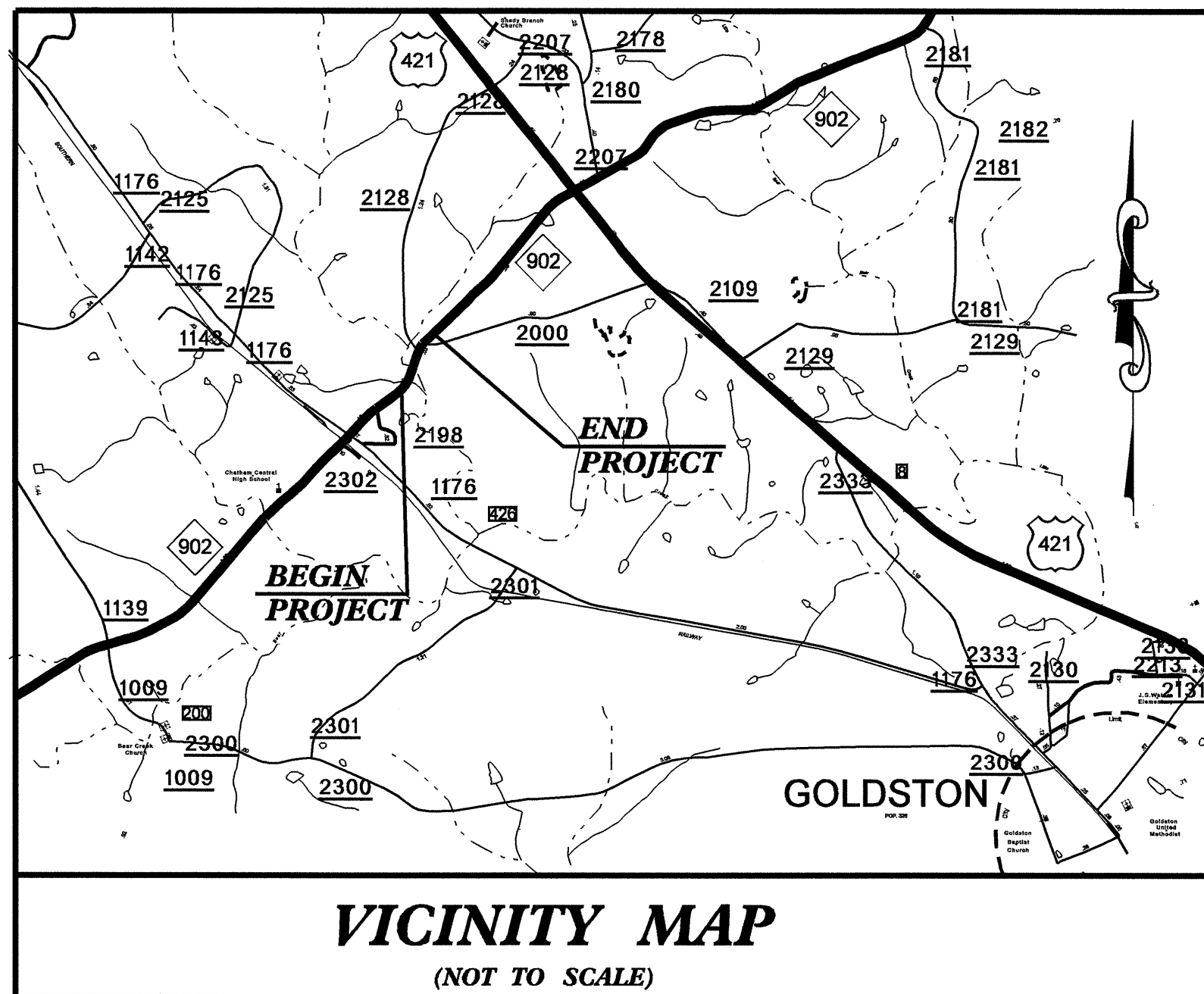


**CONTRACT: C201813 TIP PROJECT: B-4063**

**STRUCTURE**



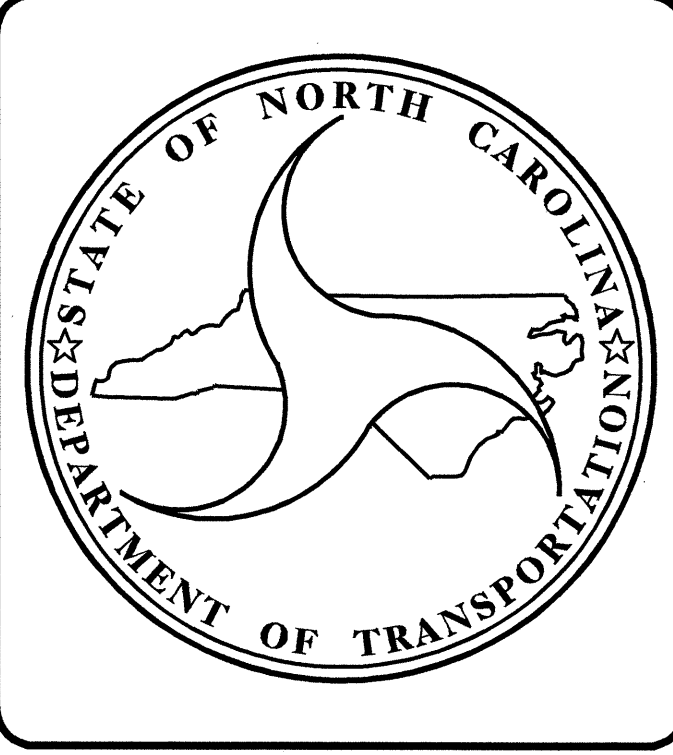
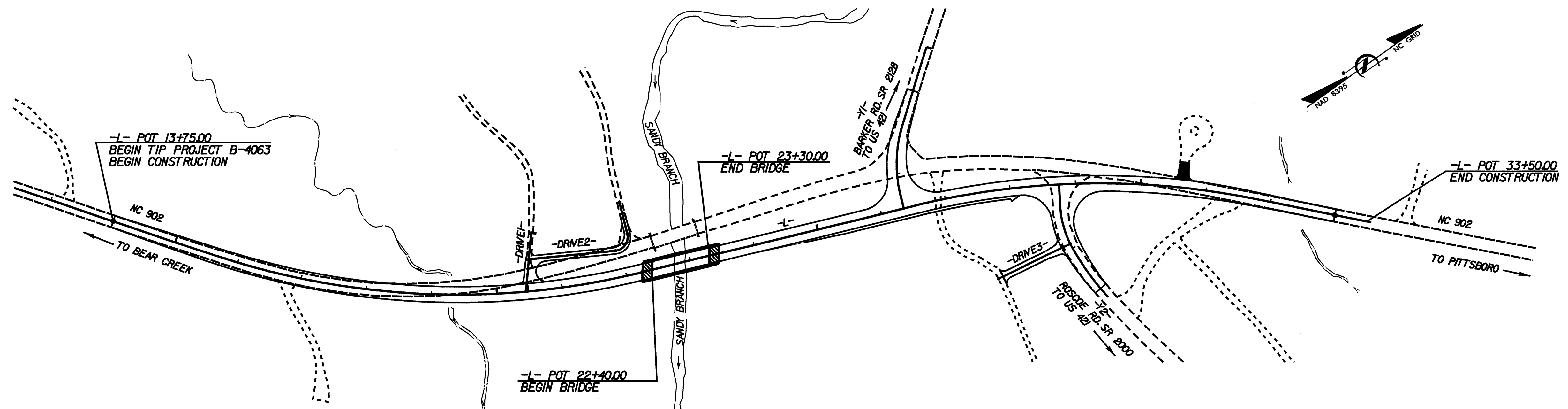
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  


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**CHATHAM COUNTY**

**LOCATION: BRIDGE NO. 20 OVER SANDY BRANCH ON NC 902**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4063		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33427.1.1	BRZ-902(3)	P.E.	
33427.2.1	BRZ-902(3)	UTIL. & RW	
33427.3.1	BRZ-902(3)	CONST.	



**DESIGN DATA**

ADT 2007 =	1725
ADT 2030 =	3350
DHV =	10 %
D =	60 %
T =	7 % *
V =	60 MPH

FUNCTION. = RURAL MAJOR COLLECTOR

\* (TTST 4% + DUALS 3%)

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4063 =	0.357 MI
LENGTH STRUCTURE TIP PROJECT B-4063 =	0.017 MI
TOTAL LENGTH TIP PROJECT B-4063 =	0.374 MI

Prepared In the Office of:

**DIVISION OF HIGHWAYS**

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2006 STANDARD SPECIFICATIONS

LETTING DATE :  APRIL 15, 2008	J. C. FRYE, P.E. PROJECT ENGINEER  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

P.E.

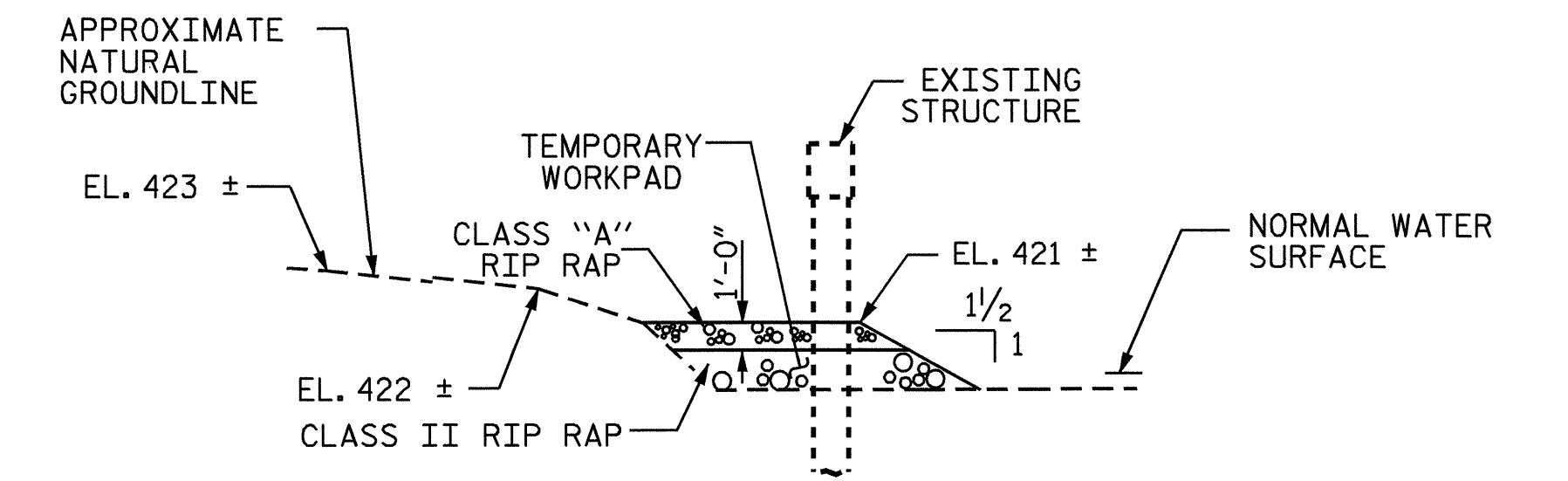
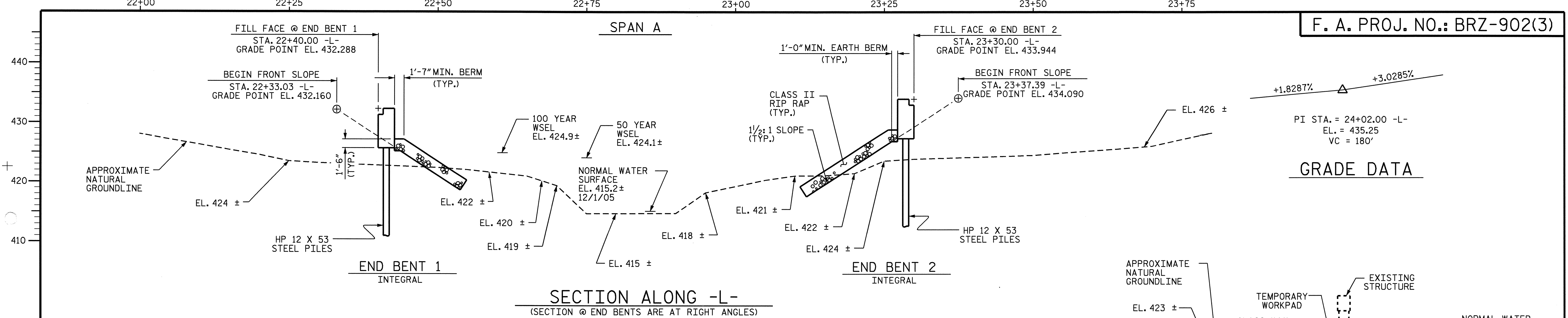
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STATE DESIGN ENGINEER  
 DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED

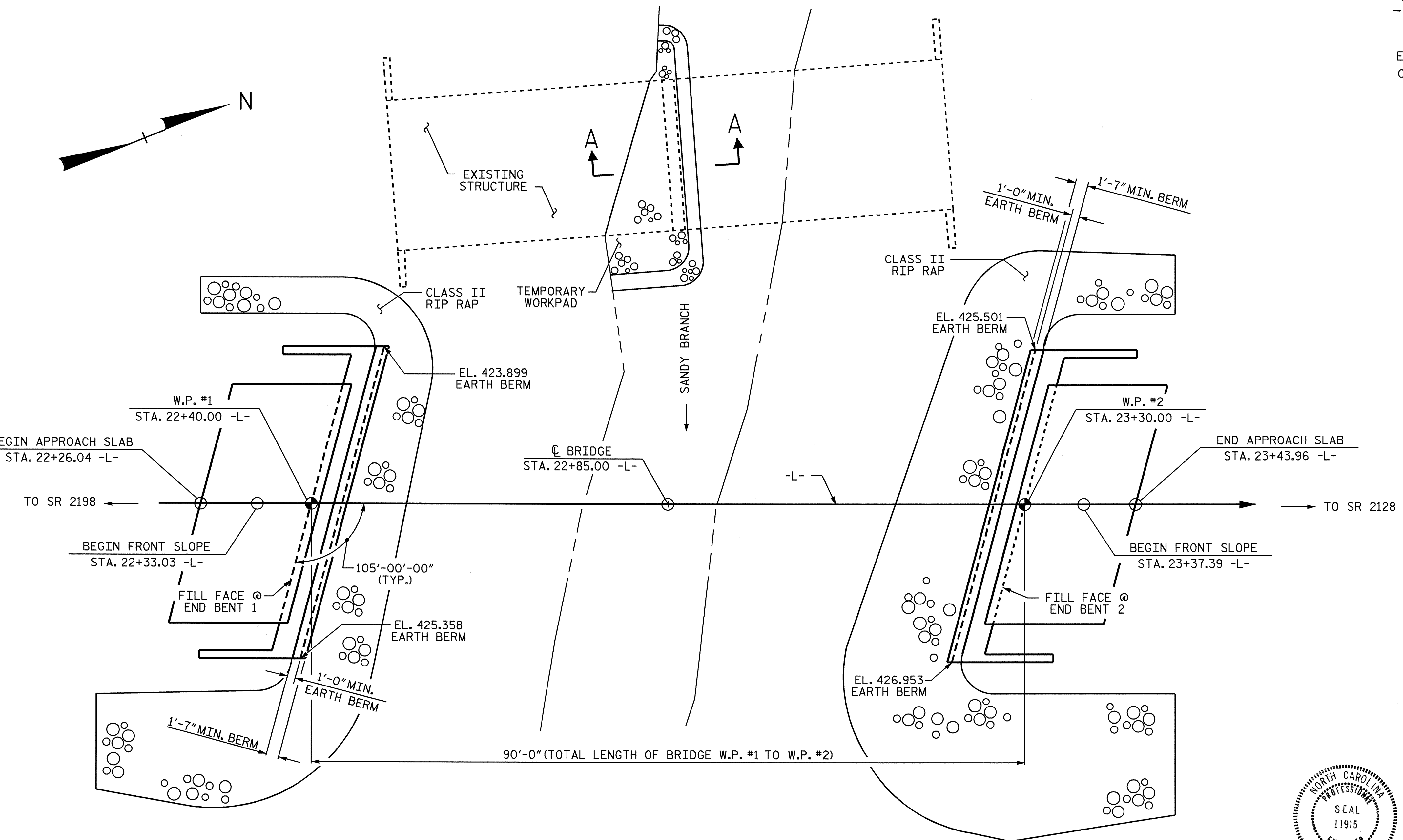
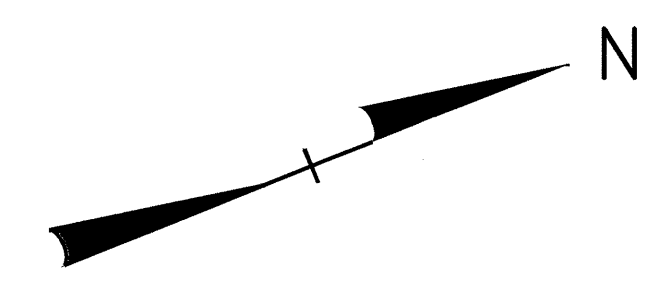
DIVISION ADMINISTRATOR

DATE



GRADE DATA

+1.8287%      +3.0285%  
 PI STA. = 24+02.00 -L-  
 EL. = 435.25  
 VC = 180'

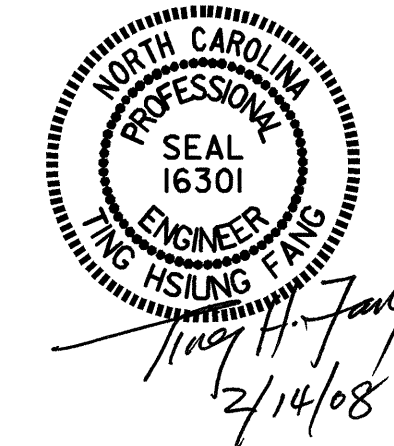
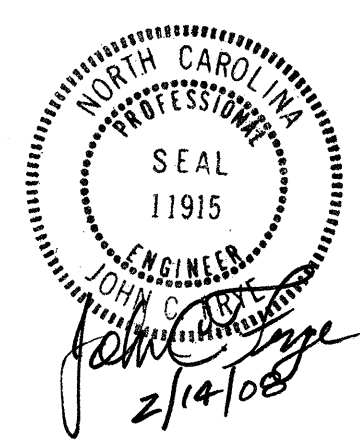


PLAN  
 (PILES NOT SHOWN FOR CLARITY)

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 1 OF 3      REPLACES BRIDGE NO. 20

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE OVER  
 SANDY BRANCH ON  
 NC 902 BETWEEN  
 SR 2198 AND SR 2128



DRAWN BY : D. G. ELY      DATE : 6/1/06  
 CHECKED BY : T. H. FANG      DATE : 6/5/06

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

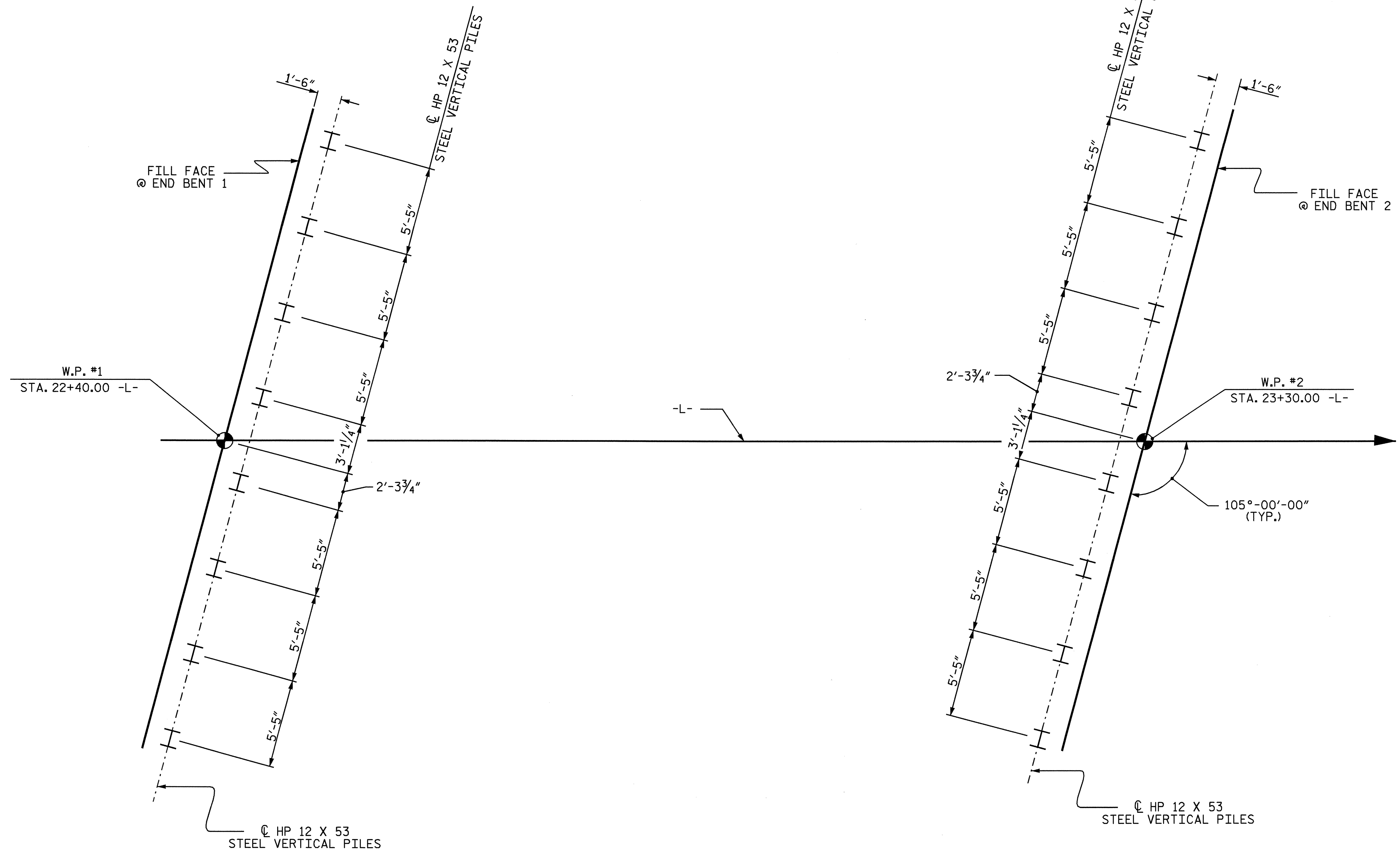
**NOTES:**

DRIVE PILES AT END BENT 1 TO A REQUIRED BEARING CAPACITY OF 120 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 1 IS 60 TONS PER PILE.

DRIVE PILES AT END BENT 2 TO A REQUIRED BEARING CAPACITY OF 120 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 2 IS 60 TONS PER PILE.

**CONSTRUCTION SEQUENCE:**

1. DRIVE STEEL PILES FOR END BENT 1 AND END BENT 2. COMPLETE POUR 1 OF END BENTS.
2. ONCE CONCRETE HAS ATTAINED THE REQUIRED STRENGTH, INSTALL NUT, WASHER AND SOLE PLATE ON ANCHOR BOLTS. ERECT GIRDERS AND ALIGN SOLE PLATES WITH HOLES IN FLANGES REGARDLESS OF TEMPERATURE AT TIME OF SETTING. SOLE PLATE SHOULD BE WELDED TO THE GIRDER FLANGE BEFORE FALSEWORK IS PLACED. ADJUST LOWER NUT TO SET GIRDER BEARING AT THE PROPER ELEVATION. INSTALL WASHER AND NUT ON TOP OF FLANGES. LEAVE TOP NUT LOOSE TO ALLOW FOR GIRDER END ROTATION AND TRANSLATION DURING DECK POURING SEQUENCE.
3. POUR BRIDGE DECK IN ACCORDANCE WITH THE POURING SEQUENCE OUTLINED ON THE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET EXCEPT THE FINAL TWO POURS CONTAINING THE ABUTMENT. NOTE THAT THE FINAL TWO POURS CONTAINING THE WING WALLS AND ABUTMENT ARE PLACED WITH THE FINAL POURS OF THE BRIDGE DECK.
4. TIGHTEN TOP NUTS 1/4 TURN PAST FINGER TIGHT. COMPLETE FINAL TWO DECK POURS WHICH INCLUDES THE ABUTMENT, DECK AND THE WING WALLS.
5. PLACE THE REINFORCED BRIDGE APPROACH FILL AND BACKFILL IN LIFTS UNTIL THE DESIRED SUBGRADE ELEVATION IS REACHED. CONSTRUCT SLEEPER SLABS.
6. POUR THE APPROACH SLABS STARTING AT THE END FURTHEST FROM THE BACK WALL AND PROGRESSING TOWARDS THE END BENT. POURS SHALL BE PERFORMED DURING THE MORNING HOURS TO MINIMIZE PLACING THE APPROACH SLAB IN TENSION FROM BRIDGE THERMAL MOVEMENTS.



END BENT 1

END BENT 2

**FOUNDATION LAYOUT**

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE  
ORIENT PILES AS SHOWN, ALL PILES ARE VERTICAL.

PROJECT NO. B-4063  
CHATHAM COUNTY  
STATION: 22+85.00 -L-

SHEET 2 OF 3



*Ting Hsiung Fang*  
2/14/08

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
BRIDGE OVER  
SANDY BRANCH ON  
NC 902 BETWEEN  
SR 2198 AND SR 2128

DRAWN BY : HARISH SHAH DATE : 09/07  
CHECKED BY : T.H. FANG DATE : 12/07/07

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



**NOTES**

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING. EXCEPT THE GIRDERS HAVE BEEN DESIGNED FOR HS25.

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

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

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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

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.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 2 SPANS AT 35'-3" 20'-0" CLEAR ROADWAY WIDTH AND CONCRETE DECK ON STEEL I-BEAMS; END BENTS: RC CAP ON TIMBER PILES, INT. BENT: RC POST & BEAM AND LOCATED 45 FEET UPSTREAM 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.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR 'REMOVAL OF EXISTING STRUCTURE AT STATION 22+85.00 -L-.'

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

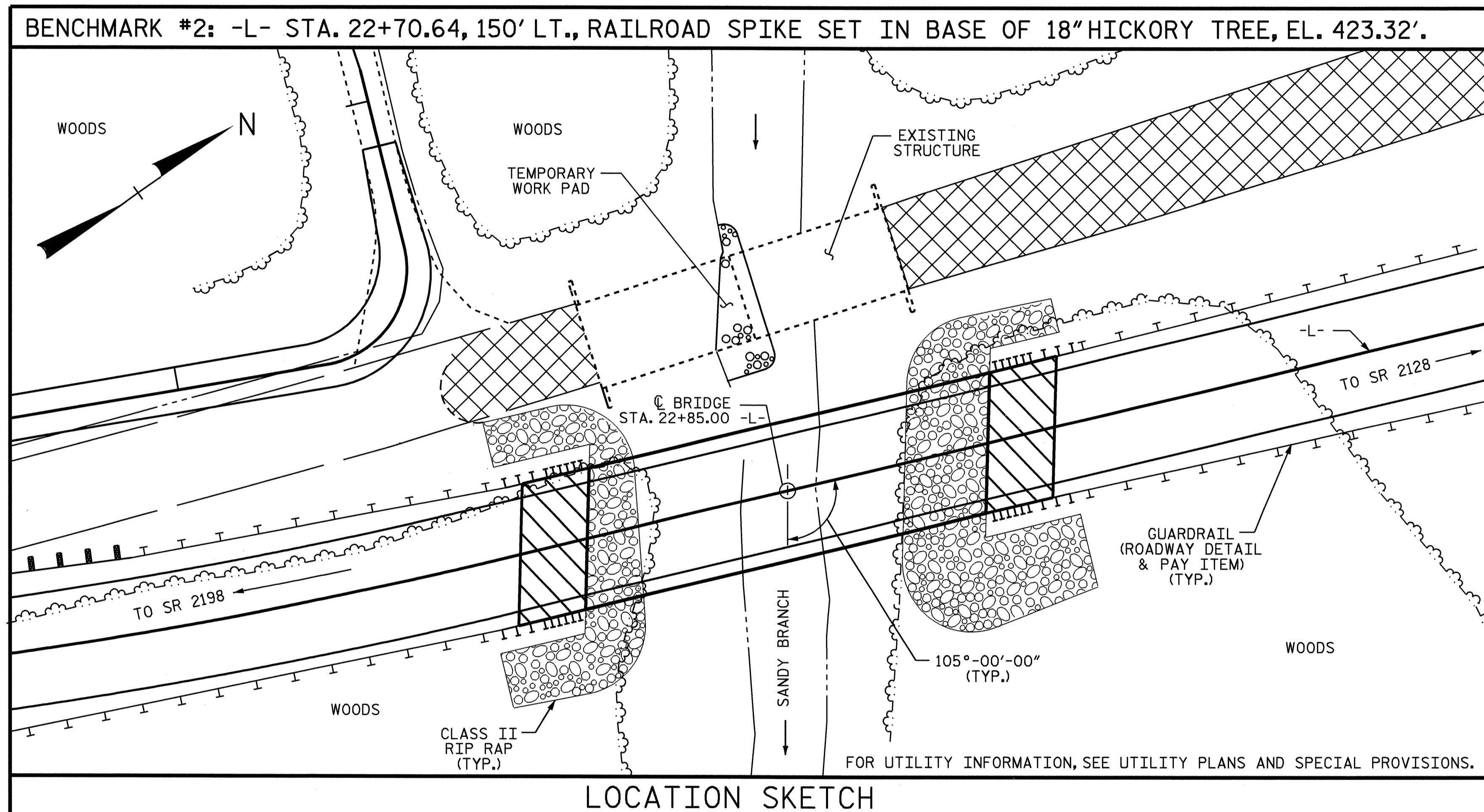
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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.

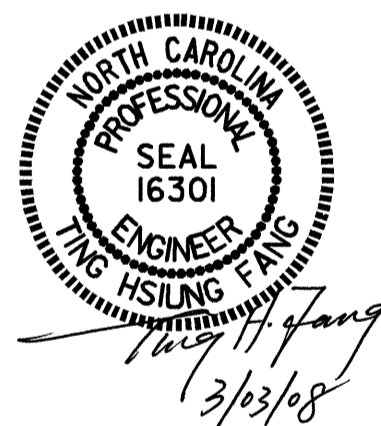
AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 22+85.00 -L-.



HYDRAULIC DATA	
DESIGN DISCHARGE	= 1400 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 424.1
DRAINAGE AREA	= 3.7 SQ. MI.
BASIC DISCHARGE (Q100)	= 1700 CFS
BASIC HIGH WATER ELEVATION	= 424.9

OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 4700+ CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 YRS.+
OVERTOPPING FLOOD ELEVATION	= 430.0



**TOTAL BILL OF MATERIAL**

	CONST., MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	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. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	APPROX. LBS.	NO.	LIN. FT.	LIN. FT.	TON	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE			2,935	3,112		LUMP SUM		78,100			176.55			LUMP SUM
END BENT 1					15.6		2,289		8	120		100	110	
END BENT 2					15.6		2,289		8	160		162	180	
TOTAL	LUMP SUM	LUMP SUM	2,935	3,112	31.2	LUMP SUM	4,578	78,100	16	280	176.55	262	290	LUMP SUM

DRAWN BY : D. G. ELY DATE : 5/31/06  
 CHECKED BY : T. H. FANG DATE : 6/5/06

03-MAR-2008 12:04  
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 qtnguyen

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-3
<b>GENERAL DRAWING</b>						
<b>BRIDGE OVER SANDY BRANCH ON NC 902 BETWEEN SR 2198 AND SR 2128</b>						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			25
2			4			



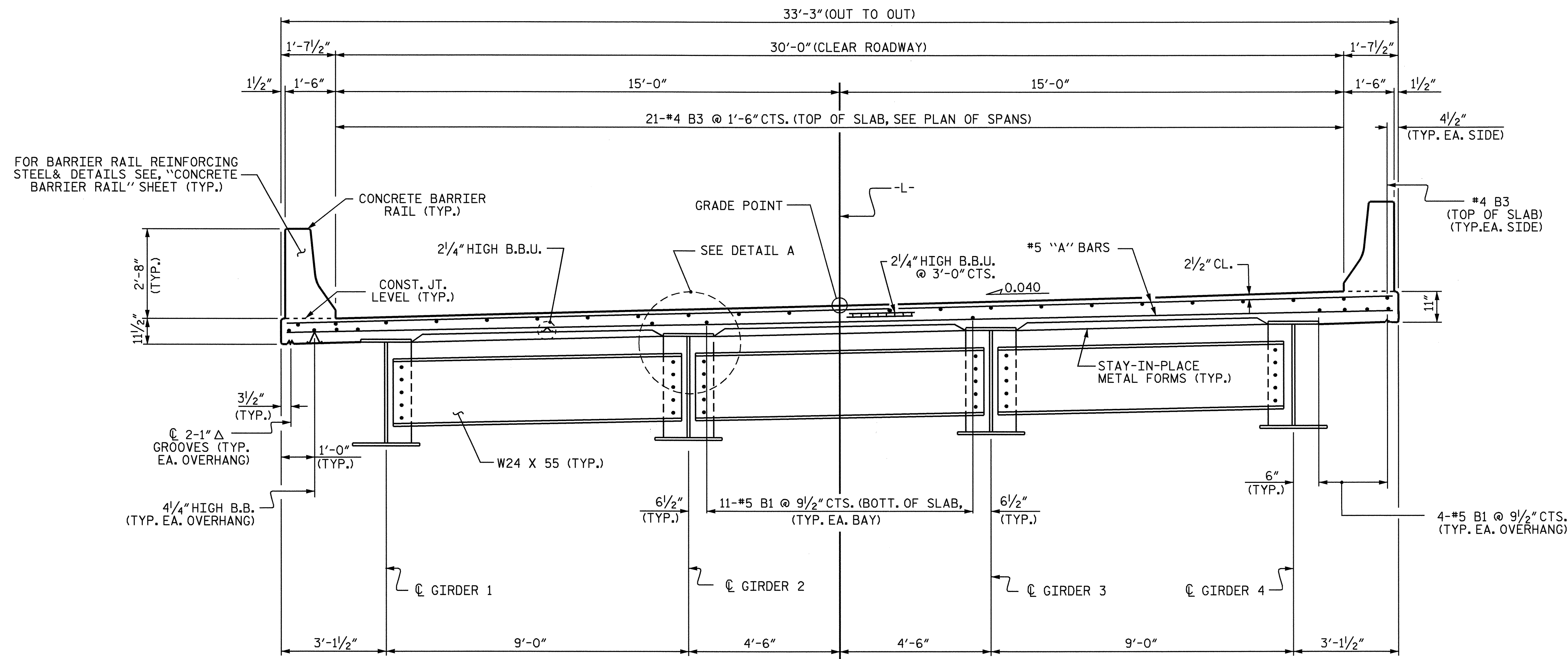


**NOTES:**

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.

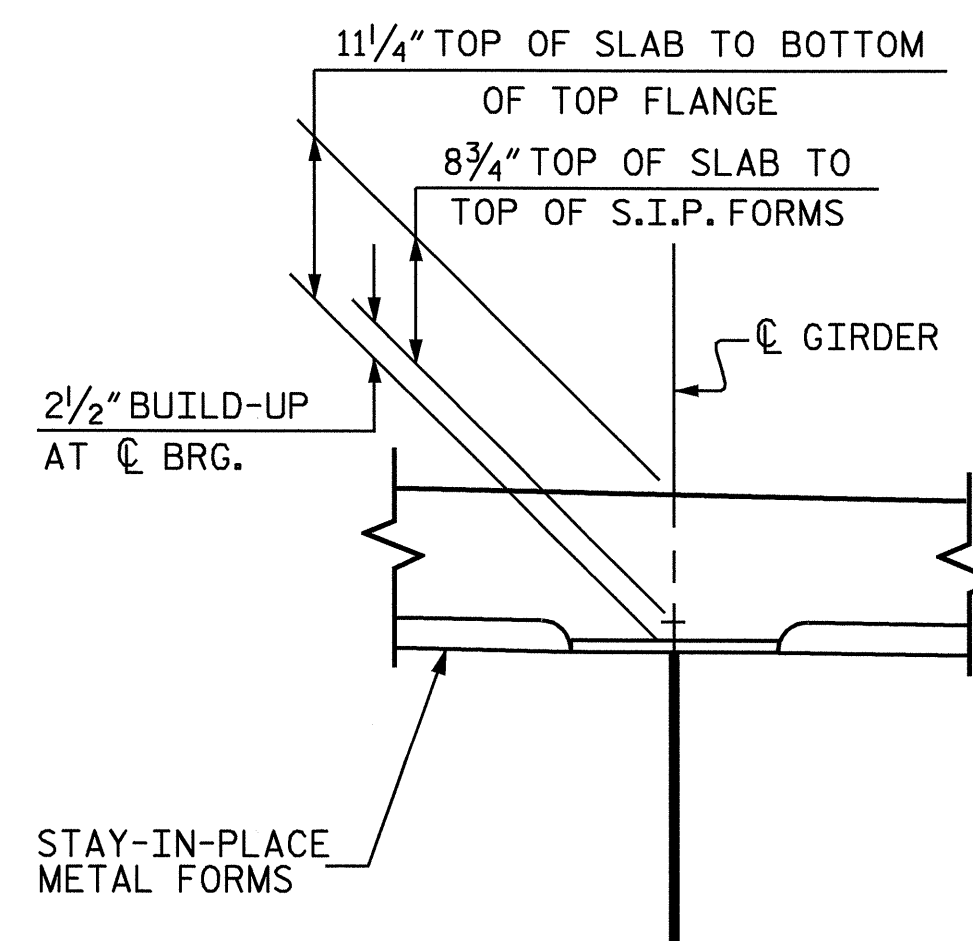
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

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



**TYPICAL SECTION**

(SHOWING INTERMEDIATE DIAPHRAGMS)



**DETAIL A**

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION

DRAWN BY : J.L. WALTON DATE : 7/07  
 CHECKED BY : D.G. ELY DATE : 8/07

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 atnquyen

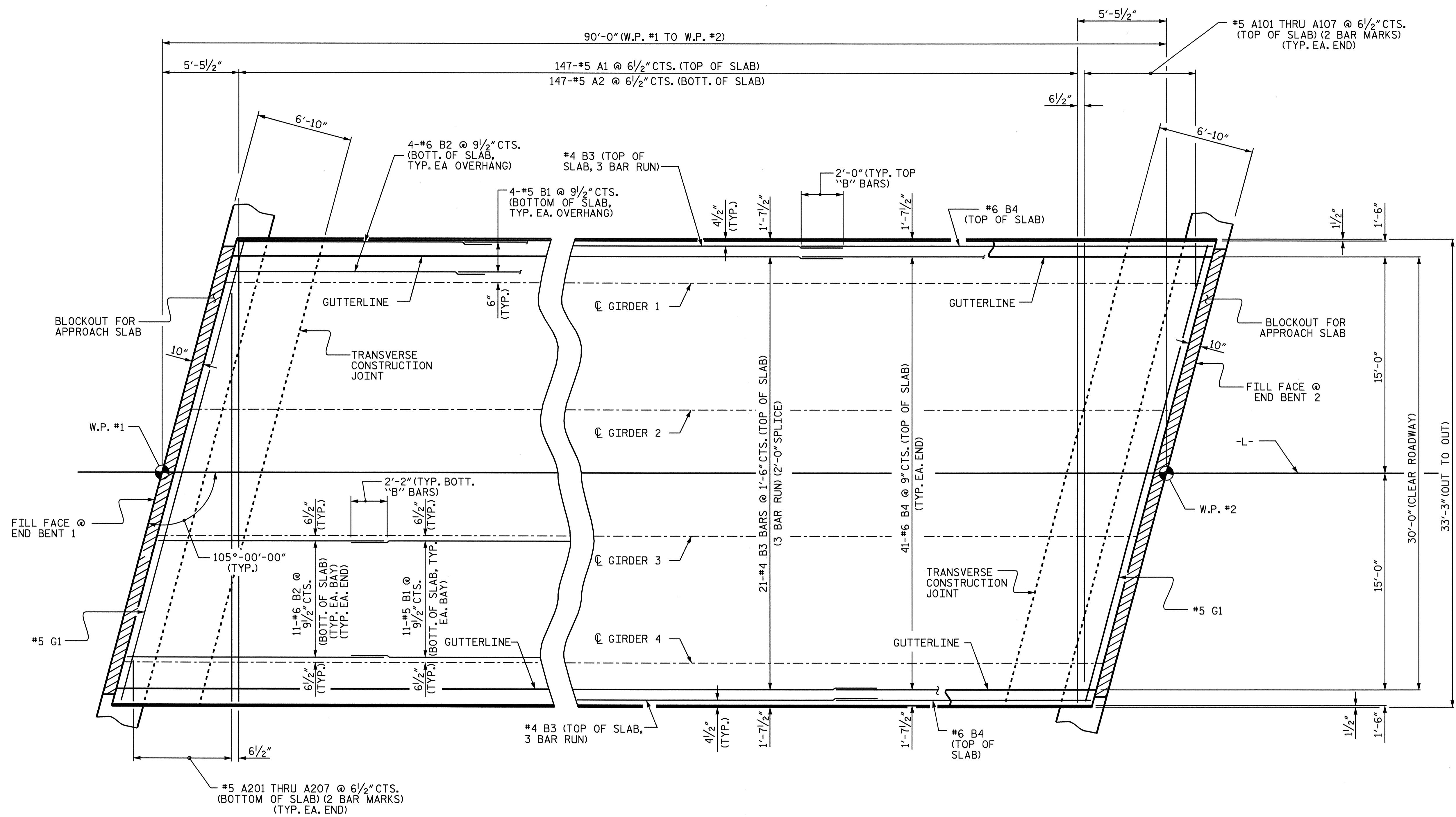
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			23



**NOTES :**

FOR REINFORCING STEEL IN ABUTMENTS, SEE "PLAN OF SPAN DETAILS" SHEETS.

FOR BARRIER RAIL REINFORCING STEEL AND DETAILS, SEE "CONCRETE BARRIER RAIL" SHEET.



PART - BOTTOM SLAB

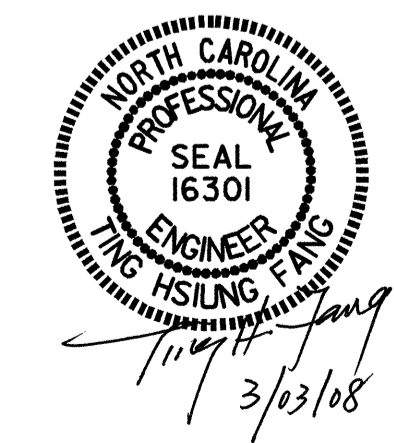
PART - TOP SLAB

**PLAN OF SPAN A**

(SEE CONCRETE BARRIER RAIL DETAILS FOR "S" BARS IN DECK SLAB)

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 1 OF 4



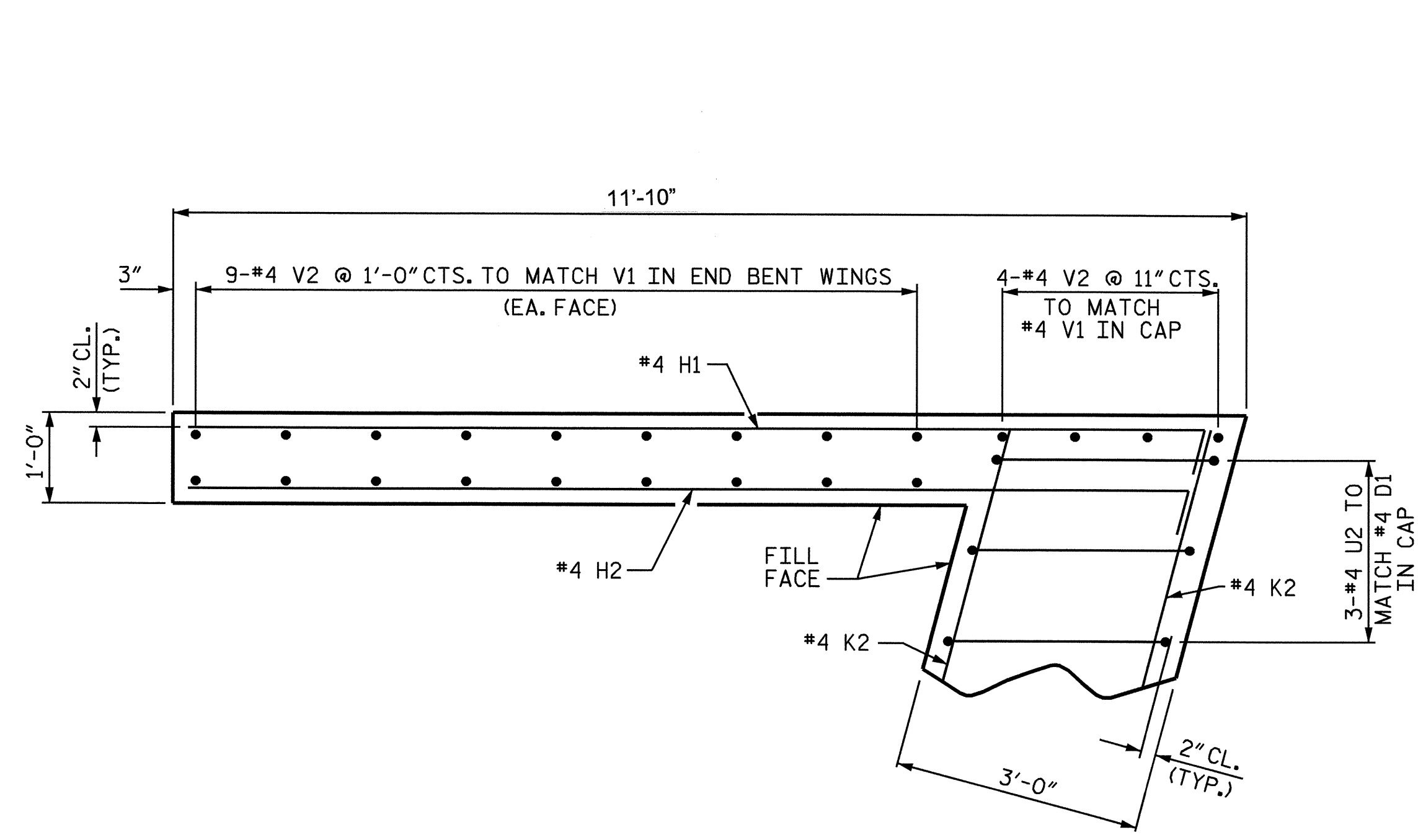
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DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUPERSTRUCTURE					
PLAN OF SPAN					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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					23

DRAWN BY : J.L. WALTON DATE : 7/07  
 CHECKED BY : D.G. ELY DATE : 8/07

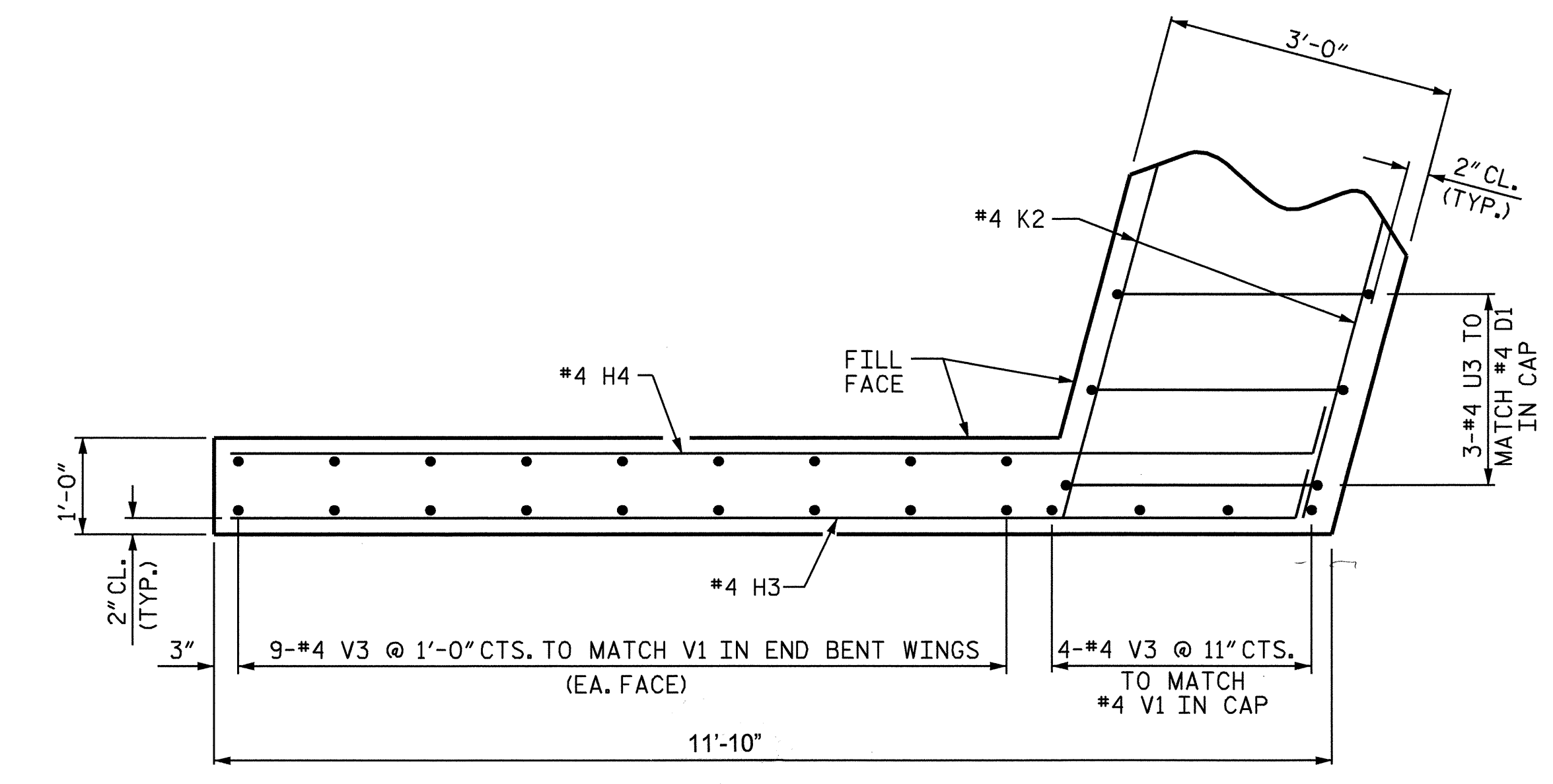
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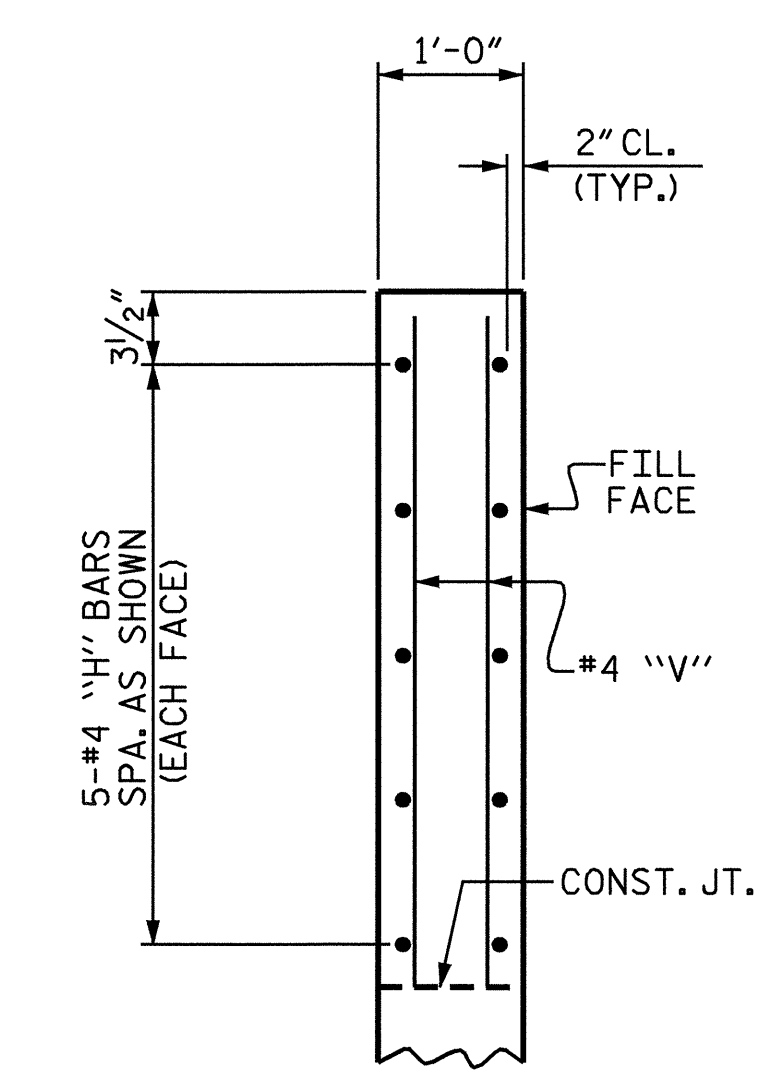




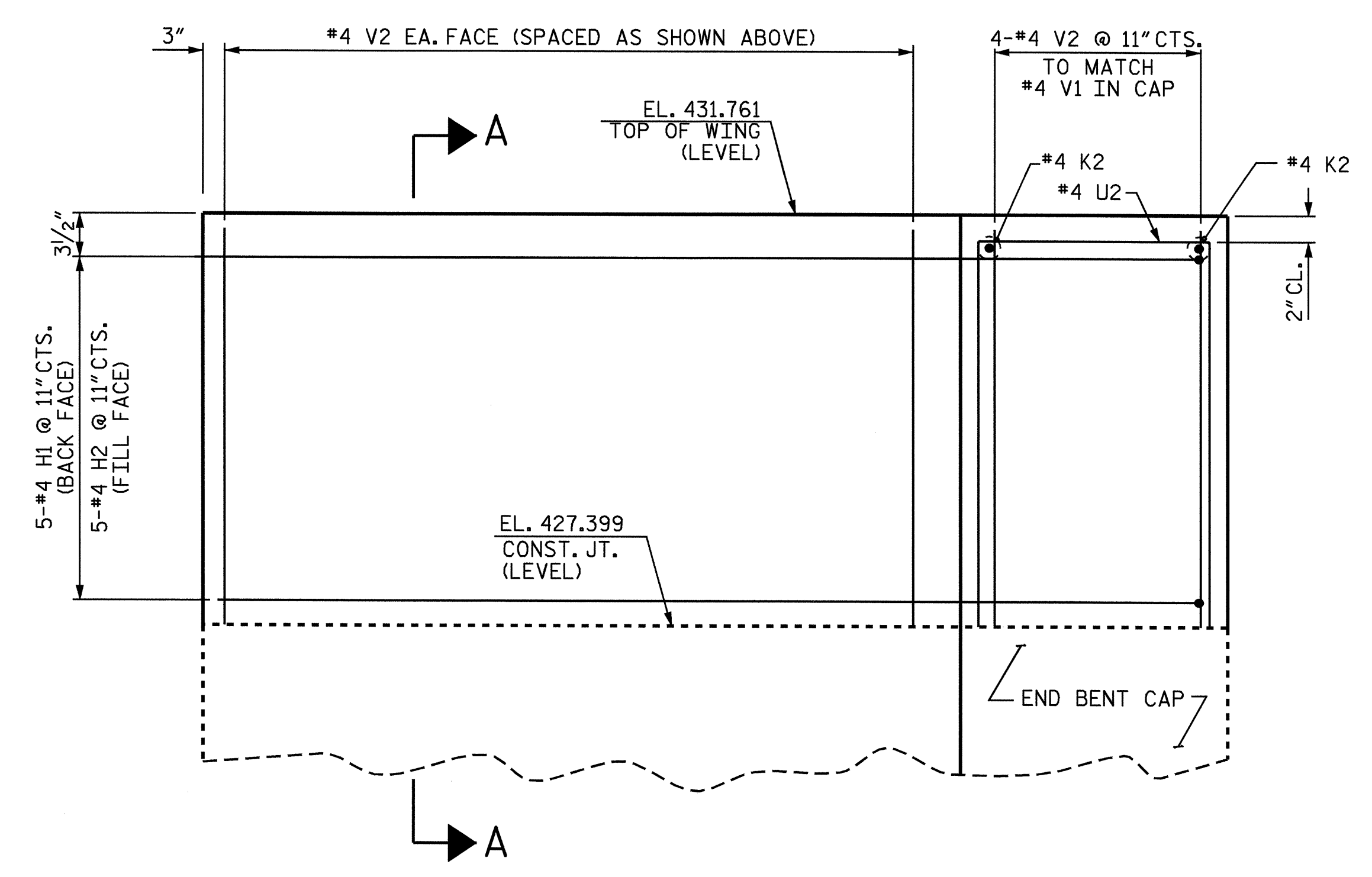
PLAN (W1)



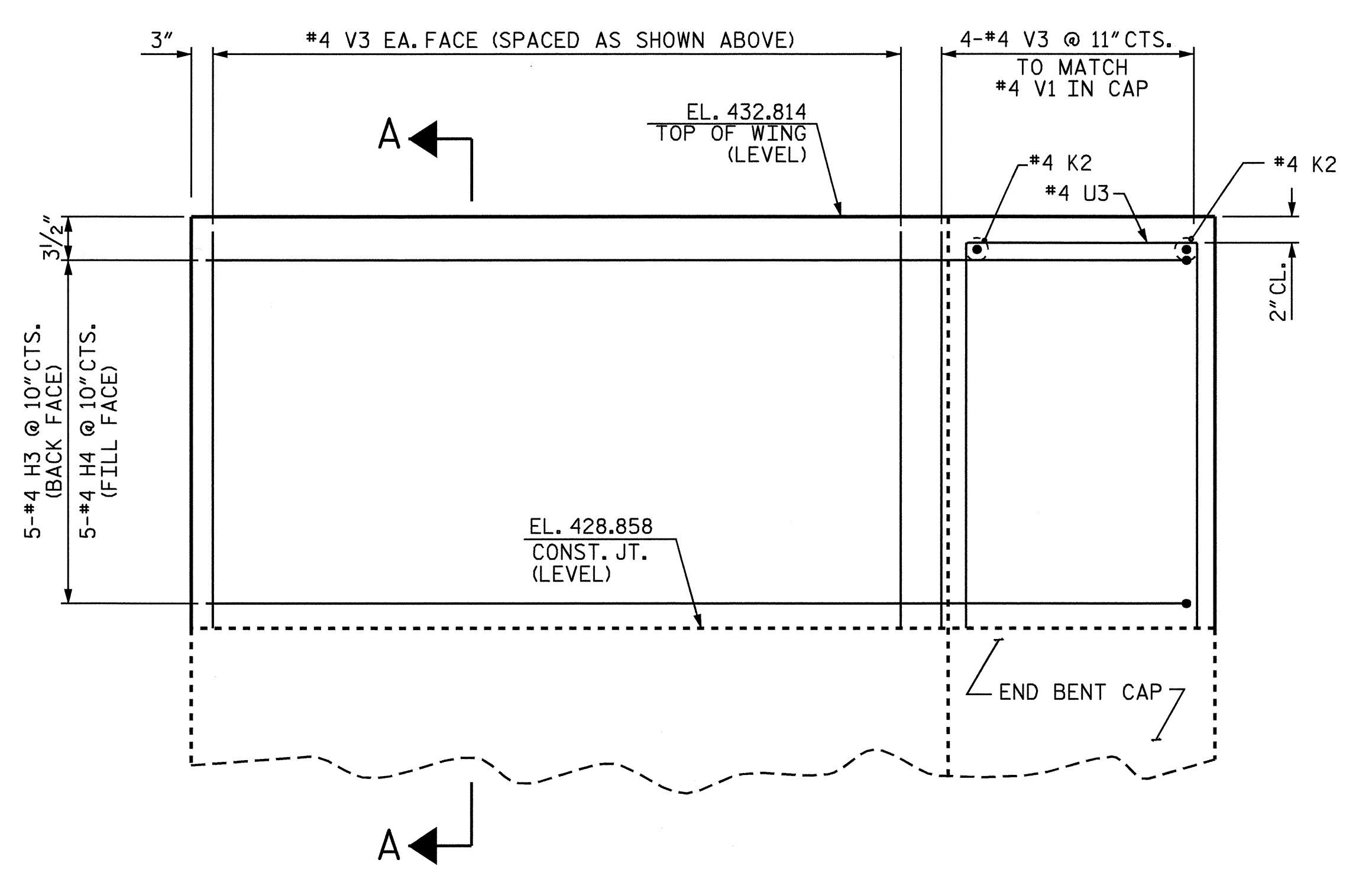
PLAN (W2)



SECTION A-A



ELEVATION (W1)



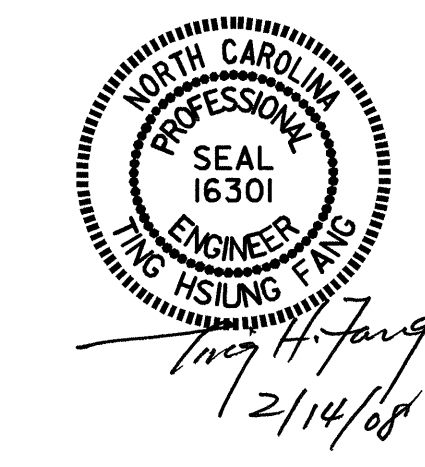
ELEVATION (W2)

ABUTMENT WINGS AT END BENT 1

FOR END BENT REINFORCEMENT STEEL AND DETAILS, SEE "SUBSTRUCTURE END BENT 1" SHEETS.

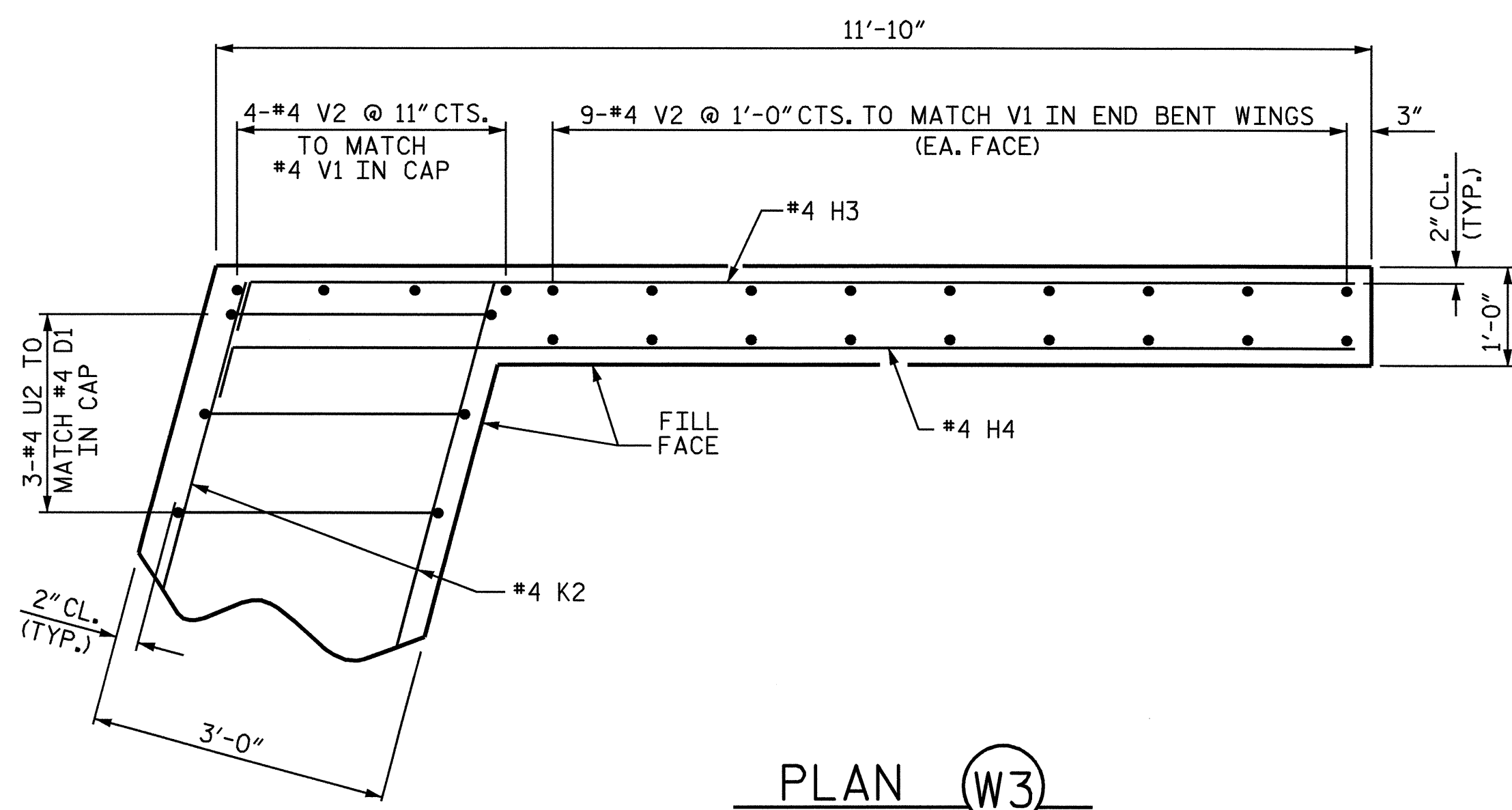
PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-  
 SHEET 3 OF 4

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

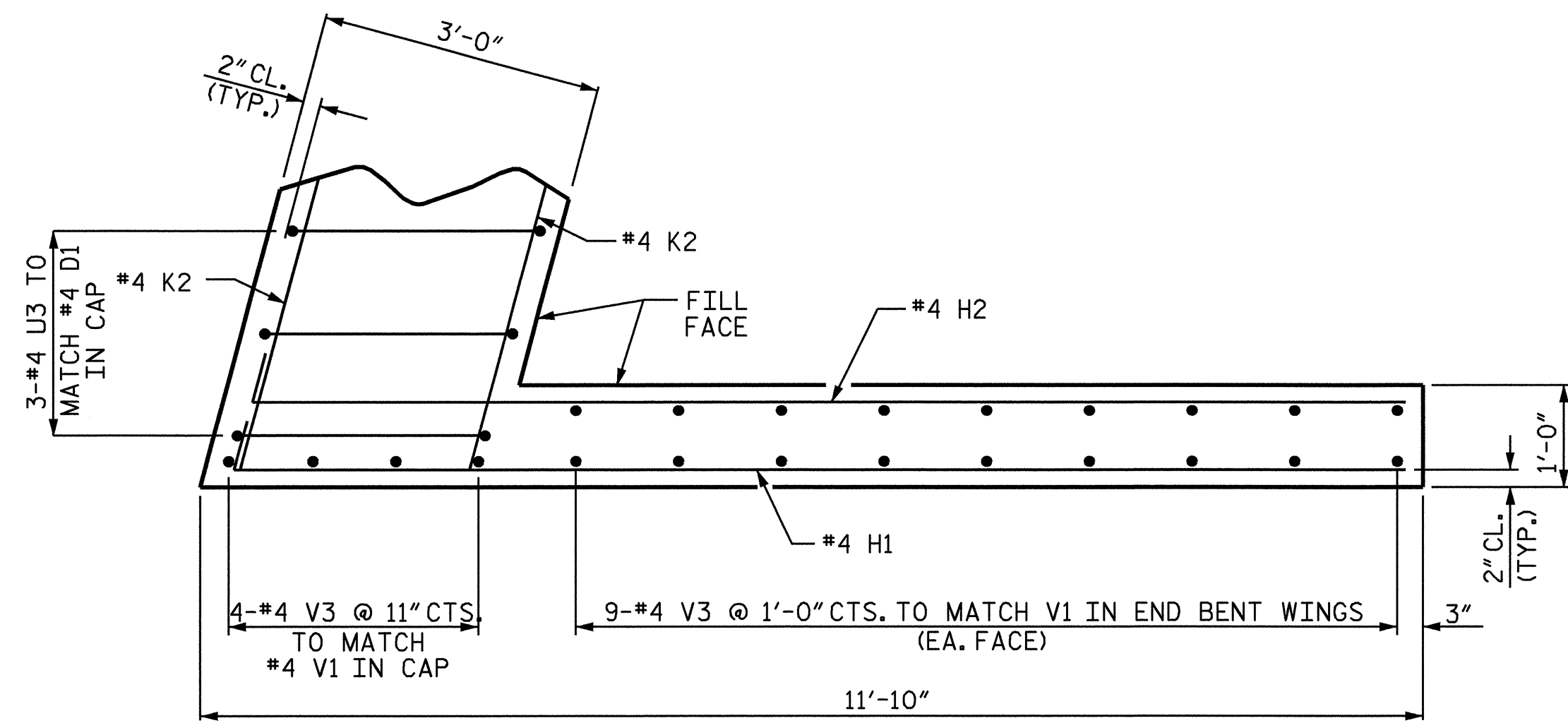


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 CHECKED BY: D.G. ELY DATE: 8/07

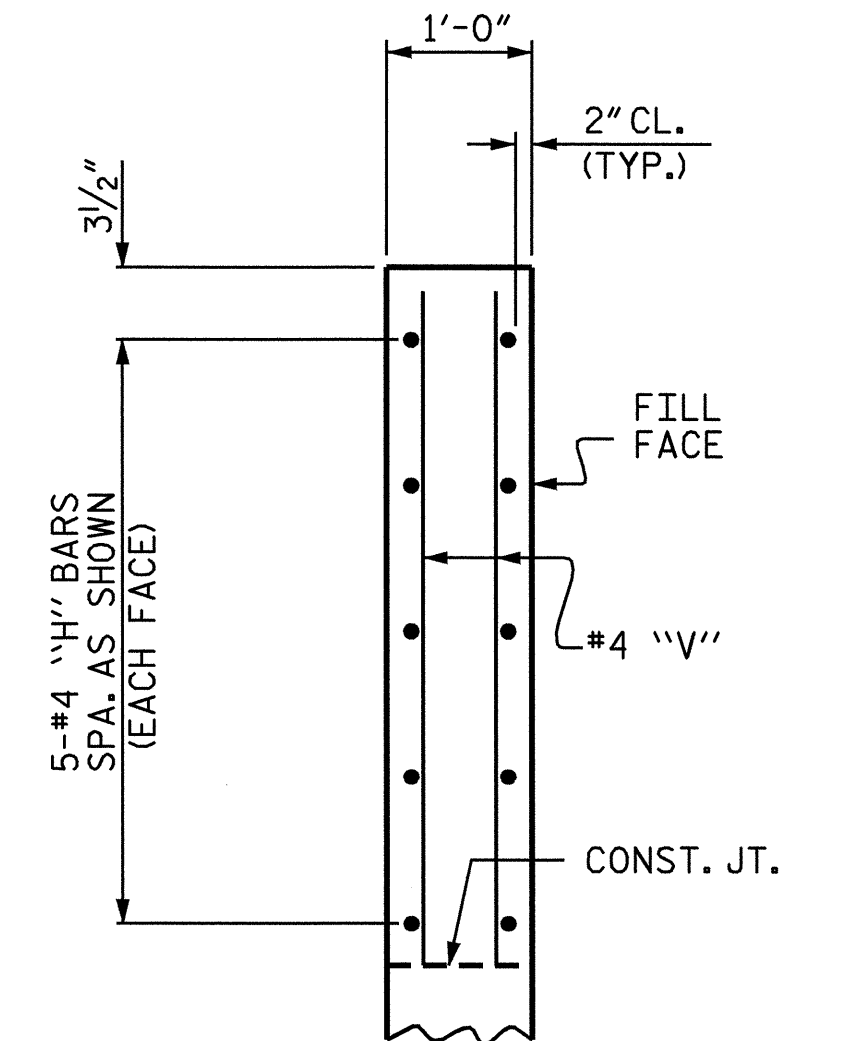
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 23
2			4			



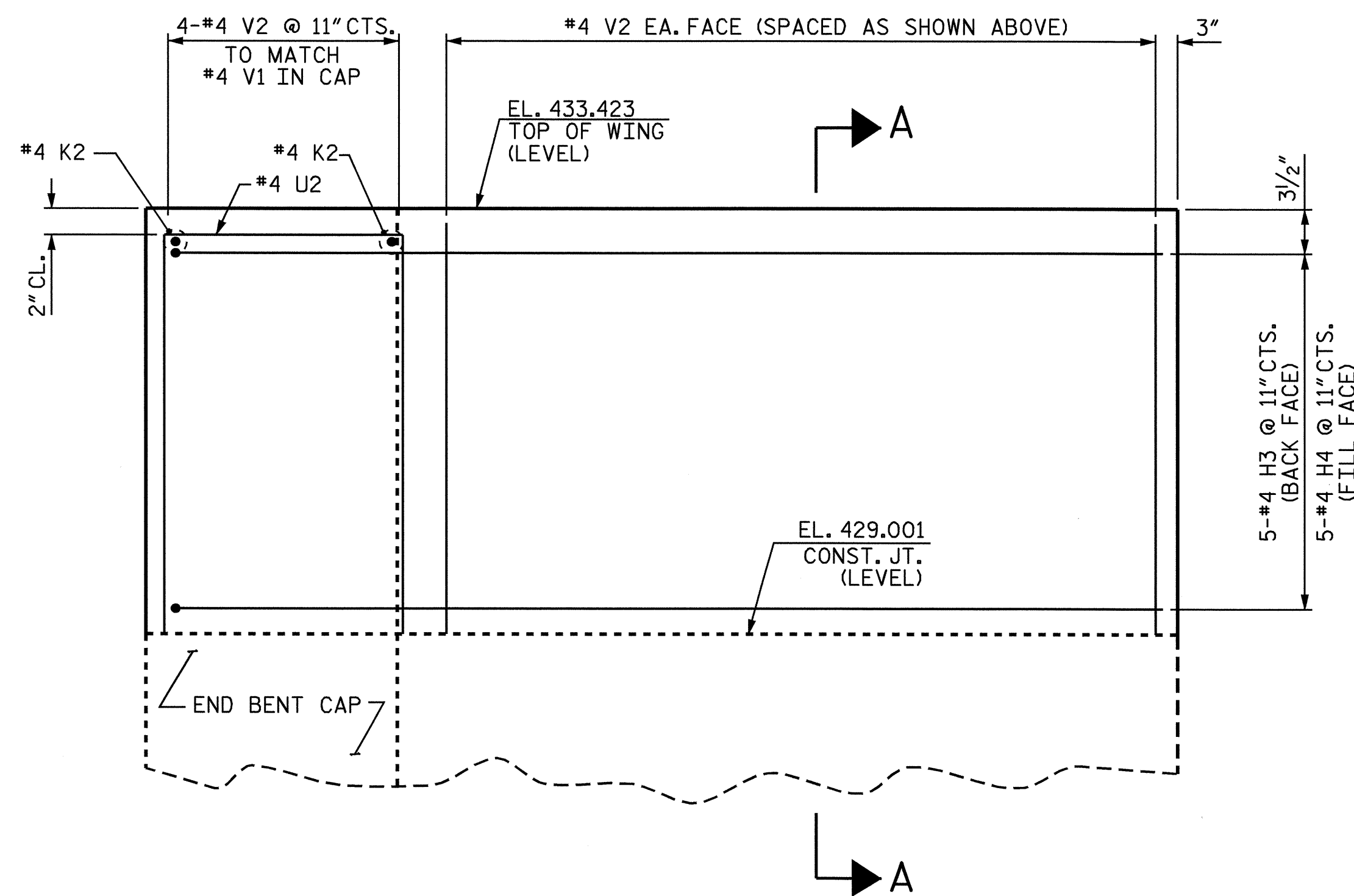
PLAN (W3)



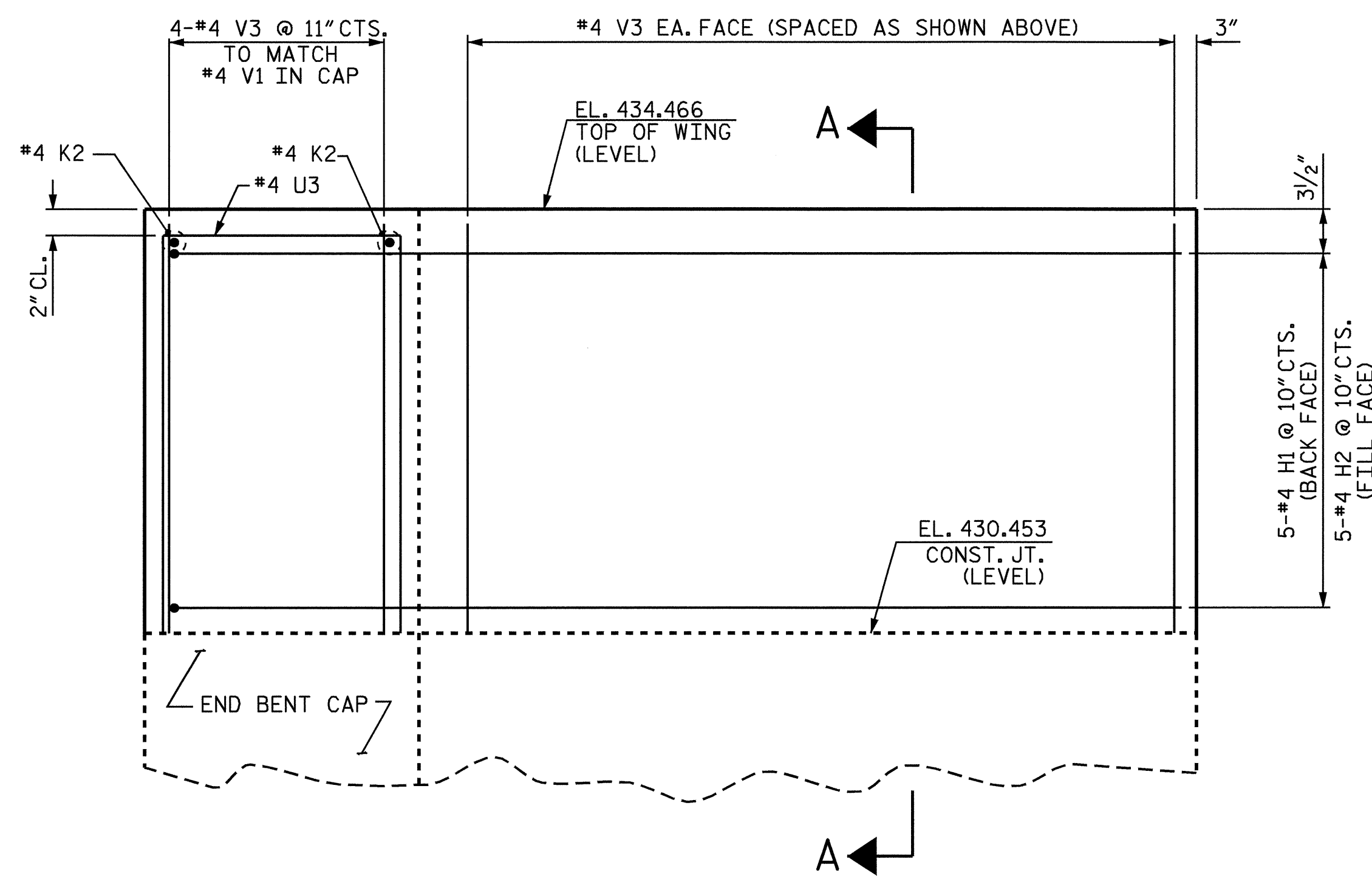
PLAN (W4)



SECTION A-A



ELEVATION (W3)



ELEVATION (W4)

ABUTMENT WINGS AT END BENT 2

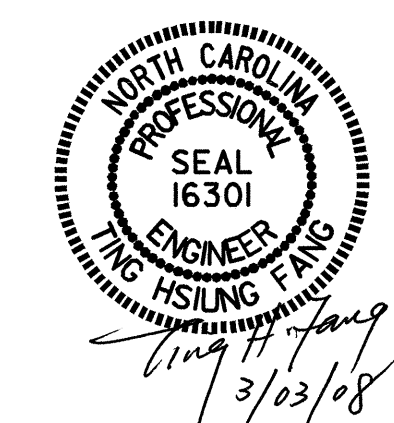
FOR END BENT REINFORCEMENT STEEL AND DETAILS, SEE "SUBSTRUCTURE END BENT #2" SHEETS.

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

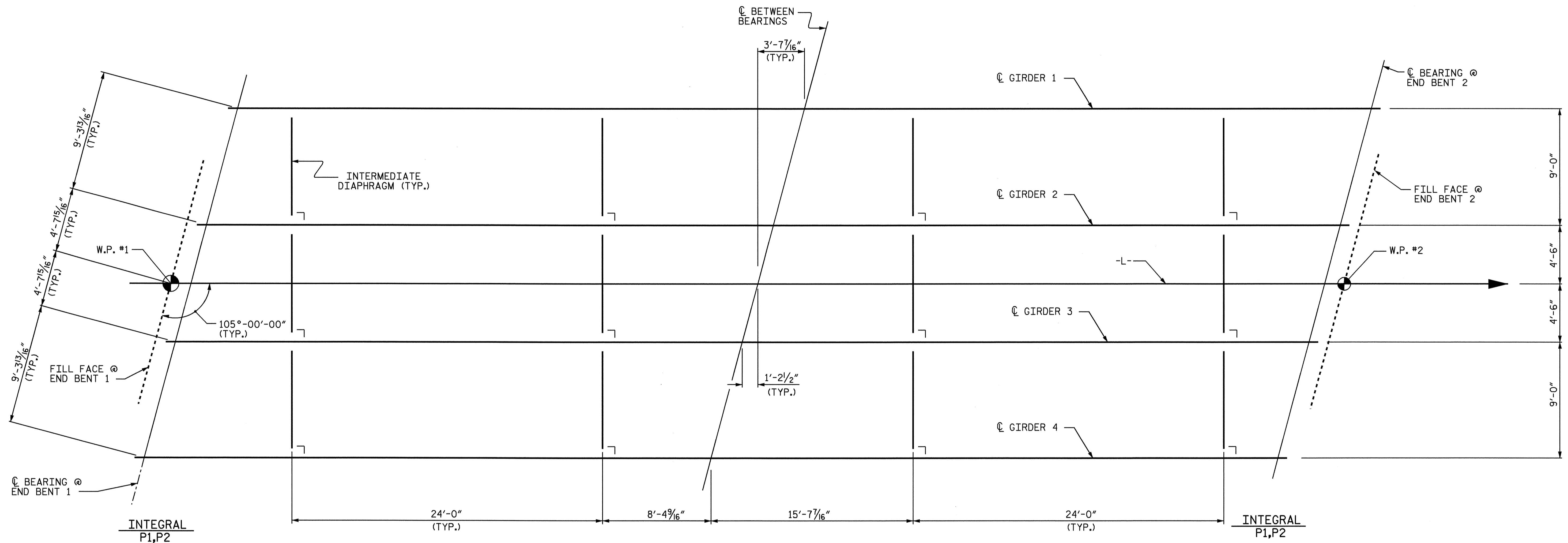
SUPERSTRUCTURE  
 PLAN OF SPAN  
 DETAILS



DRAWN BY: J.L. WALTON DATE: 7/07  
 CHECKED BY: D.G. ELY DATE: 8/07

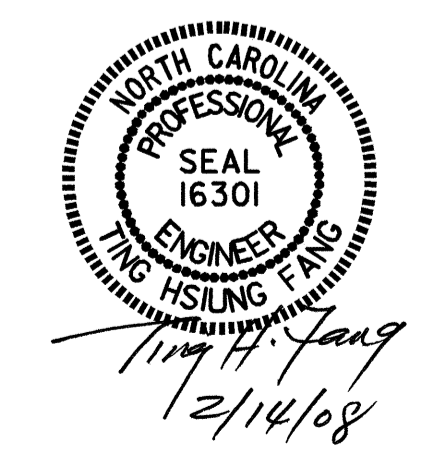
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-9
1			3		TOTAL SHEETS
2			4		23





FRAMING PLAN

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
  
 FRAMING PLAN

DRAWN BY : J.L. WALTON DATE : 7/07  
 CHECKED BY : D.G. ELY DATE : 8/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			23

14-FEB-2008 15:48  
 Z:\Structures\Final Plans\b4063.sd\_fp\_01.dgn  
 jwalton

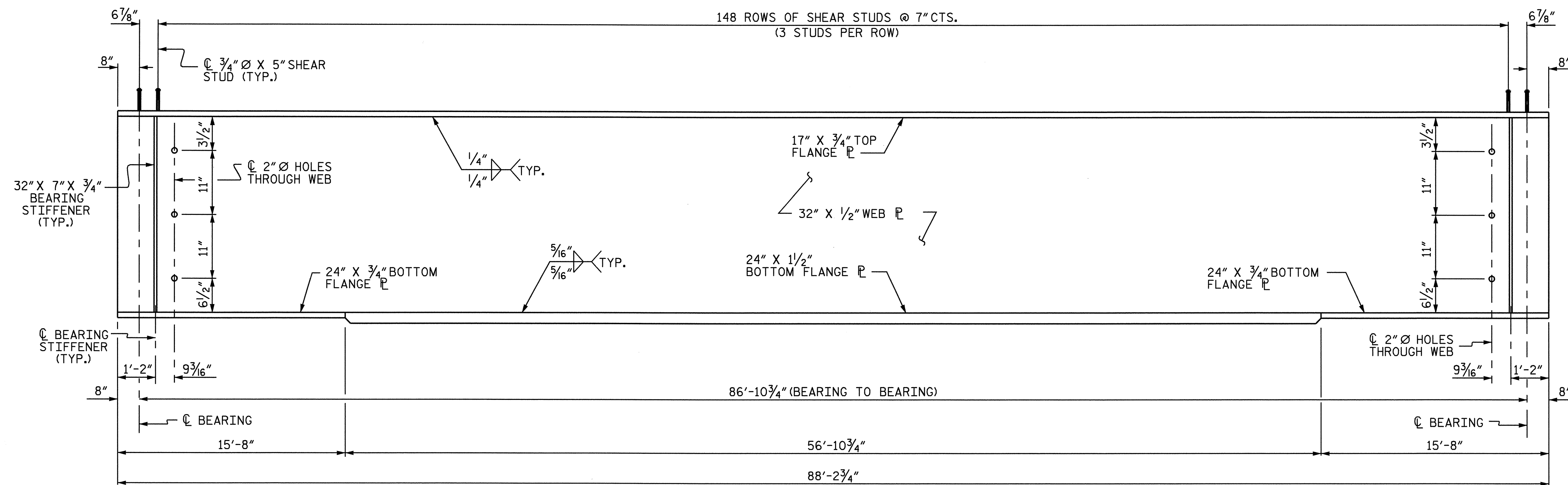
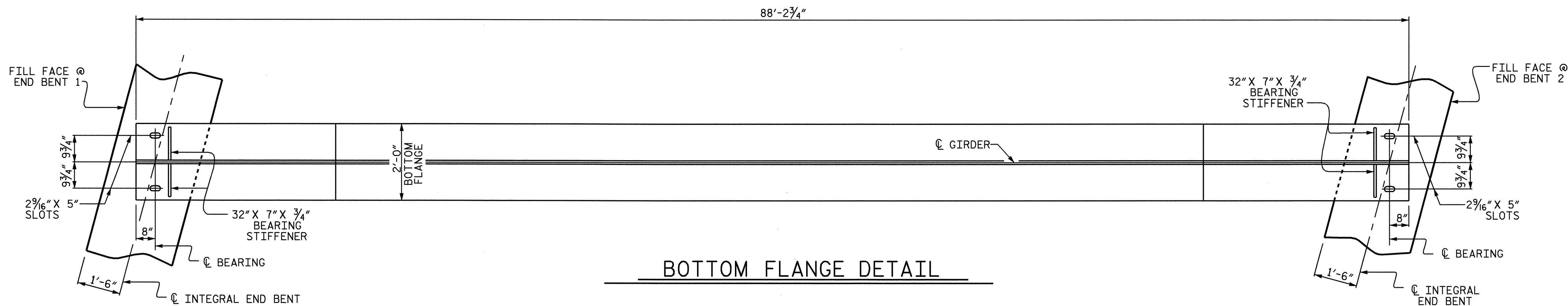
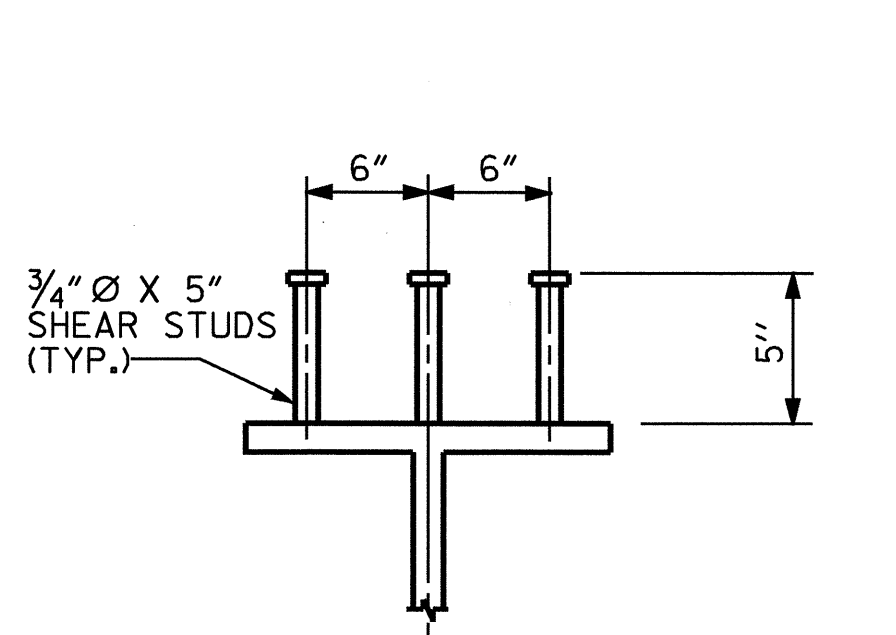


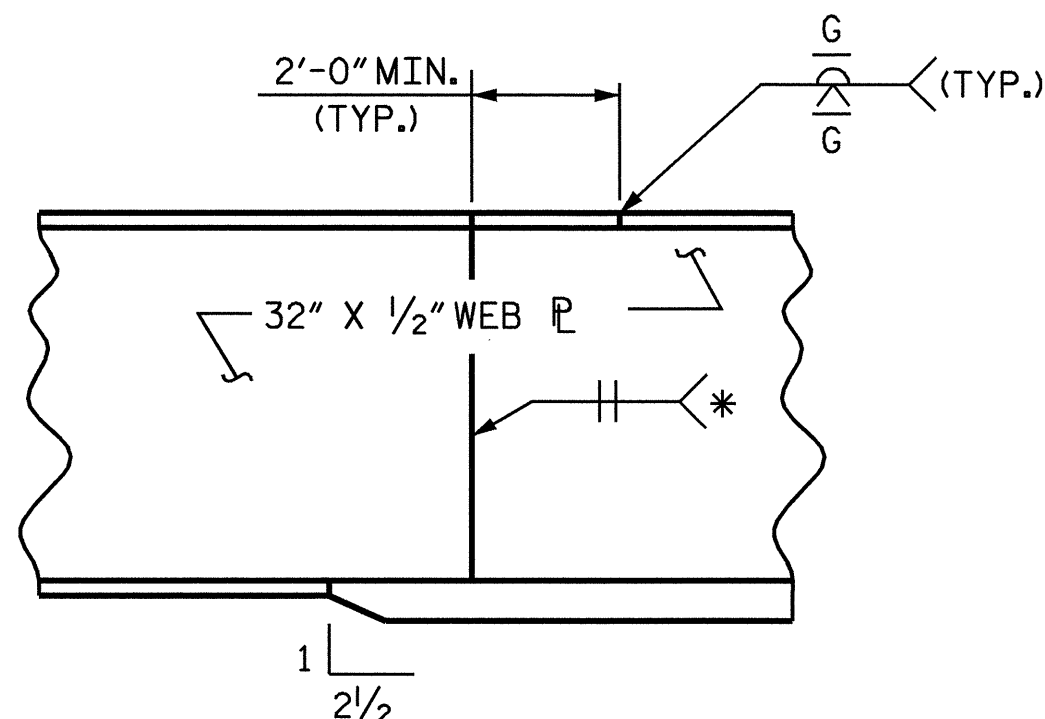
PLATE GIRDER ELEVATION



BOTTOM FLANGE DETAIL

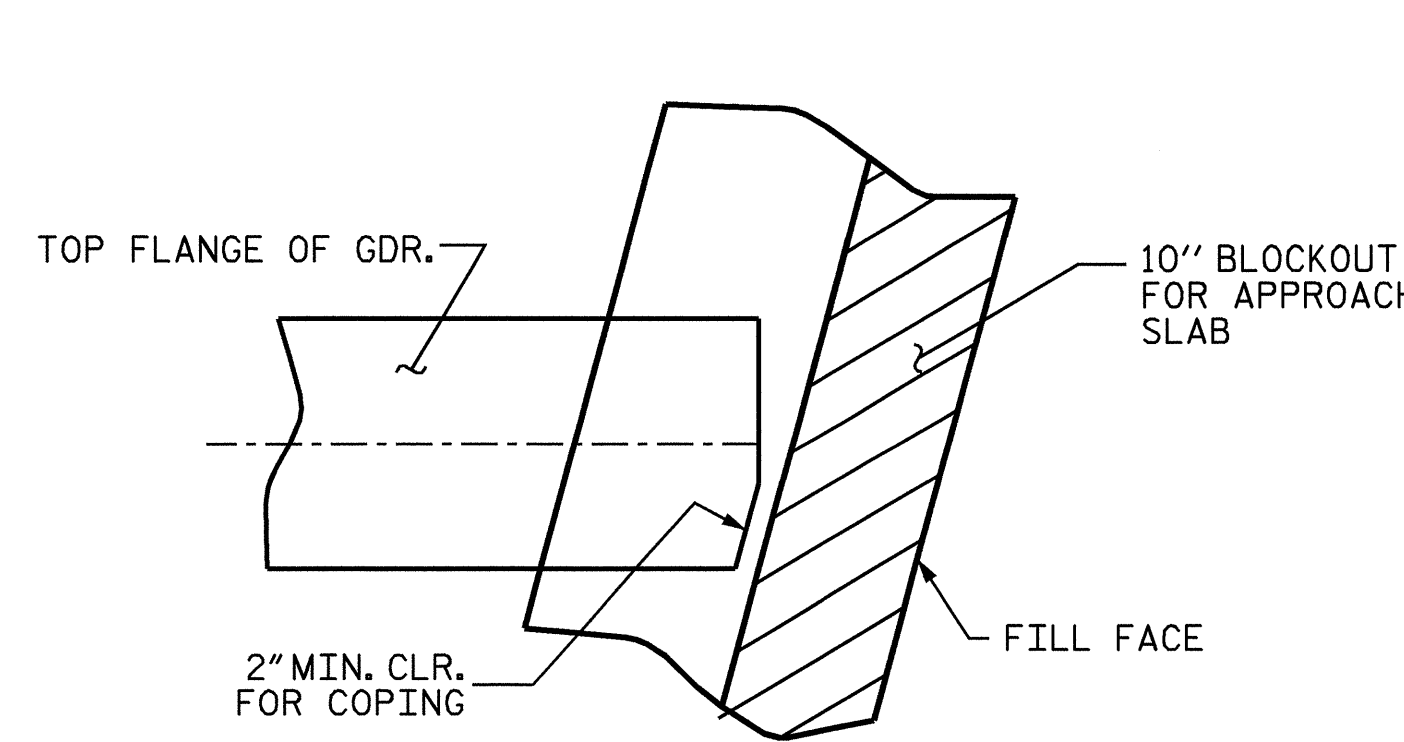


SHEAR STUD DETAIL  
(TYP. EA. GIRDER)



PERMISSIBLE SHOP FLANGE AND WEB SPLICE

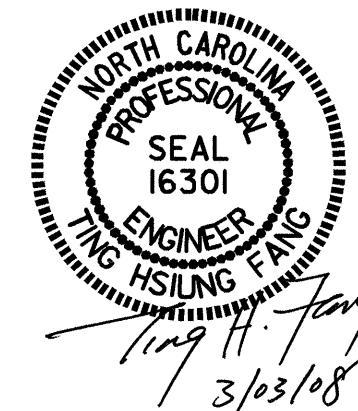
\* GRIND SMOOTH AND FLUSH ON OUTSIDE OF EXTERIOR GIRDERS



TOP FLANGE COPE DETAIL  
(TYP. EA. GIRDER)

NOTES :

- ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.
- ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
- STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.
- 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. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE, WEB OR FLANGE SHOP SPLICES.
- END OF GIRDERS SHALL BE PLUMB.
- FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.
- FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.
- ALL FIELD CONNECTIONS TO BE 7/8" DIAMETER HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
- 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 STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.



PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 1 OF 2

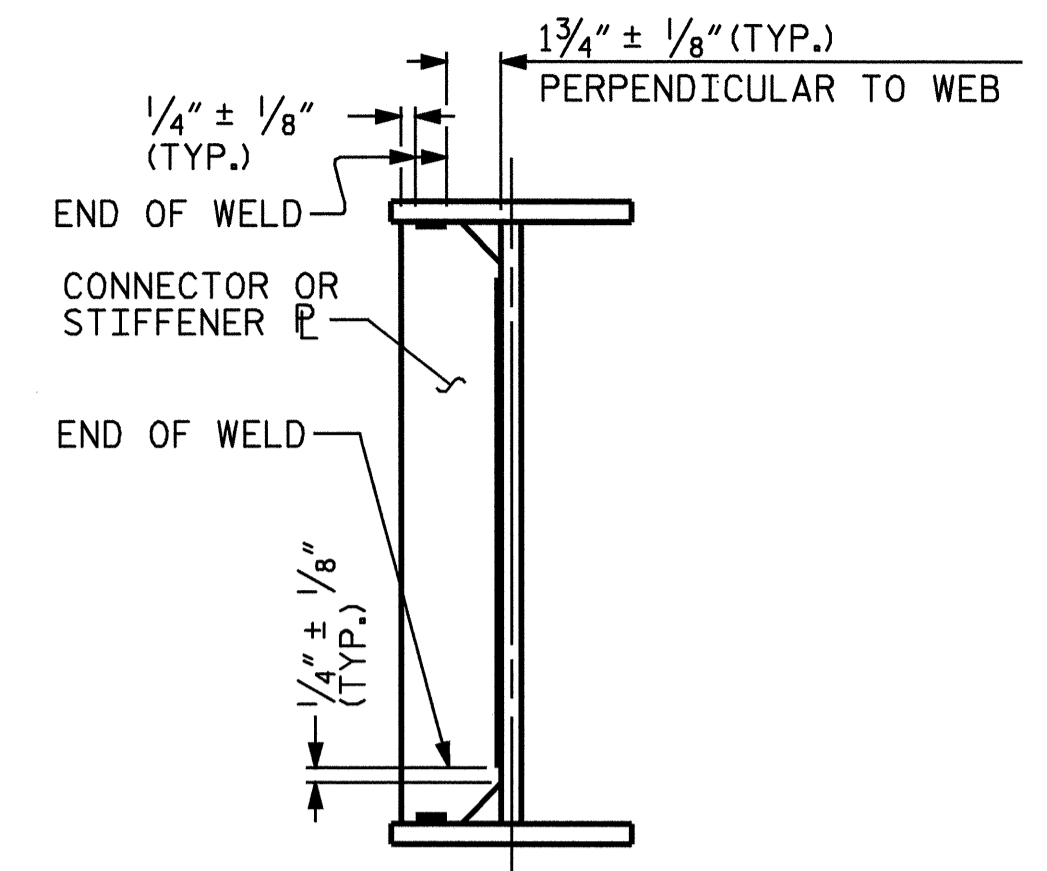
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			23

DRAWN BY : J.L. WALTON DATE : 7/07  
 CHECKED BY : D.G. ELY DATE : 8/07

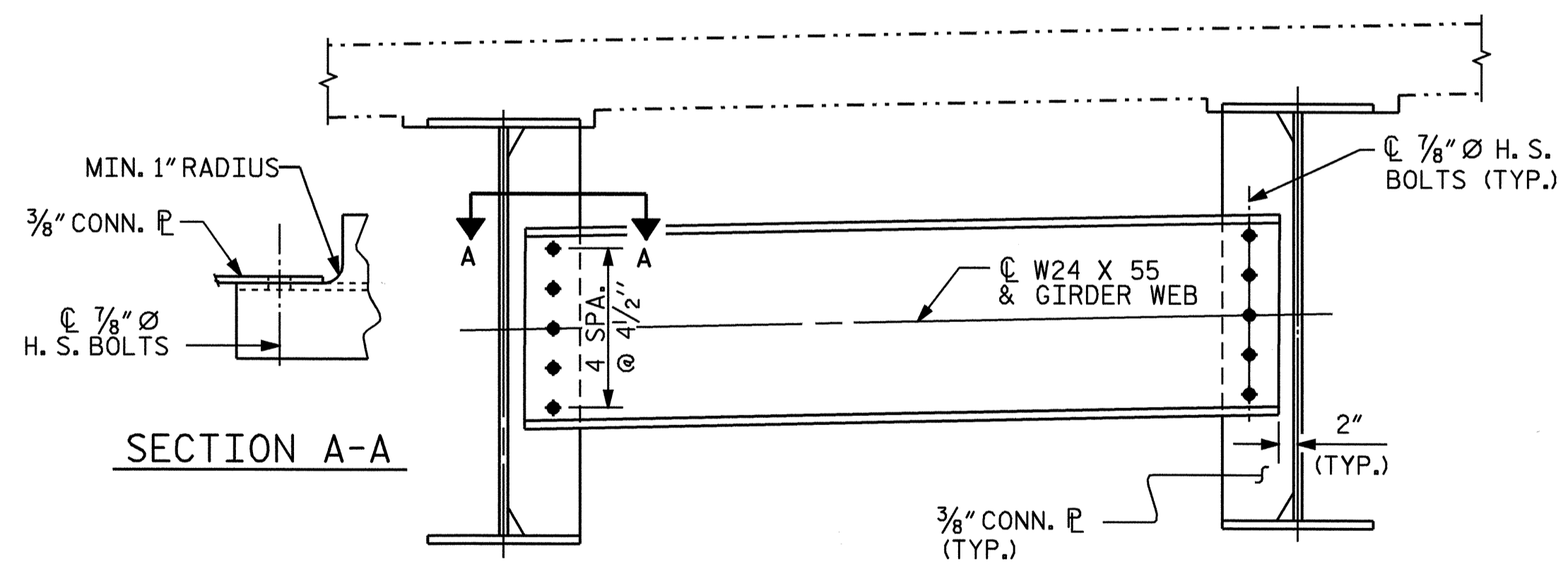


DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
TENTH POINTS	GIRDER 1											GIRDER 2										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.021	0.040	0.054	0.063	0.066	0.063	0.054	0.040	0.021	0.000	0.000	0.021	0.040	0.054	0.063	0.066	0.063	0.054	0.040	0.021	0.000
*DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.080	0.176	0.250	0.297	0.313	0.297	0.250	0.176	0.080	0.000	0.000	0.080	0.176	0.249	0.296	0.312	0.296	0.249	0.176	0.080	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.009	0.016	0.022	0.025	0.026	0.025	0.022	0.016	0.009	0.000	0.000	0.008	0.015	0.020	0.024	0.025	0.024	0.020	0.015	0.008	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.110	0.232	0.326	0.385	0.405	0.385	0.326	0.232	0.110	0.000	0.000	0.109	0.231	0.323	0.383	0.403	0.383	0.323	0.231	0.109	0.000
VERTICAL CURVE ORDINATE (SAG)	0.000	0.001	0.003	0.004	0.005	0.007	0.008	0.009	0.011	0.008	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.007	0.000
REQUIRED CAMBER	0	1 5/16"	2 3/4"	3 7/8"	4 9/16"	4 3/4"	4 1/2"	3 13/16"	2 5/8"	1 1/4"	0	0	1 5/16"	2 3/4"	3 3/8"	4 9/16"	4 3/4"	4 1/2"	3 13/16"	2 11/16"	1 1/4"	0
TENTH POINTS	GIRDER 3											GIRDER 4										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.021	0.040	0.054	0.063	0.066	0.063	0.054	0.040	0.021	0.000	0.000	0.021	0.040	0.054	0.063	0.066	0.063	0.054	0.040	0.021	0.000
*DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.080	0.176	0.249	0.296	0.312	0.296	0.249	0.176	0.080	0.000	0.000	0.080	0.176	0.250	0.297	0.313	0.297	0.250	0.176	0.080	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.008	0.015	0.020	0.024	0.025	0.024	0.020	0.015	0.008	0.000	0.000	0.009	0.016	0.022	0.025	0.026	0.025	0.022	0.016	0.009	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.109	0.231	0.323	0.383	0.403	0.383	0.323	0.231	0.109	0.000	0.000	0.110	0.232	0.326	0.385	0.405	0.385	0.326	0.232	0.110	0.000
VERTICAL CURVE ORDINATE (SAG)	0.000	0.001	0.002	0.002	0.003	0.004	0.005	0.005	0.006	0.005	0.000	0.000	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.000
REQUIRED CAMBER	0	1 5/16"	2 3/4"	3 7/8"	4 9/16"	4 13/16"	4 9/16"	3 13/16"	2 11/16"	1 1/4"	0	0	1 5/16"	2 3/4"	3 7/8"	4 5/8"	4 13/16"	4 9/16"	3 7/8"	2 3/4"	1 1/4"	0

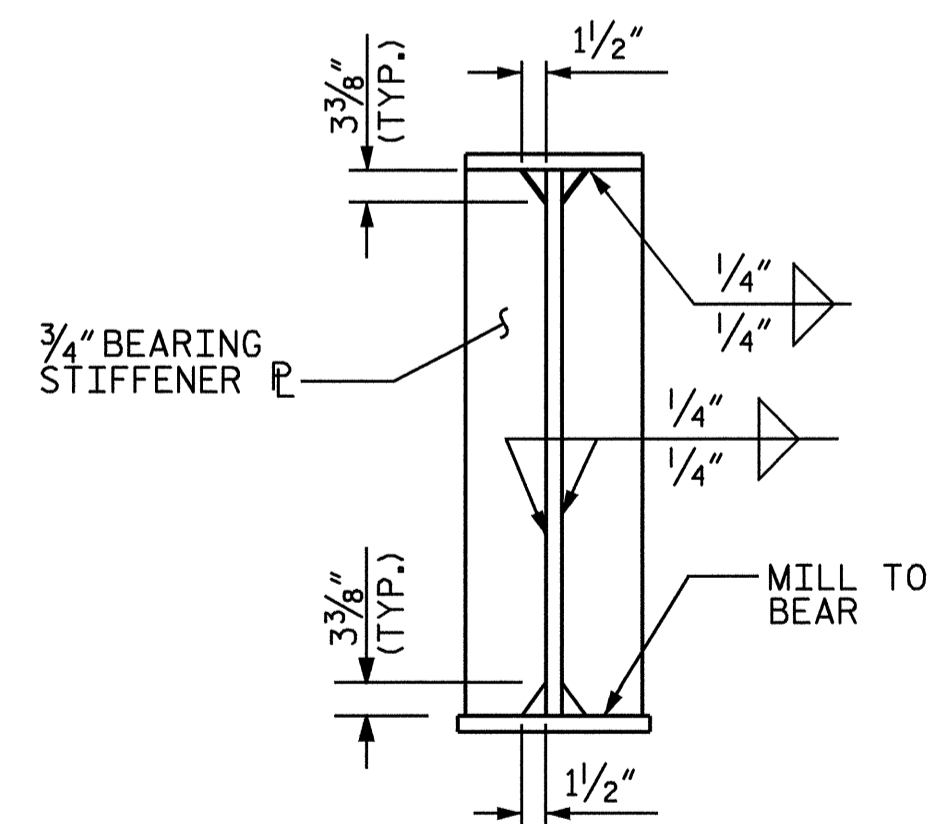
\* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.  
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).



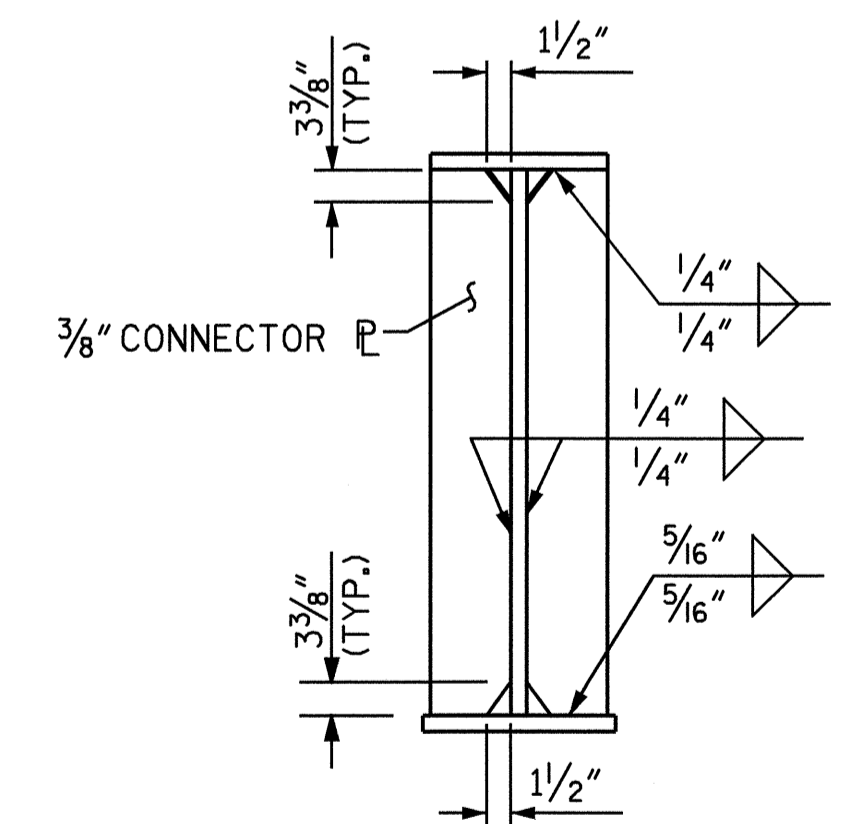
TYPICAL STIFFENER OR  
 CONNECTOR PLATE CONNECTIONS  
WELD TERMINATION DETAILS



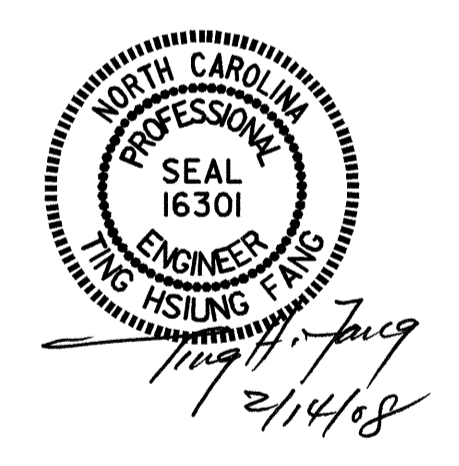
TYPICAL INTERMEDIATE DIAPHRAGM



BEARING STIFFENER



CONNECTOR PLATE DETAILS



PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-  
 SHEET 2 OF 2

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

DRAWN BY: J.L. WALTON DATE: 7/07  
 CHECKED BY: D.G. ELY DATE: 8/07

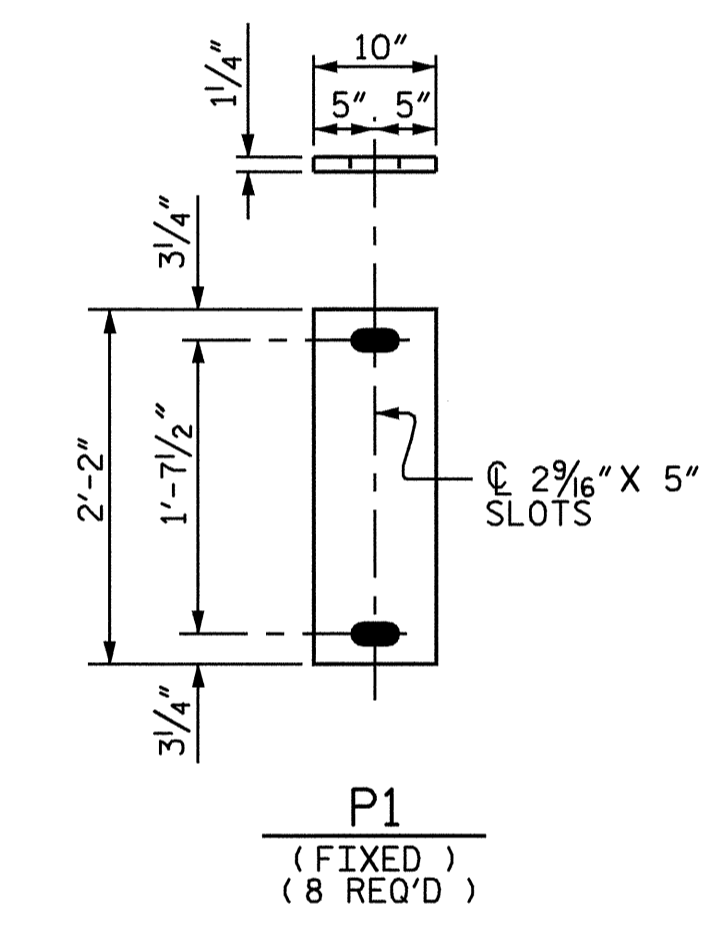
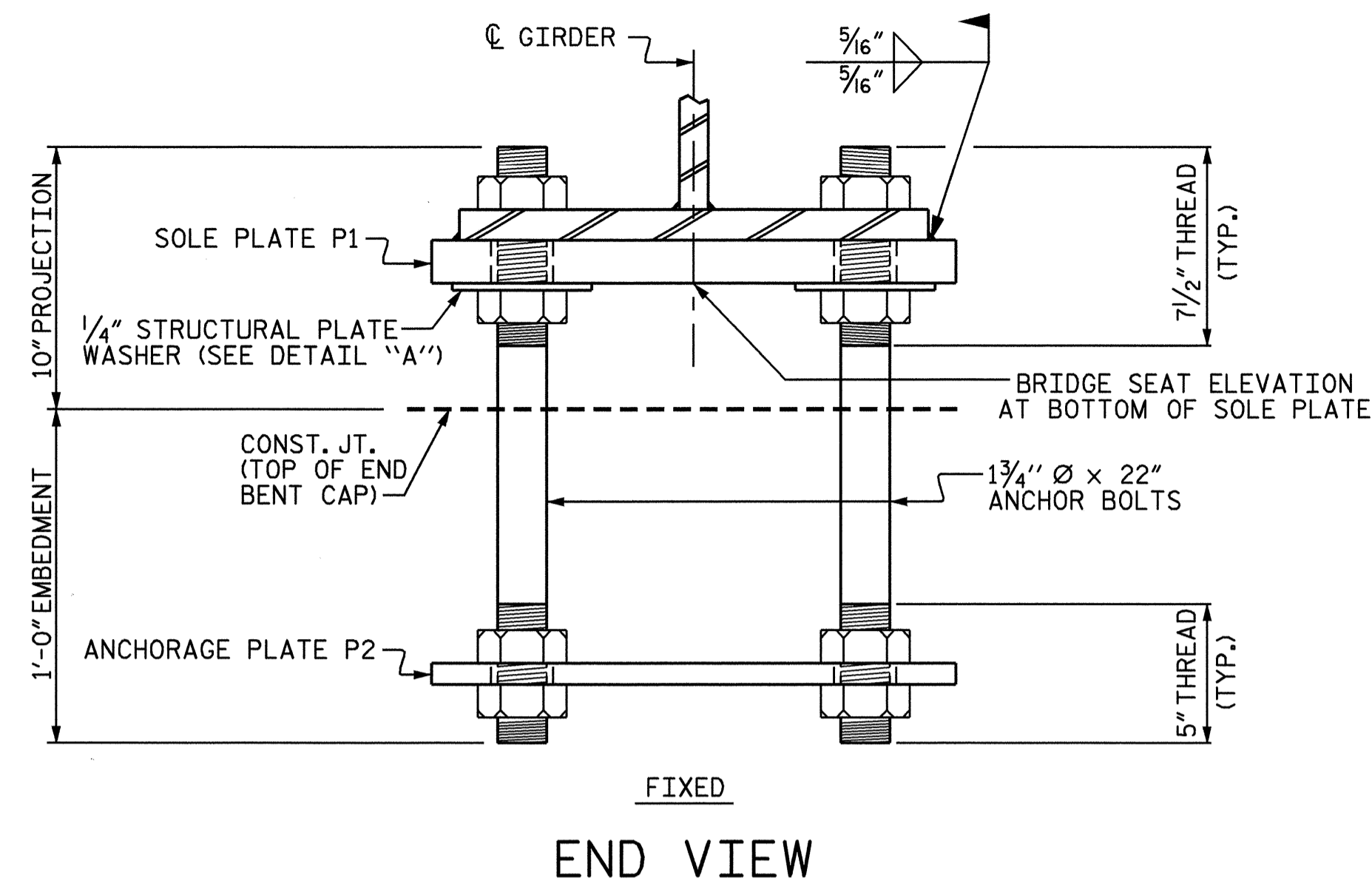
REVISIONS						SHEET NO. S-12 TOTAL SHEETS 23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

NOTES

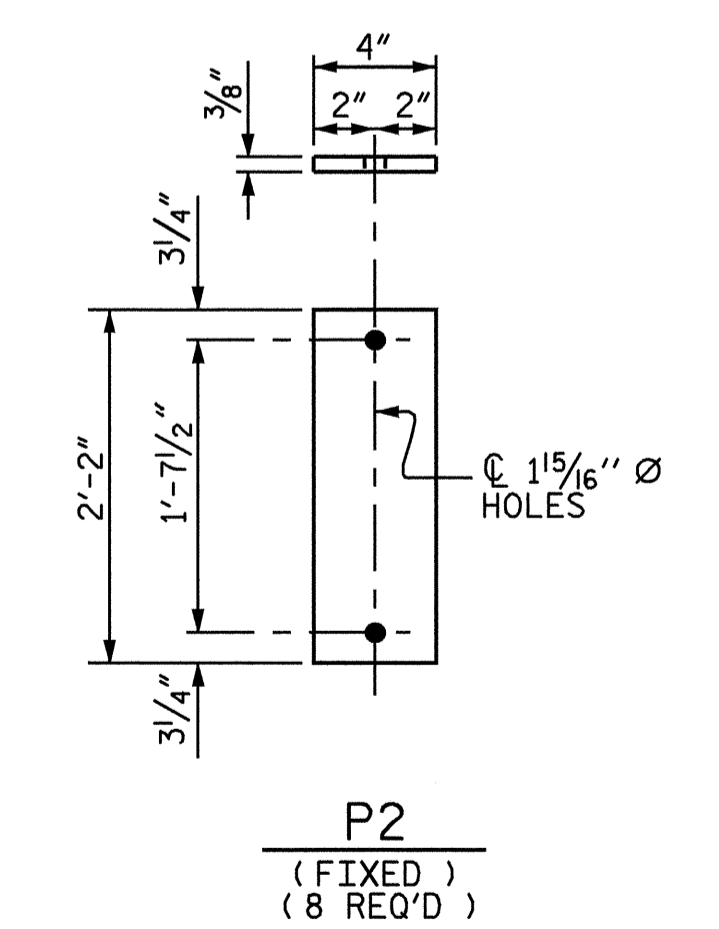
FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

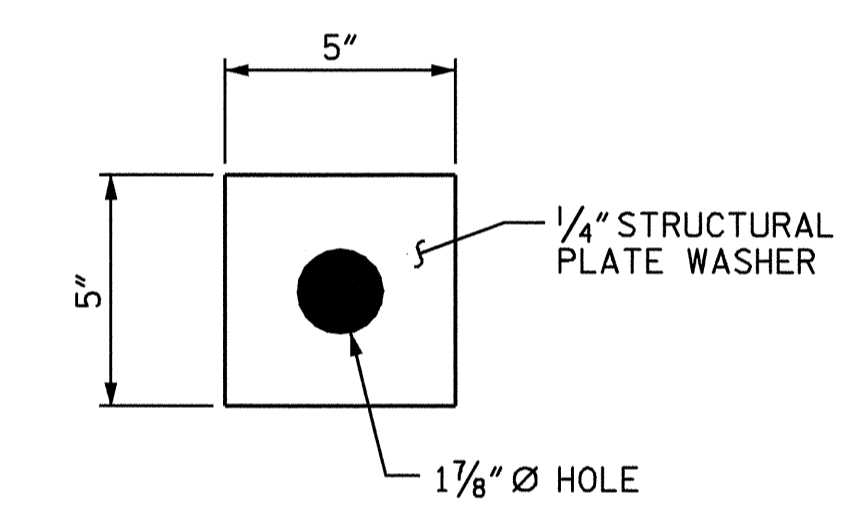
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



SOLE PLATE DETAILS



ANCHORAGE PLATE DETAILS



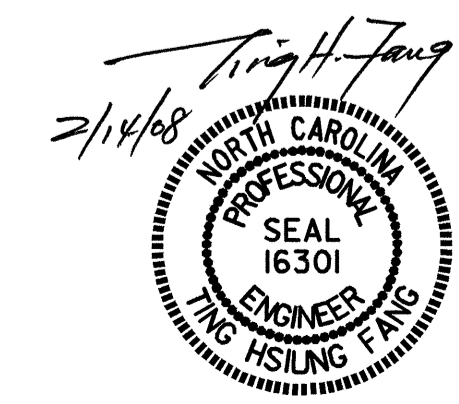
DETAIL A

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 BEARING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			23



DRAWN BY : J.L. WALTON DATE : 7/07  
 CHECKED BY : D.G. ELY DATE : 8/07

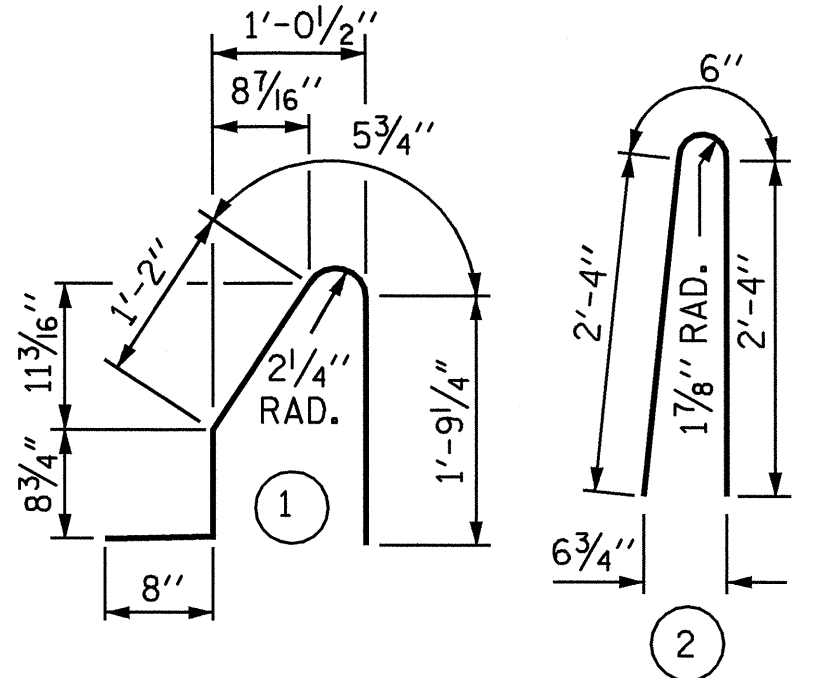
**NOTES**

THE BARRIER RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE 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.

**BAR TYPES**

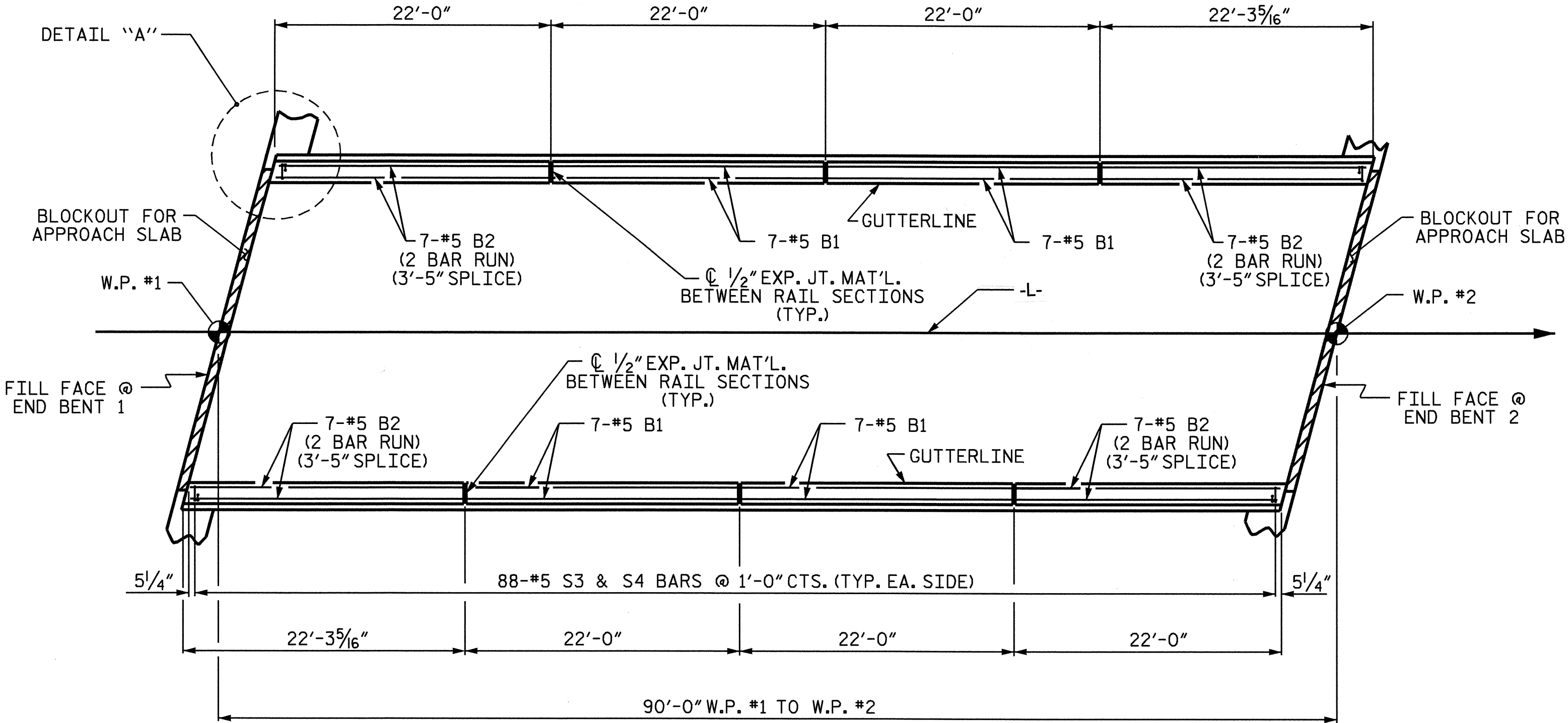


ALL BAR DIMENSIONS ARE OUT TO OUT

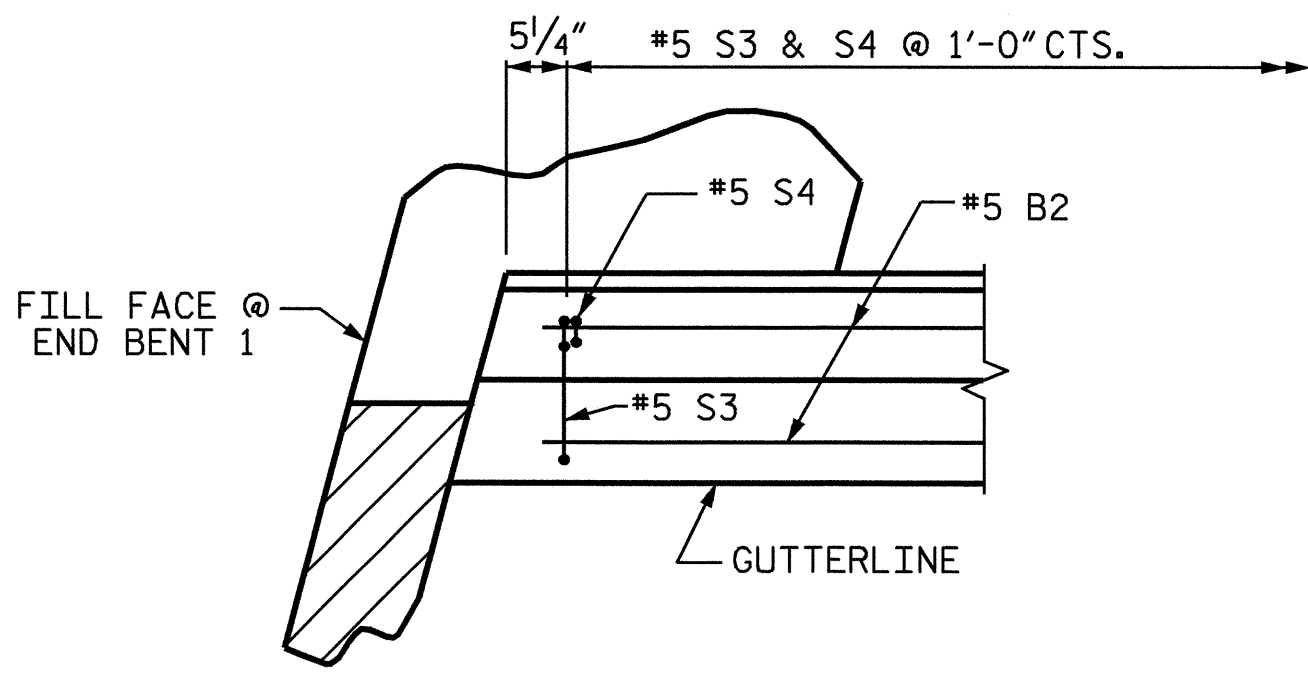
**BILL OF MATERIAL**

FOR CONCRETE BARRIER RAIL ONLY

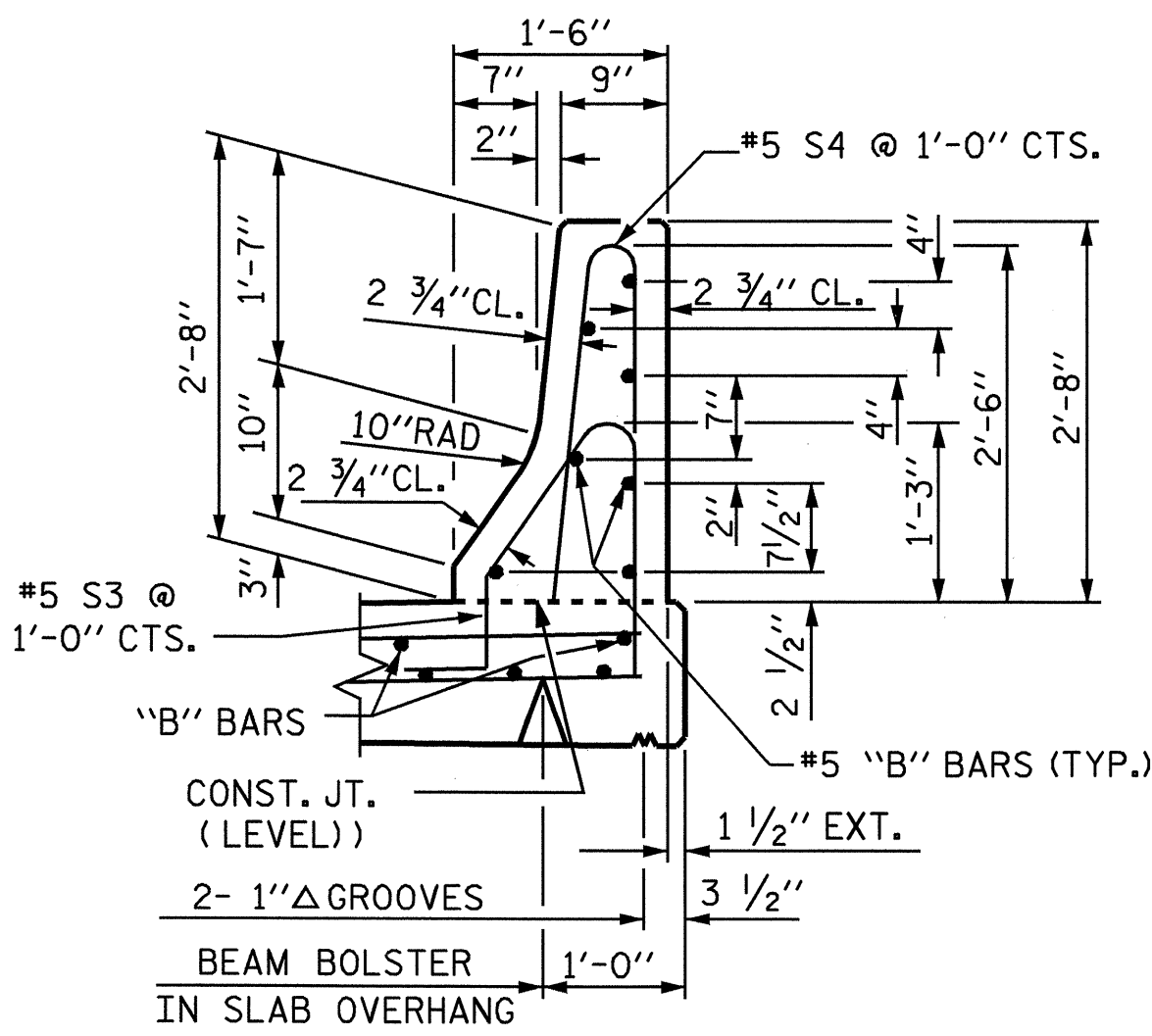
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR	21'-7"	630
* B2	56	#5	STR	12'-8"	740
* S3	176	#5	1	4'-10"	887
* S4	176	#5	2	5'-2"	948
* EPOXY COATED REINFORCING STEEL					3,205 LBS.
CLASS AA CONCRETE					17.7 CU. YDS.
CONCRETE BARRIER RAIL					176.55 LIN. FT.



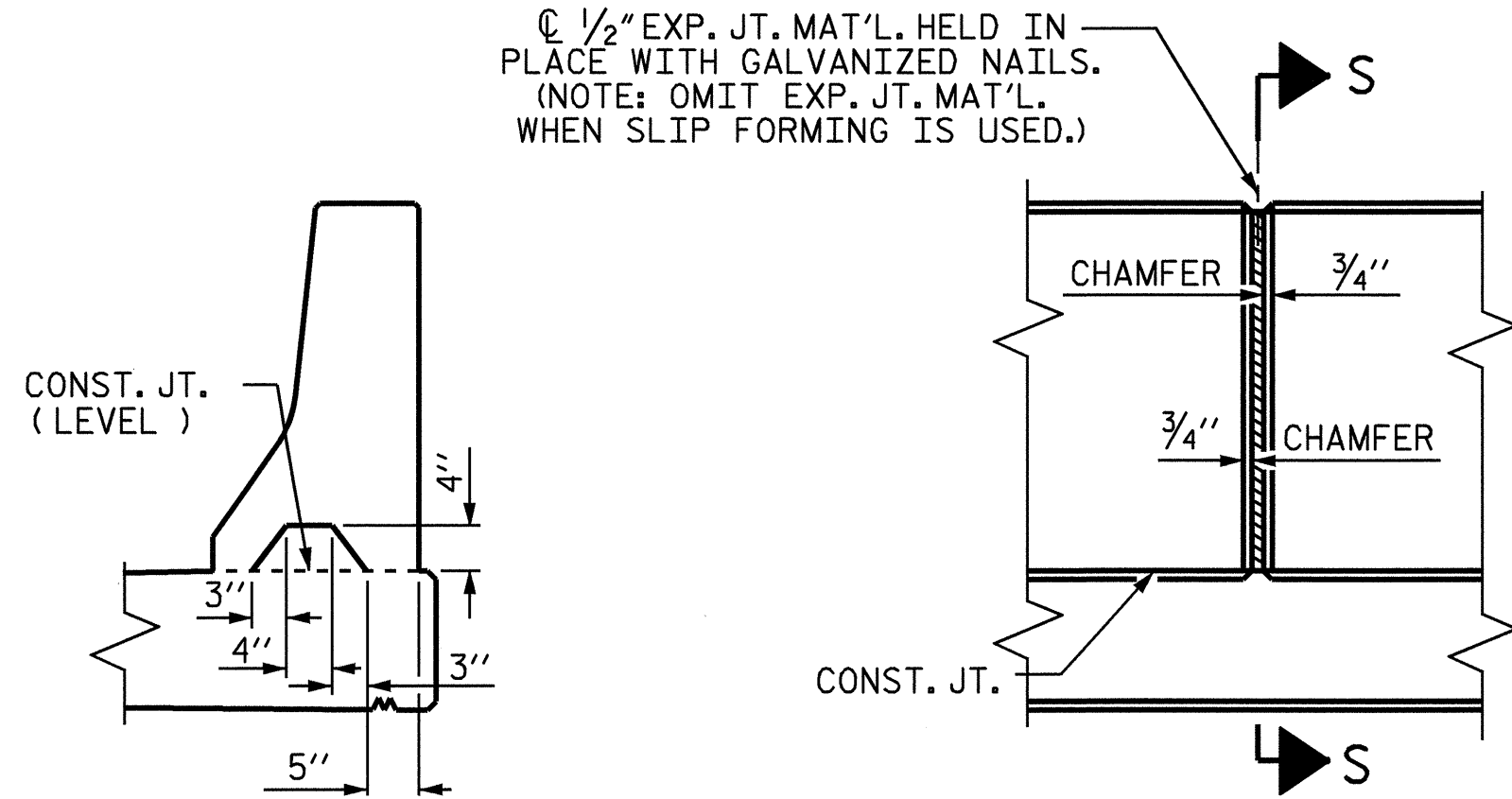
**PLAN OF BARRIER RAIL**



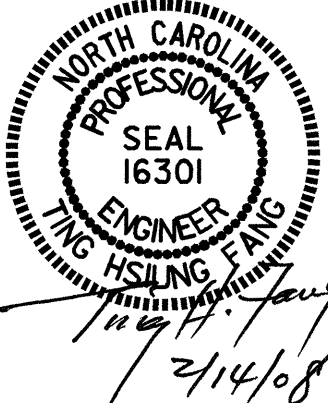
**DETAIL "A"**  
TYPICAL FOR ALL CORNERS



**SECTION THRU RAIL**



**ELEVATION AT EXPANSION JOINTS**  
**BARRIER RAIL DETAILS**



PROJECT NO. B-4063  
CHATHAM COUNTY  
STATION: 22+85.00 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**CONCRETE BARRIER RAIL**

ASSEMBLED BY : J.L. WALTON	DATE : 7/07
CHECKED BY : D.G. ELY	DATE : 8/07
DRAWN BY : ARB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 10/17/00 RWW/LES
	REV. 5/7/03R RWW/JTE

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 23
2			4			



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.)

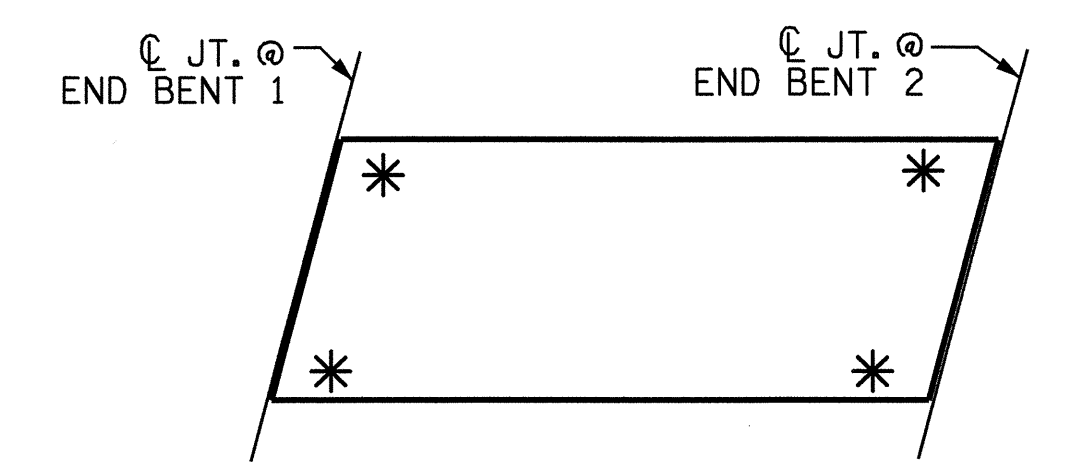
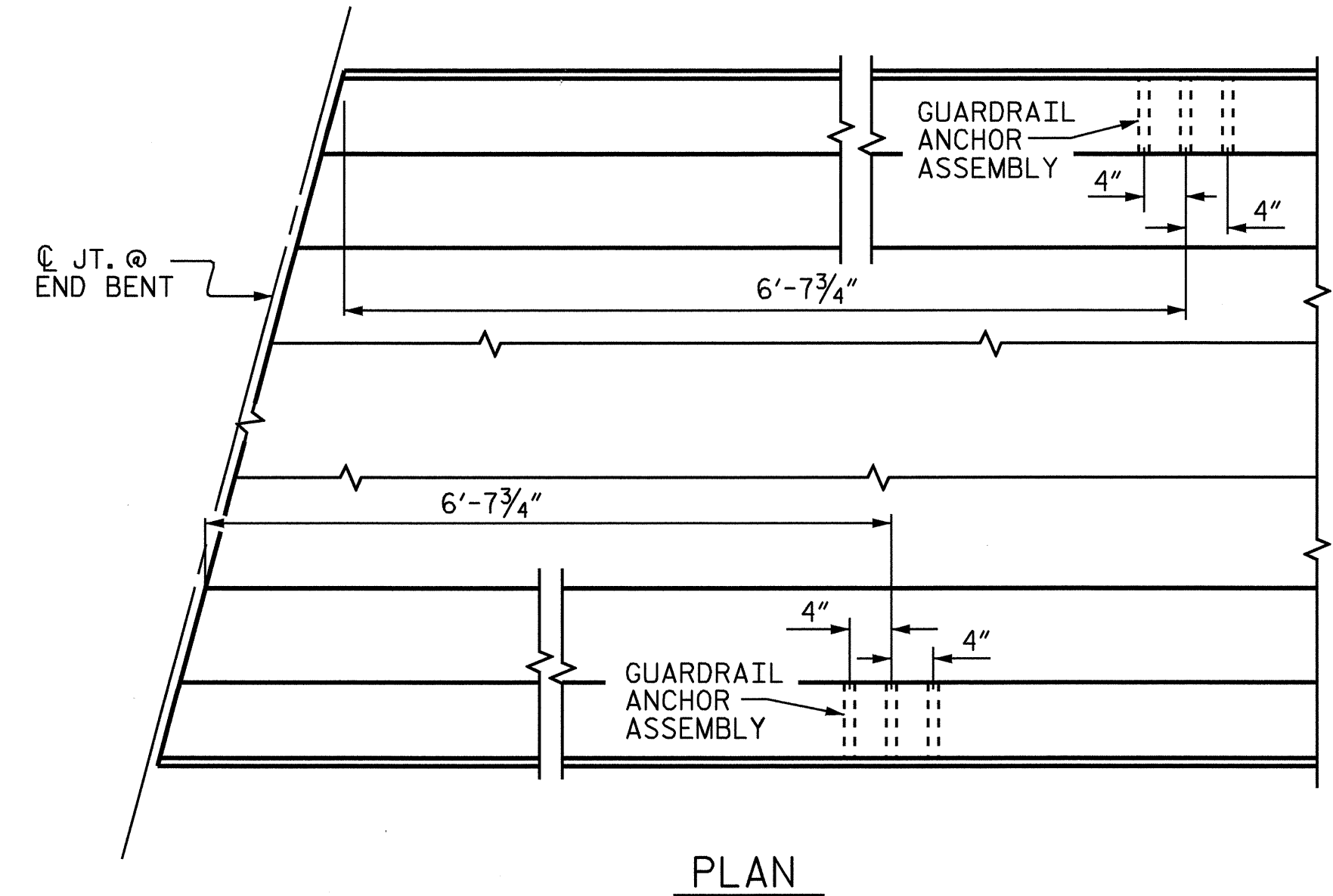
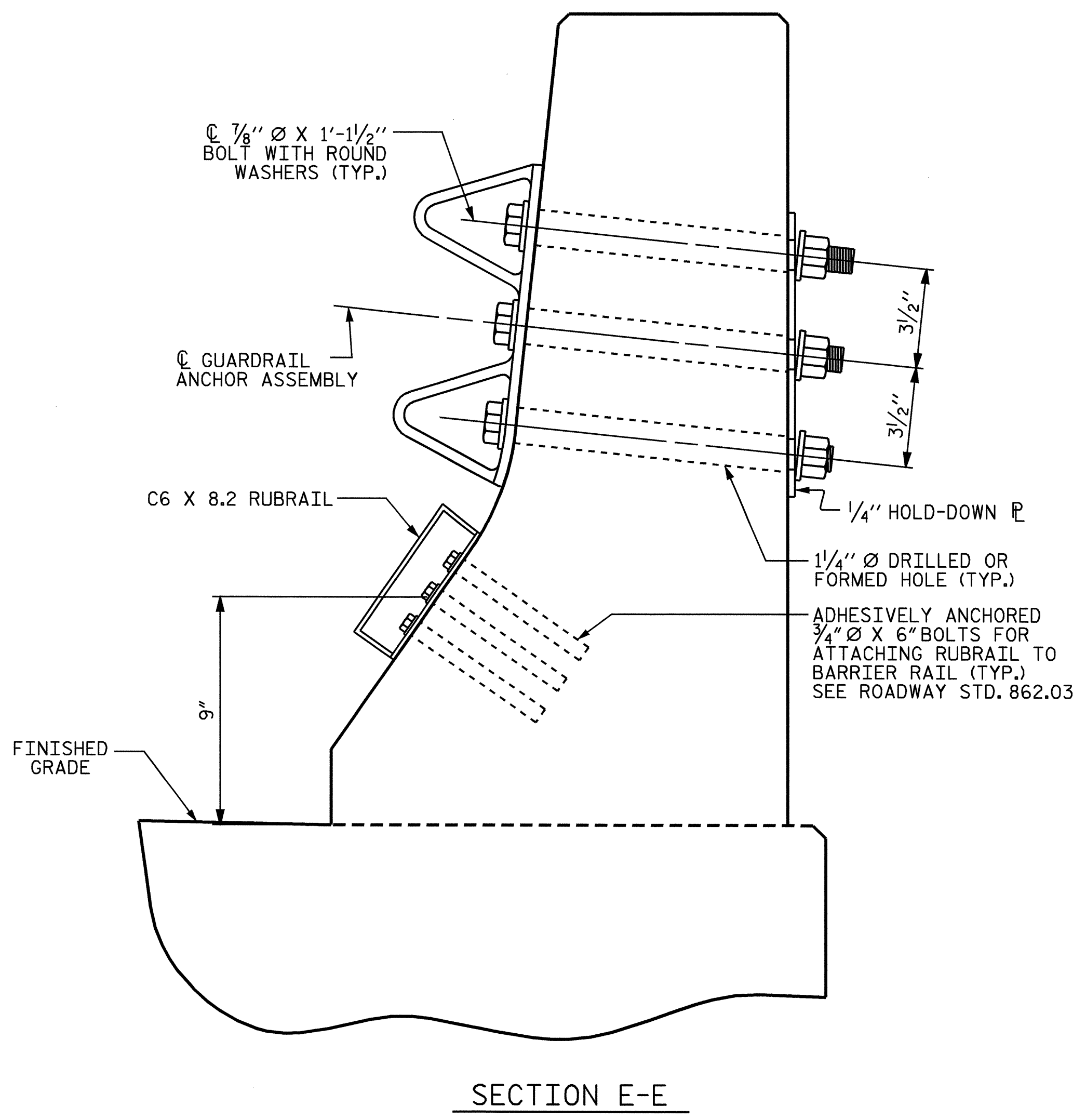
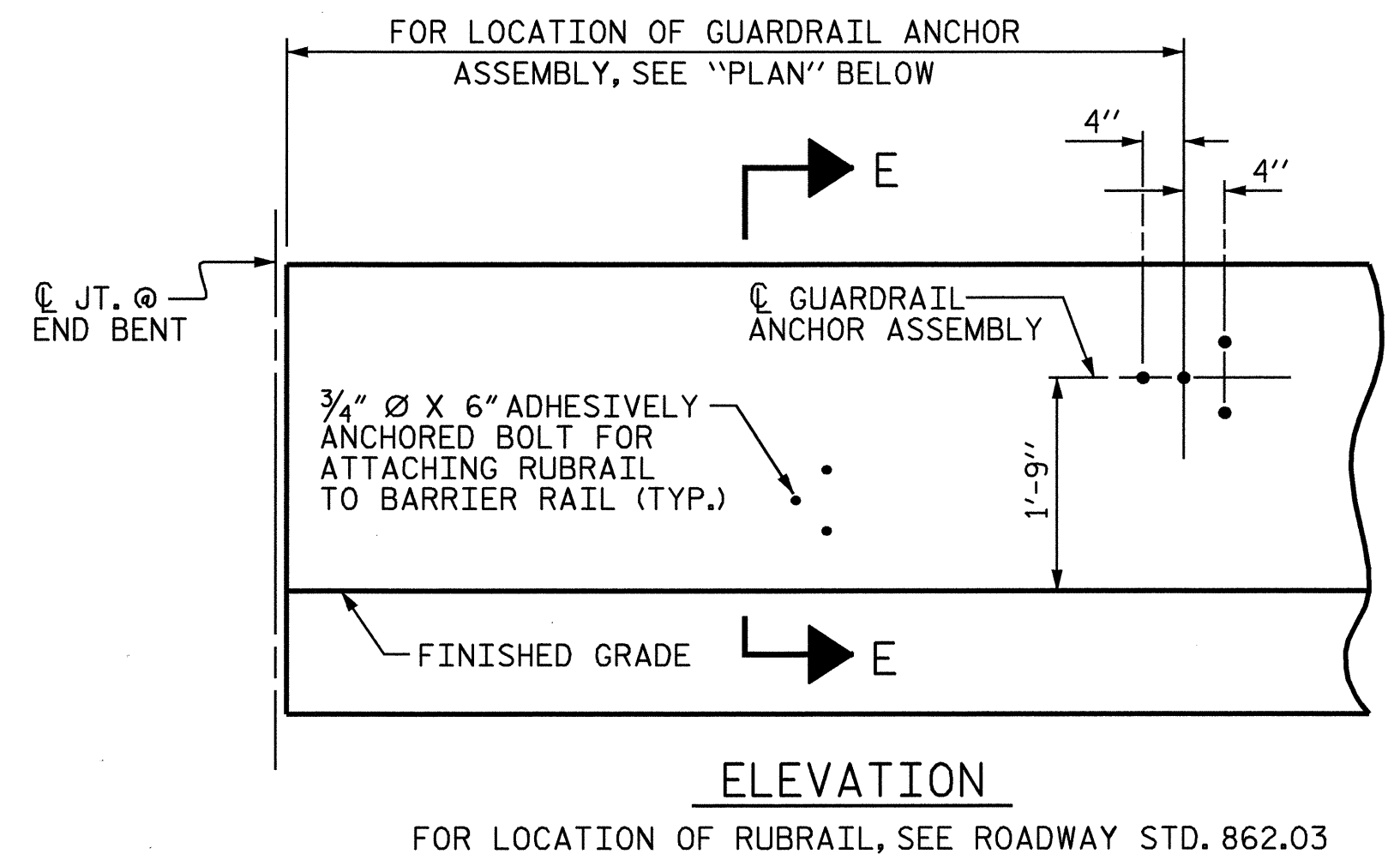
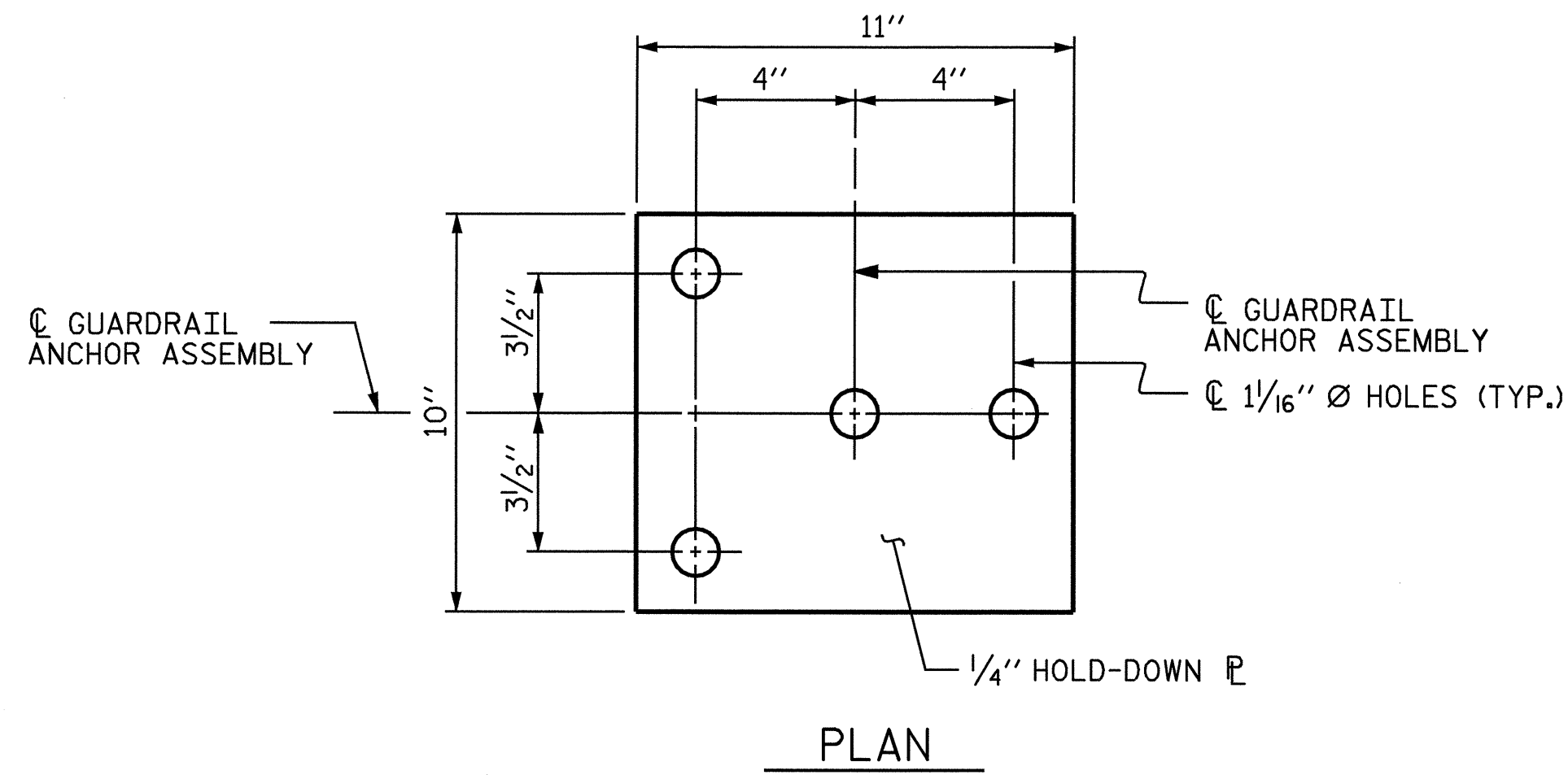
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 1/4" 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 KPI. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

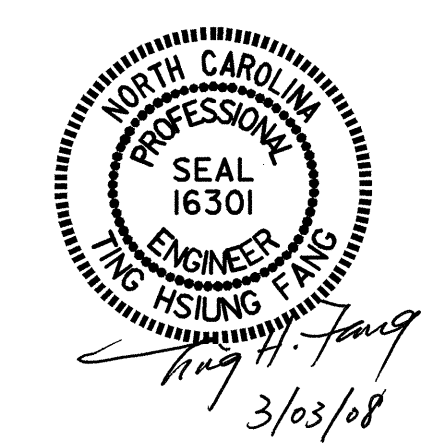


SKETCH SHOWING POINTS OF ATTACHMENTS  
\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

LOCATION OF ANCHORS FOR GUARDRAIL  
END BENT #1 SHOWN, END BENT #2 SIMILAR.

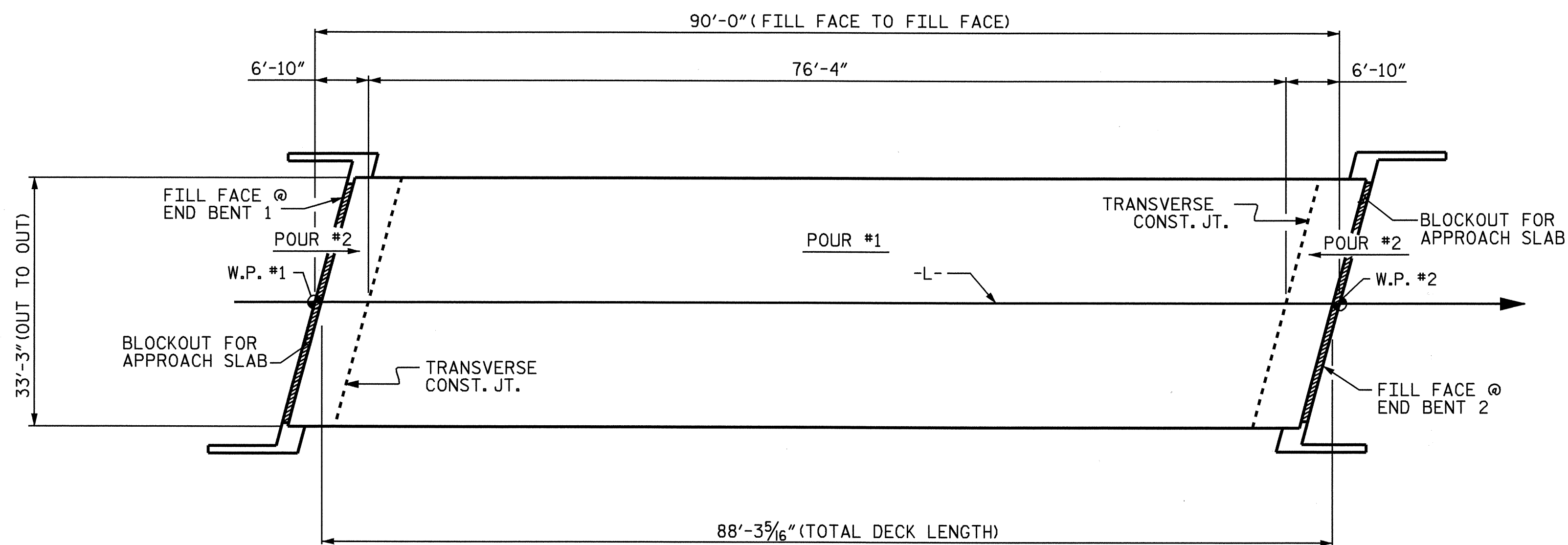
GUARDRAIL ANCHOR ASSEMBLY DETAILS

PROJECT NO. B-4063  
CHATHAM COUNTY  
STATION: 22+85.00 -L-

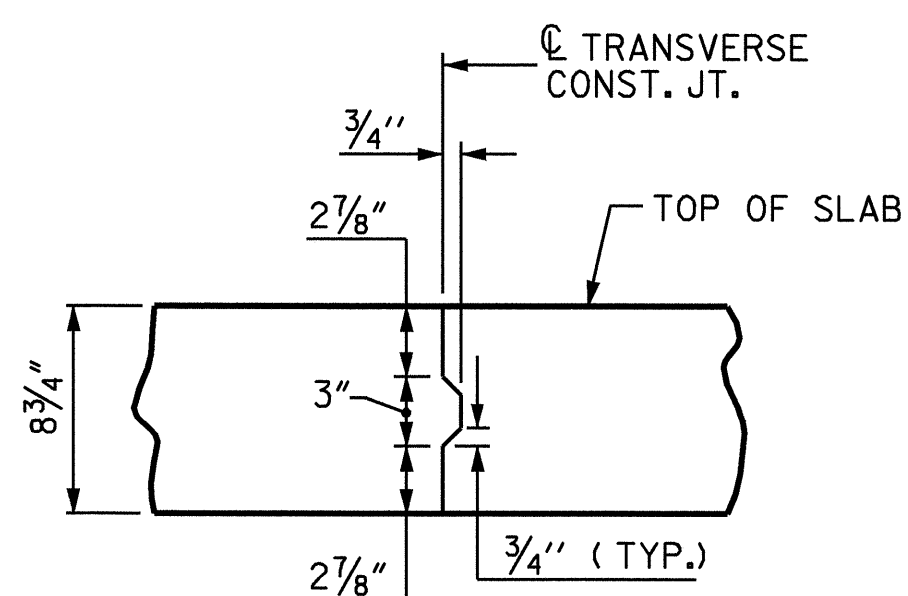


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					23

ASSEMBLED BY : J.L. WALTON	DATE : 7/07
CHECKED BY : D.G. ELY	DATE : 8/07
DRAWN BY : TLA 5/06	ADDED 5/1/06
CHECKED BY : GM 5/06	



POURING SEQUENCE AND LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 2,935)



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

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

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

BILL OF MATERIAL

SPAN A

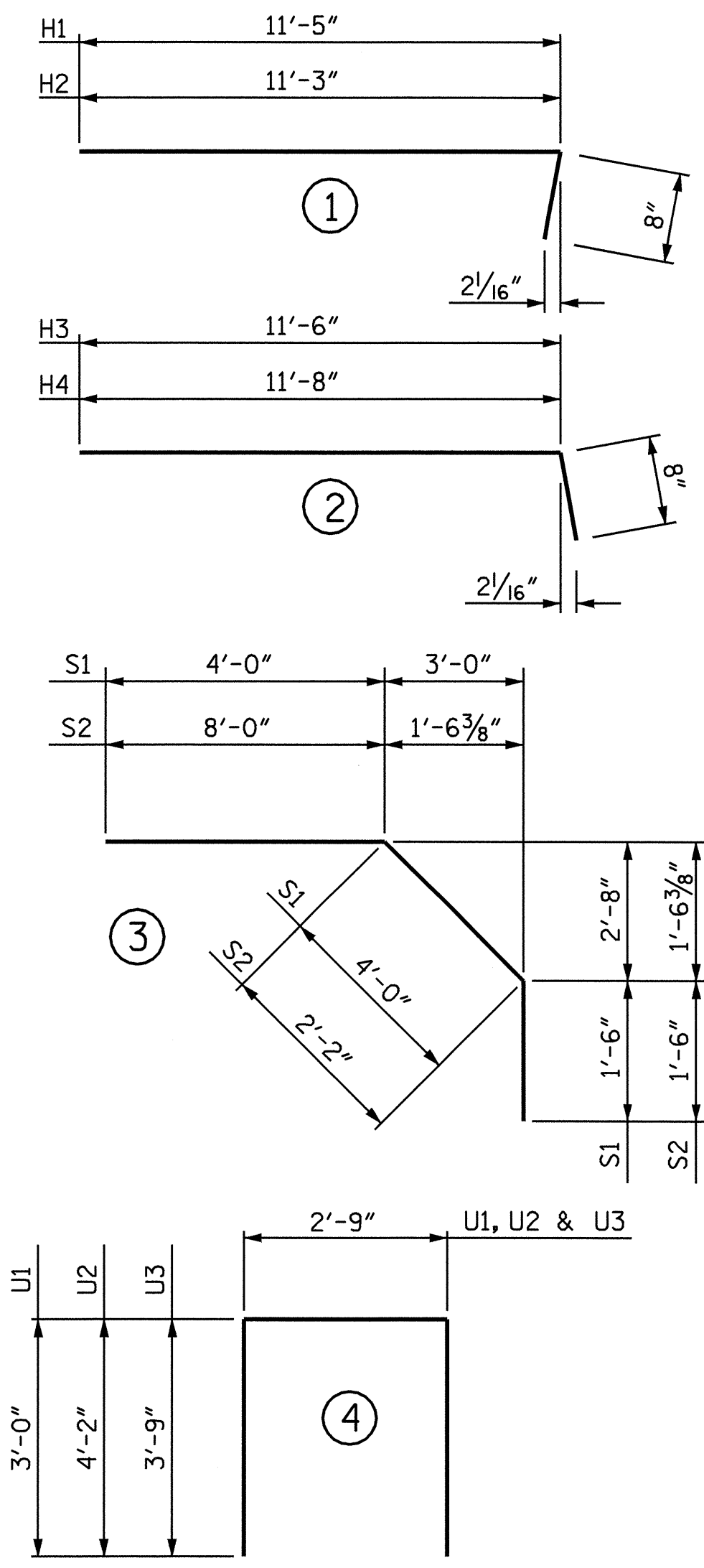
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	147	#5	STR	32'-11"	5047
A2	147	#5	STR	32'-11"	5047
*A101	4	#5	STR	28'-11"	121
*A102	4	#5	STR	24'-11"	104
*A103	4	#5	STR	20'-10"	87
*A104	4	#5	STR	16'-9"	70
*A105	4	#5	STR	12'-9"	53
*A106	4	#5	STR	8'-8"	36
*A107	4	#5	STR	4'-8"	19
A201	4	#5	STR	28'-11"	121
A202	4	#5	STR	24'-11"	104
A203	4	#5	STR	20'-10"	87
A204	4	#5	STR	16'-9"	70
A205	4	#5	STR	12'-9"	53
A206	4	#5	STR	8'-8"	36
A207	4	#5	STR	4'-8"	19
B1	41	#5	STR	56'-8"	2423
B2	82	#6	STR	17'-10"	2196
*B3	69	#4	STR	20'-10"	960
*B4	86	#6	STR	17'-10"	2304
*G1	2	#5	STR	34'-1"	71
H1	10	#4	1	12'-1"	81
H2	10	#4	1	11'-11"	80
H3	10	#4	2	12'-2"	81
H4	10	#4	2	12'-4"	82
K1	32	#4	STR	21'-0"	449
K2	8	#4	STR	3'-9"	20
*S1	46	#4	3	9'-6"	292
*S2	50	#4	3	11'-8"	390
U1	50	#4	4	8'-9"	292
U2	6	#4	4	11'-1"	44
U3	6	#4	4	10'-3"	41
V2	44	#4	STR	4'-2"	122
V3	44	#4	STR	3'-9"	110

REINFORCING STEEL = 11,558 LBS  
\*EPOXY COATED REINFORCING STEEL = 9,554 LBS

GROOVING BRIDGE FLOORS

APPROACH SLABS	738	SQ.FT.
BRIDGE DECK	2,374	SQ.FT.
TOTAL	3,112	SQ.FT.

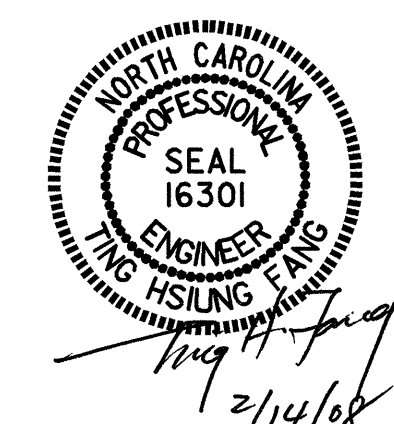
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPAN A		11,558	9,554
POUR #1	73.1		
POUR #2	55.1		
TOTALS	128.2	11,558	9,554

PROJECT NO. B-4063  
CHATHAM COUNTY  
STATION: 22+85.00 -L-



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

ASSEMBLED BY : J.L. WALTON	DATE : 7/07
CHECKED BY : D.G. ELY	DATE : 8/07
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:	S-16
1			3			TOTAL SHEETS 23
2			4			

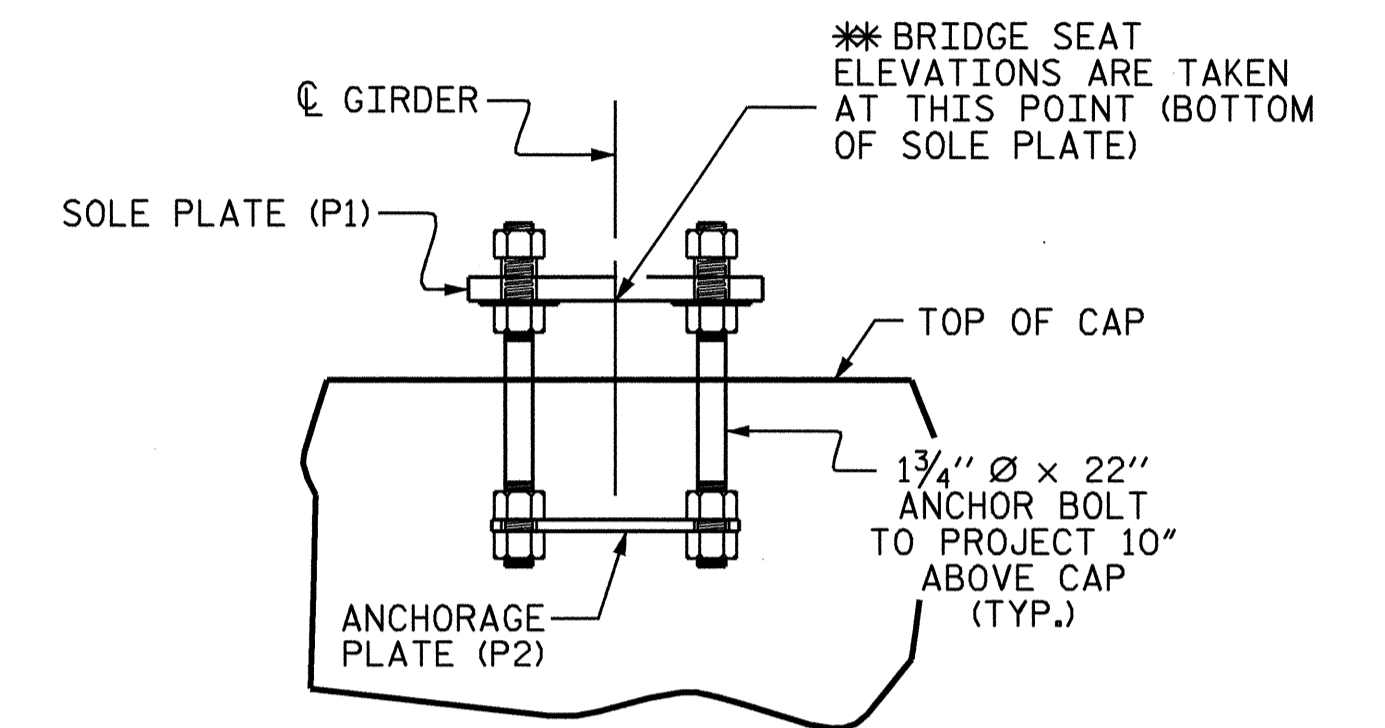
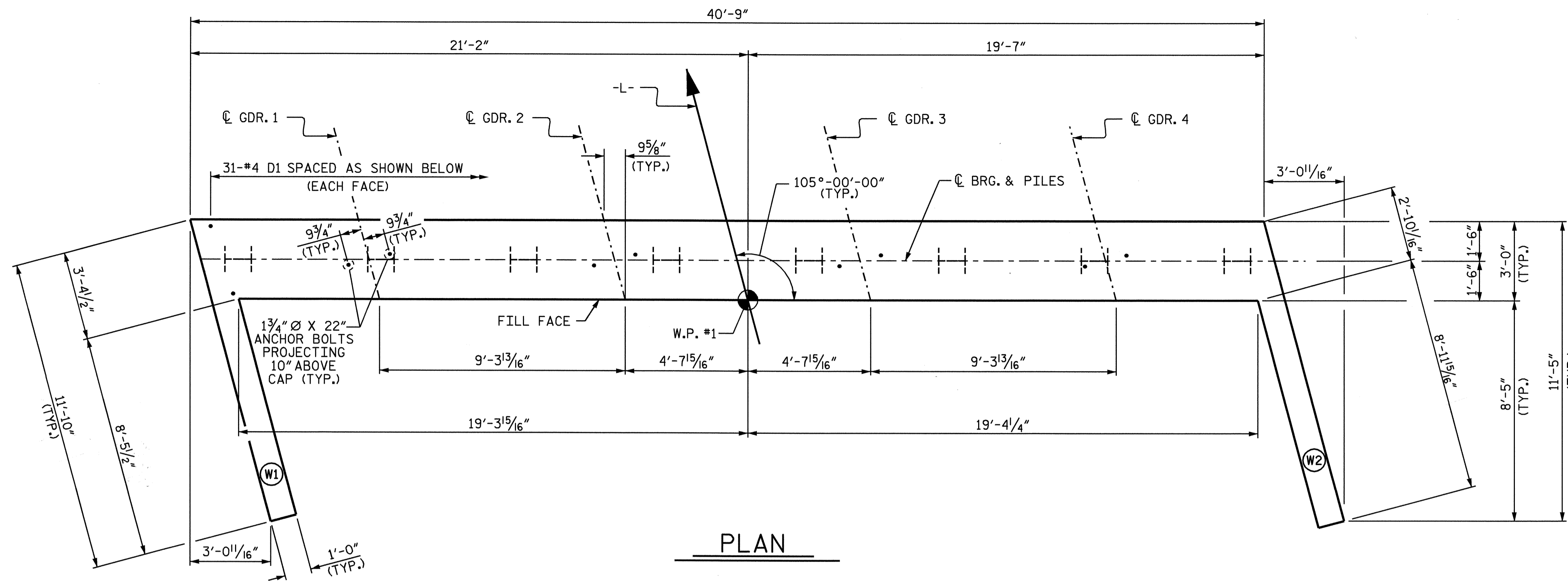
**NOTES**

STIRRUPS AND #4 B2 BARS OVER PILES IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR PILE SPLICE DETAILS, SEE SHEET 2 OF 2.

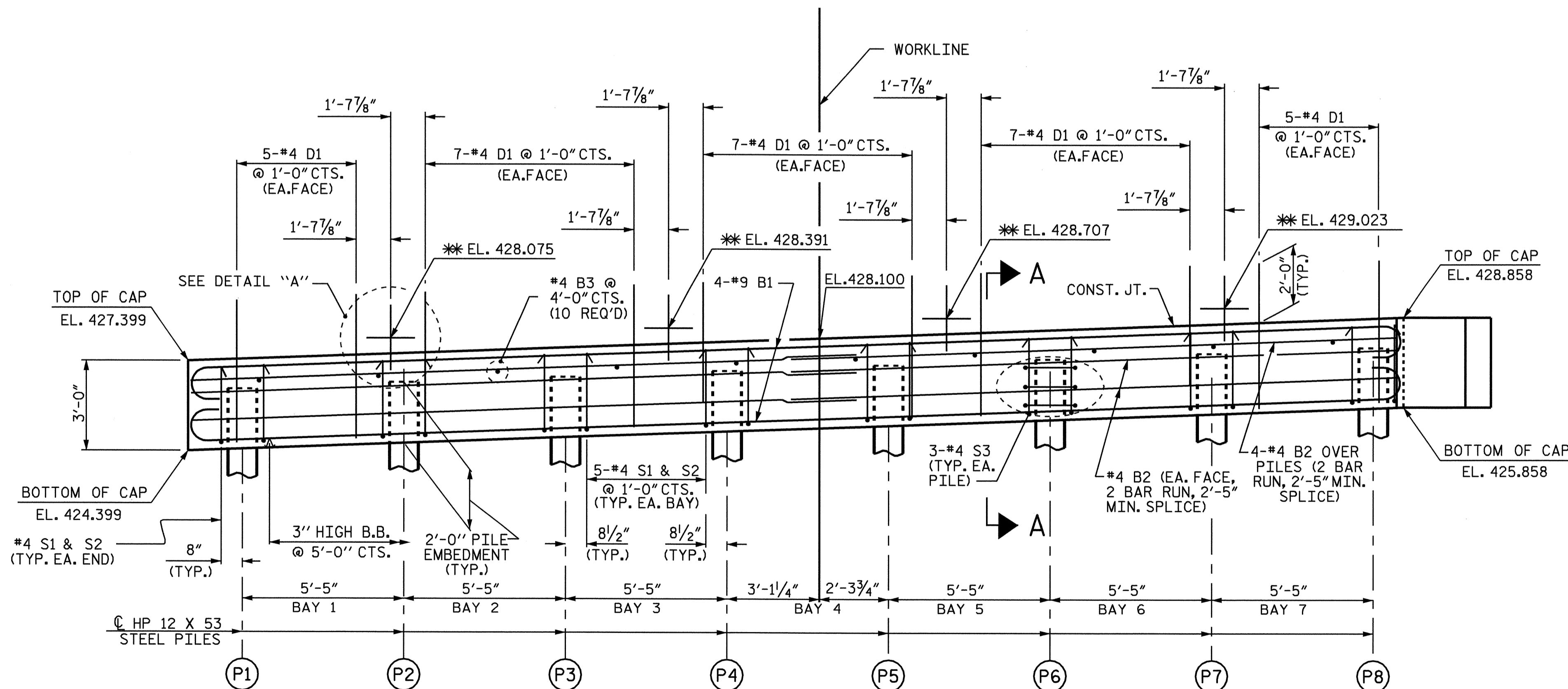
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS; SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

SEE SUPERSTRUCTURE SHEETS FOR ABUTMENT DETAILS.



(TYP. EA. BEARING) (FOR DETAILS, SEE BEARING DETAILS SHEET)

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
P1	426.426
P2	426.620
P3	426.814
P4	427.008
P5	427.202
P6	427.396
P7	427.590
P8	427.784

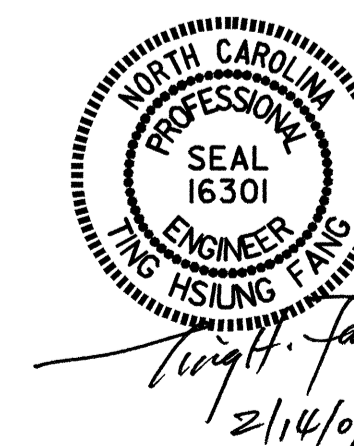


PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

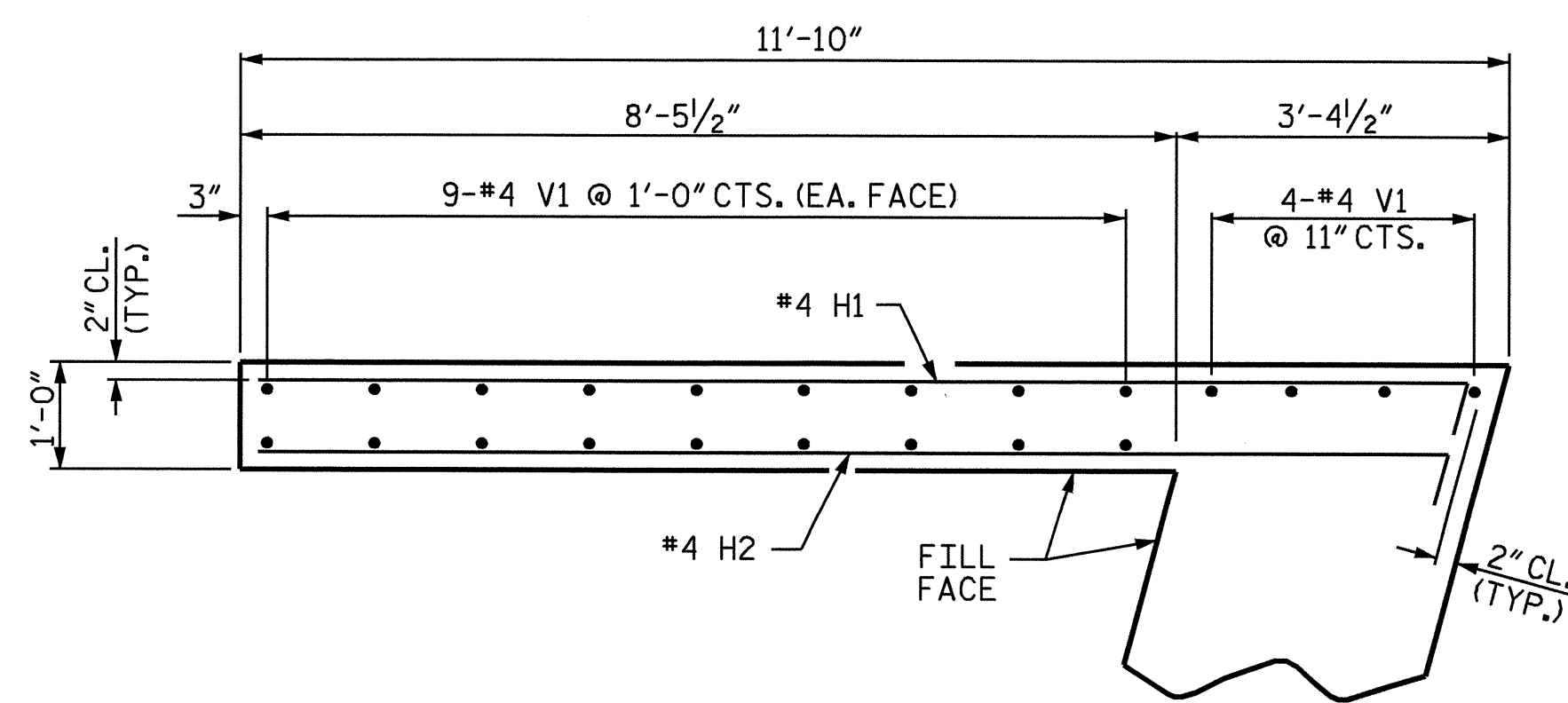
SUBSTRUCTURE  
 END BENT 1  
 INTEGRAL



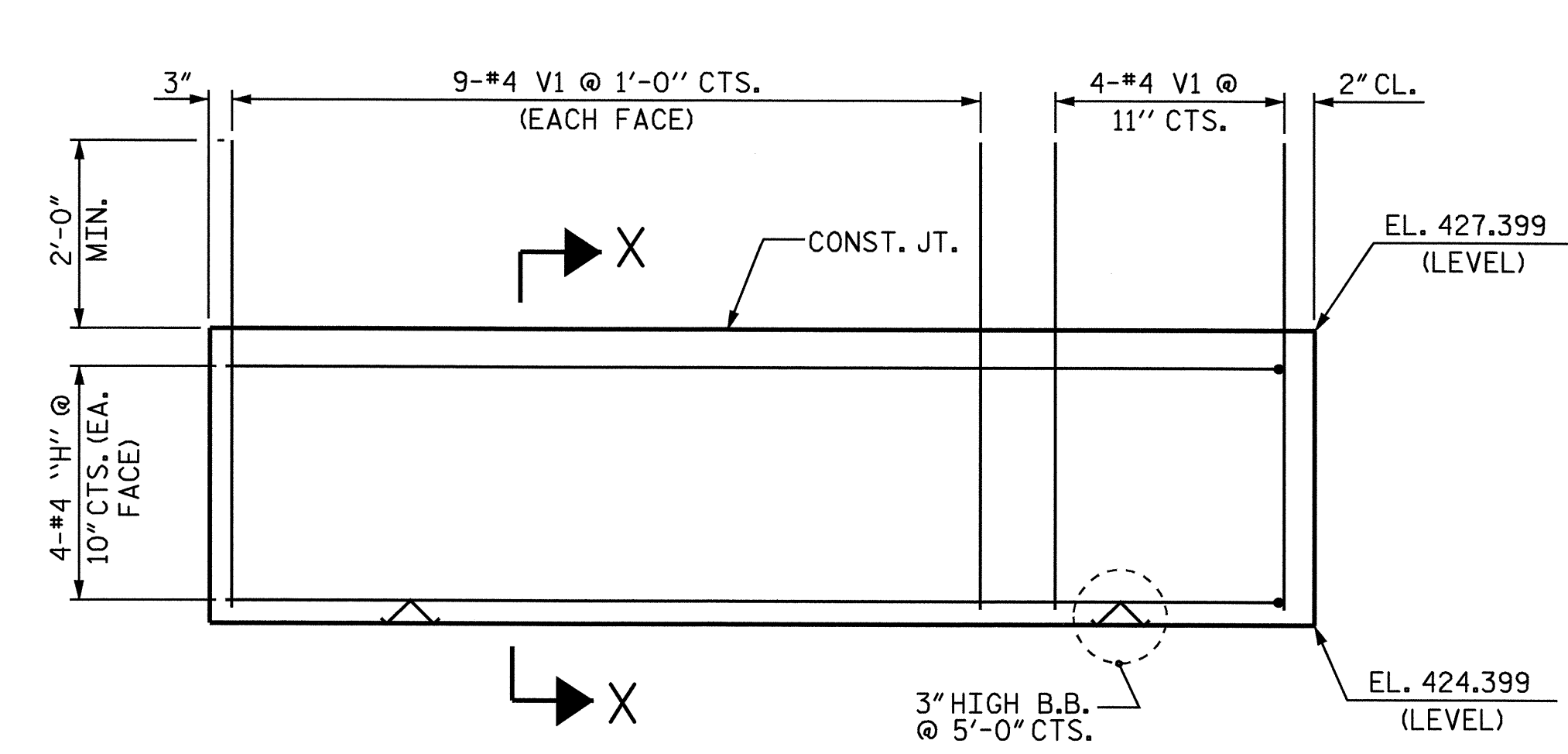
DRAWN BY: J.L. WALTON DATE: 8/07  
 CHECKED BY: D.G. ELY DATE: 8/07

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-17
1			3		TOTAL SHEETS
2			4		23

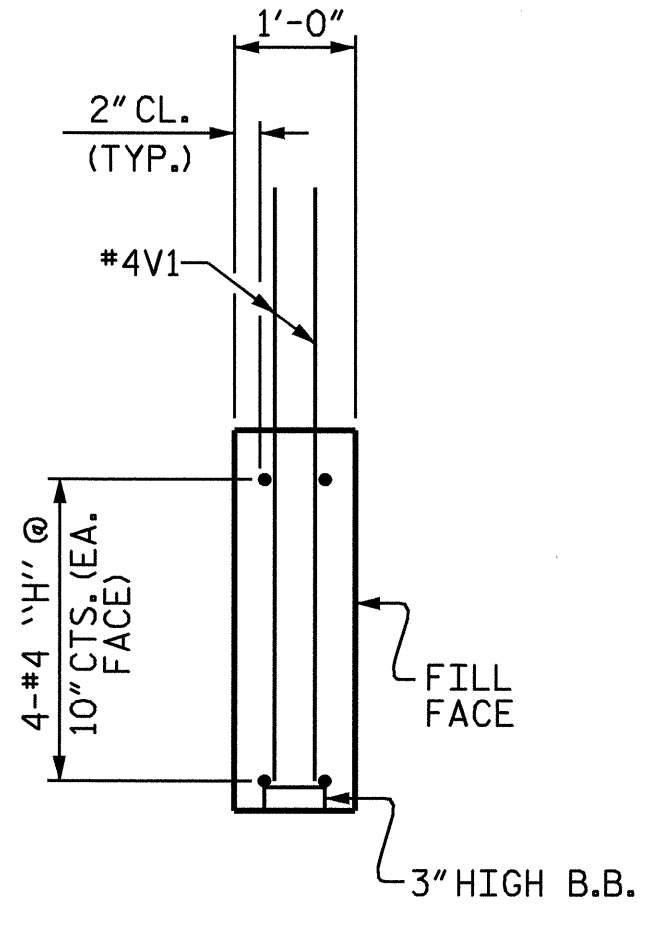




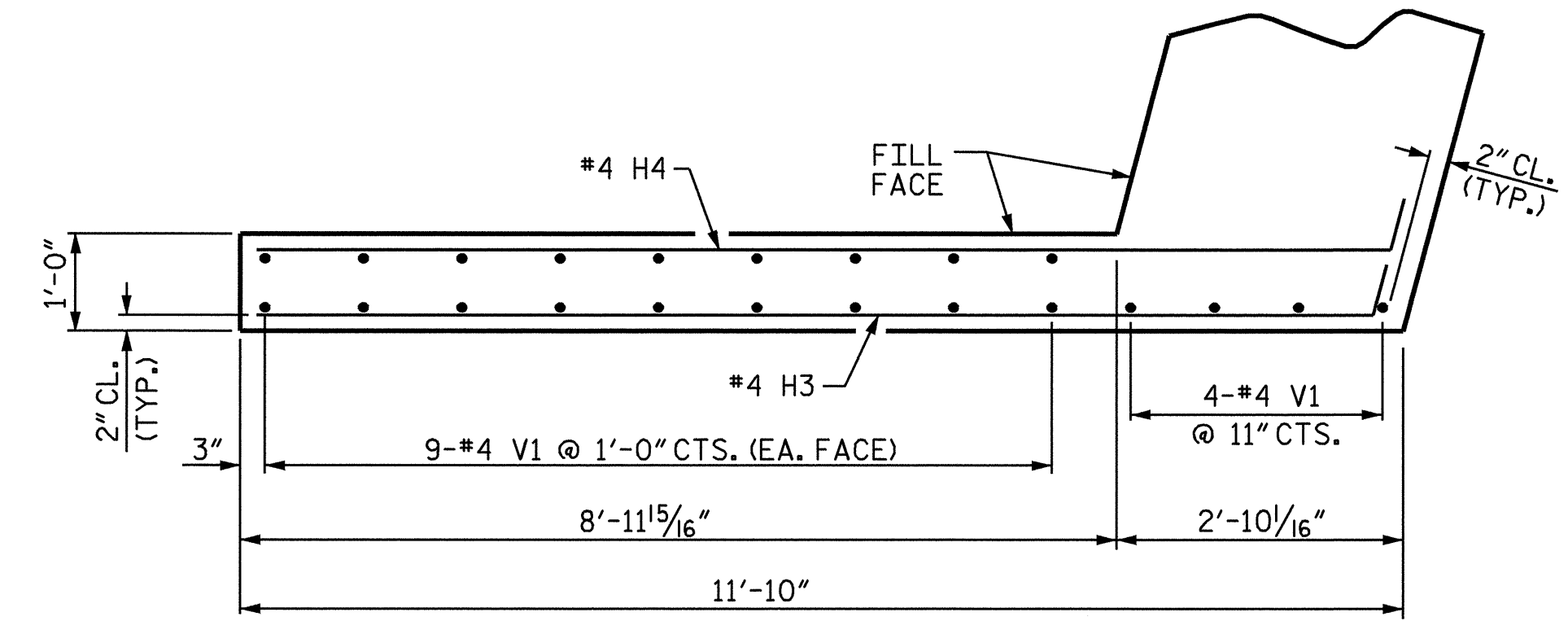
PLAN OF WING (W1)



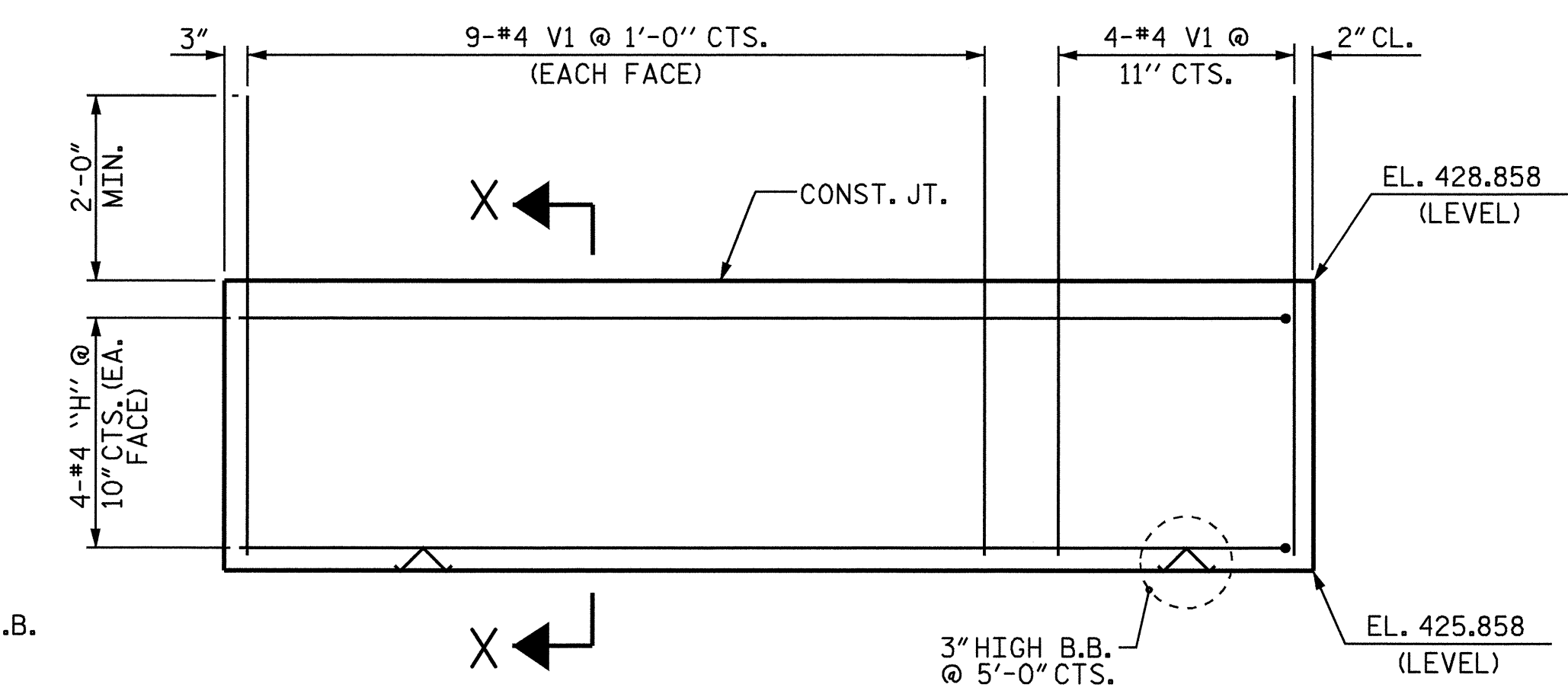
ELEVATION OF WING (W1)



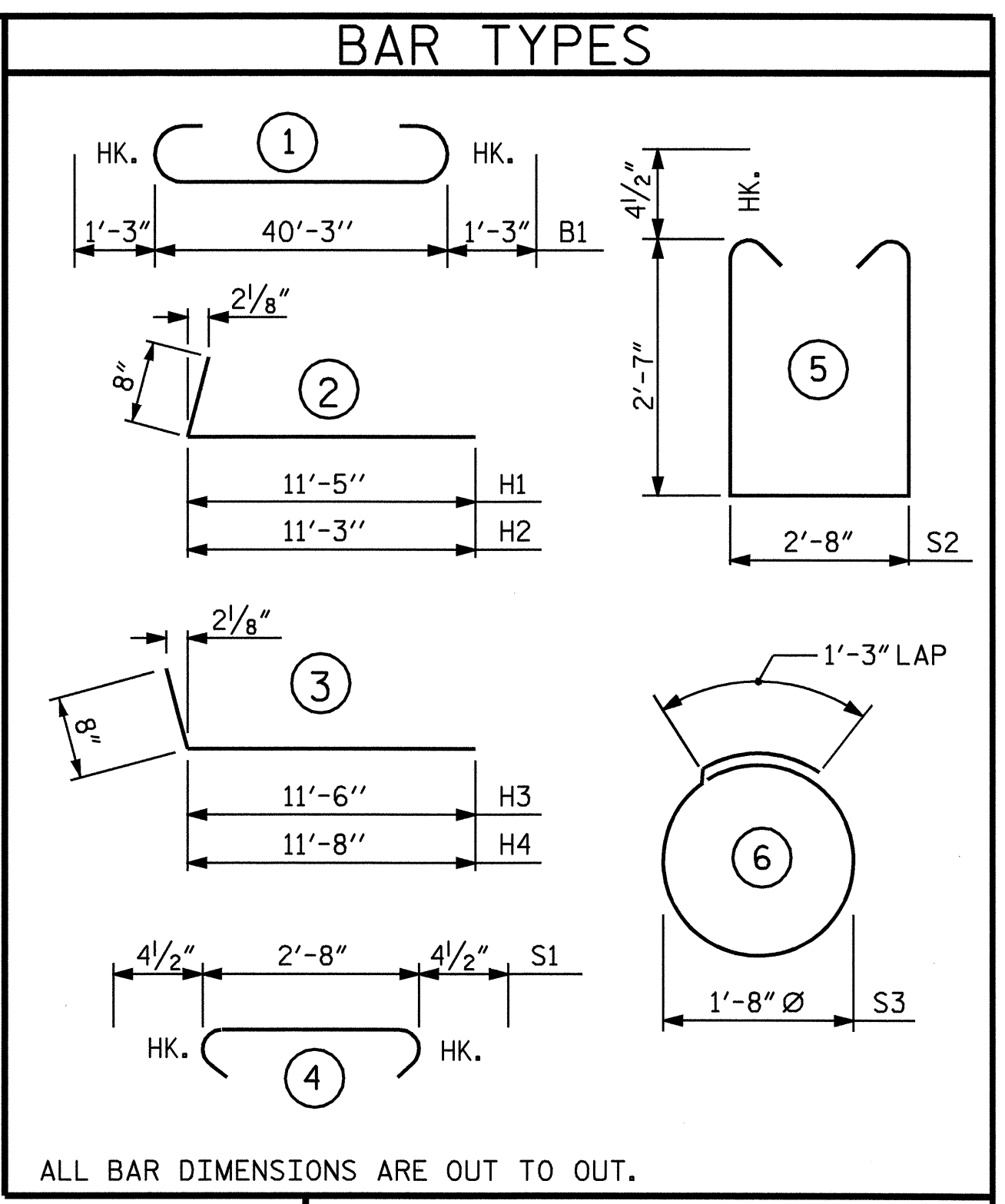
SECTION X-X



PLAN OF WING (W2)



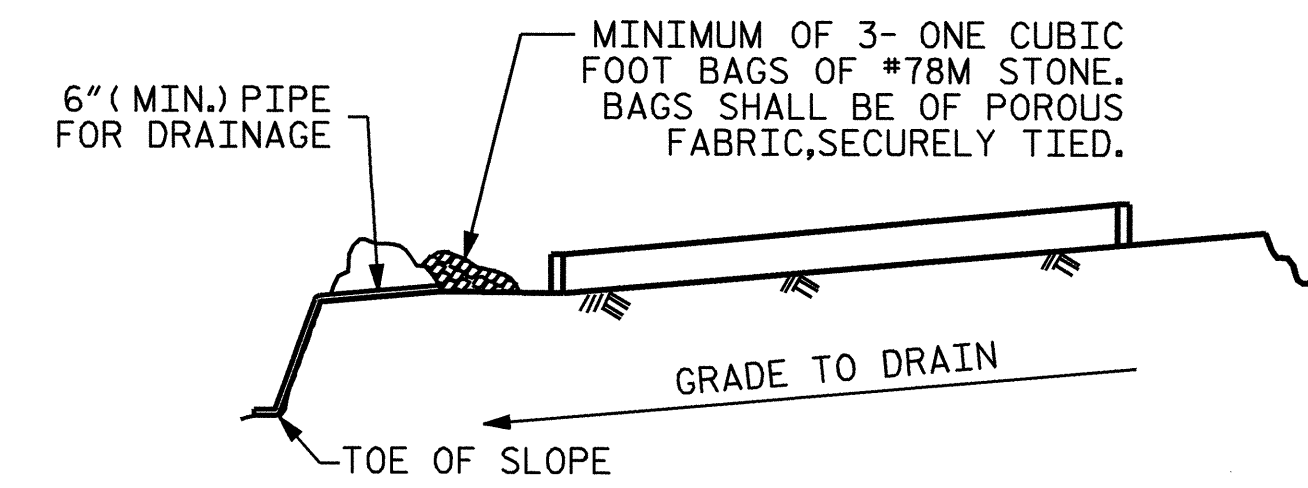
ELEVATION OF WING (W2)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	42'-9"	1163
B2	16	#4	STR	21'-5"	236
B3	10	#4	STR	2'-8"	18
D1	62	#4	STR	4'-10"	200
H1	4	#4	2	12'-1"	32
H2	4	#4	2	11'-11"	32
H3	4	#4	3	12'-2"	33
H4	4	#4	3	12'-4"	33
S1	37	#4	4	3'-5"	84
S2	37	#4	5	8'-7"	212
S3	24	#4	6	6'-6"	104
V1	44	#4	STR	4'-10"	142
REINFORCING STEEL				=	2289 LBS
CLASS A CONCRETE QUANTITIES :					
CAP & WINGS					15.6 C.Y.
HP 12 X 53 STEEL PILES :					
No. 8					120 LIN. FT.

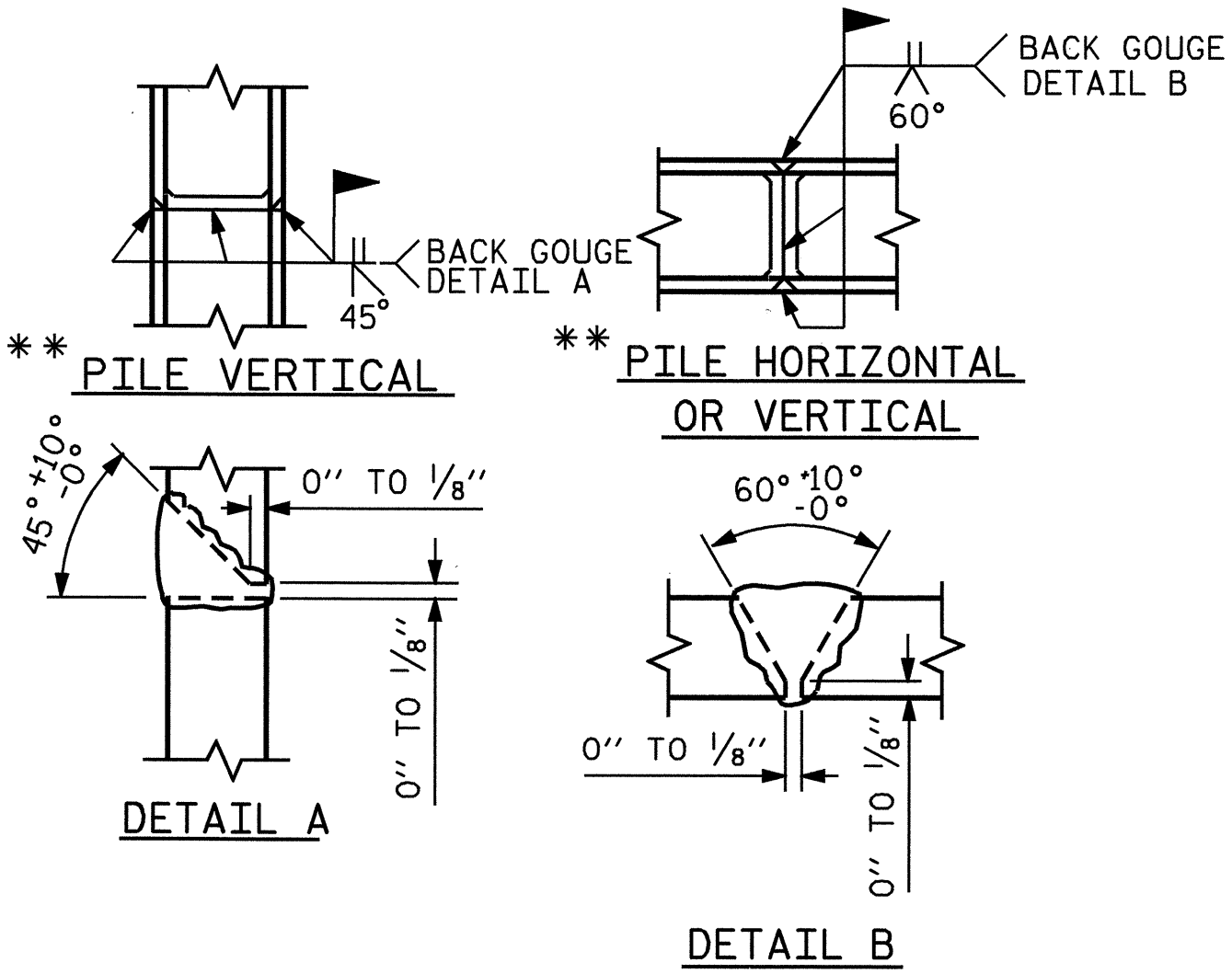


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

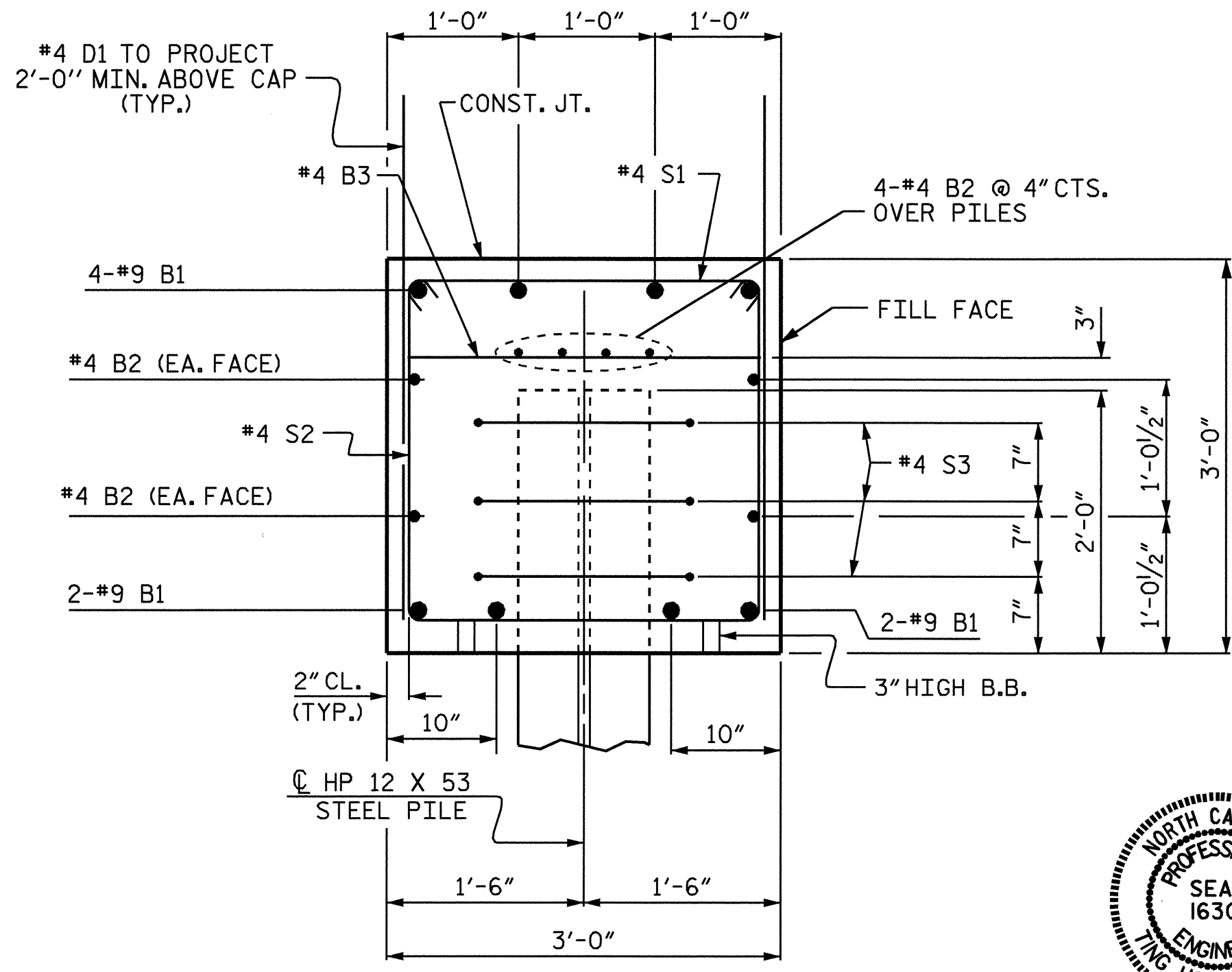
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

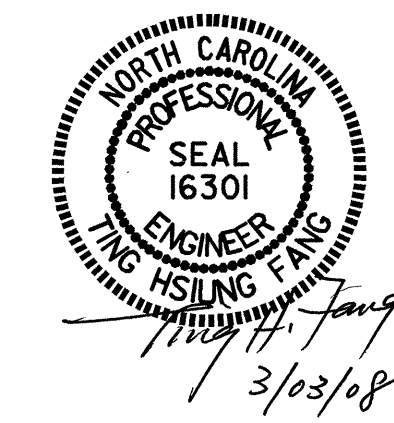
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



SECTION A-A



PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 2 OF 2

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

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1  
 INTEGRAL

TOTAL SHEETS: 23

DRAWN BY: J.L. WALTON DATE: 8/07  
 CHECKED BY: D.G. ELY DATE: 8/07

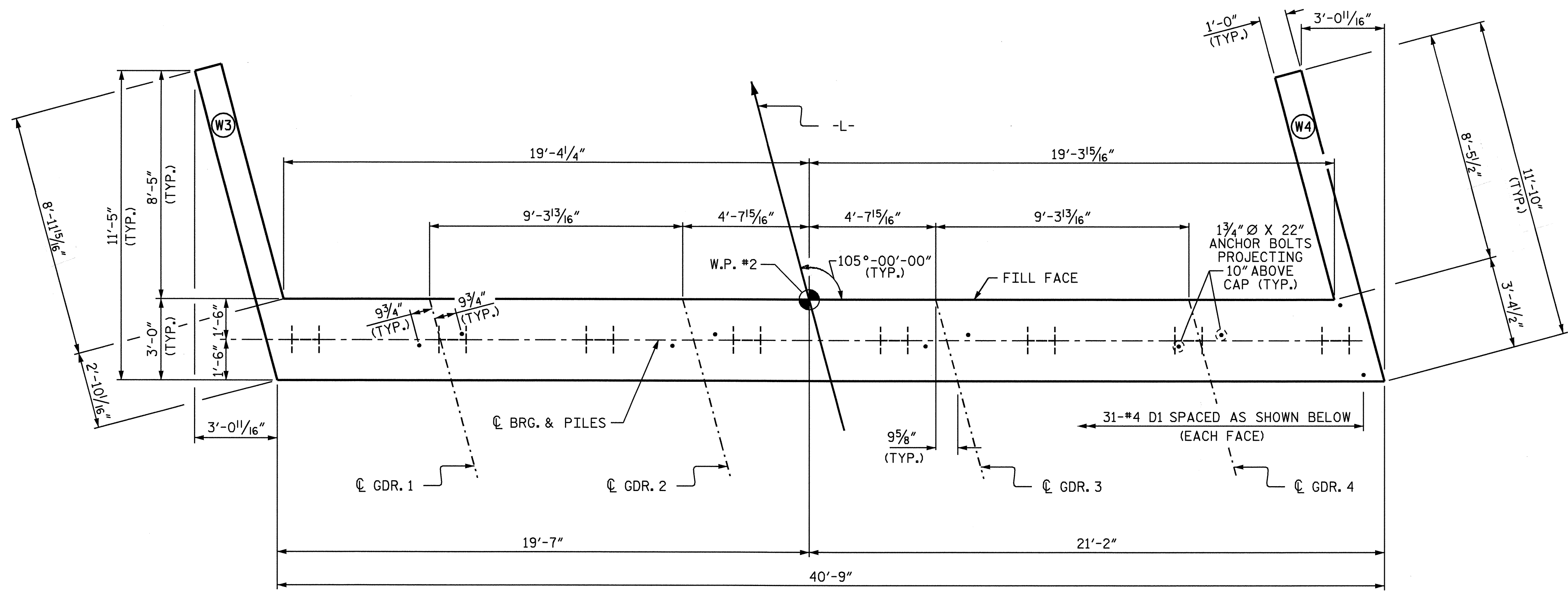
**NOTES**

STIRRUPS AND #4 B2 BARS OVER PILES IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

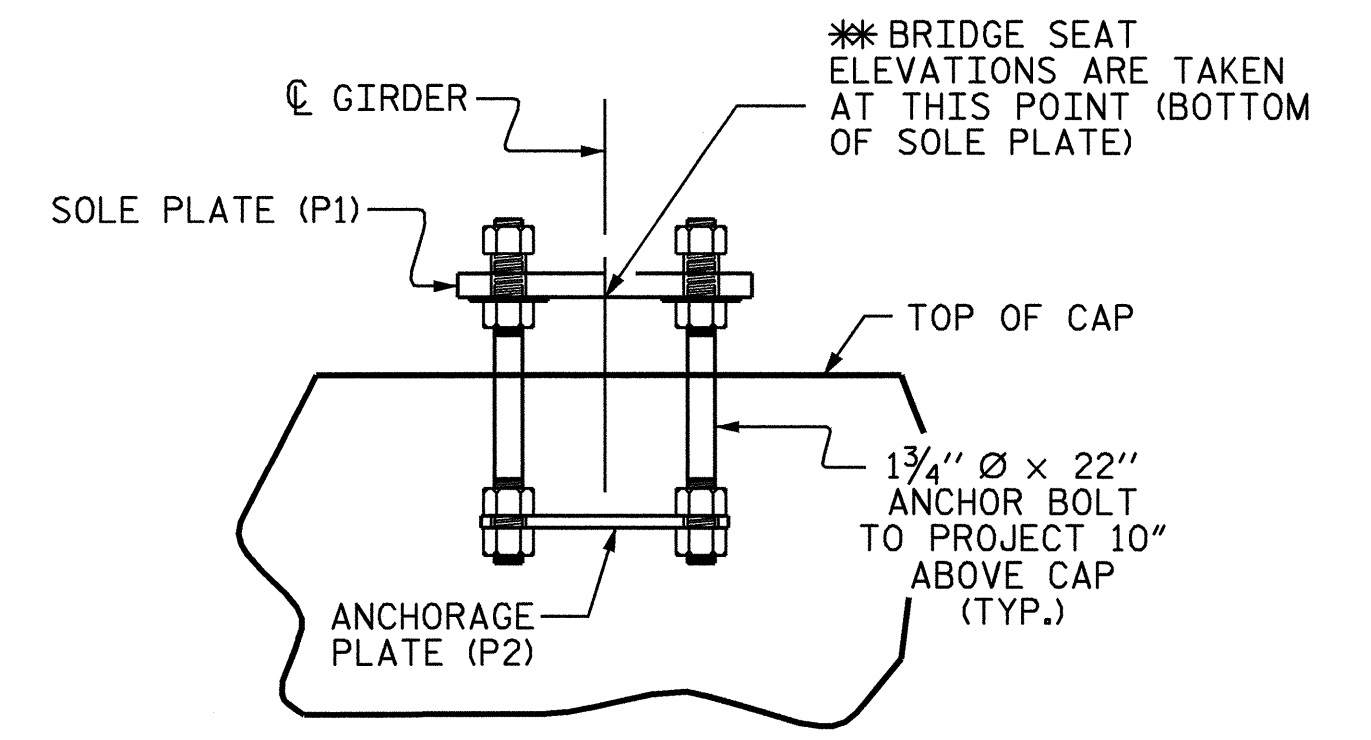
FOR PILE SPLICE DETAILS, SEE SHEET 2 OF 2.

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.

SEE SUPERSTRUCTURE SHEETS FOR ABUTMENT DETAILS.

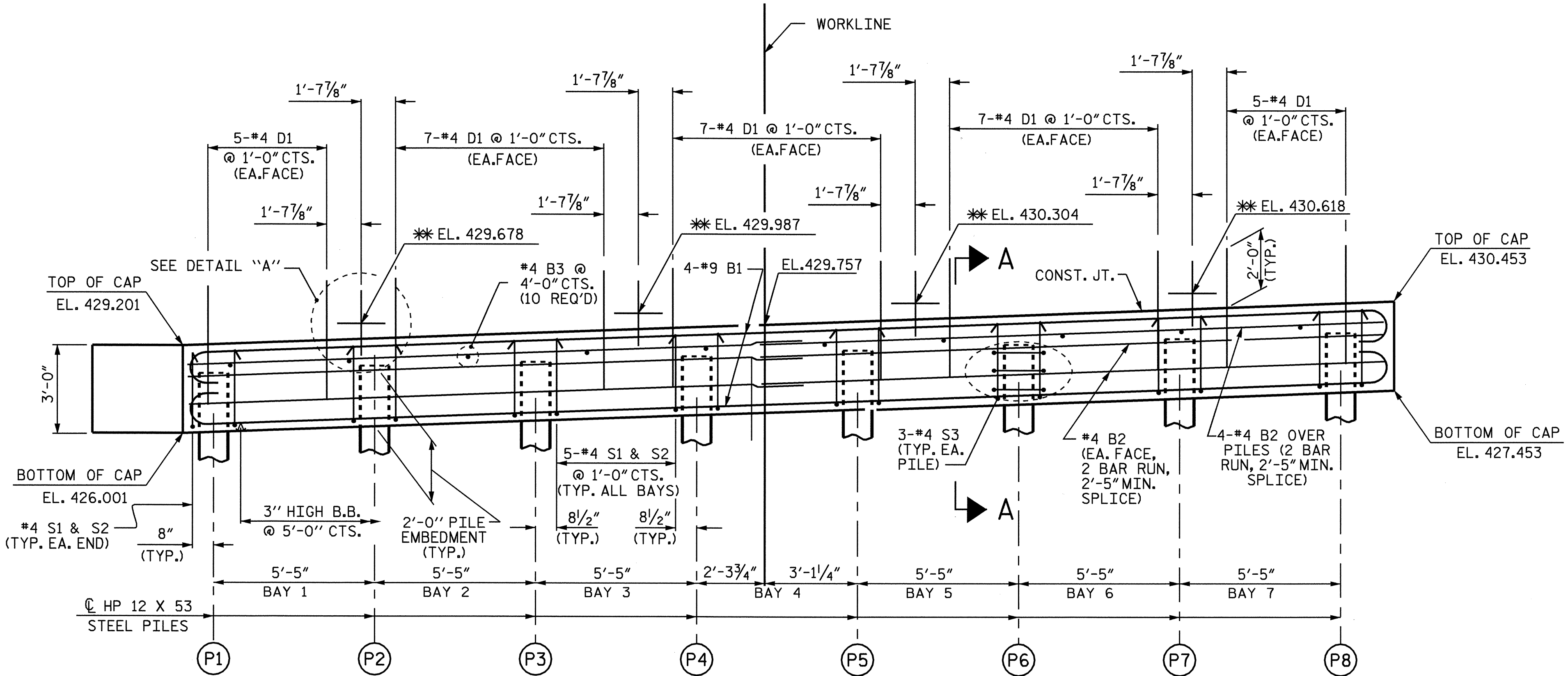


**PLAN**



**DETAIL "A"**

(TYP. EA. BEARING) (FOR DETAILS, SEE BEARING DETAILS SHEET)



**ELEVATION**

(RIGHT WING NOT SHOWN FOR CLARITY)

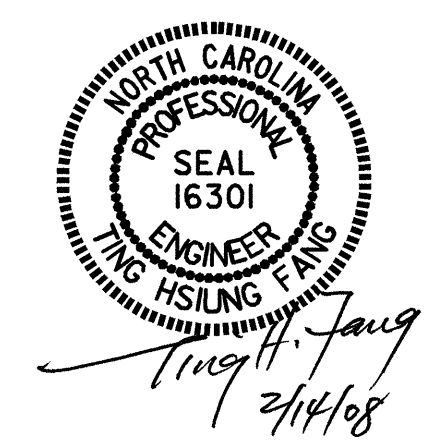
TOP OF PILE ELEVATIONS	
PILE	ELEVATION
P1	428.025
P2	428.219
P3	428.413
P4	428.607
P5	428.801
P6	428.996
P7	429.190
P8	429.384

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 2  
 INTEGRAL



DRAWN BY: J.L. WALTON DATE: 8/07  
 CHECKED BY: D.G. ELY DATE: 8/07

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

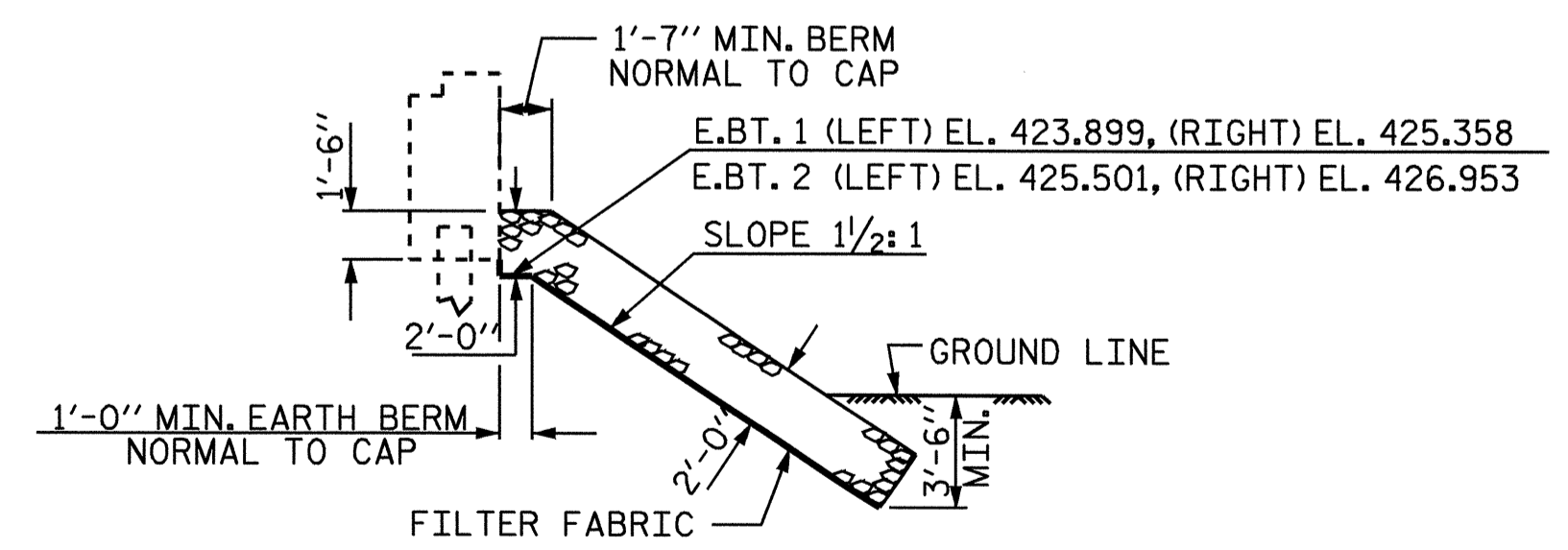
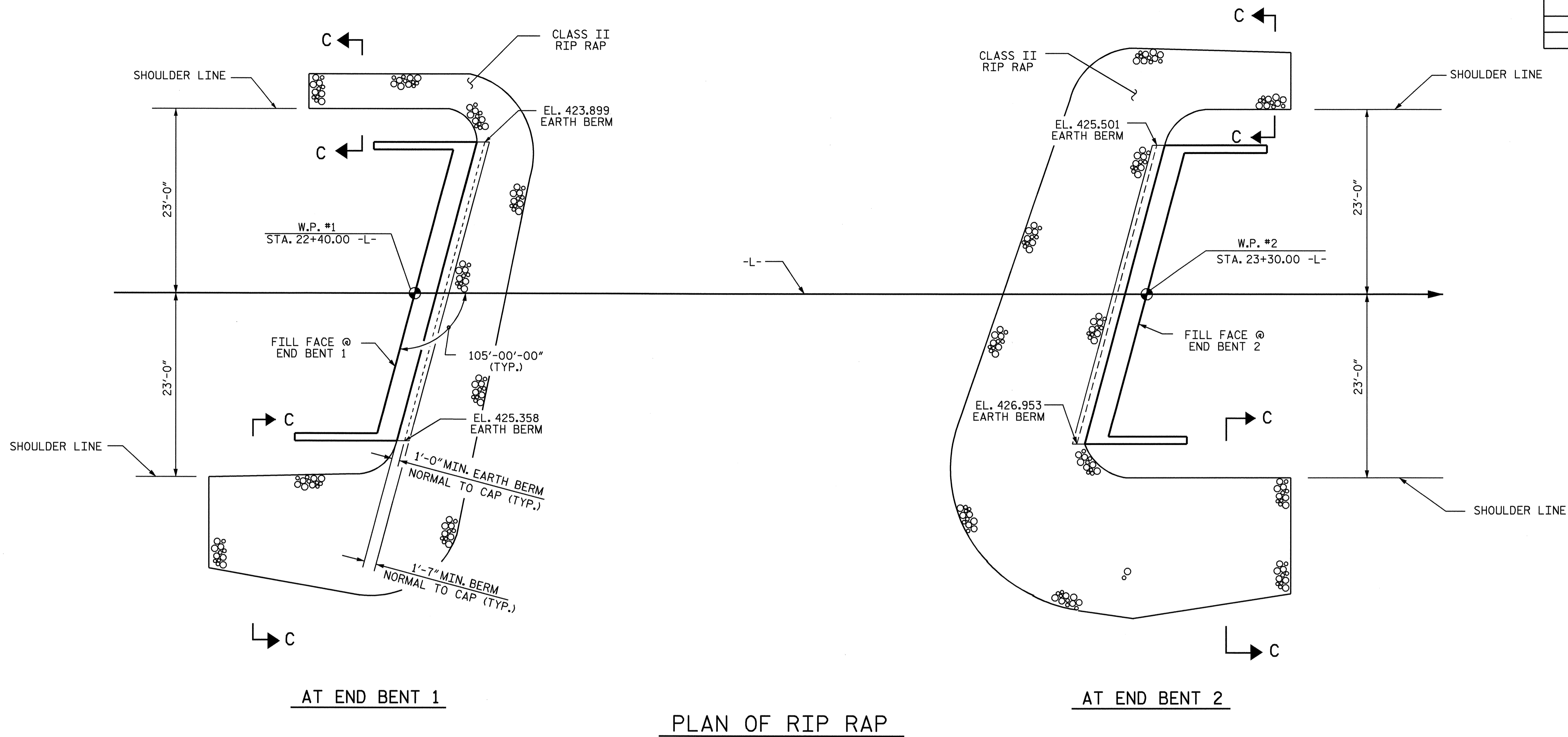
TOTAL SHEETS: 23



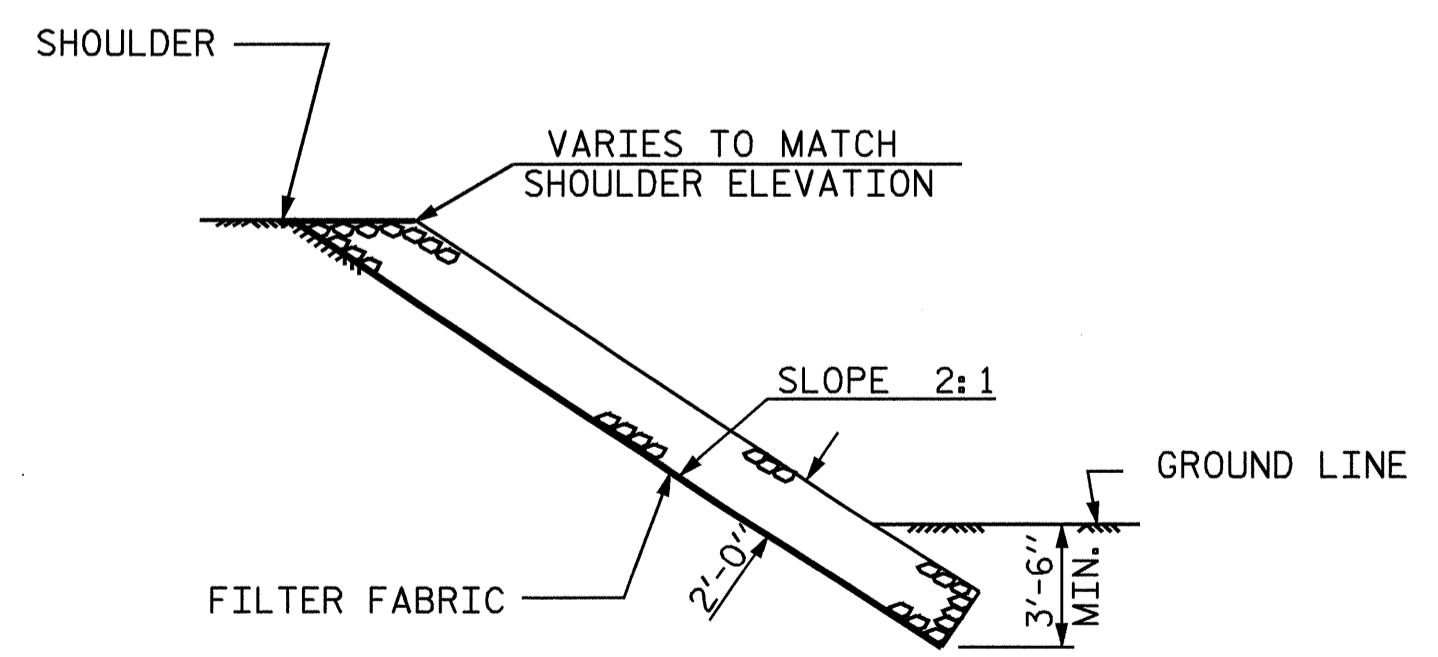




ESTIMATED QUANTITIES		
BRIDGE @ STA. 22+85.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	100	110
END BENT 2	162	180

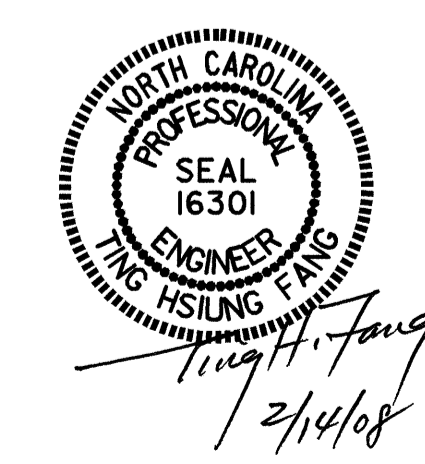


**C SECTION**  
**BERM RIP RAP**



**SECTION C-C**

PROJECT NO. B-4063  
CHATHAM COUNTY  
STATION: 22+85.00 -L-



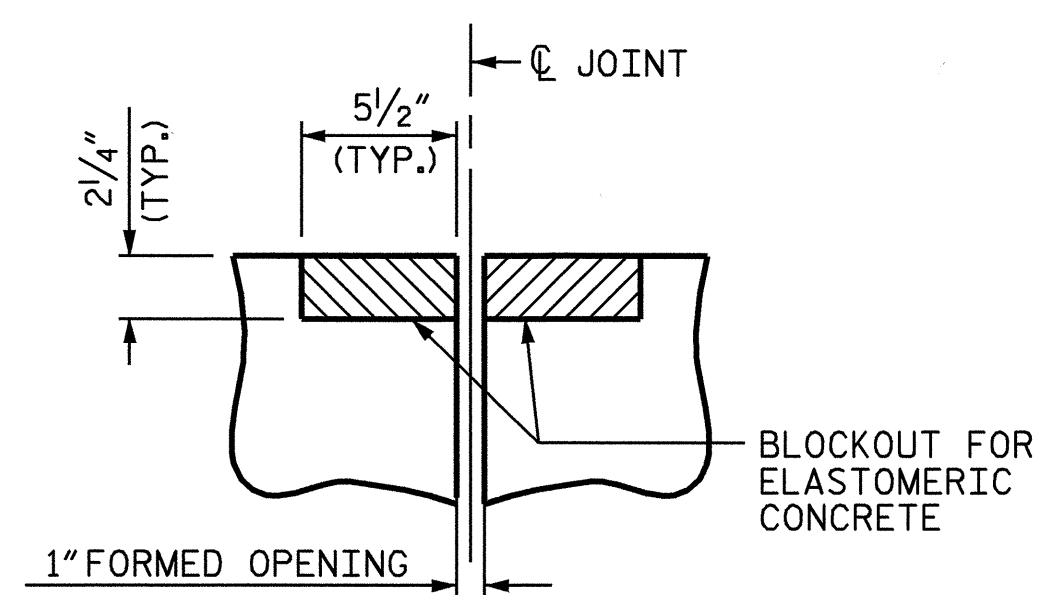
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	S-21
TOTAL SHEETS	23

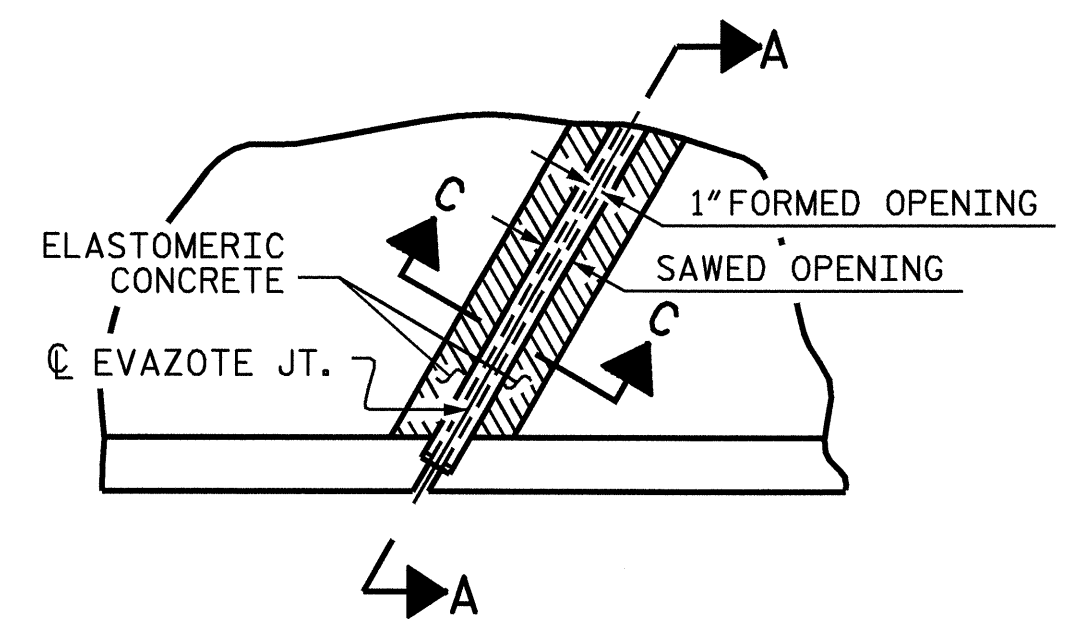
DRAWN BY: HARISH SHAH DATE: 09/07  
CHECKED BY: T.H. FANG DATE: 12/07

14-FEB-2008 15:47  
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jwalton

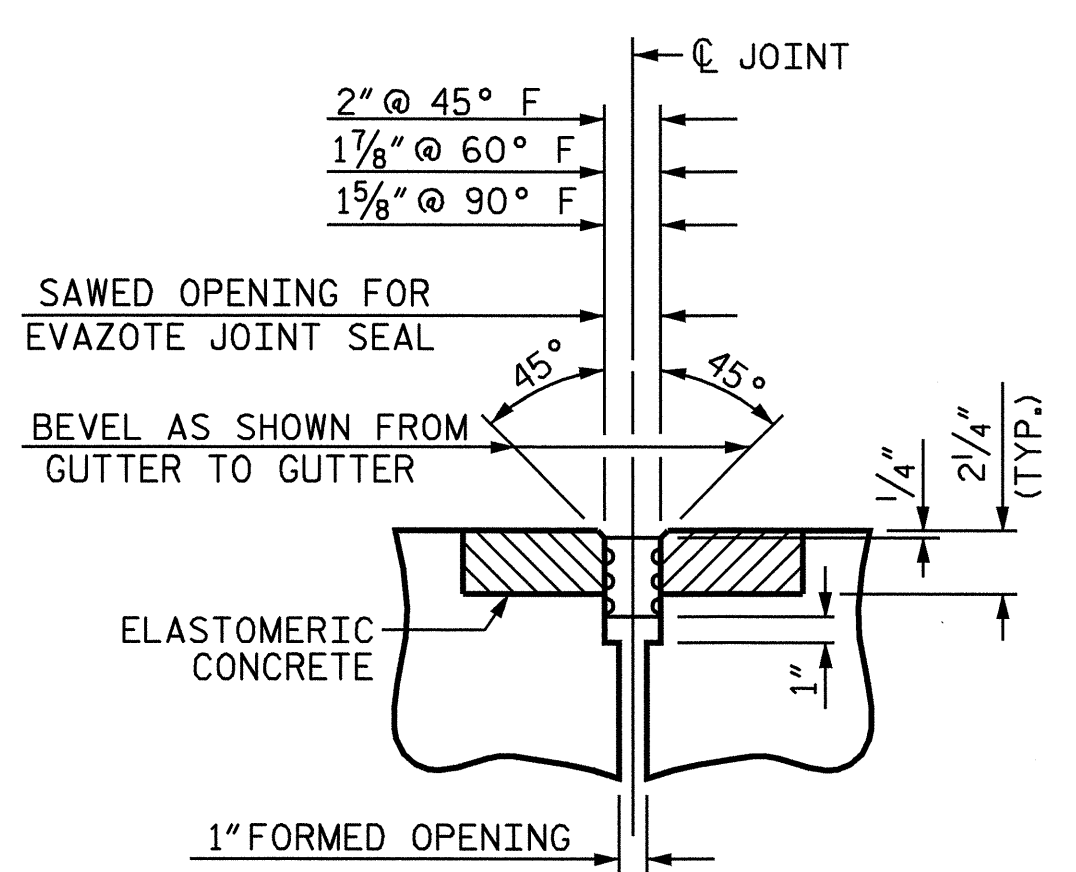




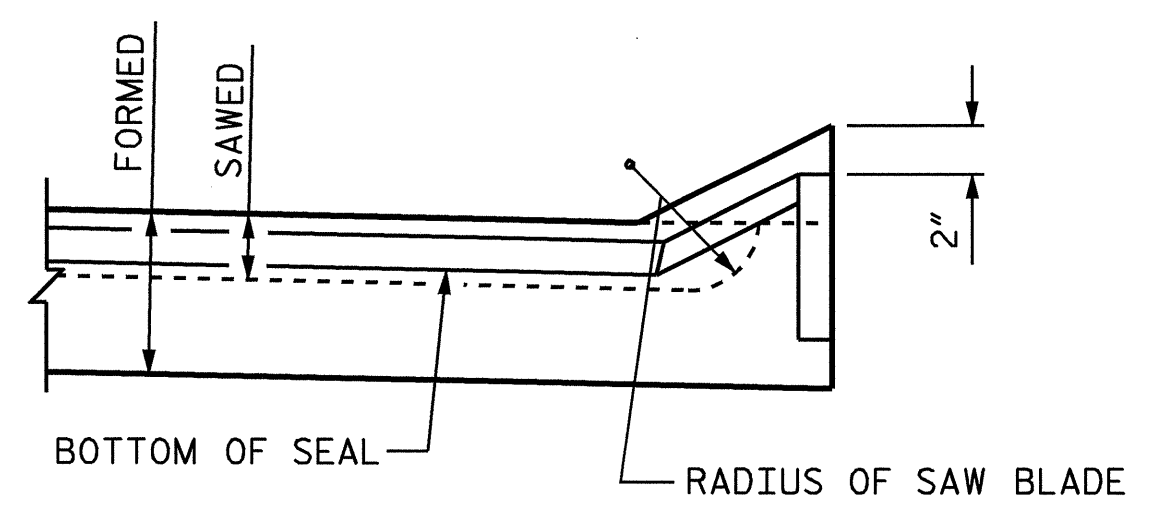
**SECTION C-C**  
EVAZOTE JOINT SEAL  
(PRE-SAWED ELASTOMERIC  
CONCRETE DIMENSIONS)



**PLAN**



**SECTION C-C**  
EVAZOTE JOINT SEAL  
(EXPANSION)

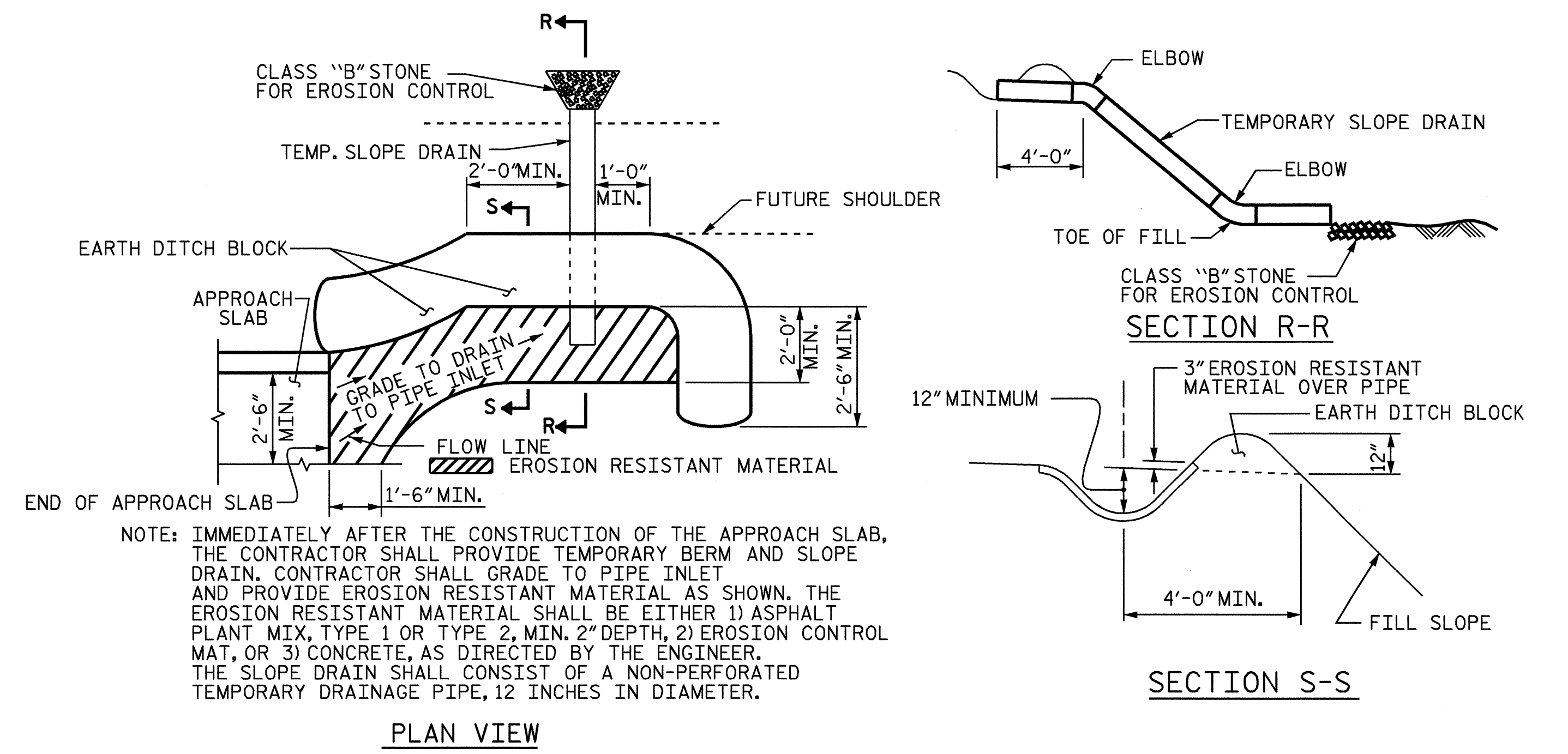


**SECTION A-A**

**JOINT SEAL DETAILS**

ELASTOMERIC CONCRETE	
APPROACH SLAB NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.3
2	5.3
TOTAL	10.6

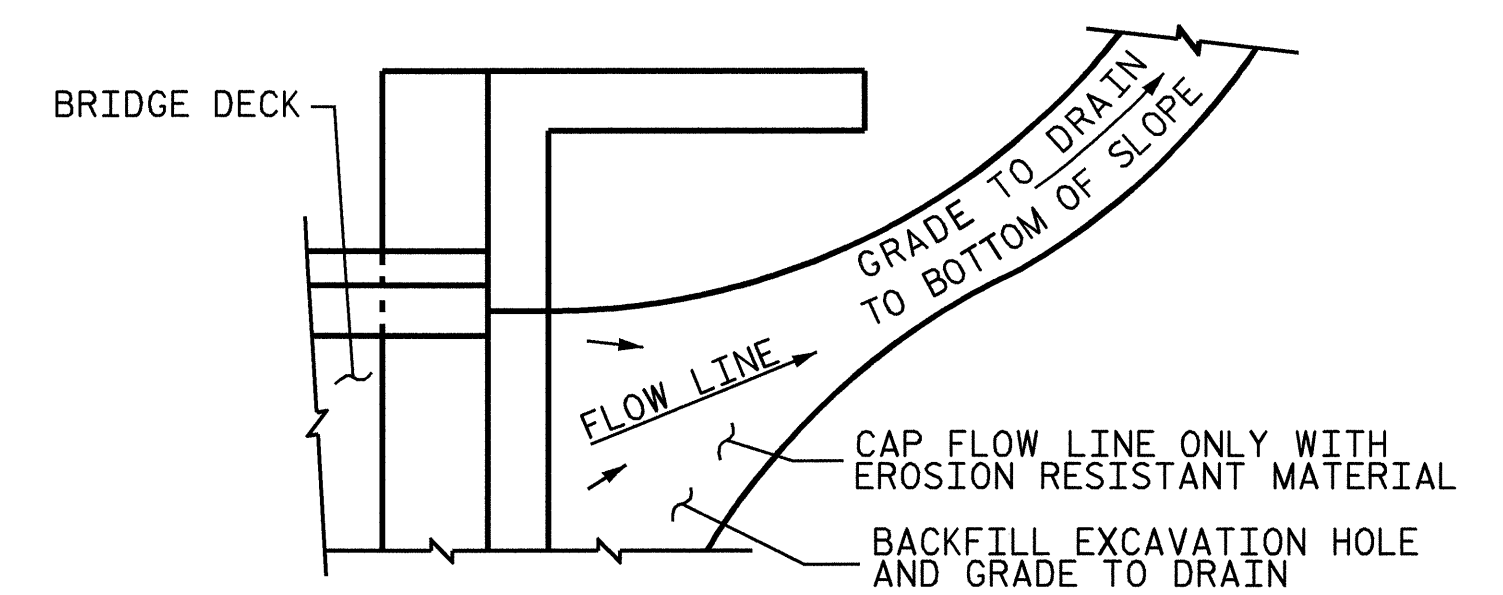
\* BASED ON THE MINIMUM BLOCKOUT SHOWN.



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

**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



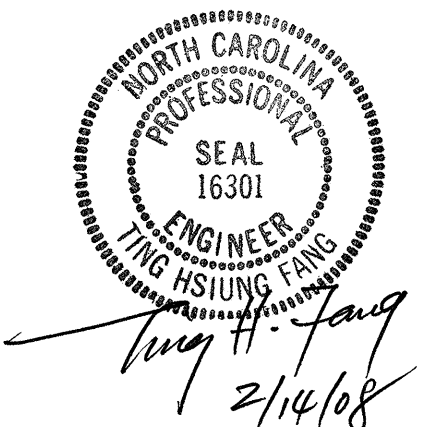
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

**TEMPORARY DRAINAGE DETAIL**

PROJECT NO. B-4063  
CHATHAM COUNTY  
 STATION: 22+85.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB DETAILS					
					1988
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-23
					TOTAL SHEETS 23



ASSEMBLED BY : H. B. SHAH	DATE : 9-07
CHECKED BY : T. H. FANG	DATE : 9-07
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM



