

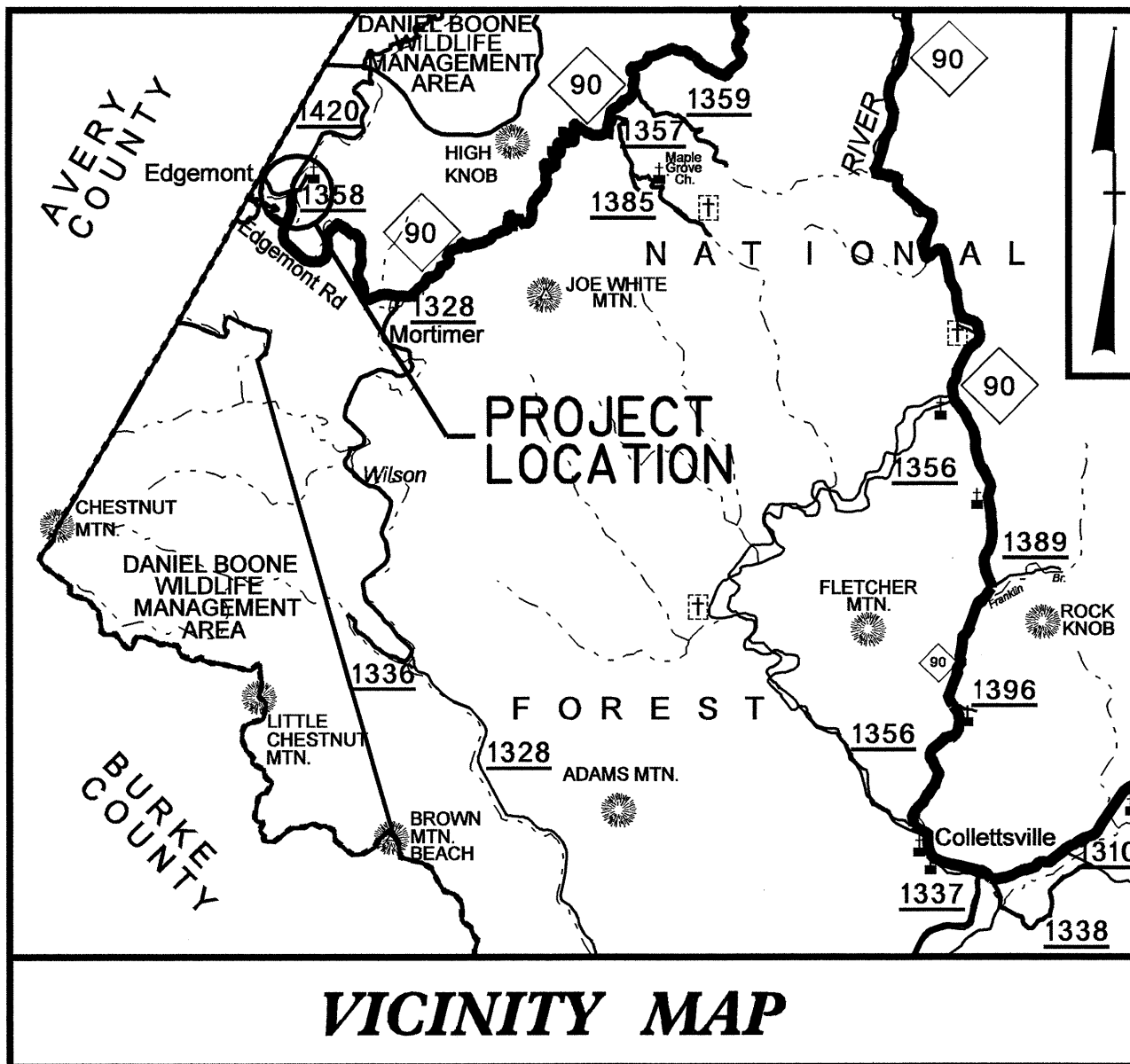
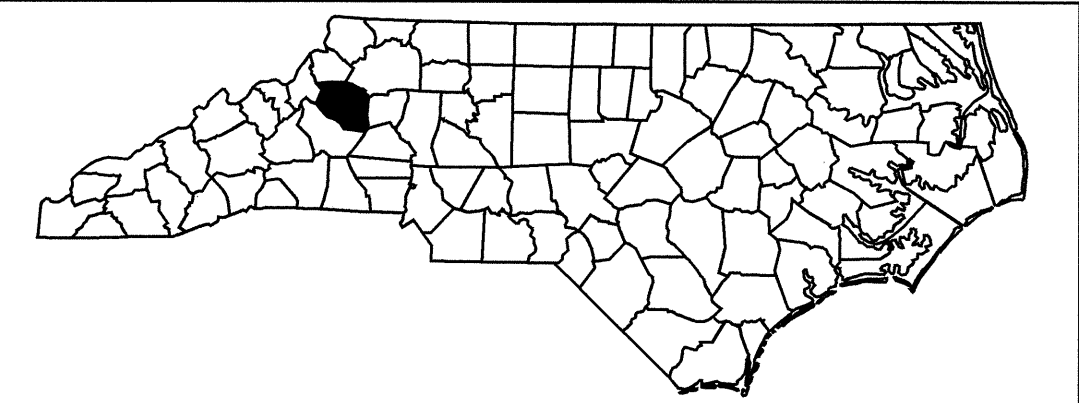
CONTRACT: C201602 TIP PROJECT: B-3818

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CALDWELL COUNTY

LOCATION: BRIDGE NO. 3 OVER LOST COVE CREEK ON NC 90
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3818		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33271.1.1	BRZ-90(1)	PE	
33271.2.1	BRZ-90(1)	R/W & UTIL.	
33271.3.1	BRZ-90(1)	CONSTR.	



NEAREST SHIPPING POINT: LENOIR ON CWCY RR 20 MILES FROM BRIDGE

POT -L- STA. 7+04.17
BEGIN TIP PROJECT B-3818

POT -L- STA. 6+54.17
BEGIN CONSTRUCTION

TO MORTIMER

END BRIDGE
-L- STA. 15+29.50

BEGIN BRIDGE
-L- STA. 14+09.50

NC 90

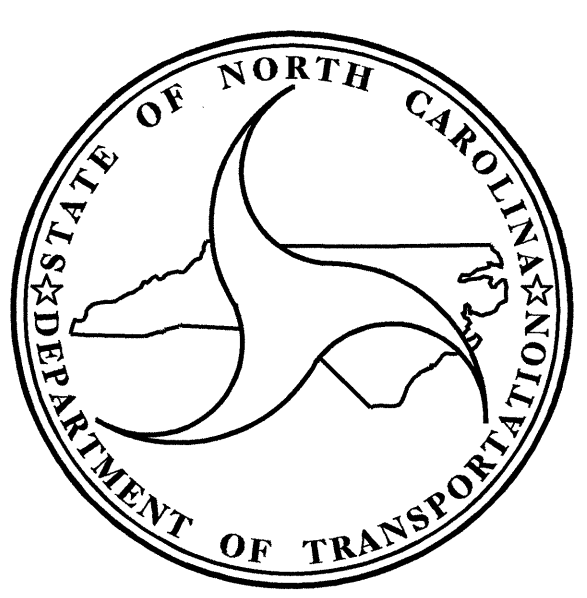
POT -L- STA. 18+58.13
END TIP PROJECT B-3818

SR 1420

TO EDGEMONT

POT -L- STA. 19+08.13
END CONSTRUCTION

STRUCTURE



DESIGN DATA

ADT 2004 =	100
ADT 2025 =	200
DHV =	20%
D =	60%
T =	3 % *
V =	30 MPH
FUNC. CLASS =	RURAL LOCAL
* TTST 1% +	DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3818 =	0.195 MI
LENGTH STRUCTURE TIP PROJECT B-3818 =	0.024 MI
TOTAL LENGTH OF TIP PROJECT B-3818 =	0.219 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
JANUARY 15, 2008

N. N. BULLOCK, PE
PROJECT ENGINEER

D. R. CALHOUN, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE

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GRADE DATA -L-

+2.422 % -0.475 %
 PI= 13+75.00
 EL= 1569.75
 VC= 75 FT.

GRADE DATA -L-

-0.475 % -1.661 %
 PI= 15+75.00
 EL= 1568.80
 VC= 75 FT.

NOTES :

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS 25.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF THREE (1 @ 22'-7", 1 @ 70'-0" & 1 @ 22'-7") REINFORCED CONCRETE ARCHED DECK SPANS WITH A CLEAR ROADWAY OF 11'-8" ON REINFORCED CONCRETE END BENTS WITH TIMBER PILES AND REINFORCED CONCRETE SOLID PIERS AND LOCATED APPROXIMATELY 20'-0" DOWNSTREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISION FOR "REMOVAL OF EXISTING STRUCTURE @ STA. 14+69.50 -L-".

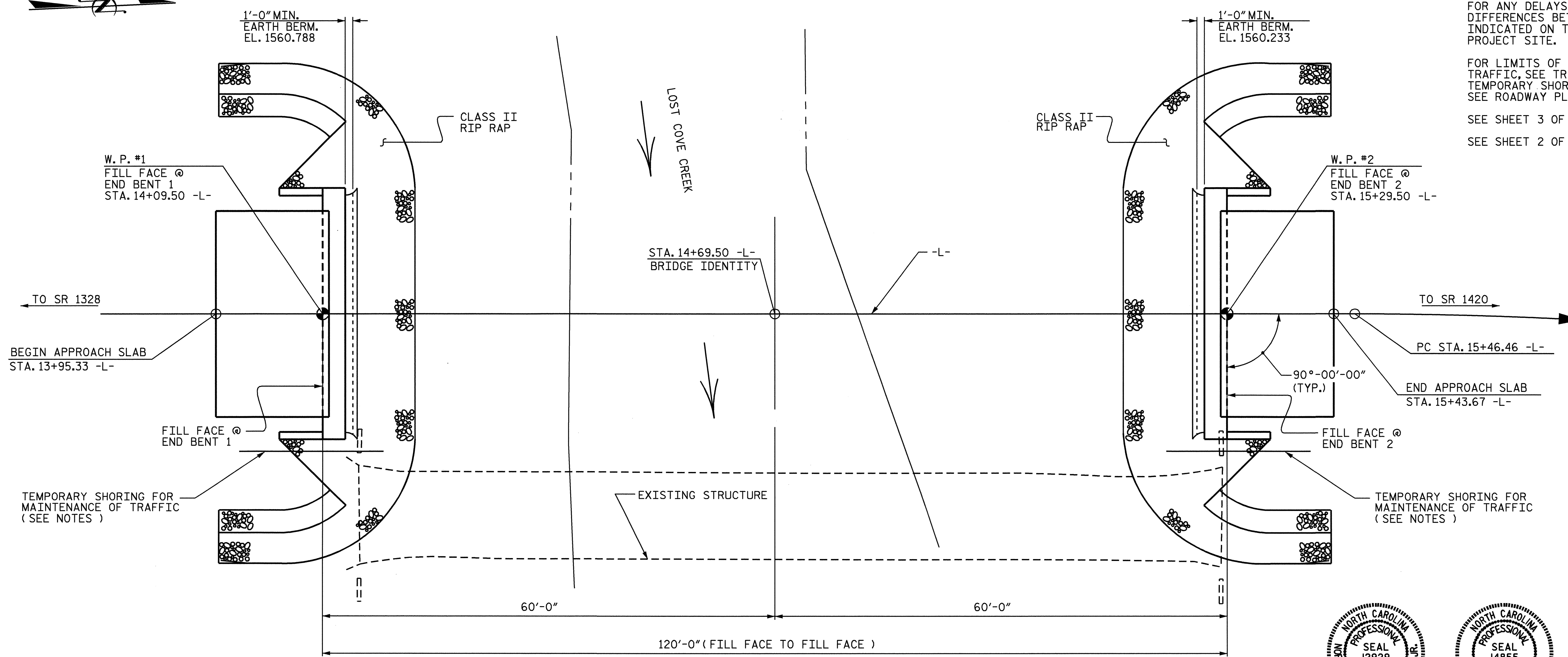
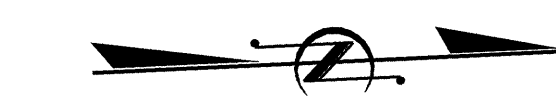
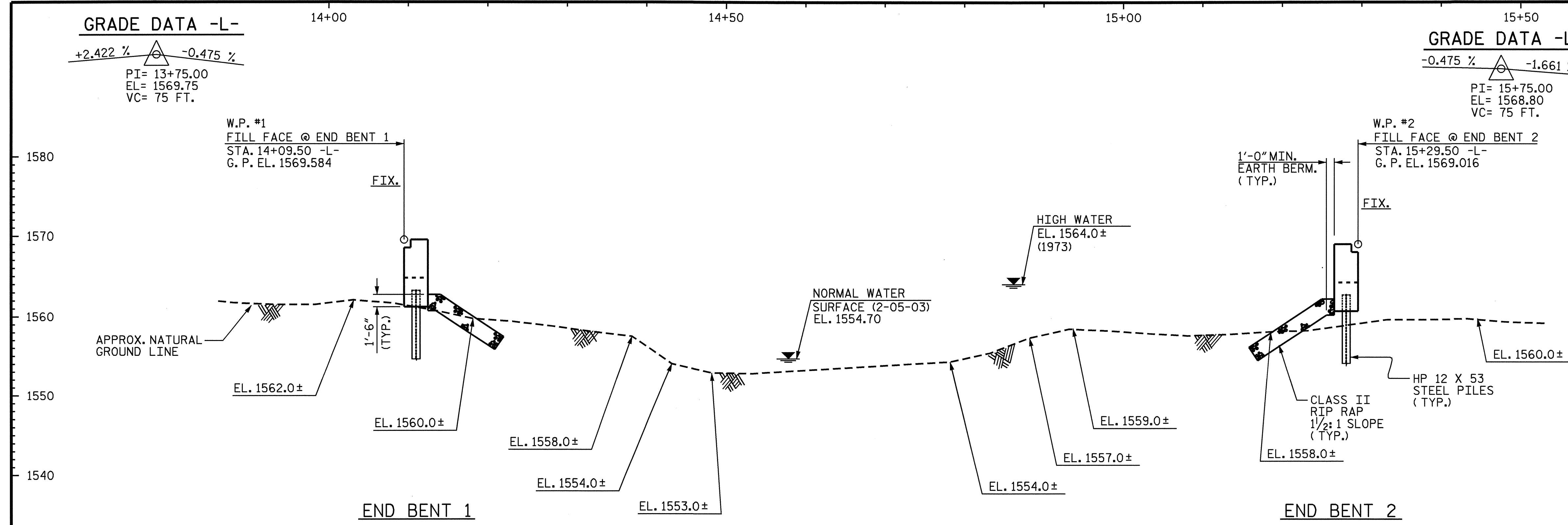
REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS TO MINIMIZE THE AMOUNT OF DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE SPECIAL PROVISION FOR "REMOVAL OF EXISTING STRUCTURE @ STA. 14+69.50 -L-".

THE INFORMATION 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.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

SEE SHEET 3 OF 3 FOR ADDITIONAL NOTES.

SEE SHEET 2 OF 3 FOR FOUNDATION NOTES.



DRAWN BY : T.L.C. & E.G.A. DATE : 10/19/05
 CHECKED BY : J.B. WILSON DATE : 10/26/05

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12929
 NEBLETT, BULLOCK & ASSOCIATES, P.A.
 11/30/07

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14855
 DOUGLAS R. CALDWELL
 11-30-07

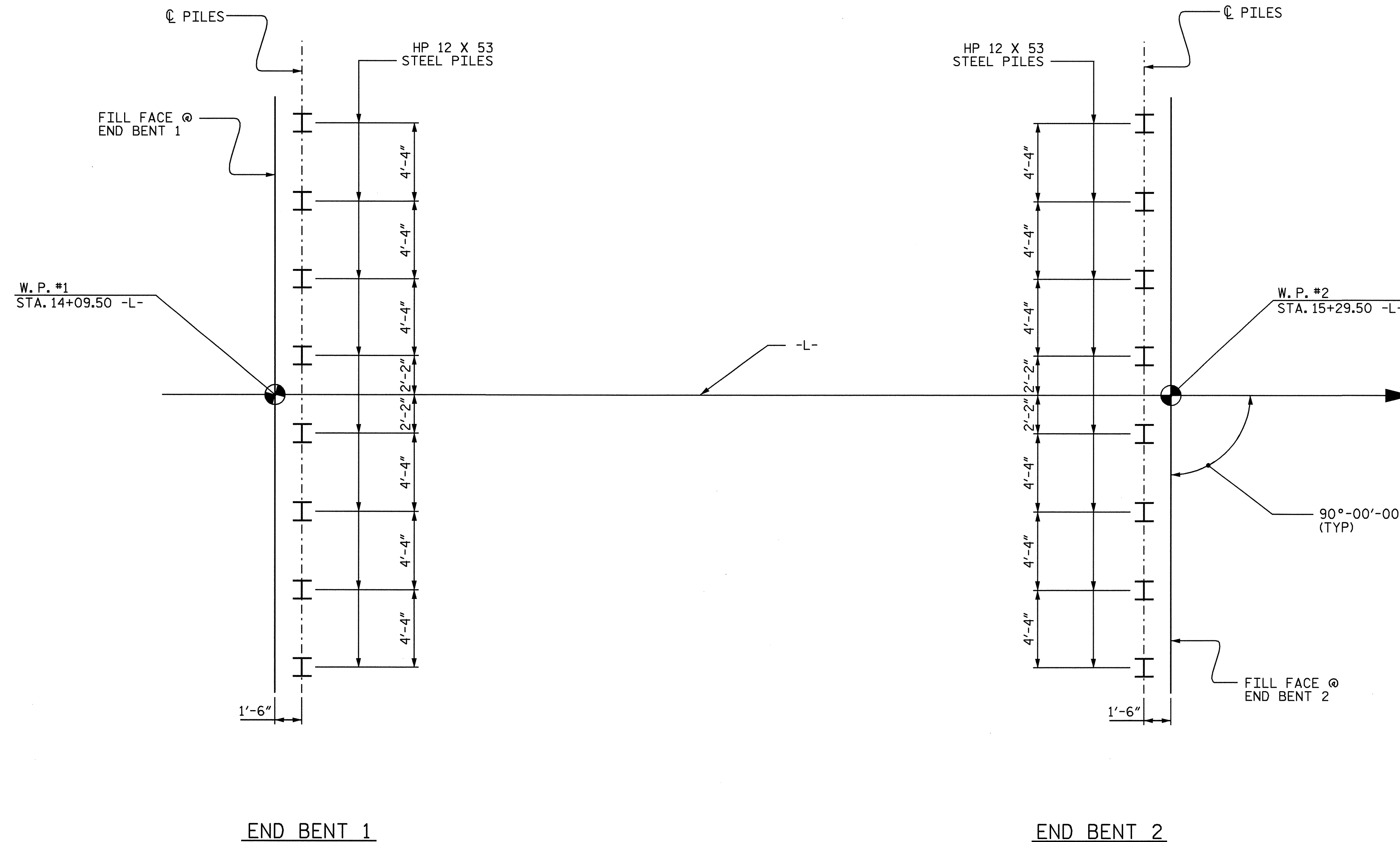
PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING BRIDGE ON NC 90 OVER LOST COVE CREEK BETWEEN SR 1328 AND SR 1420					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 21

FOUNDATION NOTES :

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

DRIVE PILES AT END BENT 1 AND 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.



FOUNDATION LAYOUT

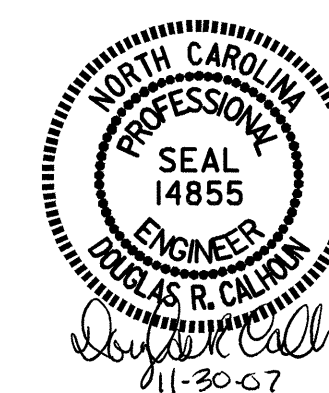
(DIMENSIONS LOCATING END BENT PILES ARE SHOWN TO CENTERLINE OF PILES)

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON NC 90 OVER
 LOST COVE CREEK BETWEEN
 SR 1328 AND SR 1420



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

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		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.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	
SUPERSTRUCTURE		3270	3089		LUMP SUM		128,700			236.67			LUMP SUM	
END BENT 1				13.6		2507		8	120		90	99		
END BENT 2				13.6		2507		8	120		112	124		
TOTAL	LUMP SUM	LUMP SUM	3270	3089	27.2	LUMP SUM	5014	128,700	16	240	236.67	202	223	LUMP SUM

NOTES (CONT.):

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

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

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

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.

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.

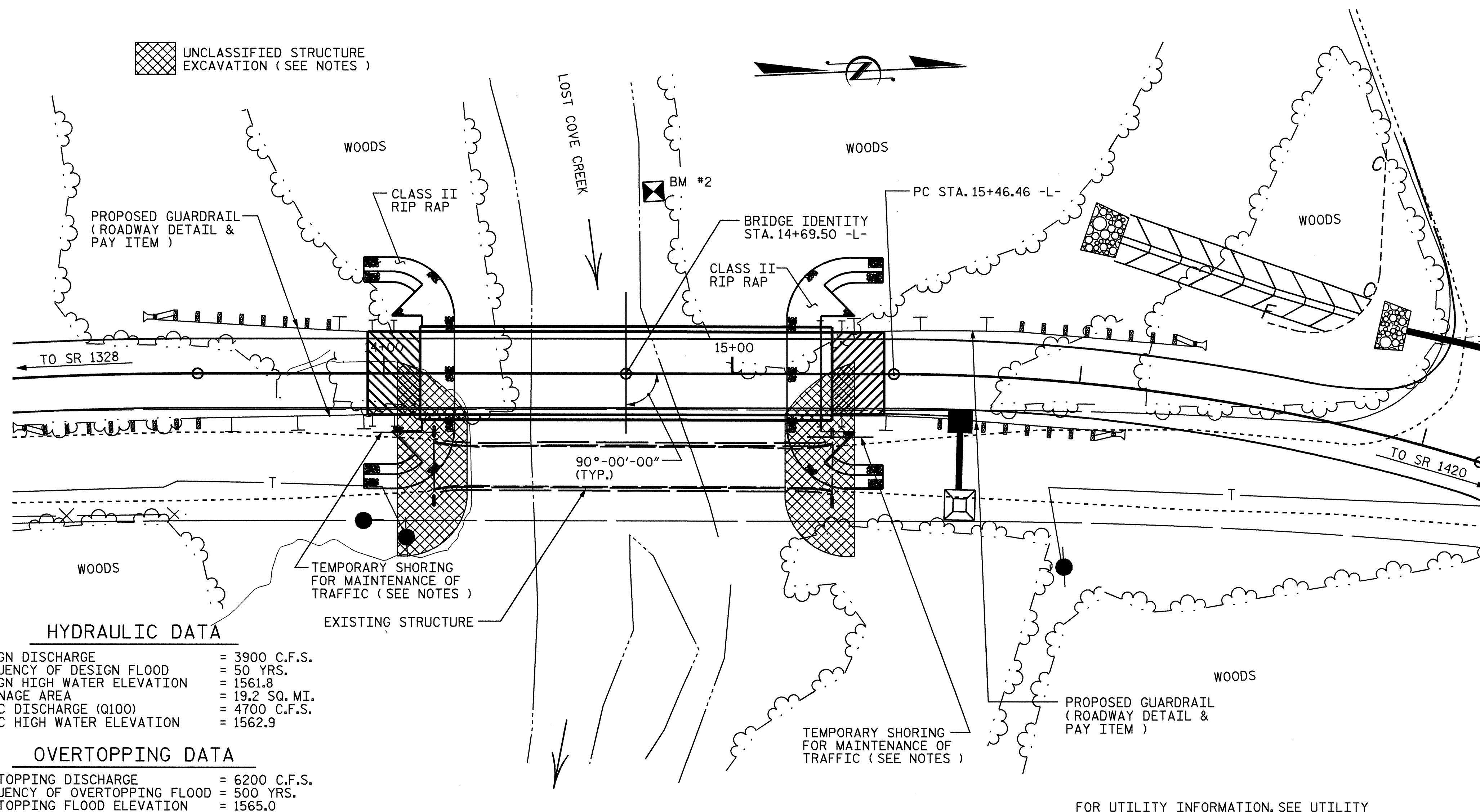
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25'-0" FT. EACH SIDE OF CENTERLINE OF EXISTING ROADWAY AND AS DIRECTED BY THE ENGINEER. THE ESTIMATED QUANTITY IS LESS THAN 500 CUBIC YARDS. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, 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.

B.M. #2 : 8" SPIKE IN SOUTH ROOT OF A 15" SYCAMORE TREE 52' LT. OF STA. 14+77.43 -L- EL. 1556.67'



HYDRAULIC DATA
 DESIGN DISCHARGE = 3900 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YRS.
 DESIGN HIGH WATER ELEVATION = 1561.8
 DRAINAGE AREA = 19.2 SQ. MI.
 BASIC DISCHARGE (Q100) = 4700 C.F.S.
 BASIC HIGH WATER ELEVATION = 1562.9

OVERTOPPING DATA
 OVERTOPPING DISCHARGE = 6200 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 500 YRS.
 OVERTOPPING FLOOD ELEVATION = 1565.0

LOCATION SKETCH

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

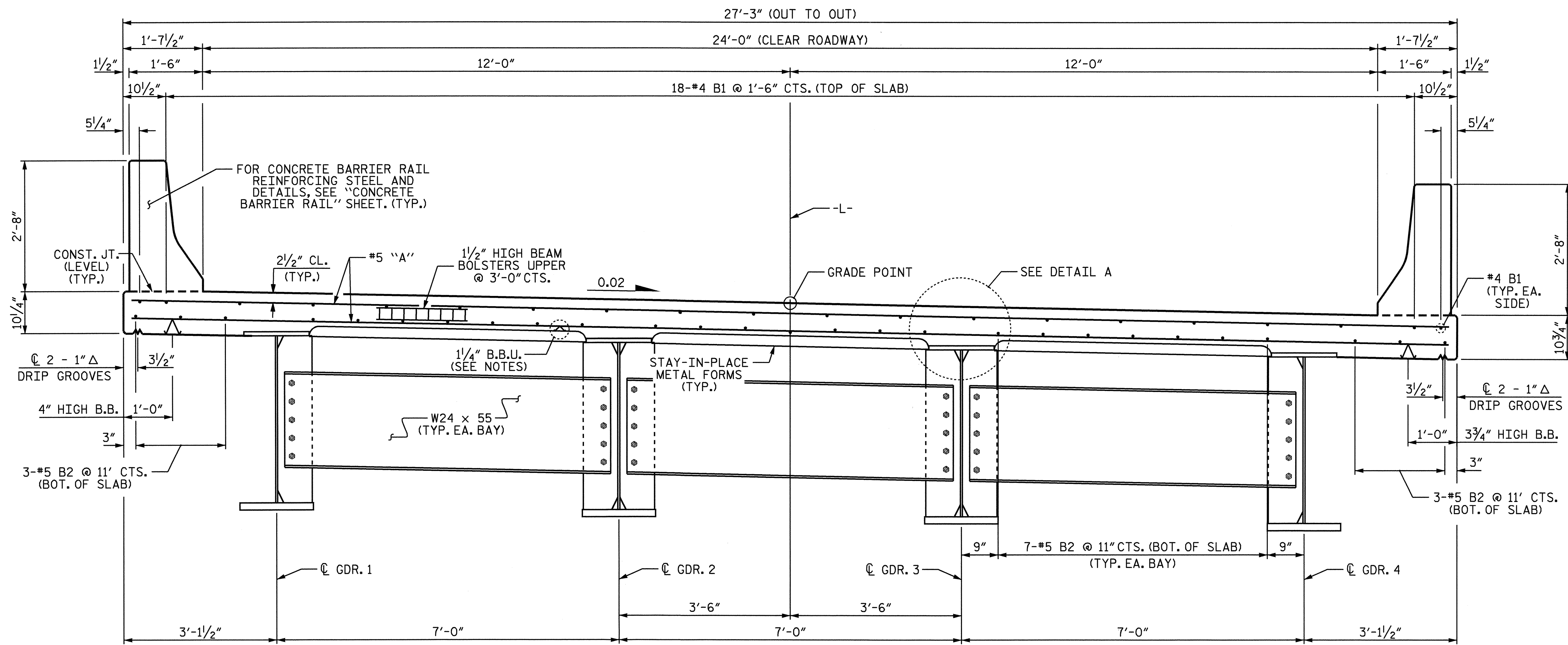
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON NC 90 OVER
 LOST COVE CREEK BETWEEN
 SR 1328 AND SR 1420

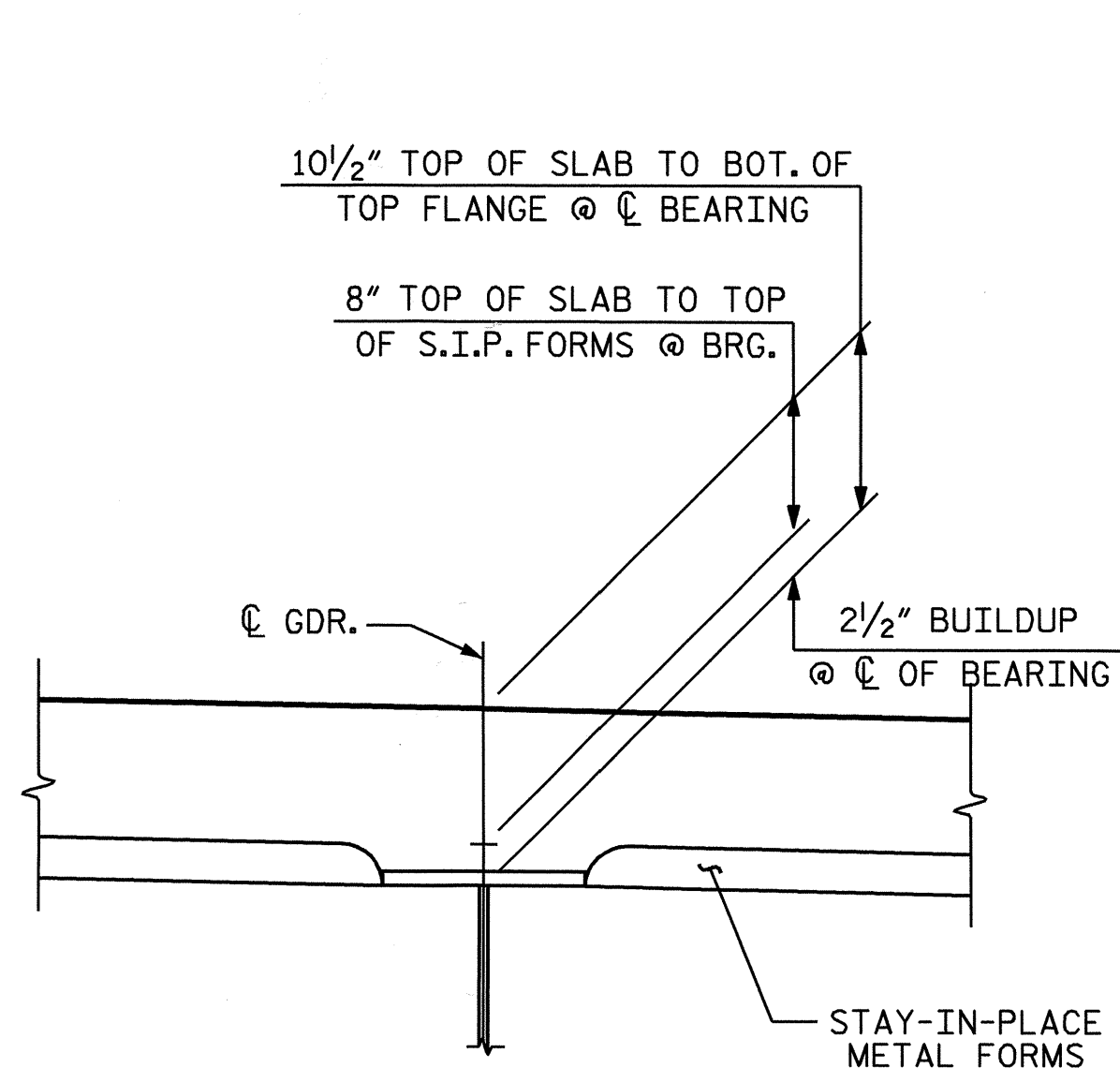


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			21

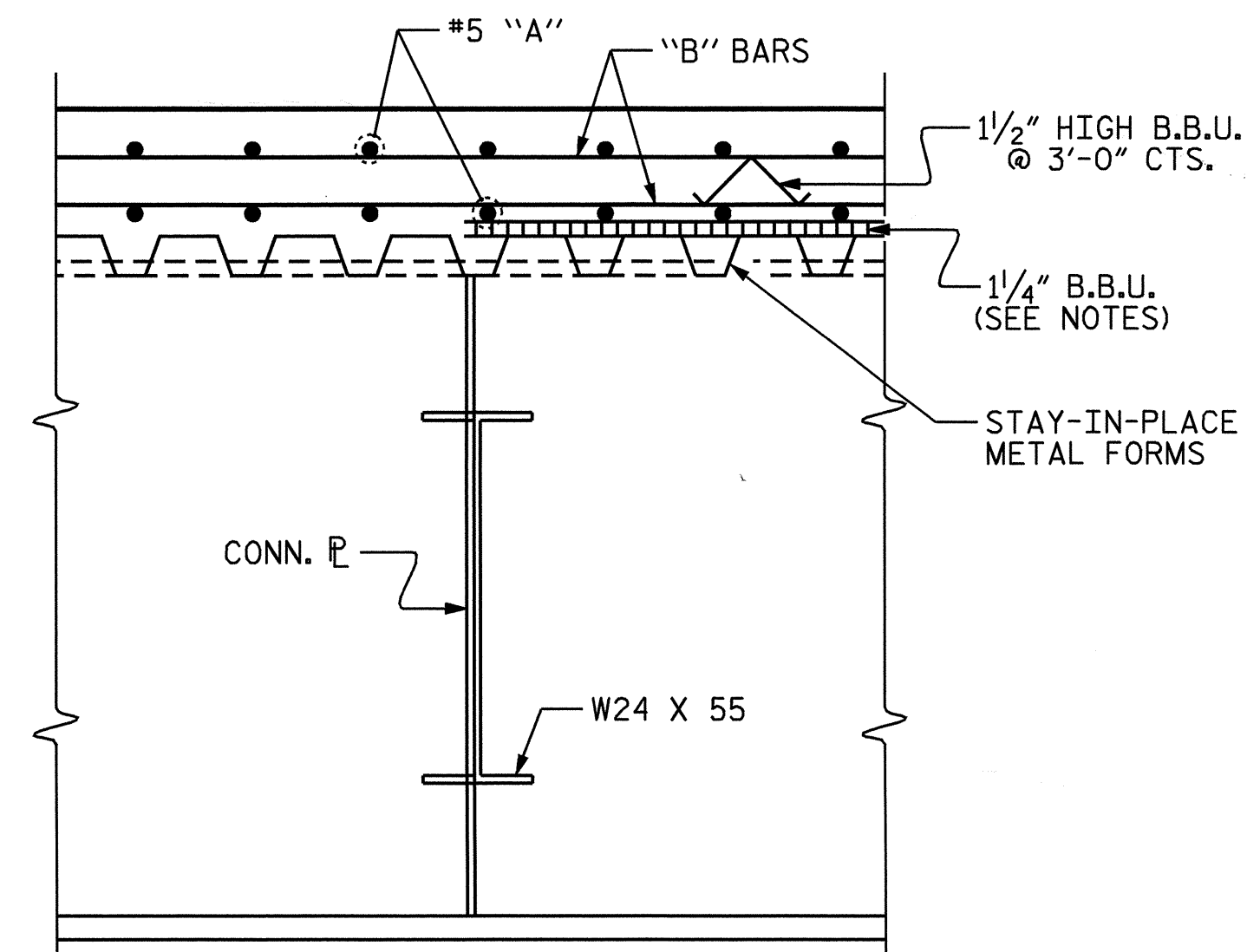
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 CHECKED BY : J.B. WILSON DATE : 10/26/05



TYPICAL SECTION @ INTERMEDIATE DIAPHRAGMS



DETAIL A



SECTION THRU INTERMEDIATE DIAPHRAGM

NOTES

PROVIDE 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.

