

CONTRACT: C201732 TIP PROJECT: B-4020

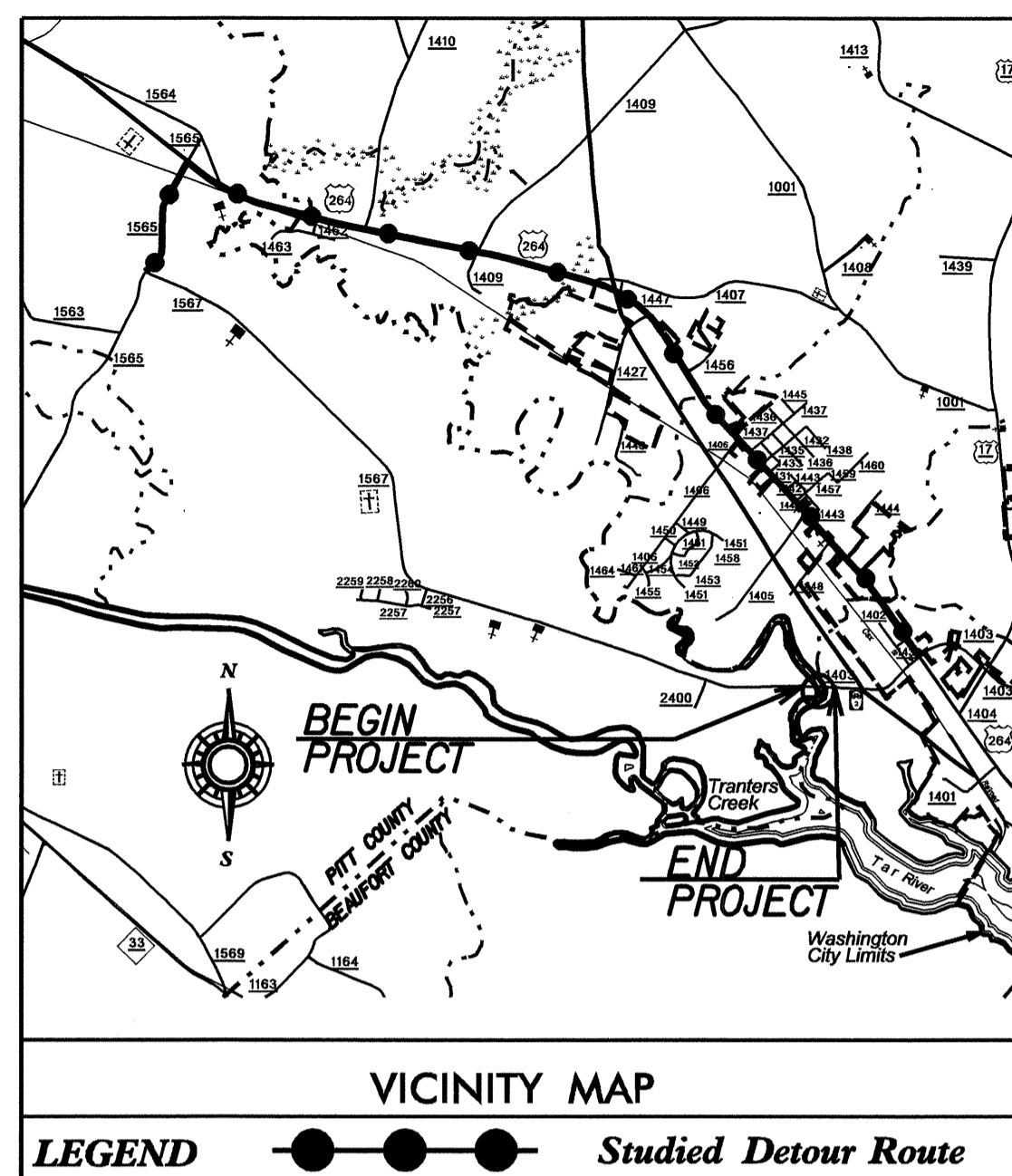
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT / PITT COUNTIES

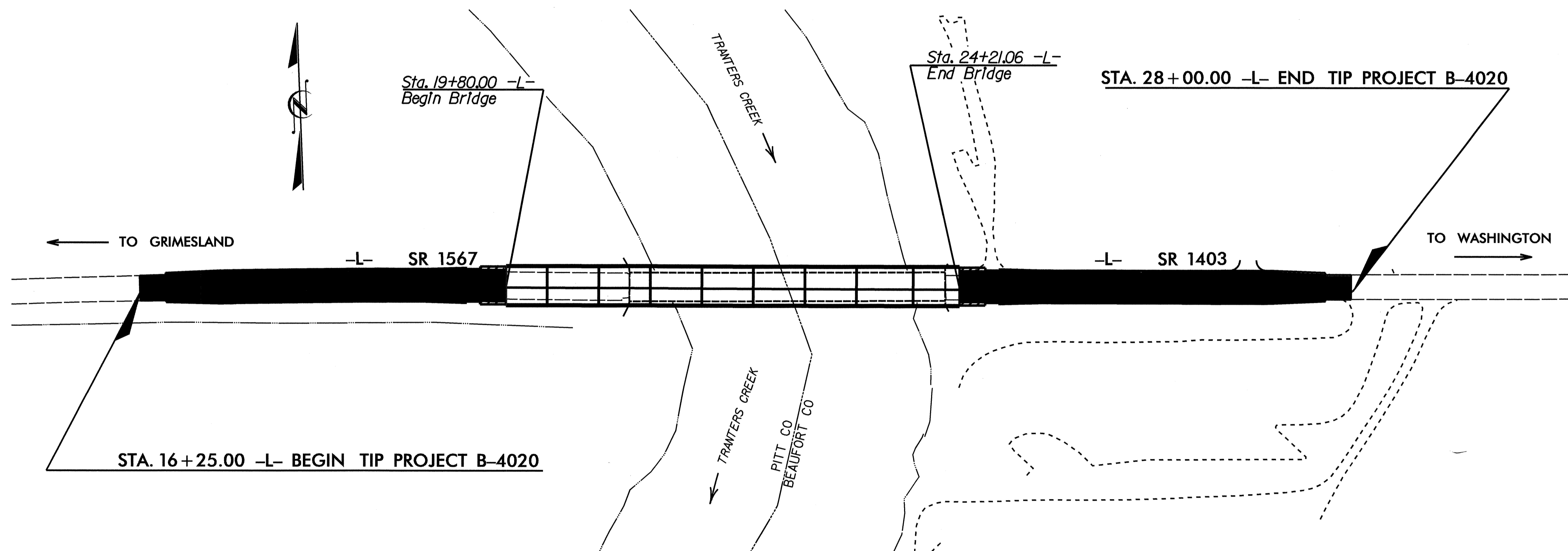
LOCATION: BRIDGE NO. 8 OVER TRANTERS CREEK
ON SR 1403 /SR 1567 IN WASHINGTON

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4020		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33387.1.1	BRZ-1403(4)	P.E.	
33387.2.1	BRZ-1403(4)	RW, UTIL.	
33387.3.1	BRZ-1403(4)	CONST.	



STRUCTURE



DESIGN DATA

ADT 2007 = 5940
ADT 2030 = 9300
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH
FUNC. CLASS = URBAN LOCAL
* TTST 1 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4020 = 0.139 mi.
LENGTH STRUCTURE TIP PROJECT B-4020 = 0.083 mi.
TOTAL LENGTH TIP PROJECT B-4020 = 0.222 mi.

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

2006 STANDARD SPECIFICATIONS

LETTING DATE:
July 15, 2008

ROY GIROLAMI, P.E.
PROJECT ENGINEER

DAVID ANDERSON, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE

19+00 20+00 21+00 22+00 23+00 24+00 25+00

F.A. PROJECT No : BRZ-1403 (4)

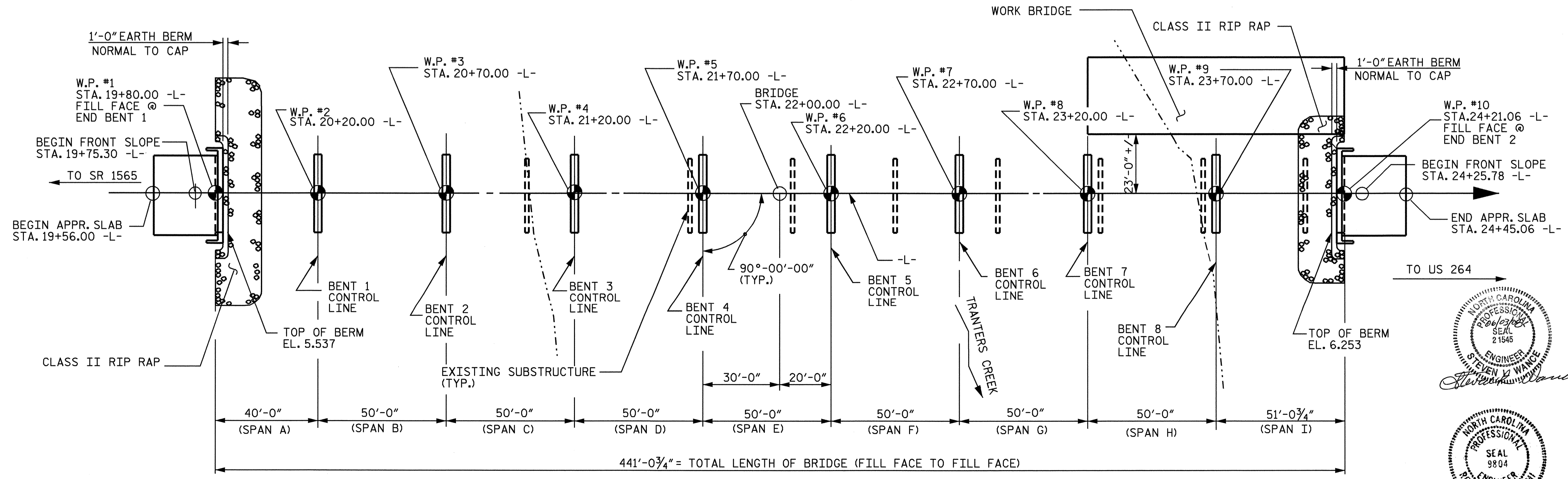
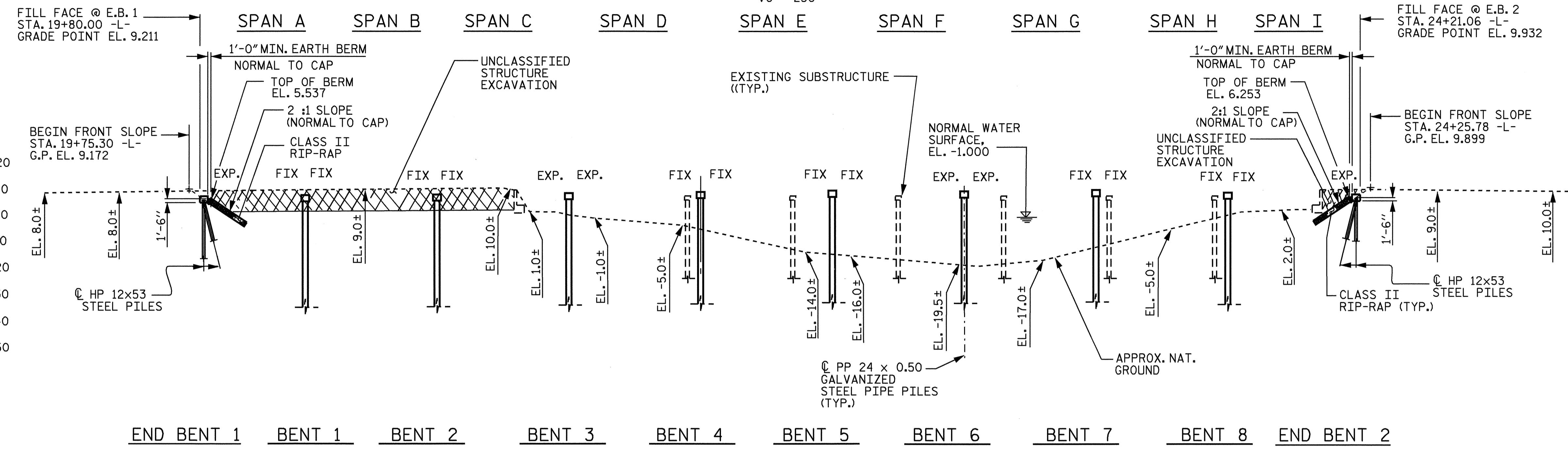
GRADE DATA
 +0.9517 % Δ -0.6957 %
 PI = 22+10.00 -L-
 EL = 11.400
 VC = 250'

HYDRAULIC DATA

DESIGN DISCHARGE..... 9970 c.f.s.
 FREQUENCY OF DESIGN FLOOD..... 50 yr.
 DESIGN HIGH WATER ELEVATION..... 6.000
 DRAINAGE AREA..... 246.0 sq. mi.
 BASIC DISCHARGE(Q100)..... 12370 c.f.s.
 BASIC HIGH WATER ELEVATION..... 7.600

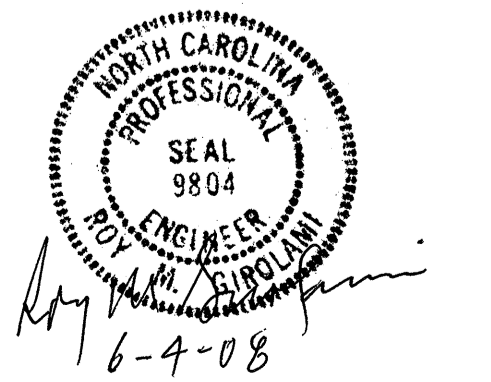
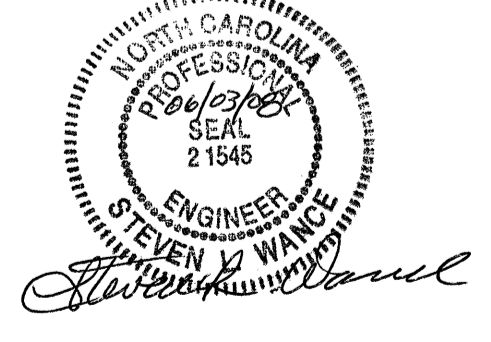
OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE..... 9970- c.f.s.
 FREQUENCY OF OVERTOPPING FLOOD..... 50- yr.
 OVERTOPPING FLOOD ELEVATION..... 5.000



PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE #8

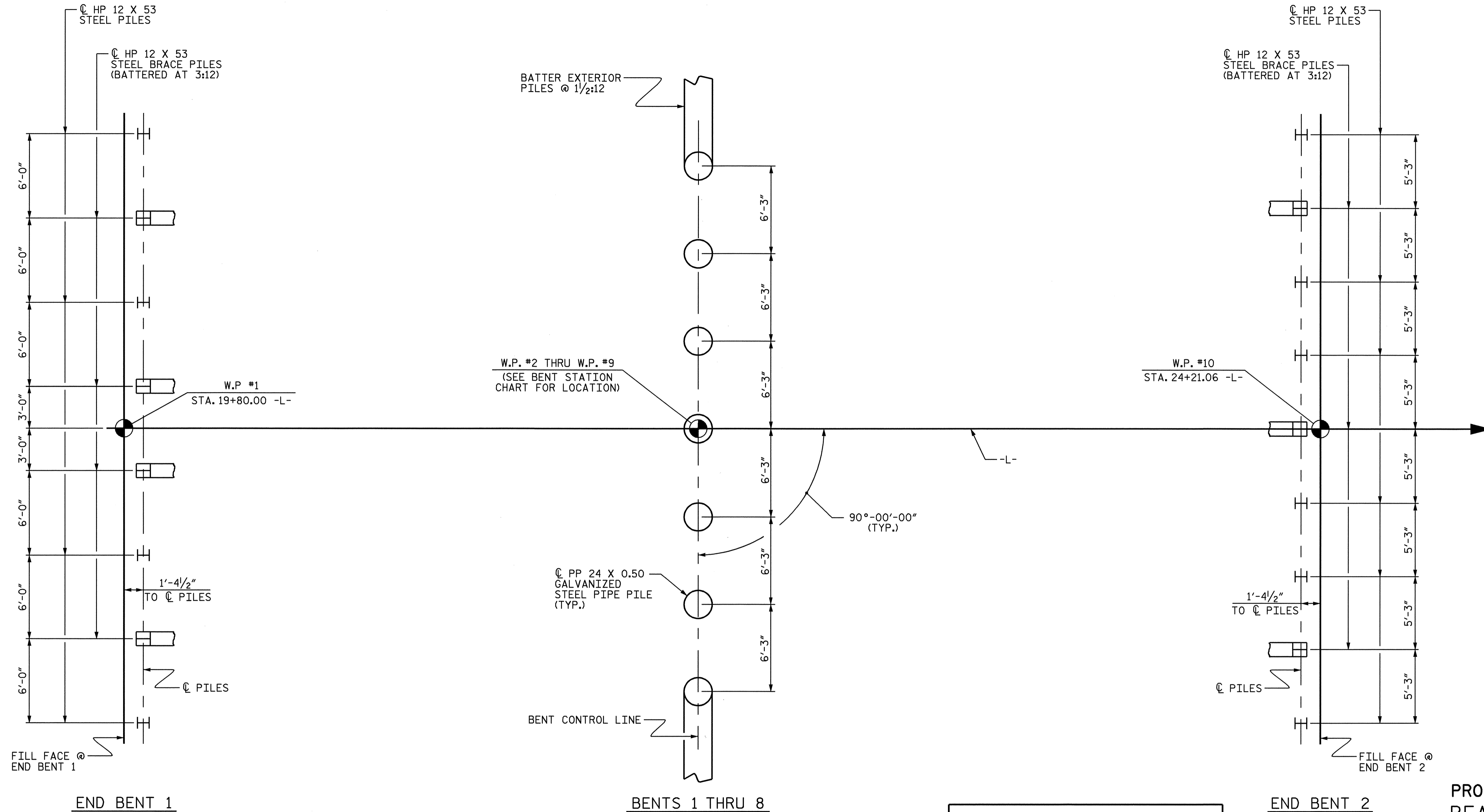


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1403 OVER
 TRANTERS CREEK BETWEEN
 SR 1565 AND US 264

REVISIONS						S-1
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			22
2			4			

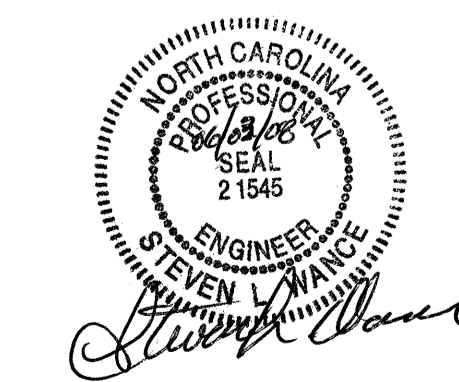
DRAWN BY : N. Q. TRAN DATE : JAN. 06
 CHECKED BY : S. L. WANCE DATE : JUN. 07



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE AT THE BOTTOM OF THE CAP.

BENT STATION CHART	
WORK POINT	STATION
W.P. #2	STA. 20+20.00 -L-
W.P. #3	STA. 20+70.00 -L-
W.P. #4	STA. 21+20.00 -L-
W.P. #5	STA. 21+70.00 -L-
W.P. #6	STA. 22+20.00 -L-
W.P. #7	STA. 22+70.00 -L-
W.P. #8	STA. 23+20.00 -L-
W.P. #9	STA. 23+70.00 -L-



PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1403 OVER
 TRANTERS CREEK BETWEEN
 SR 1565 AND US 264

DRAWN BY : E.C. LOCKLEAR DATE : 4-13-07
 CHECKED BY : S.L. WANCE DATE : 5-11-07

03-JUN-2008 15:21
 W:\Structures\FINAL PLANS\b4020.ed.01.fl.dgn
 danderson

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			22

TOTAL BILL OF MATERIAL

	CONST., MAINT., & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	PP 24 X 0.5 GALVANIZED STEEL PILES	PILE REDRIVES	2-BAR METAL RAIL	1'-2" x 2'-11 1/4" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS	PREDRILLING OF PILES			
	LUMP SUM	LUMP SUM	EACH	EACH	CU.YDS.	CU.YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	NO.	LIN. FT.	EACH		
SUPERSTRUCTURE							LUMP SUM					862.63	877.63			LUMP SUM	117	5691.56			
END BENT 1					1985	15.1		2273	8	520				230	256						
BENTS 1 THRU 8						140.0		23,016		56	3360										
END BENT 2					165	15.1		2318	9	405				161	201						
TOTAL	LUMP SUM	LUMP SUM	2	2	2150	170.2	LUMP SUM	27,607	17	925	56	3360	35	862.63	877.63	391	457	LUMP SUM	117	5691.56	28

NOTES

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS 25.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

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.

DRIVE PILES AT BENT 1 THROUGH BENT 8 TO A REQUIRED BEARING CAPACITY OF 180 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ADDITIONAL CAPACITY FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

THE ALLOWABLE BEARING CAPACITY AT END BENT 1 AND END BENT 2 IS 50 TONS PER PILE.

THE ALLOWABLE BEARING CAPACITY AT BENT 1 THROUGH BENT 8 IS 85 TONS PER PILE.

DRIVE PILES AT BENT 1 THROUGH BENT 3 TO A TIP ELEVATION NO HIGHER THAN -28 FT.

DRIVE PILES AT BENT 4 TO A TIP ELEVATION NO HIGHER THAN -35 FT.

DRIVE PILES AT BENT 5 TO A TIP ELEVATION NO HIGHER THAN -42 FT.

DRIVE PILES AT BENT 6 TO A TIP ELEVATION NO HIGHER THAN -45 FT.

DRIVE PILES AT BENT 7 TO A TIP ELEVATION NO HIGHER THAN -38 FT.

DRIVE PILES AT BENT 8 TO A TIP ELEVATION NO HIGHER THAN -24 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 THROUGH BENT 8 IS -12 FT., -12 FT., -12 FT., -16 FT., -24 FT., -27 FT., -21 FT., AND -8 FT. RESPECTIVELY. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE ONLY BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF STRUCTURE.

TESTING THE FIRST PRODUCTION PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RE-STRIKING, OR RE-DRIVING IS REQUIRED AT THE INTERIOR BENTS. SEE PILE DRIVING ANALYZER SPECIAL PROVISIONS

PIPE PILE PLATES ARE NOT REQUIRED FOR PIPE PILES AT BENT 1 THROUGH 8.

IT HAS BEEN ESTIMATED THAT A HAMMER EQUIVALENT ENERGY RANGE OF 45,000 FT-LB. PER BLOW UP TO 80,000 FT-LB. PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT 1 THROUGH BENT 8. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM ARTICLE 450-5 OF THE STANDARD SPECIFICATIONS.

PREDRILLING PILES TO ELEVATION -28 FT. MAY BE UTILIZED TO INSTALL PILES AT BENT 1 THROUGH BENT 3 SEE PREDRILLING OF PILE SPECIAL PROVISIONS.

PREDRILLING PILES TO ELEVATION -29 FT. MAY BE UTILIZED TO INSTALL PILES AT BENT 4, SEE PREDRILLING OF PILE SPECIAL PROVISIONS.

PREDRILLING PILES TO ELEVATION -32 FT. MAY BE UTILIZED TO INSTALL PILES AT BENT 5, SEE PREDRILLING OF PILE SPECIAL PROVISIONS.

PREDRILLING PILES TO ELEVATION -34 FT. MAY BE UTILIZED TO INSTALL PILES AT BENT 6, SEE PREDRILLING OF PILE SPECIAL PROVISIONS.

PREDRILLING PILES TO ELEVATION -31 FT. MAY BE UTILIZED TO INSTALL PILES AT BENT 7, SEE PREDRILLING OF PILE SPECIAL PROVISIONS.

PREDRILLING PILES TO ELEVATION -24 FT. MAY BE UTILIZED TO INSTALL PILES AT BENT 8, SEE PREDRILLING OF PILE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 67.5 FT. AND 6 SPANS @ 40.0' WITH 28'-0" CLEAR ROADWAY WIDTH AND STEEL PLANK FLOOR ON STEEL I BEAMS; END BENTS AND INTERIOR BENTS: TIMBER CAPS ON TIMBER PILES, AND LOCATED AT 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 PROJECT.

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.

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.

IN AS MUCH 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".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. LEFT SIDE AND 30 FT. RIGHT SIDE AT END BENT 1 AND END BENT 2 AS DIRECTED BY ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AS UNCLASSIFIED STRUCTURE EXCAVATION.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

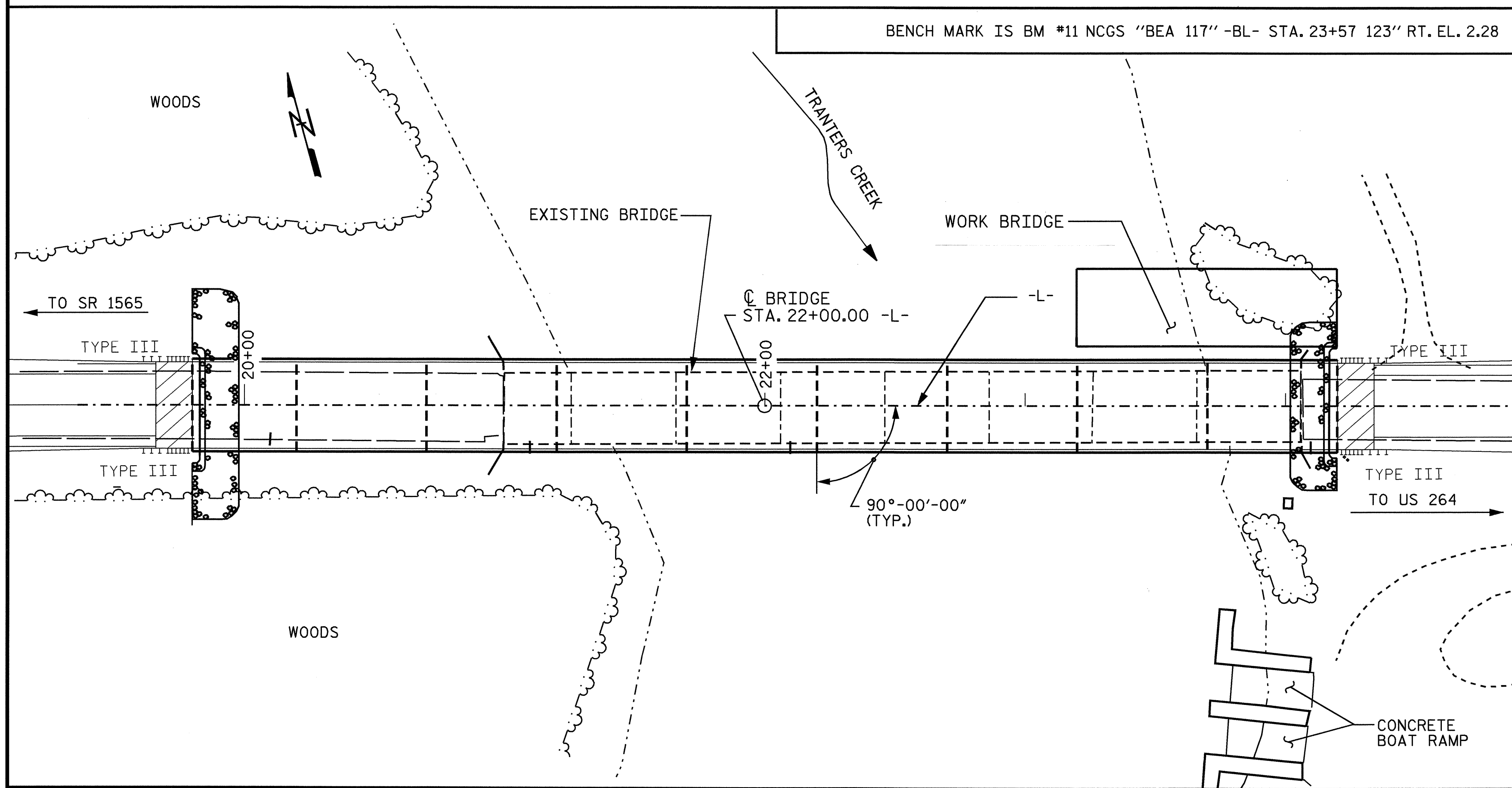
WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

FOR GROUT, SEE SPECIAL PROVISION "GROUT FOR STRUCTURES".

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 22+00 -L-, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

OBSERVE A SEVENTY FIVE CALENDER DAY WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO THE BOTTOM OF CAP ELEVATION BEFORE BEGINNING END BENT OR APPROACH SLAB CONSTRUCTION AT END BENT NO. 1.



LOCATION SKETCH

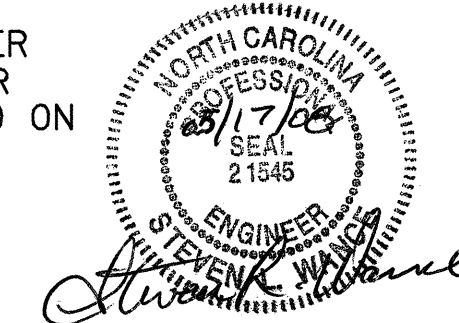
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

PROJECT NO. B-4020
BEAUFORT / PITT COUNTY
STATION: 22+00.00 -L-

SHEET 3 OF 3

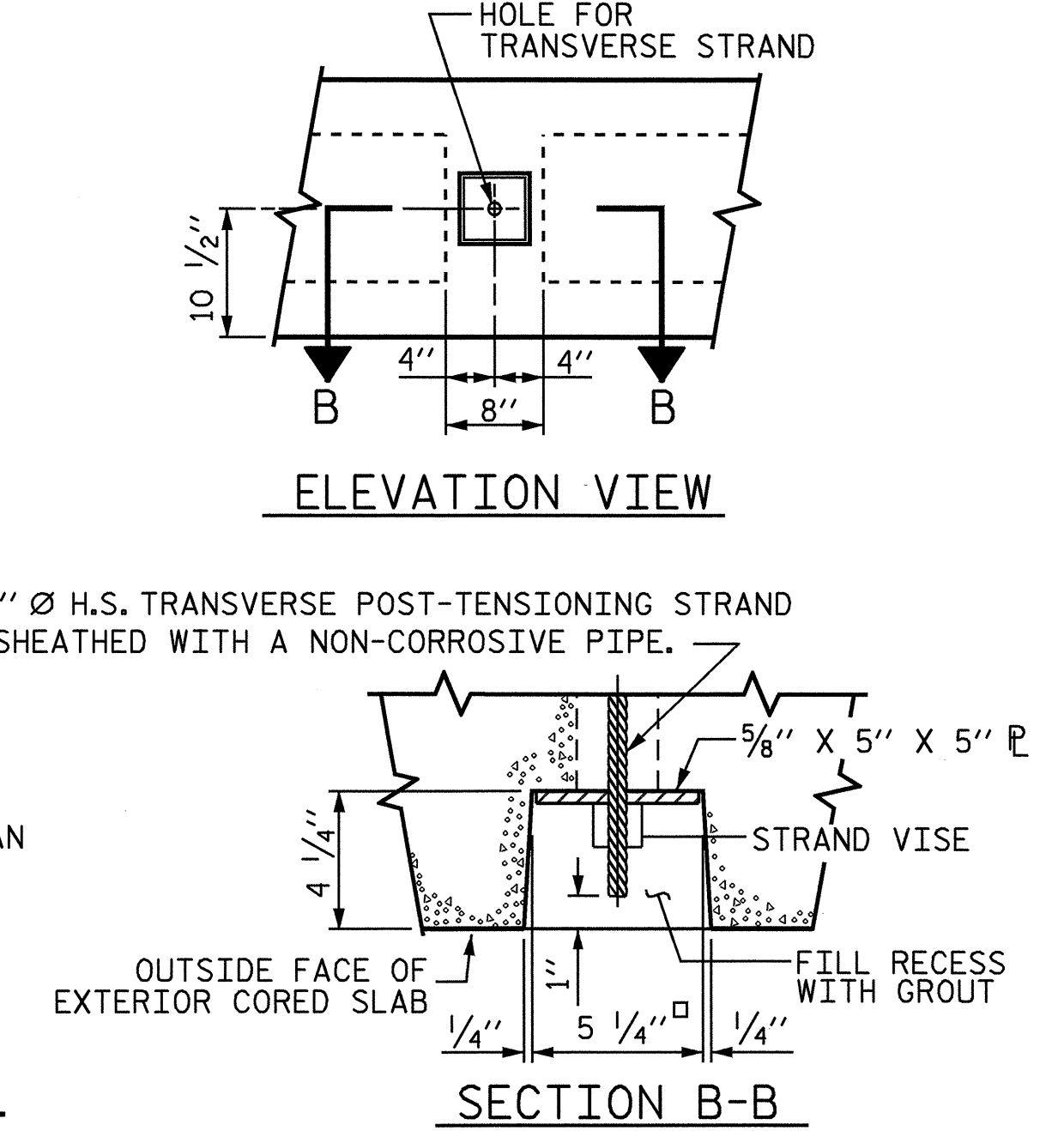
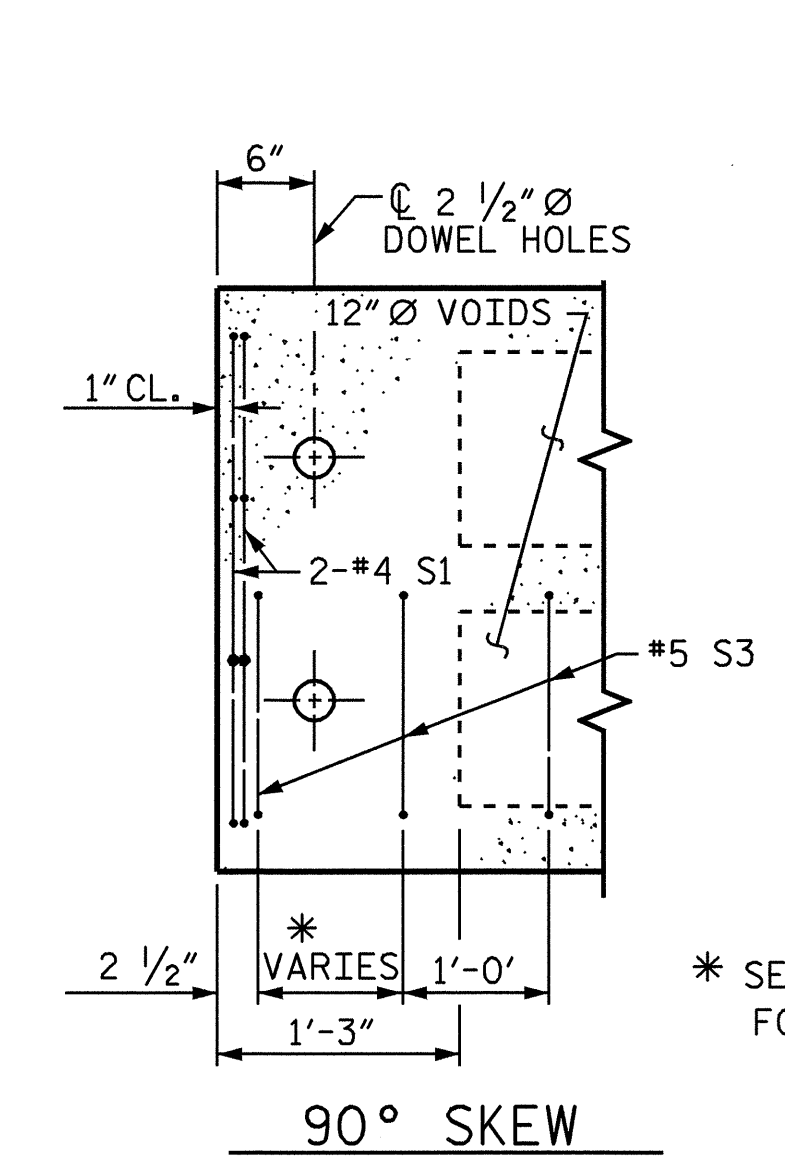
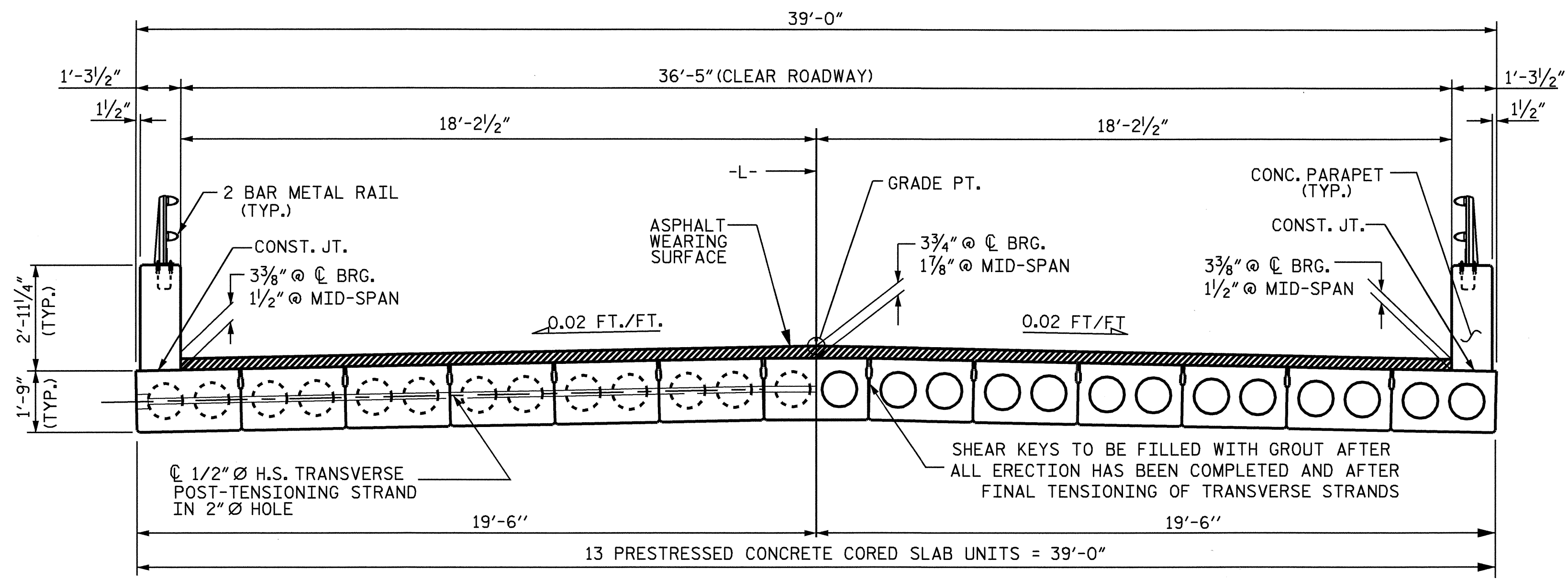
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1403 OVER
 TRANTER'S CREEK BETWEEN
 SR 1565 AND US 264



DRAWN BY : N.Q. TRAN DATE : 5-9-07
 CHECKED BY : S.L. WANCE DATE : 7-9-07

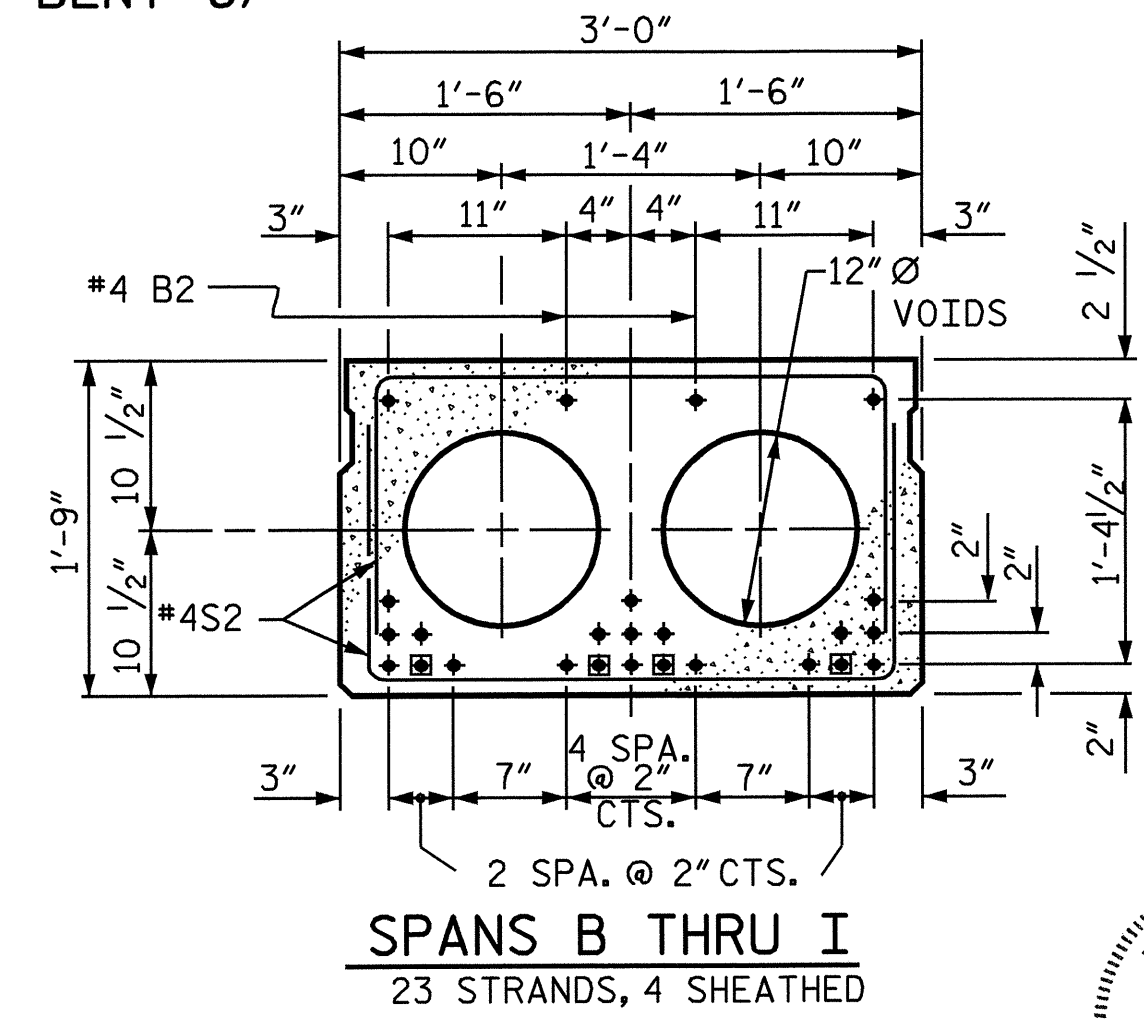
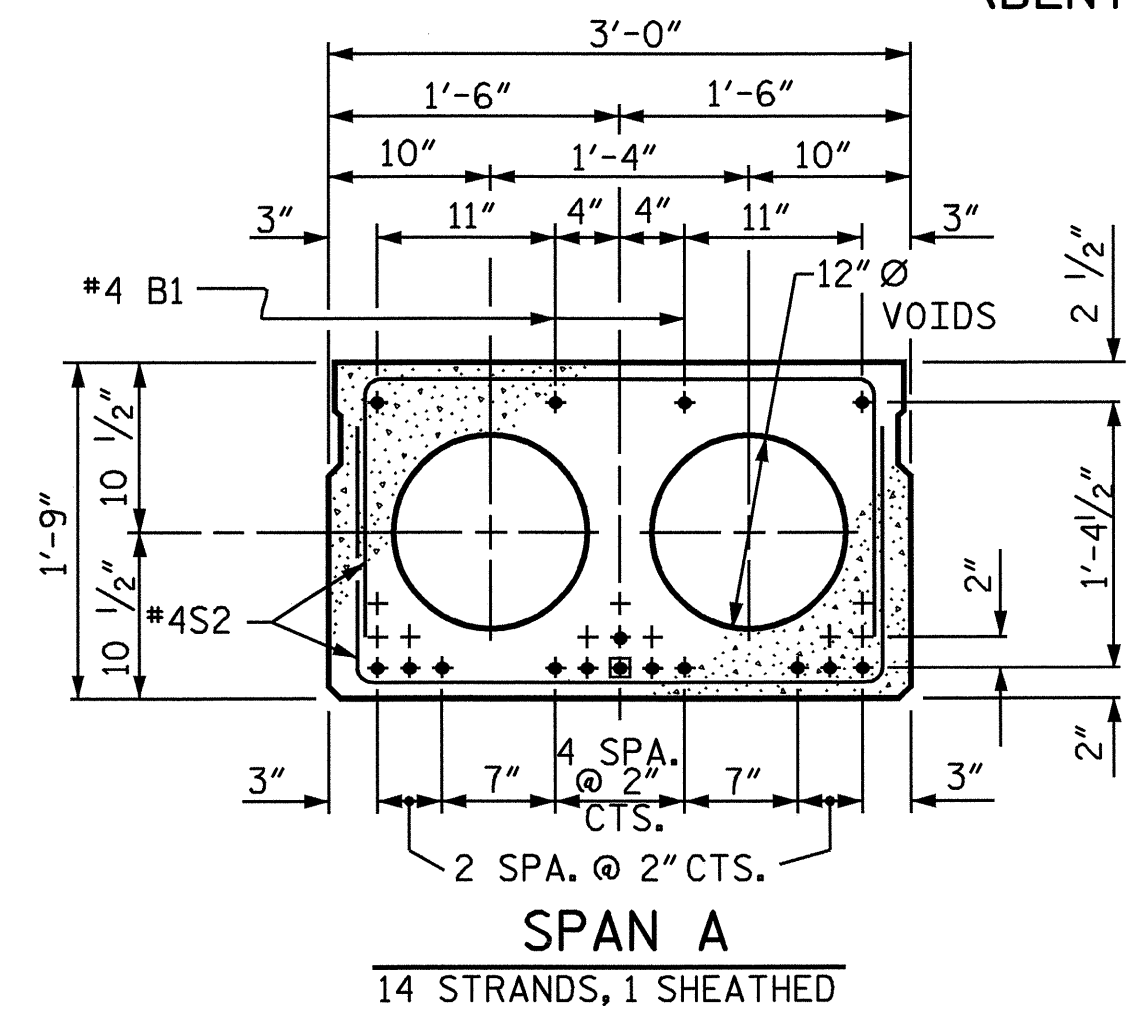
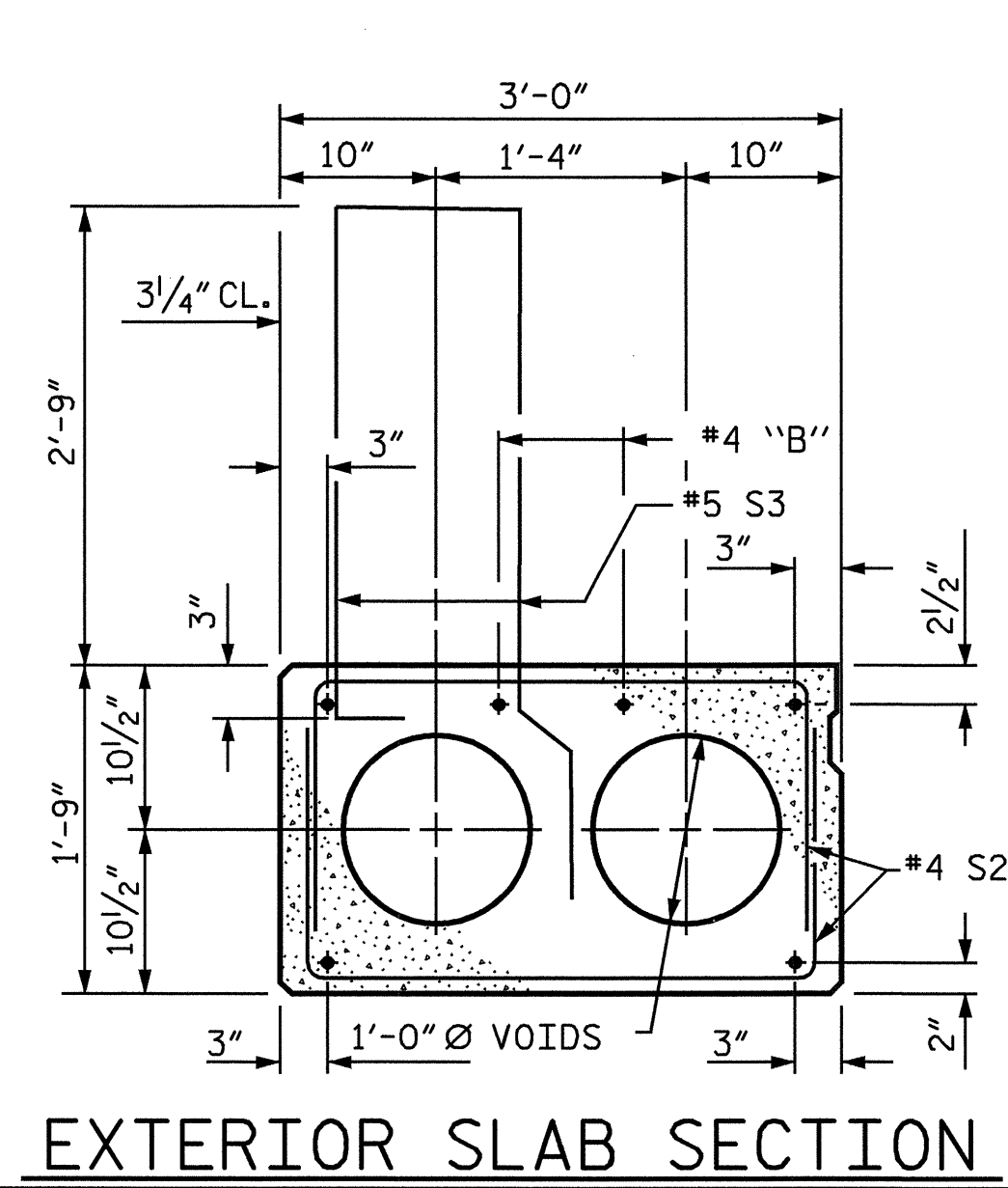
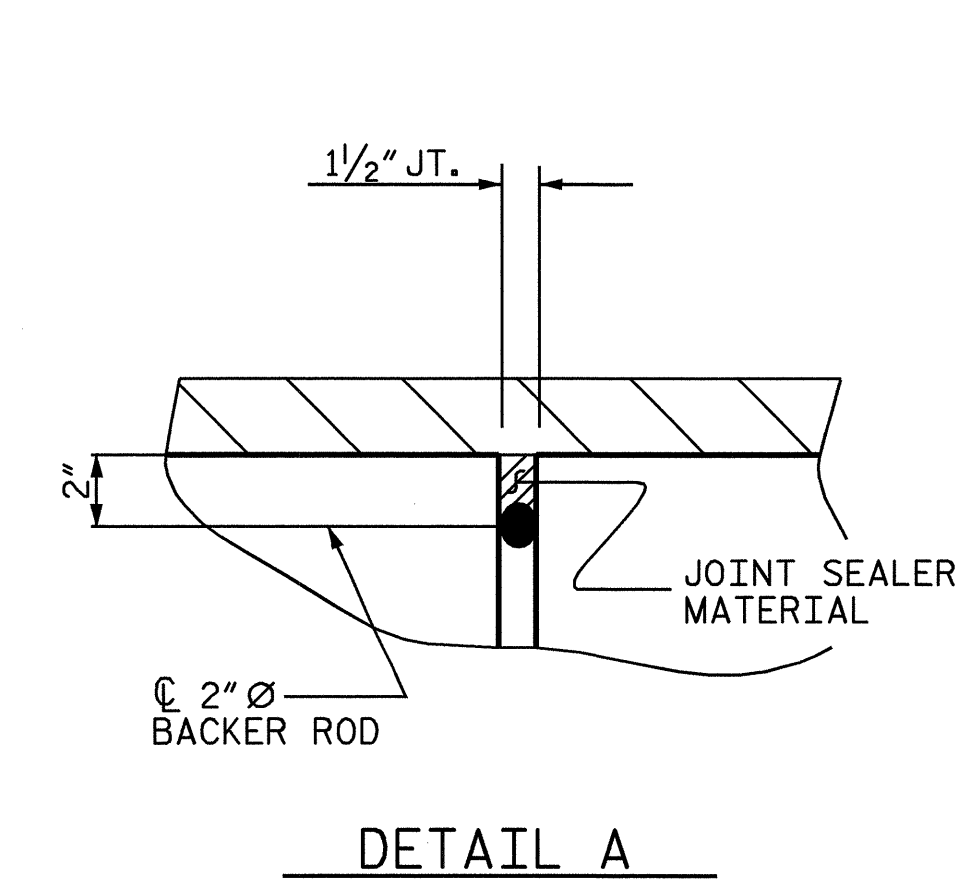
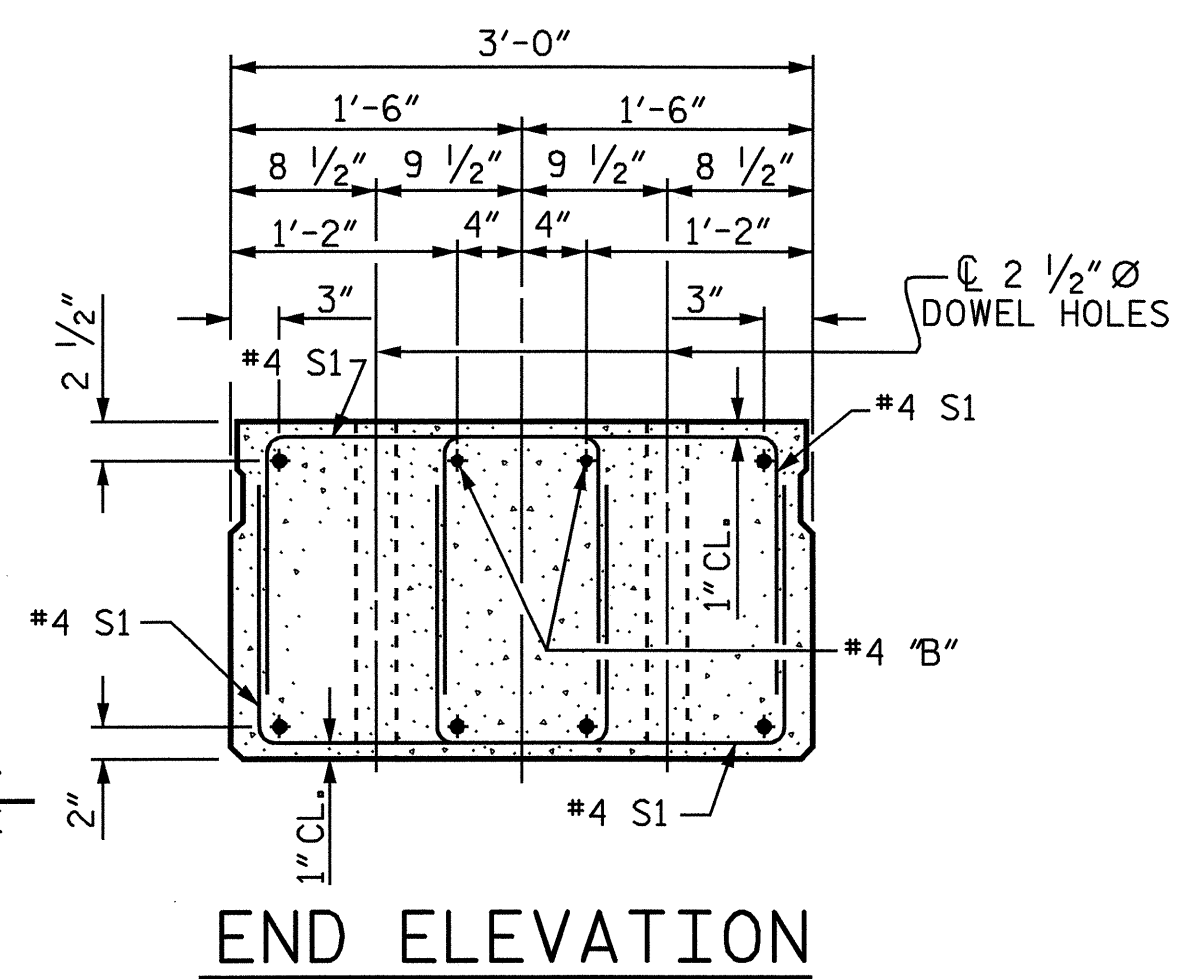
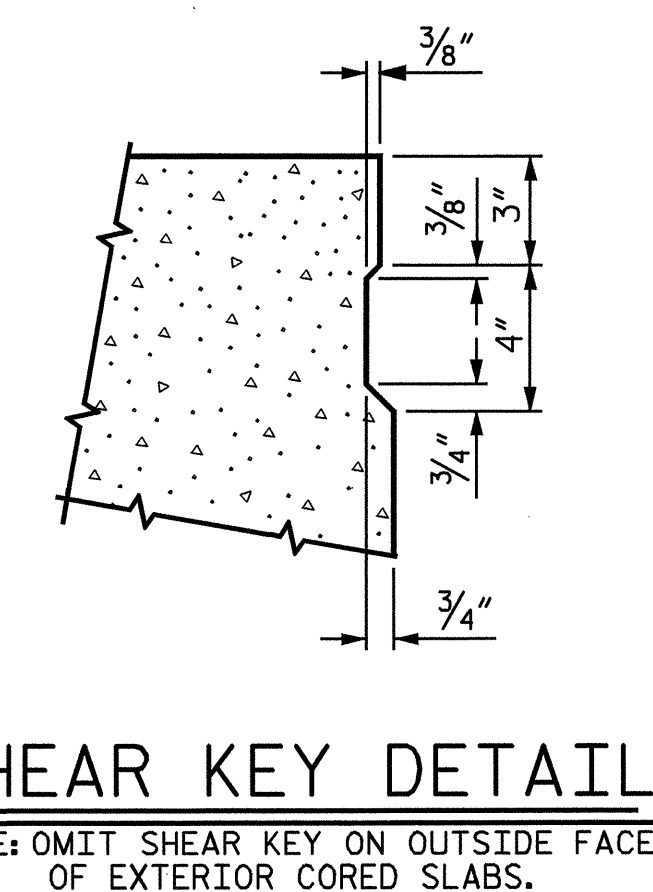
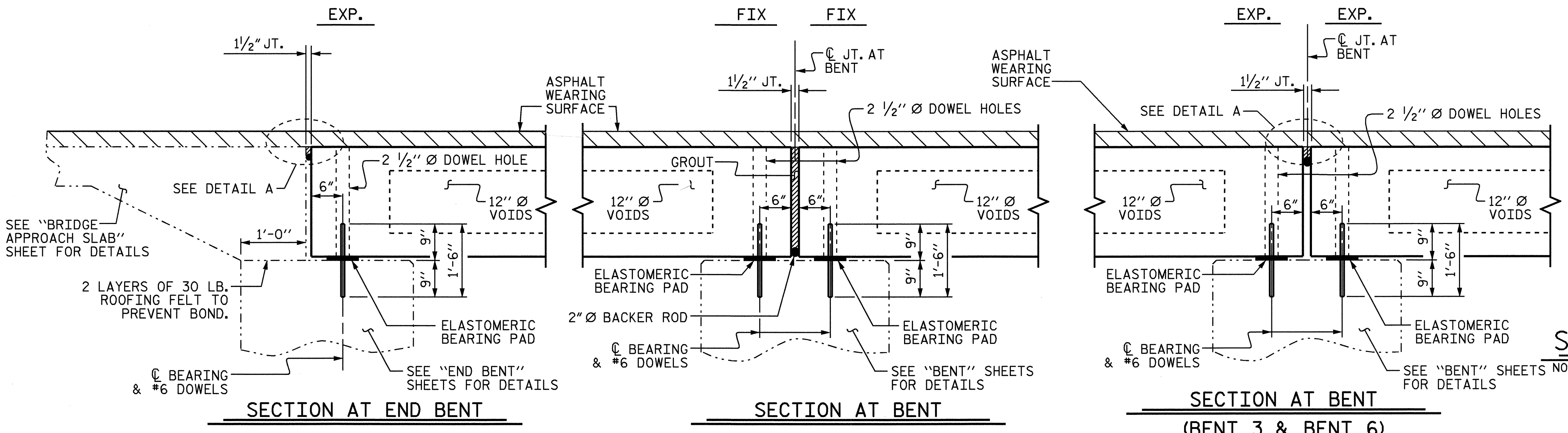
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-3
1			3		TOTAL SHEETS
2			4		22



PART PLAN-EXTERIOR SECTION
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

TYPICAL SECTION
HALF SECTION AT INTERMEDIATE DIAPHRAGM | HALF SECTION AT VOIDS



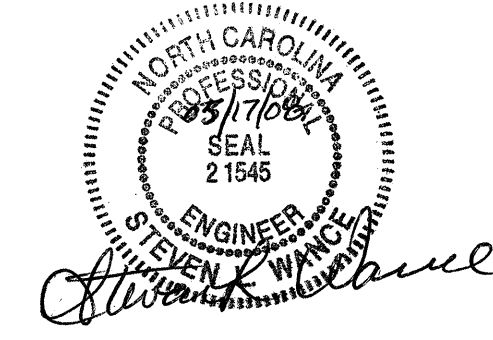
INTERIOR SLAB SECTION
1/2" Ø LOW RELAXATION STRAND LAYOUT

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.

ASSEMBLED BY : N. Q. TRAN	DATE : 9-4-06
CHECKED BY : S. L. WANCE	DATE : 11-1-06
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM

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

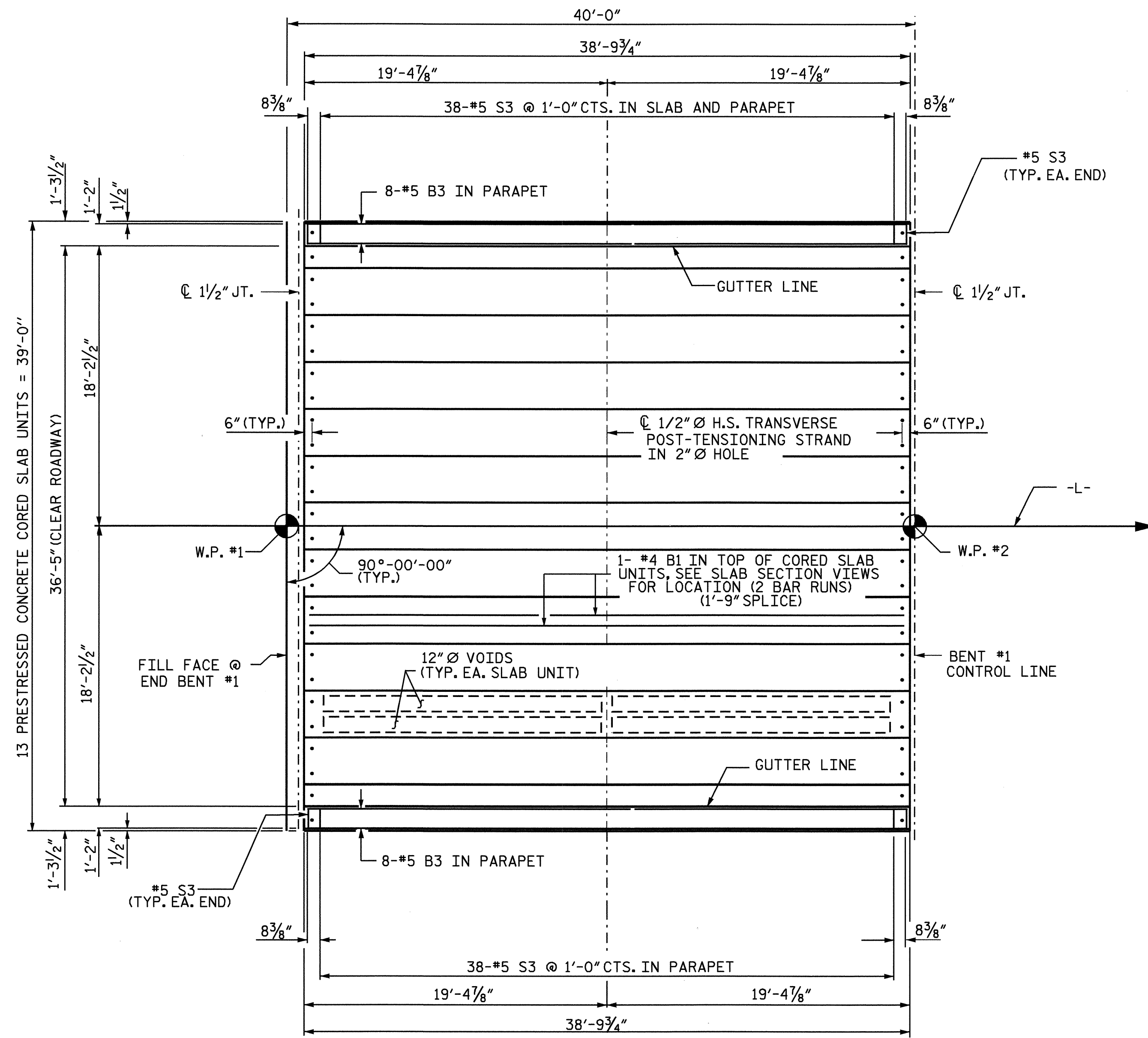
□ BOND SHALL BE BROKEN AT THESE STRANDS AT A DISTANCE OF FOUR FEET FROM THE END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



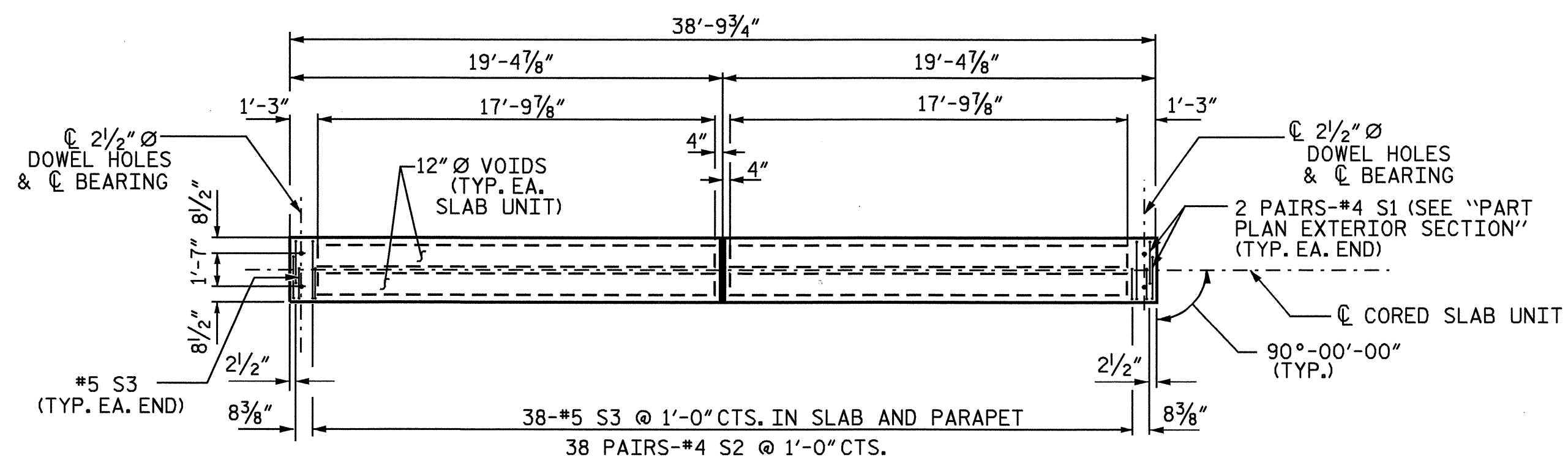
PROJECT NO. B-4020
BEAUFORT / PITT COUNTY
STATION: 22+00.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT					
SHEET 1 OF 9					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-4
					TOTAL SHEETS 22

STD. No. PCS2



SPAN A



PLAN OF EXTERIOR SLAB - SPAN A

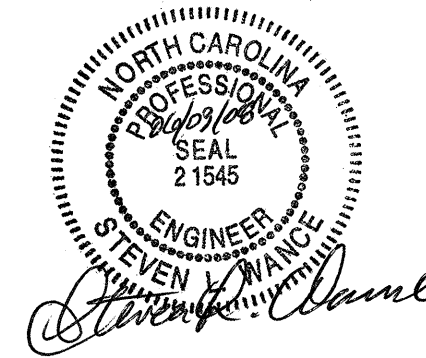
PLAN FOR INTERIOR SLAB IDENTICAL EXCEPT OMIT S3 BARS

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00-L-

SHEET 2 OF 9

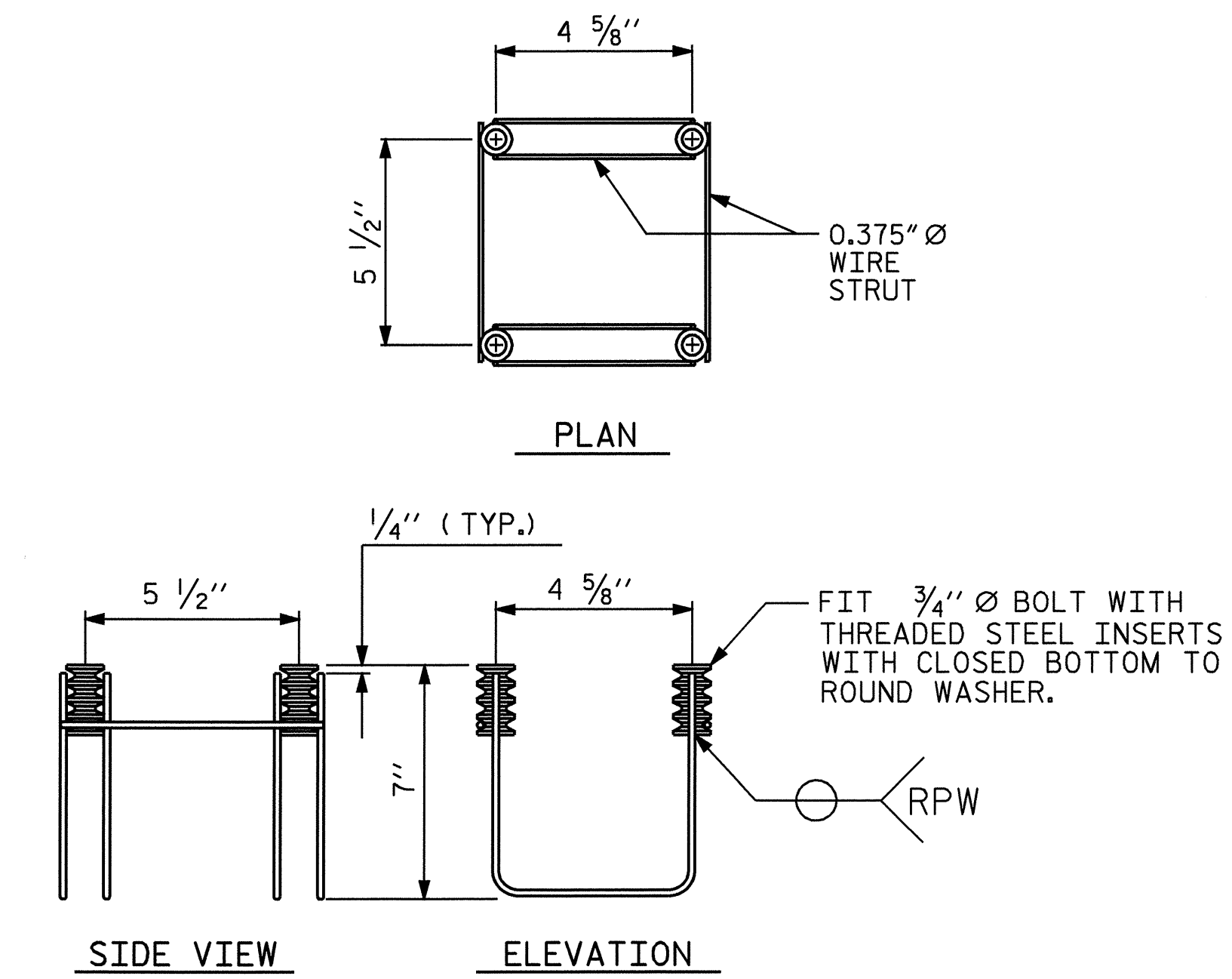
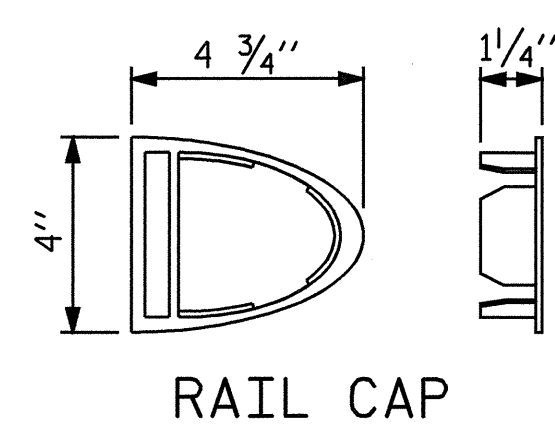
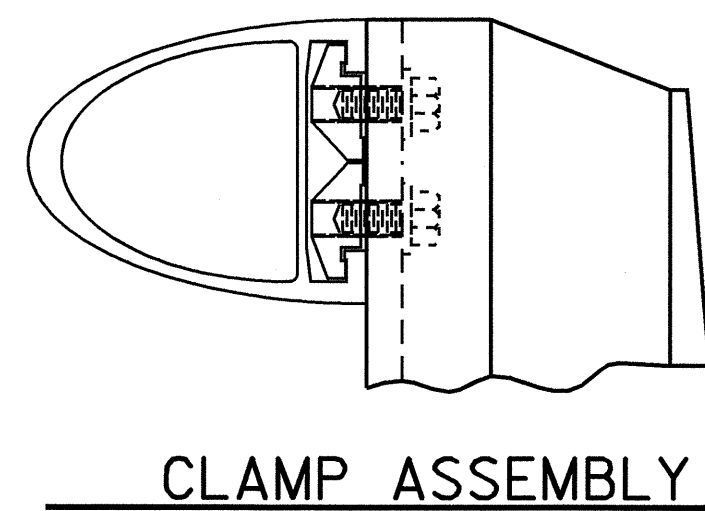
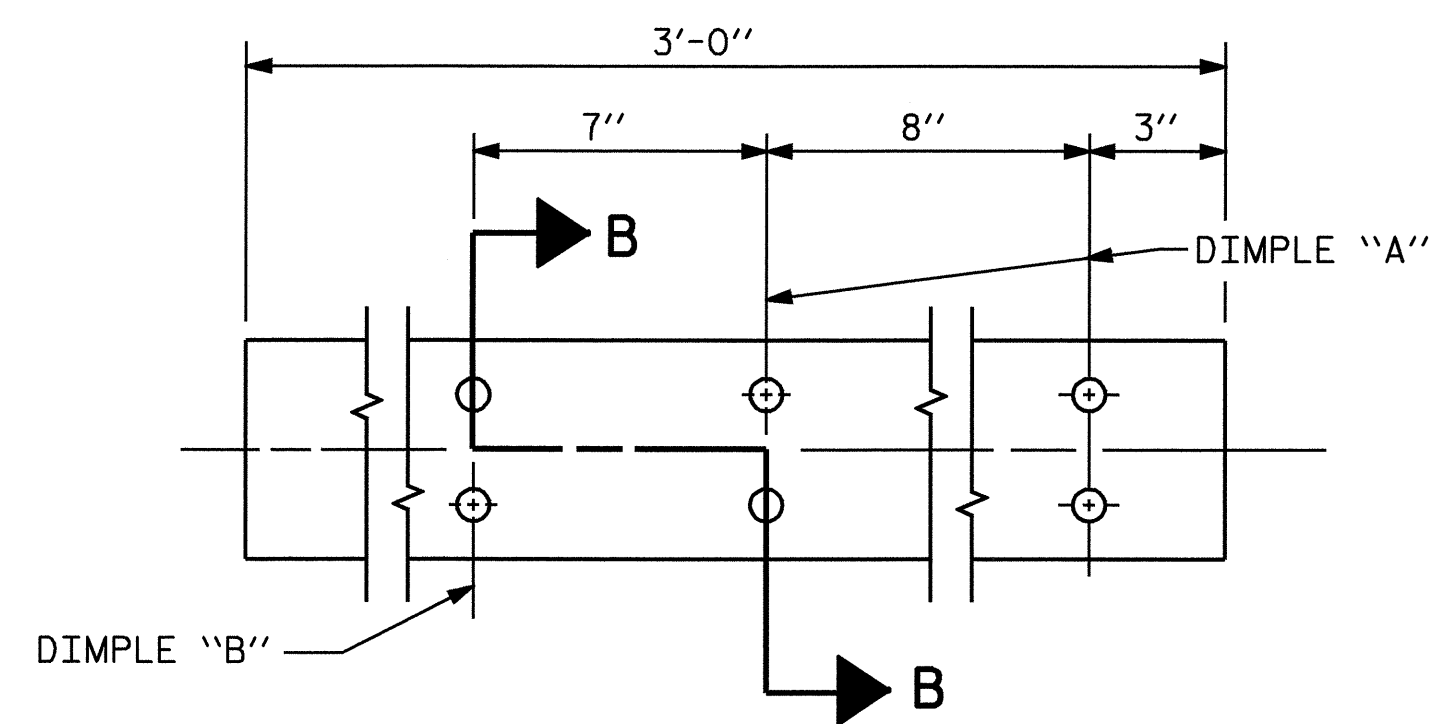
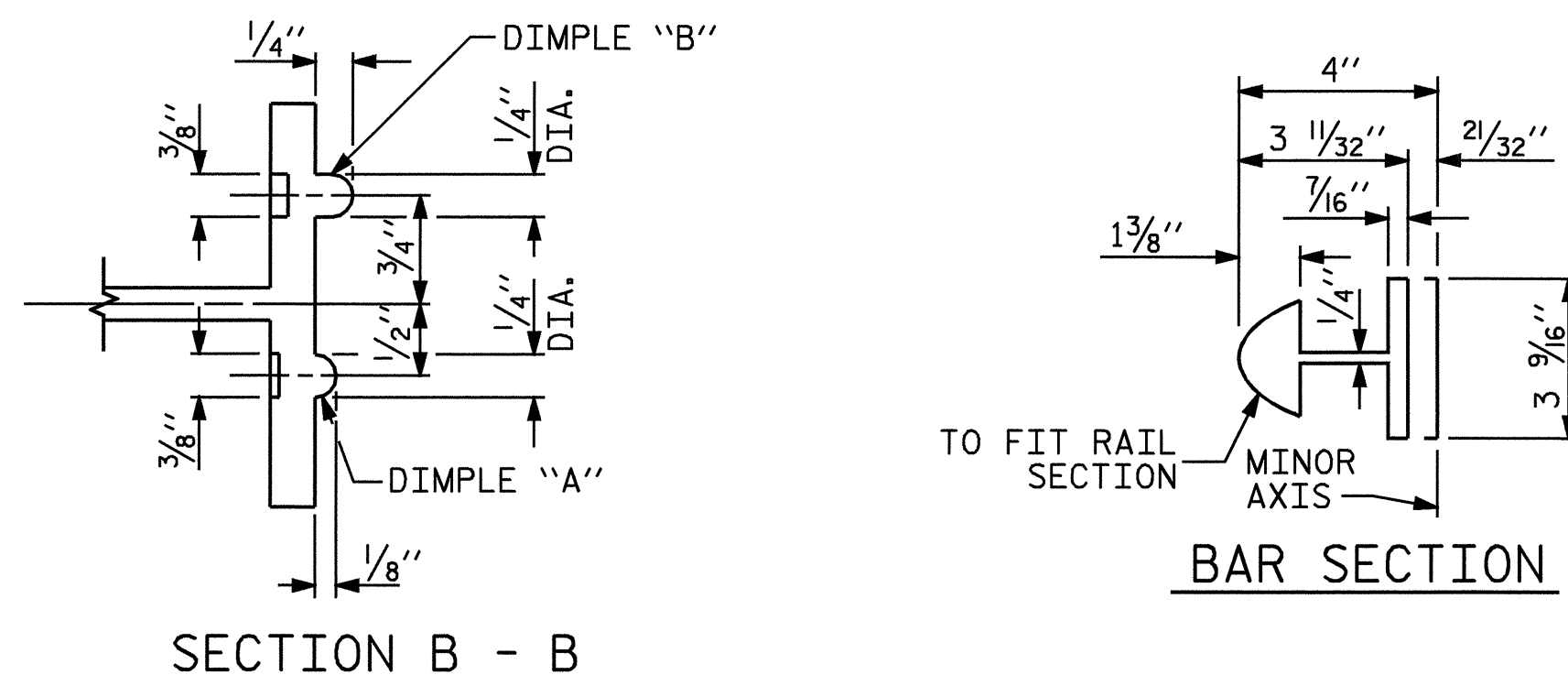
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A



DRAWN BY : N. Q. TRAN DATE : 4-05
 CHECKED BY : S. L. WANCE DATE : 6-07

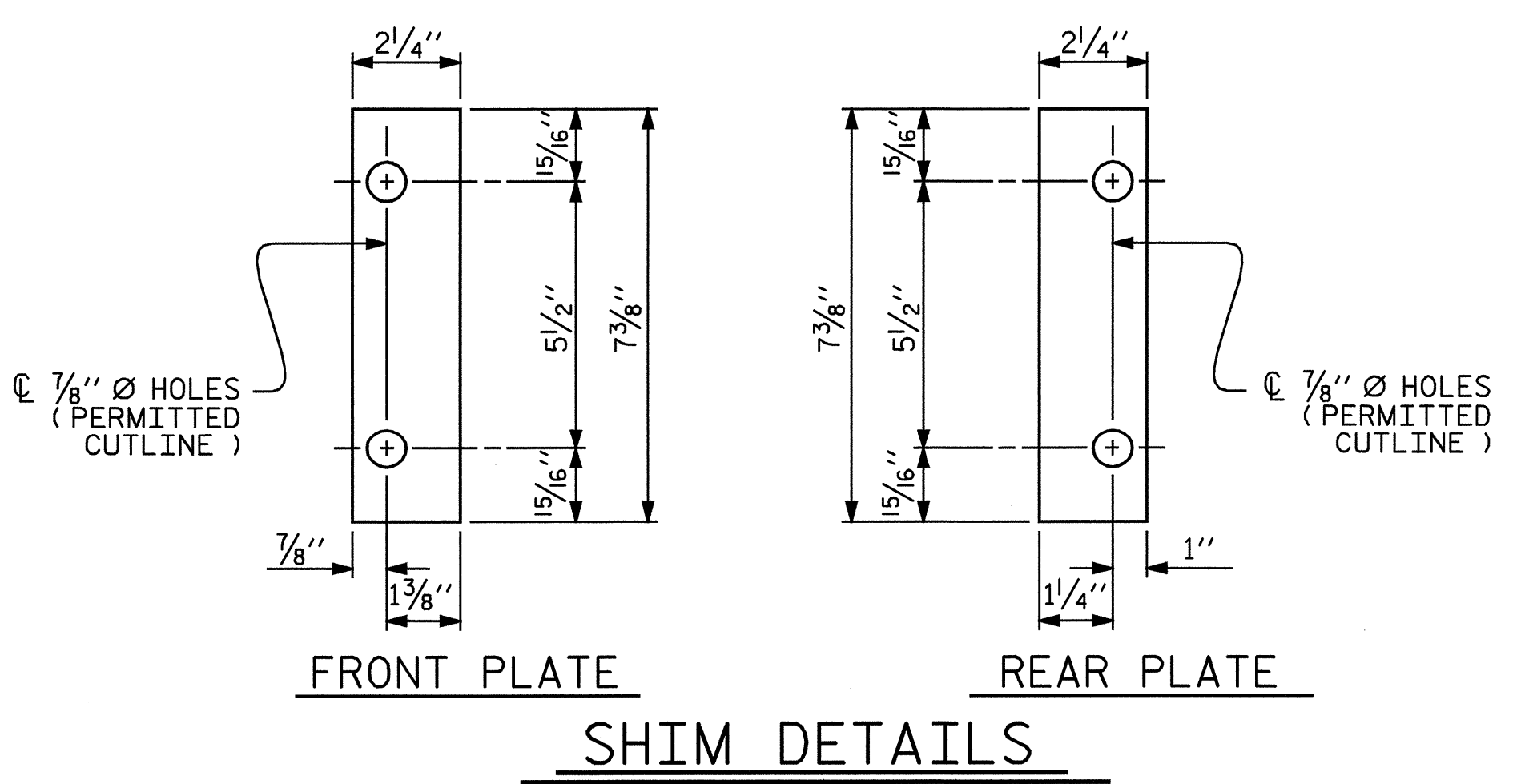
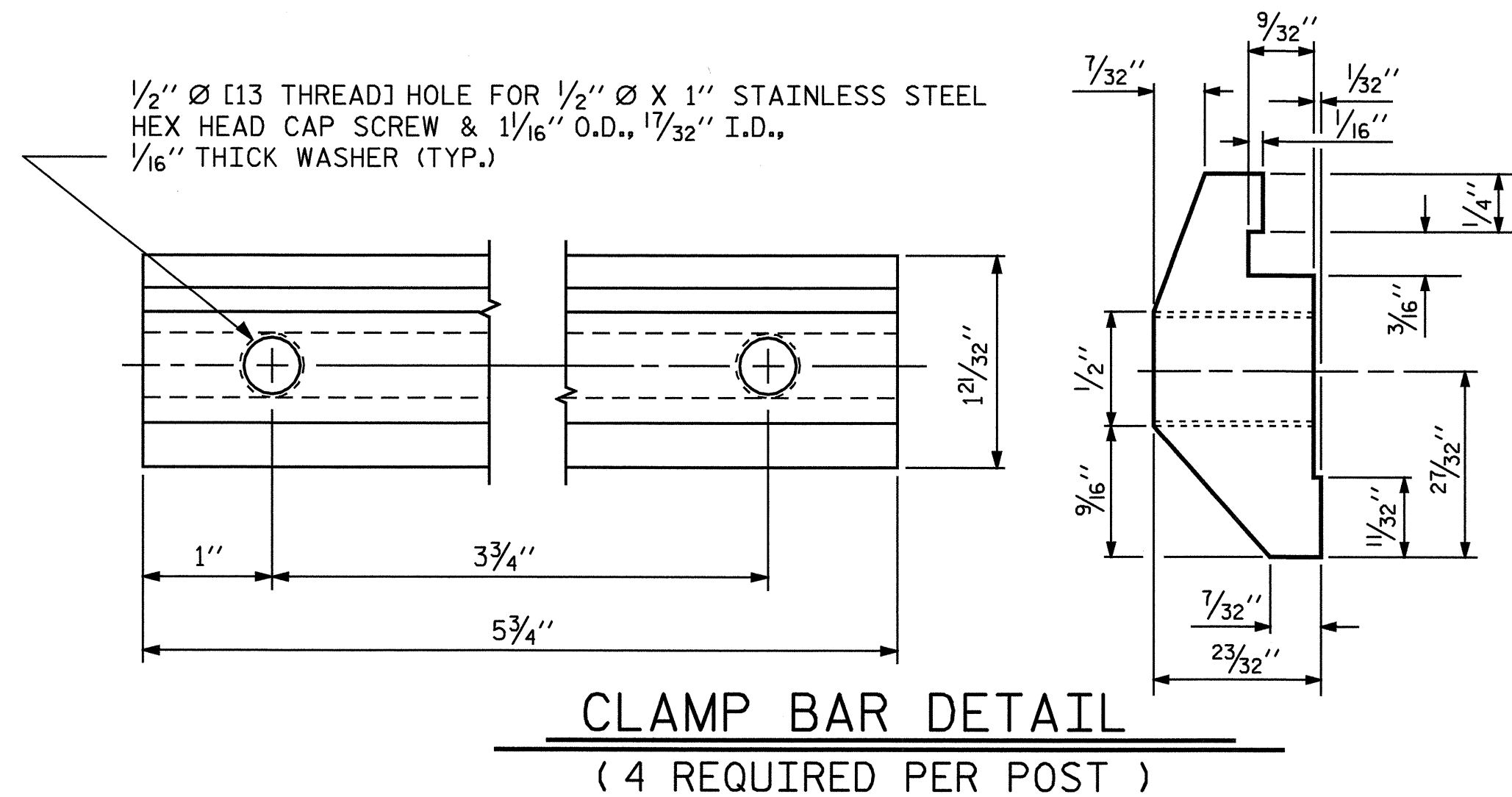
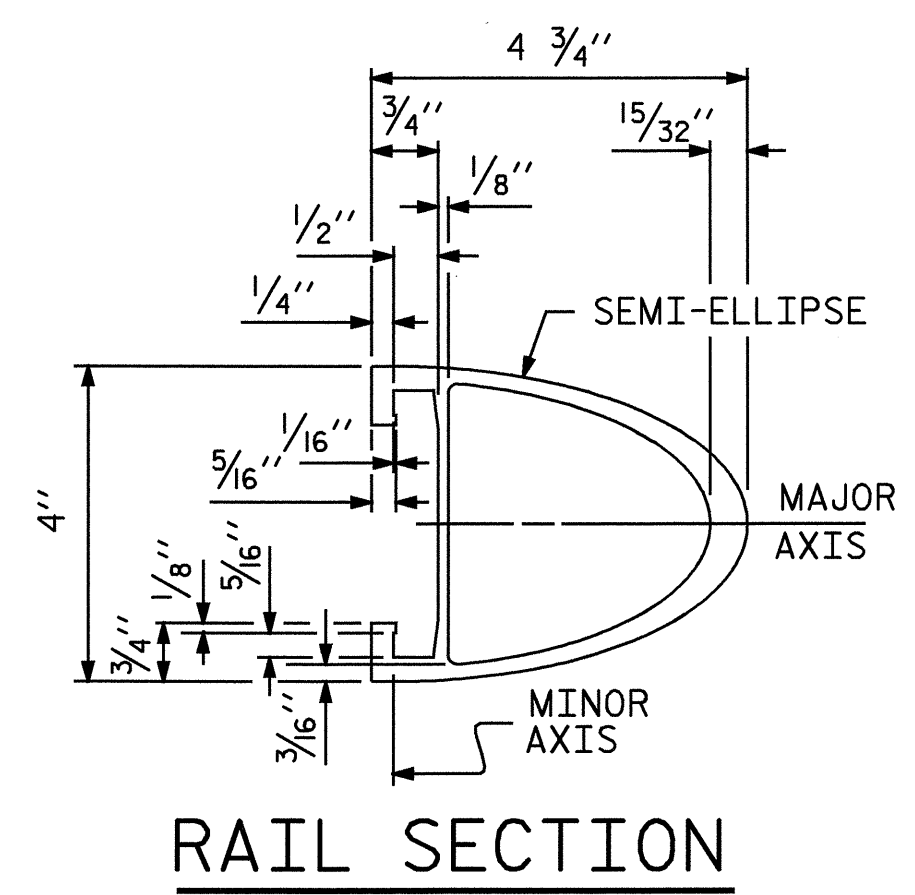
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			22



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

4-BOLT METAL RAIL ANCHOR ASSEMBLY

(140 ASSEMBLIES REQUIRED)



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

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.

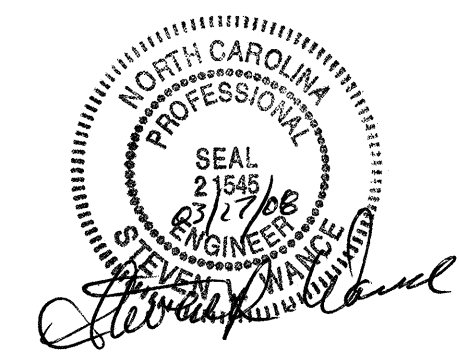
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

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

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

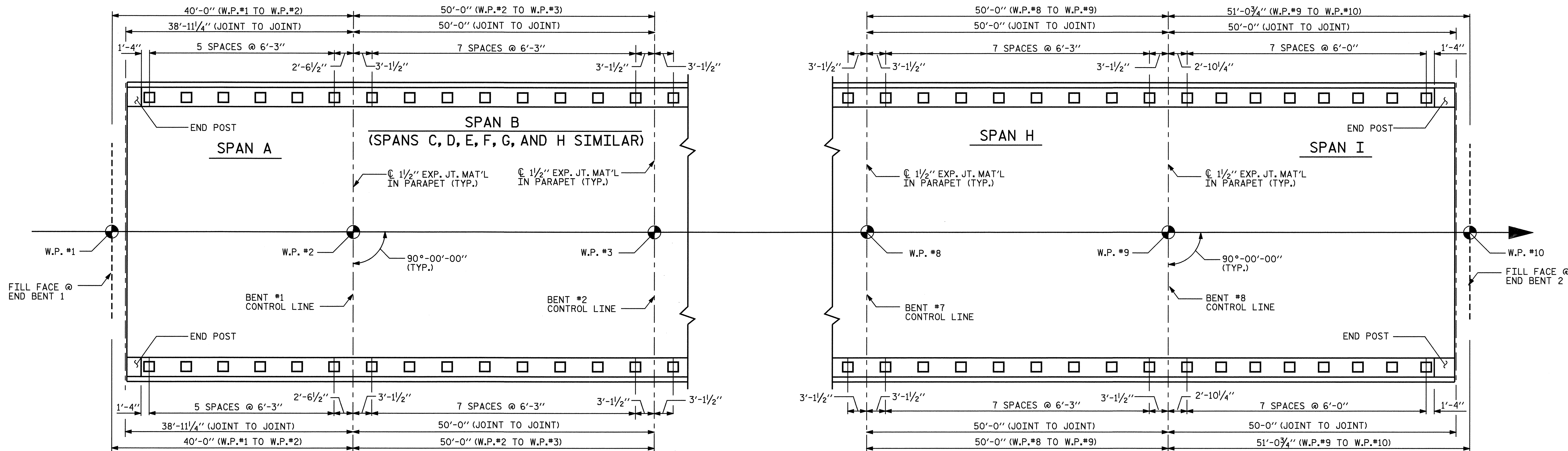
SHEET 6 OF 9

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



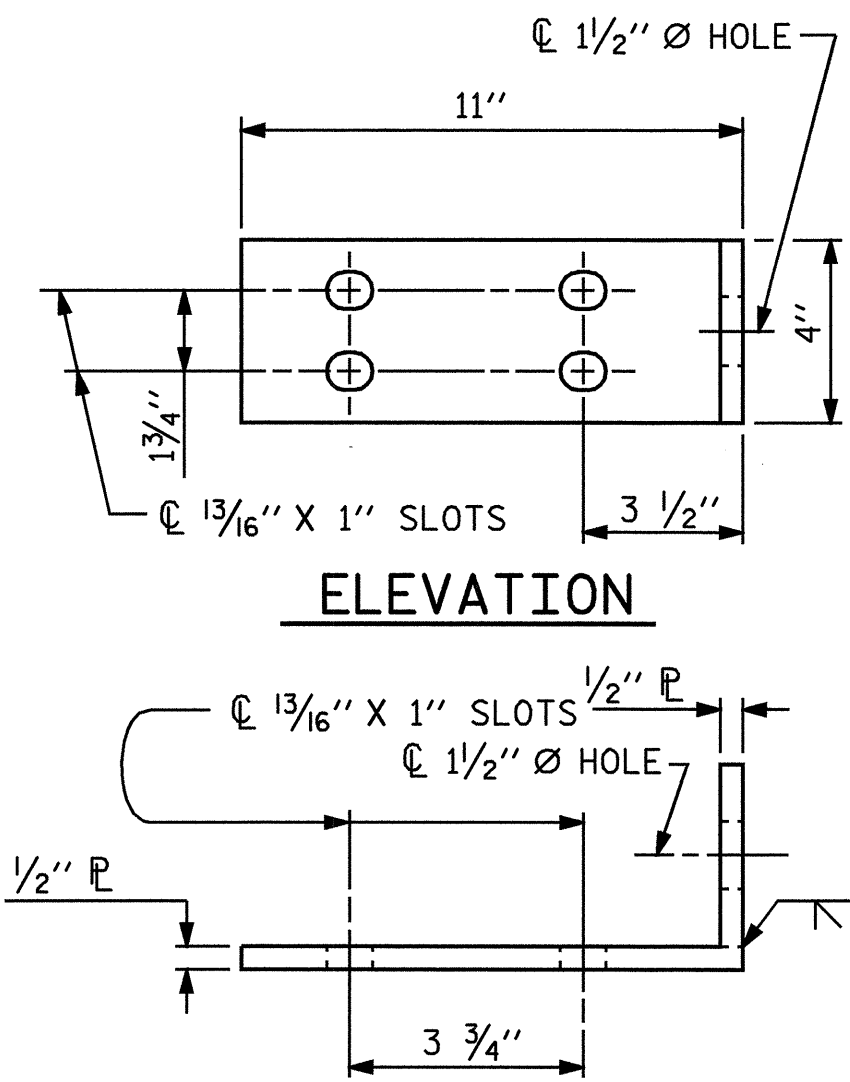
ASSEMBLED BY : N. Q. TRAN	DATE : 2-06
CHECKED BY : S. L. WANCE	DATE : 6-07
DRAWN BY : EEM 6/94	REV. 2/6/97 EEM/RGW
CHECKED BY : RGW 6/94	REV. 8/16/99 MAB/LES
	REV. 5/1/06 KMM/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			9
2			4			22

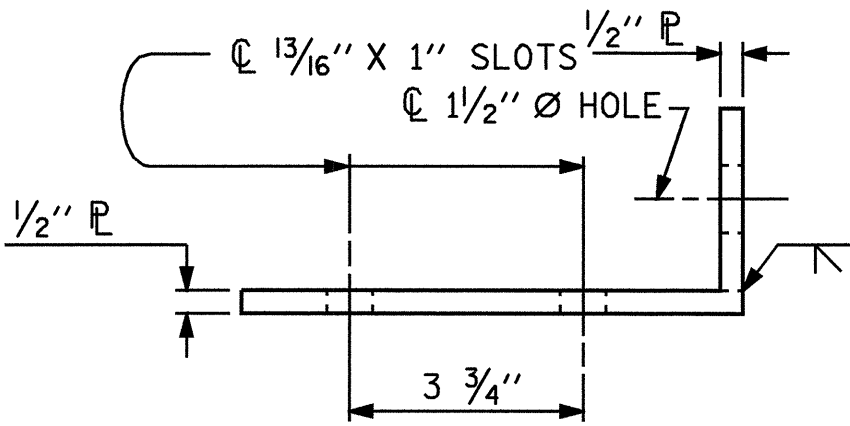


PLAN OF RAIL POST SPACINGS

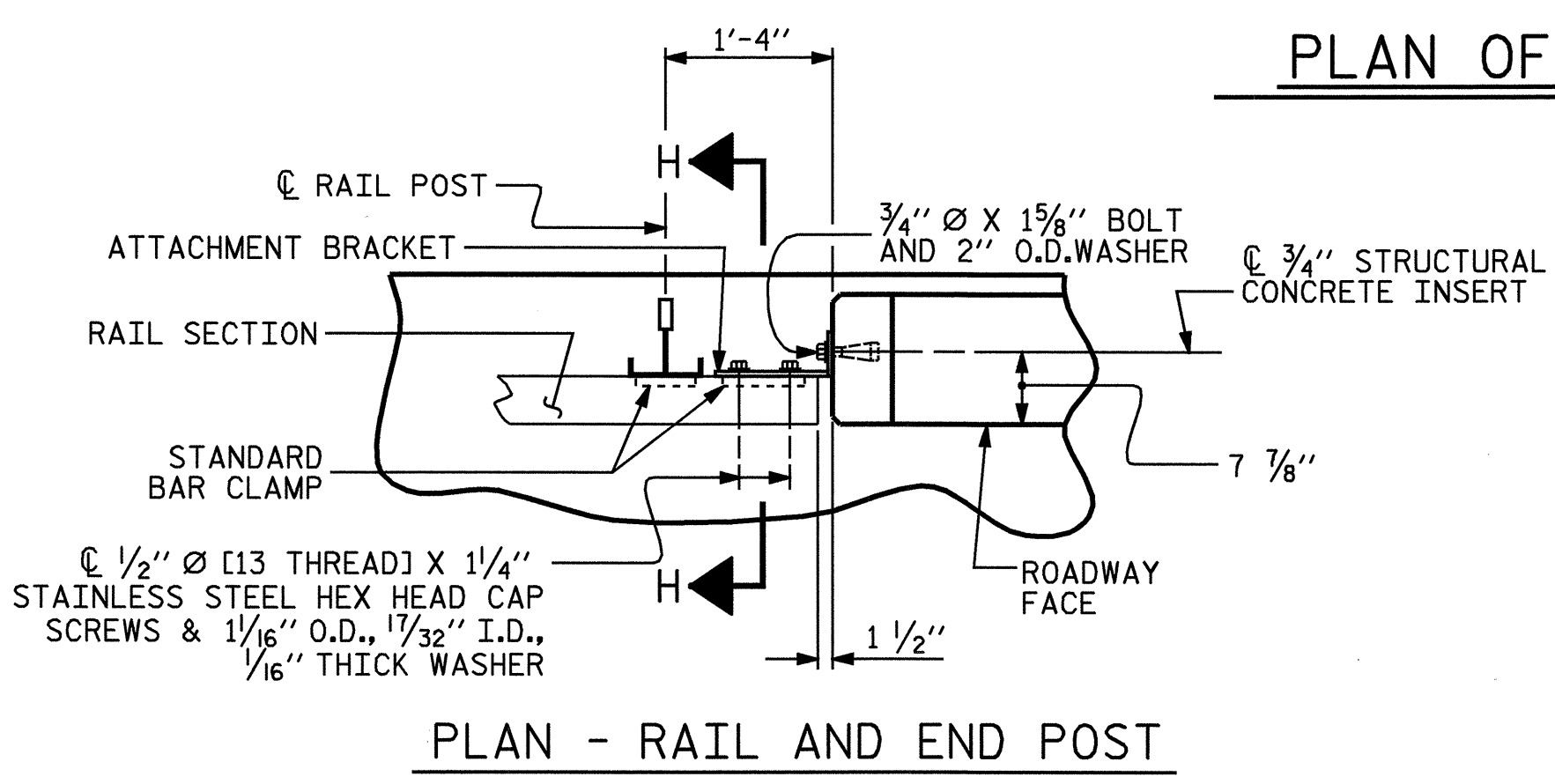
140 TOTAL POSTS



ELEVATION

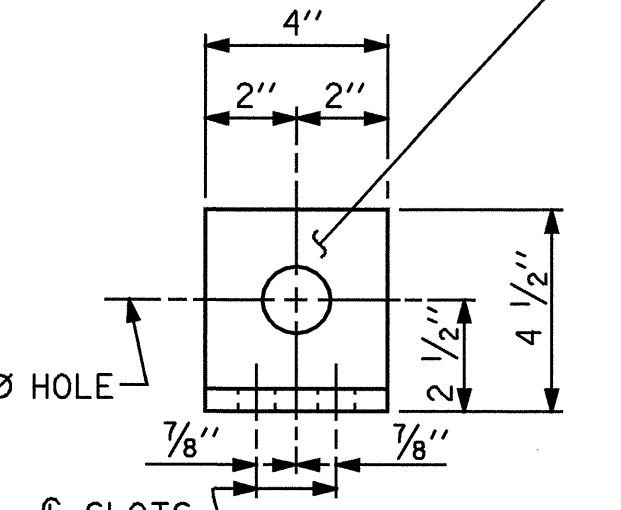


TOP VIEW

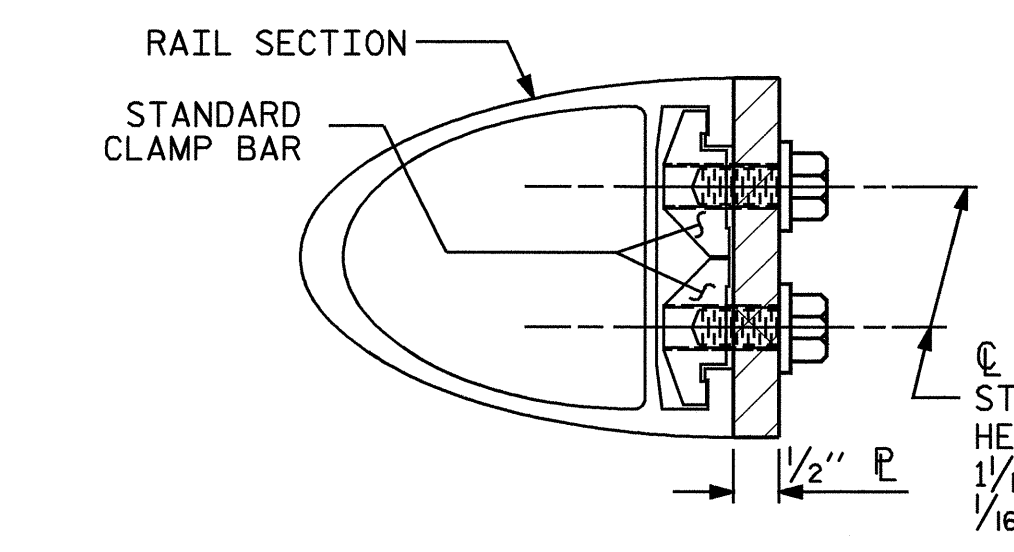


PLAN - RAIL AND END POST

ANGLE TO BE MADE FROM
 $\frac{1}{2}'' \times 4'' \times 11''$ P AND
 $\frac{1}{2}'' \times 4'' \times 4''$ P



END VIEW



SECTION H-H

DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

- STRUCTURAL CONCRETE INSERT
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1/2".
 - 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

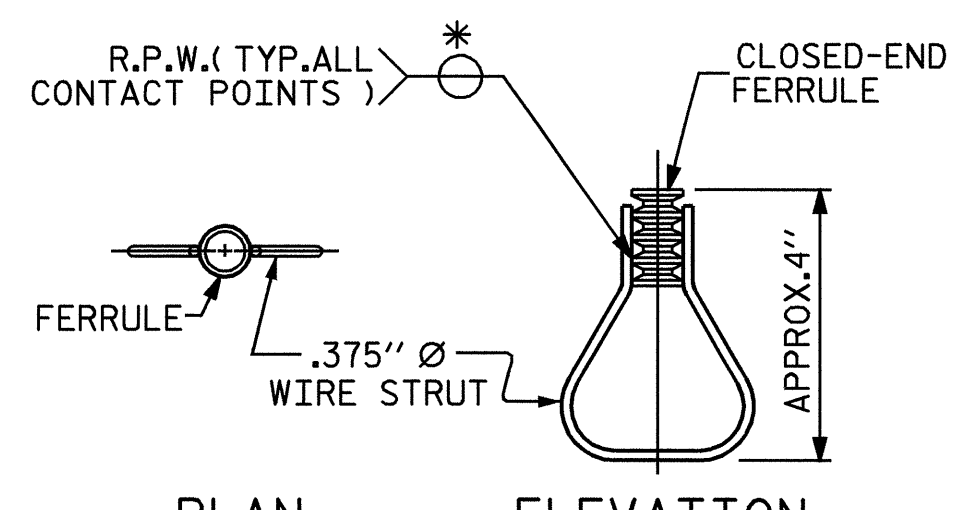
- METAL RAIL TO END POST CONNECTION
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
 - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60° F.
 - STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED. SEE SPECIAL PROVISIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS.



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

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

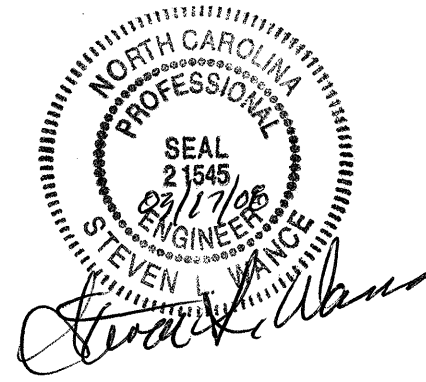
PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-
 SHEET 7 OF 9

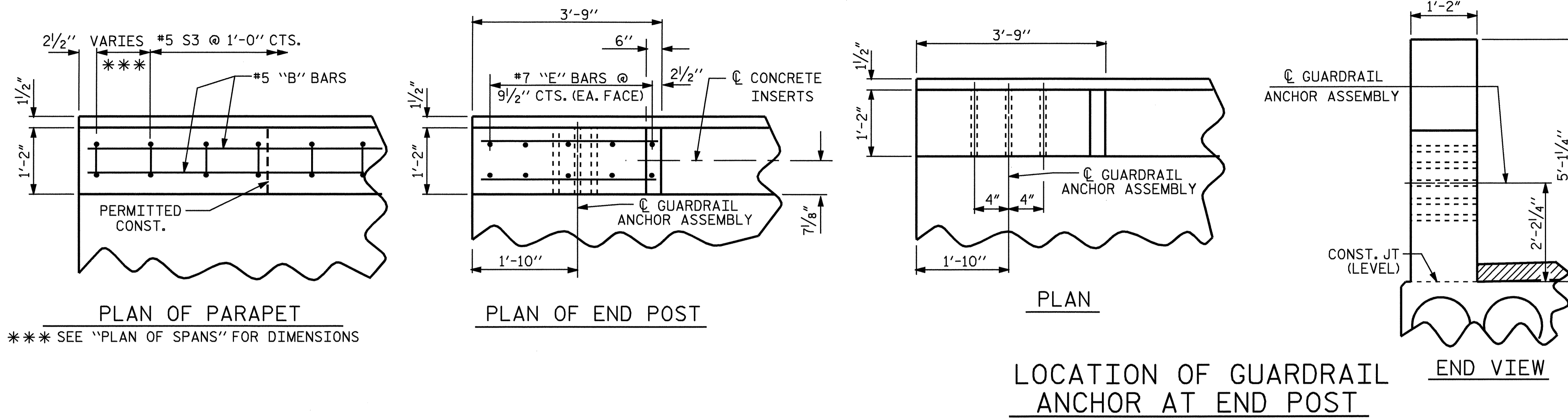
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS 22	
2			4				

ASSEMBLED BY : N. Q. TRAN	DATE : 4-06
CHECKED BY : S. L. WANCE	DATE : 6-07
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM





*** SEE "PLAN OF SPANS" FOR DIMENSIONS

NOTES

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

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

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

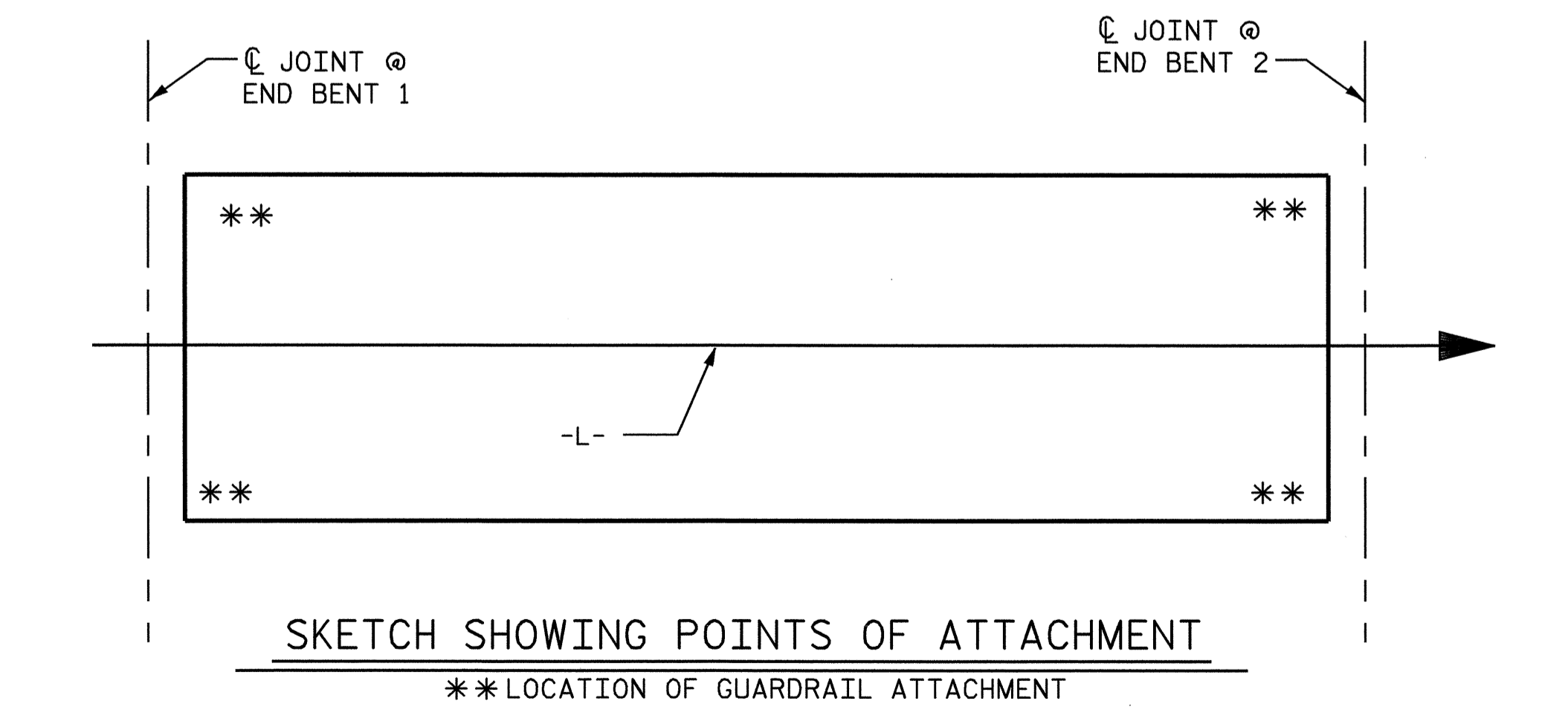
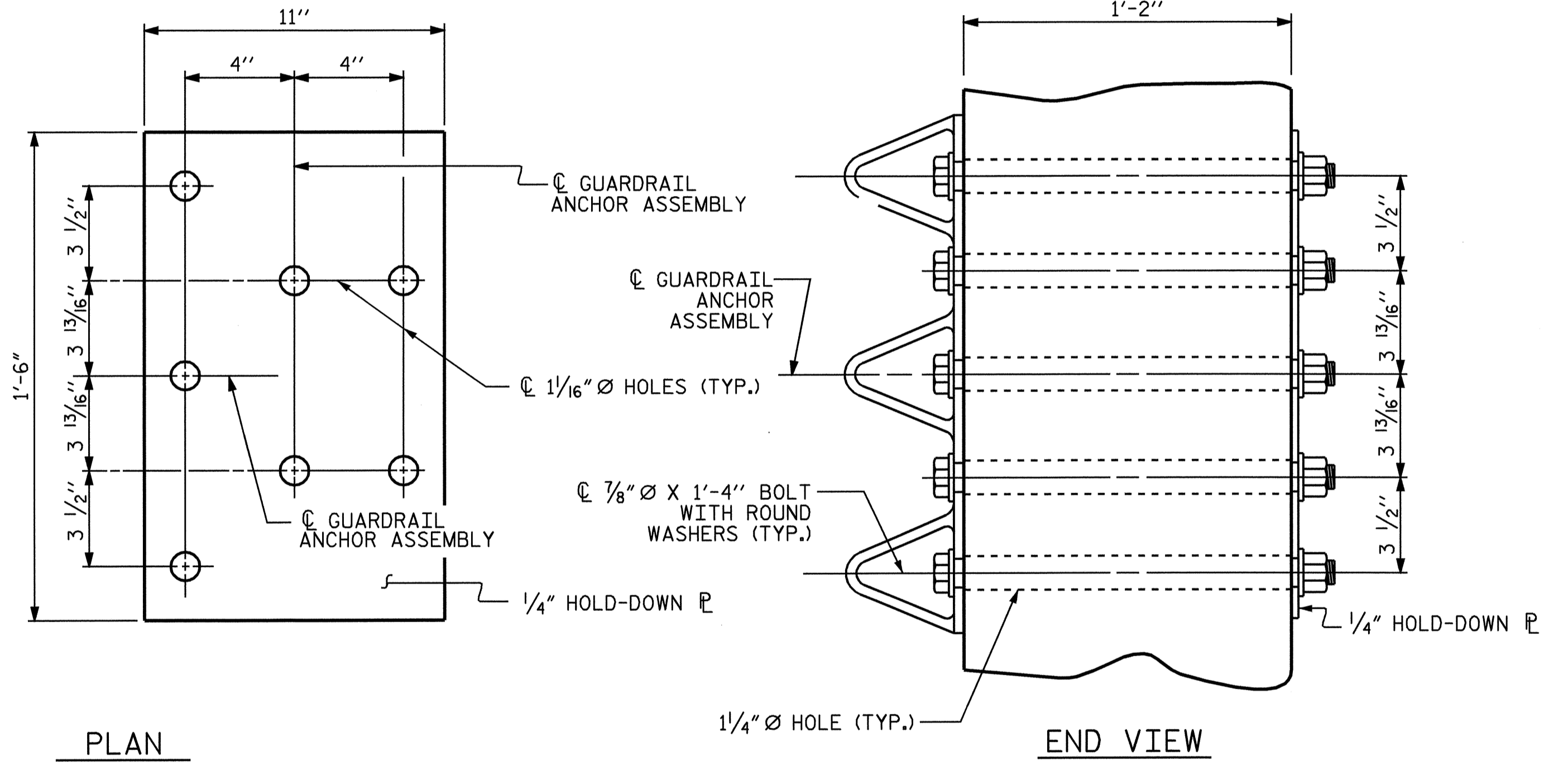
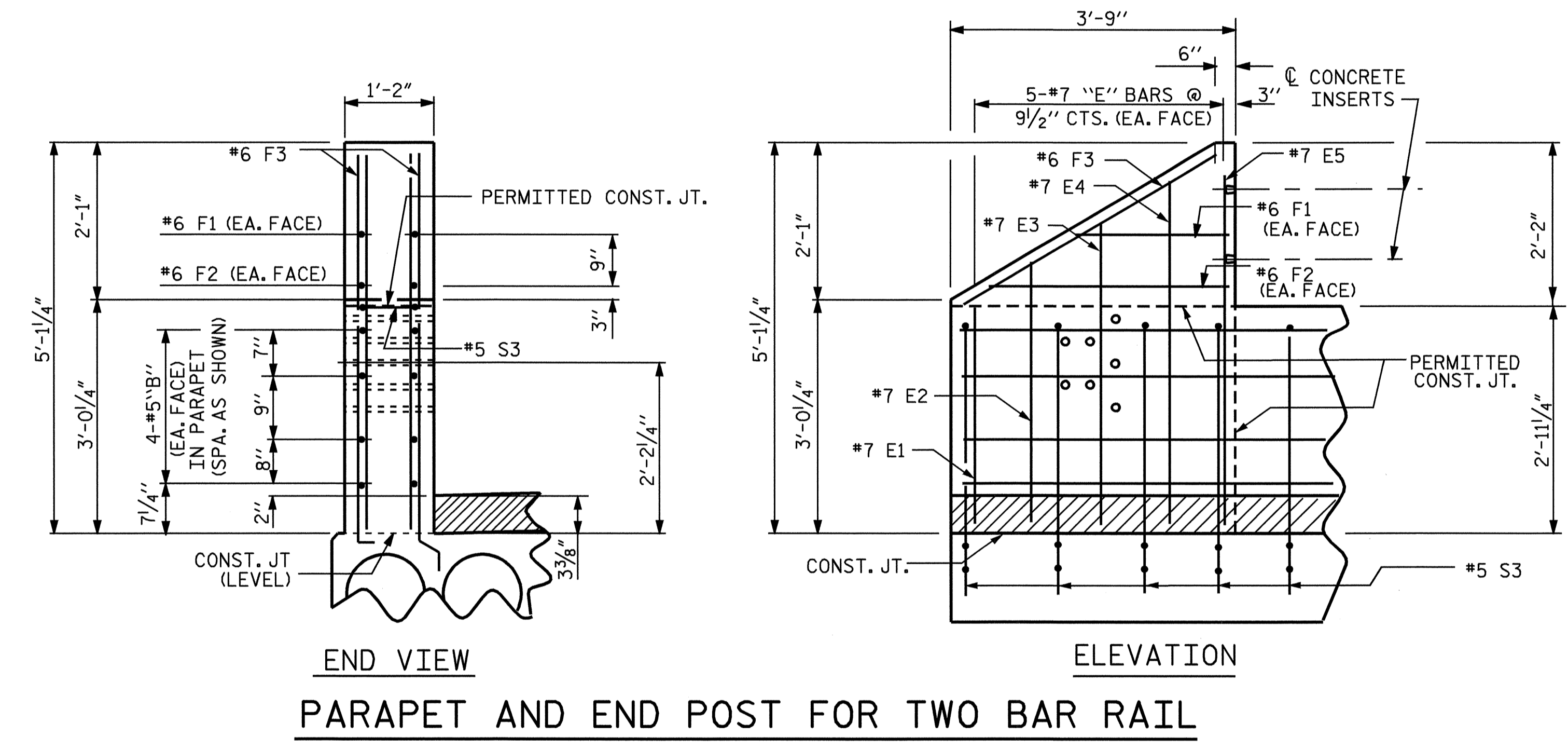
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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

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

THE 1 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.

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



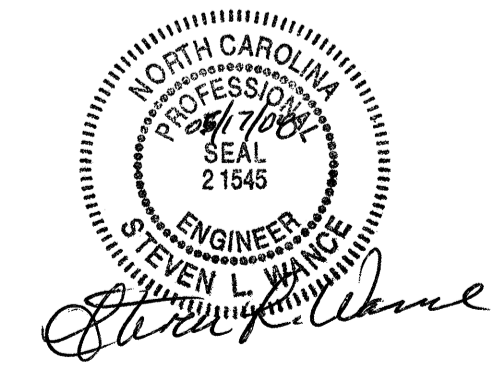
BILL OF MATERIAL FOR PARAPET AND END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B3	16	# 5	STR.	38'-5"	641
* B4	128	# 5	STR.	49'-4"	6586
* E1	8	# 7	STR.	2'-9"	45
* E2	8	# 7	STR.	3'-3"	53
* E3	8	# 7	STR.	3'-9"	61
* E4	8	# 7	STR.	4'-3"	69
* E5	8	# 7	STR.	4'-7"	75
* F1	8	# 6	STR.	1'-10"	22
* F2	8	# 6	STR.	3'-0"	36
* F3	8	# 6	STR.	3'-8"	44
* EPOXY COATED REINFORCING STEEL					LBS. = 7632
CLASS AA CONCRETE (IN END POSTS & PARAPET)					CU.YDS. = 115.3
TOTAL LENGTH (END POSTS & PARAPET)					LIN. FT. = 877.63

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

SHEET 8 OF 9

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



ASSEMBLED BY : N.Q. TRAN DATE : 2-06
 CHECKED BY : S. L. WANCE DATE : 6-07
 DRAWN BY : EEM 6/94 REV. 10/17/00 RWW/LES
 CHECKED BY : RGW 6/94 REV. 5/7/03 RWW/JTE
 REV. 5/1/06 TLA/GM

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

TOTAL SHEETS: 22
 S-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. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF SLAB SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

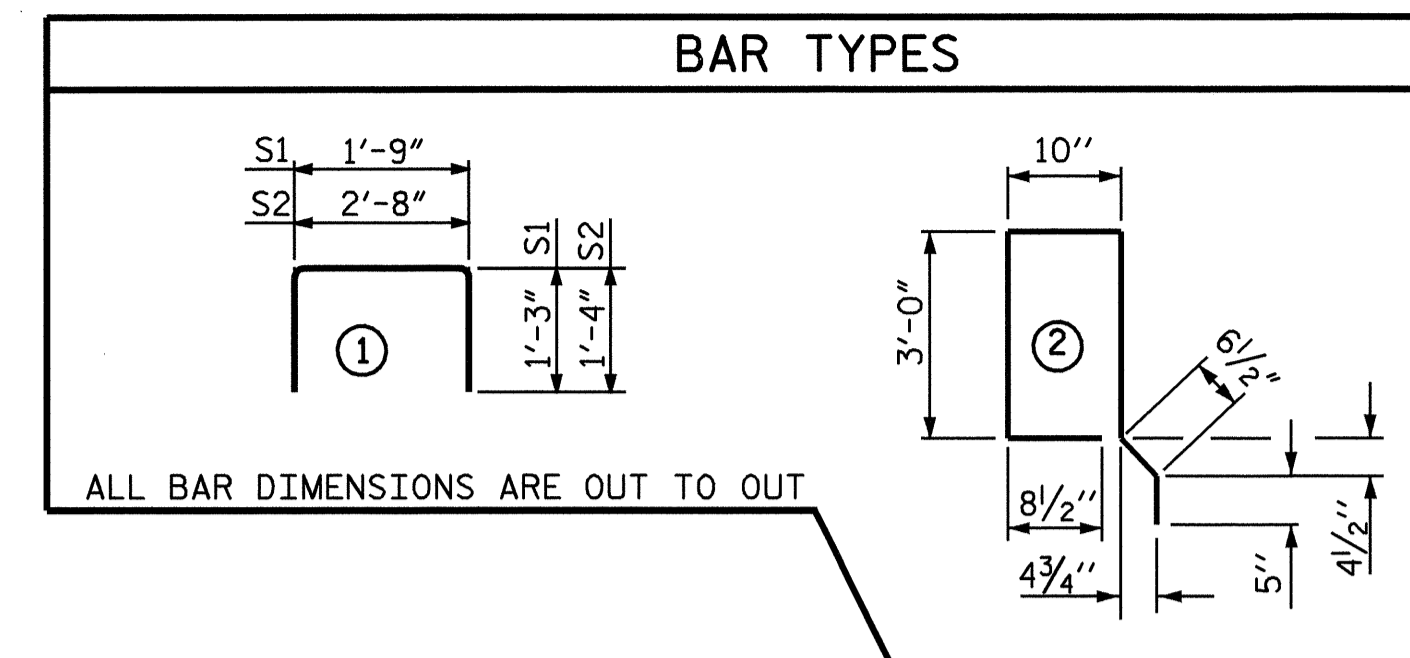
THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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

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 4000 PSI.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.



BILL OF MATERIAL FOR ONE CORED SLAB SECTION SPAN A							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	# 4	STR	20'-2"	54	20'-2"	54
S1	8	# 4	1	4'-3"	23	4'-3"	23
S2	76	# 4	1	5'-4"	271	5'-4"	271
* S3	40	# 5	2	8'-6"	355		
REINFORCING STEEL				LBS.	348		348
* EPOXY COATED REINFORCING STEEL				LBS.	355		
5,000 P.S.I. CONCRETE				CU. YDS.	5.7		5.4
1/2" Ø L.R. STRANDS				No.	14		14

GRADE 270 STRANDS	
	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

BILL OF MATERIAL FOR ONE CORED SLAB SECTION SPANS B, C, D, E, F, G, H AND I							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	# 4	STR	25'-8"	69	25'-8"	69
S1	8	# 4	1	4'-3"	23	4'-3"	23
S2	98	# 4	1	5'-4"	349	5'-4"	349
* S3	51	# 5	2	8'-6"	452		
REINFORCING STEEL				LBS.	441		441
* EPOXY COATED REINFORCING STEEL				LBS.	452		
5,000 P.S.I. CONCRETE				CU. YDS.	6.9		6.9
1/2" Ø L.R. STRANDS				No.	23		23

DEAD LOAD DEFLECTION AND CAMBER SPAN A	
	3'-0" x 1'-9"
	1/2" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	↑ 13/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	↓ 1/8"
FINAL CAMBER	↑ 11/16"

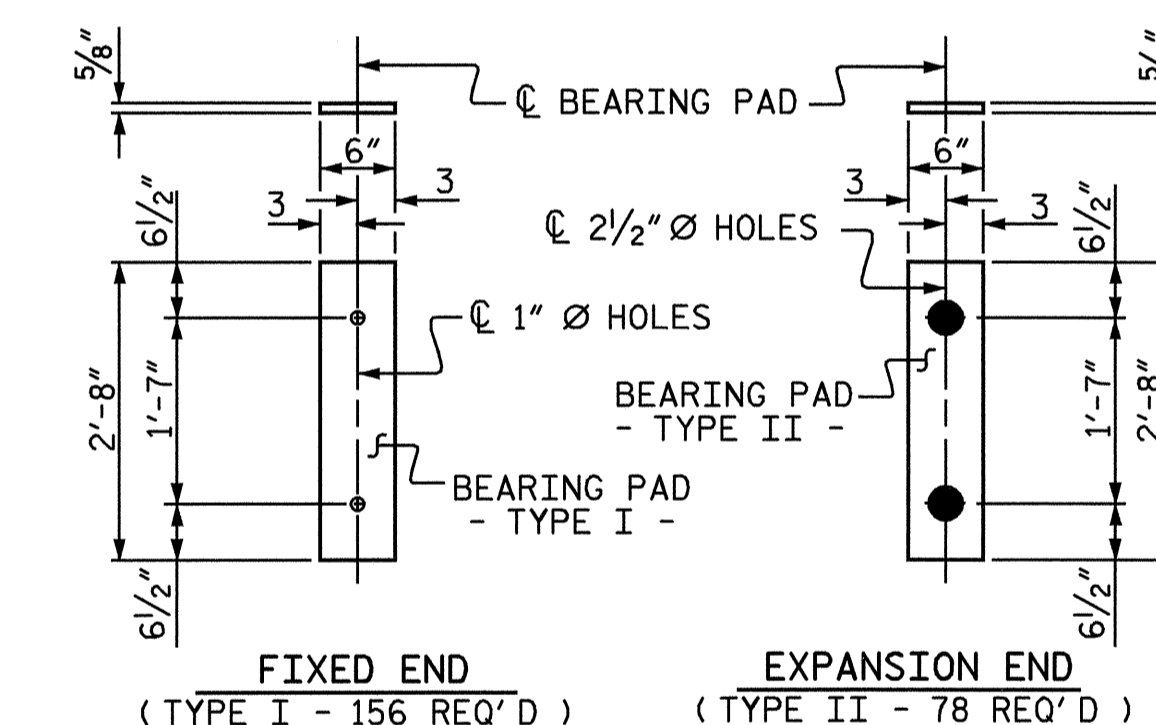
** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER SPANS B, C, D, E, F, G, H AND I	
	3'-0" x 1'-9"
	1/2" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	↑ 2/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	↓ 1/4"
FINAL CAMBER	↑ 1 13/16"

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED				
	NUMBER PER SPAN	SPAN A	SPANS B, C, D, E, F, G, H & I	TOTAL LENGTH
EXTERIOR C.S.	2	38'-9 3/4"	49'-10 1/2"	875'-7 1/2"
INTERIOR C.S.	11	38'-9 3/4"	49'-10 1/2"	4815'-11 1/4"
TOTAL				5691'-6 3/4"

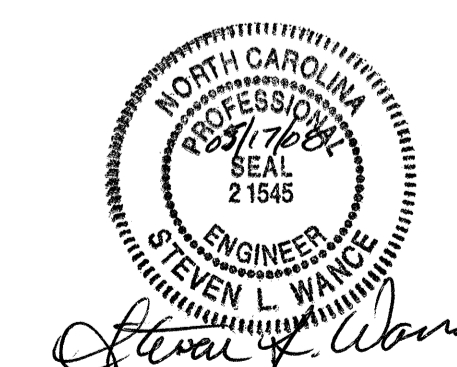
ELASTOMER IN ALL BEARING PADS SHALL BE 60 DUROMETER HARDNESS.



ELASTOMERIC BEARING DETAILS

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00-L-

SHEET 9 OF 9



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 1'-9"
 PRESTRESSED
 CONCRETE CORED
 SLAB UNIT

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

ASSEMBLED BY : N. Q. TRAN DATE : 4-05
 CHECKED BY : S. L. WANCE DATE : 6-07

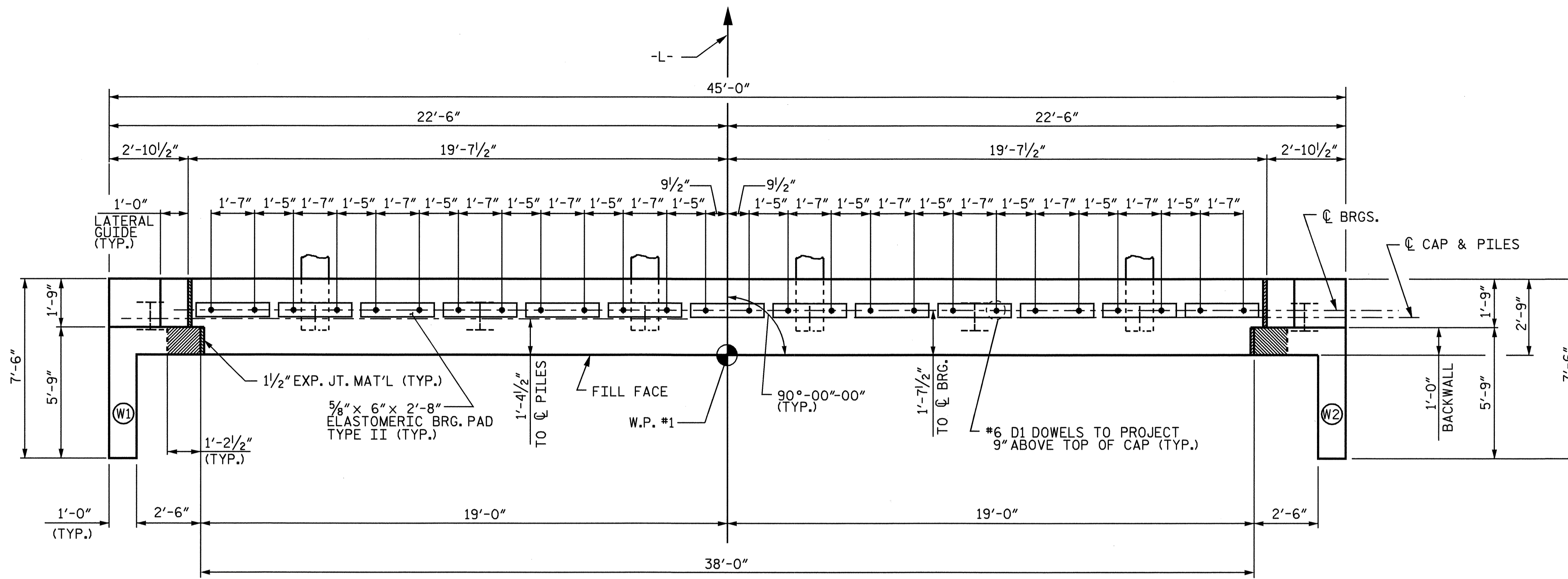
NOTES

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

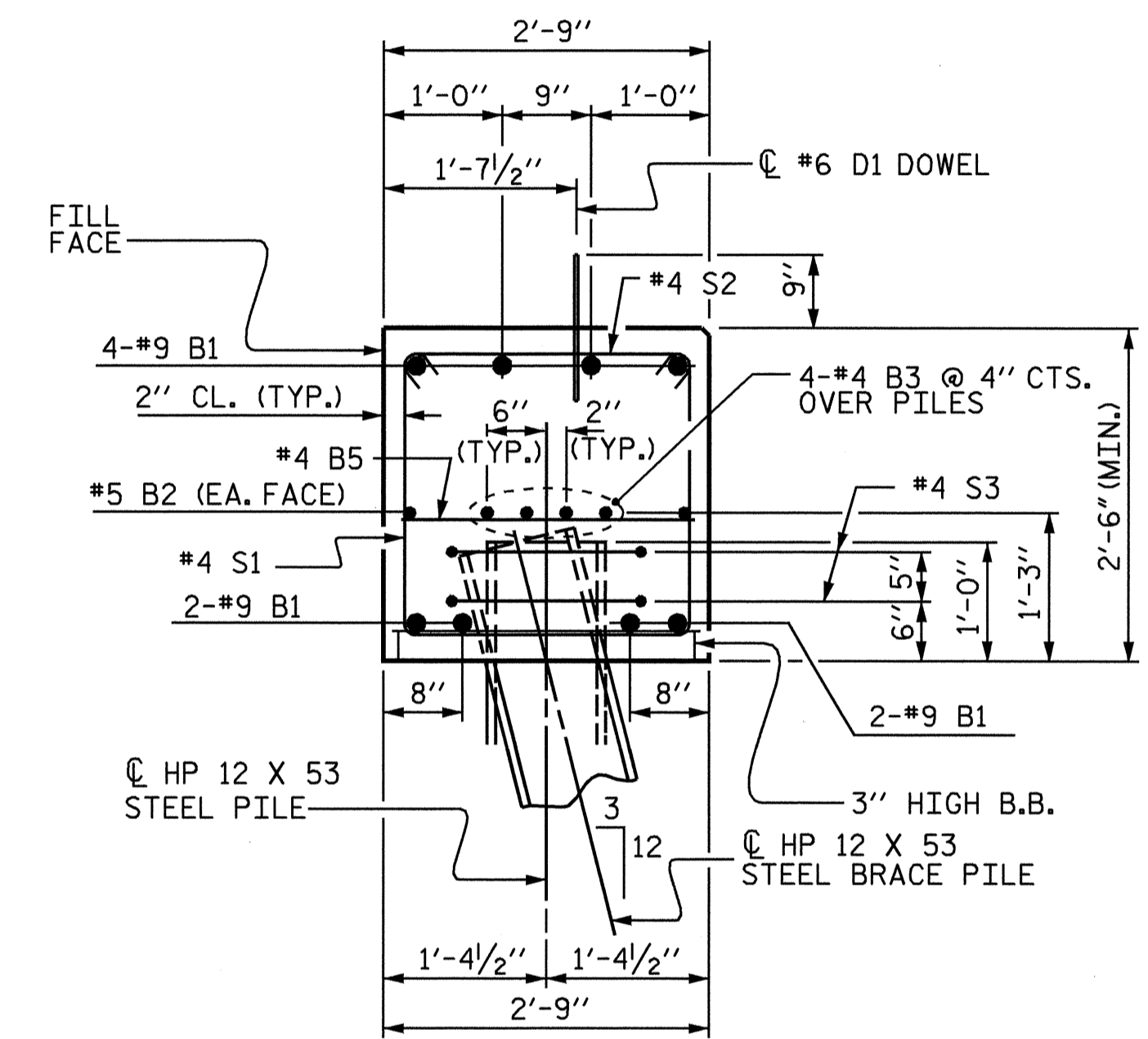
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

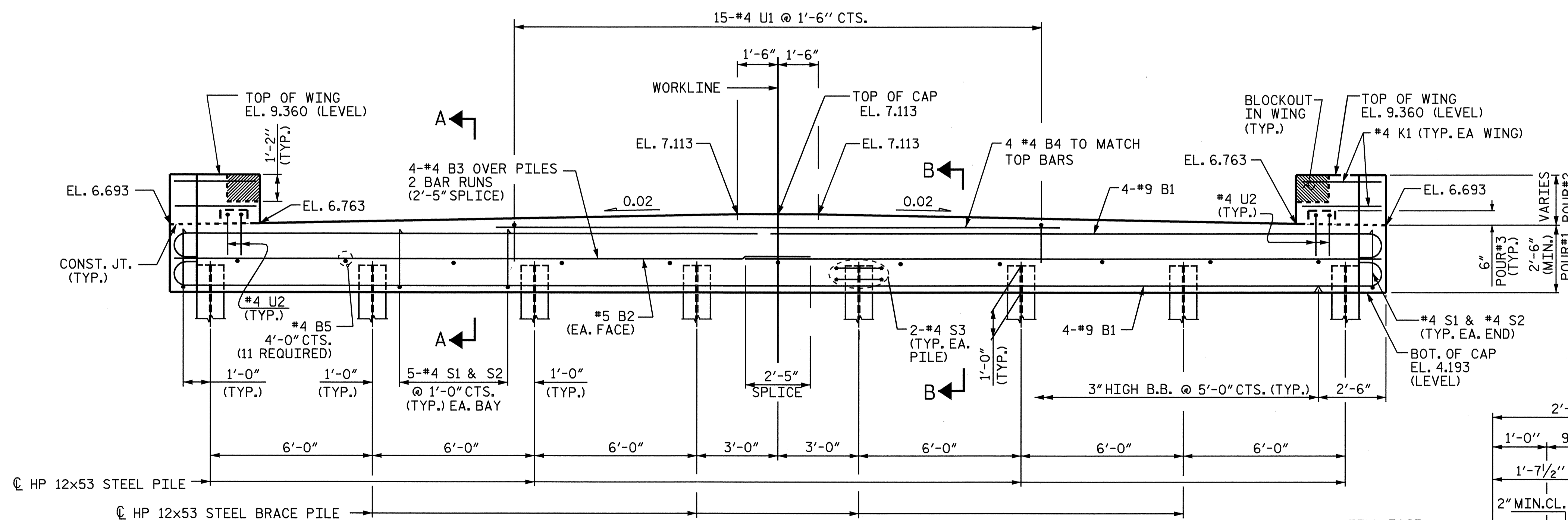
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" Ø DRAIN PIPE BEHIND THE END BENT CAP AS SHOWN ON THE BRIDGE APPROACH SLAB, SHEET 1 OF 2. IN ADDITION, SEE THE ROADWAY PLANS.



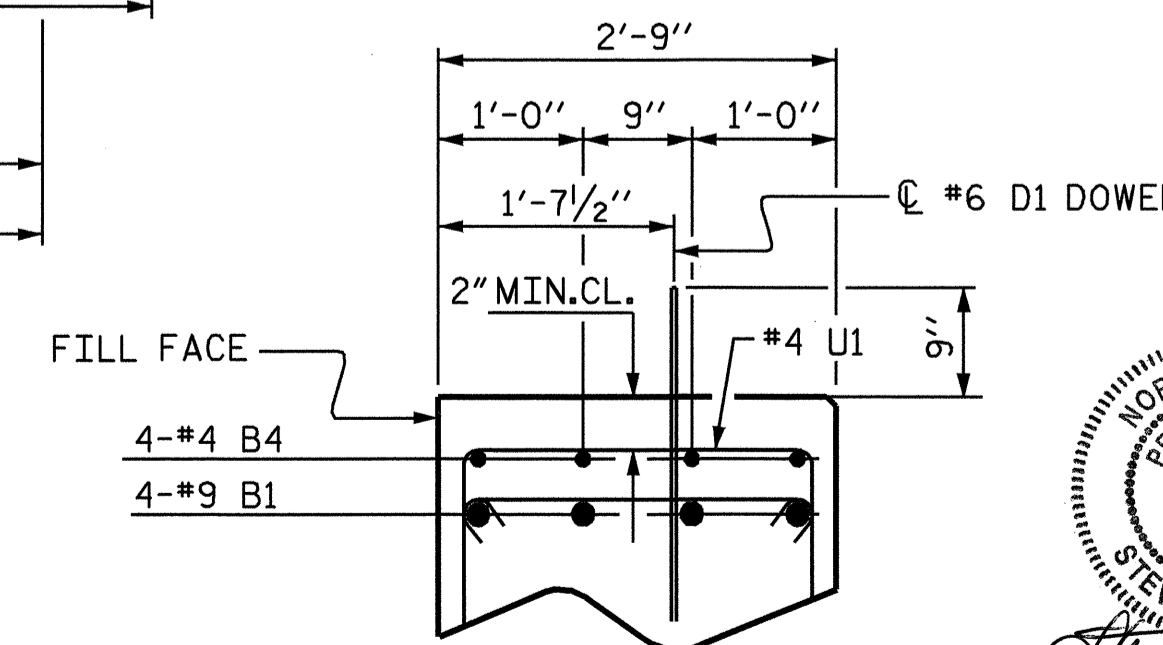
PLAN



SECTION A-A



ELEVATION



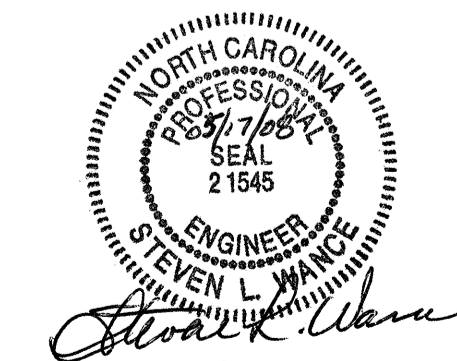
SECTION B-B

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1



DRAWN BY : N. Q. TRAN DATE : 9/25/06
 CHECKED BY : S.L. WANCE DATE : 10/27/06

16-MAY-2008 10:40
 r:\structures\final plans\b4020.sd_01.eb.dgn
 jfillman

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13	
1			3			TOTAL SHEETS	22
2			4				

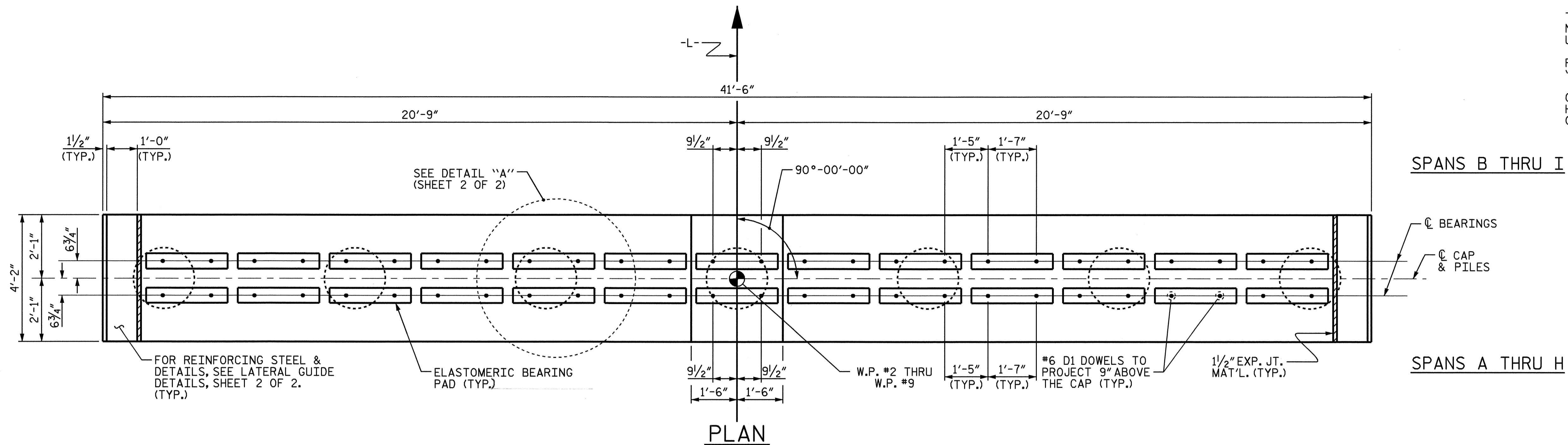
NOTES

STIRRUPS AND U4 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

FOR REINFORCING STEEL IN PIPE PILES, SEE "24" STEEL PIPE PILE" SHEET.

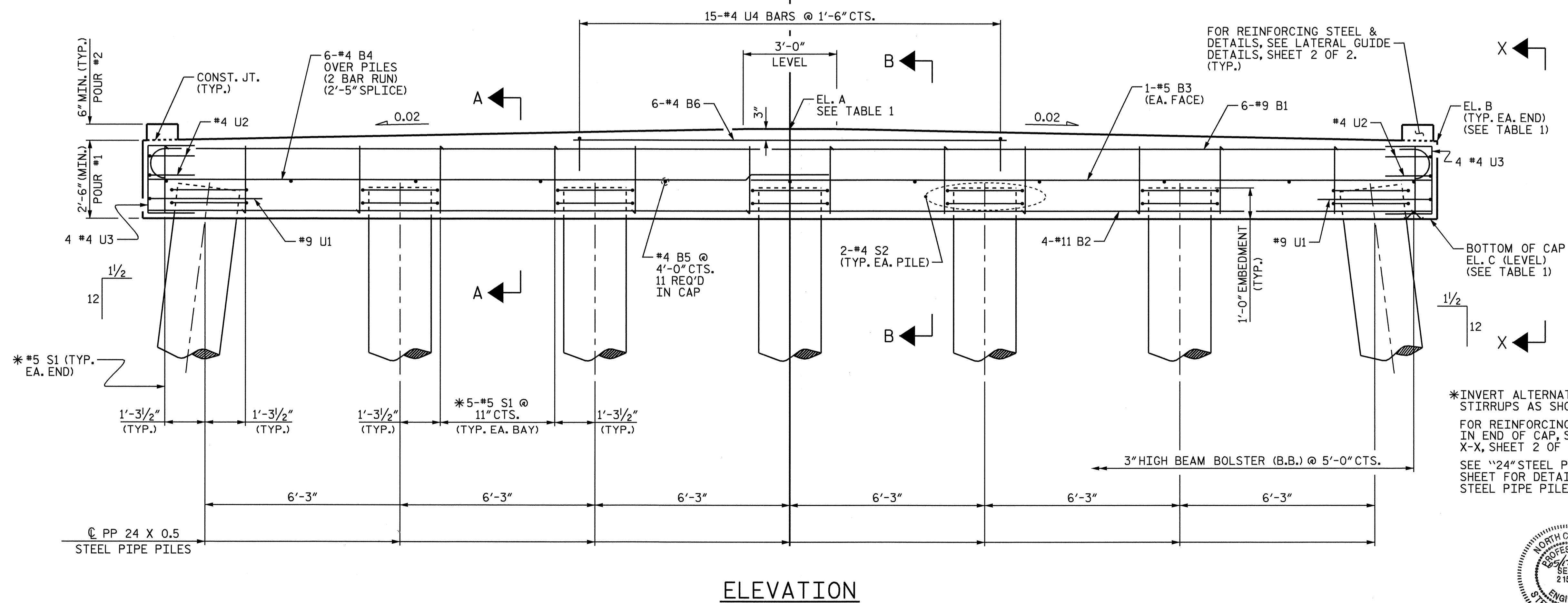
CONCRETE DISPLACED BY 24" STEEL PIPE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.



PLAN

CAP ELEVATIONS			
BENT NO.	A	B	C
BENT #1	7.473	7.087	4.587
BENT #2	7.949	7.563	5.063
BENT #3	8.386	7.999	5.499
BENT #4	8.666	8.279	5.779
BENT #5	8.781	8.395	5.895
BENT #6	8.727	8.342	5.842
BENT #7	8.509	8.124	5.624
BENT #8	8.168	7.783	5.283

TABLE 1



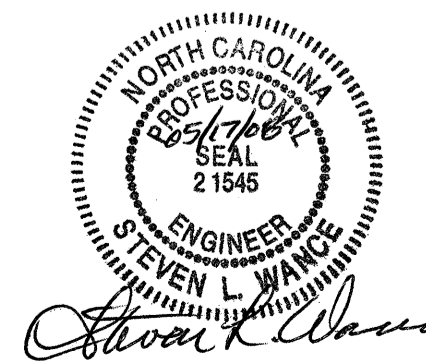
ELEVATION

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

SHEET 1 OF 2

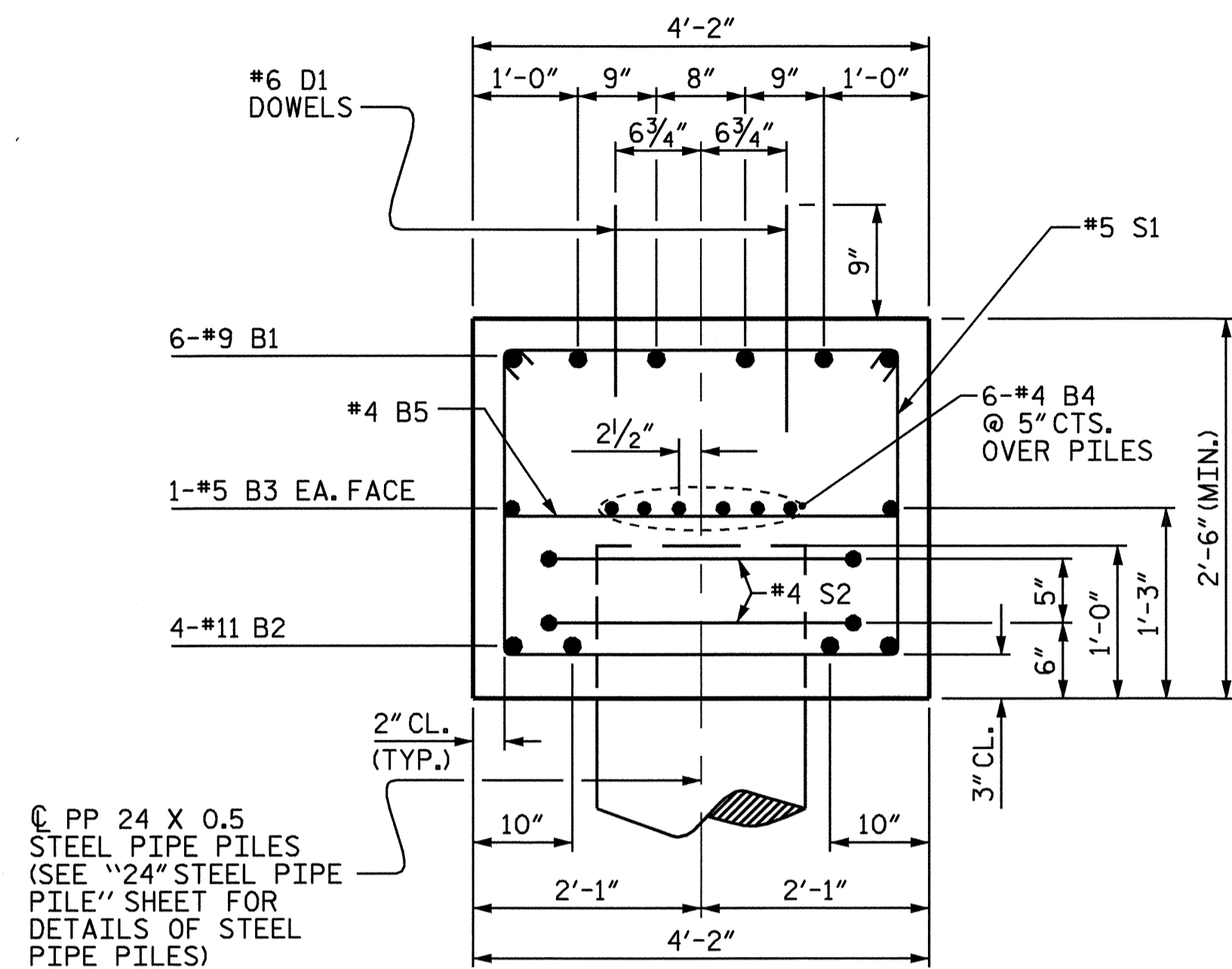
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENTS 1 THRU 8

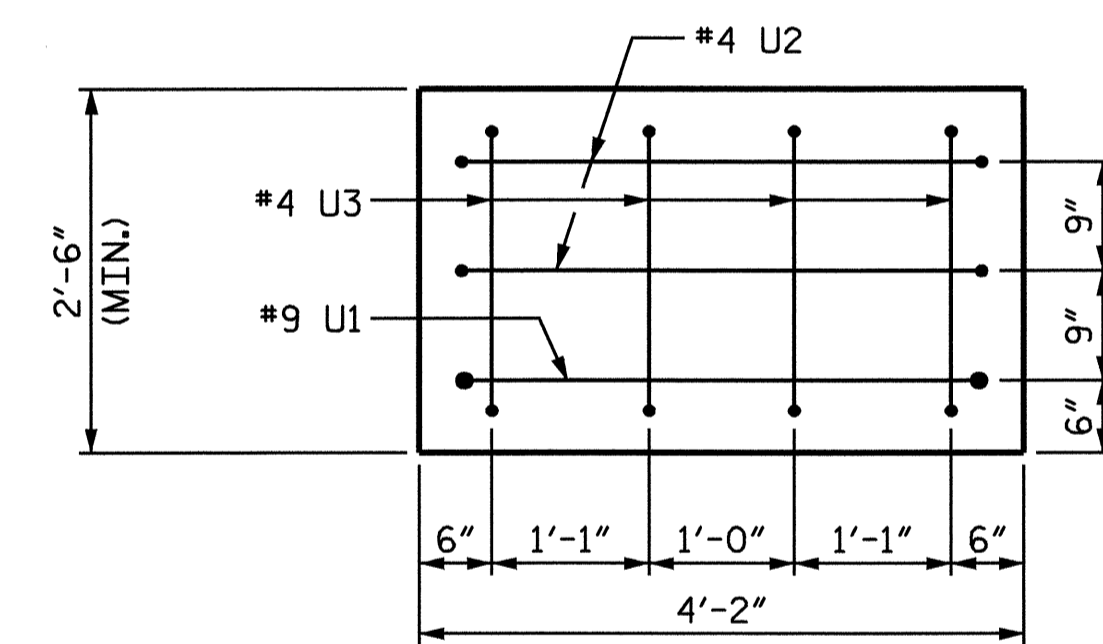


DRAWN BY : E.C. LOCKLEAR DATE : 4-10-07
 CHECKED BY : N.Q. TRAN DATE : 5-23-07

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS 22	
2			4				

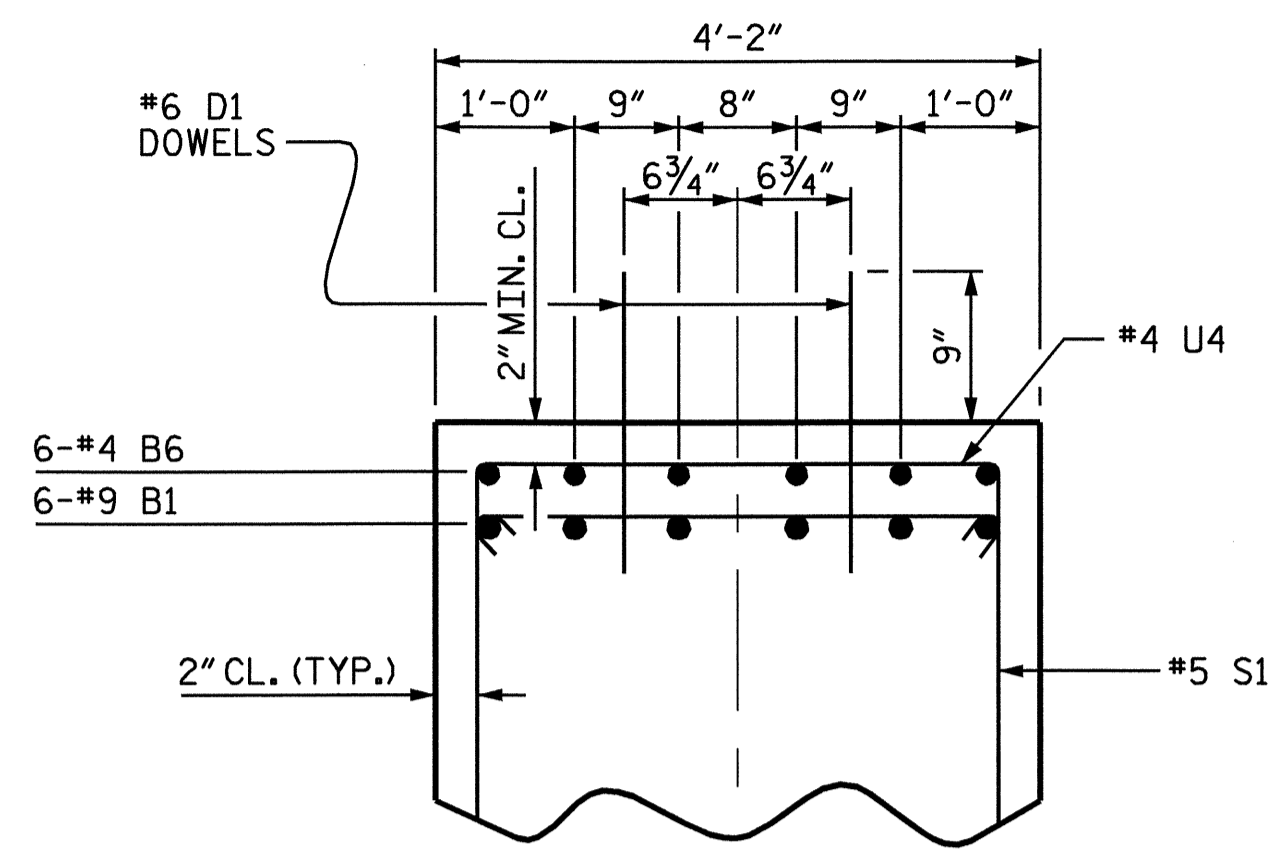


SECTION A-A

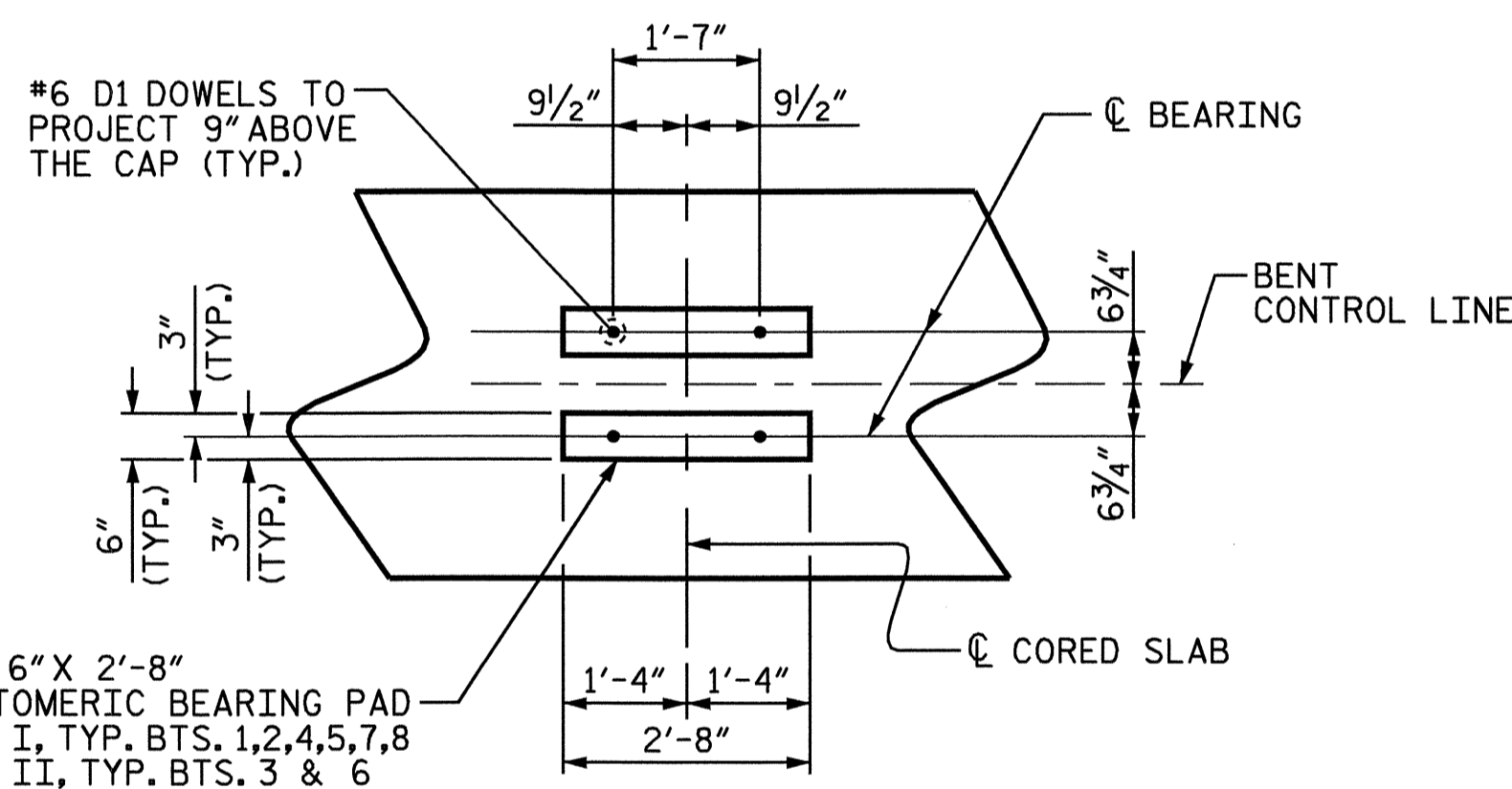


VIEW X-X

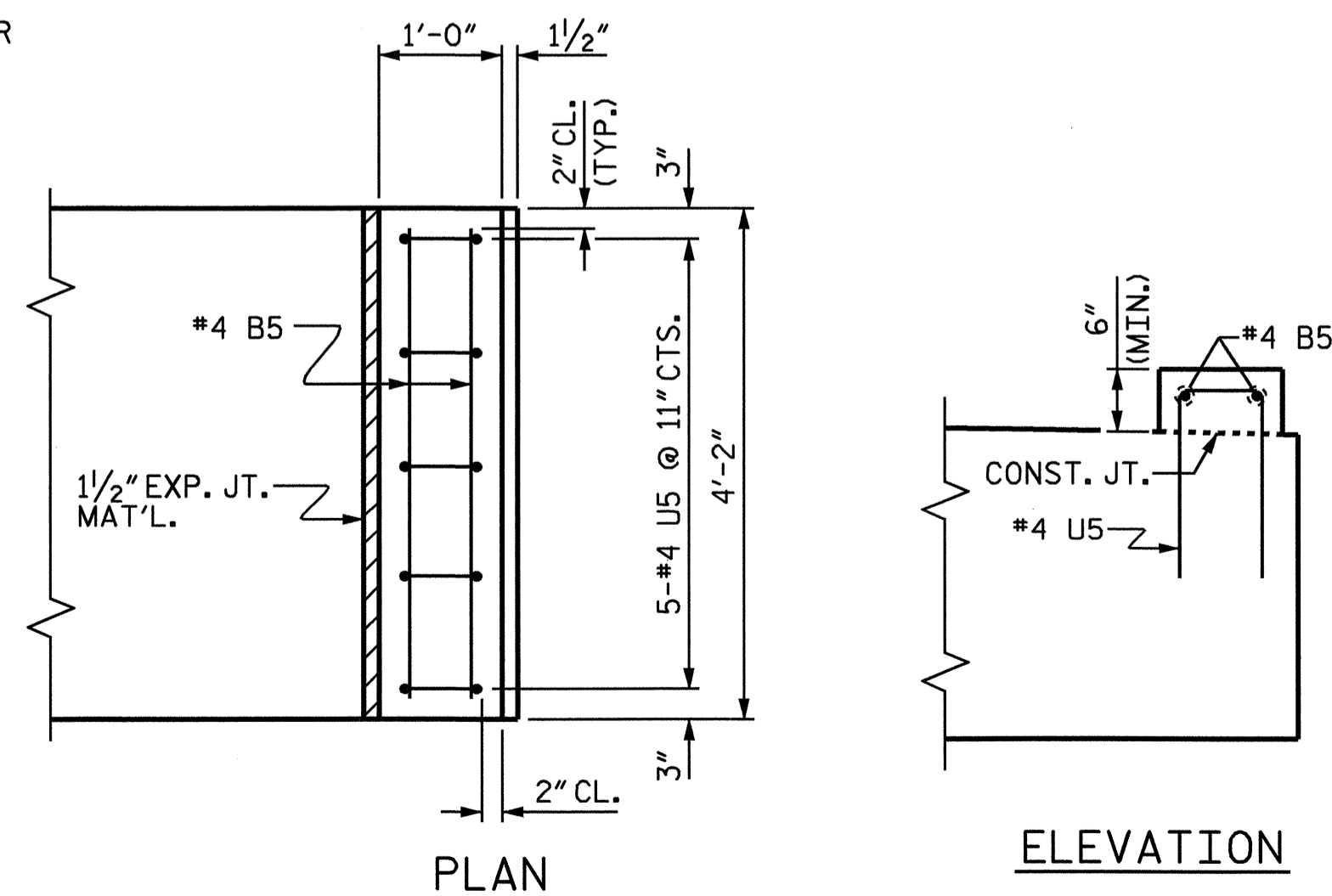
RIGHT END SHOWN, LEFT END SIMILAR



SECTION B-B

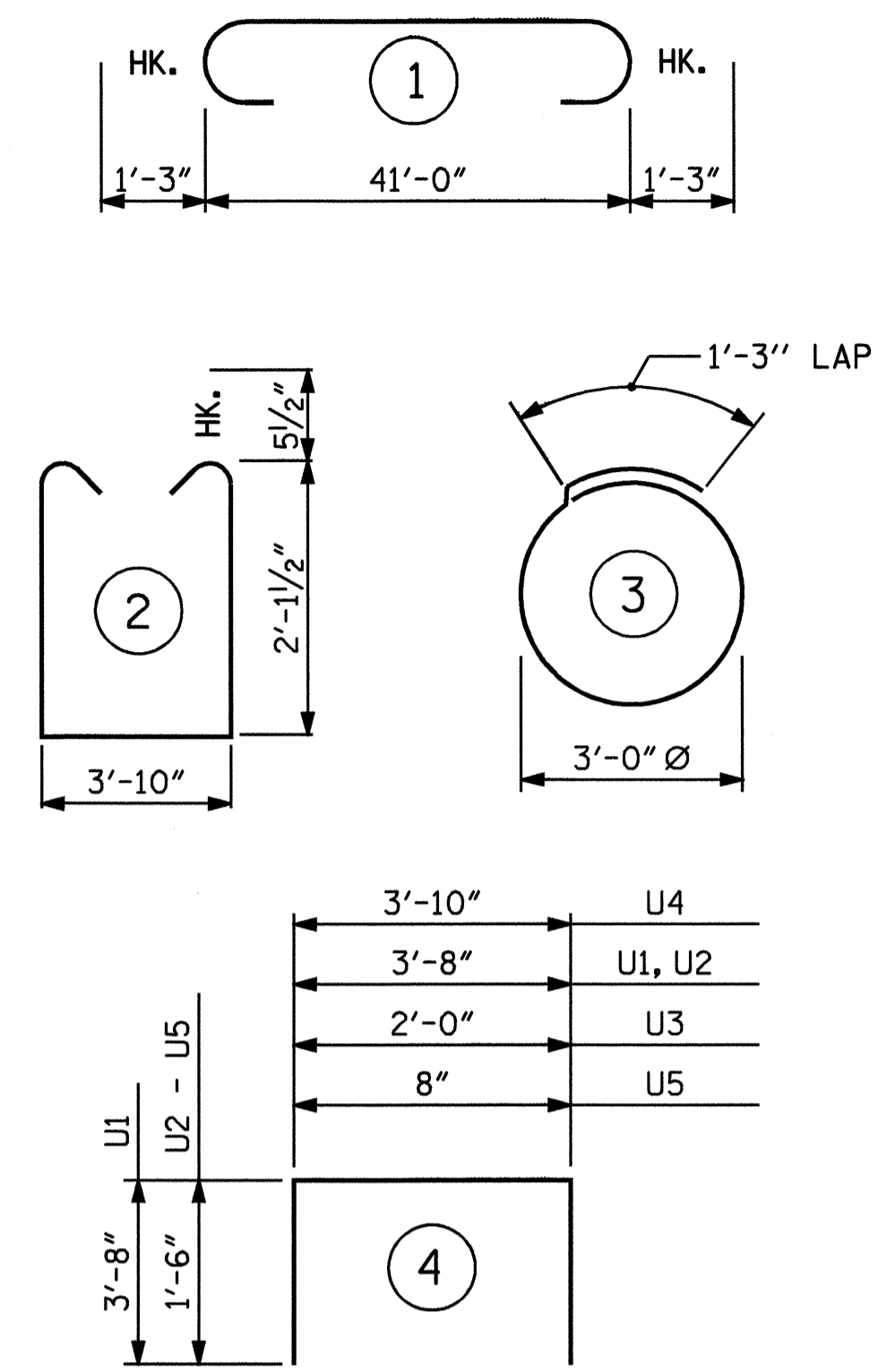


DETAIL "A"

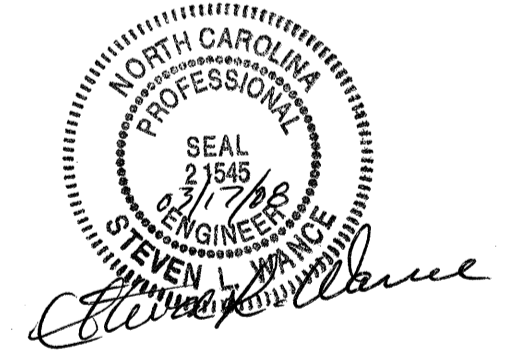


LATERAL GUIDE DETAIL

BILL OF MATERIAL FOR ONE BENT (8 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-6"	887
B2	4	#11	STR	41'-2"	875
B3	2	#5	STR	41'-2"	86
B4	12	#4	STR	21'-10"	175
B5	15	#4	STR	3'-10"	38
B6	6	#4	STR	21'-6"	86
D1	52	#6	STR	1'-6"	117
S1	32	#5	2	9'-0"	300
S2	14	#4	3	10'-9"	101
U1	2	#9	4	11'-0"	75
U2	4	#4	4	6'-8"	18
U3	8	#4	4	5'-0"	27
U4	15	#4	4	6'-10"	68
U5	10	#4	4	3'-8"	24
REINFORCING STEEL = LBS 2877					
CLASS AA CONCRETE BREAKDOWN					
POUR 1 (CAP)				C.Y.	17.3
POUR 2 (LATERAL GUIDES)				C.Y.	0.2
TOTAL CLASS A CONCRETE				C.Y.	17.5
24 X 0.5 STEEL PIPE PILES					
BENT No.	NUMBER OF PIPE PILES	TOTAL LENGTH (IN LIN. FT.)			
BENT 1	7	455			
BENT 2	7	490			
BENT 3	7	385			
BENT 4	7	455			
BENT 5	7	455			
BENT 6	7	455			
BENT 7	7	385			
BENT 8	7	280			



ALL BAR DIMENSIONS ARE OUT TO OUT.

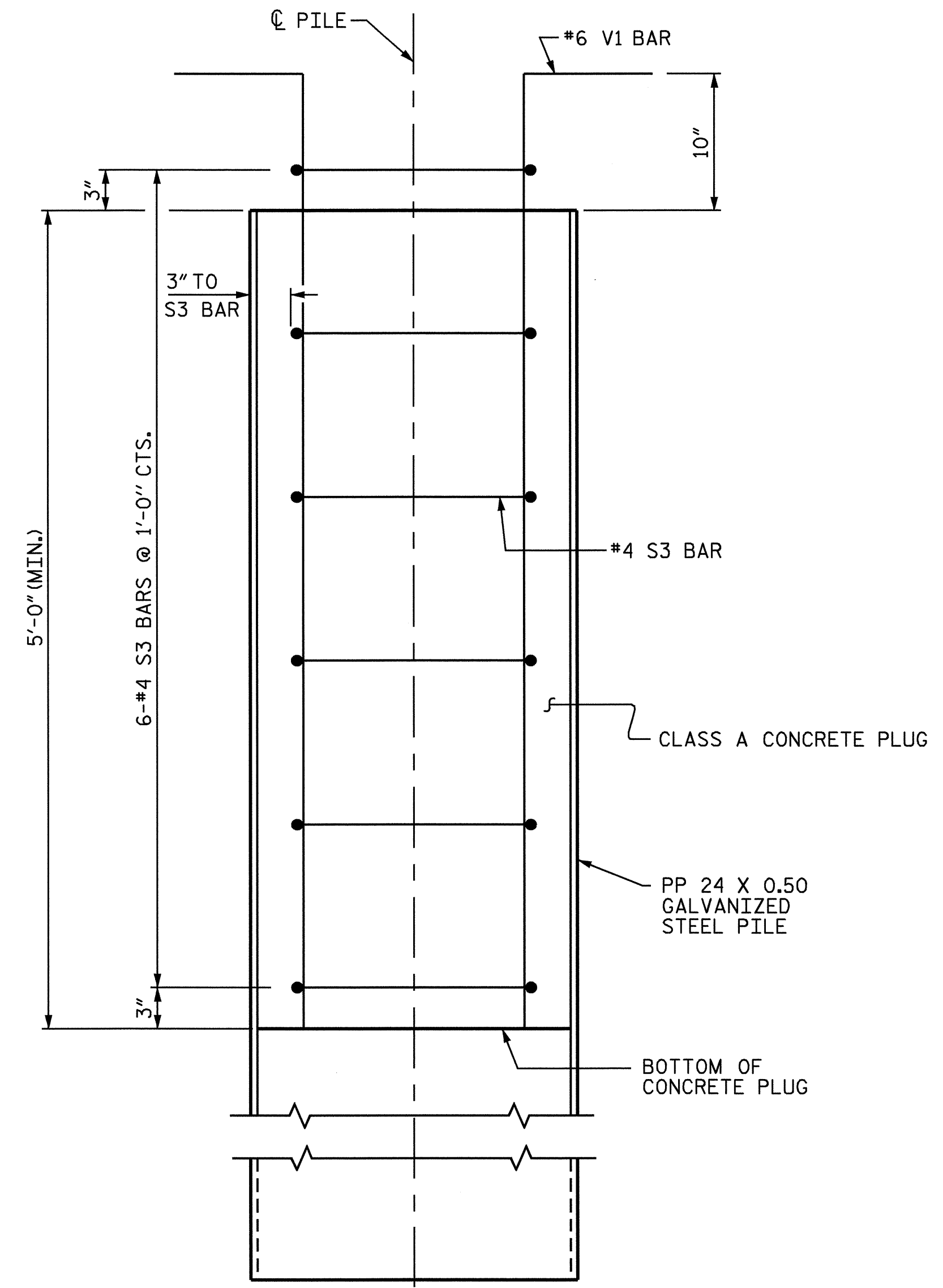
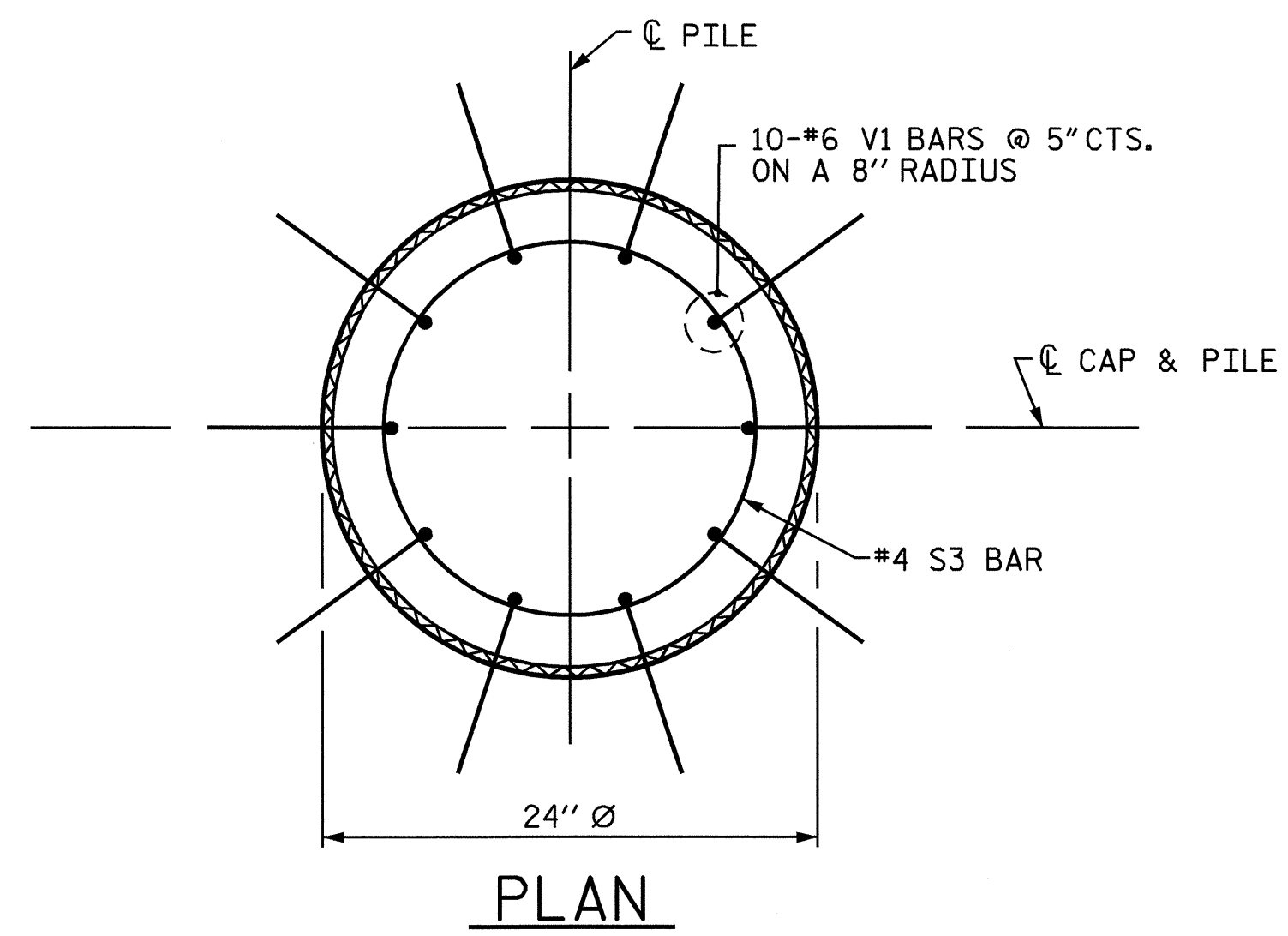


PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENTS 1 THRU 8

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			22

DRAWN BY: E.C. LOCKLEAR DATE: 4-10-07
 CHECKED BY: N.Q. TRAN DATE: 5-23-07



ELEVATION

PP 24 X 0.50 GALVANIZED STEEL PILE
(OPEN END)

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

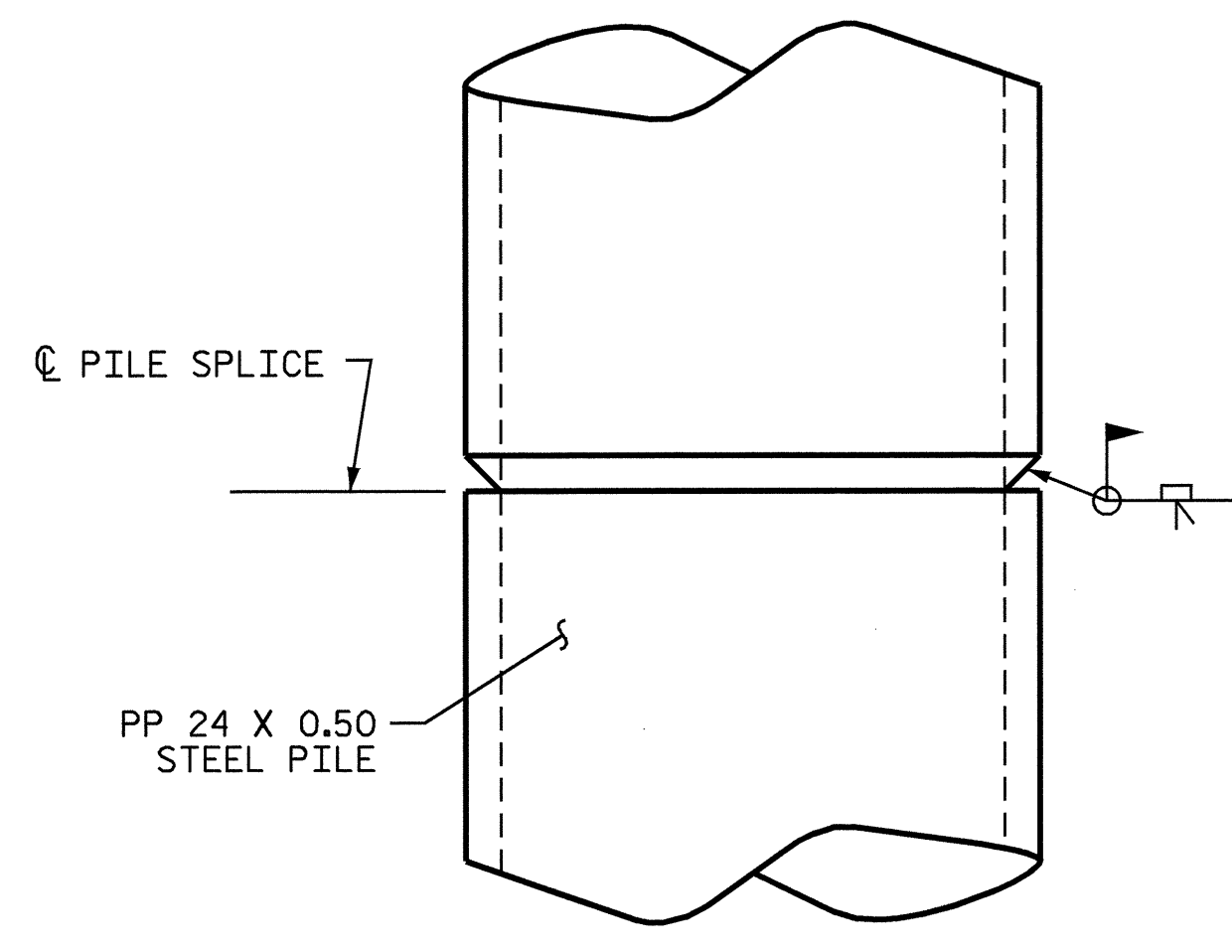
REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 24 X 0.50 GALVANIZED STEEL PILES.



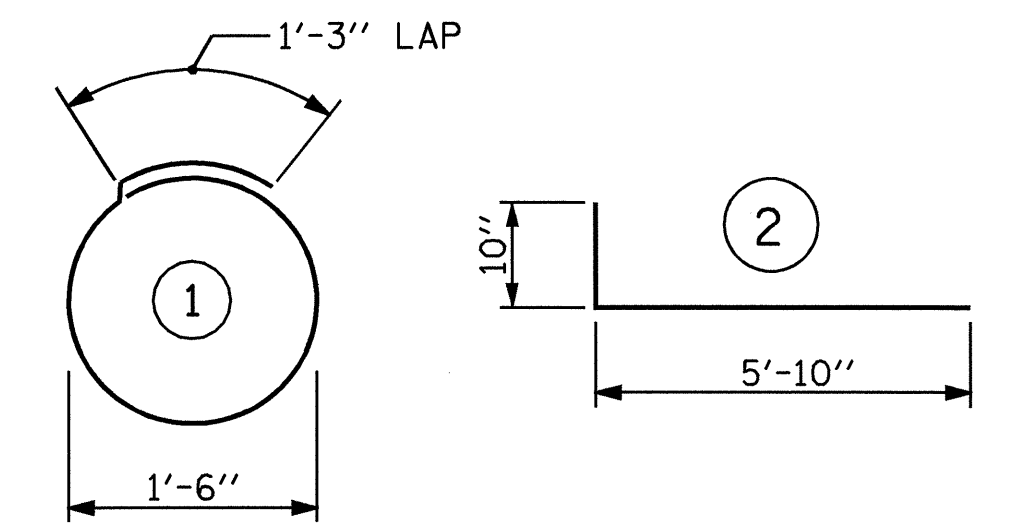
PIPE PILE SPLICE DETAIL

BILL OF MATERIAL FOR ONE PP 24 X 0.50 STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S3	6	#4	1	6'-0"	24
V1	10	#6	2	6'-8"	100
REINFORCING STEEL =				124	lbs

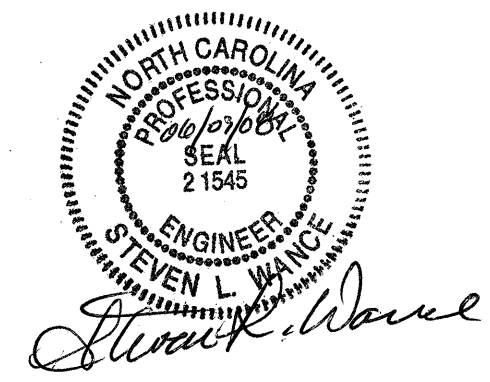
CLASS A CONCRETE
5'-0" MINIMUM PLUG 0.5 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

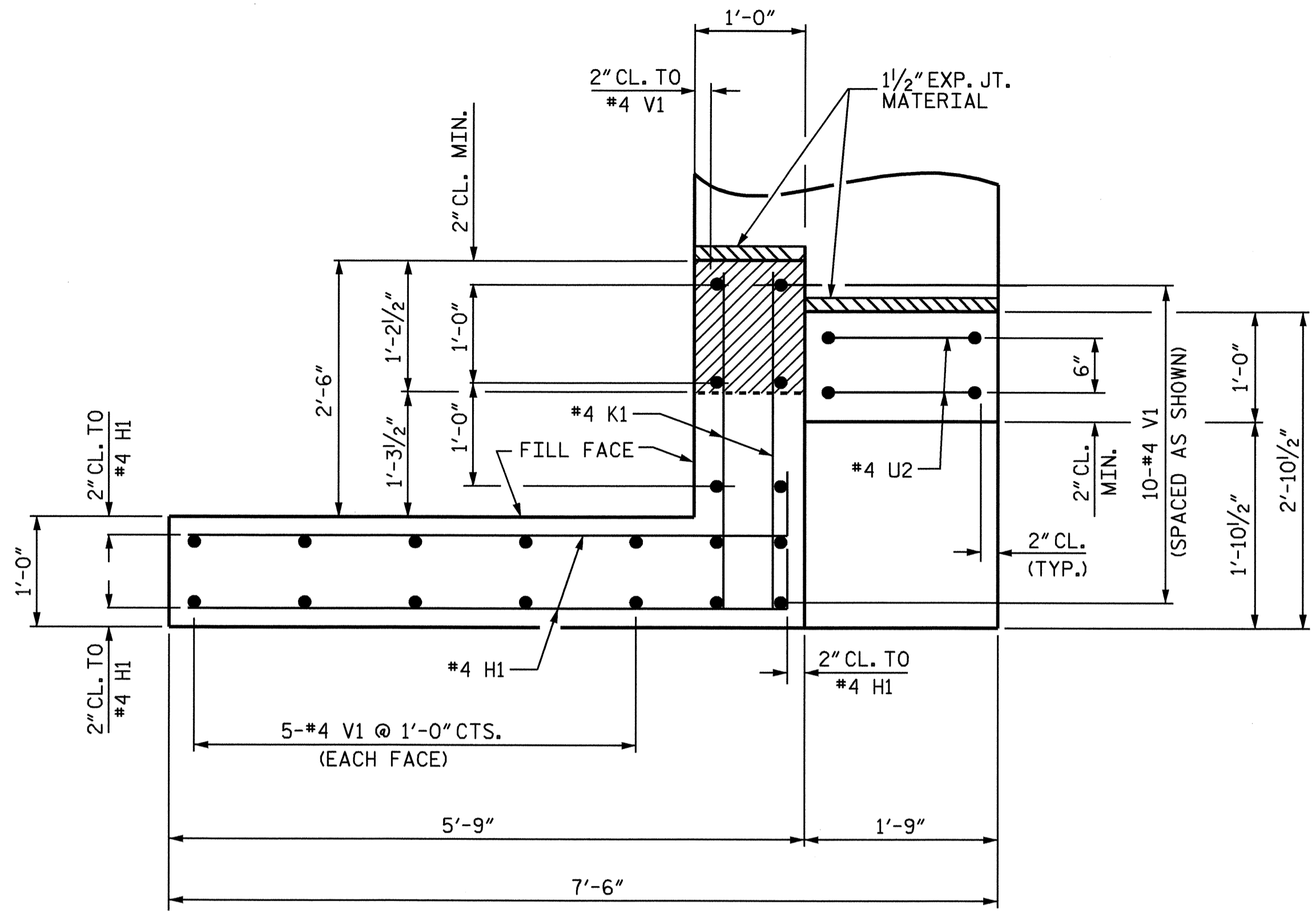
PROJECT NO. B-4020
BEAUFORT / PITT COUNTY
STATION: 22+00.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
24" STEEL PIPE PILE

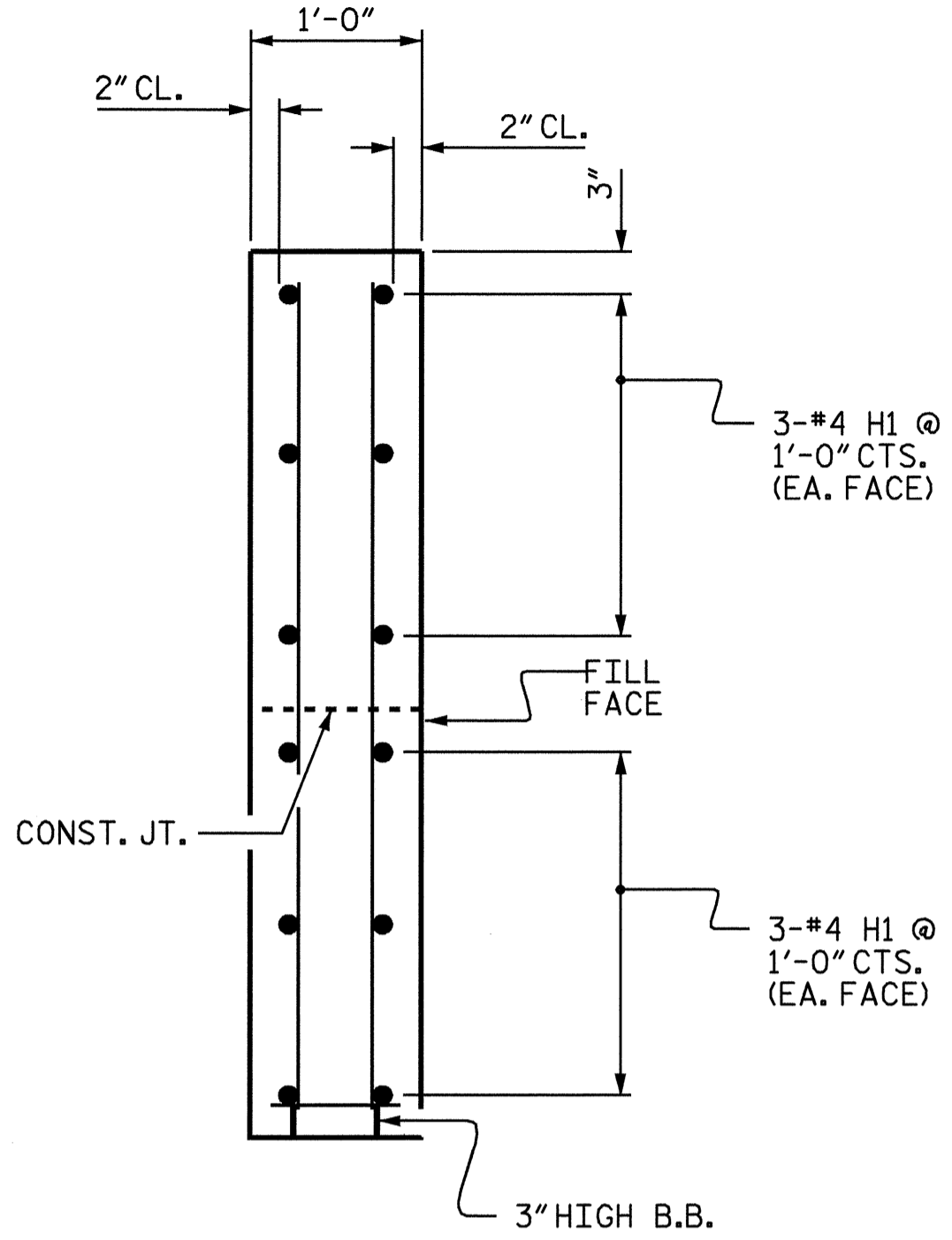
ASSEMBLED BY : E.C. LOCKLEAR	DATE : 4-10-07
CHECKED BY : N.Q. TRAN	DATE : 5-23-07
DRAWN BY : TLA 8/05	ADDED 10/1/05
CHECKED BY : GM 9/05	REV. 5/1/06R MAA/KMM

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL SHEETS	
2			4			22	

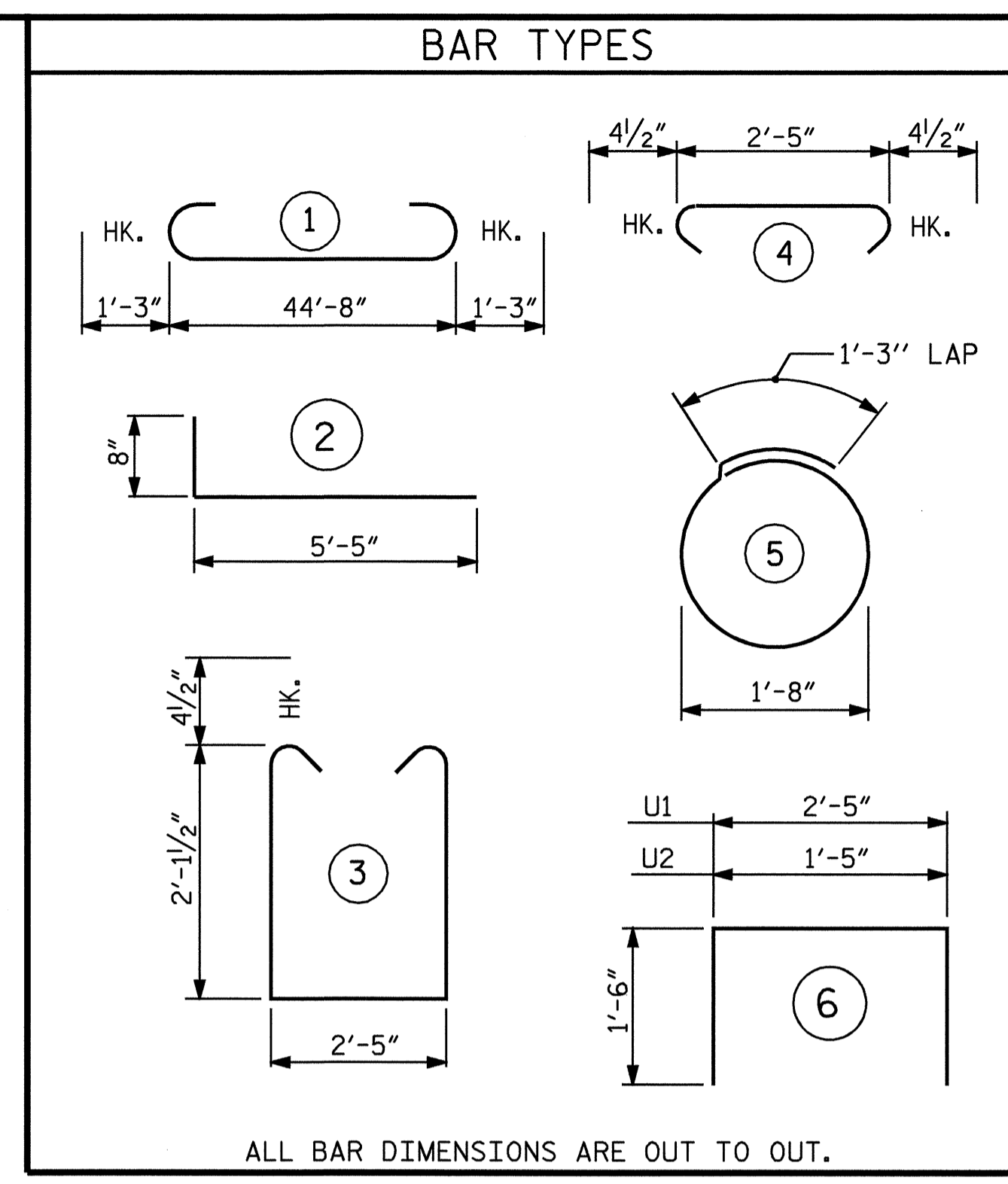


PLAN OF WING - (W1)

WING W1 SHOWN, WING W2 SIMILAR

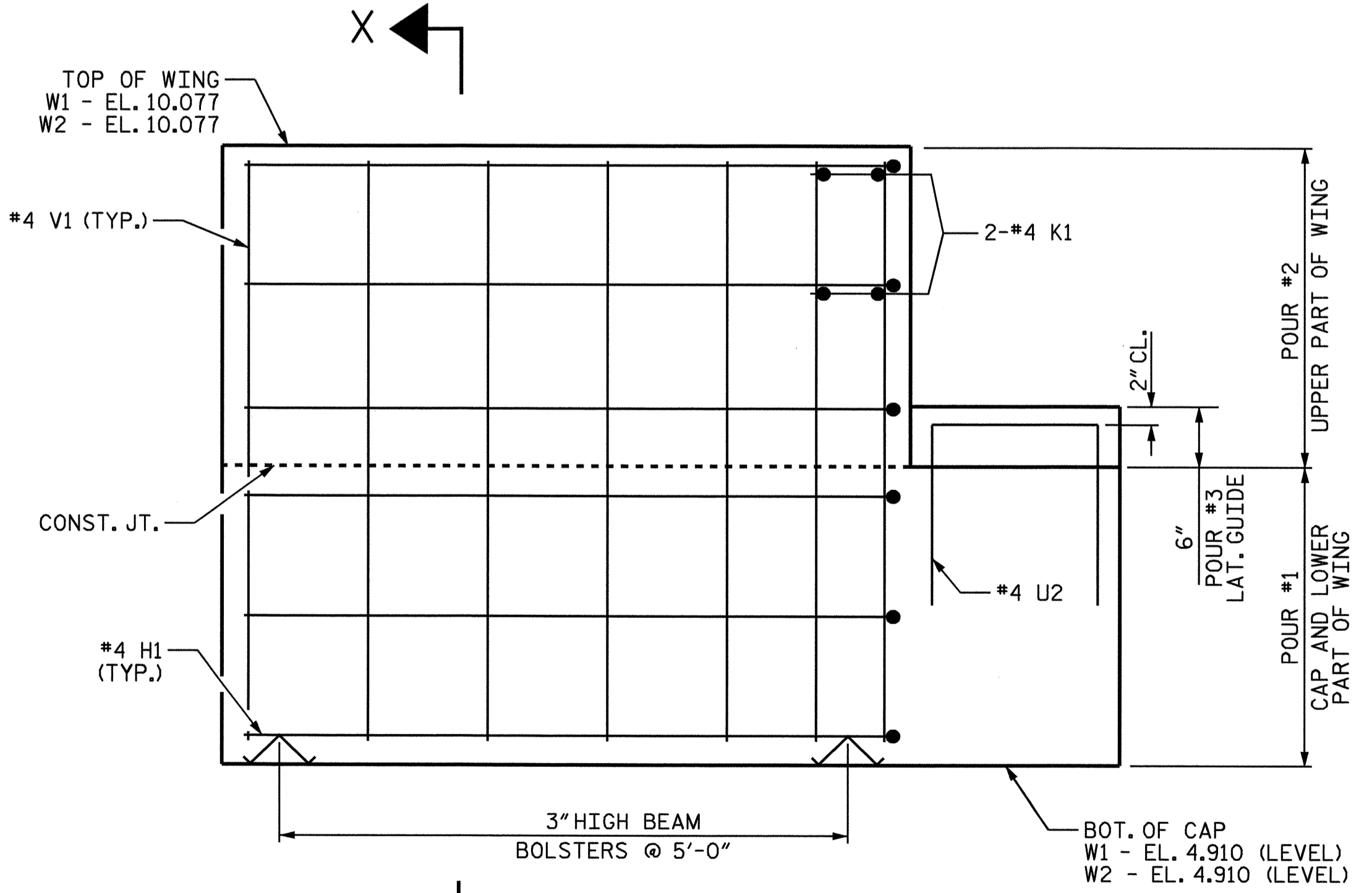


SECTION X-X



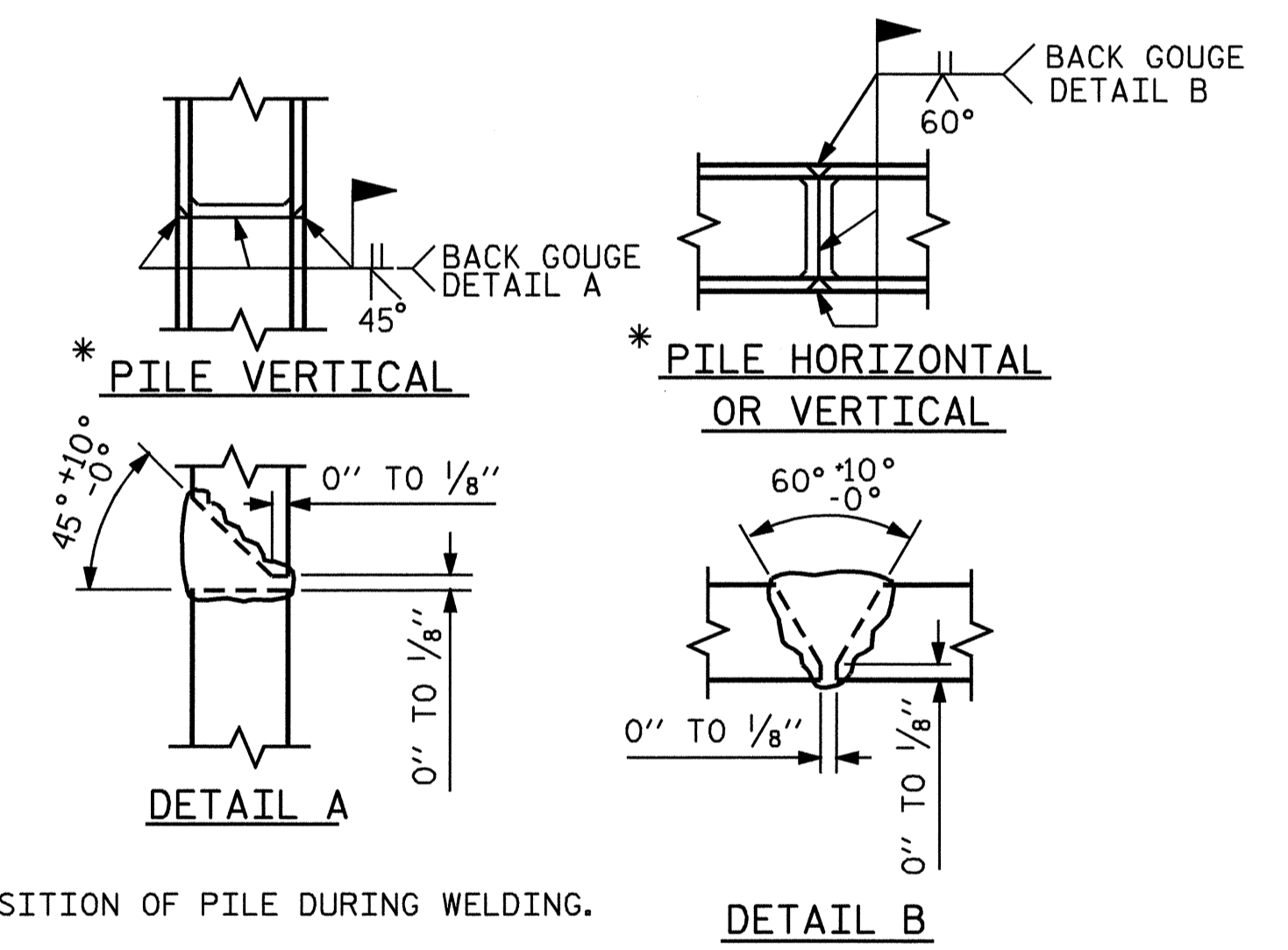
ALL BAR DIMENSIONS ARE OUT TO OUT.

BAR		BILL OF MATERIAL				
NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	8	9	47'-2"	1283		
B2	2	5	44'-8"	93		
B3	8	4	23'-7"	126		
B4	4	4	21'-6"	57		
B5	11	4	2'-5"	18		
D1	26	6	1'-6"	59		
H1	24	4	6'-1"	98		
K1	8	4	3'-1"	16		
S1	42	4	7'-5"	208		
S2	42	4	3'-2"	89		
S3	18	4	6'-6"	78		
U1	15	4	5'-5"	54		
U2	4	4	4'-5"	12		
V1	40	4	4'-9"	127		
REINFORCING STEEL				LBS.	2318	
CLASS A CONCRETE BREAKDOWN						
POUR 1 - CAP AND LOWER PORTION OF WINGS				C.Y.	13.6	
POUR 2 - UPPER PORTION OF WINGS				C.Y.	1.4	
POUR 3 - LATERAL GUIDES				C.Y.	0.1	
CLASS A CONCRETE TOTAL				C.Y.	15.1	
HP 12 x 53 STEEL PILES						
NO. 9				LIN. FEET	405	



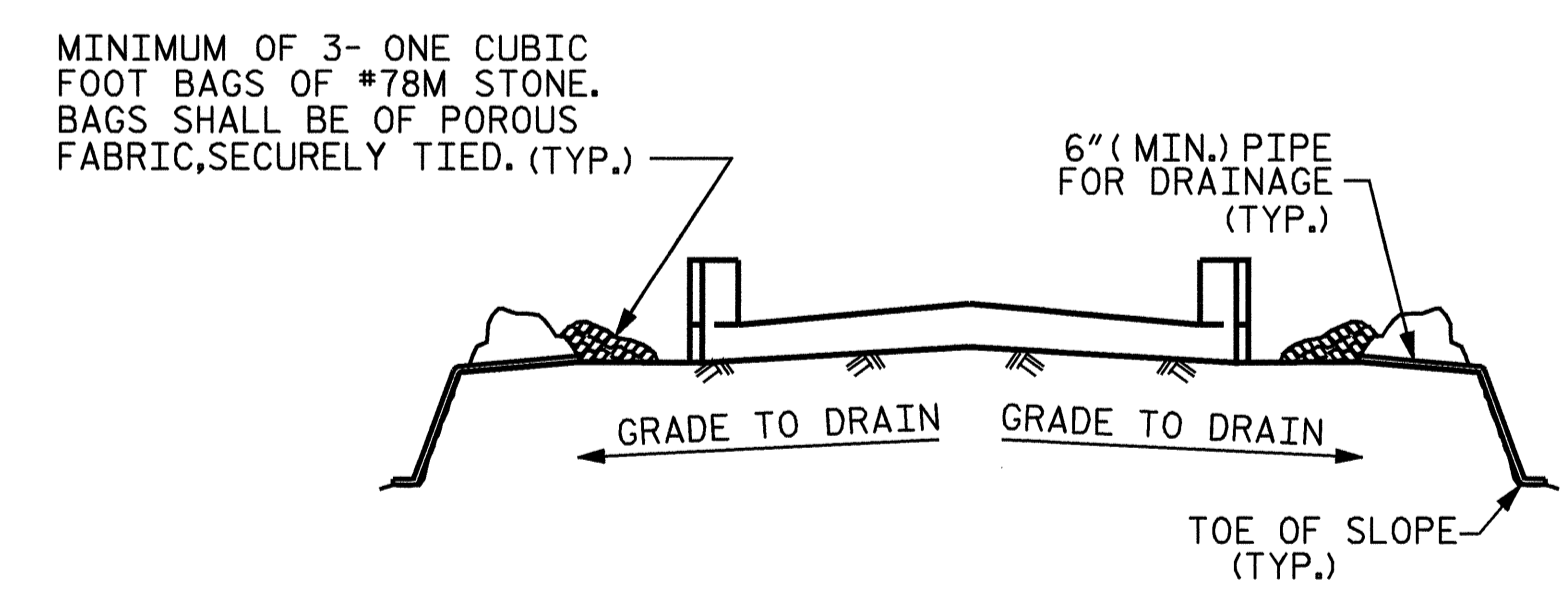
ELEVATION OF WING - (W1)

WING W1 SHOWN, WING W2 SIMILAR



PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.



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.

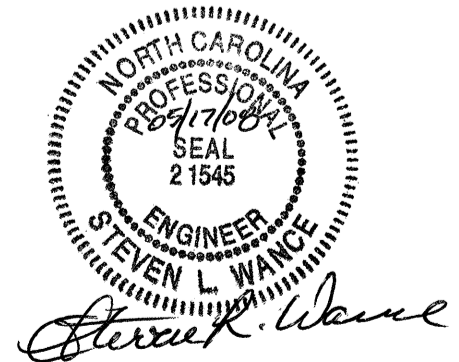
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR 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

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00-L-

SHEET 2 OF 2

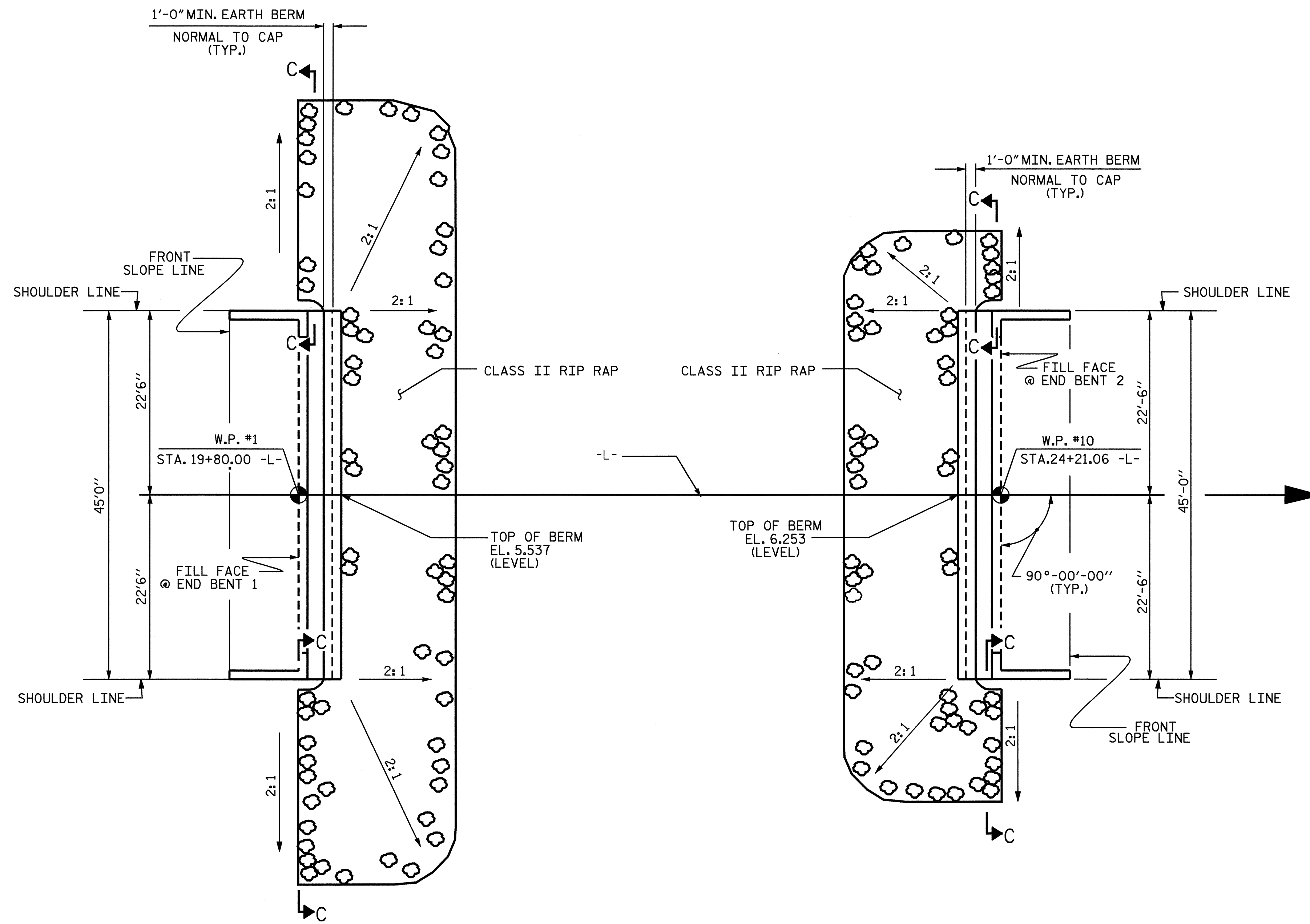


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	
2			4			22	

DRAWN BY: N. Q. TRAN DATE: 9/26/06
 CHECKED BY: S. L. WANCE DATE: 10/27/06

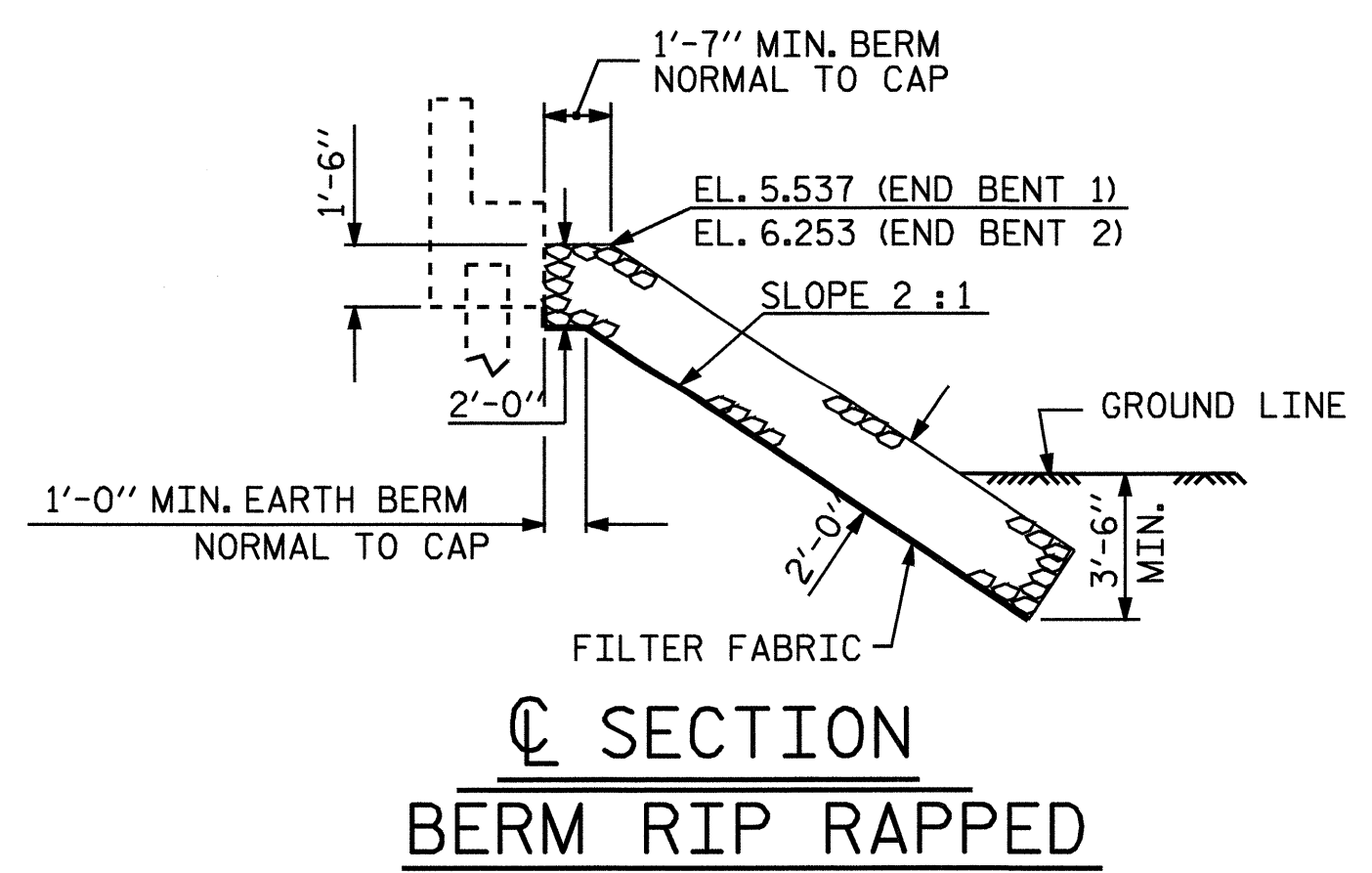


PLAN OF RIP RAP

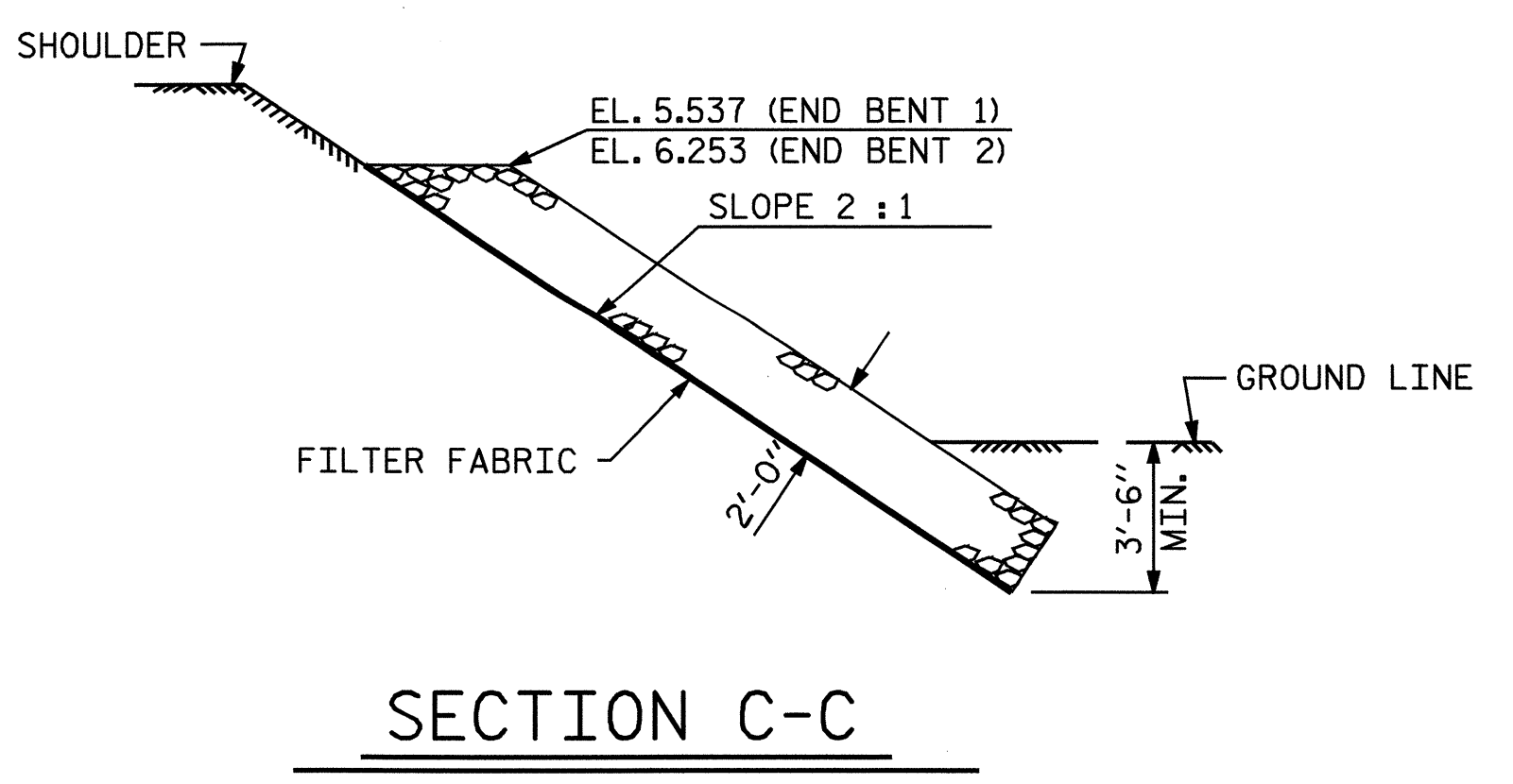
NOTES :

FILTER FABRIC SHALL BE PLACED UNDER ENTIRE AREA OF RIP RAP.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 22+00.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	230	256
END BENT 2	161	201

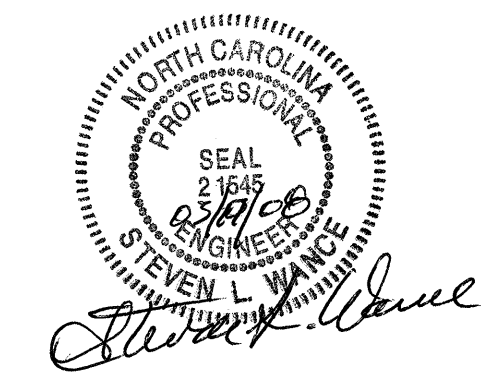


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4020
BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 RIP RAP DETAILS

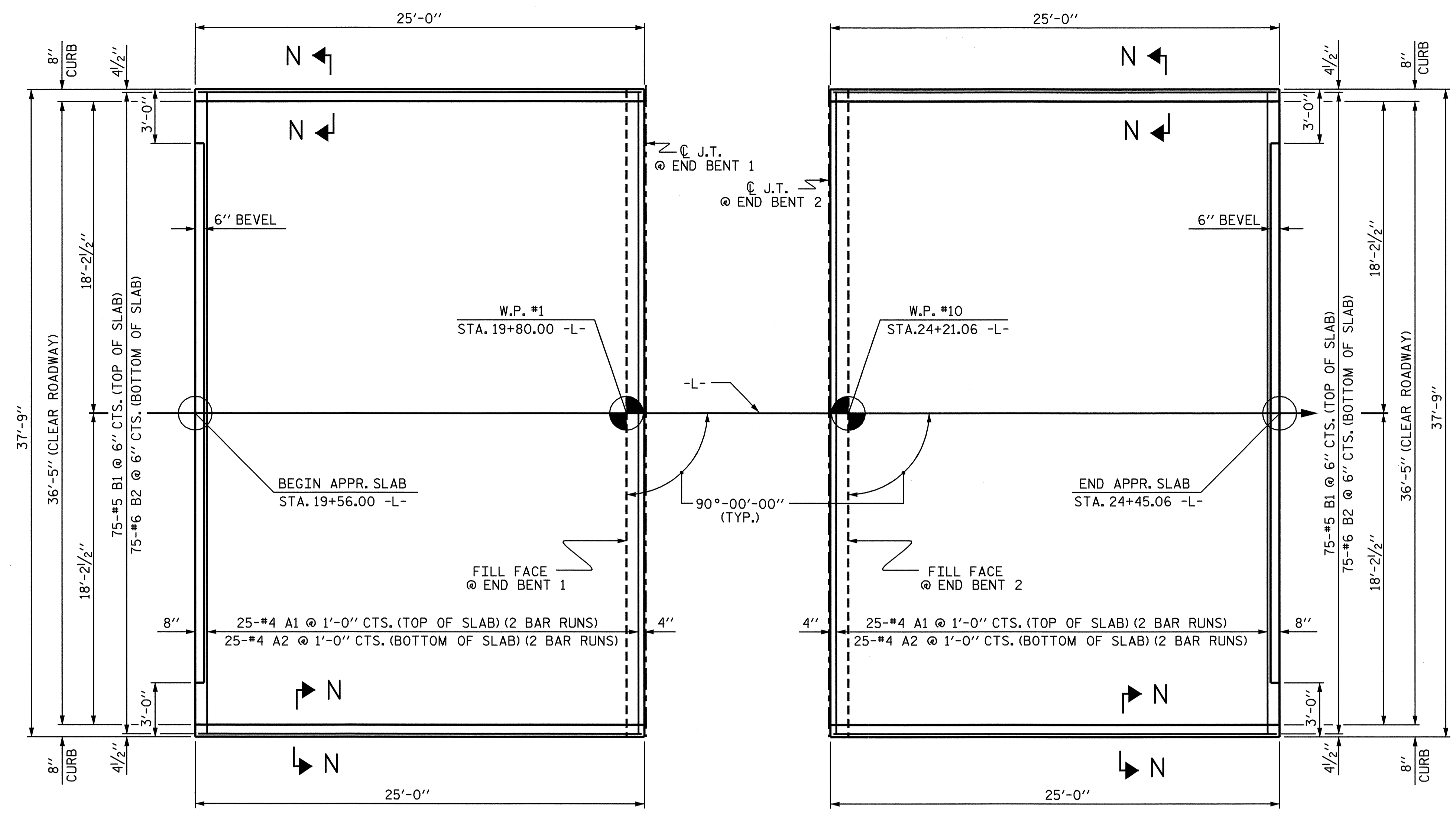
ASSEMBLED BY : S. M. RASHIDI DATE : 2/15/06
 CHECKED BY : N. Q. TRAN DATE : 6/1/06
 DRAWN BY : FCJ 2/88
 CHECKED BY : ARB 8/88

REV. 7/17/98 REK/RWW
 REV. 8/16/99 RWW/LES
 REV. 10/17/00 RWW/LES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			22

BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	19'-9"	660
A2	50	#4	STR	18'-8"	657
*B1	75	#5	STR	24'-2"	1890
B2	75	#6	STR	24'-8"	2779
REINFORCING STEEL				LBS.	3436
*EPOXY COATED REINFORCING STEEL				LBS.	2550
CLASS AA CONCRETE				C. Y.	39.0

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



AT END BENT 1

AT END BENT 2

PLAN

NOTES

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

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

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

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

REINFORCED BRIDGE APPROACH FILL IS ONLY TO BE USED AT END BENT 2.

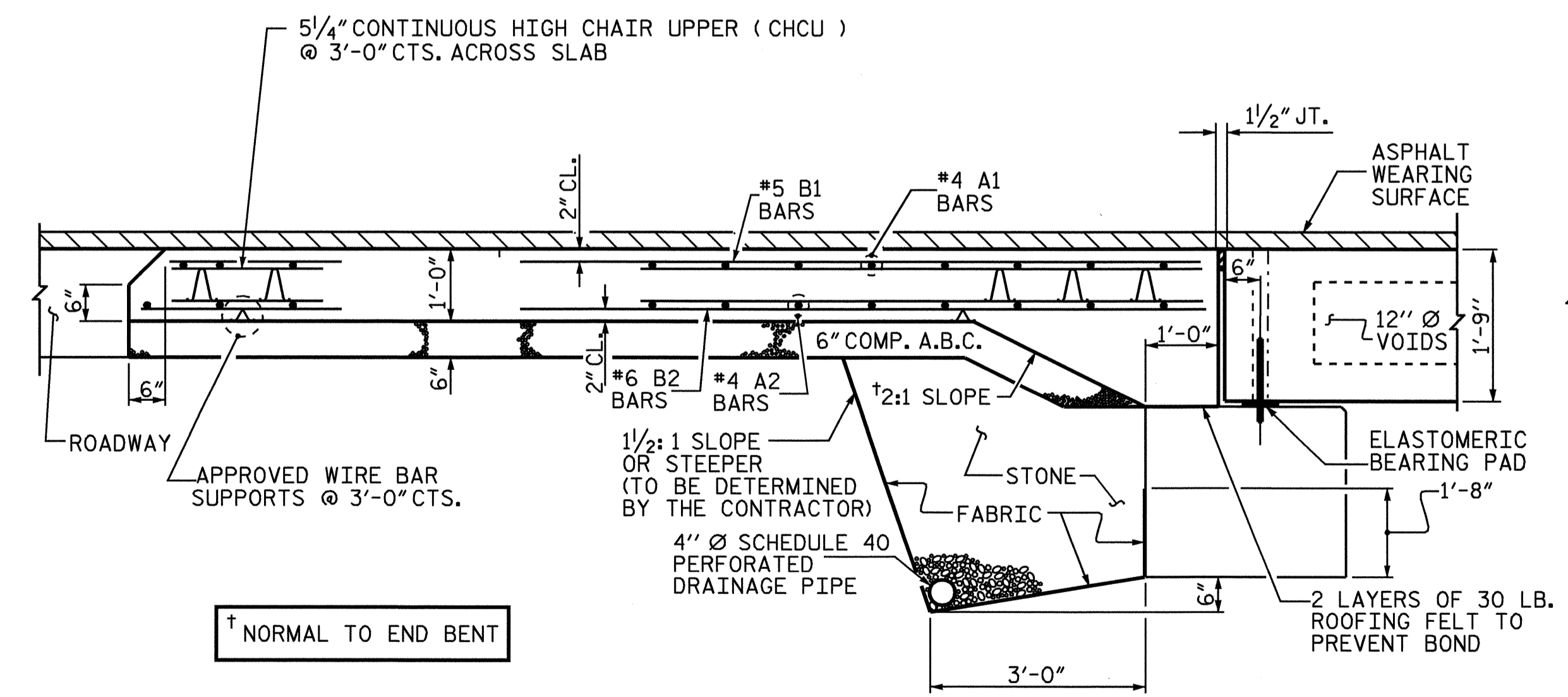
FABRIC SHALL BE TYPE 2 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

STONE SHALL BE CLASS V OR CLASS VI SELECT MATERIAL IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

STONE IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

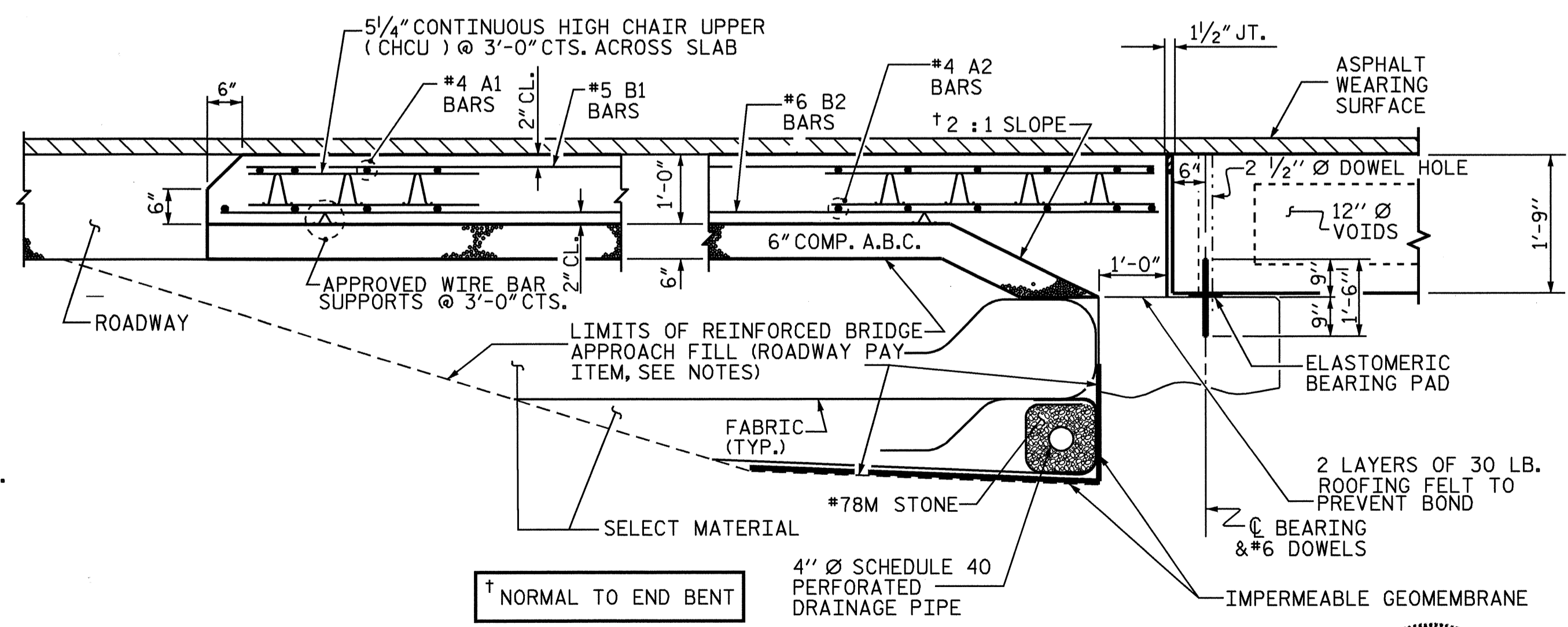
THE 4" Ø DRAINAGE PIPE SHALL HAVE OUTLETS SIMILAR TO ROADWAY STANDARD DRAWING 422.10.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEET 1 OF 9.



SECTION THRU SLAB

(AT END BENT 1 - WITHOUT REINFORCED BRIDGE APPROACH FILL)



SECTION THRU SLAB

(AT END BENT 2 - WITH REINFORCED BRIDGE APPROACH FILL)

AT END BENT 2

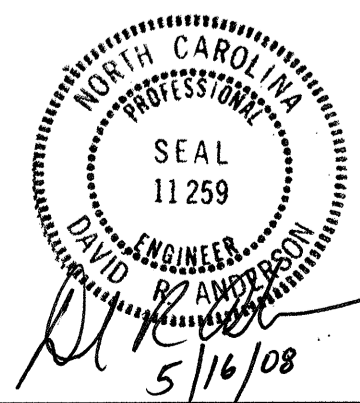
FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

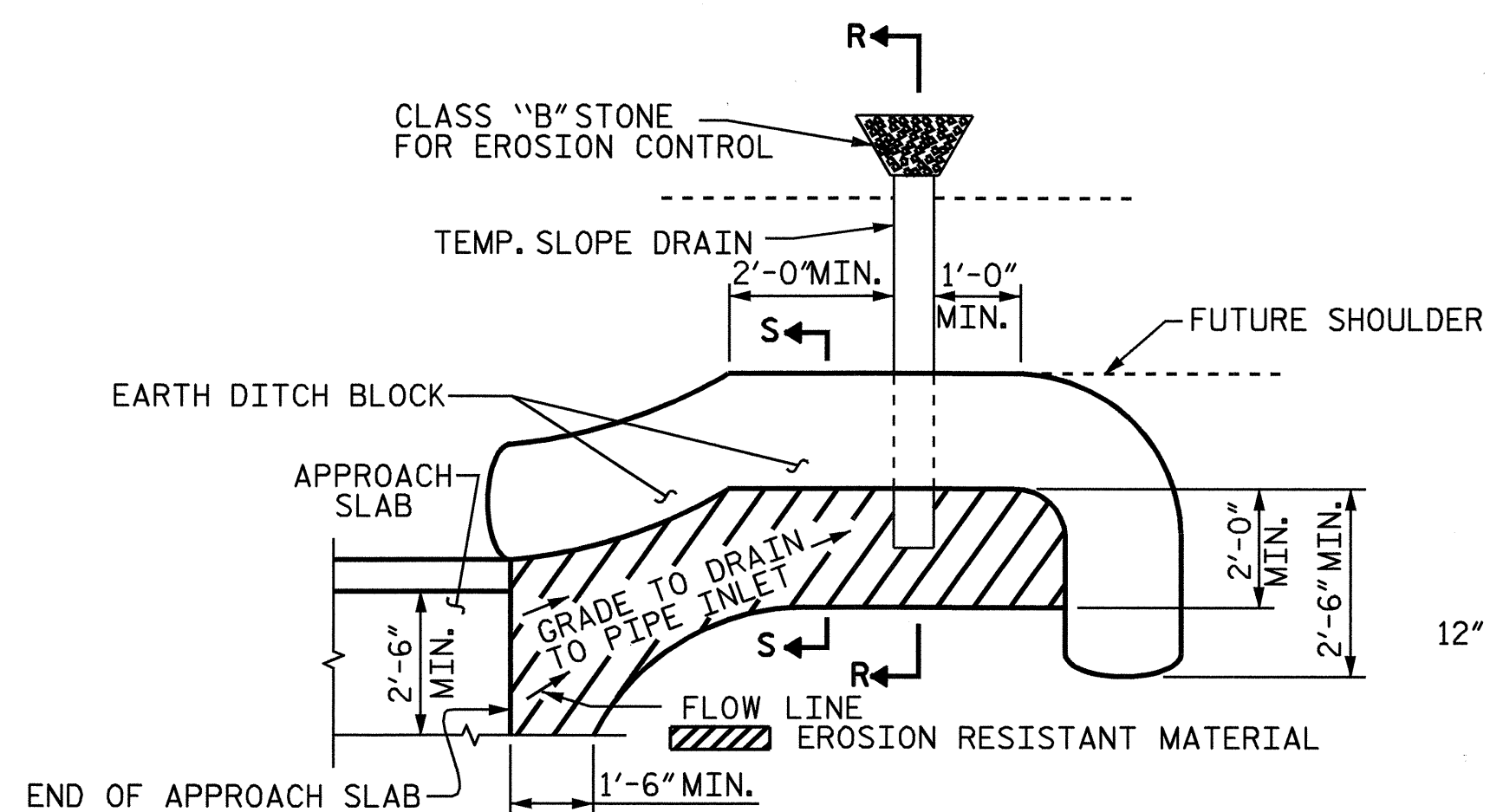
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BRIDGE APPROACH SLAB
 FOR
 PRESTRESSED CONCRETE
 CORED SLAB

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	22
2			4				

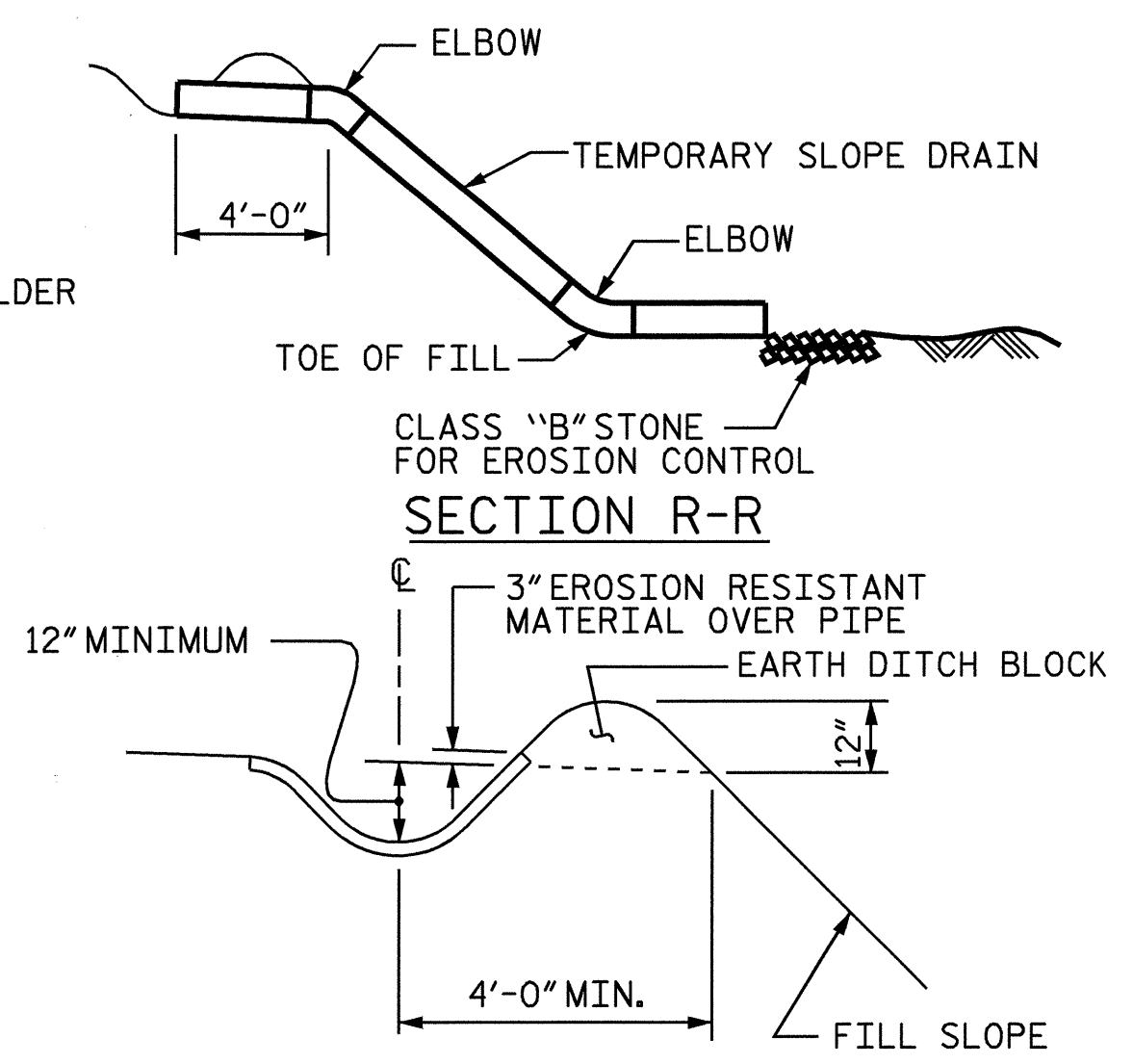


ASSEMBLED BY: S.M.R. / D.R.A.	DATE: 2-15-06
CHECKED BY: N. TRAN	DATE: 6-2-06
DRAWN BY: FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY: EGA 6/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM

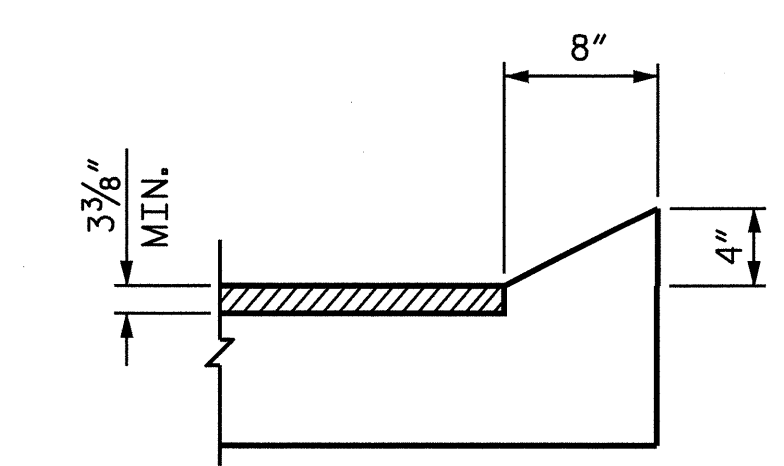


IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH,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

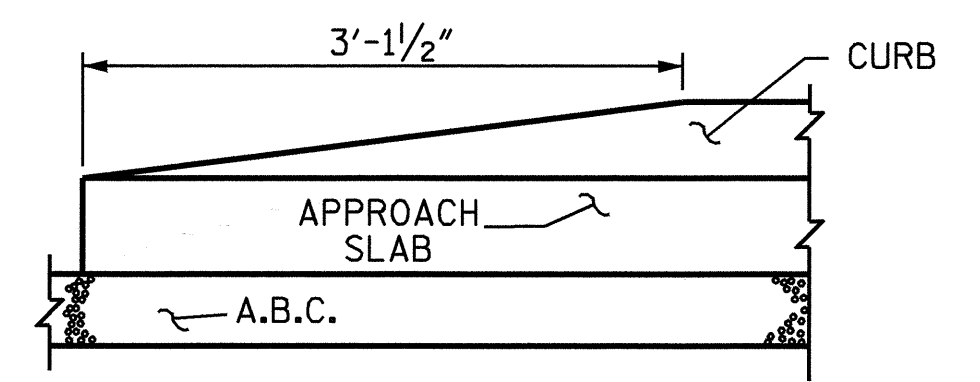
PLAN VIEW



SECTION S-S



SECTION N-N

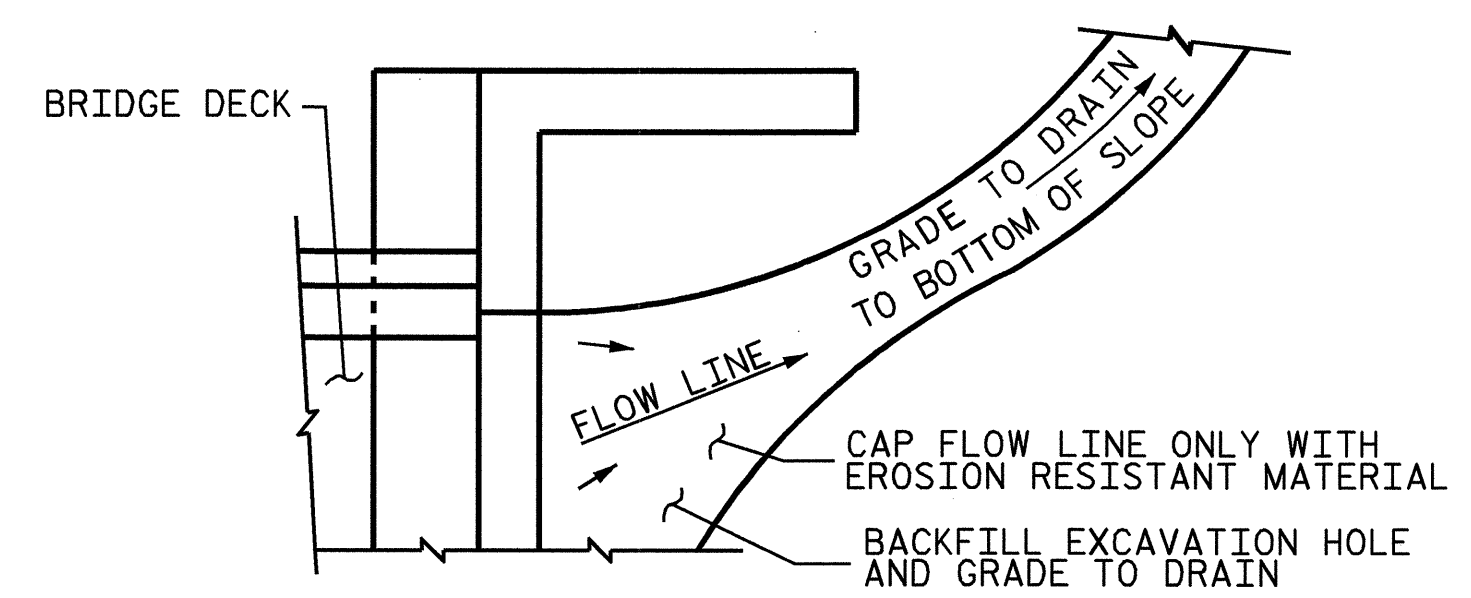


END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

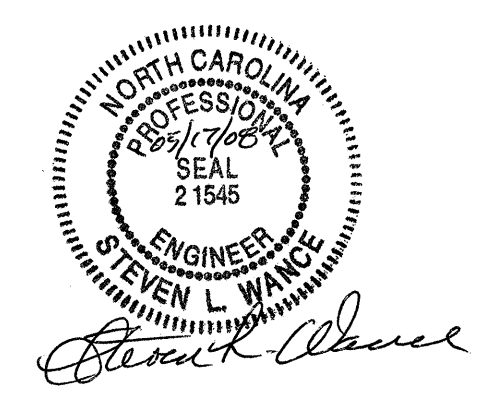


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4020
 BEAUFORT / PITT COUNTY
 STATION: 22+00.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

BRIDGE APPROACH
 SLAB DETAILS

ASSEMBLED BY : S. M. RASHIDI	DATE : 2/15/06
CHECKED BY : N. Q. TRAN	DATE : 6/2/06
DRAWN BY : FCJ 11/88	REV. 8/16/99 MAB/LES
CHECKED BY : ARB 11/88	REV. 10/17/00 RWW/LES
	REV. 5/7/03 RWW/JTE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			22

