

See Sheet 1-A For Index of Sheets

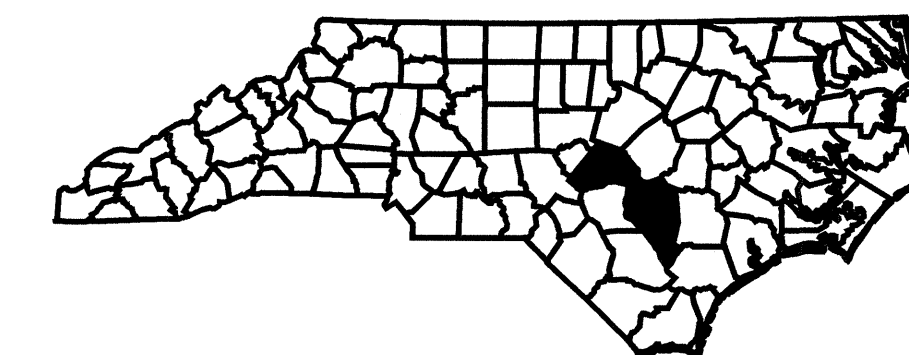
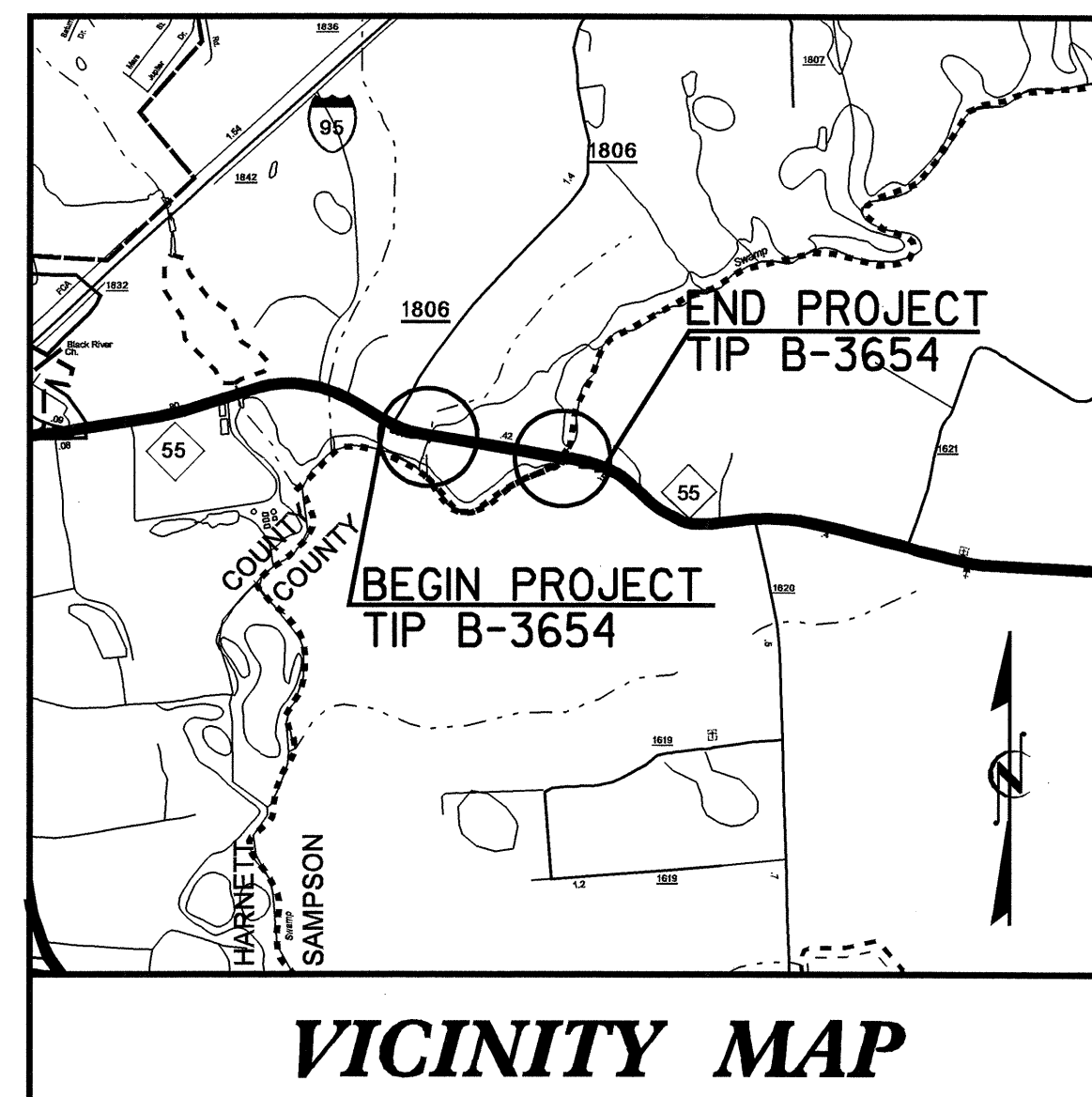
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT & SAMPSON COUNTIES

LOCATION: REPLACE BRIDGES 29 & 53 OVER MINGO SWAMP ON NC 55

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURES

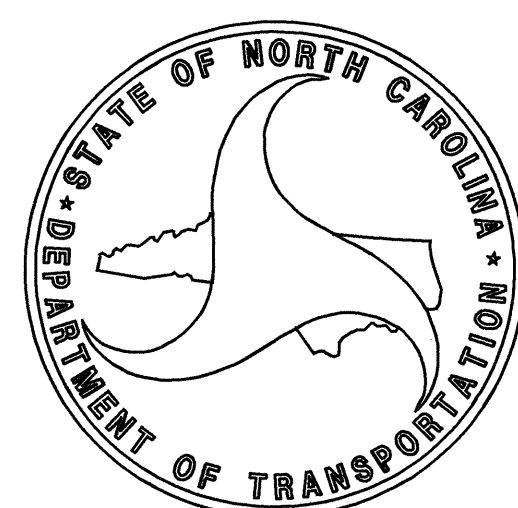
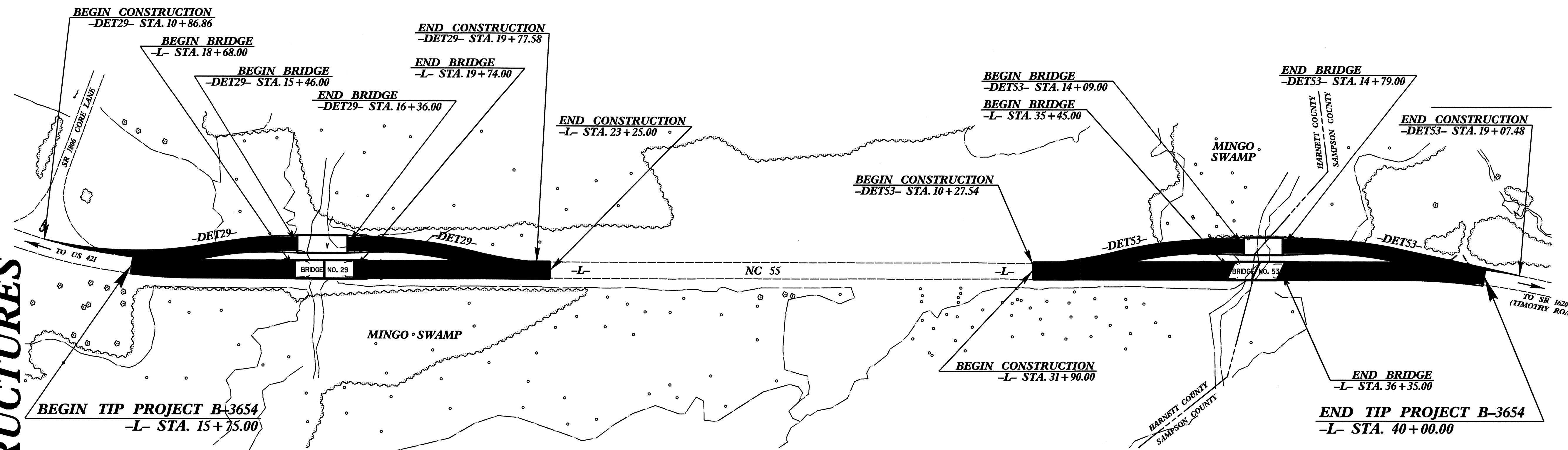
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3654		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33200.1.1	BRSTP-55(14)	P.E.	
33200.2.2	BRSTP-55(14)	RAW, UTIL.	
33200.3.1	BRSTP-55(14)	CONST.	



TIP PROJECT: B-3654

CONTRACT: C202260

STRUCTURES



DESIGN DATA

ADT 2009 =	7,250
ADT 2030 =	11,800
DHV =	10 %
D =	60 %
T =	8 % *
V =	60 MPH
* TTST 4% DUAL 4%	
RURAL MAJOR COLLECTOR	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3654	=	0.258 MI.
LENGTH STRUCTURE TIP PROJECT B-3654	=	0.037 MI.
TOTAL LENGTH OF TIP PROJECT B-3654	=	0.295 MI.

Prepared In the Office of:

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
DECEMBER 15, 2009

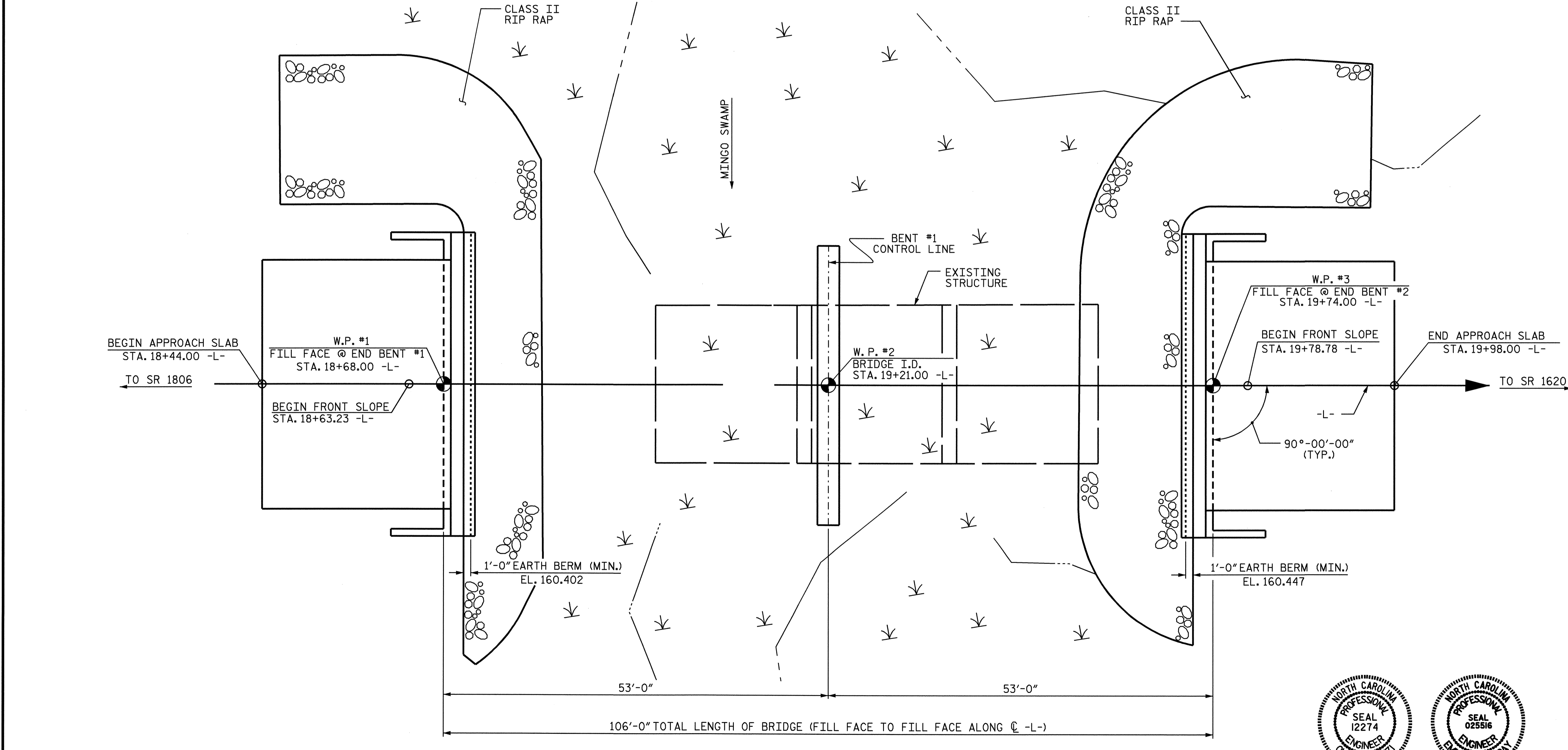
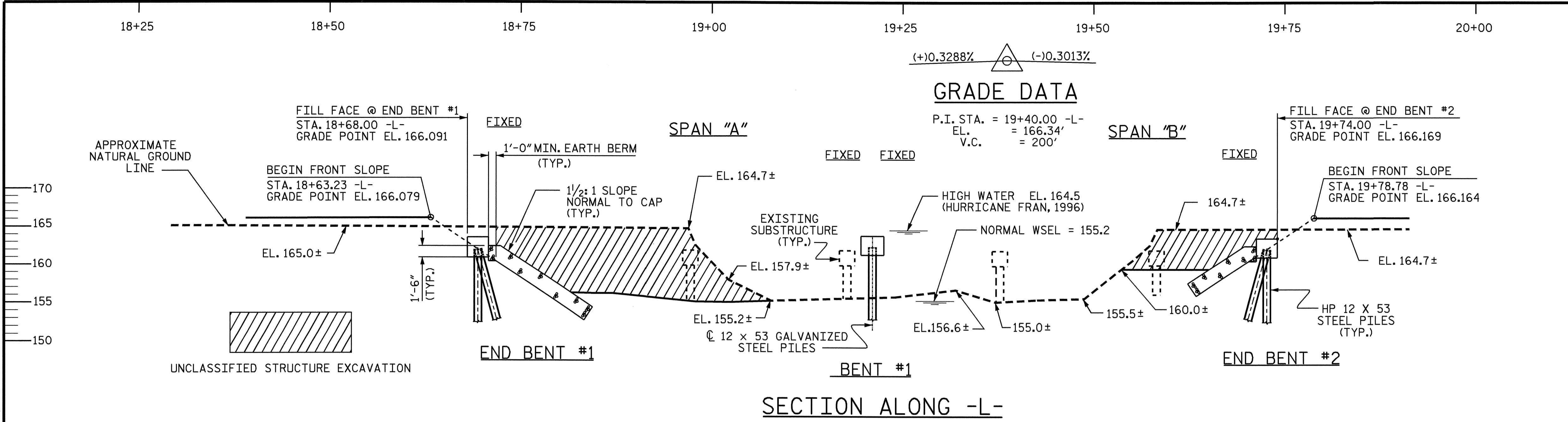
O. R. AZIZI, P.E.
PROJECT ENGINEER

E. E. MURRAY, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, NC 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

30-OCT-2009 09:02
\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$DGN\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$
mgulajason



DRAWN BY : M.GUDLAUGSSON DATE : 7/29/09
 CHECKED BY : T.L. AVERETTE DATE : 9/02/09

PLAN
 (PILES NOT SHOWN FOR CLARITY)

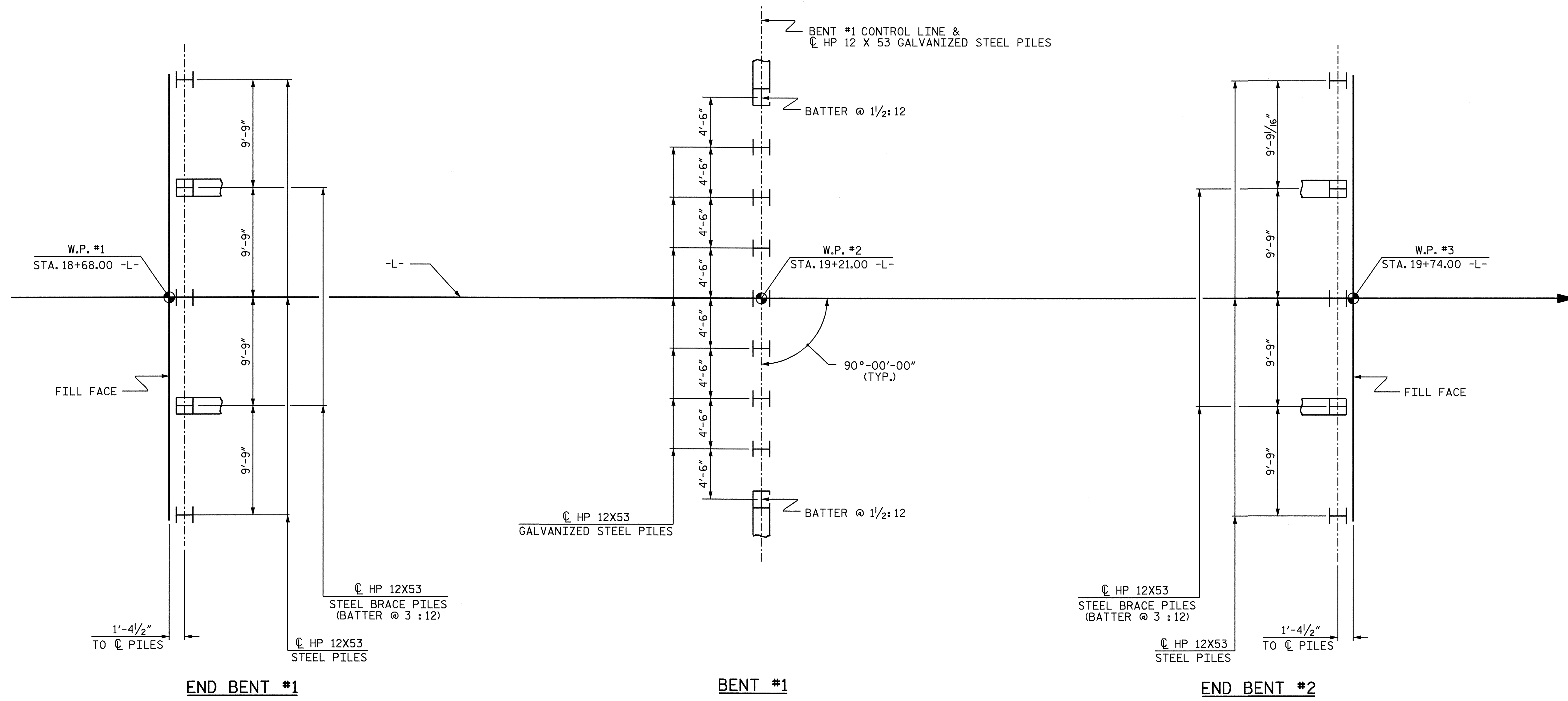
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12274
 OVAR R. AZEL
 10-27-09

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025516
 EMY E. MURRAY
 10/30/09

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 29

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE OVER MINGO SWAMP ON NC 55 BETWEEN SR 1806 AND SR 1620					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					37

27-OCT-2009 16:00
 Z:\TIP\Projects-B\B3654\Structures\FINAL PLANS\STR\1b-3654_sd_01.dgn
 emurray



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE TO THE CENTERLINE OF PILES.
 FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 133 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 145 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

GALVANIZE THE TOP 30 FEET OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

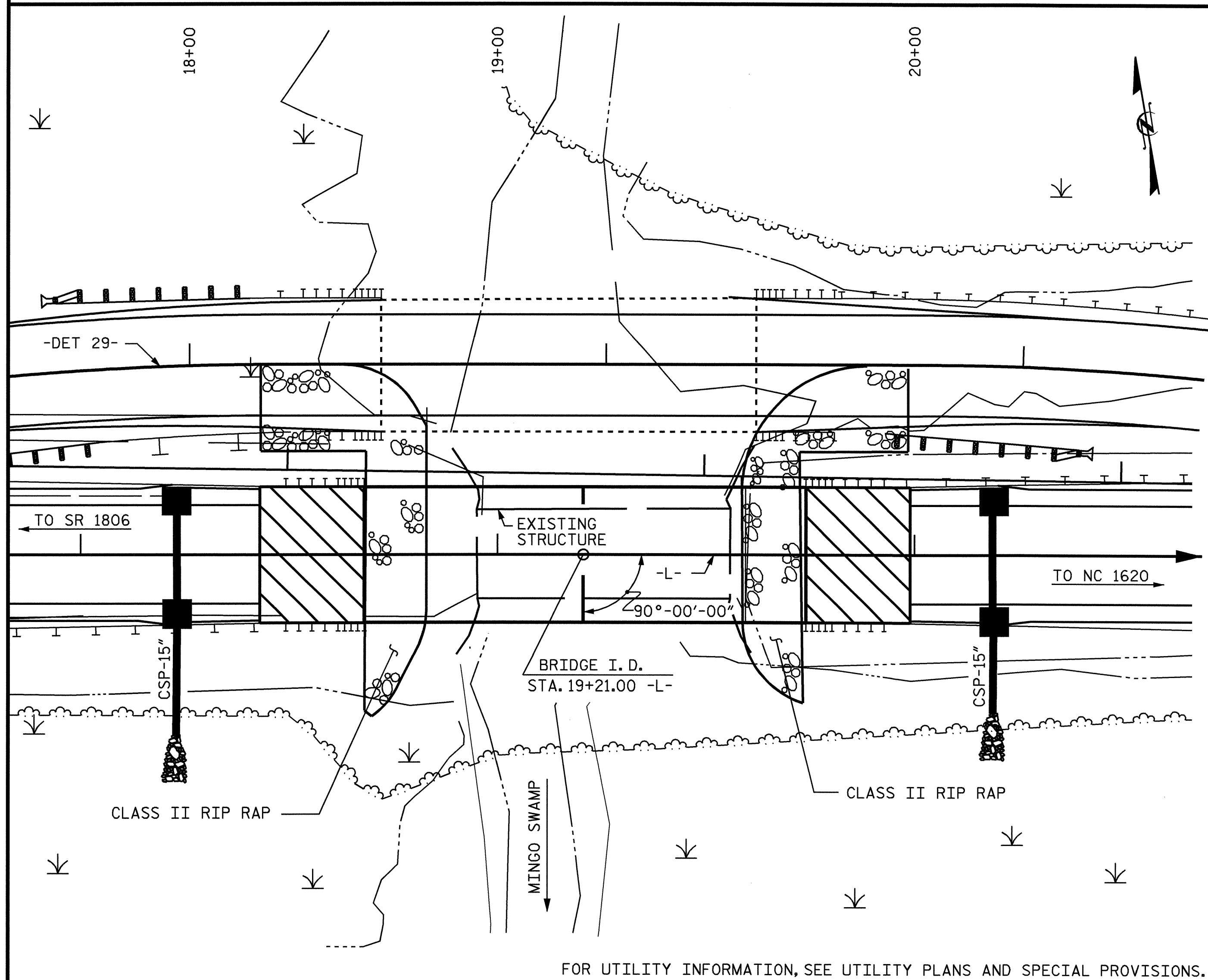
FOR BRIDGE OVER
 MINGO SWAMP ON
 NC 55 BETWEEN
 SR 1806 AND SR 1620



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			37

DRAWN BY : M. GUDLAUGSSON DATE : 7/30/09
 CHECKED BY : I.L. AVERETTE DATE : 9/02/09

BM #80: RR SPIKE IN BASE OF 20" GUM TREE 92.27' LT. OF -L- STA. 14+65.87 ELEV. 165.01'



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS, (1 @ 20'-5", 1 @ 20'-0", 1 @ 20'-5") WITH A CLEAR ROADWAY WIDTH OF 22'-0" AND A CONCRETE DECK ON STEEL I-BEAMS SUPPORTED BY A TIMBER CAP AND PILES AT THE END BENTS AND BENTS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

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

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 19+21.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 33 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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 LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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."

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, 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.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR MAINT. OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 2,010 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 161.3'
DRAINAGE AREA	= 27.5 SQ. MILES
BASIC DISCHARGE (Q100)	= 3,056 CFS
BASIC HIGH WATER ELEVATION	= 162.3'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 7,500 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YR.
OVERTOPPING FLOOD ELEVATION	= 164.5'

BILL OF MATERIAL TOTAL

	CONSTRUCTION MAINT. & REMOVAL OF TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	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" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS				
									NO.	LIN.FT.	NO.	LIN.FT.							EACH	LIN.FT.	TONS	SQ.YDS.	LUMP SUM
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	LUMP SUM	3406	4512		LUMP SUM							207.25						LUMP SUM	LUMP SUM	24	1243.5
END BENT NO. 1						15.3		2401	5	275			5		173	192							
BENT NO. 1						12.6		2107			9	630	9										
END BENT NO. 2						15.3		2401	5	275			5		122	135							
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	3406	4512	43.2	LUMP SUM	6909	10	550	9	630	19	207.25	295	327	LUMP SUM	LUMP SUM			24	1243.5	

DRAWN BY : M. GUDLAUGSSON DATE : 7/29/09
 CHECKED BY : I.L. AVERETTE DATE : 9/02/09

29-OCT-2009 13:56
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 mgudlaugsson



PROJECT NO. B-3654

HARNETT/SAMPSON COUNTY

STATION: 19+21.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 MINGO SWAMP ON
 NC 55 BETWEEN
 SR 1806 AND SR 1620

REVISIONS

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

SHEET NO.	S-3
TOTAL SHEETS	37

STR. #1

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.10	--	1.75	0.272	1.41	A	ER	25.406	0.519	1.10	A	ER	2.541	0.80	0.272	1.26	A	ER	25.406		
	HL-93 (OPERATING)	N/A		1.43	--	1.35	0.272	1.82	A	ER	25.406	0.519	1.43	A	ER	2.541	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.26	45.360	1.75	0.272	1.70	A	ER	25.406	0.519	1.29	A	ER	2.541	0.80	0.272	1.26	A	ER	25.406		
	HS-20 (OPERATING)	36.000		1.72	61.920	1.35	0.272	2.27	A	ER	25.406	0.519	1.72	A	ER	2.541	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.59	34.965	1.40	0.272	4.17	A	ER	25.406	0.519	3.49	A	ER	2.541	0.80	0.272	2.59	A	ER	25.406	
		SNGARBS2	20.000		2.04	40.800	1.40	0.272	3.27	A	ER	25.406	0.519	2.53	A	ER	2.541	0.80	0.272	2.04	A	ER	25.406	
		SNAGRIS2	22.000		1.98	43.560	1.40	0.272	3.17	A	ER	25.406	0.519	2.37	A	ER	2.541	0.80	0.272	1.98	A	ER	25.406	
		SNCOTTS3	27.250		1.29	35.153	1.40	0.272	2.08	A	ER	25.406	0.519	1.75	A	ER	2.541	0.80	0.272	1.29	A	ER	25.406	
		SNAGGRS4	34.925		1.11	38.767	1.40	0.272	1.80	A	ER	25.406	0.519	1.48	A	ER	2.541	0.80	0.272	1.11	A	ER	25.406	
		SNS5A	35.550		1.09	38.750	1.40	0.272	1.76	A	ER	25.406	0.519	1.52	A	ER	2.541	0.80	0.272	1.09	A	ER	25.406	
		SNS6A	39.950		1.01	40.350	1.40	0.272	1.64	A	ER	25.406	0.519	1.40	A	ER	2.541	0.80	0.272	1.01	A	ER	25.406	
		SNS7B	42.000		1.00	42.000	1.40	0.272	1.56	A	ER	25.406	0.519	1.40	A	ER	2.541	0.80	0.272	1.00	A	ER	25.406	
	TRUCK TRACTOR SEMI-TRAILER (TTS1)	TNAGRIT3	33.000		1.25	41.250	1.40	0.272	2.01	A	ER	25.406	0.519	1.66	A	ER	2.541	0.80	0.272	1.25	A	ER	25.406	
		TNT4A	33.075		1.25	41.344	1.40	0.272	2.02	A	ER	25.406	0.519	1.60	A	ER	2.541	0.80	0.272	1.25	A	ER	25.406	
		TNT6A	41.600		1.05	43.680	1.40	0.272	1.68	A	ER	25.406	0.519	1.53	A	ER	2.541	0.80	0.272	1.05	A	ER	25.406	
		TNT7A	42.000		1.06	44.520	1.40	0.272	1.70	A	ER	25.406	0.519	1.43	A	ER	2.541	0.80	0.272	1.06	A	ER	25.406	
		TNT7B	42.000		1.10	46.200	1.40	0.272	1.78	A	ER	25.406	0.519	1.35	A	ER	2.541	0.80	0.272	1.10	A	ER	25.406	
		TNAGRIT4	43.000		1.05	45.150	1.40	0.272	1.68	A	ER	25.406	0.519	1.30	A	ER	2.541	0.80	0.272	1.05	A	ER	25.406	
TNAGT5A	45.000		1.00	45.000	1.40	0.272	1.58	A	ER	25.406	0.519	1.32	A	ER	2.541	0.80	0.272	1.00	A	ER	25.406			
TNAGT5B	45.000		3	1.00	45.000	1.40	0.272	1.54	A	ER	25.406	0.519	1.24	A	ER	2.541	0.80	0.272	1.00	A	ER	25.406		

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2009	348
FUTURE	2030	566

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1. SPAN B IDENTICAL TO SPAN A.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

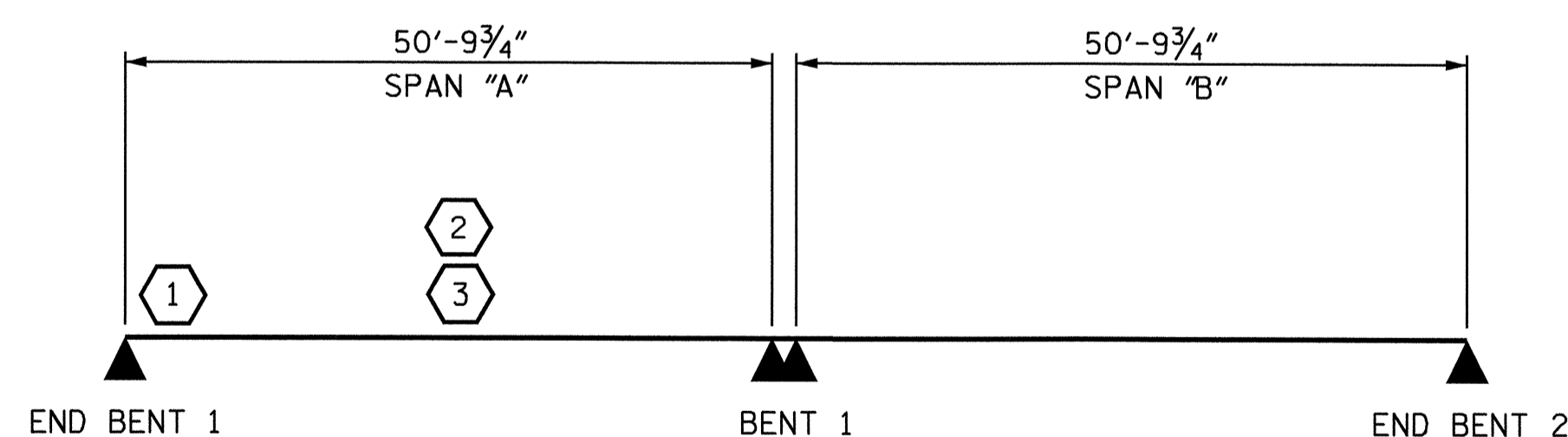
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

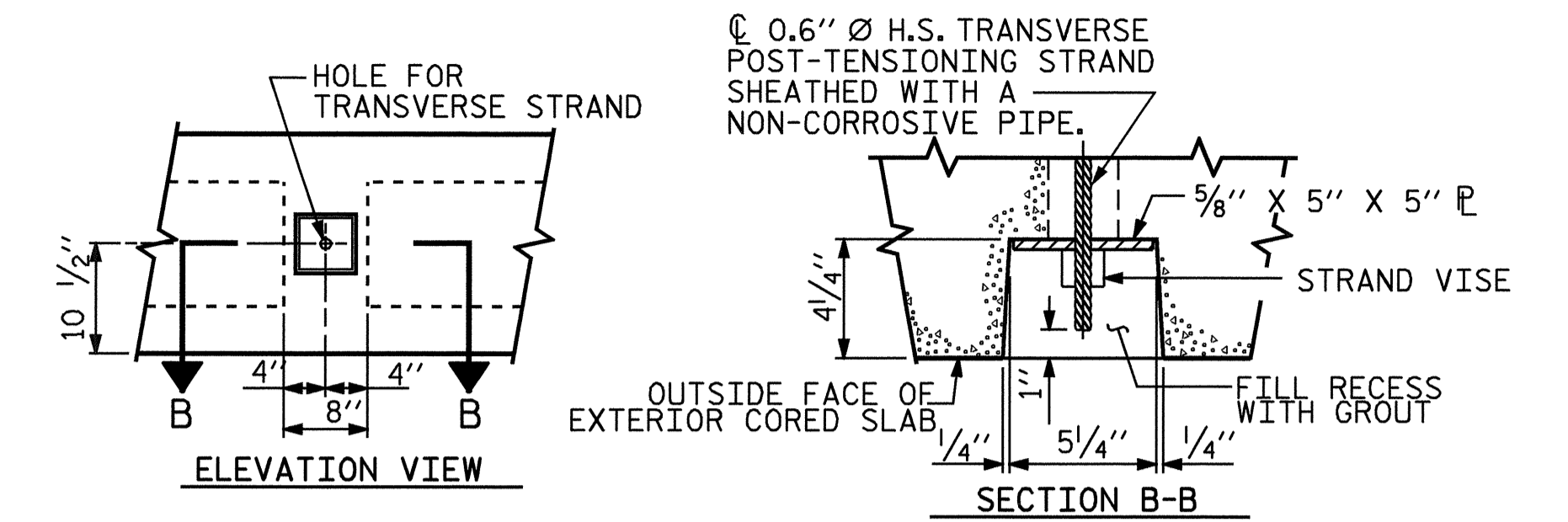
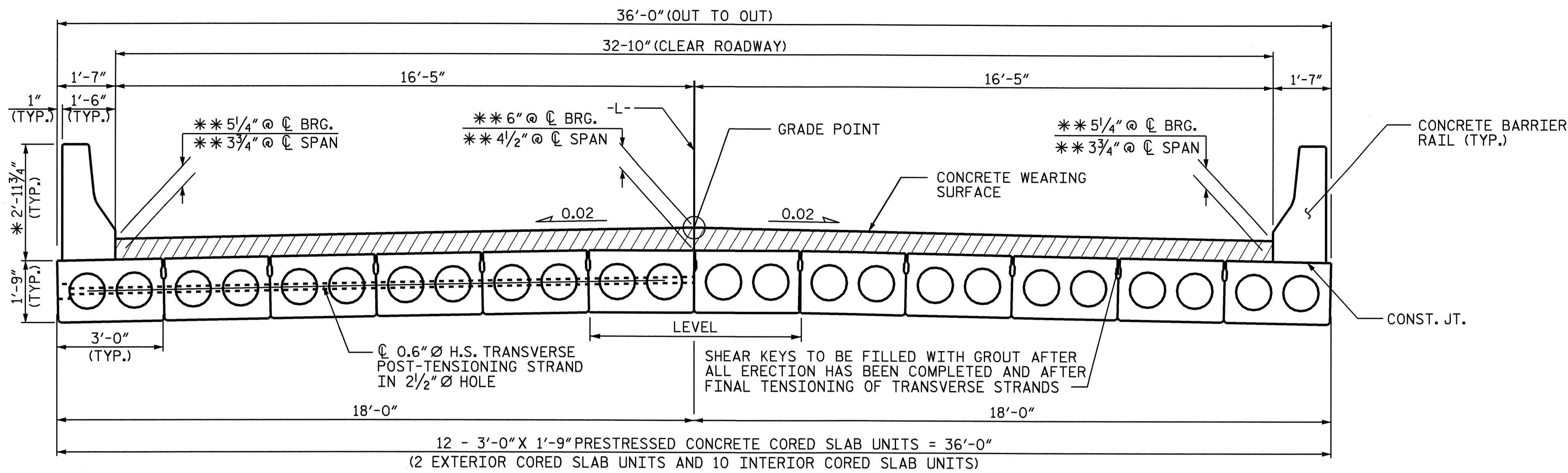
PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 19+21.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			37

ASSEMBLED BY: M. GUDLAUGSSON DATE 08/31/09
CHECKED BY: T.L. AVERETTE DATE 08/31/09
DRAWN BY: MAA 1/08 REV. 11/12/08RRR MAA/GM
CHECKED BY: GM/DI 2/08



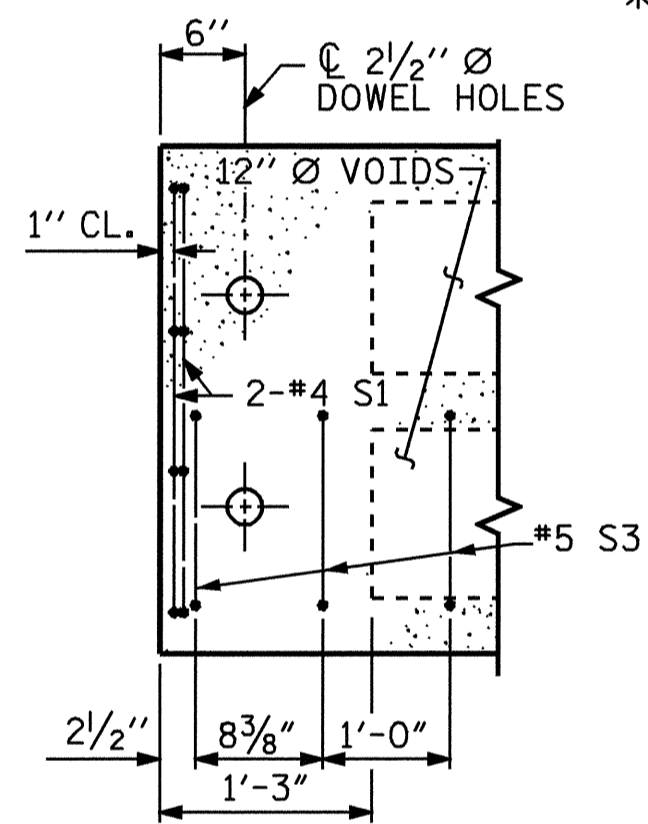
GRouted RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

HALF SECTION @ INTERMEDIATE DIAPHRAGM

HALF SECTION @ END BENT & BENT

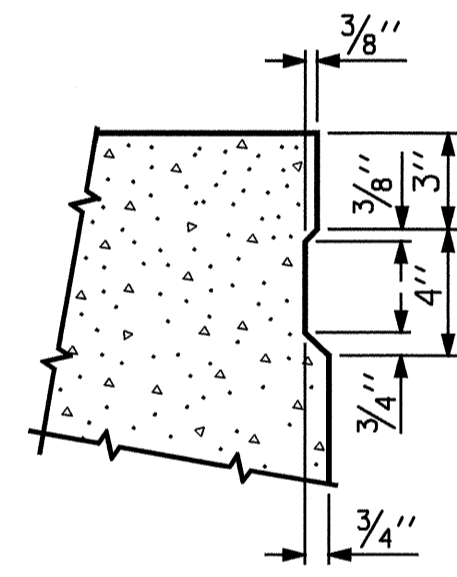
TYPICAL SECTION

** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS
* THE MINIMUM HEIGHT OF THE BARRIER IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF GUTTERLINE.



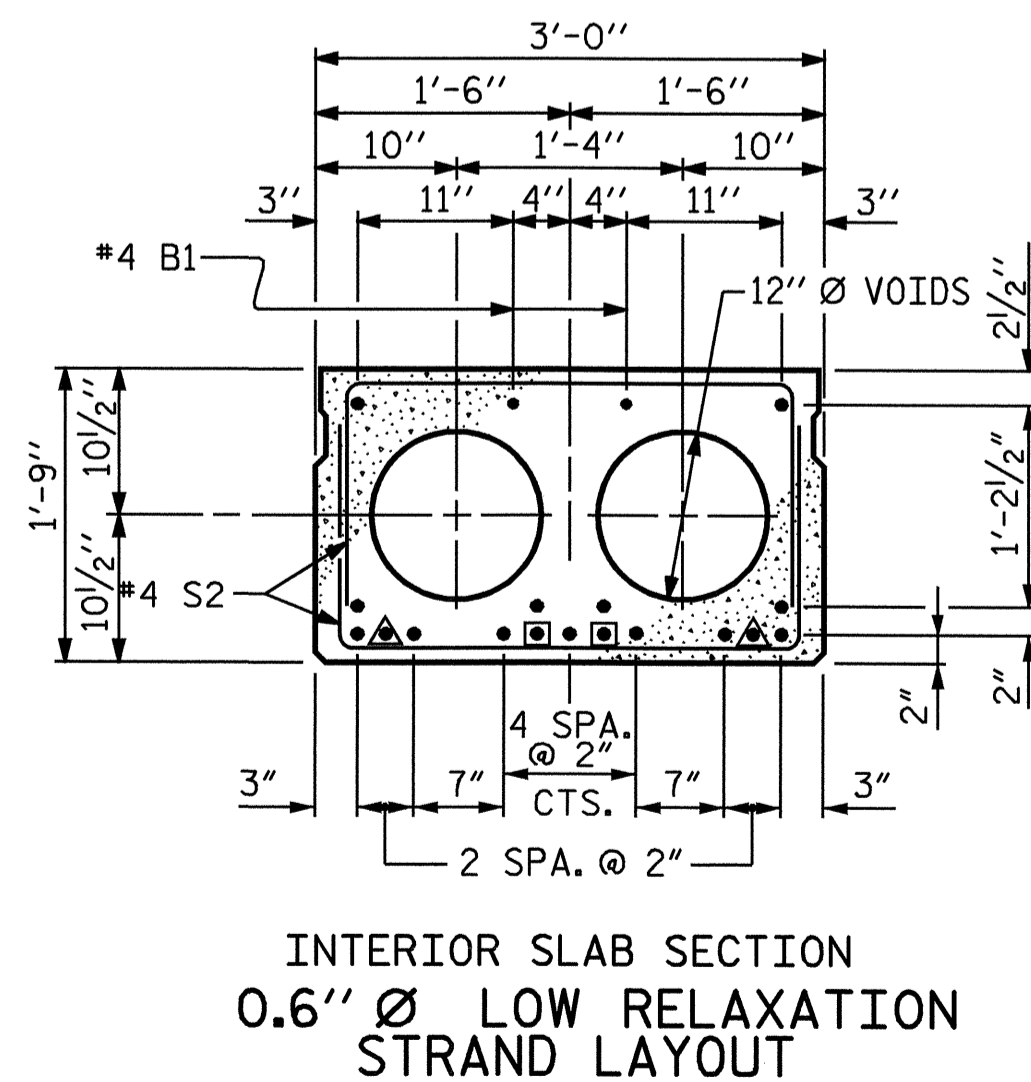
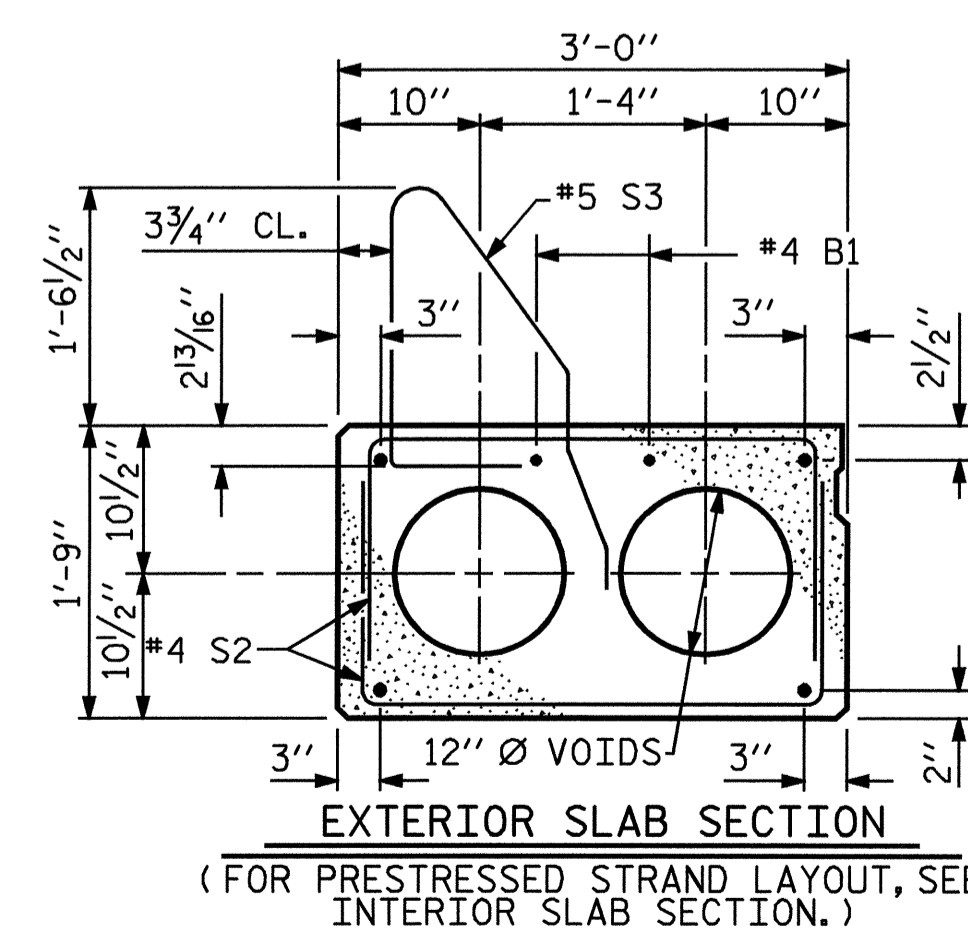
PART PLAN-EXTERIOR SECTION

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

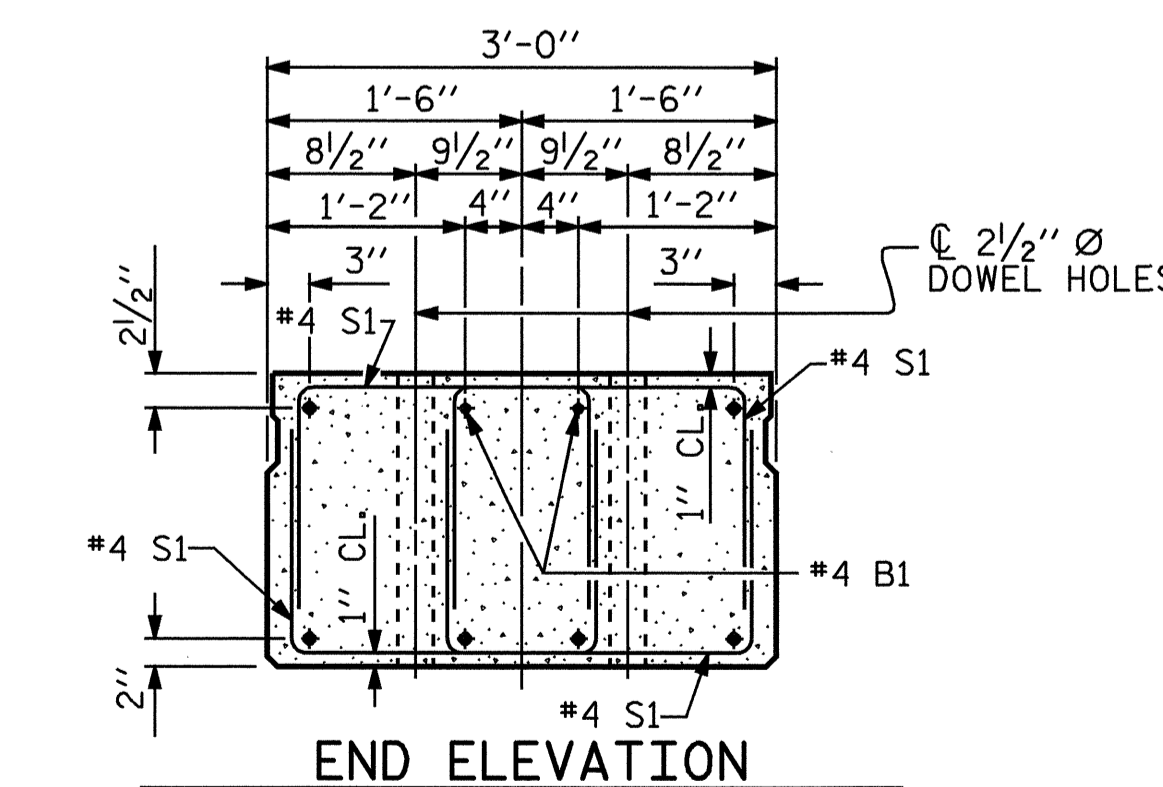
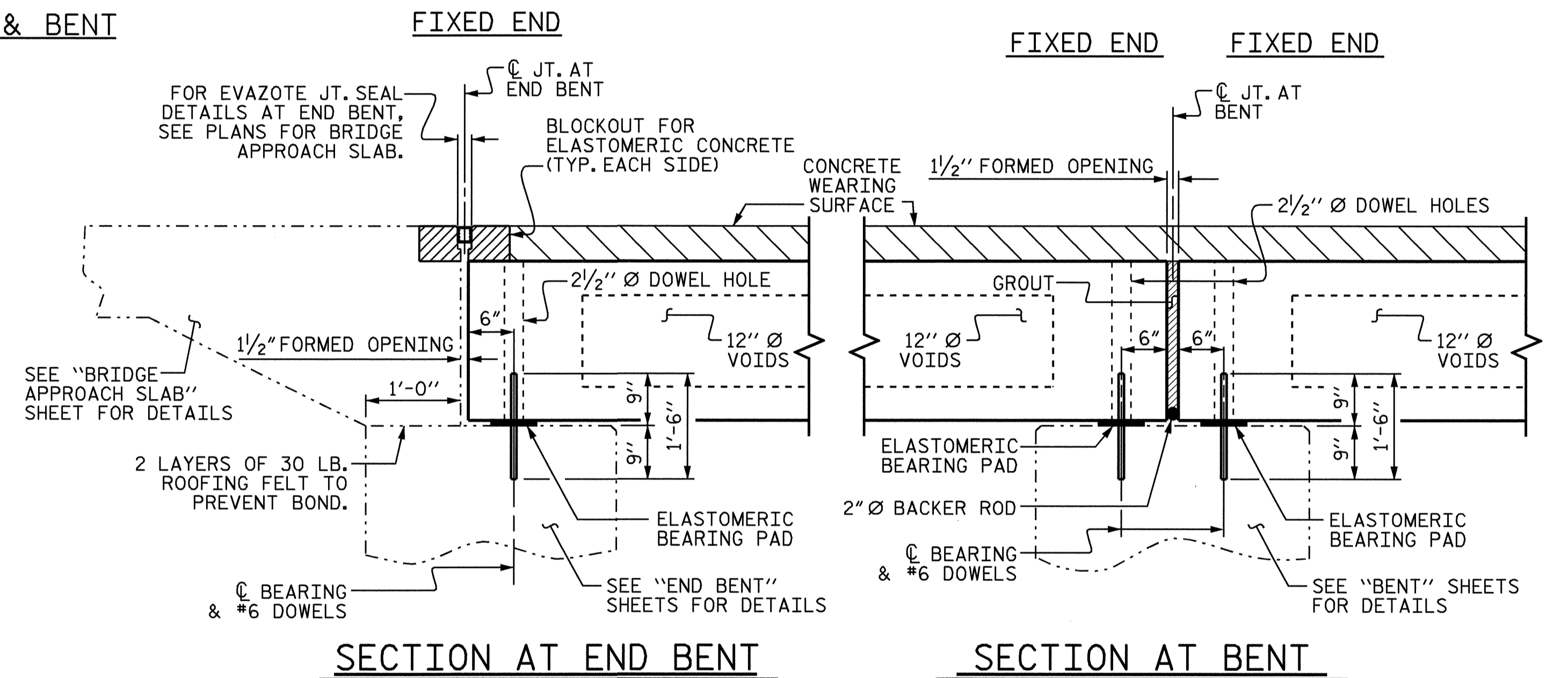


SHEAR KEY DETAIL

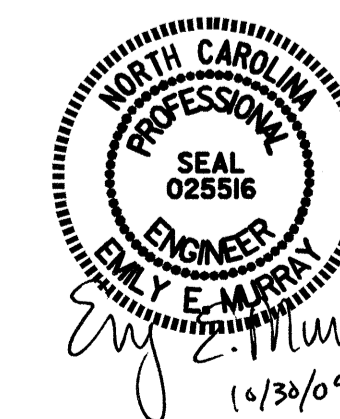
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7
□ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 9'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7



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.

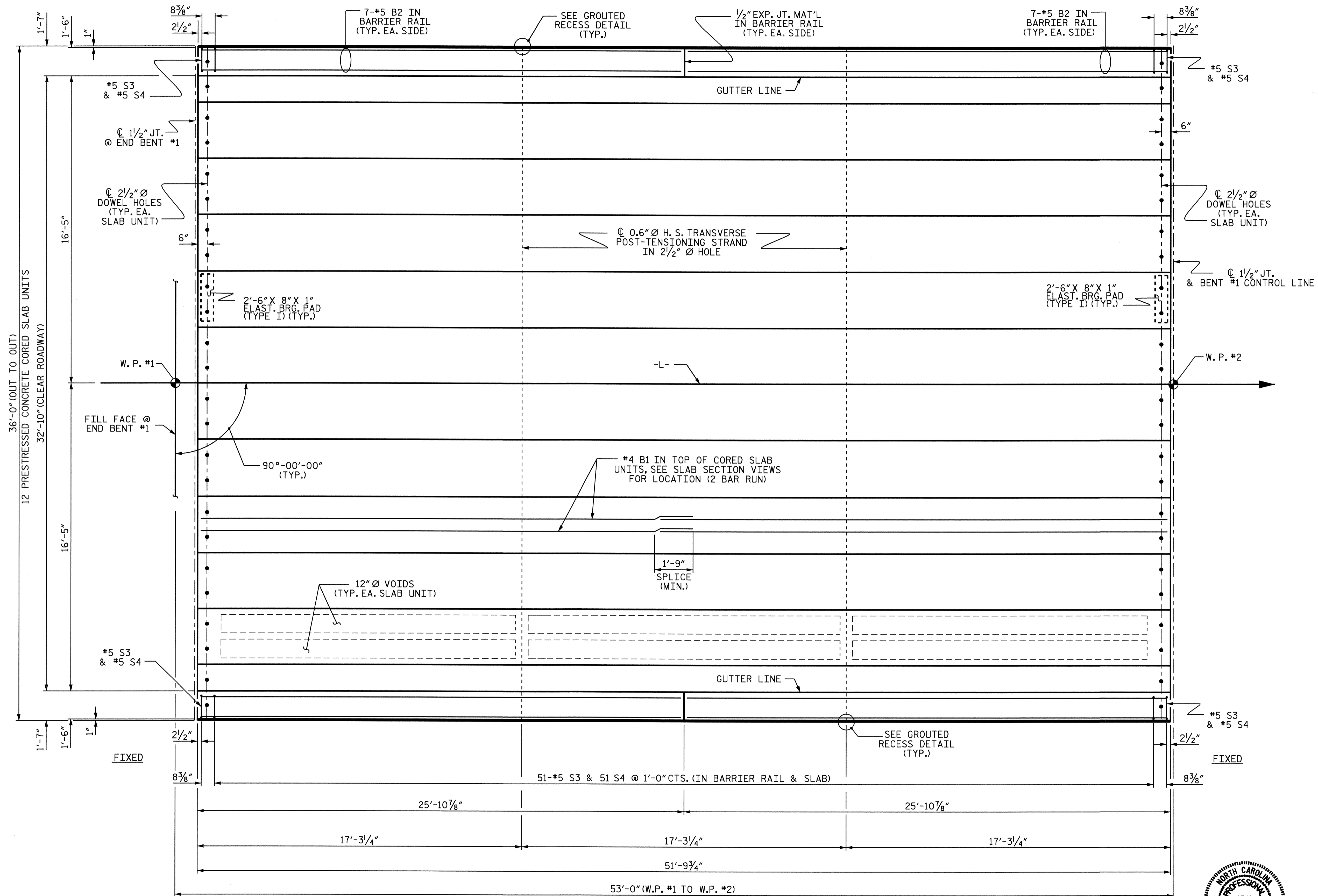


PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 19+21.00 -L-

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:	S-5			
1			3			TOTAL SHEETS			
2			4			37			

ASSEMBLED BY : M.GUDLAUGSSON DATE : 10/2008
CHECKED BY : B.N. BARODAWALA DATE : 11/20/08
DRAWN BY : WJH 4/89 REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89 REV. 7/10/01RR RWW/LES
REV. 5/1/06 TLA/GM



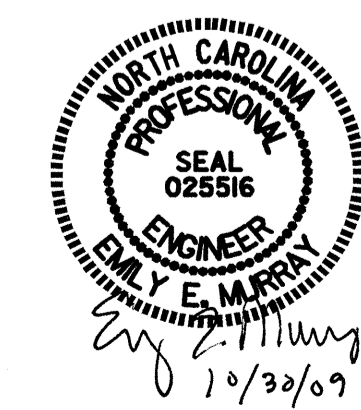
PLAN OF SPAN A

SEE SHEET 4 OF 6 FOR ADDITIONAL REINFORCING STEEL IN CORED SLAB UNITS.

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-
 SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A

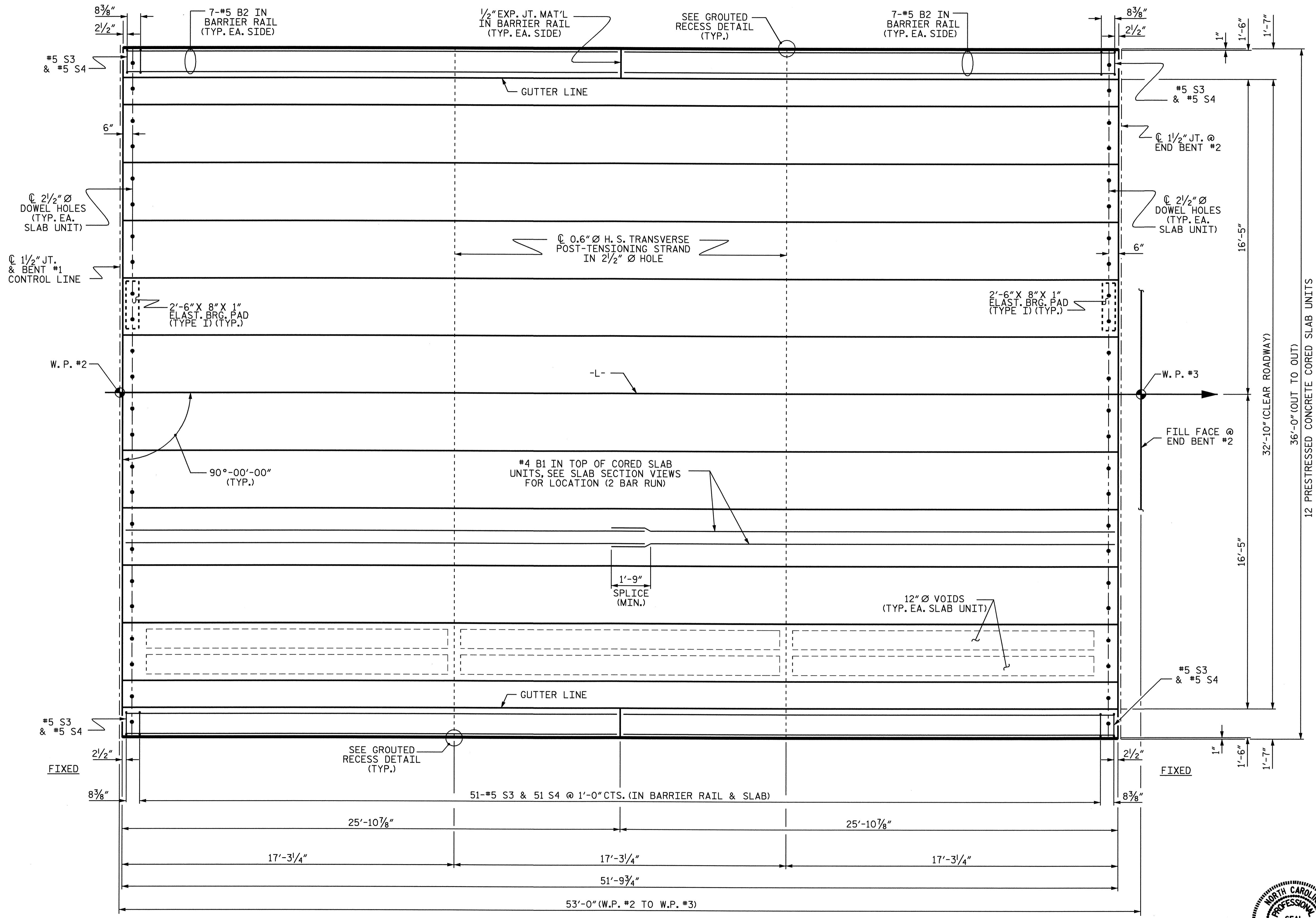


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
1			3			TOTAL SHEETS 37	
2			4				

DRAWN BY: M. GUDLAUGSSON DATE: 10/20/08
 CHECKED BY: B.N. BARODAWALA DATE: 11/20/08

30-OCT-2009 09:06
 x:\structures\final plans\str#1\B3654.sd.os.01.dgn
 mgudlaugsson

STR. #1



PLAN OF SPAN B

SEE SHEET 4 OF 6 FOR ADDITIONAL REINFORCING STEEL IN CORED SLAB UNITS.

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-
 SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN B**

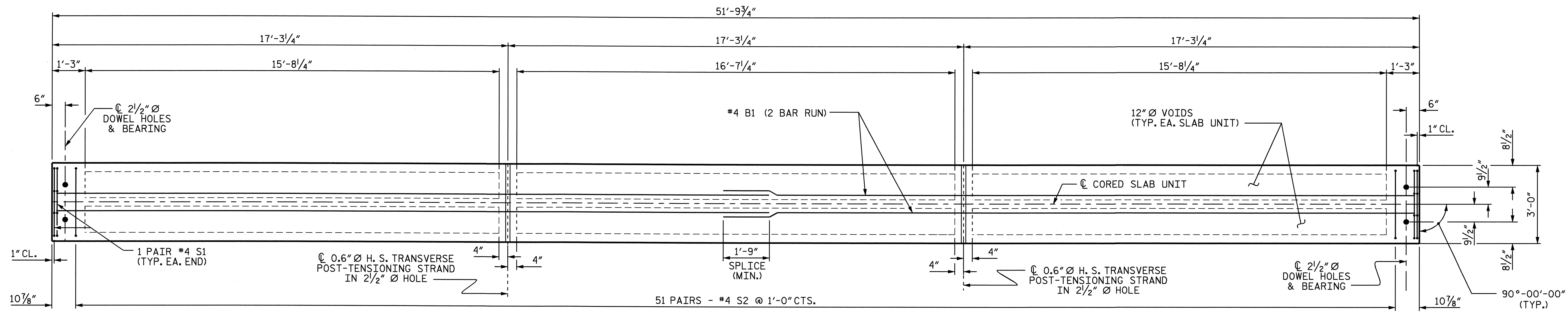


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NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			37

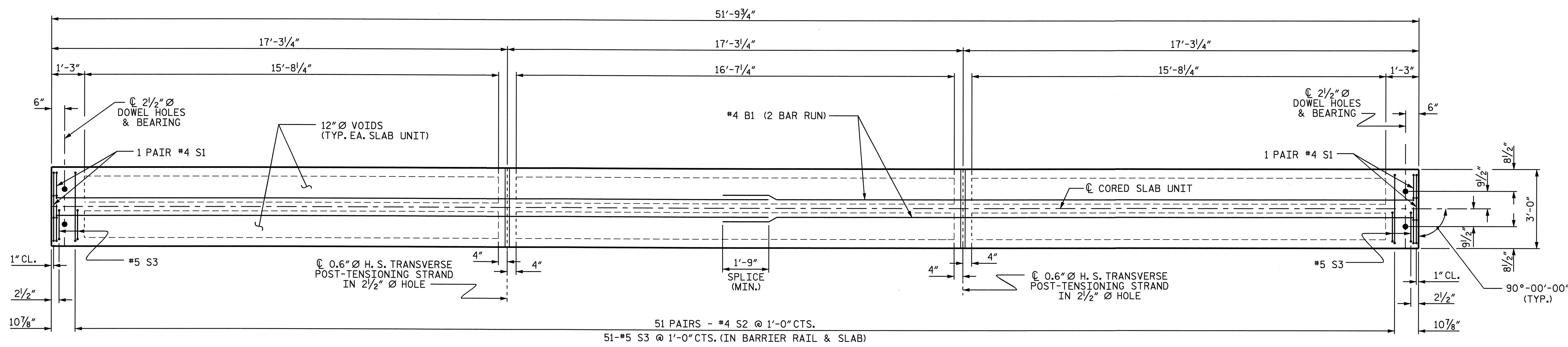
DRAWN BY : M.GUDLAUGSSON DATE : 10/2008
 CHECKED BY : B.N. BARODAWALA DATE : 11/20/08

30-OCT-2009 09:06
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 mgudlaugsson

STR. #1



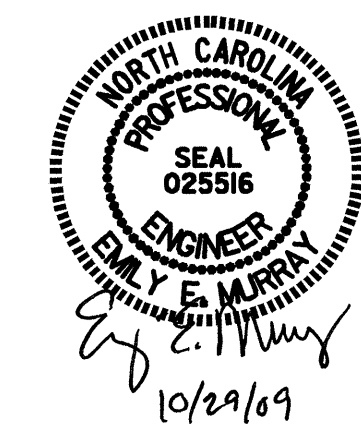
PLAN OF INTERIOR CORED SLAB UNIT - SPAN A OR B



PLAN OF EXTERIOR CORED SLAB UNIT - SPAN A OR B

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-

SHEET 4 OF 6



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

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			37	

DRAWN BY: M. GUDLAUGSSON DATE: 10/2008
 CHECKED BY: B.N. BARODAWALA DATE: 11/20/08

04-SEP-2009 10:22
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 mgudlaugsson

STR. #1

NOTES

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

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

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

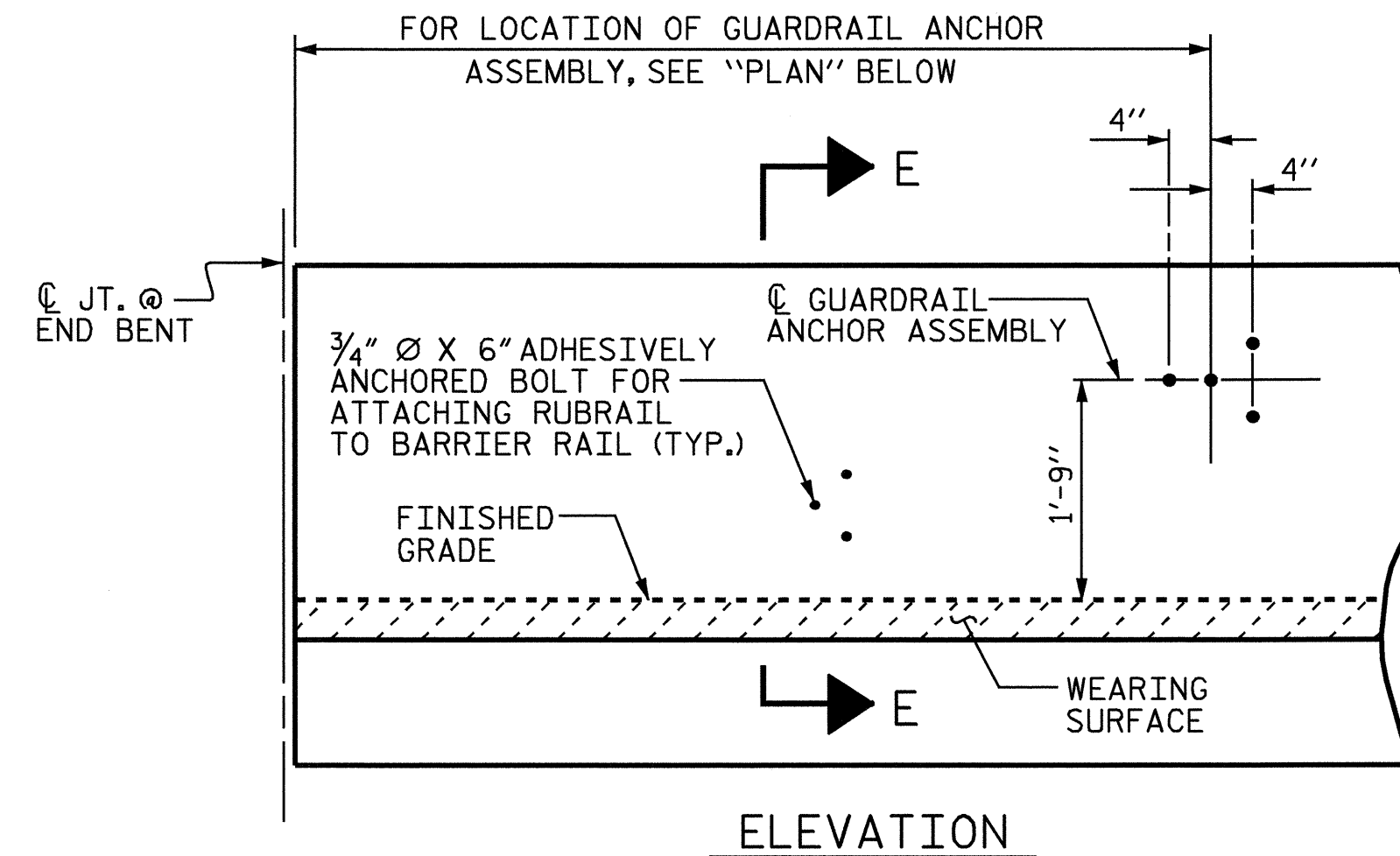
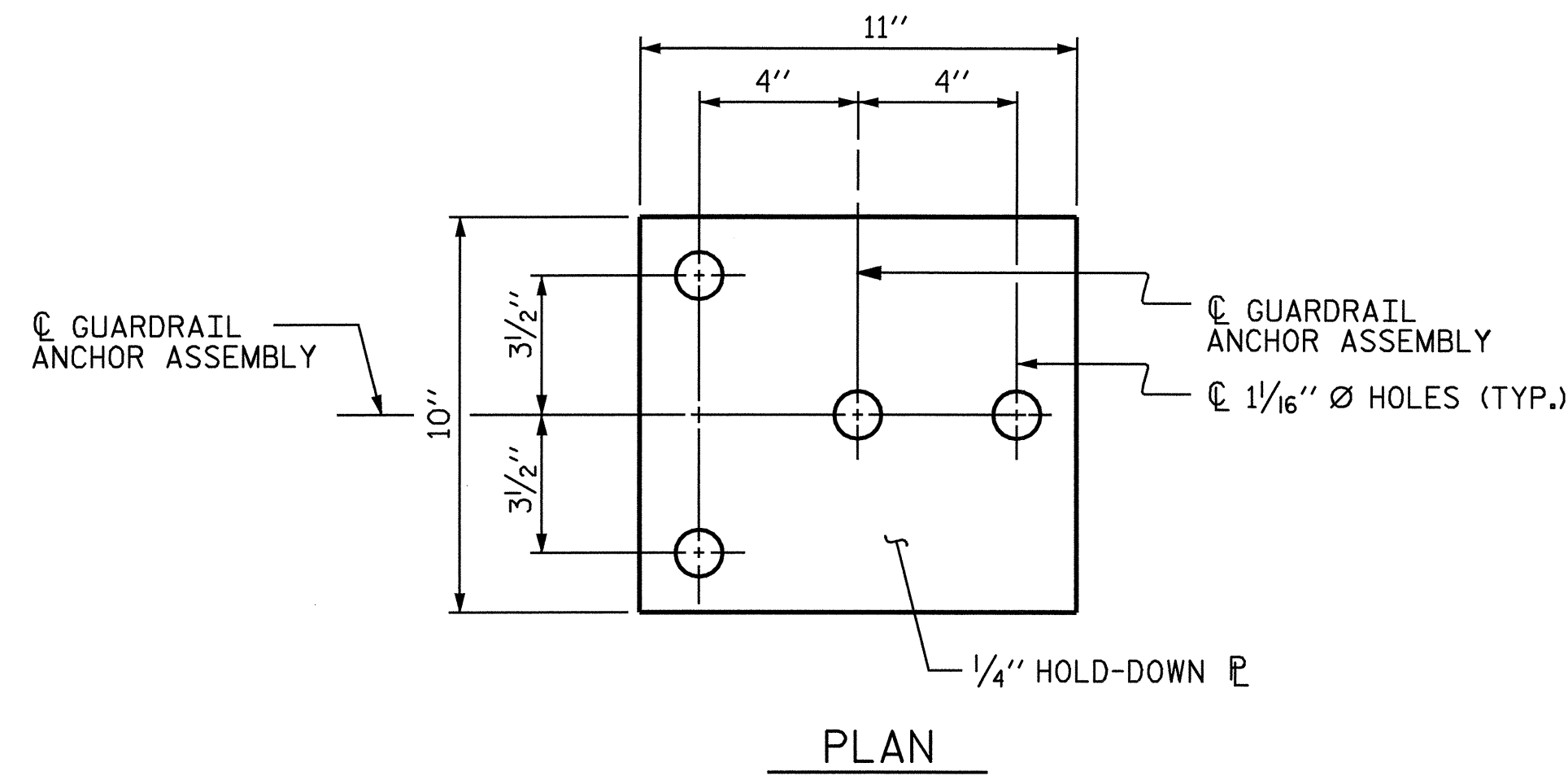
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

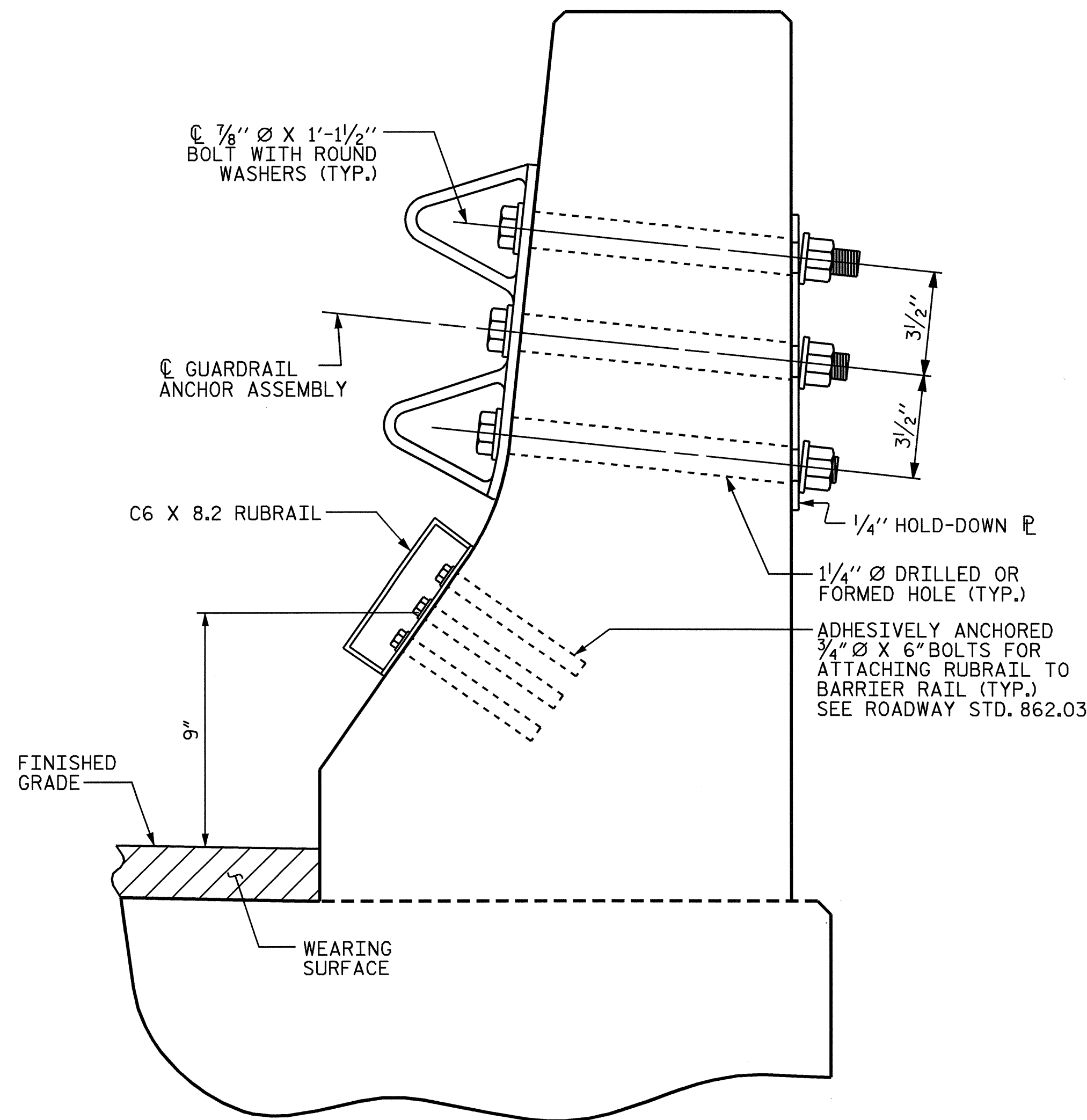
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

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

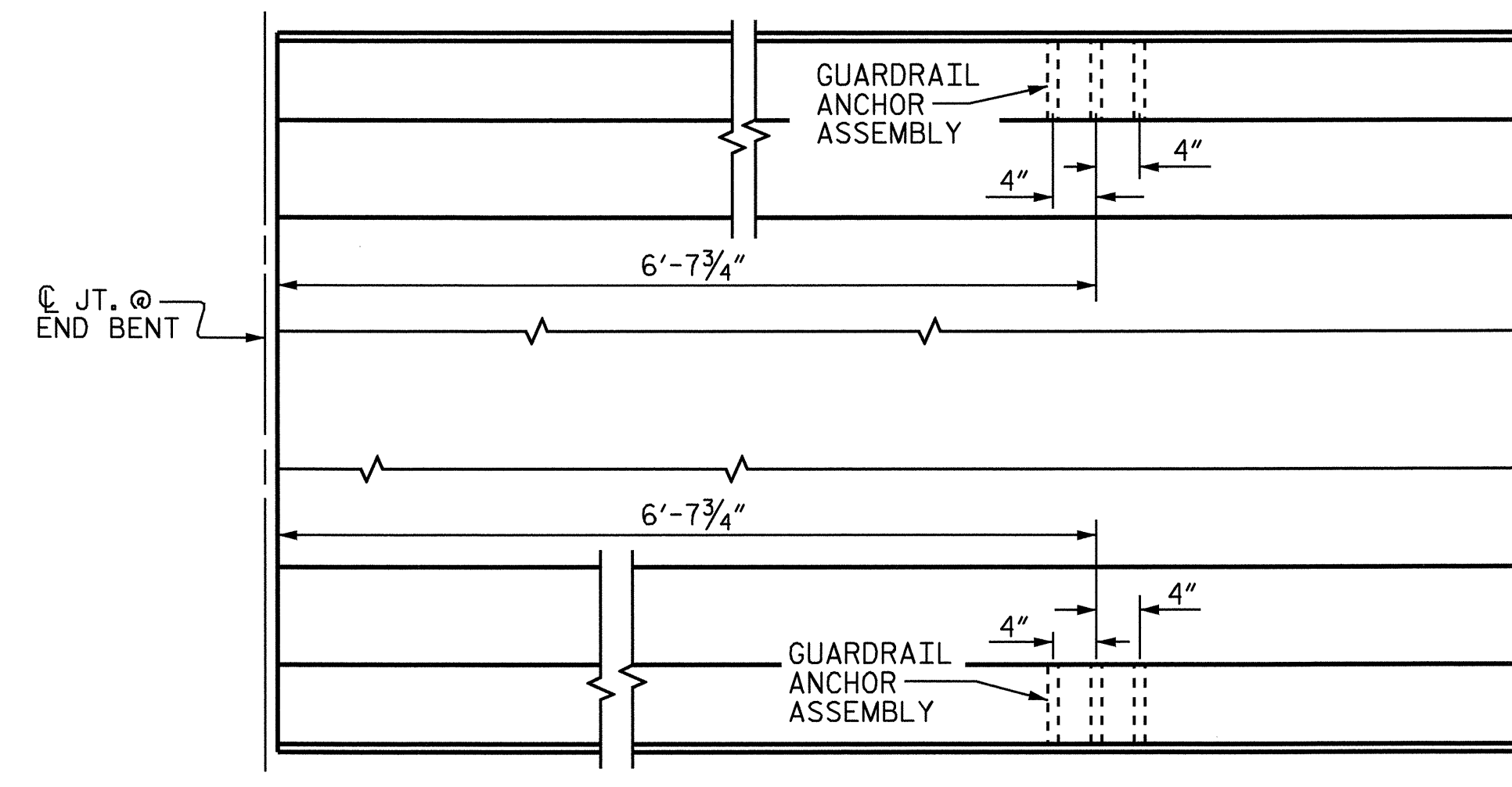


FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

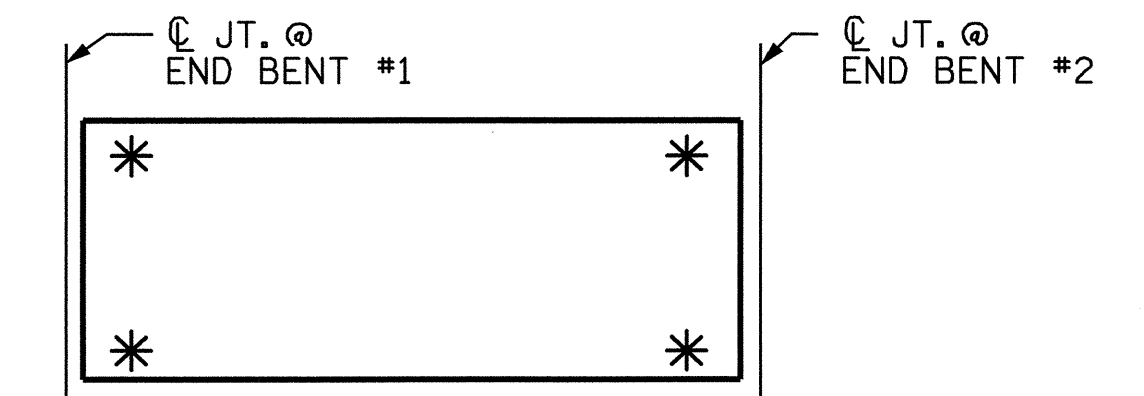
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-

SHEET 5 OF 6



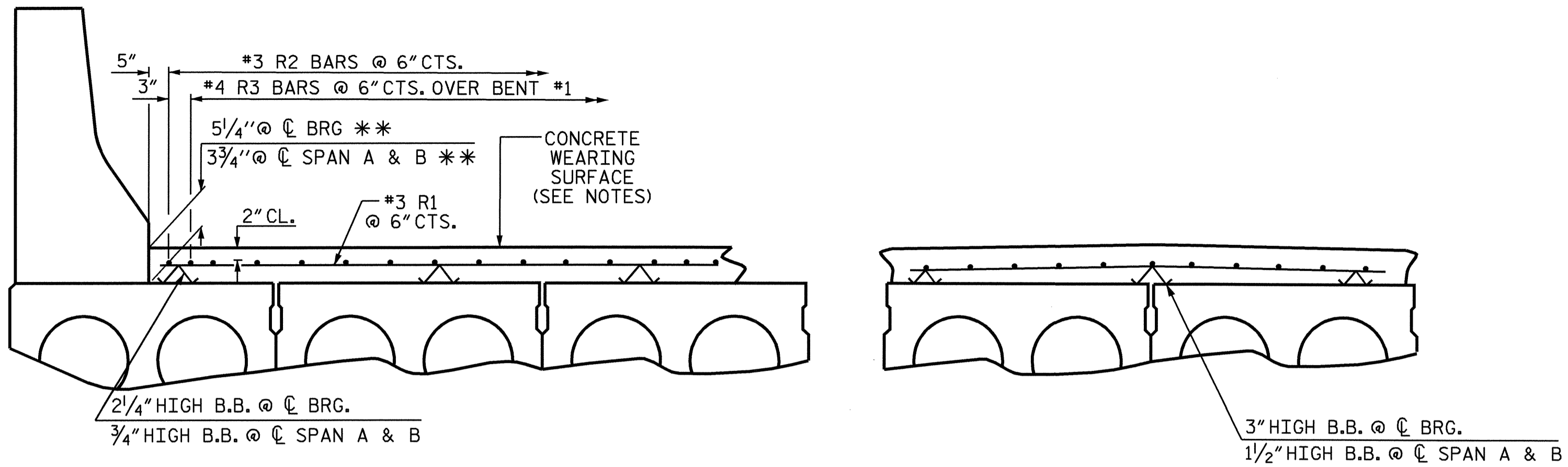
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

ASSEMBLED BY : M.GUDLAUGSSON DATE : 10/2008
 CHECKED BY : B.N. BARODAWAL DATE : 11/20/08
 DRAWN BY : TLA 5/06
 CHECKED BY : GM 5/06

ADDED 5/1/06R KMM/GM

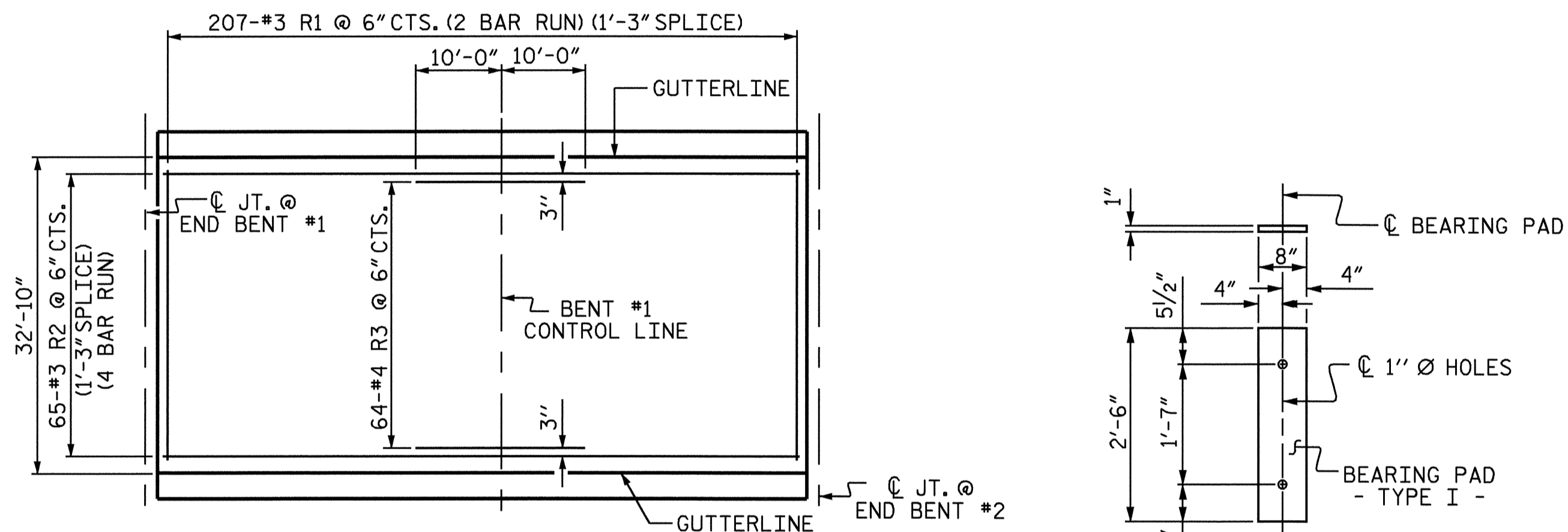
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			37

STR. #1 (SHT 4) STD. NO. GRA2



REINFORCING STEEL FOR CONCRETE WEARING SURFACE

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

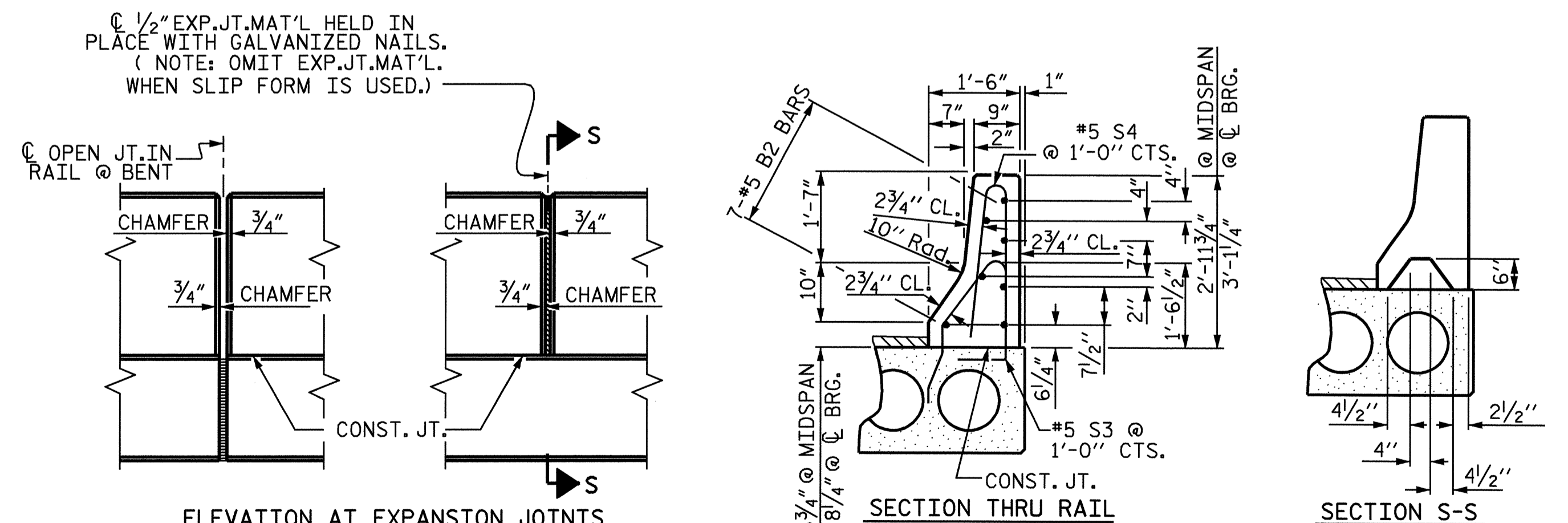


PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

FIXED END
(TYPE I - 48 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

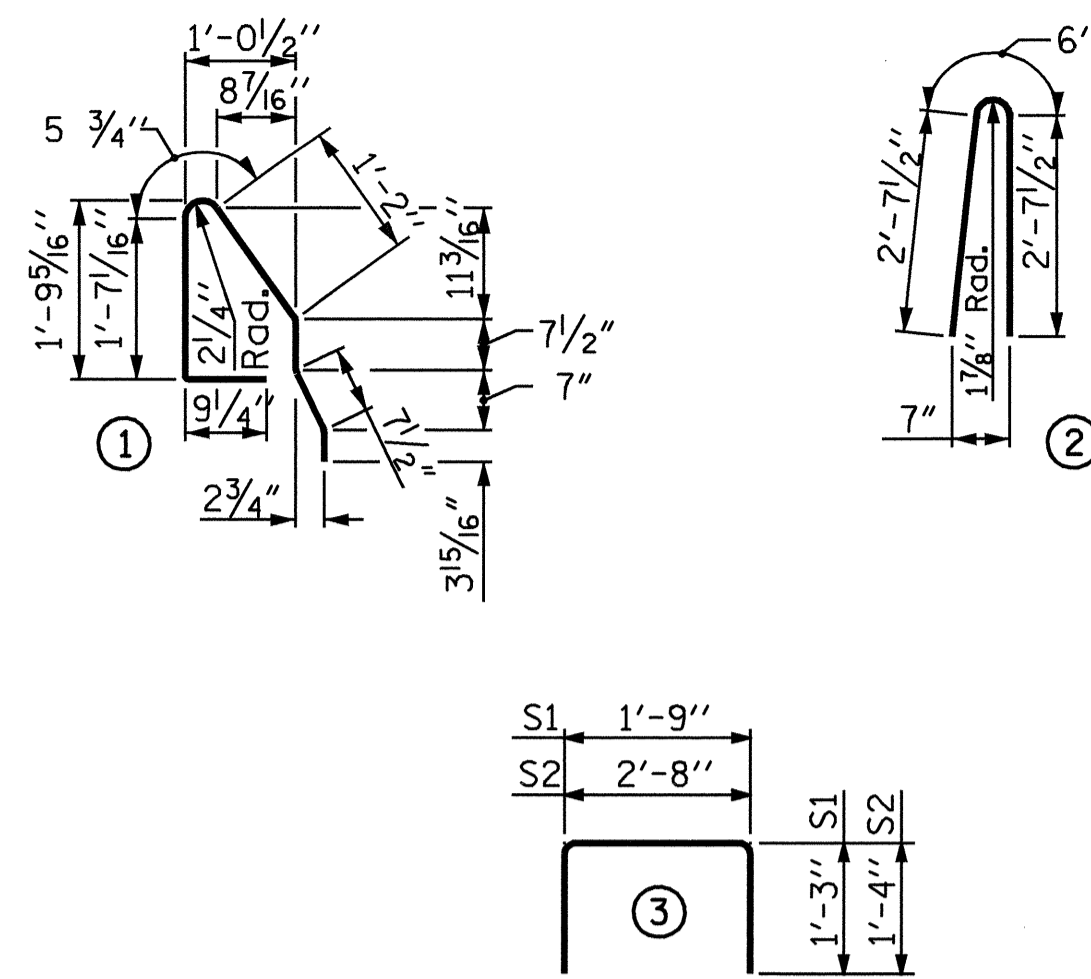


BARRIER RAIL DETAILS

ASSEMBLED BY : M. GUDLAUGSSON DATE : 10/2008
CHECKED BY : B.N. BARODAWALA DATE : 11/20/08
DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LSS
CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
REV. 5/1/06 TLA/GM

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mgudlaugsson

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT (4 REQUIRED)		INTERIOR UNIT (20 REQUIRED)	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	26'-8"	71	26'-8"	71
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	102	#4	3	5'-4"	363	5'-4"	363
*S3	53	#5	1	5'-7"	309		
REINFORCING STEEL				457 LBS.		457 LBS.	
* EPOXY COATED REINFORCING STEEL				309 LBS.		---	
7,000 P.S.I. CONCRETE				7.3 CU. YDS.		7.3 CU. YDS.	
0.6" Ø L.R. STRANDS No. 17						No. 17	

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN		TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B					
*B2	28	28	56	#5	STR	25'-6"	1489
*S4	106	106	212	#5	2	5'-9"	1271
* EPOXY COATED REINFORCING STEEL				LBS.		2760	
CLASS AA CONCRETE				CU. YDS.		25.8	
CONCRETE BARRIER RAIL				LIN. FT.		207.25	

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*R1	414	#3	STR	16'-11"	2633		
*R2	260	#3	STR	26'-10"	2623		
*R3	64	#4	STR	20'-0"	855		
* EPOXY COATED REINFORCING STEEL				LBS.		6111	
CONCRETE WEARING SURFACE				SQ. FT.		3406	

DEAD LOAD DEFLECTION AND CAMBER

	0.6" Ø L.R. STRAND	
	SPAN "A"	SPAN "B"
CAMBER (SLAB ALONE IN PLACE) ↓	2"	2 1/8"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ↓	7/16"	7/16"
FINAL CAMBER ↑	1 9/16"	1 9/16"

CORED SLABS REQUIRED

SPAN "A"		NUMBER	LENGTH	TOTAL LENGTH
SPAN "A"	EXTERIOR C.S.	2	51'-9 3/4"	103'-7 1/2"
	INTERIOR C.S.	10	51'-9 3/4"	518'-1 1/2"
SPAN "B"	EXTERIOR C.S.	2	51'-9 3/4"	103'-7 1/2"
	INTERIOR C.S.	10	51'-9 3/4"	518'-1 1/2"
TOTAL		24		1243'-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 NON-SHRINK GROUT.

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

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

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 4200 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE #3 AND #4 BARS 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.

GROOVING BRIDGE FLOORS

BRIDGE DECK	3058 SQ.FT.
APPROACH SLABS	1454 SQ.FT.
TOTAL	4512 SQ.FT.

SPLICE LENGTH CHART

BAR	SPLICE LENGTH
B1	1'-9"
*R1, *R2	1'-3"

GRADE 270 STRANDS

	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 19+21.00 -L-

SHEET 6 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:	S-10
1			3			TOTAL SHEETS 37
2			4			

STR #1

STD. NO. PCS3

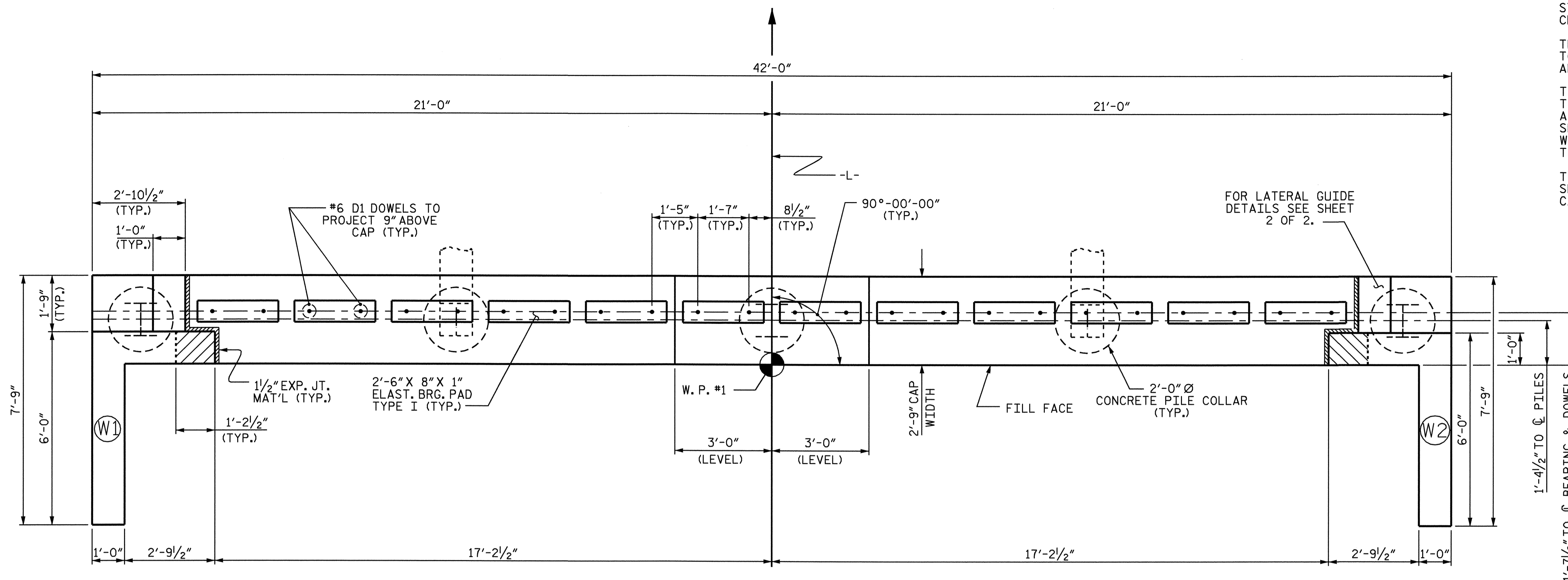
NOTES

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

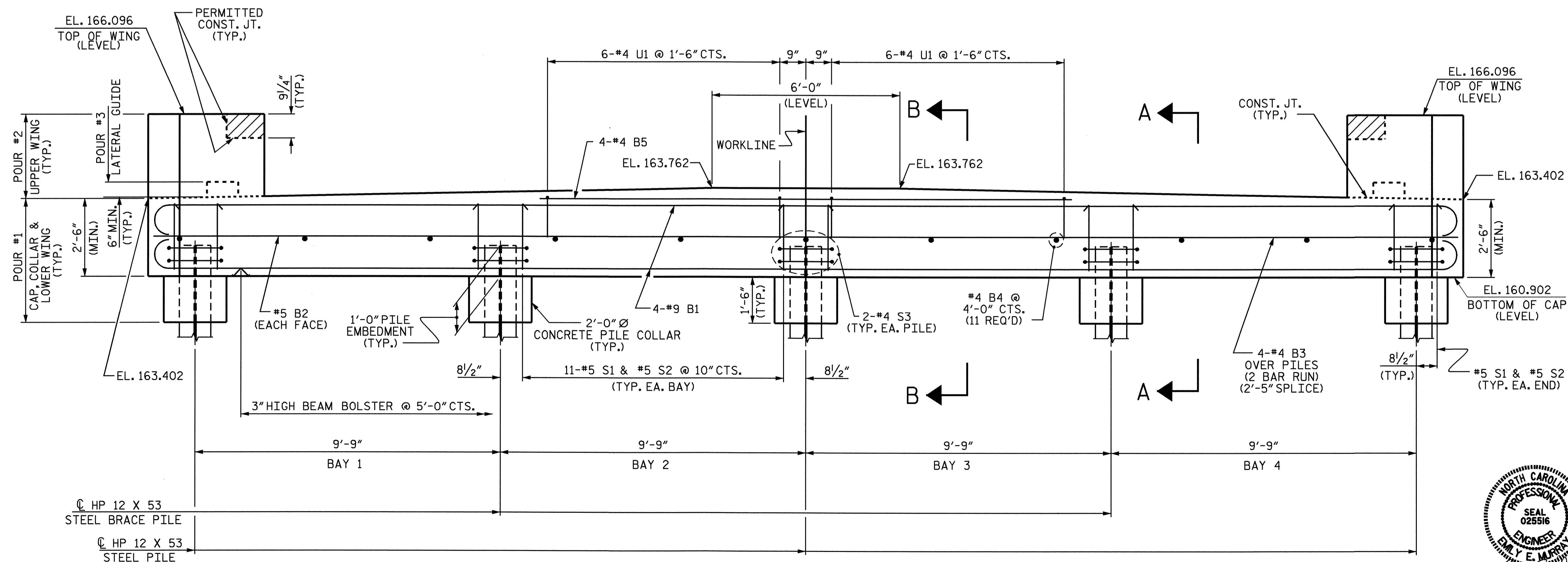
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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

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



PLAN



ELEVATION

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

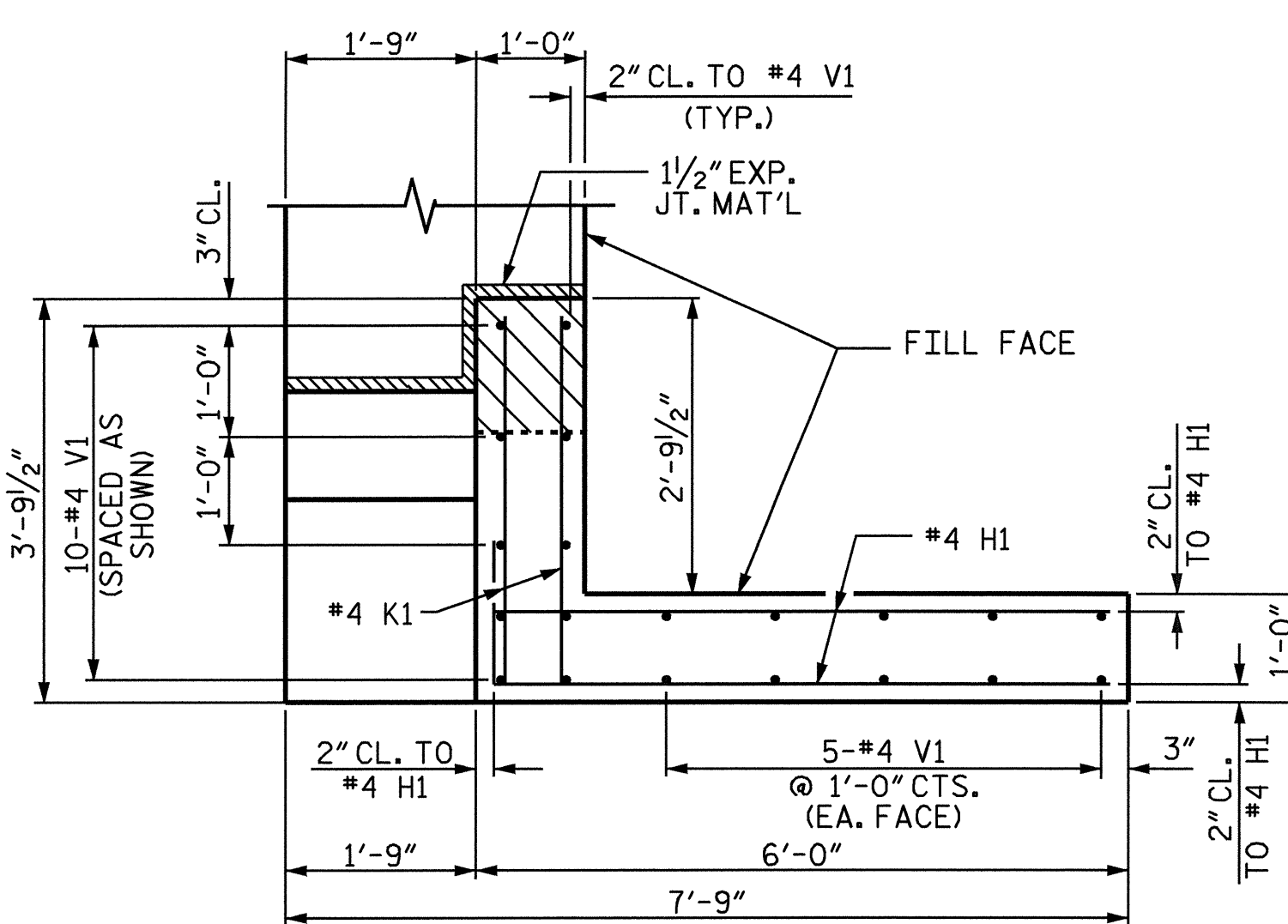


REVISIONS						SHEET NO. S-11
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2			4			

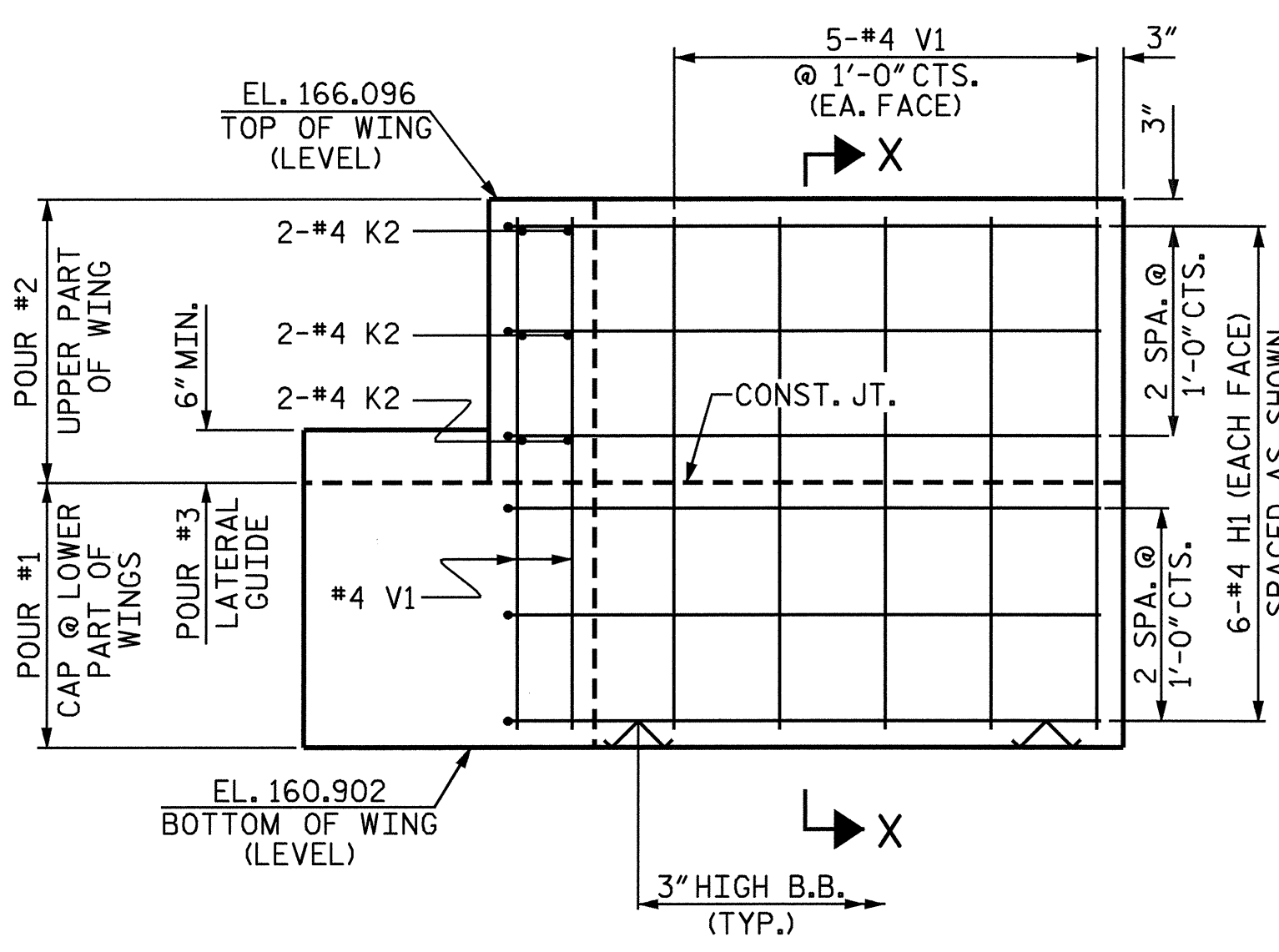
DRAWN BY: M. GUDLAUGSSON DATE: 6/23/09
 CHECKED BY: M.D. PISO DATE: 8/11/09

29-OCT-2009 13:58
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 mgudlaugsson

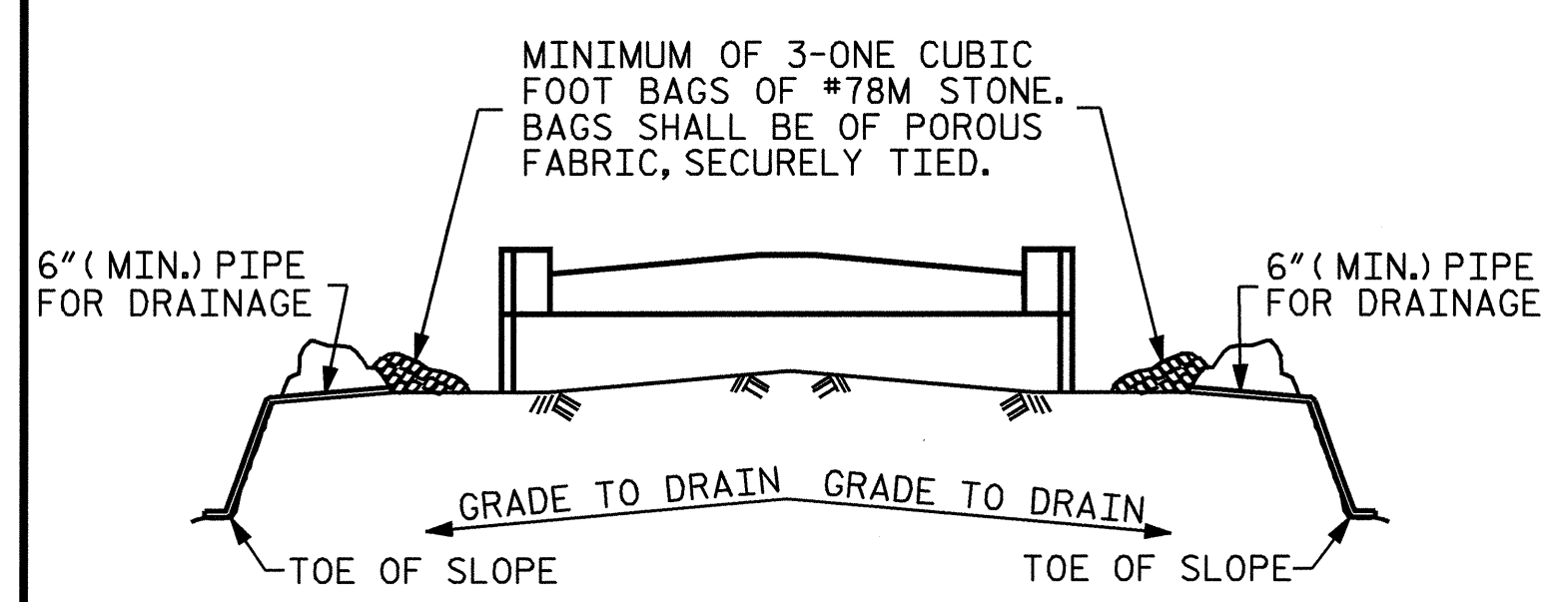
STR #1



PLAN OF WING
(WING 1 SHOWN, WING 2 SIMILAR)



ELEVATION OF WING
(WING 1 SHOWN, WING 2 SIMILAR)

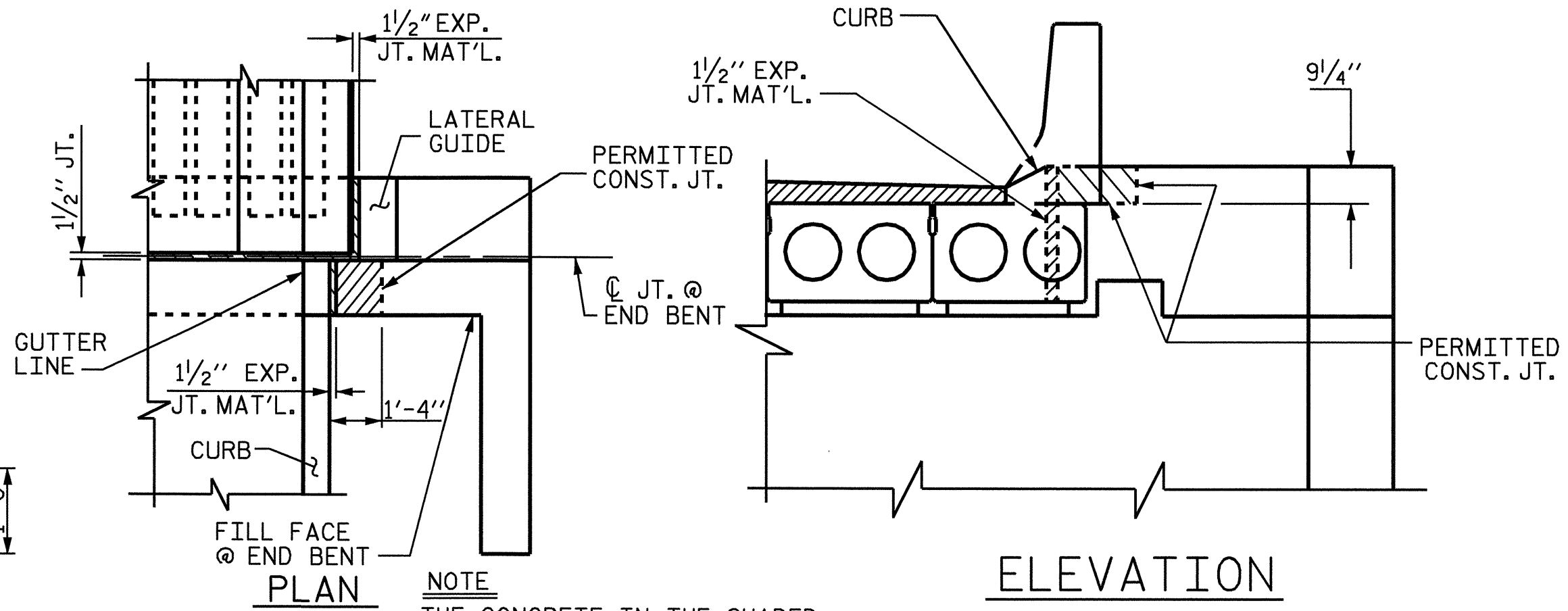


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

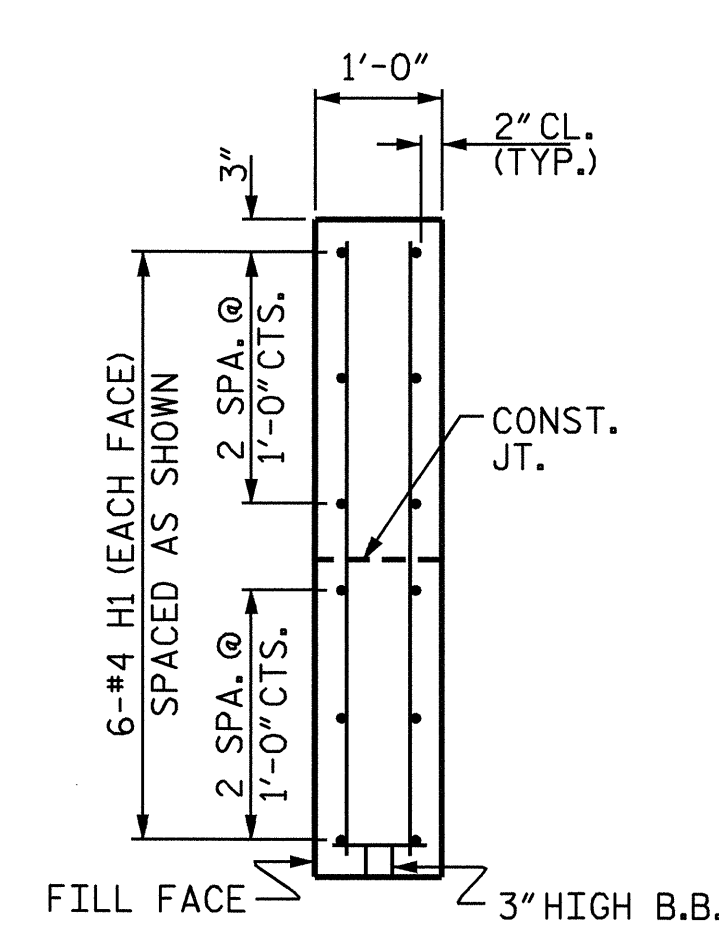
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

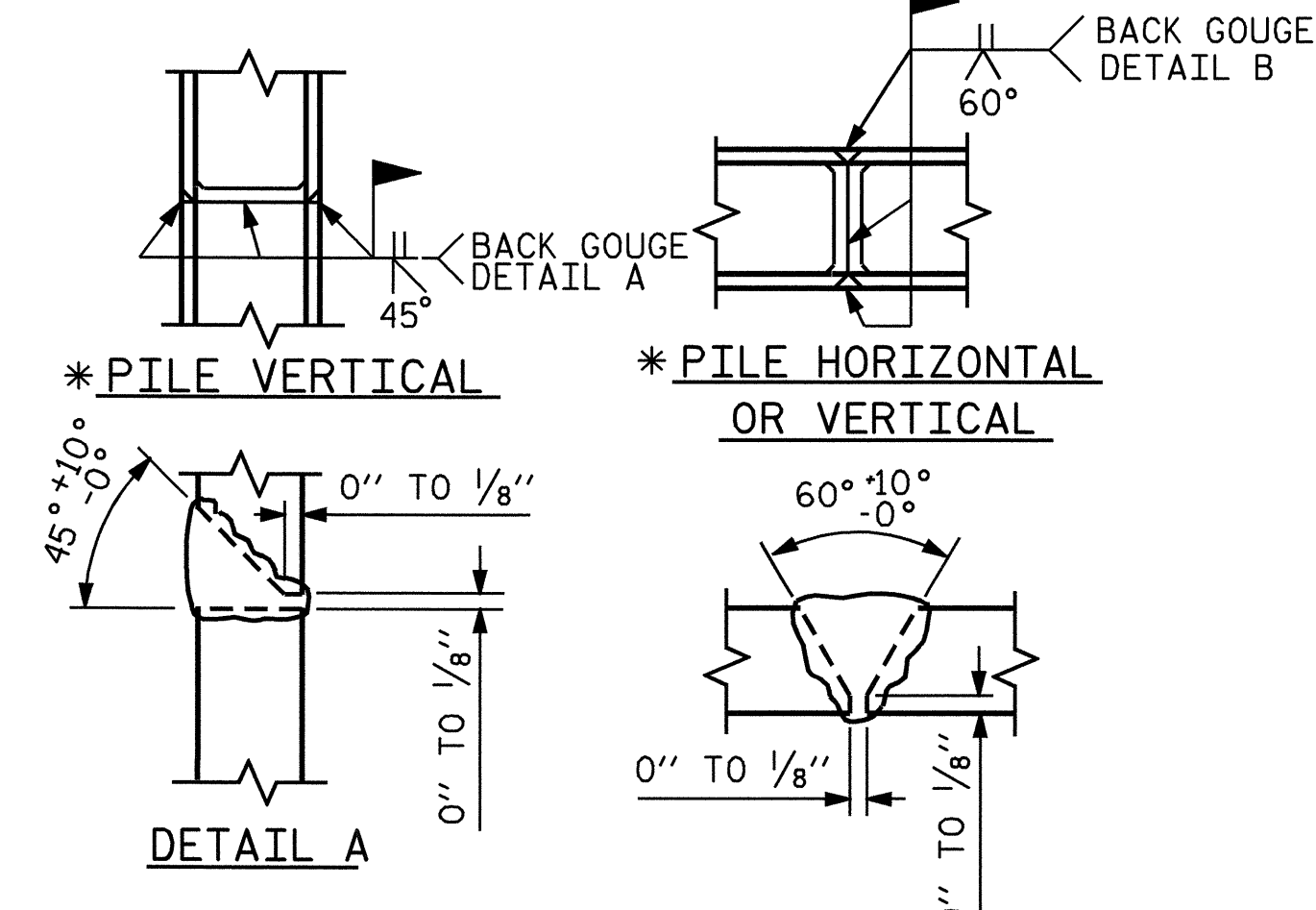
TEMPORARY DRAINAGE AT END BENT



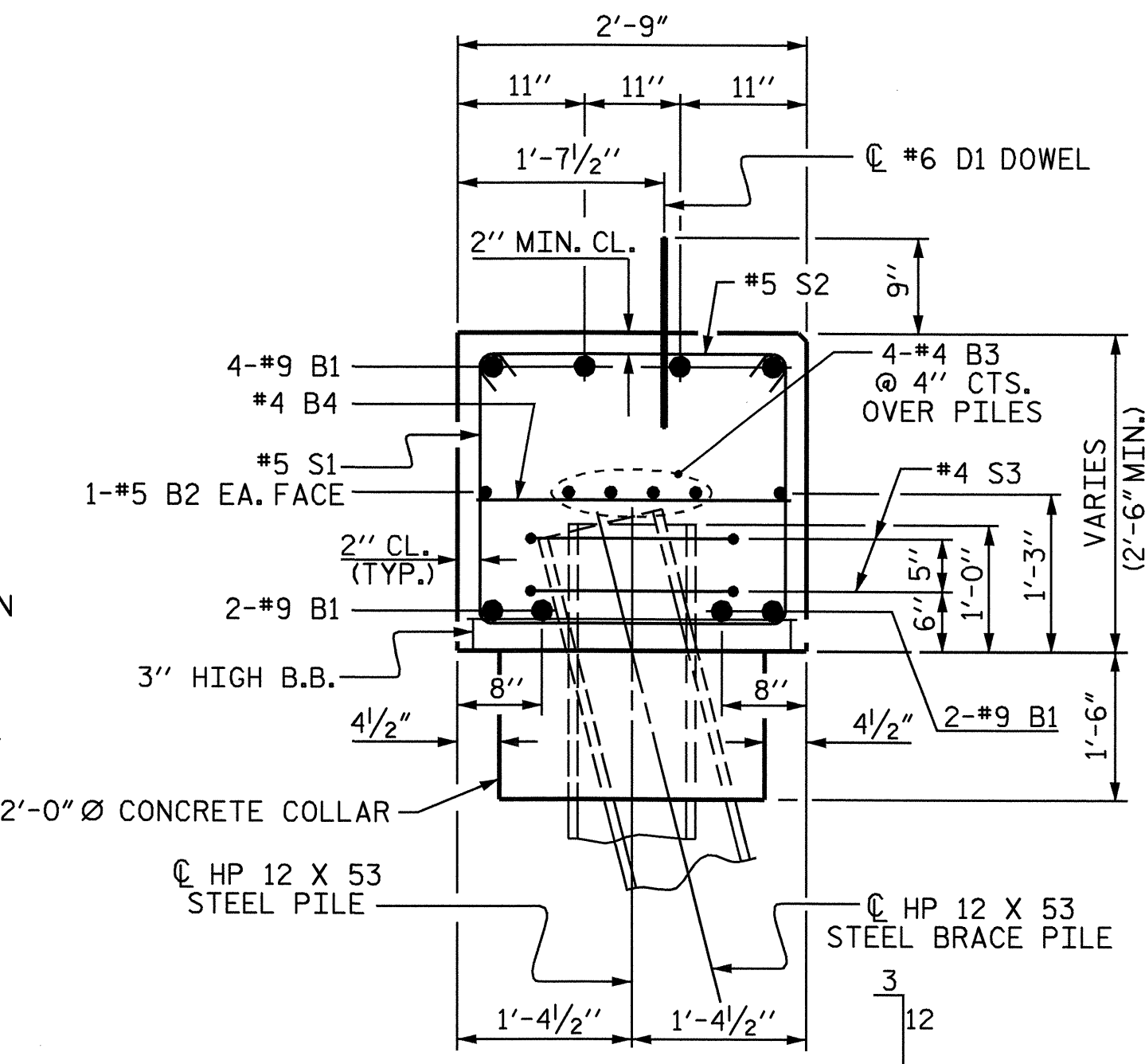
BLOCKOUT IN WING WALL FOR CORED SLAB



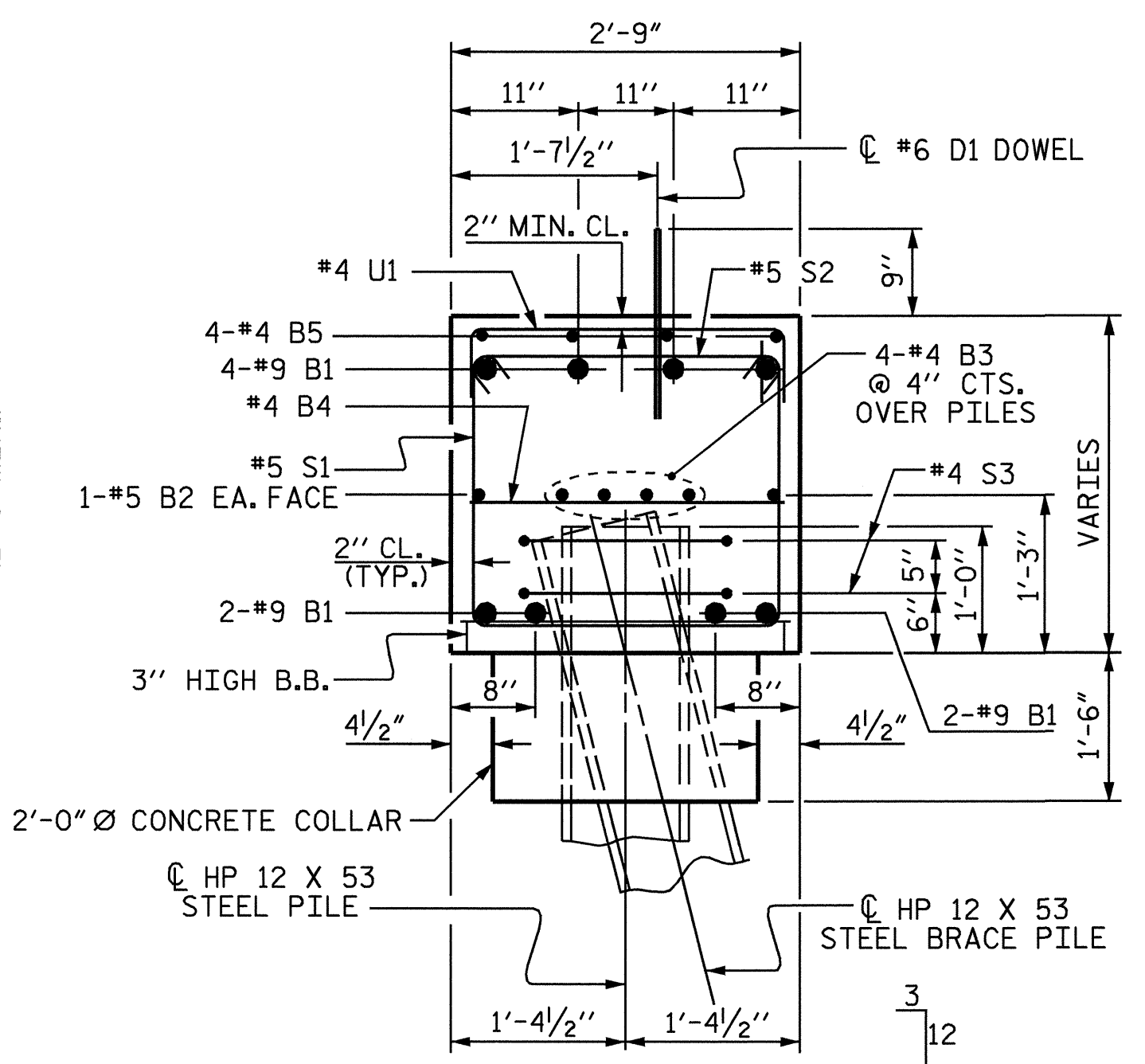
SECTION X-X



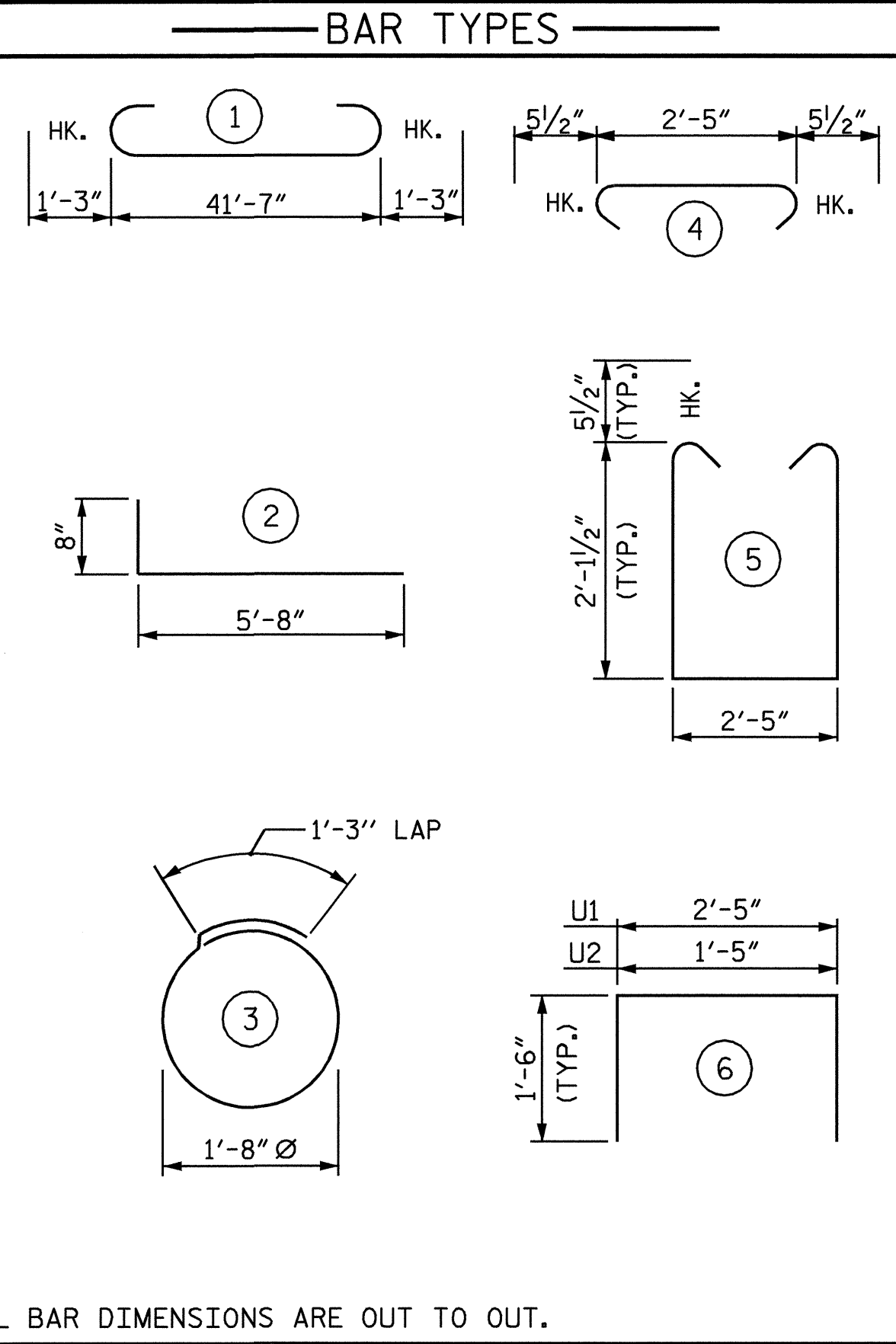
PILE SPLICE DETAILS



SECTION A-A

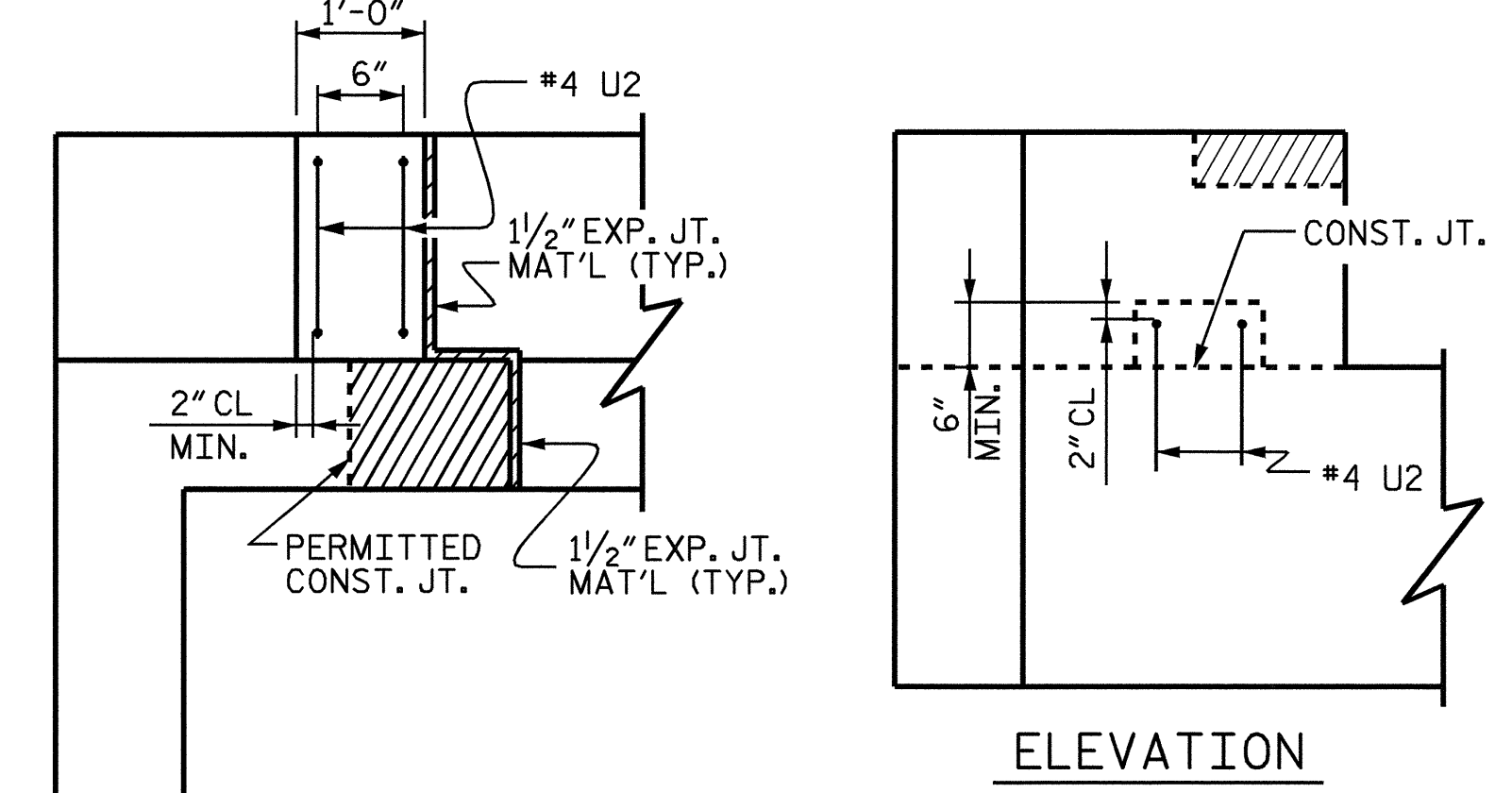


SECTION B-B



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	44'-1"	1199
B2	2	#5	STR	41'-8"	87
B3	8	#4	STR	22'-1"	118
B4	11	#4	STR	2'-5"	18
B5	4	#4	STR	17'-0"	45
D1	24	#6	STR	1'-6"	54
H1	24	#4	2	6'-4"	102
K1	12	#4	STR	3'-4"	27
S1	46	#5	5	7'-7"	364
S2	46	#5	4	3'-4"	160
S3	10	#4	3	6'-6"	43
U1	12	#4	6	5'-5"	43
U2	4	#4	6	4'-5"	12
V1	40	#4	STR	4'-10"	129
REINFORCING STEEL				LBS	2401
CLASS A CONCRETE BREAKDOWN:					
POUR #1: CAP, COLLARS & LOWER PART OF WINGS				CU. YD.	13.4
POUR #2: UPPER PART OF WINGS				CU. YD.	1.8
POUR #3: LATERAL GUIDES				CU. YD.	0.1
TOTAL				CU. YD.	15.3
HP 12 x 53 STEEL PILES NO. 5				LIN. FT.	275
PILE REDRIVES					5 EA.



LATERAL GUIDE
(EACH END SIMILAR)

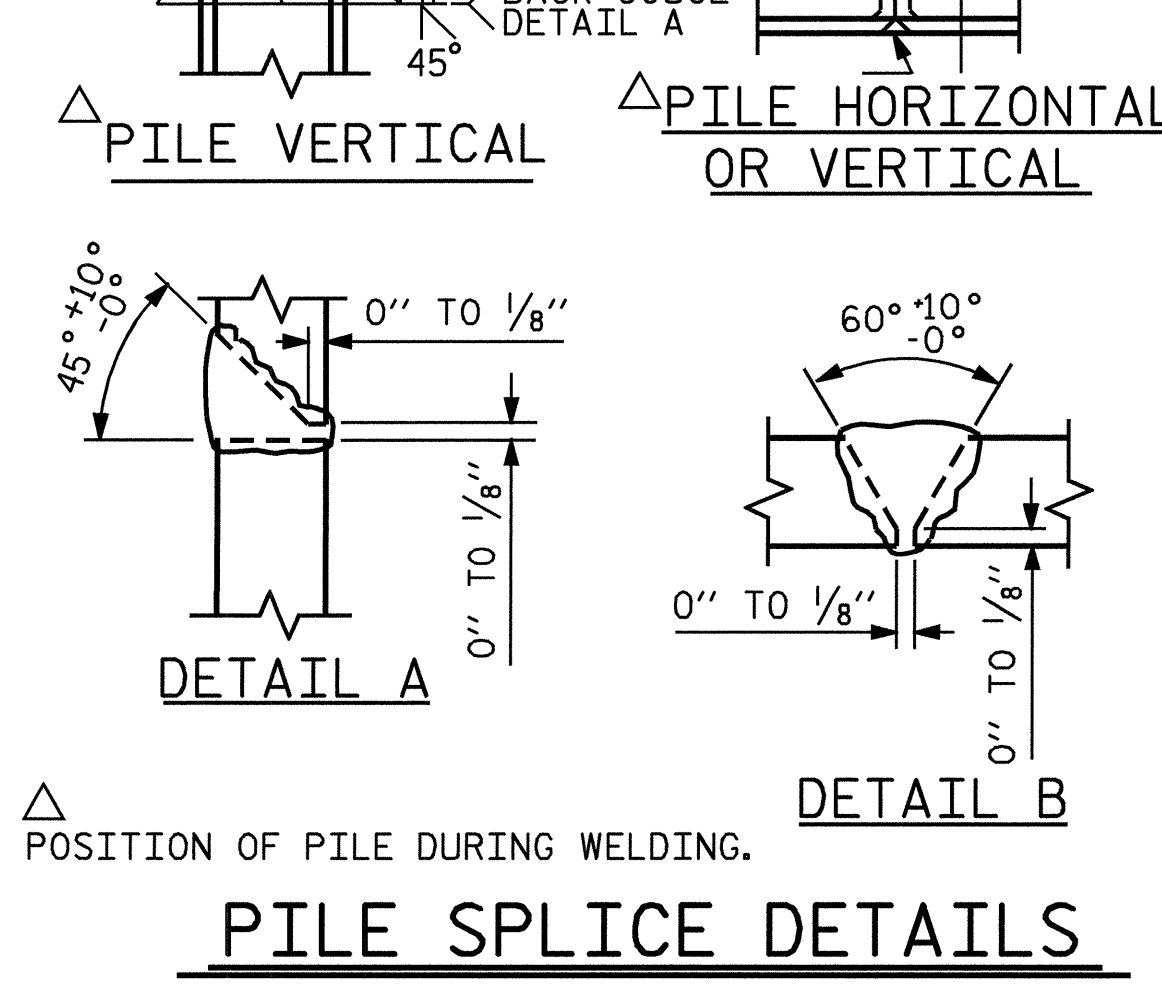
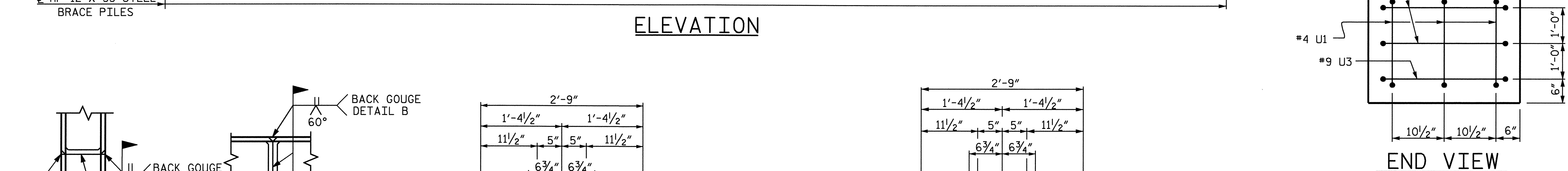
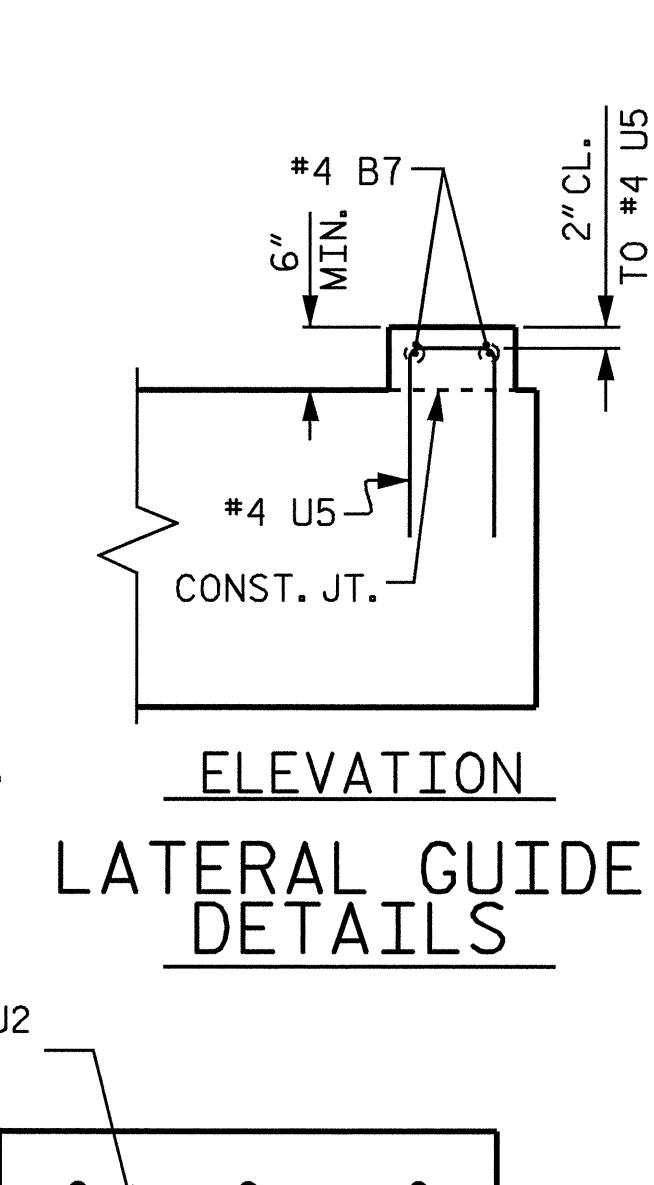
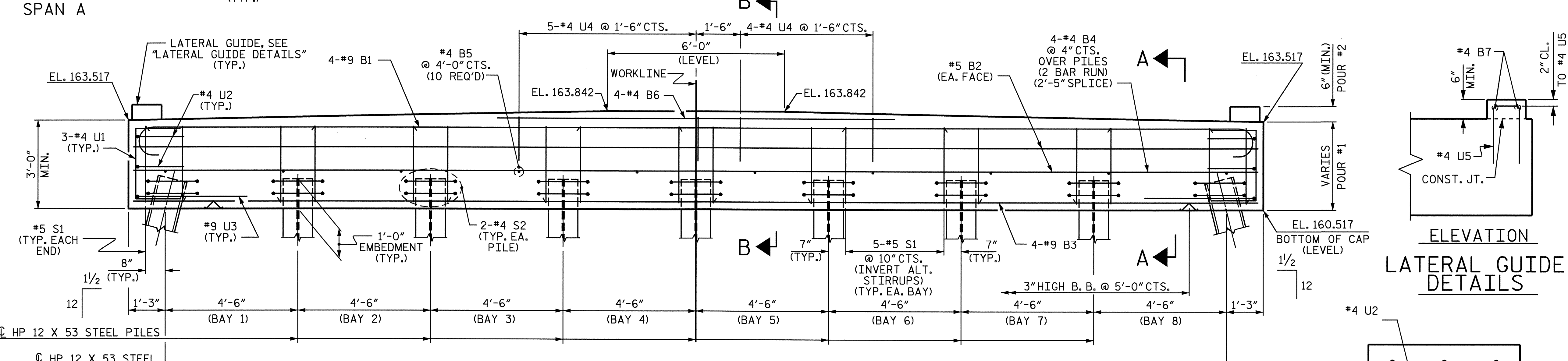
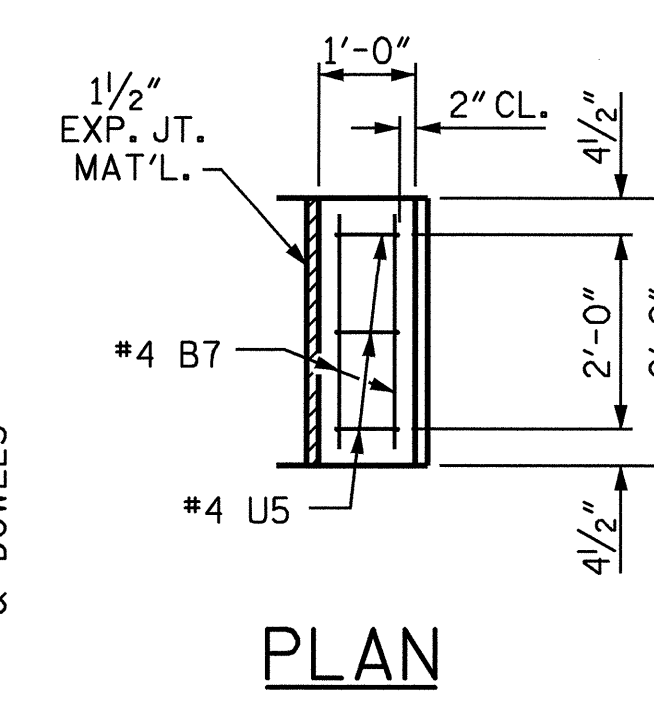
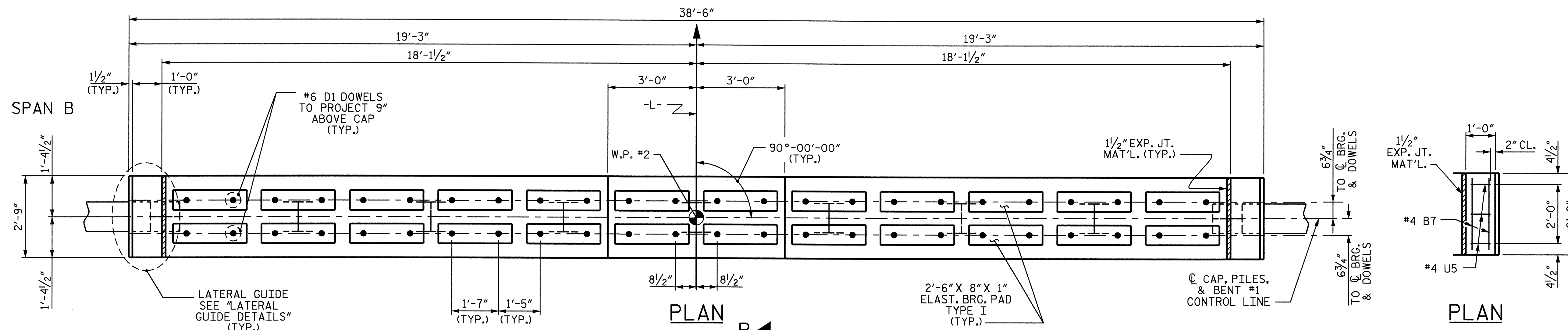
PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 19+21.00 -L-

SHEET 2 OF 2

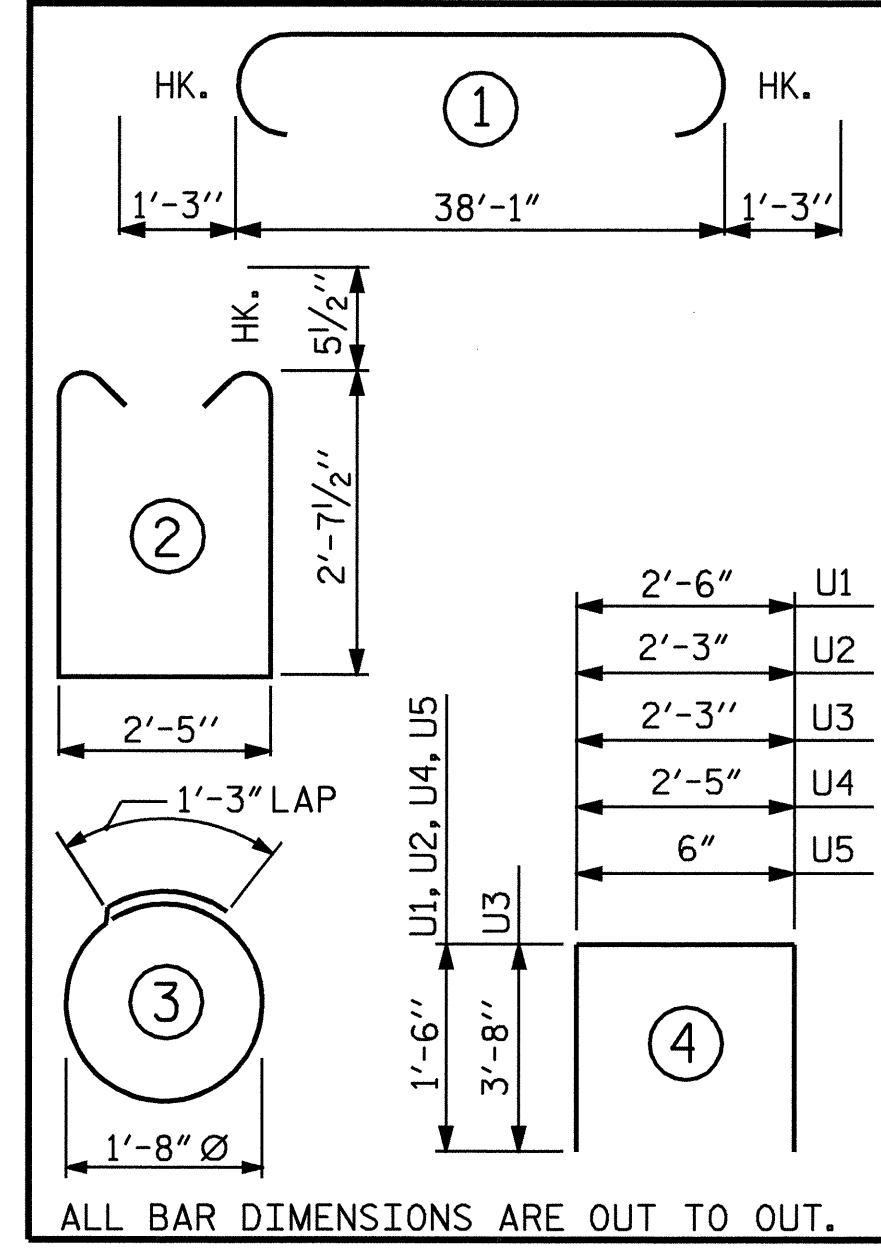


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 37

DRAWN BY: M. GUDLAUGSSON DATE: 6/23/09
CHECKED BY: M.D. PISO DATE: 8/11/09



BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	40'-7"	552
B2	4	#5	STR	38'-2"	159
B3	4	#9	STR	38'-2"	519
B4	8	#4	STR	20'-4"	109
B5	10	#4	STR	2'-5"	16
B6	4	#4	STR	13'-6"	36
B7	4	#4	STR	2'-5"	6
D1	48	#6	STR	1'-6"	108
S1	42	#5	2	8'-7"	376
S2	18	#4	3	6'-6"	78
U1	6	#4	4	5'-6"	22
U2	4	#4	4	5'-3"	14
U3	2	#9	4	9'-7"	65
U4	9	#4	4	5'-5"	33
U5	6	#4	4	3'-6"	14
TOTAL REINFORCING STEEL				LBS.	2107
CLASS "A" CONCRETE BREAKDOWN					
POUR #1 (CAP)				C.Y.	12.5
POUR #2 (LATERAL GUIDE)				C.Y.	0.1
TOTAL CLASS "A" CONCRETE				C.Y.	12.6
HP 12 x 53 GALVANIZED STEEL PILES					
NO. 9				LIN. FT.	630
PILE REDRIVES					9 EA.



NOTES

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

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

GALVANIZE THE TOP 30 FEET OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #1					
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 37

DRAWN BY: M. GUDLAUGSSON DATE: 7/13/09
 CHECKED BY: J. B. WILSON DATE: 8/12/09

29-OCT-2009 14:00
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 mgudlaugsson

STR #1

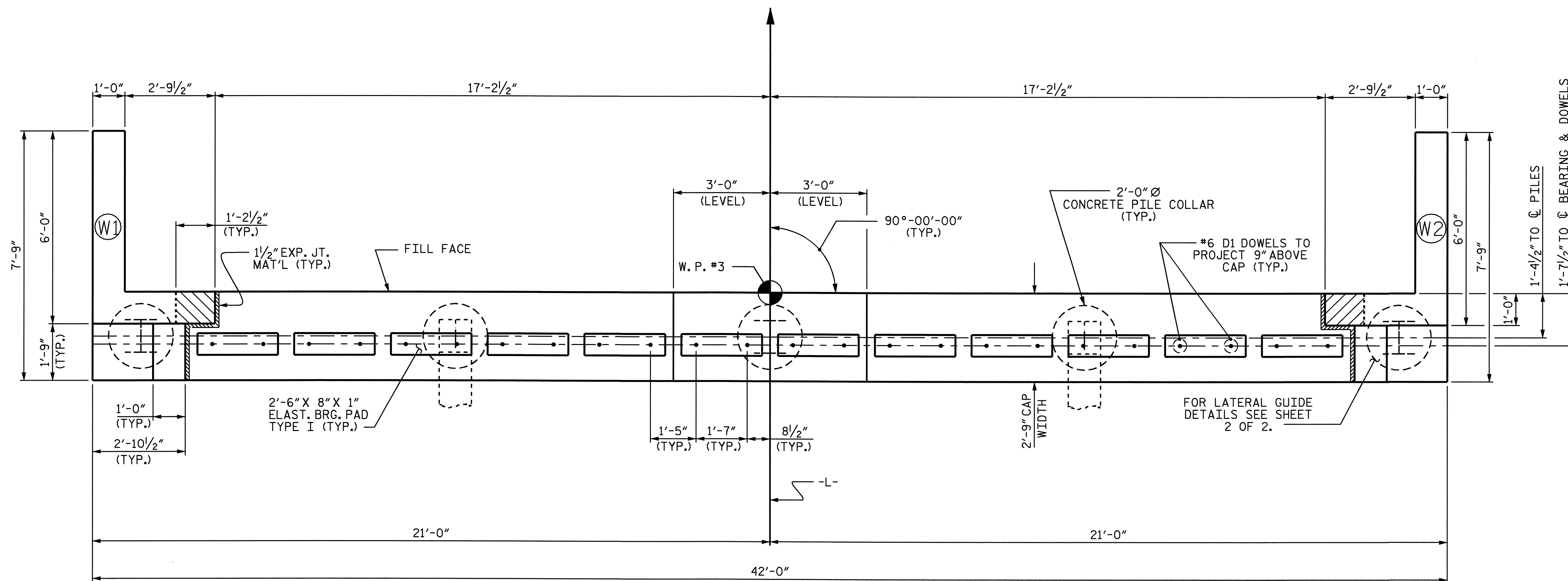
NOTES

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

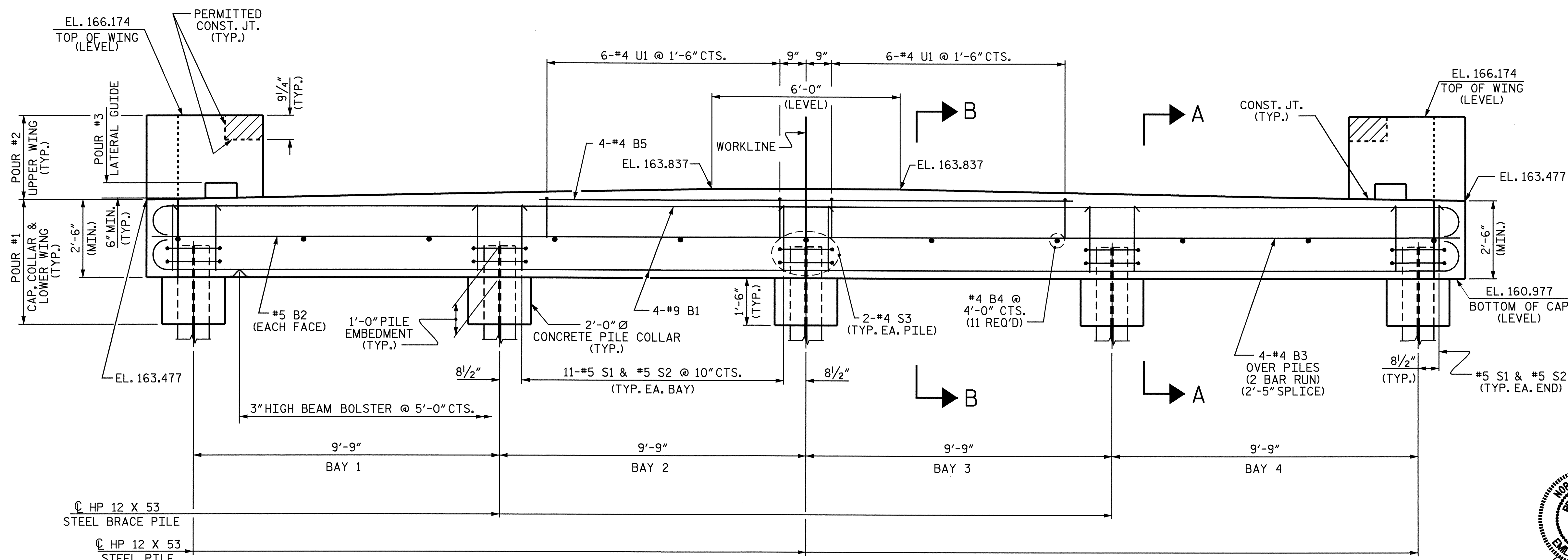
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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

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



PLAN



ELEVATION

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

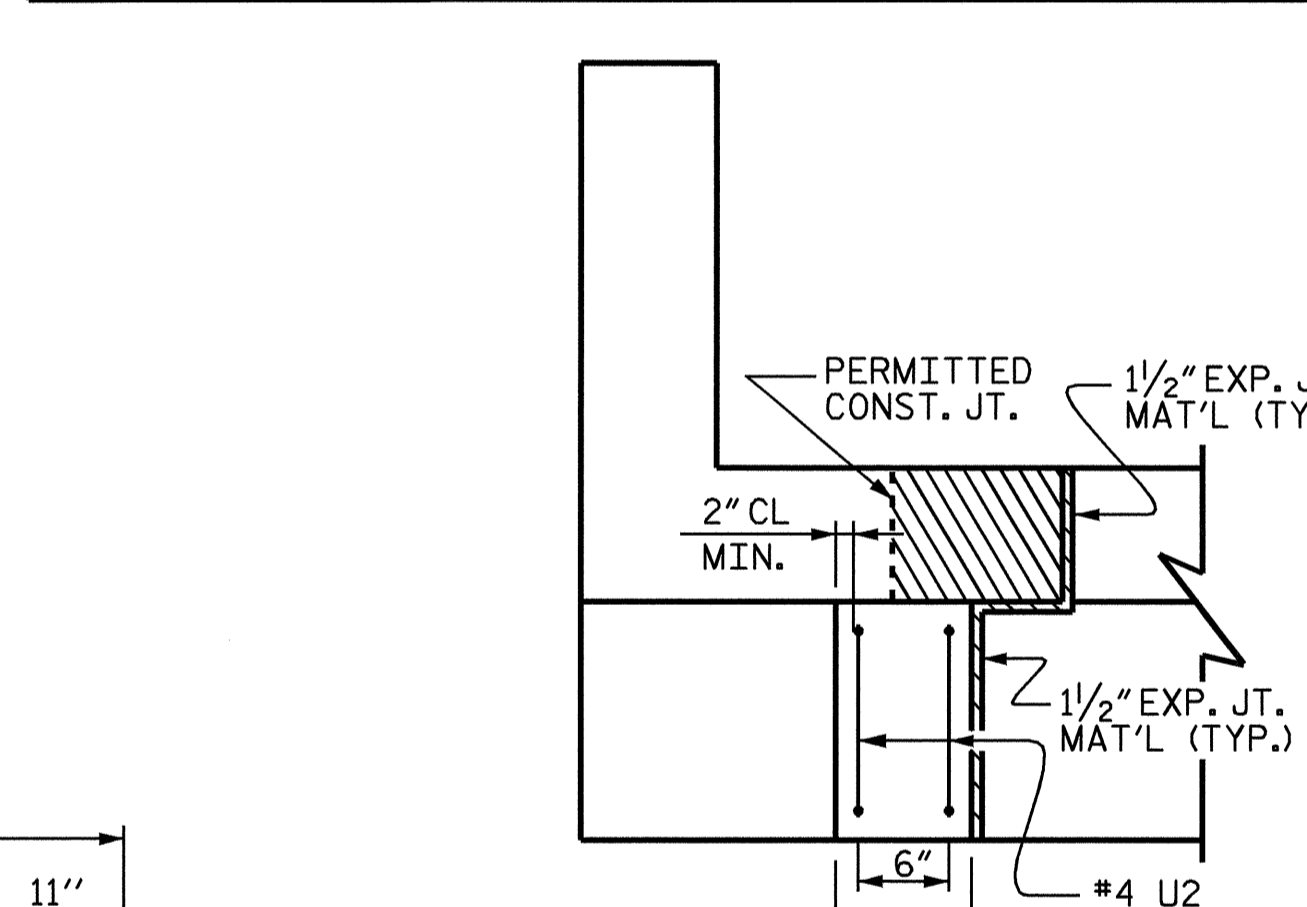
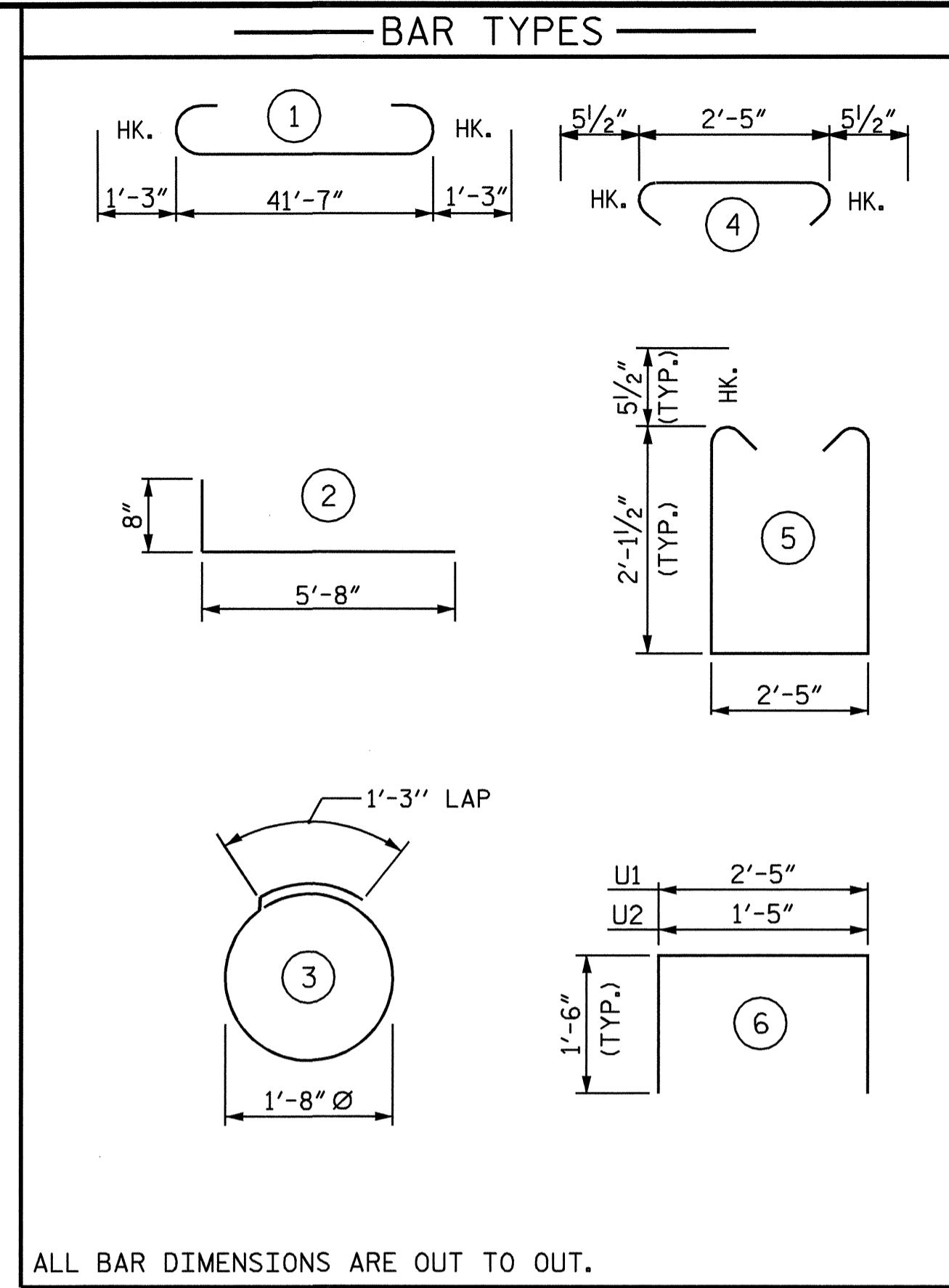
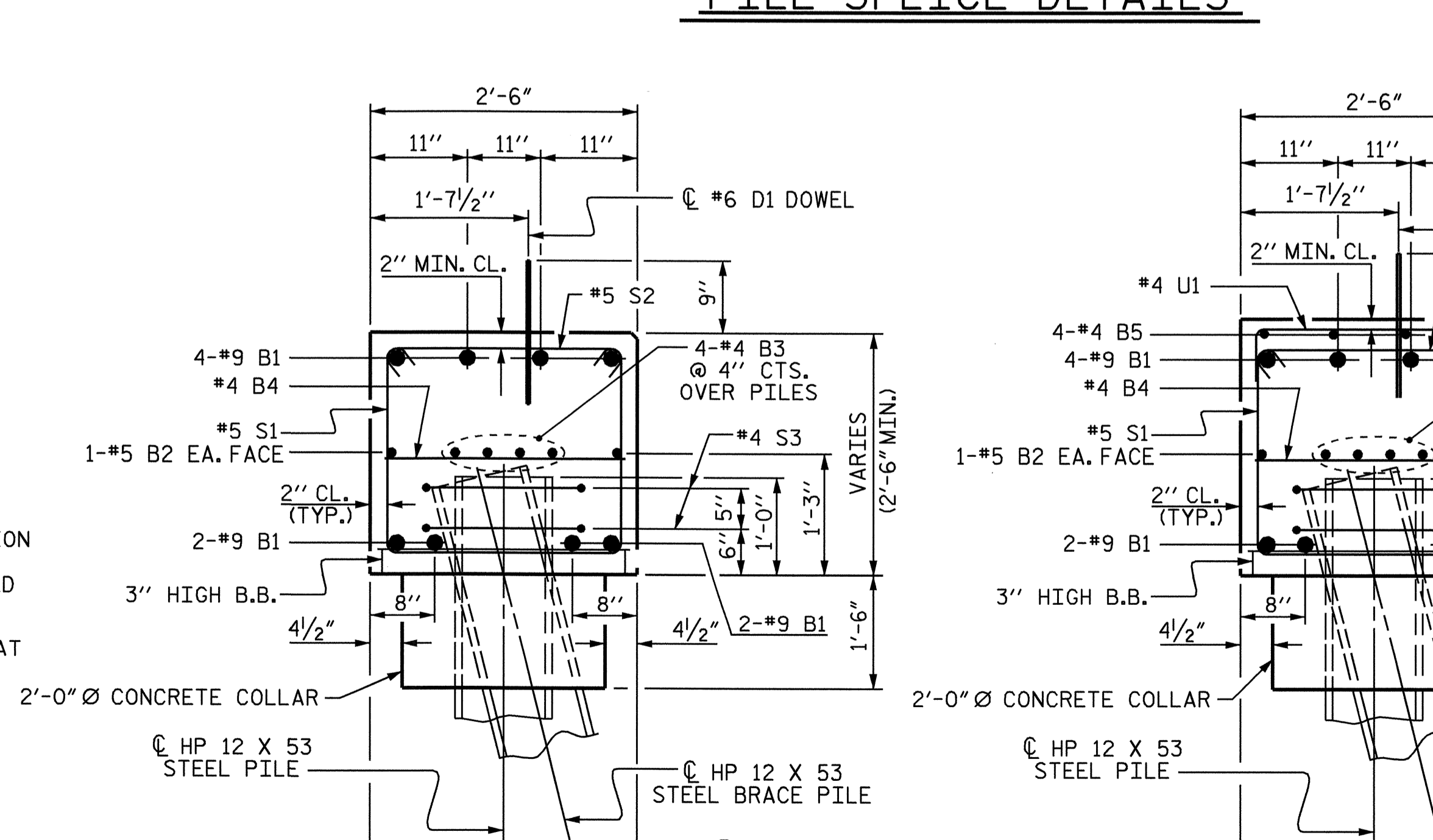
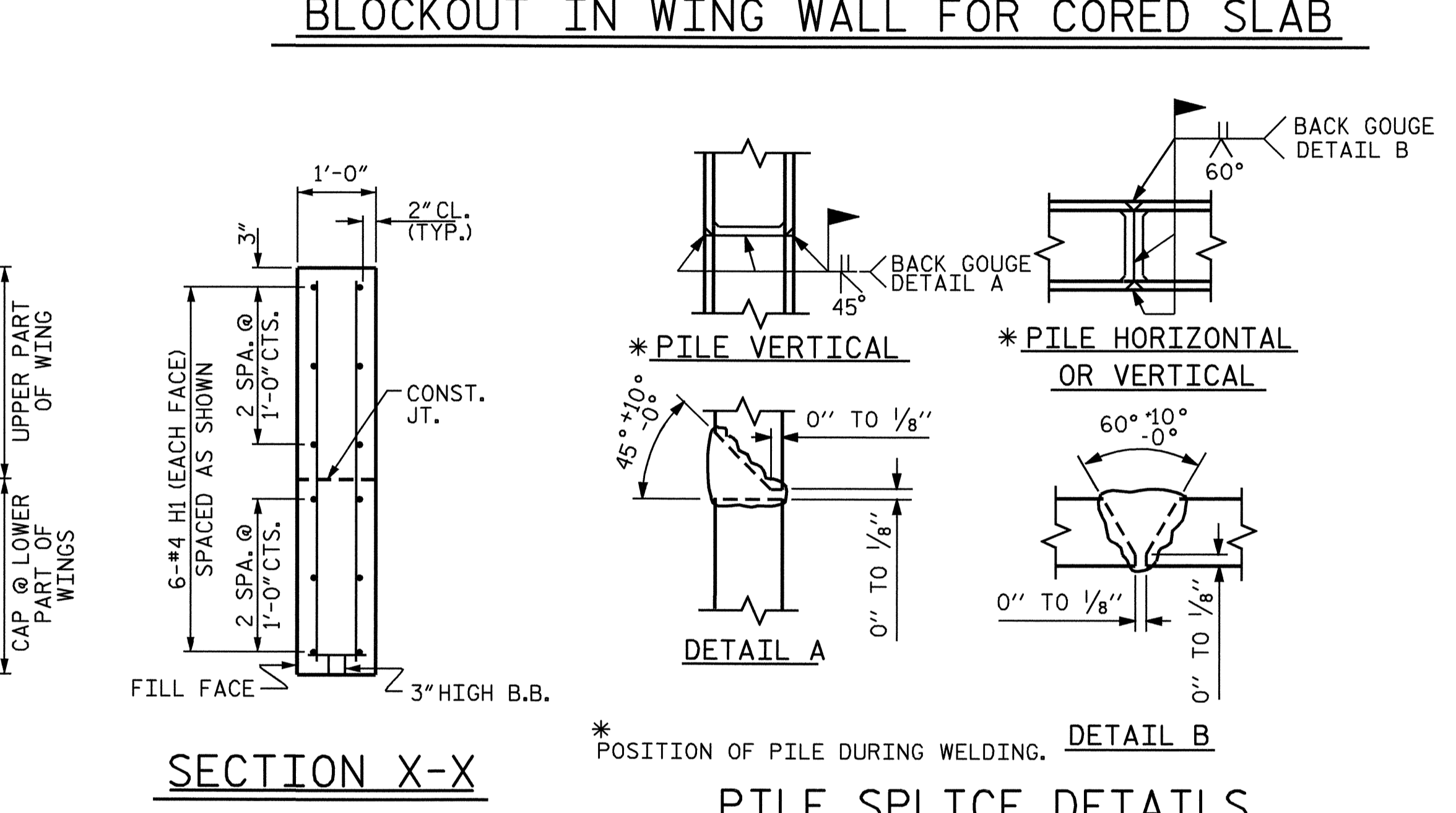
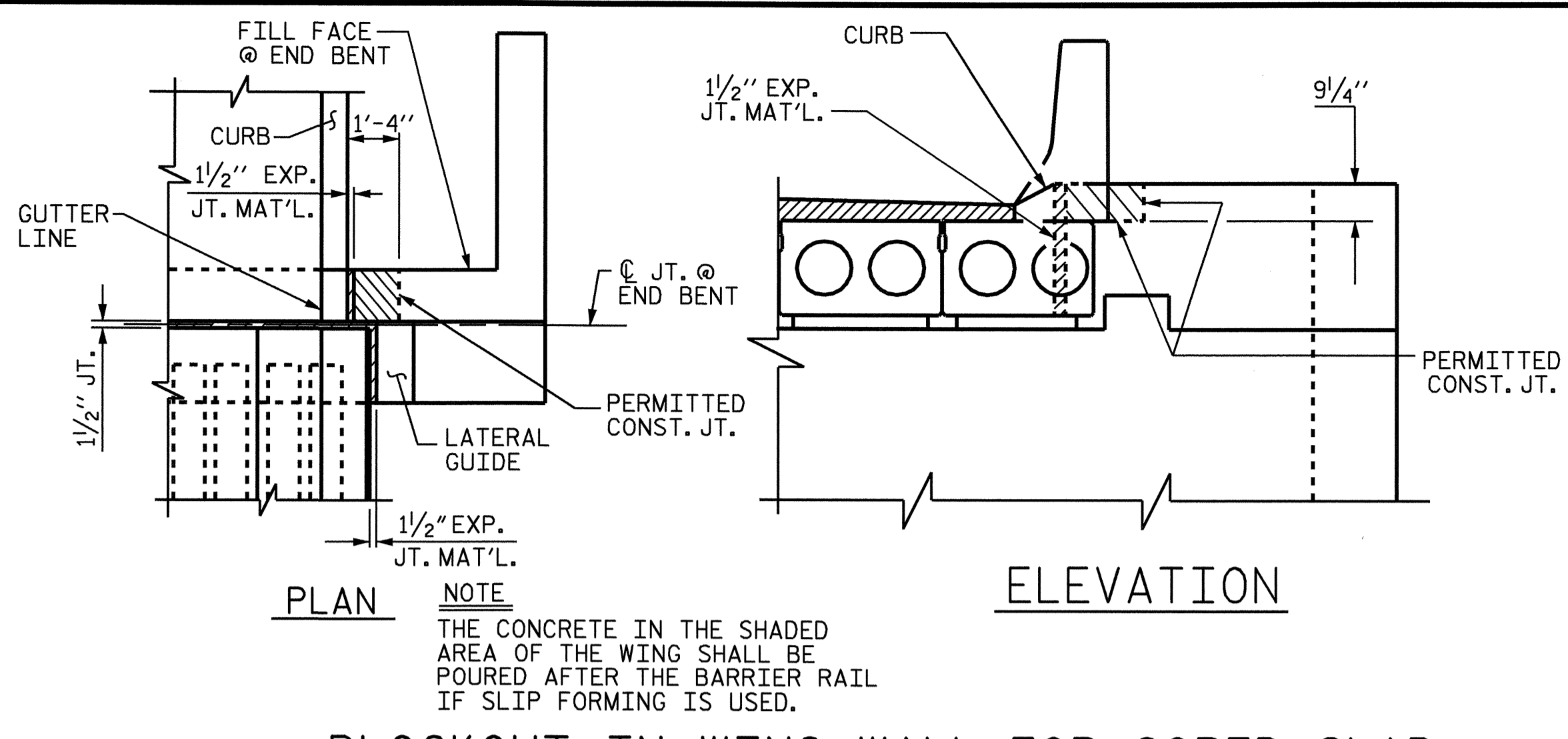
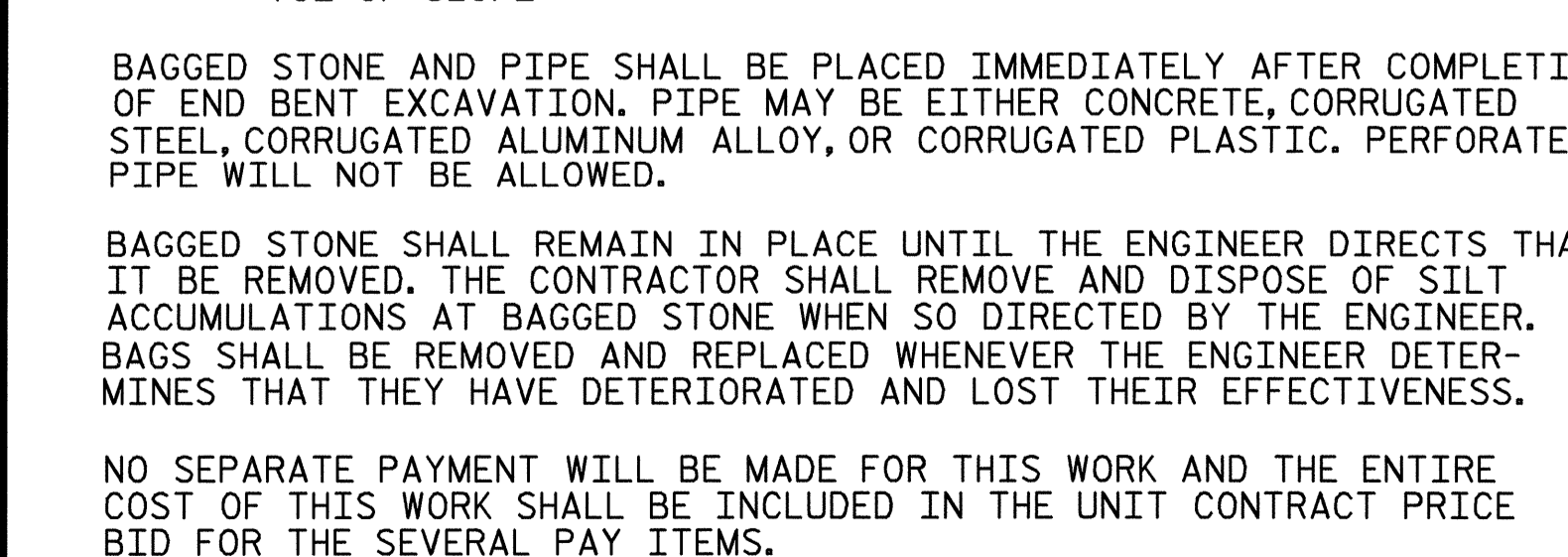
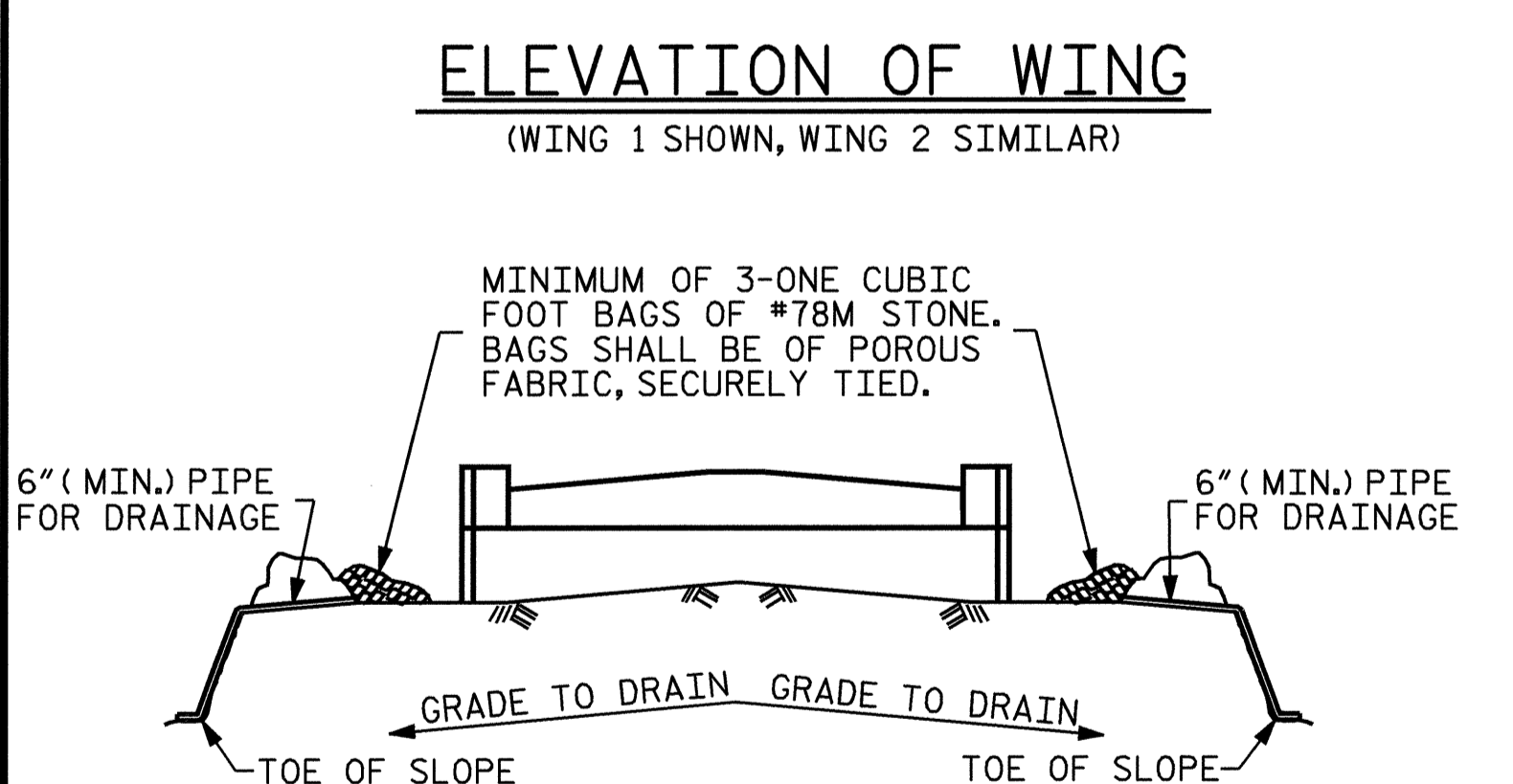
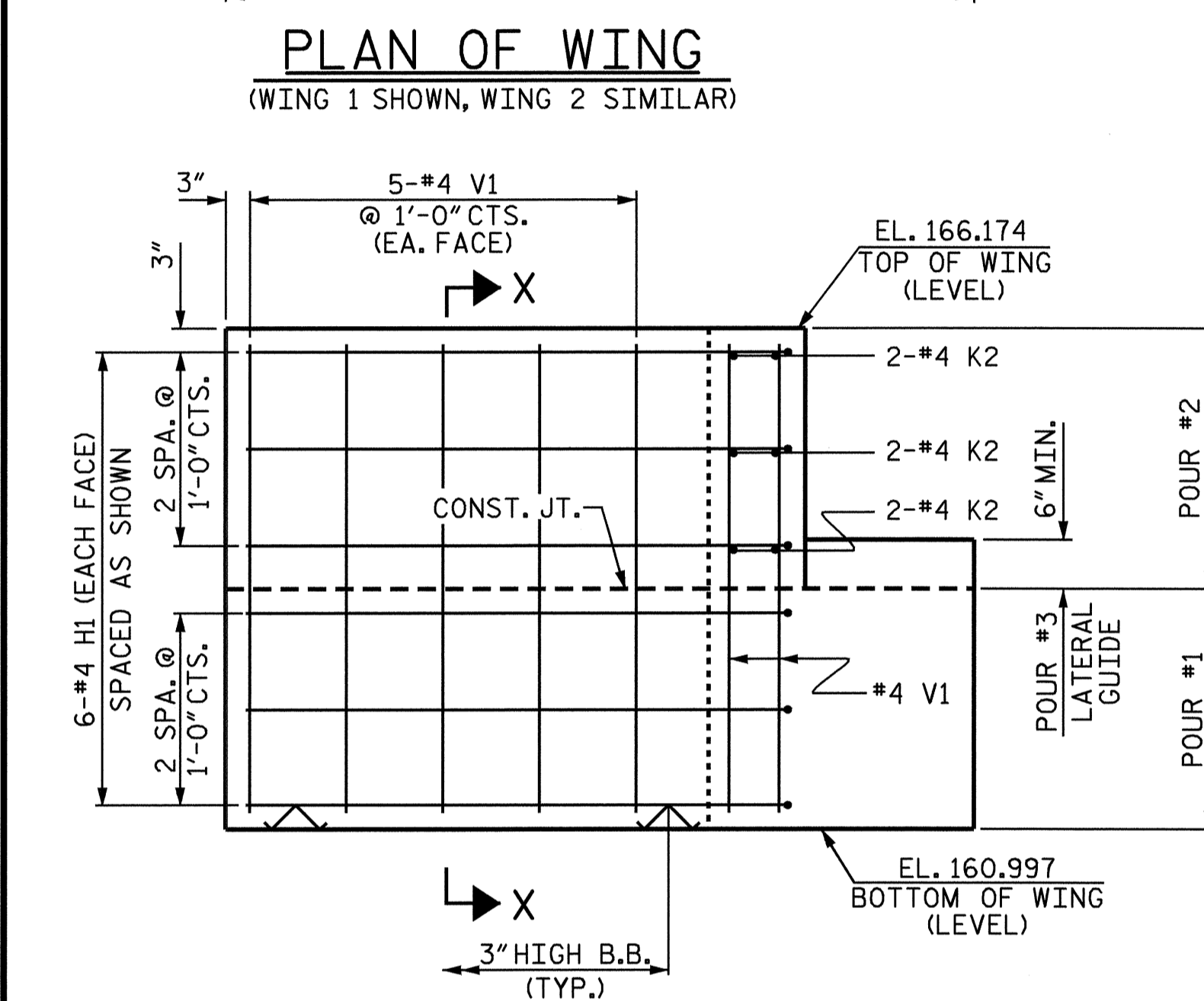
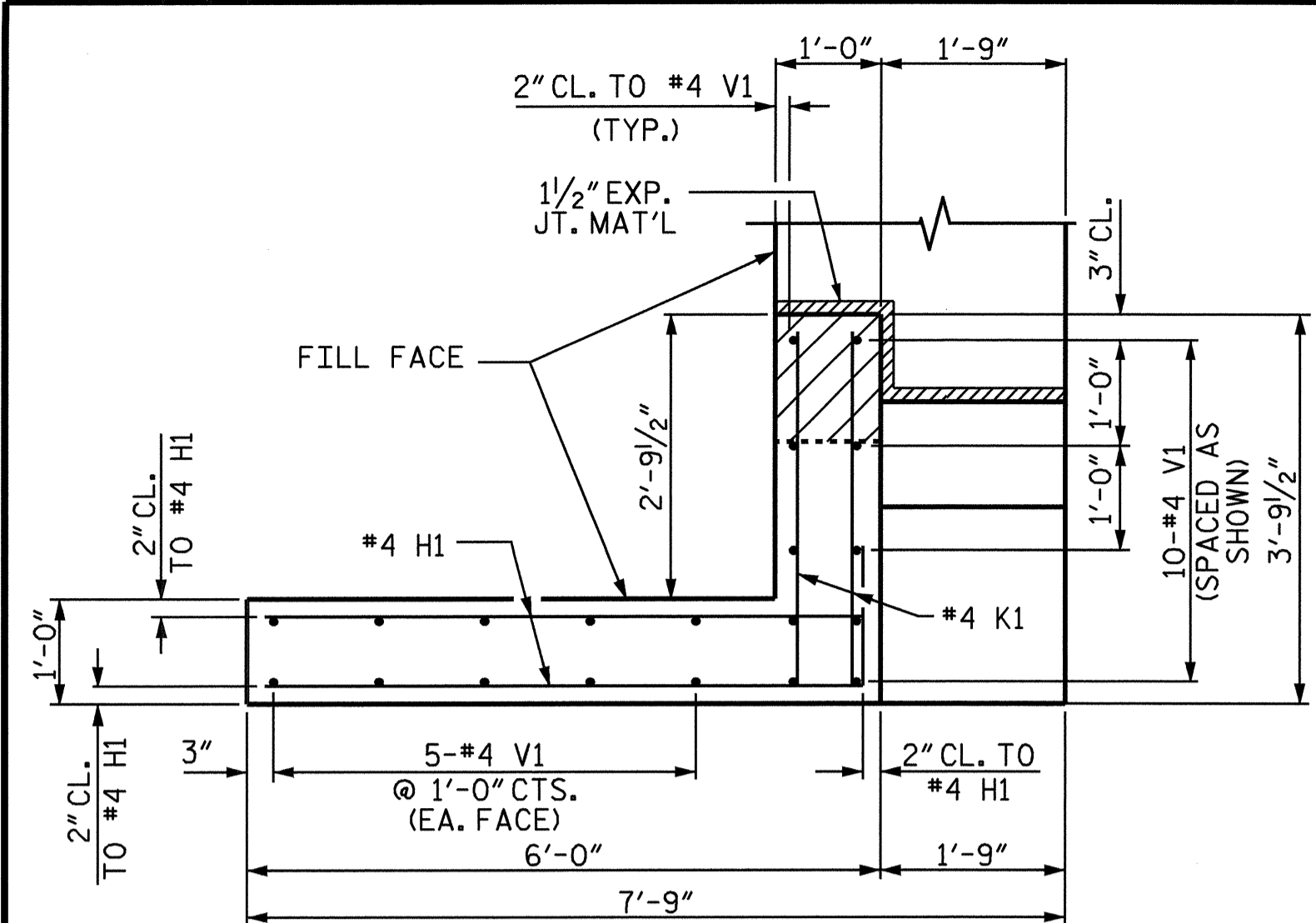


DRAWN BY: M. GUDLAUGSSON DATE: 06/23/09
 CHECKED BY: M.D. PISO DATE: 8/11/09

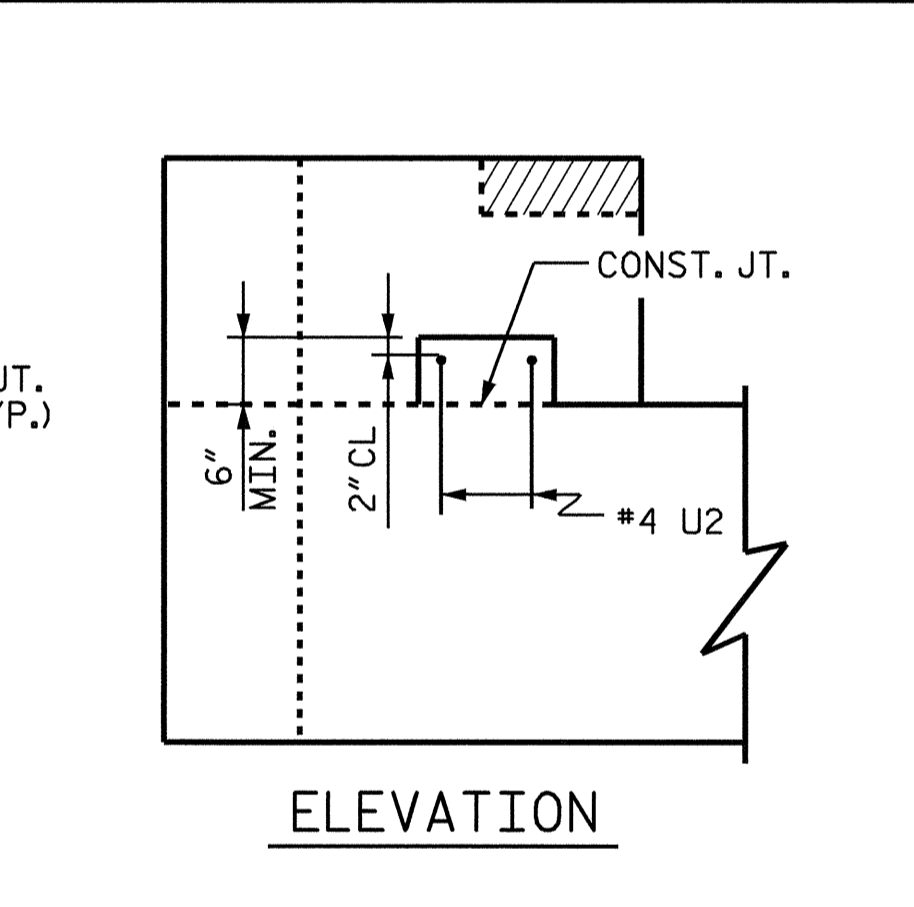
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 gudlaugsson

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

STR #1



BILL OF MATERIAL					
END BENT #2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#8		44'-1"	1199	
B2	#5	STR	41'-8"	87	
B3	#4	STR	22'-1"	118	
B4	#4	STR	2'-5"	18	
B5	#4	STR	17'-0"	45	
D1	#6	STR	1'-6"	54	
H1	#4		6'-4"	102	
K1	#4	STR	3'-4"	27	
S1	#5		7'-7"	364	
S2	#5		3'-4"	160	
S3	#4		6'-6"	43	
U1	#4		5'-5"	43	
U2	#4		4'-5"	12	
V1	#4	STR	4'-10"	129	
REINFORCING STEEL					LBS 2401
CLASS A CONCRETE BREAKDOWN:					
POUR #1: CAP, COLLARS & LOWER PART OF WINGS					CU. YD. 13.4
POUR #2: UPPER PART OF WINGS					CU. YD. 1.8
POUR #3: LATERAL GUIDES					CU. YD. 0.1
TOTAL					CU. YD. 15.3
HP 12 x 53 STEEL PILES NO. 5					LIN. FT. 275
PILE REDRIVES					5 EA.