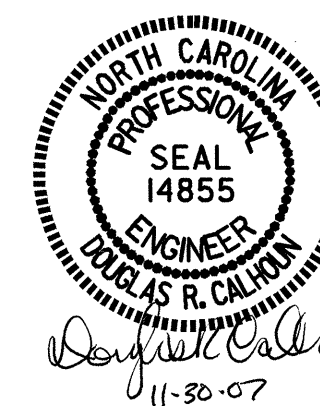
PREVIOUSLY CAST CONCRETE IN THE SLAB SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE SLAB.

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

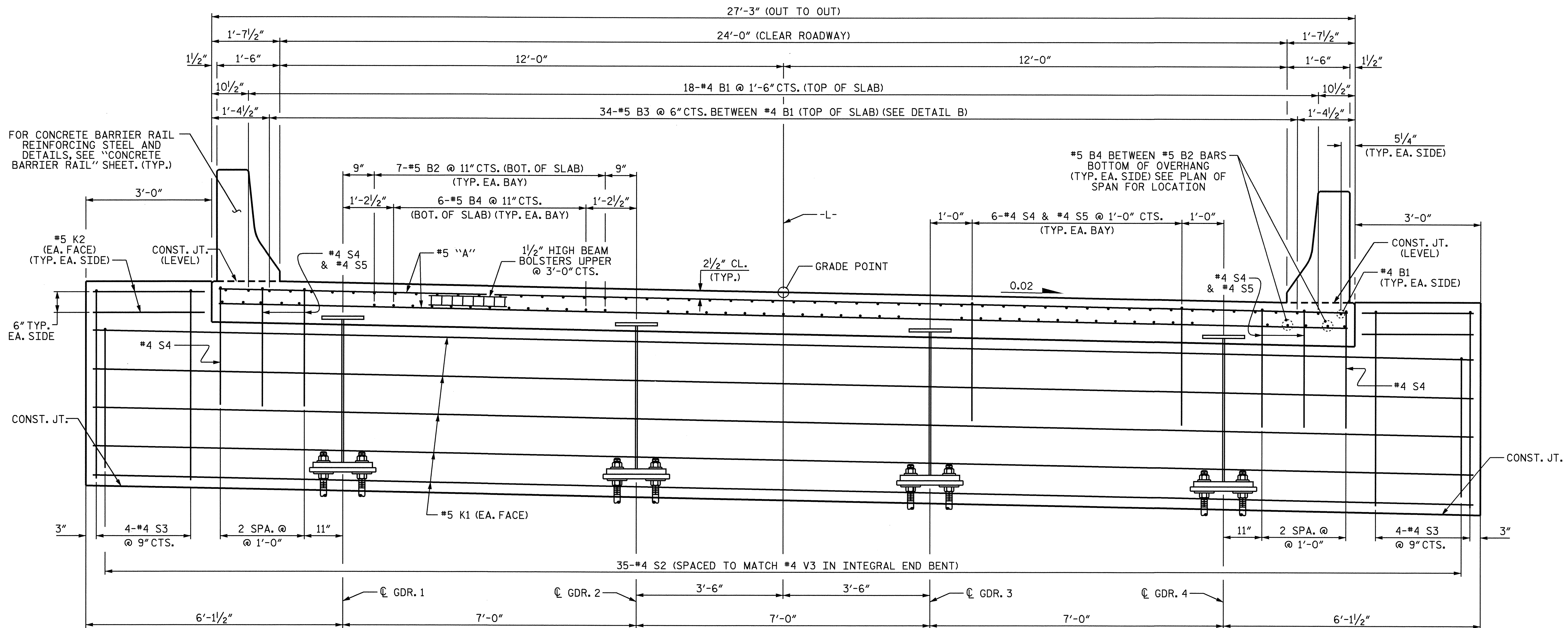
SUPERSTRUCTURE
 TYPICAL SECTION



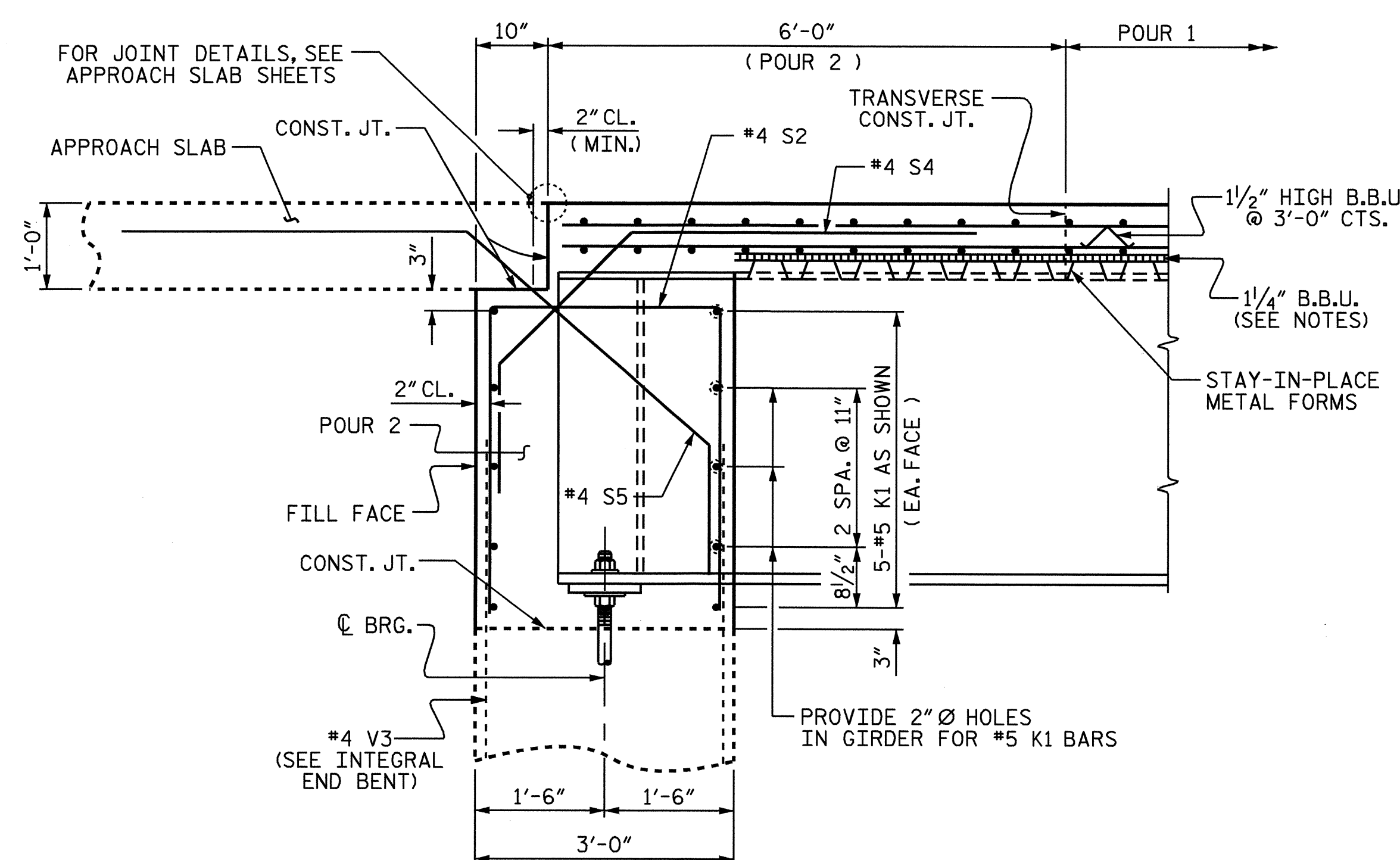
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 CHECKED BY: T. L. CLELLAND DATE: 3/4/05

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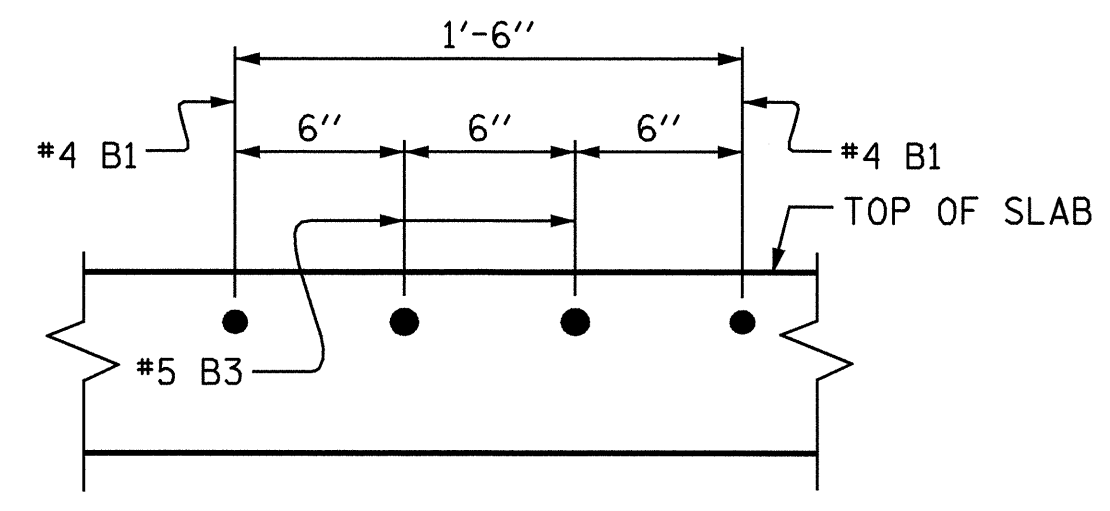
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			21
2			4			



TYPICAL SECTION @ INTEGRAL END BENT



SECTION A-A
(INTEGRAL END BENT DIAPHRAGM)



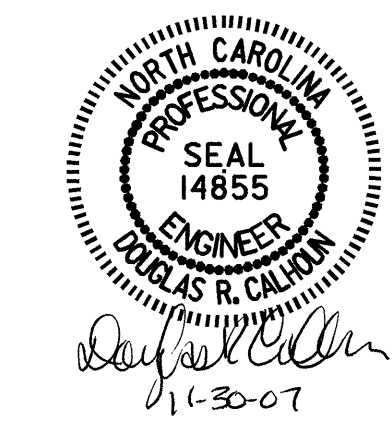
DETAIL B

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 2 OF 2

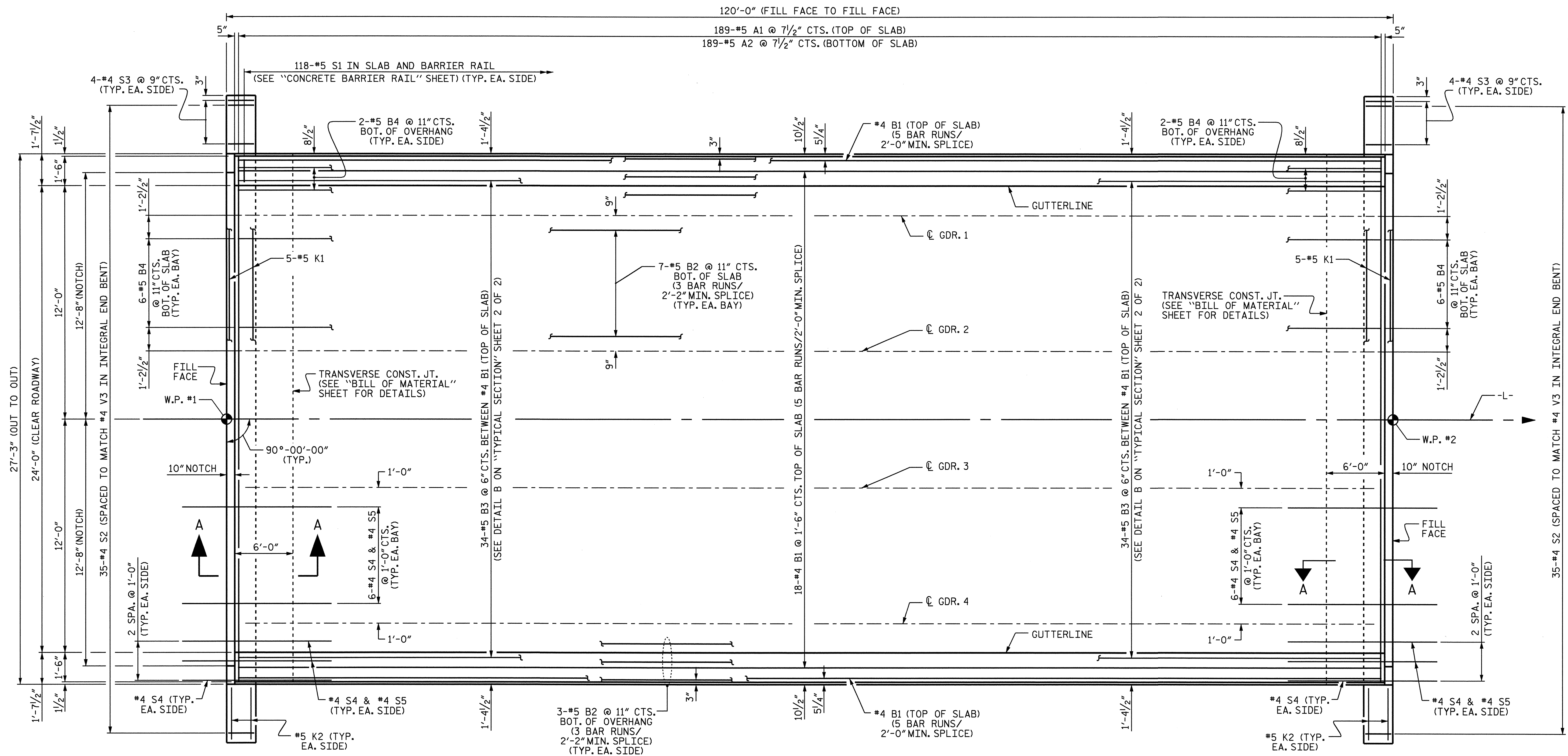
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION



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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			21



PLAN OF SPAN A

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

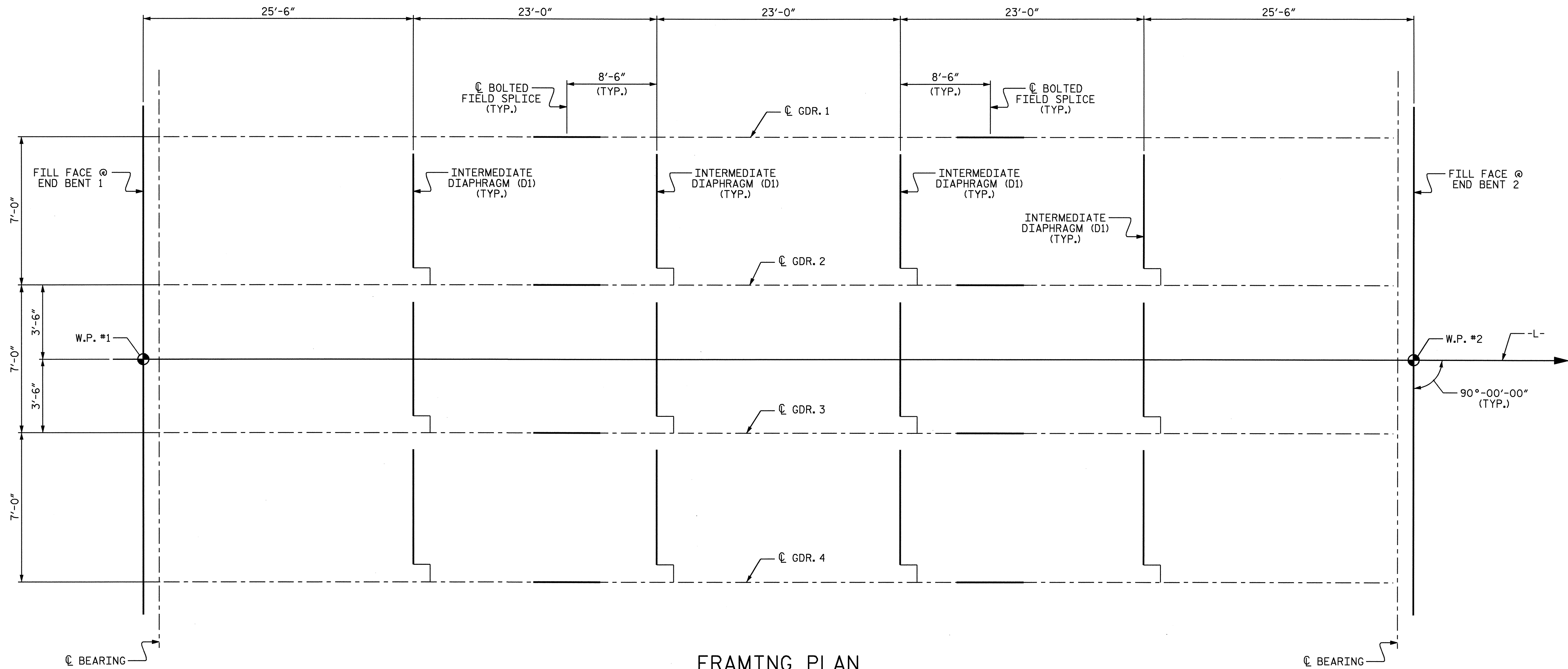
FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "STRUCTURAL STEEL DETAILS" SHEET 1 OF 4.

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
SHEET NO. S-6					
TOTAL SHEETS 21					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

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 CHECKED BY: T. L. CLELLAND DATE: 3/4/05



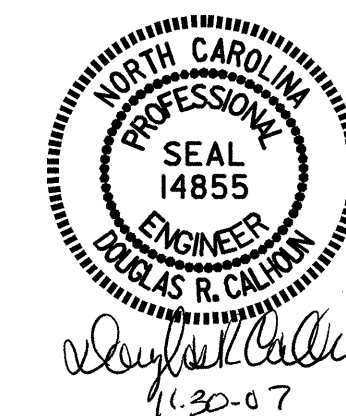
FRAMING PLAN

DEAD LOAD DEFLECTION TABLE																					
GIRDER 1 & 4																					
TWENTIETH POINTS	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	0.024	0.047	0.068	0.088	0.106	0.121	0.133	0.141	0.147	0.149	0.147	0.141	0.133	0.121	0.106	0.088	0.068	0.047	0.024	0.000
*DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.066	0.136	0.202	0.263	0.317	0.362	0.399	0.425	0.441	0.447	0.441	0.425	0.399	0.362	0.317	0.263	0.202	0.136	0.066	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.009	0.018	0.027	0.034	0.041	0.047	0.052	0.055	0.057	0.058	0.057	0.055	0.052	0.047	0.041	0.034	0.027	0.018	0.009	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.099	0.201	0.297	0.385	0.464	0.530	0.583	0.621	0.645	0.653	0.645	0.621	0.583	0.530	0.464	0.385	0.297	0.201	0.099	0.000
REQUIRED CAMBER	0	1 3/16"	2 7/16"	3 3/16"	4 5/8"	5 9/16"	6 3/8"	7"	7 7/16"	7 3/4"	7 13/16"	7 3/4"	7 7/16"	7"	6 3/8"	5 9/16"	4 5/8"	3 3/16"	2 7/16"	1 3/16"	0
GIRDER 2 & 3																					
TWENTIETH POINTS	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	0.024	0.047	0.068	0.088	0.106	0.121	0.133	0.141	0.147	0.149	0.147	0.141	0.133	0.121	0.106	0.088	0.068	0.047	0.024	0.000
*DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.067	0.138	0.204	0.266	0.320	0.366	0.403	0.430	0.446	0.452	0.446	0.430	0.403	0.366	0.320	0.266	0.204	0.138	0.067	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.009	0.018	0.026	0.034	0.040	0.046	0.051	0.054	0.056	0.057	0.056	0.054	0.051	0.046	0.040	0.034	0.026	0.018	0.009	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.099	0.202	0.299	0.388	0.466	0.533	0.586	0.625	0.649	0.657	0.649	0.625	0.586	0.533	0.466	0.388	0.299	0.202	0.099	0.000
REQUIRED CAMBER	0	1 3/16"	2 7/16"	3 3/16"	4 5/8"	5 9/16"	6 3/8"	7 1/16"	7 1/2"	7 13/16"	7 7/8"	7 13/16"	7 1/2"	7 1/16"	6 3/8"	5 9/16"	4 5/8"	3 3/16"	2 7/16"	1 3/16"	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-3818
CALDWELL COUNTY
STATION: 14+69.50 -L-

SHEET 1 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS

DRAWN BY: T. A. HARRIS DATE: 2/25/05
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			21

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.

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES, BOTTOM FLANGE SPLICE PLATES, TOP FLANGE PLATES WITHIN 24'-0" OF ENDS OF GIRDERS AND WEB SPLICE PLATES FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET, PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION, 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.

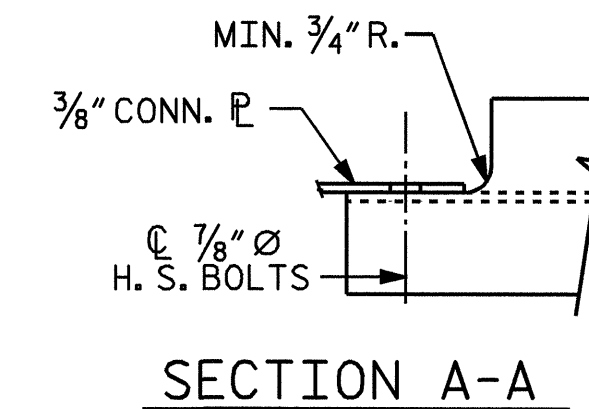
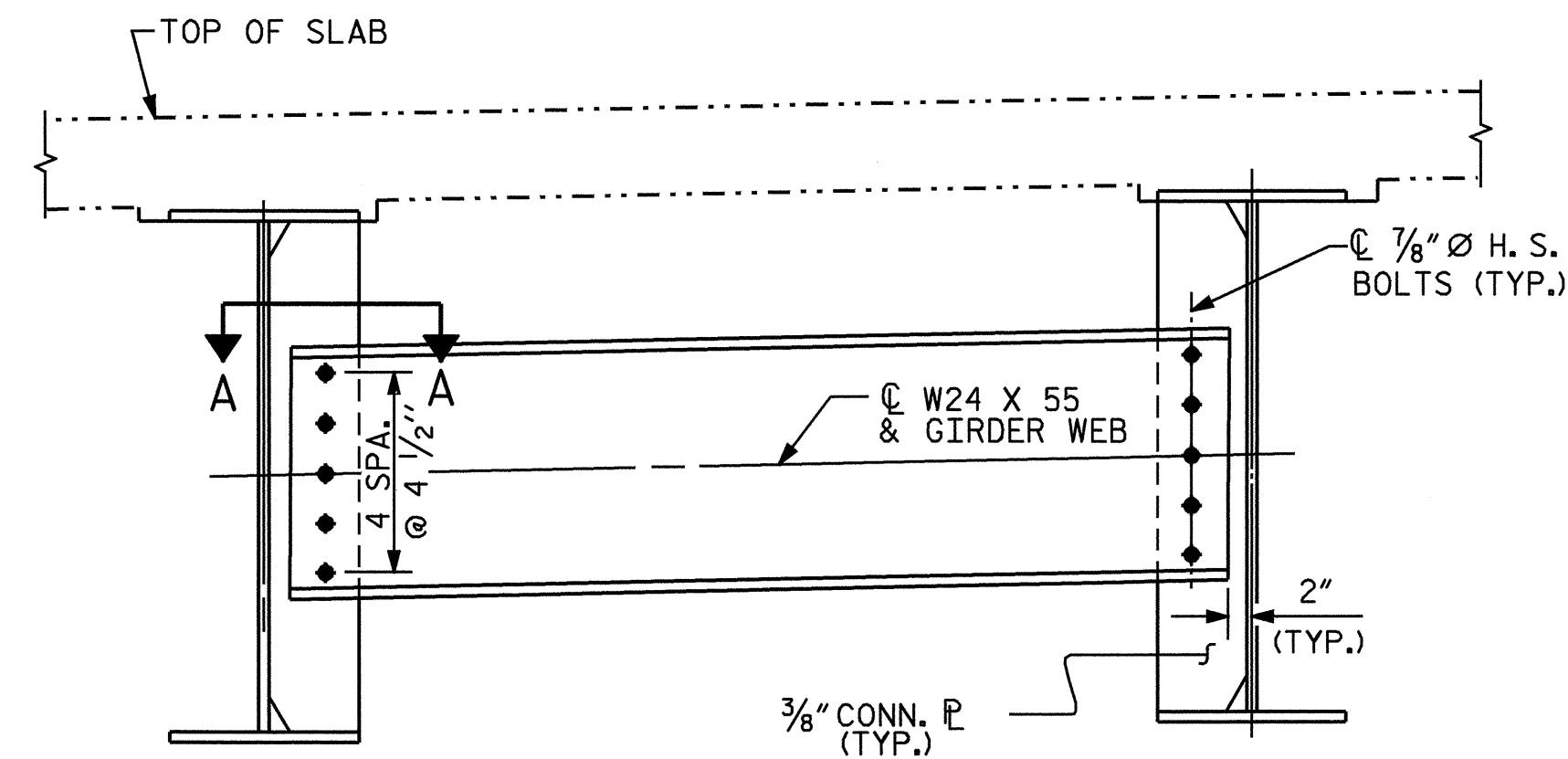
STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

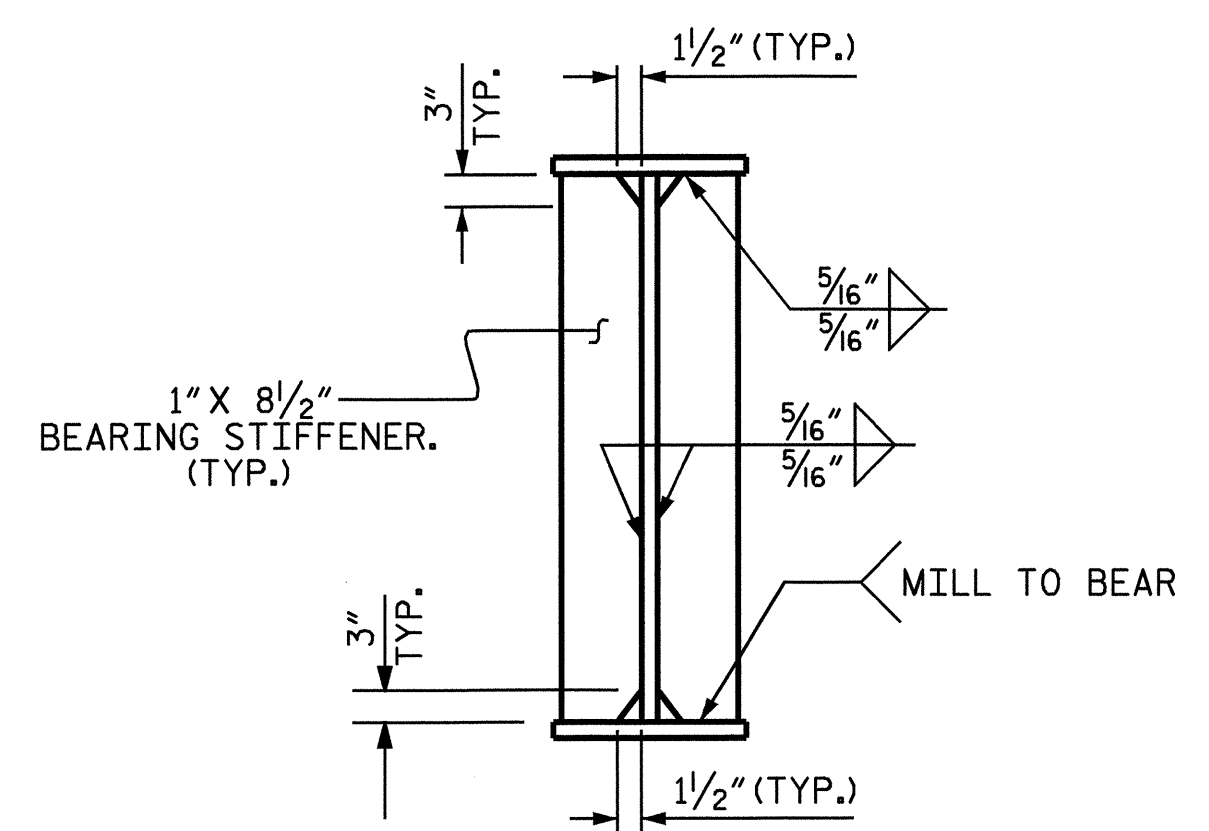
END OF BEAMS AND GIRDERS SHALL BE PLUMB.

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

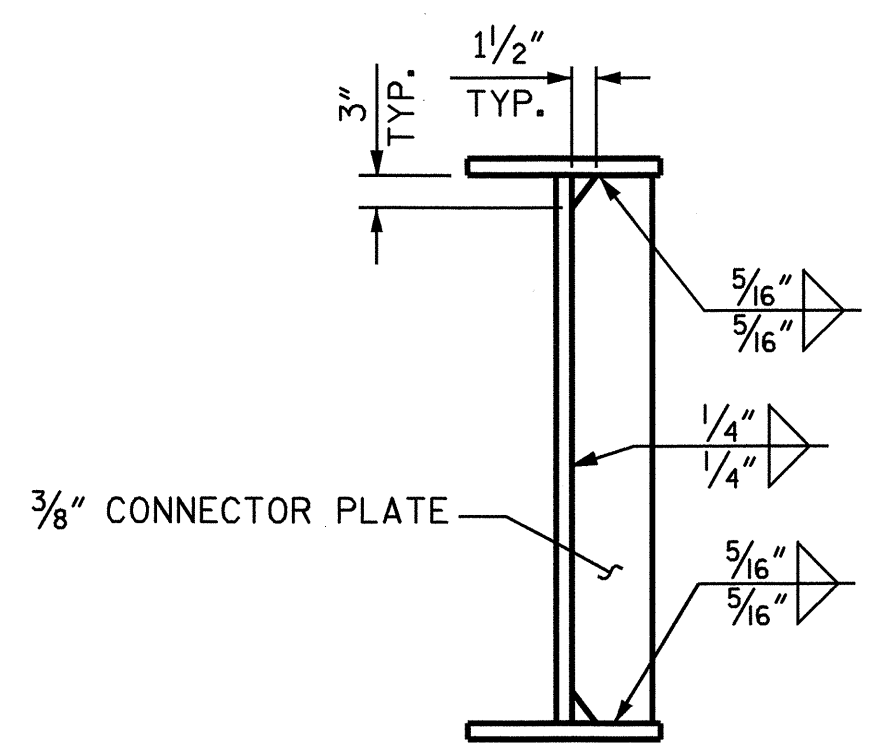
FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.



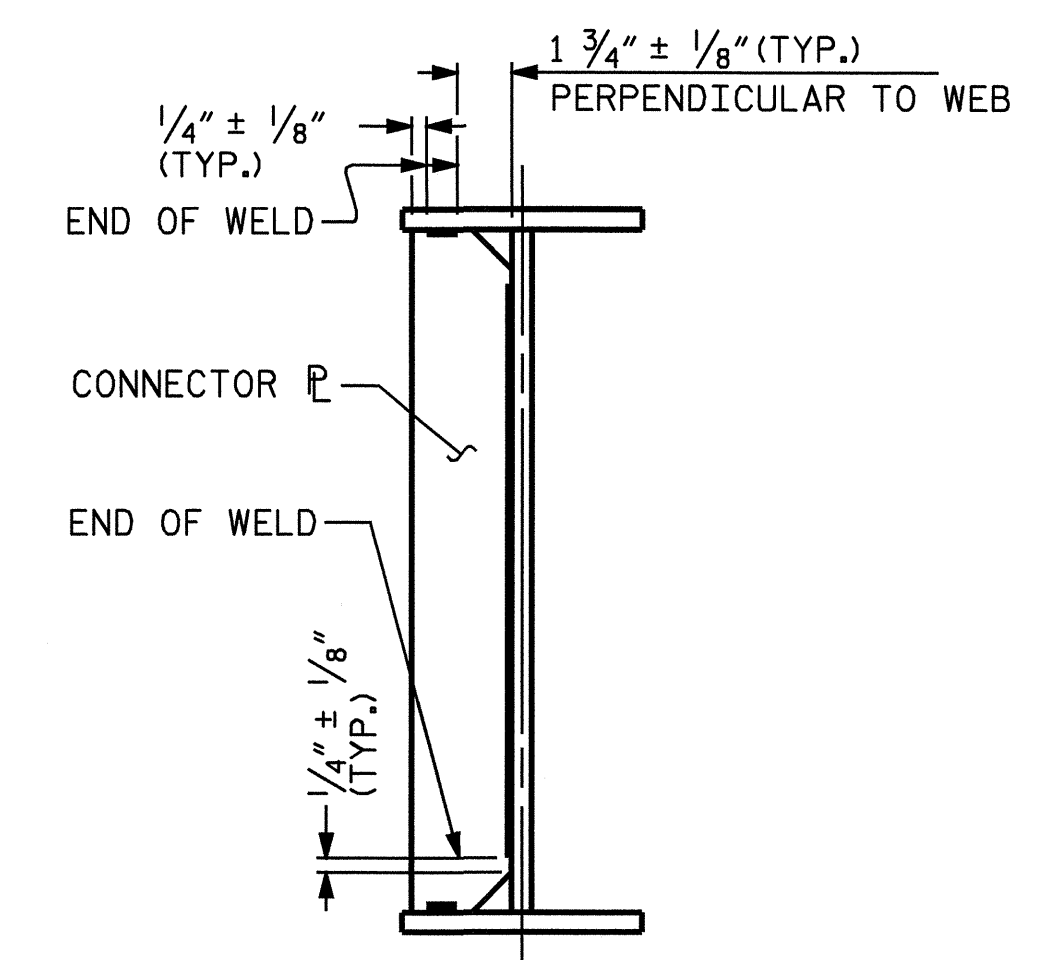
TYPICAL INTERMEDIATE DIAPHRAGM (D1)



BEARING STIFFENER



CONNECTOR PLATE



TYPICAL CONNECTOR PLATE CONNECTIONS
WELD TERMINATION DETAILS



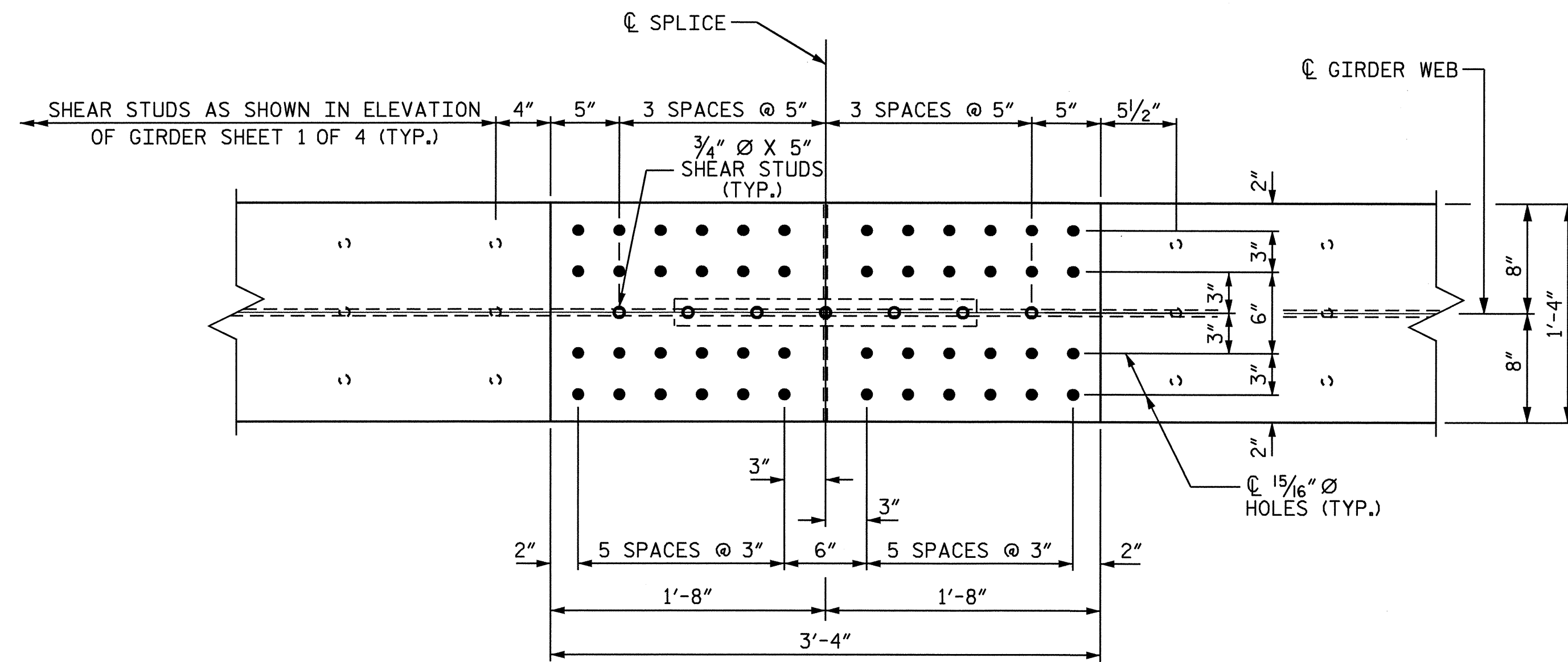
PROJECT NO. B-3818
CALDWELL COUNTY
STATION: 14+69.50 -L-

SHEET 3 OF 4

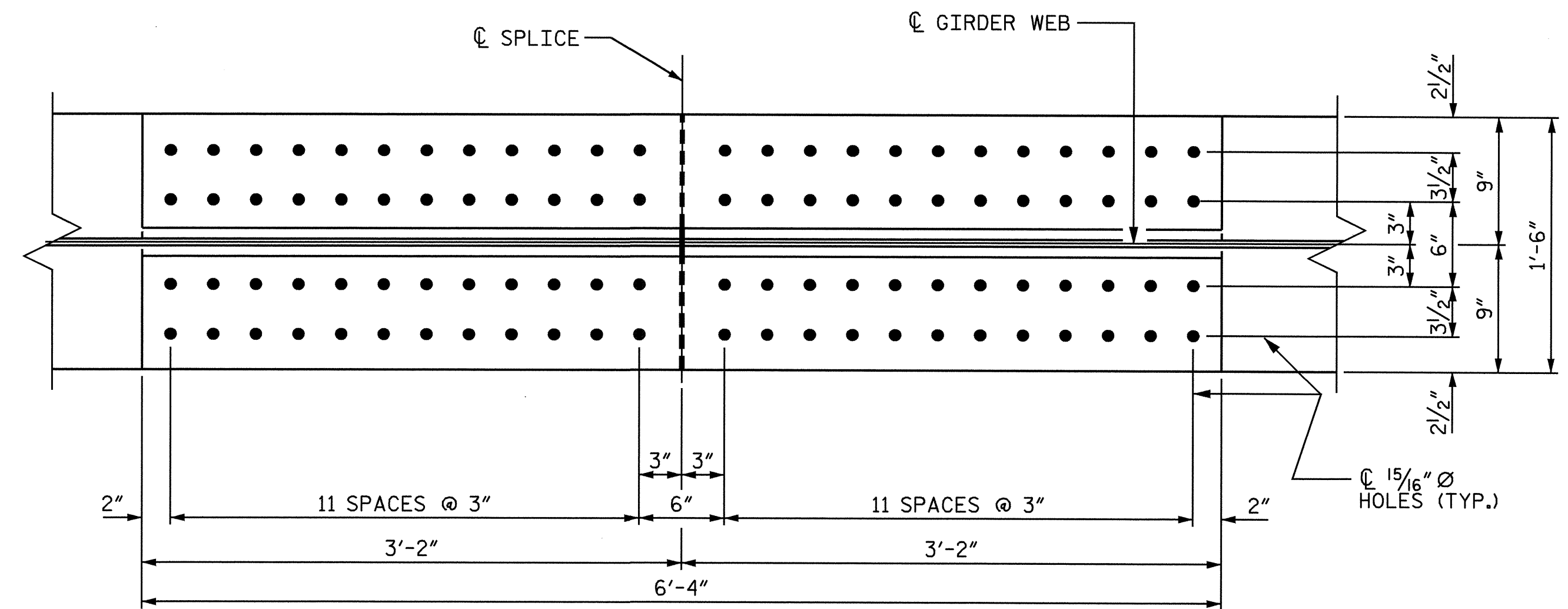
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS

DRAWN BY : T. A. HARRIS DATE : 2/28/05
CHECKED BY : T. L. CLELLAND DATE : 3/4/05

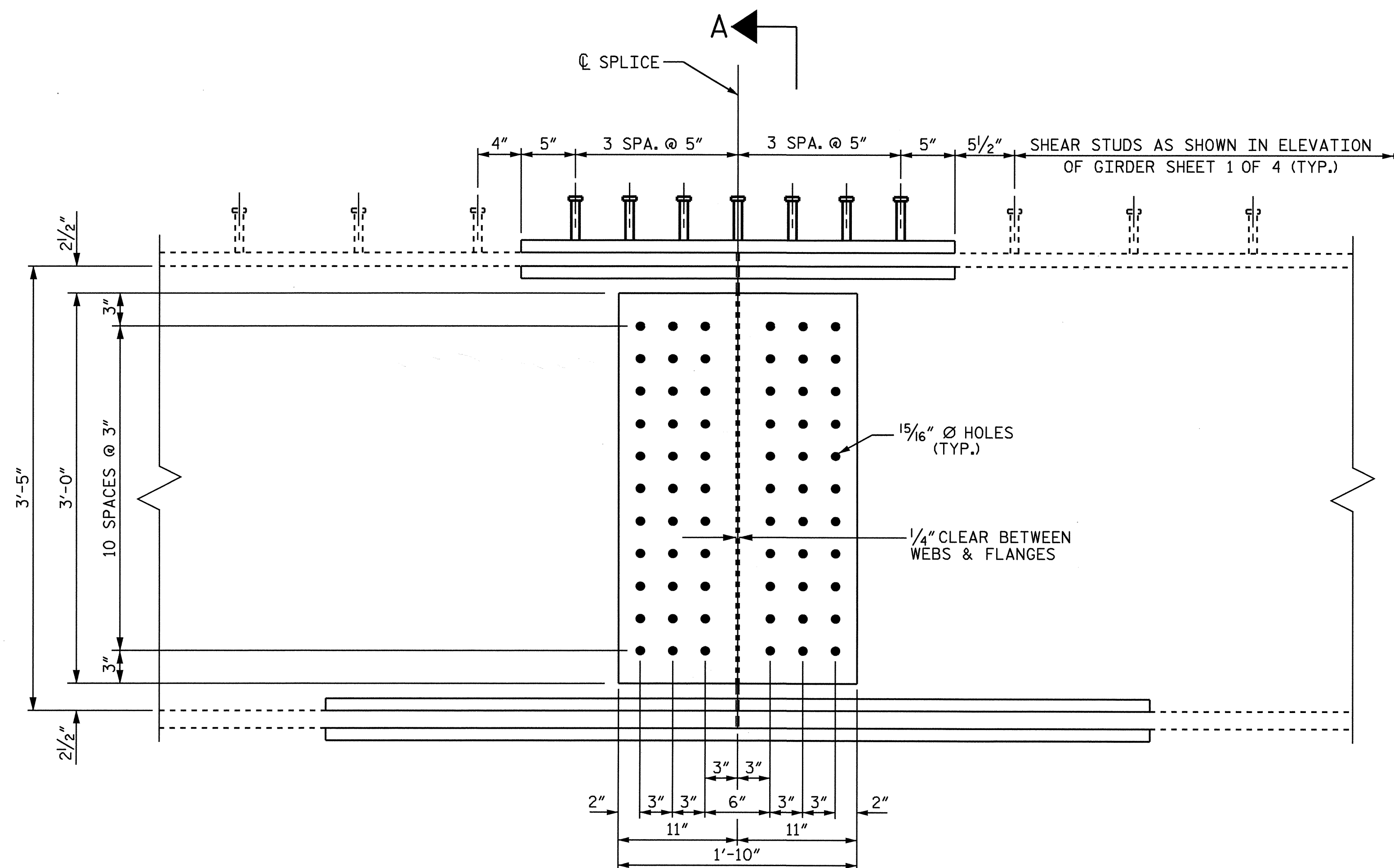
REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			



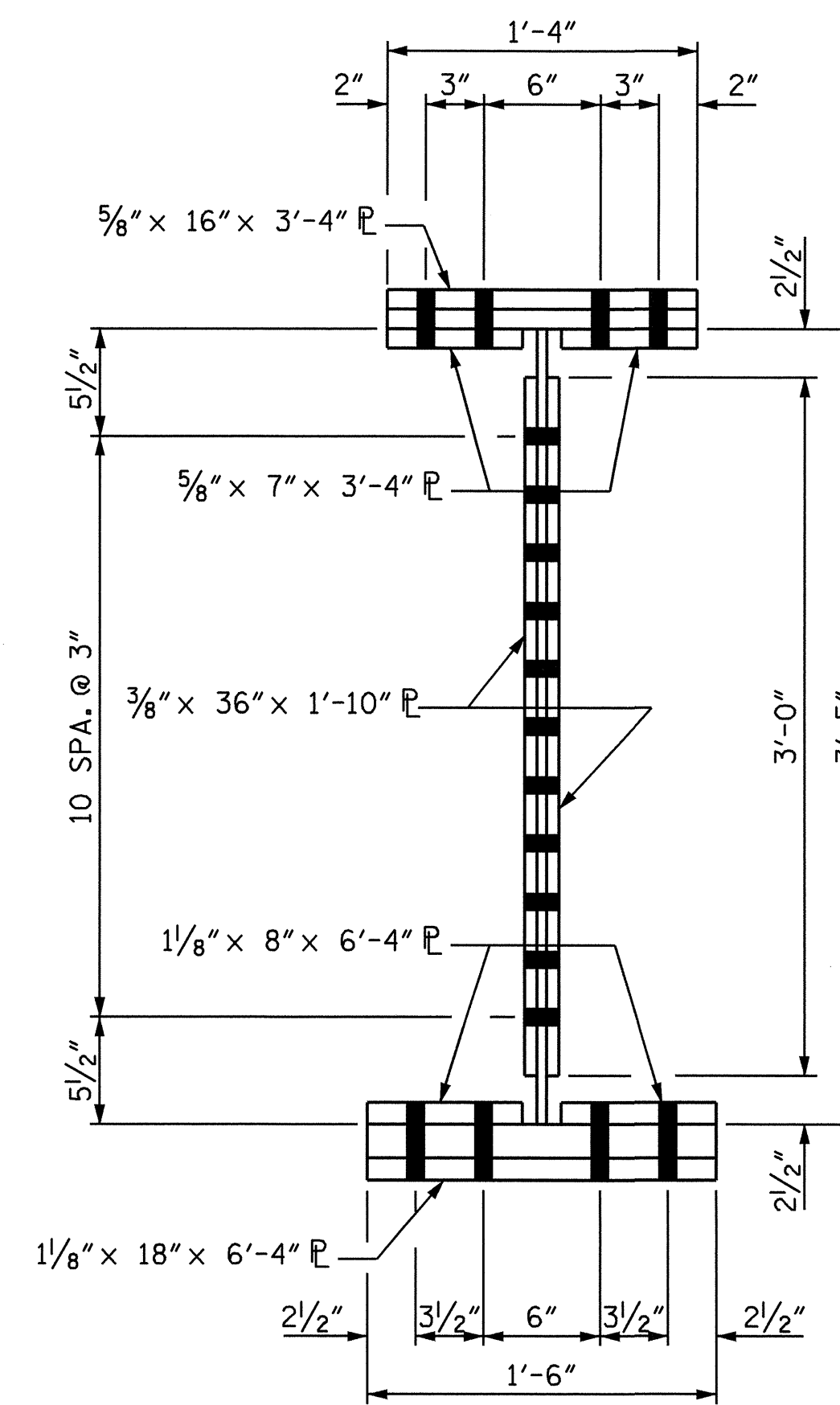
PLAN (TOP OF TOP FLANGE)



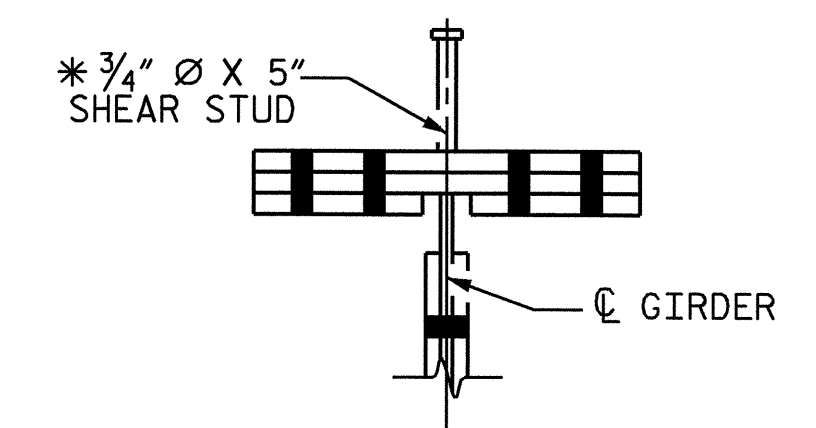
PLAN (TOP OF BOTTOM FLANGE)



ELEVATION



SECTION A-A



SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

* SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY.

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : I. A. HARRIS/A.K.PATEL DATE : 2/28/05
 CHECKED BY : I. L. CLELLAND DATE : 3/4/05

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BOLTED FIELD SPLICE DETAILS

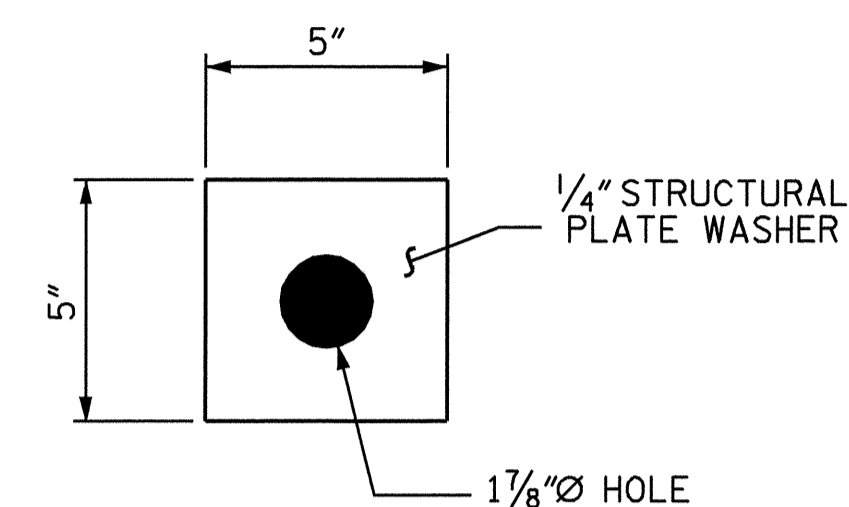
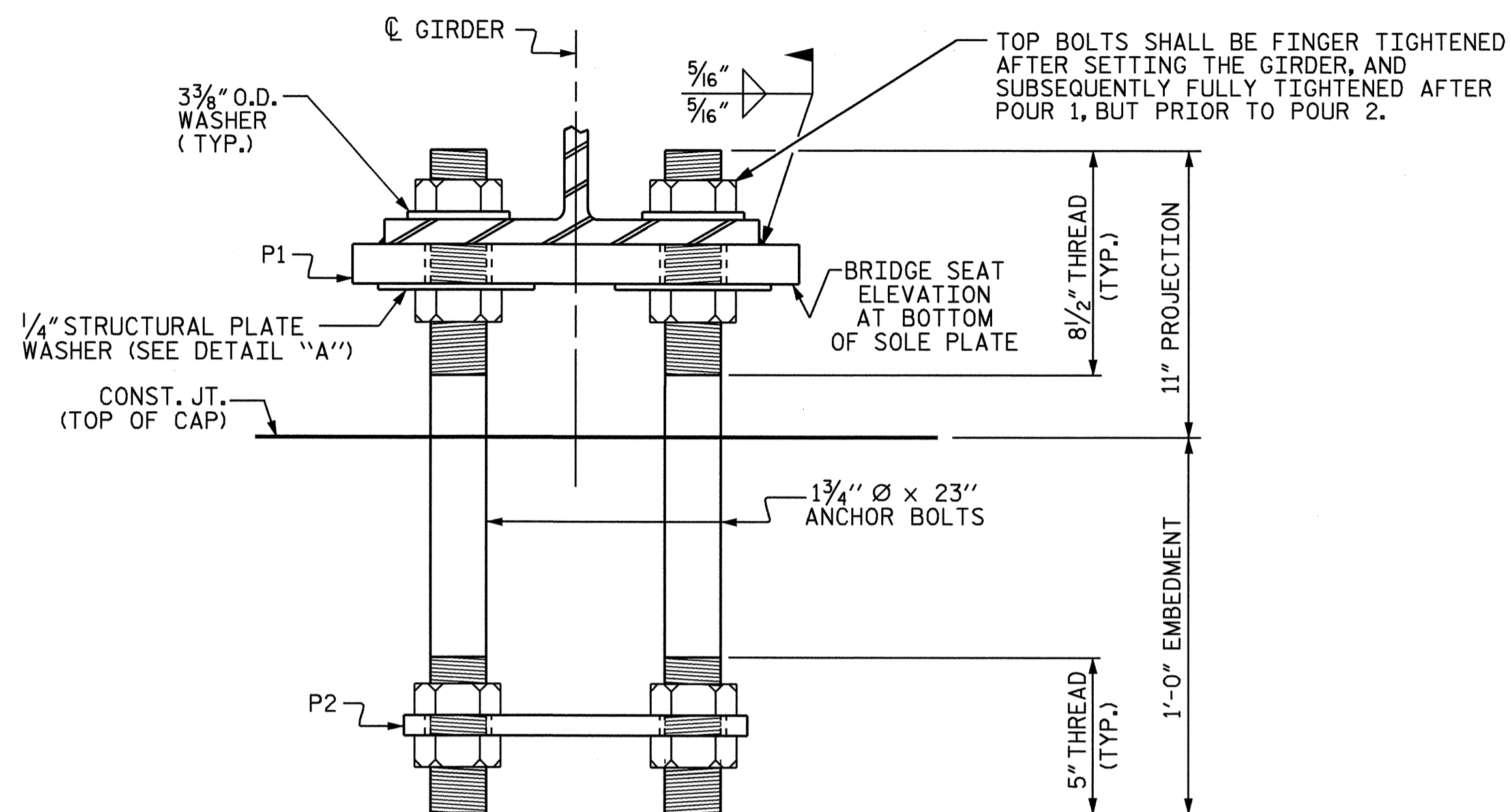
NOTES

AASHTO M270 GRADE 50W STRUCTURAL STEEL, LEVELING PLATES AND ANCHORAGE PLATES 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.

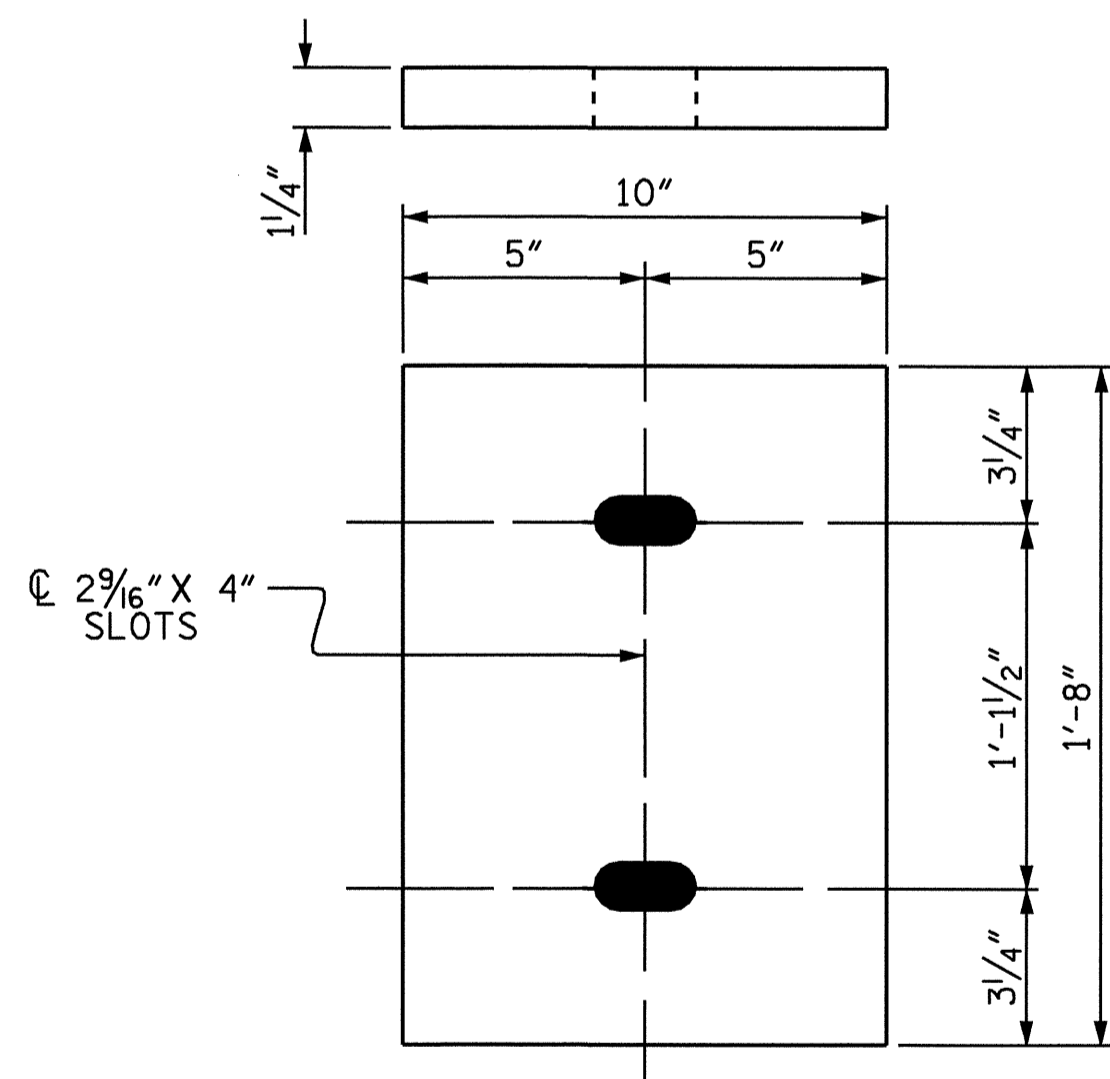
ALL SURFACES OF SOLE PLATES SHALL BE SMOOTH AND STRAIGHT.

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



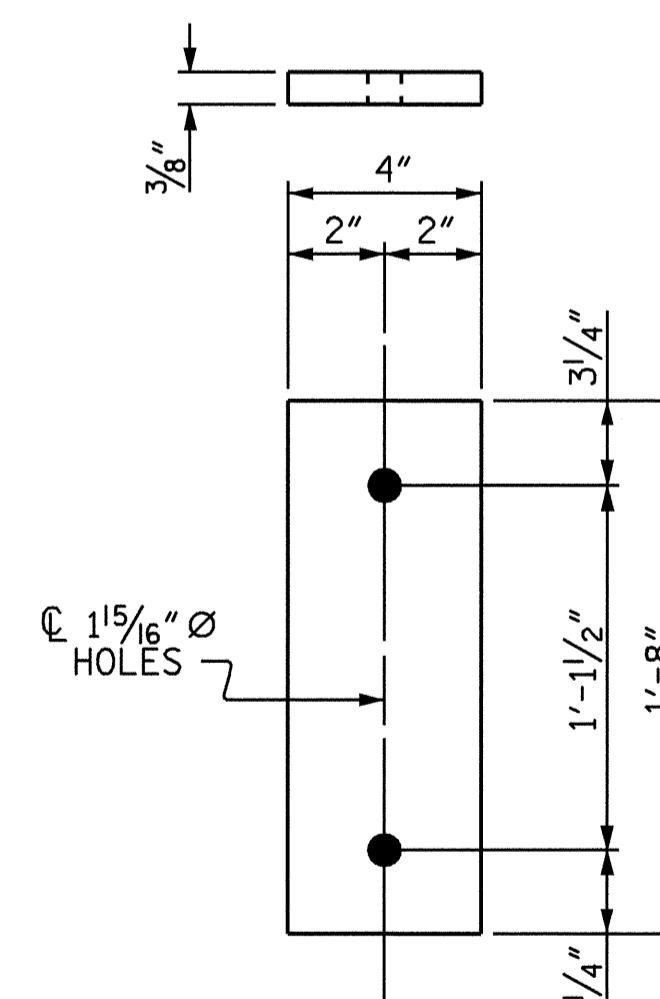
DETAIL "A"

FIXED
END VIEW



P1
P1 (8 REQ'D)

SOLE PLATE DETAILS (P1)



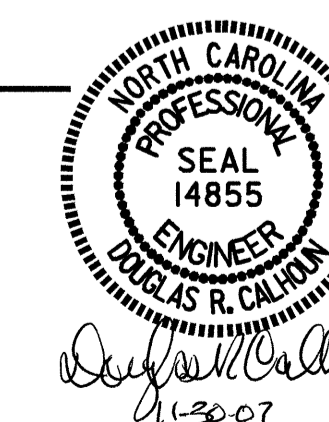
P2
P2 (8 REQ'D)

ANCHORAGE PLATE DETAILS (P2)

PROJECT NO. B-3818
CALDWELL COUNTY
STATION: 14+69.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLE PLATE
DETAILS



DRAWN BY : K. P. SEDA DATE : 5/1/06
CHECKED BY : T. A. HARRIS DATE : 8/3/06

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			21

NOTES

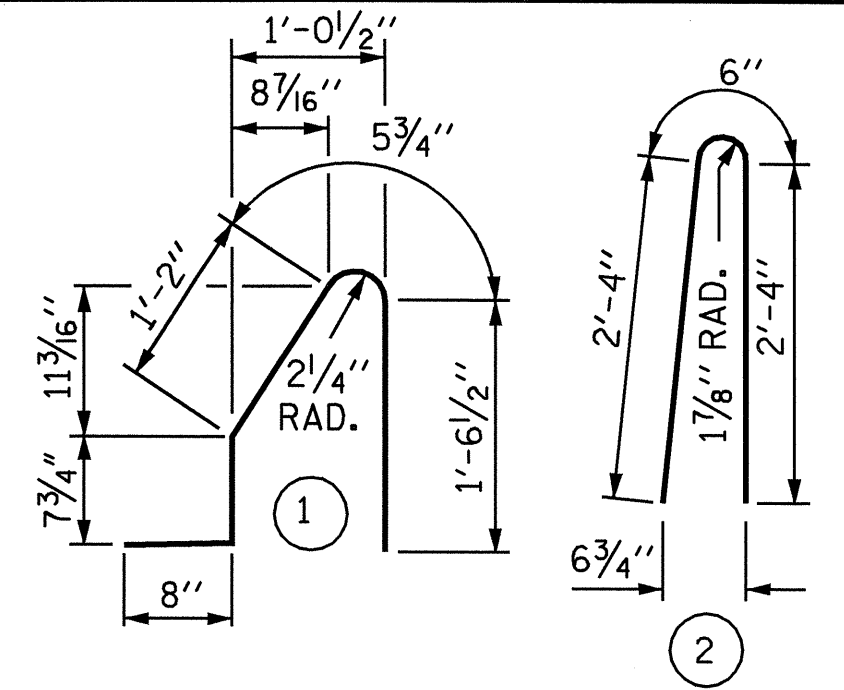
THE BARRIER RAIL IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

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



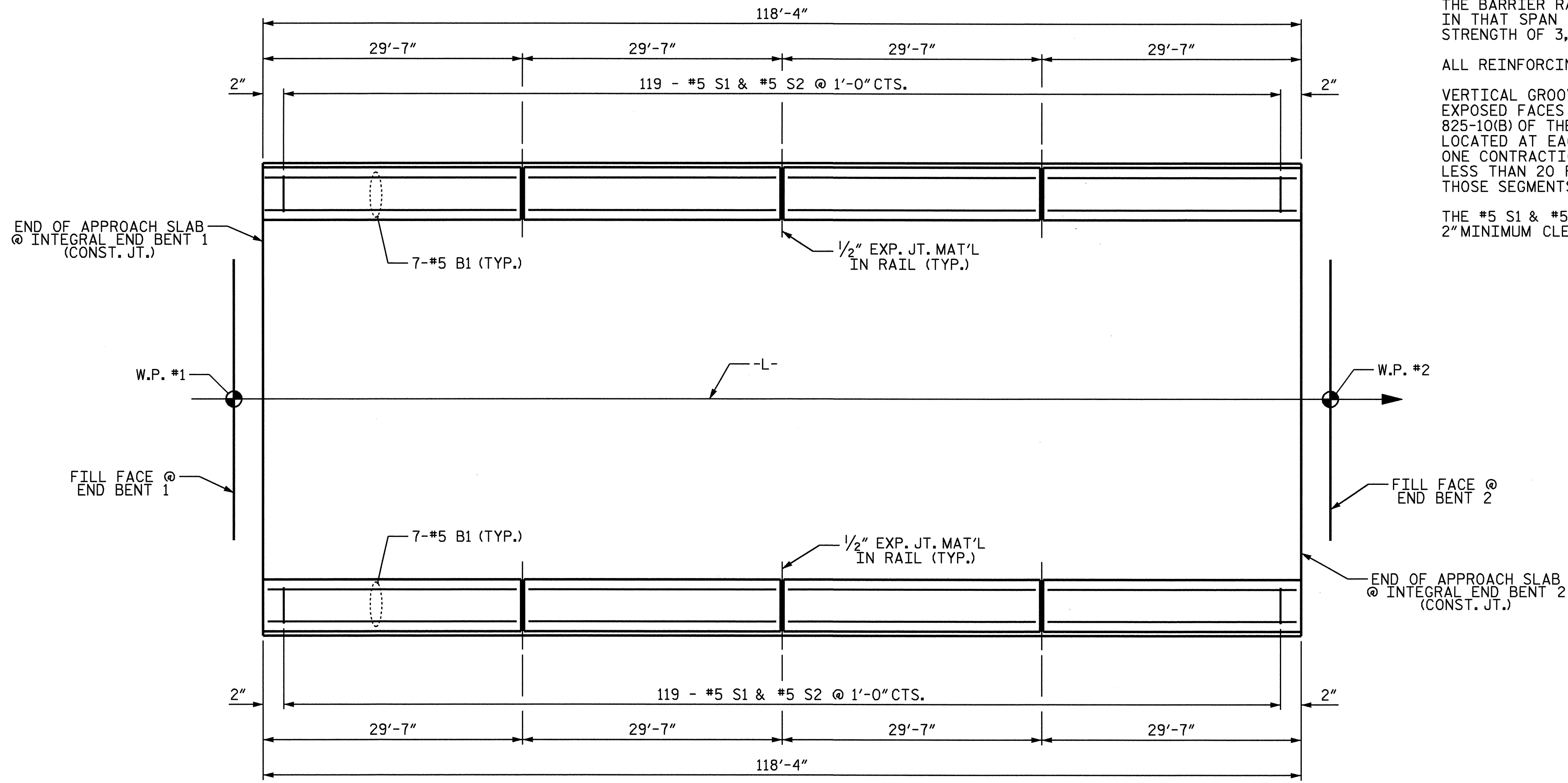
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

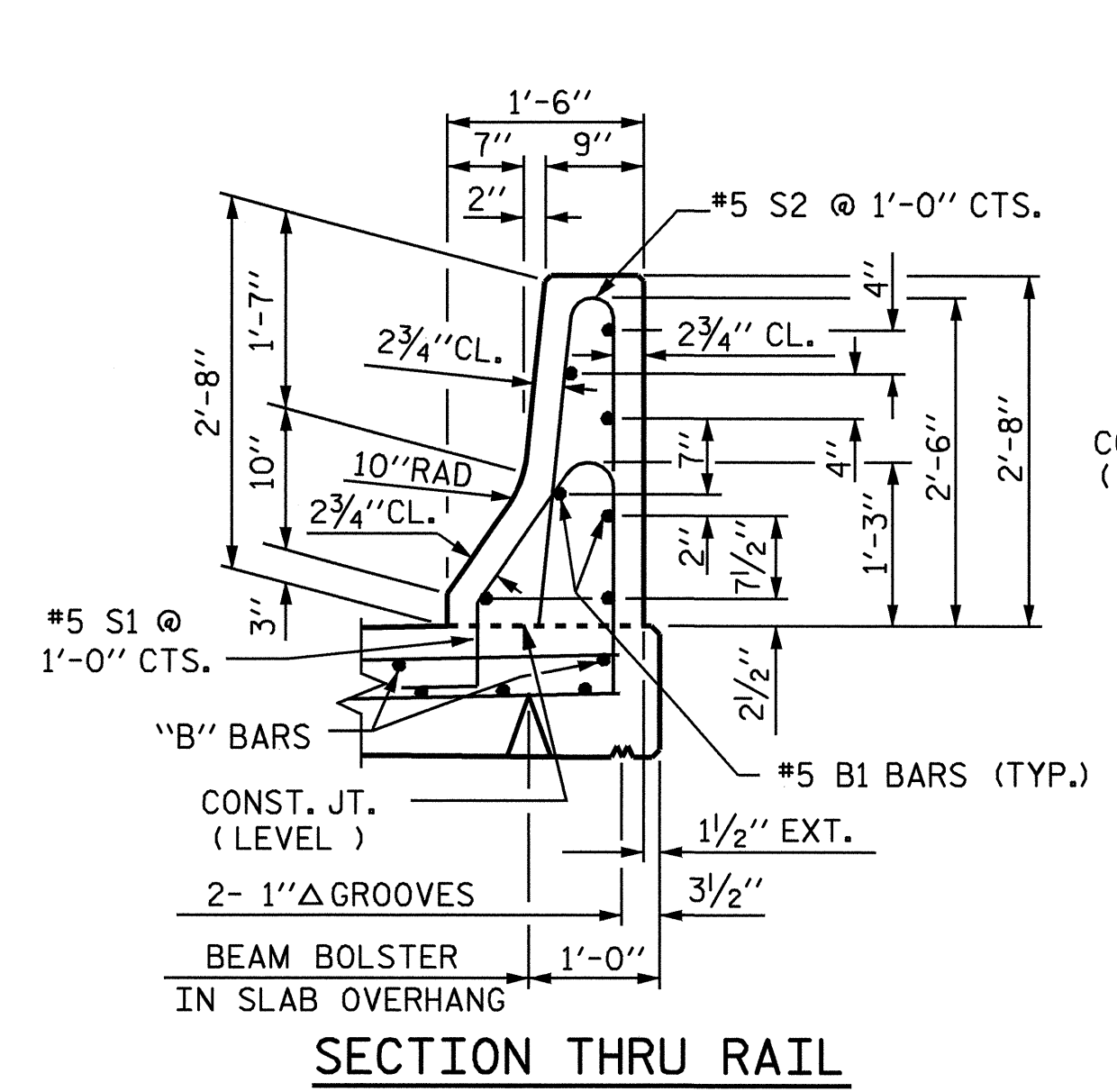
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	56	#5	STR	29'-2"	1704
* S1	238	#5	1	4'-6"	1117
* S2	238	#5	2	5'-2"	1283

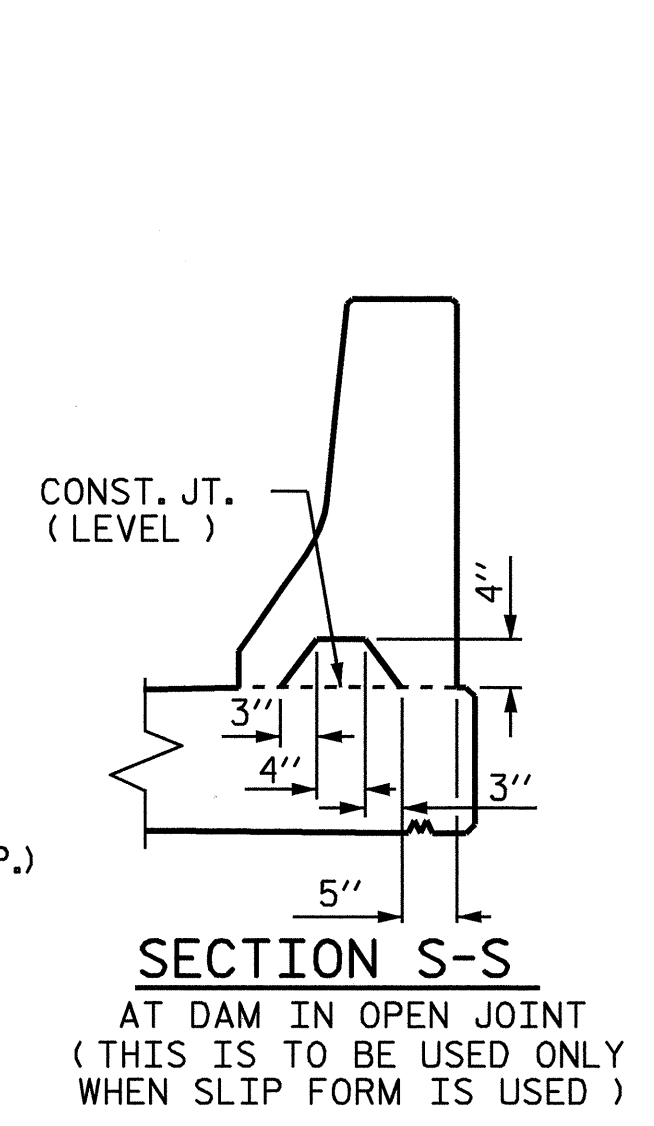
* EPOXY COATED REINFORCING STEEL 4104 LBS.
 CLASS AA CONCRETE 23.7 CU. YDS.
 CONCRETE BARRIER RAIL 236.67 LIN. FT.



PLAN OF BARRIER RAIL

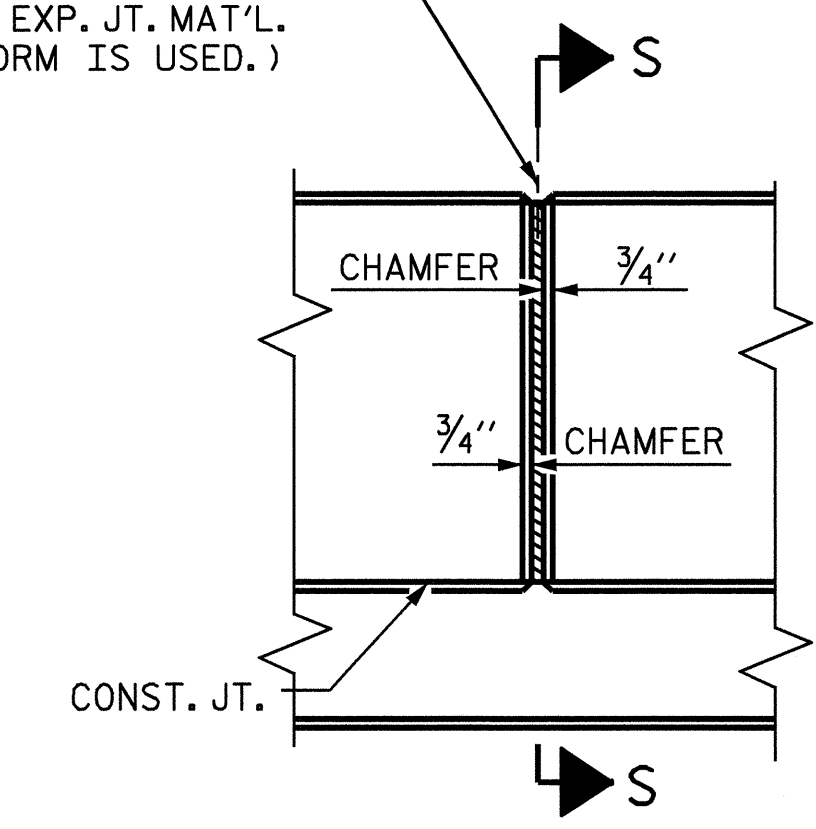


SECTION THRU RAIL

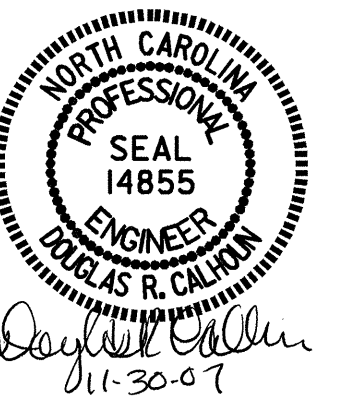


SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

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



ELEVATION AT EXPANSION JOINTS



PROJECT NO. B-3818
 CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD CONCRETE BARRIER RAIL					
OCTOBER 1987					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-12					TOTAL SHEETS 21

ASSEMBLED BY : T. A. HARRIS	DATE : 3/1/05
CHECKED BY : T. L. CLELLAND	DATE : 3/7/05
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/GM

BARRIER RAIL DETAILS

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.)

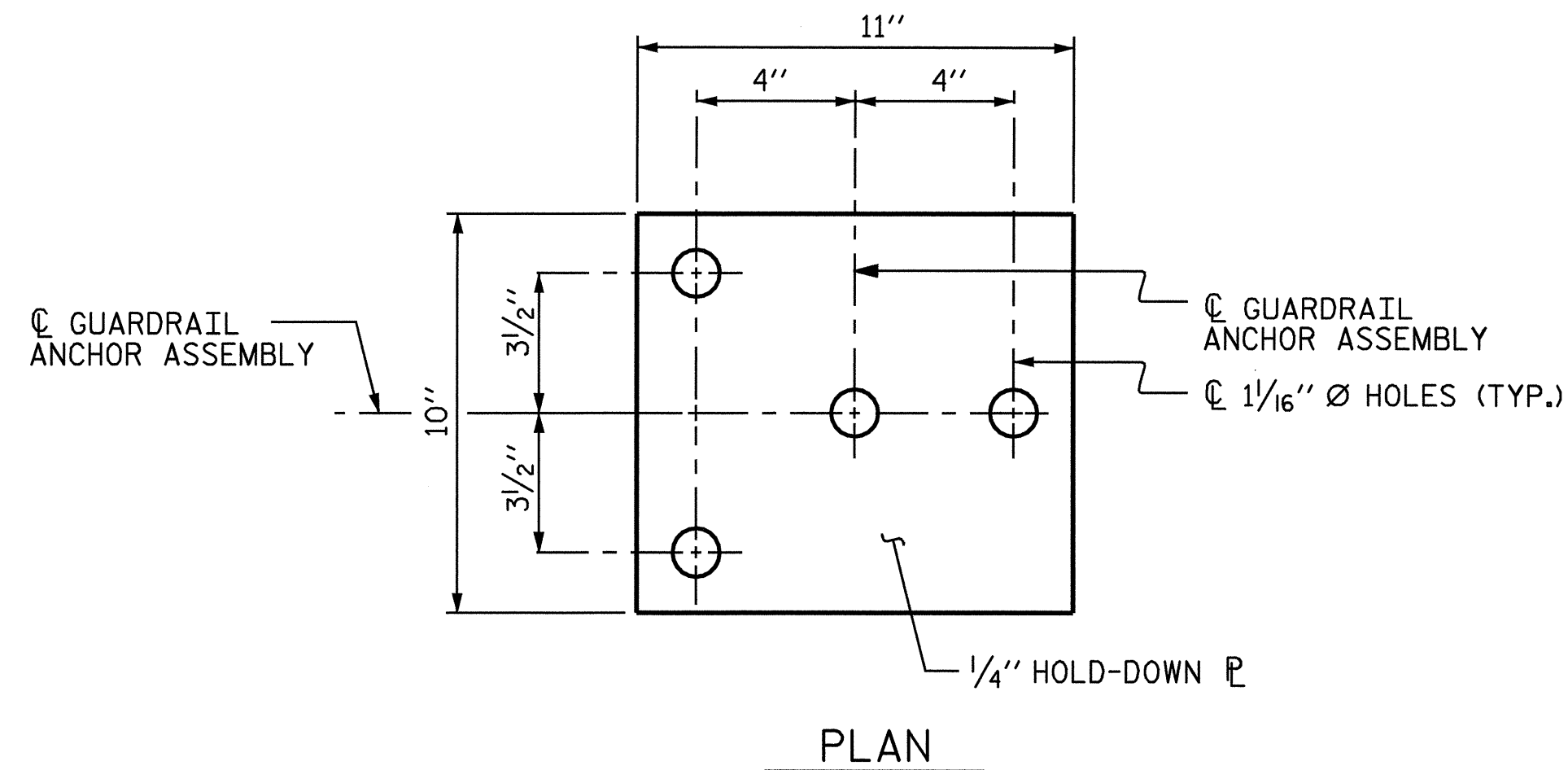
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

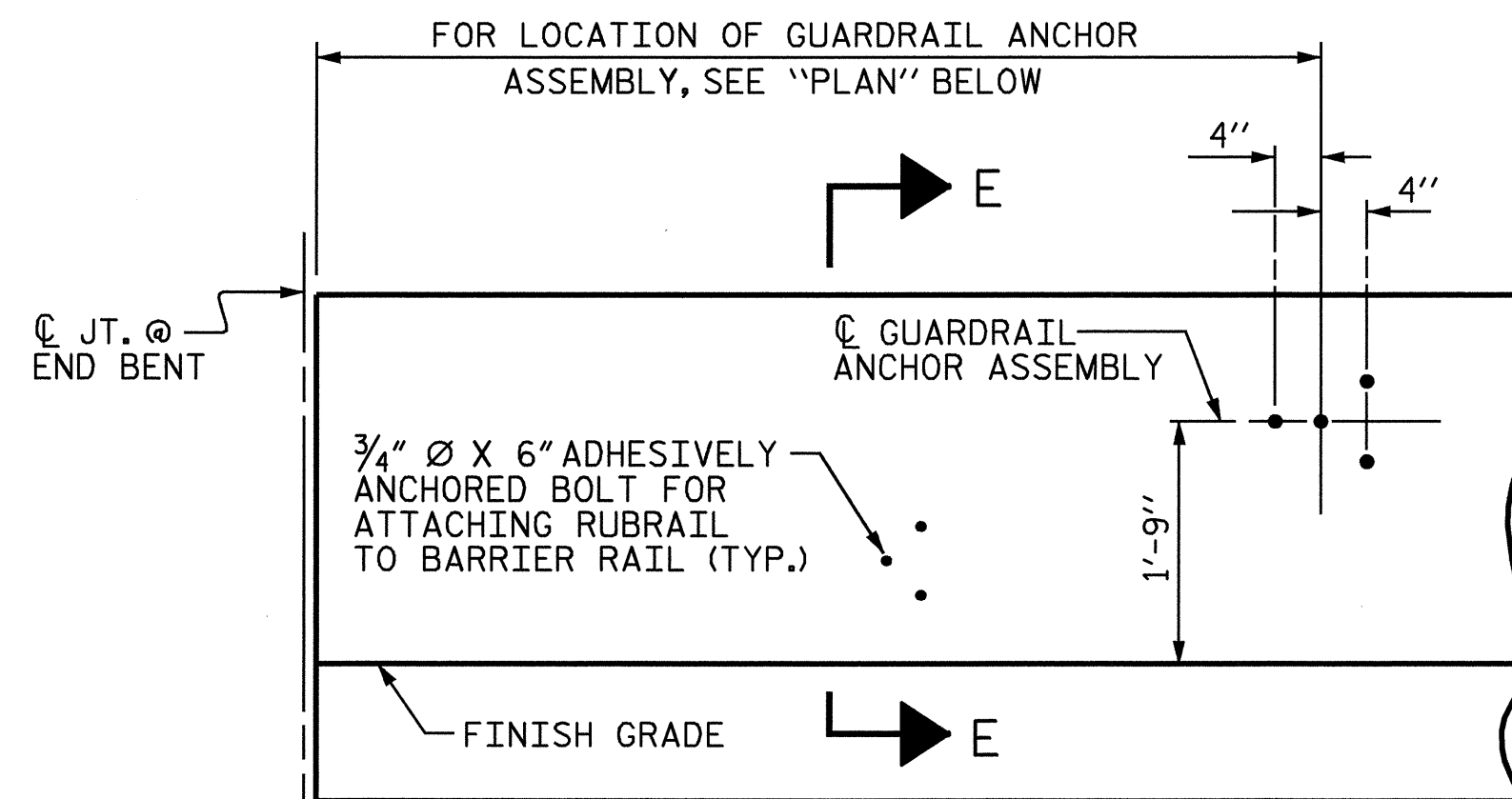
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

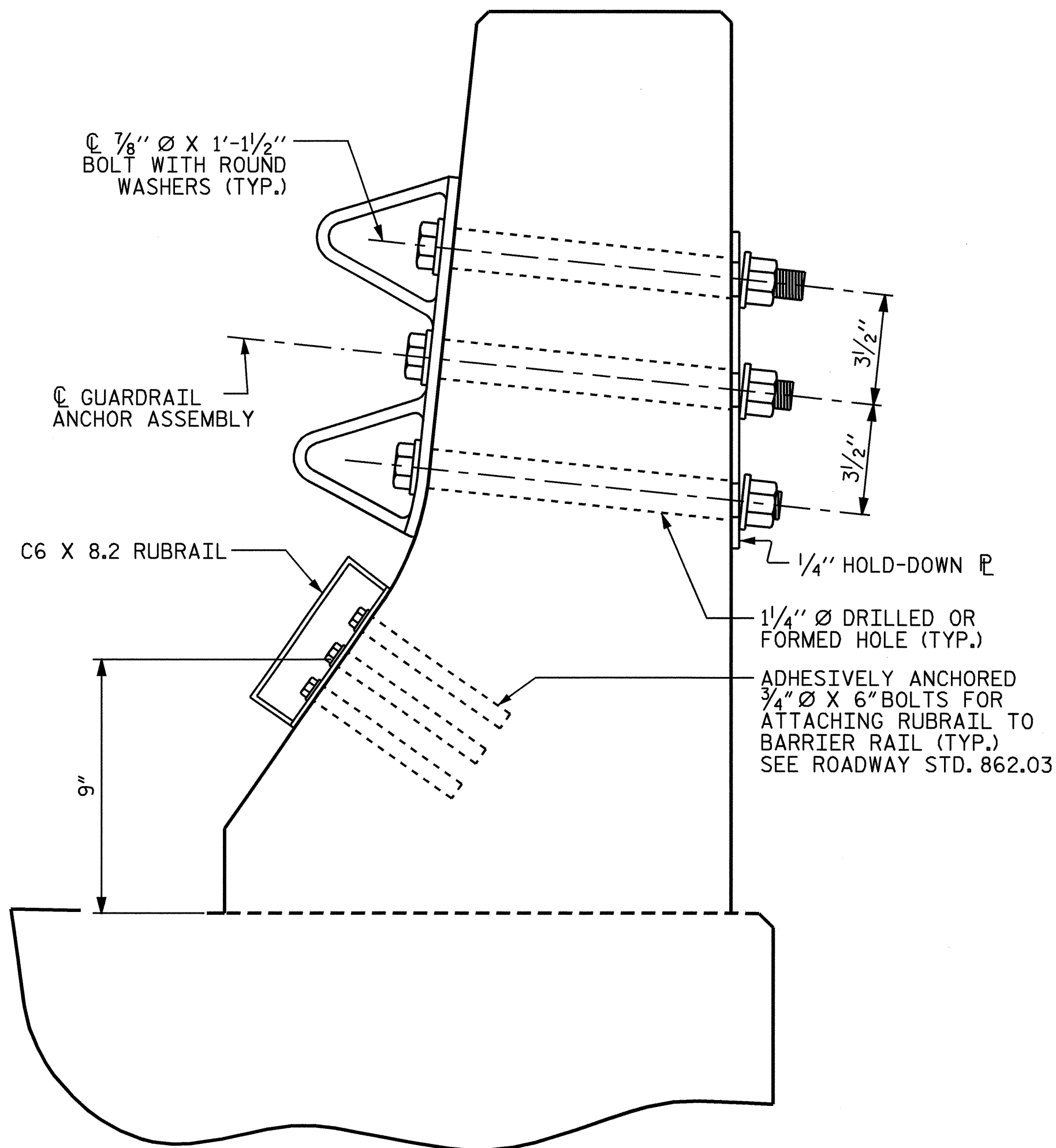


PLAN



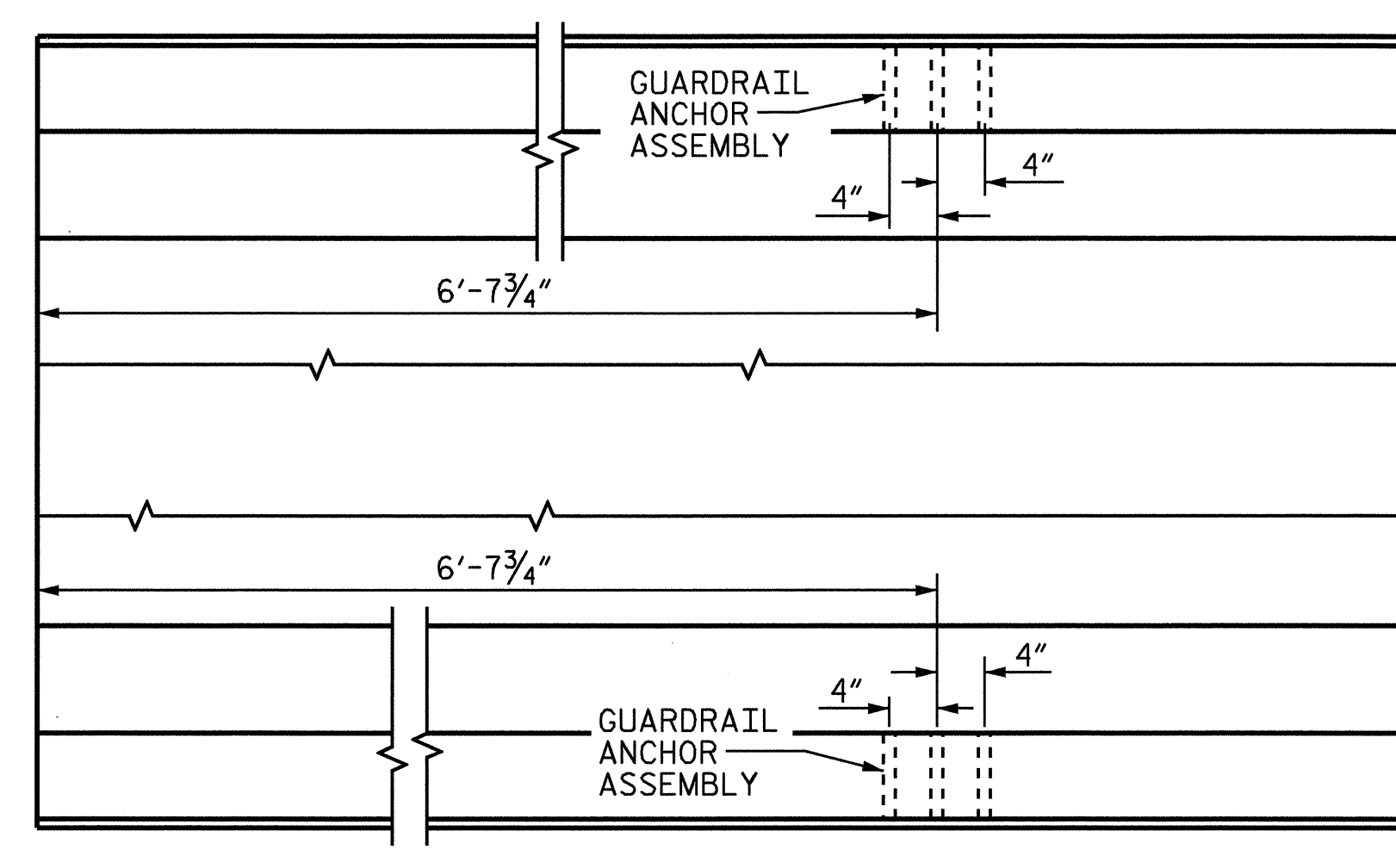
ELEVATION

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



SECTION E-E

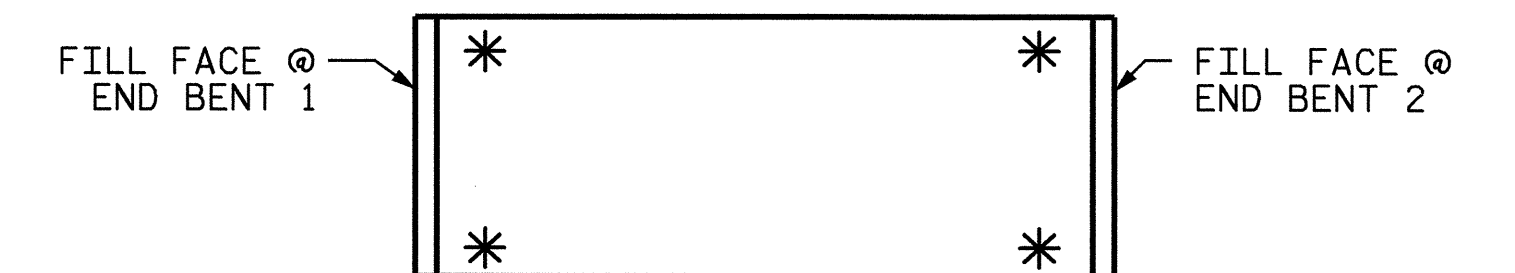
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

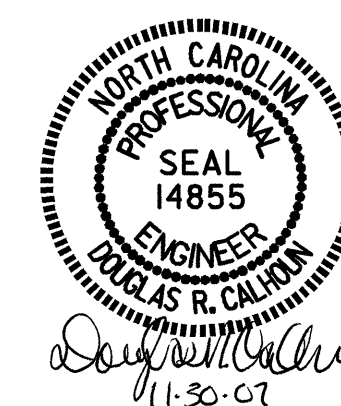
(* DENOTES GUARDRAIL ANCHOR ASSEMBLY)

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 21
2			4			

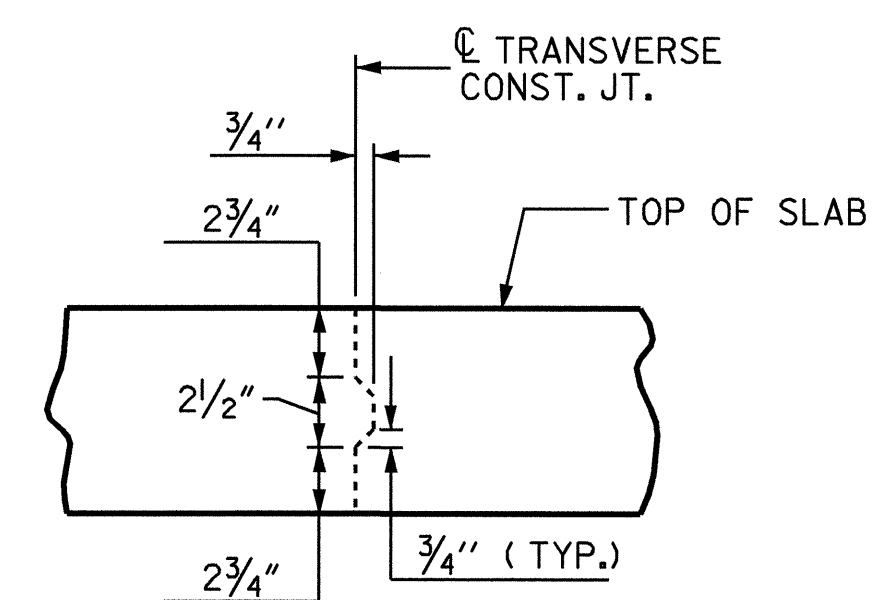
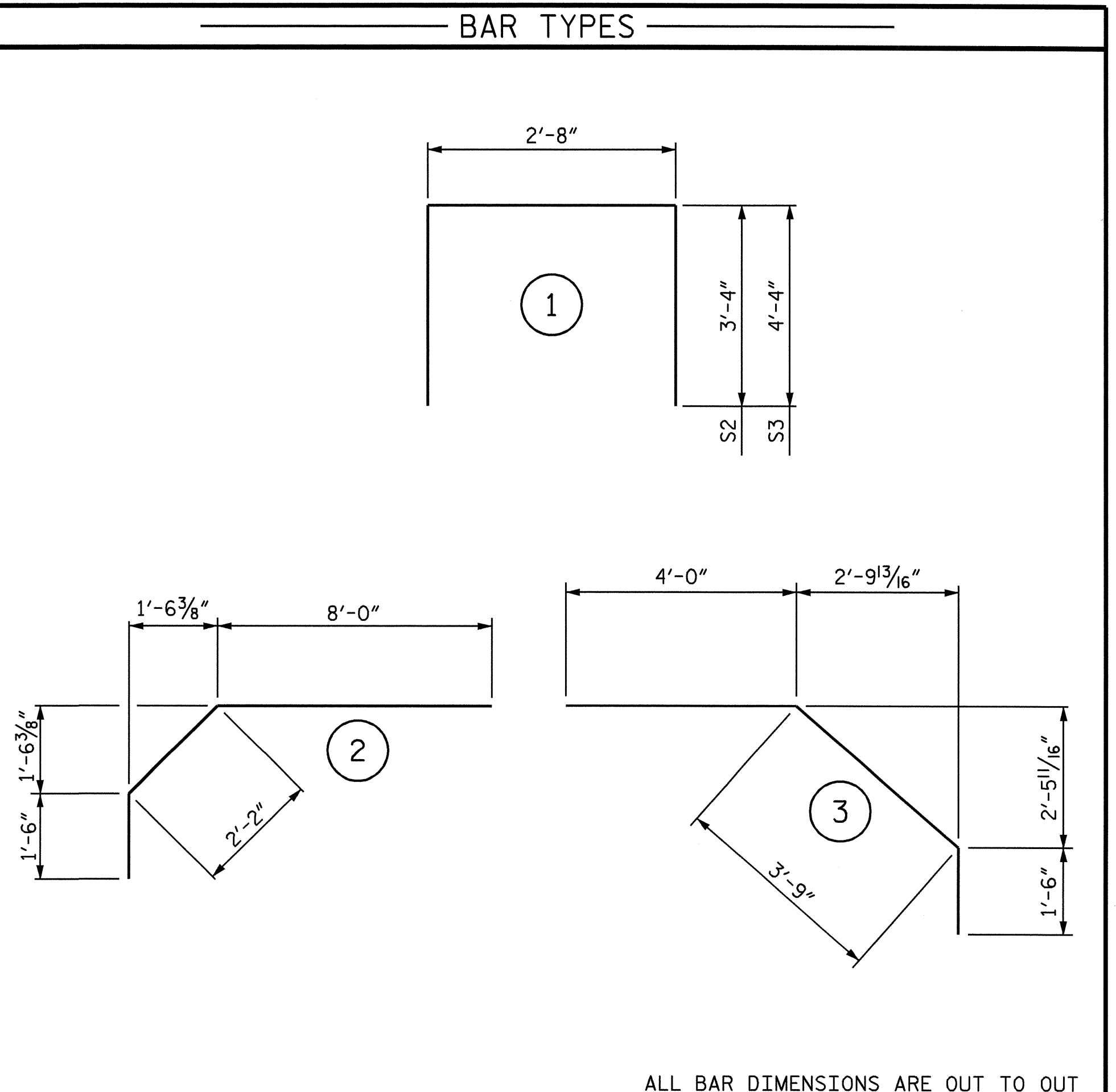
ASSEMBLED BY : T. A. HARRIS	DATE : 8/4/06
CHECKED BY : E. G. ALLEN	DATE : 8/14/06
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

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	189	#5	STR	26'-11"	5306
A2	189	#5	STR	26'-11"	5306
* B1	100	#4	STR	25'-3"	1687
B2	81	#5	STR	40'-10"	3450
* B3	68	#5	STR	24'-0"	1702
B4	44	#5	STR	24'-0"	1101
K1	20	#5	STR	32'-11"	687
K2	16	#5	STR	2'-8"	45
S2	70	#4	1	9'-4"	436
S3	16	#4	1	11'-4"	121
* S4	48	#4	2	11'-8"	374
* S5	44	#4	3	9'-3"	272
REINFORCING STEEL =					11,146 LBS
* EPOXY COATED REINF. STEEL =					9341 LBS



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

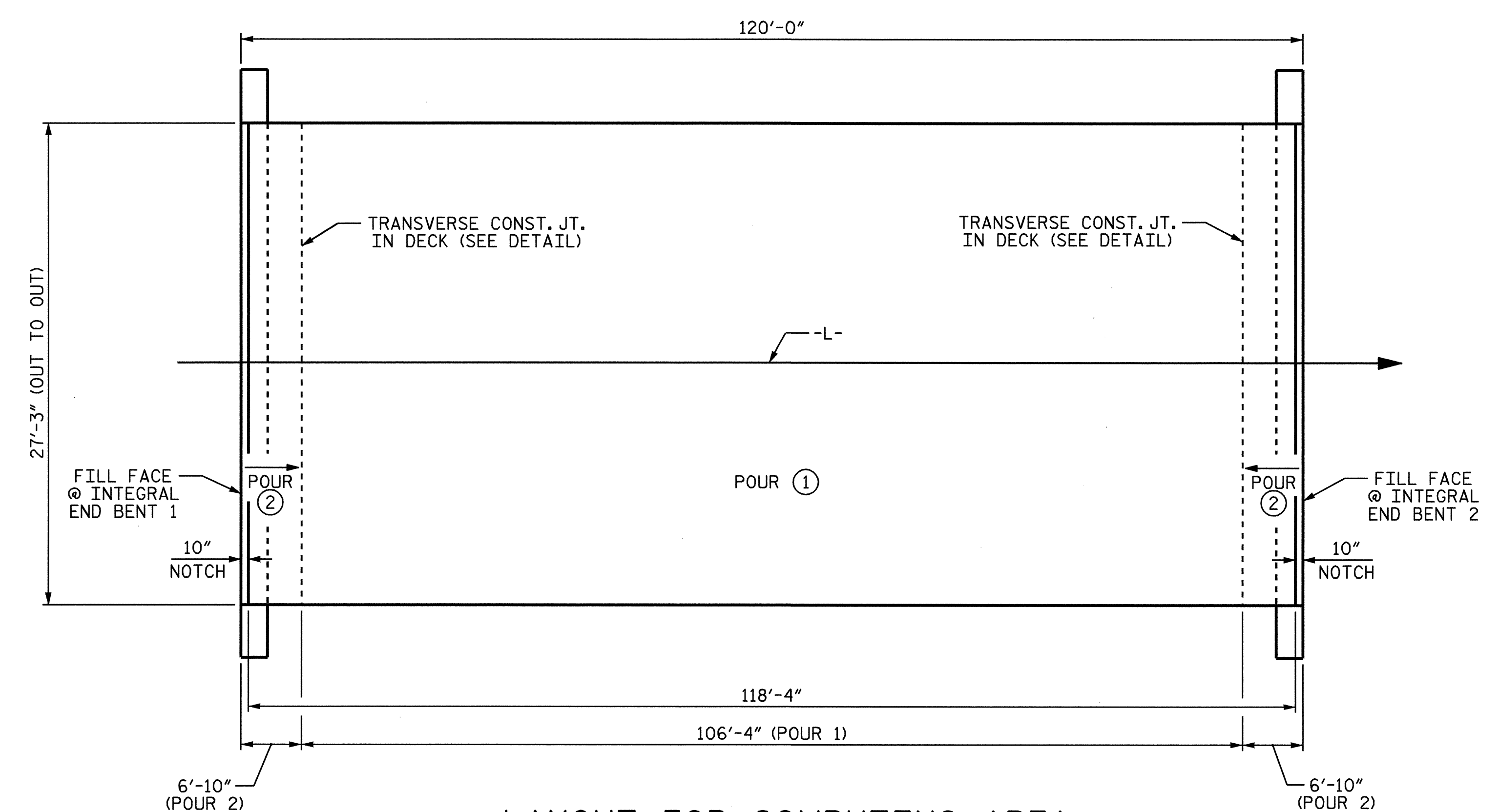
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YARDS)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	84.3		
POUR 2	38.2		
TOTALS **	122.5	11,146	9341

** QUANTITIES FOR CONCRETE BARRIER RAIL ARE NOT INCLUDED.

GROOVING BRIDGE FLOORS

APPROACH SLABS	604 SQ. FT.
BRIDGE DECK	2485 SQ. FT.
TOTAL	3089 SQ. FT.

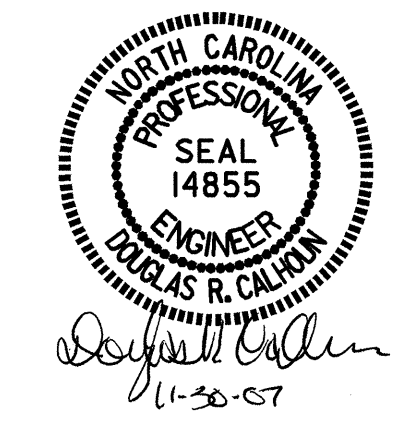


LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB & CONCRETE POUR DETAIL
(SQ. FT. = 3270)

NOTE: POUR 2 INCLUDES PARTIAL DECK, END BENT DIAPHRAGMS AND UPPER WINGS OF END BENTS.

DRAWN BY: T. A. HARRIS DATE: 3/1/05
CHECKED BY: T. L. CLELLAND DATE: 3/8/05

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PROJECT NO. B-3818
CALDWELL COUNTY
STATION: 14+69.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
BILL OF MATERIAL

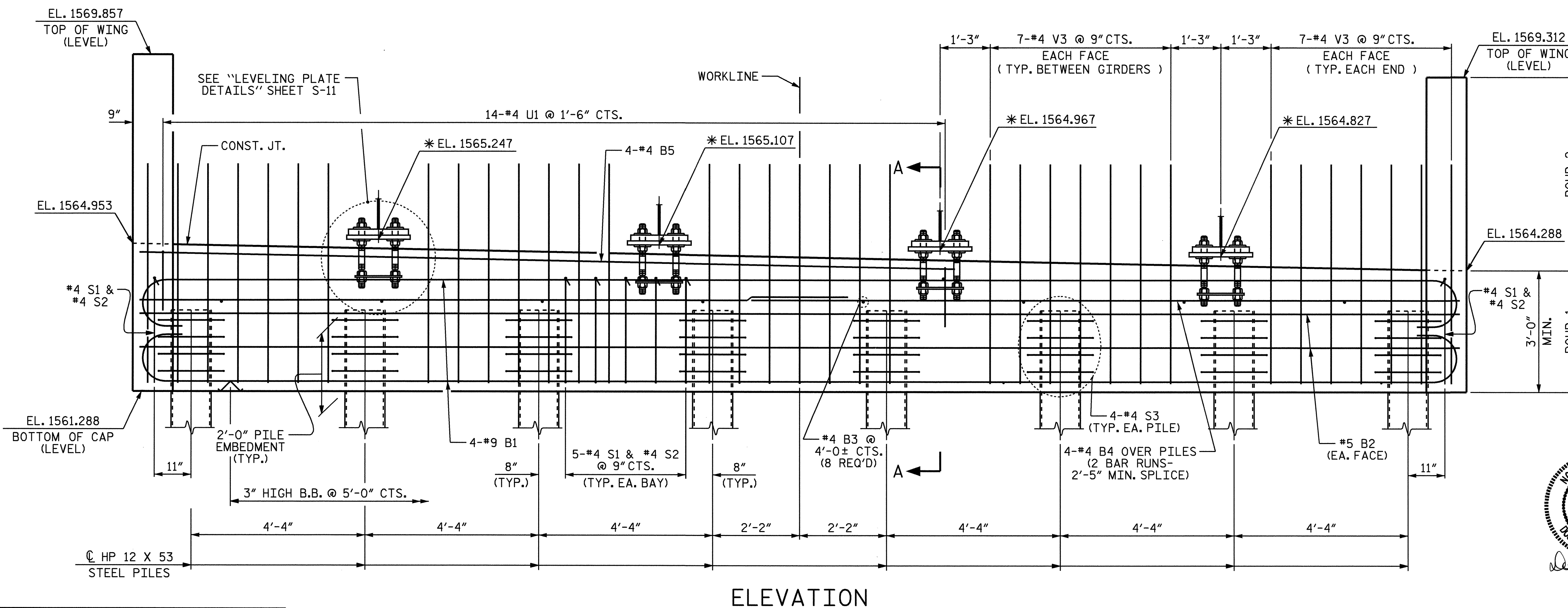
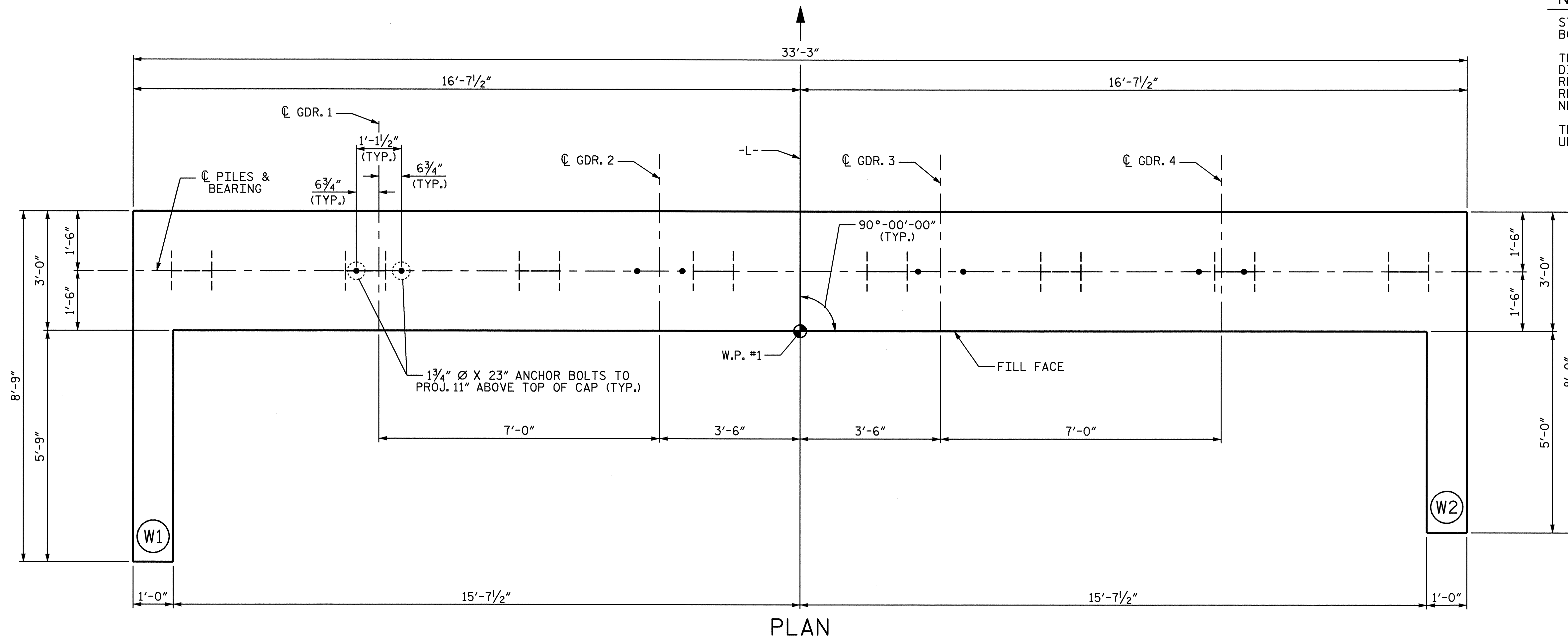
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			21
2			4			

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF WINGS ARE TO BE POURED WITH SUPERSTRUCTURE.



* BRIDGE SEAT ELEVATIONS ARE TAKEN AT BOTTOM OF SOLE PLATE

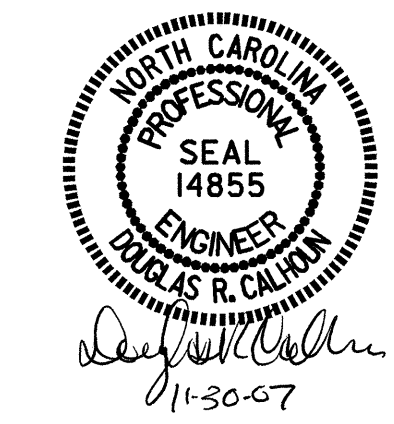
PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 1 OF 2

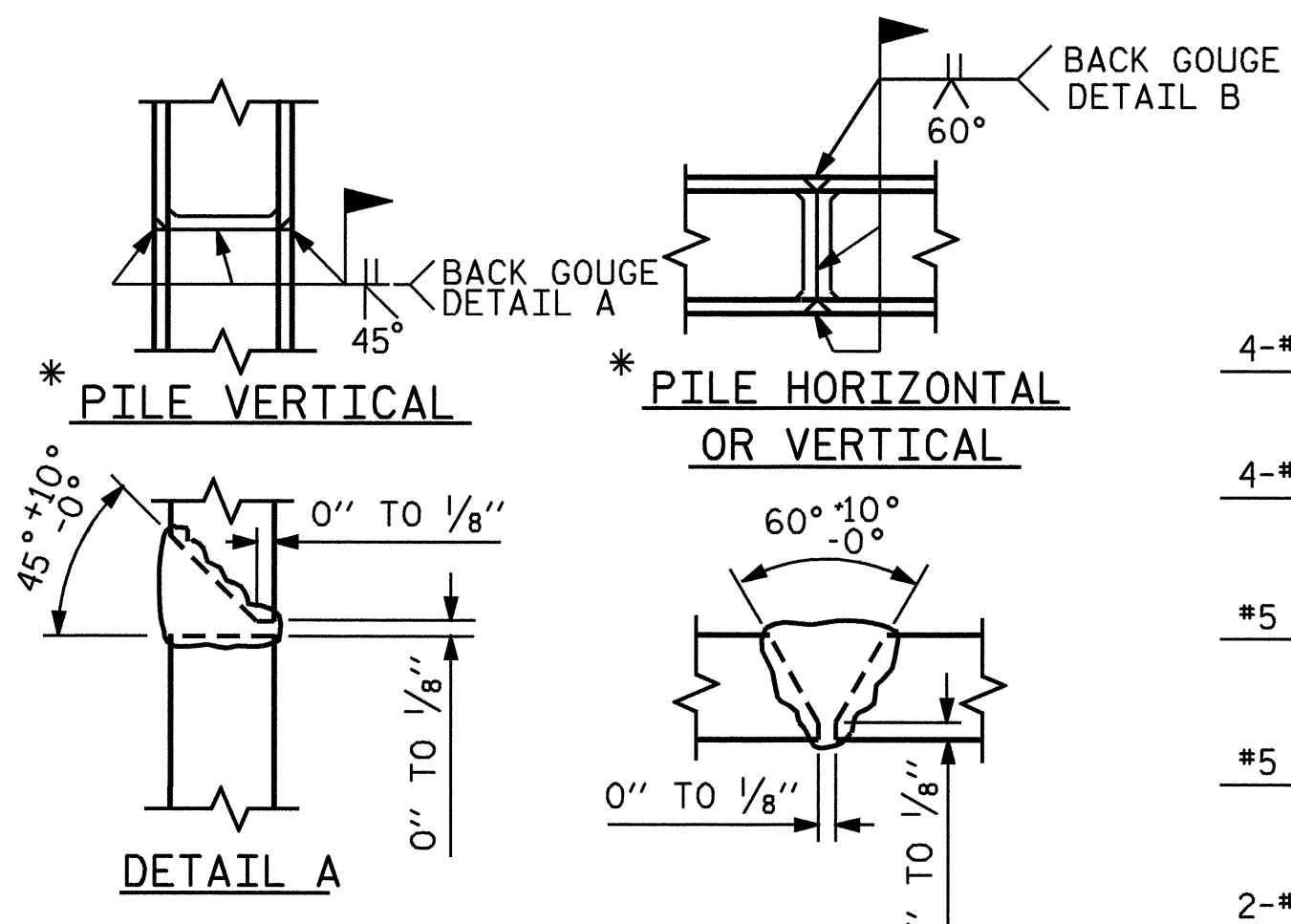
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 INTEGRAL END BENT 1**

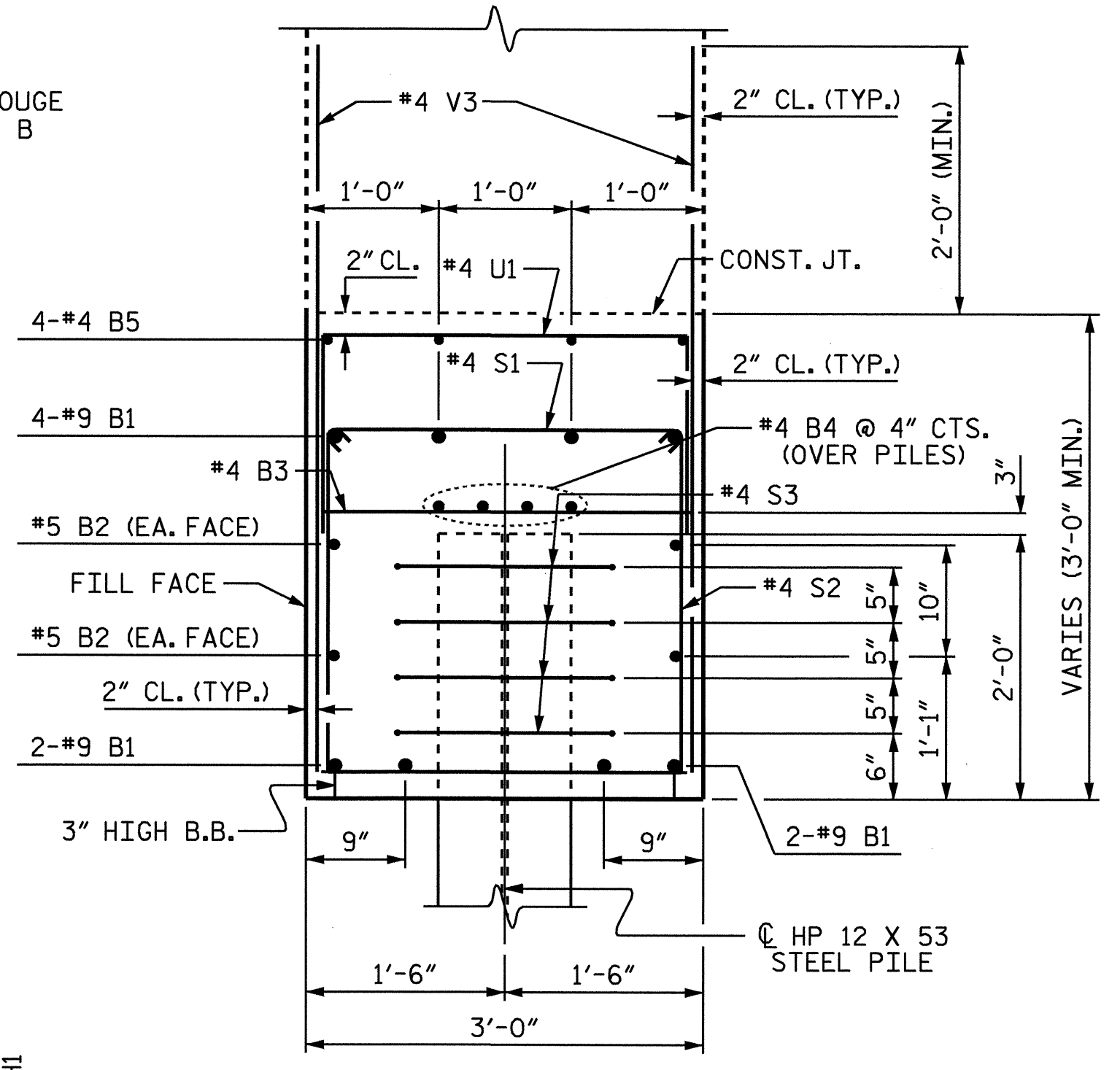
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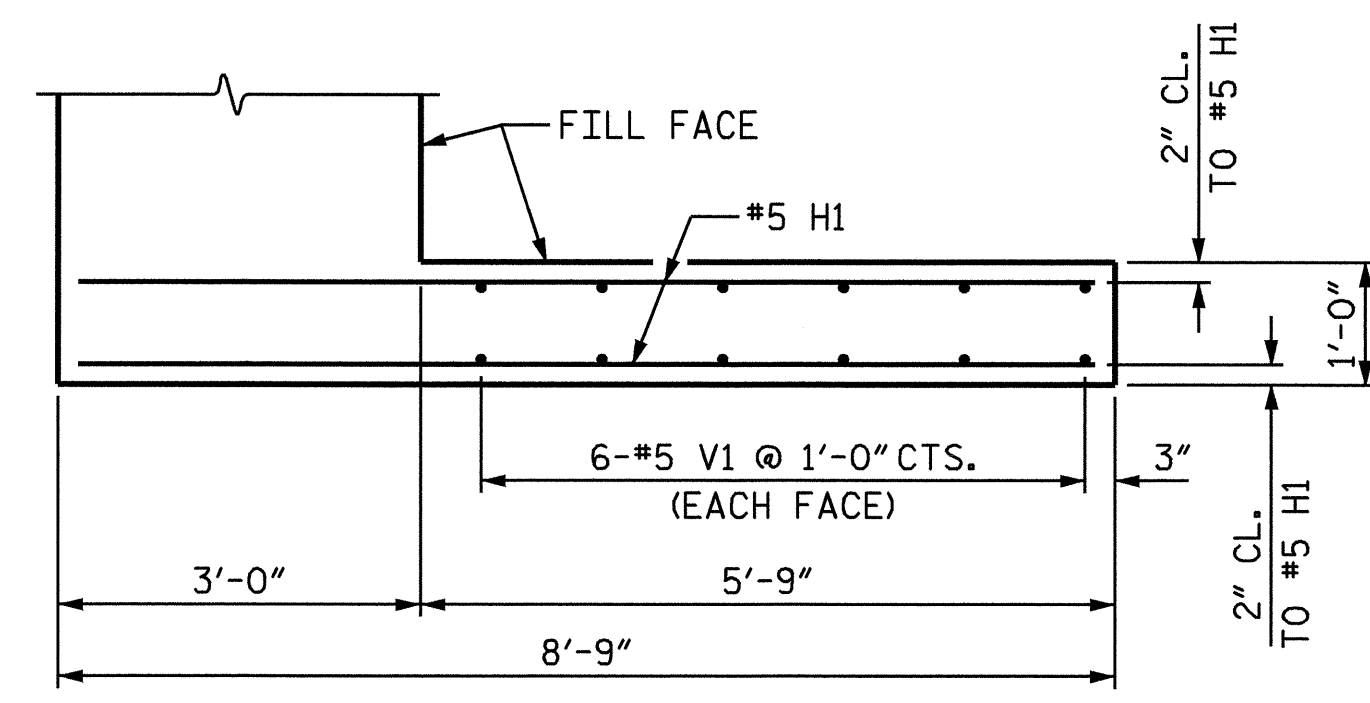
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 CHECKED BY: J. B. WILSON DATE: 8/8/05



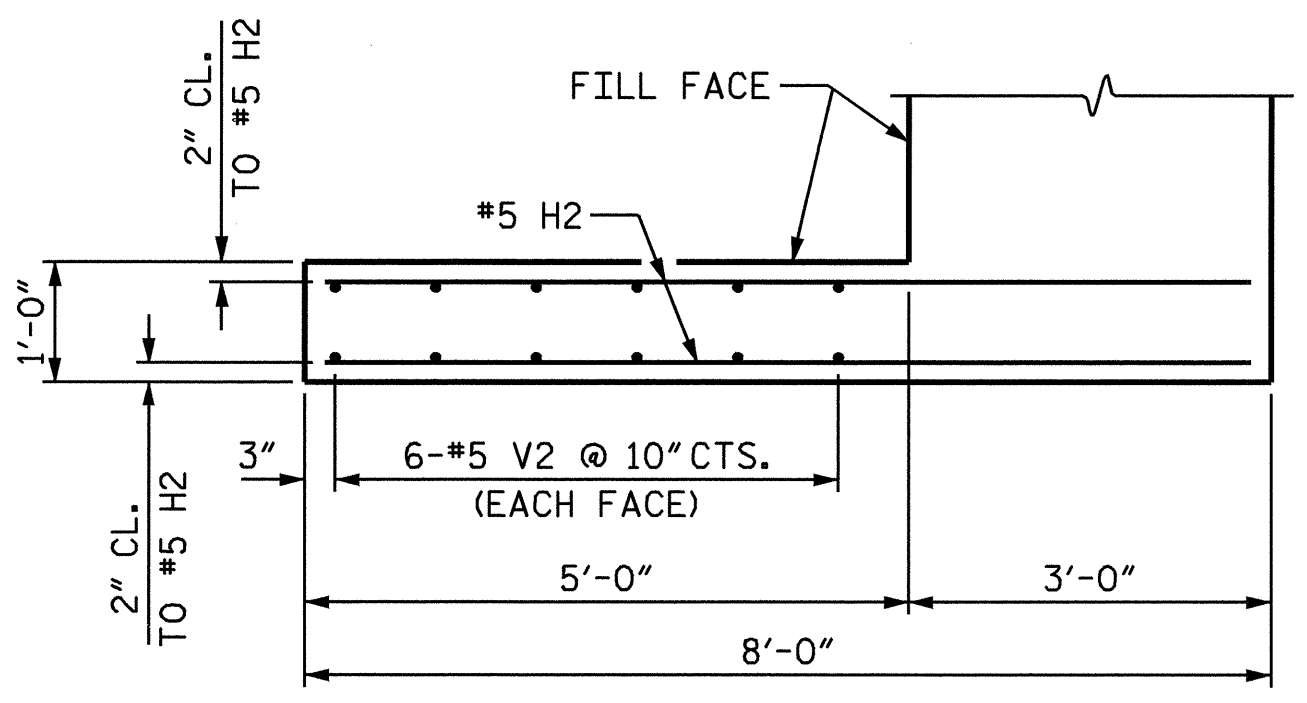
PILE SPLICING DETAILS
 * POSITION OF PILE DURING WELDING.



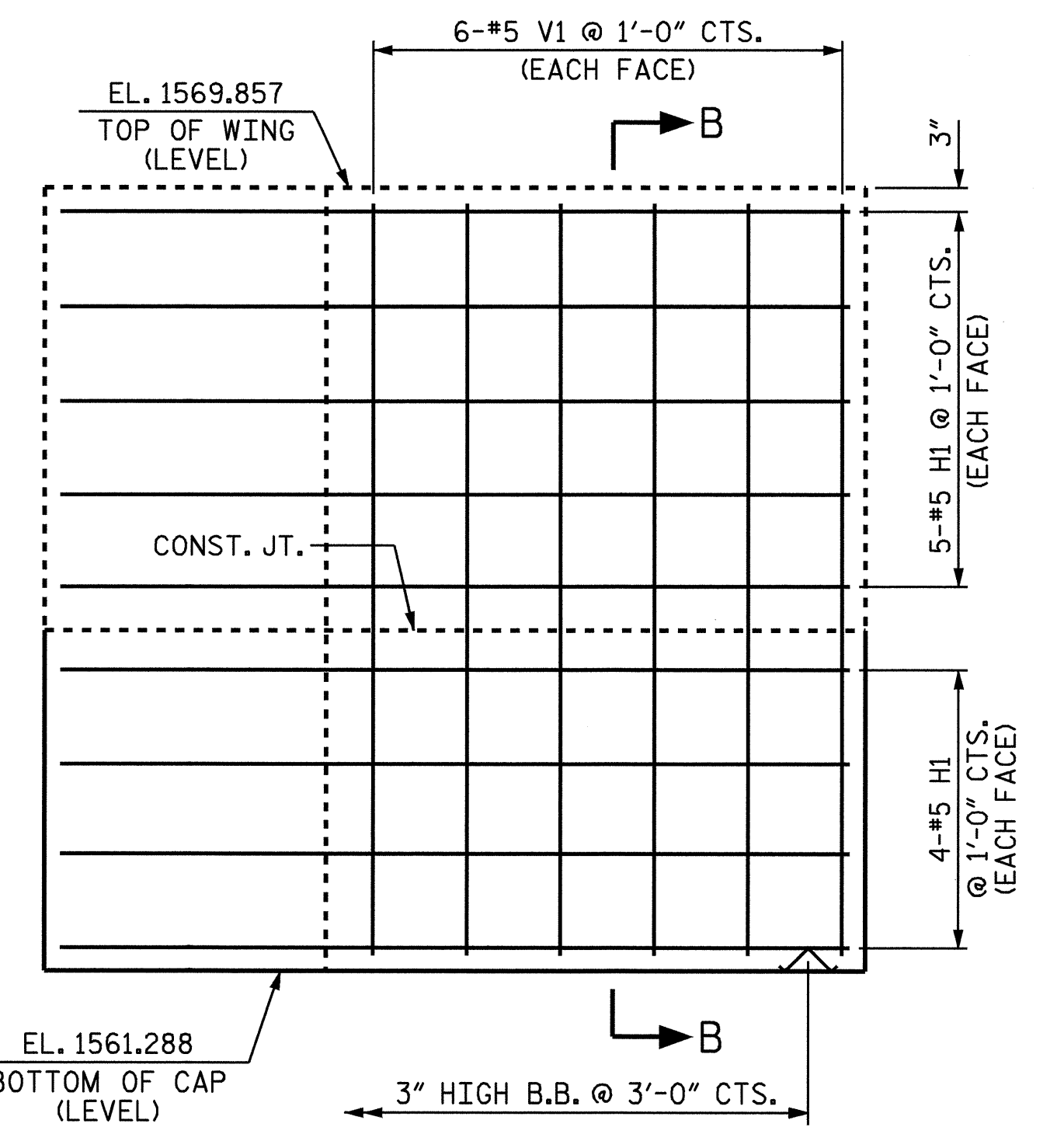
SECTION A-A



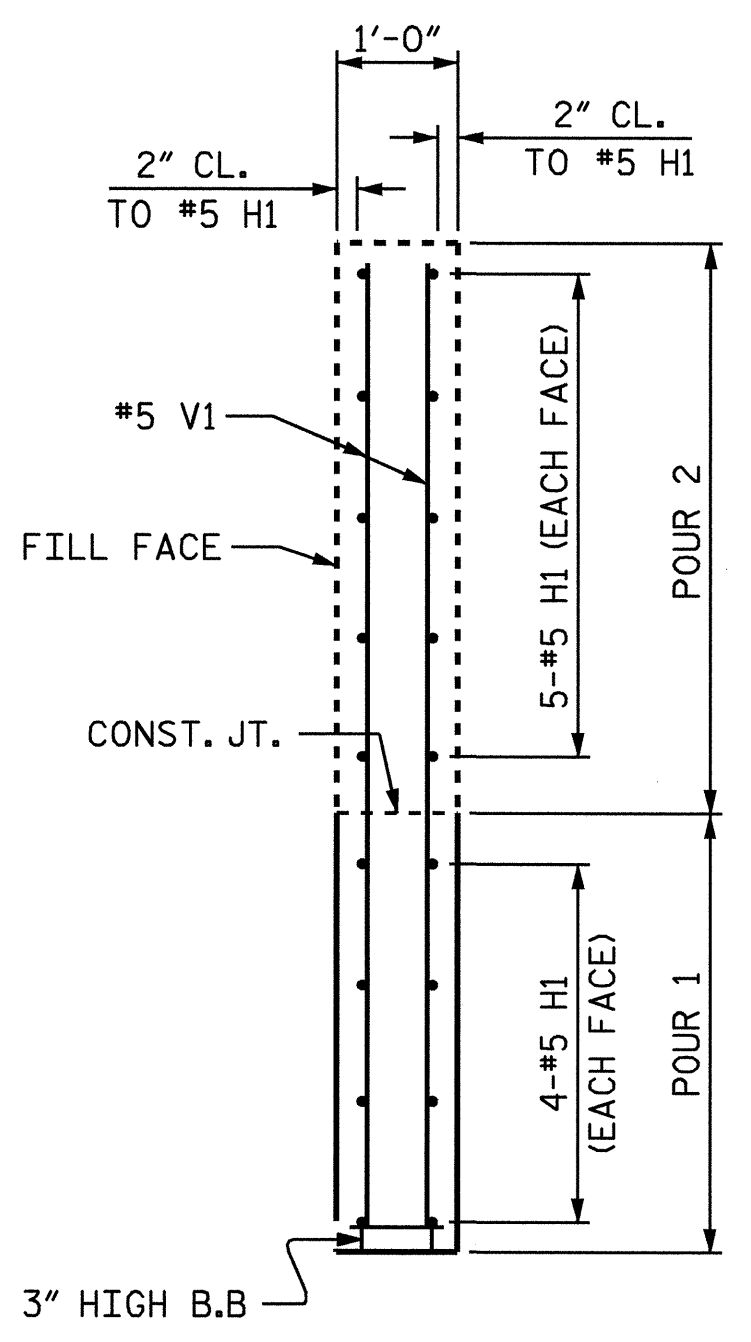
PLAN (W1)



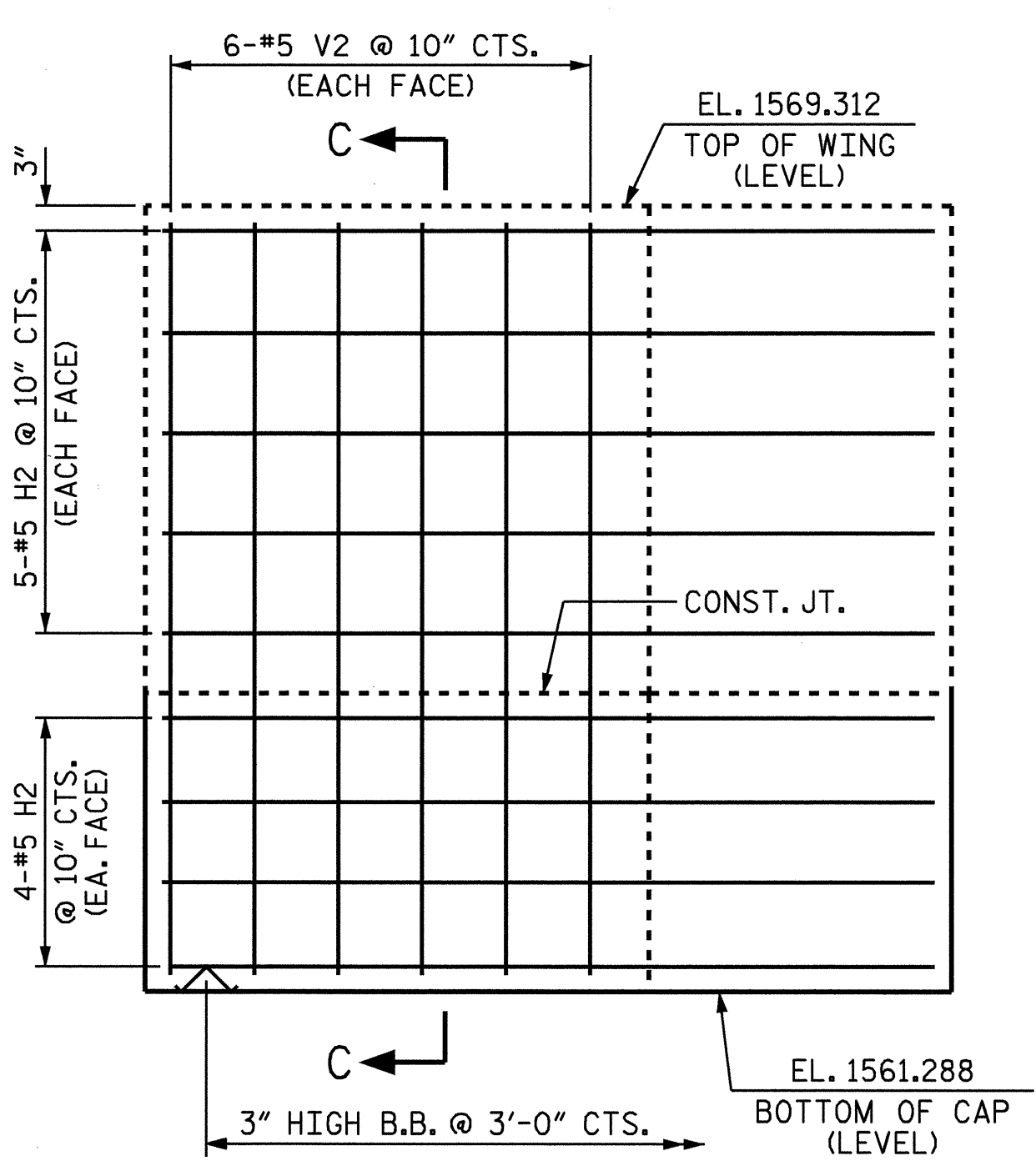
PLAN (W2)



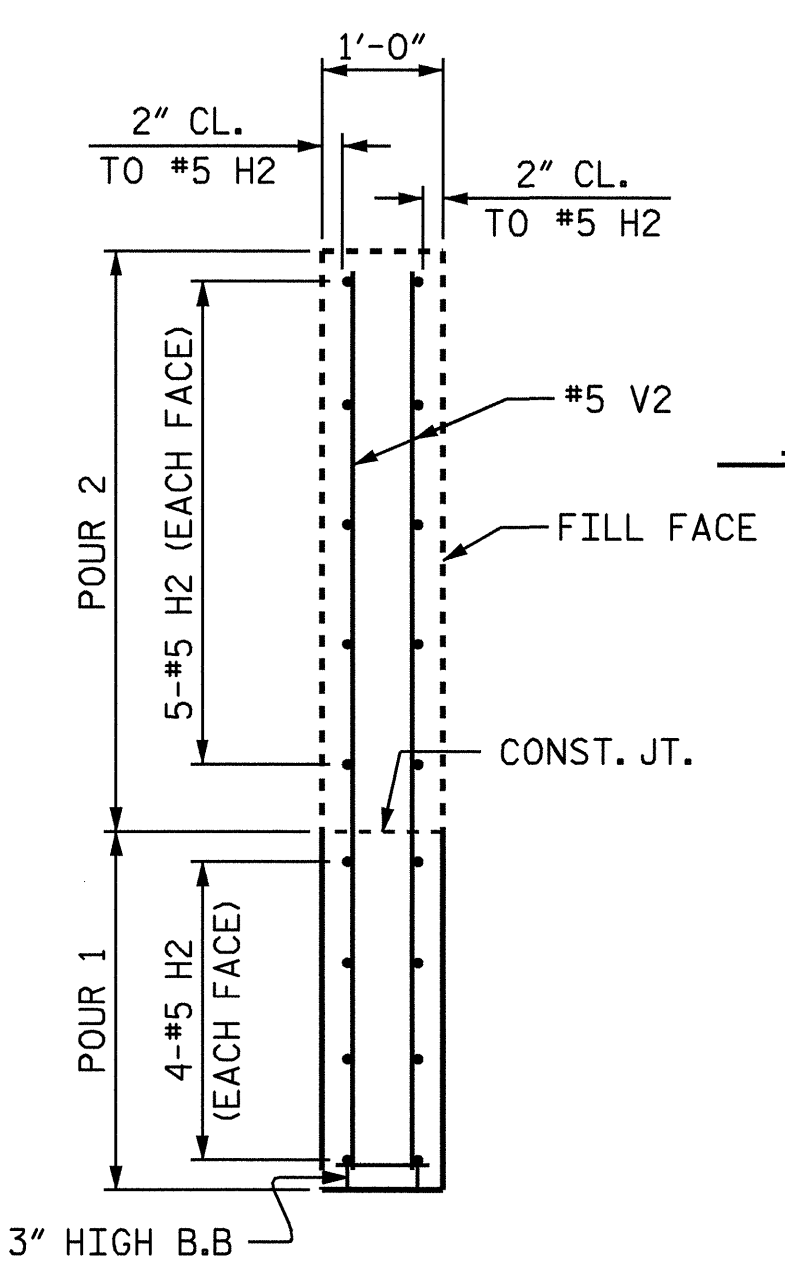
ELEVATION (W1)



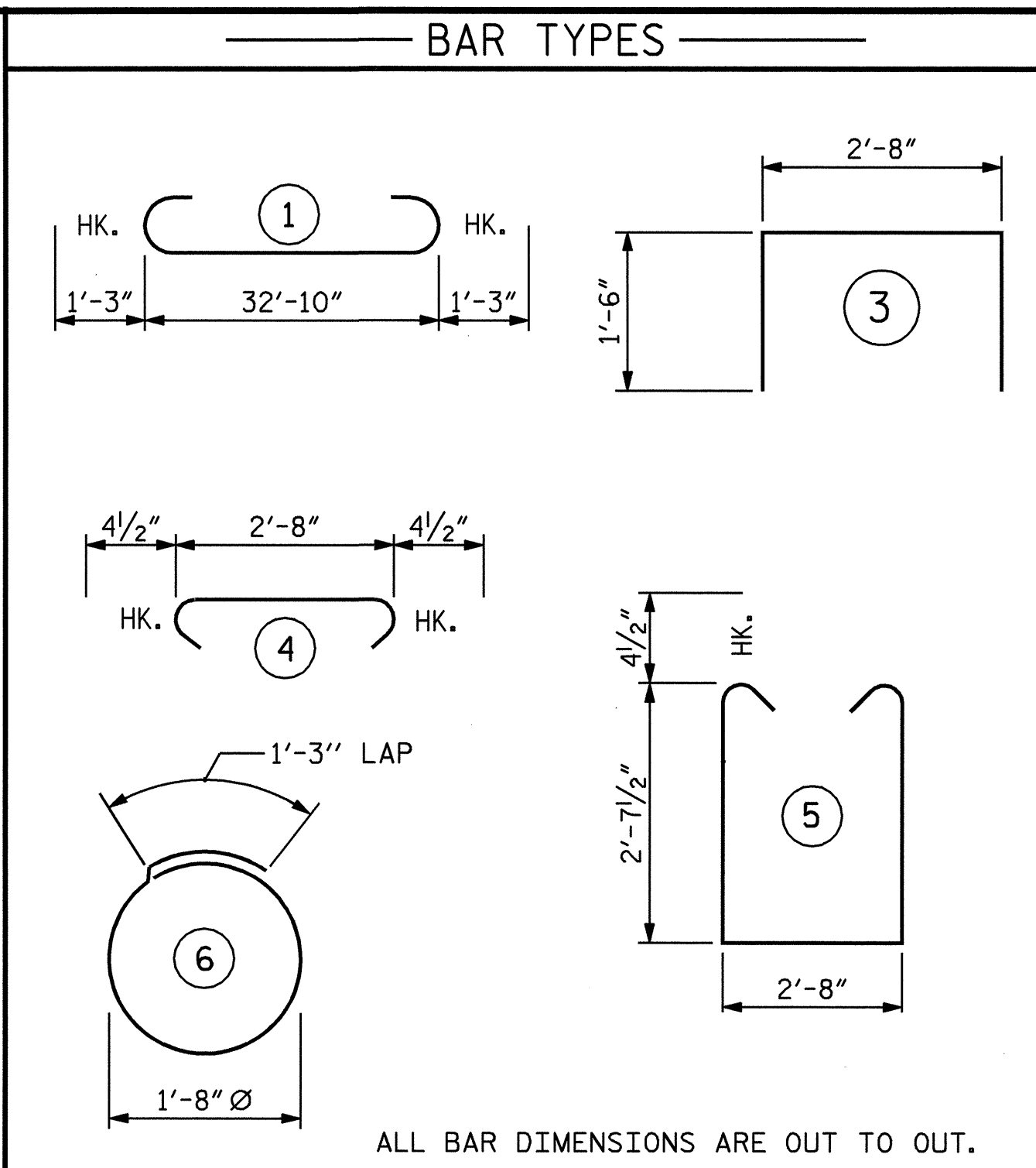
SECTION B-B



ELEVATION (W2)



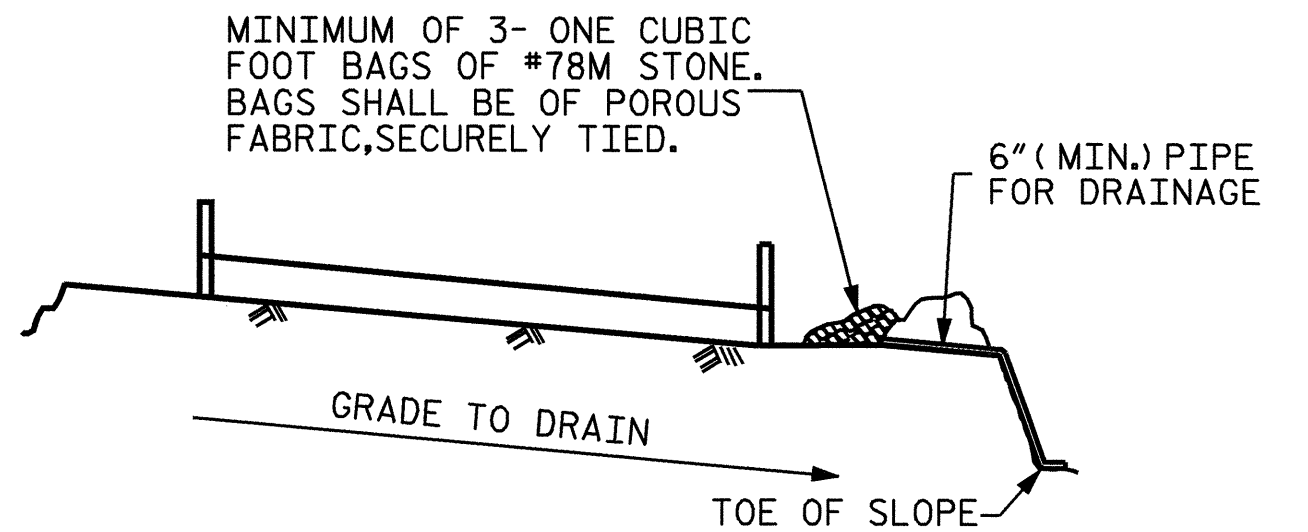
SECTION C-C



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
INTEGRAL END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	35'-4"	961
B2	4	#5	STR	32'-11"	137
B3	8	#4	STR	2'-8"	14
B4	8	#4	STR	17'-8"	94
B5	4	#4	STR	20'-4"	54
H1	18	#5	STR	8'-5"	158
H2	18	#5	STR	7'-8"	144
S1	37	#4	4	3'-5"	84
S2	37	#4	5	8'-8"	214
S3	32	#4	6	6'-6"	139
U1	14	#4	3	5'-8"	53
V1	12	#5	STR	8'-2"	102
V2	12	#5	STR	7'-8"	96
V3	70	#4	STR	5'-6"	257
REINFORCING STEEL				=	2507 LBS
CLASS A CONCRETE BREAKDOWN					
▲ POUR 1 (CAP AND LOWER PART OF WINGS)				13.6	CU.YDS.
TOTAL				13.6	CU.YDS.
HP 12 x 53 STEEL PILES					
NO. 8				120	FT.

▲ UPPER WINGS (POUR 2) 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.

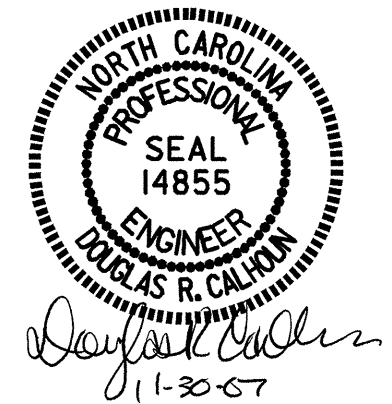
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

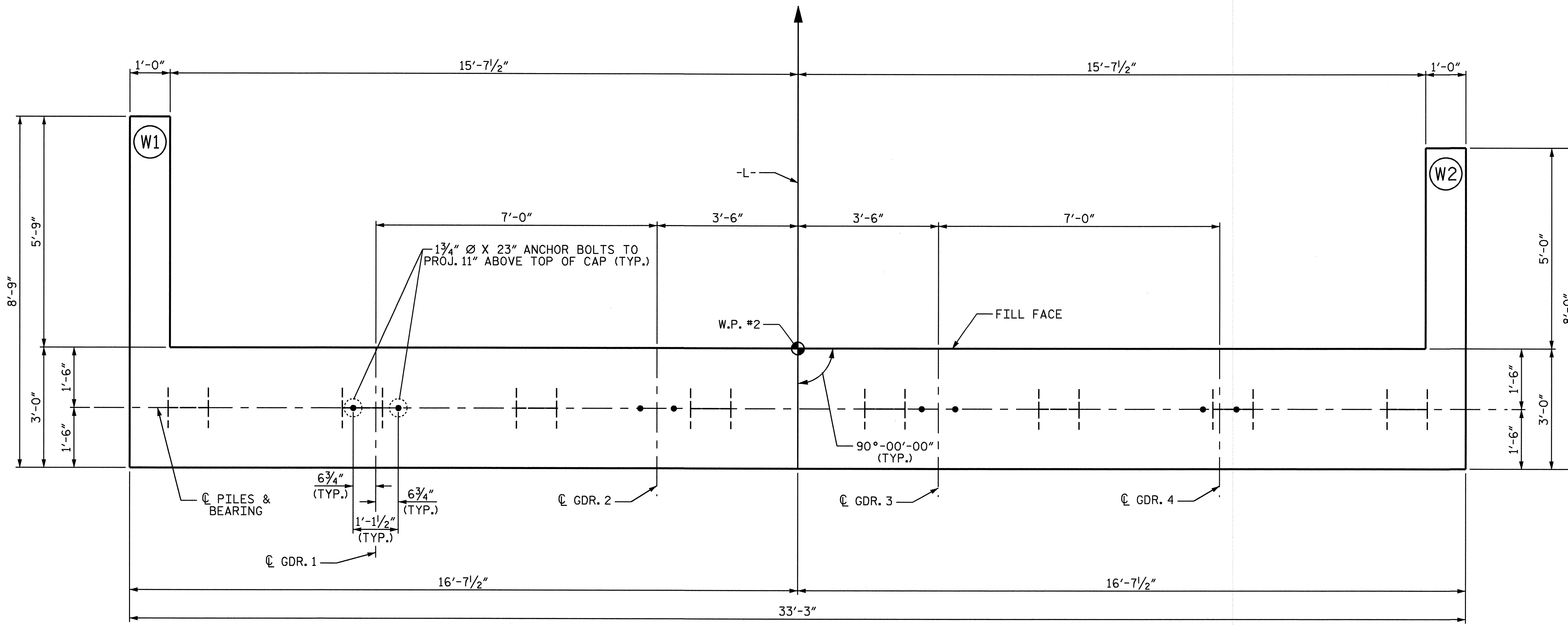
PROJECT NO. B-3818
 CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 2 OF 2

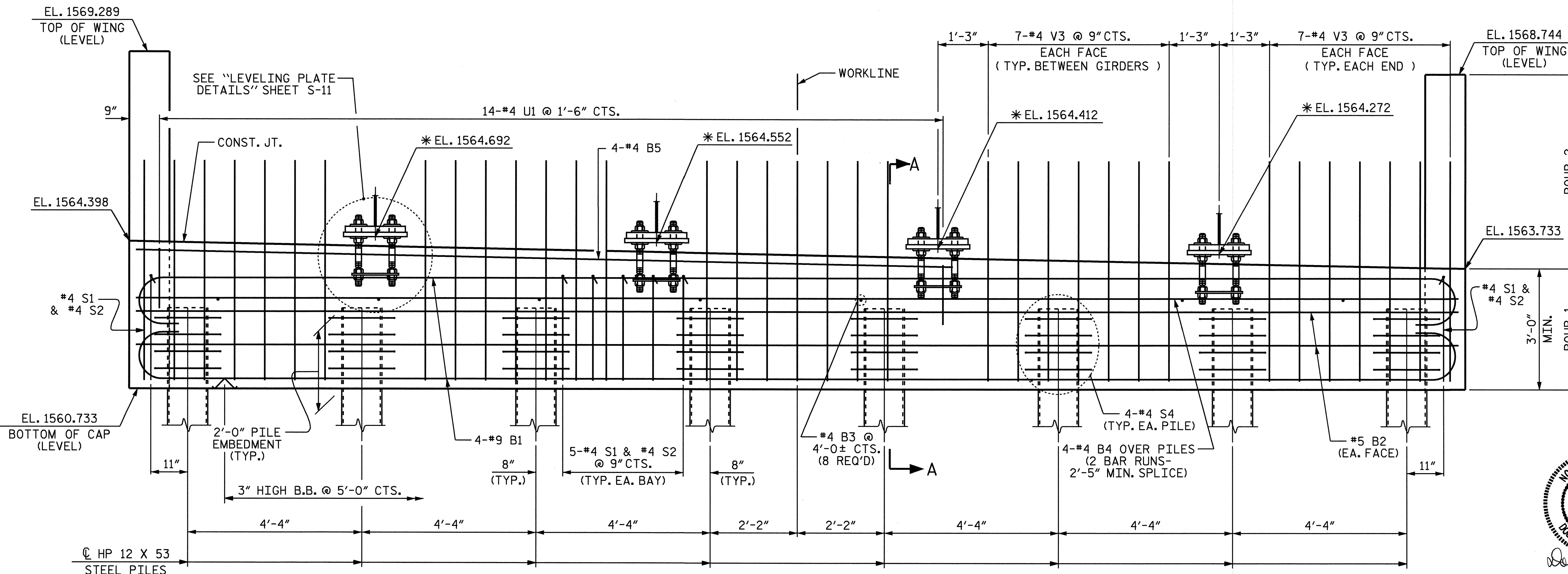


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-16
					TOTAL SHEETS 21

DRAWN BY: T. A. HARRIS DATE: 4/6/05
 CHECKED BY: J. B. WILSON DATE: 8/8/05



PLAN



ELEVATION

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF WINGS ARE TO BE POURED WITH SUPERSTRUCTURE.

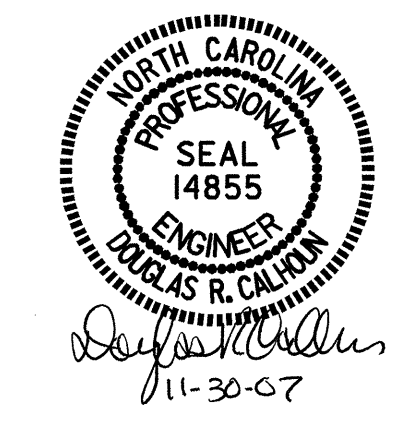
DRAWN BY : T. A. HARRIS DATE : 4/6/05
 CHECKED BY : J. B. WILSON DATE : 8/9/05

* BRIDGE SEAT ELEVATIONS ARE TAKEN AT BOTTOM OF SOLE PLATE

29-NOV-2007 08:44
 R:\Structures\Final Plans\B-3818.sd.E*.dgn
 gallen

PROJECT NO. B-3818
 CALDWELL COUNTY
 STATION: 14+69.50 -L-

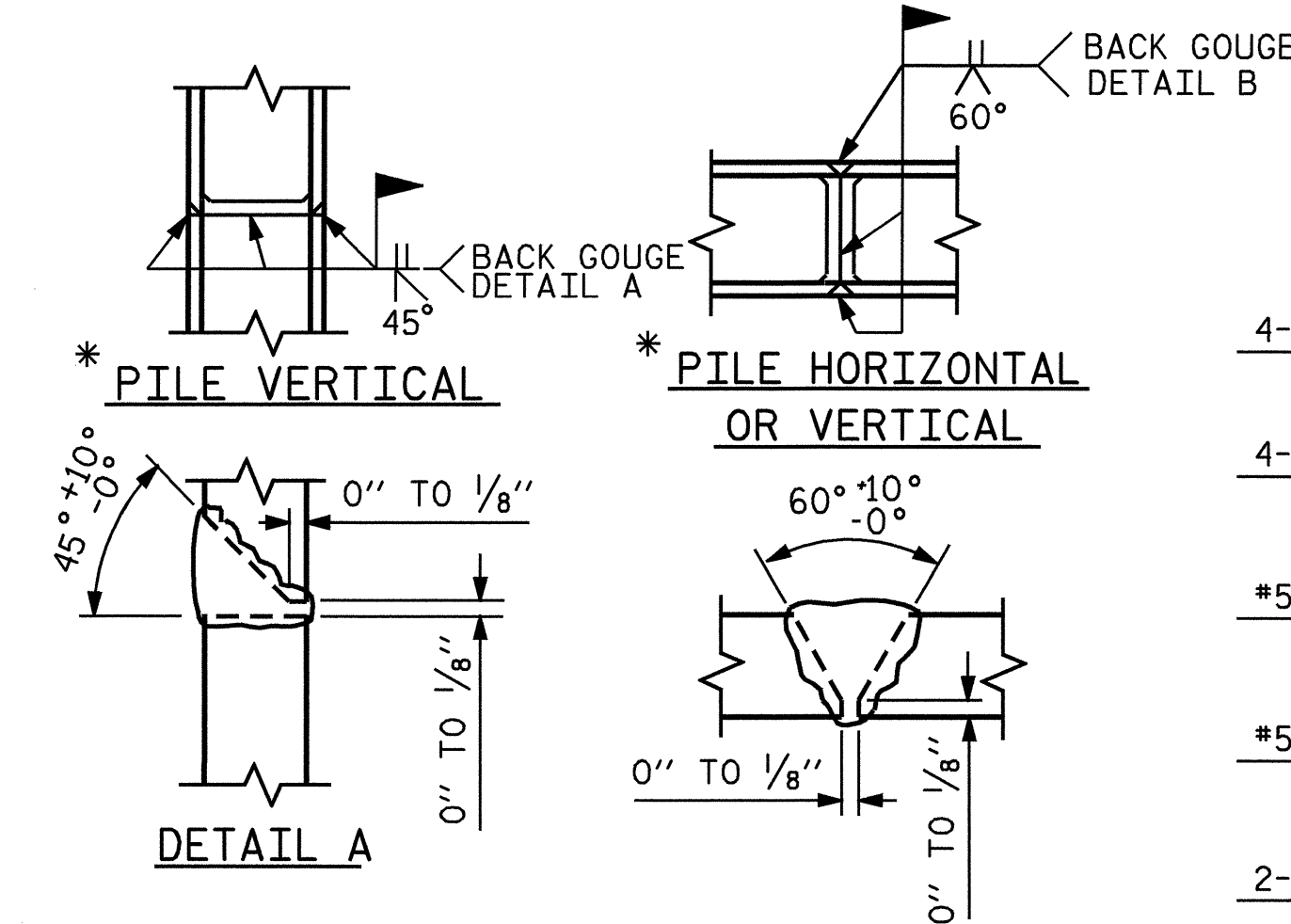
SHEET 1 OF 2



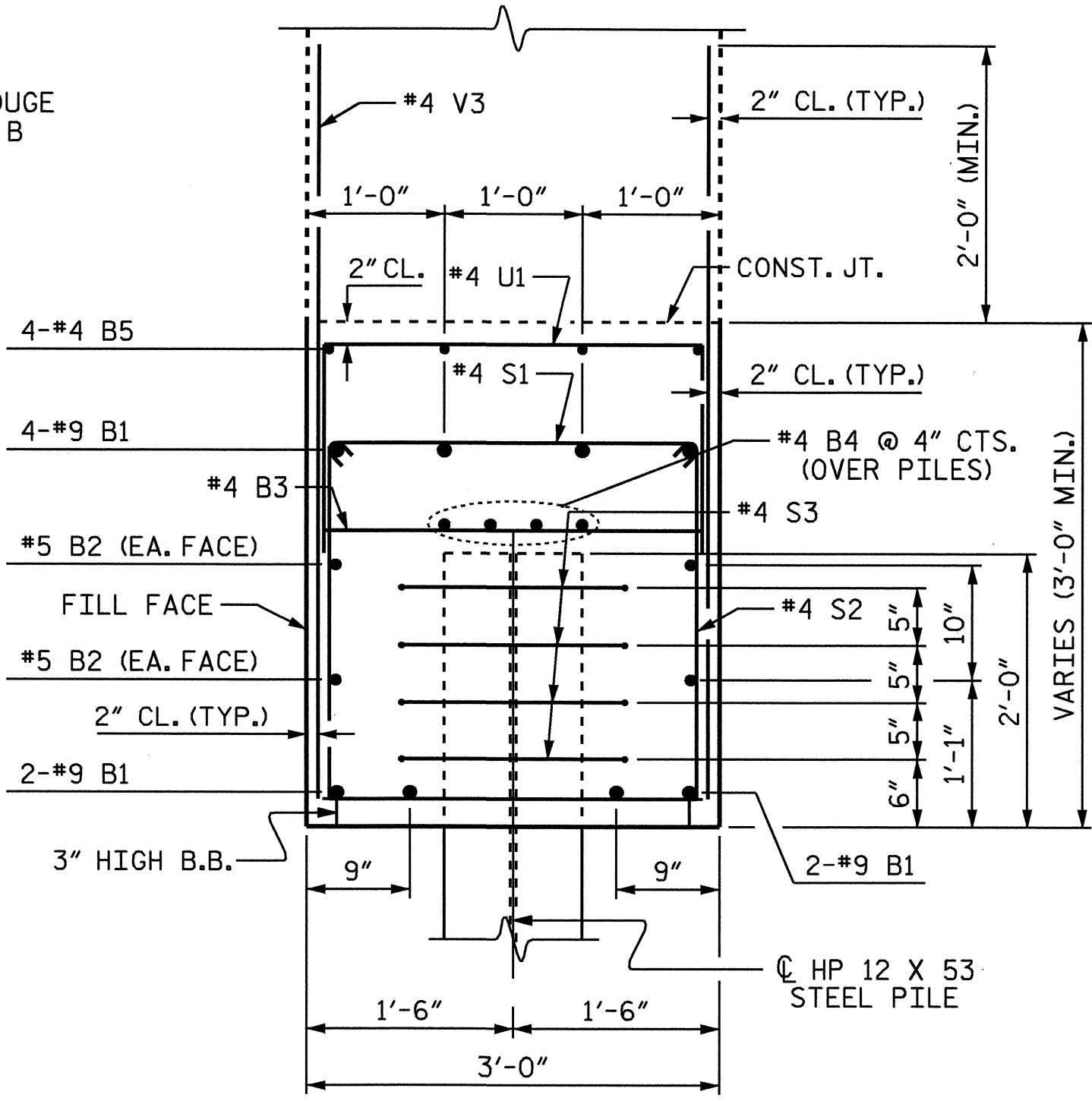
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL END BENT 2

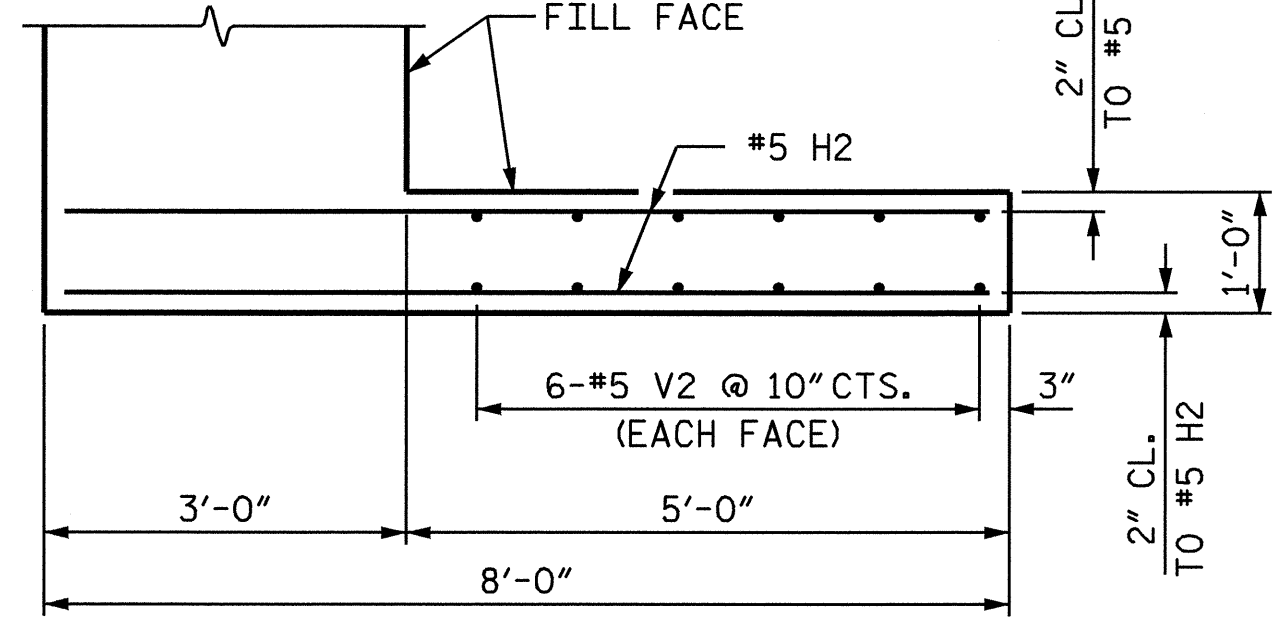
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			21



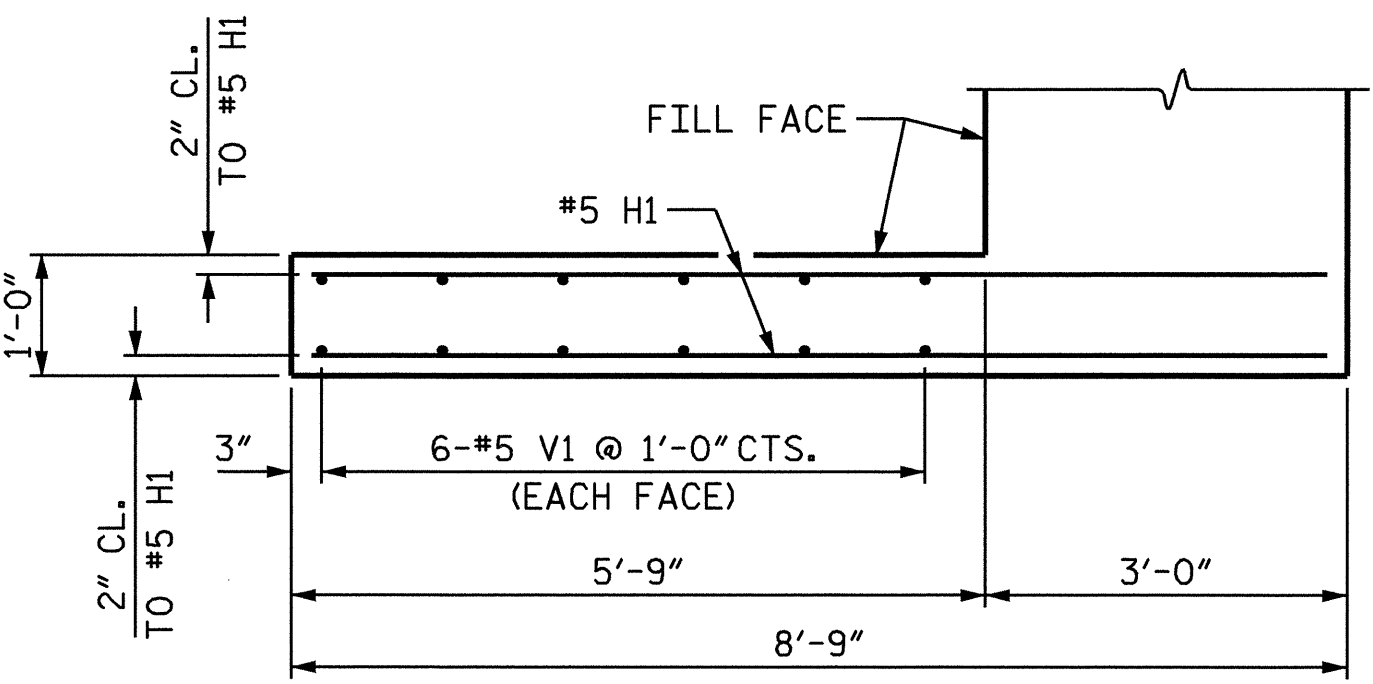
PILE SPLICE DETAILS



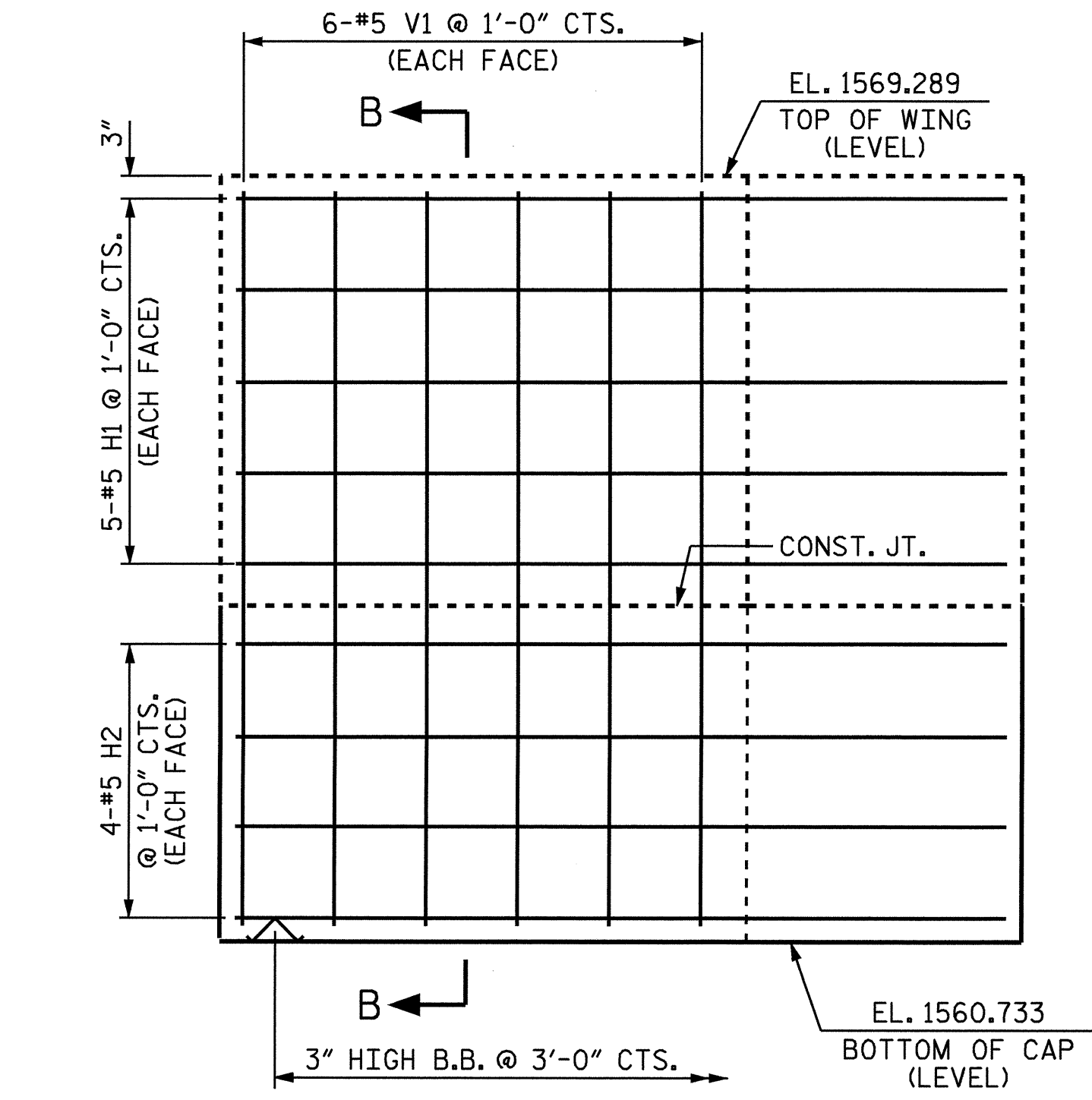
SECTION A-A



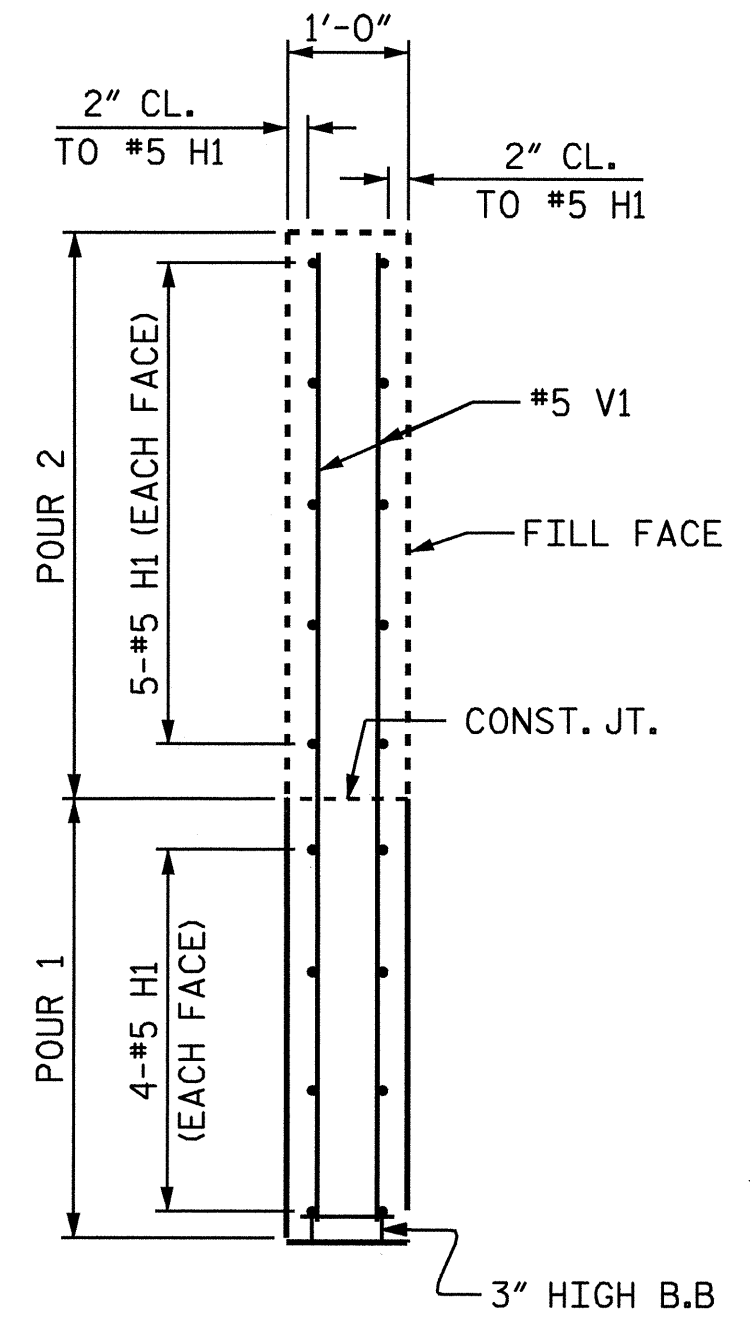
PLAN W2



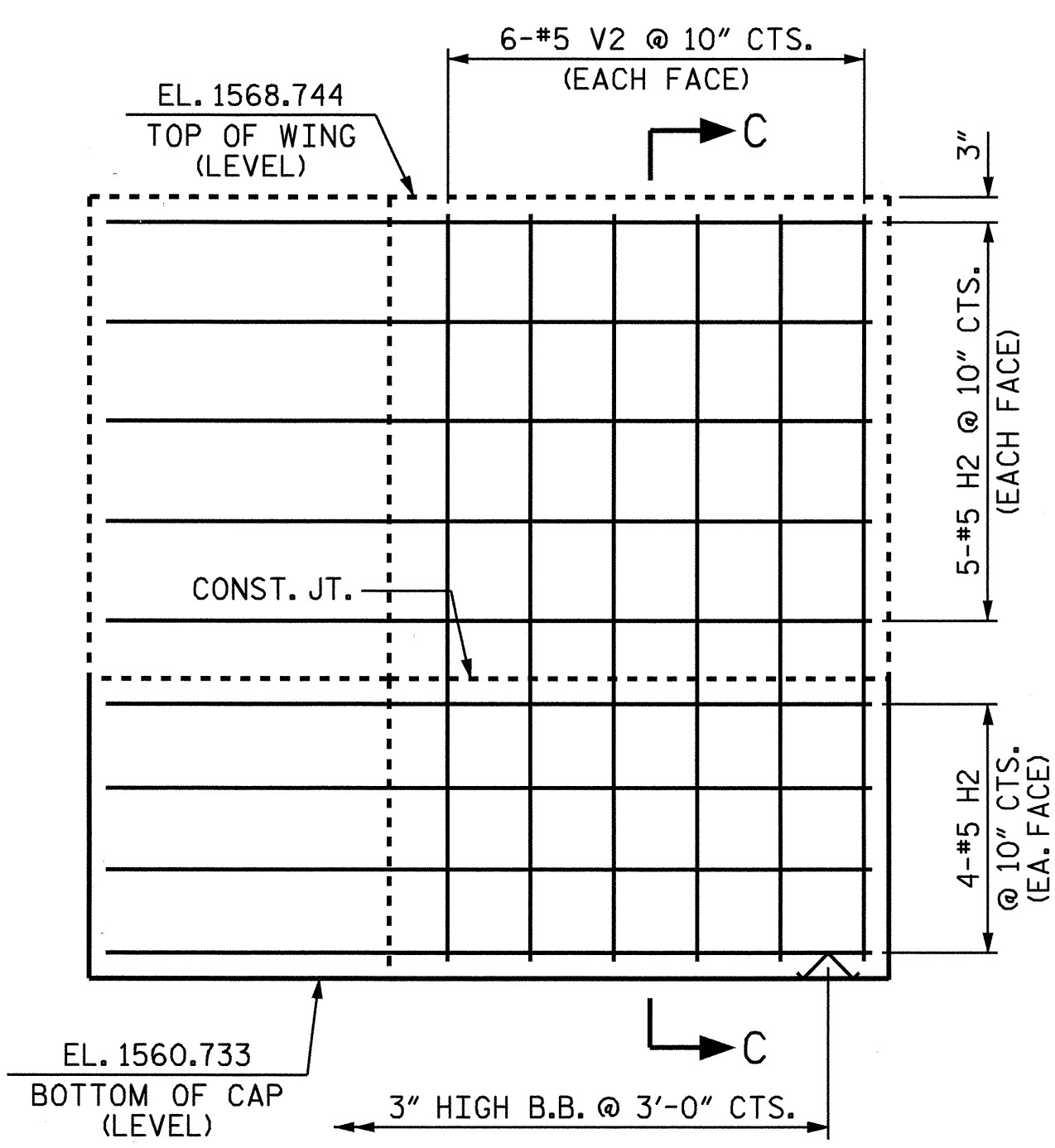
PLAN W1



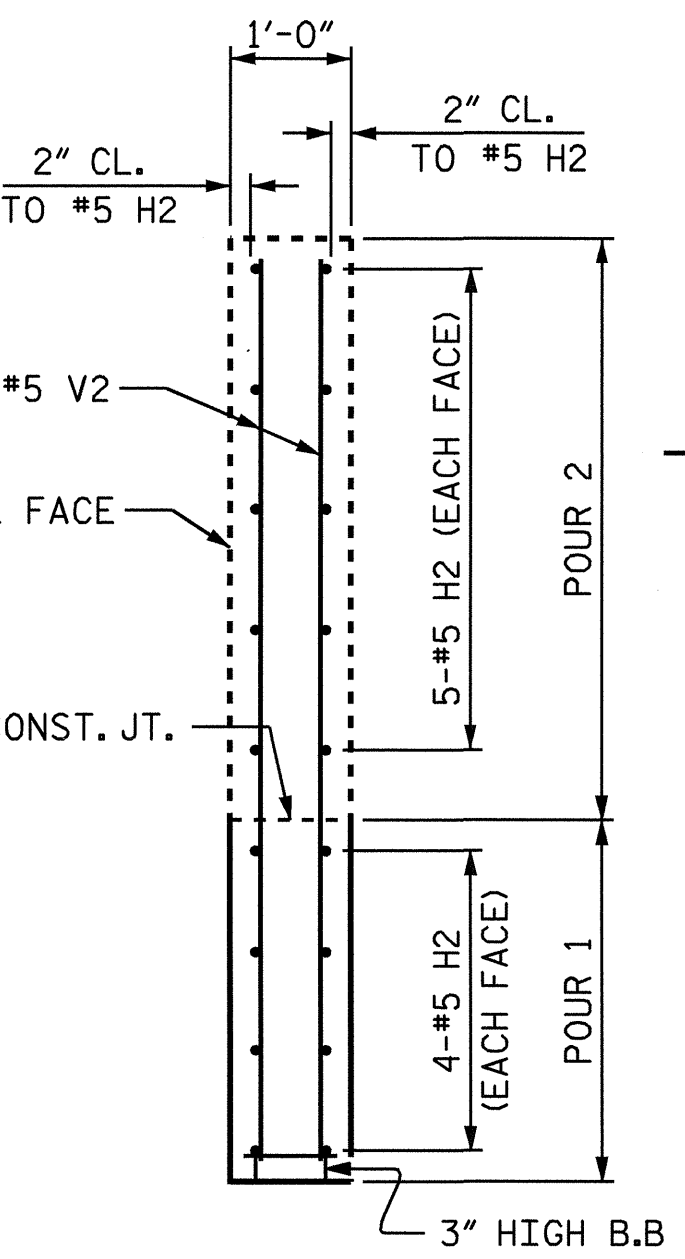
ELEVATION W1



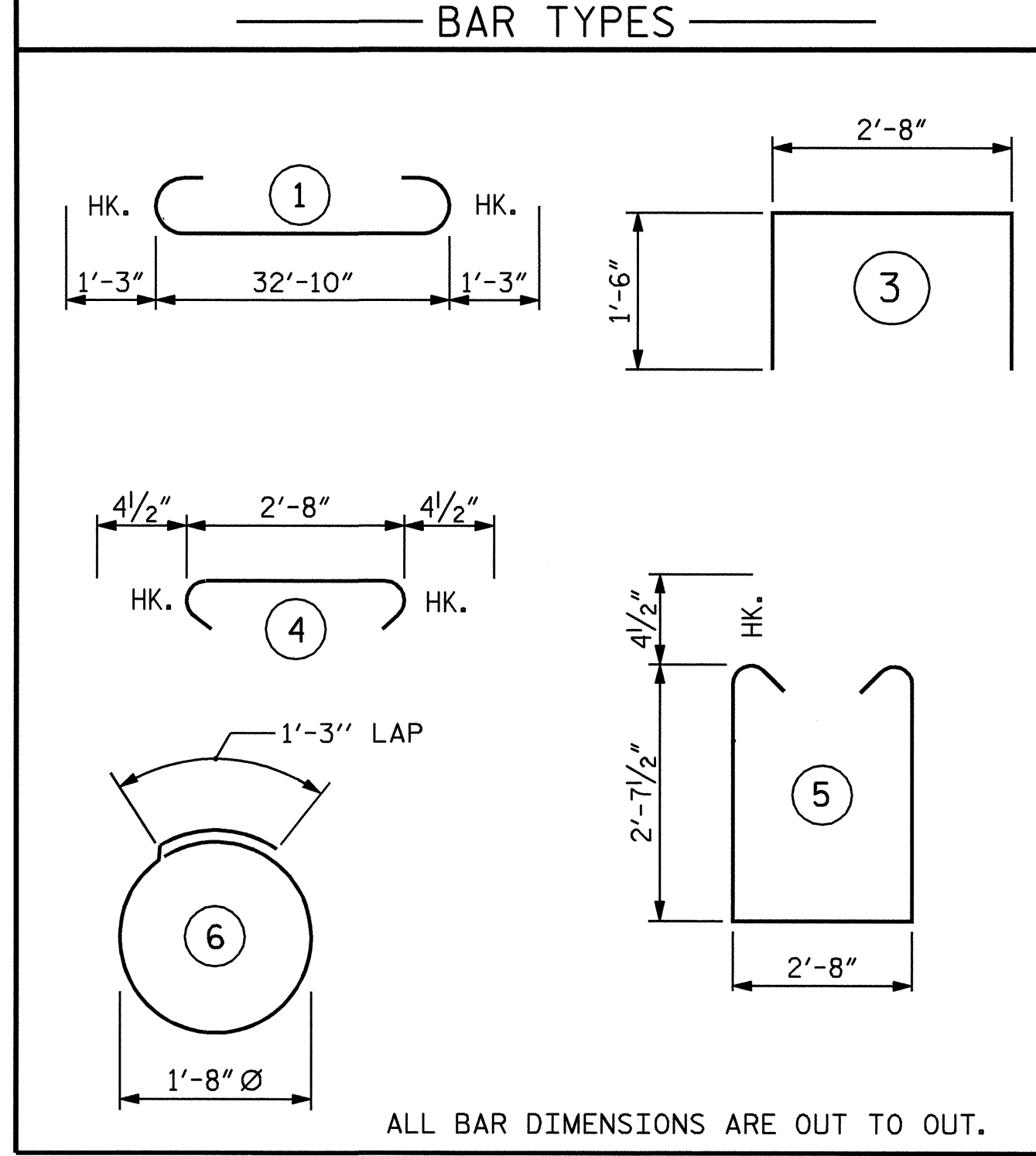
SECTION B-B



ELEVATION W2



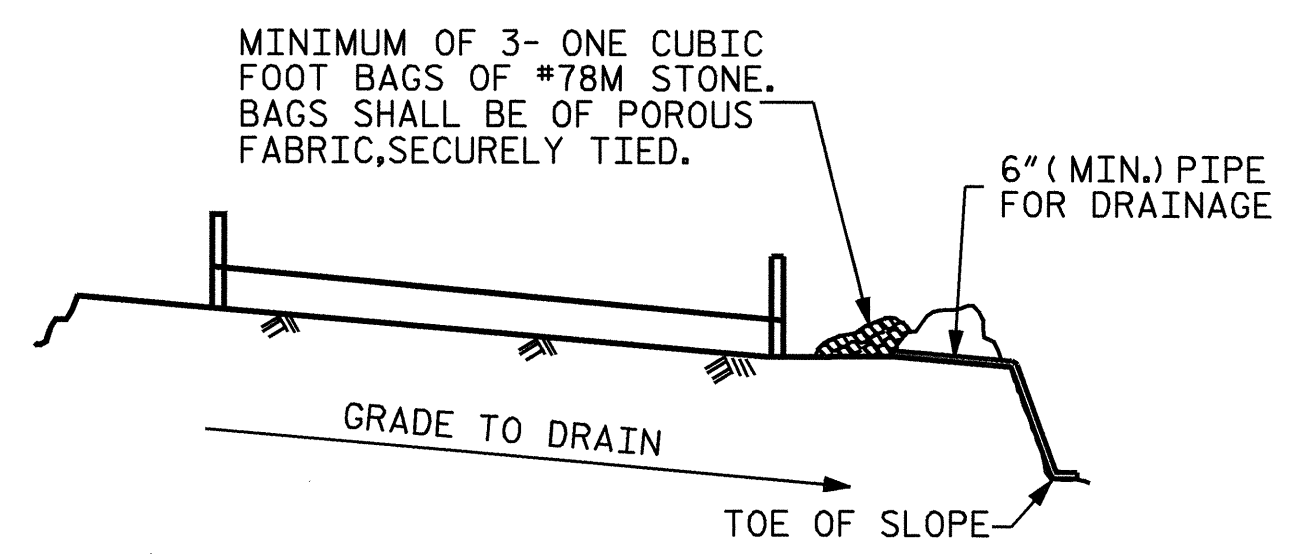
SECTION C-C



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
INTEGRAL END BENT 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	35'-4"	961
B2	4	#5	STR	32'-11"	137
B3	8	#4	STR	2'-8"	14
B4	8	#4	STR	17'-8"	94
B5	4	#4	STR	20'-4"	54
H1	18	#5	STR	8'-5"	158
H2	18	#5	STR	7'-8"	144
S1	37	#4	4	3'-5"	84
S2	37	#4	5	8'-8"	214
S3	32	#4	6	6'-6"	139
U1	14	#4	3	5'-8"	53
V1	12	#5	STR	8'-2"	102
V2	12	#5	STR	7'-8"	96
V3	70	#4	STR	5'-6"	257
REINFORCING STEEL				=	2507 LBS
CLASS A CONCRETE BREAKDOWN					
▲ POUR 1 (CAP AND LOWER PART OF WINGS)				13.6 CU.YDS.	
TOTAL				13.6 CU.YDS.	
HP 12 x 53 STEEL PILES					120 FT.
NO. 8					

▲ UPPER WINGS (POUR 2) 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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TEMPORARY DRAINAGE AT END BENT

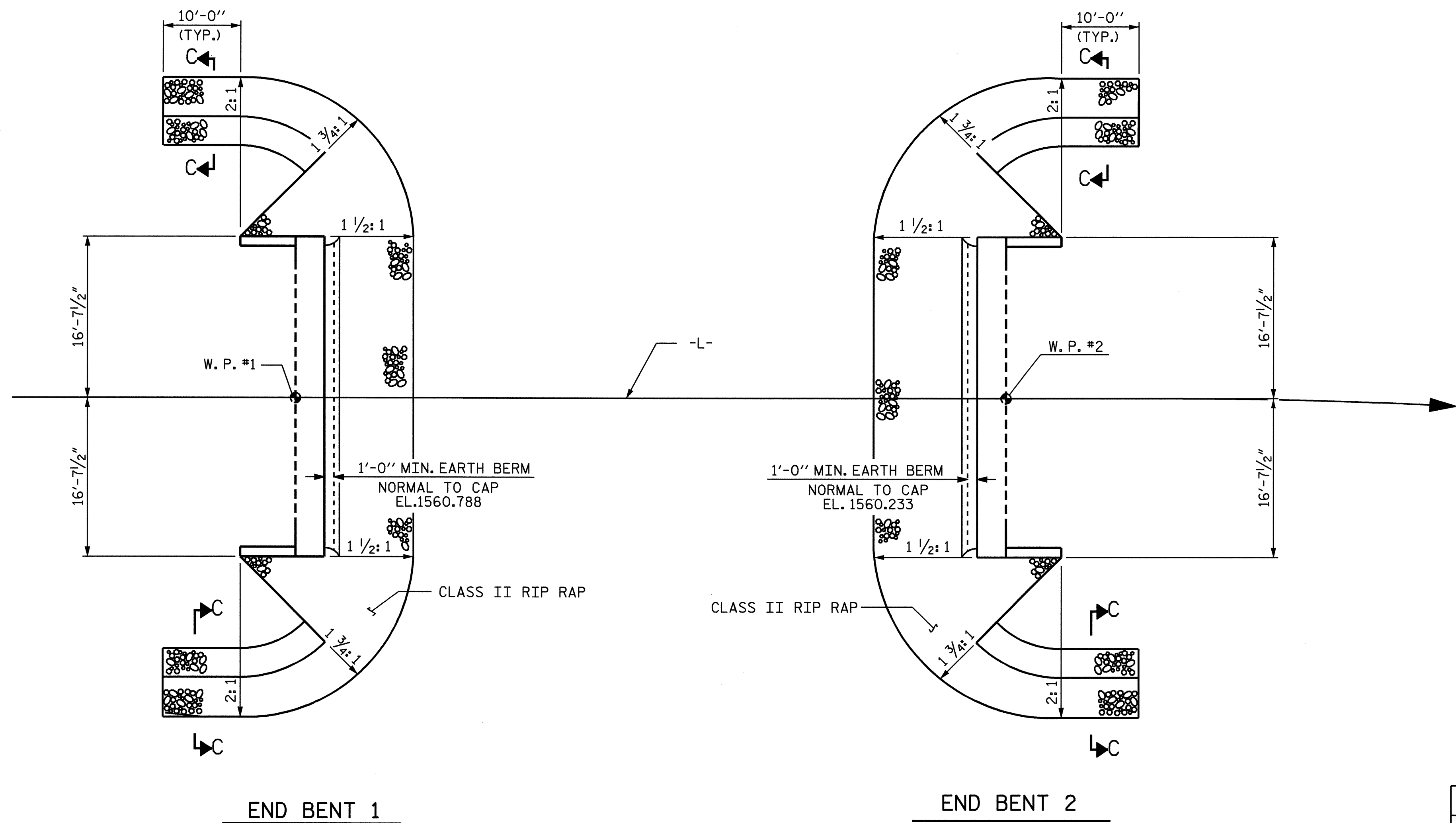
PROJECT NO. B-3818
 CALDWELL COUNTY
 STATION: 14+69.50 -L-

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
					21

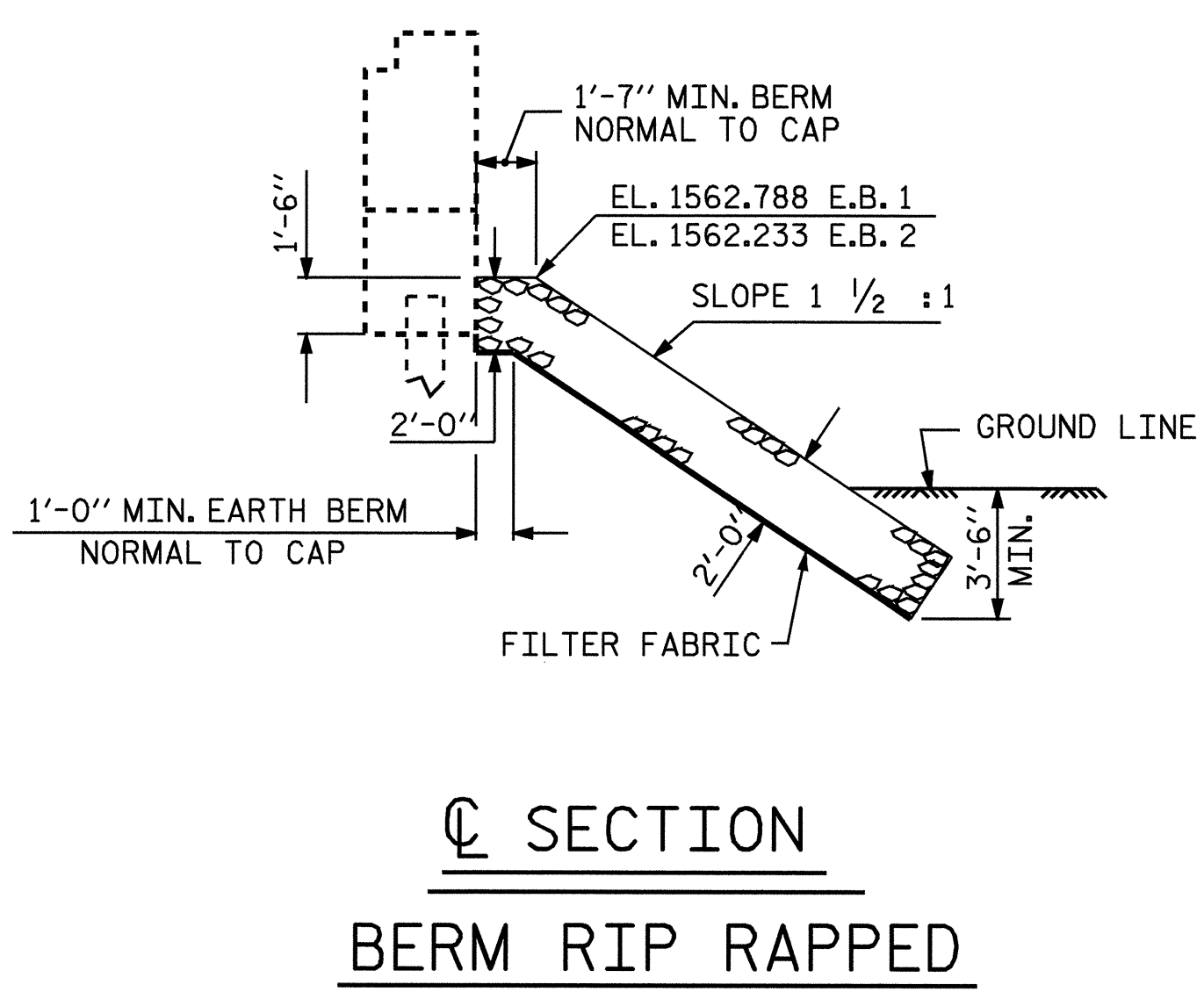


DRAWN BY: T.A. HARRIS DATE: 4/6/05
 CHECKED BY: J.B. WILSON DATE: 8/9/05

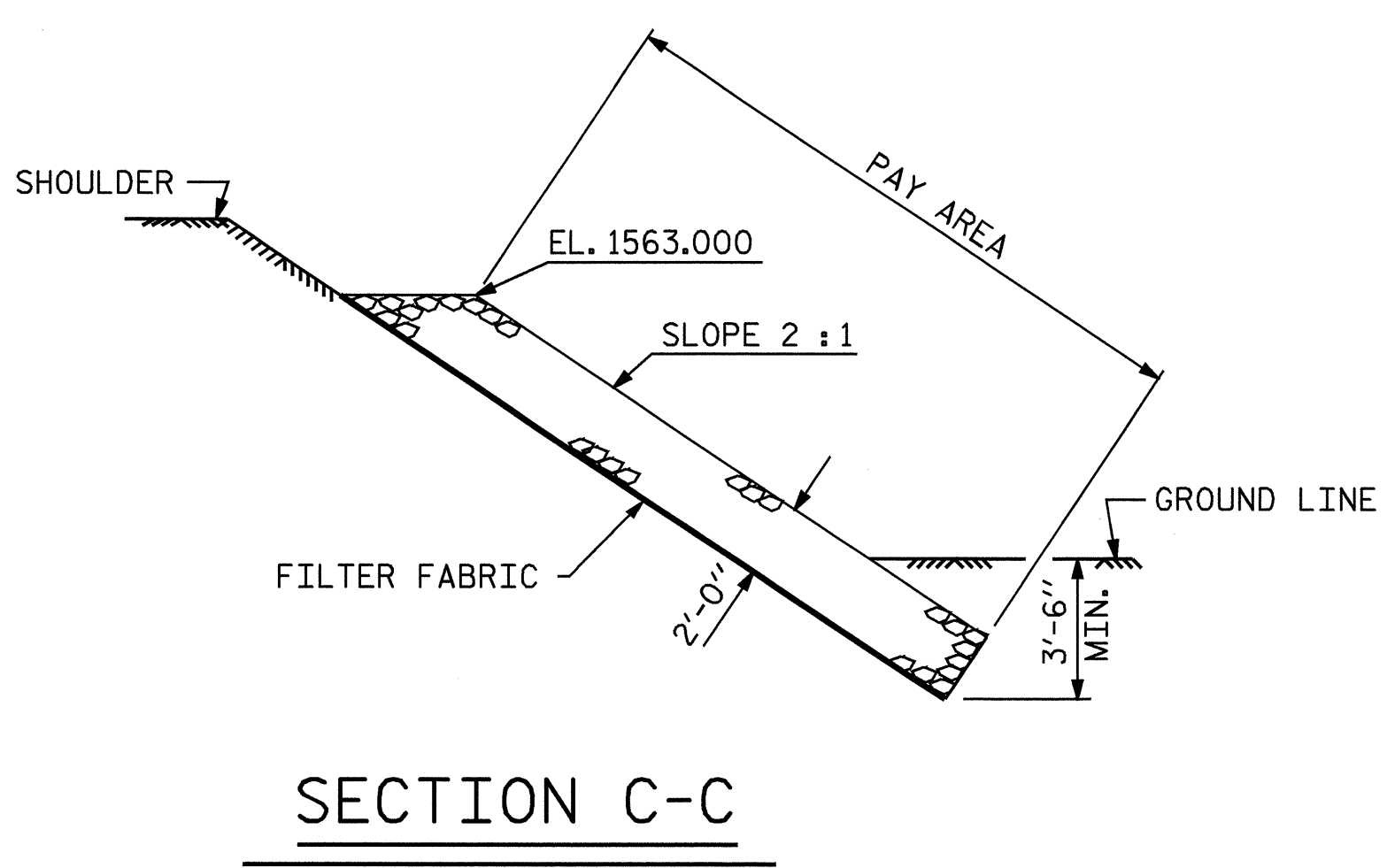


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+69.50 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	90	99
END BENT 2	112	124

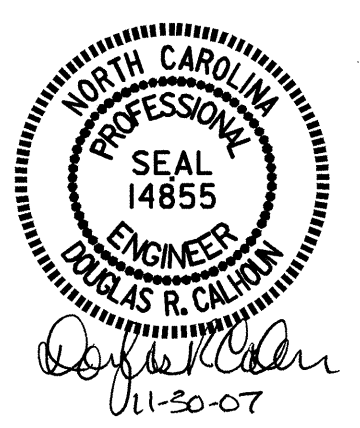


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD = RIP RAP DETAILS =					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-19
					TOTAL SHEETS 21

ASSEMBLED BY : J. MYA DATE : 8/12/05
 CHECKED BY : T. L. CLELAND DATE : 10/12/05
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

NOTES

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

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

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

THE 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 SAWS 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 REQUIRED)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	22	#4	STR	25'-0"	367
A2	16	#4	STR	25'-0"	267
* B1	51	#5	STR	14'-2"	754
B2	51	#6	STR	14'-8"	1123
* S4	26	#4	1	4'-1"	71
S5	26	#5	2	3'-0"	81

REINFORCING STEEL LBS. 1471

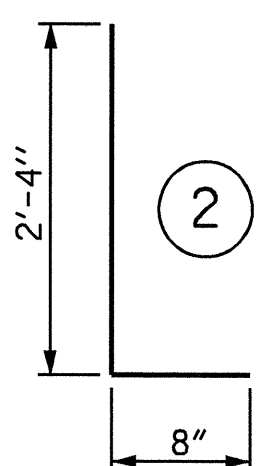
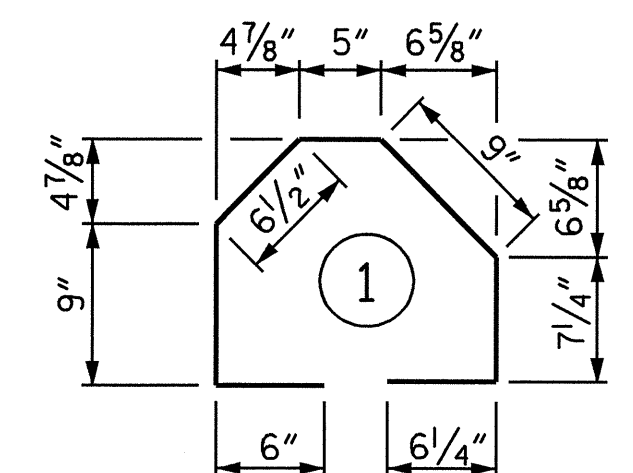
* EPOXY COATED REINFORCING STEEL LBS. 1192

CLASS AA CONCRETE BREAKDOWN

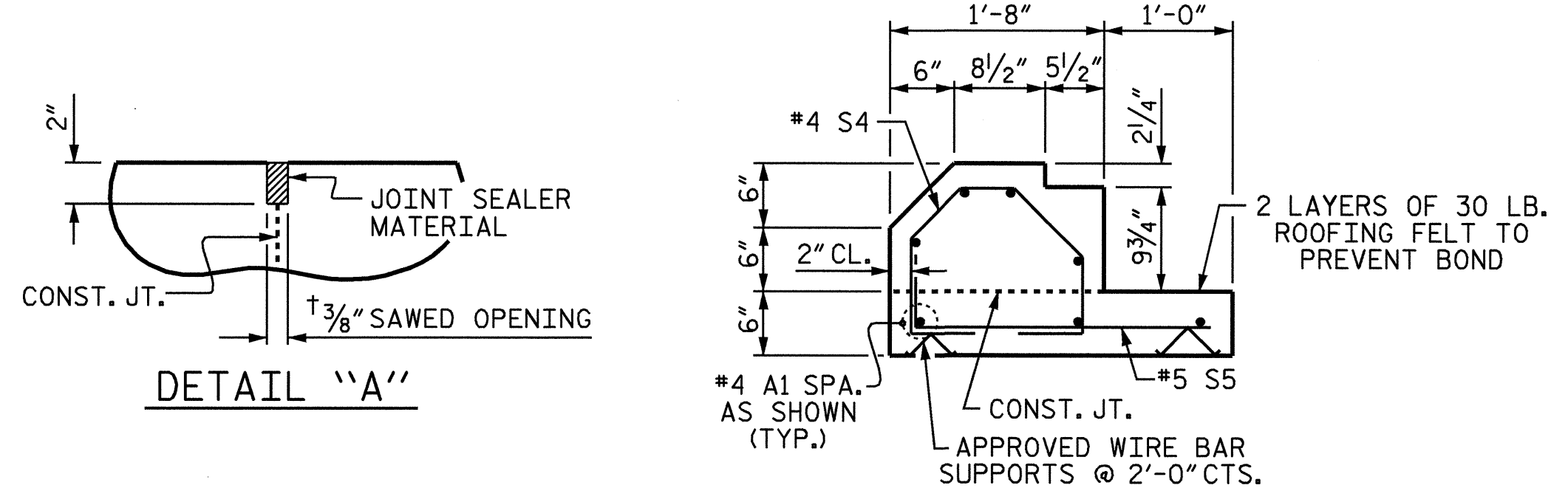
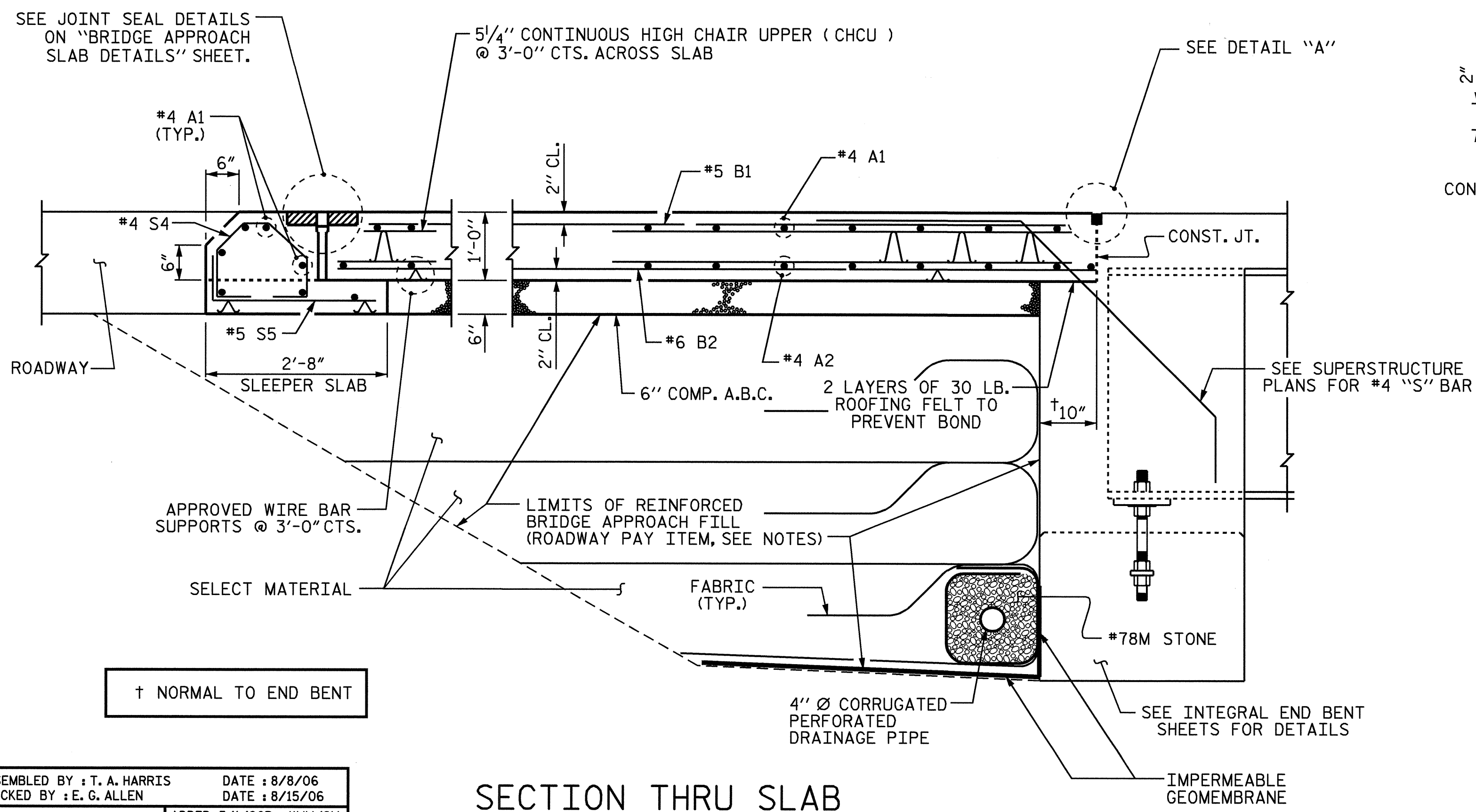
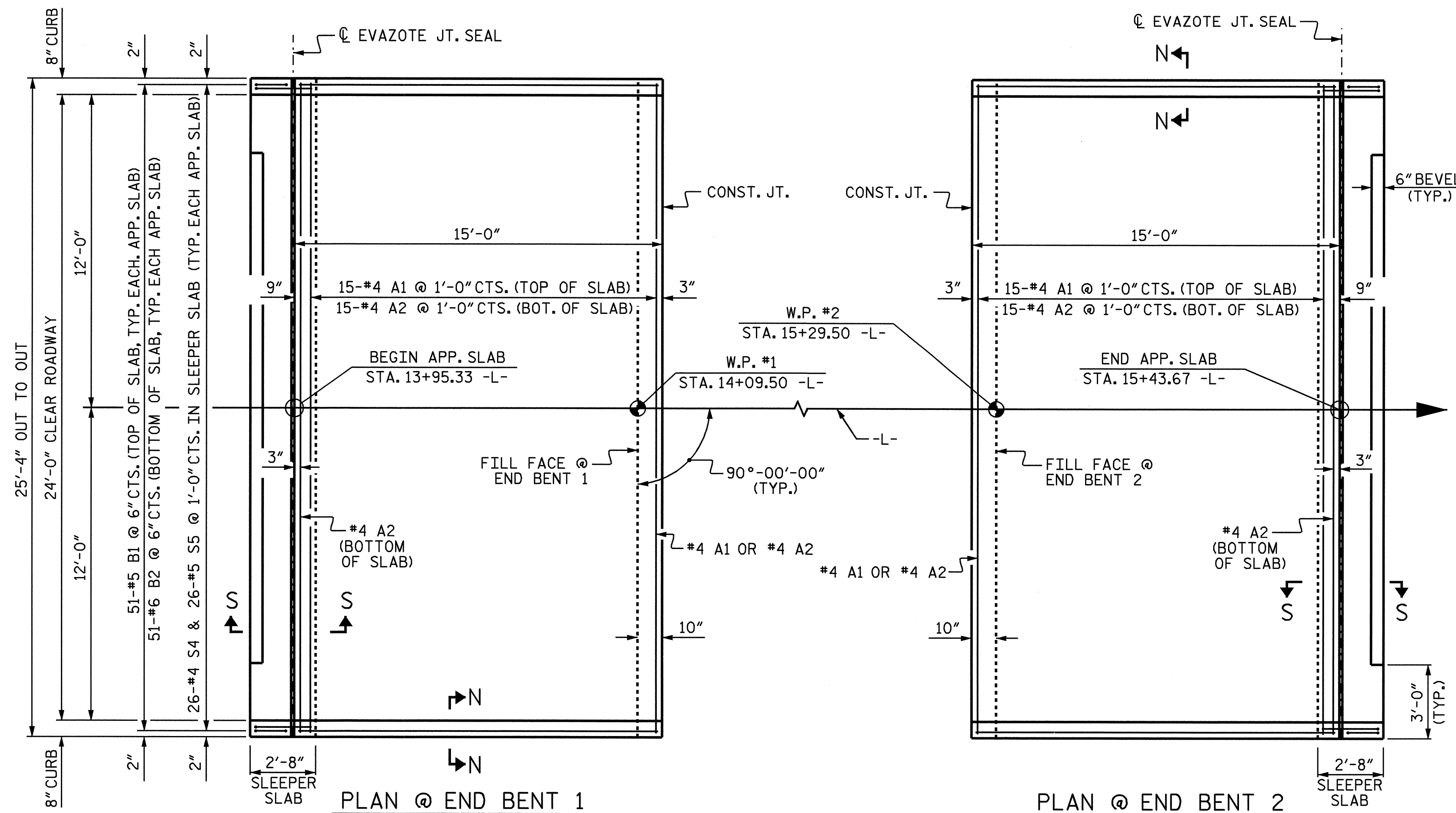
POUR 1 SLAB AND CURB	C. Y.	15.3
POUR 2 SLEEPER SLAB	C. Y.	1.4

CLASS AA CONCRETE C. Y. 16.7

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



PROJECT NO. B-3818
 CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH SLAB
 FOR INTEGRAL END BENT

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

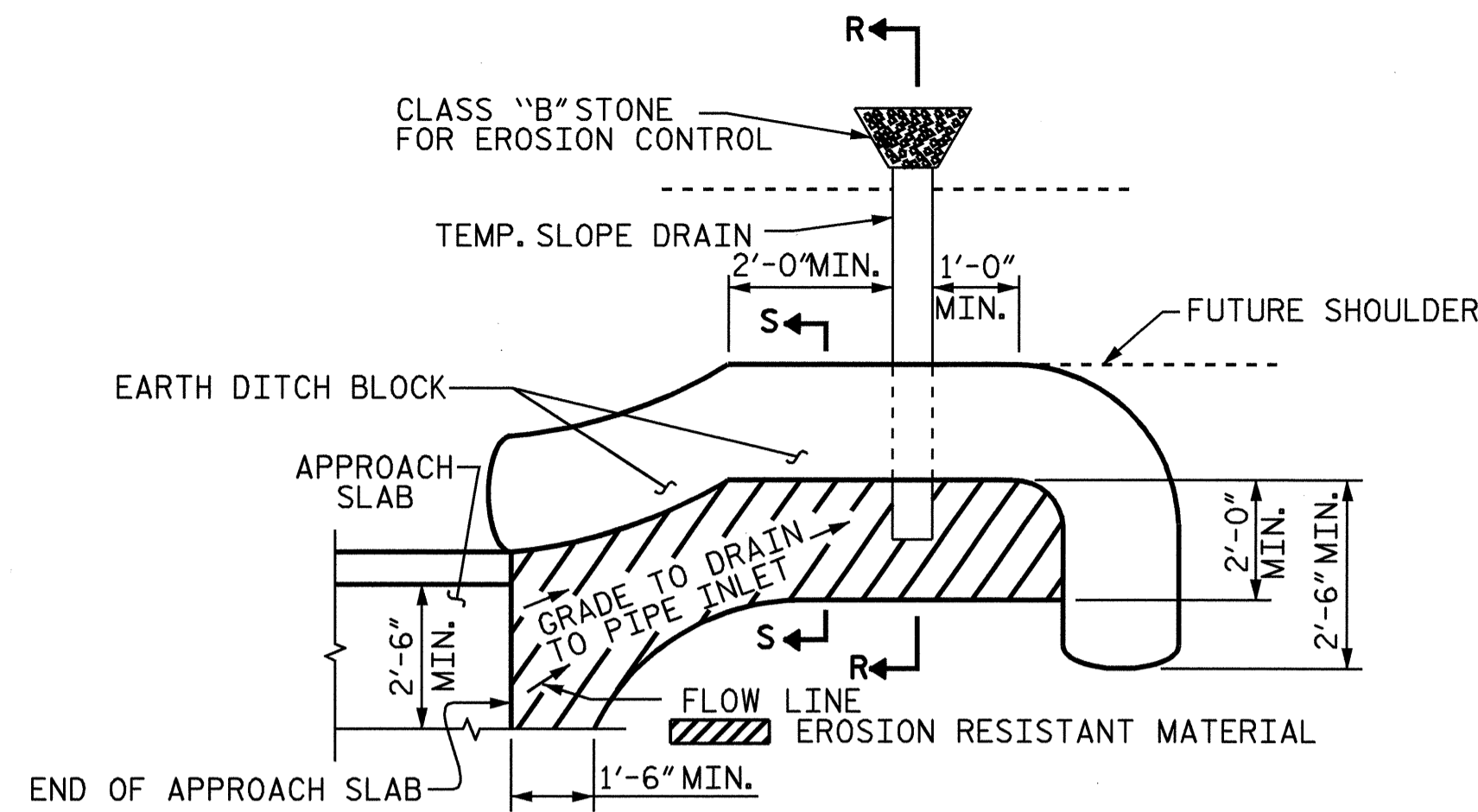
TOTAL SHEETS 21

SHEET NO. **S-20**



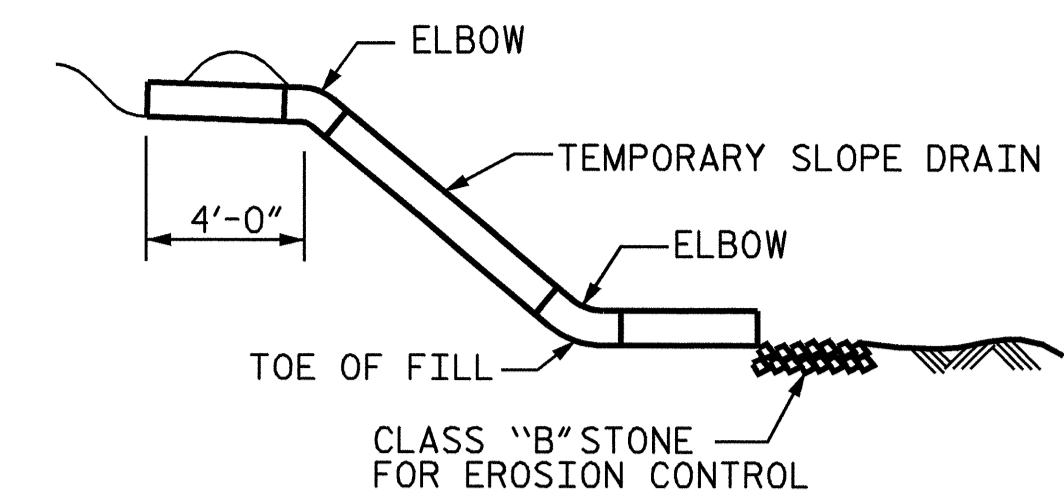
ASSEMBLED BY: T. A. HARRIS DATE: 8/8/06
 CHECKED BY: E. G. ALLEN DATE: 8/15/06
 DRAWN BY: TLA 10/05
 CHECKED BY: GM 5/06

SECTION THRU SLAB

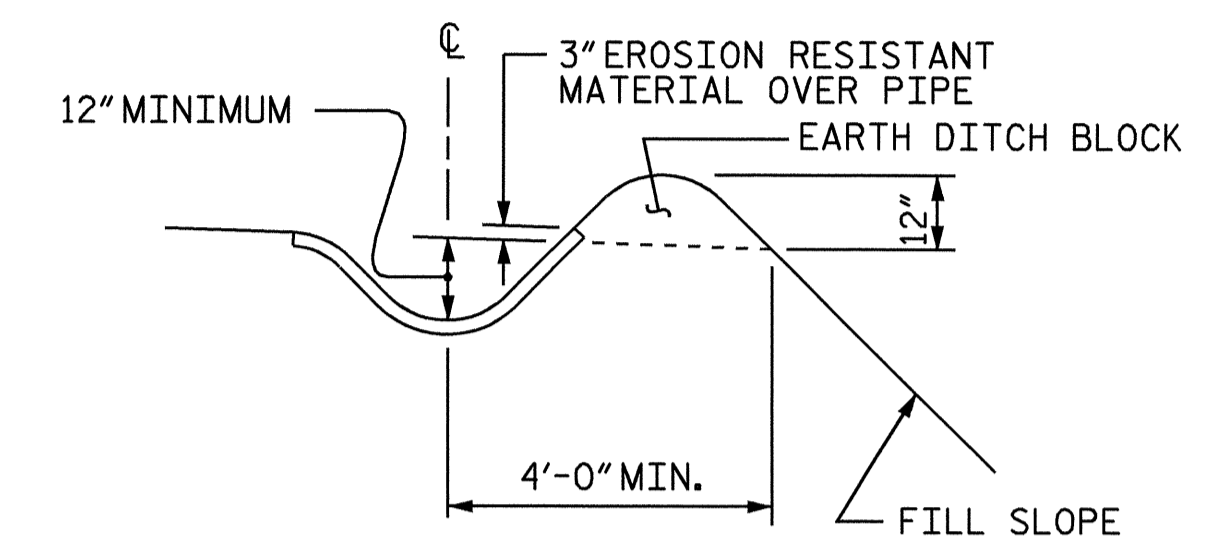


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



SECTION R-R



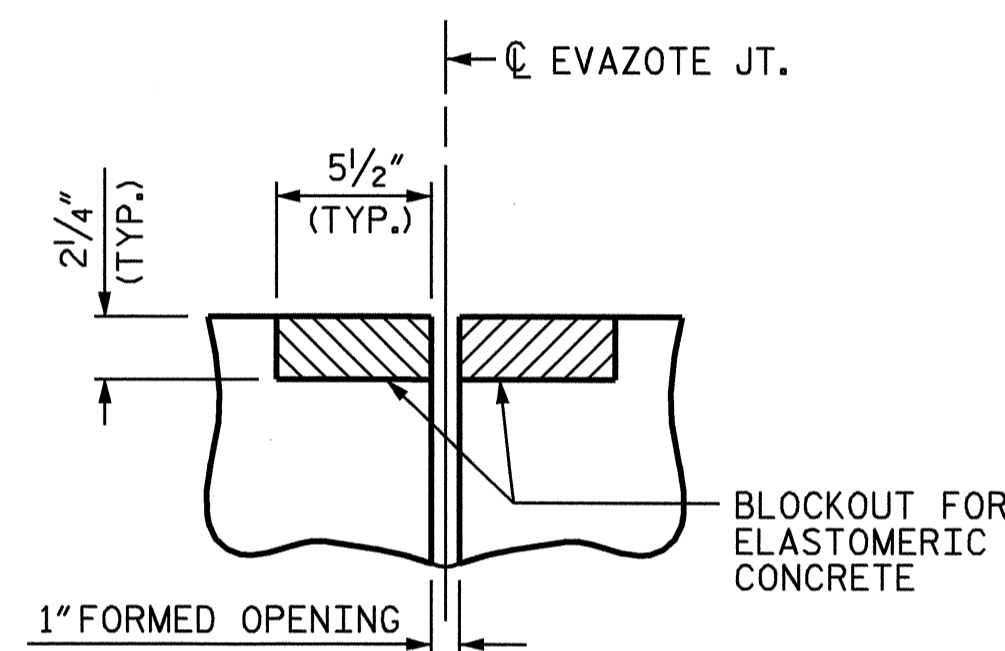
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

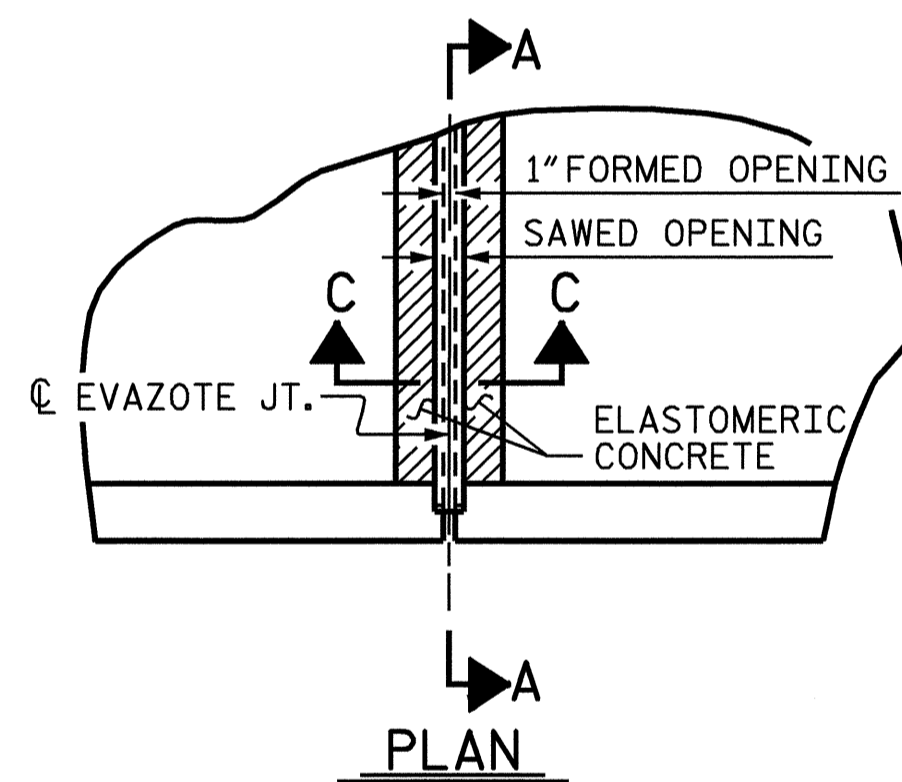
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	4.1
2	4.1
TOTAL	8.2

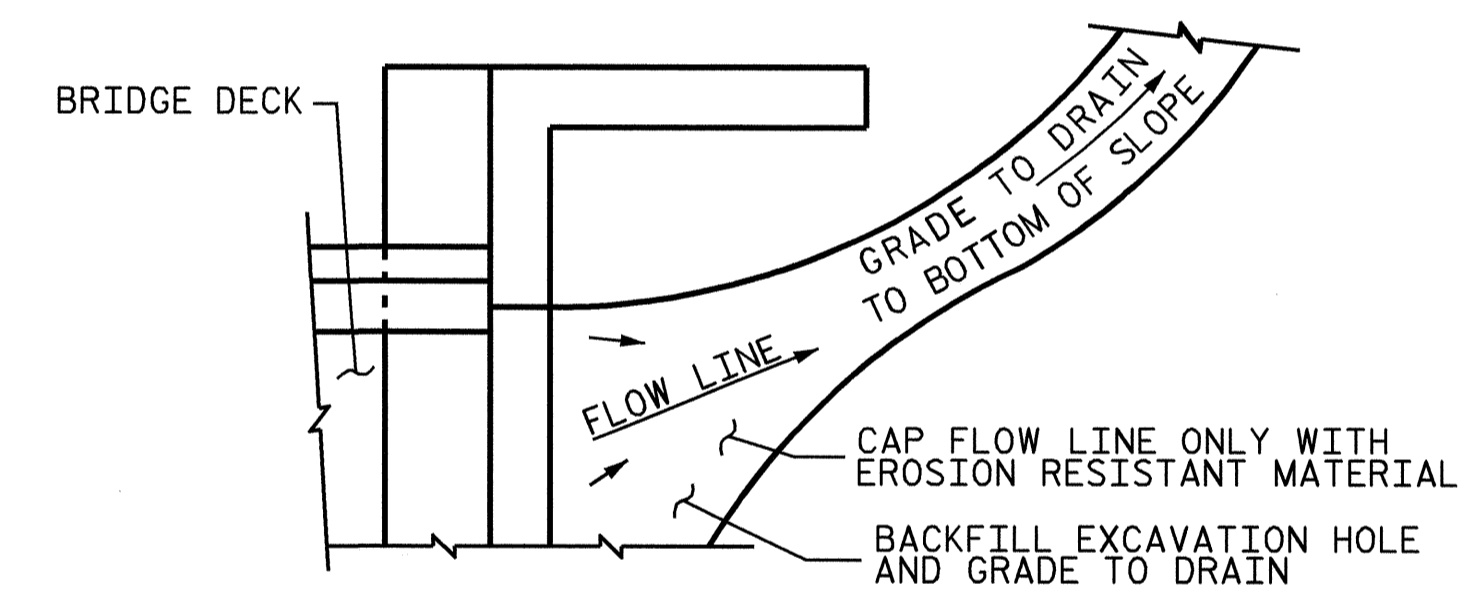
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



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

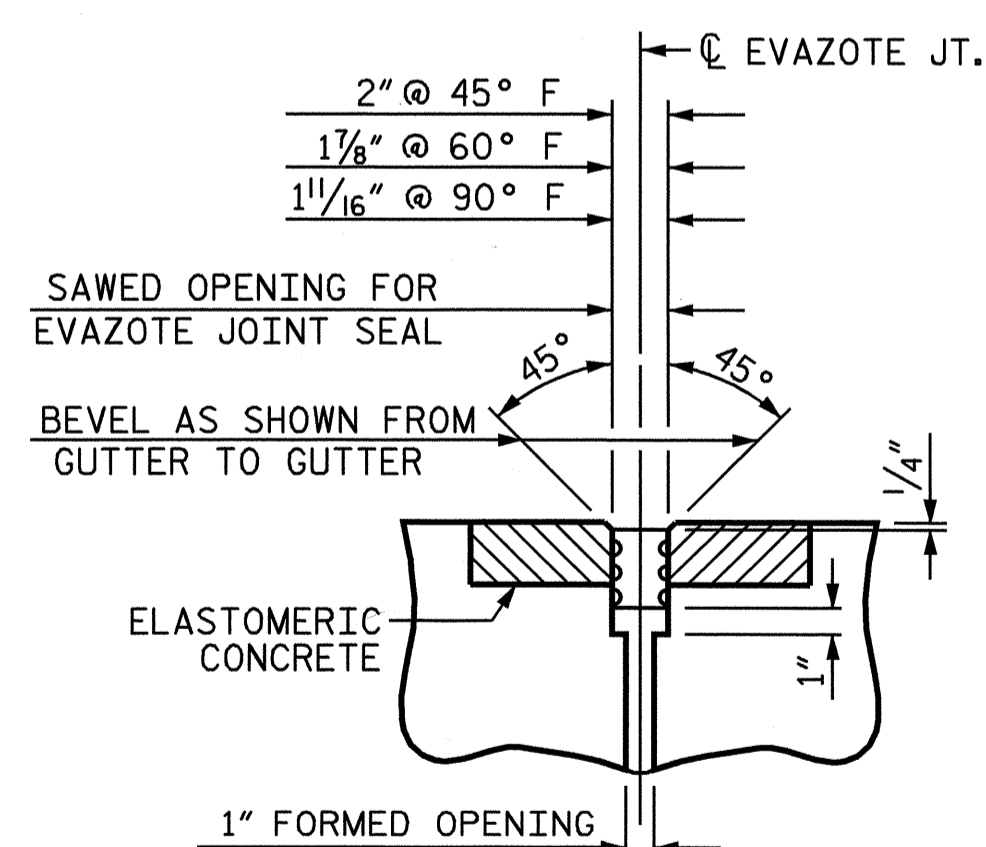


PLAN

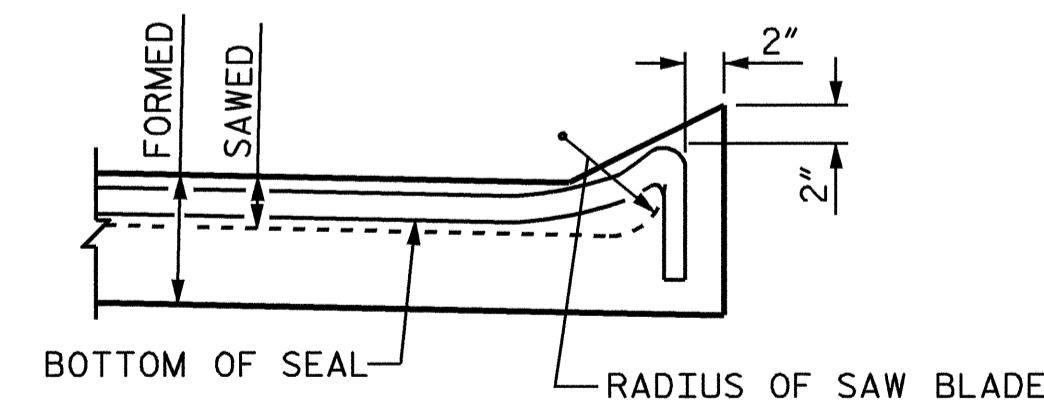


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



SECTION C-C
EVAZOTE JOINT SEAL



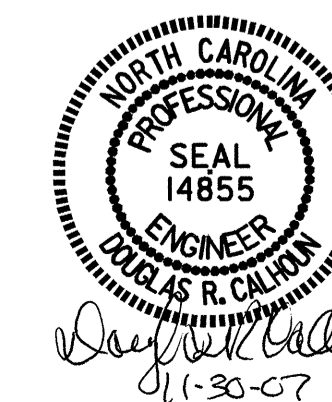
SECTION A-A

JOINT SEAL DETAILS @ SLEEPER SLAB

PROJECT NO. B-3818
CALDWELL COUNTY
 STATION: 14+69.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					21



ASSEMBLED BY : T. A. HARRIS	DATE : 8/8/06
CHECKED BY : E. G. ALLEN	DATE : 8/15/06
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2002 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

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

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

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

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

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN