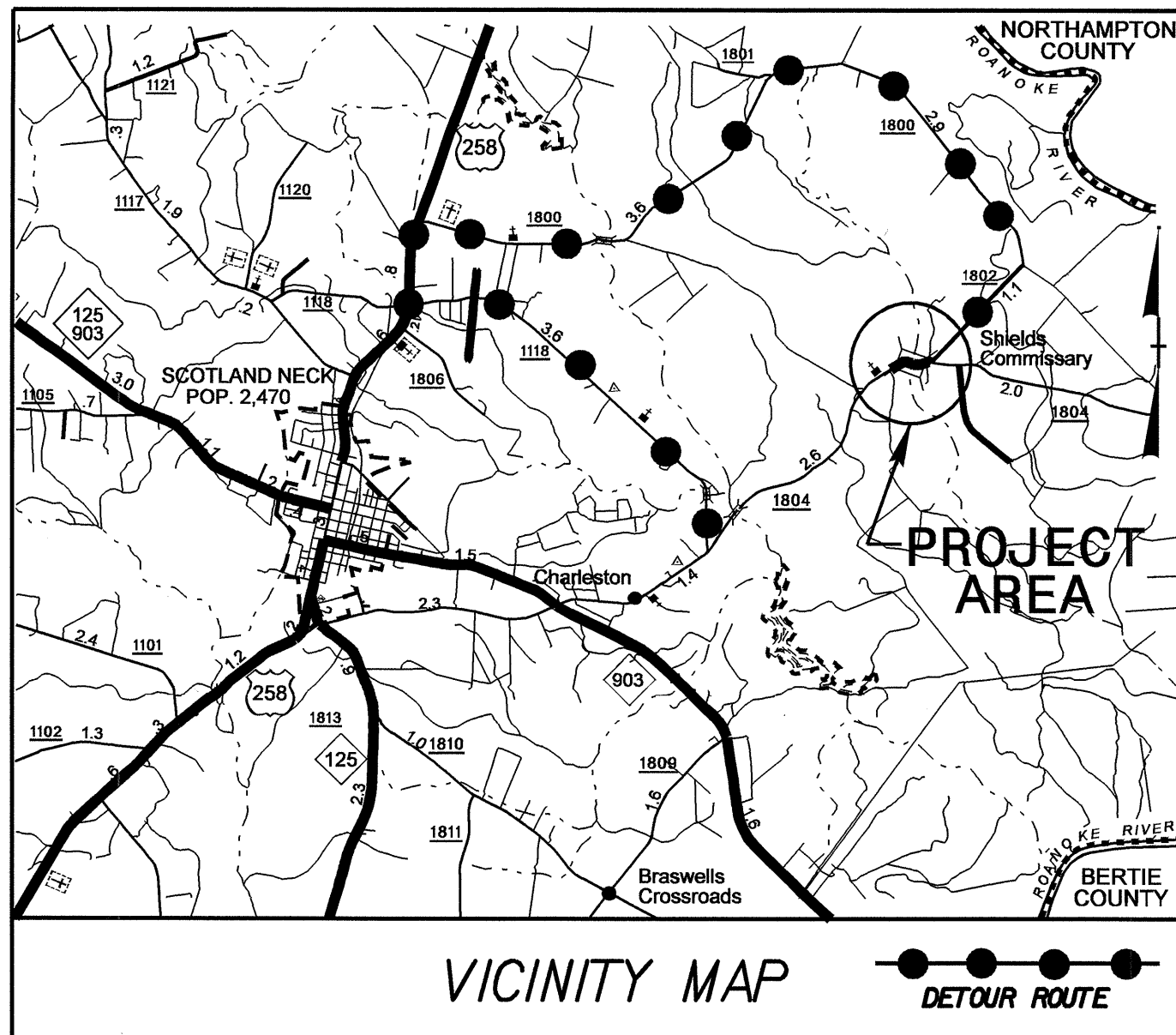


CONTRACT: C201833 TIP NO: B-4135

STRUCTURE

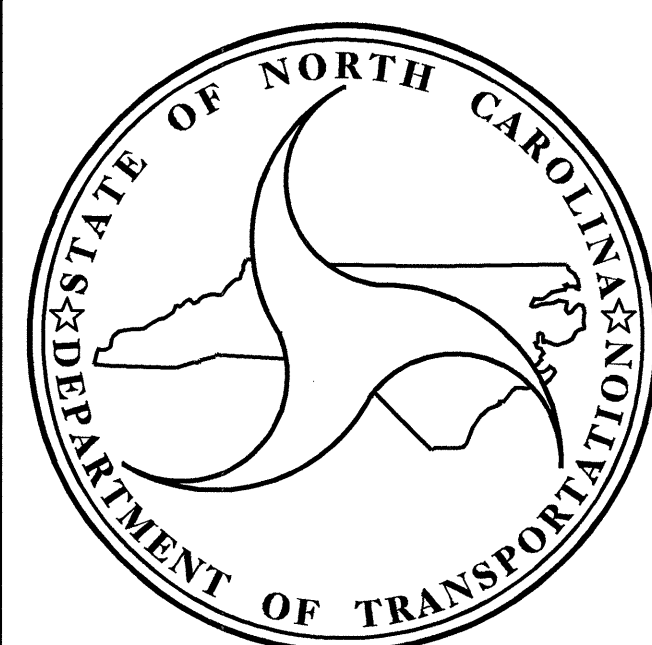
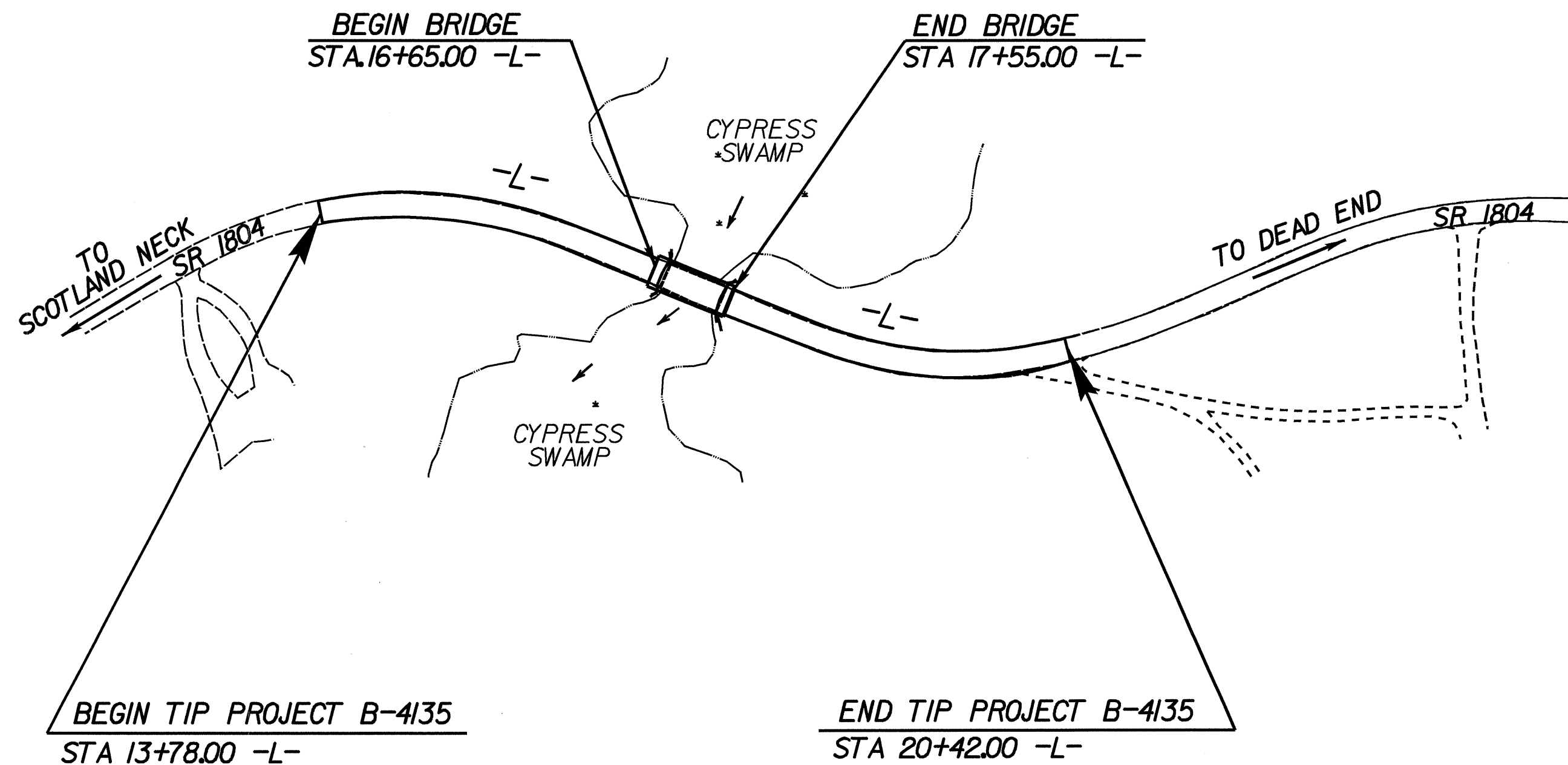


NEAREST SHIPPING POINT: ENFIELD ON CSX RAILROAD,
22.8 MILES FROM BRIDGE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
HALIFAX COUNTY

LOCATION: BRIDGE 72 OVER CYPRESS SWAMP ON SR 1804
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4135		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33488.1.1	BRZ-1804(2)	P. E.	
33488.2.1	BRZ-1804(2)	R/W, UTIL	
33488.3.1	BRZ-1804(2)	CONST.	



DESIGN DATA

ADT 2008 =	260
ADT 2028 =	425
DHV =	10 %
D =	60 %
T =	4 % *
V =	60 MPH
FUNC. CLASS. =	LOCAL
* TTST 2%	DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4135 =	0.109 MILES
LENGTH STRUCTURE TIP PROJECT B-4135 =	0.017 MILES
TOTAL LENGTH TIP PROJECT B-4135 =	0.126 MILES

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

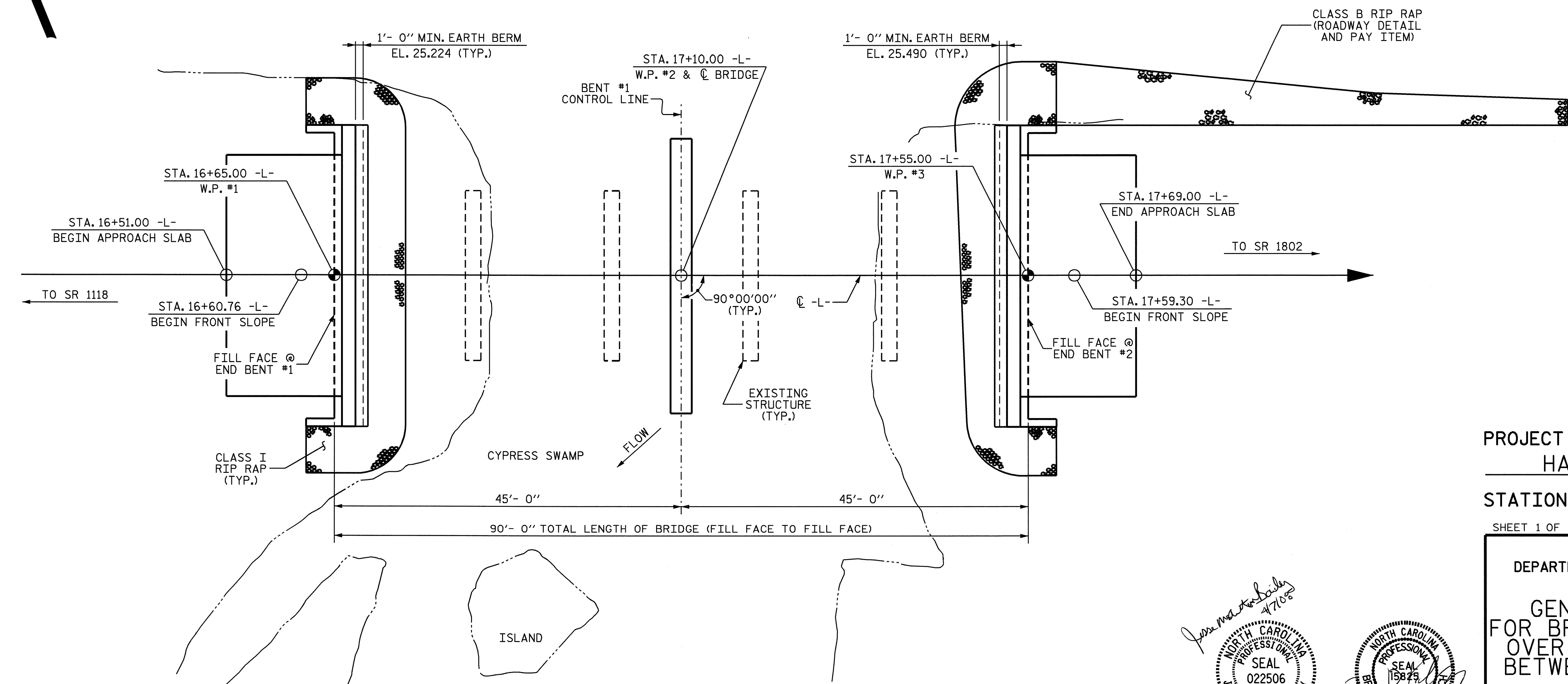
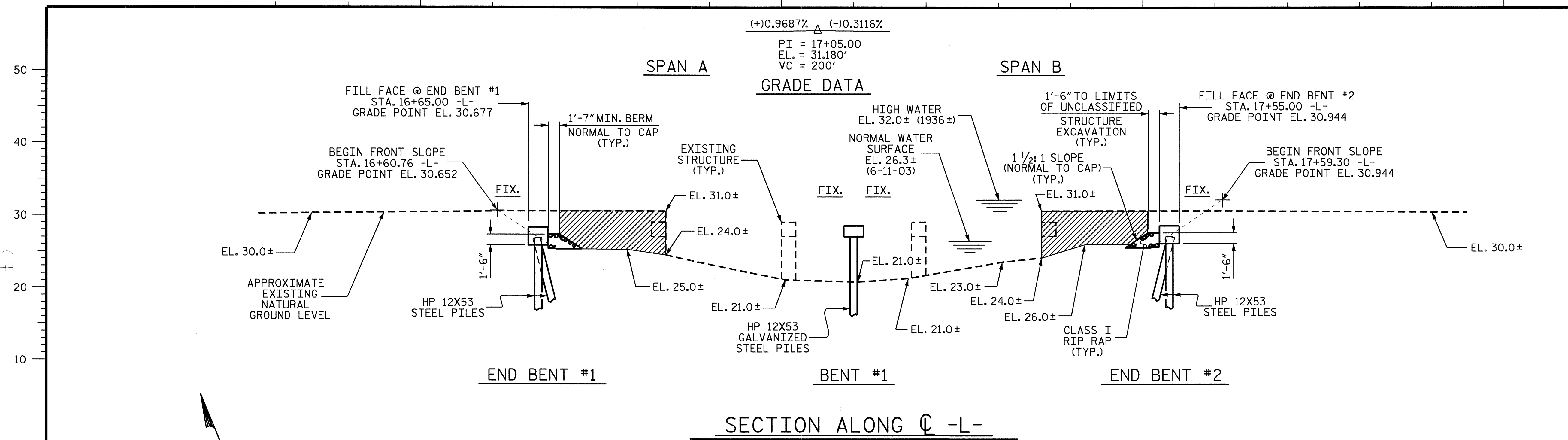
LETTING DATE : <u> MAY 20, 2008 </u>	<u>J.M. BAILEY, PE</u> <small>PROJECT ENGINEER</small>
	<u>B.D. KLAPPENBACH, PE</u> <small>PROJECT DESIGN ENGINEER</small>

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

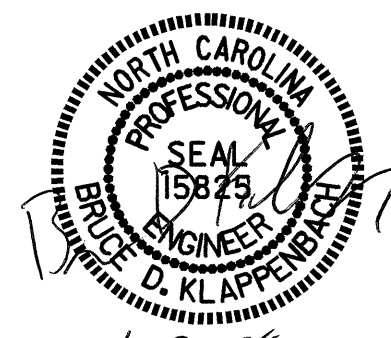
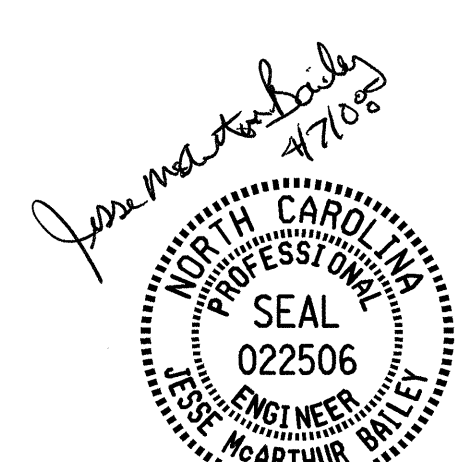
P.E.
STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR
DATE



DRAWN BY : A. SORSENGINH DATE : 1/25/08
 CHECKED BY : H.T. BARBOUR DATE : 2/5/08

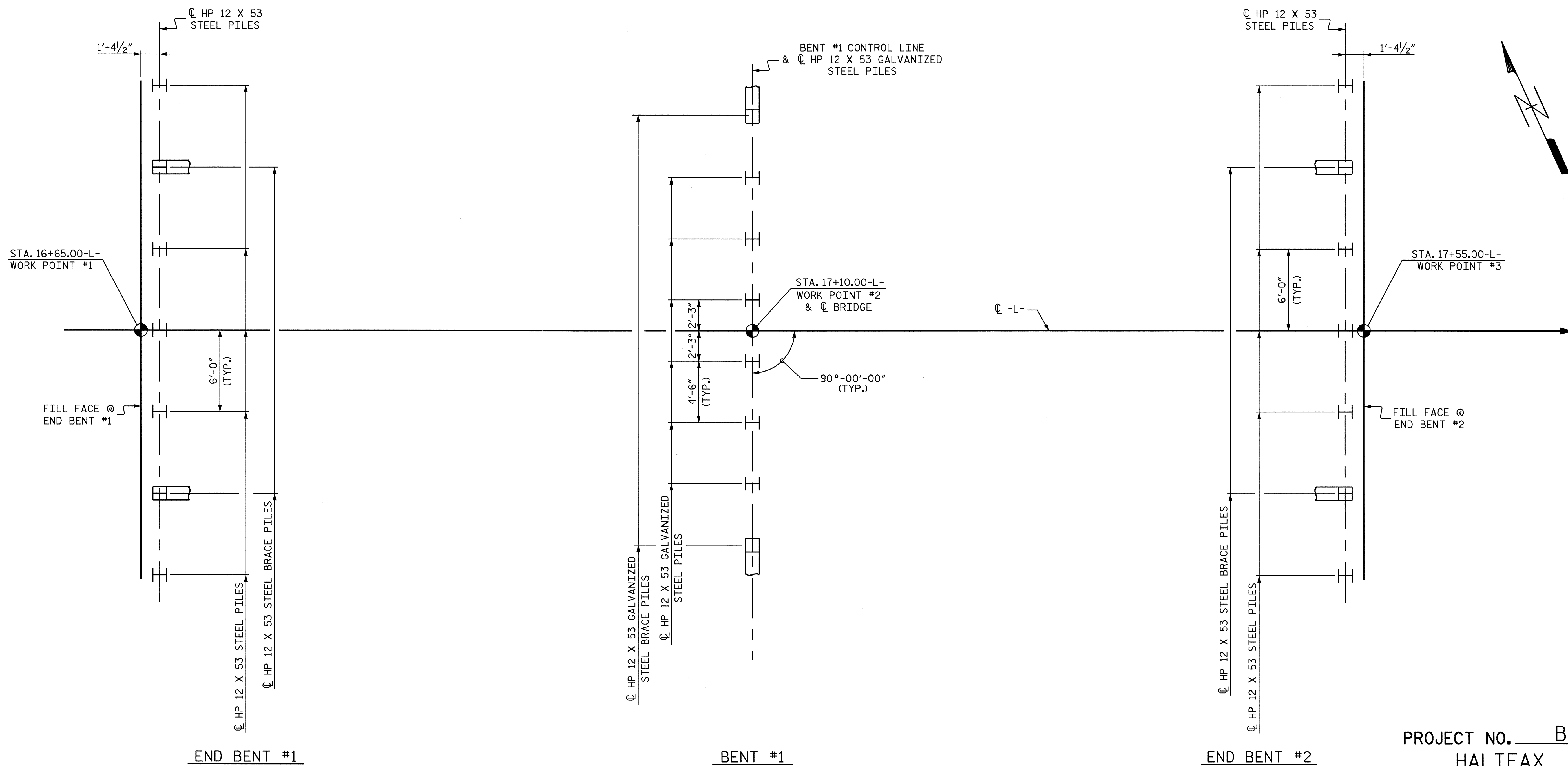
02-APR-2008 09:32
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PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE #72

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 1804
 OVER CYPRESS SWAMP
 BETWEEN SR 1802 AND
 SR 1118

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



FOUNDATION LAYOUT SKETCH
 DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE
 BRACE PILES AT END BENTS #1 AND #2 ARE BATTERED AT 3:12
 BRACE PILES AT BENT #1 ARE BATTERED AT 1/2:12

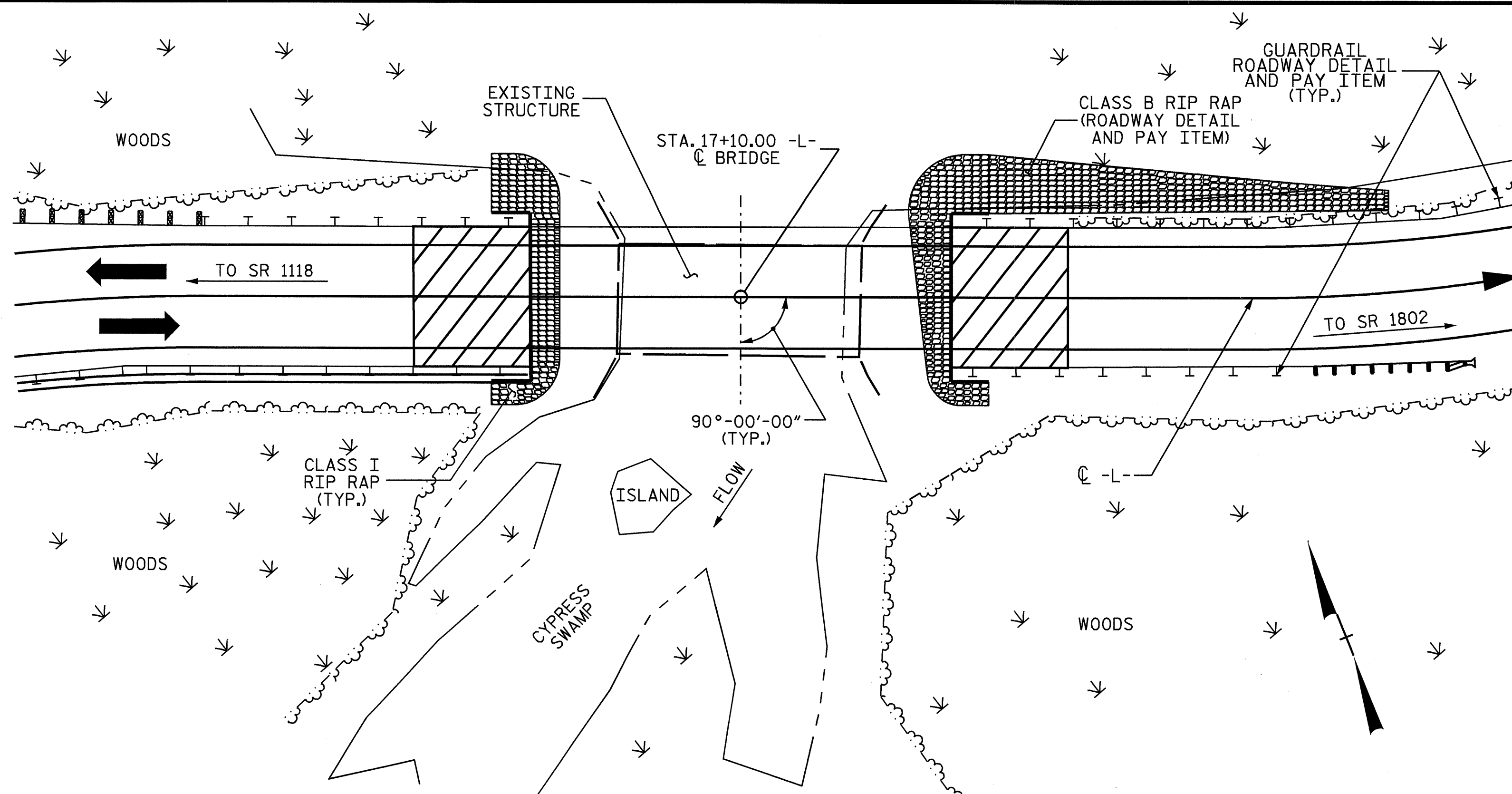
PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-
 SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON SR 1804 OVER CYPRESS SWAMP BETWEEN SR 1802 AND SR 1118					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 19

DRAWN BY : A. SORSENGINH DATE : 1/25/08
 CHECKED BY : H.T. BARBOUR DATE : 2/5/08

BENCH MARK No. 2: RAILROAD SPIKE IN BASE OF 24" Ø CYPRESS, 6.51' RIGHT OF STA. 19+54.95 -L-, EL. 27.71



NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.

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

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

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS, 1 @ 18'-0" AND 2 @ 17'-0" WITH 13 LINES OF 6" X 12" TIMBER JOIST WITH 4" X 8" TIMBER FLOOR JOIST WITH A 4" ASPHALT WEARING SURFACE ON TIMBER CAPS AND TIMBER PILES AT END BENTS AND INTERIOR BENTS, WITH A CLEAR ROADWAY WIDTH OF 23'-8" AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 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.

DRIVE PILES AT BENT NO. 1 TO A REQUIRED BEARING CAPACITY OF 110 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ANY ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

DRIVE PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN -3.0 FT.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO. 1 AND END BENT NO. 2 IS 50 TONS PER PILE.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENT NO. 1 IS 50 TONS PER PILE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 11 FEET. 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, RE-STRIKING, OR RE-DRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. SEE PILE DRIVING ANALYZER SPECIAL PROVISION.

PILE RESTRIKES FOR LRFD MAY BE REQUIRED FOR PILES AT END BENT NO. 1, BENT NO. 1, AND END BENT NO. 2. SEE PILE RESTRIKES FOR LRFD SPECIAL PROVISION.

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE RAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

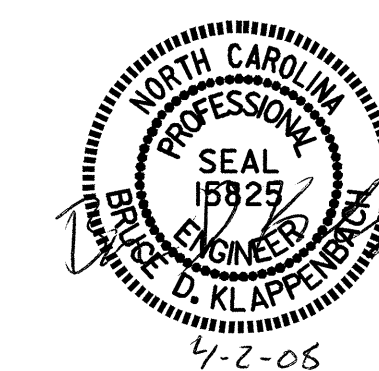
DESIGN DISCHARGE = 750 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 25 YRS.
 DESIGN HIGH WATER ELEVATION = 29.700
 DRAINAGE AREA = 5.2 SQ. MI.
 BASIC DISCHARGE (Q100) = 1,200 C.F.S.
 BASIC HIGH WATER ELEVATION = 30.900

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 950 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 50 YRS.
 OVERTOPPING FLOOD ELEVATION = 30.300

TOTAL BILL OF MATERIAL

	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		HP 12 X 53 GALVANIZED STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS I (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		
								CU. YDS.	LUMP SUM							LBS.	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	EACH	EACH	LUMP SUM								175.50					22	963.88
END BENT NO. 1					13.0		2046	7	280				65	72				
BENT NO. 1					7.5		2356			8	360							
END BENT NO. 2					13.0		2046	7	350				73	81				
TOTAL	LUMP SUM	1	1	LUMP SUM	33.5	LUMP SUM	6448	14	630	8	360	12	175.50	138	153	LUMP SUM	22	963.88



PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

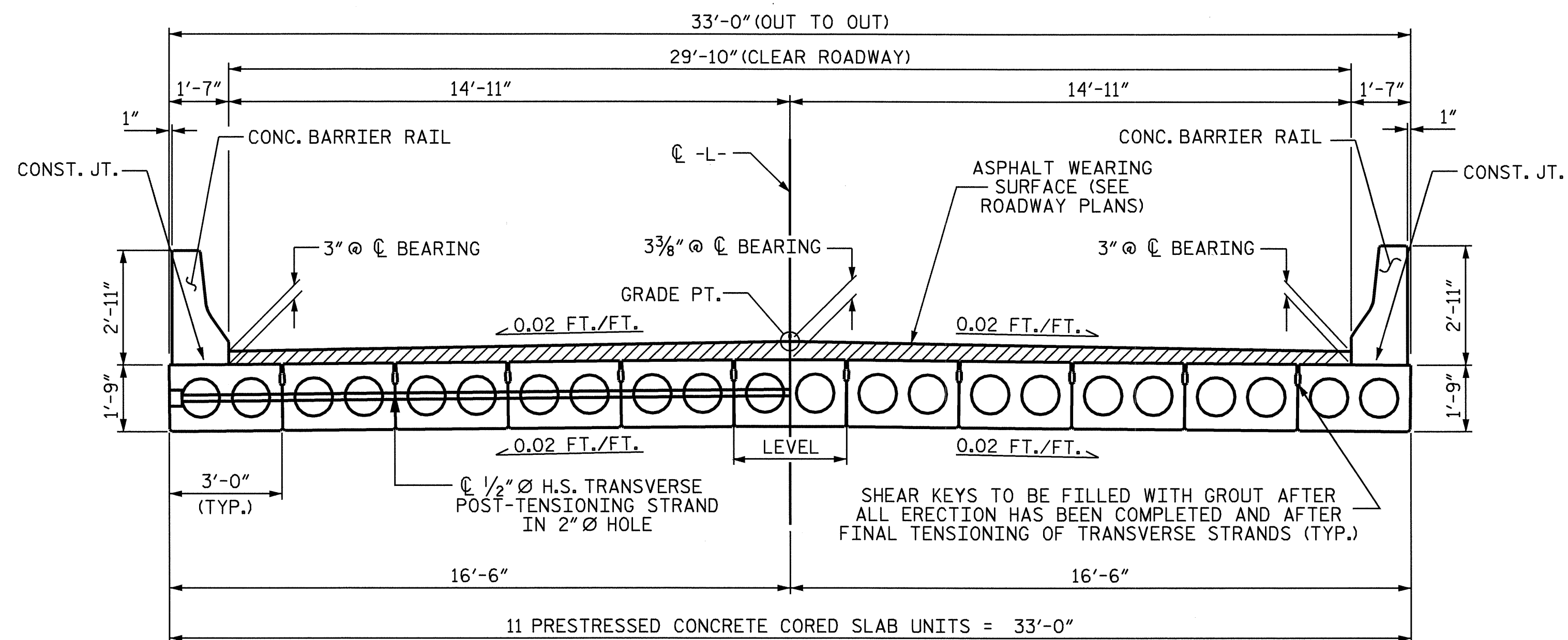
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 1804
 OVER CYPRESS SWAMP
 BETWEEN SR 1802 AND
 SR 1118

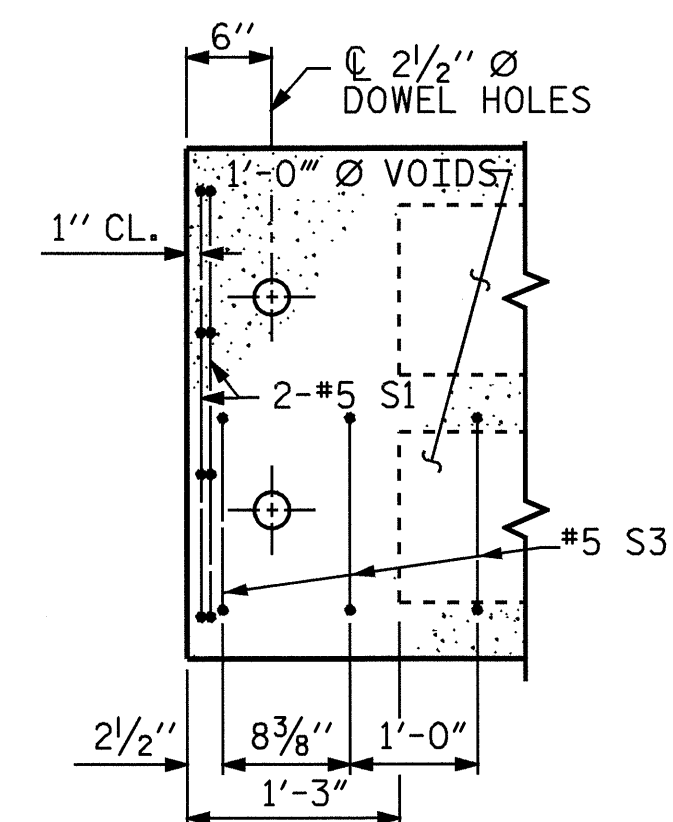
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 19

DRAWN BY: A. SORSENGINH DATE: 1/21/08
 CHECKED BY: H.T. BARBOUR DATE: 2/5/08

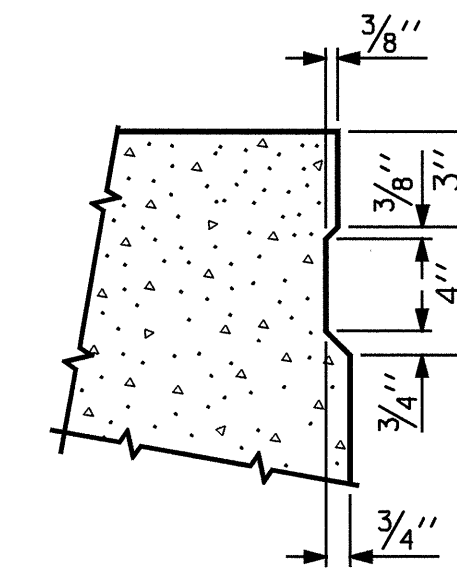


TYPICAL SECTION



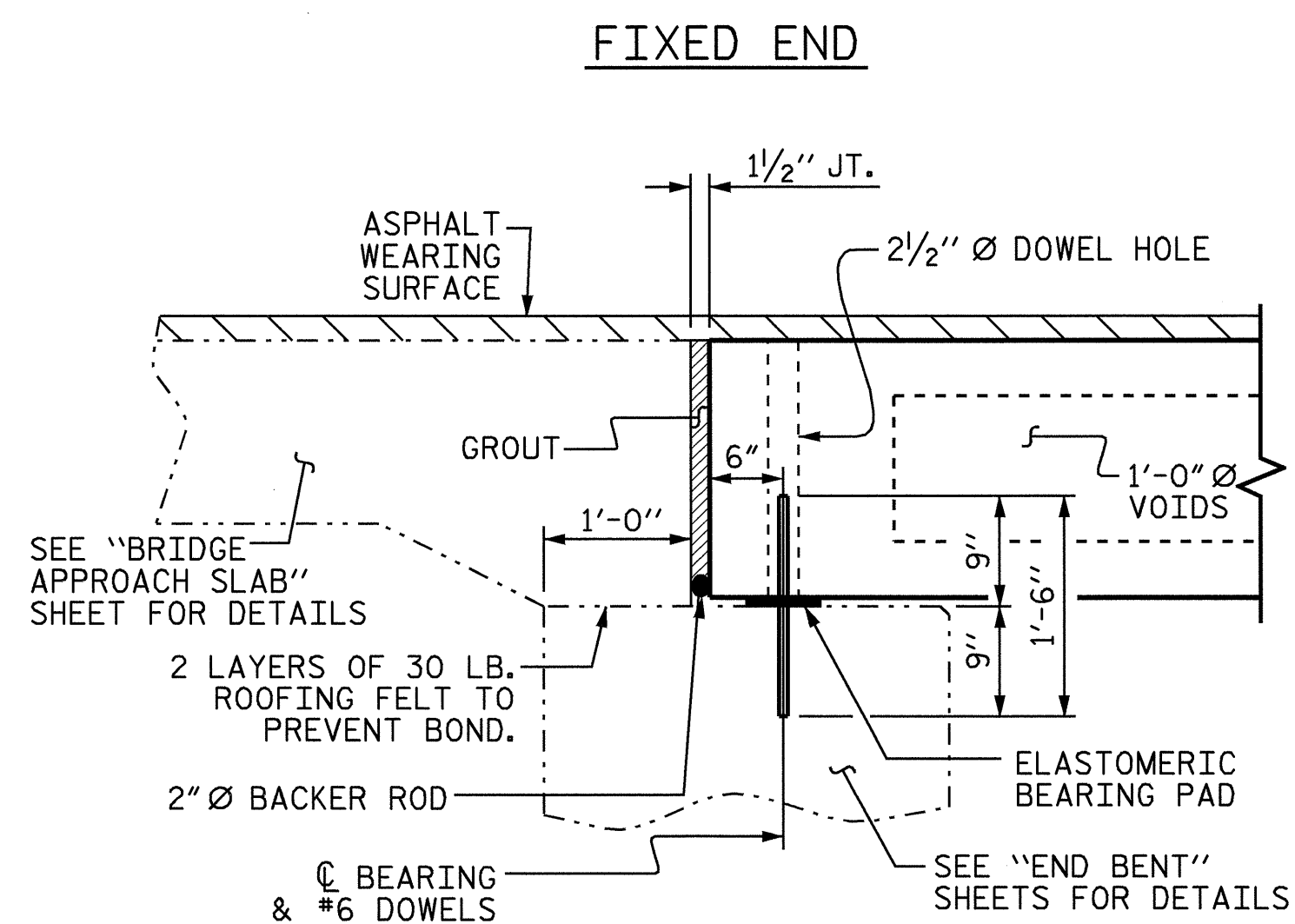
PART PLAN-EXTERIOR SECTION

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

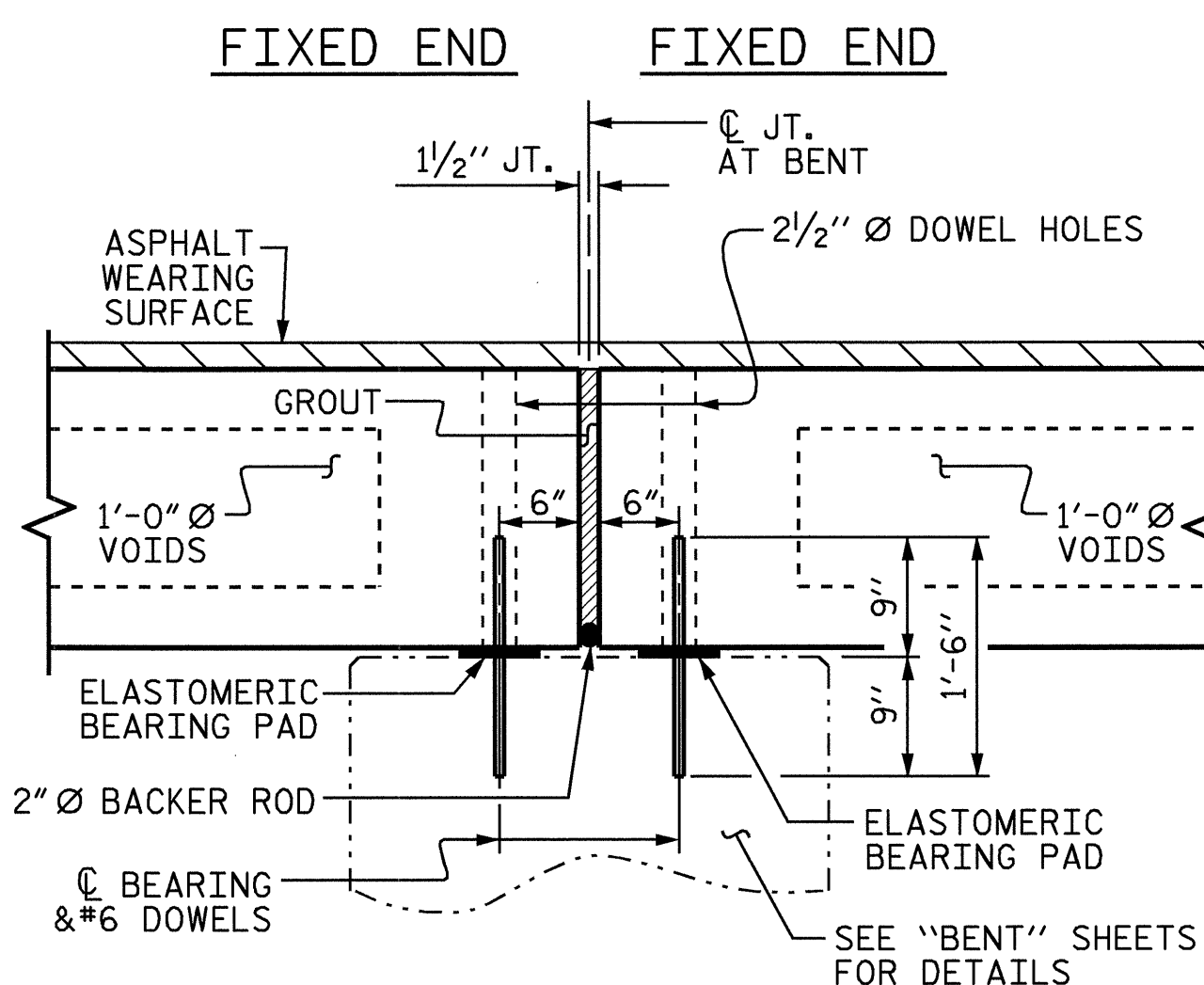


SHEAR KEY DETAIL

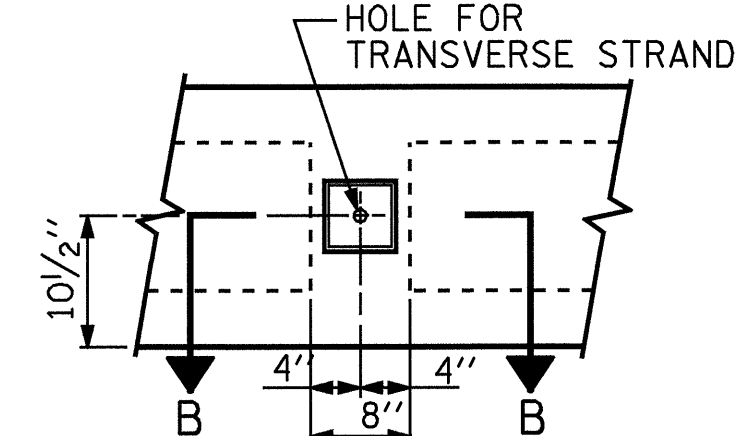
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



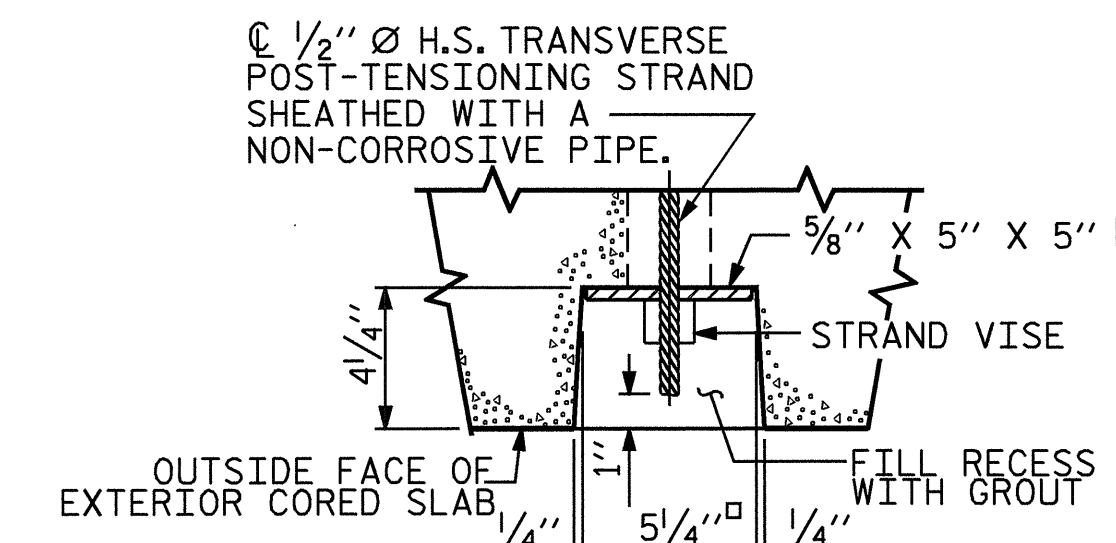
SECTION AT END BENT



SECTION AT BENT

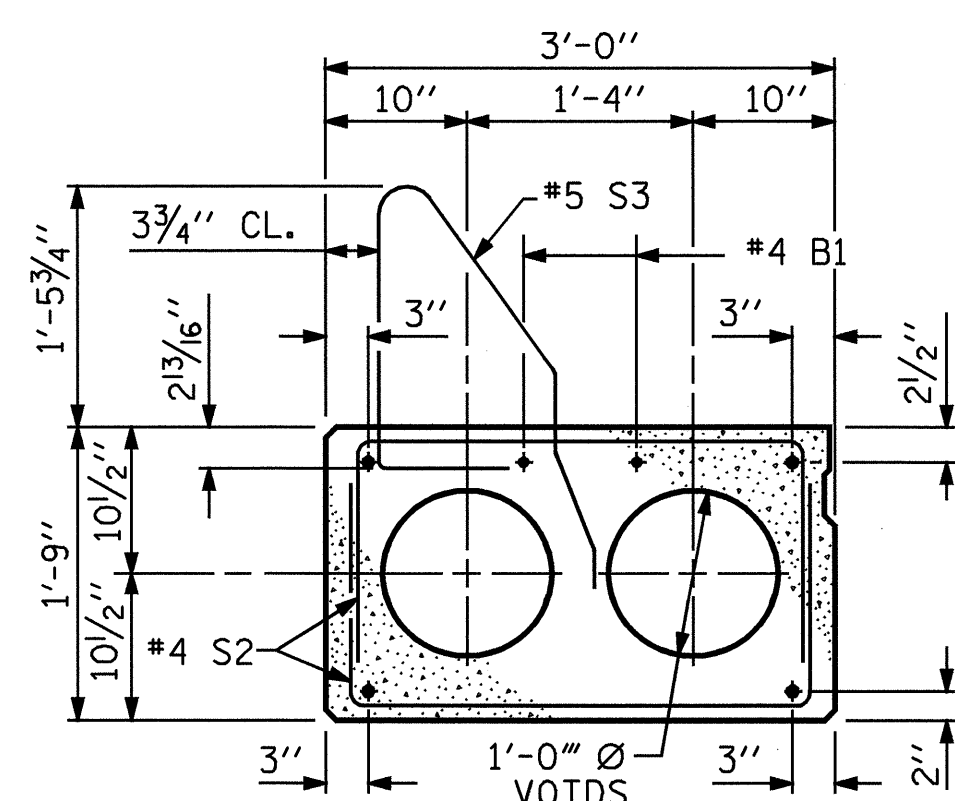


ELEVATION VIEW



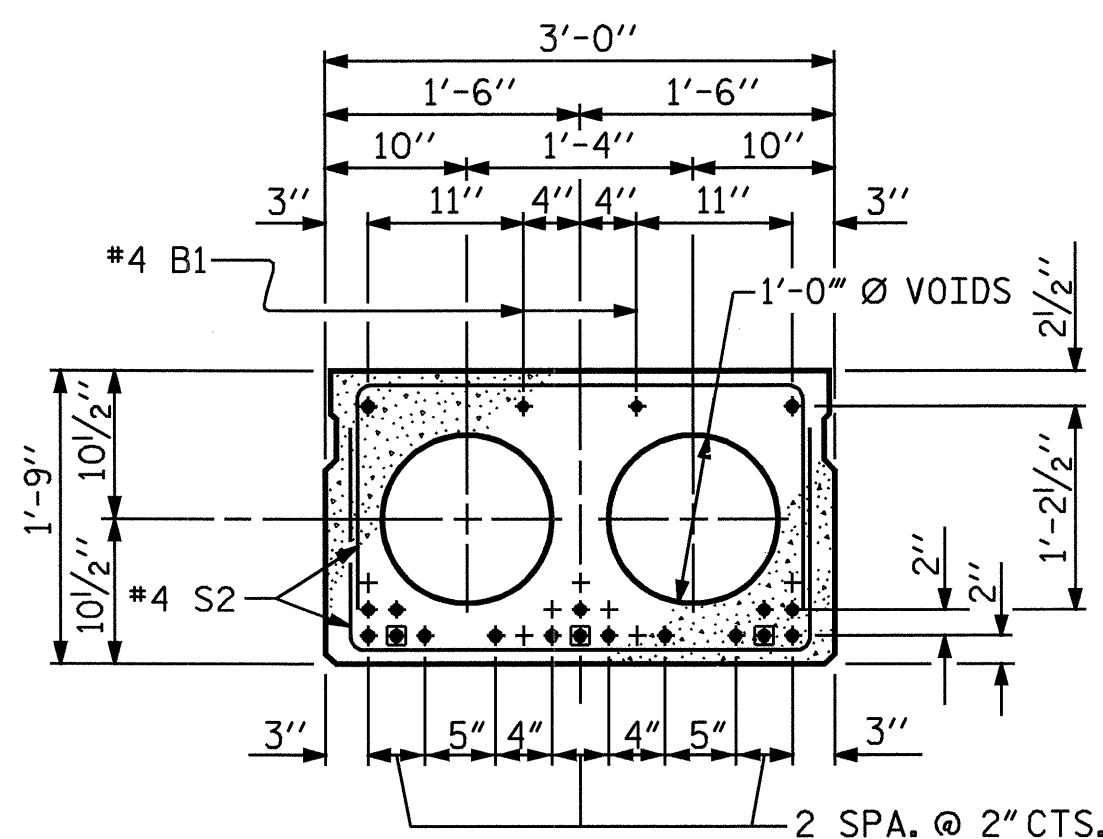
SECTION B-B

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



EXTERIOR SLAB SECTION

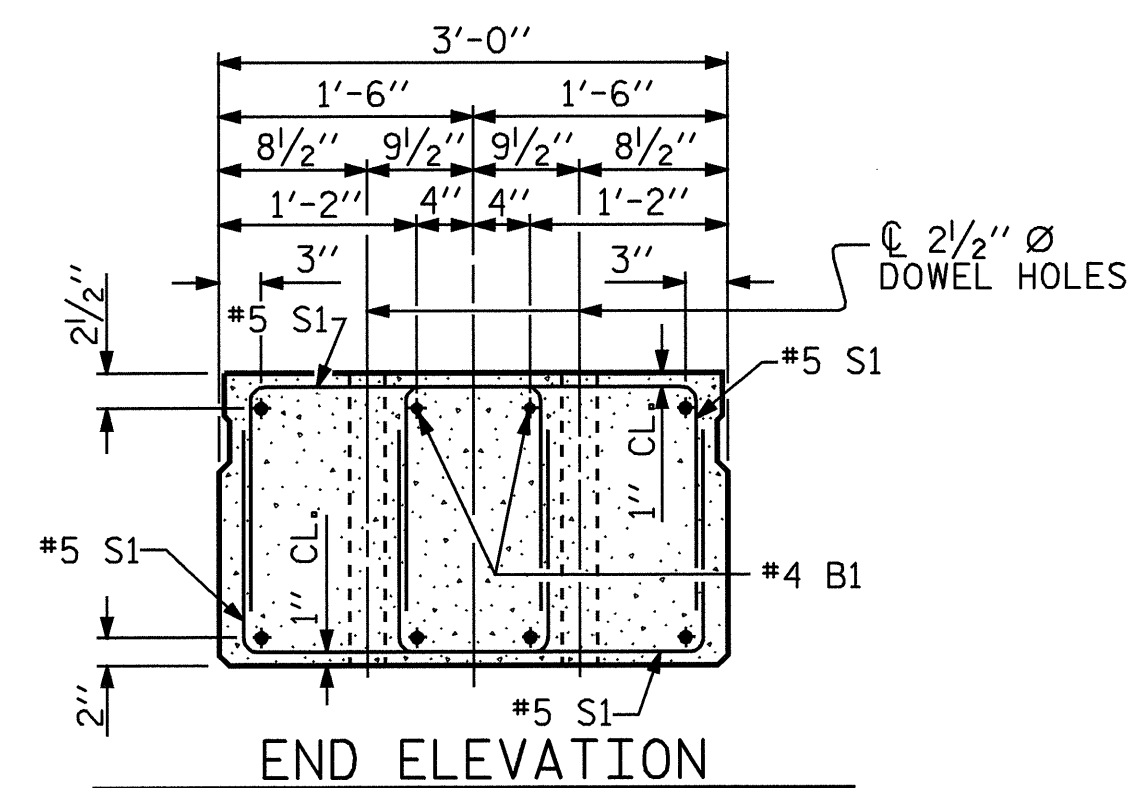
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION

1/2" Ø LOW RELAXATION STRAND LAYOUT

● BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1087-7.



END ELEVATION

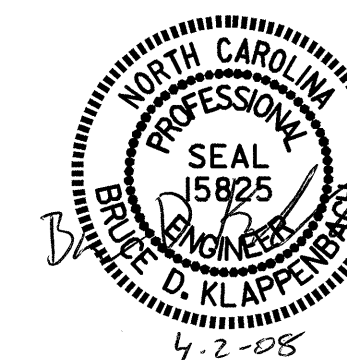
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 1 OF 4

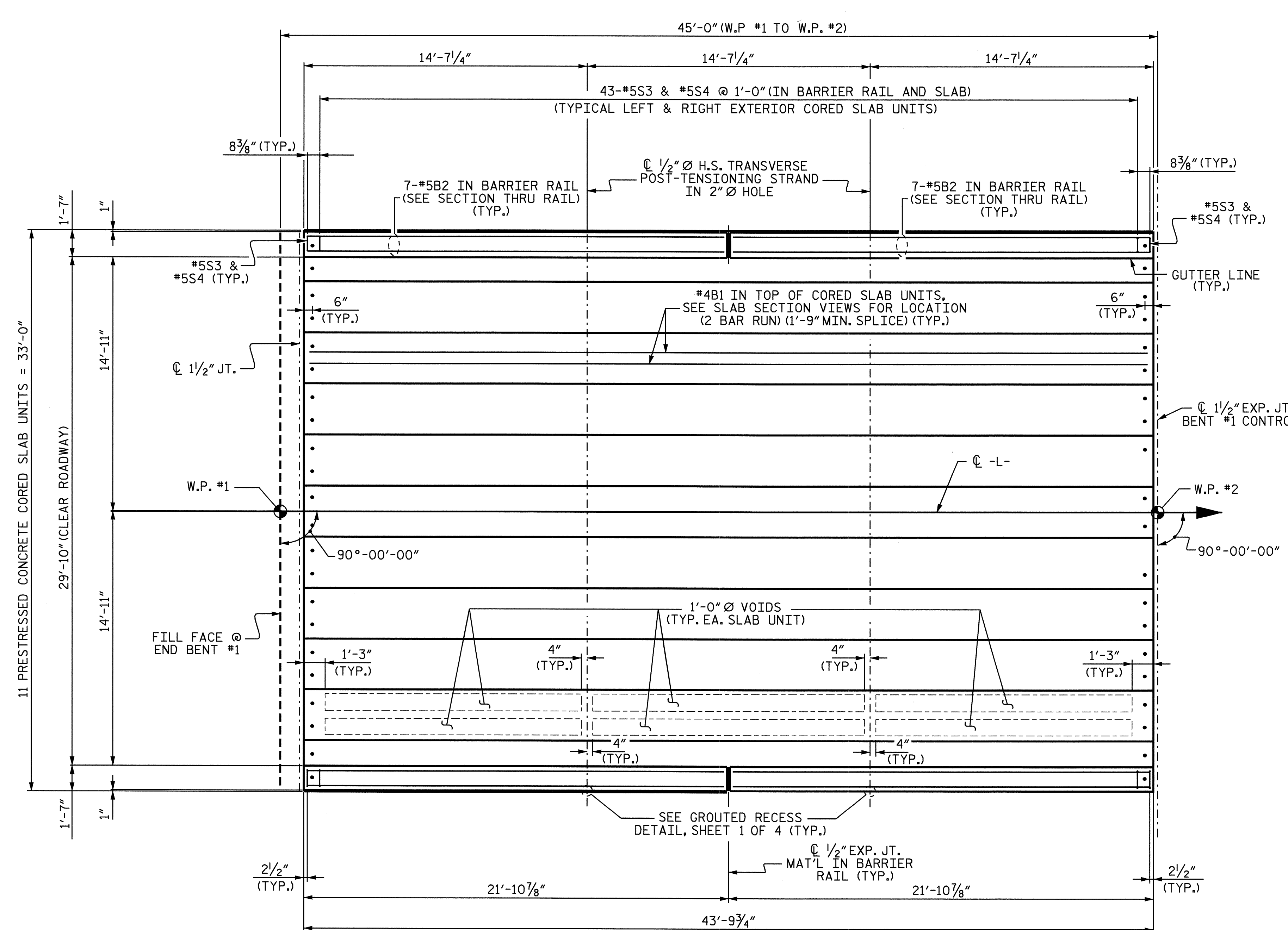
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

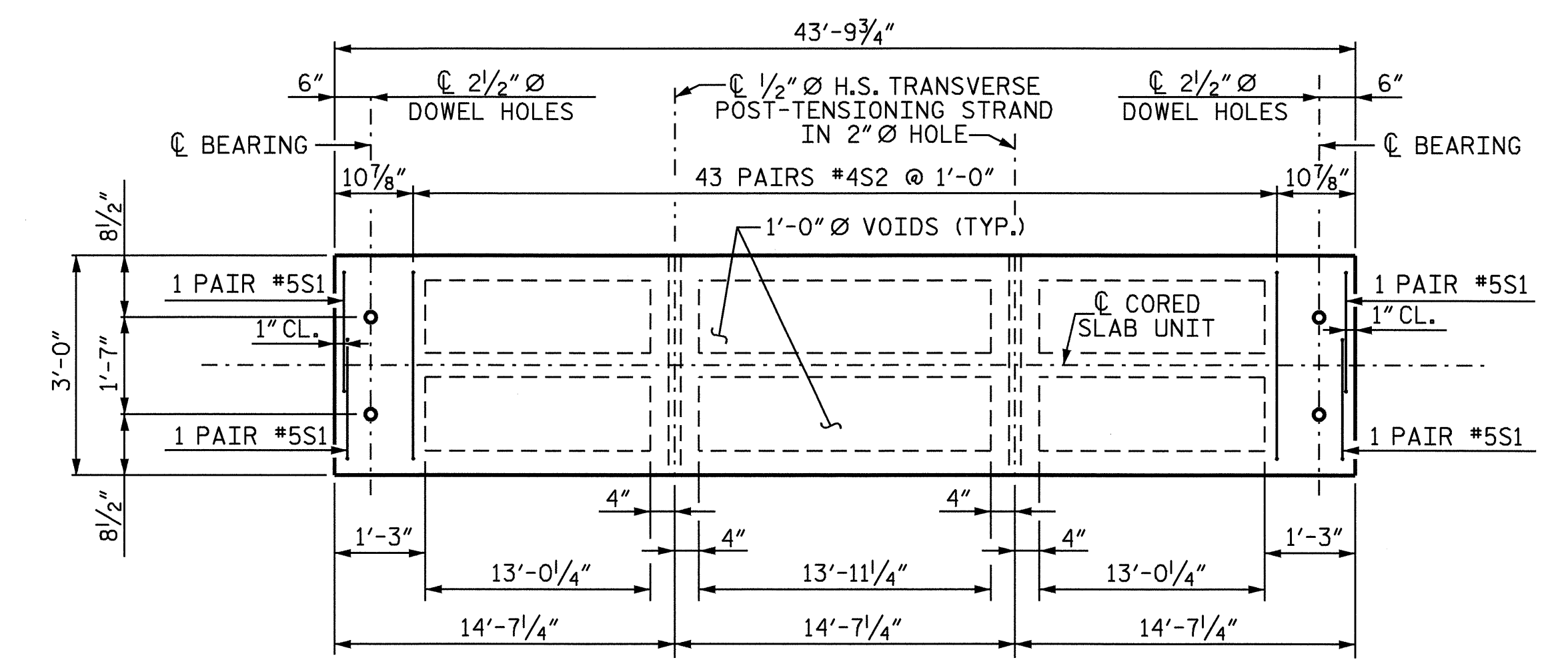


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4	
1			3			TOTAL SHEETS 19	
2			4				

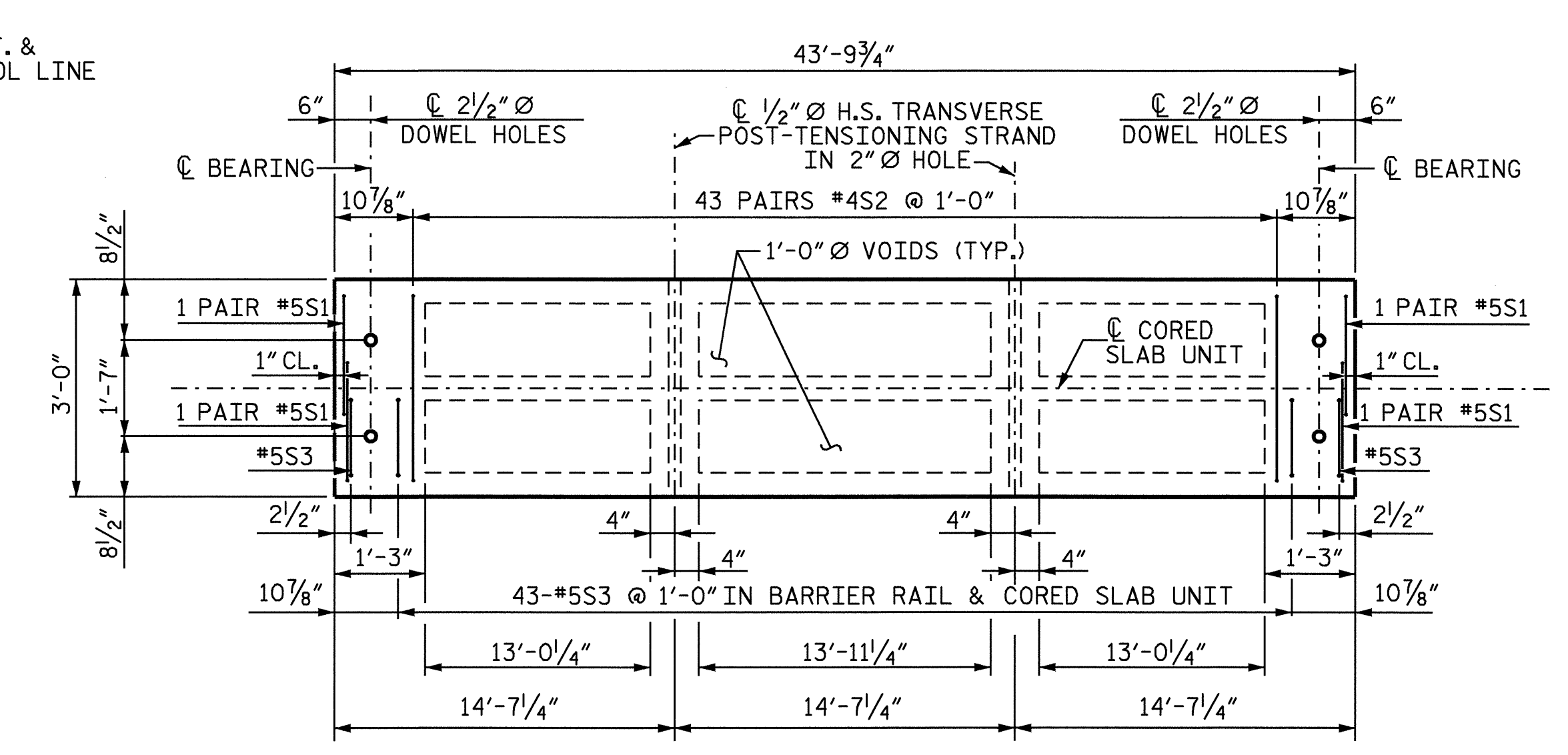
ASSEMBLED BY : M. G. SHAIKH	DATE : 6-29-07
CHECKED BY : A. SORSENGINH	DATE : 1-22-08
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM



PLAN OF SPAN A



PLAN OF INTERIOR CORED SLAB UNIT



PLAN OF EXTERIOR CORED SLAB UNIT

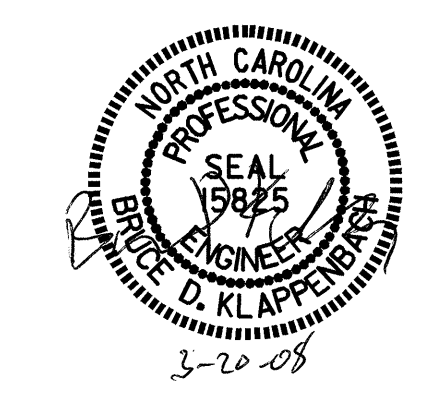
PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 2 OF 4

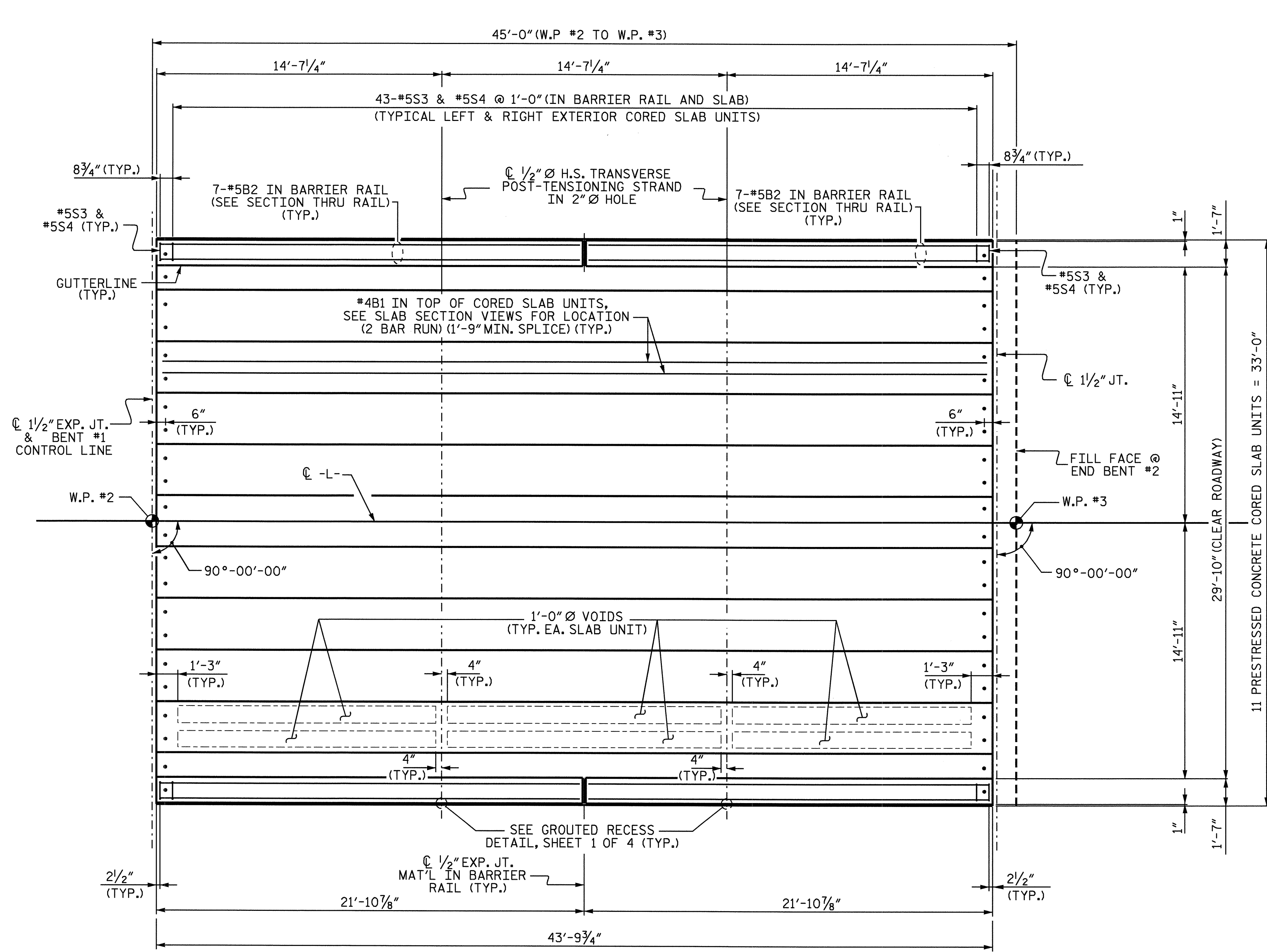
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN A**

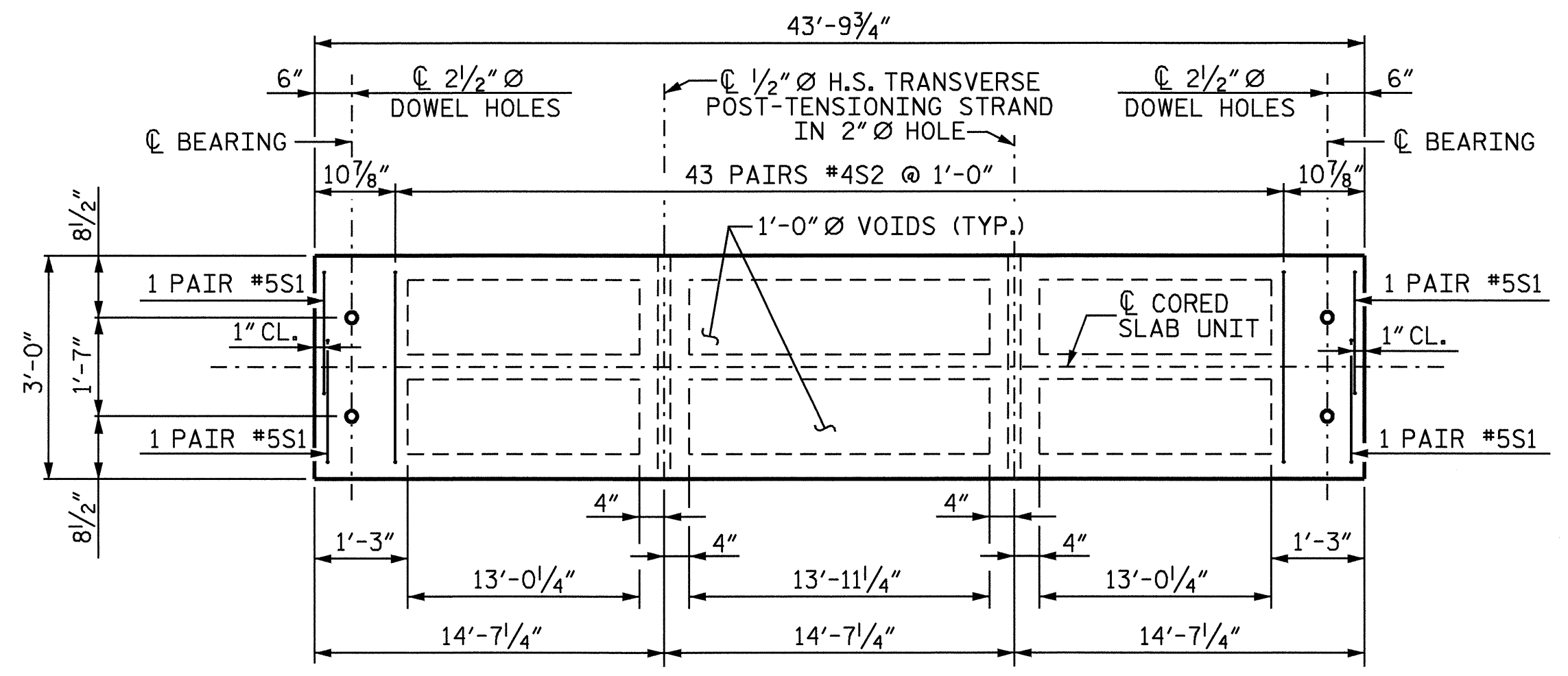
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			19



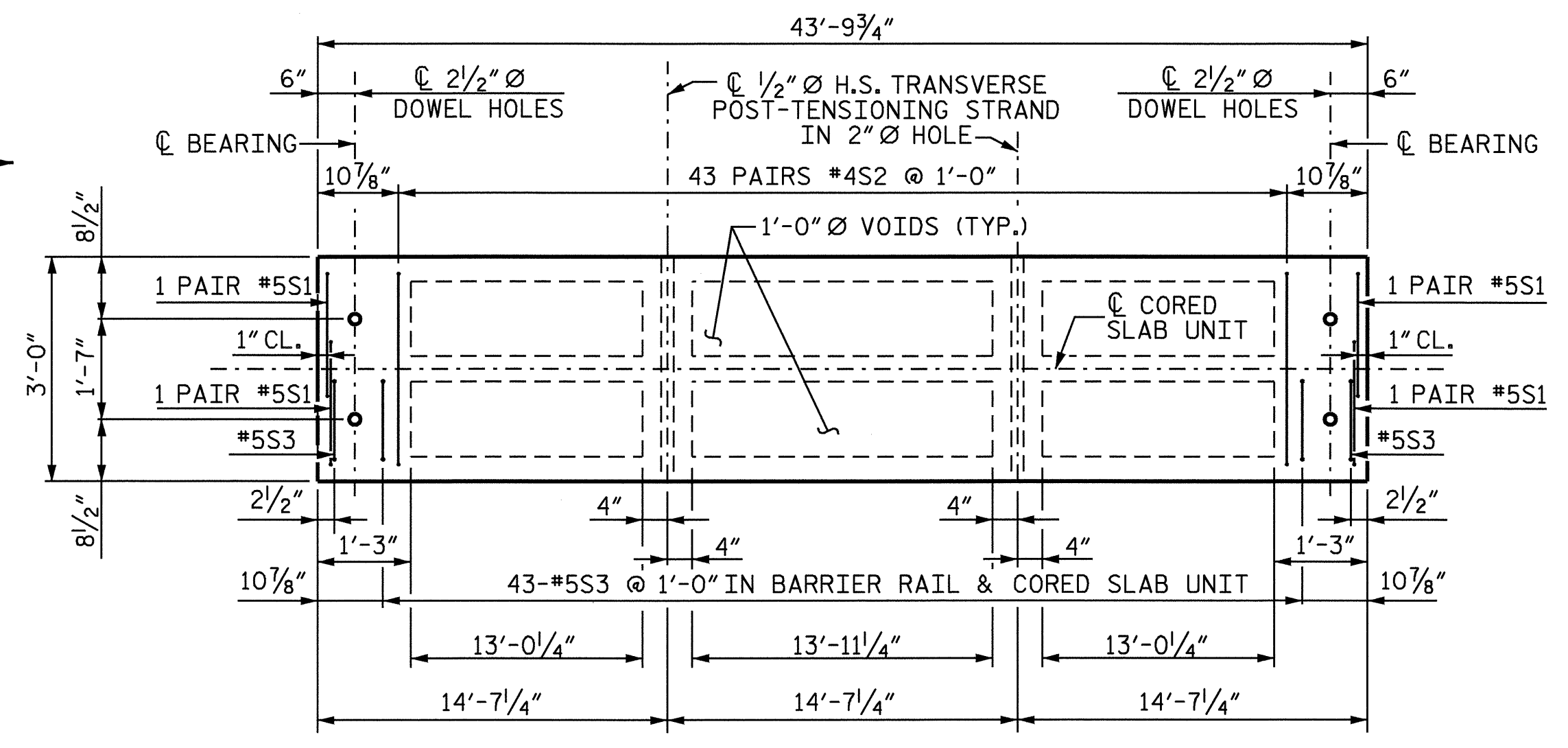
DRAWN BY : M. G. SHAIKH DATE : 7/08/07
 CHECKED BY : A. SORSENGINH DATE : 1/22/08



PLAN OF SPAN B



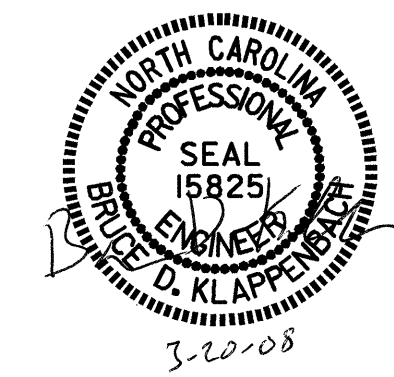
PLAN OF INTERIOR CORED SLAB UNIT



PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 3 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN B



FIX. (E1)

FIX. (E1)

DRAWN BY: M. G. SHAIKH DATE: 7/09/07
 CHECKED BY: A. SORSENGINH DATE: 1/22/08

REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

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" 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 SIDWAYS. 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.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

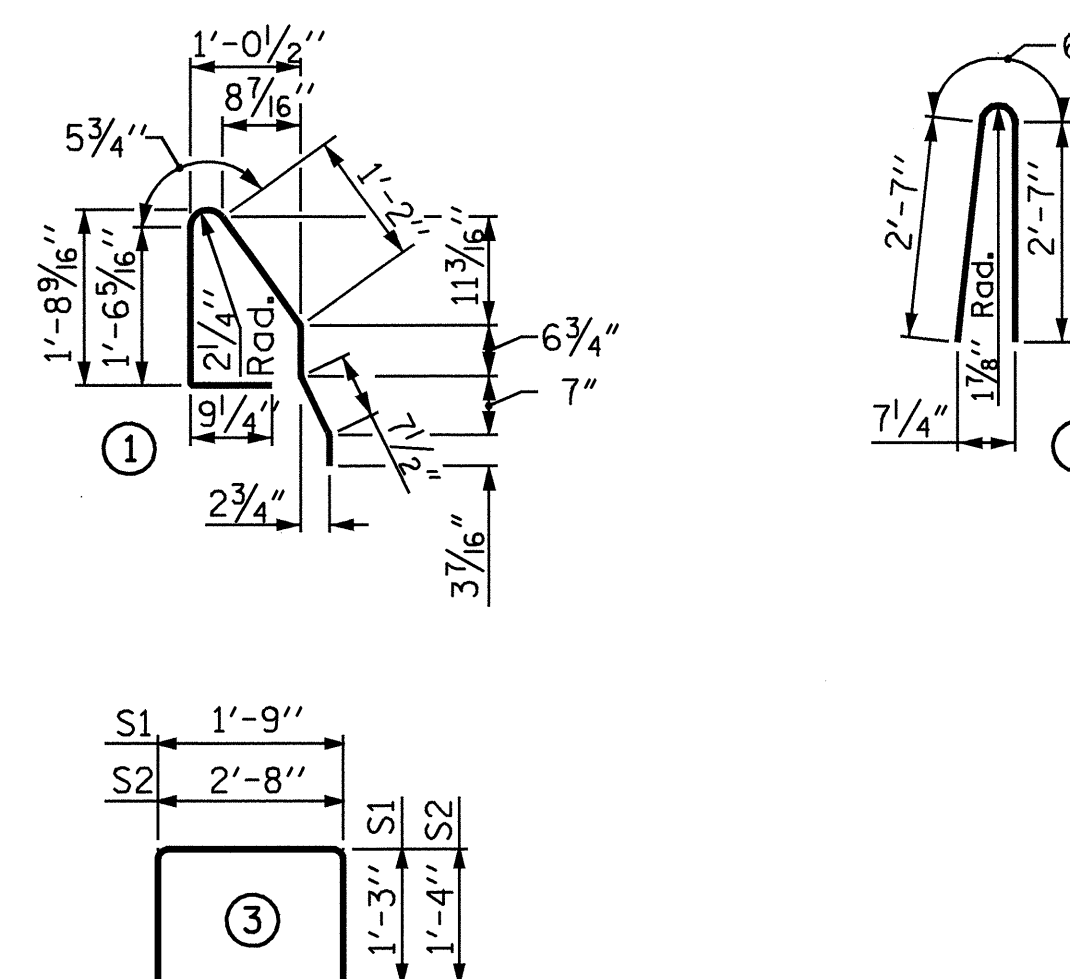
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION SPANS A & B

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	4	#4	STR	22'-8"	61	22'-8"	61
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	86	#4	3	5'-4"	306	5'-4"	306
* S3	45	#5	1	5'-5"	254		
REINFORCING STEEL					402 LBS.		402 LBS.
* EPOXY COATED REINFORCING STEEL					254 LBS.		
5000 P.S.I. CONCRETE					6.2 CU. YDS.		6.2 CU. YDS.
1/2" Ø L.R. STRANDS					No. 18		No. 18

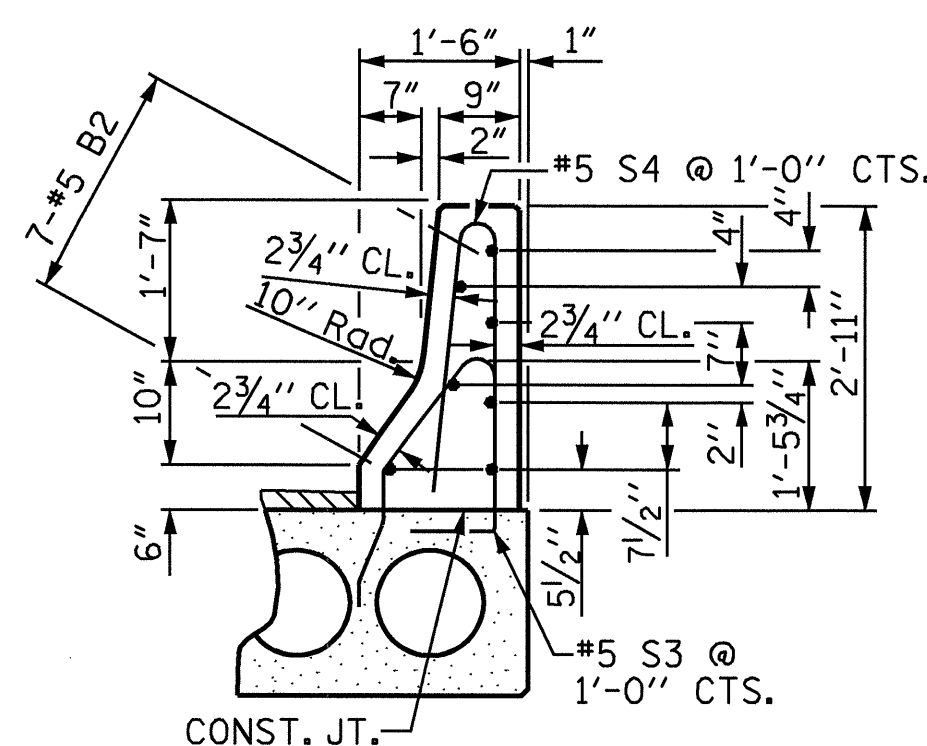
DEAD LOAD DEFLECTION AND CAMBER

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

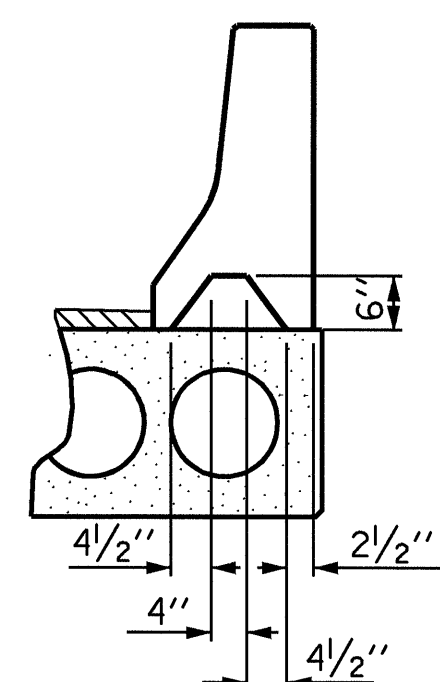
** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED

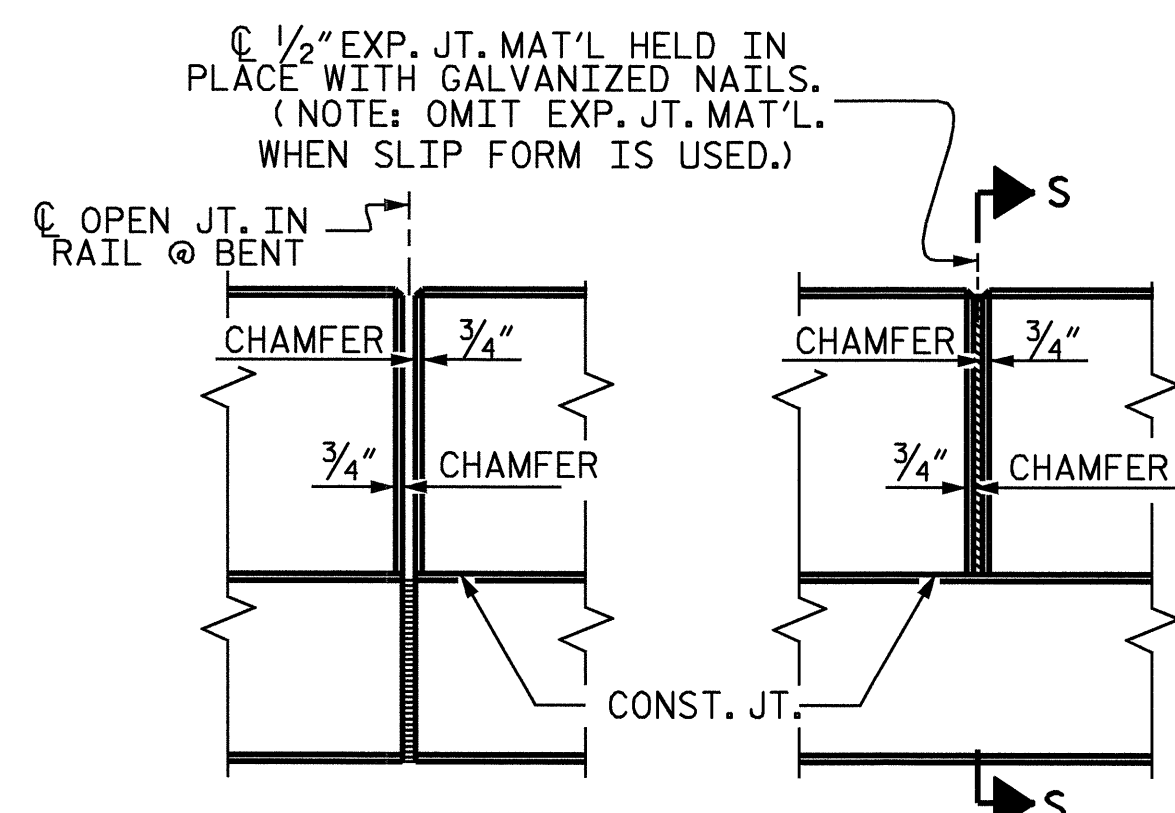
	SPAN A		SPAN B		TOTAL	
	NUMBER	LENGTH	NUMBER	LENGTH	NUMBER	LENGTH
EXTERIOR C.S.	2	43'-9 3/4"	2	43'-9 3/4"	4	175'-3"
INTERIOR C.S.	9	43'-9 3/4"	9	43'-9 3/4"	18	788'-7 1/2"
TOTAL	11	481'-11 1/4"	11	481'-11 1/4"	22	963'-10 1/2"



SECTION THRU RAIL

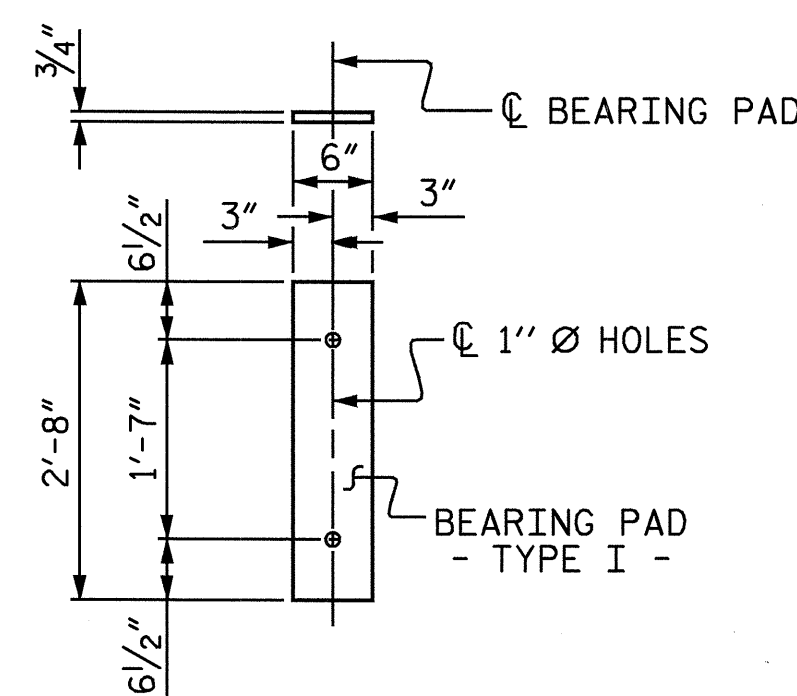


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS



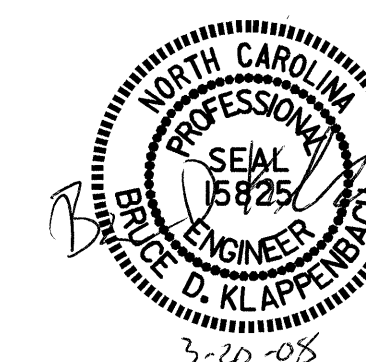
FIXED END (E1)
(TYPE I - 44 REQ'D)

ELASTOMERIC BEARING DETAILS

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN		TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B					
* B2	28	28	56	#5	STR	21'-6"	1256
* S4	90	90	180	#5	2	5'-8"	1064
* EPOXY COATED REINFORCING STEEL LBS.							2320
CLASS AA CONCRETE CU.YDS.							20.1
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL							175.50

ASSEMBLED BY : M. G. SHAIKH DATE : 07-10-07
 CHECKED BY : A. SORSENGINH DATE : 01-22-08
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06 TLA/GM



PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 4 OF 4

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:	S-7
1			3			TOTAL SHEETS
2			4			19

NOTES

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

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.)

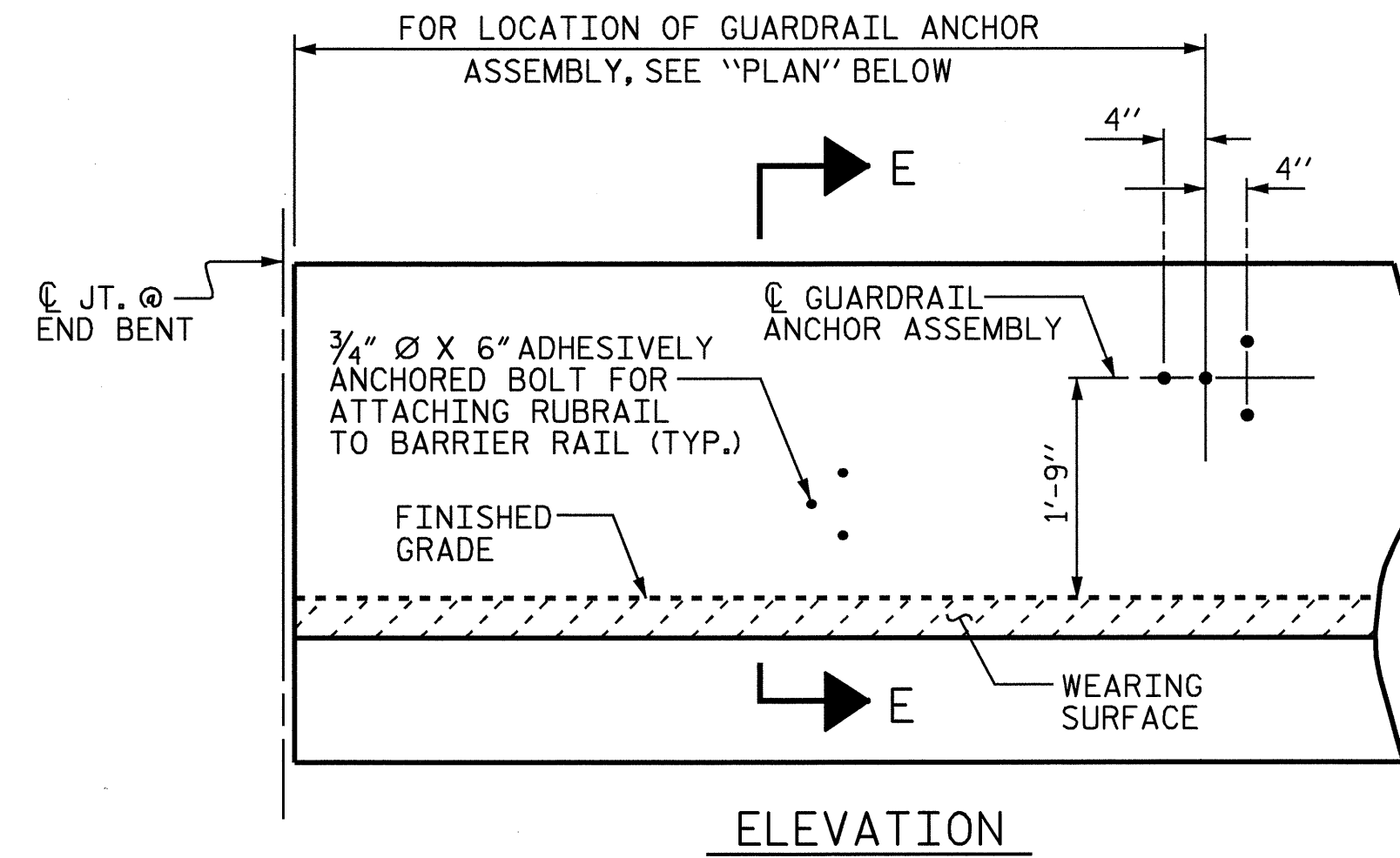
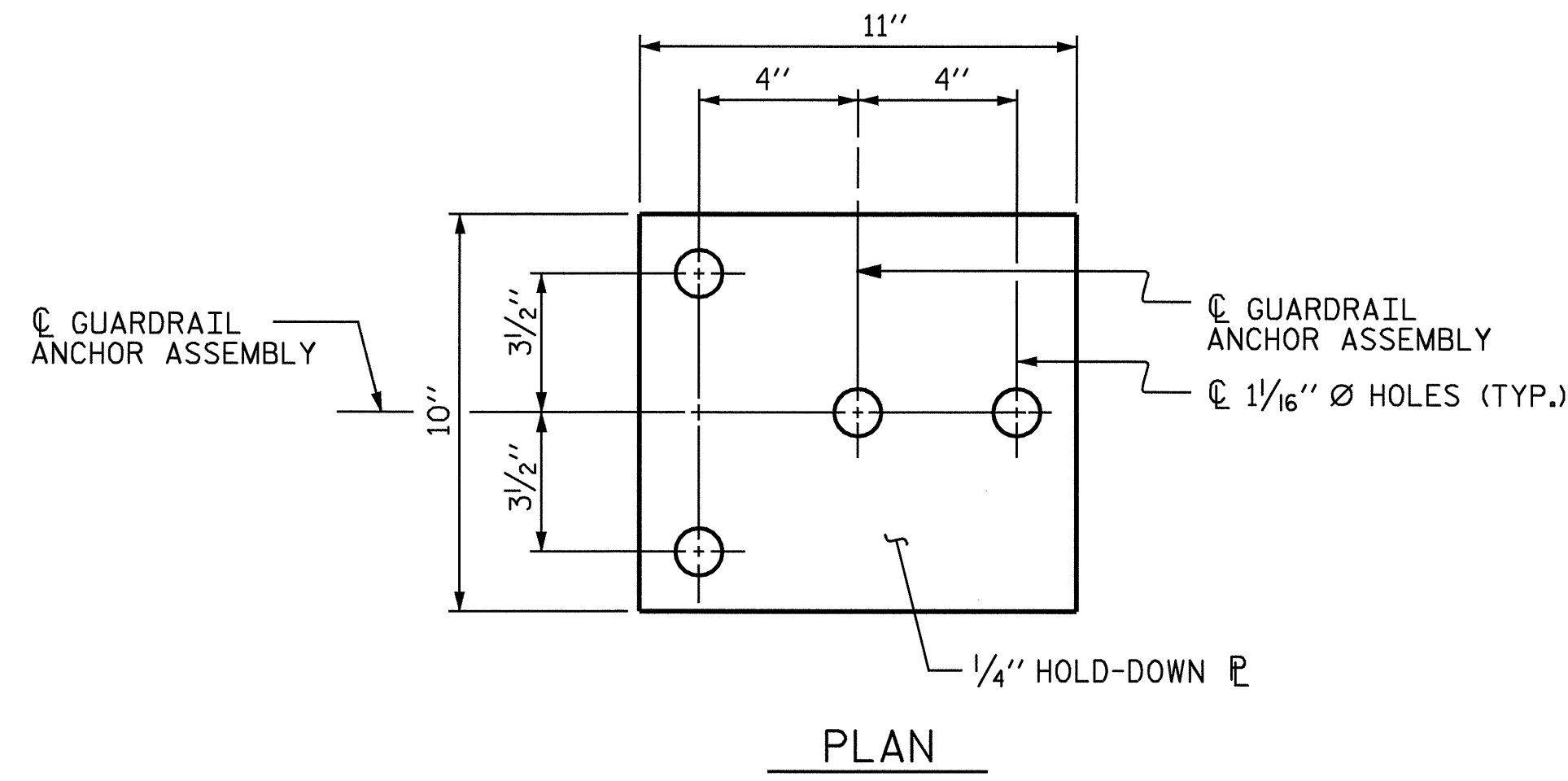
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

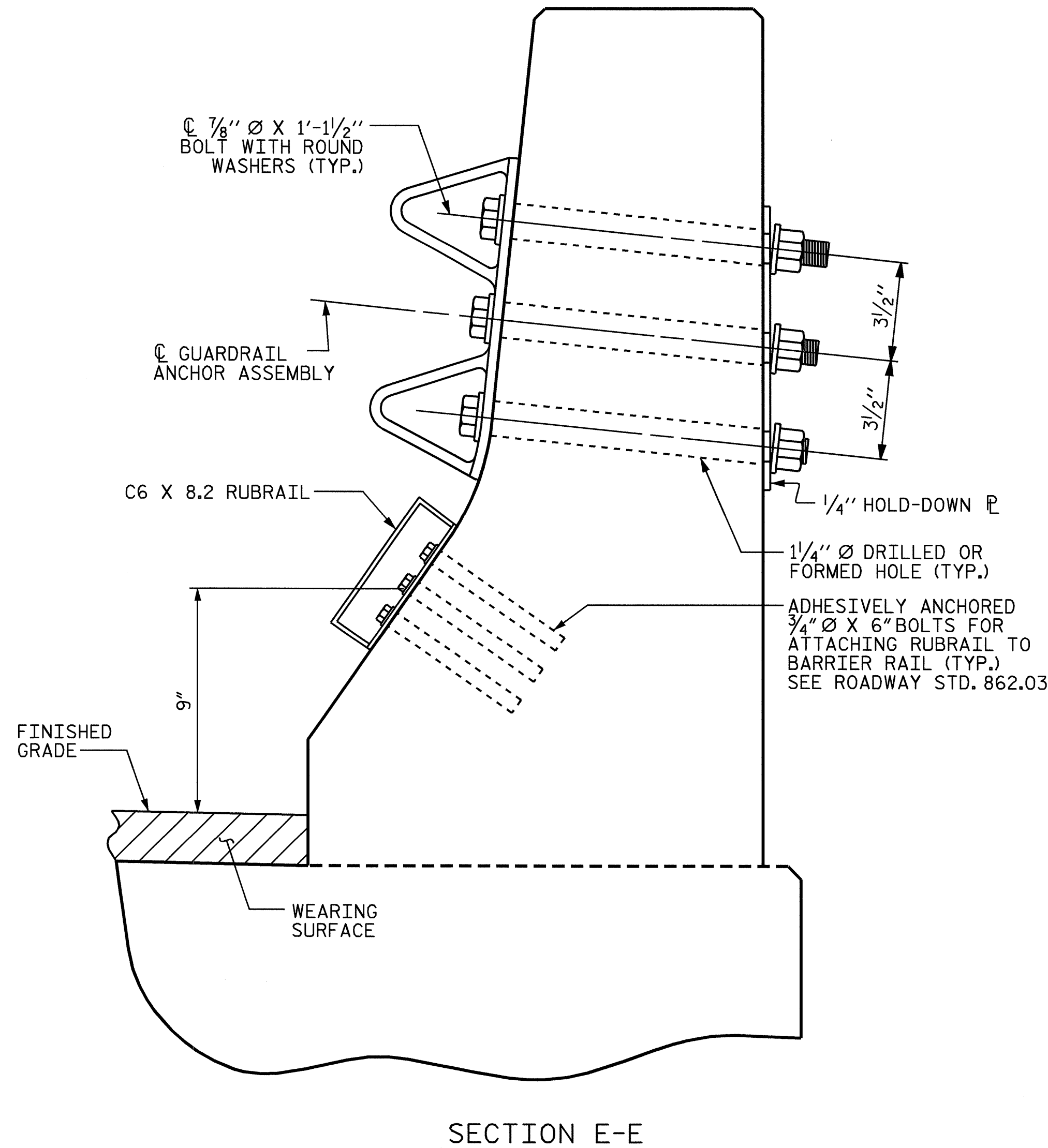
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

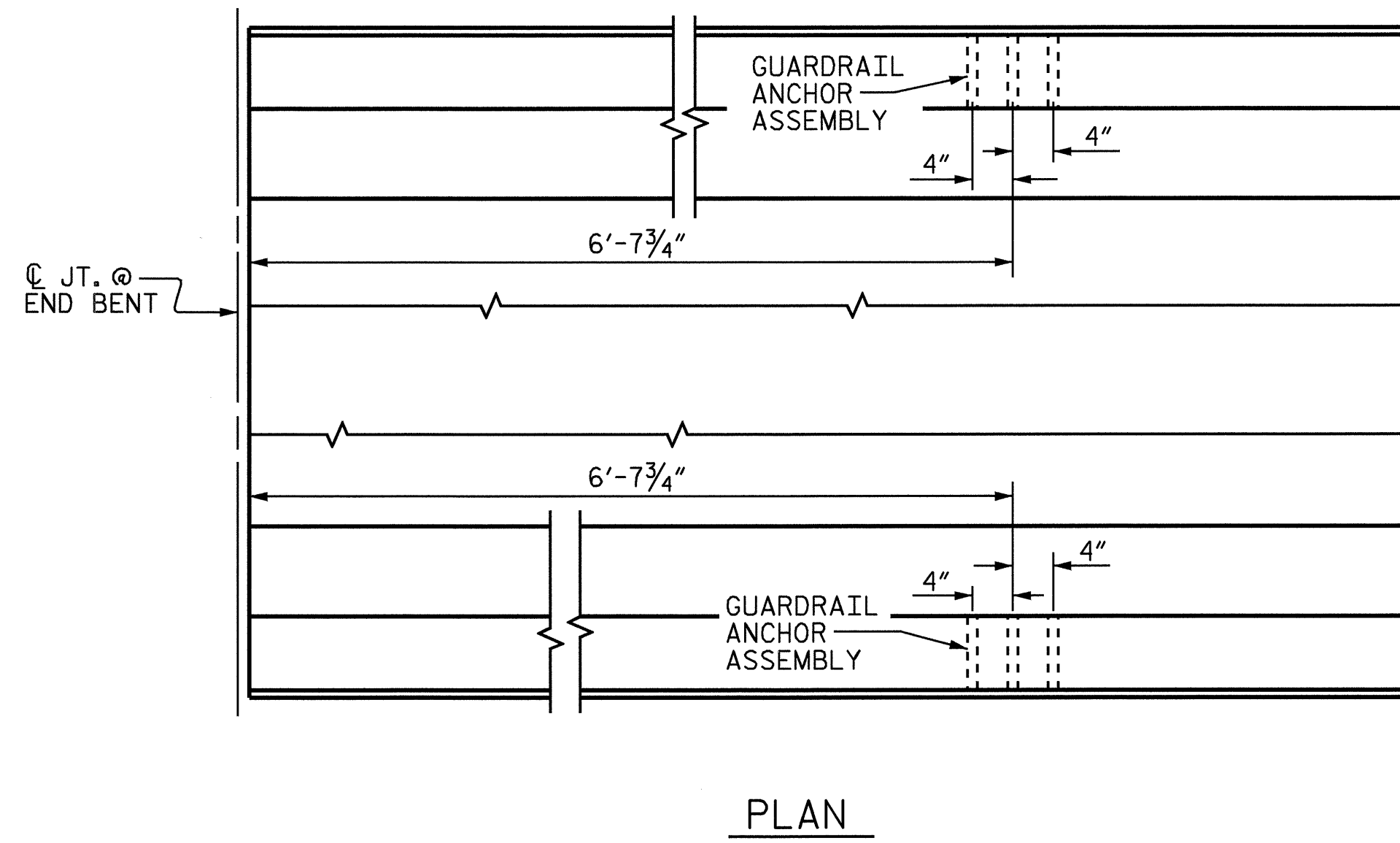
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

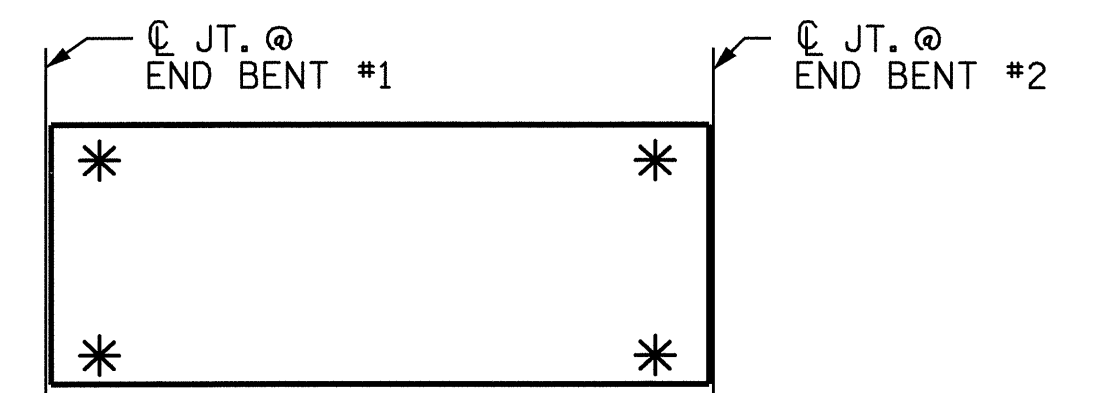


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

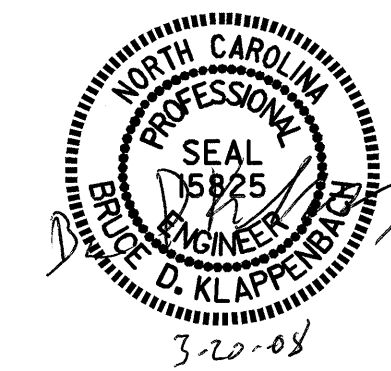


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL



ASSEMBLED BY : M. G. SHAIKH DATE :02-25-08
 CHECKED BY : A. SORSENGINH DATE :02-25-08
 DRAWN BY : TLA 5/06
 CHECKED BY : GM 5/06

ADDED 5/1/06R KMM/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			19

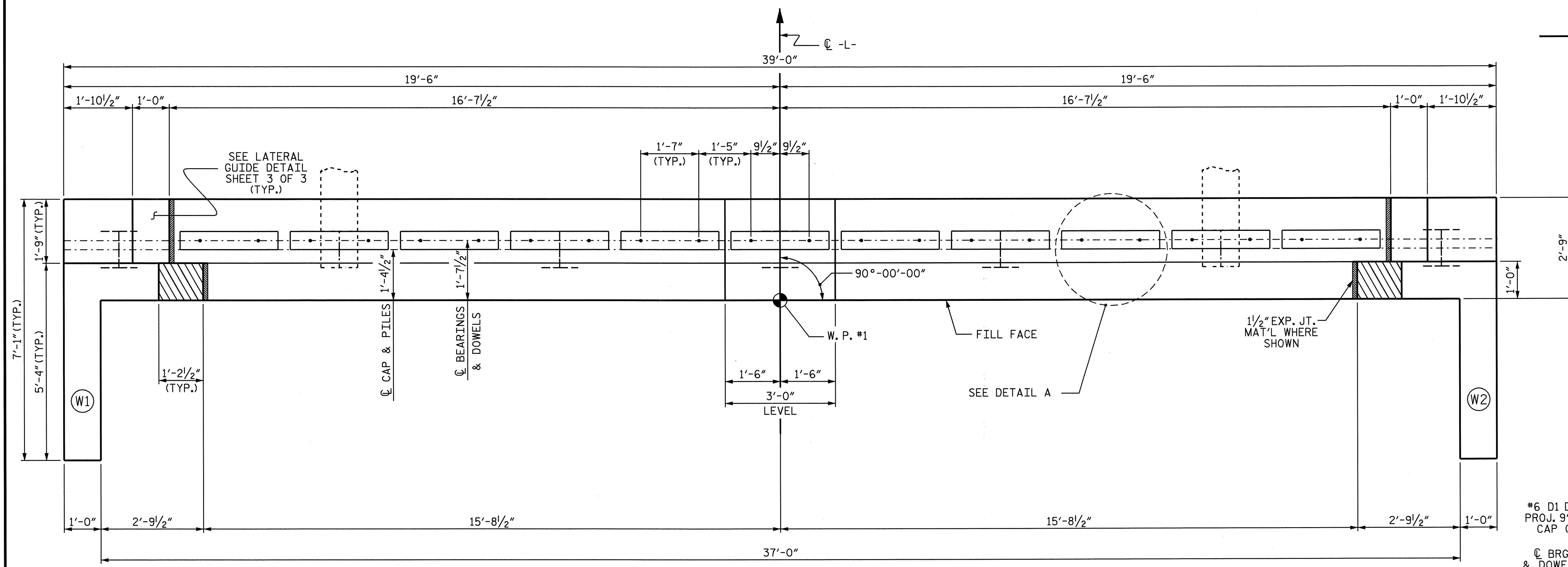
NOTES

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

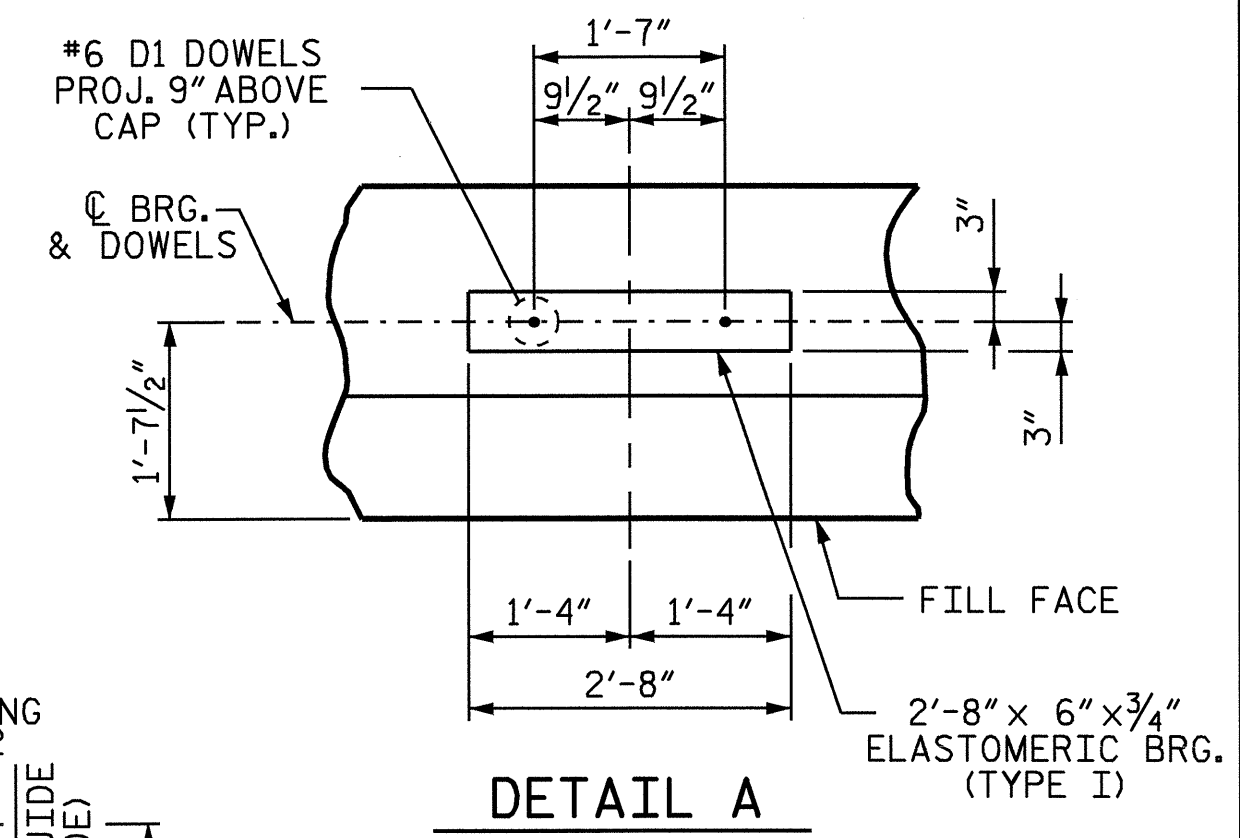
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER 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.

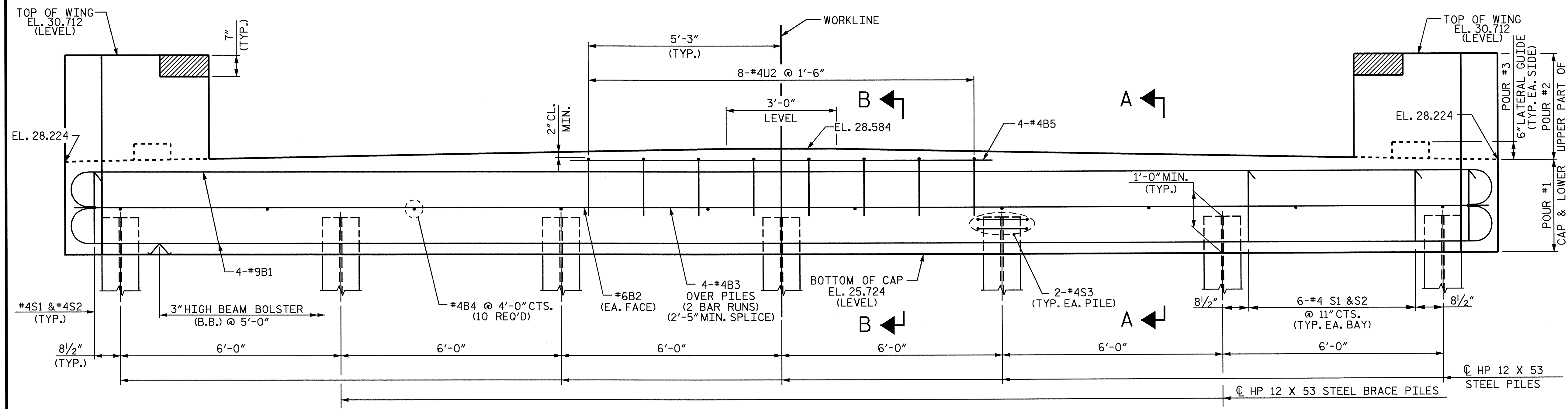
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



PLAN



DETAIL A



ELEVATION

PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

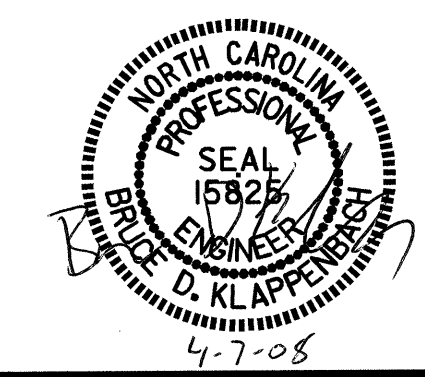
SHEET 1 OF 3

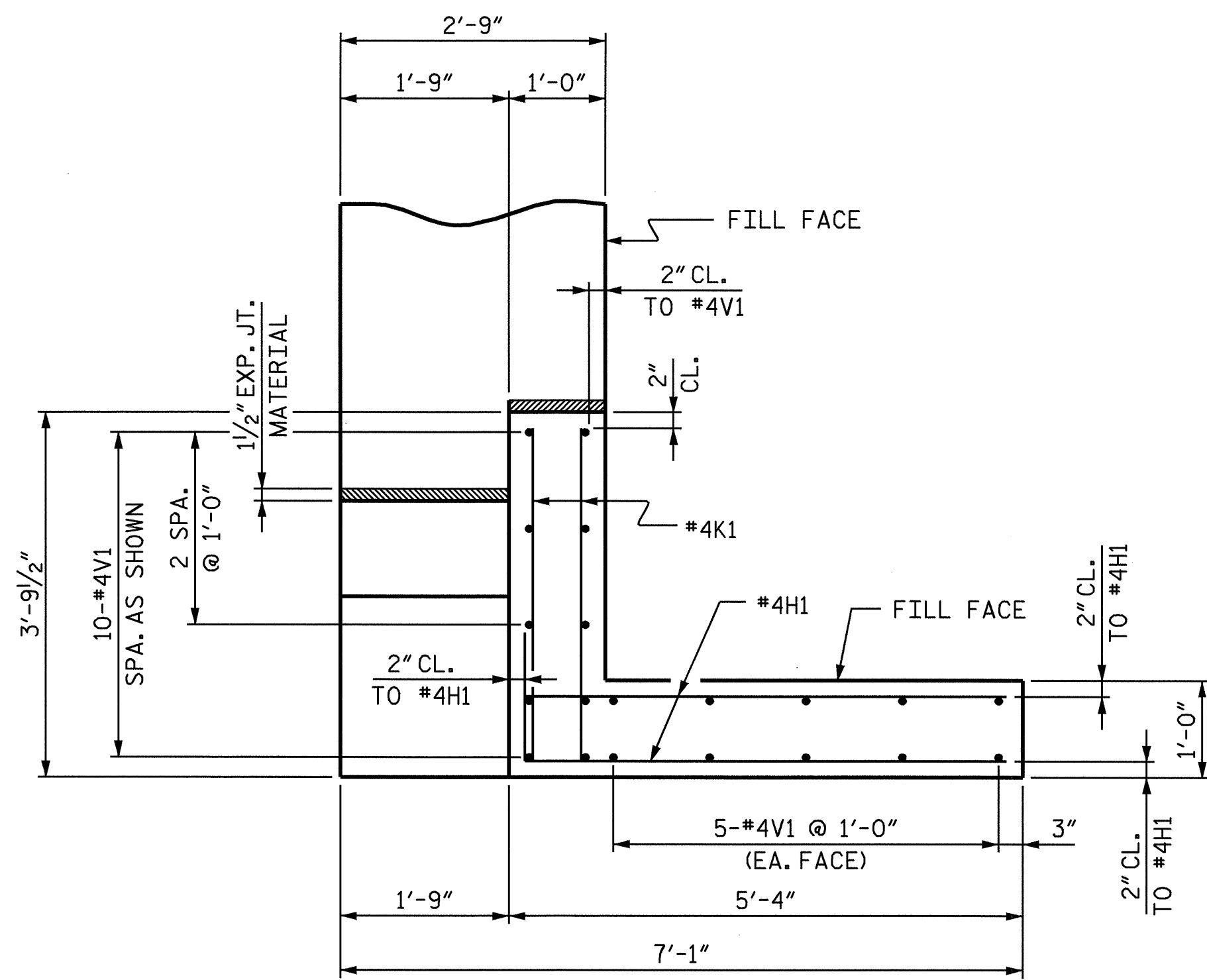
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #1**

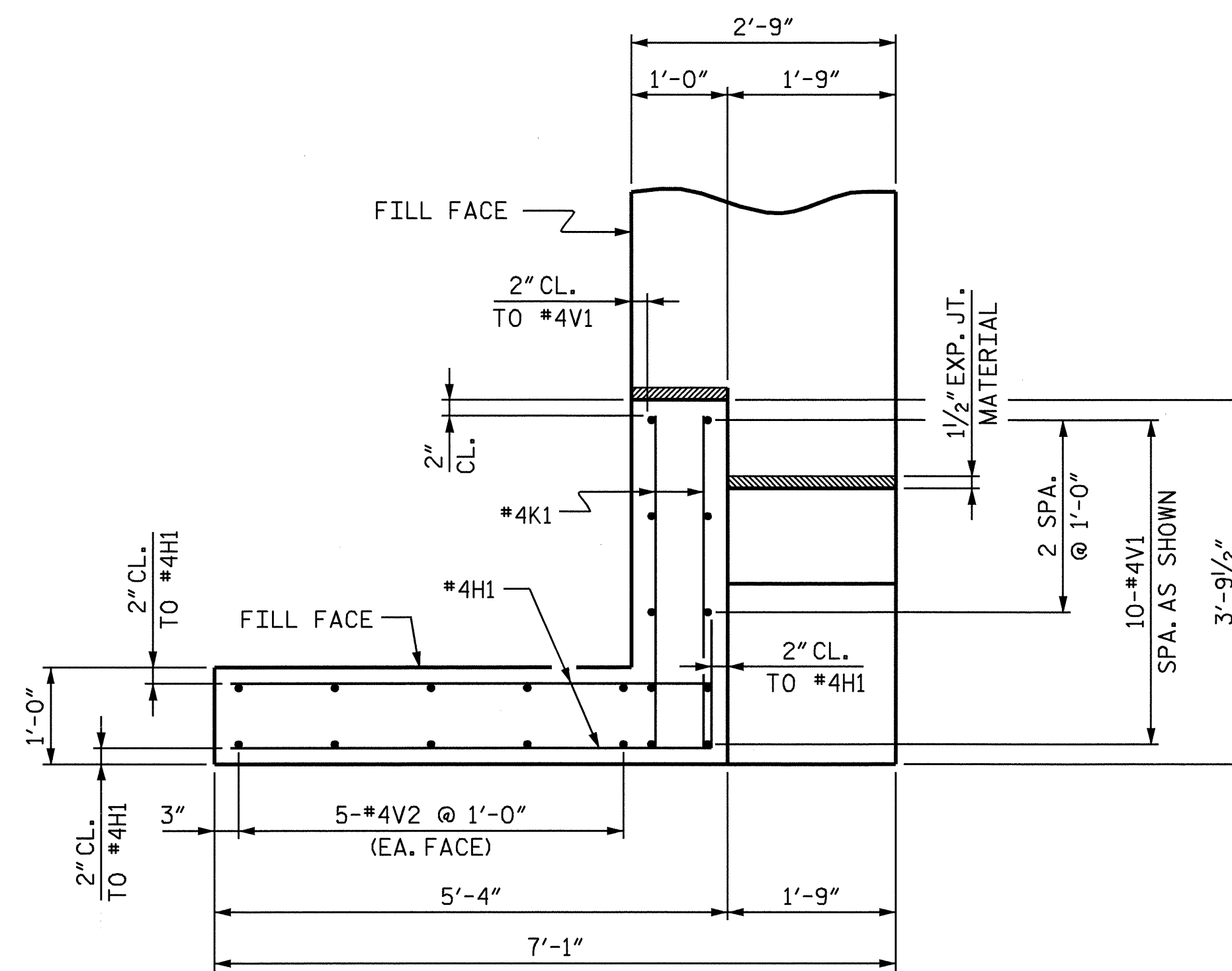
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			19	

DRAWN BY : C.R. YARBROUGH DATE : 06/25/07
 CHECKED BY : M.G. SHAIKH DATE : 01/28/08

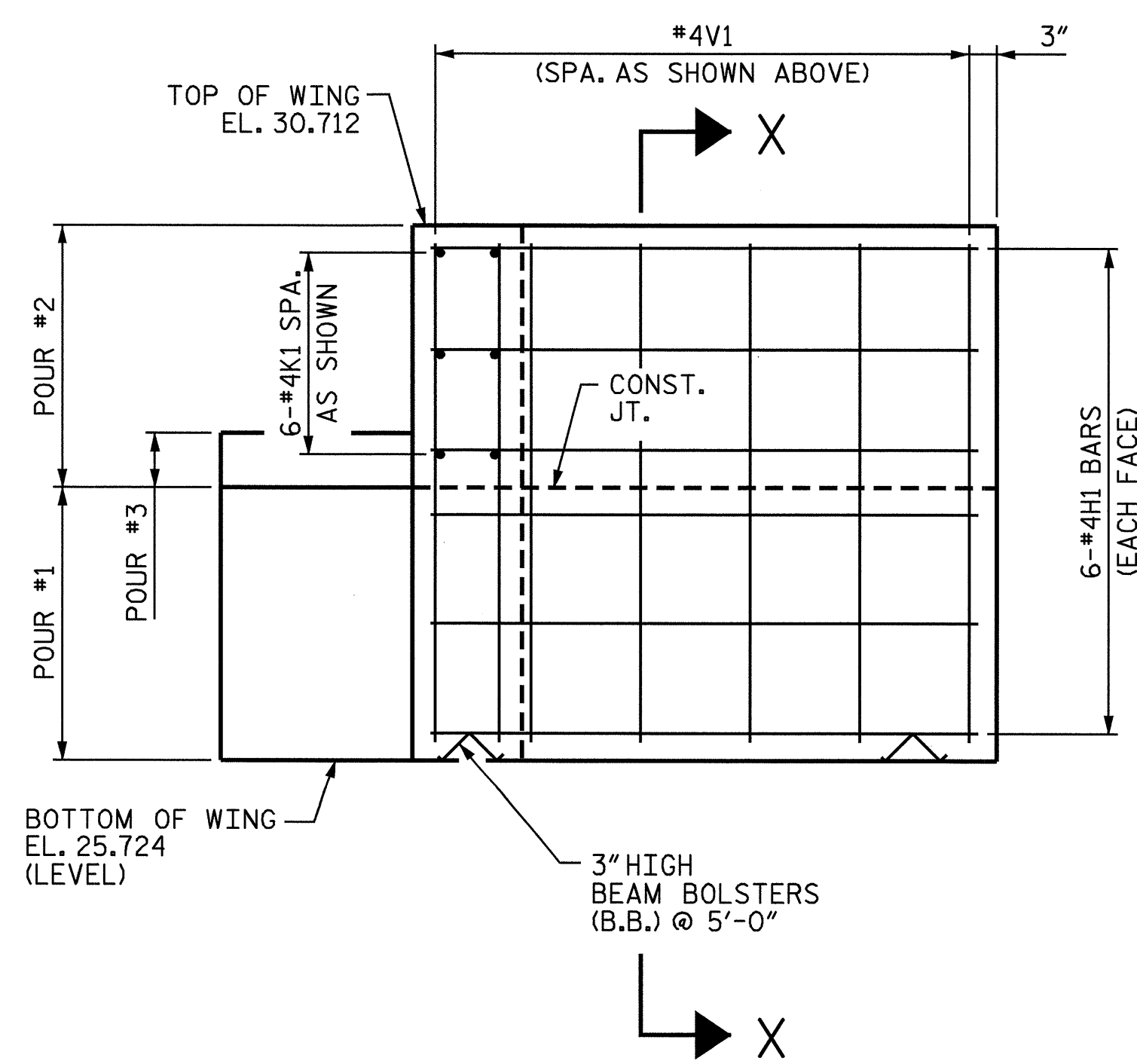




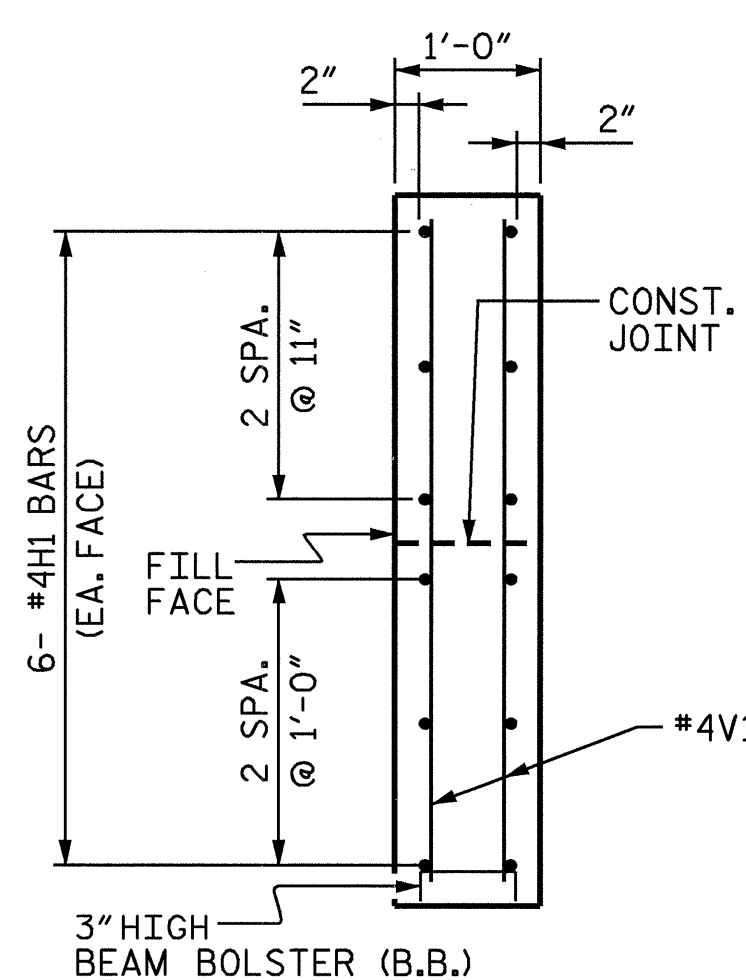
PLAN OF LEFT WING (W1)



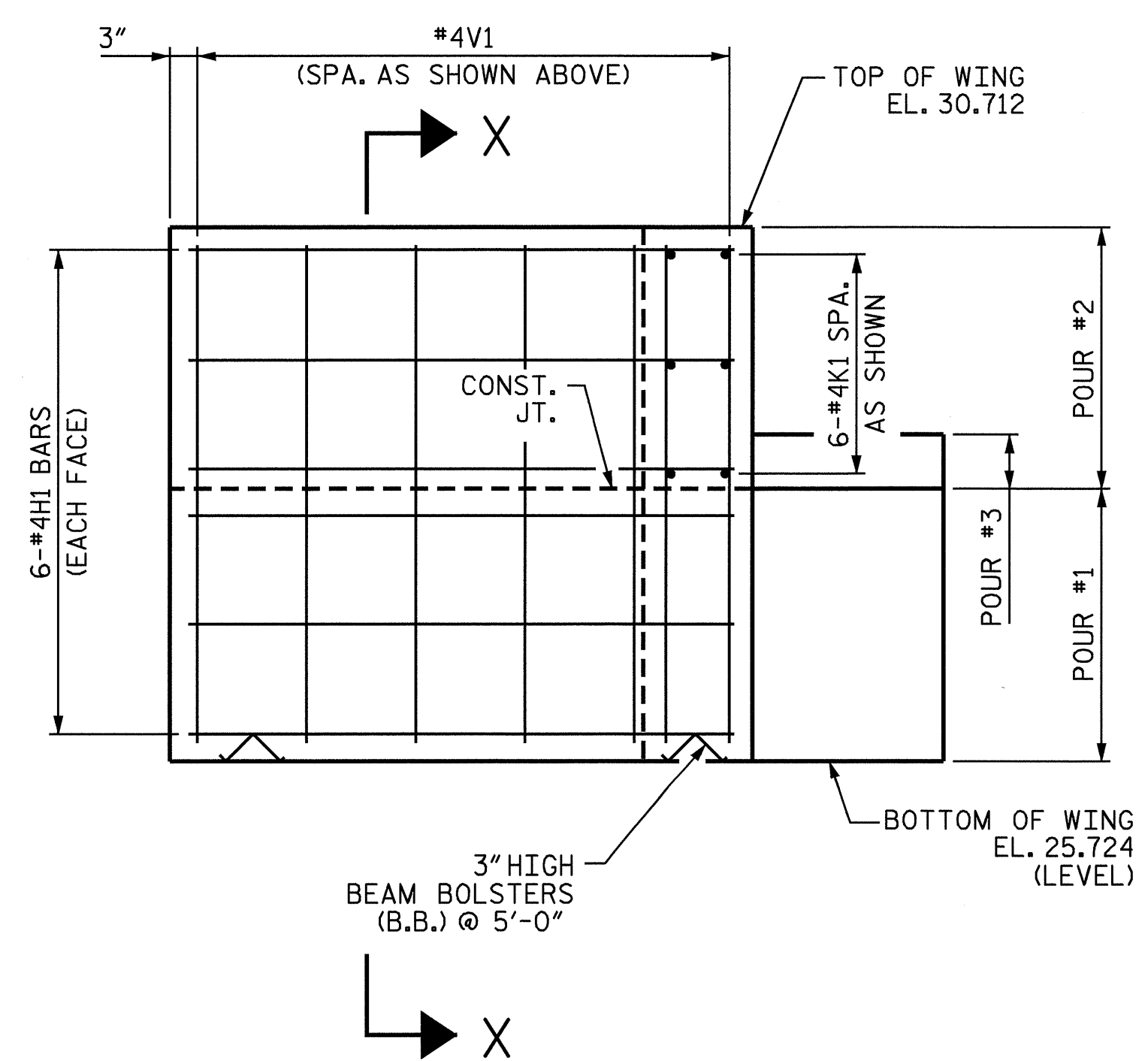
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



SECTION X-X



ELEVATION OF RIGHT WING (W2)

PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

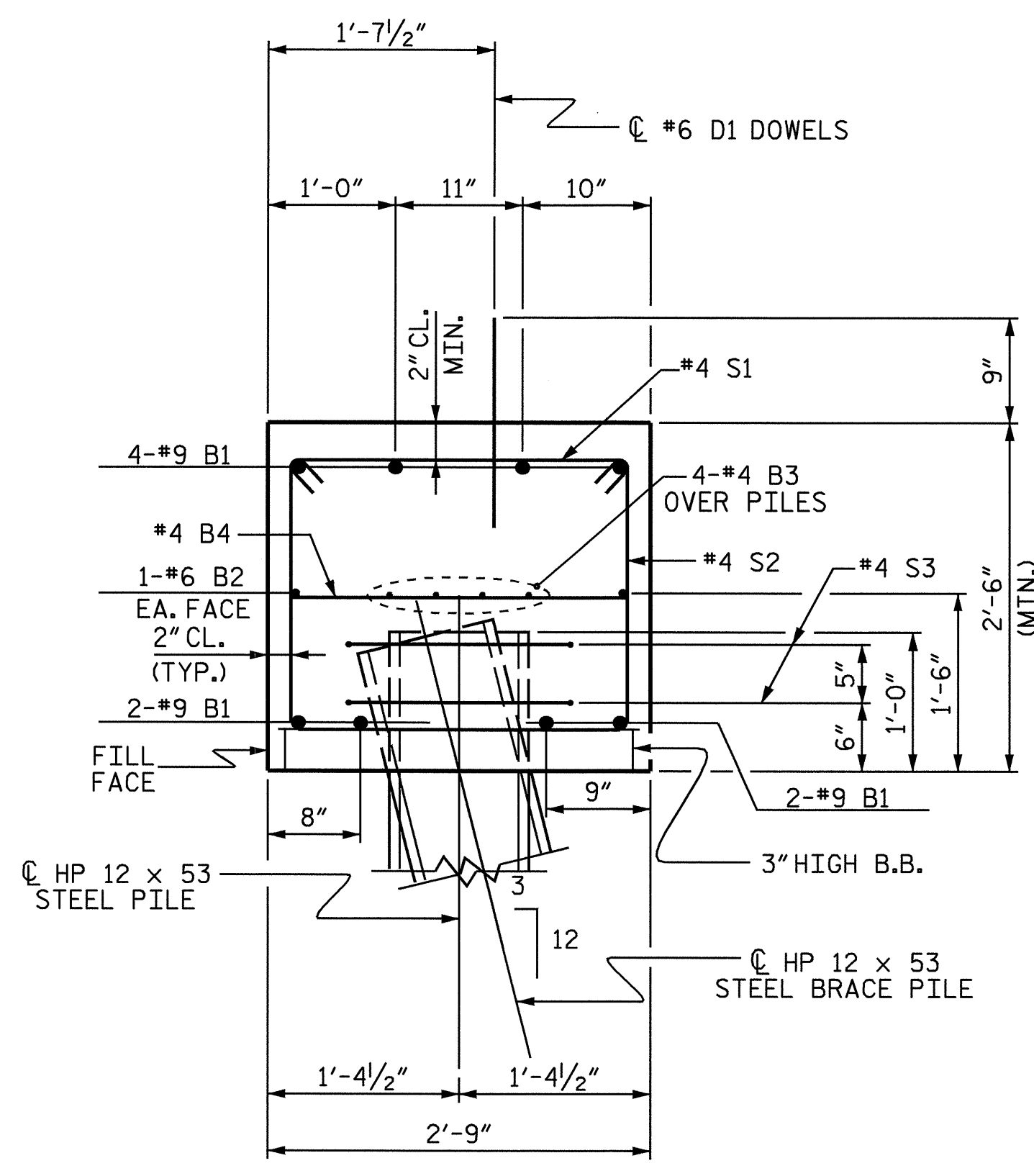
SUBSTRUCTURE
 END BENT #1



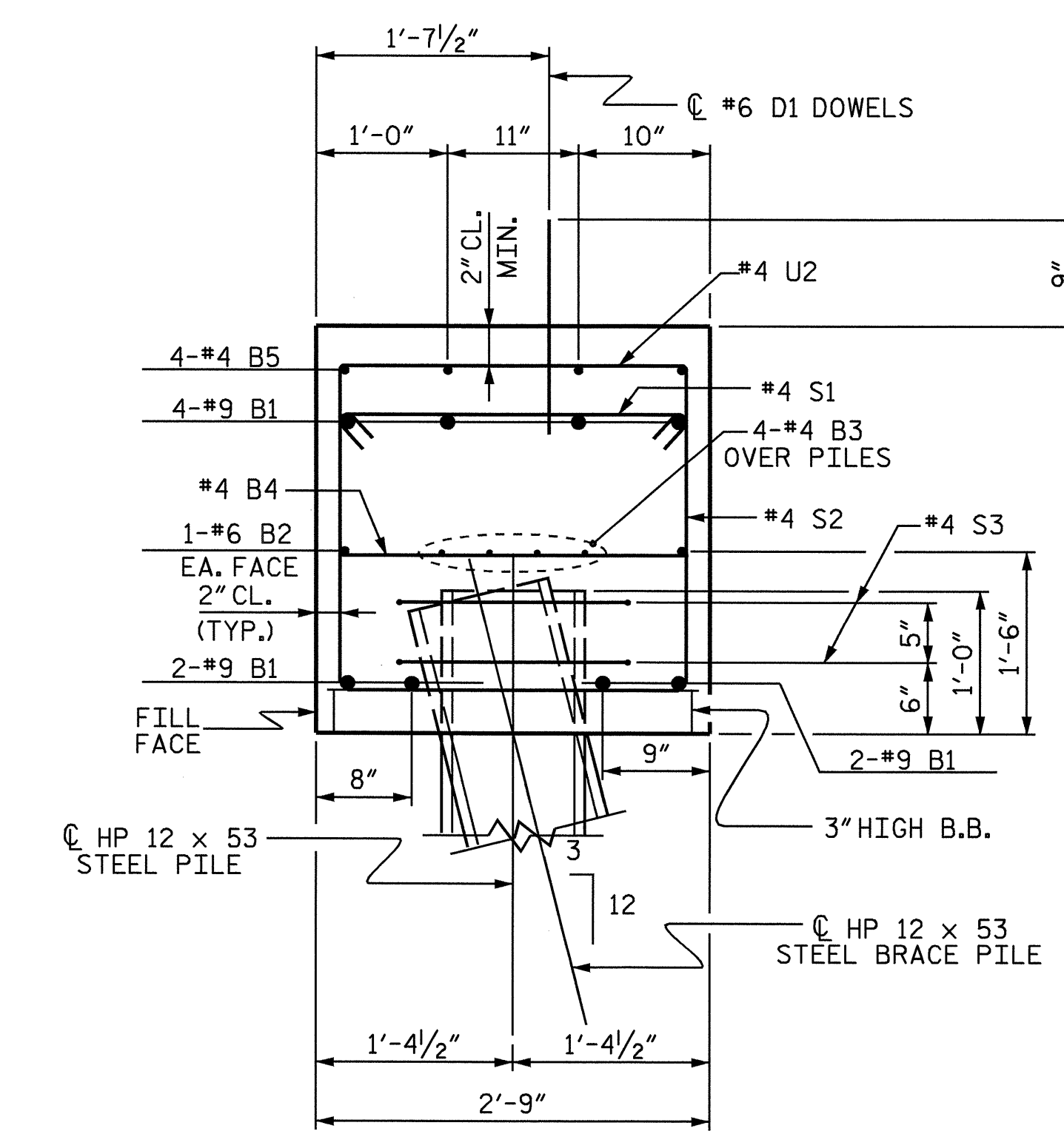
DRAWN BY: C.R. YARBROUGH DATE: 06/25/07
 CHECKED BY: M.G. SHAIKH DATE: 01/28/08

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 cyarbrough

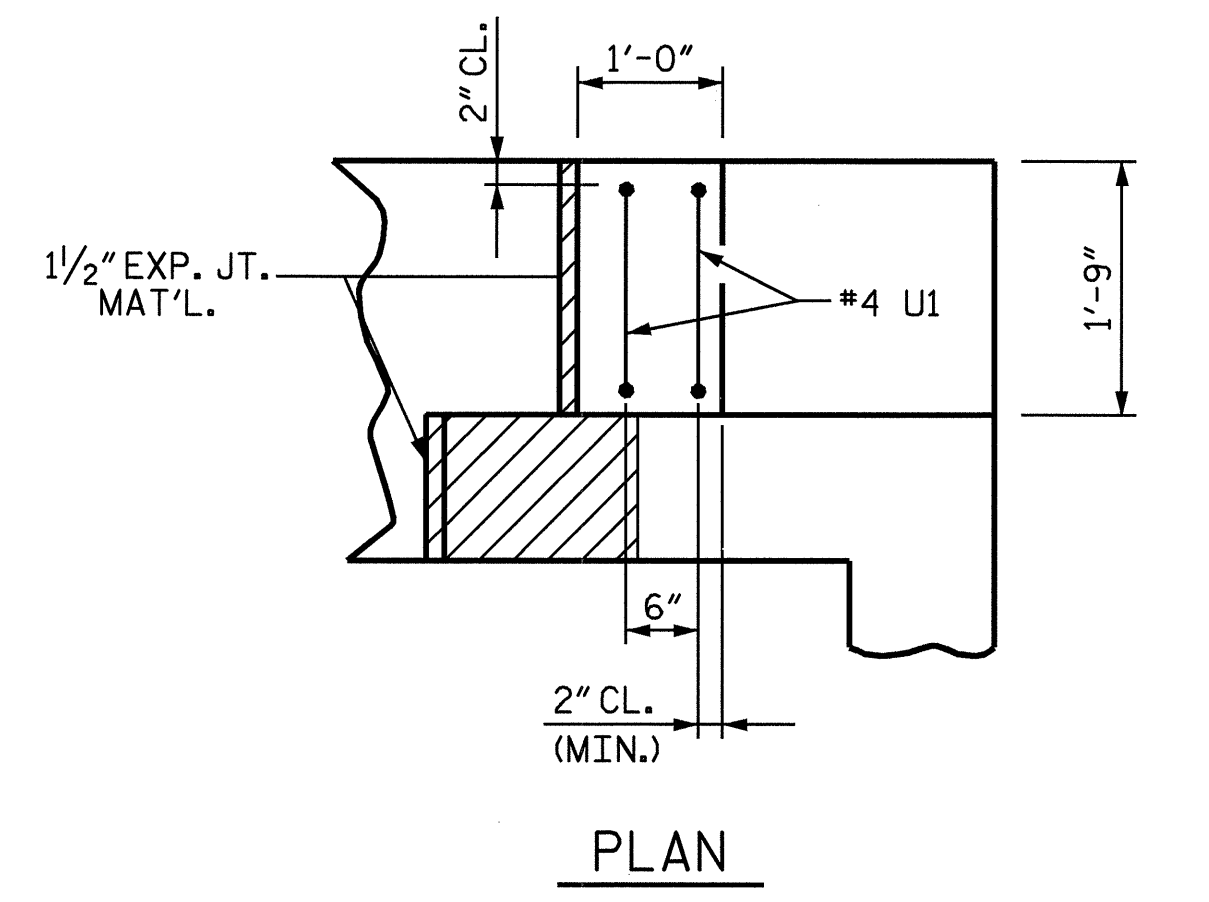
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			19



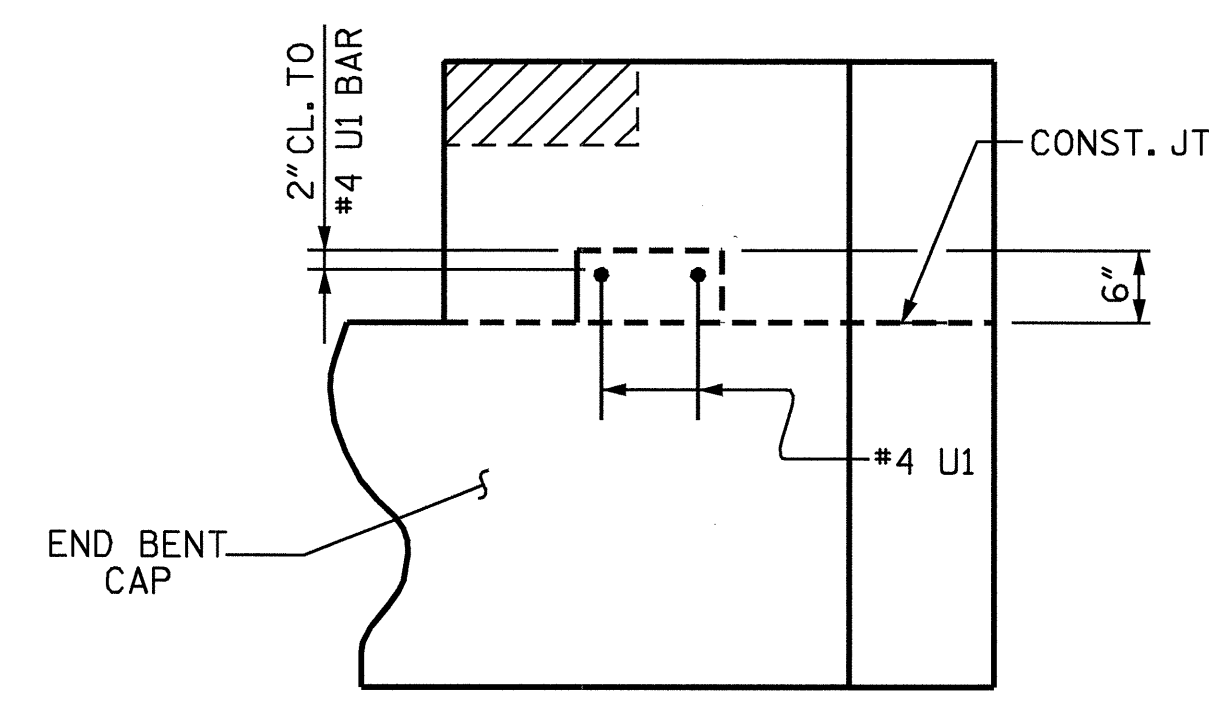
SECTION A-A



SECTION B-B

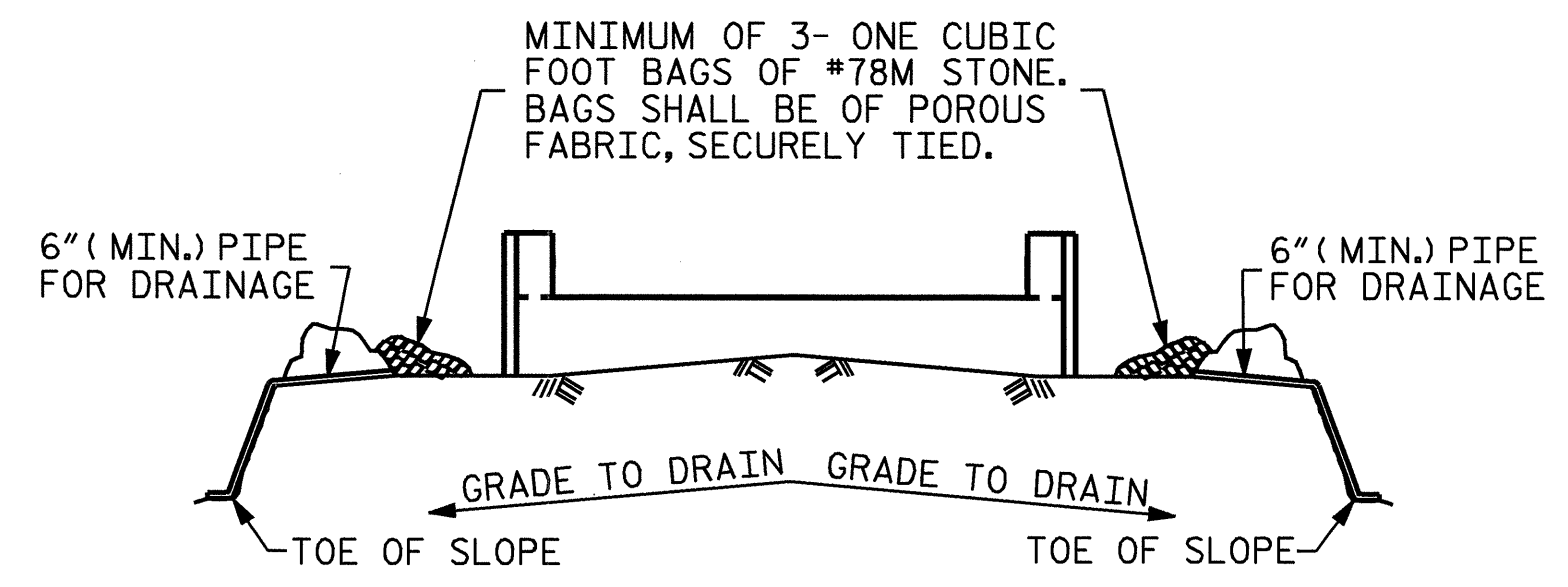


PLAN



ELEVATION

LATERAL GUIDE
(TYPICAL EACH SIDE)



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

6" (MIN.) PIPE FOR DRAINAGE

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

GRADE TO DRAIN

TOE OF SLOPE

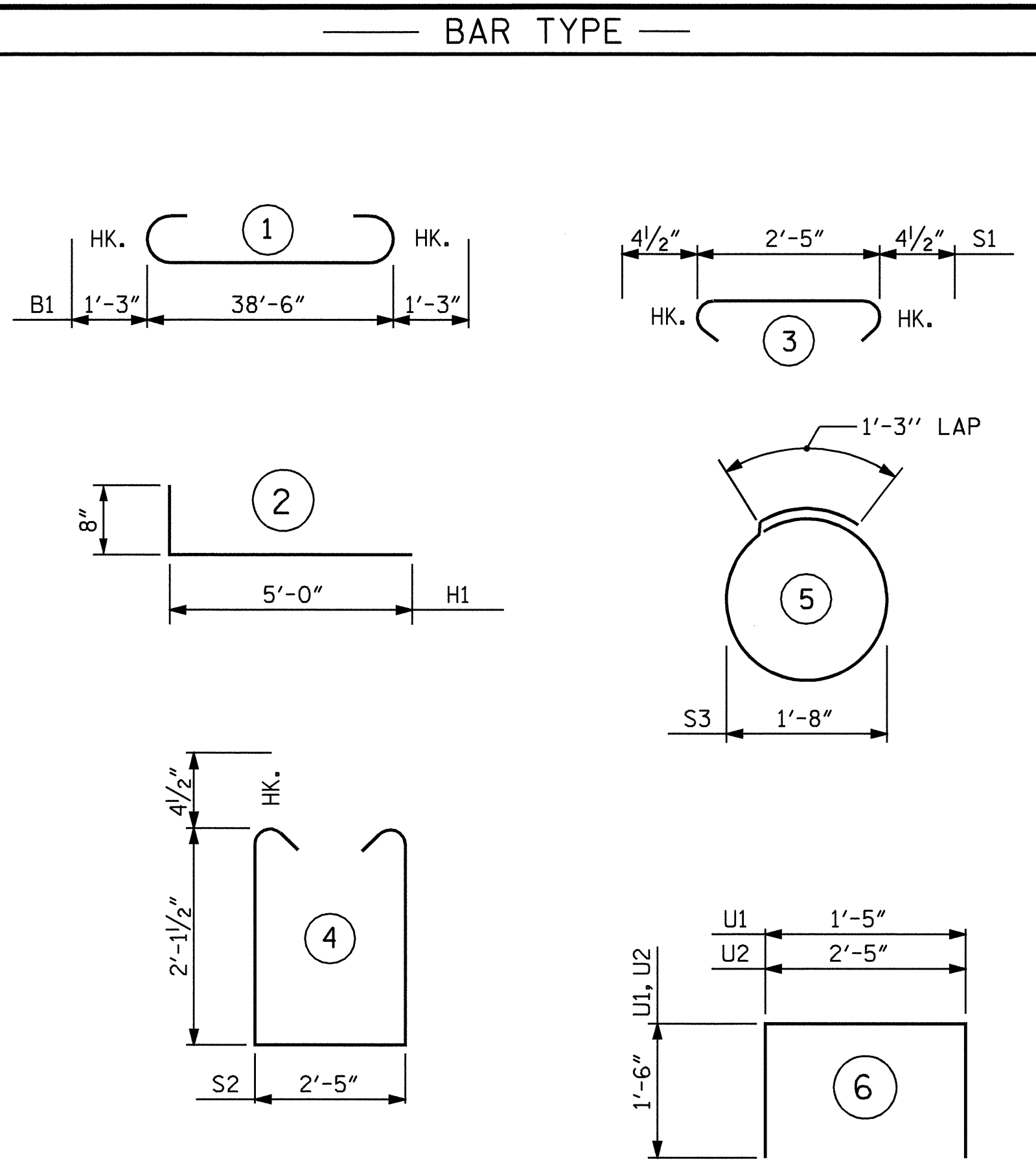
TOE OF SLOPE

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.

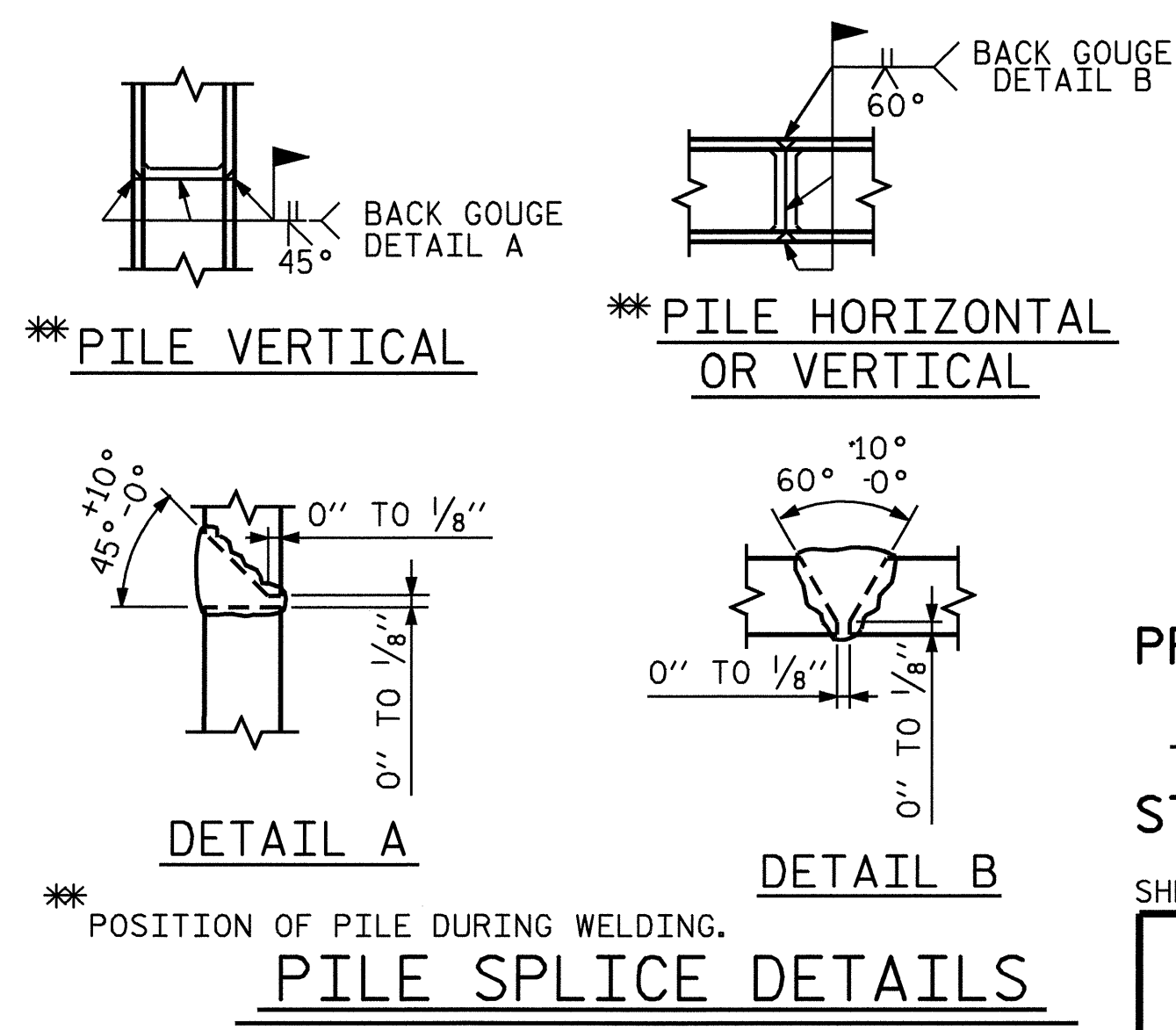
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

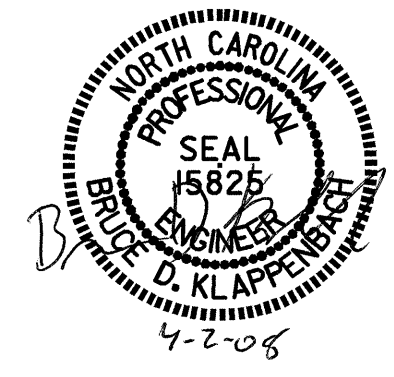
BILL OF MATERIAL FOR END BENT #1						
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	41'-0"	1115	
B2	2	#6	STR	38'-8"	116	
B3	8	#4	STR	20'-7"	110	
B4	10	#4	STR	2'-5"	16	
B5	4	#4	STR	11'-6"	31	
D1	22	#6	STR	1'-6"	50	
H1	24	#4	2	5'-8"	91	
K1	12	#4	STR	3'-5"	27	
S1	38	#4	3	3'-2"	80	
S2	38	#4	4	7'-5"	188	
S3	14	#4	5	6'-6"	61	
U1	4	#4	6	4'-5"	12	
U2	8	#4	6	5'-5"	29	
V1	40	#4	STR	4'-6"	120	
REINFORCING STEEL					= 2046 LBS	
CLASS A CONCRETE BREAKDOWN						
POUR #1	CAP & LOWER PART OF WINGS				C.Y.	11.5
POUR #2	UPPER PART OF WINGS				C.Y.	1.4
POUR #3	LATERAL GUIDES				C.Y.	0.1
TOTAL CLASS A CONCRETE					C.Y.	13.0
HP 12 X 53 STEEL PILES NO. 7					LIN. FT.	280

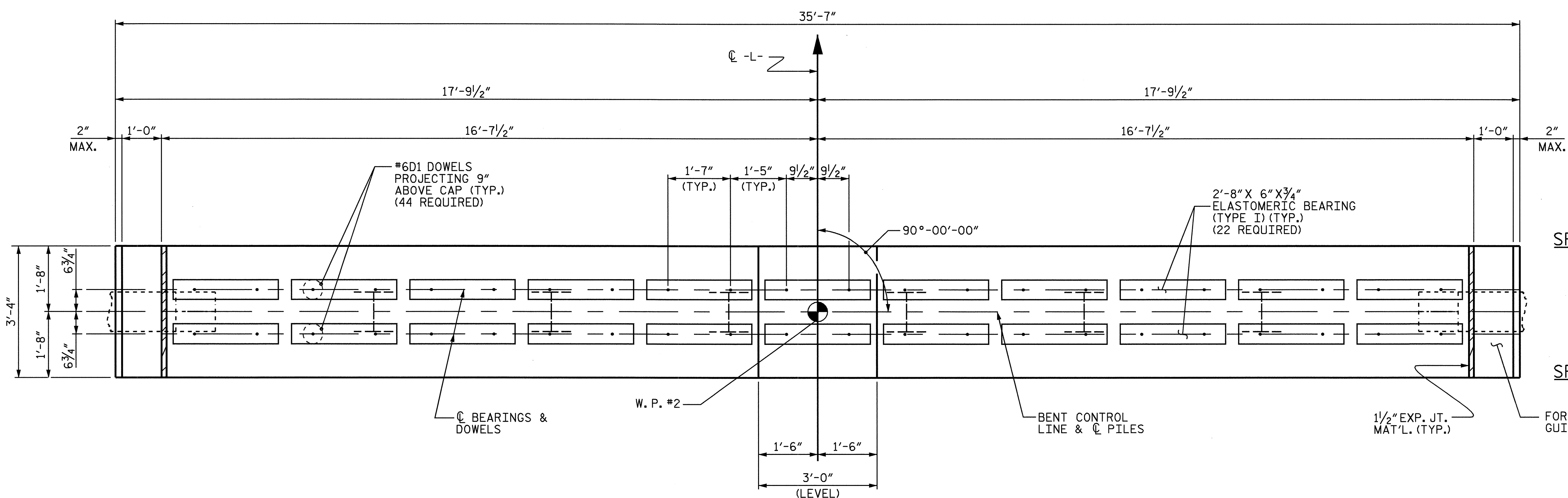


PILE SPLICE DETAILS

PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-
 SHEET 3 OF 3

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





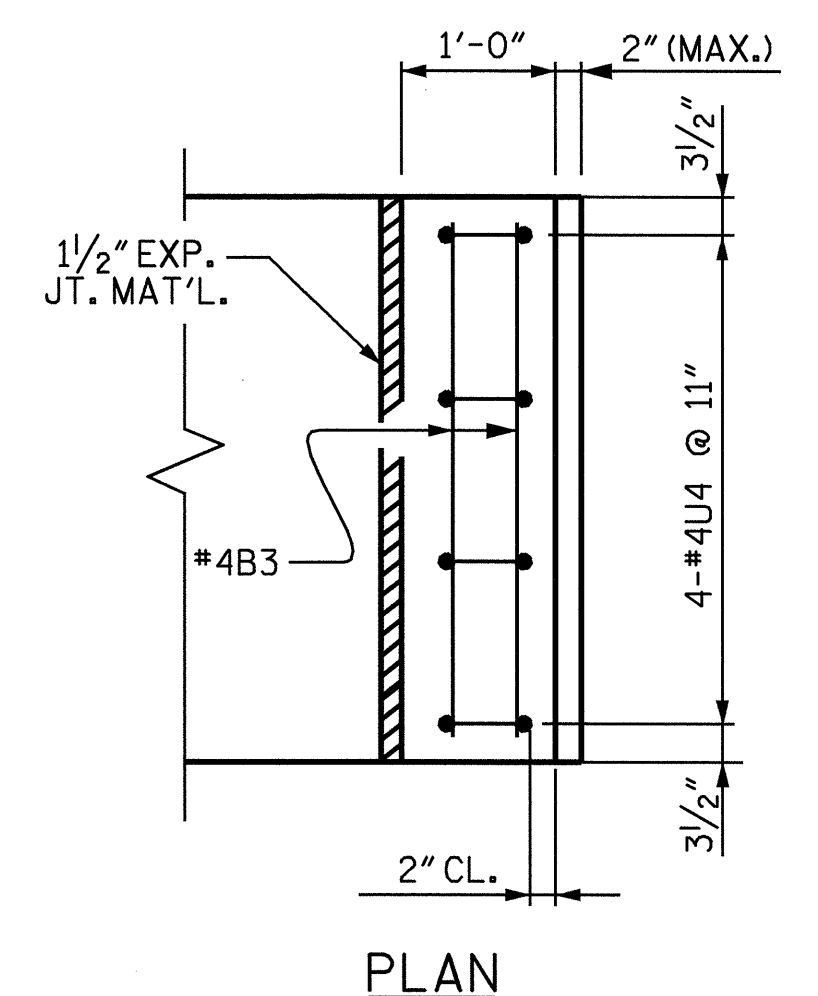
PLAN

NOTES

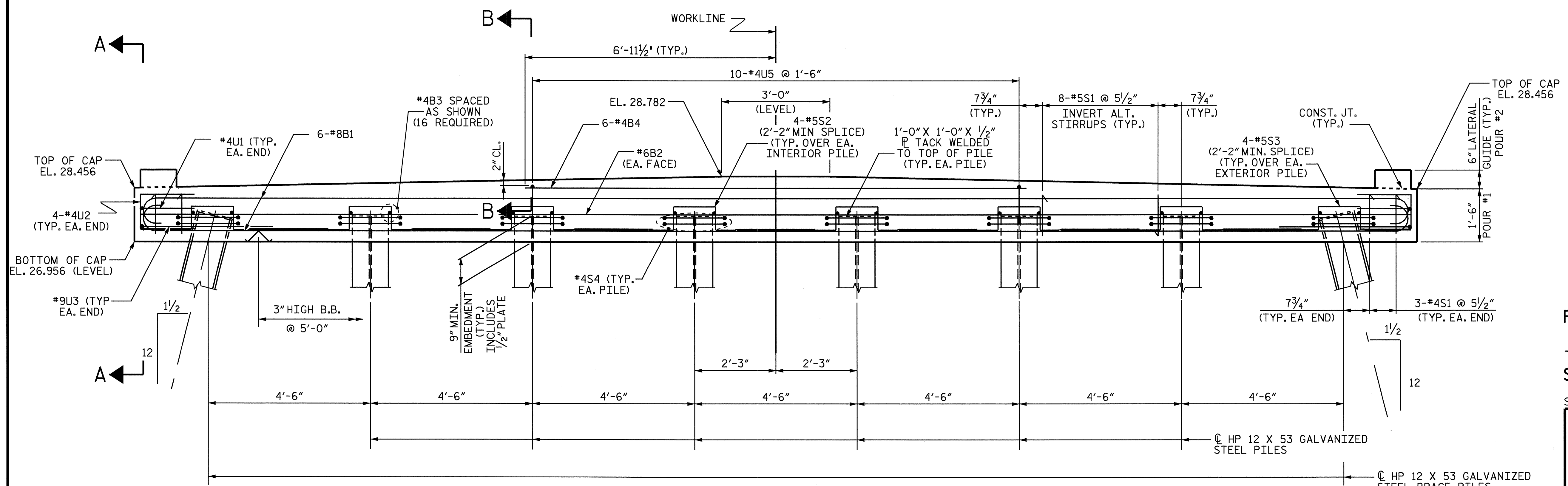
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 D1 DOWELS.

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

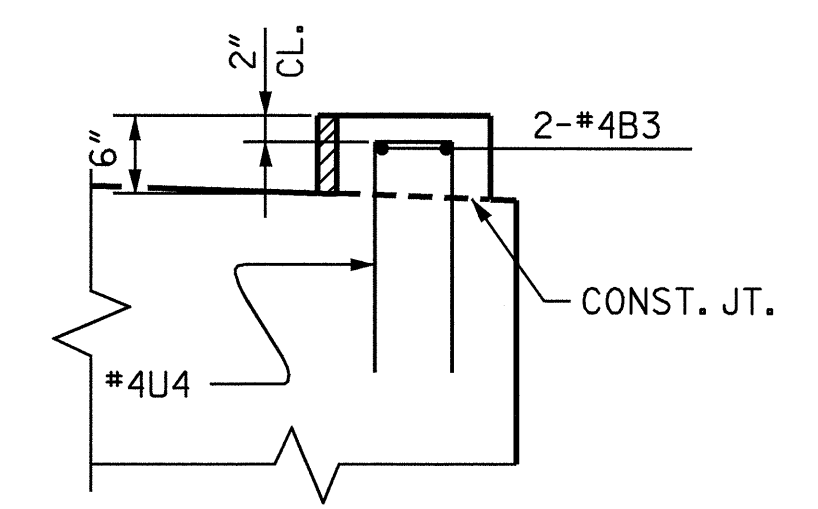
THE 1'-0" X 1'-0" X 1/2" STEEL PLATES THAT ARE TO BE FIELD WELDED TO THE TOP OF EACH HP 12 X 53 GALVANIZED STEEL PILE, SHALL BE PAID FOR UNDER THE CONTRACT BID PRICE FOR HP 12 X 53 GALVANIZED STEEL PILES.



PLAN



ELEVATION



ELEVATION

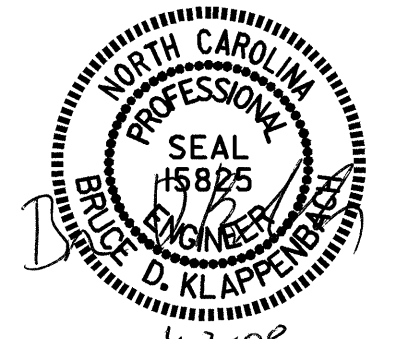
DETAIL A

PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

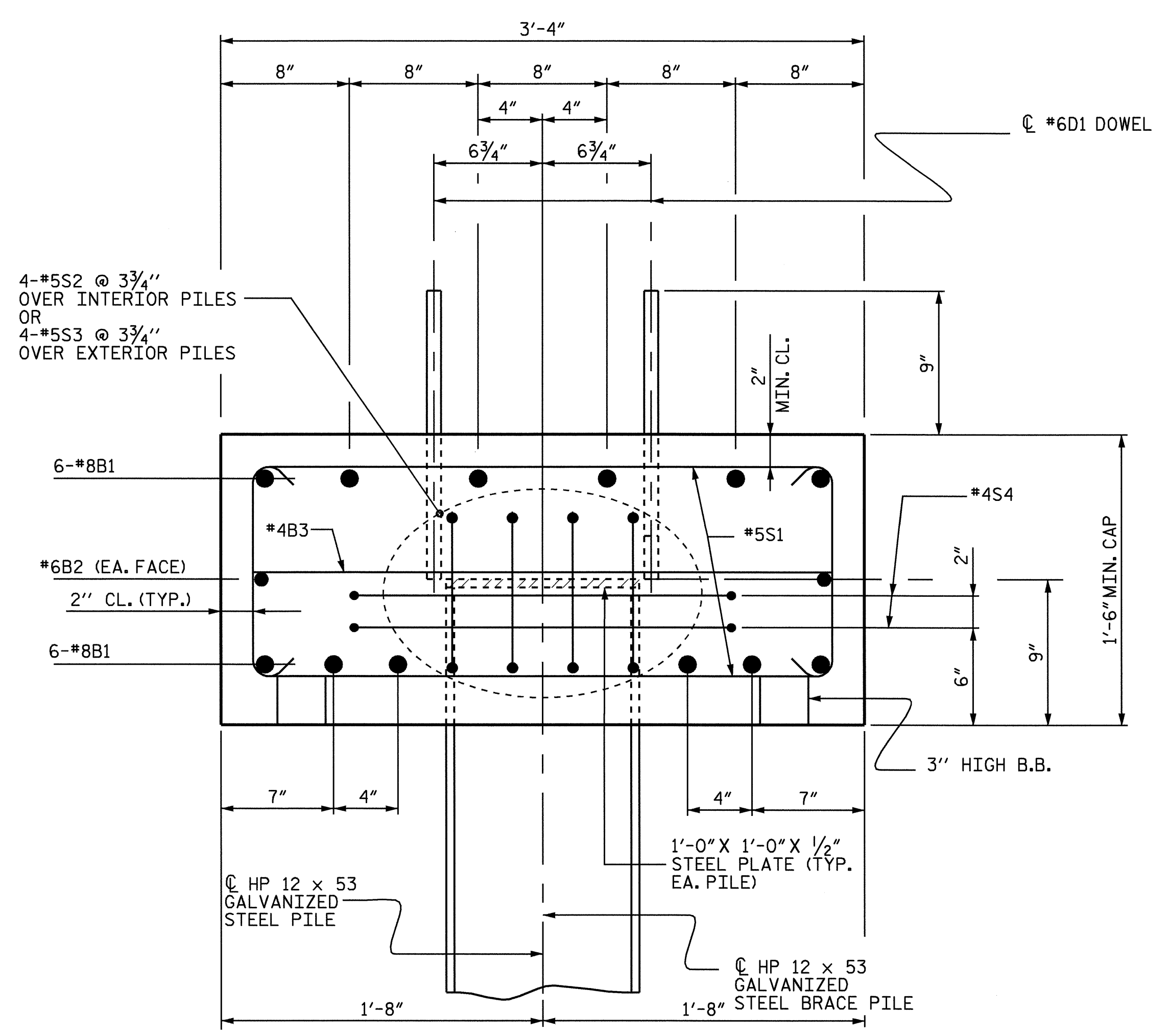
SUBSTRUCTURE BENT #1



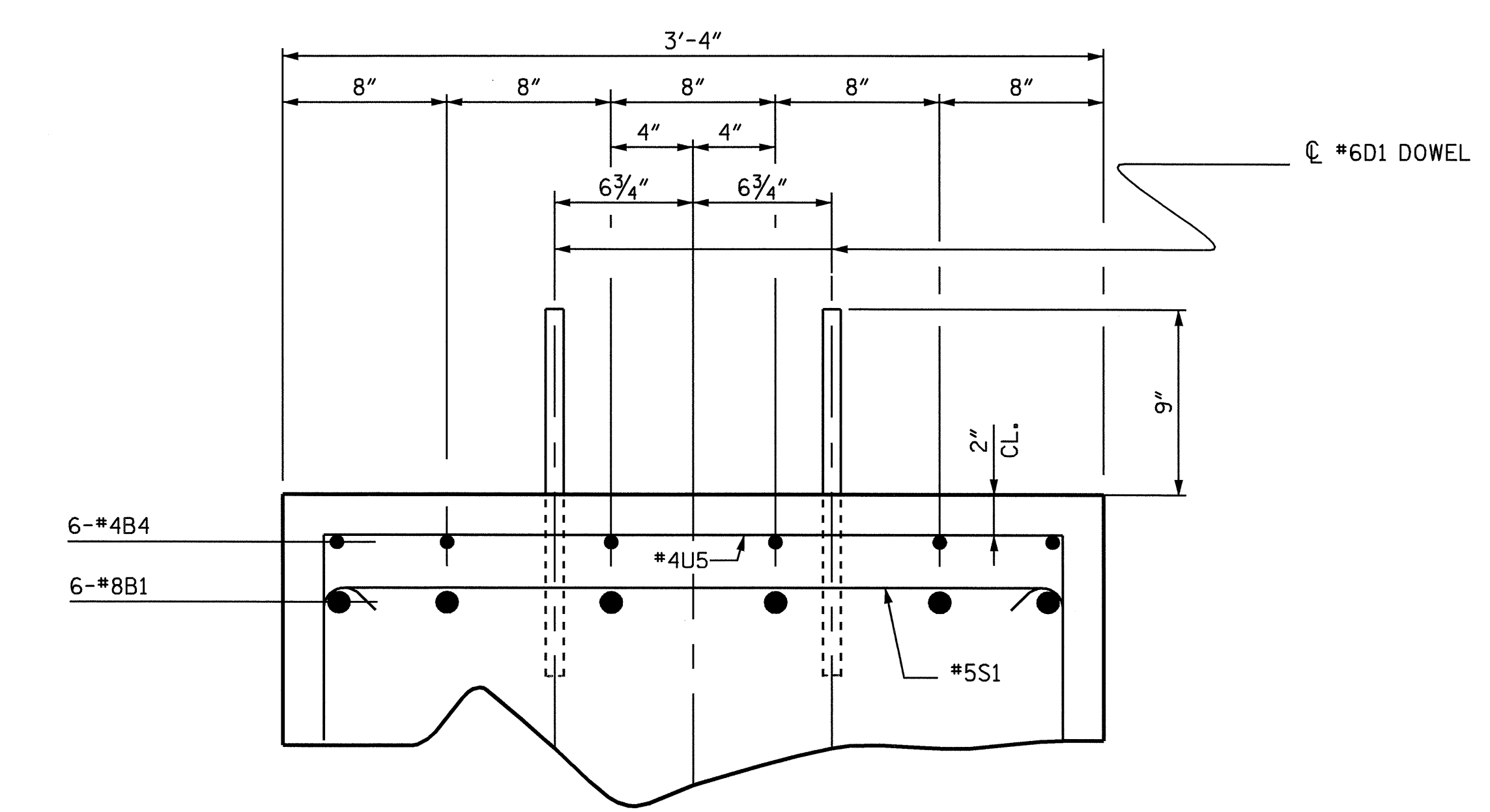
DRAWN BY : H. T. BARBOUR DATE : 3-27-07
 CHECKED BY : M. G. SHAIKH DATE : 1-08

02-APR-2008 09:47
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 tbarbour

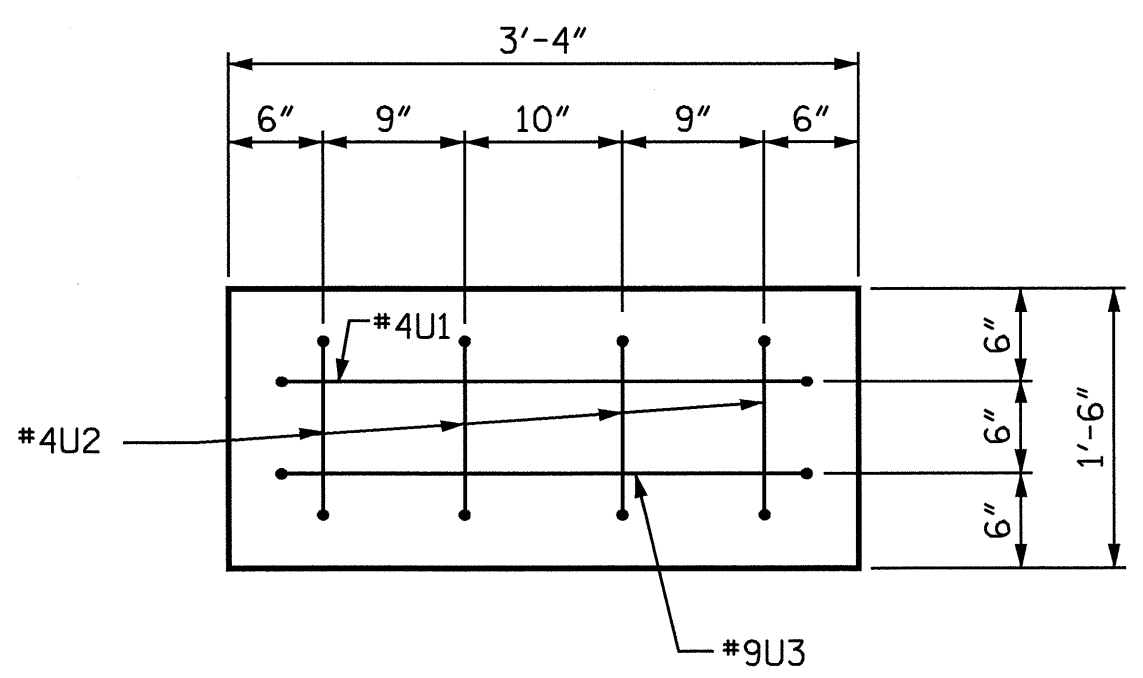
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			19



SECTION A-A



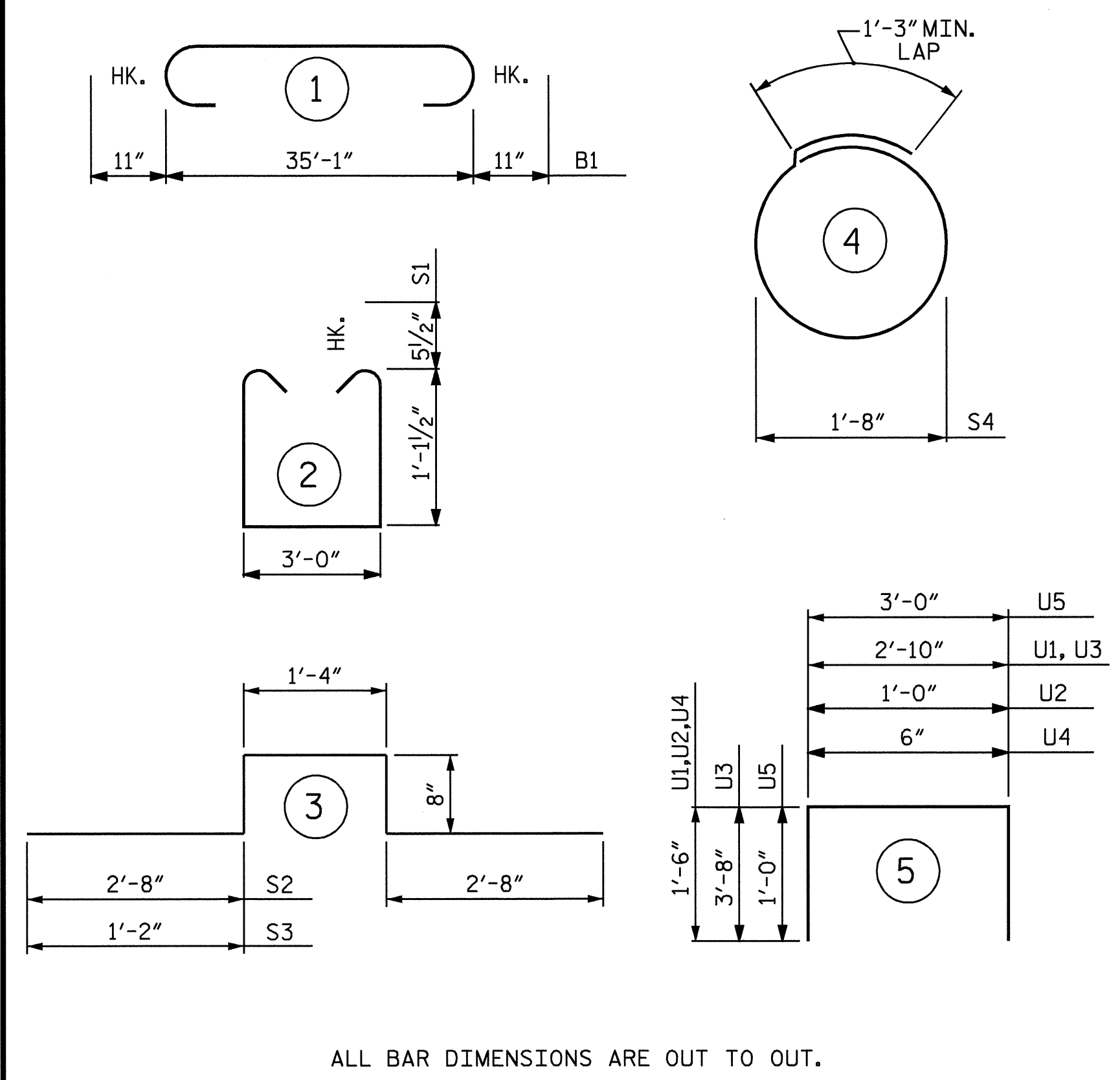
SECTION B-B



END VIEW

2" MIN. CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL #4U1, #4U2 AND #9U3 BARS.
 #4U1, #4U2 AND #9U3 BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.

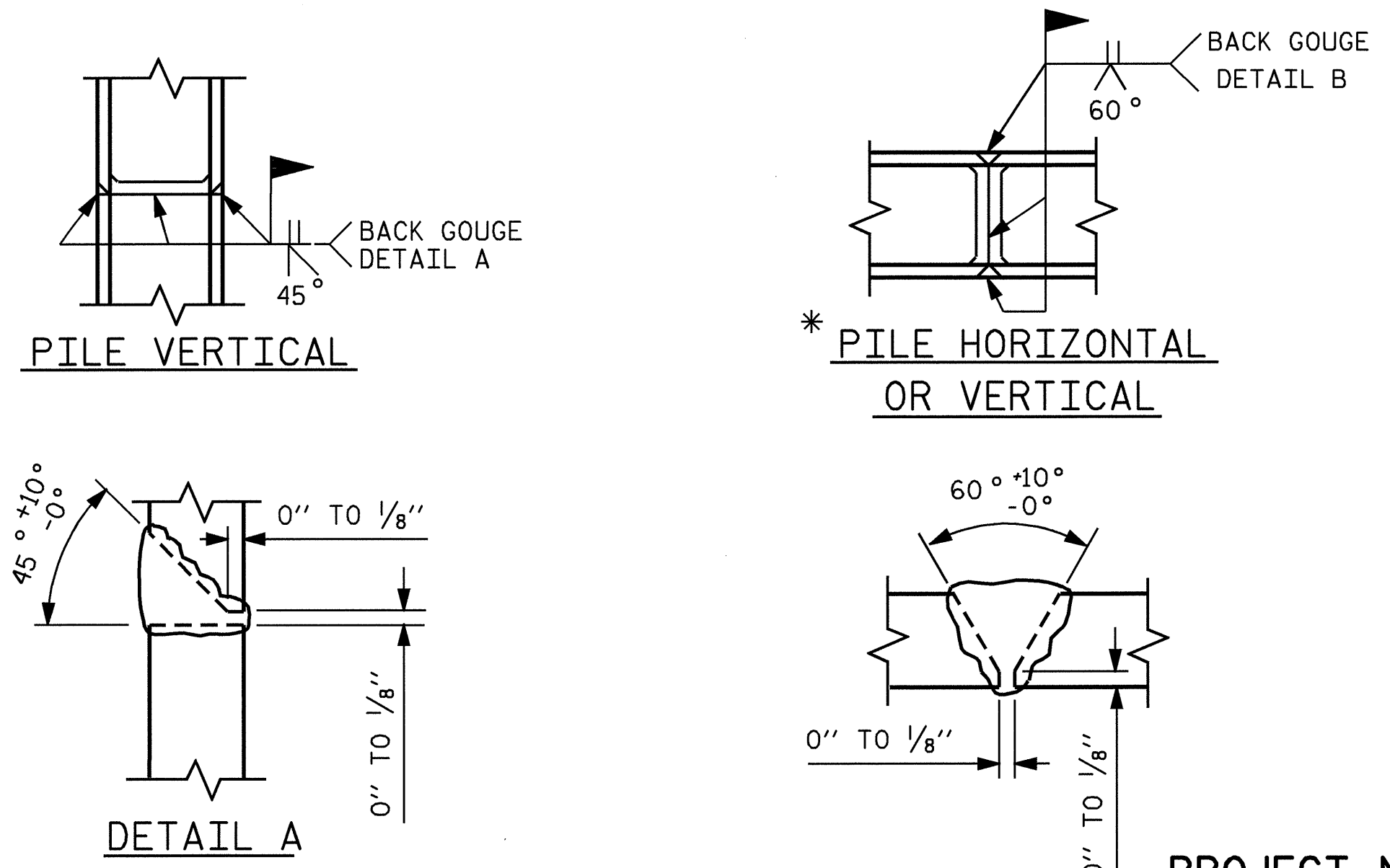
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#8		36'-11"	1183
B2	2	#6	STR	35'-3"	106
B3	20	#4	STR	3'-0"	40
B4	6	#4	STR	13'-11"	56
D1	44	#6	STR	1'-6"	99
S1	62	#5	2	6'-2"	399
S2	24	#5	3	8'-0"	200
S3	8	#5	3	6'-6"	54
S4	16	#4	4	6'-6"	69
U1	2	#4	5	5'-10"	8
U2	8	#4	5	4'-0"	21
U3	2	#9	5	10'-2"	69
U4	8	#4	5	3'-6"	19
U5	10	#4	5	5'-0"	33
REINFORCING STEEL					= 2356 LBS
CLASS A CONCRETE					
POUR #1 CAP					7.4 C.Y.
POUR #2 LATERAL GUIDE					0.1 C.Y.
TOTAL CLASS A CONCRETE					7.5 C.Y.
HP 12 x 53 GALVANIZED STEEL PILES NO. 8					LIN. FT. 360



PILE SPLICE DETAILS

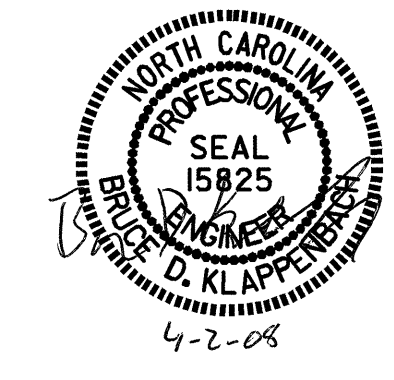
* POSITION OF PILE DURING WELDING.

PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE BENT #1



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

SHEET NO.	
S-13	TOTAL SHEETS 19

DRAWN BY: H. T. BARBOUR DATE: 3-27-07
 CHECKED BY: M. G. SHAIKH DATE: 1-08

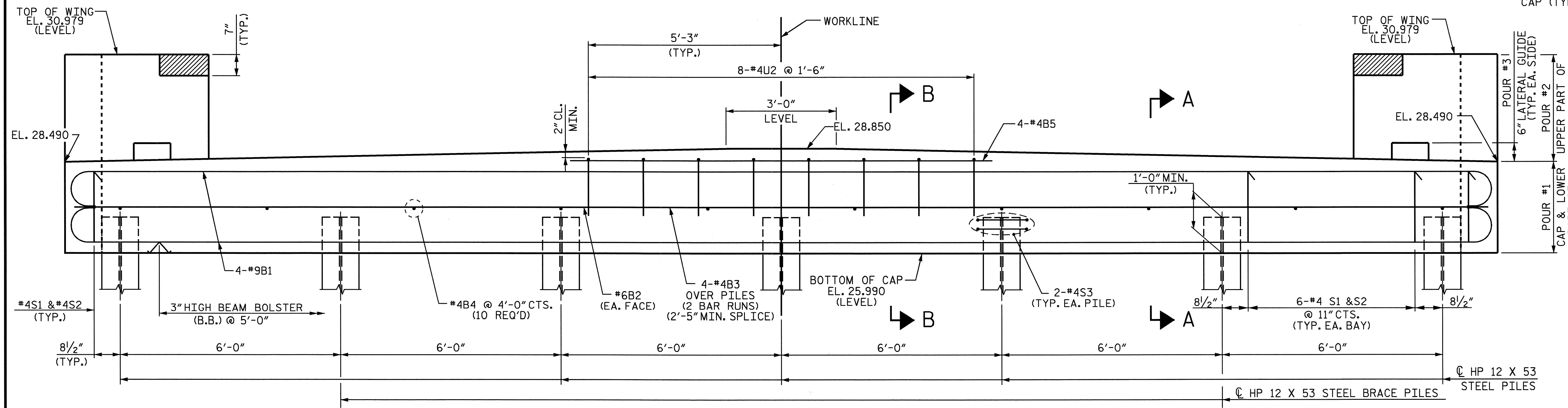
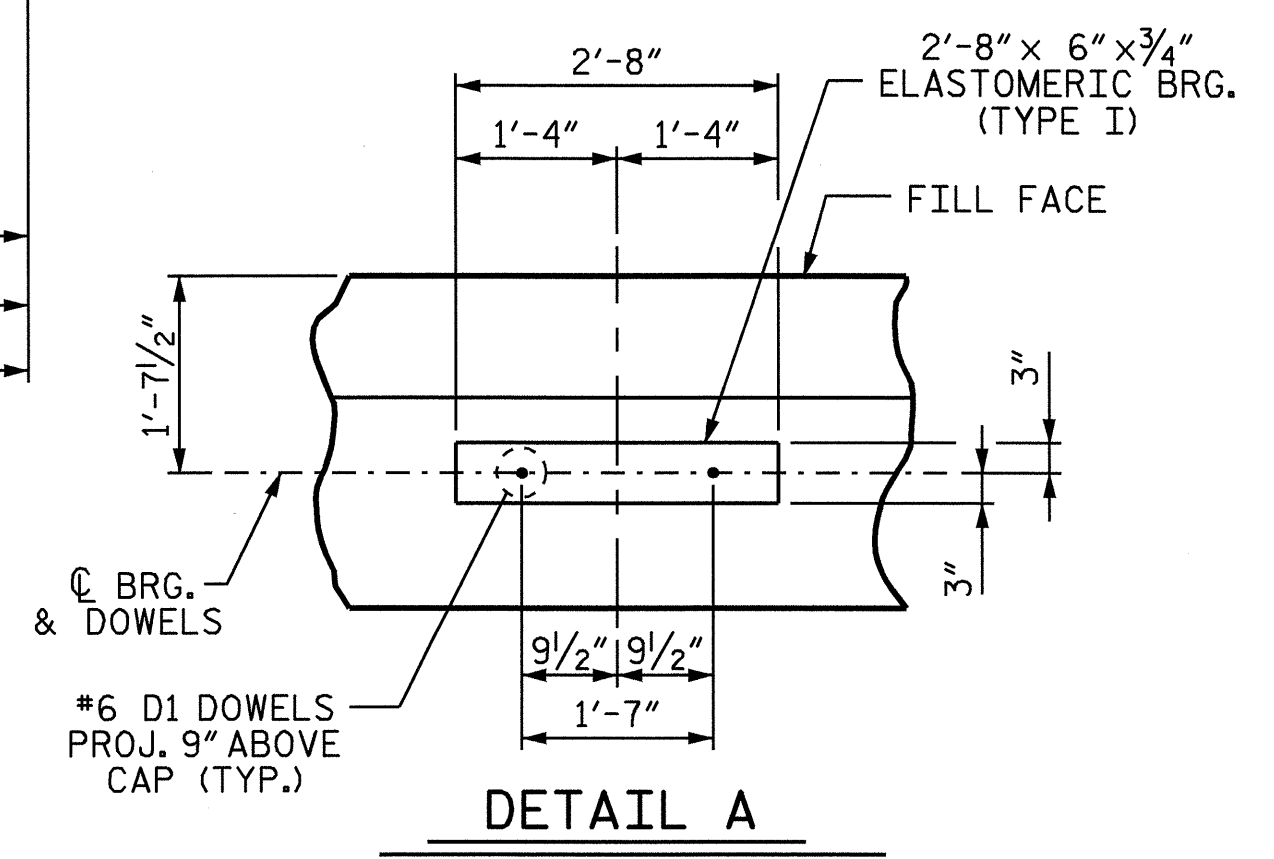
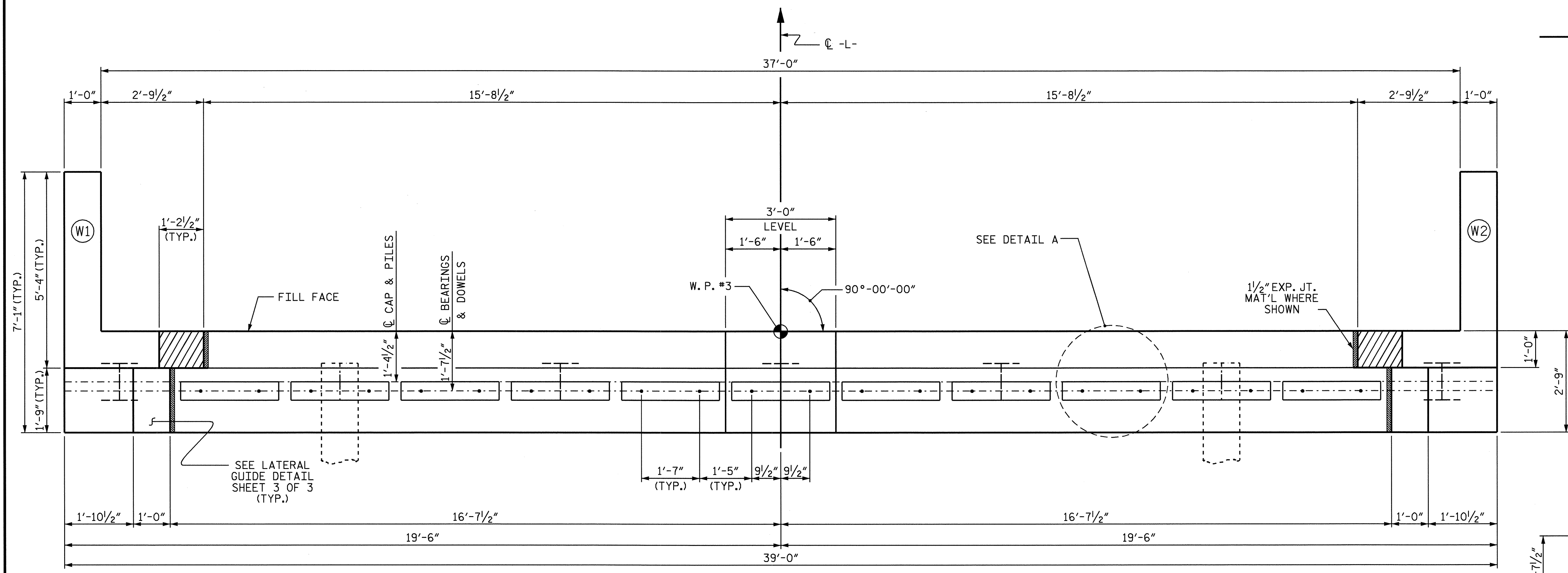
NOTES

STIRRUPS 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.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER 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 SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

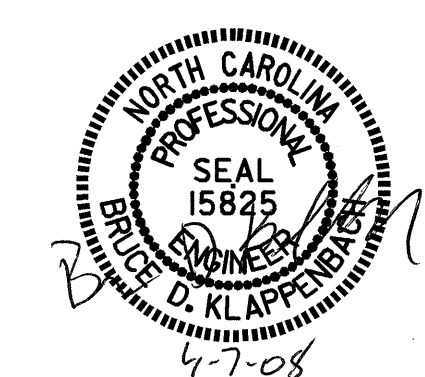


PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 1 OF 3

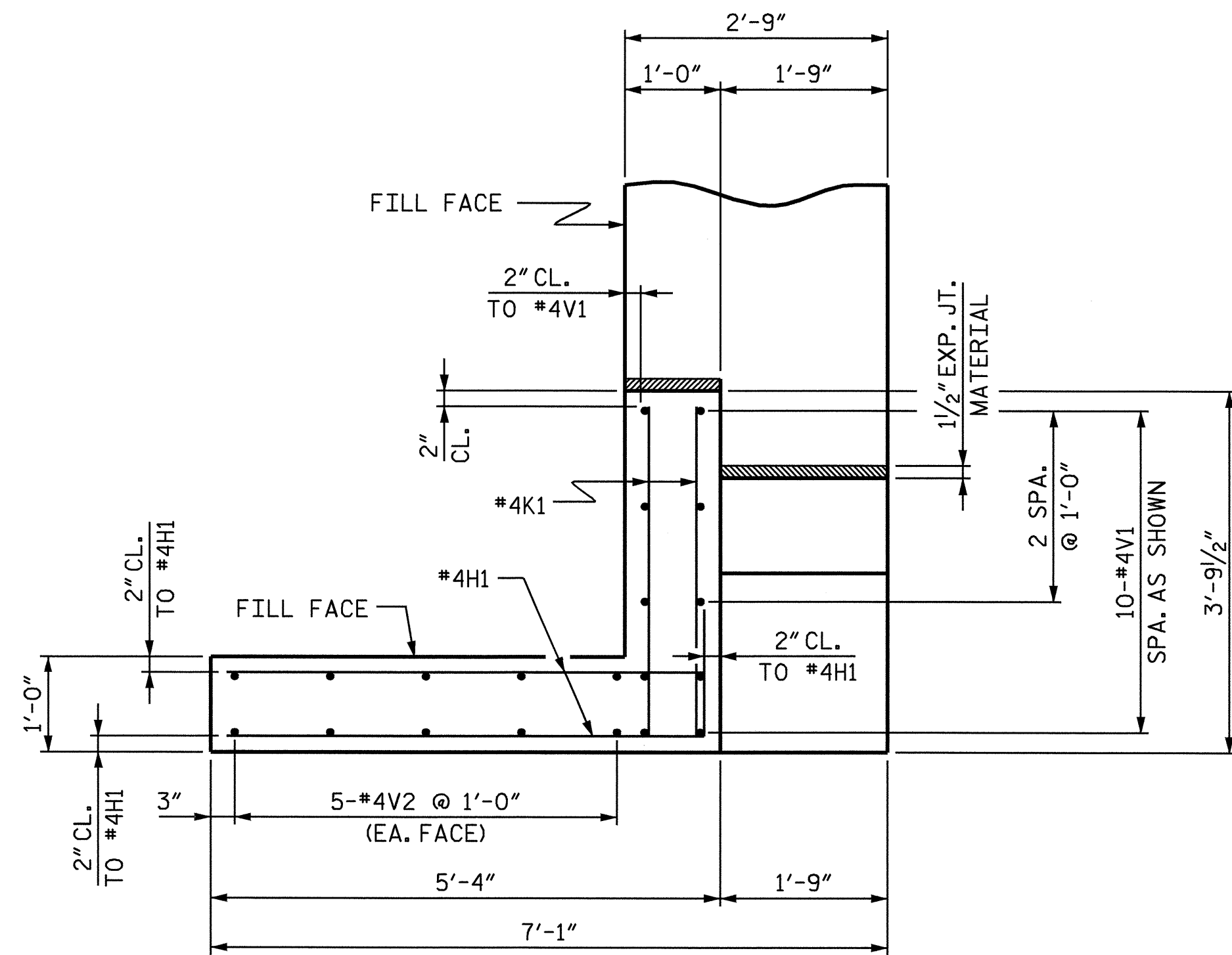
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

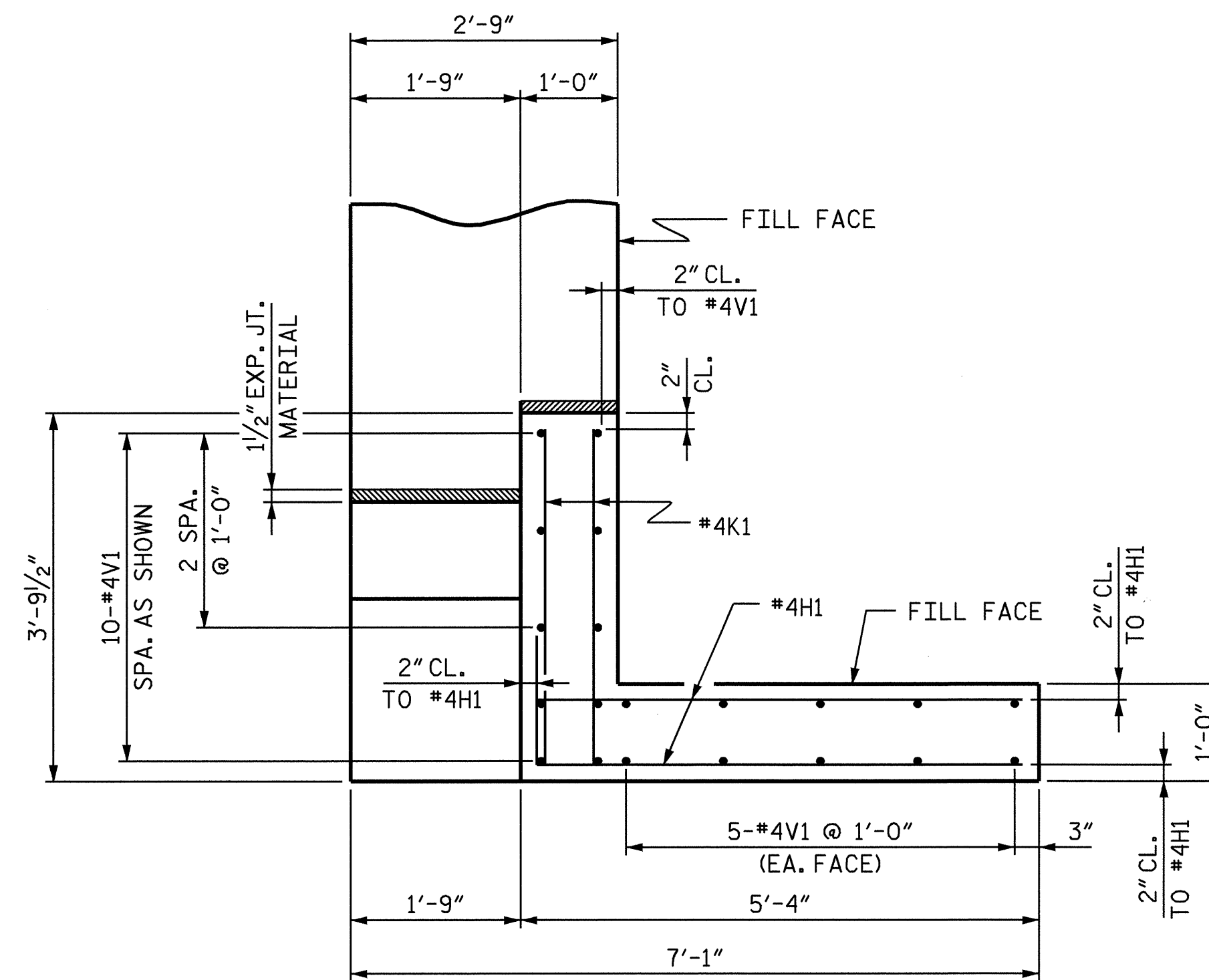


DRAWN BY : C.R. YARBROUGH DATE : 06/25/07
 CHECKED BY : M.G. SHAIKH DATE : 01/28/08

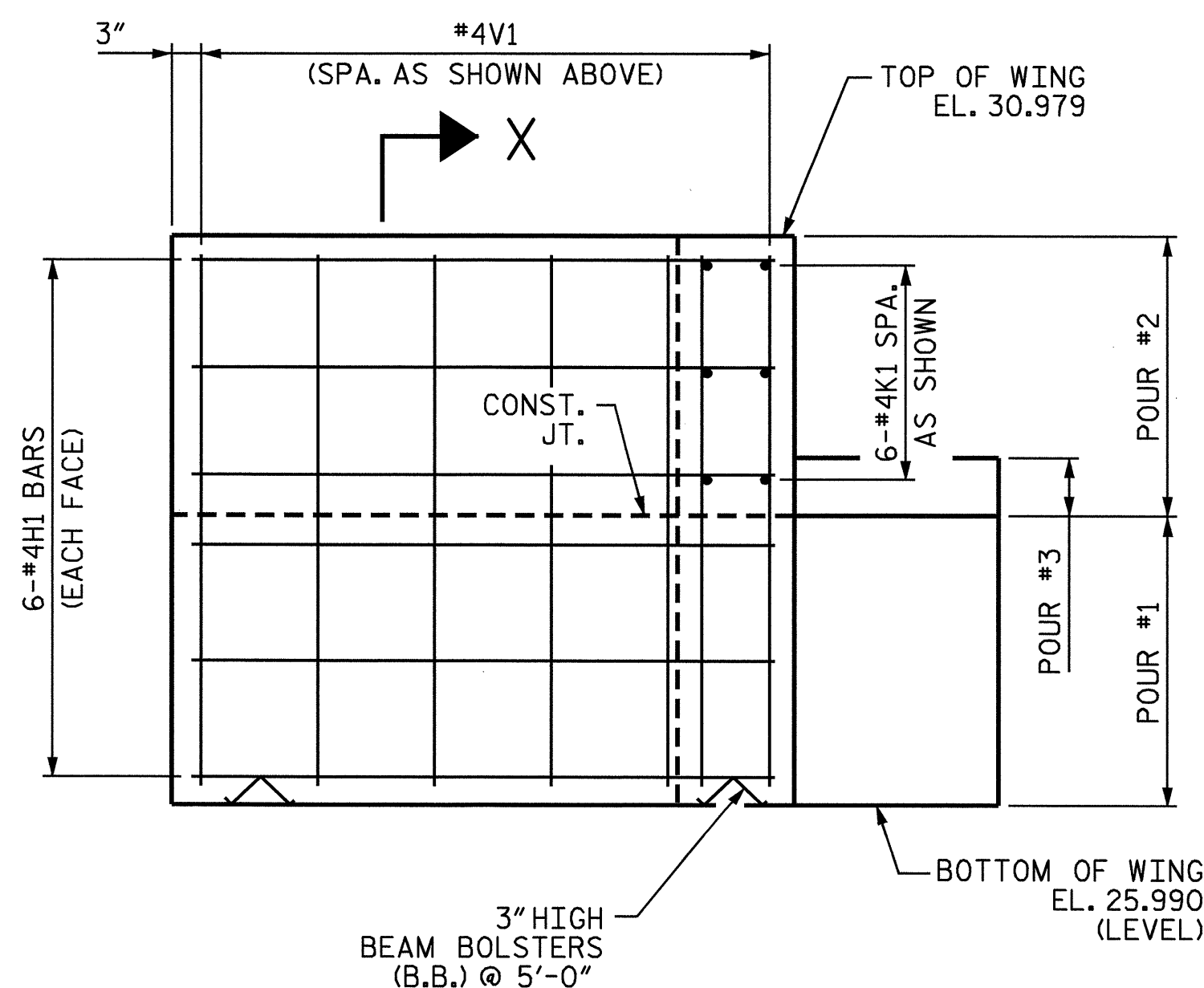
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	19
2			4				



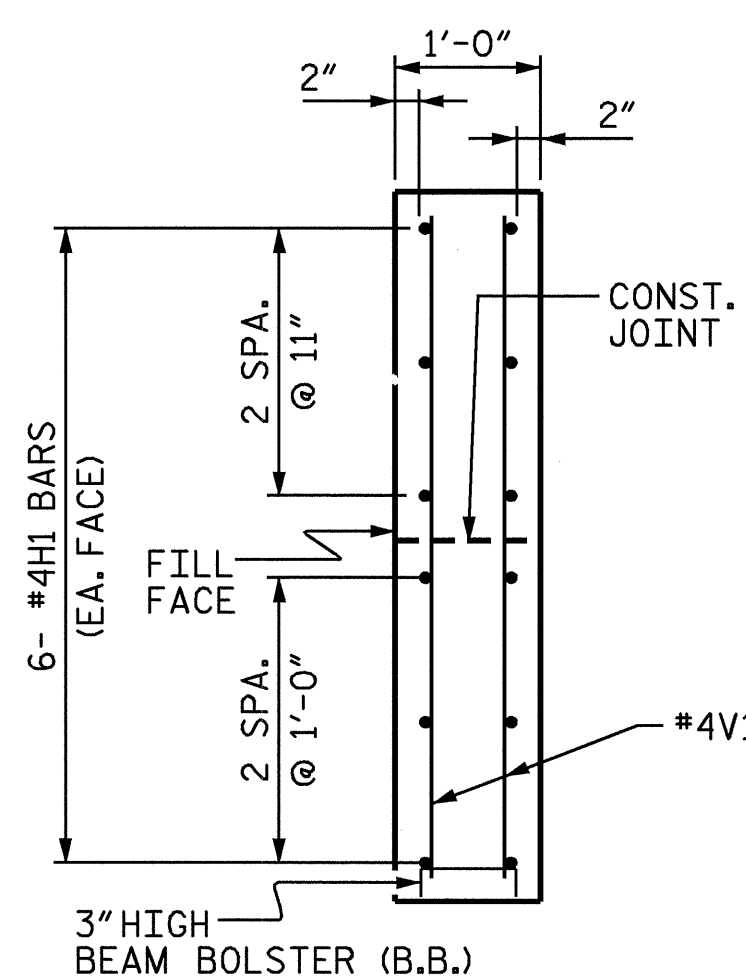
PLAN OF LEFT WING (W1)



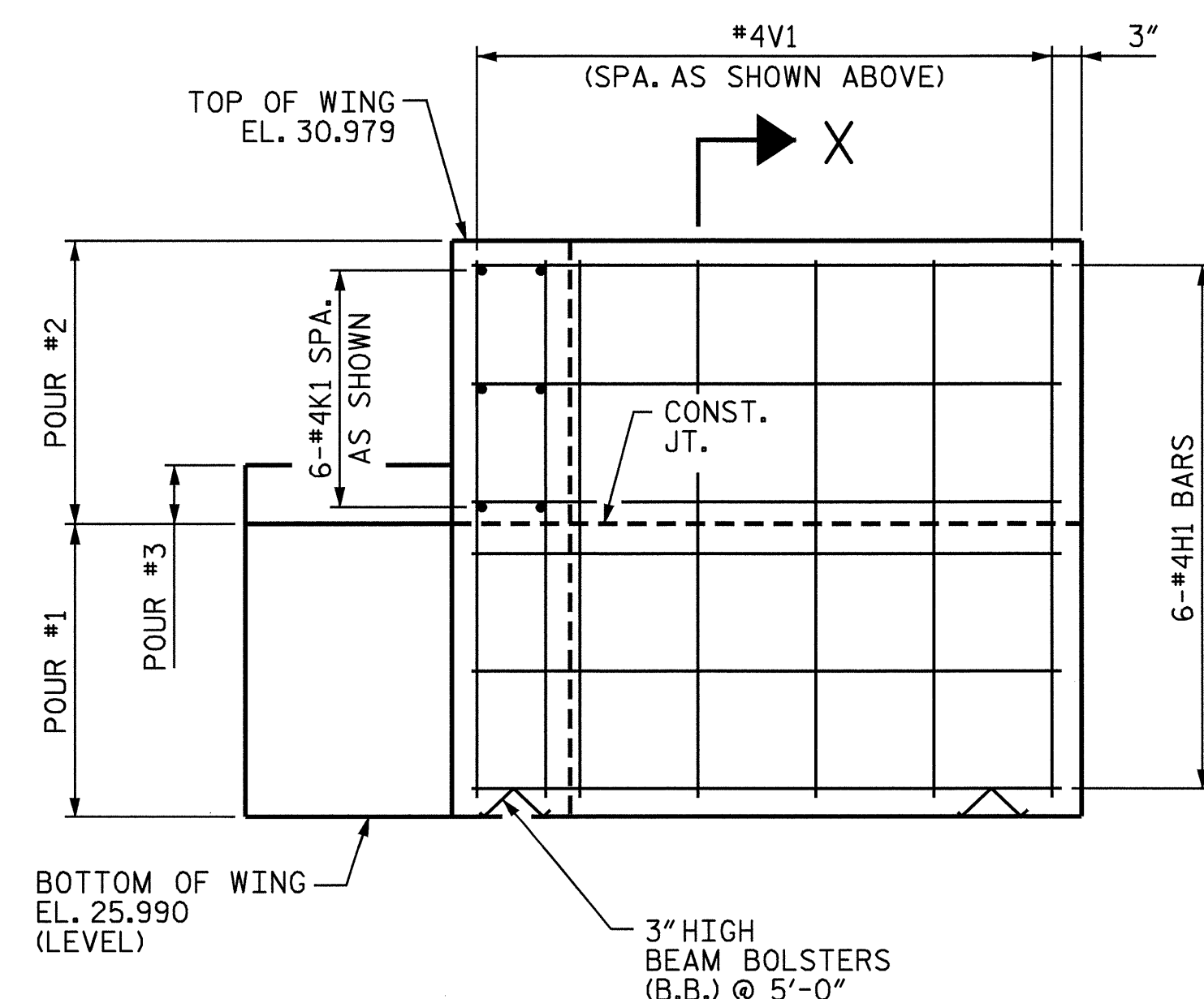
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



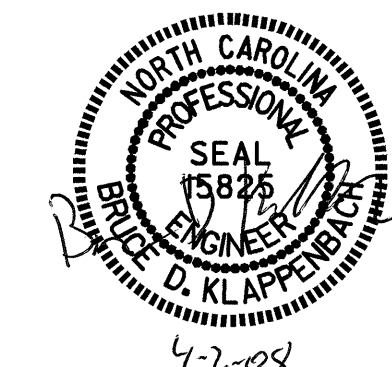
SECTION X-X



ELEVATION OF RIGHT WING (W2)

DRAWN BY : C.R. YARBROUGH DATE 06/25/07
 CHECKED BY : M.G. SHAIKH DATE 01/28/08

02-APR-2008 12:14
 C:\structures\eyarbrough\microstation\b-4135.sd_e*.dgn
 eyarbrough



PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			19

BAR TYPE

BILL OF MATERIAL

FOR END BENT #2

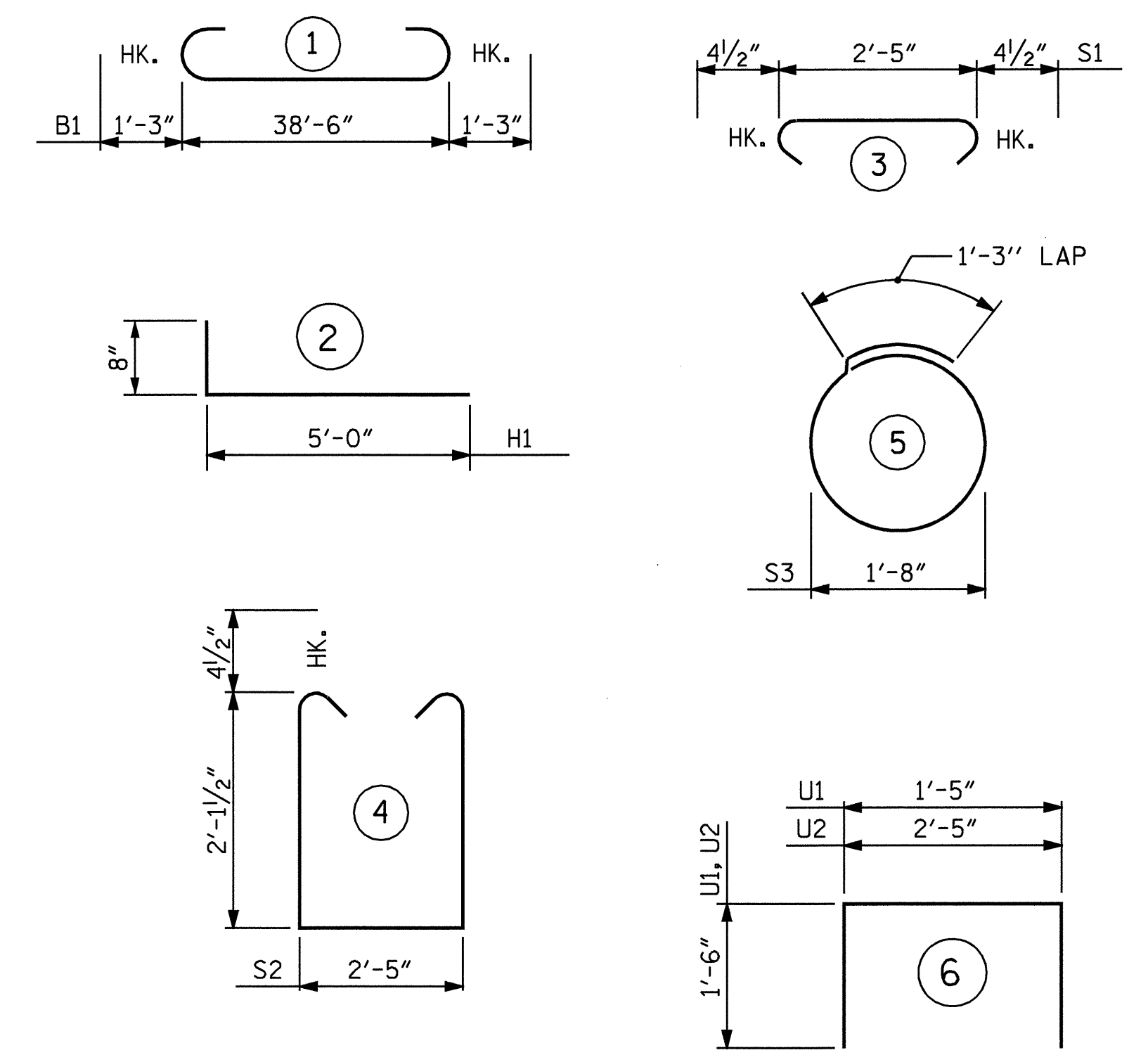
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	2	#6	STR	38'-8"	116
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
B5	4	#4	STR	11'-6"	31
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	5'-8"	91
K1	12	#4	STR	3'-5"	27
S1	38	#4	3	3'-2"	80
S2	38	#4	4	7'-5"	188
S3	14	#4	5	6'-6"	61
U1	4	#4	6	4'-5"	12
U2	8	#4	6	5'-5"	29
V1	40	#4	STR	4'-6"	120

REINFORCING STEEL = 2046 LBS

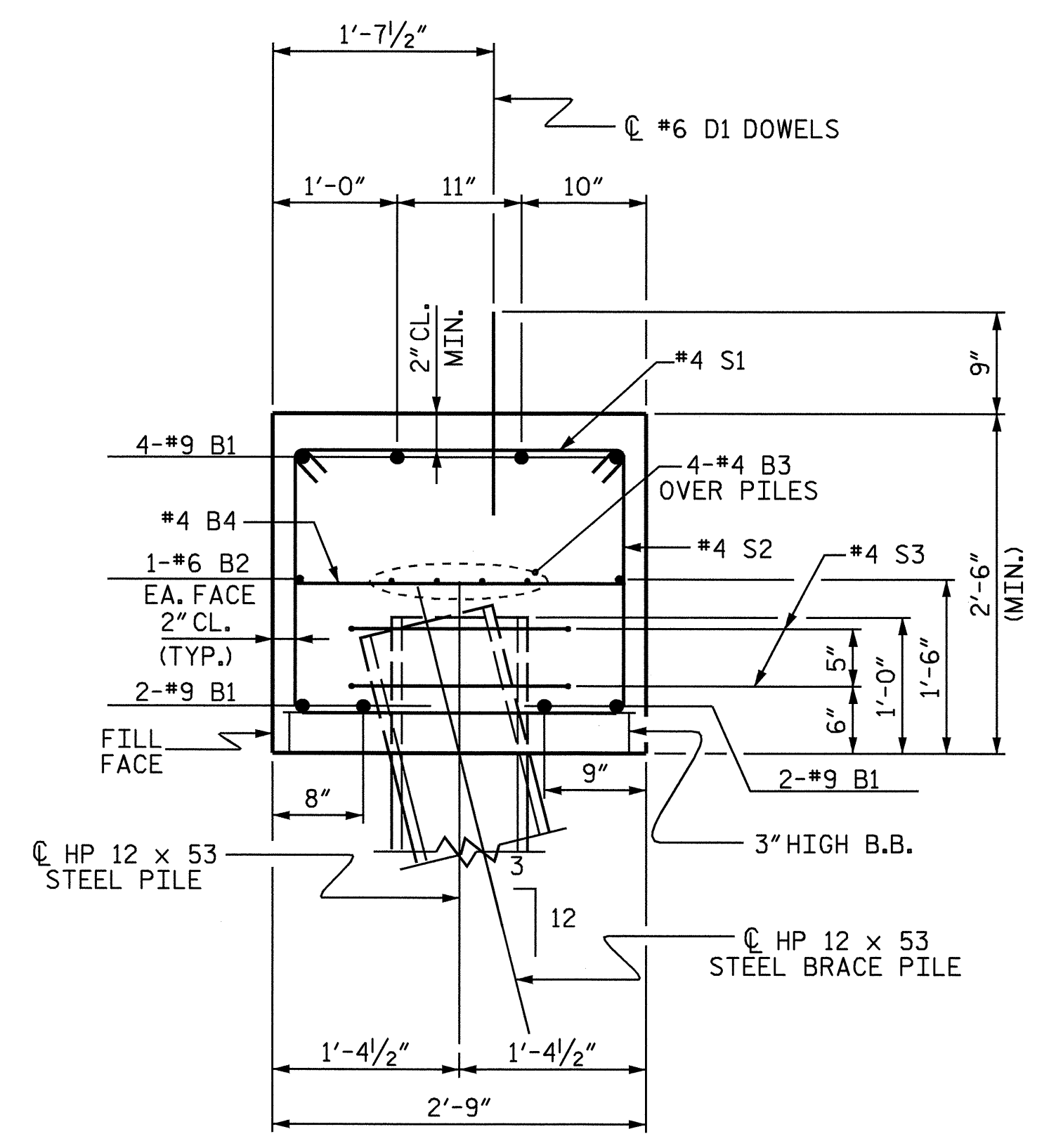
CLASS A CONCRETE BREAKDOWN

POUR #1	CAP & LOWER PORTION OF WINGS	C.Y.	11.5
POUR #2	UPPER PART OF WINGS	C.Y.	1.4
POUR #3	LATERAL GUIDES	C.Y.	0.1
TOTAL CLASS A CONCRETE	C.Y.	13.0	

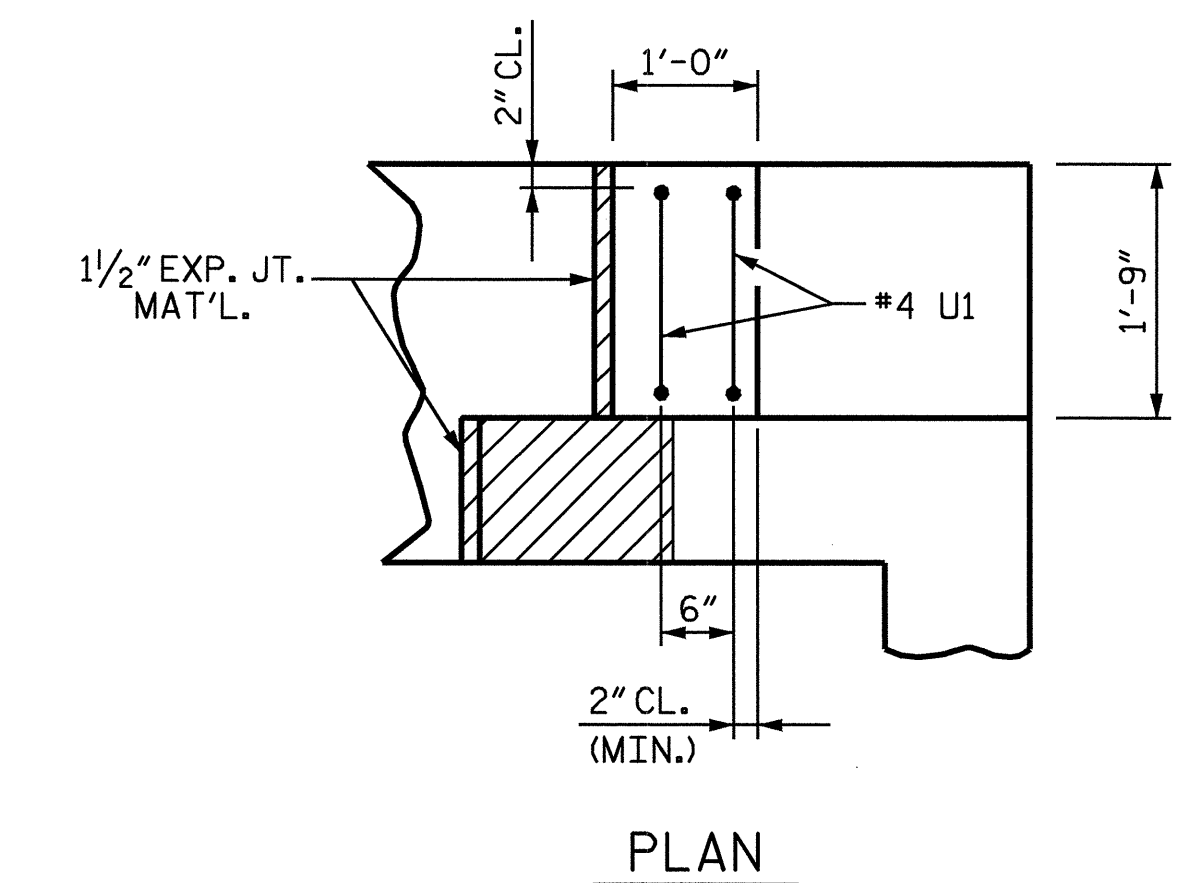
HP 12 X 53 STEEL PILES	NO. 7	LIN. FT.	350
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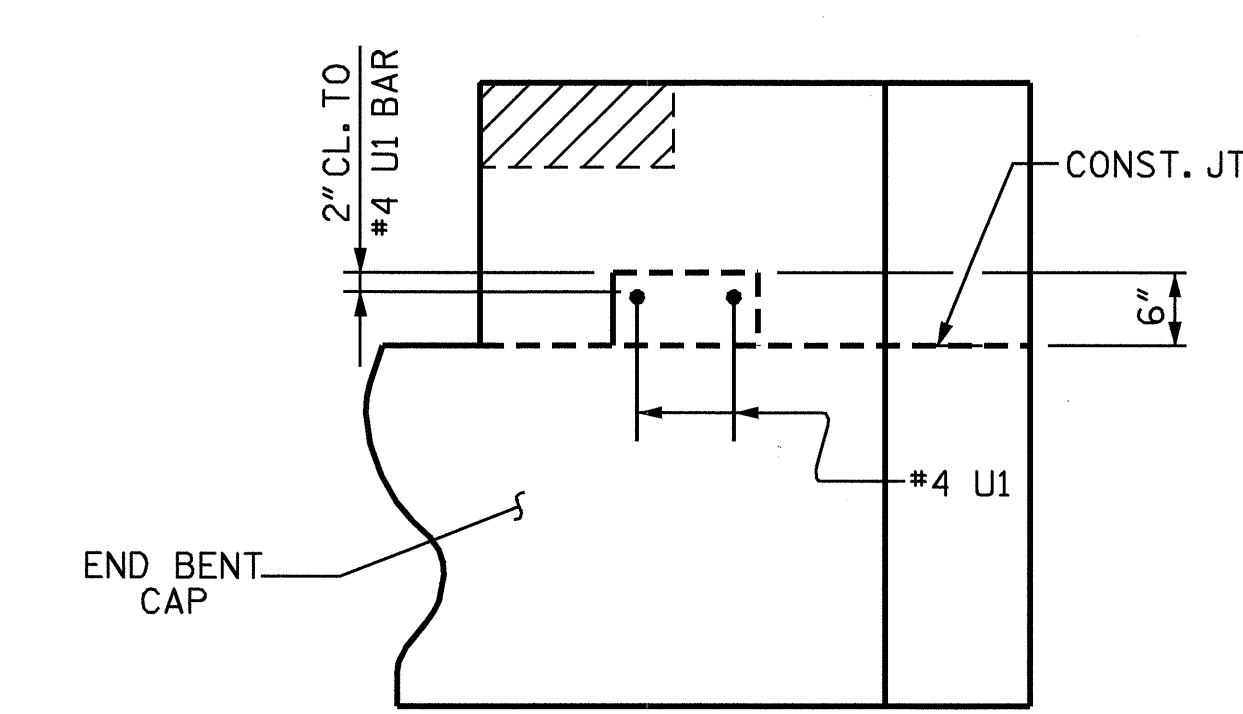
ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION A-A



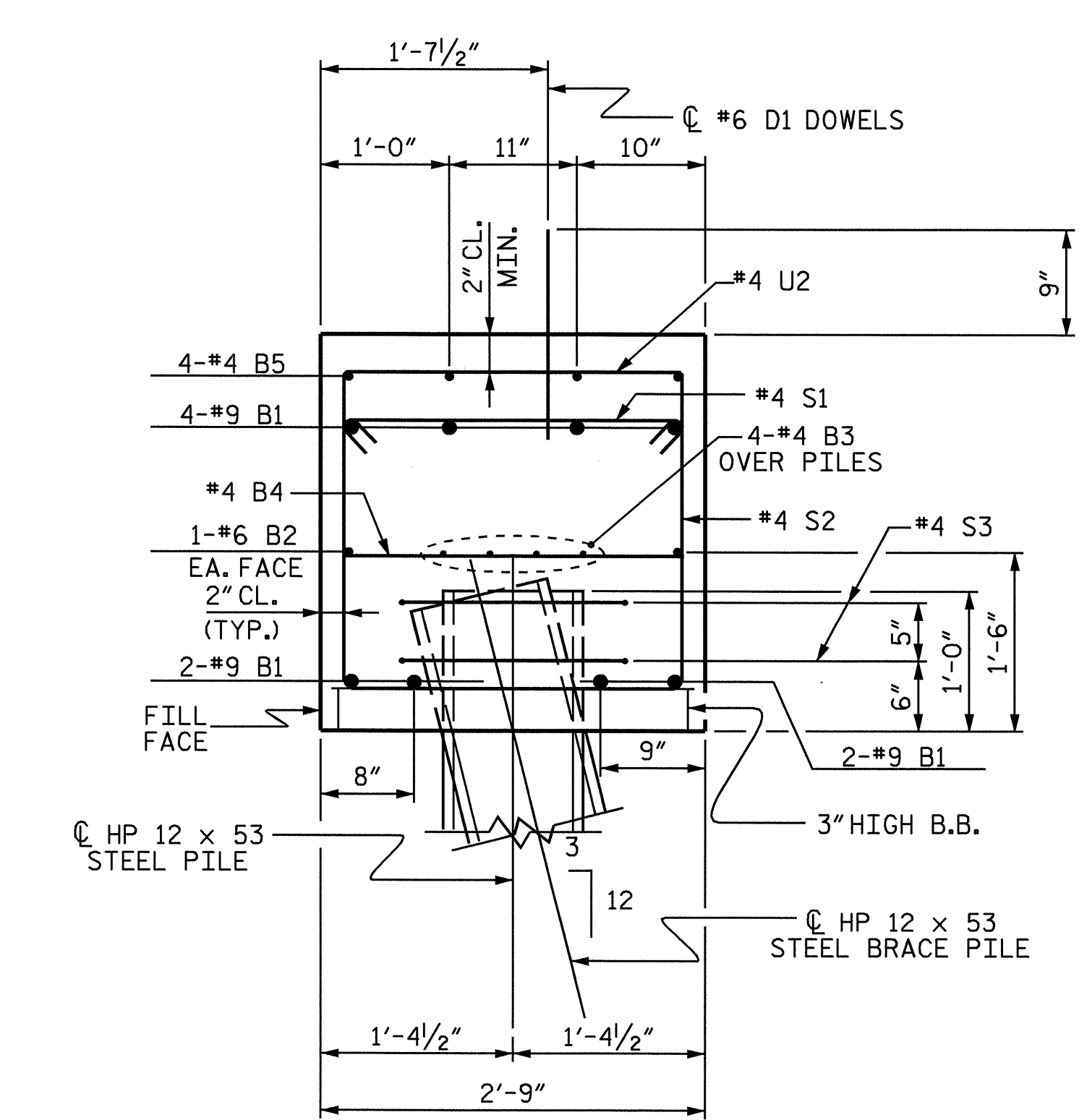
PLAN



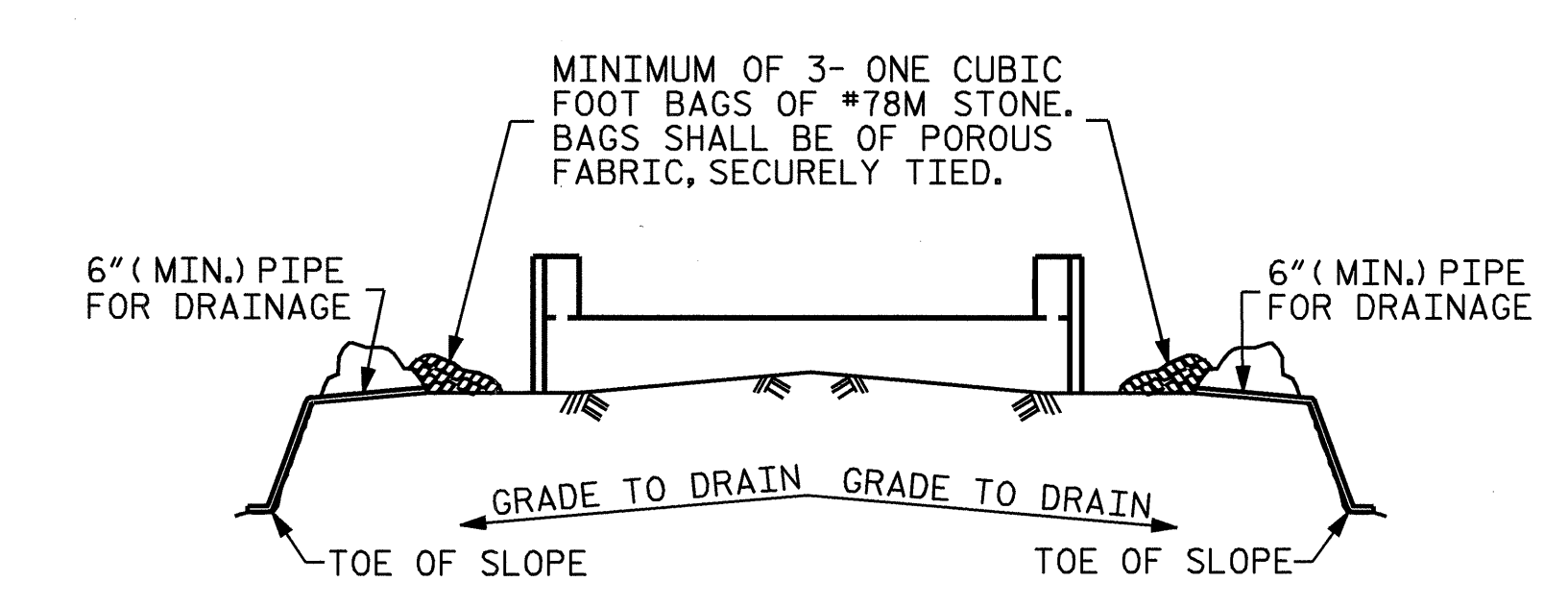
ELEVATION

LATERAL GUIDE

(TYPICAL EACH SIDE)



SECTION B-B

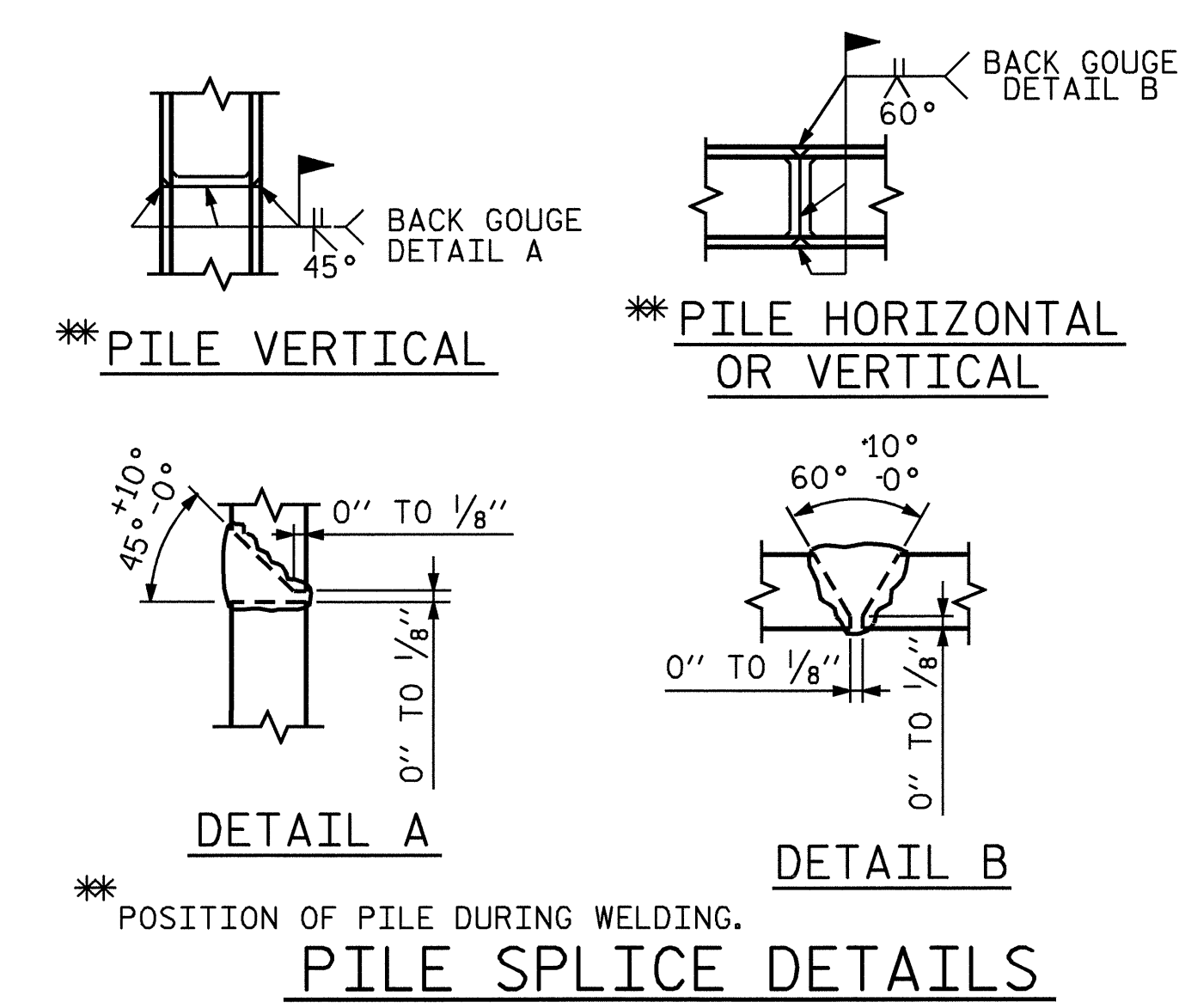


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT



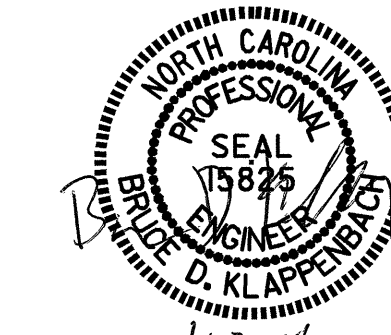
PILE SPLICE DETAILS

PROJECT NO. B-4135
HALIFAX COUNTY
STATION: 17+10.00 -L-

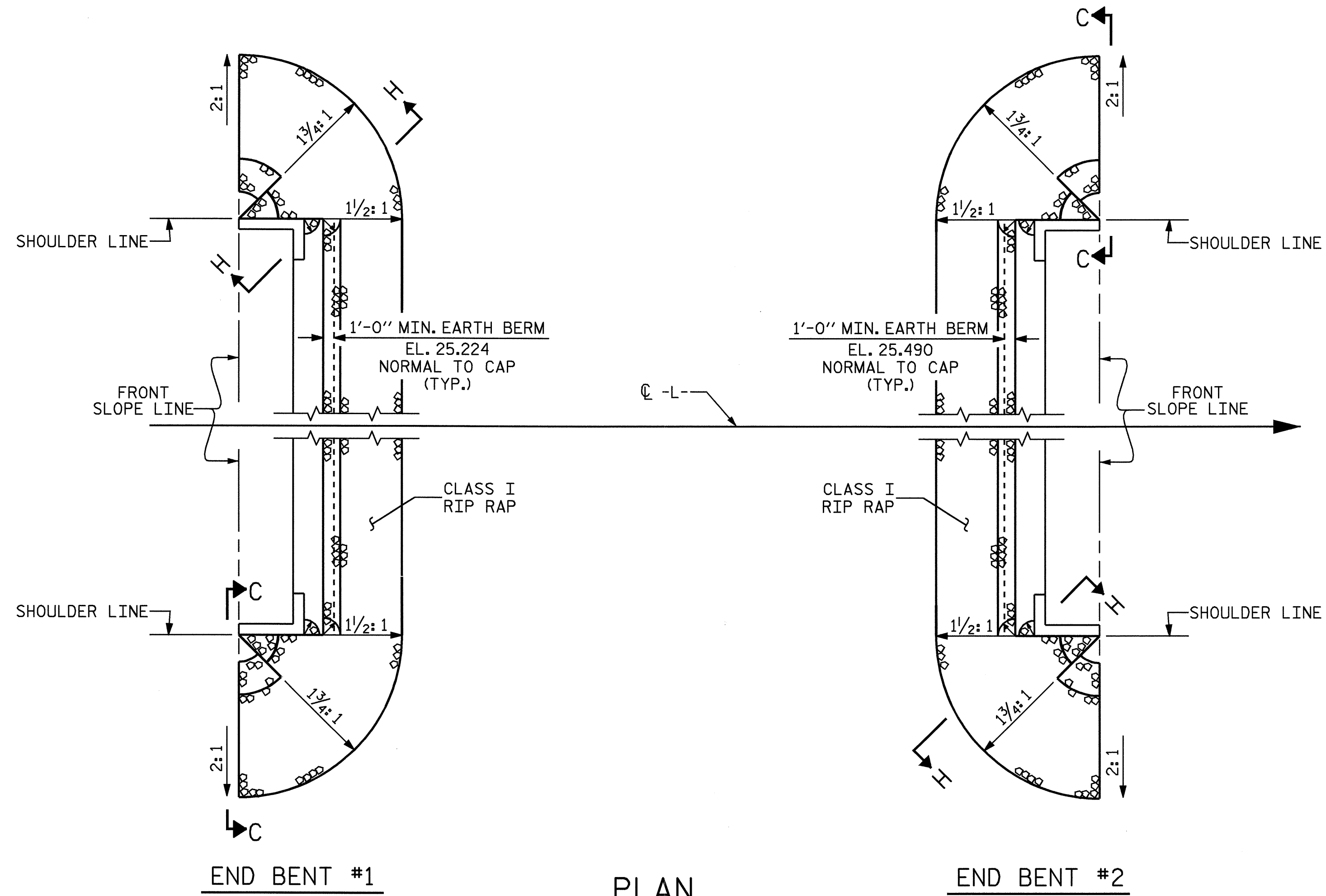
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

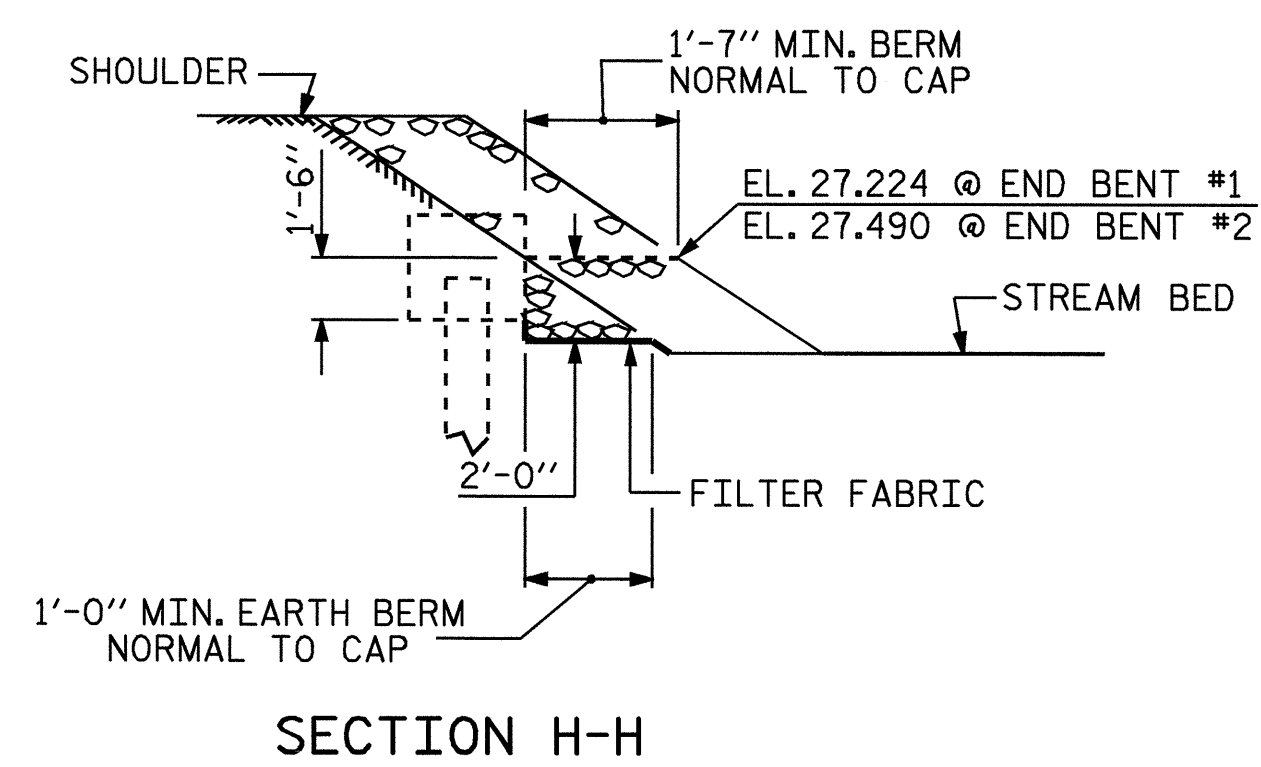
SUBSTRUCTURE
END BENT #2



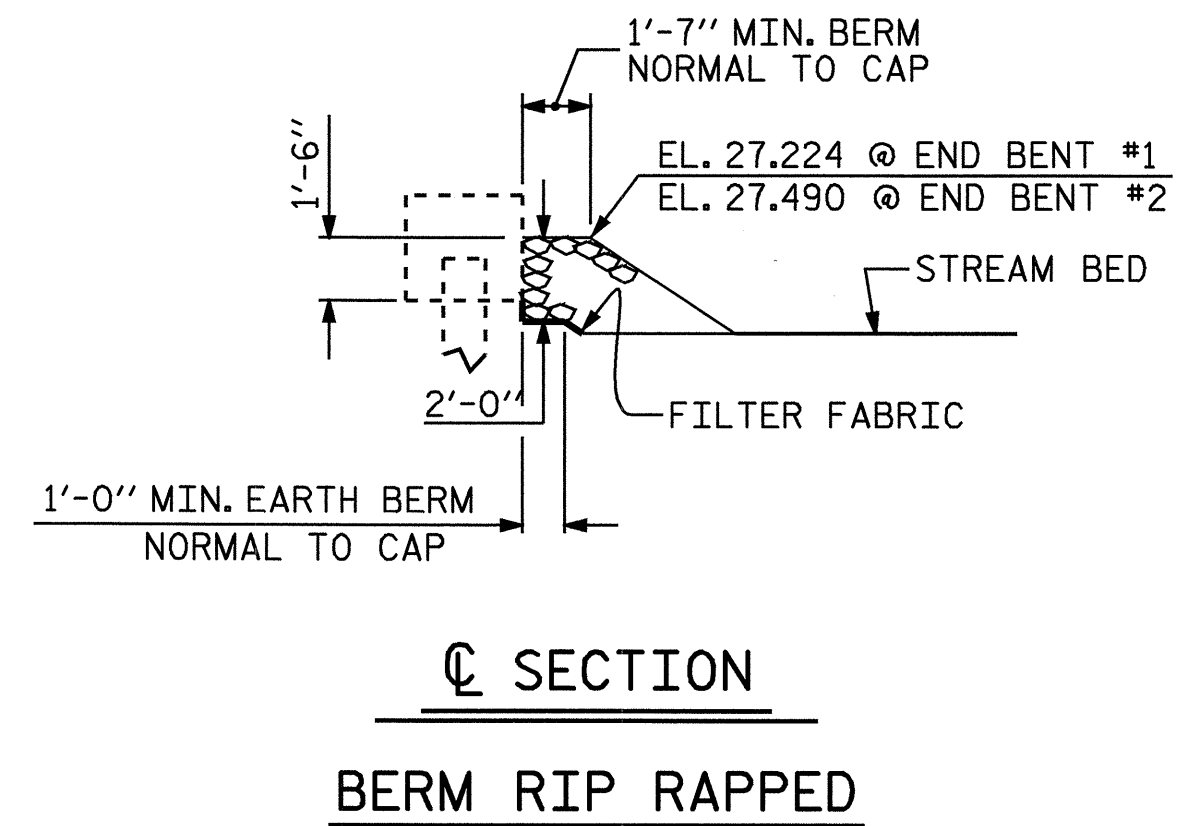
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS 19
2			4			



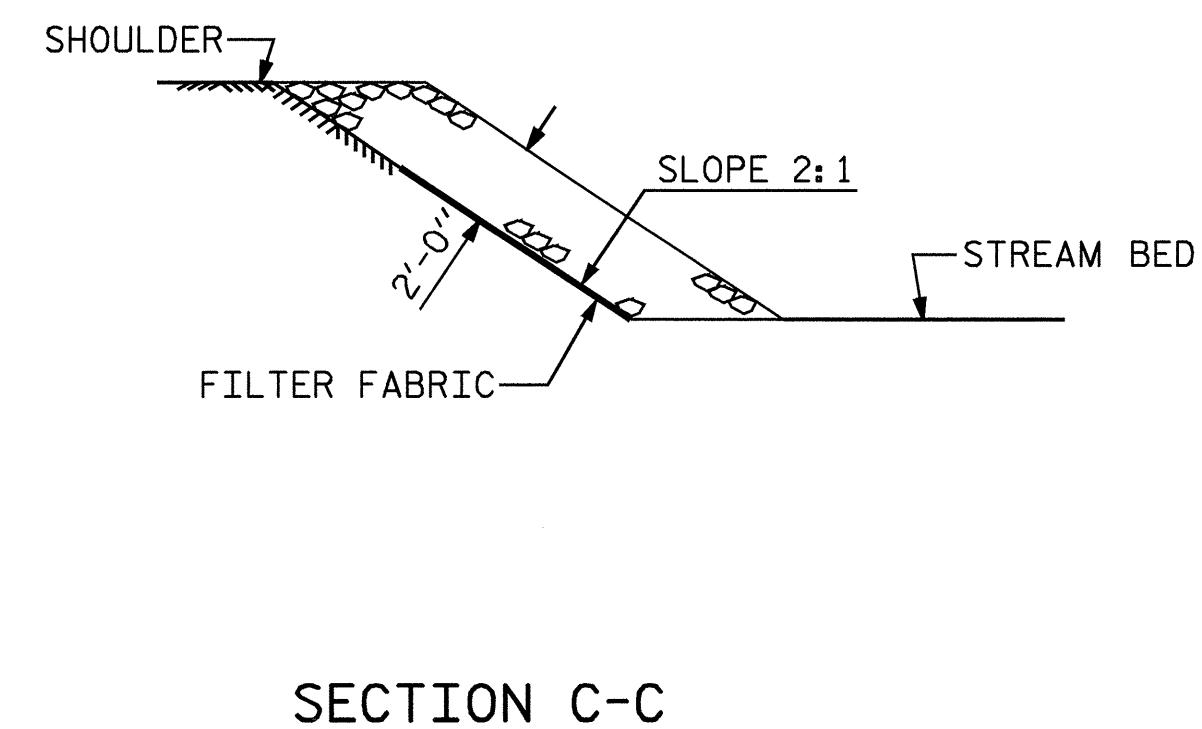
ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+10.00 -L-	RIP RAP CLASS I	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	65	72
END BENT 2	73	81
TOTAL	138	153



SECTION H-H

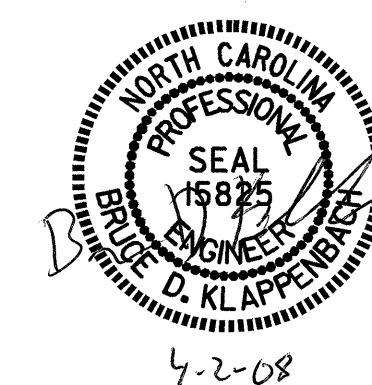


SECTION C-C
BERM RIP RAPPED



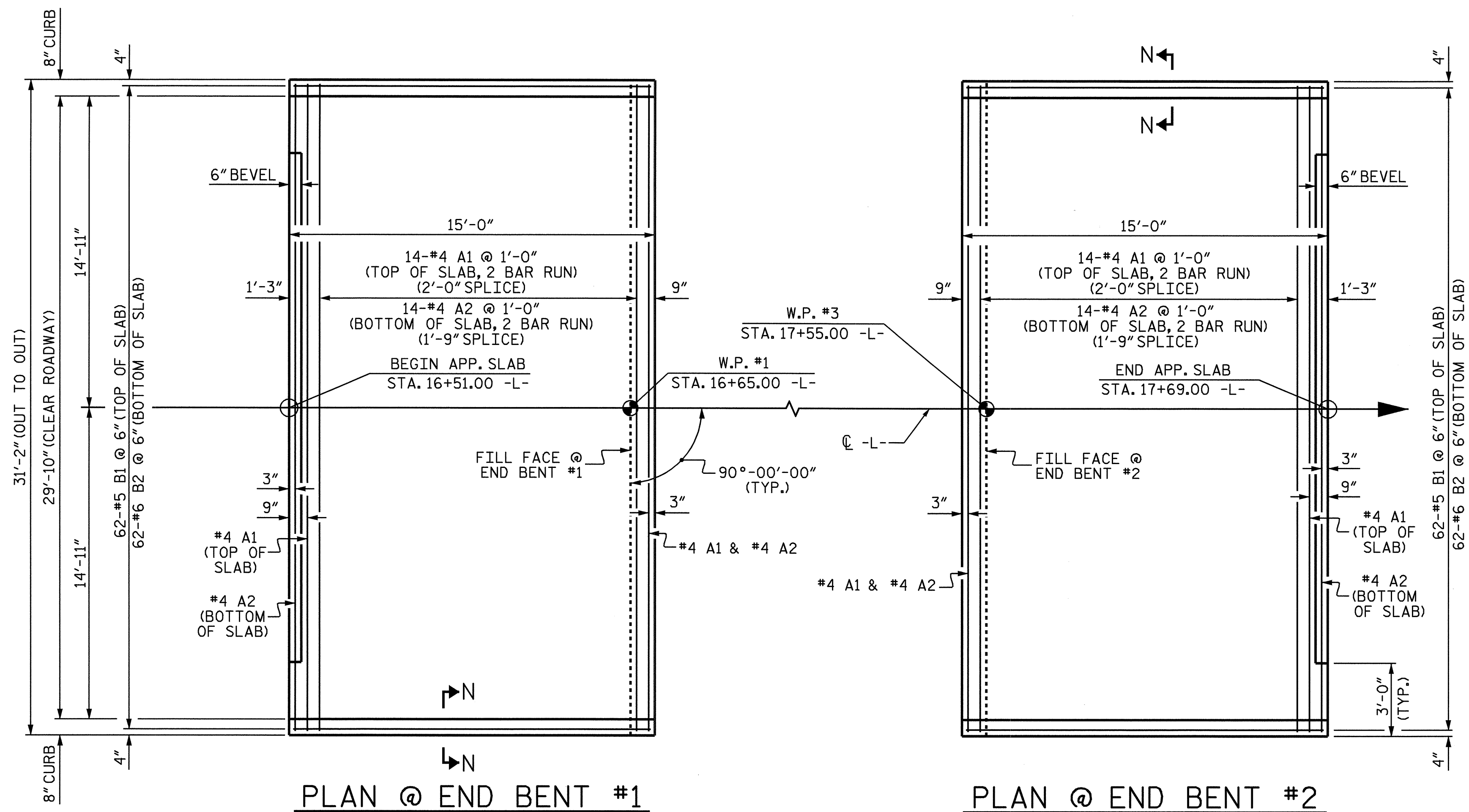
SECTION C-C

PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
— RIP RAP DETAILS —					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					19

ASSEMBLED BY : A. SORSENGINH DATE : 10/2/07
 CHECKED BY : C.R. YARBROUGH DATE : 2/1/08
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM



PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, 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.

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

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

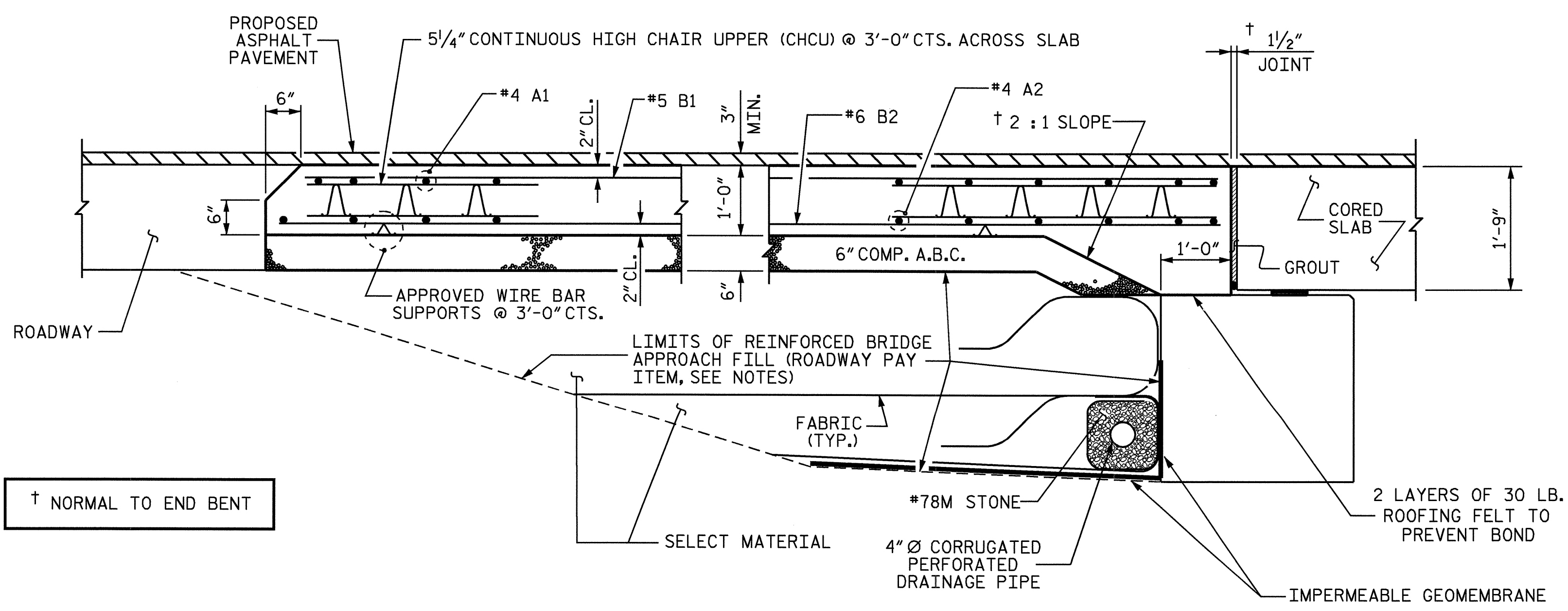
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER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

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

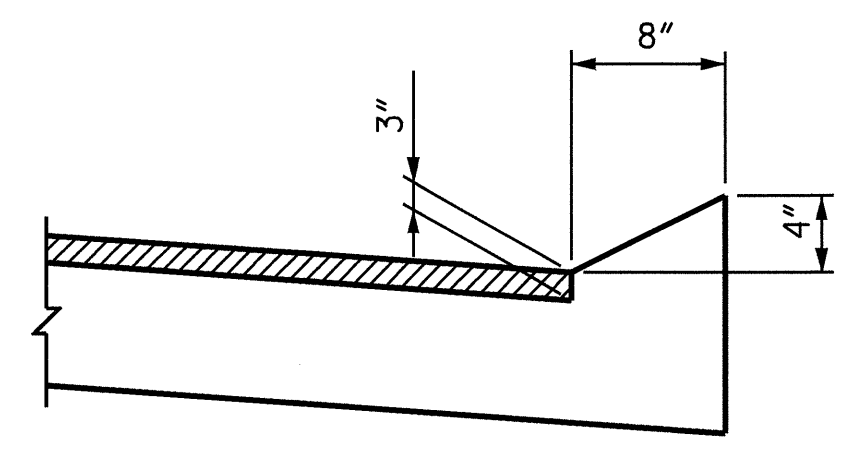
THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

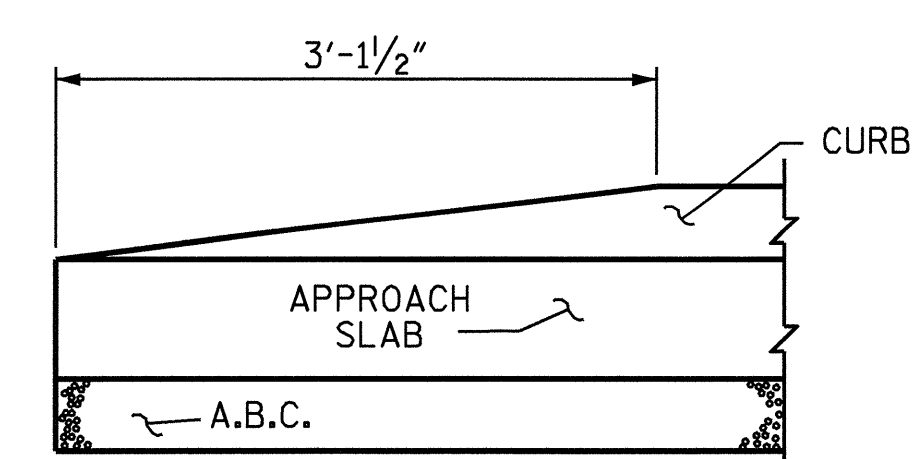
BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	16'-5"	351
A2	32	#4	STR	16'-4"	349
*B1	62	#5	STR	14'-2"	916
B2	62	#6	STR	14'-8"	1366
REINFORCING STEEL				LBS.	1715
*EPOXY COATED REINFORCING STEEL				LBS.	1267
CLASS AA CONCRETE				C. Y.	19.0
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	16'-5"	351
A2	32	#4	STR	16'-4"	349
*B1	62	#5	STR	14'-2"	916
B2	62	#6	STR	14'-8"	1366
REINFORCING STEEL				LBS.	1715
*EPOXY COATED REINFORCING STEEL				LBS.	1267
CLASS AA CONCRETE				C. Y.	19.0



SECTION THRU SLAB



SECTION N-N



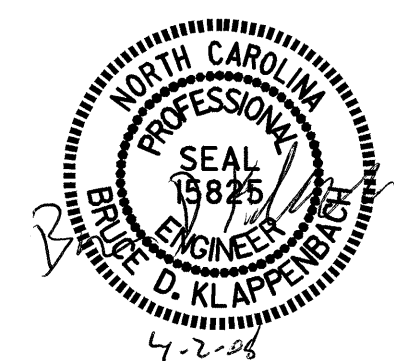
END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. B-4135
 HALIFAX COUNTY
 STATION: 17+10.00 -L-

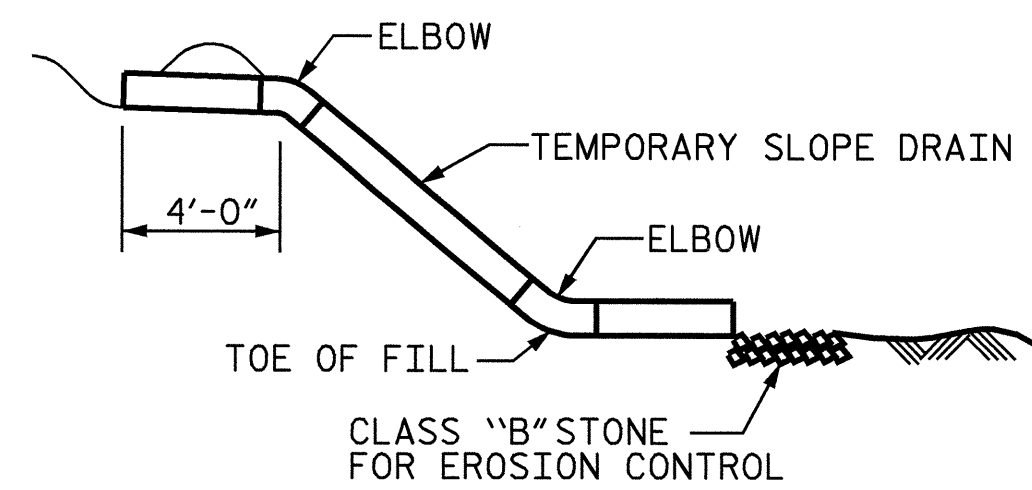
SHEET 1 OF 2

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

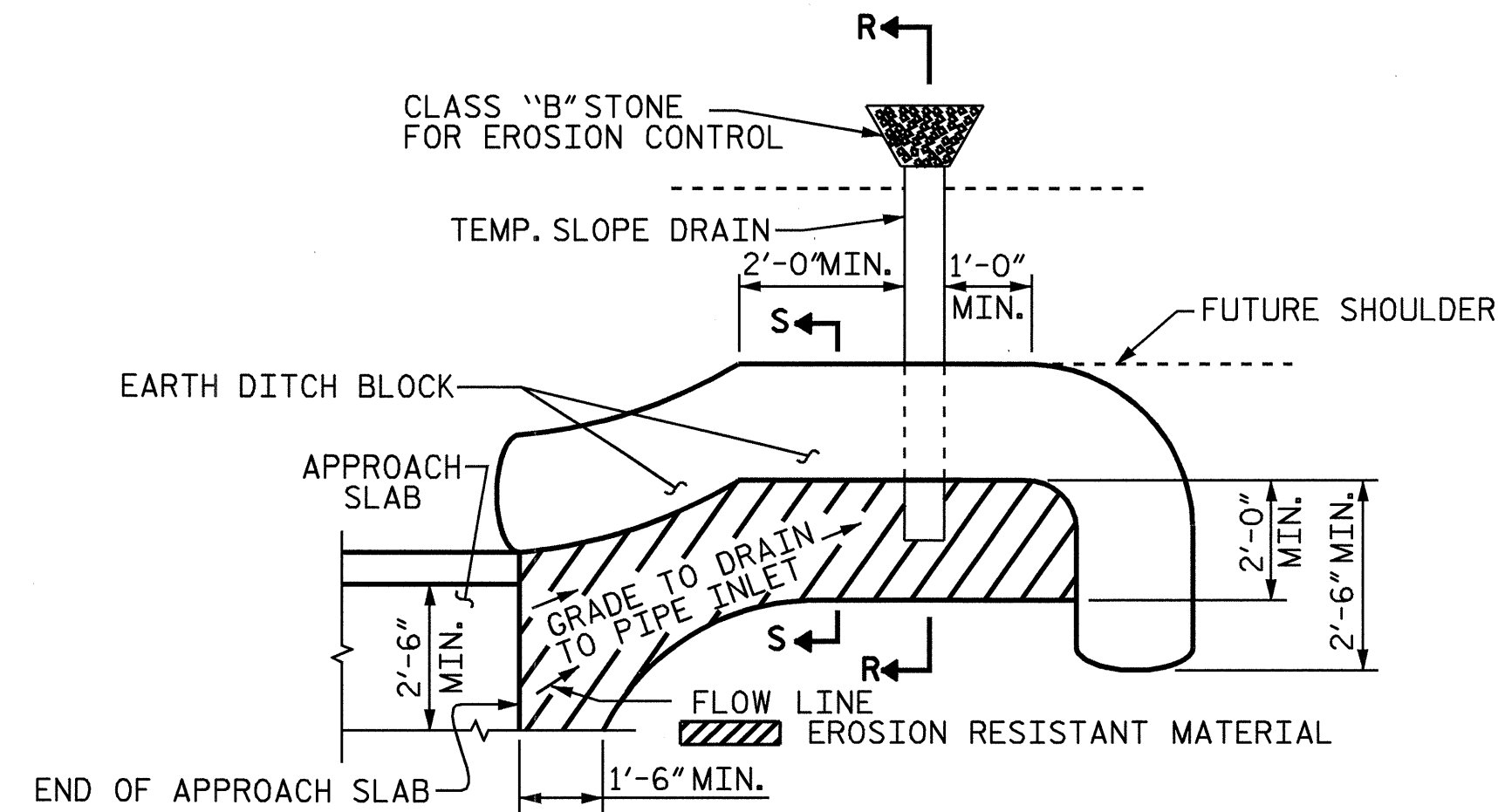


ASSEMBLED BY : A. SORSENGINH	DATE : 1/2/07
CHECKED BY : CR. YARBROUGH	DATE : 1/22/08
DRAWN BY : FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY : EGA 6/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
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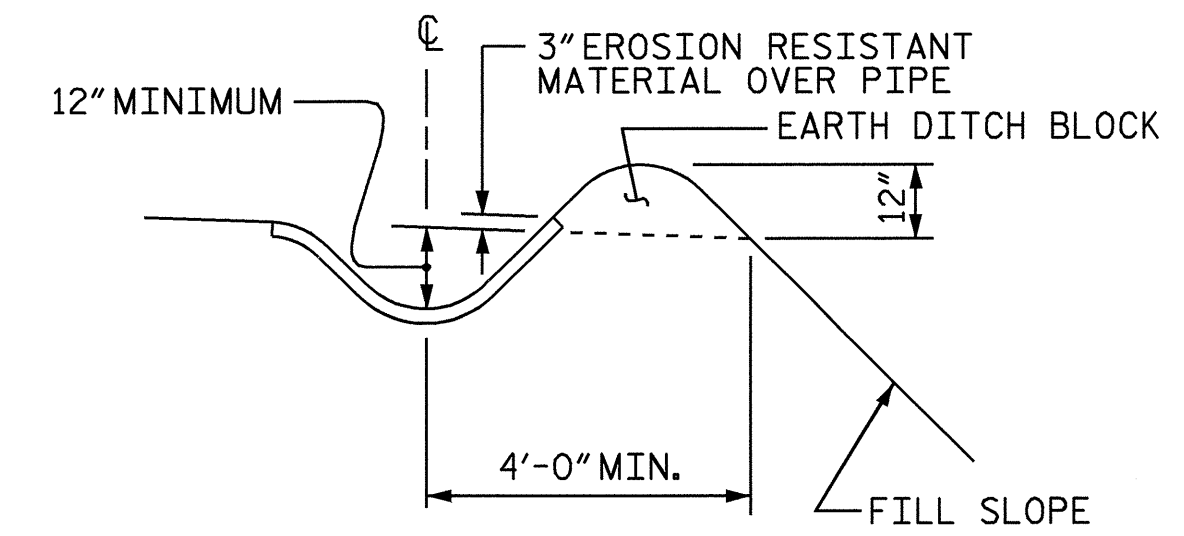


SECTION R-R



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

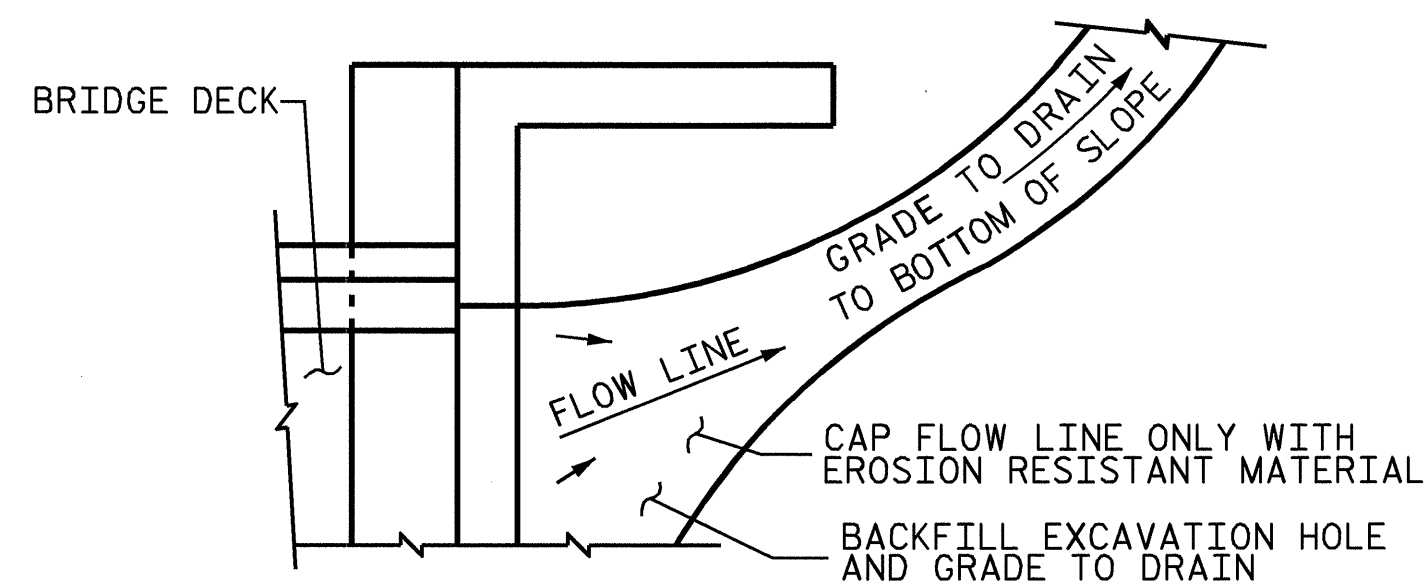
PLAN VIEW



SECTION S-S

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.

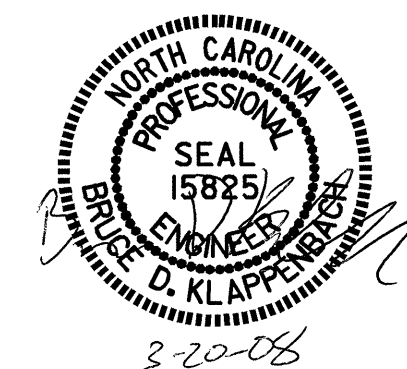
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4135
HALIFAX COUNTY
 STATION: 17+10.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB DETAILS



ASSEMBLED BY :	A. SORSENGINH	DATE :	1-2-07
CHECKED BY :	CR. YARBROUGH	DATE :	1-22-08
DRAWN BY :	FCJ 11/88	REV. 10/17/00	RWW/LES
CHECKED BY :	ARB 11/88	REV. 5/1/03	RWW/JTE
		REV. 5/1/06	TLA/GM

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

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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

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

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