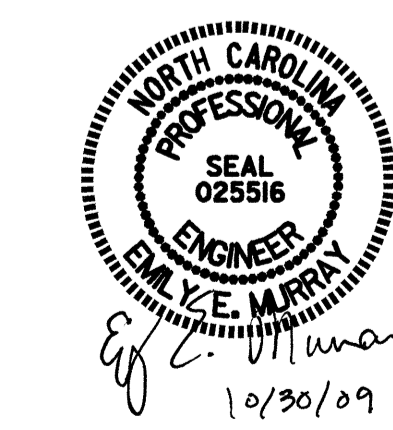
PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 19+21.00 -L-
SHEET 2 OF 2

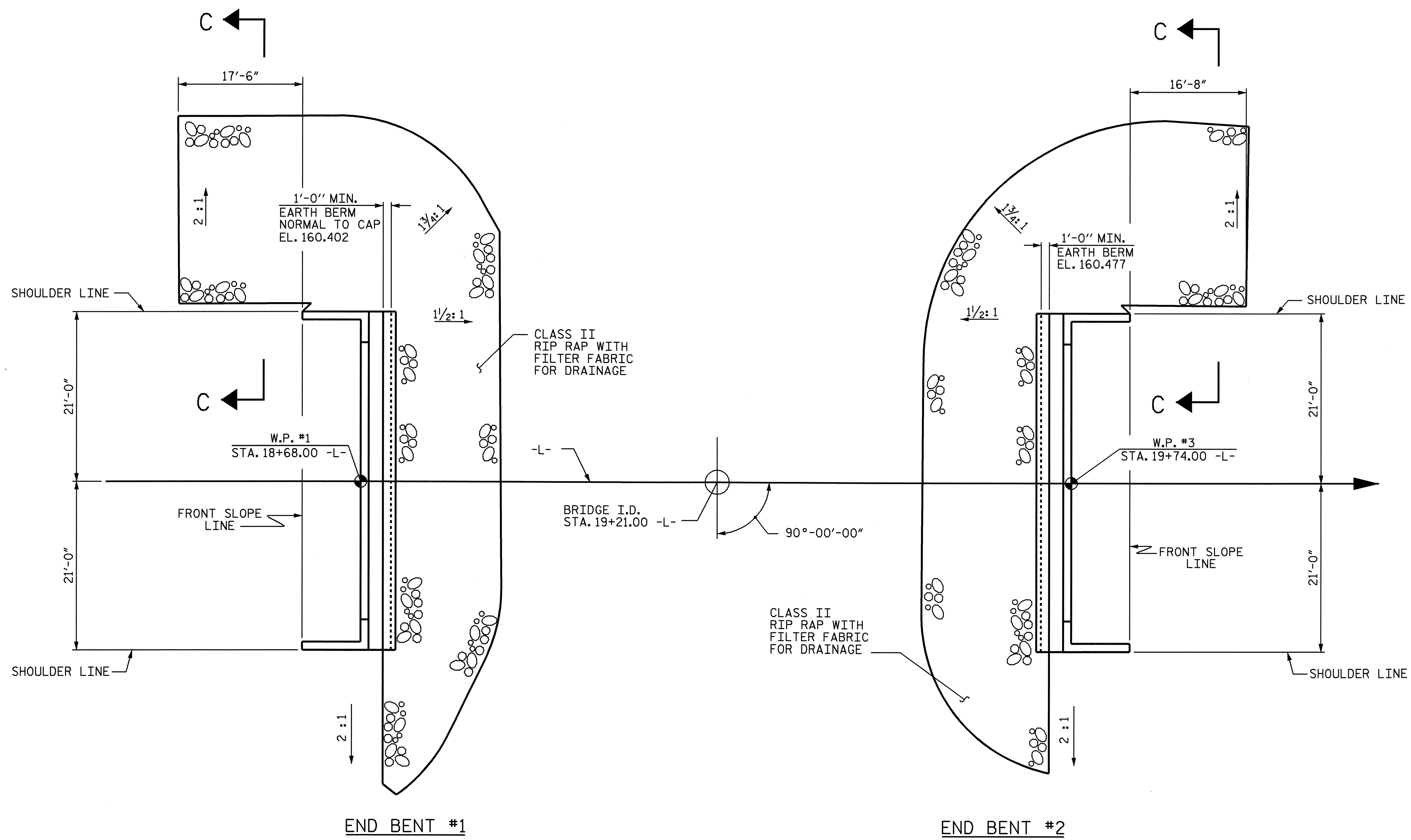
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #2

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS 37	
2			4				

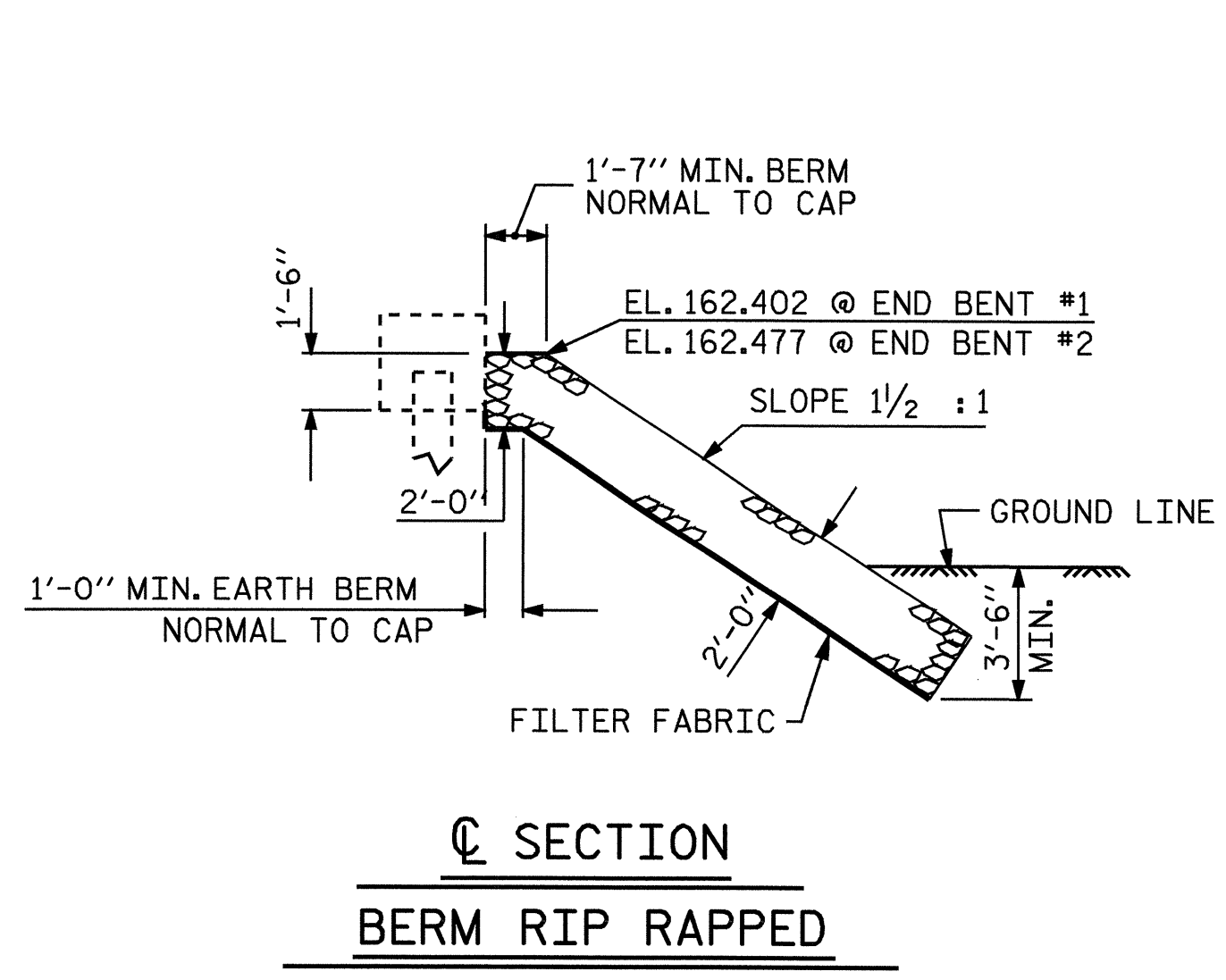
DRAWN BY: M. GUIDLAUGSSON DATE: 6/23/09
CHECKED BY: M.D. PISO DATE: 8/11/09



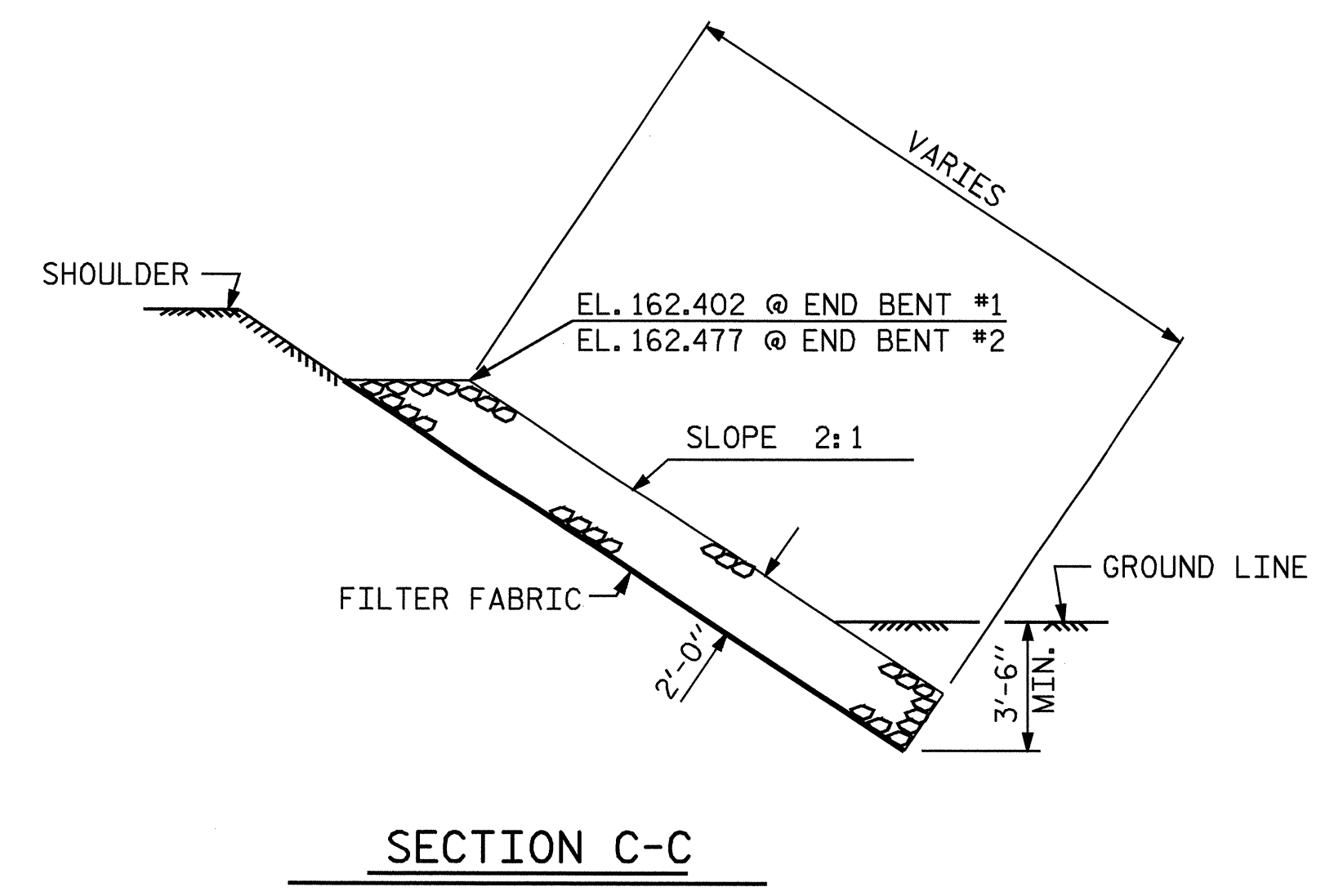


PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 19+21.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	173	192
END BENT 2	122	135

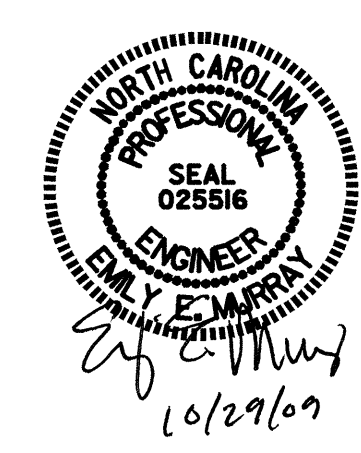


SECTION C-C
BERM RIP RAPPED



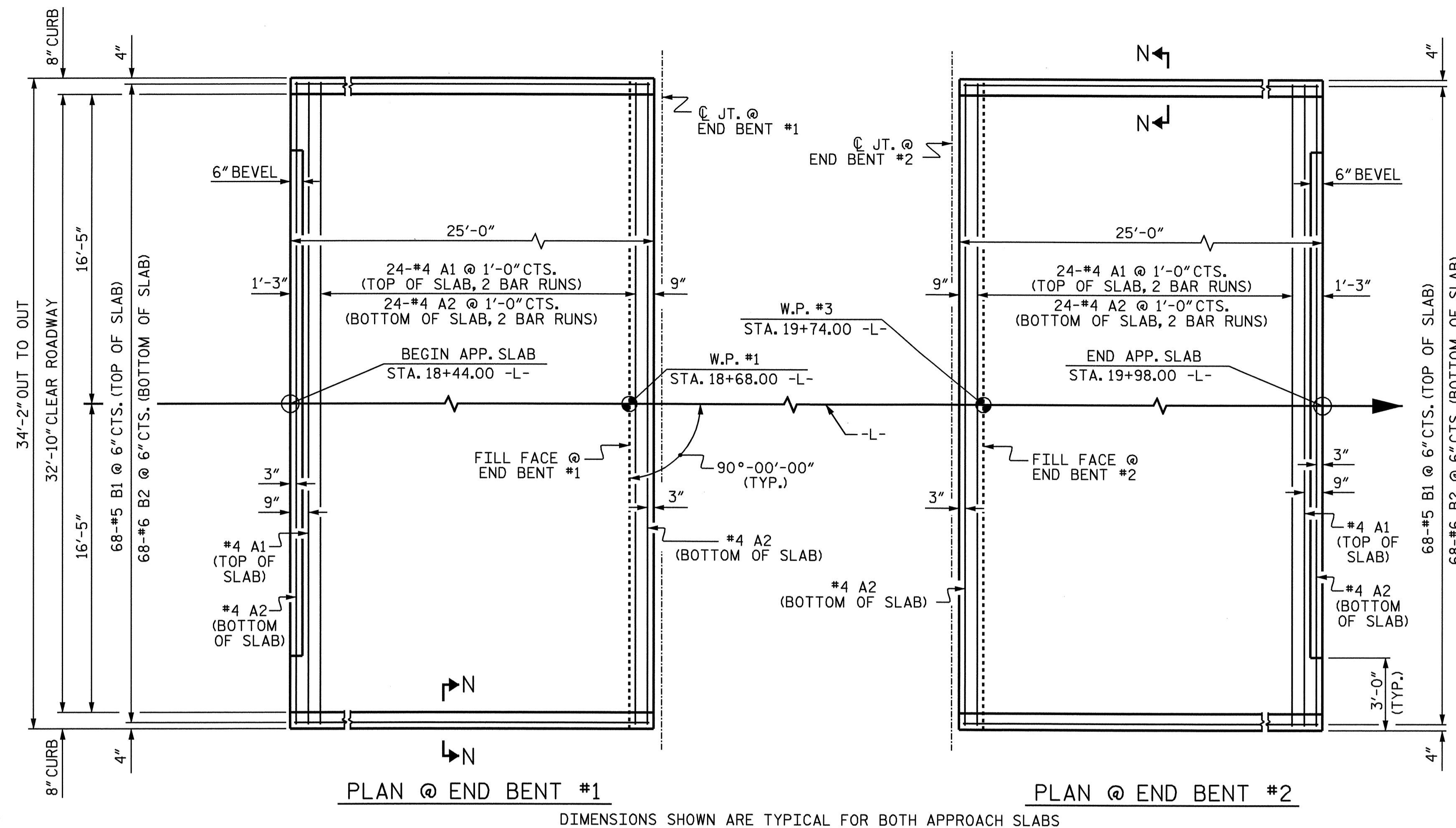
SECTION C-C

PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
— RIP RAP DETAILS —					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 37

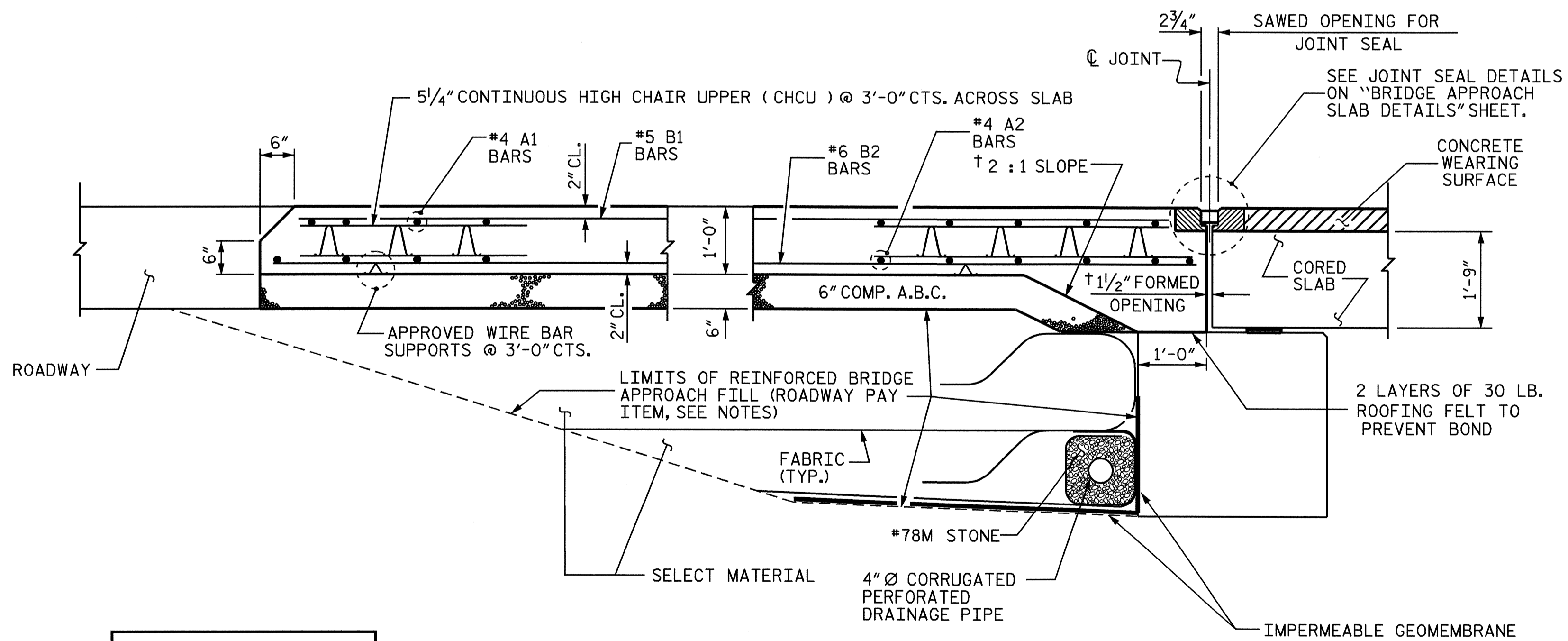
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 CHECKED BY : B.N. BARODAWALA DATE : 8/25/09



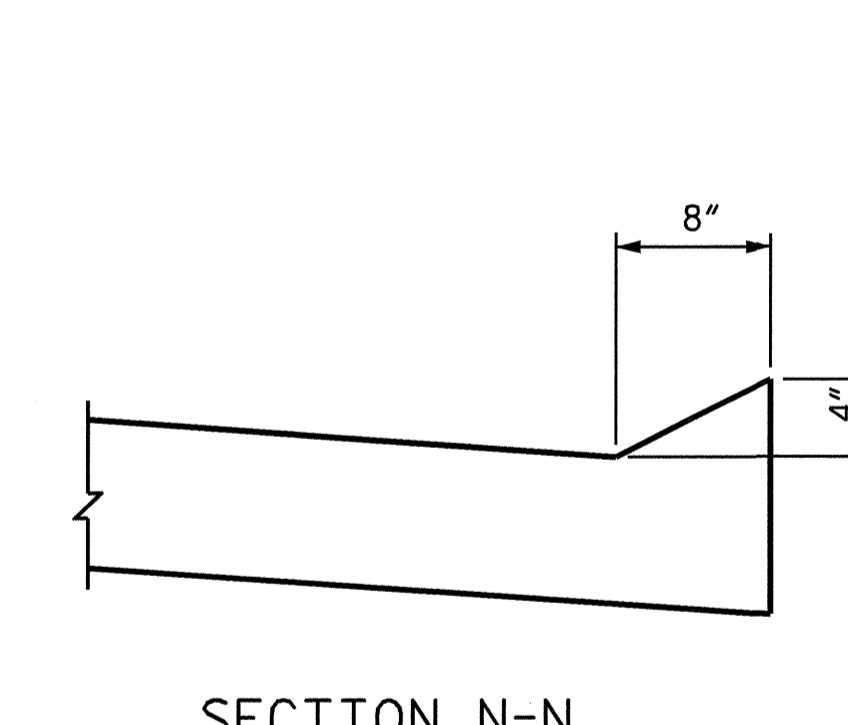
PLAN @ END BENT #1

PLAN @ END BENT #2

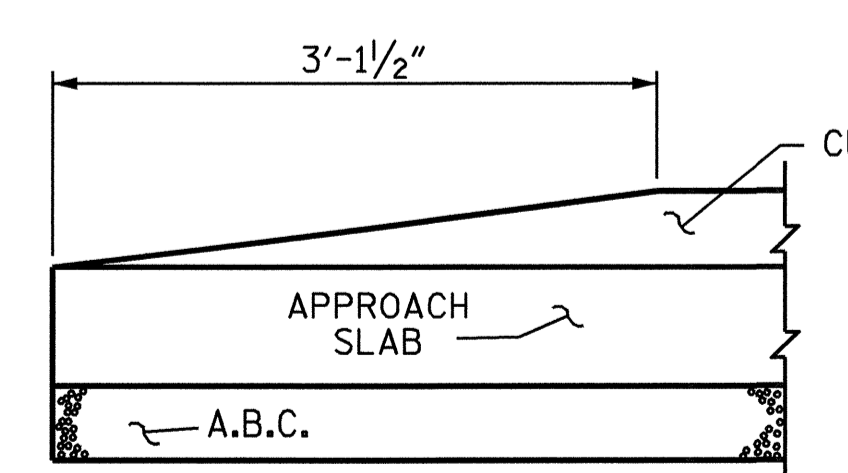
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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.

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

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

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

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3 7/16".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

THE JOINT SHALL BE SAWS AFTER THE CASTING OF THE PARAPET.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQUIRED)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	17'-11"	598
A2	52	#4	STR	17'-10"	619
*B1	68	#5	STR	23'-8"	1679
B2	68	#6	STR	24'-8"	2519
REINFORCING STEEL				LBS.	3138
*EPOXY COATED REINFORCING STEEL				LBS.	2277
CLASS AA CONCRETE				C. Y.	35.1

SPLICE CHART

*#4 A1	2'-0"
#4 A2	1'-9"

PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 19+21.00 -L-

SHEET 1 OF 2

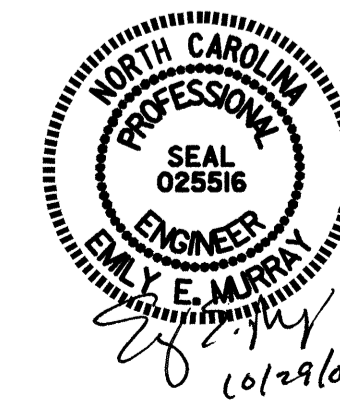
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB

REVISIONS

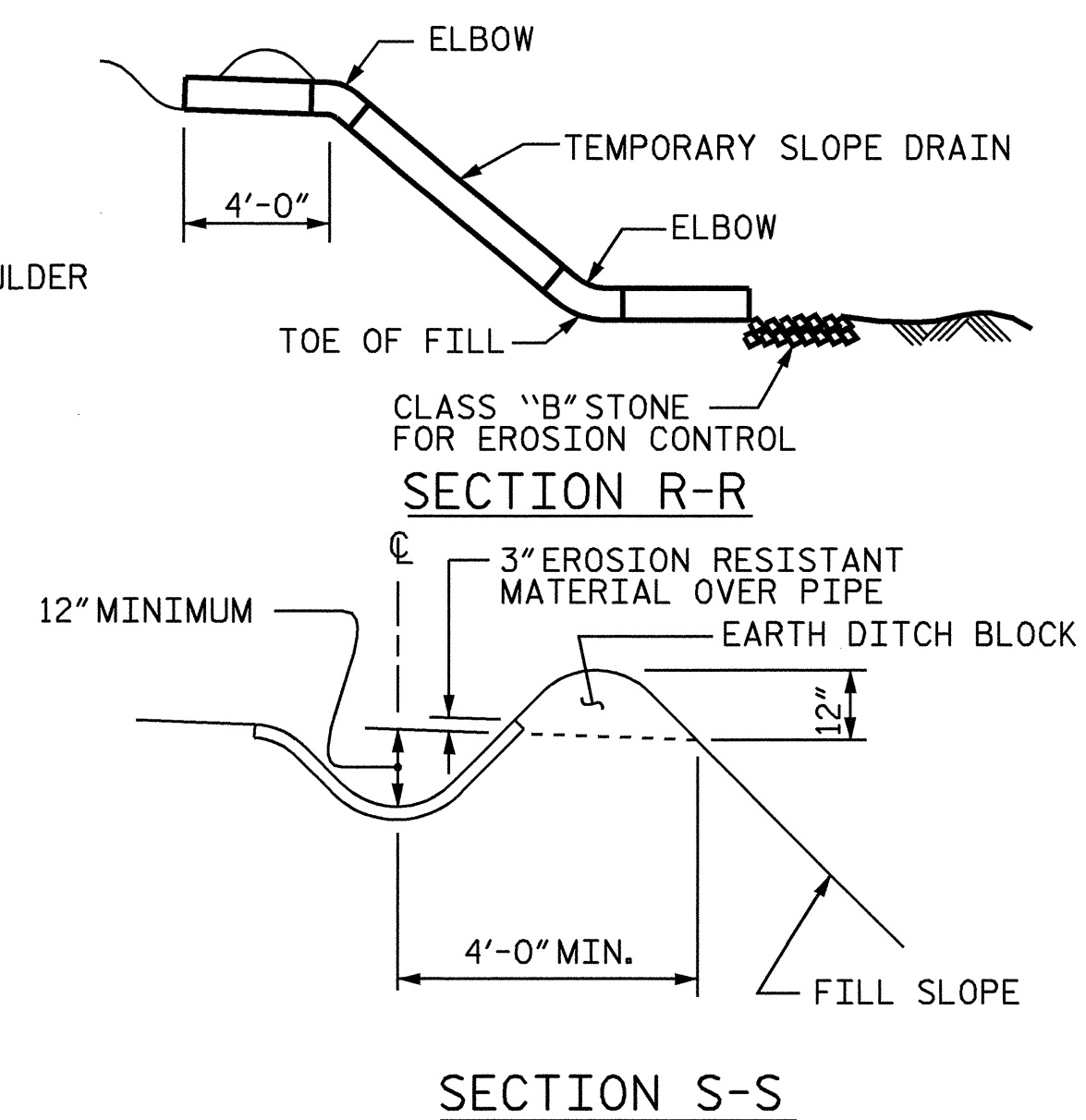
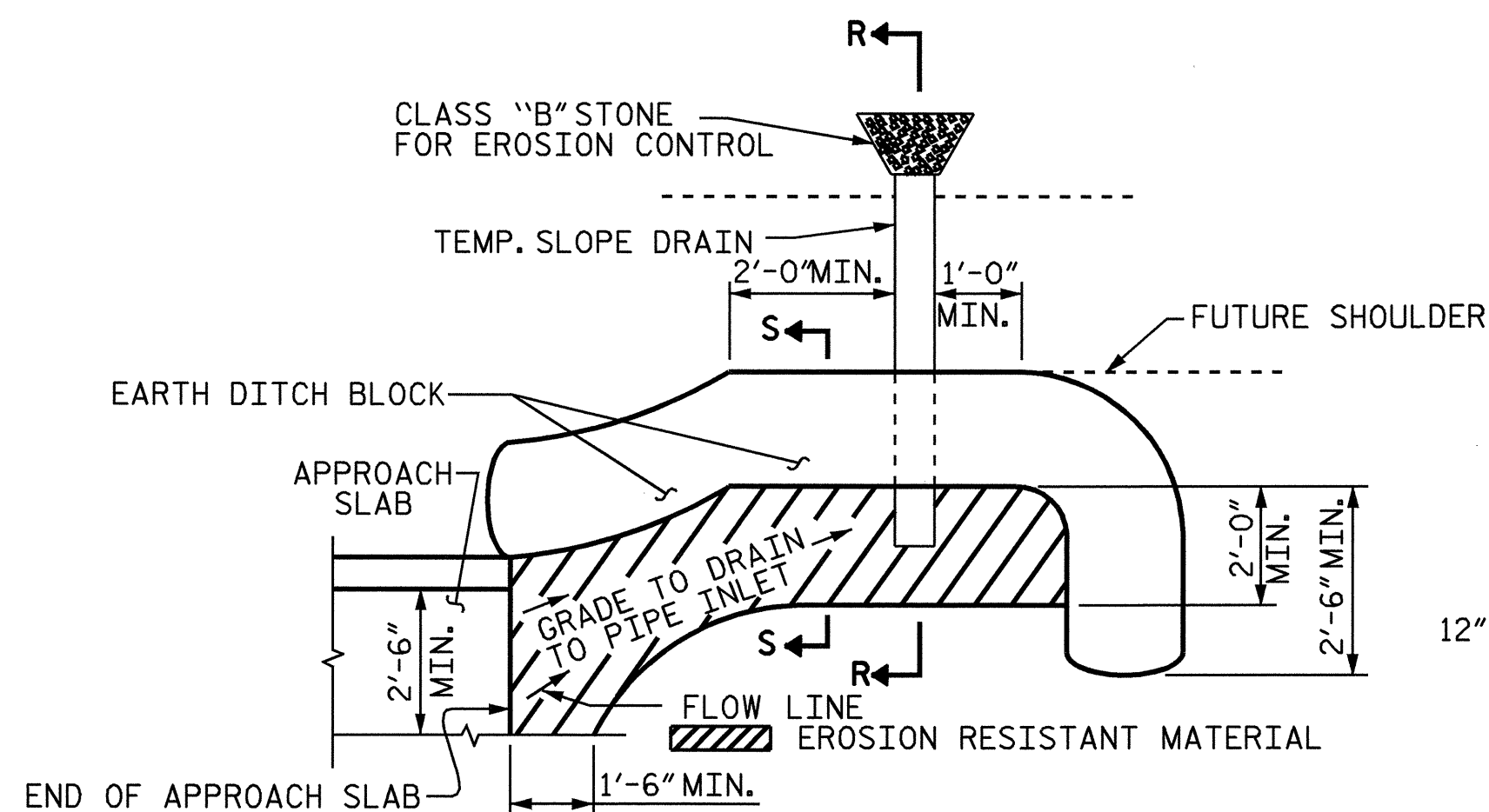
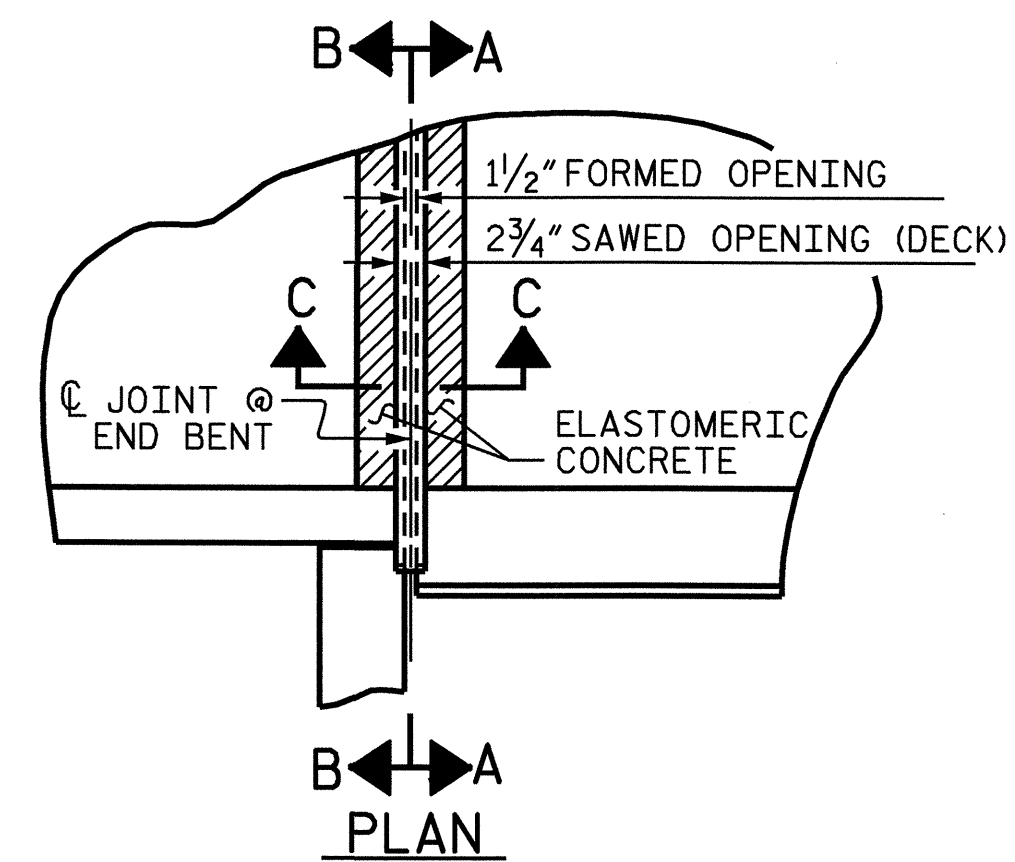
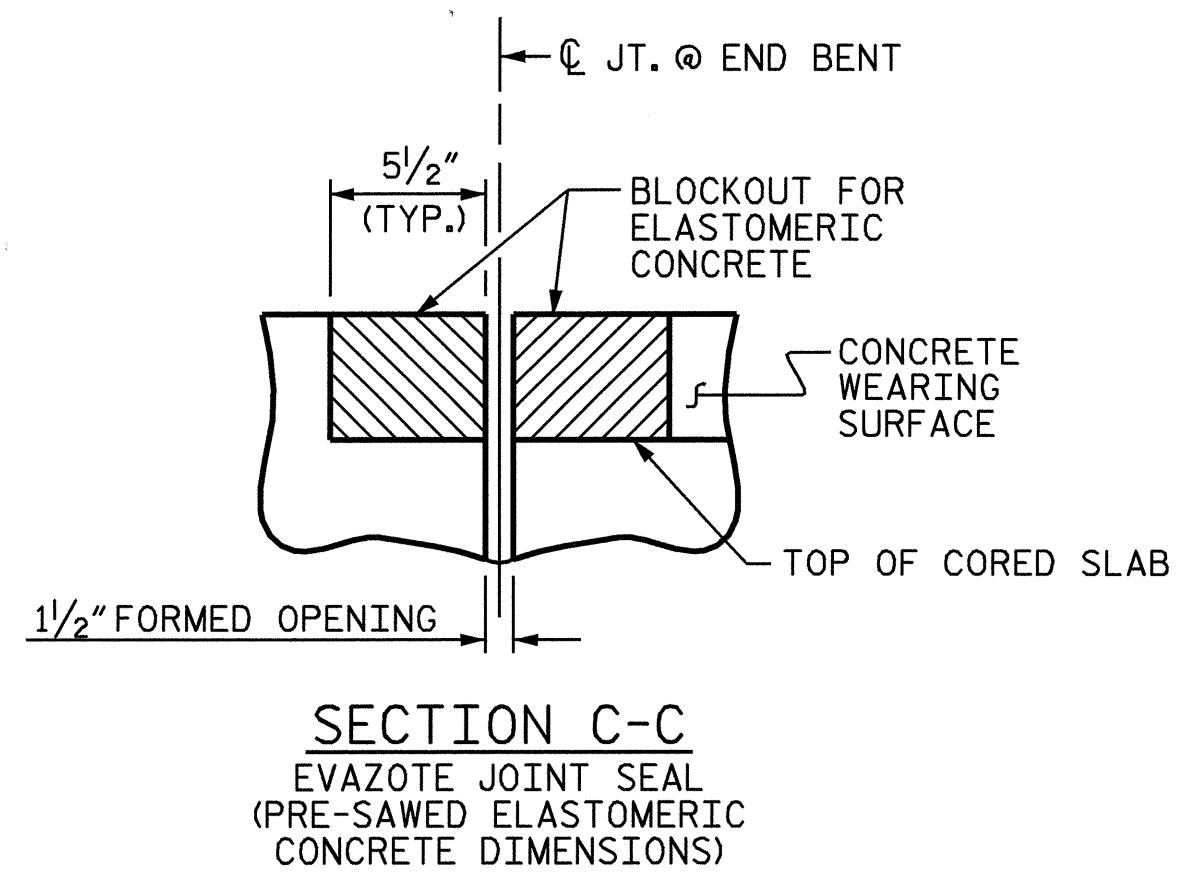
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-17

TOTAL SHEETS 37



ASSEMBLED BY: M. GUDLAUGSSON DATE: 6/10/09
CHECKED BY: J.B. WILSON DATE: 8/18/09
DRAWN BY: FCJ 6/87
CHECKED BY: EGA 6/87
REV. 7/10/01 LES/RDR
REV. 5/7/03R RWW/JTE
REV. 5/1/06R KMM/GM

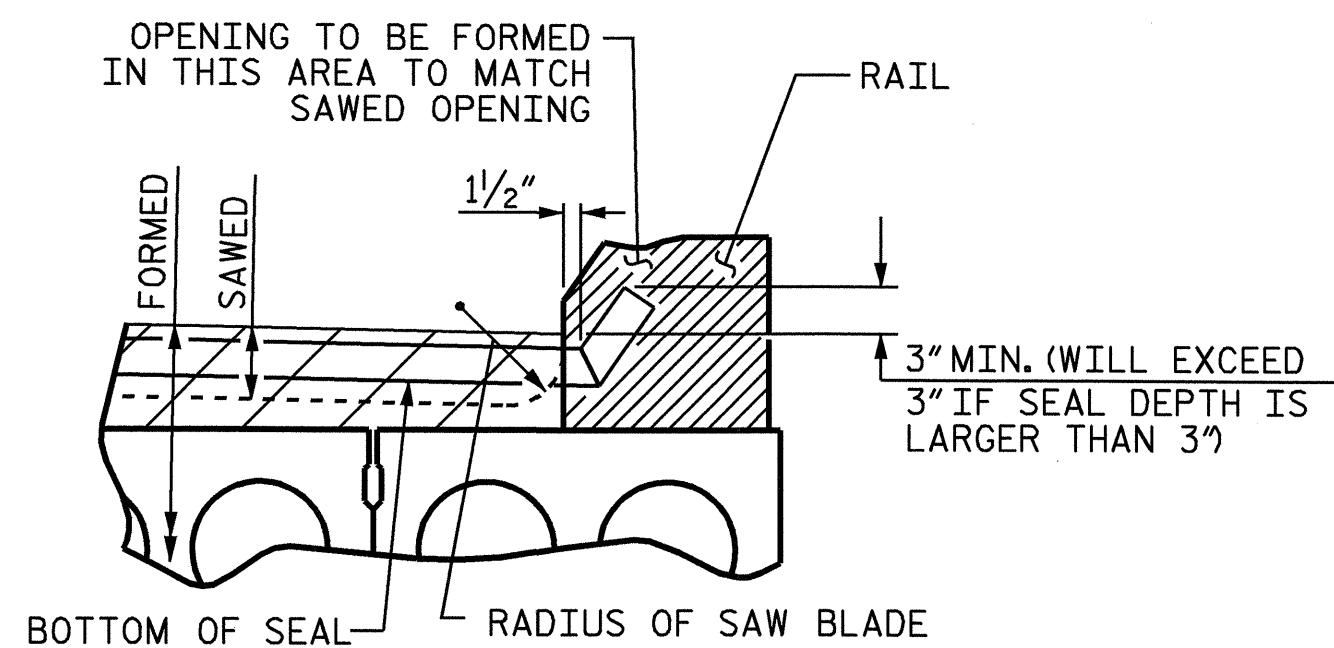
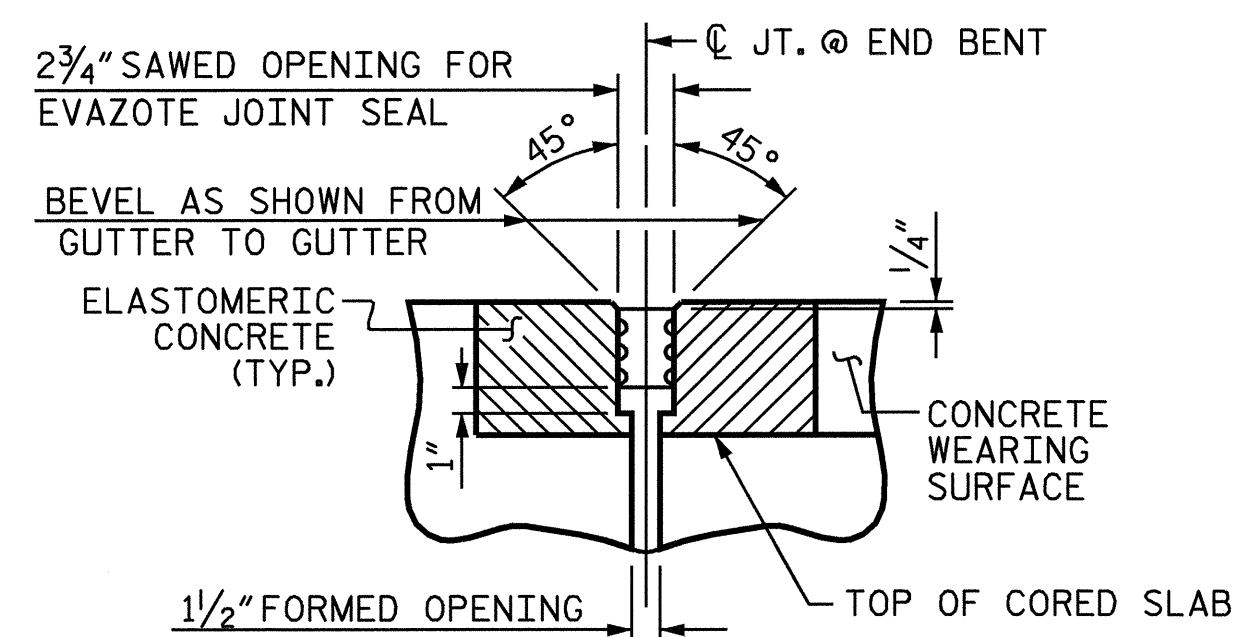


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

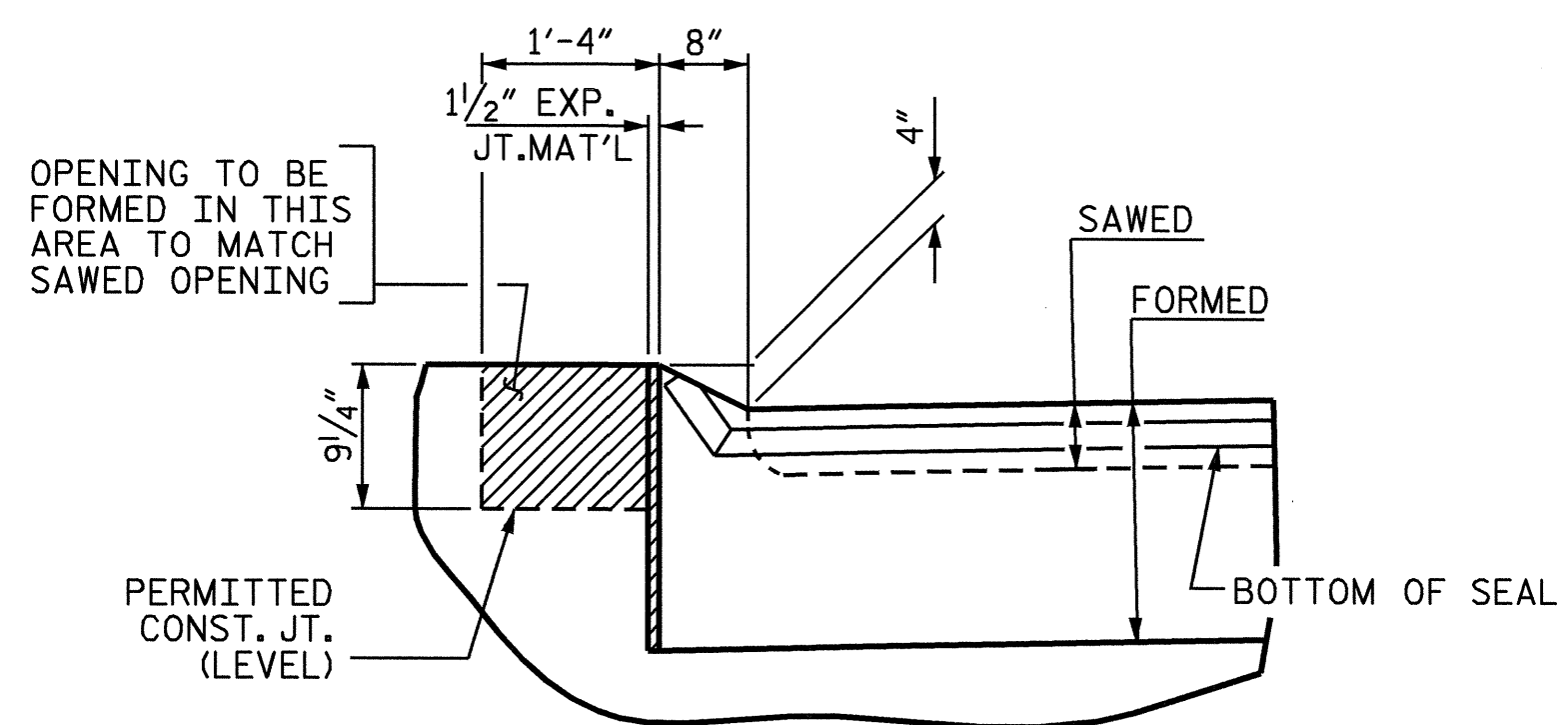
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION A-A



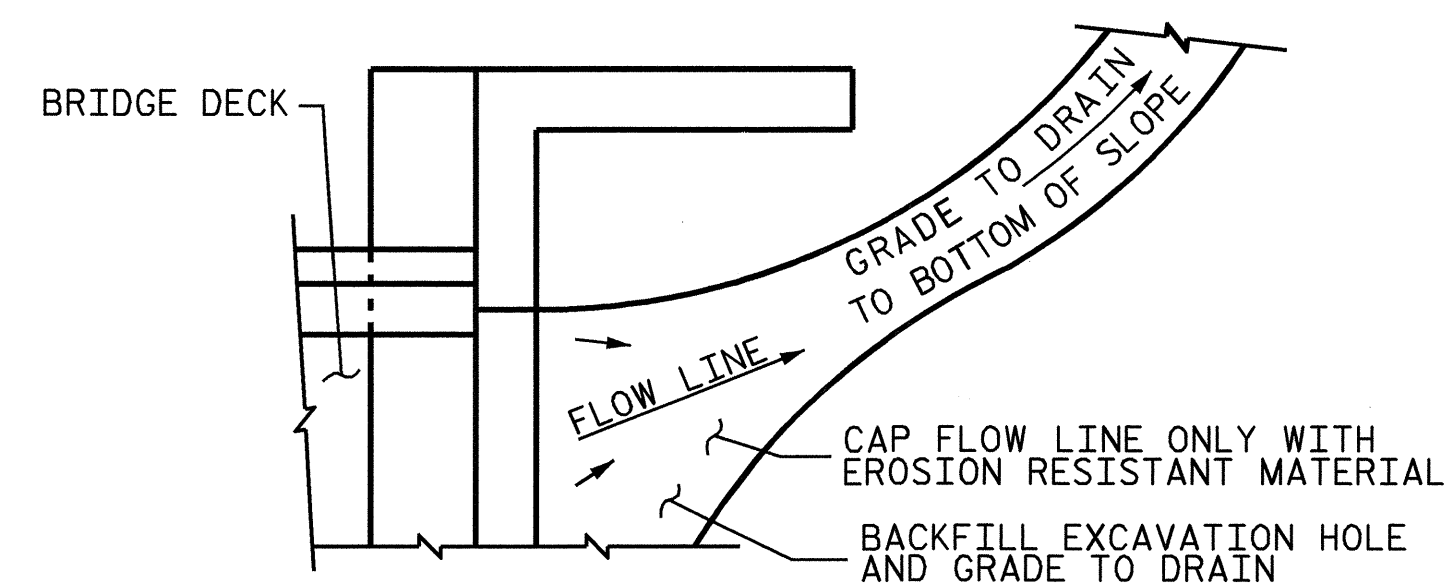
SECTION B-B

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	13.4
2	13.4
TOTAL	26.8

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.



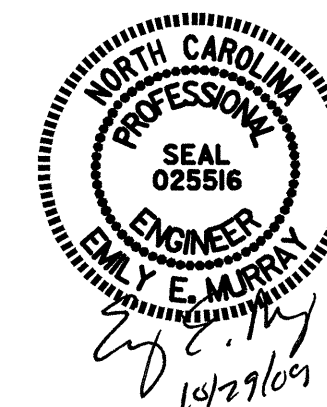
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-3654
 HARNETT/SAMPSON COUNTY
 STATION: 19+21.00 -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		
					SHEET NO. S-18
					TOTAL SHEETS 37



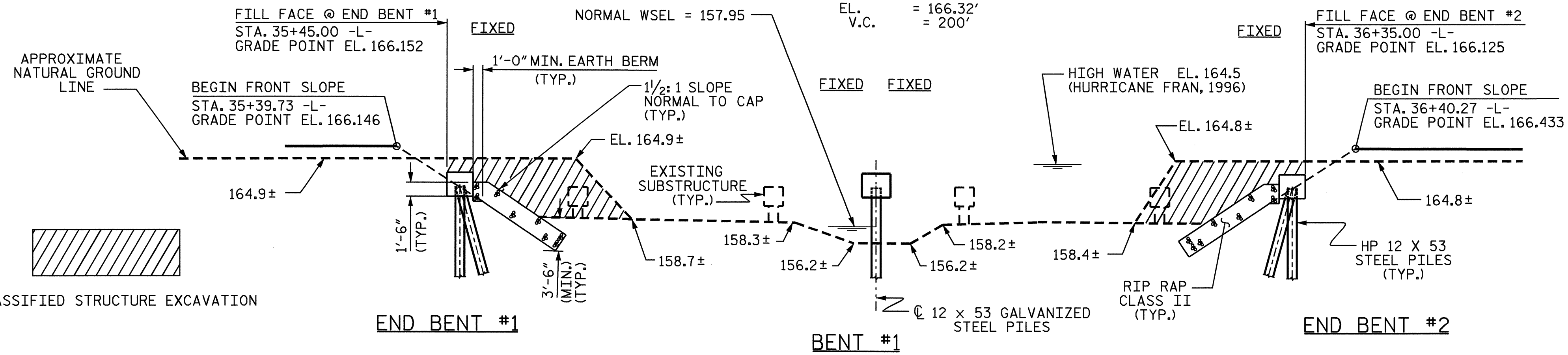
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CHECKED BY : J.B. WILSON	DATE : 08/18/09
DRAWN BY : FCJ	11/88
CHECKED BY : ARB	11/88
REV. 10/17/00	RWW/LES
REV. 5/7/03	RWW/JTE
REV. 5/1/06	TLA/GM

35+25 35+50 35+75 36+00 36+25 36+50 36+75

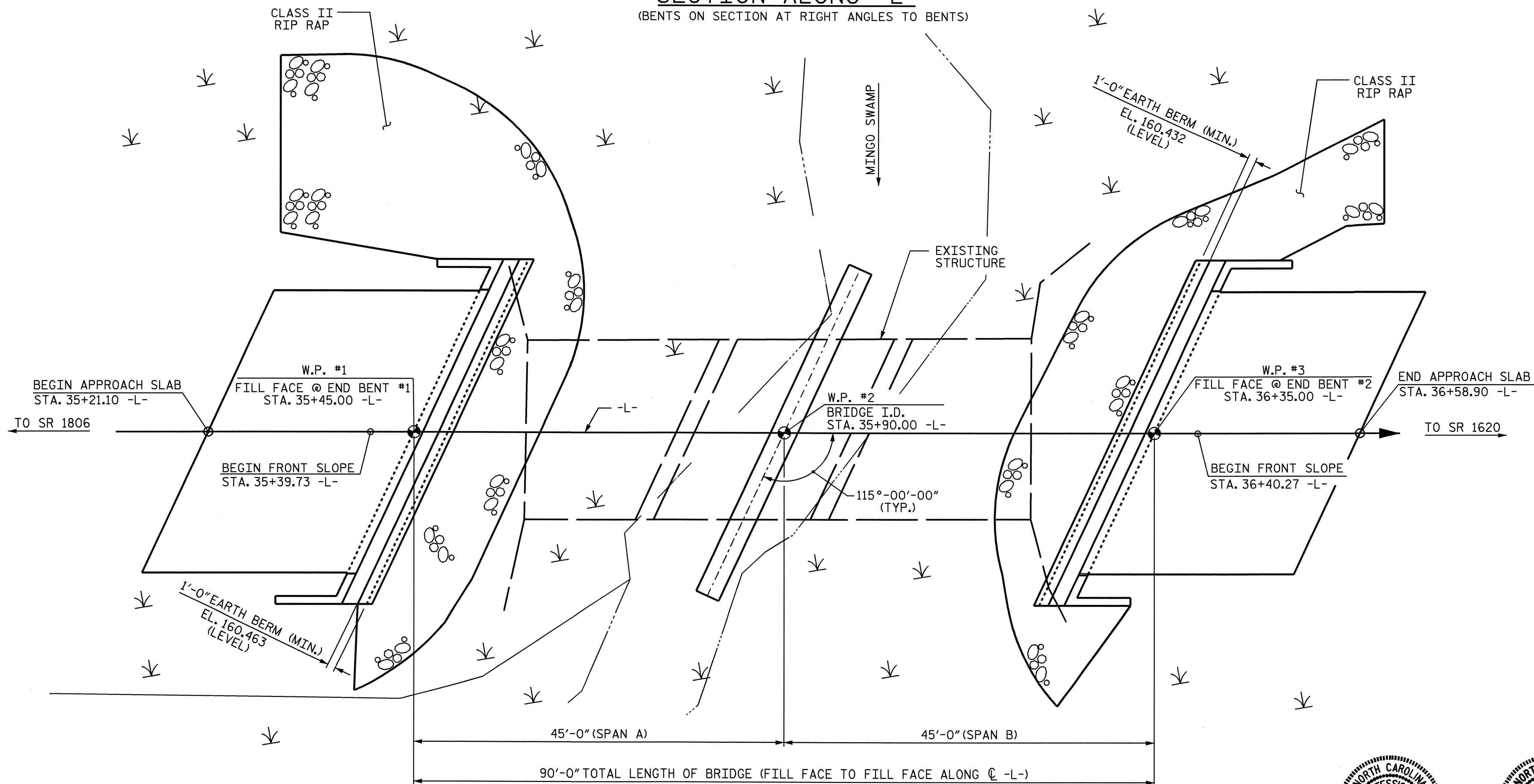
(+).3000% (-).3000%

GRADE DATA

P.I. STA. = 35+80.00 -L-
EL. = 166.32'
V.C. = 200'



SECTION ALONG -L-
(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)



PLAN

(PILES NOT SHOWN FOR CLARITY)



PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 35+90.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 53

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
MINGO SWAMP ON
NC 55 BETWEEN
SR 1806 AND SR 1620

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			37

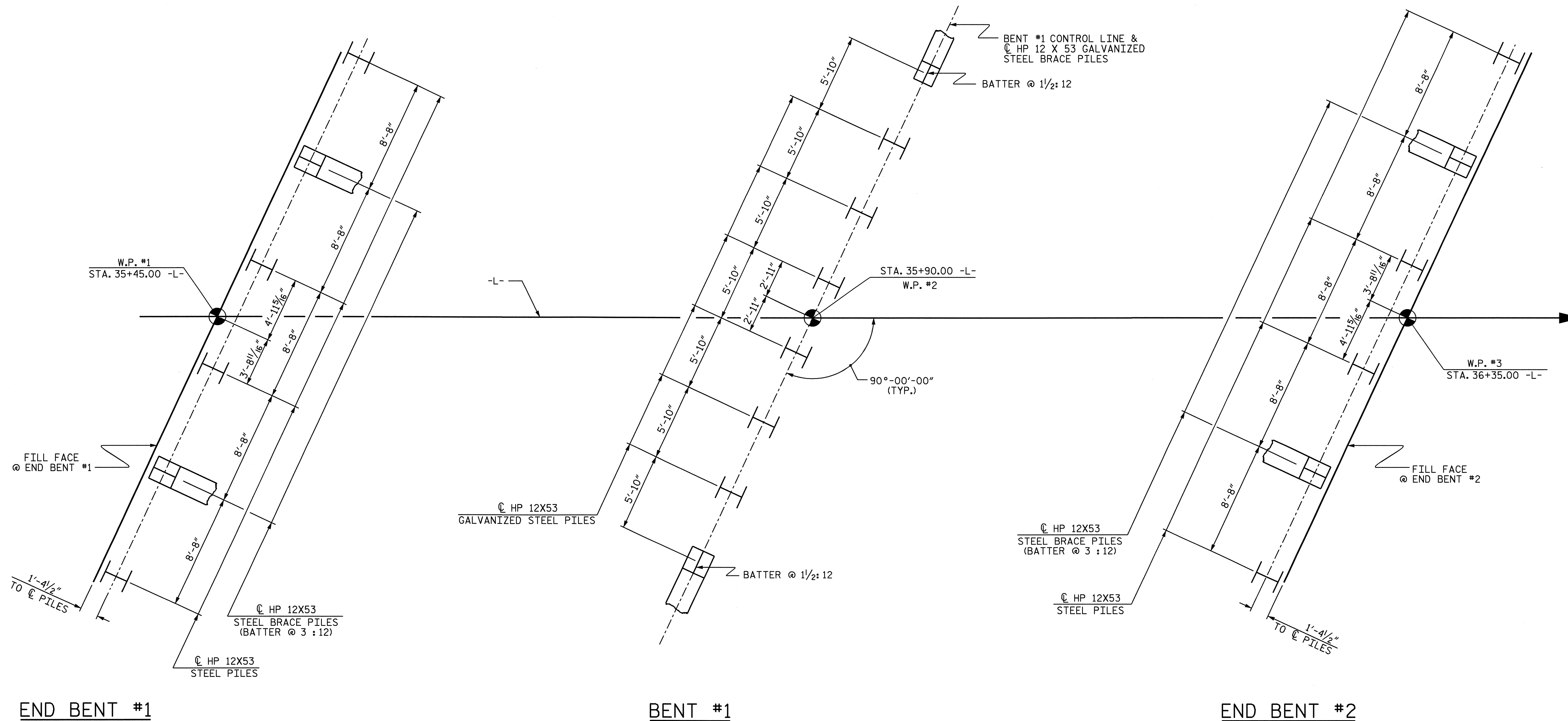


Omar R. Aziz
10-27-09
Emily E. Mearns
10/30/09

DRAWN BY: M. GUDLAUGSSON DATE: 8/03/09
CHECKED BY: I.L. AVERETTE DATE: 9/02/09

27-OCT-2009 16:01
Z:\TIP\Projects-B\B3654\Structures\FINAL PLANS\STR#2\B-3654.ed.gd.02.dgn
emurray

STR. #2



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE TO THE CENTERLINE OF PILES.
FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 80 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE.

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 133 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 146 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

GALVANIZE THE TOP 25 FEET OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

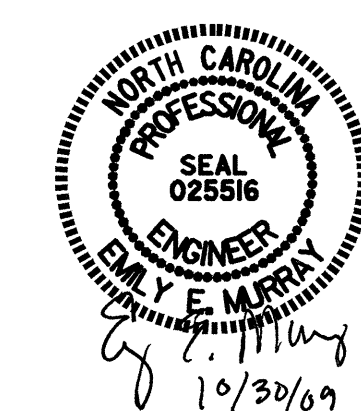
PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 35+90.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
MINGO SWAMP ON
NC 55 BETWEEN
SR 1806 AND SR 1620



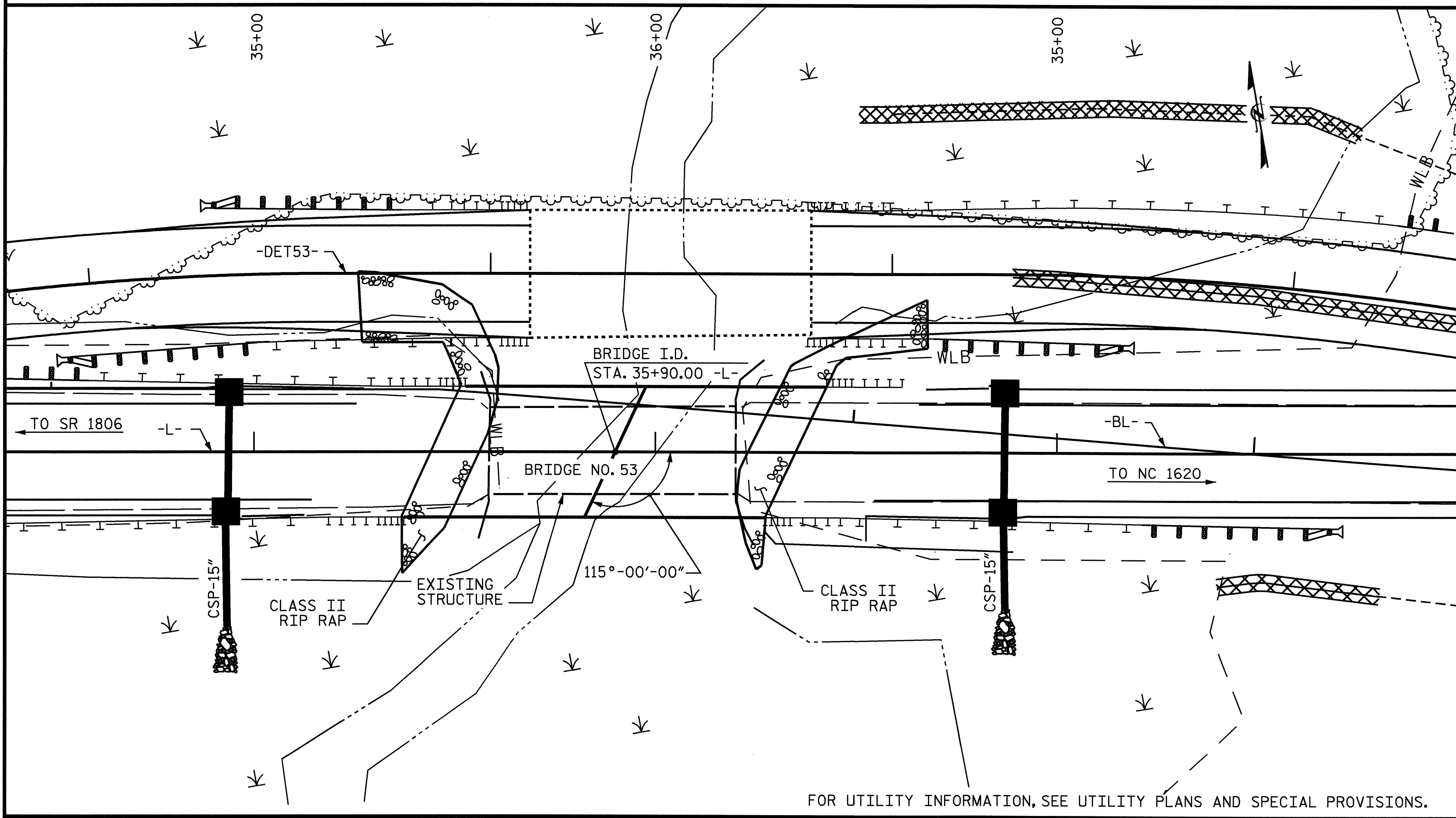
DRAWN BY: M. GUDLAUGSSON DATE: 8/03/09
CHECKED BY: T.L. AVERETTE DATE: 9/02/09

29-OCT-2009 14:10
x:\structures\final plans\str#2\b-3654.sd.gd.02.dgn
mgudlaugsson

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			37

STR. #2

BM #81: P.K. NAIL IN CORNER OF CONCRETE SLAB 55.95' LT. OF -L- STA. 28+40.06 ELEV. 161.61



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (1 @ 20'-6", 1 @ 20'-0", 1 @ 20'-6") WITH A CLEAR ROADWAY WIDTH OF 22'-0" AND A CONCRETE DECK ON STEEL I-BEAMS SUPPORTED BY A TIMBER CAP AND PILES AT THE END BENTS AND BENTS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
 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 CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 35+90.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 33 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
 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 LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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."
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, 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.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.
 FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

BILL OF MATERIAL TOTAL

	CONSTRUCTION MAINT. & REMOVAL OF TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS			
									NO.	LIN.FT.							NO.	LIN.FT.	NO.	LIN.FT.
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FEET	SQ. FEET	CU. YDS.	LUMP SUM	LBS.			EACH	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	LUMP SUM	NO.	LIN.FT.		
SUPERSTRUCTURE				2873	4021		LUMP SUM					174.75			LUMP SUM	LUMP SUM	24	1048.5		
END BENT NO. 1						16.9		2484	6	330	6		116	129						
BENT NO. 1						14.4		2381			8	560	8							
END BENT NO. 2						16.9		2484	6	330	6		124	138						
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	2873	4021	48.2	LUMP SUM	7349	12	660	8	560	20	174.75	240	267	LUMP SUM	LUMP SUM	24	1048.5

HYDRAULIC DATA	
DESIGN DISCHARGE	= 2,010 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 161.3'
DRAINAGE AREA	= 27.5 Sq. MILES
BASIC DISCHARGE (Q100)	= 3,056 CFS
BASIC HIGH WATER ELEVATION	= 162.3'

OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 7,500 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YR.
OVERTOPPING FLOOD ELEVATION	= 164.5'

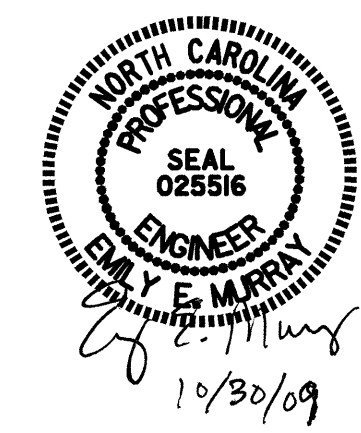
PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 MINGO SWAMP ON
 NC 55 BETWEEN
 SR 1806 AND SR 1620

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			37



DRAWN BY: M. GUDLAUGSSON DATE: 8/03/09
 CHECKED BY: I.L. AVERETTE DATE: 9/02/09

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.10	--	1.75	0.276	1.50	A	ER	21.293	0.533	1.10	A	ER	2.129	0.80	0.276	1.45	A	ER	21.293		
	HL-93 (OPERATING)	N/A		1.43	--	1.35	0.276	1.95	A	ER	21.293	0.533	1.43	A	ER	2.129	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.26	45.360	1.75	0.276	1.79	A	ER	21.293	0.533	1.26	A	ER	2.129	0.80	0.276	1.43	A	ER	21.293		
	HS-20 (OPERATING)	36.000		1.68	60.480	1.35	0.276	2.39	A	ER	21.293	0.533	1.68	A	ER	2.129	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.74	36.990	1.40	0.276	4.10	A	ER	21.293	0.533	3.28	A	ER	2.129	0.80	0.276	2.74	A	ER	21.293	
		SNGARBS2	20.000		2.23	44.600	1.40	0.276	3.33	A	ER	17.035	0.533	2.42	A	ER	2.129	0.80	0.276	2.23	A	ER	21.293	
		SNAGRIS2	22.000		2.19	48.180	1.40	0.276	3.23	A	ER	17.035	0.533	2.28	A	ER	2.129	0.80	0.276	2.19	A	ER	21.293	
		SNCOTTS3	27.250		1.36	37.060	1.40	0.276	2.05	A	ER	21.293	0.533	1.64	A	ER	2.129	0.80	0.276	1.36	A	ER	21.293	
		SNAGGRS4	34.925		1.21	42.259	1.40	0.276	1.82	A	ER	21.293	0.533	1.43	A	ER	2.129	0.80	0.276	1.21	A	ER	21.293	
		SNS5A	35.550		1.18	41.949	1.40	0.276	1.77	A	ER	21.293	0.533	1.48	A	ER	2.129	0.80	0.276	1.18	A	ER	21.293	
		SNS6A	39.950		1.11	44.345	1.40	0.276	1.67	A	ER	21.293	0.533	1.37	A	ER	2.129	0.80	0.276	1.11	A	ER	21.293	
	SNS7B	42.000		1.06	44.520	1.40	0.276	1.59	A	ER	21.293	0.533	1.39	A	ER	2.129	0.80	0.276	1.06	A	ER	21.293		
	TRUCK TRACTOR SEMI-TRAILER (TTS)	TNAGRIT3	33.000		1.38	45.540	1.40	0.276	2.05	A	ER	21.293	0.533	1.61	A	ER	2.129	0.80	0.276	1.38	A	ER	21.293	
		TNT4A	33.075		1.39	45.974	1.40	0.276	2.07	A	ER	21.293	0.533	1.54	A	ER	2.129	0.80	0.276	1.39	A	ER	21.293	
		TNT6A	41.600		1.16	48.256	1.40	0.276	1.74	A	ER	21.293	0.533	1.50	A	ER	2.129	0.80	0.276	1.16	A	ER	21.293	
		TNT7A	42.000		1.19	49.980	1.40	0.276	1.78	A	ER	21.293	0.533	1.39	A	ER	2.129	0.80	0.276	1.19	A	ER	21.293	
		TNT7B	42.000		1.24	52.080	1.40	0.276	1.85	A	ER	21.293	0.533	1.33	A	ER	2.129	0.80	0.276	1.24	A	ER	21.293	
		TNAGRIT4	43.000		1.18	50.740	1.40	0.276	1.77	A	ER	21.293	0.533	1.28	A	ER	2.129	0.80	0.276	1.18	A	ER	21.293	
TNAGT5A		45.000		1.10	49.500	1.40	0.276	1.64	A	ER	21.293	0.533	1.31	A	ER	2.129	0.80	0.276	1.10	A	ER	21.293		
TNAGT5B	45.000		③	1.08	48.600	1.40	0.276	1.60	A	ER	21.293	0.533	1.21	A	ER	2.129	0.80	0.276	1.08	A	ER	21.293		

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2009	348
FUTURE	2030	566

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1. SPAN B IDENTICAL TO SPAN A.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

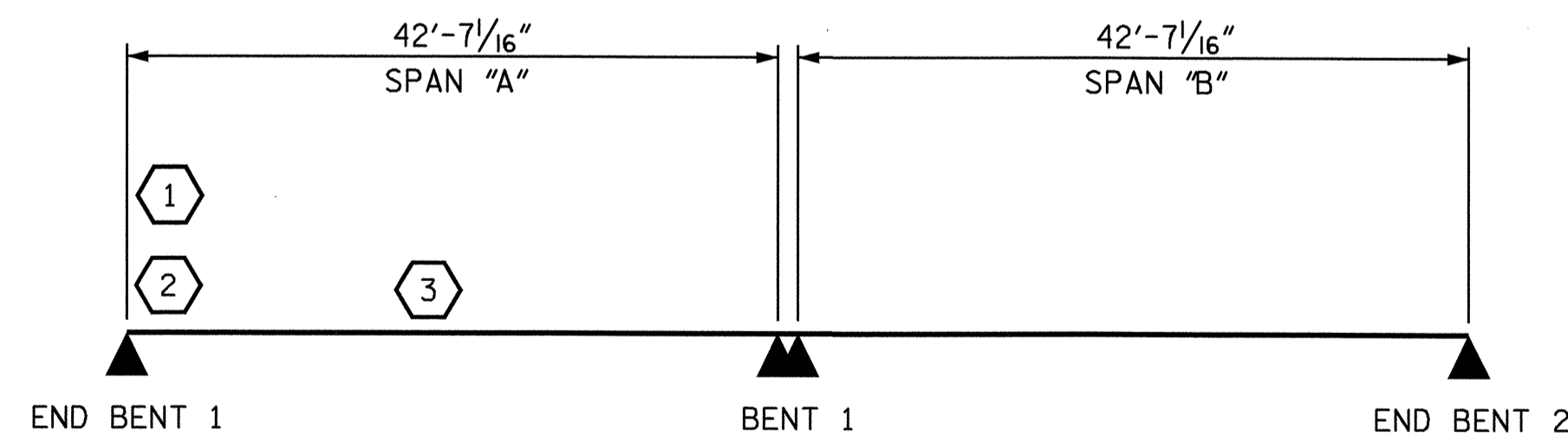
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 35+90.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

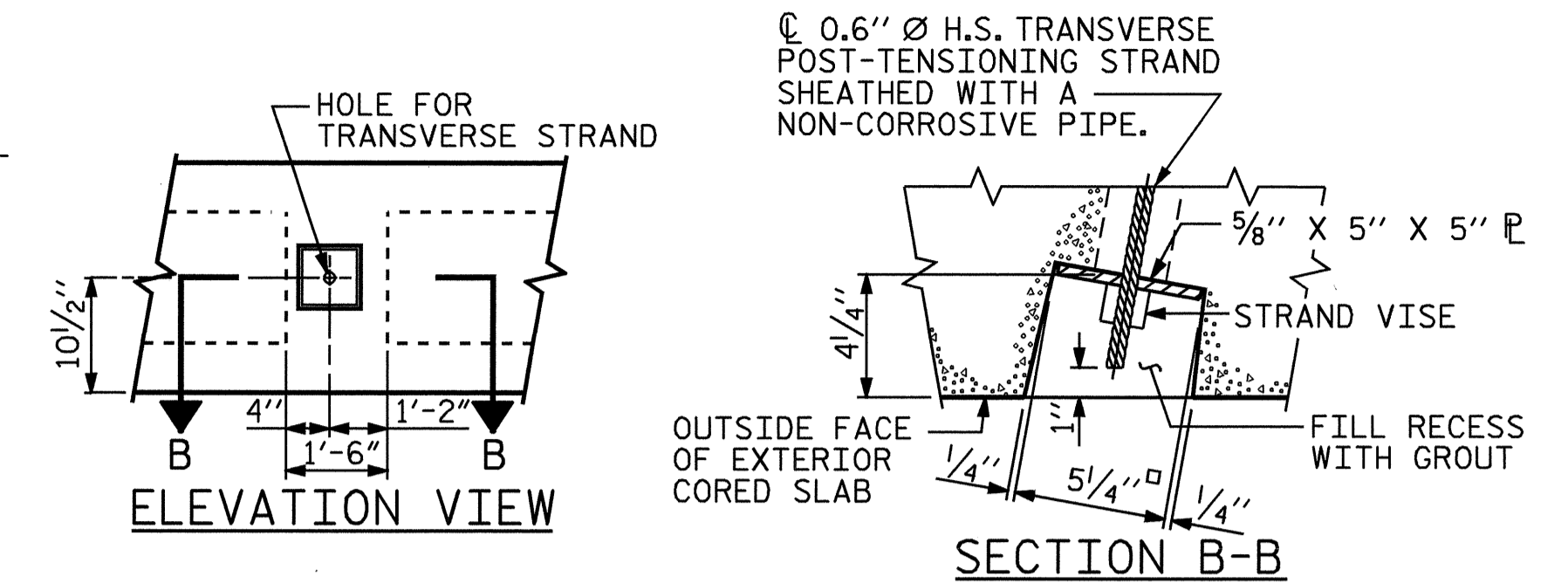
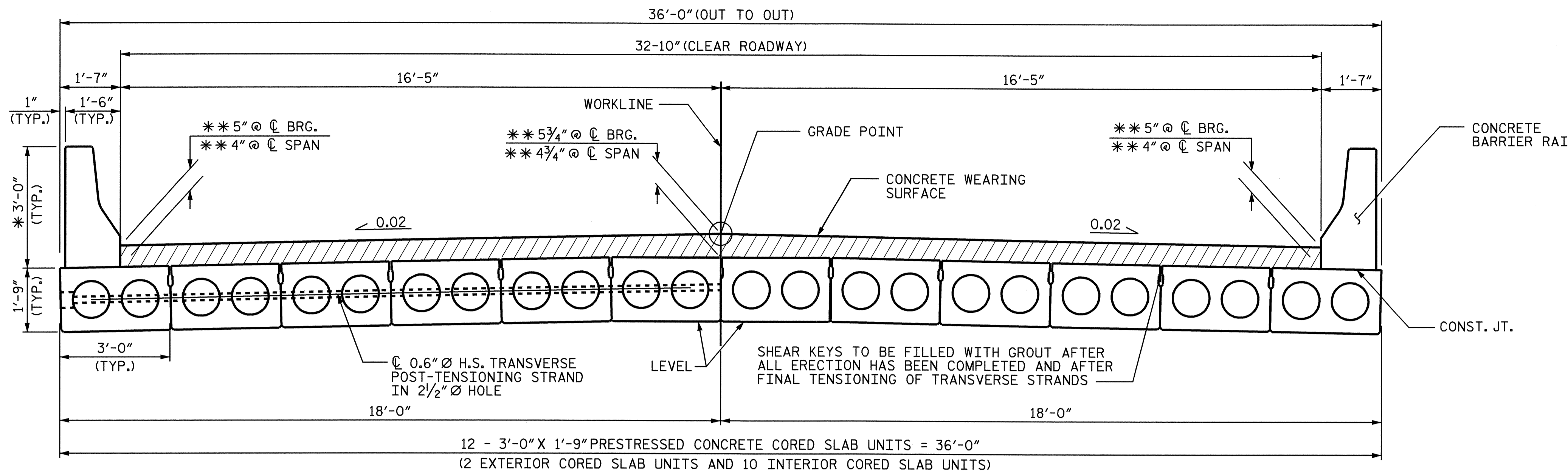
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CHECKED BY: T.L. AVERETTE DATE 08/31/09
DRAWN BY: MAA 1/08
CHECKED BY: GM/DI 2/08

REV. 11/12/08RR MAA/GM
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mgudlaugsson

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22	
1			3			TOTAL SHEETS	37
2			4				

STR. #2

STD. NO. LRFR1



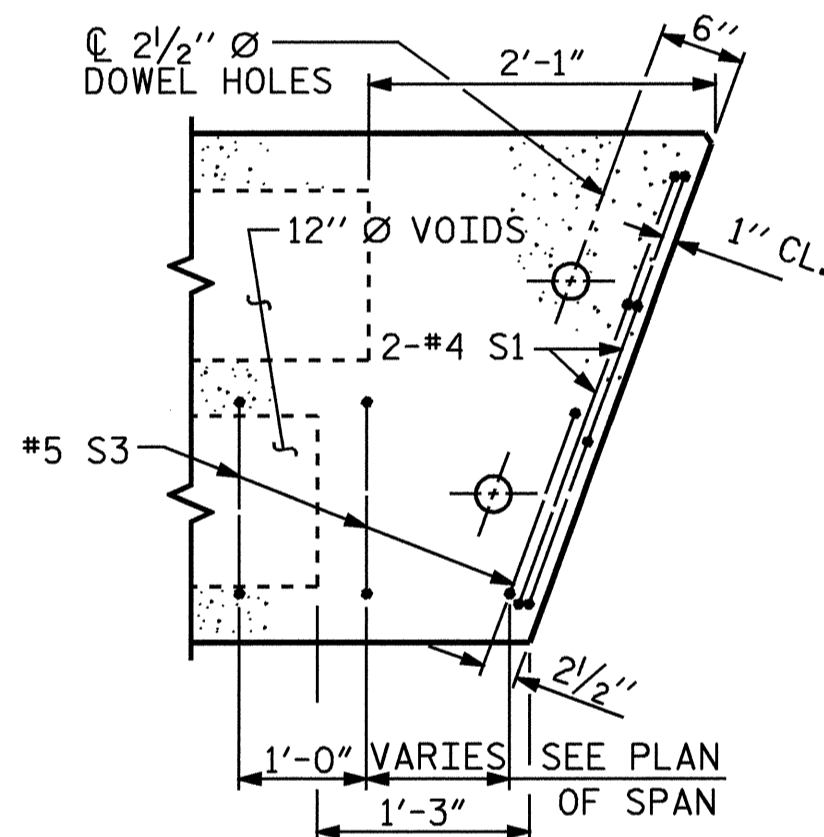
GRouted RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

HALF SECTION @ INTERMEDIATE DIAPHRAGM

HALF SECTION @ END BENT & BENT

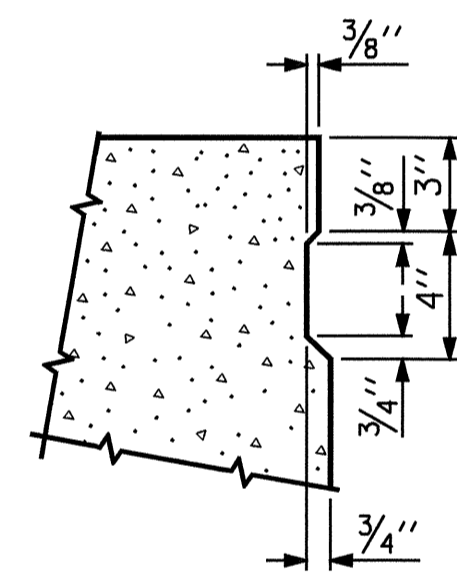
TYPICAL SECTION

** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.
* THE MINIMUM HEIGHT OF THE BARRIER IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF GUTTERLINE.



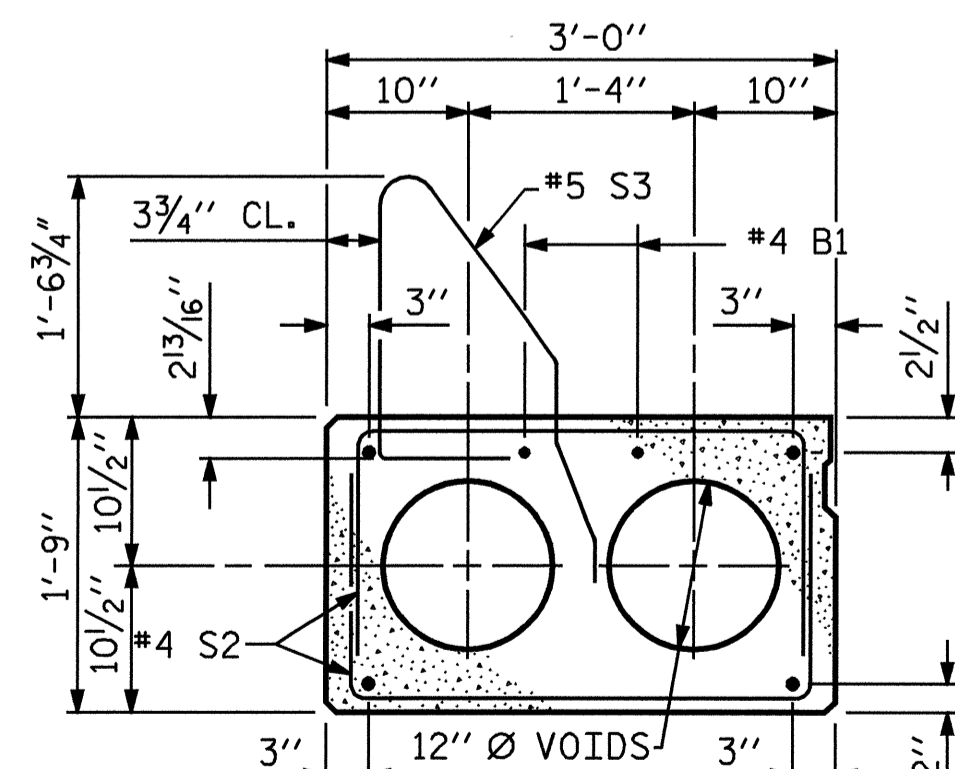
PART PLAN-EXTERIOR SECTION

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



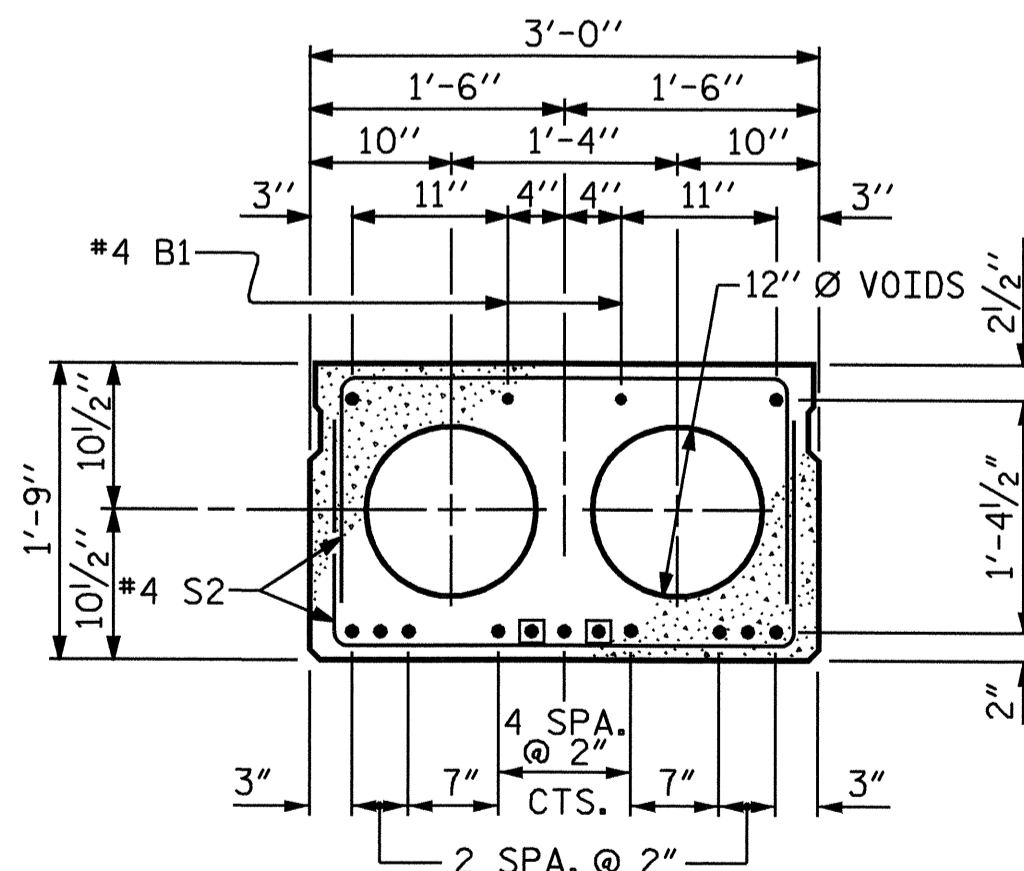
SHEAR KEY DETAIL

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



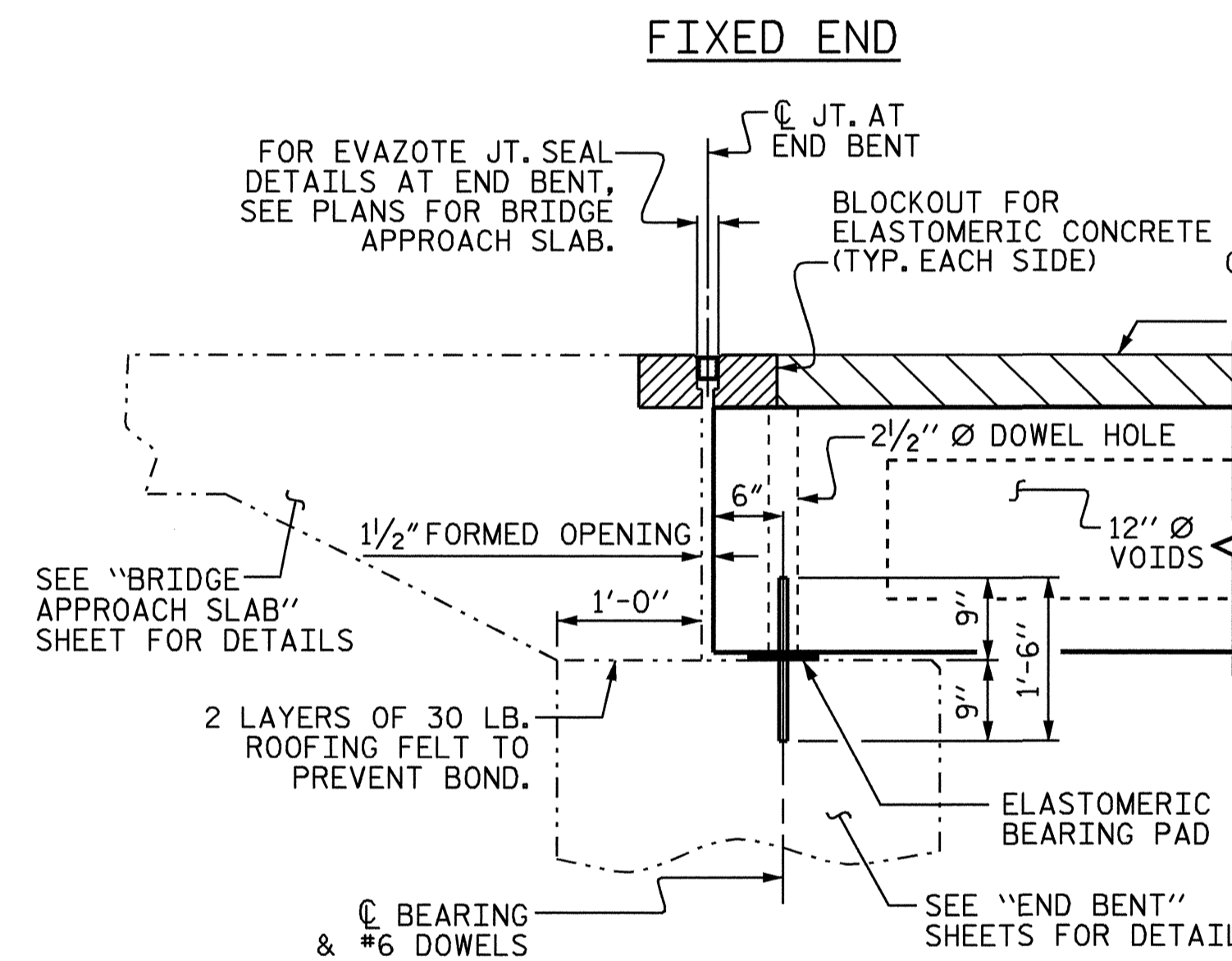
EXTERIOR SLAB SECTION

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

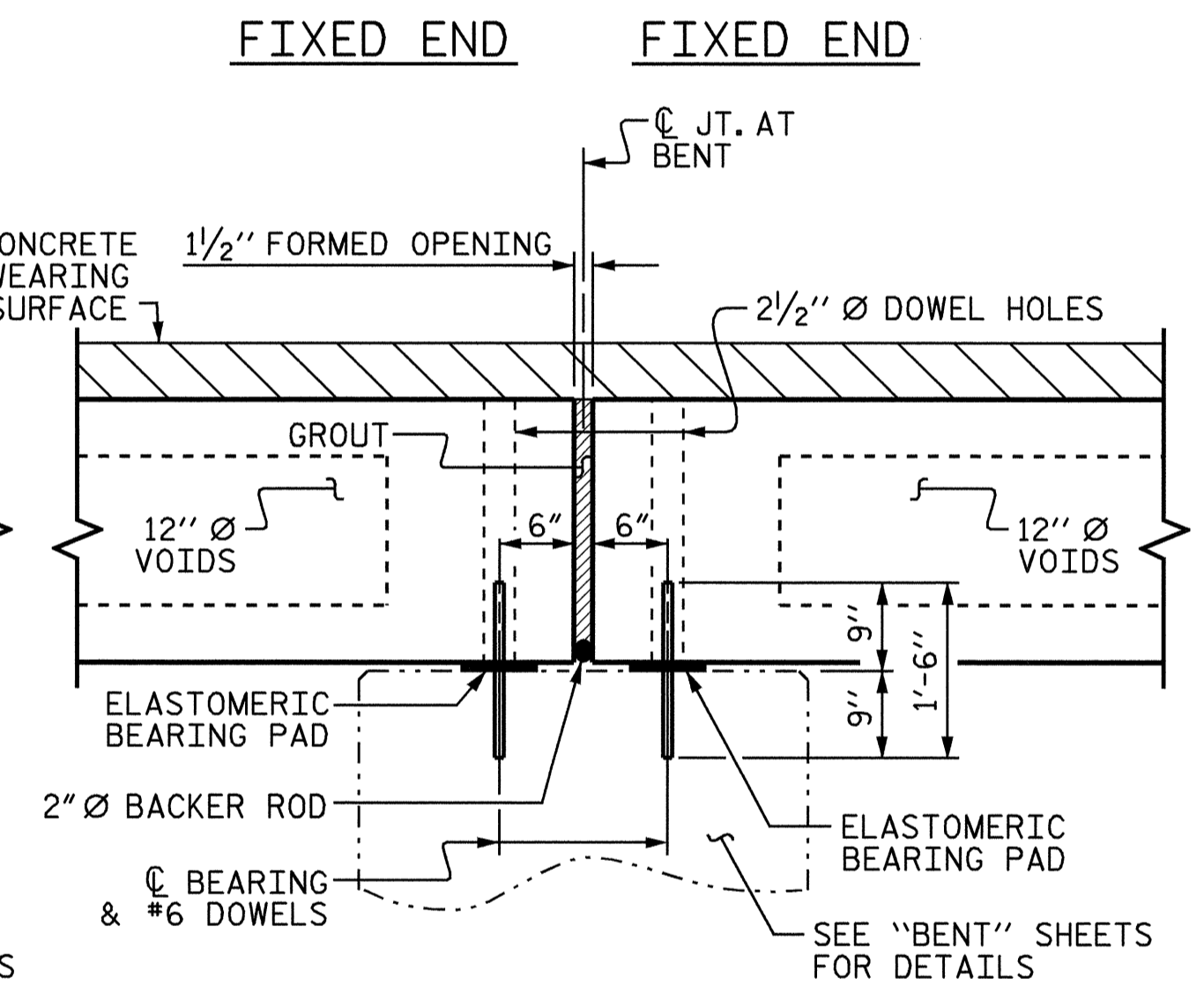


**INTERIOR SLAB SECTION
0.6" Ø LOW RELAXATION STRAND LAYOUT**

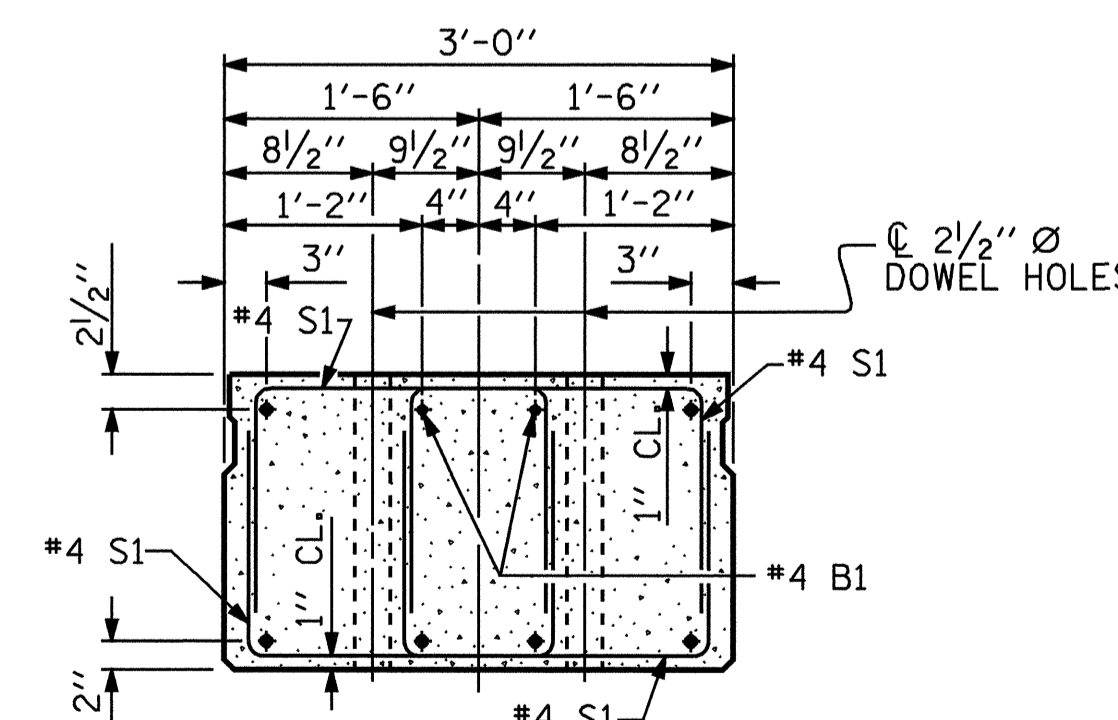
□ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7



SECTION AT END BENT



SECTION AT BENT



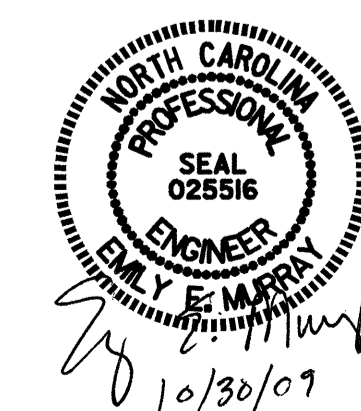
END ELEVATION

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-3654
HARNETT/SAMPSON COUNTY
STATION: 35+90.00 -L-

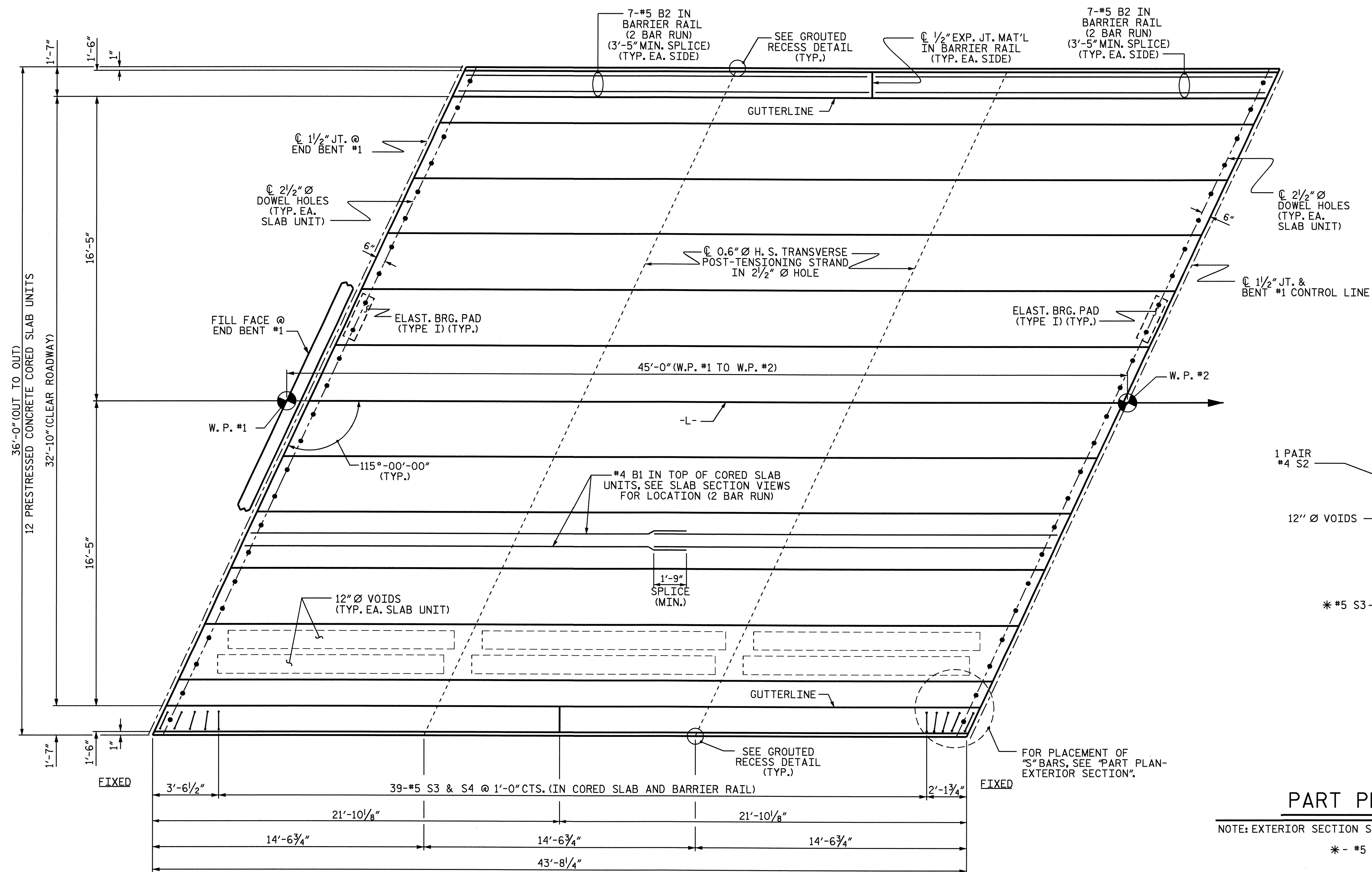
SHEET 1 OF 5

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

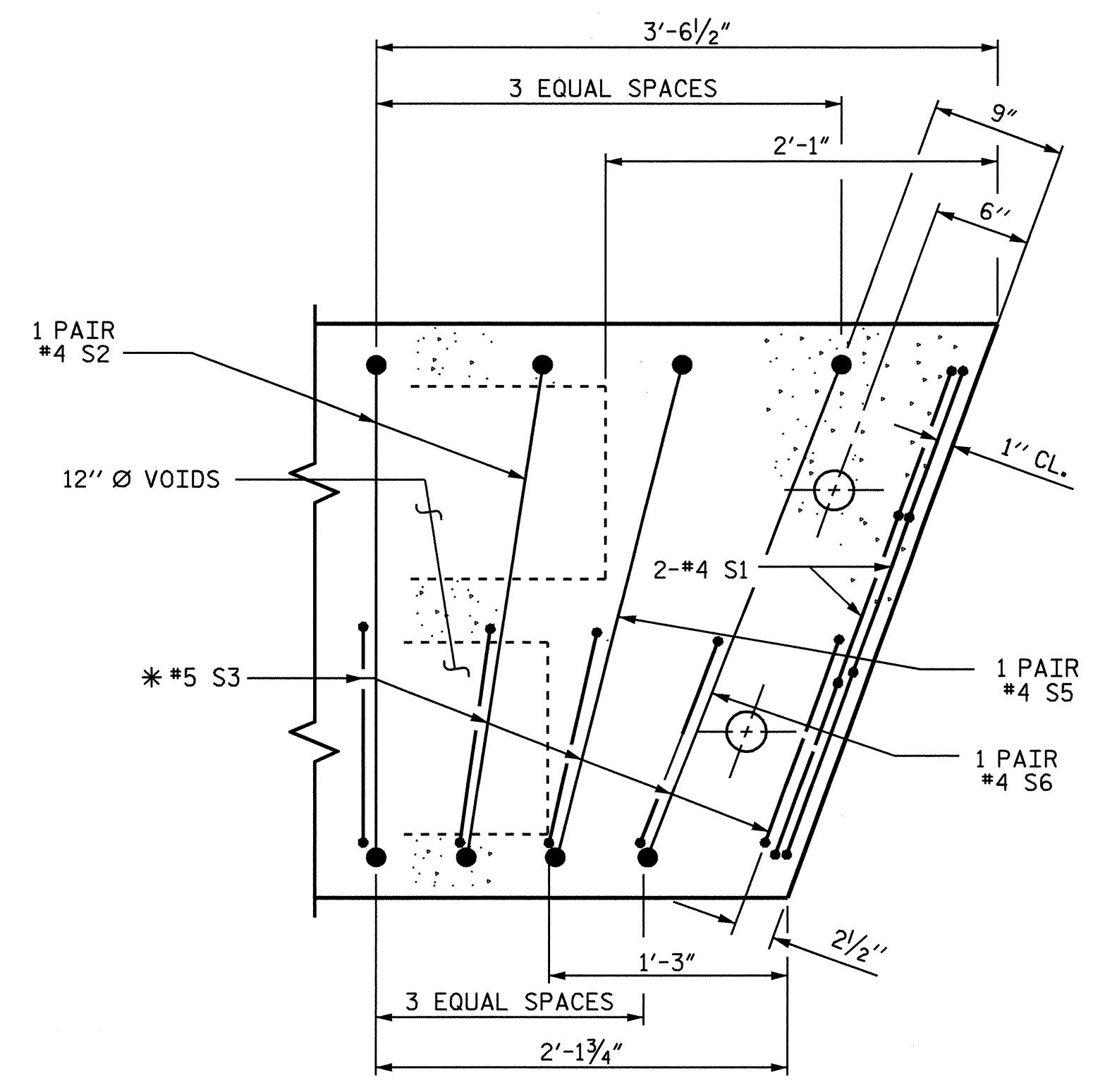


ASSEMBLED BY : M.GUDLAUGSSON	DATE : 01/2009
CHECKED BY : M.D. PISO	DATE : 05/2009
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS 37
2			4			

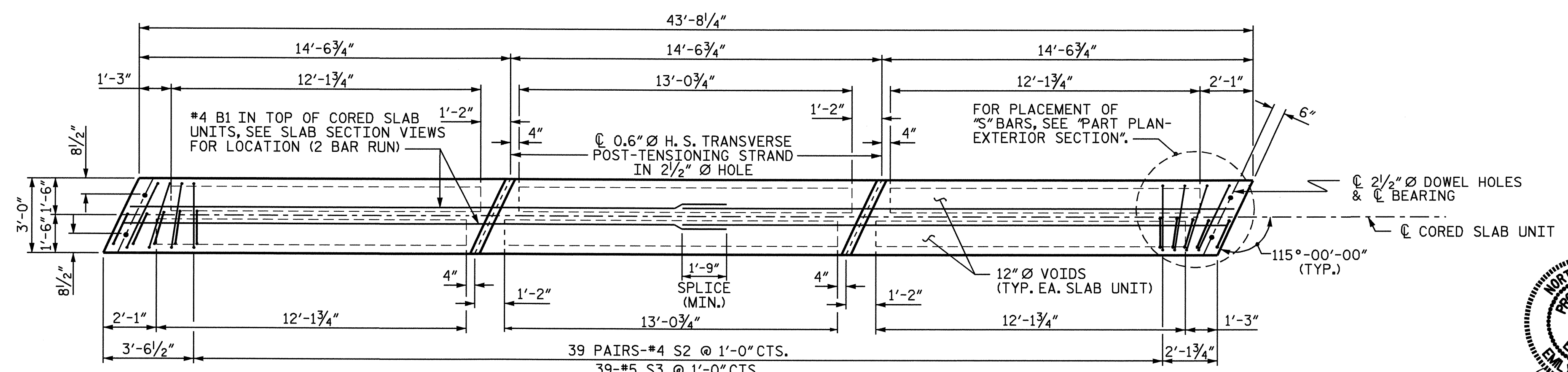


PLAN OF SPAN A



PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.
 * - #5 S4 IN BARRIER RAIL TO MATCH #5 S3



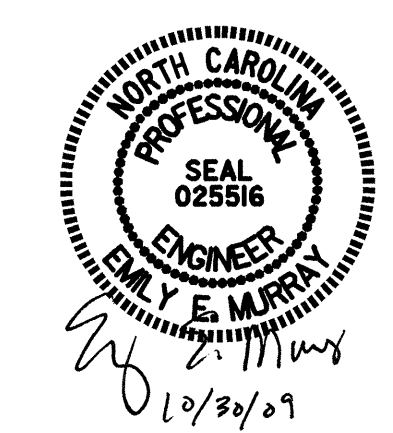
PLAN OF EXTERIOR CORED SLAB UNIT

(INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS)

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN A					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-24
					TOTAL SHEETS 37

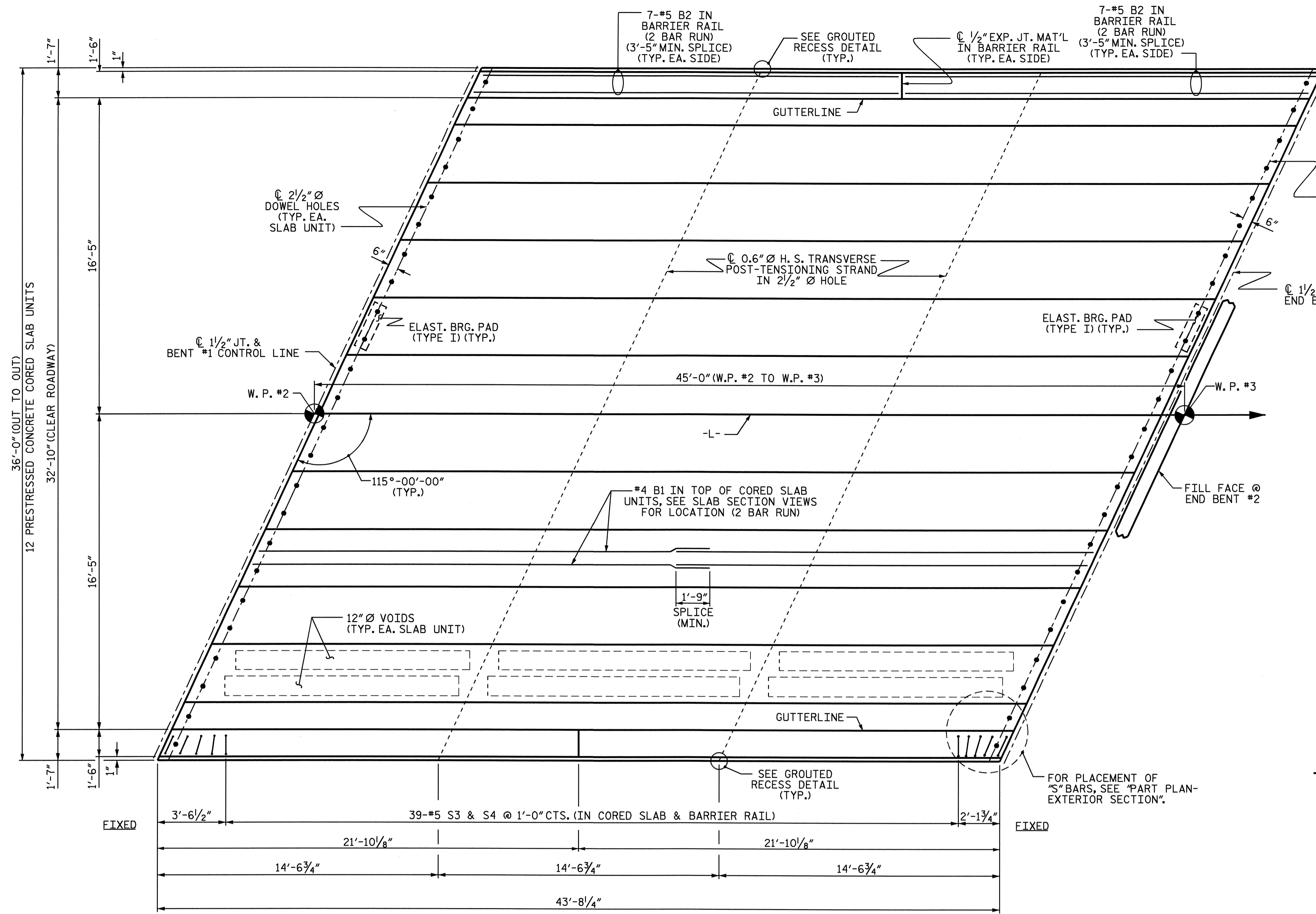


DRAWN BY: M. GUDLAUGSSON DATE: 01/2009
 CHECKED BY: M.D. PISO DATE: 05/2009

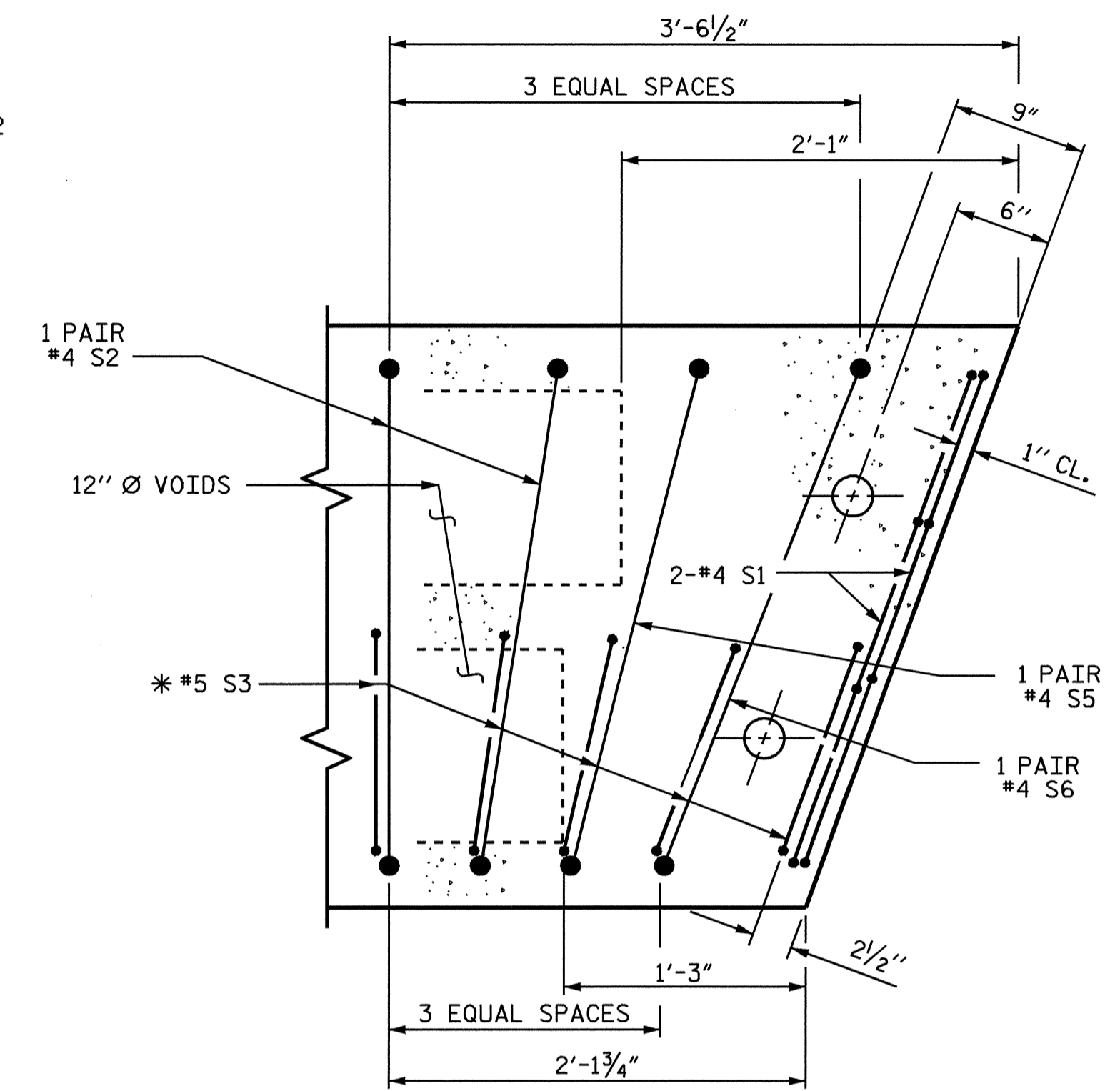
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STR #2

NC006

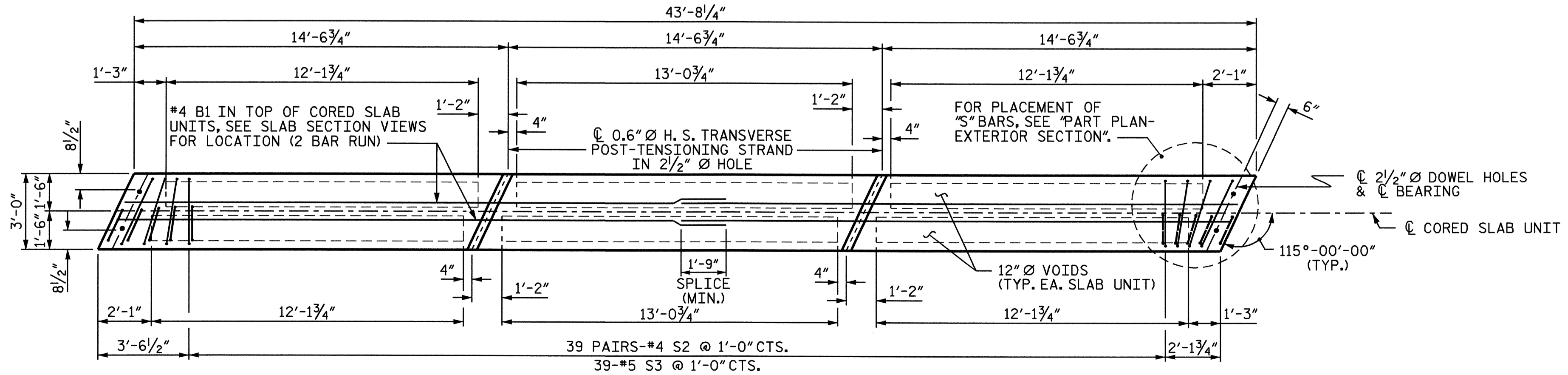


PLAN OF SPAN B



PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.
 * - #5 S4 IN BARRIER RAIL TO MATCH #5 S3



PLAN OF EXTERIOR CORED SLAB UNIT

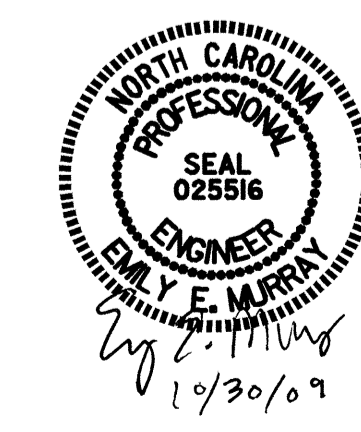
(INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS)

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN B



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25	
1			3			TOTAL SHEETS	
2			4			37	

DRAWN BY : M.GUDLAUGSSON DATE : 01/2009
 CHECKED BY : M.D. PISO DATE : 05/2009

30-OCT-2009 09:41
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 mgudlaugsson

STR #2

NC005

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M11.

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

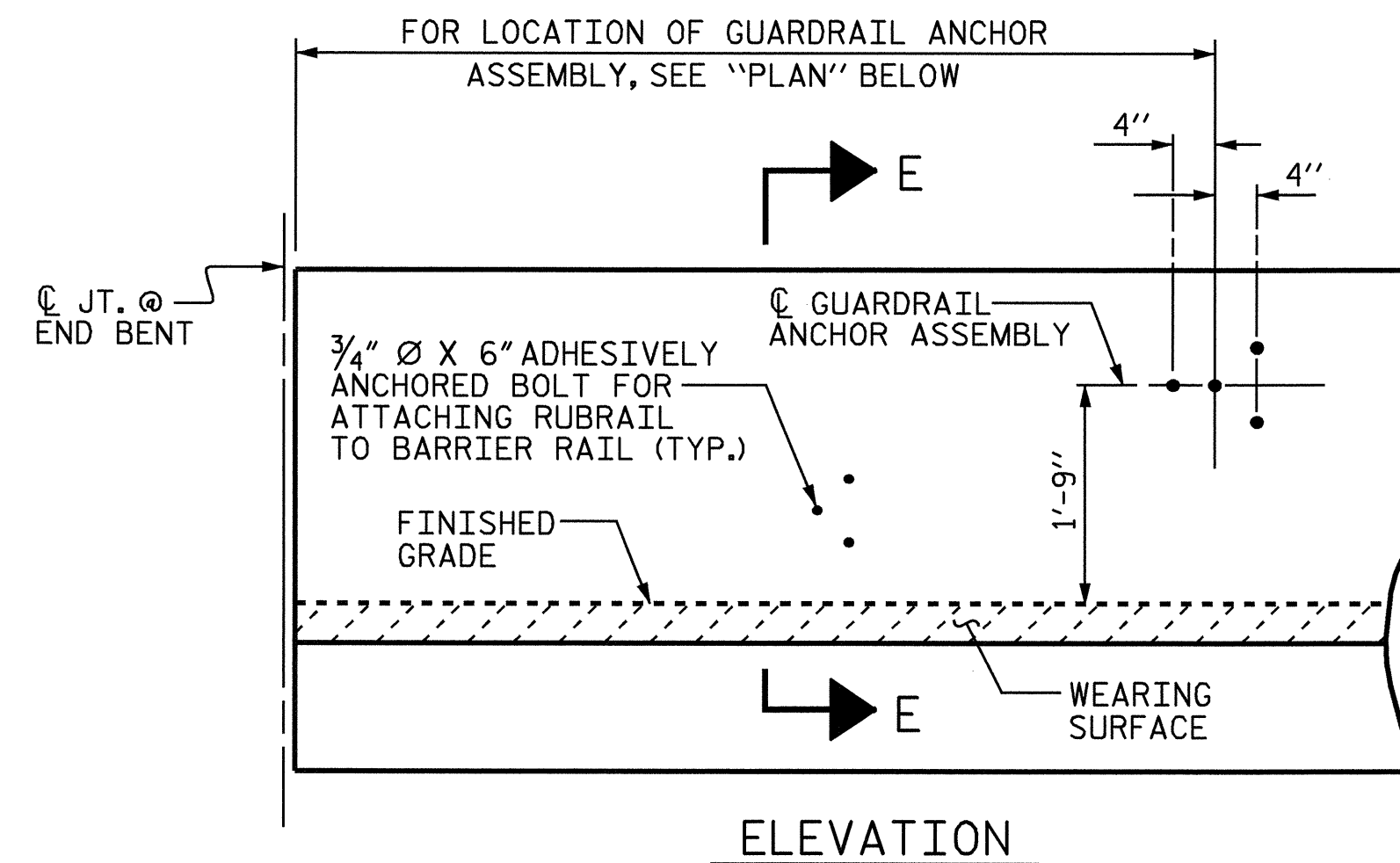
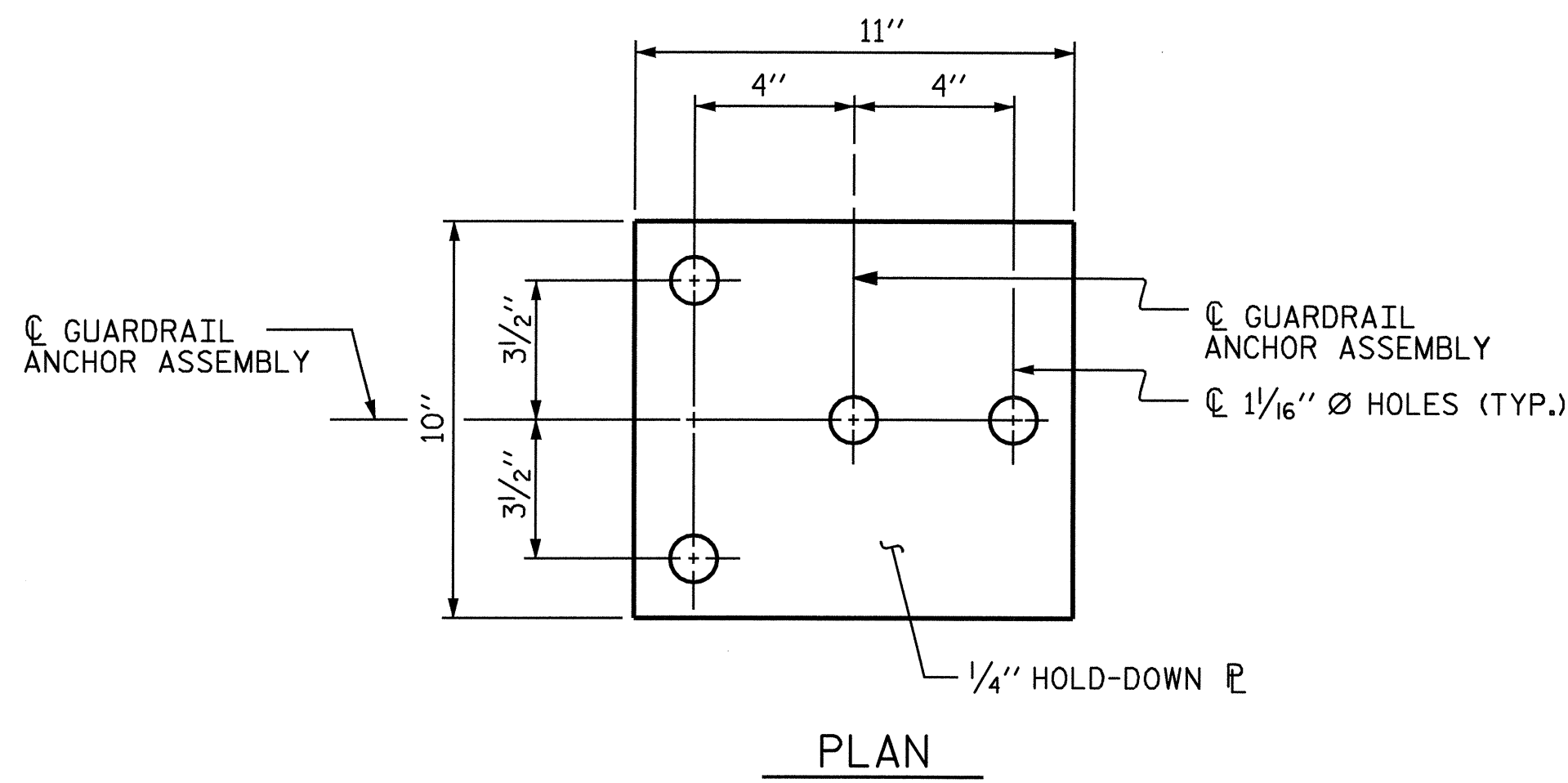
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

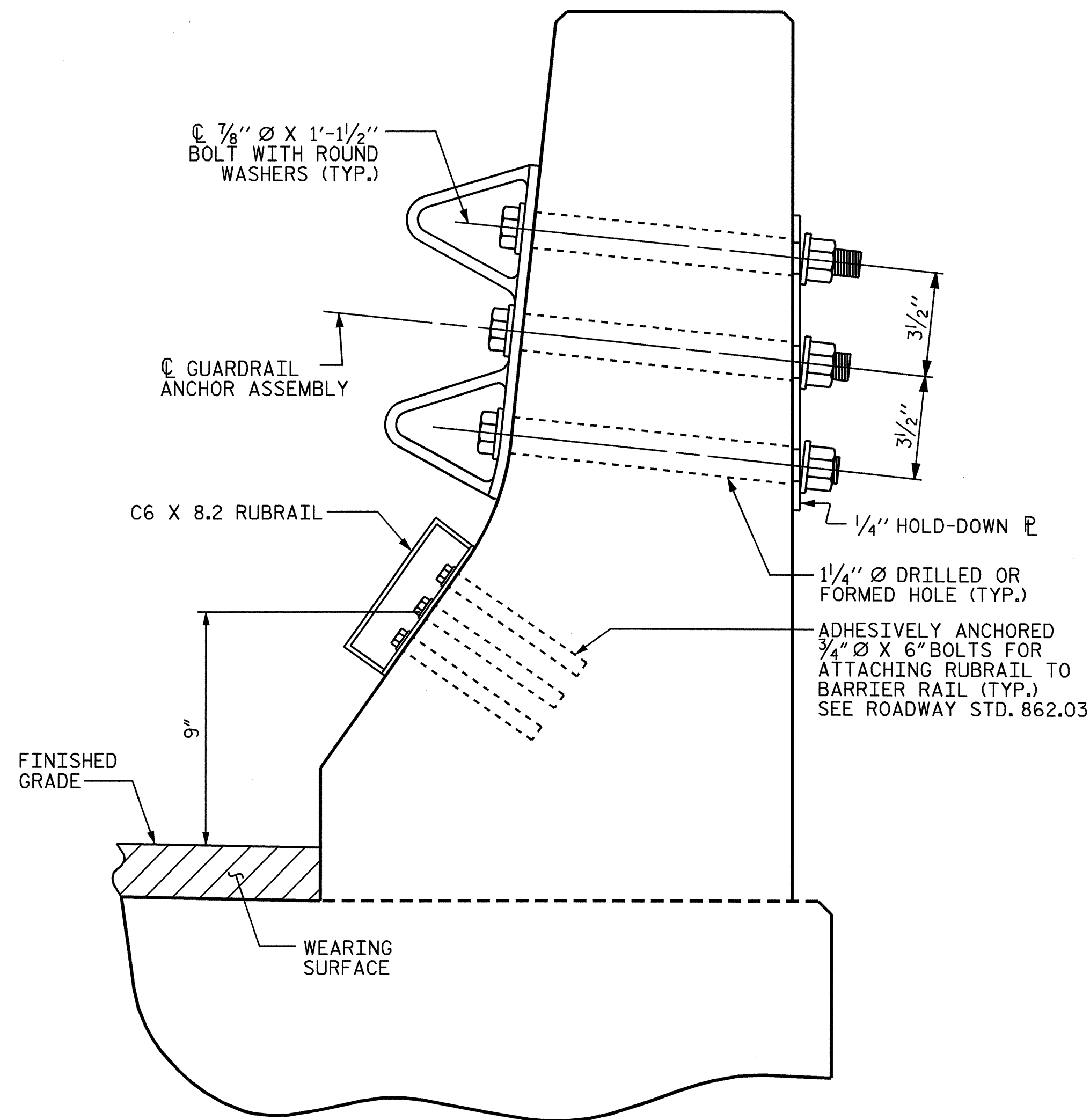
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

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

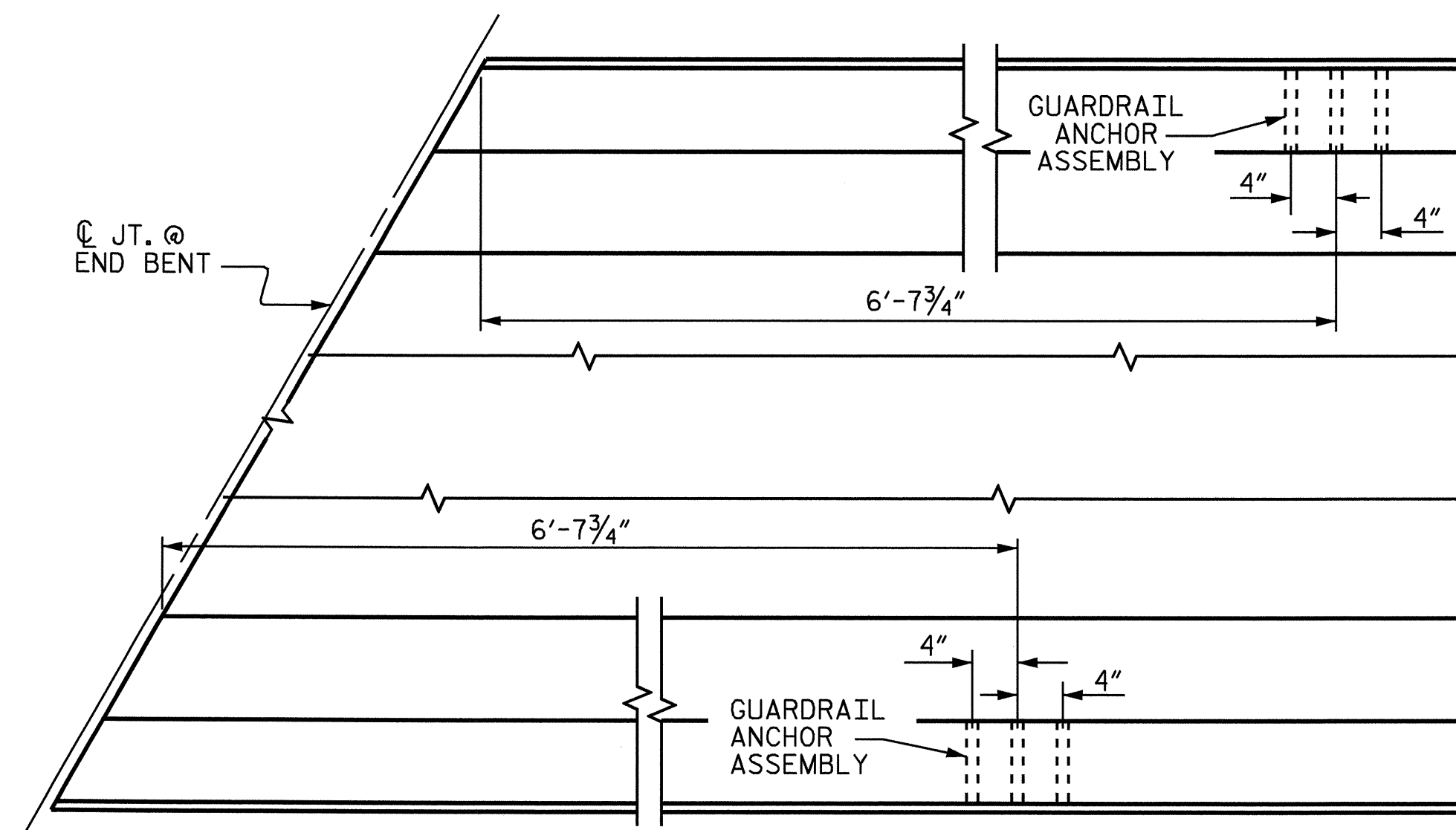


FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



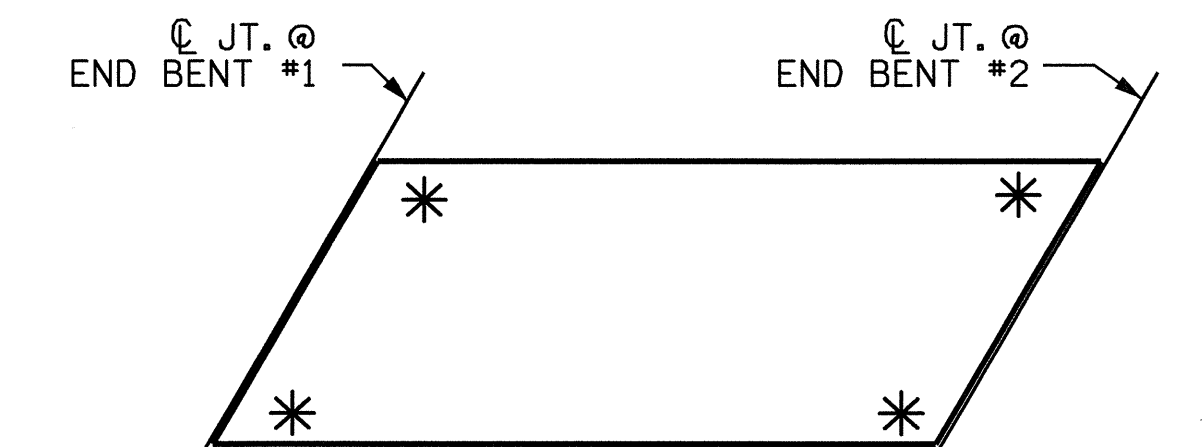
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

ASSEMBLED BY : M.GUDLAUGSSON	DATE : 01/2009
CHECKED BY : M.D. PISO	DATE : 05/2009
DRAWN BY : TLA	5/06
CHECKED BY : GM	5/06
ADDED 5/1/06R	KMM/GM

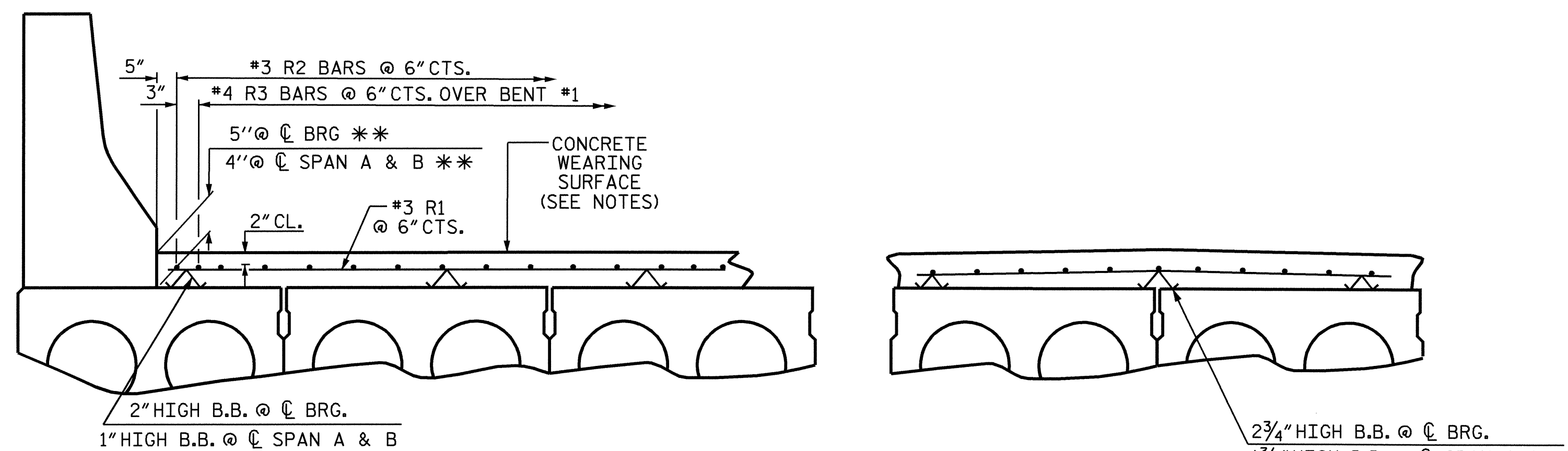
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mgudlaugsson



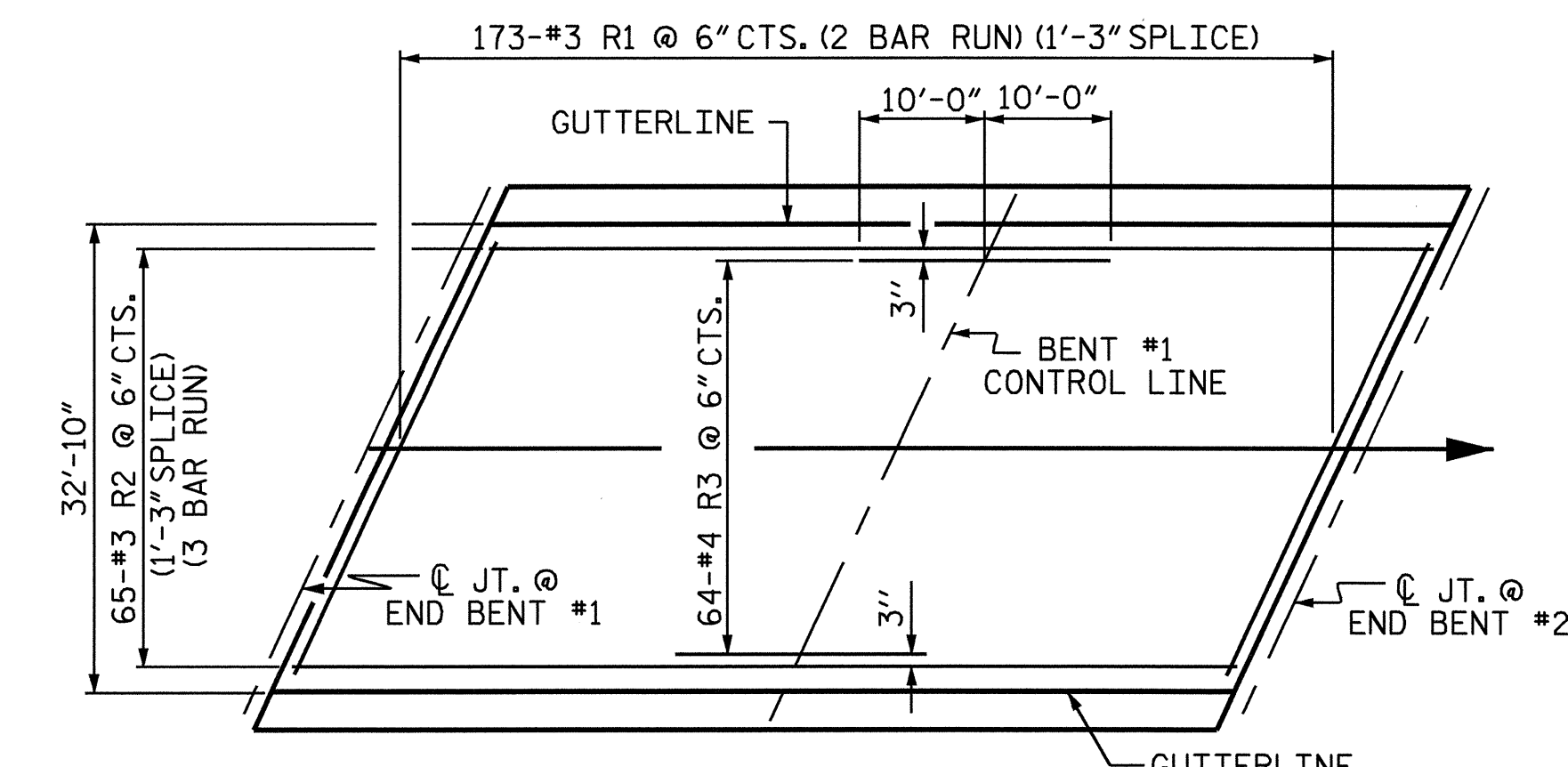
PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 35+90.00 -L-

SHEET 4 OF 5

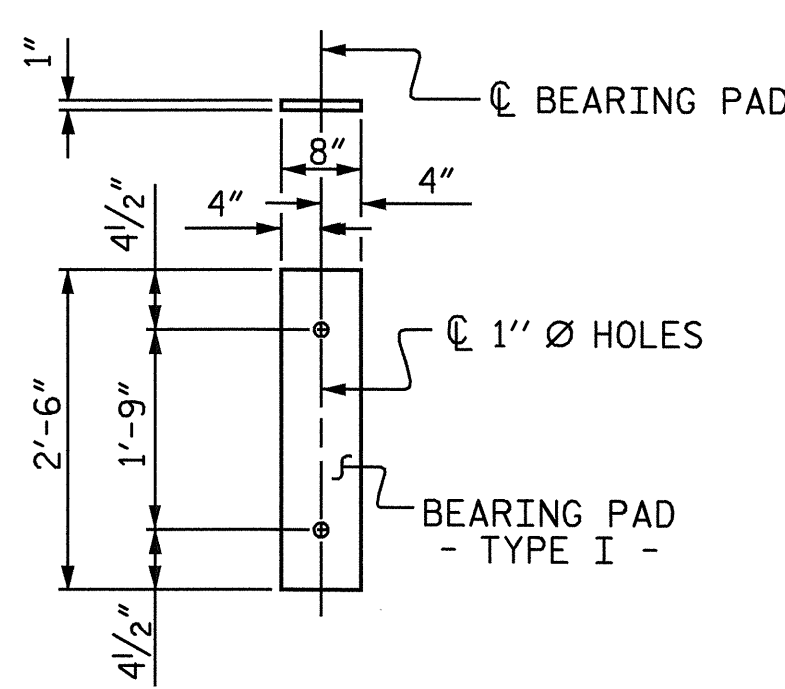
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL					
REVISIONS					SHEET NO. S-26
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					37



REINFORCING STEEL FOR CONCRETE WEARING SURFACE
 **BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

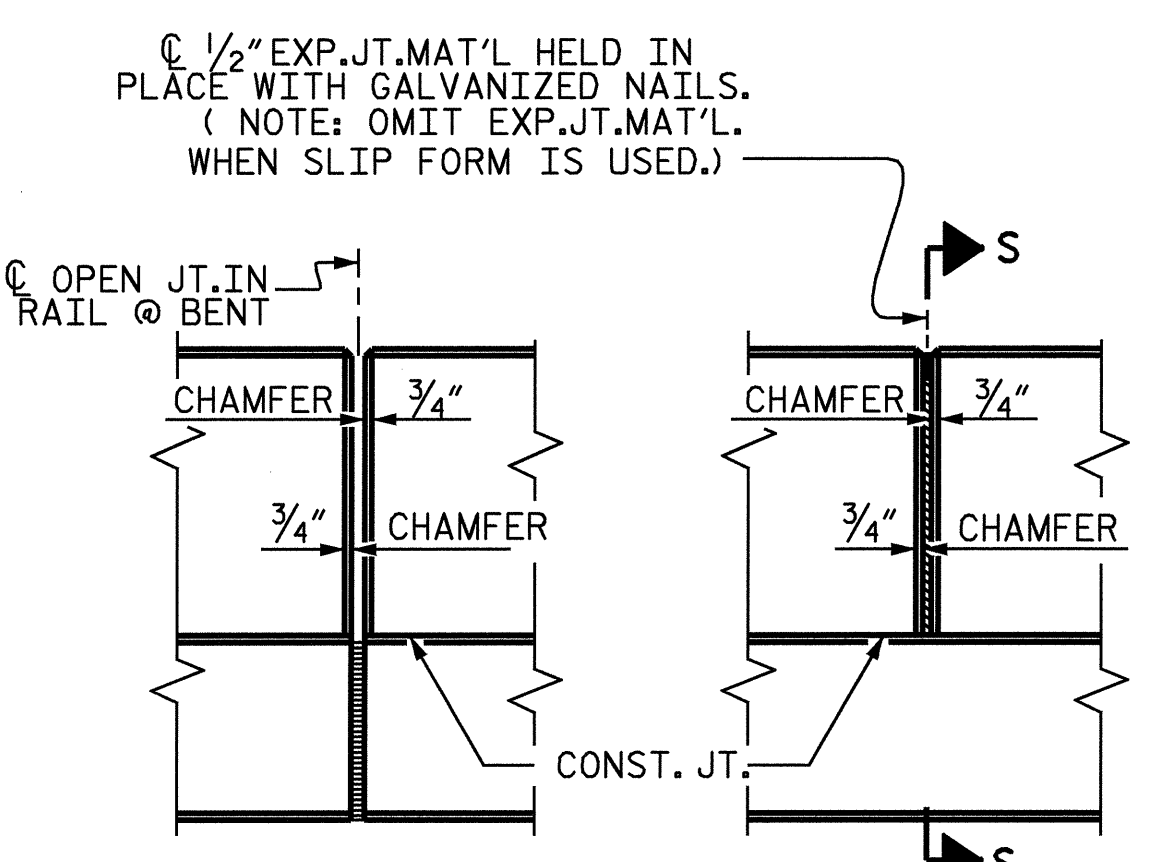


PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

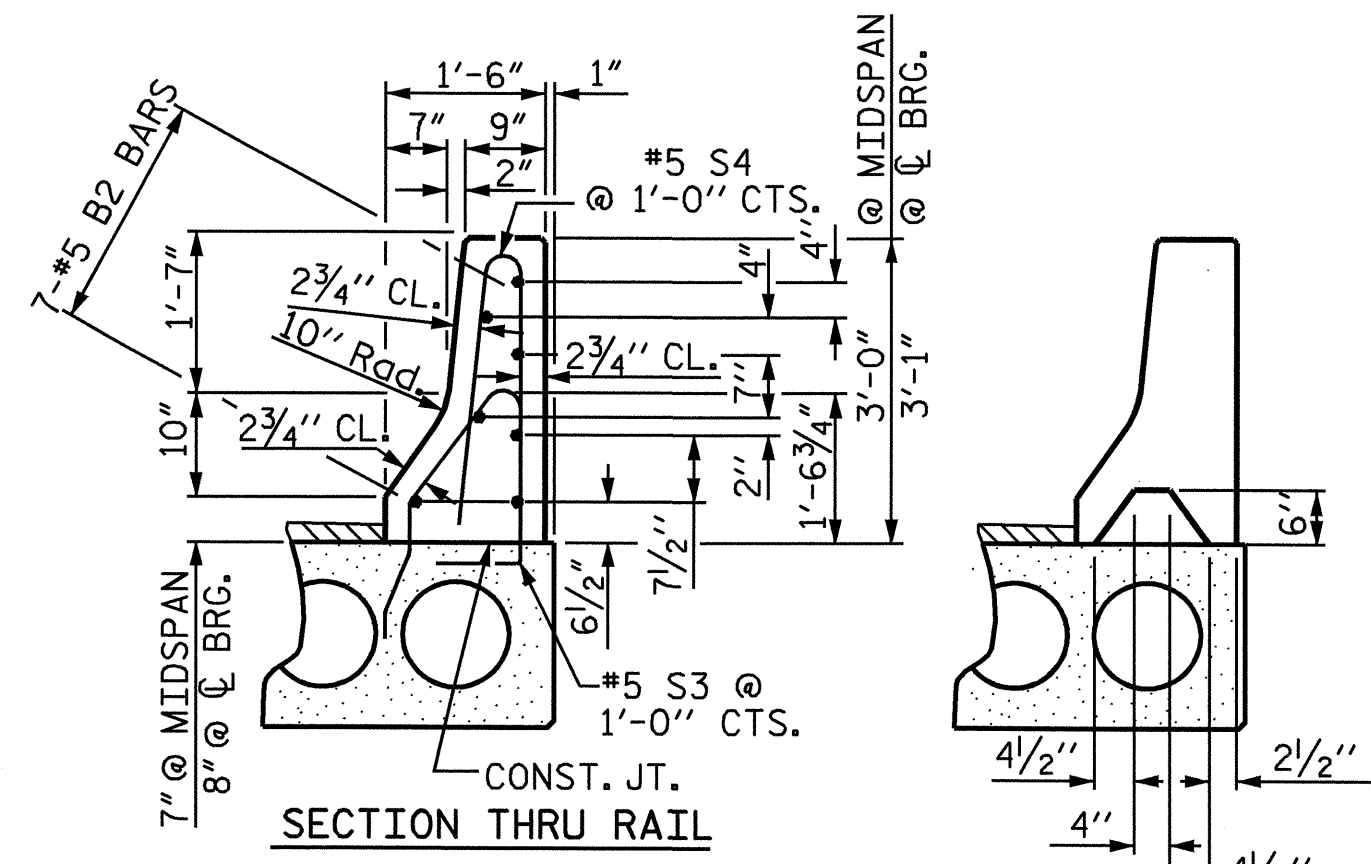


FIXED END
(TYPE I - 48 REQ'D)

ELASTOMERIC BEARING DETAILS
 ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.



ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

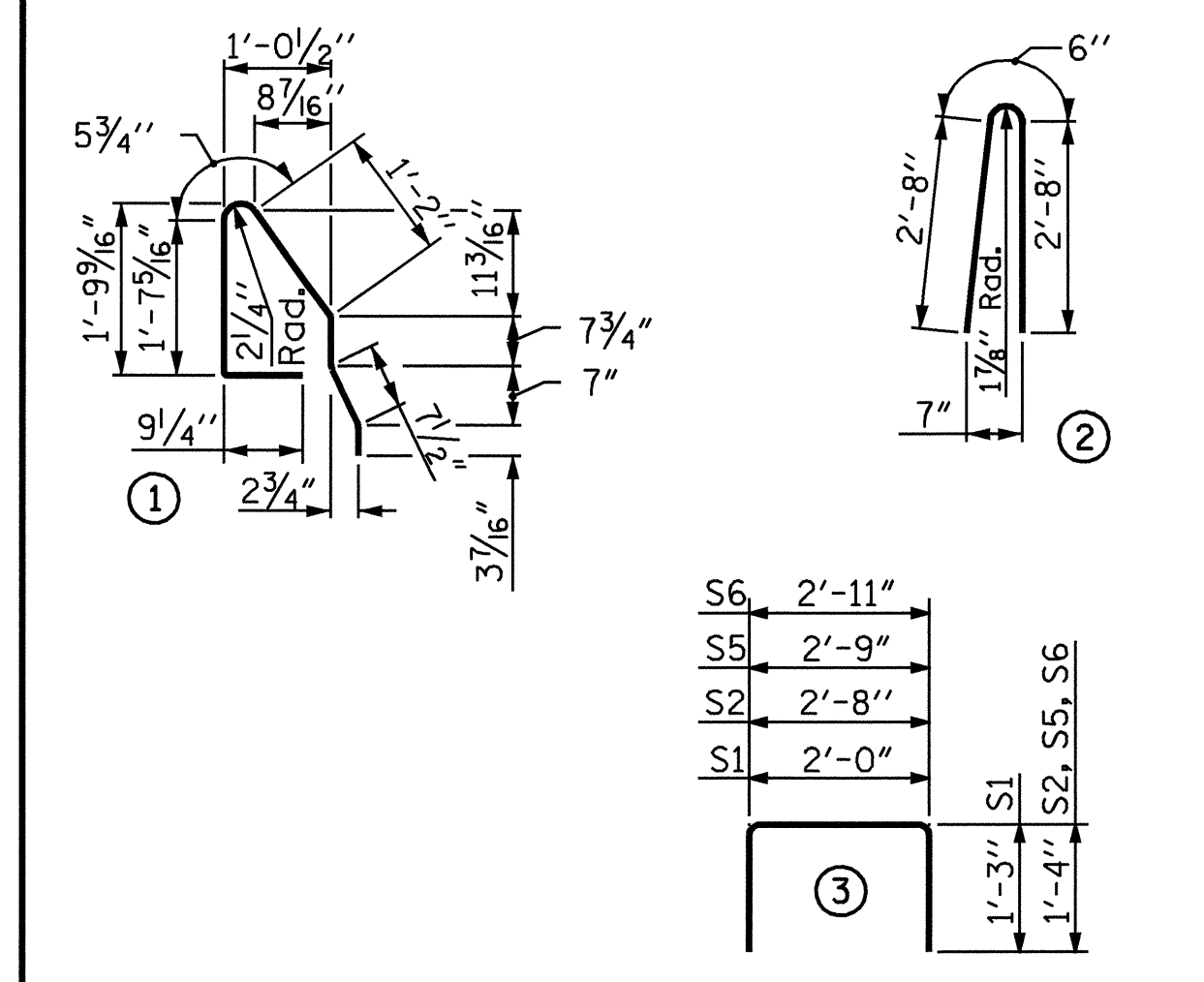
SECTION S-S

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

BARRIER RAIL DETAILS

ASSEMBLED BY : M.GUDLAUGSSON DATE : 01/2009
 CHECKED BY : M.D. PISO DATE : 05/2009
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/1/03 RRR RWW/JTE
 REV. 5/1/06 TLG/GM

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

				EXTERIOR UNIT (4 REQUIRED)		INTERIOR UNIT (20 REQUIRED)	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	22'-7"	60	22'-7"	60
S1	8	#4	3	4'-6"	24	4'-6"	24
S2	82	#4	3	5'-4"	292	5'-4"	292
*S3	47	#5	1	5'-7"	274		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-7"	15	5'-7"	15
REINFORCING STEEL				405 LBS.		405 LBS.	
* EPOXY COATED REINFORCING STEEL				274 LBS.		LBS.	
6,000 P.S.I. CONCRETE				6.3 CU. YDS.		6.3 CU. YDS.	
0.6" Ø L.R. STRANDS No. 13						No. 13	

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN		TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B					
*B2	56	56	112	#5	STR	12'-9"	1489
*S4	94	94	188	#5	2	5'-10"	1144
* EPOXY COATED REINFORCING STEEL				LBS.		2633	
CLASS AA CONCRETE				CU. YDS.		21.6	
CONCRETE BARRIER RAIL				LIN. FT.		174.75	

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*R1	346	#3	STR	18'-7"	2418		
*R2	195	#3	STR	29'-8"	2273		
*R3	64	#4	STR	20'-0"	855		
* EPOXY COATED REINFORCING STEEL				LBS.		5448	
CONCRETE WEARING SURFACE				SQ. FT.		2873	

DEAD LOAD DEFLECTION AND CAMBER

	0.6" Ø L.R. STRAND	
	SPAN "A"	SPAN "B"
CAMBER (SLAB ALONE IN PLACE) ↑	1 3/16"	1 3/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ↓	1/4"	1/4"
FINAL CAMBER ↑	1 5/16"	1 5/16"

CORED SLABS REQUIRED

SPAN	C.S.	NUMBER	LENGTH	TOTAL LENGTH
SPAN "A"	EXTERIOR C.S.	2	43'-8 1/4"	87'-4 1/2"
	INTERIOR C.S.	10	43'-8 1/4"	436'-10 1/2"
SPAN "B"	EXTERIOR C.S.	2	43'-8 1/4"	87'-4 1/2"
	INTERIOR C.S.	10	43'-8 1/4"	436'-10 1/2"
TOTAL		24		1048'-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 NON-SHRINK GROUT.
 THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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

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.

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 #3 & #4 BARS 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.

GROOVING BRIDGE FLOORS

BRIDGE DECK	2570 SQ.FT.
APPROACH SLABS	1451 SQ.FT.
TOTAL	4021 SQ.FT.

SPLICE LENGTH CHART

BAR	SPLICE LENGTH
B1	1'-9"
*R1, *R2	1'-3"

GRADE 270 STRANDS

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

PROJECT NO. B-3654

HARNETT/SAMPSON COUNTY

STATION: 35+90.00 -L-

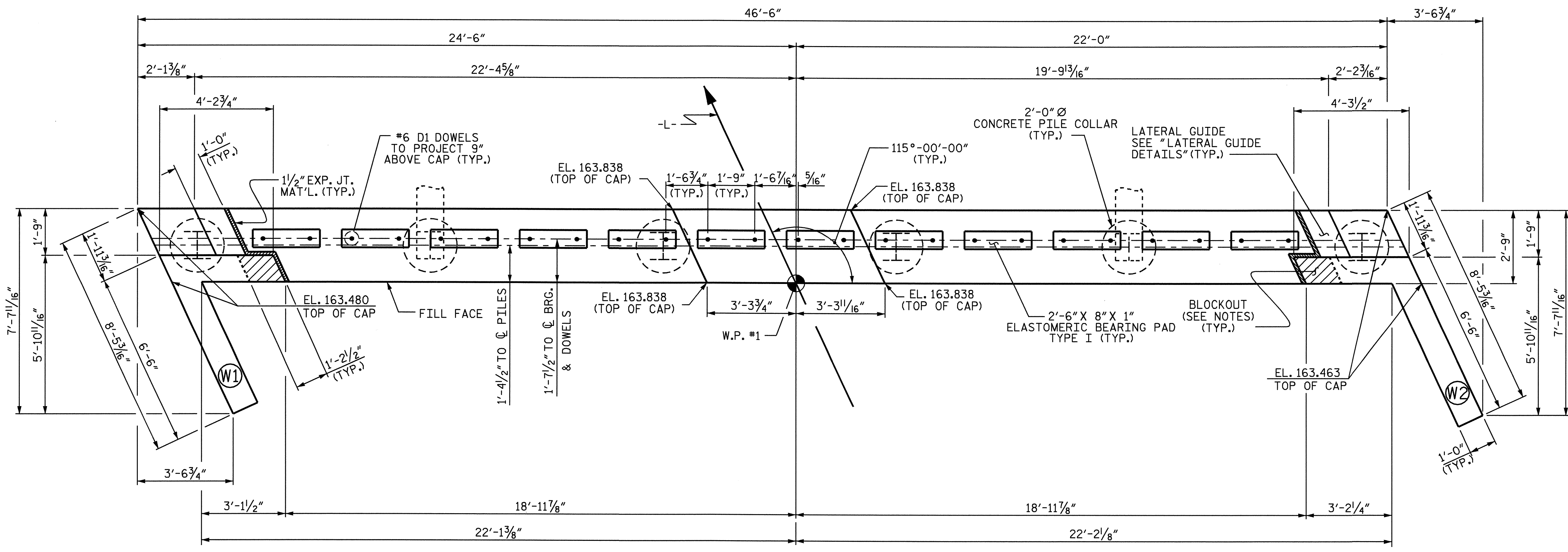
SHEET 5 OF 5



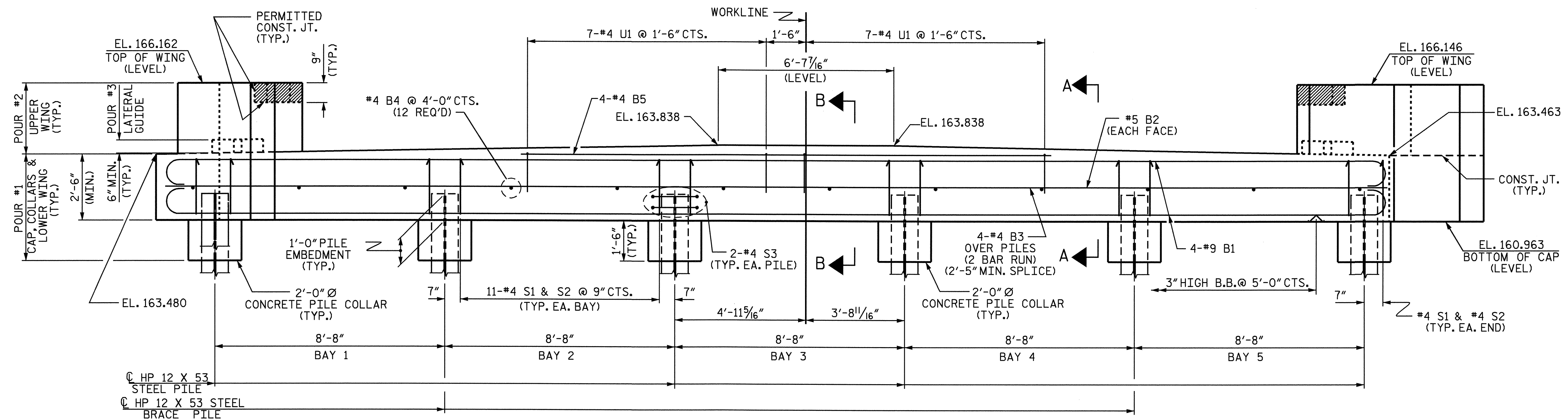
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			37



PLAN



ELEVATION

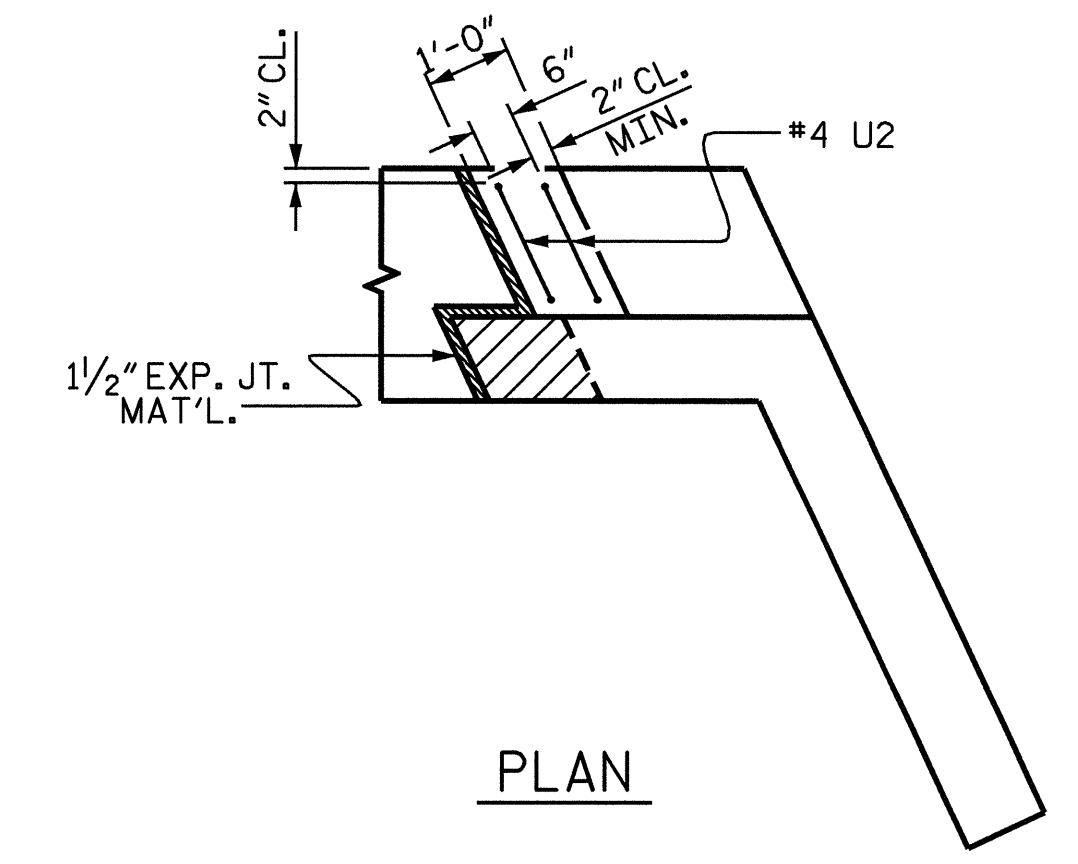
NOTES

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

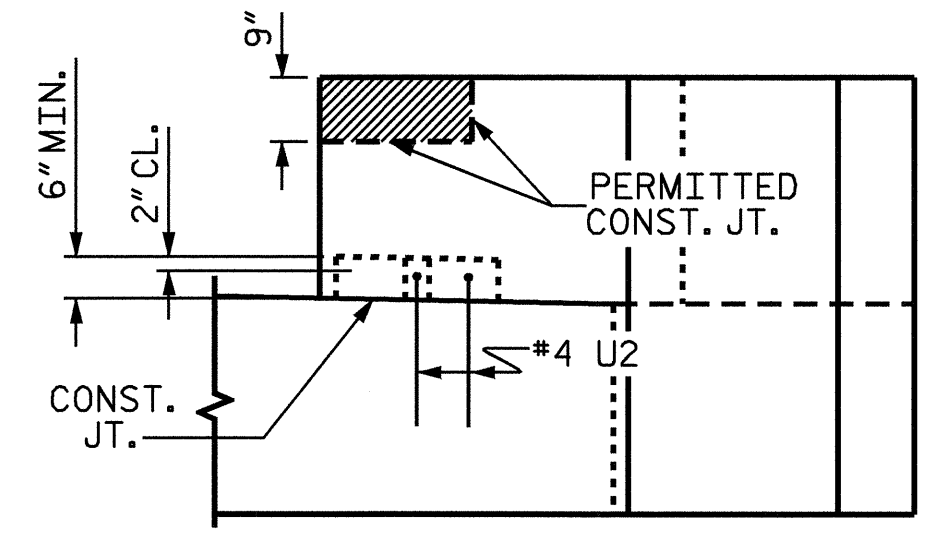
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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

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



PLAN



ELEVATION

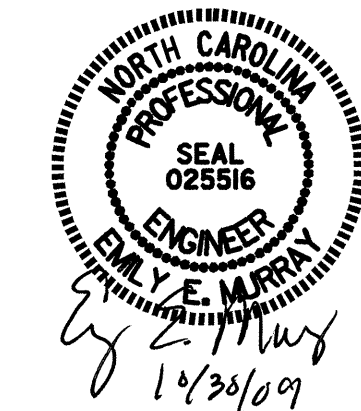
LATERAL GUIDE
(EACH END SIMILAR)

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

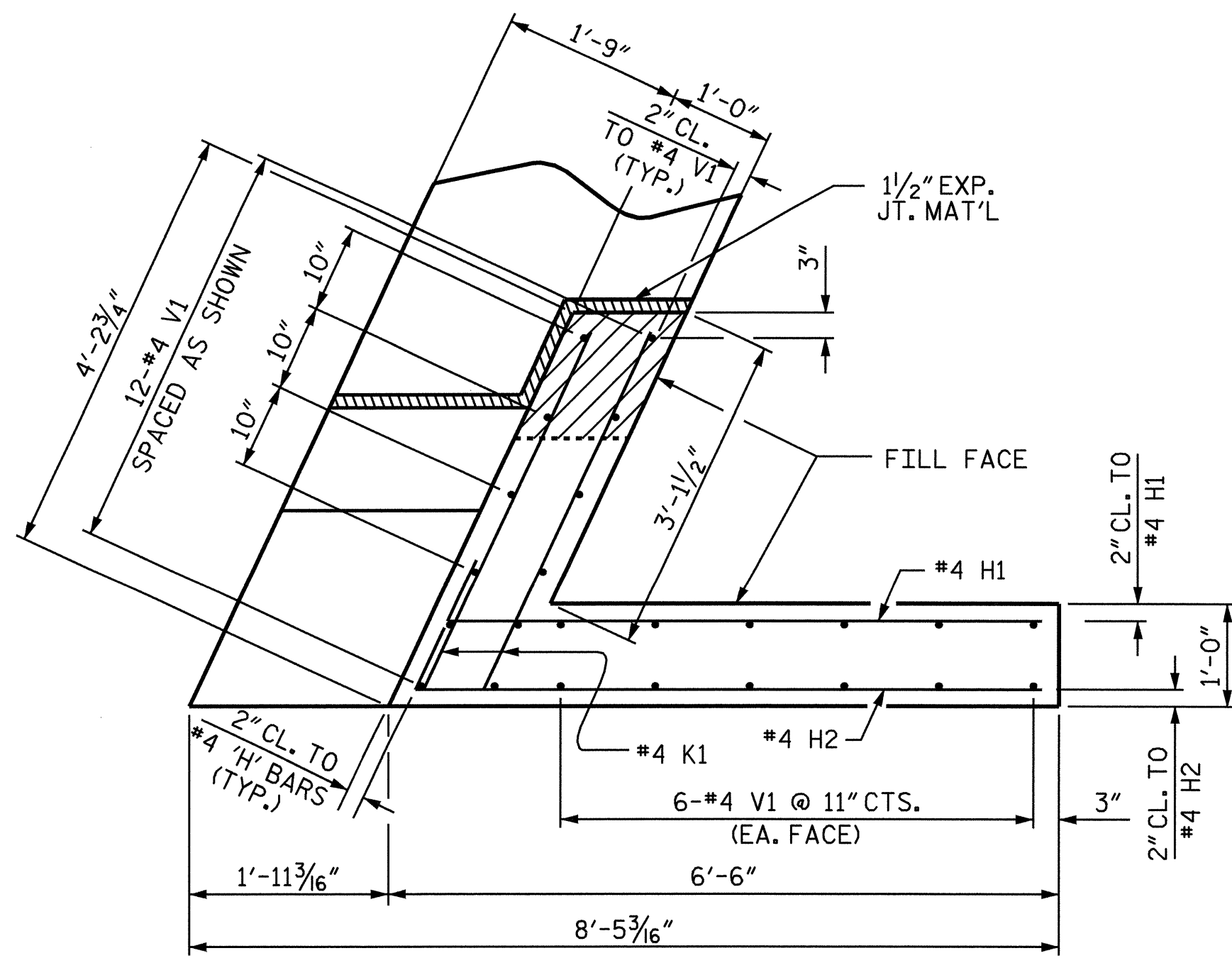
SUBSTRUCTURE
 END BENT #1



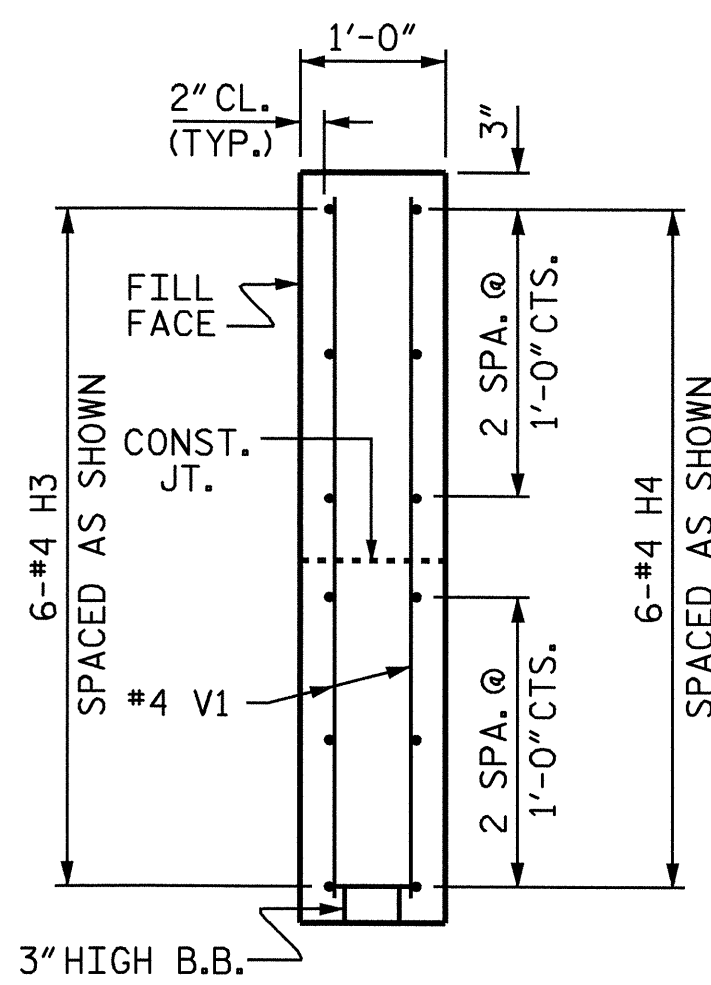
DRAWN BY: M. GUDLAUGSSON DATE: 7/09/09
 CHECKED BY: M.D. PISO DATE: 8/13/09

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS	
2			4			37	

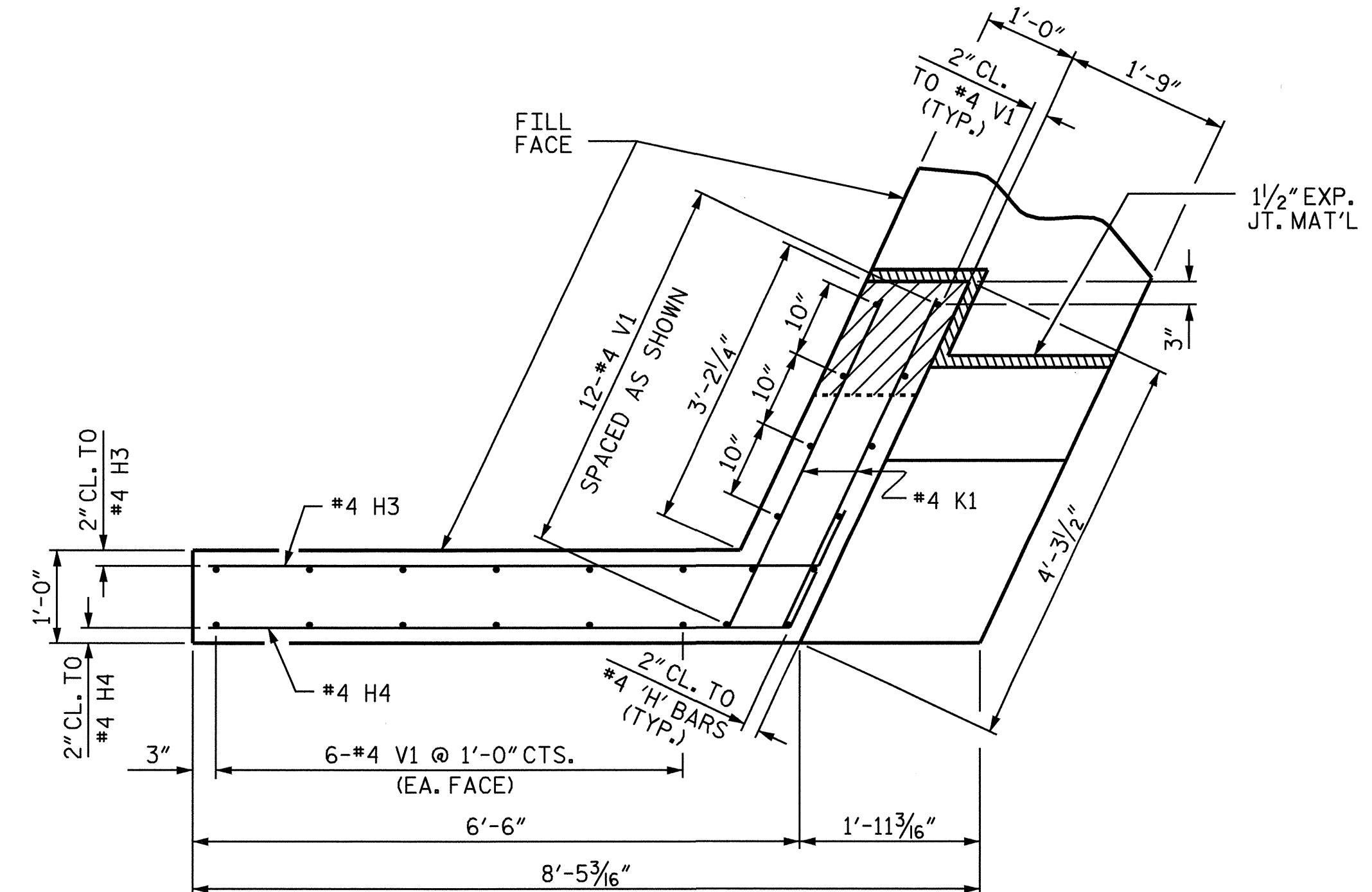
STR. #2



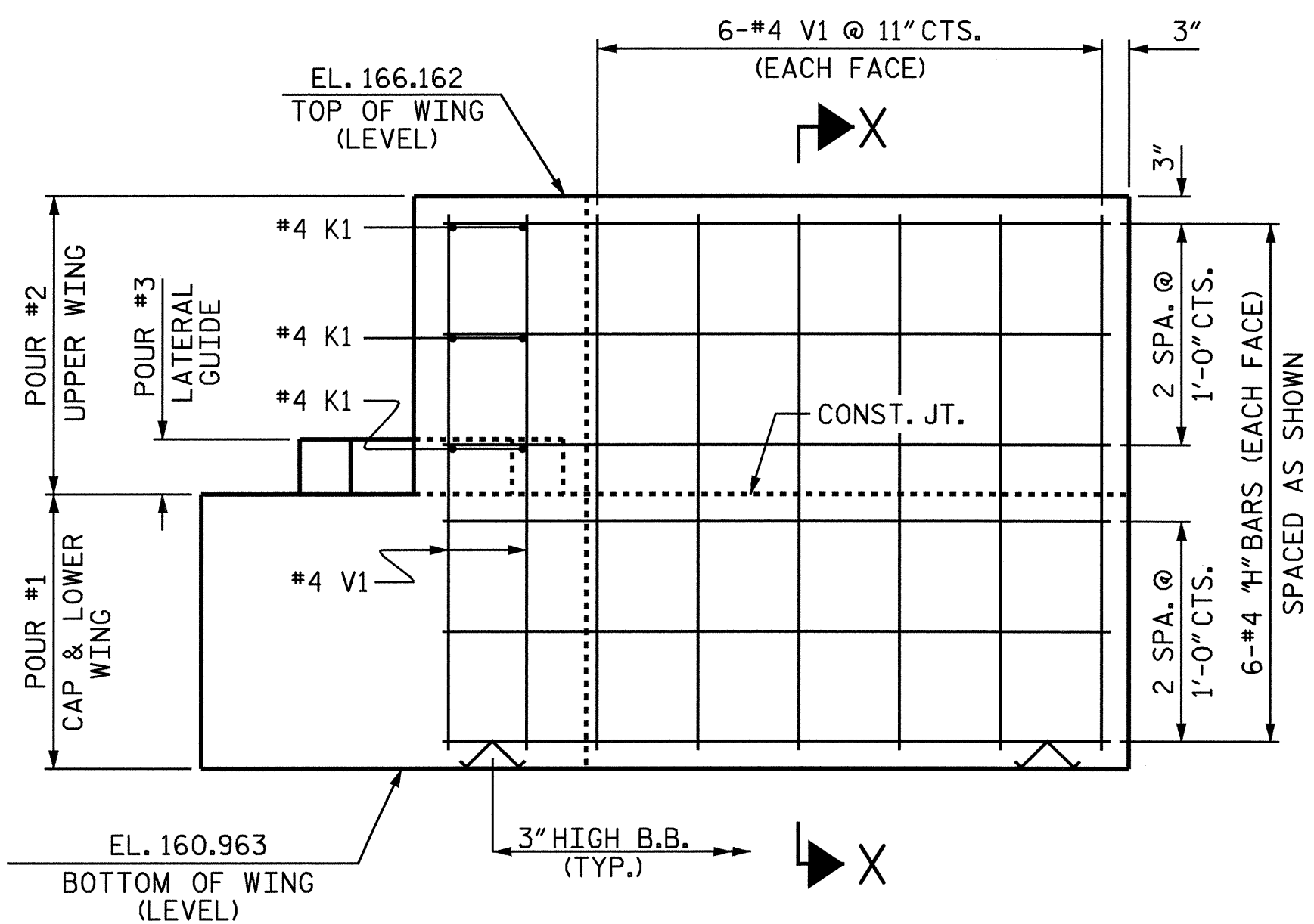
PLAN OF LEFT WING W1



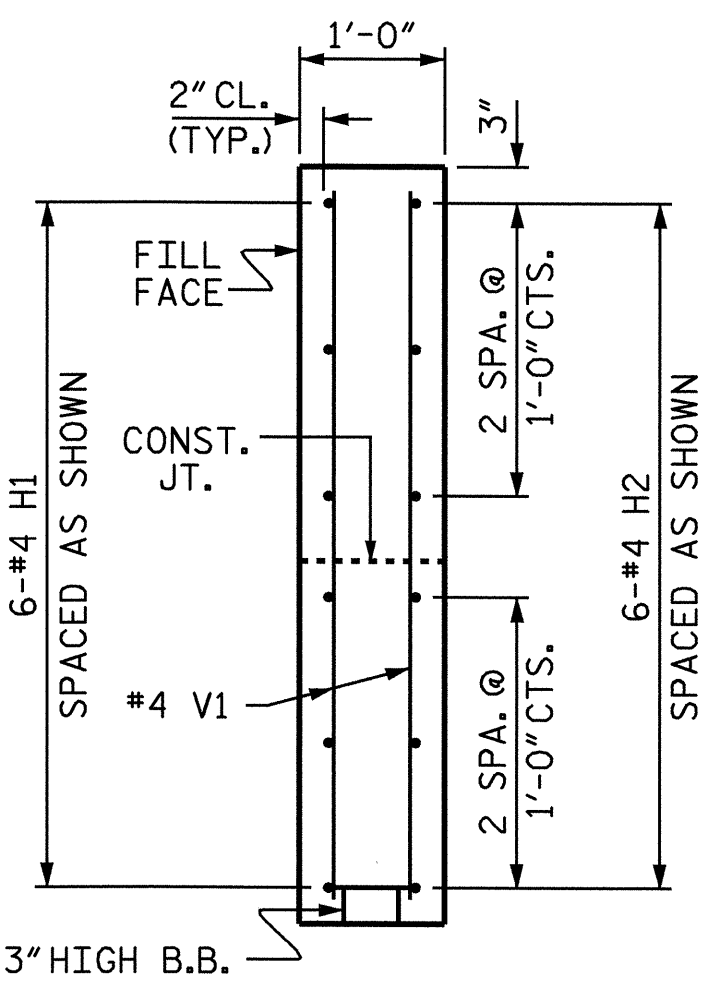
SECTION Y-Y



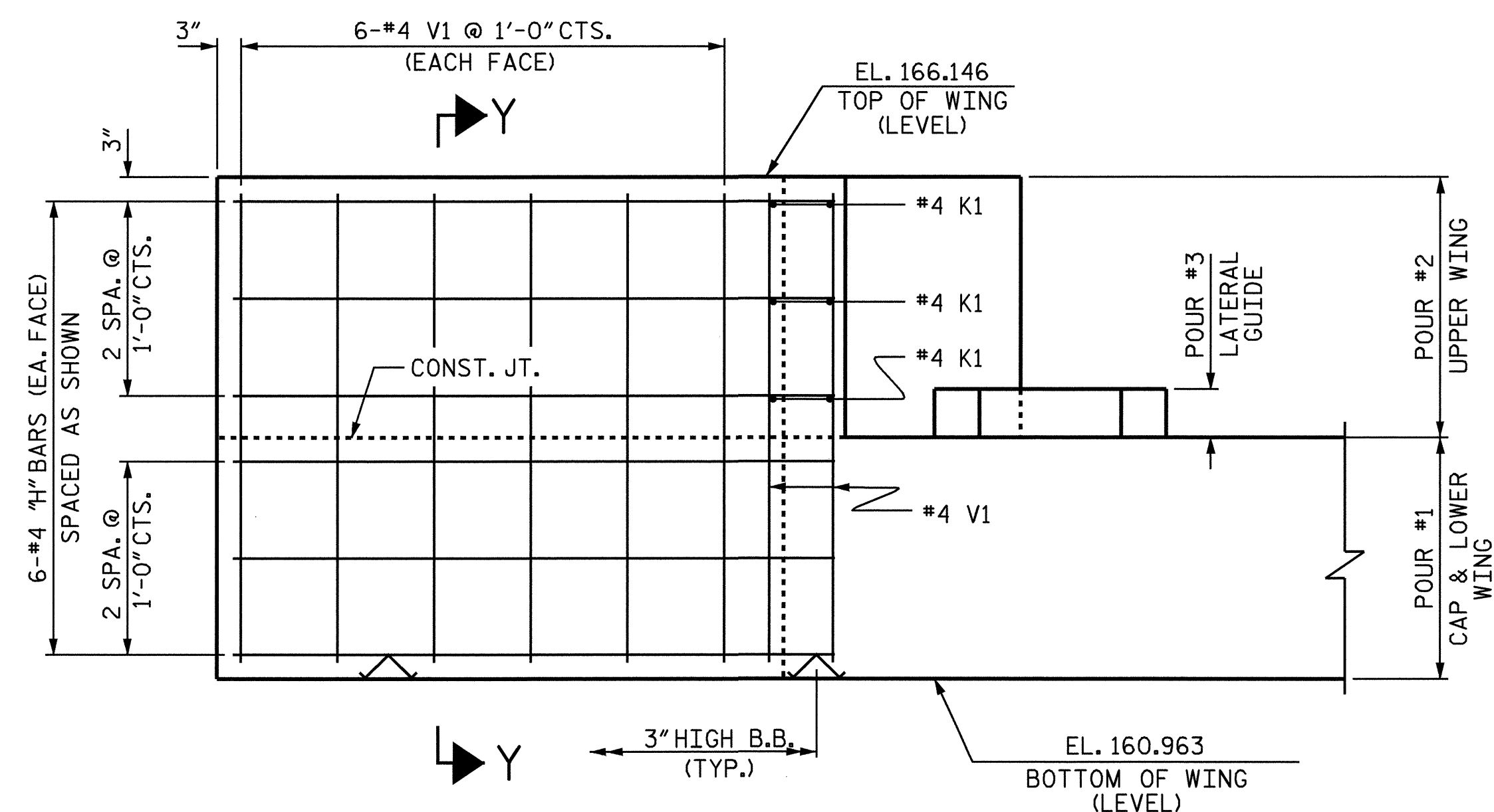
PLAN OF RIGHT WING W2



ELEVATION OF LEFT WING W1



SECTION X-X



ELEVATION OF RIGHT WING W2

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

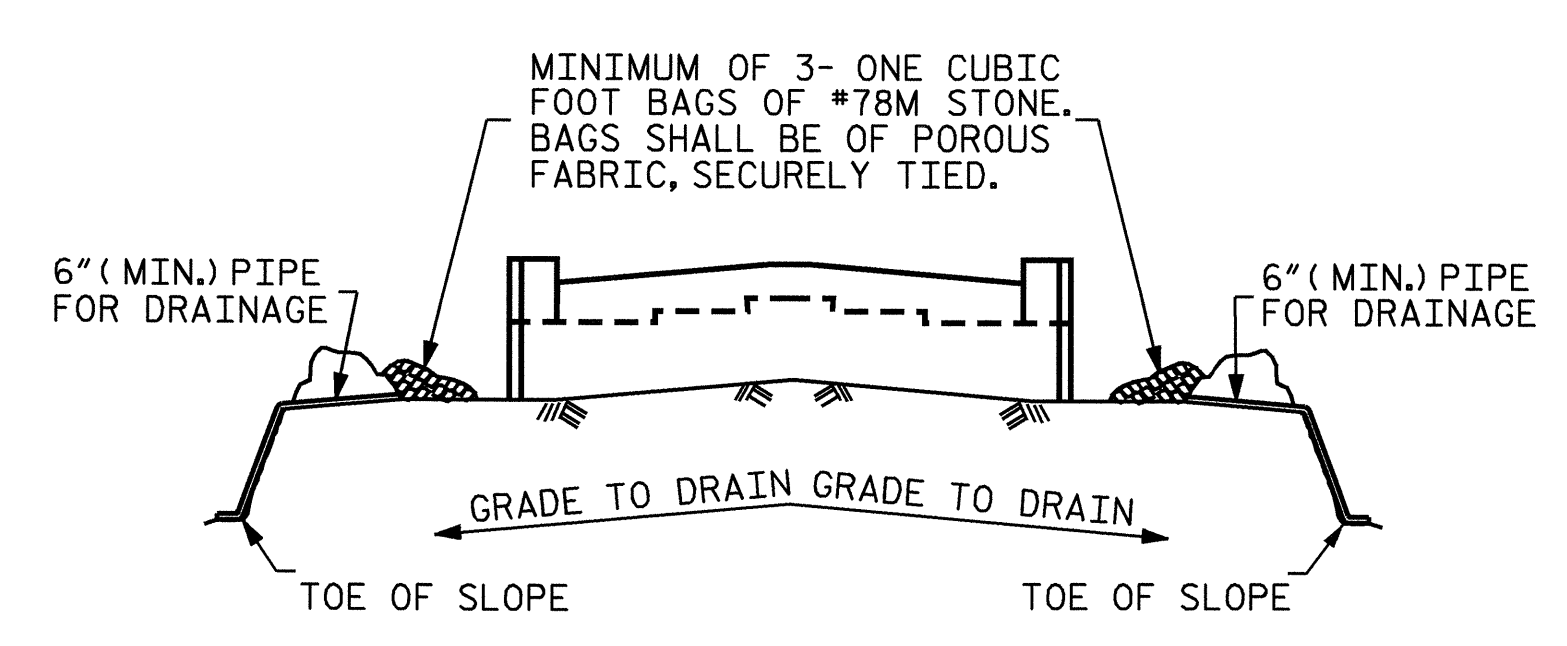
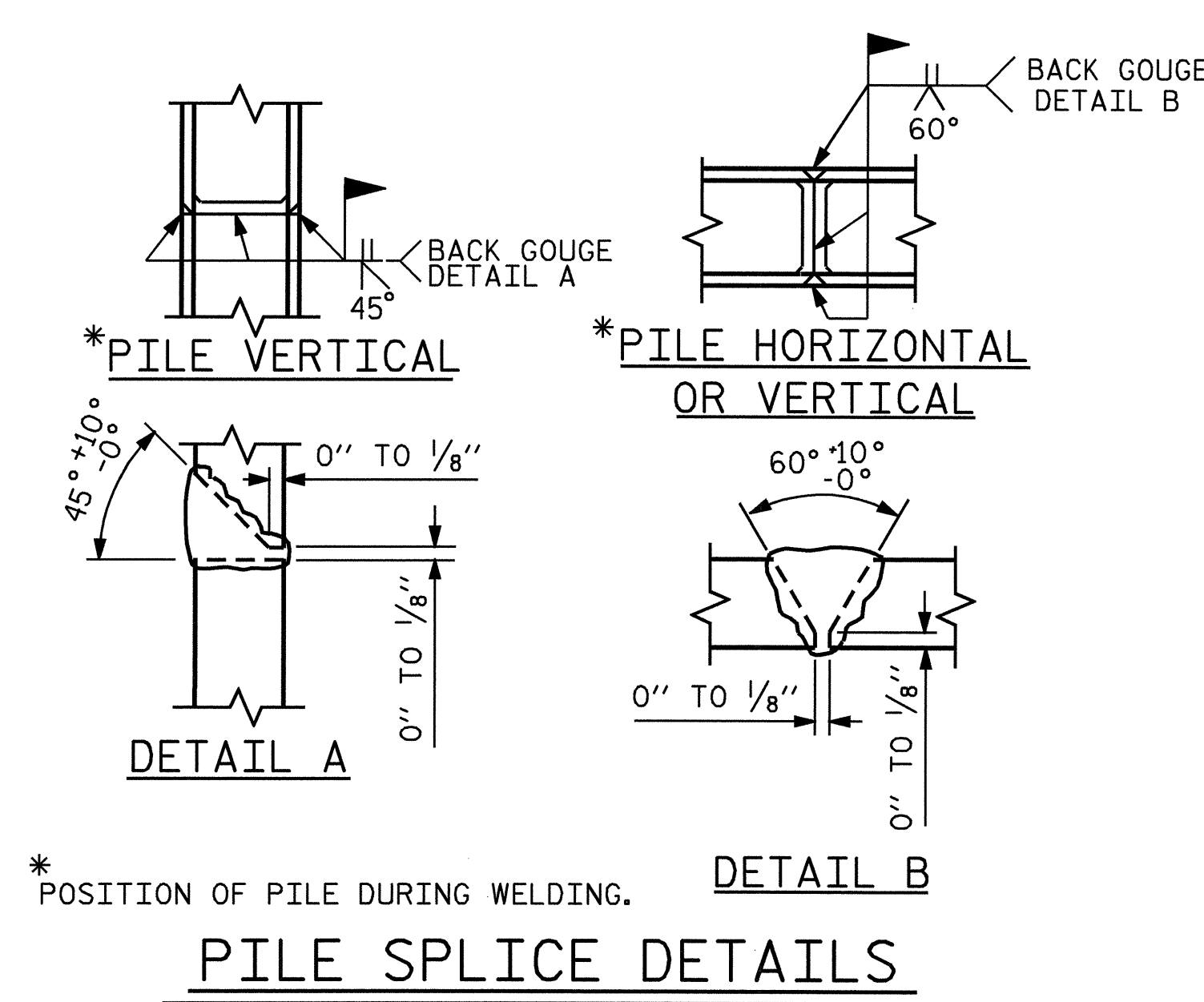


DRAWN BY: M. GUDLAUGSSON DATE: 7/09/09
 CHECKED BY: M.D. PISO DATE: 8/13/09

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 mgudlaugsson

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			37

STR. #2



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.

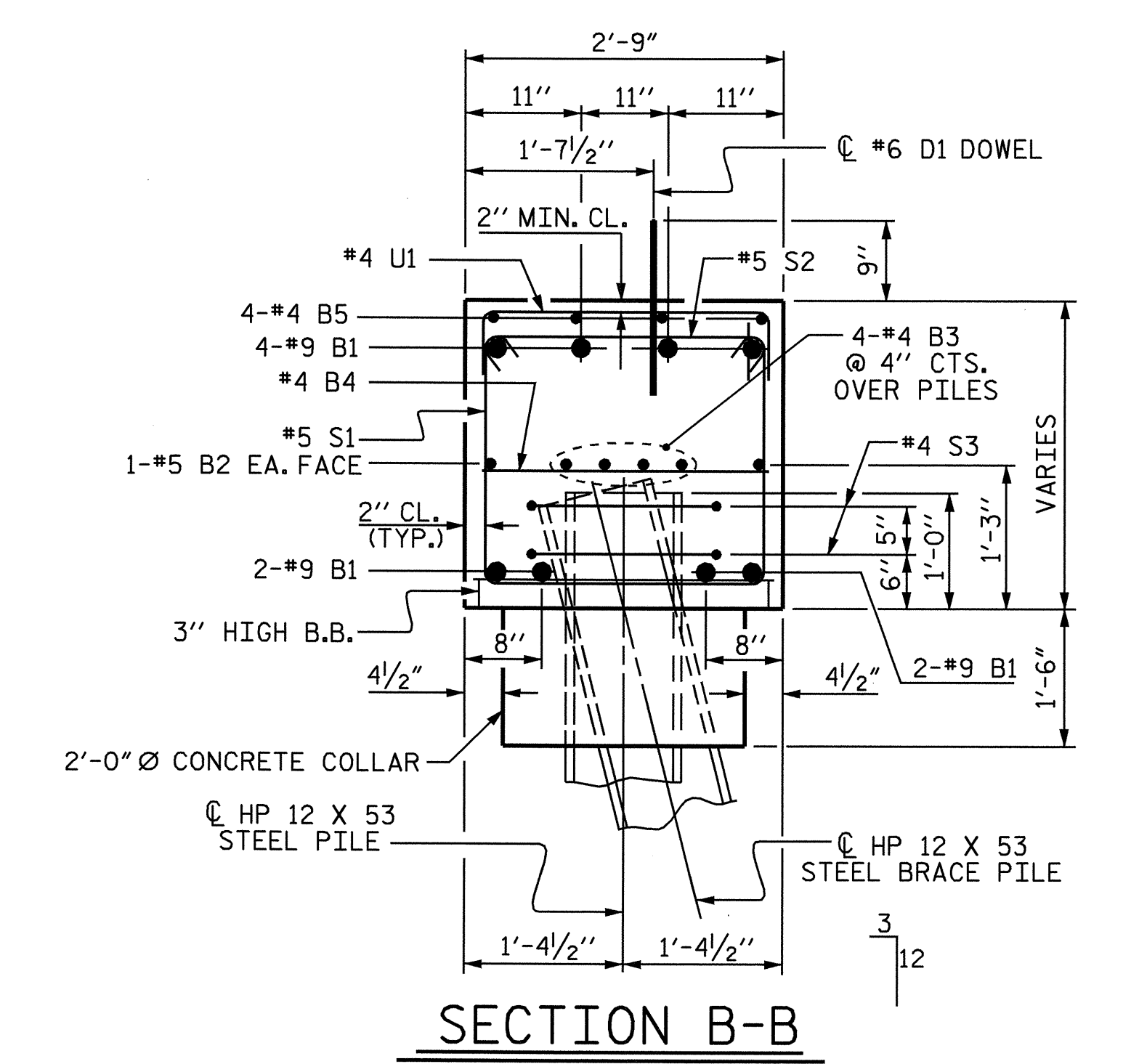
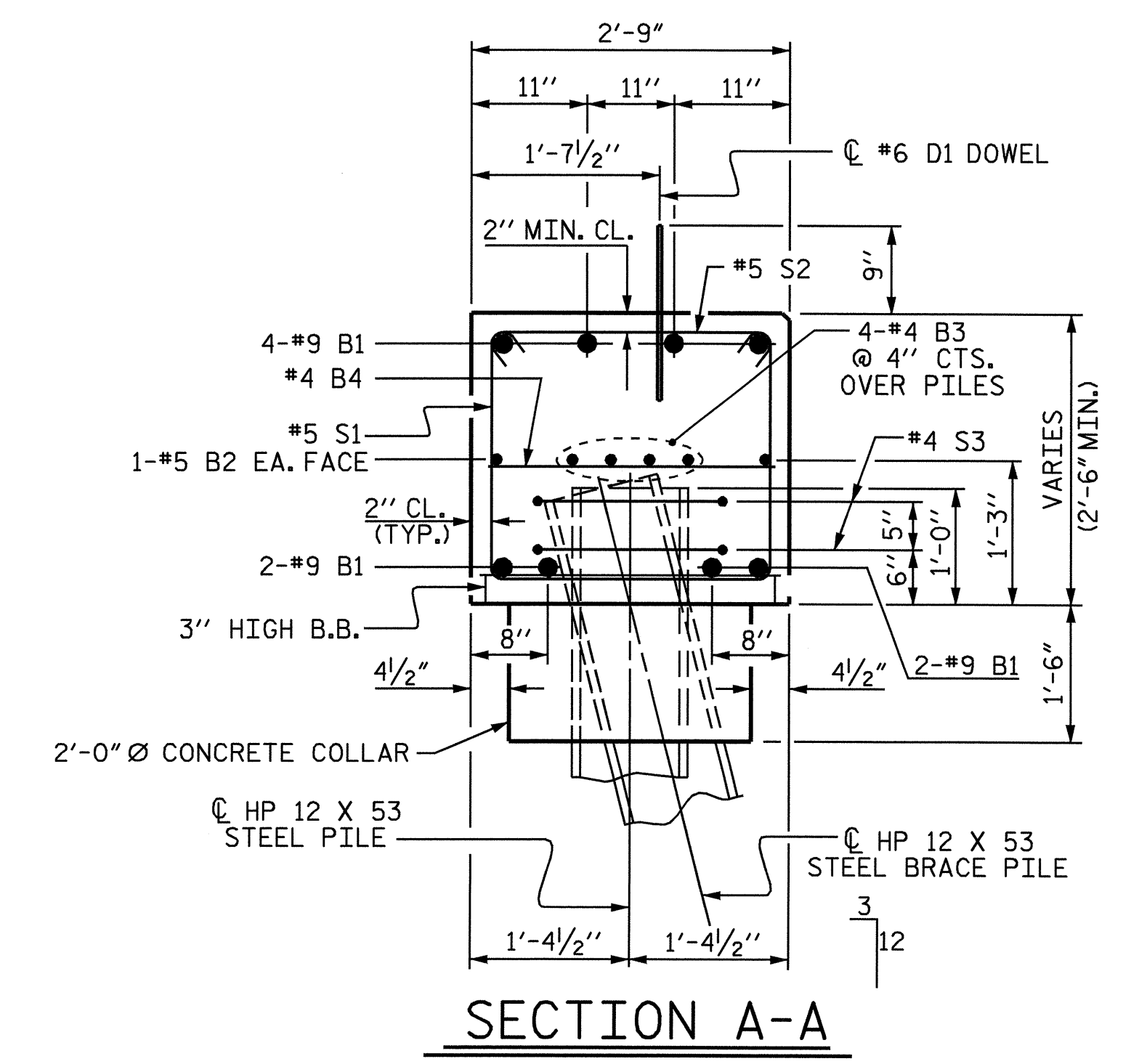
TEMPORARY DRAINAGE AT END BENT

BAR TYPES

BILL OF MATERIAL

END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		48'-6"	1319
B2	2	#5	STR	46'-0"	96
B3	8	#4	STR	24'-3"	130
B4	12	#4	STR	2'-5"	19
B5	4	#4	STR	20'-0"	53
D1	24	#6	STR	1'-6"	54
H1	6	#4	2	6'-5"	26
H2	6	#4	2	6'-8"	27
H3	6	#4	3	7'-2"	29
H4	6	#4	3	6'-10"	27
K1	12	#4	STR	3'-10"	31
S1	57	#4	5	7'-5"	282
S2	57	#4	4	3'-2"	121
S3	12	#4	6	6'-6"	52
U1	14	#4	7	5'-5"	51
U2	4	#4	7	4'-6"	12
V1	48	#4	STR	4'-10"	155
REINFORCING STEEL				LBS.	2484
CLASS 'A' CONCRETE					
POUR #1					
CAP, COLLARS & LOWER WINGS				CU. YDS.	14.9
POUR #2					
BACKWALL & UPPER WINGS				CU. YDS.	1.9
POUR #3					
LATERAL GUIDES				CU. YDS.	0.1
TOTAL				CU. YDS.	16.9
HP 12 x 53 STEEL PILES					
NO. 6				330 LIN. FT.	
PILE REDRIVES					6 EA.

ALL BAR DIMENSIONS ARE OUT TO OUT.



DRAWN BY : M. GUDLAUGSSON DATE : 7/09/09
 CHECKED BY : M.D. PISO DATE : 8/13/09

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 mgudlaugsson



PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-
 SHEET 3 OF 3

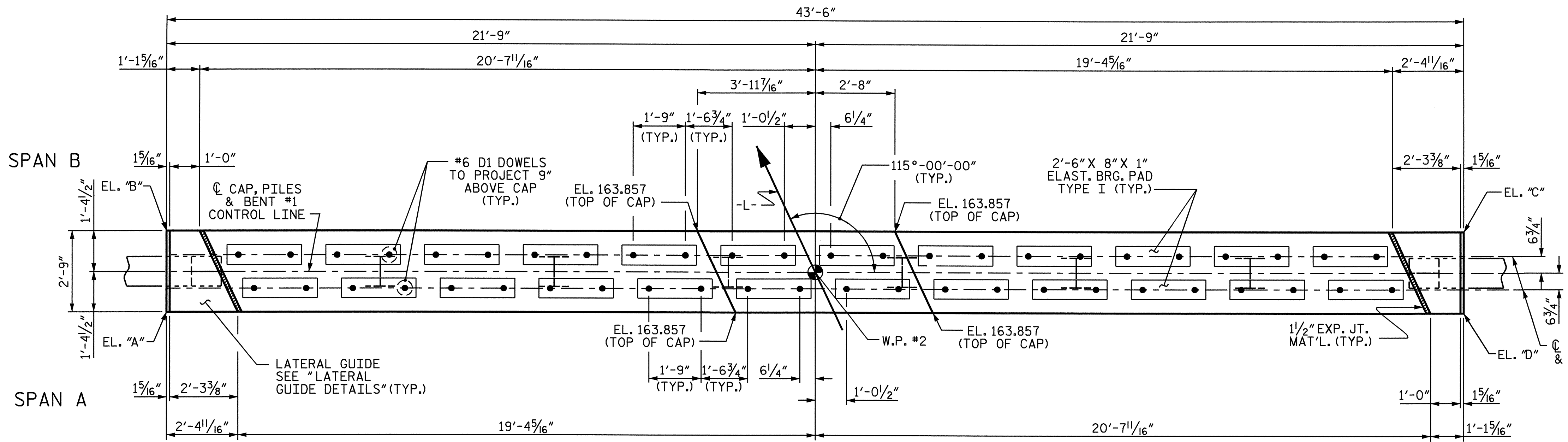
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
END BENT #1

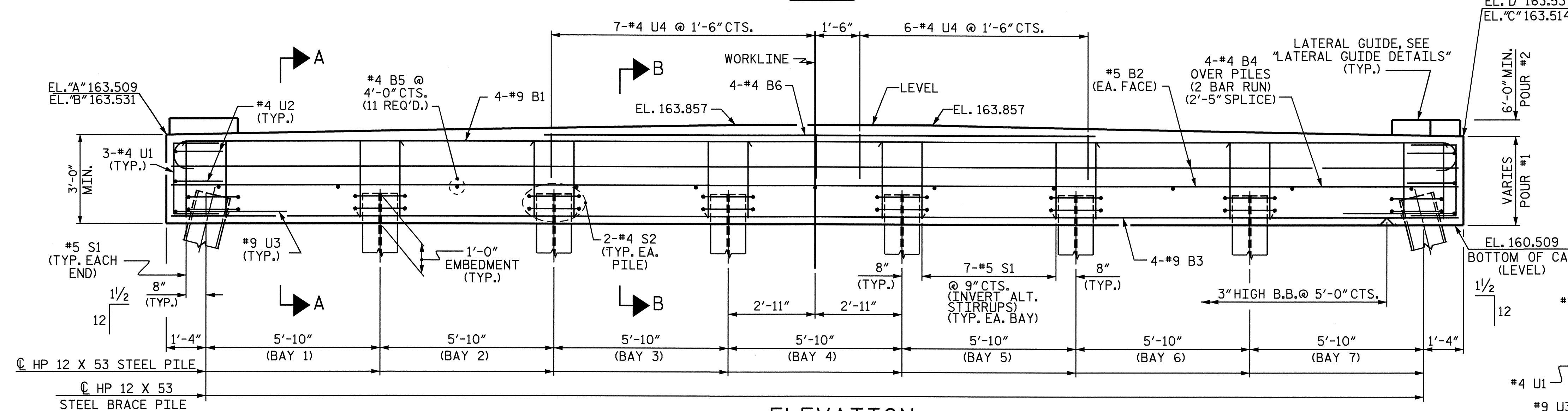
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 37

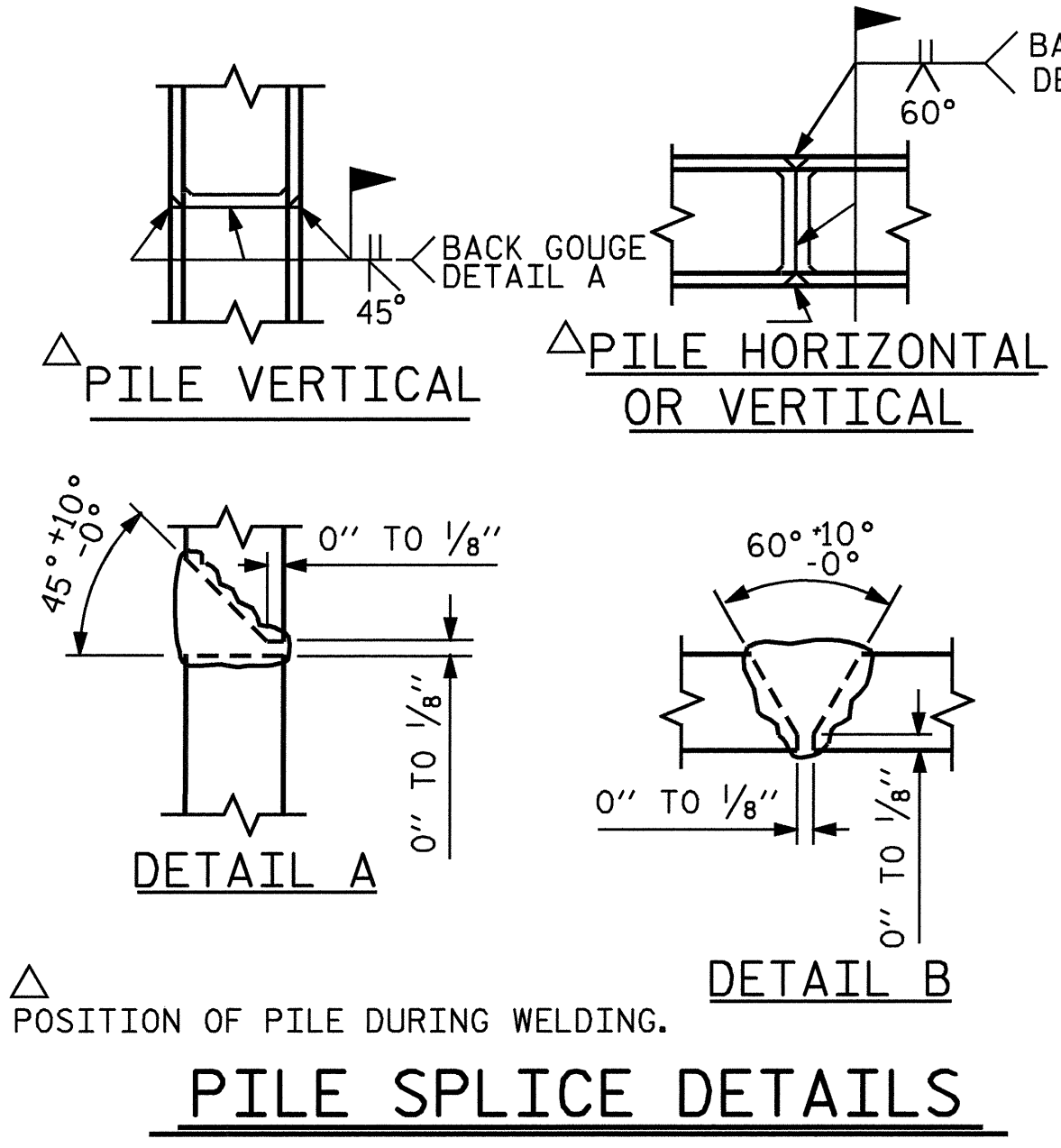
STR. #2



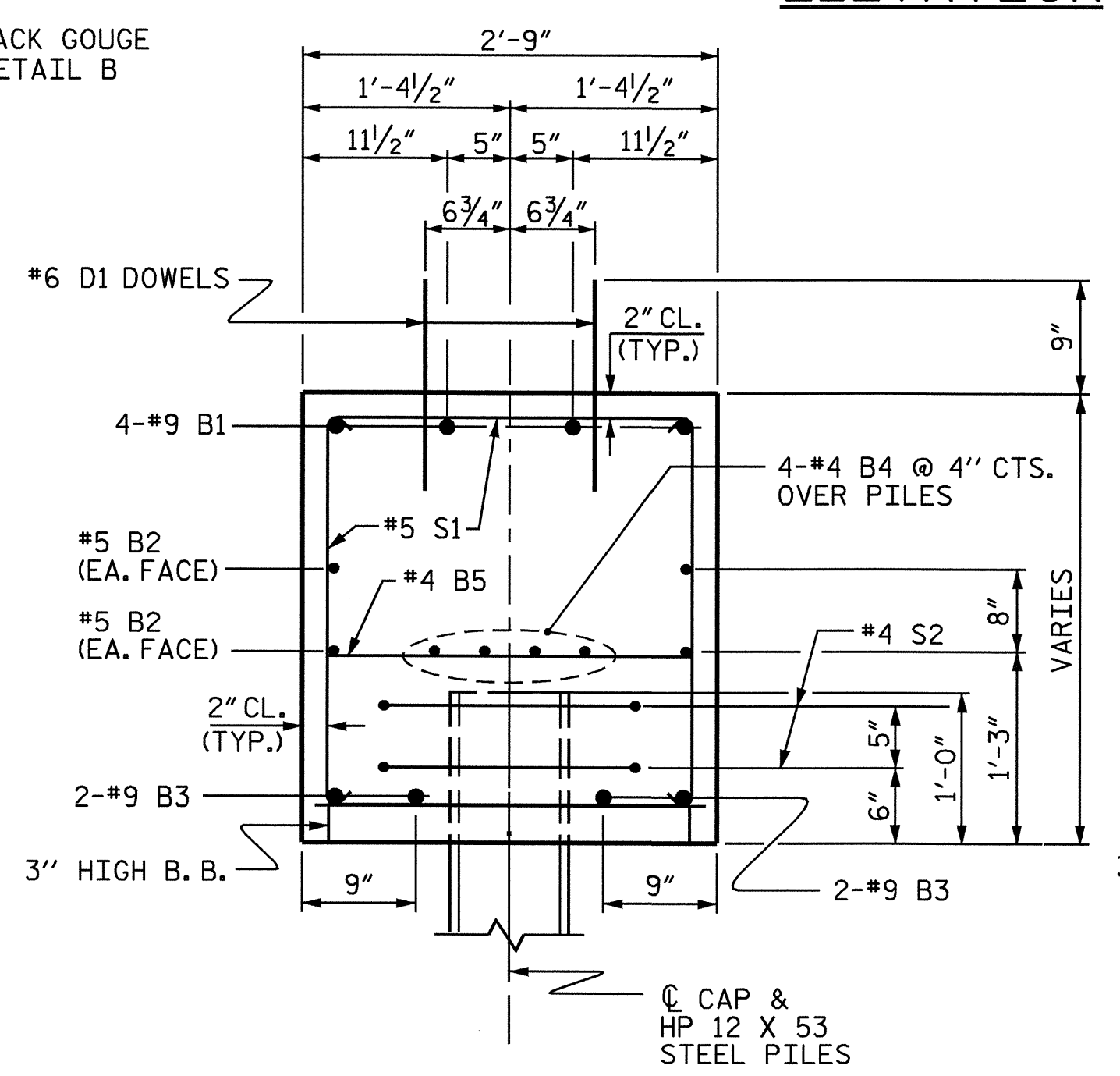
PLAN



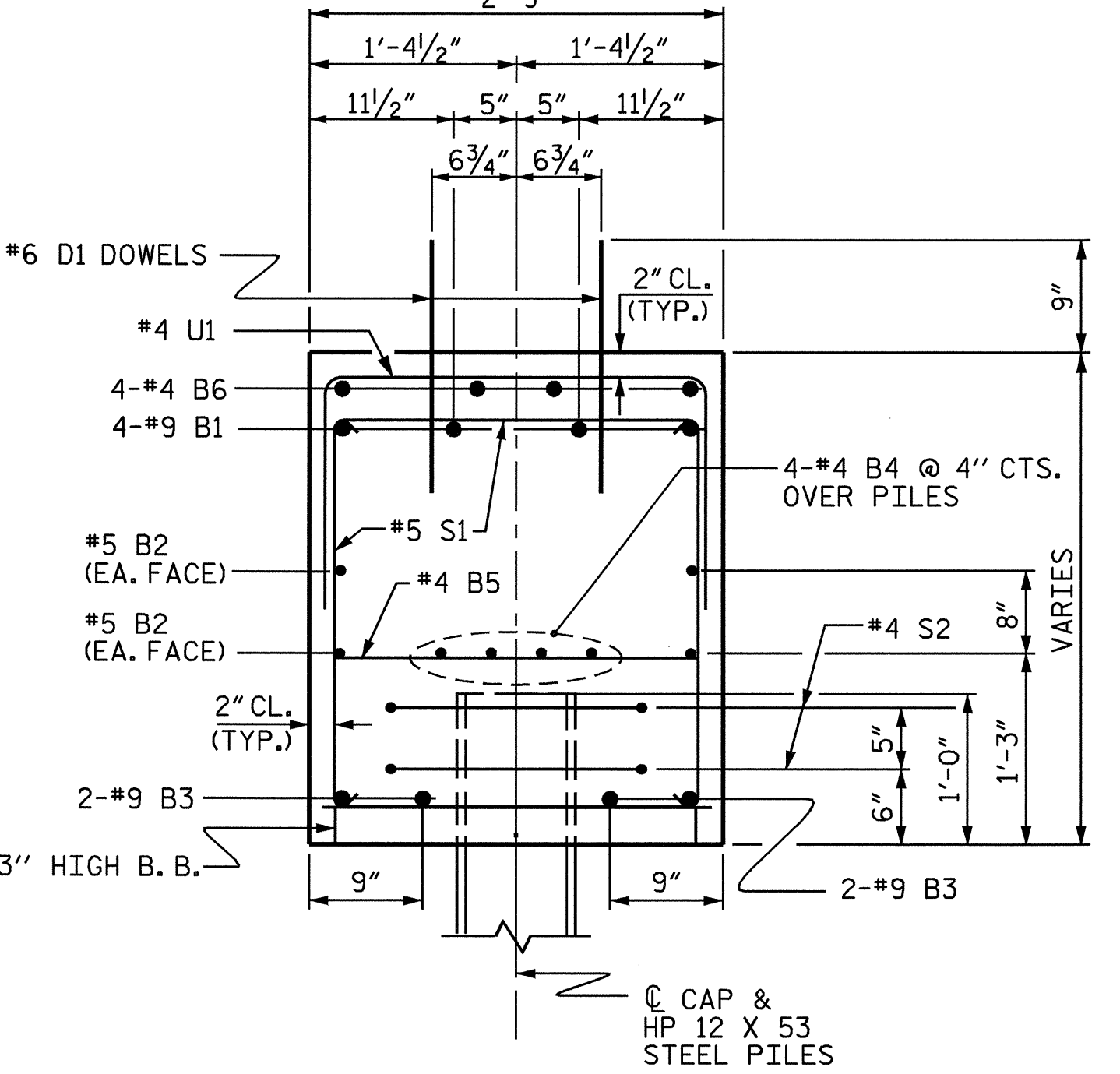
ELEVATION



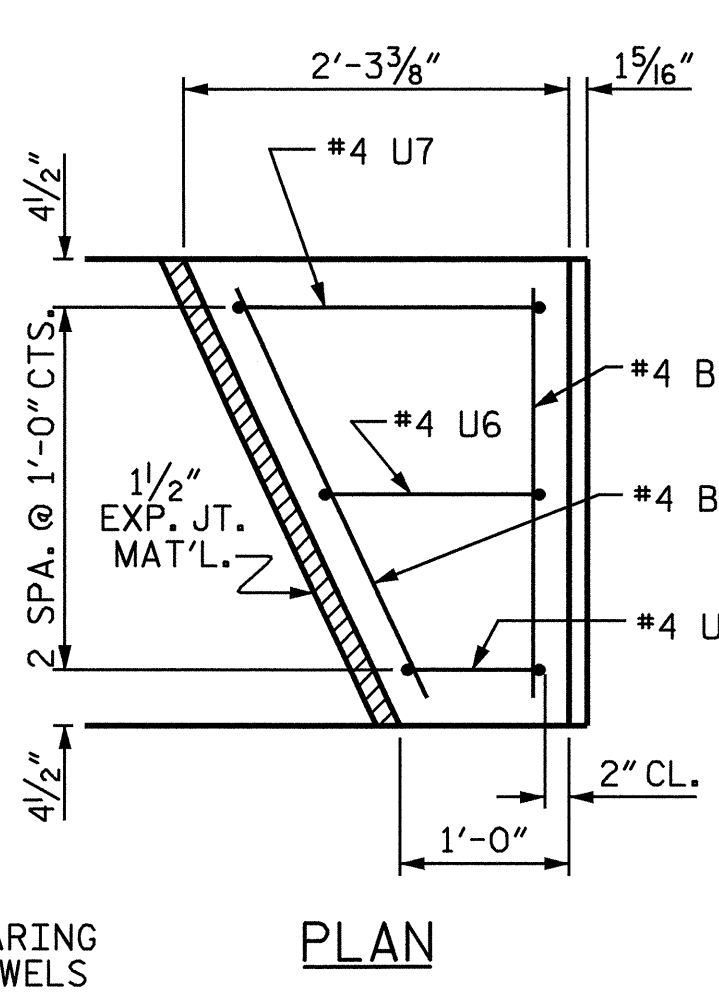
PILE SPLICE DETAILS



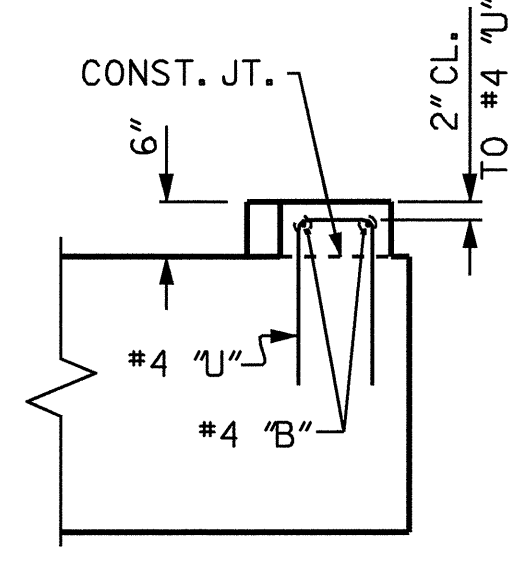
SECTION A-A



SECTION B-B

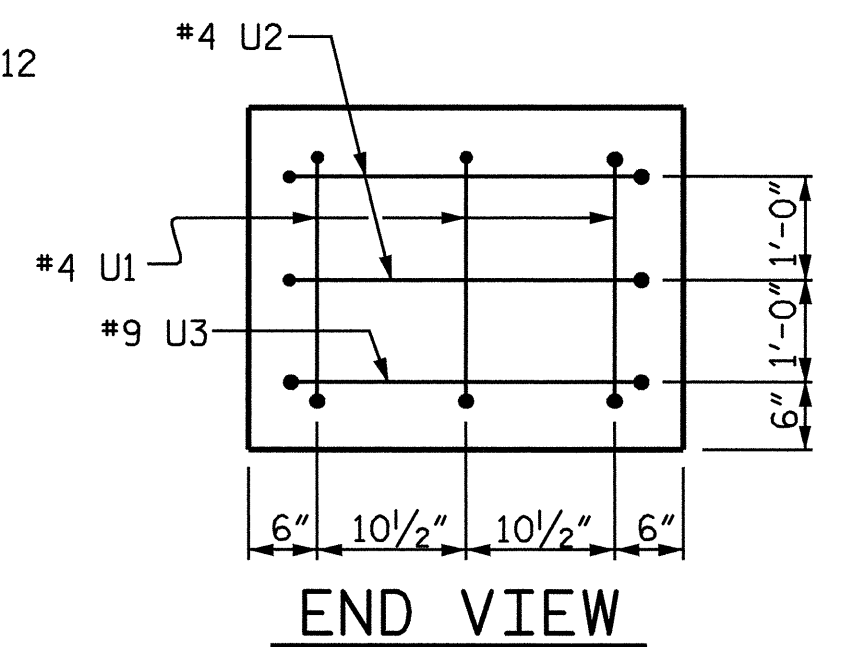


PLAN



ELEVATION

LATERAL GUIDE DETAILS (TYP. EA. LATERAL GUIDE)



END VIEW

NOTES

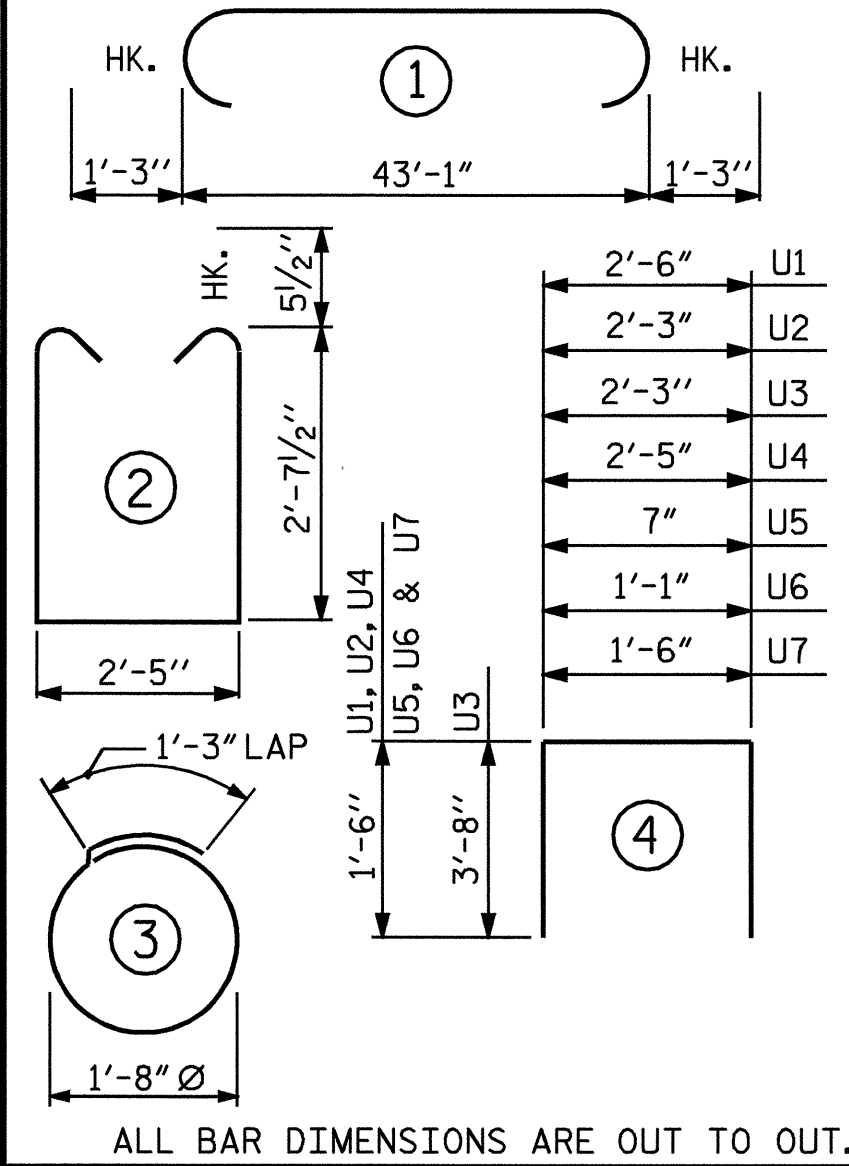
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDE AT EACH END OF CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
 GALVANIZE THE TOP 25 FEET OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

BILL OF MATERIAL

BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9		45'-7"	620
B2	4	#5	STR	43'-2"	180
B3	4	#9	STR	43'-2"	587
B4	8	#4	STR	22'-10"	122
B5	11	#4	STR	2'-5"	18
B6	4	#4	STR	18'-6"	49
B7	2	#4	STR	2'-8"	4
B8	2	#4	STR	2'-5"	3
D1	48	#6	STR	1'-6"	108
S1	51	#5		8'-7"	457
S2	16	#4		6'-6"	69
U1	6	#4		5'-6"	22
U2	4	#4		5'-3"	14
U3	2	#9		9'-7"	65
U4	13	#4		5'-5"	47
U5	2	#4		3'-7"	5
U6	2	#4		4'-1"	5
U7	2	#4		4'-6"	6

TOTAL REINFORCING STEEL LBS. 2381
 CLASS "A" CONCRETE BREAKDOWN
 POUR #1 (CAP) C.Y. 14.2
 POUR #2 (LATERAL GUIDE) C.Y. 0.2
 TOTAL CLASS "A" CONCRETE C.Y. 14.4
 HP 12 X 53 GALVANIZED STEEL PILES NO. 8 LIN. FT. 560
 PILE REDRIVES 8 EA.

BAR TYPES



PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

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

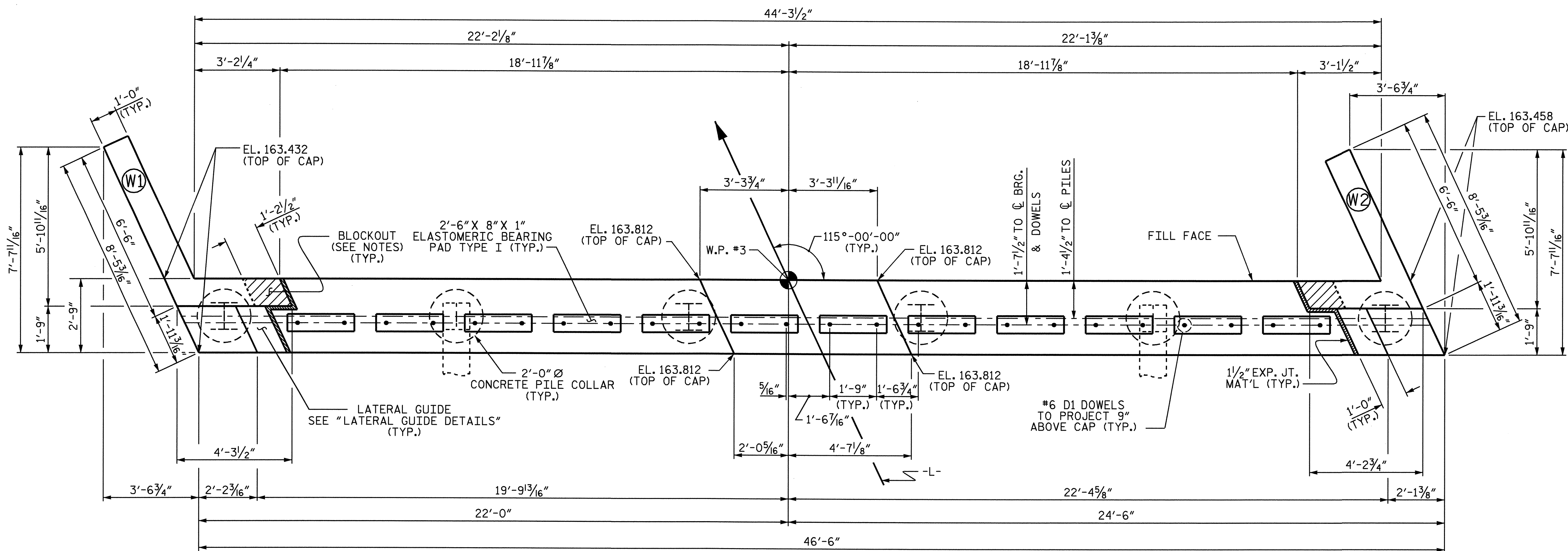
SHEET NO. S-31
 TOTAL SHEETS 37



DRAWN BY: M. GUDLAUGSSON DATE: 7/16/09
 CHECKED BY: J. B. WILSON DATE: 8/12/09

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STR #2



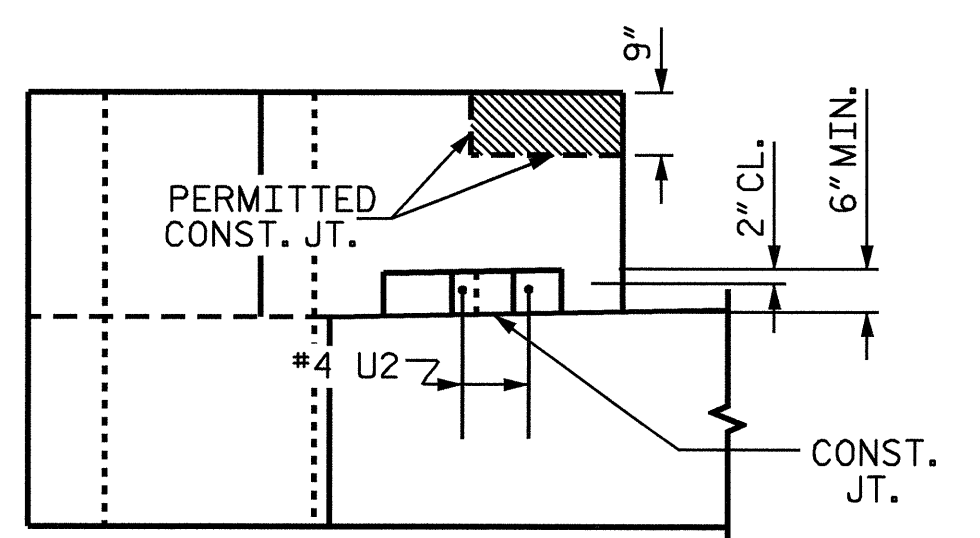
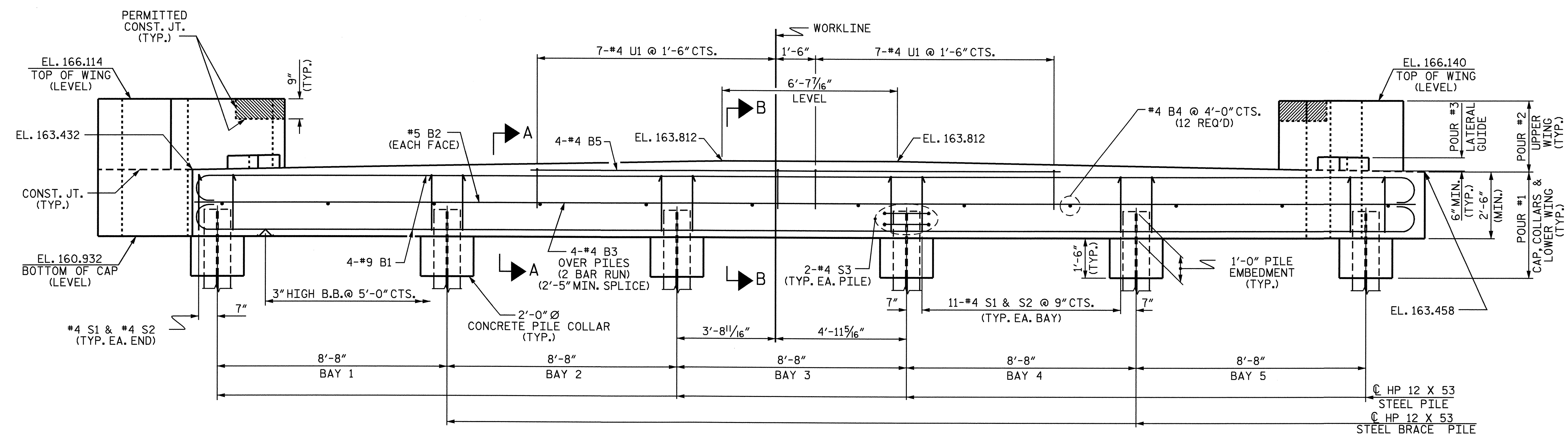
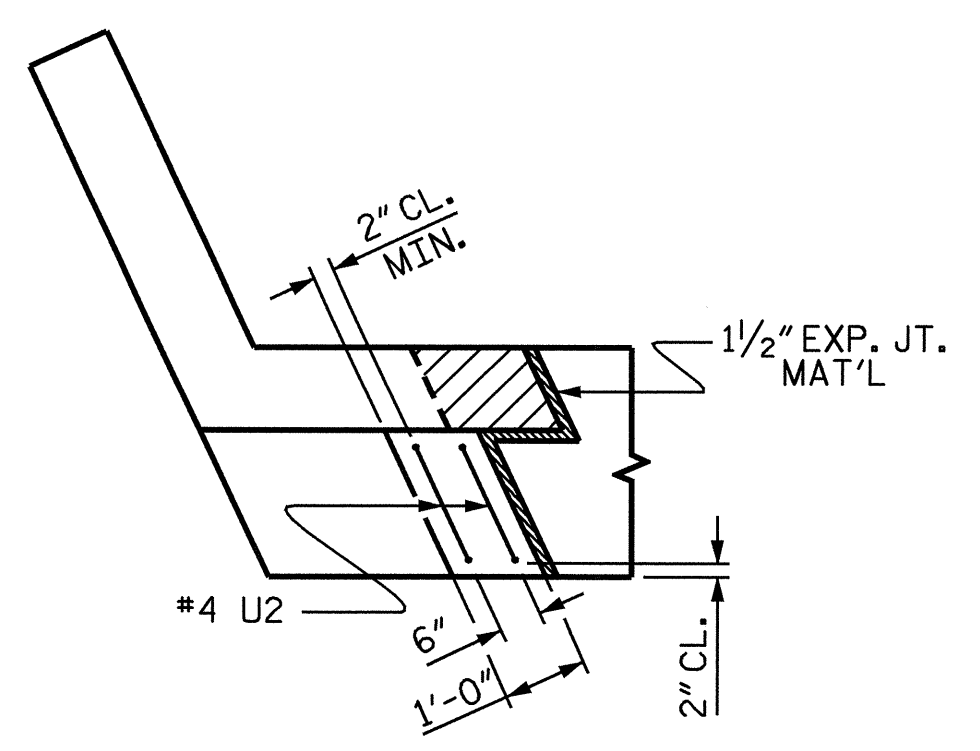
NOTES

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

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

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

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

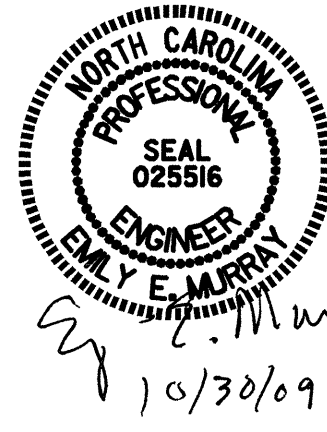


LATERAL GUIDE
(EACH END SIMILAR)

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

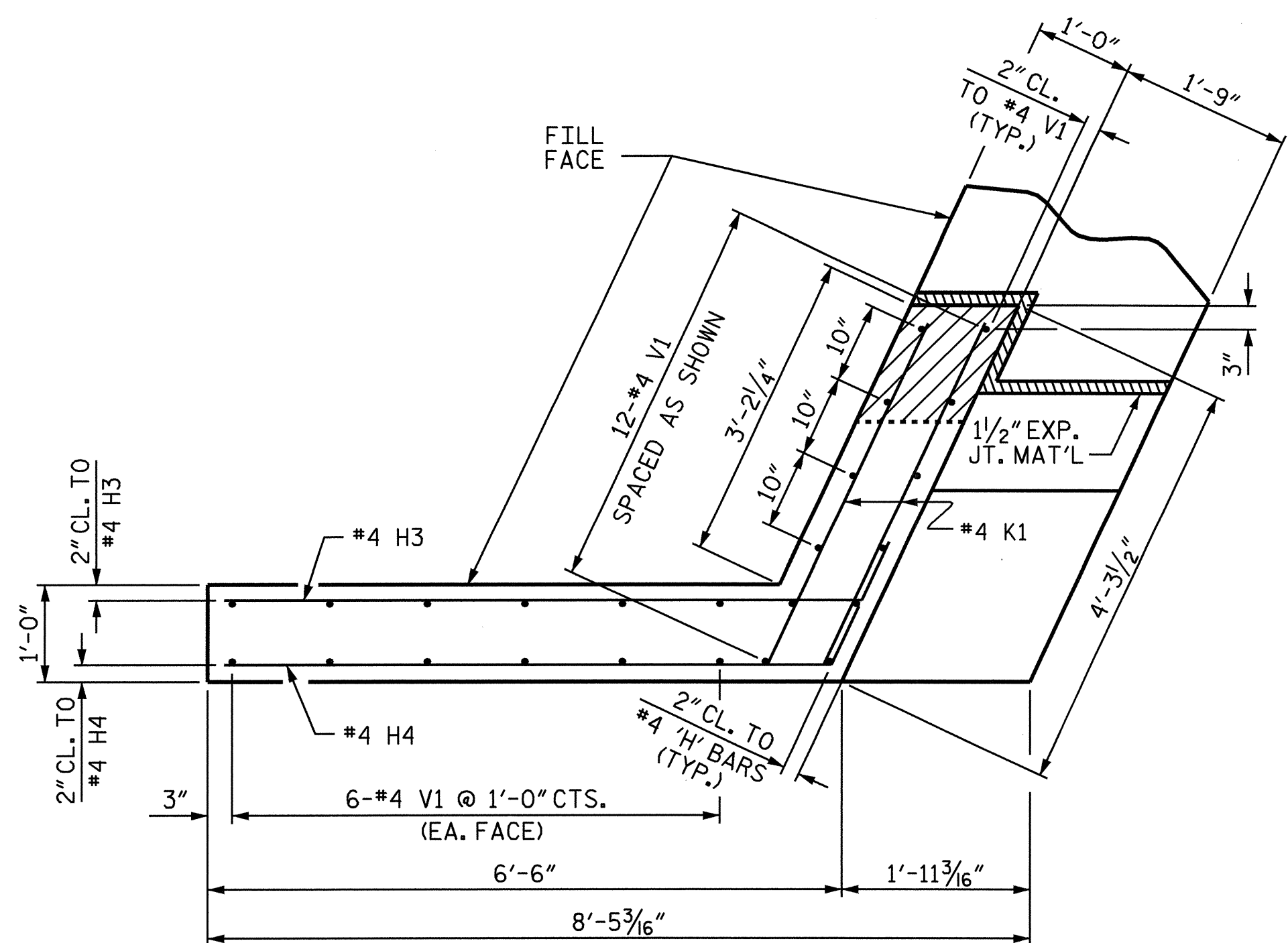
SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-32					TOTAL SHEETS 37

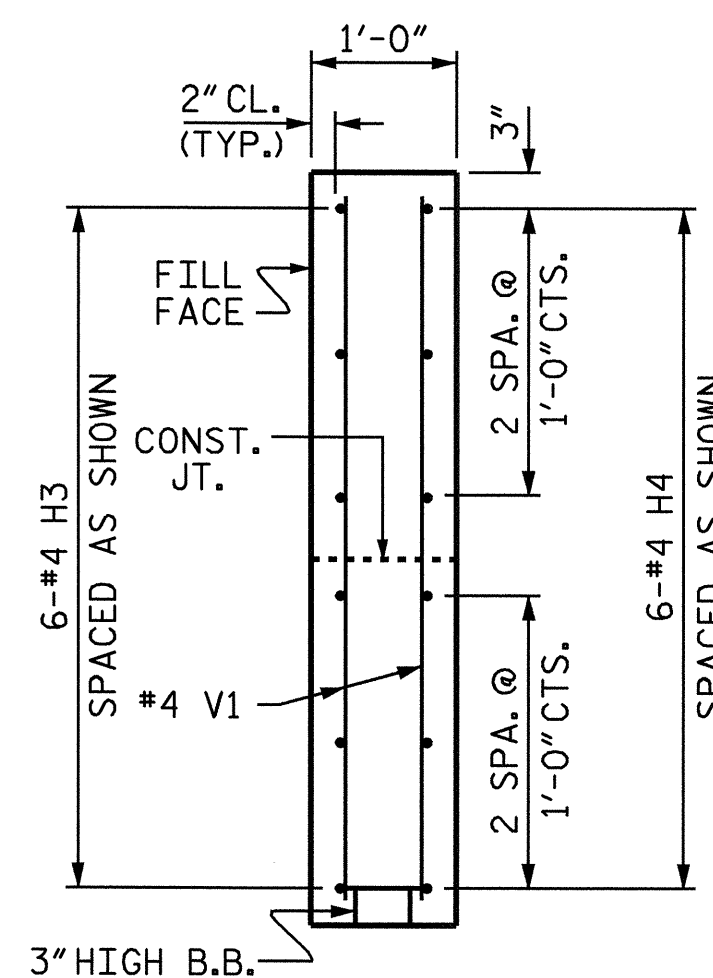


DRAWN BY: M. GUDLAUGSSON DATE: 7/13/09
 CHECKED BY: M.D. PISO DATE: 8/13/09

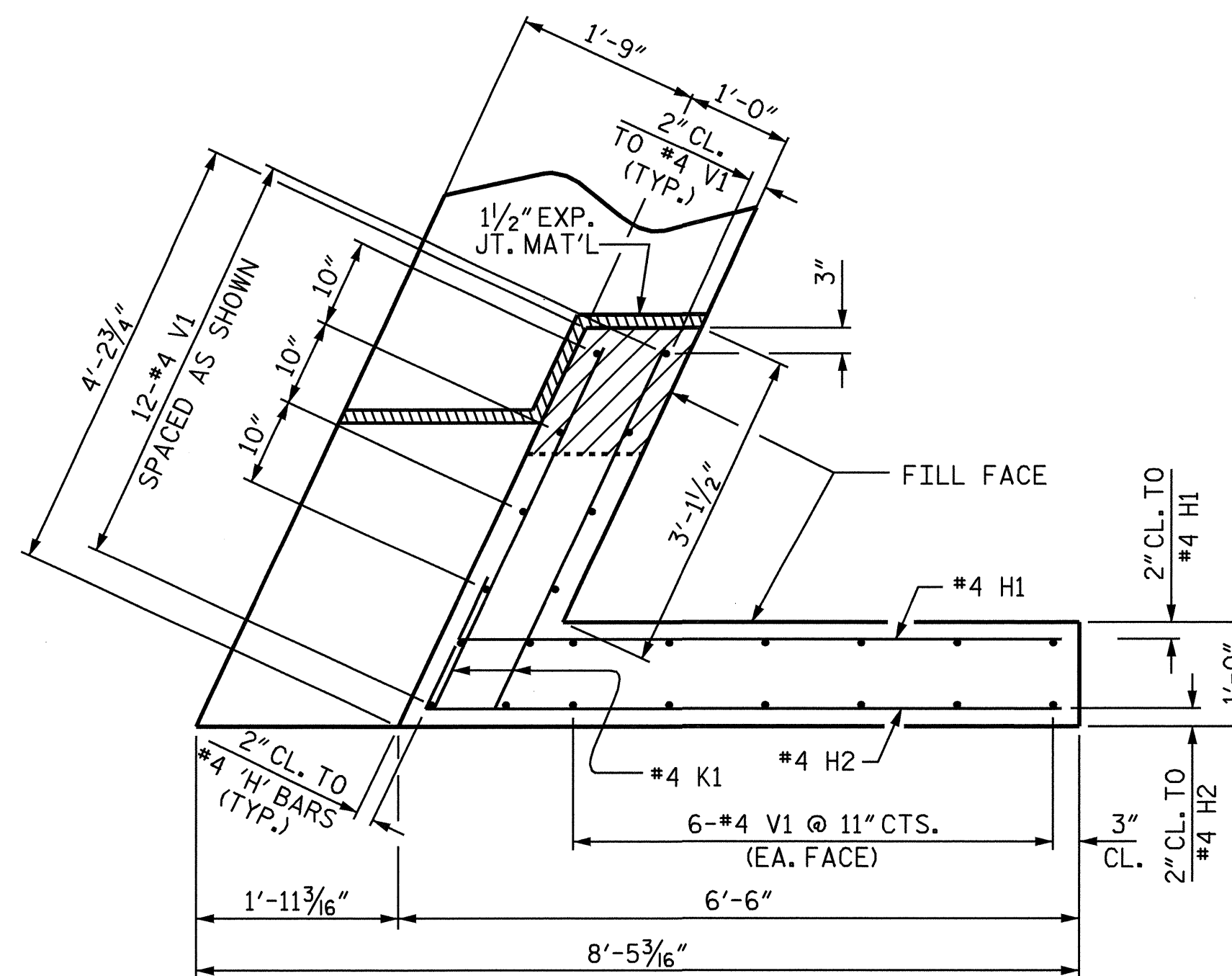
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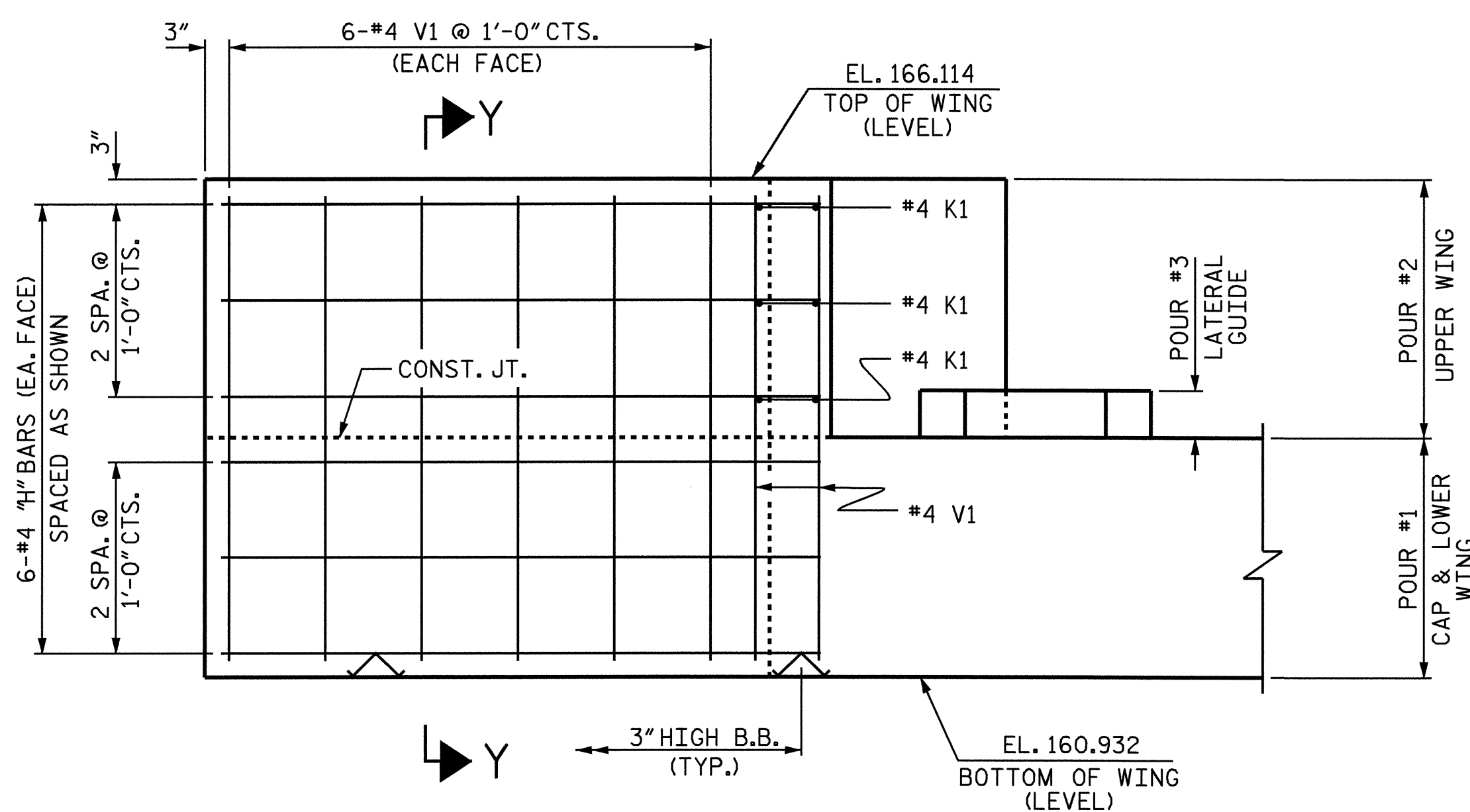
PLAN OF LEFT WING (W1)



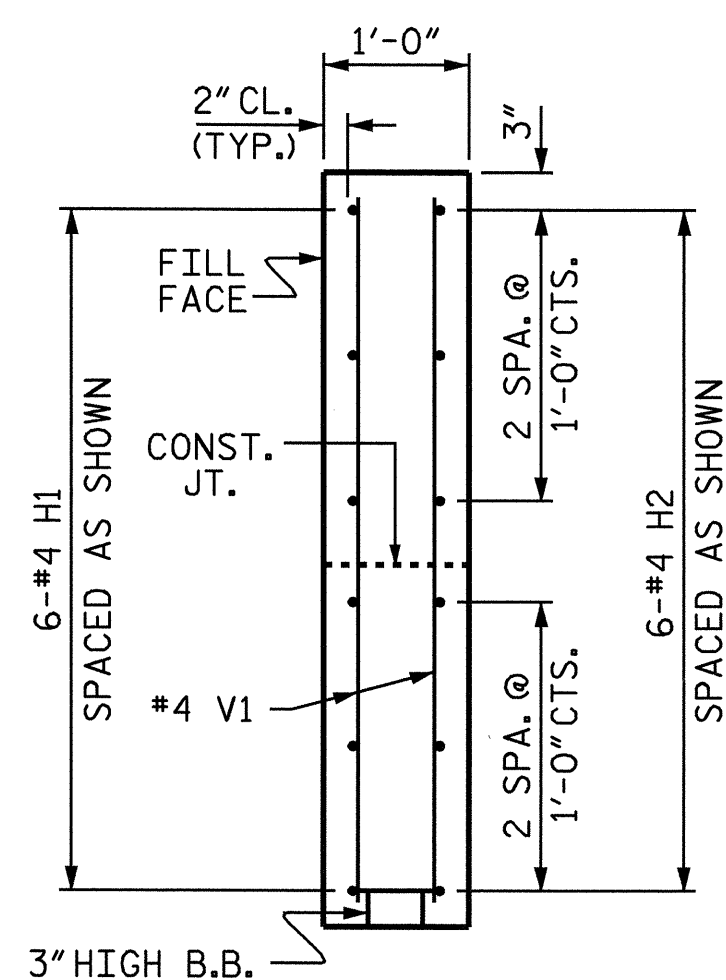
SECTION Y-Y



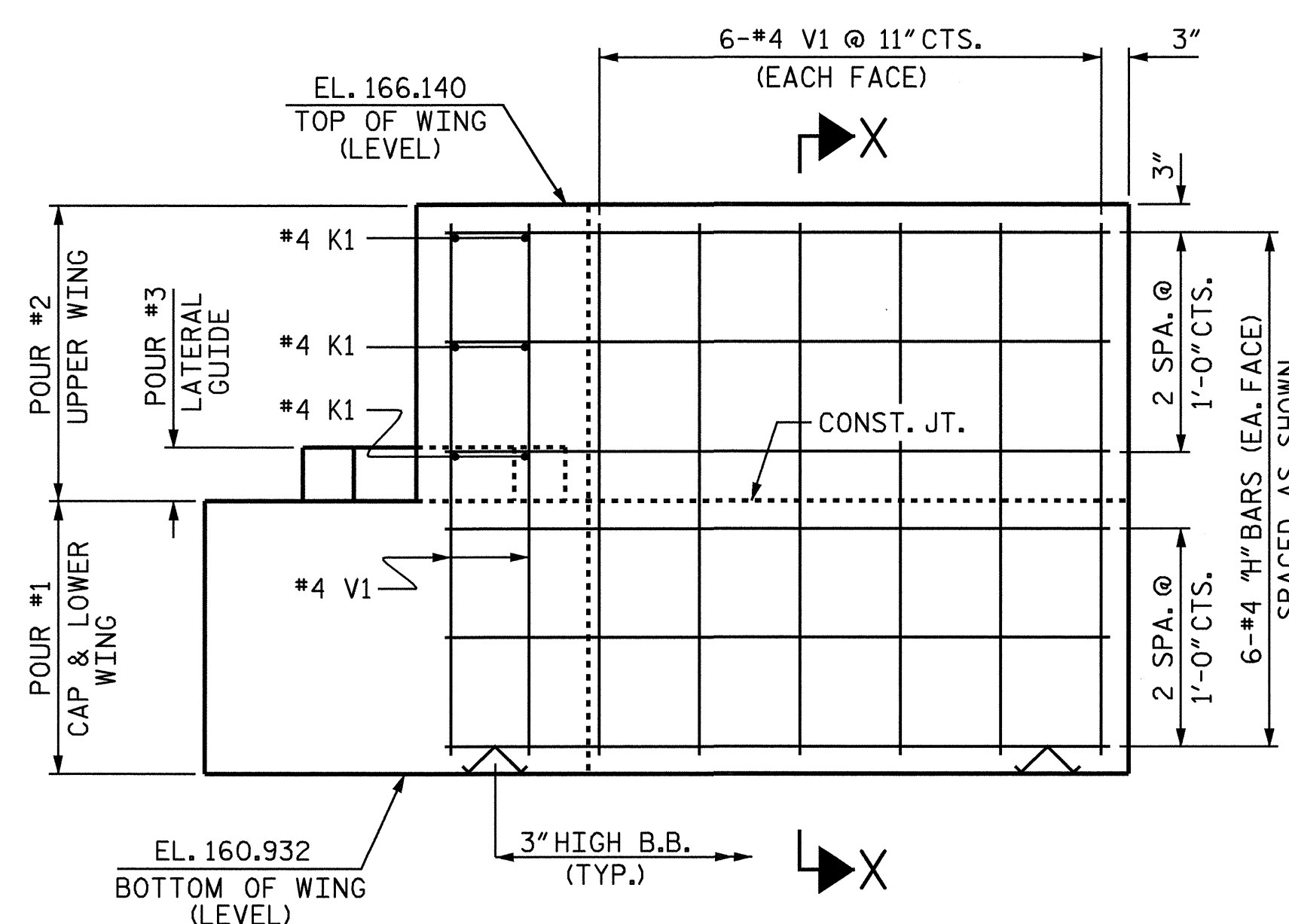
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



SECTION X-X



ELEVATION OF RIGHT WING (W2)

DRAWN BY : M. GUDLAUGSSON DATE : 7/13/09
 CHECKED BY : M.D. PISO DATE : 8/13/09

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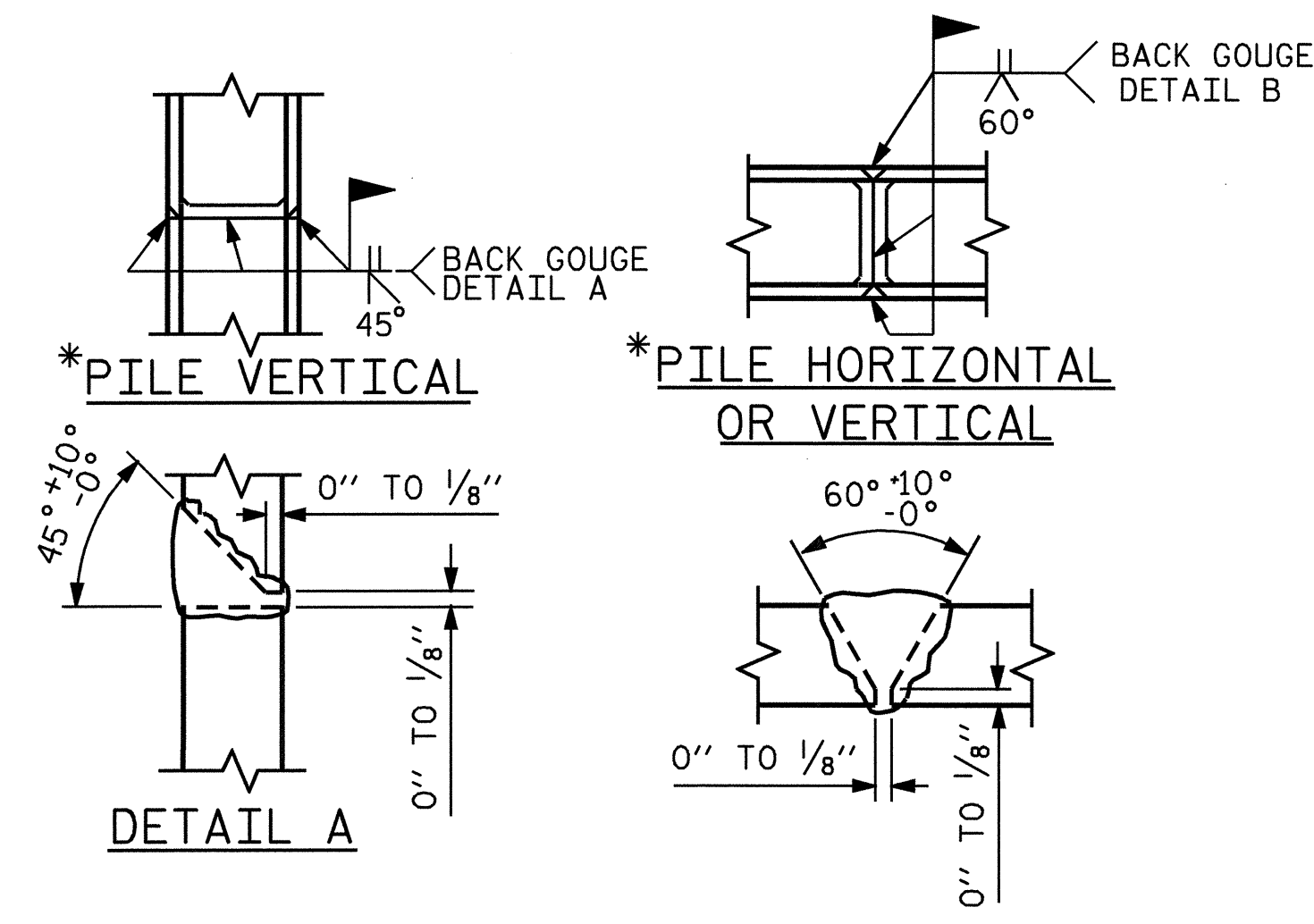
PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

SHEET 2 OF 3

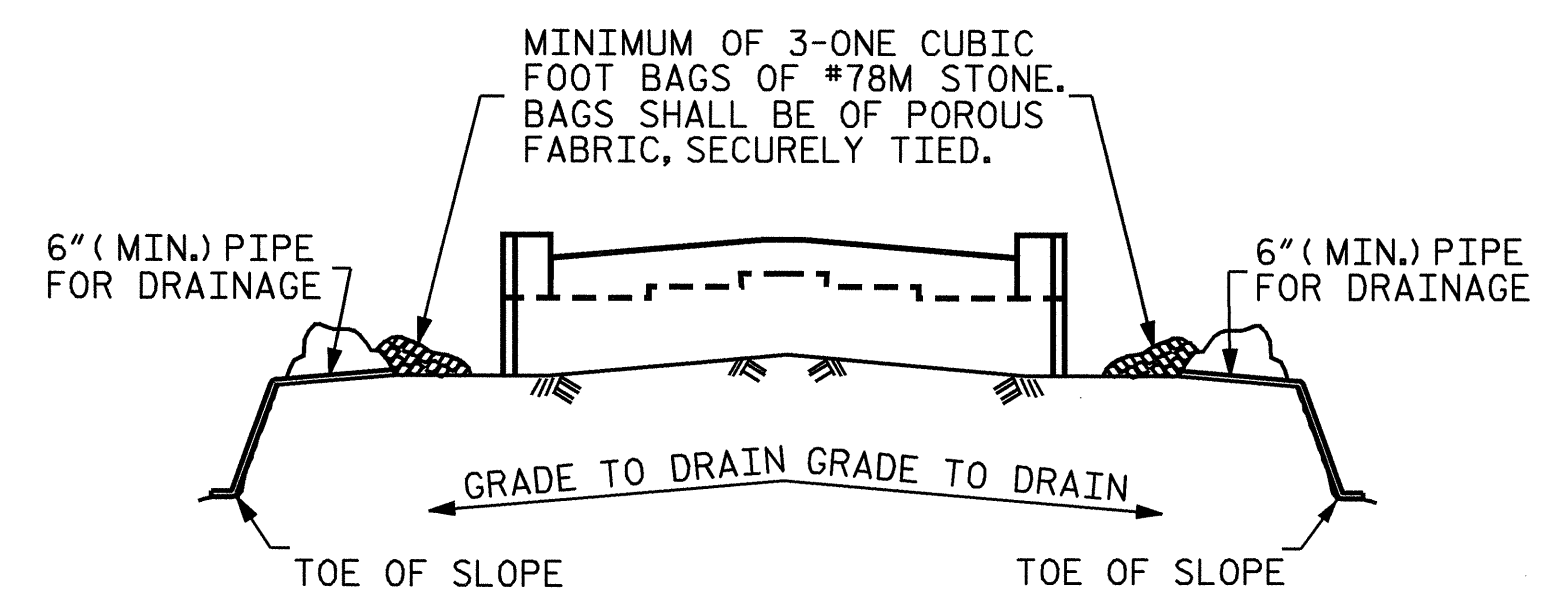
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-33
TOTAL SHEETS 37

STR. #2



* POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS



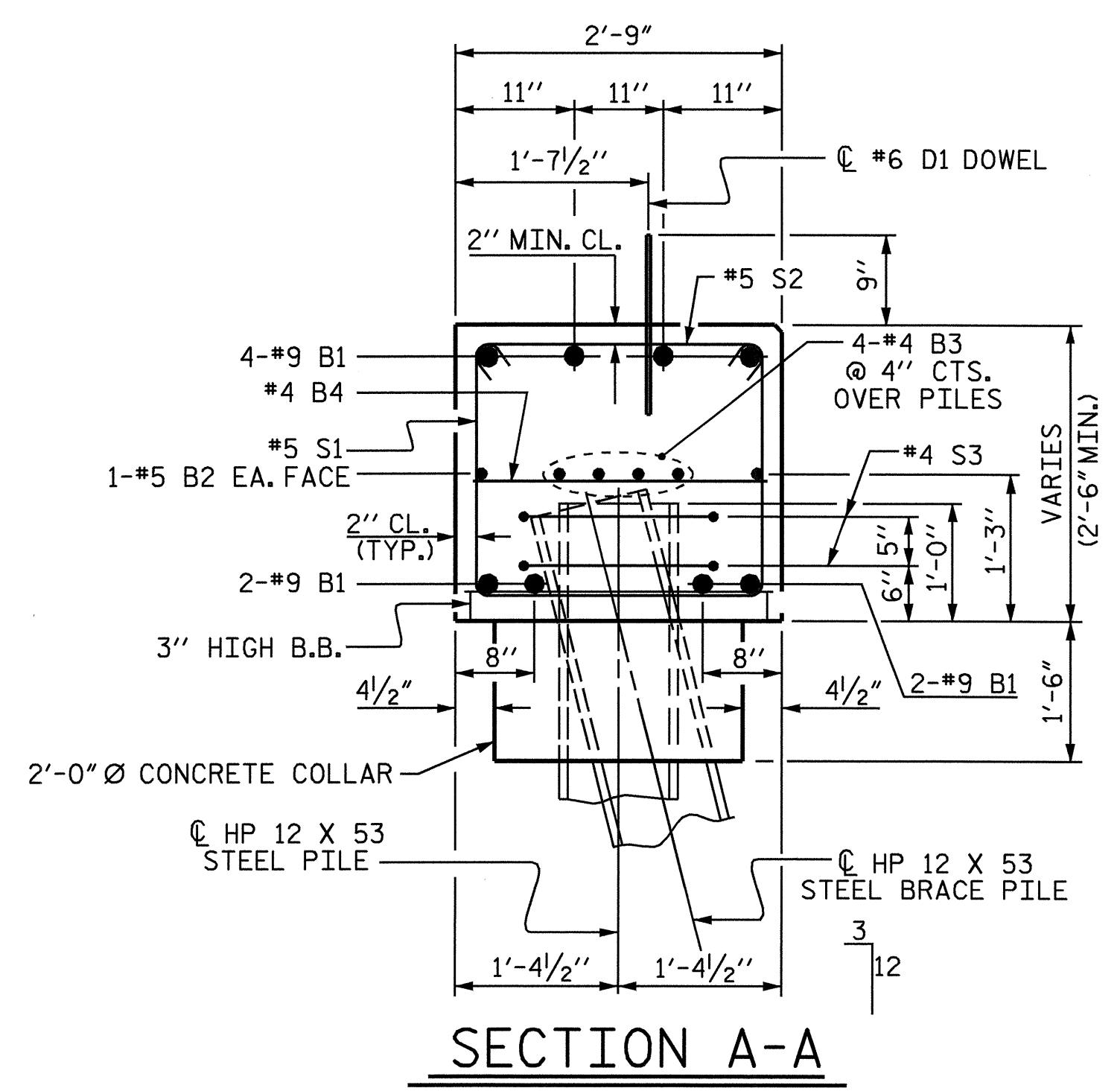
MINIMUM OF 3-ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

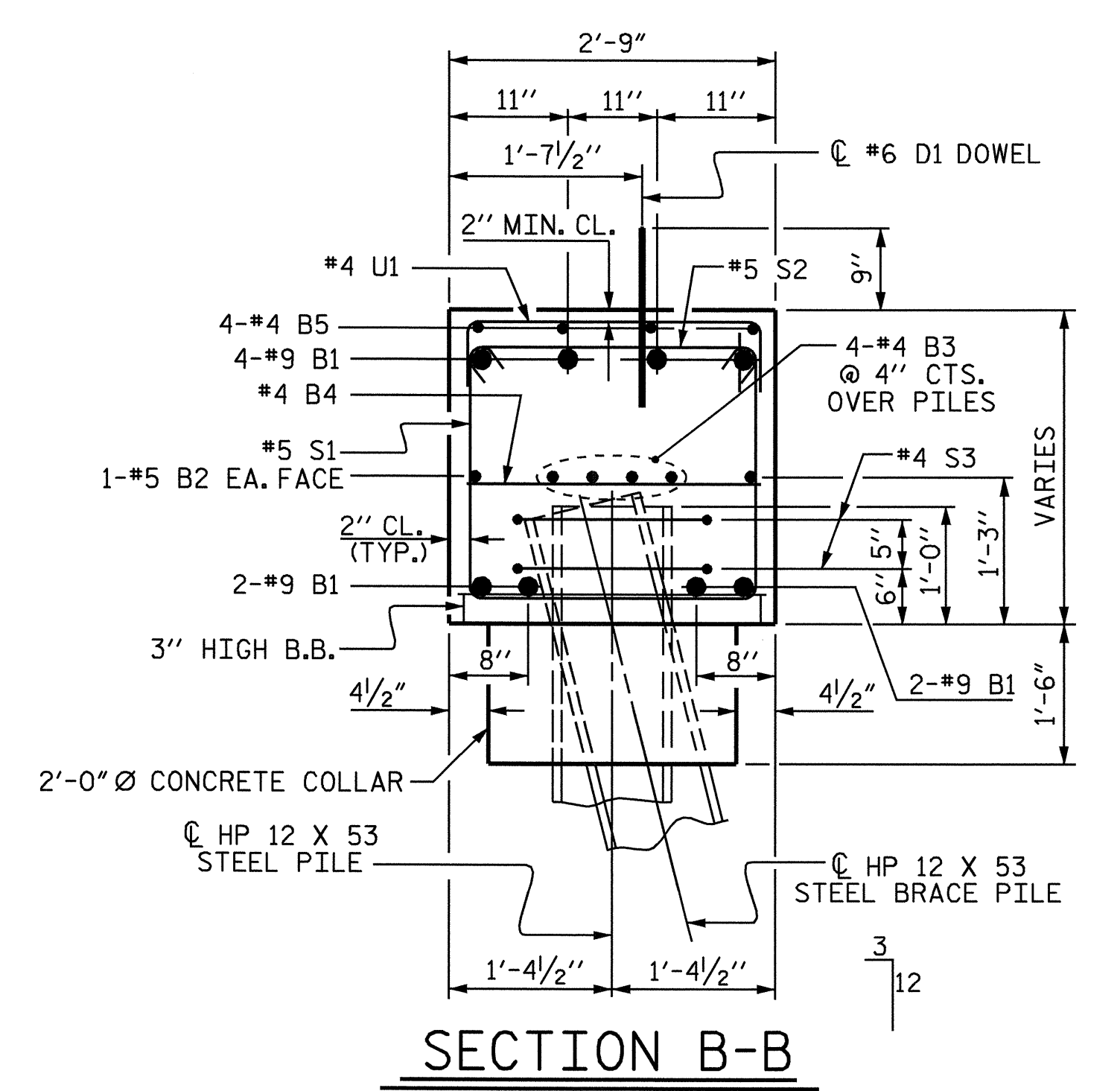
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



SECTION A-A



SECTION B-B

BAR TYPES		BILL OF MATERIAL				
		END BENT #2				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	48'-6"	1319	
B2	2	#5	STR	46'-0"	96	
B3	8	#4	STR	24'-3"	130	
B4	12	#4	STR	2'-5"	19	
B5	4	#4	STR	20'-0"	53	
D1	24	#6	STR	1'-6"	54	
H1	6	#4	2	6'-5"	26	
H2	6	#4	2	6'-8"	27	
H3	6	#4	3	7'-2"	29	
H4	6	#4	3	6'-10"	27	
K1	12	#4	STR	3'-10"	31	
S1	57	#4	5	7'-5"	282	
S2	57	#4	4	3'-2"	121	
S3	12	#4	6	6'-6"	52	
U1	14	#4	7	5'-5"	51	
U2	4	#4	7	4'-6"	12	
V1	48	#4	STR	4'-10"	155	
REINFORCING STEEL				LBS.	2484	
CLASS 'A' CONCRETE						
POUR #1						
CAP, COLLARS & LOWER WINGS				CU. YDS.	14.9	
POUR #2						
BACKWALL & UPPER WINGS				CU. YDS.	1.9	
POUR #3						
LATERAL GUIDES				CU. YDS.	0.1	
TOTAL				CU. YDS.	16.9	
HP 12 x 53 STEEL PILES						
NO. 6					330 LIN. FT.	
PILE REDRIVES					6 EA.	



PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

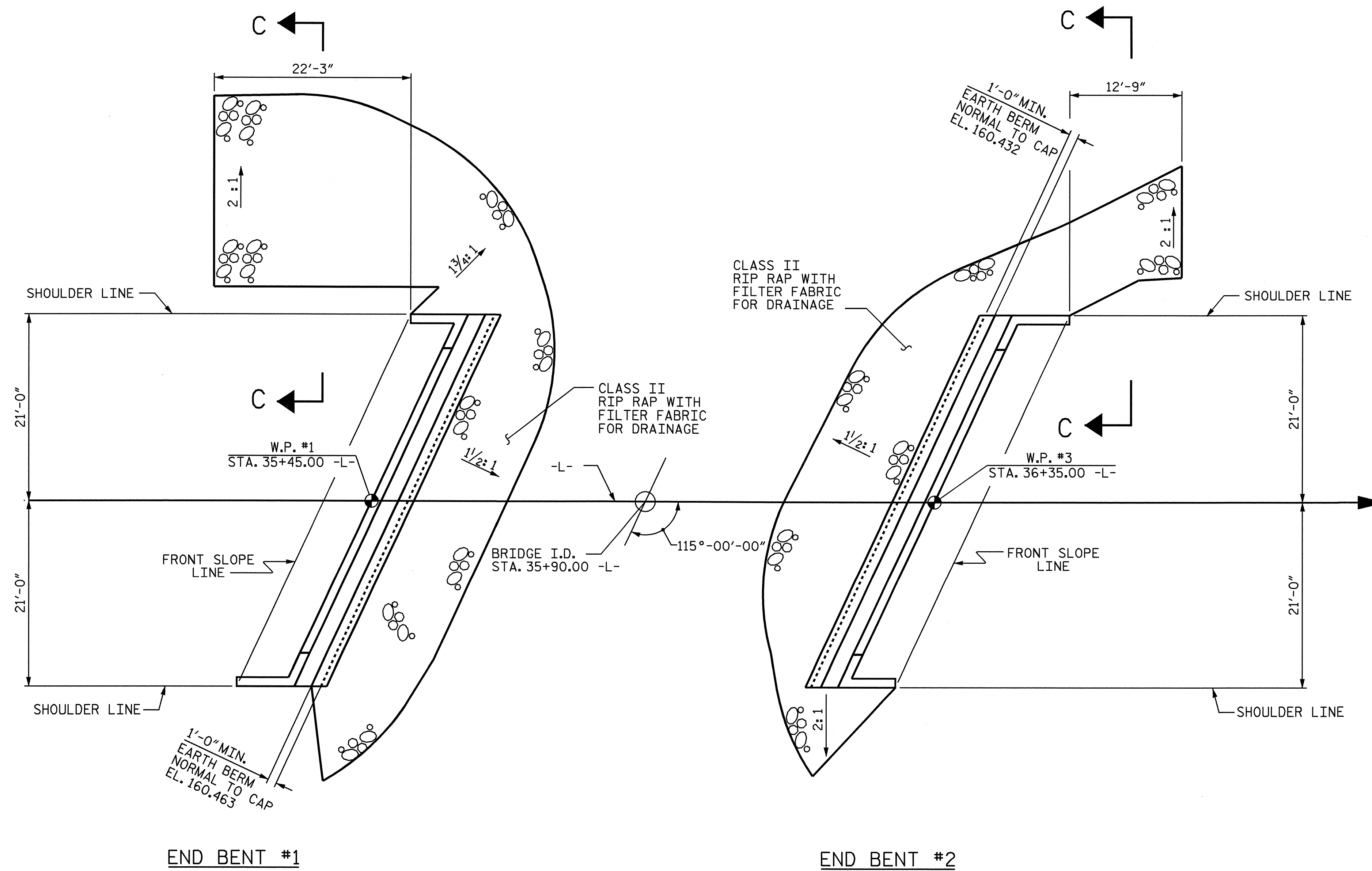
SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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TOTAL SHEETS					37

DRAWN BY : M. GUDLAUGSSON DATE : 7/13/09
 CHECKED BY : M.D. PISO DATE : 8/13/09

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STR. #2

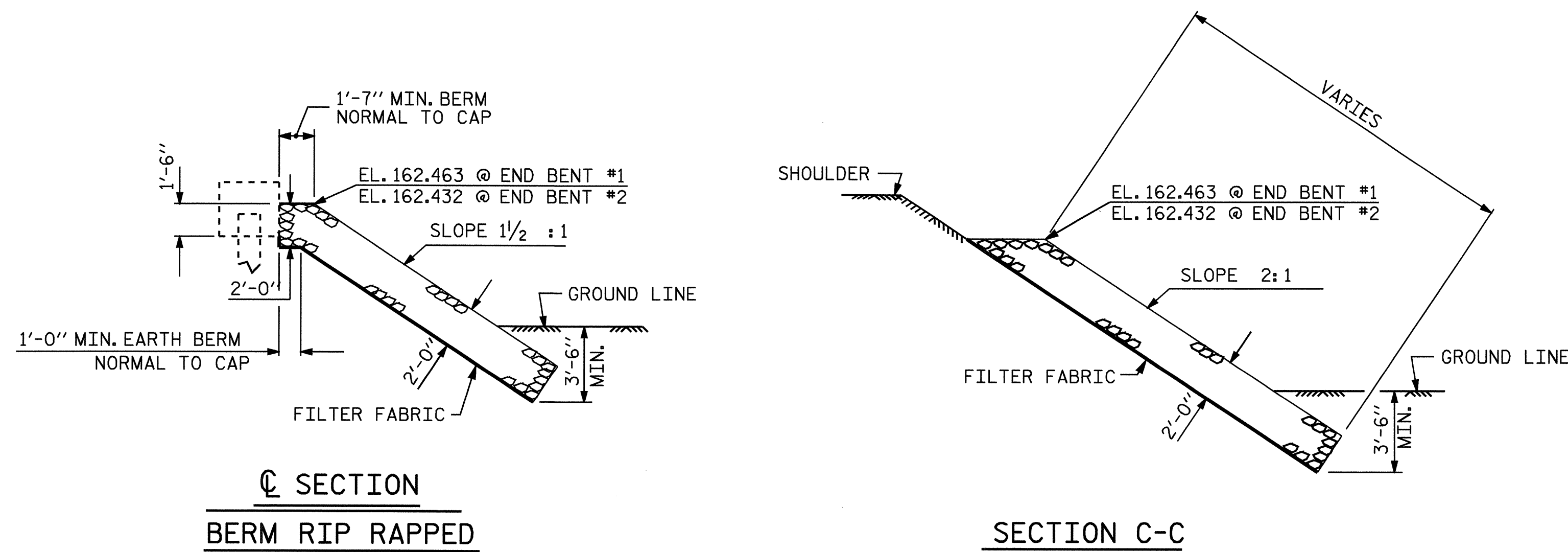


END BENT #1

END BENT #2

PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 35+90.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	116	129
END BENT 2	124	138



SECTION
BERM RIP RAPPED

SECTION C-C

PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

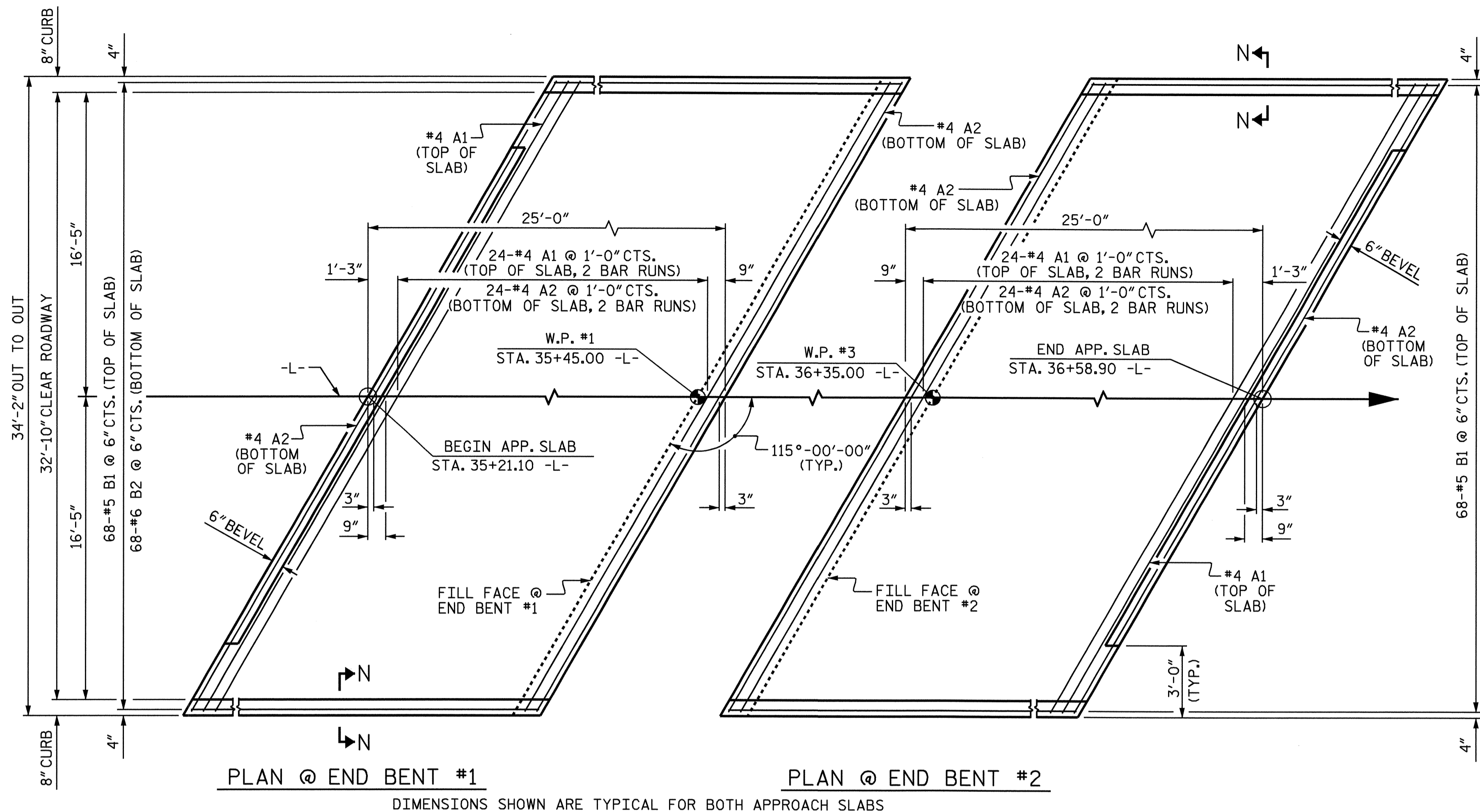
== RIP RAP DETAILS ==

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			37



ASSEMBLED BY : M. GUDLAUGSSON DATE : 6/26/09
 CHECKED BY : B.N. BARODAWALA DATE : 8/25/09

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PLAN @ END BENT #1
PLAN @ END BENT #2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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.

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

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

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

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3 1/16".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

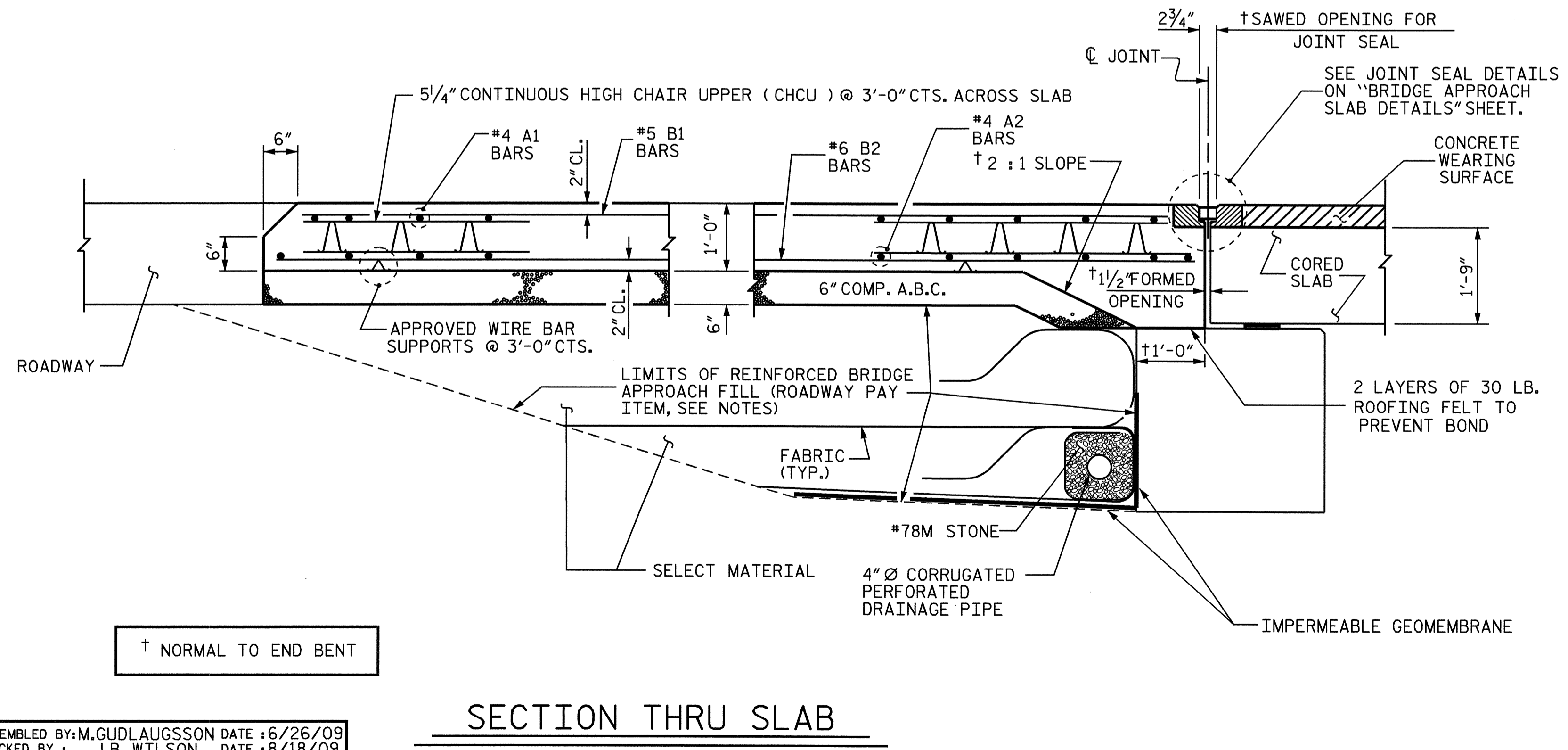
THE JOINT SHALL BE SAWS AFTER THE CASTING OF THE BARRIER RAIL.

BILL OF MATERIAL
FOR ONE APPROACH SLAB (2 REQUIRED)

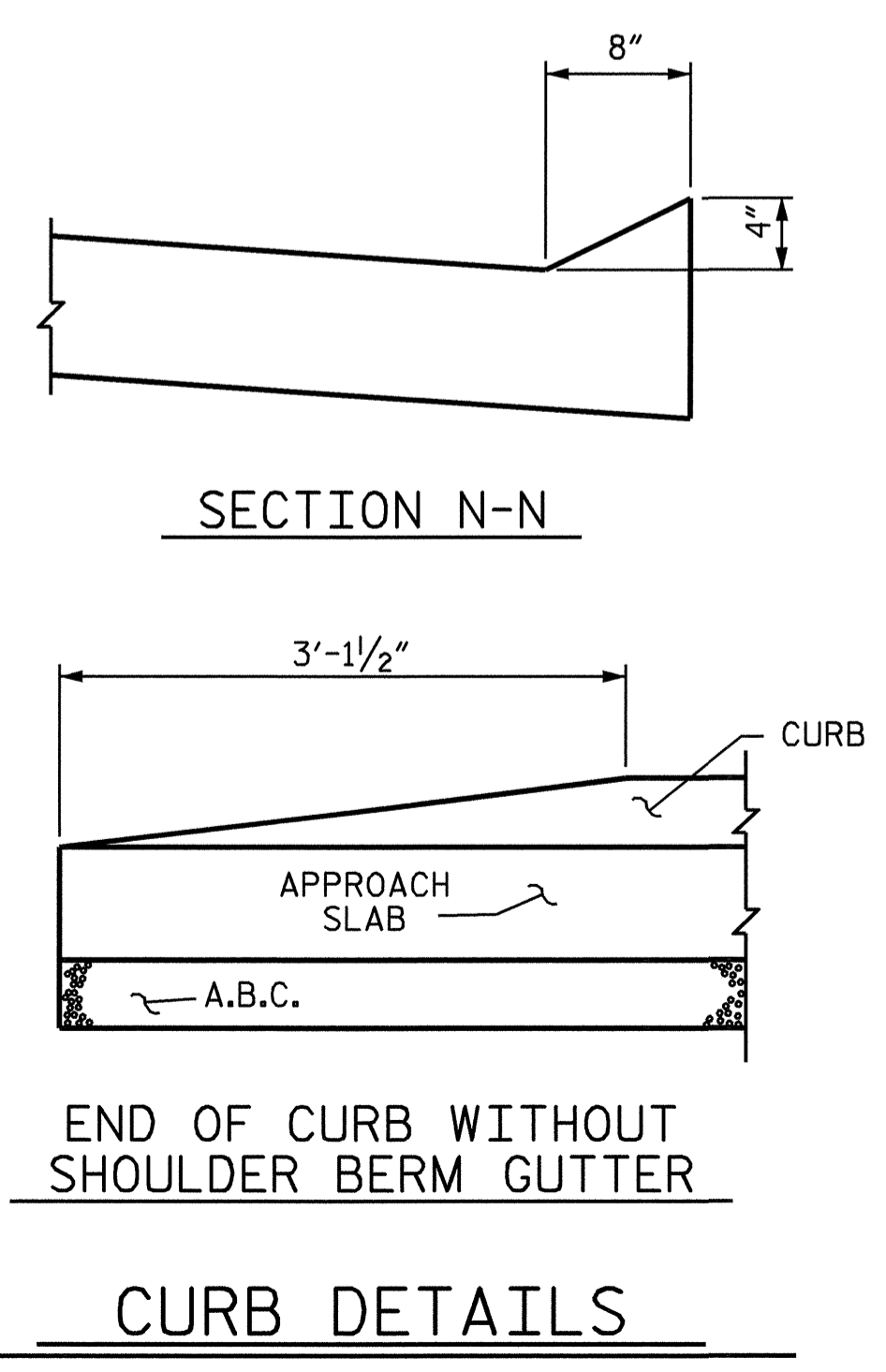
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	19'-8"	657
A2	52	#4	STR	19'-7"	680
*B1	68	#5	STR	23'-8"	1679
B2	68	#6	STR	24'-7"	2511
REINFORCING STEEL				LBS.	3191
*EPOXY COATED REINFORCING STEEL				LBS.	2336
CLASS AA CONCRETE				C. Y.	35.7

SPLICE CHART

*#4 A1	2'-0"
#4 A2	1'-9"



SECTION THRU SLAB

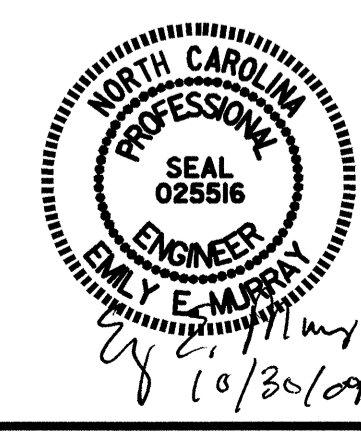


CURB DETAILS

PROJECT NO. B-3654
HARNETT/SAMPSON COUNTY
STATION: 35+90.00 -L-

SHEET 1 OF 2

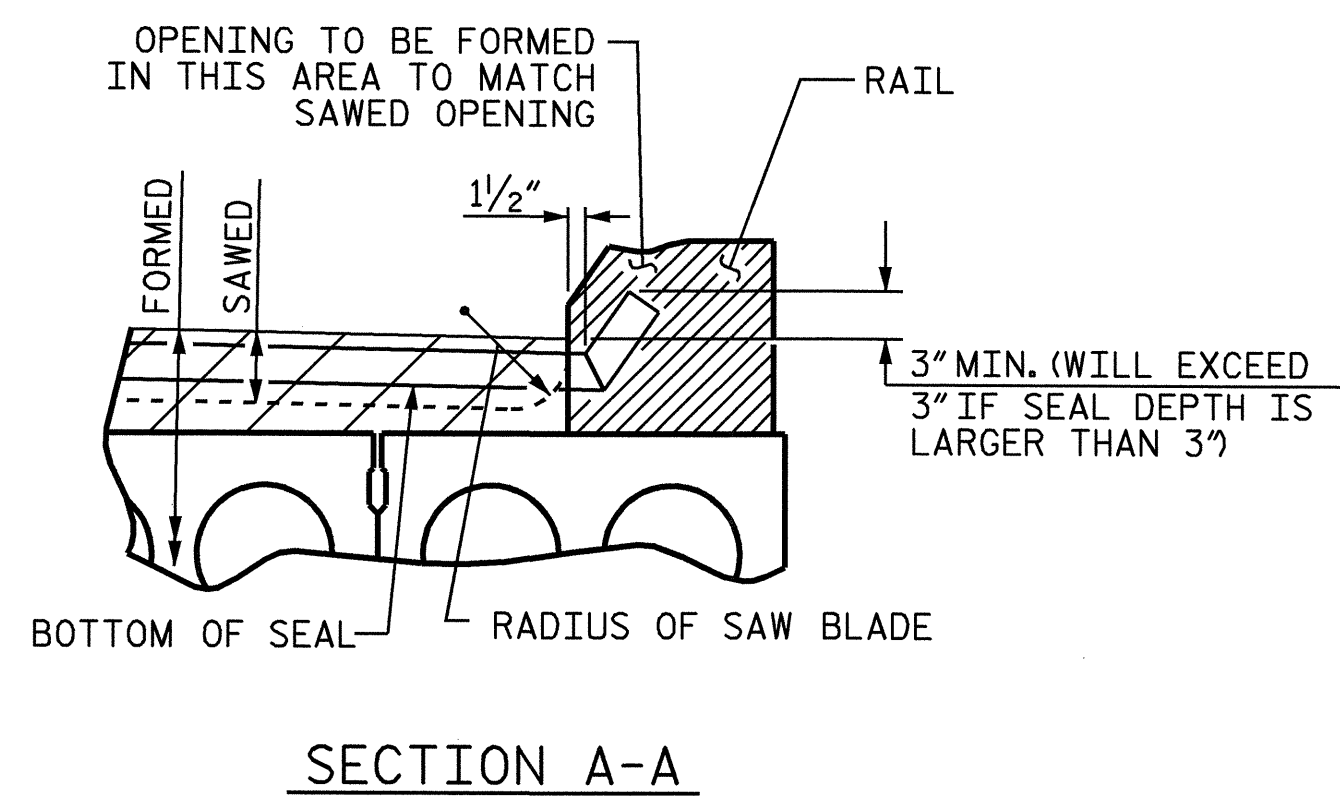
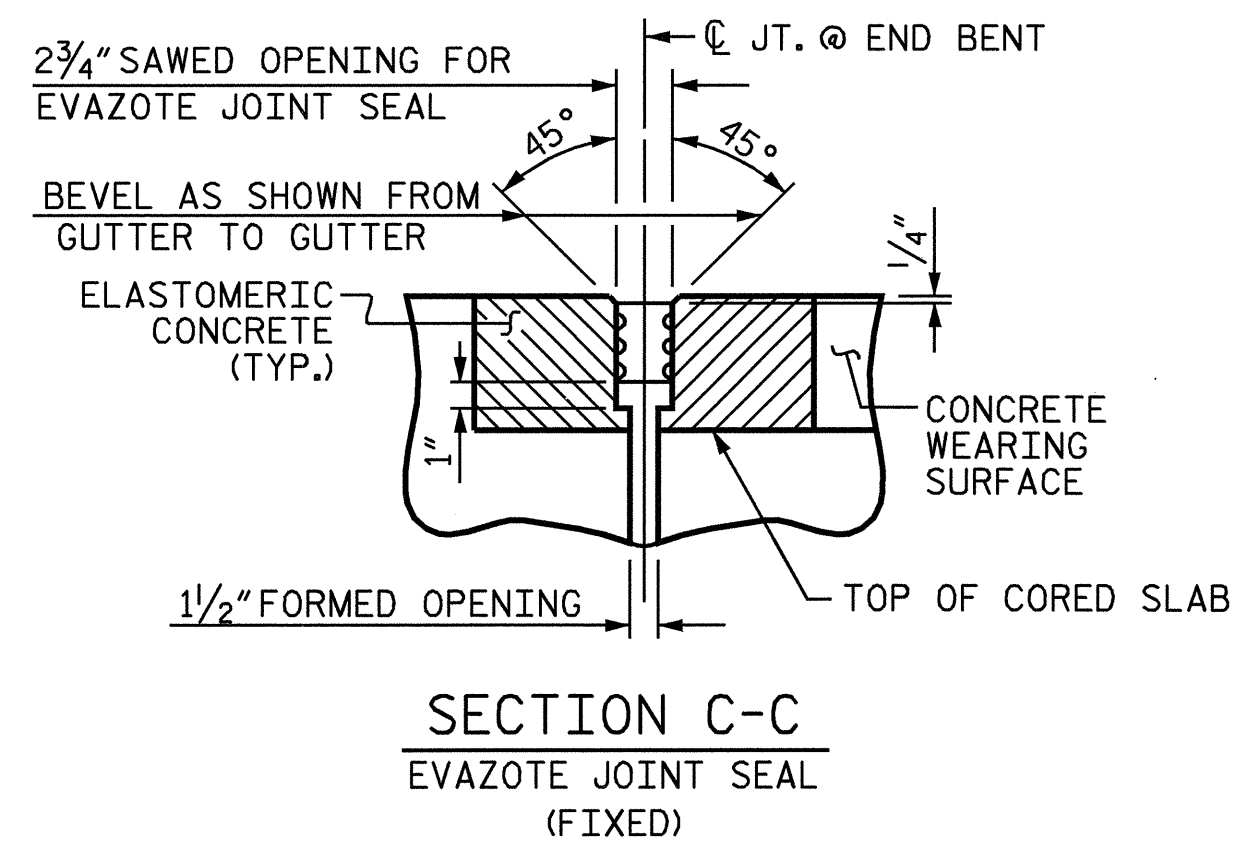
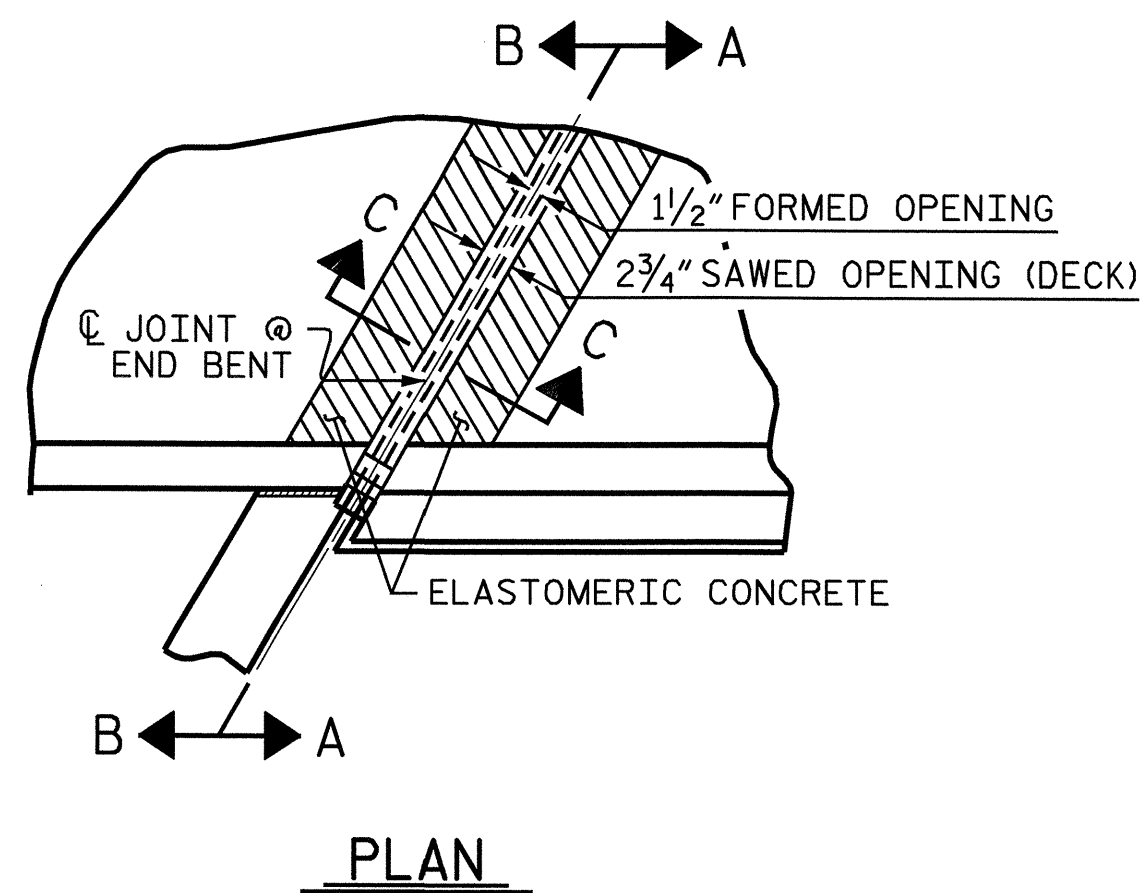
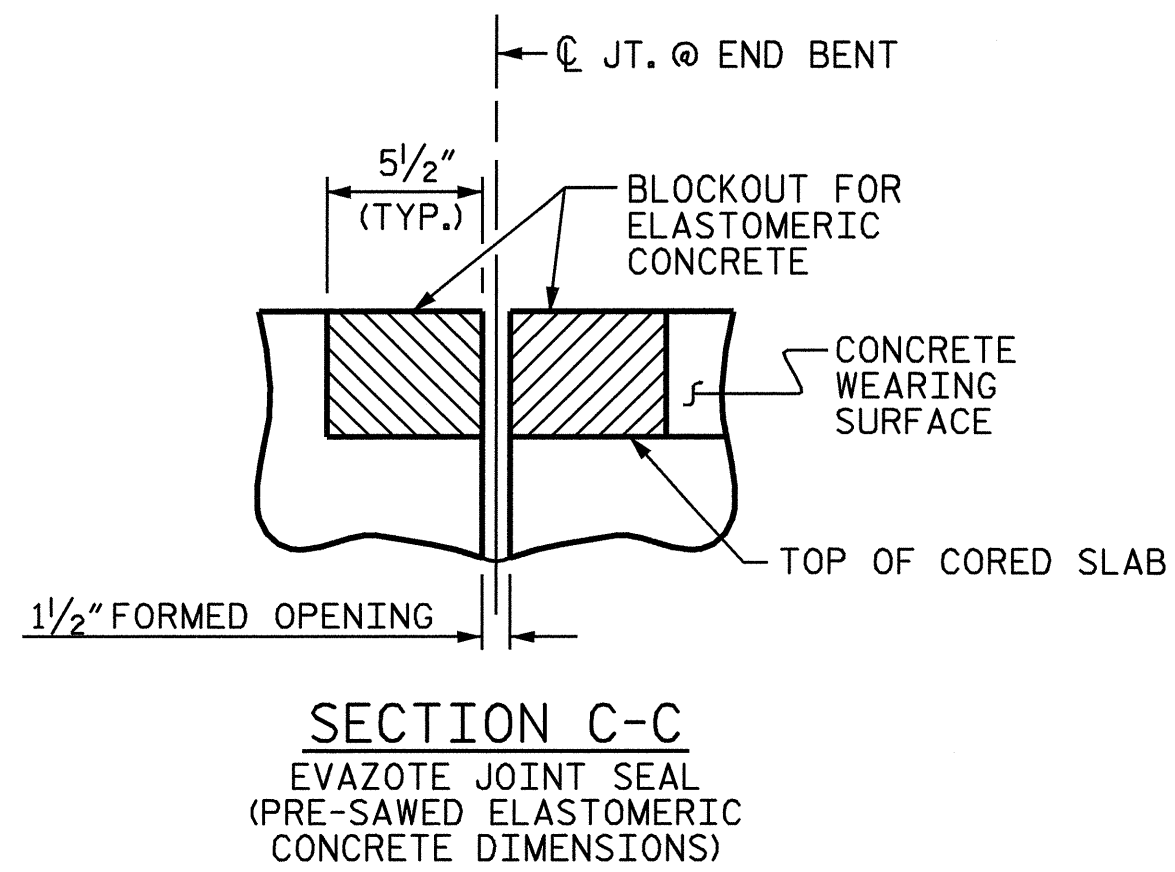
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB



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

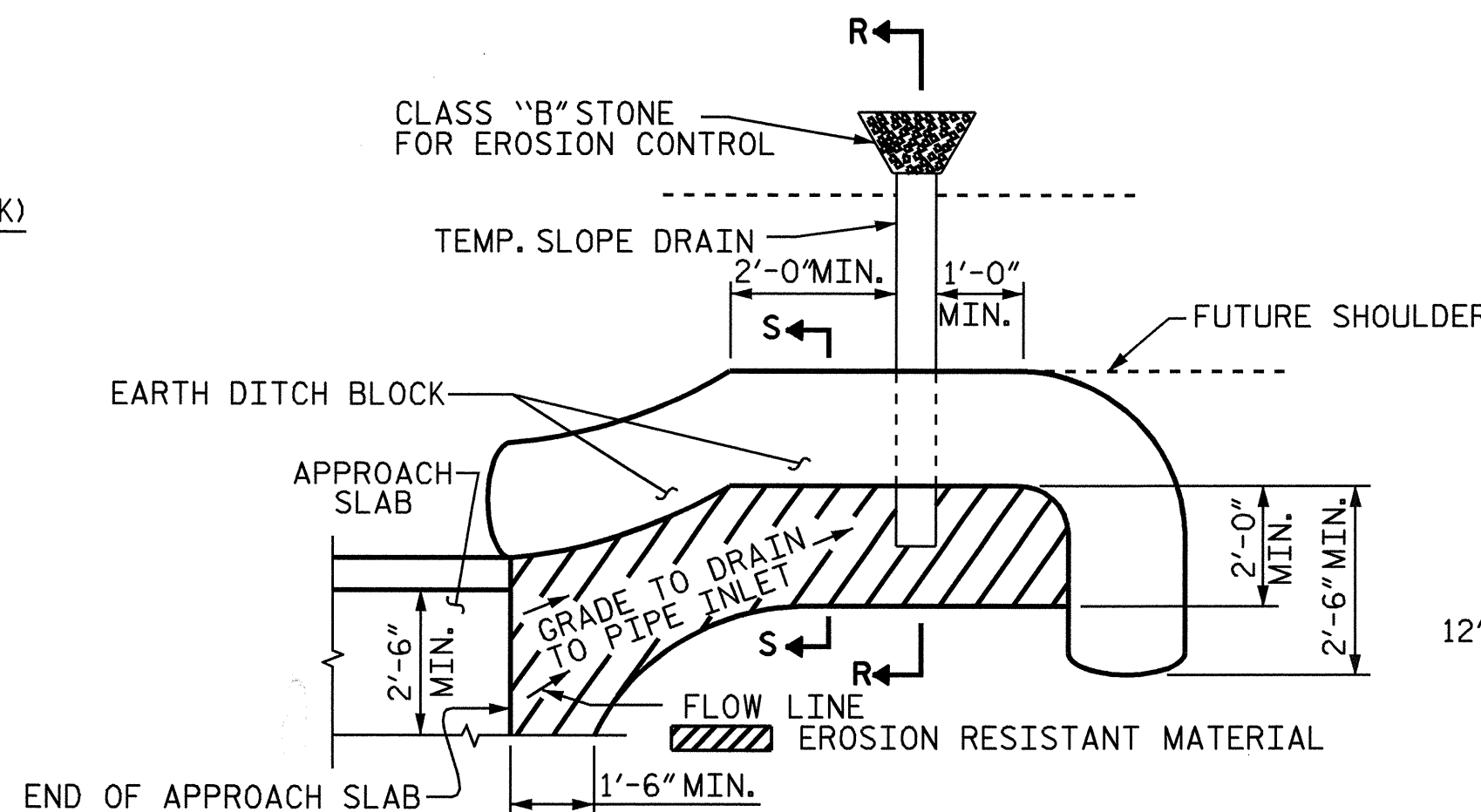
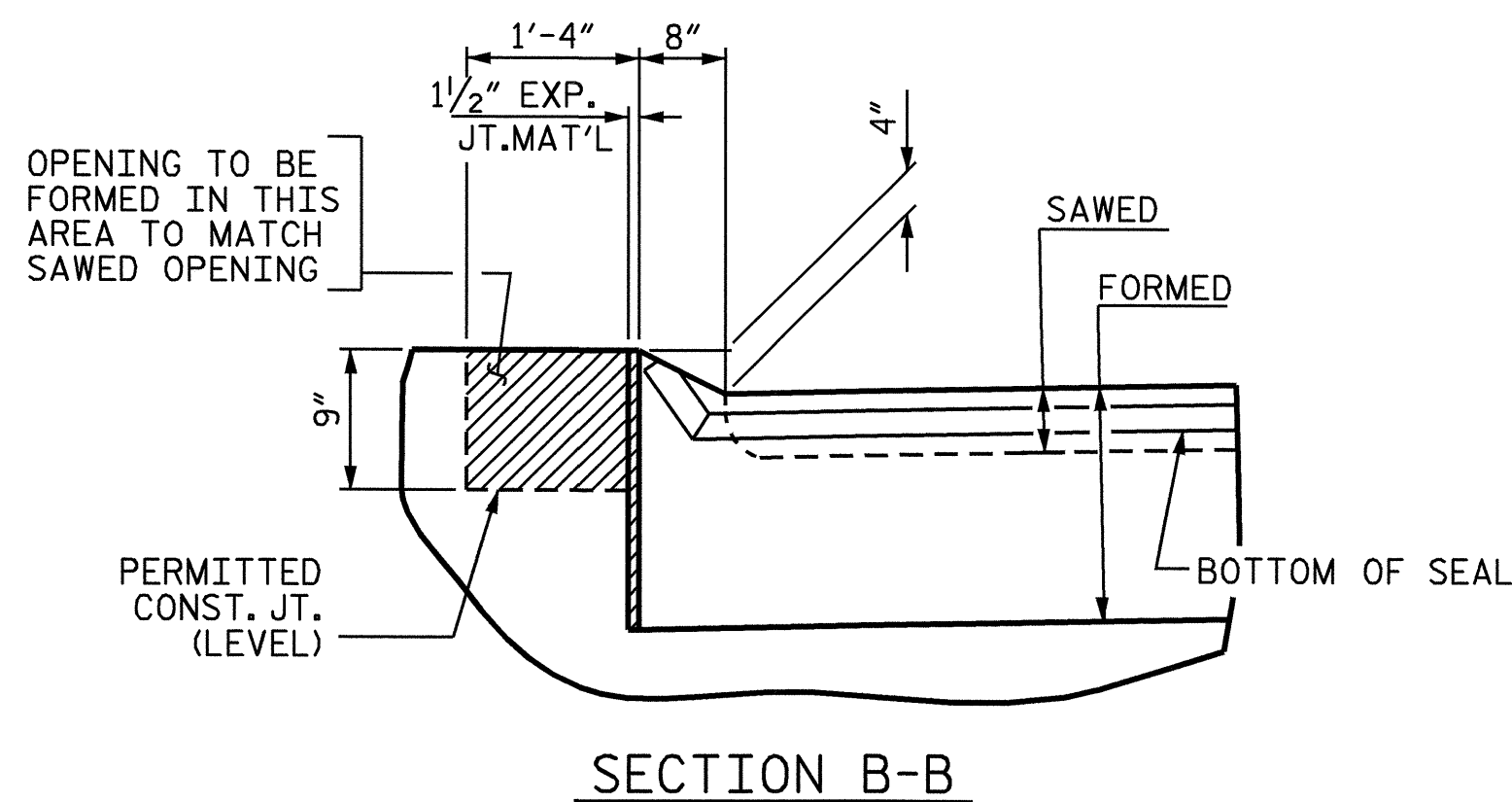
TOTAL SHEETS: 37

ASSEMBLED BY: M. GUDLAUGSSON DATE: 6/26/09
CHECKED BY: J.B. WILSON DATE: 8/18/09
DRAWN BY: FCJ 6/87
CHECKED BY: EGA 6/87
REV. 7/10/01 LES/RDR
REV. 5/7/03R RWM/JTE
REV. 5/1/06R KMM/GM

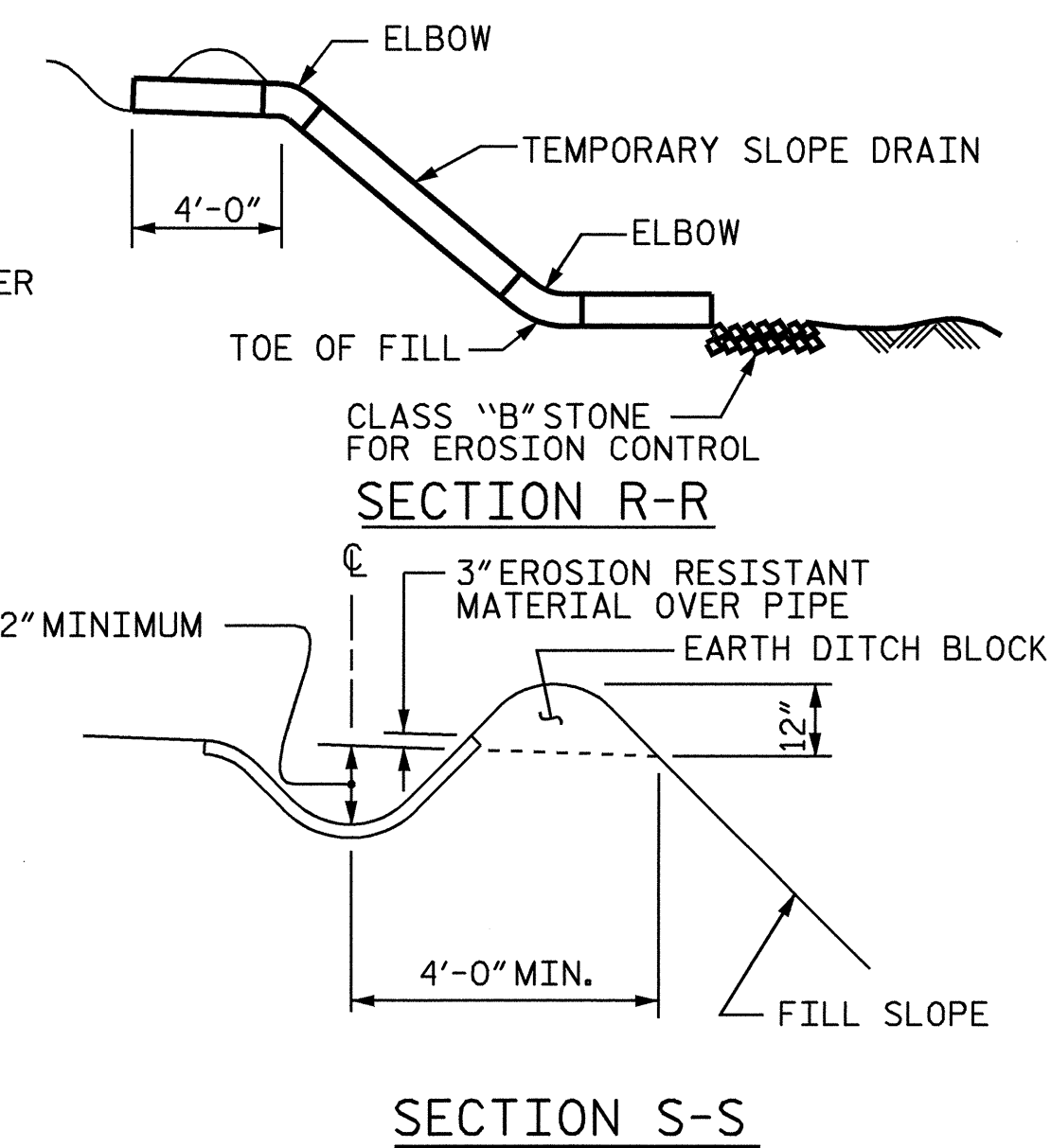


ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	14.1
2	14.1
TOTAL	28.2

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

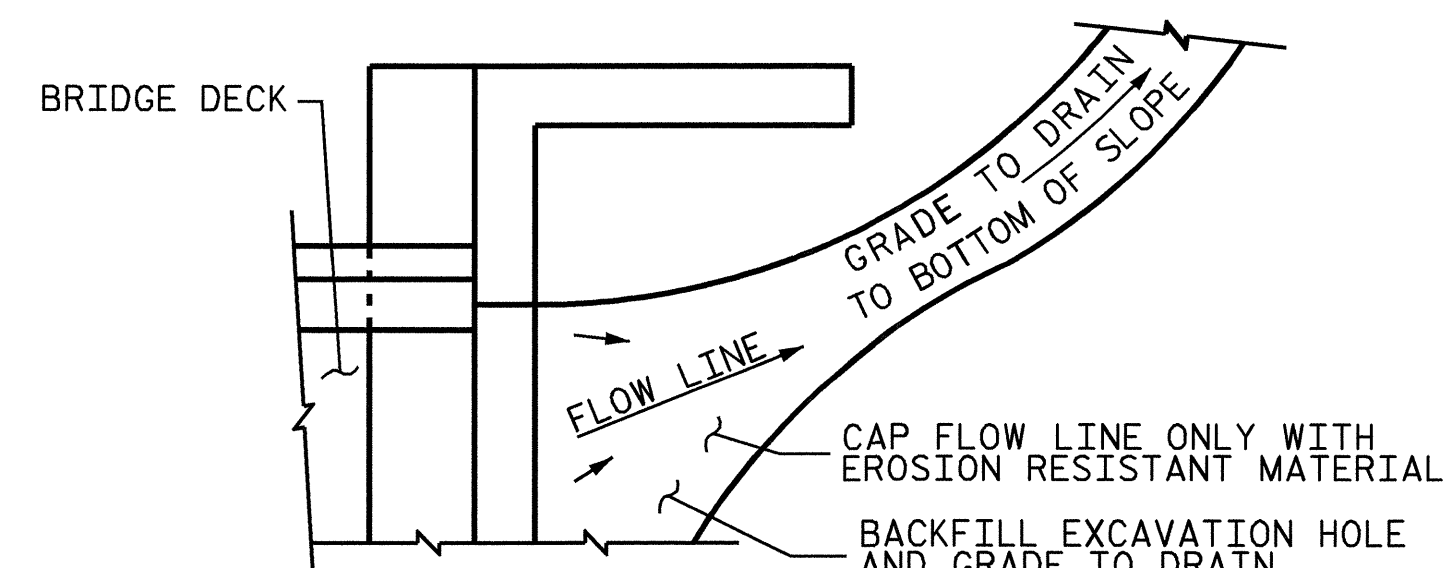


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



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.

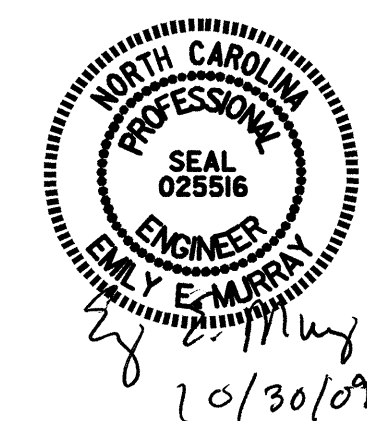
JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.

PROJECT NO. B-3654
 HARNETT/SAMPSON COUNTY
 STATION: 35+90.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
1988					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					37



ASSEMBLED BY : M.GUDLAUGSSON DATE : 6/26/09
 CHECKED BY : J. B. WILSON DATE : 8/18/09
 DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES
 CHECKED BY : ARB 11/88 REV. 5/7/03 RWW/JTE
 REV. 5/1/06 TLA/GM

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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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