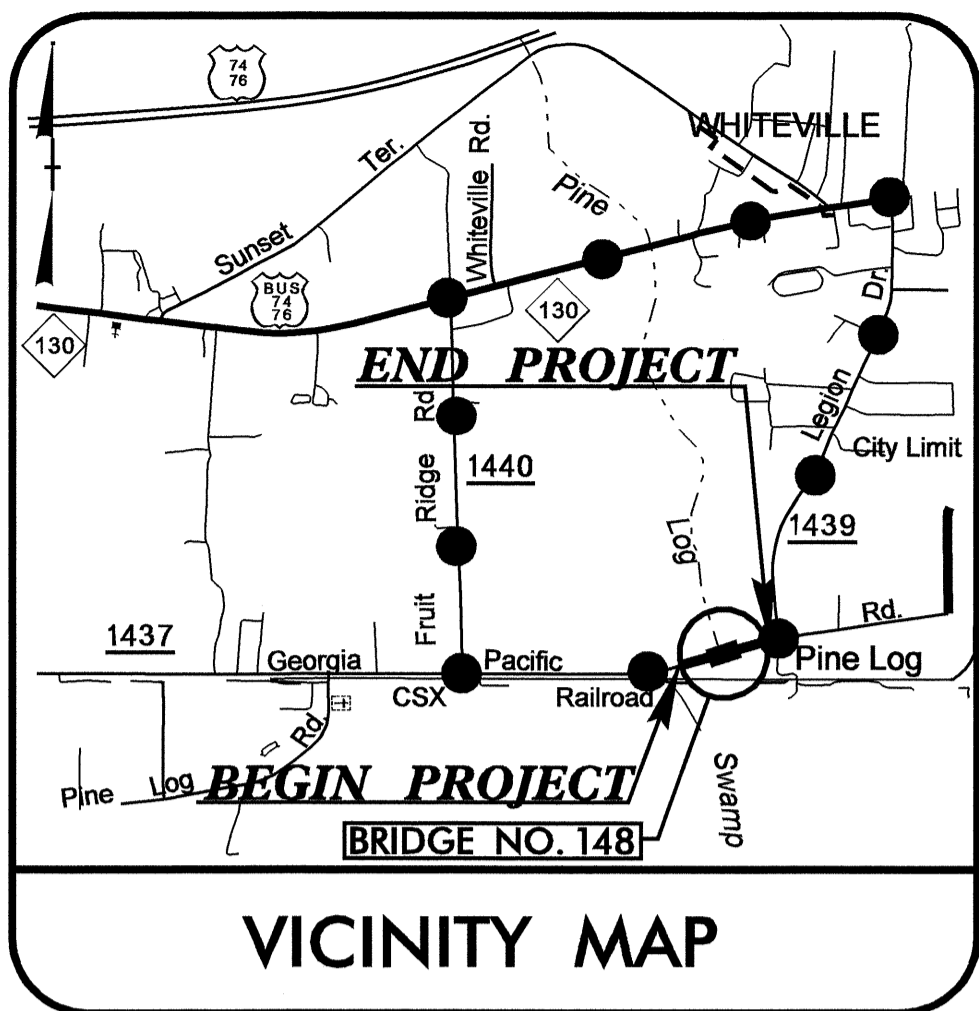


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4080		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33442.1.1	BRSTP-1437 (2)	PE	
33442.2.1	BRSTP-1437 (2)	R/W-UTIL.	
33442.3.1	BRSTP-1437 (2)	CONSTR.	

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
COLUMBUS COUNTY

LOCATION: BRIDGE NO. 148 OVER PINE LOG SWAMP ON SR 1437
 TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



(THIS PROJECT IS NOT INCLUDED WITHIN ANY MUNICIPAL BOUNDARIES)
 ●●● OFFSITE DETOUR

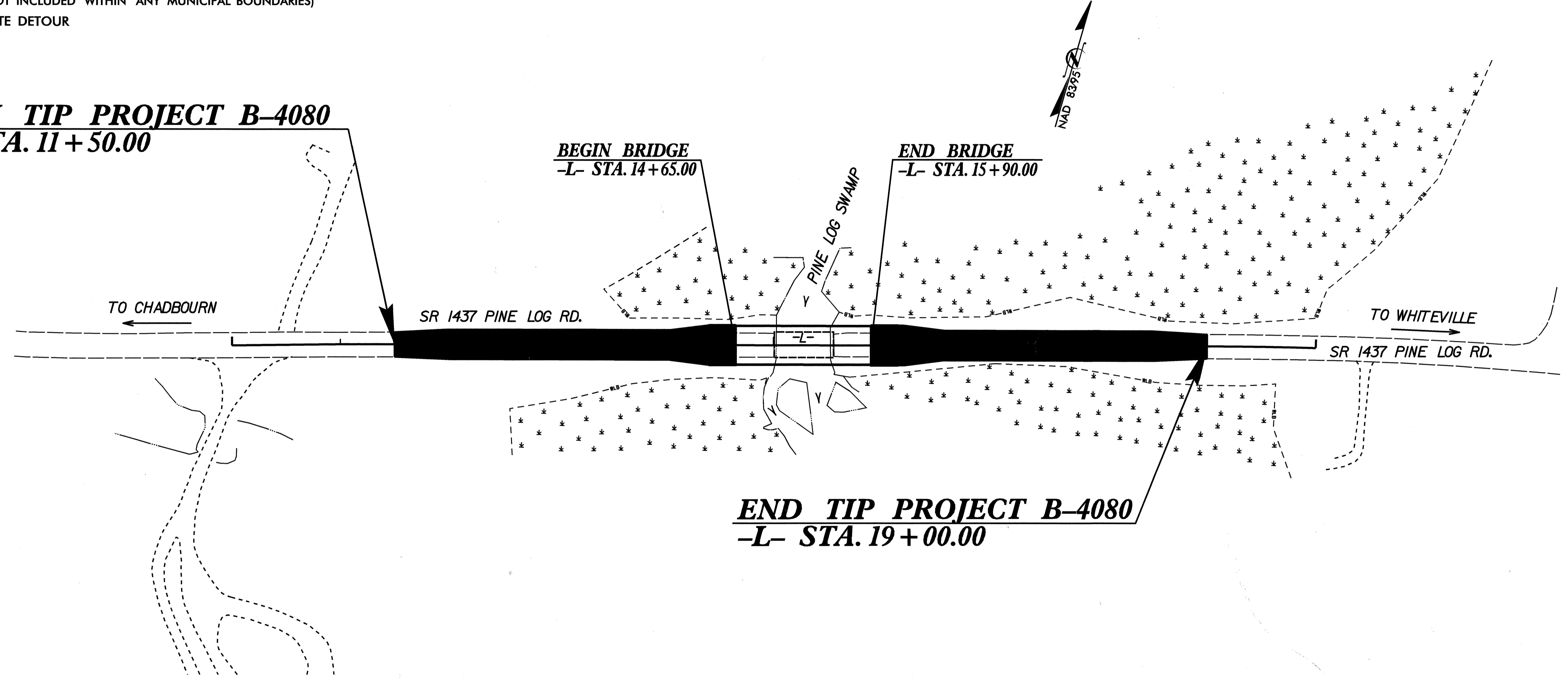
BEGIN TIP PROJECT B-4080
 -L- STA. 11+50.00

BEGIN BRIDGE
 -L- STA. 14+65.00

END BRIDGE
 -L- STA. 15+90.00

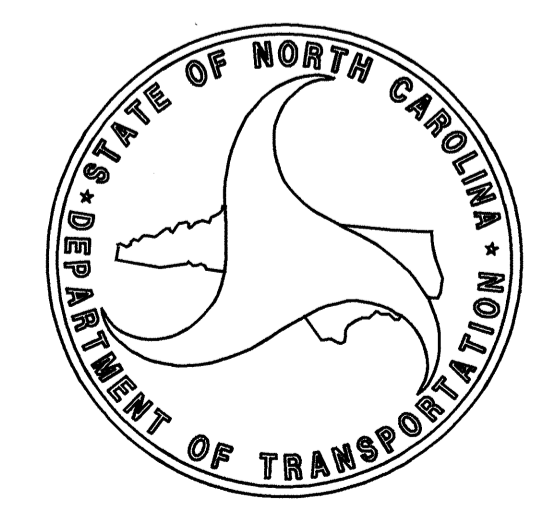
END TIP PROJECT B-4080
 -L- STA. 19+00.00

STRUCTURE



TIP PROJECT: B-4080

CONTRACT: C201970



DESIGN DATA

ADT 2008 =	4,135
ADT 2028 =	6,917
DHV =	10 %
D =	60 %
T =	7 % *
V =	60 MPH
* TTST 4%	DUAL 3%
FUNC. CLASS =	URBAN COLLECTOR

PROJECT LENGTH

Length Roadway TIP Project B-4080 =	0.118 Miles
Length Structure TIP Project B-4080 =	0.024 Miles
Total Length TIP Project B-4080 =	0.142 Miles

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

2006 STANDARD SPECIFICATIONS

LETTING DATE:
 NOV 18, 2008

ROY GIROLAMI, PE
 PROJECT ENGINEER

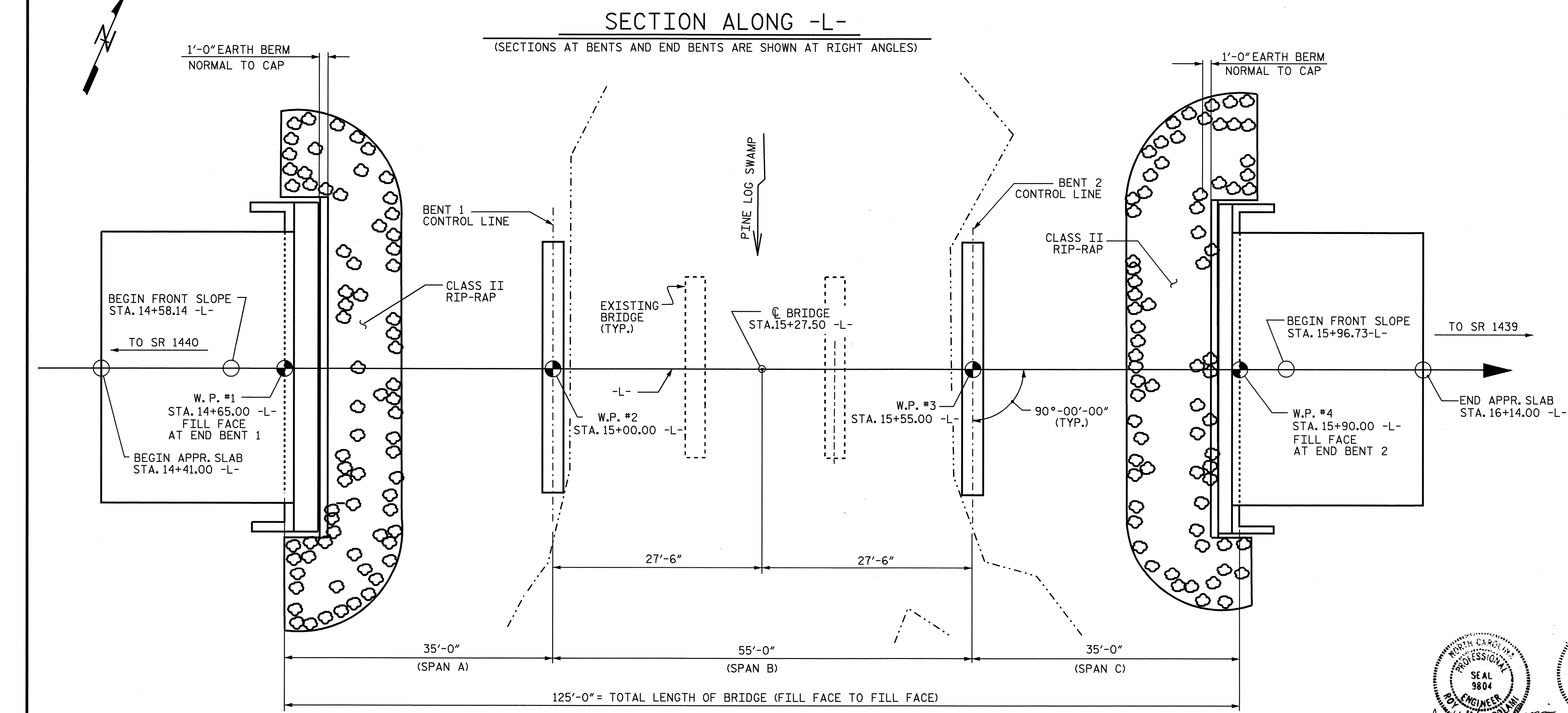
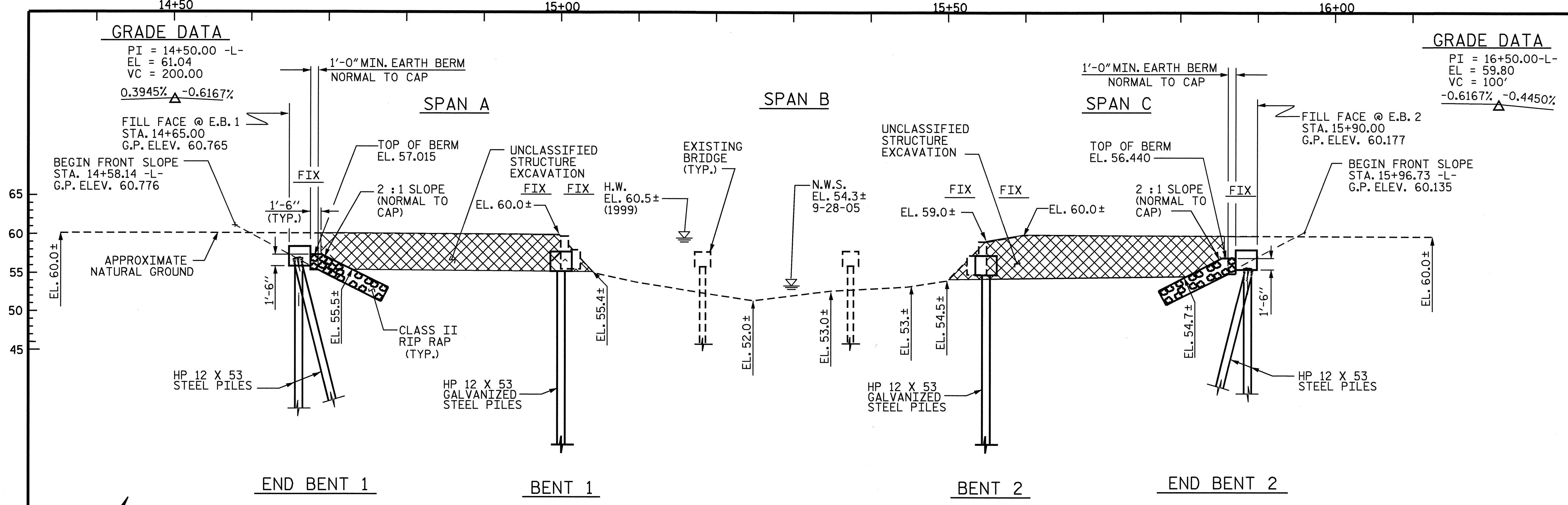
DAVID ANDERSON, PE
 PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

P.E.
 STATE DESIGN ENGINEER

14-AUG-2008 12:14
 J:\Structures\FINAL PLANS\01_B4080_SD_01_L.TSH.dgn
 Danderson



DRAWN BY : N. Q. TRAN DATE : 11-06
 CHECKED BY : T. A. HARRIS DATE : 11-06

14-AUG-2008 12:21
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STATE OF NORTH CAROLINA
 PROFESSIONAL SEAL
 SEAL 9804
 ENGINEER
 DAVID R. ANDERSON
 8-18-08

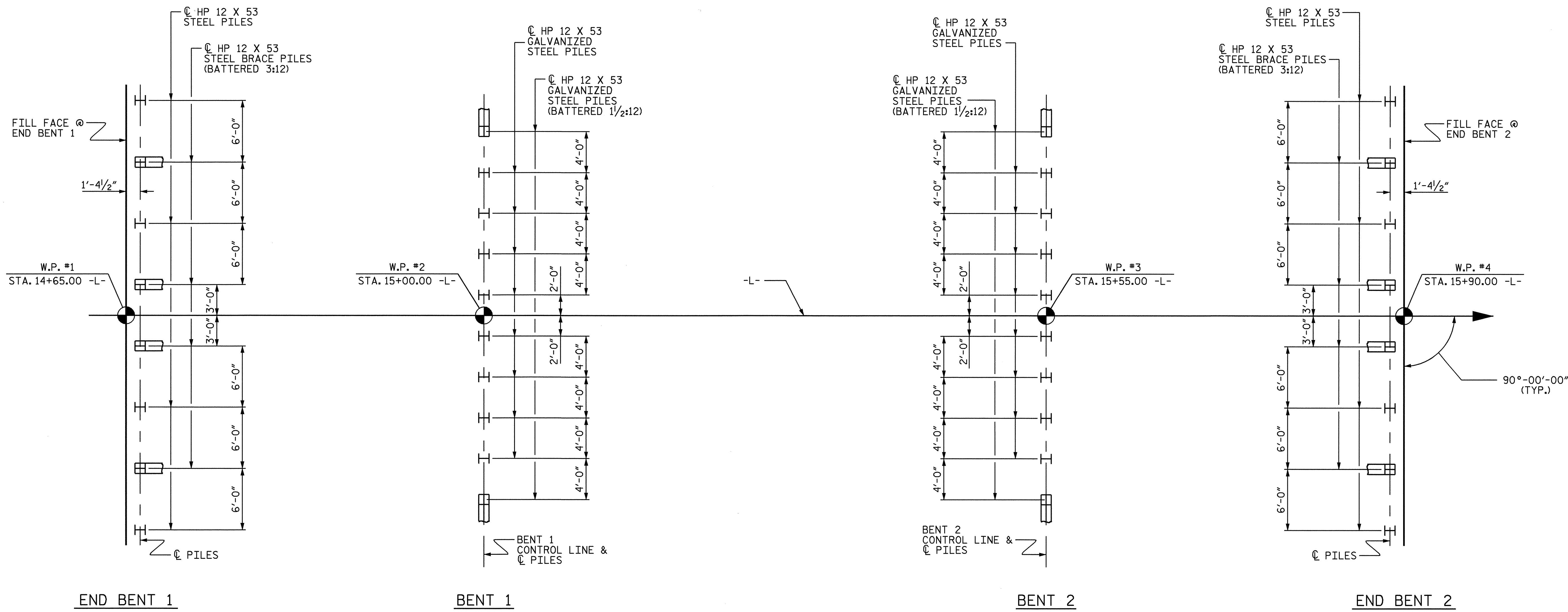
STATE OF NORTH CAROLINA
 PROFESSIONAL SEAL
 SEAL 11259
 ENGINEER
 DAVID R. ANDERSON
 8/18/08

PROJECT NO. B-4080
 COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE No. 148

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER PINE LOG
 SWAMP ON SR 1437 BETWEEN
 SR 1440 AND SR 1439

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			5-1
2			4			TOTAL SHEETS 20



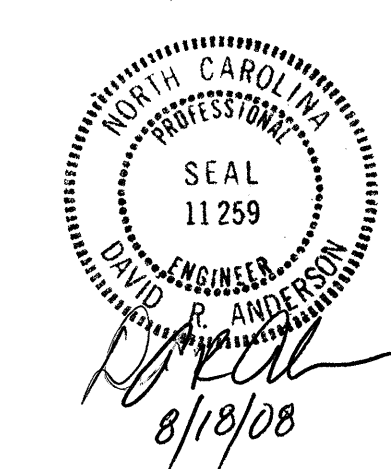
FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE
 AT THE BOTTOM OF THE CAP.

PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 2 OF 3

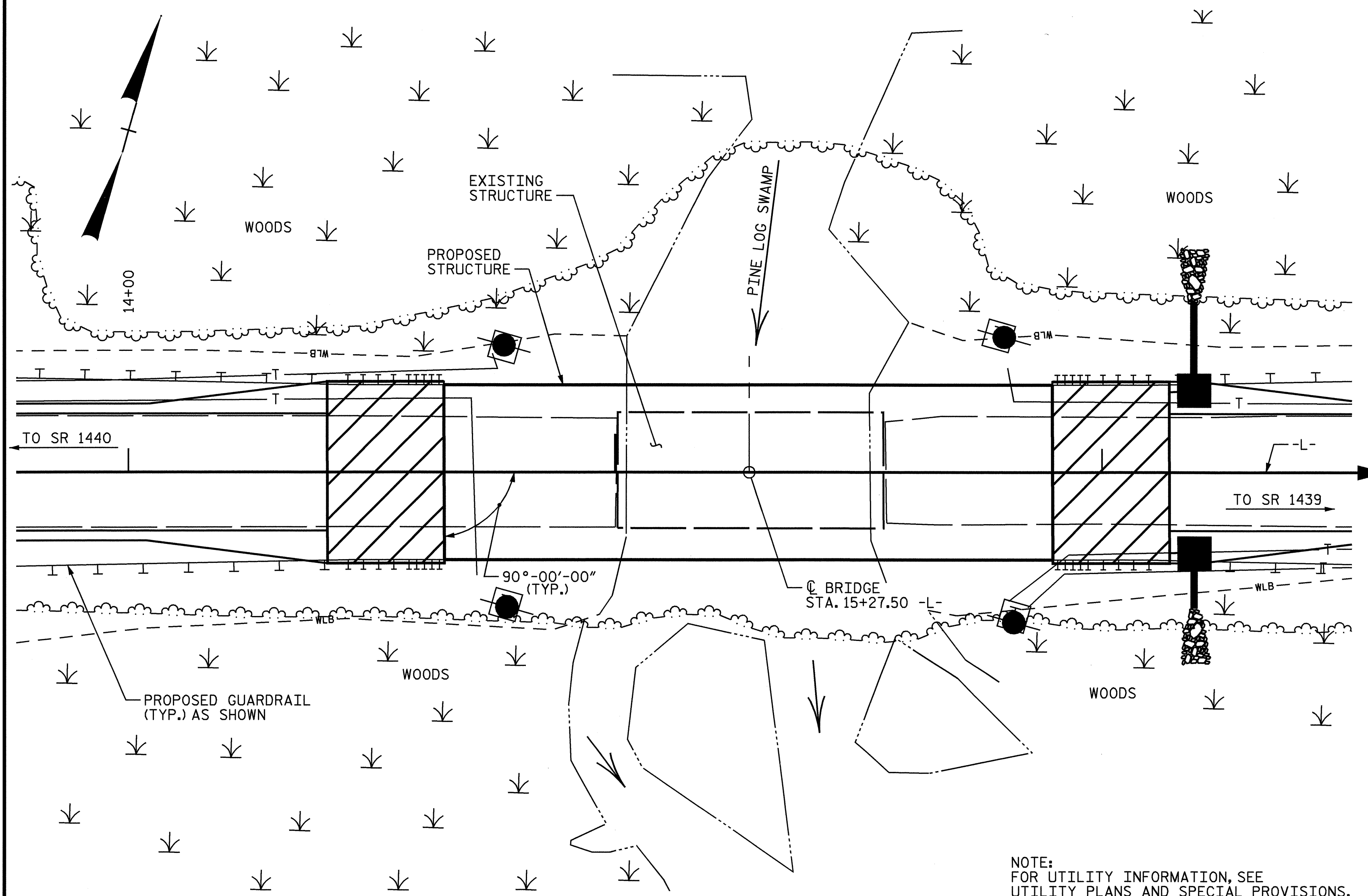
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE OVER PINE LOG
 SWAMP ON SR 1437 BETWEEN
 SR 1440 AND SR 1439



DRAWN BY: E.C. LOCKLEAR DATE: 10-23-07
 CHECKED BY: S.M. RASHIDI DATE: 11-19-07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-2
2			4			TOTAL SHEETS 20



LOCATION SKETCH

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

NOTES:

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

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

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

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (1 @ 18'-5\"/>

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

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.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR GROUT, SEE SPECIAL PROVISIONS 'GROUT FOR STRUCTURES'.

FOR PRESTRESSED CONCRETE MEMBERS, 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.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR 'REMOVAL OF EXISTING STRUCTURE AT STATION 15+27.50 -L-.'

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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.

DRIVE PILES AT BENT 1 TO A REQUIRED BEARING CAPACITY OF 150 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 2 TO A REQUIRED BEARING CAPACITY OF 140 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.

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

DRIVE PILES AT BENT 1 AND BENT 2 TO A TIP ELEVATION NO HIGHER THAN 16 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 AND BENT 2 IS ELEVATION 38 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PILE DRIVING ANALYZER FOR LRFD IS REQUIRED AT END BENT 1, BENT 1, BENT 2, OR END BENT 2. SEE PILE DRIVING ANALYZER FOR LRFD SPECIAL PROVISION.

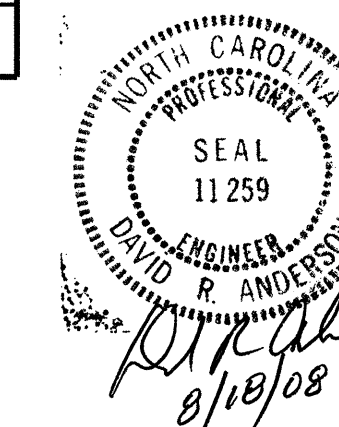
THE STEEL PILES AT THE INTERIOR BENTS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	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 II (2'-0\"/>							
	LUMP SUM	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE				4443.0	5546.0							245.0							39	1592.50
END BENT 1						15.8		2420	8	440					65	70				
BENT 1						11.5		2709		10	600									
BENT 2						11.5		2709		10	600									
END BENT 2						15.8		2420	8	440					70	75				
TOTAL	LUMP SUM	1	LUMP SUM	4443.0	5546.0	54.6	LUMP SUM	10,258	16	880	20	1,200	16	245.0	135	145	LUMP SUM	LUMP SUM	39	1592.50

PROJECT NO. B-4080
COLUMBUS COUNTY
STATION: 15+27.50 -L-

SHEET 3 OF 3

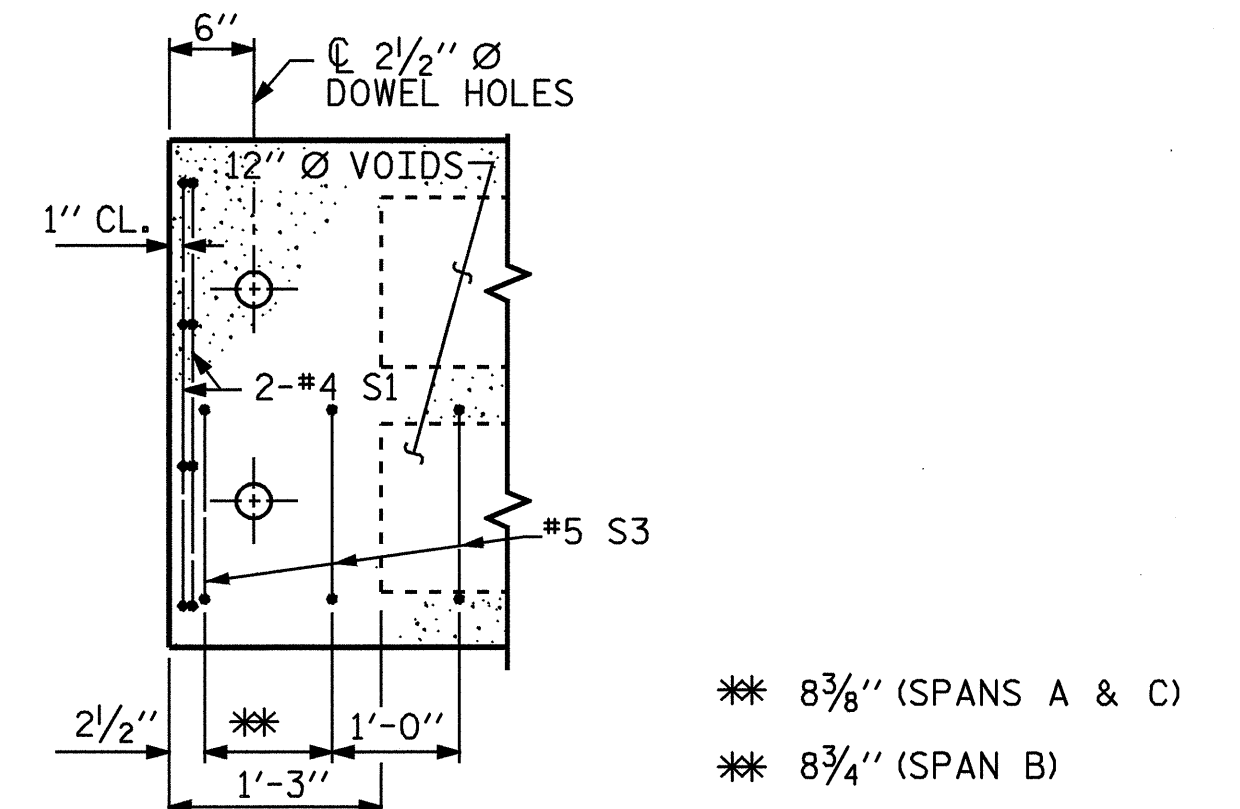
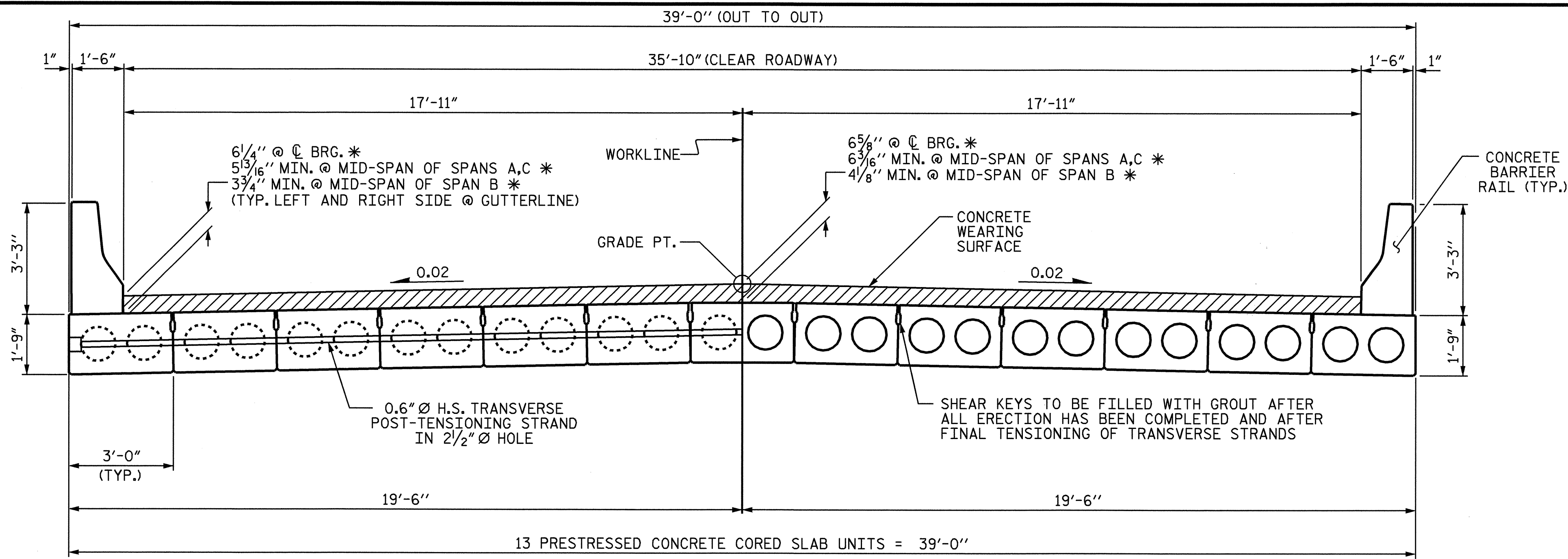


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE OVER PINE LOG
SWAMP ON SR 1437 BETWEEN
SR 1440 AND SR 1439

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-3
2			4			TOTAL SHEETS 20

DRAWN BY: E.C. LOCKLEAR DATE: 10-23-07
CHECKED BY: S. M. RASHIDI DATE: 3-31-08



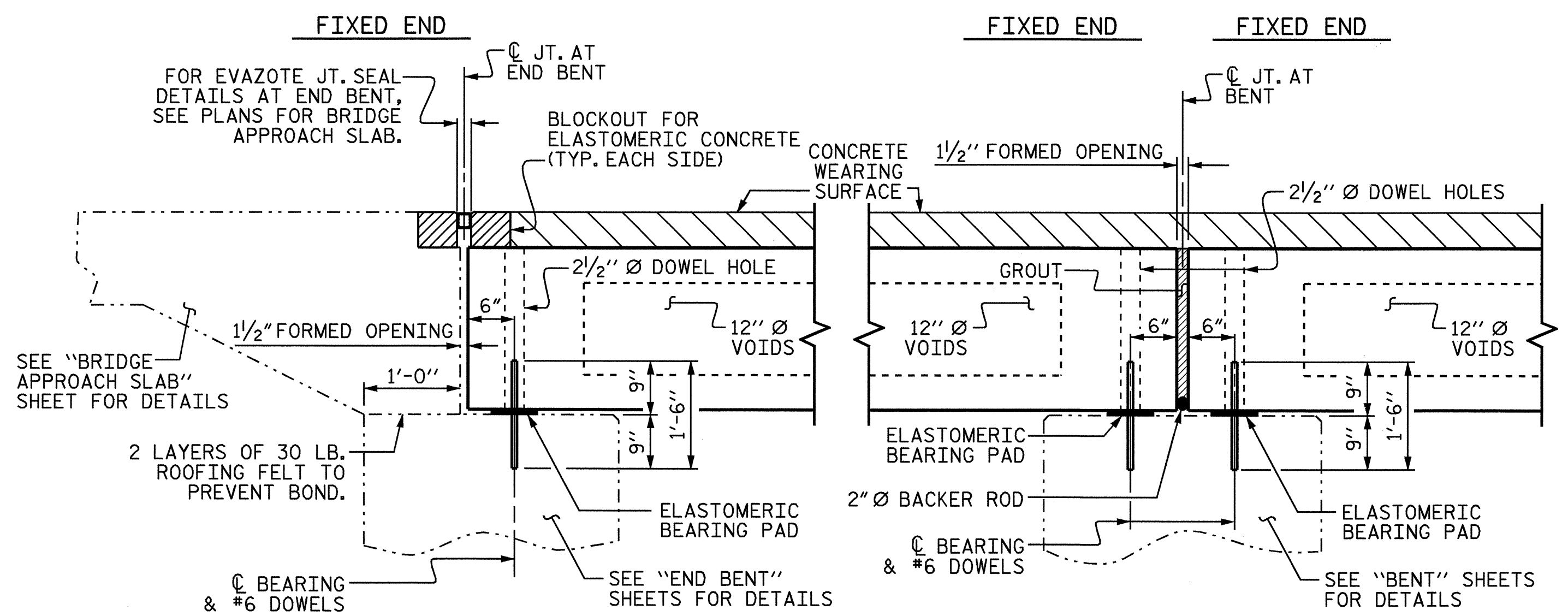
PART PLAN-EXTERIOR SECTION
 NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.

HALF SECTION AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

HALF SECTION THROUGH VOIDS

NOTES: CORED SLAB UNITS 1 THROUGH 6 AND 8 THROUGH 13 ARE SLOPED TO MATCH NORMAL CROWN. THE CENTER UNIT, UNIT 7 IS LEVEL.
 * THE OVERLAY THICKNESS IS BASED ON THE PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

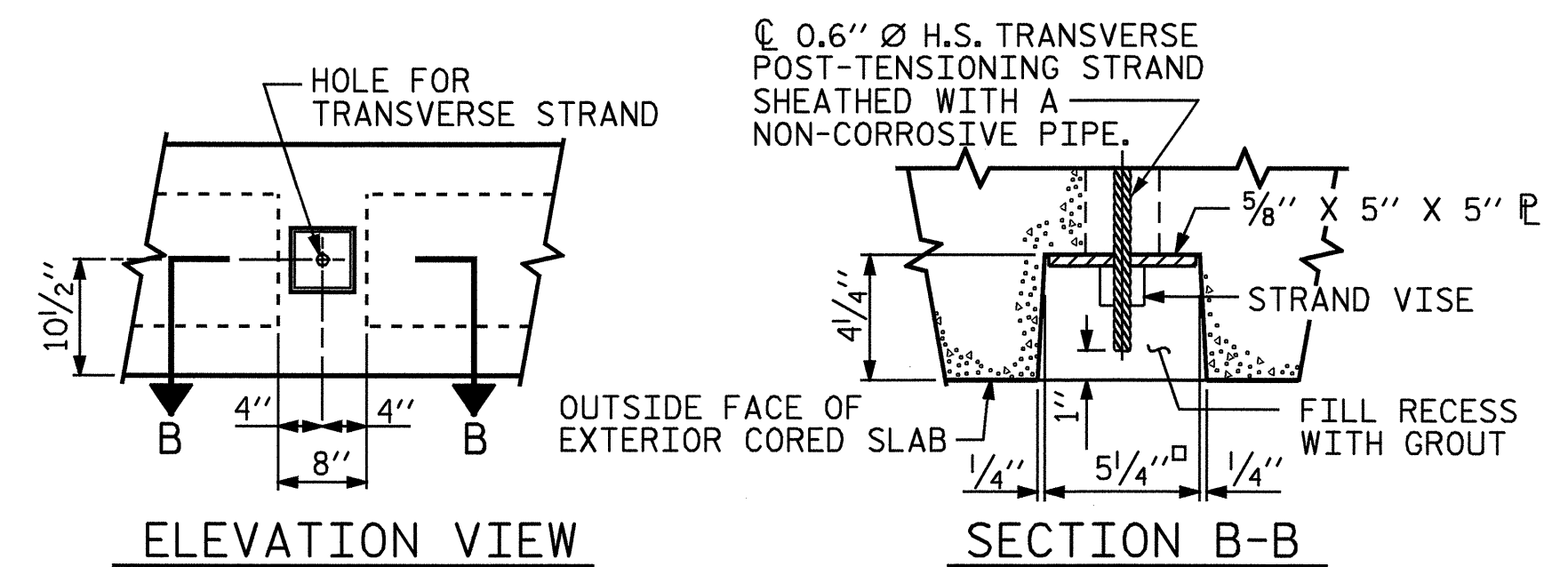


SECTION AT END BENT

SECTION AT BENT

SHEAR KEY DETAIL

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

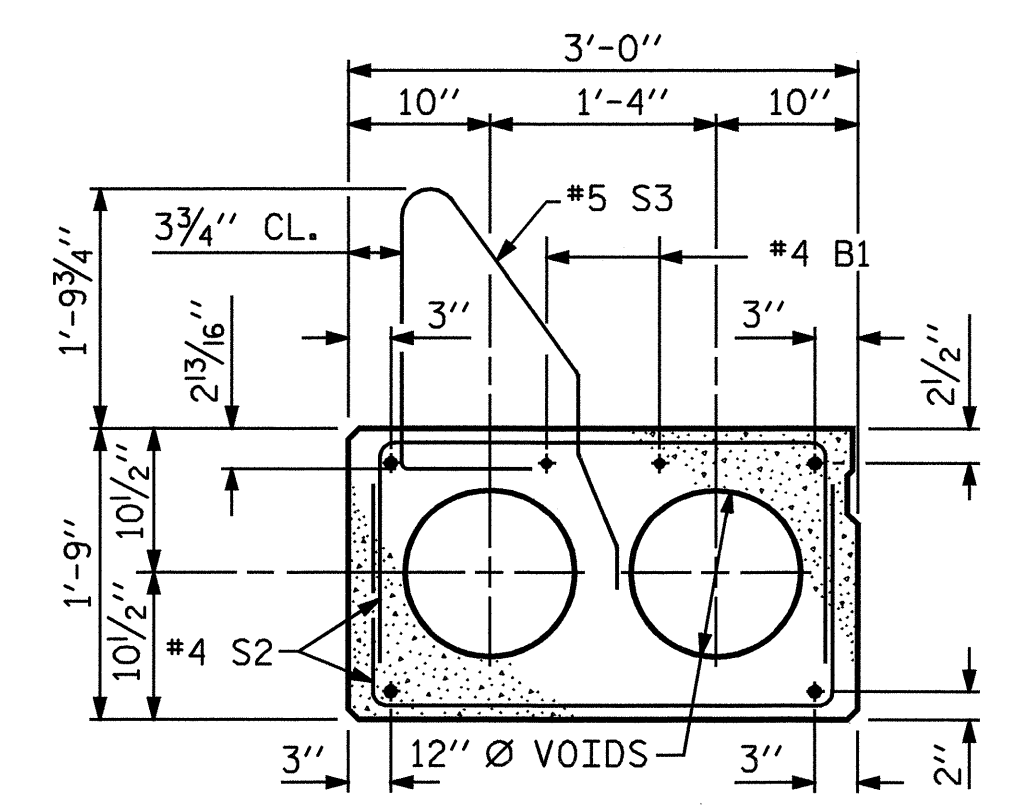


ELEVATION VIEW

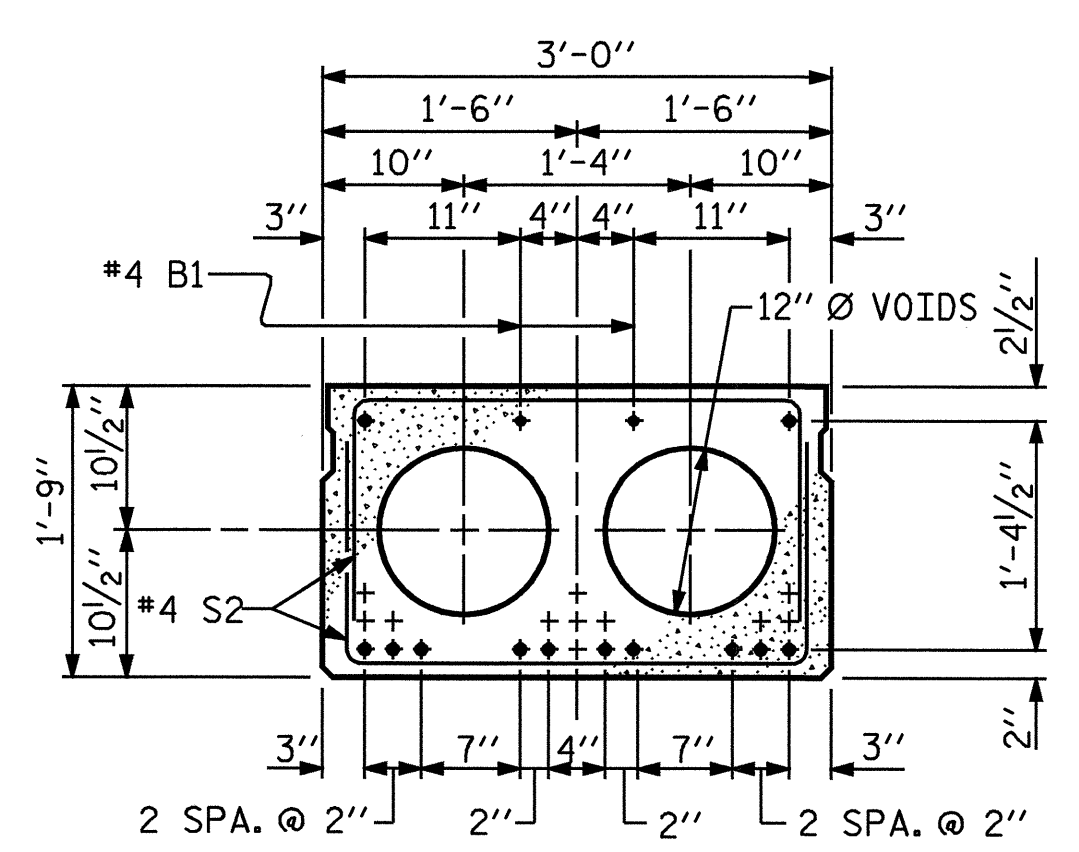
SECTION B-B

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

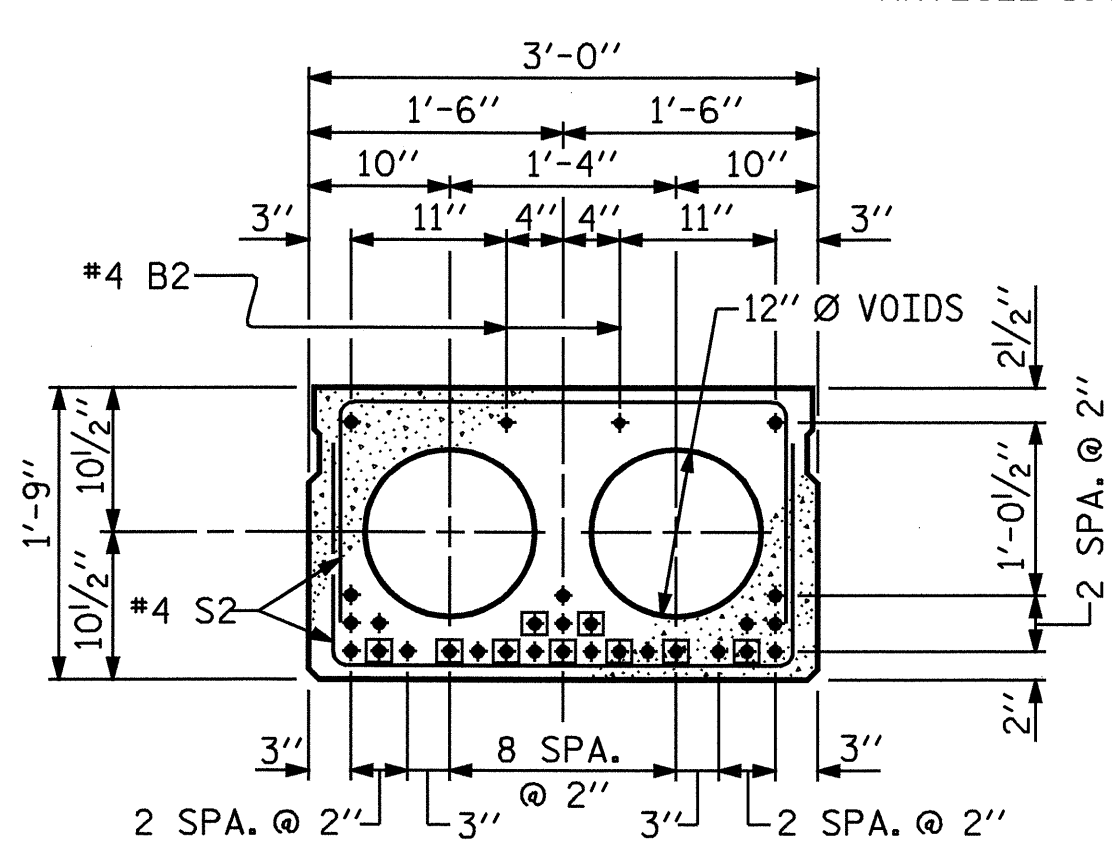
□ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 5'-4" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



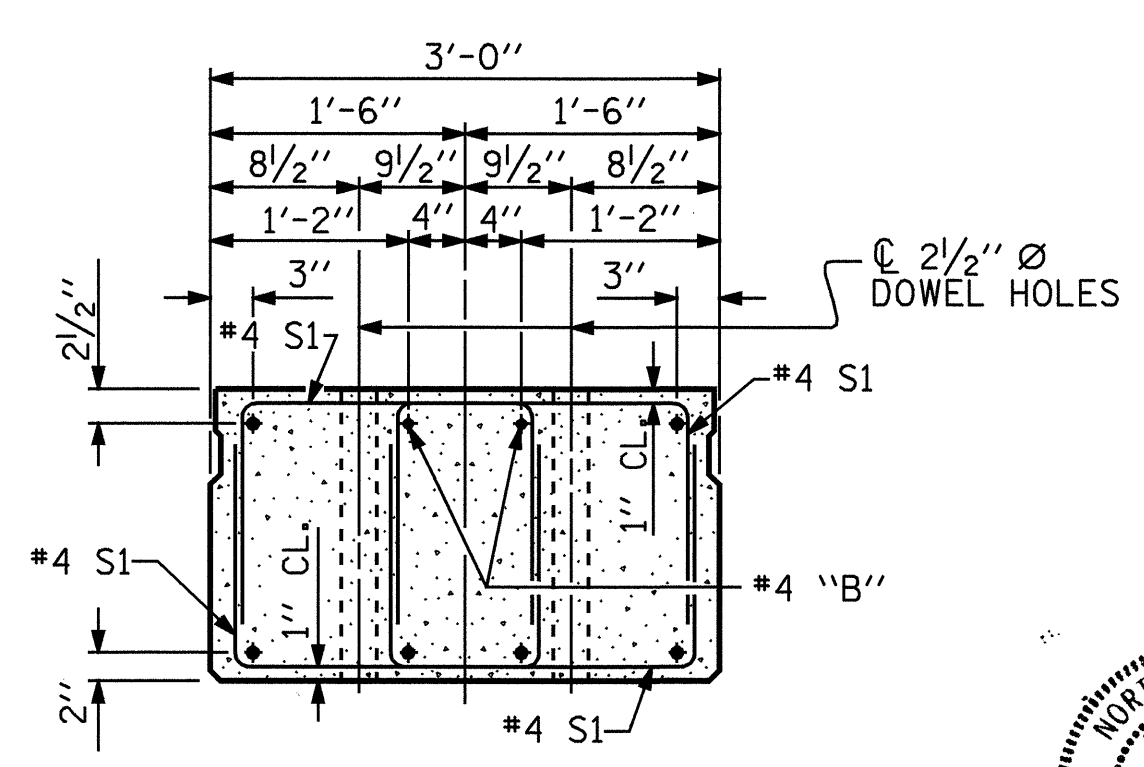
EXTERIOR SLAB SECTION
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (SPANS A & C - 12 STRANDS)



INTERIOR SLAB SECTION (SPAN B - 27 STRANDS)



END ELEVATION

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

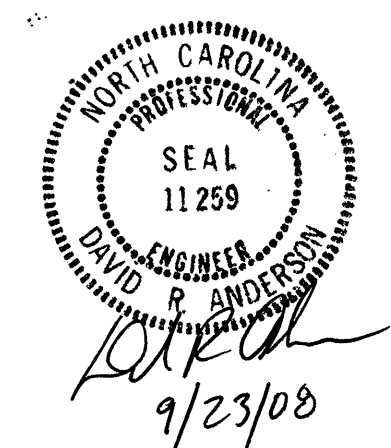
1/2" Ø LOW RELAXATION STRAND LAYOUT

PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 1 OF 6

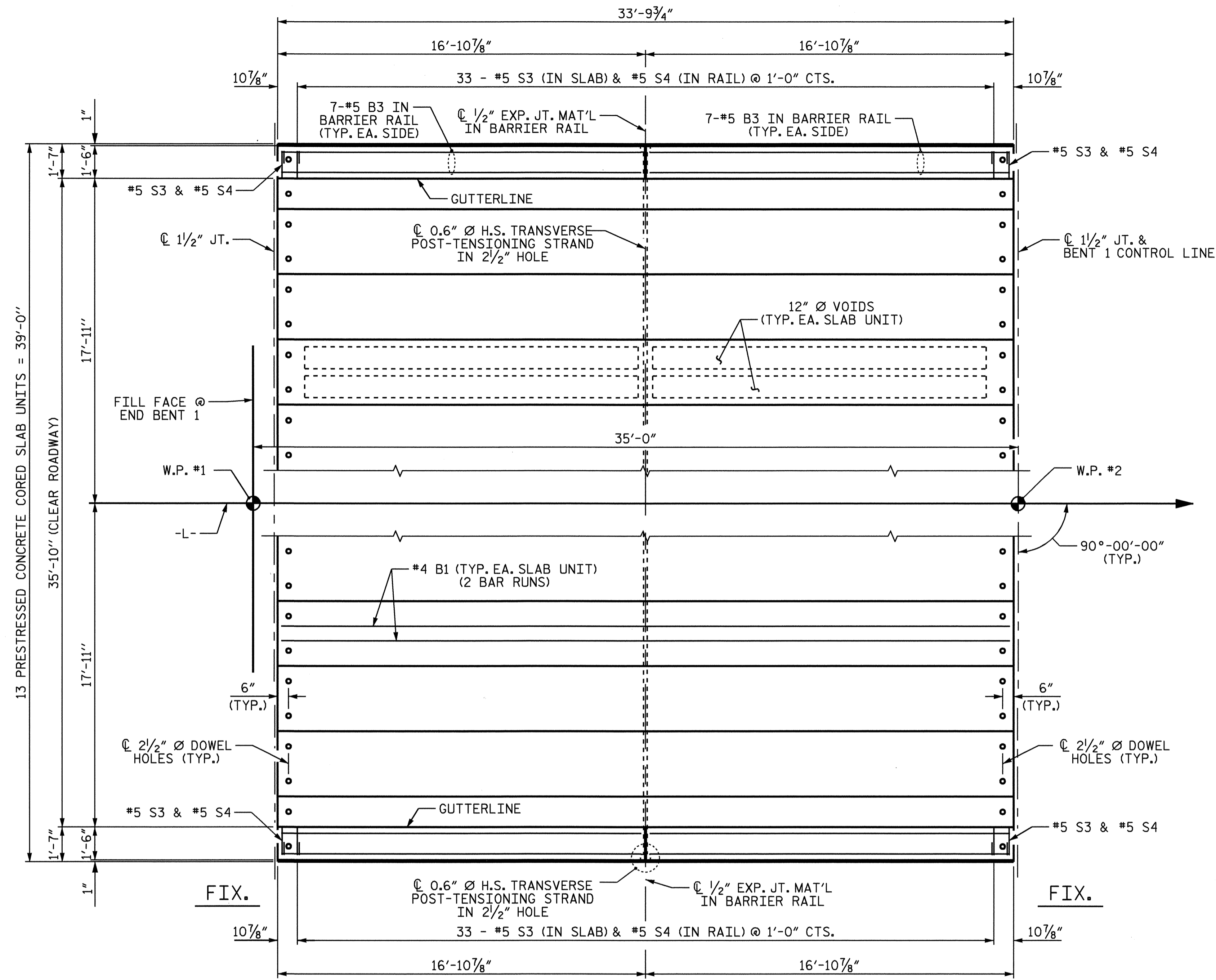
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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



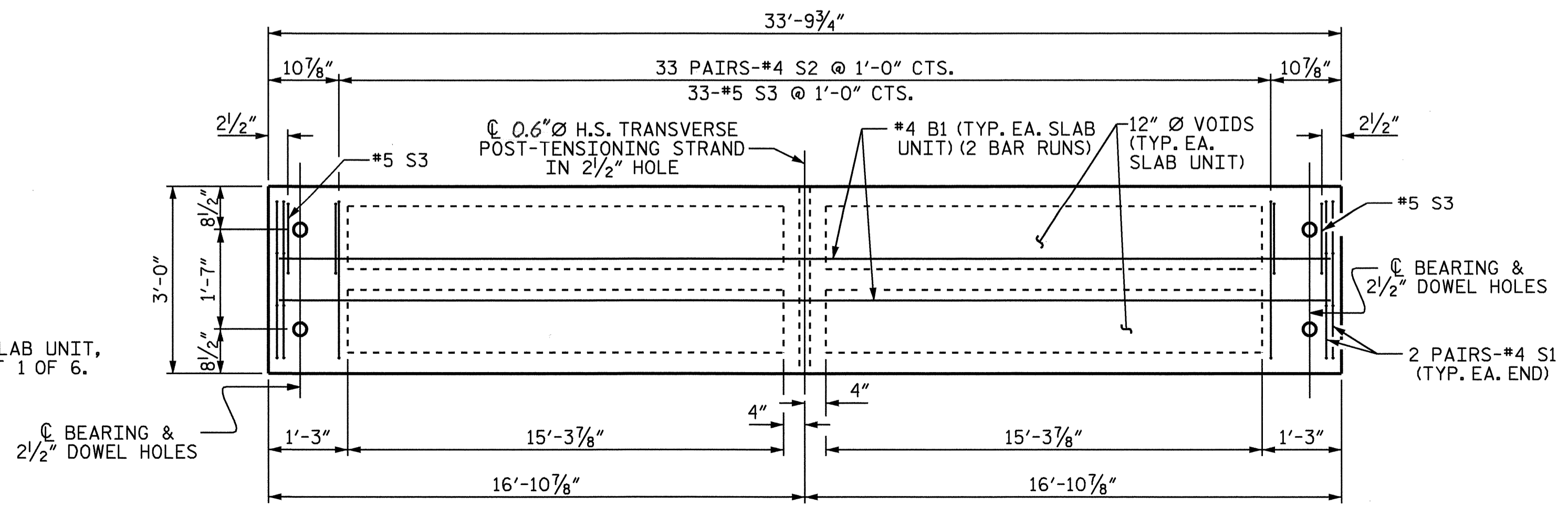
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-4
1			3			TOTAL SHEETS
2			4			20

ASSEMBLED BY : A.S. CALLAWAY	DATE : 2/4/08
CHECKED BY : N.Q. TRAN	DATE : 6/8/08
DRAWN BY : WJH	4/89
CHECKED BY : FCJ	5/89
REV. 10/17/00	RWW/LES
REV. 7/10/01RR	RWW/LES
REV. 5/1/06	TLA/GM



PLAN OF SPAN A

NOTE: S2 & S3 BARS IN INTERIOR & EXTERIOR SLABS MAY BE MOVED SLIGHTLY TO MAINTAIN 2" CLEARANCE TO THE 2 1/2" Ø HOLE.



PLAN OF EXTERIOR SLAB

PLAN FOR INTERIOR SLAB IDENTICAL EXCEPT OMIT S3 BARS.

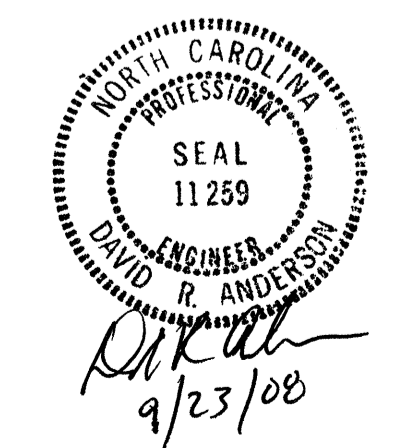
NOTE: FOR REINFORCING STEEL IN END OF CORED SLAB UNIT, SEE "PART PLAN - EXTERIOR SECTION" SHEET 1 OF 6.

PROJECT NO. B-4080
 COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 2 OF 6

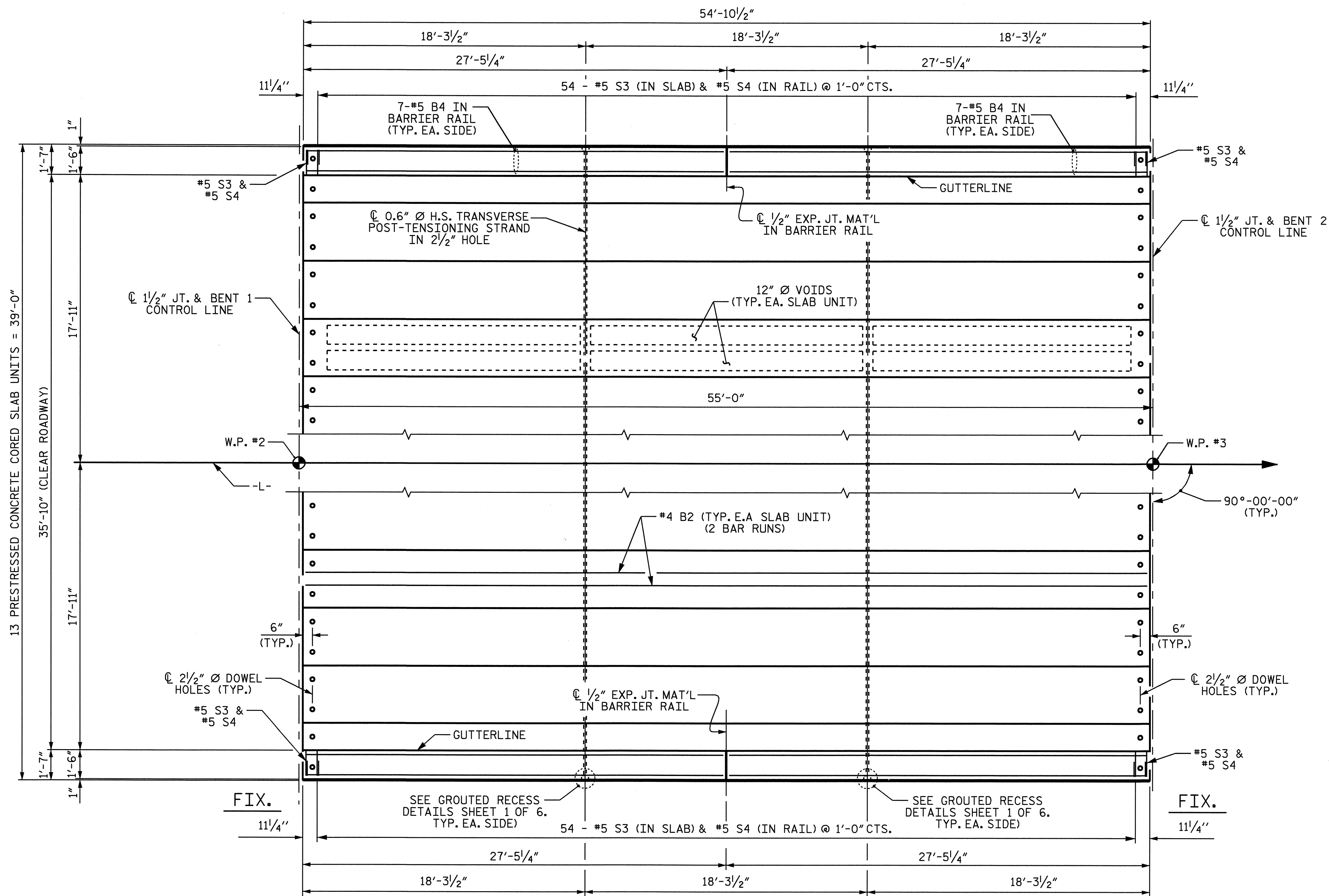
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A

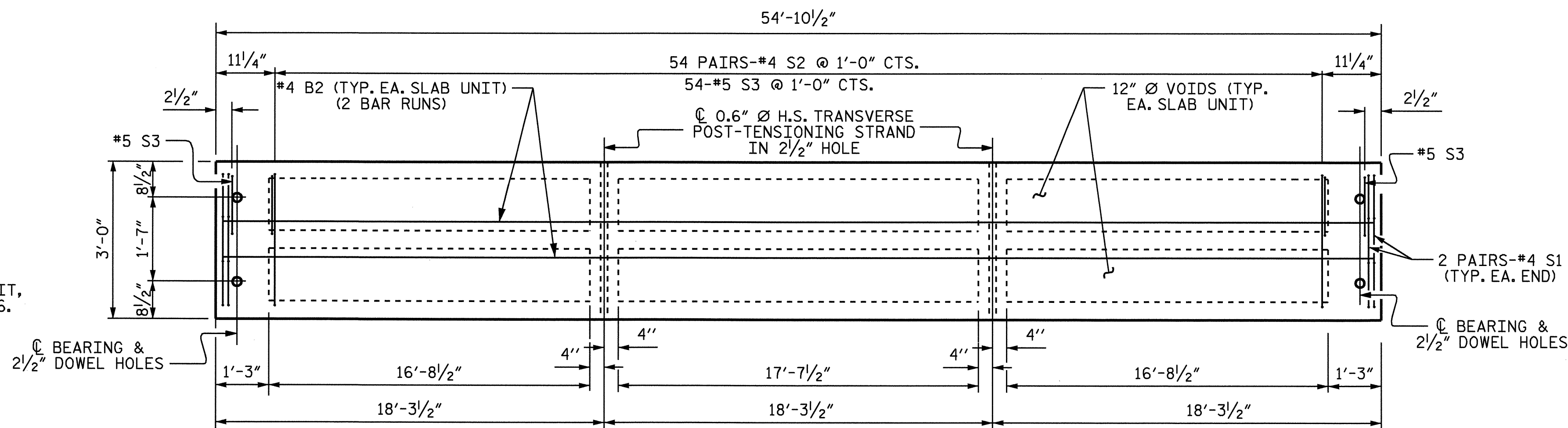


DRAWN BY: A.S. CALLAWAY DATE: 2/4/08
 CHECKED BY: N.Q. TRAN DATE: 6/8/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-5
2			4			20



PLAN OF SPAN B



PLAN OF EXTERIOR SLAB

PLAN FOR INTERIOR SLAB IDENTICAL EXCEPT OMIT S3 BARS.

NOTE: S2 & S3 BARS IN INTERIOR & EXTERIOR SLABS MAY BE MOVED SLIGHTLY TO MAINTAIN 2\"/>

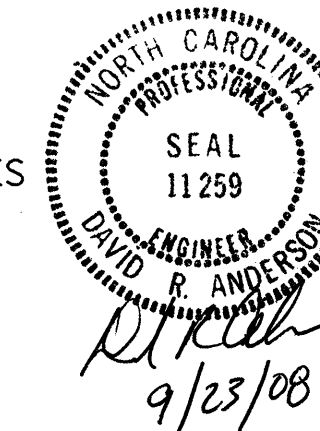
NOTE: FOR REINFORCING STEEL IN END OF CORED SLAB UNIT, SEE "PART PLAN - EXTERIOR SECTION" SHEET 1 OF 6.

PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 3 OF 6

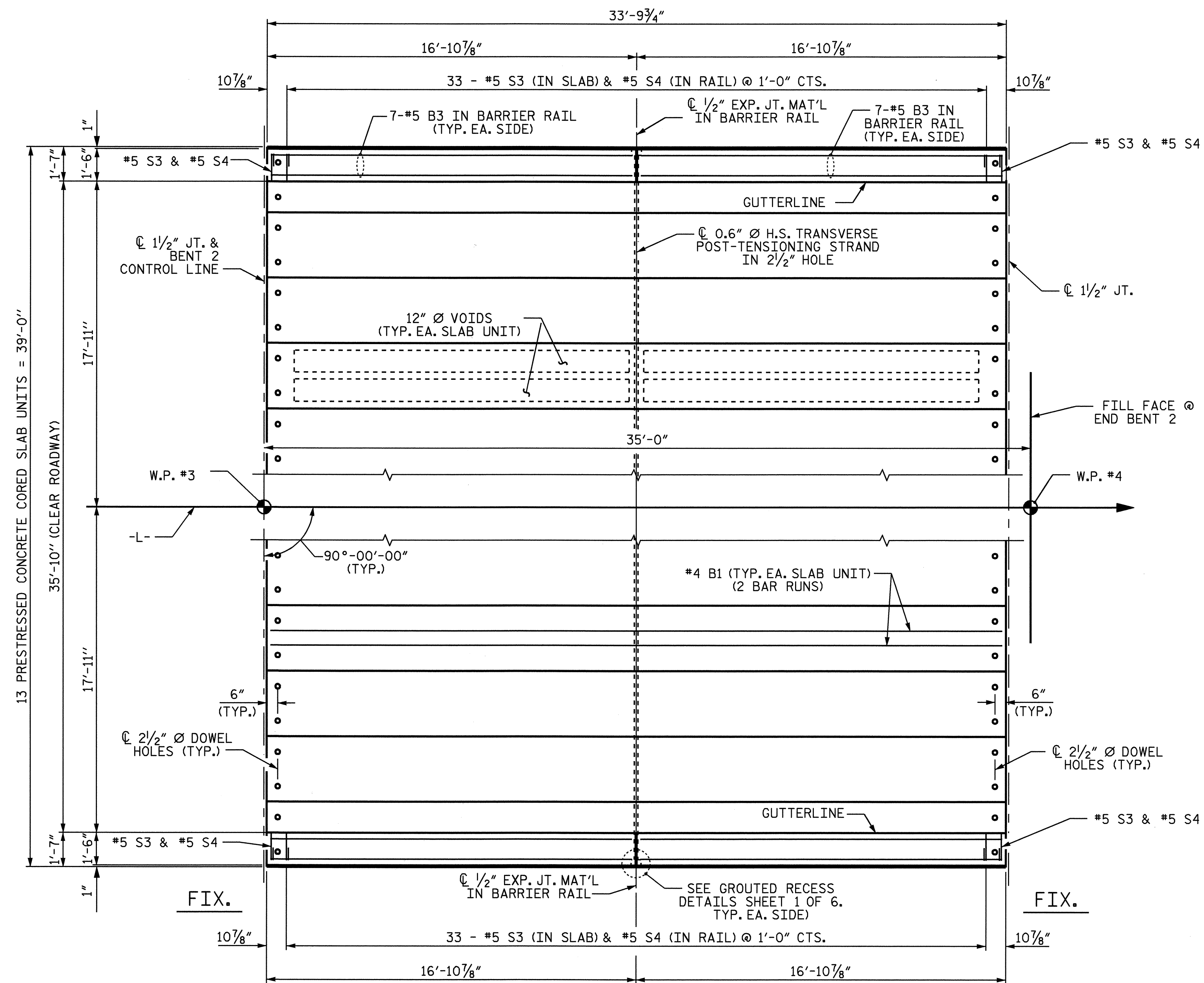
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN B

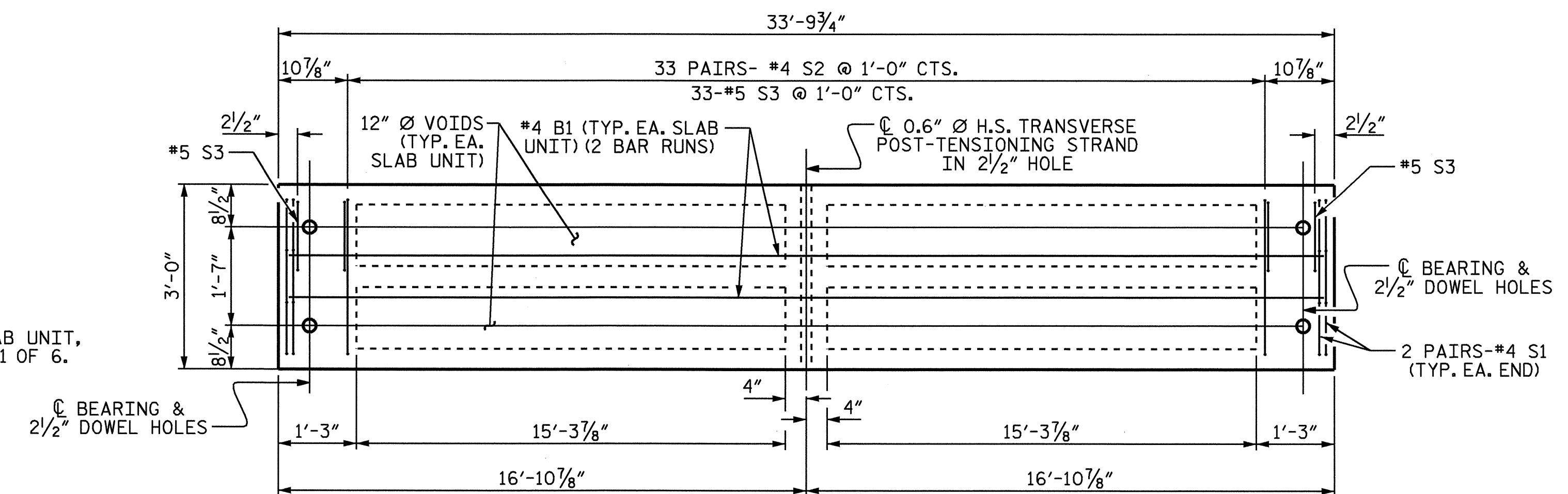


DRAWN BY: A.S. CALLAWAY DATE: 2/4/08
 CHECKED BY: N.Q. TRAN DATE: 6/8/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-6
2			4			TOTAL SHEETS 20



PLAN OF SPAN C



PLAN OF EXTERIOR SLAB

PLAN FOR INTERIOR SLAB IDENTICAL EXCEPT OMIT S3 BARS.

NOTE: FOR REINFORCING STEEL IN END OF CORED SLAB UNIT, SEE "PART PLAN - EXTERIOR SECTION" SHEET 1 OF 6.

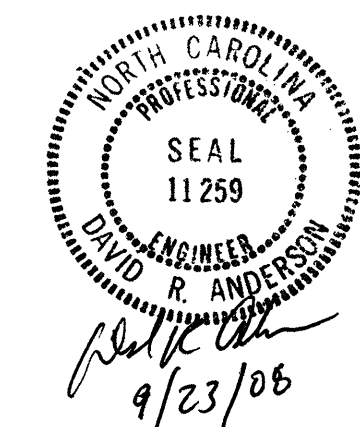
NOTE: S2 & S3 BARS IN INTERIOR & EXTERIOR SLABS MAY BE MOVED SLIGHTLY TO MAINTAIN 2" CLEARANCE TO THE 2 1/2" Ø HOLE.

PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN C



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-7
2			4			20

DRAWN BY: A.S. CALLAWAY DATE: 2/4/08
 CHECKED BY: N.Q. TRAN DATE: 6/8/08

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 1/8" 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 1/8" 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.)

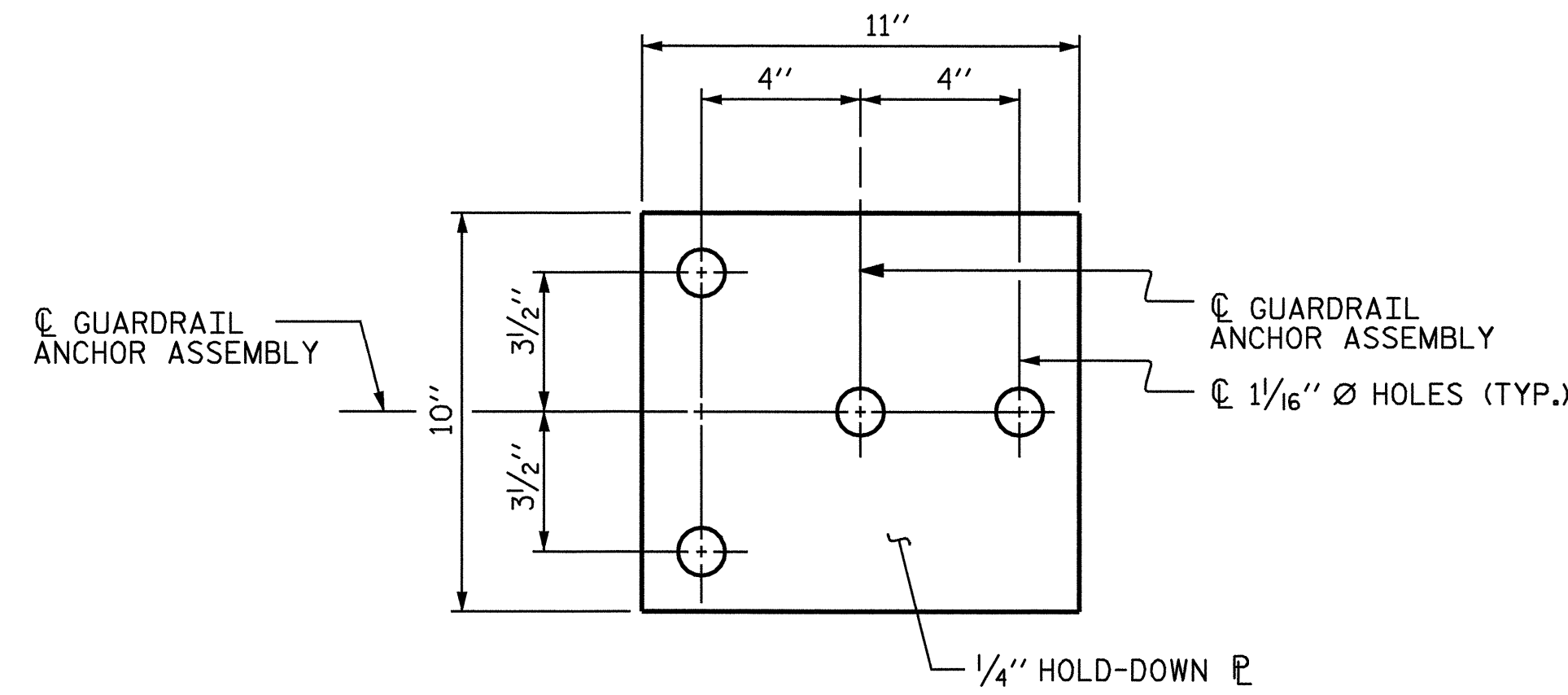
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

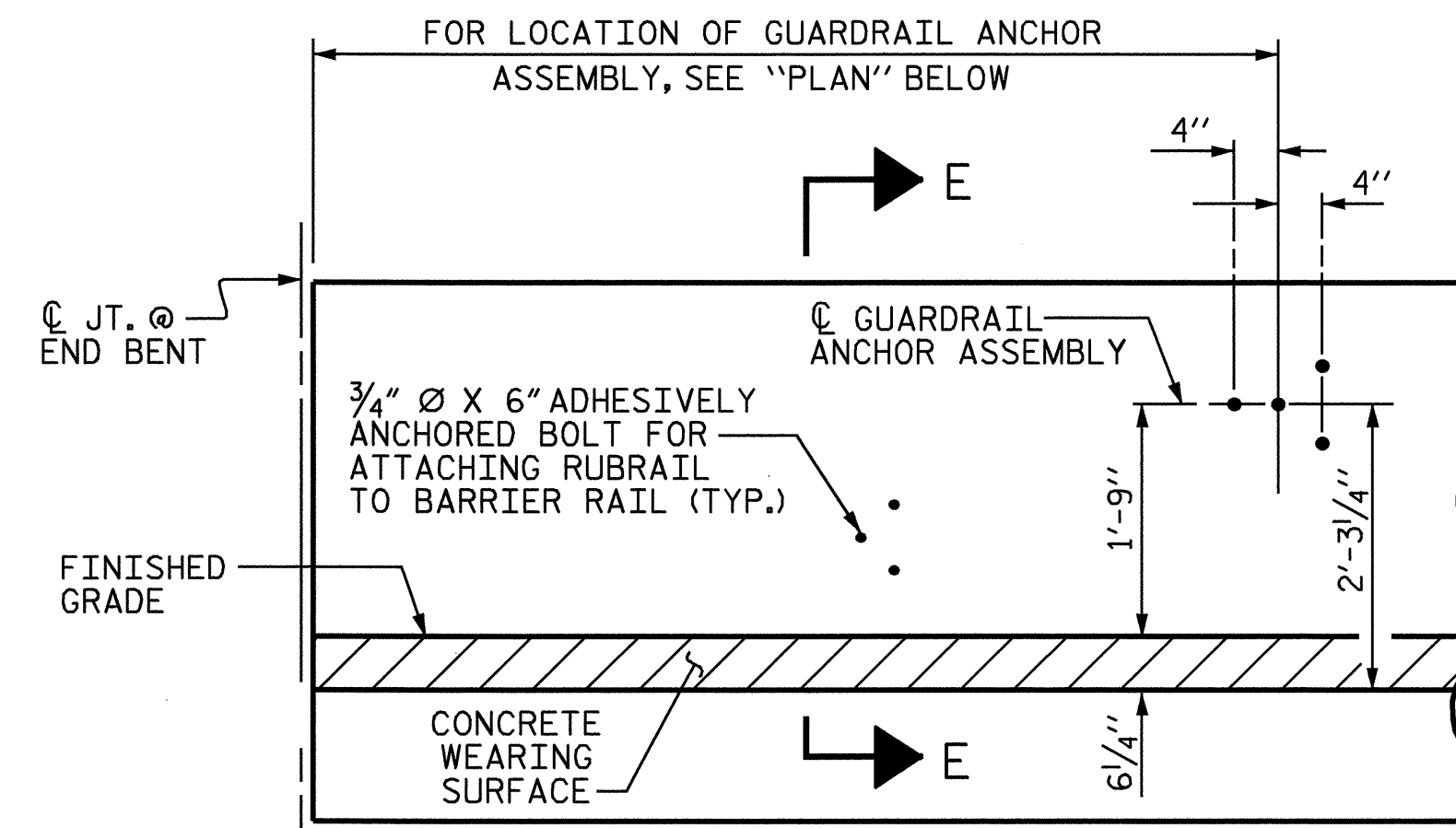
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1/4" 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.

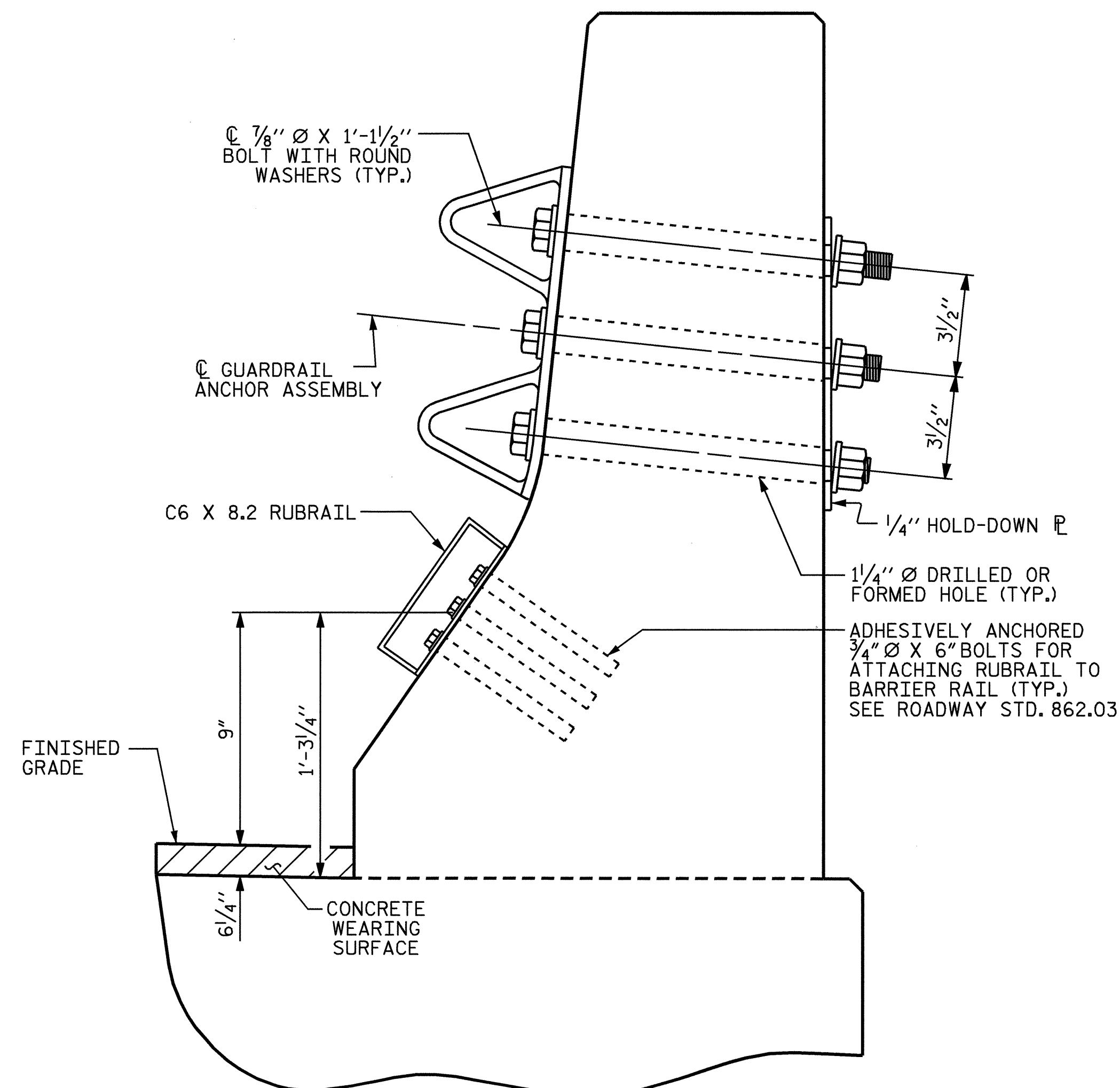


PLAN



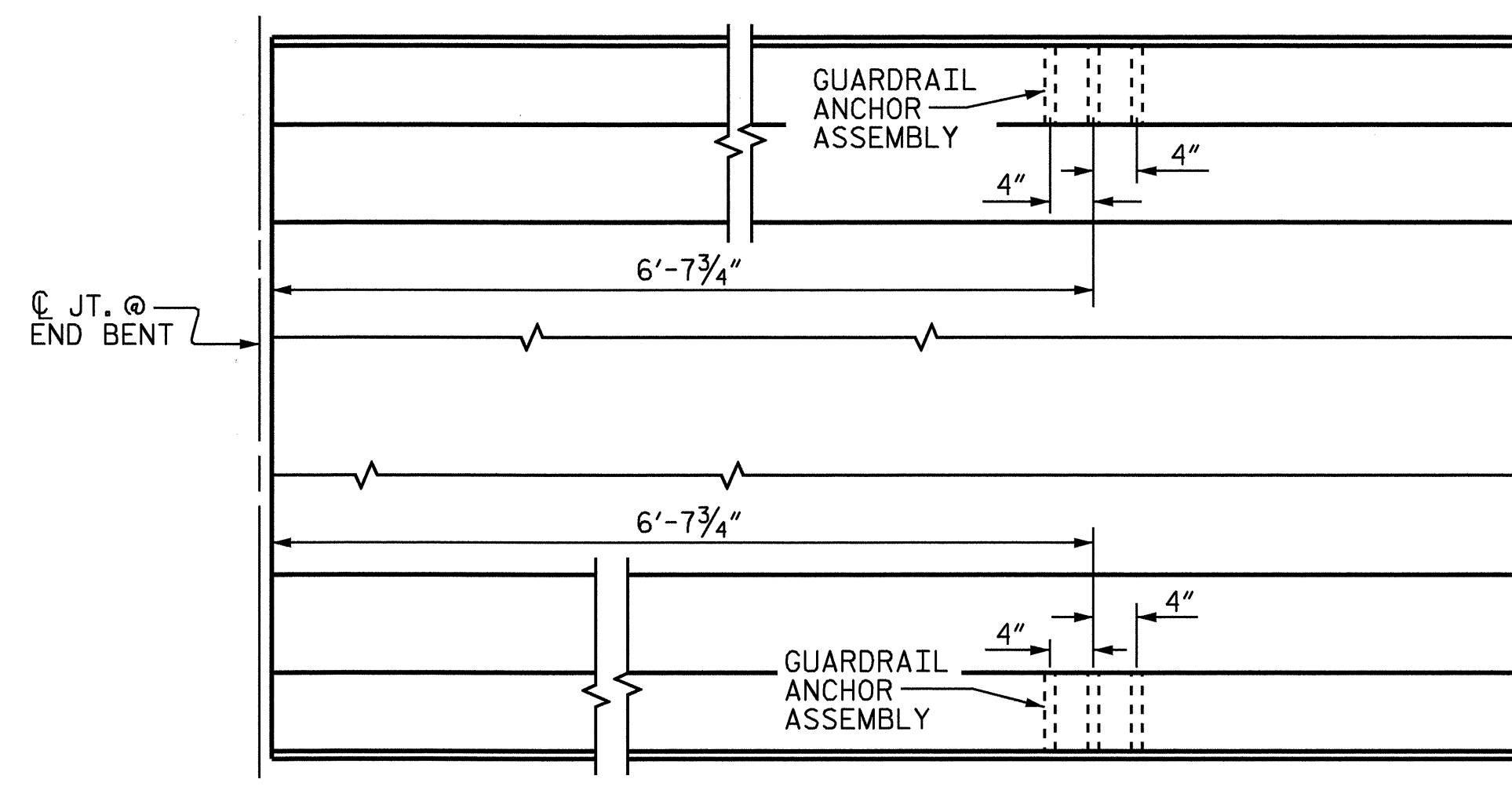
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

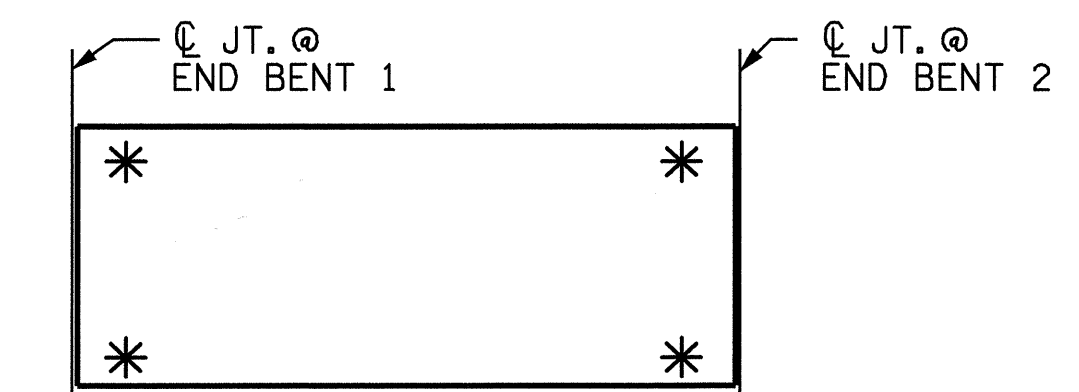
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

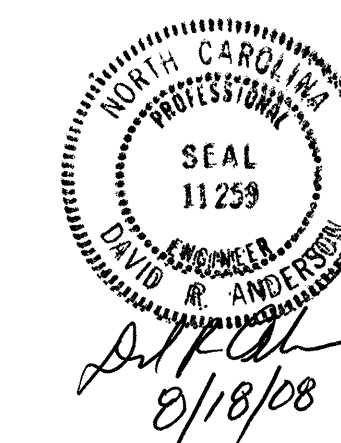


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 5 OF 6



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

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-8	
1			3			TOTAL SHEETS	
2			4			20	

STD. NO. GRA2

ASSEMBLED BY : A.S. CALLAWAY DATE : 2/4/08
 CHECKED BY : N.Q. TRAN DATE : 6/8/08
 DRAWN BY : TLA 5/06
 CHECKED BY : GM 5/06

ADDED 5/1/06R KMM/GM
 18-JUL-2008 12:22
 J:\Structures\callaway\Microstation\B4080.sd.osrev_01.dgn
 danderson

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI (SPANS A, C) 4400 PSI (SPAN B).

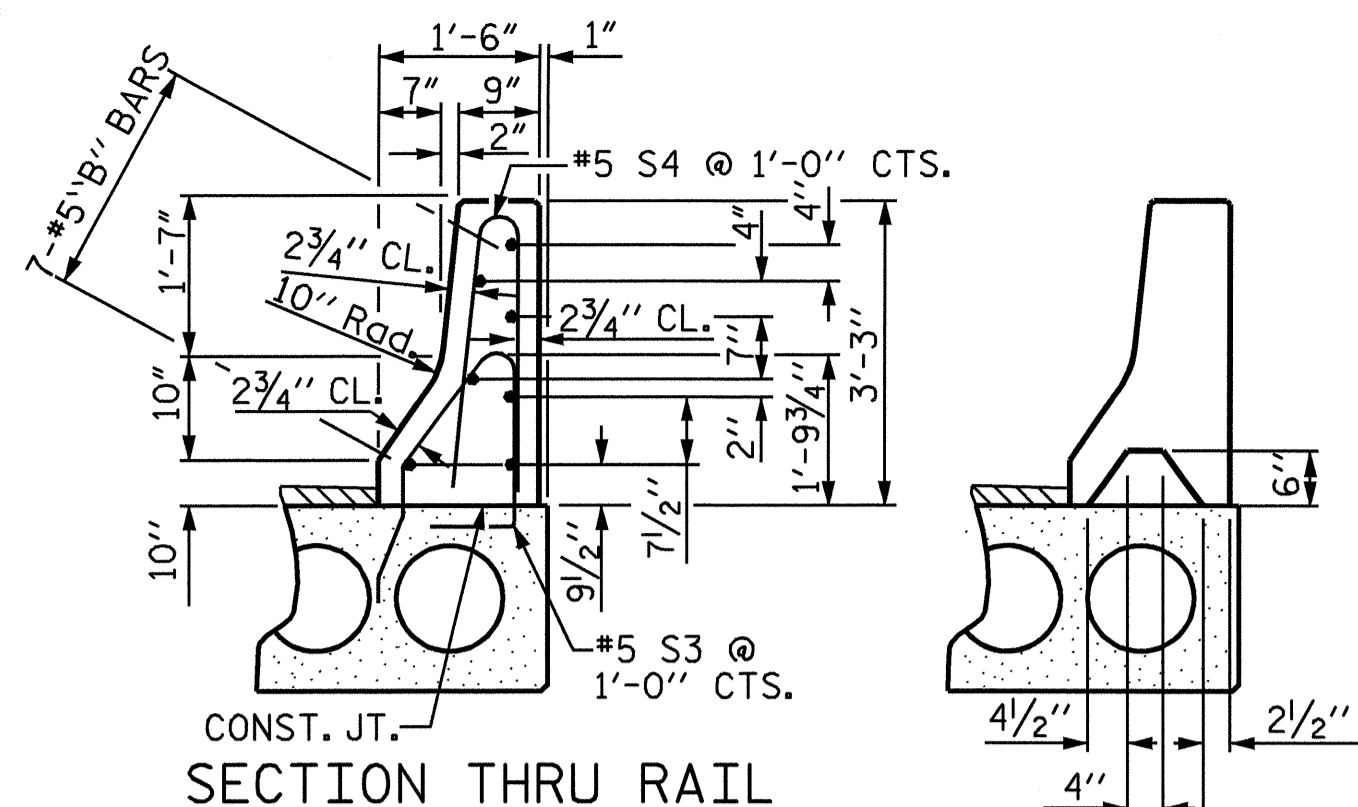
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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.

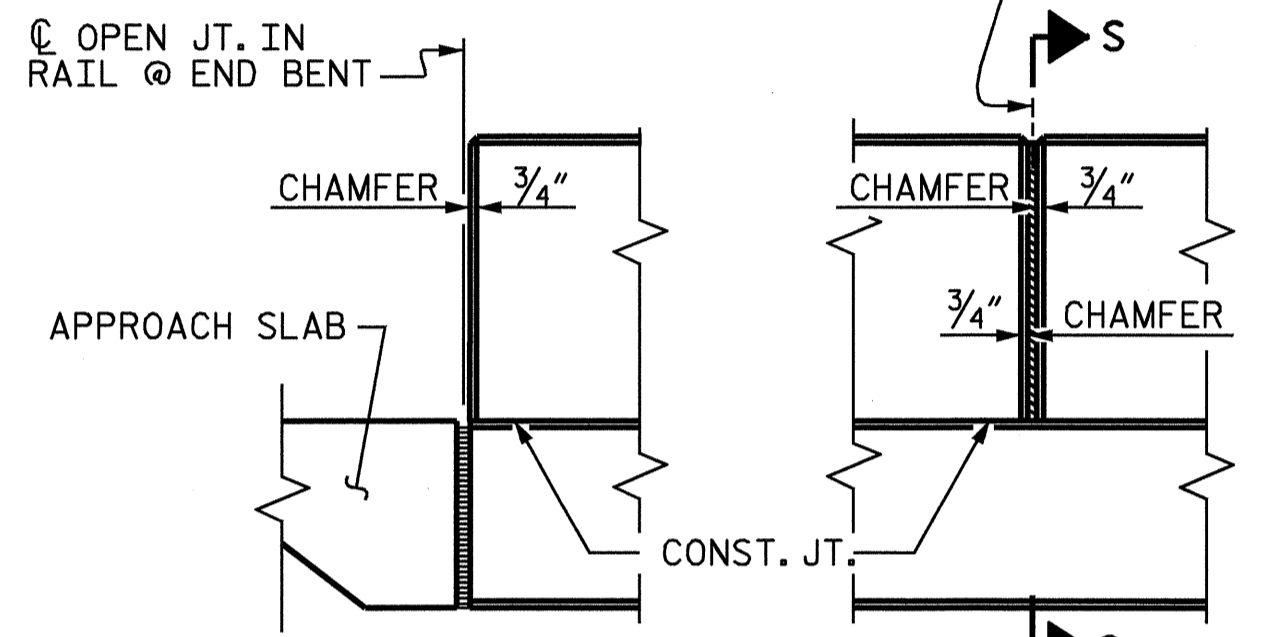
PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE, FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.



SECTION S-S

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FROM IS USED.)

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



ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	SPAN A	SPAN B	SPAN C	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
* B3	28		28	56	#5	STR	16'-6"	964
* B4		28		28	#5	STR	27'-1"	791
* S4	70	112	70	252	#5	2	6'-4"	1665
* EPOXY COATED REINFORCING STEEL							LBS.	3,420
CLASS AA CONCRETE							CU.YDS.	32.5
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL							LIN. FT.	245.0

GROOVING BRIDGE FLOORS

APPROACH SLABS	1,556.8	Sq.Ft.
BRIDGE DECK	3,989.2	Sq.Ft.
TOTAL	5,546.0	Sq.Ft.

GRADE 270 STRANDS

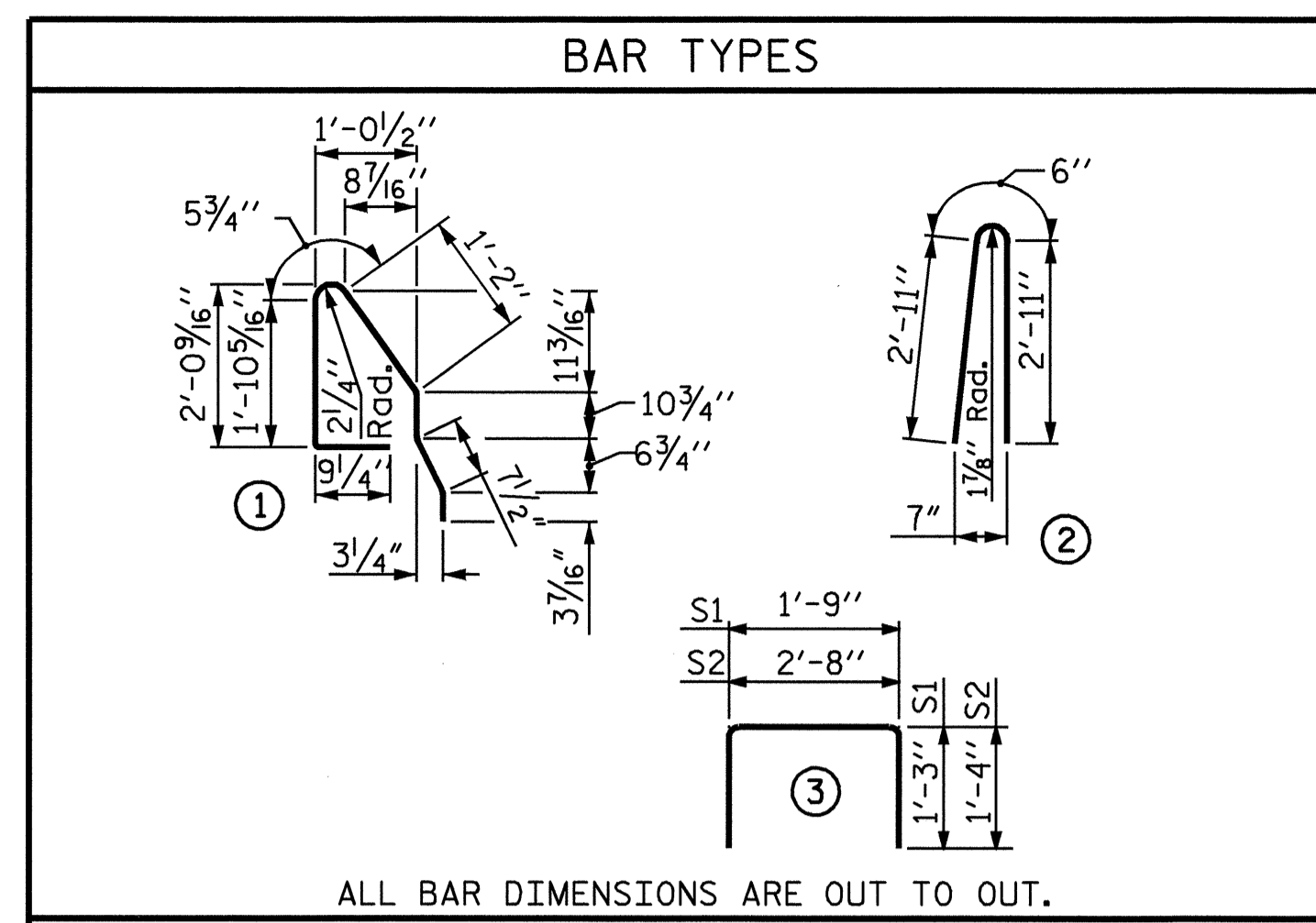
	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

SPLICE LENGTH CHART

BAR SIZE	EPOXY COATED
#3	1'-3"
#4	1'-9"

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*R1	488	#3	STR	18'-6"	3386	
*R2	360	#3	STR	25'-4"	3420	
*R3	142	#4	STR	20'-0"	1897	
* EPOXY COATED REINFORCING STEEL					LBS.	8,703
CONCRETE WEARING SURFACE					SQ. FT.	4,443.0



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE CORED SLAB SECTION (SPAN A OR C)

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	17'-8"	47	17'-8"	47
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	66	#4	3	5'-4"	235	5'-4"	235
* S3	35	#5	1	6'-1"	222		
REINFORCING STEEL				LBS.	305	LBS.	305
* EPOXY COATED							
REINFORCING STEEL				LBS.	222		
5000 P.S.I. CONCRETE				CU. YDS.	4.7	CU. YDS.	4.7
1/2" Ø L.R. STRANDS				No.	12	No.	12

BILL OF MATERIAL FOR ONE CORED SLAB SECTION (SPAN B)

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	28'-2"	75	28'-2"	75
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	108	#4	3	5'-4"	385	5'-4"	385
* S3	56	#5	1	6'-1"	355		
REINFORCING STEEL				LBS.	483	LBS.	483
* EPOXY COATED							
REINFORCING STEEL				LBS.	355		
5500 P.S.I. CONCRETE				CU. YDS.	7.6	CU. YDS.	7.6
1/2" Ø L.R. STRANDS				No.	27	No.	27

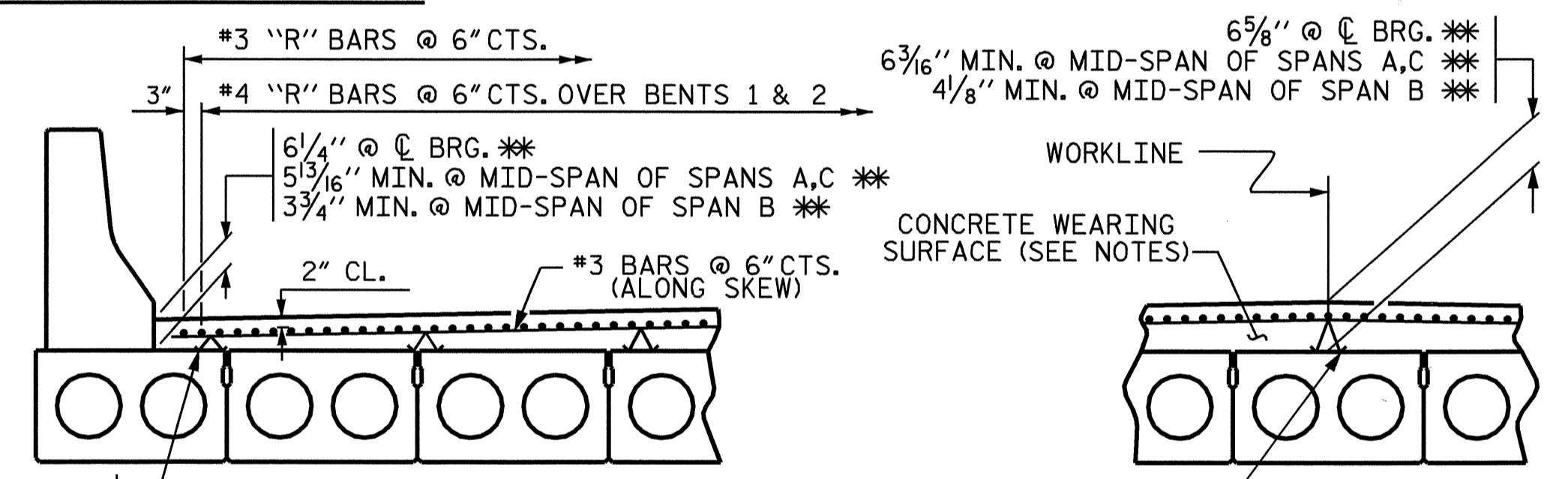
DEAD LOAD DEFLECTION AND CAMBER

	SPAN A OR C		SPAN B	
	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/2"		3"	
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/16"		1/2"	
FINAL CAMBER	7/16"		2 1/2"	

** INCLUDES FUTURE WEARING SURFACE

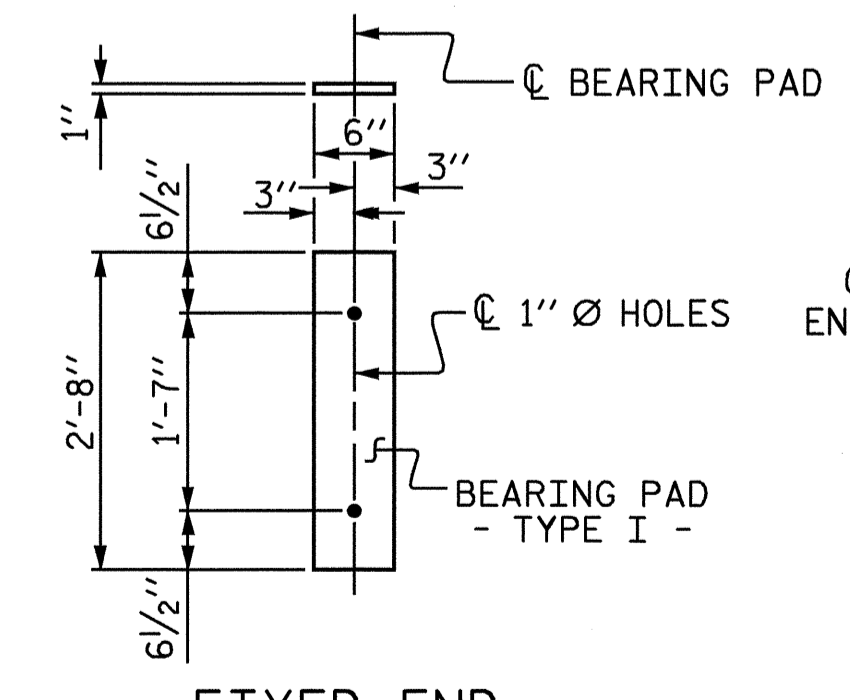
CORED SLABS REQUIRED

SPANS A & C	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	4	33'-9 3/4"	135'-3"
INTERIOR C.S.	22	33'-9 3/4"	743'-10 1/2"
SPAN B			
EXTERIOR C.S.	2	54'-10 1/2"	109'-9"
INTERIOR C.S.	11	54'-10 1/2"	603'-7 1/2"
TOTAL	39		1592'-6"

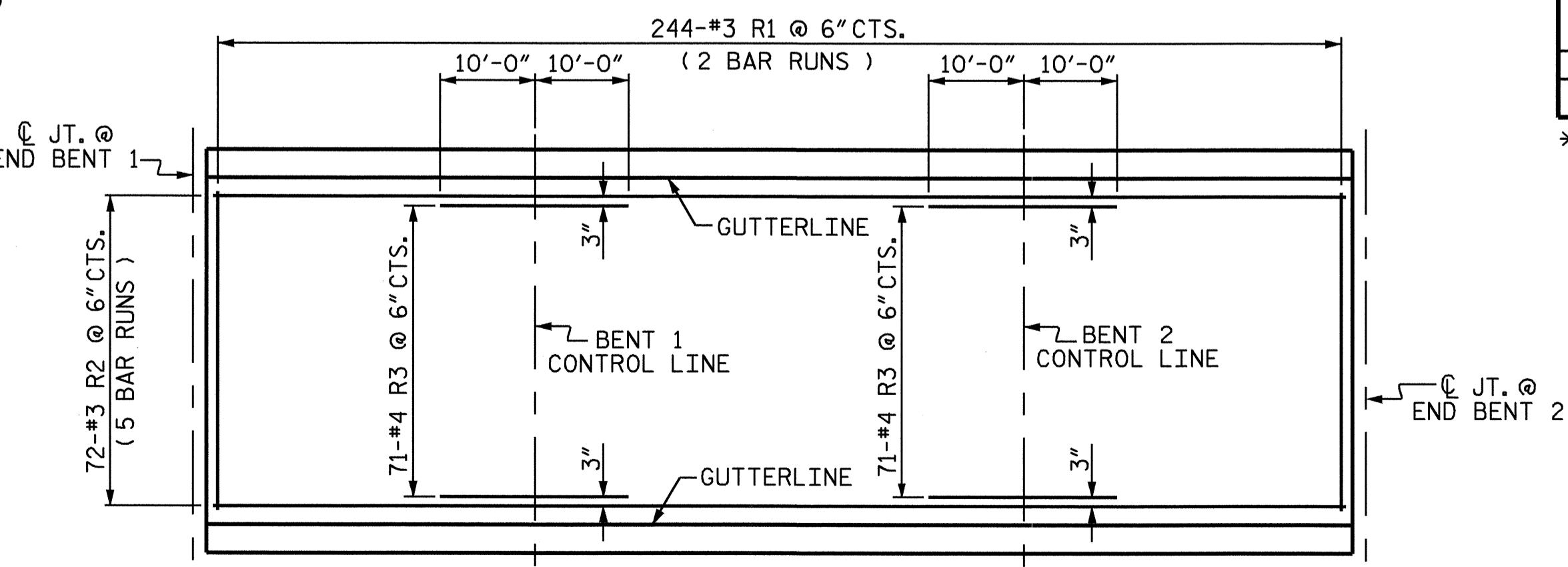


REINFORCING FOR CONCRETE WEARING SURFACE

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

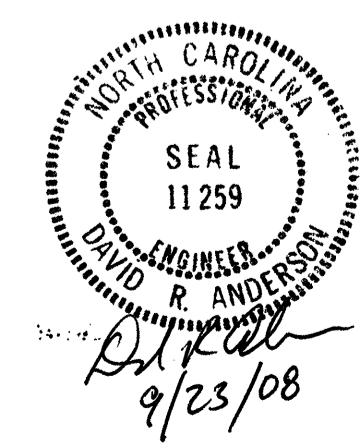


FIXED END (TYPE I - 78 REQ'D)
ELASTOMERIC BEARING DETAIL



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

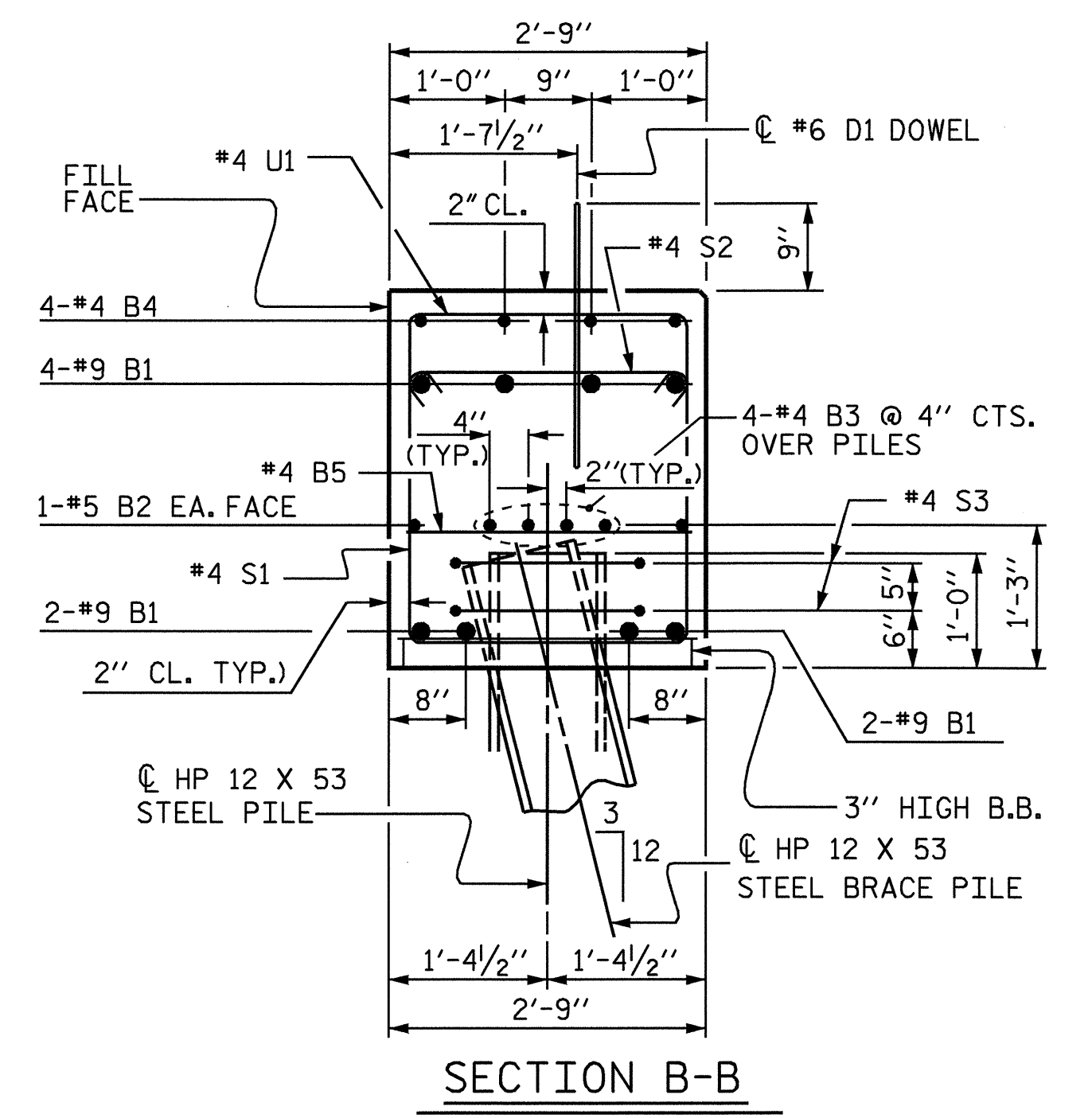
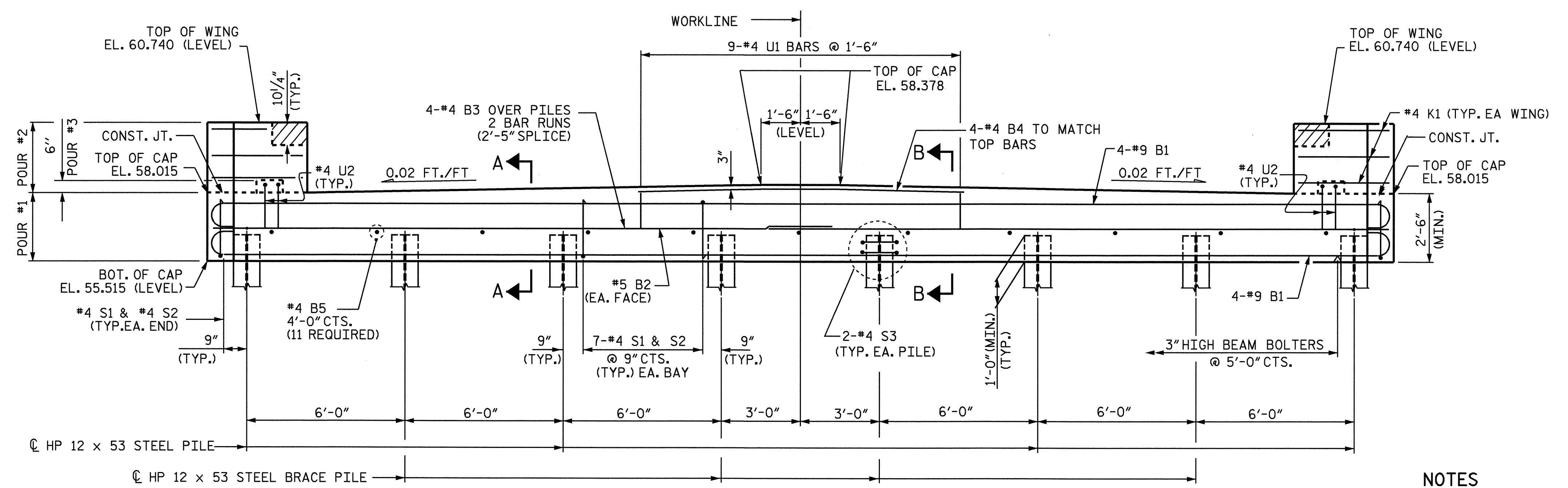
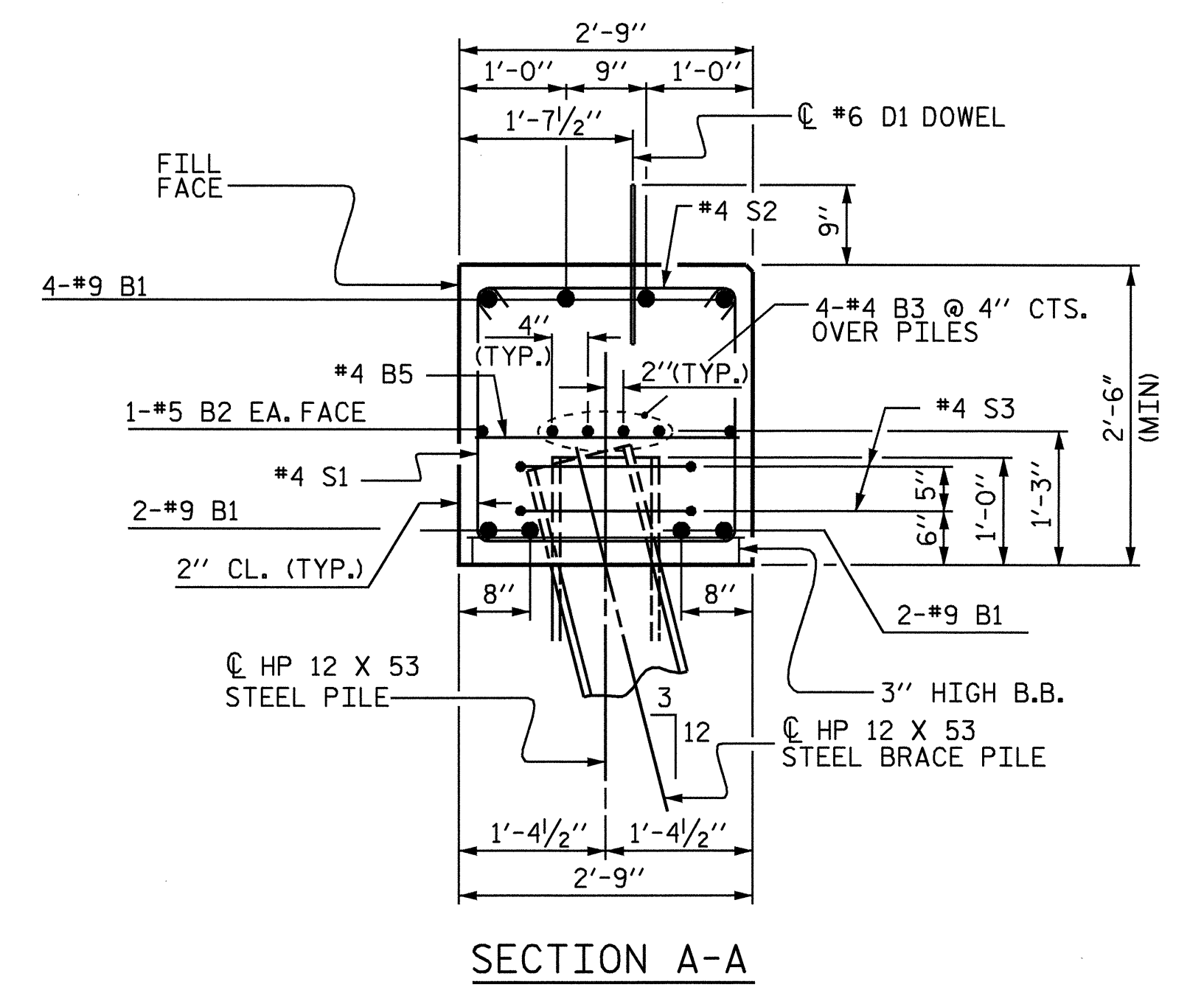
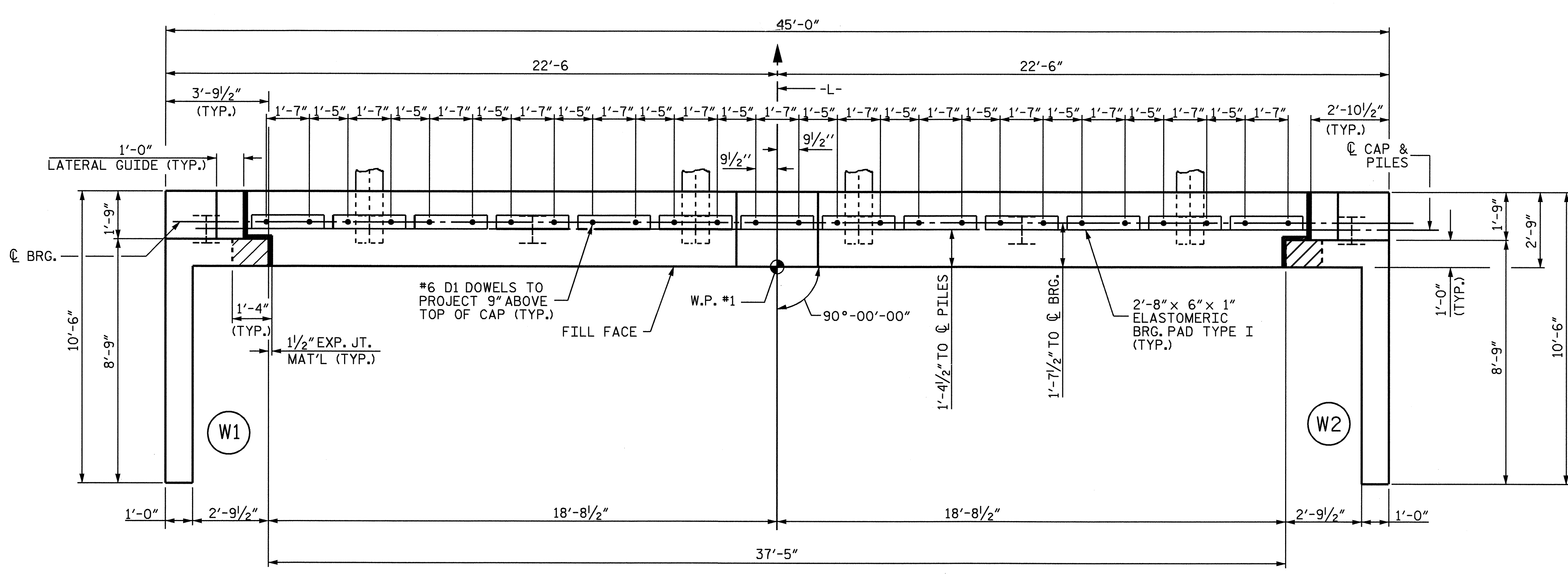
ASSEMBLED BY: A.S. CALLAWAY DATE: 2/4/08
 CHECKED BY: N.Q. TRAN DATE: 6/8/08
 REV. 7/10/01 RWW/LES
 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06 TLA/GM
 DRAWN BY: WJH 4/89
 CHECKED BY: FCJ 5/89



PROJECT NO. B-4080
 COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 6 OF 6

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-9
1			3			TOTAL SHEETS
2			4			20



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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT IN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

PROJECT NO. B-4080
 COLUMBUS COUNTY
 STATION: 15+27.50 -L-

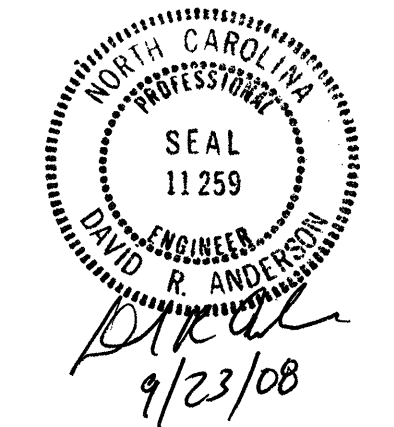
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

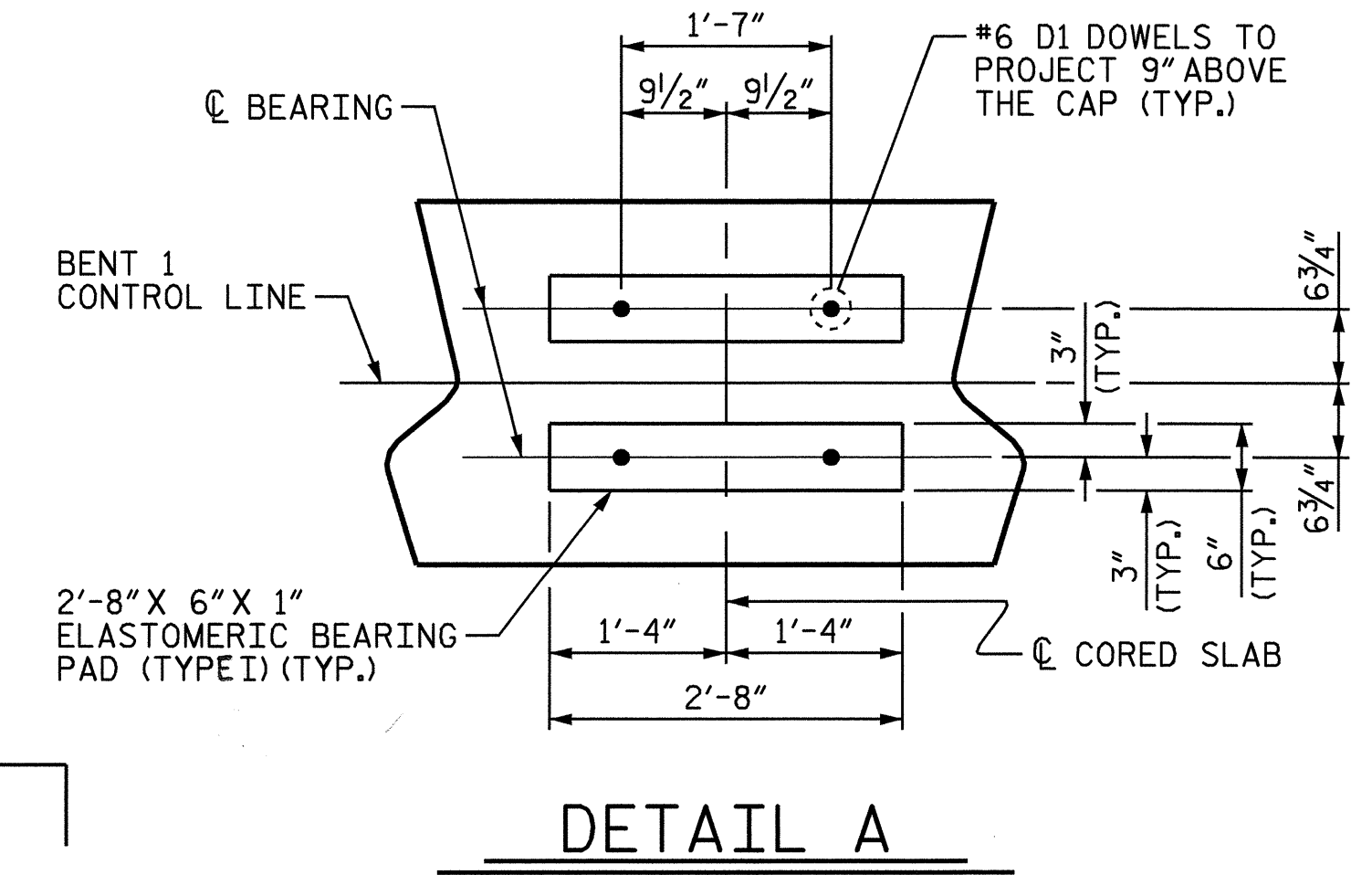
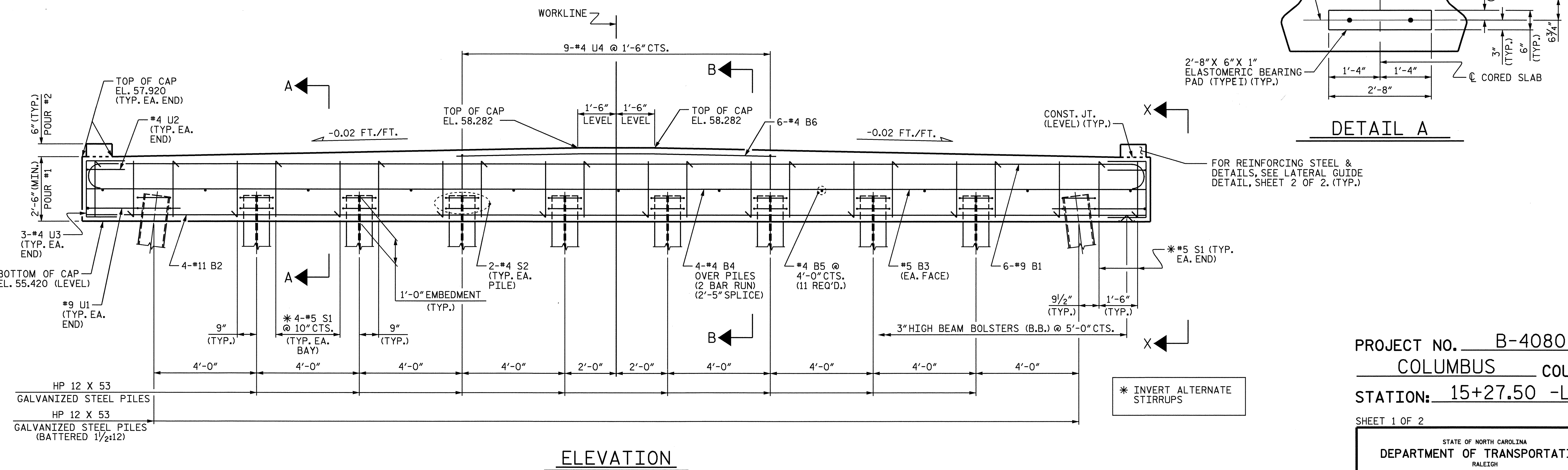
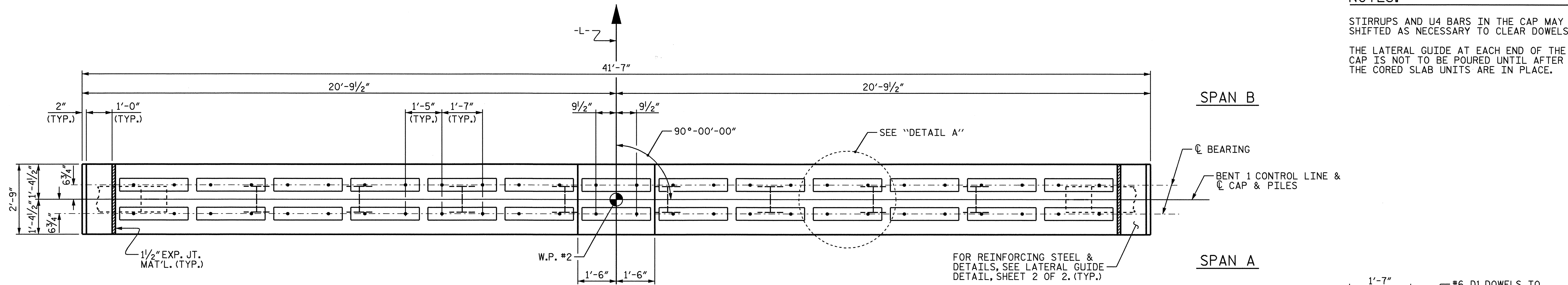
SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS 20	
2			4				

DRAWN BY: N. Q. TRAN DATE: 7/26/07
 CHECKED BY: E. C. LOCKLEAR DATE: 10-11-07



NOTES:
 STIRRUPS AND U4 BARS IN THE 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.



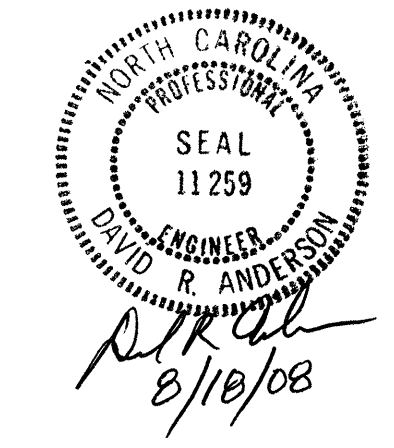
PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 1 OF 2

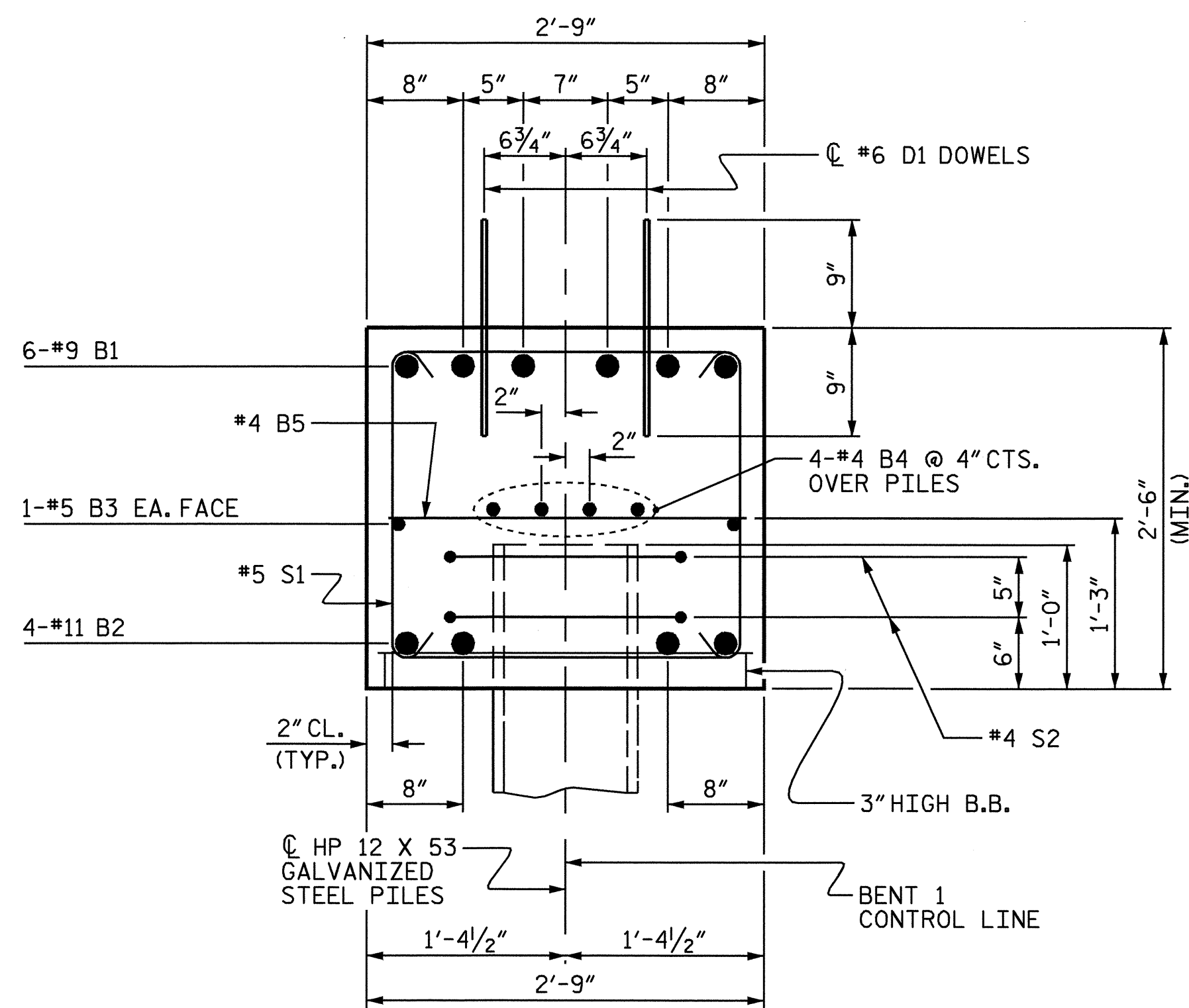
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

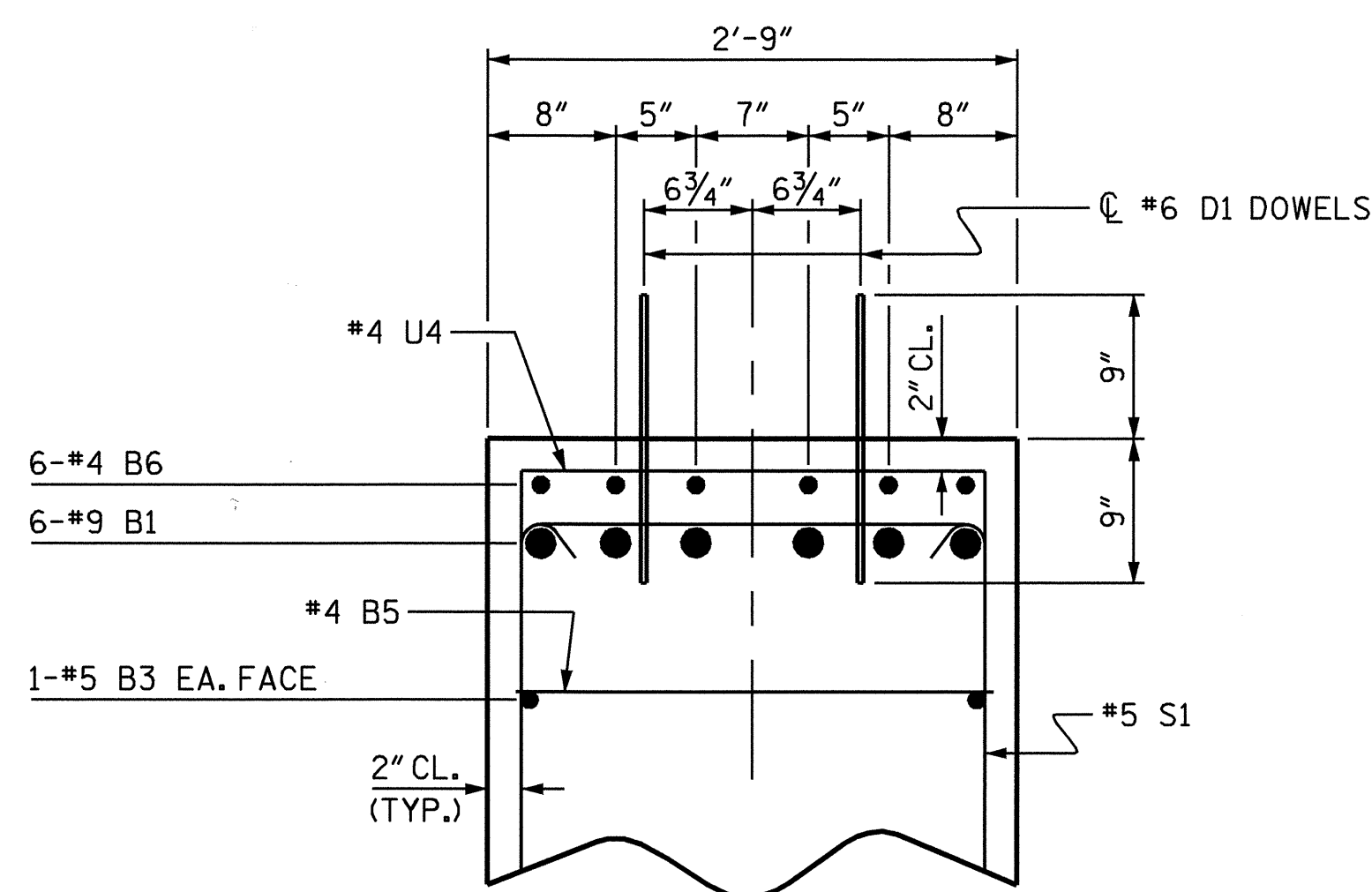
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			3-12
2			4			20



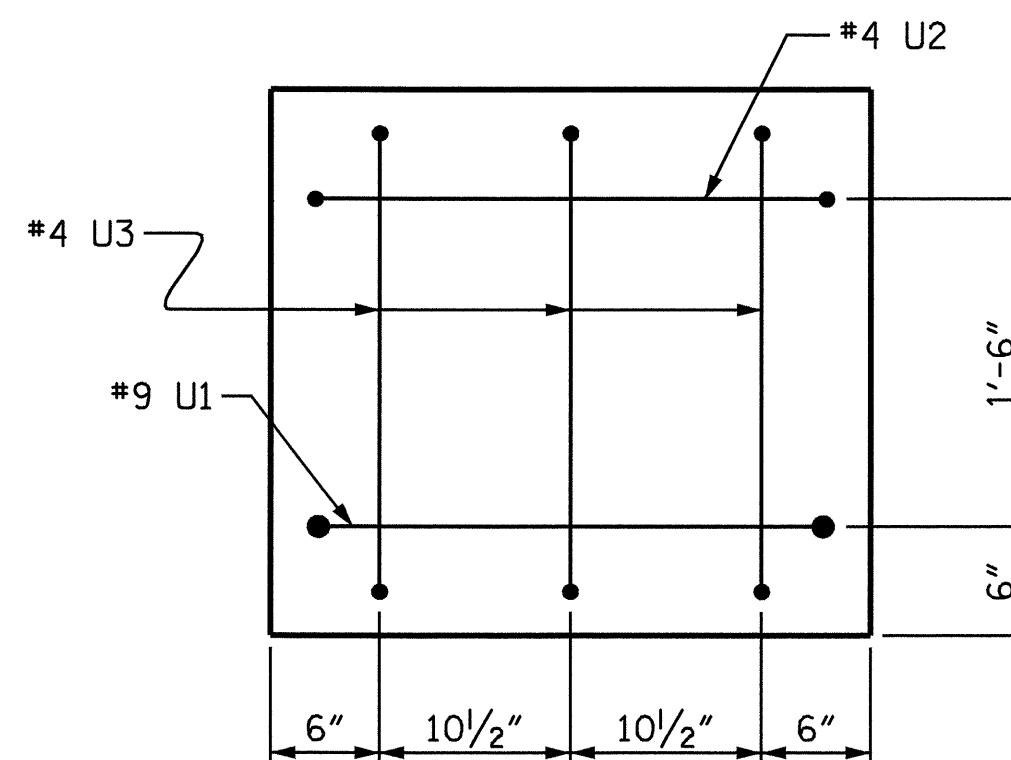
DRAWN BY: E.C. LOCKLEAR/ NQT DATE: 10-26-07
 CHECKED BY: S.M. RASHIDI DATE: 1-28-08



SECTION A-A

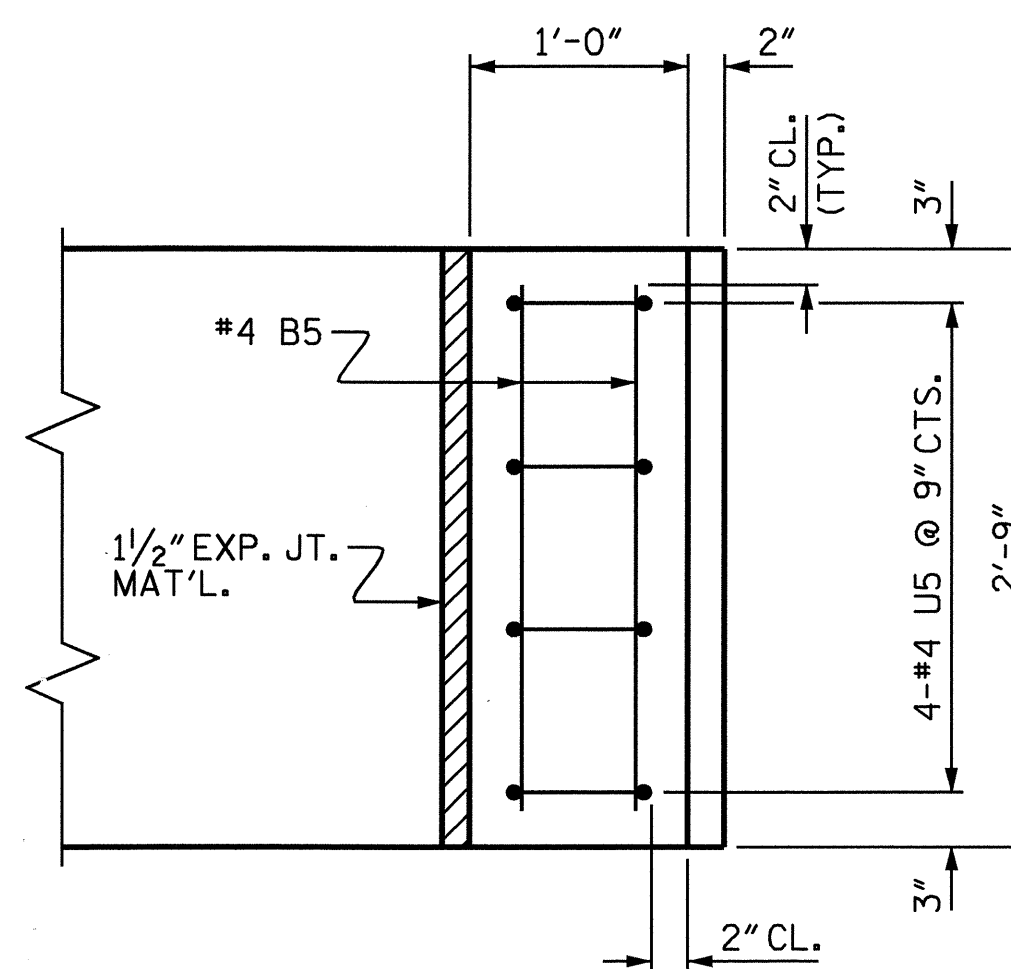


PARTIAL SECTION B-B

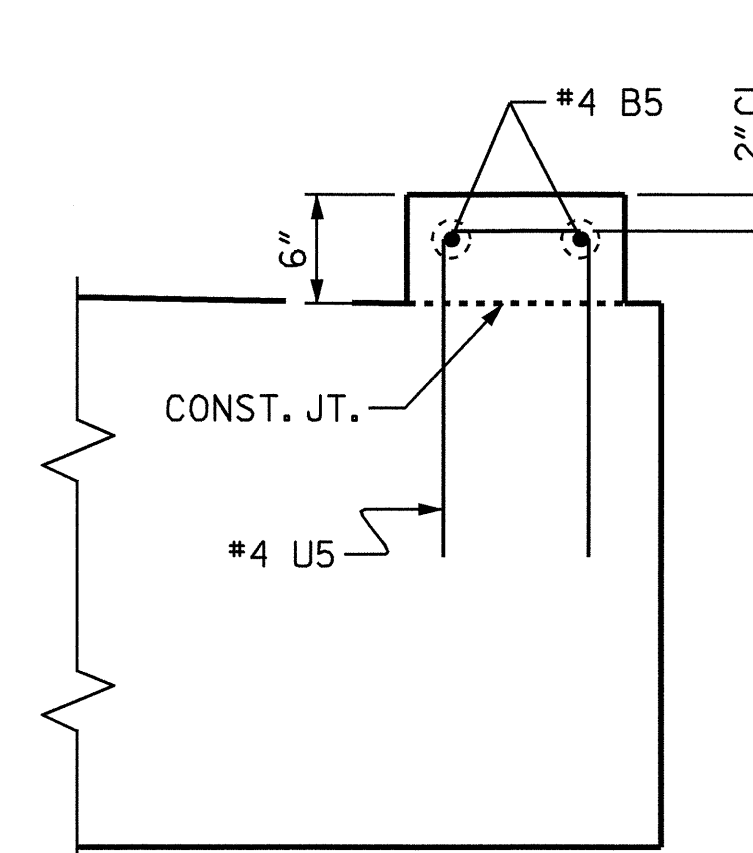


VIEW X-X

RIGHT END SHOWN, LEFT END SIMILAR



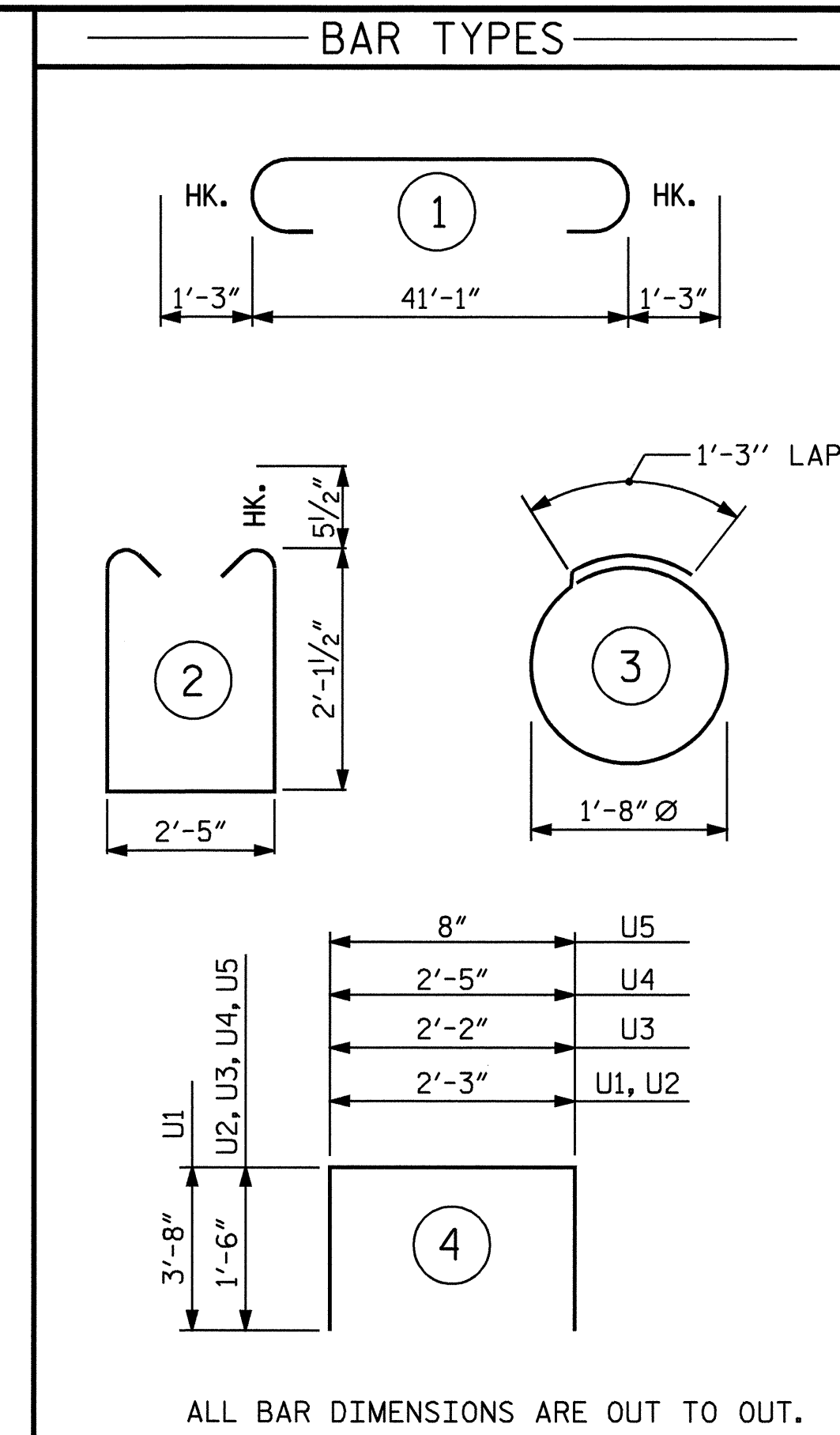
PLAN



ELEVATION

LATERAL GUIDE DETAIL

RIGHT END SHOWN, LEFT END SIMILAR



BILL OF MATERIAL

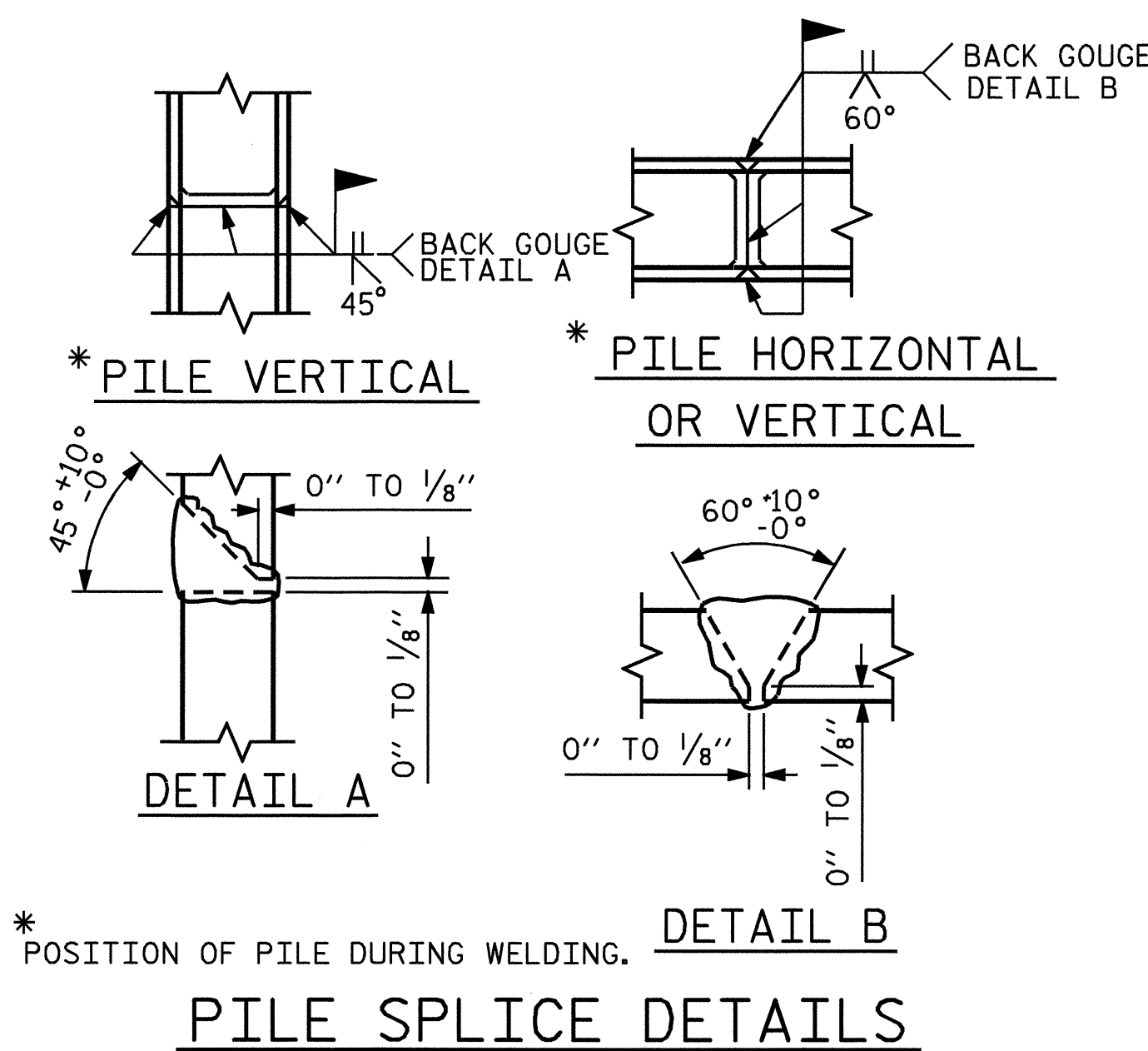
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-7"	889
B2	4	#11	STR	41'-3"	877
B3	2	#5	STR	41'-3"	86
B4	8	#4	STR	21'-10"	117
B5	15	#4	STR	2'-5"	24
B6	6	#4	STR	12'-6"	50
D1	52	#6	STR	1'-6"	117
S1	40	#5	2	7'-7"	316
S2	20	#4	3	6'-6"	87
U1	2	#9	4	9'-7"	65
U2	2	#4	4	5'-3"	7
U3	6	#4	4	5'-2"	21
U4	9	#4	4	5'-5"	33
U5	8	#4	4	3'-8"	20

REINFORCING STEEL = LBS. 2709

CLASS A CONCRETE BREAKDOWN		
POUR 1 (CAP)	C.Y.	11.4
POUR 2 (LATERAL GUIDES)	C.Y.	0.1
TOTAL CLASS A CONCRETE	C.Y.	11.5

HP 12 X 53 GALVANIZED STEEL PILES
No. = 10 LIN. FT. = 600.0

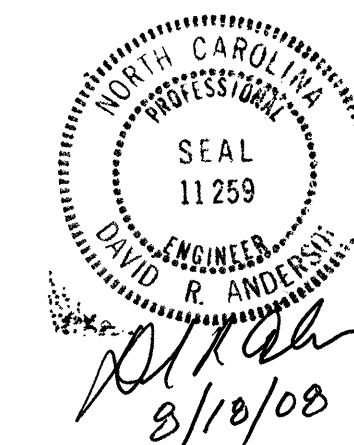
NOTE: #4 B6 BARS SHALL BE BENT IN THE FIELD.



PILE SPLICE DETAILS

DRAWN BY: E.C. LOCKLEAR/ NQT DATE: 10-26-07
CHECKED BY: S.M. RASHIDI DATE: 1-28-08

29-JUL-2008 09:42
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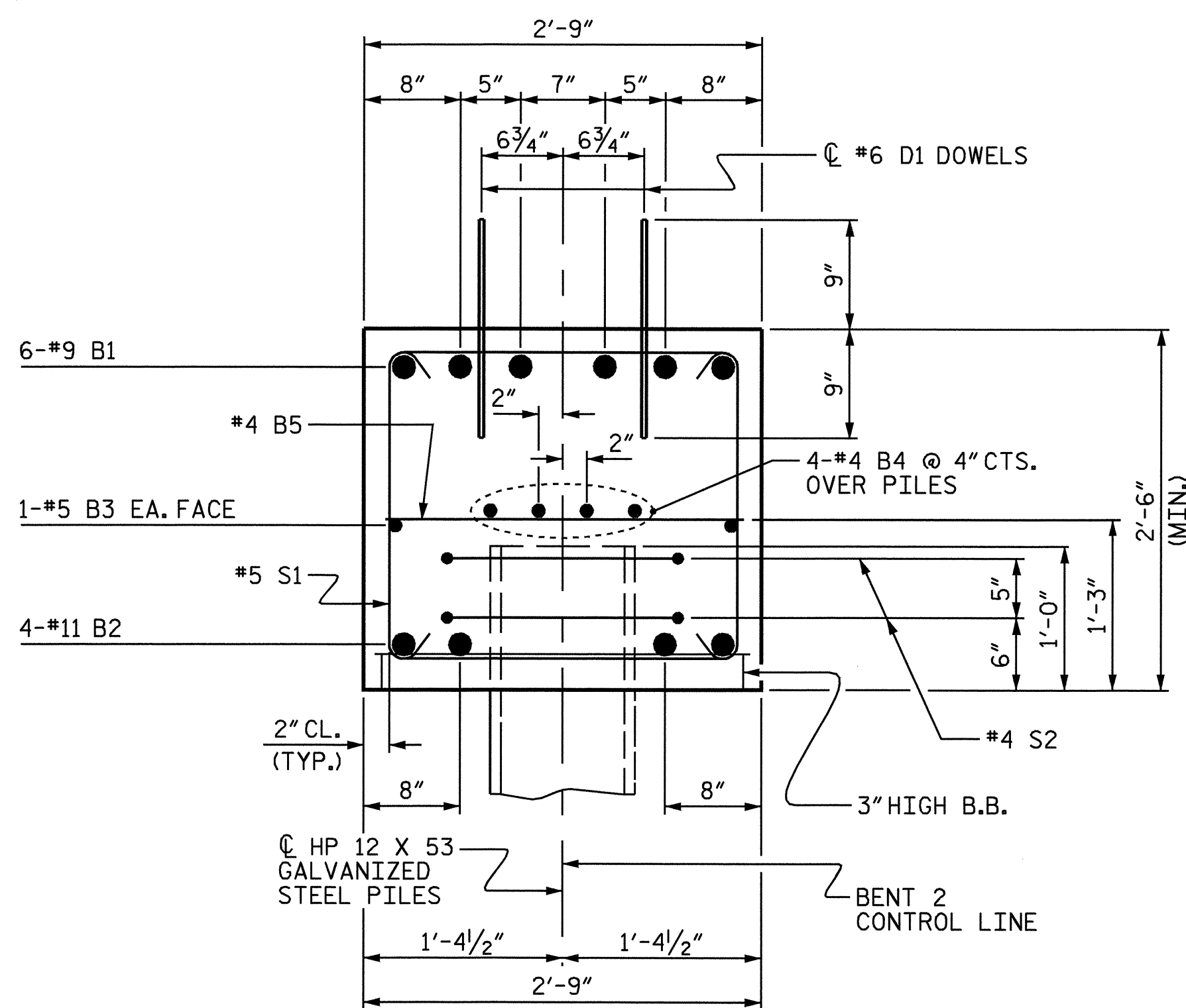


PROJECT NO. B-4080
COLUMBUS COUNTY
STATION: 15+27.50 -L-

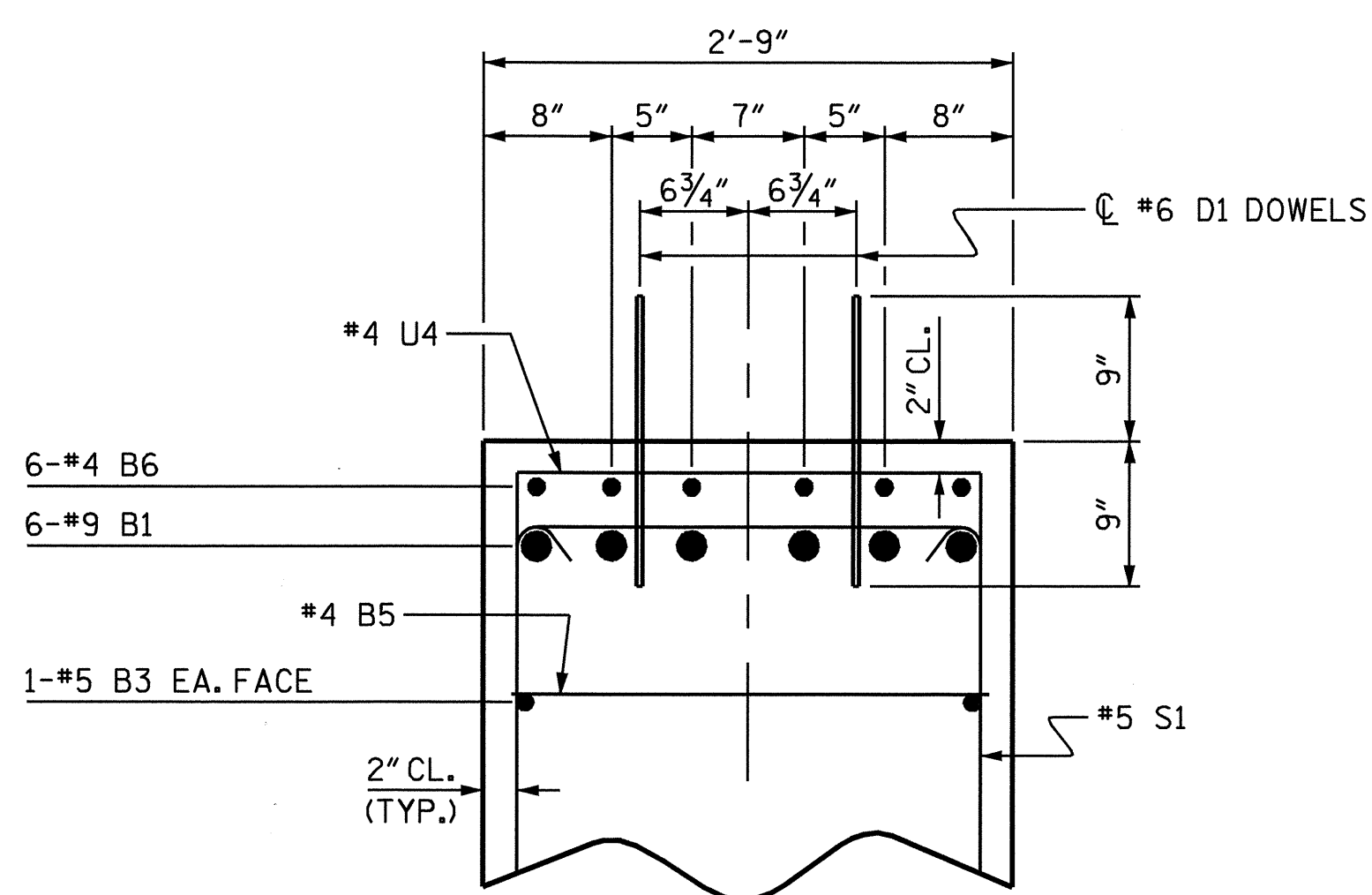
SHEET 2 OF 2

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

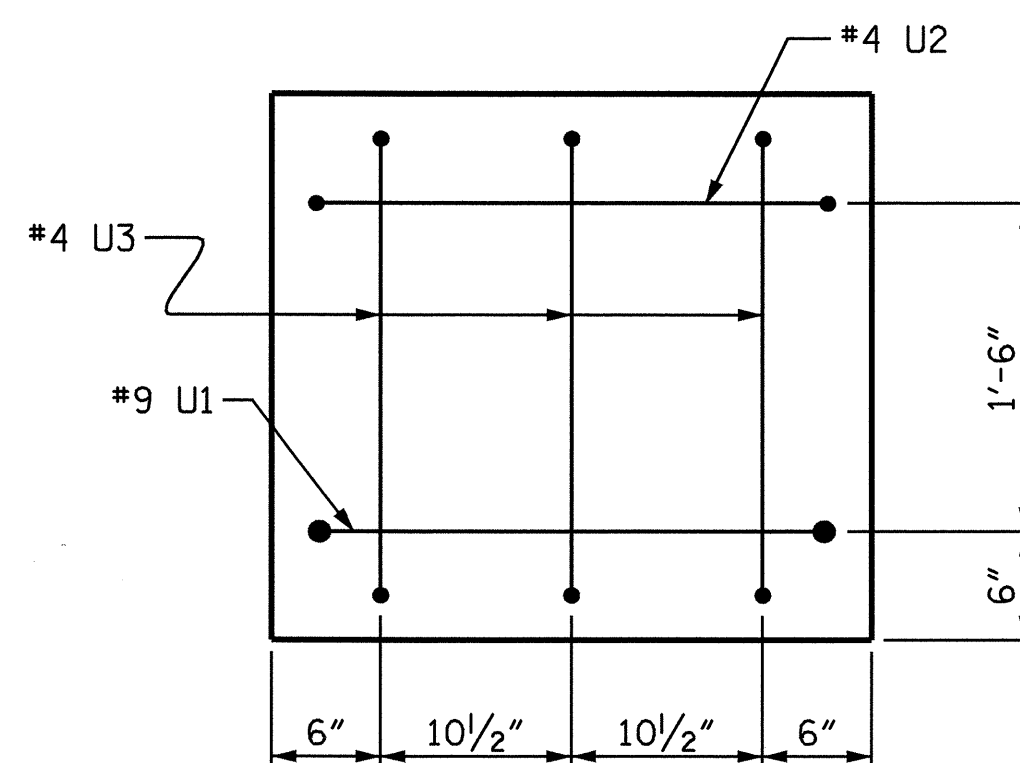
SHEET NO. 5-13
TOTAL SHEETS 20



SECTION A-A

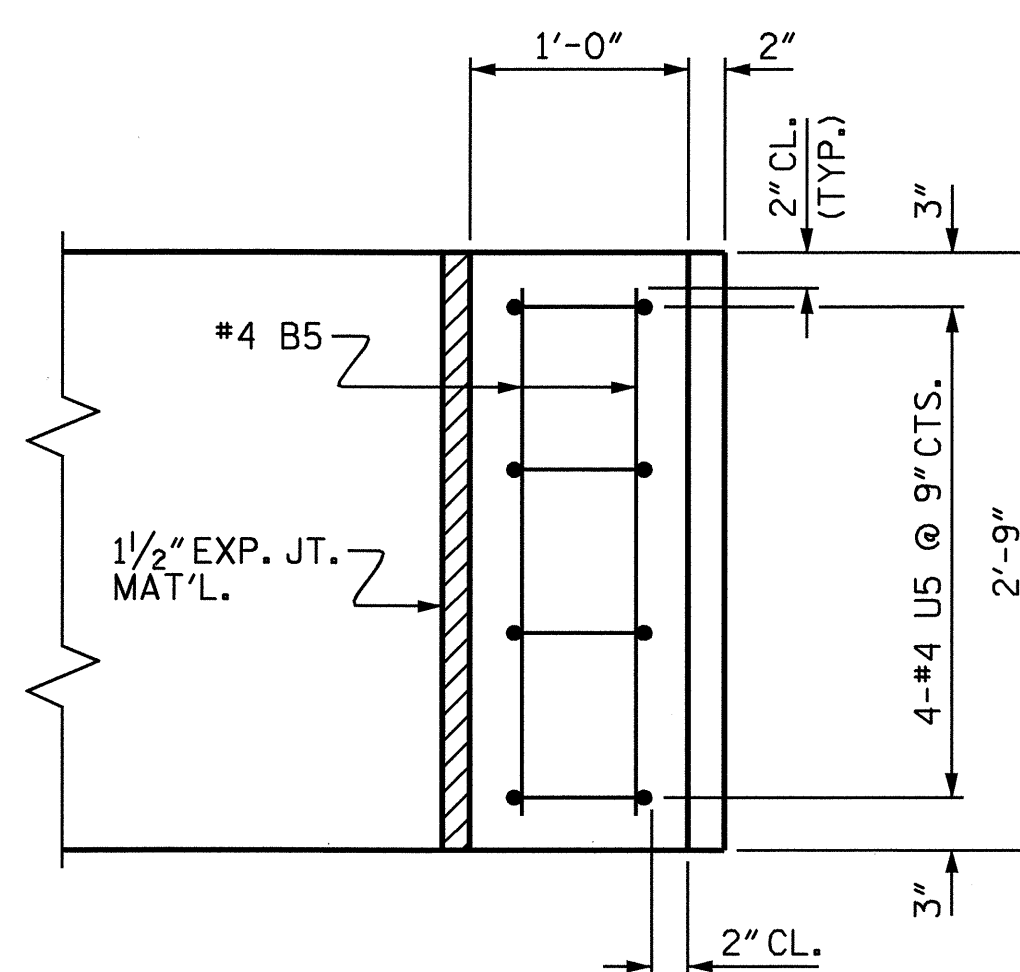


PARTIAL SECTION B-B

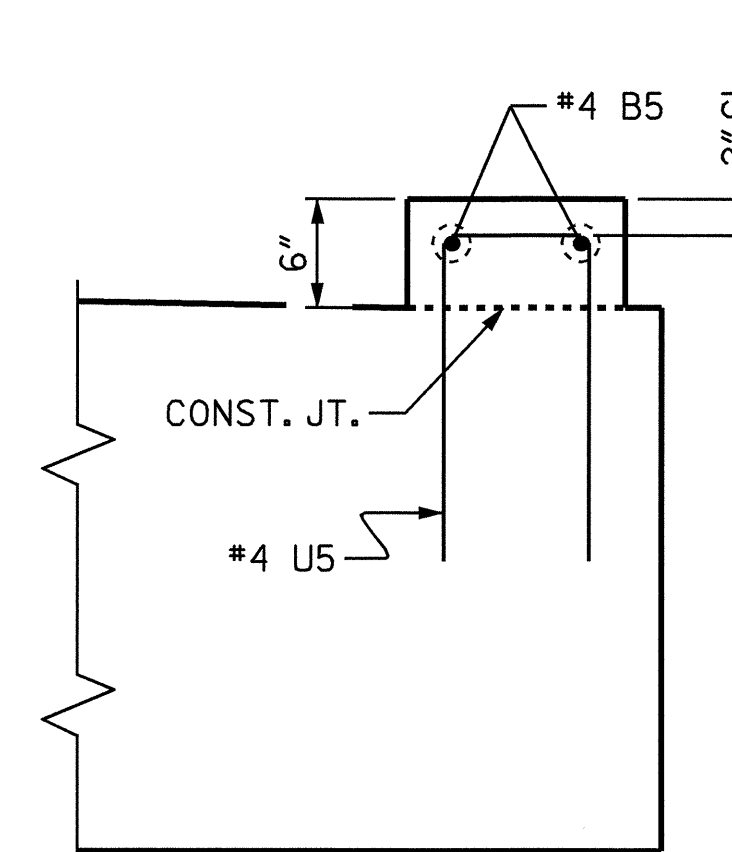


VIEW X-X

RIGHT END SHOWN, LEFT END SIMILAR



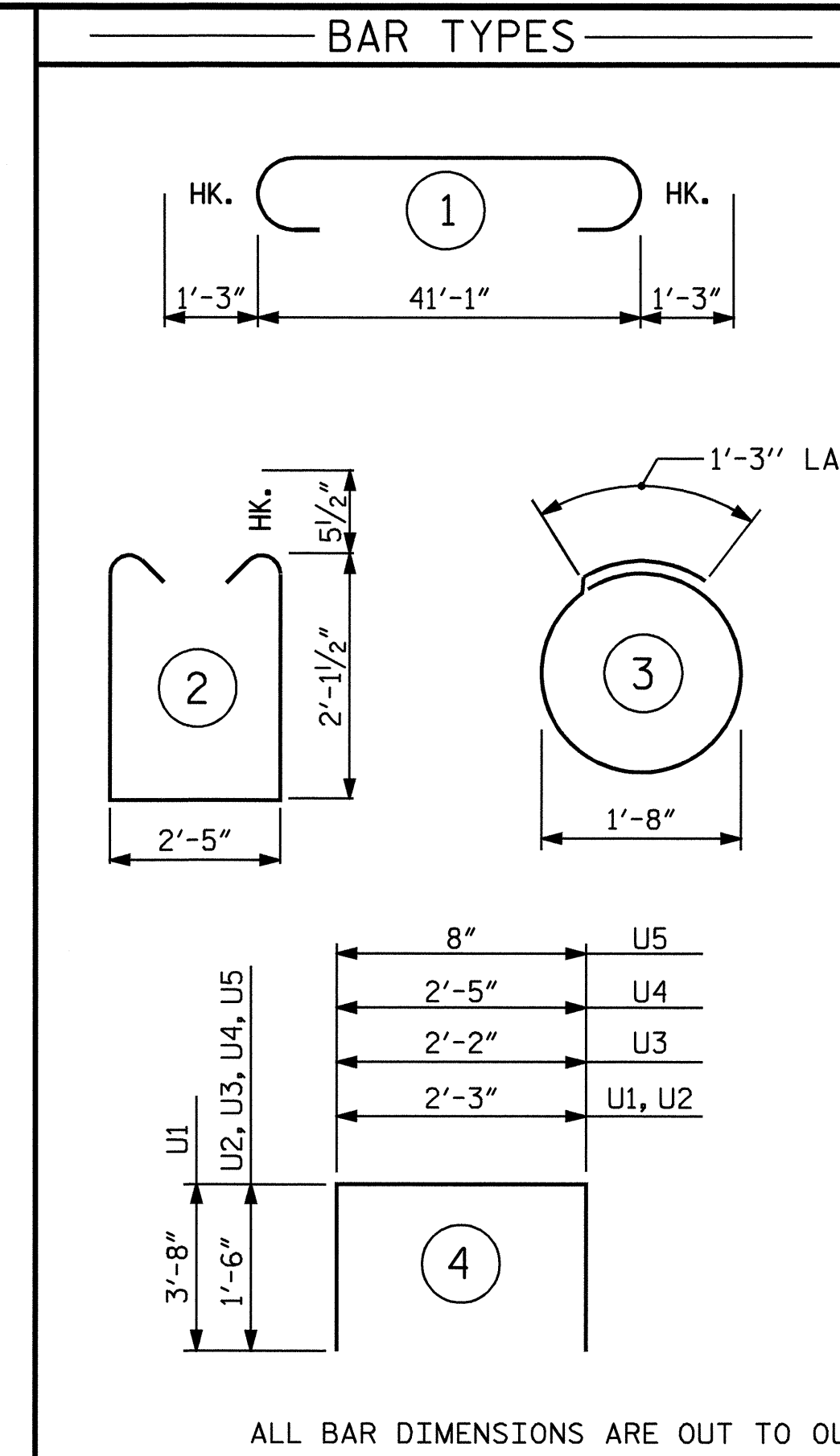
PLAN



ELEVATION

LATERAL GUIDE DETAIL

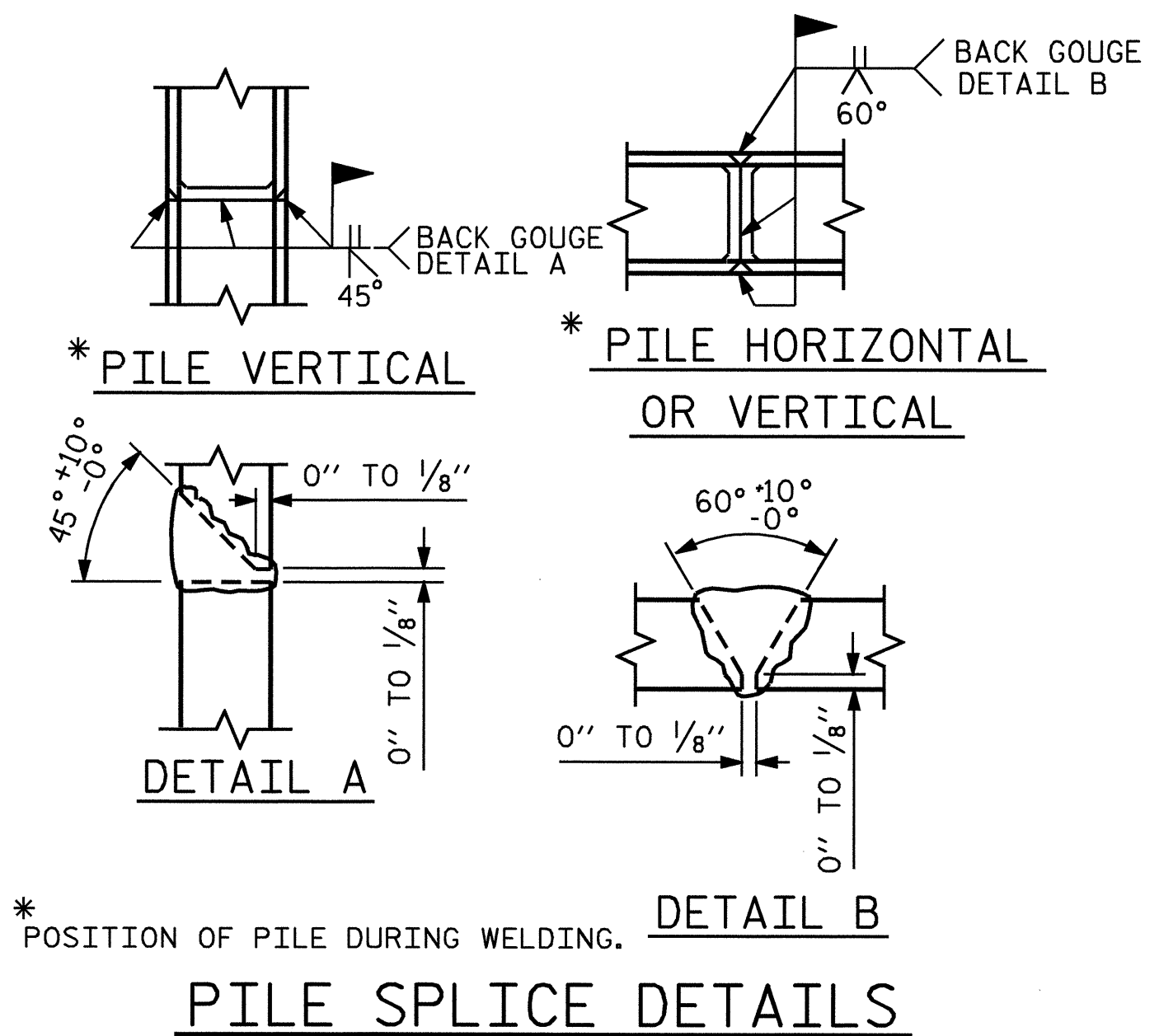
RIGHT END SHOWN, LEFT END SIMILAR



BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-7"	889
B2	4	#11	STR	41'-3"	877
B3	2	#5	STR	41'-3"	86
B4	8	#4	STR	21'-10"	117
B5	15	#4	STR	2'-5"	24
B6	6	#4	STR	12'-6"	50
D1	52	#6	STR	1'-6"	117
S1	40	#5	2	7'-7"	316
S2	20	#4	3	6'-6"	87
U1	2	#9	4	9'-7"	65
U2	2	#4	4	5'-3"	7
U3	6	#4	4	5'-2"	21
U4	9	#4	4	5'-5"	33
U5	8	#4	4	3'-8"	20
REINFORCING STEEL =					LBS. 2709
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP)					C.Y. 11.4
POUR 2 (LATERAL GUIDES)					C.Y. 0.1
TOTAL CLASS A CONCRETE					C.Y. 11.5

HP 12 X 53 GALVANIZED STEEL PILES
No. = 10 LIN. FT. = 600.0

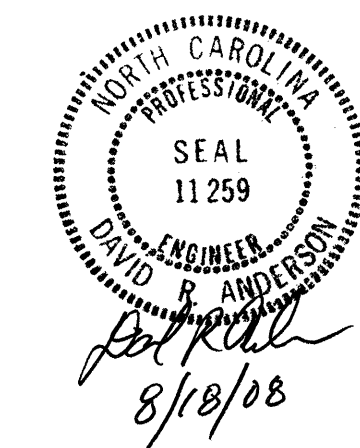
NOTE: #4 B6 BARS SHALL BE BENT IN THE FIELD.



PILE SPLICE DETAILS

DRAWN BY: E.C. LOCKLEAR/ NQT DATE: 10-26-07
CHECKED BY: S.M. RASHIDI DATE: 1-28-08

29-JUL-2008 09:43
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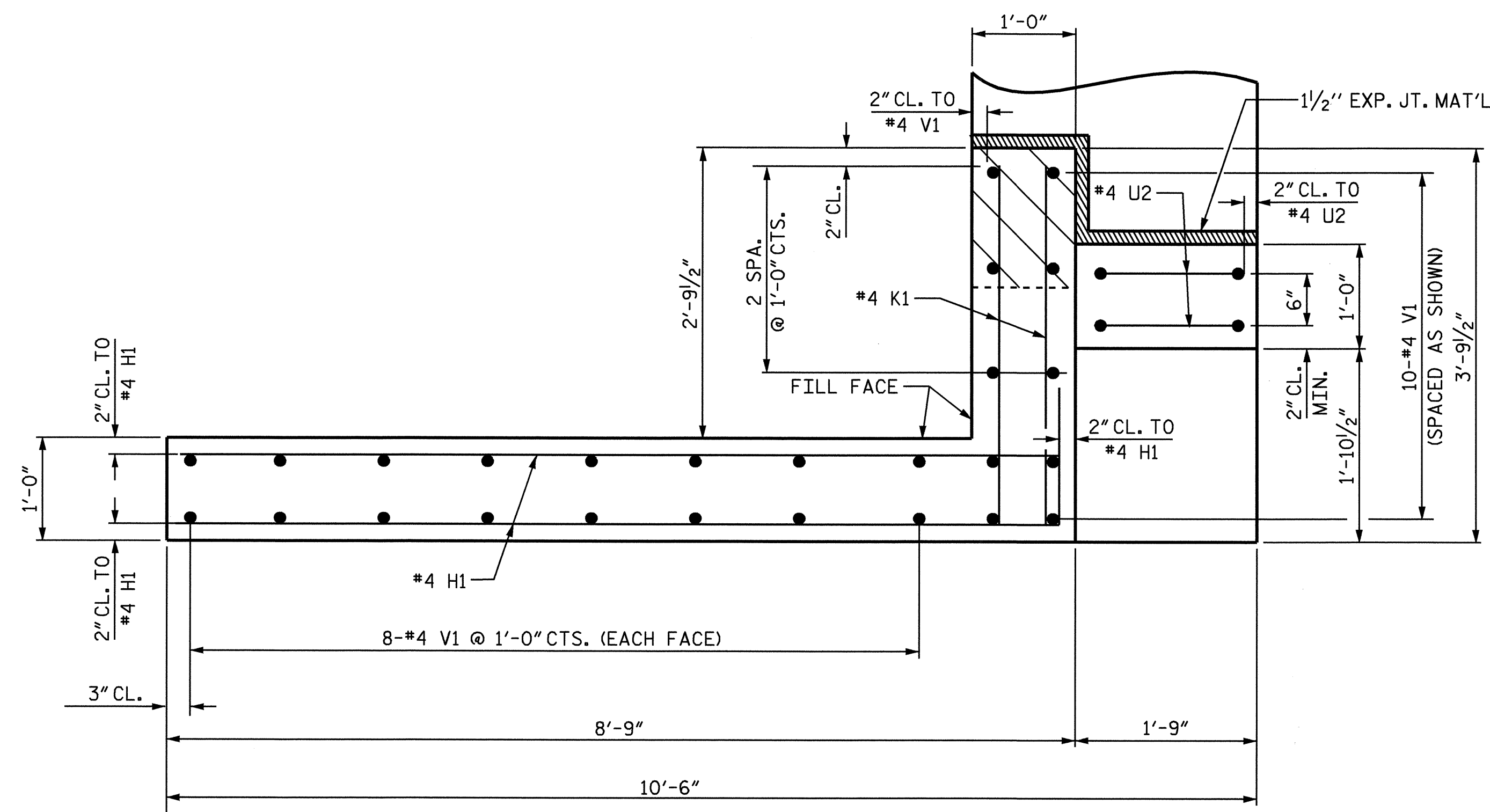
PROJECT NO. B-4080
COLUMBUS COUNTY
STATION: 15+27.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

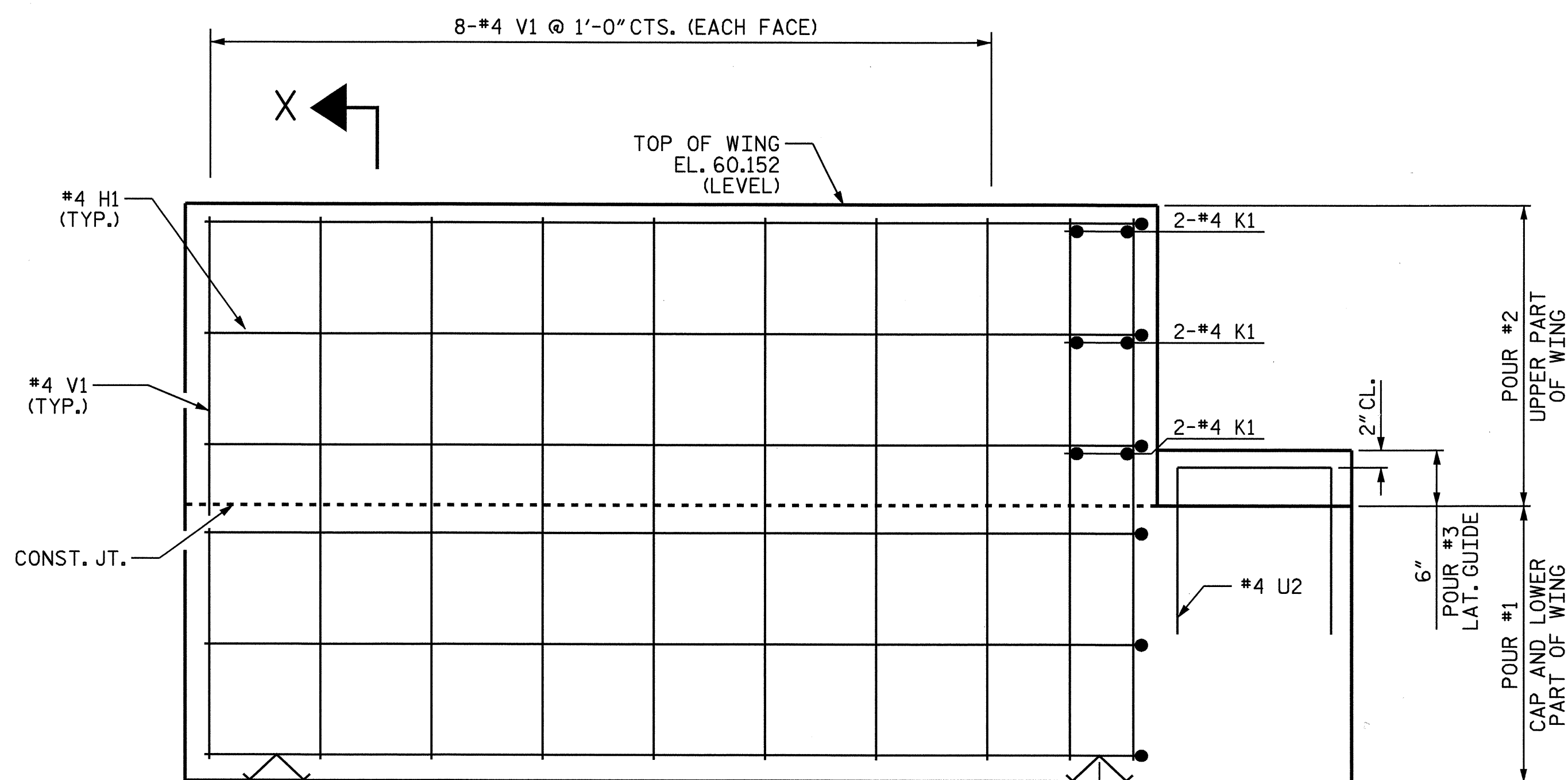
SUBSTRUCTURE
BENT 2

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			S-15	
2			4			20	



PLAN OF WING - W1

WING W1 SHOWN, WING W2 SIMILAR



ELEVATION OF WING - W1

WING W1 SHOWN, WING W2 SIMILAR

BAR TYPES				BILL OF MATERIAL			
ALL BAR DIMENSIONS ARE OUT TO OUT.							

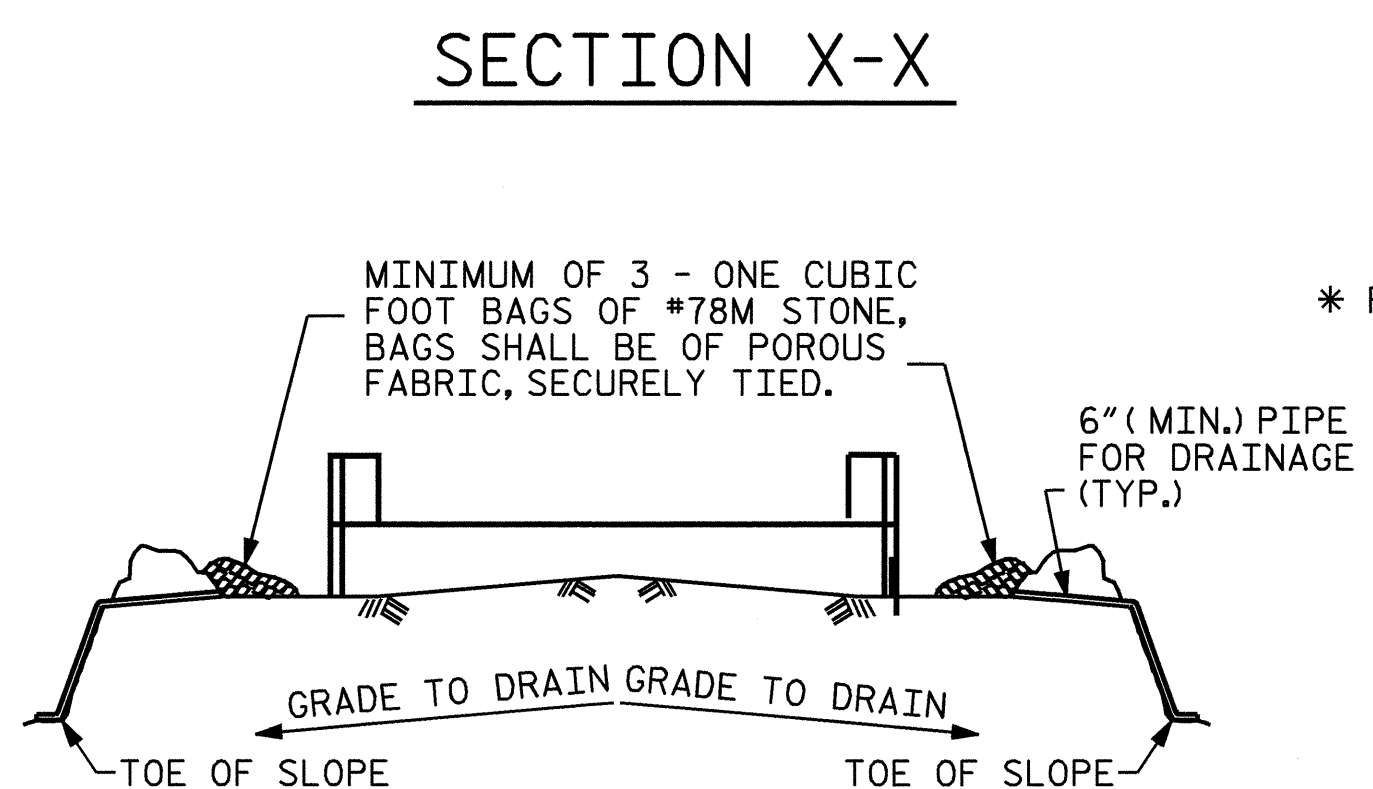
REINFORCING STEEL 2420 LBS.

CLASS A CONCRETE BREAKDOWN

POUR 1 - CAP AND LOWER PORTION OF WINGS	13.6 CY.
POUR 2 - UPPER PORTION OF WINGS	2.1 C.Y.
POUR 3 - LATERAL GUIDES	0.1 C.Y.
CLASS A CONCRETE TOTAL	15.8 C.Y.

HP 12 x 53 STEEL PILES

NO. 8	440 LIN. FT.
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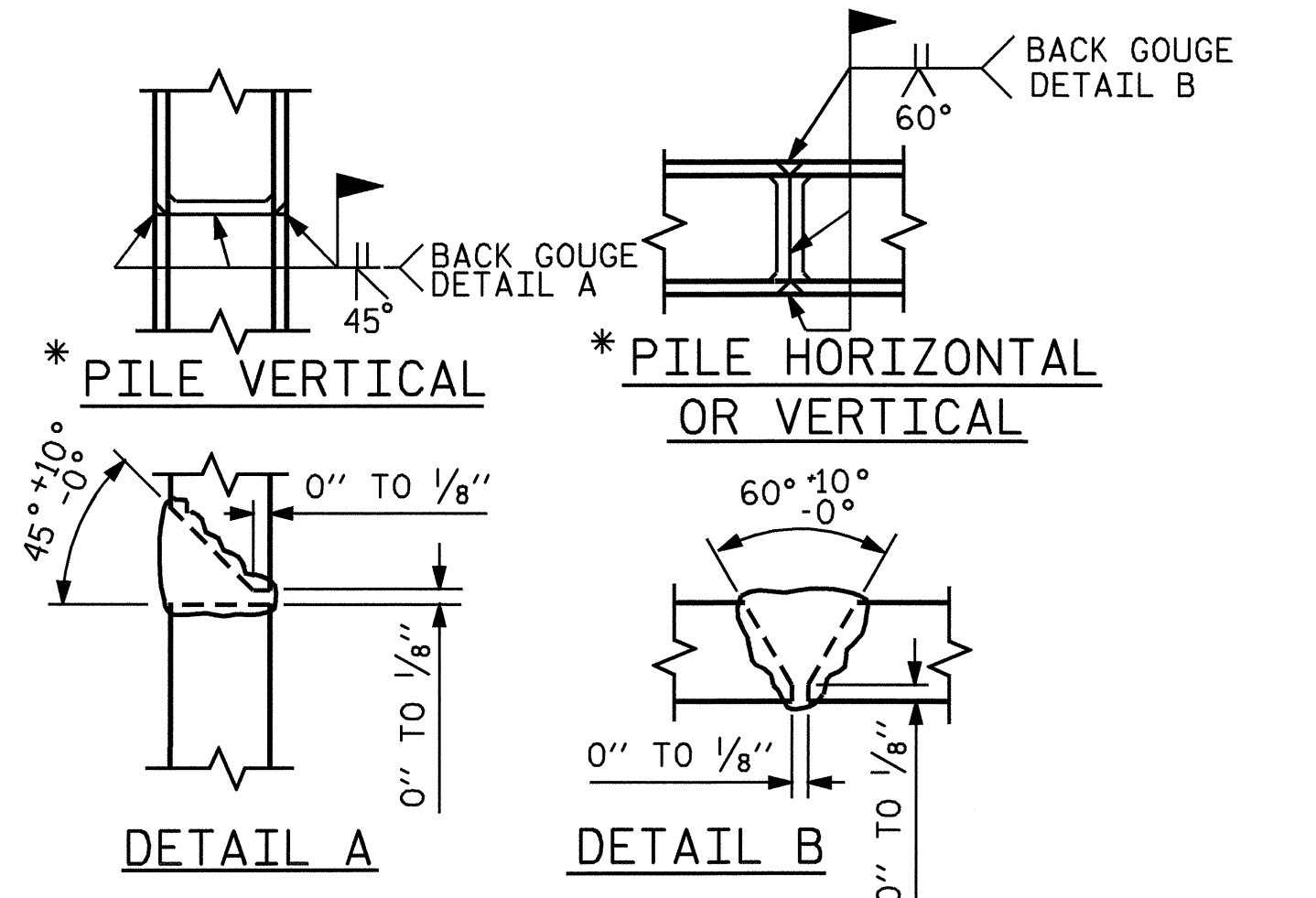


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

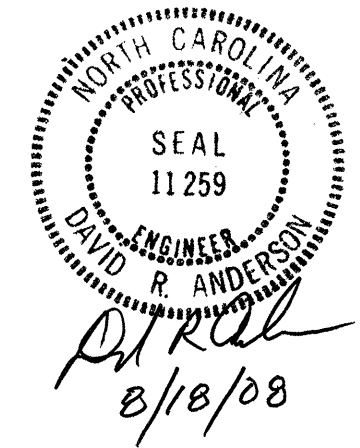


PILE SPLICE DETAILS

PROJECT NO. B-4080
COLOMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 2 OF 2

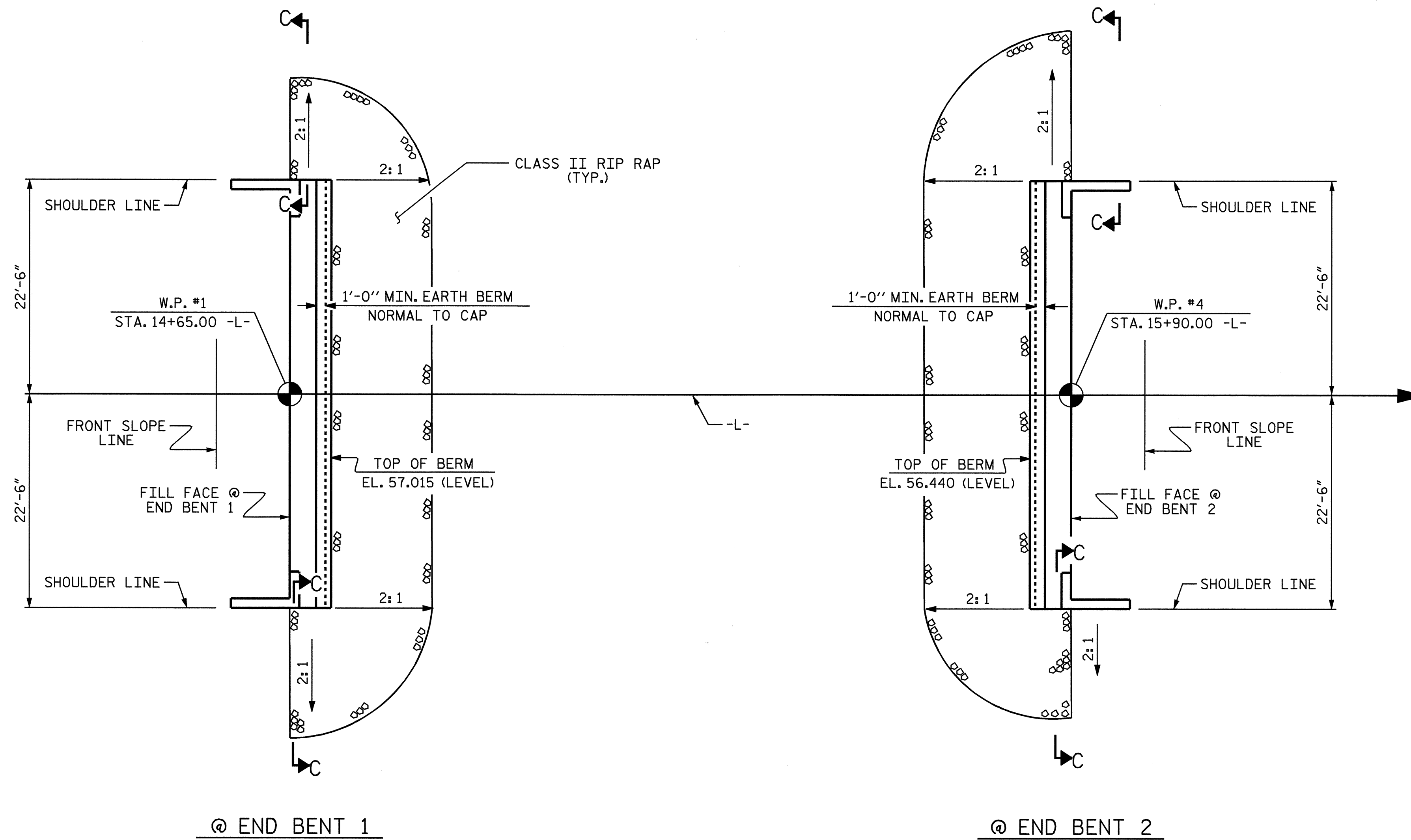
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-17
					TOTAL SHEETS 20



DRAWN BY : N. Q. TRAN DATE : 7/26/07
 CHECKED BY : E. C. LOCKLEAR DATE : 10-11-07

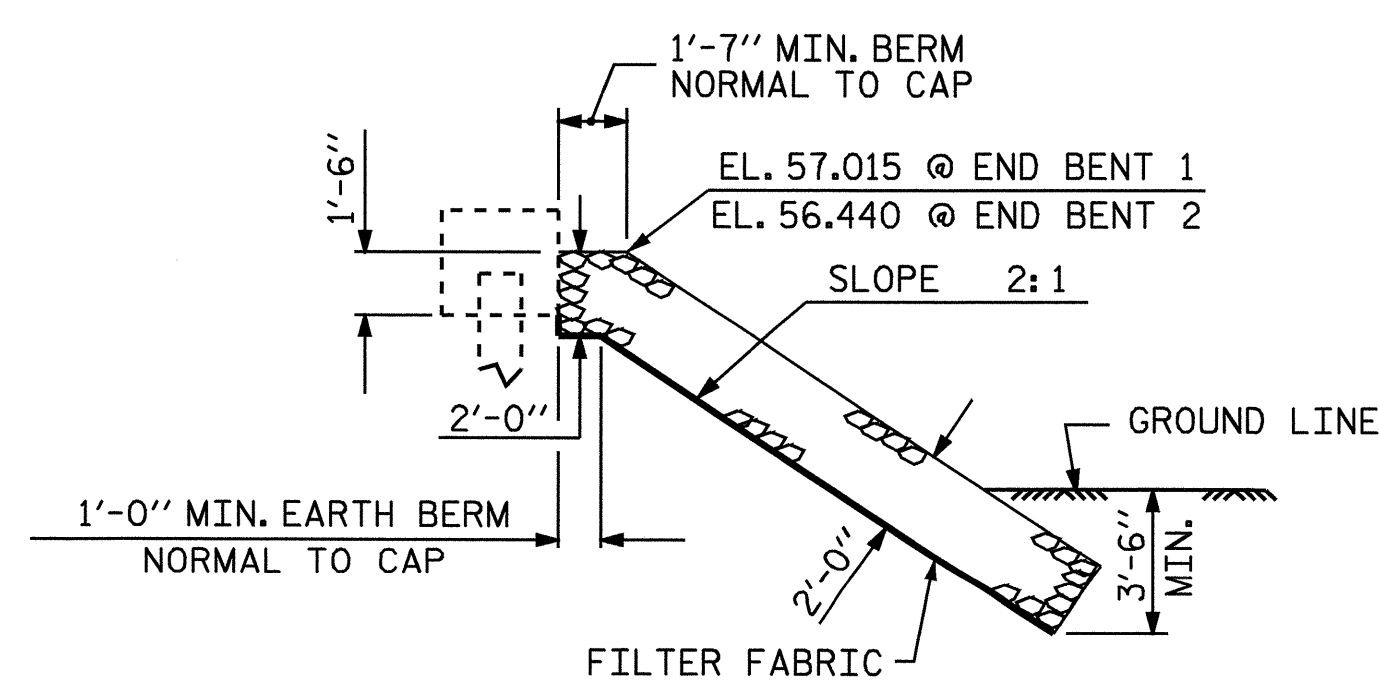
NOTES:

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

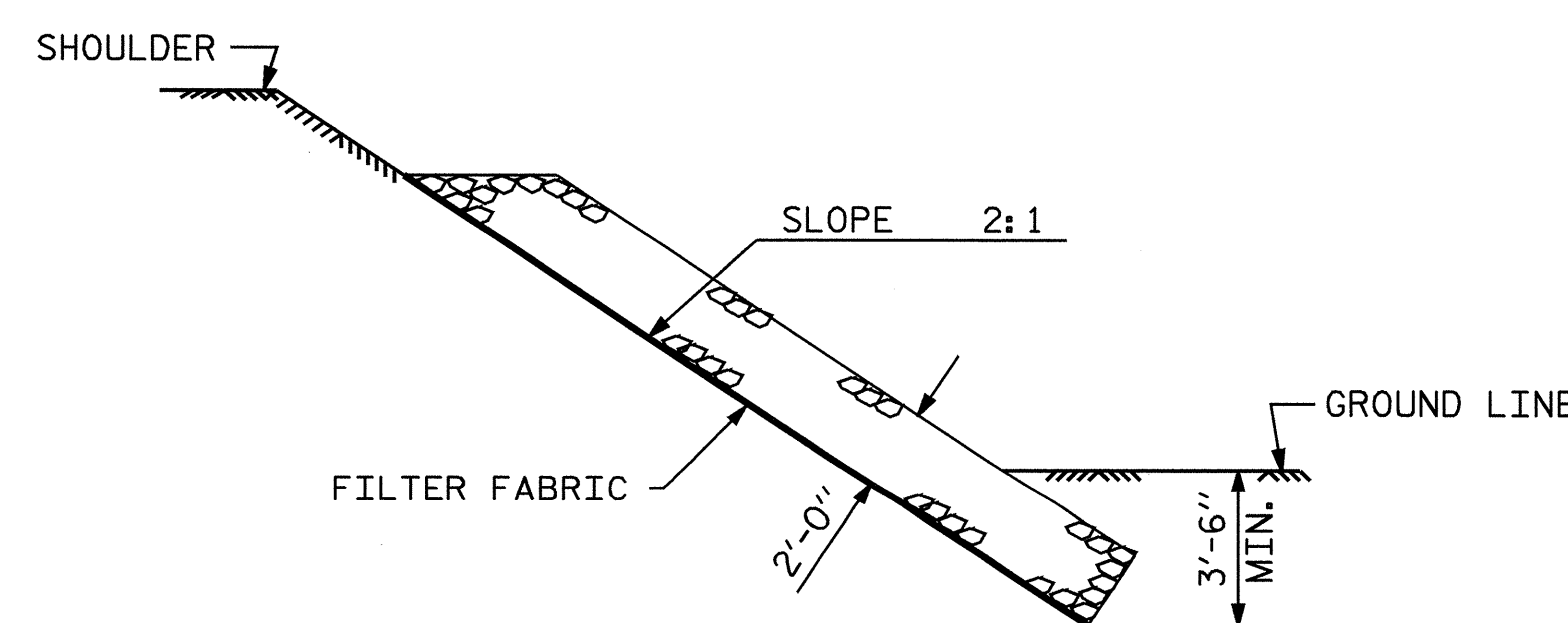


RIP RAP DETAILS

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+27.50 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	65	70
END BENT 2	70	75

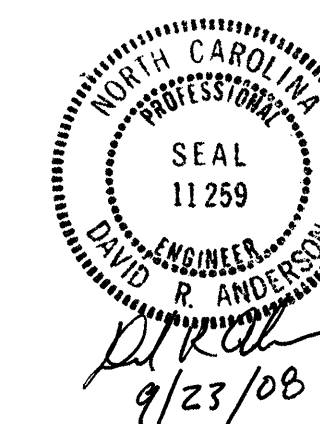


SECTION BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 20

ASSEMBLED BY : E.C. LOCKLEAR DATE : 6-15-07
 CHECKED BY : N.Q. TRAN DATE : 10-7-07
 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

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.

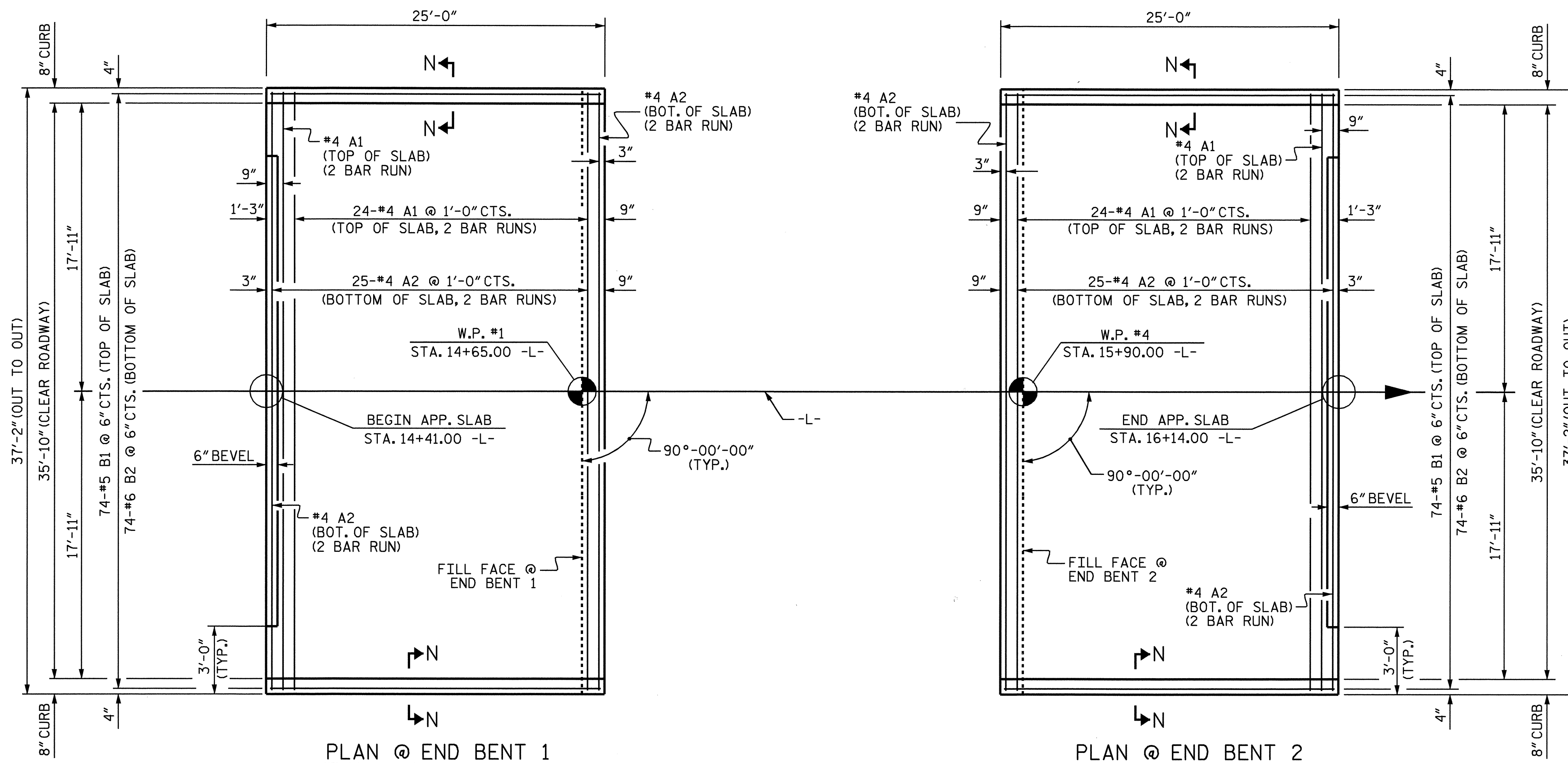
THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3/16".

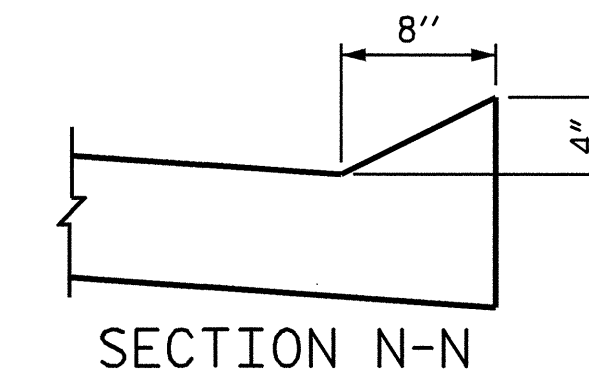
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



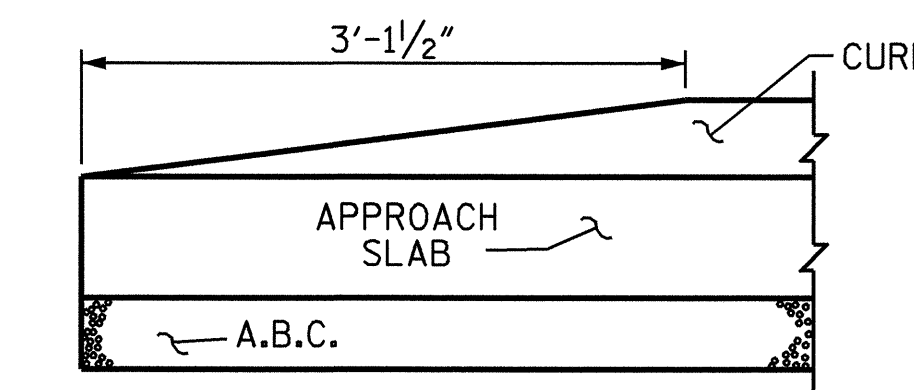
PLAN @ END BENT 1

PLAN @ END BENT 2

APPROACH SLAB

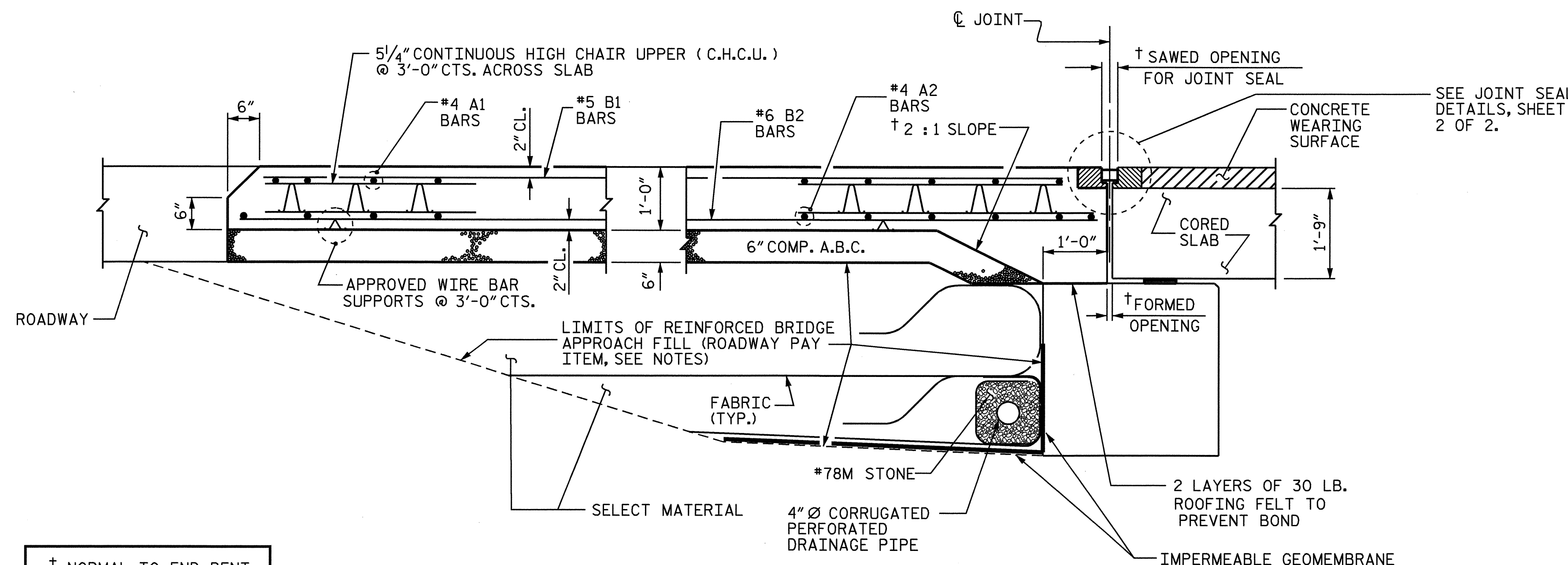


SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



SECTION THRU SLAB

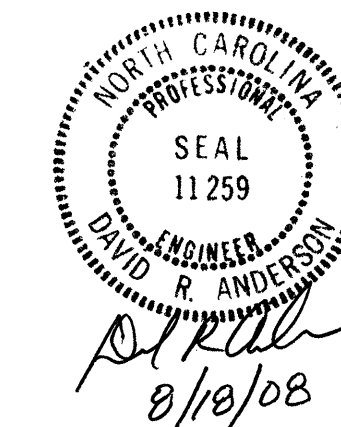
BILL OF MATERIAL					
APPROACH SLAB AT E.B. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	19'-5"	649
A2	52	#4	STR	19'-4"	672
*B1	74	#5	STR	24'-0"	1852
B2	74	#6	STR	24'-8"	2742
REINFORCING STEEL				LBS.	3414
*EPOXY COATED REINFORCING STEEL				LBS.	2501
CLASS AA CONCRETE				C. Y.	36.3
APPROACH SLAB AT E.B. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	19'-5"	649
A2	52	#4	STR	19'-4"	672
*B1	74	#5	STR	24'-0"	1852
B2	74	#6	STR	24'-8"	2742
REINFORCING STEEL				LBS.	3414
*EPOXY COATED REINFORCING STEEL				LBS.	2501
CLASS AA CONCRETE				C. Y.	36.3

PROJECT NO. B-4080
COLUMBUS COUNTY
 STATION: 15+27.50 -L-

SHEET 1 OF 2

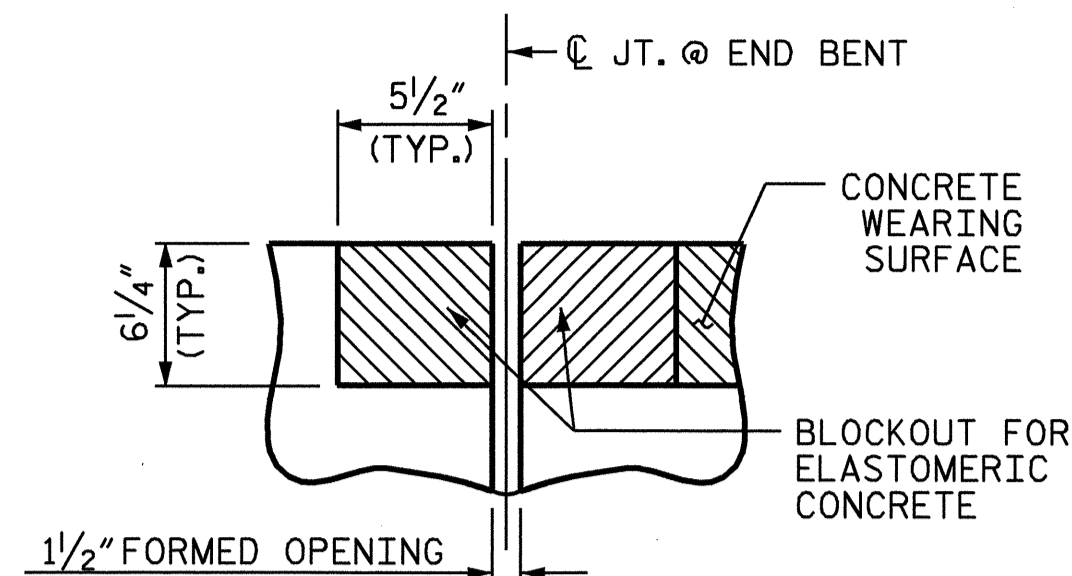
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB

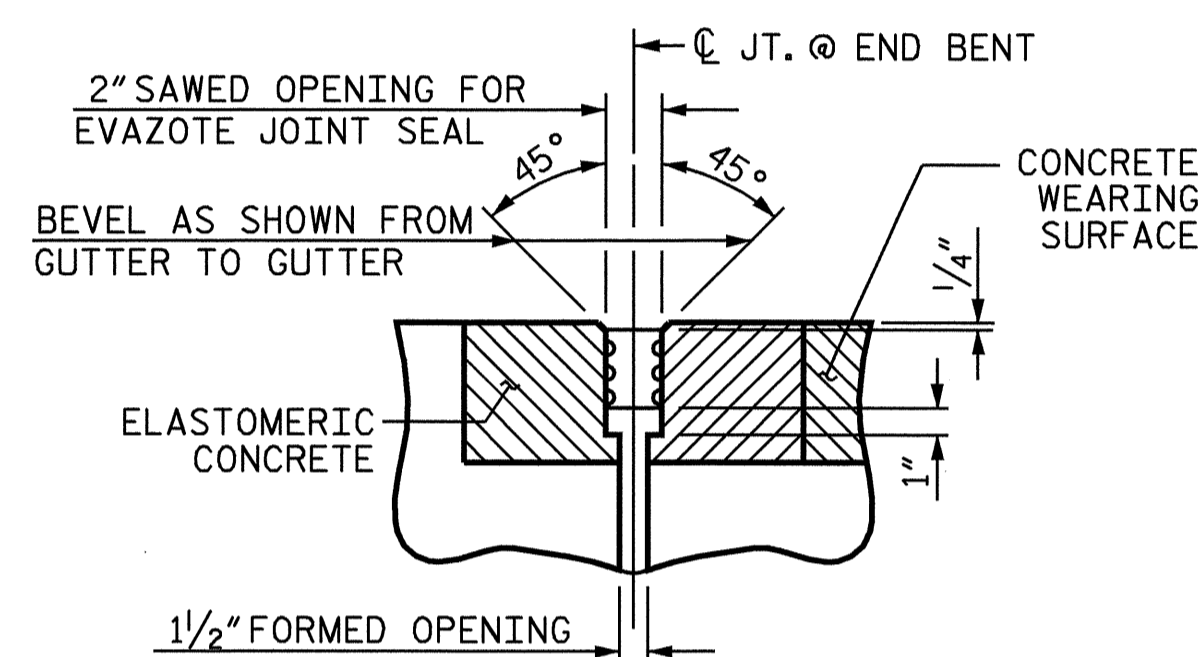


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-19
2			4			20

ASSEMBLED BY: E.C. LOCKLEAR DATE: 6-14-07
 CHECKED BY: N.Q. TRAN DATE: 10-2-07
 DRAWN BY: FCJ 6/87 LES/RDR
 CHECKED BY: EGA 6/87 REV. 7/10/01 RWW/JTE
 REV. 5/7/03R KMM/GM
 REV. 5/1/06R



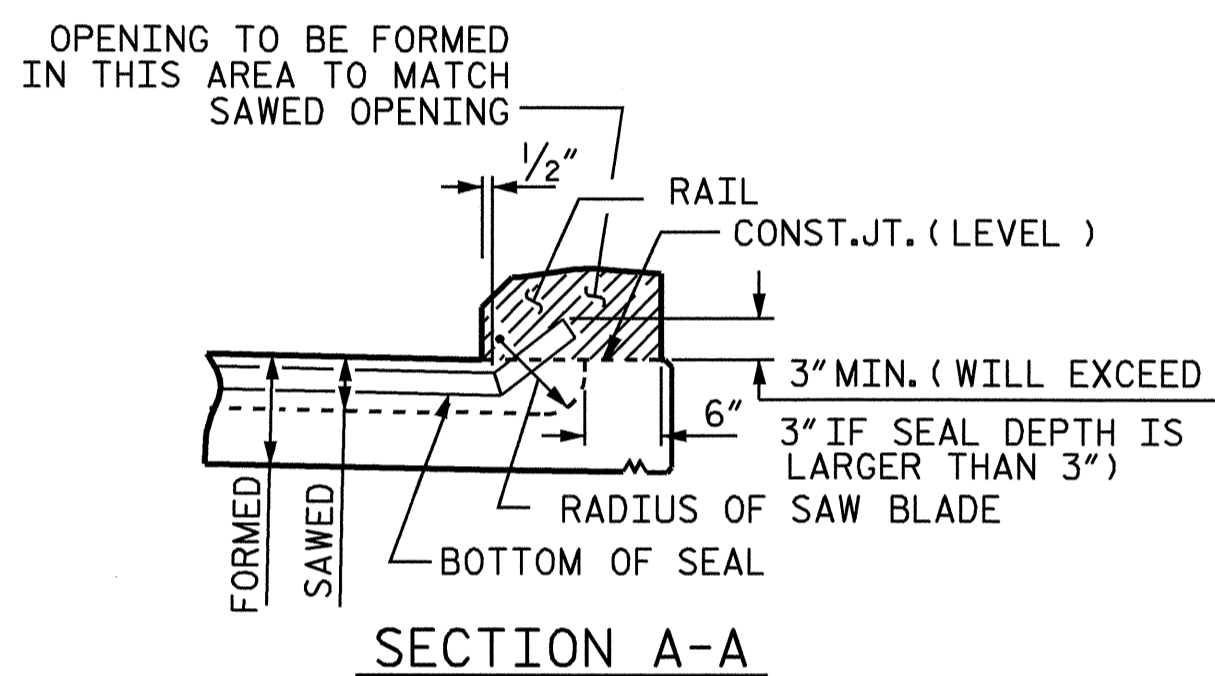
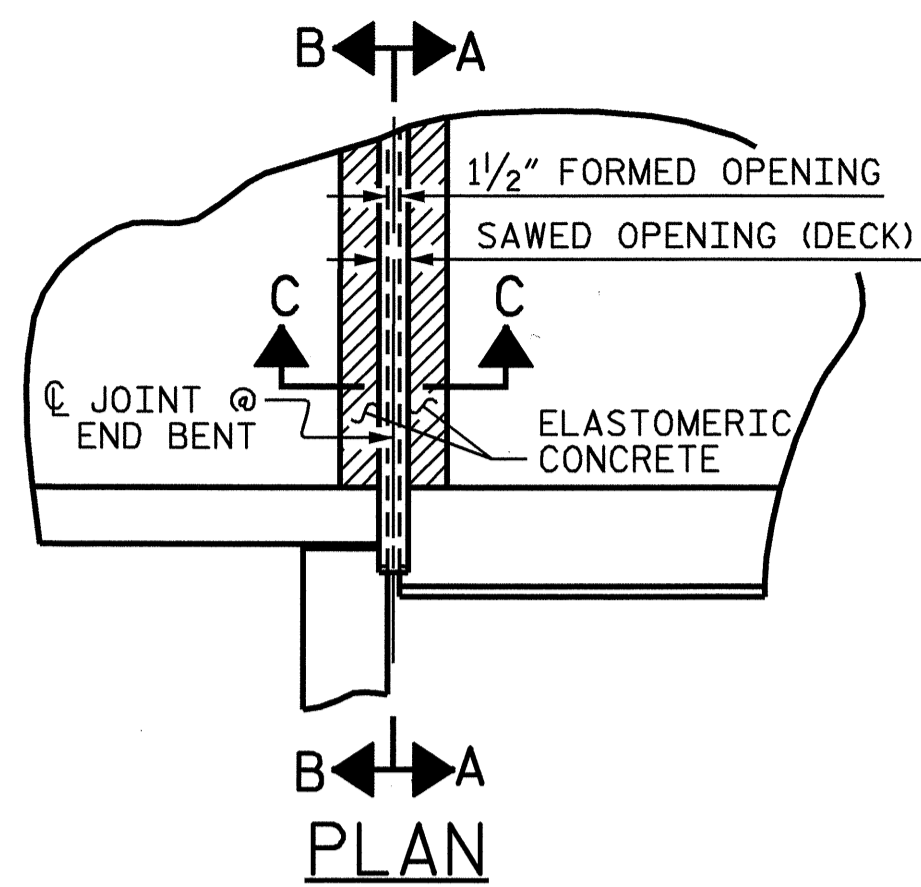
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



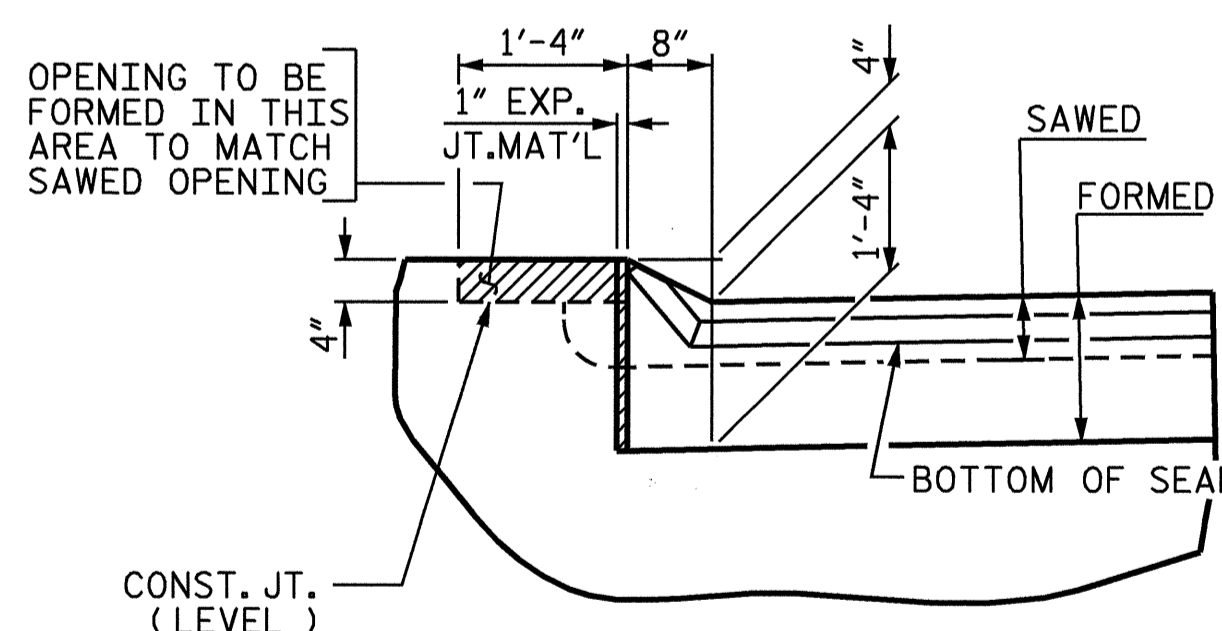
SECTION C-C
EVAZOTE JOINT SEAL
(FIXED)

ELASTOMERIC CONCRETE	
END BENT	ELASTOMERIC CONCRETE * (CU. FT.)
1	17.1
2	17.1
TOTAL	34.2

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

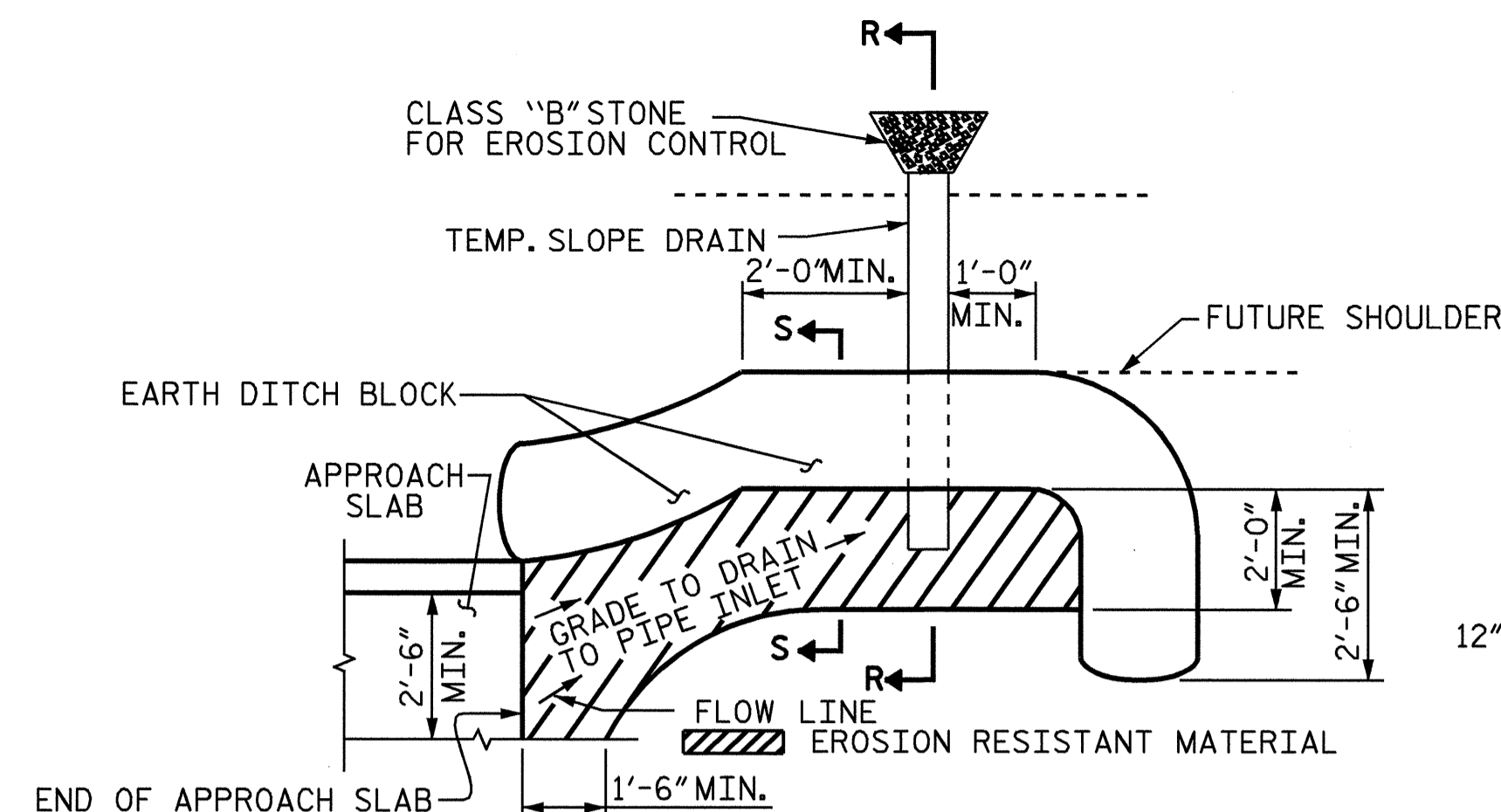


SECTION A-A



SECTION B-B

JOINT SEAL DETAILS @ END BENT

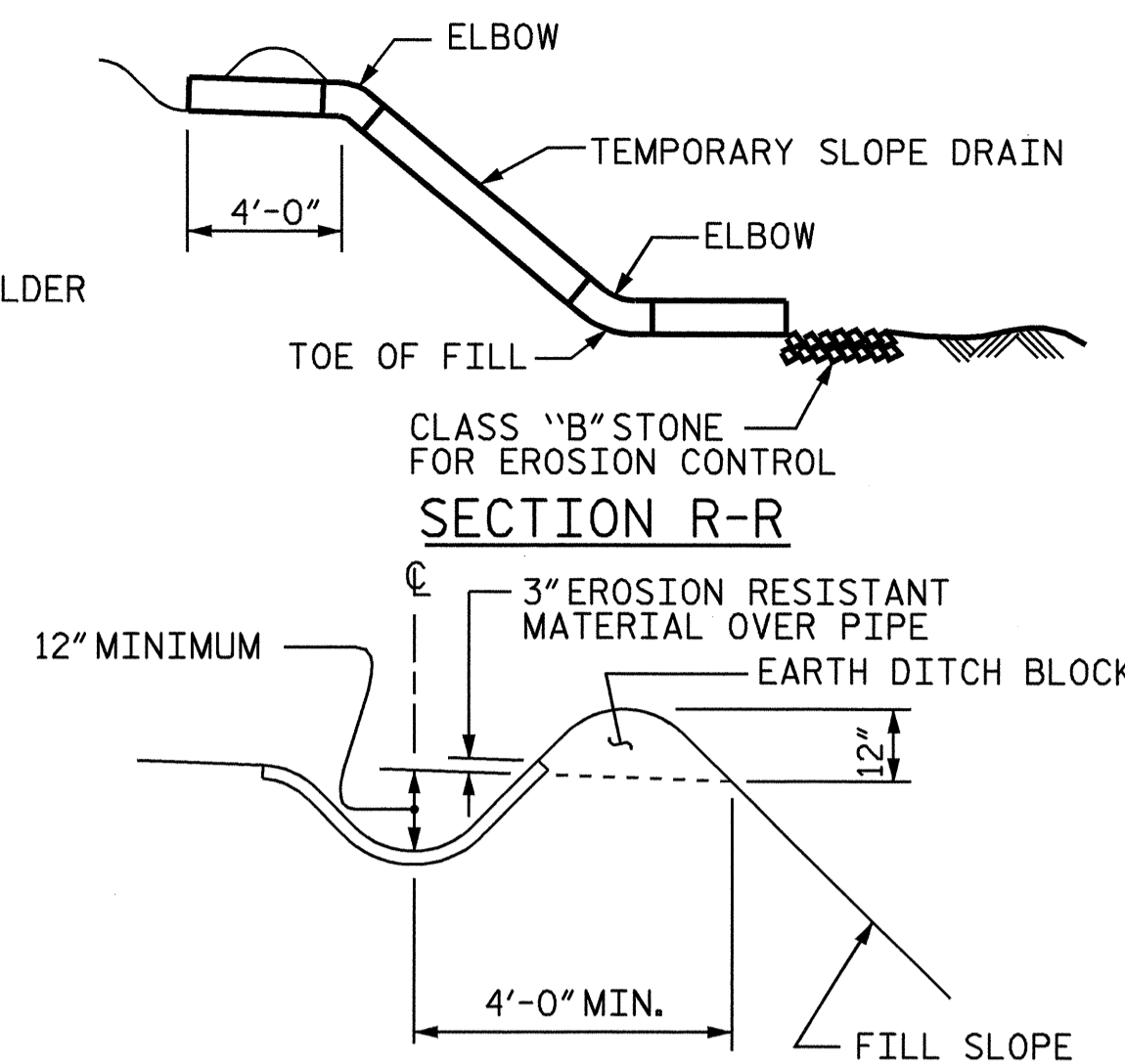


PLAN VIEW

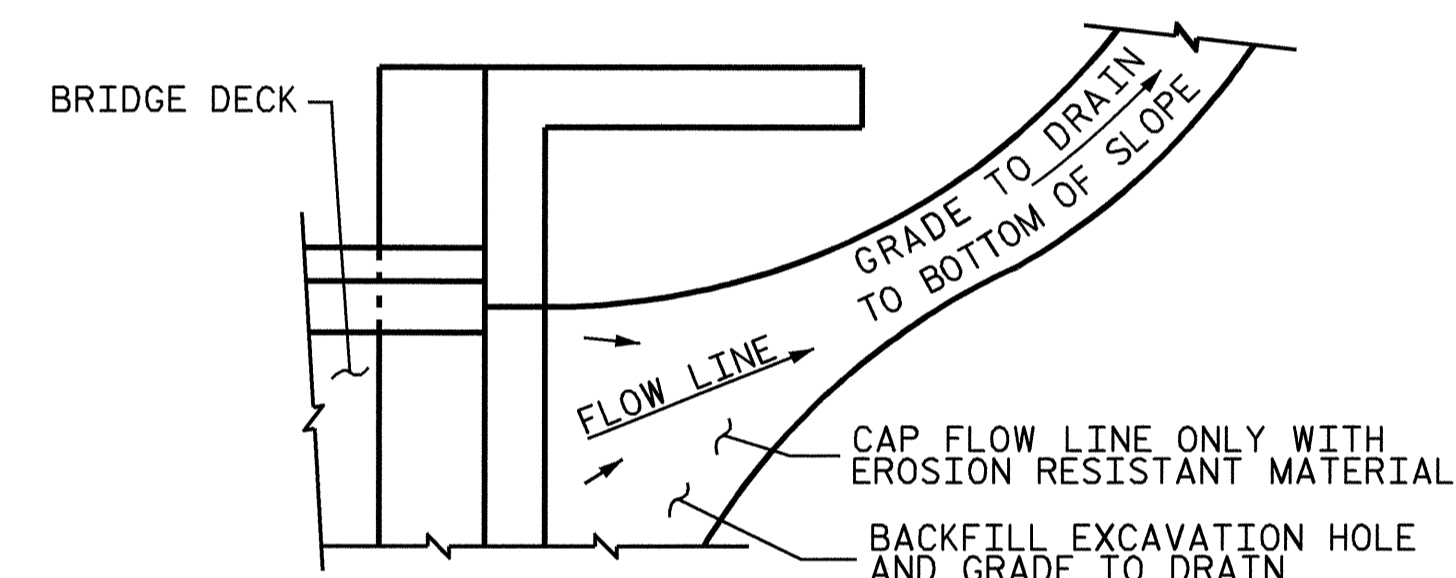
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION S-S



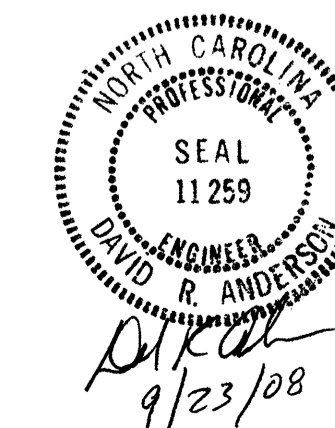
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4080
COLUMBUS COUNTY
STATION: 15+27.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
1988					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



ASSEMBLED BY : E.C. LOCKLEAR DATE : 6-14-07
CHECKED BY : N.Q. TRAN DATE : 10-2-07
DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/JTE
CHECKED BY : ARB 11/88 REV. 5/7/03 RWW/JTE
REV. 5/1/06R MAA/KMM

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN 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. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN