

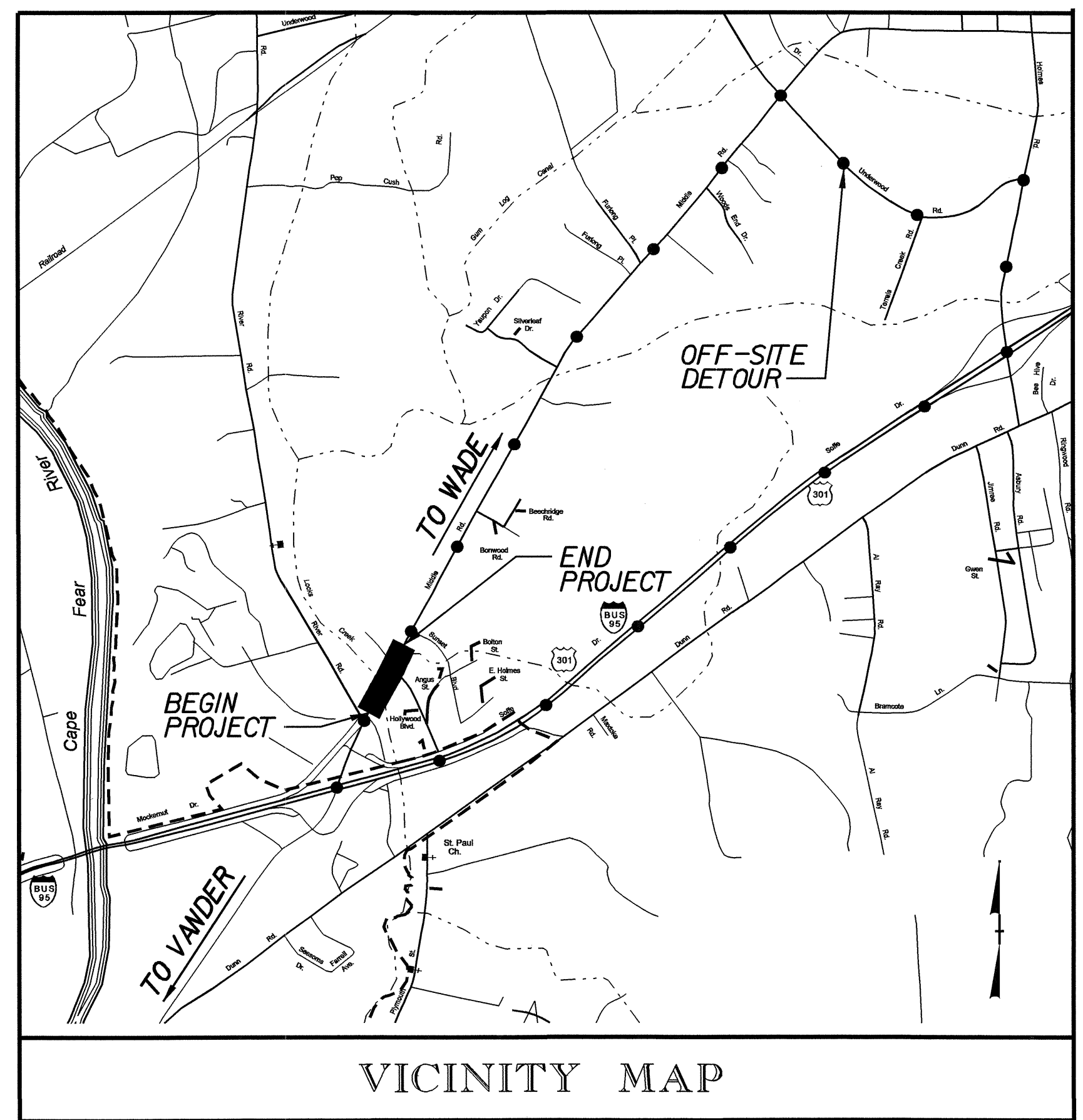
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4093		
WBS NO.	F.A. PROJ. NO.	DESCRIPTION	
33451.1.1	BRZ-1728(1)	P.E.	
33451.2.1	BRZ-1728(1)	R/W & UTILITIES	
33451.3.1	BRZ-1728(3)	CONST.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

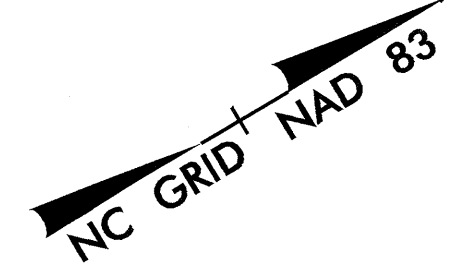
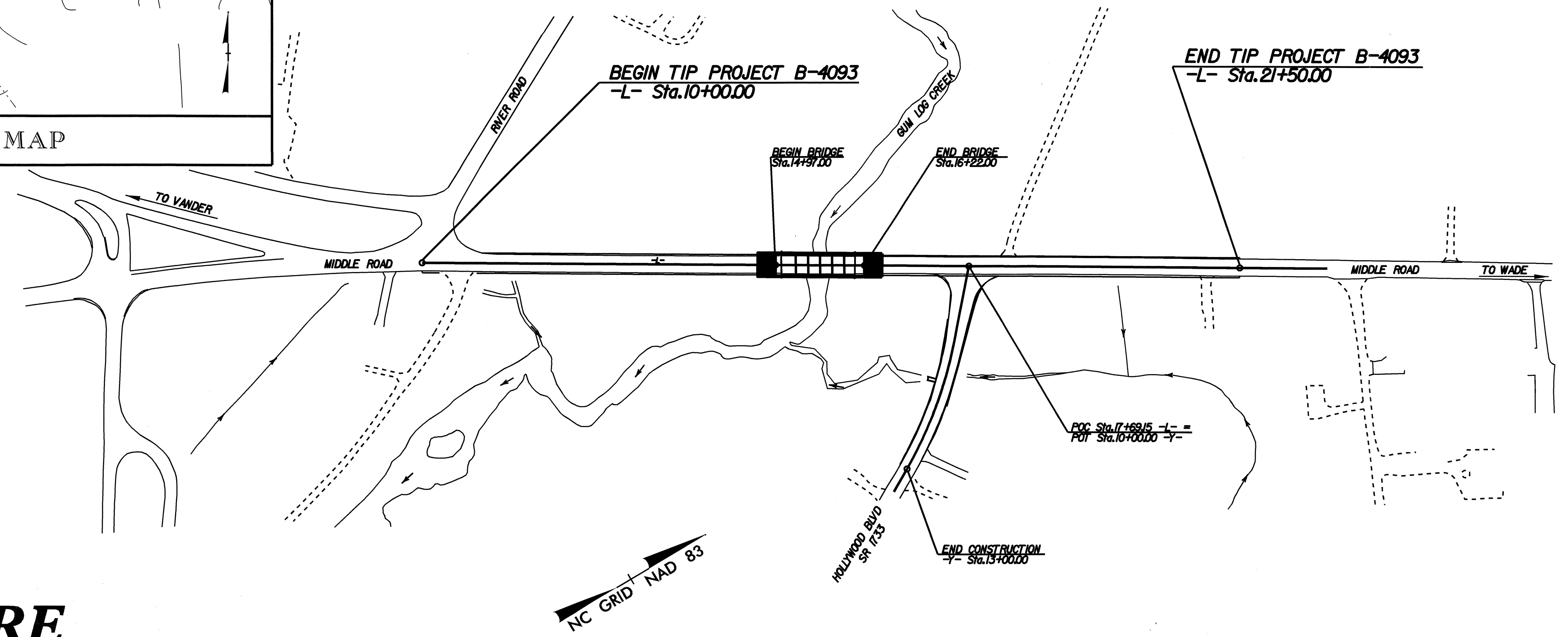
**CUMBERLAND COUNTY**

LOCATION: BRIDGE NO. 81 OVER GUM LOG CREEK ON SR 1728 (MIDDLE RD.)

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



VICINITY MAP

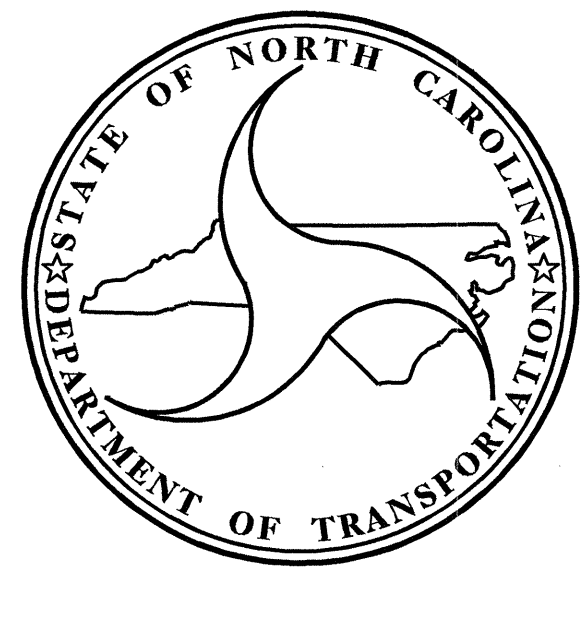
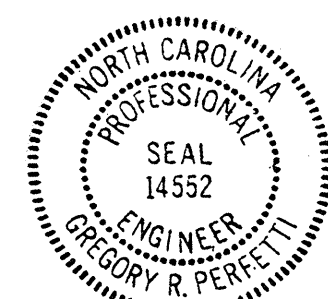


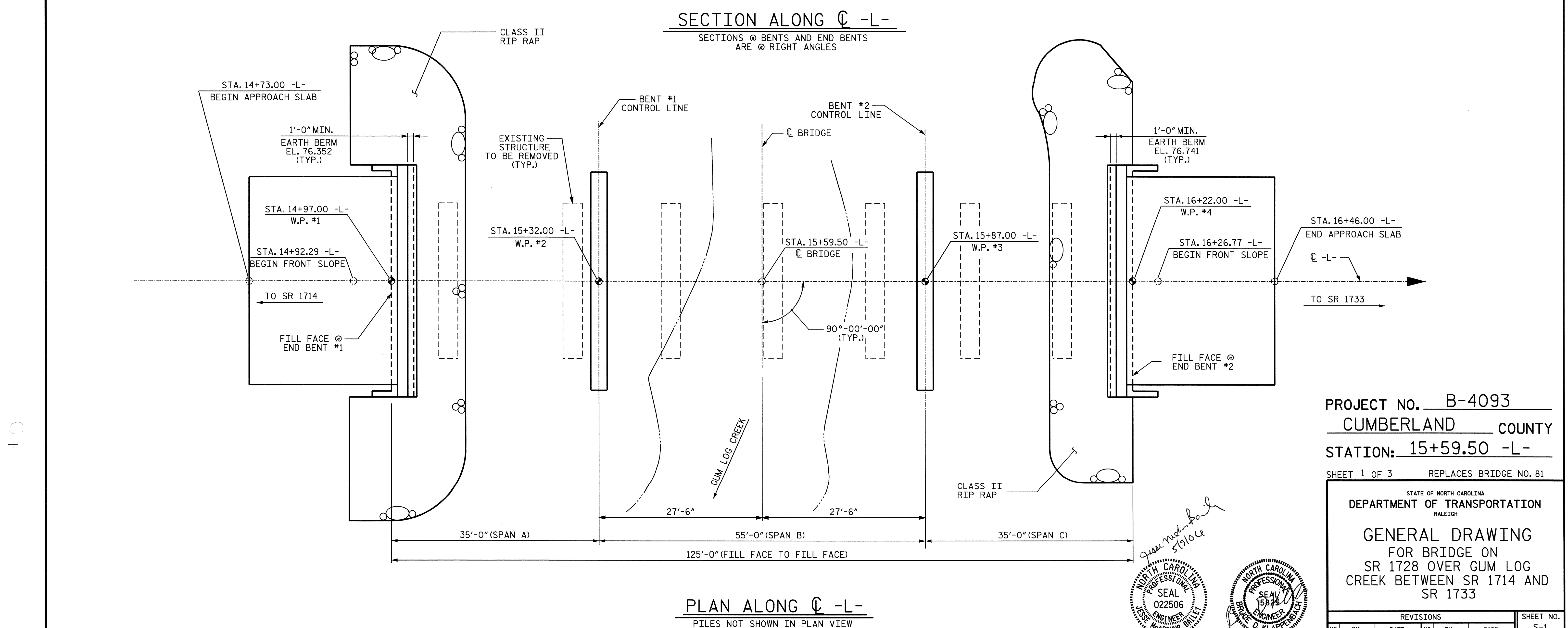
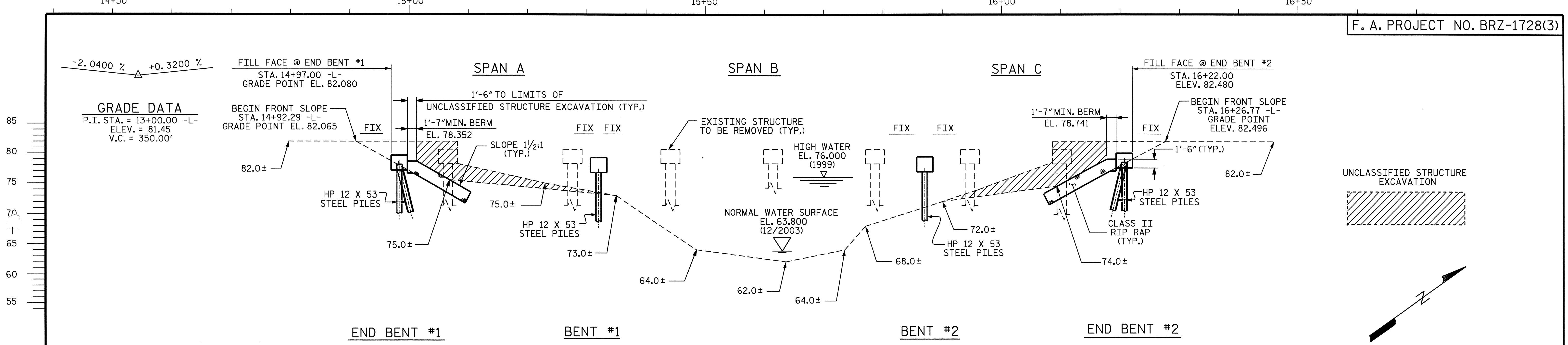
**STRUCTURE**

CONTRACT: C201257 TIP: PROJECT B-4093

09/08/99

DATE, STATES, TIME, STATES, STATES

	<b>DESIGN DATA</b> ADT 2005 = 3,250 ADT 2025 = 5,400 DHV = 10 % D = 60 % T = 5 % * V = 60 MPH * TTST 2% DUAL 3% FUNCTIONAL CLASS. = URBAN COLL.	<b>PROJECT LENGTH</b> LENGTH OF ROADWAY TIP PROJECT B-4093 = 0.194 MILES LENGTH OF STRUCTURE TIP PROJECT B-4093 = 0.024 MILES <hr/> TOTAL LENGTH OF TIP PROJECT B-4093 = 0.218 MILES	Prepared in the Office of: <b>DIVISION OF HIGHWAYS</b> 1000 Birch Ridge Dr., Raleigh NC, 27610 <hr/> 2002 STANDARD SPECIFICATIONS <hr/> J.M. BAILEY, P.E. PROJECT ENGINEER <hr/> B.D. KLAPPENBACH, P.E. PROJECT DESIGN ENGINEER	<b>STRUCTURE DESIGN UNIT</b> 1000 Birch Ridge Dr. Raleigh NC, 27610  G.R.P. 5.5.06	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA <hr/> P.E. STATE DESIGN ENGINEER DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION <hr/> APPROVED DIVISION ADMINISTRATOR DATE
	<b>LETTING DATE:</b> AUGUST 15, 2006				



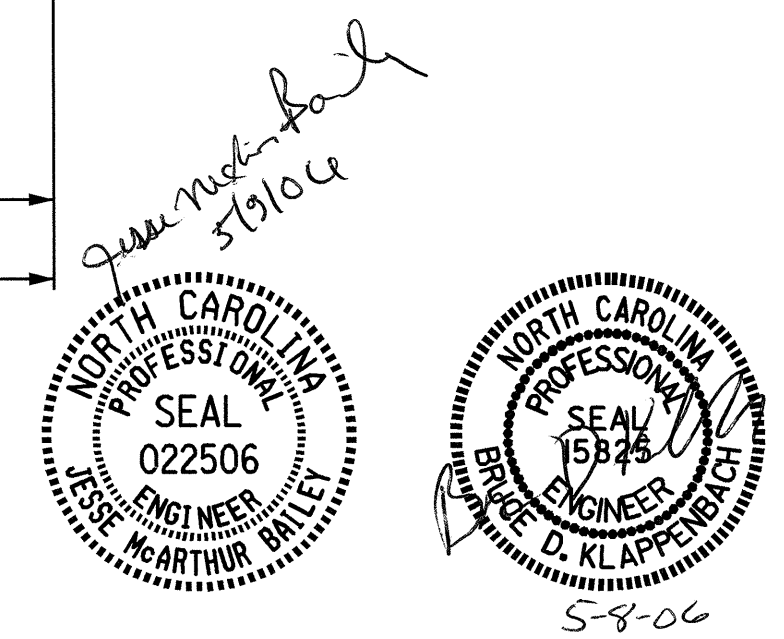
PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-  
 SHEET 1 OF 3 REPLACES BRIDGE NO. 81

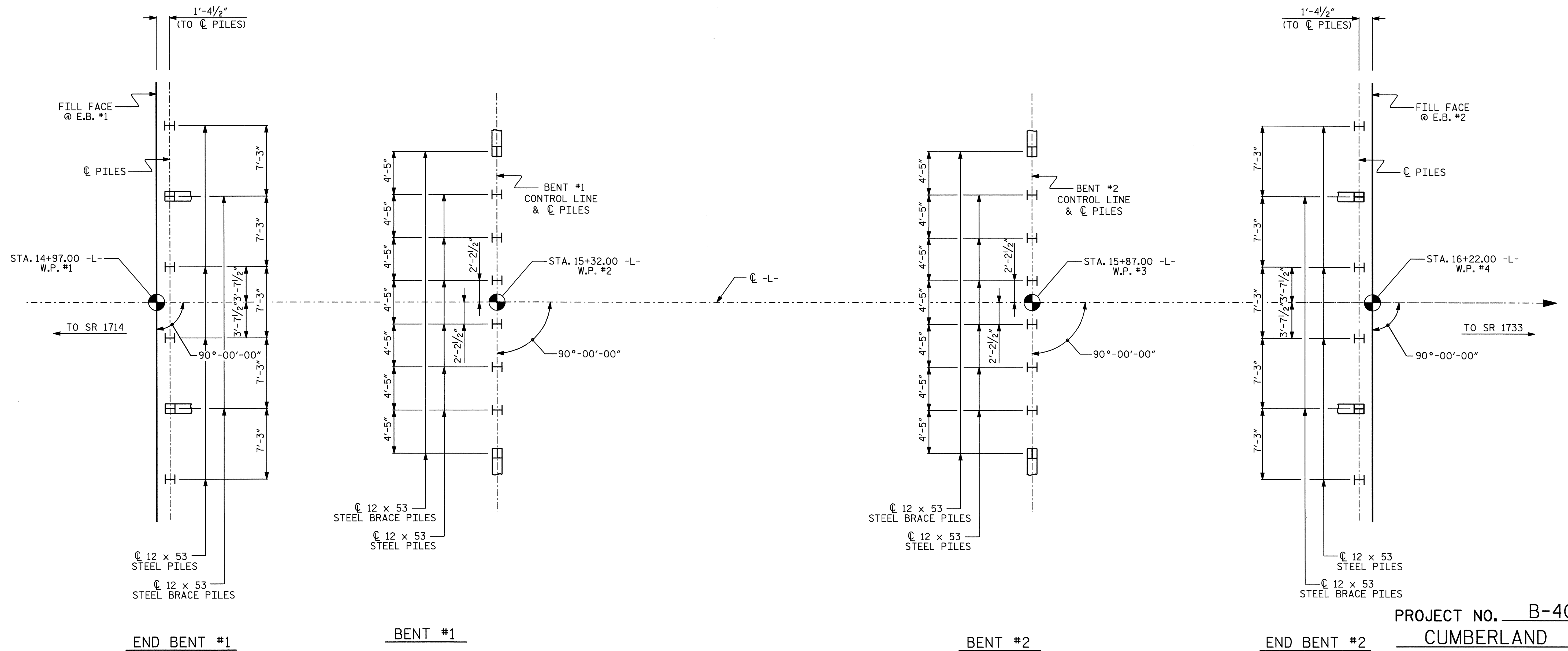
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON  
 SR 1728 OVER GUM LOG  
 CREEK BETWEEN SR 1714 AND  
 SR 1733

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

S-1  
TOTAL SHEETS  
25

DRAWN BY: A. SORSENGINH DATE: 8-25-04  
 CHECKED BY: M.G. SHAIKH DATE: 8-25-04





### FOUNDATION LAYOUT

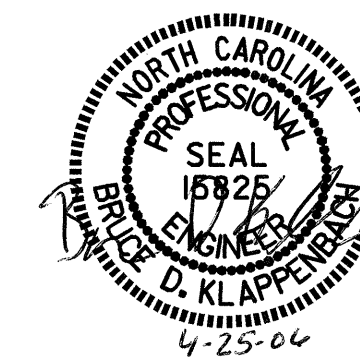
DIMENSIONS LOCATING PILES ARE TO C PILE AT BOTTOM OF CAP.  
 BRACE PILES @ END BENTS ARE BATTERED 3 :12.  
 BRACE PILES @ BENTS ARE BATTERED 1/2 :12.

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE ON  
 SR 1728 OVER GUM LOG  
 CREEK BETWEEN SR 1714 AND  
 SR 1733



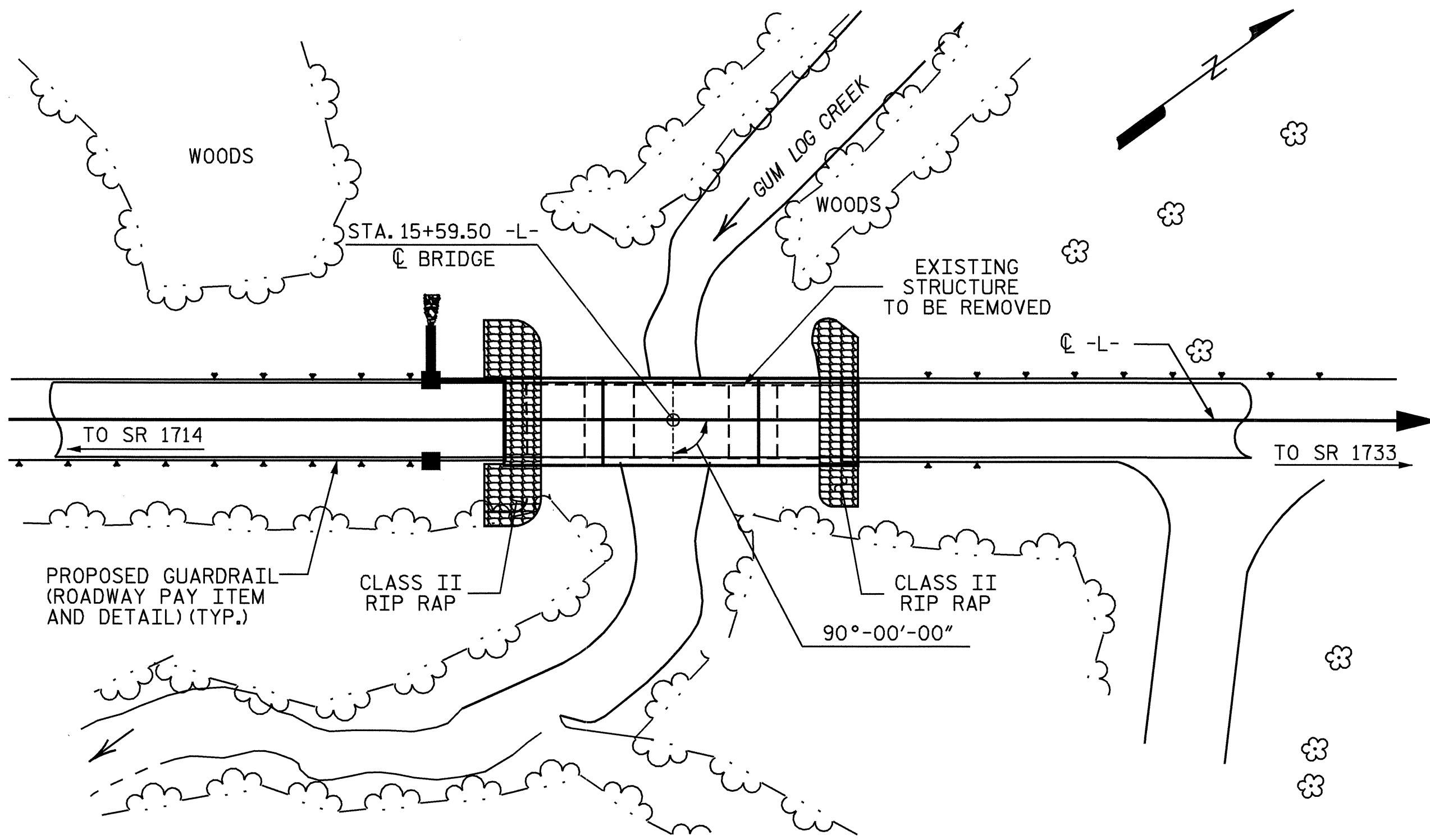
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 bklappenbach

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			25



BENCH MARK : BM #80 R/R SPIKE IN BASE OF 24" RIVER BIRCH,  
35.67 RT. OF STA. 20+11.12, ELEV. 82.79, NAVD 88



HYDRAULIC DATA

DESIGN DISCHARGE = 2150 CFS.  
 FREQUENCY OF DESIGN FLOOD = 25 YRS.  
 DESIGN HIGH WATER ELEVATION = 71.2 FT.  
 DRAINAGE AREA = 31 SQ. MI.  
 BASIC DISCHARGE (Q100) = 3270 CFS.  
 BASIC HIGH WATER ELEVATION = 73.0 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 4920+ CFS.  
 FREQUENCY OF OVERTOPPING FLOOD = 500 YRS.+  
 OVERTOPPING FLOOD ELEVATION = 81.93 FT.

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

LOCATION SKETCH

NOTES

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

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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.

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 6 SPANS, 1 @ 17'-11", 1 @ 16'-11", 1 @ 16'-10", 2 @ 17'-2" & 1 @ 17'-8" WITH A REINFORCED CONCRETE DECK AND 3" OF ASPHALT WEARING SURFACE ON 21 LINES OF 6 X 12 TIMBER JOISTS @ VARIOUS CENTERS, ON TIMBER CAP/TIMBER PILES AT END BENT 1 AND 2, AND TIMBER CAP/TIMBER POST & CONCRETE SILL AT INTERIOR BENTS, WITH A CLEAR ROADWAY WIDTH OF 26.0 FT. LOCATED AT THE SAME LOCATION AS THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED BELOW THE LEGAL LOAD LIMIT.

PILES FOR END BENT NO.1 AND END BENT NO.2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONS EACH.

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

PILES AT BENTS NO.1 AND NO.2 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN 54.0 FEET AND SATISFY THE BEARING CAPACITY OF 50 TONS EACH.

PROVIDE GALVANIZED STEEL PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS AND THE GALVANIZING STEEL PILES SPECIAL PROVISIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 64.0 FEET. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 64.0 FEET. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER, 1995.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 22.0 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. FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SPECIAL PROVISIONS.

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.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR STEEL H PILES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	GALVANIZING STEEL PILES	CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	CONCRETE WEARING SURFACE	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	DEBRIS REMOVAL
	LUMP SUM	LUMP SUM	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO. LIN.FT.	LUMP SUM	LIN.FT.	TONS	SQ. YDS.	LUMP SUM	SQ.FT.	NO. LIN.FT.	LUMP SUM
SUPERSTRUCTURE			4599		LUMP SUM				245.50			LUMP SUM	3670	33 1347.50	
END BENT NO. 1		LUMP SUM		12.9		2025	6 120			90	100				
BENT NO. 1				9.8		1759	8 240	LUMP SUM							
BENT NO. 2				9.8		1759	8 240	LUMP SUM							
END BENT NO. 2		LUMP SUM		12.9		2025	6 135			95	106				
TOTAL	LUMP SUM	LUMP SUM	4599	45.4	LUMP SUM	7568	28 735	LUMP SUM	245.50	185	206	LUMP SUM	3670	33 1347.50	LUMP SUM

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 3 OF 3

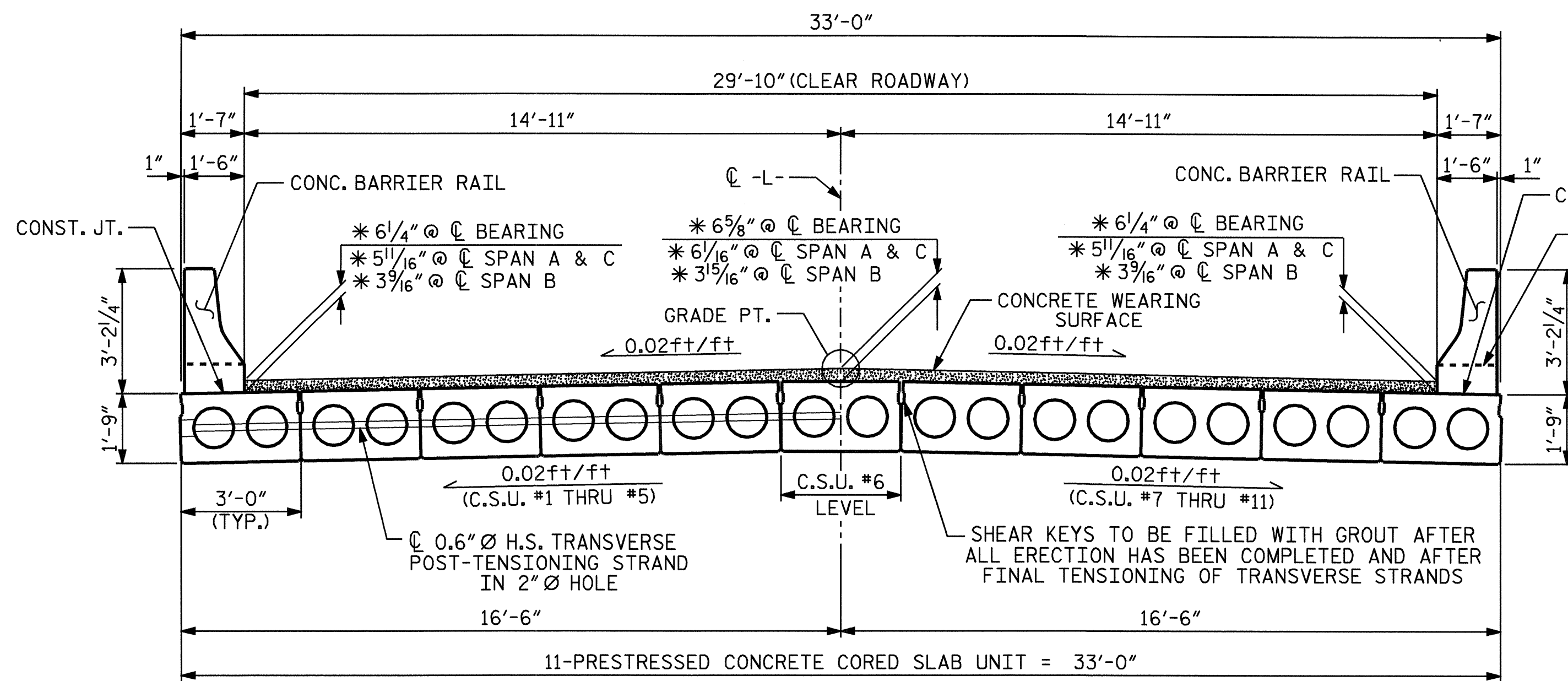
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE ON  
 SR 1728 OVER GUM LOG  
 CREEK BETWEEN SR 1714 AND  
 SR 1733



DRAWN BY : A. SORSENGINH DATE : 8-25-04  
 CHECKED BY : M.G. SHAIKH DATE : 9-20-04

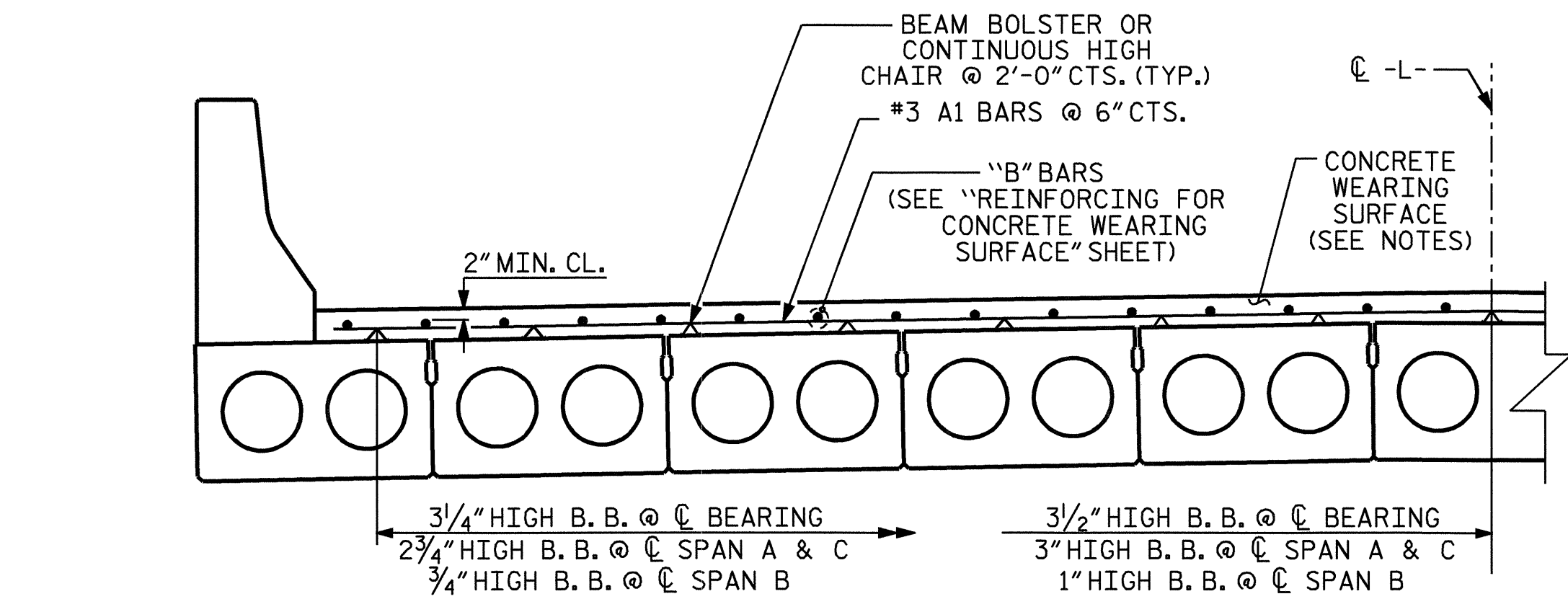
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			25



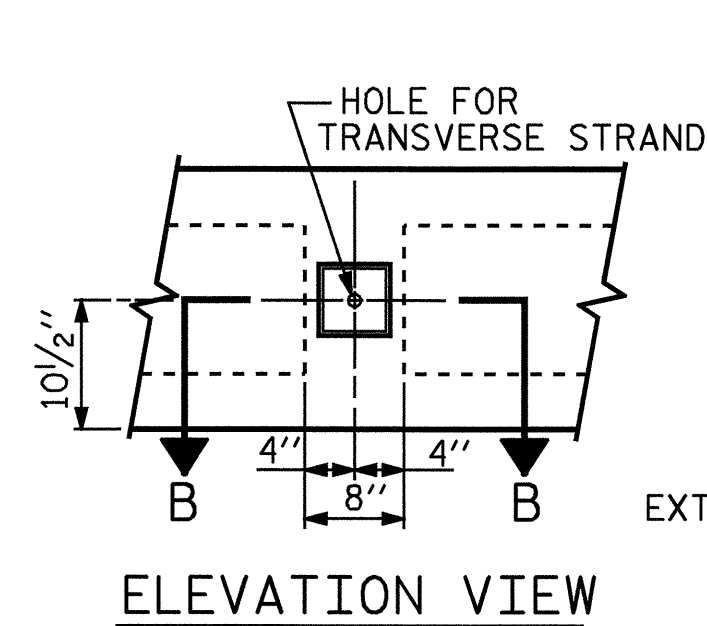


TYPICAL SECTION

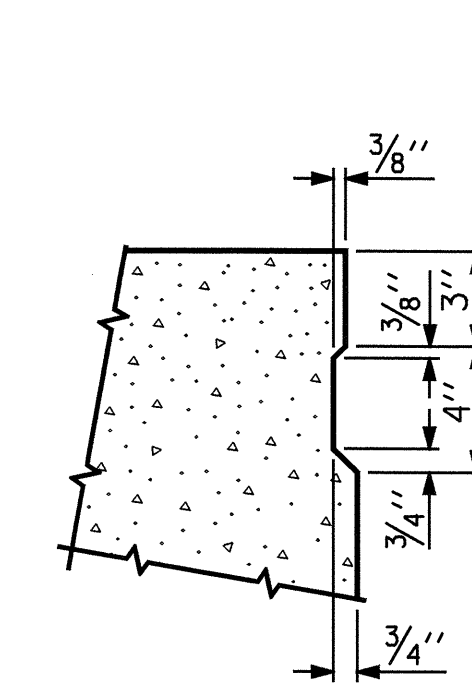
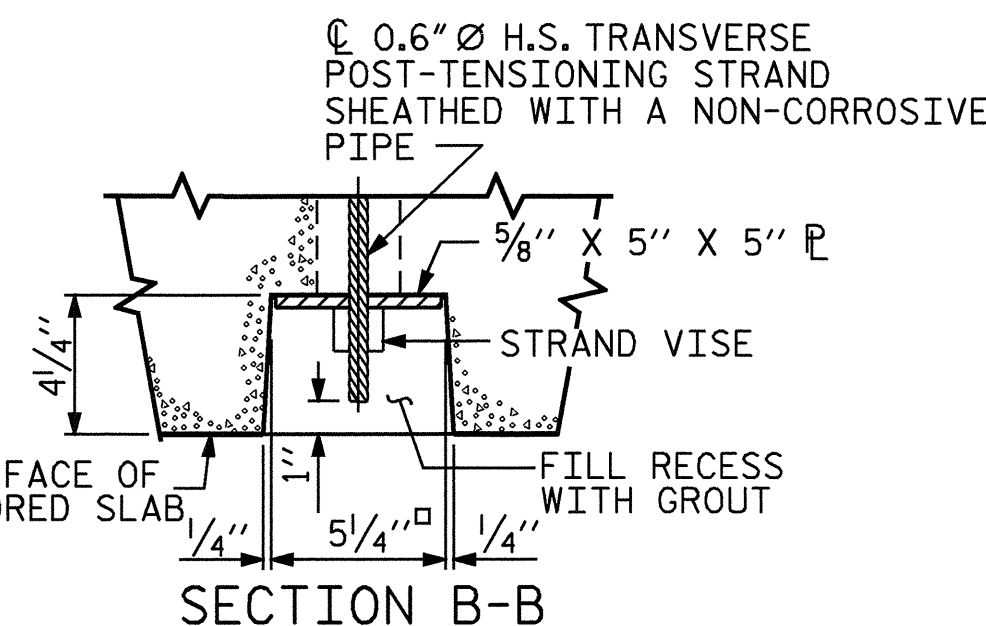
\* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.



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

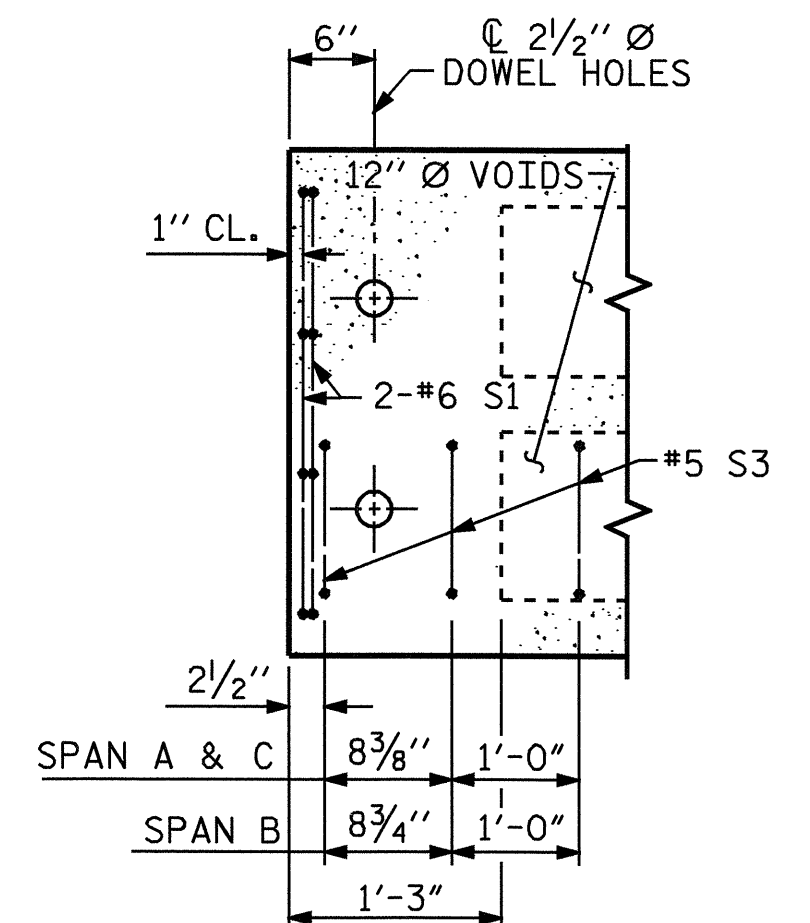


GRouted RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



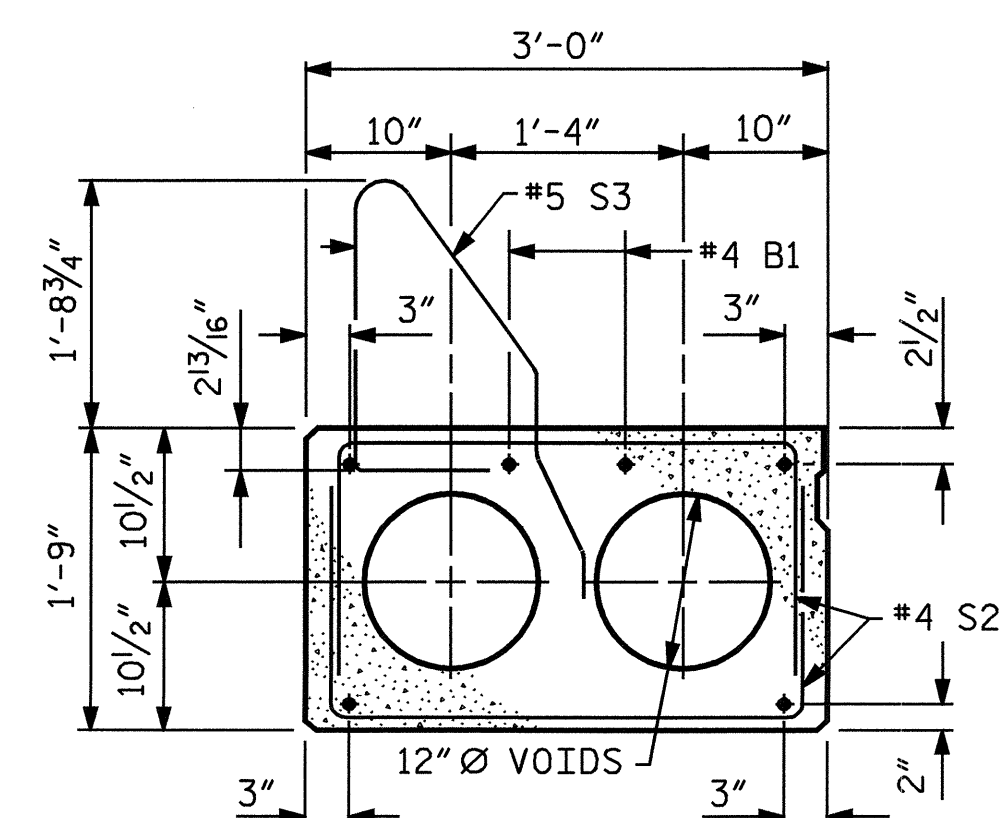
SHEAR KEY DETAIL

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



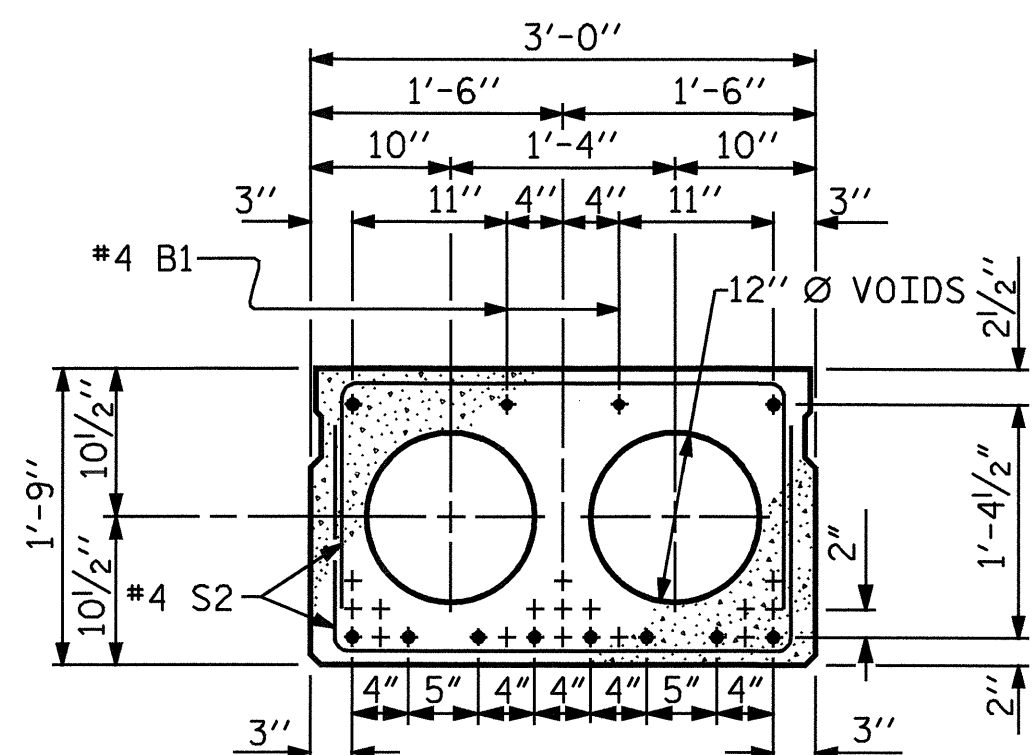
PART PLAN-EXTERIOR SECTION

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



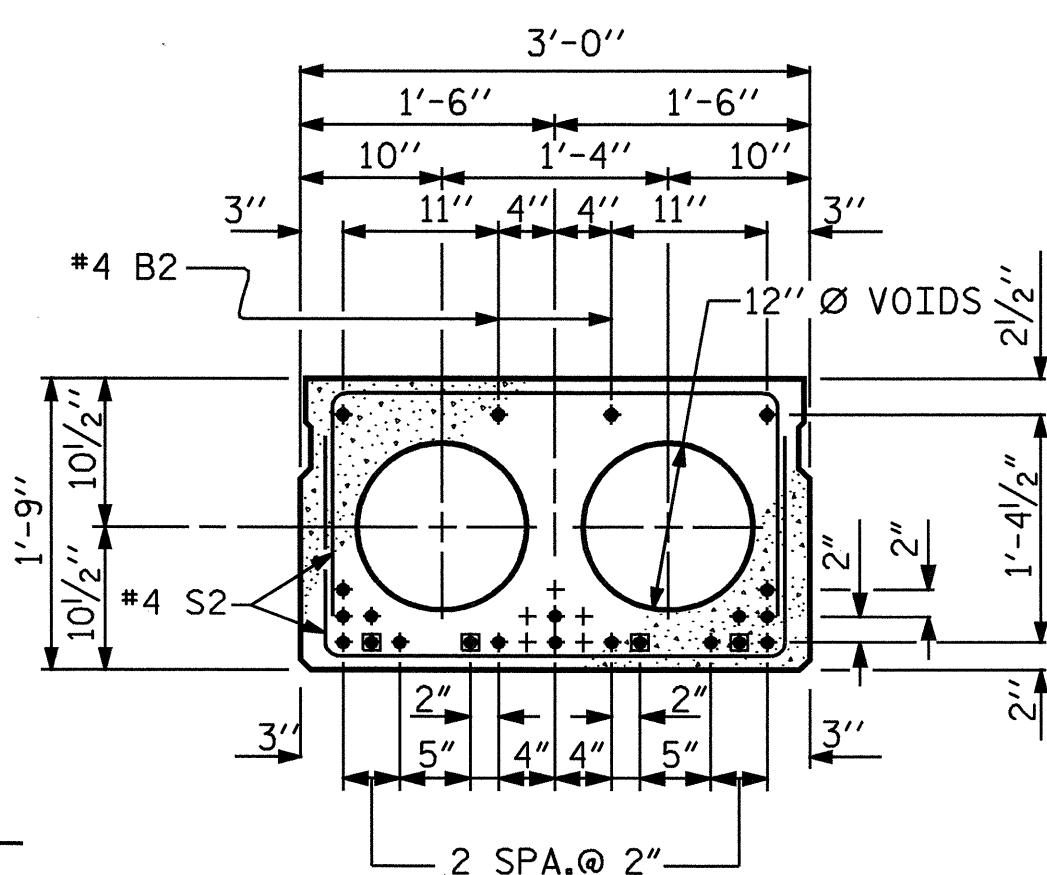
EXTERIOR SLAB SECTION

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



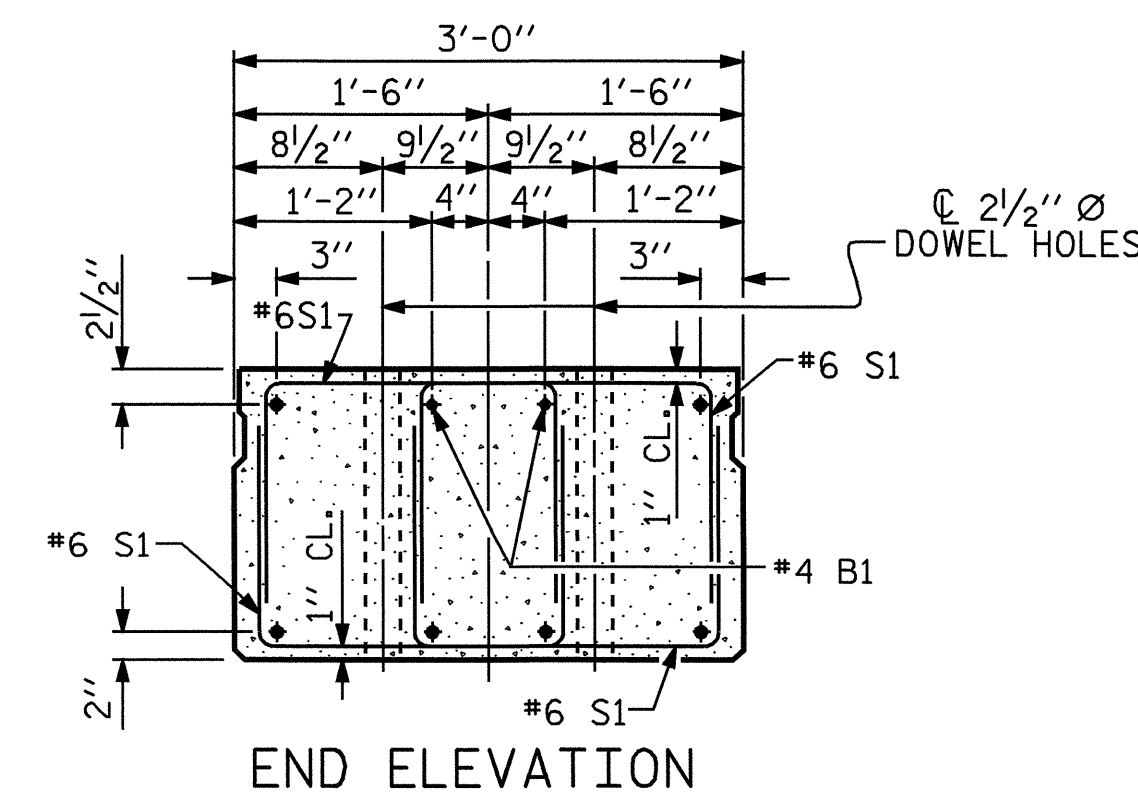
INTERIOR SLAB SECTION SPAN "A" & "C"

0.6" Ø LOW RELAXATION STRAND LAYOUT



INTERIOR SLAB SECTION SPAN "B"

0.6" Ø LOW RELAXATION STRAND LAYOUT



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-4093  
CUMBERLAND COUNTY  
STATION: 15+59.50 -L-

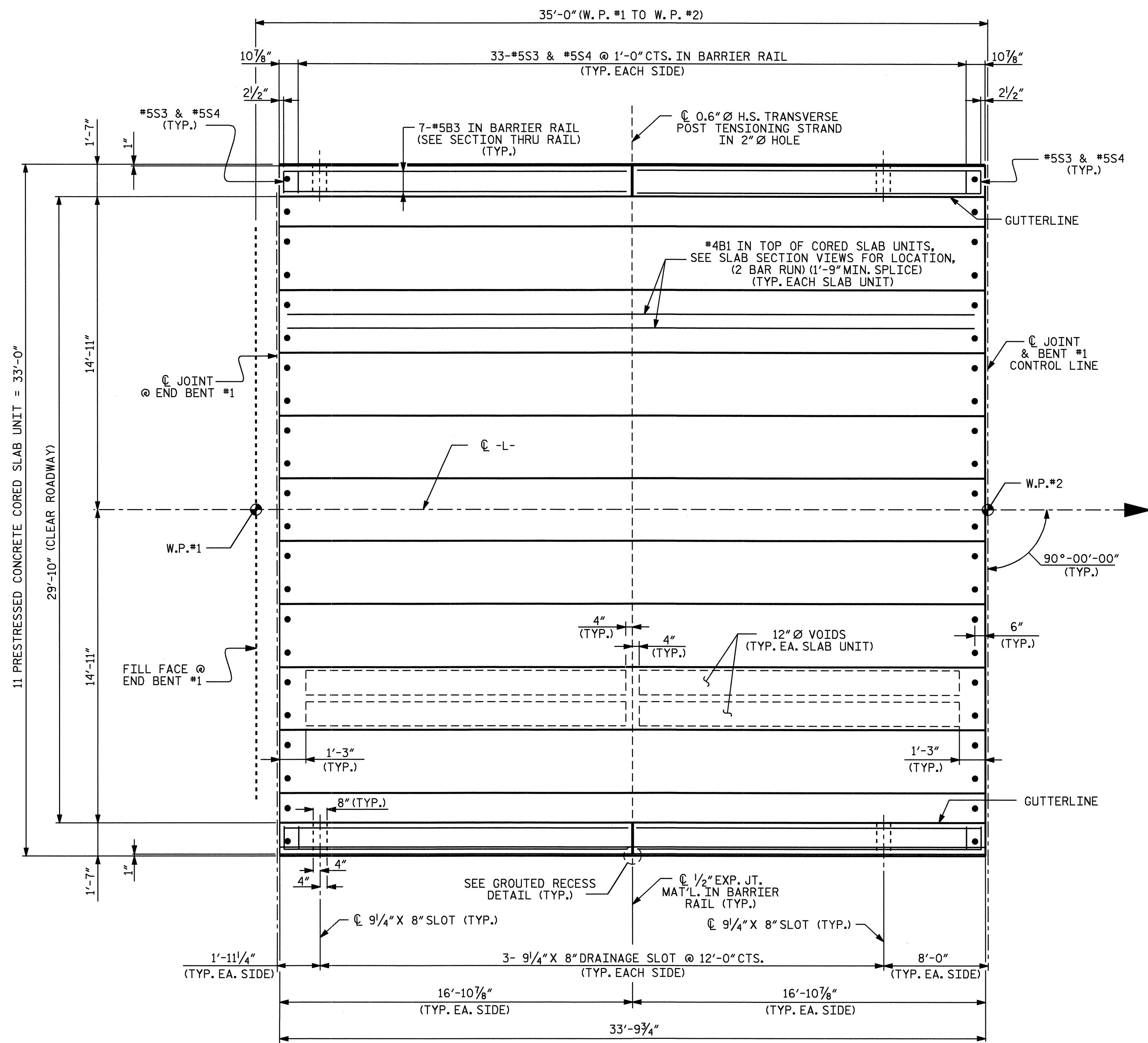
SHEET 1 OF 7

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

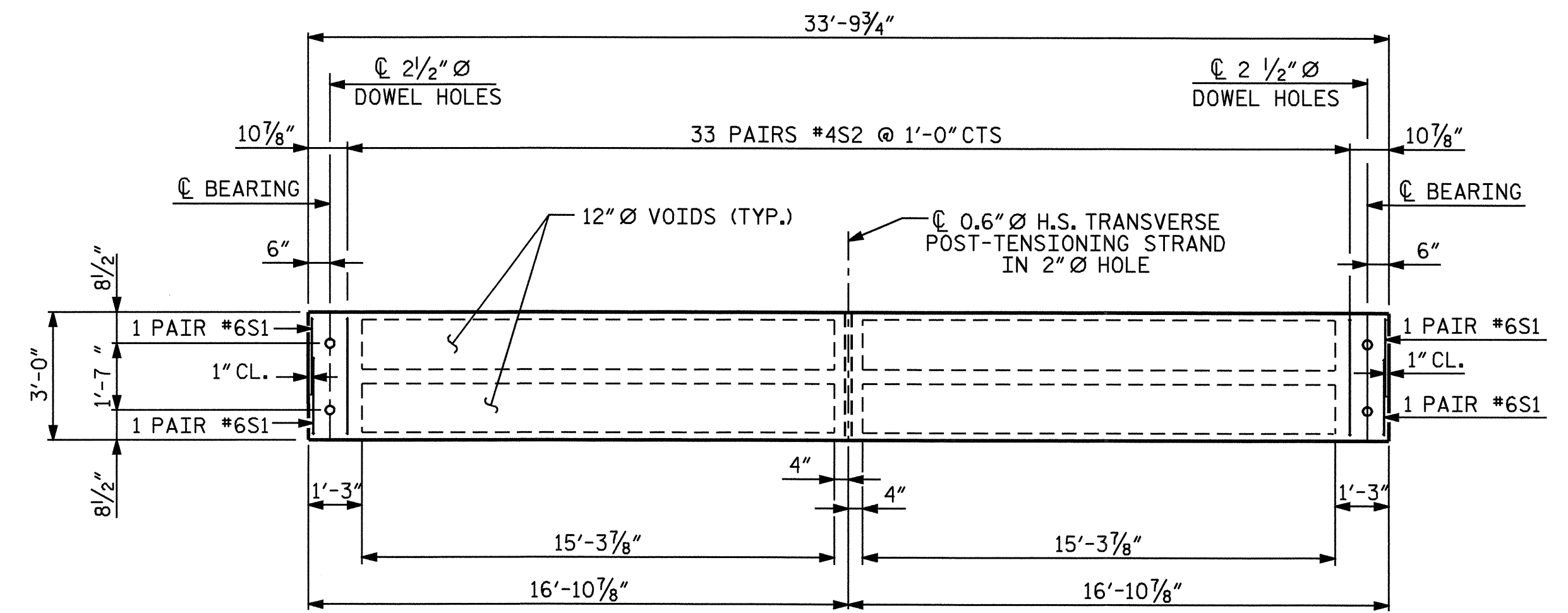
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PRESTRESSED  
CONCRETE CORED  
SLAB UNIT

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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

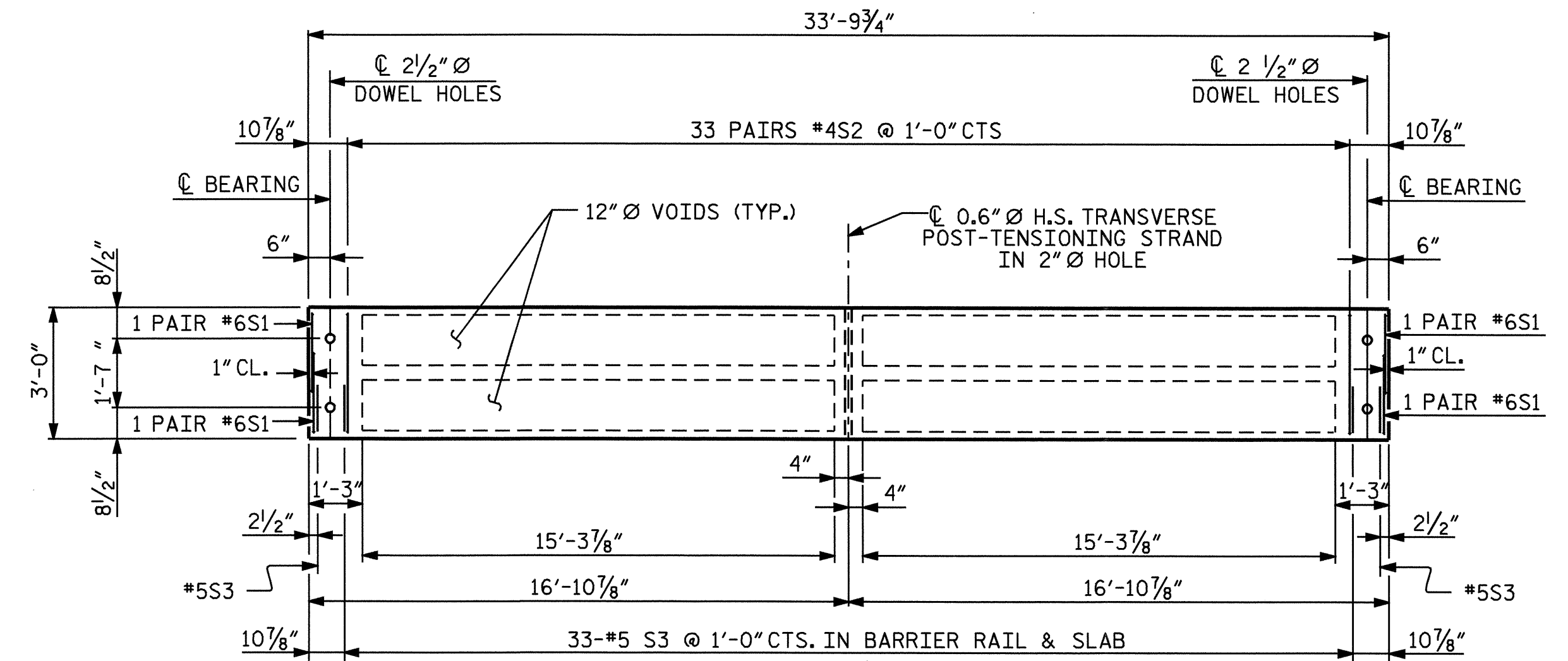
ASSEMBLED BY : M. G. SHAIKH	DATE : 5-25-05
CHECKED BY : D. A. GLADDEN	DATE : 6-07-05
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01 RWW/LES
	REV. 5/7/03 RWW/JTE



PLAN OF SPAN A



PLAN OF INTERIOR CORED SLAB UNIT

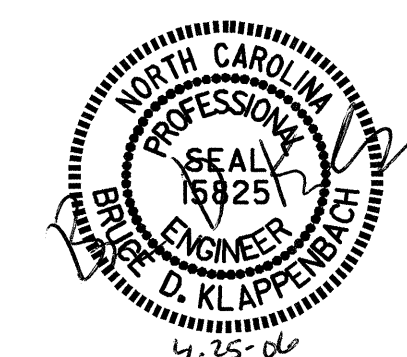


PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 2 OF 7

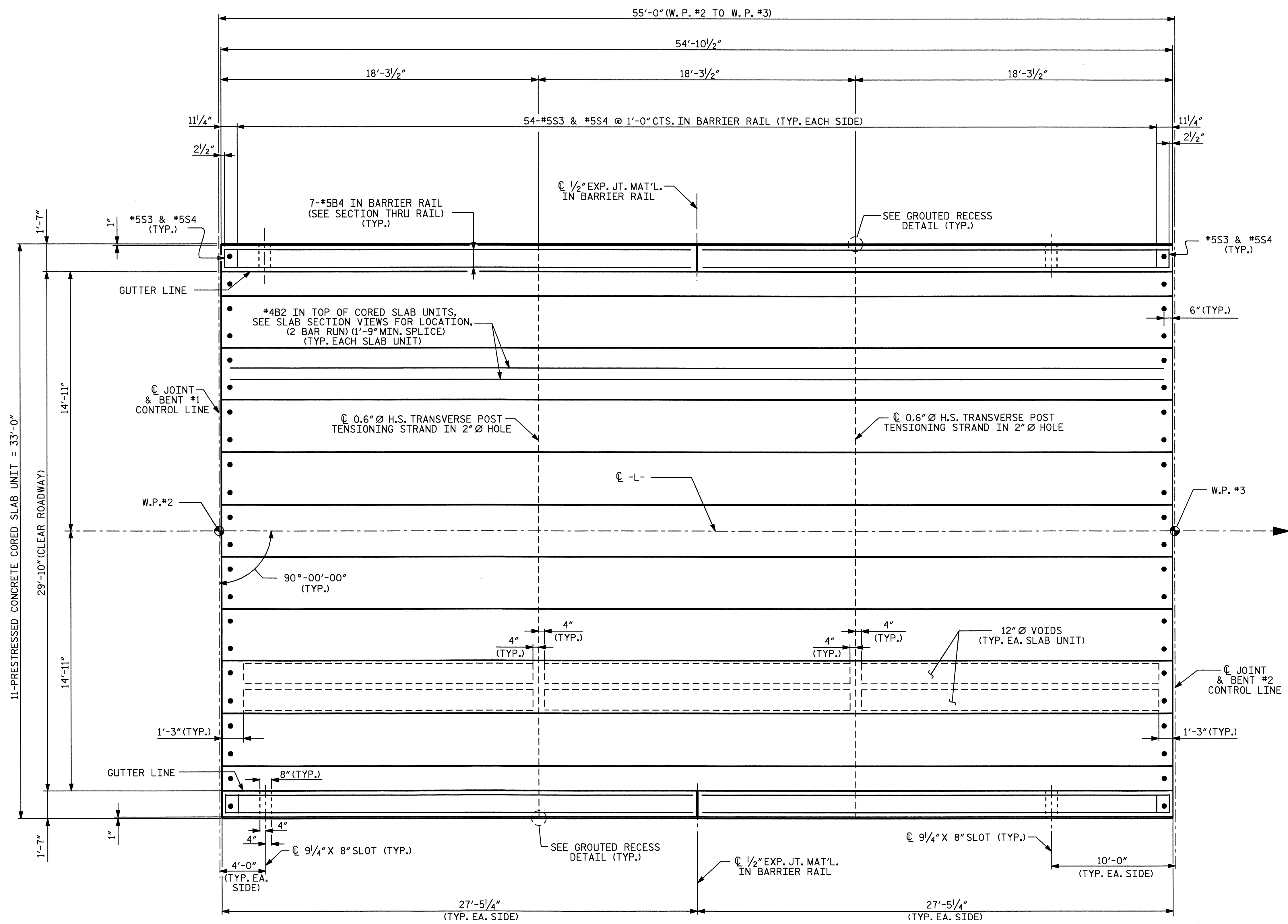
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 SPAN A



DRAWN BY: M. G. SHAIKH DATE: 5-25-05  
 CHECKED BY: D. A. GLADDEN DATE: 6-07-05

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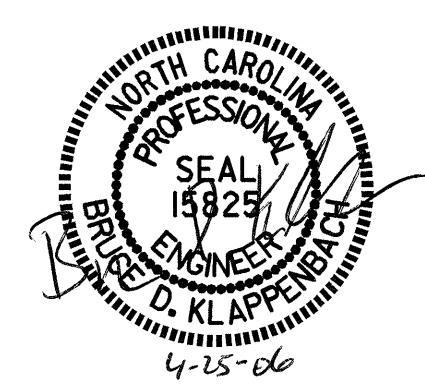


PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 3 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

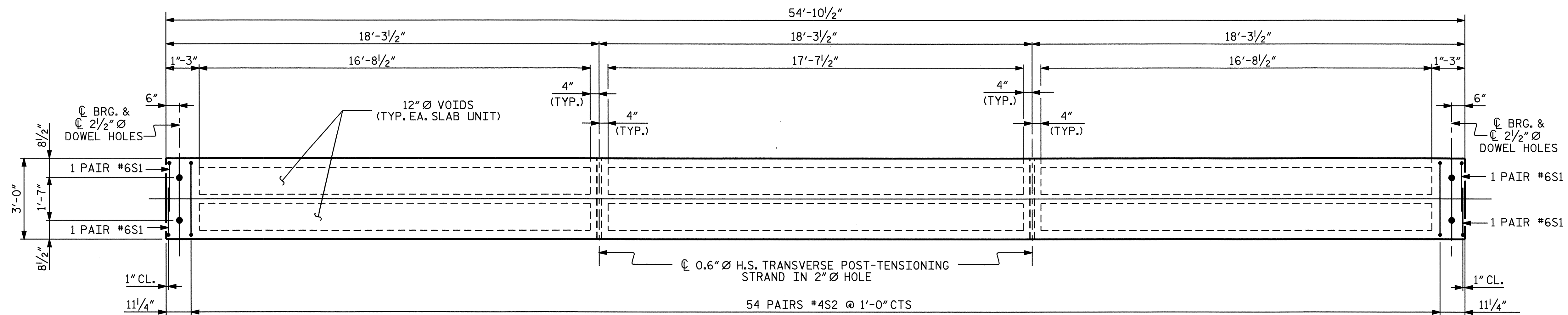
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 PRESTRESSED  
 CONCRETE CORED  
 SLAB UNIT  
 SPAN B



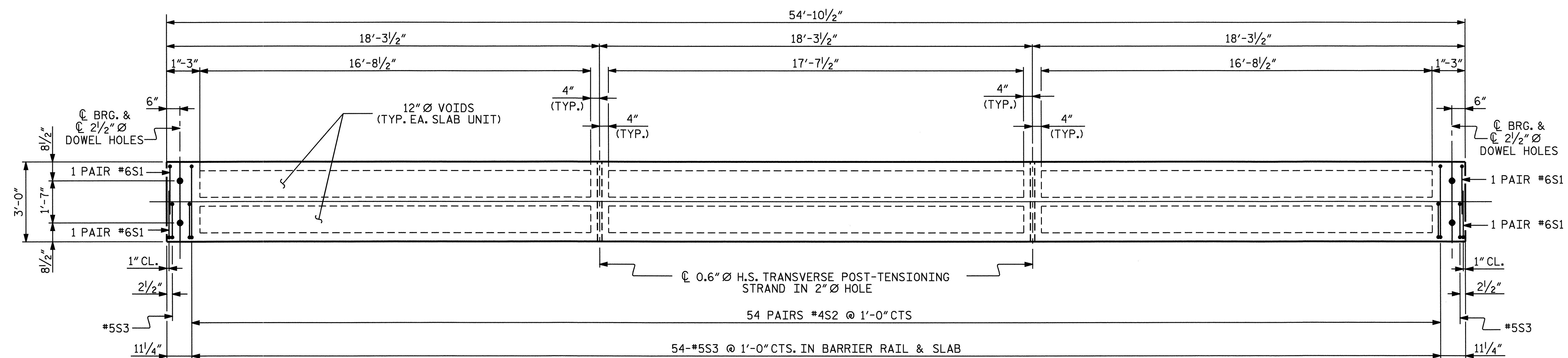
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2			4				

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 CHECKED BY : D. A. GLADDEN DATE : 6-07-05





PLAN OF INTERIOR CORED SLAB UNIT



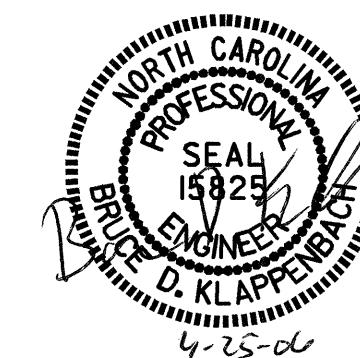
PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

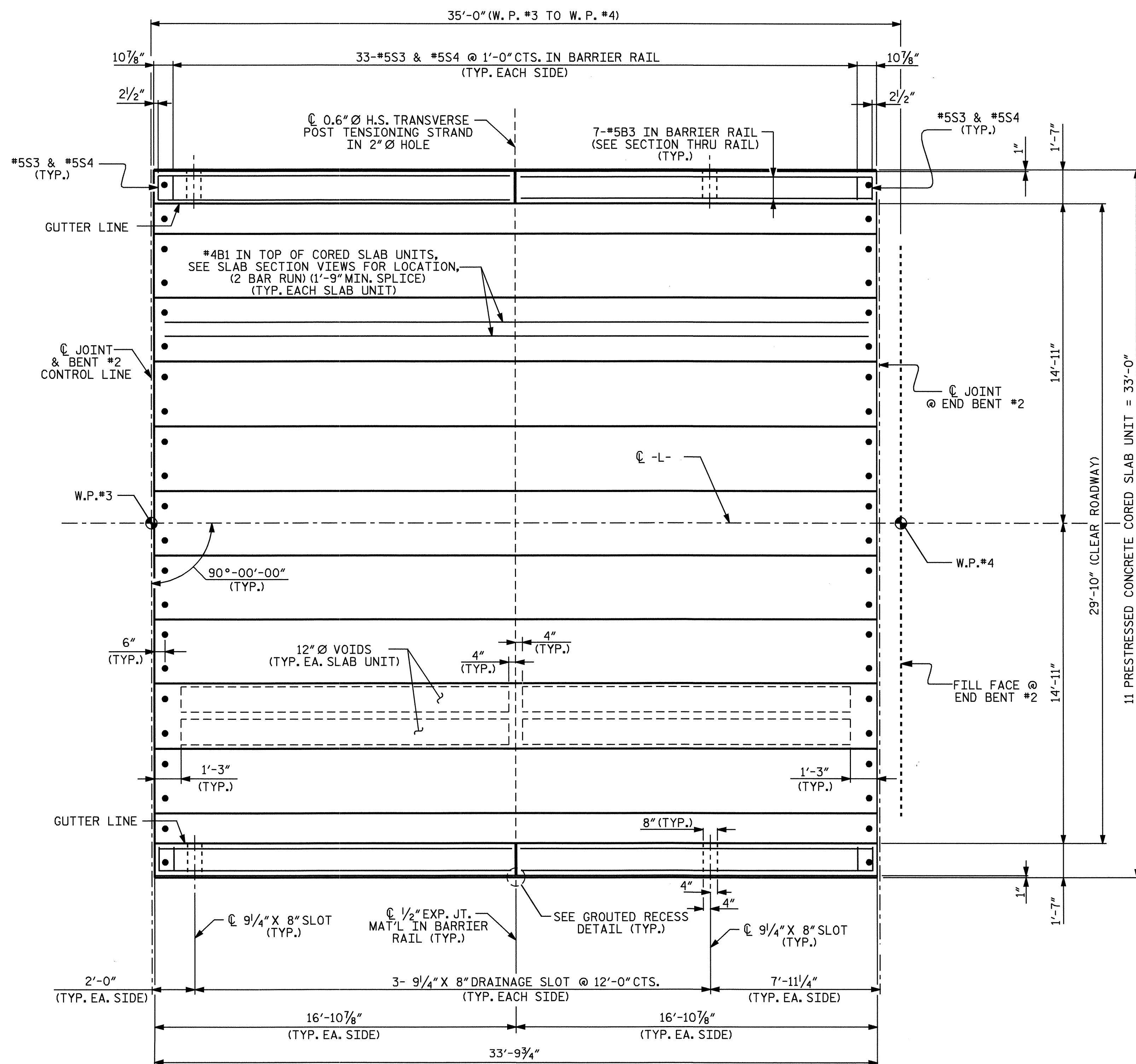
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 PRESTRESSED  
 CONCRETE CORED  
 SLAB UNIT  
 SPAN B



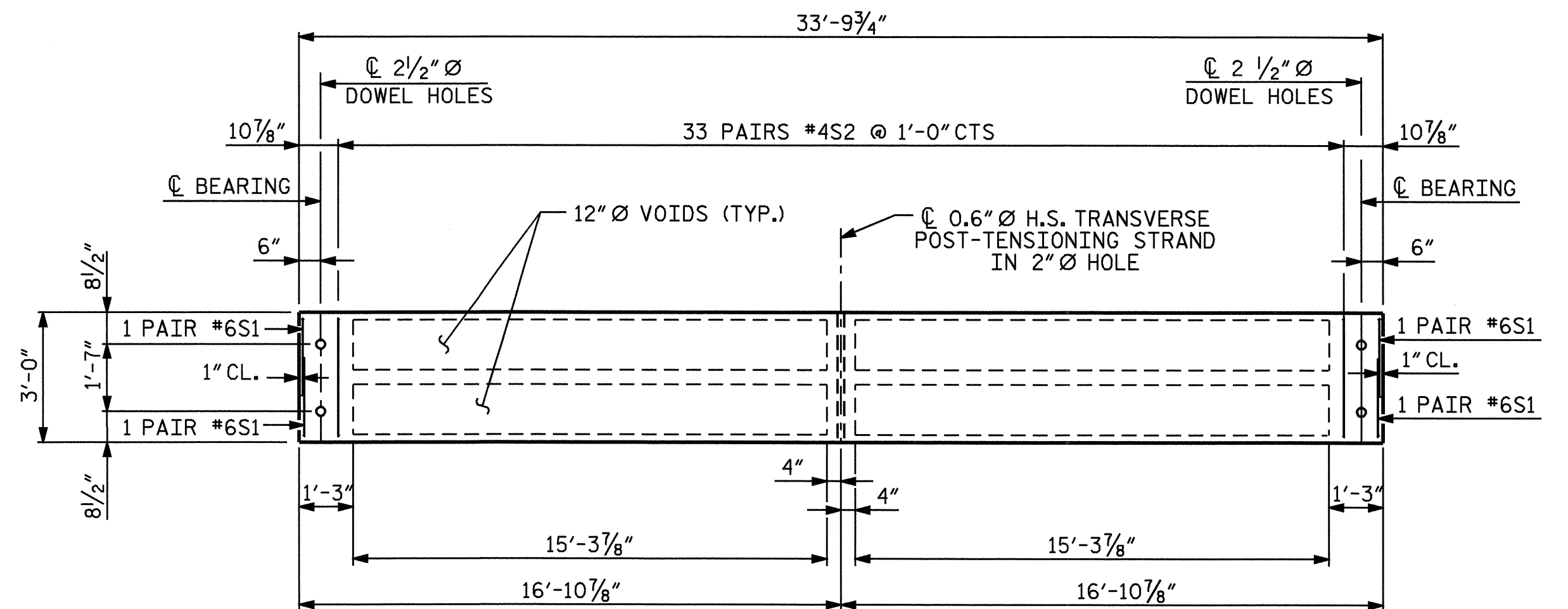
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 bkappenbach

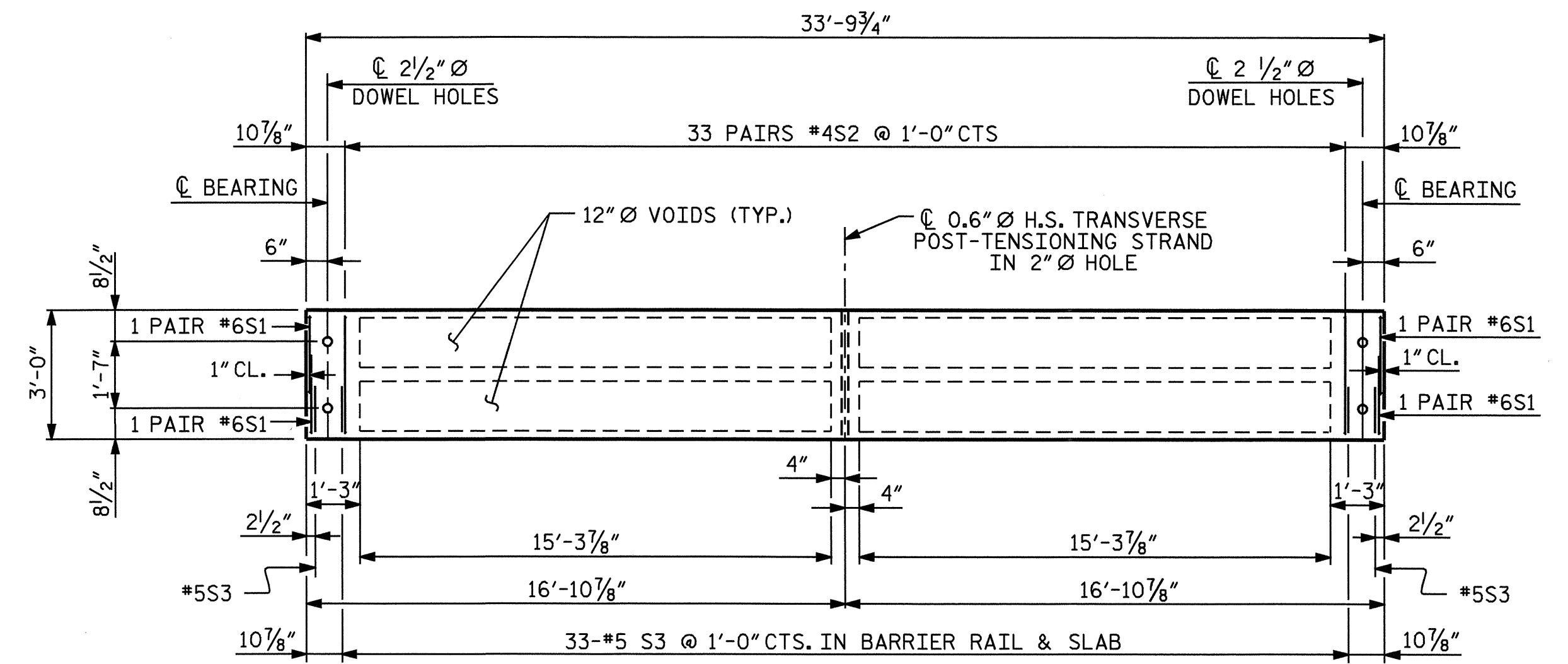
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			25



PLAN OF SPAN C



PLAN OF INTERIOR CORED SLAB UNIT



PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 5 OF 7

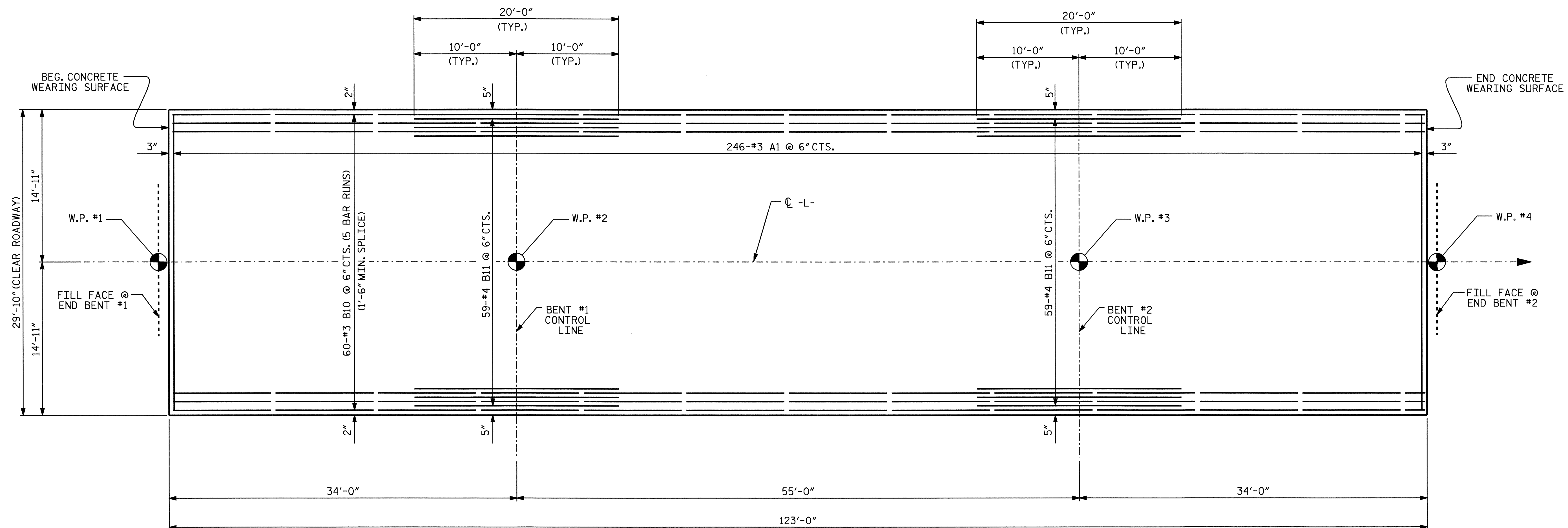
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 SPAN C



DRAWN BY: M. G. SHAIKH DATE: 5-25-05  
 CHECKED BY: D. A. GLADDEN DATE: 6-07-05

25-APR-2006 12:43  
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 bklappenbach

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			25



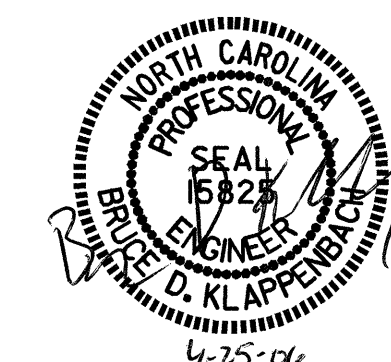
PLAN OF REINFORCING FOR CONCRETE WEARING SURFACE

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

REINFORCING FOR  
 CONCRETE  
 WEARING SURFACE



DRAWN BY : M. G. SHAIKH DATE : 12-14-04  
 CHECKED BY : K. MCCAULEY DATE : 03-07-06

25-APR-2006 12:43  
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 bklappenbach

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			25



<b>CONCRETE WEARING SURFACE</b>
SQ. FT. 3670
APPROX. C.Y. 60.0

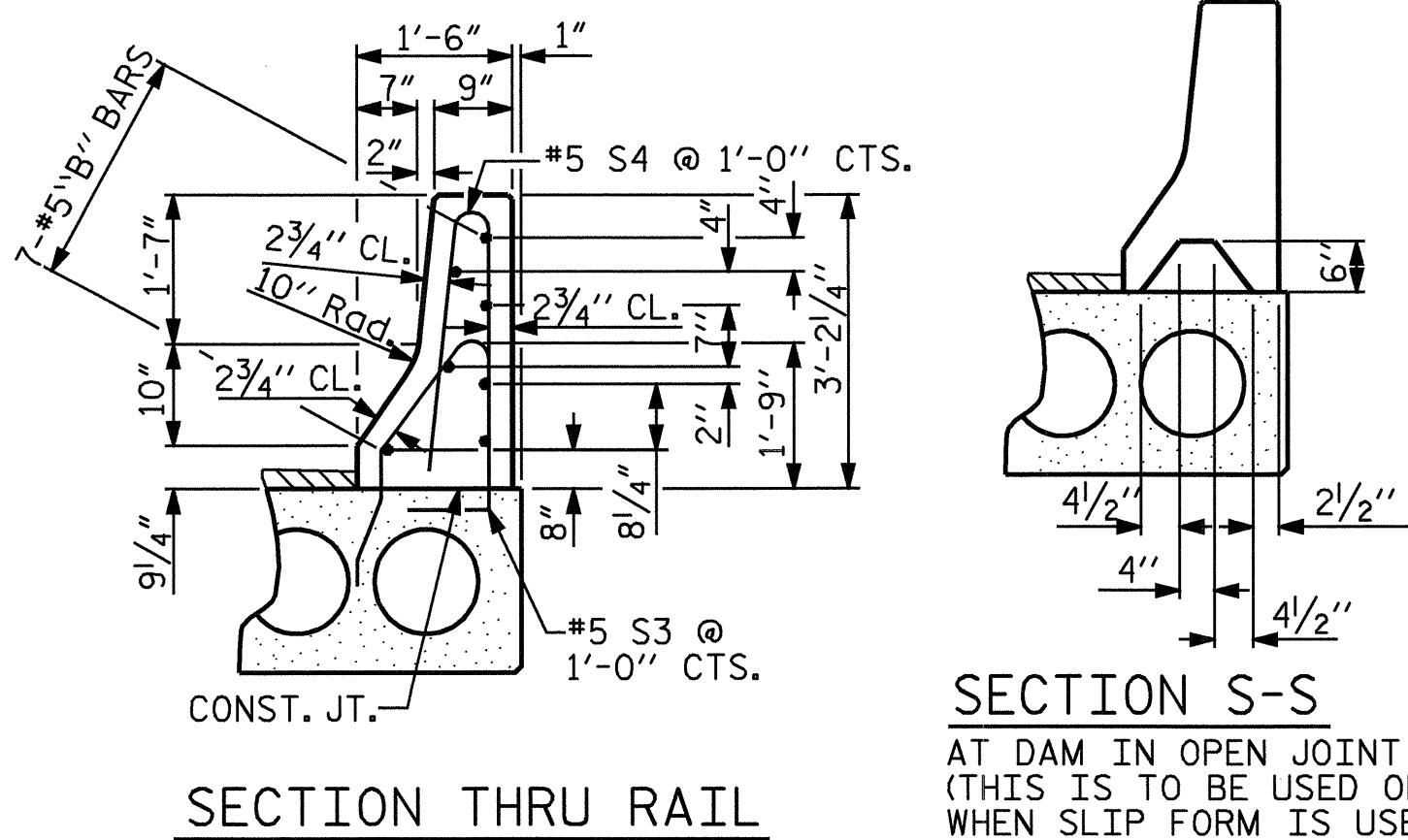
REINFORCING BAR SCHEDULE FOR CONCRETE WEARING SURFACE					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*A1	246	#3	STR	29'-6"	2729
*B10	300	#3	STR	25'-9"	2905
*B11	118	#4	STR	20'-0"	1576
*EPOXY COATED REINFORCING STEEL					7257 LBS.

GRADE 270 STRANDS	
AREA ( SQUARE INCHES )	0.6" Ø L.R.
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950

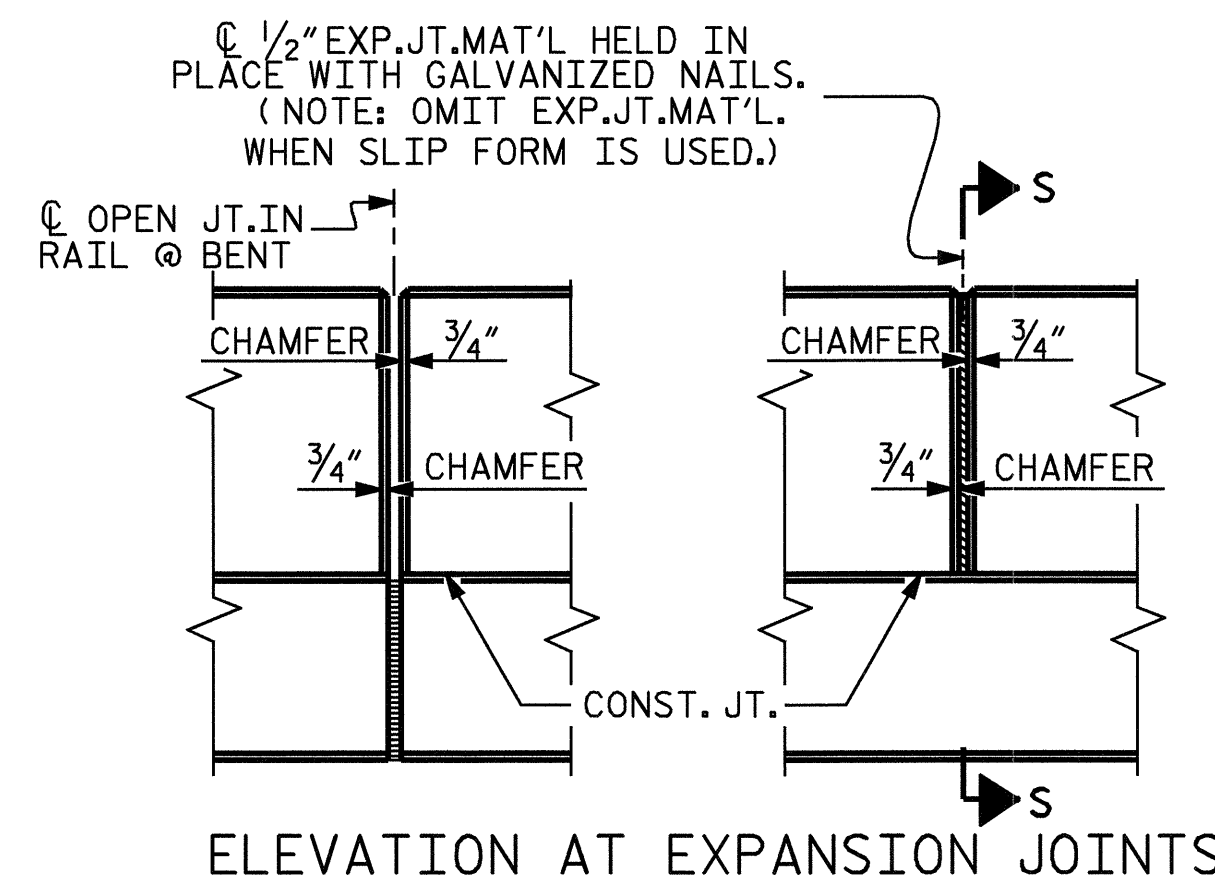
DEAD LOAD DEFLECTION AND CAMBER		
	SPANS A & C	SPAN B
	3'-0" x 1'-9"	3'-0" x 1'-9"
	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND
CAMBER ( SLAB ALONE IN PLACE )	↑ 5/8"	↑ 2 1/16"
DEFLECTION DUE TO CONCRETE WEARING SURFACE **	↓ 1/16"	↓ 1/4"
FINAL CAMBER	↑ 9/16"	↑ 2 1/16"

\*\* RAIL AND FUTURE WEARING SURFACE NOT INCLUDED.

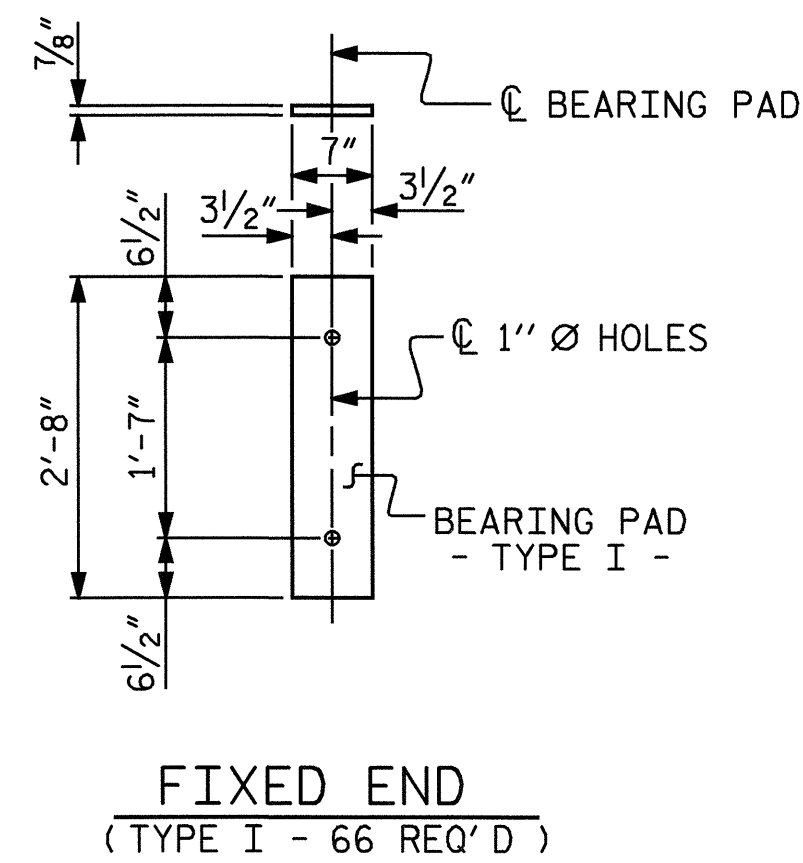
GROOVING BRIDGE FLOORS	
BRIDGE DECK	3292 SQ. FT.
APPROACH SLABS	1307 SQ. FT.
TOTAL	4599 SQ. FT.



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

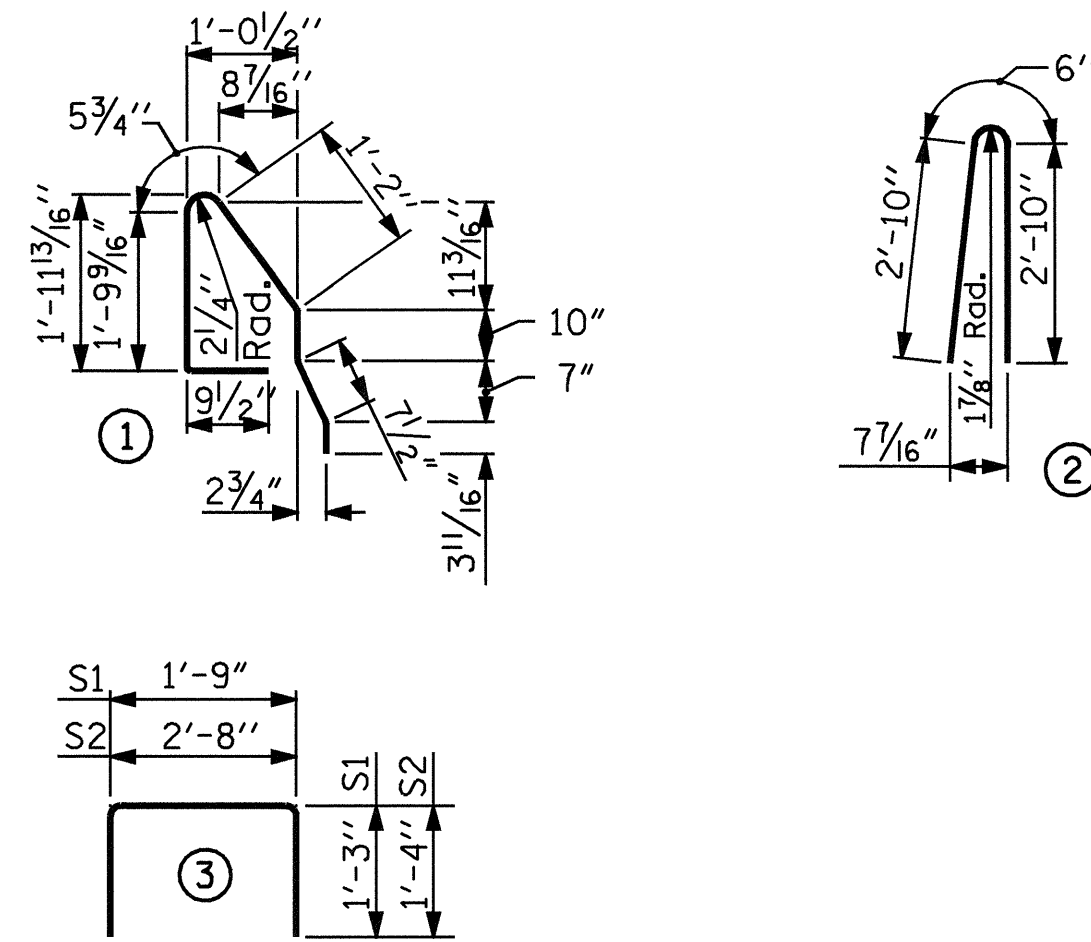


BARRIER RAIL DETAILS



ELASTOMERIC BEARING DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN A & C	EXTERIOR UNIT				INTERIOR UNIT			
	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	# 4	STR	17'-8"	47	17'-8"	47	
S1	8	# 6	3	4'-3"	51	4'-3"	51	
S2	66	# 4	3	5'-4"	235	5'-4"	235	
*S3	35	# 5	1	6'-0"	219			
REINFORCING STEEL				333 LBS.		333 LBS.		
*EPOXY COATED REINFORCING STEEL				219 LBS.				
5,000 P.S.I. CONCRETE				4.7 CU. YDS.		4.7 CU. YDS.		
0.6" Ø L.R. STRANDS				No.	10		10	

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN B	EXTERIOR UNIT				INTERIOR UNIT			
	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	# 4	STR	28'-2"	75	28'-2"	75	
S1	8	# 6	3	4'-3"	51	4'-3"	51	
S2	108	# 4	3	5'-4"	385	5'-4"	385	
*S3	56	# 5	1	6'-0"	350			
REINFORCING STEEL				511 LBS.		511 LBS.		
*EPOXY COATED REINFORCING STEEL				350 LBS.				
5,800 P.S.I. CONCRETE				7.6 CU. YDS.		7.6 CU. YDS.		
0.6" Ø L.R. STRANDS				No.	20		20	

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
*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'-2"	1621
*EPOXY COATED REINFORCING STEEL							3376 LBS.	
CLASS AA CONCRETE							31.3 CU. YDS.	
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL							245.50	

CORED SLABS REQUIRED

	SPAN A		SPAN B		SPAN C		TOTAL LENGTH
	NUMBER	LENGTH	NUMBER	LENGTH	NUMBER	LENGTH	
EXTERIOR C.S.	2	33'-9 3/4"	2	54'-10 1/2"	2	33'-9 3/4"	245'-0"
INTERIOR C.S.	9	33'-9 3/4"	9	54'-10 1/2"	9	33'-9 3/4"	1102'-6"
TOTAL	11	371'-11 1/4"	11	603'-7 1/2"	11	371'-11 1/4"	1347'-6"

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" 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.

FOR SPANS A & C, 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.

FOR SPAN B, 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 4400 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. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

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.

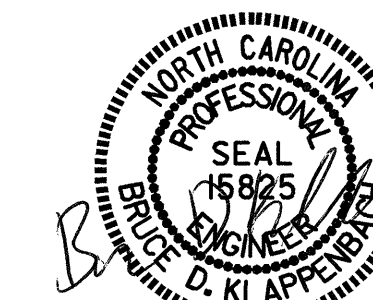
WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
STATION: 15+59.50 -L-

SHEET 7 OF 7

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

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



REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 25
2			4			

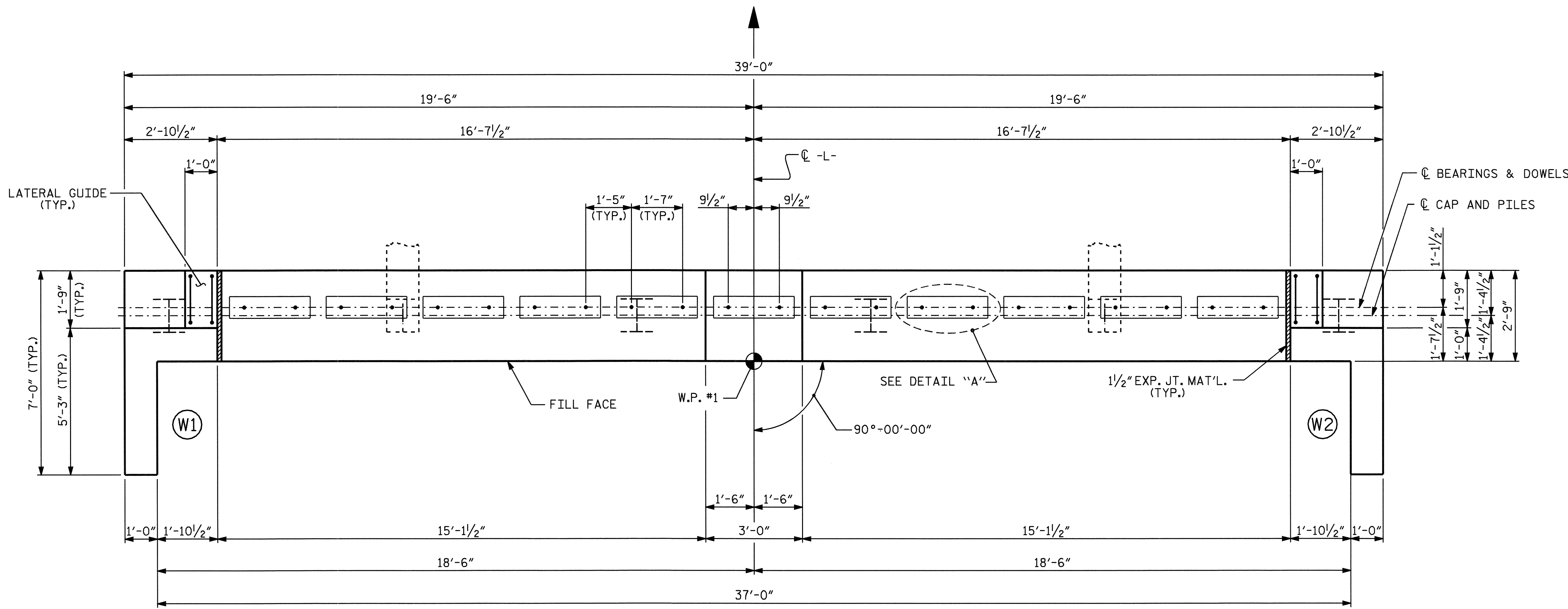
ASSEMBLED BY : M. G. SHAIKH	DATE : 5-25-05
CHECKED BY : D. A. GLADDEN	DATE : 6-07-05
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01 RWW/LES
	REV. 5/7/03R RWW/JTE

**NOTES**

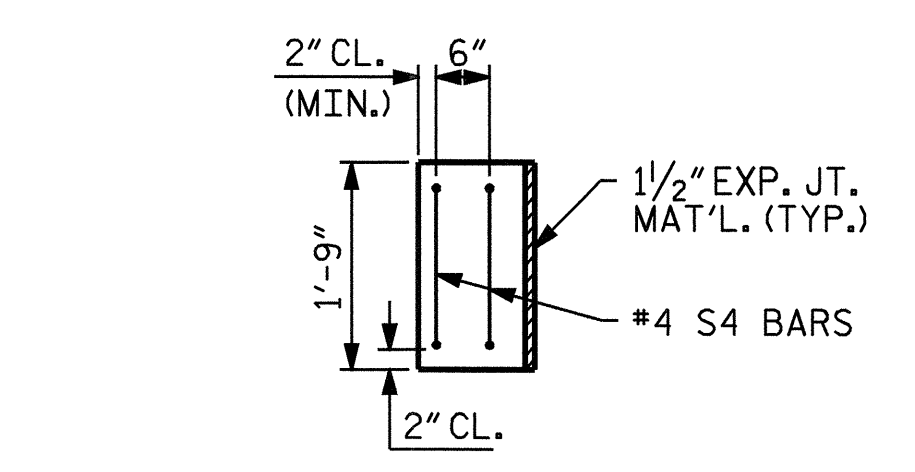
STIRRUP IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

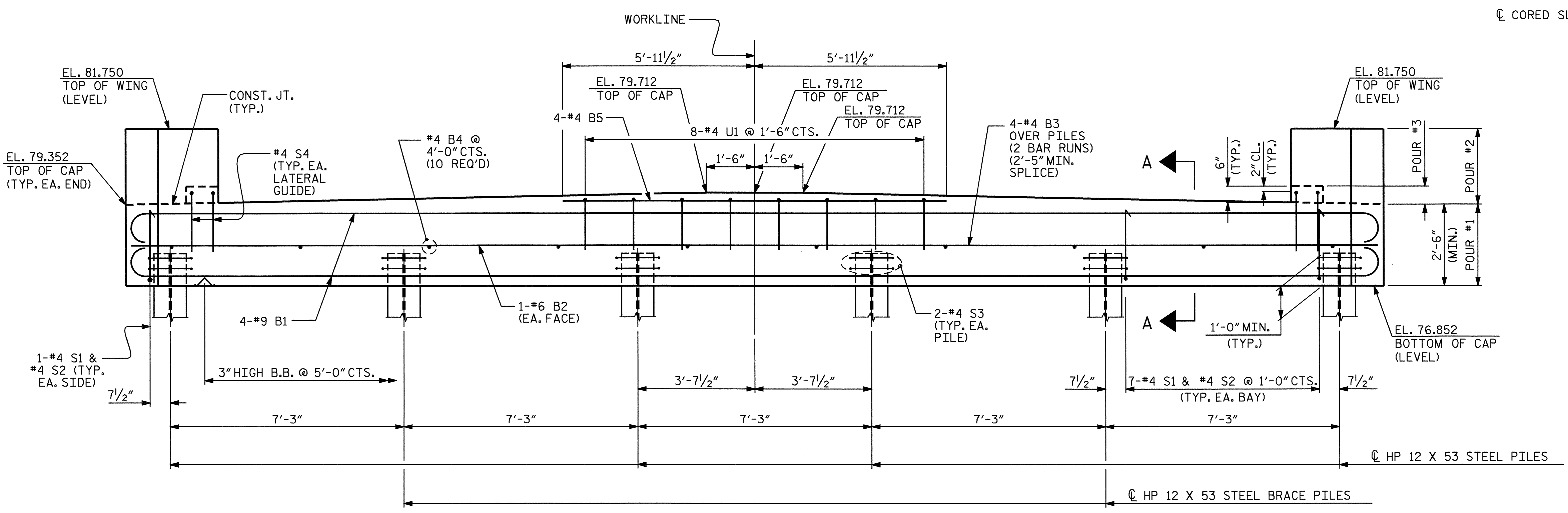
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



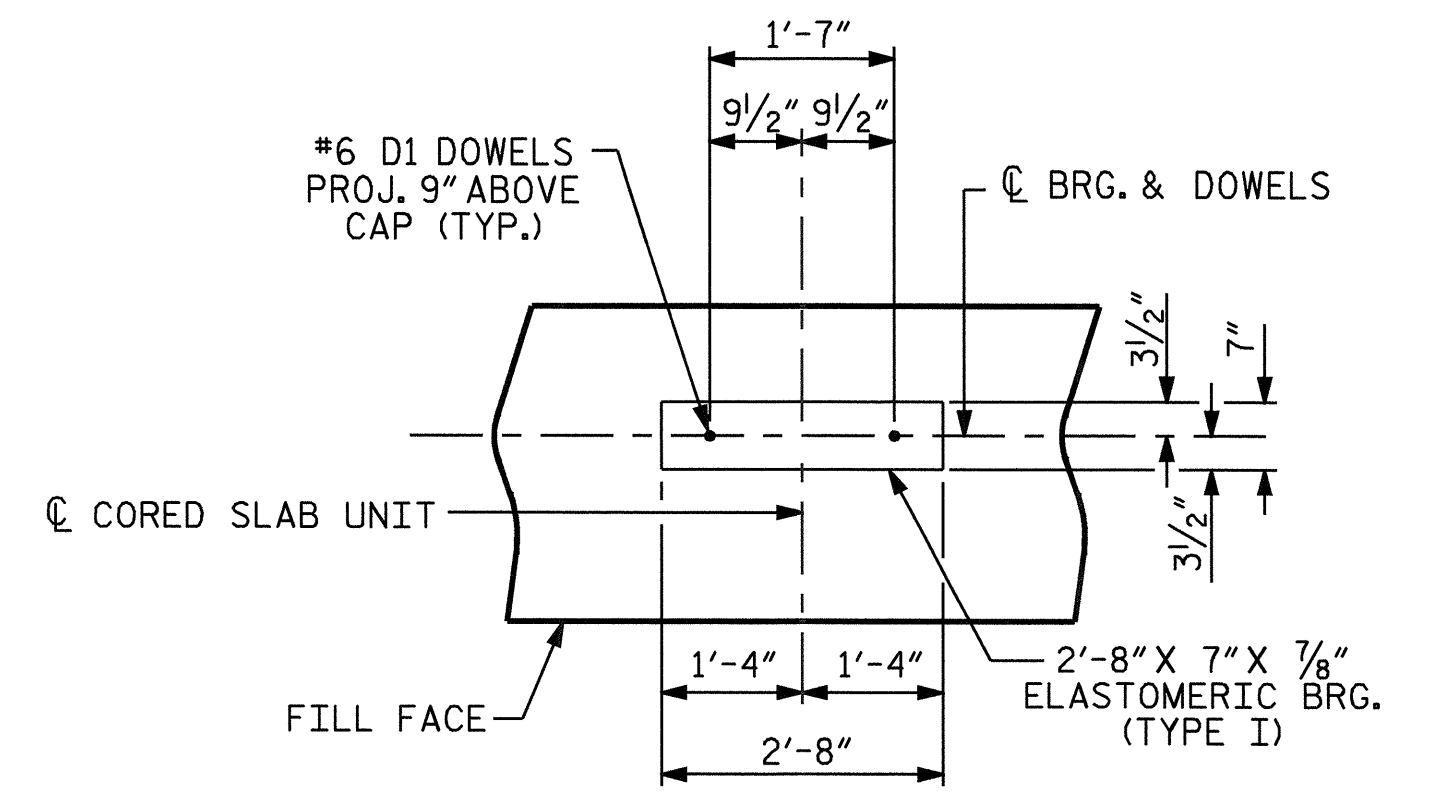
**PLAN**



**PLAN OF LATERAL GUIDE**



**ELEVATION**



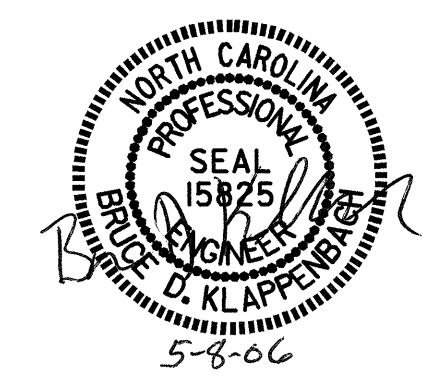
**DETAIL "A"**

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

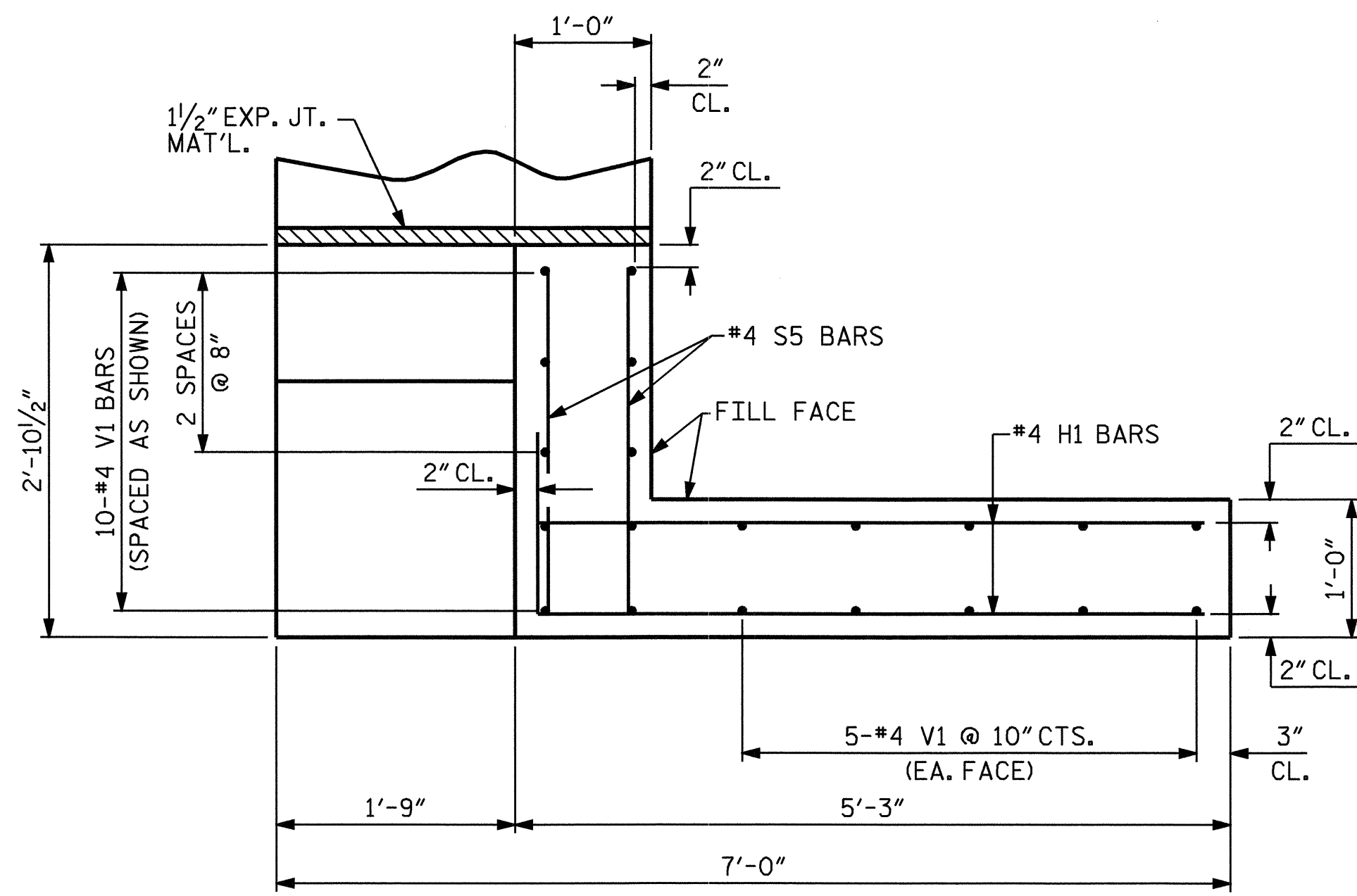
**SUBSTRUCTURE  
 END BENT #1**



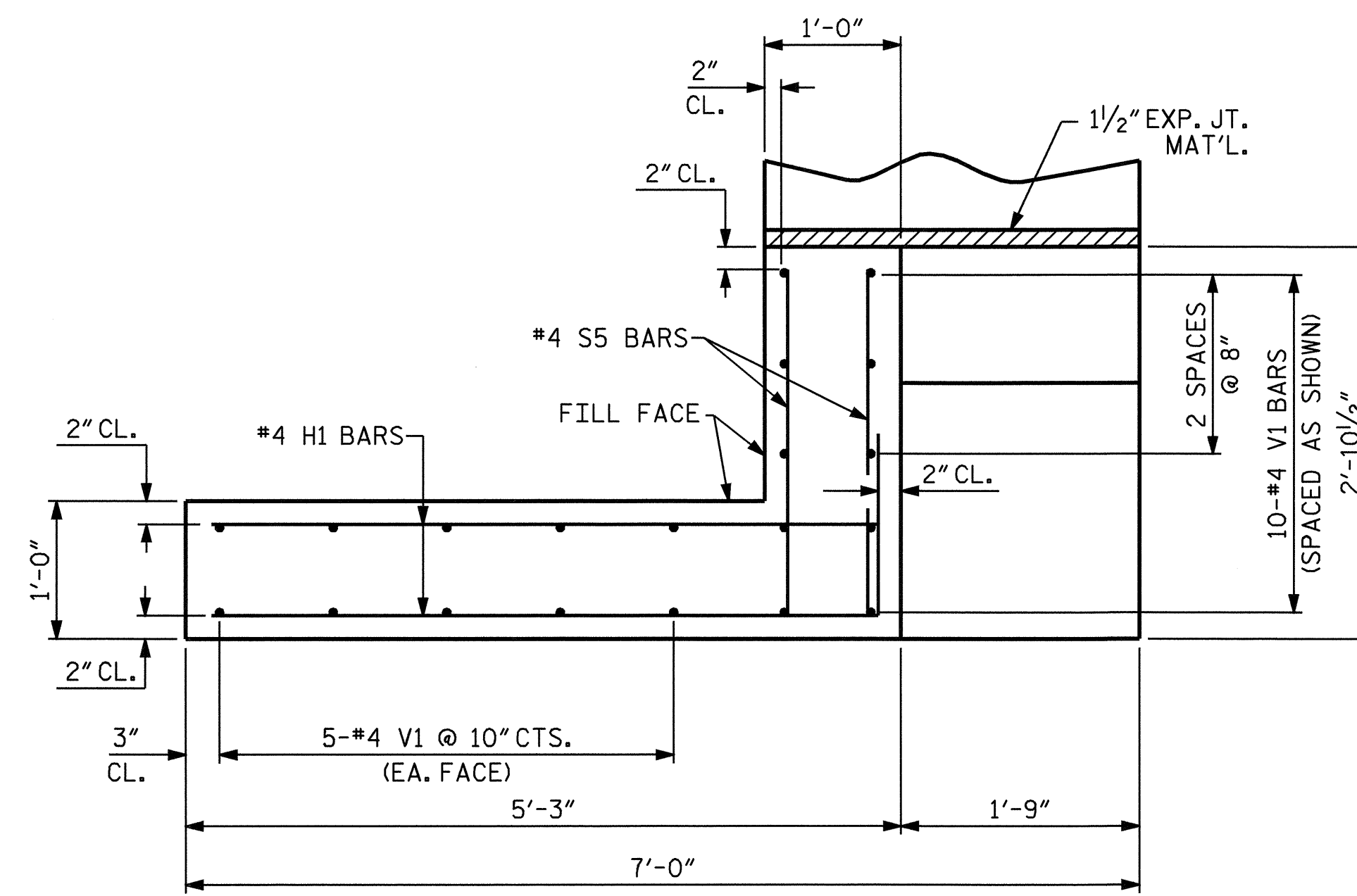
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS 25	
2			4				

DRAWN BY: J.B.W / K.M.M. DATE: 12/16/04  
 CHECKED BY: M.G. SHAIKH DATE: 2/15/05

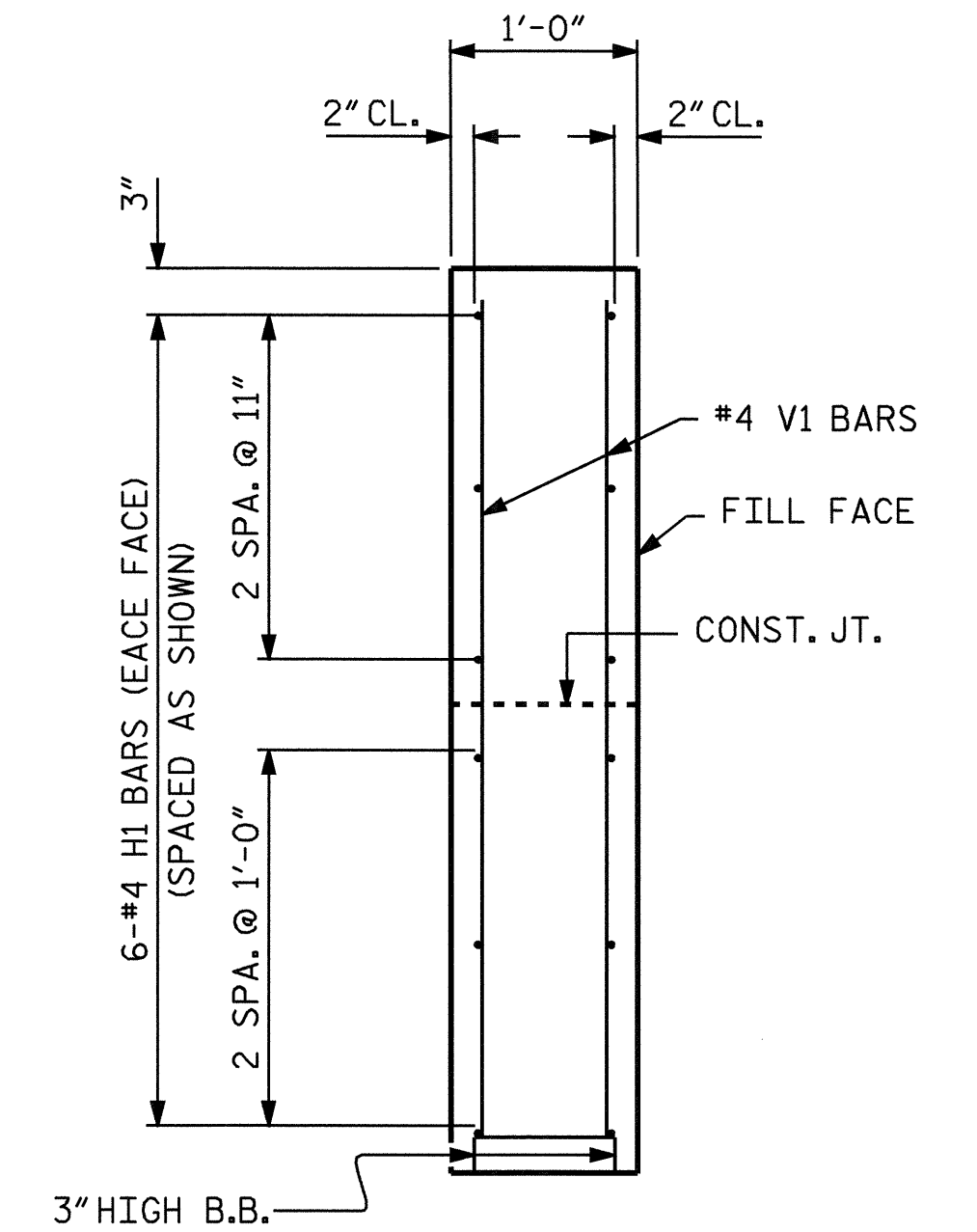




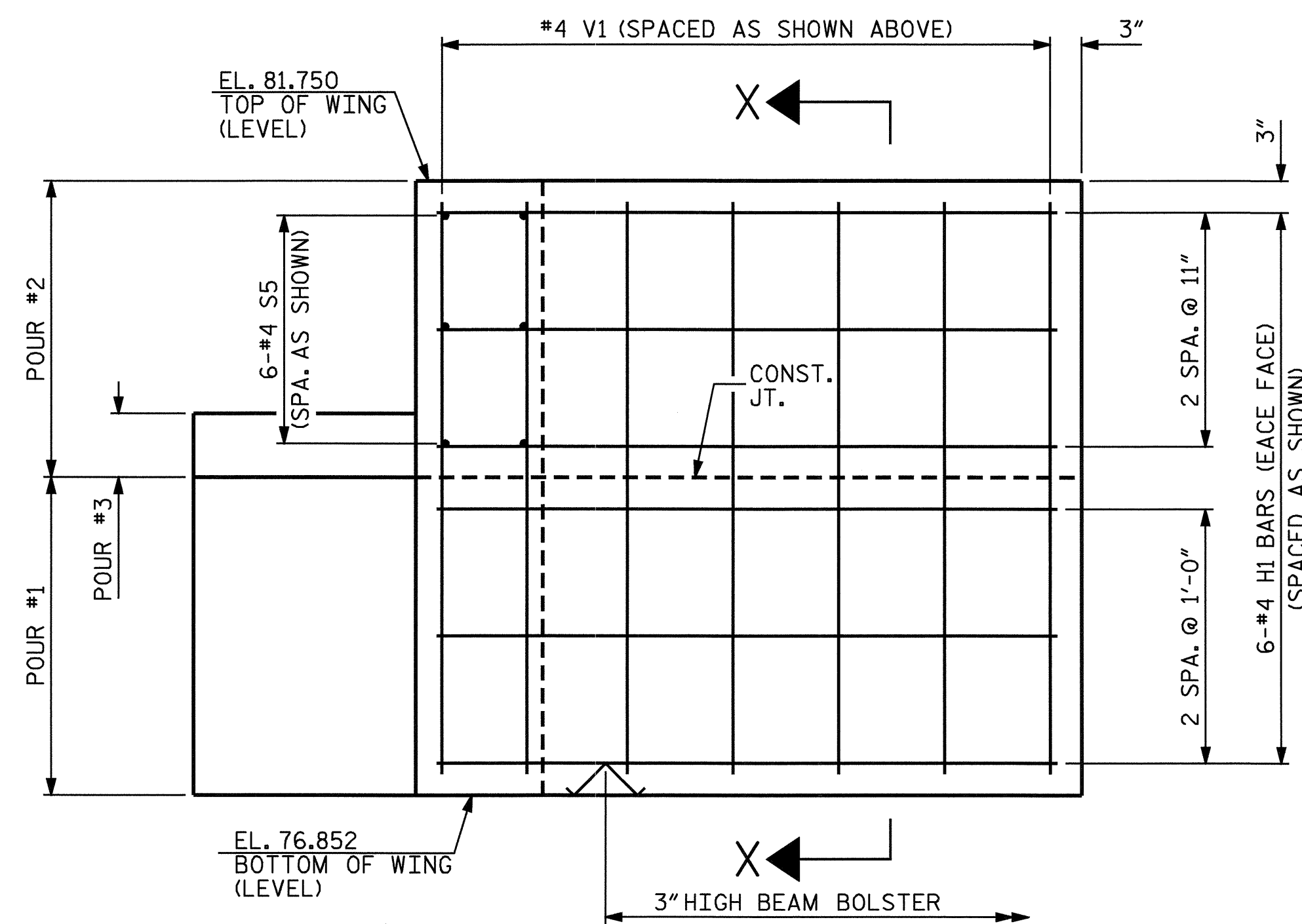
PLAN OF LEFT WING (W1)



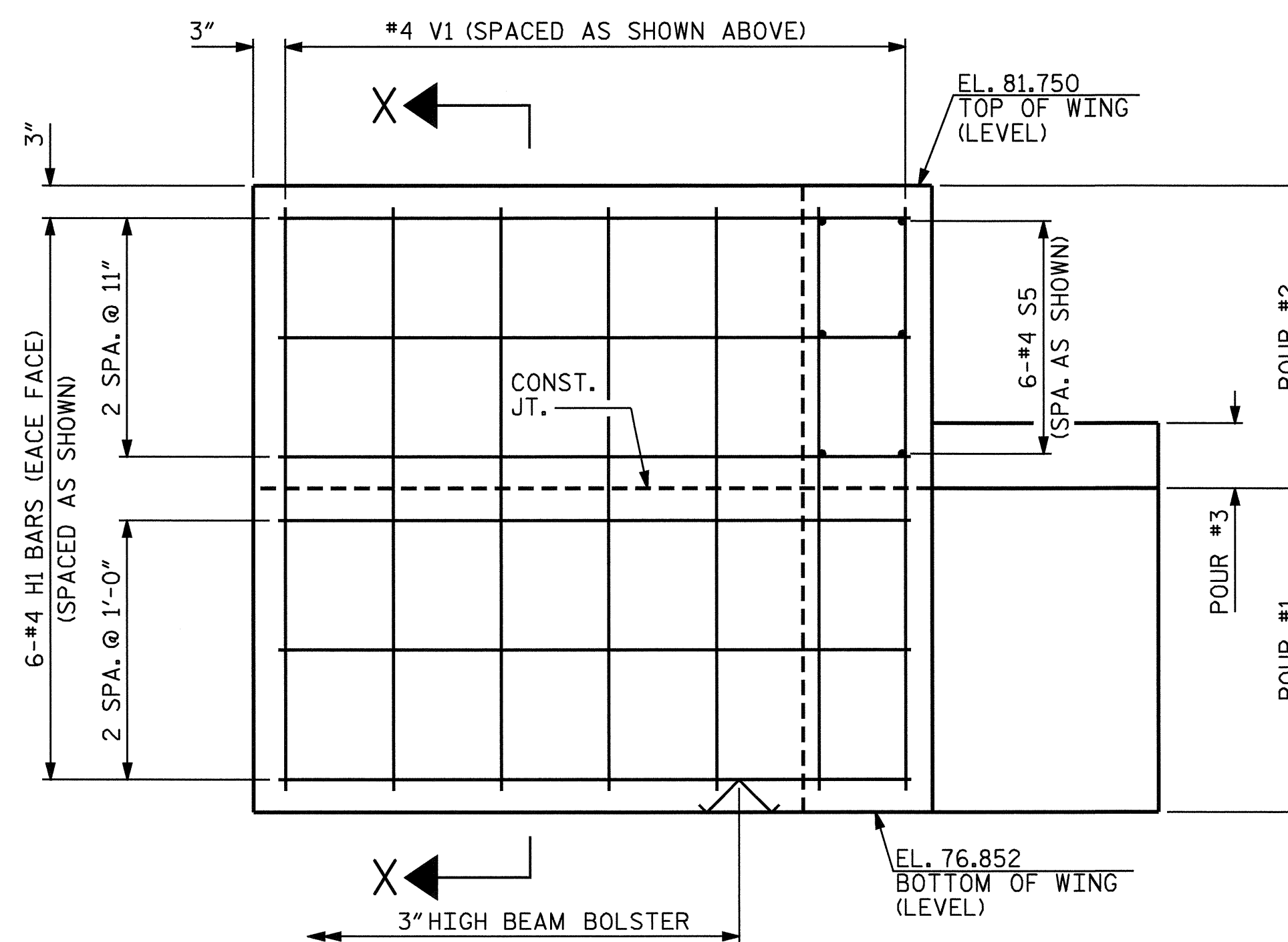
PLAN OF RIGHT WING (W2)



SECTION X-X



ELEVATION OF LEFT WING (W1)



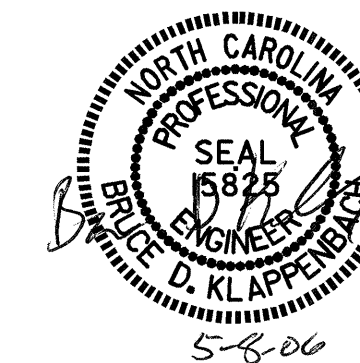
ELEVATION OF RIGHT WING (W2)

PROJECT NO. B-4093  
 CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #1

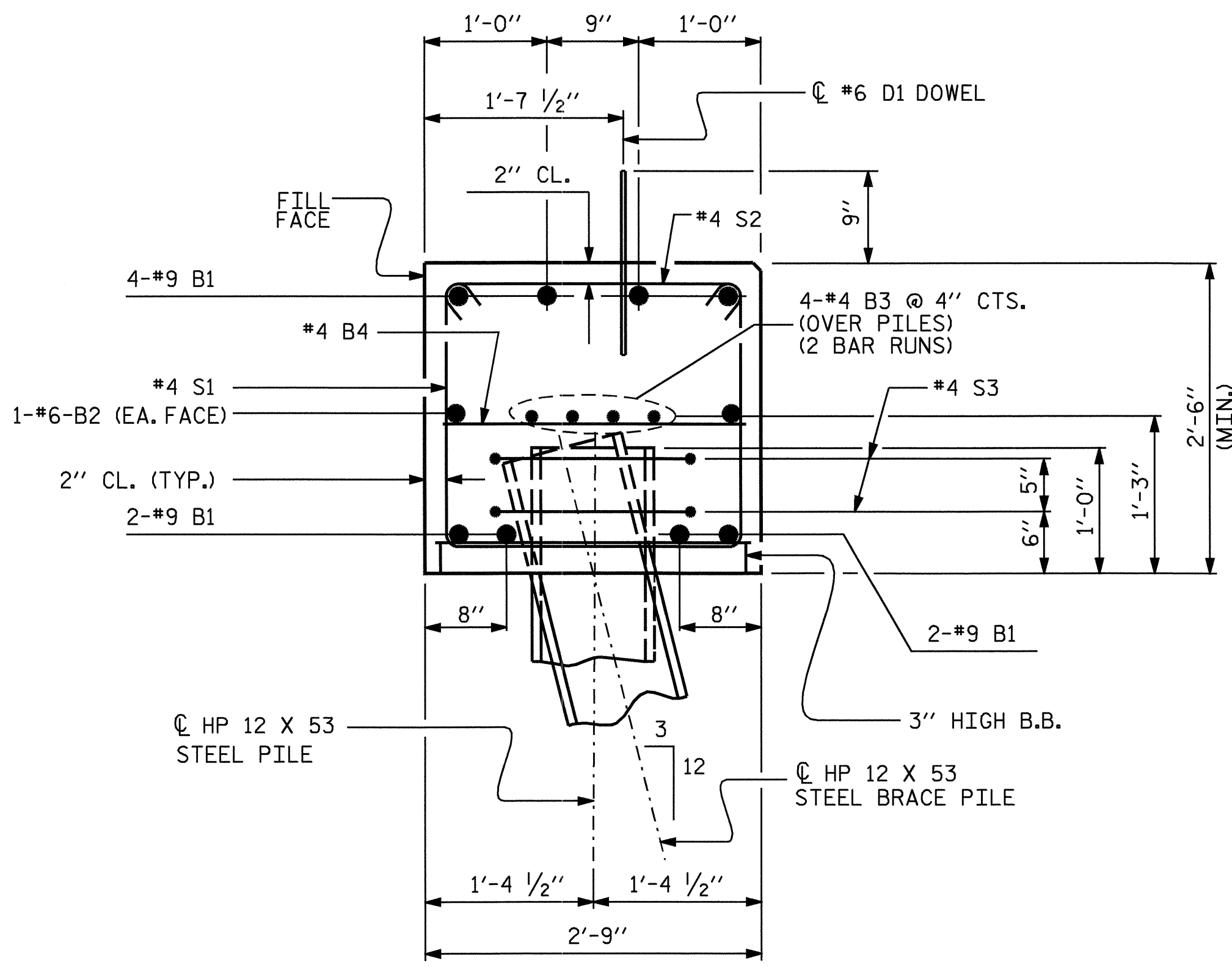


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 CHECKED BY: M.G. SHAIKH DATE: 2/15/05

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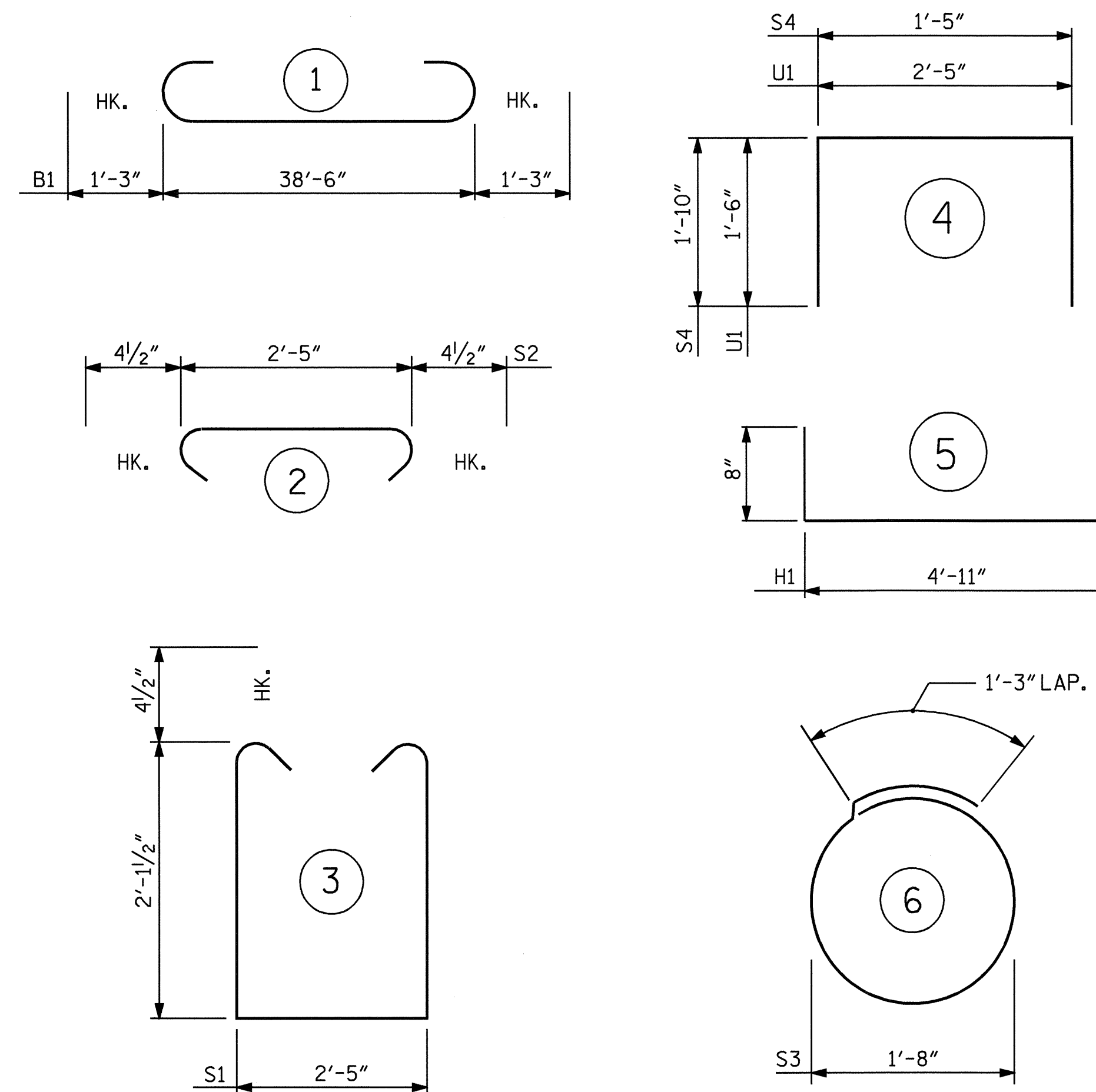
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2			4				





SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

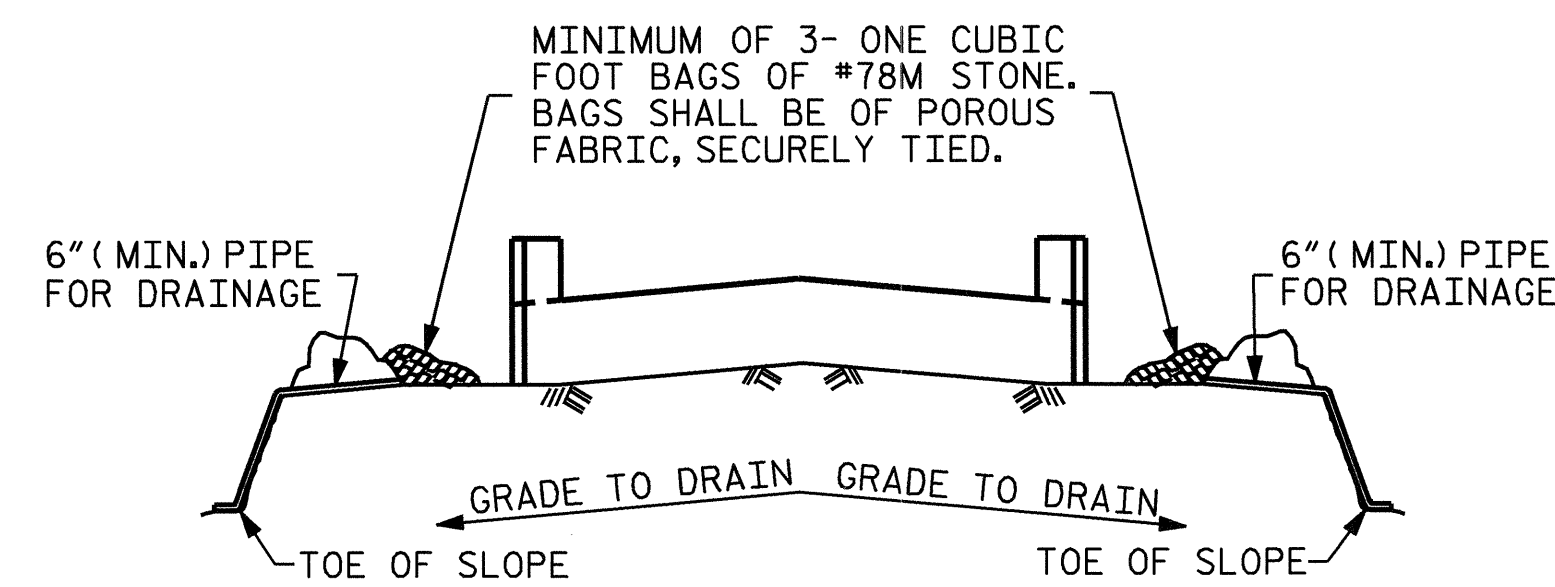
BILL OF MATERIAL

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'-11"	32
D1	22	#6	STR	1'-6"	50
H1	24	#4	5	5'-7"	90
S1	37	#4	3	7'-5"	183
S2	37	#4	2	3'-2"	78
S3	12	#4	6	6'-6"	52
S4	4	#4	4	5'-1"	14
S5	12	#4	STR	2'-6"	20
V1	40	#4	STR	4'-6"	120
U1	8	#4	4	5'-5"	29
REINFORCING STEEL =					2025 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 CAP & BOTTOM OF WINGS	11.5 C.Y.
POUR #2 TOP PART OF WINGS	1.3 C.Y.
POUR #3 LATERAL GUIDES	0.1 C.Y.
<b>CLASS A CONCRETE TOTAL</b>	<b>12.9 C.Y.</b>

HP 12 X 53 STEEL PILES NO. 6	LIN. FT.	120
------------------------------	----------	-----

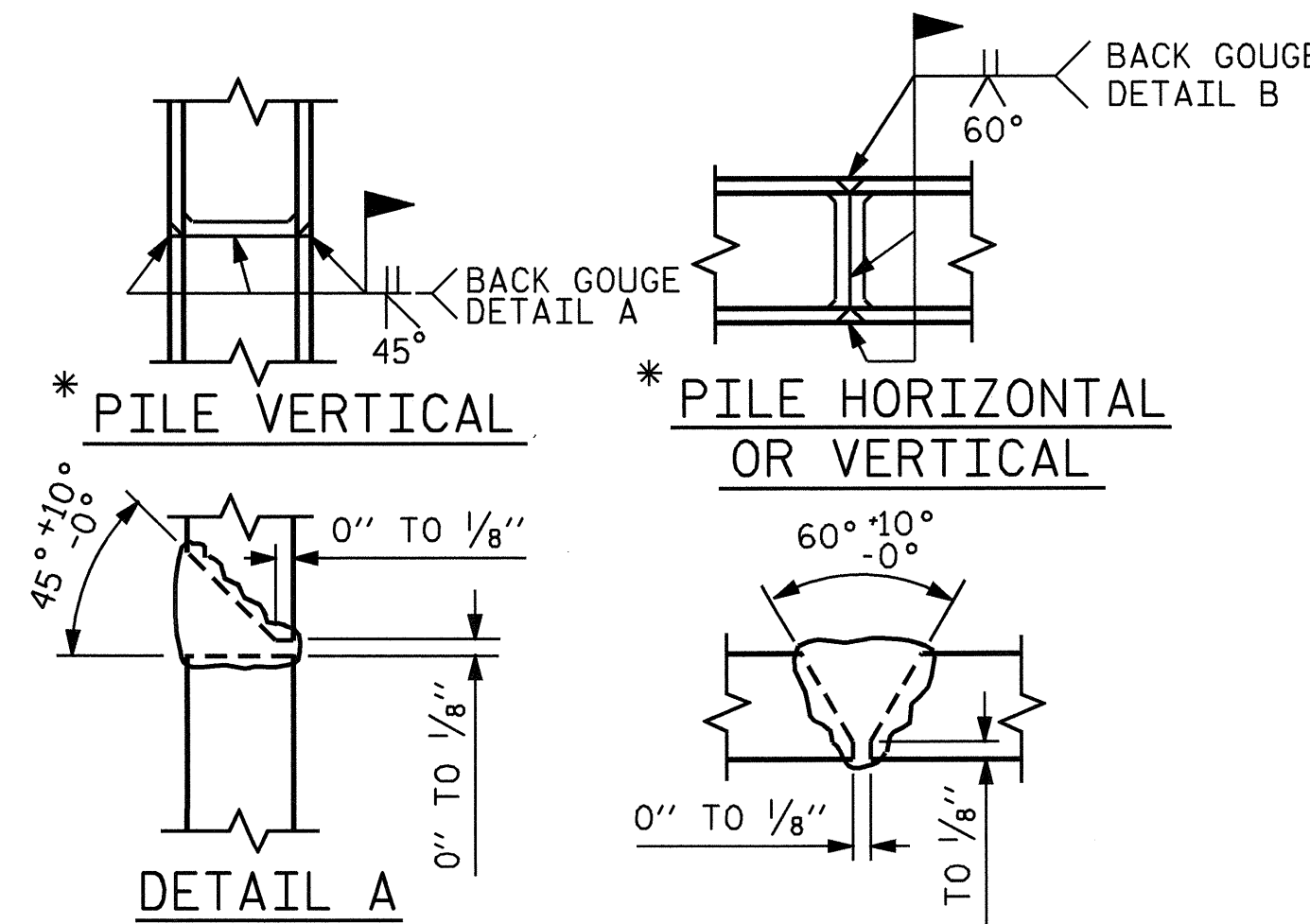


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



\* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

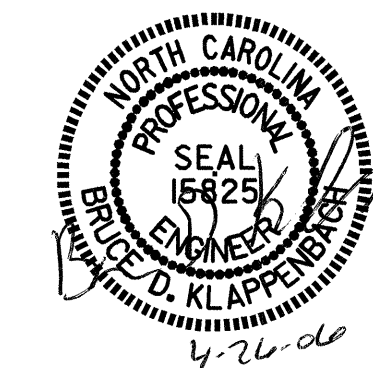
SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #1

DRAWN BY : J.B.W. / K.M.M. DATE : 12/16/04  
 CHECKED BY : M.G. SHAIKH DATE : 2/15/05

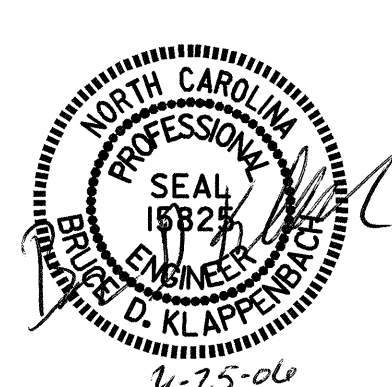
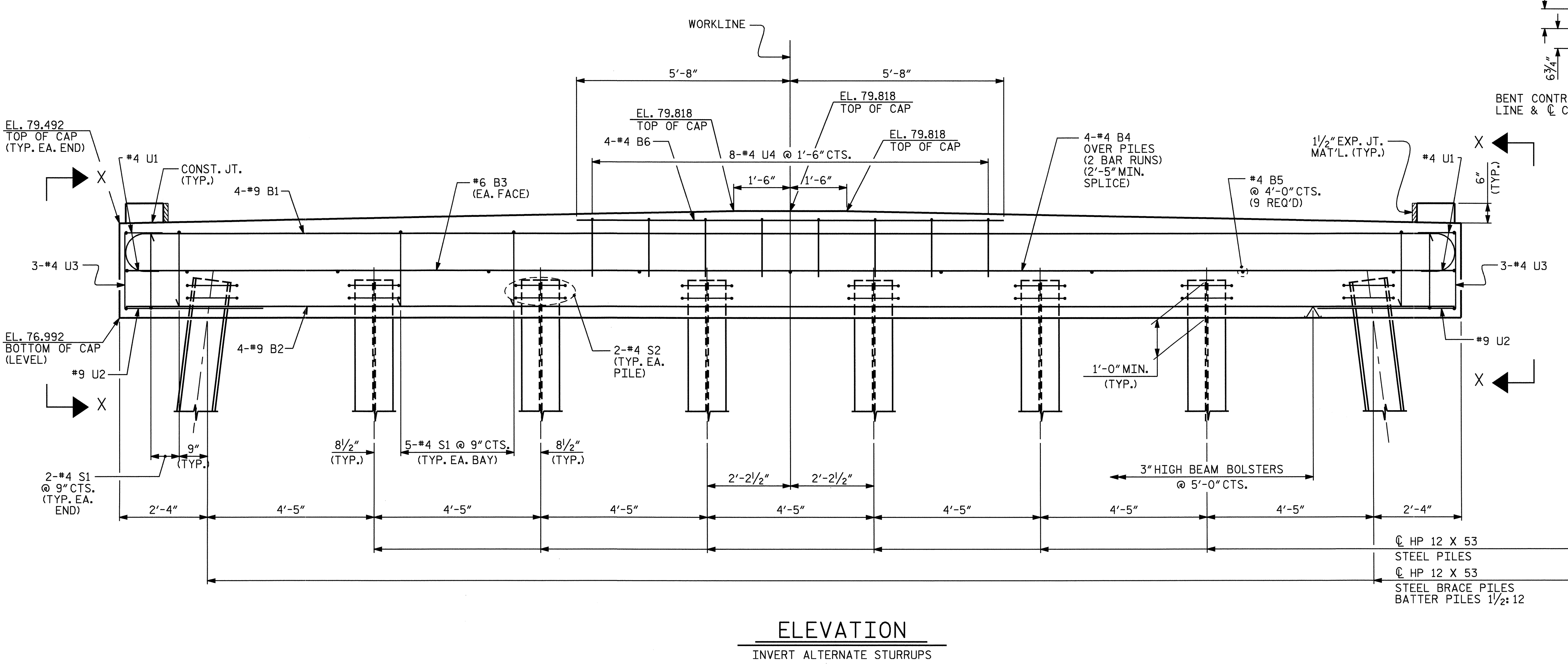
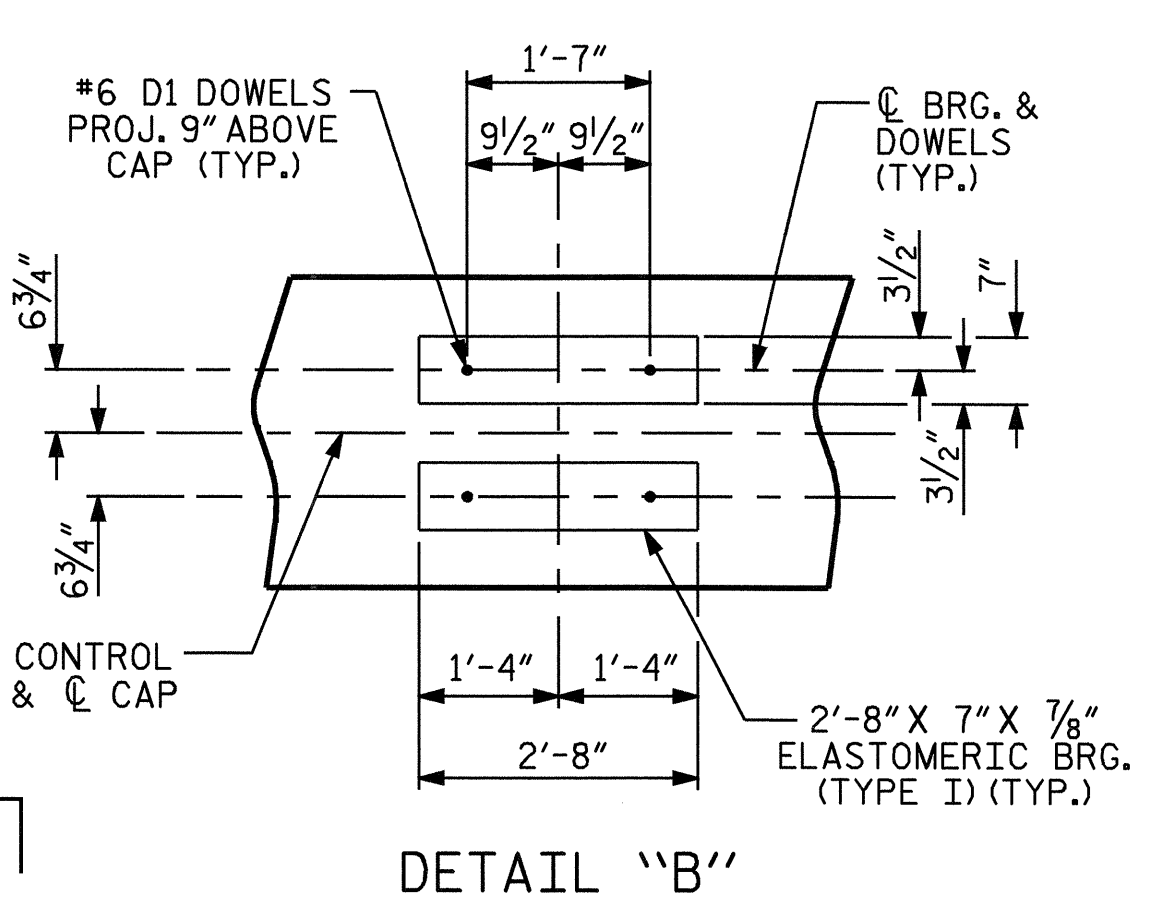
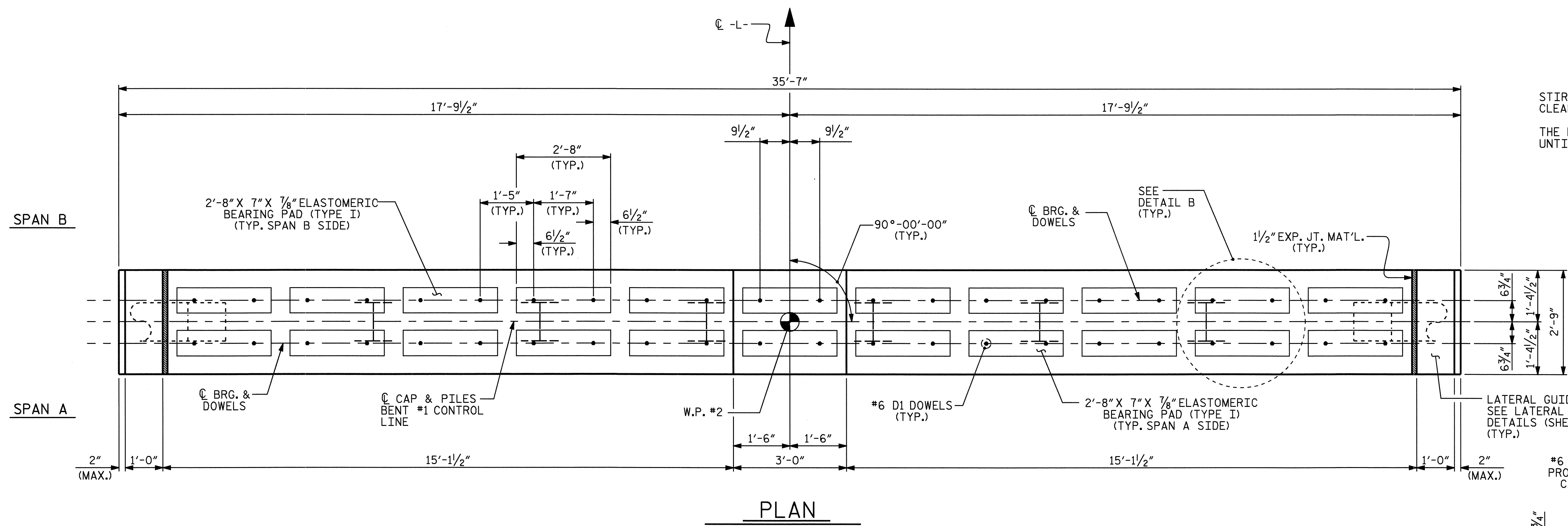
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			25

**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.  
 THE LATERAL GUIDE AT EACH END IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.



PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 1 OF 2

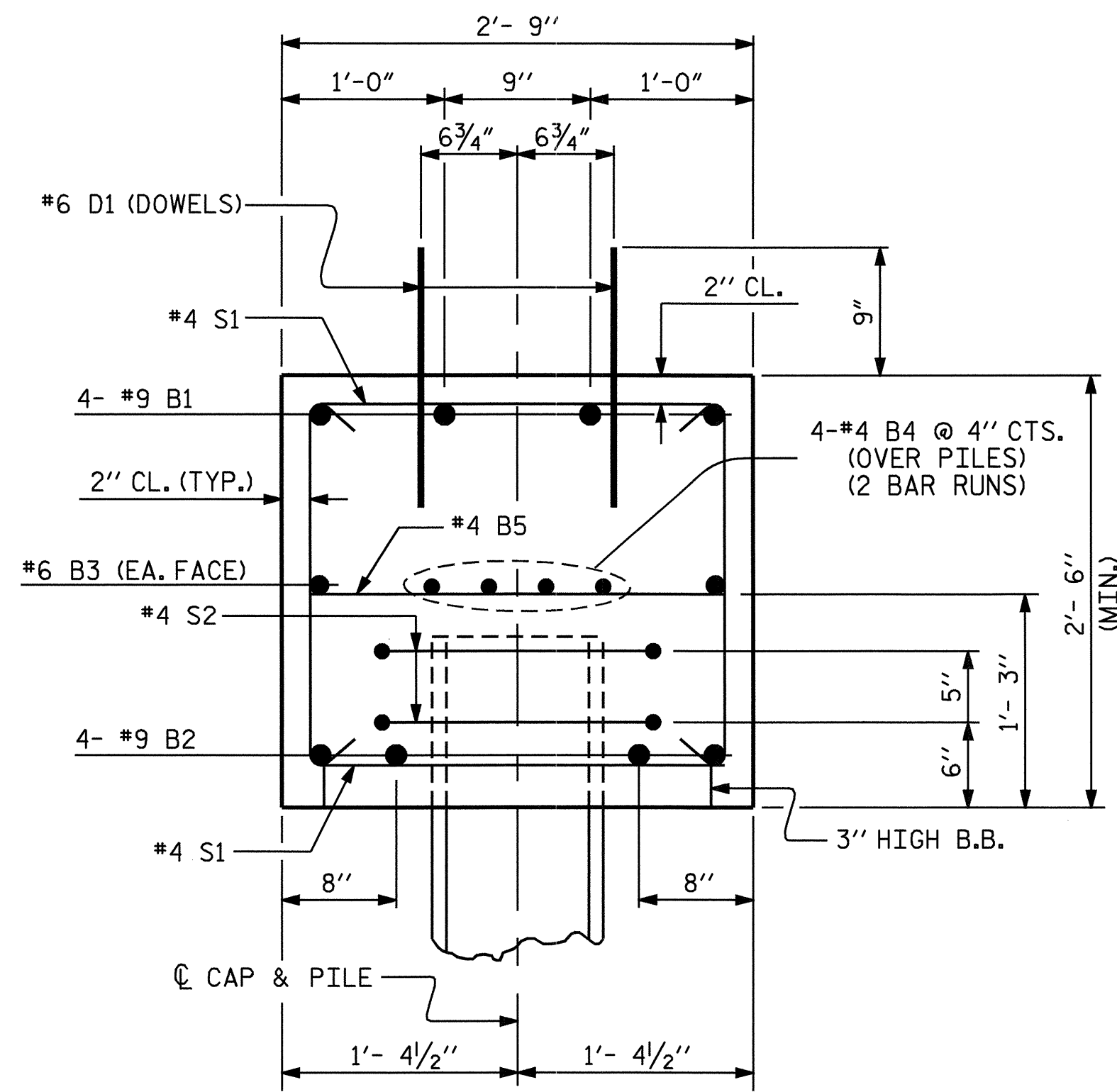
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE**  
**BENT #1**

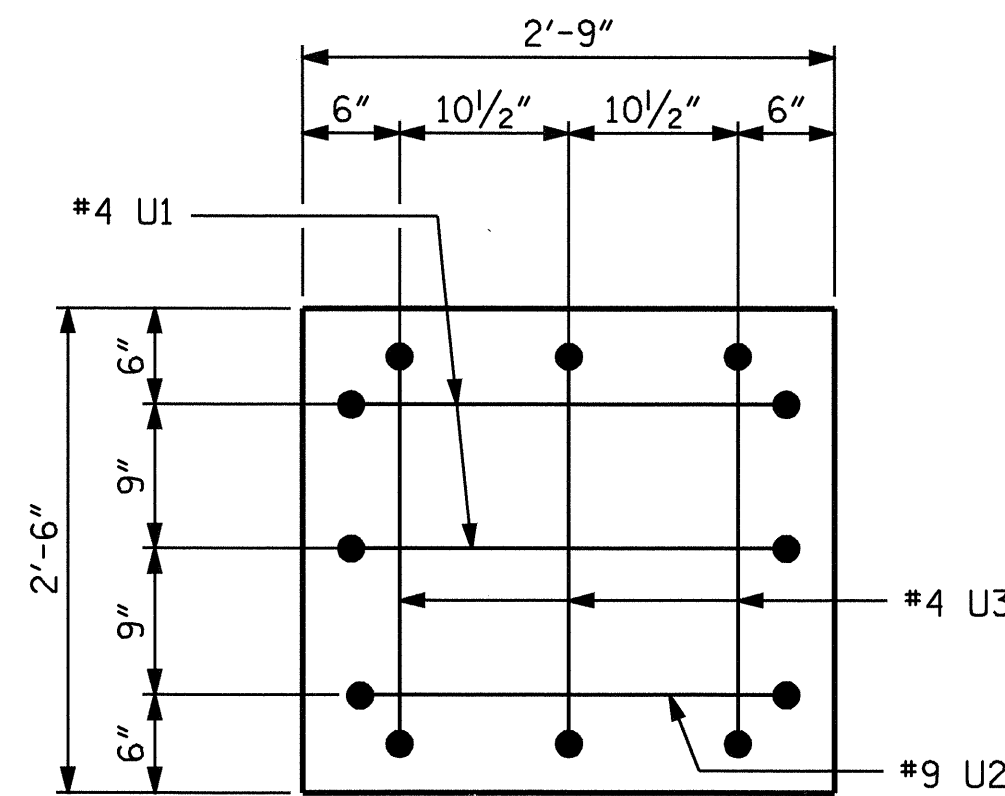
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2			4			

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 Kmcocaulley



SECTION THRU CAP

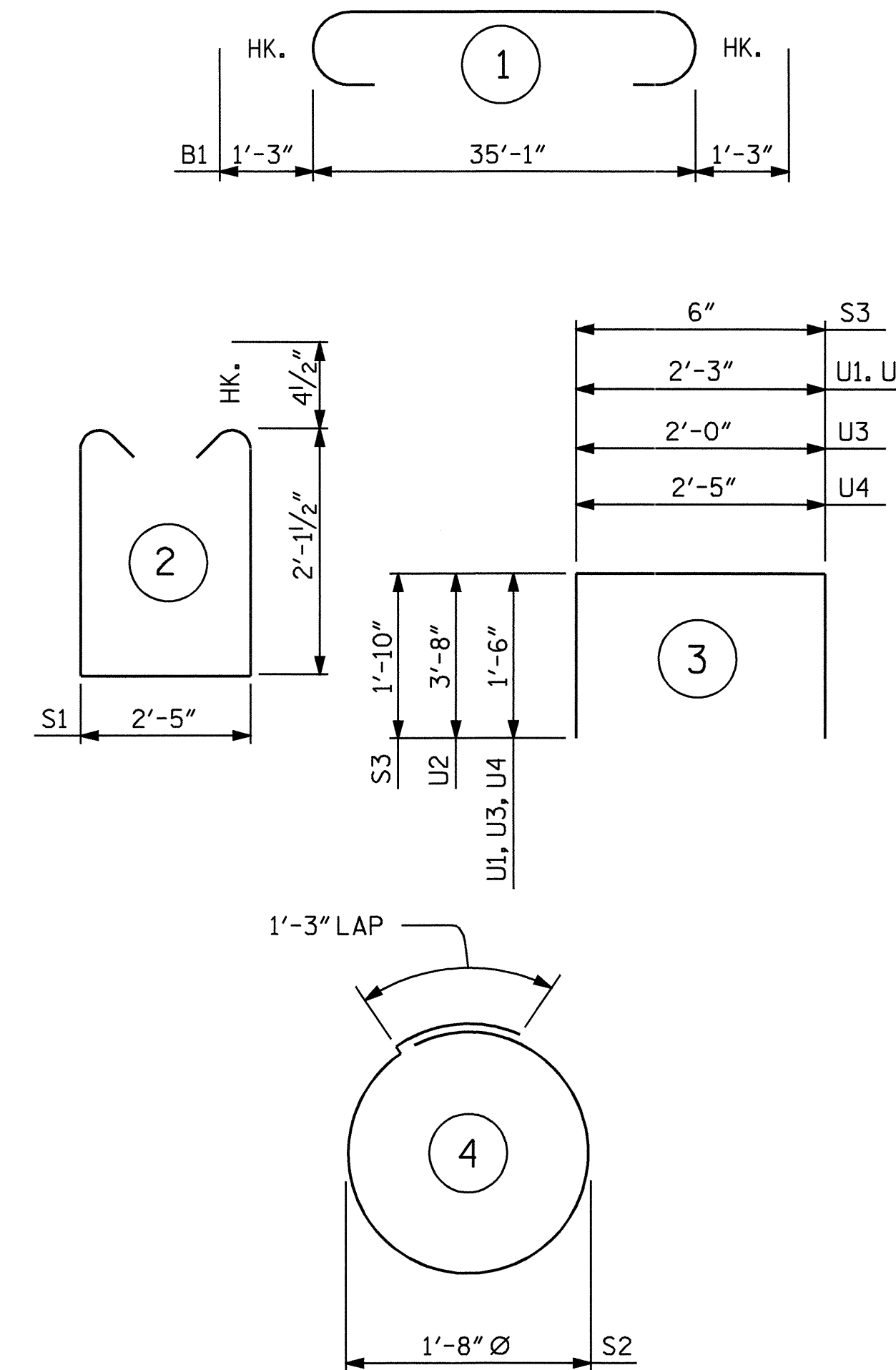


VIEW X-X

2" MIN. CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL "U" BARS.

"U" BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.

BAR TYPES



BILL OF MATERIAL

BENT #1

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	4	#9	1	37'-7"	511
B2	4	#9	STR	35'-3"	479
B3	2	#6	STR	35'-3"	106
B4	8	#4	STR	18'-10"	101
B5	13	#4	STR	2'-5"	21
B6	4	#4	STR	11'-4"	30
D1	44	#6	STR	1'-6"	99
S1	39	#4	2	7'-5"	193
S2	16	#4	4	6'-6"	69
S3	8	#4	3	4'-2"	22
U1	4	#4	3	5'-3"	14
U2	2	#9	3	9'-7"	65
U3	6	#4	3	5'-0"	20
U4	8	#4	3	5'-5"	29

REINFORCING STEEL = 1759 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 CAP	9.7 C.Y.
POUR #2 LATERAL GUIDES	0.1 C.Y.
CLASS A CONCRETE TOTAL	9.8 C.Y.

HP 12 X 53 STEEL PILES  
NO. 8 LIN. FT. 240

GALVANIZING STEEL PILES LUMP SUM

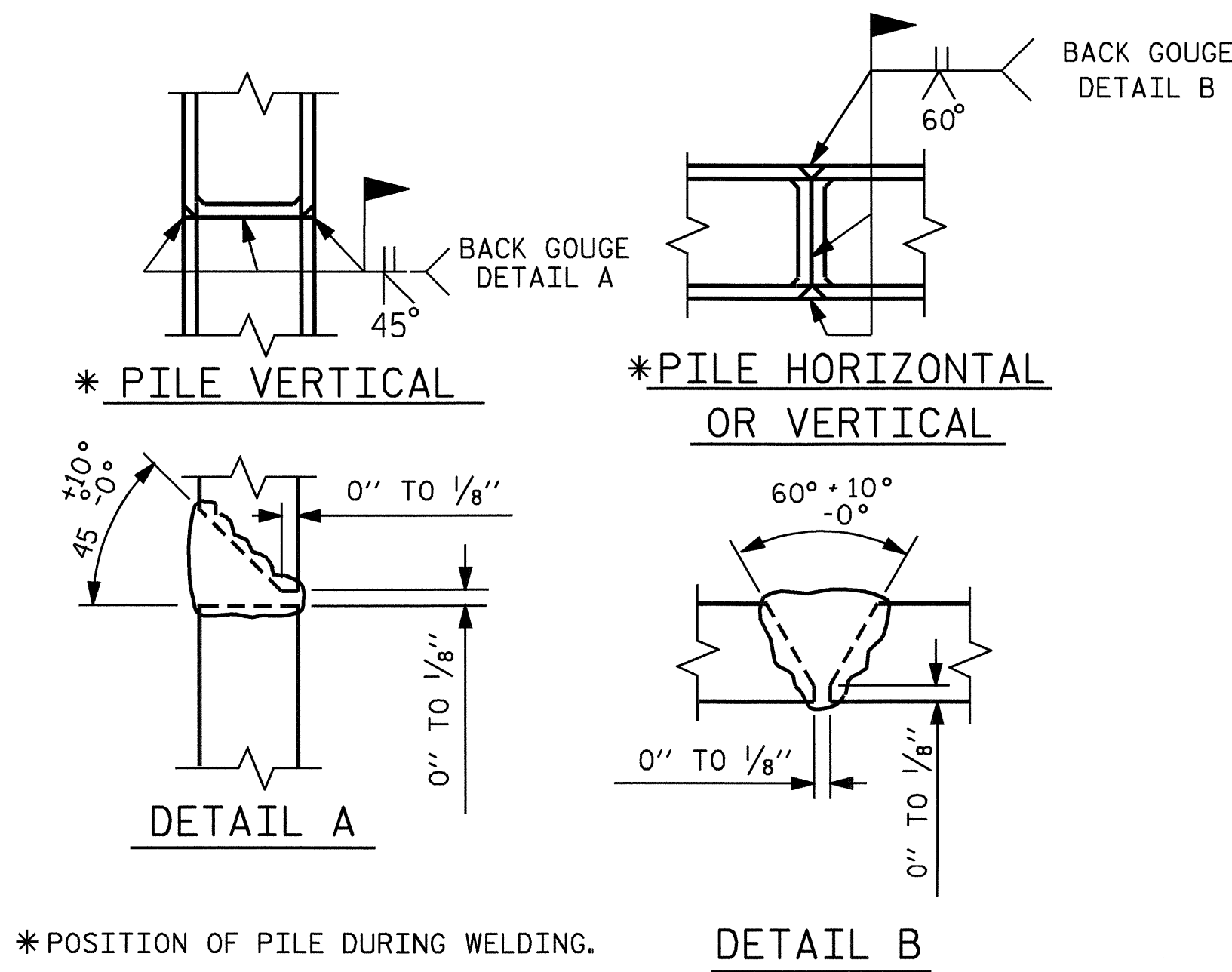
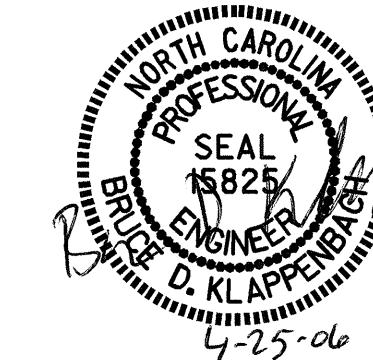
PROJECT NO. B-4093  
CUMBERLAND COUNTY  
STATION: 15+59.50 -L-

SHEET 2 OF 2

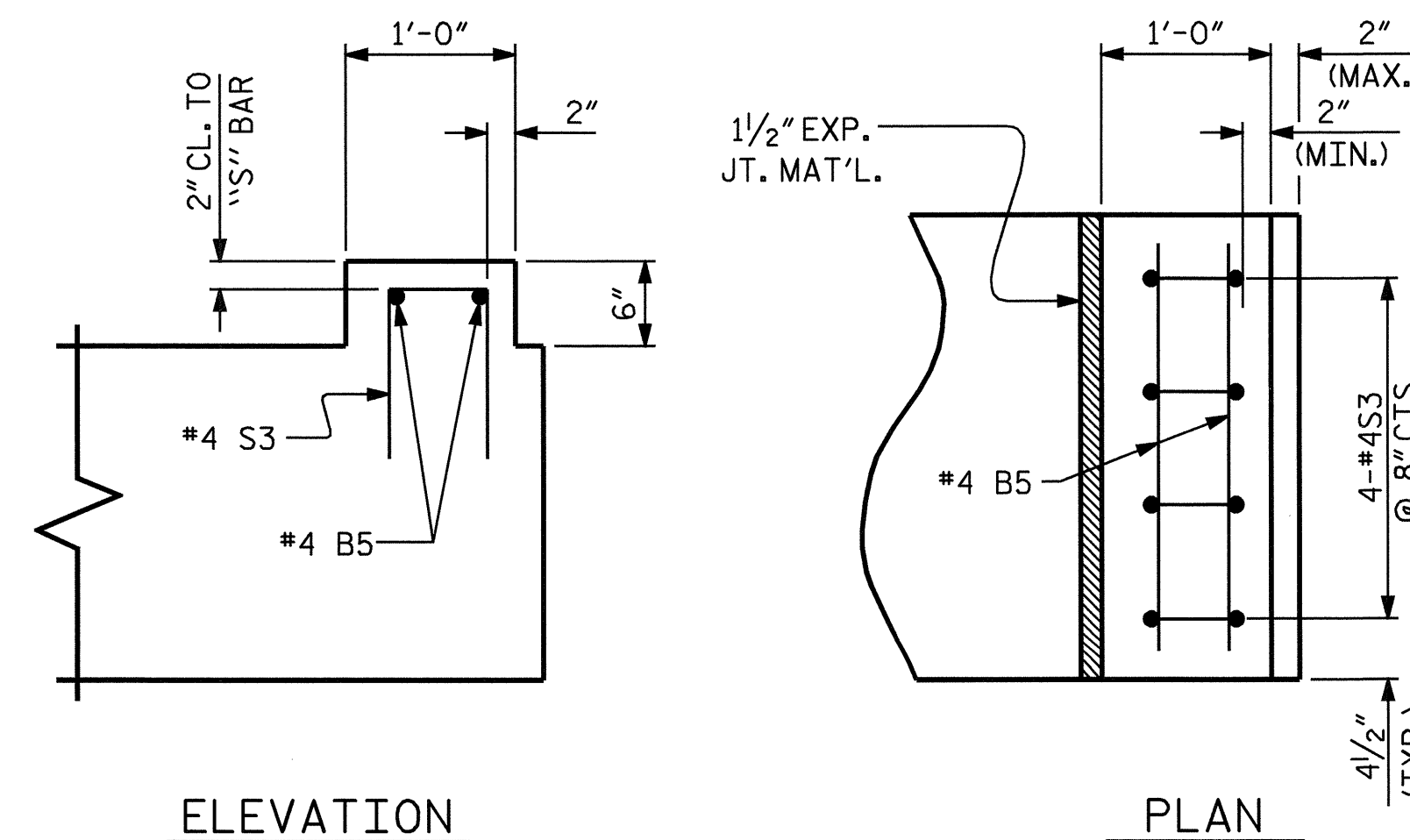
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT #1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	25
2			4				



PILE SPLICE DETAILS



ELEVATION

PLAN

LATERAL GUIDE DETAILS

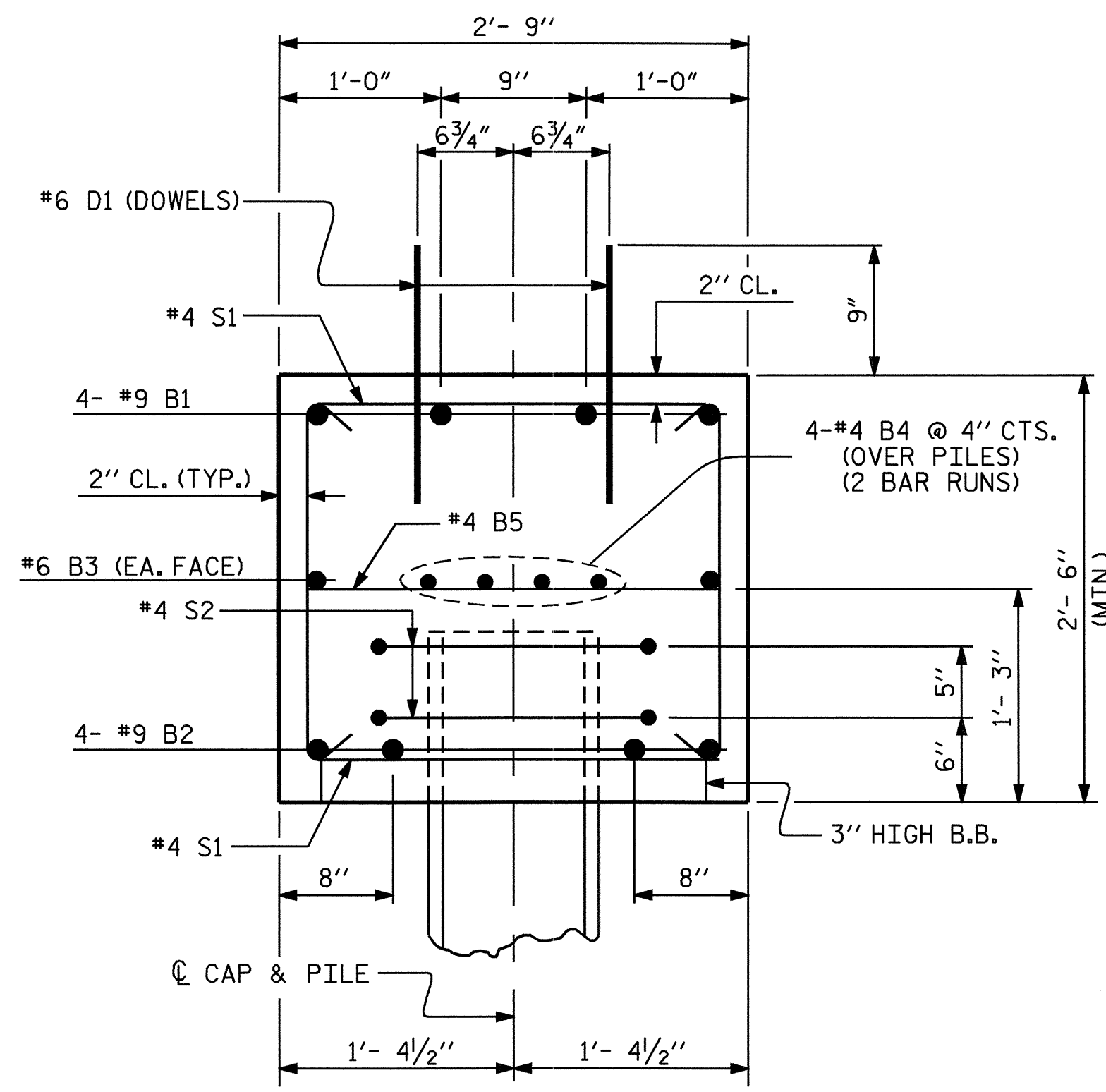
(TYP. EA. LATERAL GUIDE)

DRAWN BY: J.B.W. / K.M.M. DATE: 3/20/05  
CHECKED BY: M.G. SHAIKH DATE: 4/5/05

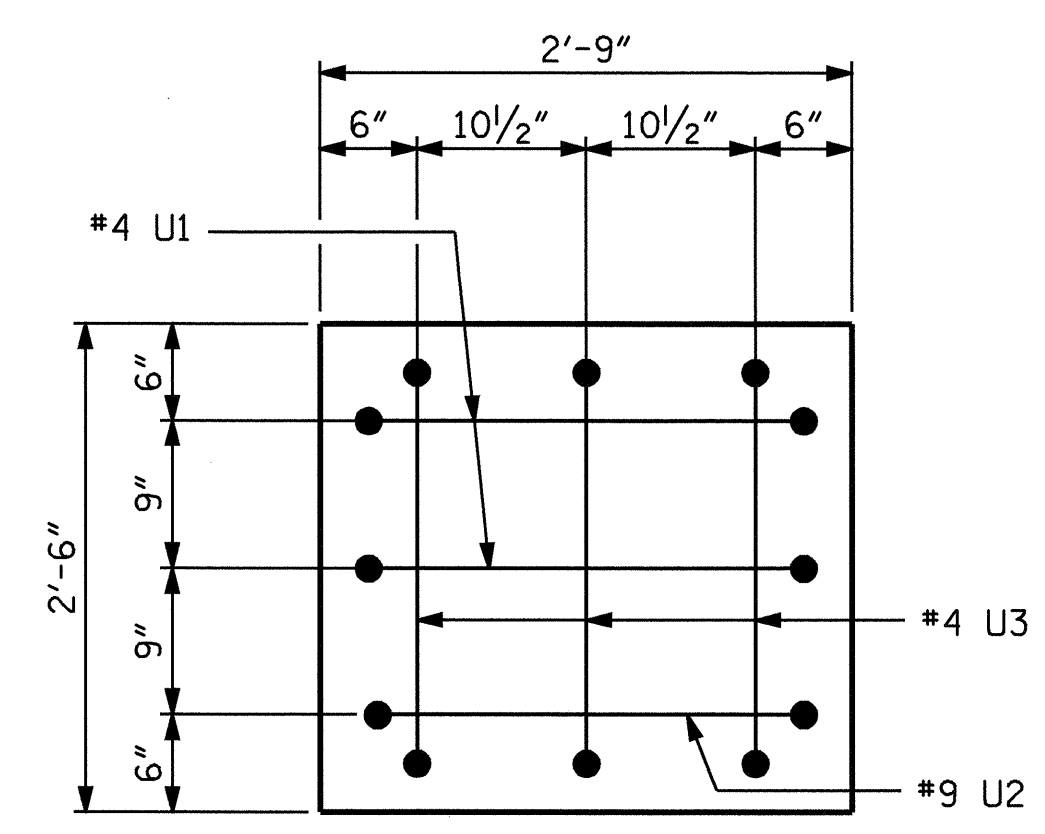
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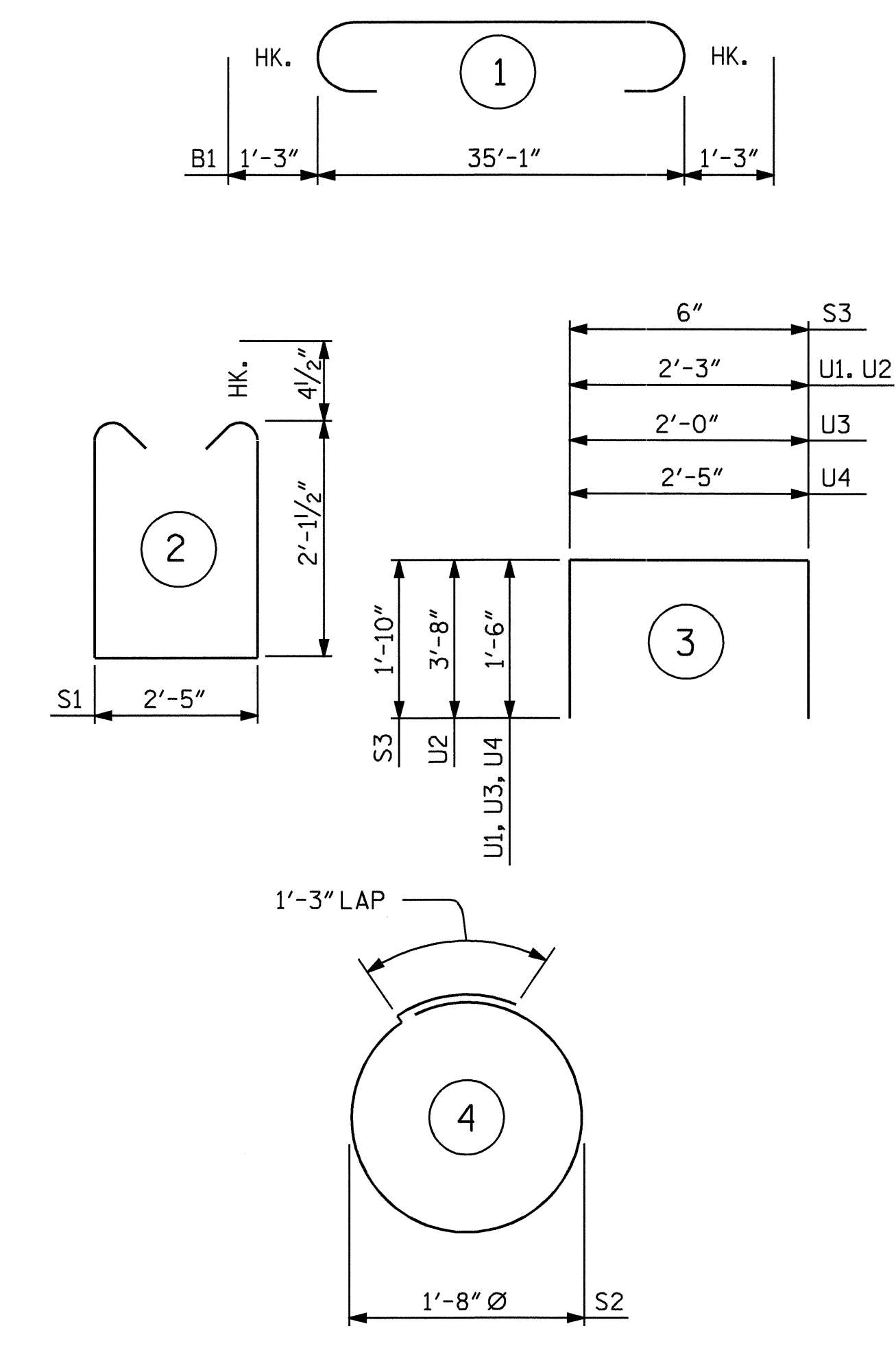
**SECTION THRU CAP**



**VIEW X-X**

2" MIN. CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL "U" BARS.  
 "U" BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.

**BAR TYPES**



**BILL OF MATERIAL**

**BENT #2**

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	37'-7"	511
B2	4	#9	STR	35'-3"	479
B3	2	#6	STR	35'-3"	106
B4	8	#4	STR	18'-10"	101
B5	13	#4	STR	2'-5"	21
B6	4	#4	STR	11'-4"	30
D1	44	#6	STR	1'-6"	99
S1	39	#4	2	7'-5"	193
S2	16	#4	4	6'-6"	69
S3	8	#4	3	4'-2"	22
U1	4	#4	3	5'-3"	14
U2	2	#9	3	9'-7"	65
U3	6	#4	3	5'-0"	20
U4	8	#4	3	5'-5"	29

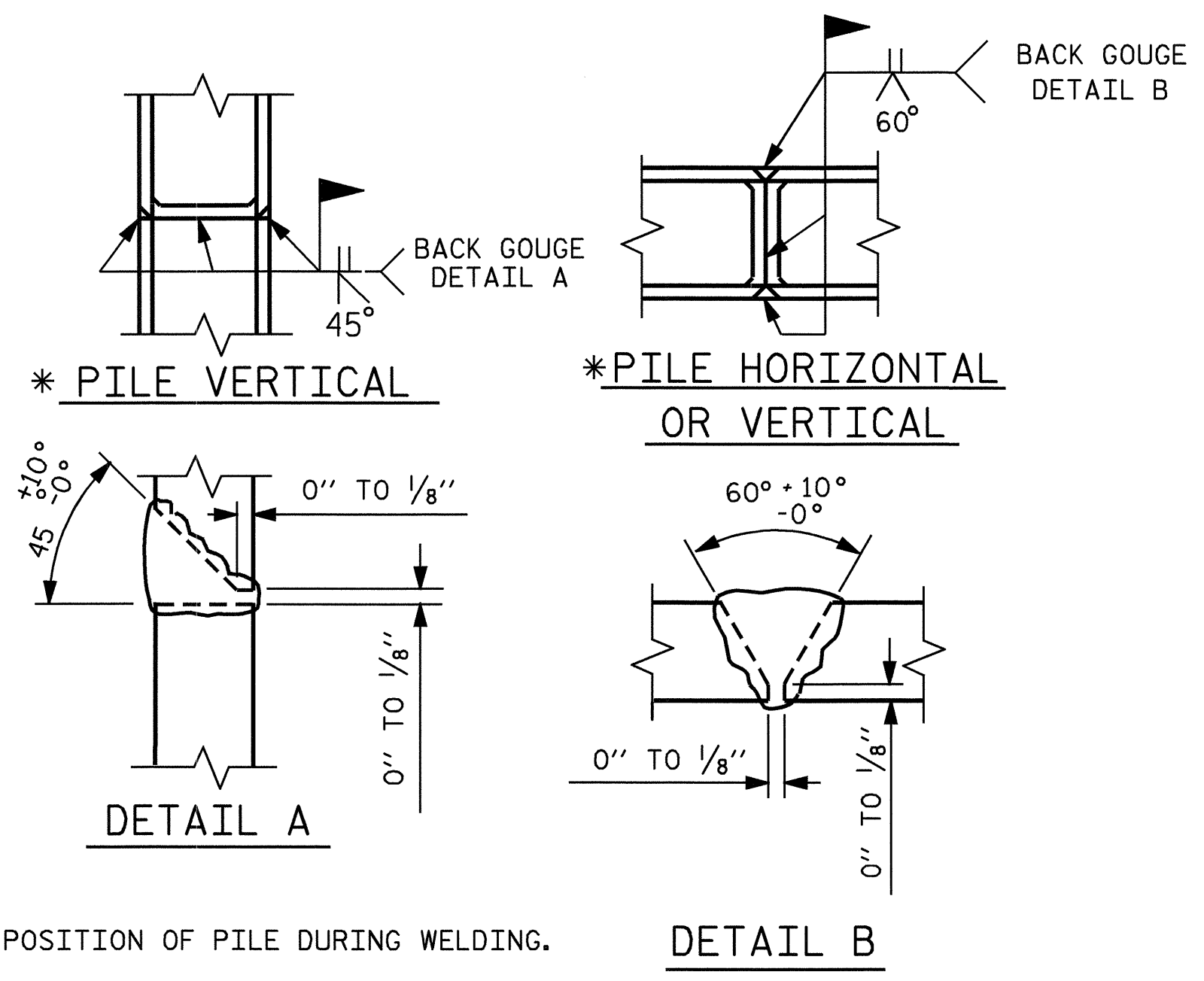
REINFORCING STEEL = 1759 LBS

CLASS A CONCRETE BREAKDOWN

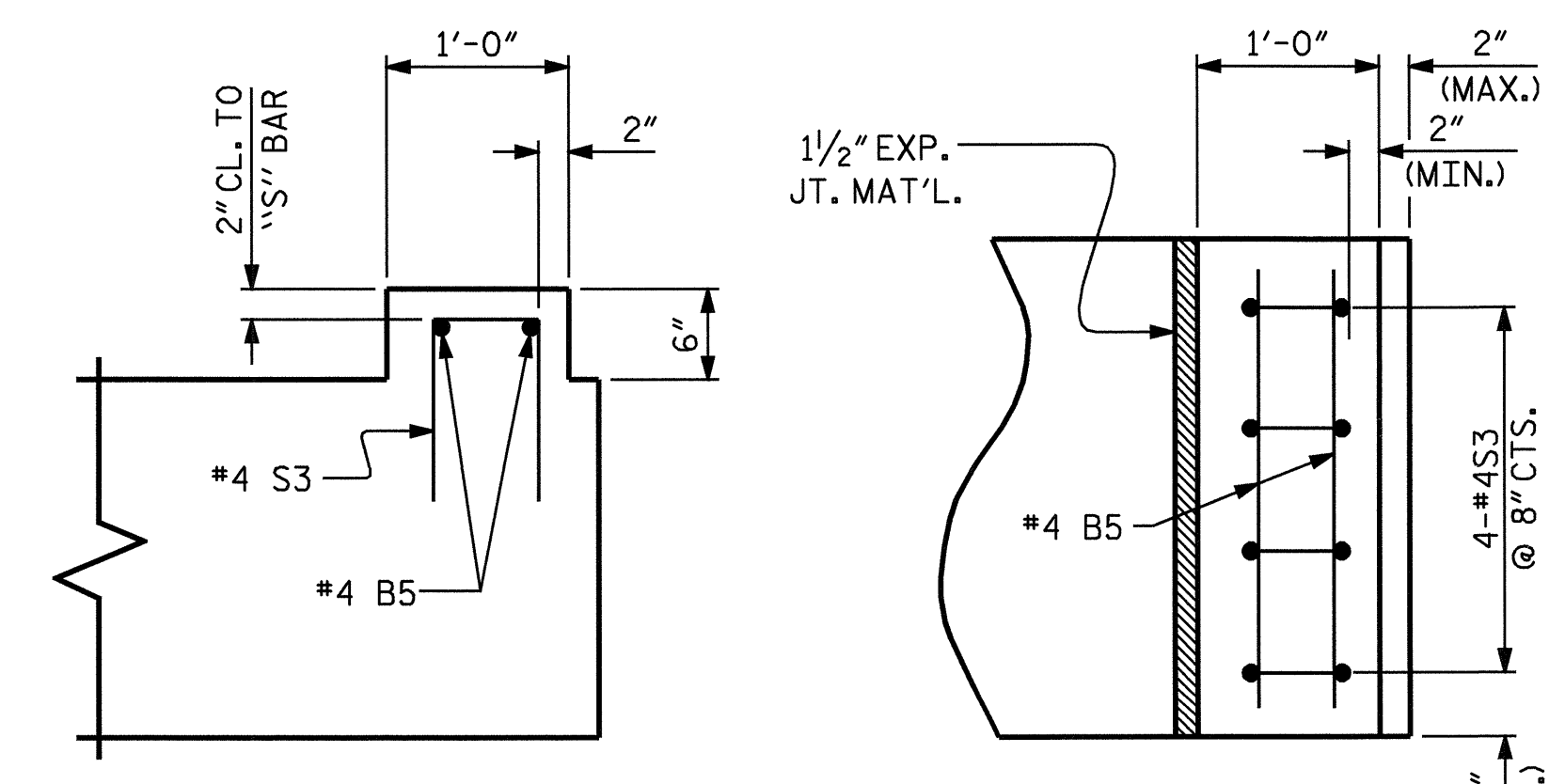
POUR #1 CAP	9.7 C.Y.
POUR #2 LATERAL GUIDES	0.1 C.Y.
<b>CLASS A CONCRETE TOTAL</b>	<b>9.8 C.Y.</b>

HP 12 X 53 STEEL PILES		
NO. 8	LIN. FT.	240

GALVANIZING STEEL PILES LUMP SUM



**PILE SPLICE DETAILS**

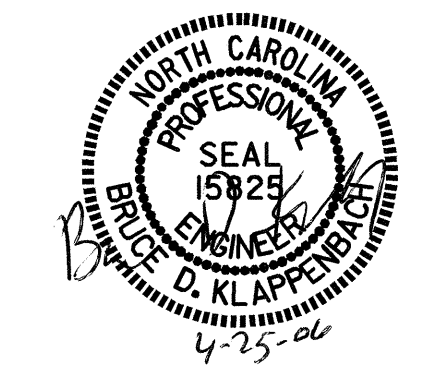


**LATERAL GUIDE DETAILS**  
(TYP. EA. LATERAL GUIDE)

PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
**BENT #2**



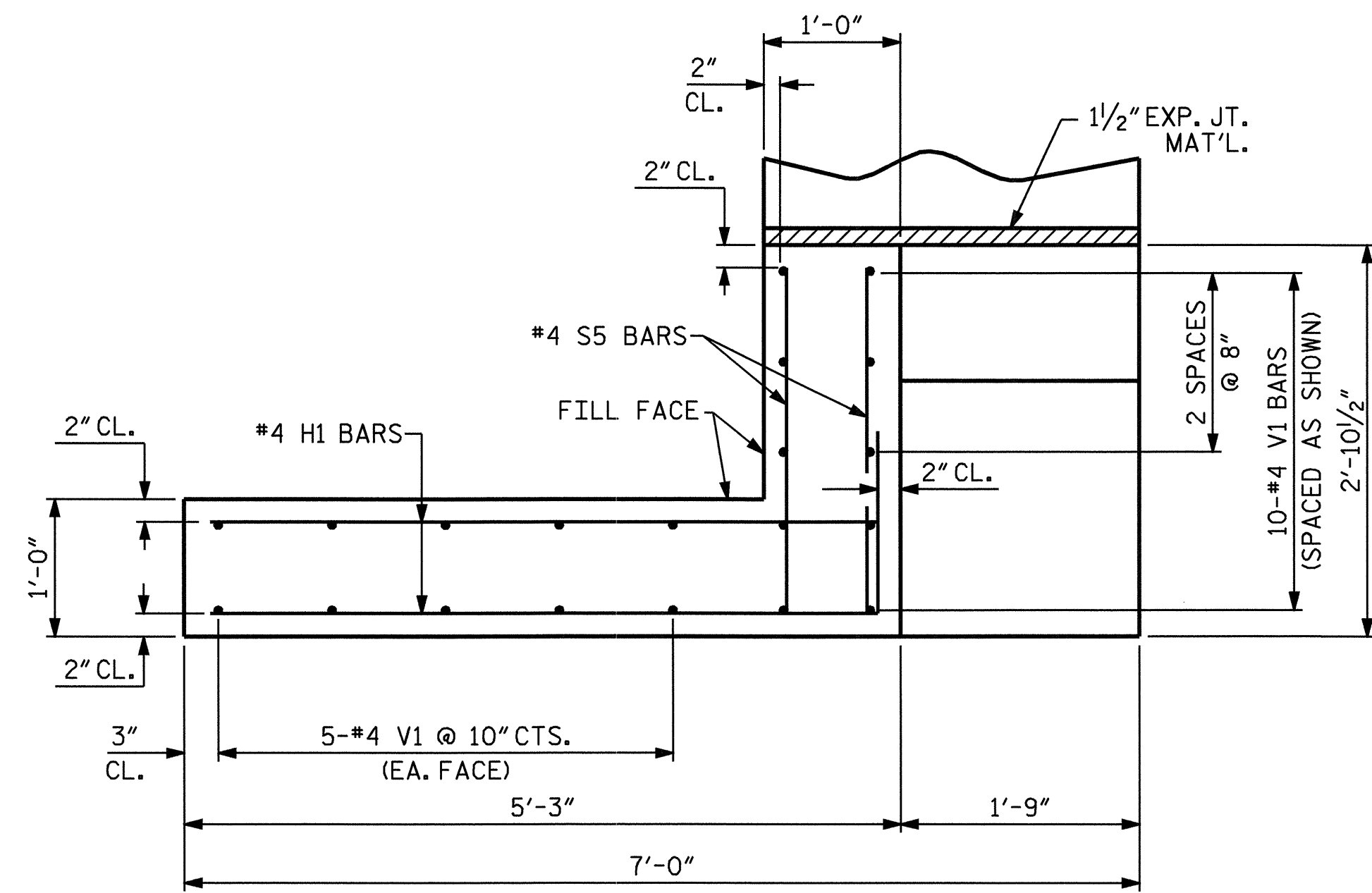
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	S-17
TOTAL SHEETS	25

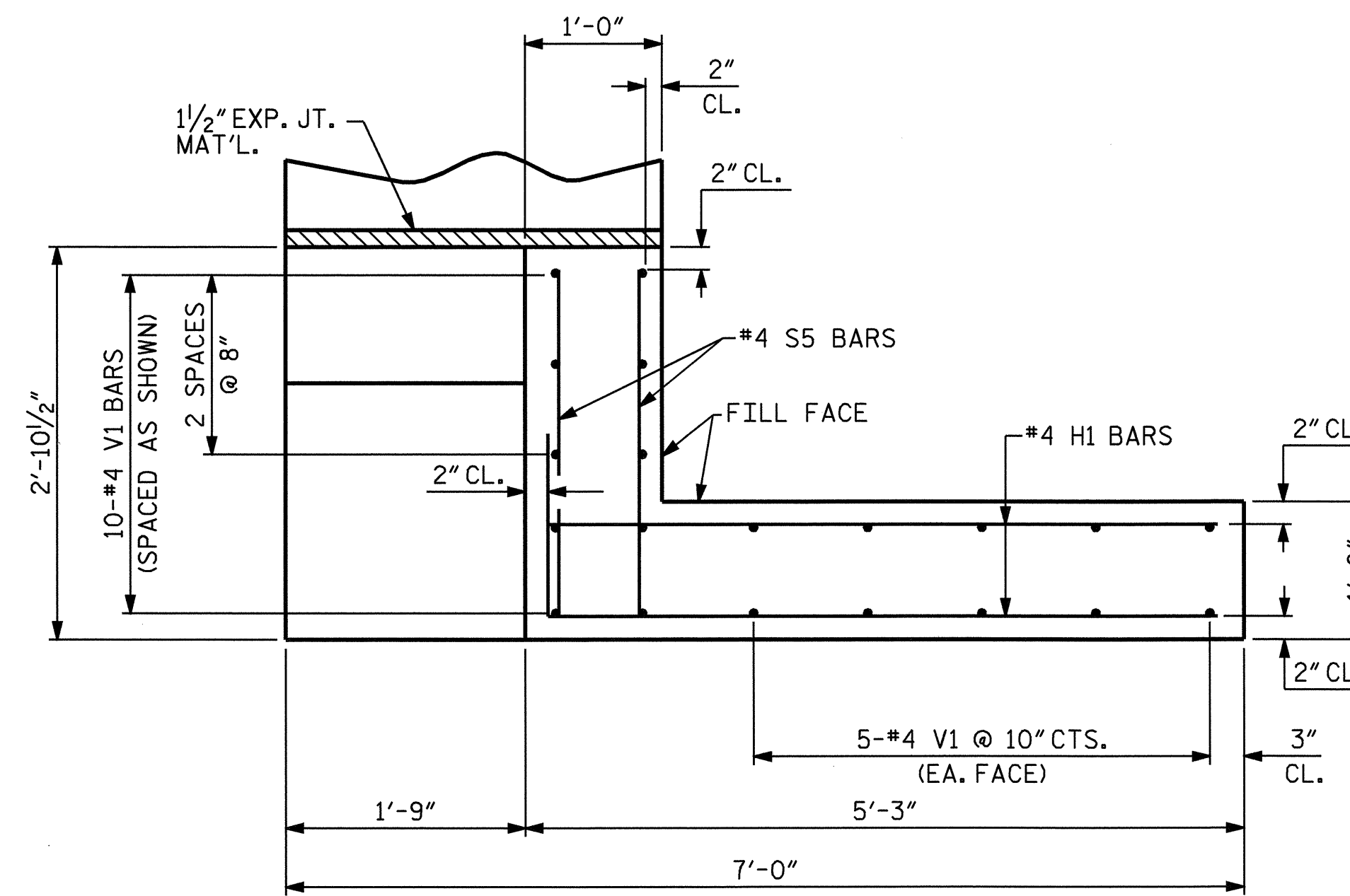
DRAWN BY : J.B.W. / K.M.M. DATE : 3/20/05  
 CHECKED BY : M.G. SHAIKH DATE : 4/5/05



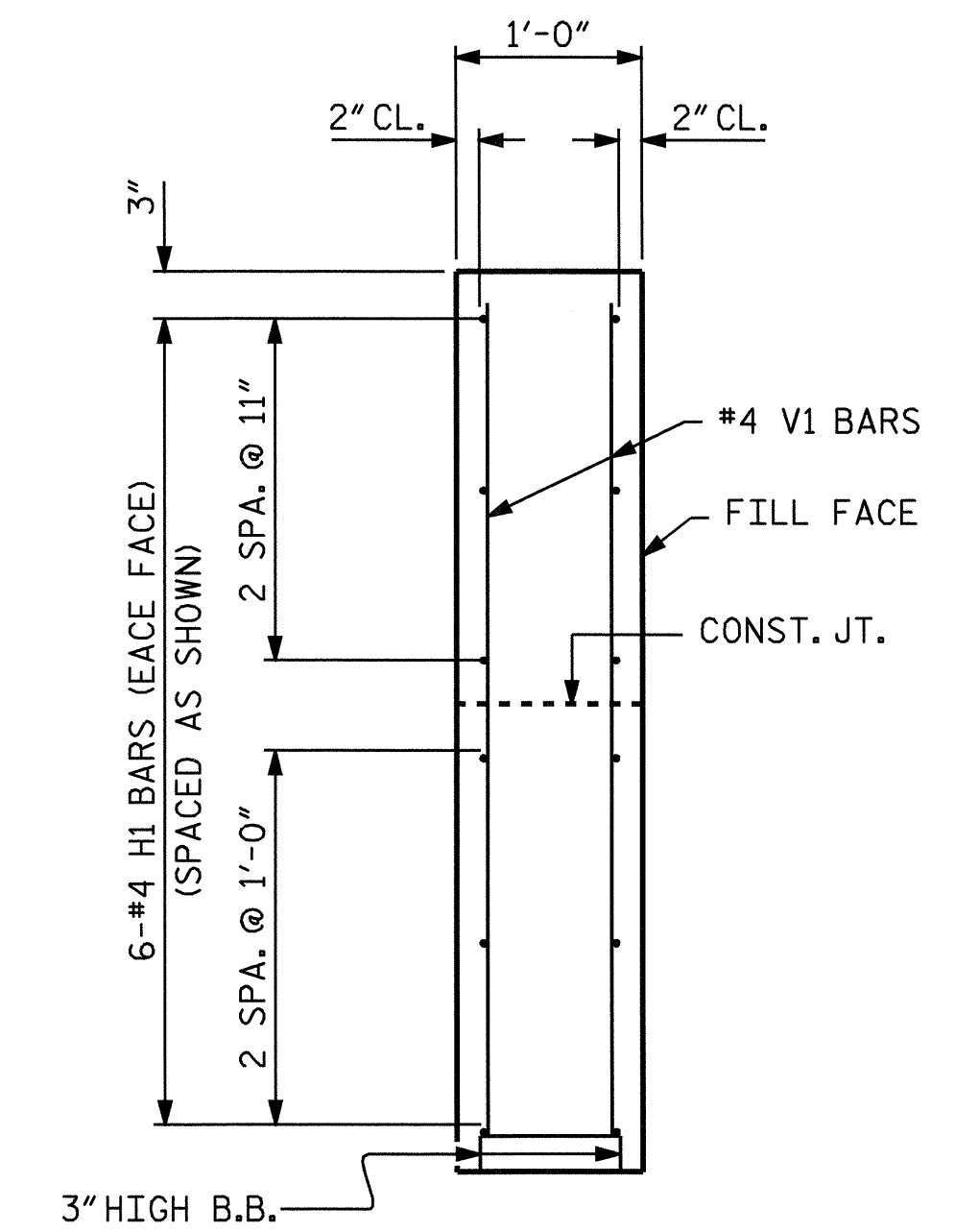




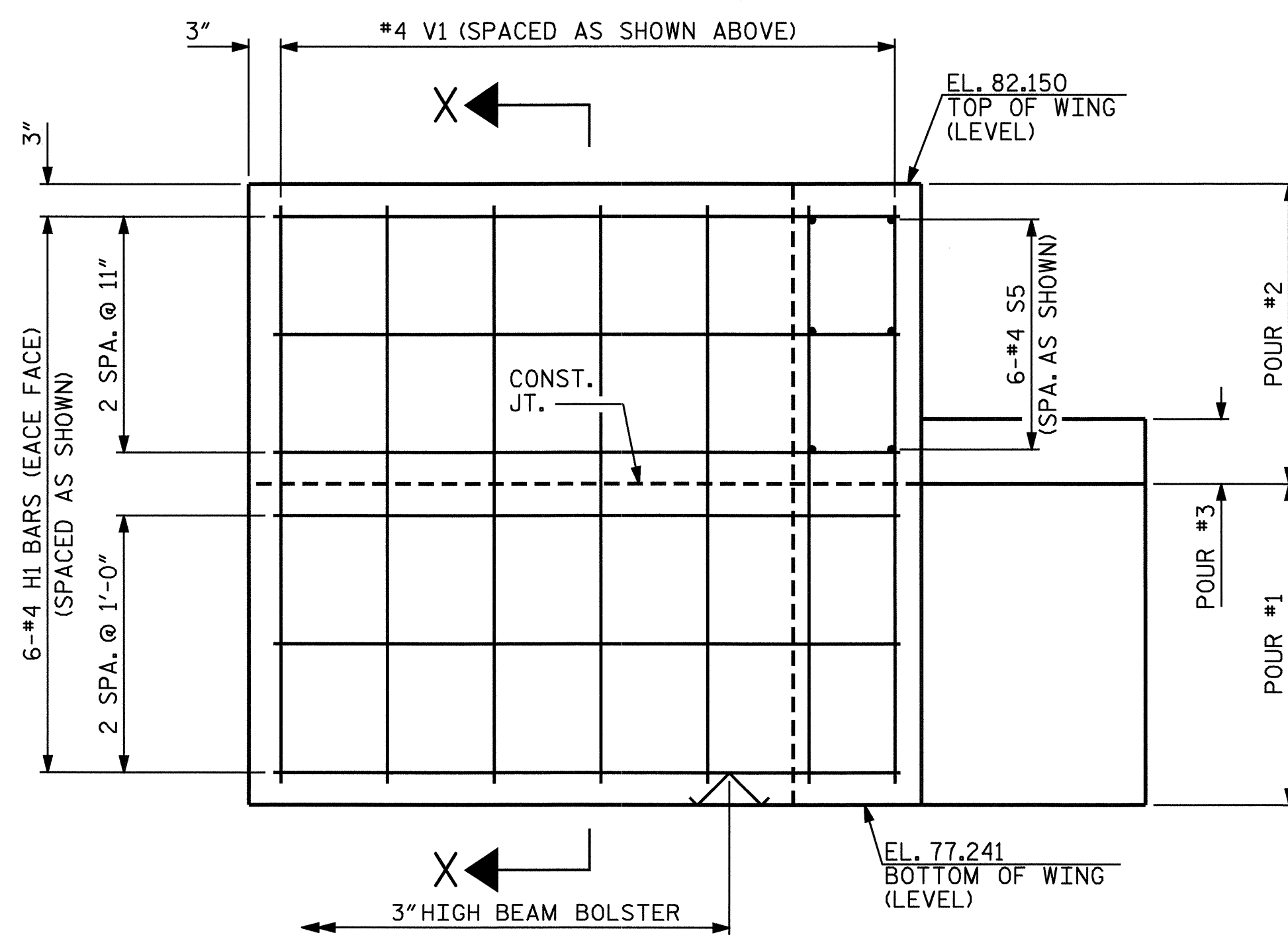
PLAN OF LEFT WING (W1)



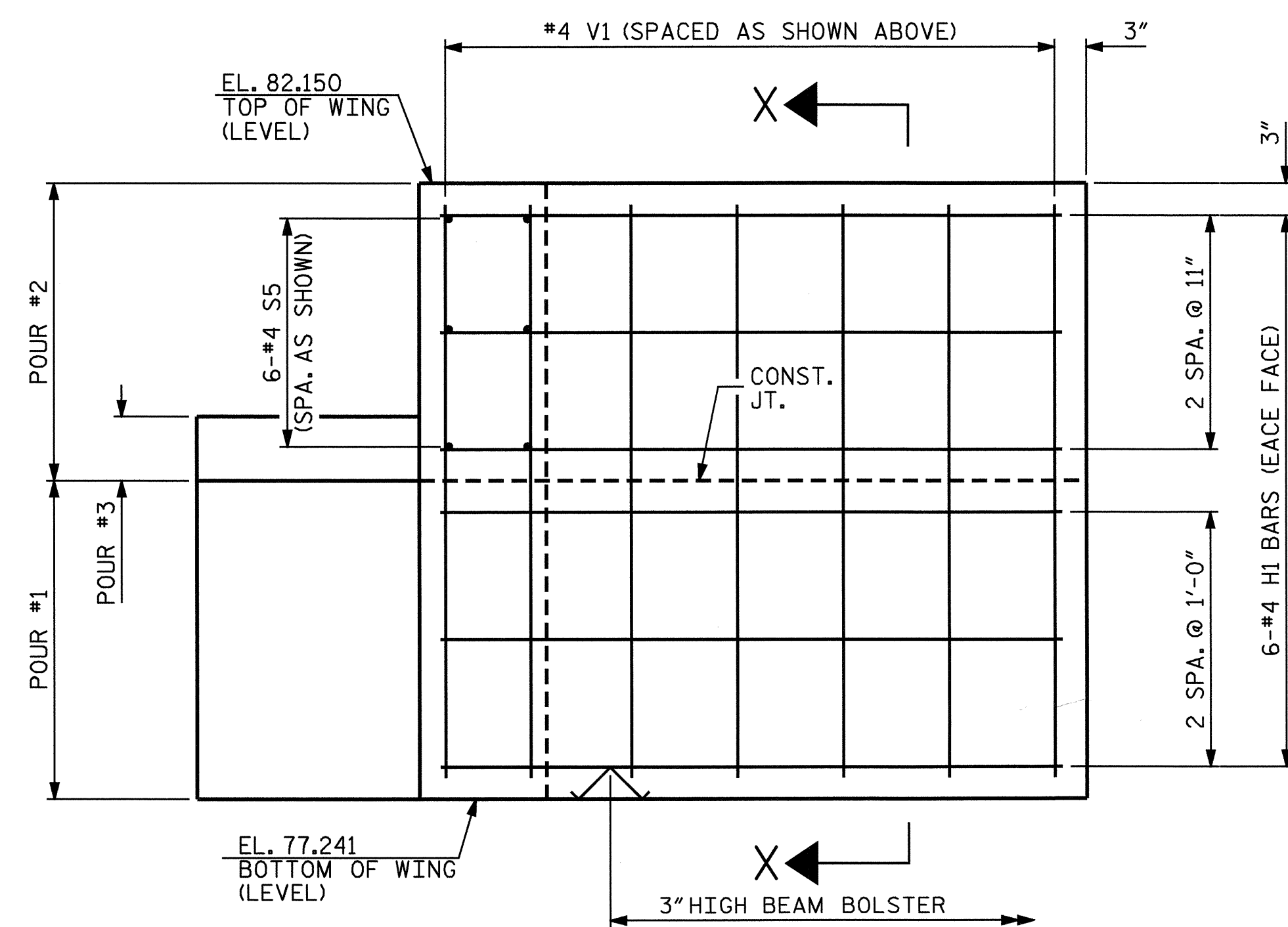
PLAN OF RIGHT WING (W2)



SECTION X-X



ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)

PROJECT NO. B-4093  
 CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #2



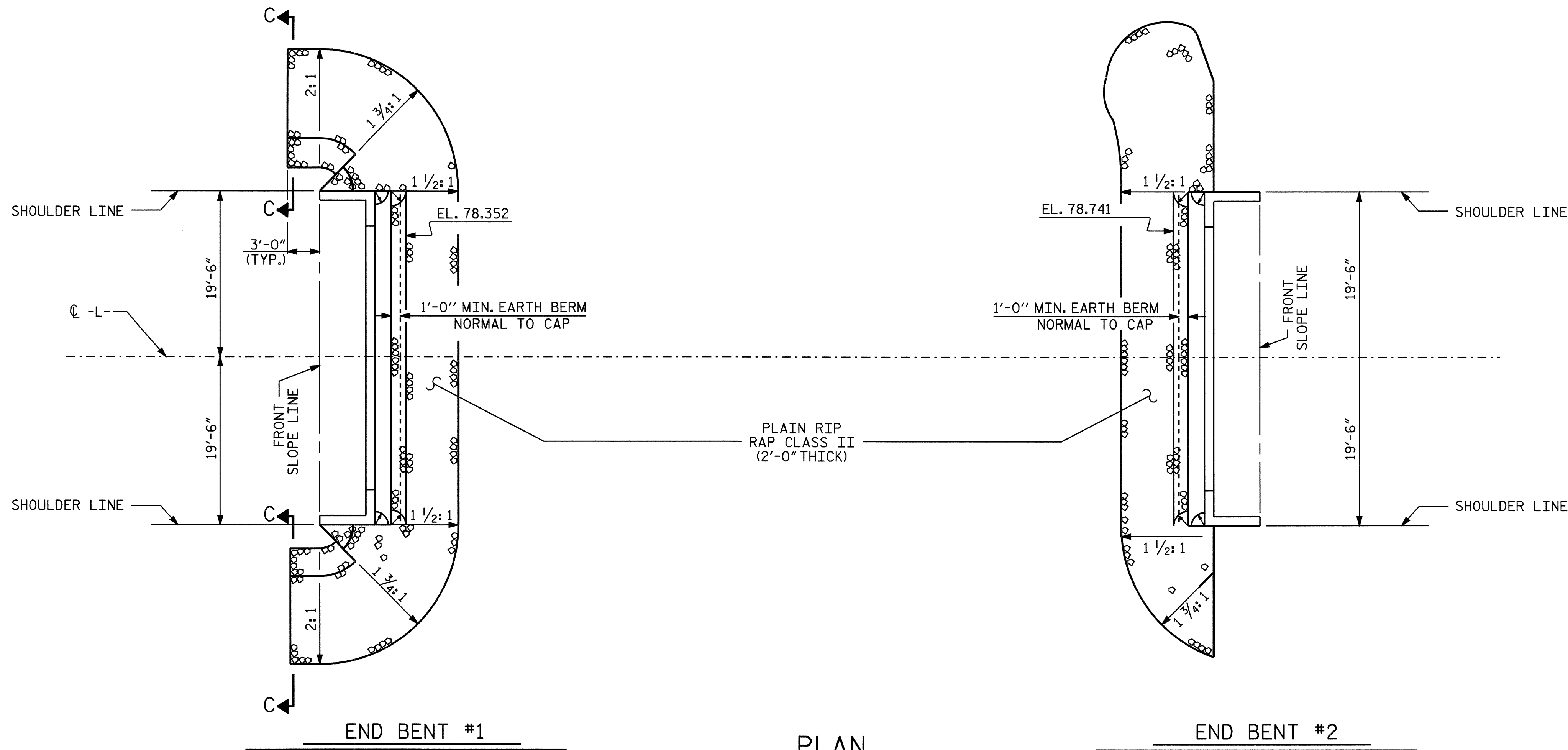
DRAWN BY: J.B.W. / K.M.M. DATE: 12/16/04  
 CHECKED BY: M.G. SHAIKH DATE: 2/15/05

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 kmcauley

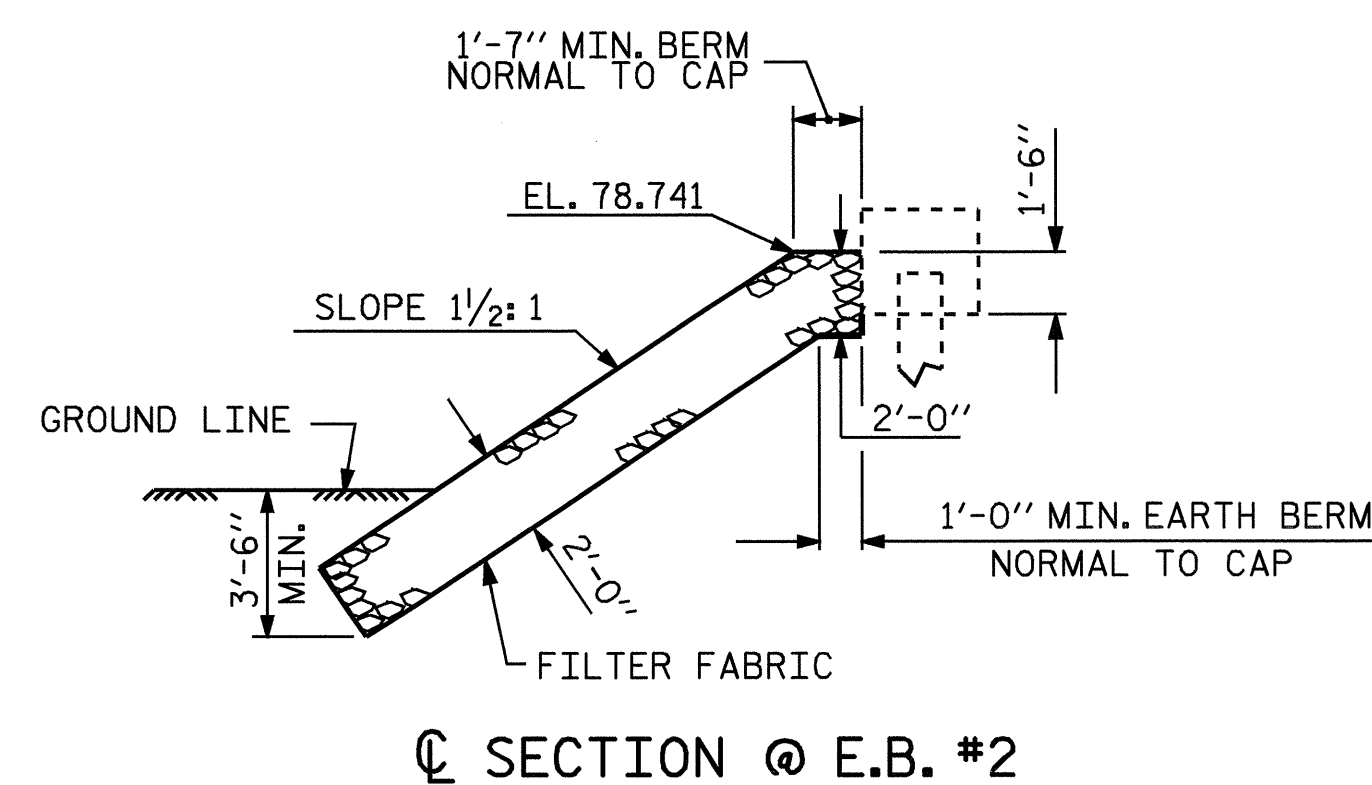
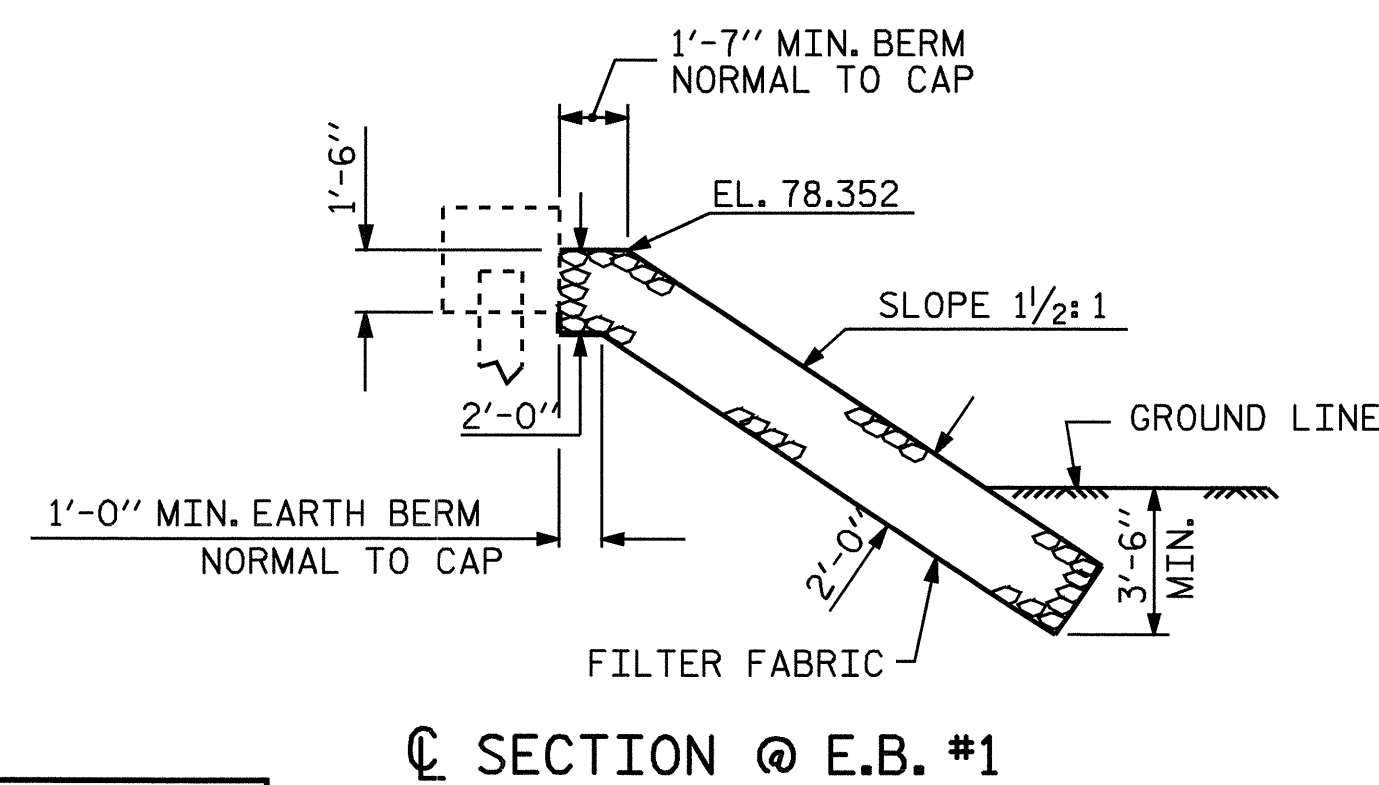
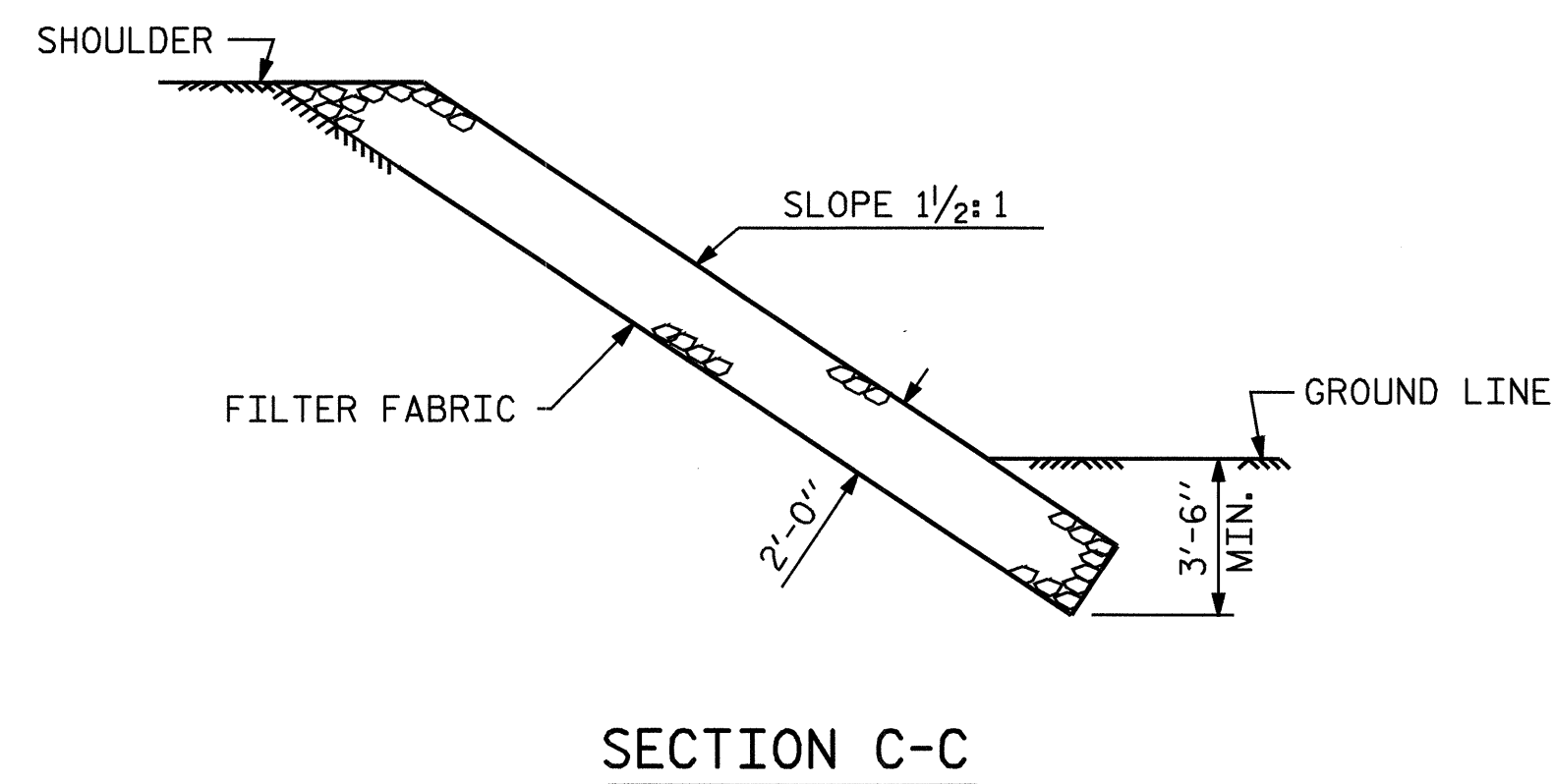
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTALS	
2			4			25	



NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+59.50 -L-	PLAIN RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	90	100
END BENT 2	95	106

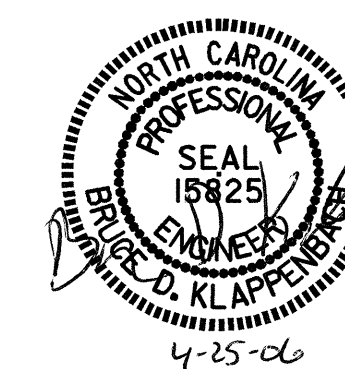


PROJECT NO. B-4093  
CUMBERLAND COUNTY  
STATION: 15+59.50 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
= RIP RAP DETAILS =



ASSEMBLED BY : J.B. WILSON DATE : 12/3/04  
CHECKED BY : M.G. SHAIKH DATE : 12/7/04  
DRAWN BY : FCJ 2/88 REV. 7/17/98 REK/RWW  
CHECKED BY : ARB 8/88 REV. 8/16/99 RWW/LES  
REV. 10/17/00 RWW/LES

25-APR-2006 08:55  
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bklaappenbach

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			25



## NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

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

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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 EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF 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 EXTEND 1'-0" BEYOND THE 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 EXTEND 1'-0" BEYOND THE 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.

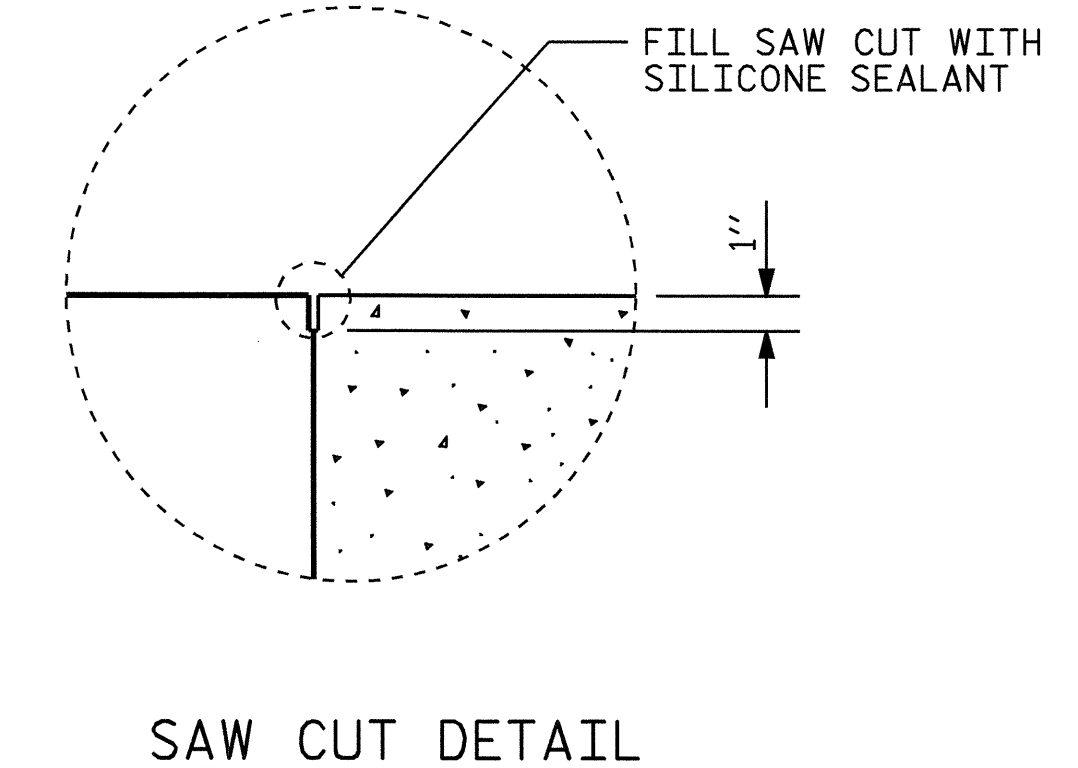
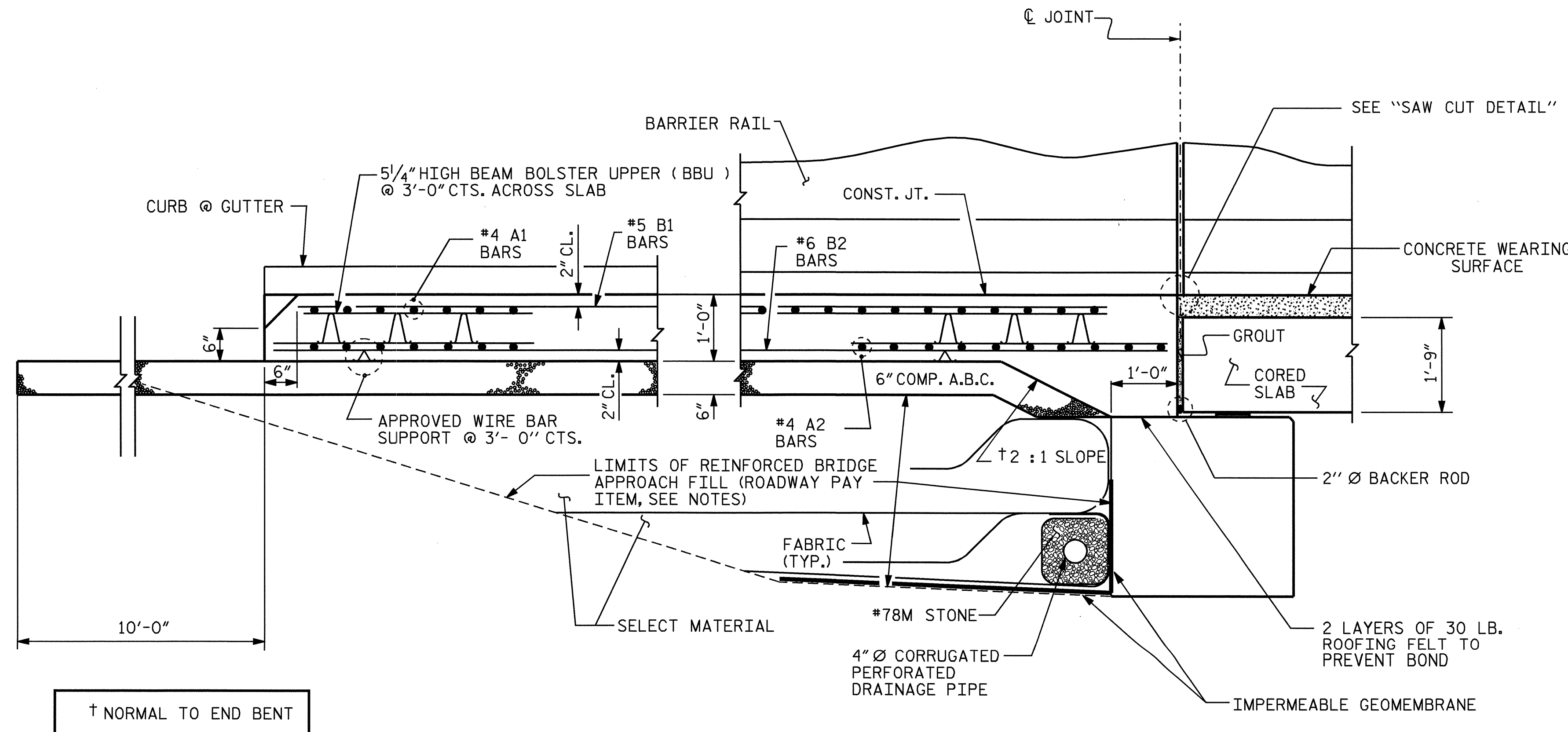
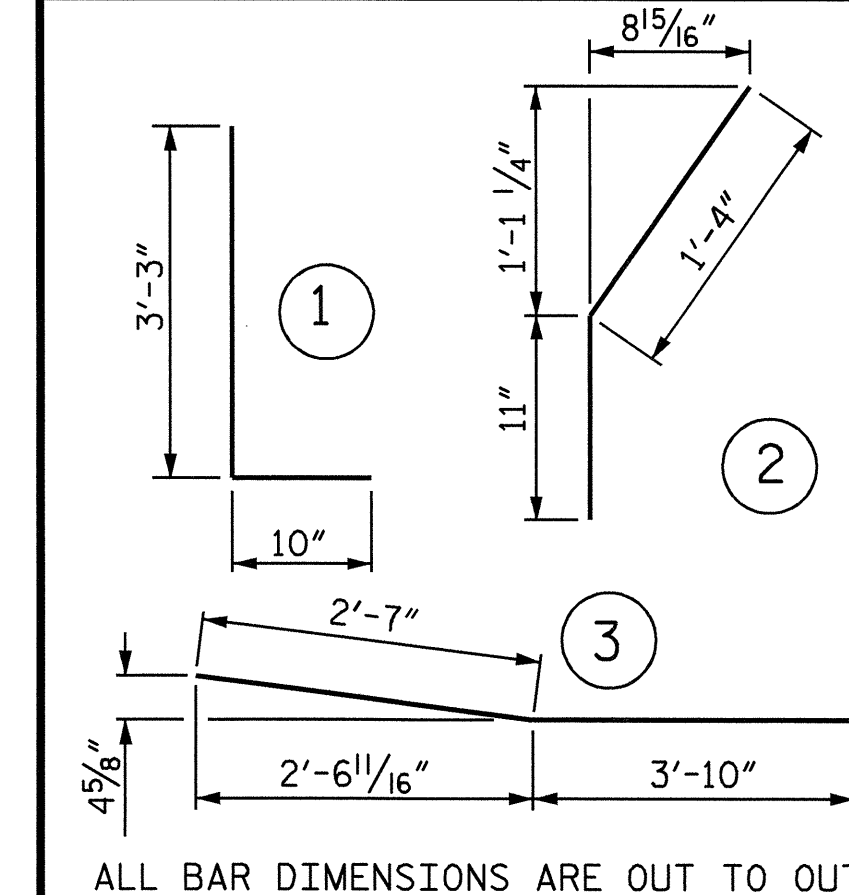
THE APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

THE SILICONE SEALANT SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE SAW CUT SHALL BE SAWN WITHIN 24 HOURS OF POURING THE APPROACH SLAB.

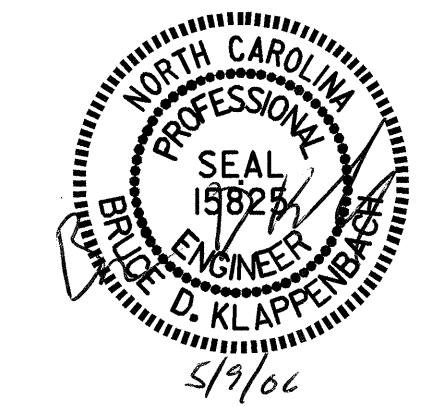
THE JOINT AT THE END BENT SHALL BE SEALED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

BAR TYPES		BILL OF MATERIAL				
		FOR ONE APPROACH SLAB (2 REQ'D)				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	50	#4	STR	17'-4"	579	
A2	52	#4	STR	17'-3"	599	
*B1	65	#5	STR	24'-3"	1644	
B2	65	#6	STR	24'-8"	2408	
*B3	2	#5	STR	11'-8"	24	
B4	2	#6	STR	11'-8"	35	
*B5	14	#5	STR	11'-8"	170	
*B6	2	#5	3	6'-5"	13	
*S1	48	#5	STR	3'-3"	163	
*S2	48	#5	1	4'-1"	204	
*S3	20	#5	2	2'-3"	47	
				REINFORCING STEEL	LBS.	3042
				*EPOXY COATED REINFORCING STEEL	LBS.	2844
CLASS AA CONCRETE BREAKDOWN						
				POUR 1 SLAB AND CURB	C. Y.	33.0
				POUR 2 RAIL	C. Y.	2.1
				CLASS AA CONCRETE	C. Y.	35.1



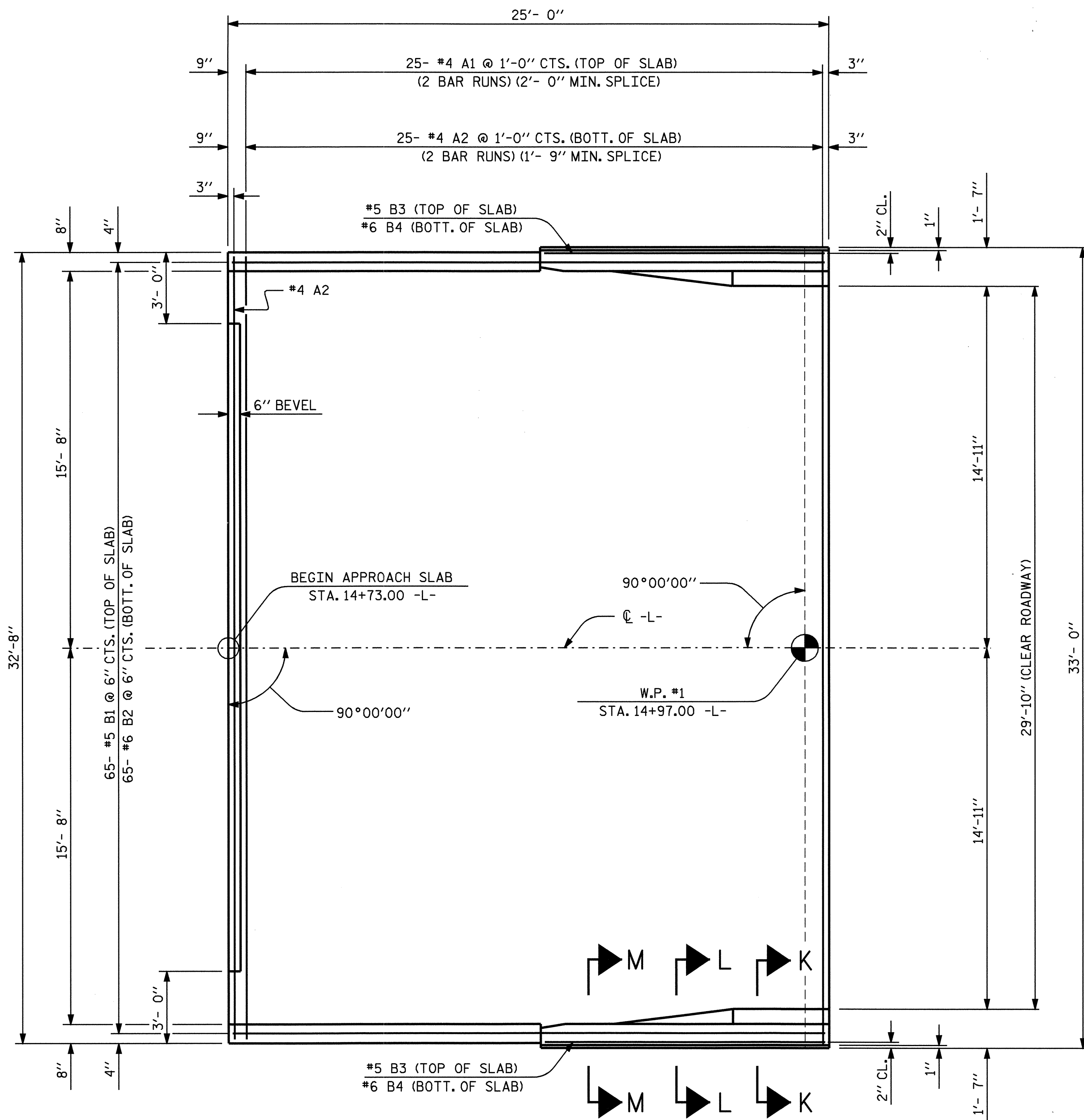
PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB WITH  
 BARRIER RAIL

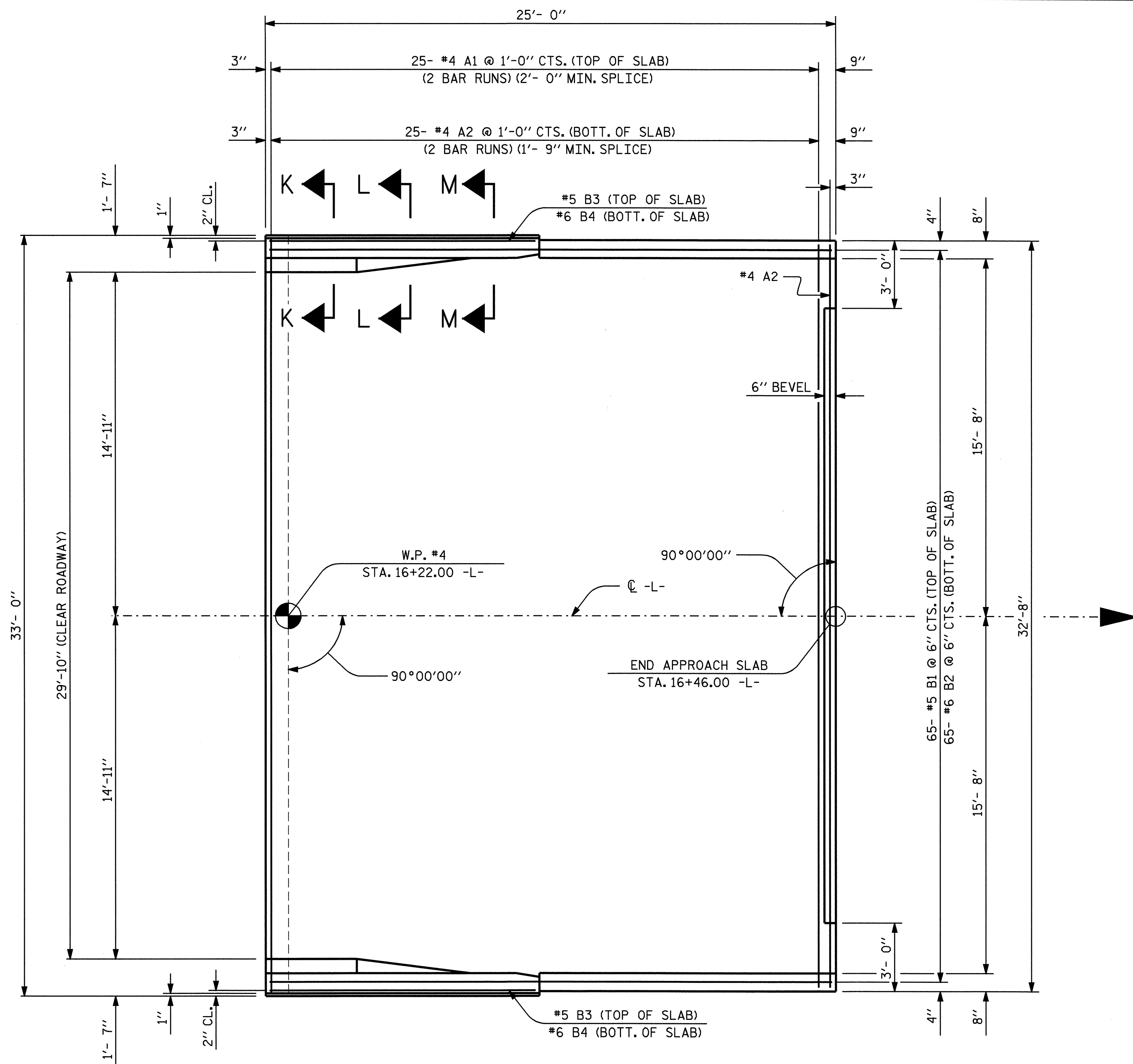


REVISIONS						SHEET NO. S-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

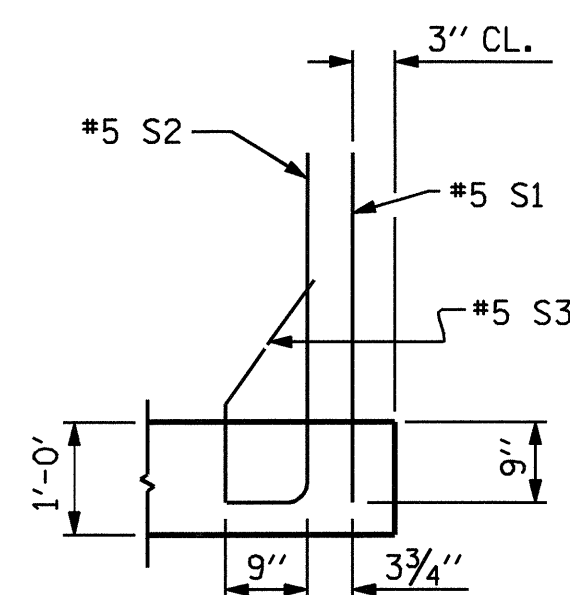
ASSEMBLED BY : D. A. GLADDEN DATE : 11-15-04  
 CHECKED BY : M. G. SHAIKH DATE : 3-13-06  
 DRAWN BY : LES 8/01 REV. 5/7/03R RWW/JTE  
 CHECKED BY : RDR 8/01



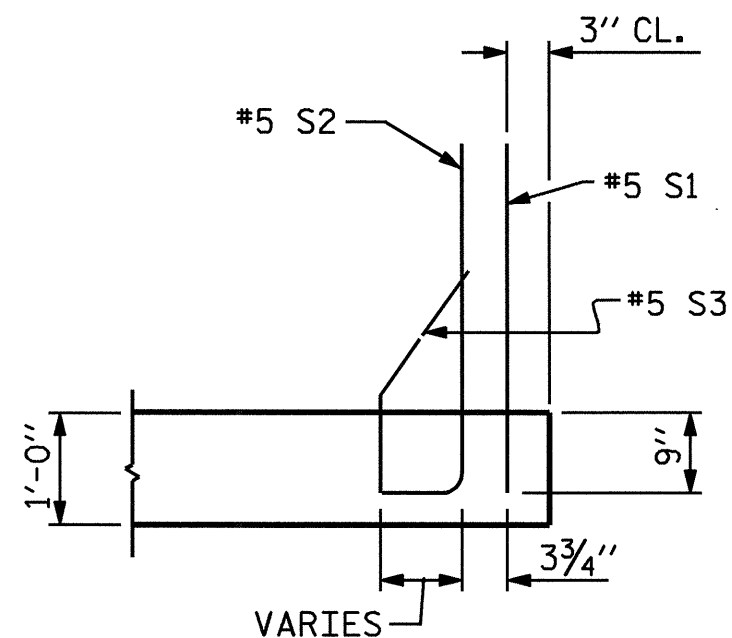
PLAN OF APPROACH SLAB AT END BENT #1



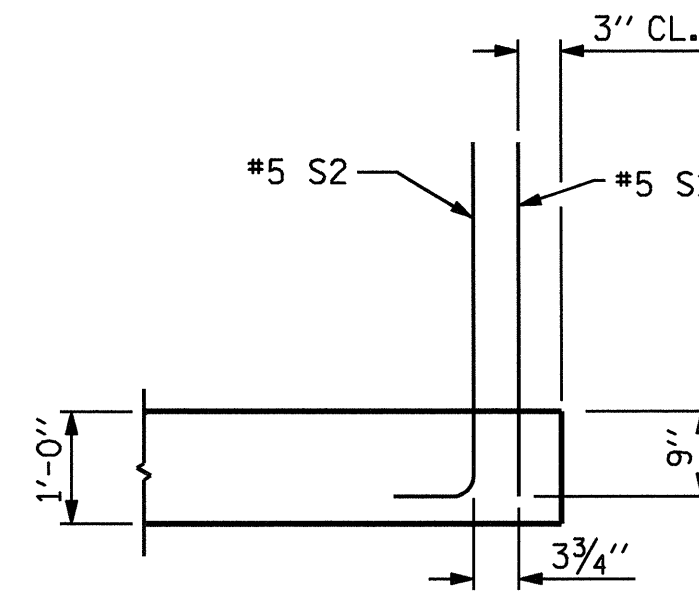
PLAN OF APPROACH SLAB AT END BENT #2



SECTION K-K



SECTION L-L



SECTION M-M

DRAWN BY : D. A. GLADDEN DATE : 11-15-04  
 CHECKED BY : M. G. SHAIKH DATE : 3-13-06

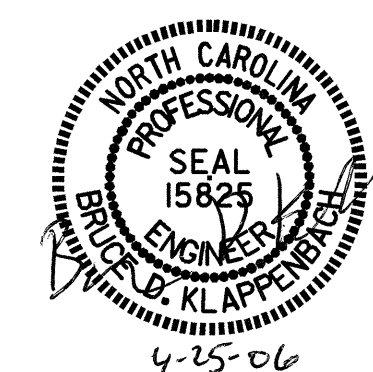
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PROJECT NO. B-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB WITH  
 BARRIER RAIL



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS 25	
2			4				

NOTES

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

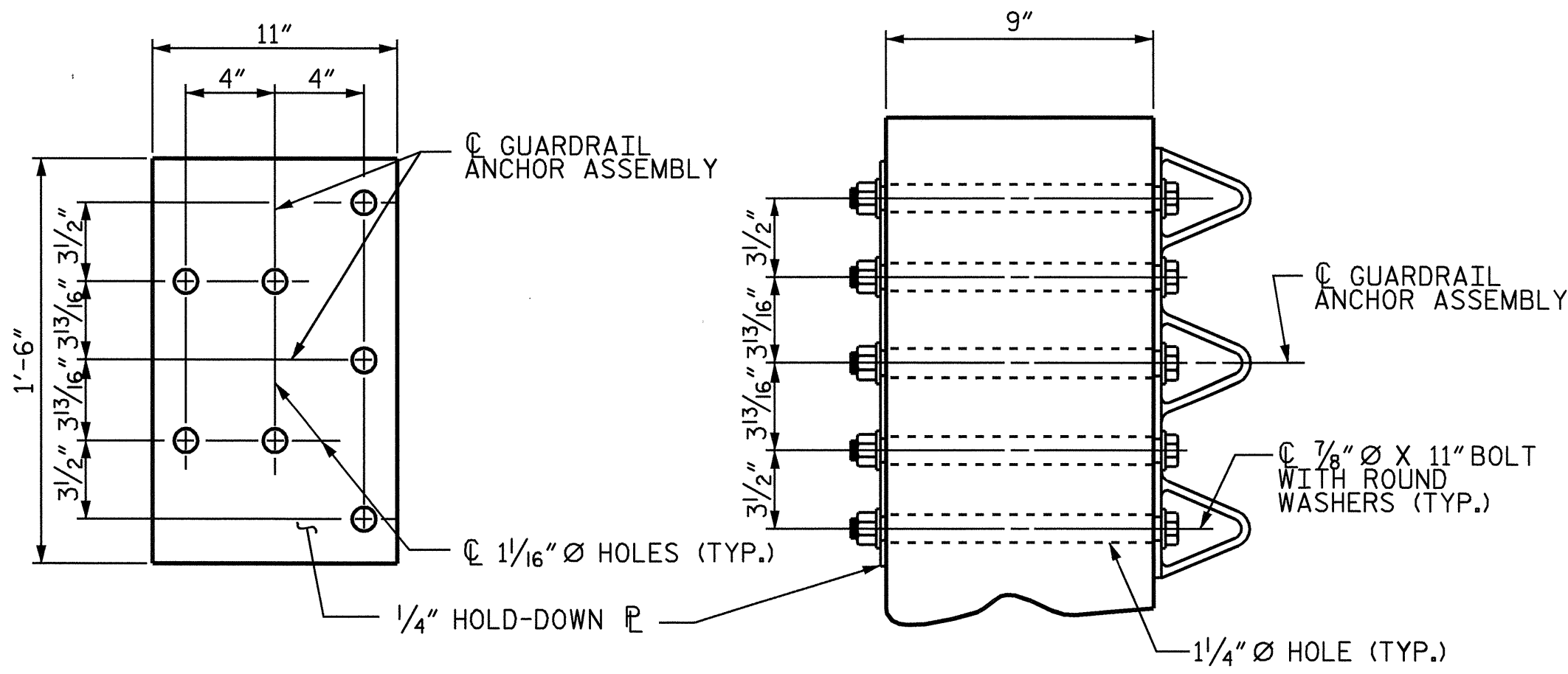
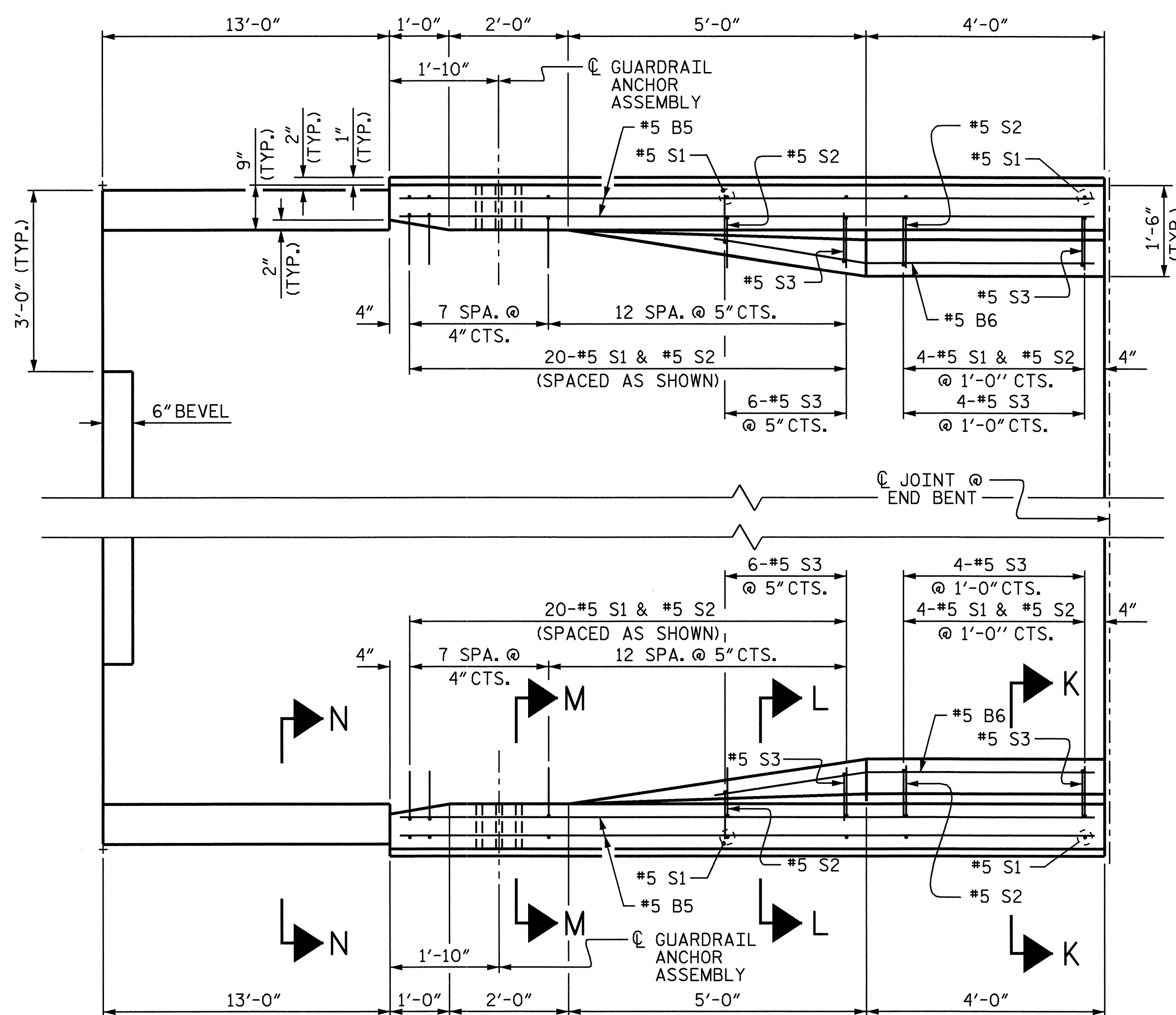
THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

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

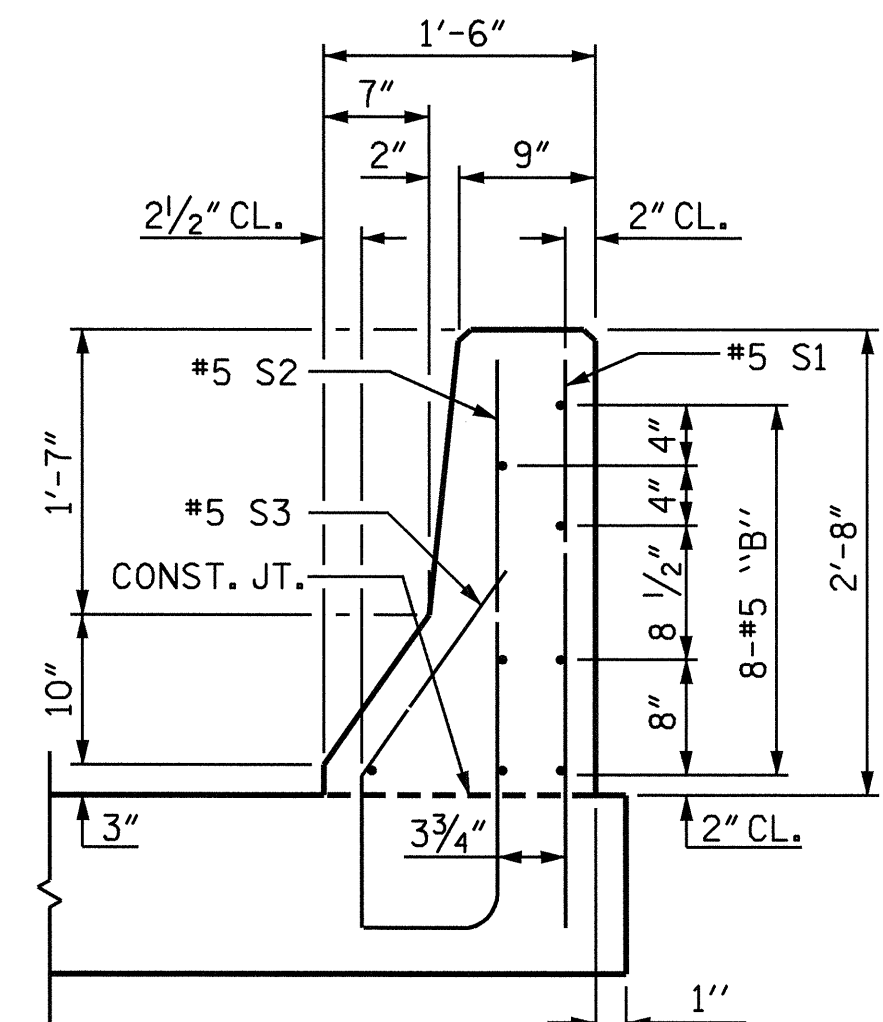
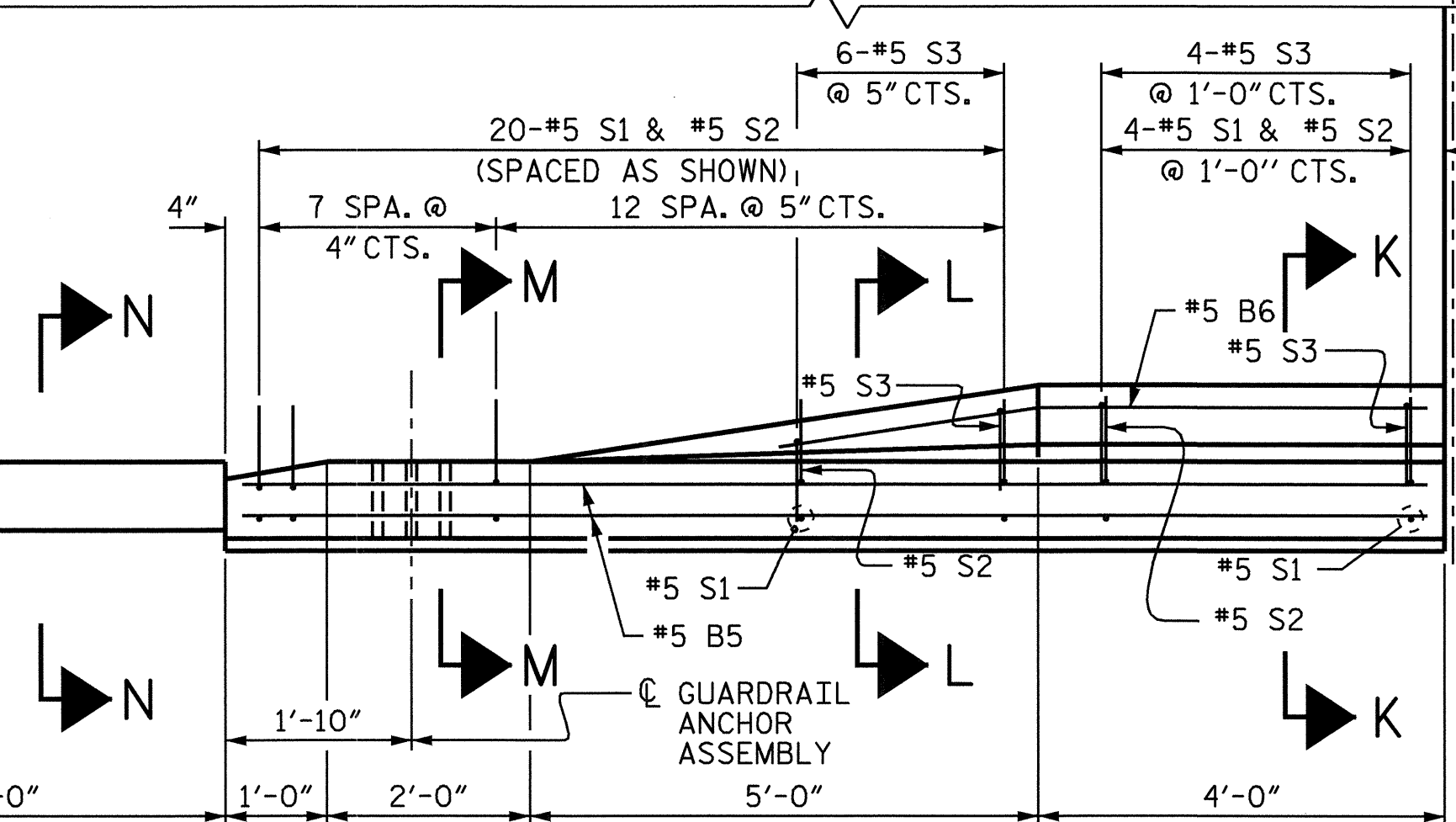
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

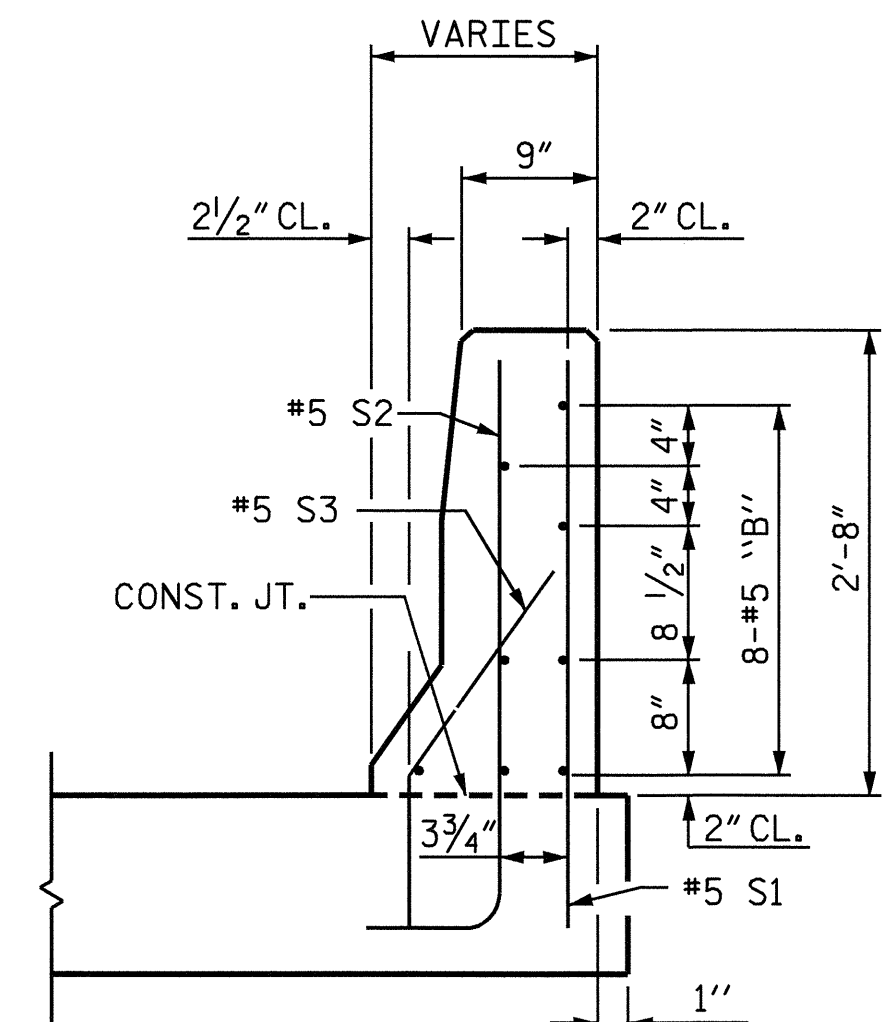
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



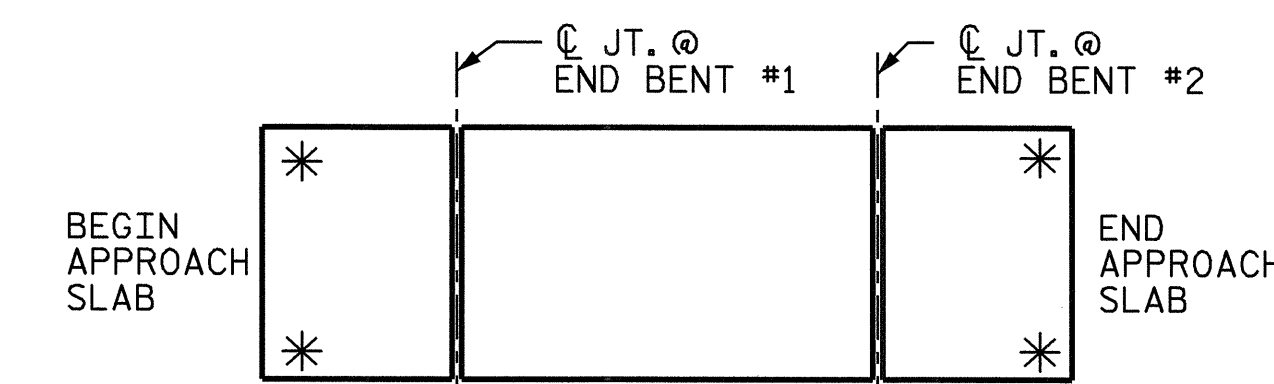
PLAN SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



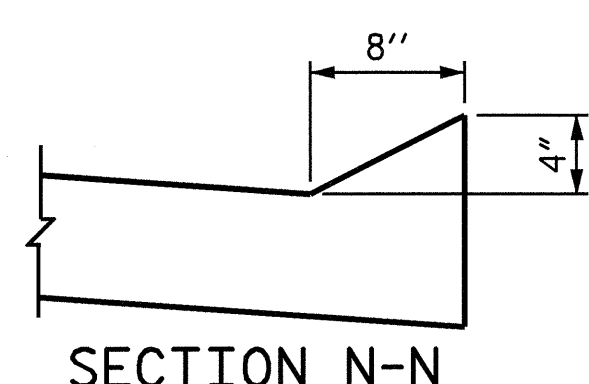
SECTION K-K



SECTION L-L

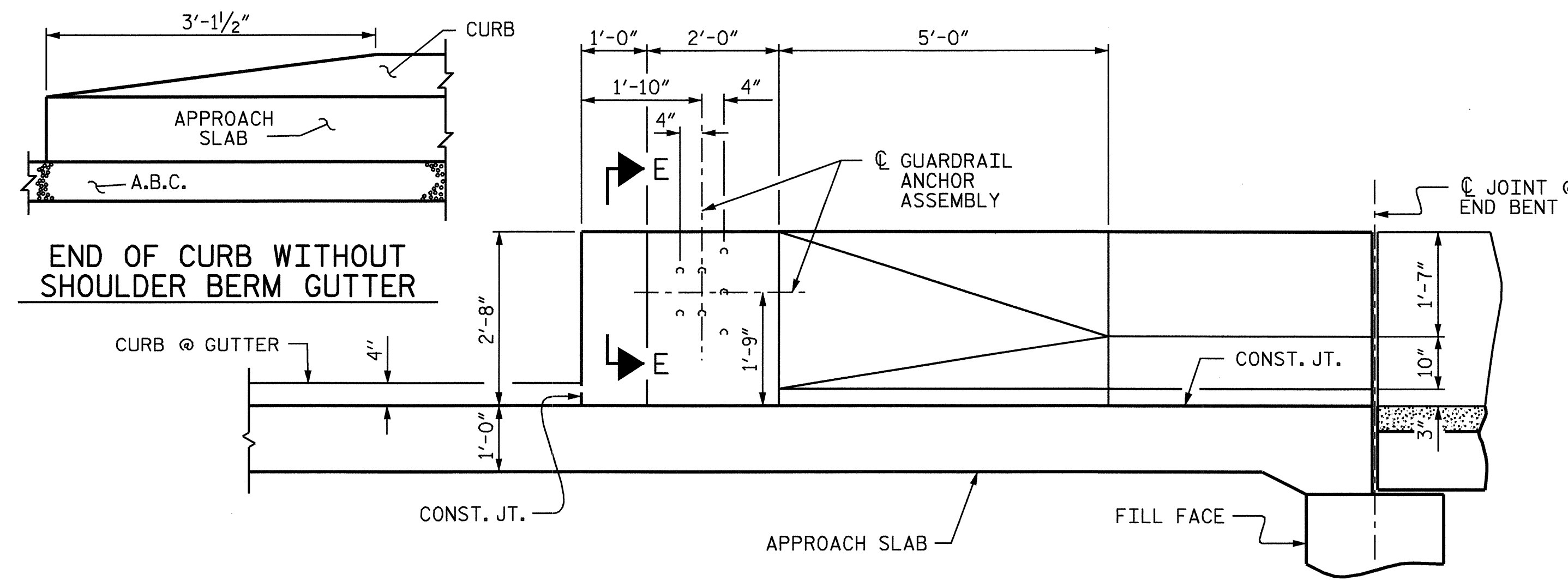


SKETCH SHOWING POINTS OF ATTACHMENT  
\* INDICATES POINTS OF ATTACHMENT

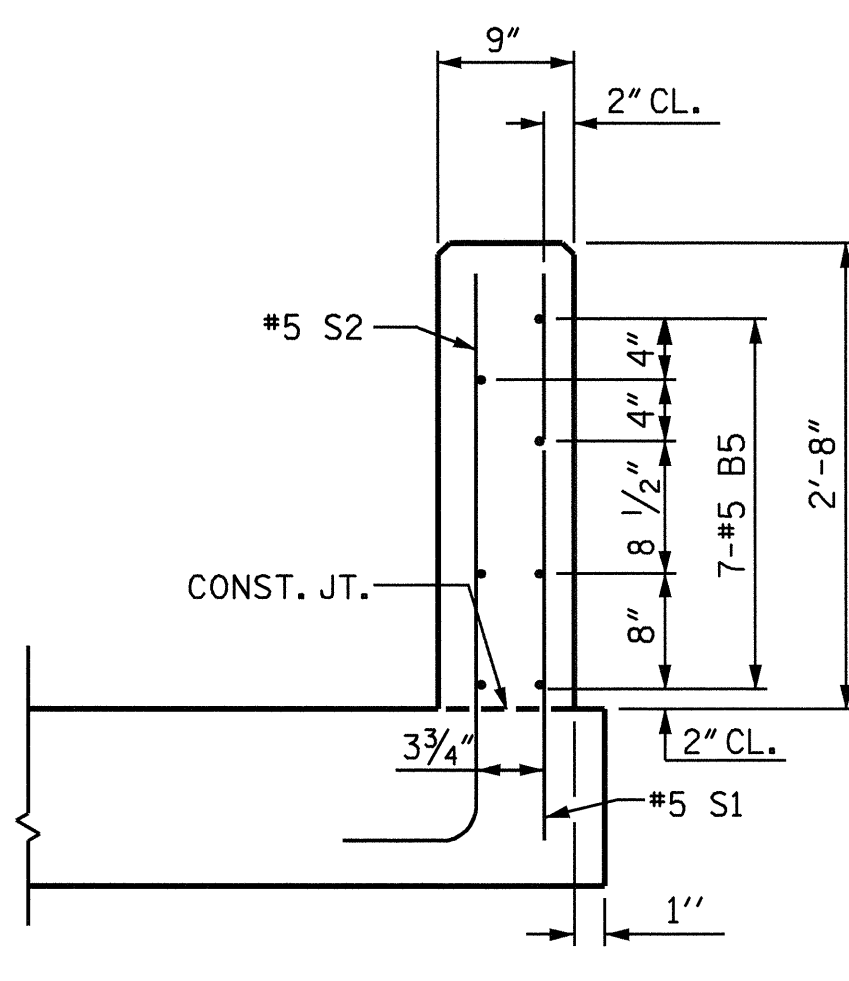


SECTION N-N

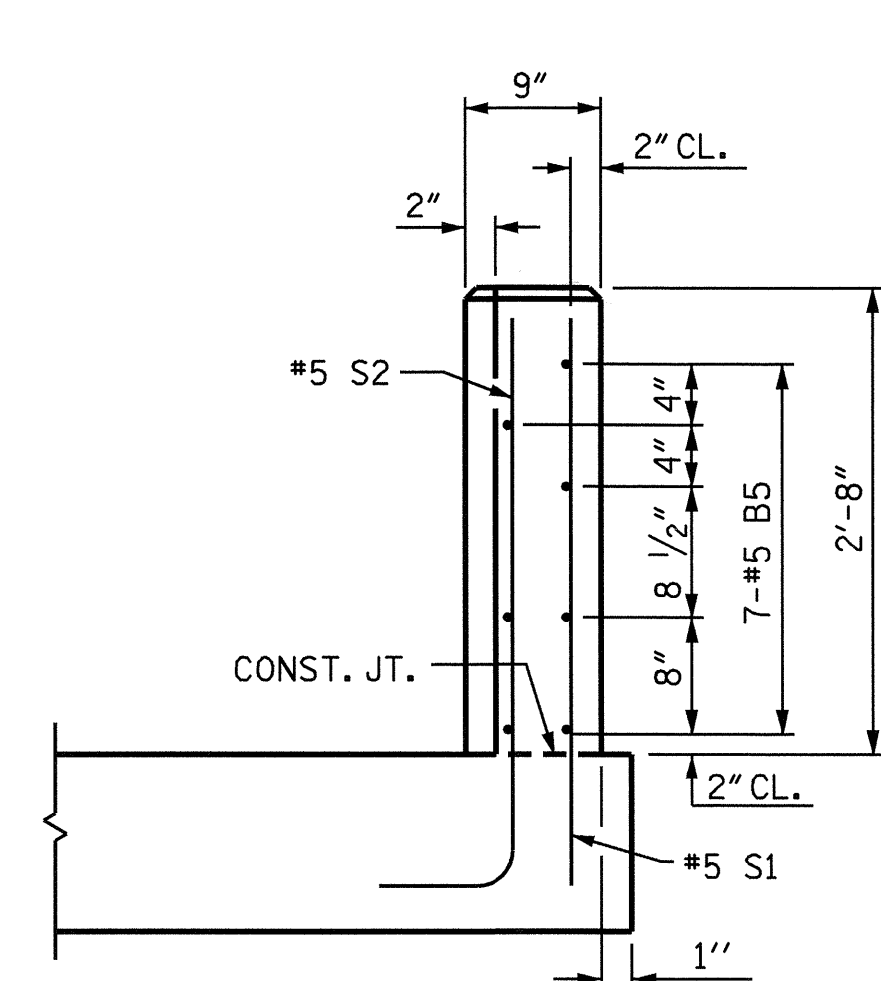
PLAN  
BEGIN APPROACH SLAB SHOWN,  
END APPROACH SLAB SIMILAR



ELEVATION

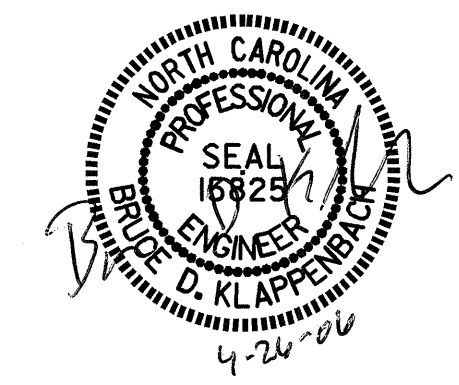


SECTION M-M



END VIEW

ASSEMBLED BY :	D. A. GLADDEN	DATE :	11-15-04
CHECKED BY :	M. G. SHAIKH	DATE :	3-13-06
DRAWN BY :	LES	8/01	REV. 5/7/03R RWW/JTE
CHECKED BY :	RDR	8/01	

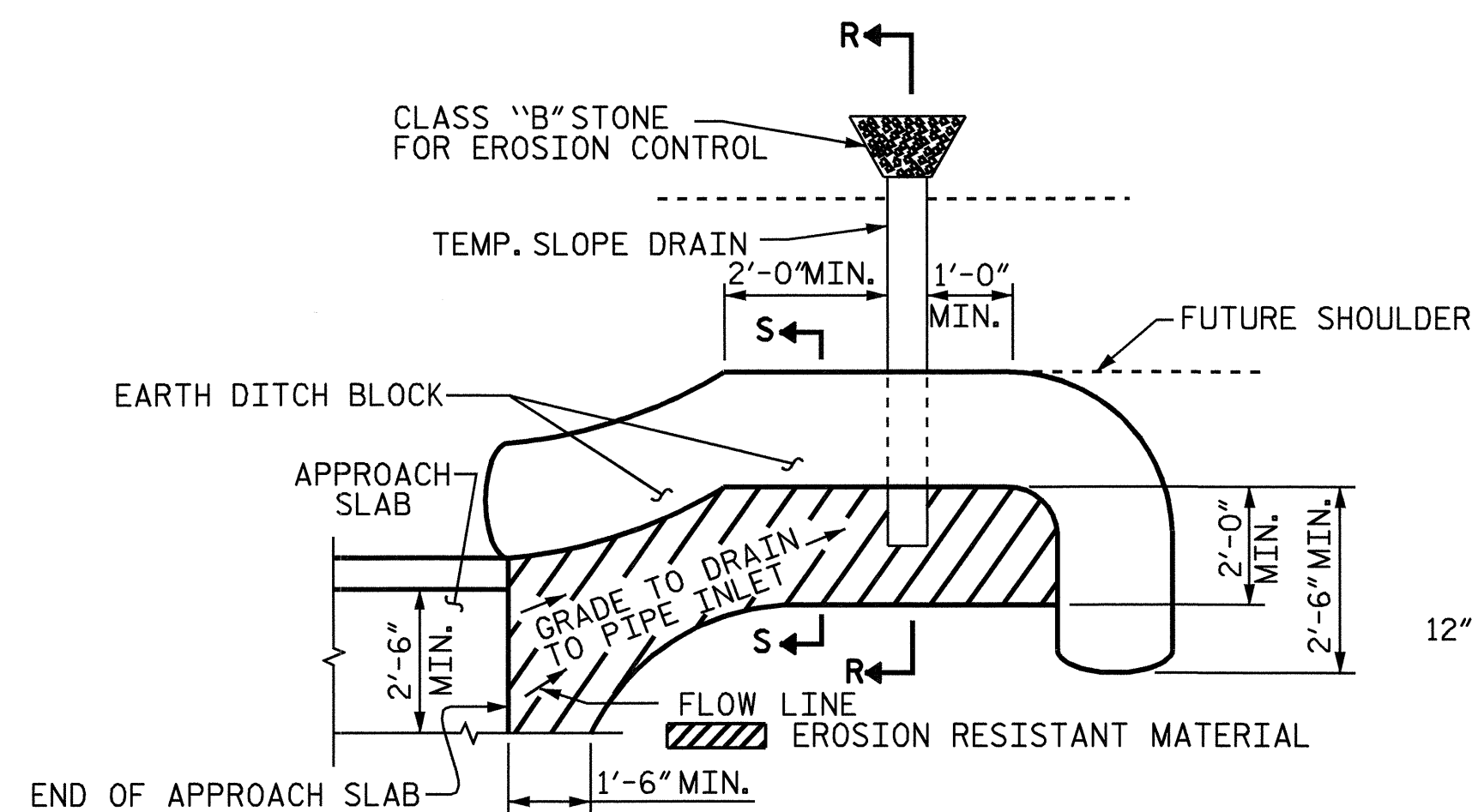


PROJECT NO. B-4093  
CUMBERLAND COUNTY  
STATION: 15+59.50 -L-

SHEET 3 OF 4

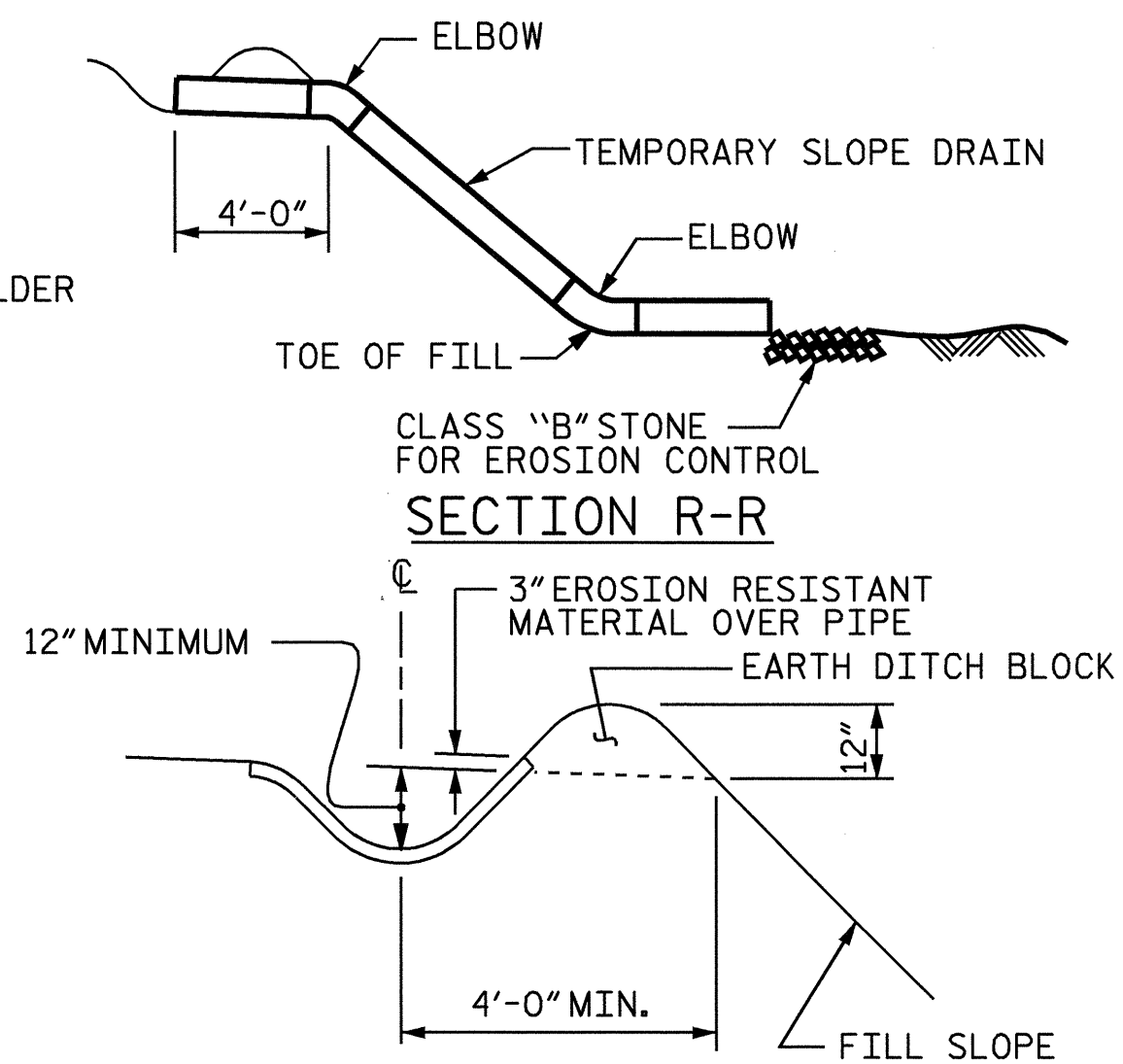
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB WITH BARRIER RAIL						S-24
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	25
1			3			
2			4			





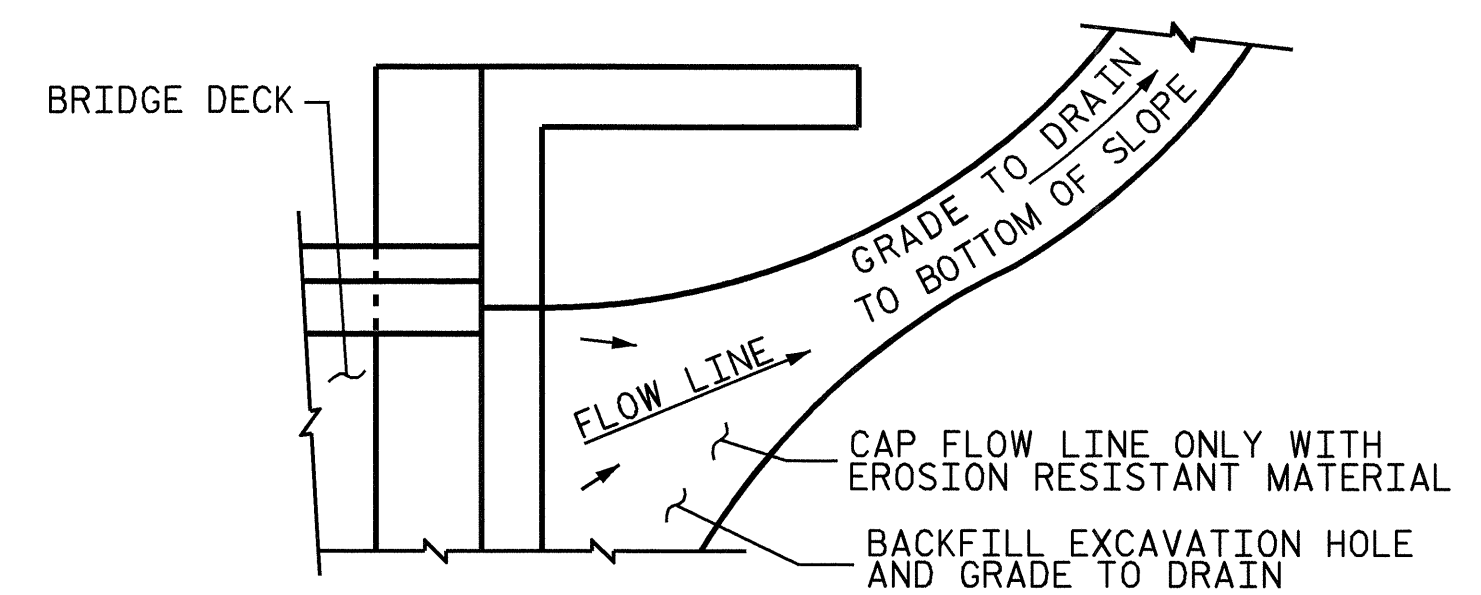
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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 R-R  
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

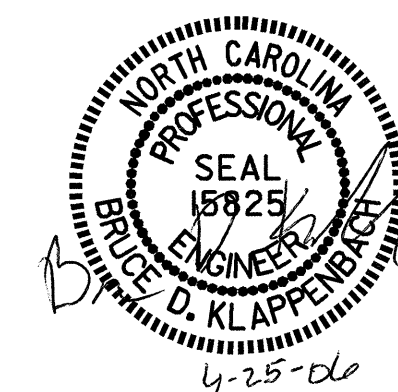


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4093  
CUMBERLAND COUNTY  
 STATION: 15+59.50 -L-

SHEET 4 OF 4



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

REVISIONS						1988
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-25
2			4			TOTAL SHEETS 25

ASSEMBLED BY : D. A. GLADDEN DATE : 9-7-04  
 CHECKED BY : M. G. SHAIKH DATE : 3-13-06

## 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		
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.

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