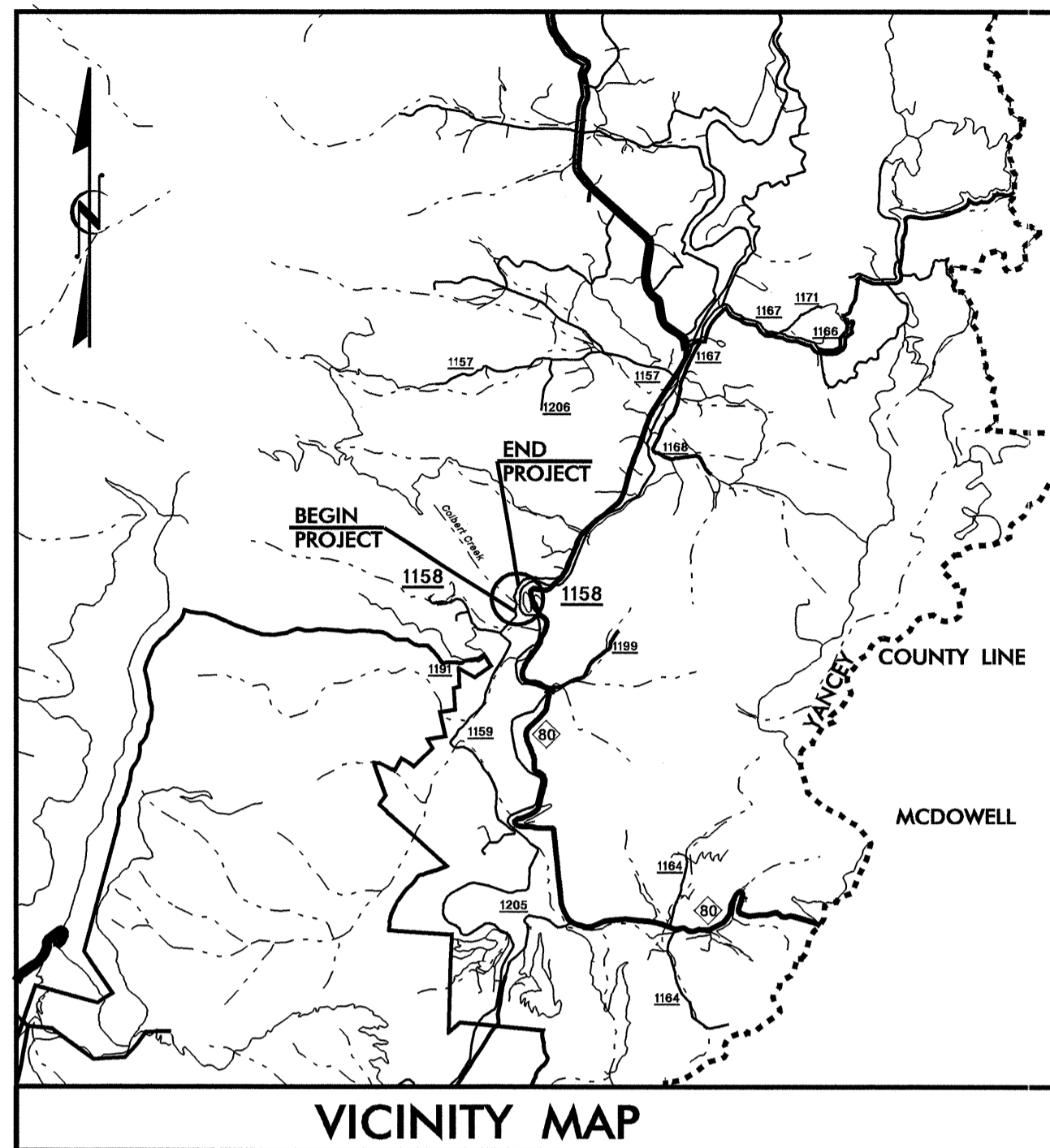


CONTRACT: C201764 TIP PROJECT: B-4330

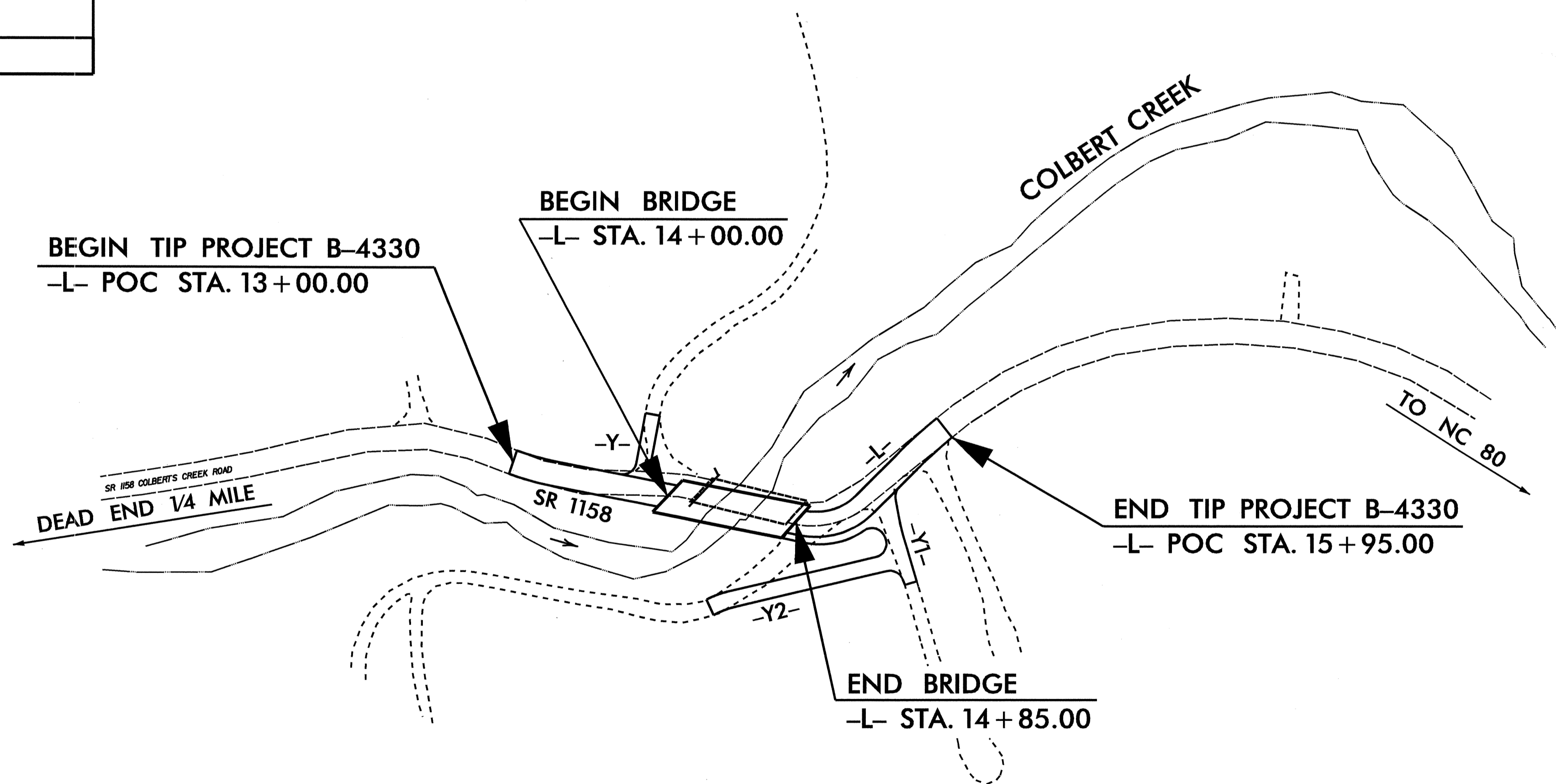
STRUCTURE



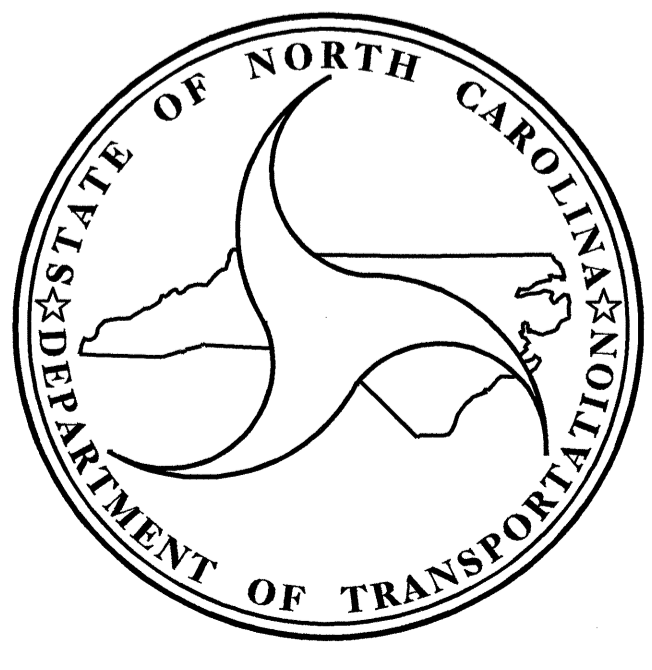
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
YANCEY COUNTY

**LOCATION: BRIDGE NO. 289 AND APPROACHES
 ON SR 1158 OVER COLBERT CREEK**

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4330		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33667.1.1	BRZ-1158(3)	P.E.	
33667.2.1	BRZ-1158(3)	UTIL. & RW	
33667.3.1	BRZ-1158(3)	CONST.	



DESIGN DATA

ADT 2008 =	129
ADT 2028 =	212
DHV =	N/A %
D =	N/A %
T =	3 % *
**V =	60 MPH
* TTST 1 %	DUAL 2 %
FUNC CLASS =	RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT =	0.040 MI
LENGTH STRUCTURE OF F.A. PROJECT =	0.016 MI
TOTAL LENGTH OF STATE PROJECT =	0.056 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

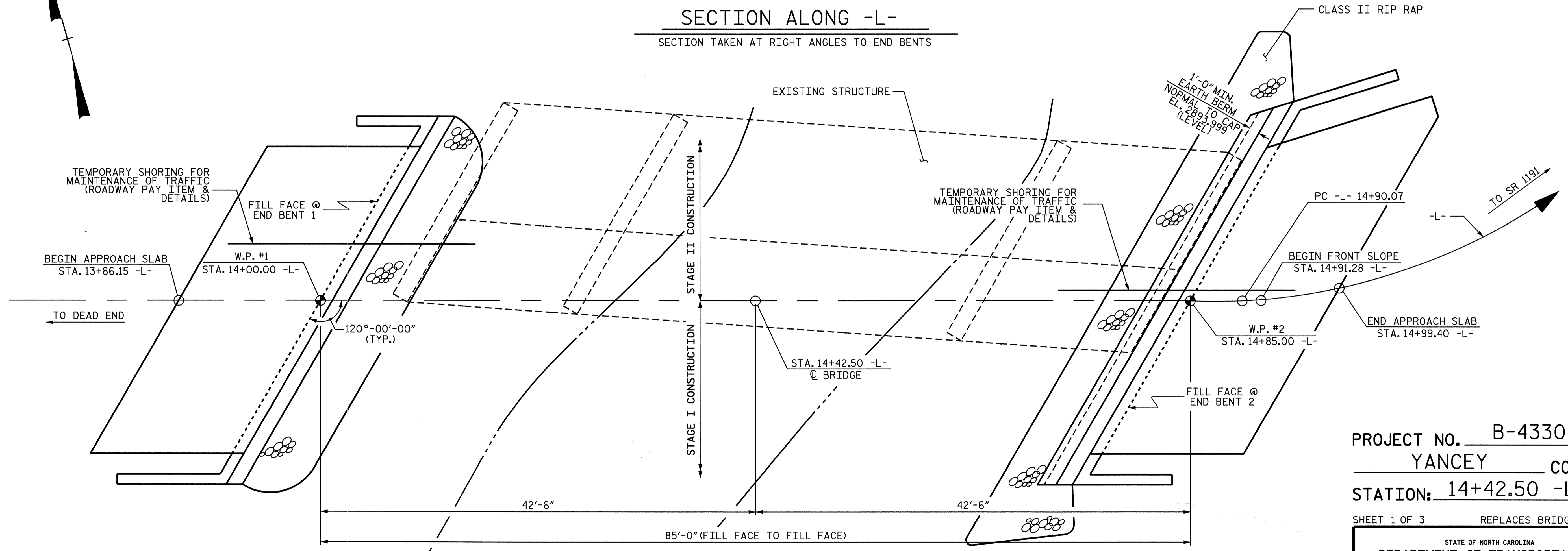
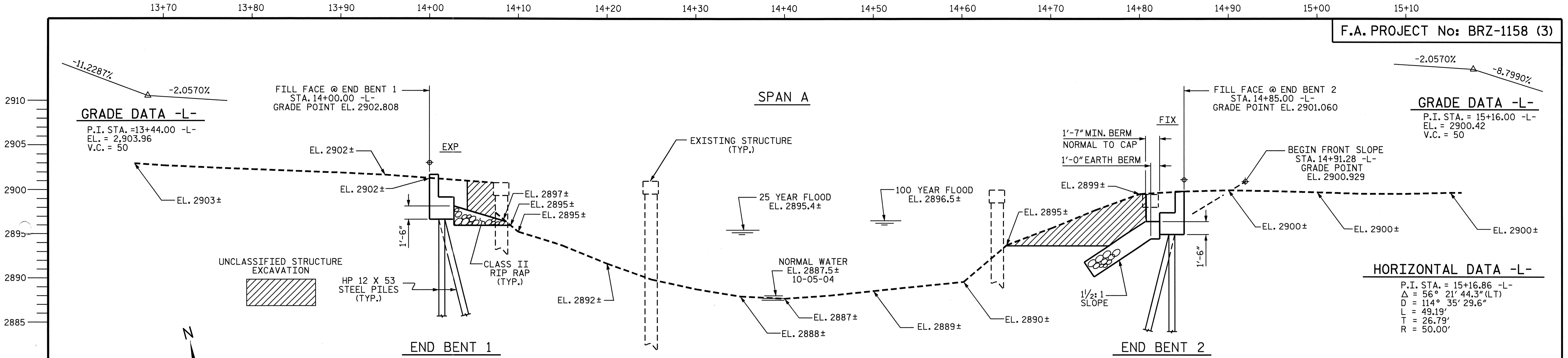
LETTING DATE :	J. C. FRYE, P.E. PROJECT ENGINEER
JANUARY 15, 2008	T. H. FANG, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
 1000 BIRCH RIDGE DR.
 RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER _____ P.E.
 DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
 DIVISION ADMINISTRATOR _____ DATE _____

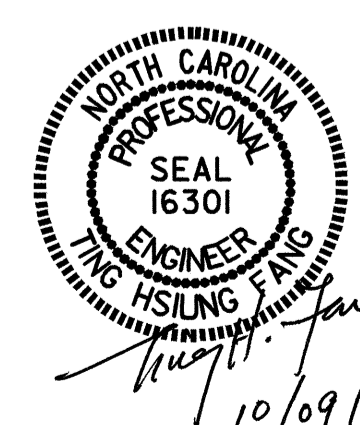
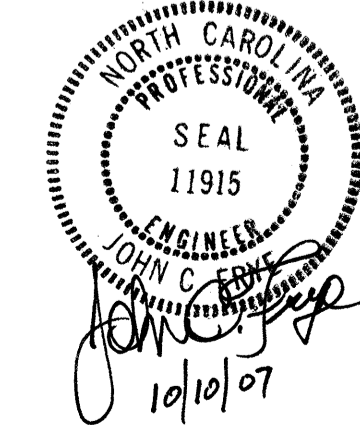


PLAN

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 289

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 COLBERT CREEK
 ON SR 1158 BETWEEN
 DEAD END AND SR 1191



DRAWN BY : A. A. COLE DATE : 6-6-06
 CHECKED BY : T. H. FANG DATE : 6-9-06

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

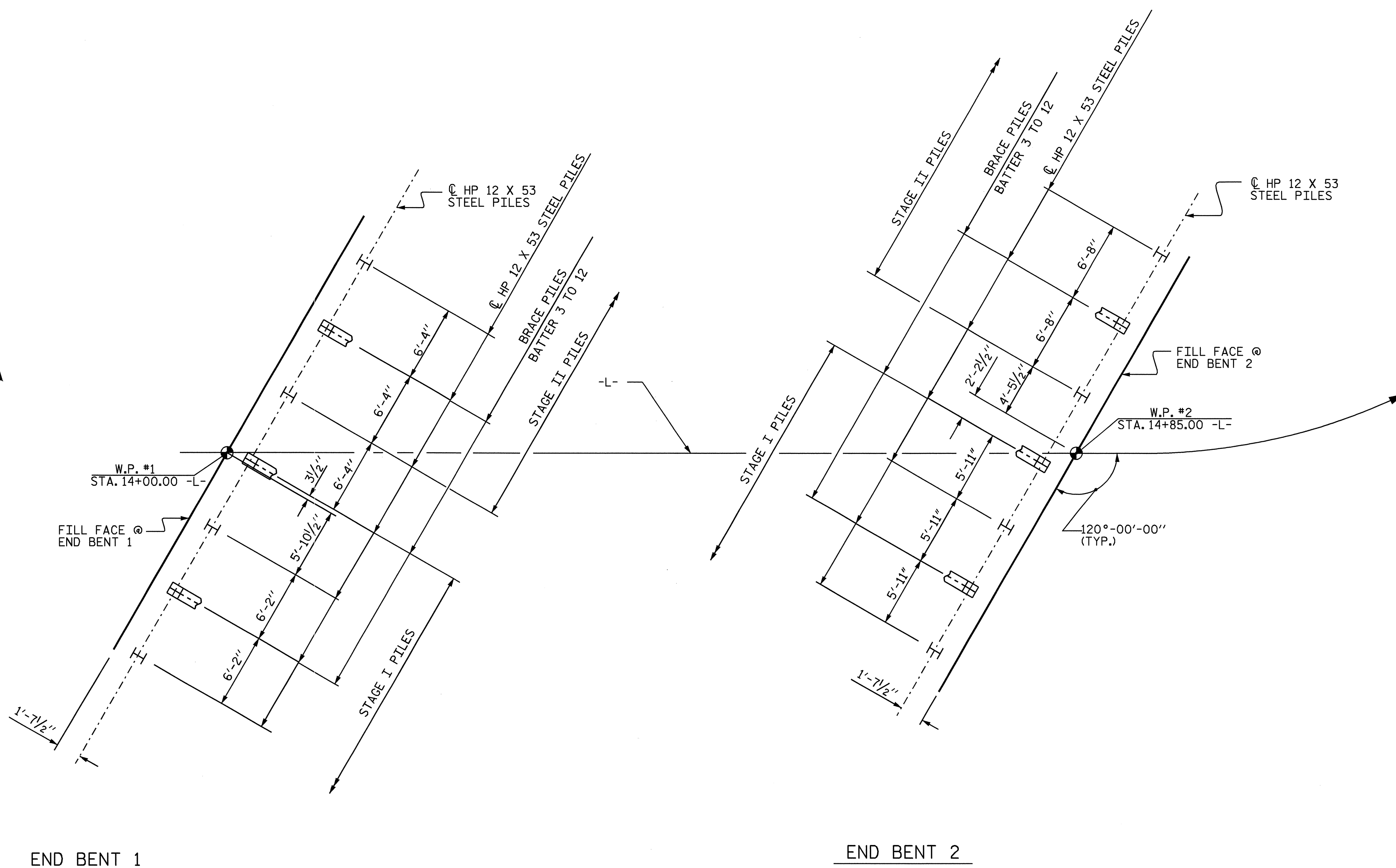
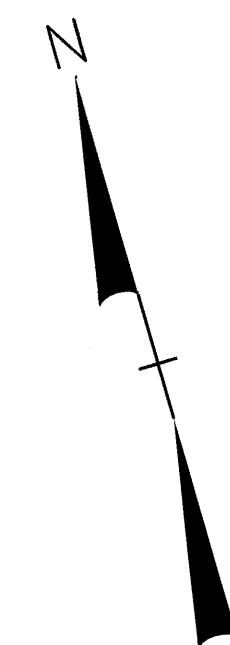
TOTAL SHEETS: 27

NOTES:

PRESENCE OF COBBLES AND BOULDERS MAY PREVENT PILE PENETRATION. PILE EXCAVATION MAY BE REQUIRED AT END BENTS NO. 1 AND 2

DRIVE PILES AT END BENT NO. 1 & END BENT NO. 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. THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO. 1 AND END BENT NO. 2 IS 50 TONS PER PILE.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RE-STRIKING OR RE-DRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. SEE PILE DRIVING ANALYZER SPECIAL PROVISION.



END BENT 1

END BENT 2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER COLBERT CREEK ON SR 1158 BETWEEN DEAD END AND SR 1191

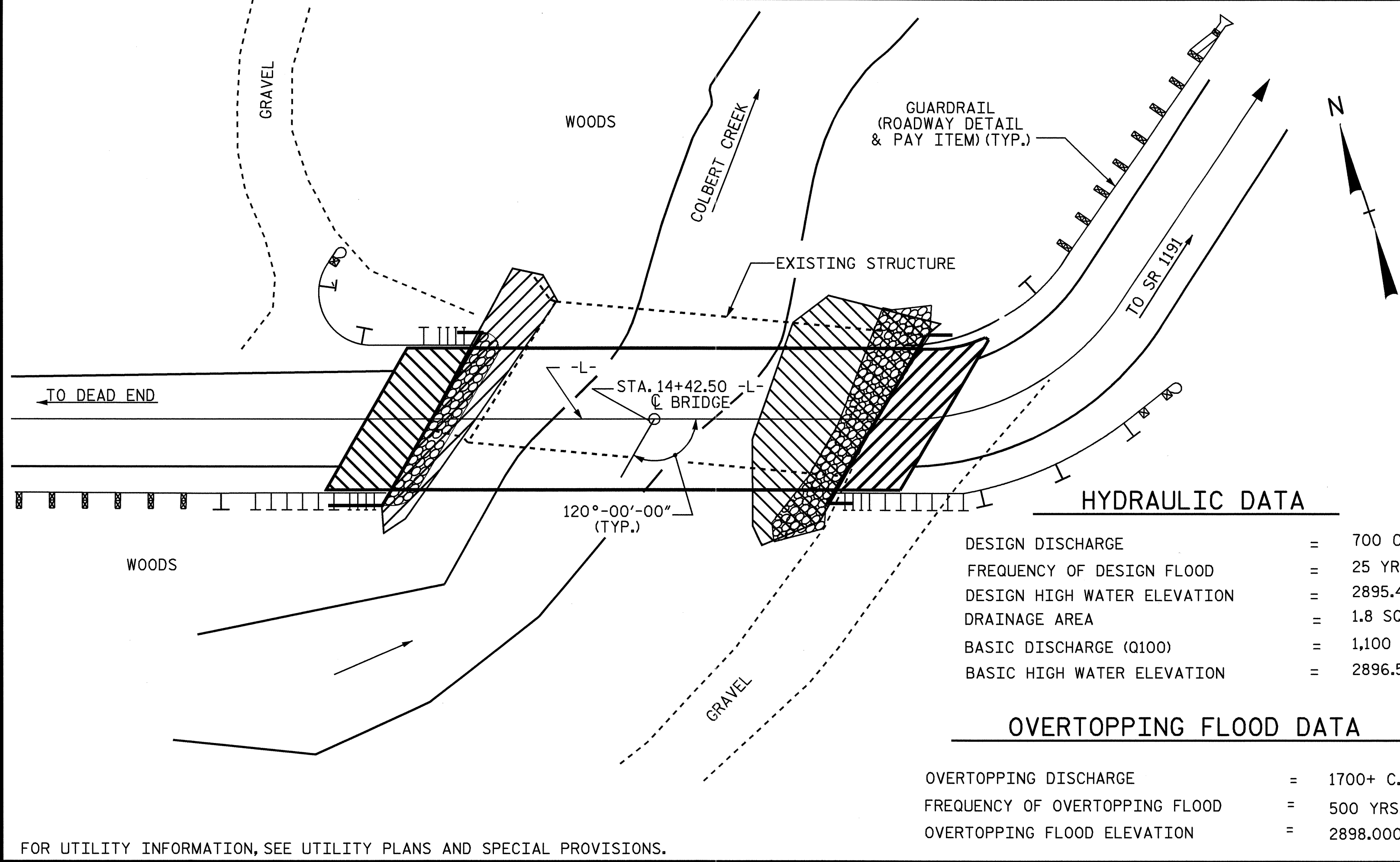


T.H. Fang
 10/09/07

DRAWN BY : H.B. SHAH DATE : 07/07
 CHECKED BY : T.H. FANG DATE : 7/24/07

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

BENCH MARK: #1: RAILROAD SPIKE IN POWER POLE, -L- STA 15+17.86, 63.38' RT., EL. 2900.35'



HYDRAULIC DATA

DESIGN DISCHARGE	=	700 C.F.S.
FREQUENCY OF DESIGN FLOOD	=	25 YRS.
DESIGN HIGH WATER ELEVATION	=	2895.400
DRAINAGE AREA	=	1.8 SQ. MI.
BASIC DISCHARGE (Q100)	=	1,100 C.F.S.
BASIC HIGH WATER ELEVATION	=	2896.500

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	1700+ C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	=	500 YRS.+
OVERTOPPING FLOOD ELEVATION	=	2898.000

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT GIRDERS HAVE BEEN DESIGNED FOR HS25.

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

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

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

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

THE 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.

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 B.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. LEFT SIDE, 23 FT. RIGHT SIDE AT END BENT 1 AND 25 FT. EACH SIDE AT END BENT 2 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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 BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STA. 14+42.50 -L-"

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS: 1 @ 16'-0", 1 @ 39'-0", 1 @ 16'-0"; 19'-2" CLEAR ROADWAY WIDTH AND TIMBER DECK ON STEEL I-BEAMS AND TIMBER JOISTS; END BENT 1 AND INTERIOR BENTS: TIMBER CAP ON TIMBER PILES AND STRUTS ON CONCRETE FOOTINGS; END BENT 2; TIMBER SILL ON ROCK, AND LOCATED ON THE CENTER LINE OF 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 PROVISIONS.

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

FOR PILE EXCAVATION, SEE SPECIAL PROVISIONS.

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.

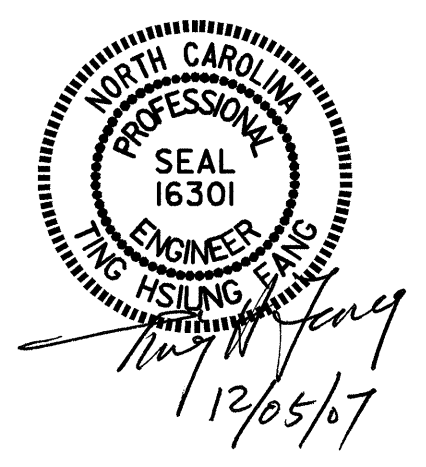
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLAN.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

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



TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	PDA TESTING	PDA ASSISTANCE	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	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	
	LUMP SUM	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	APPROX. LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE							2,478	2,768		LUMP SUM		88,100			165.00			LUMP SUM	LUMP SUM
END BENT 1		45	45						22.8		3,374		7	280		15	32		
END BENT 2		45	45						23.0		3,471		7	420		54	60		
TOTAL	LUMP SUM	90	90	1	1	LUMP SUM	2,478	2,768	45.8	LUMP SUM	6,845	88,100	14	700	165.00	69	92	LUMP SUM	LUMP SUM

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 Raleigh

GENERAL DRAWING
 FOR BRIDGE OVER
 COLBERT CREEK
 ON SR 1158 BETWEEN
 DEAD END AND SR 1191

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

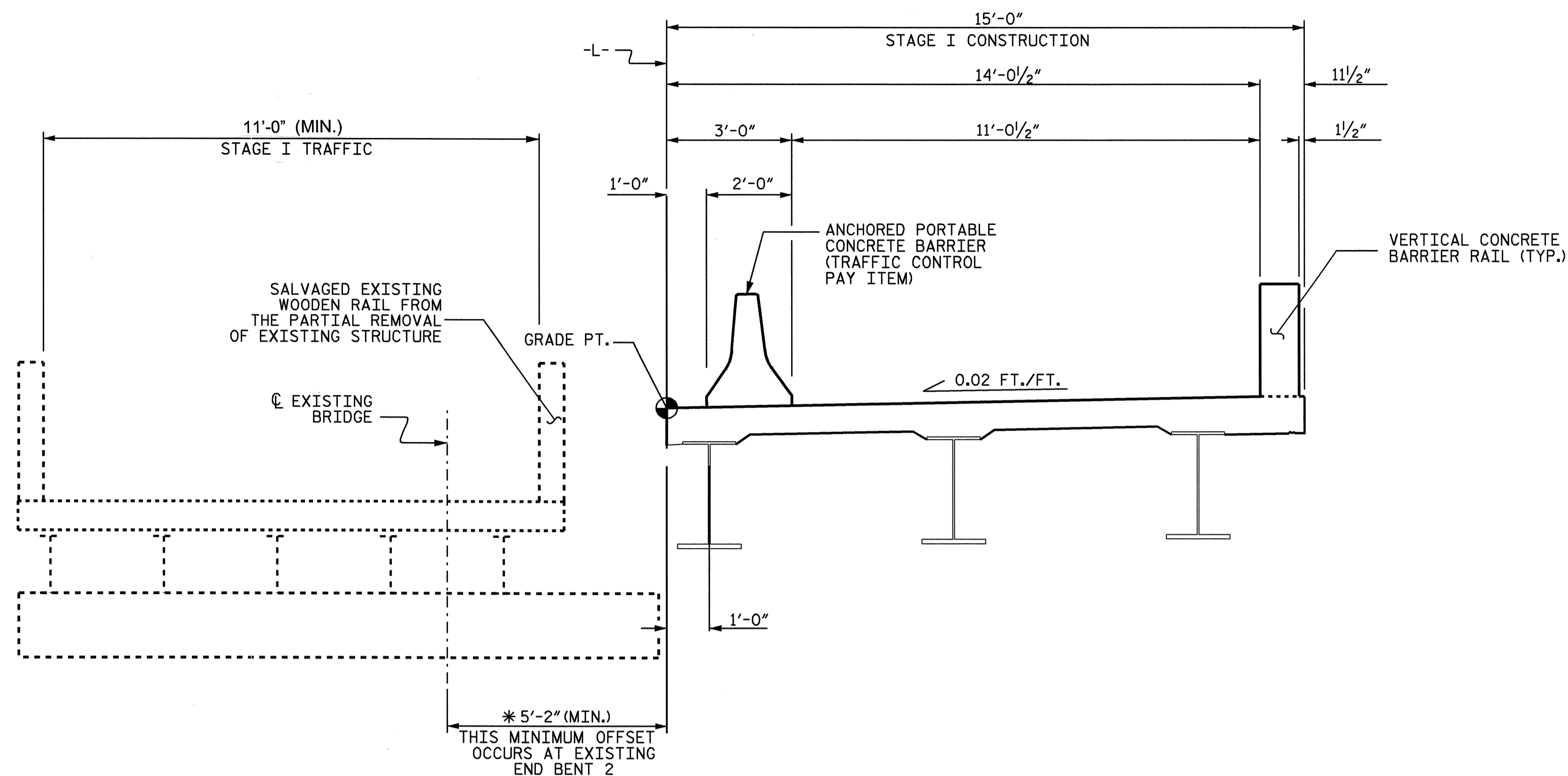
DRAWN BY: A. A. COLE/HBS DATE: 6-6-06
 CHECKED BY: T. H. FANG DATE: 7-26-07

NOTES

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

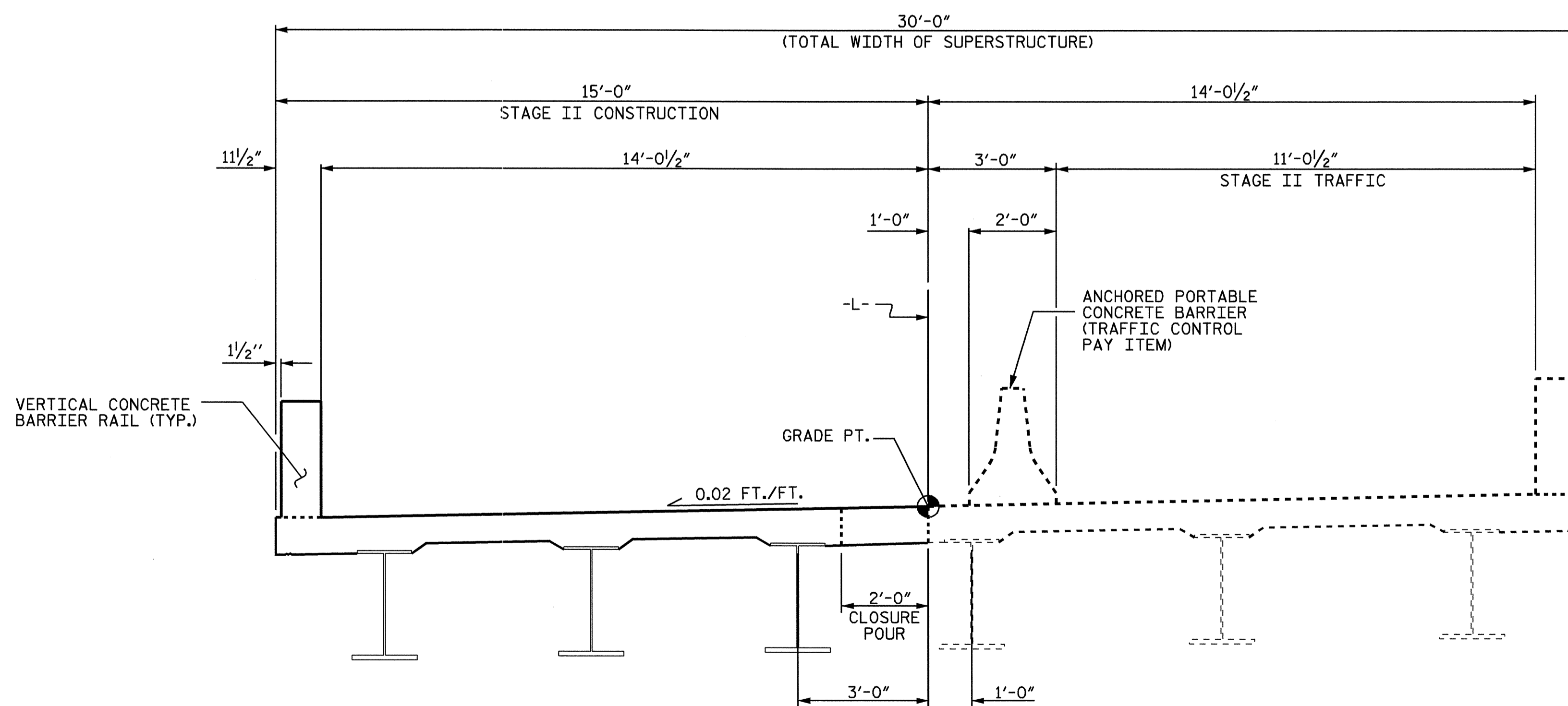
THE RIGHT WOODEN RAIL ON THE EXISTING BRIDGE SHALL BE CAREFULLY REMOVED. AFTER BEAMS AND JOISTS HAVE BEEN REMOVED AND THE TIMBER DECK IS TRIMMED TO STAGE I WIDTH, THE SALVAGED EXISTING WOODEN RAIL SHALL BE REATTACHED IN ITS ENTIRETY. REPLACE ANY ELEMENTS OF THE WOODEN RAIL THAT ARE NOT SALVAGEABLE FOR REUSE. ANY ELEMENT REPLACED MUST MEET THE SAME BASIC SIZE, SHAPE AND MATERIAL PROPERTIES OF THE EXISTING ELEMENT.

REPLACEMENT OF THE ENTIRE RIGHT WOODEN RAIL IS ALLOWED AS LONG AS ALL RAIL ELEMENTS ARE REPLACED WITH THE SAME SIZE, SHAPE AND MATERIAL PROPERTIES. THE REMOVAL AND RESETTING OF THE BRIDGE RAIL, OR THE REPLACEMENT OF THE BRIDGE RAIL OR ANY ELEMENTS OF THE BRIDGE RAIL IS CONSIDERED INCIDENTAL TO THE REMOVAL OF EXISTING STRUCTURE.



STAGE I CONSTRUCTION

*DIMENSIONS FOR EXISTING STRUCTURE ARE ESTIMATED FROM THE BEST INFORMATION AVAILABLE.



STAGE II CONSTRUCTION

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STAGING SEQUENCE

DRAWN BY : A.A. COLE/HBS DATE : 7/07
 CHECKED BY : I.H. FANG DATE : 8/06/07

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

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.

BARRIER RAIL IN EACH 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.

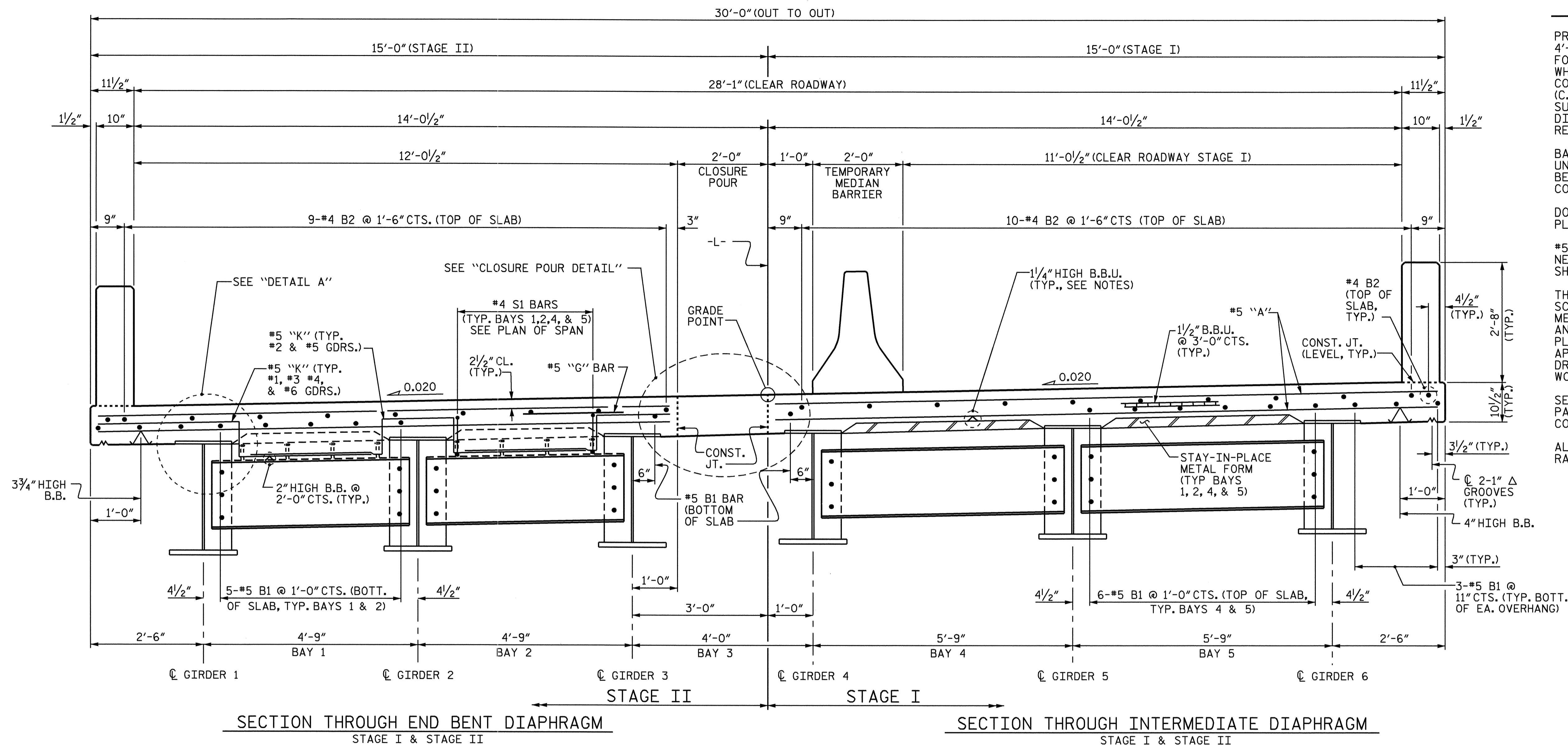
DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL.

#5 G1 BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND SHEAR STUDS.

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.

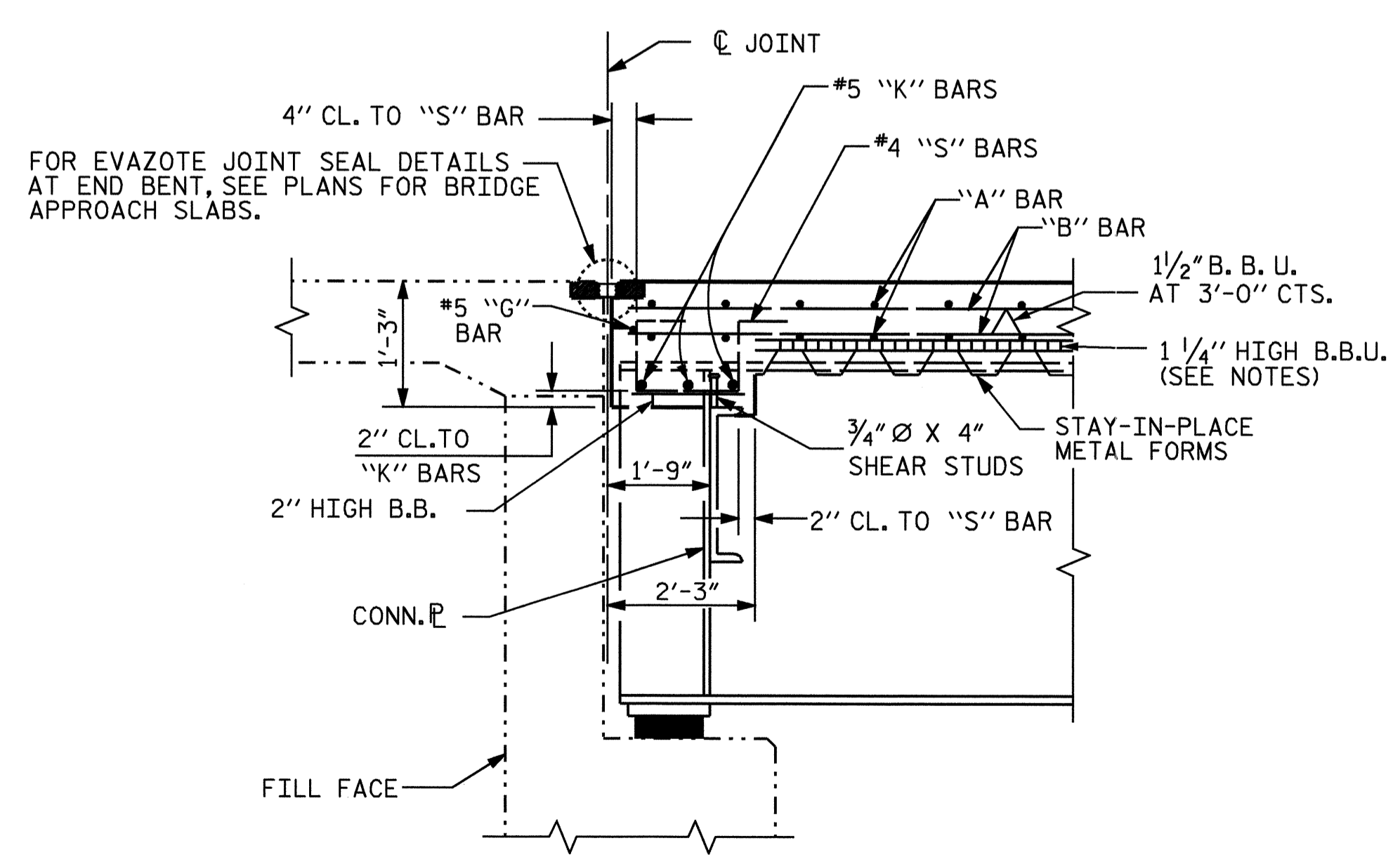
SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

ALL REINFORCING STEEL IN VERTICAL BARRIER RAIL SHALL BE EPOXY COATED.

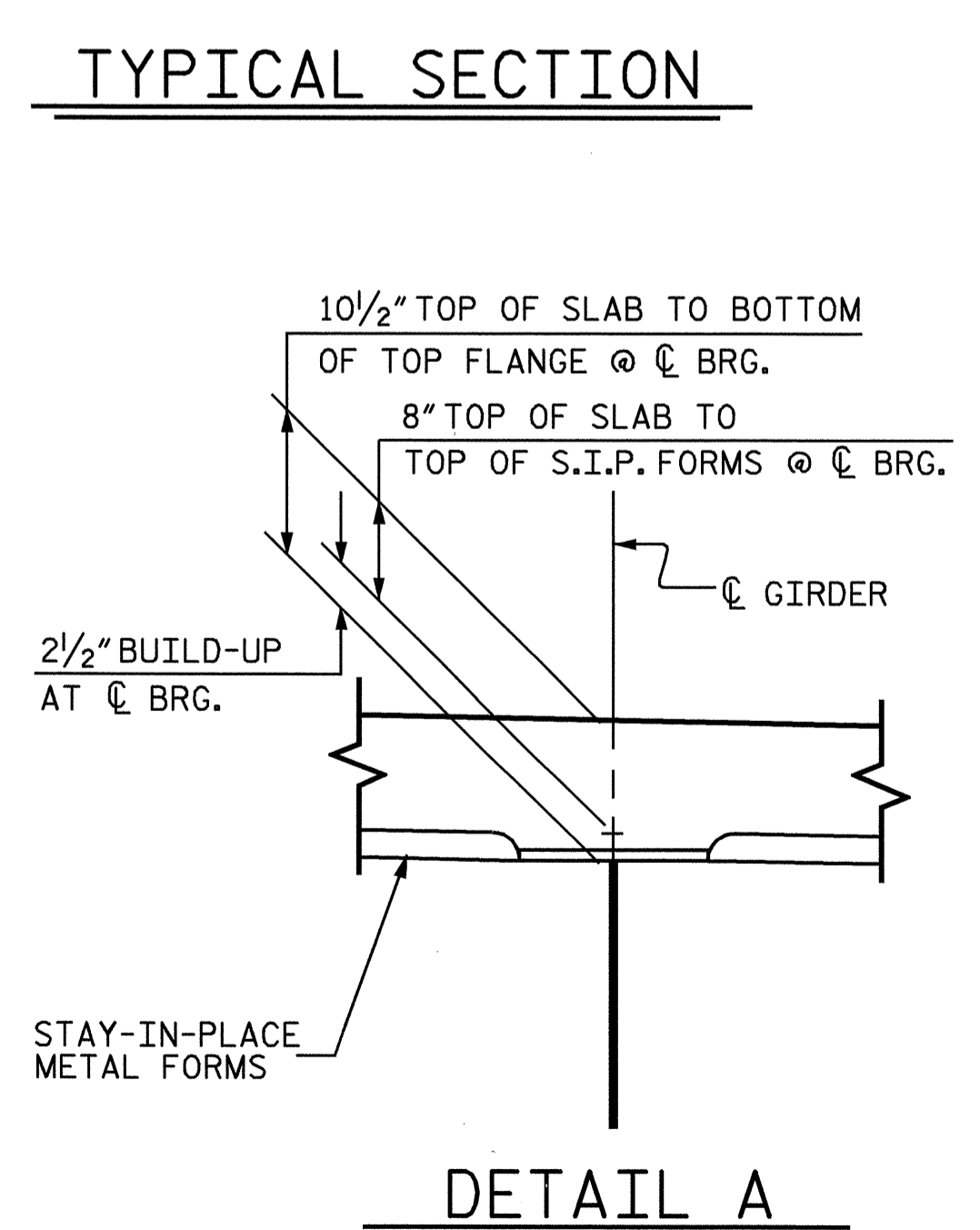


SECTION THROUGH END BENT DIAPHRAGM
STAGE I & STAGE II

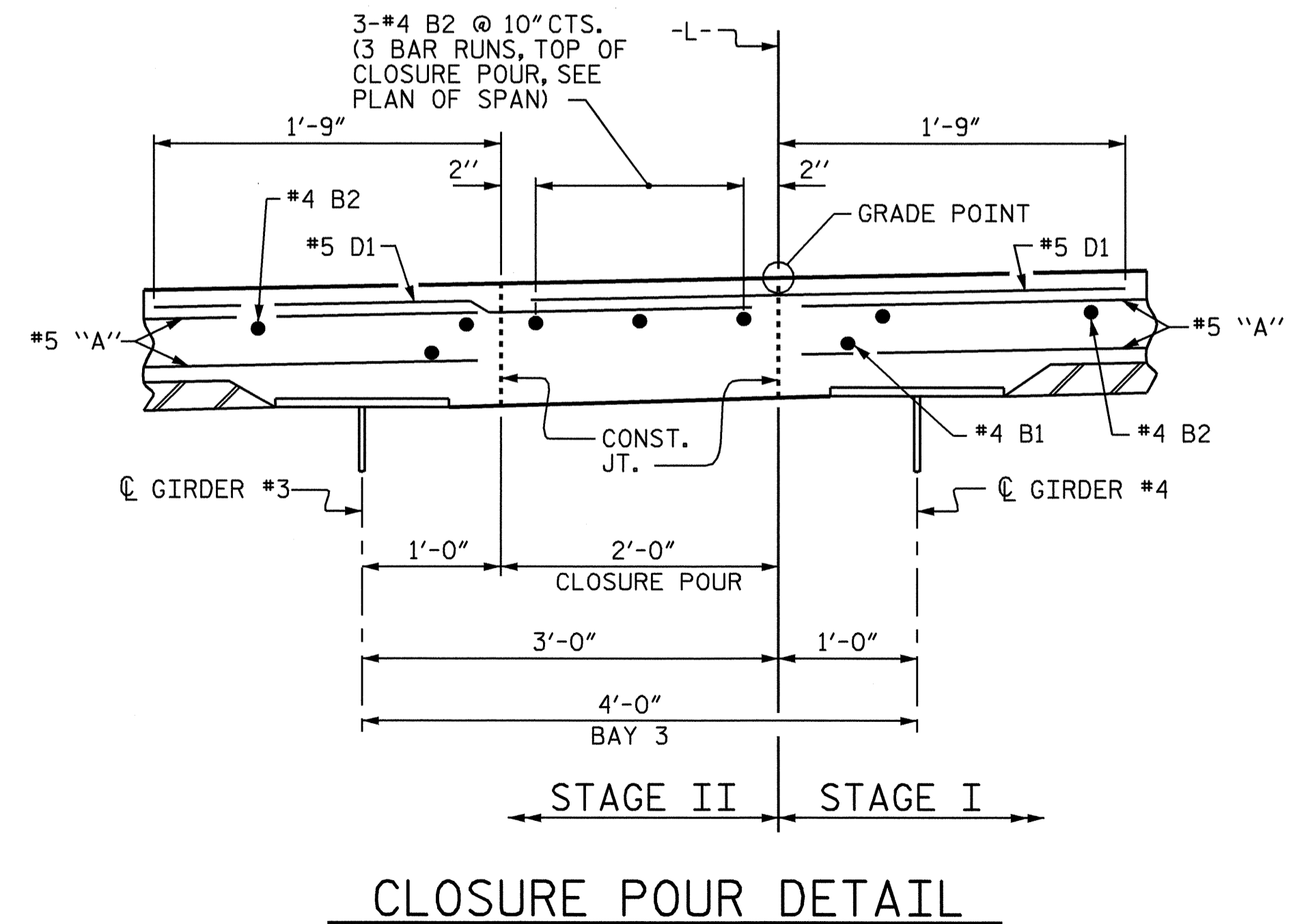
SECTION THROUGH INTERMEDIATE DIAPHRAGM
STAGE I & STAGE II



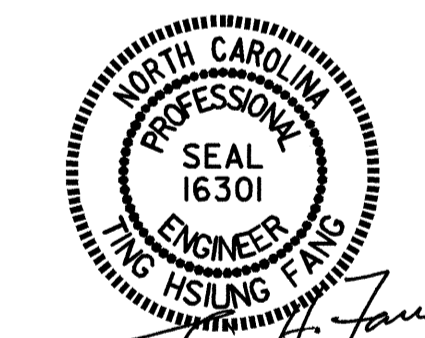
SECTION THROUGH END BENT



DETAIL A



CLOSURE POUR DETAIL



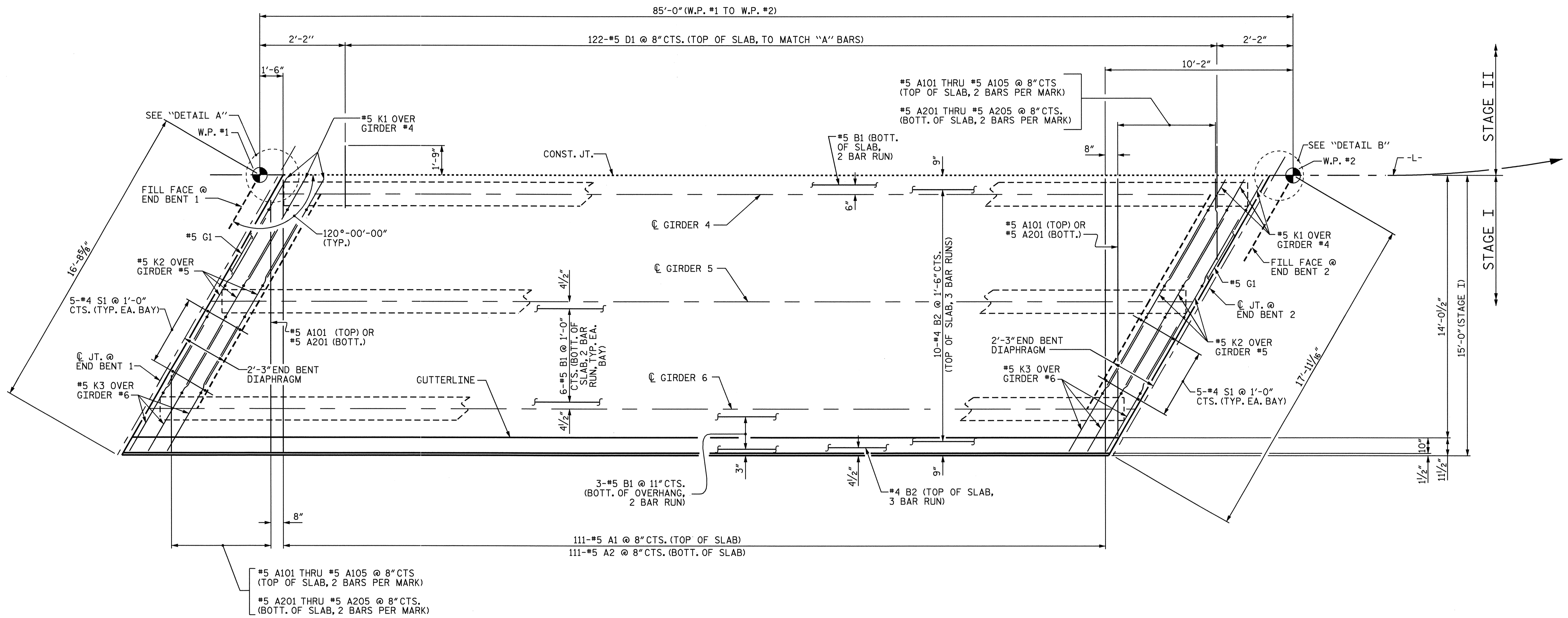
PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

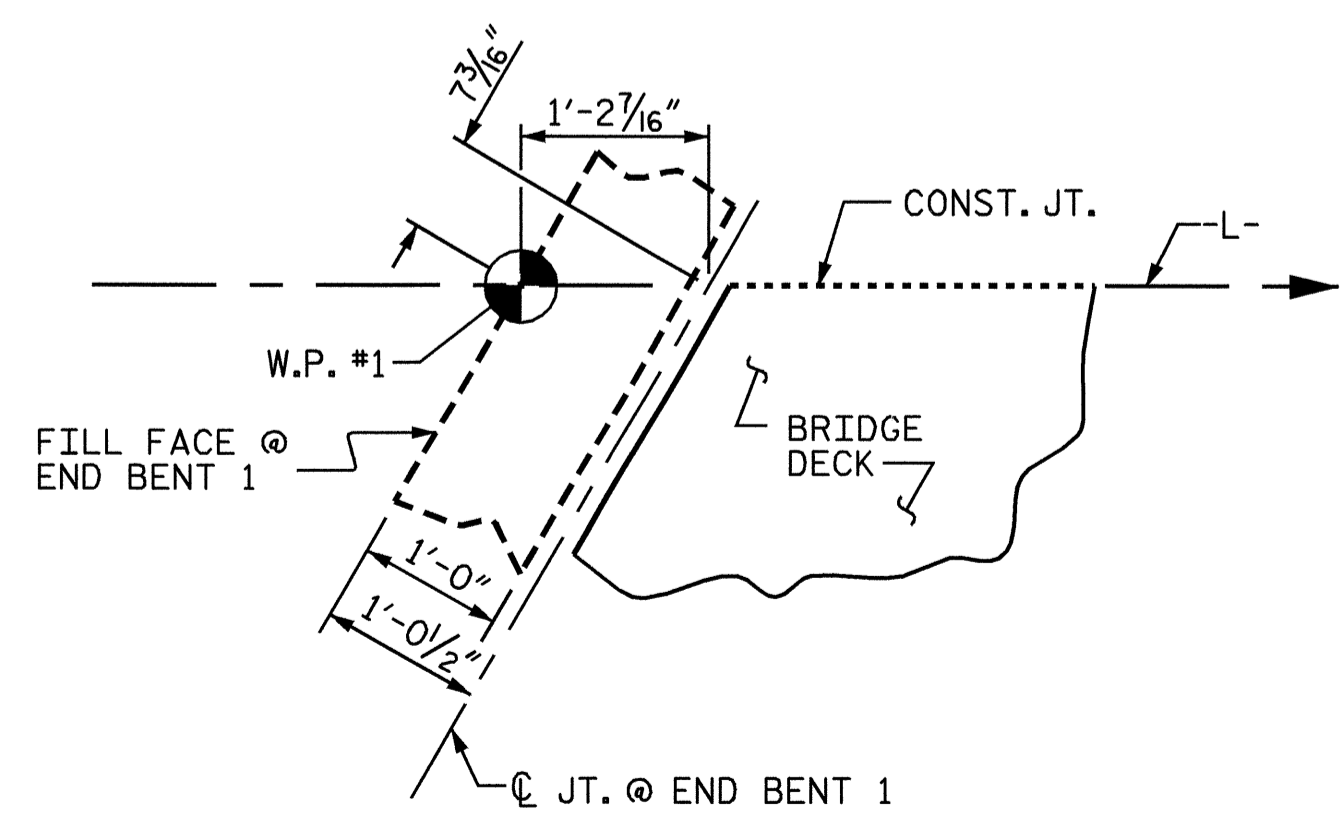
DRAWN BY: A.R.CHESSON DATE: 10-06
 CHECKED BY: R.W.WRIGHT DATE: 10-06

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

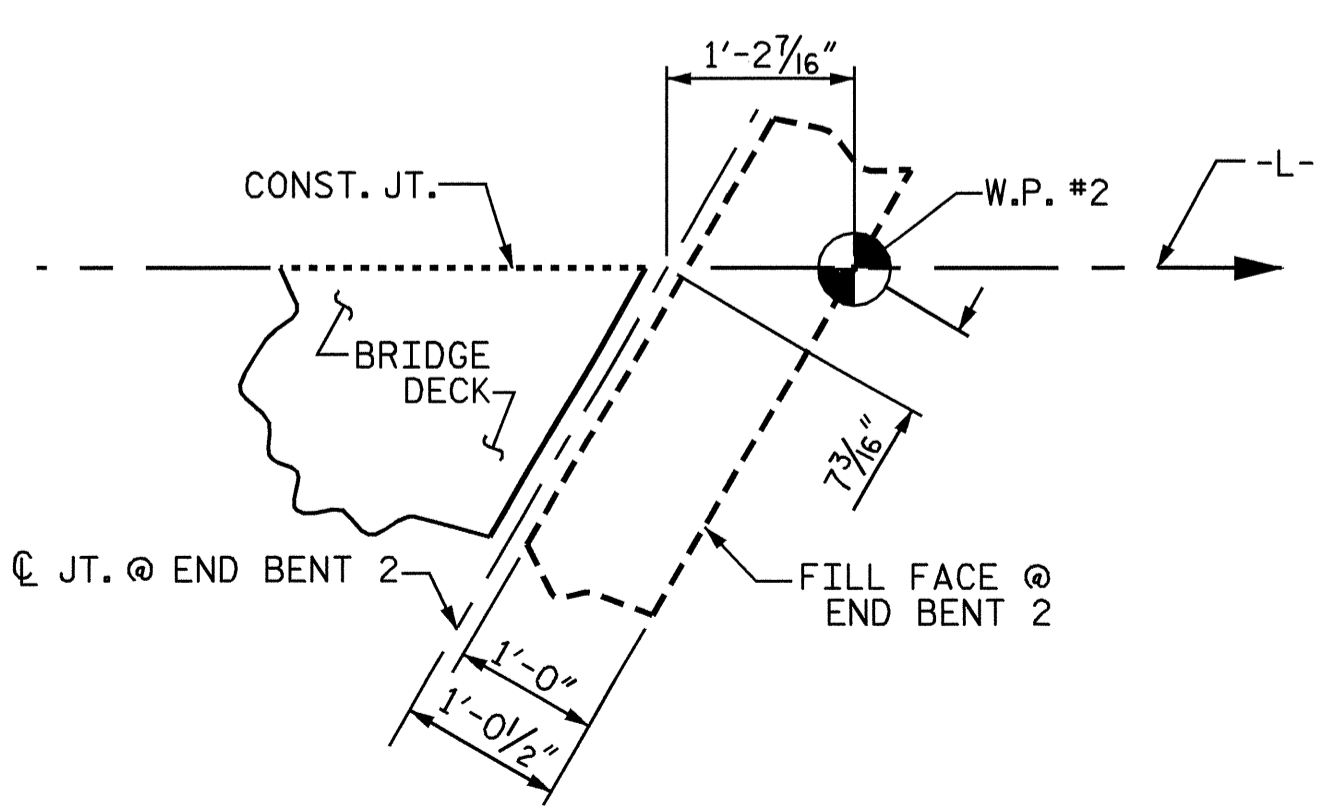
TOTAL SHEETS: 27



**PLAN OF SPAN
STAGE I CONSTRUCTION**



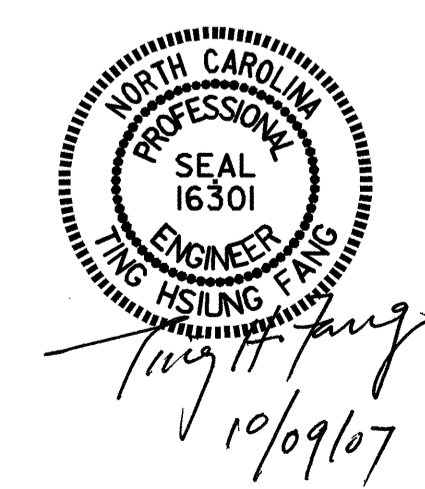
DETAIL A



DETAIL B

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 1 OF 2

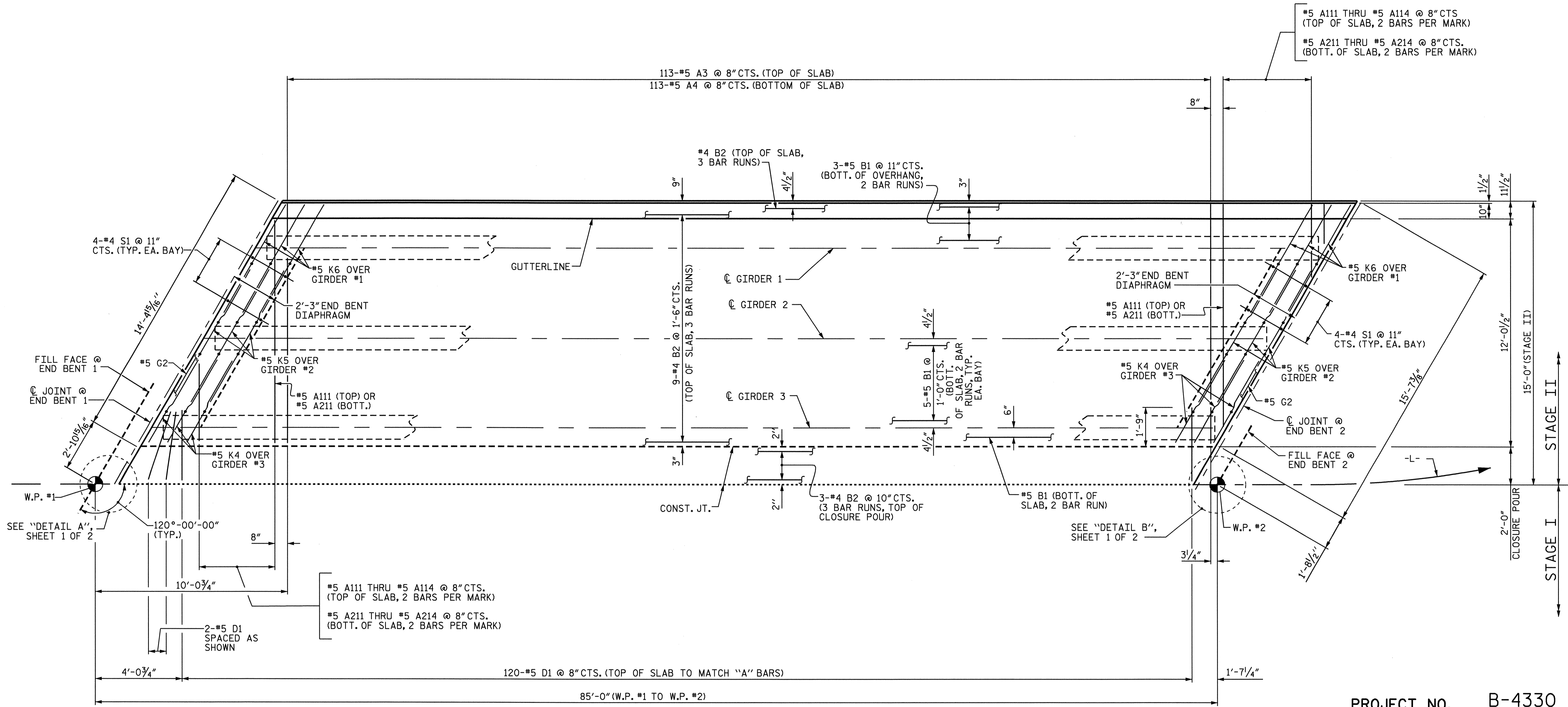


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN
 STAGE I**

DRAWN BY: A.R.CHESSON DATE: 11-06
 CHECKED BY: R.W.WRIGHT DATE: 11-06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			27

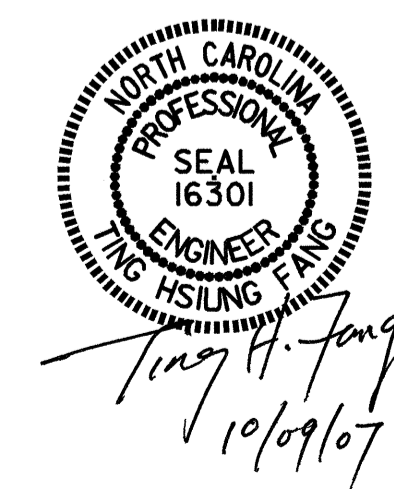


PLAN OF SPAN
STAGE II CONSTRUCTION

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

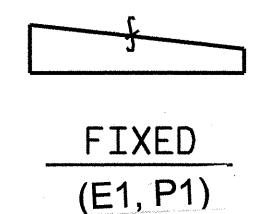
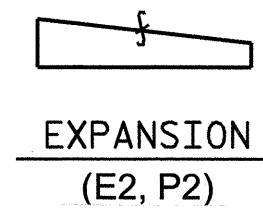
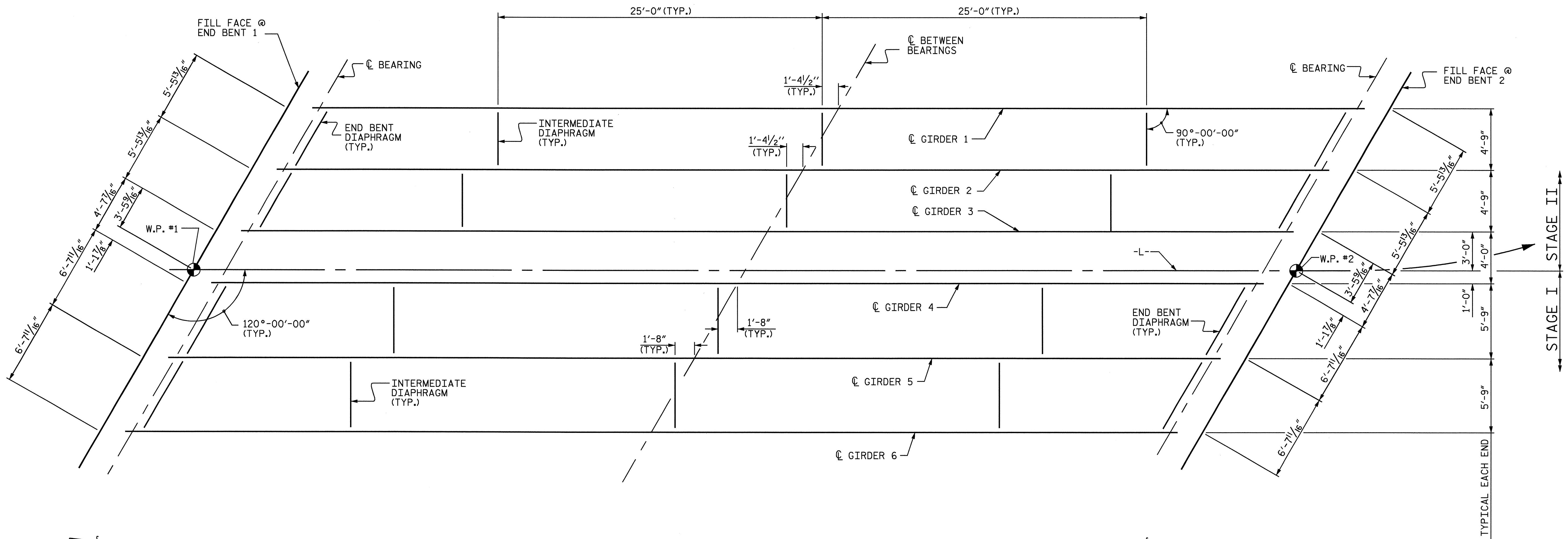
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN
 STAGE II



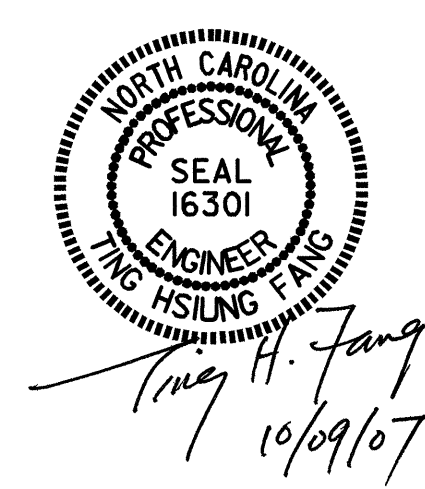
REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

DRAWN BY: A.R.CHESSON DATE: 11-06
 CHECKED BY: R.W.WRIGHT DATE: 11-06



FRAMING PLAN

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN

DRAWN BY: A.R.CHESSON DATE: 11-06
 CHECKED BY: R.W.WRIGHT DATE: 11-06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			27

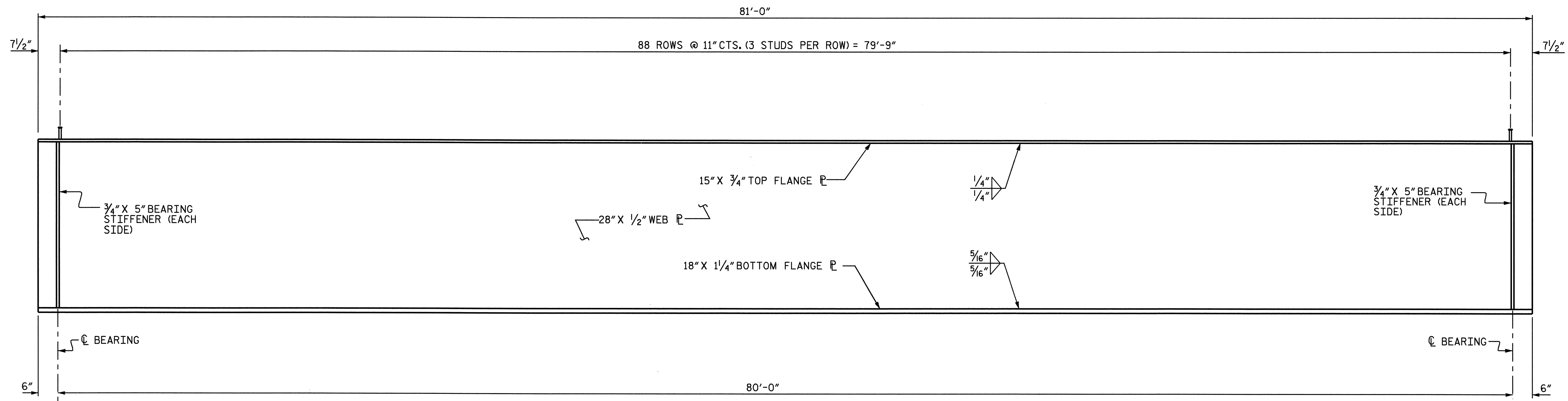
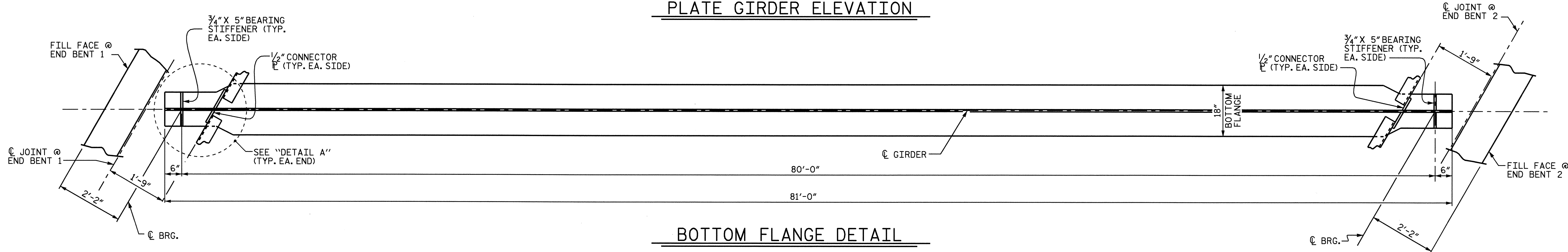
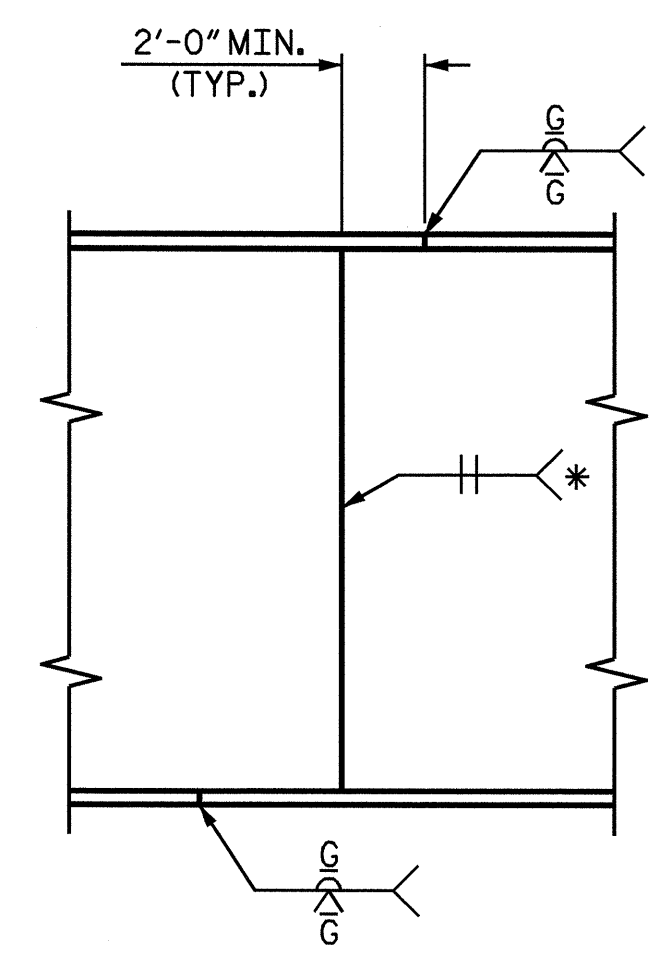


PLATE GIRDER ELEVATION

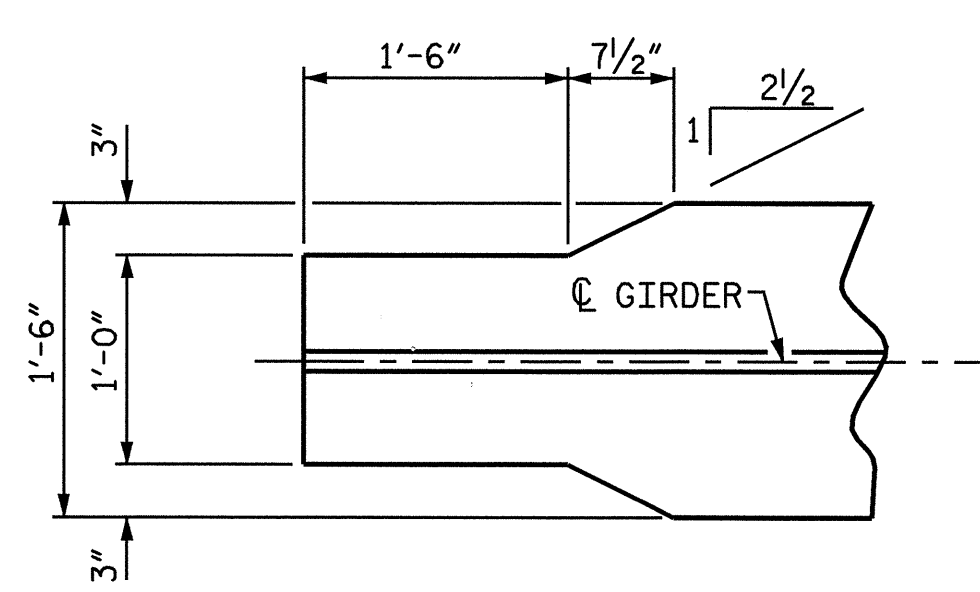


BOTTOM FLANGE DETAIL

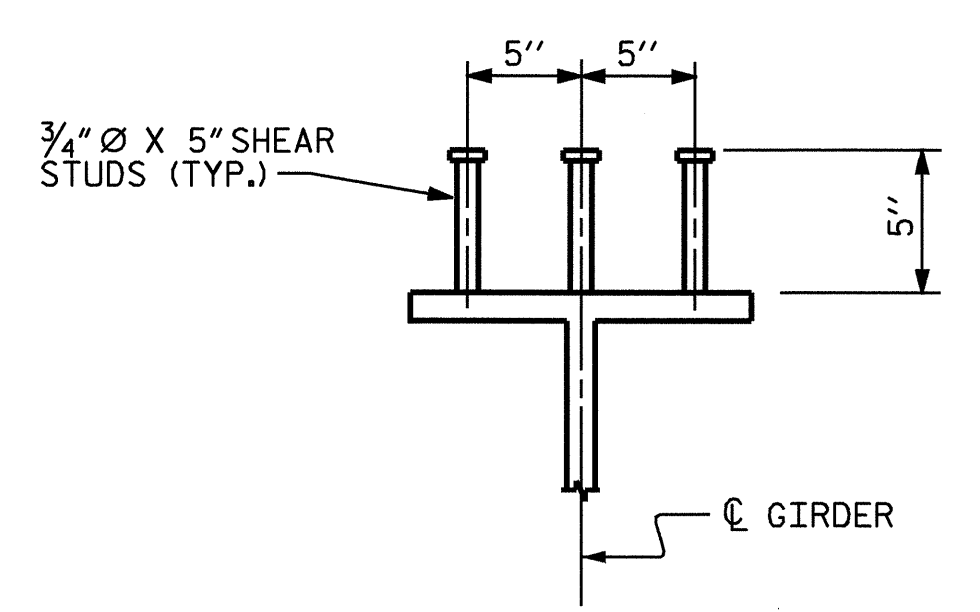


PERMISSIBLE SHOP WEB AND FLANGE SPLICE

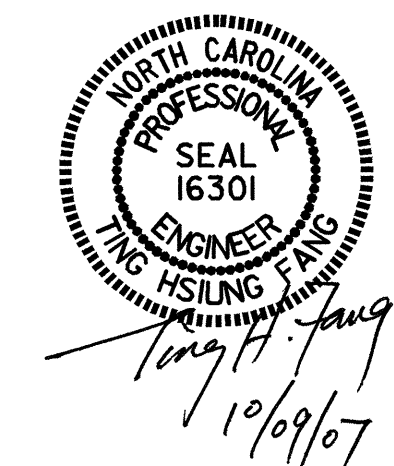
* GRIND SMOOTH AND FLUSH ON OUTSIDE OF EXTERIOR GIRDER.



DETAIL A
BOTTOM FLANGE



SHEAR STUD DETAIL
(TYP. EA. GIRDER)

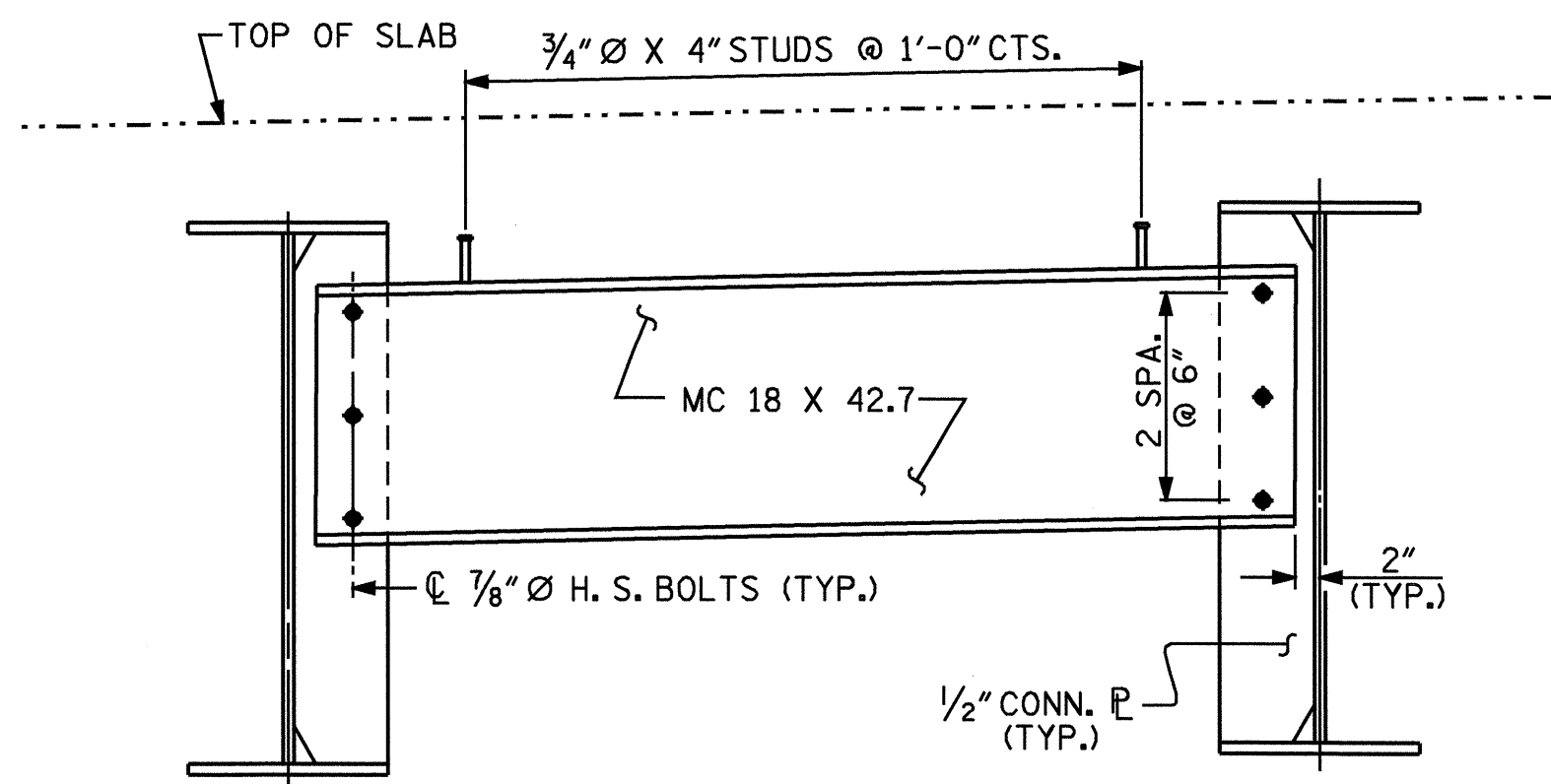


PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-
 SHEET 1 OF 2

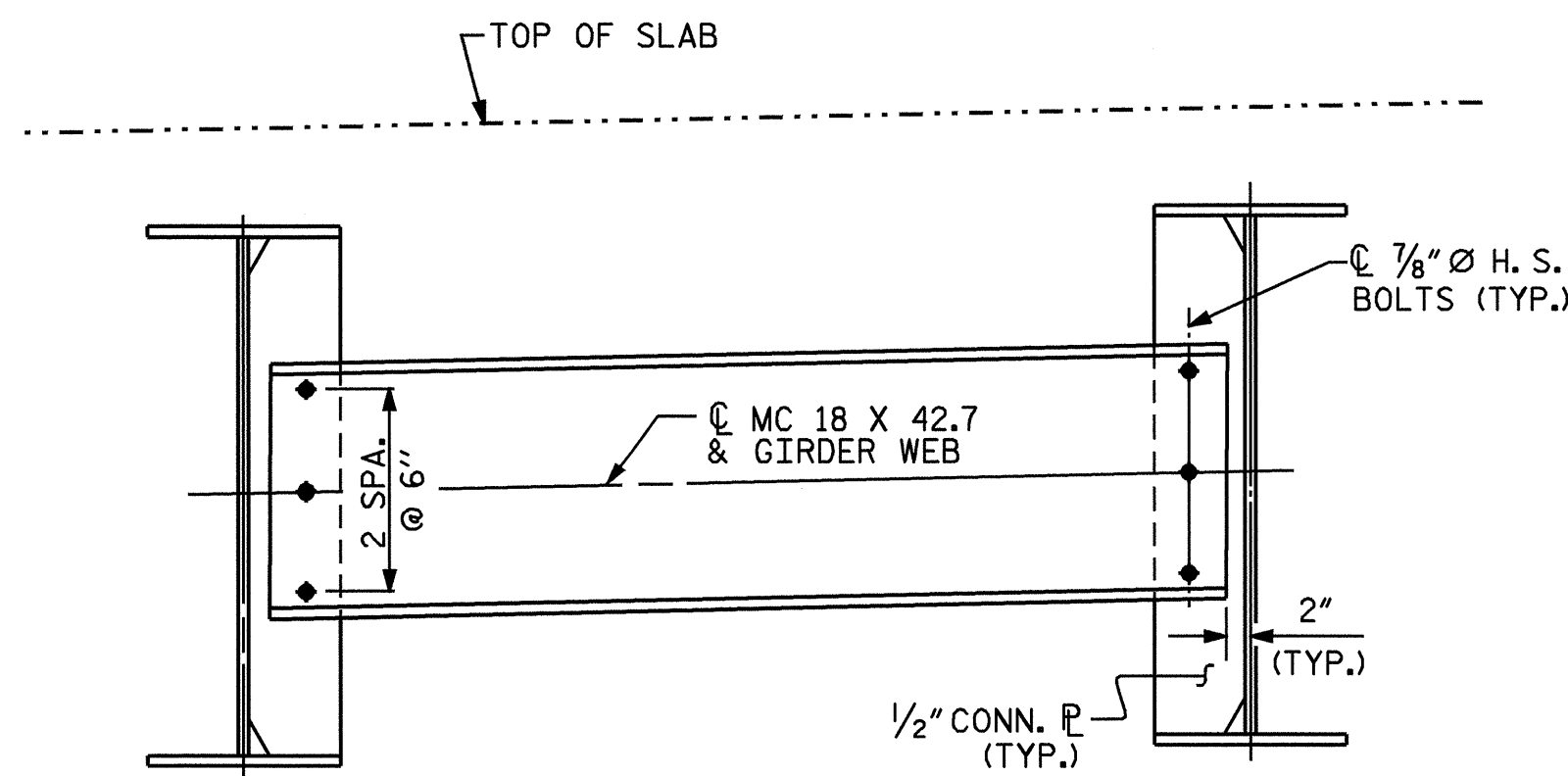
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

DRAWN BY: A.R.CHESSON DATE: 11-06
 CHECKED BY: R.W.WRIGHT DATE: 11-06

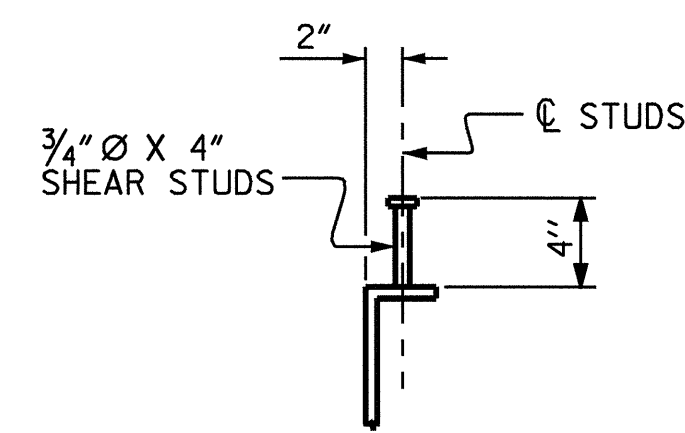
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			27



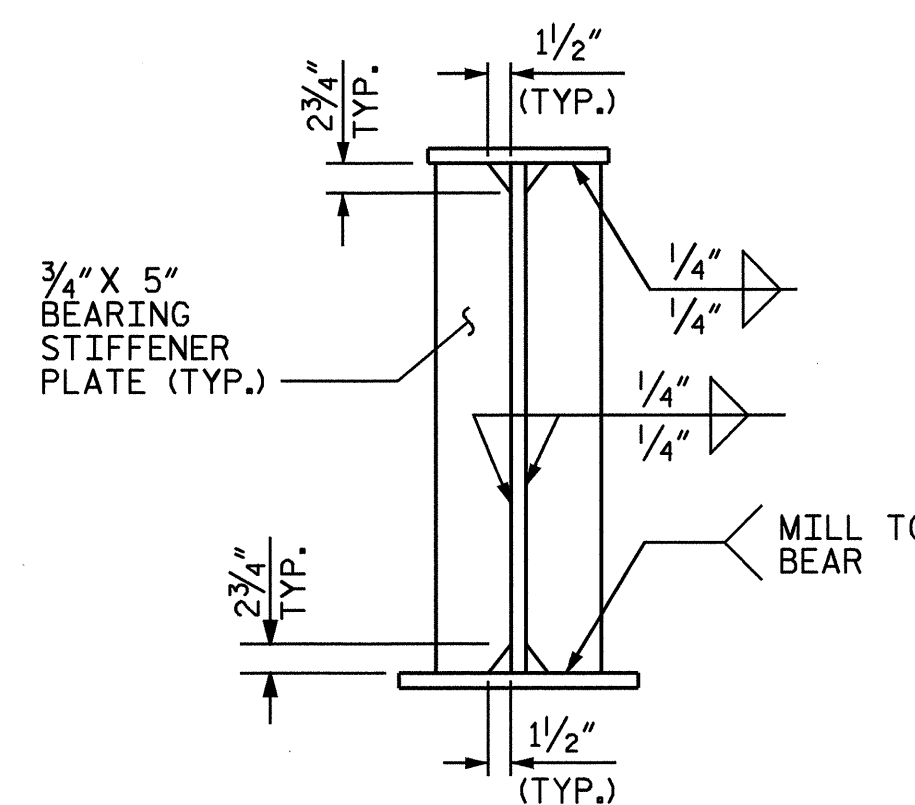
END BENT DIAPHRAGM



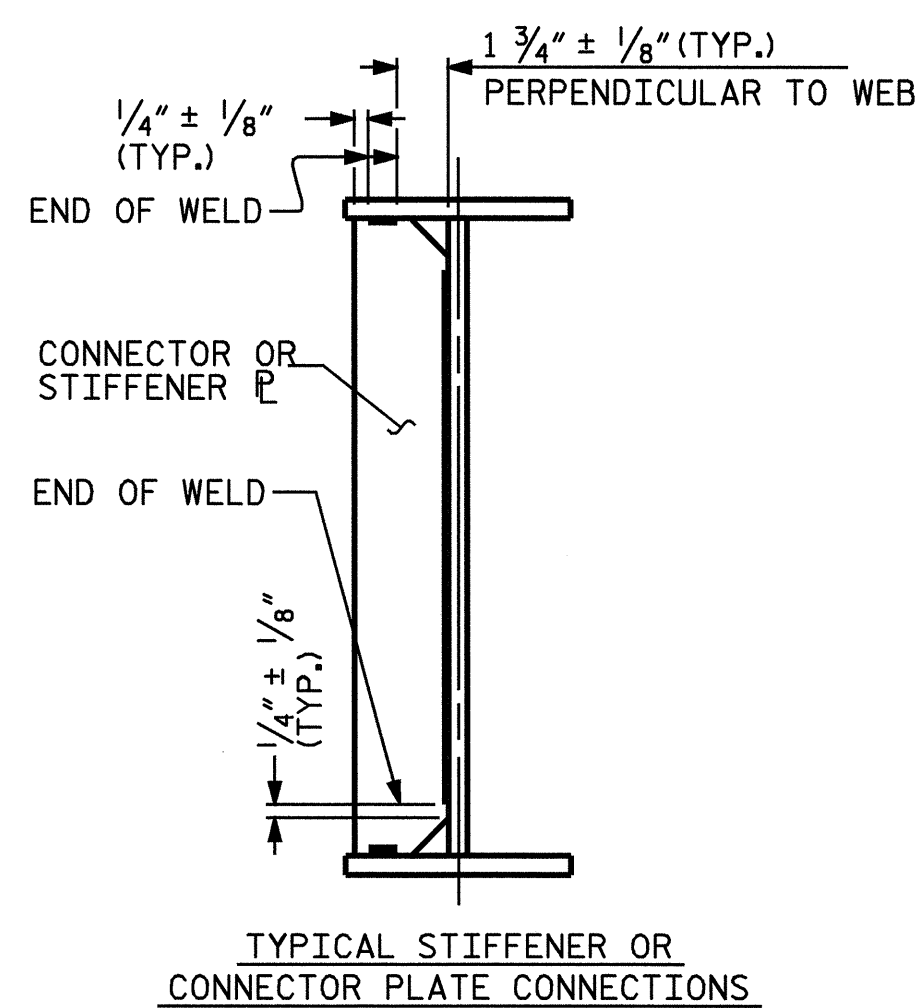
INTERMEDIATE DIAPHRAGM



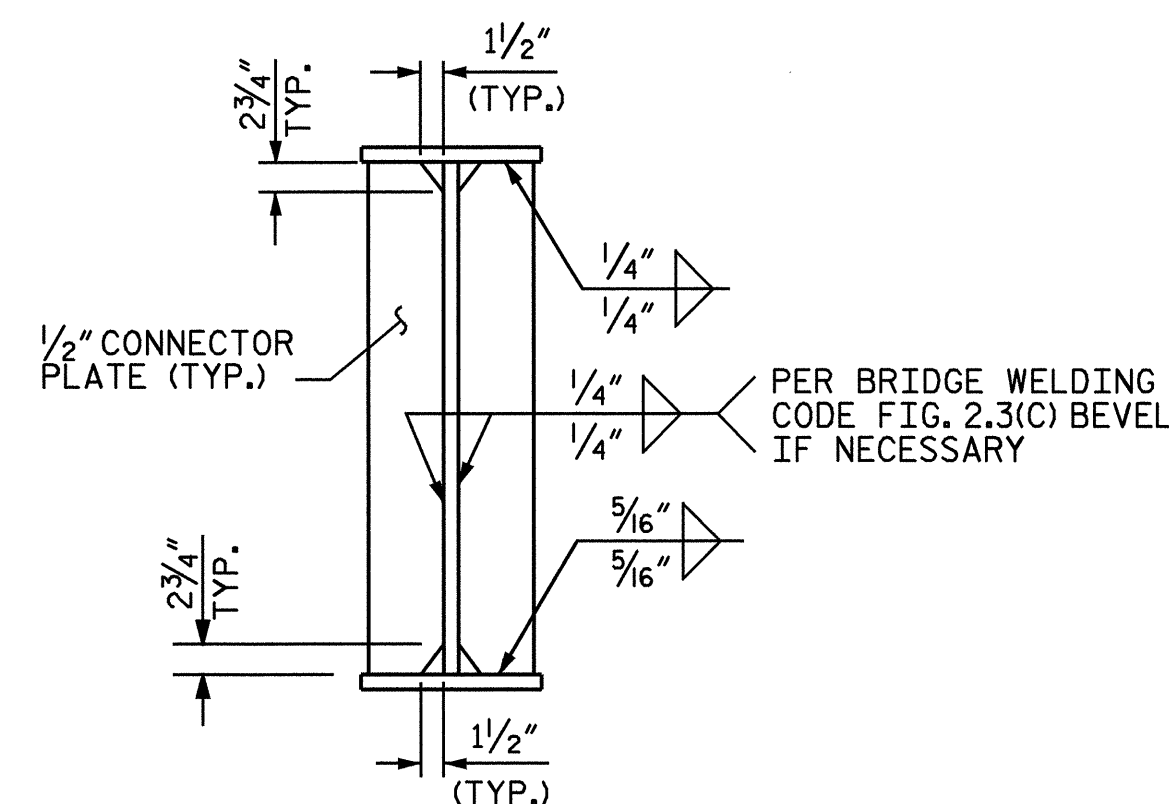
SHEAR STUD DETAIL
(TYP. EA. END BENT DIAPHRAGM)



BEARING STIFFENER



WELD TERMINATION DETAILS



CONNECTOR PLATE

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

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

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

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

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES AND BOTTOM FLANGE 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 (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 IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.

END OF GIRDERS SHALL BE PLUMB.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

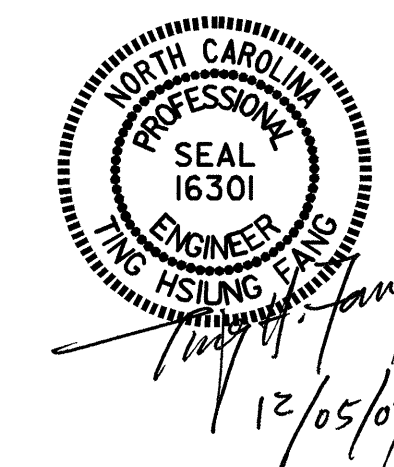
PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 2 OF 2

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			27



DRAWN BY: A.R.CHESSON DATE: 11-06
 CHECKED BY: R.W.WRIGHT DATE: 11-06

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

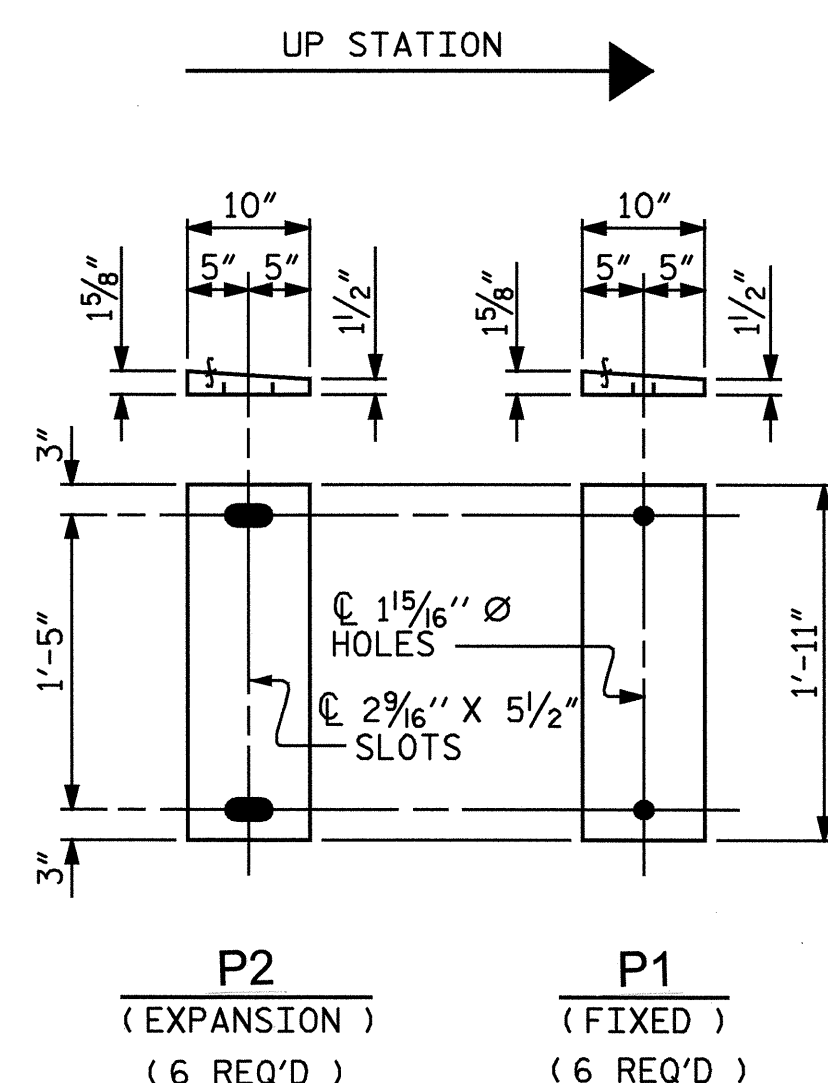
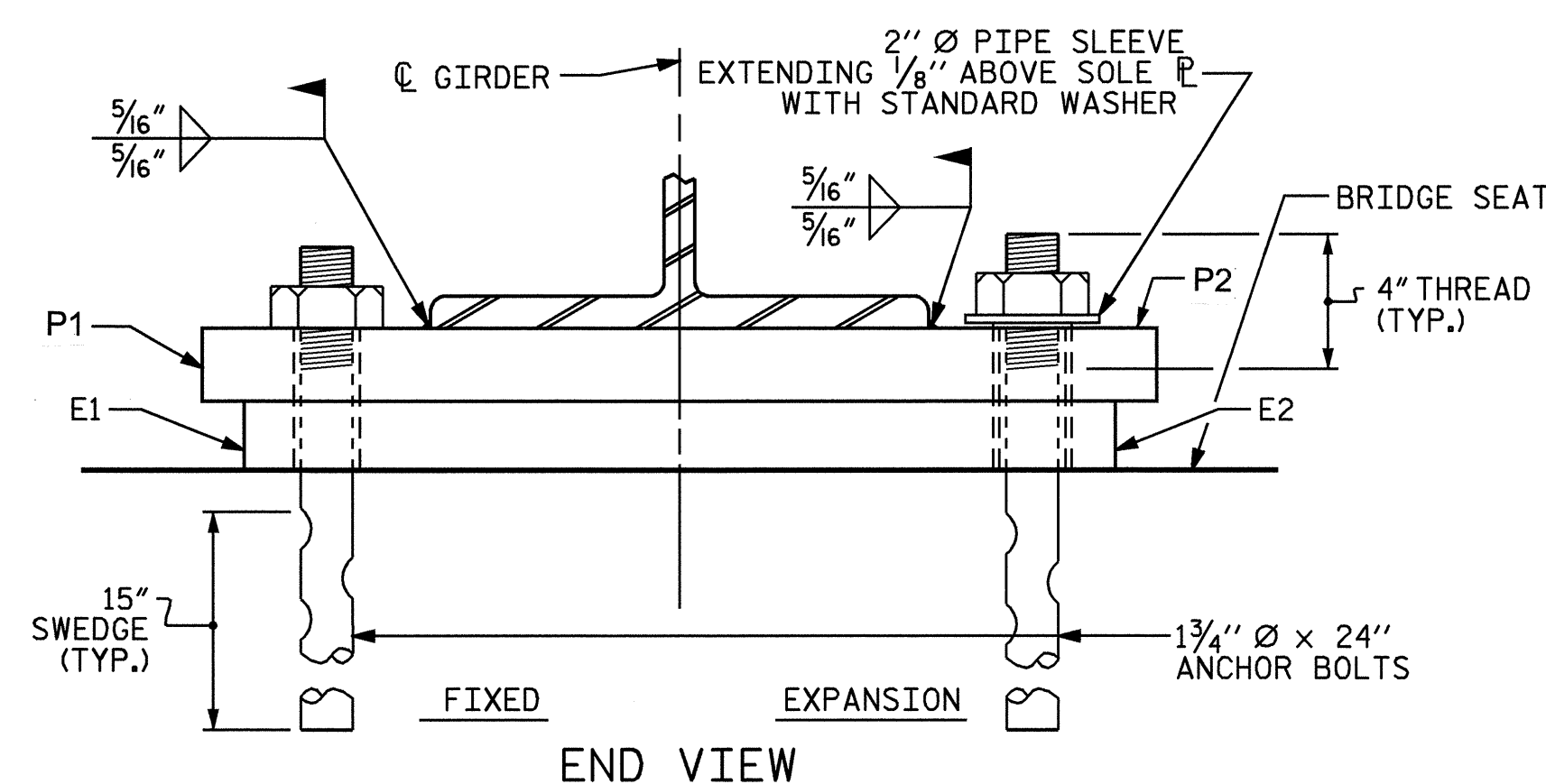
THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE 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.

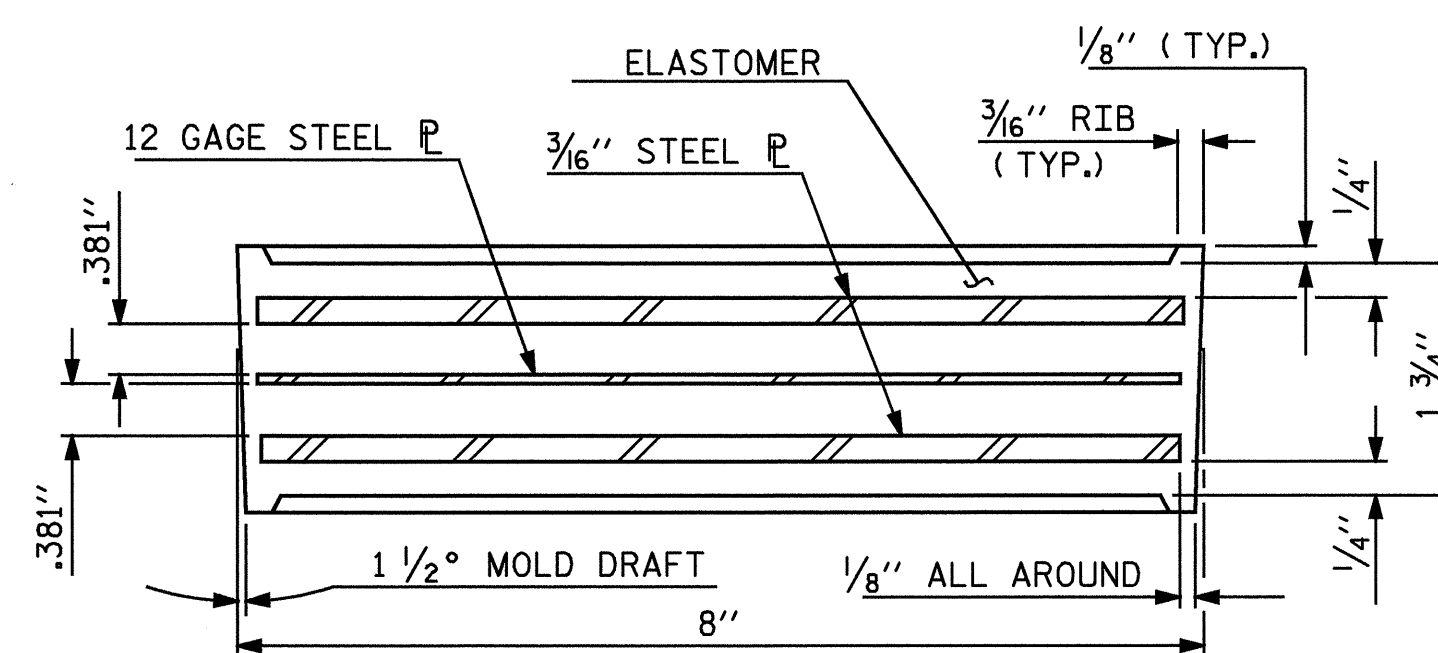
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

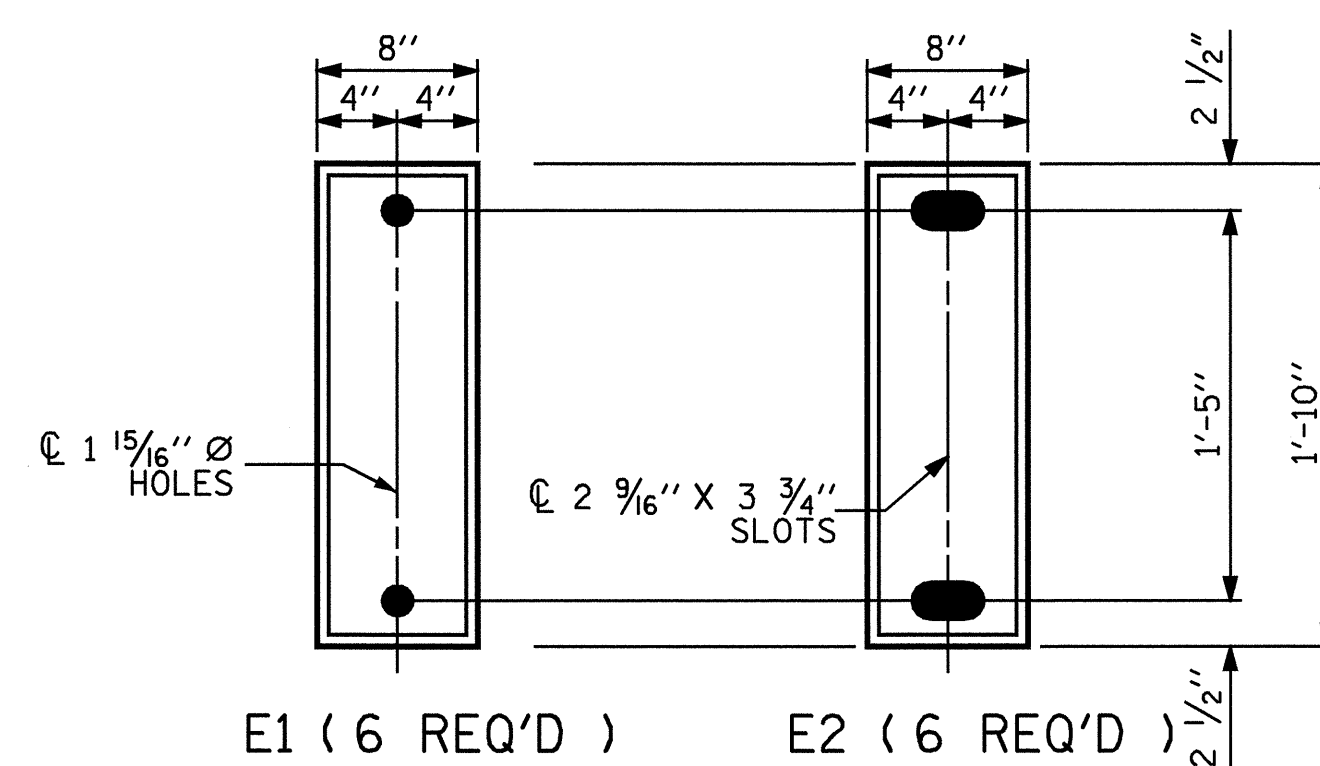


SOLE PLATE DETAILS ("P")



TYPICAL SECTION OF ELASTOMERIC BEARINGS

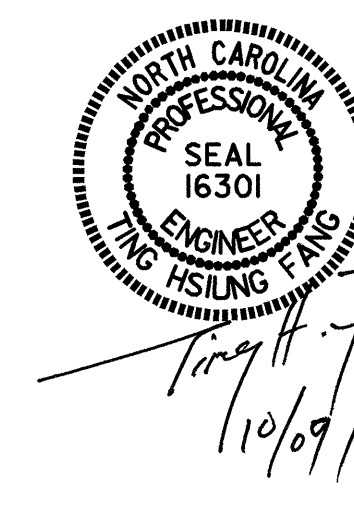
LOAD RATINGS	
	MAX.D.L.+L.L.
TYPE I	91 K



PLAN VIEW OF ELASTOMERIC BEARING

TYPE I

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD					
ELASTOMERIC BEARING DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-11
					TOTAL SHEETS 27

ASSEMBLED BY : A.R.CHESSON	DATE : 11-06
CHECKED BY : R.W.WRIGHT	DATE : 11-06
DRAWN BY : JMB 11/87	REV. 8/16/99 MAB/LES
CHECKED BY : ARB 11/87	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

DEAD LOAD DEFLECTION TABLE FOR GIRDERS - STAGE I																																		
TENTH POINTS	GIRDER 4										GIRDER 5										GIRDER 6													
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0			
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.020	0.038	0.052	0.060	0.063	0.060	0.052	0.038	0.020	0.000	0.000	0.020	0.038	0.052	0.060	0.063	0.060	0.052	0.038	0.020	0.000	0.000	0.020	0.038	0.052	0.060	0.063	0.060	0.052	0.038	0.020	0.000
*DEFLECTION DUE TO WEIGHT OF SLAB	↓	0.000	0.000	0.018	0.067	0.097	0.108	0.097	0.067	0.018	0.000	0.000	0.000	0.011	0.075	0.124	0.156	0.166	0.156	0.124	0.075	0.011	0.000	0.000	0.066	0.131	0.182	0.214	0.225	0.214	0.182	0.131	0.066	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.033	0.081	0.152	0.197	0.213	0.197	0.152	0.081	0.033	0.000	0.000	0.044	0.137	0.210	0.256	0.271	0.256	0.210	0.137	0.044	0.000	0.000	0.099	0.193	0.267	0.314	0.330	0.314	0.267	0.193	0.099	0.000
REQUIRED CAMBER	↑	0	3/8"	15/16"	13/16"	23/8"	23/8"	23/8"	13/16"	15/16"	3/8"	0	0	1/2"	15/8"	21/2"	31/16"	31/4"	31/16"	21/2"	15/8"	1/2"	0	0	13/16"	25/16"	33/16"	33/4"	315/16"	33/4"	33/16"	25/16"	13/16"	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).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS - STAGE II																																		
TENTH POINTS	GIRDER 1										GIRDER 2										GIRDER 3													
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0			
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.020	0.038	0.052	0.060	0.063	0.060	0.052	0.038	0.020	0.000	0.000	0.020	0.038	0.052	0.060	0.063	0.060	0.052	0.038	0.020	0.000	0.000	0.020	0.038	0.052	0.060	0.063	0.060	0.052	0.038	0.020	0.000
*DEFLECTION DUE TO WEIGHT OF SLAB	↓	0.000	0.069	0.123	0.165	0.192	0.201	0.192	0.165	0.123	0.069	0.000	0.000	0.049	0.103	0.145	0.171	0.181	0.171	0.145	0.103	0.049	0.000	0.000	0.029	0.083	0.124	0.151	0.160	0.151	0.124	0.083	0.029	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.006	0.012	0.016	0.019	0.020	0.019	0.016	0.012	0.006	0.000	0.000	0.006	0.012	0.016	0.019	0.020	0.019	0.016	0.012	0.006	0.000	0.000	0.006	0.012	0.016	0.019	0.020	0.019	0.016	0.012	0.006	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.095	0.172	0.233	0.271	0.285	0.271	0.233	0.172	0.095	0.000	0.000	0.075	0.152	0.213	0.251	0.264	0.251	0.213	0.152	0.075	0.000	0.000	0.055	0.132	0.192	0.231	0.244	0.231	0.192	0.132	0.055	0.000
REQUIRED CAMBER	↑	0	1/8"	2/16"	213/16"	3/4"	33/16"	3/4"	213/16"	2/16"	1/8"	0	0	7/8"	113/16"	23/16"	3"	33/16"	3"	23/16"	113/16"	7/8"	0	0	11/16"	19/16"	25/16"	23/4"	215/16"	23/4"	25/16"	19/16"	11/16"	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-4330
YANCEY COUNTY
STATION: 14+42.50 -L-



Ting H. Fang
10/09/07

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
DEAD LOAD DEFLECTIONS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					27

DRAWN BY: A.R.CHESSON DATE: 11-06
CHECKED BY: R.W.WRIGHT DATE: 11-06

NOTES

THE BARRIER RAIL IN EACH 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.

THE JOINT IN THE DECK SHALL BE SAWS PRIOR TO THE CASTING OF VERTICAL CONCRETE BARRIER RAIL.

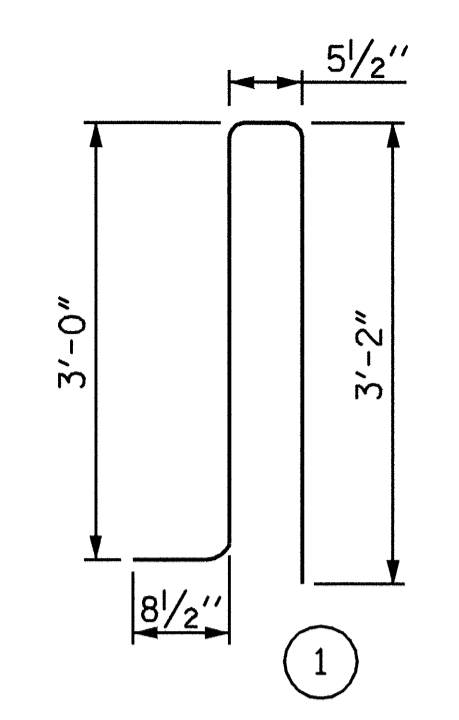
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S2 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S2 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

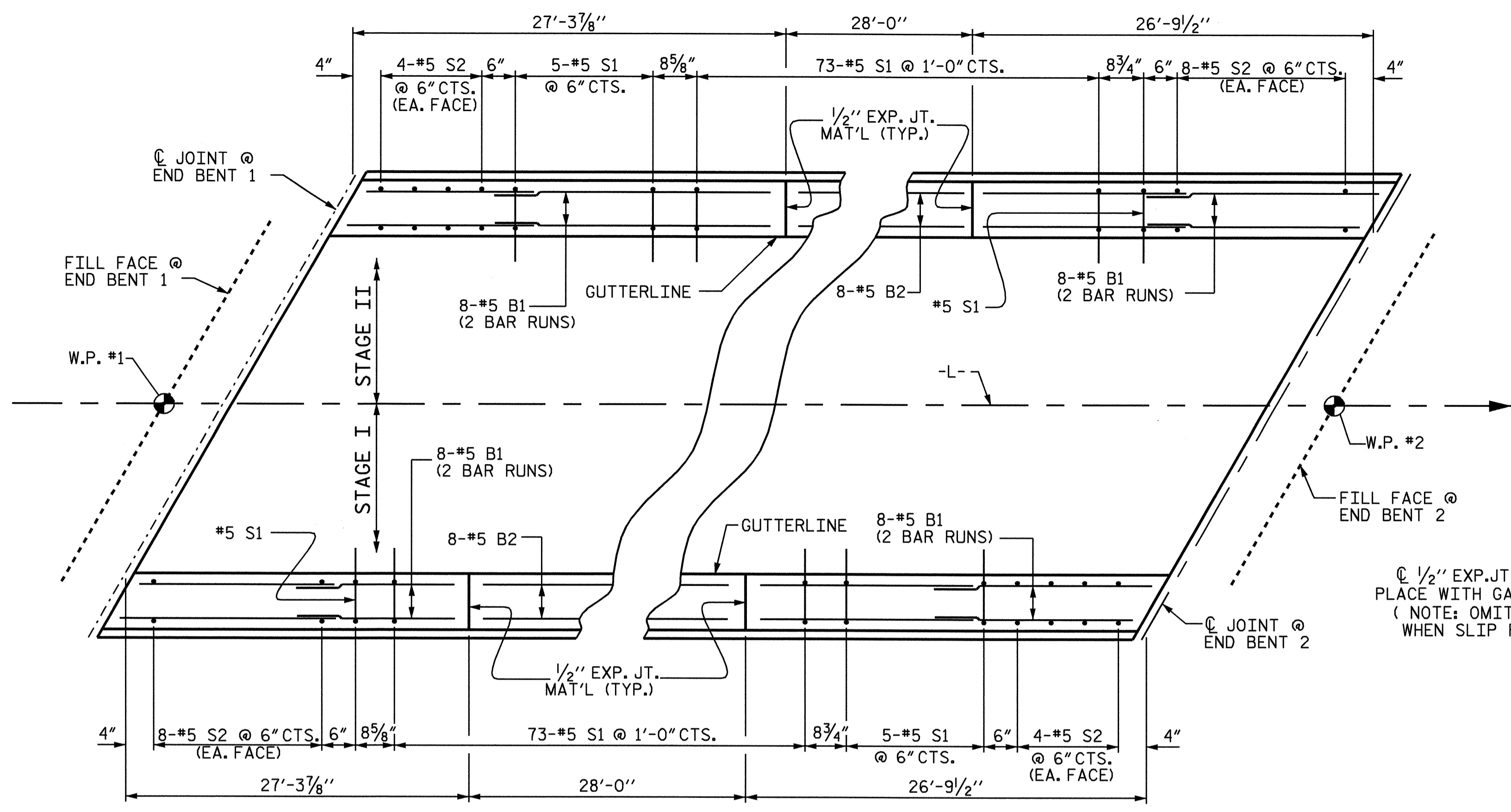
GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF VERTICAL CONCRETE BARRIER RAIL IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

BAR TYPES

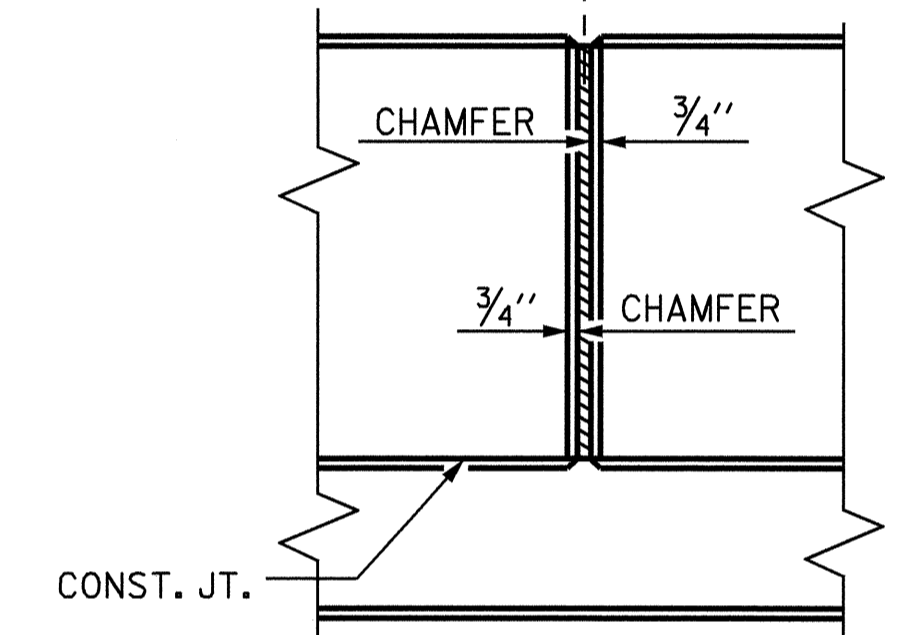


BAR DIMENSIONS ARE OUT TO OUT



PLAN

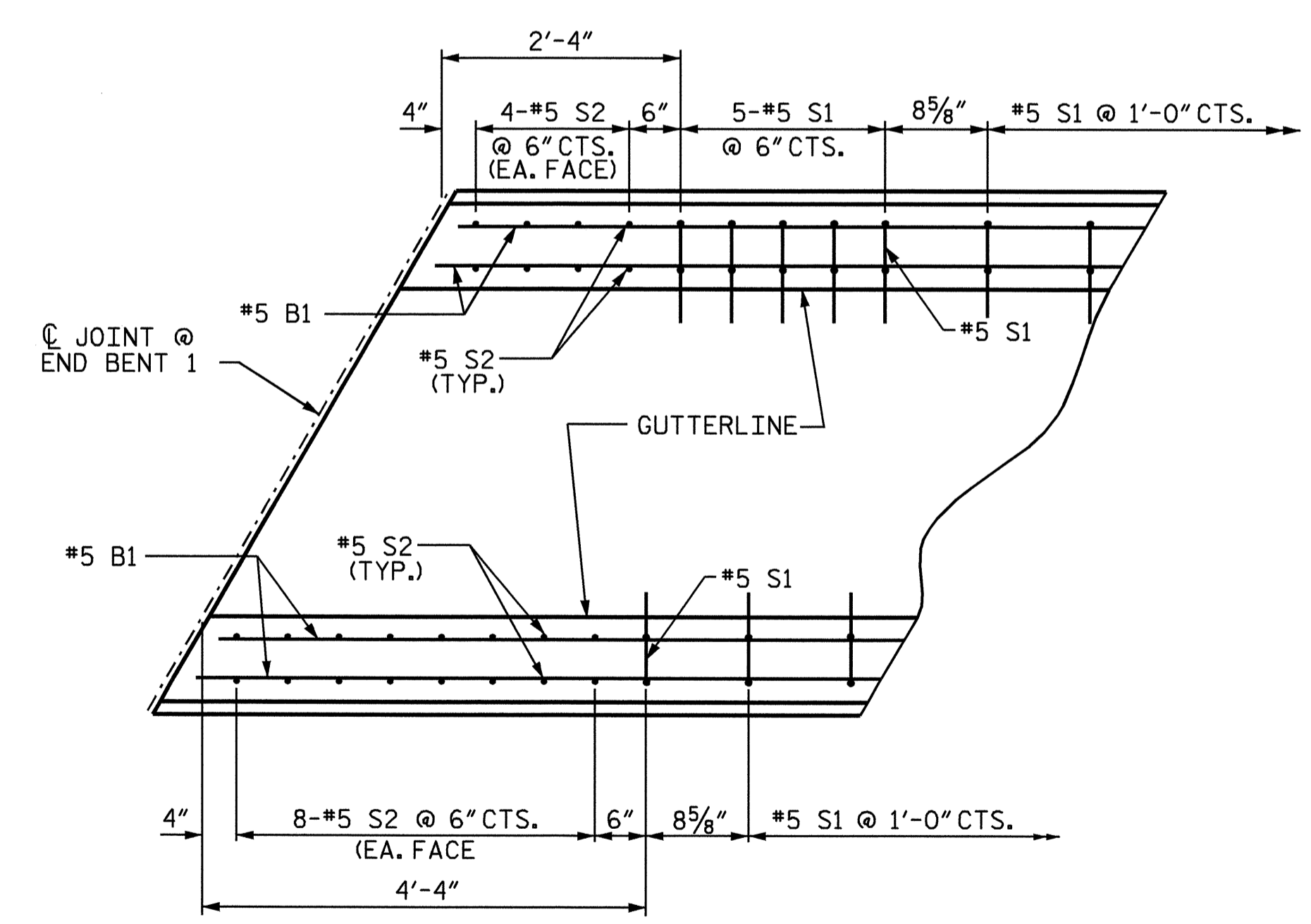
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED.)



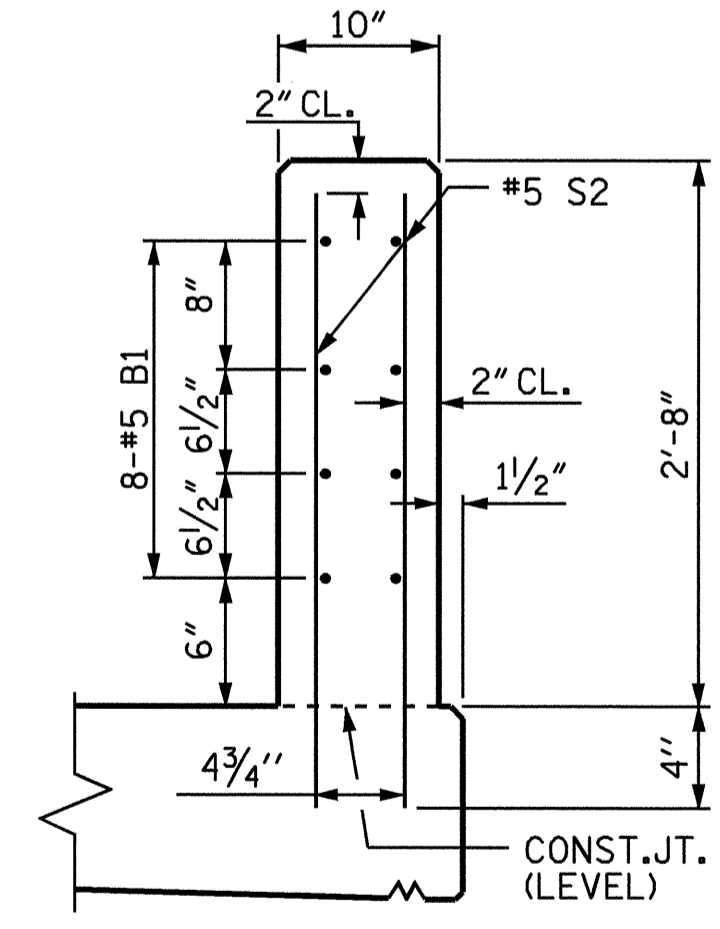
ELEVATION AT EXPANSION JOINTS

RAIL DETAILS

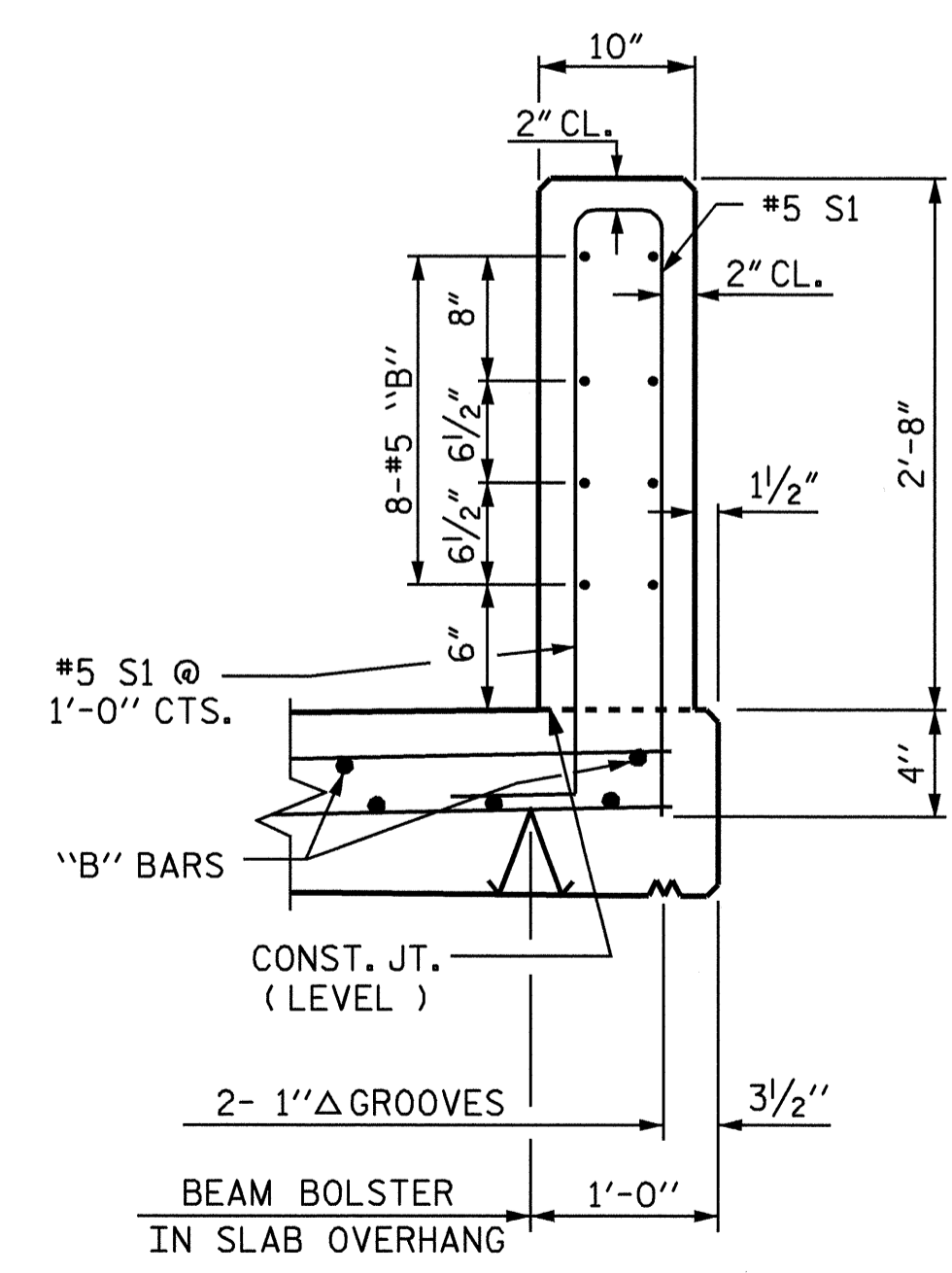
BILL OF MATERIAL											
STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	32	#5	STR	15'-3"	509	* B1	32	#5	STR	15'-3"	509
* B2	8	#5	STR	27'-7"	230	* B2	8	#5	STR	27'-7"	230
* S1	79	#5	1	7'-4"	604	* S1	79	#5	1	7'-4"	604
* S2	24	#5	STR	3'-2"	79	* S2	24	#5	STR	3'-2"	79
* EPOXY COATED REINFORCING STEEL 1,422 LBS.						* EPOXY COATED REINFORCING STEEL 1,422 LBS.					
CLASS AA CONCRETE 6.8 CU. YDS.						CLASS AA CONCRETE 6.8 CU. YDS.					
CONCRETE BARRIER RAIL 82.50 LIN. FT.						CONCRETE BARRIER RAIL 82.50 LIN. FT.					
TOTAL EPOXY COATED REINFORCING STEEL 2,844 LBS.						TOTAL EPOXY COATED REINFORCING STEEL 2,844 LBS.					
TOTAL CLASS AA CONCRETE 13.6 CU. YDS.						TOTAL CLASS AA CONCRETE 13.6 CU. YDS.					
TOTAL VERTICAL CONCRETE BARRIER RAIL 165.00 LIN. FT.						TOTAL VERTICAL CONCRETE BARRIER RAIL 165.00 LIN. FT.					



PLAN
END BENT 1 SHOWN
END BENT 2 SIMILAR

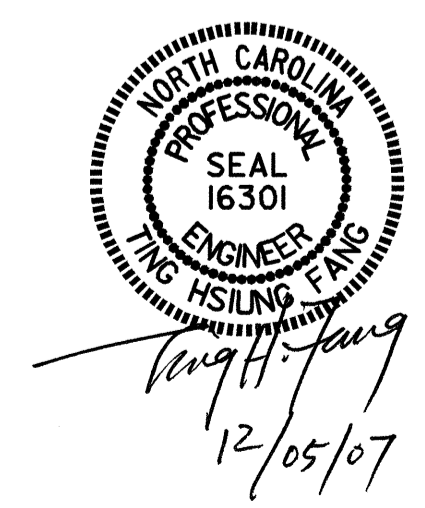


END VIEW



SECTION THRU RAIL

PROJECT NO. B-4330
YANCEY COUNTY
STATION: 14+42.50 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			27

DRAWN BY: A.R.CHESSON DATE: 10-06
CHECKED BY: R.W.WRIGHT DATE: 10-06

NOTES

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

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

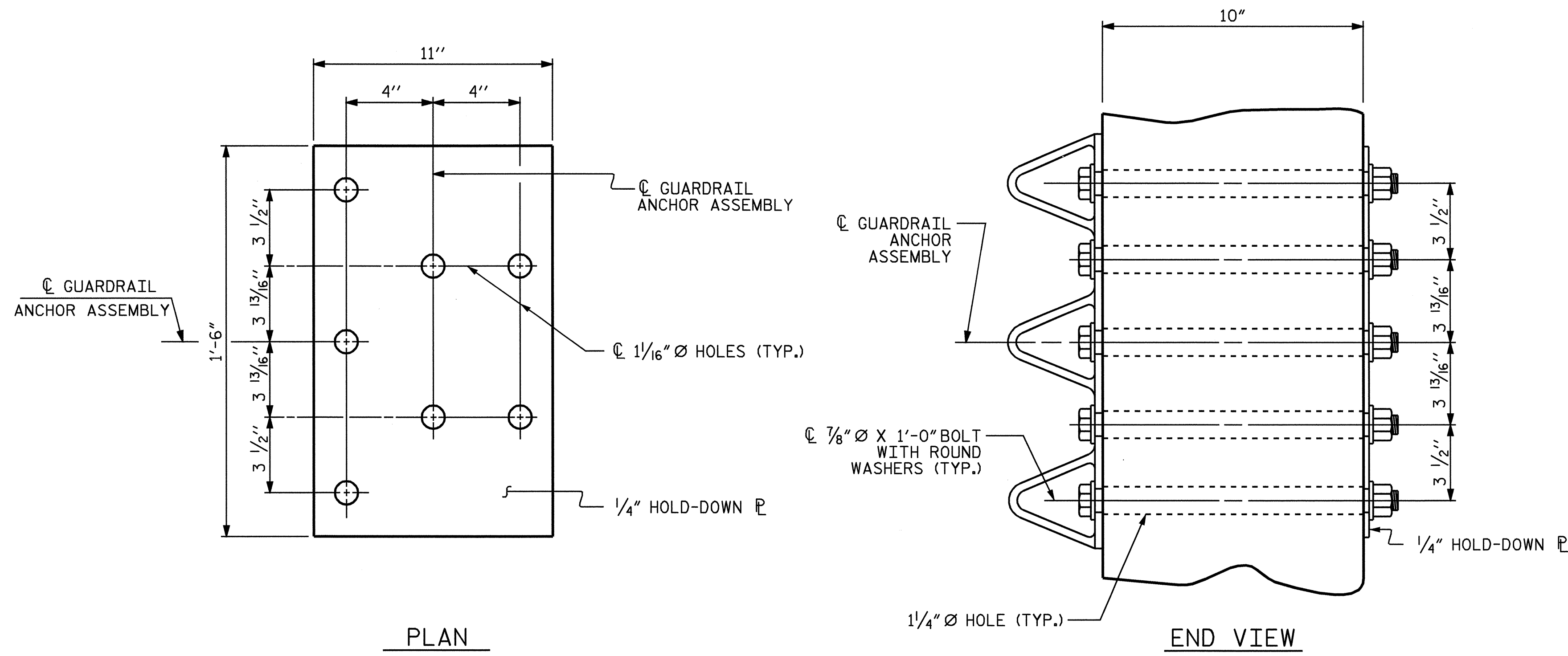
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

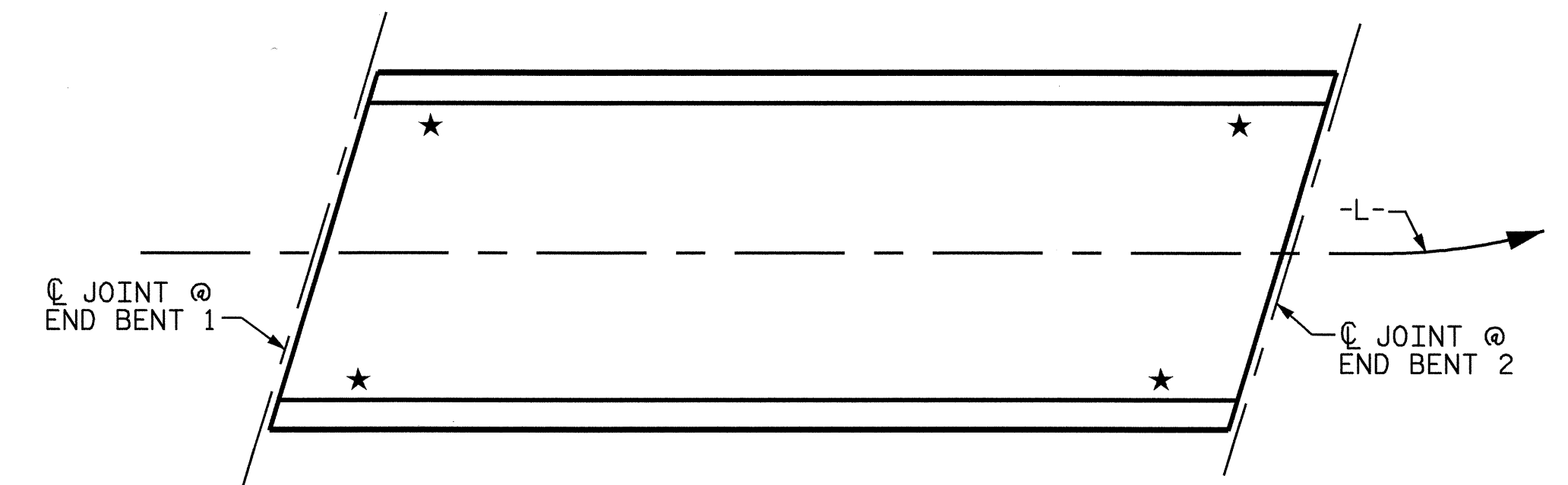
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

THE 1/4" Ø HOLES SHALL BE FORMED. DRILLING WILL NOT BE PERMITTED.

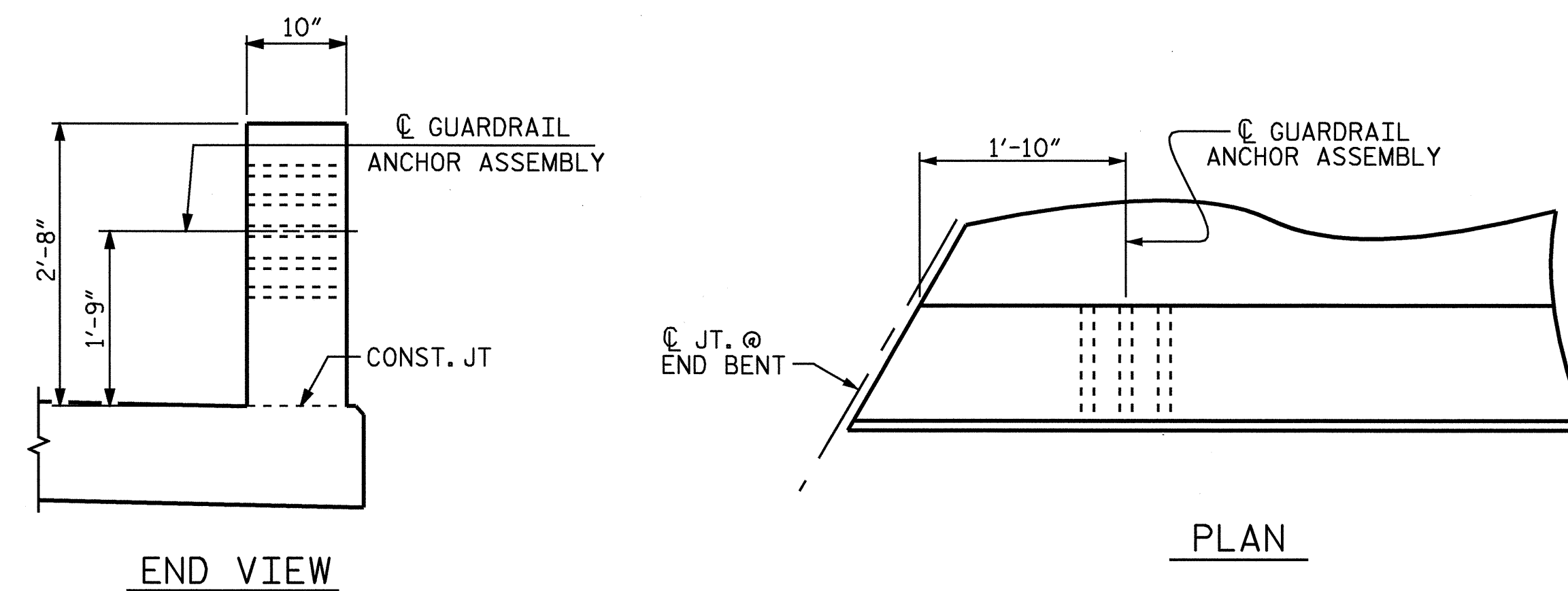


GUARDRAIL ANCHOR ASSEMBLY DETAILS



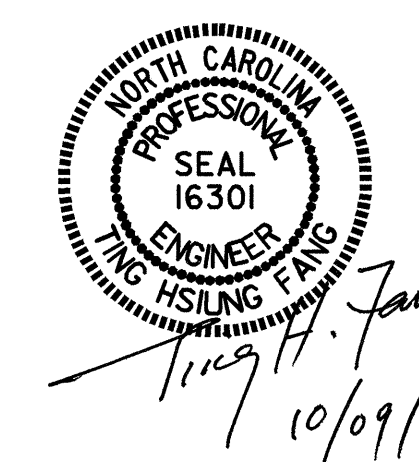
SKETCH SHOWING POINTS OF ATTACHMENT

★ LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-14
GUARDRAIL ANCHORAGE DETAILS						
REVISIONS						TOTAL SHEETS 27
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

45

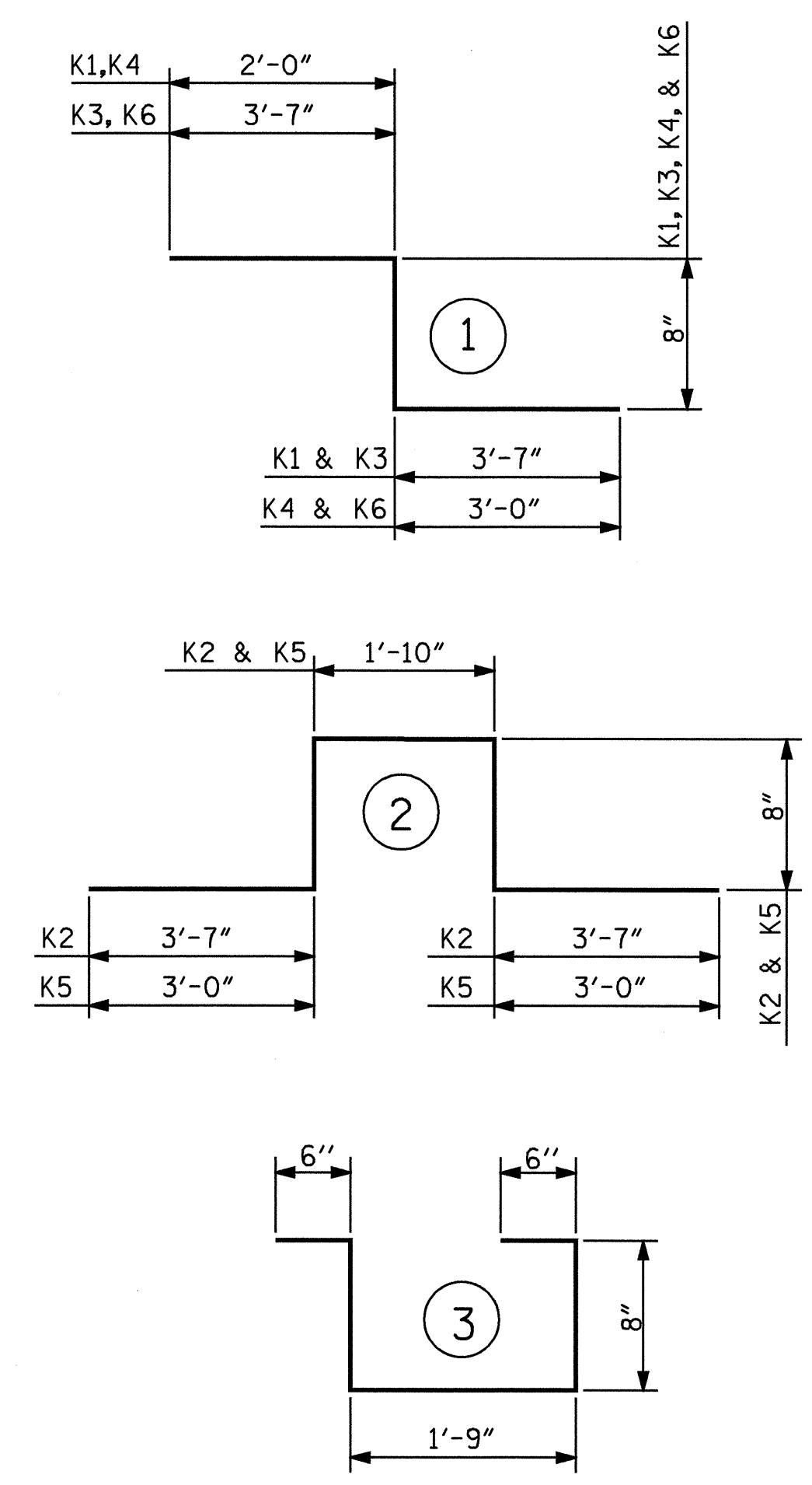
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

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 STEEL

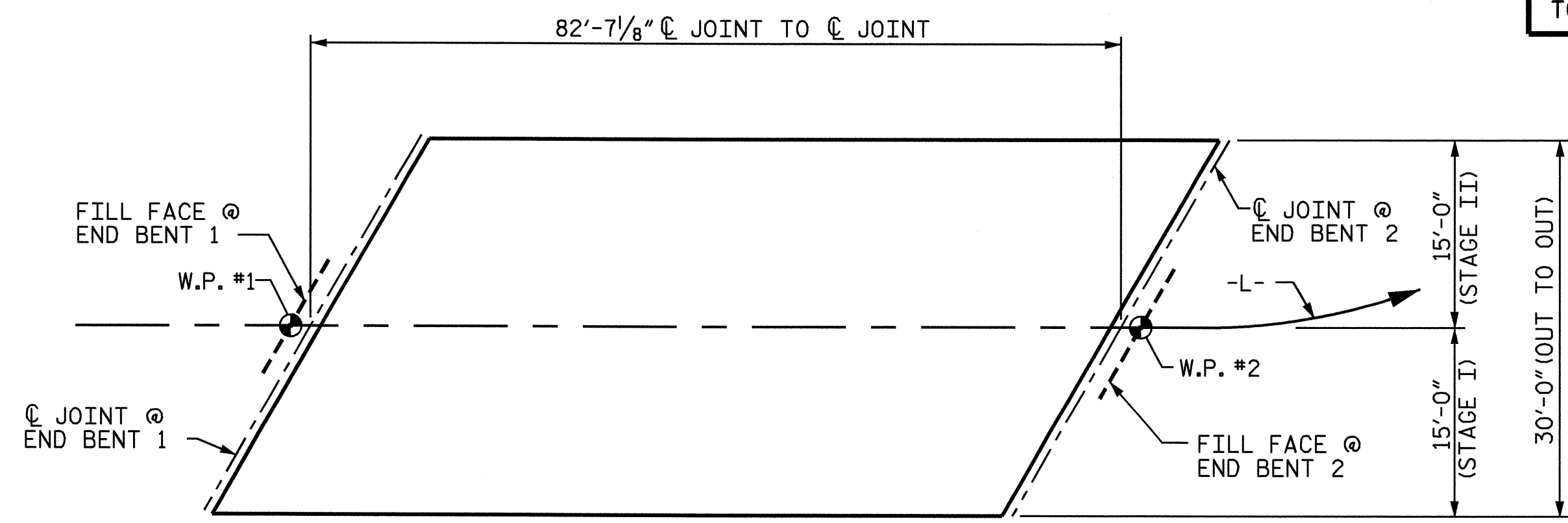
STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	111	#5	STR	14'-8"	1698	* A3	113	#5	STR	12'-8"	1493
A2	111	#5	STR	14'-8"	1698	A4	113	#5	STR	12'-8"	1493
* A101	4	#5	STR	12'-6"	52	* A111	4	#5	STR	10'-5"	43
* A102	4	#5	STR	10'-2"	42	* A112	4	#5	STR	8'-2"	34
* A103	4	#5	STR	7'-11"	33	* A113	4	#5	STR	5'-11"	25
* A104	4	#5	STR	5'-7"	23	* A114	4	#5	STR	3'-7"	15
* A105	4	#5	STR	3'-3"	14						
A201	4	#5	STR	12'-6"	52	A211	4	#5	STR	10'-5"	43
A202	4	#5	STR	10'-2"	42	A212	4	#5	STR	8'-2"	34
A203	4	#5	STR	7'-11"	33	A213	4	#5	STR	5'-11"	25
A204	4	#5	STR	5'-7"	23	A214	4	#5	STR	3'-7"	15
A205	4	#5	STR	3'-3"	14						
B1	32	#5	STR	42'-2"	1407	B1	28	#5	STR	42'-2"	1231
* B2	33	#4	STR	28'-9"	634	* B2	39	#4	STR	28'-9"	749
* D1	122	#5	STR	3'-6"	445	* D1	122	#5	STR	3'-6"	445
* G1	2	#5	STR	16'-11"	35	* G2	2	#5	STR	14'-7"	30
* K1	6	#5	1	6'-3"	39	* K4	6	#5	1	5'-8"	35
* K2	6	#5	2	10'-4"	65	* K5	6	#5	2	9'-2"	57
* K3	6	#5	1	7'-10"	49	* K6	6	#5	1	7'-3"	45
* S1	20	#4	3	4'-1"	55	* S1	16	#4	3	4'-1"	44
REINFORCING STEEL = 3,269 LBS						REINFORCING STEEL = 2,841 LBS					
* EPOXY COATED REINF. STEEL = 3,184 LBS						* EPOXY COATED REINF. STEEL = 3,015 LBS					

BAR TYPES



GROOVING BRIDGE FLOORS

APPROACH SLABS	730	SQ.FT.
BRIDGE DECK	2,038	SQ.FT.
TOTAL	2,768	SQ.FT.



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 2,478)

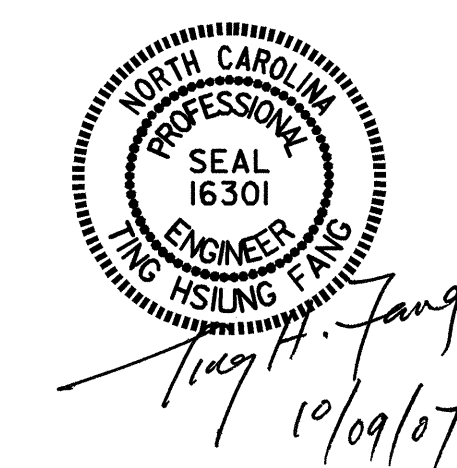
ALL BAR DIMENSIONS ARE OUT TO OUT

— SUPERSTRUCTURE BILL OF MATERIAL —

	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
STAGE I	35.3	3,269	3,184
STAGE II	31.0	2,841	3,015
CLOSURE	5.4		
TOTALS**	71.7	6,110	6,199

**QUANTITIES FOR VERTICAL CONCRETE BARRIER RAIL ARE NOT INCLUDED

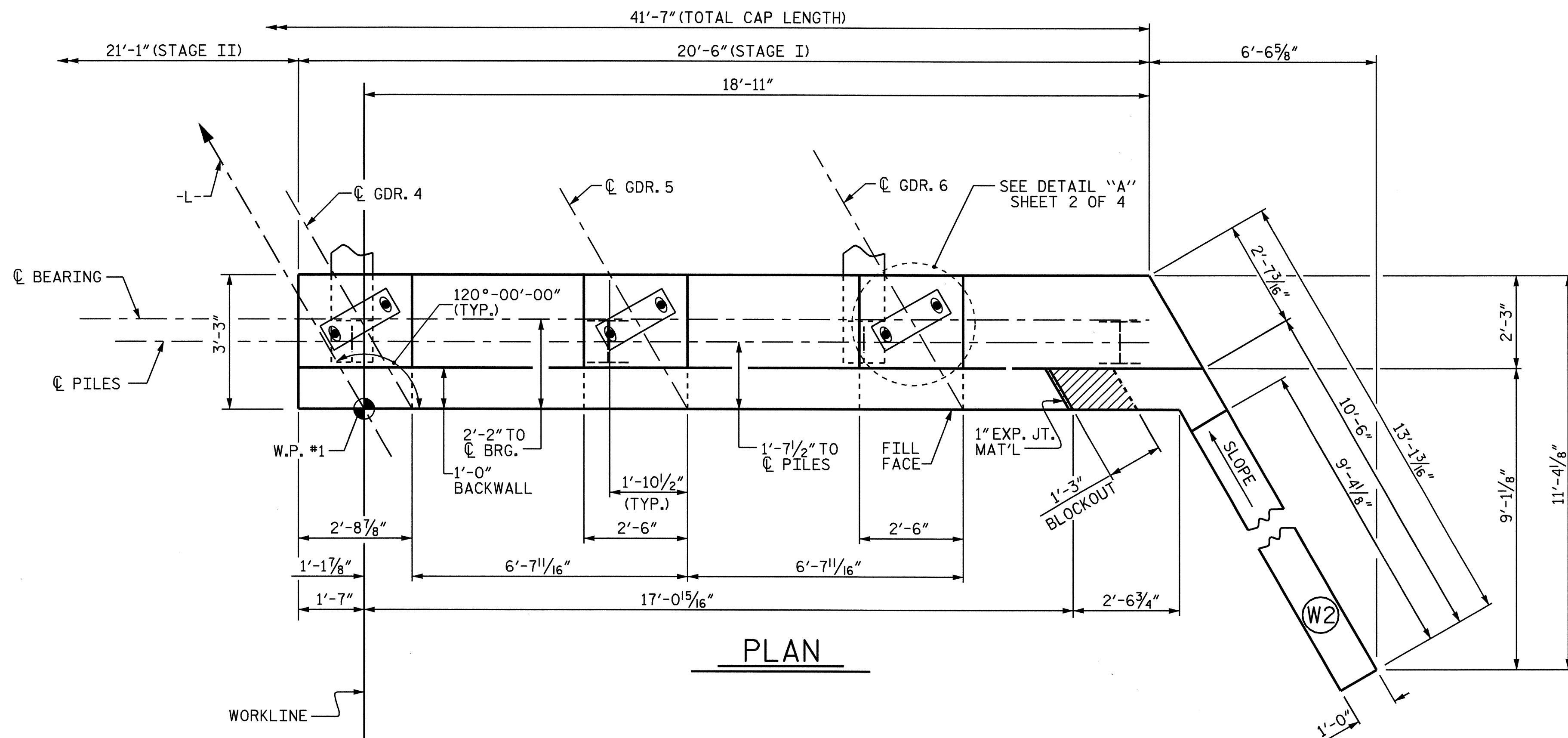
PROJECT NO. B-4330
YANCEY COUNTY
STATION: 14+42.50 -L-



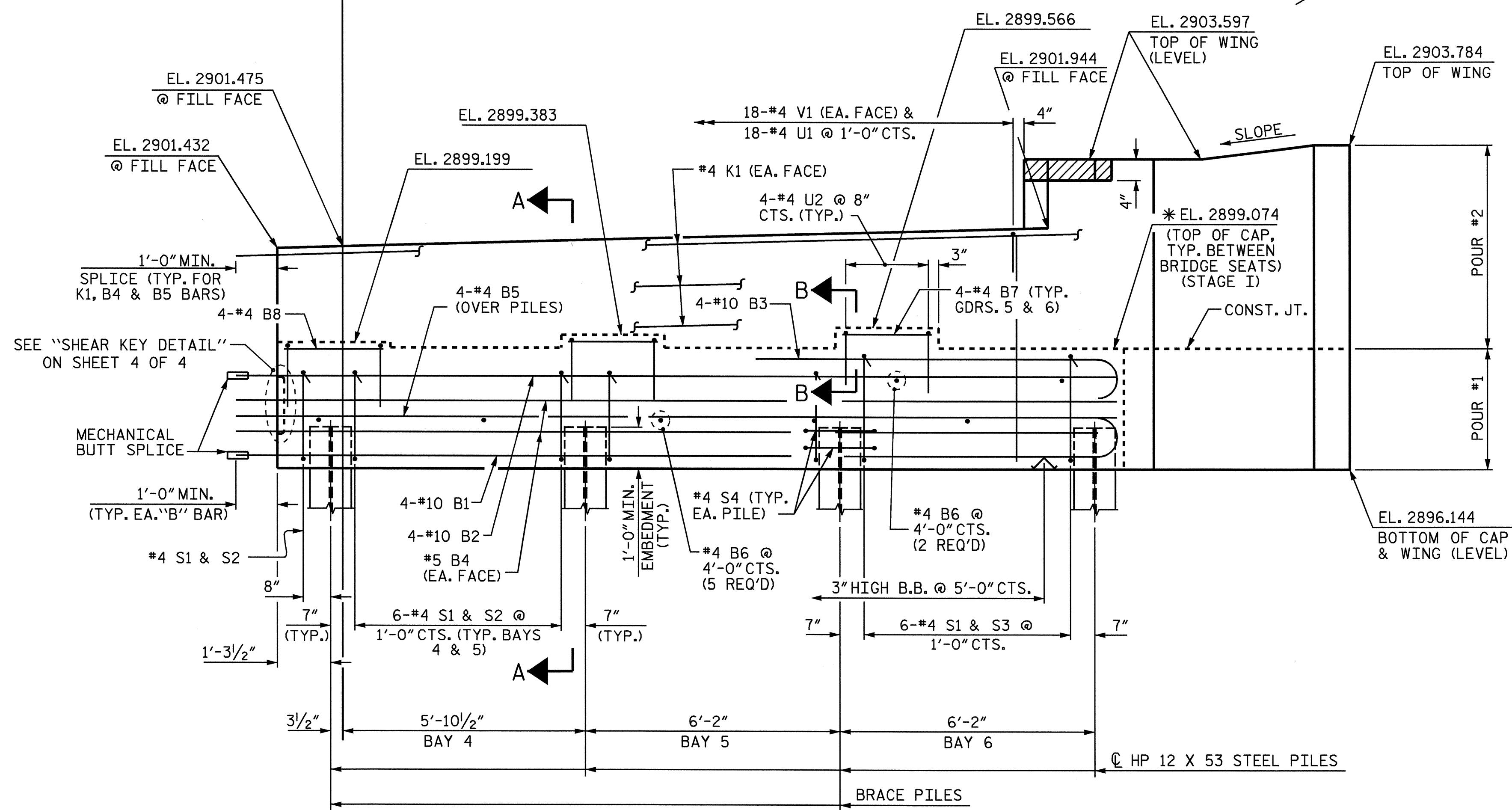
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SUPERSTRUCTURE
BILL OF MATERIAL

ASSEMBLED BY : A.R.CHESSON	DATE : 11-06
CHECKED BY : R.W.WRIGHT	DATE : 11-06
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES
	REV. 5/1/06 TLA/GM

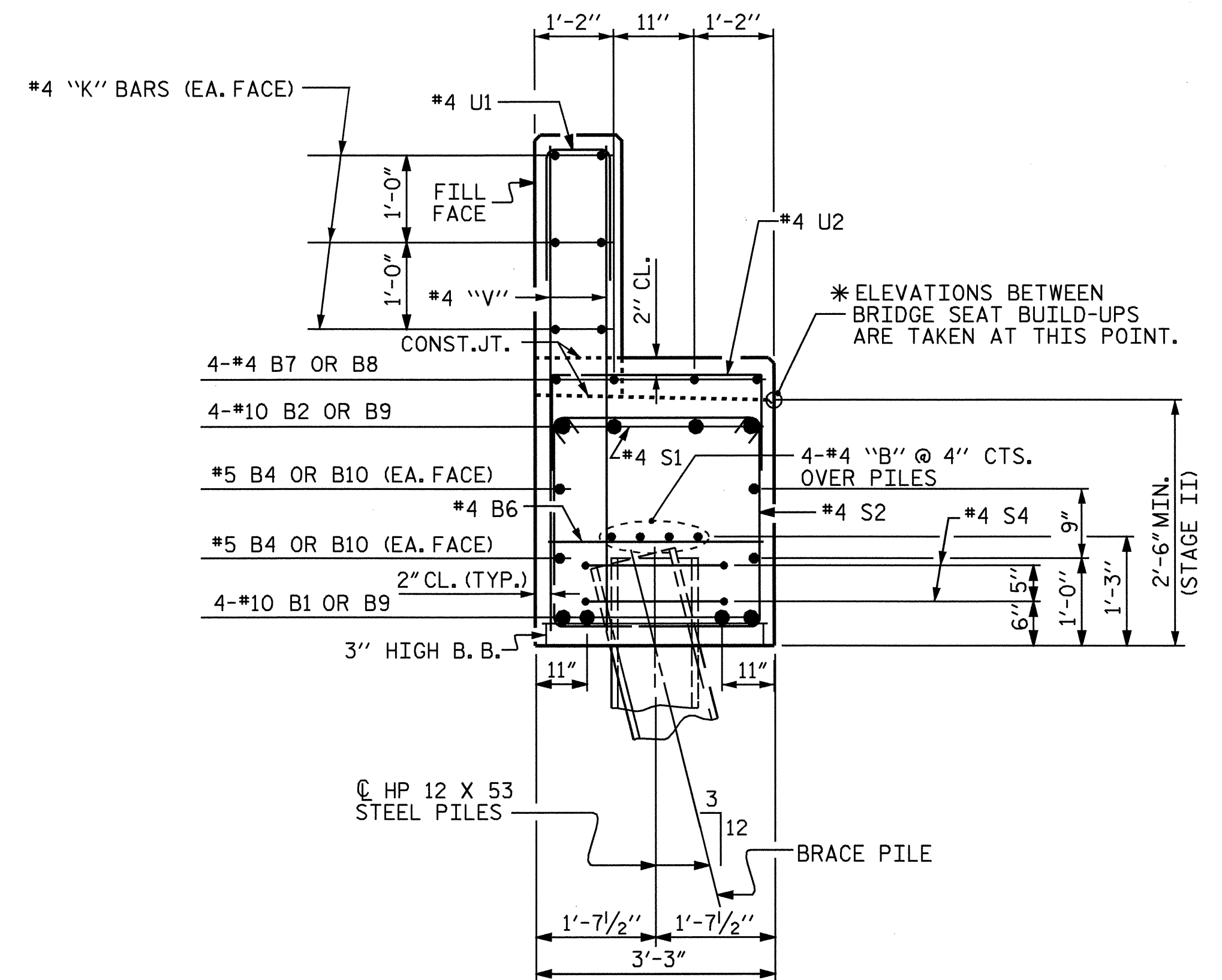
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			27
2			4			



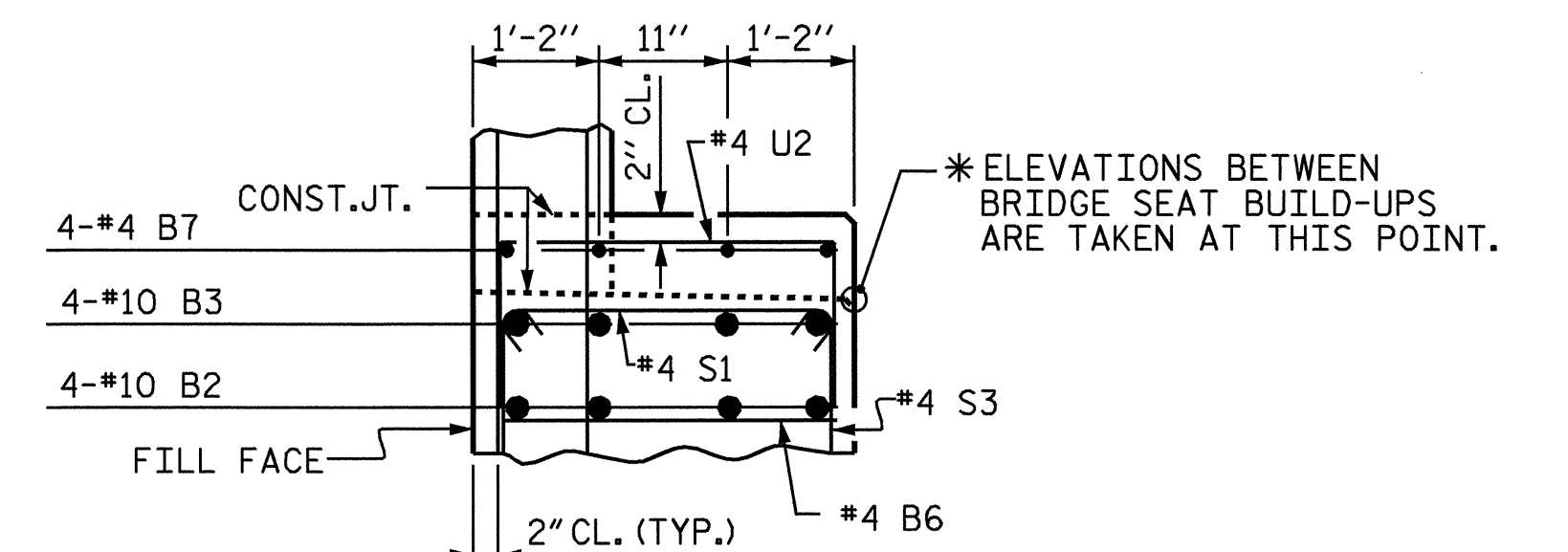
PLAN



ELEVATION



SECTION A-A



SECTION B-B

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 1 OF 4

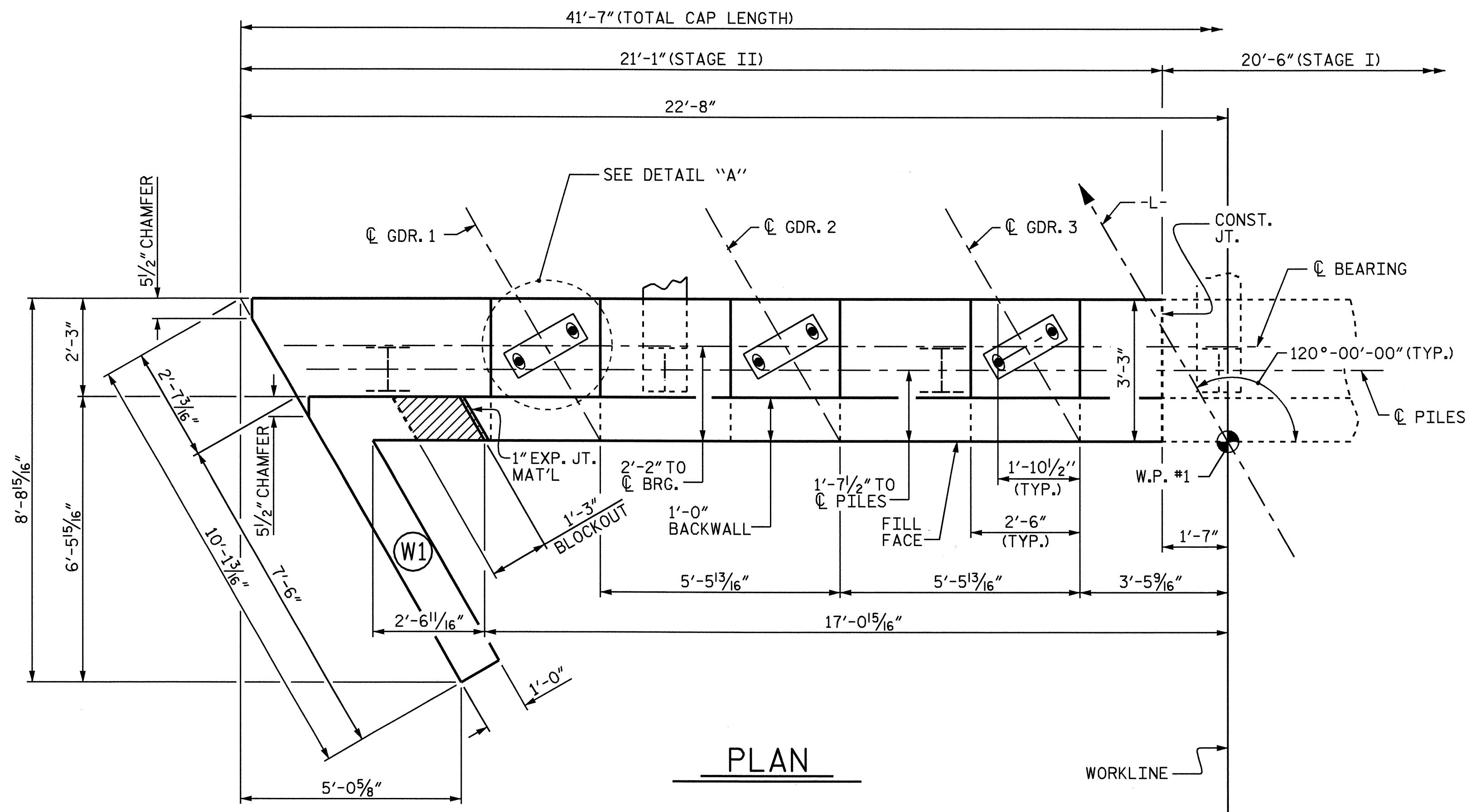
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1
 STAGE I

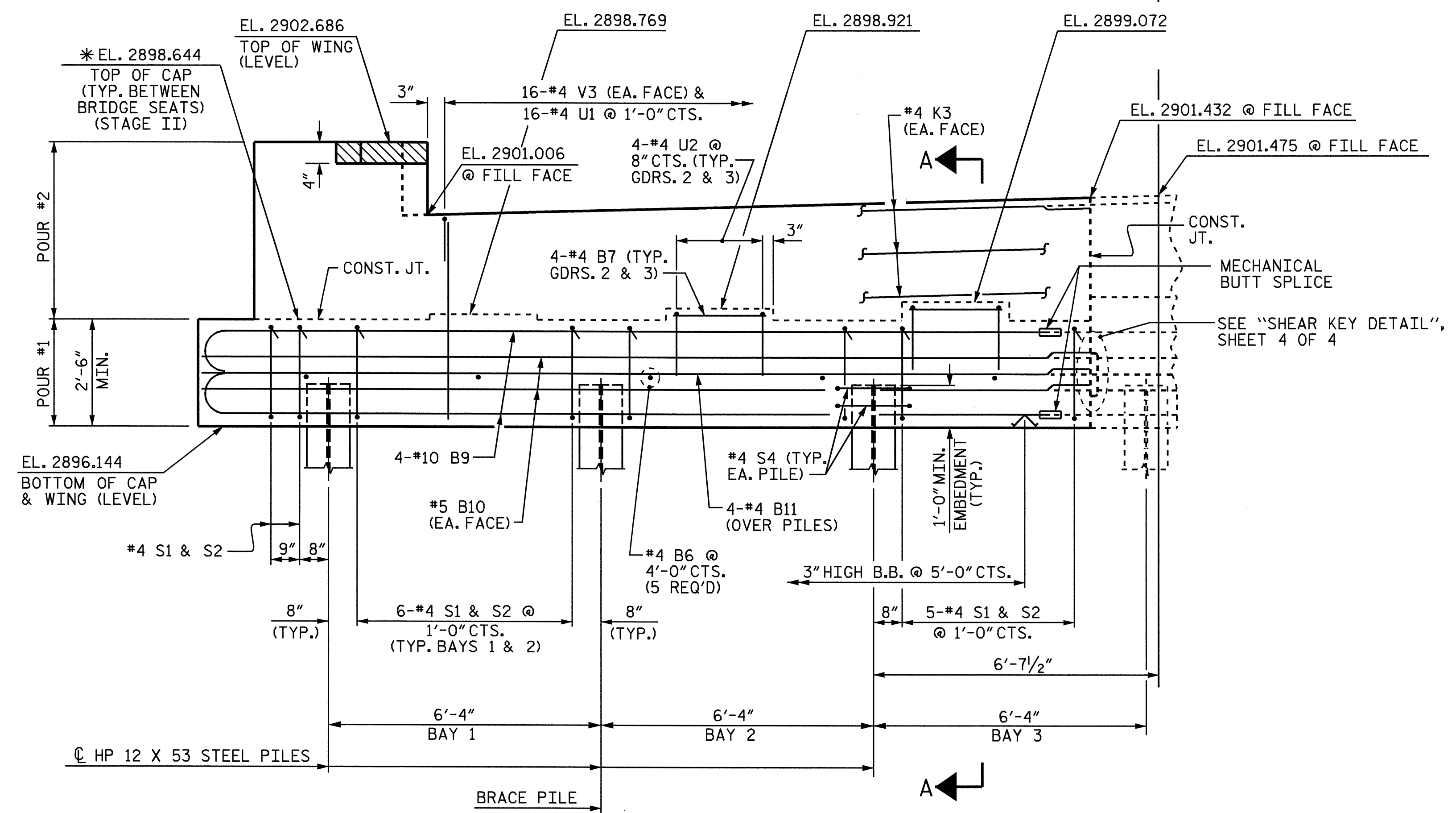


REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

DRAWN BY: A.R.CHESSON DATE: 1-07
 CHECKED BY: K.W.ALFORD DATE: 5-07



PLAN

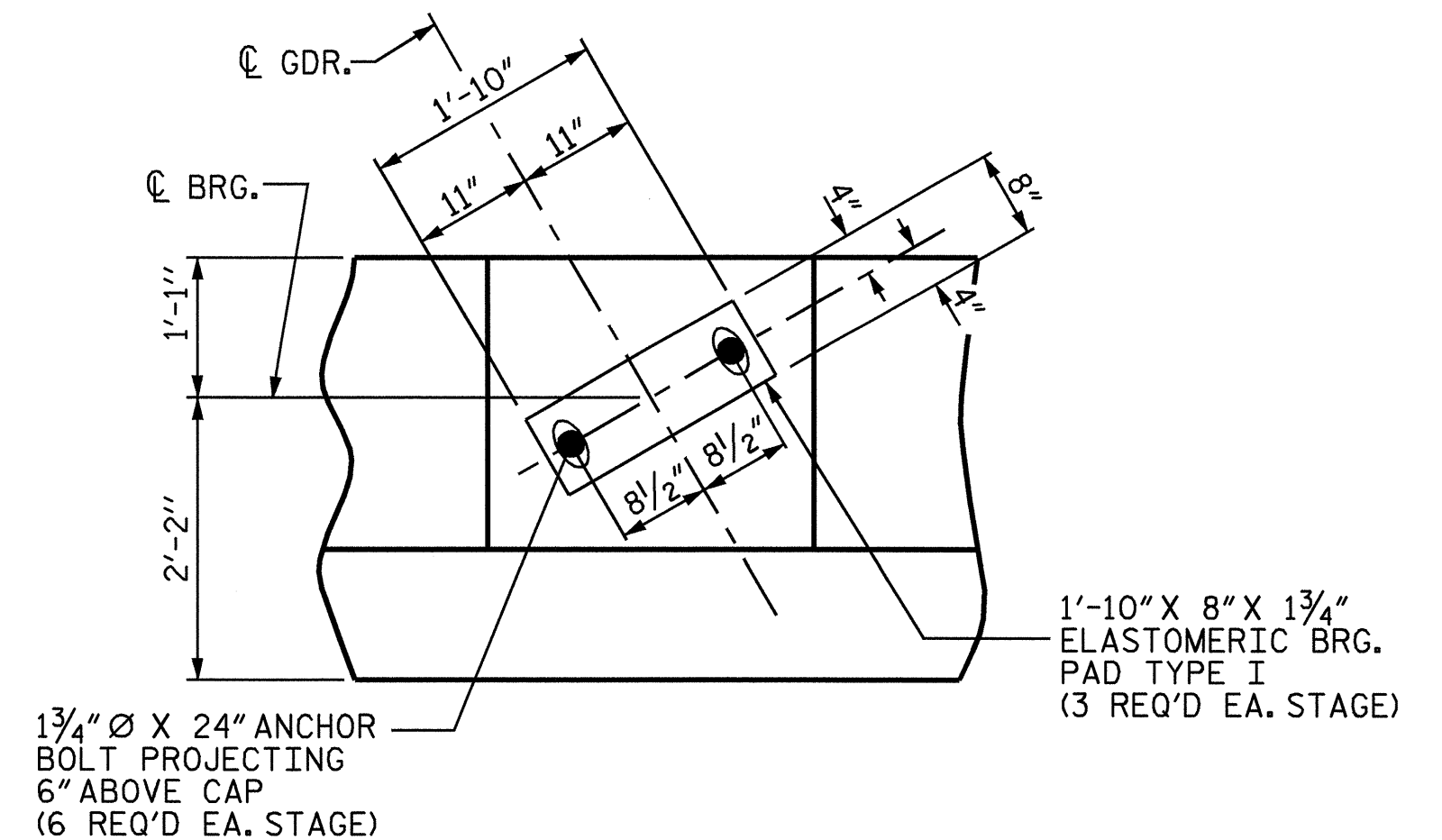


ELEVATION

LEFT WING WALL NOT SHOWN FOR CLARITY

NOTES

- STIRRUPS AND U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- * THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWS AND THE RAIL IS CAST IF SLIP FORMING IS USED.
- MECHANICAL BUTT SPLICES SHALL BE USED TO JOIN THE #10 B1 AND #10 B2 BARS IN STAGE I WITH THE #10 B9 BARS IN STAGE II.
- FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

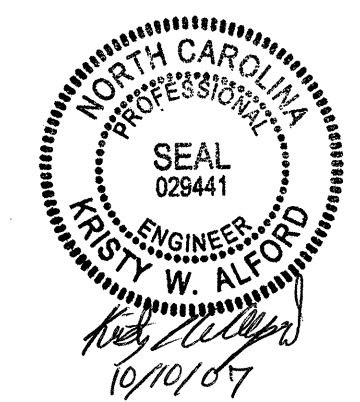


DETAIL "A"

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

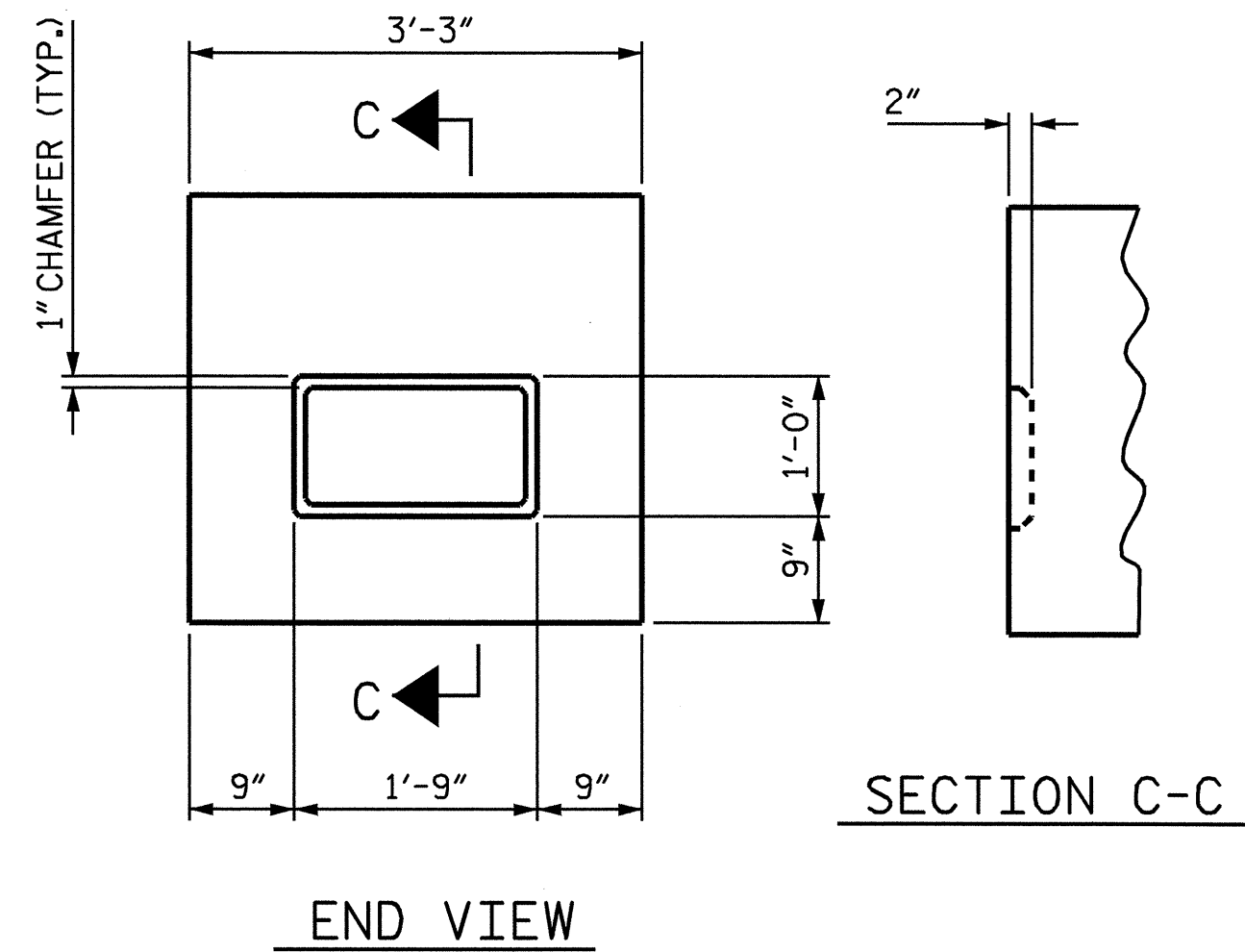
SHEET 2 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1 STAGE II					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-17
					TOTAL SHEETS 27

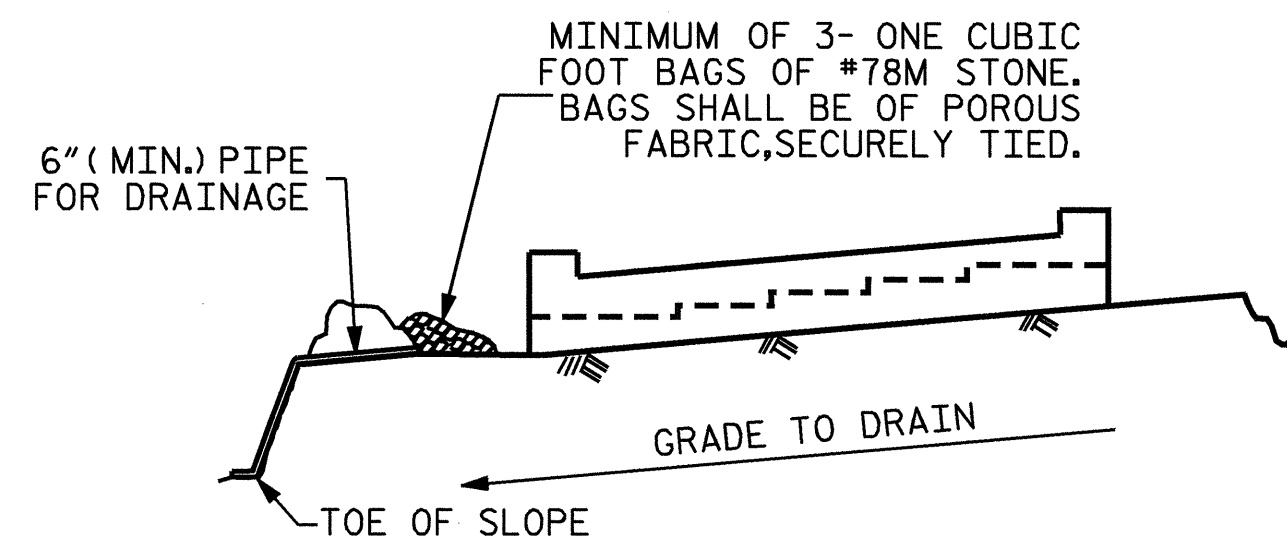


DRAWN BY: A.R.CHESSON DATE: 1-07
 CHECKED BY: K.W.ALFORD DATE: 5-07

10-OCT-2007 08:51
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 jpodams



SHEAR KEY DETAIL



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.

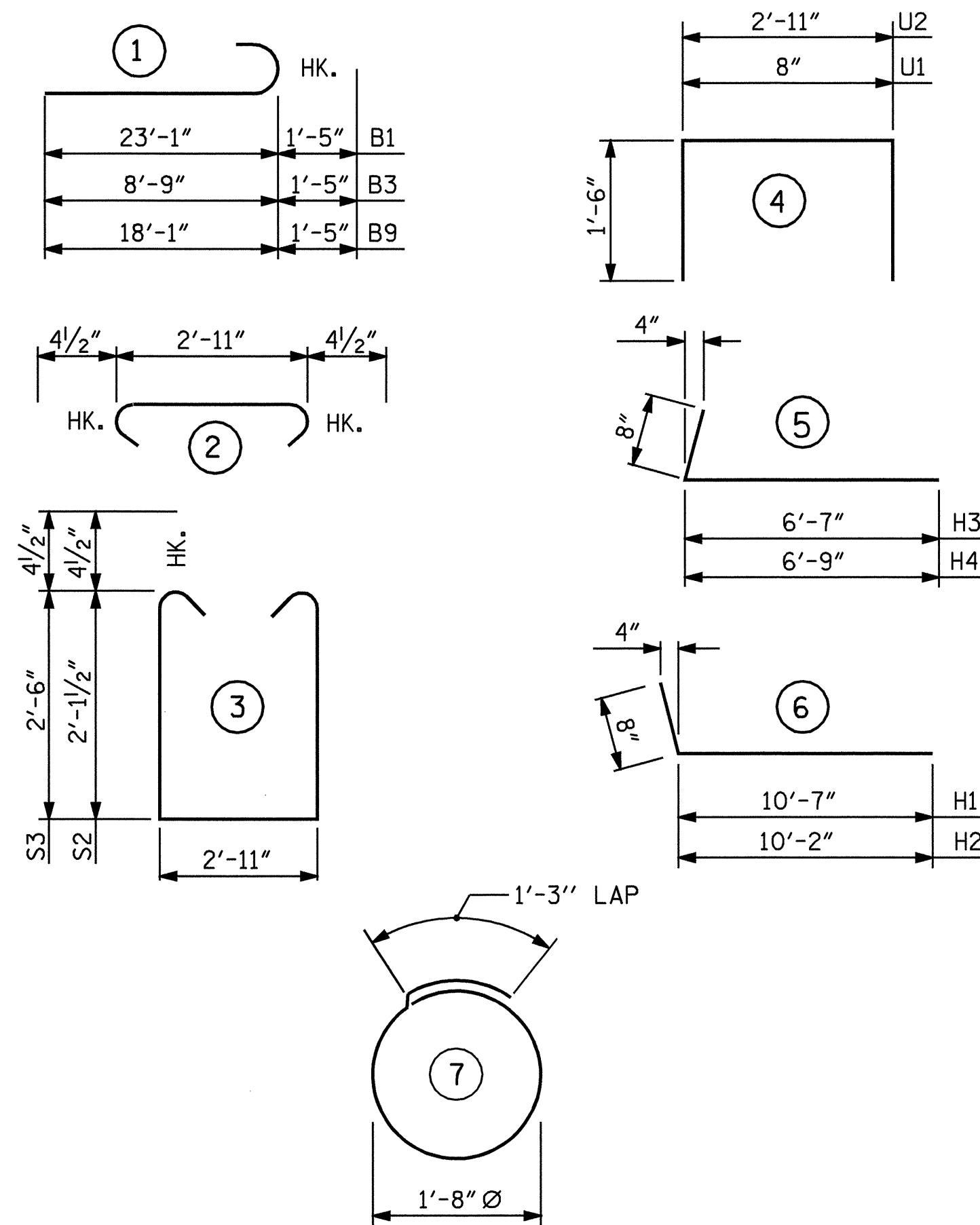
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

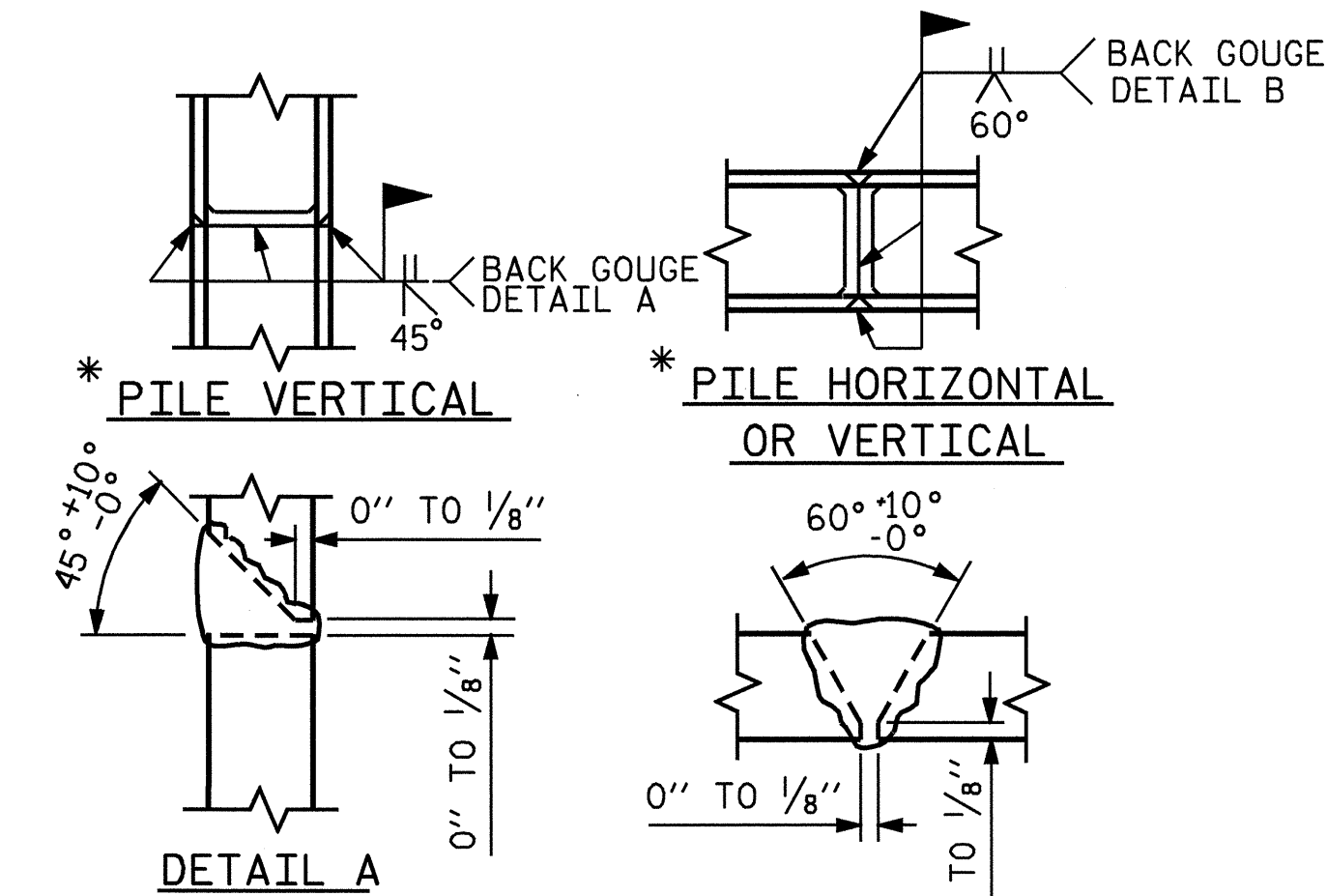
DRAWN BY : A.R.CHESSON DATE : 1-07
 CHECKED BY : K.W.ALFORD DATE : 5-07

05-DEC-2007 12:32
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BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.



* POSITION OF PILE DURING WELDING. DETAIL B

PILE SPLICE DETAILS

BILL OF MATERIAL

STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	24'-6"	422	B6	5	#4	STR	2'-11"	10
B2	4	#10	STR	23'-1"	397	B7	8	#4	STR	2'-2"	12
B3	4	#10	1	10'-2"	175	B9	8	#10	1	19'-6"	671
B4	4	#5	STR	23'-1"	96	B10	4	#5	STR	19'-1"	80
B5	4	#4	STR	23'-1"	62	B11	4	#4	STR	19'-1"	51
B6	7	#4	STR	2'-11"	14						
B7	8	#4	STR	2'-2"	12						
B8	4	#4	STR	2'-4"	6						
H1	9	#4	6	11'-3"	68	H3	8	#4	5	7'-3"	39
H2	9	#4	6	10'-10"	65	H4	8	#4	5	7'-5"	40
K1	6	#4	STR	23'-1"	93	K2	4	#4	STR	3'-3"	9
K2	4	#4	STR	3'-3"	9	K3	6	#4	STR	19'-1"	76
S1	19	#4	2	3'-8"	47	S1	19	#4	2	3'-8"	47
S2	13	#4	3	7'-11"	69	S2	19	#4	3	7'-11"	100
S3	6	#4	3	8'-8"	35	S4	6	#4	7	6'-6"	26
S4	8	#4	7	6'-6"	35						
U1	18	#4	4	3'-8"	44	U1	16	#4	4	3'-8"	39
U2	12	#4	4	5'-11"	47	U2	8	#4	4	5'-11"	32
V1	36	#4	STR	4'-10"	116	V3	32	#4	STR	4'-6"	96
V2	30	#4	STR	7'-1"	142	V4	23	#4	STR	6'-2"	95

REINFORCING STEEL = 1952 LBS REINFORCING STEEL = 1422 LBS

CLASS A CONCRETE BREAKDOWN :
 POUR #1 (CAP & LOWER WINGS) 9.1 C.Y.
 POUR #2 (BACKWALL & UPPER WINGS) 4.1 C.Y.
 TOTAL 13.2 C.Y.

CLASS A CONCRETE BREAKDOWN :
 POUR #1 (CAP & LOWER WINGS) 6.5 C.Y.
 POUR #2 (BACKWALL & UPPER WINGS) 3.1 C.Y.
 TOTAL 9.6 C.Y.

HP 12 X 53 STEEL PILES :
 No. 4 LIN. FT. 160

HP 12 X 53 STEEL PILES :
 No. 3 LIN. FT. 120

TOTAL BILL OF MATERIAL

		STAGE I	STAGE II	TOTAL
REINFORCING STEEL	LBS.	1952	1422	3374
CLASS A CONCRETE	C.Y.	13.2	9.6	22.8
HP 12 X 53 STEEL PILES	No.	4	3	7
	LIN. FT.	160	120	280

PILE EXCAVATION QUANTITIES :

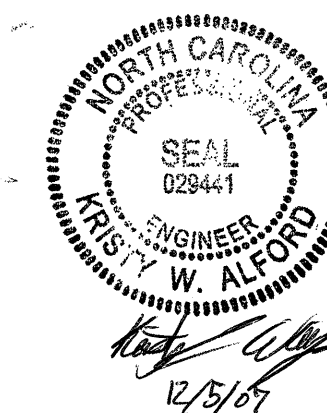
PILE EXCAVATION IN SOIL 45 LIN. FT.
 PILE EXCAVATION NOT IN SOIL 45 LIN. FT.

PROJECT NO. B-4330
 YANCEY COUNTY
 STATION: 14+42.50 -L-

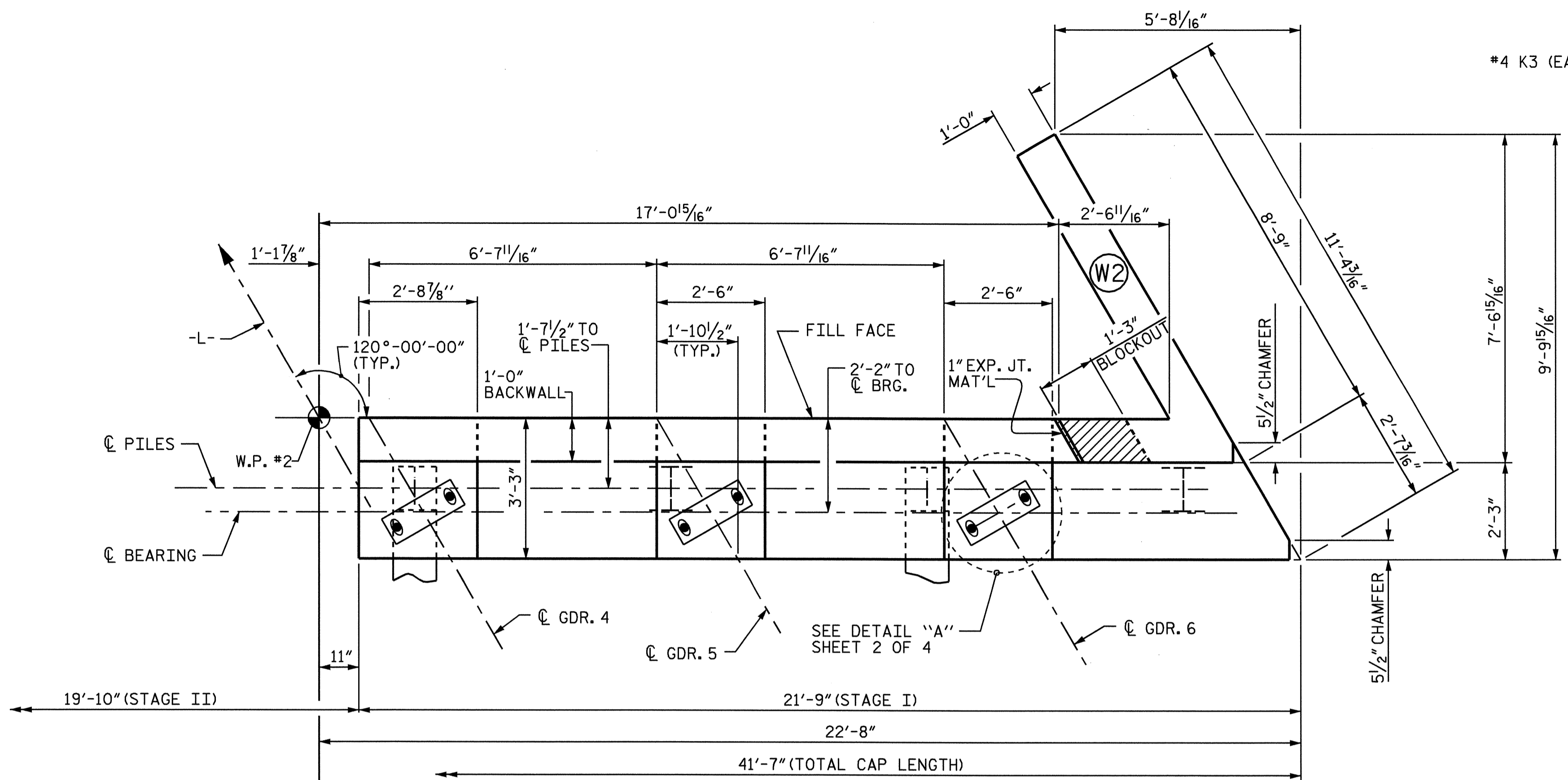
SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

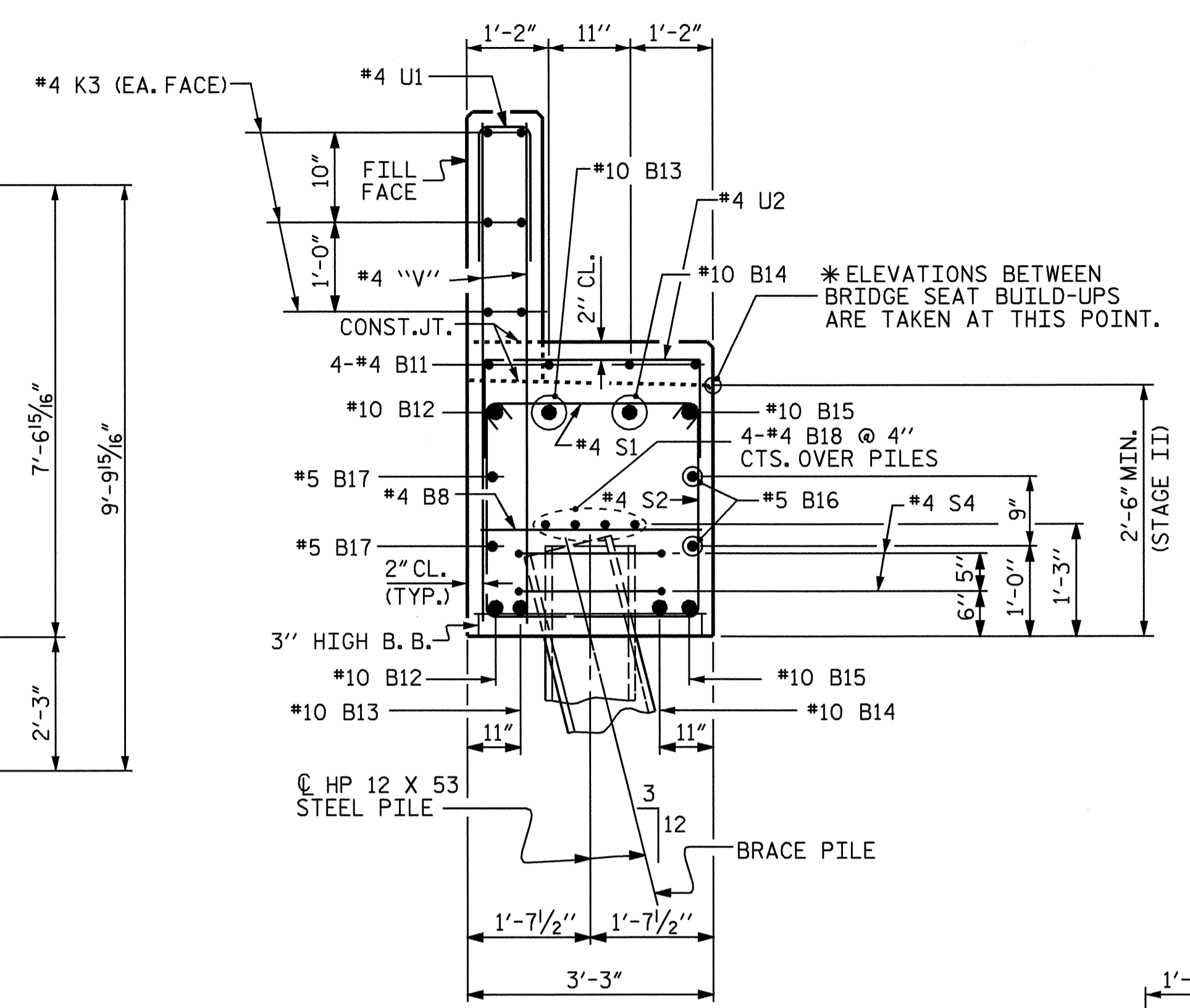
SUBSTRUCTURE
 END BENT 1



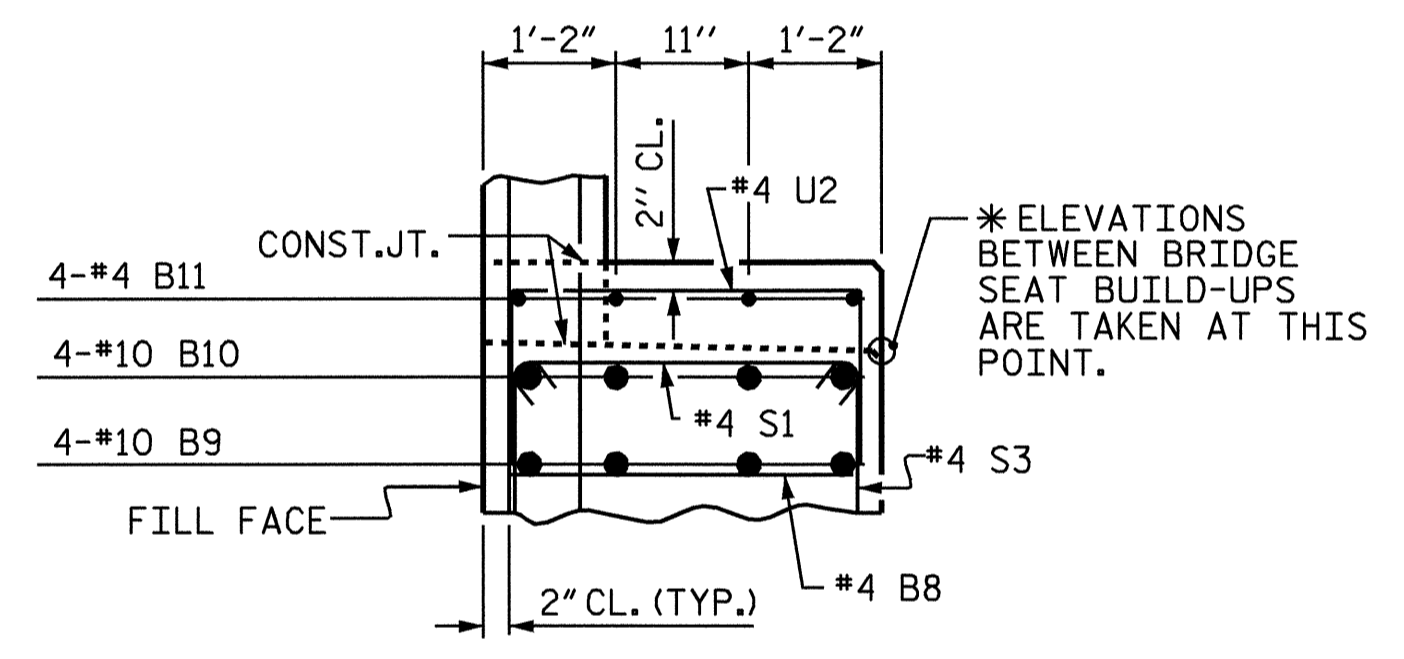
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			27



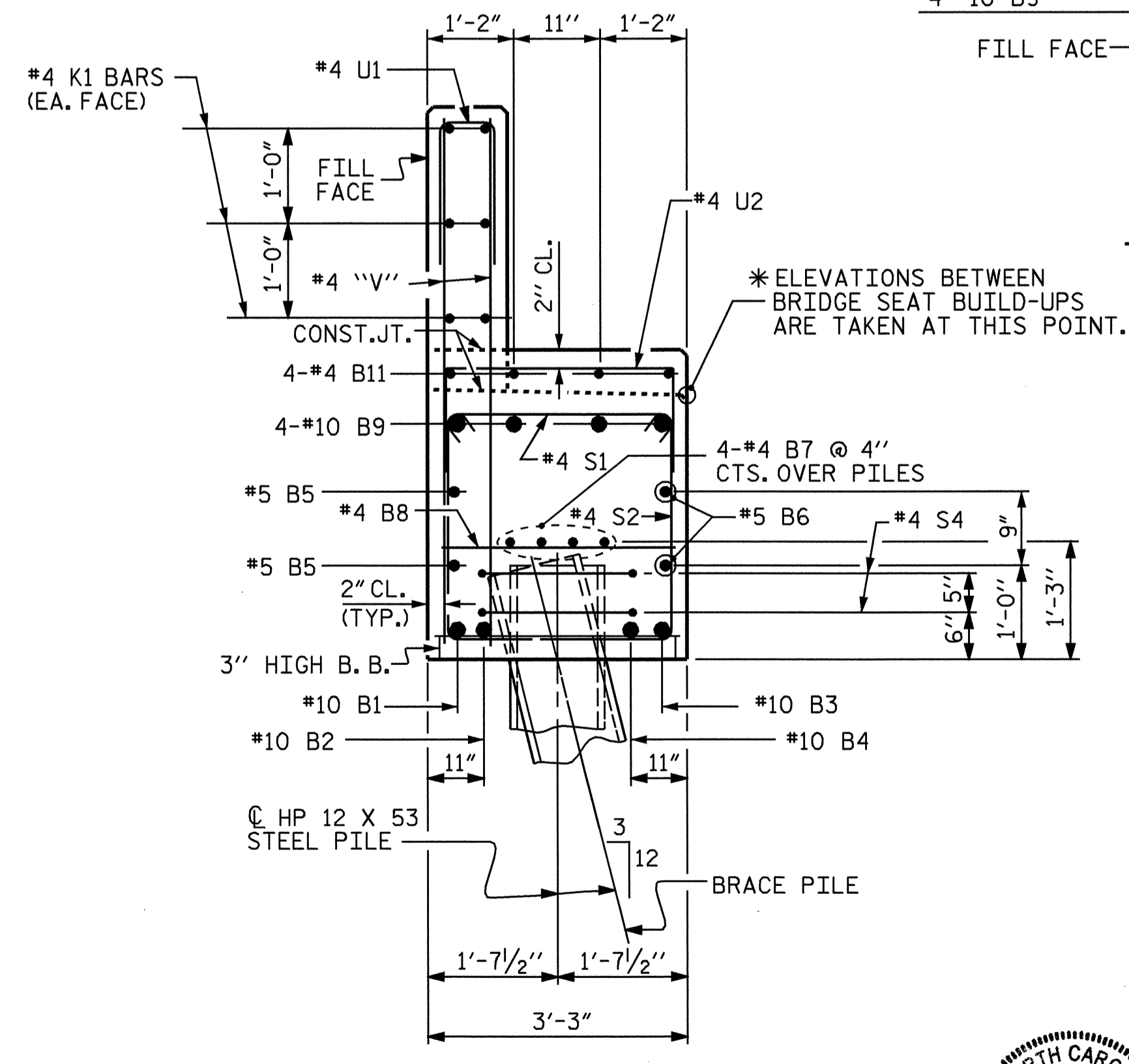
PLAN



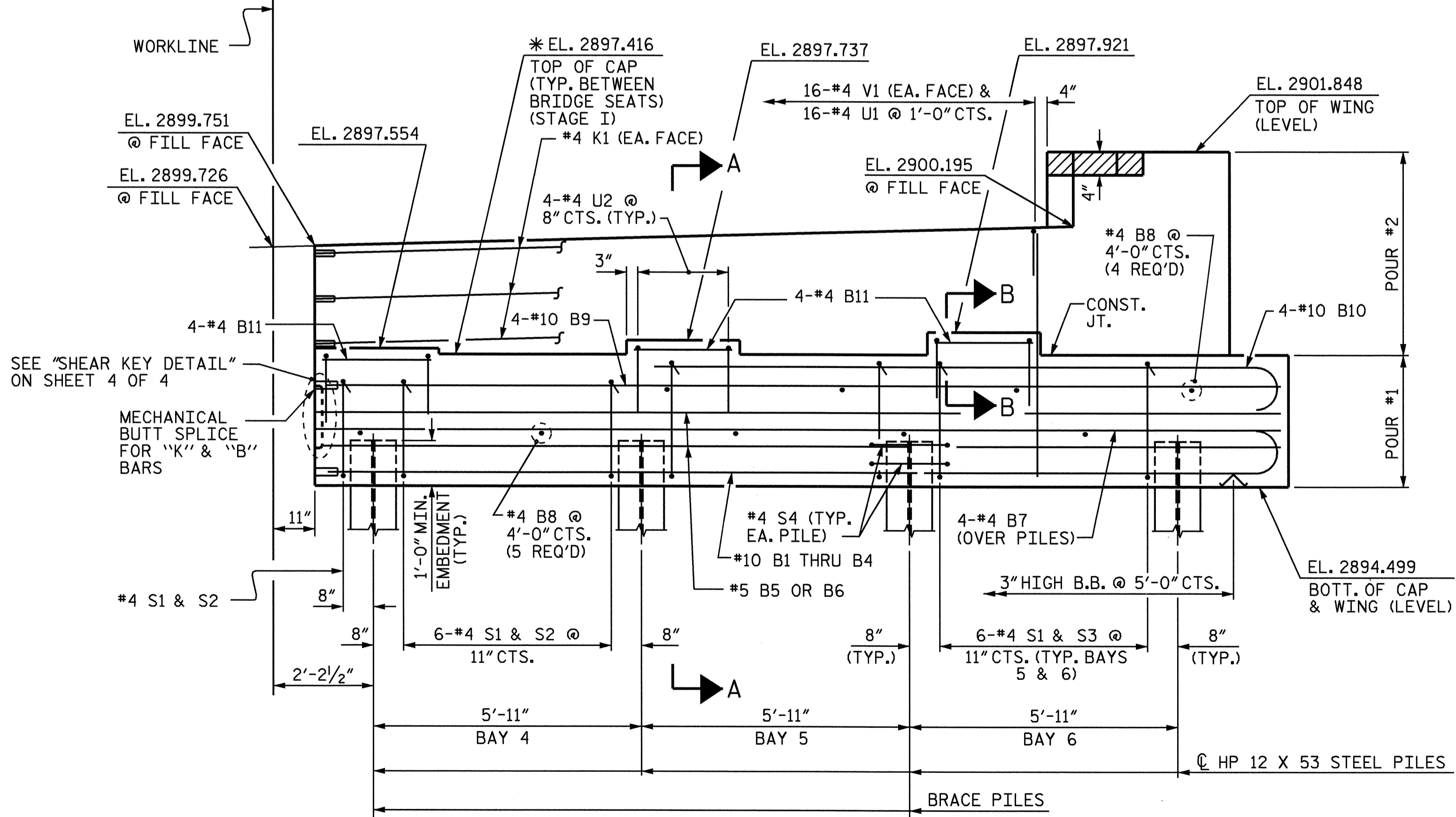
SECTION C-C



SECTION B-B



SECTION A-A



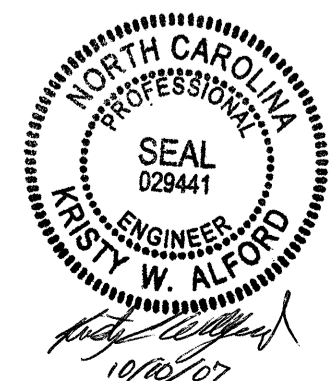
ELEVATION

PROJECT NO. B-4330
 YANCEY COUNTY
 STATION: 14+42.50 -L-
 SHEET 1 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				SUBSTRUCTURE END BENT 2 STAGE I	
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-20					TOTAL SHEETS 27

DRAWN BY: A.R.CHESSON DATE: 1-07
 CHECKED BY: K.W.ALFORD DATE: 5-07

10-OCT-2007 08:51
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 jpadams



NOTES

STIRRUPS AND U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

* THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

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

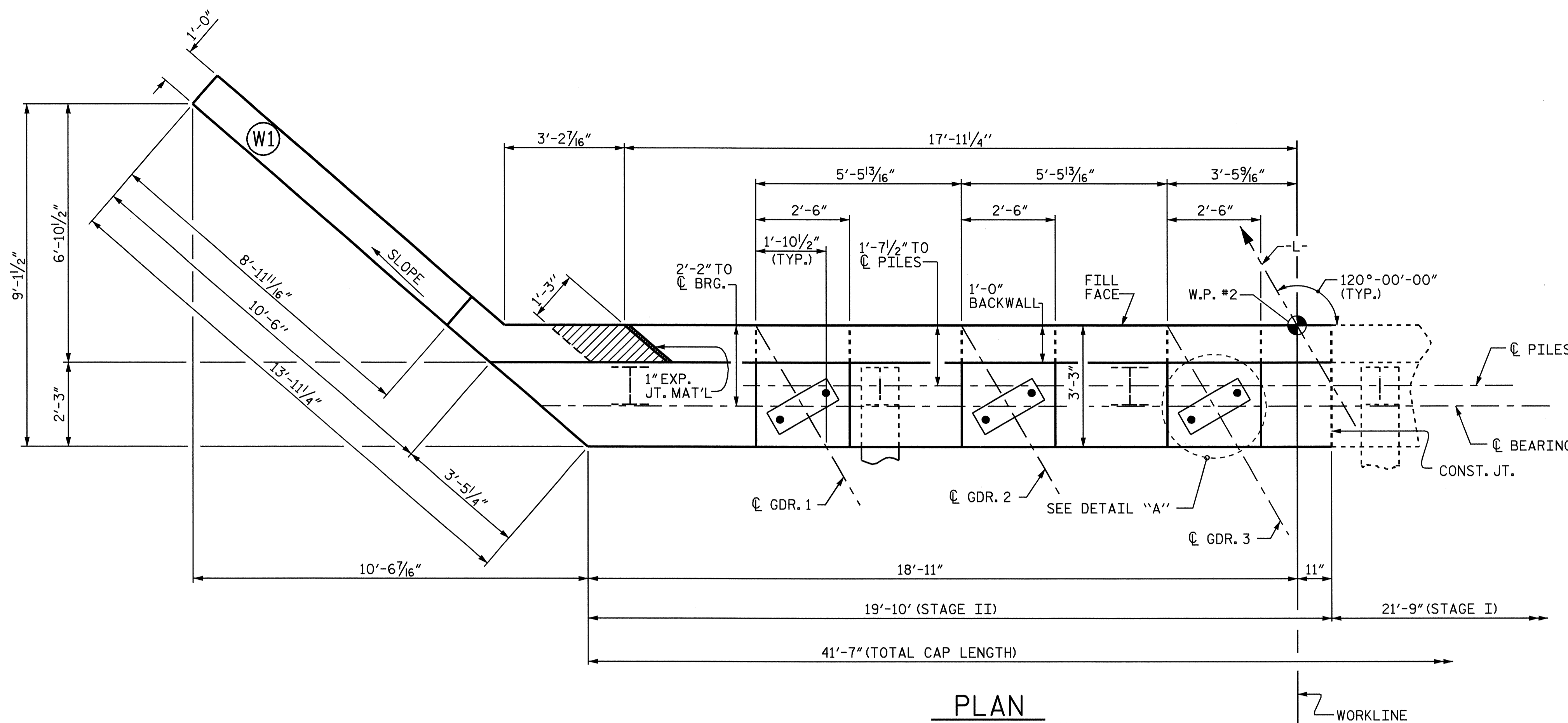
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE RAIL IS CAST IF SLIP FORMING IS USED.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE #10 "B" BAR LENGTHS AND THE #4 "K" BAR LENGTHS IN EACH STAGE OF THE CAP MAY NEED TO BE ADJUSTED DUE TO THE TYPE OF MECHANICAL COUPLER CHOSEN BY THE CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY ADJUSTMENTS REQUIRED, THE #10 B12 THRU B15 BARS AND THE #4 K3 BARS ARE DETAILED WITH 9" OF EXTRA LENGTH. THE #10 B1 THRU B5 AND B9 BARS AND THE #4 K1 BARS ARE DETAILED FLUSH WITH THE CONSTRUCTION JOINT.

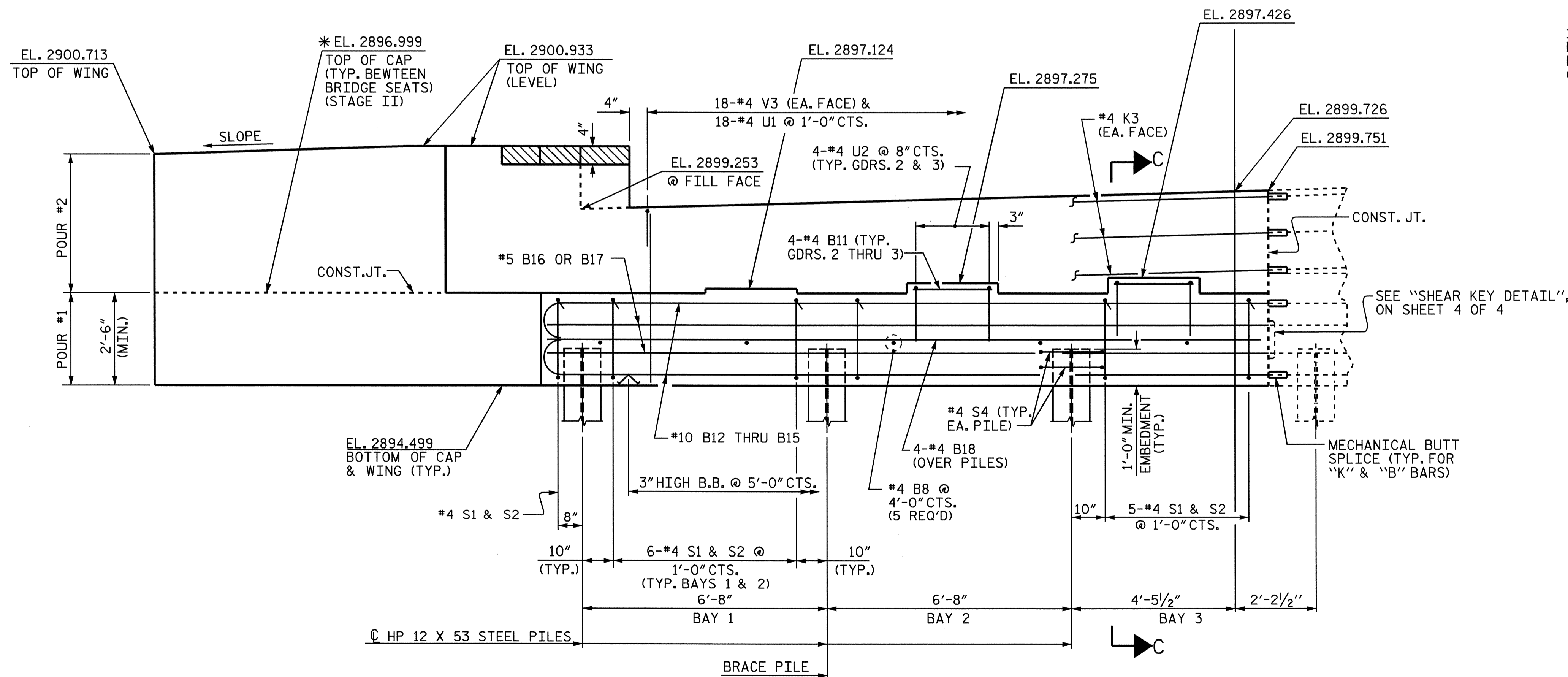
MECHANICAL BUTT SPLICES SHALL BE USED TO JOIN THE #10 B1 THRU B4 BARS IN STAGE I WITH THE #10 B12 THRU B15 BARS IN STAGE II RESPECTIVELY IN THE BOTTOM MAT, THE #10 B9 BARS IN STAGE I WITH THE #10 B12 THRU B15 BARS IN STAGE II IN THE TOP MAT, AND THE #4 K1 BARS IN STAGE I WITH THE #4 K3 BARS IN STAGE II. THE LOCATION OF THE MECHANICAL BUTT SPLICES SHALL NOT EXTEND BEYOND THE STAGE I CONSTRUCTION JOINT.

MECHANICAL BUTT SPLICES TO BE PLUGGED DURING POURING OF THE END BENT CAP AS RECOMMENDED BY THE MANUFACTURER.

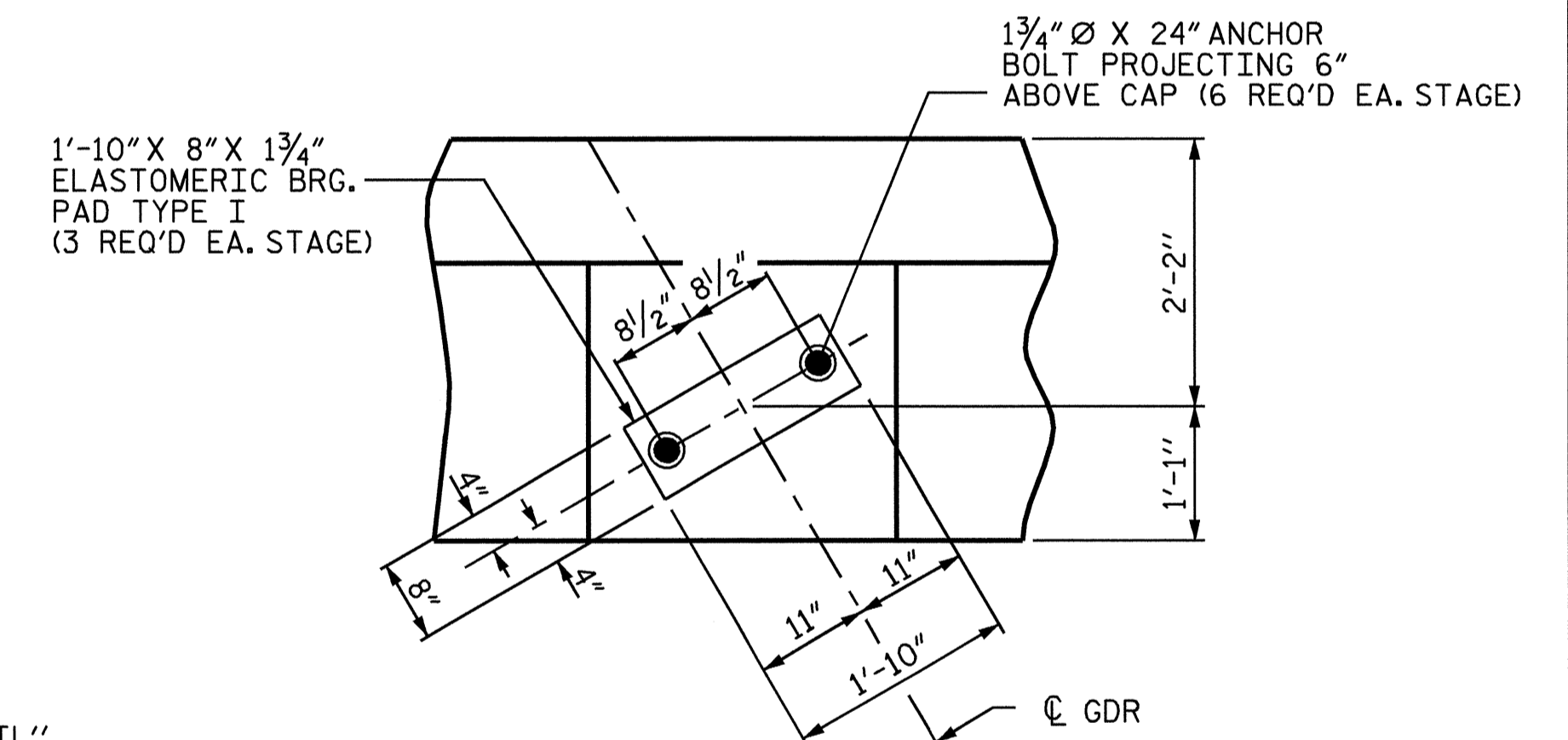
FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.



PLAN



ELEVATION



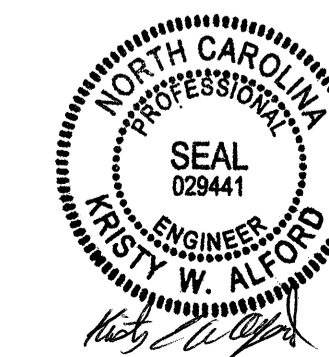
DETAIL "A"

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 2 OF 4

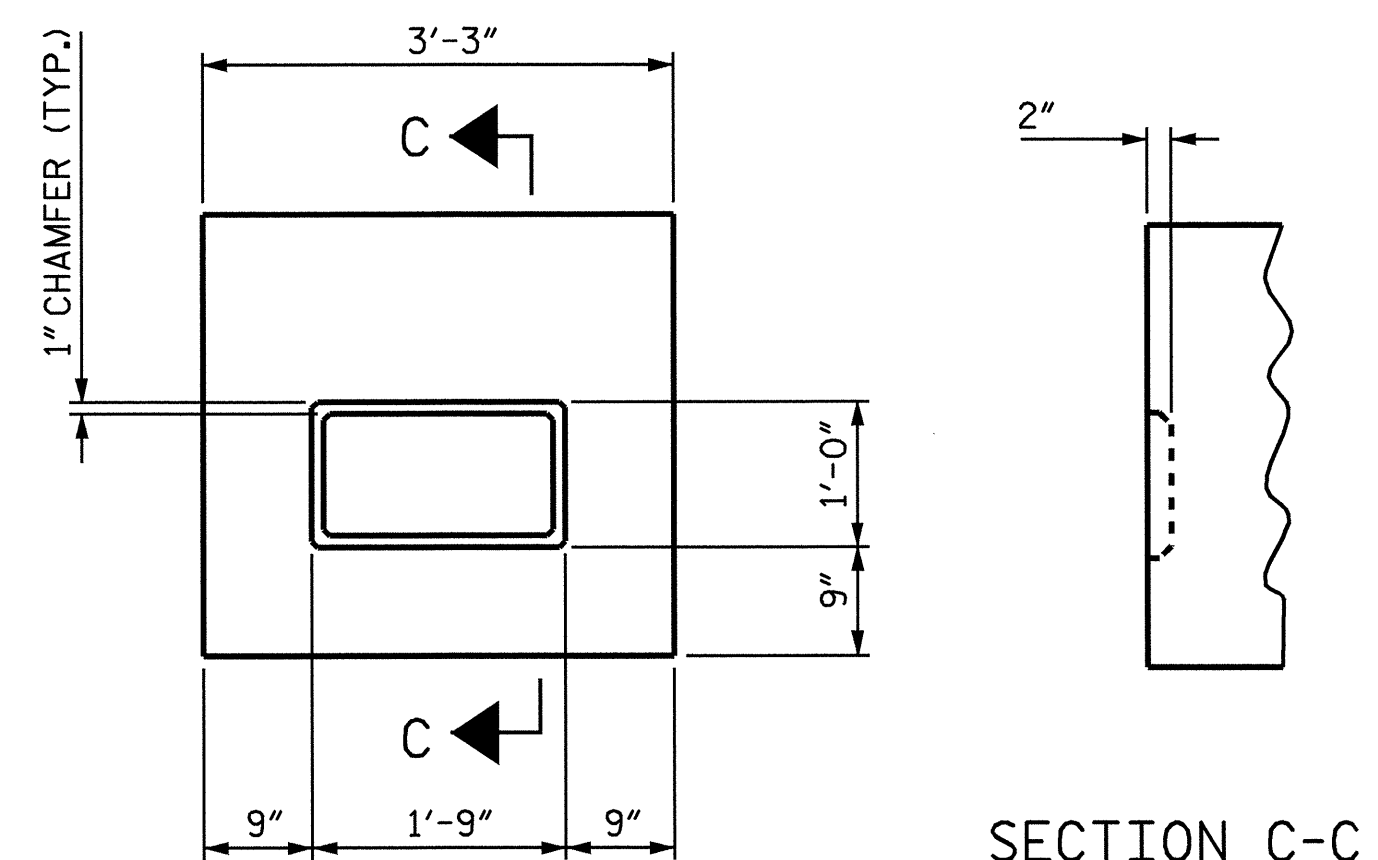
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2
 STAGE II



REVISIONS						SHEET NO. S-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

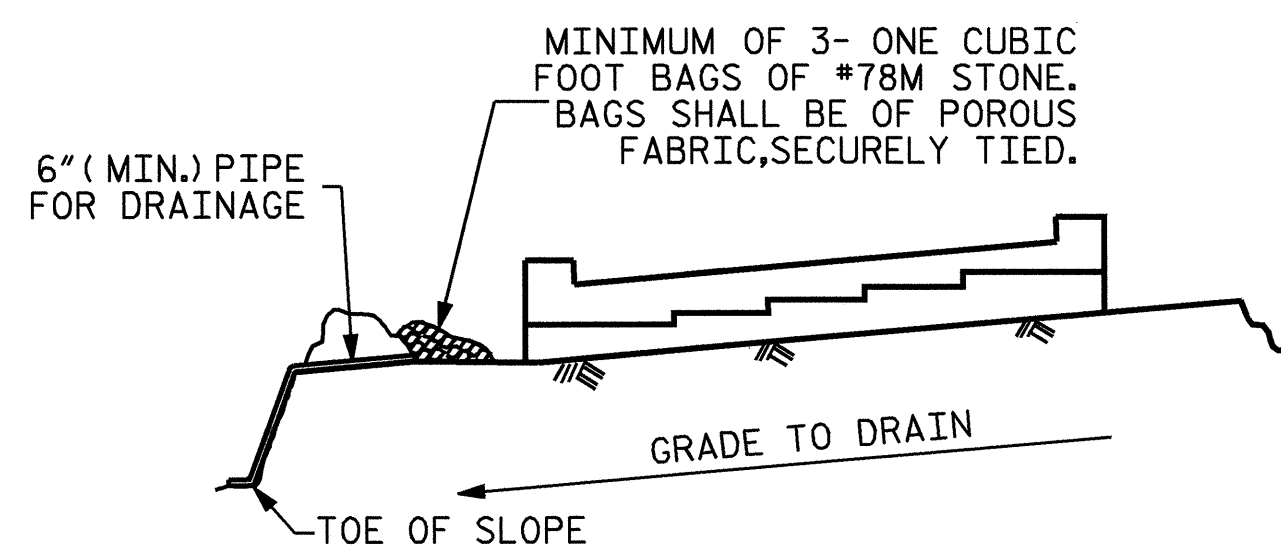
DRAWN BY: A.R.CHESSON DATE: 1-07
 CHECKED BY: K.W.ALFORD DATE: 5-07



END VIEW

SECTION C-C

SHEAR KEY DETAIL



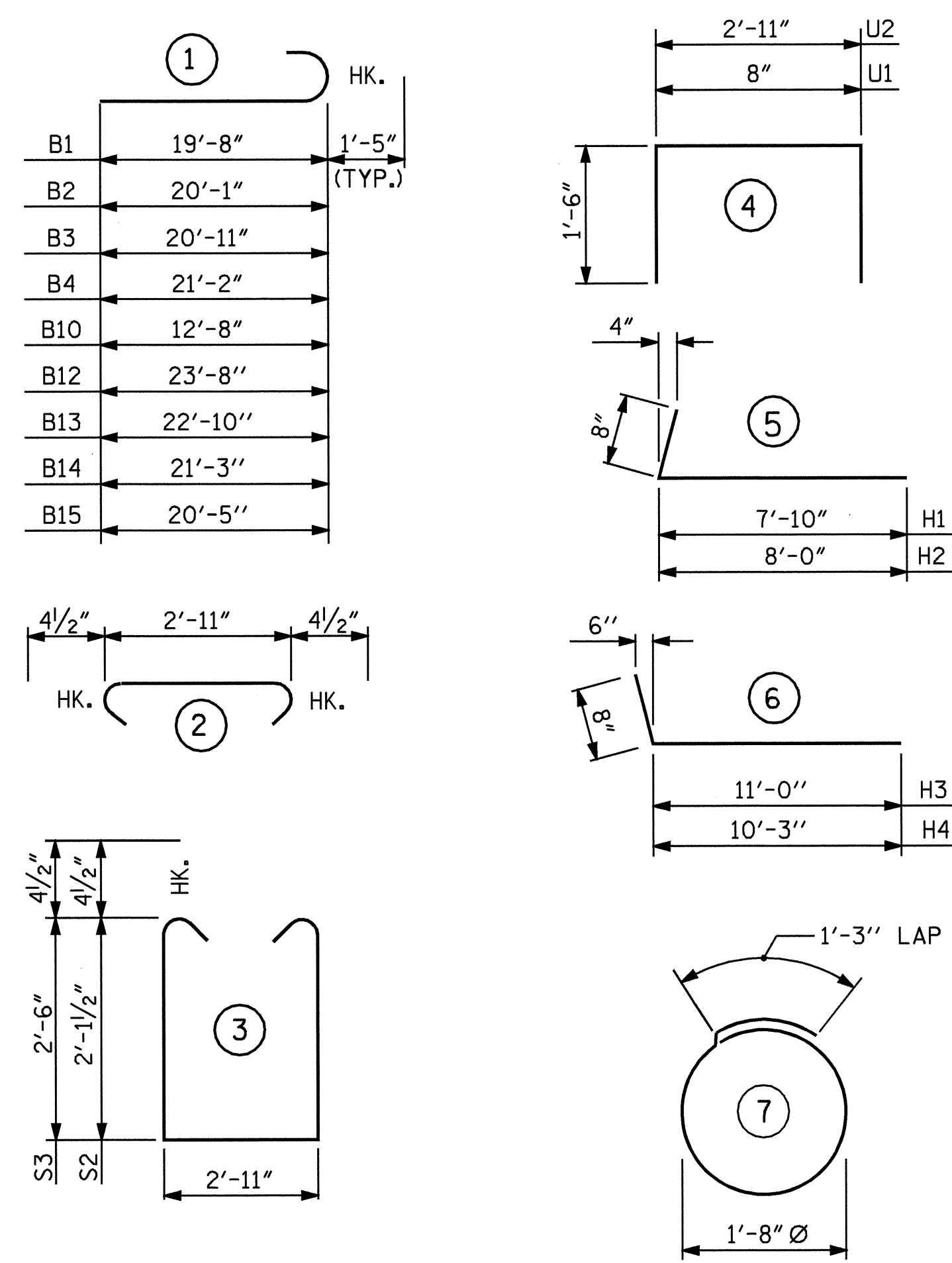
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	1	#10	1	21'-1"	91	B8	5	#4	STR	2'-11"	10
B2	1	#10	1	21'-6"	93	B11	8	#4	STR	2'-2"	12
B3	1	#10	1	22'-4"	96	B12	2	#10	1	25'-1"	216
B4	1	#10	1	22'-7"	97	B13	2	#10	1	24'-3"	209
B5	2	#5	STR	19'-9"	41	B14	2	#10	1	22'-8"	195
B6	2	#5	STR	21'-3"	44	B15	2	#10	1	21'-10"	188
B7	4	#4	STR	20'-4"	54	B16	2	#5	STR	19'-9"	41
B8	9	#4	STR	2'-11"	18	B17	2	#5	STR	23'-0"	48
B9	4	#10	STR	19'-9"	340	B18	4	#4	STR	20'-10"	56
B10	4	#10	1	14'-1"	242						
B11	12	#4	STR	2'-2"	17						
H1	8	#4	5	8'-6"	45	H3	8	#4	6	11'-8"	62
H2	8	#4	5	8'-8"	46	H4	8	#4	6	10'-11"	58
K1	6	#4	STR	19'-9"	79	K3	6	#4	STR	22'-10"	92
K2	4	#4	STR	3'-2"	8	K4	4	#4	STR	4'-2"	11
S1	19	#4	2	3'-8"	47	S1	18	#4	2	3'-8"	44
S2	7	#4	3	7'-11"	37	S2	18	#4	3	7'-11"	95
S3	12	#4	3	8'-8"	69	S4	6	#4	7	6'-6"	26
S4	8	#4	7	6'-6"	35						
U1	16	#4	4	3'-8"	39	U1	18	#4	4	3'-8"	44
U2	12	#4	4	5'-11"	47	U2	8	#4	4	5'-11"	32
V1	32	#4	STR	4'-10"	103	V3	36	#4	STR	4'-6"	108
V2	25	#4	STR	7'-0"	117	V4	30	#4	STR	5'-11"	119

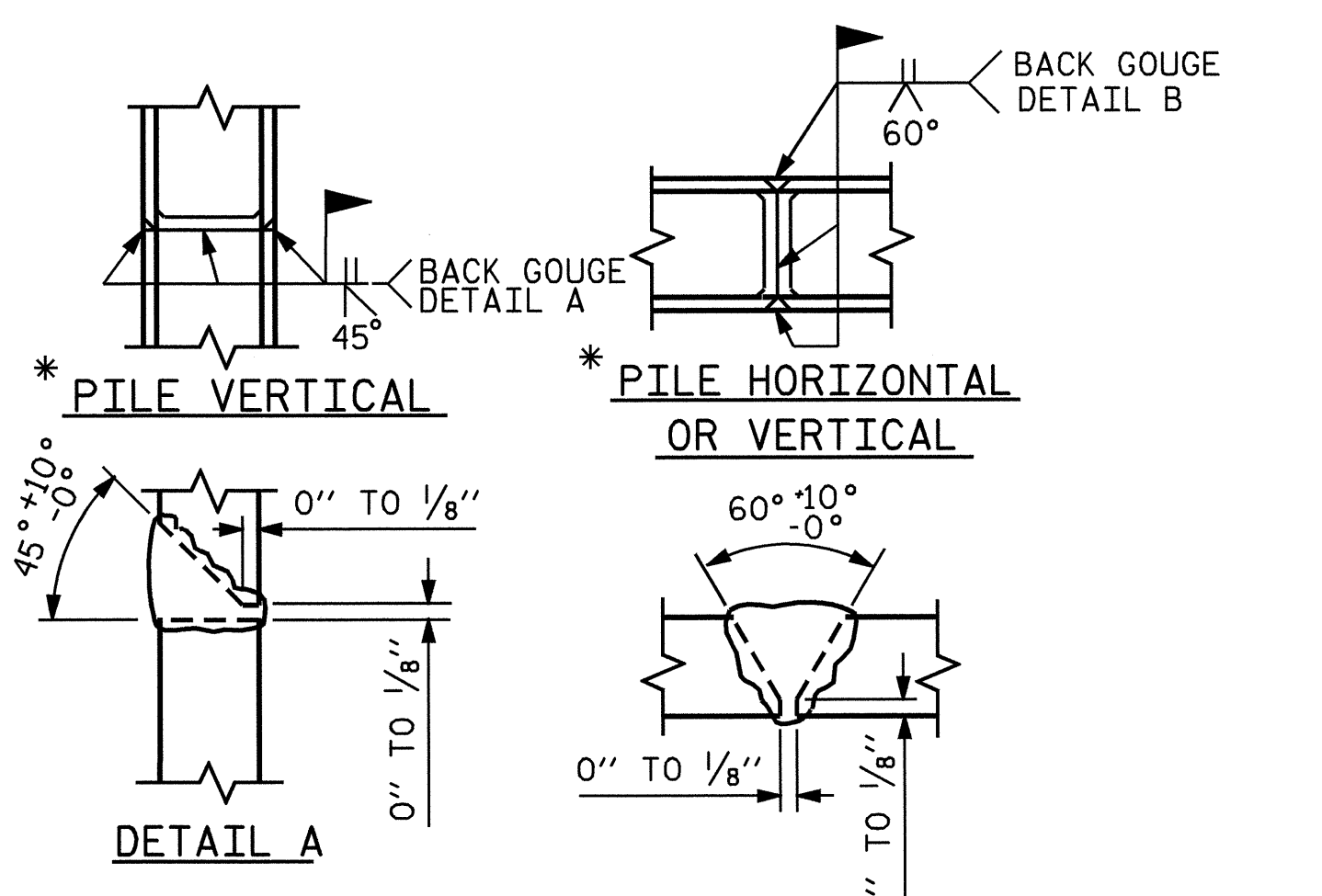
REINFORCING STEEL	= 1805 LBS	REINFORCING STEEL	= 1666 LBS
CLASS A CONCRETE BREAKDOWN :		CLASS A CONCRETE BREAKDOWN :	
POUR #1 (CAP & LOWER WINGS) 8.4 C.Y.		POUR #1 (CAP & LOWER WINGS) 7.7 C.Y.	
POUR #2 (BACKWALL & UPPER WINGS) 3.3 C.Y.		POUR #2 (BACKWALL & UPPER WINGS) 3.6 C.Y.	
TOTAL	11.7 C.Y.	TOTAL	11.3 C.Y.
HP 12 X 53 STEEL PILES :		HP 12 X 53 STEEL PILES :	
No.4	LIN. FT. 240	No.3	LIN. FT. 180

TOTAL BILL OF MATERIAL

	STAGE I	STAGE II	TOTAL
REINFORCING STEEL	LBS. 1805	1666	3471
CLASS A CONCRETE	C.Y. 11.7	11.3	23.0
HP 12 X 53 STEEL PILES	No. 4	3	7
	LIN. FT. 240	180	420

PILE EXCAVATION QUANTITIES :

PILE EXCAVATION IN SOIL	45 LIN. FT.
PILE EXCAVATION NOT IN SOIL	45 LIN. FT.



* POSITION OF PILE DURING WELDING.

PILE SPlice DETAILS

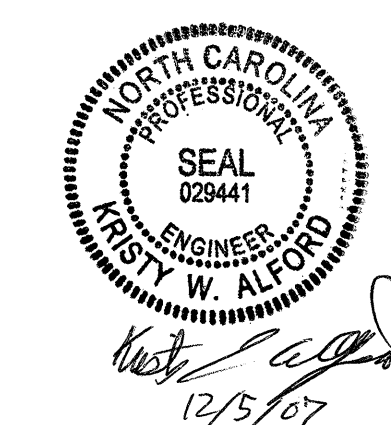
PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

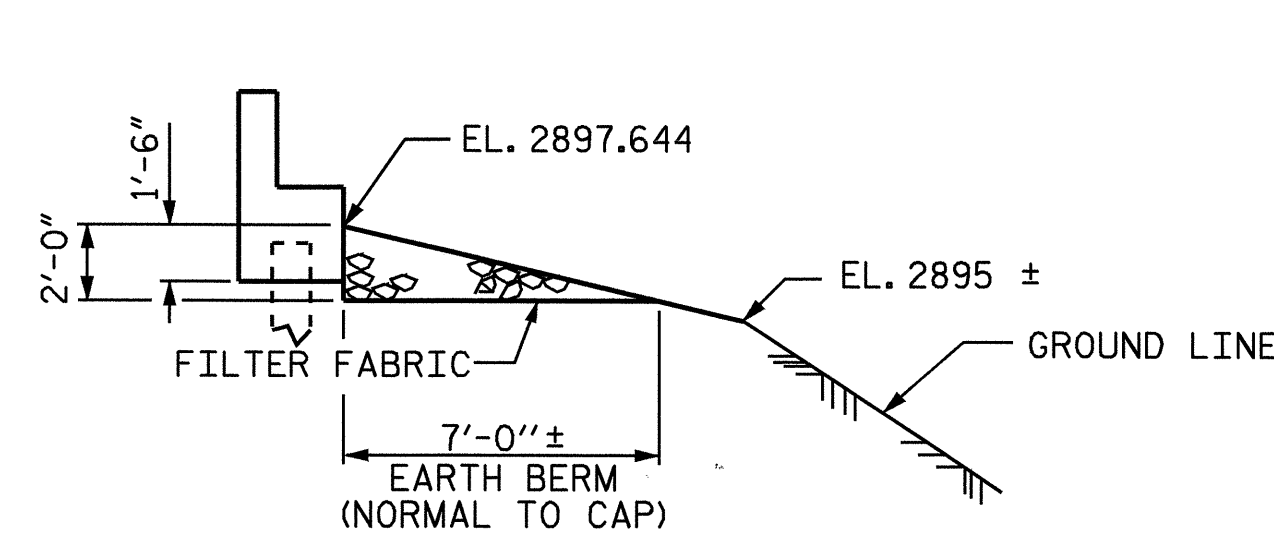
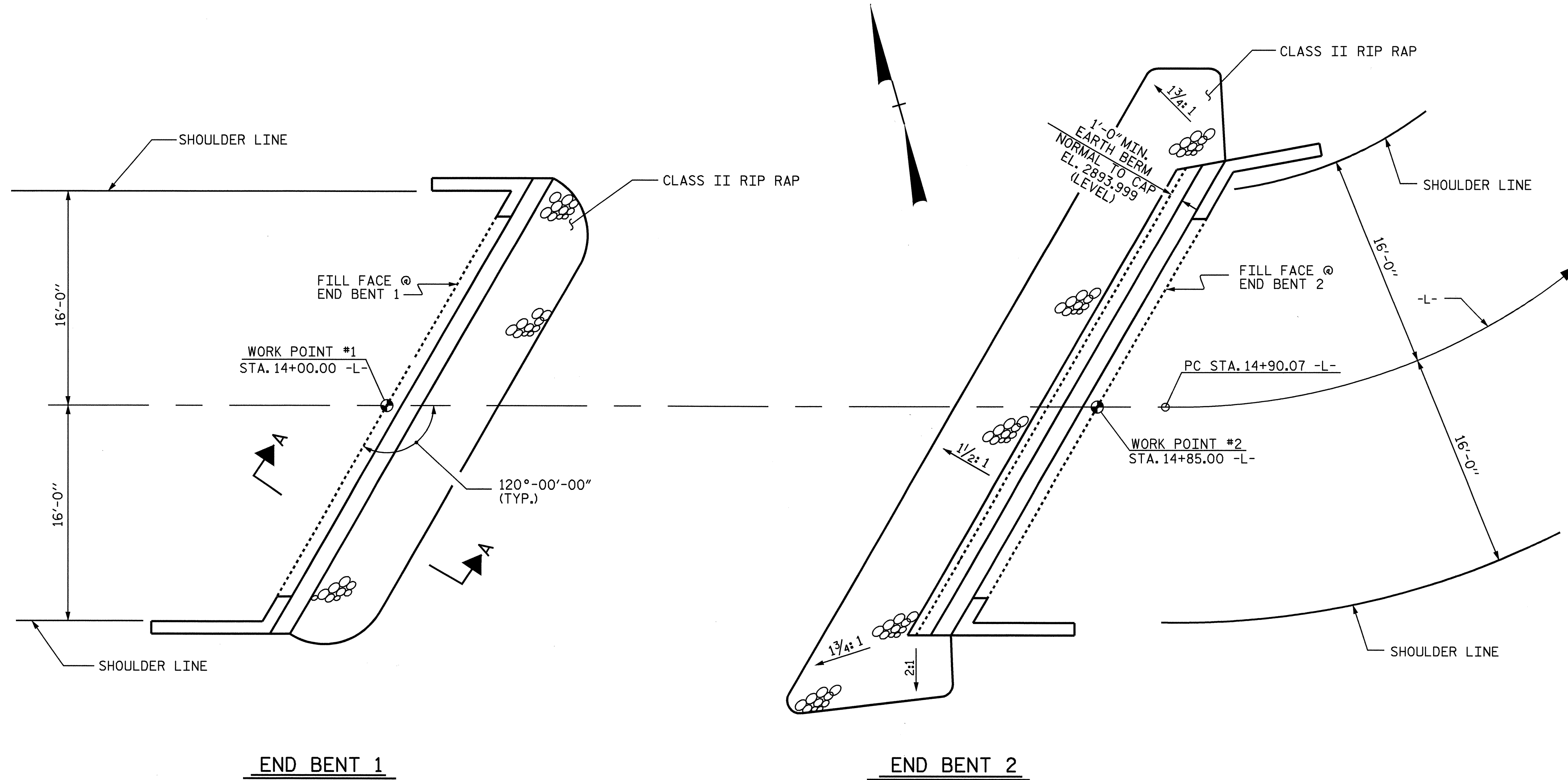
SUBSTRUCTURE
 END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			27

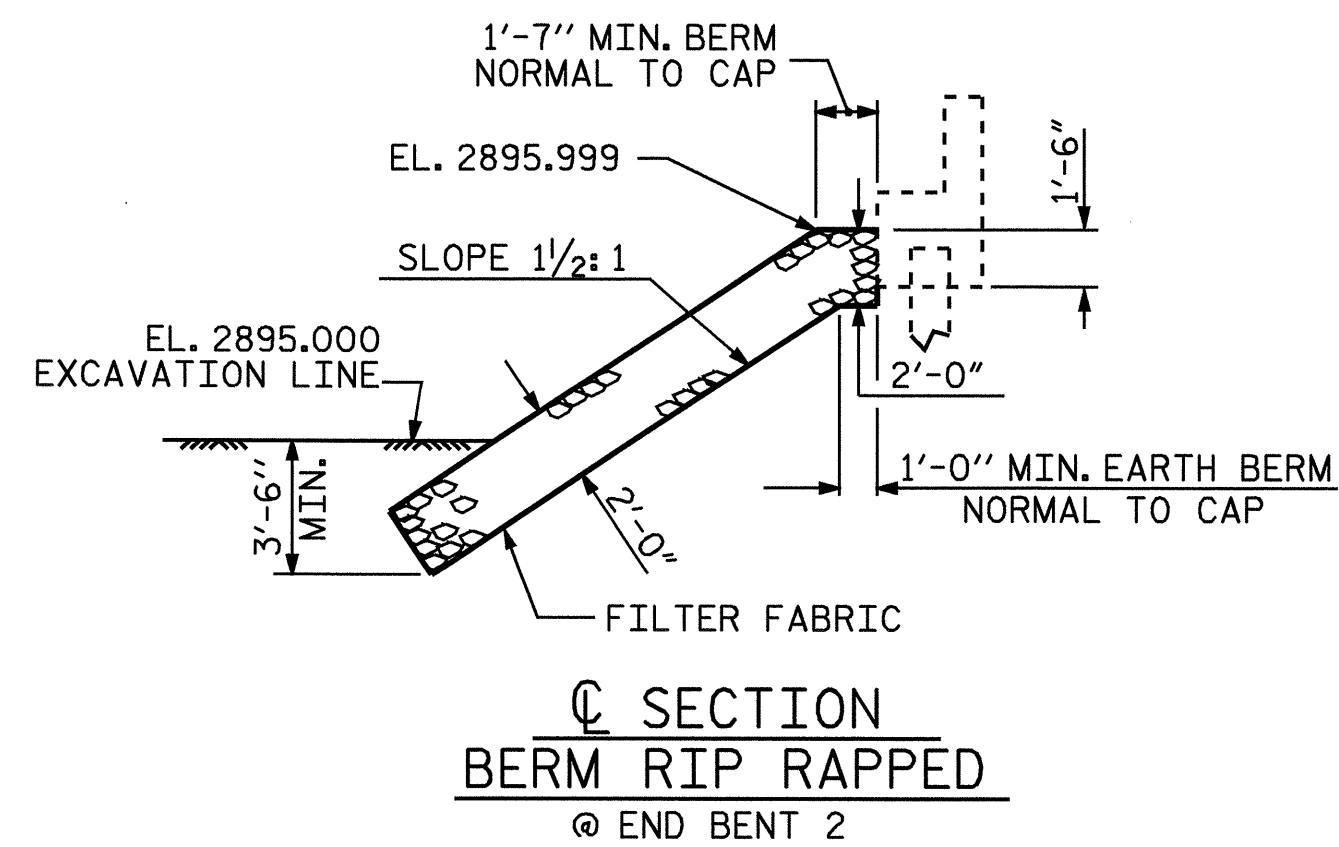


DRAWN BY : A.R.CHESSON DATE : 1-07
 CHECKED BY : K.W.ALFORD DATE : 5-07

ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+42.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	15	32
END BENT 2	54	60



SECTION A-A



SECTION
BERM RIP RAPPED
@ END BENT 2



Ting H. Fang
10/09/07

PROJECT NO. B-4330
YANCEY COUNTY
STATION: 14+42.50 -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-24
TOTAL SHEETS 27

DRAWN BY : H. B. SHAH DATE : 05/07
CHECKED BY : T. H. FANG DATE : 8/09/07

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 EACH EDGE OF THE APPROACH SLAB.

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

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

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

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

SEE PLAN OF APPROACH SLAB
ON SHEET 2 OF 3

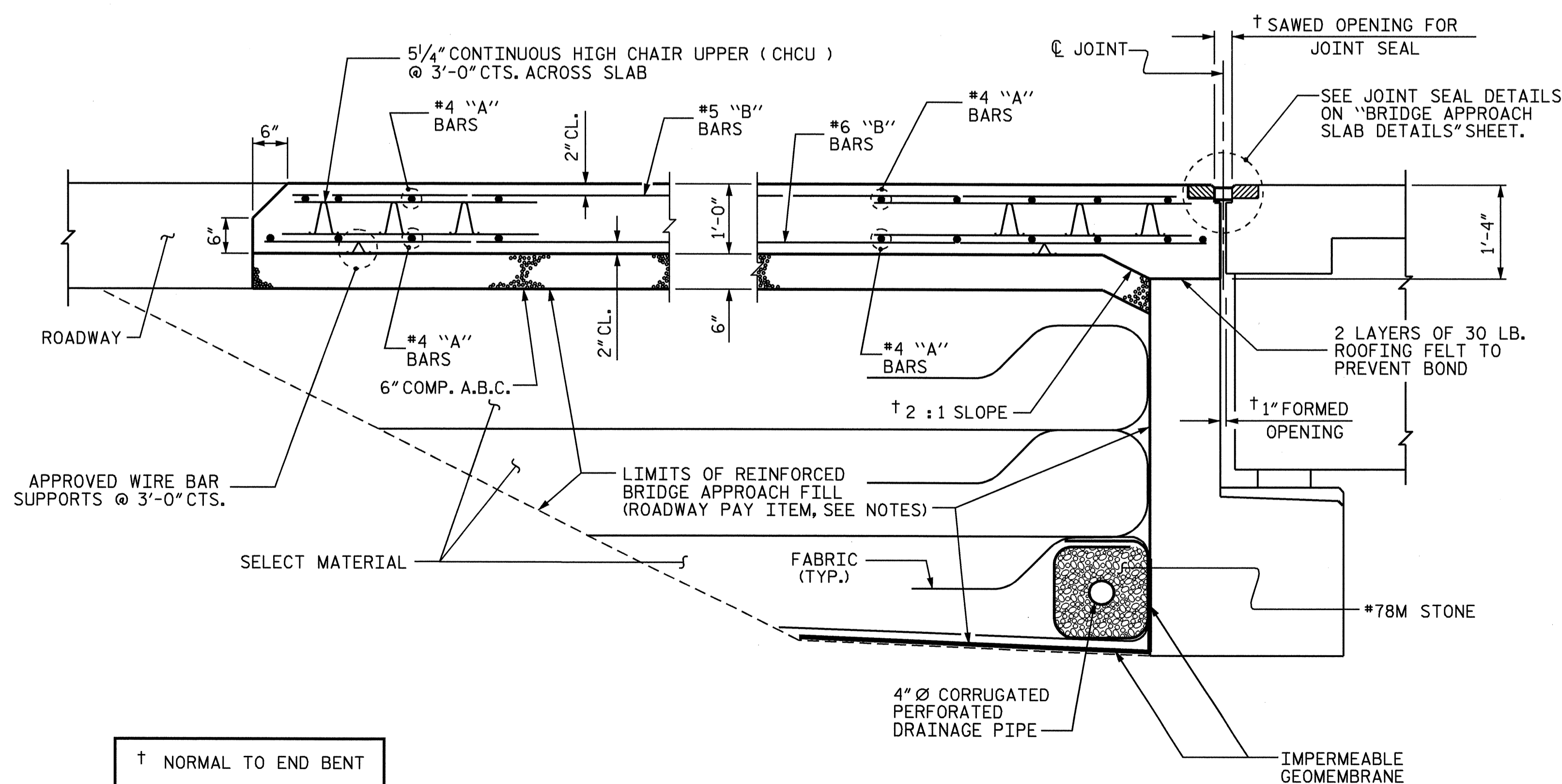
BILL OF MATERIAL

APPROACH SLAB 1 STAGE I						APPROACH SLAB 2 STAGE I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	15	#4	STR	16'-7"	166	*A3	15	#4	STR	15'-5"	154
A2	16	#4	STR	16'-7"	177	A4	16	#4	STR	15'-5"	165
*B1	29	#5	STR	14'-0"	423	*B1	27	#5	STR	14'-0"	394
B2	29	#6	STR	14'-6"	632	B2	27	#6	STR	14'-6"	588
*D1	14	#6	STR	3'-0"	63	*D1	14	#6	STR	3'-0"	63
REINFORCING STEEL LBS. 809						REINFORCING STEEL LBS. 753					
*EPOXY COATED REINFORCING STEEL LBS. 652						*EPOXY COATED REINFORCING STEEL LBS. 611					
CLASS AA CONCRETE C. Y. 8.5						CLASS AA CONCRETE C. Y. 7.9					

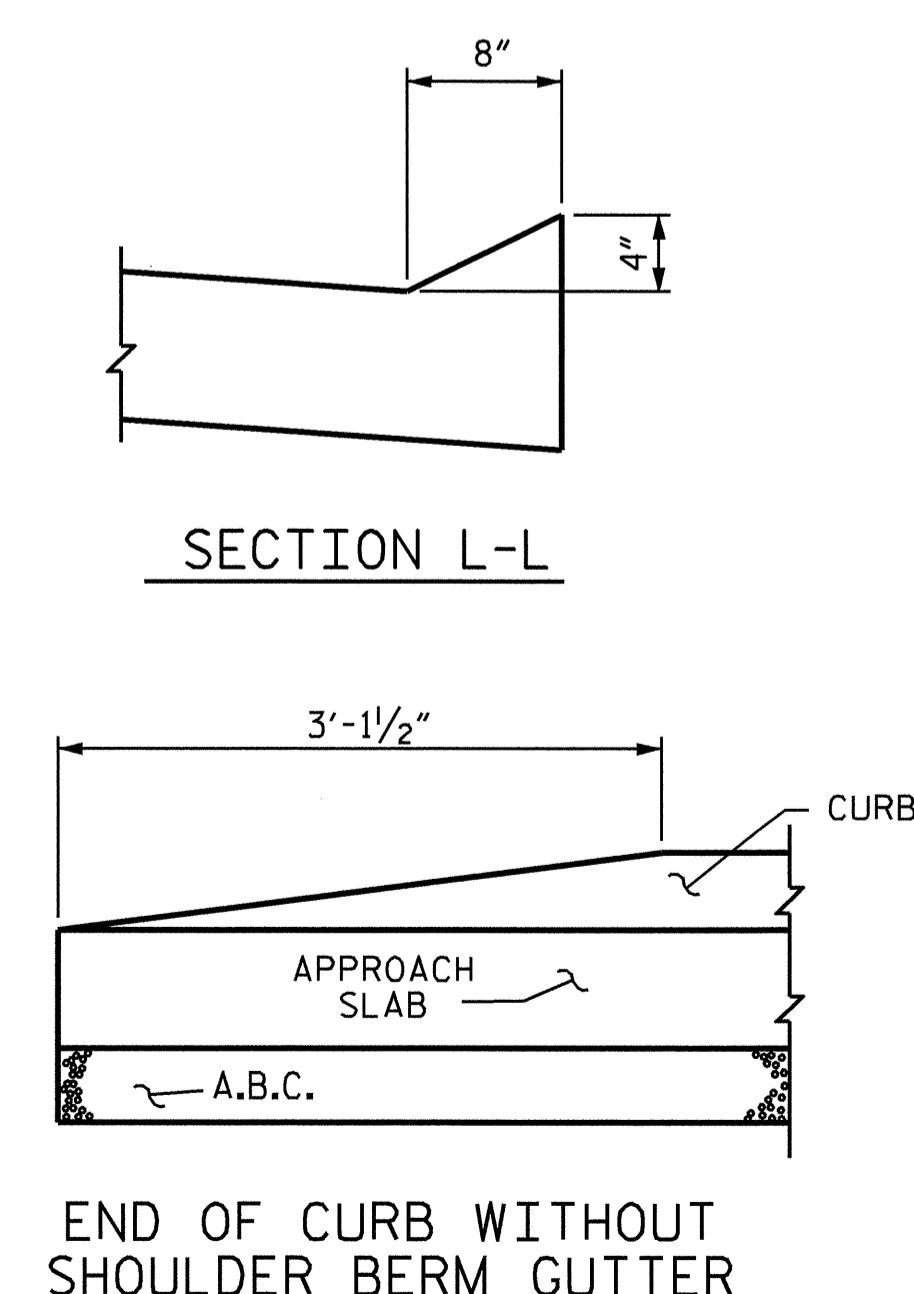
APPROACH SLAB 1 STAGE II						APPROACH SLAB 2 STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	15	#4	STR	16'-7"	166	*A11	2	#4	STR	18'-4"	24
A2	16	#4	STR	16'-7"	177	*A12	2	#4	STR	19'-3"	26
						*A13	2	#4	STR	20'-3"	27
*B1	29	#5	STR	14'-0"	423	*A14	2	#4	STR	21'-4"	29
B2	29	#6	STR	14'-6"	632	*A15	2	#4	STR	22'-4"	30
						*A16	3	#4	STR	23'-4"	47
						*A17	2	#4	STR	24'-0"	32
REINFORCING STEEL LBS. 809						REINFORCING STEEL LBS. 809					
*EPOXY COATED REINFORCING STEEL LBS. 589						*EPOXY COATED REINFORCING STEEL LBS. 589					
CLASS AA CONCRETE C. Y. 8.5						CLASS AA CONCRETE C. Y. 8.5					

TOTAL QUANTITIES

	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
APPROACH SLAB 1 STAGE I	8.5	809	652
APPROACH SLAB 1 STAGE II	8.5	809	589
APPROACH SLAB 2 STAGE I	7.9	753	611
APPROACH SLAB 2 STAGE II	10.6	1062	779
	35.5	3433	2631



SECTION THRU SLAB

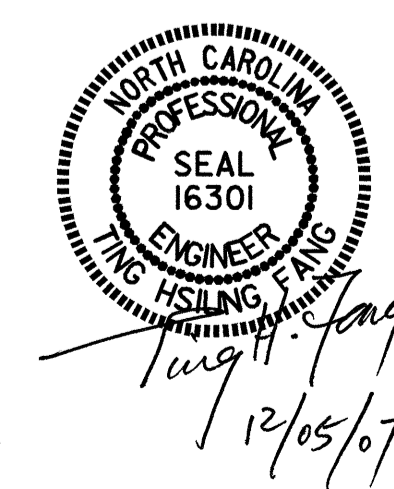


CURB DETAILS

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

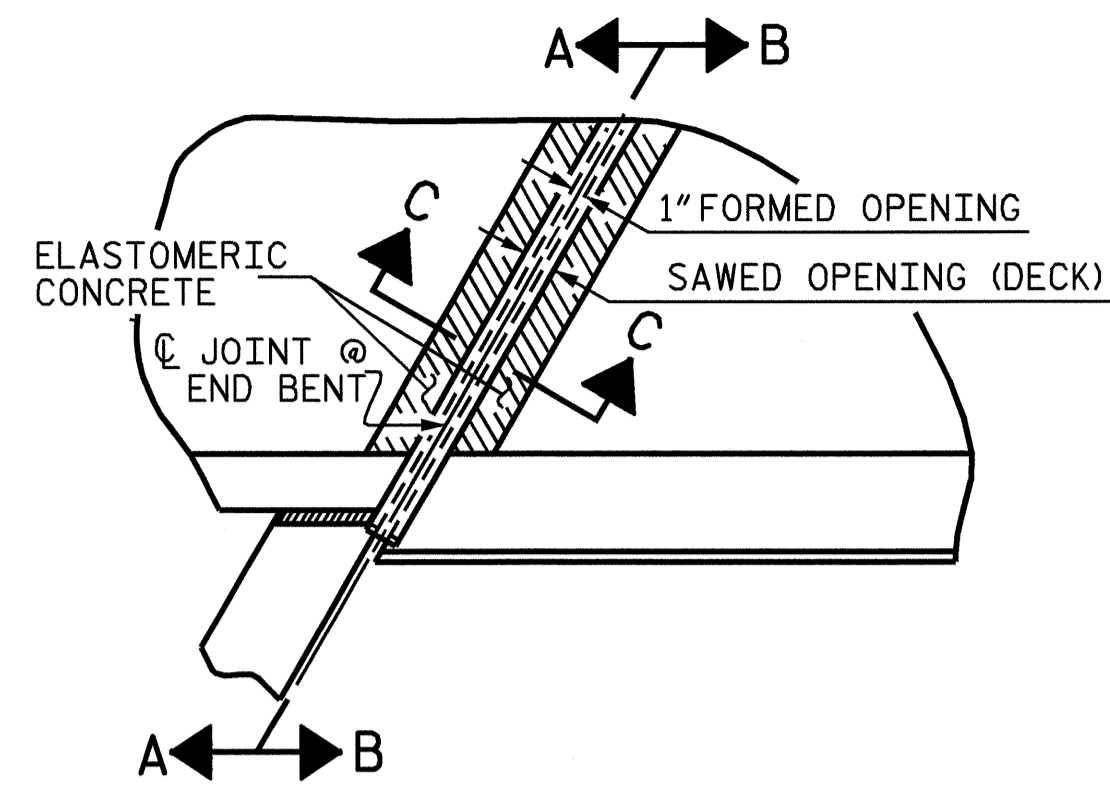
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

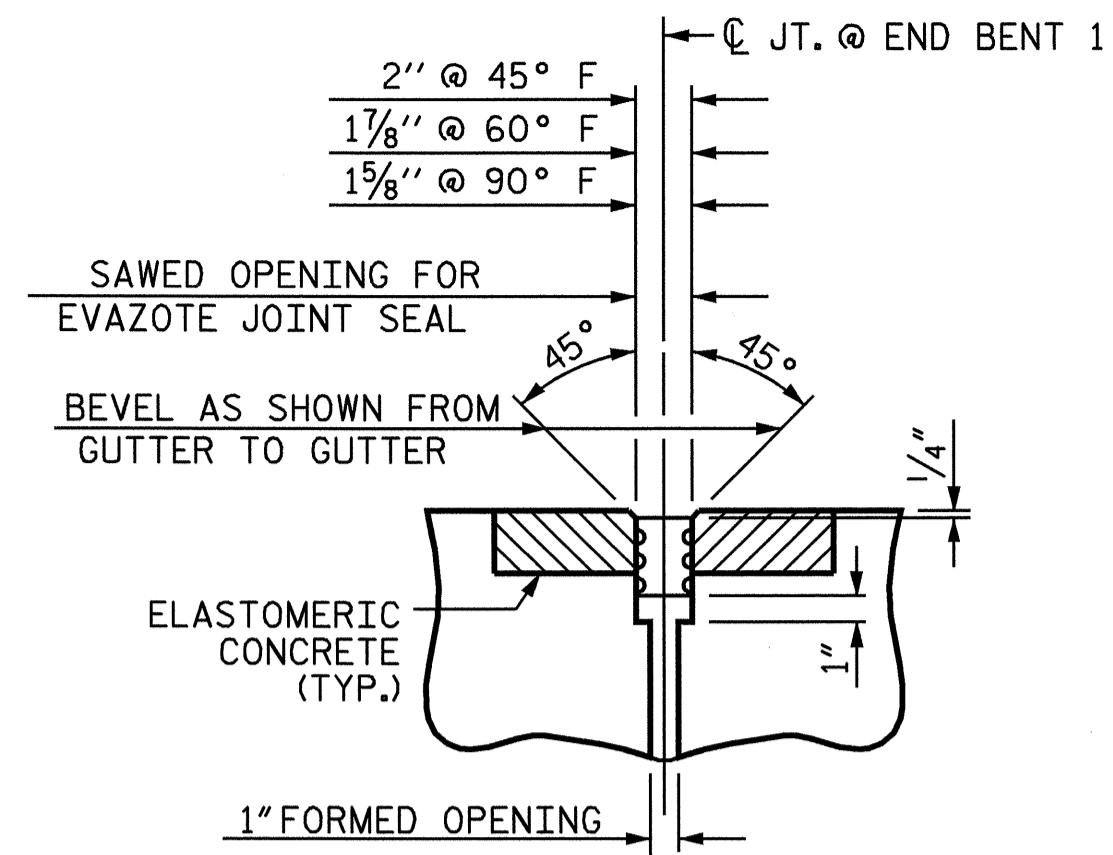


REVISIONS				SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			27
2			4			

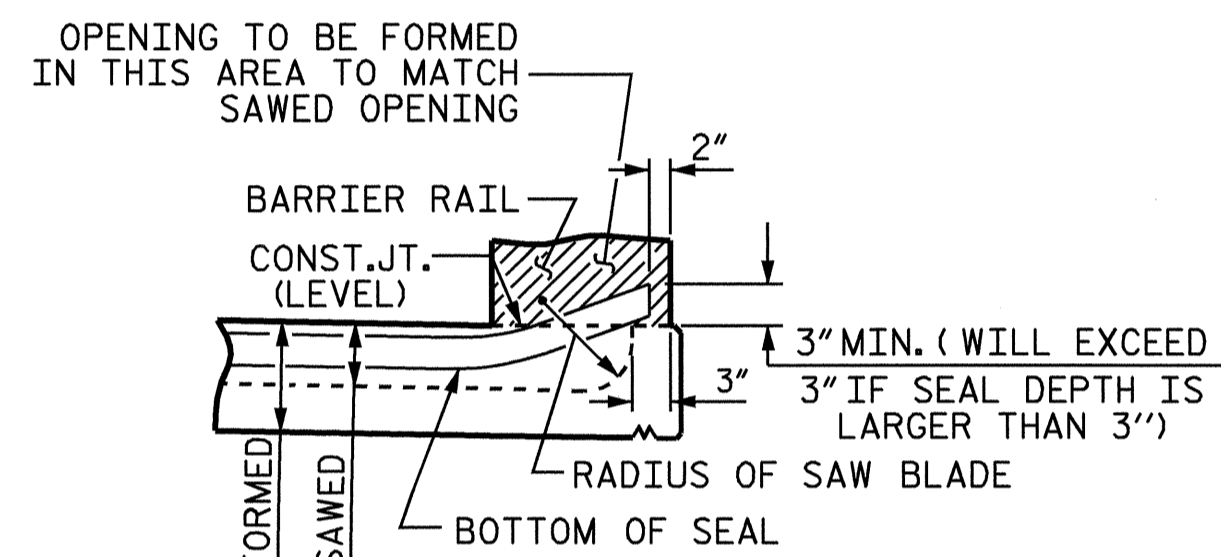
ASSEMBLED BY : H.B. SHAH	DATE : 6/5/07
CHECKED BY : T. H. FANG	DATE : 8/6/07
DRAWN BY : EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY : VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM



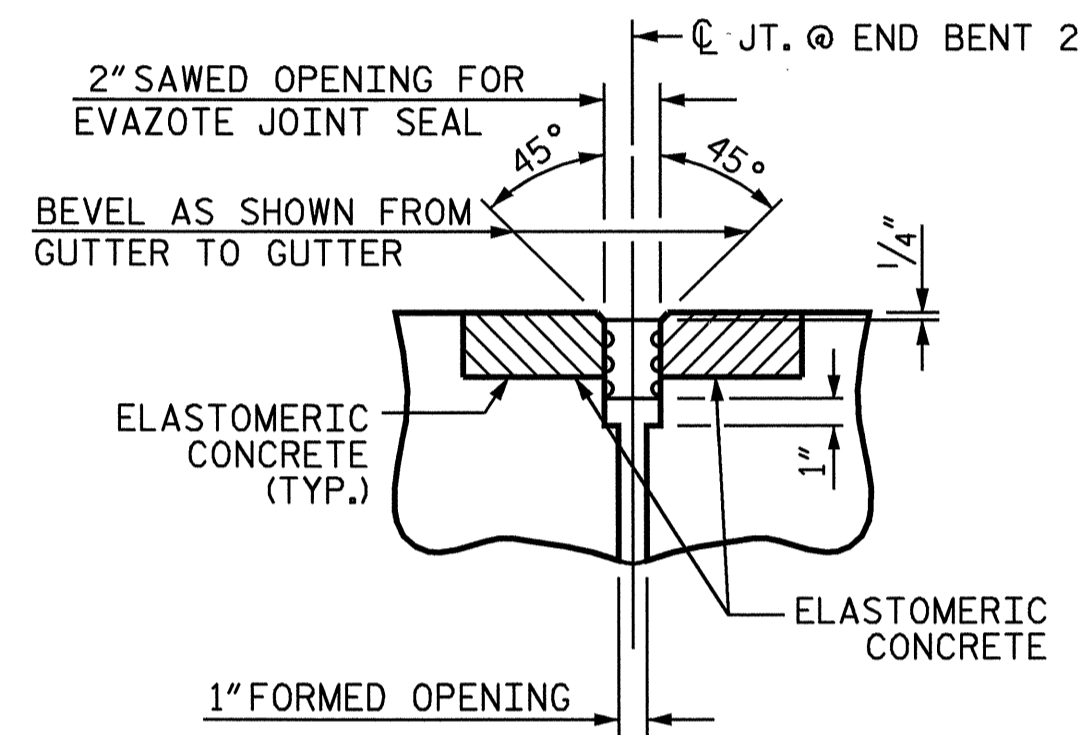
PLAN



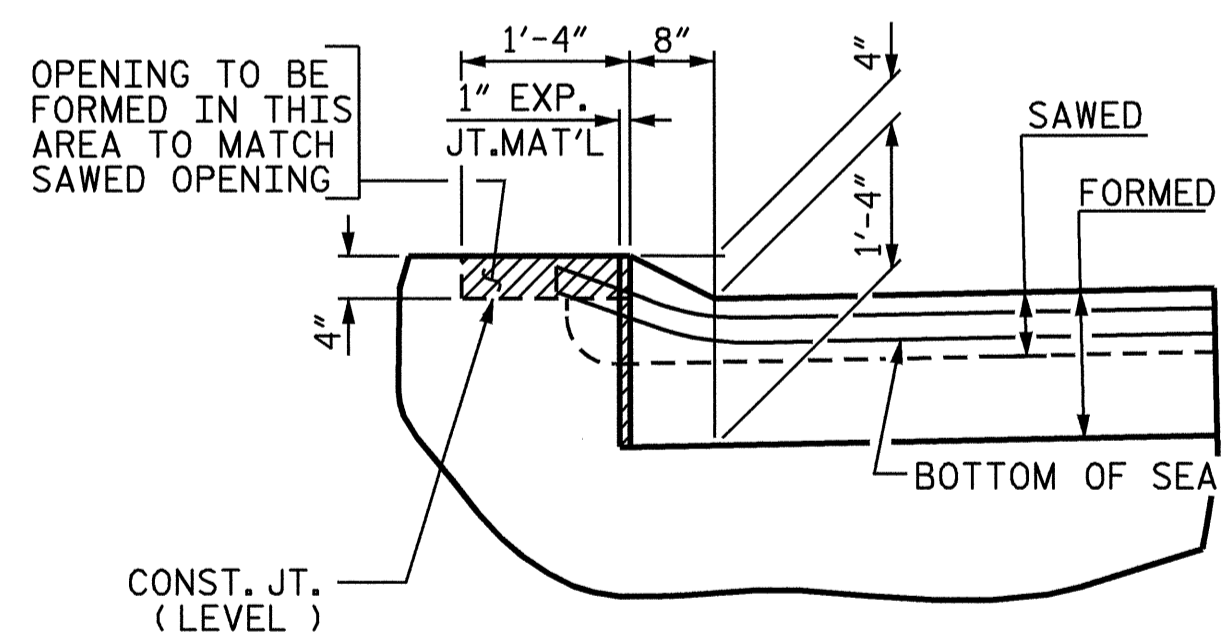
SECTION C-C
EVAZOTE JOINT SEAL @ EXPANSION END



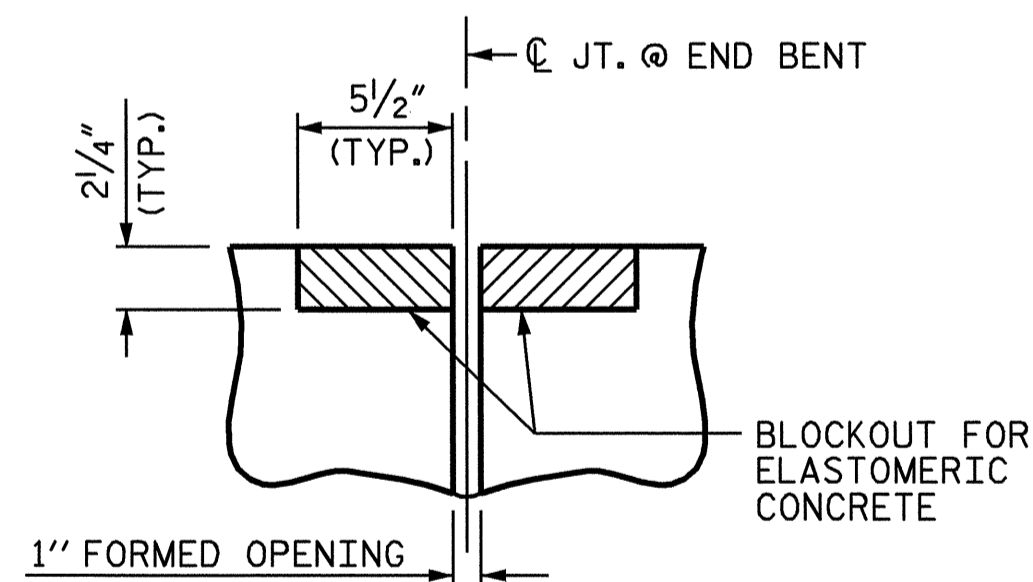
SECTION A-A



SECTION C-C
EVAZOTE JOINT SEAL @ FIXED END

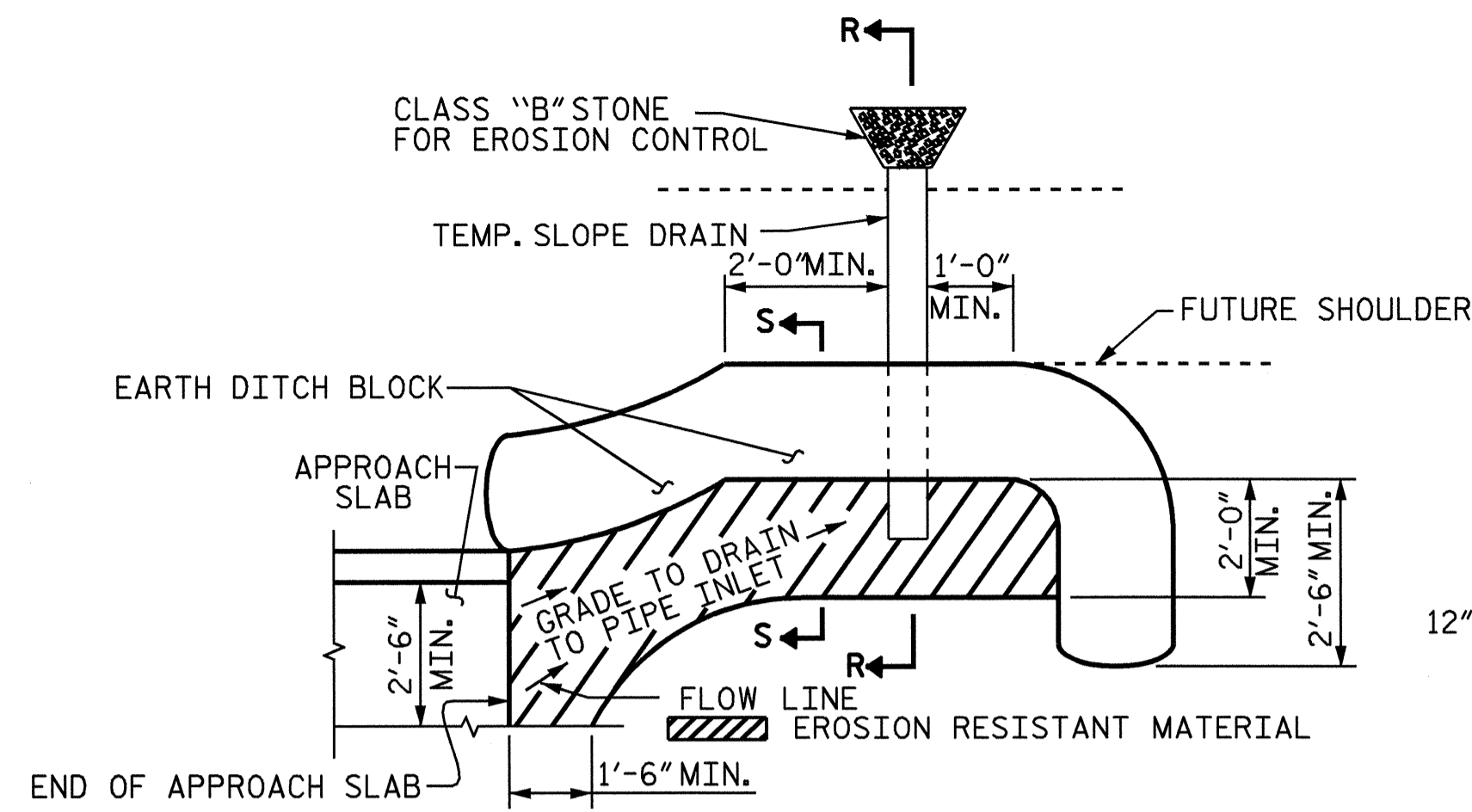


SECTION B-B



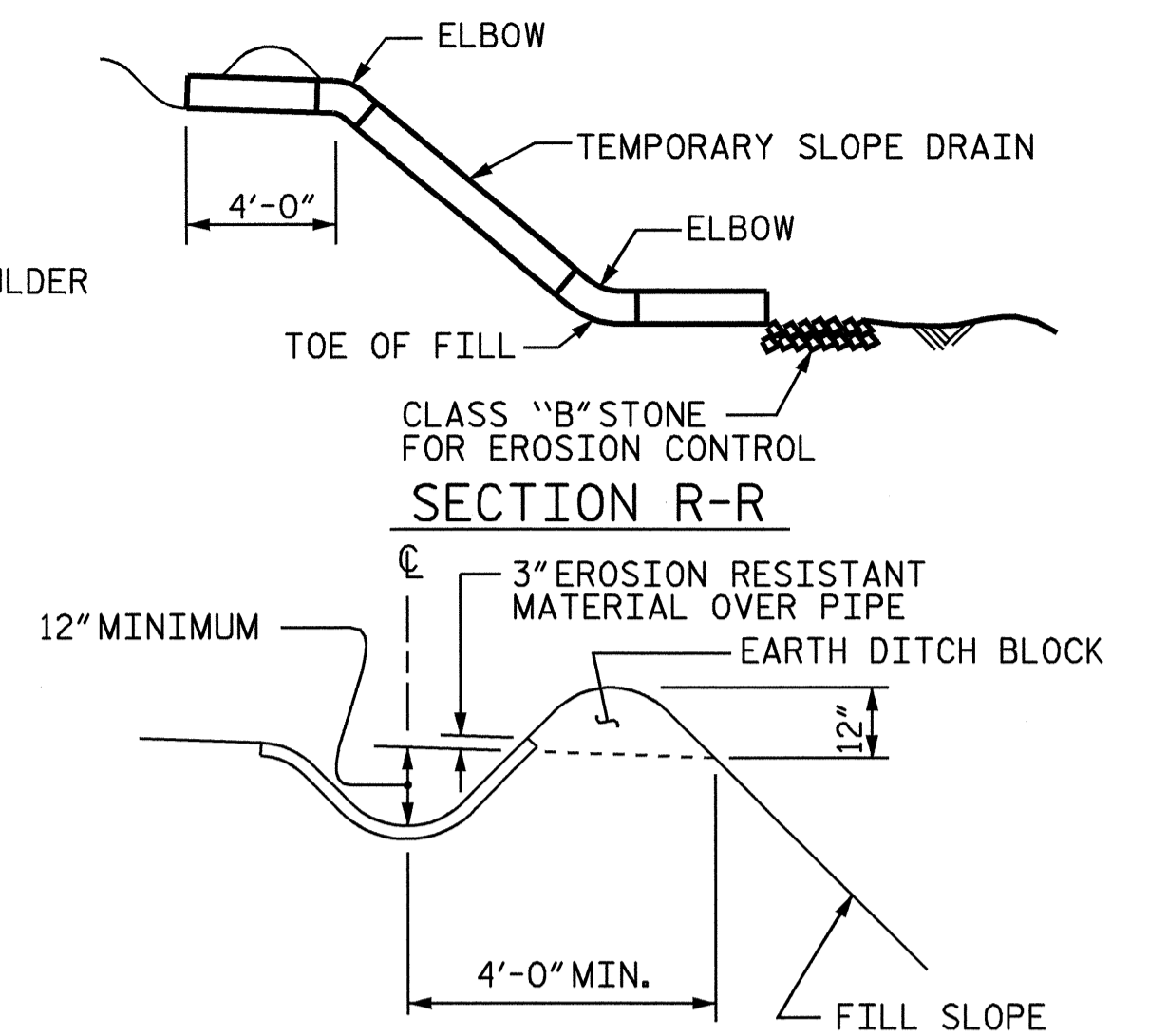
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)

JOINT SEAL DETAILS @ END BENTS



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\"/>

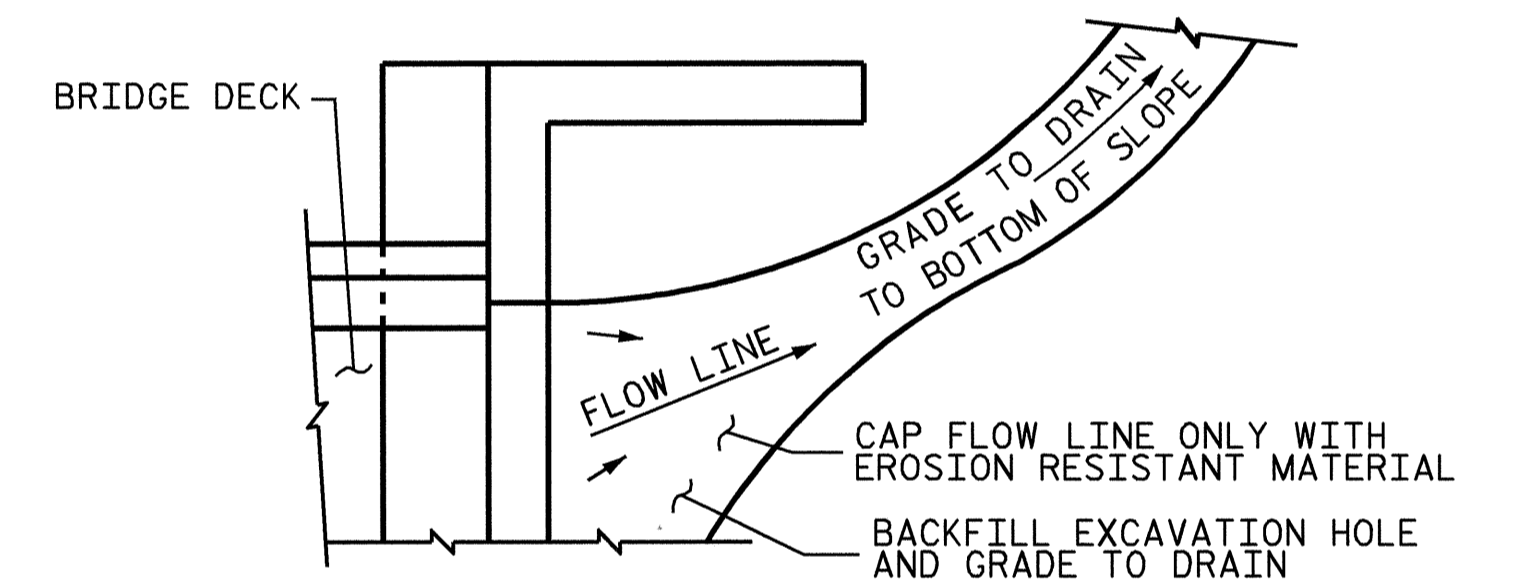
PLAN VIEW



SECTION R-R
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER 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

ELASTOMERIC CONCRETE	
END BENT NO.	(CU. FT.) *
1	5.6
2	5.6
TOTAL	11.2

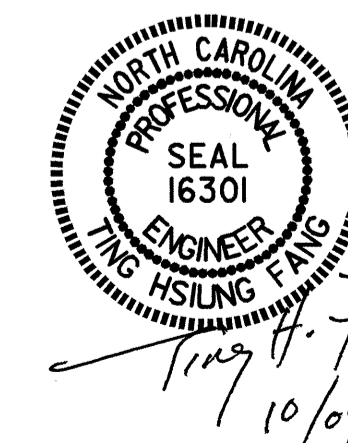
* BASED ON THE MINIMUM BLOCKOUT SHOWN

PROJECT NO. B-4330
YANCEY COUNTY
 STATION: 14+42.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH
 SLAB DETAILS



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

ASSEMBLED BY :	H.B. SHAH	DATE :	05/31/07
CHECKED BY :	T.H. FANG	DATE :	07/31/07
DRAWN BY :	FCJ 11/88	REV. 10/17/00	RWW/LES
CHECKED BY :	ARB 11/88	REV. 5/7/03	RWW/JTE
		REV. 5/1/06R	MAA/KMM

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

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

HANDRAILS AND POSTS:

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

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