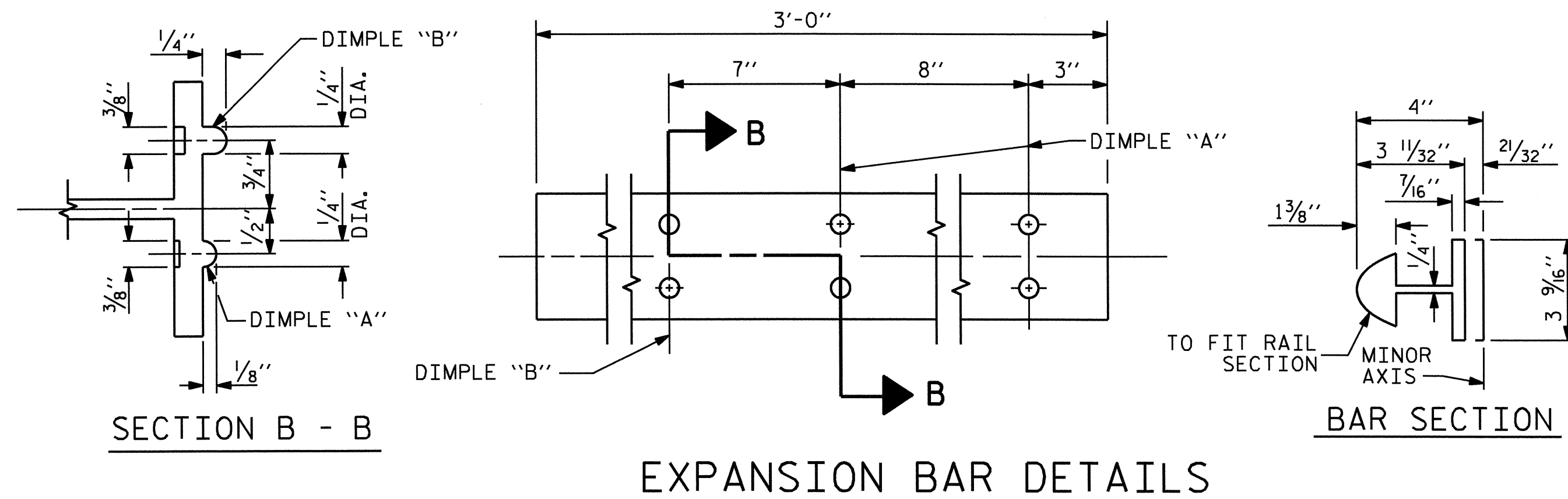
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

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.



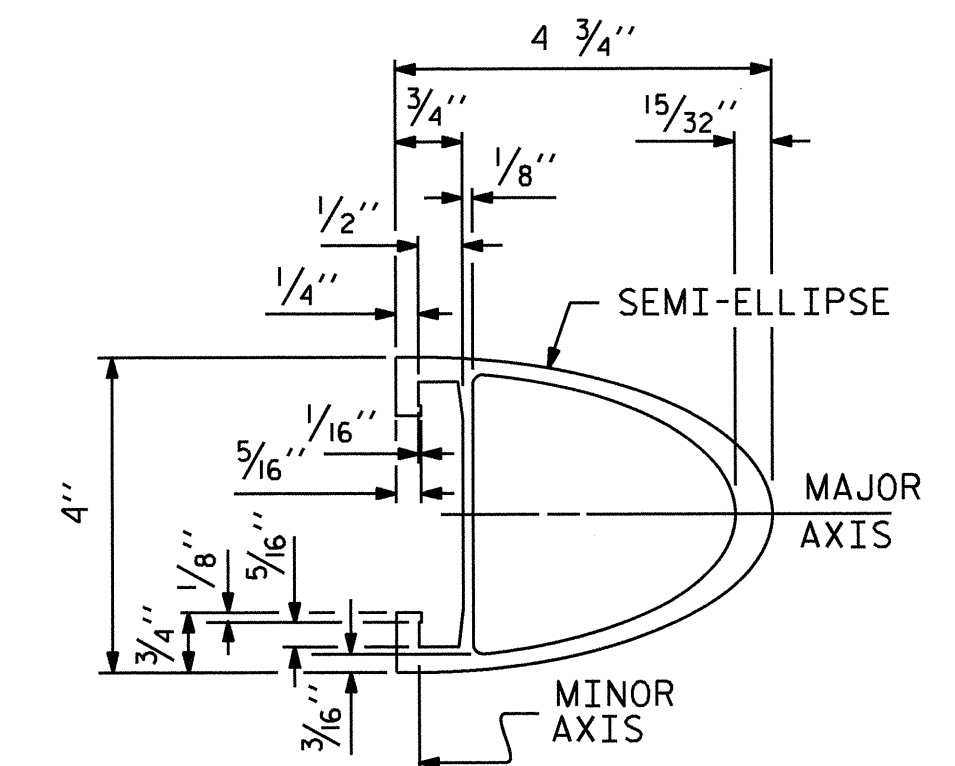
4-BOLT METAL RAIL ANCHOR ASSEMBLY

(24 ASSEMBLIES REQUIRED)

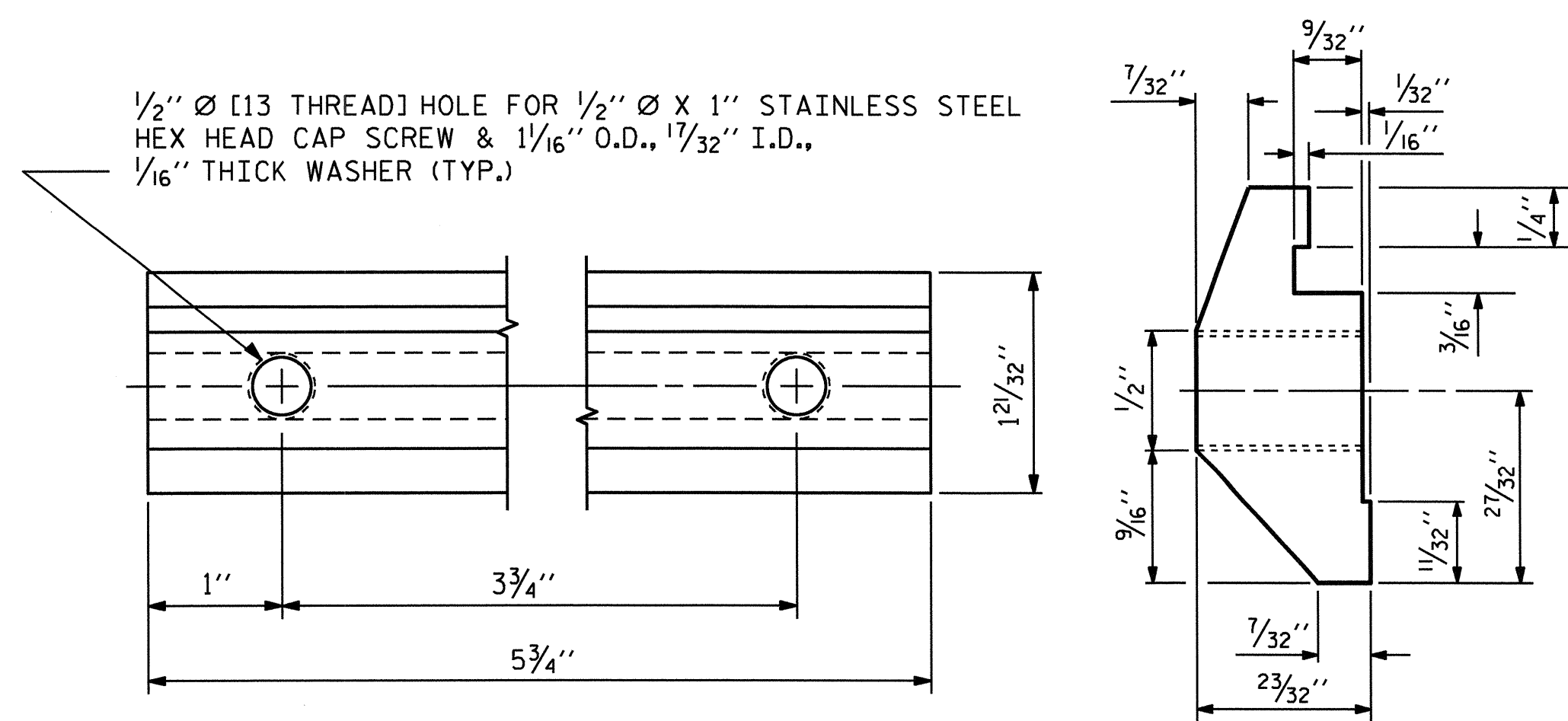


SHIM DETAILS

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

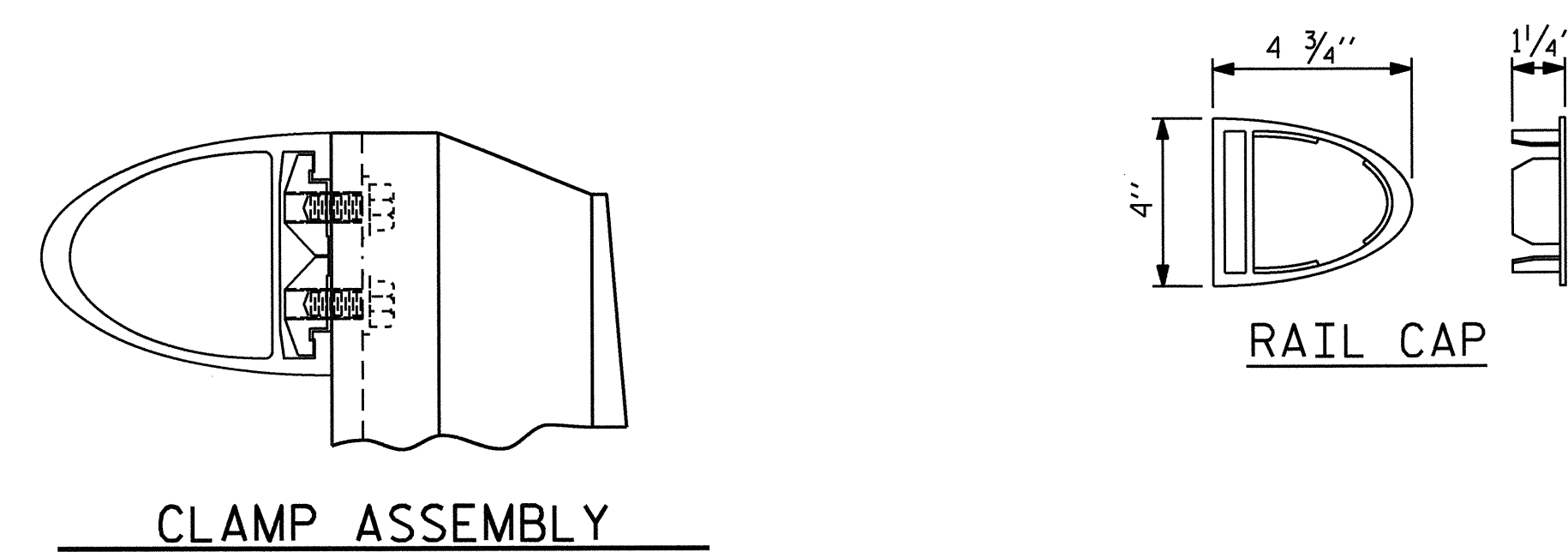


RAIL SECTION



CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY

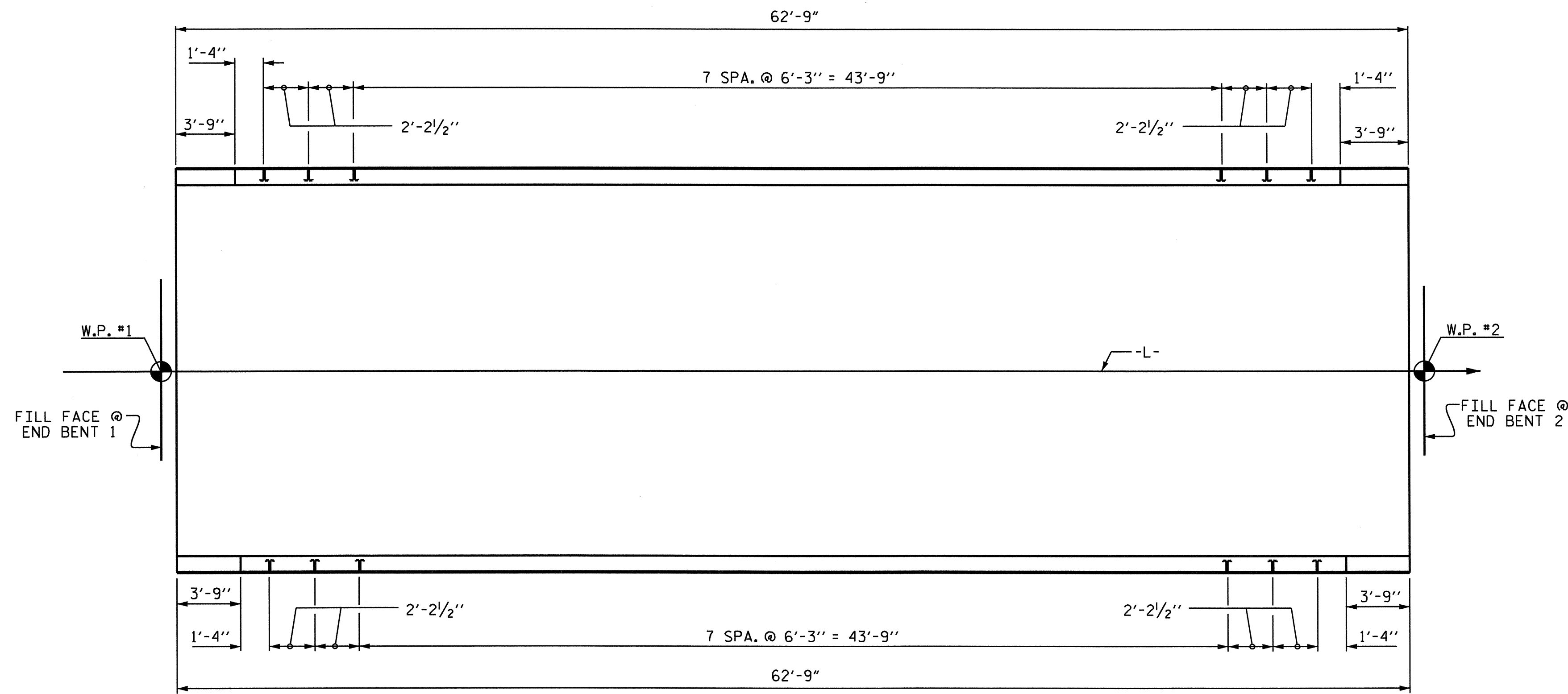
RAIL CAP

PROJECT NO. B-4922
PASQUOTANK COUNTY
STATION: 16+94.50 -L-

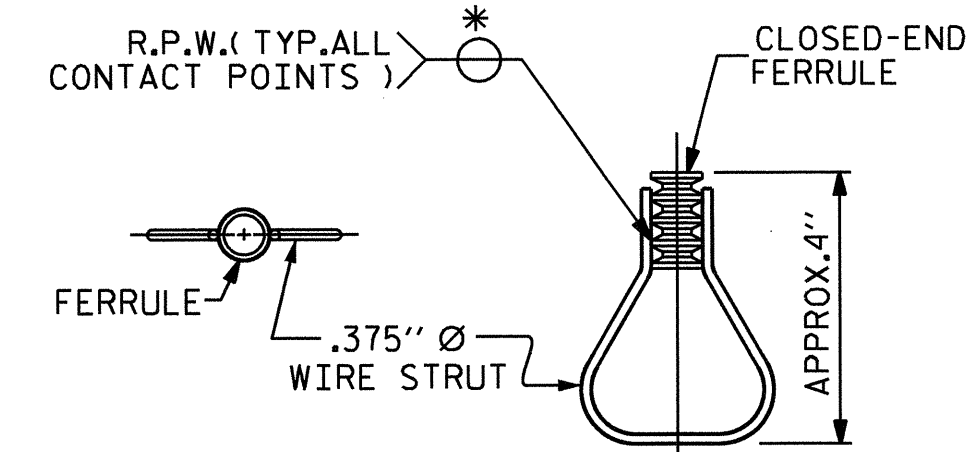
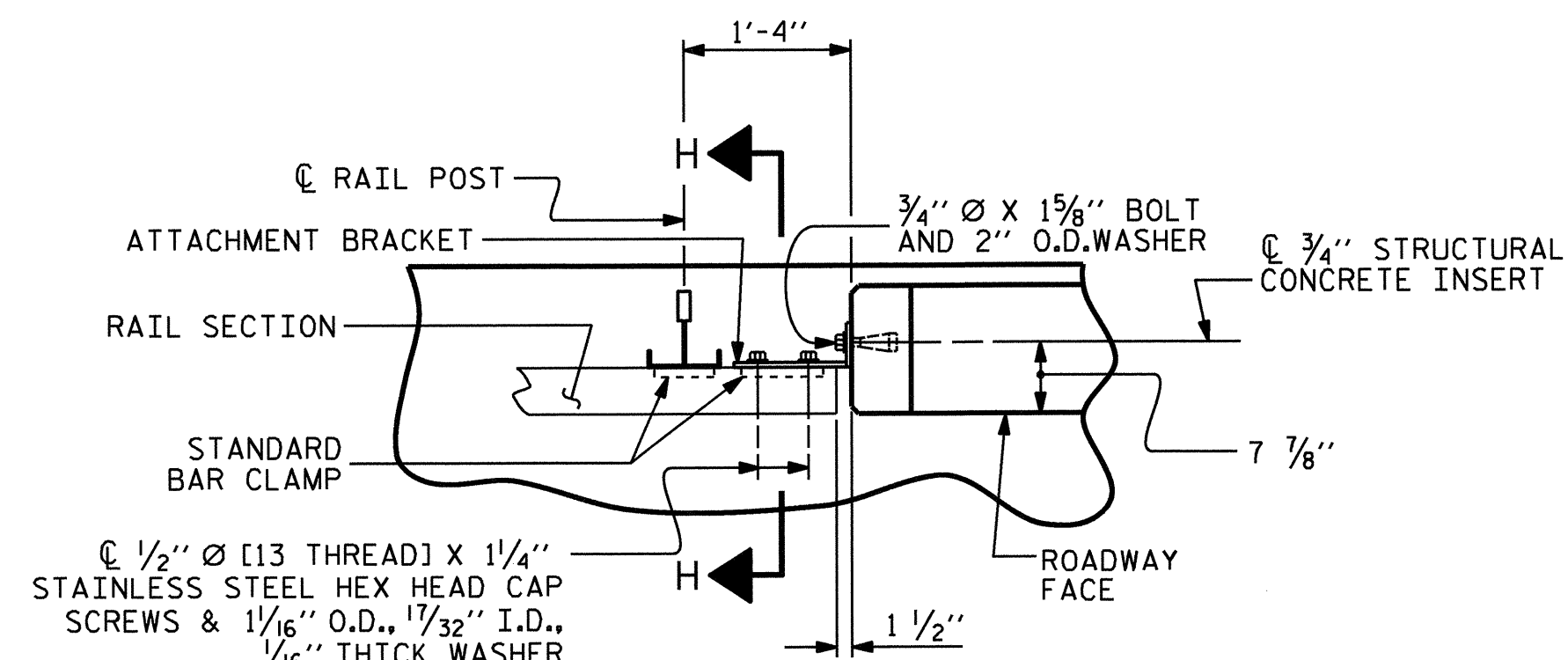
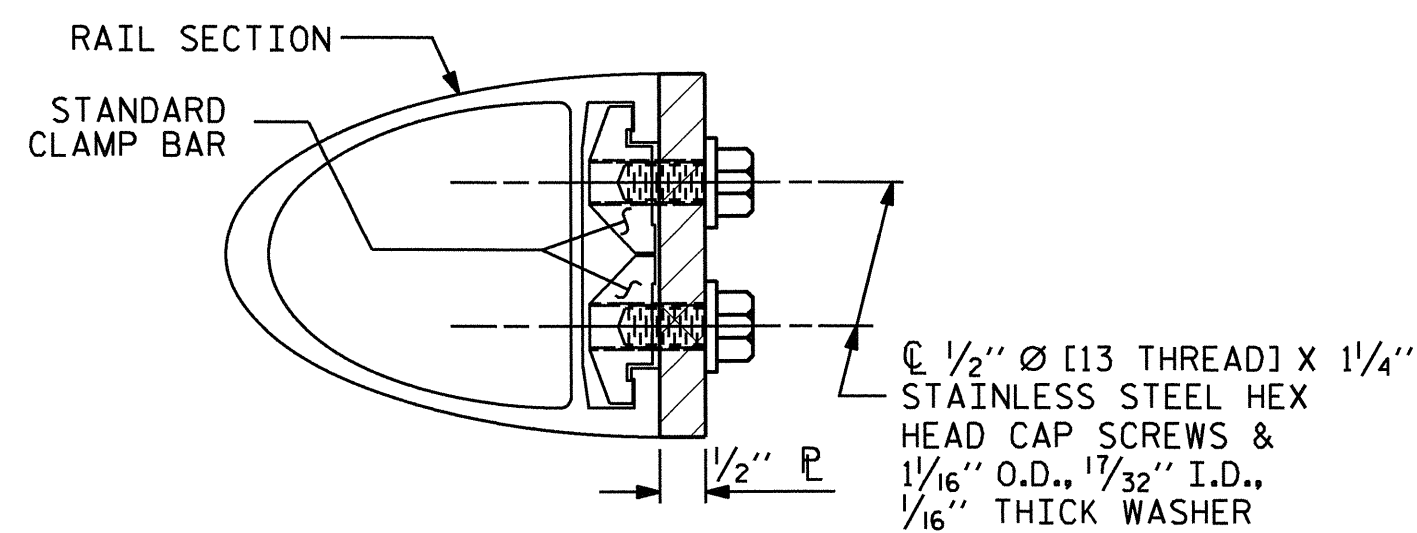
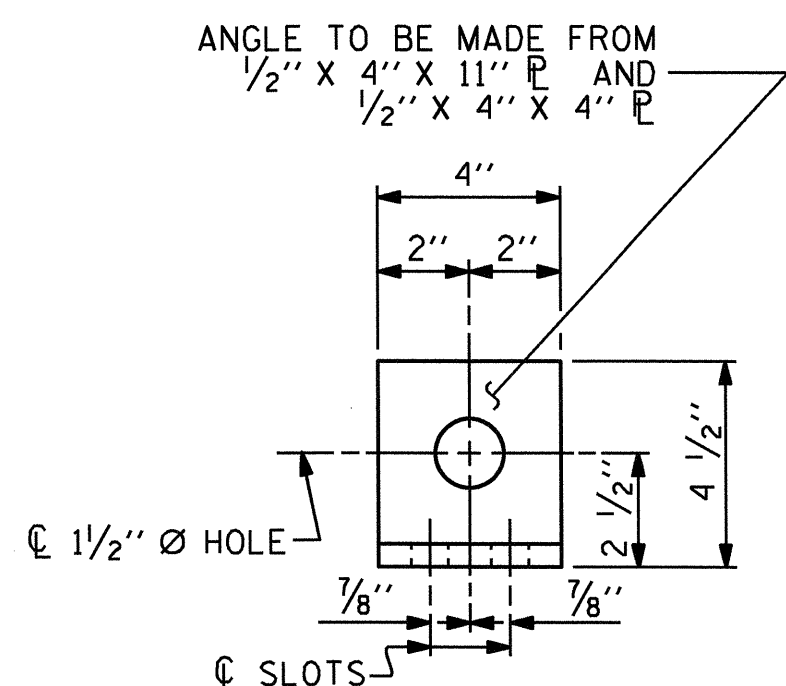
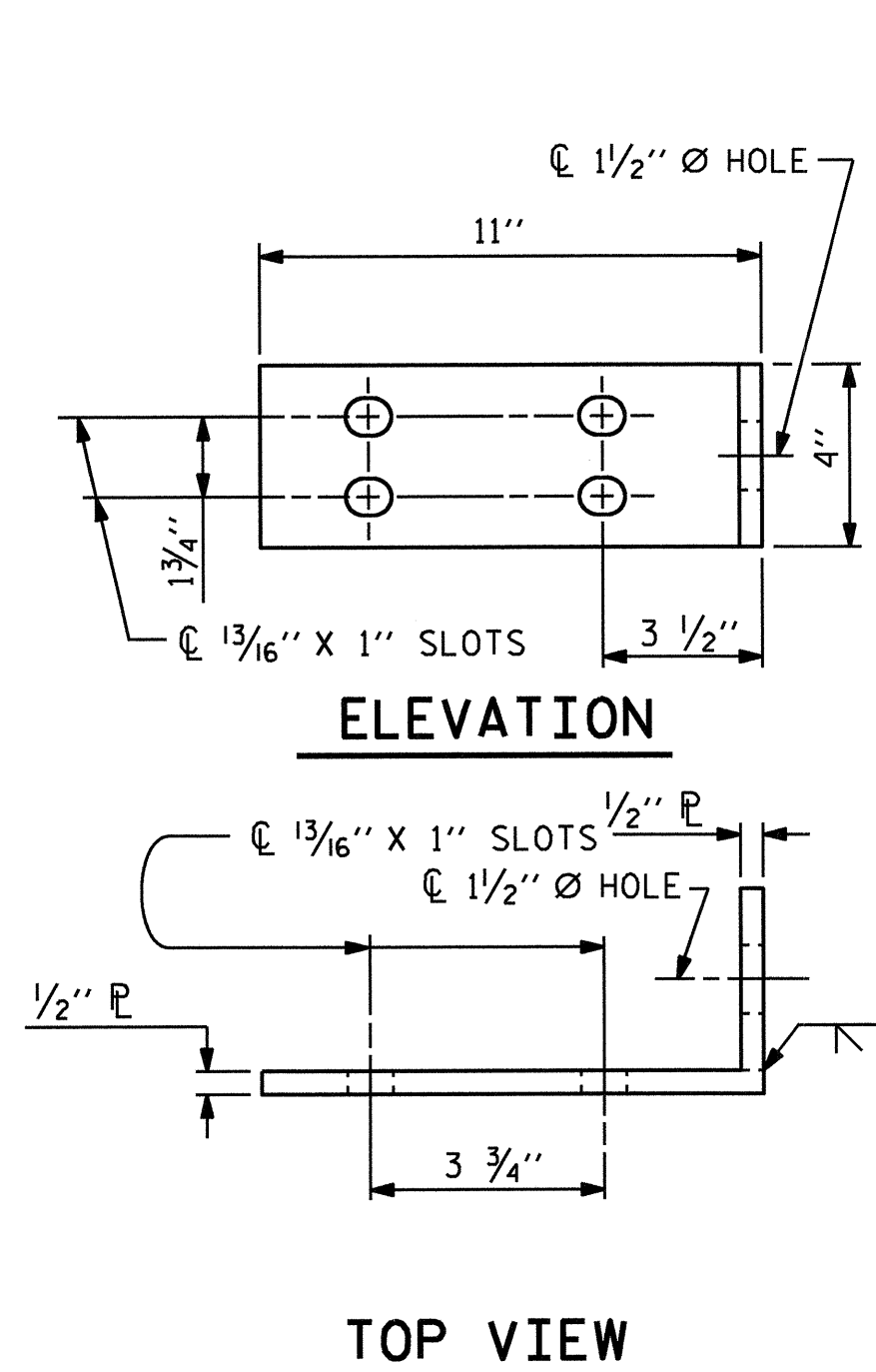
SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 2 BAR METAL RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-8
					TOTAL SHEETS 18

ASSEMBLED BY : E. K. POPE	DATE : 5-3-12
CHECKED BY : A. K. PASCHAL	DATE : 5-20-12
DRAWN BY : EEM 6/94	REV. 8/16/99 MAB/LES
CHECKED BY : RCW 6/94	REV. 5/1/06R KMM/GM
	REV. 10/1/11 MAA/GM



PLAN OF RAIL POST SPACINGS



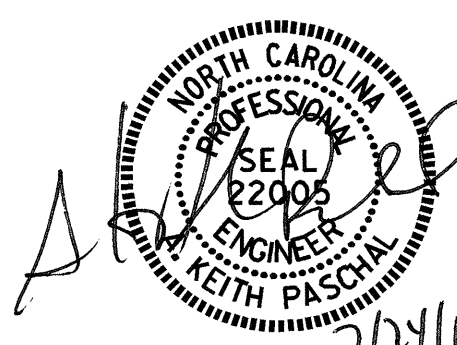
STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 3 OF 3

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



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

TOTAL SHEETS: 18

ASSEMBLED BY : E. K. POPE	DATE : 5-3-12
CHECKED BY : A. K. PASCHAL	DATE : 5-20-12
DRAWN BY : FCJ 1/88	REV. 5/7/03 RWW/JTE
CHECKED BY : CRK 3/89	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

NOTES

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

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

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

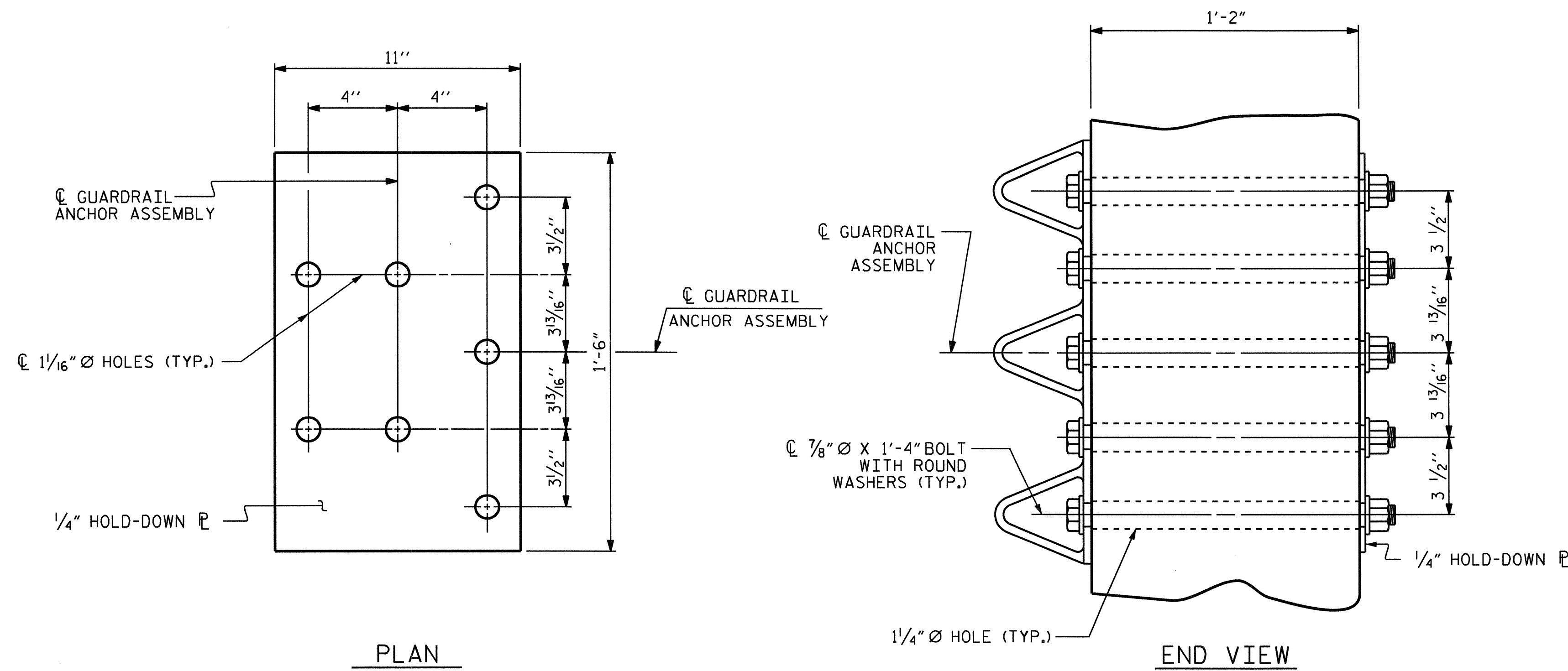
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

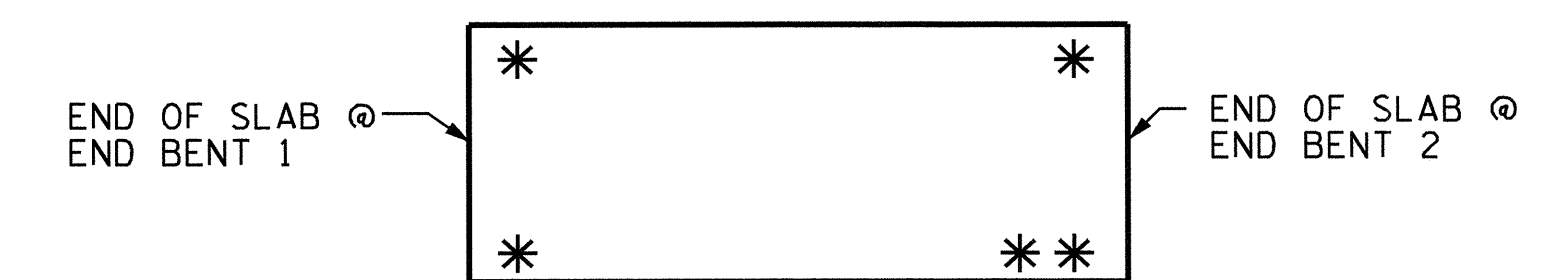
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

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

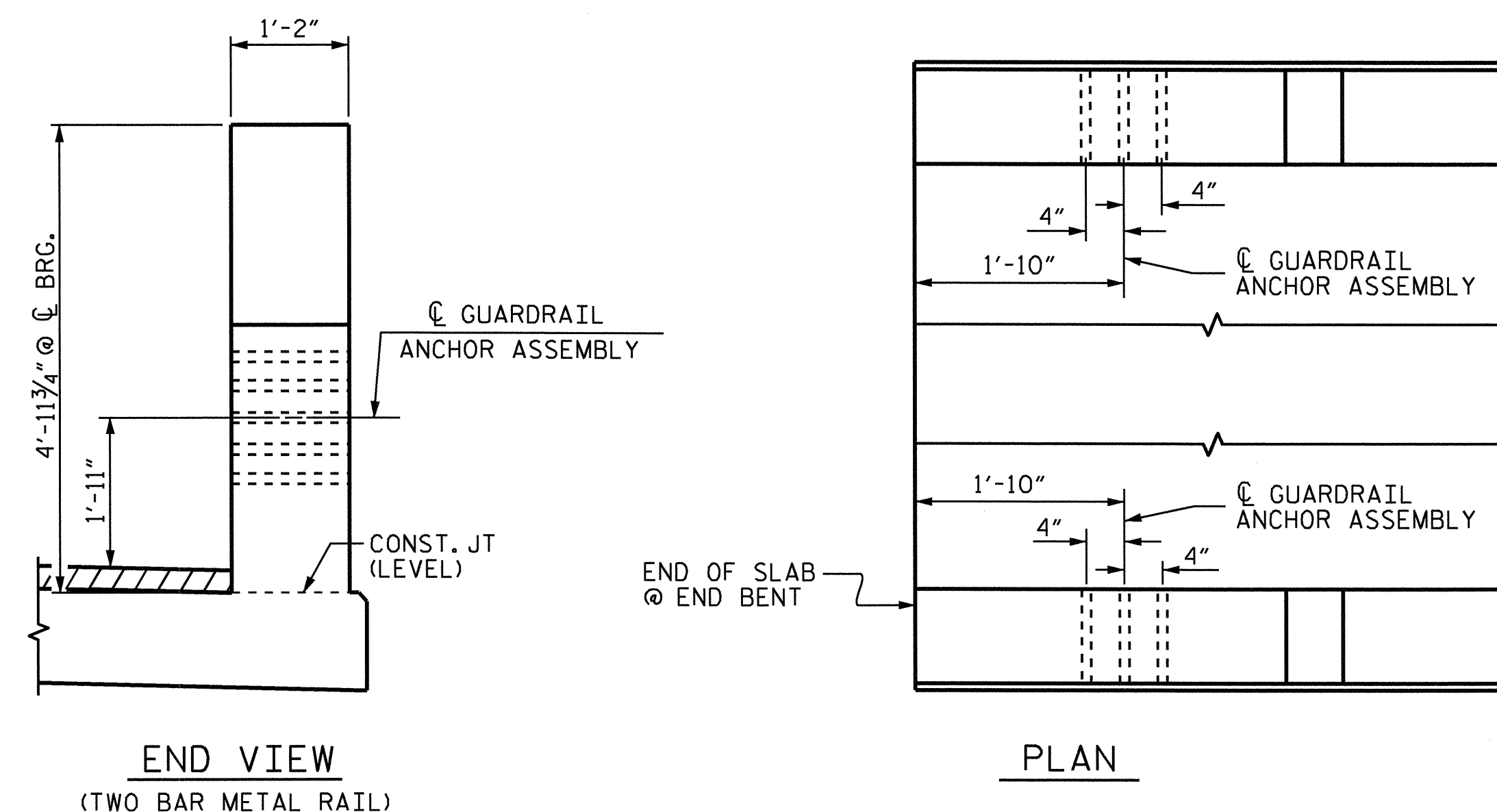


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

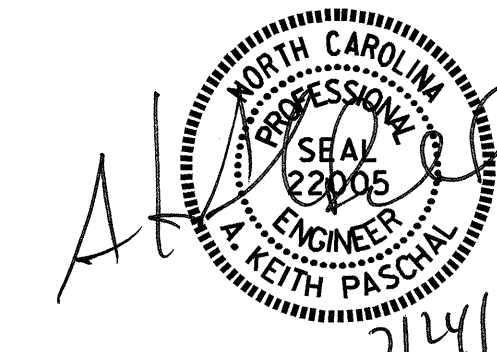
* LOCATION OF GUARDRAIL ATTACHMENT
 ** LOCATION OF IMPACT ATTENUATOR ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

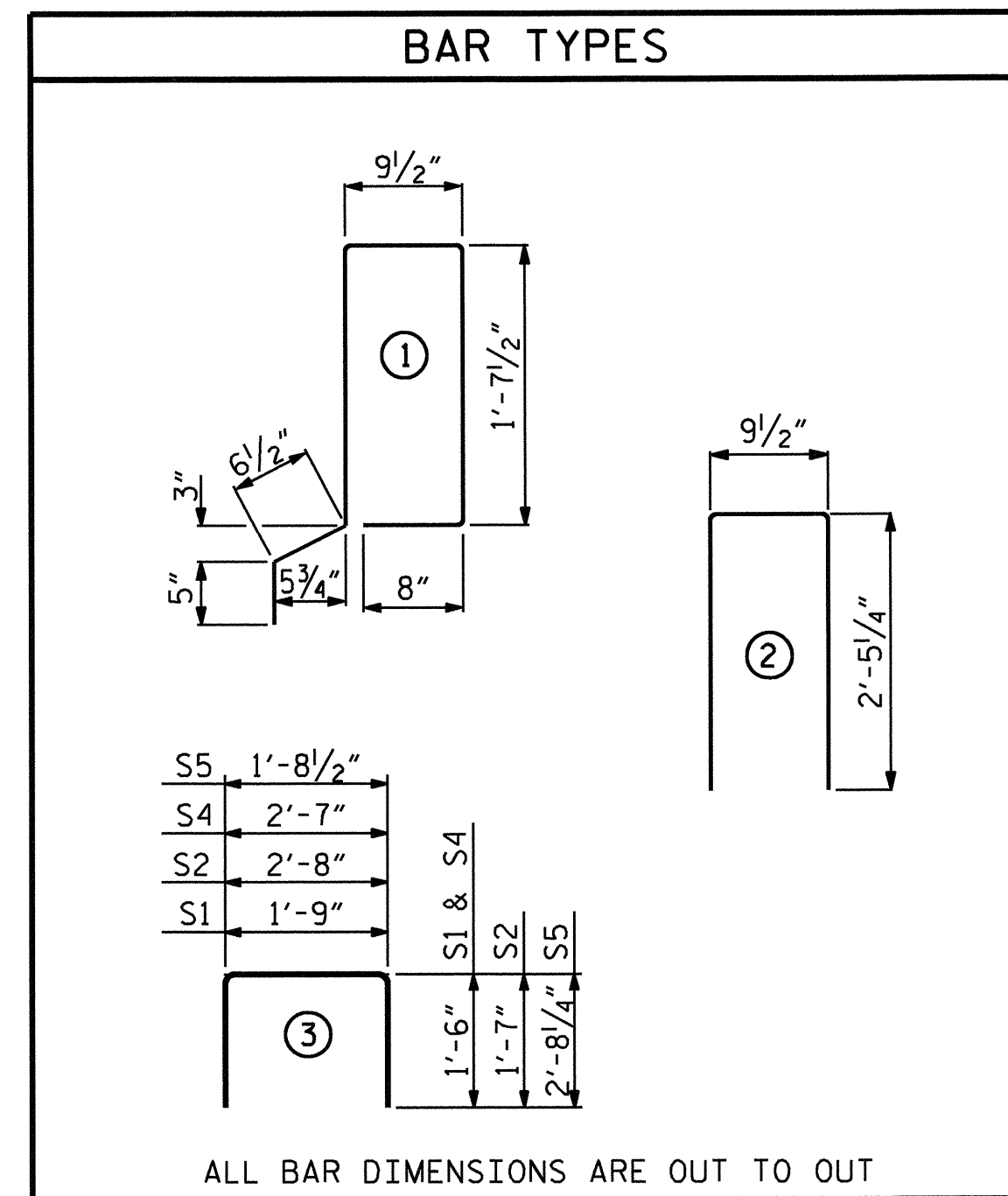
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					18



ASSEMBLED BY :	E. K. POPE	DATE :	5-3-12
CHECKED BY :	A. K. PASCHAL	DATE :	5-20-12
DRAWN BY :	MAA 5/10	ADDED :	5/6/10
CHECKED BY :	GM 5/10	REV. :	10/1/11
		REV. :	12/5/11

BILL OF MATERIAL FOR ONE 62'-9" CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	6	#4	STR	22'-0"	88	22'-0"	88
S1	8	#5	3	4'-9"	40	4'-9"	40
S2	124	#4	3	5'-10"	483	5'-10"	483
*S3	62	#5	1	5'-8"	366		
S4	4	#4	3	5'-7"	15	5'-7"	15
S5	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	656		656
* EPOXY COATED REINFORCING STEEL				LBS.	366		
7500 P.S.I. CONCRETE				CU. YDS.	10.7		10.7
0.6" Ø L.R. STRANDS				No.	22		22

BILL OF MATERIAL PARAPETS AND END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	48	#5	STR	20'-7"	1030
*E1	8	#7	STR	2'-7"	42
*E2	8	#7	STR	3'-1"	50
*E3	8	#7	STR	3'-7"	59
*E4	8	#7	STR	4'-1"	67
*E5	8	#7	STR	4'-5"	72
*F1	8	#6	STR	1'-10"	22
*F2	8	#6	STR	3'-0"	36
*F3	8	#6	STR	3'-7"	43
*S6	128	#5	2	5'-8"	757
* EPOXY COATED REINF. STEEL =					2178 LBS
CLASS AA CONCRETE					15.9 C.Y.
CONCRETE PARAPET					125.50 L.F.



NOTES

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

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

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

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

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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

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

ALL REINFORCING STEEL IN CONCRETE PARAPET 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.

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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

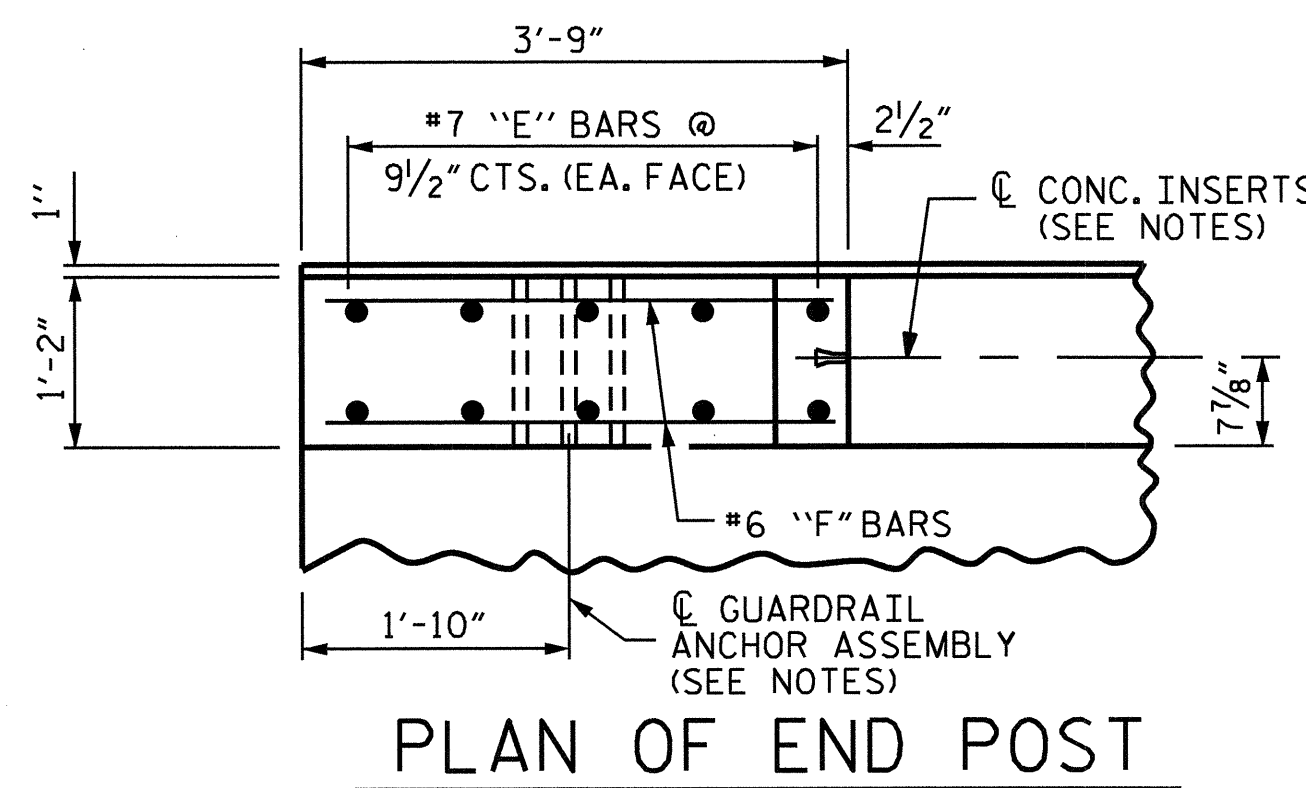
PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" AND "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEETS.

ALL BAR SUPPORTS USED IN THE PARAPET AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

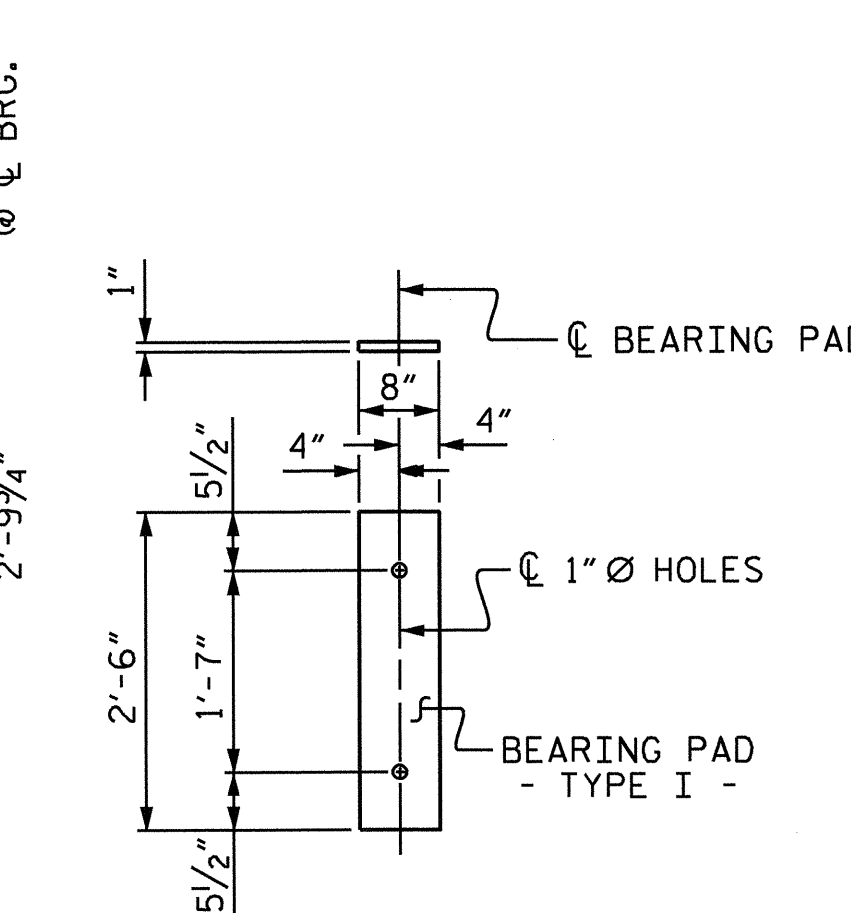
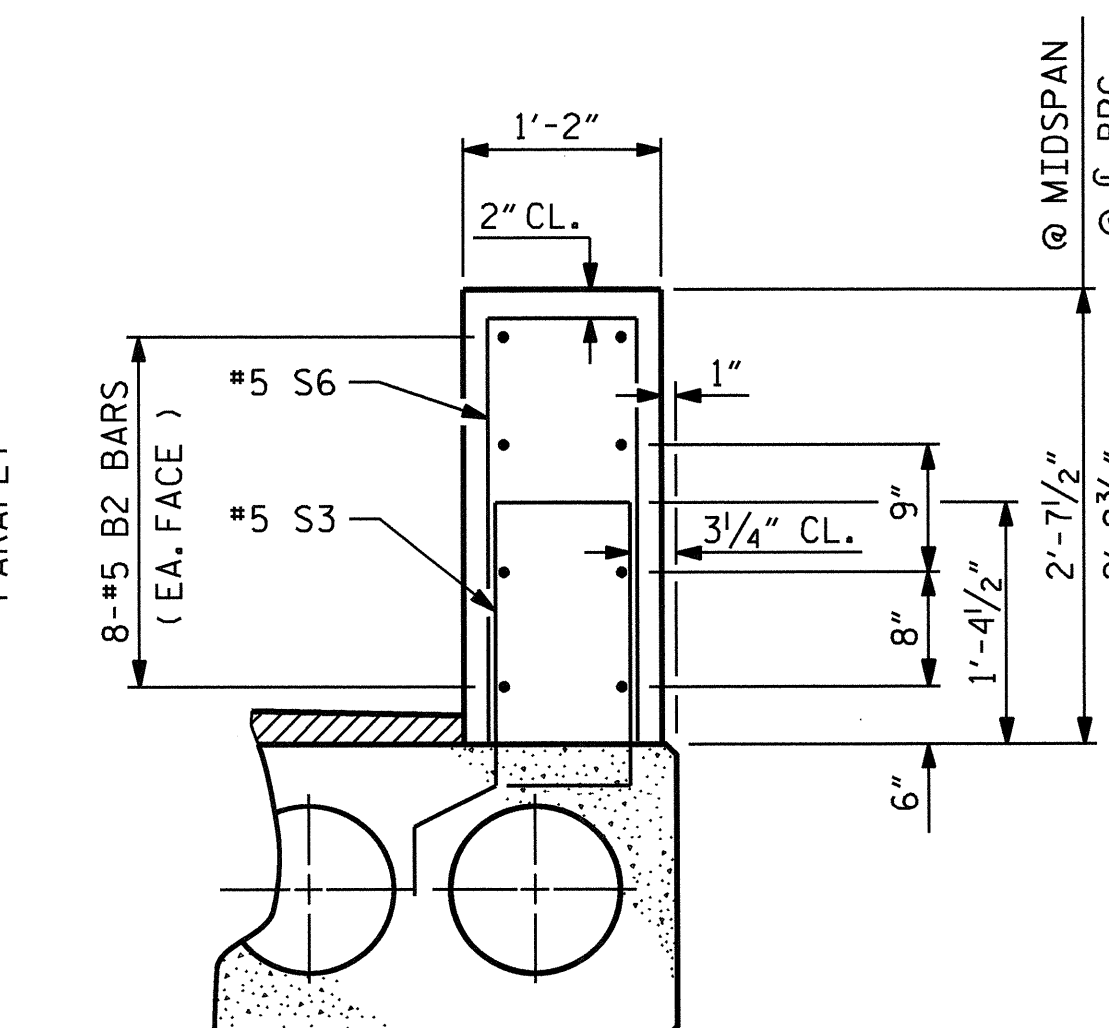
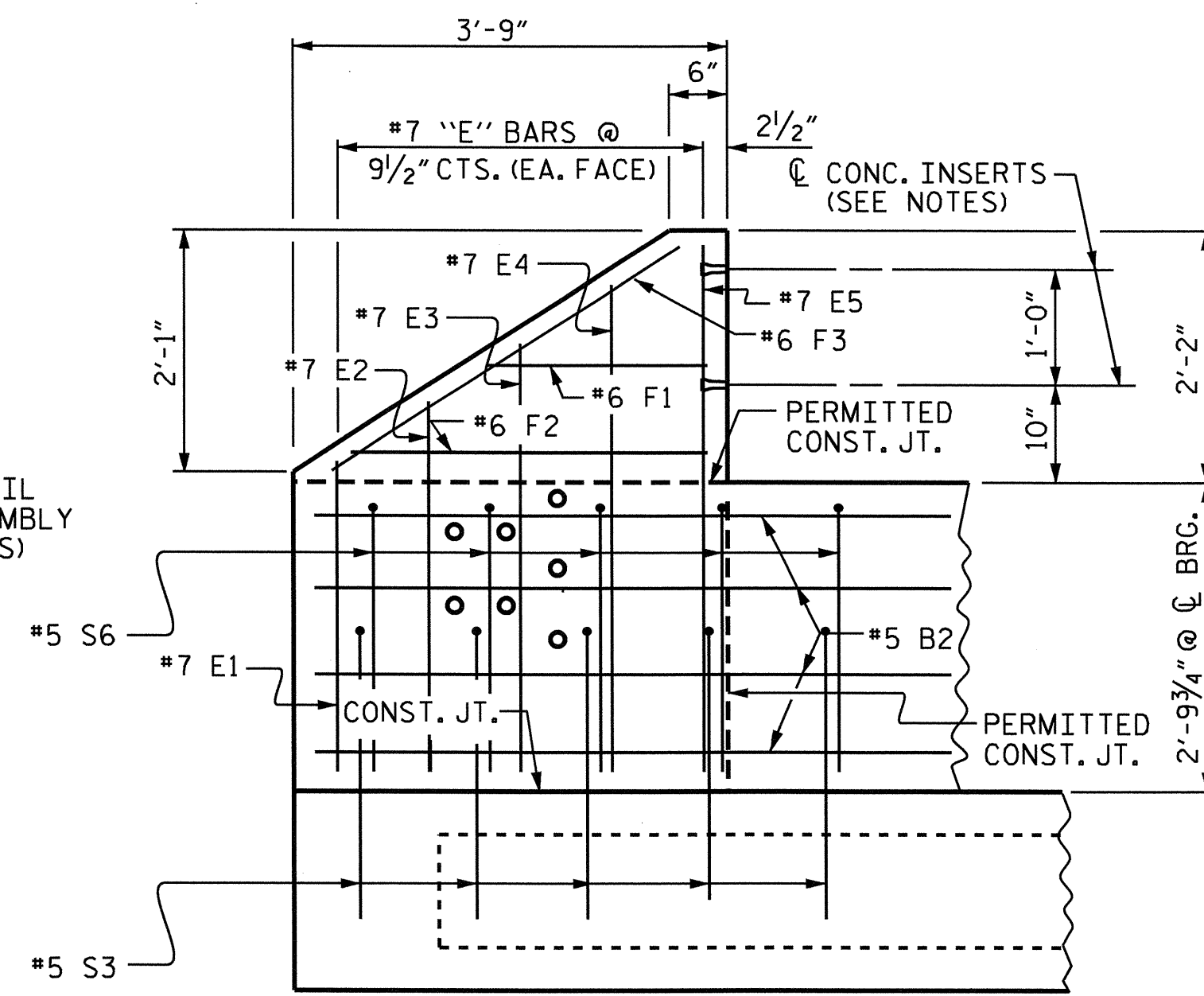
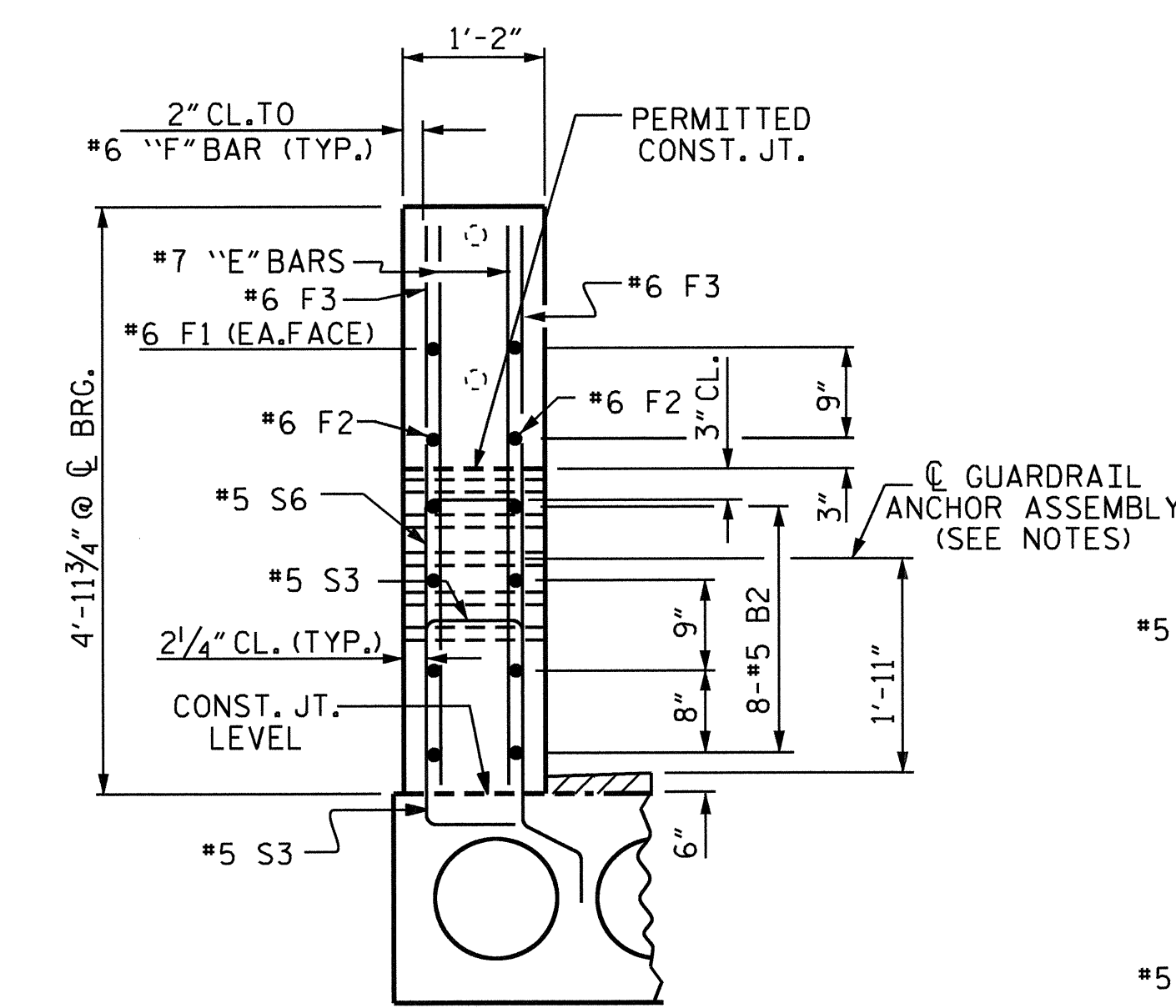
DEAD LOAD DEFLECTION AND CAMBER	
62'-9" CORED SLAB UNIT	3'-0" x 2'-0"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	2 9/16" ↑
FINAL CAMBER	1/2" ↓
** INCLUDES FUTURE WEARING SURFACE	

CONCRETE RELEASE STRENGTH	
UNIT	PSI
62'-9" UNITS	6000

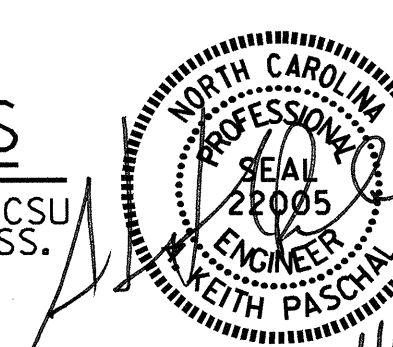


CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
62'-9" UNIT			
EXTERIOR C.S.	2	62'-9"	125'-6"
INTERIOR C.S.	9	62'-9"	564'-9"
TOTAL	11		690'-3"

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



FIXED END
(TYPE I - 22 REQ'D.)
ELASTOMERIC BEARING DETAILS
ELASTOMER IN BEARINGS FOR 24" CSU SHALL BE 60 DUROMETER HARDNESS.



PROJECT NO. B-4922
PASQUOTANK COUNTY
STATION: 16+94.50 -L-

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

ASSEMBLED BY: E. K. POPE DATE: 5-3-12
CHECKED BY: A. K. PASCHAL DATE: 5-20-12
DRAWN BY: MAA 6/10 REV. 12/11 MAA/AAC
CHECKED BY: MKT 7/10

SHEET NO. S-11
TOTAL SHEETS 18

NOTES

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

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

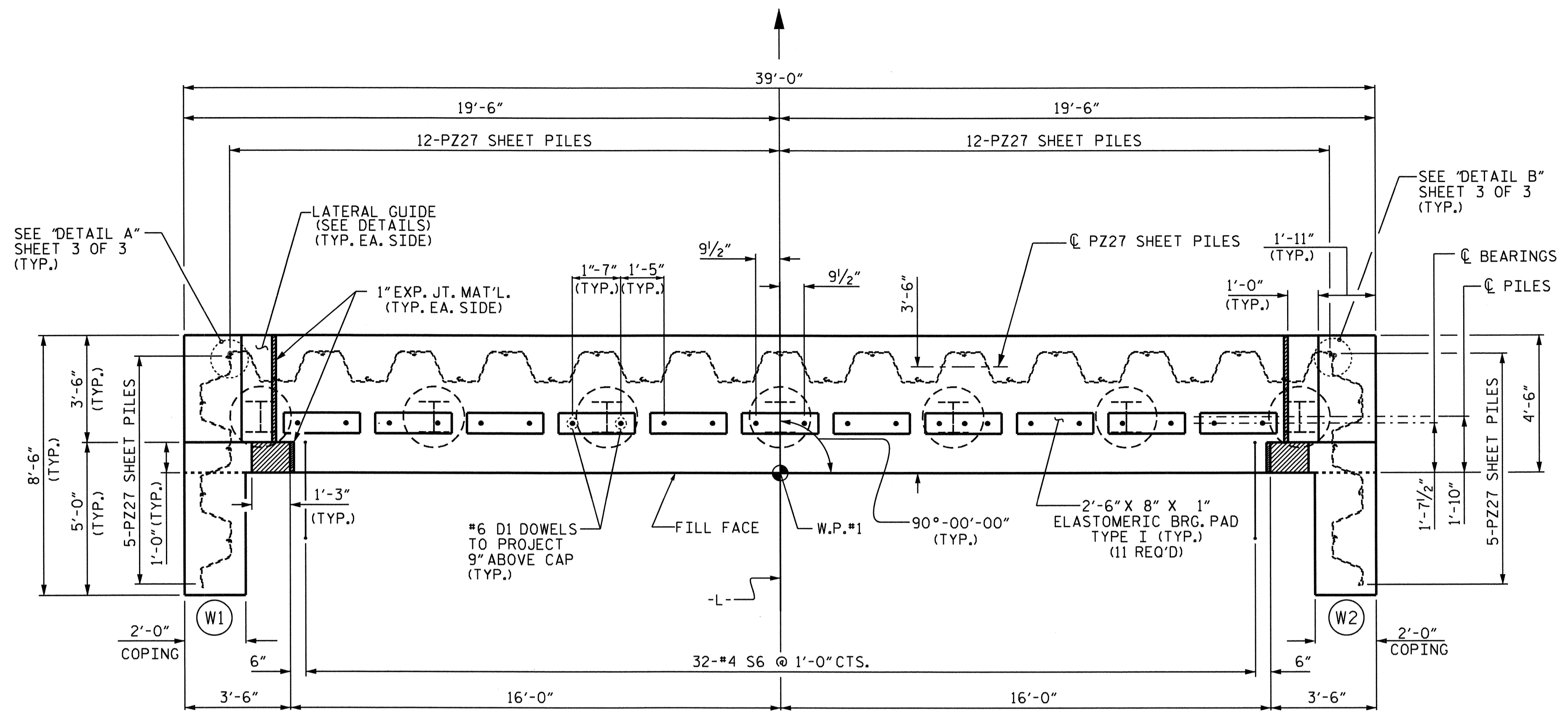
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.

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

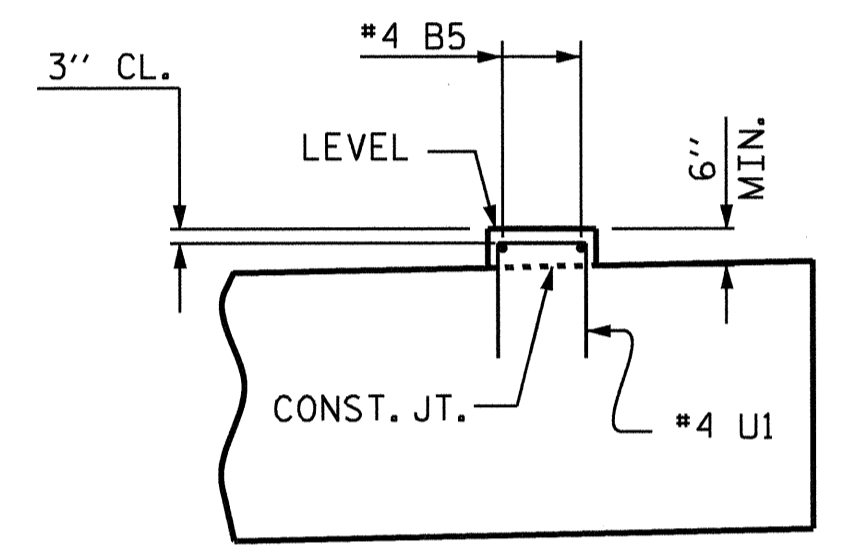
INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE END BENT SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

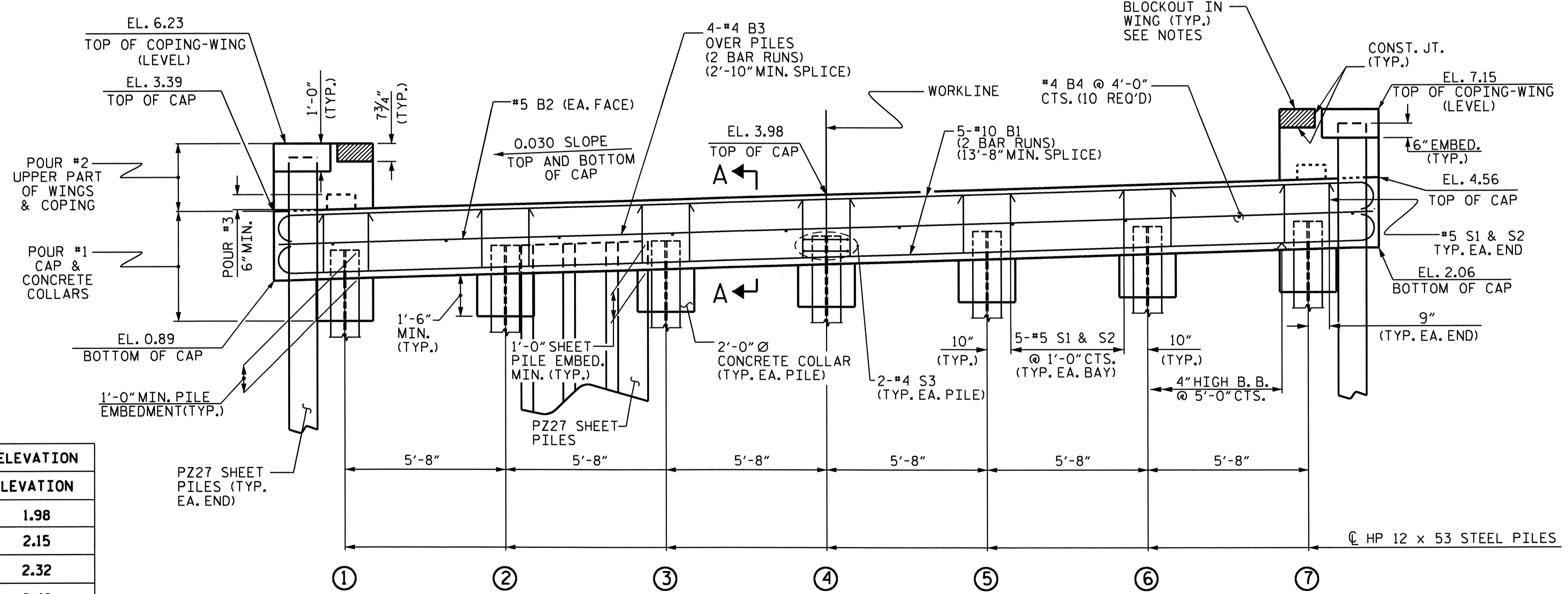
ALL 2" Ø MAX. HOLES IN STEEL SHEET PILING TO BE DRILLED AND NOT BURNED.



PLAN

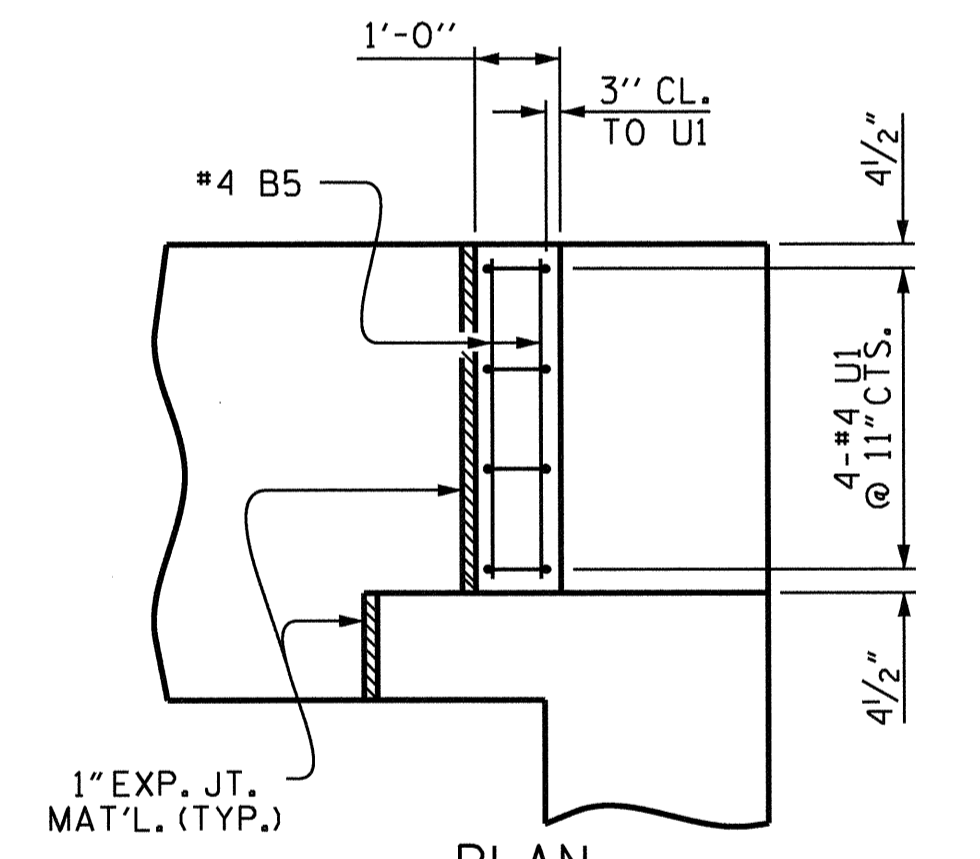


ELEVATION



ELEVATION

NOT ALL SHEET PILING SHOWN FOR CLARITY



PLAN

LATERAL GUIDE

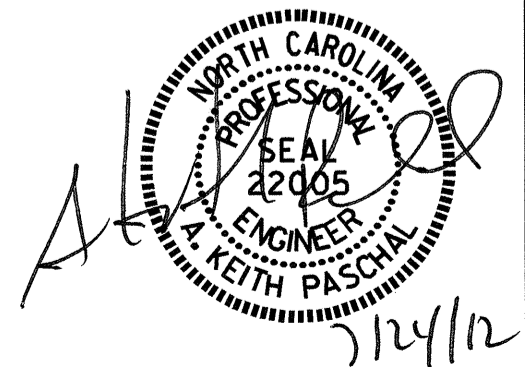
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

TOP OF PILE ELEVATION	
PILE	ELEVATION
1	1.98
2	2.15
3	2.32
4	2.49
5	2.66
6	2.83
7	3.00

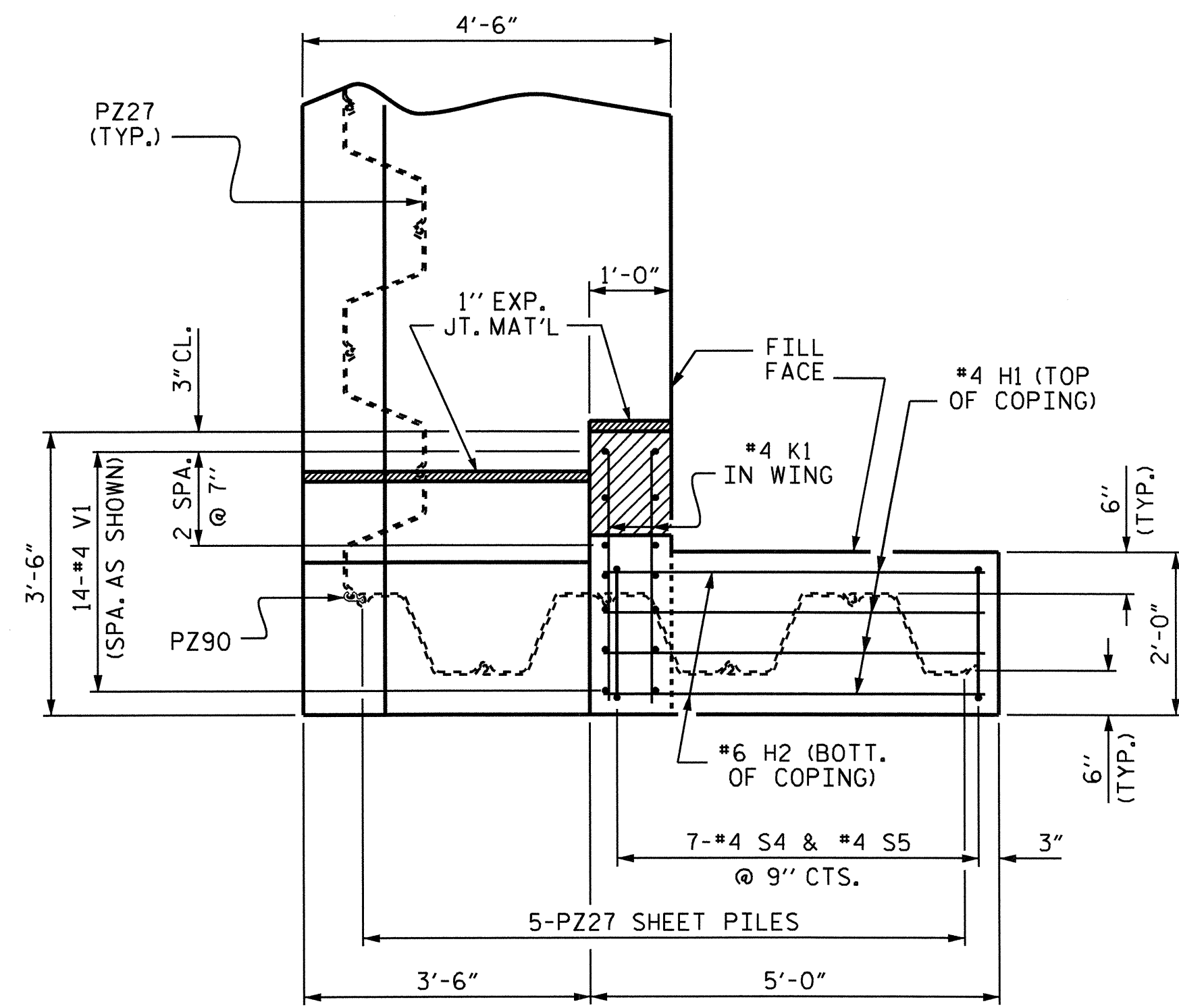
PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 18

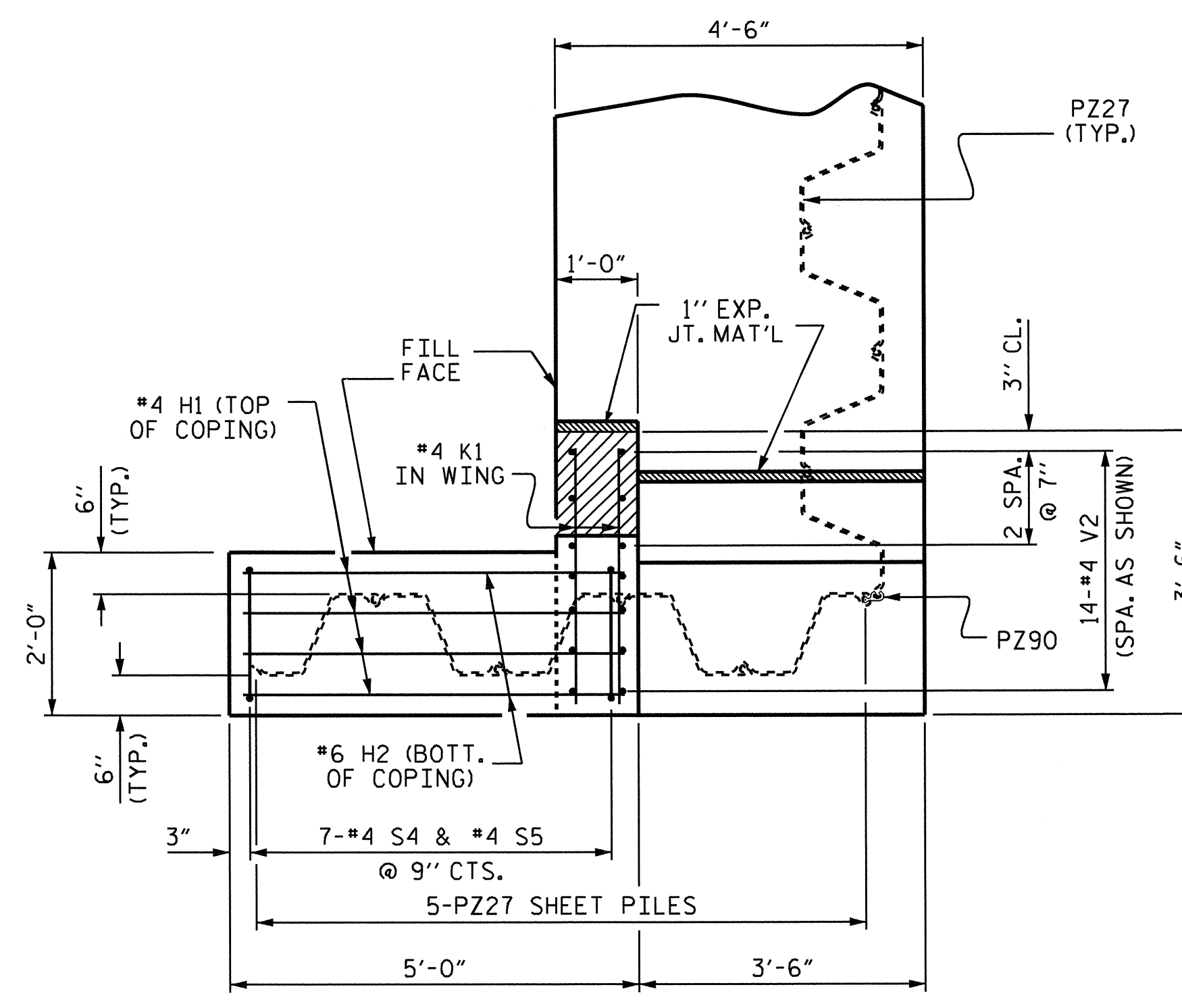


DRAWN BY: E. K. POPE DATE: 2-29-12
 CHECKED BY: G. KOUICHEKI DATE: 3-2-12



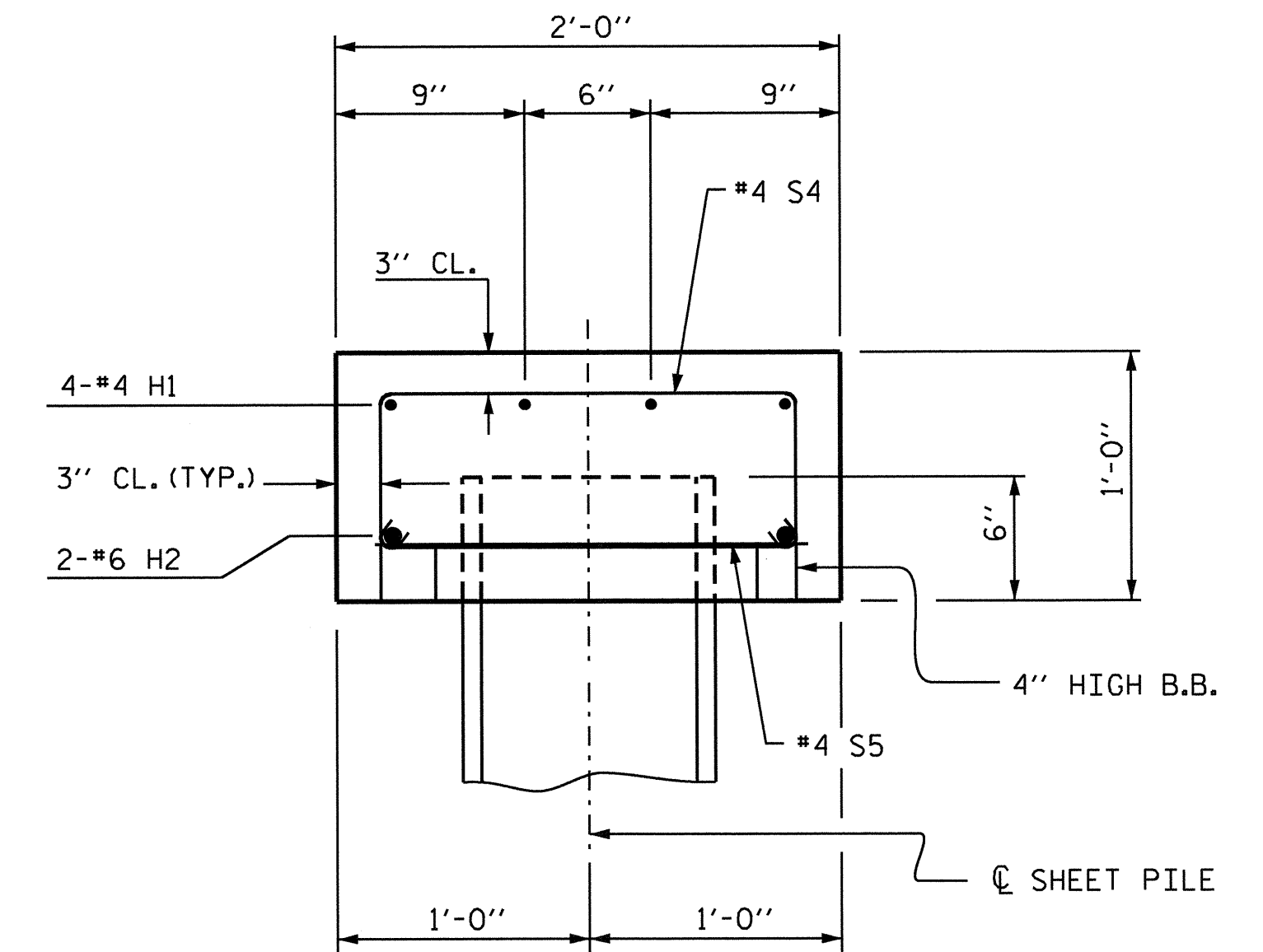
PLAN - COPING (W1)

DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K1, AND #4 S5 BARS (TYP.)



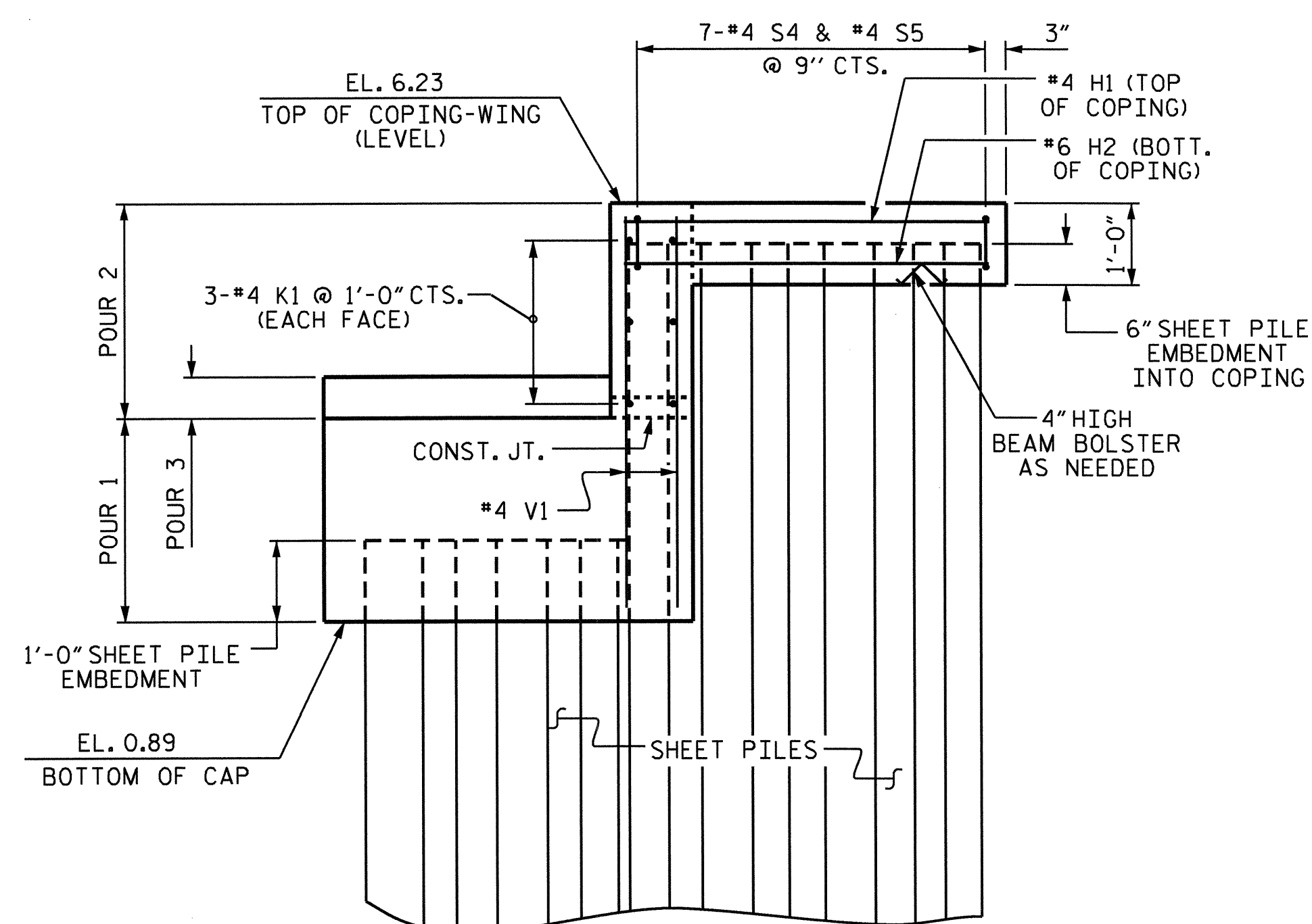
PLAN - COPING (W2)

DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K1, AND #4 S5 BARS (TYP.)



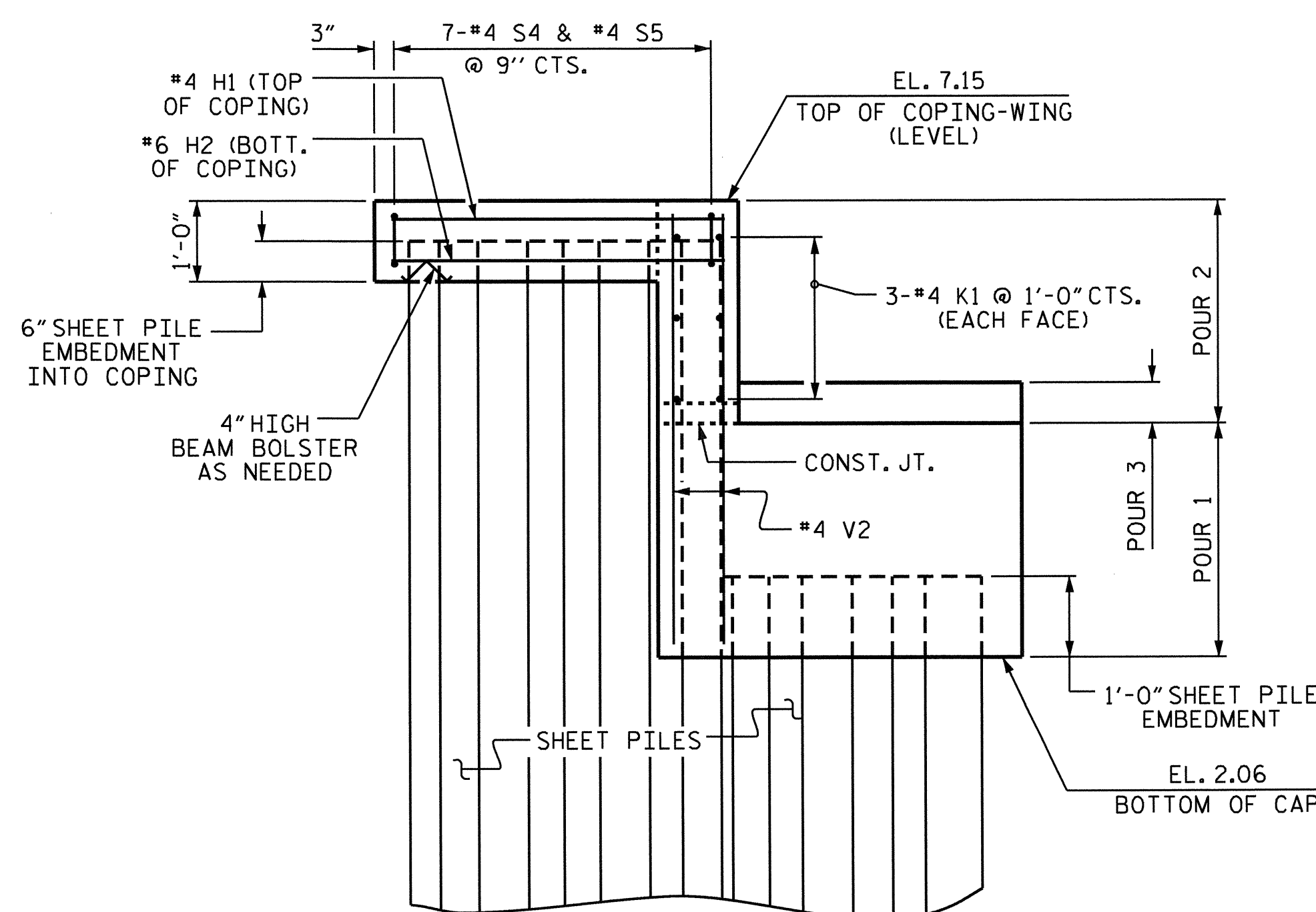
SECTION THRU COPING

DRILL 2" Ø MAX. HOLE IN SHEET PILES FOR #4 S5 BAR (TYP.)



ELEVATION - COPING (W1)

DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K1, AND #4 S5 BARS (TYP.)
"V" BARS MAY BE SHIFTED SLIGHTLY TO AVOID SHEET PILES



ELEVATION - COPING (W2)

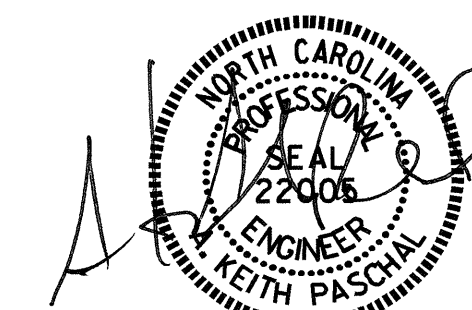
DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K1, AND #4 S5 BARS (TYP.)
"V" BARS MAY BE SHIFTED SLIGHTLY TO AVOID SHEET PILES

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

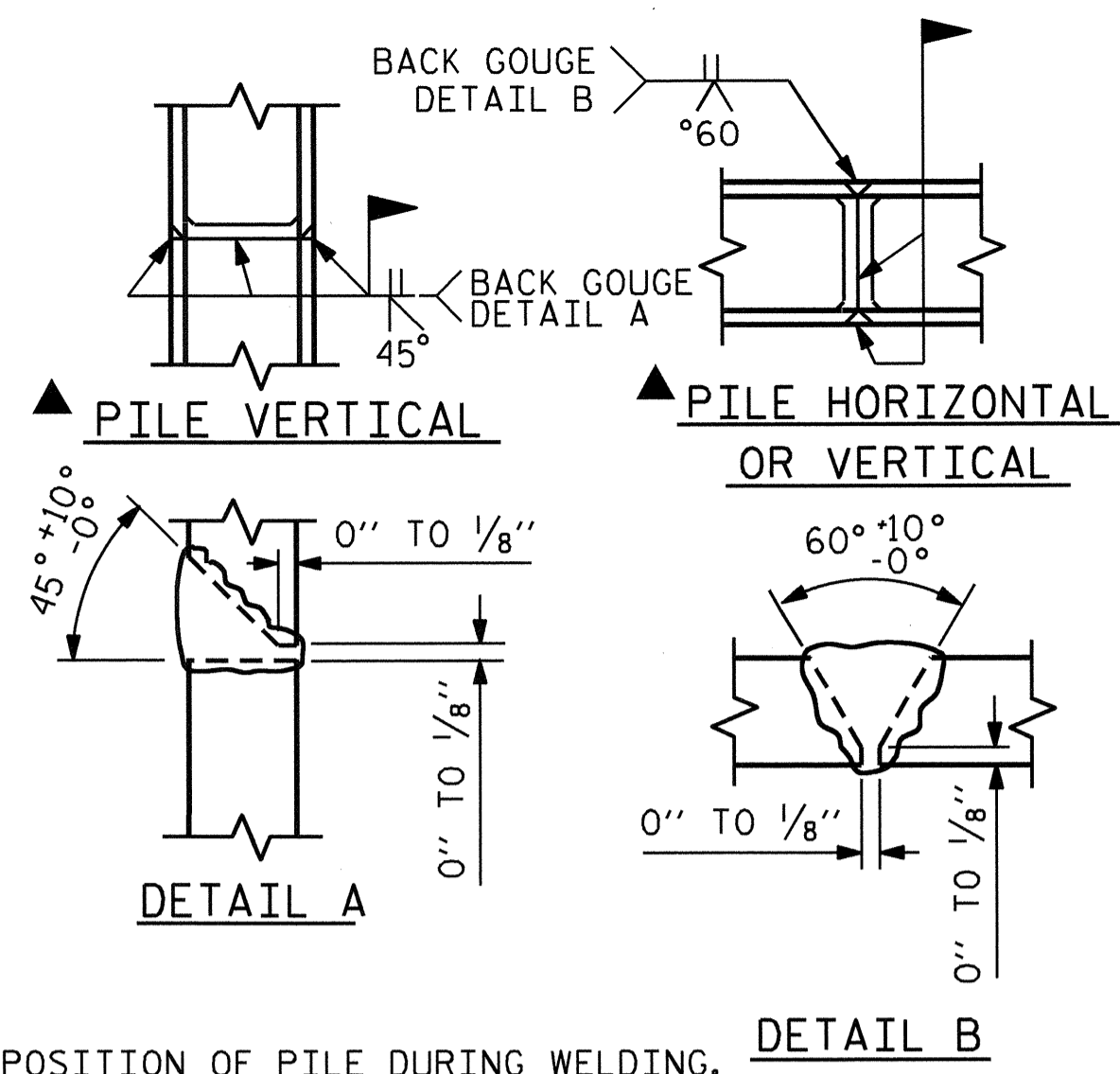
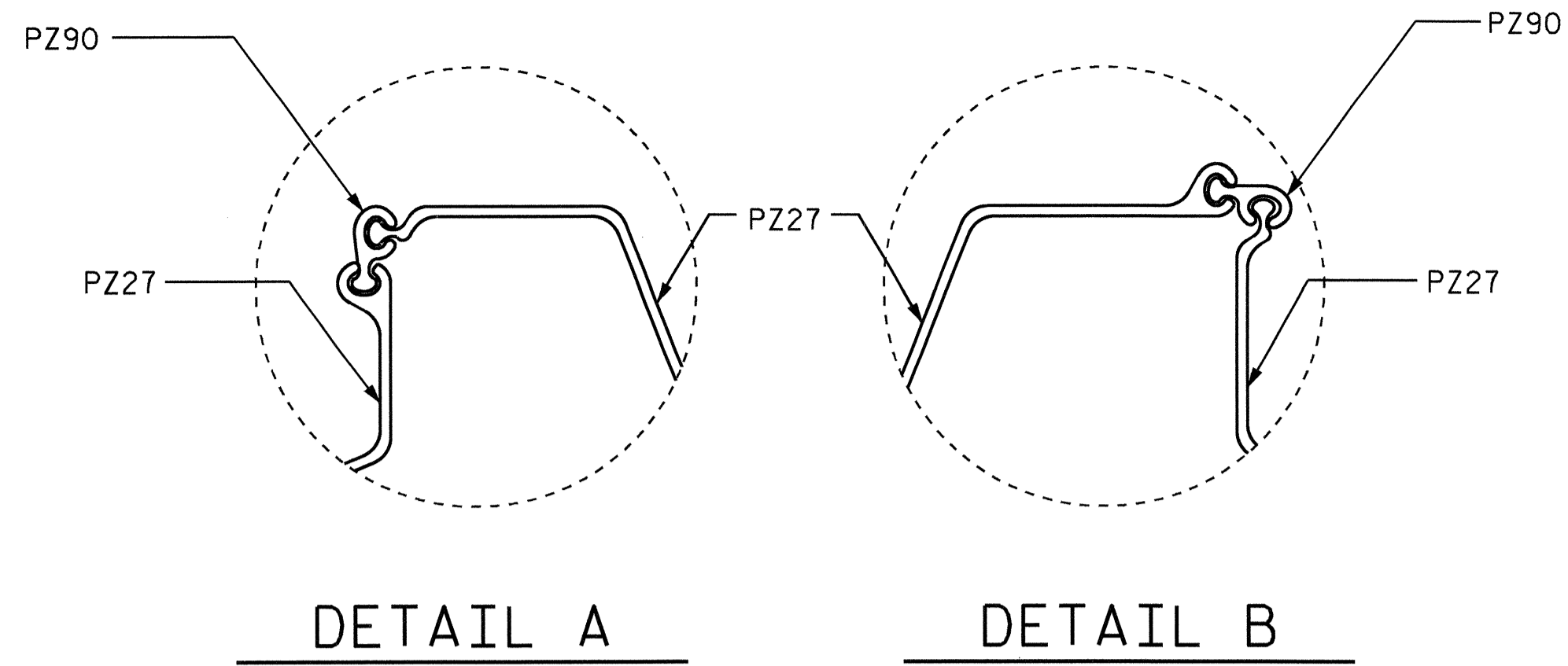
SUBSTRUCTURE
 END BENT 1



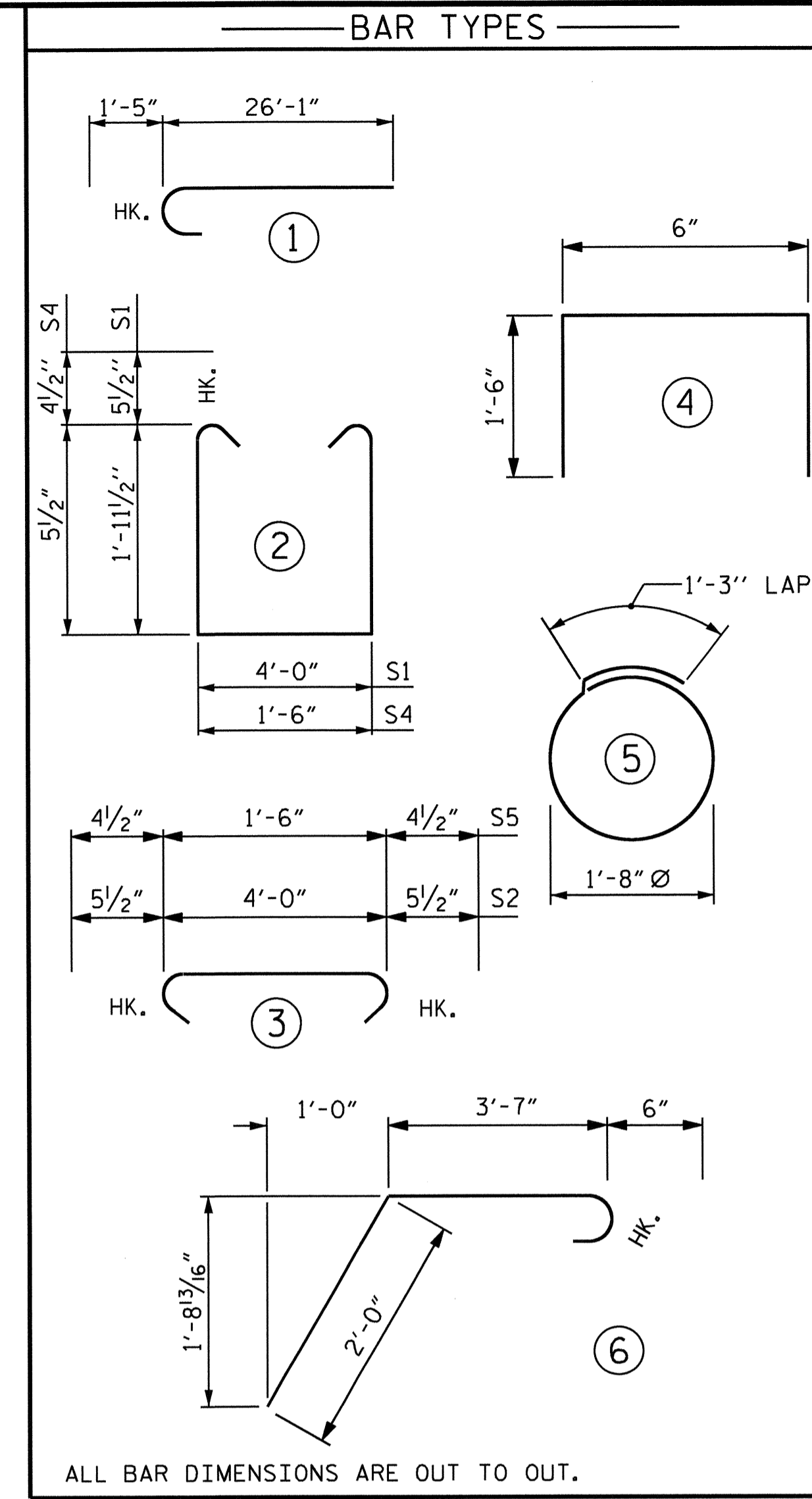
DRAWN BY: E. K. POPE DATE: 2-29-12
 CHECKED BY: G. KOUCEKI DATE: 3-2-12

23-JUL-2012 12:29
 P:\Structure\Plans\Final Plans\B4922.SD.E*.dgn
 bbarodw@td

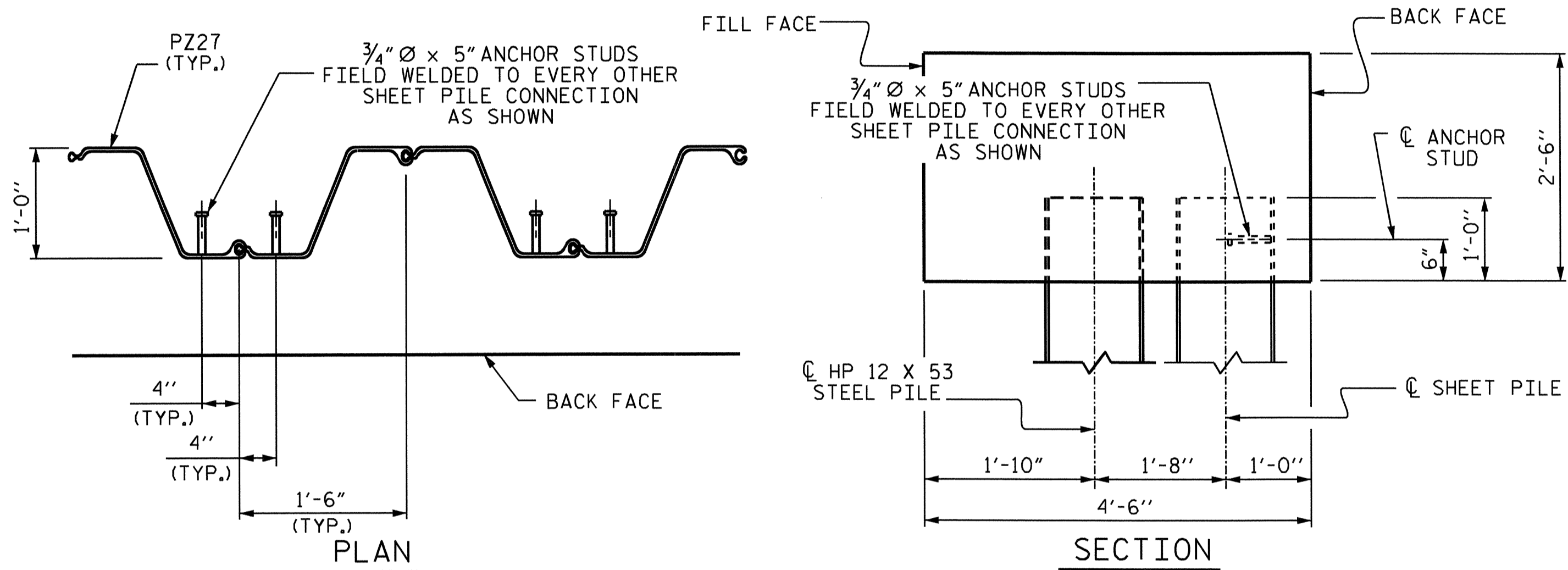
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			18



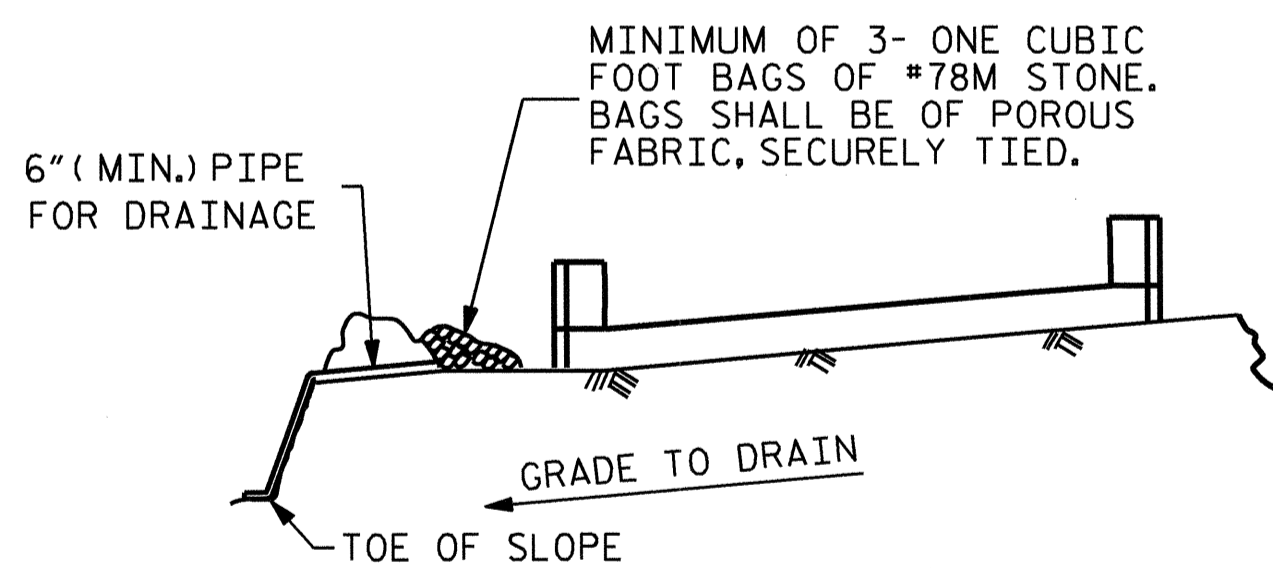
▲ POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS



BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	20	#10	1	27'-6"	2367
* B2	2	#5	STR	38'-6"	80
* B3	8	#4	STR	20'-8"	110
* B4	10	#4	STR	4'-0"	27
* B5	4	#4	STR	3'-0"	8
* D1	22	#6	STR	1'-6"	50
* H1	8	#4	STR	4'-6"	24
* H2	4	#6	STR	4'-6"	27
* K1	12	#4	STR	3'-0"	24
* S1	32	#5	2	8'-10"	295
* S2	32	#5	3	4'-11"	164
* S3	14	#4	5	6'-6"	61
* S4	14	#4	2	3'-2"	30
* S5	14	#4	3	2'-3"	21
* S6	32	#4	6	6'-1"	130
* U1	8	#4	4	3'-6"	19
* V1	14	#4	STR	4'-9"	44
* V2	14	#4	STR	4'-7"	43
* EPOXY COATED REINFORCING STEEL					LBS 3524
CLASS AA CONCRETE					
POUR 1 : CAP & COLLARS				C.Y.	17.5
POUR 2 : (UPPER PART OF WINGS & COPINGS)				C.Y.	1.3
POUR 3 : (LATERAL GUIDES)				C.Y.	0.1
TOTAL				C.Y.	18.9
HP 12 X 53 STEEL PILES					
NO. : 7				560 LIN. FT.	
PILE REDRIVES EA.				7	
STEEL SHEET PILES					
No. PZ27 = 34				SQ. FT.	1078
No. PZ90 = 2				SQ. FT.	10
TOTAL NO. = 36				SQ. FT.	1088



SHEET PILE ANCHOR STUD DETAILS



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

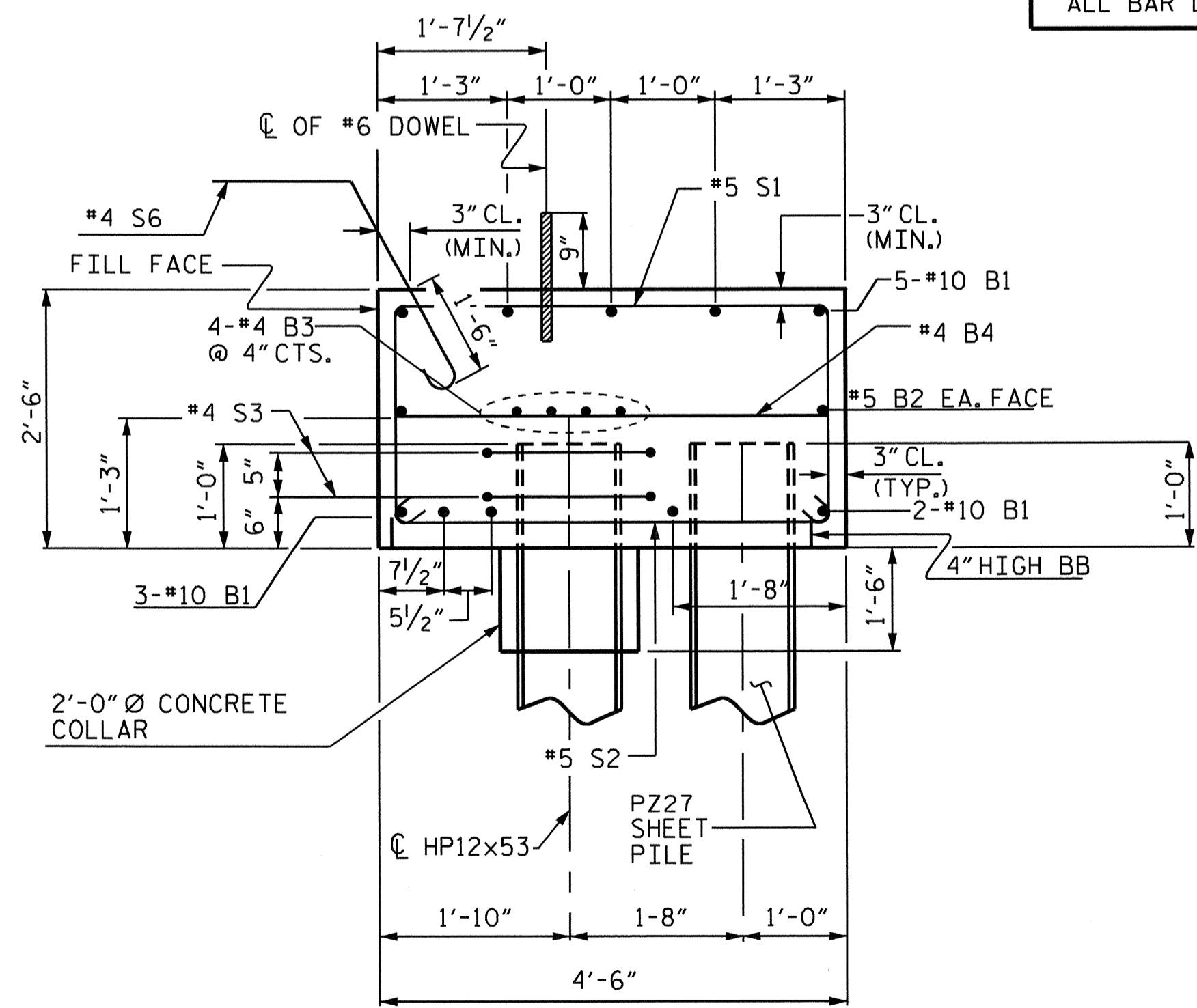
TOE OF SLOPE

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



SECTION A-A

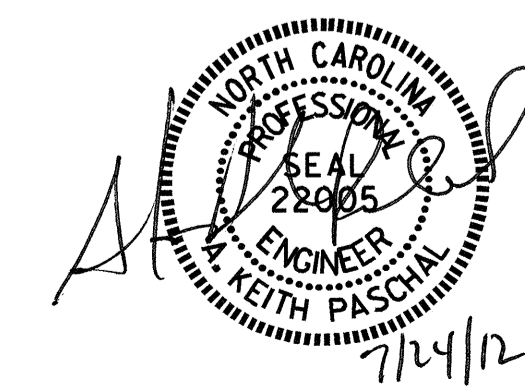
DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, AND #5 S2 BARS (TYP.)

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 1**



REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

DRAWN BY : E. K. POPE DATE : 2-29-12
 CHECKED BY : G. KOUCHEKI DATE : 3-2-12

NOTES

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

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

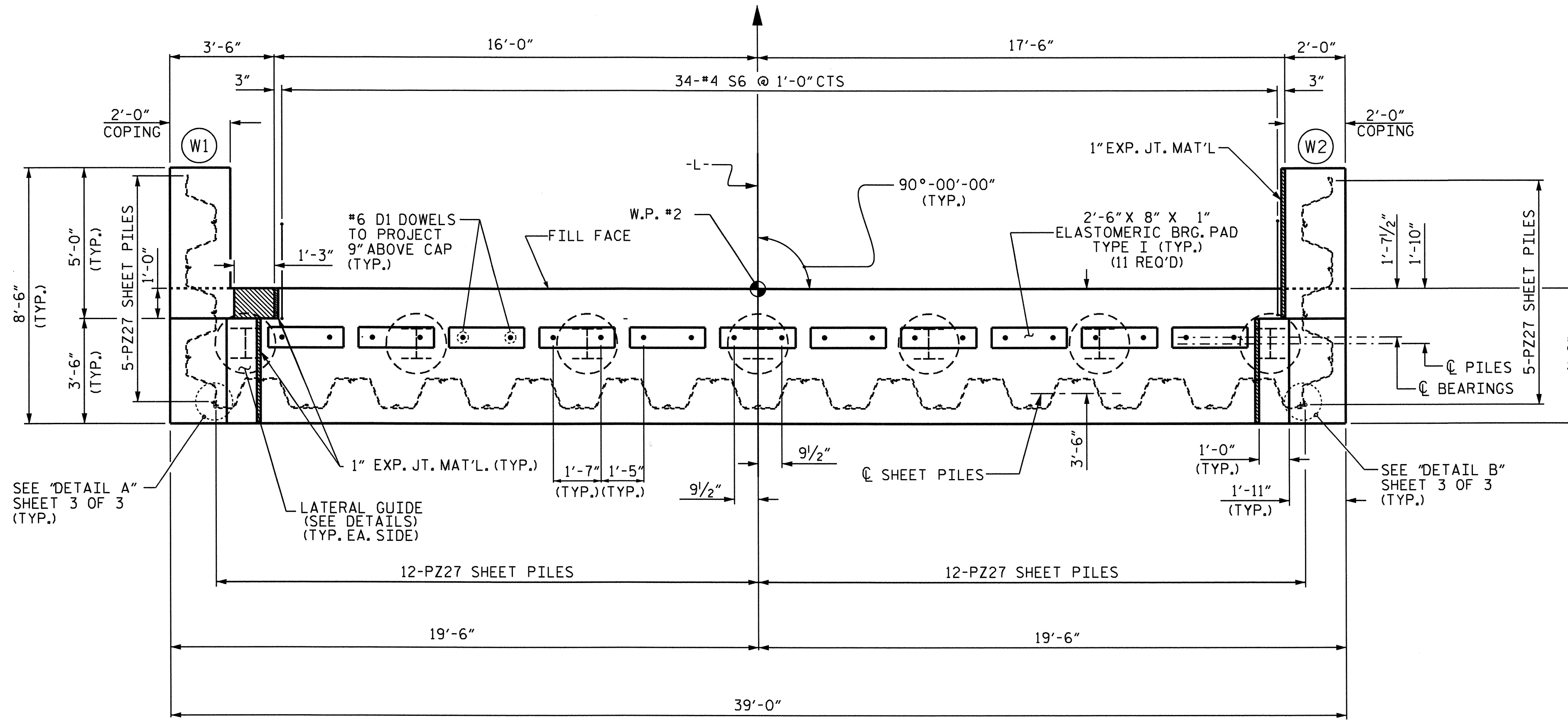
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.

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

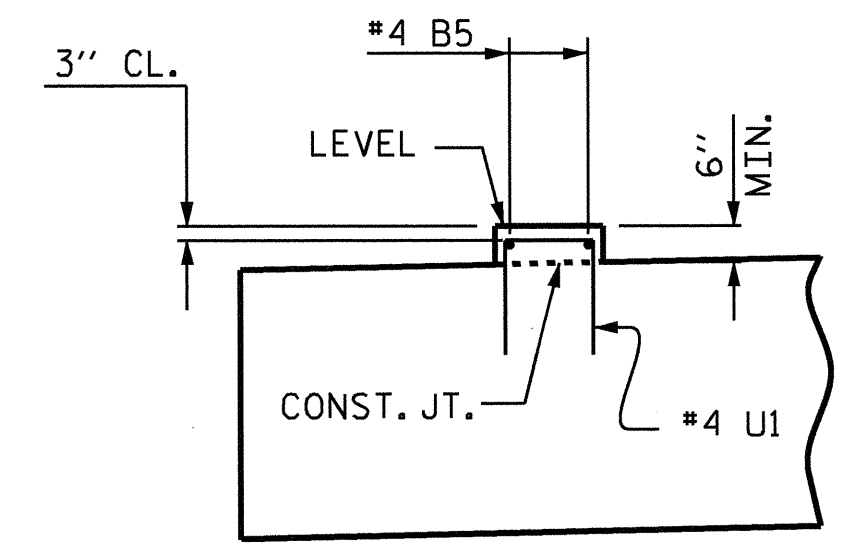
INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE END BENT SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

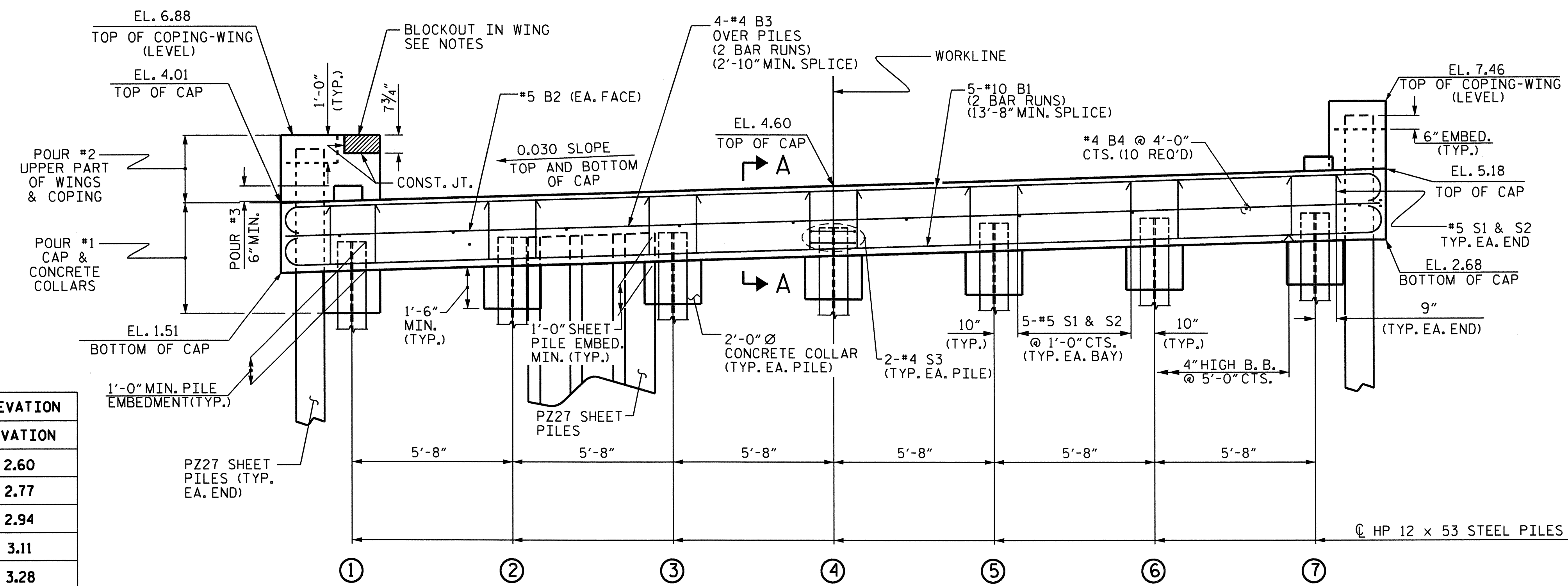
ALL 2" Ø MAX. HOLES IN STEEL SHEET PILING TO BE DRILLED AND NOT BURNED.



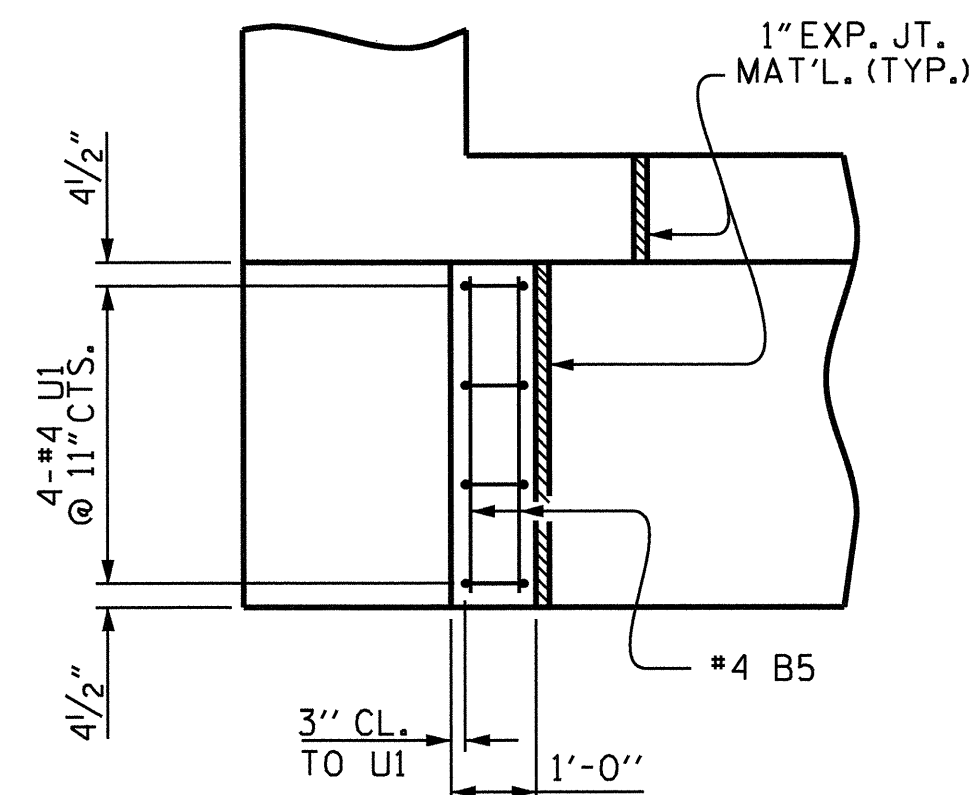
PLAN



ELEVATION



ELEVATION



PLAN

LATERAL GUIDE

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

PILE	ELEVATION
1	2.60
2	2.77
3	2.94
4	3.11
5	3.28
6	3.45
7	3.62

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

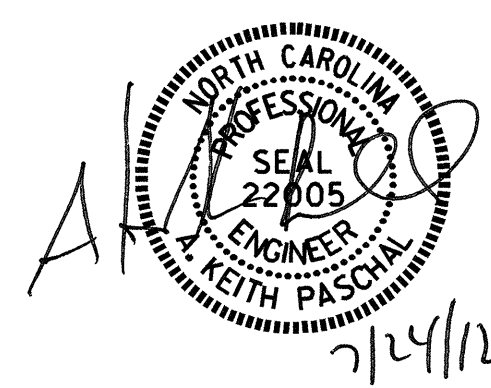
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

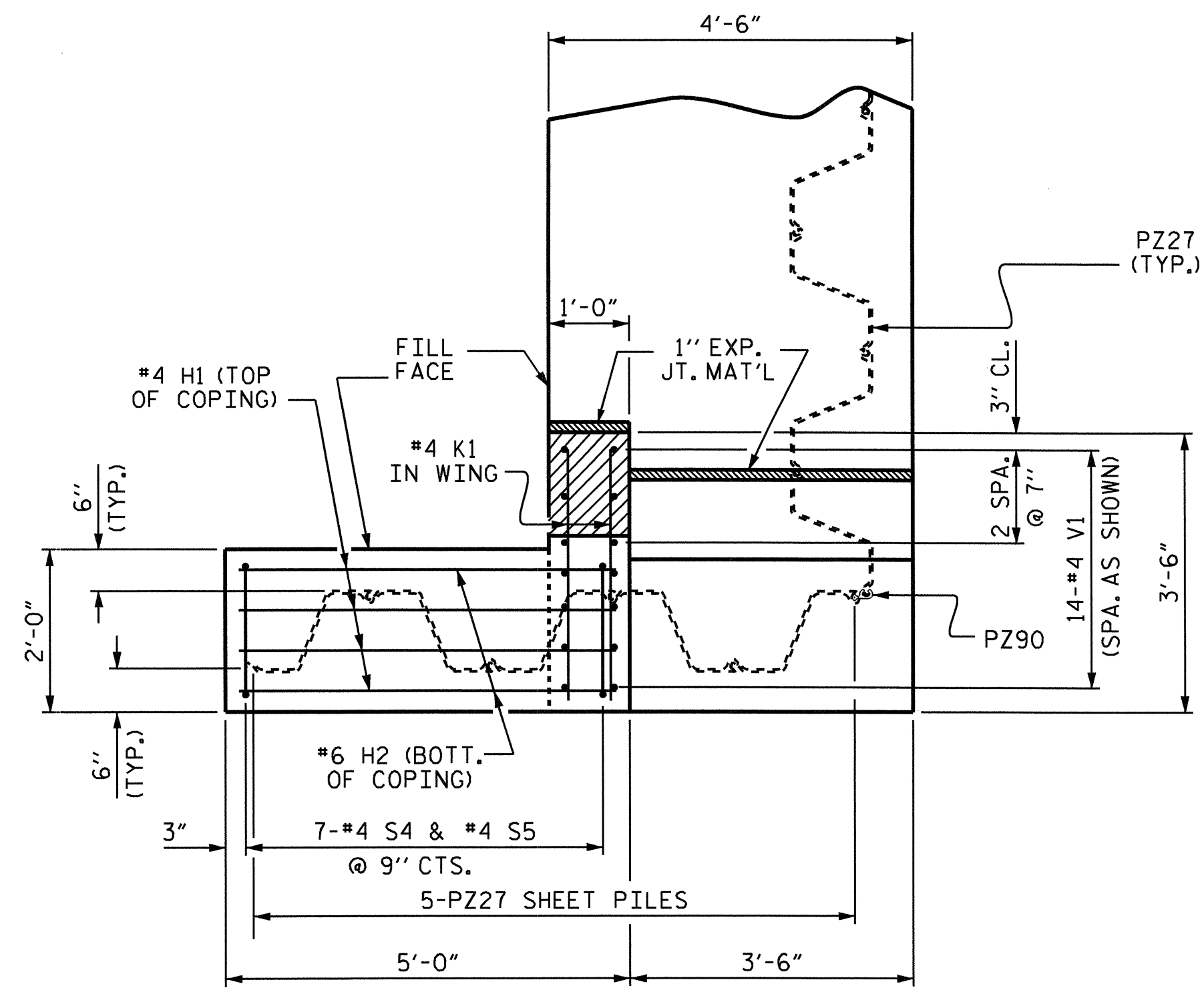
SUBSTRUCTURE
 END BENT 2

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

SHEET NO. S-15
 TOTAL SHEETS 18

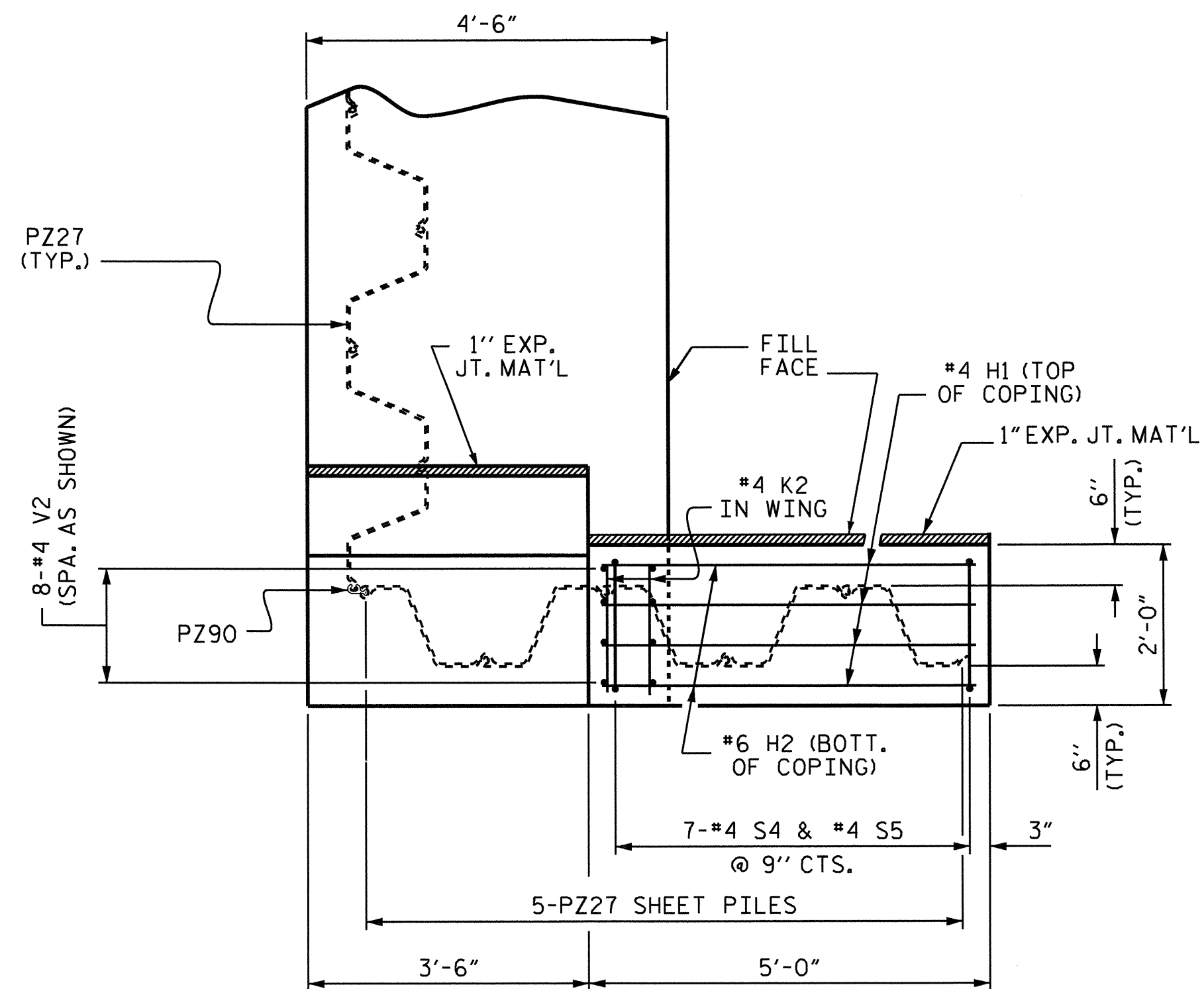


DRAWN BY: E. K. POPE DATE: 2-29-12
 CHECKED BY: G. KOUCHEKI DATE: 3-2-12



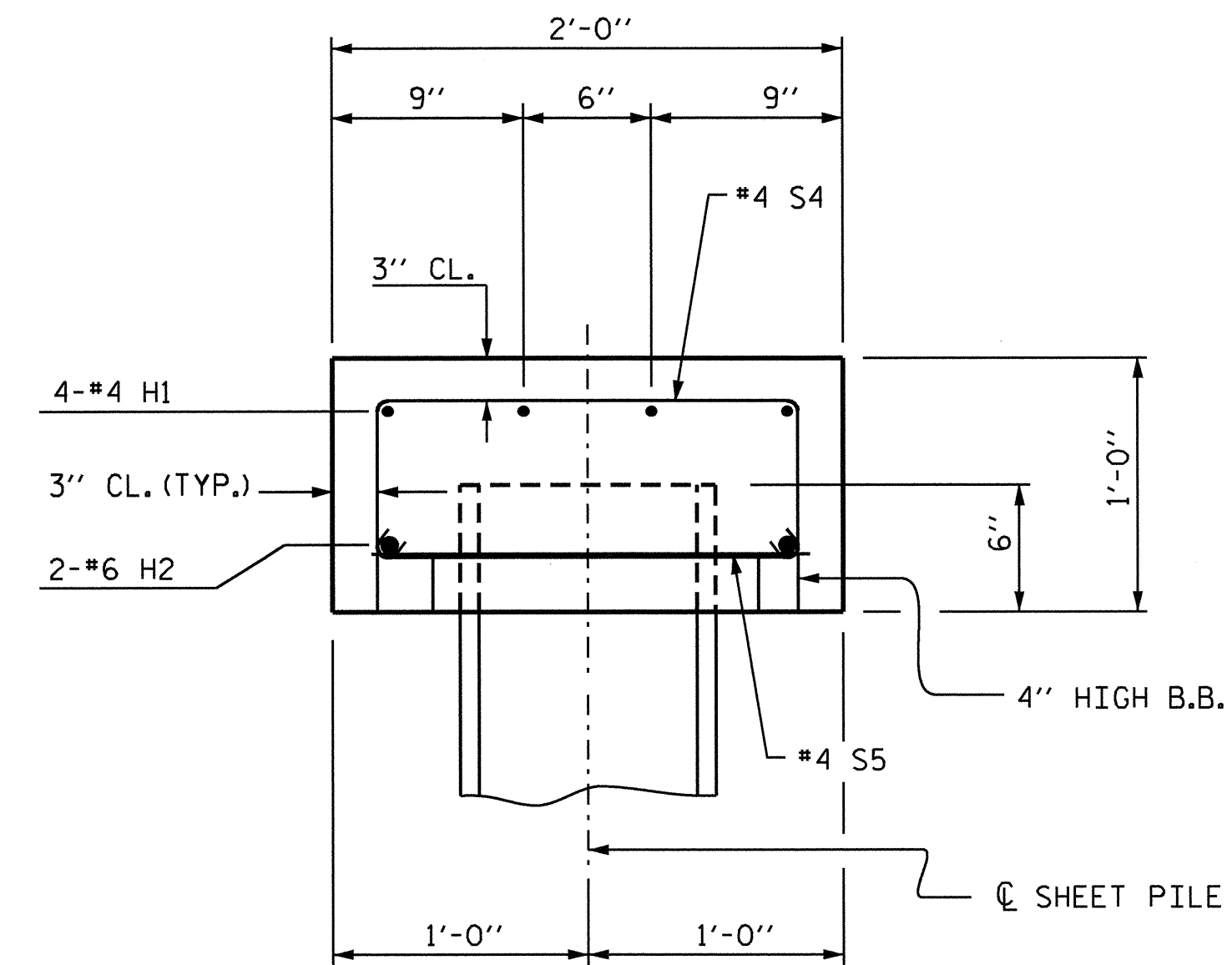
PLAN - COPING (W1)

DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K1, AND #4 S5 BARS (TYP.)



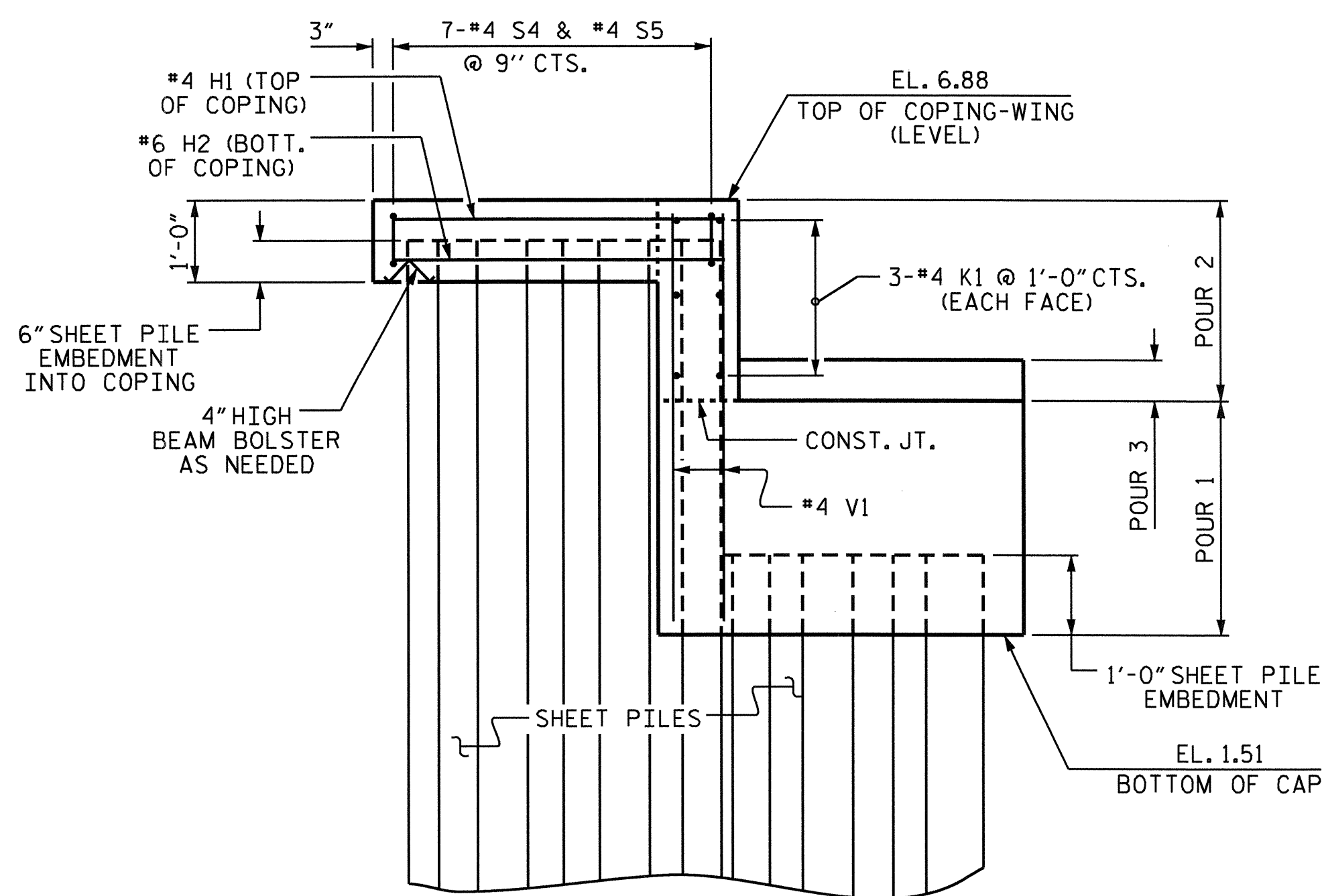
PLAN - COPING (W2)

DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K2, AND #4 S5 BARS (TYP.)



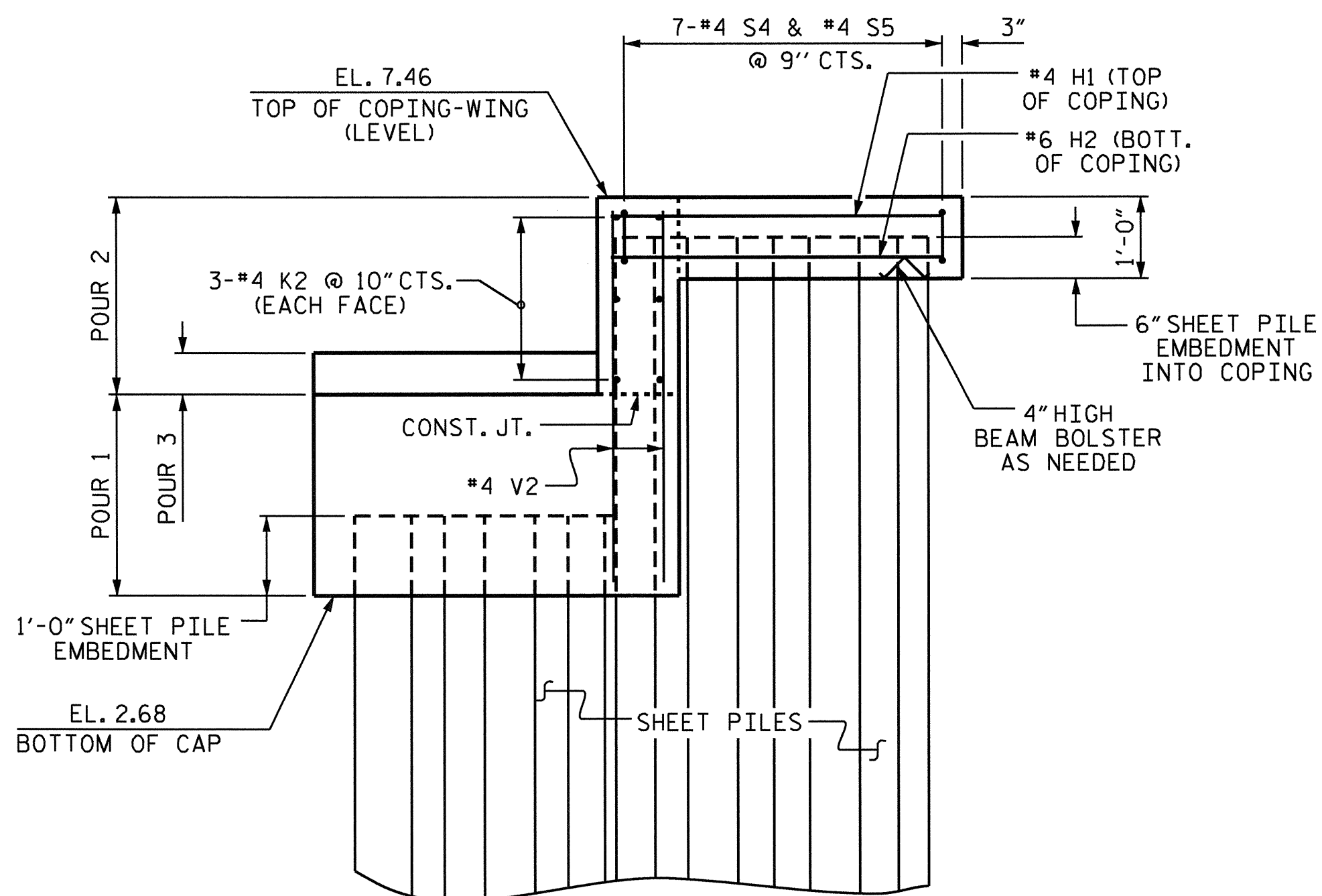
SECTION THRU COPING

DRILL 2" Ø MAX. HOLE IN SHEET PILES FOR #4 S5 BAR (TYP.)



ELEVATION - COPING (W1)

DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K1, AND #4 S5 BARS (TYP.)
"V" BARS MAY BE SHIFTED SLIGHTLY TO AVOID SHEET PILES



ELEVATION - COPING (W2)

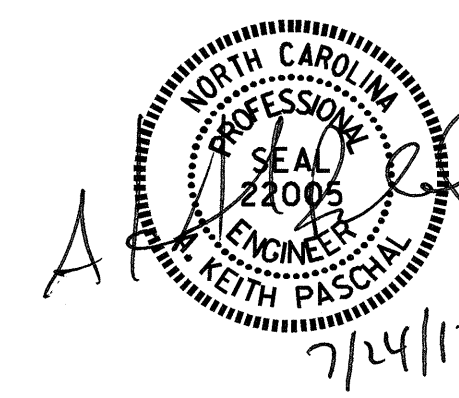
DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, #4 K2, AND #4 S5 BARS (TYP.)
"V" BARS MAY BE SHIFTED SLIGHTLY TO AVOID SHEET PILES

PROJECT NO. B-4922
PASQUOTANK COUNTY
STATION: 16+94.50 -L-

SHEET 2 OF 3

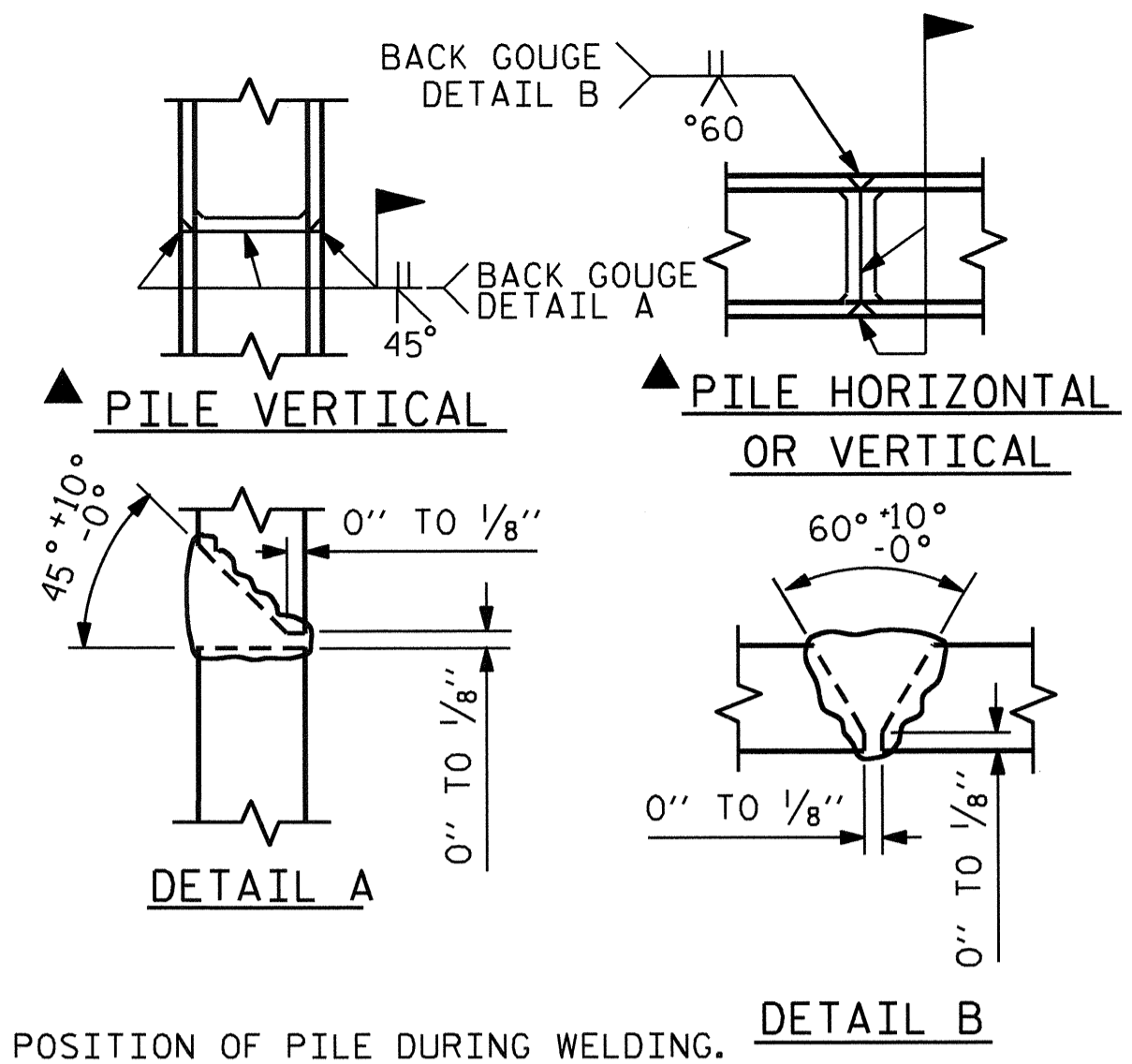
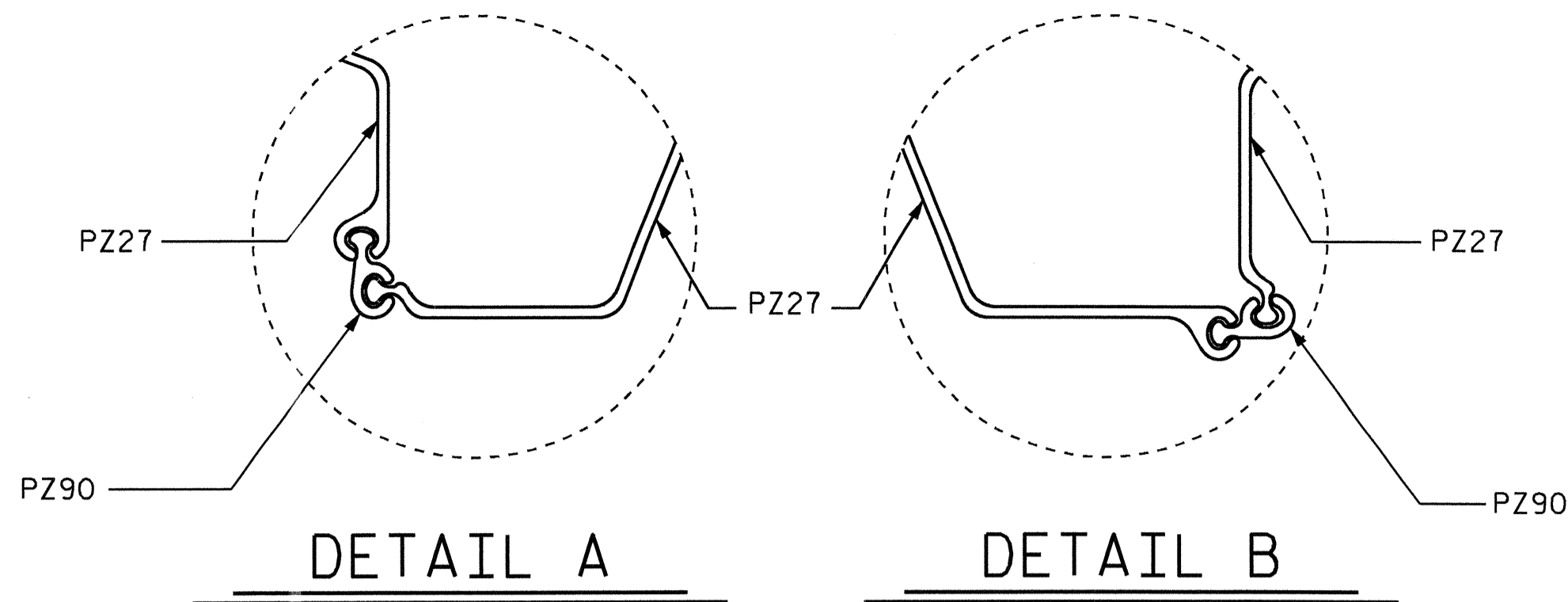
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2

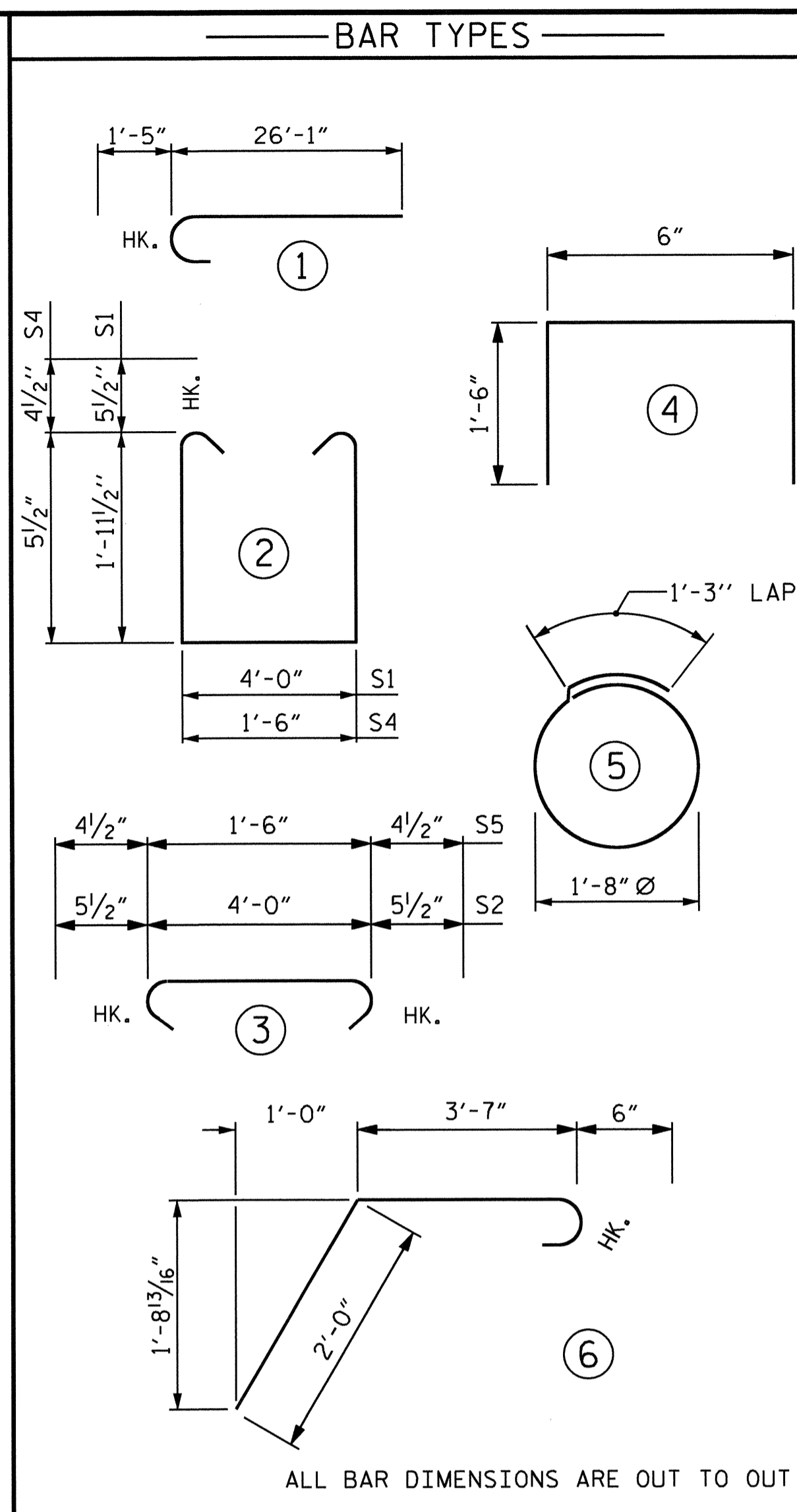


REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

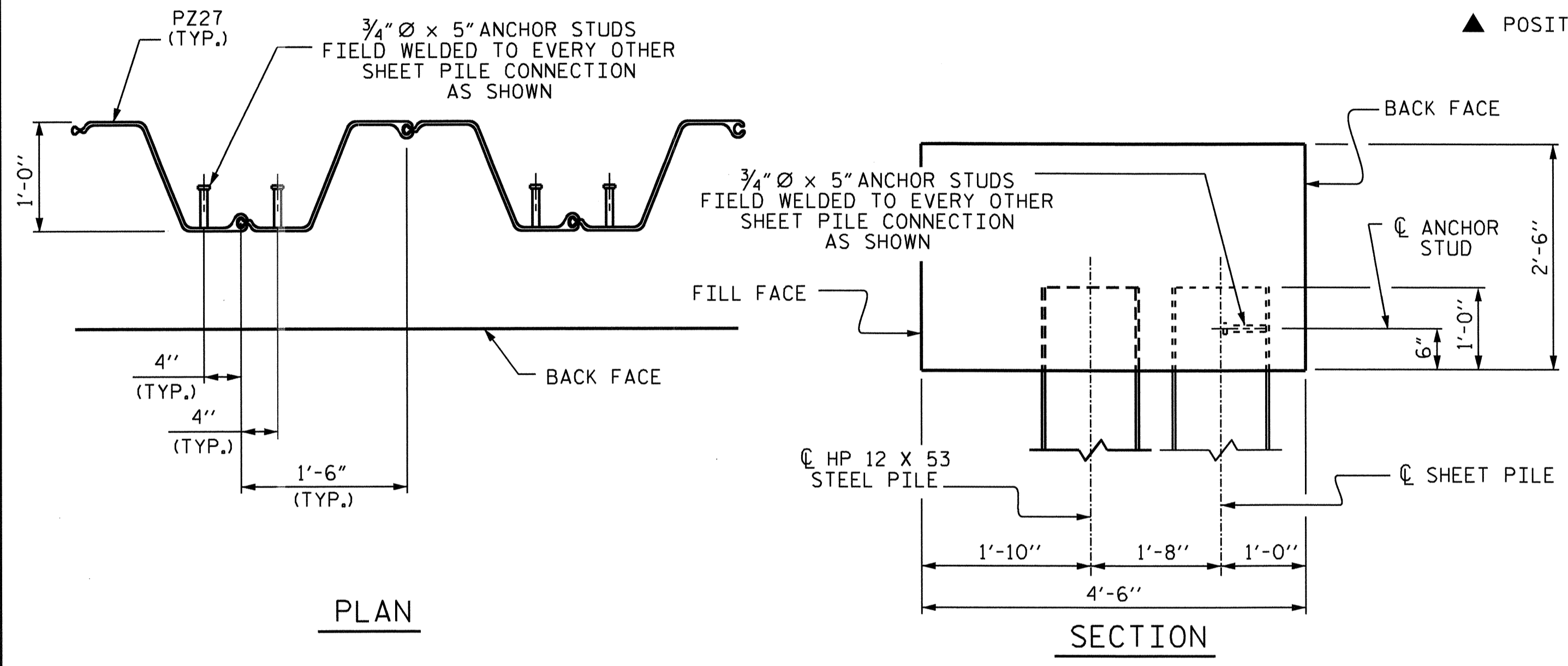
DRAWN BY : E. K. POPE DATE : 2-29-12
CHECKED BY : G. KOUCHEKI DATE : 3-2-12



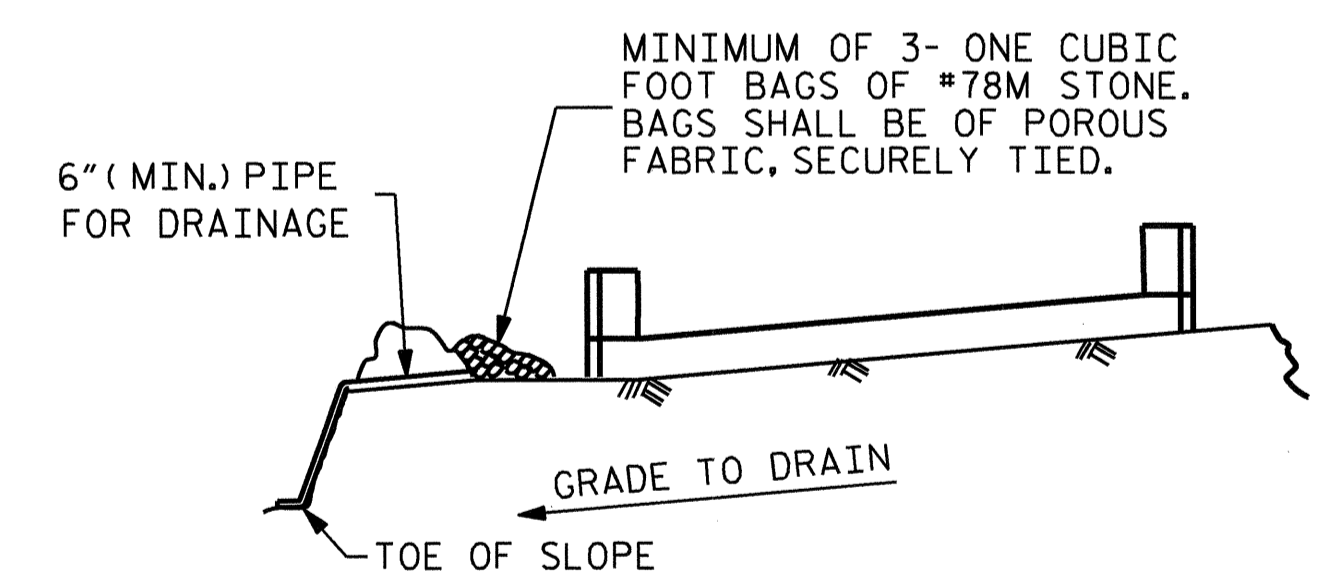
▲ POSITION OF PILE DURING WELDING. **PILE SPLICE DETAILS**



BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	20	#10	1	26'-3"	2367
* B2	2	#5	STR	38'-6"	80
* B3	8	#4	STR	20'-8"	110
* B4	10	#4	STR	4'-0"	27
* B5	4	#4	STR	3'-0"	8
* D1	22	#6	STR	1'-6"	50
* H1	8	#4	STR	4'-6"	24
* H2	4	#6	STR	4'-6"	27
* K1	6	#4	STR	3'-0"	12
* K2	6	#4	STR	1'-6"	6
* S1	32	#5	2	8'-10"	295
* S2	32	#5	3	4'-11"	164
* S3	14	#4	5	6'-6"	61
* S4	14	#4	2	3'-2"	30
* S5	14	#4	3	2'-3"	21
* S6	34	#4	6	6'-1"	138
* U1	8	#4	4	3'-6"	19
* V1	14	#4	STR	4'-9"	44
* V2	8	#4	STR	4'-3"	23
* EPOXY COATED REINFORCING STEEL				LBS	3506
CLASS AA CONCRETE					
POUR 1 : (CAP & COLLARS)				C.Y.	17.5
POUR 2 : (UPPER PART OF WINGS & COPINGS)				C.Y.	1.1
POUR 3 : (LATERAL GUIDES)				C.Y.	0.1
TOTAL				C.Y.	18.7
HP 12 X 53 STEEL PILES					
NO. : 7					630 FT.
PILE REDRIVES EA.					7
STEEL SHEET PILES					
No. PZ27 = 34				SQ. FT.	1108
No. PZ90 = 2				SQ. FT.	10
TOTAL NO. = 36				SQ. FT.	1118



SHEET PILE ANCHOR STUD DETAILS



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

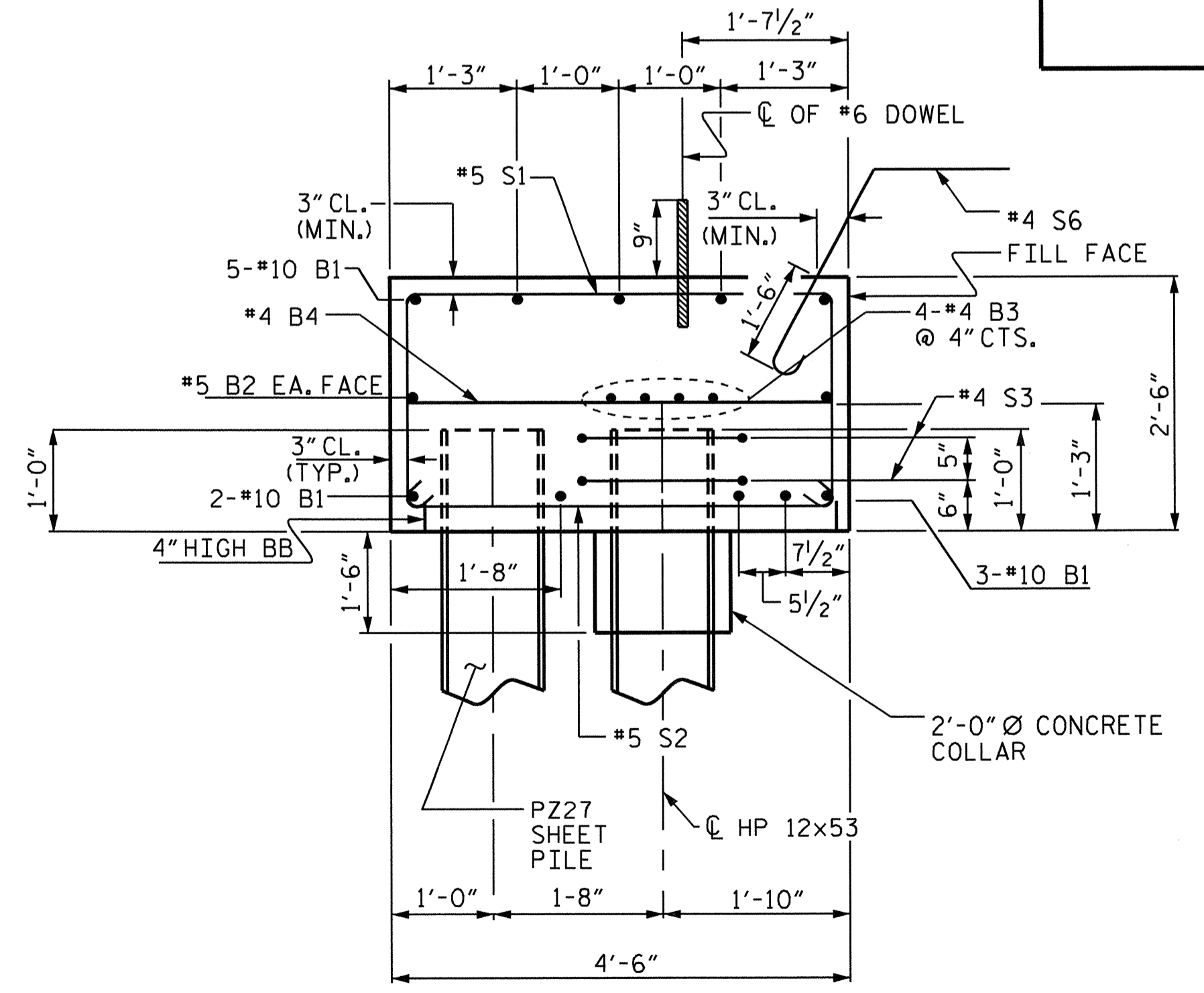
TOE OF SLOPE

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



SECTION A-A

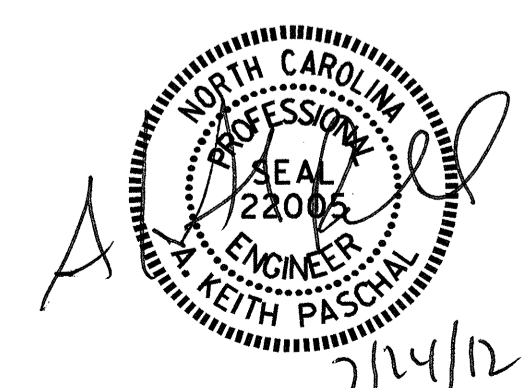
DRILL 2" Ø MAX. HOLE IN SHEET PILE FOR #10 B1, #5 B2, AND #5 S2 BARS (TYP.)

PROJECT NO. B-4922
PASQUOTANK COUNTY
 STATION: 16+94.50 -L-

SHEET 3 OF 3

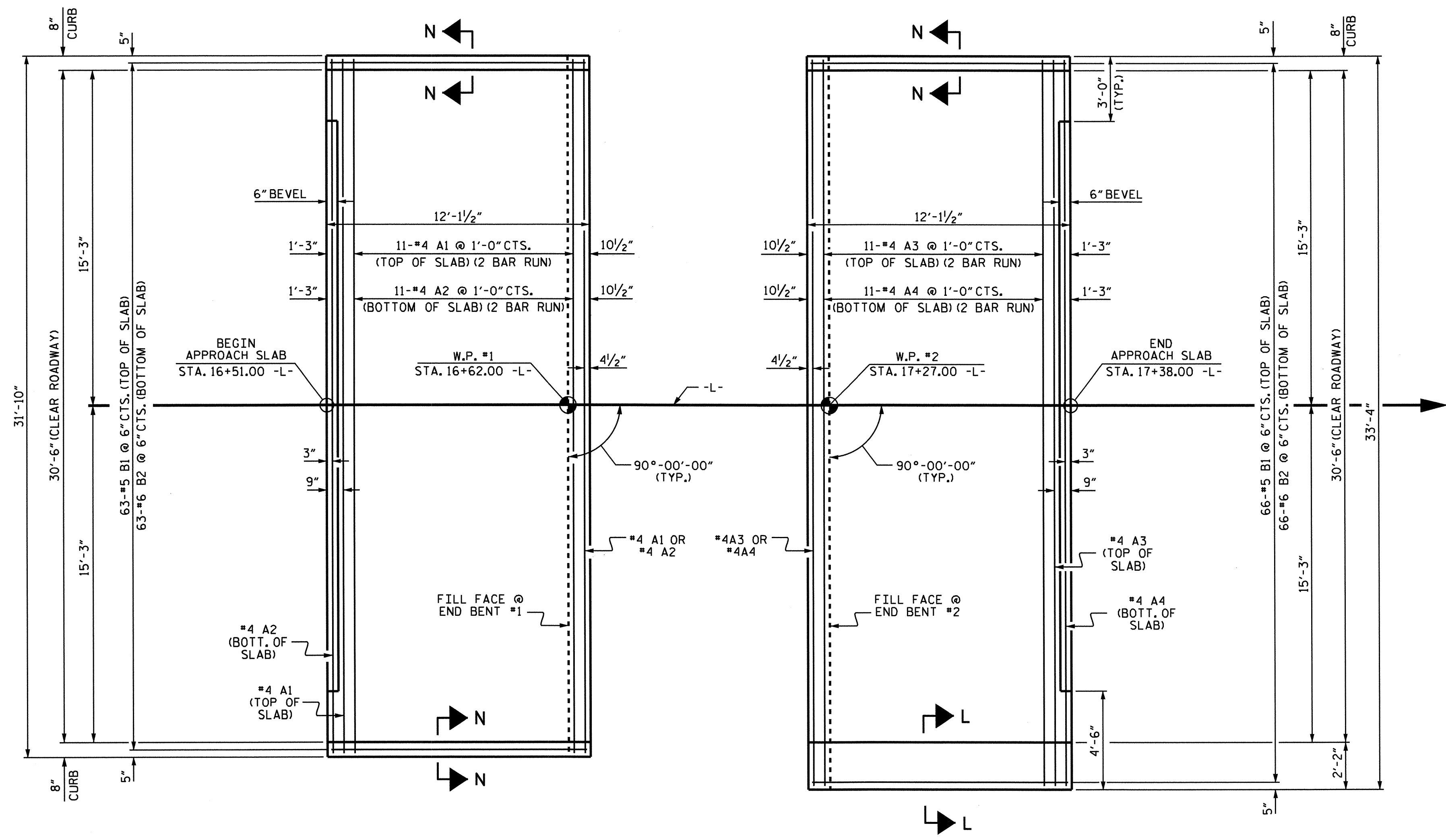
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 2**



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

DRAWN BY : E. K. POPE DATE : 2-29-12
 CHECKED BY : G. KOUCHEKI DATE : 3-2-12



NOTES

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

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

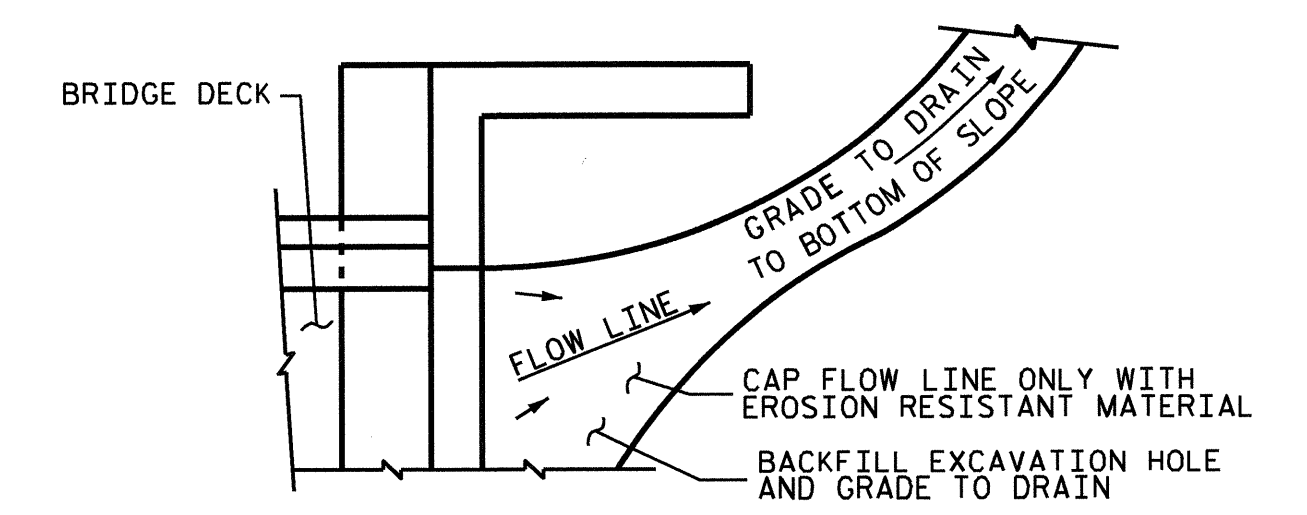
BILL OF MATERIAL

APPROACH SLAB AT EB 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	16'-9"	291
* A2	26	#4	STR	16'-9"	291
* B1	63	#5	STR	11'-2"	734
* B2	63	#6	STR	11'-8"	1104
* EPOXY COATED REINFORCING STEEL					LBS. 2420
CLASS AA CONCRETE					C. Y. 19.4

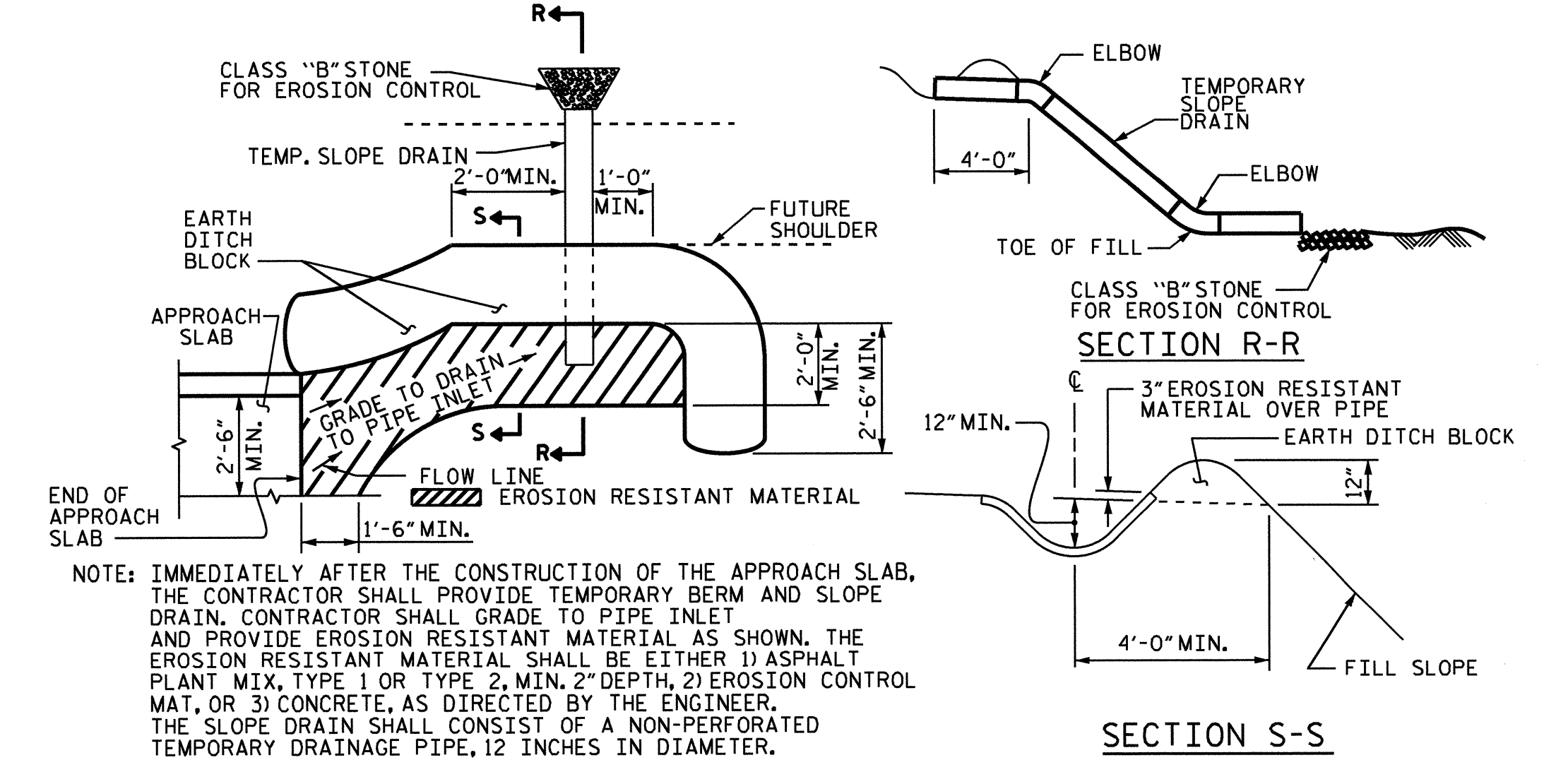
APPROACH SLAB AT EB 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A3	26	#4	STR	17'-6"	304
* A4	26	#4	STR	17'-6"	304
* B1	66	#5	STR	11'-2"	769
* B2	66	#6	STR	11'-8"	1157
* EPOXY COATED REINFORCING STEEL					LBS. 2534
CLASS AA CONCRETE					C. Y. 20.2



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

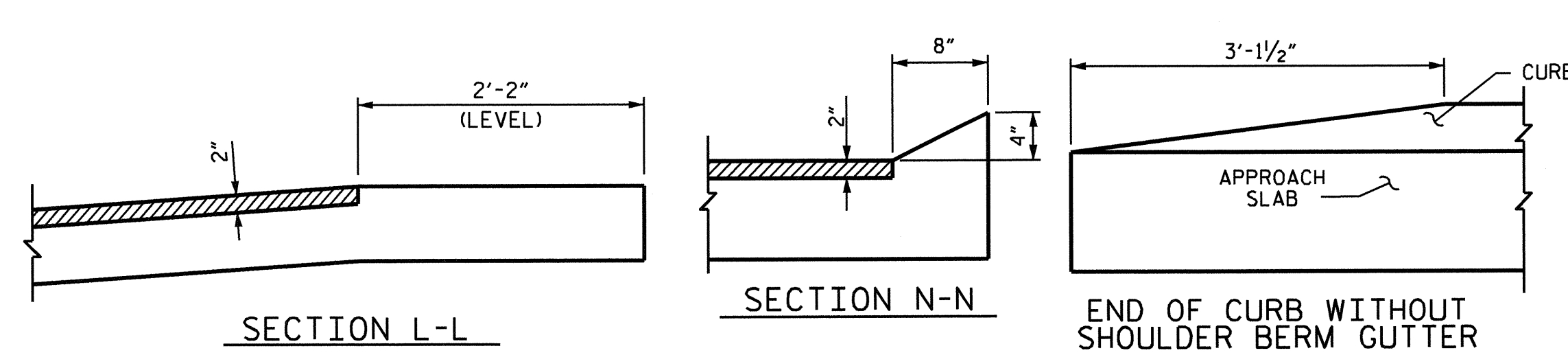
TEMPORARY DRAINAGE DETAIL



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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

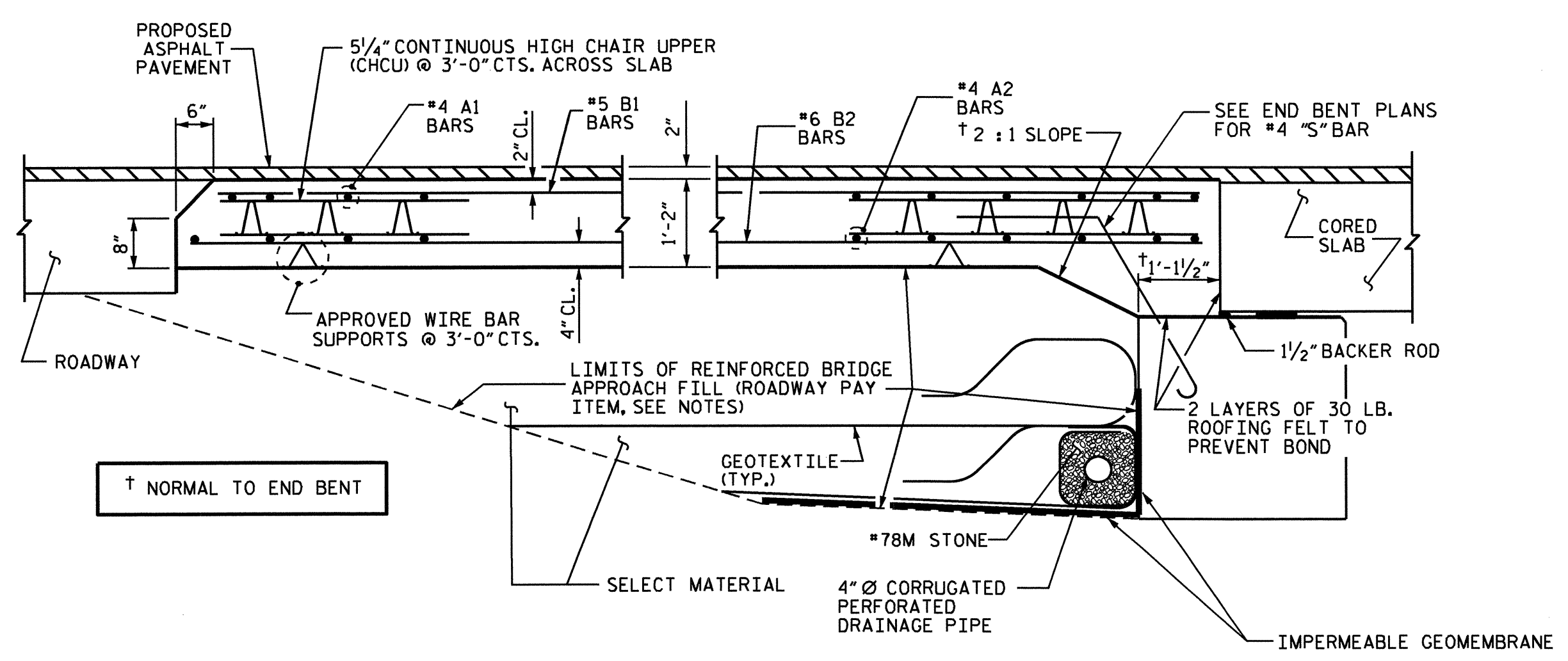
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

SPLICE LENGTHS

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



PROJECT NO. B-4922

PASQUOTANK COUNTY

STATION: 16+94.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT

90° SKEW

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

ASSEMBLED BY : E. K. POPE DATE : 4-27-12
 CHECKED BY : T. L. AVERETTE DATE : 6-1-12
 DRAWN BY : SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY : BCH 5-09

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 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN