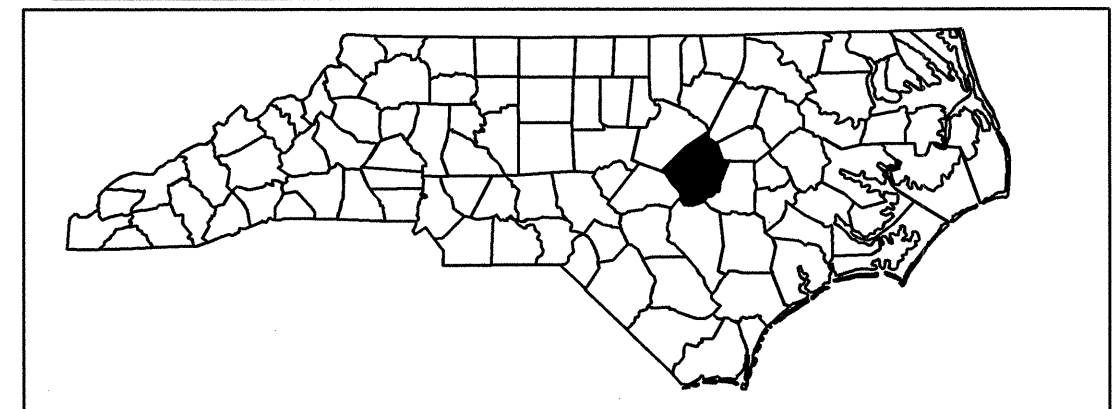


CONTRACT: C202739 / C202740 TIP PROJECT: B-4556 / B-4560

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4556 / B-4560		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
	B-4556		
33768.1.1	BRSTP-0050(7)	PE	
33768.2.1	BRSTP-0050(7)	RW & UTIL.	
33768.3.1	BRSTP-0050(7)	CONST.	
	B-4560		
33771.1.1	BRZ-1331(10)	PE	
33771.2.1	BRZ-1331(10)	RW & UTIL.	
33771.3.1	BRZ-1331(10)	CONST.	

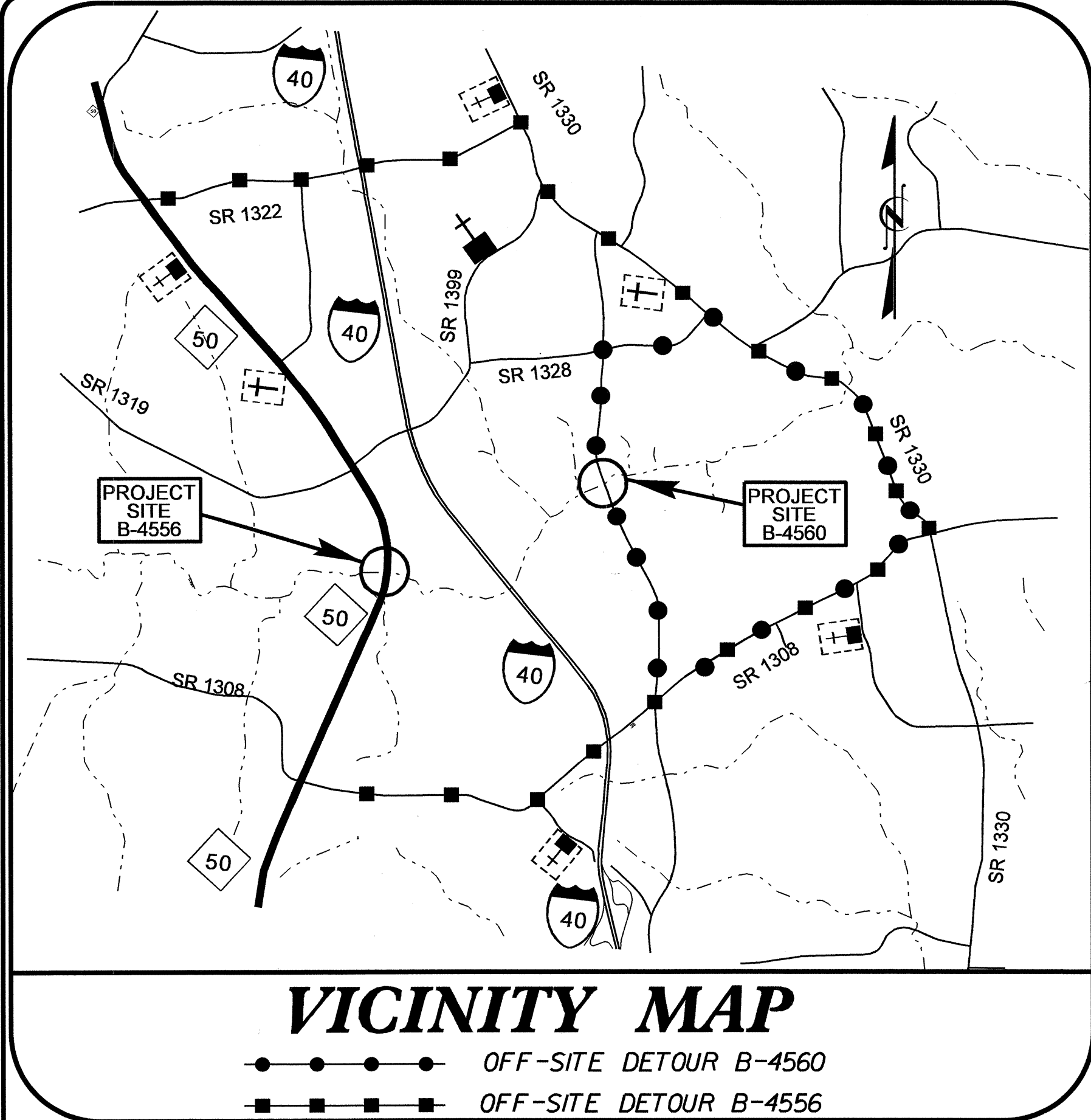


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

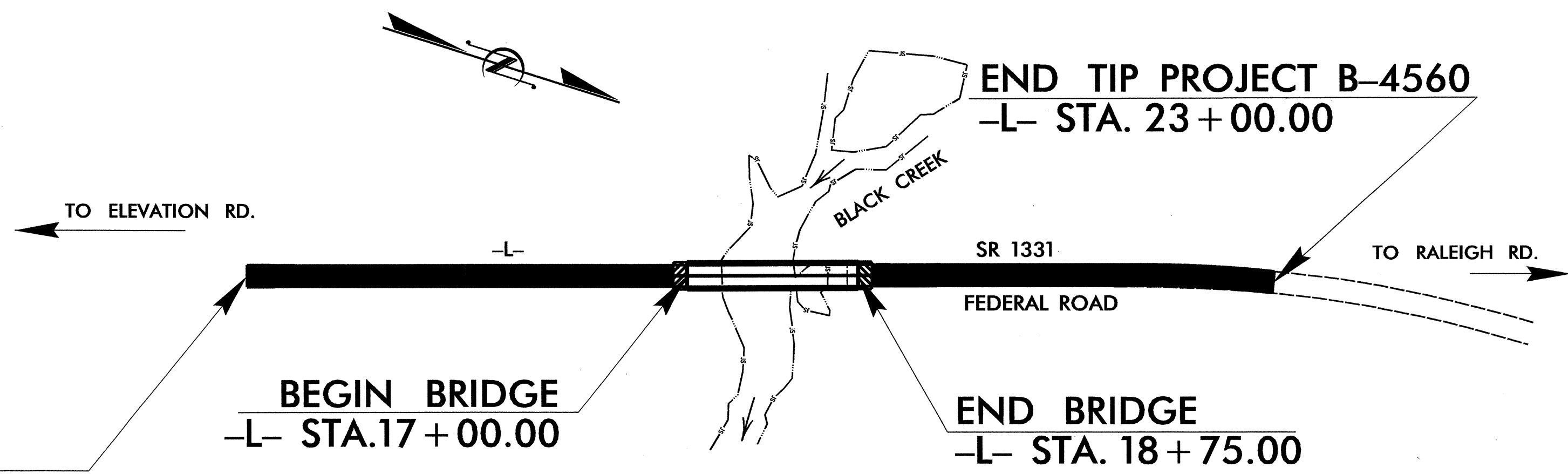
JOHNSTON COUNTY

LOCATION: BRIDGE 74 OVER BLACK CREEK ON NC 50

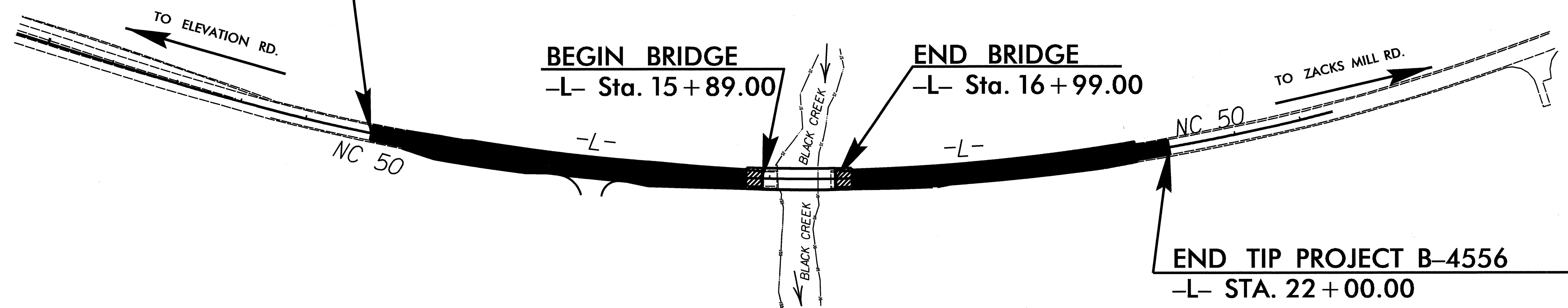
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES



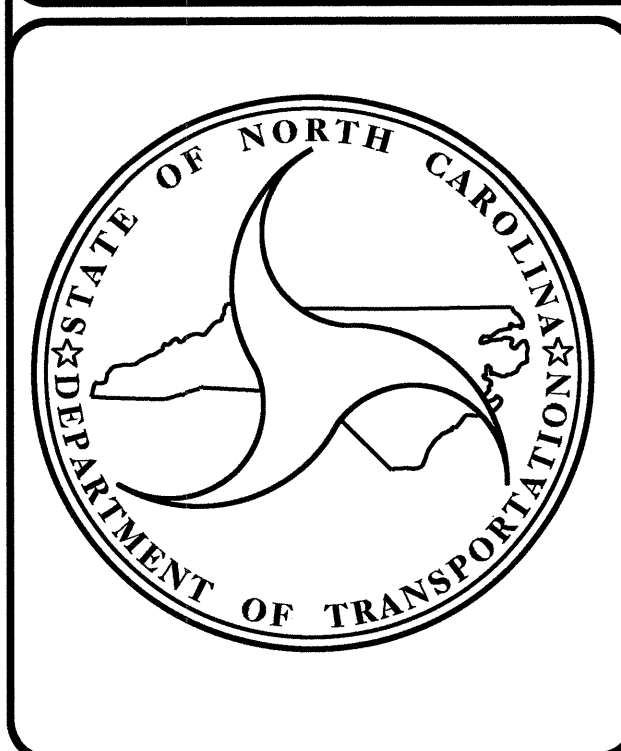
BEGIN TIP PROJECT B-4560
-L- STA. 12 + 50.00



BEGIN TIP PROJECT B-4556
-L- STA 10 + 00.00



STRUCTURES



DESIGN DATA	
B-4556	B-4560
ADT 2011 = 5907	ADT 2011 = 840
ADT 2030 = 10200	ADT 2031 = 1430
DHV = 11 %	DHV = 11 %
D = 60 %	D = 60 %
T = 6 % *	T = 3 % *
V = 60 MPH	V = 60 MPH
* TTST 2% DUAL 4%	* TST 1% DUALS 2%
FUNCTIONAL CLASS = RURAL COLLECTOR	FUNC. CLASS = RURAL LOCAL
REGIONAL TIER	SUB-REGIONAL TIER

PROJECT LENGTH
LENGTH ROADWAY TIP PROJECT B-4556 /B-4560 = 0.372 MI
LENGTH STRUCTURE TIP PROJECT B-4556 /B-4560 = 0.054 MI
TOTAL LENGTH TIP PROJECT B-4556 /B-4560 = 0.426 MI

Prepared in the Office of: DIVISION OF HIGHWAYS 1000 BIRCH RIDGE DR. RALEIGH, NC 27610	
2006 STANDARD SPECIFICATIONS	
LETTING DATE: DECEMBER 20, 2011	N. N. BULLOCK, PE PROJECT ENGINEER
	A. K. PASCHAL, PE D. R. CALHOUN, PE PROJECT DESIGN ENGINEERS

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
	P.E.
STATE DESIGN ENGINEER	
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED	DATE
DIVISION ADMINISTRATOR	

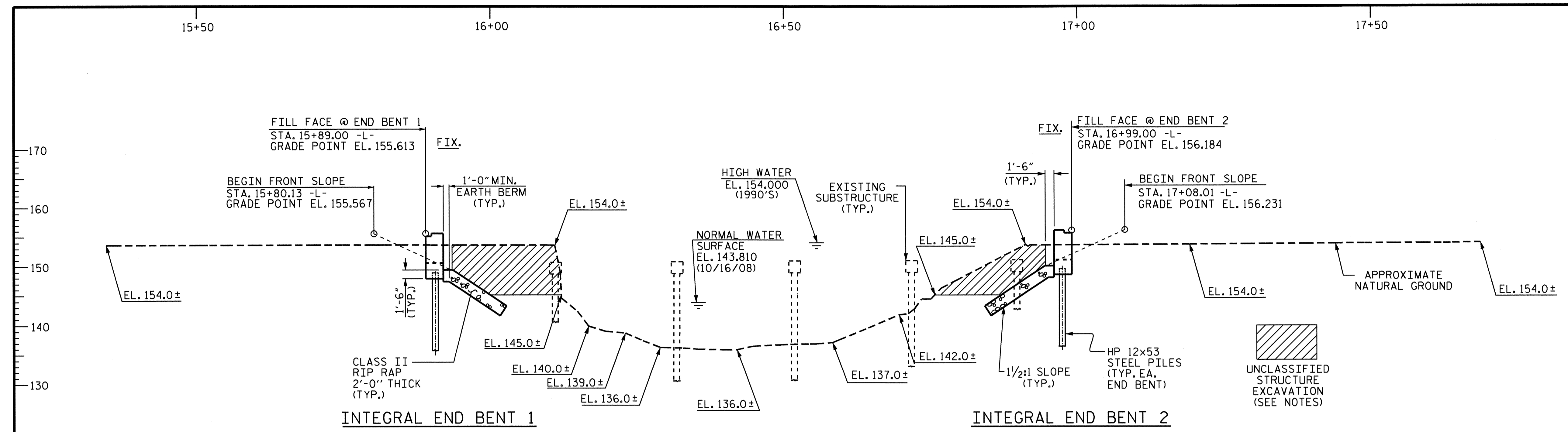
18-OCT-2011 09:21 O:\AS\Structures\Final Plans\B4556.sd...TSH.dgn jkharvo

PI = 19+10.00 -L-
 EL = 157.280'
 VC = 332'
 +0.5194% +2.9300%

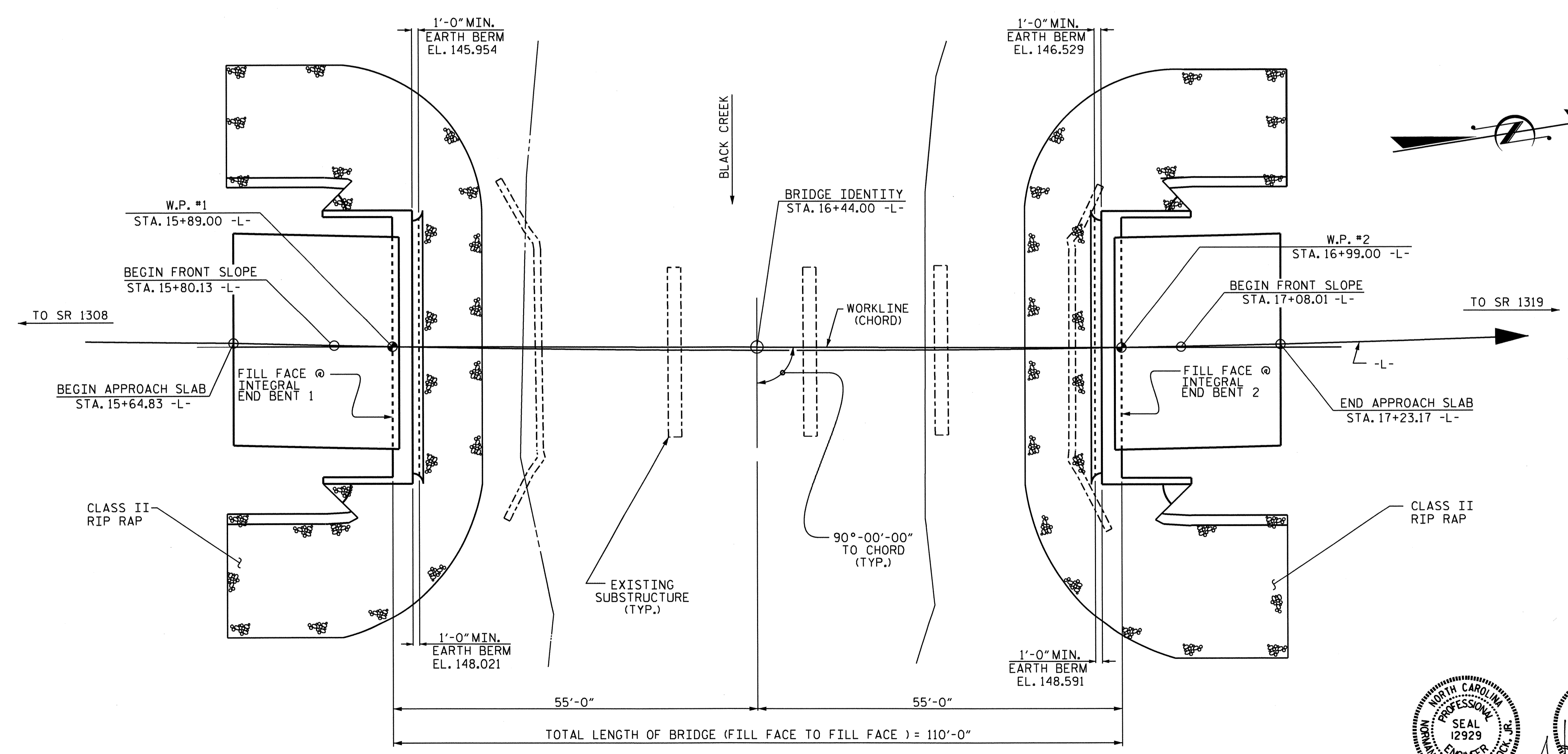
GRADE DATA

HORIZONTAL CURVE DATA

PI Sta 18+46.64 -L-
 $\Delta = 22^\circ 37' 09.8''$ (LT)
 D = $1^\circ 50' 57.7''$
 L = 1,223.10'
 T = 619.62'
 R = 3,098.15'
 SE = 05



SECTION ALONG CHORD



PLAN

(PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-4556
 JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE #74

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE OVER BLACK CREEK
 ON NC 50 BETWEEN
 SR 1308 AND SR 1319

Professional Engineer seals for Norman Keith Paschall, Jr. (10/19/11) and Keith Paschall (10/19/11).

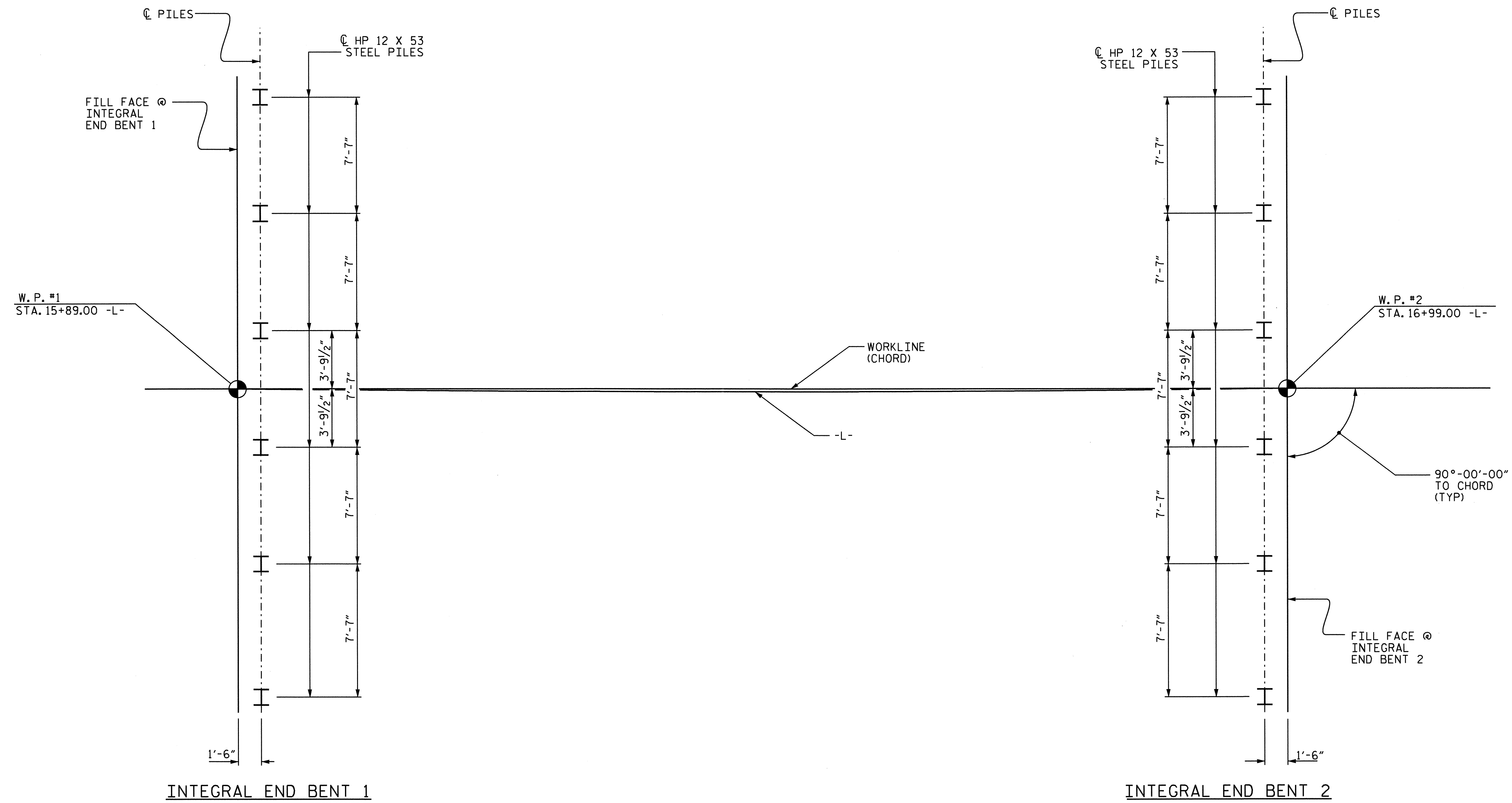
DRAWN BY : J. G. KHARVA DATE : 04/19/11
 CHECKED BY : J. MYA DATE : 07/13/11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			42

FOUNDATION NOTES :

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT INTEGRAL END BENT 1 AND INTEGRAL END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE.



FOUNDATION LAYOUT

(DIMENSIONS LOCATING INTEGRAL END BENT PILES ARE SHOWN TO CENTERLINE OF PILES)

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

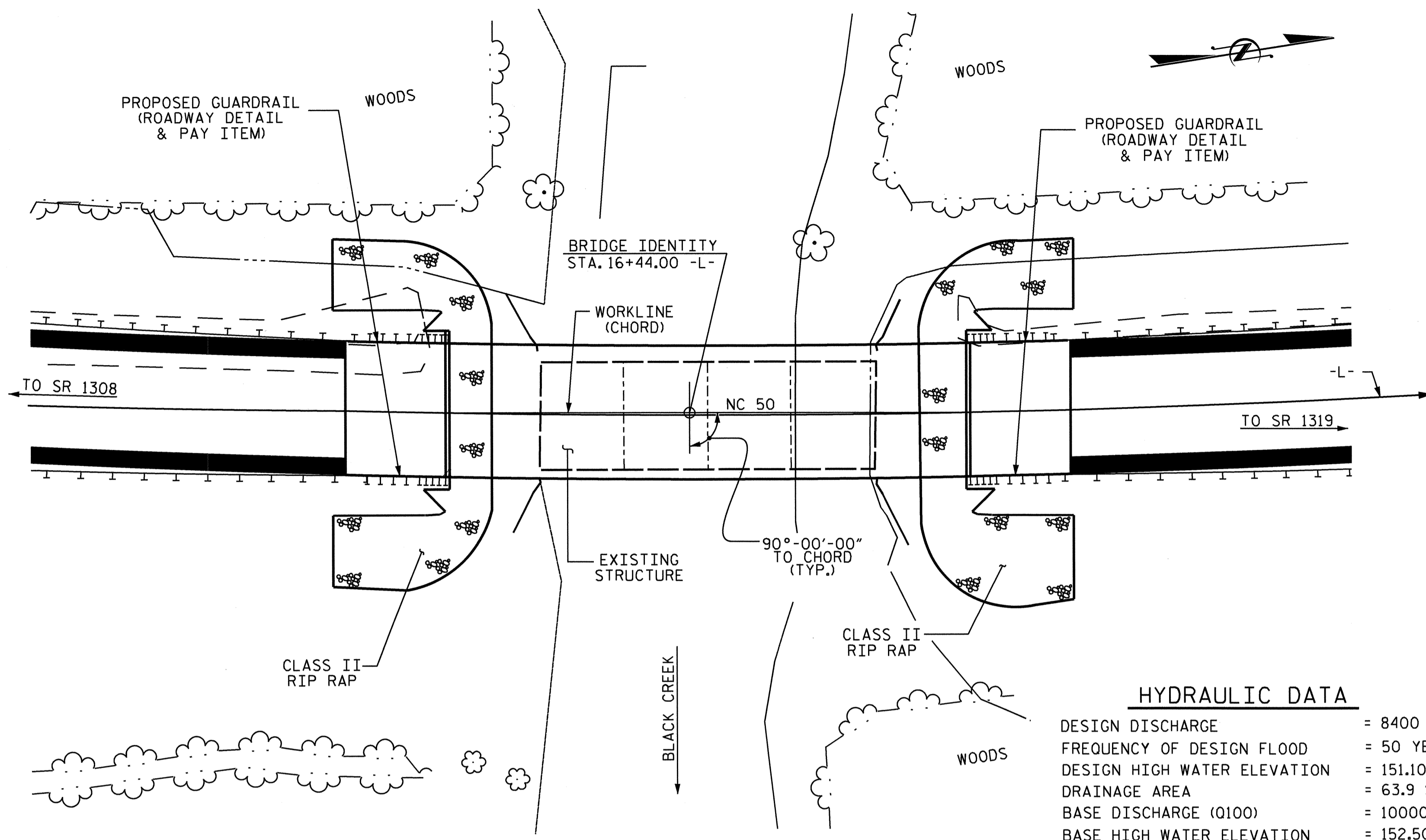
GENERAL DRAWING
 BRIDGE OVER BLACK CREEK
 ON NC 50 BETWEEN
 SR 1308 AND SR 1319



DRAWN BY : J. G. KHARVA DATE : 04/20/11
 CHECKED BY : J. MYA DATE : 07/15/11

18-OCT-2011 09:20
 Q:\Structures\Final Plans\B4556.sd.GD.dgn
 jkharva

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			42



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 8400 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 50 YEARS
DESIGN HIGH WATER ELEVATION	= 151.100
DRAINAGE AREA	= 63.9 SQ. MI.
BASE DISCHARGE (Q100)	= 10000 C.F.S.
BASE HIGH WATER ELEVATION	= 152.500

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 12000 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 100+ YEARS
OVERTOPPING FLOOD ELEVATION	= 153.700

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.
 ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.
 REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
 THE EXISTING STRUCTURE CONSISTING OF 4 (1 @ 20'-2", 2 @ 20'-0", 1 @ 20'-4" = 80'-6") CONCRETE DECK SPANS ON CONTINUOUS STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 24'-0" ON REINFORCED CONCRETE END BENTS & INTERIOR BENTS WITH TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.
 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 INFORMATION INDICATED ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 16+44.00 -L-."
 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.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.
 THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.
 NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 45'-0" FT. EACH SIDE OF CENTERLINE OF EXISTING ROADWAY AND 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.
 FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.
 FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT TEMPORARY BRACING WILL BE REQUIRED BETWEEN THE ENDS OF THE GIRDERS WHILE THE DECK IS BEING POURED TO PREVENT ROTATION OF THE GIRDER ENDS.
 FOR FORMS FOR CONCRETE BRIDGE DECKS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS	
	LUMP SUM	LUMP SUM	SQ. FEET	SQ. FEET	CU. YDS.	LUMP SUM	LBS.	APPROX. LBS.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SO. YDS.	LUMP SUM
SUPERSTRUCTURE			3878	4435		LUMP SUM		107,700			216.67				LUMP SUM
INTEGRAL END BENT 1		LUMP SUM			17.1		2794		6	135	3		208	230	
INTEGRAL END BENT 2		LUMP SUM			17.1		2794		6	120	3		226	251	
TOTAL	LUMP SUM	LUMP SUM	3878	4435	34.2	LUMP SUM	5588	107,700	12	255	6	216.67	434	481	LUMP SUM

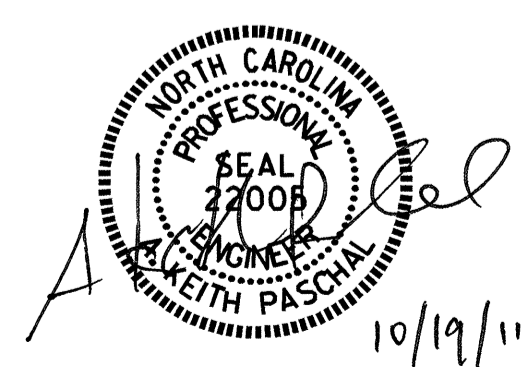
PROJECT NO. B-4556
 JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE OVER BLACK CREEK
 ON NC 50 BETWEEN
 SR 1308 AND SR 1319

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			42



DRAWN BY : J. G. KHARVA DATE : 04/19/11
 CHECKED BY : J. MYA DATE : 07/18/11

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II 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	1.040	--	1.75	.676	1.040	A	EL	0.0'	.676	1.742	A	I	0.0'	1.30	.676	1.400	A	EL	0.0'	1	
	HL-93 (OPERATING)	N/A		1.348	--	1.35	.676	1.348	A	EL	0.0'	.676	2.258	A	I	0.0'	1.00	.676	1.820	A	EL	0.0'	1	
	HS-20 (INVENTORY)	36.00	②	1.180	42.48	1.75	.676	1.180	A	EL	0.0'	.676	2.426	A	I	0.0'	1.30	.676	1.766	A	EL	0.0'	1	
	HS-20 (OPERATING)	36.00		1.530	55.08	1.35	.676	1.530	A	EL	0.0'	.676	3.144	A	I	0.0'	1.00	.676	2.296	A	EL	0.0'	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.320	31.32	1.40	.676	2.320	A	EL	0.0'	.676	6.940	A	I	0.0'	1.30	.676	2.760	A	EL	0.0'	1
		SNGARBS2	20.000		2.320	46.40	1.40	.676	2.320	A	EL	0.0'	.676	4.744	A	I	0.0'	1.30	.676	2.760	A	EL	0.0'	1
		SNAGRIS2	22.000		2.320	51.04	1.40	.676	2.320	A	EL	0.0'	.676	4.332	A	I	0.0'	1.30	.676	2.760	A	EL	0.0'	1
		SNCOTTS3	27.250		2.030	55.32	1.40	.676	2.030	A	EL	0.0'	.676	3.434	A	I	0.0'	1.30	.676	2.410	A	EL	0.0'	1
		SNAGGRS4	34.925		1.940	67.76	1.40	.676	1.940	A	EL	0.0'	.676	2.719	A	I	0.0'	1.30	.676	2.300	A	EL	0.0'	1
		SNS5A	35.550		1.740	61.86	1.40	.676	1.740	A	EL	0.0'	.676	2.692	A	I	0.0'	1.30	.676	2.070	A	EL	0.0'	1
		SNS6A	39.950		1.490	59.53	1.40	.676	1.490	A	EL	0.0'	.676	2.419	A	I	0.0'	1.30	.676	1.770	A	EL	0.0'	1
		SNS7B	42.000		1.340	56.28	1.40	.676	1.340	A	EL	0.0'	.676	2.323	A	I	0.0'	1.30	.676	1.590	A	EL	0.0'	1
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.190	72.27	1.40	.676	2.190	A	EL	0.0'	.676	2.914	A	I	0.0'	1.30	.676	2.620	A	EL	0.0'	1
		TNT4A	33.075		1.750	57.88	1.40	.676	1.750	A	EL	0.0'	.676	2.898	A	I	0.0'	1.30	.676	2.080	A	EL	0.0'	1
		TNT6A	41.600		1.450	60.32	1.40	.676	1.450	A	EL	0.0'	.676	2.399	A	I	0.0'	1.30	.676	1.720	A	EL	0.0'	1
		TNT7A	42.000		1.280	53.76	1.40	.676	1.280	A	EL	0.0'	.676	2.370	A	I	0.0'	1.30	.676	1.520	A	EL	0.0'	1
		TNT7B	42.000	③	1.220	51.24	1.40	.676	1.220	A	EL	0.0'	.676	2.329	A	I	0.0'	1.30	.676	1.450	A	EL	0.0'	1
		TNAGRIT4	43.000		1.620	69.66	1.40	.676	1.620	A	EL	0.0'	.676	2.255	A	I	0.0'	1.30	.676	1.930	A	EL	0.0'	1
TNAGT5A	45.000		1.460	65.70	1.40	.676	1.460	A	EL	0.0'	.676	2.184	A	I	0.0'	1.30	.676	1.730	A	EL	0.0'	1		
TNAGT5B	45.000		1.310	58.95	1.40	.676	1.310	A	EL	0.0'	.676	2.147	A	I	0.0'	1.30	.676	1.560	A	EL	0.0'	1		
FATIGUE	HL-93 (INVENTORY)	$\gamma_{LL}=0.75$		2.427																				

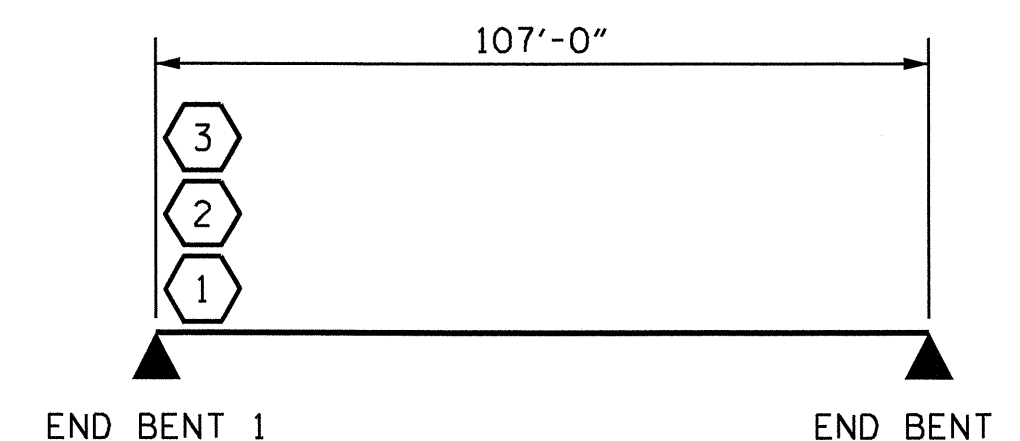
NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

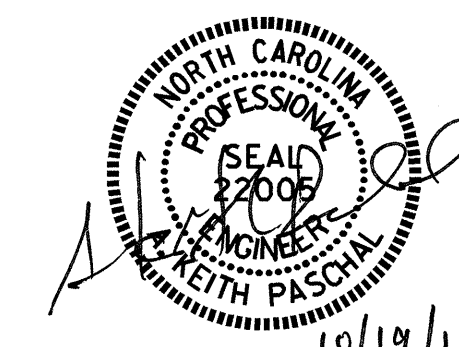
- ALL RATING FACTOR VALUES WERE DETERMINED BY COMBINING THE NCDL FOR THE PINNED GIRDER CONDITION WITH THE CDL + LL FOR THE FIXED GIRDER CONDITION.
-
-
-

#	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

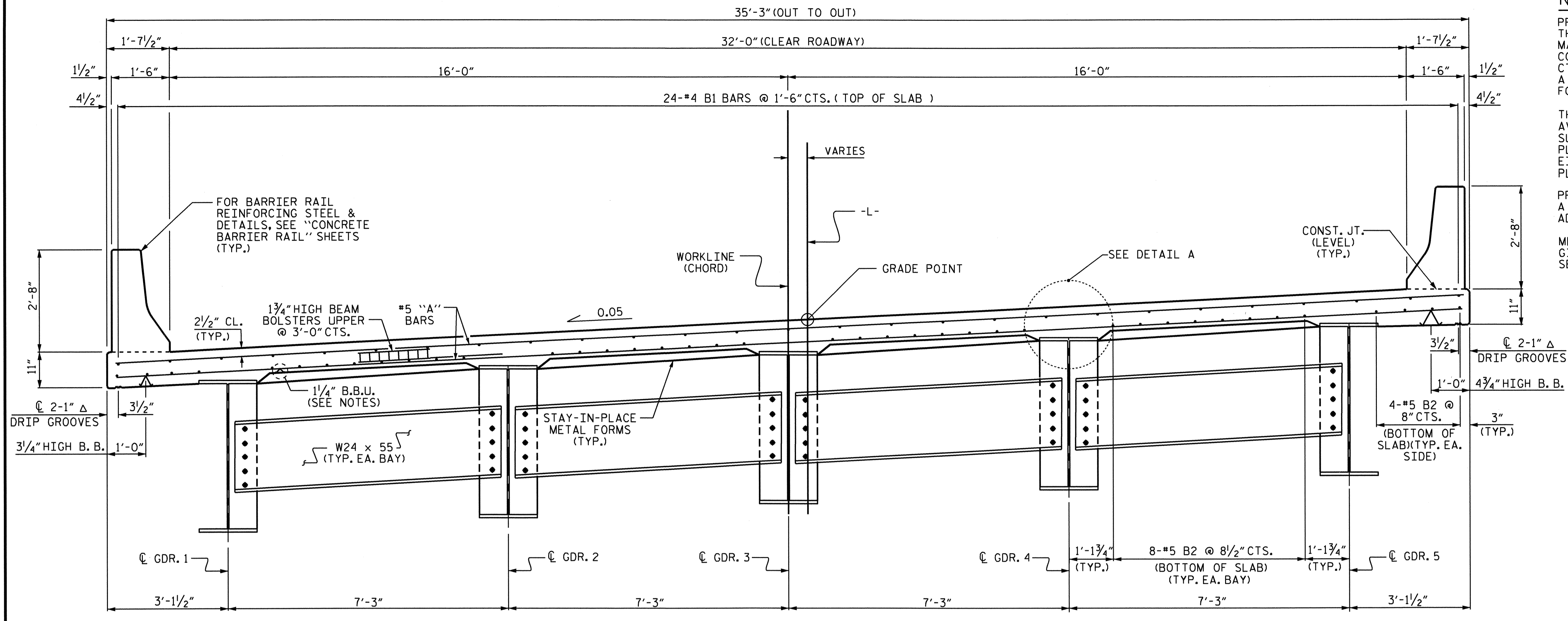
PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS 42
2			4			

ASSEMBLED BY : B.N. GRADY DATE : 8/1/11
 CHECKED BY : O. PUIGSERVER DATE : 8/2/11
 DRAWN BY : MAA 1/08 REV. 11/12/08RR MAA/GM
 CHECKED BY : GM/DI 2/08



NOTES:

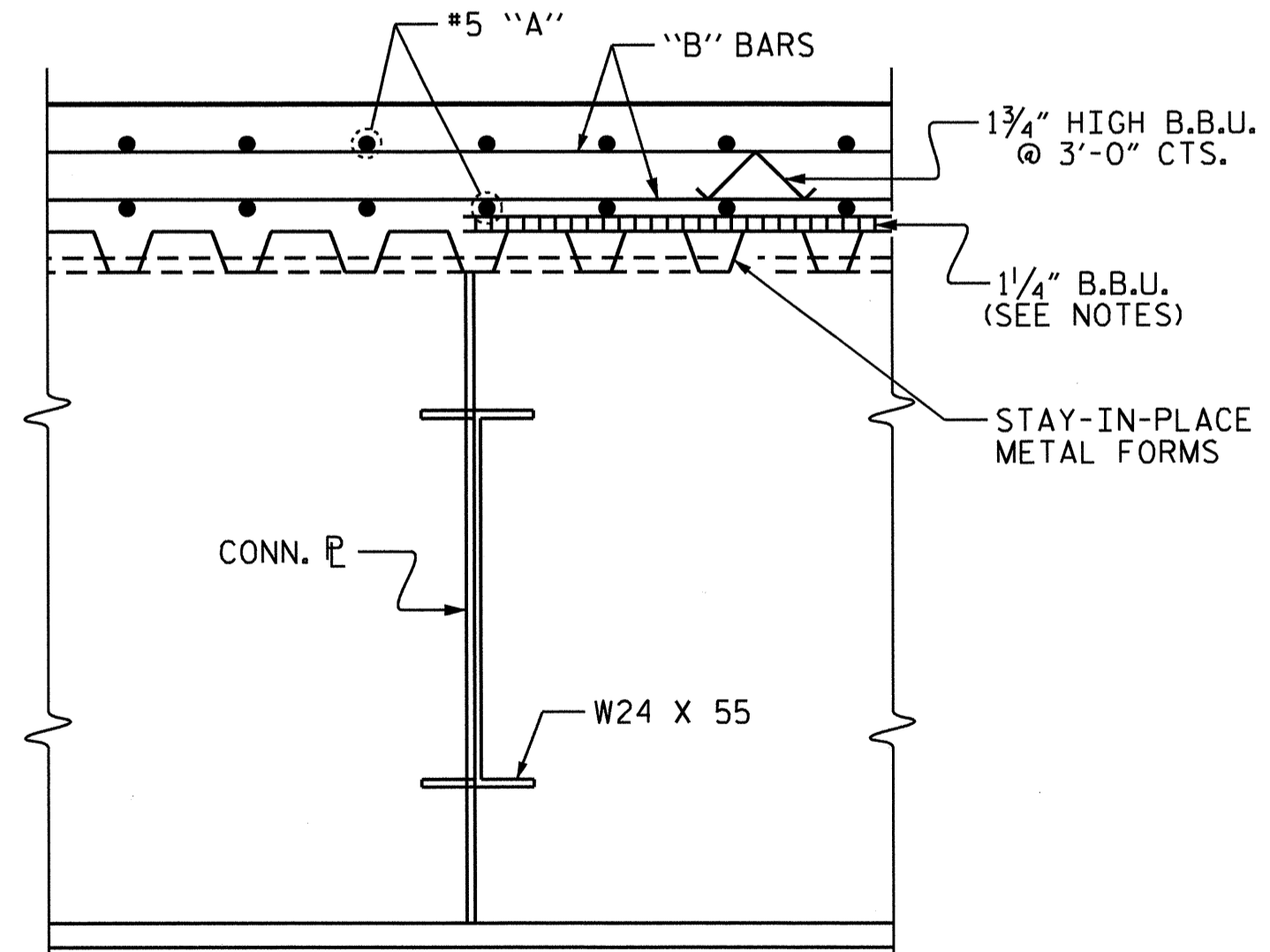
PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

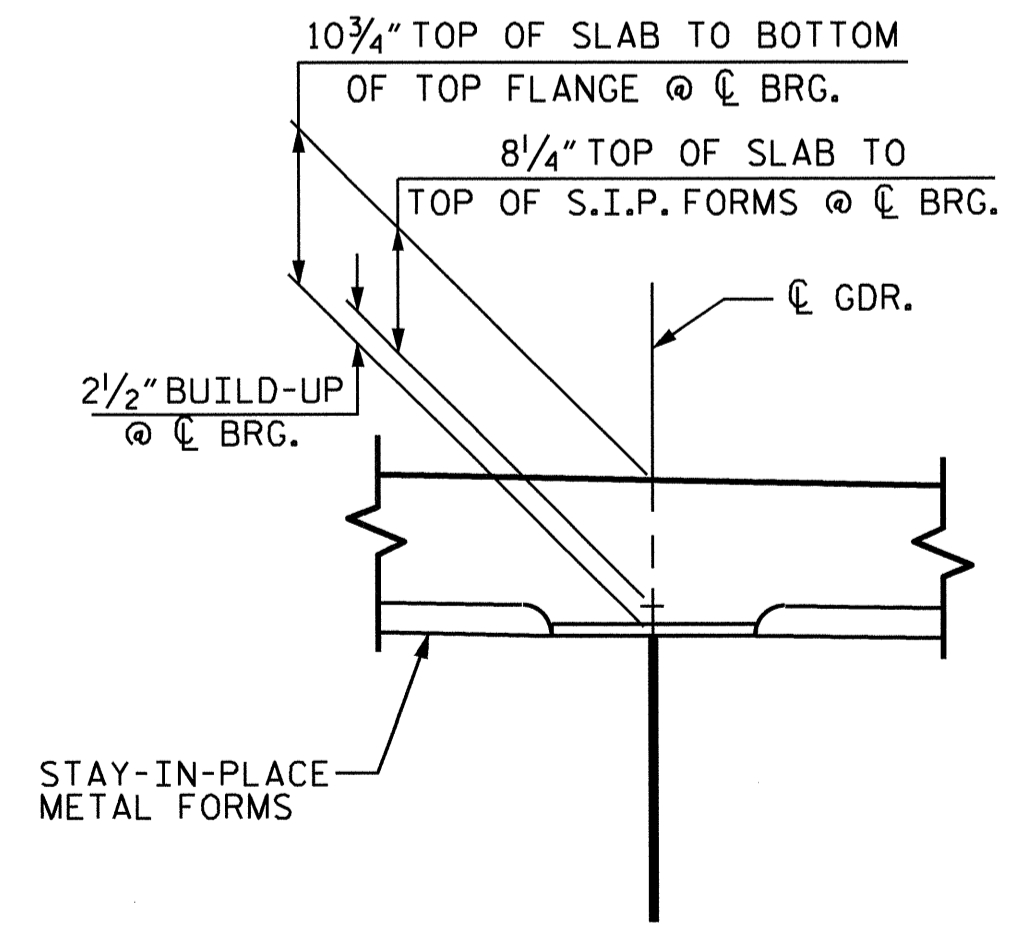
PREVIOUSLY CAST CONCRETE IN THE SPAN SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE SPAN.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

TYPICAL SECTION @ INTERMEDIATE DIAPHRAGMS



SECTION THRU INTERMEDIATE DIAPHRAGM



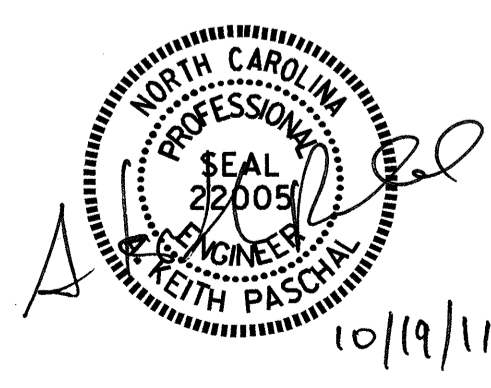
DETAIL A

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 1 OF 2

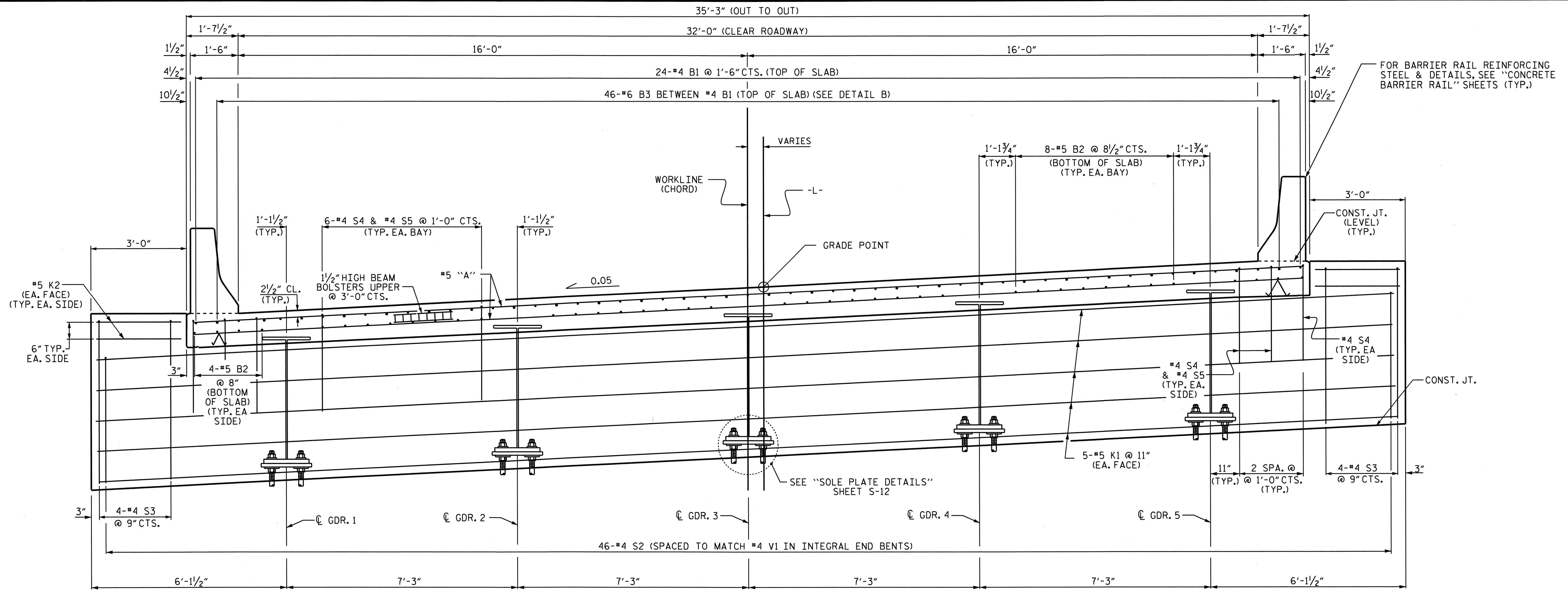
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION

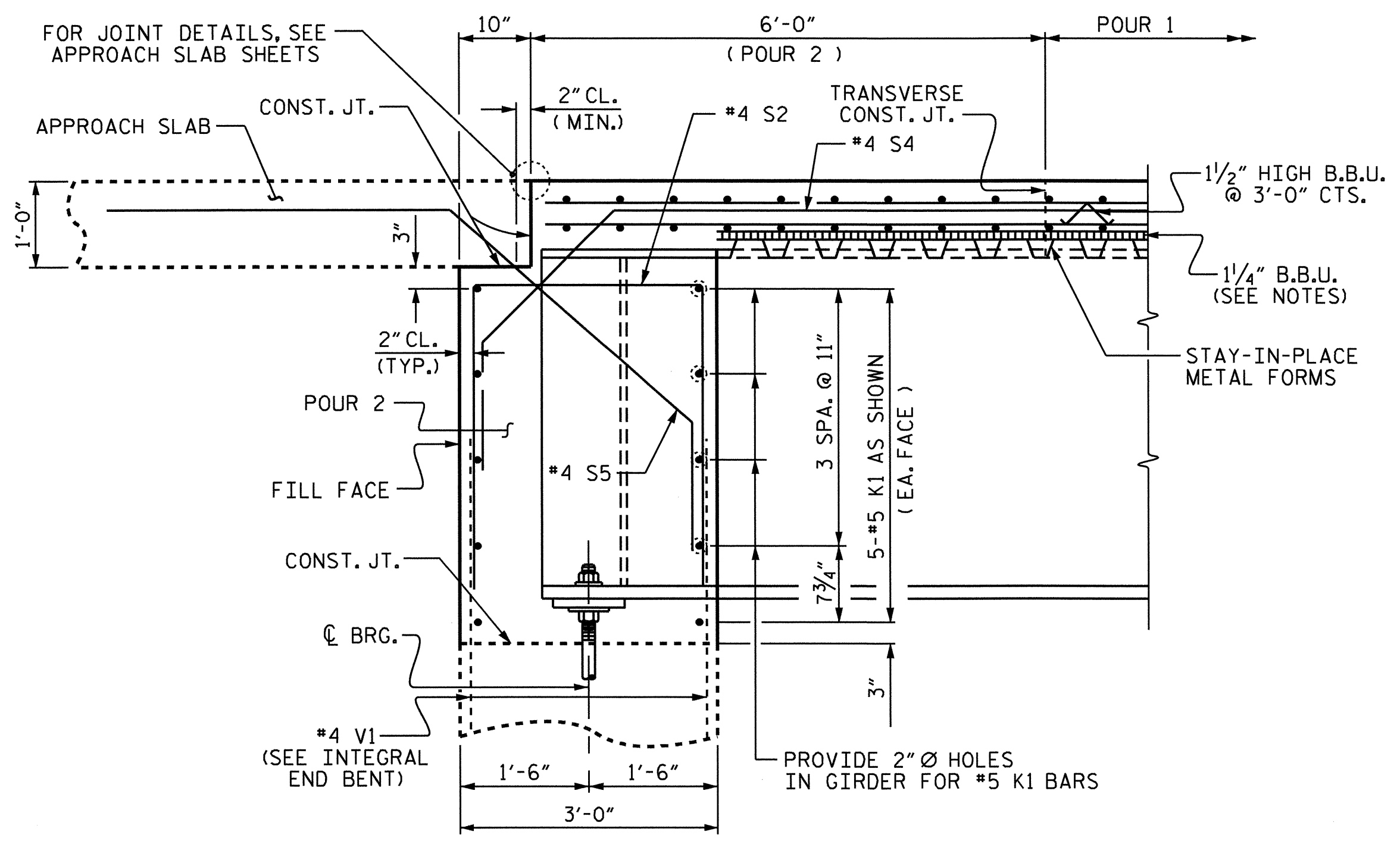


DRAWN BY: J. G. KHARVA DATE: 03-23-10
 CHECKED BY: J. MYA DATE: 06-22-11

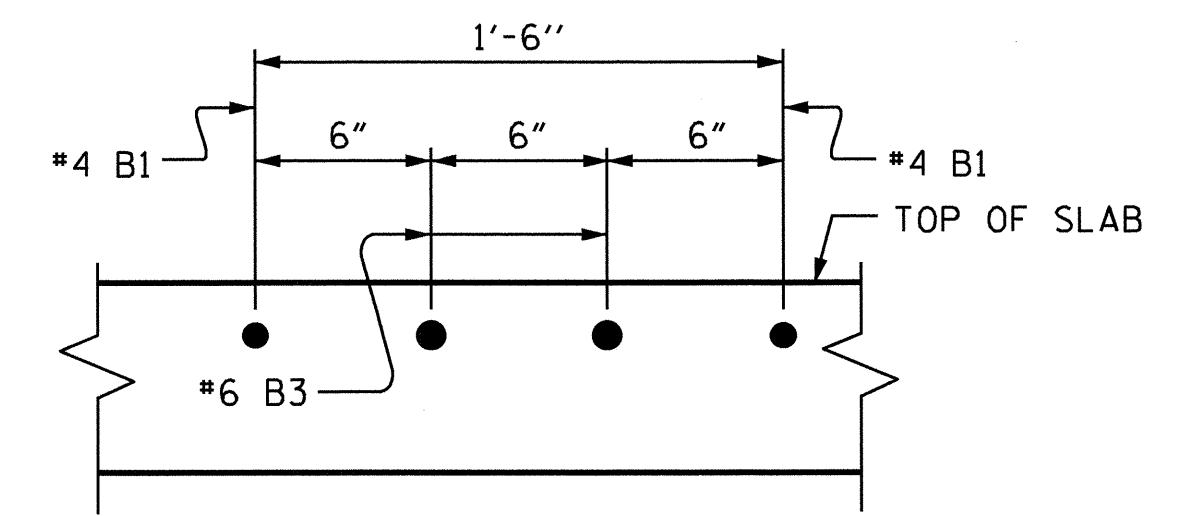
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			42



TYPICAL SECTION @ INTEGRAL END BENTS



SECTION A-A
(INTEGRAL END BENT DIAPHRAGM)



DETAIL B

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

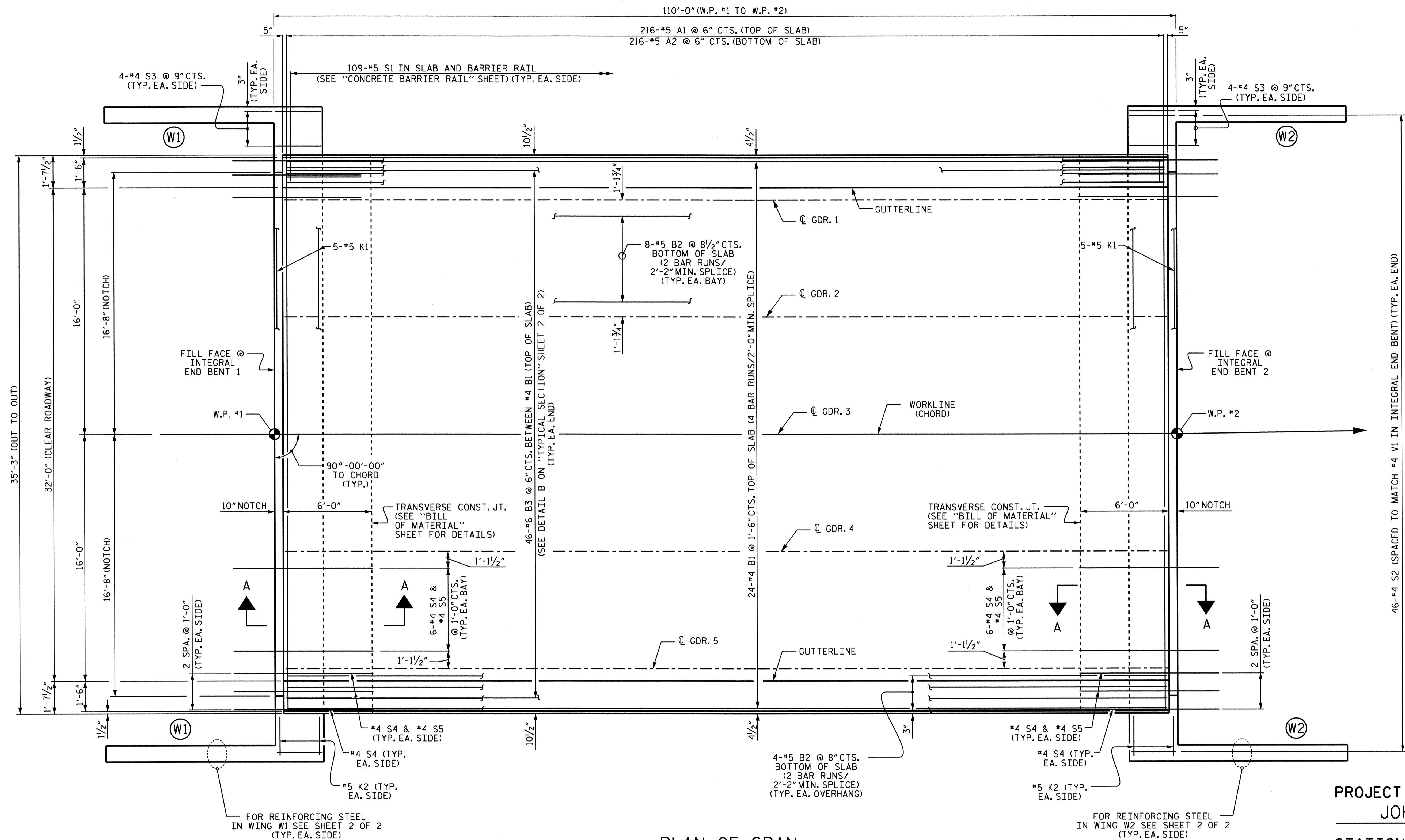
SUPERSTRUCTURE
TYPICAL SECTION



DRAWN BY : J. G. KHARVA DATE : 03-23-10
 CHECKED BY : J. MYA DATE : 06-22-11

REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 42
2			4			

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PLAN OF SPAN

FOR SECTION A-A AND REINFORCING STEEL IN INTEGRAL END BENT, SEE "TYPICAL SECTION" SHEET 2 OF 2.

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "STRUCTURAL STEEL DETAILS" SHEET 1 OF 3.

PROJECT NO. B-4556

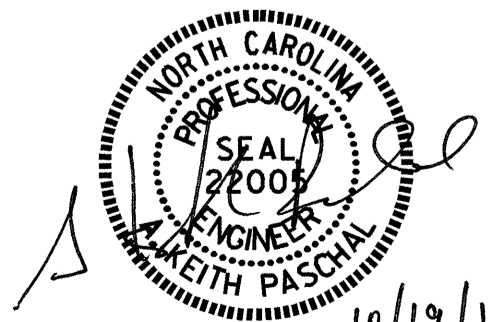
JOHNSTON COUNTY

STATION: 16+44.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

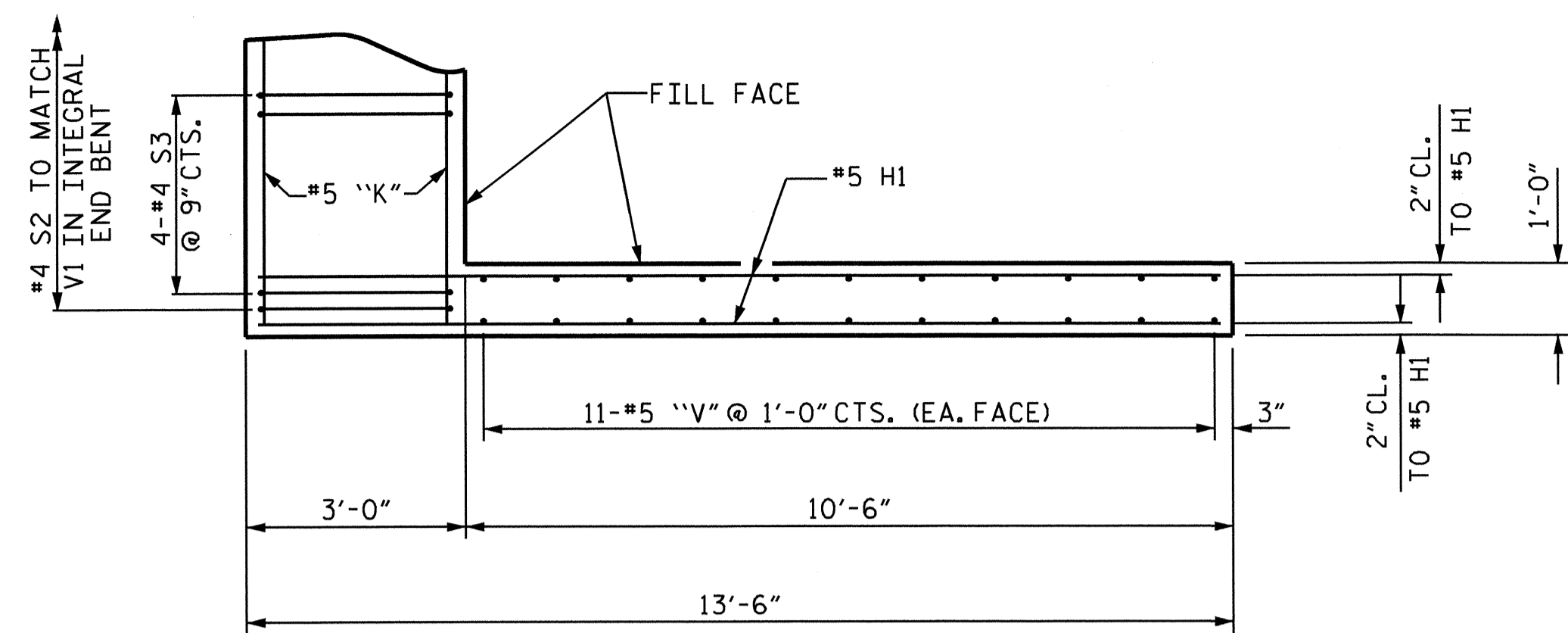
SUPERSTRUCTURE
PLAN OF SPAN



DRAWN BY: J. G. KHARVA DATE: 3-23-10
CHECKED BY: J. MYA DATE: 6-24-11

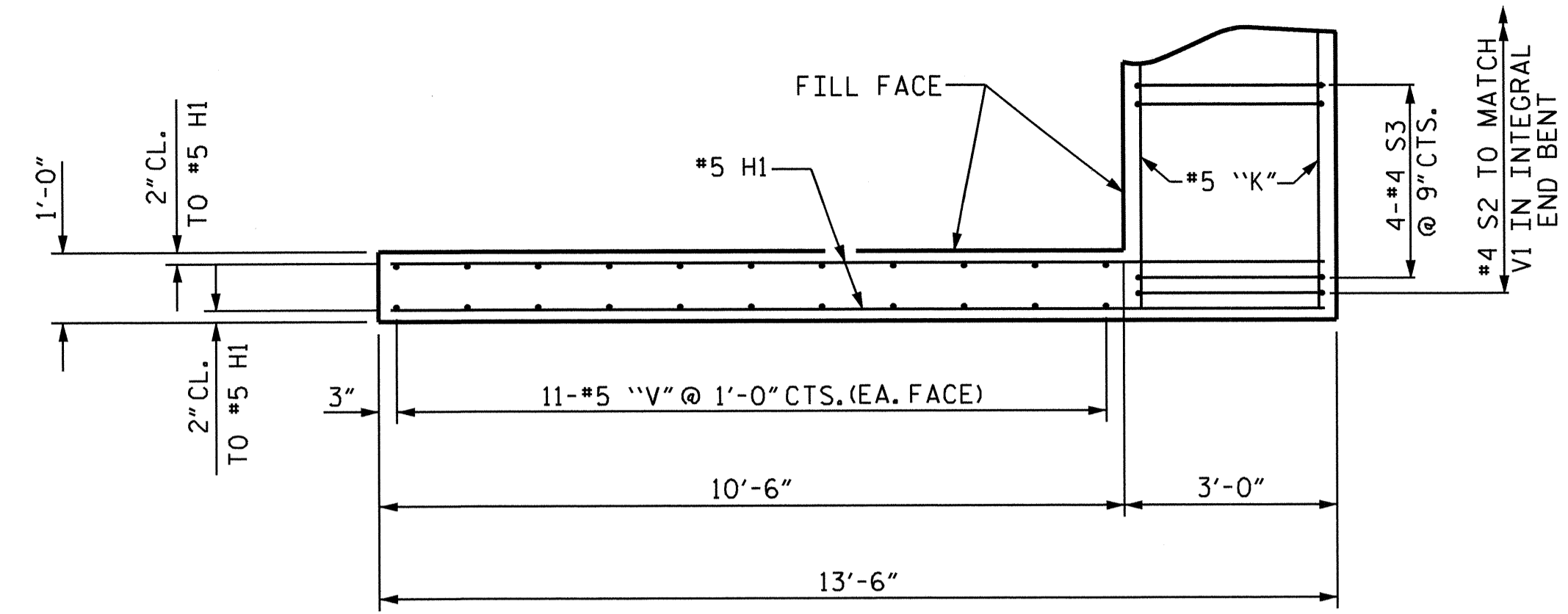
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jkharva

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
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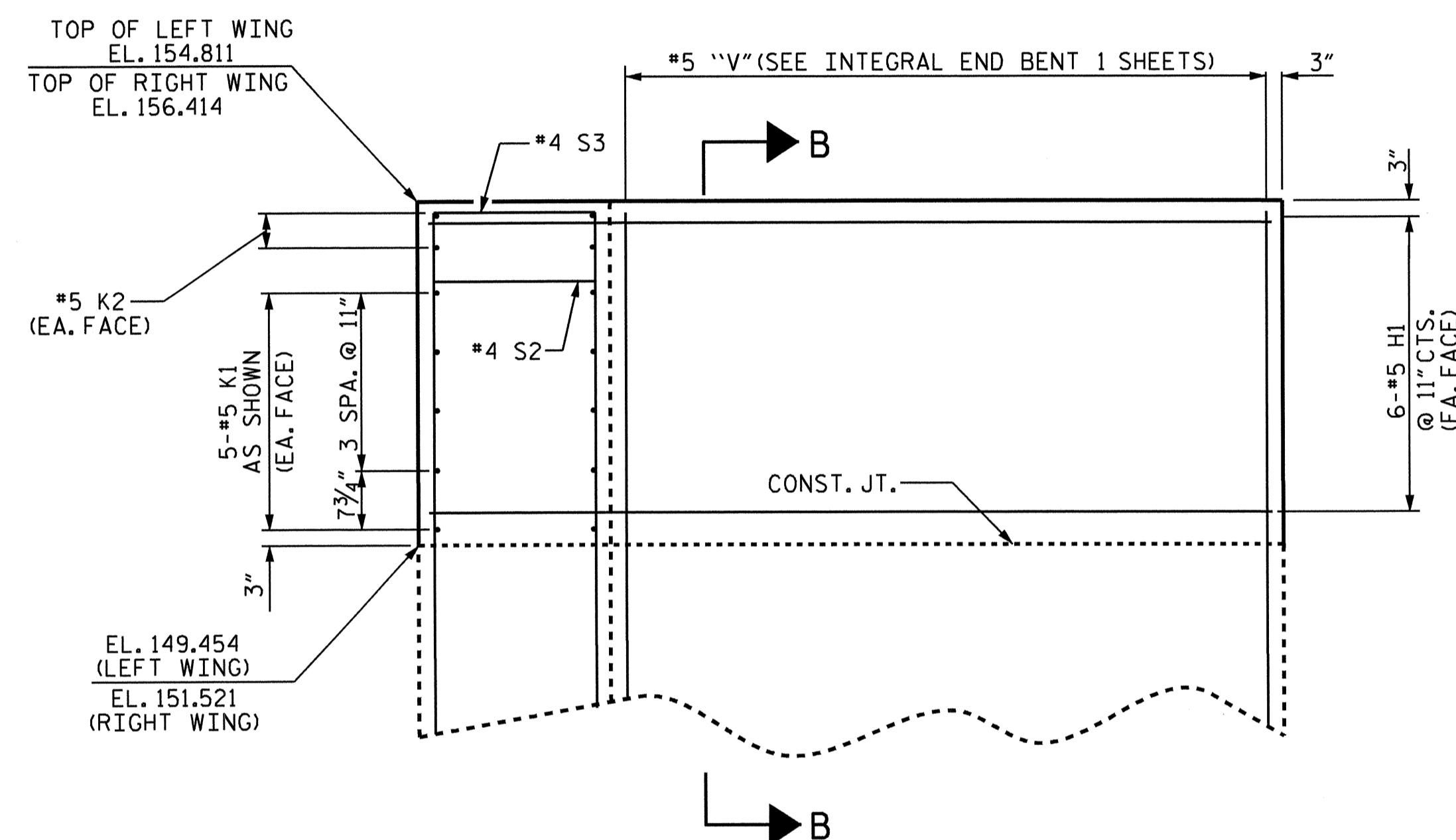
PLAN (W1)

LEFT WING SHOWN, RIGHT WING SIMILAR

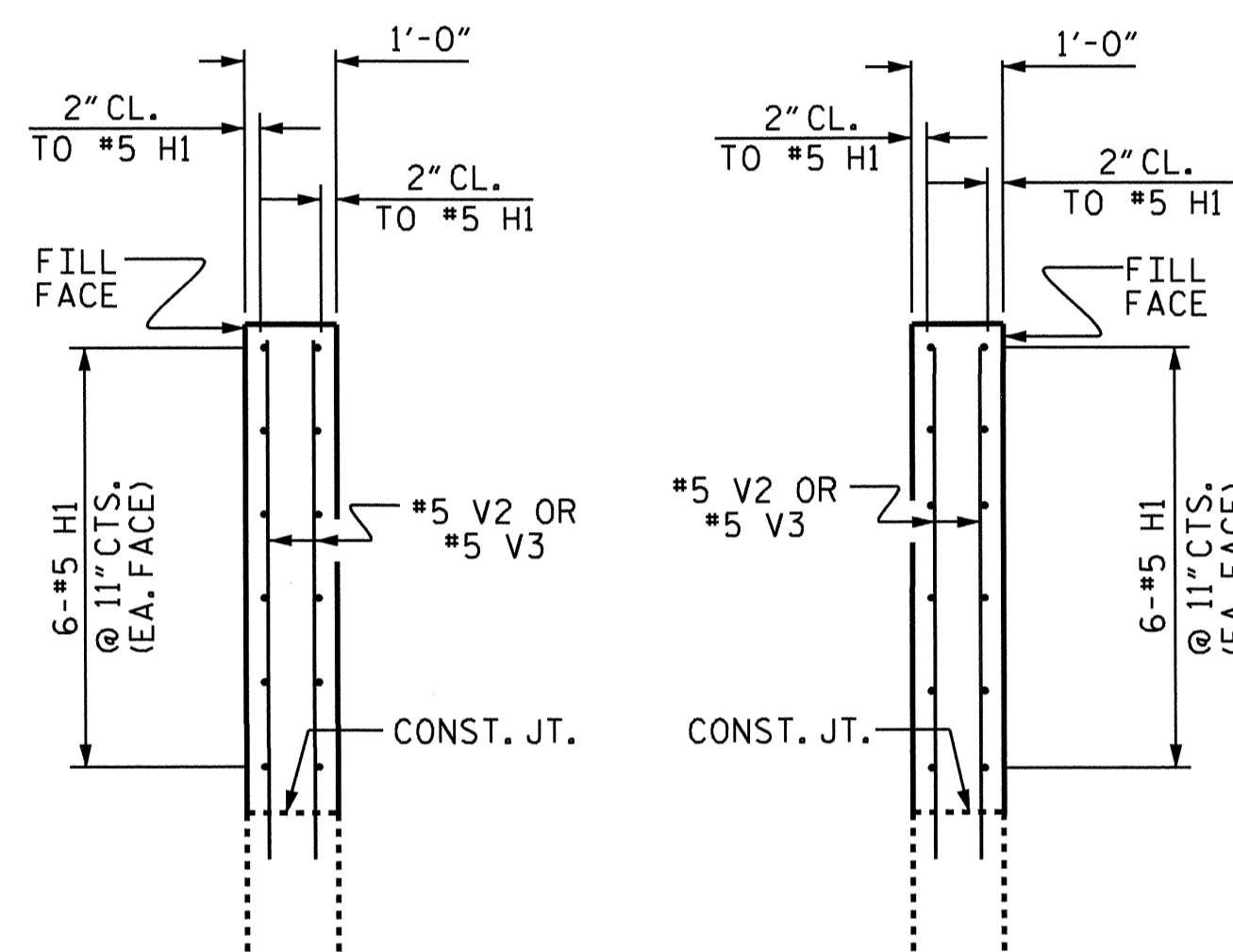


PLAN (W2)

LEFT WING SHOWN, RIGHT WING SIMILAR

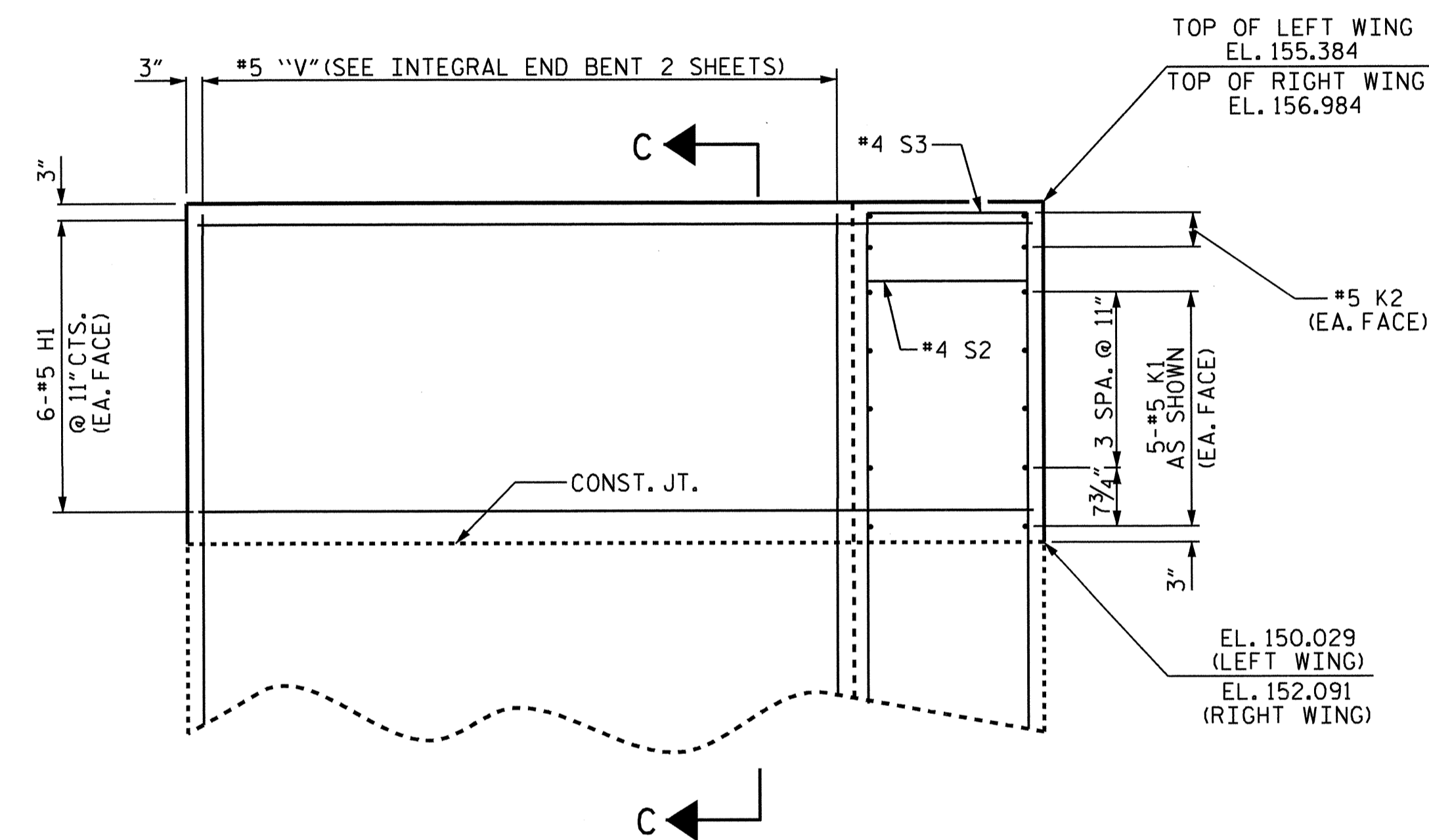


ELEVATION (W1)



SECTION B-B

SECTION C-C

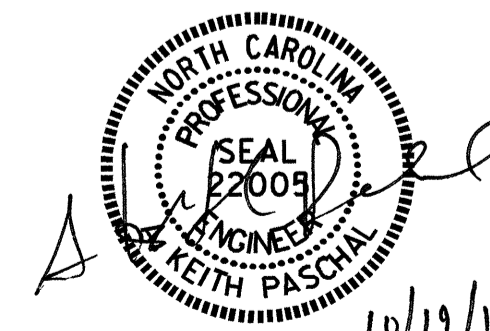


ELEVATION (W2)

UPPER WINGS AT INTEGRAL END BENTS
FOR LOWER WING REINFORCING STEEL AND DETAILS, SEE "INTEGRAL END BENT" SHEETS.

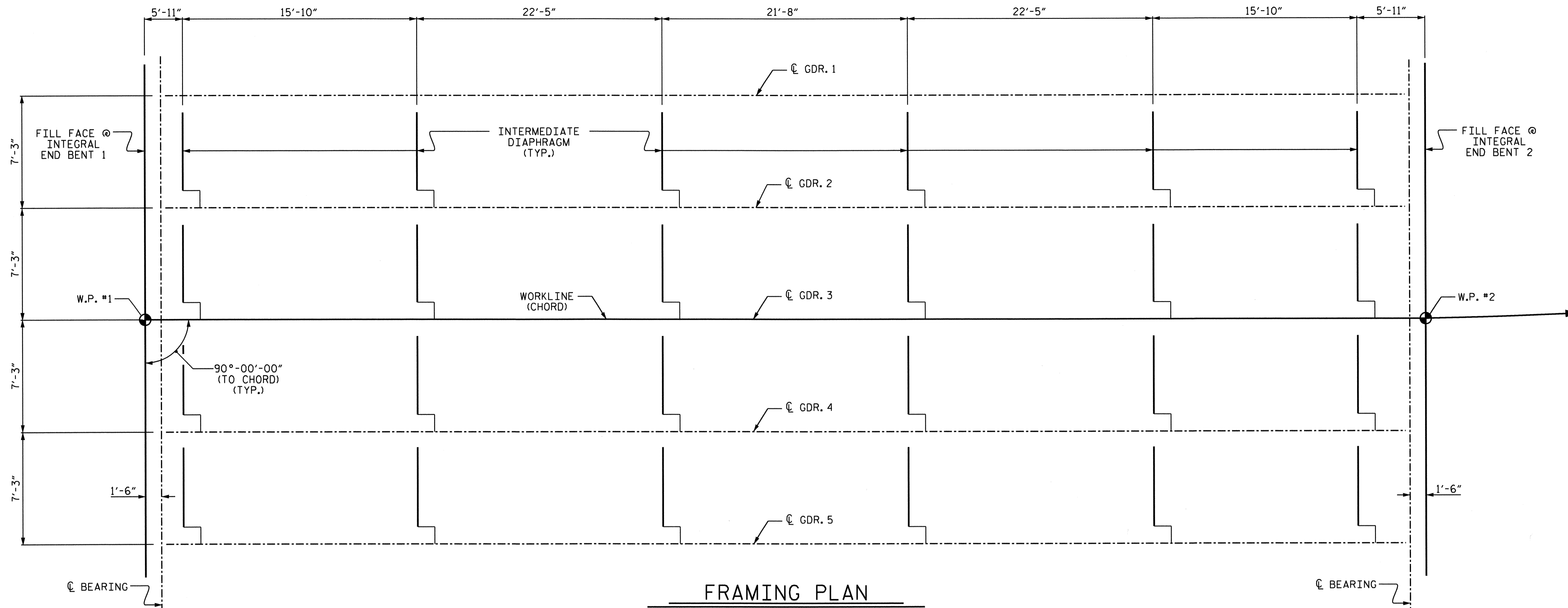
PROJECT NO. B-4556
JOHNSTON COUNTY
STATION: 16+44.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
PLAN OF SPAN DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 42

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CHECKED BY: J. MYA DATE: 6-24-11



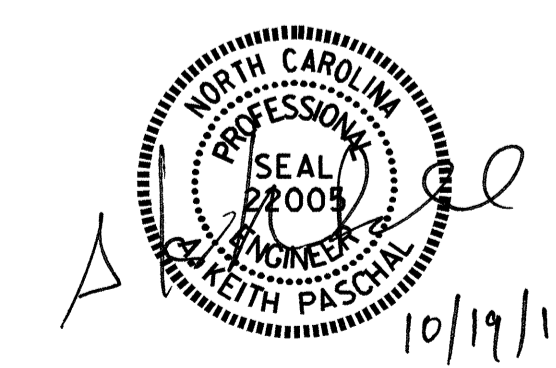
FRAMING PLAN

DEAD LOAD DEFLECTION TABLE																					
TWENTIETH POINTS	GIRDERS 1 THRU 5																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.015	0.030	0.044	0.056	0.067	0.076	0.084	0.089	0.092	0.093	0.092	0.089	0.084	0.076	0.067	0.056	0.044	0.030	0.015	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.053	0.123	0.189	0.248	0.300	0.344	0.379	0.404	0.420	0.425	0.420	0.404	0.379	0.344	0.300	0.248	0.189	0.123	0.053	0.000
DEFLECTION DUE TO WEIGHT OF RAIL ↓	0.000	0.000	0.001	0.003	0.004	0.006	0.007	0.008	0.009	0.010	0.010	0.010	0.009	0.008	0.007	0.006	0.004	0.003	0.001	0.000	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.068	0.154	0.236	0.308	0.373	0.427	0.471	0.502	0.522	0.528	0.522	0.502	0.471	0.427	0.373	0.308	0.236	0.154	0.068	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.004	0.008	0.012	0.015	0.017	0.019	0.021	0.022	0.023	0.023	0.023	0.022	0.021	0.019	0.017	0.015	0.012	0.008	0.004	0.000
REQUIRED CAMBER ↑	0	3/4"	1 1/4"	2 1/16"	3 1/2"	4 1/4"	4 7/8"	5 3/8"	5 11/16"	6"	6 1/16"	6"	5 11/16"	5 3/8"	4 7/8"	4 1/4"	3 1/2"	2 1/16"	1 3/4"	3/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-4556
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SHEET 1 OF 3



STATE OF NORTH CAROLINA
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RALEIGH

**SUPERSTRUCTURE
STRUCTURAL
STEEL DETAILS**

DRAWN BY : J. G. KHARVA DATE : 3-23-10
CHECKED BY : J. MYA DATE : 6-27-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-9
2			4			TOTAL SHEETS 42

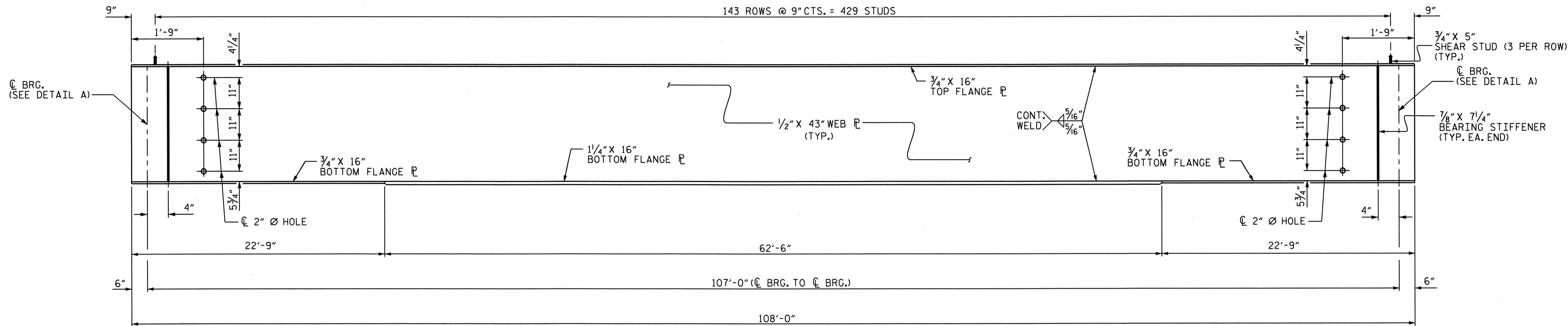
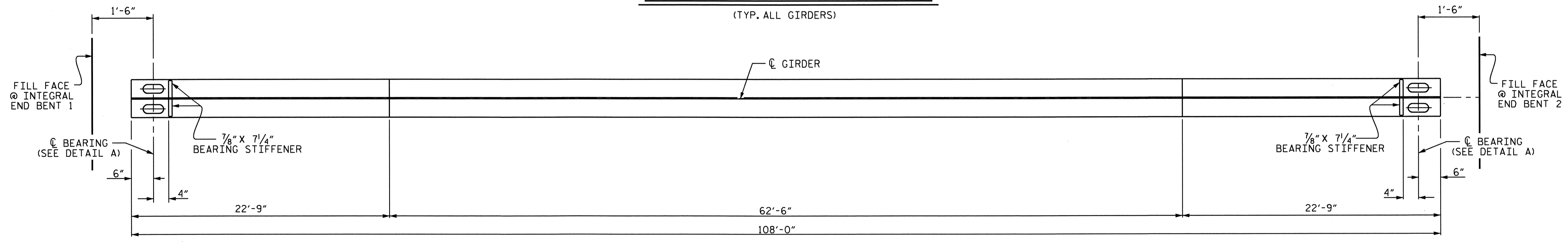
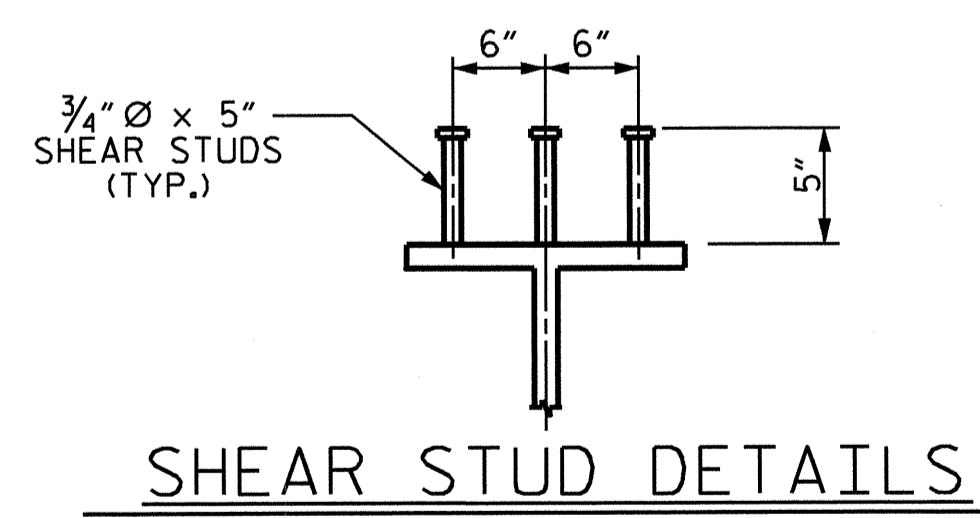


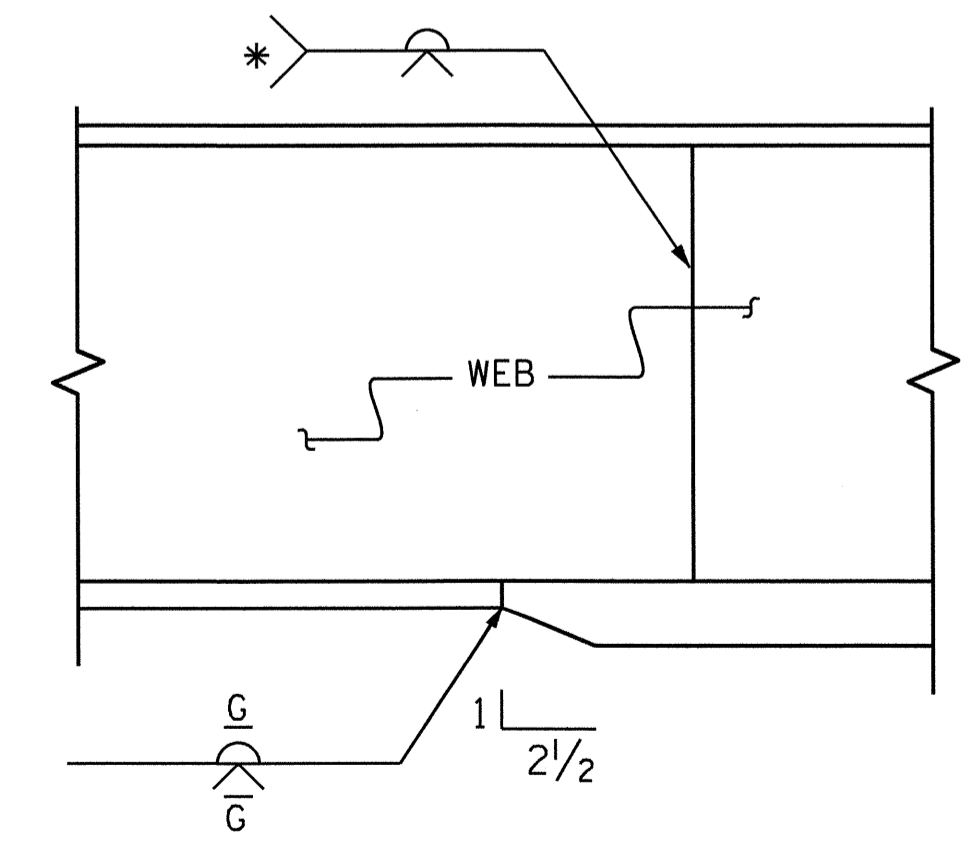
PLATE GIRDER ELEVATION
(TYP. ALL GIRDERS)



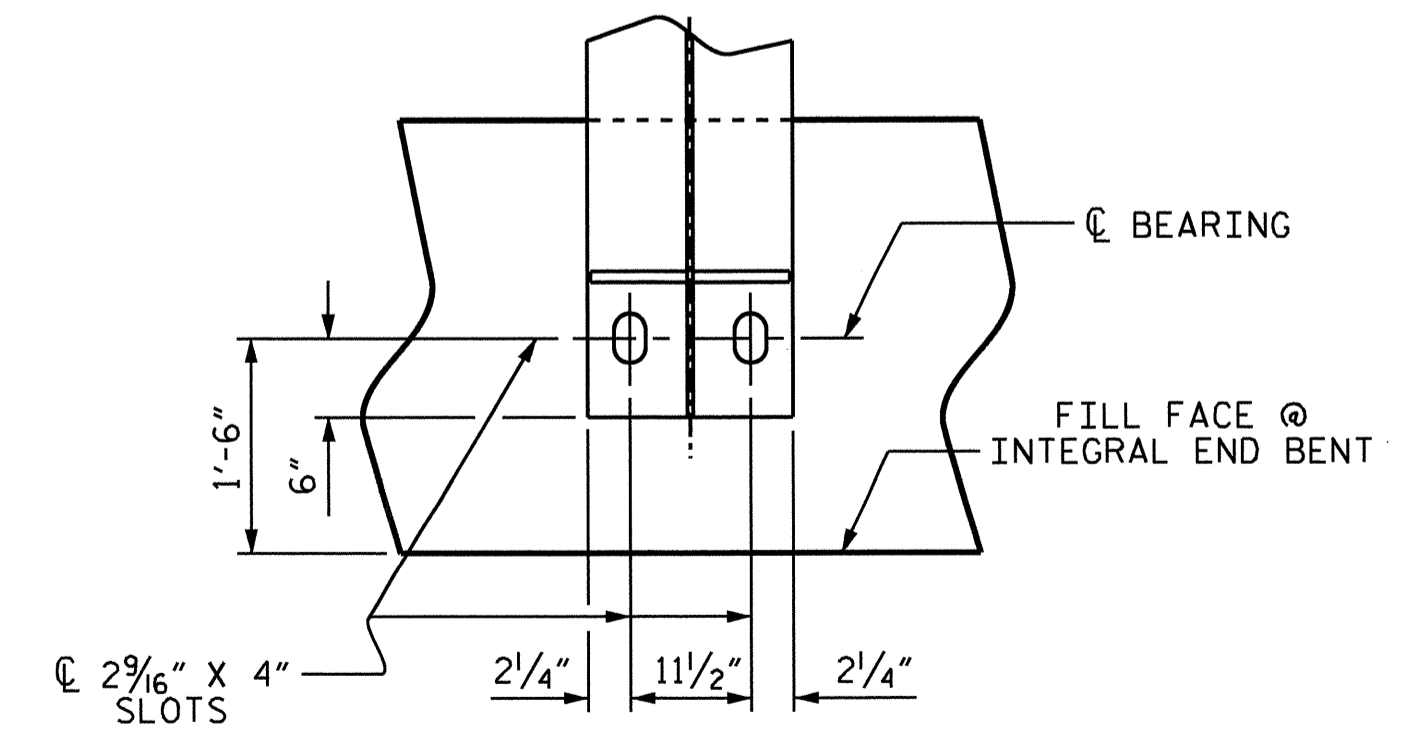
BOTTOM FLANGE DETAIL



SHEAR STUD DETAILS



TYPICAL FLANGE AND WEB BUTT JOINT
* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS

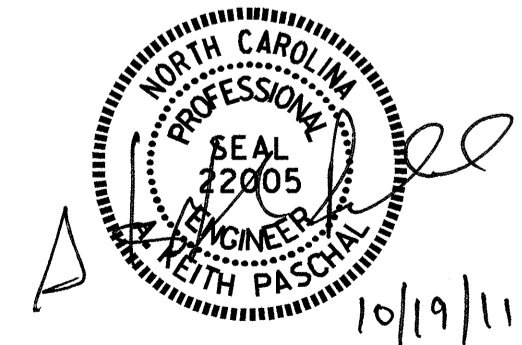


DETAIL A
(BOTTOM FLANGE OF GIRDER)

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
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 RALEIGH

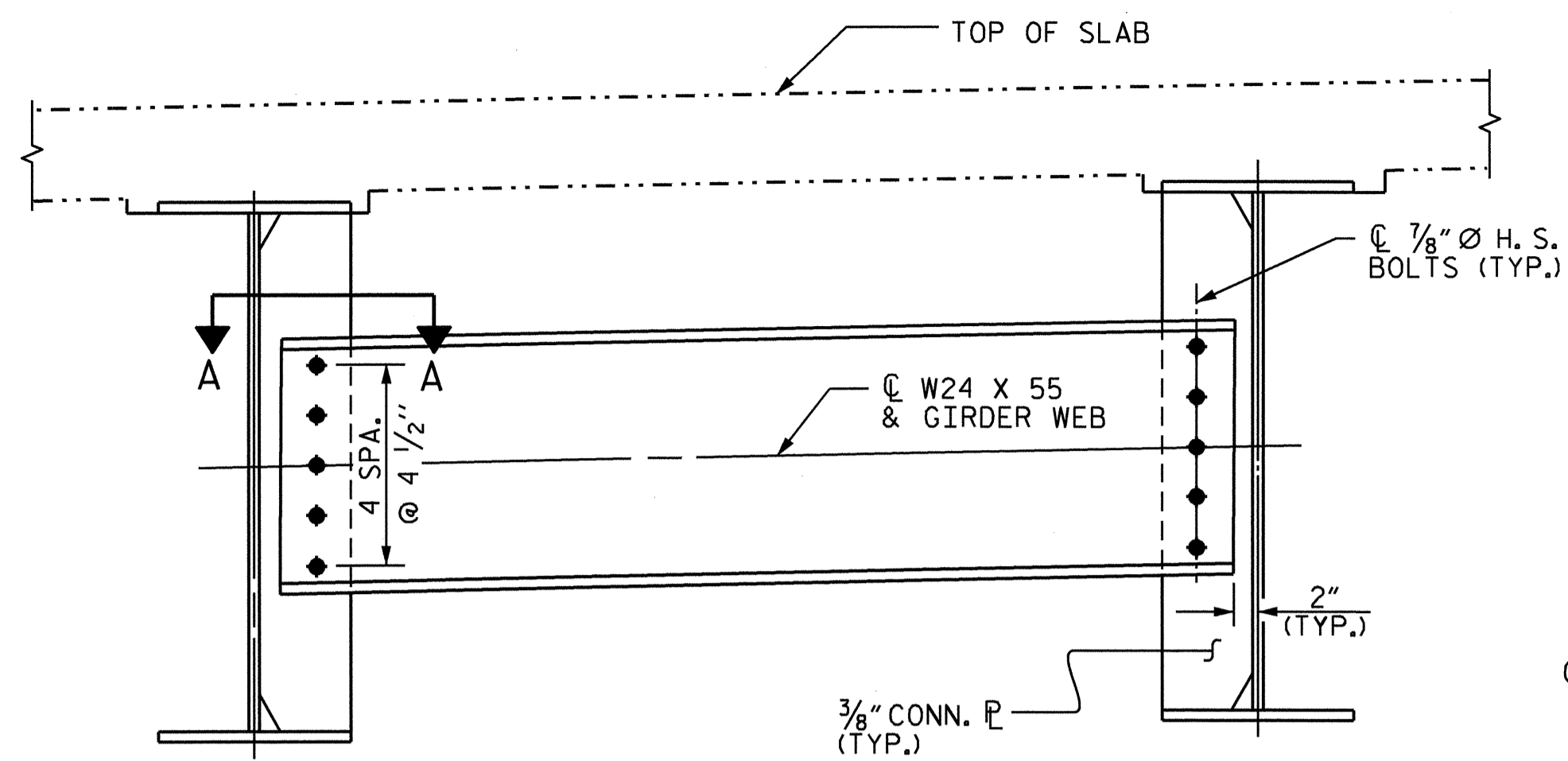
**SUPERSTRUCTURE
 STRUCTURAL
 STEEL DETAILS**



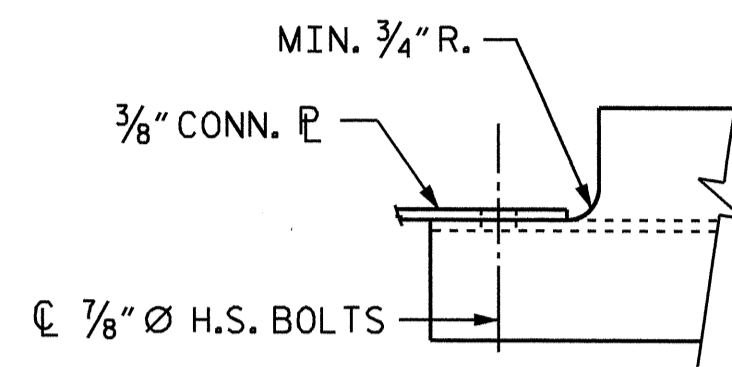
DRAWN BY: J. G. KHARVA DATE: 3-23-10
 CHECKED BY: J. MYA DATE: 6-27-11

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1			3			TOTAL SHEETS	
2			4			42	

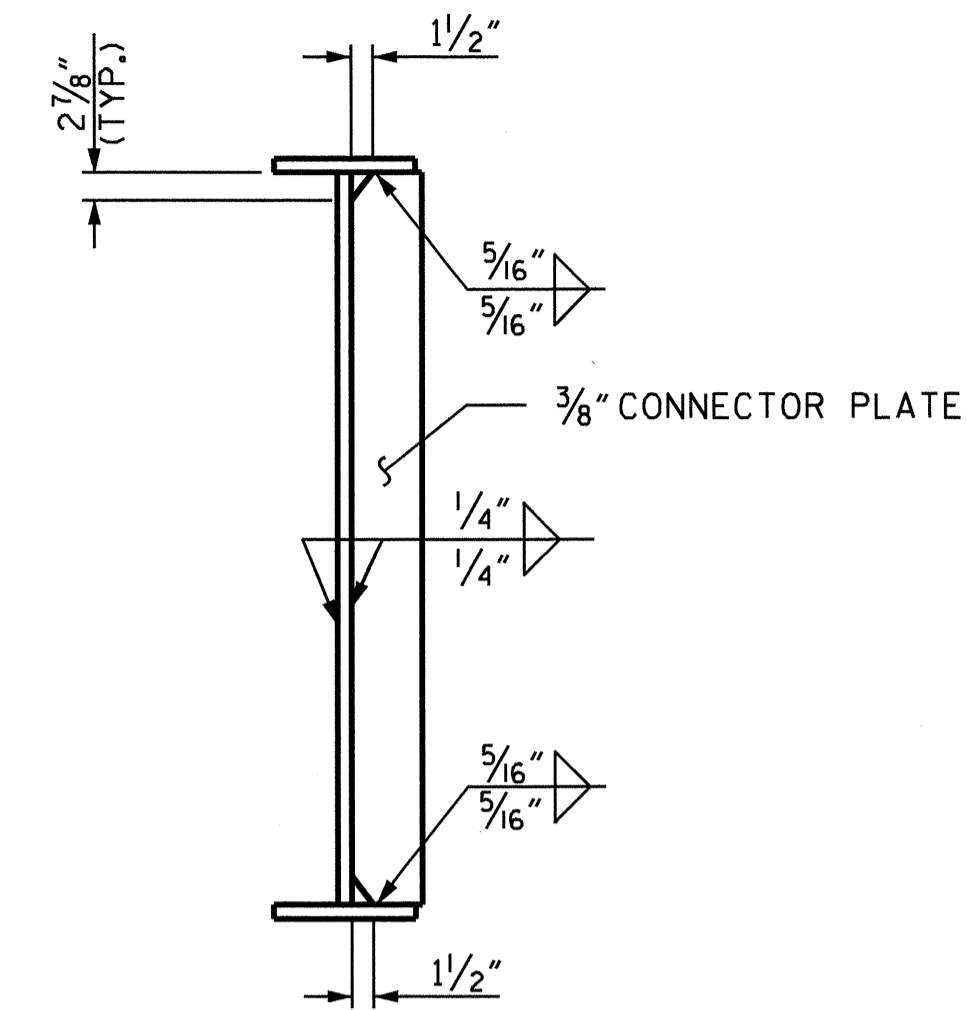
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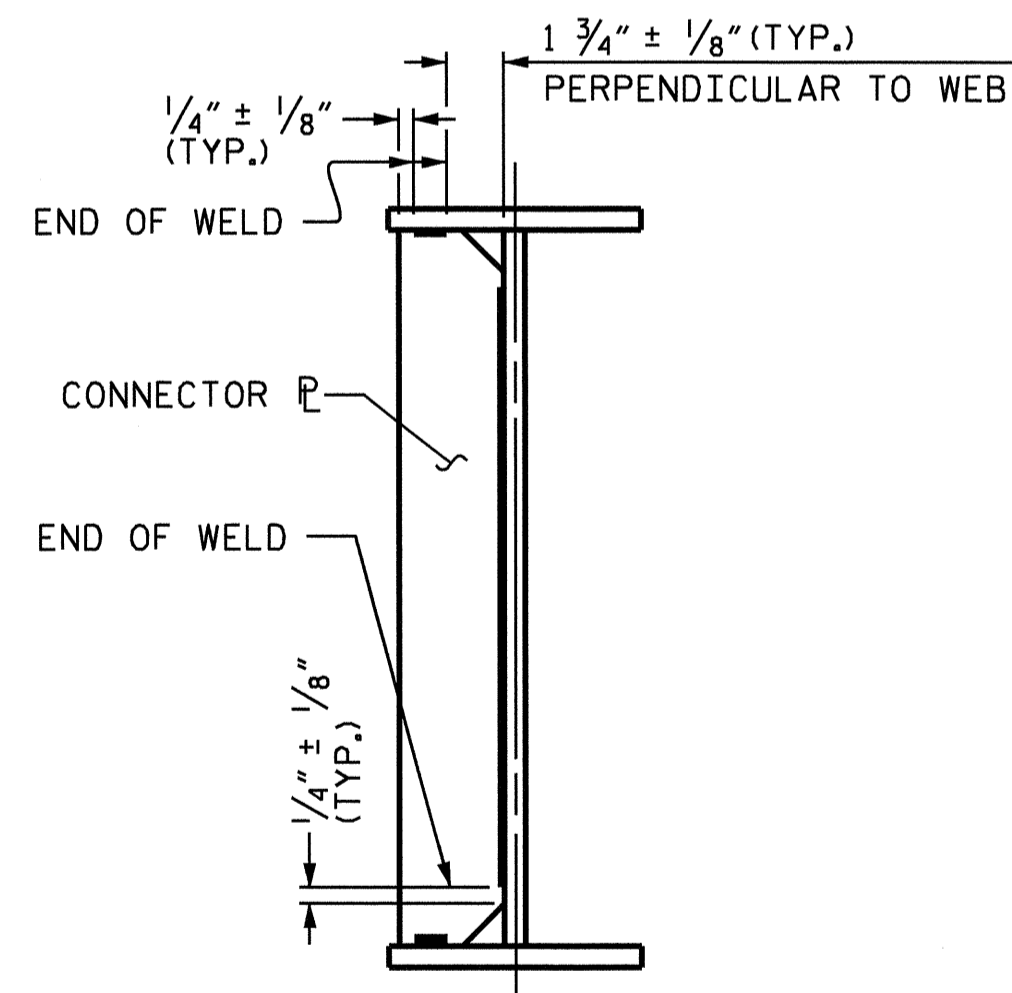
TYPICAL INTERMEDIATE DIAPHRAGM



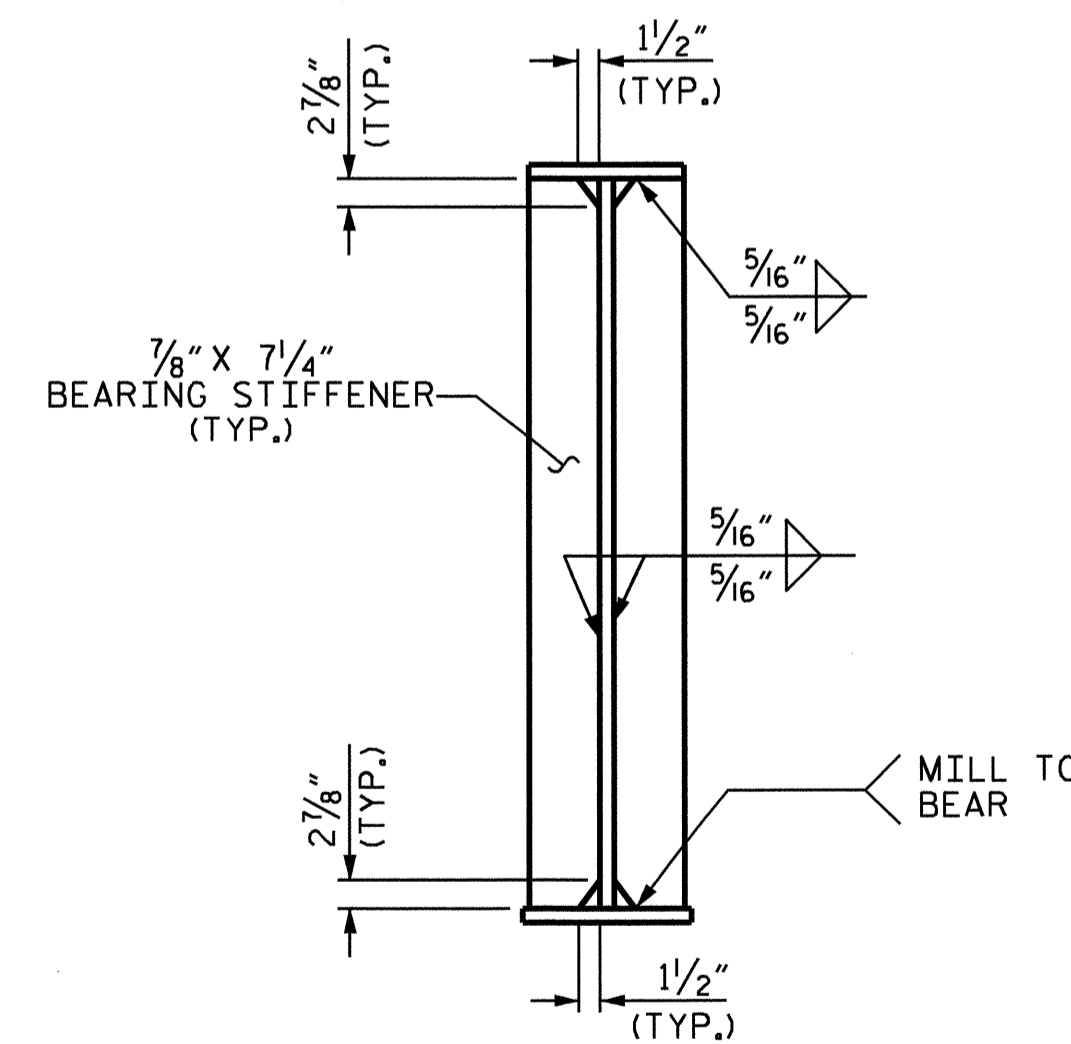
SECTION A-A



CONNECTOR PLATE



TYPICAL CONNECTOR PLATE CONNECTIONS
WELD TERMINATION DETAILS



BEARING STIFFENER

NOTES:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS. FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISIONS.

END OF GIRDERS SHALL BE PLUMB.

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES, TOP FLANGE PLATES WITHIN 21'-5" OF ENDS OF GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

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STATION: 16+44.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL
STEEL DETAILS



DRAWN BY : J. G. KHARVA DATE : 3-23-10
CHECKED BY : J. MYA DATE : 6-27-11

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			42

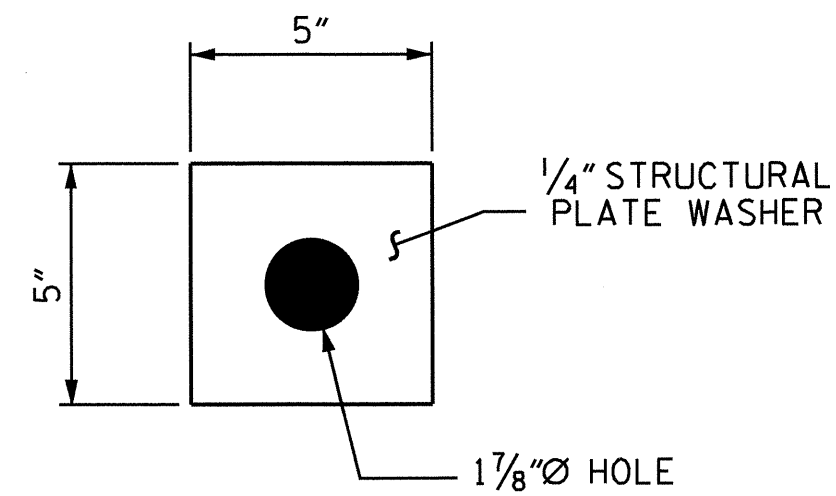
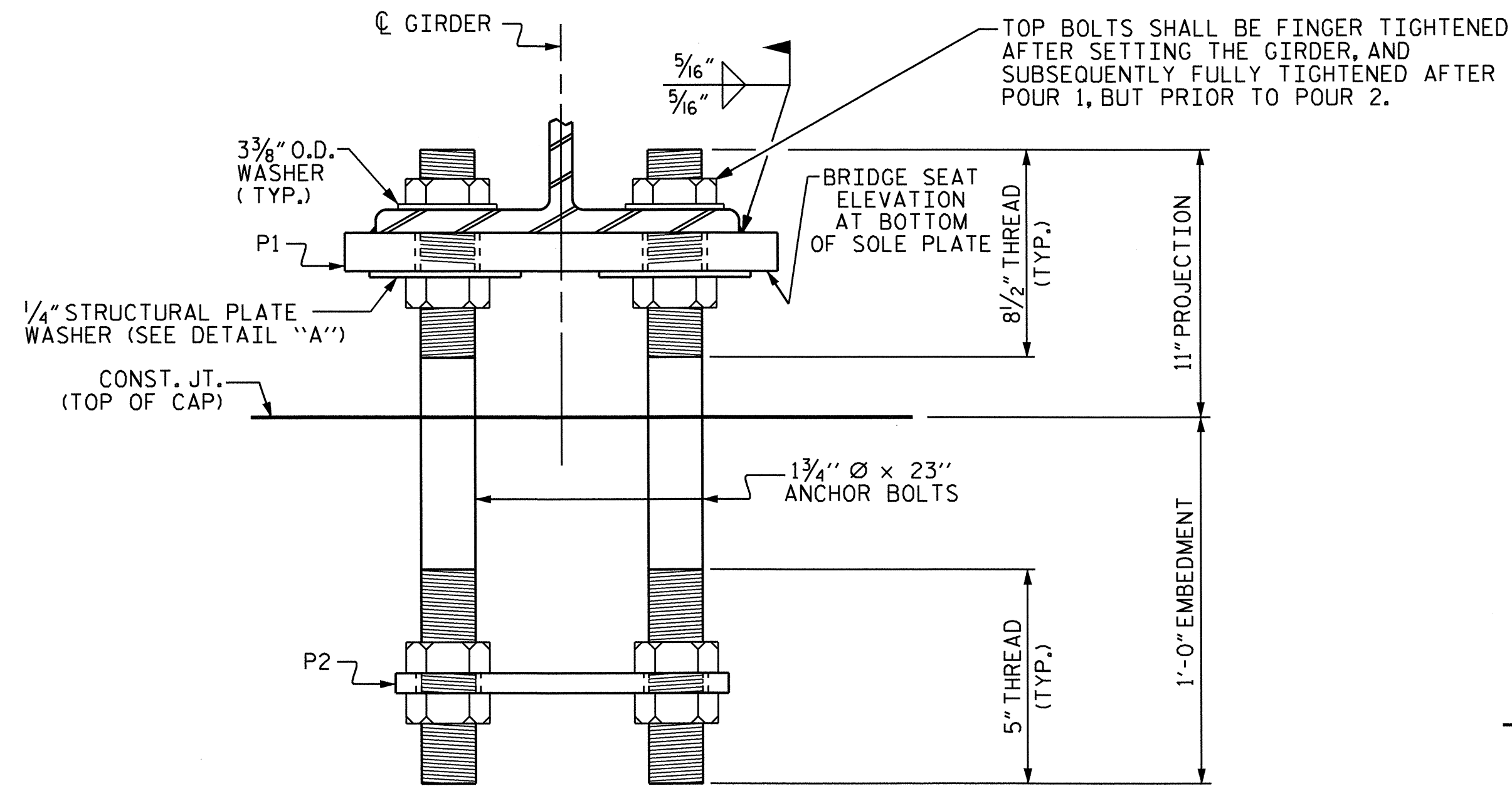
NOTES

SOLE PLATES, ANCHORAGE PLATES, AND STRUCTURAL PLATE WASHERS SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

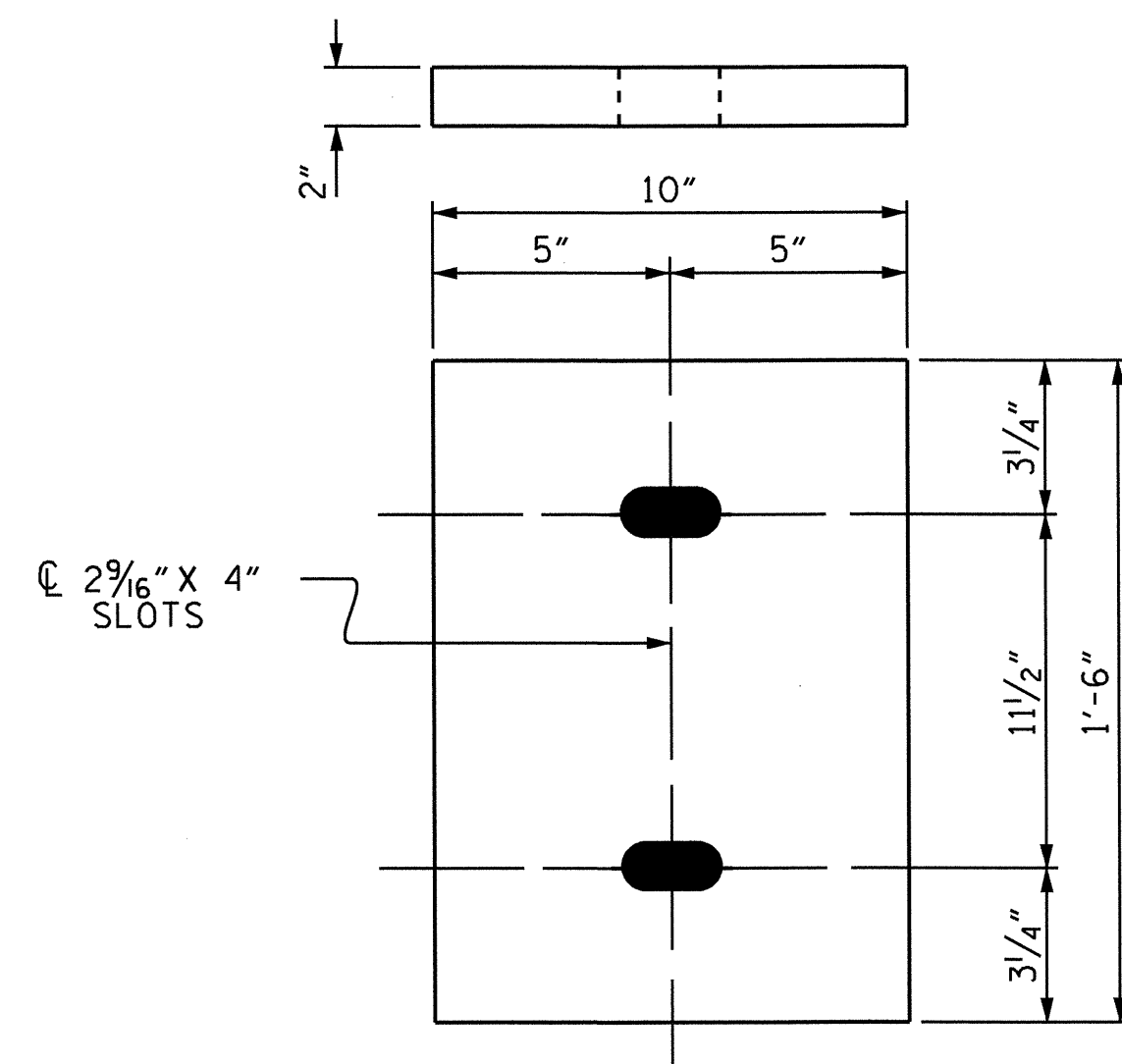
ALL SURFACES OF SOLE PLATES SHALL BE SMOOTH AND STRAIGHT.

STRUCTURAL PLATE WASHERS SHALL BE AASHTO M270 GRADE 50W, AND SHALL NOT BE GALVANIZED.



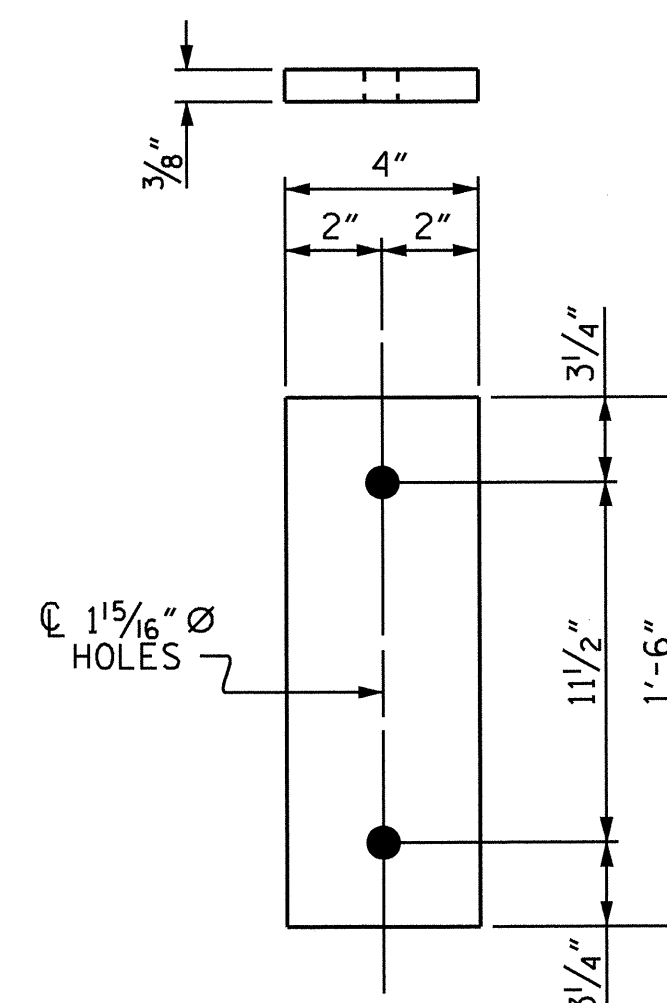
DETAIL "A"

FIXED
END VIEW



P1
(10 REQ'D.)

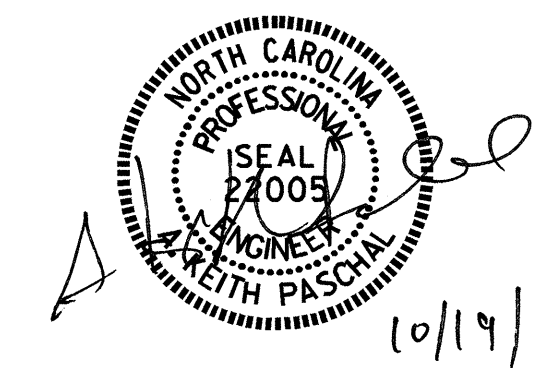
SOLE PLATE DETAILS



P2
(10 REQ'D.)

ANCHORAGE PLATE

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SOLE PLATE
 DETAILS

DRAWN BY : J. G. KHARVA DATE : 3-23-10
 CHECKED BY : J. MYA DATE : 6-27-11

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NOTES

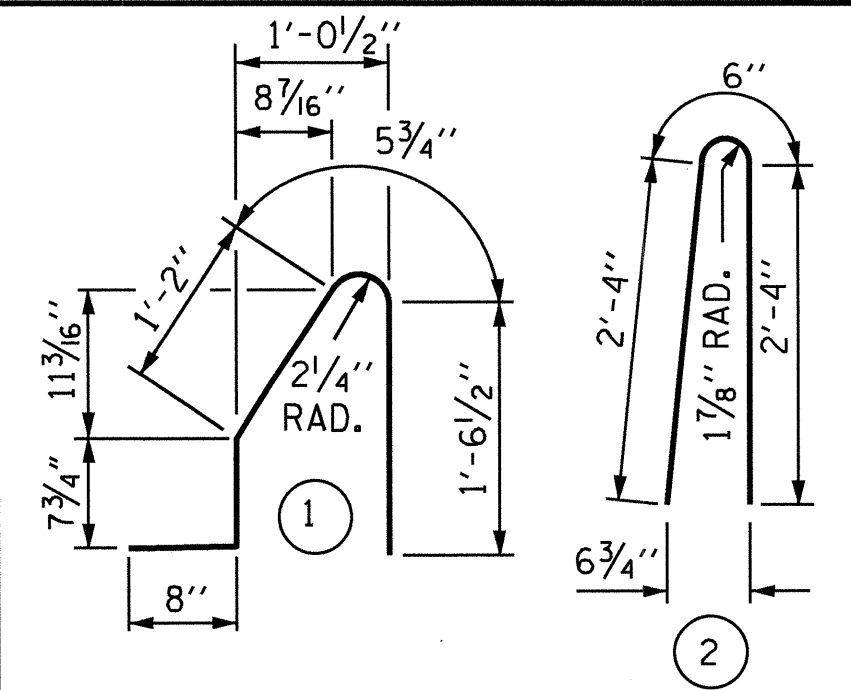
THE BARRIER RAIL IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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. THE 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.

THE #5 S1 & #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN BARRIER RAIL.

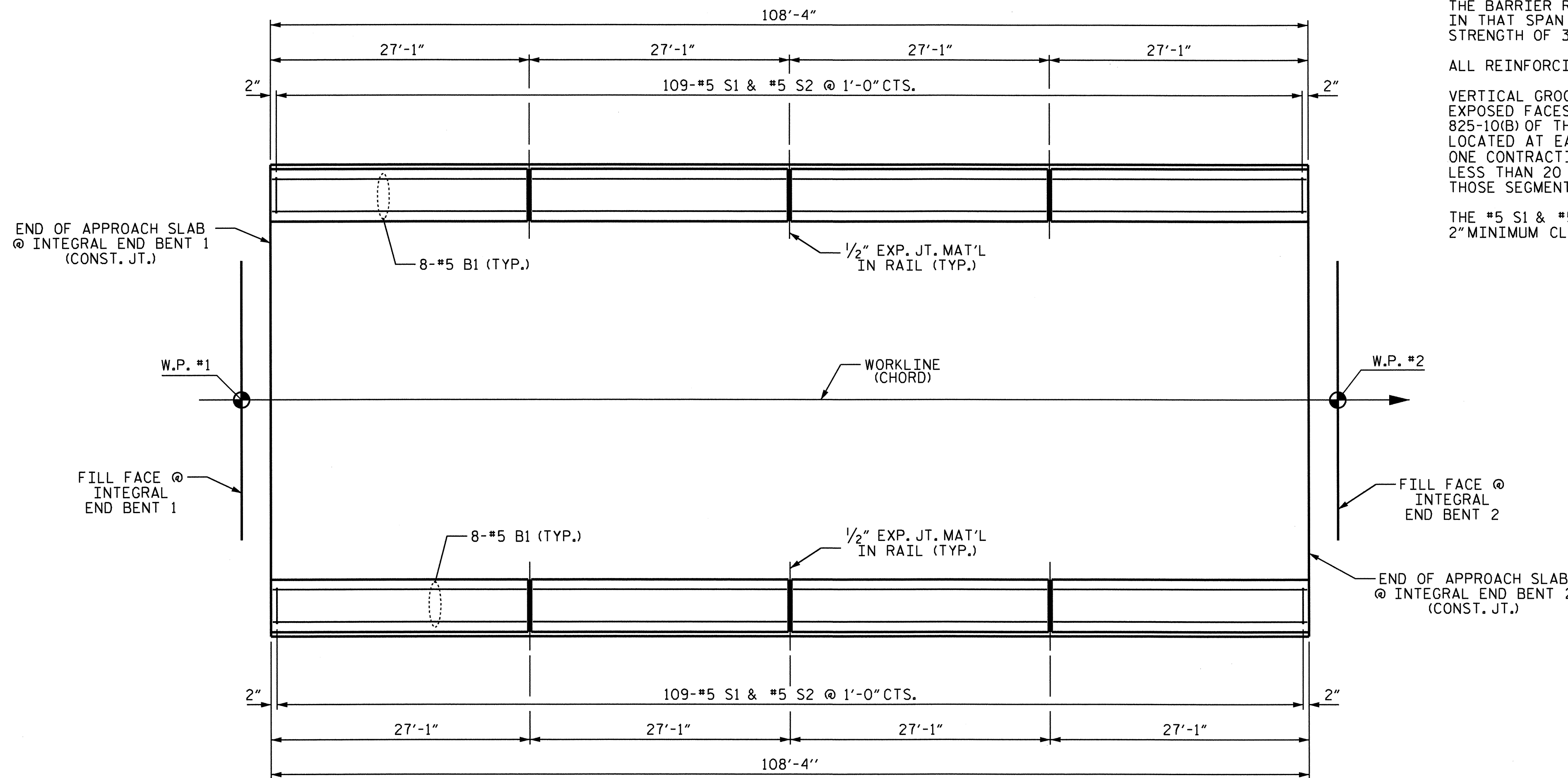
BAR TYPES



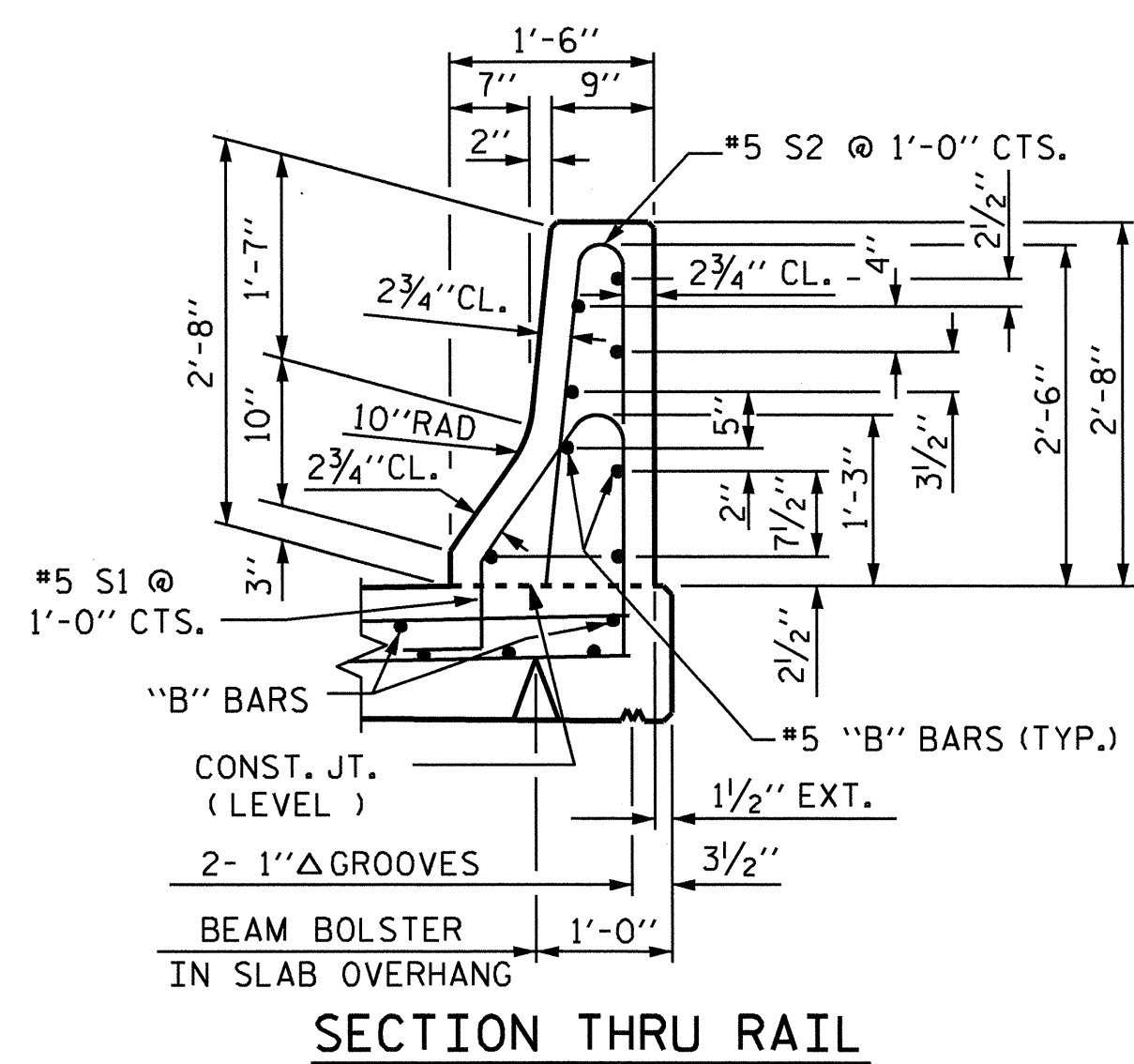
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

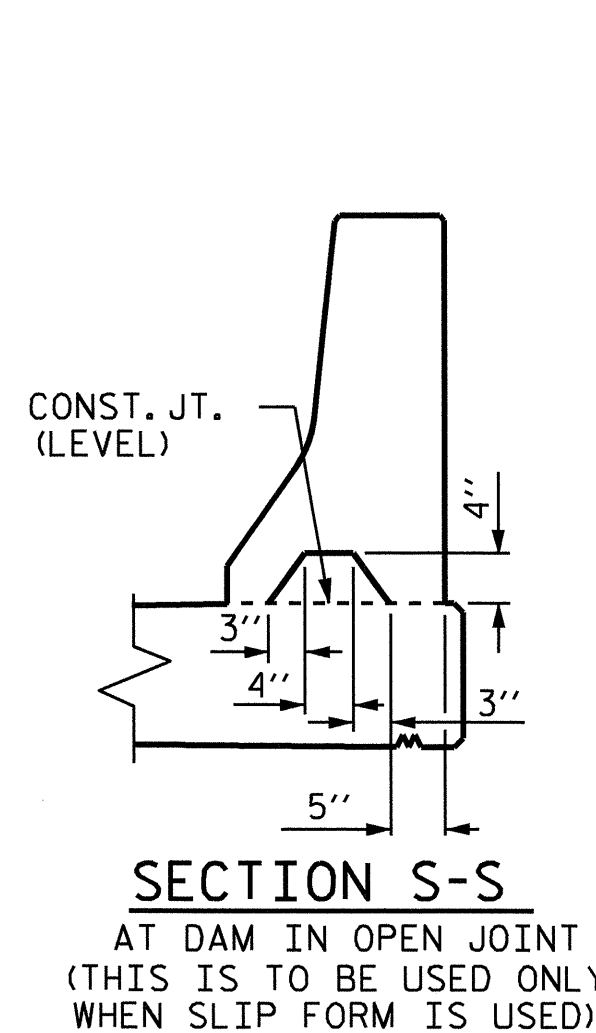
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	64	#5	STR	26'-9"	1780
* S1	218	#5	1	4'-6"	1023
* S2	218	#5	2	5'-2"	1175
* EPOXY COATED REINFORCING STEEL					3978 LBS.
CLASS AA CONCRETE					21.7 CU. YDS.
CONCRETE BARRIER RAIL					216.67 L IN. FT.



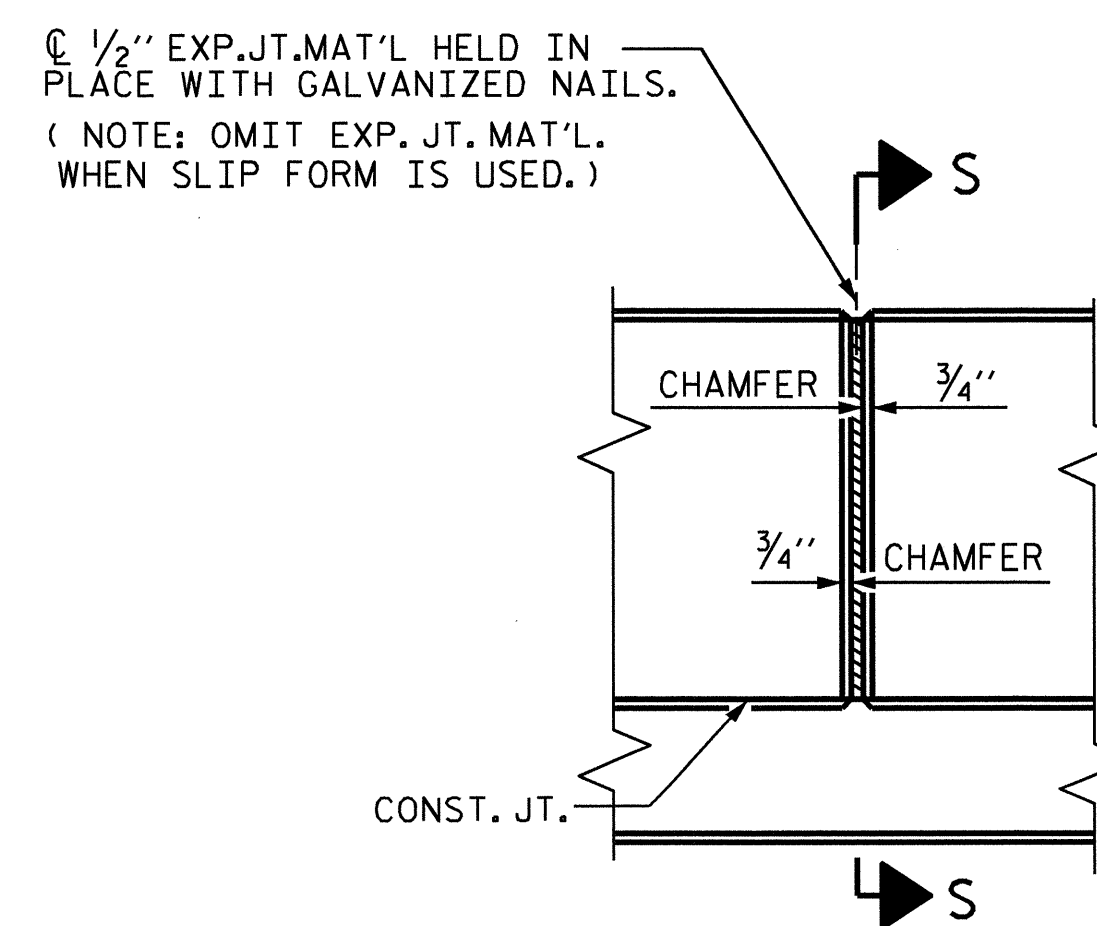
PLAN OF BARRIER RAIL



SECTION THRU RAIL



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



ELEVATION AT EXPANSION JOINTS

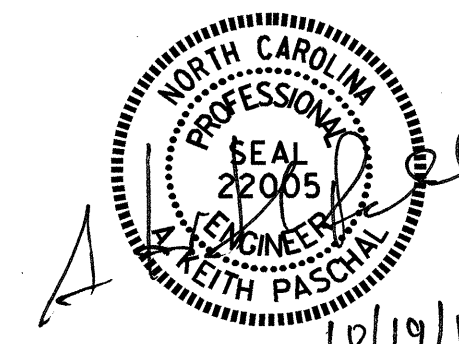
BARRIER RAIL DETAILS

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 CONCRETE
 BARRIER RAIL



ASSEMBLED BY : J. G. KHARVA	DATE : 6/23/11
CHECKED BY : J. MYA	DATE : 6/29/11
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/JGM

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2			4			42

STD. NO. CBRI (SHT 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.)

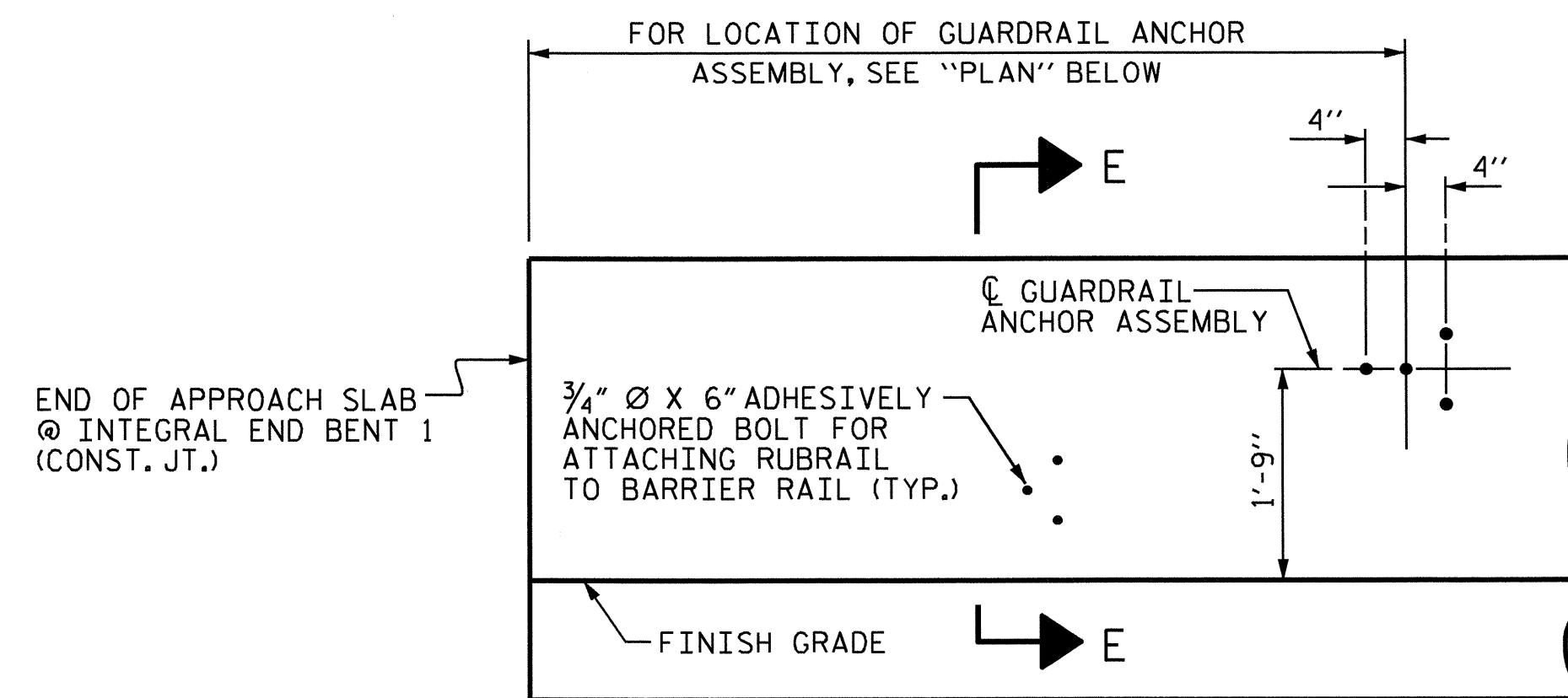
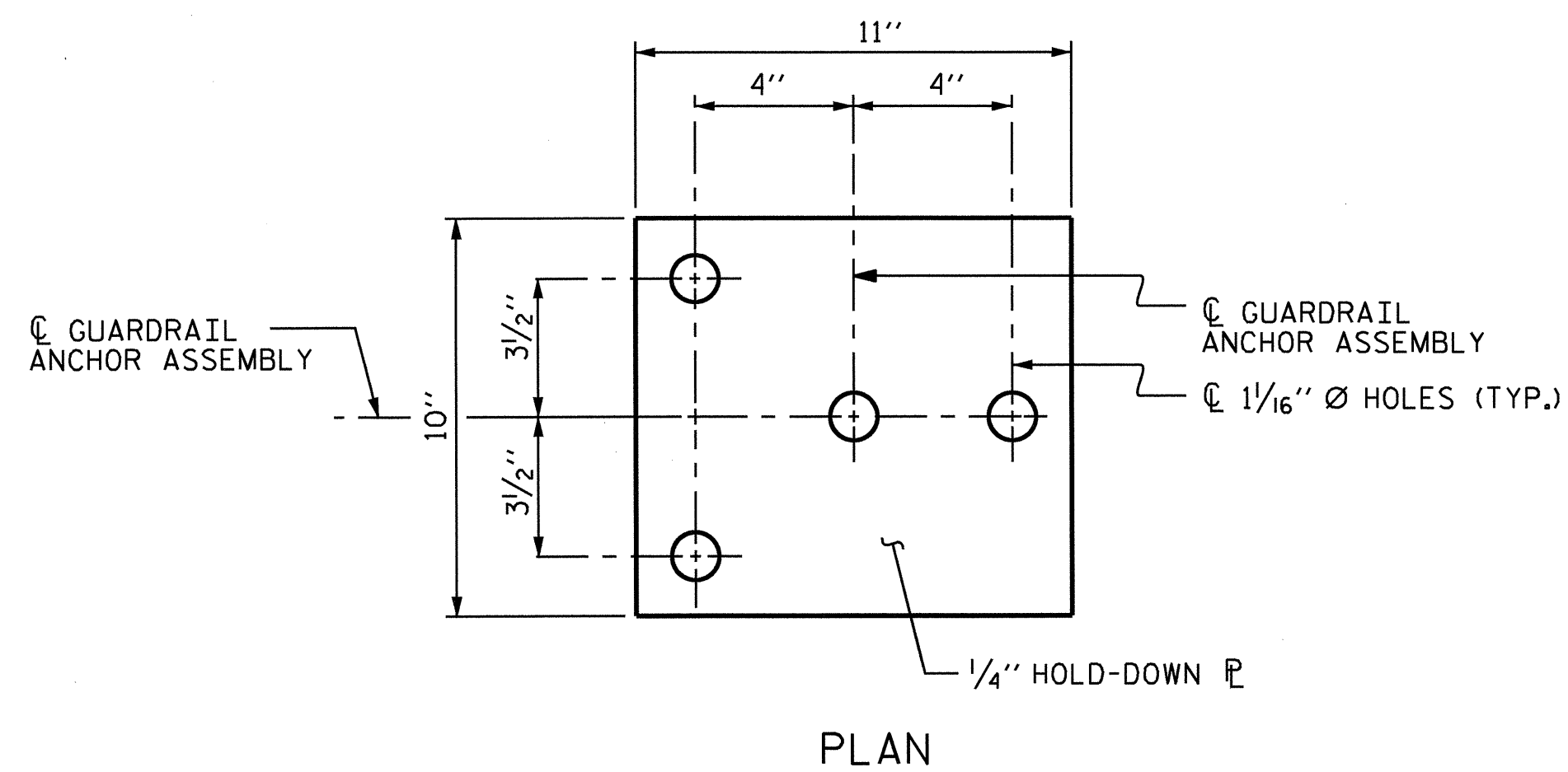
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

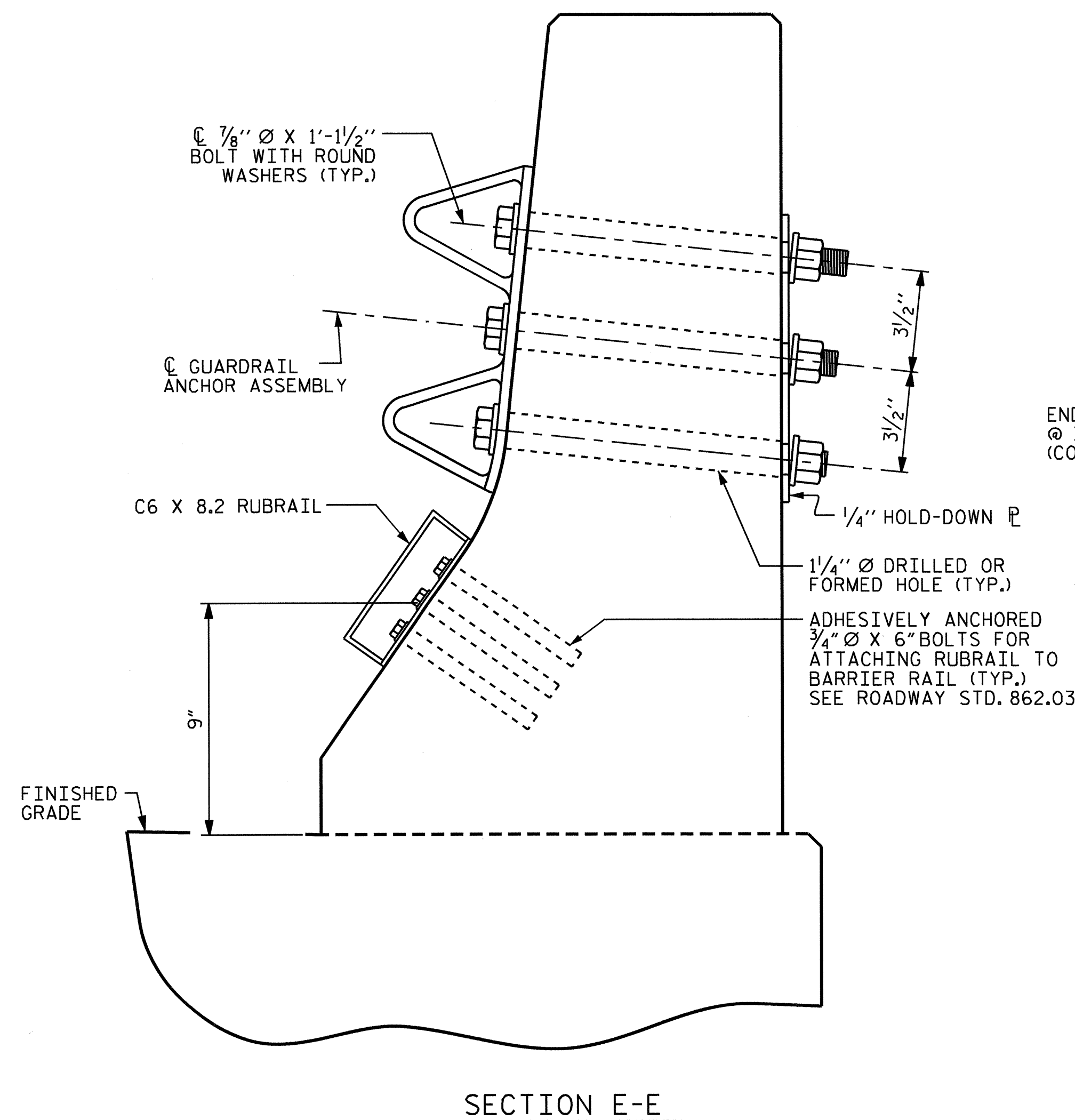
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

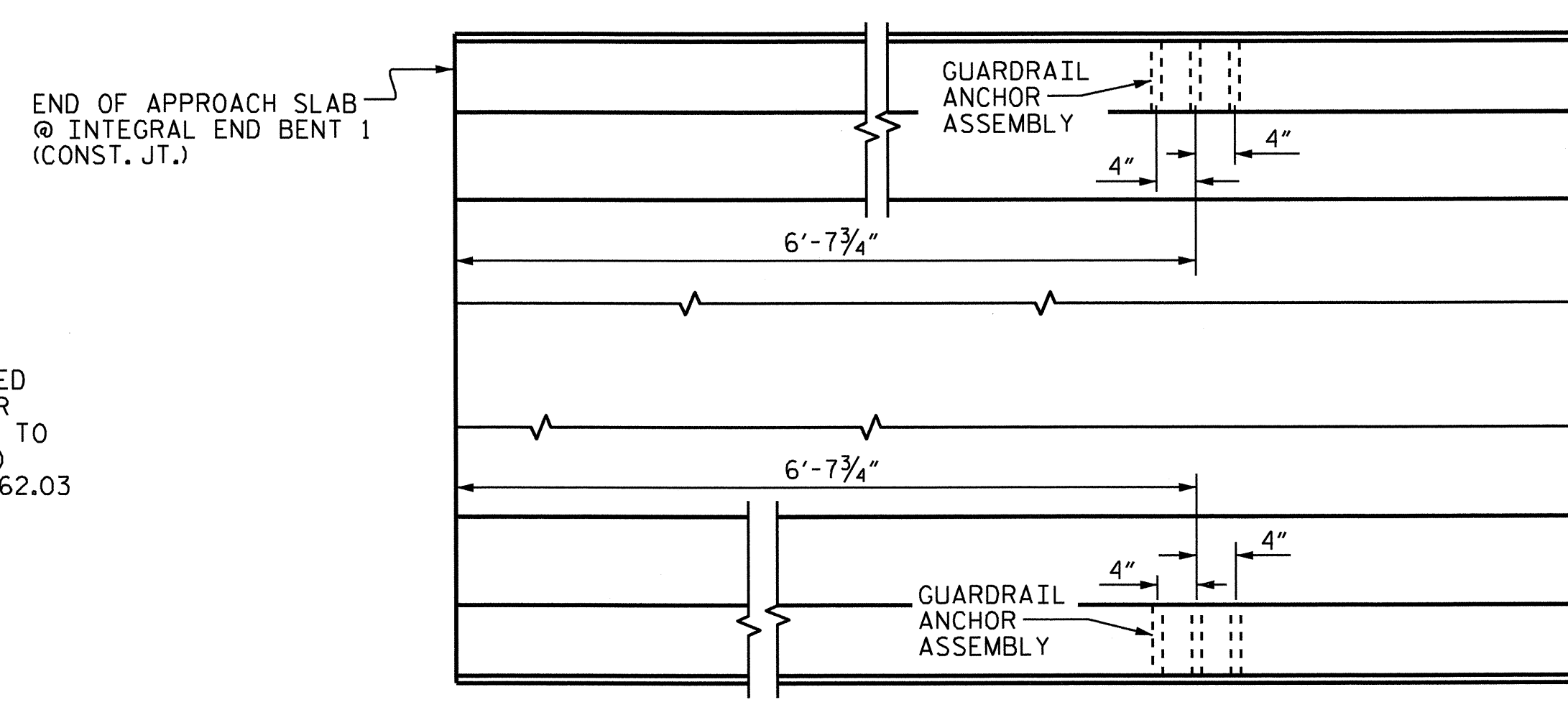
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



(FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03)

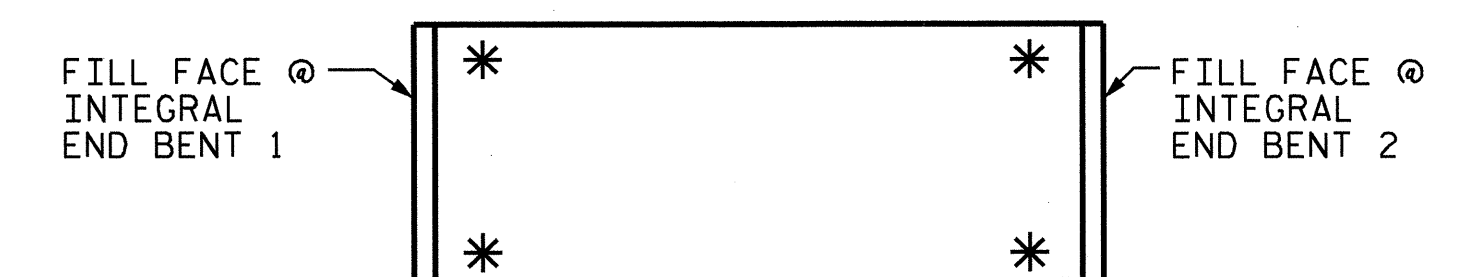


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR.)

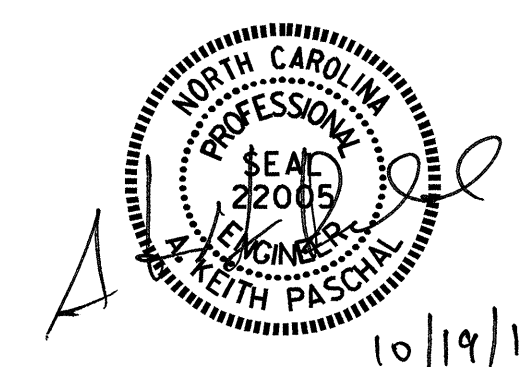


(* DENOTES GUARDRAIL ANCHOR ASSEMBLY)

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-

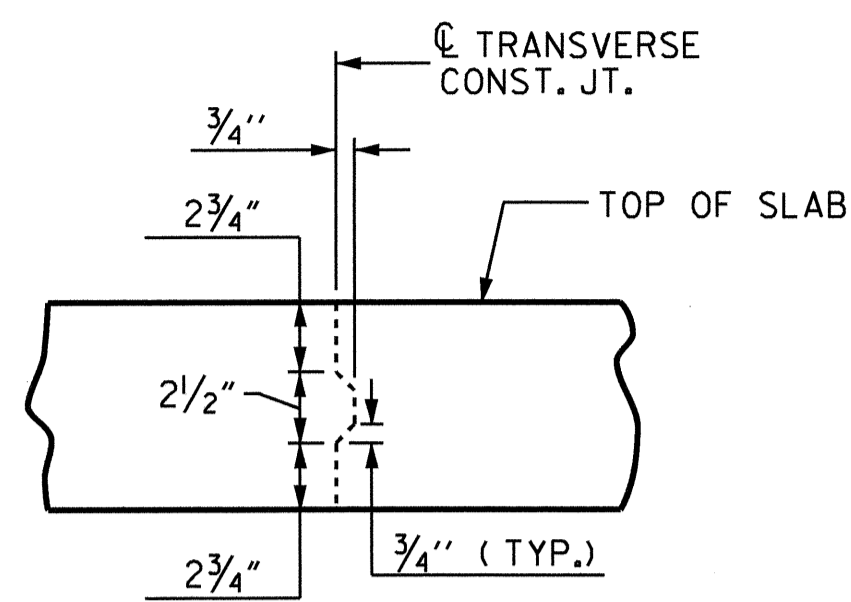
SHEET 2 OF 2

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



ASSEMBLED BY : J. KHARVA	DATE : 3-23-10
CHECKED BY : J. MYA	DATE : 6-29-11
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			42



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

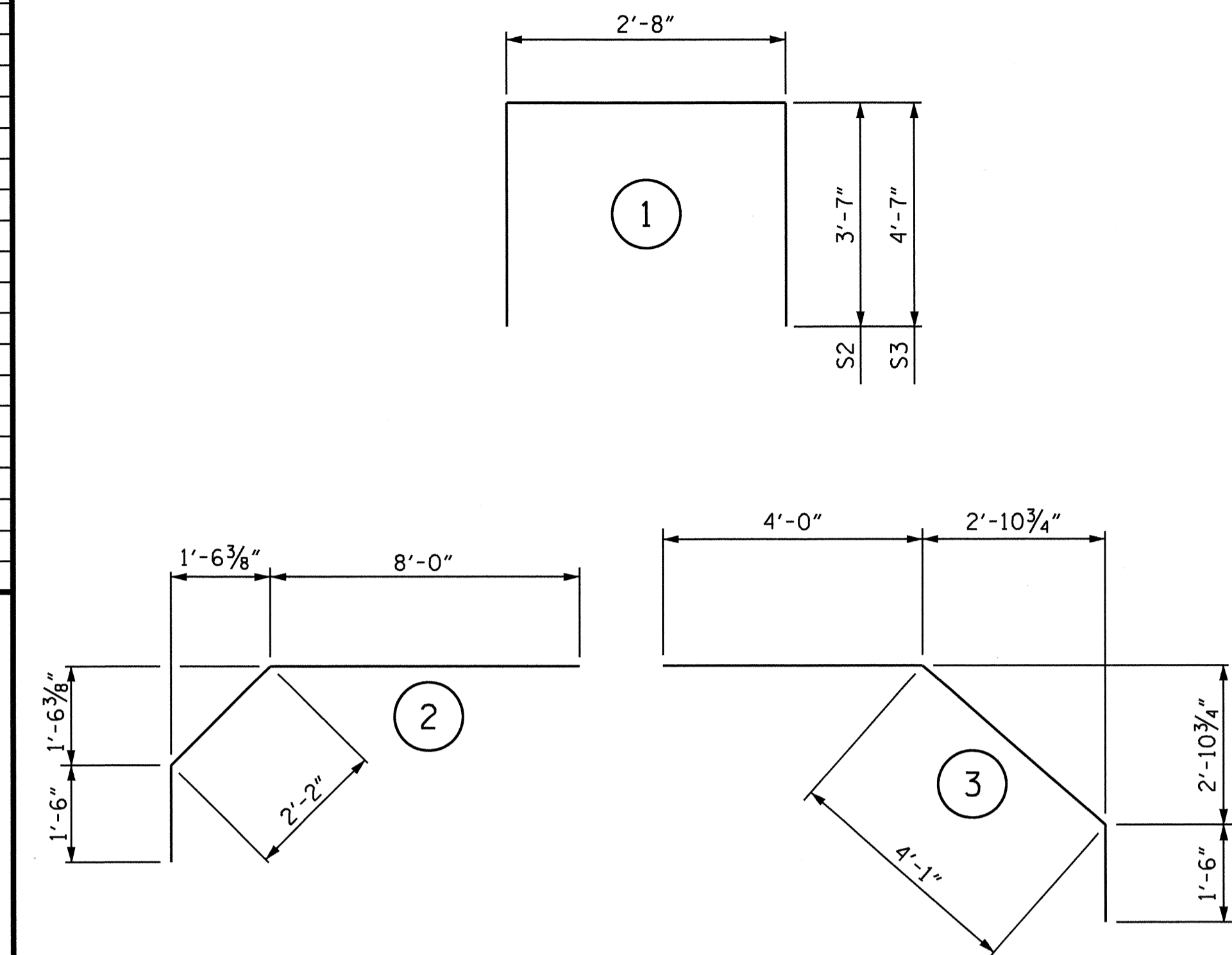
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

REINFORCING BAR SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	216	*5	STR	34'-11"	7866
A2	216	*5	STR	34'-11"	7866
*B1	96	*4	STR	28'-6"	1828
B2	80	*5	STR	55'-1"	4596
*B3	92	*6	STR	22'-0"	3040
H1	48	*5	STR	13'-2"	659
K1	20	*5	STR	40'-11"	854
K2	16	*5	STR	2'-8"	45
S2	92	*4	1	9'-10"	604
S3	16	*4	1	11'-10"	126
*S4	60	*4	2	11'-8"	468
*S5	56	*4	3	9'-7"	358
REINFORCING STEEL = 14750 LBS					
*EPOXY COATED REINF. STEEL = 13560 LBS					

BAR TYPES

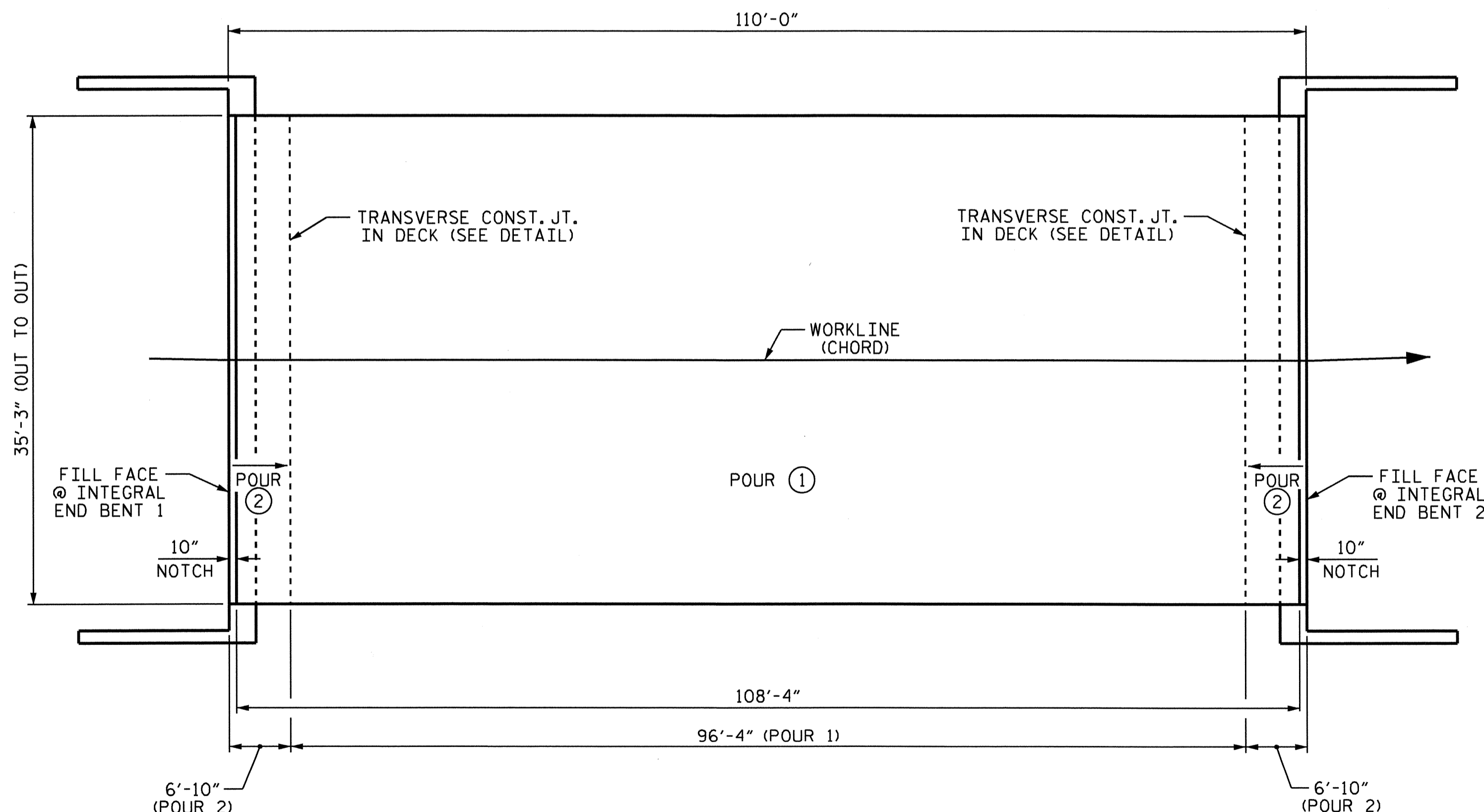


ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YARDS)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	101.8		
POUR 2	50.3		
TOTALS **	152.1	14750	13560

** QUANTITIES FOR CONCRETE BARRIER RAIL ARE NOT INCLUDED.

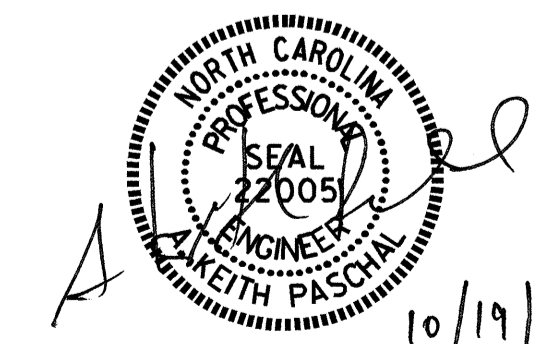


LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB & CONCRETE POUR DETAIL
(SQ. FT. = 3878)

NOTE: POUR 2 INCLUDES PARTIAL DECK, INTEGRAL END BENT DIAPHRAGM AND UPPER PORTION OF WINGS.

GROOVING BRIDGE FLOORS	
APPROACH SLABS	1303 FT ²
BRIDGE DECK	3132 FT ²
TOTAL	4435 FT ²

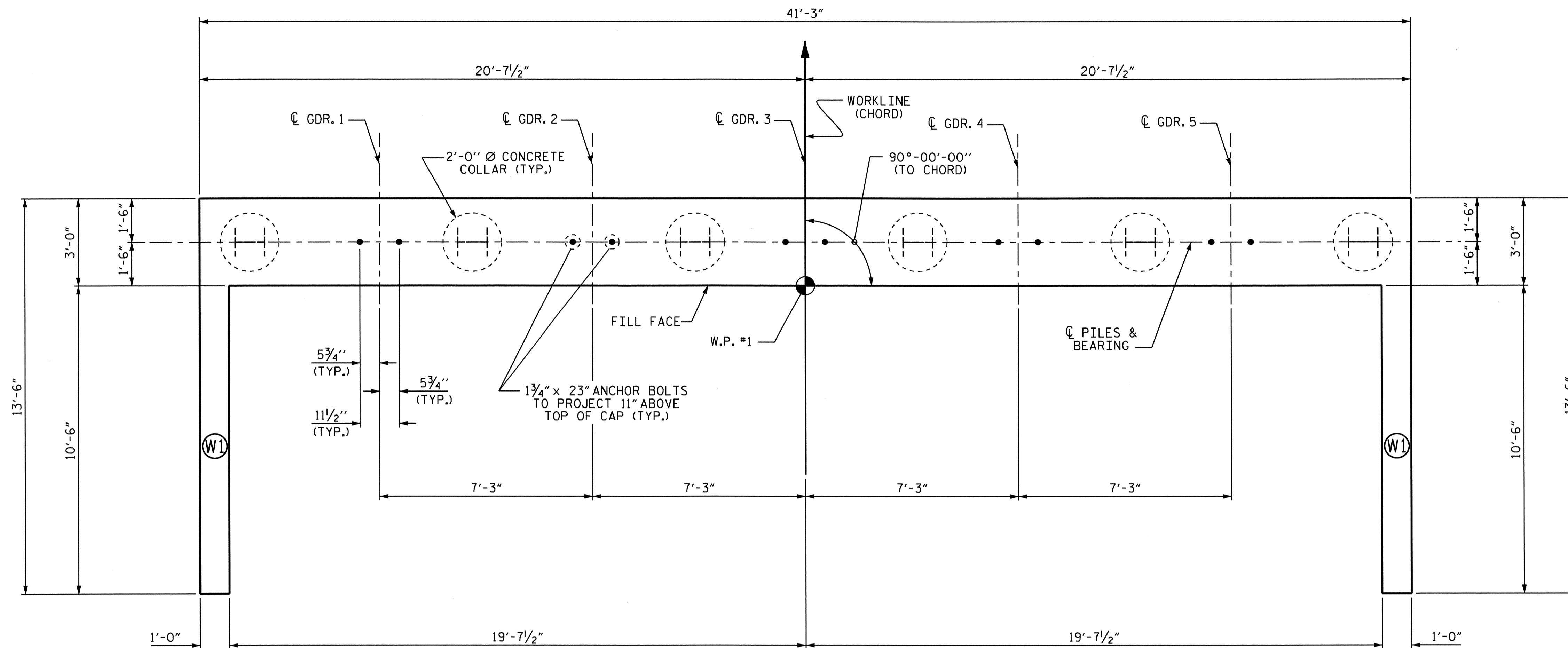
PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			42
2			4			

DRAWN BY: J. G. KHARVA DATE: 3-23-10
 CHECKED BY: J. MYA DATE: 6-29-11



PLAN

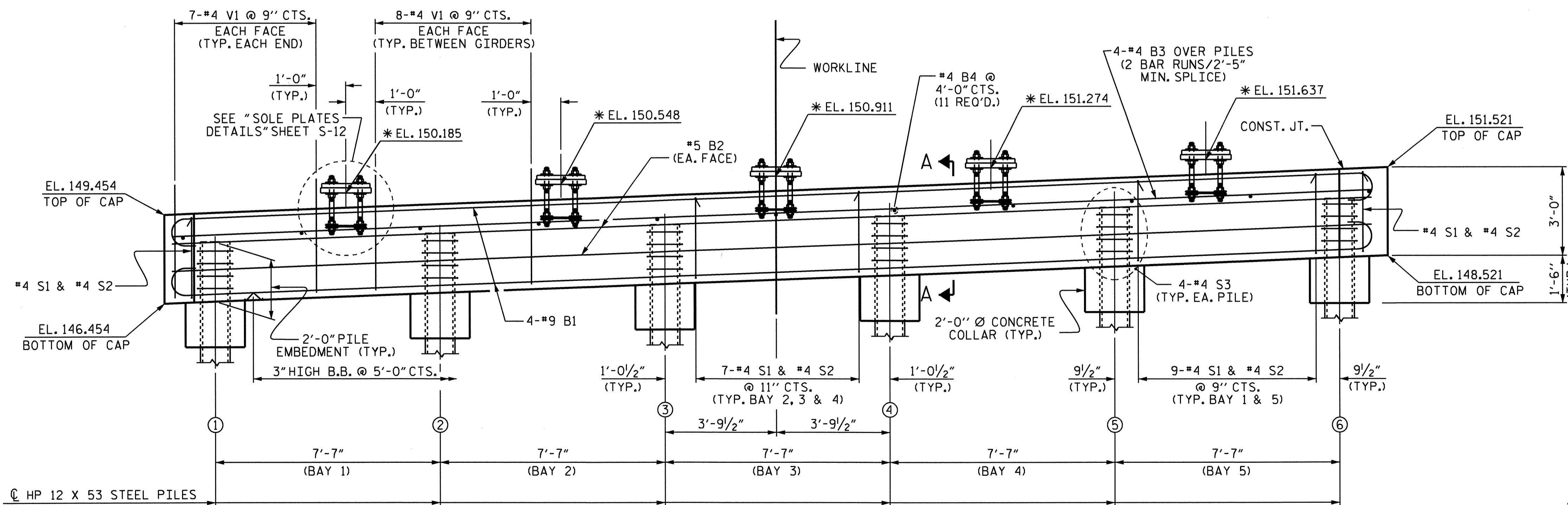
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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.

SEE SUPERSTRUCTURE SHEET S-8 FOR UPPER PART OF WING DETAILS.

TOP OF PILE ELEVATIONS	
PILE	EL.
1	148.538
2	148.918
3	149.298
4	149.677
5	150.057
6	150.437



ELEVATION

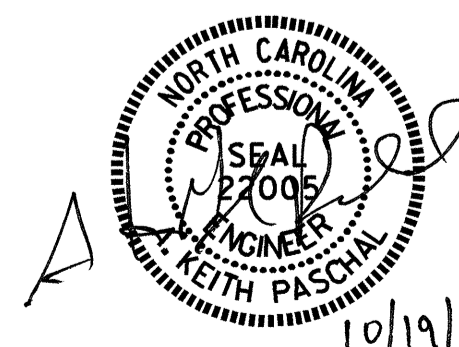
* BRIDGE SEAT ELEVATIONS ARE TAKEN AT BOTTOM OF SOLE PLATE

PROJECT NO. B-4556
 JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

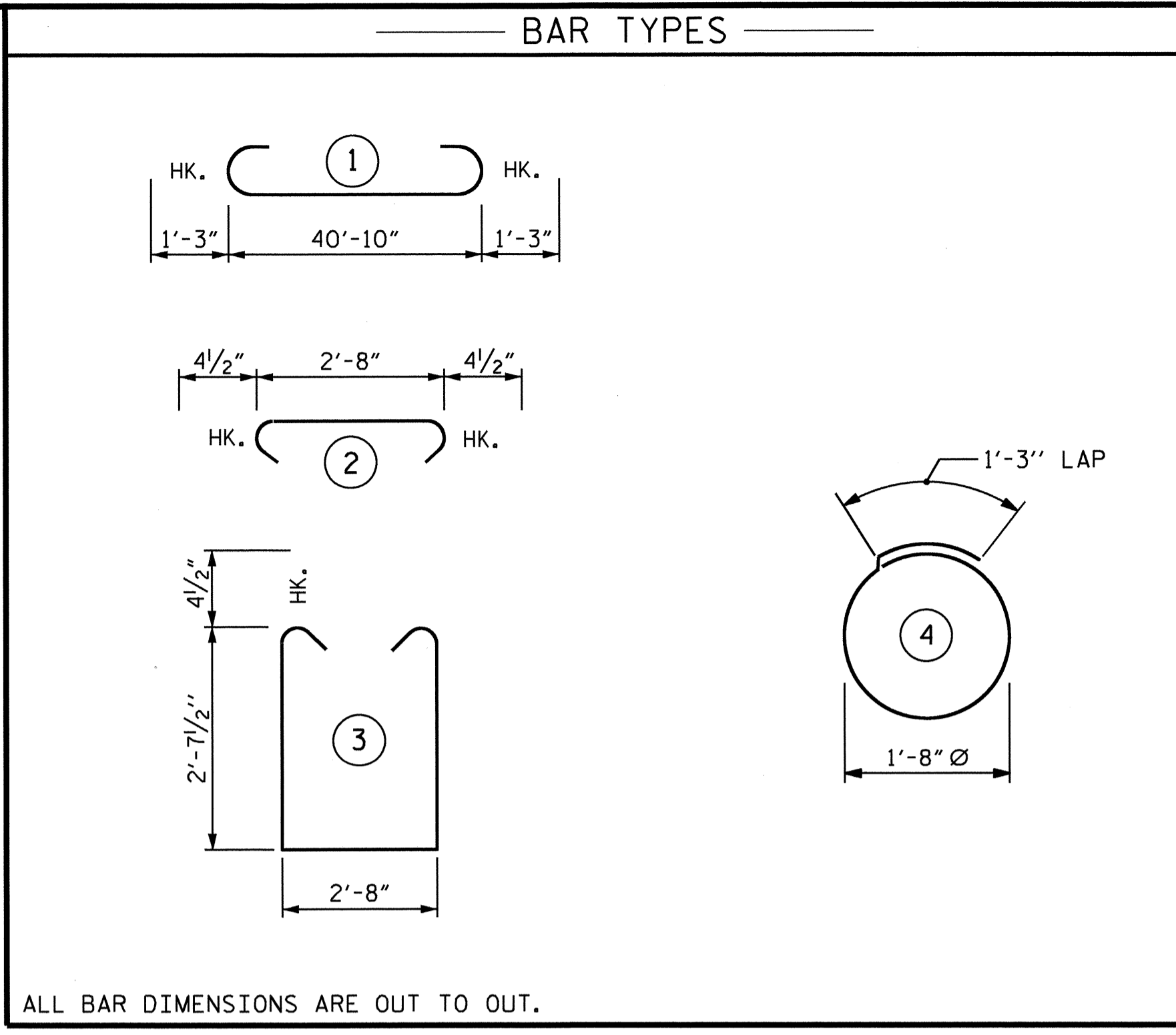
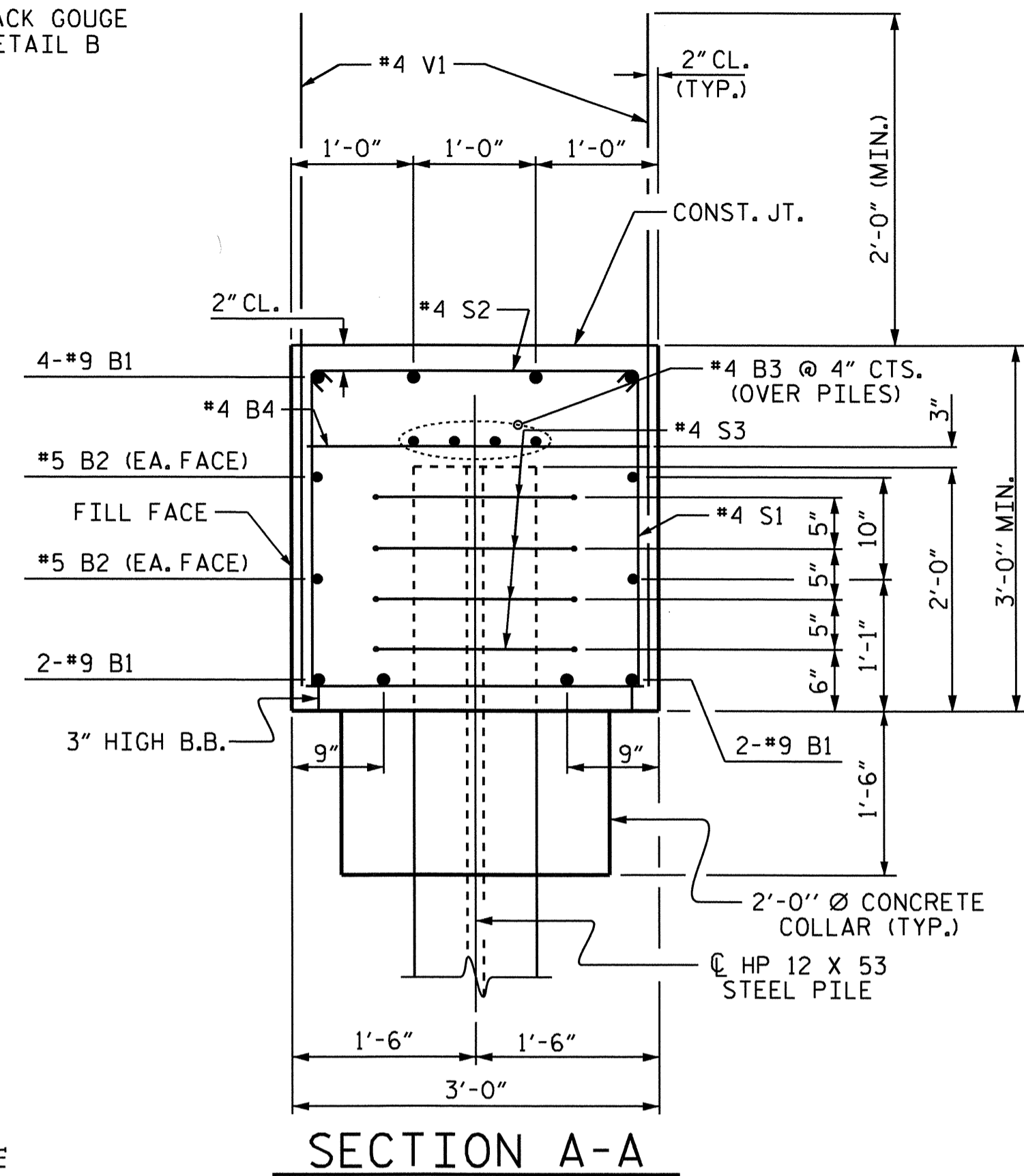
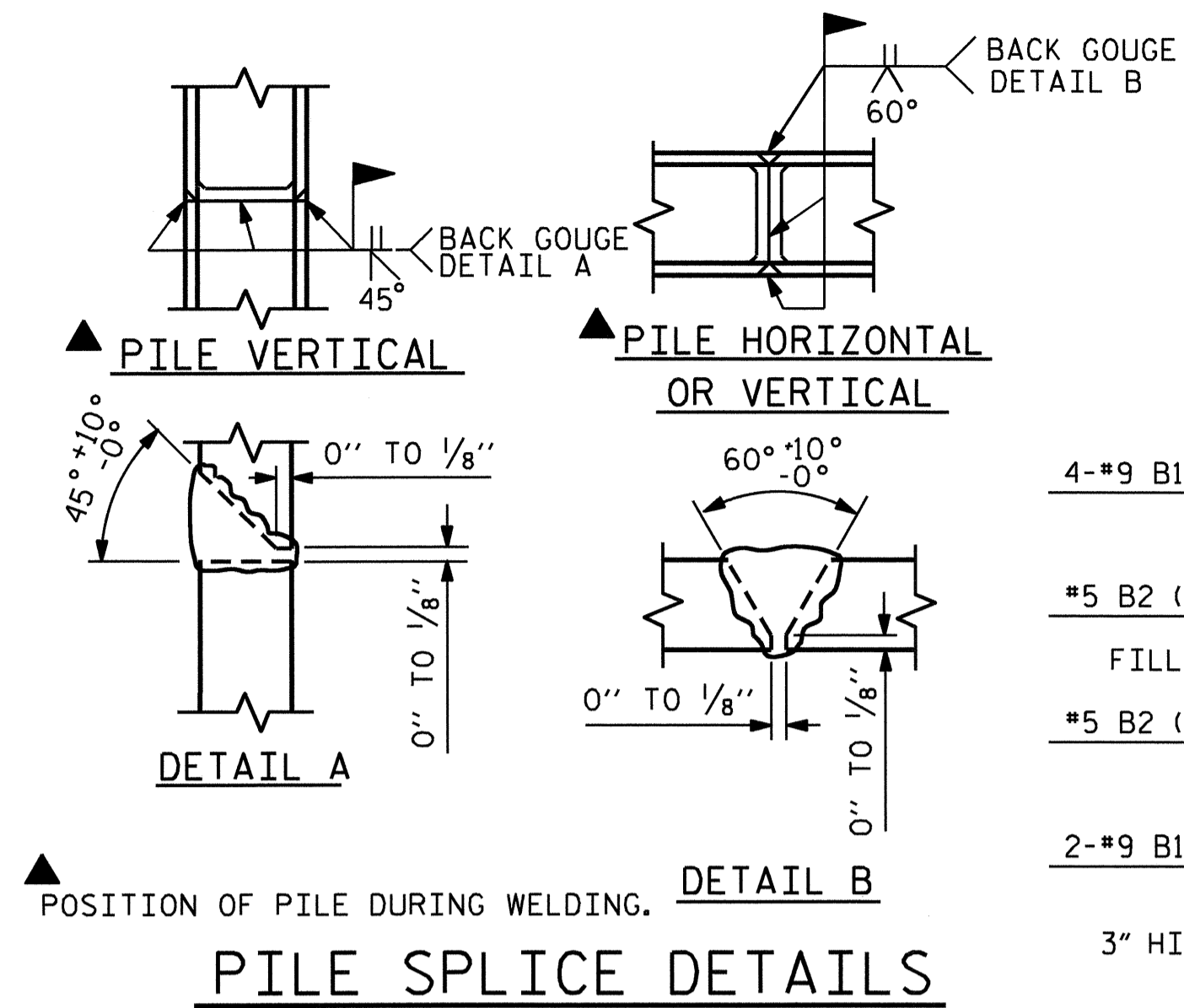
SUBSTRUCTURE
 INTEGRAL END BENT 1



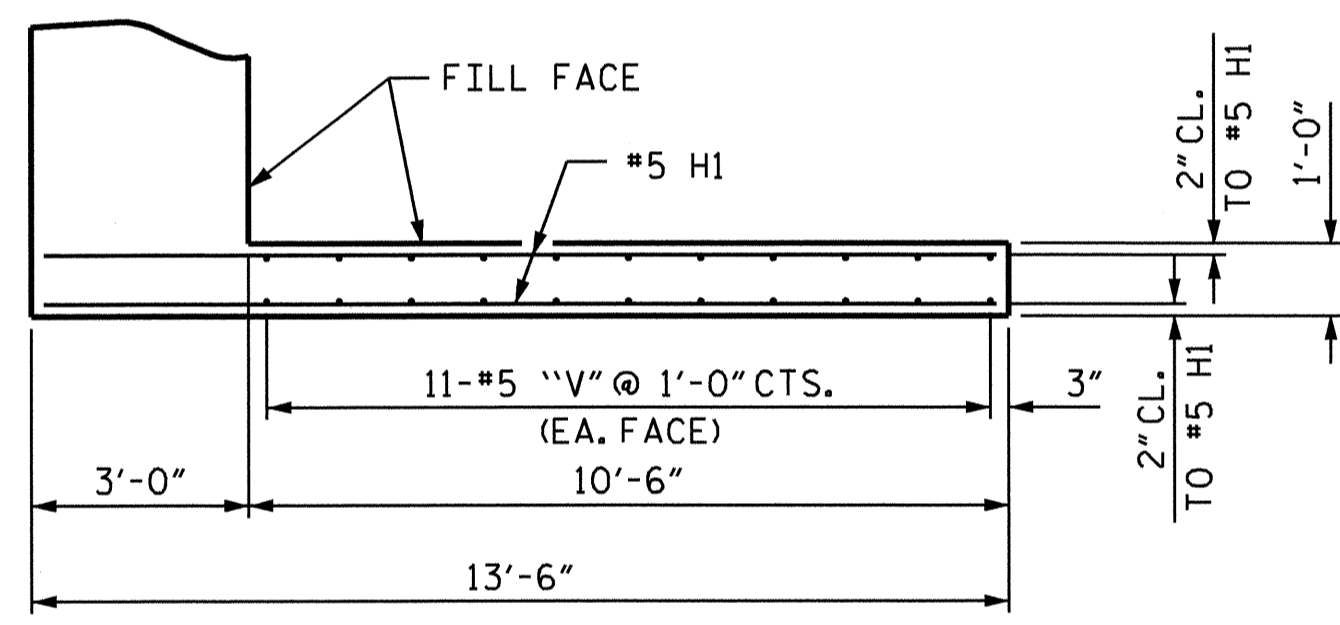
DRAWN BY: M.FOWLER DATE: 3/25/10
 CHECKED BY: J.MYA DATE: 4/13/10

18-OCT-2011 09:09
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 jkharva

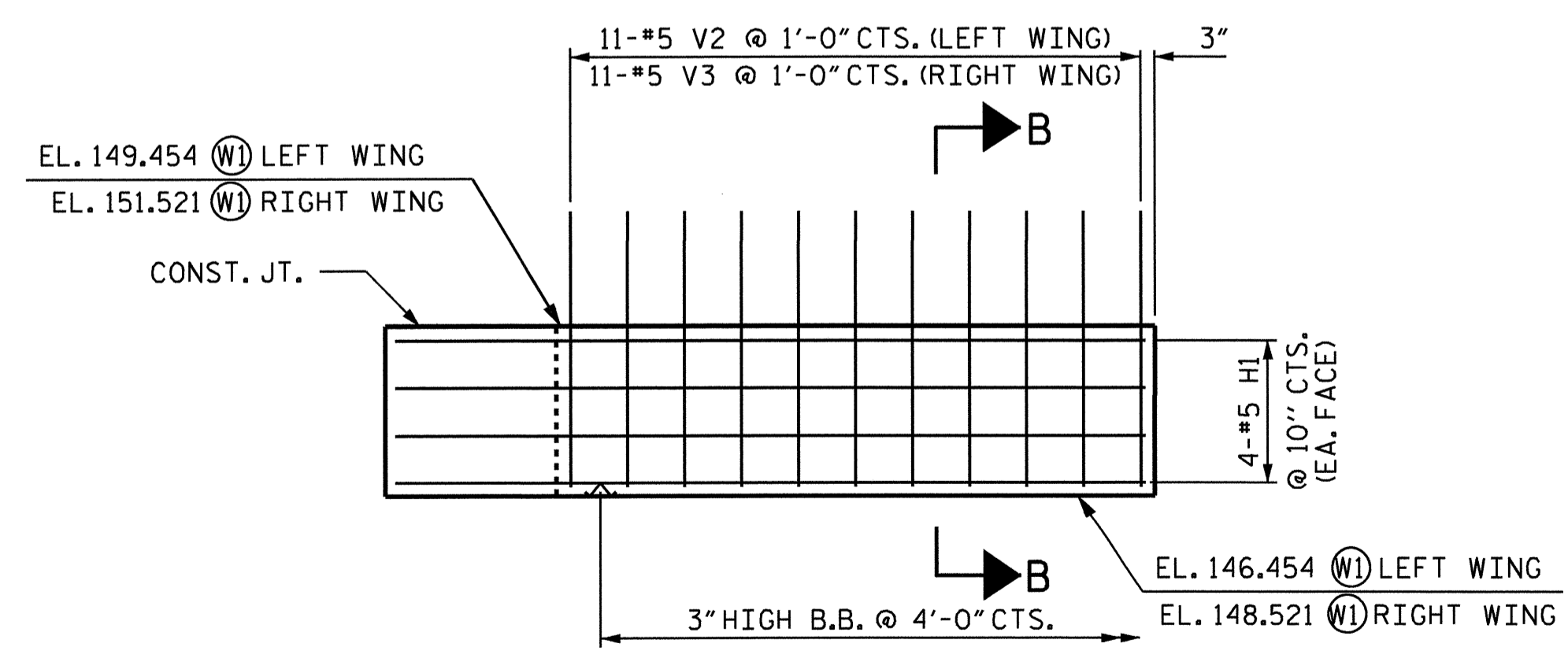
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-16
2			4			42



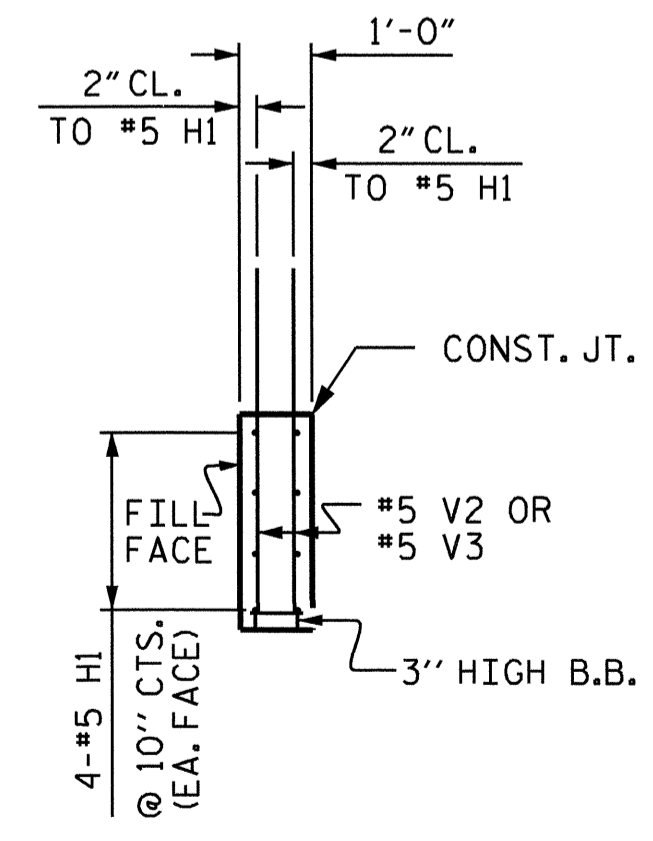
BILL OF MATERIAL					
INTEGRAL END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-4"	1179
B2	4	#5	STR	40'-11"	171
B3	8	#4	STR	21'-8"	116
B4	11	#4	STR	2'-8"	20
H1	16	#5	STR	13'-2"	220
S1	41	#4	3	8'-8"	237
S2	41	#4	2	3'-5"	94
S3	24	#4	4	6'-6"	104
V1	92	#4	STR	4'-10"	297
V2	22	#5	STR	8'-0"	184
V3	22	#5	STR	7'-6"	172
REINFORCING STEEL					2794 LBS.
CLASS A CONCRETE					
▲ (CAP, CONCRETE COLLARS & LOWER PART OF WINGS)					C.Y. 17.1
TOTAL					C.Y. 17.1
HP 12 x 53 STEEL PILES					
No. : 6					LIN. FT. : 135
PILE REDRIVES					NO. : 3
▲ UPPER WINGS TO BE POURED WITH SUPERSTRUCTURE.					



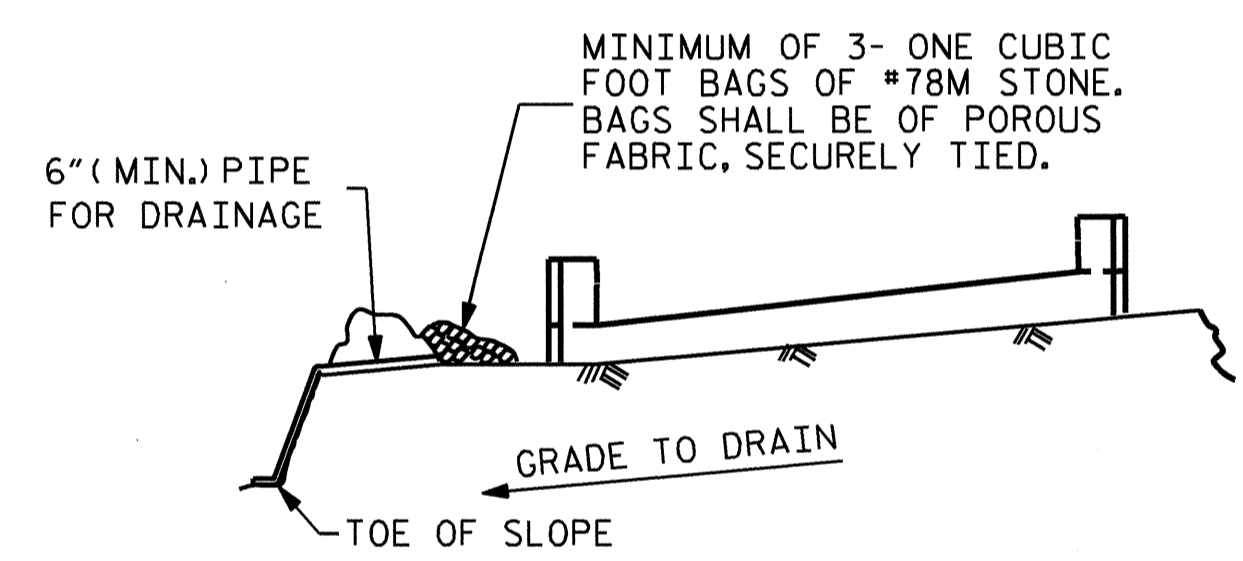
PLAN (W1)
LEFT WING SHOWN, RIGHT WING SIMILAR



ELEVATION (W1)



SECTION B-B



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

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

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

TEMPORARY DRAINAGE AT END BENT

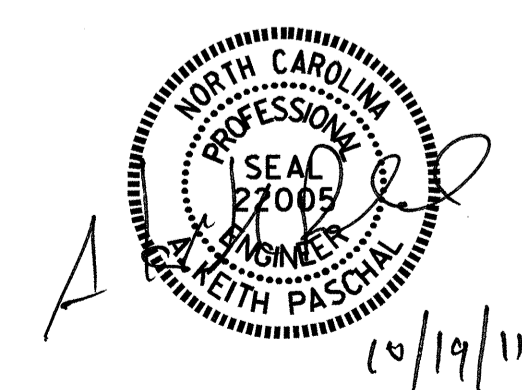
PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL END BENT 1

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 42
2			4			



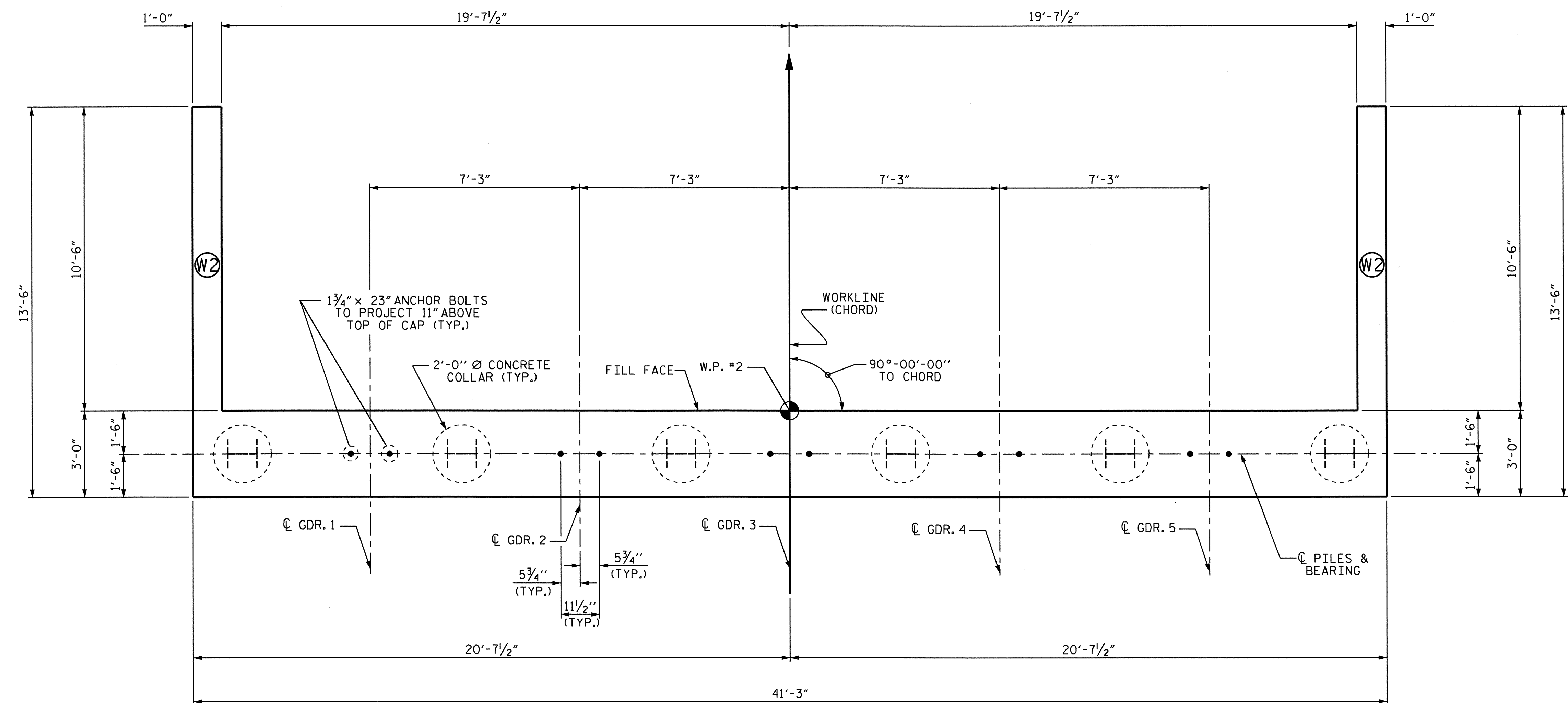
DRAWN BY : M.FOWLER DATE : 3/29/10
 CHECKED BY : J.MYA DATE : 4/13/10

NOTES

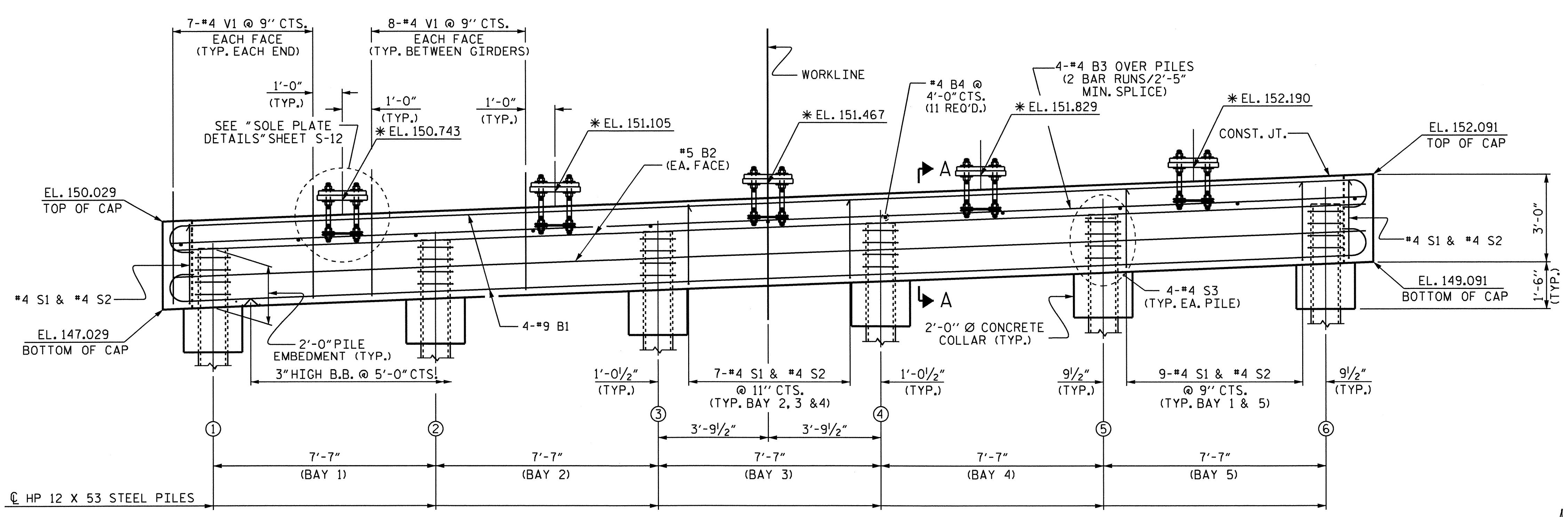
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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.

SEE SUPERSTRUCTURE SHEET S-8 FOR UPPER PART OF WING DETAILS.



PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
PILE	EL.
1	149.113
2	149.491
3	149.870
4	150.248
5	150.627
6	151.005

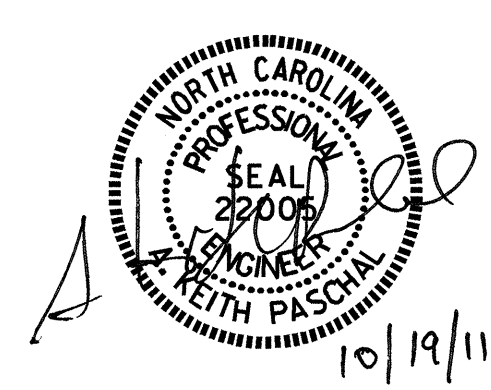
PROJECT NO. B-4556
 JOHNSTON COUNTY
 STATION: 16+44.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

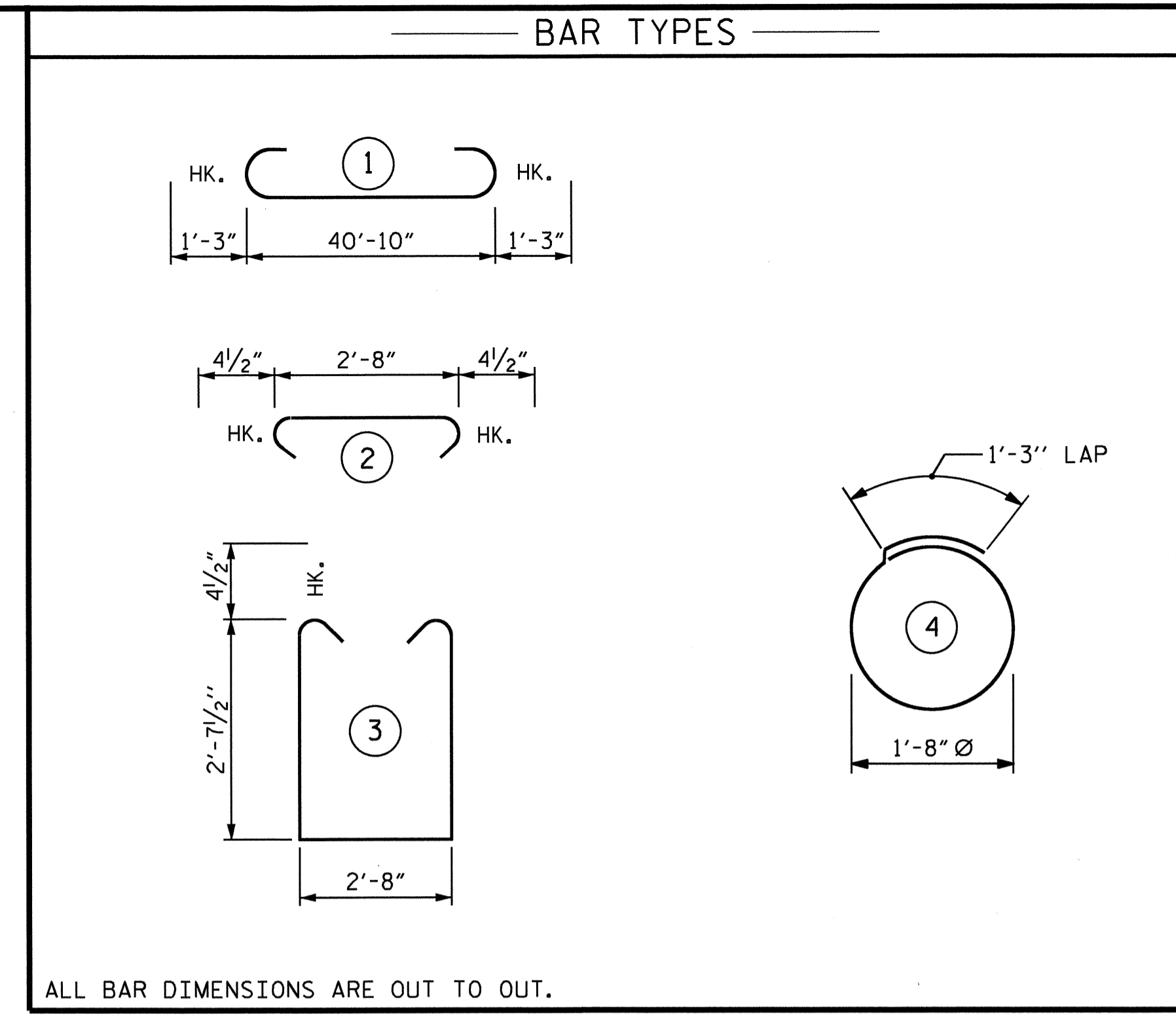
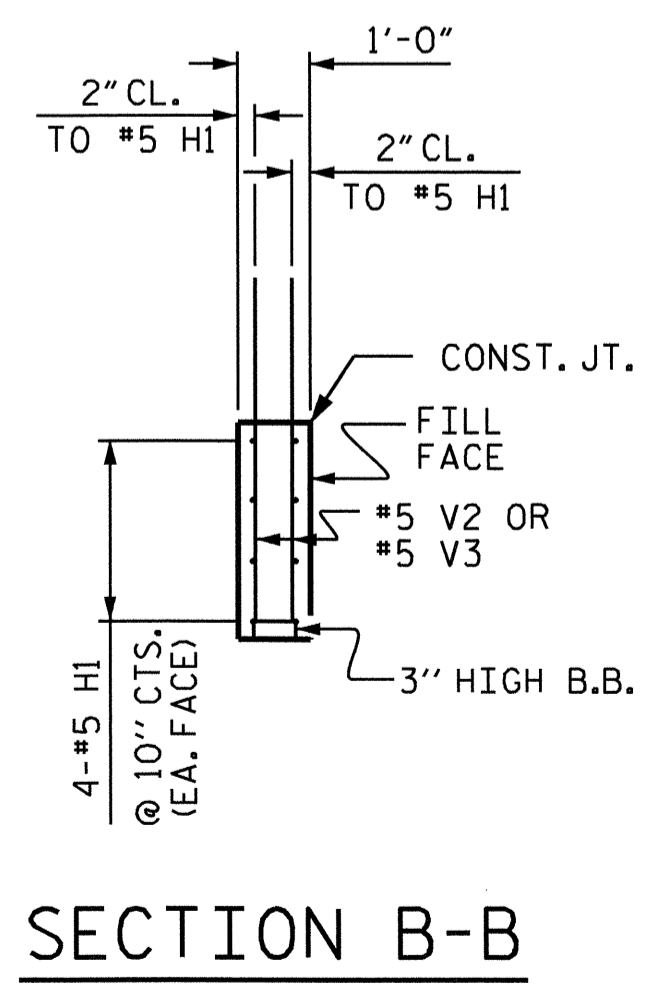
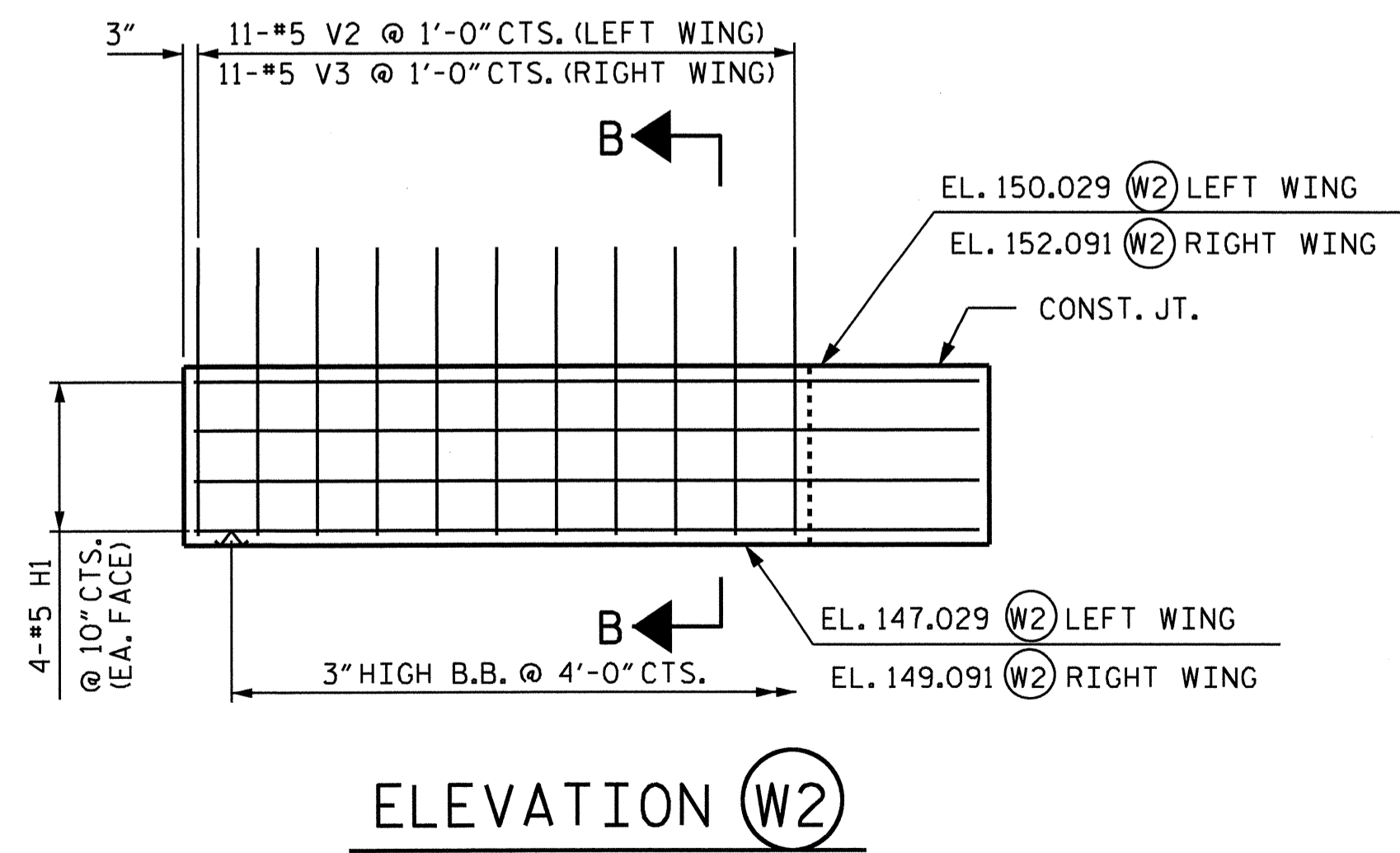
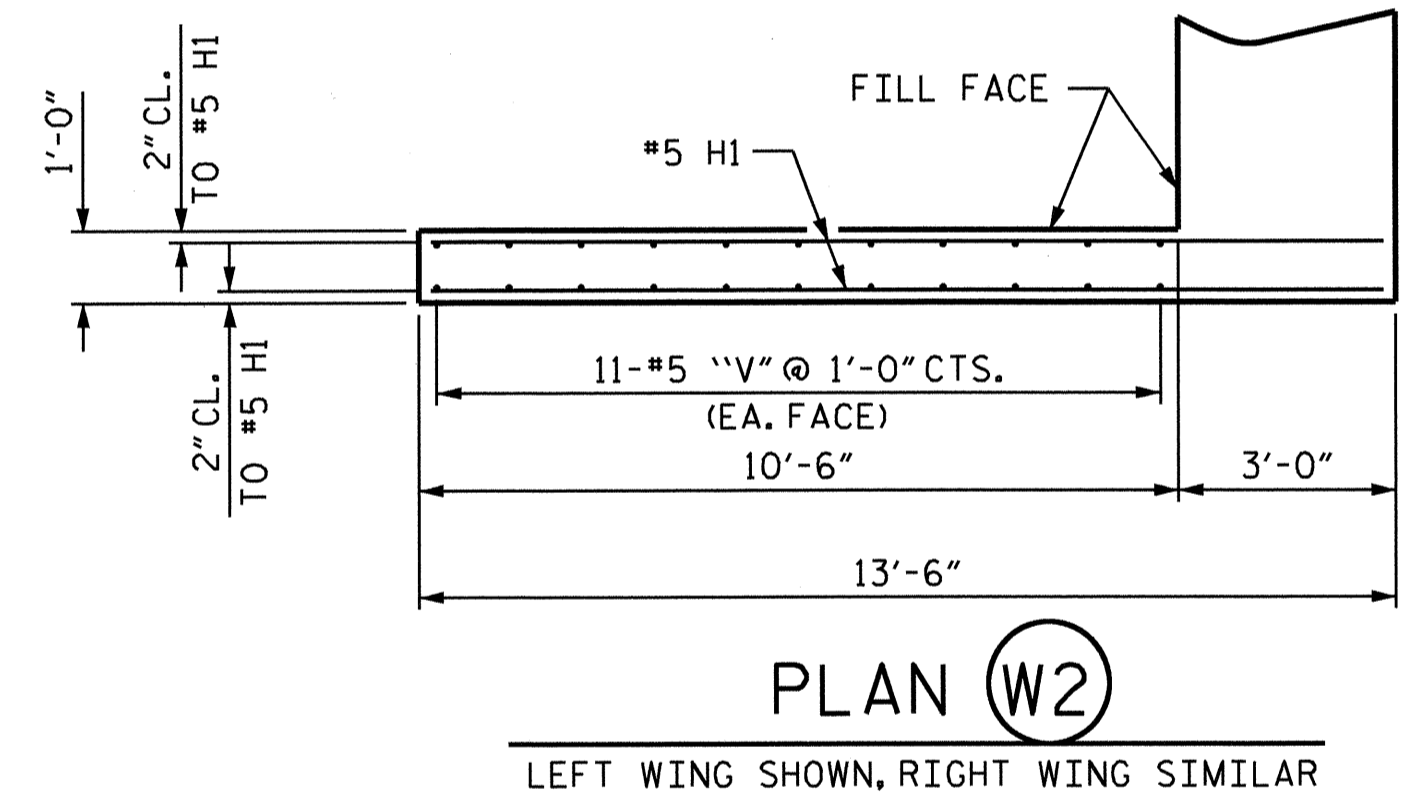
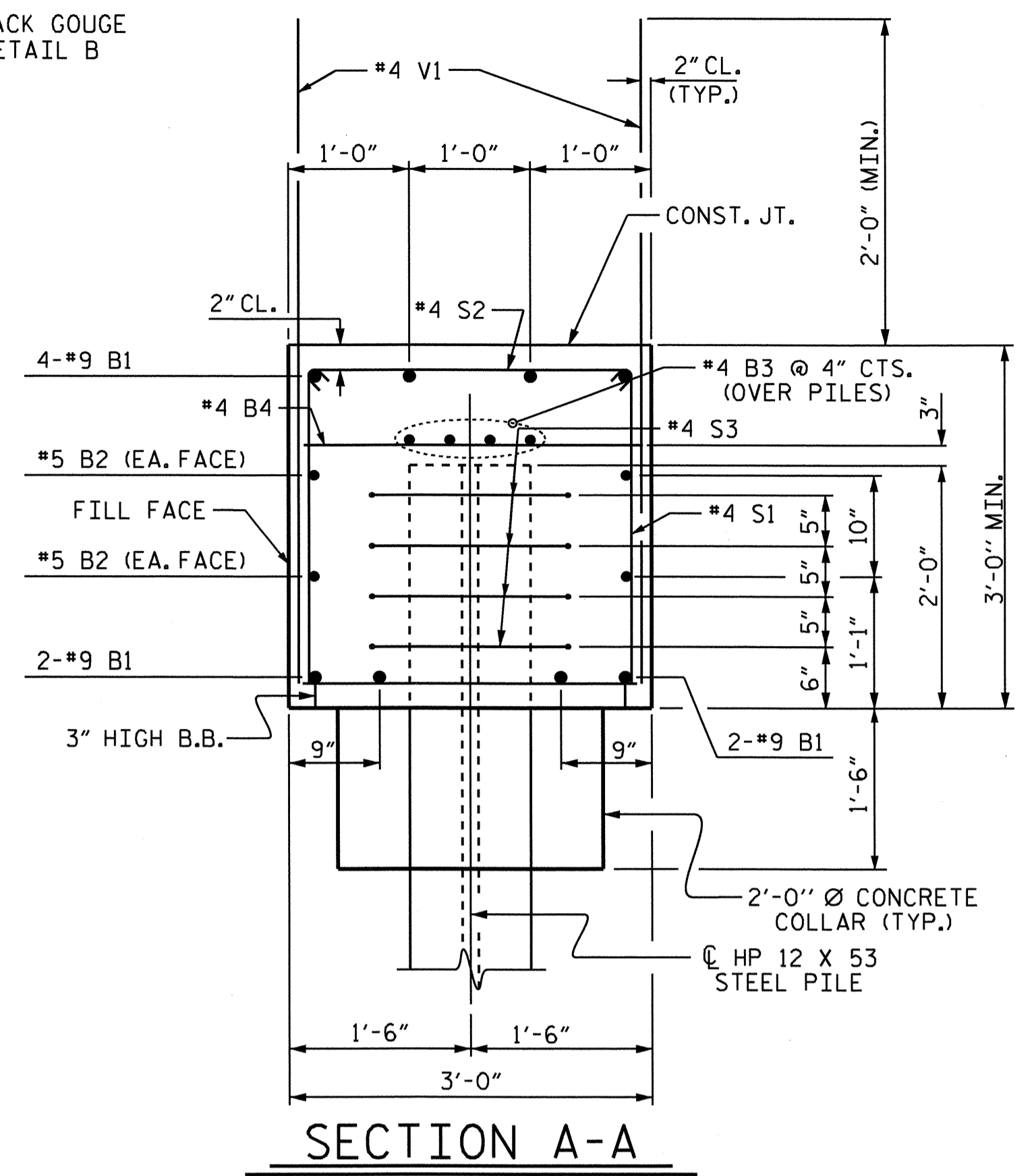
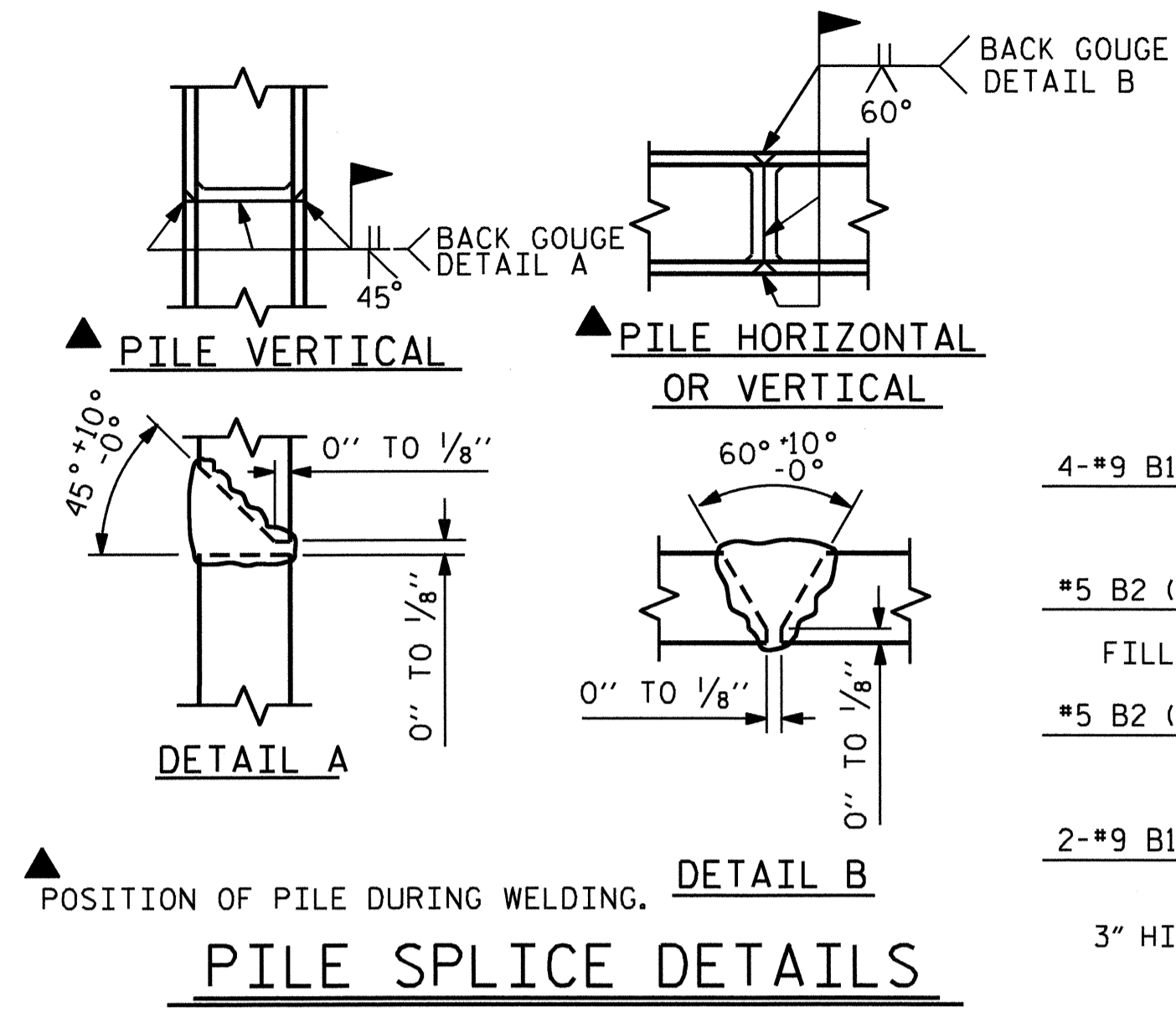
SUBSTRUCTURE
 INTEGRAL END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			42



DRAWN BY: M.FOWLER DATE: 3/25/10
 CHECKED BY: J.MYA DATE: 4/13/10

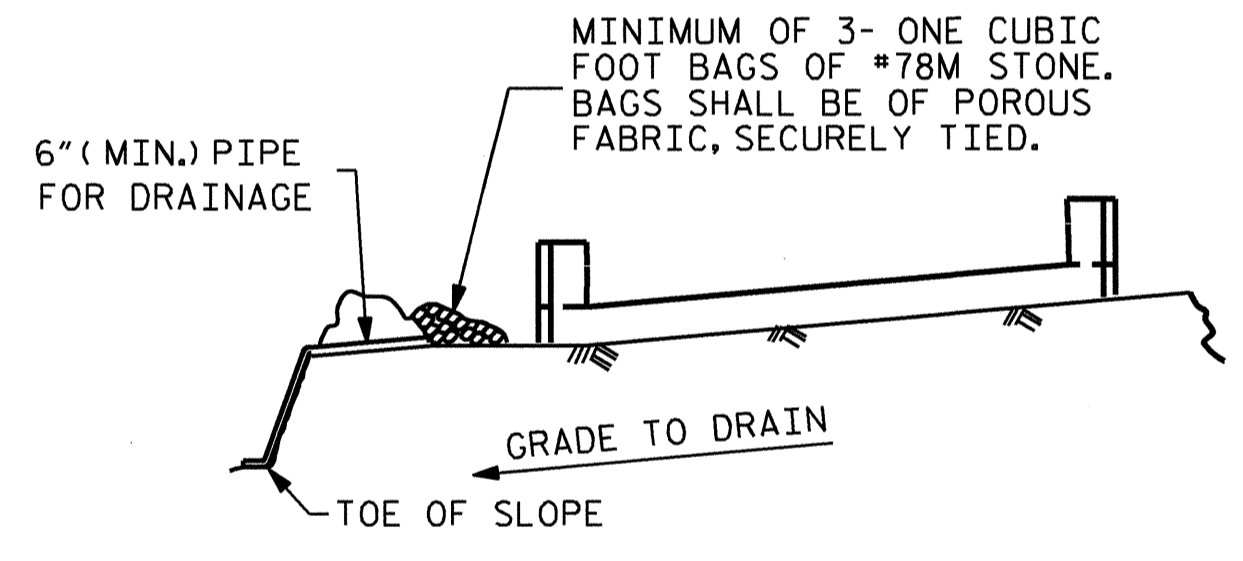
* BRIDGE SEAT ELEVATIONS ARE TAKEN AT BOTTOM OF SOLE PLATE



BILL OF MATERIAL

INTEGRAL END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-4"	1179
B2	4	#5	STR	40'-11"	171
B3	8	#4	STR	21'-8"	116
B4	11	#4	STR	2'-8"	20
H1	16	#5	STR	13'-2"	220
S1	41	#4	3	8'-8"	237
S2	41	#4	2	3'-5"	94
S3	24	#4	4	6'-6"	104
V1	92	#4	STR	4'-10"	297
V2	22	#5	STR	8'-0"	184
V3	22	#5	STR	7'-6"	172
REINFORCING STEEL					2794 LBS.
CLASS A CONCRETE					
▲ (CAP, CONCRETE COLLARS & LOWER PART OF WINGS)				C.Y.	17.1
TOTAL				C.Y.	17.1
HP 12 x 53 STEEL PILES					
No. : 6				LIN. FT.:	120
PILE REDRIVES				NO. :	3
▲ UPPER WINGS TO BE POURED WITH SUPERSTRUCTURE.					



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.

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

TEMPORARY DRAINAGE AT END BENT

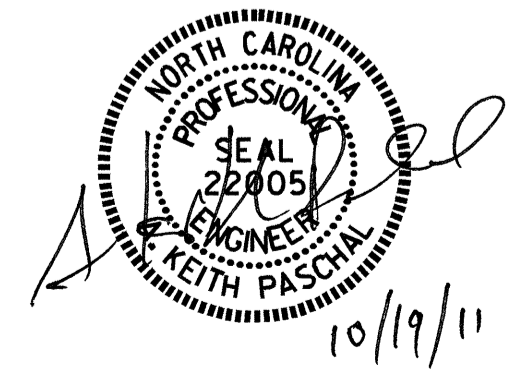
PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

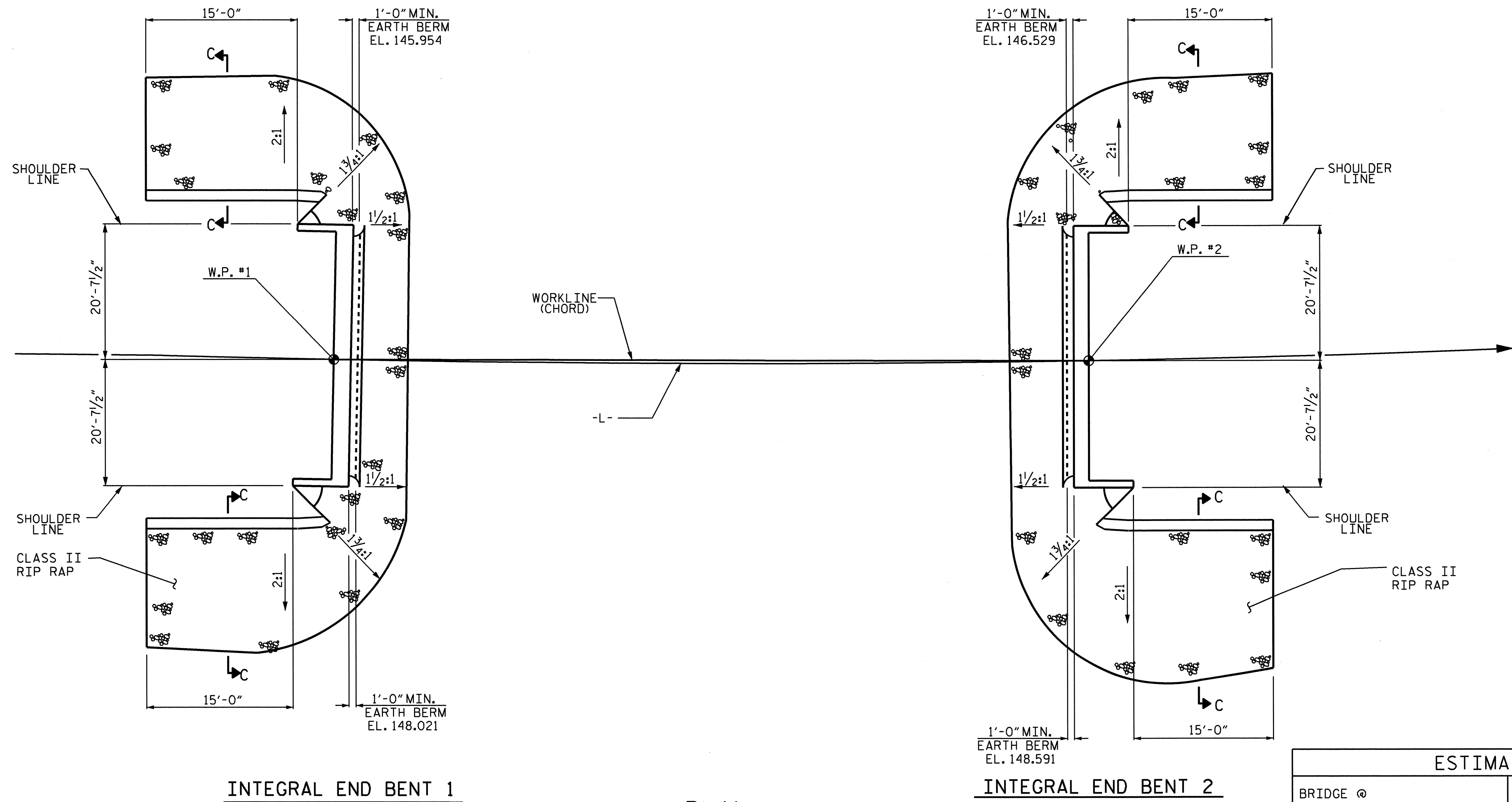
SUBSTRUCTURE
 INTEGRAL END BENT 2

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

TOTAL SHEETS: 42



DRAWN BY : M.FOWLER DATE : 3/29/10
 CHECKED BY : J.MYA DATE : 4/13/10

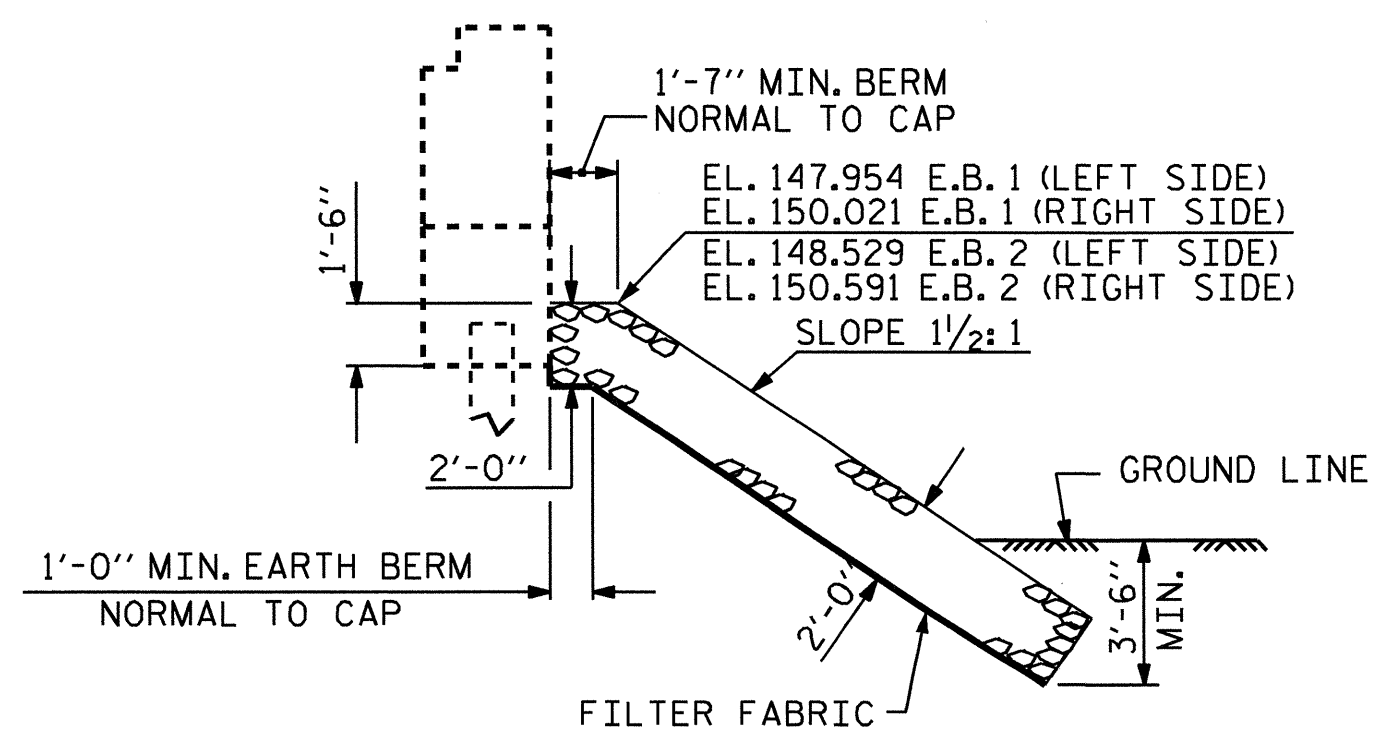


INTEGRAL END BENT 1

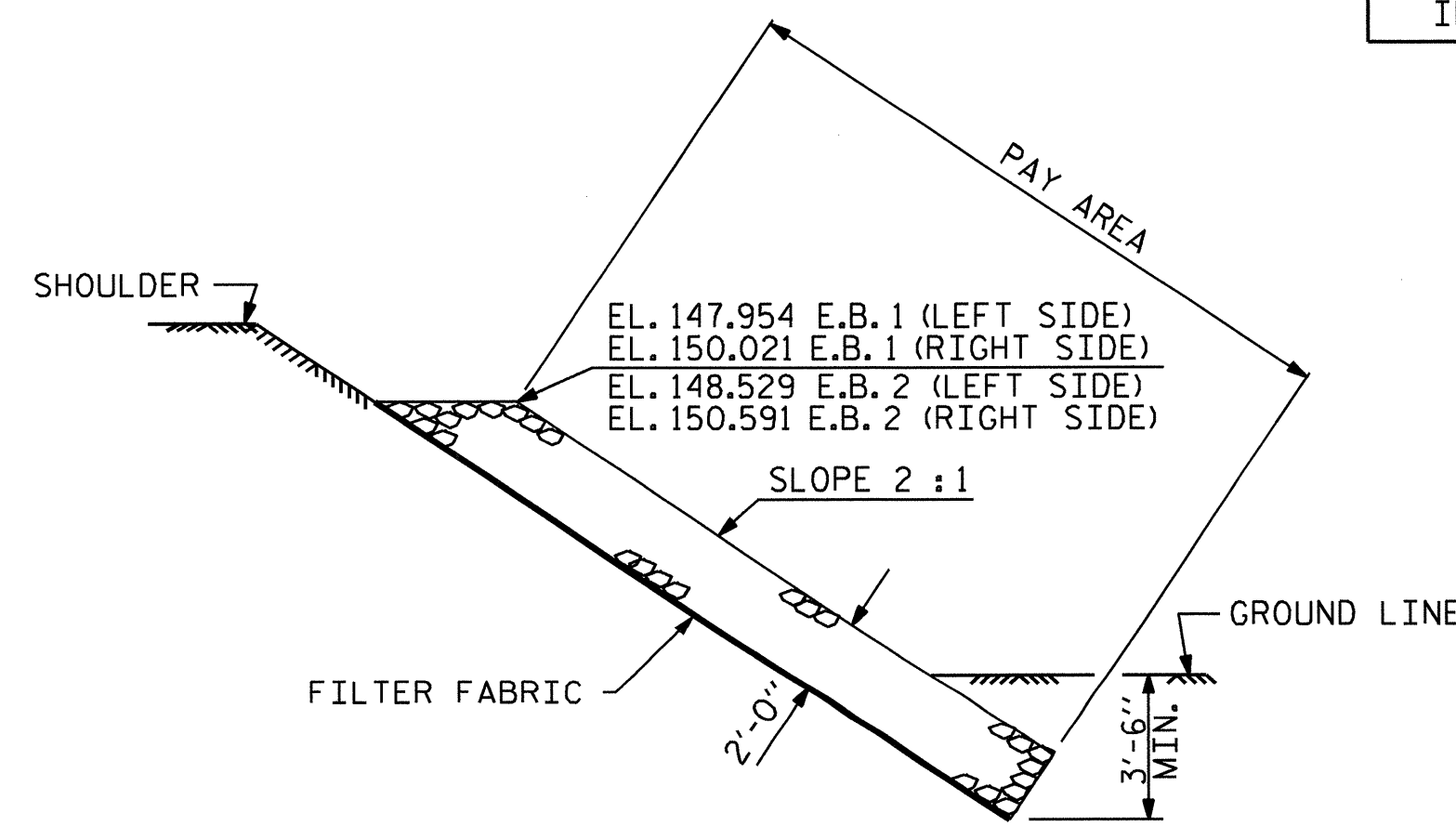
INTEGRAL END BENT 2

PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+44.00 -L-	RIp RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
INTEGRAL END BENT 1	208	230
INTEGRAL END BENT 2	226	251



SECTION C-C
BERM RIP RAPPED



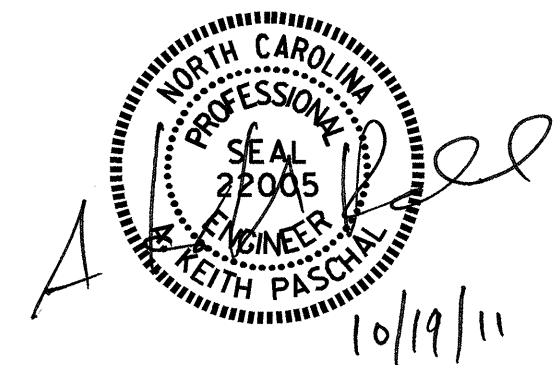
SECTION C-C

PROJECT NO. B-4556
JOHNSTON COUNTY
 STATION: 16+44.00 -L-

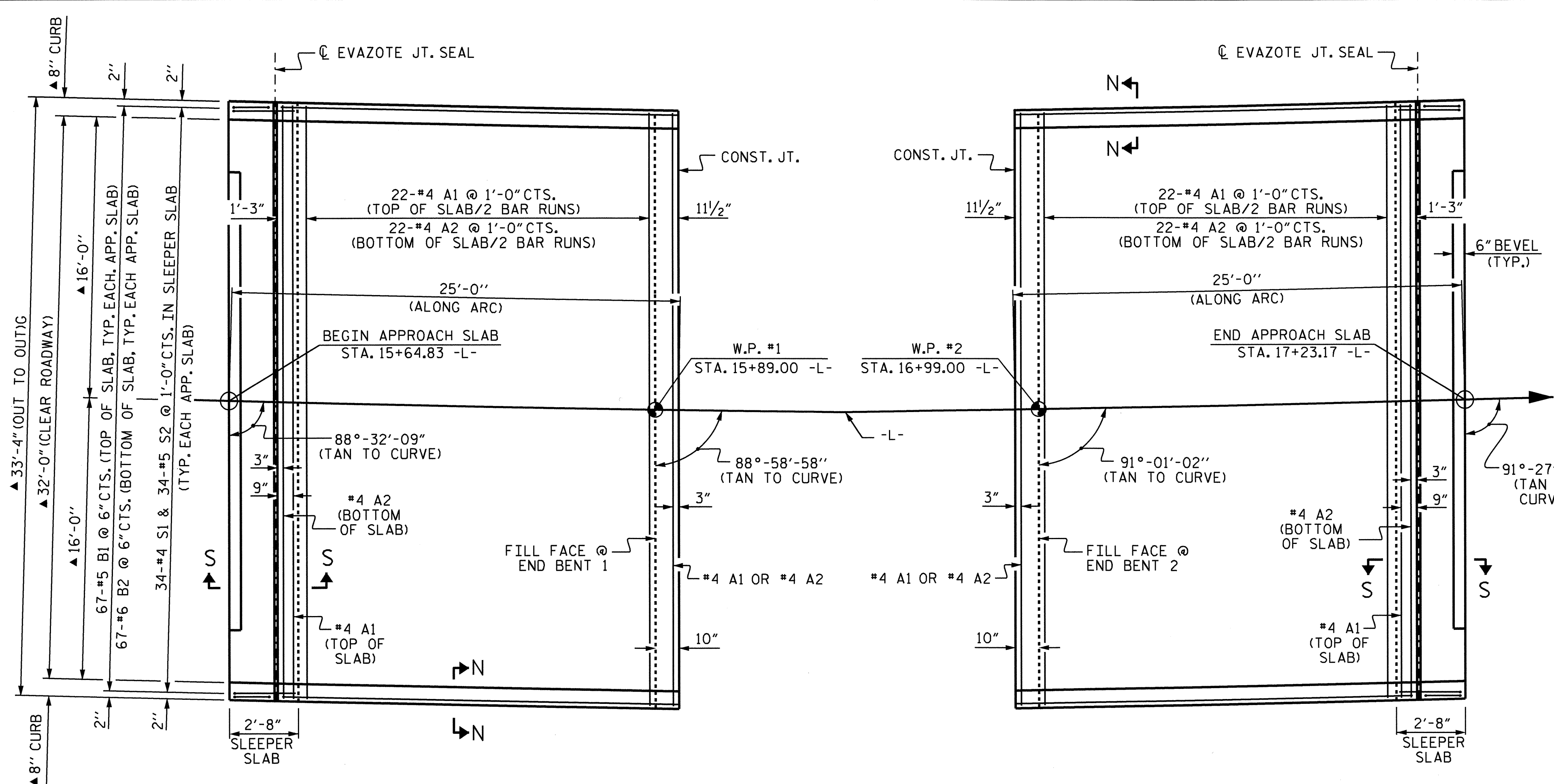
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 RIP RAP DETAILS

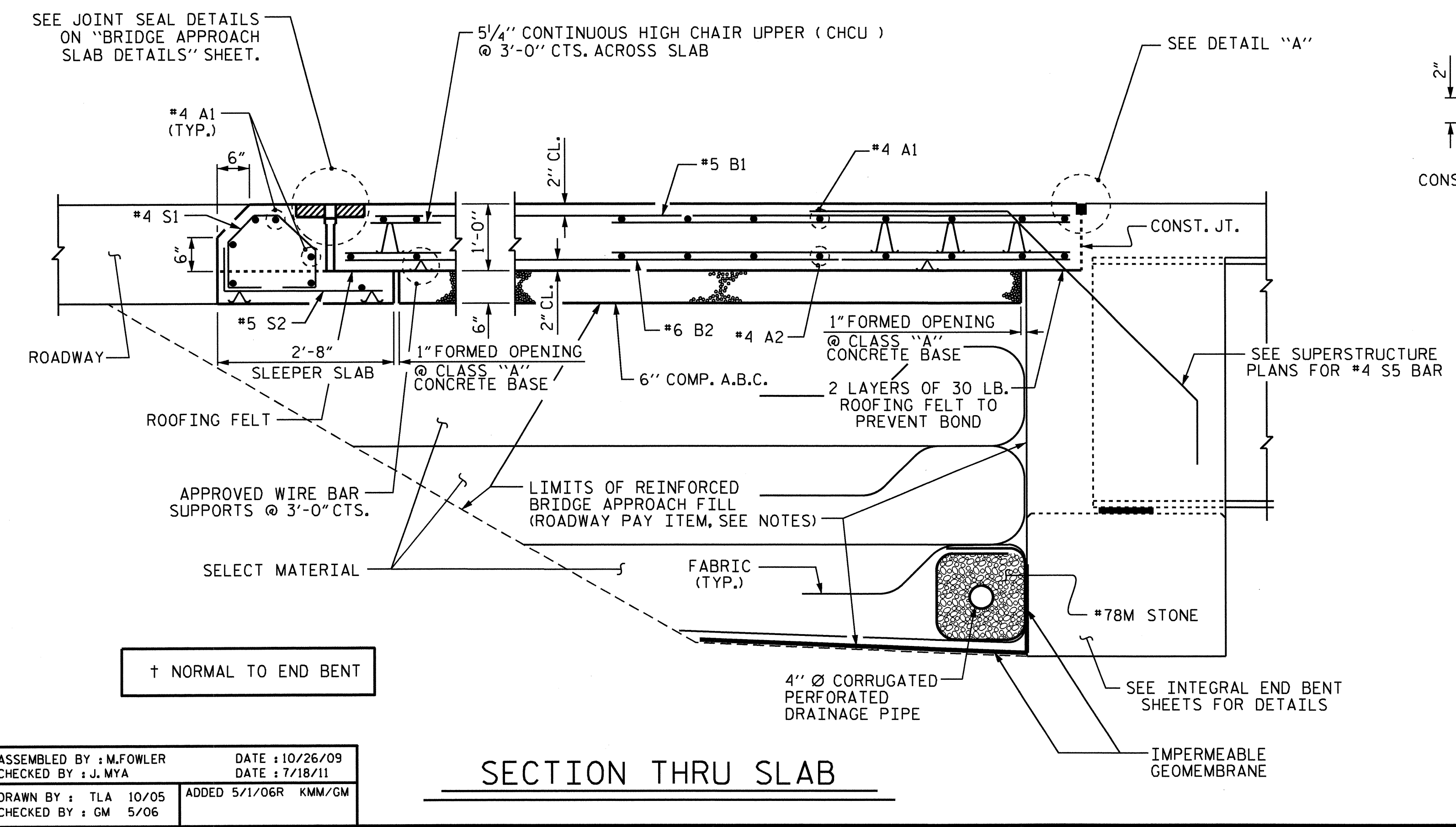
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			42



DRAWN BY : J. G. KHARVA DATE : 04/25/11
 CHECKED BY : J. MYA DATE : 07/18/11



PLAN @ END INTEGRAL BENT 1 **PLAN @ END INTEGRAL BENT 2**
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS. #4 A1 BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.
 ARC OFFSETS ARE NEGLIGIBLE AND THEREFORE NOT SHOWN.
 ▲ RADIAL DIMENSIONS ALONG -L-.



SECTION THRU SLAB

ASSEMBLED BY: M.FOWLER DATE: 10/26/09
 CHECKED BY: J.MYA DATE: 7/18/11
 DRAWN BY: TLA 10/05 ADDED 5/1/06R KMM/GM
 CHECKED BY: GM 5/06

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 AND SHALL BE PAVED. SEE ROADWAY PLANS.

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

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE SLEEPER 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 SLEEPER SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE VERTICAL JOINT ON THE RIGHT AND LEFT SIDE OF THE APPROACH SLAB AT THE ENDS OF THE EVAZOTE JOINT SHALL BE FILLED WITH SILICONE OR OTHER APPROVED MATERIAL IN ORDER TO PREVENT BACKFILL FROM ENTERING THE JOINT OPENING.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

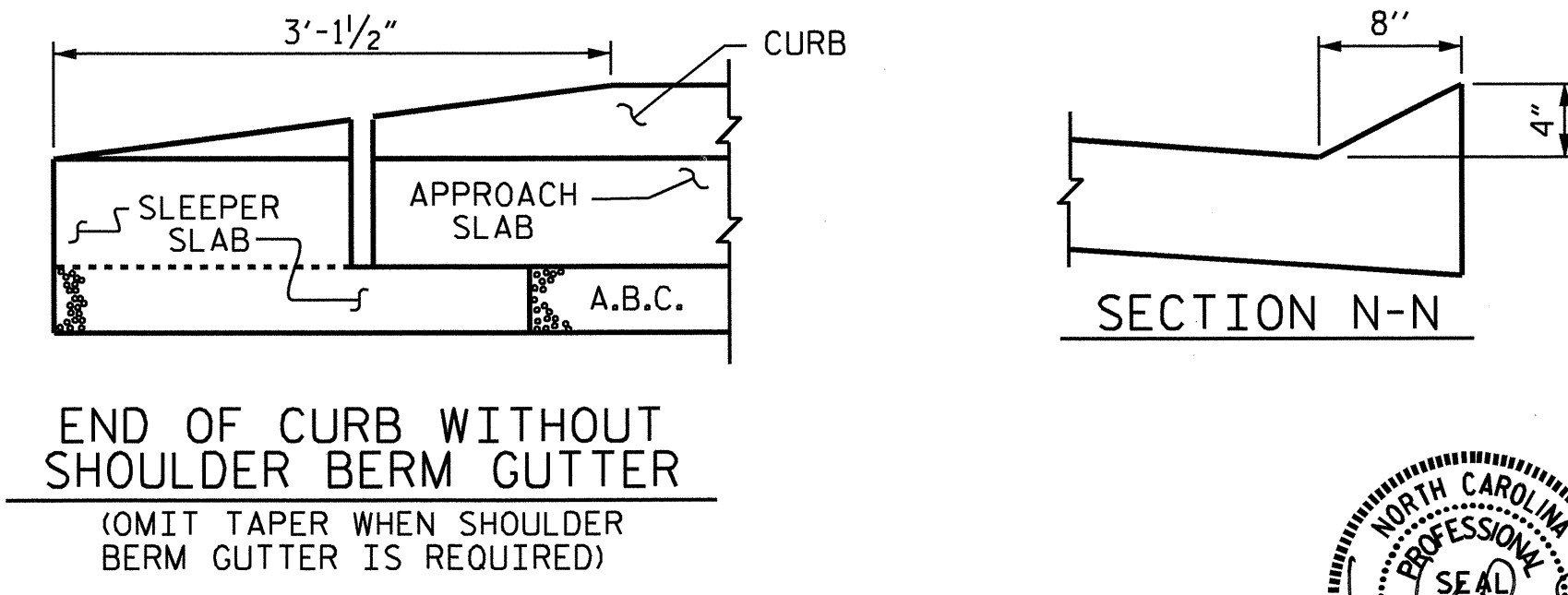
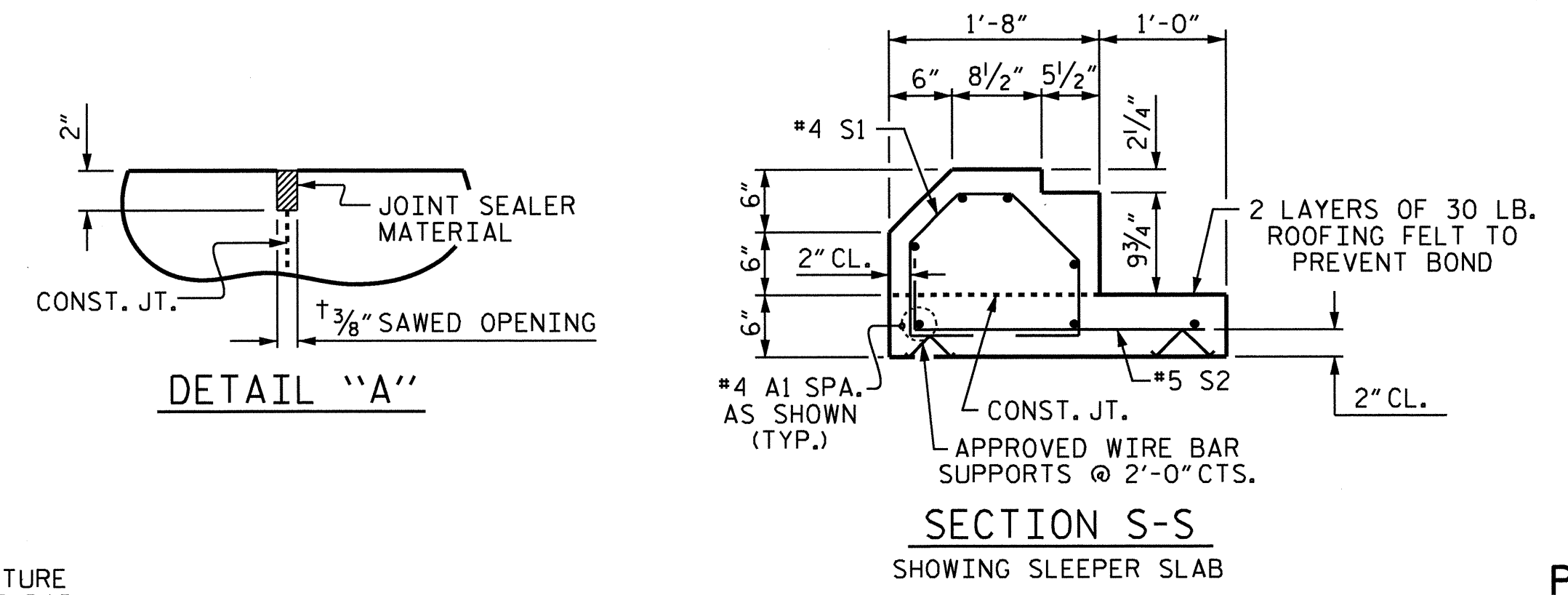
BILL OF MATERIAL
FOR ONE APPROACH SLAB (2 REQ'D.)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	62	#4	STR	17'-6"	725
A2	48	#4	STR	17'-5"	558
* B1	67	#5	STR	22'-5"	1567
B2	67	#6	STR	22'-10"	2298
* S1	34	#4	1	3'-11"	89
S2	34	#5	2	2'-11"	103
REINFORCING STEEL				LBS.	2959
* EPOXY COATED REINFORCING STEEL				LBS.	2381
CLASS AA CONCRETE					
POUR #1 - SLAB & CURB				C. Y.	29.0
POUR #2 - SLEEPER SLAB				C. Y.	3.4
TOTAL				C. Y.	32.4

BAR TYPES

SPLICE BAR LENGTHS

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

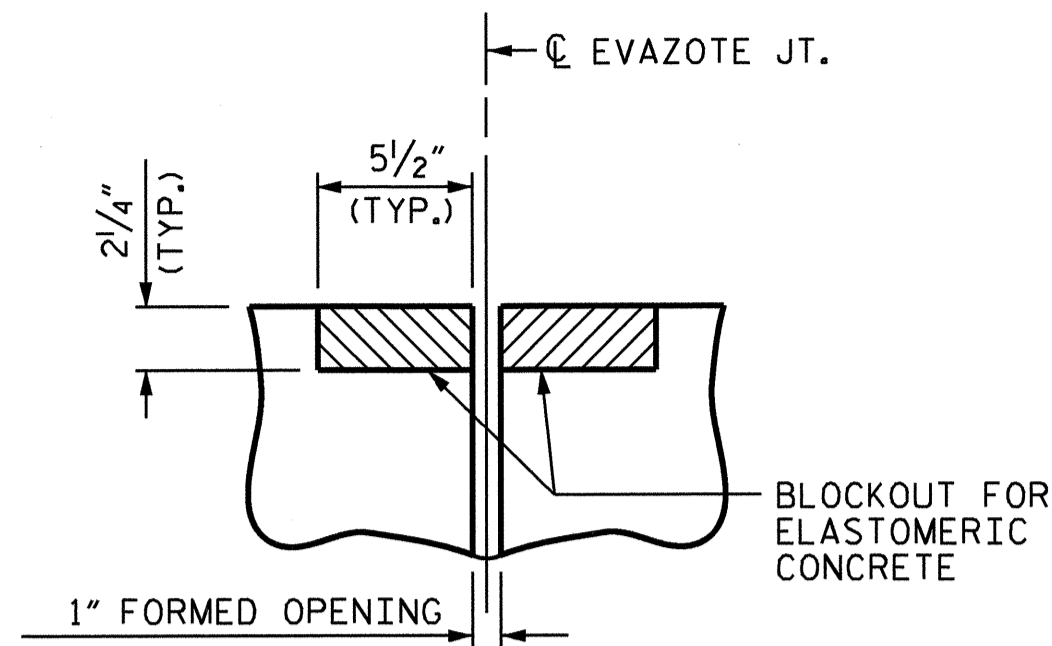


PROJECT NO. B-4556
 JOHNSTON COUNTY
 STATION: 16+44.00 -L-
 SHEET 1 OF 2

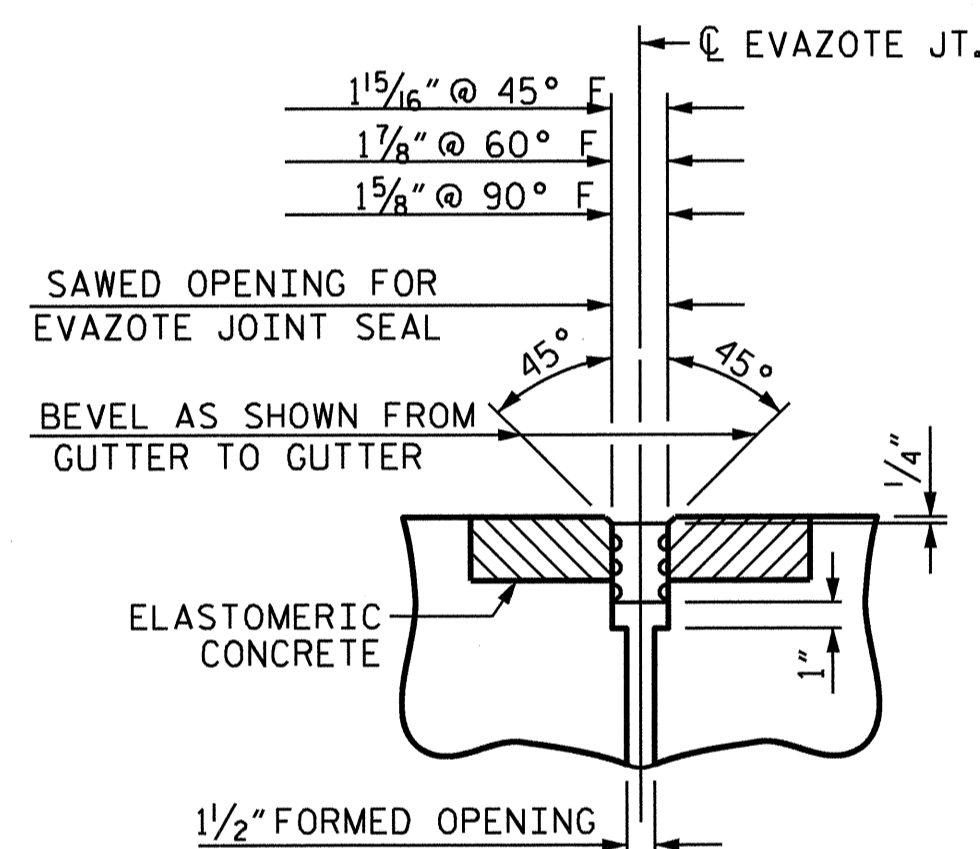
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR INTEGRAL ABUTMENT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			42
2			4			

10/19/11



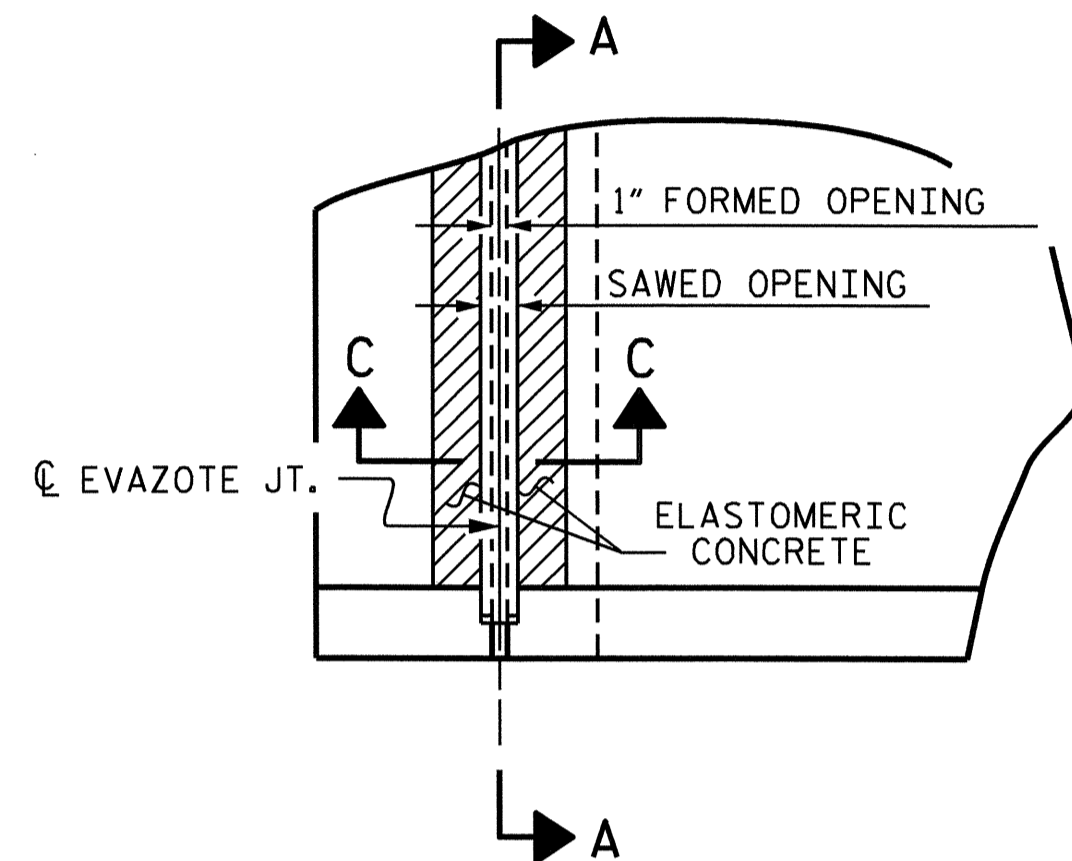
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



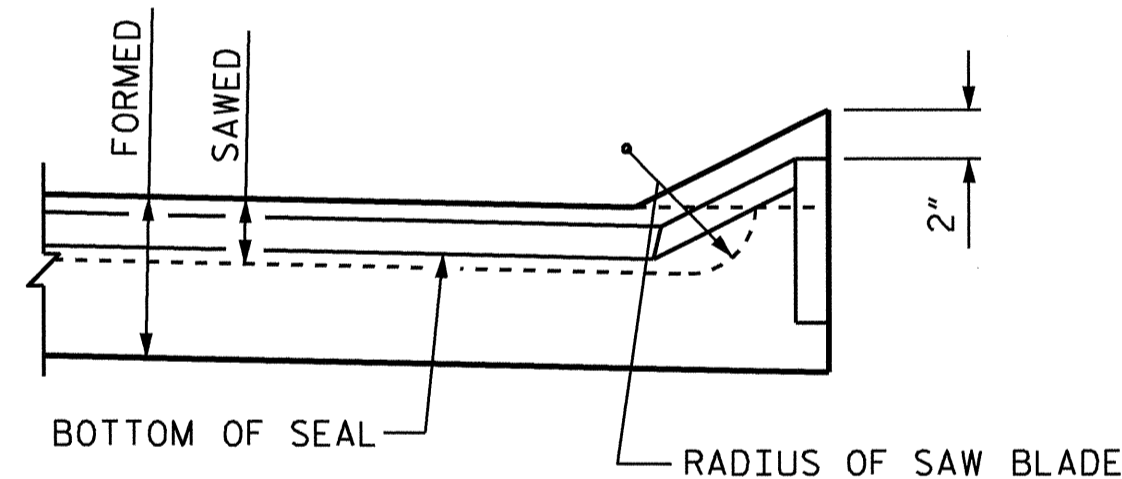
SECTION C-C
EVAZOTE JOINT SEAL

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.5
2	5.5
TOTAL	11.0

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



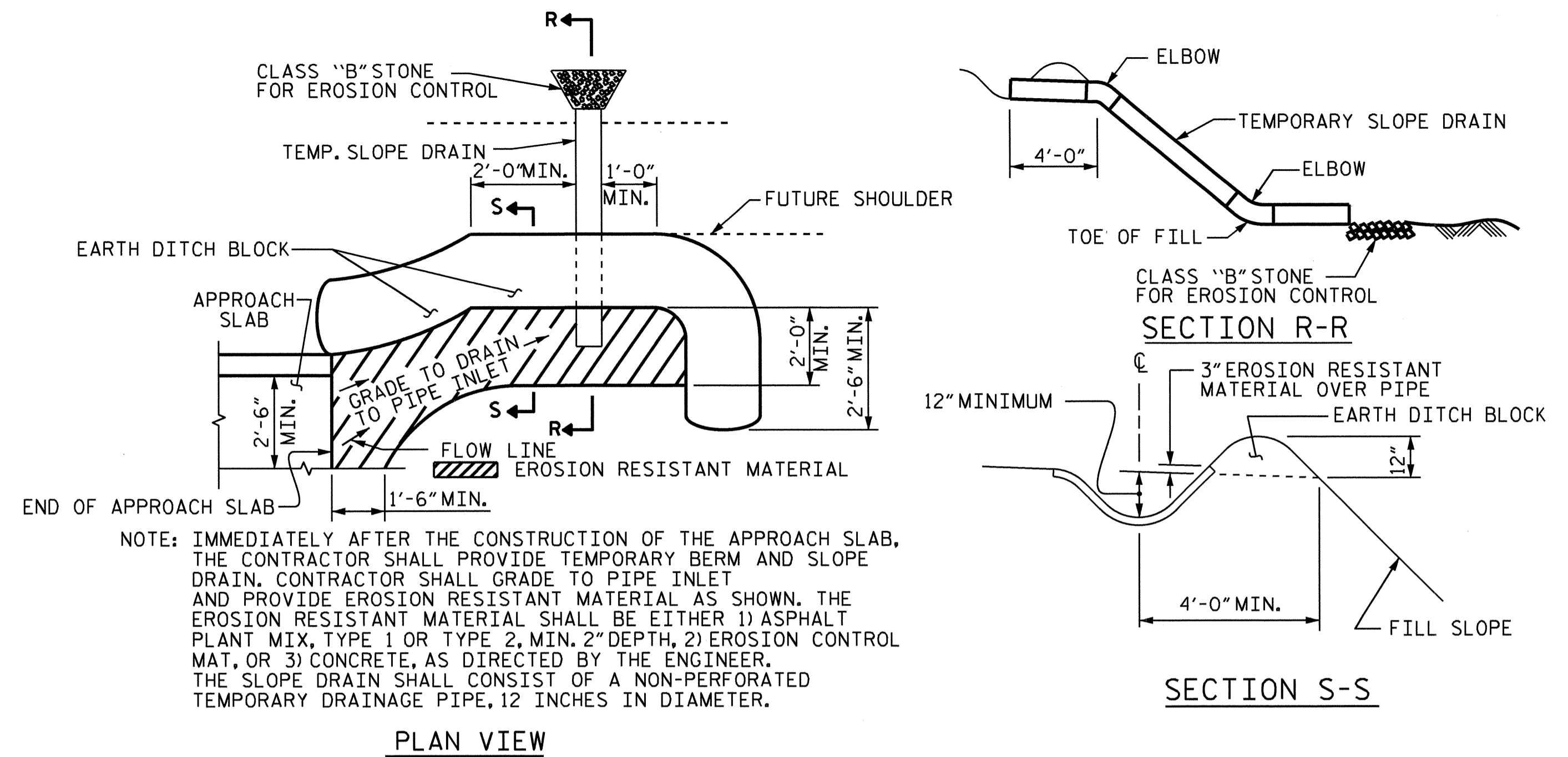
PLAN



SECTION A-A

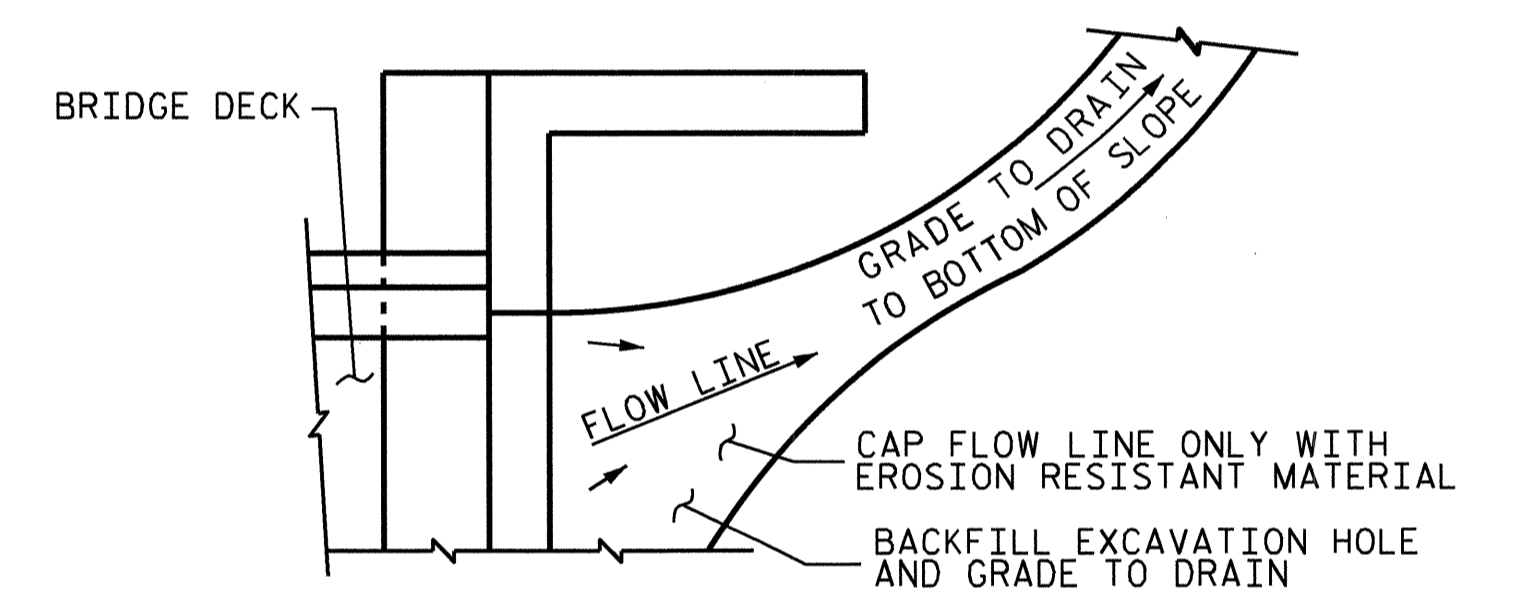
JOINT SEAL DETAILS @ SLEEPER SLAB

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED DOWN AS SHOWN IN SECTION A-A.



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



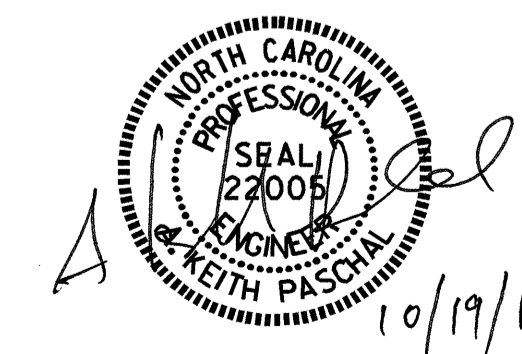
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4556
JOHNSTON COUNTY
STATION: 16+44.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH
SLAB DETAILS



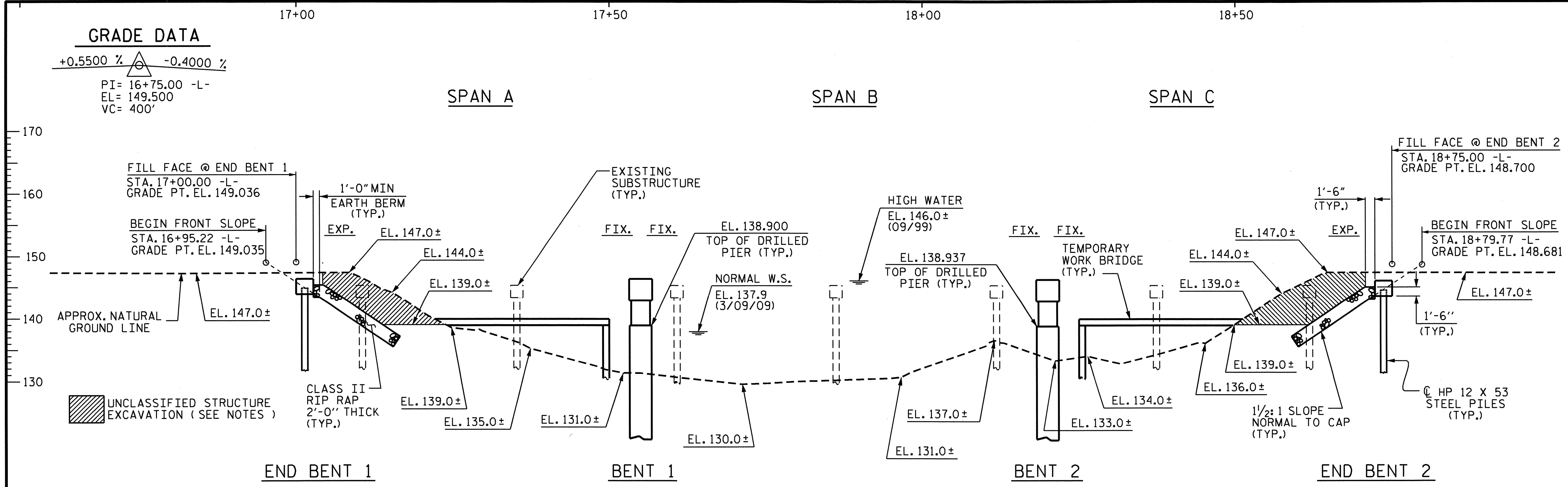
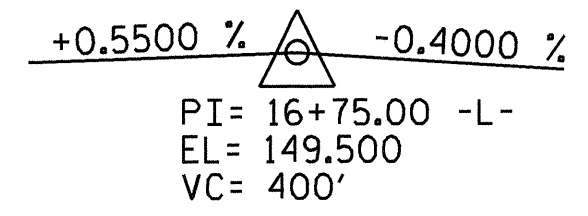
ASSEMBLED BY : M. FOWLER DATE 10/27/09
CHECKED BY : J. MYA DATE : 07/18/11
DRAWN BY : FCJ 11/88 REV. 10/17/00 RWN/LES
CHECKED BY : ARB 11/88 REV. 5/7/03 RWN/JTE
REV. 5/1/06RR MAA/KMM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-22
2			4			42

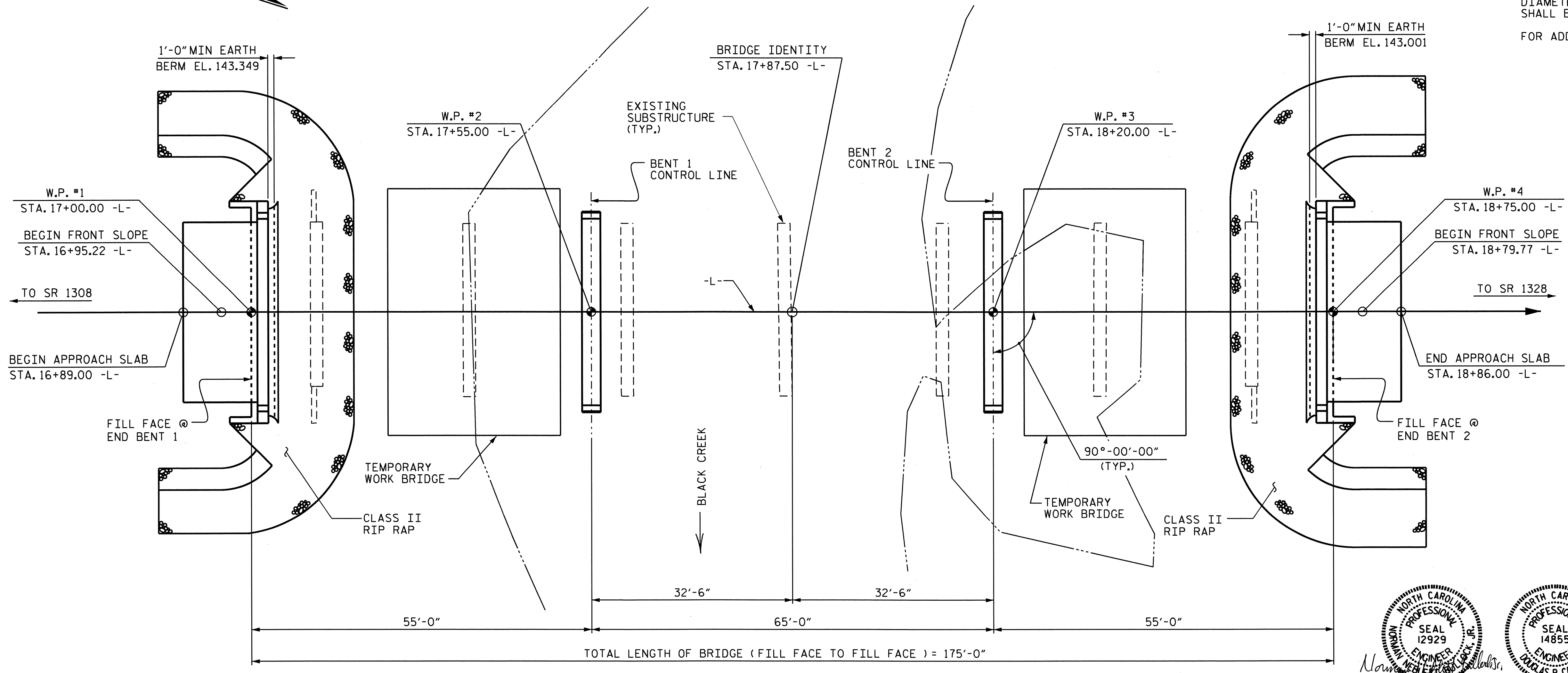
NOTES:

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 THE EXISTING STRUCTURE CONSISTING OF 6 (1 @ 25'-10", 5 @ 25'-6") PRESTRESSED CONCRETE DECK CHANNEL SPANS WITH A CLEAR ROADWAY WIDTH OF 24'-2" SUPPORTED BY REINFORCED CONCRETE CAPS ON TIMBER PILE BENTS AND END BENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.
 THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
 FOR ADDITIONAL NOTES SEE SHEET 3 OF 3.

GRADE DATA



SECTION ALONG -L-



PLAN

(PILES AND DRILLED PIERS ARE NOT SHOWN IN PLAN VIEW FOR CLARITY)

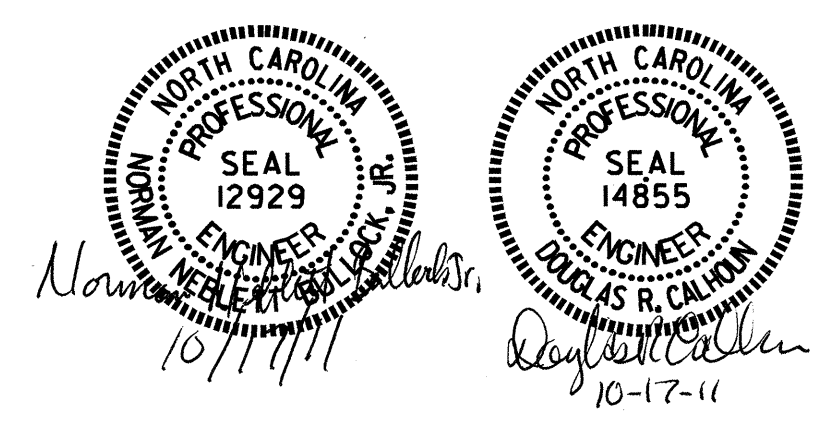
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

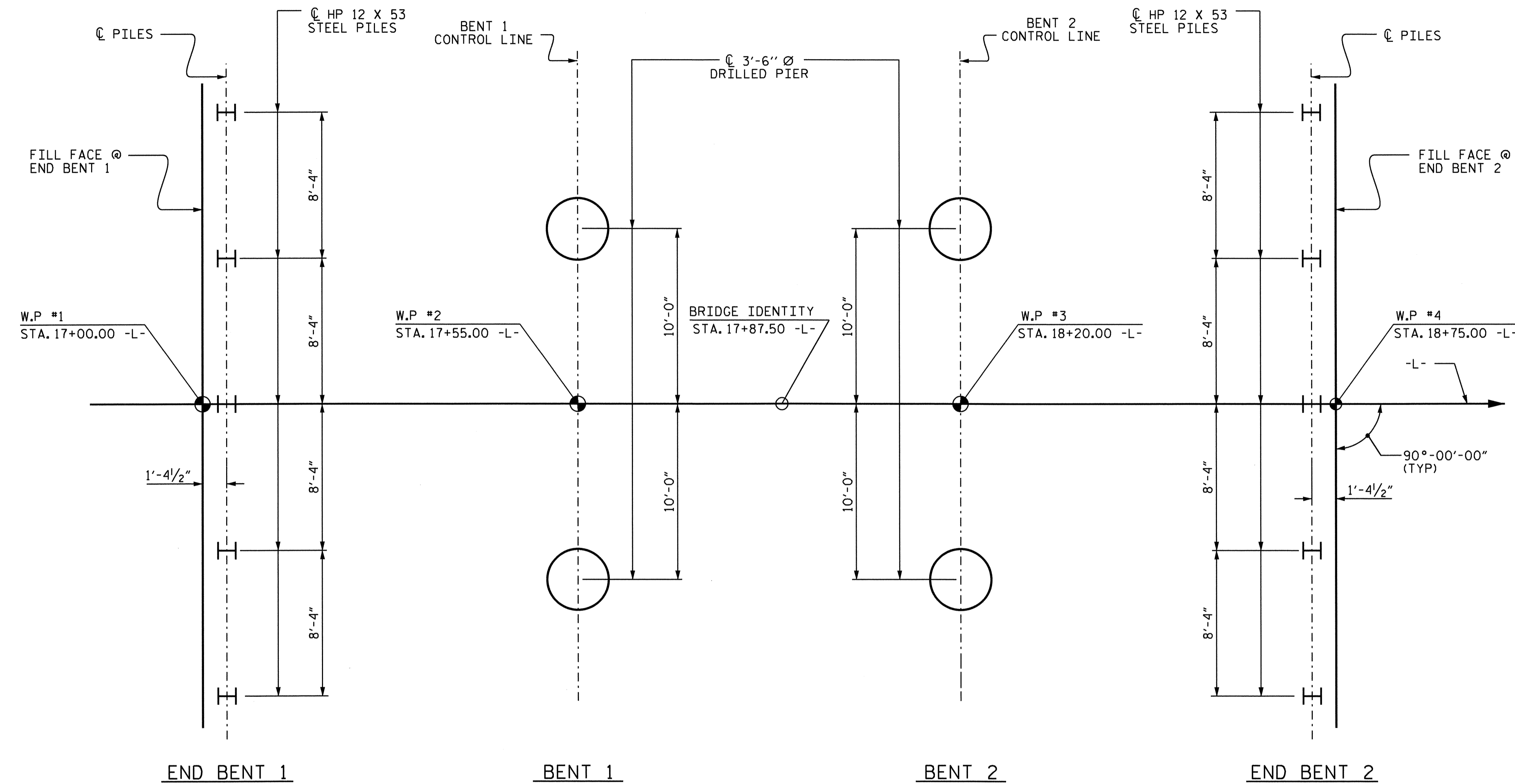
PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 102

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON SR 1331 OVER
 BLACK CREEK BETWEEN
 SR 1308 AND SR 1328

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS	
2			4			42	

DRAWN BY : J. MYA DATE : 4-30-10
 CHECKED BY : D. R. CALHOUN DATE : 8-17-11





FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE SHOWN TO CENTERLINE OF PILES AND DRILLED PIERS)

FOUNDATION NOTES :

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

DRILLED PIERS AT BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 365 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 60 TSF.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT 1. DO NOT EXTEND CASINGS BELOW ELEVATION 121.0 FT. (LEFT) AND 115 FT. (RIGHT) WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENT 2. DO NOT EXTEND CASINGS BELOW ELEVATION 125.0 FT. (LEFT) AND 115 FT. (RIGHT) WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL PERMANENT STEEL CASINGS AT BENT 1 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 124 FT. (LEFT) AND 122 FT. (RIGHT).

INSTALL PERMANENT STEEL CASINGS AT BENT 2 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 127 FT. (LEFT) AND 122 FT. (RIGHT).

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 112 FT. (LEFT) AND 103 FT. (RIGHT) AND SATISFY THE REQUIRED TIP RESISTANCE.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 115 FT. (LEFT) AND 103 FT. (RIGHT) AND SATISFY THE REQUIRED TIP RESISTANCE.

THE SCOUR CRITICAL ELEVATIONS FOR BENT 1 ARE ELEVATION 122 FT. (LEFT) AND 120.0 FT. (RIGHT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATIONS FOR BENT 2 ARE ELEVATION 125 FT. (LEFT) AND 120.0 FT. (RIGHT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

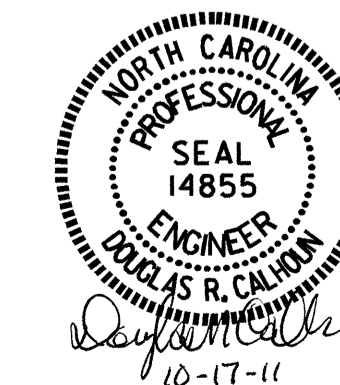
SPT TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SPT TESTING.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE DRILLED PIERS SPECIAL PROVISION.

DRAWN BY : J. MYA DATE : 4-30-10
 CHECKED BY : D. R. CALHOUN DATE : 8-17-11

13-SEP-2011 08:44
 R:\Structures\Final Plans\B-4560.SD.GD.dgn
 jmya



PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1331 OVER
 BLACK CREEK BETWEEN
 SR 1308 AND SR 1328

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			42

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6" Ø DRILLED PIERS	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	SID INSPECTION	SPT TESTING	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS		
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SO. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE										LUMP SUM				345.50			LUMP SUM	30	1725.0	
END BENT 1								LUMP SUM	12.2		1889		5	150		148	164			
BENT 1			63.00	41.80					19.6		7613	1493								
BENT 2			60.00	37.80					19.5		7441	1423								
END BENT 2								LUMP SUM	12.3		1889		5	125		163	181			
TOTAL	LUMP SUM	LUMP SUM	123.00	79.60	1	1	1	LUMP SUM	63.6	LUMP SUM	18832	2916	10	275	345.50	311	345	LUMP SUM	30	1725.0

NOTES: (CONT.)

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

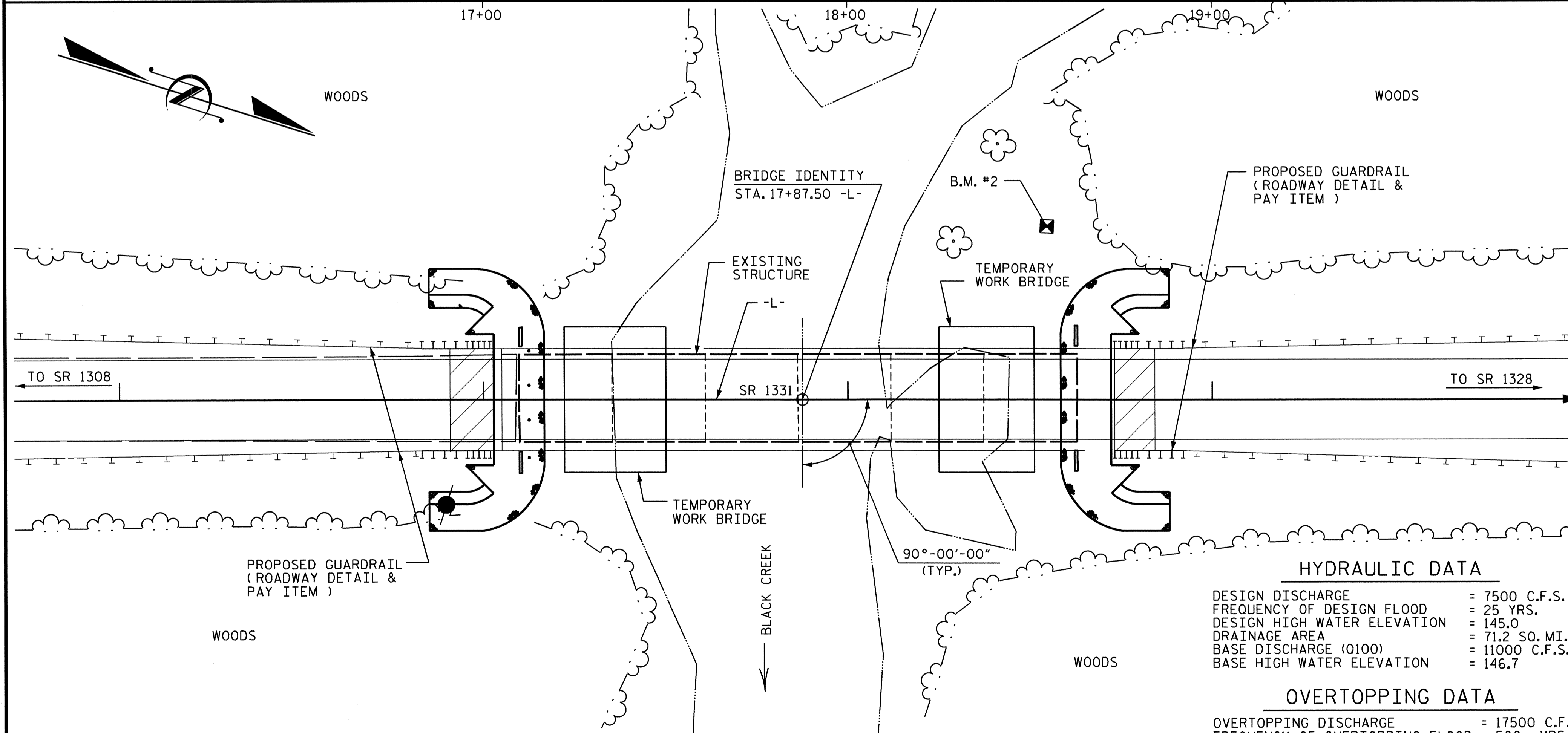
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

A TEMPORARY WORK BRIDGE SHALL BE PERMITTED FOR CONSTRUCTION OF BRIDGE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 17+87.50 -L-, SEE SPECIAL PROVISIONS.

B.M. #2 : R. R. SPIKE IN BASE OF 8" OAK TREE 47.66' LEFT OF STA. 18+54.72 -L- EL. 139.86'



HYDRAULIC DATA

DESIGN DISCHARGE = 7500 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 25 YRS.
 DESIGN HIGH WATER ELEVATION = 145.0
 DRAINAGE AREA = 71.2 SQ. MI.
 BASE DISCHARGE (Q100) = 11000 C.F.S.
 BASE HIGH WATER ELEVATION = 146.7

OVERTOPPING DATA

OVERTOPPING DISCHARGE = 17500 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 500+ YRS.
 OVERTOPPING FLOOD ELEVATION = 147.3

LOCATION SKETCH

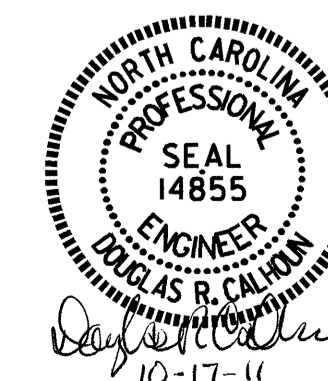
NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1331 OVER
 BLACK CREEK BETWEEN
 SR 1308 AND SR 1328



DRAWN BY : J. MYA DATE : 4-30-10
 CHECKED BY : D. R. CALHOUN DATE : 8-17-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			42
2			4			

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFD) 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								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.123	--	1.75	0.277	1.59	A	EL	26.406	0.528	1.51	A	EL	5.281	0.80	0.275	1.12	B	EL	31.938		
	HL-93(Opr)	N/A	--	1.963	--	1.35	0.277	2.05	A	EL	26.406	0.528	1.96	A	EL	5.281	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.44	51.852	1.75	0.277	1.98	A	EL	26.406	0.528	1.82	A	EL	5.281	0.80	0.275	1.44	B	EL	31.938		
	HS-20(Opr)	36.000	--	2.357	84.847	1.35	0.277	2.57	A	EL	26.406	0.528	2.36	A	EL	5.281	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.013	40.679	1.4	0.277	5.17	A	EL	26.406	0.528	5.15	A	EL	5.281	0.80	0.277	3.01	A	EL	26.406	
		SNGARBS2	20.000	--	2.348	46.953	1.4	0.277	4.03	A	EL	26.406	0.528	3.74	A	EL	5.281	0.80	0.277	2.35	A	EL	26.406	
		SNAGRIS2	22.000	--	2.269	49.917	1.4	0.277	3.89	A	EL	26.406	0.528	3.5	A	EL	5.281	0.80	0.277	2.27	A	EL	26.406	
		SNCOTTS3	27.250	--	1.502	40.937	1.4	0.277	2.58	A	EL	26.406	0.528	2.58	A	EL	5.281	0.80	0.277	1.50	A	EL	26.406	
		SNAGGRS4	34.925	--	1.294	45.197	1.4	0.277	2.22	A	EL	26.406	0.528	2.2	A	EL	5.281	0.80	0.277	1.29	A	EL	26.406	
		SNS5A	35.550	--	1.263	44.894	1.4	0.277	2.17	A	EL	26.406	0.528	2.26	A	EL	5.281	0.80	0.277	1.26	A	EL	26.406	
		SNS6A	39.950	--	1.175	46.961	1.4	0.277	2.02	A	EL	26.406	0.528	2.08	A	EL	5.281	0.80	0.277	1.18	A	EL	26.406	
	SNS7B	42.000	--	1.12	47.043	1.4	0.277	1.92	A	EL	26.406	0.528	2.08	A	EL	5.281	0.80	0.277	1.12	A	EL	26.406		
	TTST	TNAGRIT3	33.000	--	1.439	47.471	1.4	0.277	2.47	A	EL	26.406	0.528	2.46	A	EL	5.281	0.80	0.277	1.44	A	EL	26.406	
		TNT4A	33.075	--	1.45	47.945	1.4	0.277	2.49	A	EL	26.406	0.528	2.37	A	EL	5.281	0.80	0.277	1.45	A	EL	26.406	
		TNT6A	41.600	--	1.202	50.004	1.4	0.277	2.06	A	EL	26.406	0.528	2.27	A	EL	5.281	0.80	0.277	1.20	A	EL	26.406	
		TNT7A	42.000	--	1.217	51.121	1.4	0.277	2.09	A	EL	26.406	0.528	2.12	A	EL	5.281	0.80	0.277	1.22	A	EL	26.406	
		TNT7B	42.000	--	1.268	53.271	1.4	0.277	2.18	A	EL	26.406	0.528	2.01	A	EL	5.281	0.80	0.275	1.27	B	EL	31.938	
		TNAGRIT4	43.000	--	1.201	51.631	1.4	0.277	2.06	A	EL	26.406	0.528	1.93	A	EL	5.281	0.80	0.275	1.20	B	EL	31.938	
TNAGT5A		45.000	--	1.126	50.671	1.4	0.277	1.93	A	EL	26.406	0.528	1.96	A	EL	5.281	0.80	0.277	1.13	A	EL	26.406		
TNAGT5B	45.000	3	1.105	49.746	1.4	0.277	1.9	A	EL	26.406	0.528	1.83	A	EL	5.281	0.80	0.277	1.11	A	EL	26.406			

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.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

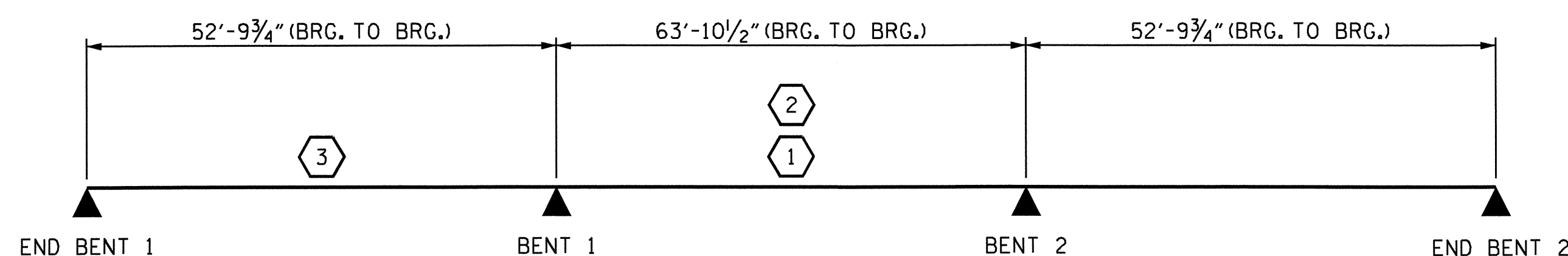
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

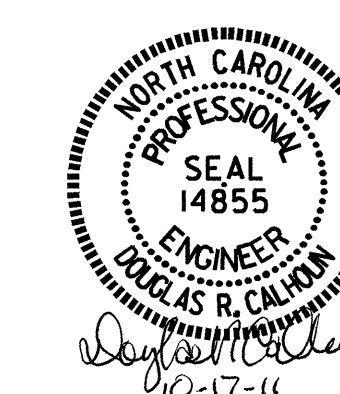
GIRDER LOCATION

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



LRFR SUMMARY

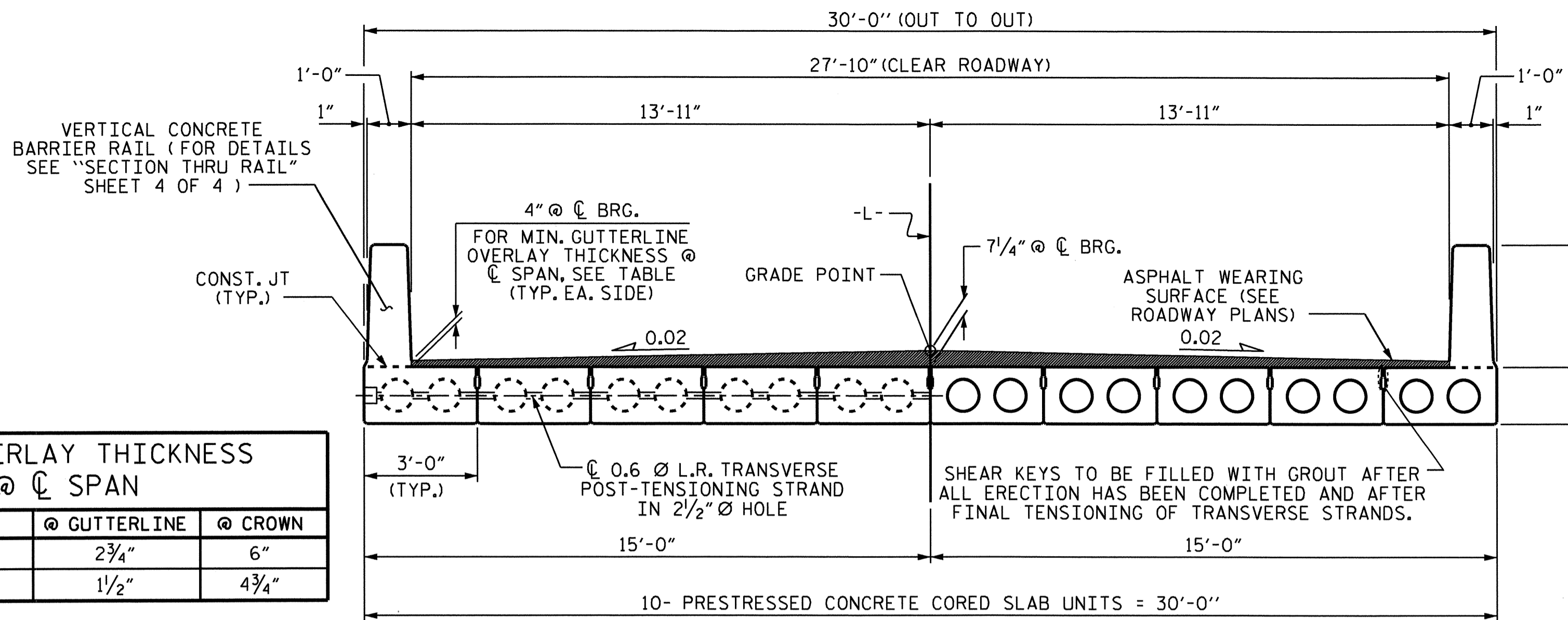
PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-



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:	
1			3			S-26
2			4			TOTAL SHEETS 42

ASSEMBLED BY : K. P. SEDAI	DATE : 8/16/11
CHECKED BY : W. S. ARAFAT	DATE : 8/16/11
DRAWN BY : MAA I/OB	REV. 11/12/OBR MAA/GM
CHECKED BY : GM/DI 2/08	

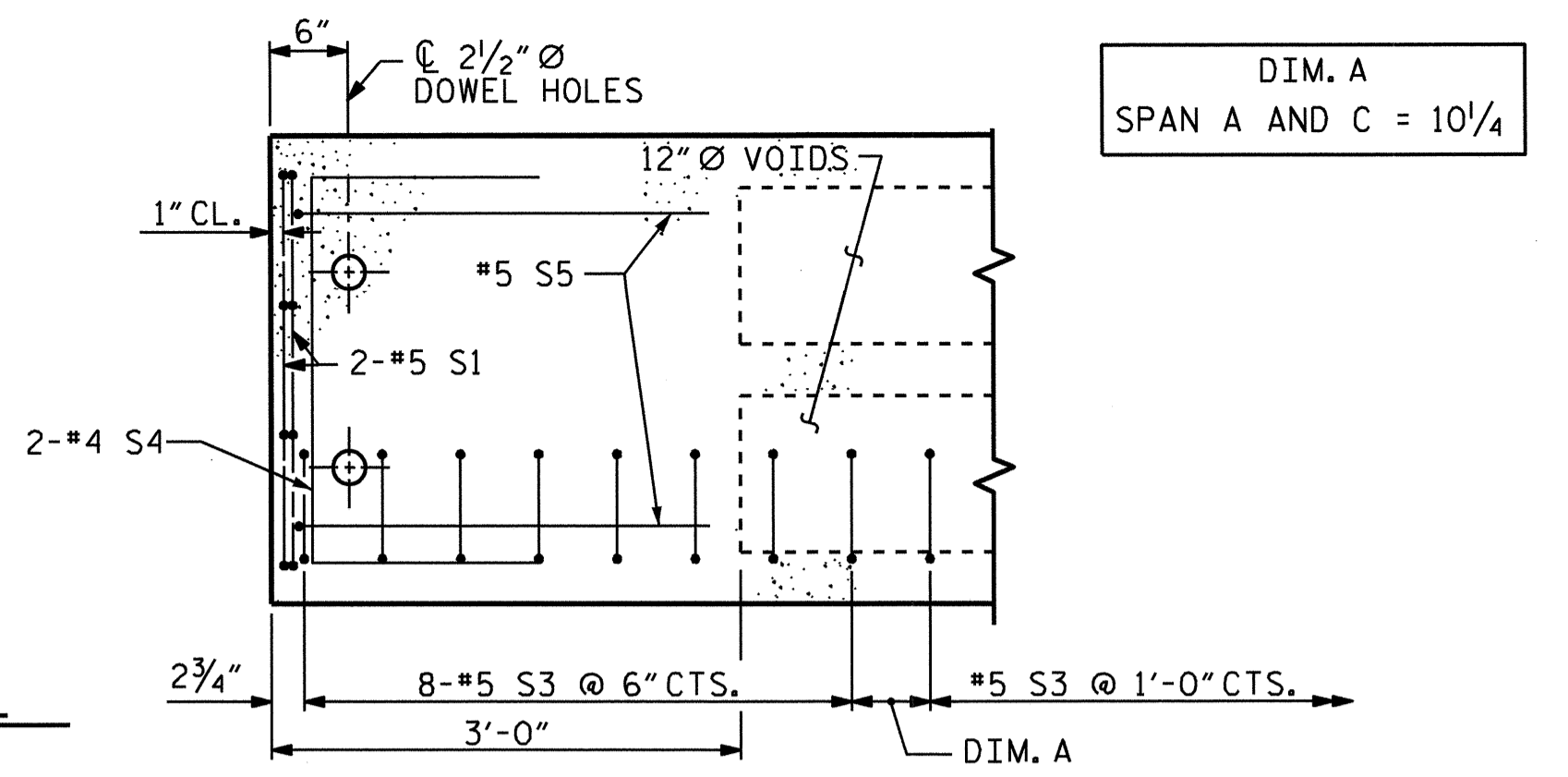


HALF SECTION @ DIAPHRAGMS HALF SECTION @ 12" Ø VOIDS

TYPICAL SECTION

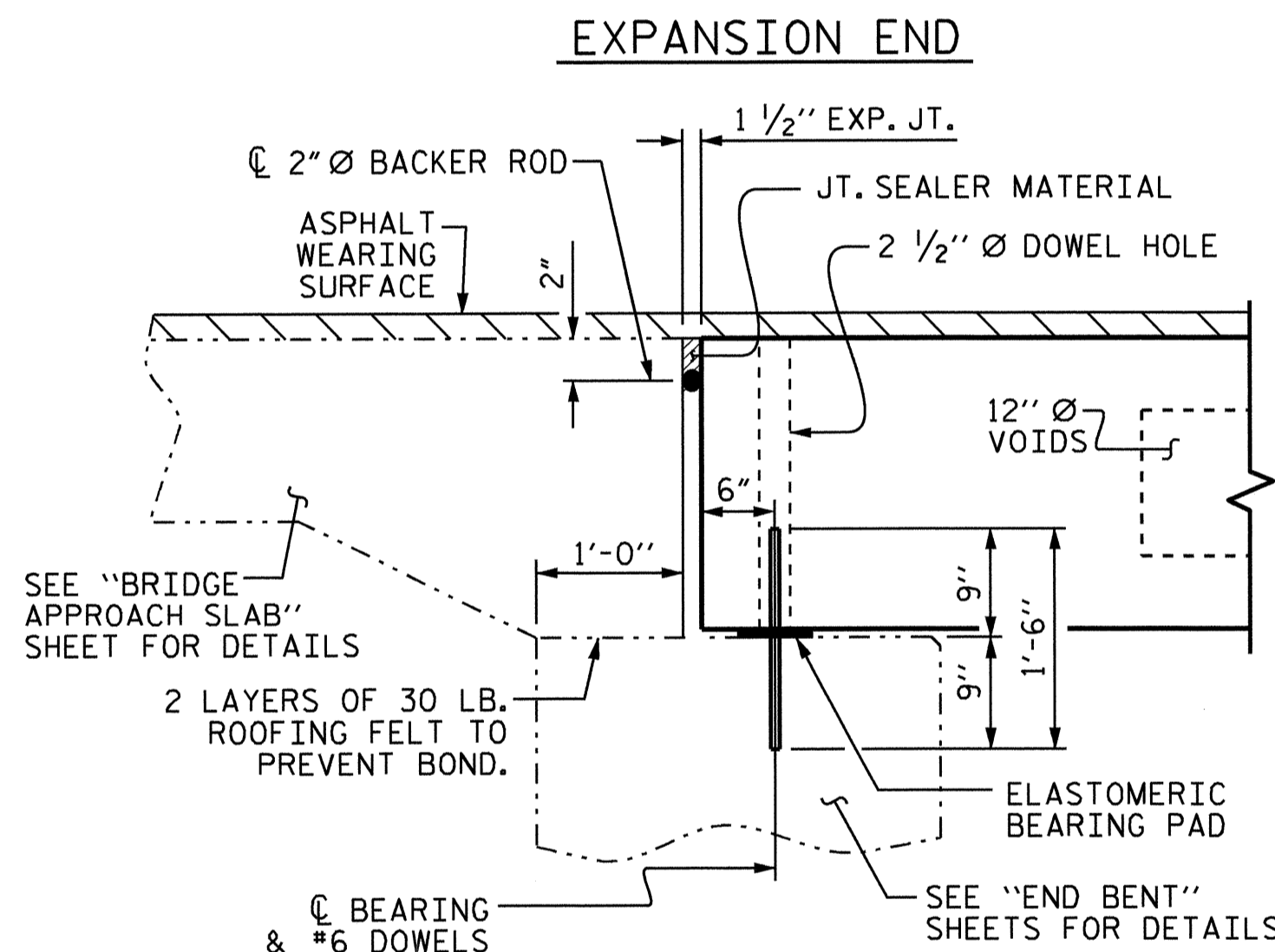


SHEAR KEY DETAIL
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

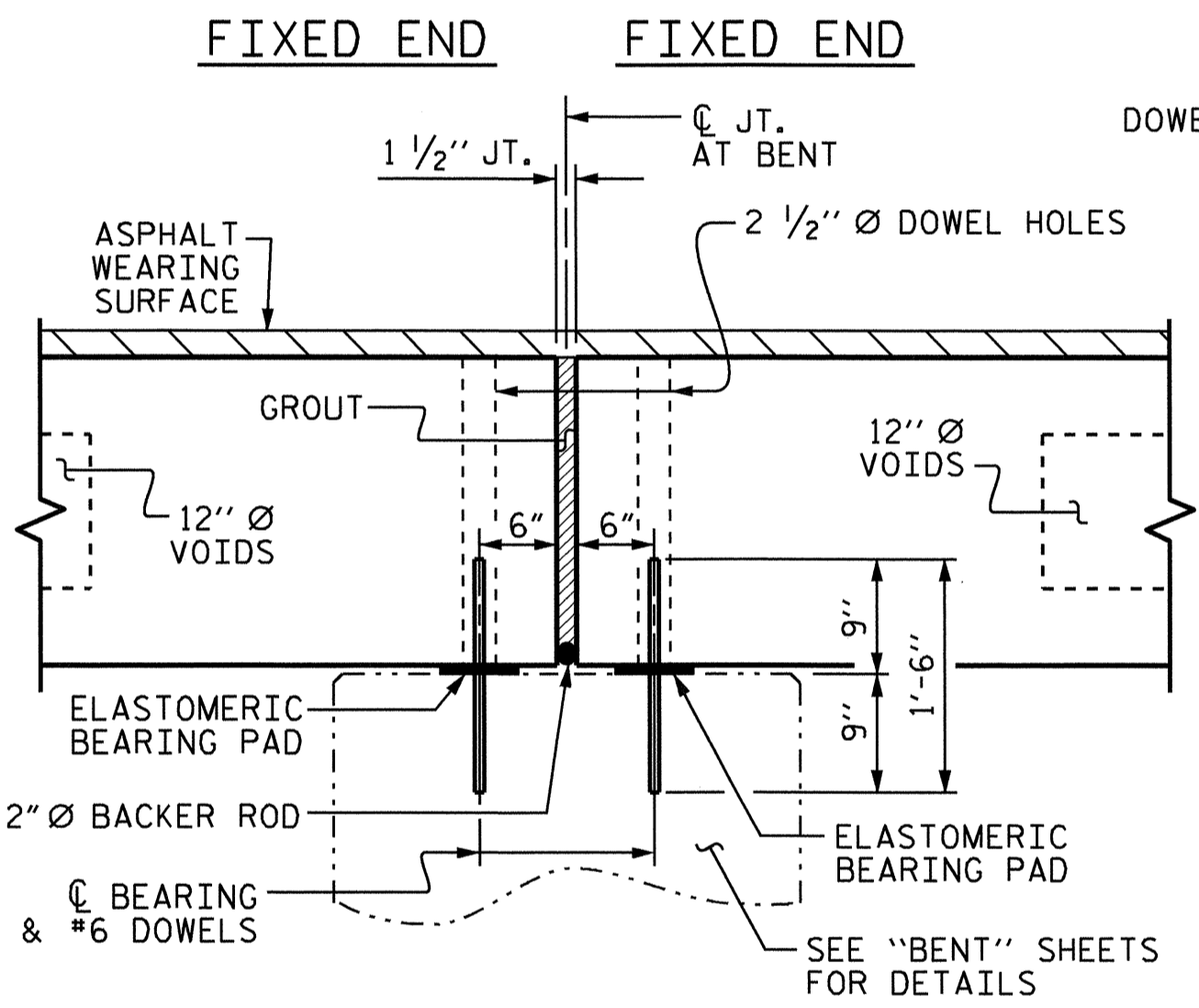


PART PLAN-EXTERIOR SECTION

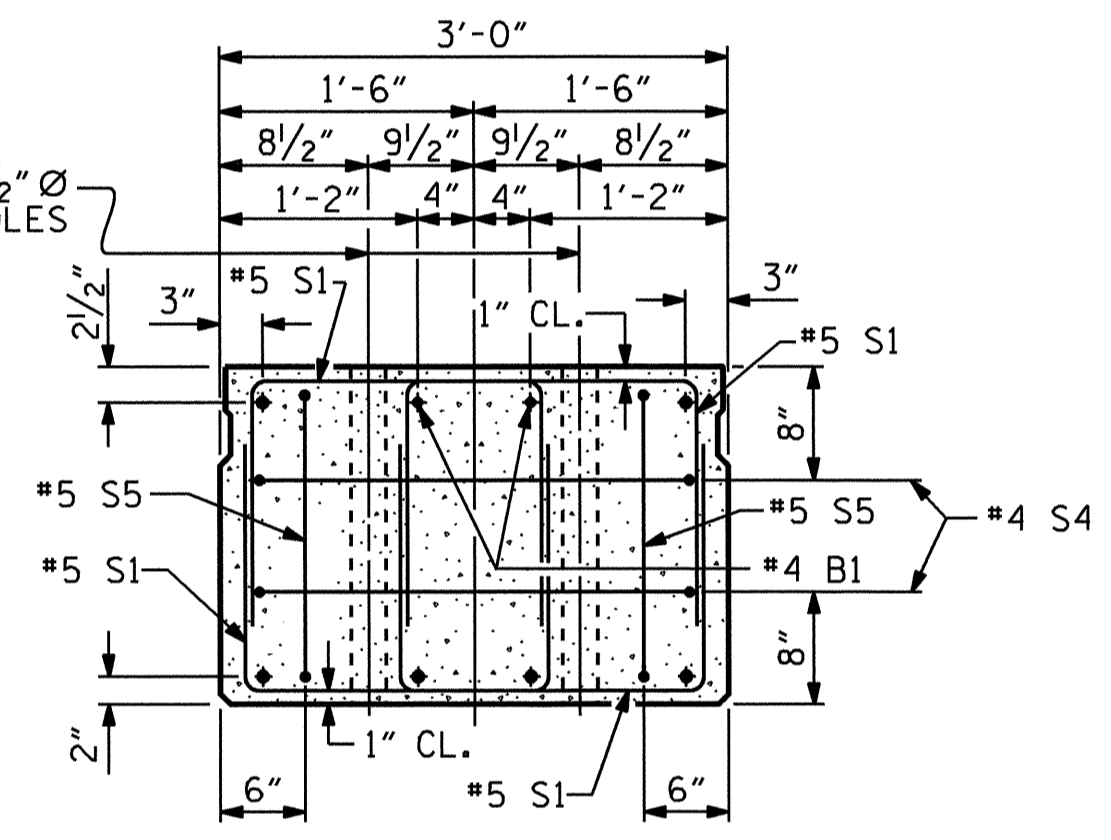
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



SECTION AT END BENT

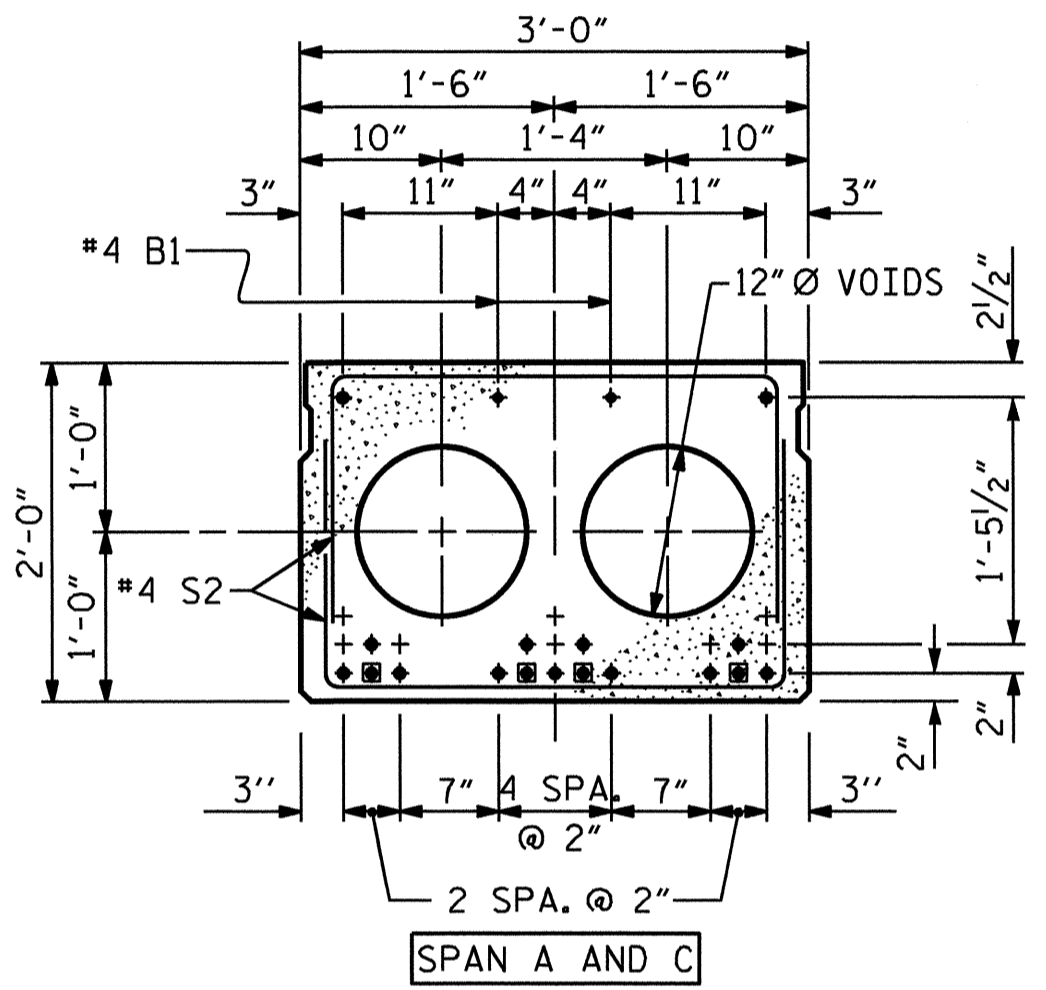


SECTION AT BENT



END ELEVATION

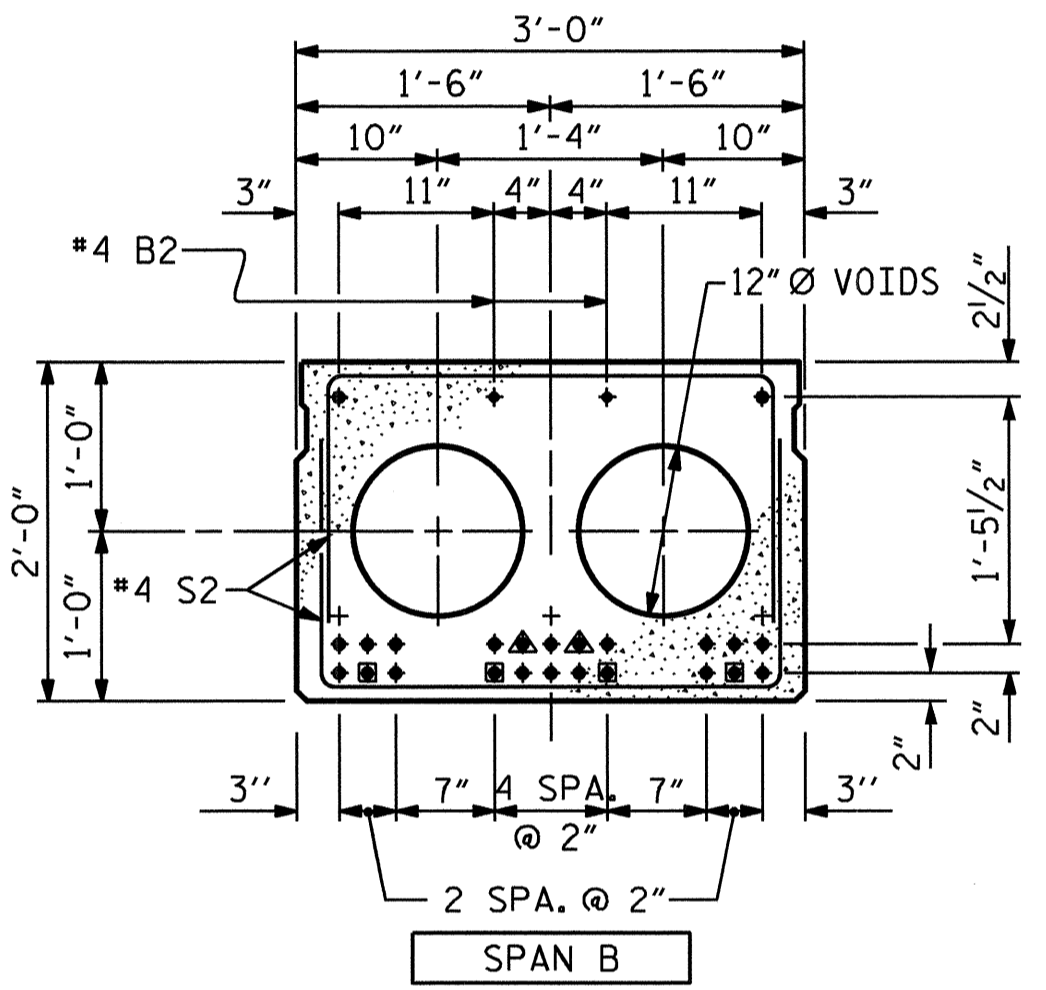
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



INTERIOR SLAB SECTION (17 STRANDS)

0.6" Ø LOW RELAXATION STRAND LAYOUT

■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

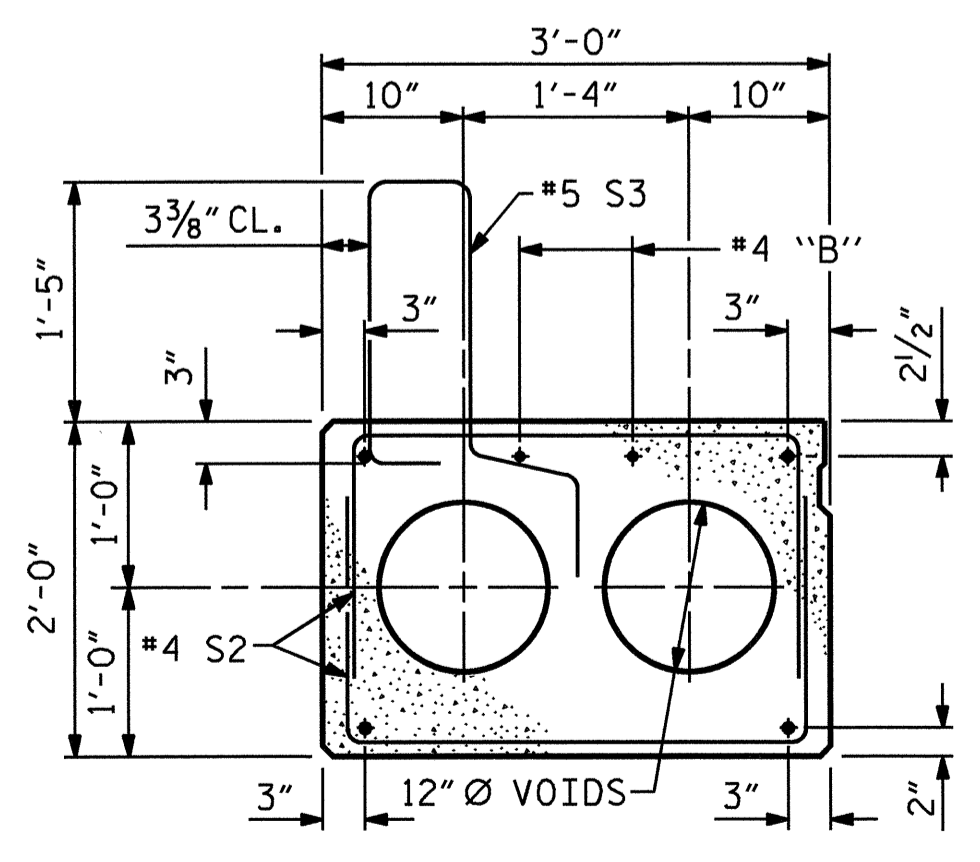


INTERIOR SLAB SECTION (24 STRANDS)

0.6" Ø LOW RELAXATION STRAND LAYOUT

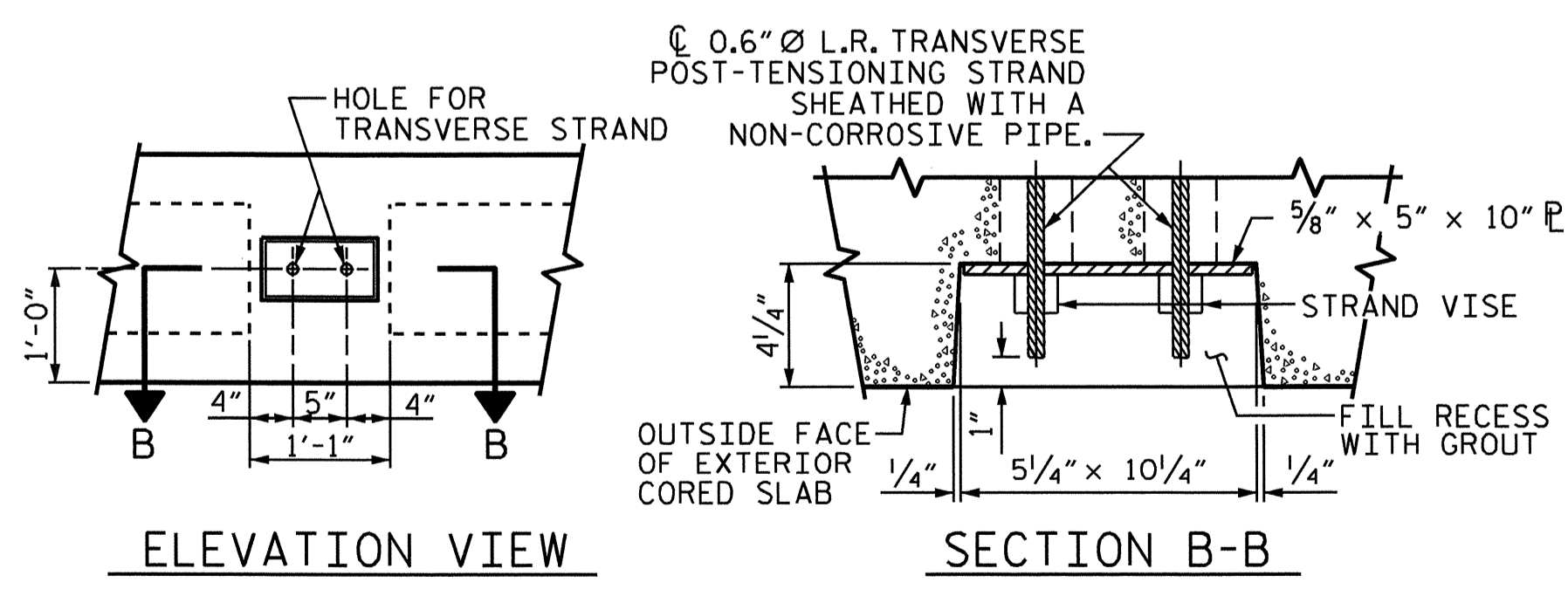
■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

▲ 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.



EXTERIOR SLAB SECTION

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

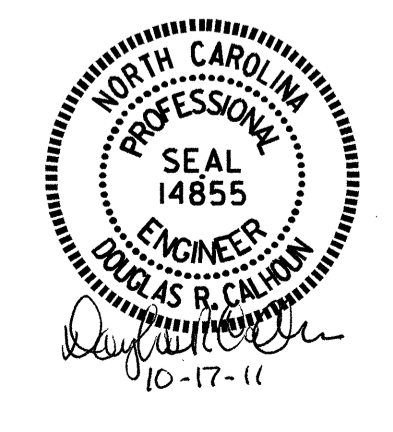


ELEVATION VIEW

SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

"S" BARS MAY BE SHIFTED SLIGHTLY TO MAINTAIN 1" MINIMUM CLEARANCE TO GROUTED RECESS.

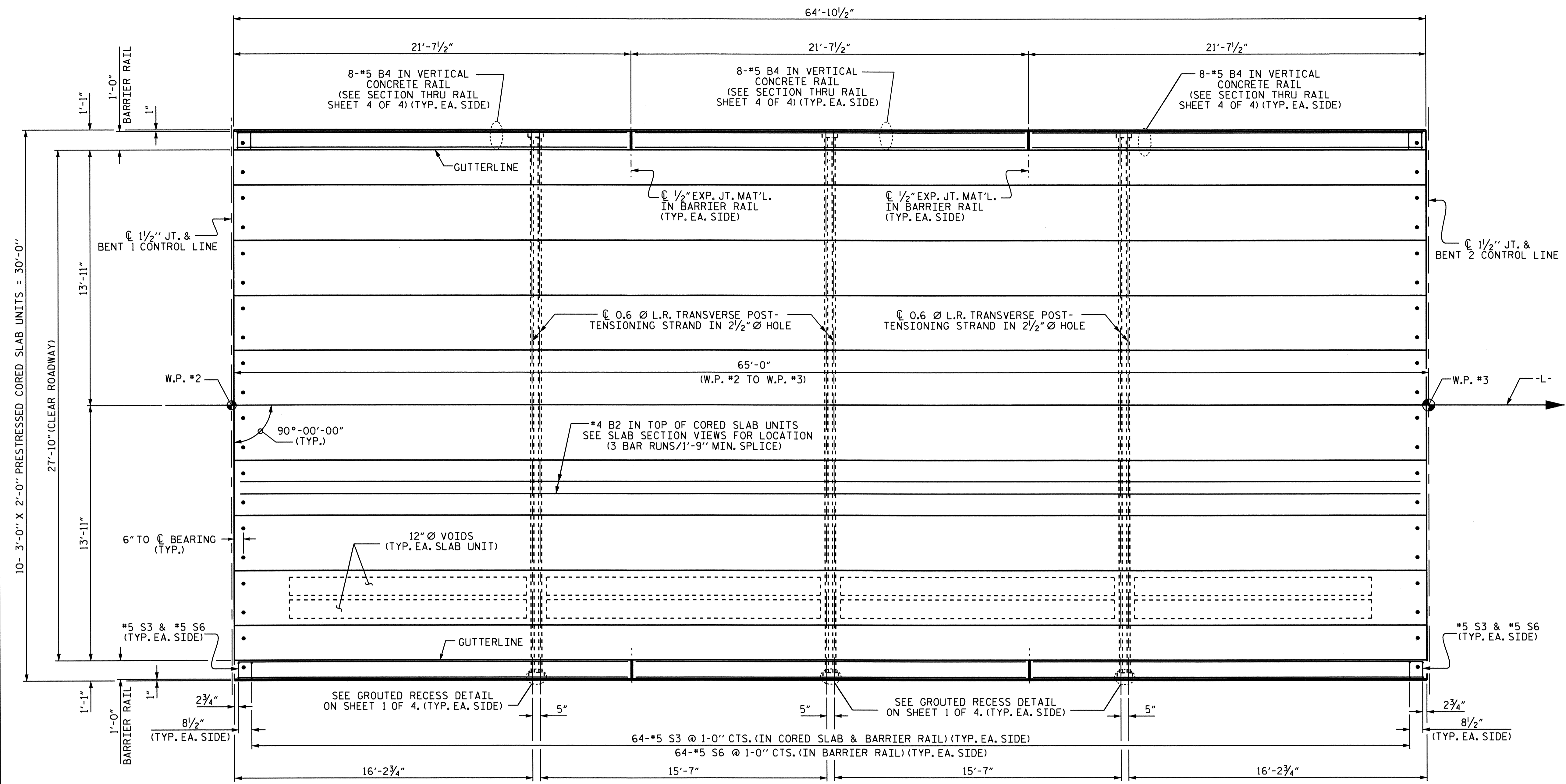


PROJECT NO. B-4560
JOHNSTON COUNTY
STATION: 17+87.50 -L-

SHEET 1 OF 4

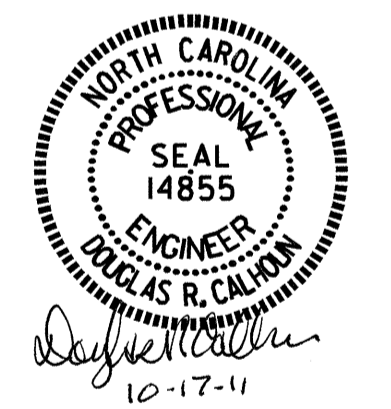
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-27
					TOTAL SHEETS 42

ASSEMBLED BY : J. MYA	DATE : 1-28-11
CHECKED BY : E. M. NOLTING	DATE : 2-7-11
DRAWN BY : MAA	5/10
CHECKED BY : GM	5/10
ADDED	5/6/10



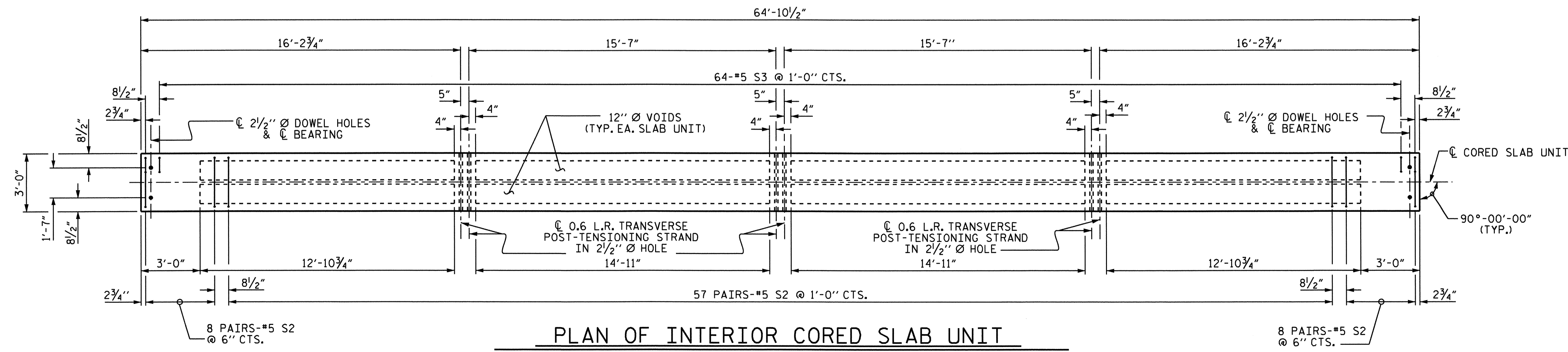
▲ SEE PART PLAN-EXTERIOR SECTION ON SHEET 1 OF 4 FOR ADDITIONAL #5 S3 BARS

SPAN B



PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN B



PLAN OF INTERIOR CORED SLAB UNIT

(LEFT EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT S3 BARS) FOR REINFORCING STEEL AT END OF CORED SLAB UNITS, SEE "PART PLAN - EXTERIOR SECTION" SHEET 1 OF 4.

DRAWN BY : J. MYA DATE : 1-28-11
 CHECKED BY : E. M. NOLTING DATE : 2-7-11

13-SEP-2011 08:44
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 jmya

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29	
1			3			TOTAL SHEETS	42
2			4				

NOTES

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

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

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

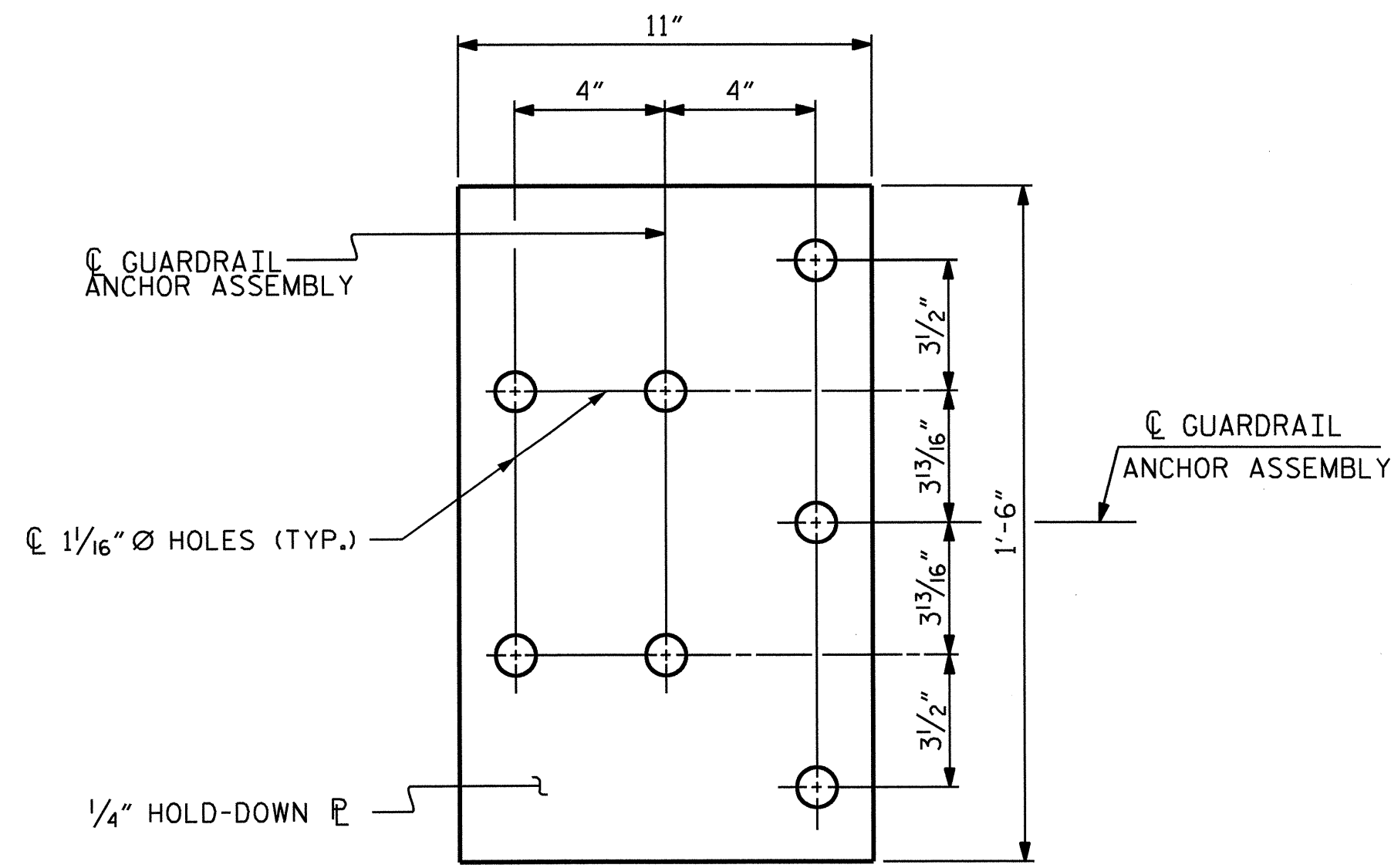
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 VERTICAL CONCRETE BARRIER RAIL.

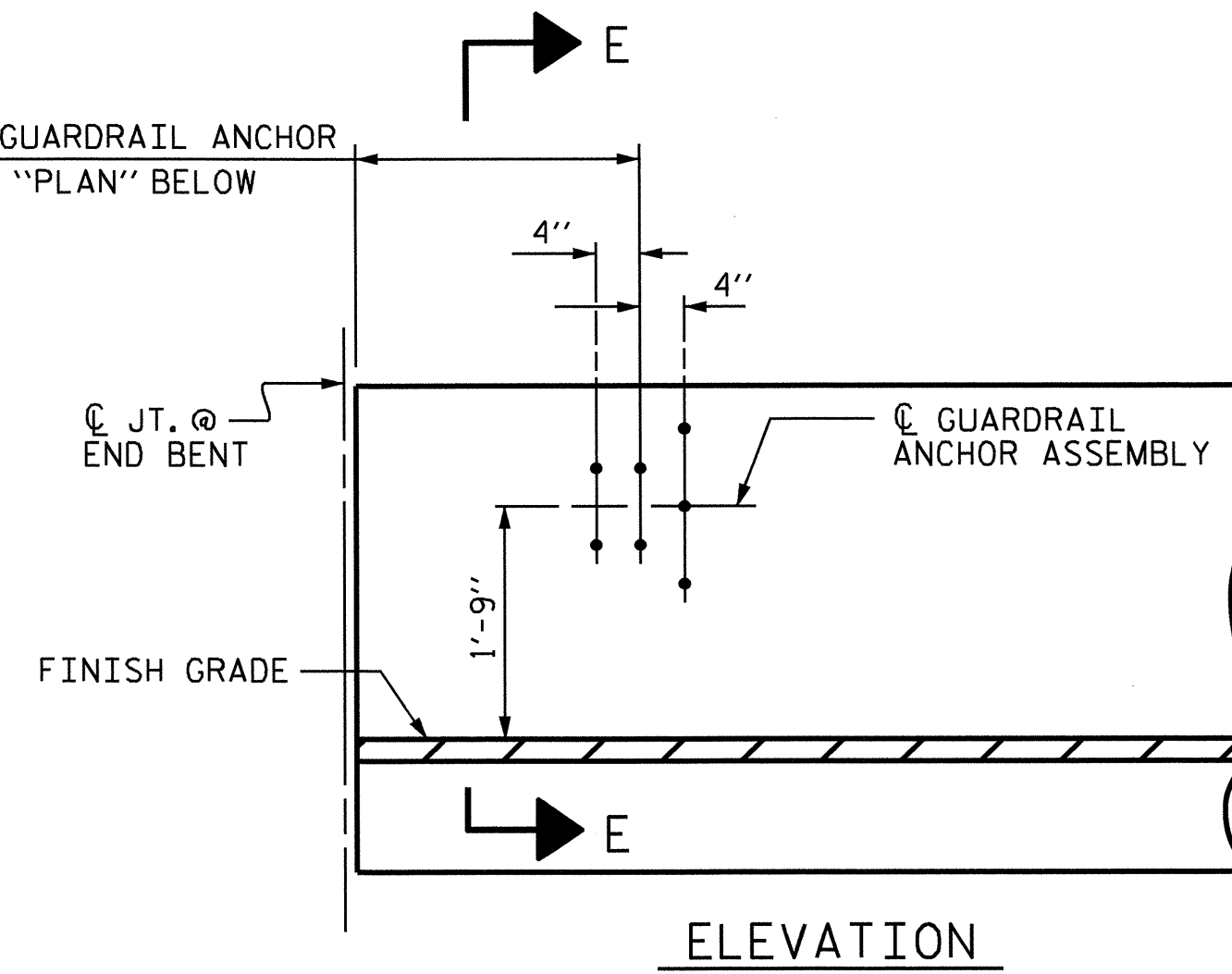
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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

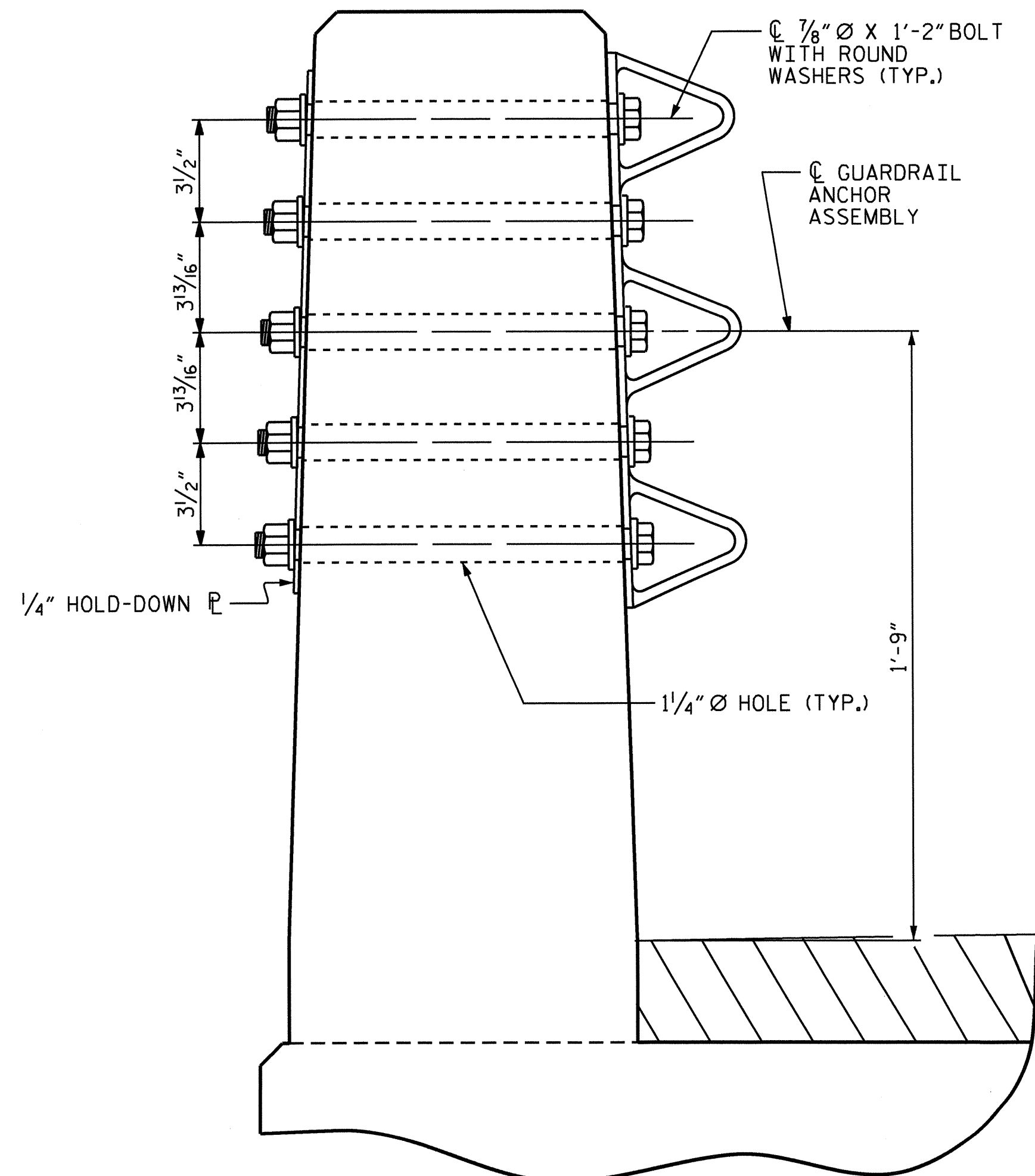


PLAN

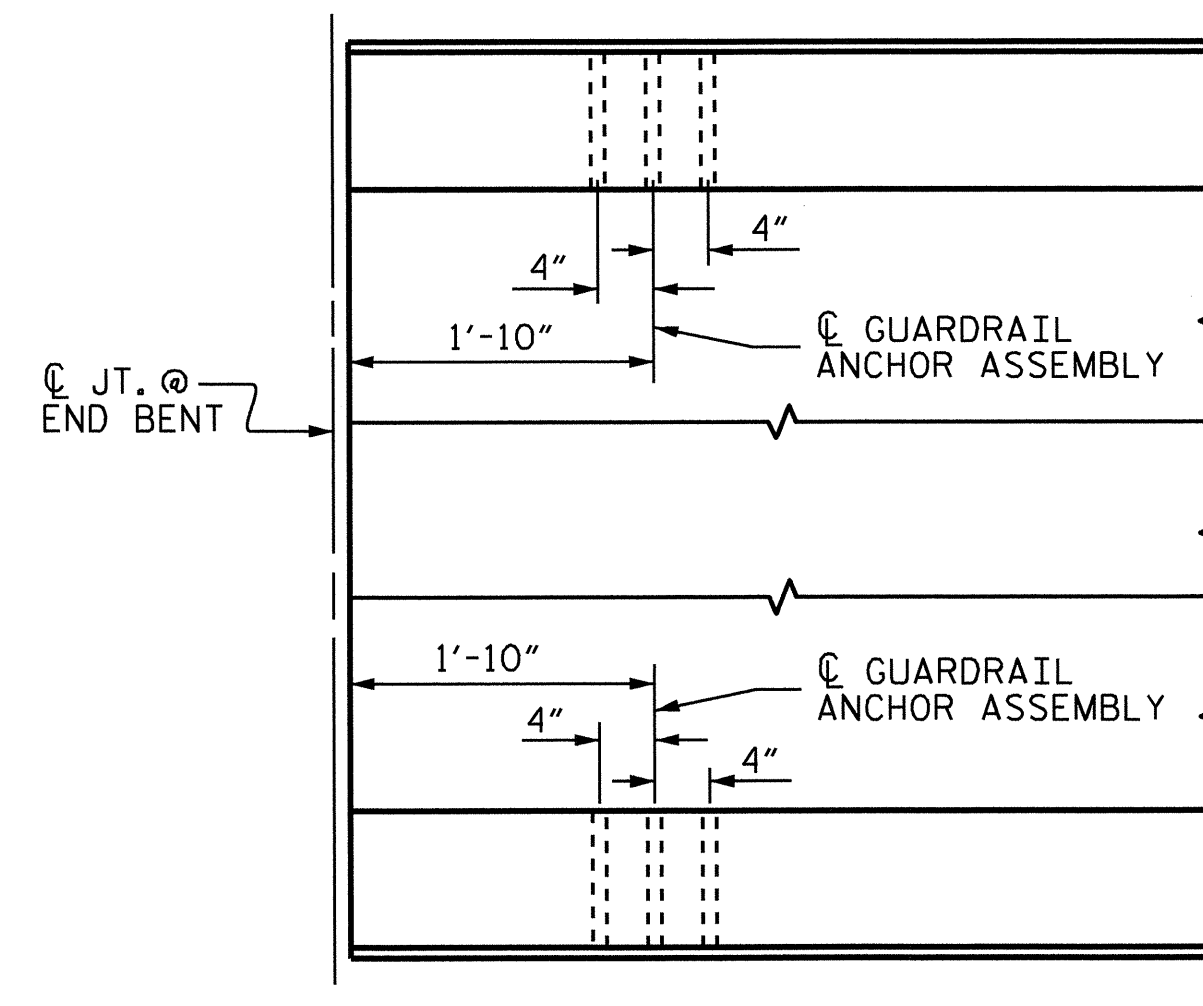
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



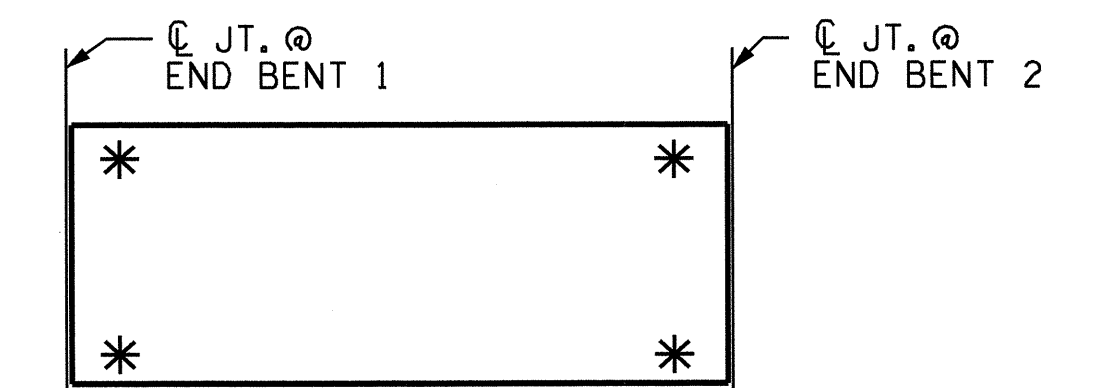
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

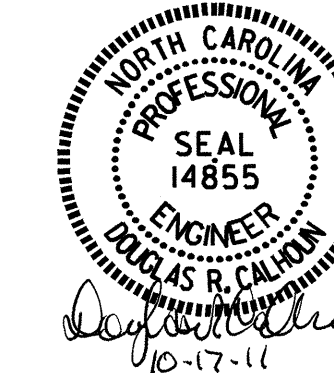
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-



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

ASSEMBLED BY : J. MYA	DATE : 1-28-11
CHECKED BY : E. M. NOLTING	DATE : 2-7-11
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	

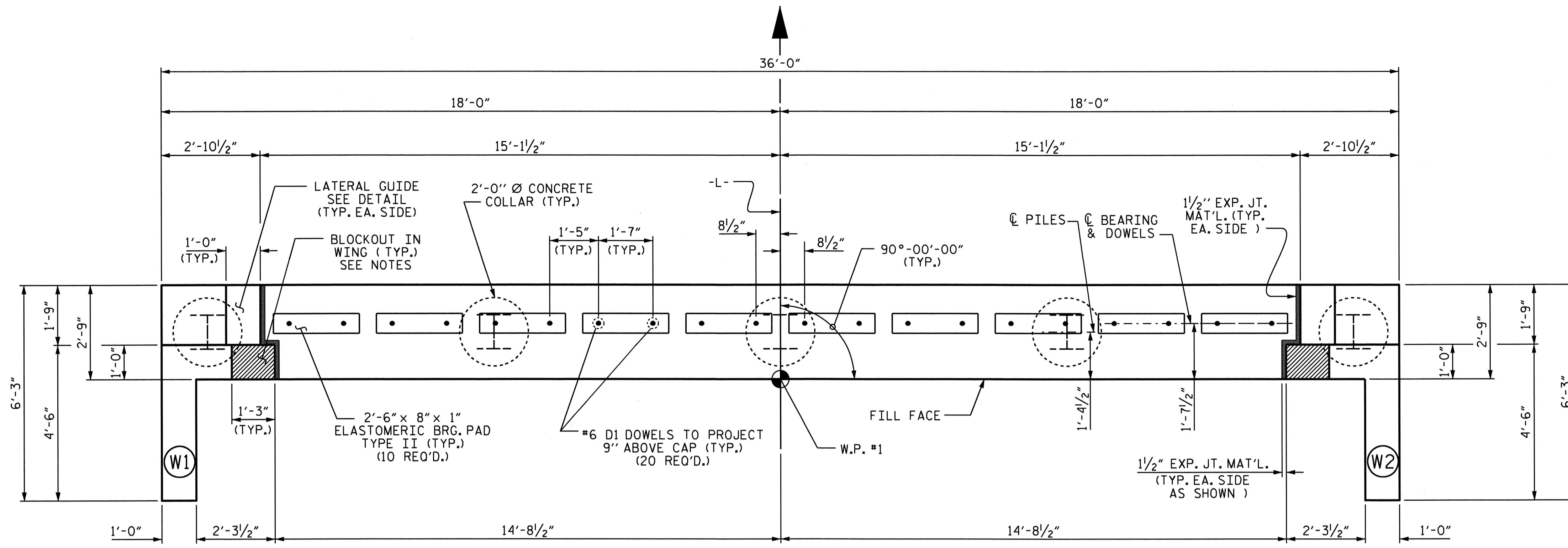
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 jmya

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			42
2			4			

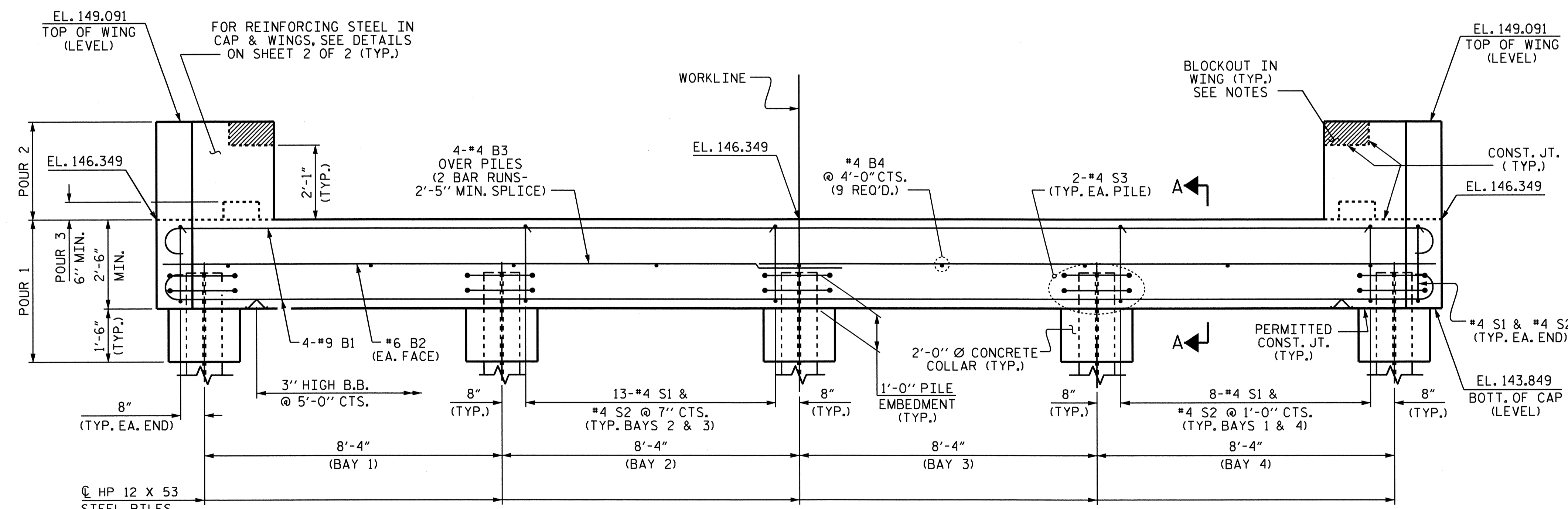
(SHT 1) STD. NO. GRA3

NOTES

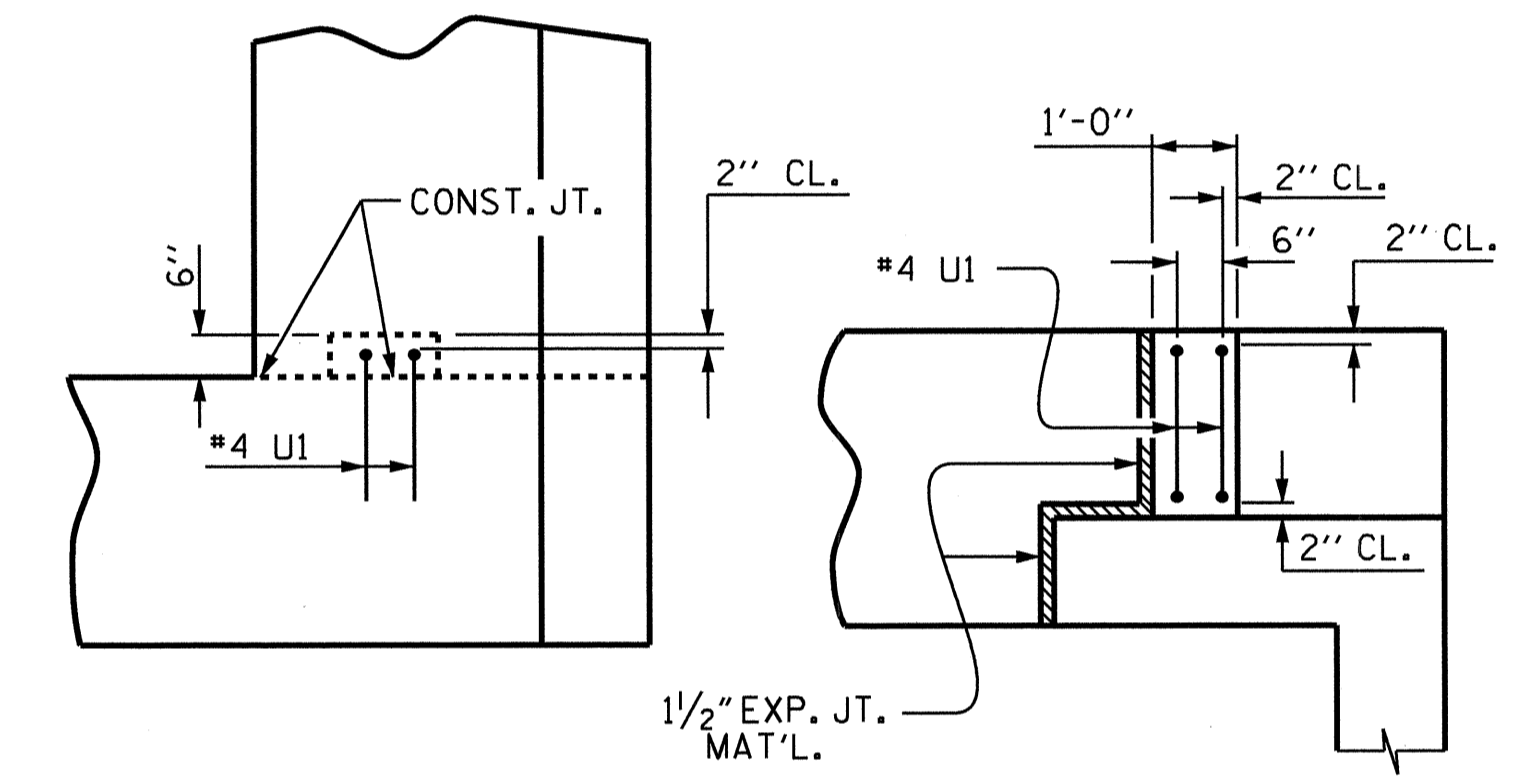
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE
 POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED
 AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF
 APPROVED BY THE ENGINEER.



PLAN



ELEVATION



ELEVATION

PLAN

LATERAL GUIDE
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

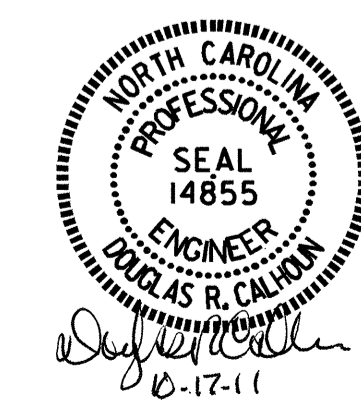
PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

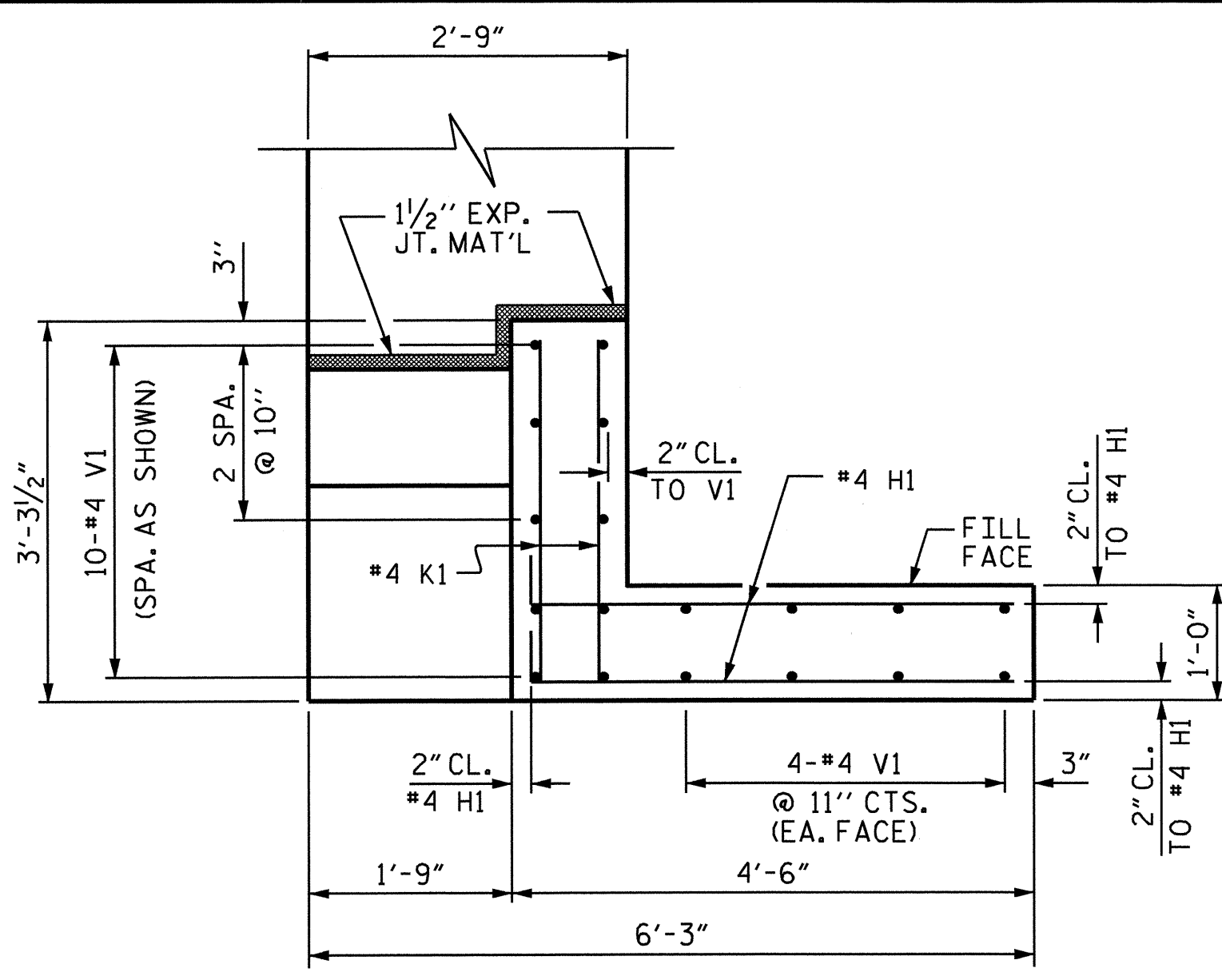
**SUBSTRUCTURE
 END BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			42



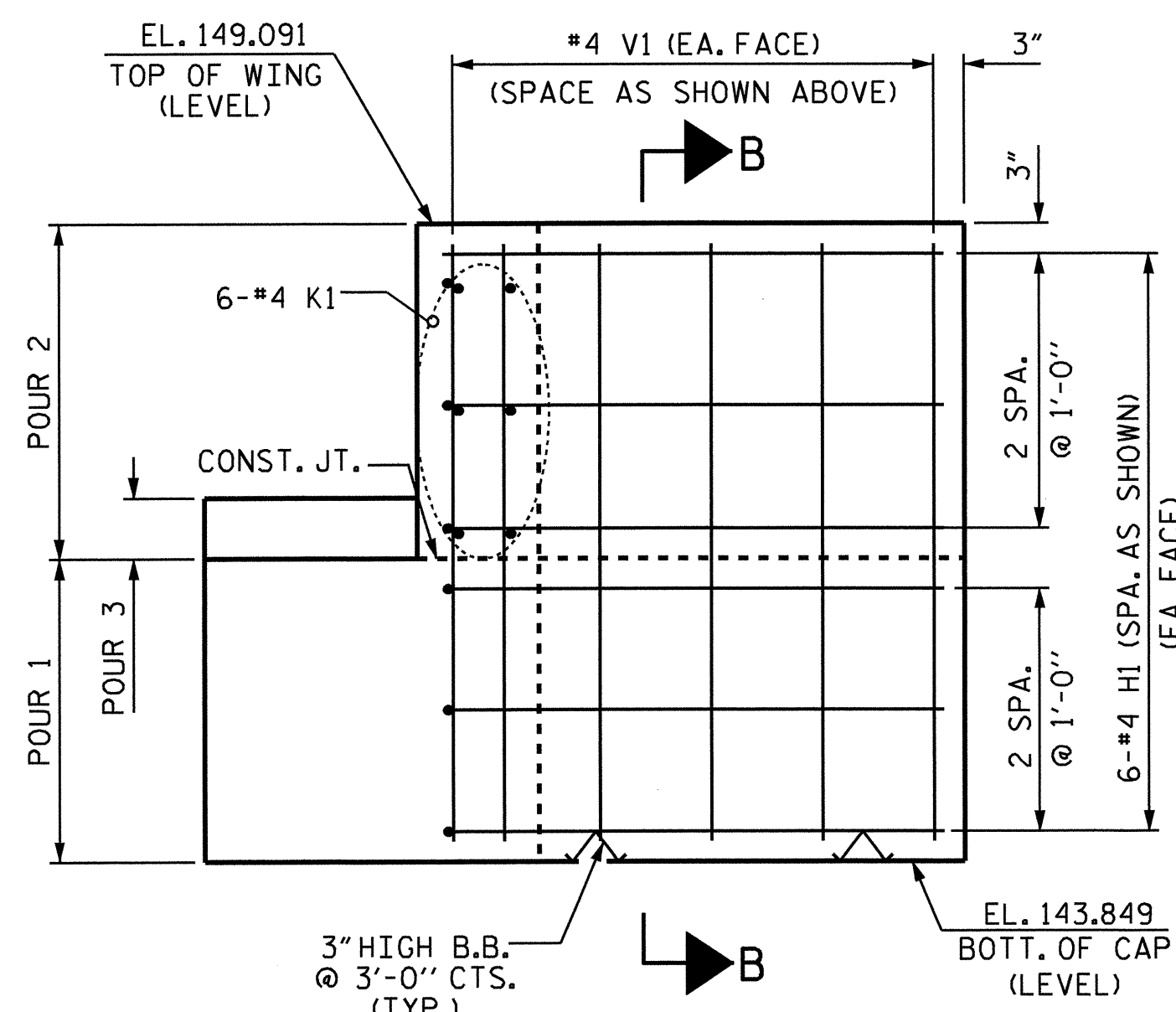
DRAWN BY: J. MYA DATE: 1-20-10
 CHECKED BY: M. FOWLER DATE: 4-30-10

17-OCT-2011 09:13
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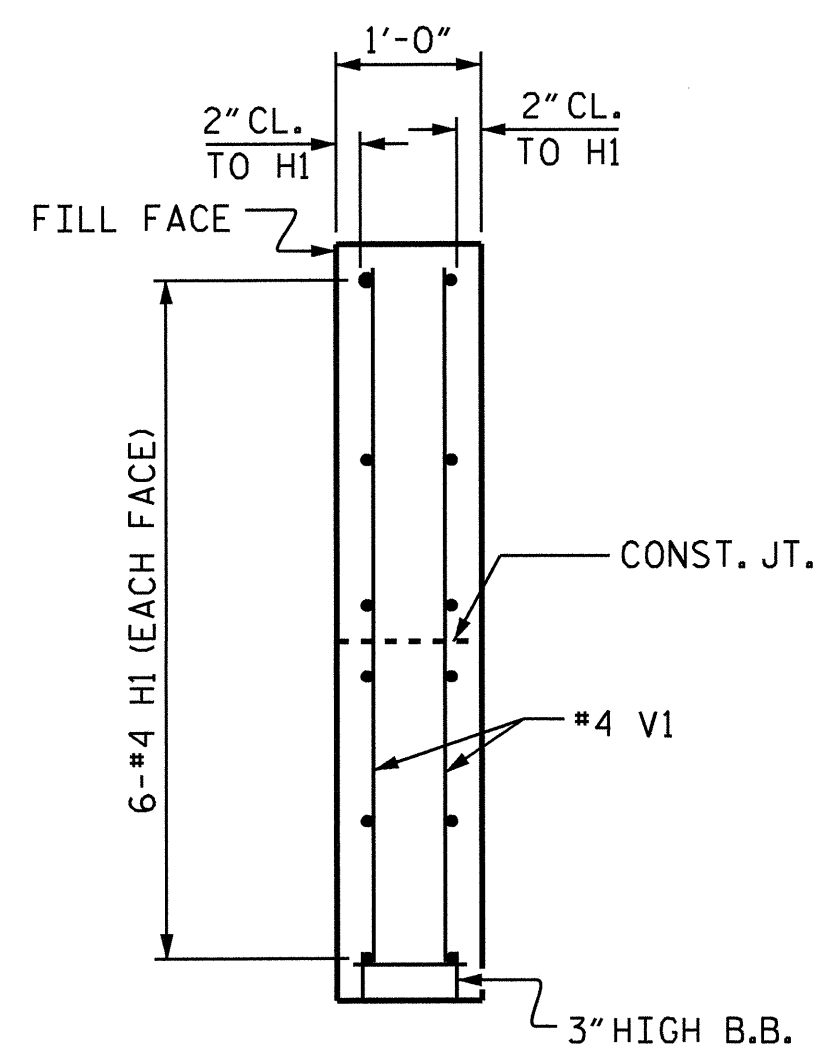
PLAN OF WING - W1

(WING 2 SIMILAR)

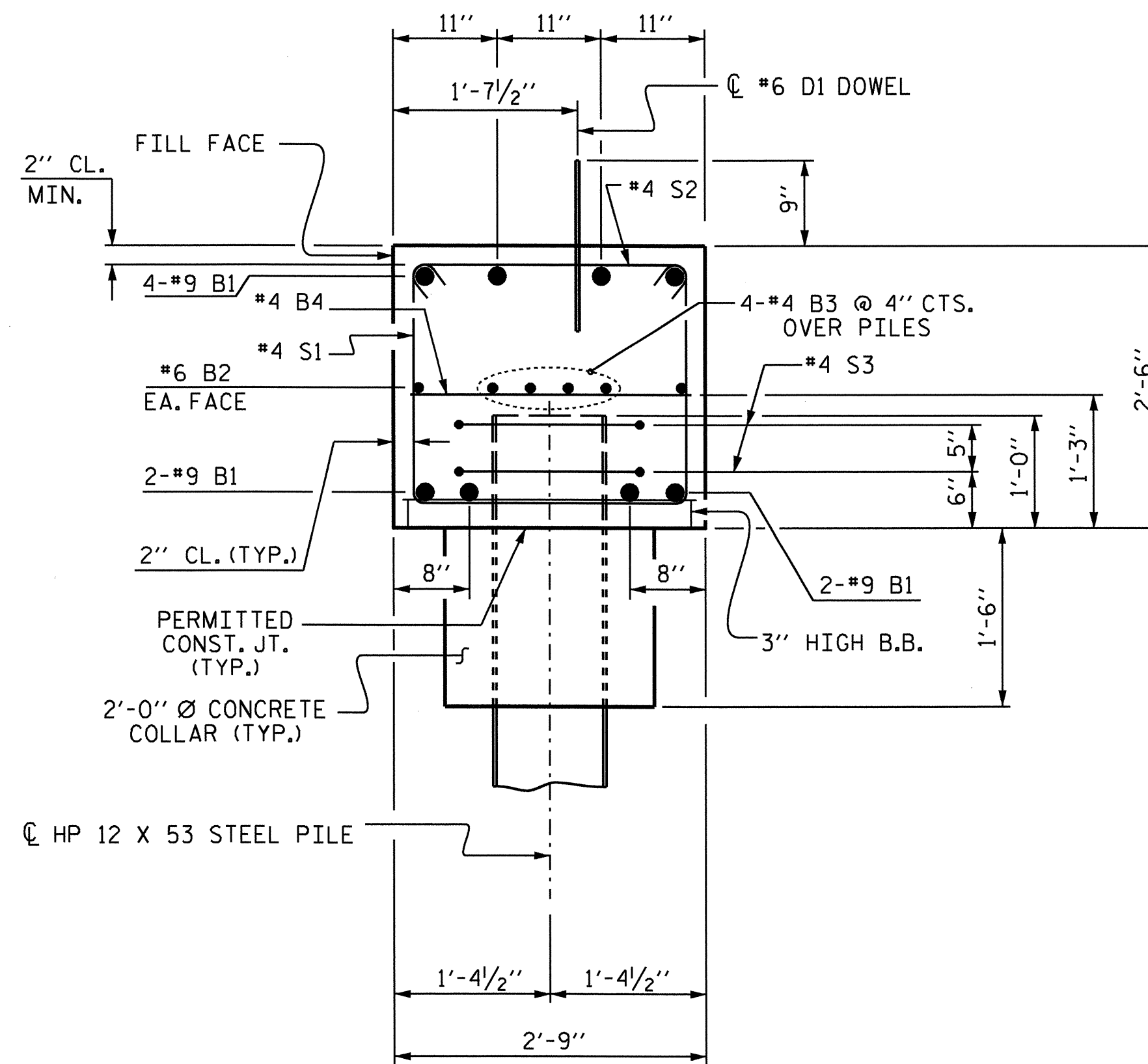


ELEVATION OF WING - W1

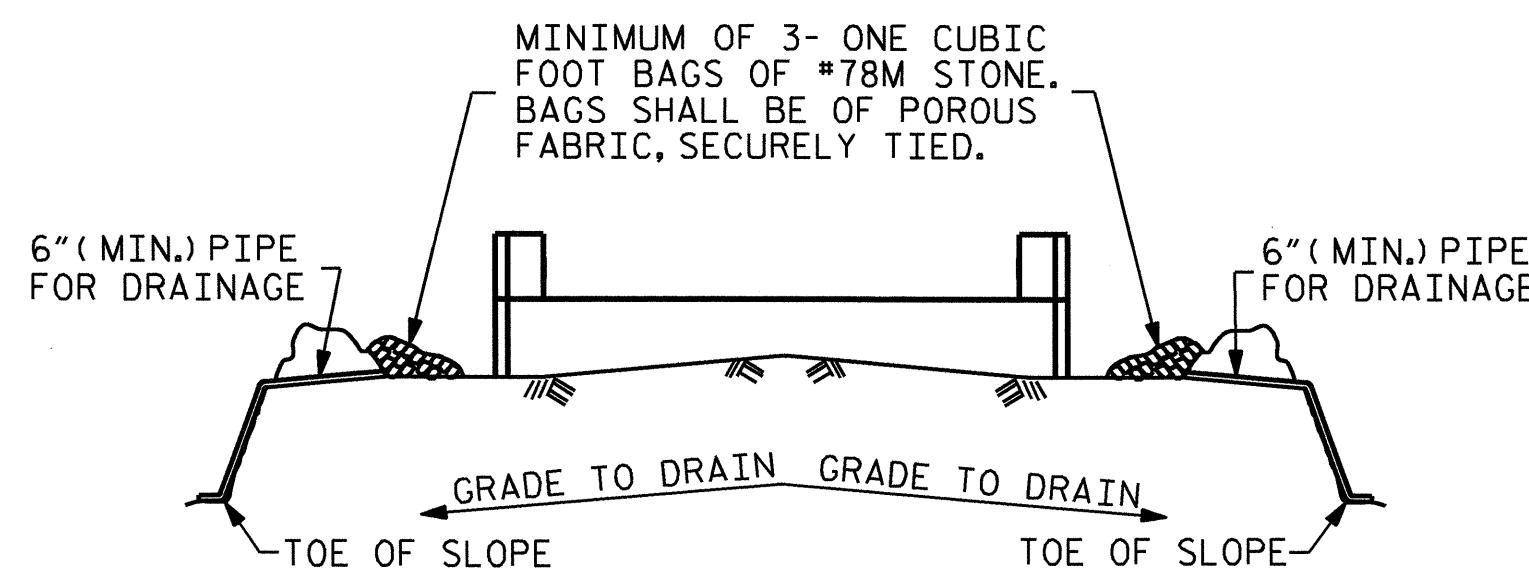
(WING 2 SIMILAR)



SECTION B-B



SECTION A-A

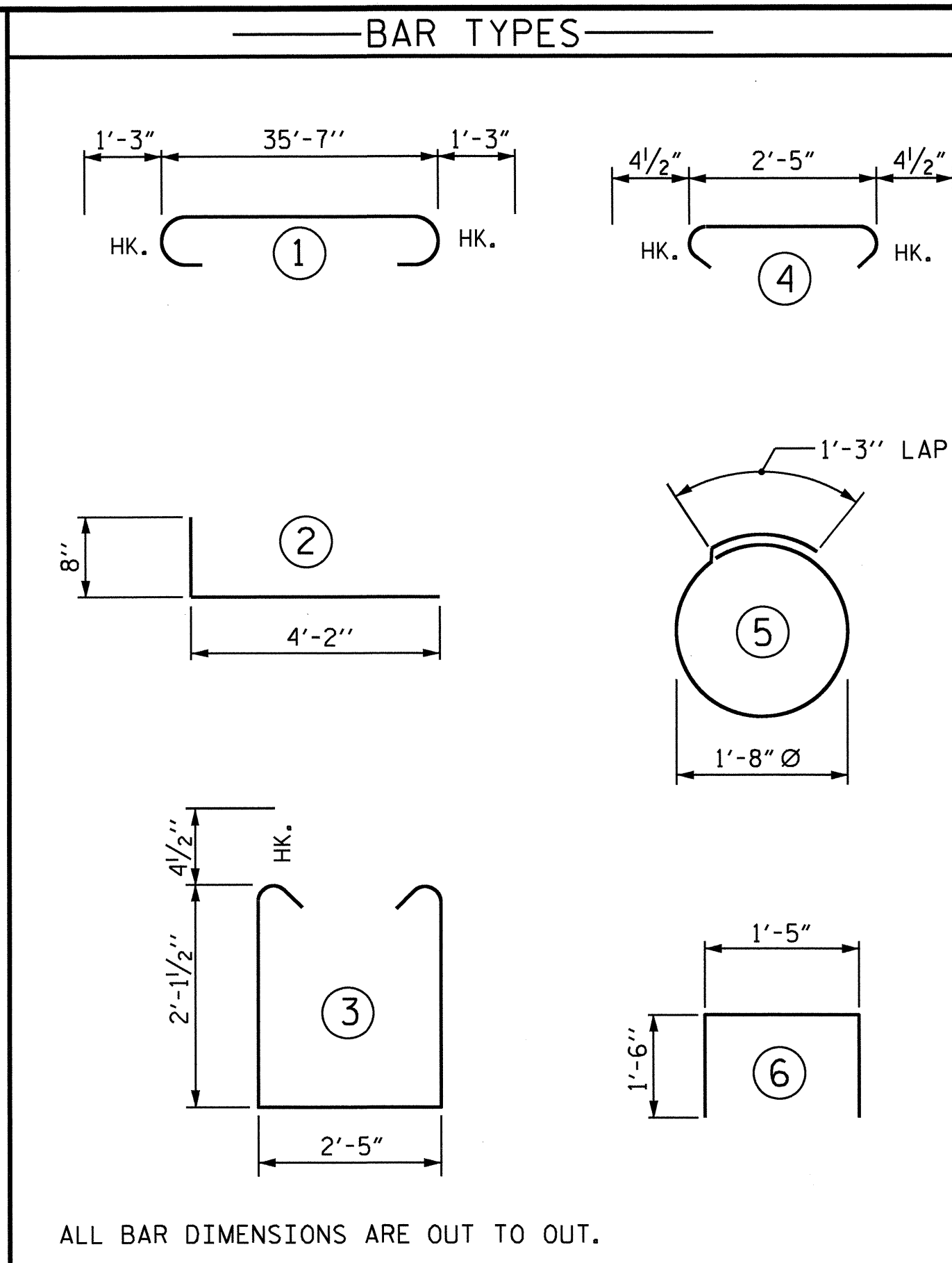


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

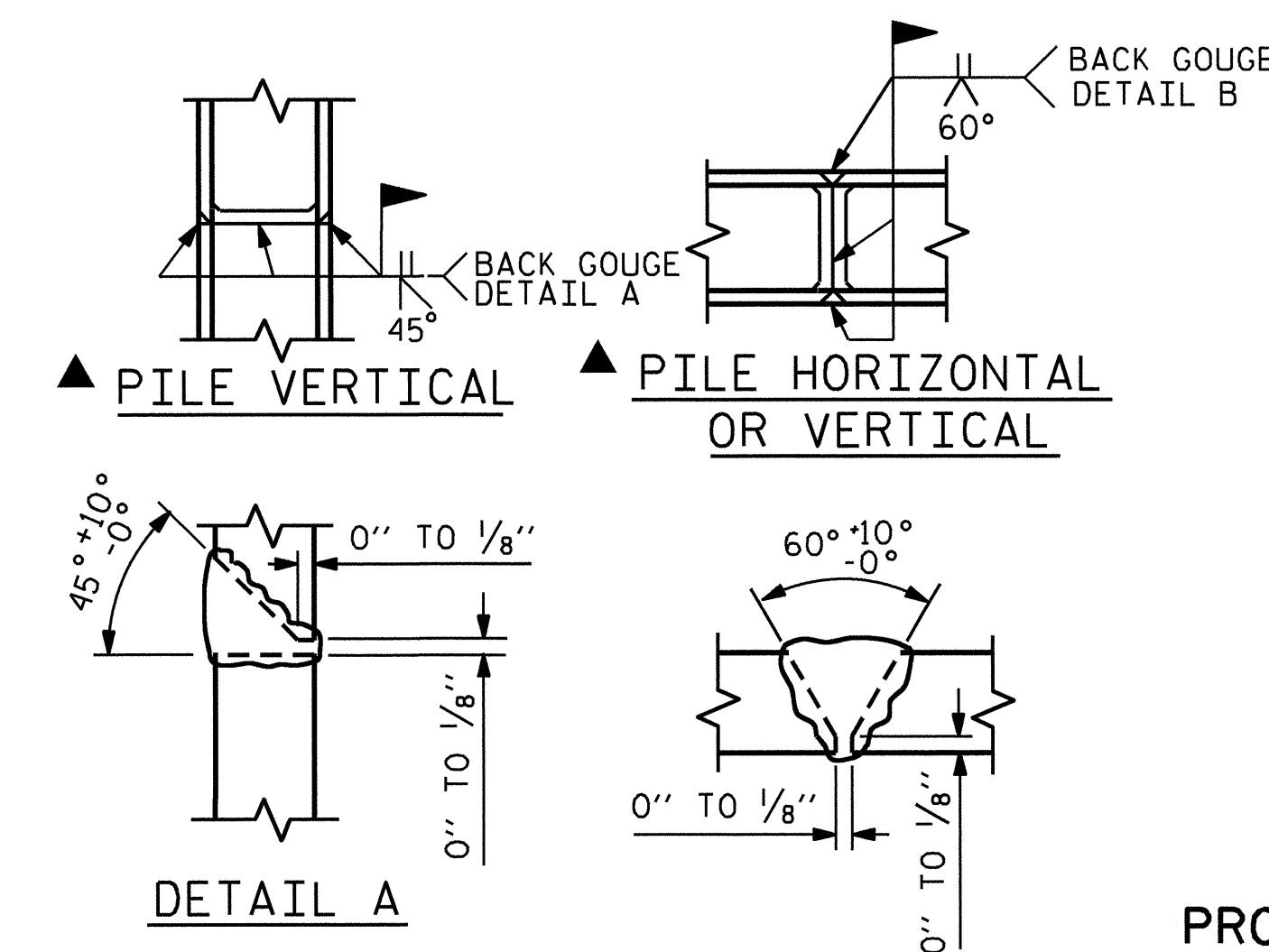
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

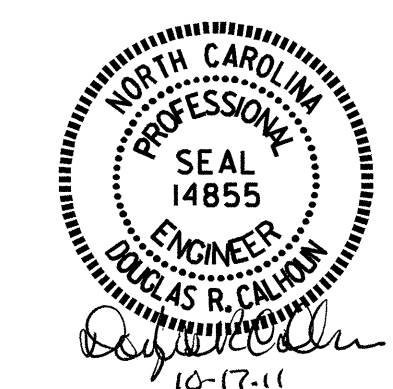


PILE SPLICE DETAILS

BILL OF MATERIAL					
END BENT 1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#8	#9	1	38'-1"	1036
B2	2	#6	STR	35'-8"	107
B3	8	#4	STR	19'-1"	102
B4	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	4'-10"	77
K1	12	#4	STR	2'-11"	23
S1	44	#4	3	7'-5"	218
S2	44	#4	4	3'-2"	93
S3	10	#4	5	6'-6"	43
U1	4	#4	6	4'-5"	12
V1	36	#4	STR	4'-11"	118
REINFORCING STEEL				LBS	1889
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP, CONCRETE COLLARS & LOWER PART OF WINGS)				C.Y.	10.7
POUR 2 (UPPER PART OF WINGS)				C.Y.	1.4
POUR 3 (LATERAL GUIDES)				C.Y.	0.1
TOTAL				C.Y.	12.2
HP 12 X 53 STEEL PILES :					
NO. : 5				LIN. FT. :	150

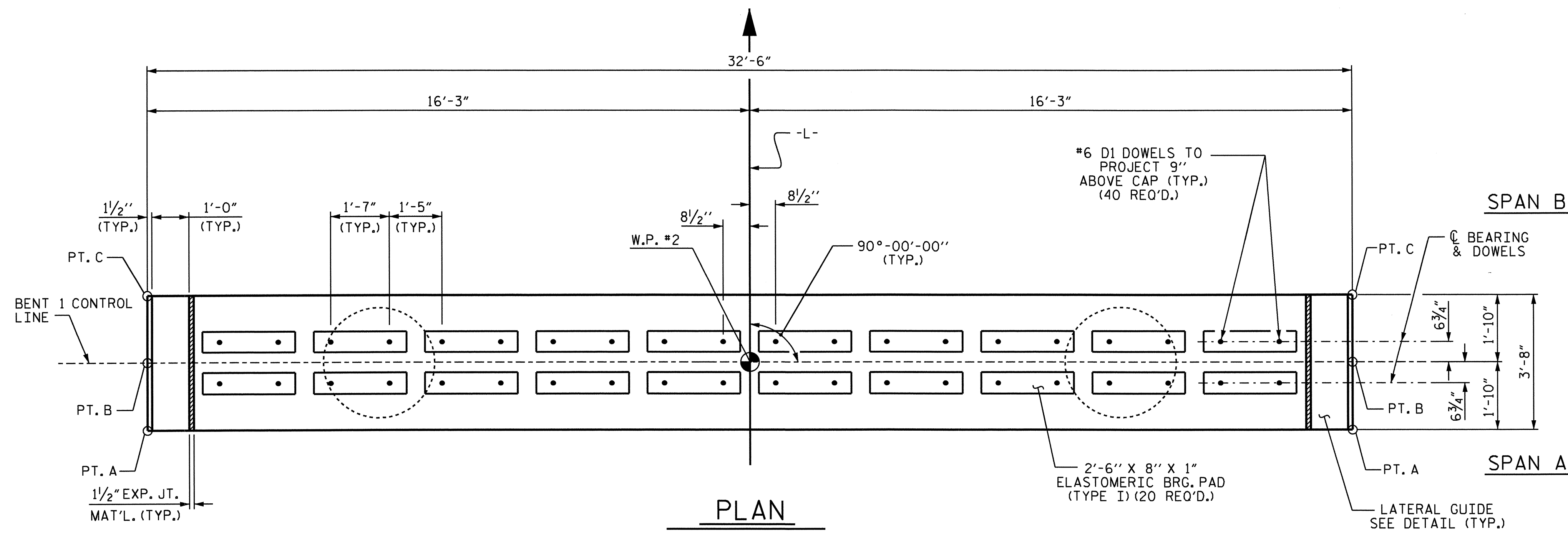
PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1



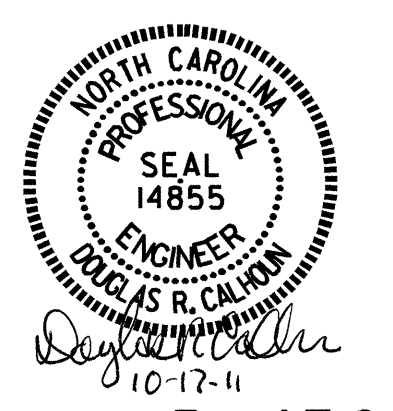
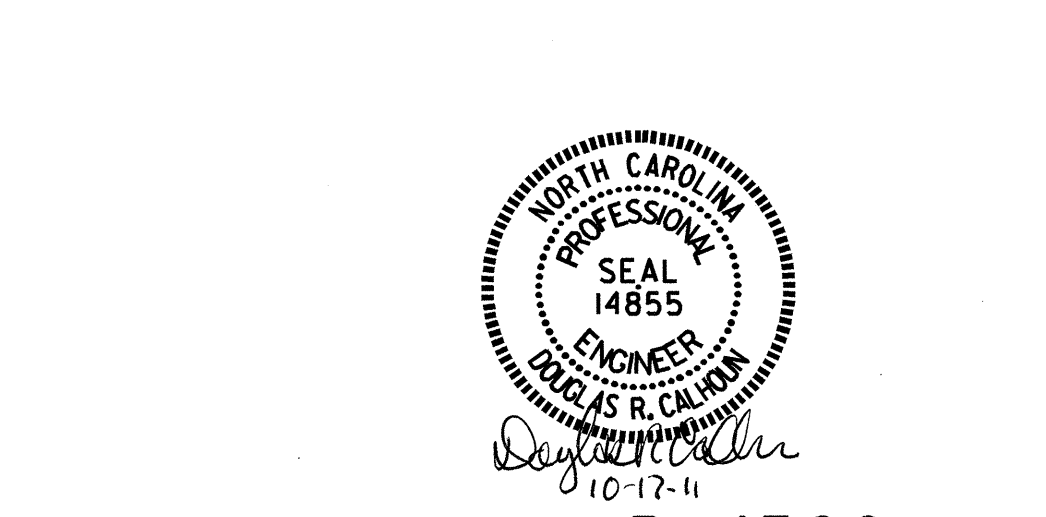
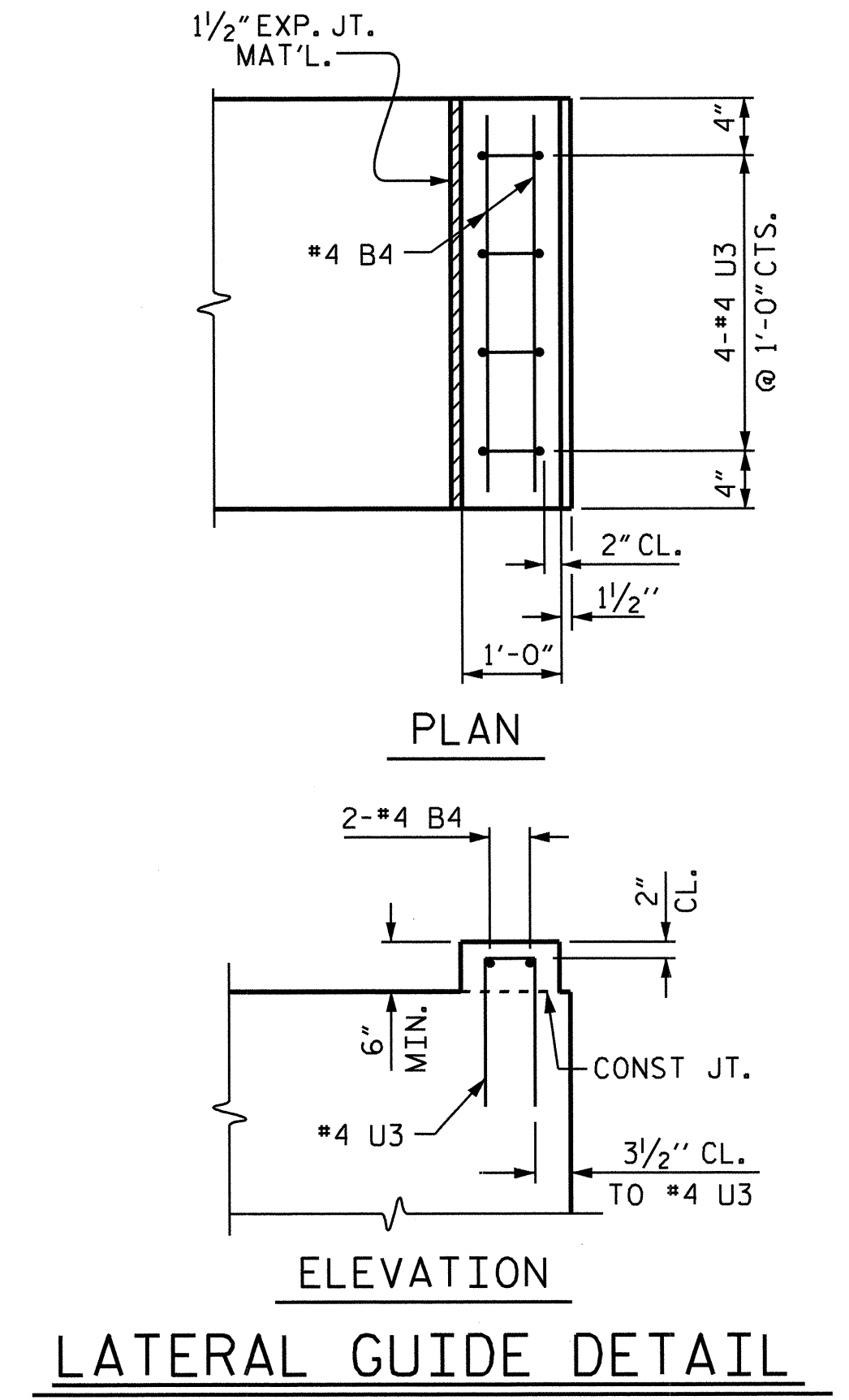
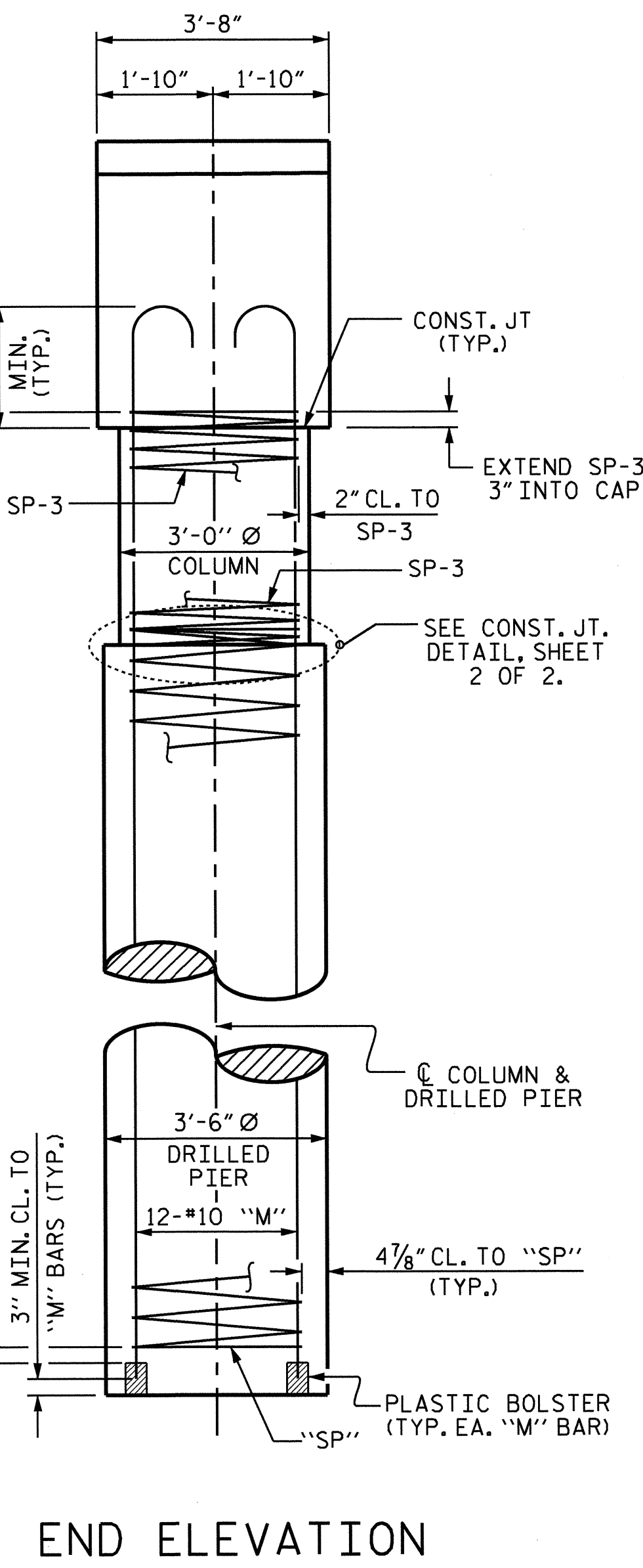
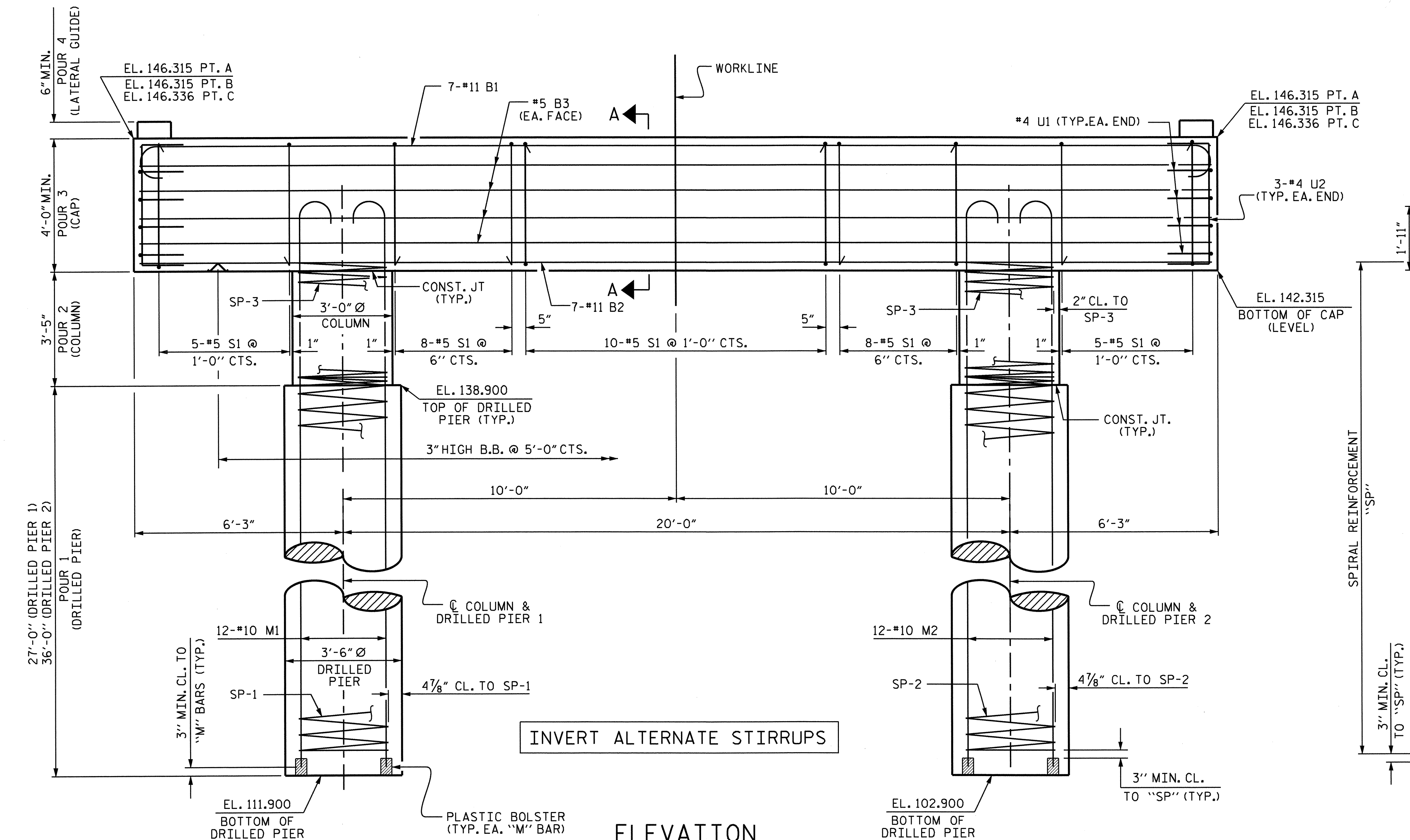
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : J. MYA DATE : 1-20-10
 CHECKED BY : M. FOWLER DATE : 4-30-10



NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
 THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
 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 HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.



PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

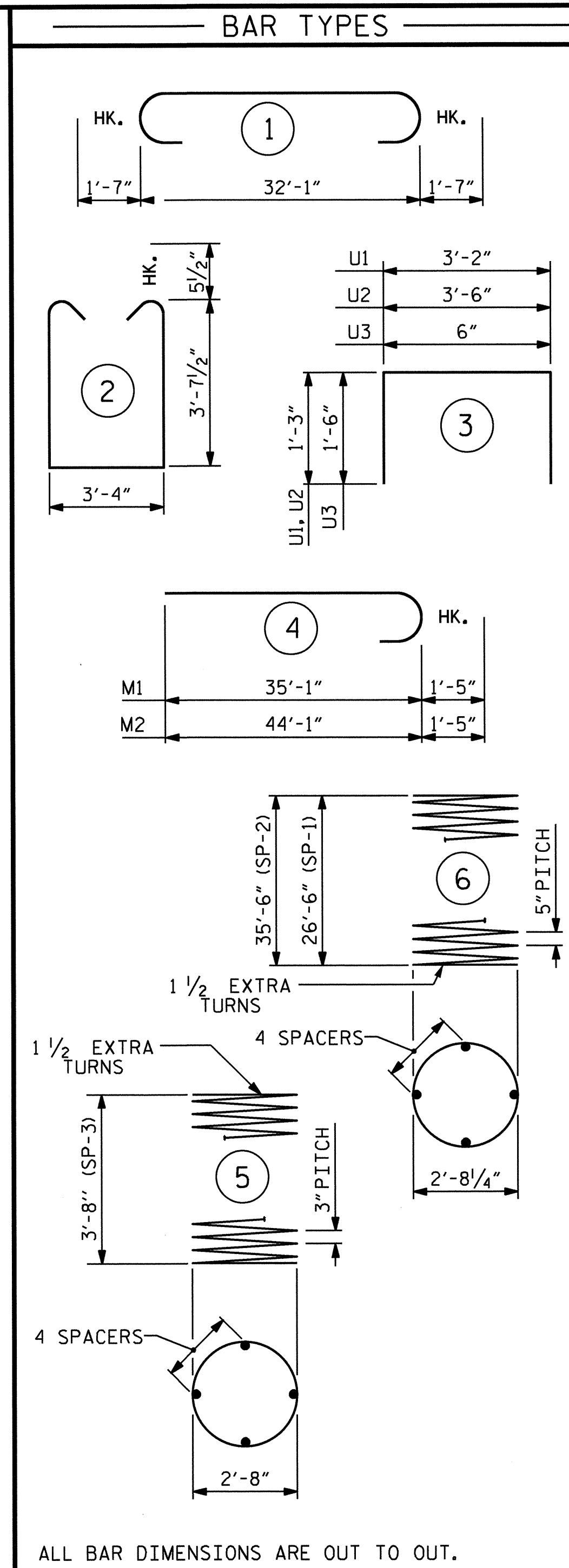
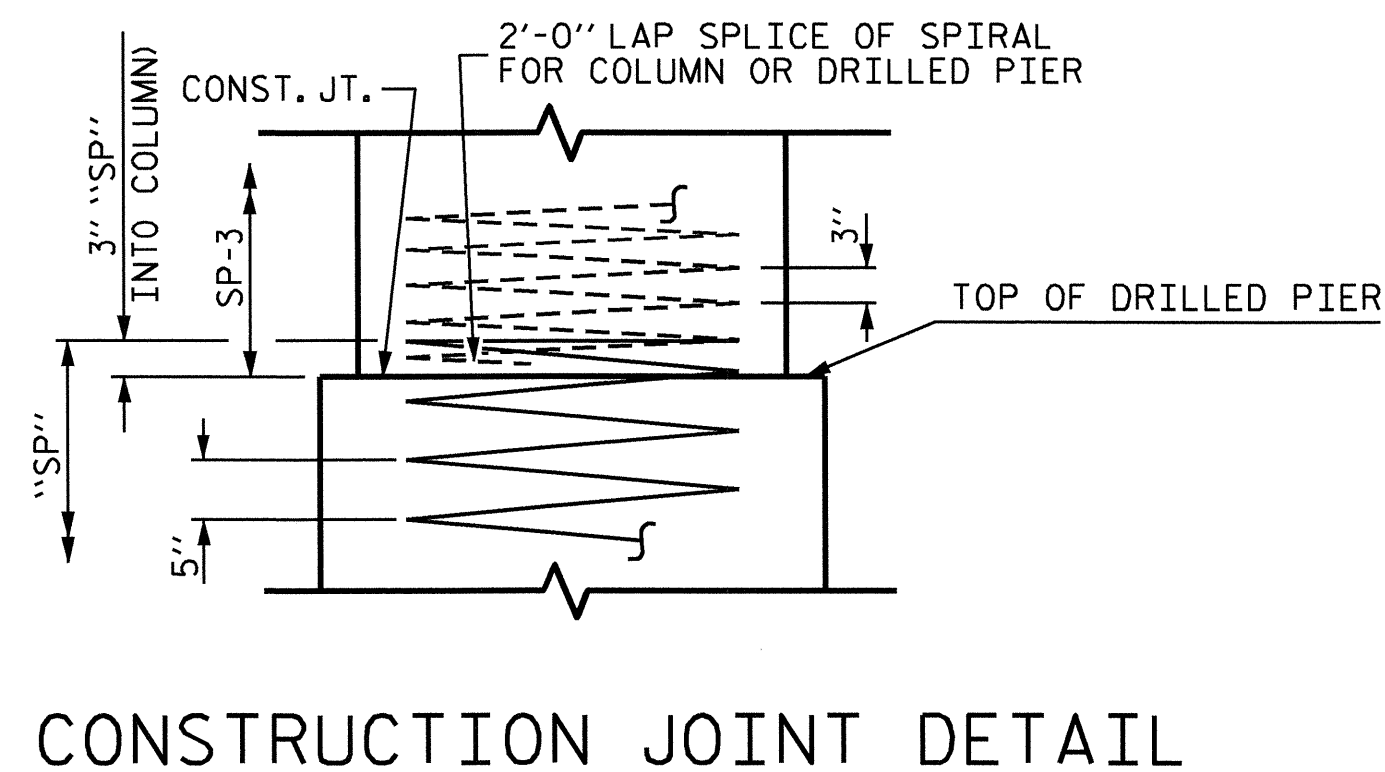
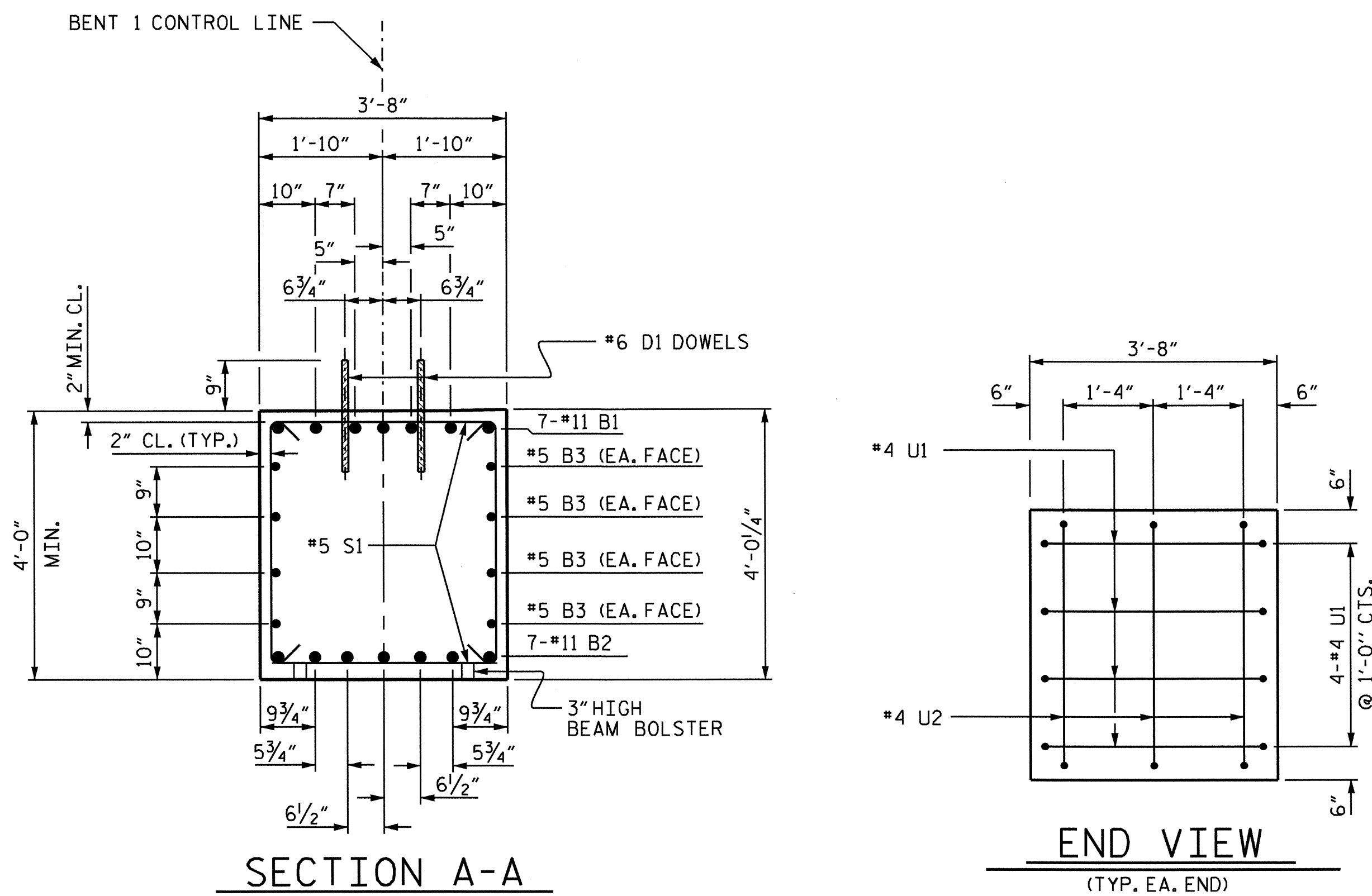
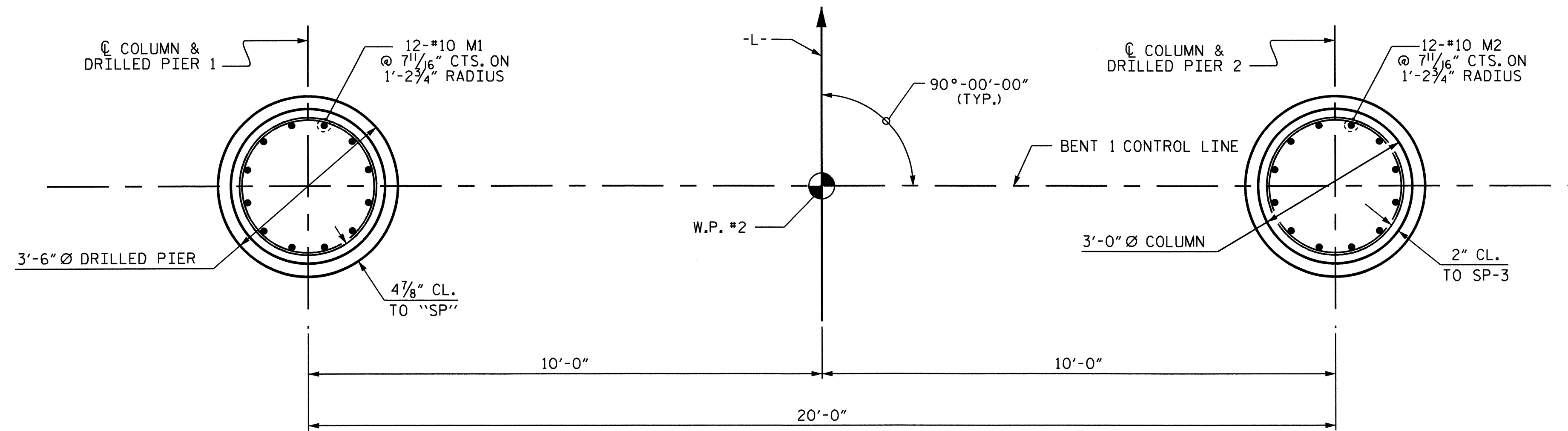
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			42

DRAWN BY: J. MYA DATE: 8-5-11
 CHECKED BY: K. P. SEDAİ DATE: 8-8-11

13-SEP-2011 08:44
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 jmya

ELEVATION
 (REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER EXCEPT WHERE NOTED)

END ELEVATION



BILL OF MATERIAL					
BENT 1					
BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#11	1	35'-3"	1311
B2	7	#11	STR	32'-2"	1196
B3	8	#5	STR	32'-2"	268
B4	4	#4	STR	3'-4"	9
D1	40	#6	STR	1'-6"	90
S1	36	#5	2	11'-6"	432
U1	8	#4	3	5'-8"	30
U2	6	#4	3	6'-0"	24
U3	8	#4	3	3'-6"	19
M1	12	#10	4	36'-6"	1885
M2	12	#10	4	45'-6"	2349
REINFORCING STEEL					LBS. 7613
SP-1	1	**	6	540'-11"	564
SP-2	1	**	6	719'-2"	750
SP-3	2	*	5	134'-1"	179
SPIRAL COLUMN REINFORCING STEEL					LBS. 1493

CLASS A CONCRETE BREAKDOWN			
POUR #2 (COLUMNS)	C.Y.	1.8	
POUR #3 (CAP)	C.Y.	17.7	
POUR #4 (LATERAL GUIDES)	C.Y.	0.1	
TOTAL CLASS A CONCRETE	C.Y.	19.6	

DRILLED PIERS	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	C.Y. 22.5
3'-6" Ø DRILLED PIERS:	63.0 LIN. FT.
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	41.80 LIN. FT.
▲ CSL TUBES	272.0 LIN. FT.

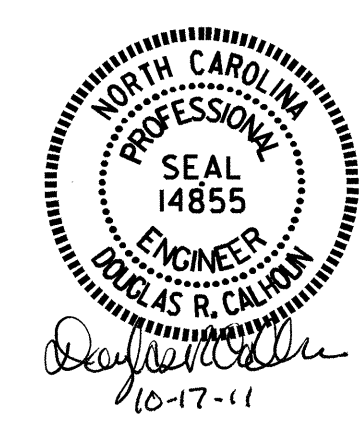
* THE SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

PROJECT NO. B-4560
JOHNSTON COUNTY
STATION: 17+87.50 -L-

SHEET 2 OF 2

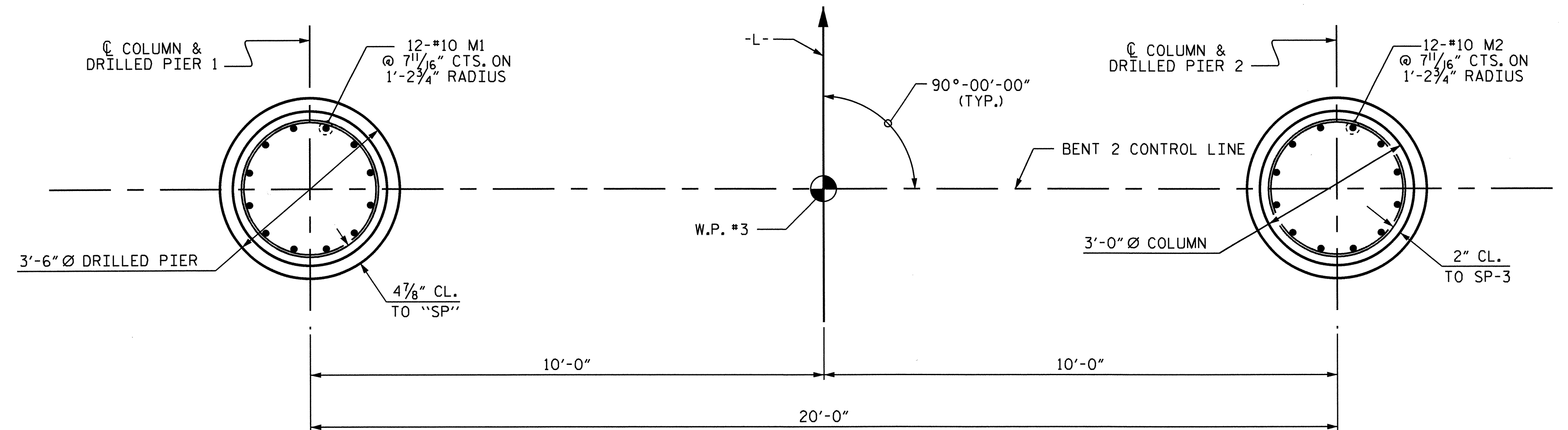
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

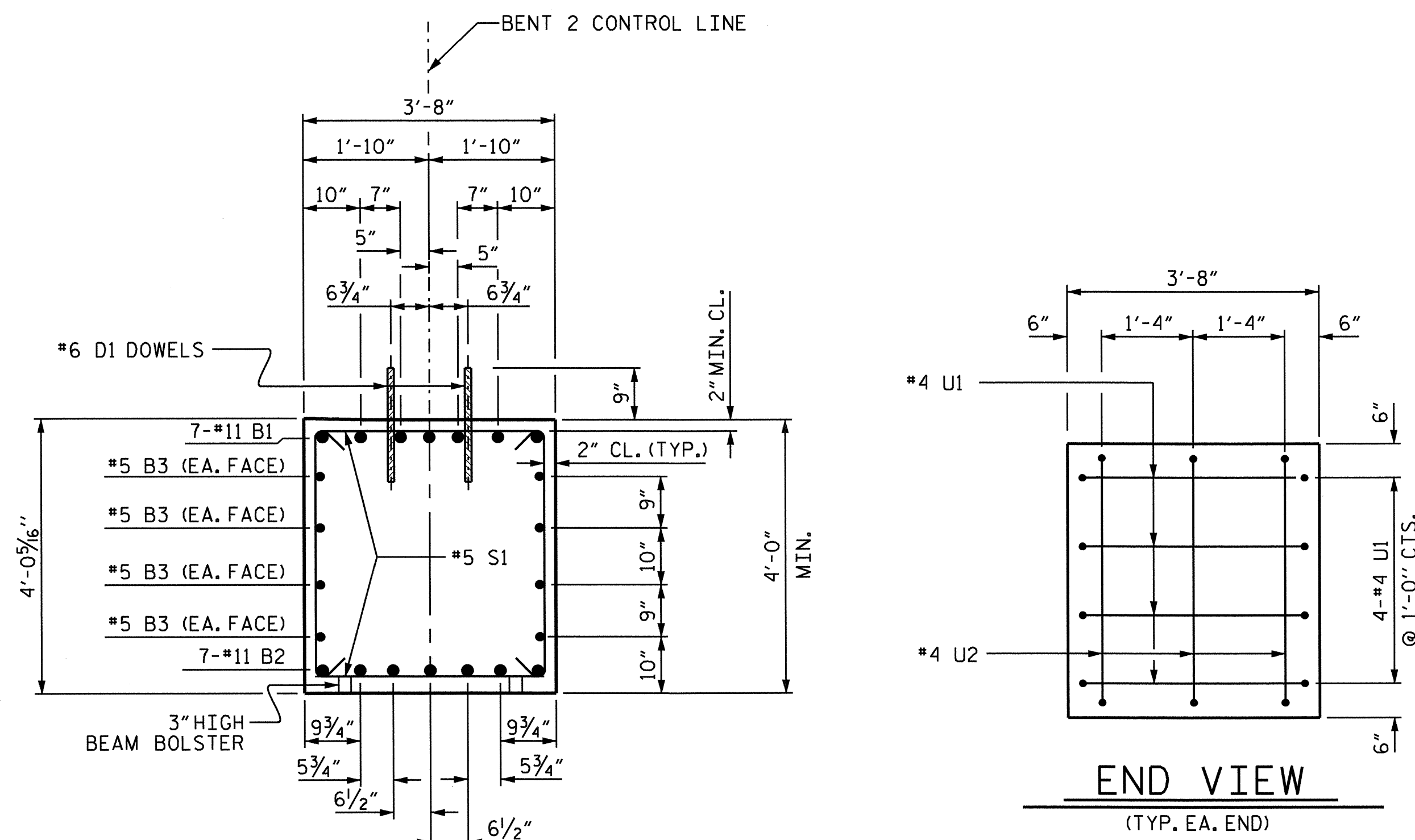


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS 42
2			4			

DRAWN BY: J. MYA DATE: 8-5-11
CHECKED BY: K. P. SEDAI DATE: 8-8-11

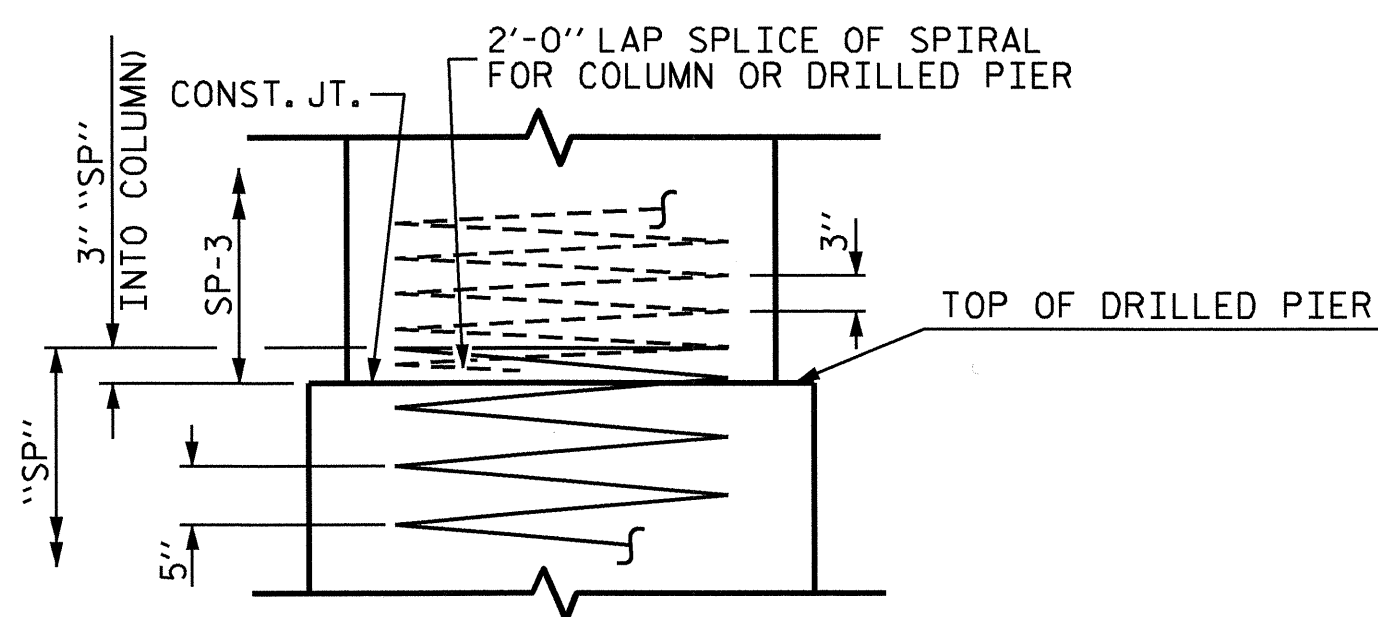


PLAN OF COLUMNS AND DRILLED PIERS
 (REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)

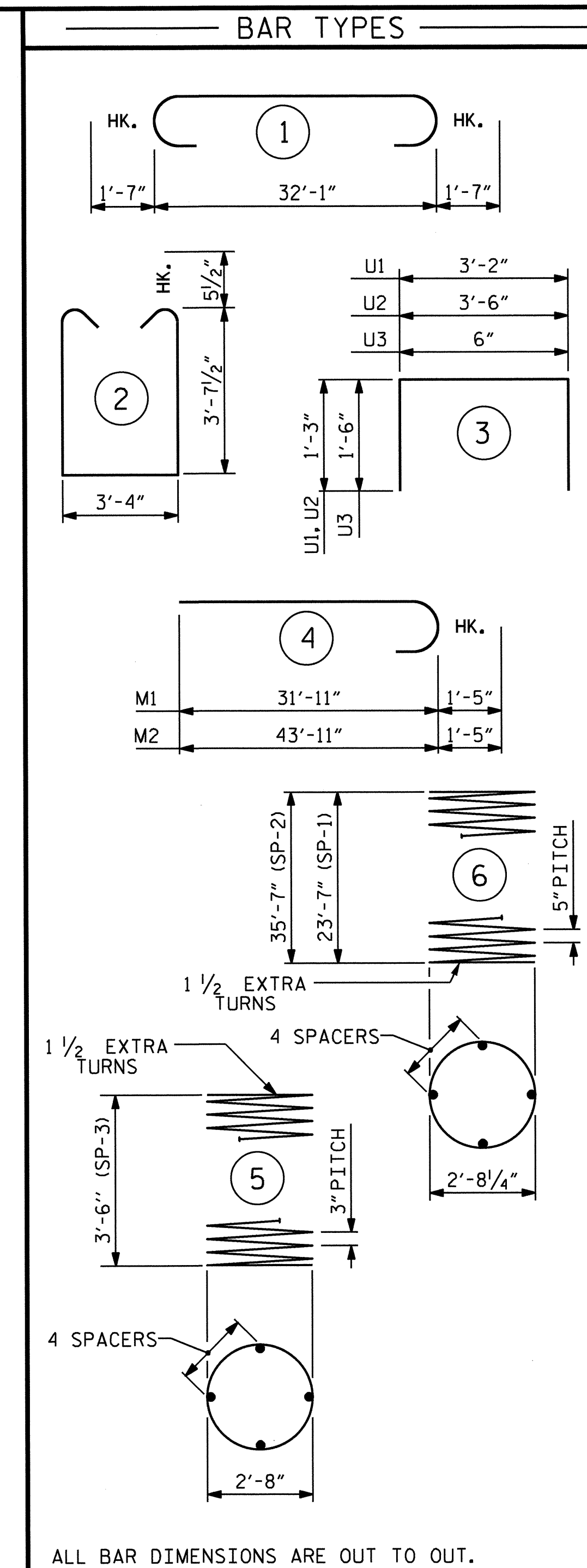


SECTION A-A

END VIEW
 (TYP. EA. END)



CONSTRUCTION JOINT DETAIL



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 2

BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#11	1	35'-3"	1311
B2	7	#11	STR	32'-2"	1196
B3	8	#5	STR	32'-2"	268
B4	4	#4	STR	3'-4"	9
D1	40	#6	STR	1'-6"	90
S1	36	#5	2	11'-6"	432
U1	8	#4	3	5'-8"	30
U2	6	#4	3	6'-0"	24
U3	8	#4	3	3'-6"	19
M1	12	#10	4	33'-4"	1721
M2	12	#10	4	45'-4"	2341
REINFORCING STEEL				LBS.	7441

SP-1	1	**	6	480'-10"	502
SP-2	1	**	6	719'-2"	750
SP-3	2	*	5	127'-11"	171

SPIRAL COLUMN REINFORCING STEEL				LBS.	1423
---------------------------------	--	--	--	------	------

CLASS A CONCRETE BREAKDOWN		
POUR #2 (COLUMNS)	C.Y.	1.7
POUR #3 (CAP)	C.Y.	17.7
POUR #4 (LATERAL GUIDES)	C.Y.	0.1
TOTAL CLASS A CONCRETE	C.Y.	19.5

DRILLED PIERS

DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	C.Y. 21.4

3'-6" Ø DRILLED PIERS:	60.0 LIN. FT.
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PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	37.80 LIN. FT.
---	----------------

▲ CSL TUBES	260.0 LIN. FT.
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* THE SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

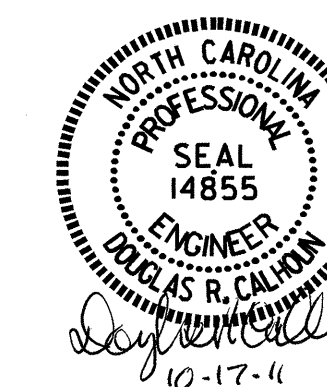
▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-

SHEET 2 OF 2

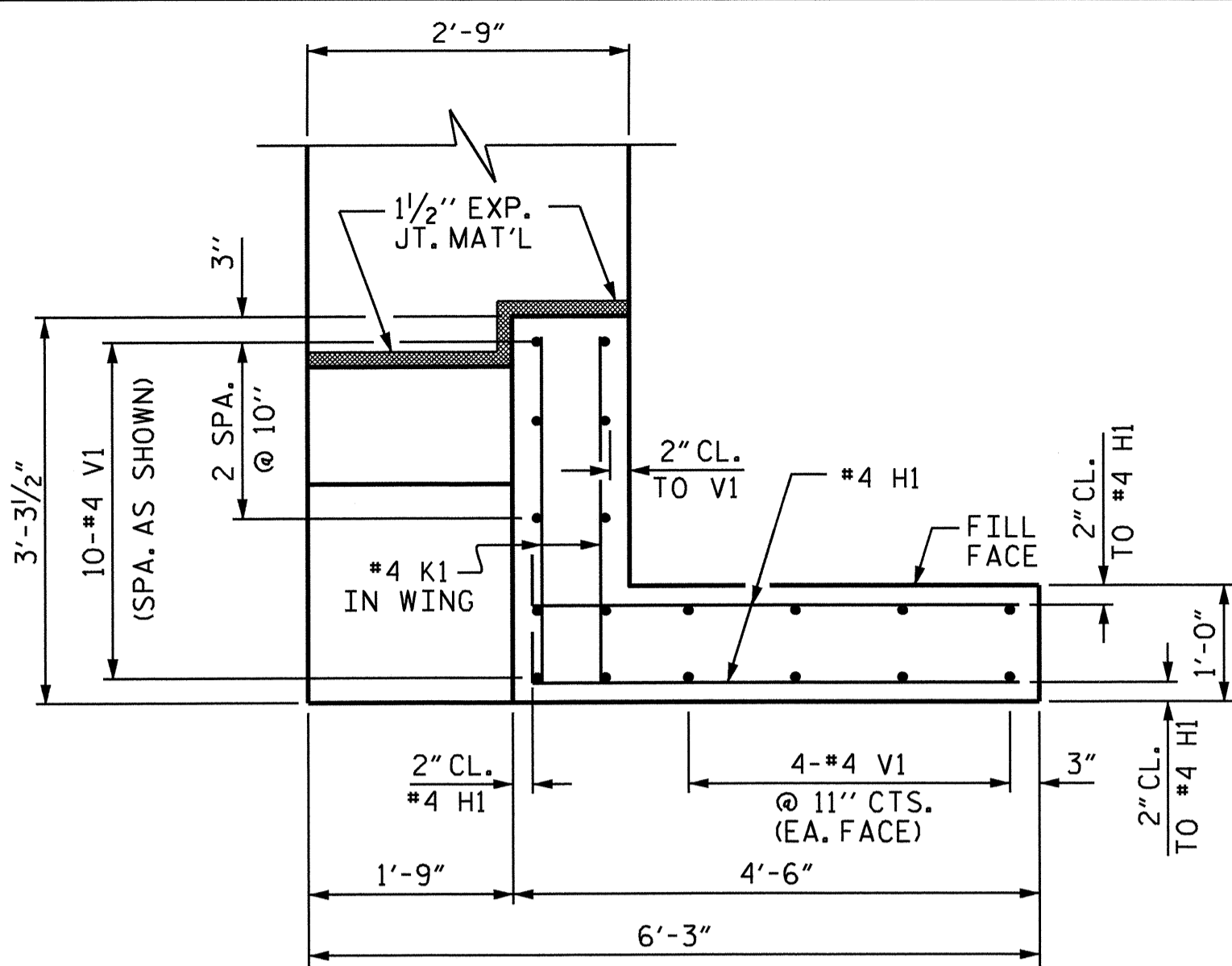
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE BENT 2

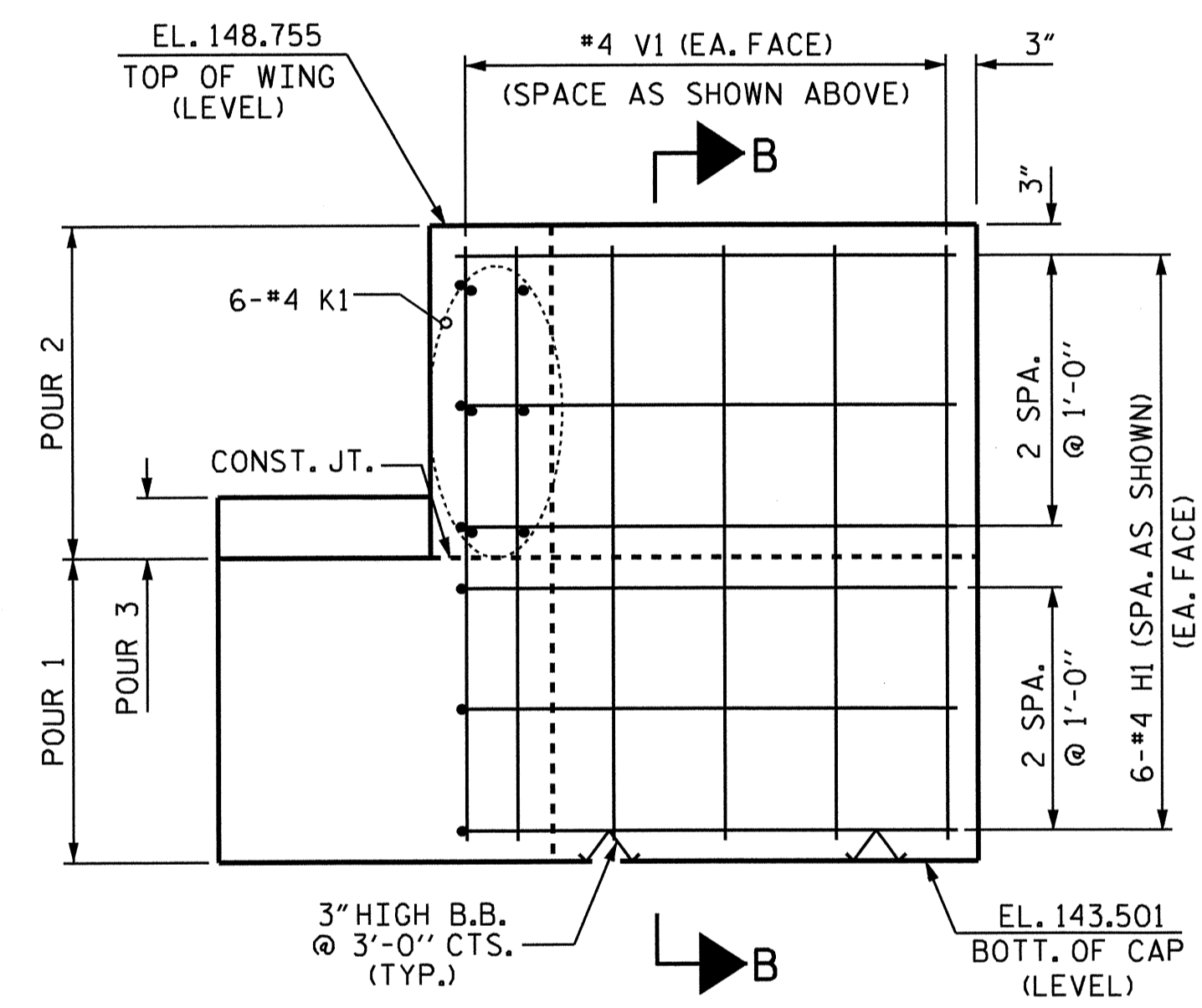


DRAWN BY: J. MYA DATE: 8-5-11
 CHECKED BY: K. P. SEDAII DATE: 8-8-11

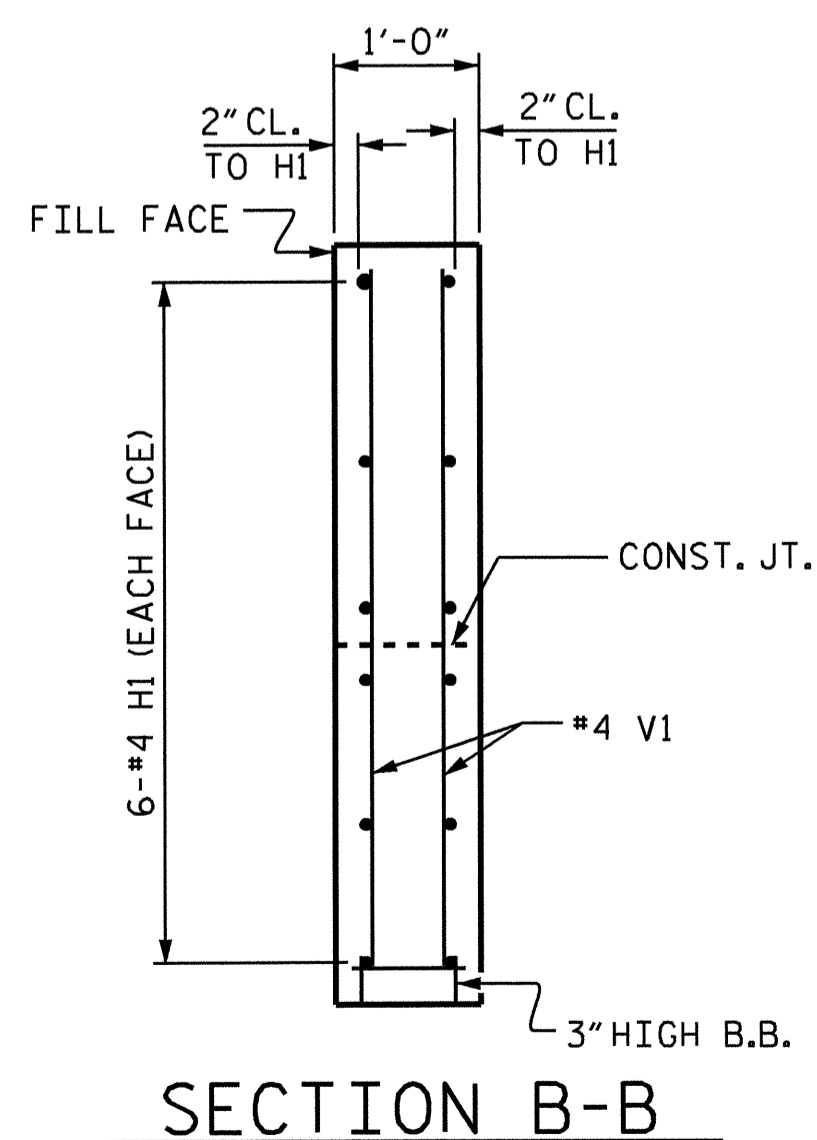
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			42



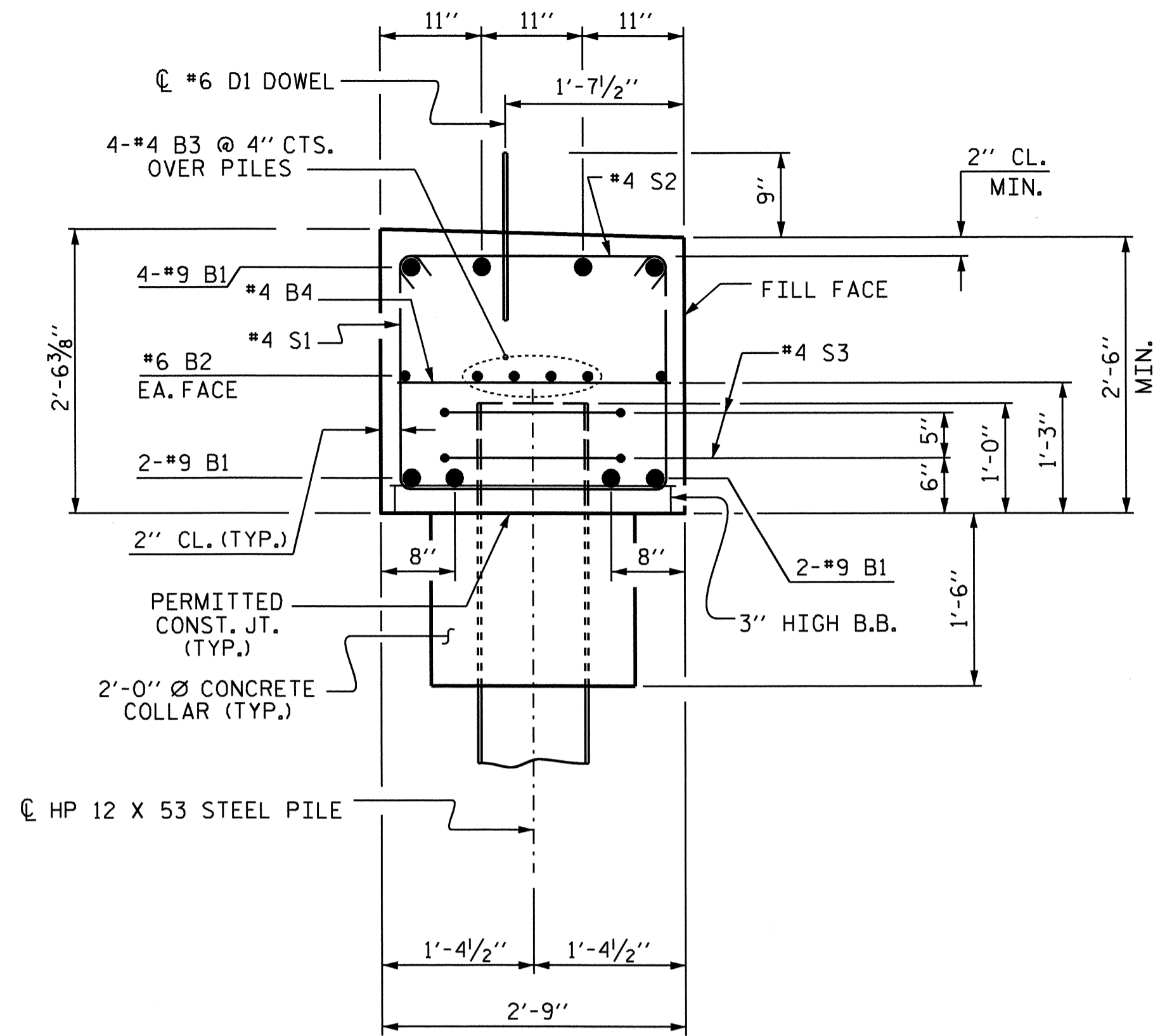
PLAN OF WING - W2
(WING 1 SIMILAR)



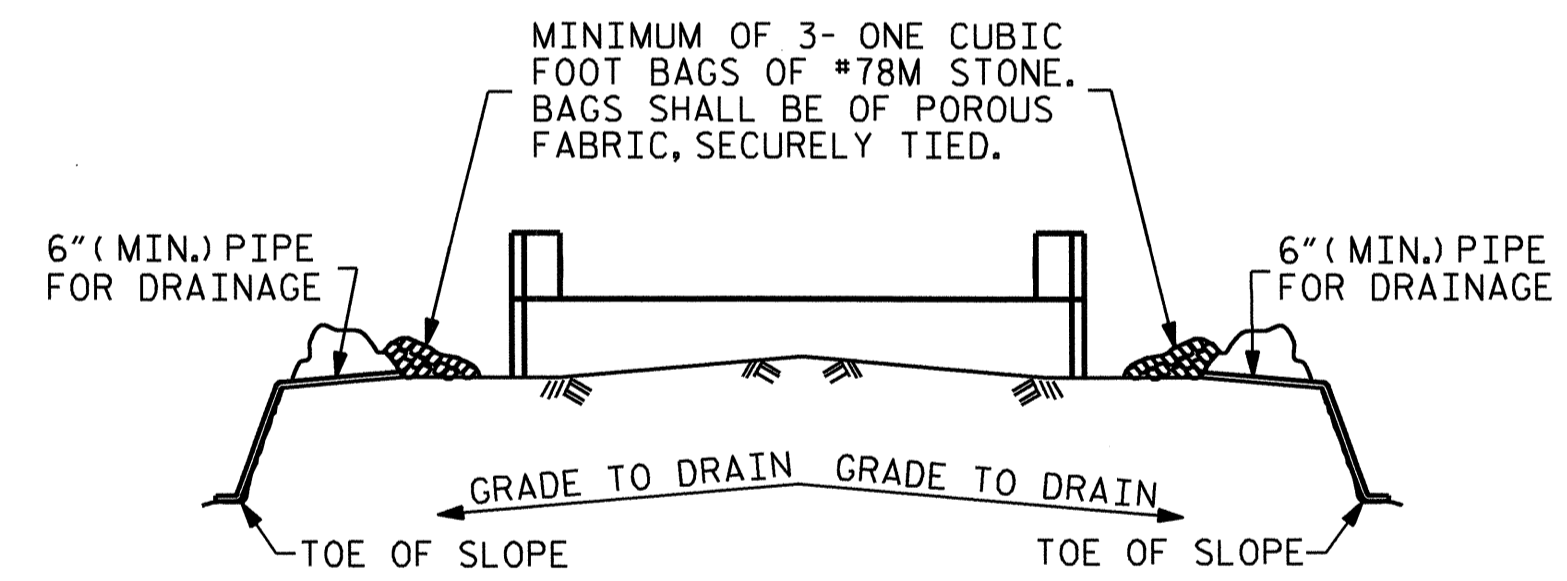
ELEVATION OF WING - W2
(WING 1 SIMILAR)



SECTION B-B



SECTION A-A

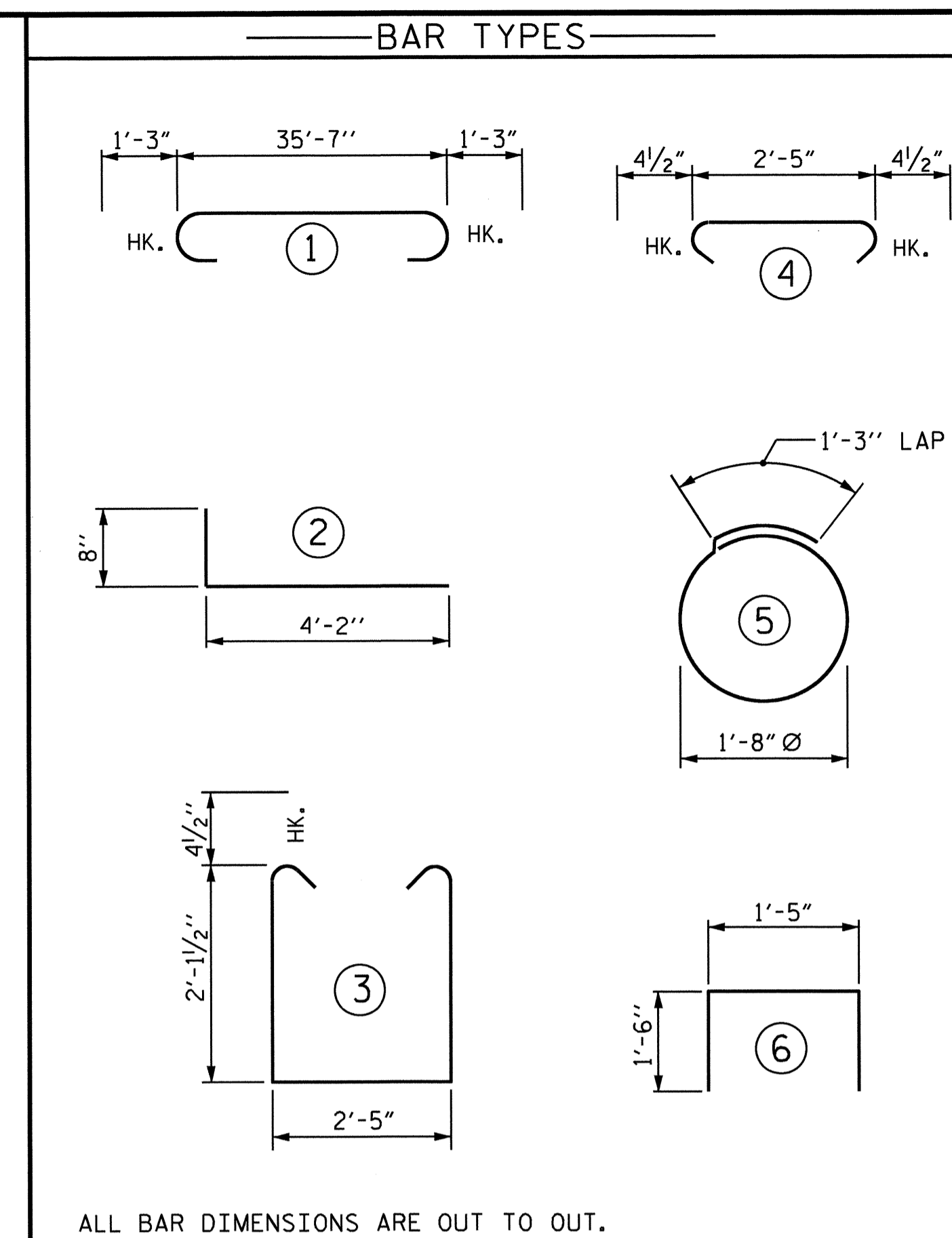


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

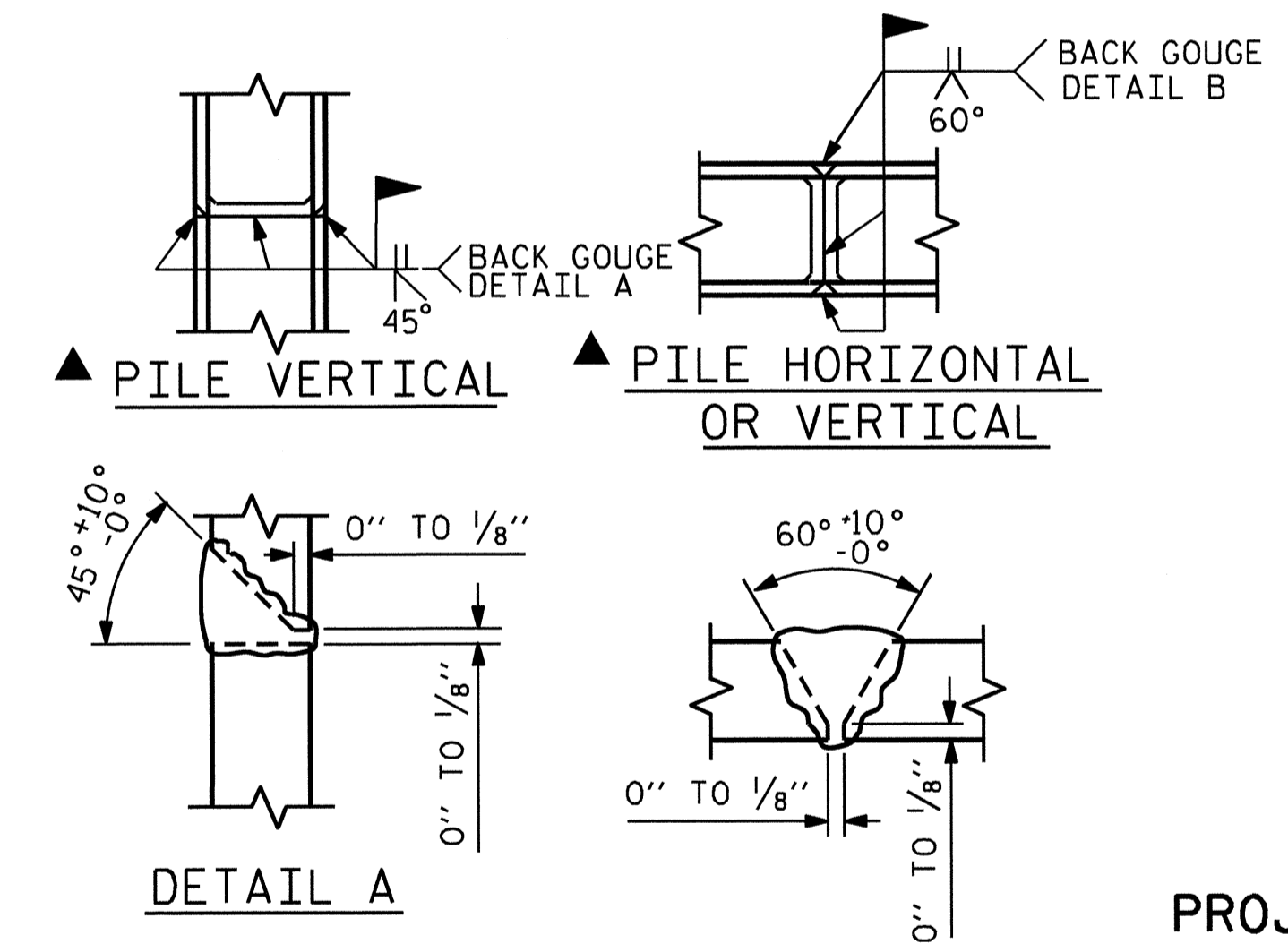
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#9	1	38'-1"	1036	
B2	#6	STR	35'-8"	107	
B3	#4	STR	19'-1"	102	
B4	#4	STR	2'-5"	15	
D1	#6	STR	1'-6"	45	
H1	#4	2	4'-10"	77	
K1	#4	STR	2'-11"	23	
S1	#4	3	7'-5"	218	
S2	#4	4	3'-2"	93	
S3	#4	5	6'-6"	43	
U1	#4	6	4'-5"	12	
V1	#4	STR	4'-11"	118	
REINFORCING STEEL			LBS	1889	
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP, CONCRETE COLLARS & LOWER PART OF WINGS)				C.Y.	10.8
POUR 2 (UPPER PART OF WINGS)				C.Y.	1.4
POUR 3 (LATERAL GUIDES)				C.Y.	0.1
TOTAL				C.Y.	12.3
HP 12 X 53 STEEL PILES :					
NO. : 5				LIN. FT. :	125

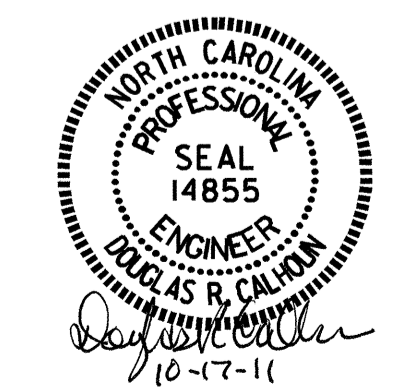


PILE SPLICE DETAILS

PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-
 SHEET 2 OF 2

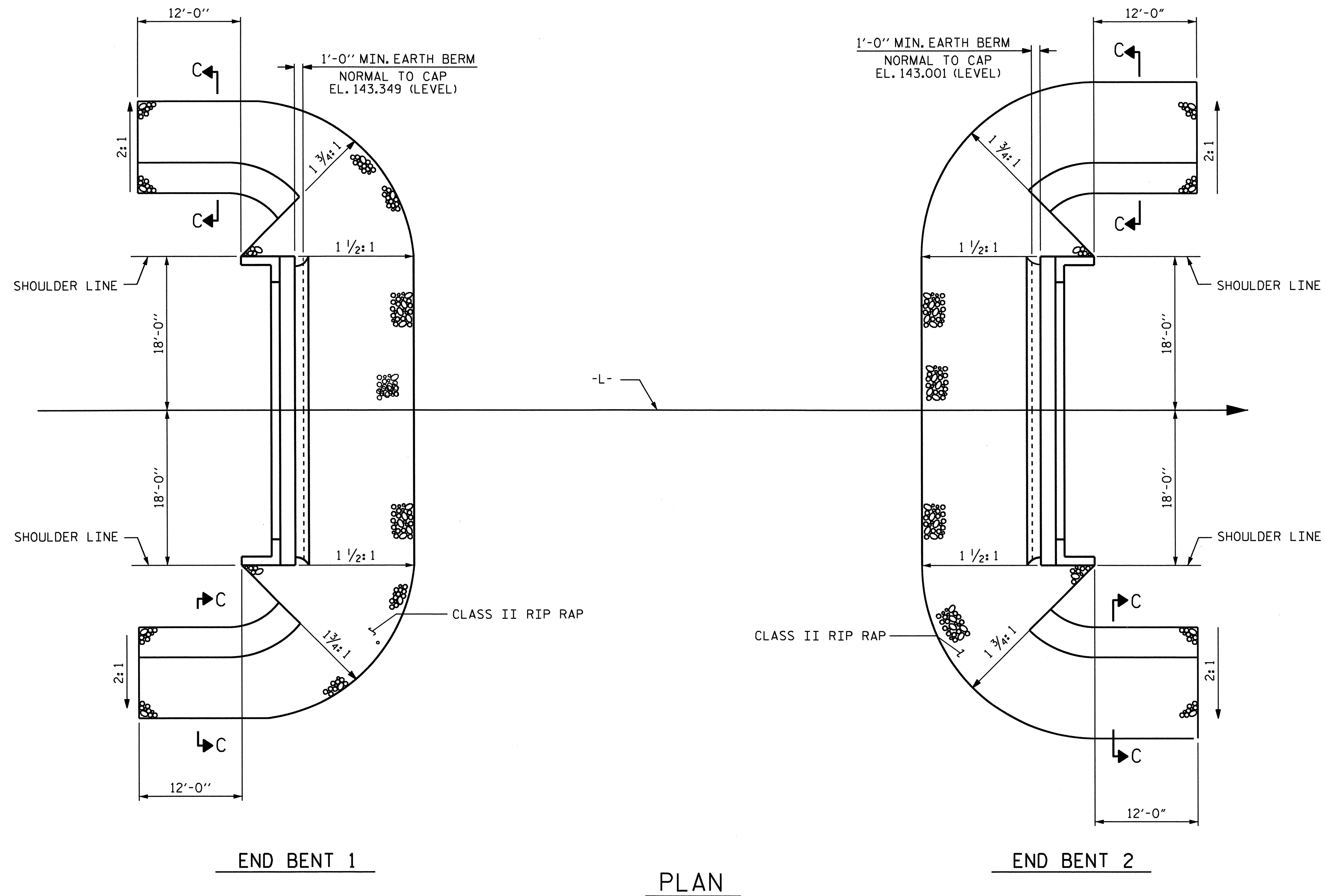
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

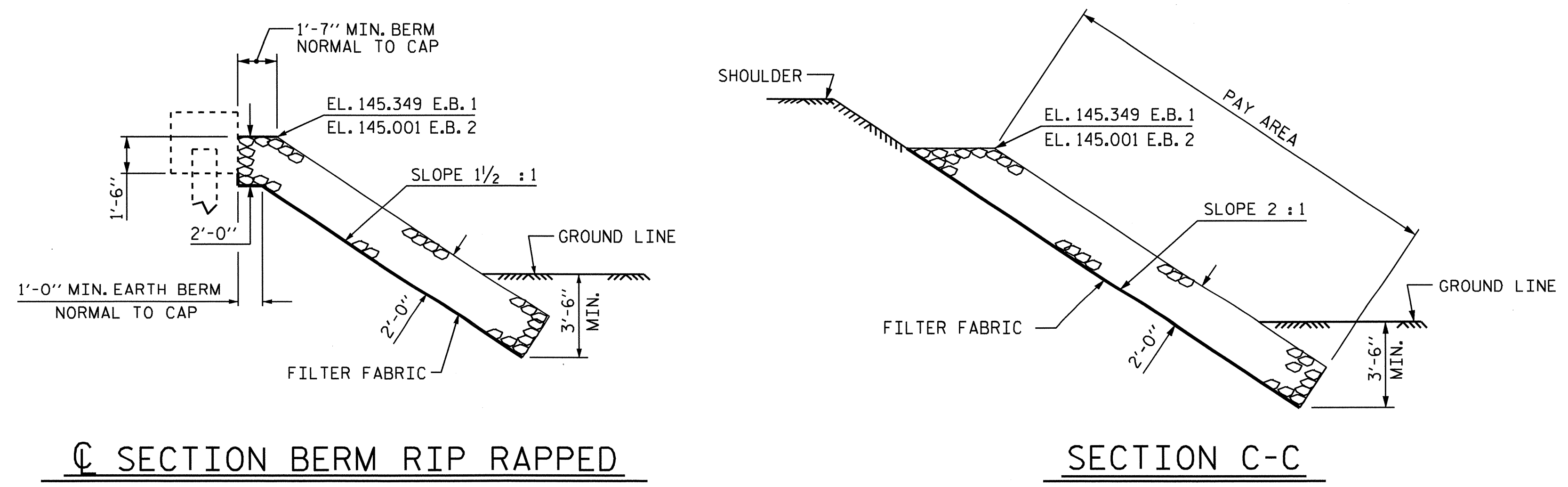


DRAWN BY : J. MYA DATE : 1-20-10
 CHECKED BY : M. FOWLER DATE : 4-30-10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-39
2			4			TOTAL SHEETS 42



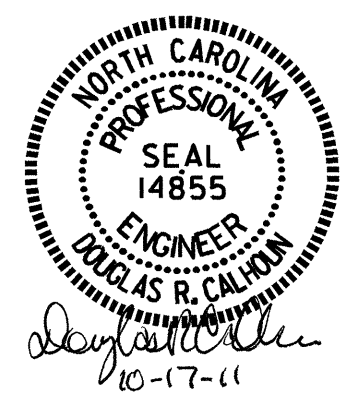
ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+87.50 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	148	164
END BENT 2	163	181



PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

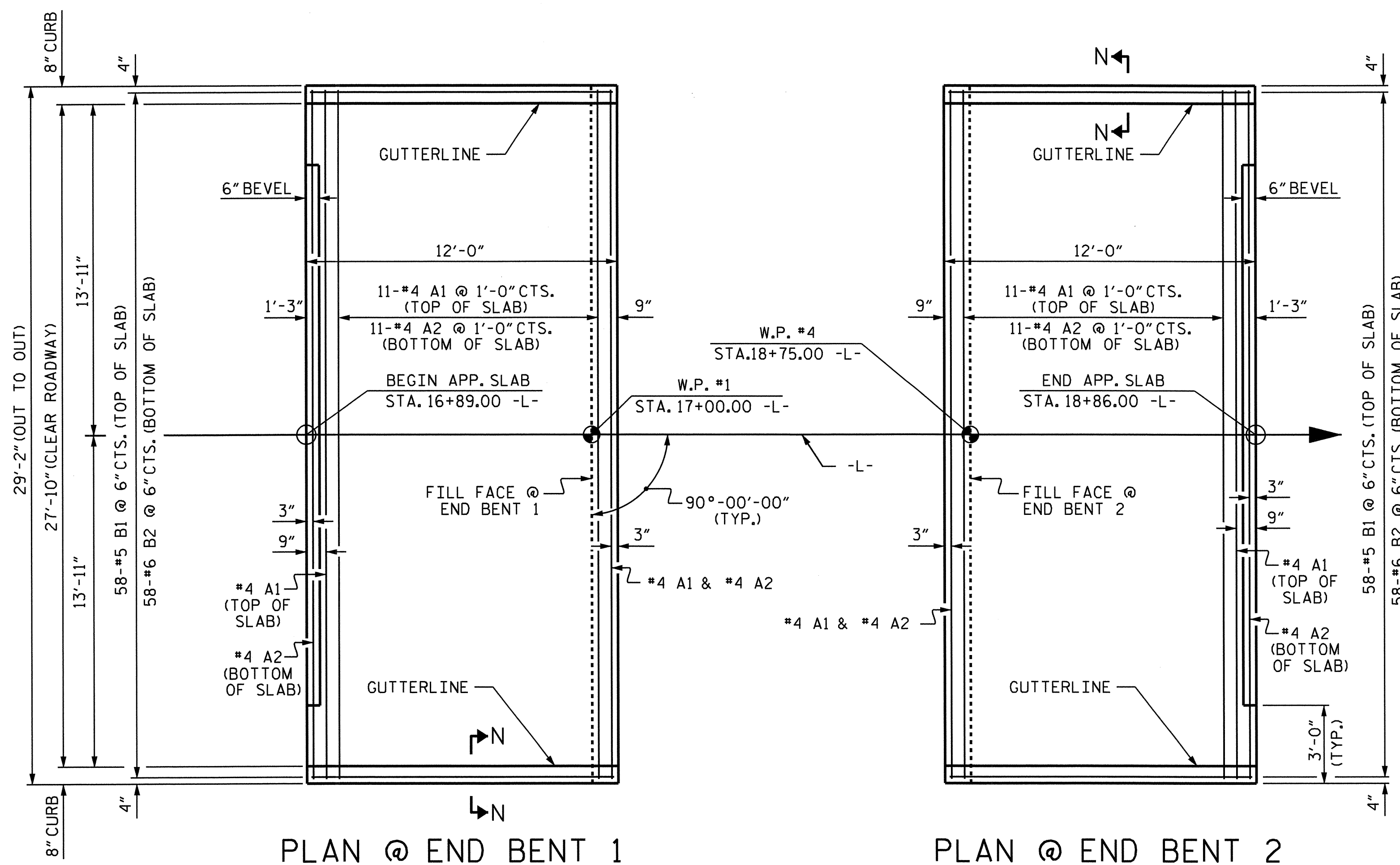
STANDARD
 — RIP RAP DETAILS —



ASSEMBLED BY : J. MYA	DATE : 1-15-09
CHECKED BY : J. L. WALTON	DATE : 3-5-10
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			42
2			4			

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NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

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

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

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

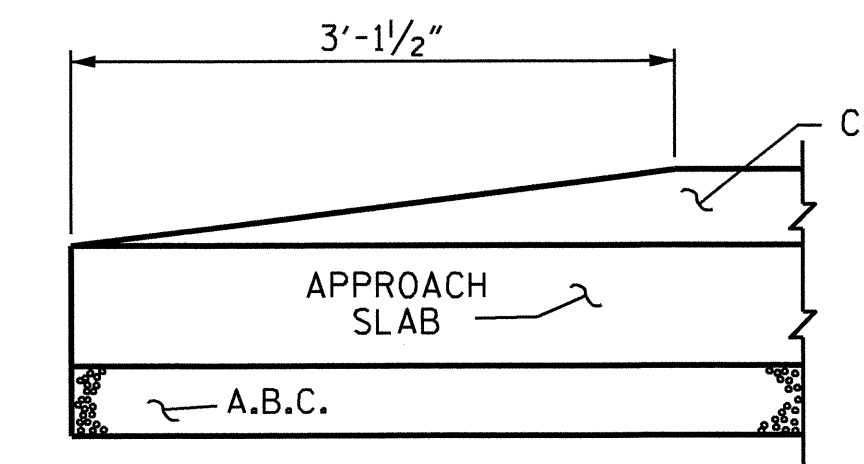
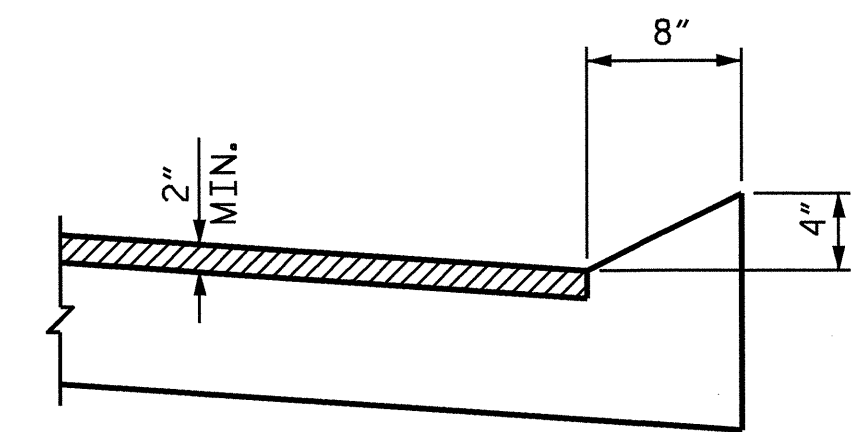
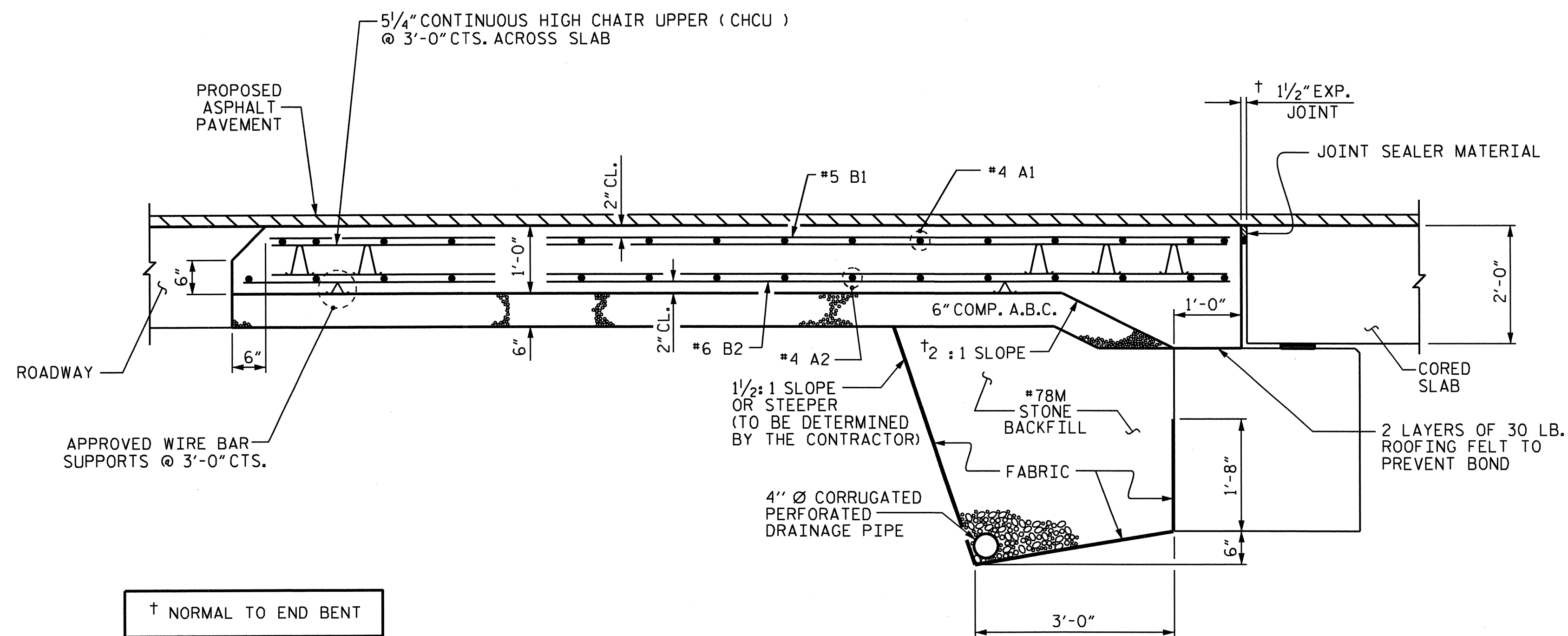
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D.)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
*B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
*EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	15.1

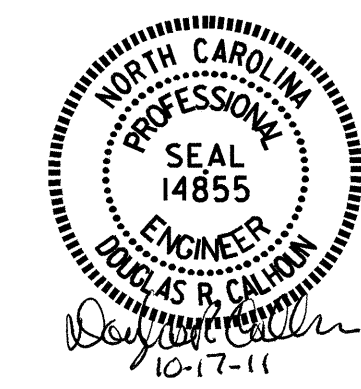


PROJECT NO. B-4560
 JOHNSTON COUNTY
 STATION: 17+87.50 -L-

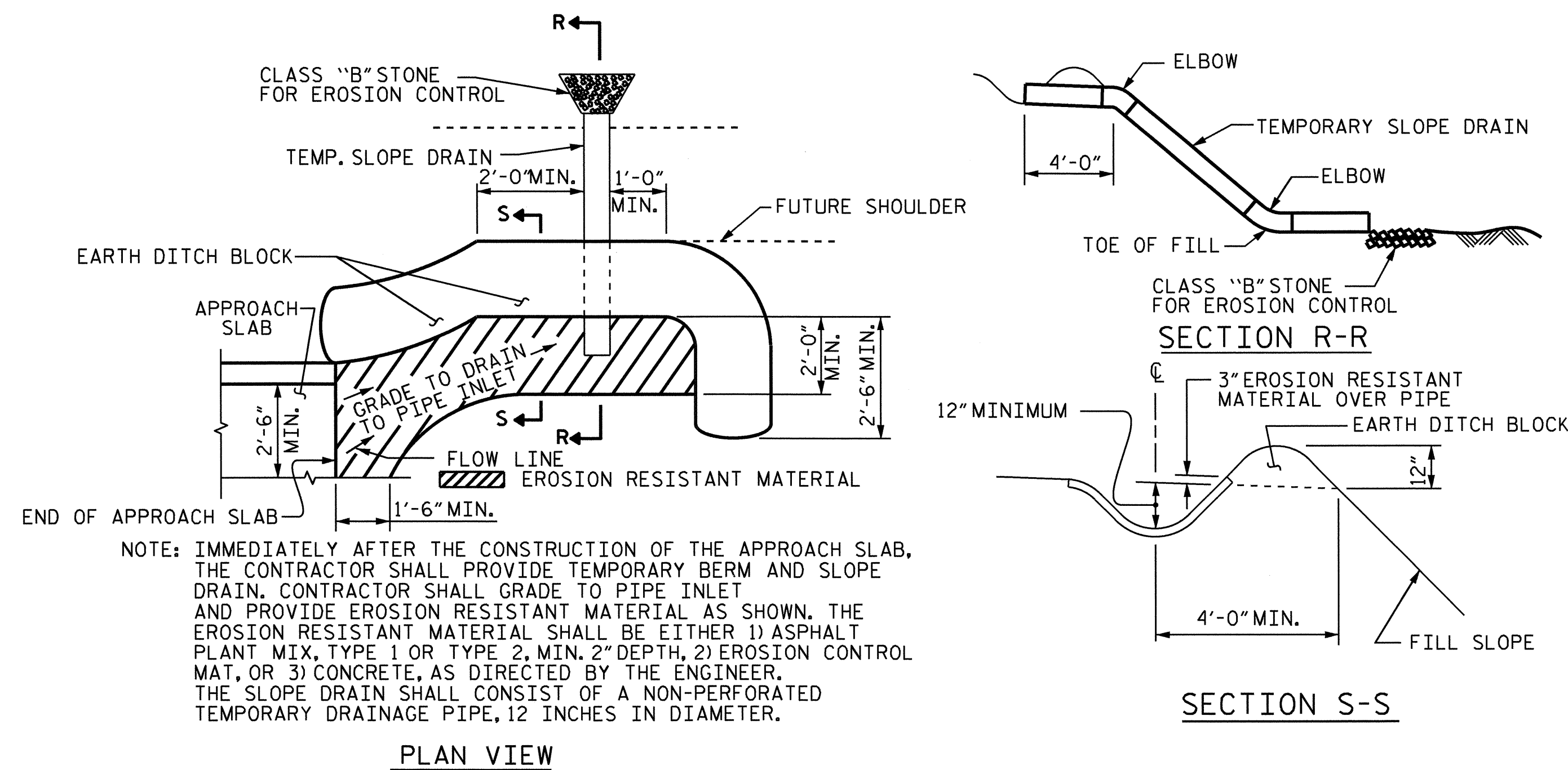
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS 42
2			4			

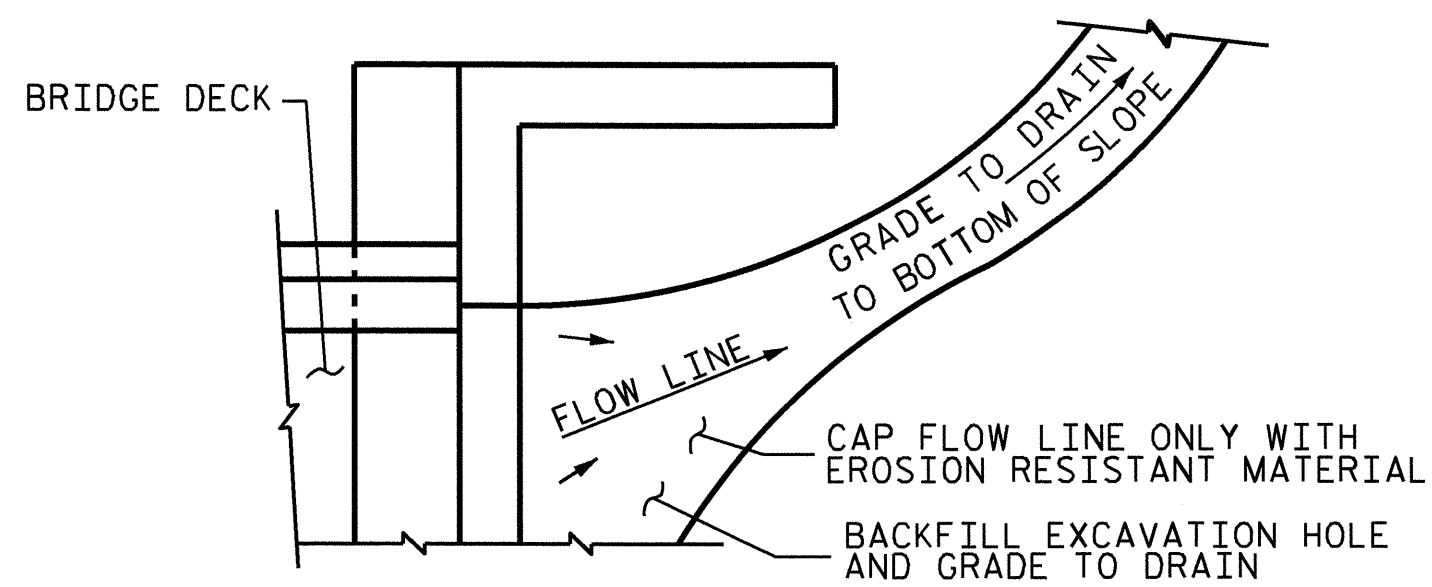


ASSEMBLED BY : J. MYA DATE : 1-26-10
 CHECKED BY : J. WALTON DATE : 6-15-11
 DRAWN BY : KMM 3-08
 CHECKED BY : GM 3-08



TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

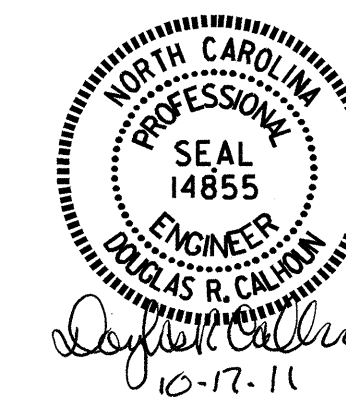
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4560
JOHNSTON COUNTY
 STATION: 17+87.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



ASSEMBLED BY : J. MYA	DATE : 1-26-10
CHECKED BY : J. L. WALTON	DATE : 3-5-10
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06RR MAA/KMM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			42
2			4			42

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	-----	375 LBS. PER SQ. IN.
OF TIMBER		
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. FINISHES AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN