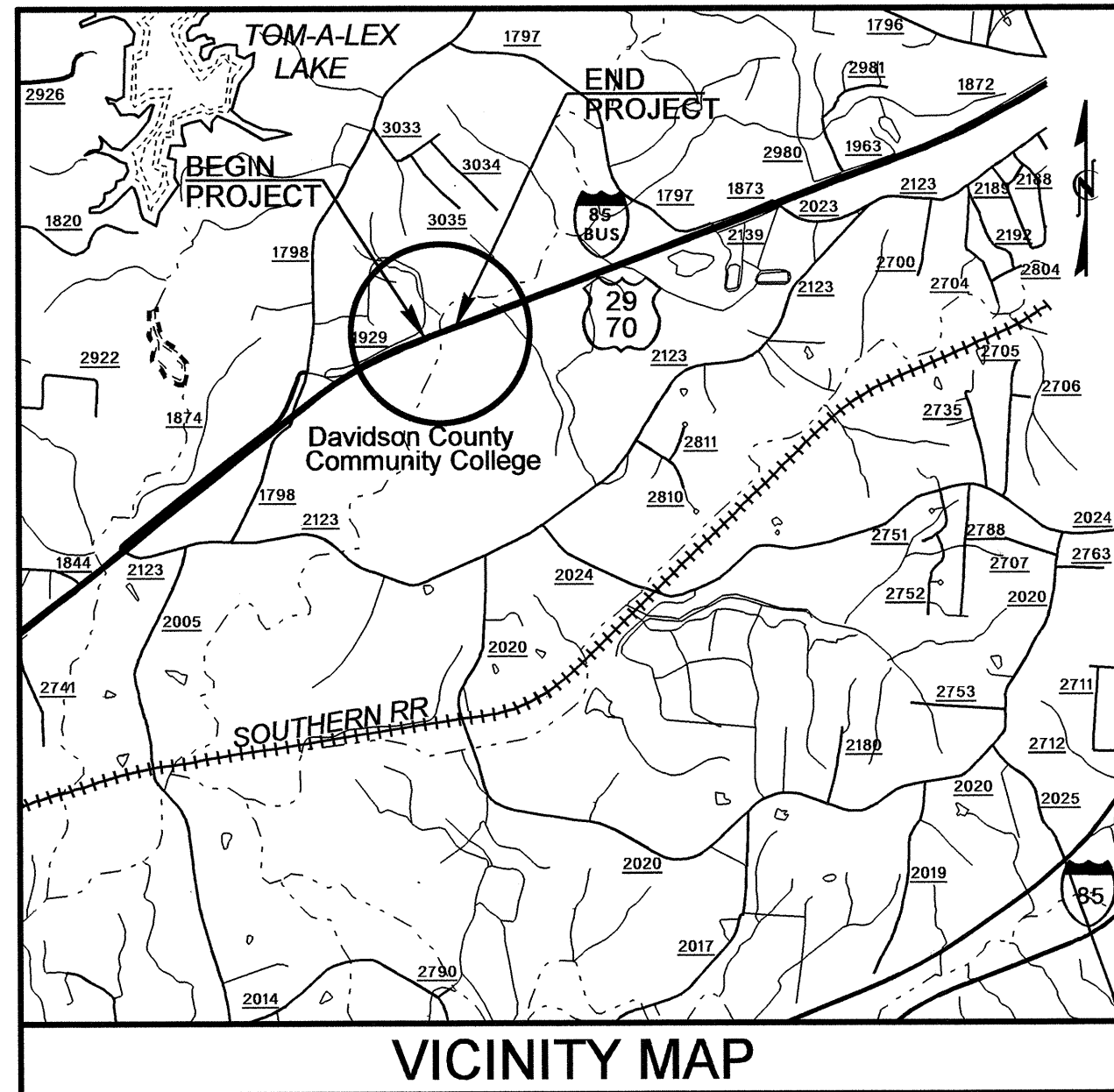


09/28/13

TIP PROJECT: B-4859

CONTRACT: C203085



VICINITY MAP

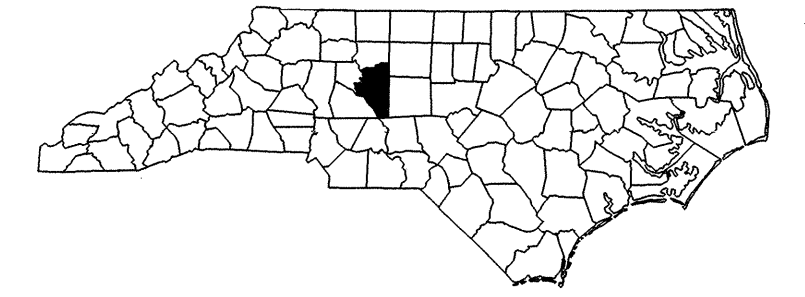
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

LOCATION: BRIDGE 138 OVER RICH FORK CREEK ON
US 29-70/I-85 BUSINESS

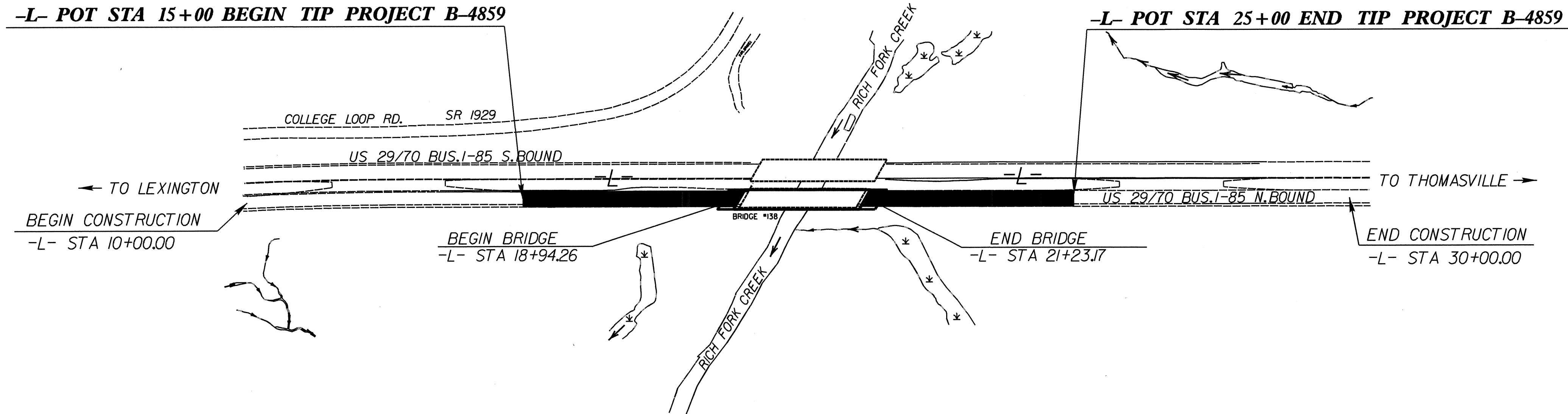
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4859		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
37531.1.1	BRSTP-29(38)	PE	
37531.2.1	BRSTP-29(38)	RW & UTIL	
37531.3.1	BRSTP-29(38)	CONST.	

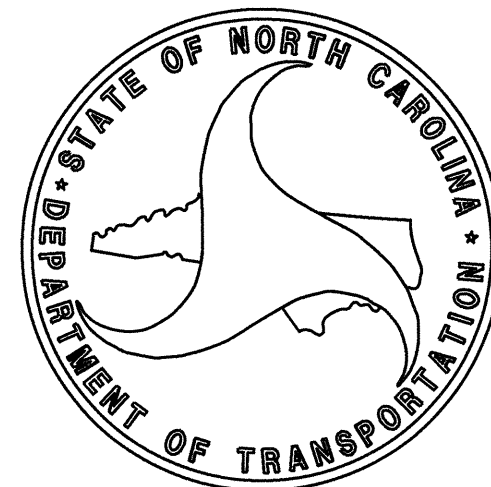


STATEWIDE TIER

STRUCTURE



THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.



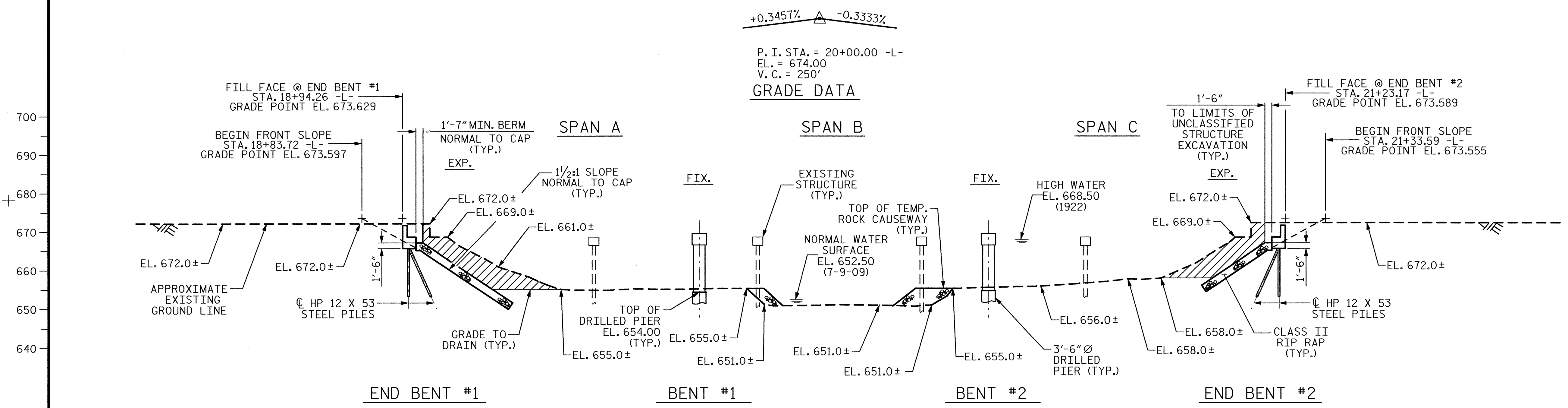
DESIGN DATA	
ADT 2013 =	29,600
ADT 2035 =	44,100
DHV =	10 %
D =	60 %
T =	16 % *
V =	60 MPH
* TTST 10%	DUAL 6%
STATEWIDE TIER	
FUNCTIONAL CLASSIFICATION	
RURAL MINOR ARTERIAL	

PROJECT LENGTH	
LENGTH OF ROADWAY TIP PROJECT B-4859	= 0.146 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4859	= 0.043 MILES
TOTAL LENGTH OF TIP PROJECT B-4859	= 0.189 MILES

Prepared for the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2012 STANDARD SPECIFICATIONS	
LETTING DATE:	MARCH 19, 2013

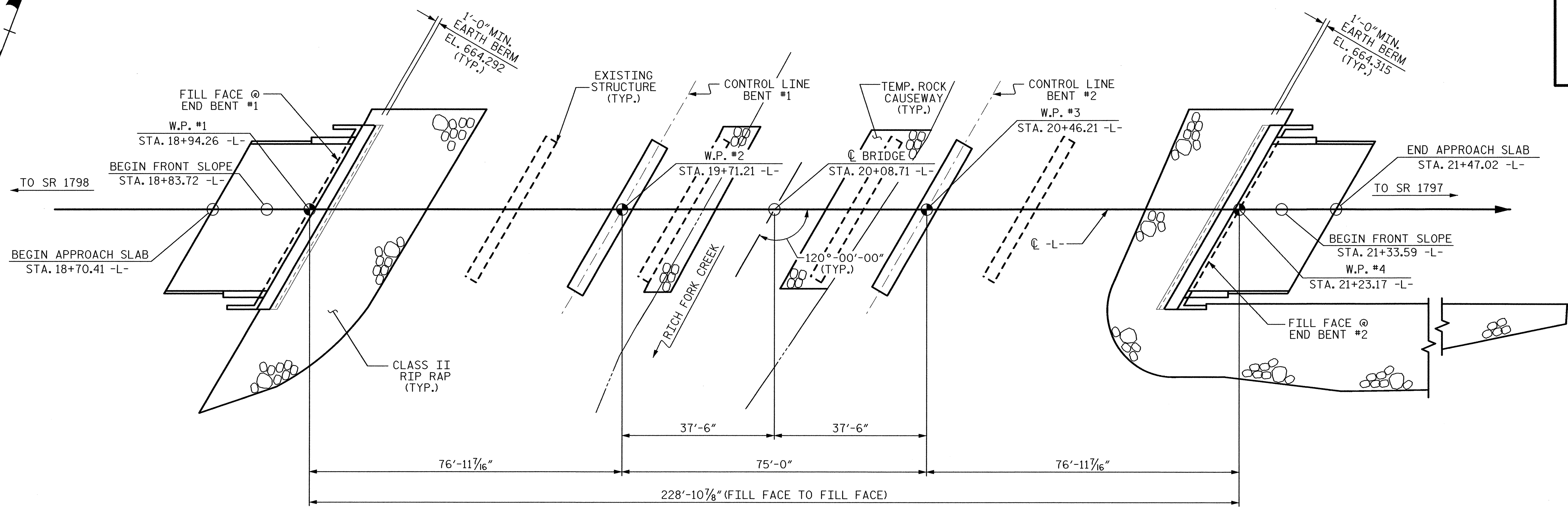
PLANS PREPARED BY:
Gannett Fleming RALEIGH, NORTH CAROLINA

11-DEC-2012 12:12
\$\$\$\$\$DCN\$\$\$\$\$
dcr:ut:cher



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

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN

(PILES NOT SHOWN IN PLAN VIEW)

PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

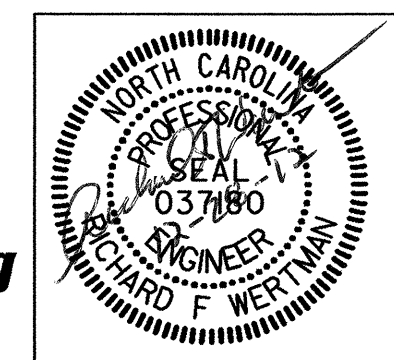
SHEET 1 OF 3 REPLACES BRIDGE #138

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER RICH
 FORK CREEK ON US 29-
 70/I-85 BUS. BETWEEN
 SR 1798 AND SR 1797

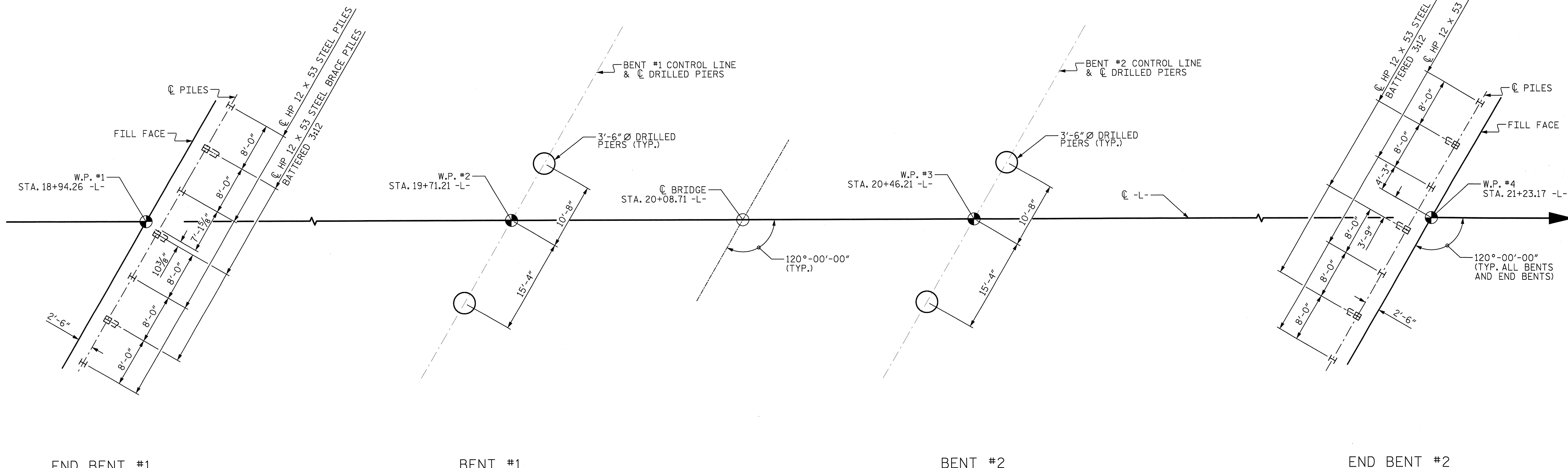
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS 33
2			4			

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA



DRAWN BY : M. G. SHAIKH DATE : 06-09-11
 CHECKED BY : L. M. SAMPLES DATE : 05-30-12

FILE: K:\055342_Davidson Cty Structure\DCN B-4859_SD_CD.dgn
 DATE: 10-JUL-2012 16:43



END BENT #1

BENT #1

BENT #2

END BENT #2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.
 DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO DRILLED PIER CENTERLINE.

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.
 DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 158 TONS PER PILE.
 FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 595.0 TONS PER PIER.
 CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 70.0 TSF.
 PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO.1, IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 634.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.
 INSTALL DRILLED PIERS AT BENT NO.1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 610.0 FT, SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A PENETRATION OF AT LEAST 6 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 627.0 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 DRILLED PIERS AT BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 585.0 TONS PER PIER.
 CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 70 TSF.

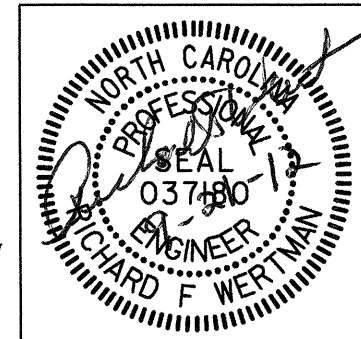
PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO.2, IF REQUIRED, DO NOT EXTEND CASING BELOW ELEVATION 637.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.
 INSTALL DRILLED PIERS AT BENT NO.2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 625.0 FT, SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A PENETRATION OF AT LEAST 6 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 635.0 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 SPT MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SPT. FOR SPT TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.
 DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 158 TONS PER PILE.

PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 3 REPLACES BRIDGE #138

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER RICH
 FORK CREEK ON US 29-
 70/I-85 BUS. BETWEEN
 SR 1798 AND SR 1797

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

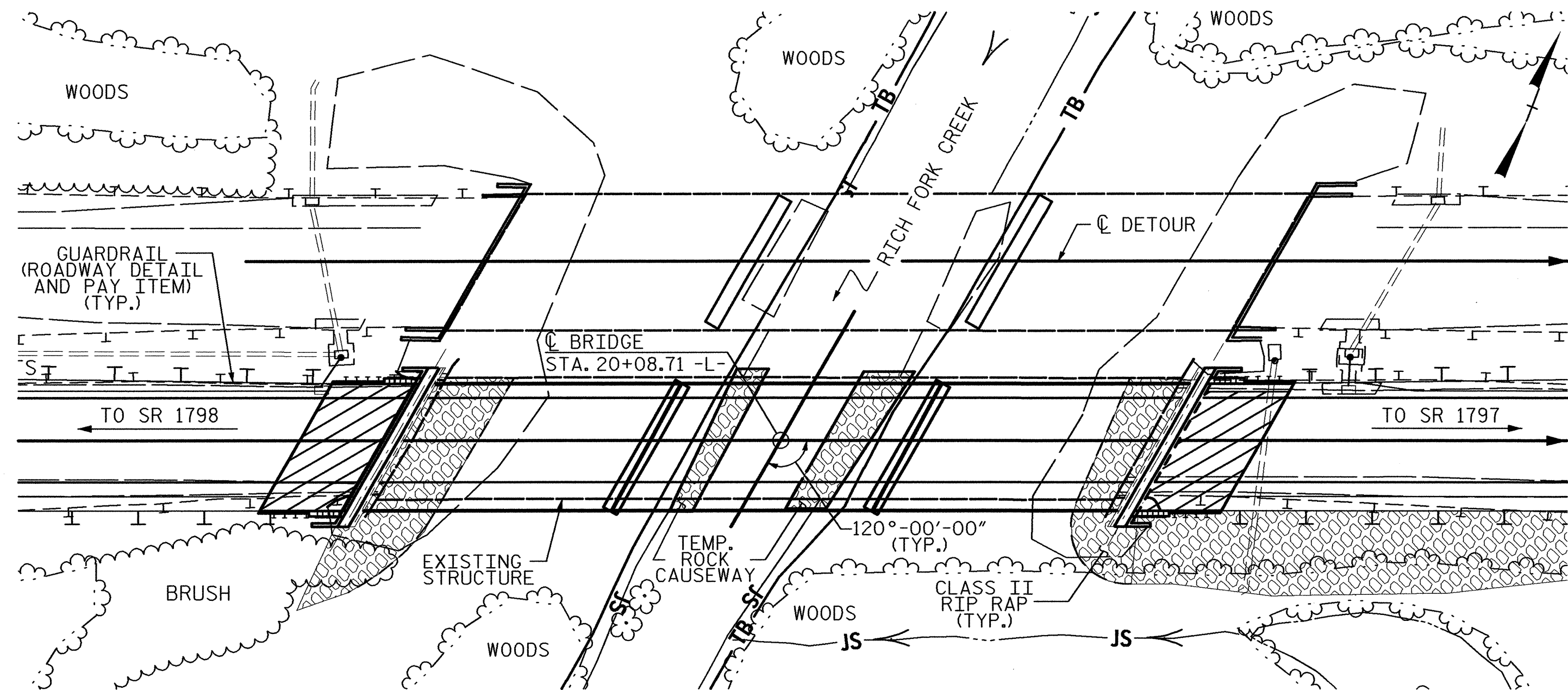


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1			3			TOTAL SHEETS	
2			4			33	

DRAWN BY : L.M. SAMPLES DATE : 05-18-12
 CHECKED BY : J.M. KEPICH DATE : 05-22-12

I:\FILES\055342 Davidsoen Cty Structure\DON-B-4859-SD_CD.dwg
 PLOT DATE: 05-22-12 08:59

BENCH MARK : 2-RAILROAD SPIKE IN BASE OF 18" Ø OAK 330.99' LEFT OF STA. 19+53.61 -L- EL. 677.970



HYDRAULIC DATA

DESIGN DISCHARGE = 6650 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YRS.
 DESIGN HIGH WATER ELEVATION = 663.04
 DRAINAGE AREA = 47.7 SQ. MI.
 BASE DISCHARGE (Q100) = 8900 C.F.S.
 BASE HIGH WATER ELEVATION = 664.53

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 12100 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 500 YRS.+
 OVERTOPPING FLOOD ELEVATION = 673.12

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

THE EXISTING STRUCTURE CONSISTING OF FIVE SPANS-42'-6" FT. EACH, WITH A CLEAR ROADWAY OF 30' ON REINFORCED CONCRETE DECK GIRDERS ON END BENTS WITH PILE FOOTINGS, REINFORCED CONCRETE POST & WEB INTERIOR BENTS WITH PILE FOOTINGS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED BELOW THE LEGAL LOAD LIMIT, SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE 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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. LEFT AND 30 FT. RIGHT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 20+08.71 -L-.

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 1024-5 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.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES		
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.
SUPERSTRUCTURE			8888	8992		LUMP SUM			12	890		
END BENT NO.1		LUMP SUM			33.8		5240				7	280
BENT NO.1					36.1		11598	2245				
BENT NO.2					35.9		10170	1627				
END BENT NO.2		LUMP SUM			33.3		5215				7	210
TOTAL	LUMP SUM	LUMP SUM	8888	8992	139.1	LUMP SUM	32223	3872	12	890	14	490

TOTAL BILL OF MATERIAL

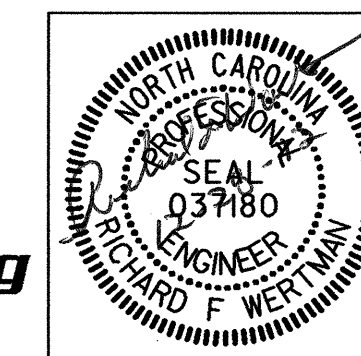
	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS	CSL TESTING	SID INSPECTIONS	SPT TESTING	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	CONST. MAINT & REMOVAL OF TEMP. ACCESS
	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE							494.51			LUMP SUM	LUMP SUM	
END BENT NO.1								203	225			
BENT NO.1	34.0	54.0	40.0									
BENT NO.2	30.0	28.0	34.0									
END BENT NO.2								531	589			
TOTAL	64.0	82.0	74.0	1	1	1	494.51	734	814	LUMP SUM	LUMP SUM	LUMP SUM

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 3 OF 3 REPLACES BRIDGE #138

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER RICH
 FORK CREEK ON US 29-
 70/I-85 BUS. BETWEEN
 SR 1798 AND SR 1797



PLANS PREPARED BY:



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

DRAWN BY : L.M. SAMPLES DATE : 05-31-12
 CHECKED BY : R.F. WERTMAN DATE : 06-04-12

FILE: K:\065342_Davidson_Cty_Structure\06N\B-4859_SD.cb.dgn DATE: 26-JUN-2012 10:15

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.09	--	1.75	0.896	1.34	A	ER	36.4	1.097	1.70	A	I	29.0	0.80	0.856	1.09	A	I	36.4	1,2	
	HL-93 (OPERATING)	N/A	--	1.74	--	1.35	0.896	1.74	A	ER	36.4	1.097	2.52	A	I	72.8	N/A	--	--	--	--	--	--	1,2
	HS-20 (INVENTORY)	36.000	2	1.44	51.84	1.75	0.896	1.77	A	ER	36.4	1.097	2.45	A	I	29.0	0.80	0.856	1.44	A	I	36.4	1,2	
	HS-20 (OPERATING)	36.000	--	2.30	82.80	1.35	0.896	2.30	A	ER	36.4	1.097	3.24	A	I	72.8	N/A	--	--	--	--	--	--	1,2
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500	--	3.58	44.75	1.40	0.896	5.50	A	ER	36.4	1.097	8.18	A	I	72.8	0.80	0.856	3.58	A	I	36.4	1,2
		S3C	21.500	--	2.08	44.72	1.40	0.896	3.20	A	ER	36.4	1.097	4.83	A	I	72.8	0.80	0.856	2.08	A	I	36.4	1,2
		S3A	22.750	--	1.98	45.05	1.40	0.896	3.04	A	ER	36.4	1.097	4.57	A	I	72.8	0.80	0.856	1.98	A	I	36.4	1,2
		S4A	26.750	--	1.75	46.81	1.40	0.896	2.69	A	ER	36.4	1.097	4.00	A	I	72.8	0.80	0.856	1.75	A	I	36.4	1,2
		S5A	30.500	--	1.54	46.97	1.40	0.896	2.37	A	ER	36.4	1.097	3.66	A	I	72.8	0.80	0.856	1.54	A	I	36.4	1,2
		S6A	34.500	--	1.41	48.65	1.40	0.896	2.16	A	ER	36.4	1.097	3.31	A	I	72.8	0.80	0.856	1.41	A	I	36.4	1,2
		S7B	38.500	--	1.28	49.28	1.40	0.896	1.97	A	ER	36.4	1.097	3.08	A	I	72.8	0.80	0.856	1.28	A	I	36.4	1,2
		S7A	40.000	3	1.27	50.80	1.40	0.896	1.96	A	ER	36.4	1.097	3.16	A	I	72.8	0.80	0.856	1.27	A	I	36.4	1,2
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250	--	1.74	49.16	1.40	0.896	2.67	A	ER	36.4	1.097	3.86	A	I	72.8	0.80	0.856	1.74	A	I	36.4	1,2
		T5B	32.000	--	1.52	48.64	1.40	0.896	2.34	A	ER	36.4	1.097	3.68	A	I	72.8	0.80	0.856	1.52	A	I	36.4	1,2
		T6A	36.000	--	1.40	50.40	1.40	0.896	2.15	A	ER	36.4	1.097	3.37	A	I	72.8	0.80	0.856	1.40	A	I	36.4	1,2
		T7A	40.000	--	1.31	52.40	1.40	0.896	2.01	A	ER	36.4	1.097	3.16	A	I	72.8	0.80	0.856	1.31	A	I	36.4	1,2
		T7B	40.000	--	1.41	56.40	1.40	0.896	2.17	A	ER	36.4	1.097	2.97	A	I	72.8	0.80	0.856	1.41	A	I	36.4	1,2

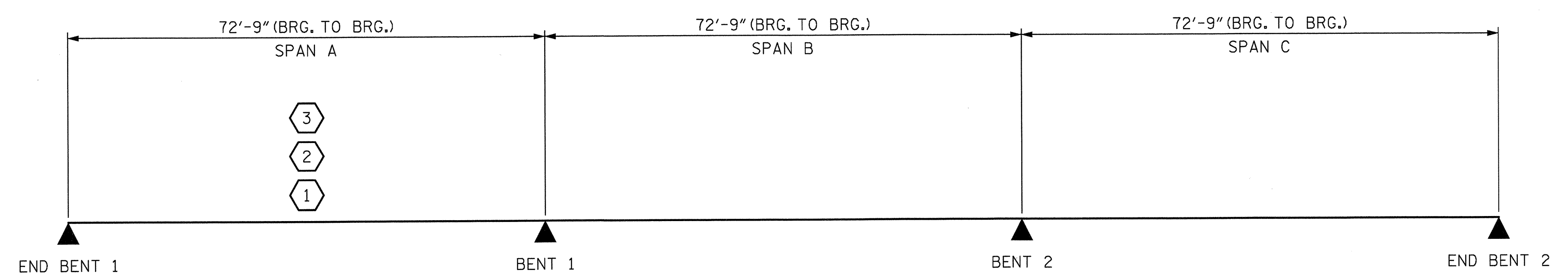
NOTES:

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

COMMENTS:

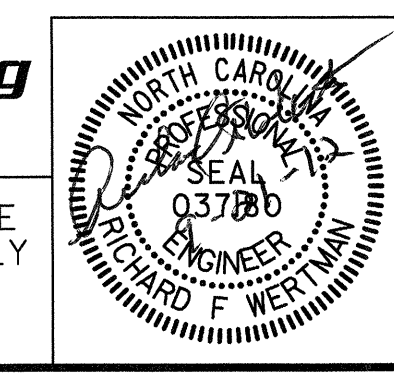
- SPAN C RATING FACTORS ARE EQUAL TO SPAN A LENGTH AND RATING FACTORS. ER GIRDER LOCATIONS ARE EQUAL TO EL GIRDER LOCATIONS.
- THE REDUCTION OF LOAD DISTRIBUTION FACTOR FOR MOMENT IN LONGITUDINAL BEAMS ON SKEWED SUPPORTS (AASHTO TABLE 4.6.2.2.2E-1) WAS NOT APPLIED.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

PLANS PREPARED BY:



THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

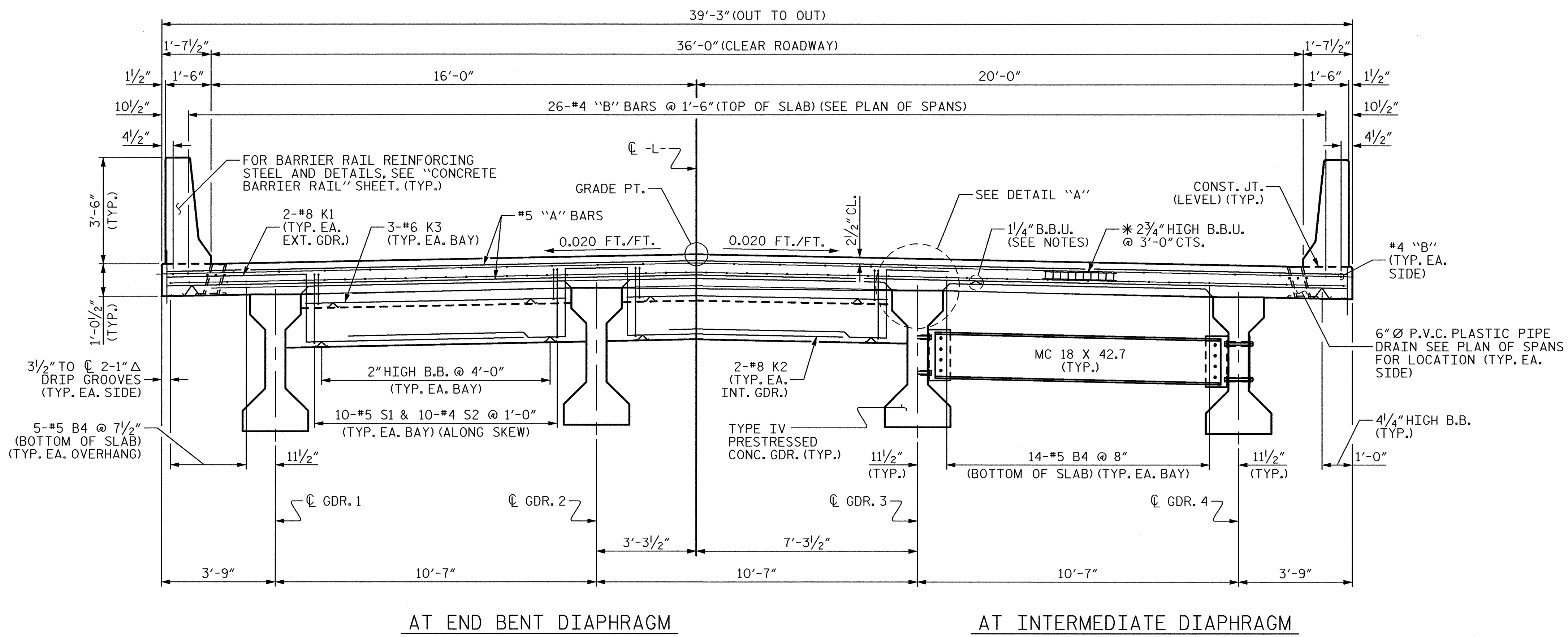
PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (INTERSTATE TRAFFIC)

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

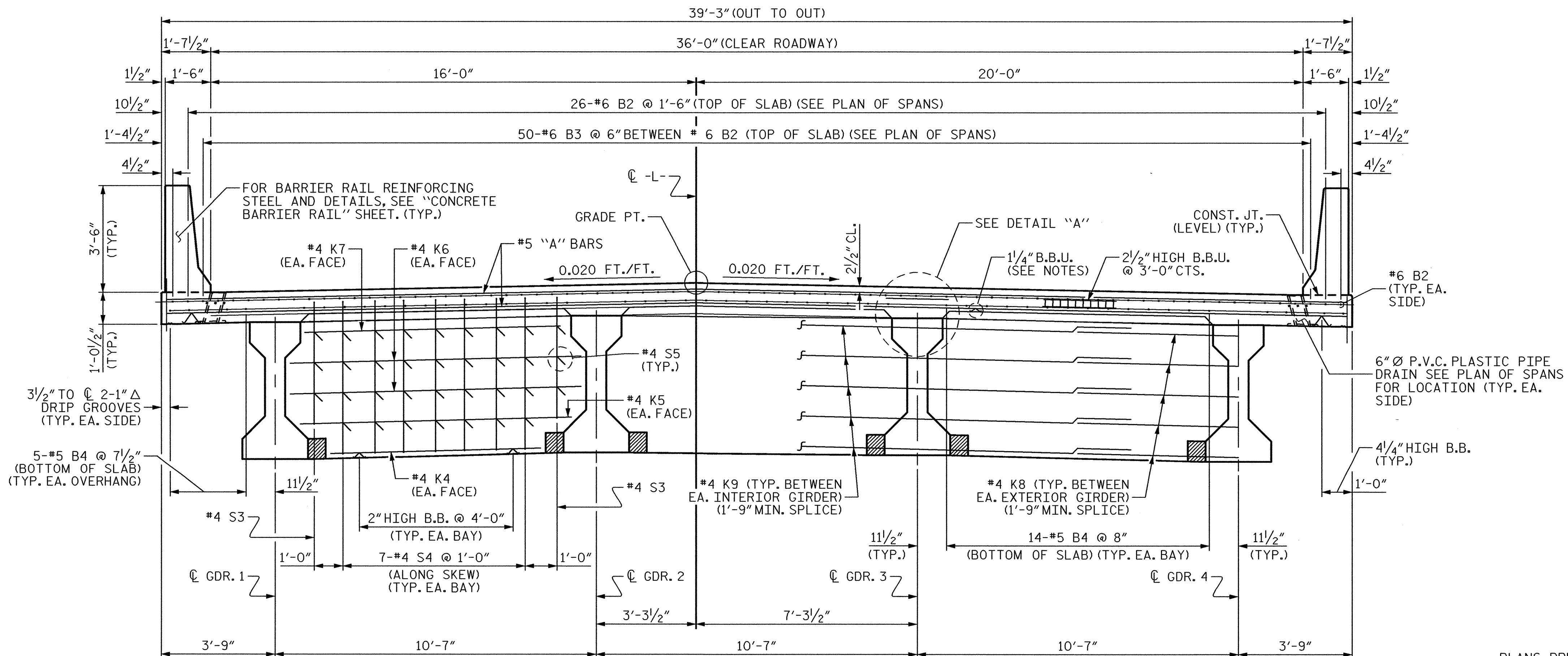
ASSEMBLED BY : J. M. KEPICH	DATE : 09/14/12
CHECKED BY : R.F. WERTMAN	DATE : 09/17/12
DRAWN BY : MAA	1/08
CHECKED BY : GM/DI	2/08
REV. 11/12/08RR	MAA/GM
REV. 10/1/11	MAA/GM



AT END BENT DIAPHRAGM

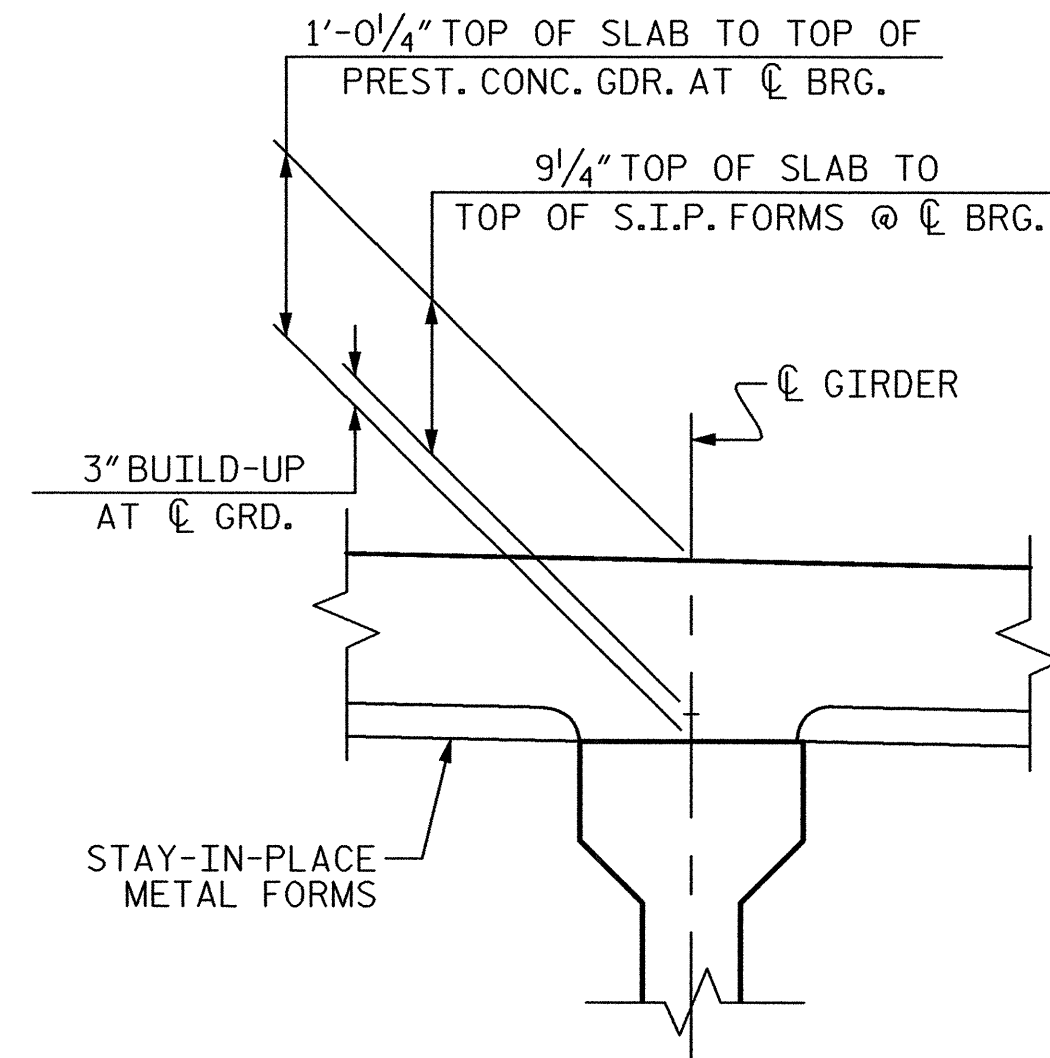
AT INTERMEDIATE DIAPHRAGM

TYPICAL SECTION



TYPICAL SECTION @ BENT DIAPHRAGM

NOTES:
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
 PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.
 BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
 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.
 * USE THIS SIZE BAR SUPPORT IN THE AREAS WITH #4 "B" BARS. FOR OTHER AREAS WITH #6 "B" BARS, USE THE BAR SUPPORT AS SHOWN IN TYPICAL SECTION AT BENT.



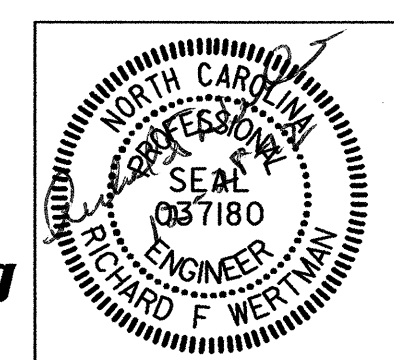
DETAIL "A"

PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

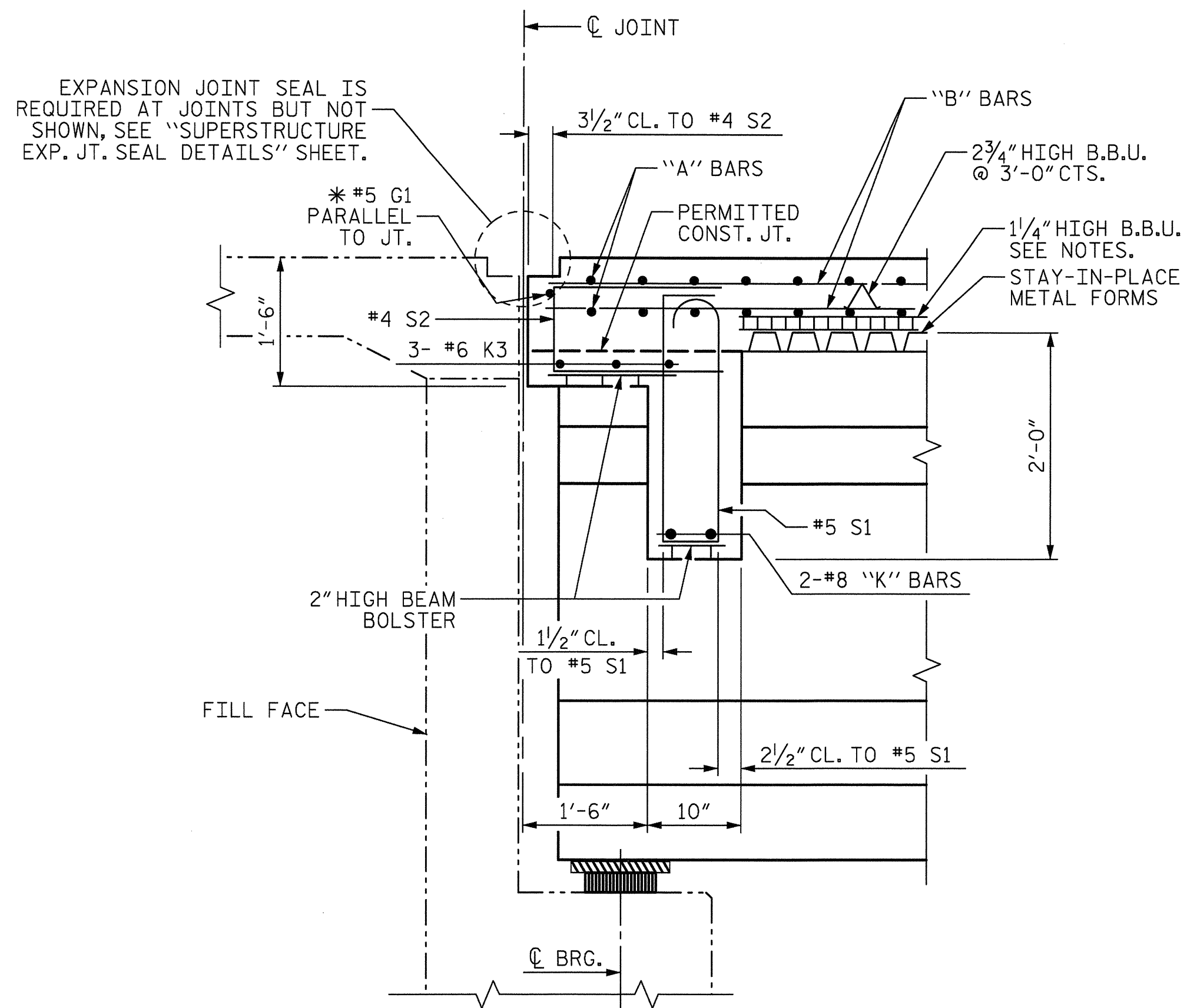
SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 TYPICAL SECTION**

DRAWN BY: E.C. LOCKLEAR DATE: 8-23-11
 CHECKED BY: R.F. WERTMAN DATE: 2-02-12

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

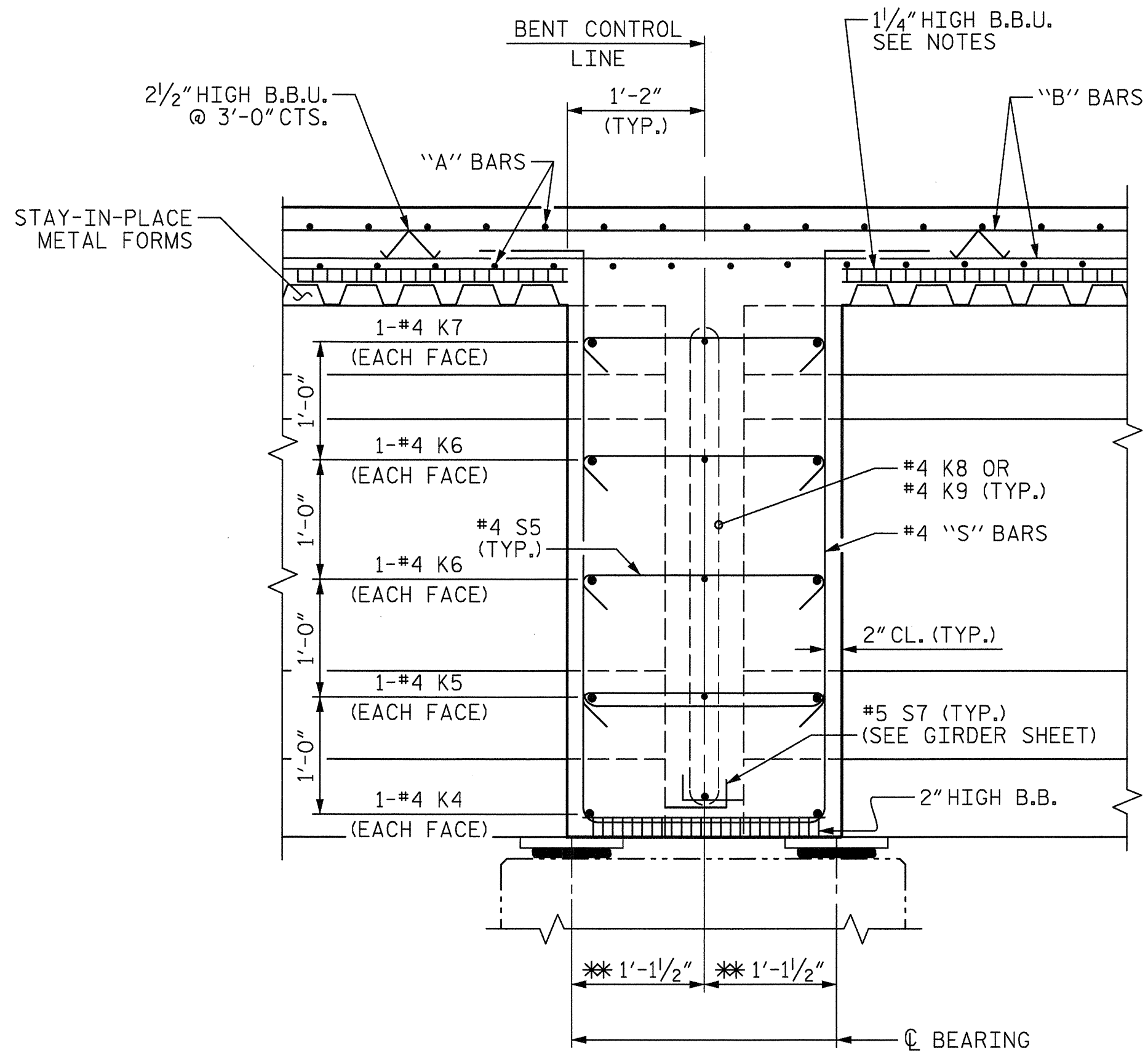


REVISIONS						SHEET NO. S-5 TOTAL SHEETS 33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



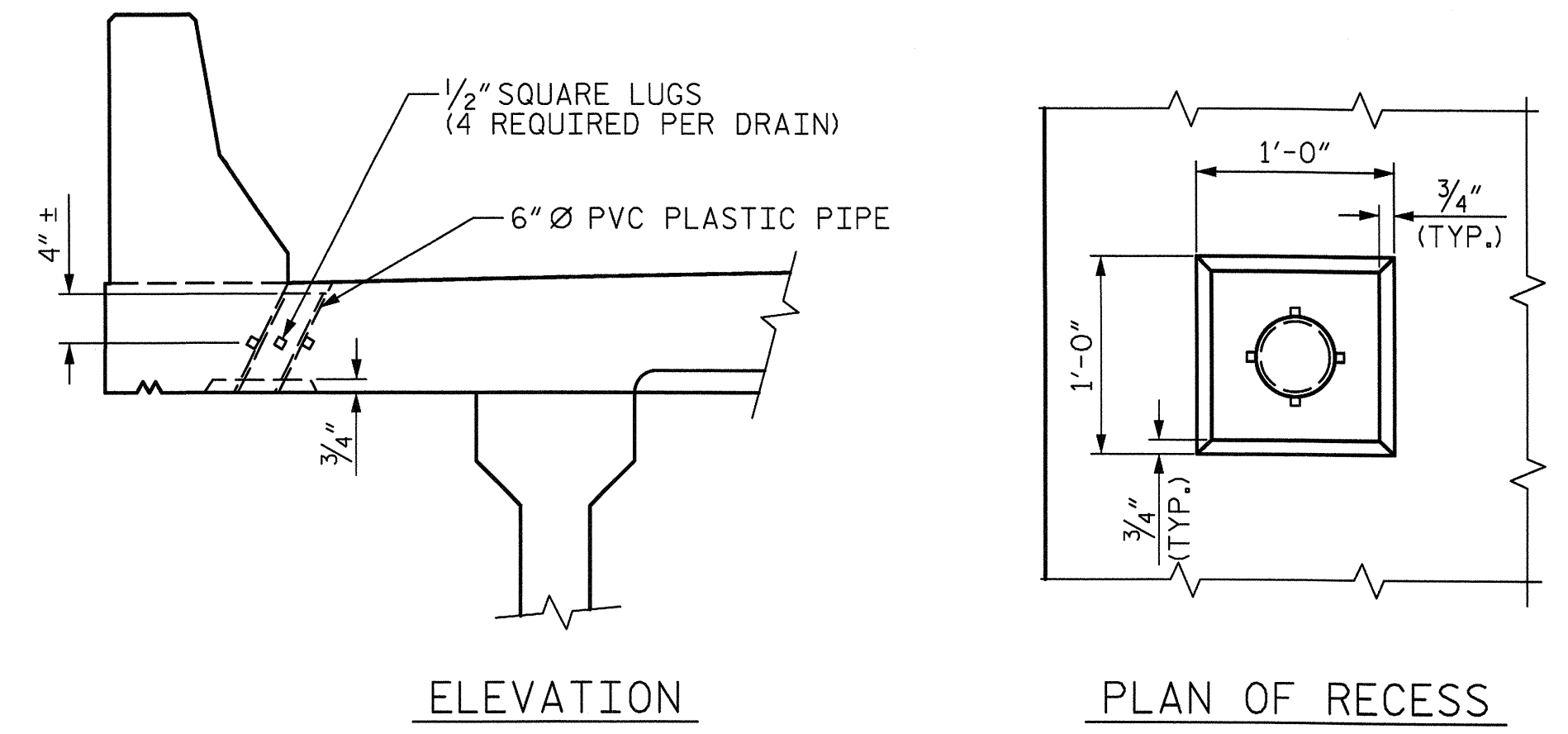
SECTION AT END BENT

* #5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DIAPHRAGM AND REINFORCING STEEL.

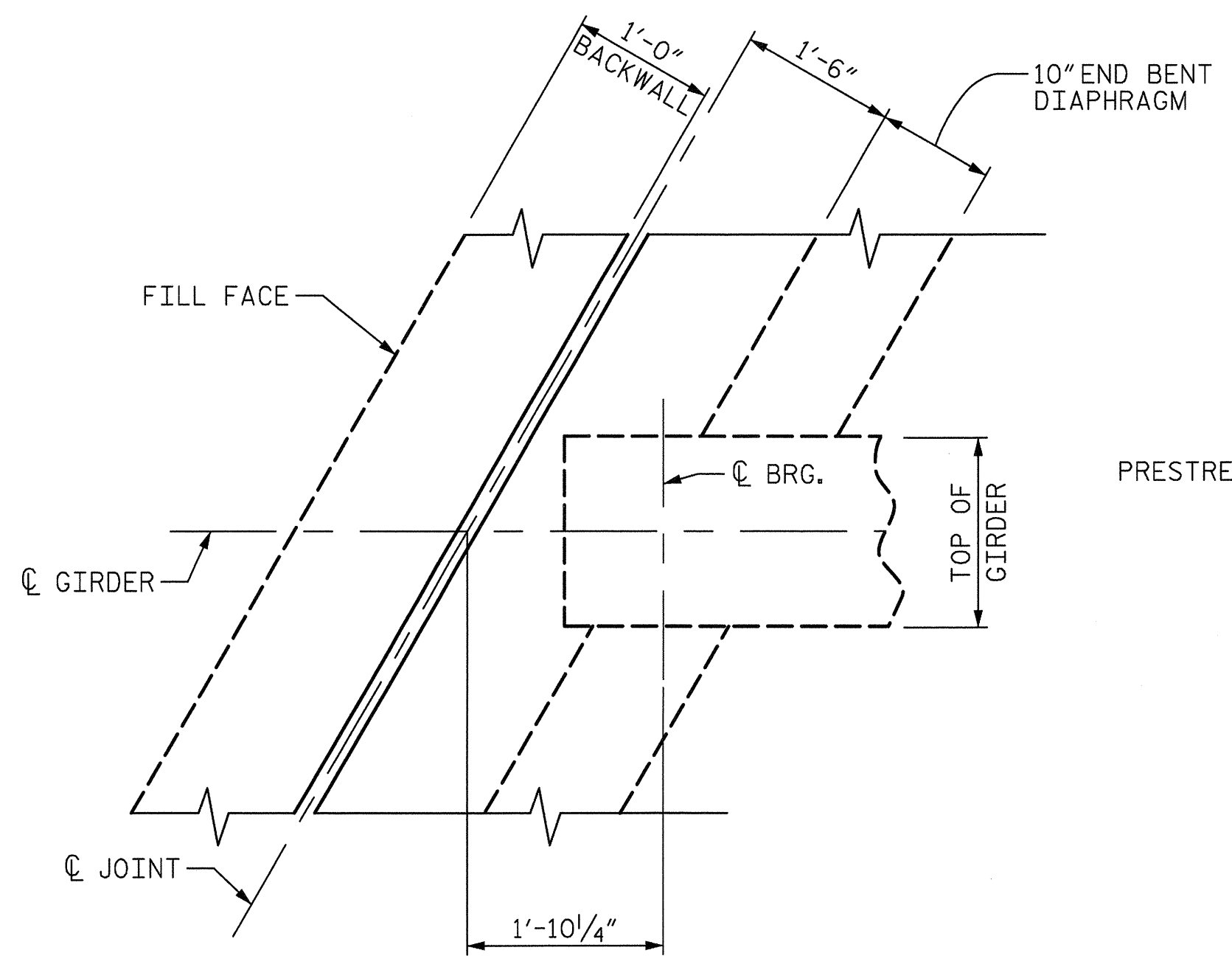


SECTION AT BENT DIAPHRAGM

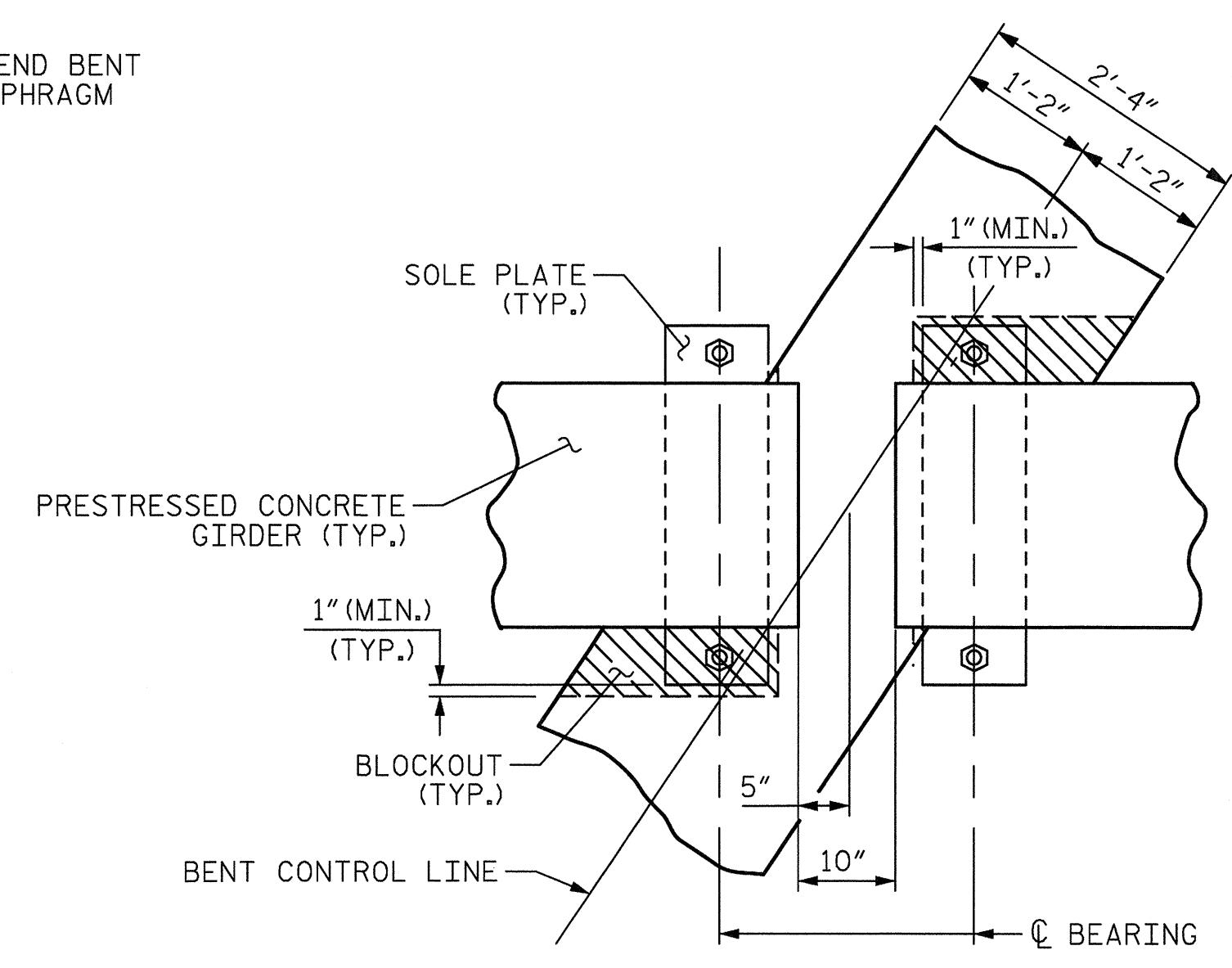
** MEASURED ALONG CL GIRDER



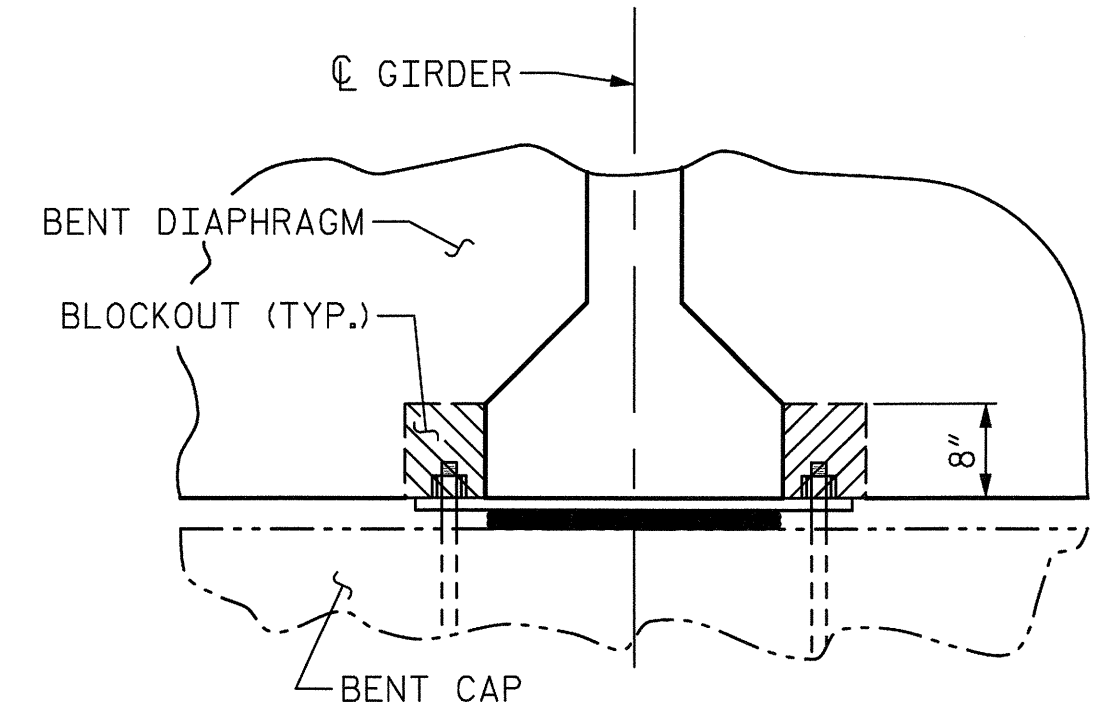
TOP OF FLOOR DRAINS TO BE SET 3/8" BELOW SURFACE OF SLAB.
 4 - 1/2" SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.
 THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.



END BENT DIAPHRAGM



PLAN

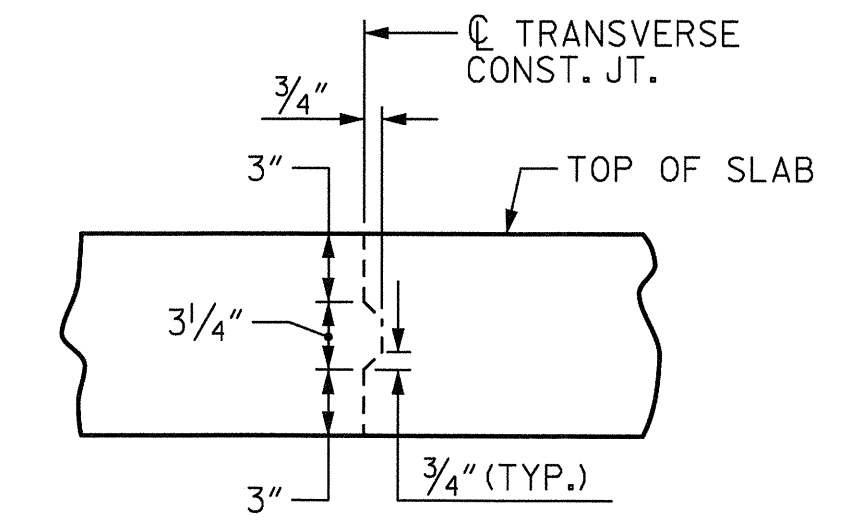


SECTION

BENT DIAPHRAGM BLOCK-OUT DETAIL

TRANSVERSE CONSTRUCTION JOINT DETAIL

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



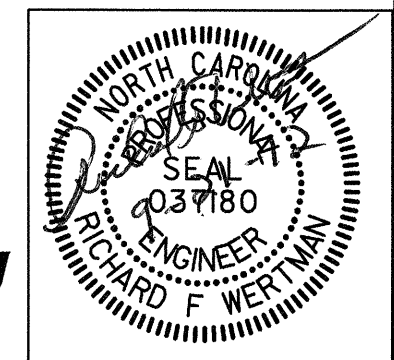
PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION
 DETAILS

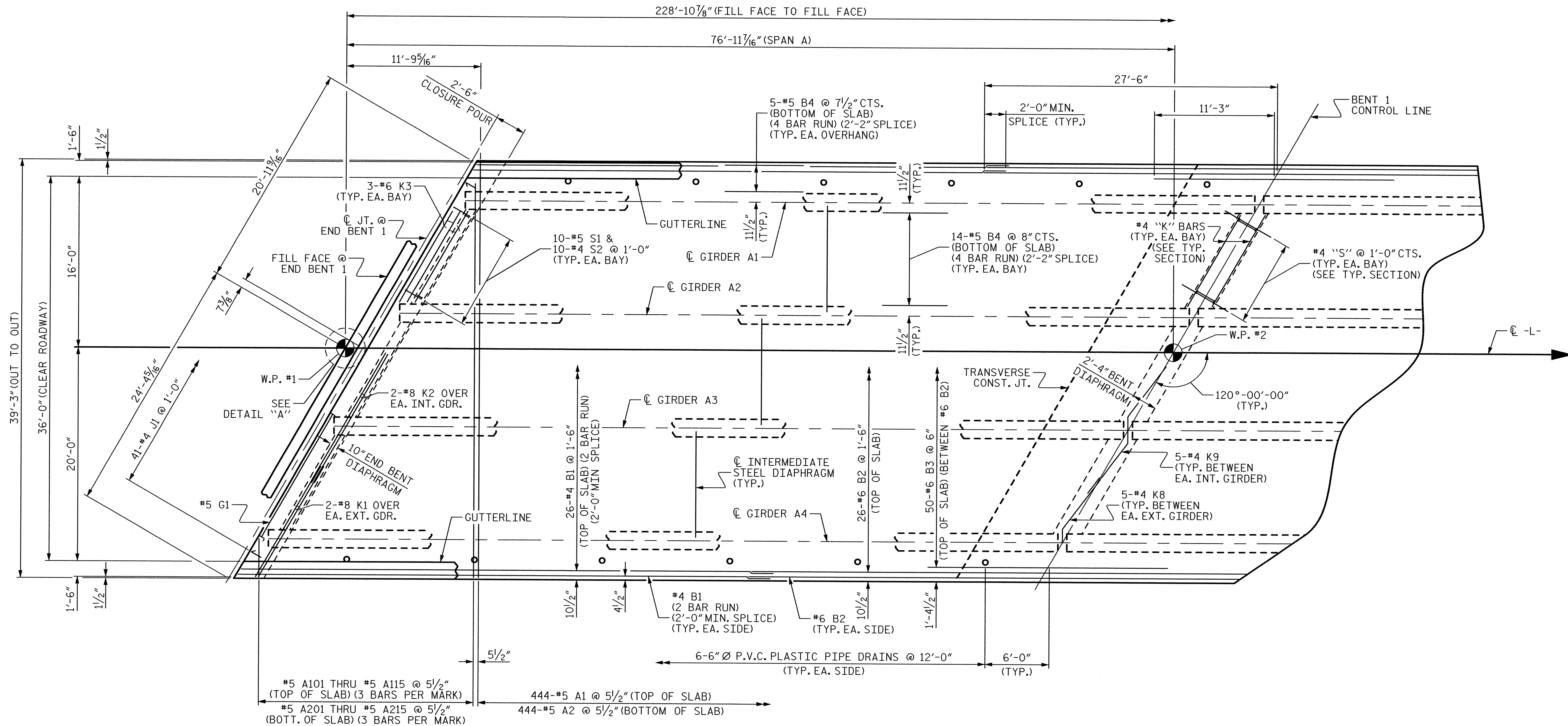
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			33

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

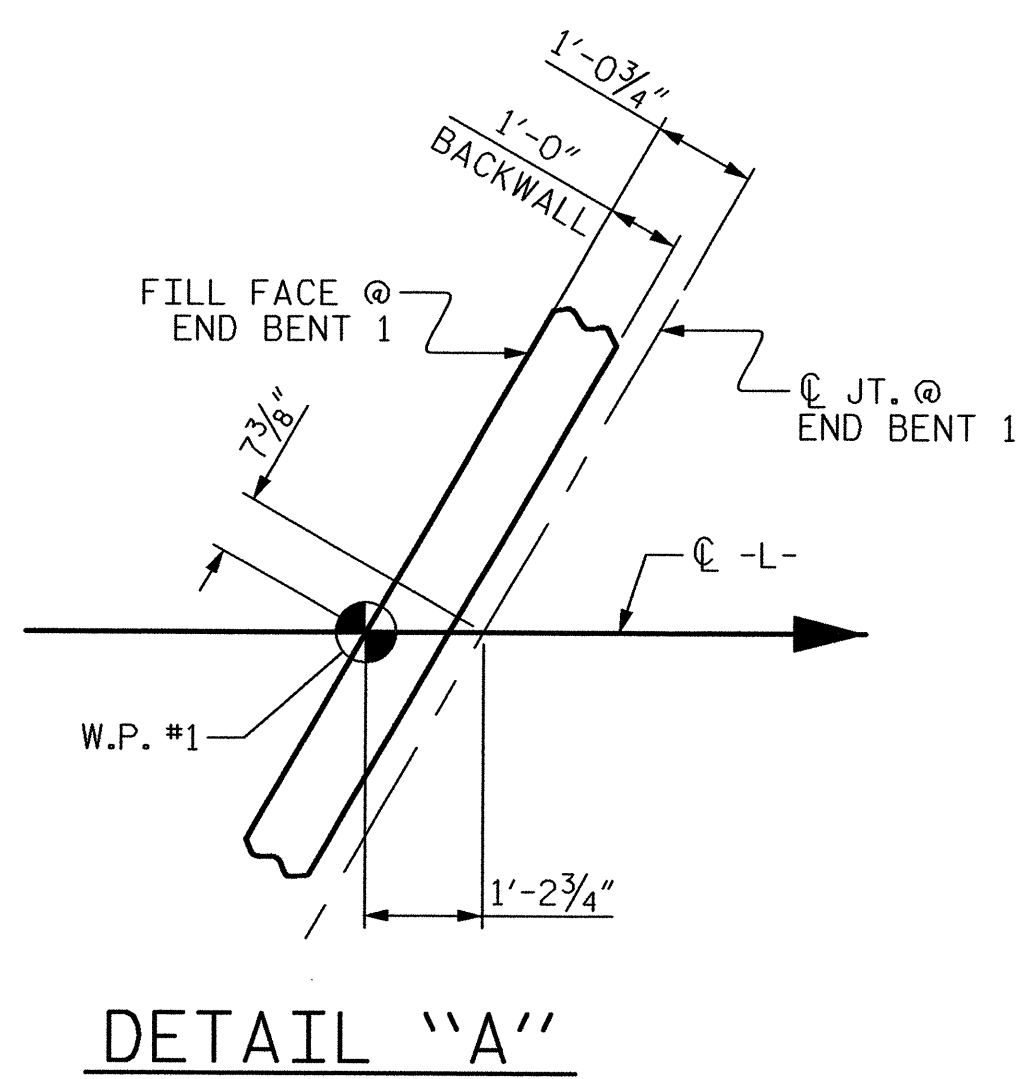


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DRAWN BY: E.C. LOCKLEAR DATE: 8-23-11
 CHECKED BY: R.F. WERTMAN DATE: 2-02-12



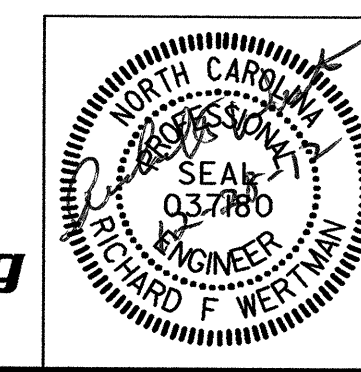
PLAN OF SPAN A



DETAIL "A"

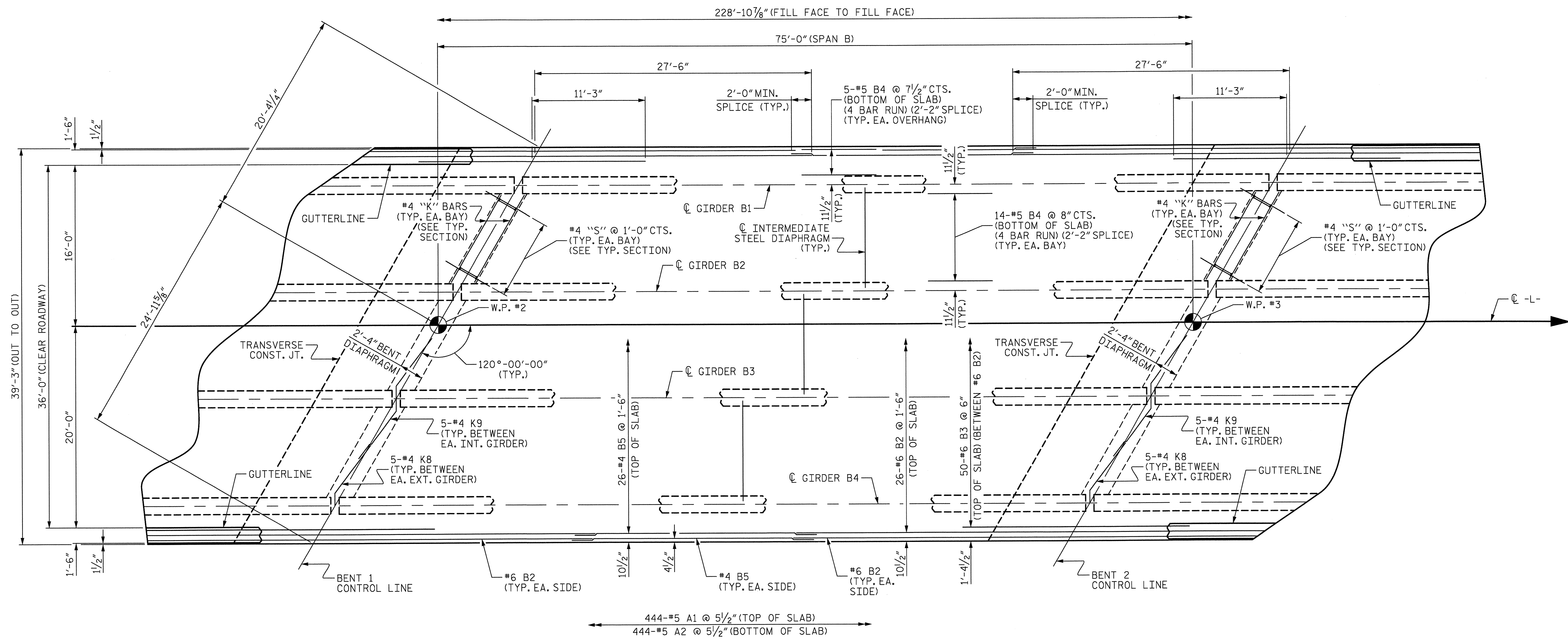
PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-7
SUPERSTRUCTURE PLAN OF SPAN A						TOTAL SHEETS 33
REVISIONS						NO. BY: DATE: NO. BY: DATE: NO. BY: DATE:
1						
2						
3						



PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

DRAWN BY: E.C. LOCKLEAR DATE: 8-30-11
 CHECKED BY: R.F. WERTMAN DATE: 2-02-12



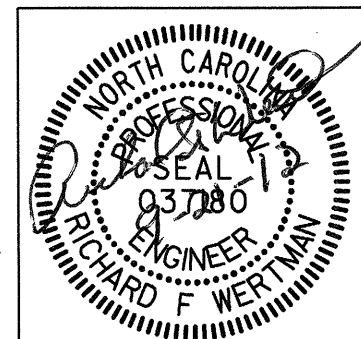
PLAN OF SPAN B

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN B

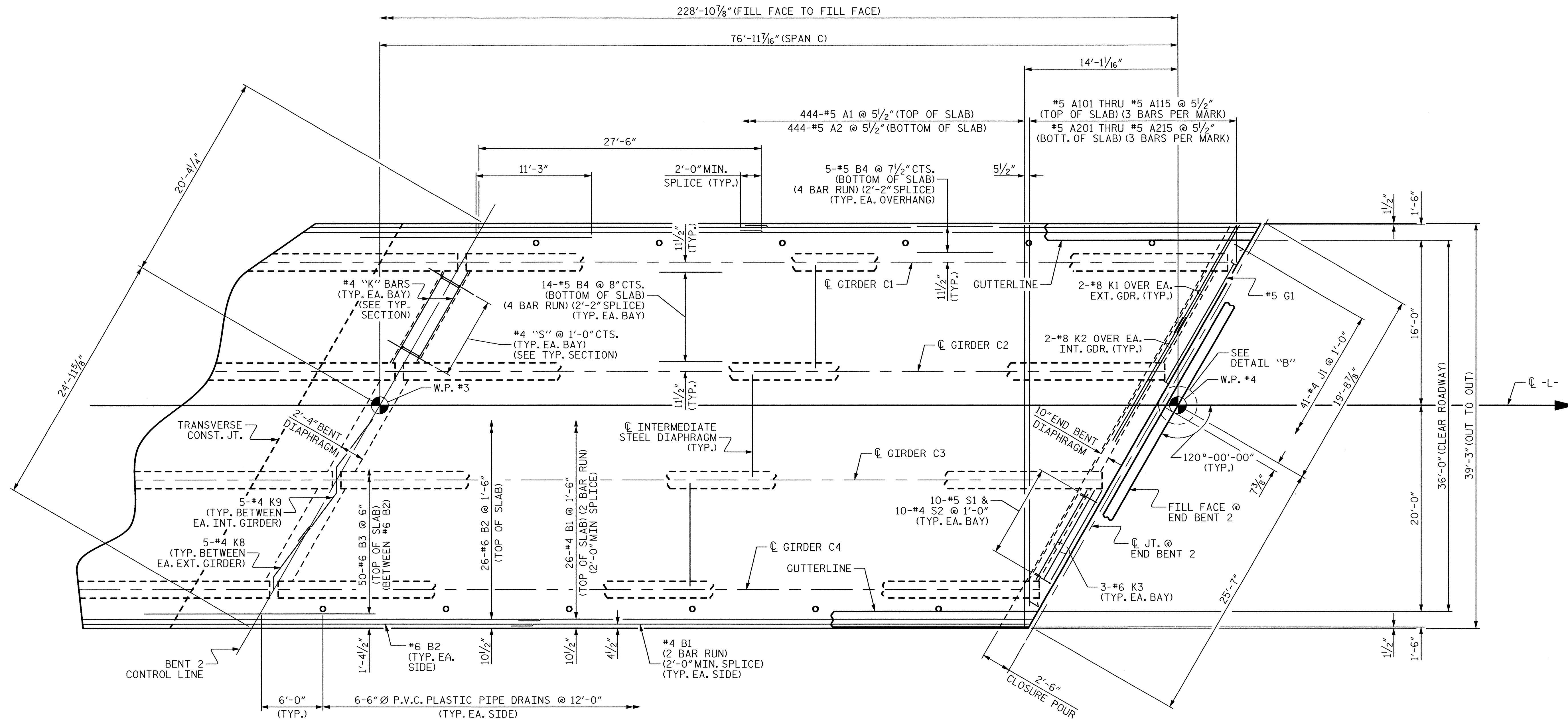
DRAWN BY: E.C. LOCKLEAR DATE: 8-30-11
 CHECKED BY: R.F. WERTMAN DATE: 2-02-12

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

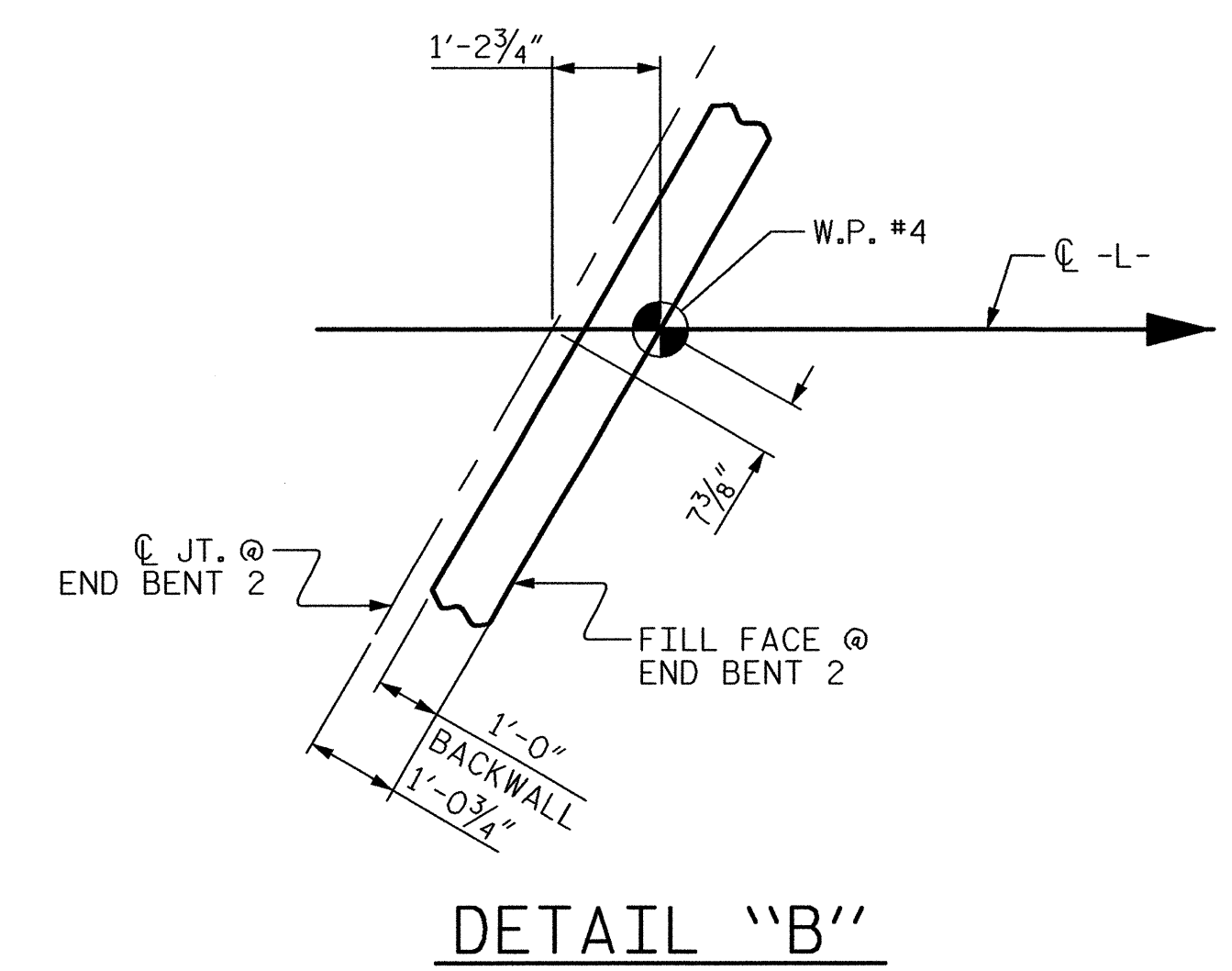


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			33

FILE: \\S05518.Davidson_Cty_Structure\DCSN\B-4859_S0_S1.dgn
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PLAN OF SPAN C



DETAIL "B"

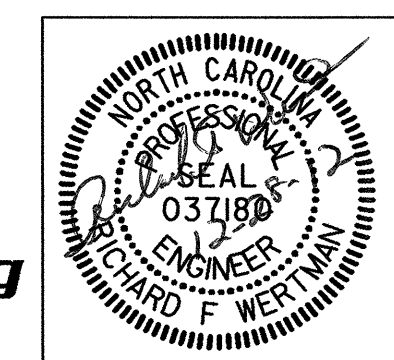
PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 3 OF 3

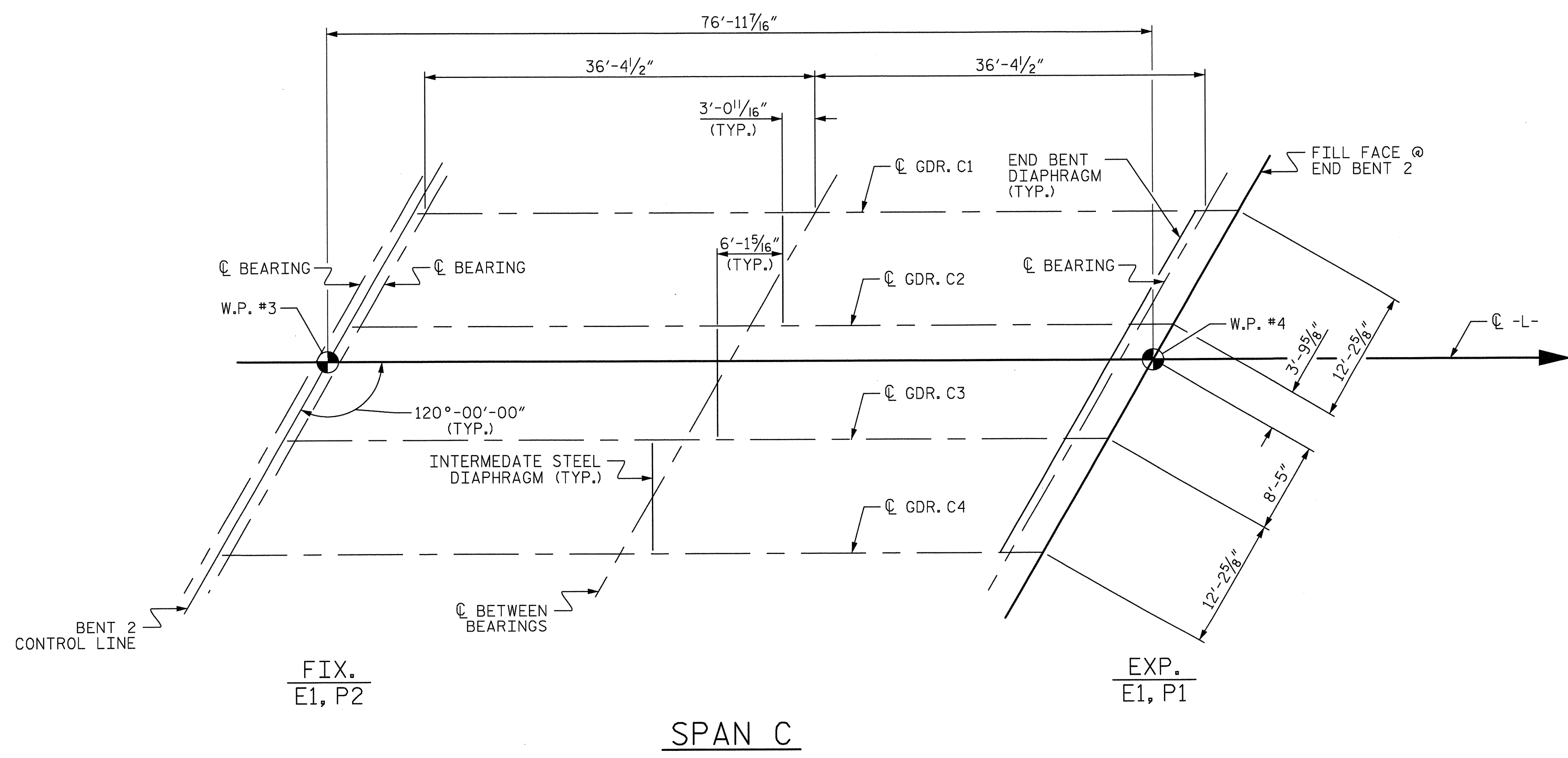
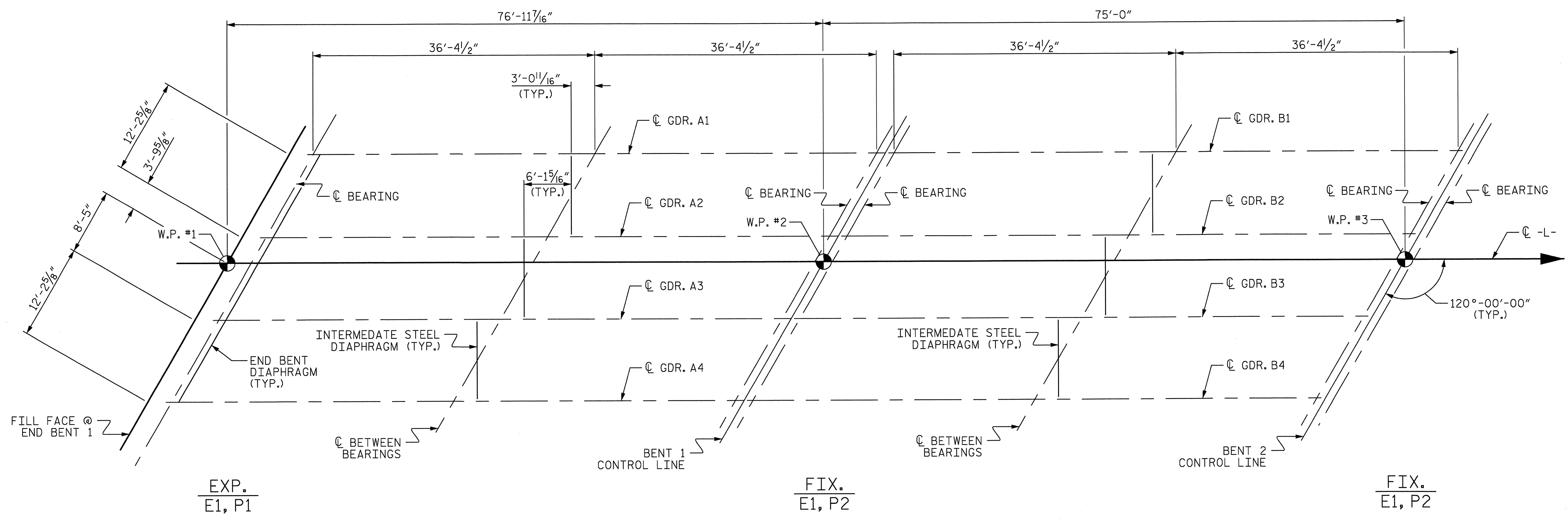
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN C

DRAWN BY: E.C. LOCKLEAR DATE: 8-30-11
 CHECKED BY: R.F. WERTMAN DATE: 2-02-12

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA



REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

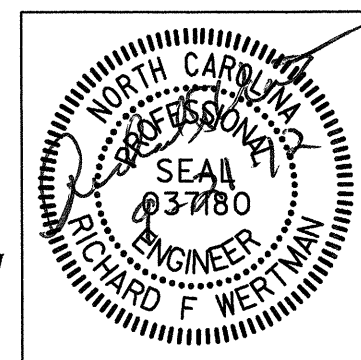


FRAMING PLAN

PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

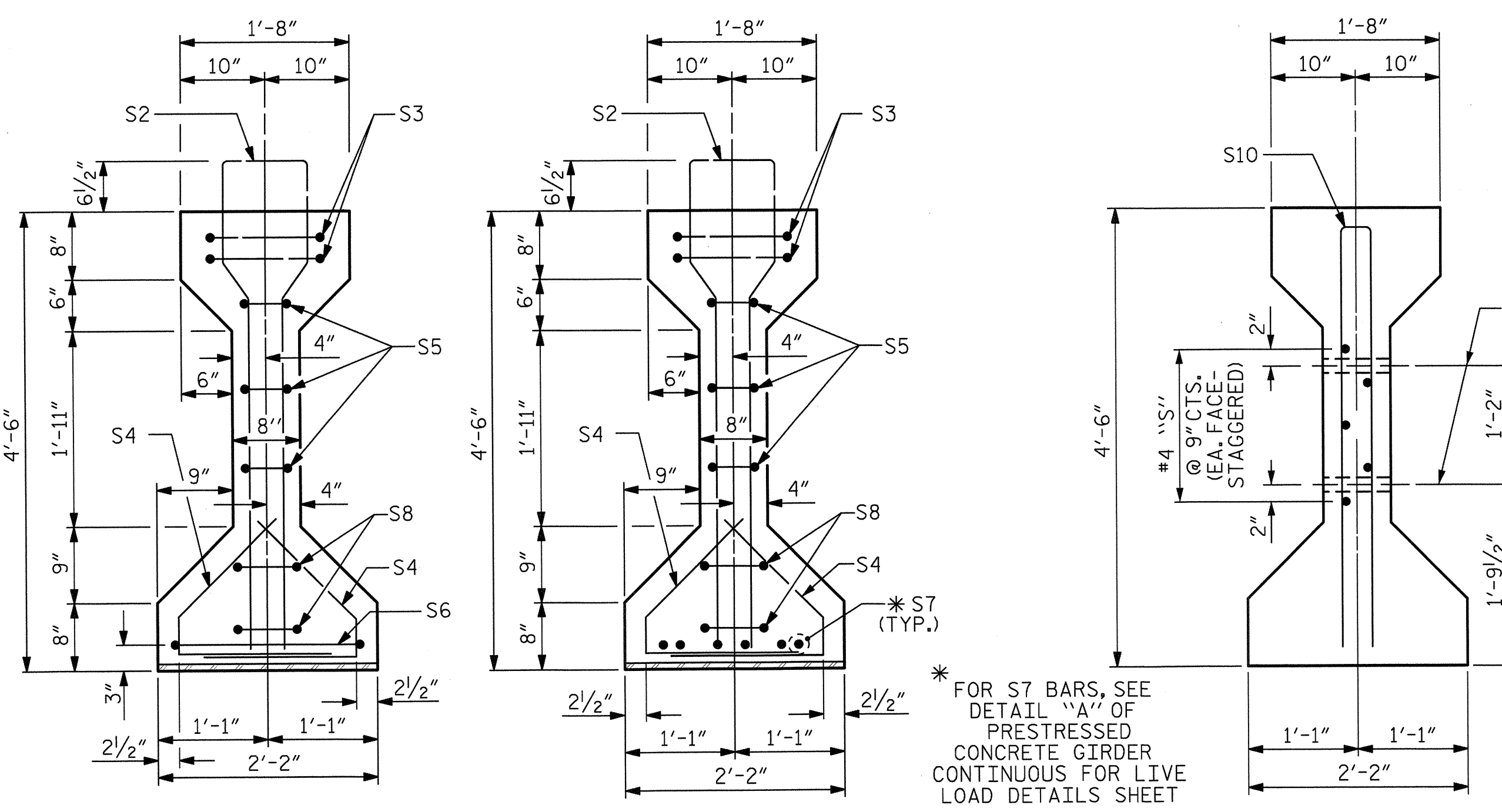
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE FRAMING PLAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10
					TOTAL SHEETS 33

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA



DRAWN BY: E.C. LOCKLEAR DATE: 8-24-11
 CHECKED BY: R.F. WERTMAN DATE: 2-12

FILE: M:\0555302_Davidson_Cty_Structure\DCNN\B-4859_S0_PP.dgn DATE: 2-12-12 10:06



SECTION A-A

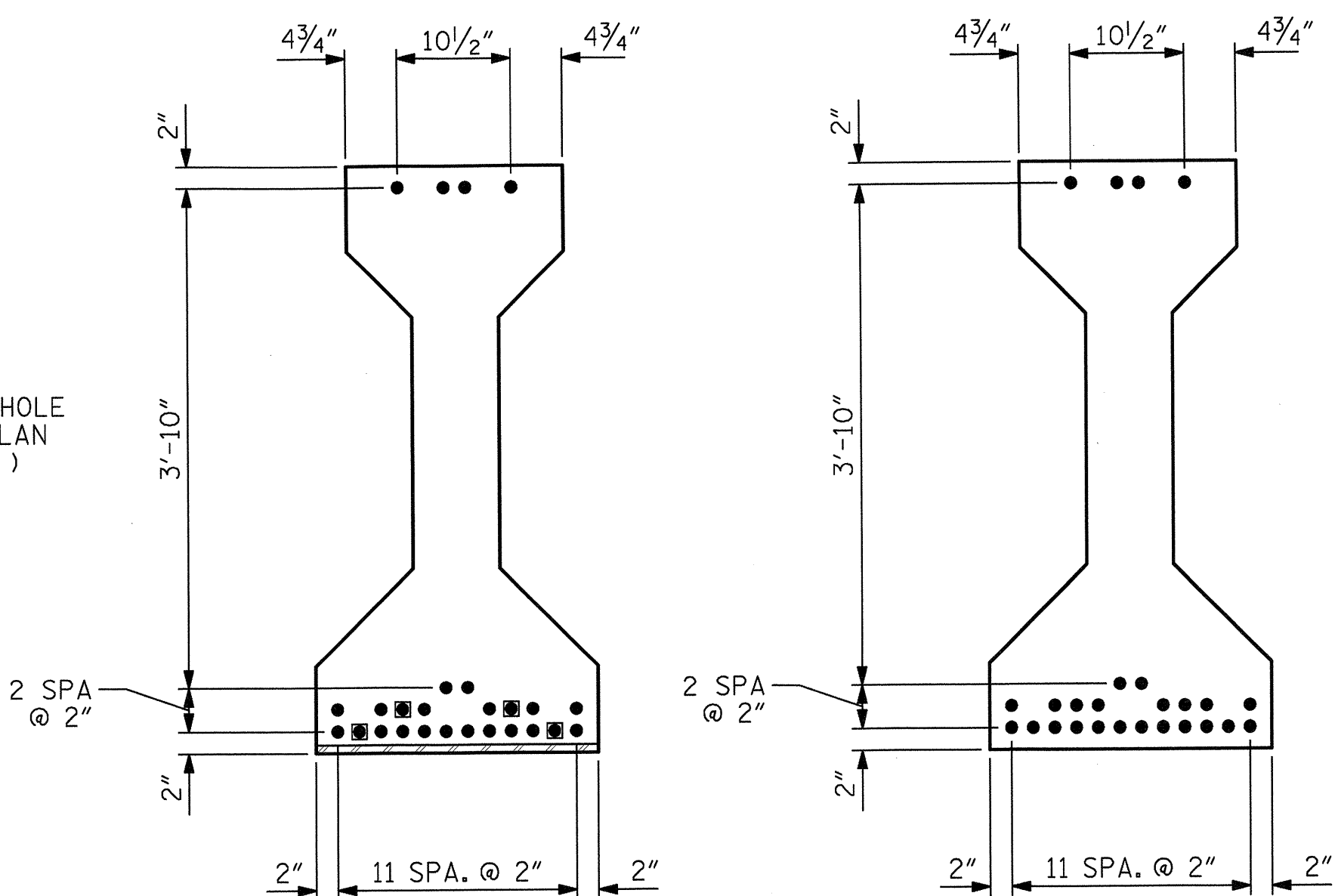
SECTION B-B

SECTION C-C
(S1 BARS NOT SHOWN)

* FOR S7 BARS, SEE
DETAIL "A" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET

1/2" Ø FORMED HOLE
(SEE FRAMING PLAN
FOR LOCATION)

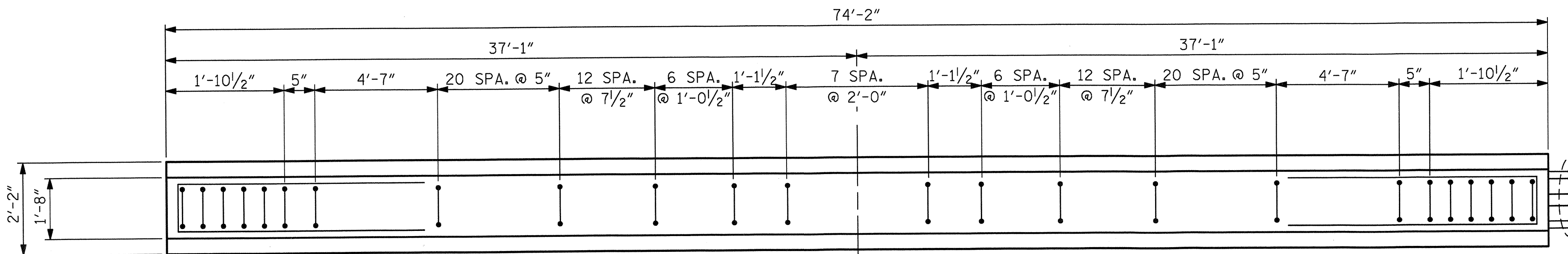
DEBONDING LEGEND
 • FULLY BONDED STRANDS
 ■ STRANDS DEBONDED FOR 10'-0"
FROM ENDS OF GIRDER



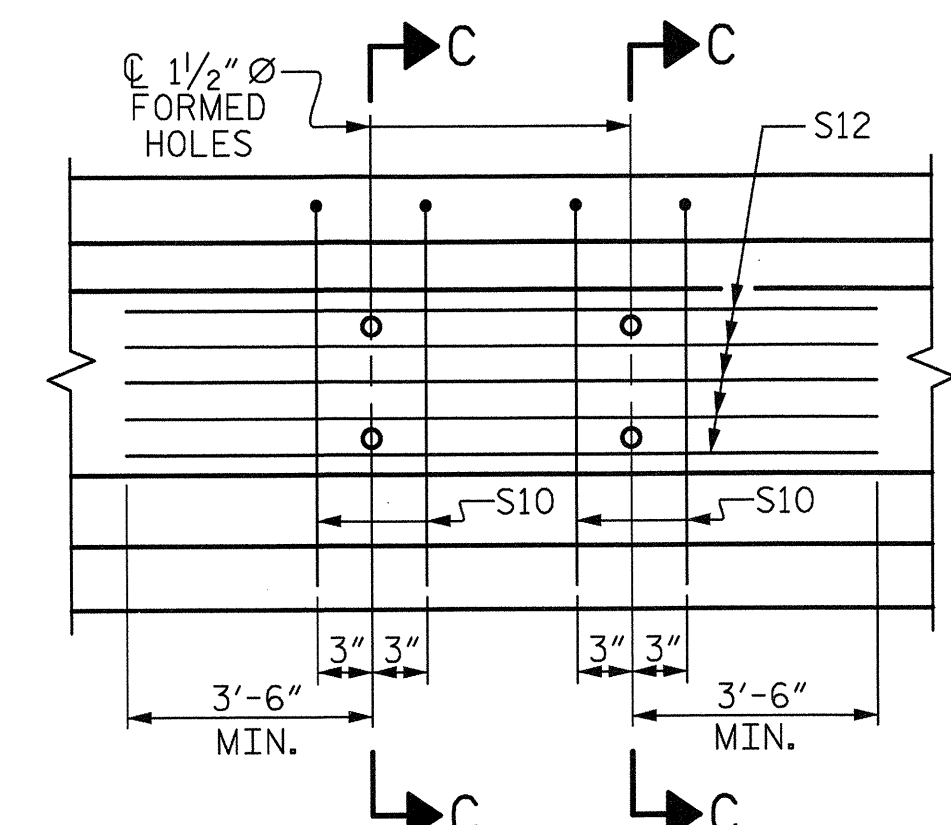
AT END OF GIRDER

AT C OF GIRDER

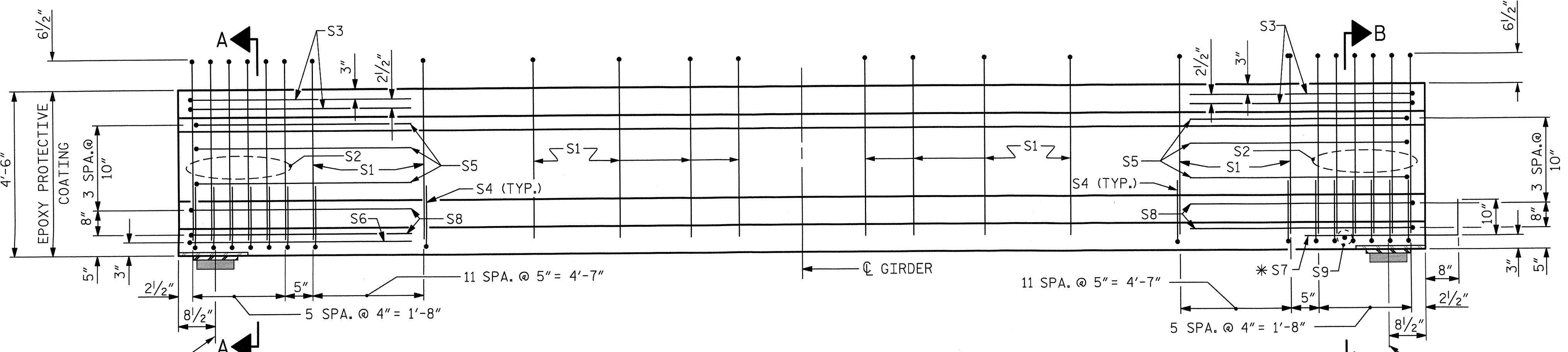
0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER

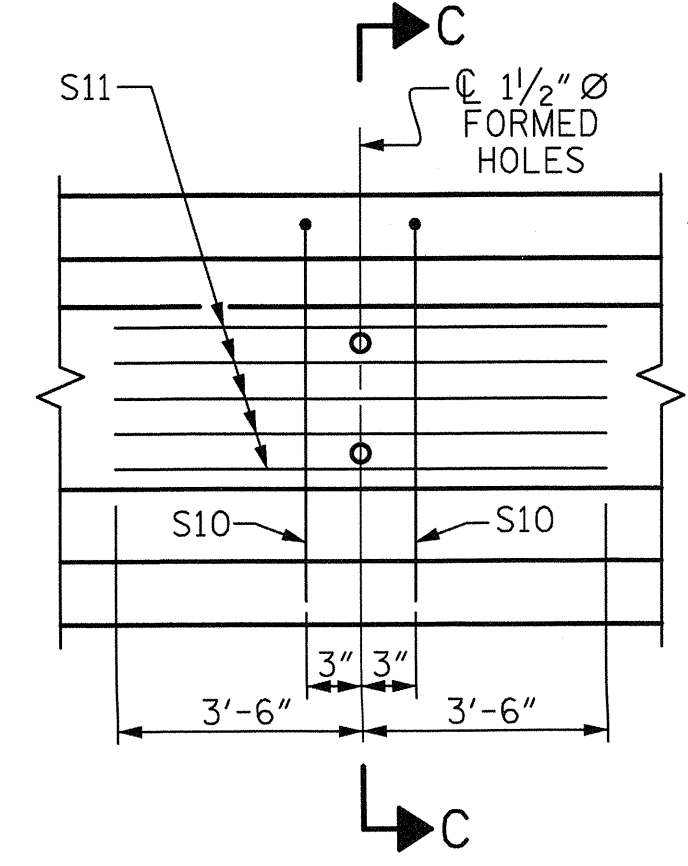


PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR INTERIOR GIRDERS



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR EXTERIOR GIRDERS

EXTERIOR GDR.	S10	2	#5	2	8'-8"	18
INTERIOR GDR.	S10	4	#5	2	8'-8"	36
EXTERIOR GDR.	S11	5	#4	STR	7'-0"	23
INTERIOR GDR.	S12	5	#4	STR	13'-2"	44

0.6" Ø L. R. GRADE 270 STRANDS

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

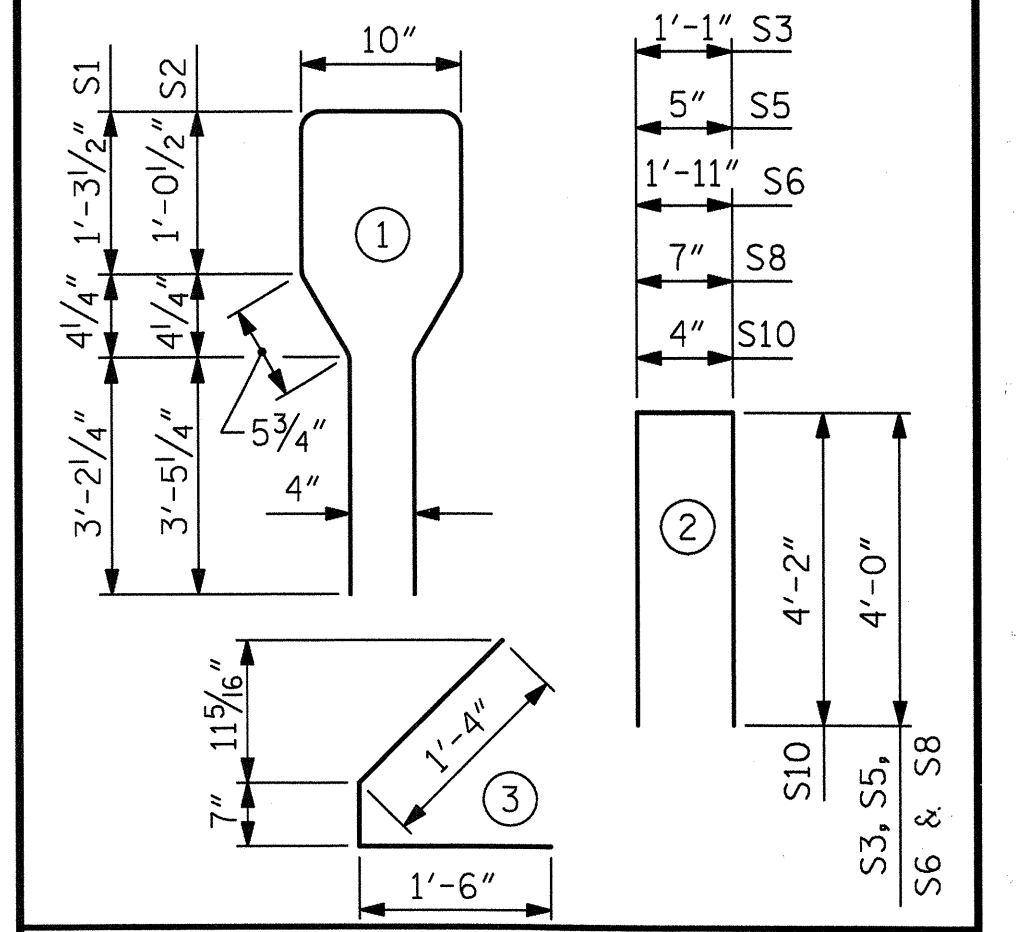
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	108	#4	1	10'-9"	776
S2	12	#6	1	10'-9"	194
S3	4	#4	2	9'-1"	24
S4	72	#4	3	3'-5"	164
S5	6	#4	2	8'-5"	34
S6	1	#4	2	9'-11"	7
* S7	6	#5	STR	3'-8"	23
S8	4	#4	2	8'-7"	23
S9	1	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S10	4	#5	2	8'-8"	36
S11	5	#4	STR	7'-0"	23
S12	5	#4	STR	13'-2"	44

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	5000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	1287	15.1	26
INTERIOR GIRDER	1326	15.1	26

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
SPAN A	4	74'-2"
SPAN C	4	74'-2"
		296'-8"

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE IV
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPANS A & C

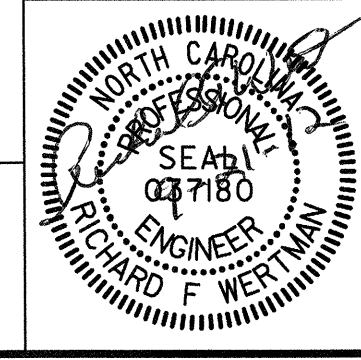
REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

ASSEMBLED BY: E.C. LOCKLEAR DATE: 8-25-11
 CHECKED BY: R.F. WERTMAN DATE: 2-12
 DRAWN BY: ELR 8/91 REV. 7/17/98 RWW/LES
 CHECKED BY: GRP 8/91 REV. 10/17/00R RWW/LES
 REV. 5/1/06R TLA/GM

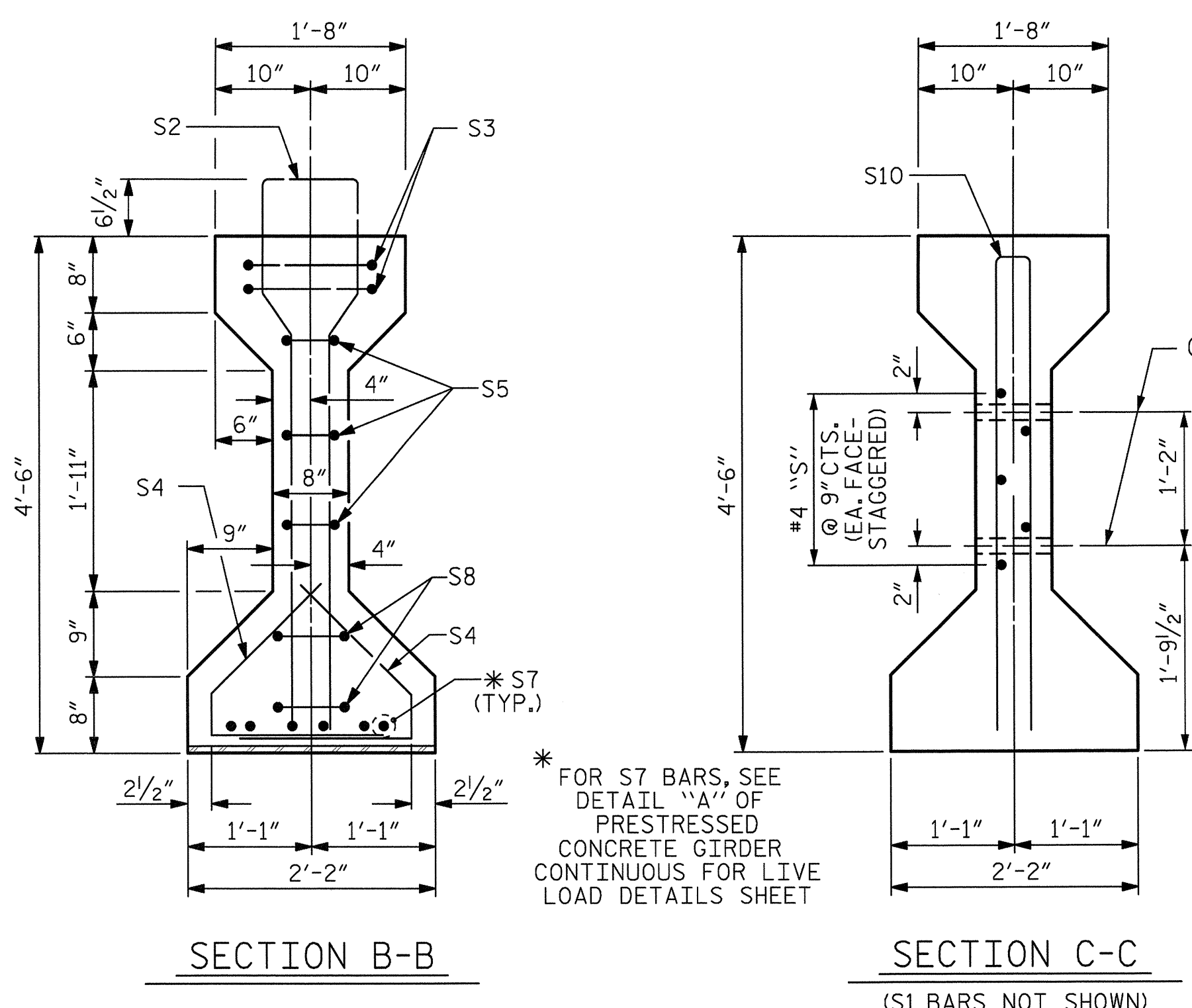
PLANS PREPARED BY:

Gannett Fleming
 RALEIGH, NORTH CAROLINA

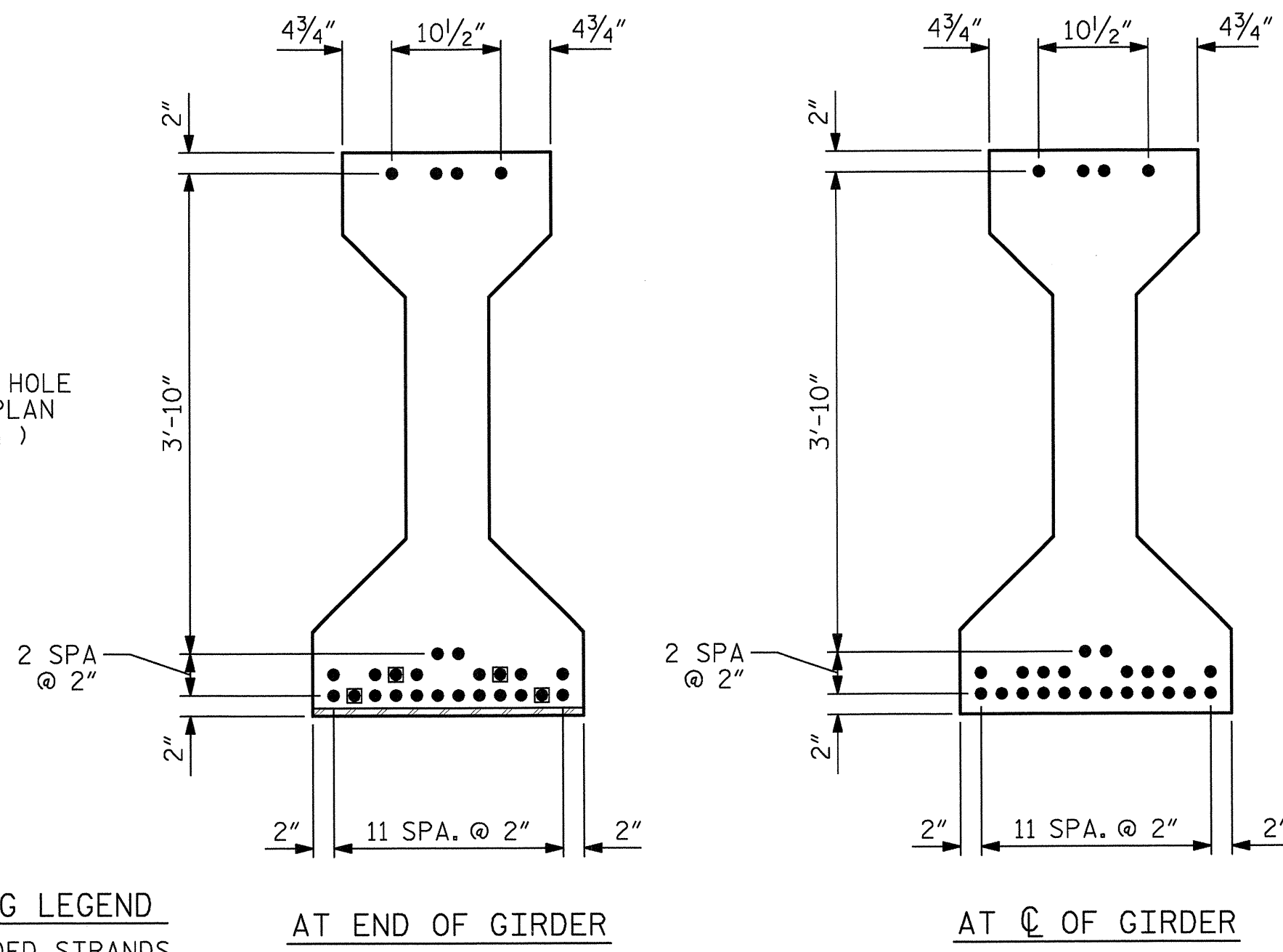
THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



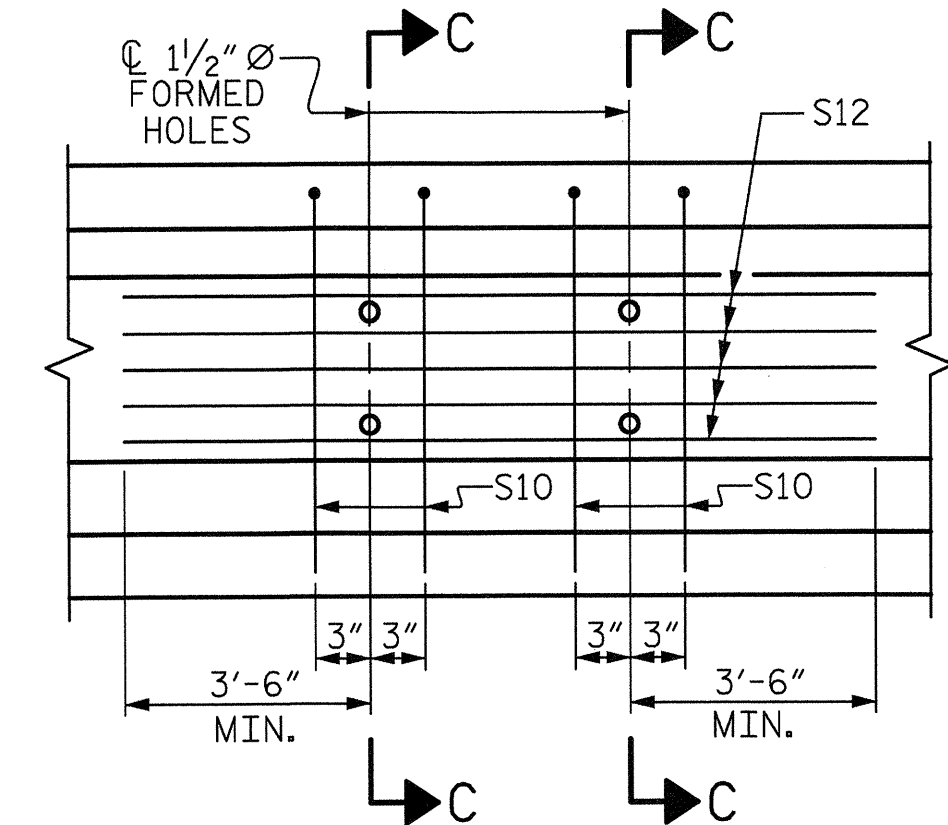
STD. NO. PCG6



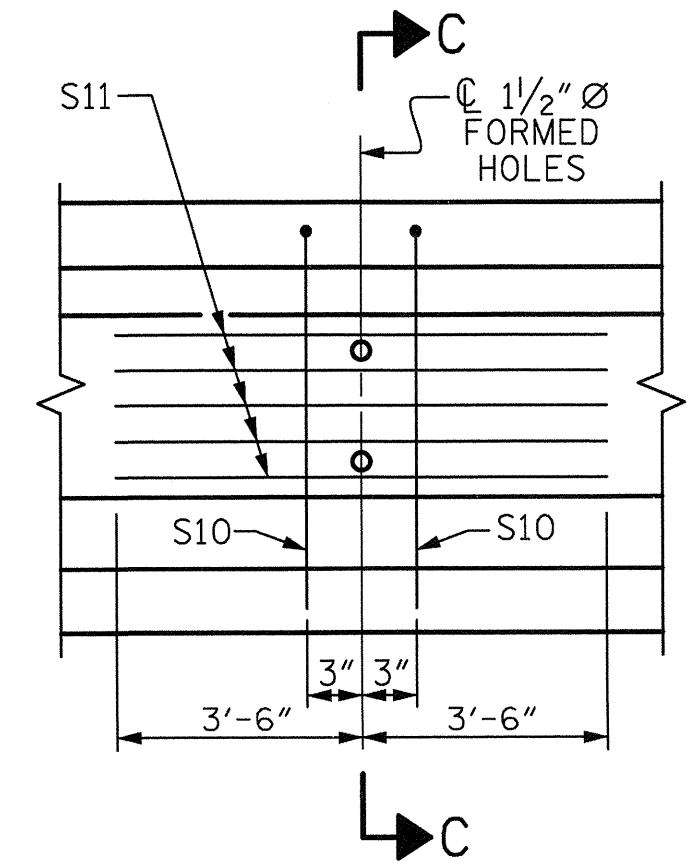
DEBONDING LEGEND
 ● FULLY BONDED STRANDS
 ■ STRANDS DEBONDED FOR 10'-0" FROM ENDS OF GIRDER



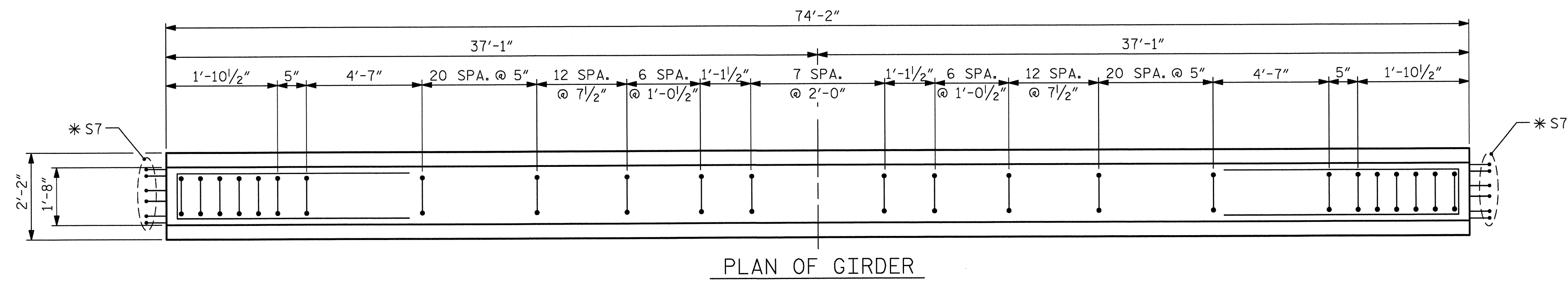
0.6" Ø LOW RELAXATION STRAND LAYOUT



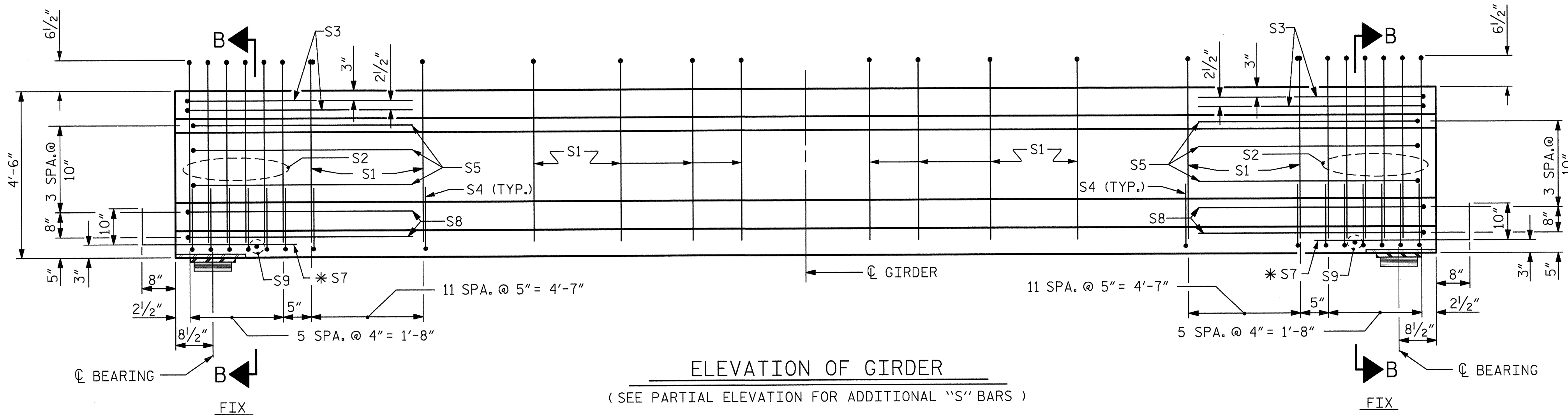
PARTIAL ELEVATION
 SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR INTERIOR GIRDERS



PARTIAL ELEVATION
 SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR EXTERIOR GIRDERS



PLAN OF GIRDER



ELEVATION OF GIRDER
 (SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

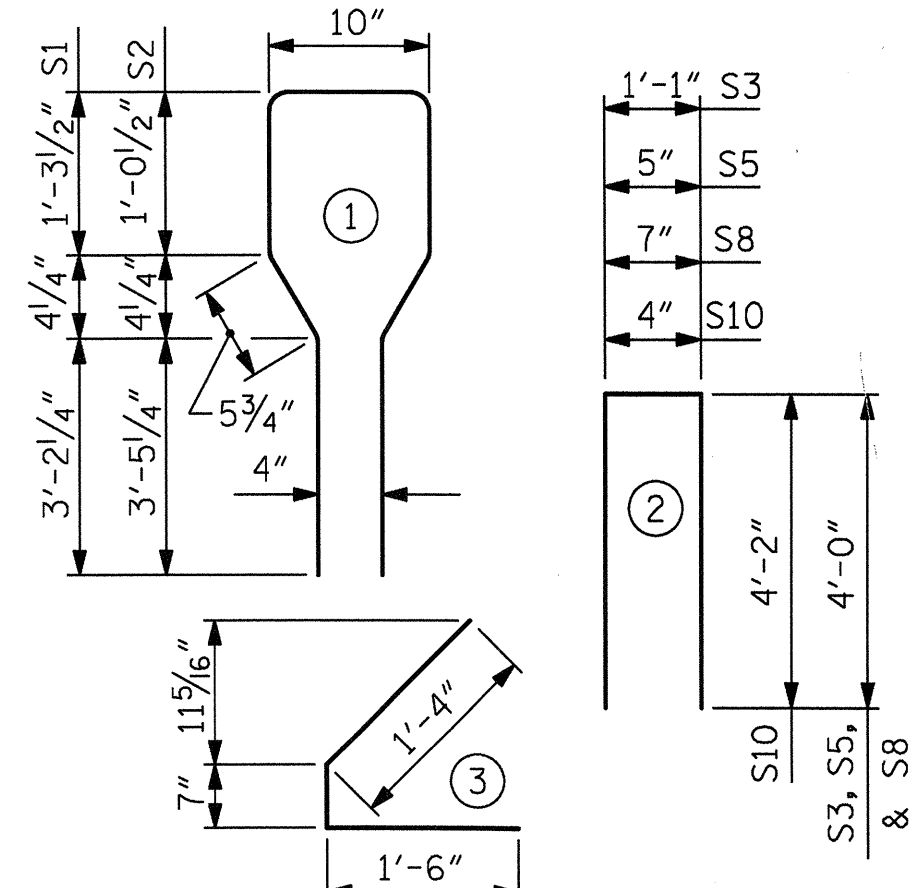
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	108	#4	1	10'-9"	776
S2	12	#6	1	10'-9"	194
S3	4	#4	2	9'-1"	24
S4	72	#4	3	3'-5"	164
S5	6	#4	2	8'-5"	34
* S7	12	#5	STR	3'-8"	46
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
EXTERIOR GDR. S10	2	#5	2	8'-8"	18
INTERIOR GDR. S10	4	#5	2	8'-8"	36
EXTERIOR GDR. S11	5	#4	STR	7'-0"	23
INTERIOR GDR. S12	5	#4	STR	13'-2"	44

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	5000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	1303	15.1	26
INTERIOR GIRDER	1342	15.1	26

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	74'-2"	296'-8"

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 3

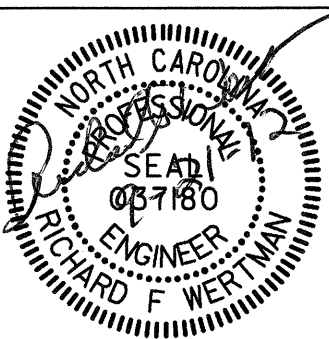
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE IV
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN B

REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			

ASSEMBLED BY: E.C. LOCKLEAR DATE: 8-25-11
 CHECKED BY: R.F. WERTMAN DATE: 2-12
 DRAWN BY: ELR 8/91 REV. 7/17/98 RWW/LES
 CHECKED BY: GRP 8/91 REV. 10/17/00R RWW/LES
 REV. 5/1/06R TLA/GM

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

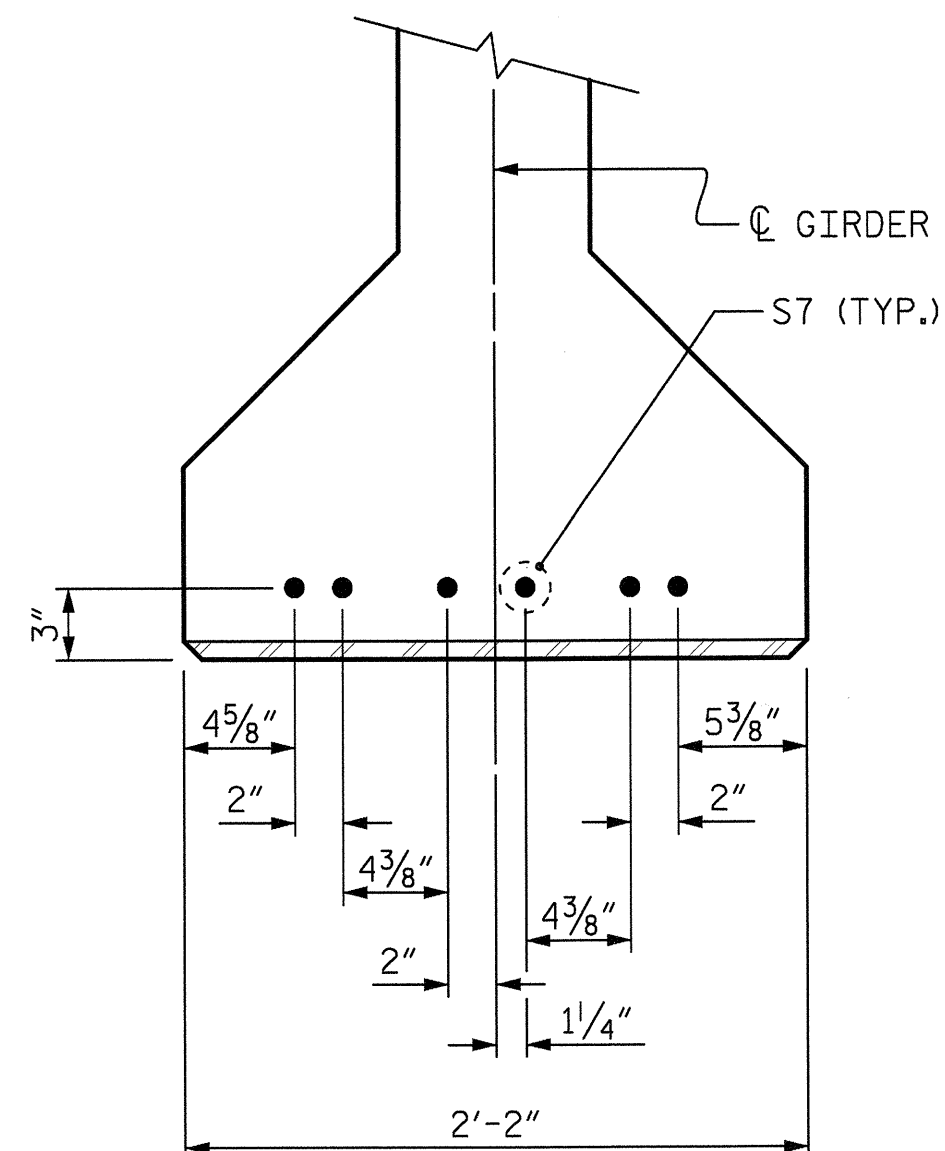
AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

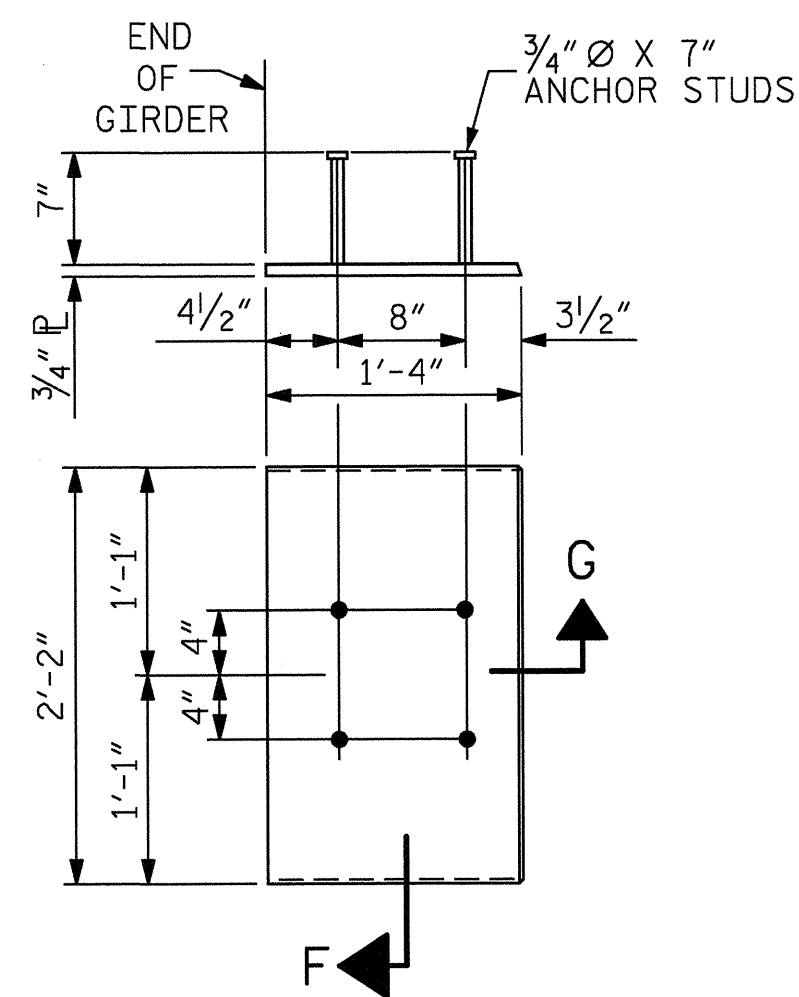
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

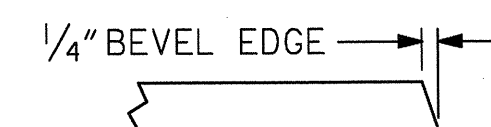
WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.



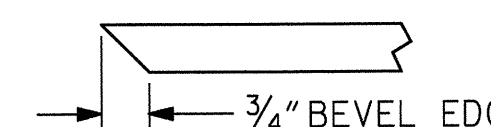
DETAIL "A"
(FOR AASHTO TYPE IV GIRDERS)



EMBEDDED PLATE "B-1" DETAILS
FOR AASHTO TYPE IV GIRDER
(2 REQ'D PER GIRDER)



SECTION "G"



SECTION "F"
(SEE NOTES)

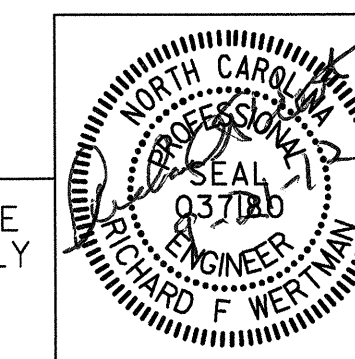
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION	SPANS A, B & C																						
	GIRDERS 1 & 4											GIRDERS 2 & 3											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.049	0.086	0.112	0.127	0.132	0.127	0.112	0.086	0.049	0	0	0.049	0.086	0.112	0.127	0.132	0.127	0.112	0.086	0.049	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.022	0.041	0.057	0.067	0.071	0.067	0.057	0.041	0.022	0	0	0.023	0.045	0.063	0.074	0.078	0.074	0.062	0.045	0.023	0
FINAL CAMBER	↑	0	5/16"	9/16"	1 1/16"	3/4"	3/4"	3/4"	1 1/16"	9/16"	5/16"	0	0	5/16"	1/2"	9/16"	5/8"	5/8"	5/8"	9/16"	1/2"	5/16"	0

* INCLUDES FUTURE WEARING SURFACE.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS



PLANS PREPARED BY:



THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			33

STD. NO. PCG9

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, CHANNELS, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

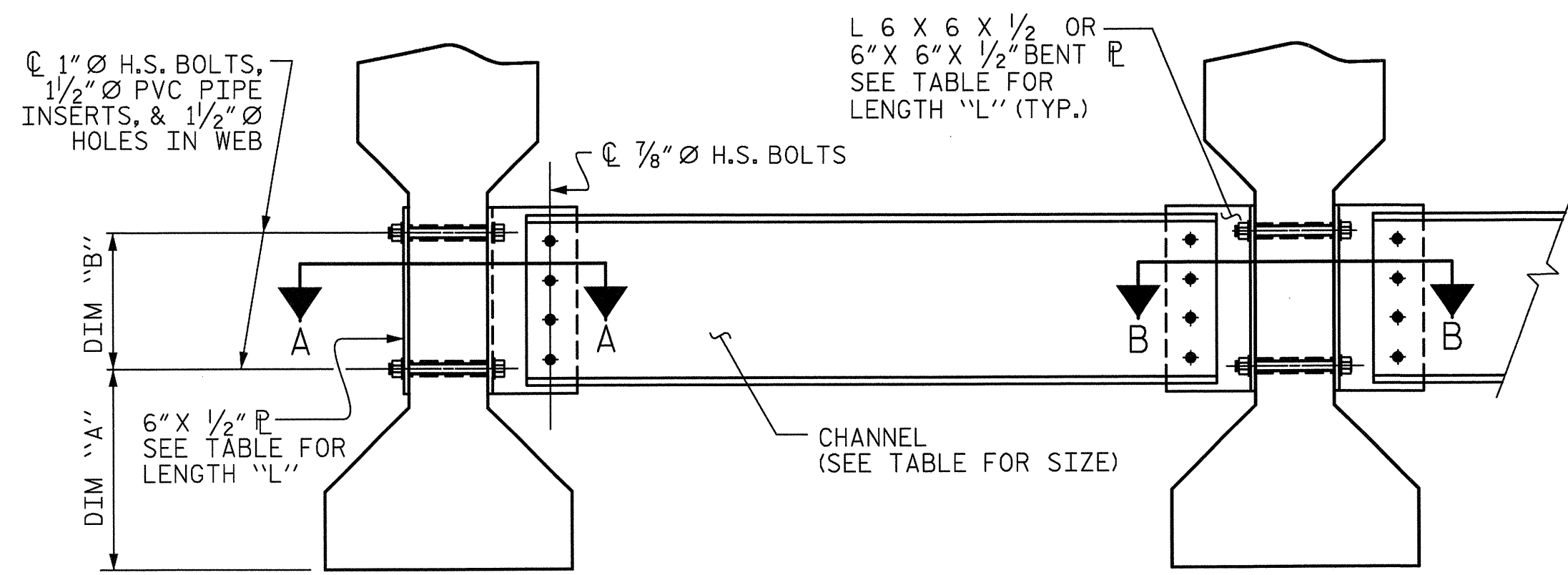
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

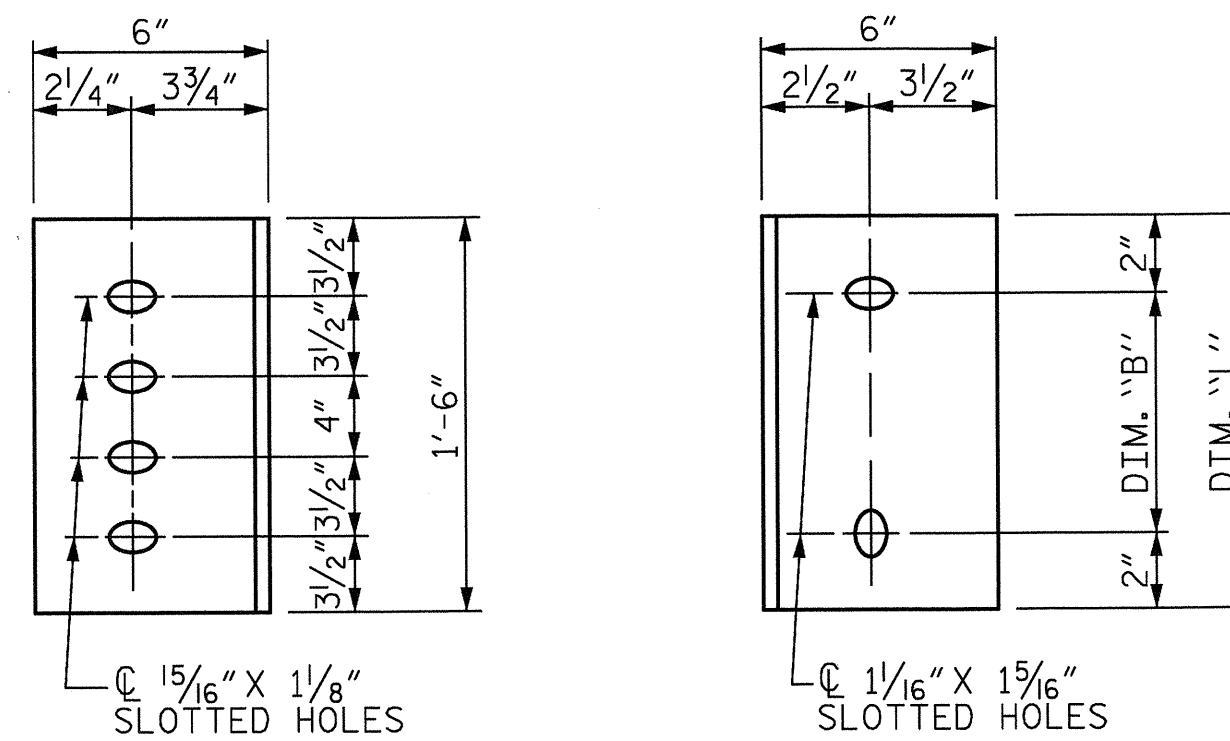
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



EXTERIOR GIRDER INTERIOR GIRDER
PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE WEB FACE
CONNECTOR PLATE DETAILS

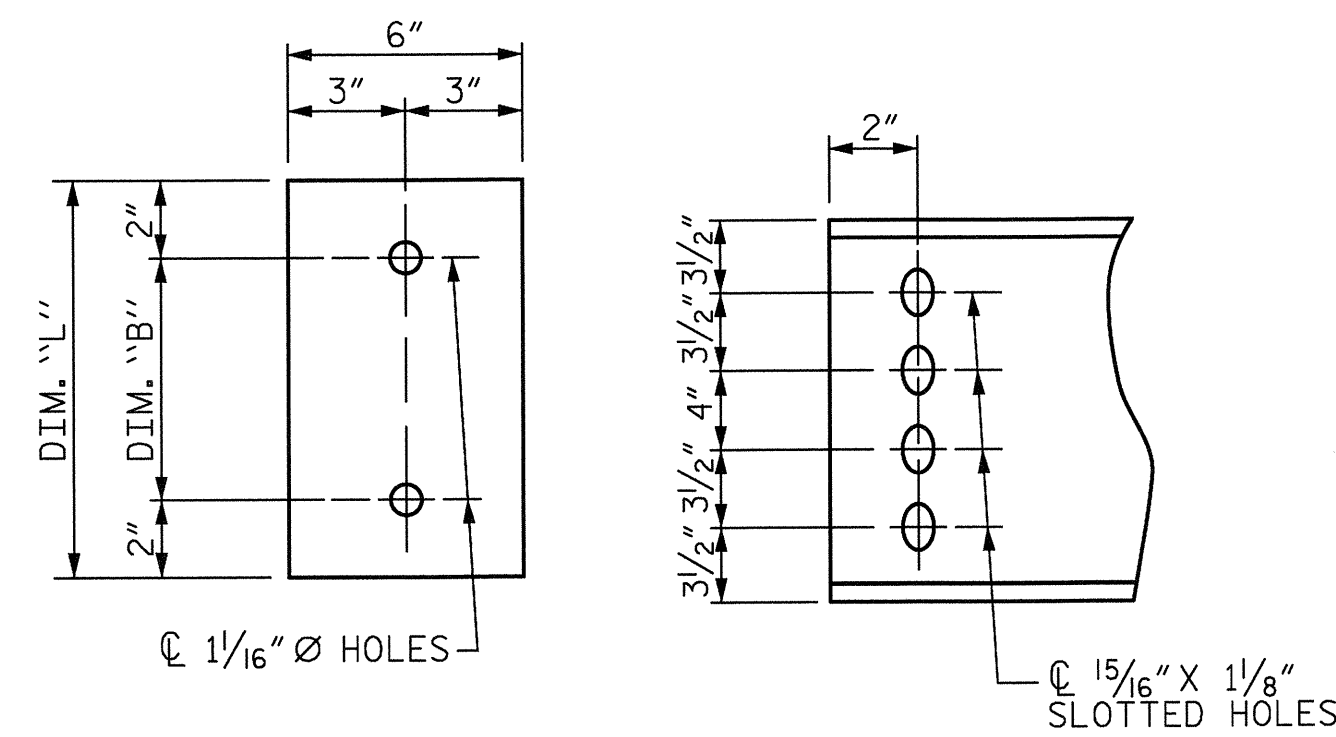
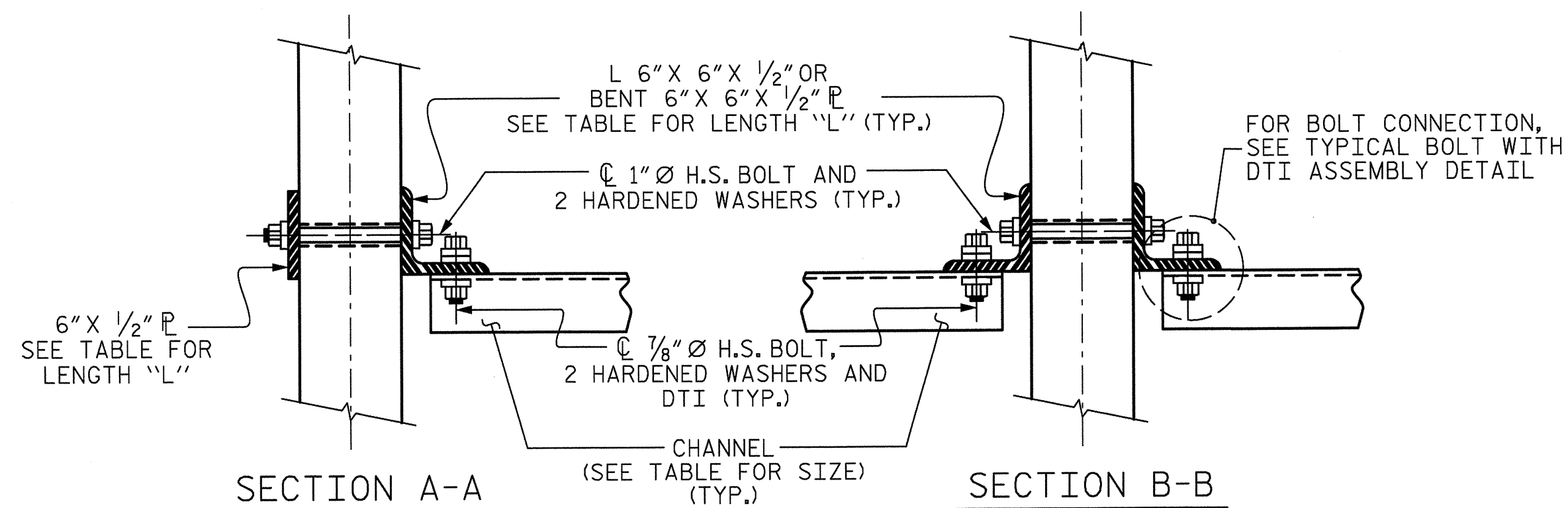


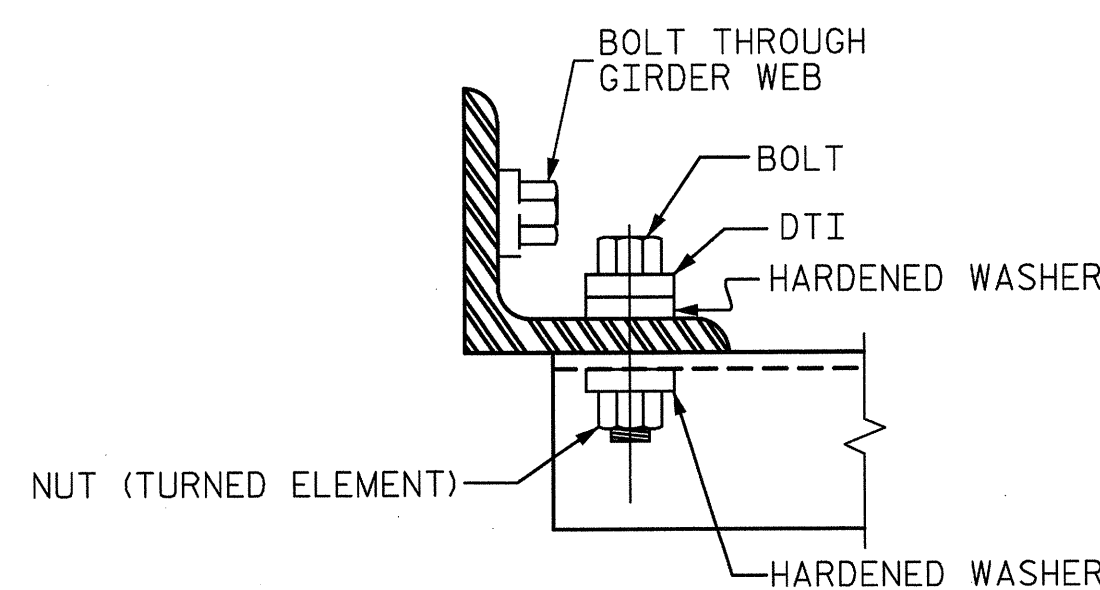
PLATE DETAILS CHANNEL END

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
IV	MC 18 x 42.7	1'-9 1/2"	1'-2"	1'-6"



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

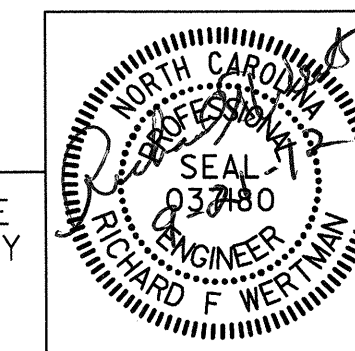
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
INTERMEDIATE
STEEL DIAPHRAGMS
FOR TYPE II, III, & IV
PRESTRESSED CONCRETE
GIRDERS

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	33
1			3			
2			4			

PLANS PREPARED BY:

Gannett Fleming
RALEIGH, NORTH CAROLINA

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



ASSEMBLED BY : E.C. LOCKLEAR DATE : 8-24-11
CHECKED BY : R.F. WERTMAN DATE : 2-12
DRAWN BY : TLA 6/05
CHECKED BY : VC 6/05
ADDED 10/21/05
REV. 5/1/06RRR KMM/GM
REV. 10/1/11 MAA/GM

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.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

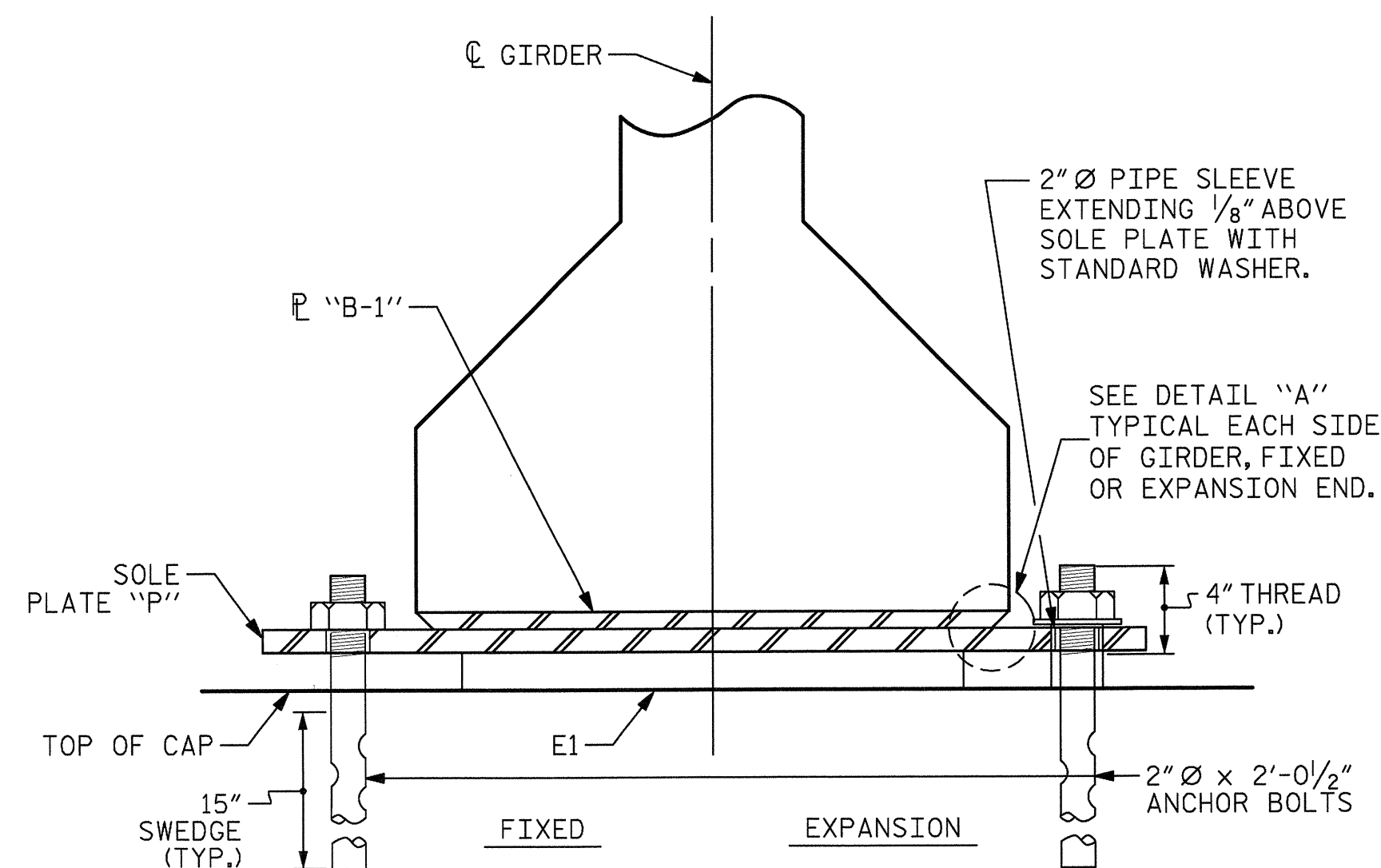
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, 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.

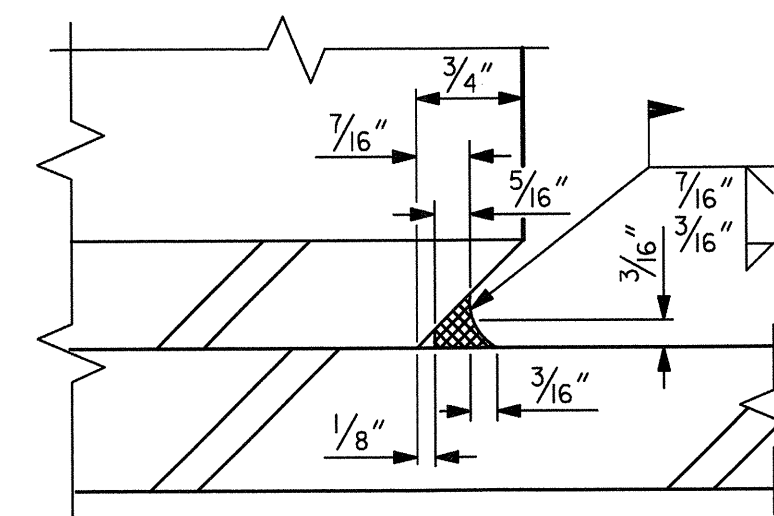
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

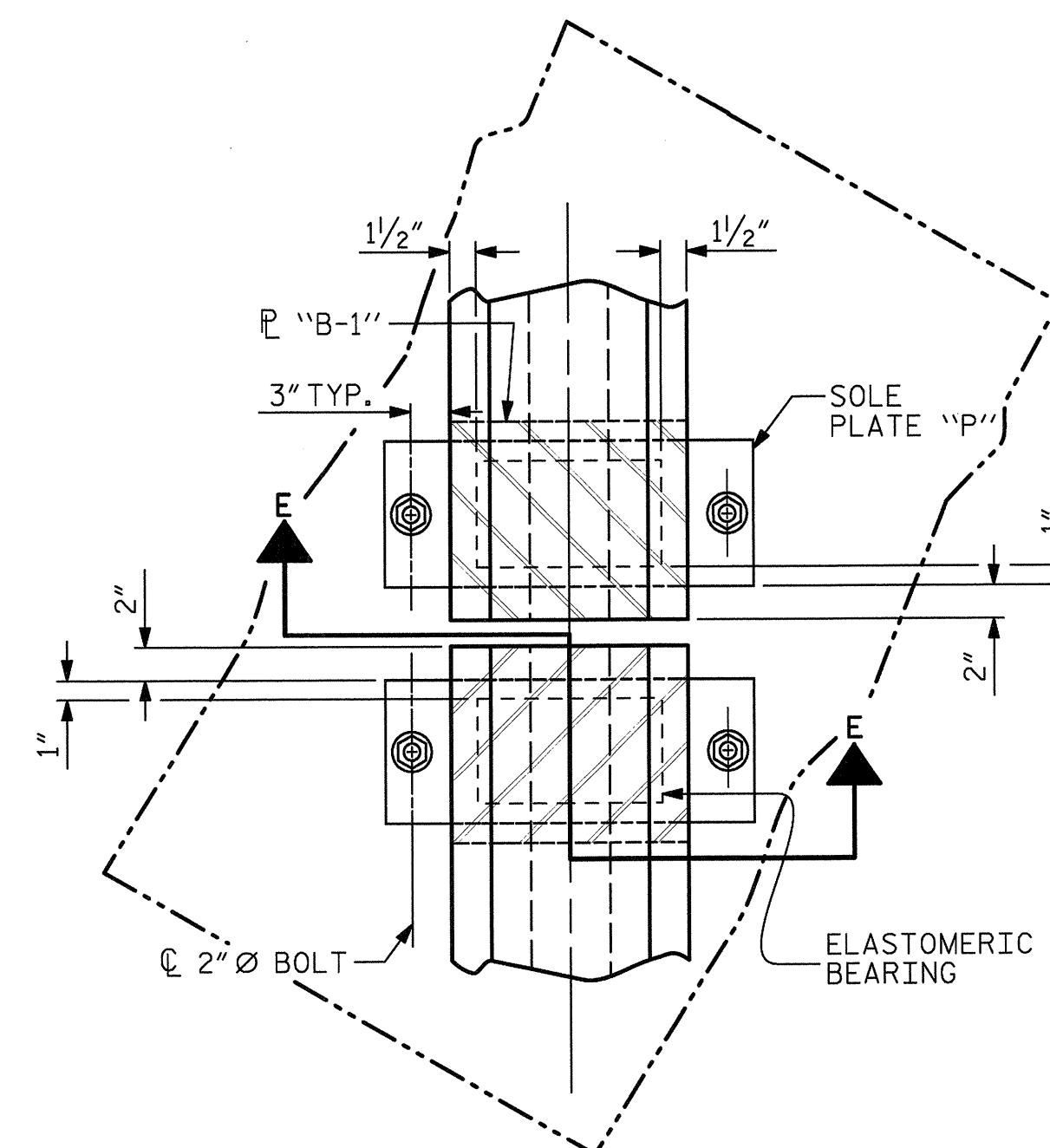
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



SECTION E-E

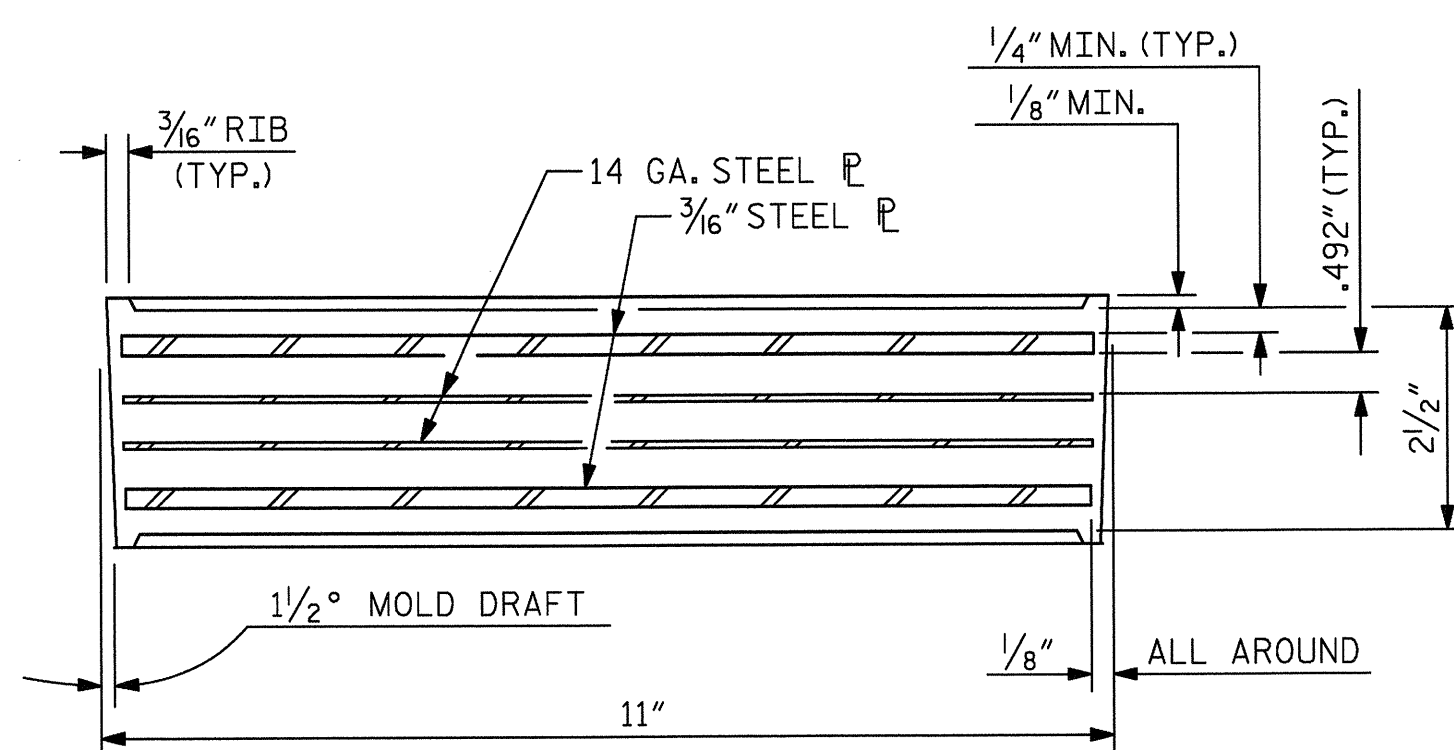


DETAIL "A"

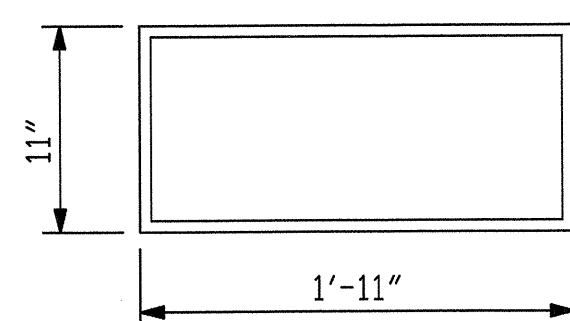


**TYPICAL PLAN
(SHOWING CONTINUOUS BENT)**

LOAD RATINGS	
	MAX. D.L. + L.L.
TYPE VI	211 K



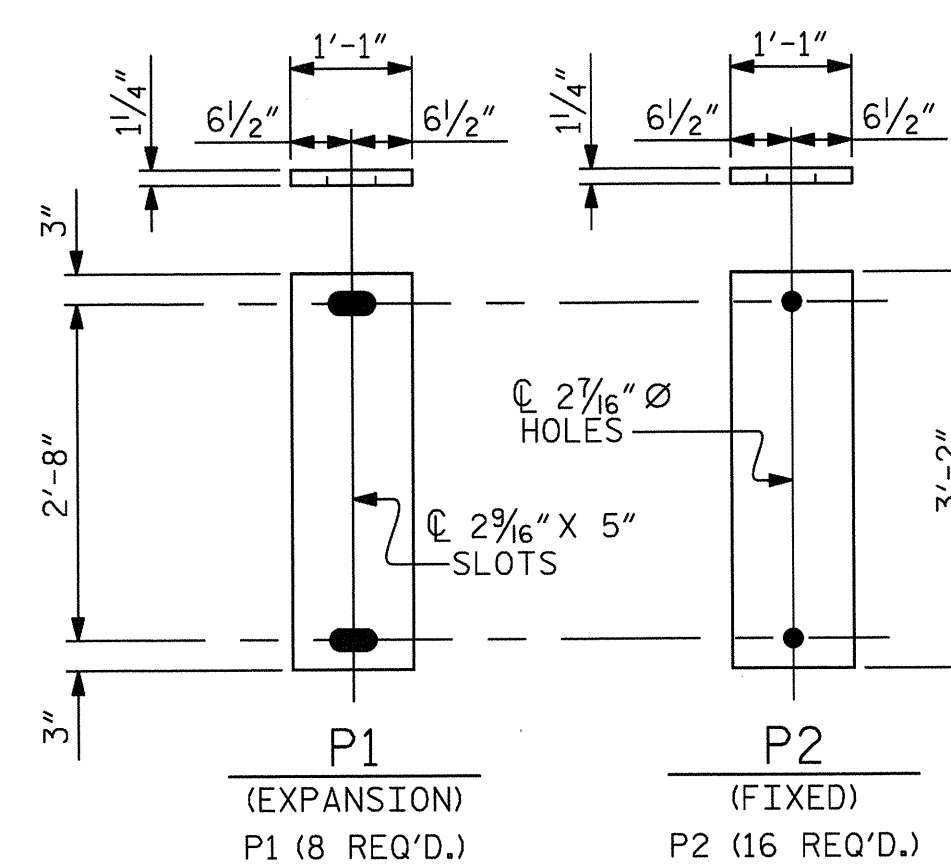
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E1 (24 REQ'D.)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE VI

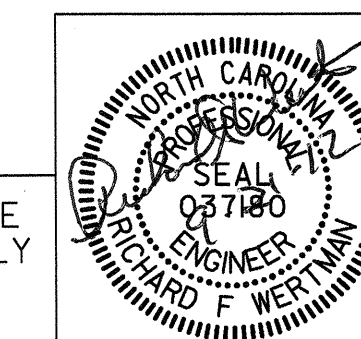


SOLE PLATE DETAILS ("P")

PLANS PREPARED BY:

Gannett Fleming
RALEIGH, NORTH CAROLINA

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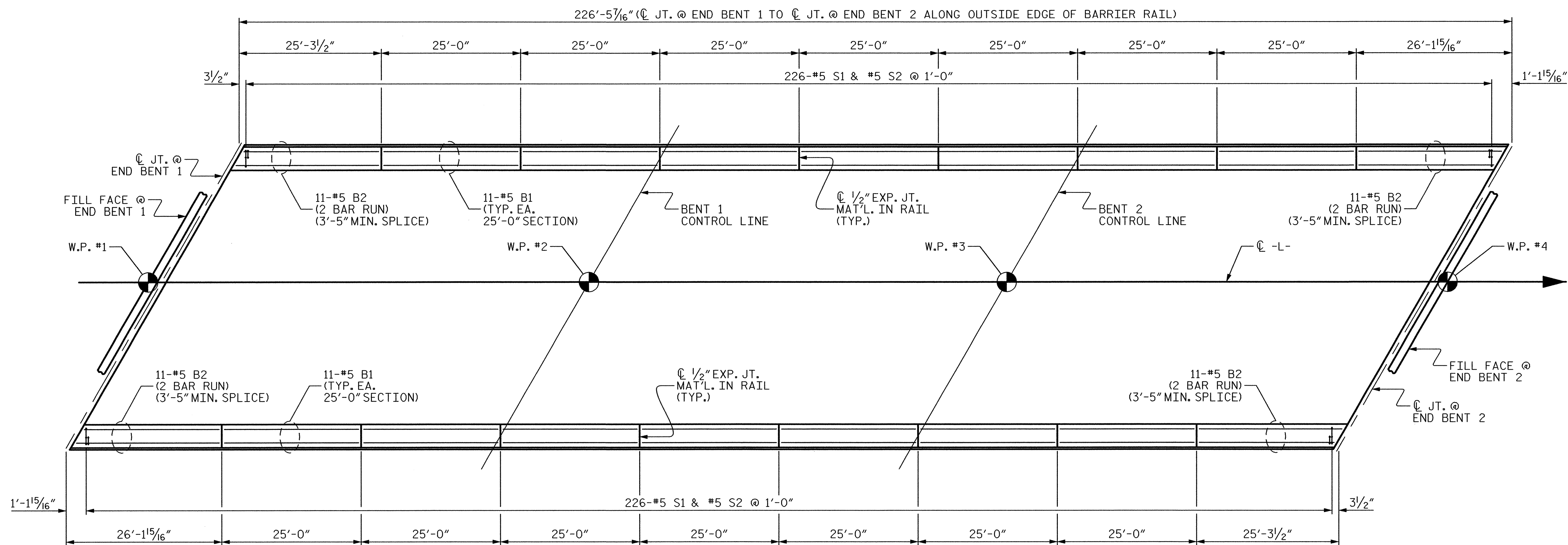


PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
**ELASTOMERIC BEARING
DETAILS**
PRESTRESSED CONCRETE GIRDER
SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			33

ASSEMBLED BY: E.C. LOCKLEAR	DATE: 8-26-11
CHECKED BY: R.F. WERTMAN	DATE: 2-12
DRAWN BY: EEM 2/97	REV. 8/16/99 RWW/LES
CHECKED BY: VAP 2/97	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM



PLAN

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL
FOR CONCRETE BARRIER RAIL ONLY

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	#5	STR	24'-8"	3962
* B2	#5	STR	14'-6"	1331
* S1	#5	1	4'-10"	2279
* S2	#5	2	7'-0"	3300

*EPOXY COATED REINFORCING STEEL 10,872 LBS.
CLASS AA CONCRETE 67.8 CU. YDS.
CONCRETE BARRIER RAIL 494.51 LIN. FT.

NOTES

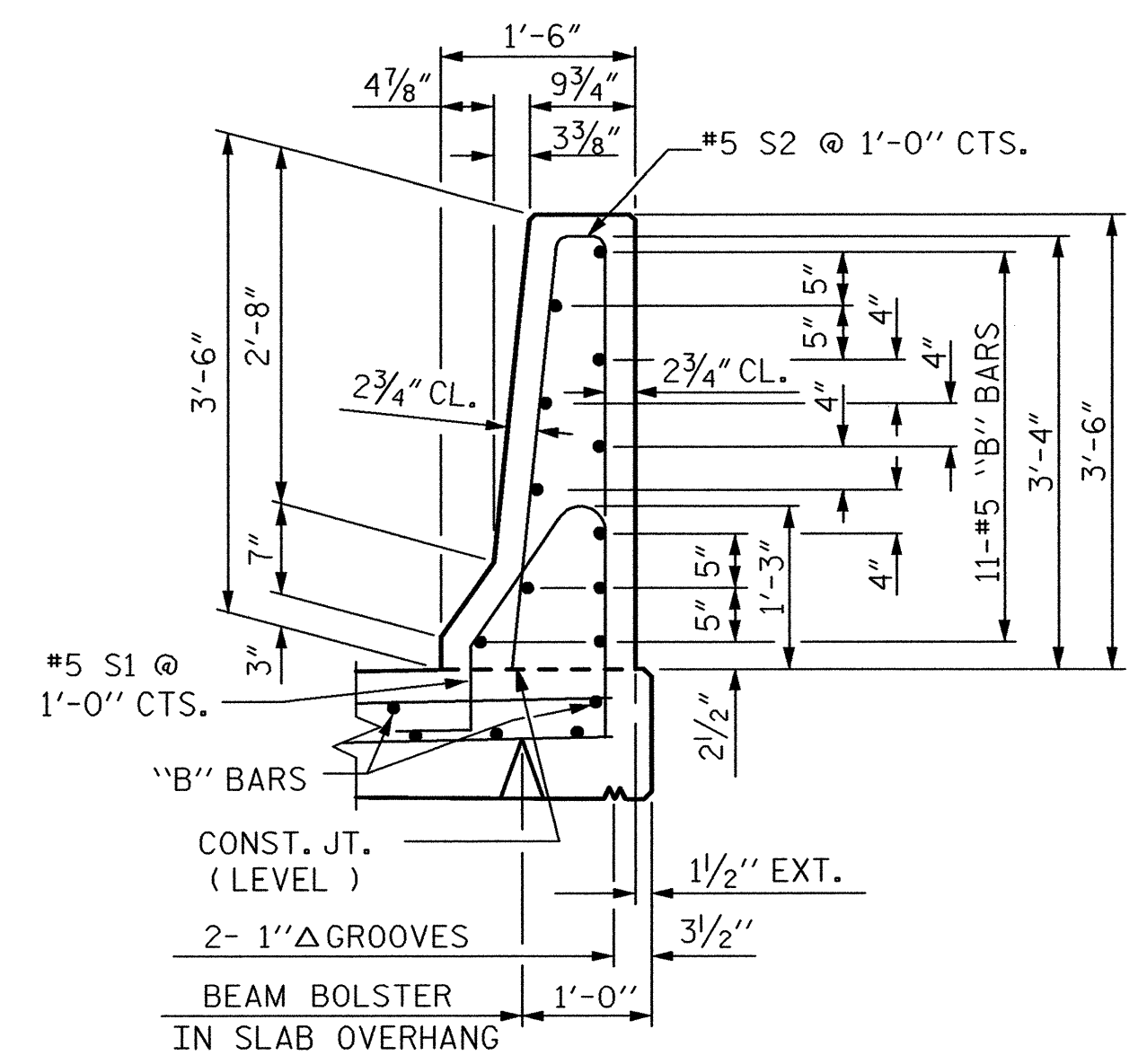
THE BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

WHEN FOAM JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

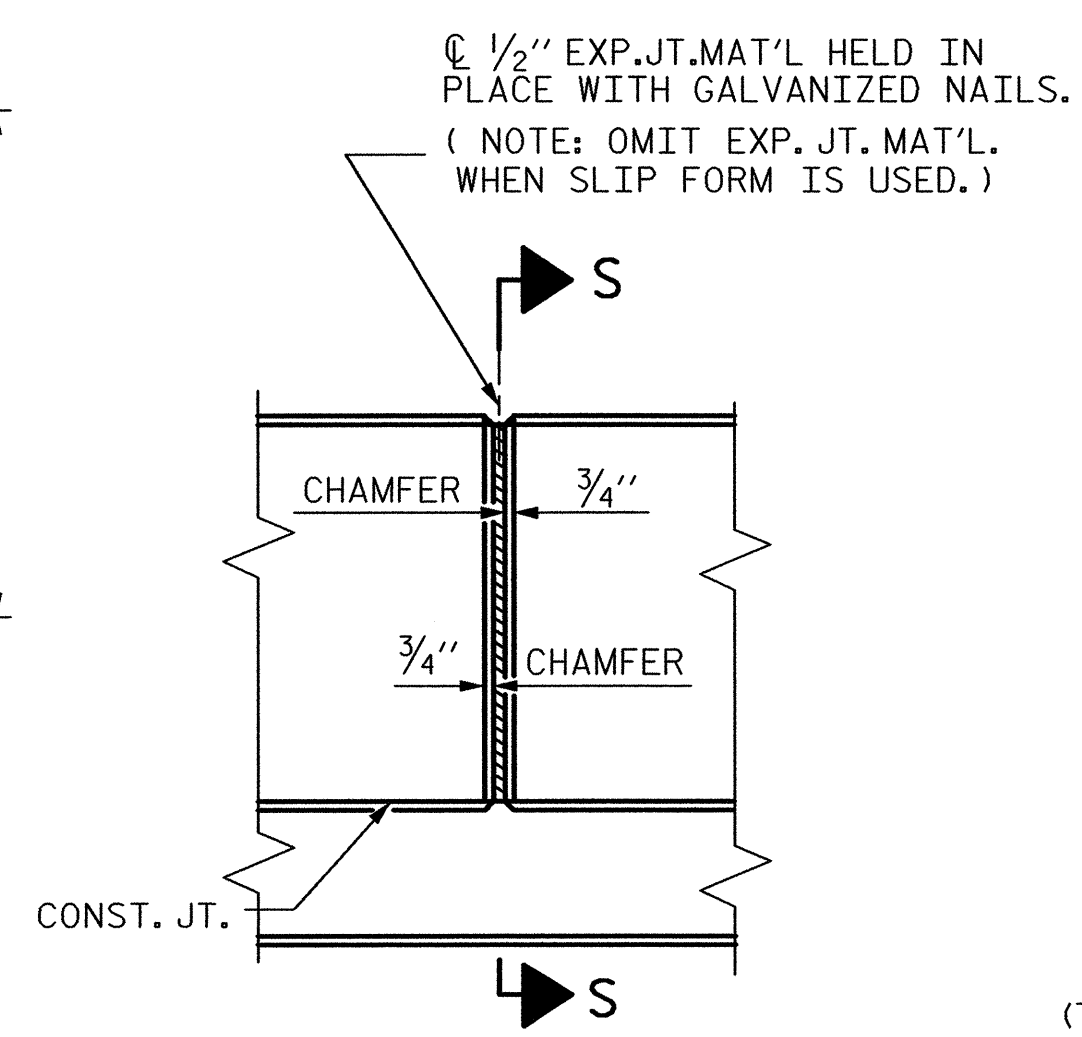
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3, S4, S5 AND S6 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3, S4, S5 AND S6 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

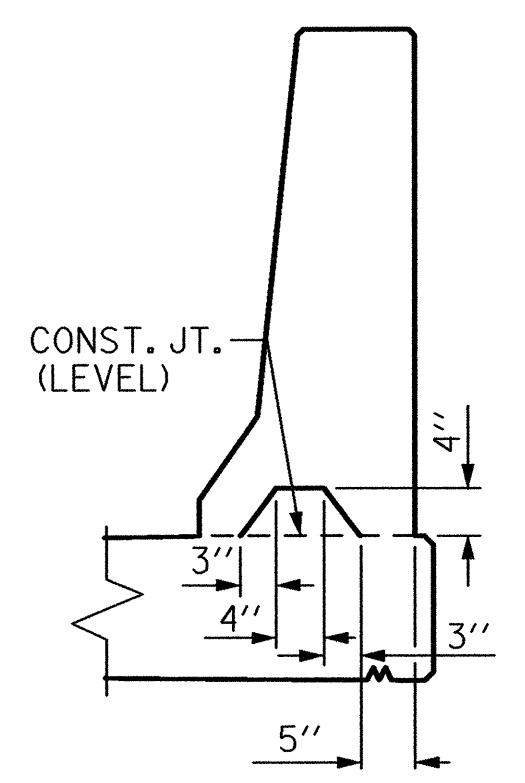
GROOVED CONTRACTION JOINTS, 1 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS 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.



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS



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

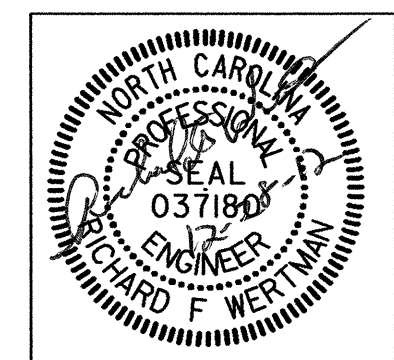
BARRIER RAIL DETAILS

PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE BARRIER RAIL

REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 33
2			4			



DRAWN BY: E.C. LOCKLEAR DATE: 8-26-11
CHECKED BY: R.F. WERTMAN DATE: 2-12

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 1/8" 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

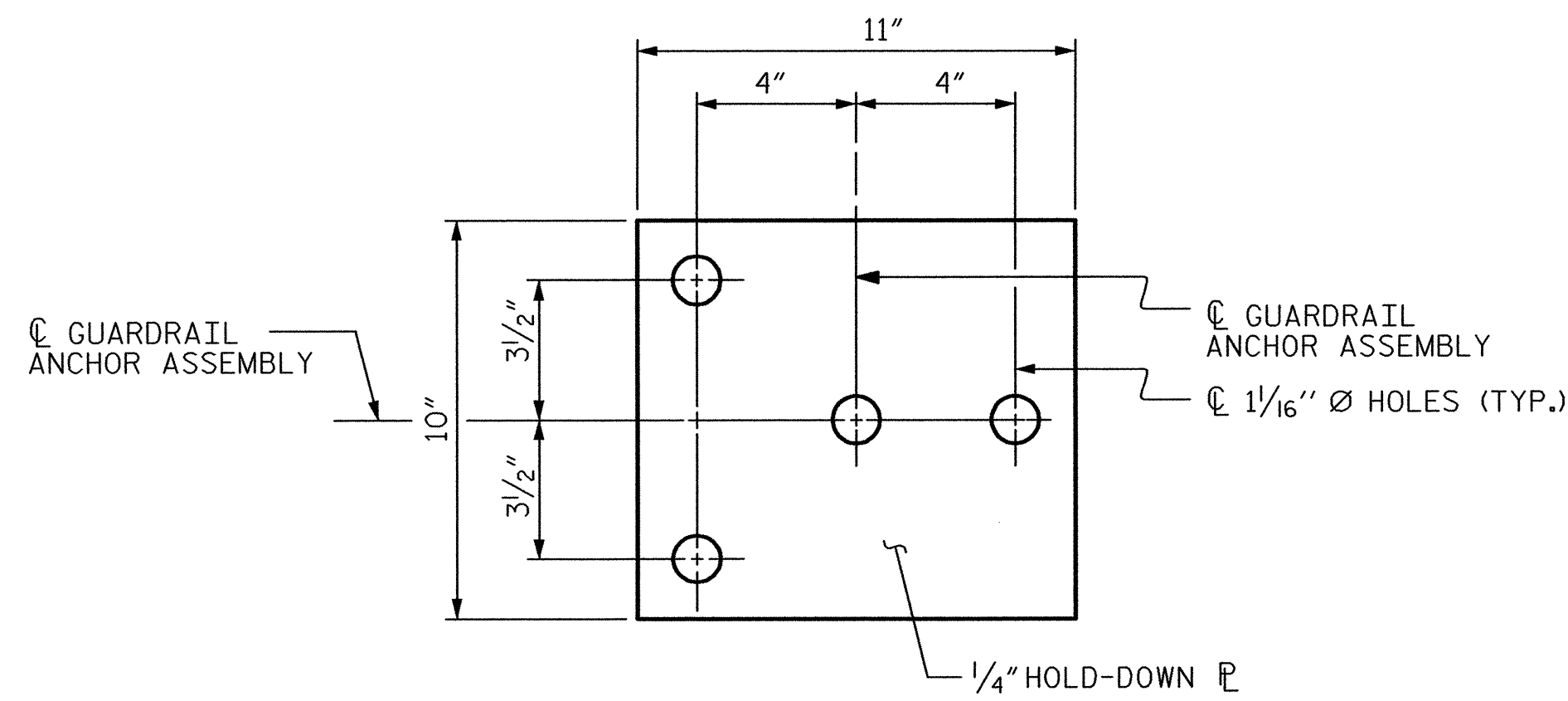
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

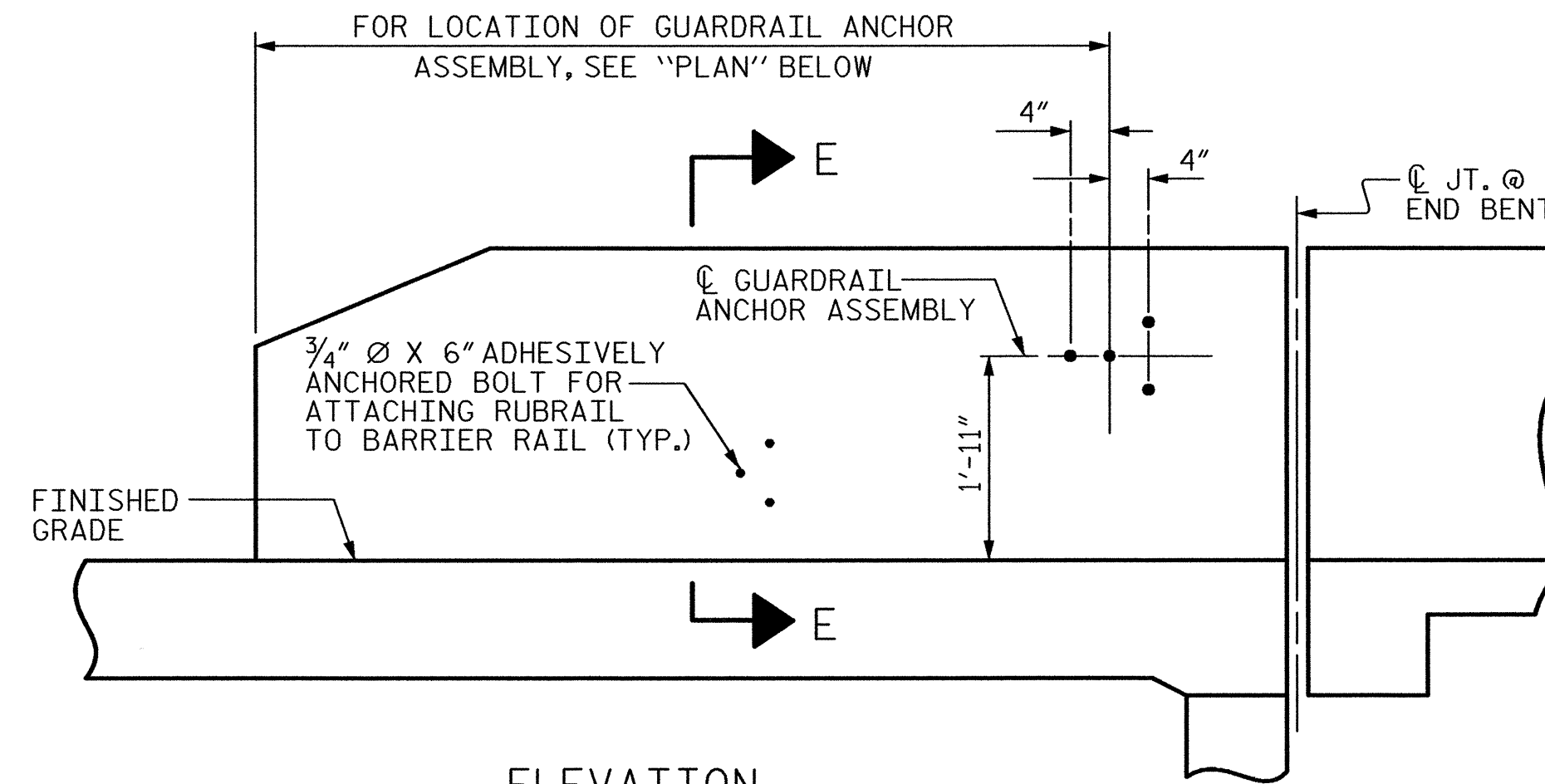
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

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

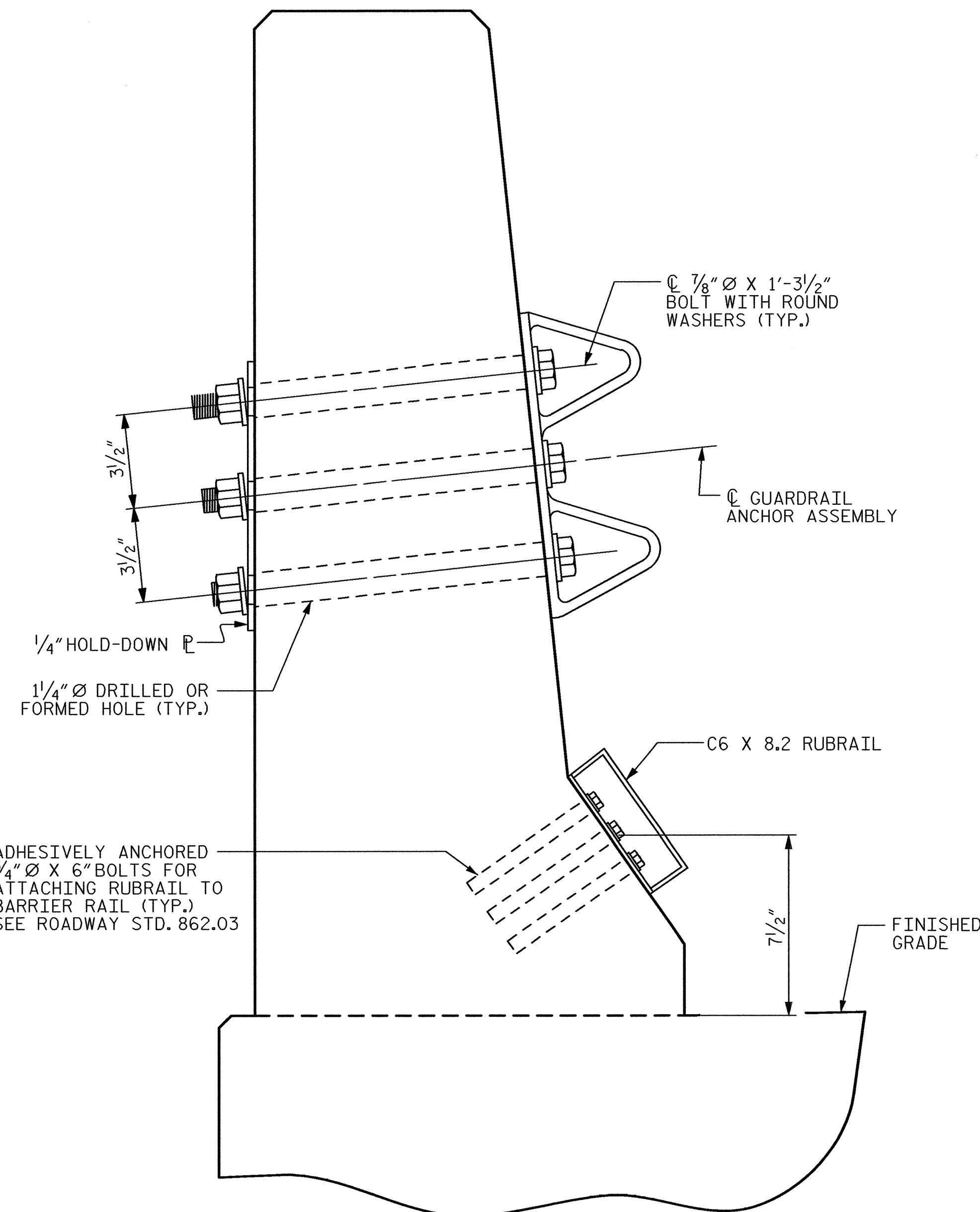


PLAN



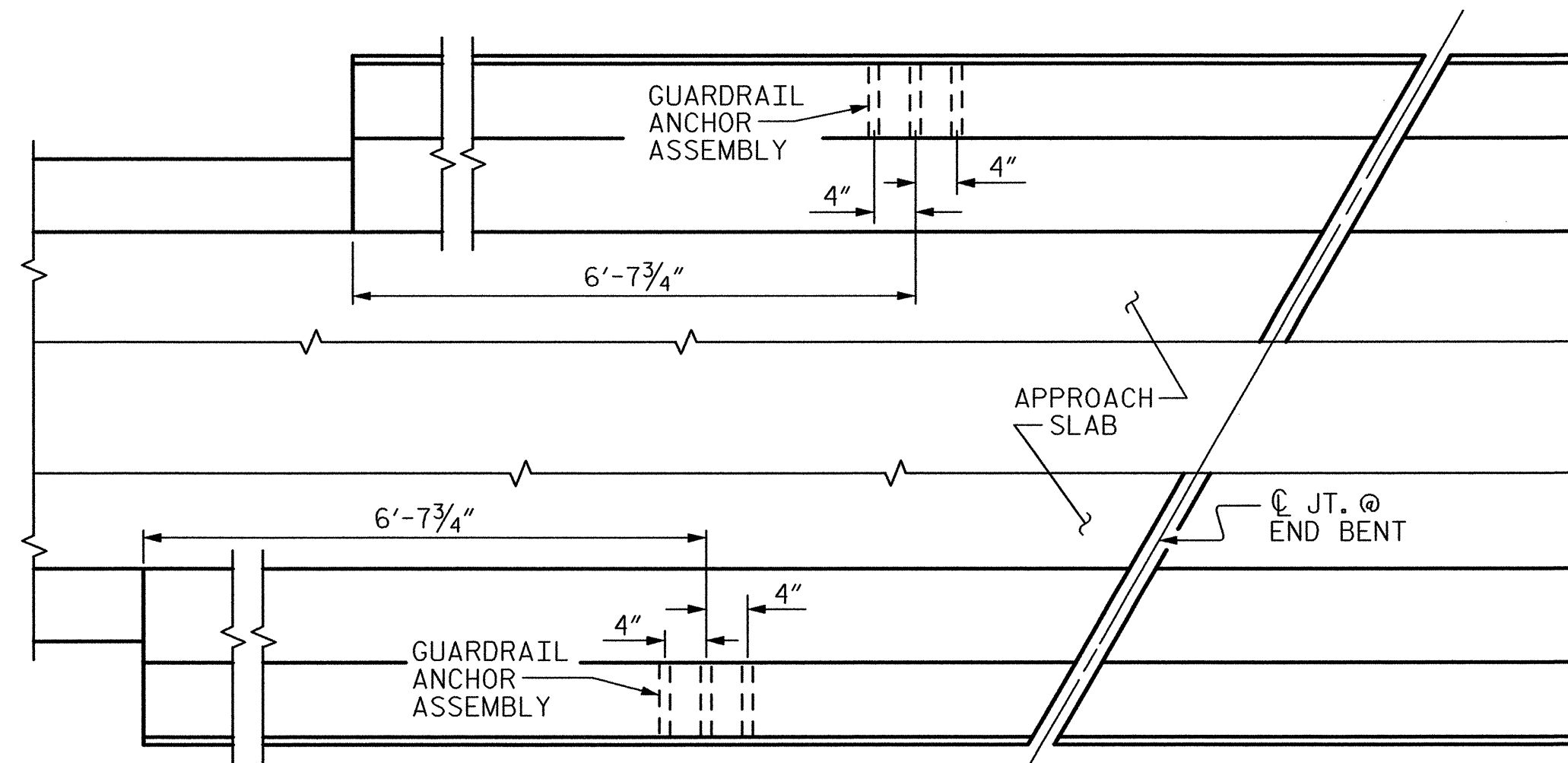
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

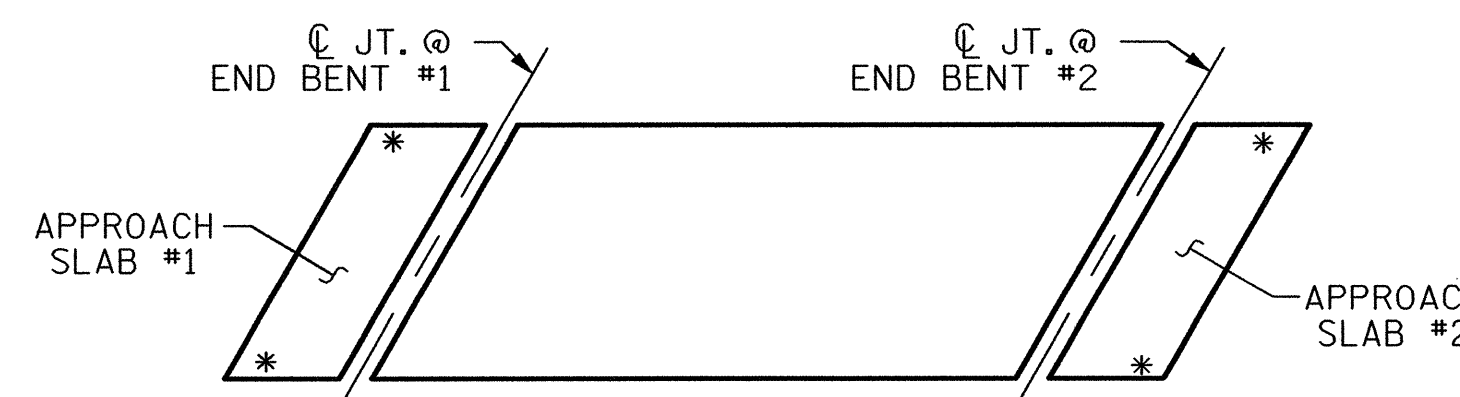
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



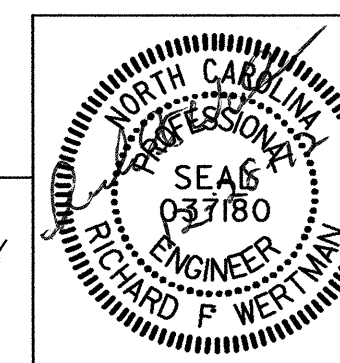
SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PLANS PREPARED BY:

Gannett Fleming
RALEIGH, NORTH CAROLINA

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PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

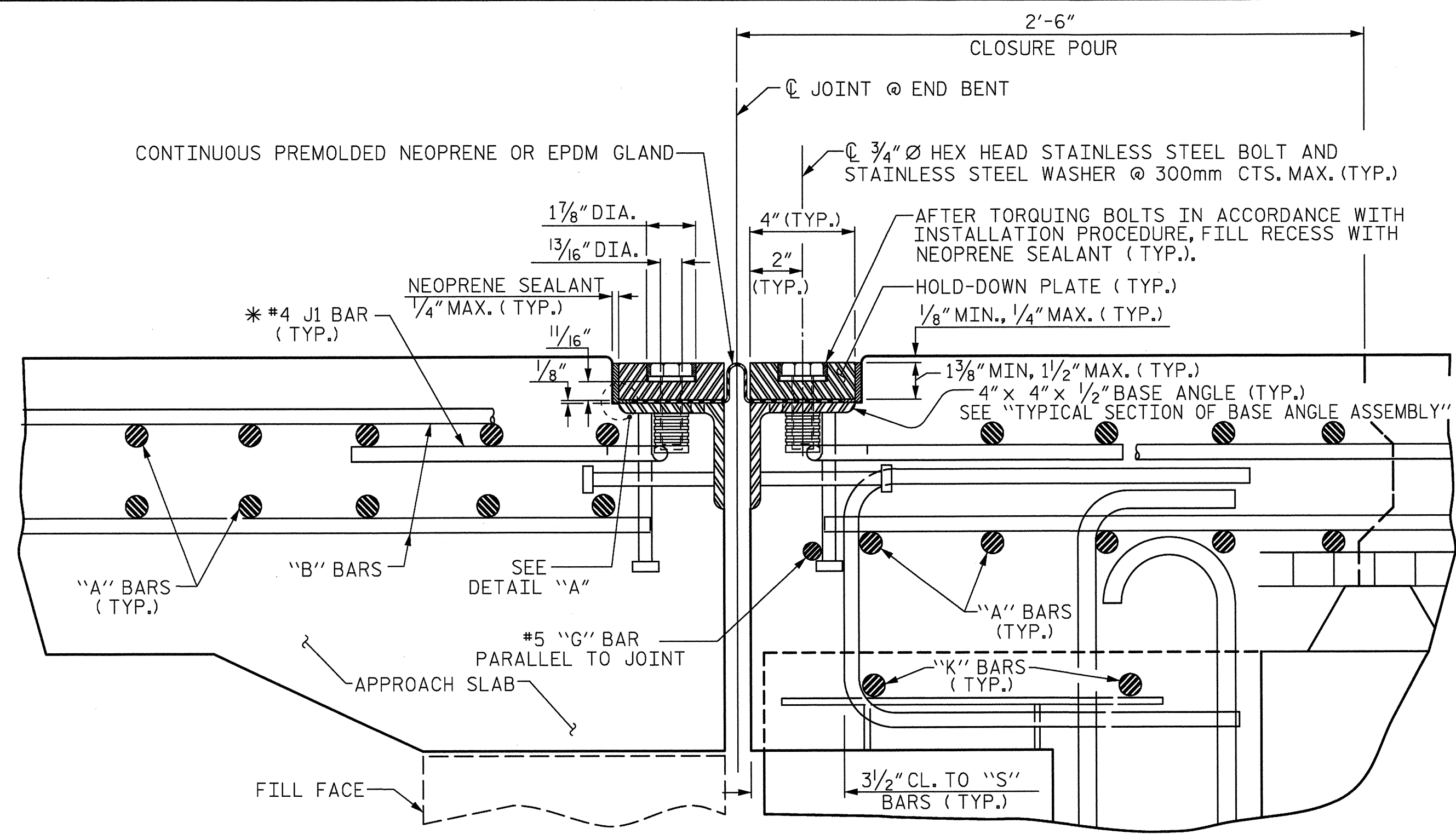
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

ASSEMBLED BY : E.C. LOCKLEAR	DATE : 8-29-12
CHECKED BY : R.F. WERTMAN	DATE : 12-20-12
DRAWN BY : TLA 5/06	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/06	REV. 7/12 MAA/GM
	REV. 10/12 MAA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			33

*****SYSTEM*****
*****DCN*****

STD. NO. GRA2



EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE
END BENT 1 SHOWN, END BENT 2 SIMILAR

* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

INSTALLATION PROCEDURE

1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4/8" TO 4/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE 3/4" Ø HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" Ø HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X 1/2" BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED 7/8" IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE BUT DO NOT TIGHTEN. THE ENGINEER SHALL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. THE TORQUE WRENCH SHALL BE CALIBRATED IN ACCORDANCE WITH SECTION 440-10 (D) OF THE STANDARD SPECIFICATIONS. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES AND THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, COMPLETELY FILL THESE RECESSES WITH NEOPRENE SEALANT.

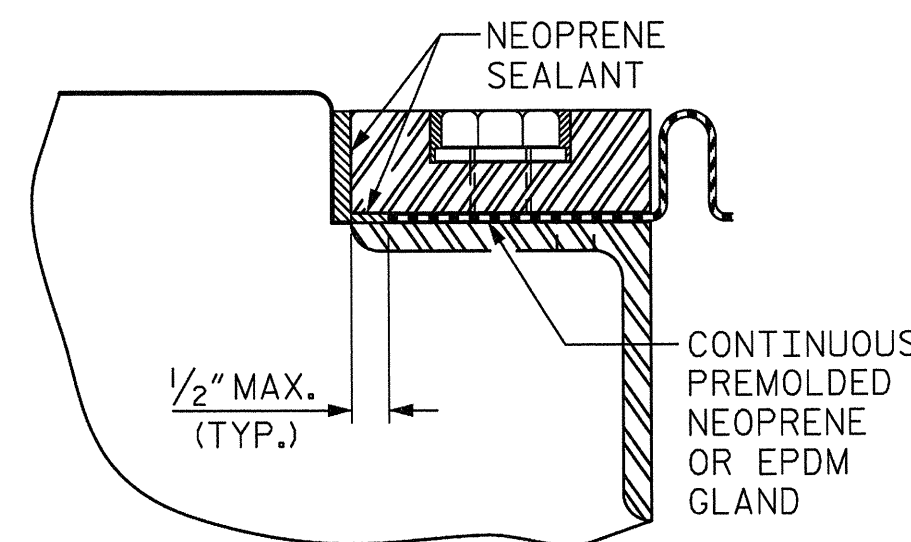
GENERAL NOTES

1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED. SEE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
7. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE GROUND SMOOTH AND COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
8. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
9. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
10. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

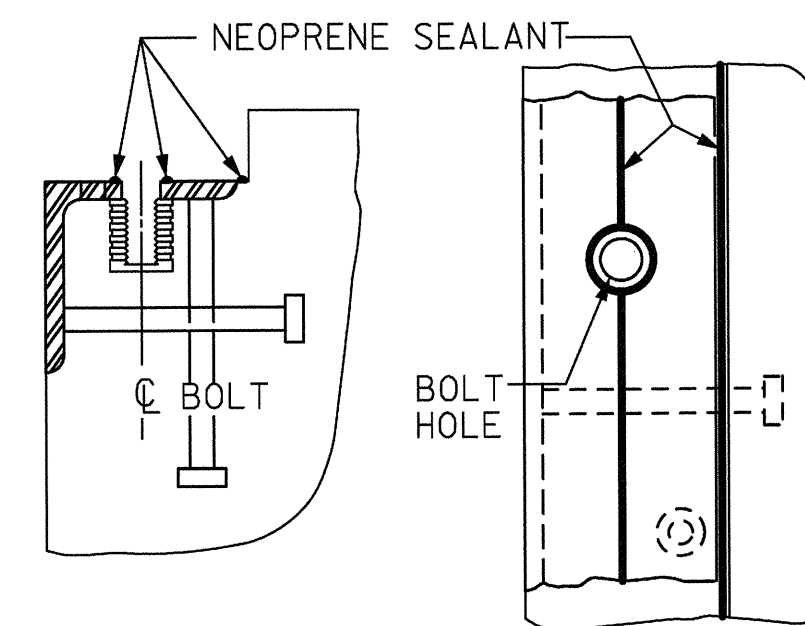
EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE
END BENT 1 SHOWN, END BENT 2 SIMILAR

* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

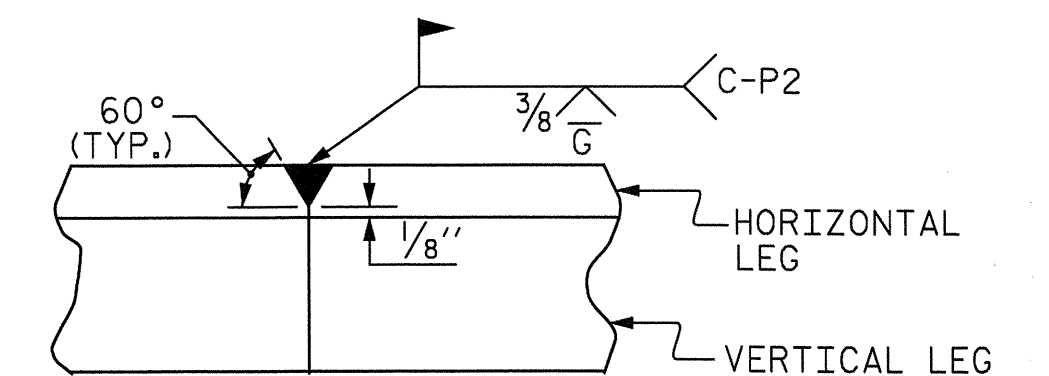


DETAIL "A"

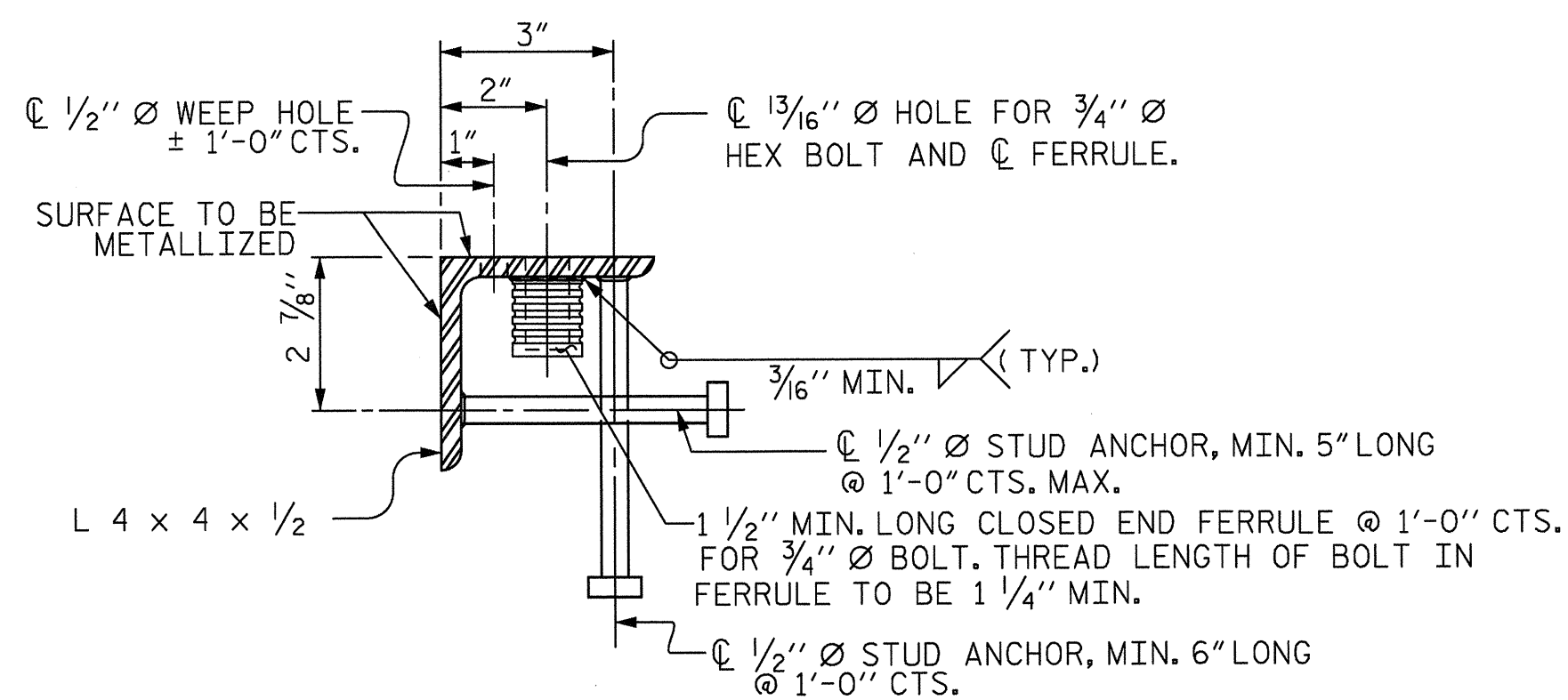


CROSS SECTION PLAN VIEW

INSTALLATION SKETCH



DETAIL - FIELD WELD SPLICE OF BASE ANGLE



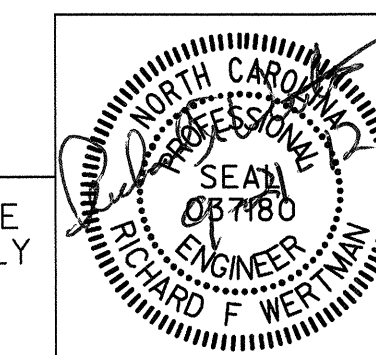
TYPICAL SECTION OF BASE ANGLE ASSEMBLY

MOVEMENT AND SETTING AT JOINT					
BENT NO.	SKEW ANGLE	TOTAL MOVEMENT (ALONG C RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1 & END BENT 2	120°-00'-00"	15/16"	1 1/2"	1 3/8"	1 1/8"

PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
EXPANSION JOINT
SEAL DETAILS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			33

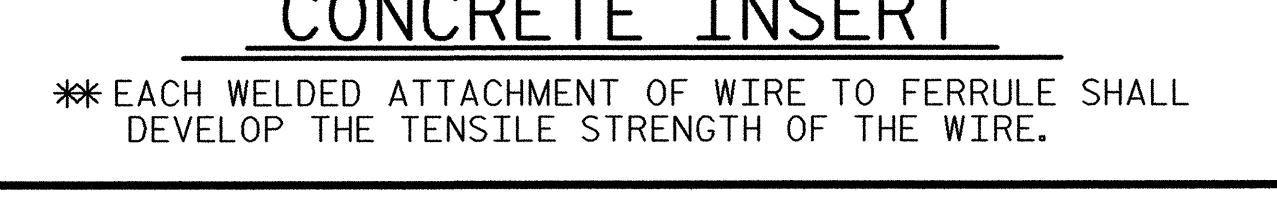
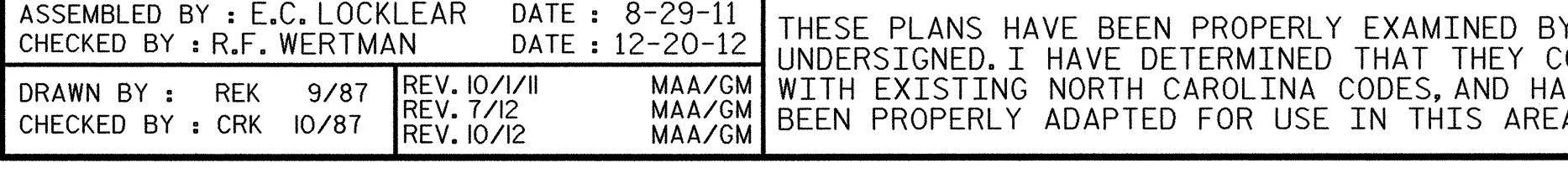
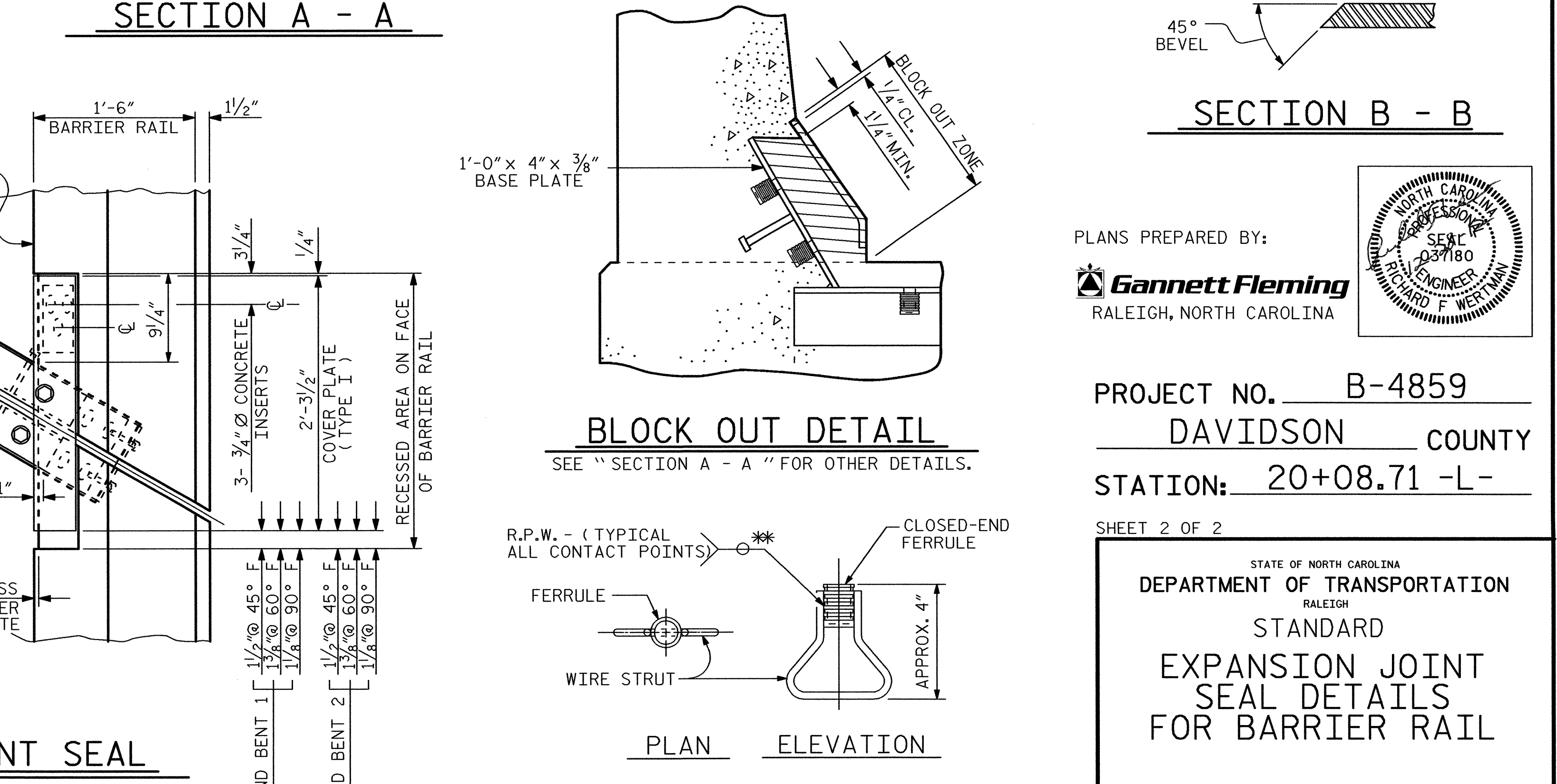
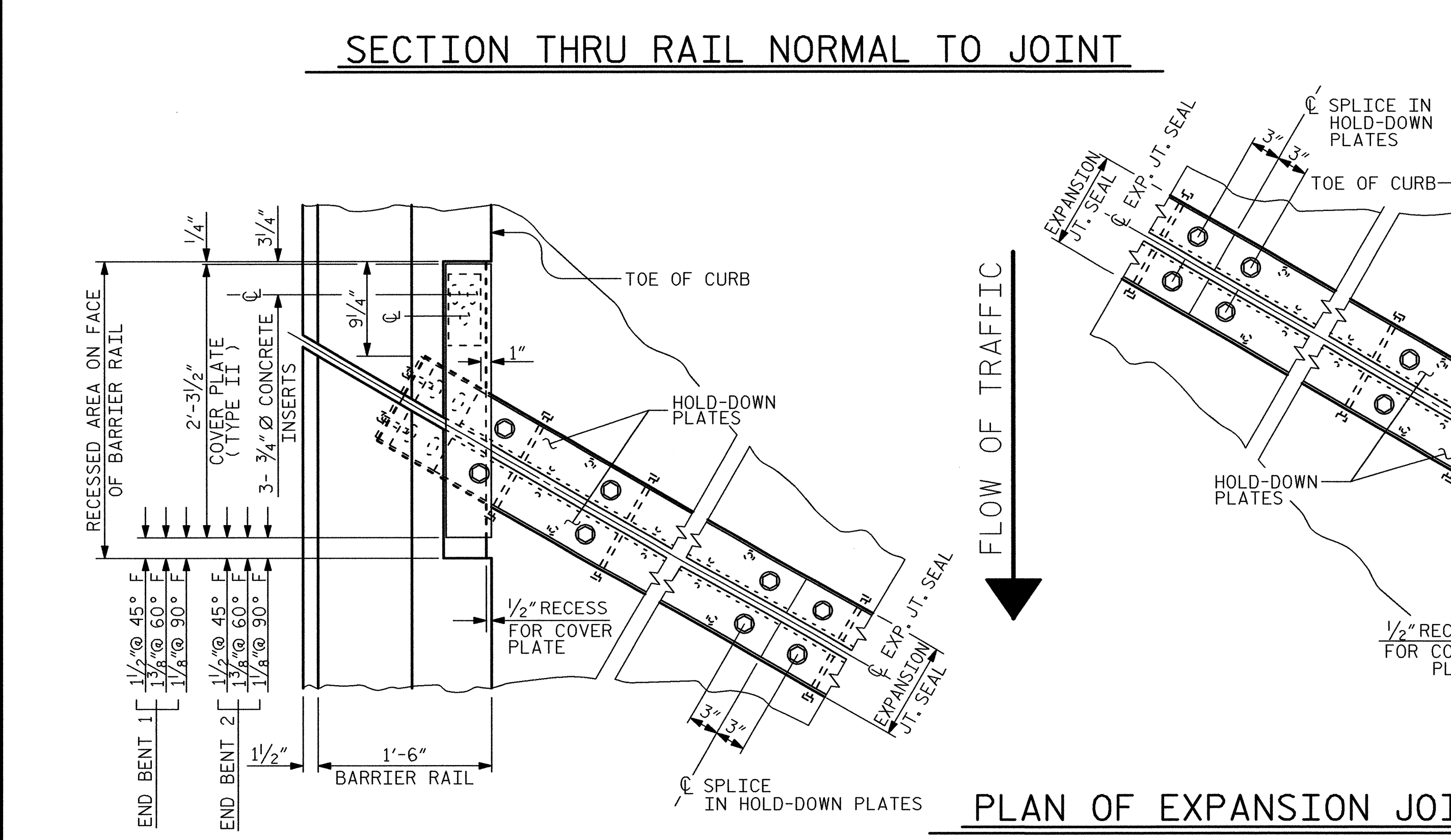
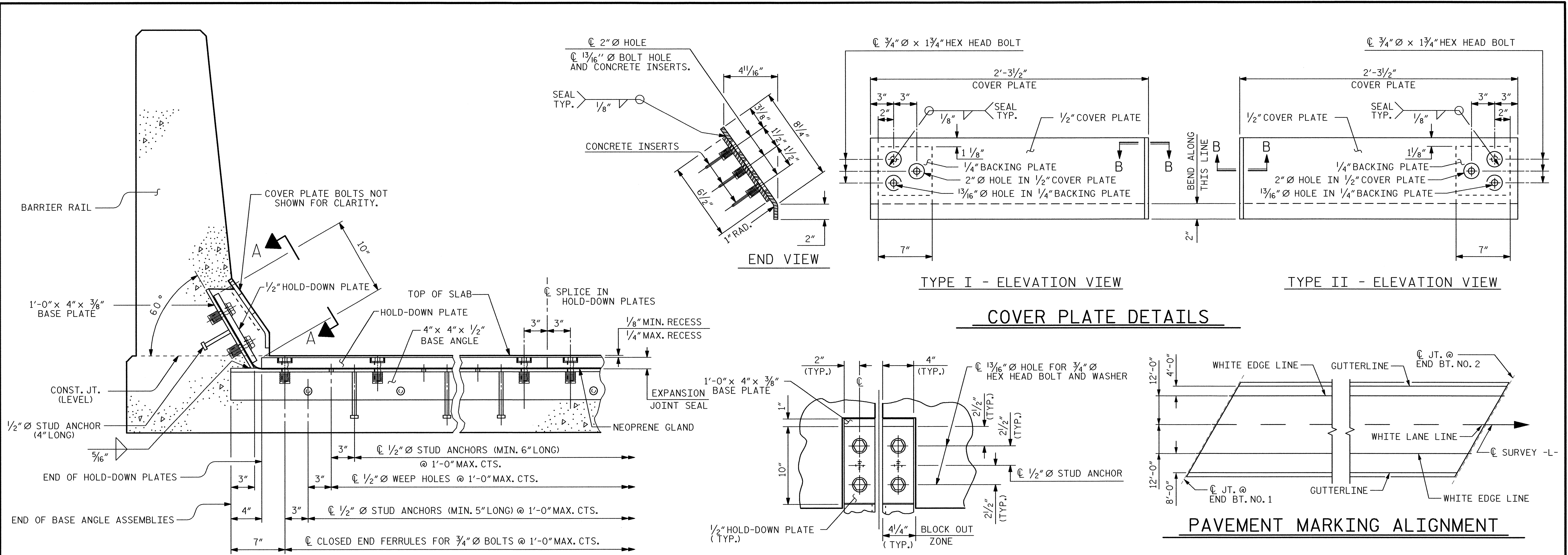
PLANS PREPARED BY:

Gannett Fleming
RALEIGH, NORTH CAROLINA

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

ASSEMBLED BY: E.C. LOCKLEAR	DATE: 8-29-11
CHECKED BY: R.F. WERTMAN	DATE: 2-12
DRAWN BY: REK	9/87
CHECKED BY: CRK	10/87
REV. 10/17/00	RWW/LES
REV. 5/7/03R	RWW/JTE
REV. 5/1/06	TLA/GM

FILE: K:\065349_Davidson_Cty_Structure\DCN\B-4859_50_15.dgn
DATE: 05/11/11 09:31



PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

PROFESSIONAL ENGINEER
 RICHARD F. WERTMAN
 0337180

PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD EXPANSION JOINT SEAL DETAILS FOR BARRIER RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-19
 TOTAL SHEETS 33

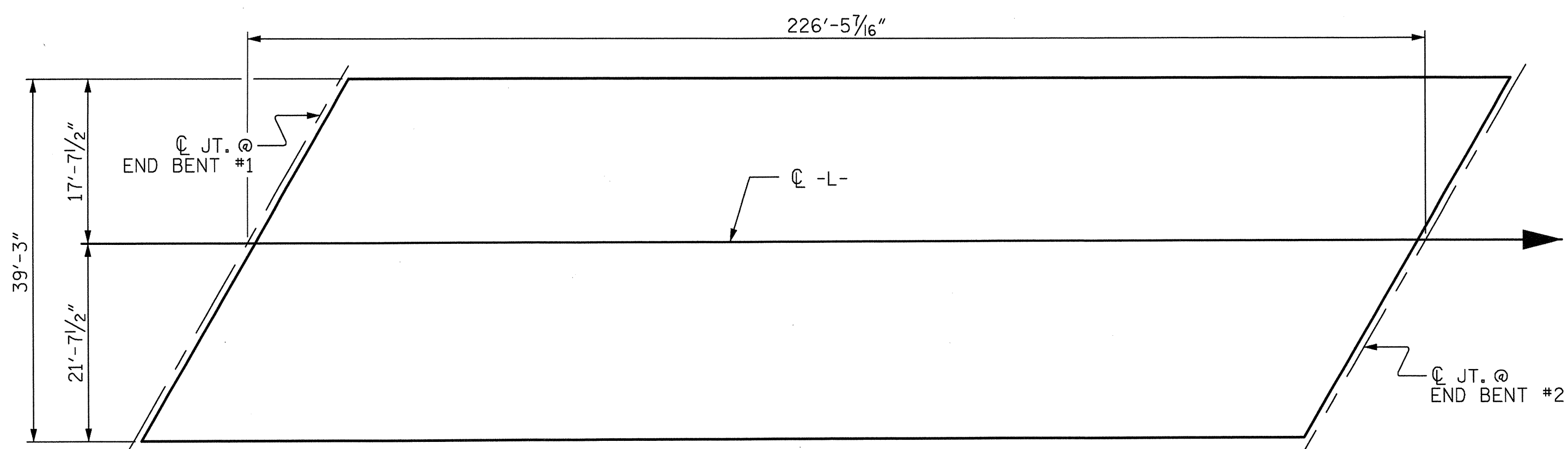
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 DATE: 28-JUN-2012 15:25

ASSEMBLED BY: E.C. LOCKLEAR DATE: 8-29-11
 CHECKED BY: R.F. WERTMAN DATE: 12-20-12

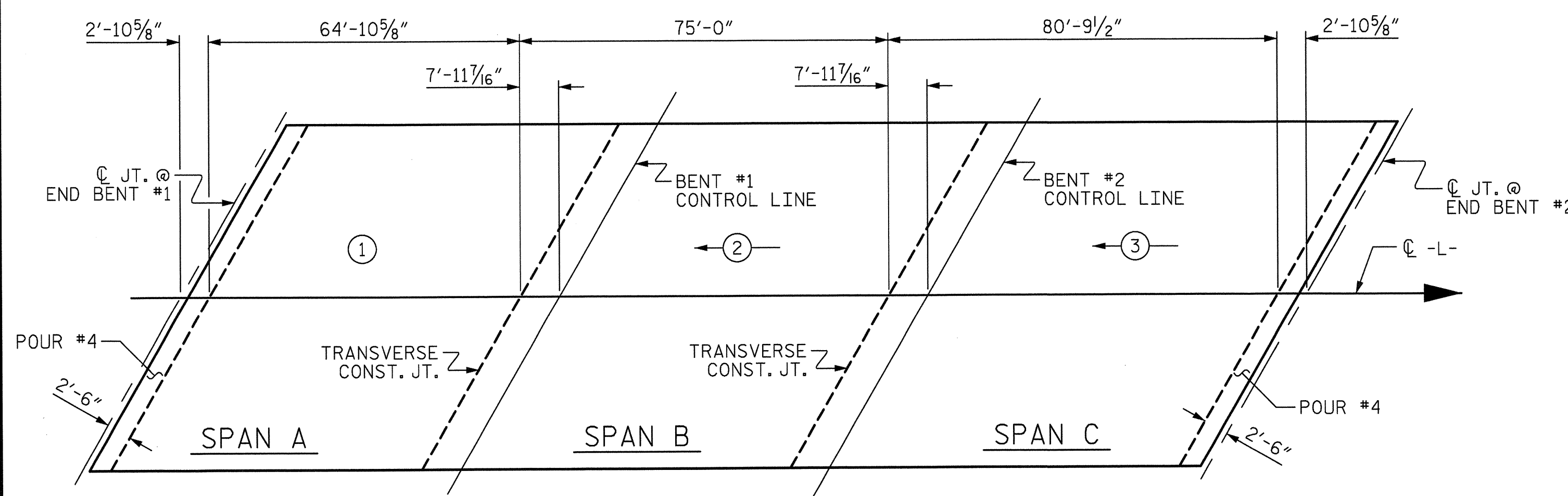
THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

** EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

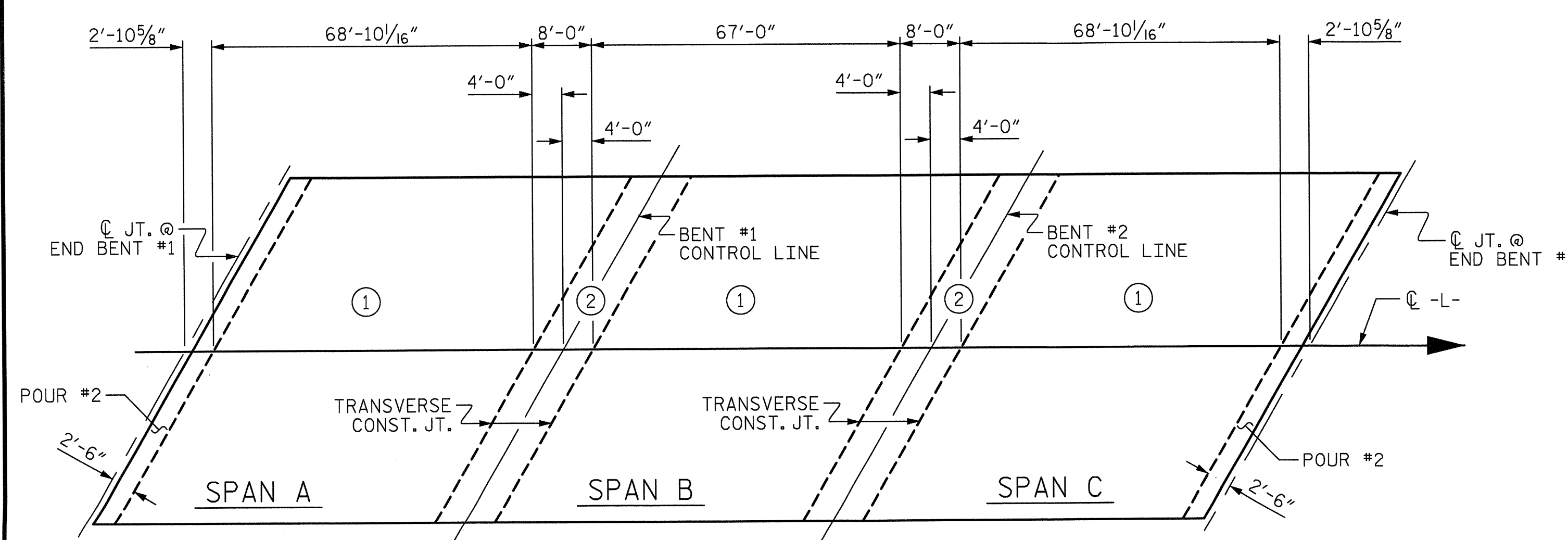
STD. NO. EJS2



LAYOUT FOR COMPUTING AREA
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 8888)



POURING SEQUENCE



OPTIONAL POURING SEQUENCE

POUR ② CAN NOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI

REINFORCING BAR SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	444	#5	STR	38'-11"	18022	*B1	112	#4	STR	26'-0"	1945
A2	444	#5	STR	38'-11"	18022	*B2	56	#6	STR	55'-0"	4626
						*B3	100	#6	STR	22'-6"	3380
*A101	6	#5	STR	36'-11"	231	B4	208	#5	STR	58'-3"	12637
*A102	6	#5	STR	34'-6"	216	*B5	28	#4	STR	24'-0"	449
*A103	6	#5	STR	32'-2"	201						
*A104	6	#5	STR	29'-9"	186	*G1	2	#5	STR	44'-11"	94
*A105	6	#5	STR	27'-4"	171						
*A106	6	#5	STR	25'-0"	156	*J1	82	#4	1	1'-5"	78
*A107	6	#5	STR	22'-7"	141						
*A108	6	#5	STR	20'-3"	127	*K1	8	#8	2	15'-9"	336
*A109	6	#5	STR	17'-10"	112	*K2	8	#8	3	23'-4"	498
*A110	6	#5	STR	15'-5"	96	*K3	18	#6	STR	9'-10"	266
*A111	6	#5	STR	13'-1"	82	K4	12	#4	STR	7'-11"	63
*A112	6	#5	STR	10'-8"	67	K5	12	#4	STR	10'-3"	82
*A113	6	#5	STR	8'-4"	52	K6	24	#4	STR	11'-0"	176
*A114	6	#5	STR	5'-11"	37	K7	12	#4	STR	9'-8"	77
*A115	6	#5	STR	3'-7"	22	K8	20	#4	4	7'-2"	96
						K9	20	#4	5	14'-4"	191
A201	6	#5	STR	36'-11"	231						
A202	6	#5	STR	34'-6"	216	*S1	60	#5	6	5'-11"	370
A203	6	#5	STR	32'-2"	201	*S2	60	#4	7	4'-4"	174
A204	6	#5	STR	29'-9"	186	S3	12	#4	3	11'-10"	95
A205	6	#5	STR	27'-4"	171	S4	42	#4	3	13'-10"	388
A206	6	#5	STR	25'-0"	156	S5	204	#4	8	2'-9"	375
A207	6	#5	STR	22'-7"	141						
A208	6	#5	STR	20'-3"	127						
A209	6	#5	STR	17'-10"	112						
A210	6	#5	STR	15'-5"	96						
A211	6	#5	STR	13'-1"	82						
A212	6	#5	STR	10'-8"	67						
A213	6	#5	STR	8'-4"	52						
A214	6	#5	STR	5'-11"	37						
A215	6	#5	STR	3'-7"	22						
						REINFORCING STEEL = 34099					
						*EPOXY COATED REINF. STEEL = 32135					

GROOVING BRIDGE FLOORS

BRIDGE DECK	7429 SQ. FT.
APPROACH SLABS	1563 SQ. FT.
TOTAL	8992 SQ. FT.

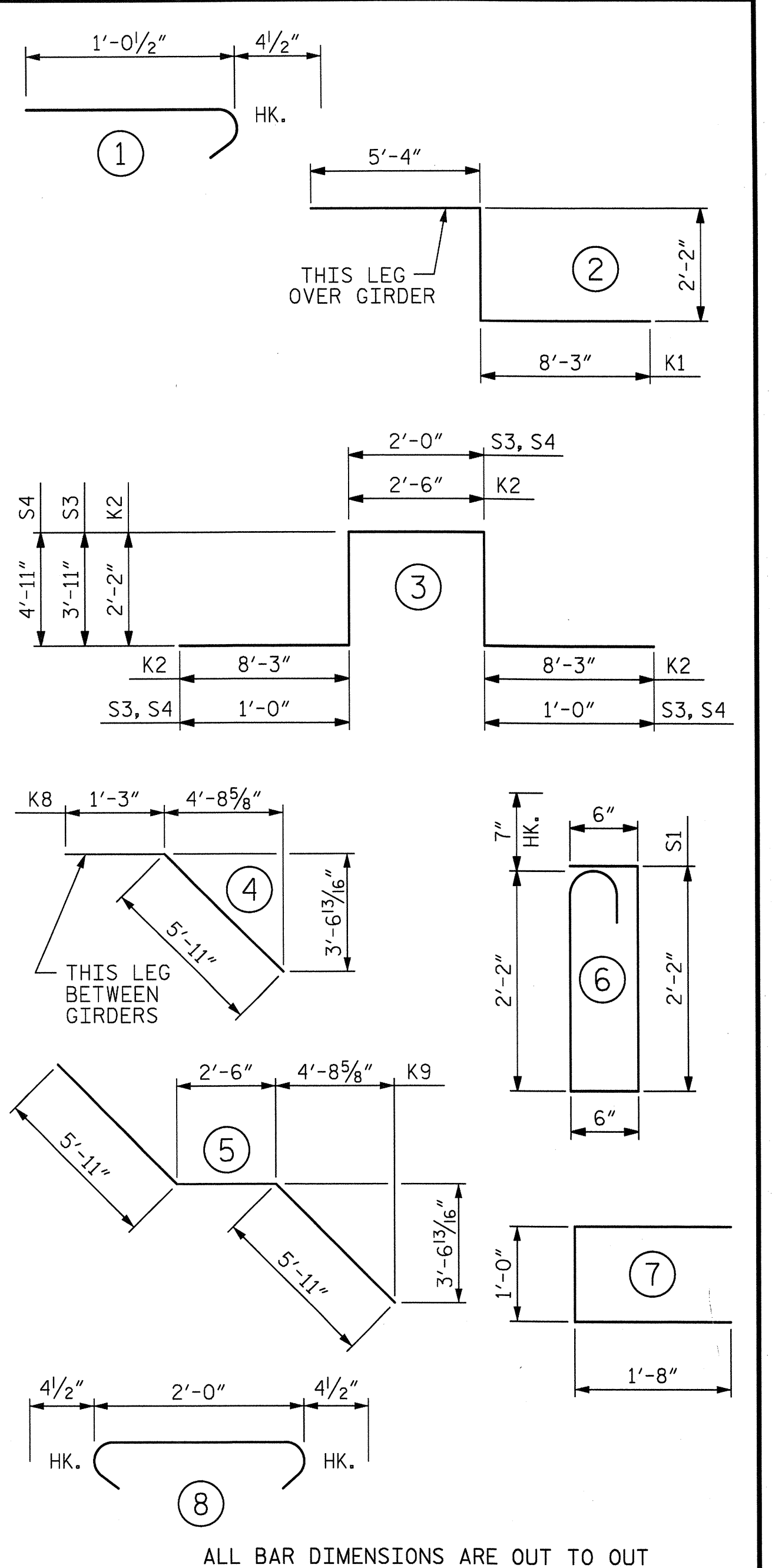
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	*EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	86.7		
POUR 2	114.3		
POUR 3	122.1		
POUR 4	12.5		
TOTALS	335.6	34099	32135

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

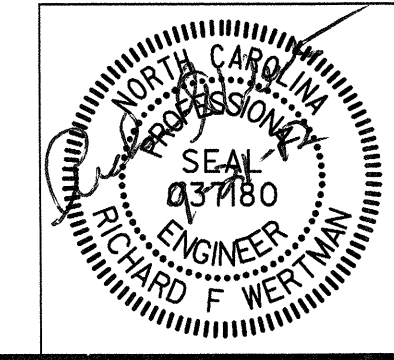
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

BAR TYPES



PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

PLANS PREPARED BY:
Gannett Fleming
RALEIGH, NORTH CAROLINA



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 33
2			4			

FILE: K:\055342_Davidson_Cty_Structure\DKN-B-4859_5D_BM.dgn
DATE: 06-Jun-2012 10:01

ASSEMBLED BY: E.C. LOCKLEAR DATE: 9-01-11
CHECKED BY: R.F. WERTMAN DATE: 2-12
DRAWN BY: JMB 5/87 REV. 6/1/94 EEM/GRP
CHECKED BY: SJD 9/87 REV. 8/16/99 RWW/LRS

NOTES:

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SECTION A-A ON SHEET 3 OF 3.

▲ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.

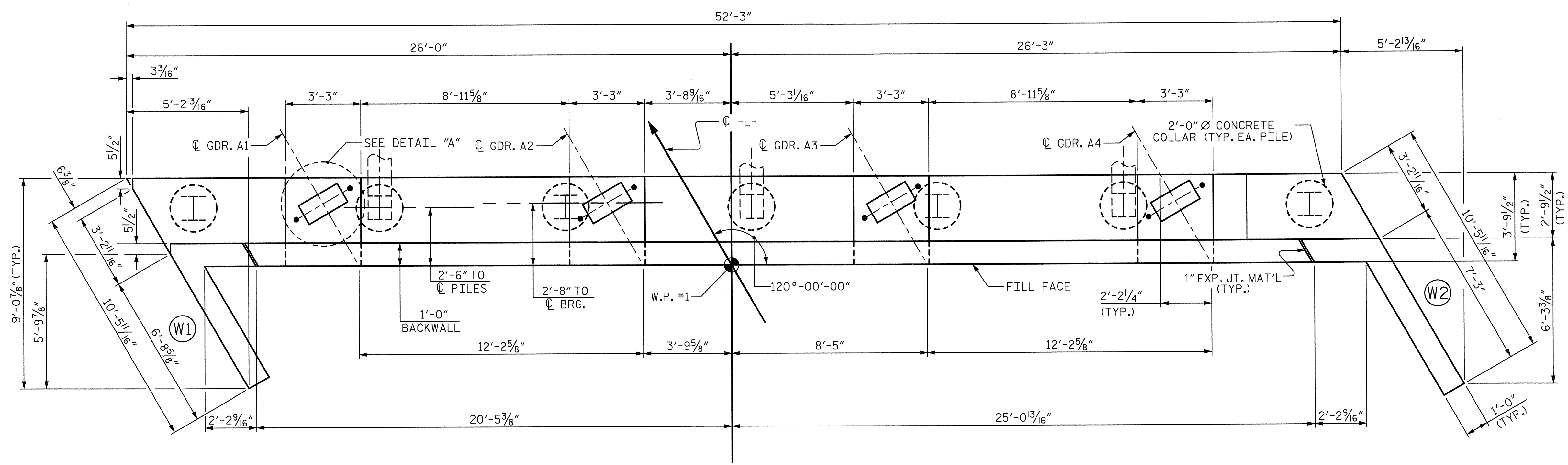
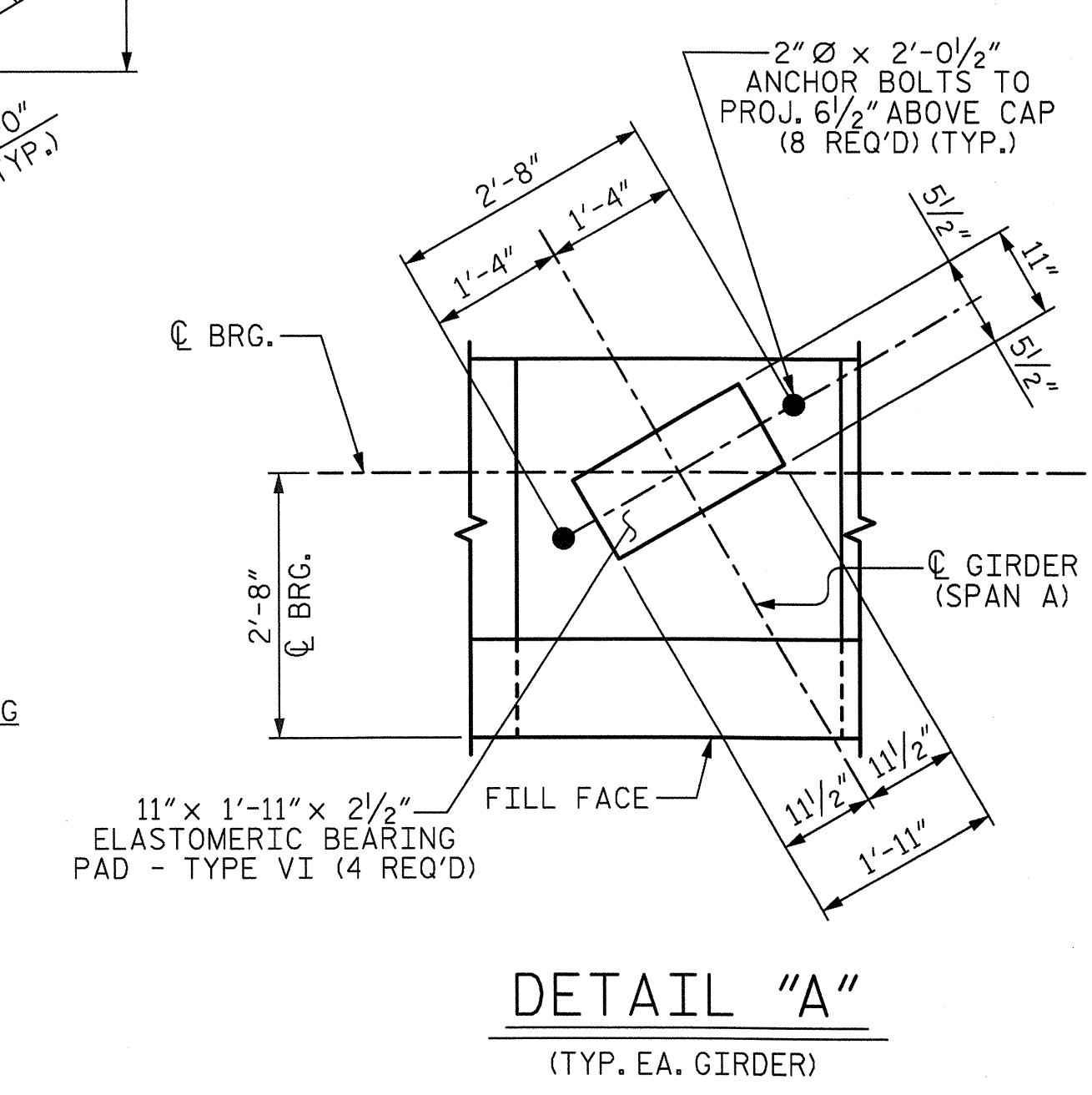
STIRRUPS & U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

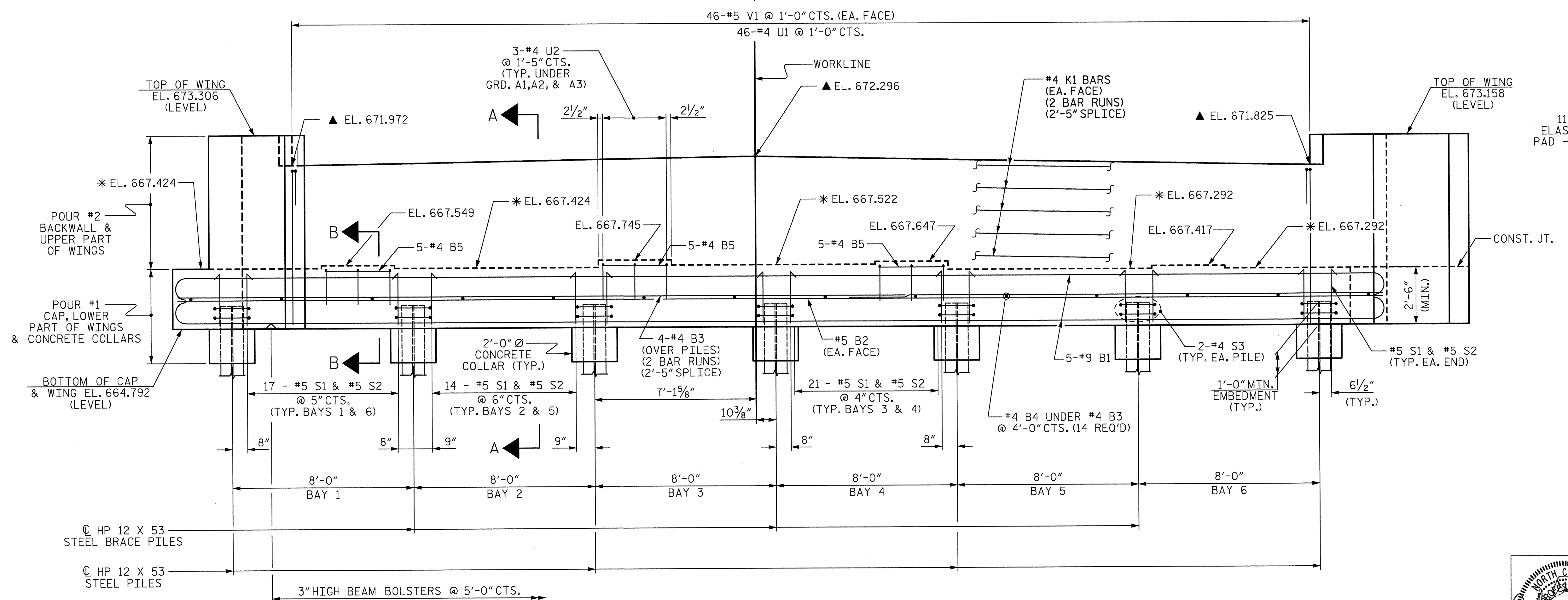
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE 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.

INSTALL THE 4" DIA. 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.



PLAN

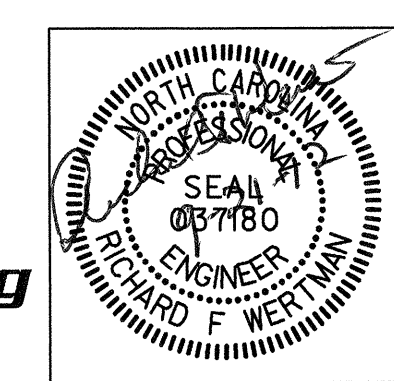


ELEVATION

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #1

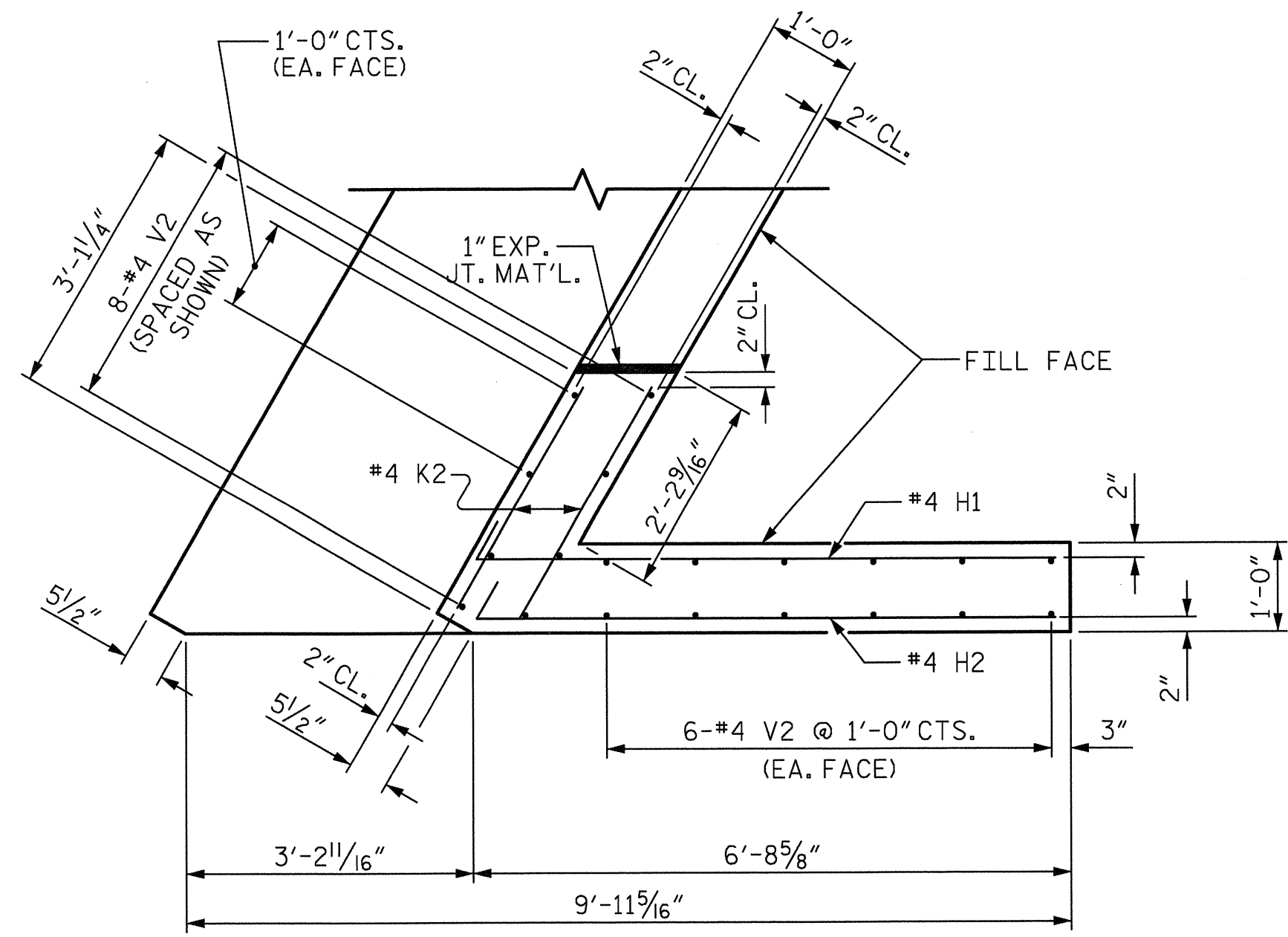
PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA



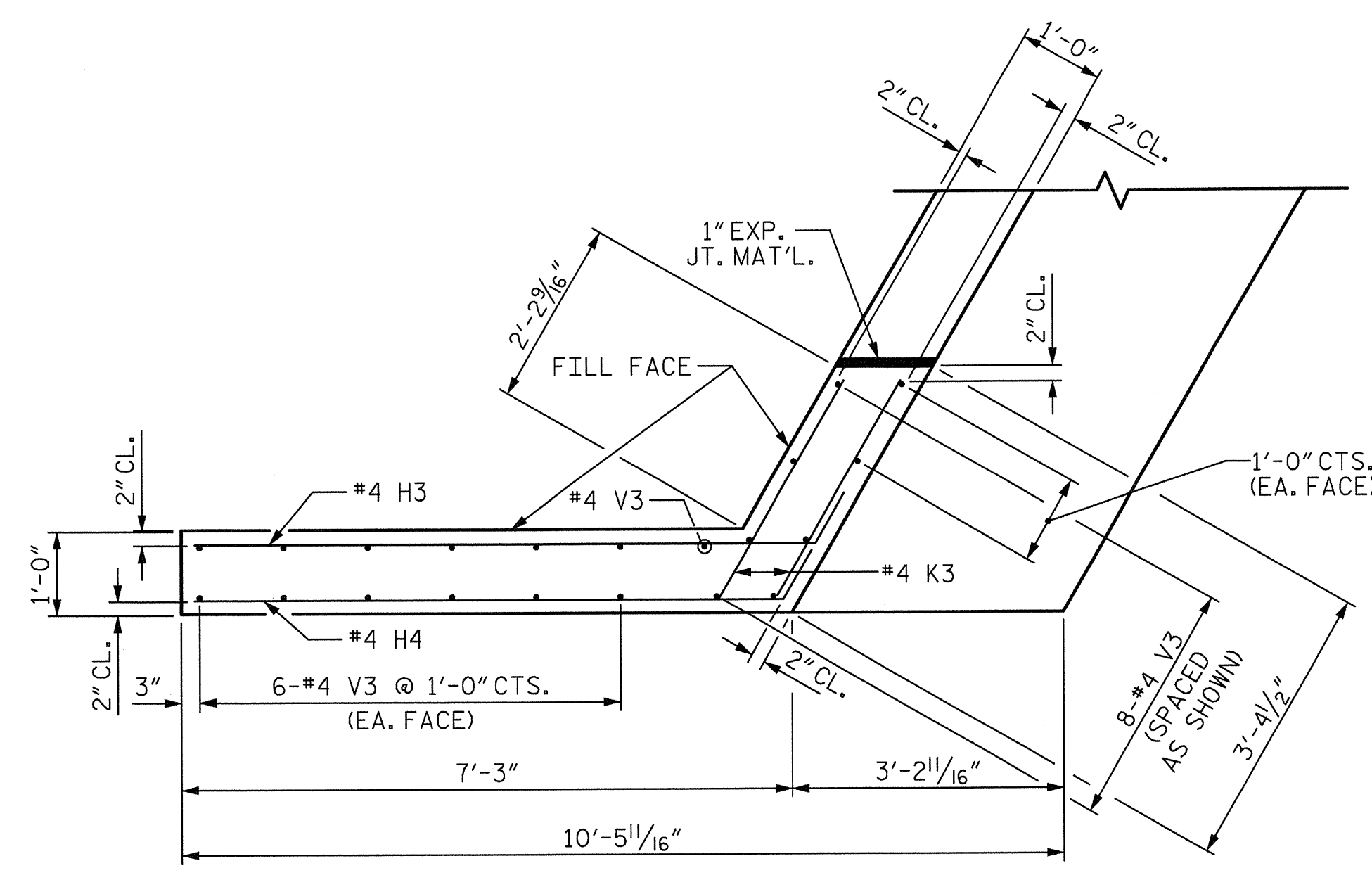
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	
2			4			33	

TITLE: K:\056342 Davidon Cty Structure\DCNB-B-4859_SD.EI.dgn
 DATE: 20-JUN-2012 16:10

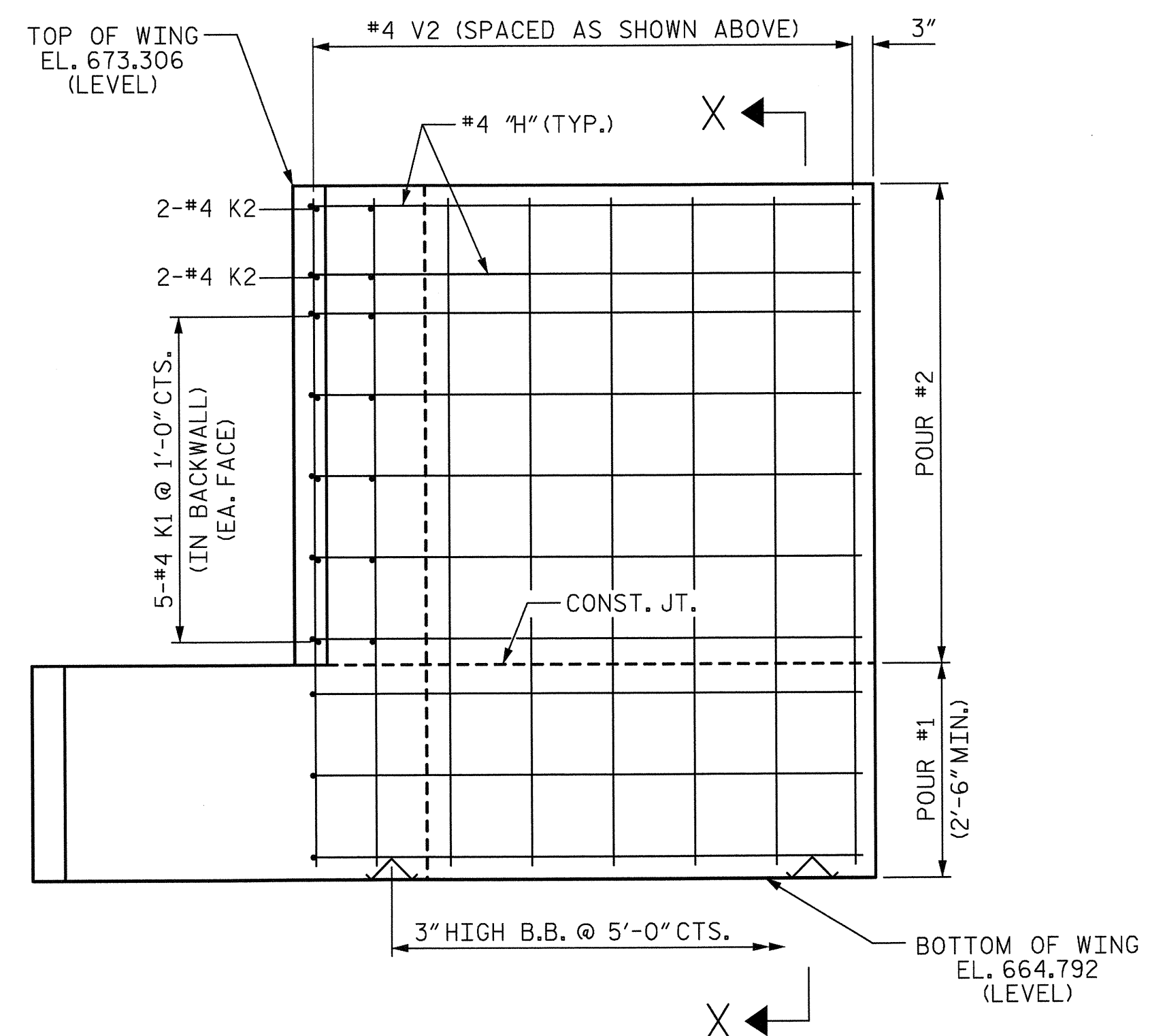
DRAWN BY: J.M. KEPICH DATE: 03/22/12
 CHECKED BY: R.F. WERTMAN DATE: 03/22/12



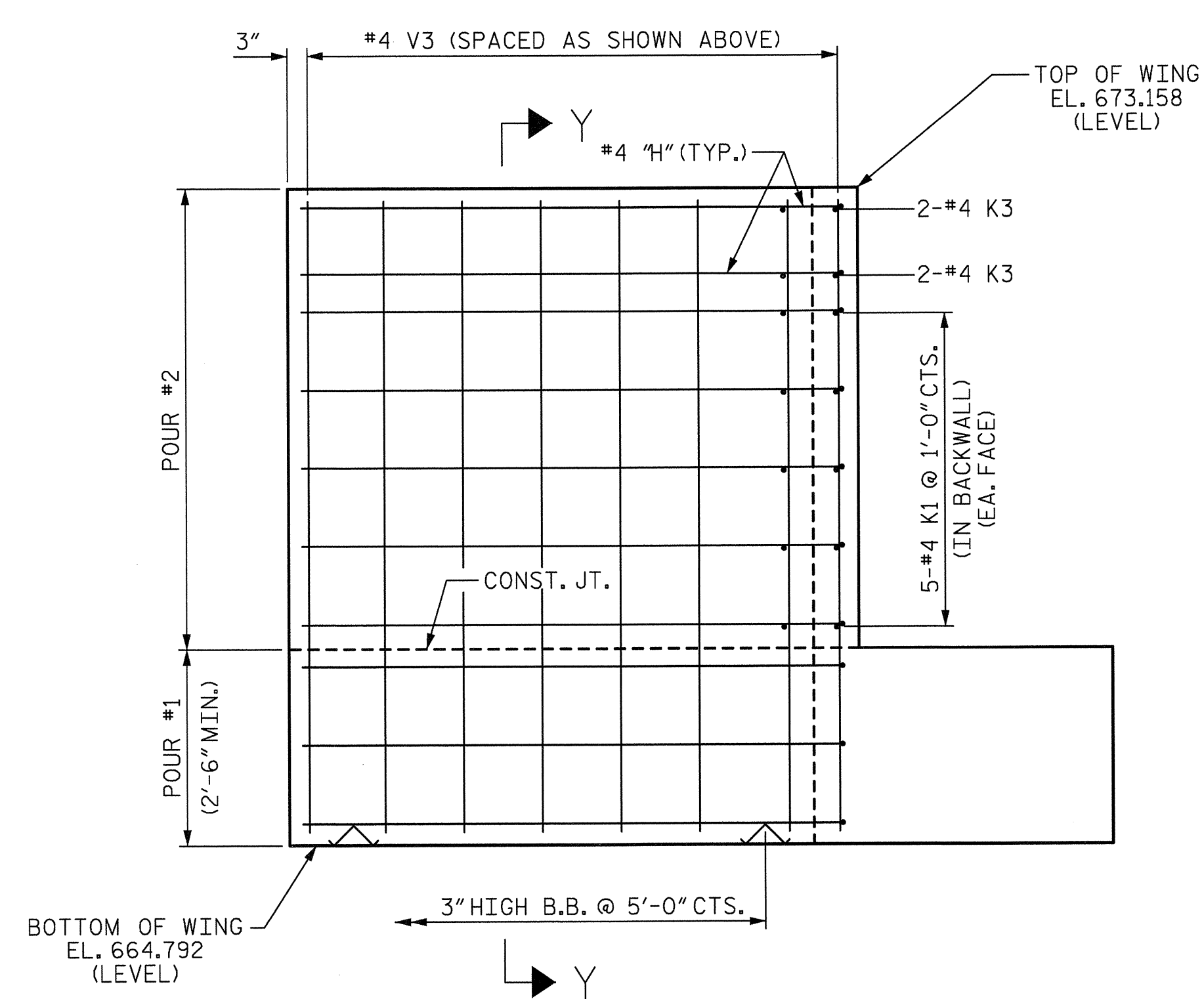
PLAN OF WING (W1)



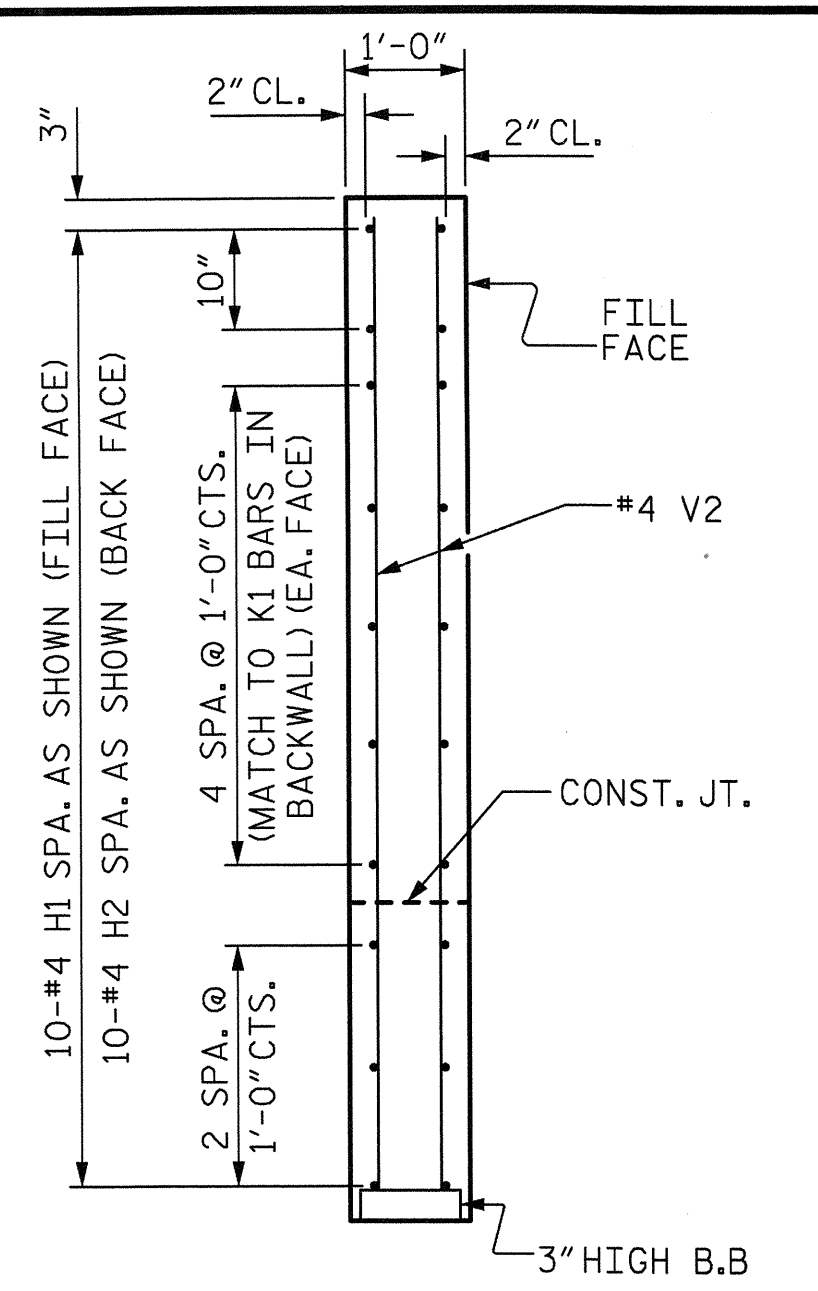
PLAN OF WING (W2)



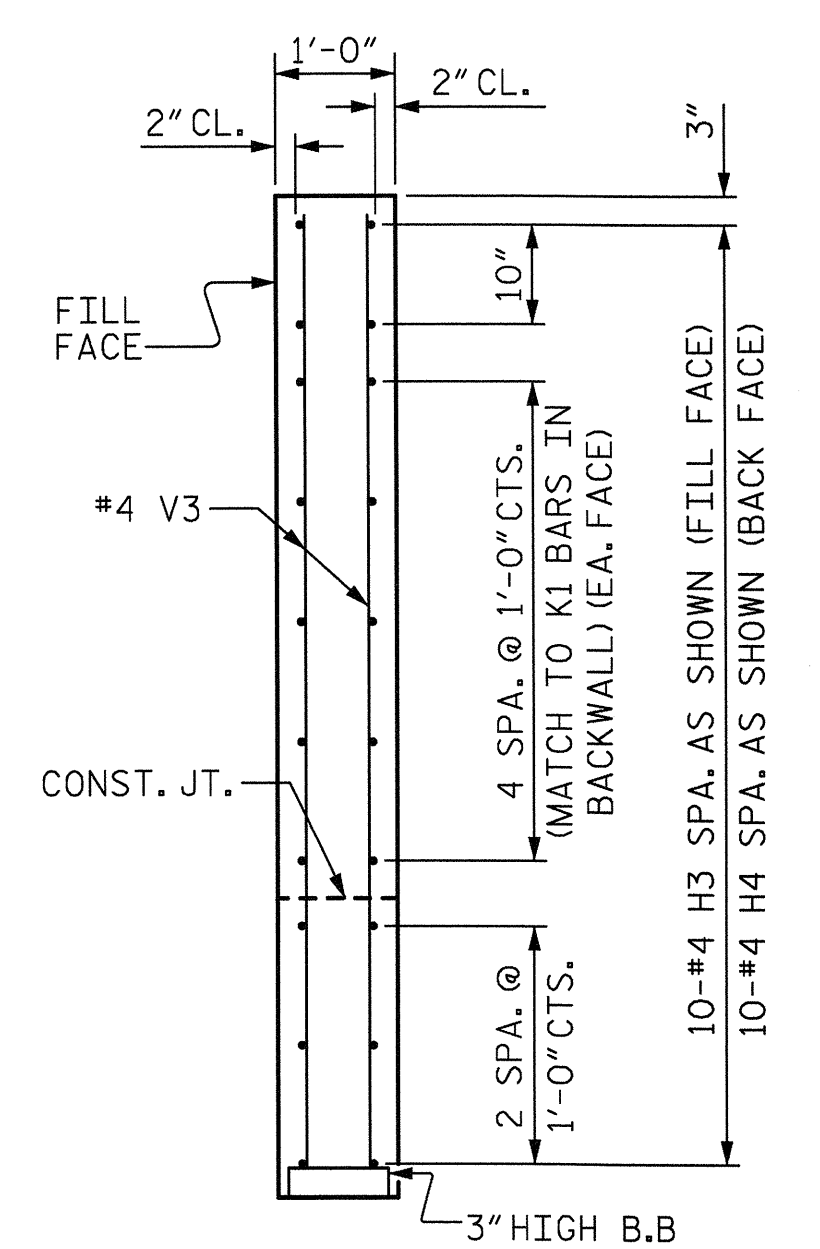
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

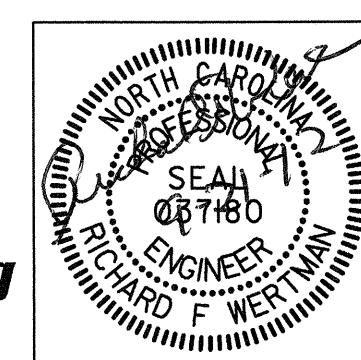
PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

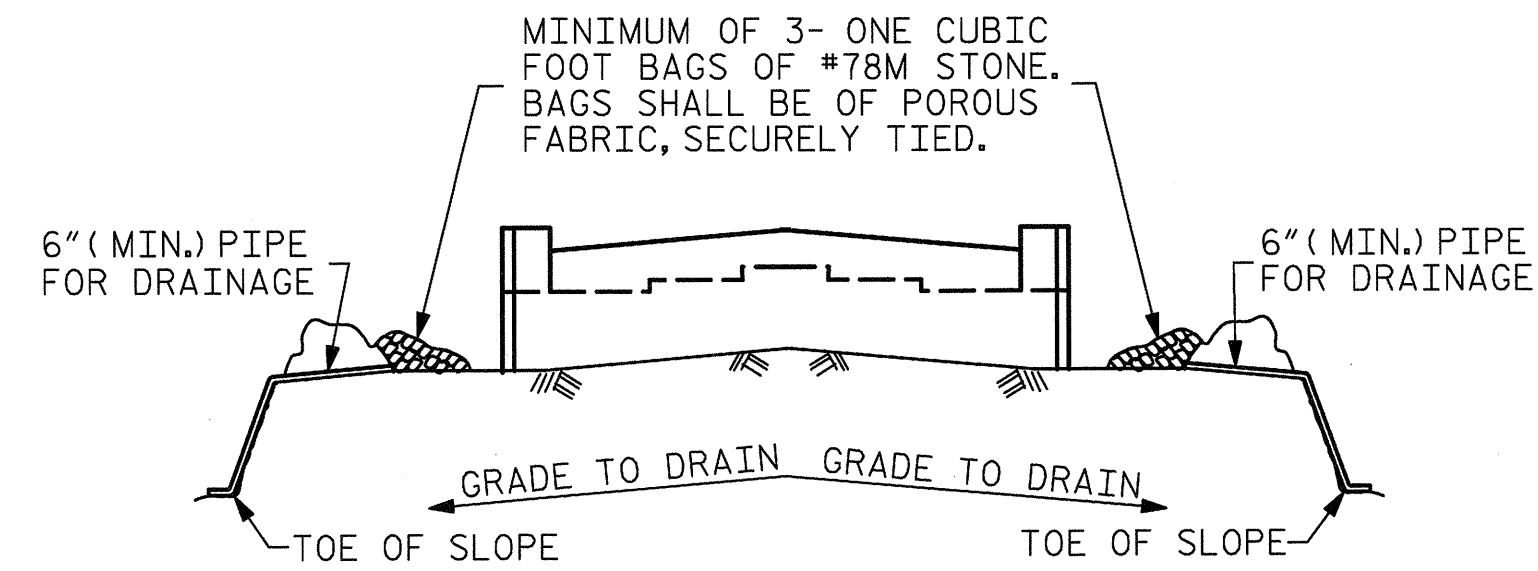
PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22	
1			3			TOTAL SHEETS	
2			4			33	

FILE: 055342_Davidson_Cty_Structure\DON-B-4859-SD-El.dgn
 DATE: 03/22/12 10:11:20 AM

DRAWN BY: J.M. KEPICH DATE: 03/22/12
 CHECKED BY: R.F. WERTMAN DATE: 03/22/12

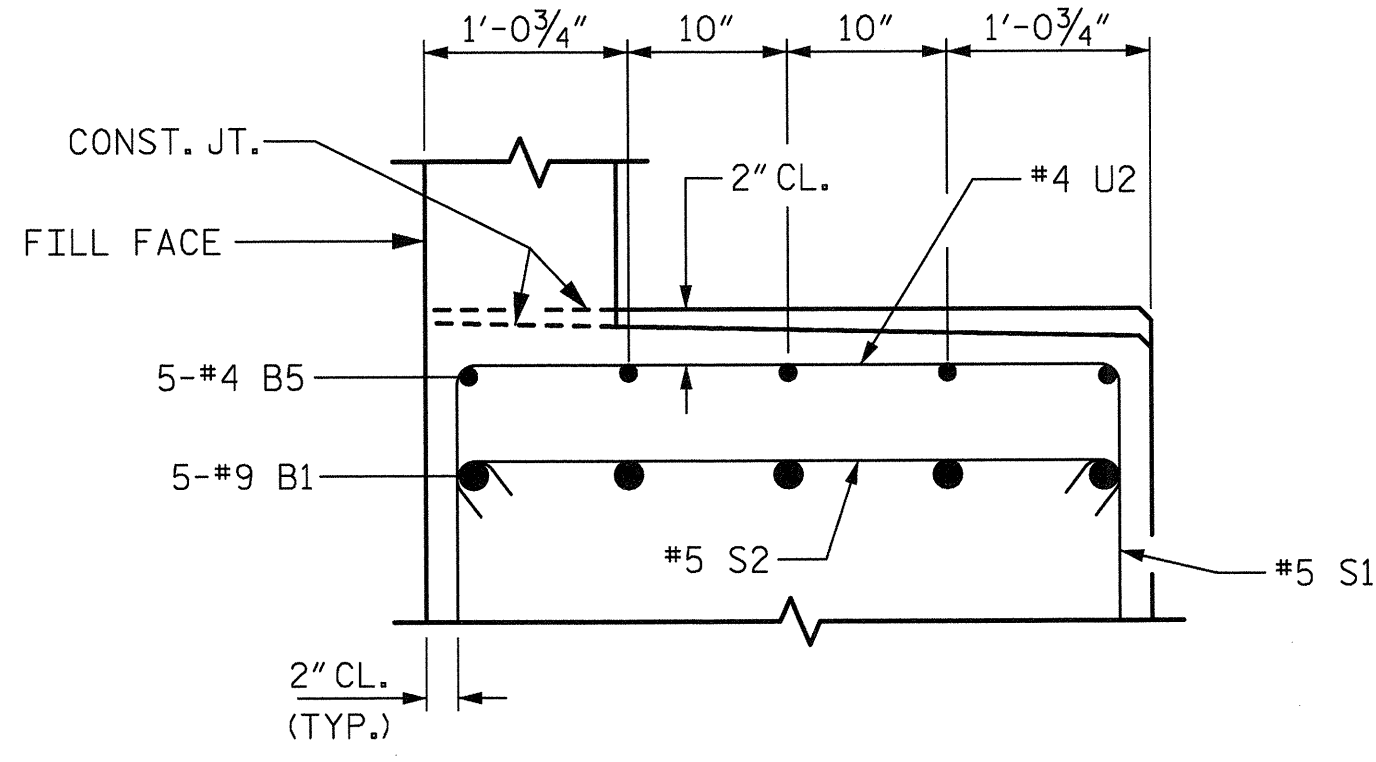


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

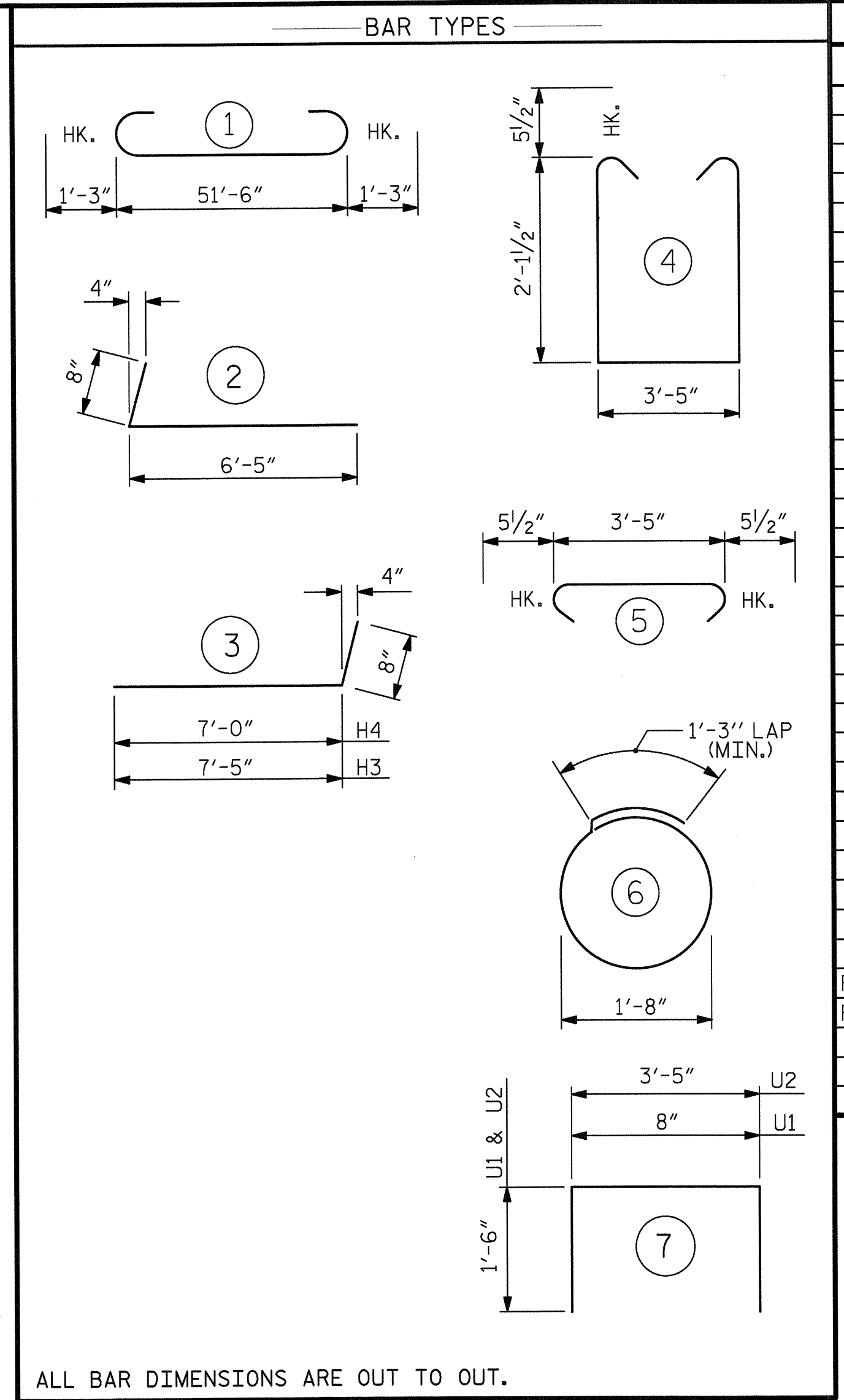
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



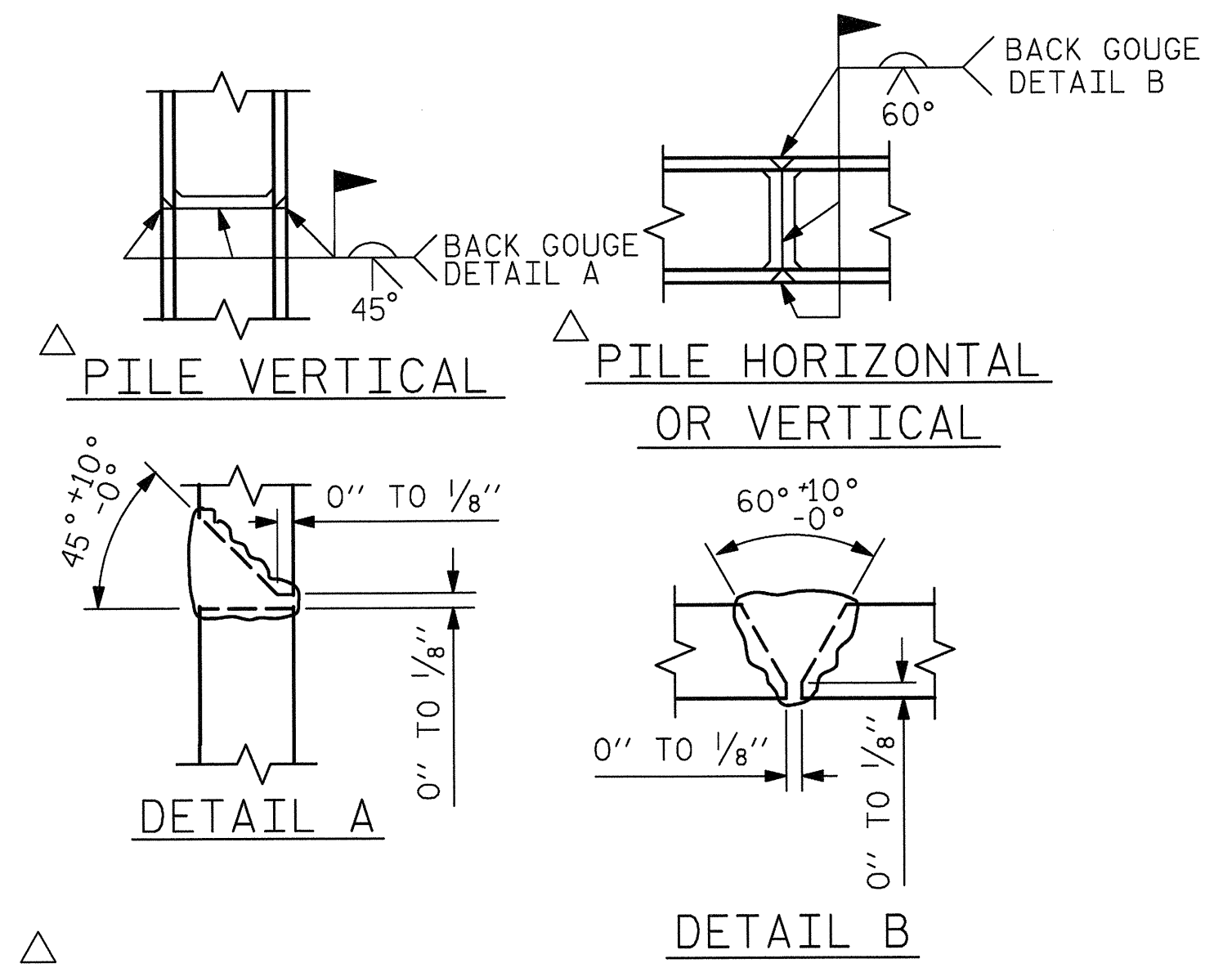
PARTIAL SECTION B-B

(TYP. @ BRG. A1, A2, & A3)

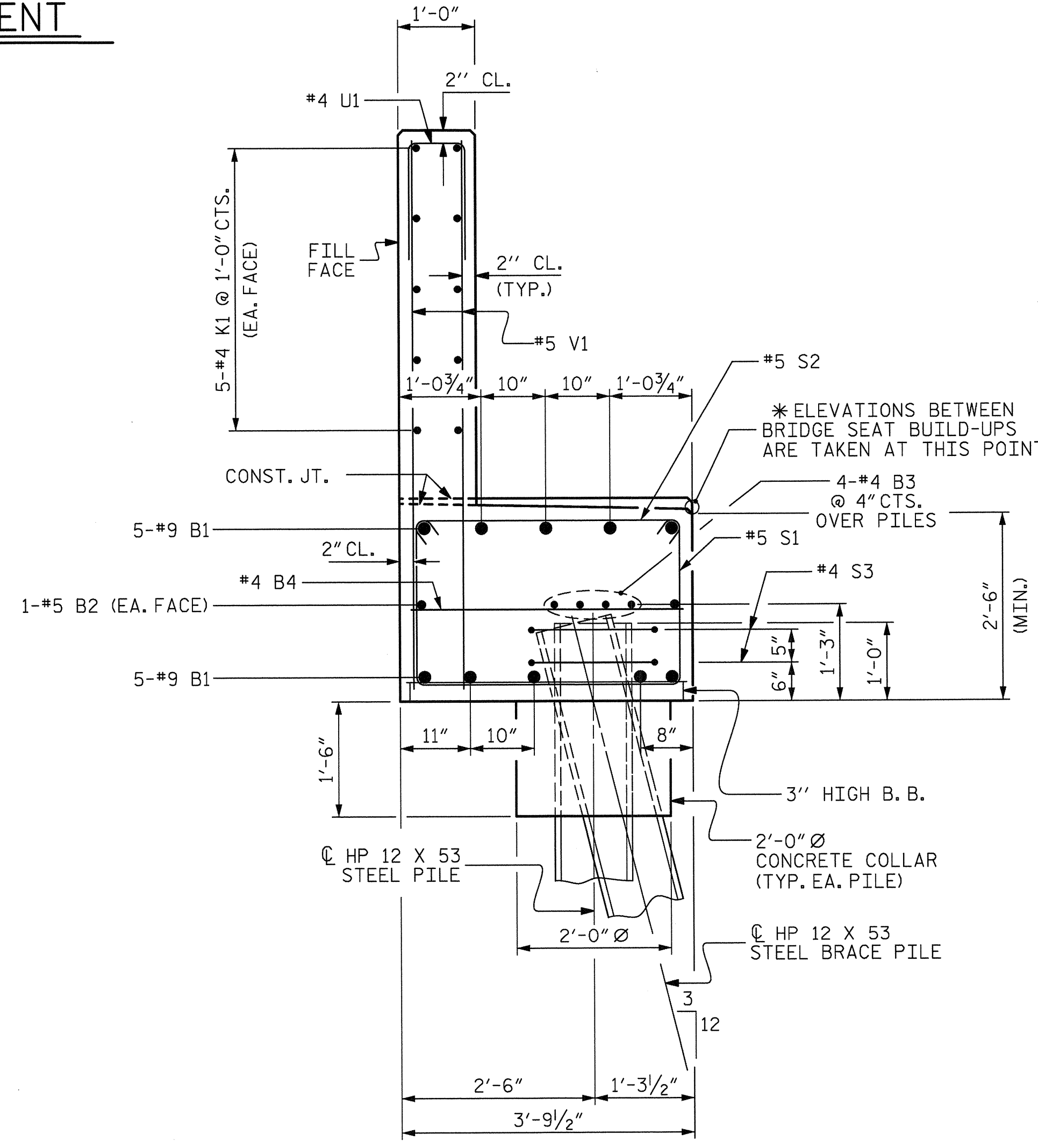


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL						
END BENT #1						
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT	
B1	10	#9		54'-0"	1836	
B2	2	#5	STR	51'-8"	108	
B3	8	#4	STR	27'-0"	144	
B4	14	#4	STR	3'-5"	32	
B5	15	#4	STR	2'-11"	29	
H1	10	#4		7'-1"	47	
H2	10	#4		7'-1"	47	
H3	10	#4		8'-1"	54	
H4	10	#4		7'-8"	51	
K1	20	#4	STR	27'-0"	361	
K2	4	#4	STR	2'-10"	8	
K3	4	#4	STR	3'-0"	8	
S1	106	#5		4	8'-7"	954
S2	106	#5		5	4'-4"	484
S3	14	#4		6	6'-6"	61
U1	46	#4		7	3'-8"	113
U2	9	#4		7	6'-5"	39
V1	92	#5	STR	6'-8"	640	
V2	20	#4	STR	8'-2"	109	
V3	21	#4	STR	8'-0"	112	
REINFORCING STEEL					5237 LBS.	
CLASS A CONCRETE						
POUR #1 (CAP, LOWER WINGS & COLLARS)					21.8 C.Y.	
POUR #2 (UPPER WINGS & BACKWALL)					12.0 C.Y.	
TOTAL					33.8 C.Y.	
HP 12 X 53 STEEL PILES						
No. = 7					280 LIN. FT.	



PILE SPLICE DETAILS

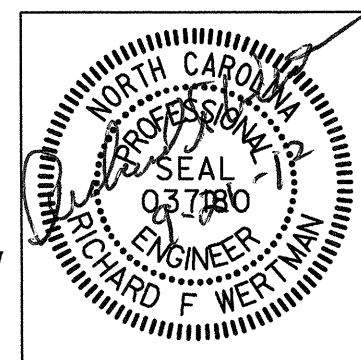


SECTION A-A

PLANS PREPARED BY:

Gannett Fleming

RALEIGH, NORTH CAROLINA



PROJECT NO. B-4859

DAVIDSON COUNTY

STATION: 20+08.71 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS	
2			4			33	

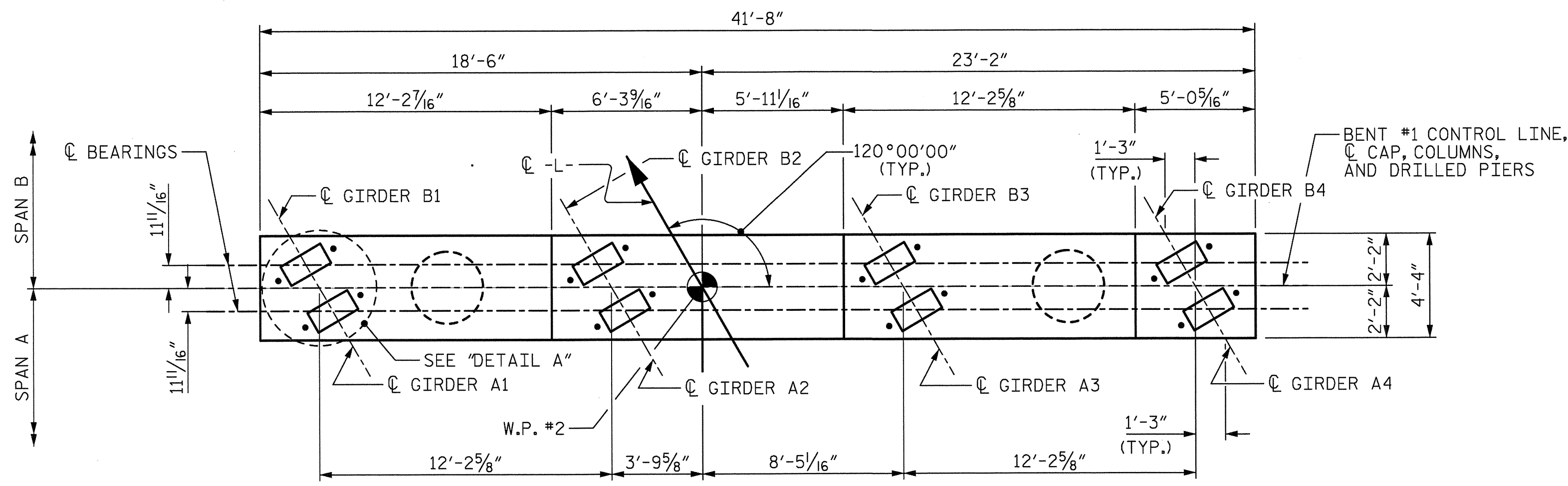
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DRAWN BY: J.M. KEPICH DATE: 03/22/12

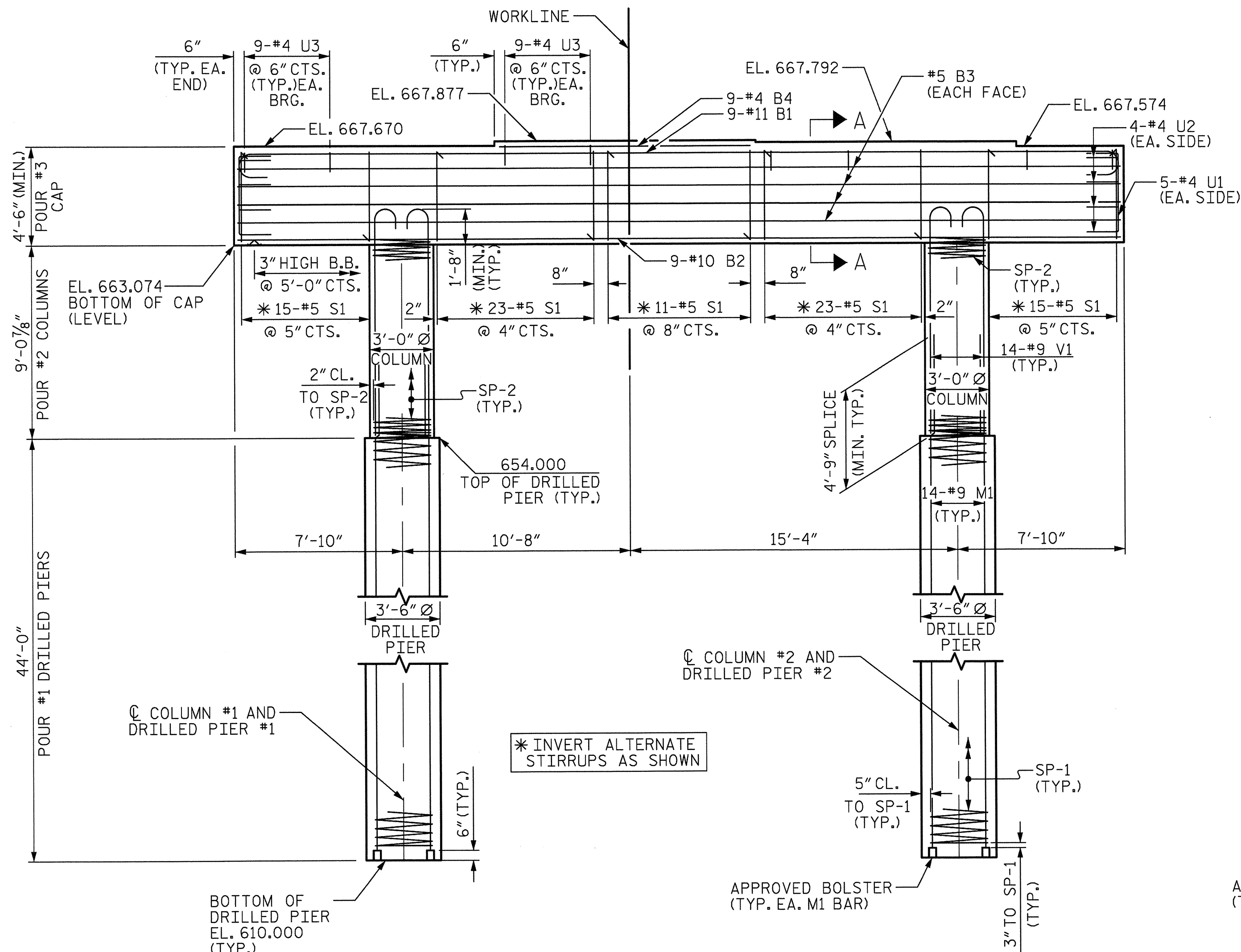
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—NOTES—

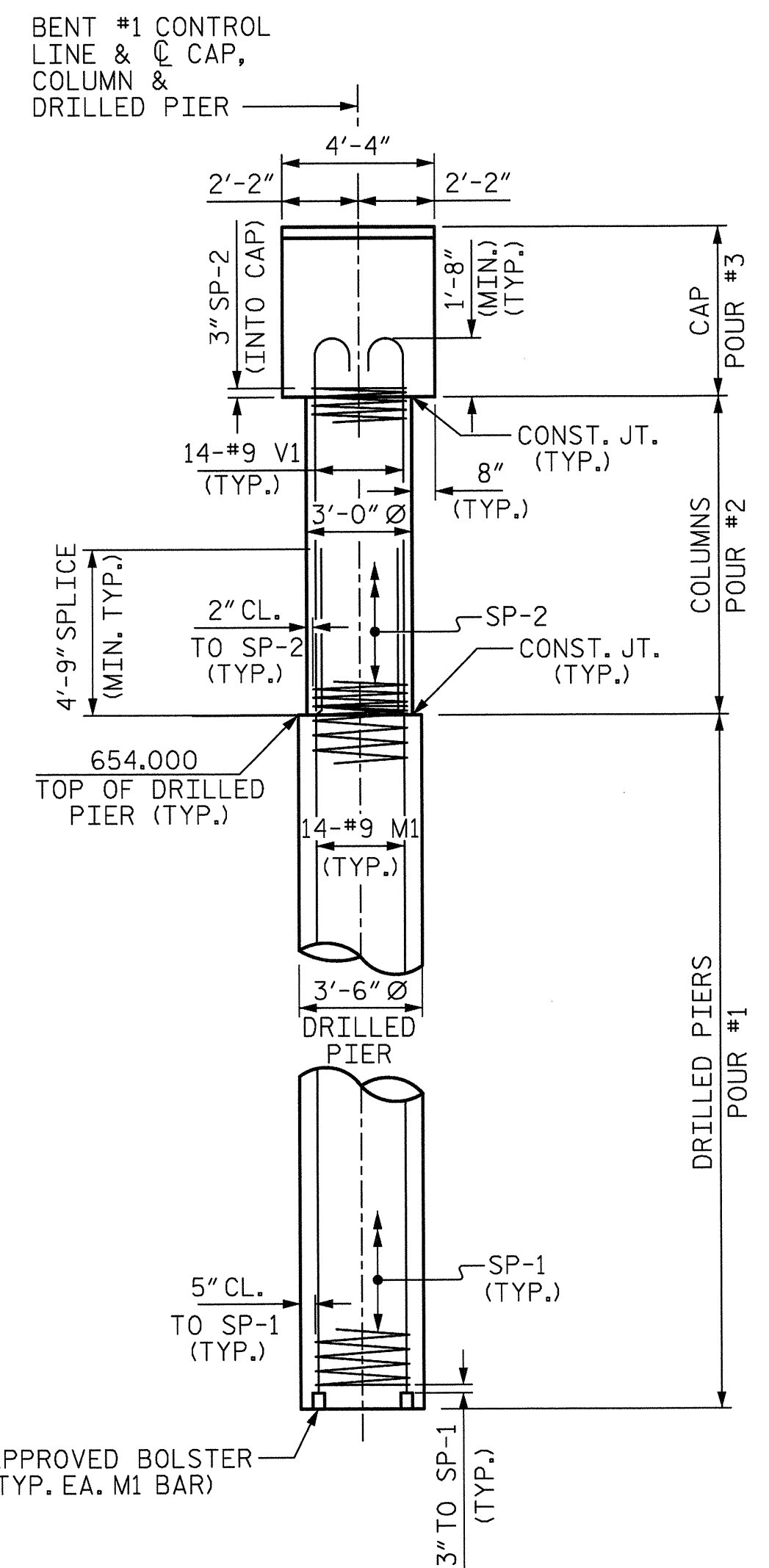
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON V1 BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR DRILLED PIERS, SEE SECTION 411 OF STANDARD SPECIFICATIONS.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
 THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
 THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.
 SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.
 FOR PERMANENT STEEL CASING, SEE SECTION 411 OF STANDARD SPECIFICATIONS.



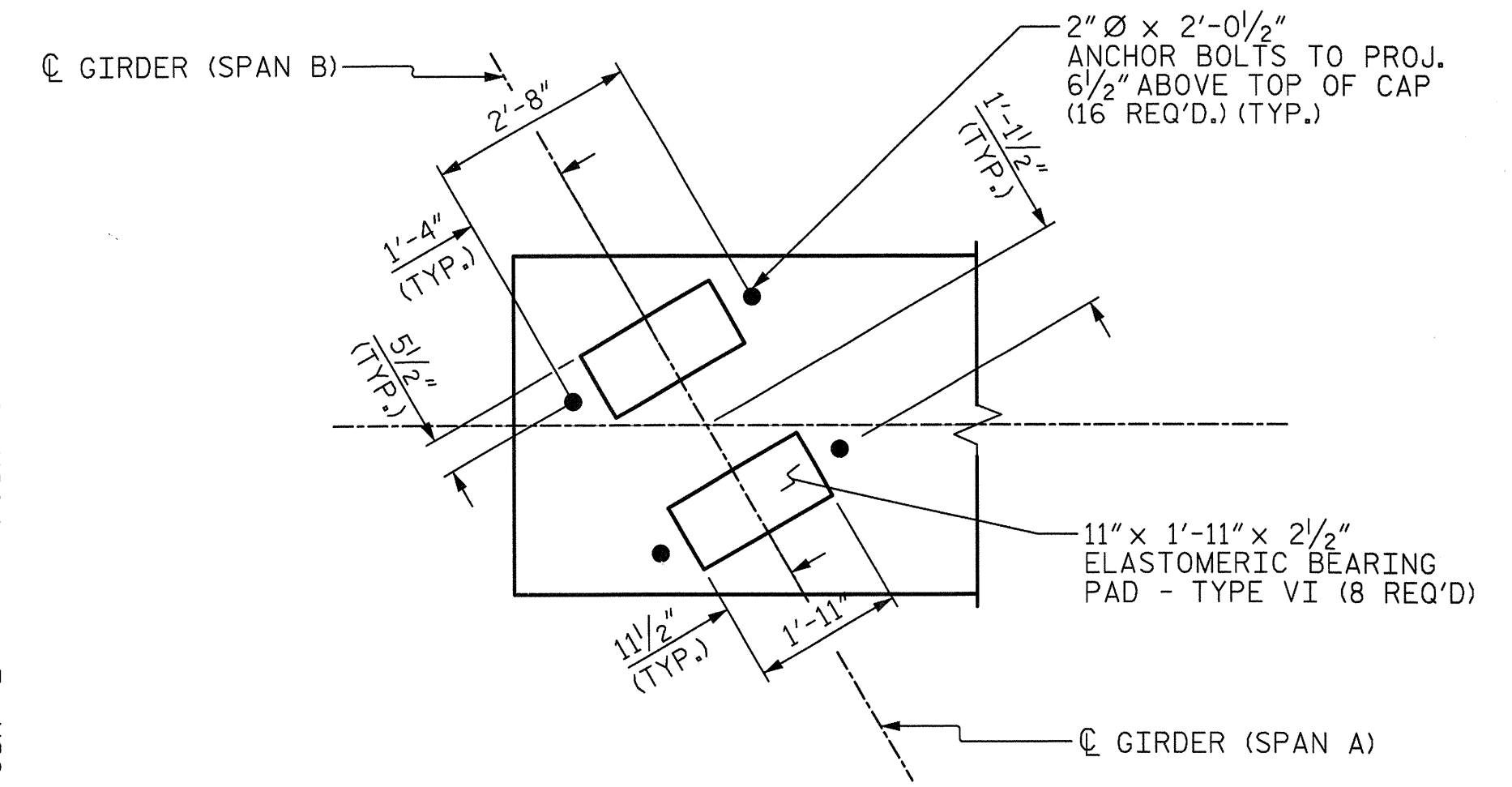
PLAN



ELEVATION



END ELEVATION



DETAIL A
(TYP. EA. GIRDER)

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

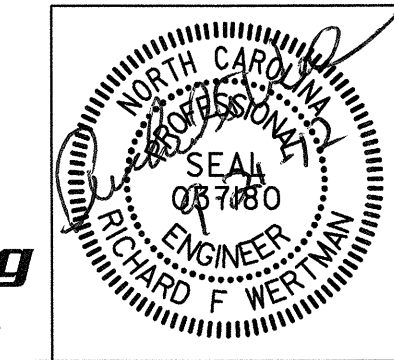
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1

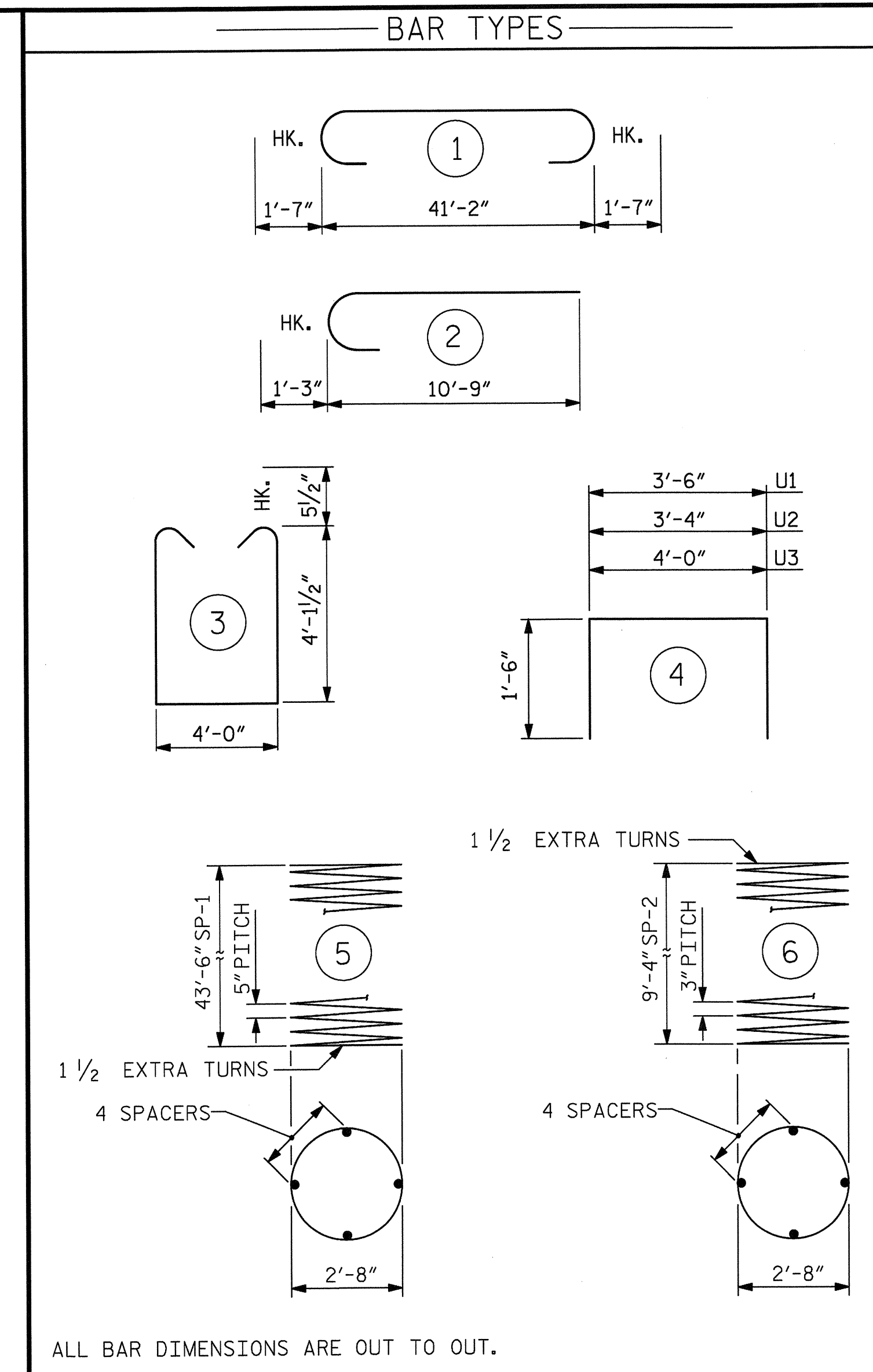
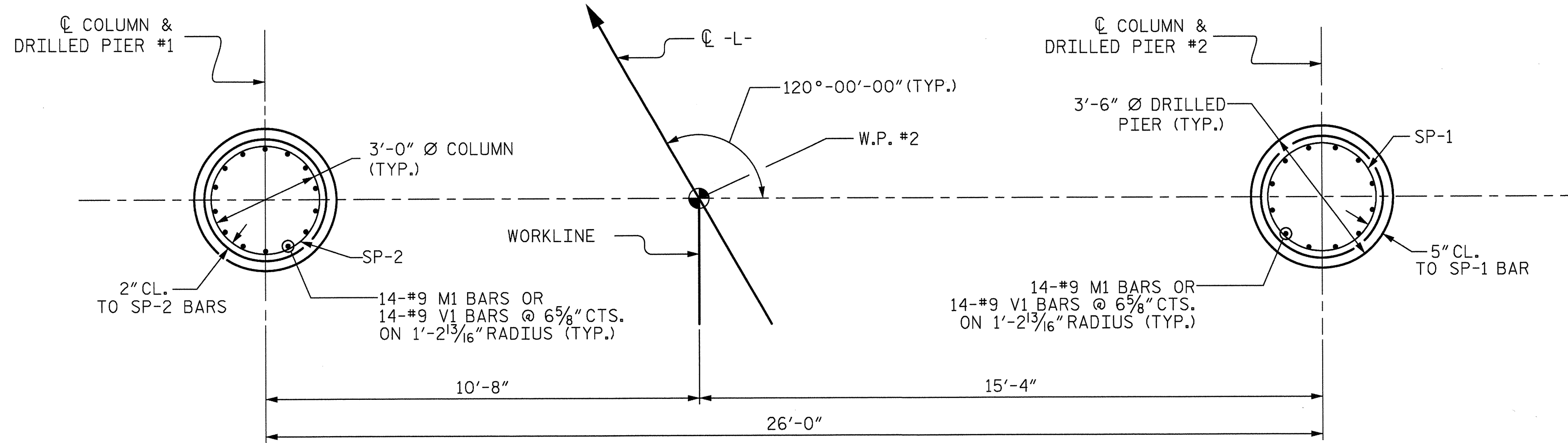
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-24	
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2			4			33	

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

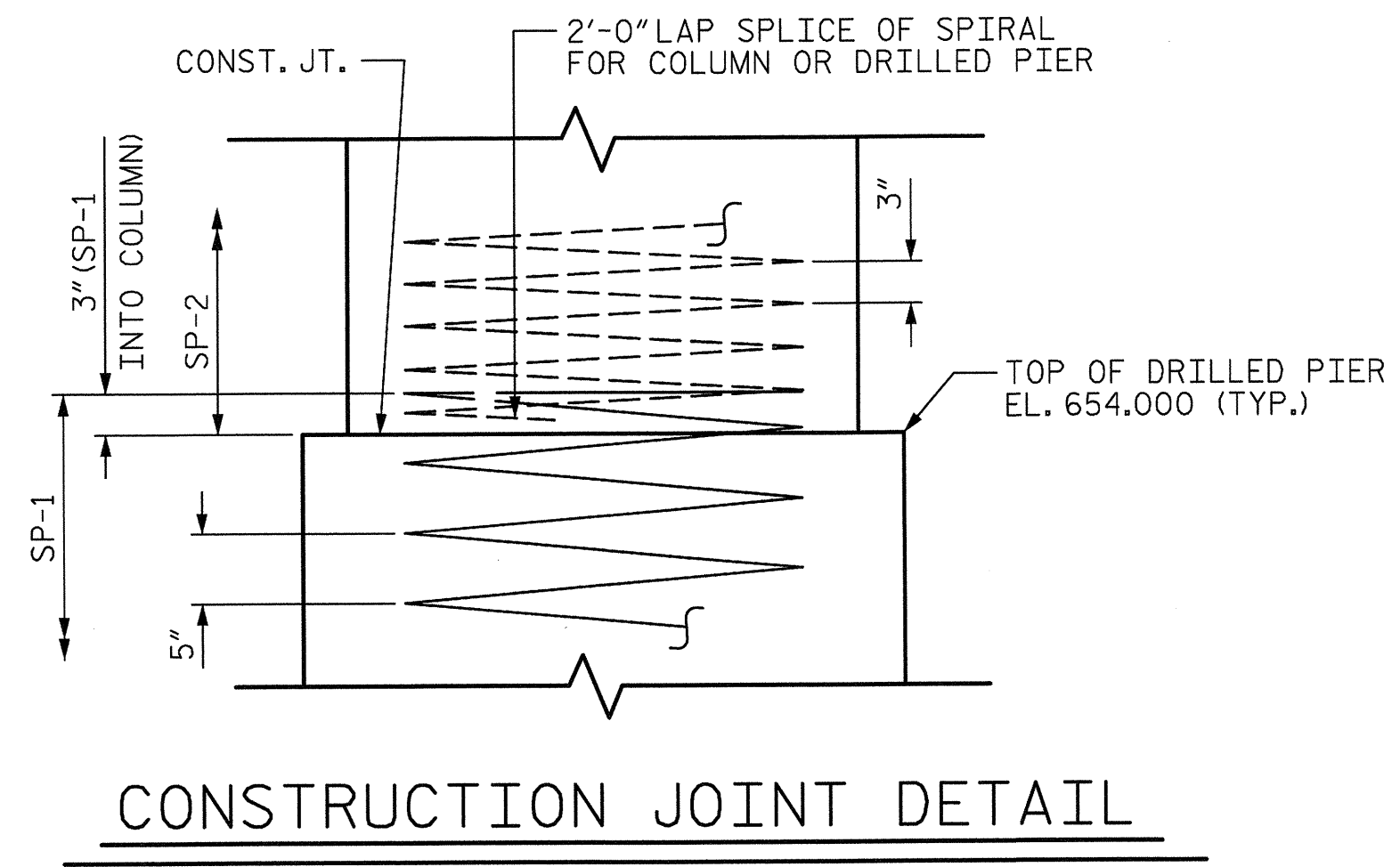
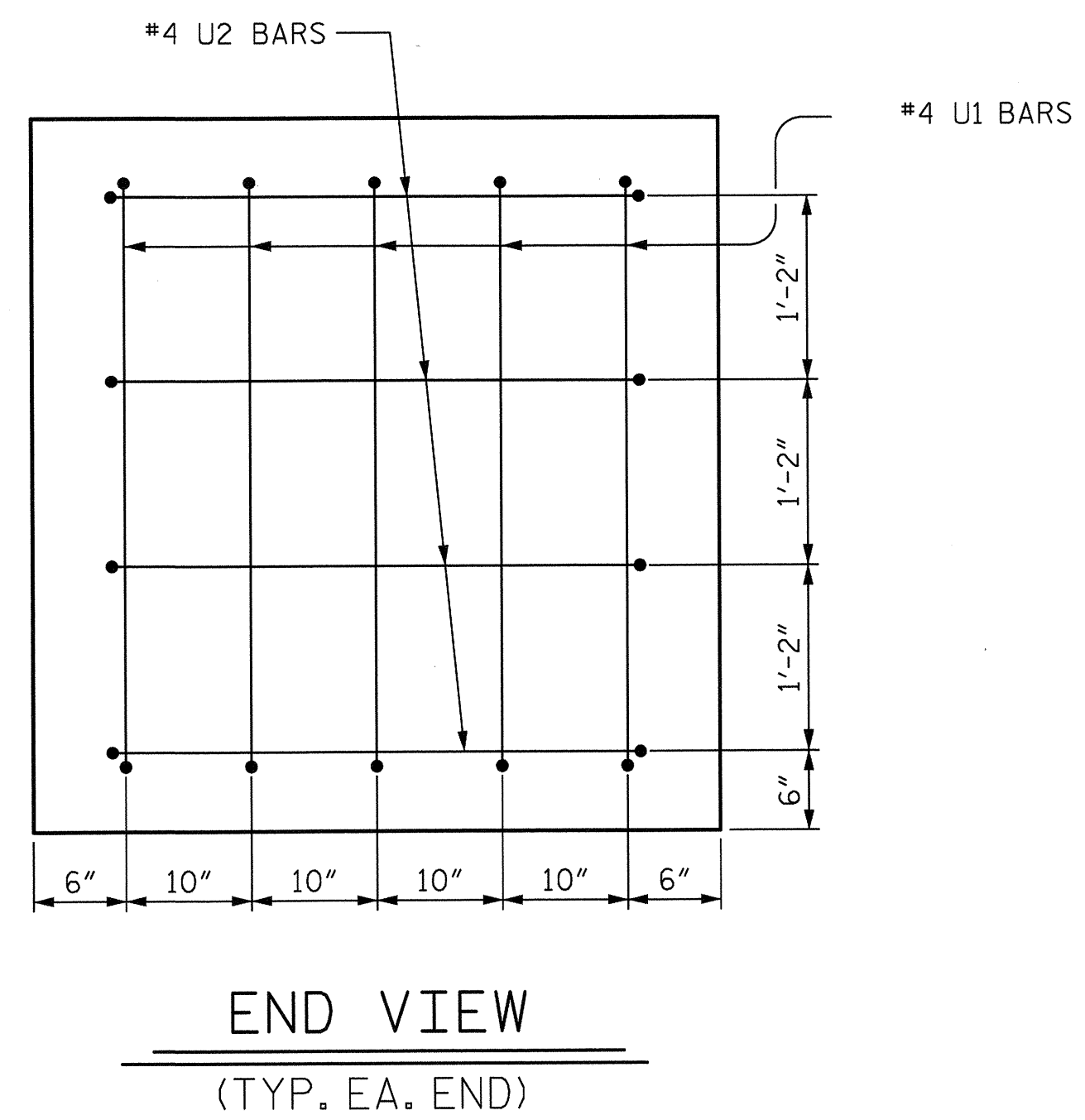
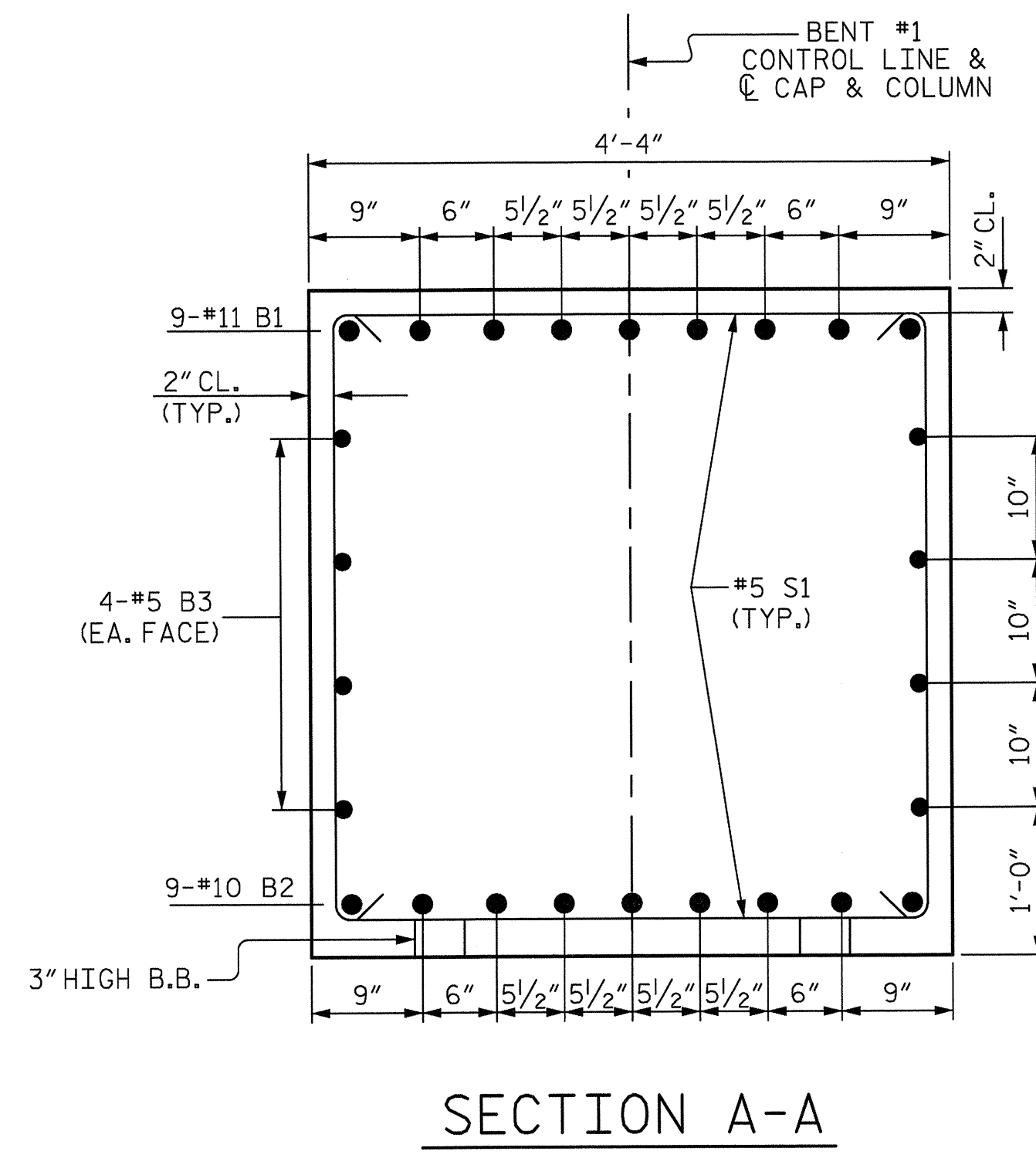


DRAWN BY: J.M. KEPICH DATE: 03/07/12
 CHECKED BY: R.F. WERTMAN DATE: 03/13/12

FILE: K:\095540_Davidson_Cty_SStructure\001\B-4859_SD.Bldg.dwg



BILL OF MATERIAL					
BENT #1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	11	1	44'-4"	2120
B2	9	10	STR	41'-4"	1601
B3	8	5	STR	41'-4"	345
B4	9	4	STR	11'-10"	71
M1	28	9	STR	51'-3"	4879
S1	87	5	3	13'-2"	1195
U1	10	4	4	6'-6"	43
U2	8	4	4	6'-4"	34
U3	36	4	4	7'-0"	168
V1	28	9	2	12'-0"	1142
REINFORCING STEEL				11598 LBS.	
SP-1	2	**	5	871'-0"	1817
SP-2	2	***	6	320'-5"	428
SPIRAL COLUMN REINFORCING STEEL				2245 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR 2 (COLUMNS)				4.8 C.Y.	
POUR 3 (CAPS)				31.3 C.Y.	
TOTAL CLASS A CONCRETE				36.1 C.Y.	
3'-6" Ø DRILLED PIERS					
DRILLED PIER CONCRETE BREAKDOWN					
POUR 1 (DRILLED PIERS)				31.4 C.Y.	
3'-6" Ø DRILLED PIER IN SOIL :					
LINEAR FEET				34.0 FT.	
3'-6" Ø DRILLED PIER NOT IN SOIL :					
LINEAR FEET				54.0 FT.	
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS:					
				40.0 FT.	
CSL TUBES:					
				364.0 FT.	



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

*** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

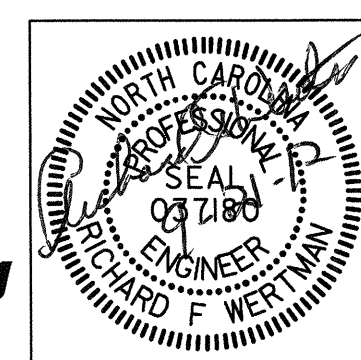
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25	
1			3			TOTAL SHEETS 33	
2			4				

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA



FILE: K:\065342 Davidso... City Structure\CON-B-4859-SD-EL.dgn
 DATE: 03/13/12 15:53

DRAWN BY: J.M. KEPICH DATE: 03/07/12
 CHECKED BY: R.F. WERTMAN DATE: 03/13/12

—NOTES—

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
HOOKS ON V1 BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

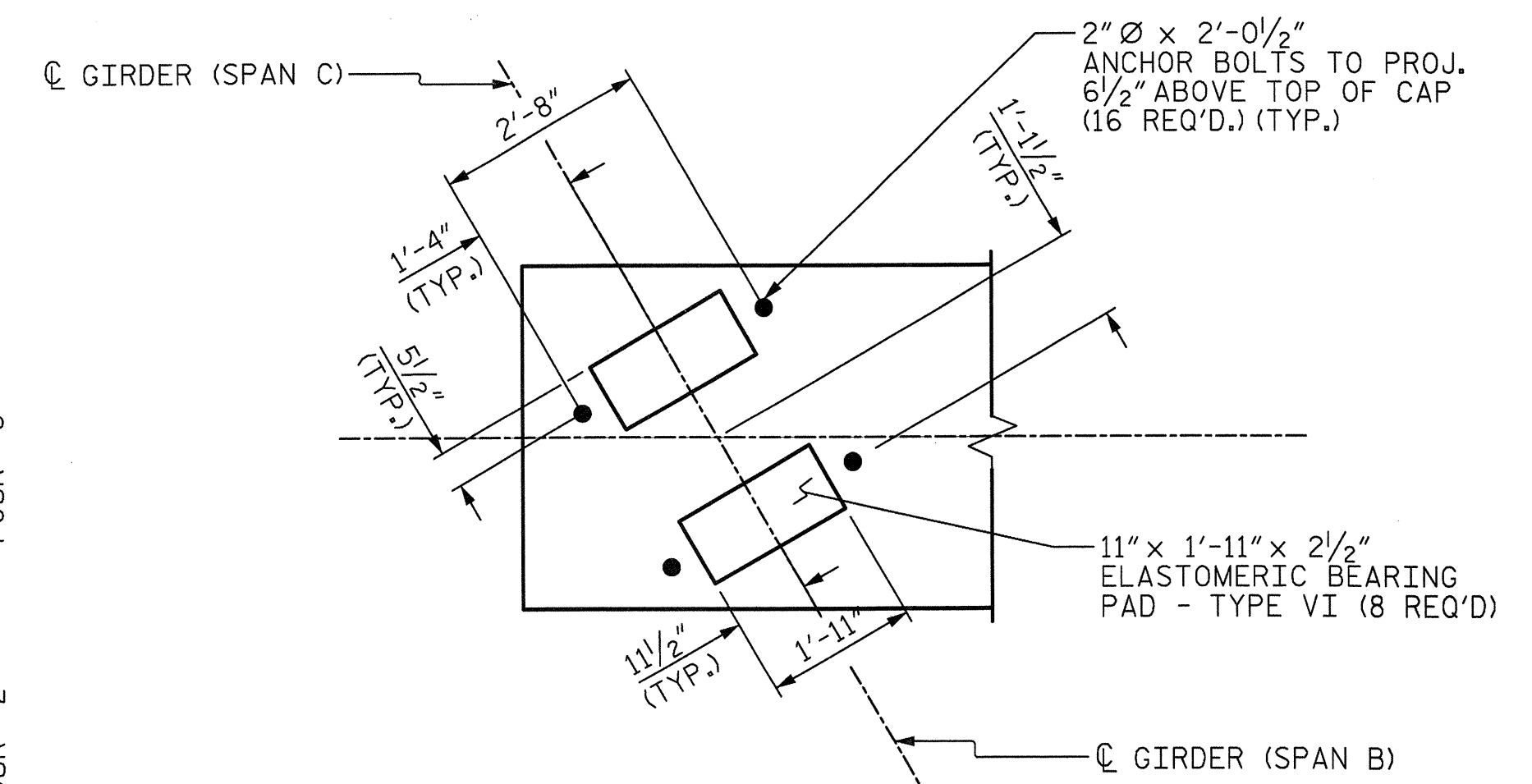
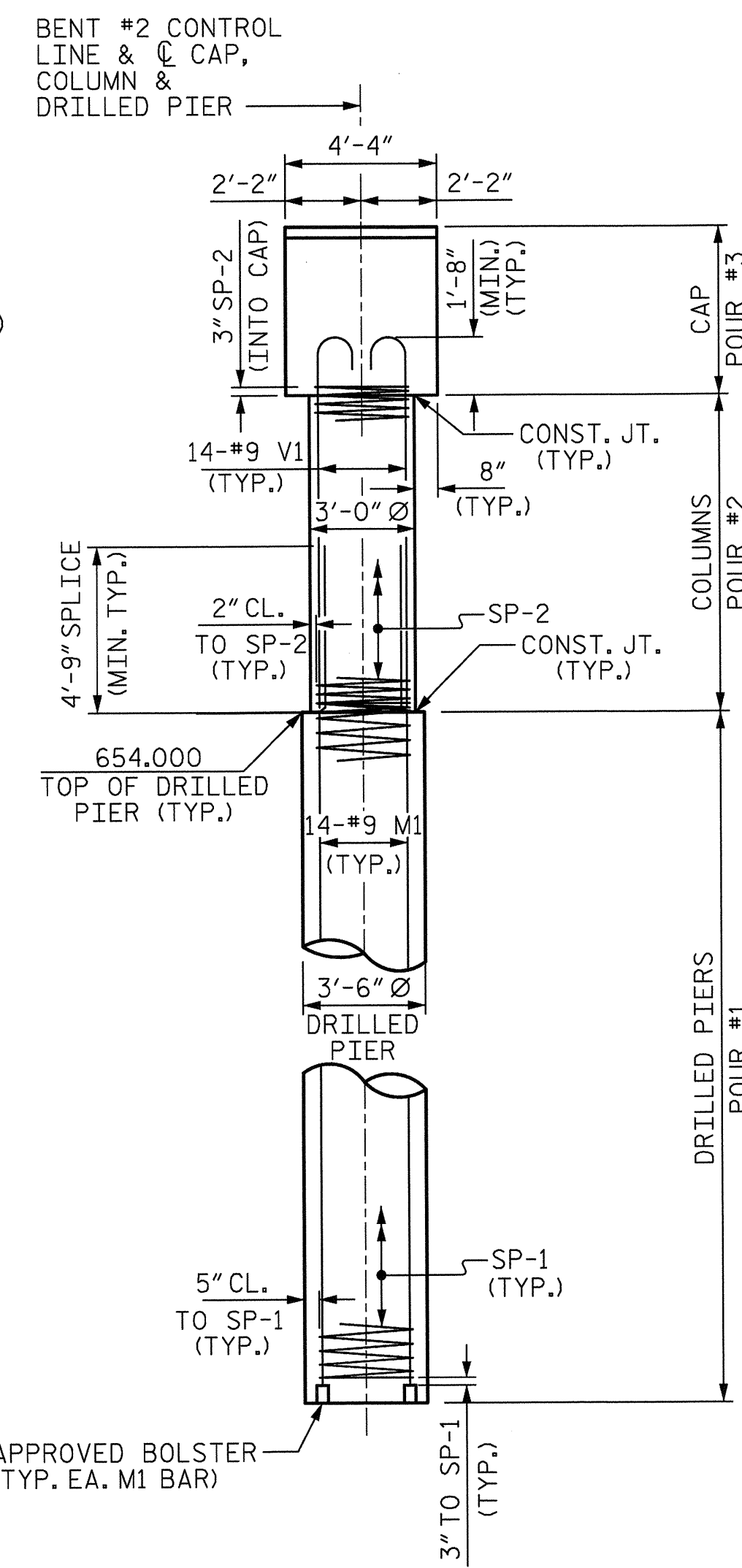
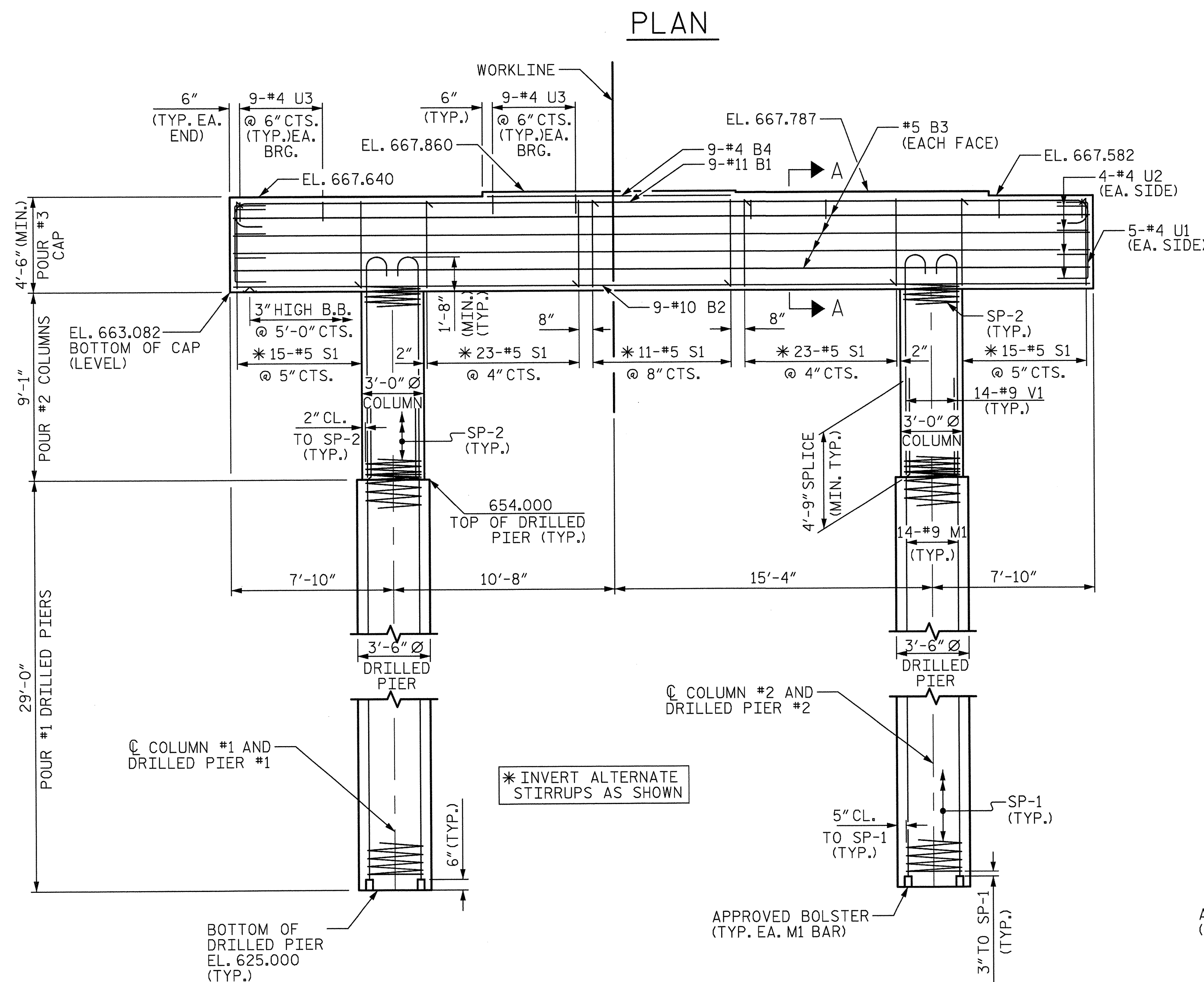
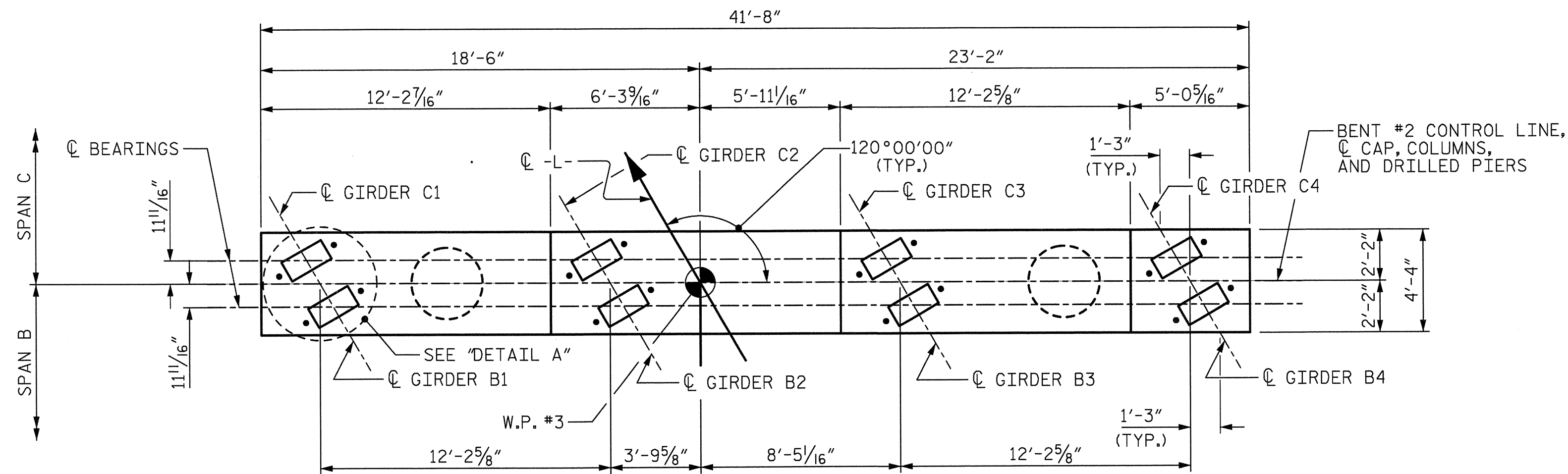
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

FOR PERMANENT STEEL CASING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.



PROJECT NO. B-4859
DAVIDSON COUNTY
STATION: 20+08.71 -L-

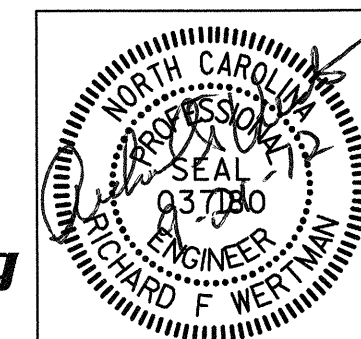
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #2

PLANS PREPARED BY:

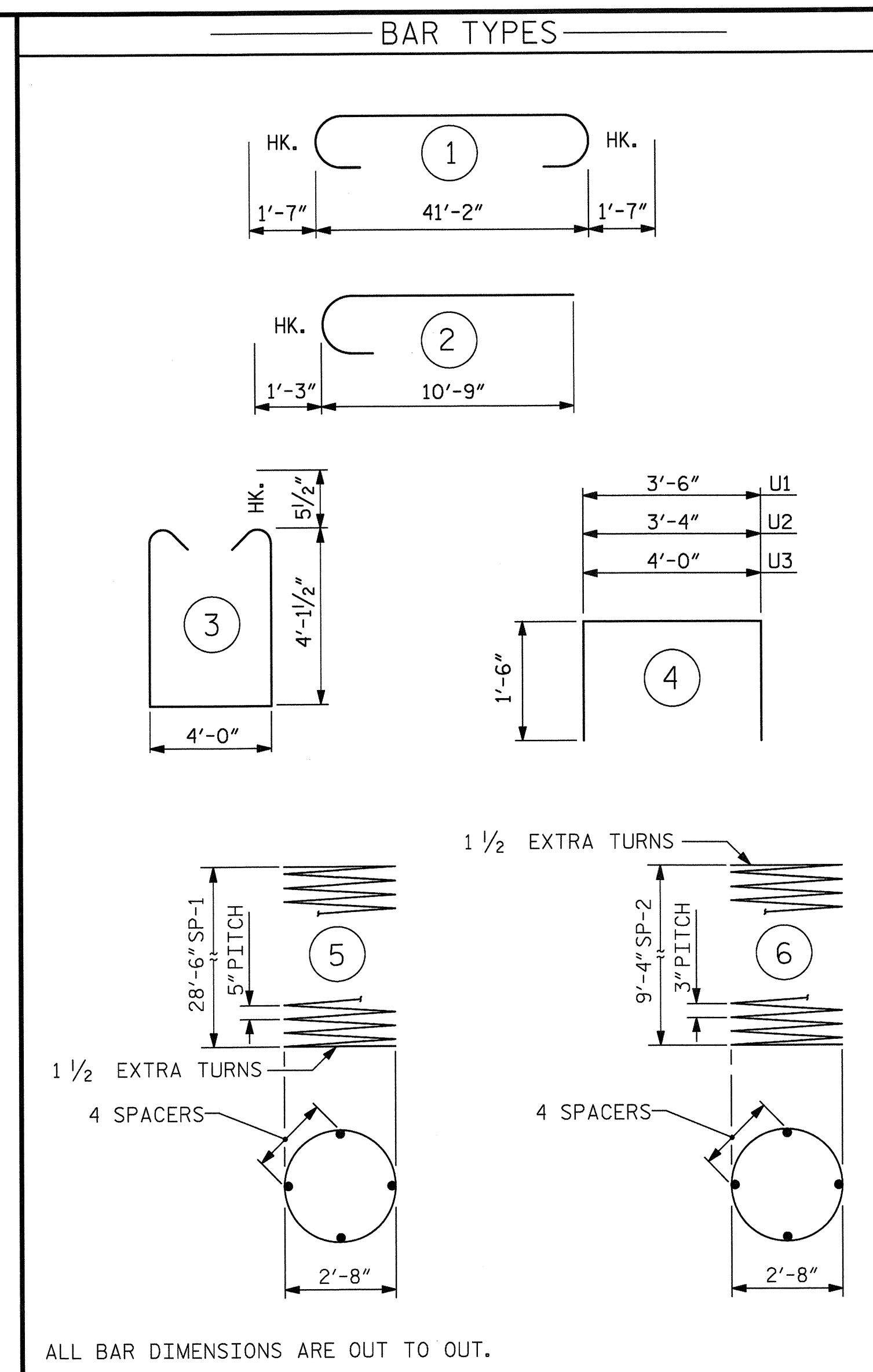
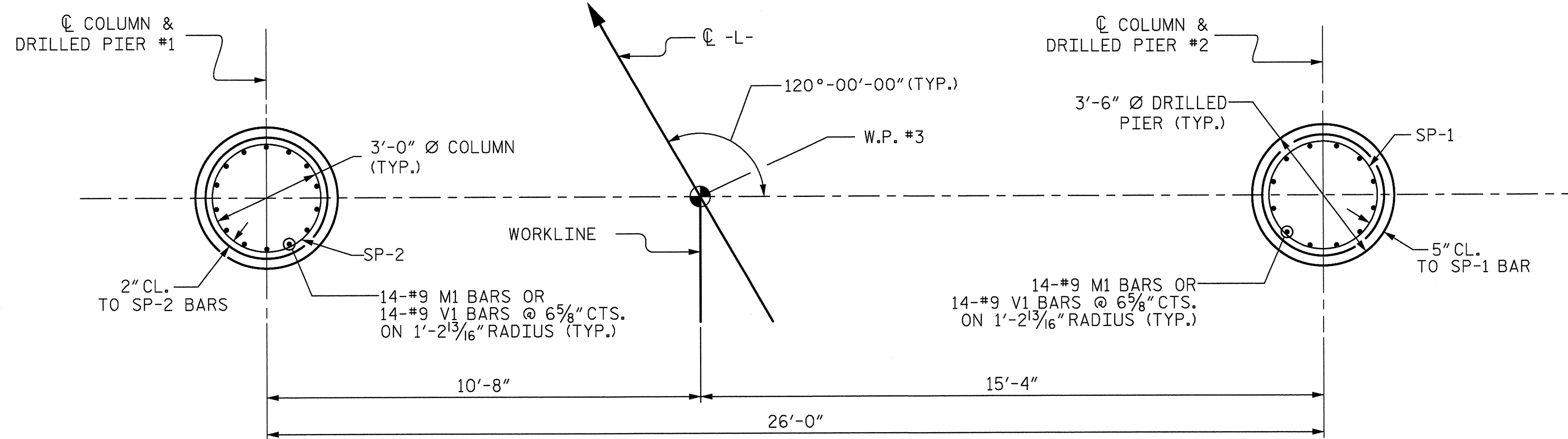
Gannett Fleming
RALEIGH, NORTH CAROLINA



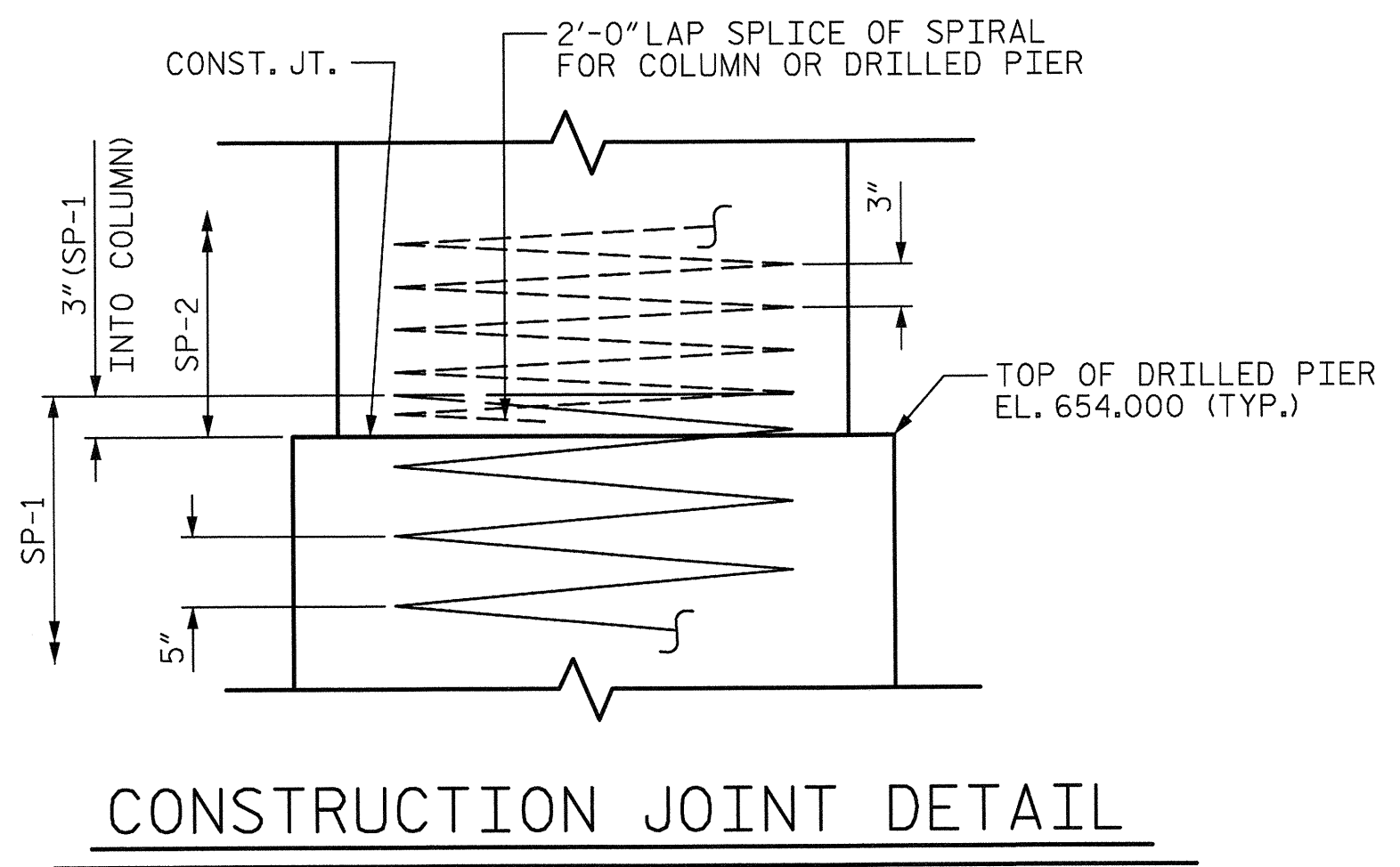
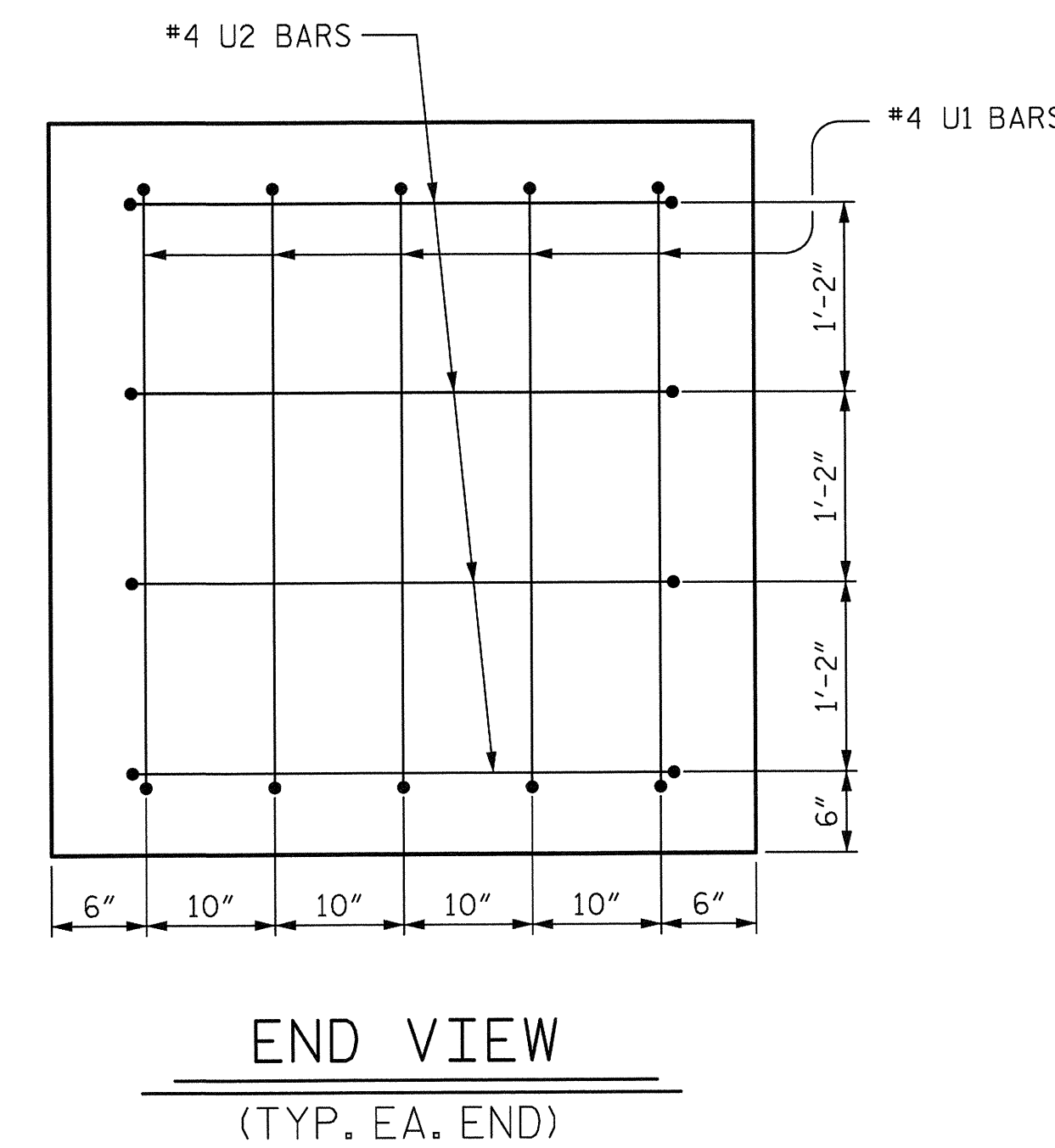
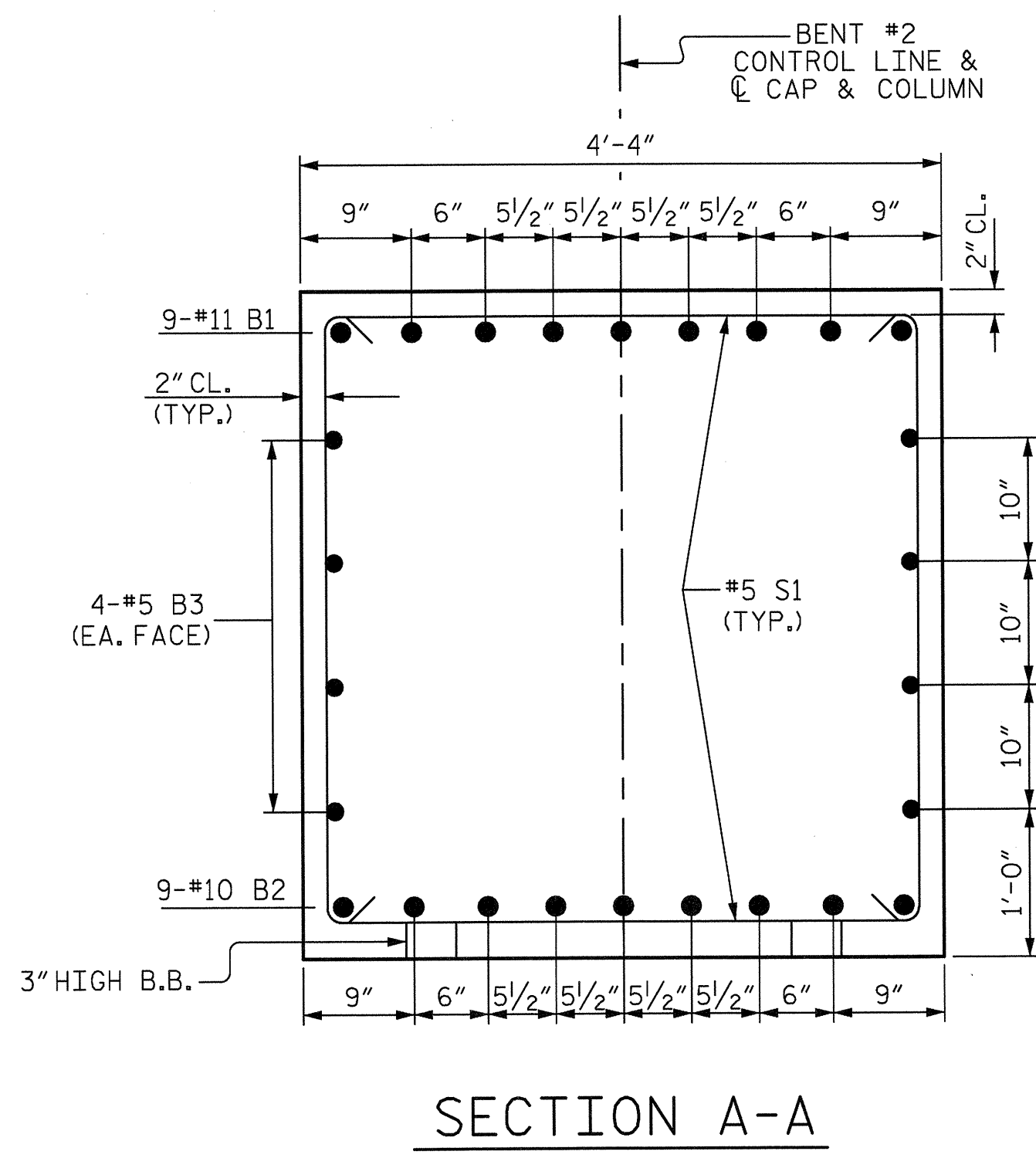
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-26
1			3			TOTAL SHEETS
2			4			33

DRAWN BY: J.M. KEPICH DATE: 03/13/12
CHECKED BY: R.F. WERTMAN DATE: 03/13/12

FILE: k:\055342 Davidson_Cty_Structure\05N B-4859_S0_B2.dgn DATE: 26-Jun-2012 16:47



BILL OF MATERIAL					
BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	11	1	44'-4"	2120
B2	9	10	STR	41'-4"	1601
B3	8	5	STR	41'-4"	345
B4	9	4	STR	11'-10"	71
M1	28	9	STR	36'-3"	3451
S1	87	5	3	13'-2"	1195
U1	10	4	4	6'-6"	43
U2	8	4	4	6'-4"	34
U3	36	4	4	7'-0"	168
V1	28	9	2	12'-0"	1142
REINFORCING STEEL					10170 LBS.
SP-1	2	**	5	574'-11"	1199
SP-2	2	***	6	320'-5"	428
SPIRAL COLUMN REINFORCING STEEL					1627
CLASS A CONCRETE BREAKDOWN					
POUR 2 (COLUMNS)					4.8 C.Y.
POUR 3 (CAPS)					31.1 C.Y.
TOTAL CLASS A CONCRETE					35.9 C.Y.
3'-6" Ø DRILLED PIERS					
DRILLED PIER CONCRETE BREAKDOWN					
POUR 1 (DRILLED PIERS)					20.7 C.Y.
3'-6" Ø DRILLED PIER IN SOIL :					
LINEAR FEET					30.0 FT.
3'-6" Ø DRILLED PIER NOT IN SOIL :					
LINEAR FEET					28.0 FT.
PERMANENT STEEL CASING					
FOR 3'-6" Ø DRILLED PIERS:					34.0 FT.
CSL TUBES:					244.0 FT.



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

*** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 2

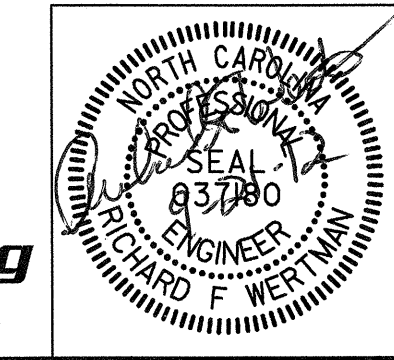
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #2

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS	
2			4			33	

DRAWN BY : J.M. KEPICH DATE : 03/13/12
 CHECKED BY : R.F. WERTMAN DATE : 03/13/12

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA



NOTES:

*FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SECTION A-A ON SHEET 3 OF 3.

▲ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.

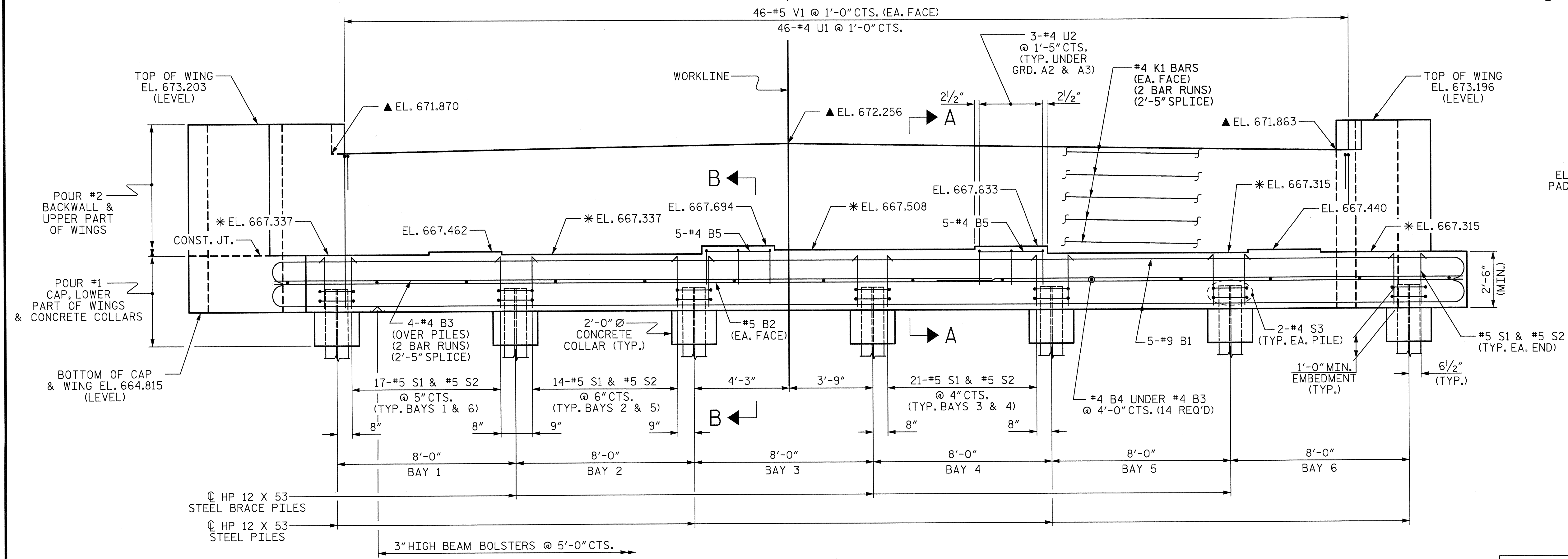
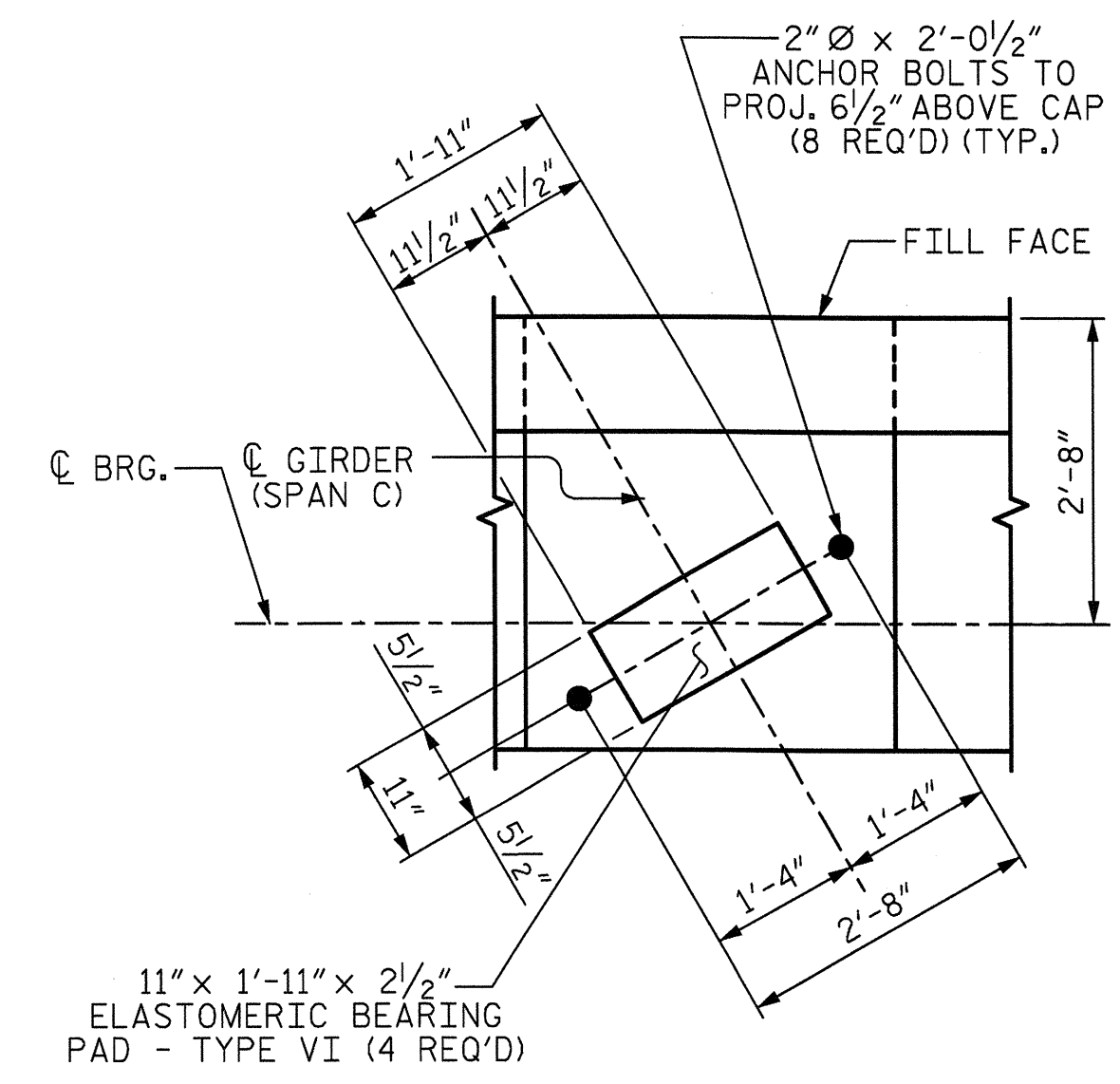
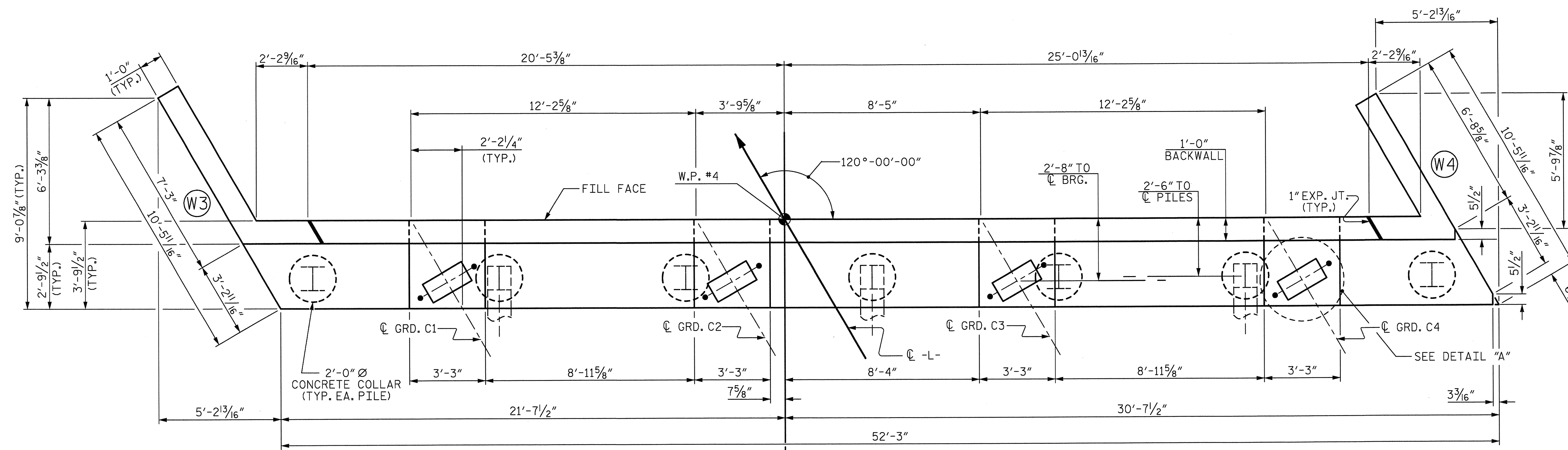
STIRRUPS & U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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 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.

INSTALL THE 4" DIA. 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.



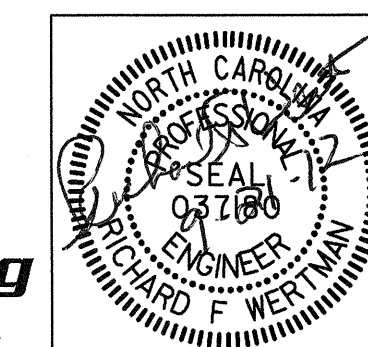
PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

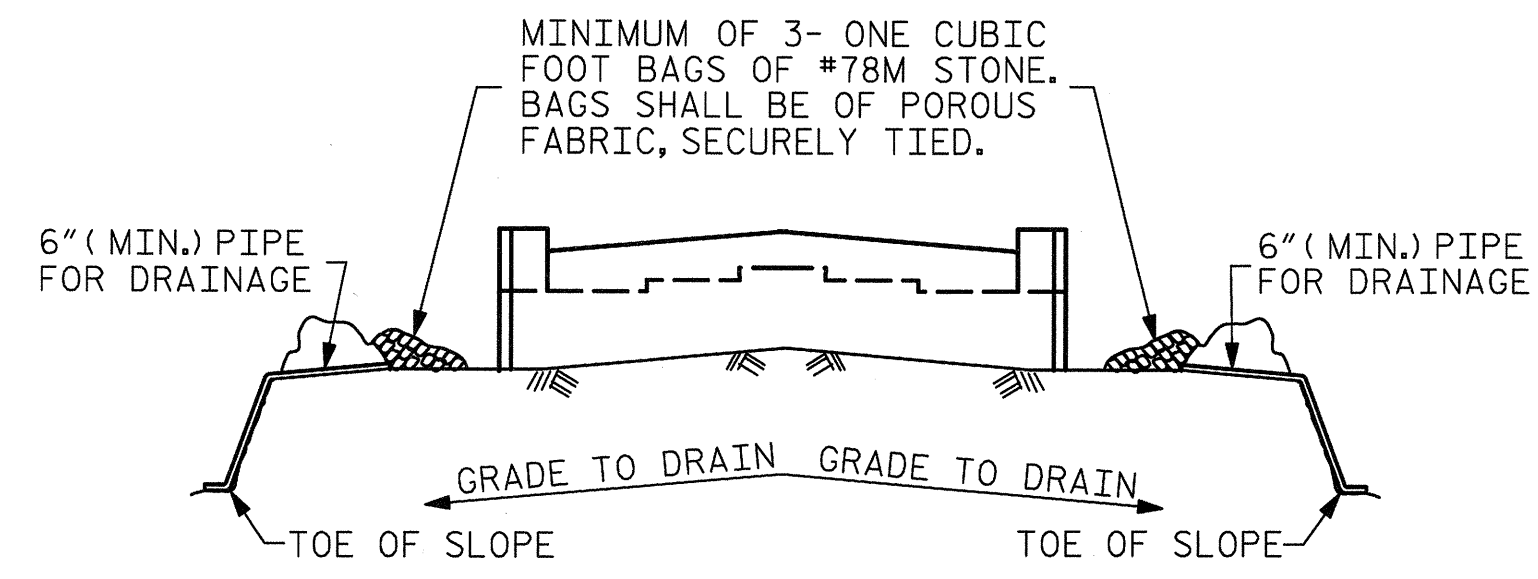
PLANS PREPARED BY:



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS 33
2			4			

DRAWN BY: J.M. KEPICH DATE: 03/25/12
 CHECKED BY: R.F. WERTMAN DATE: 03/28/12

FILE: K:\056342_Davidson_Cty_Structure\DCN\B-4859_SD_EC.dgn
 DATE: 26-Jun-2012 16:51

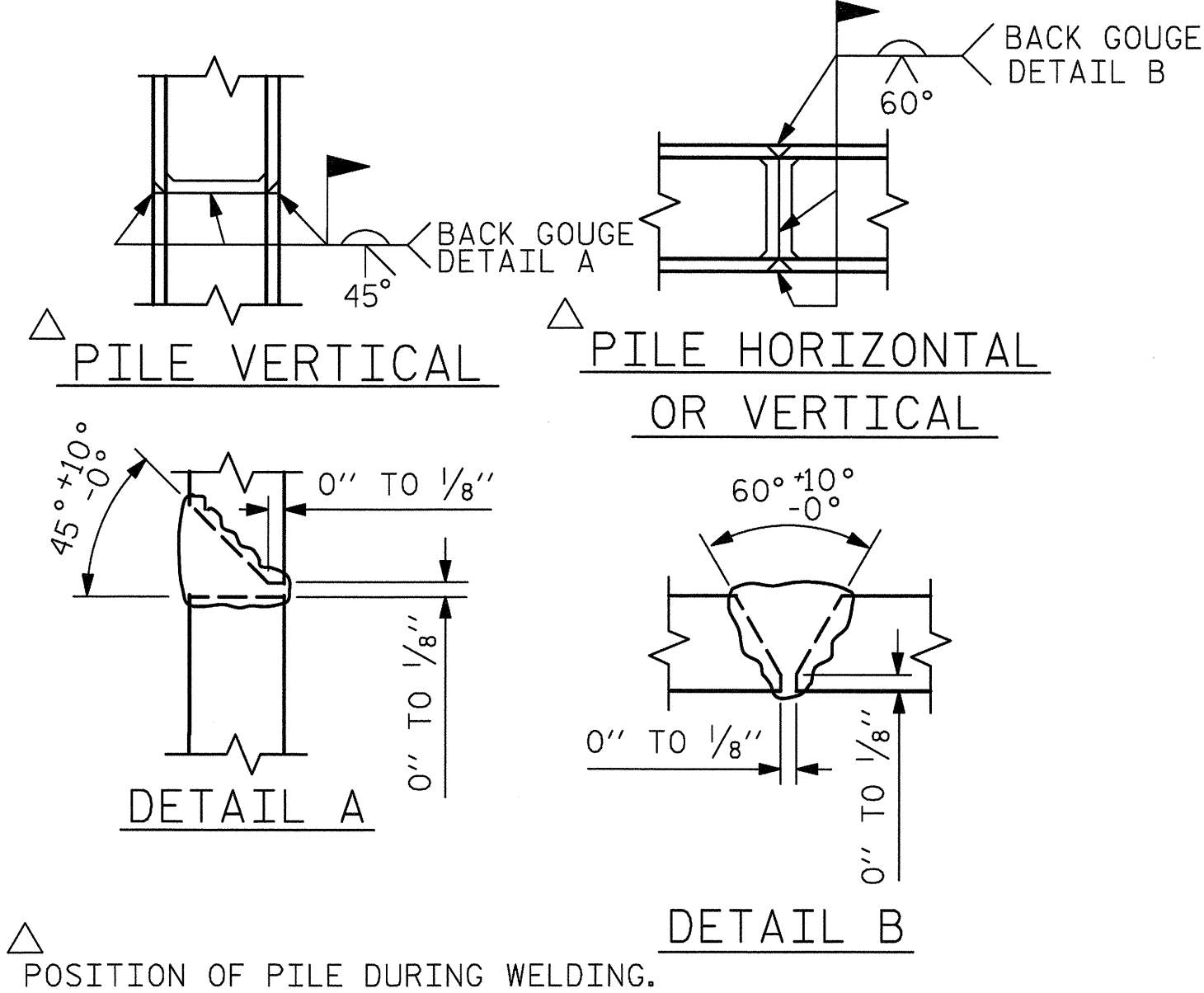


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

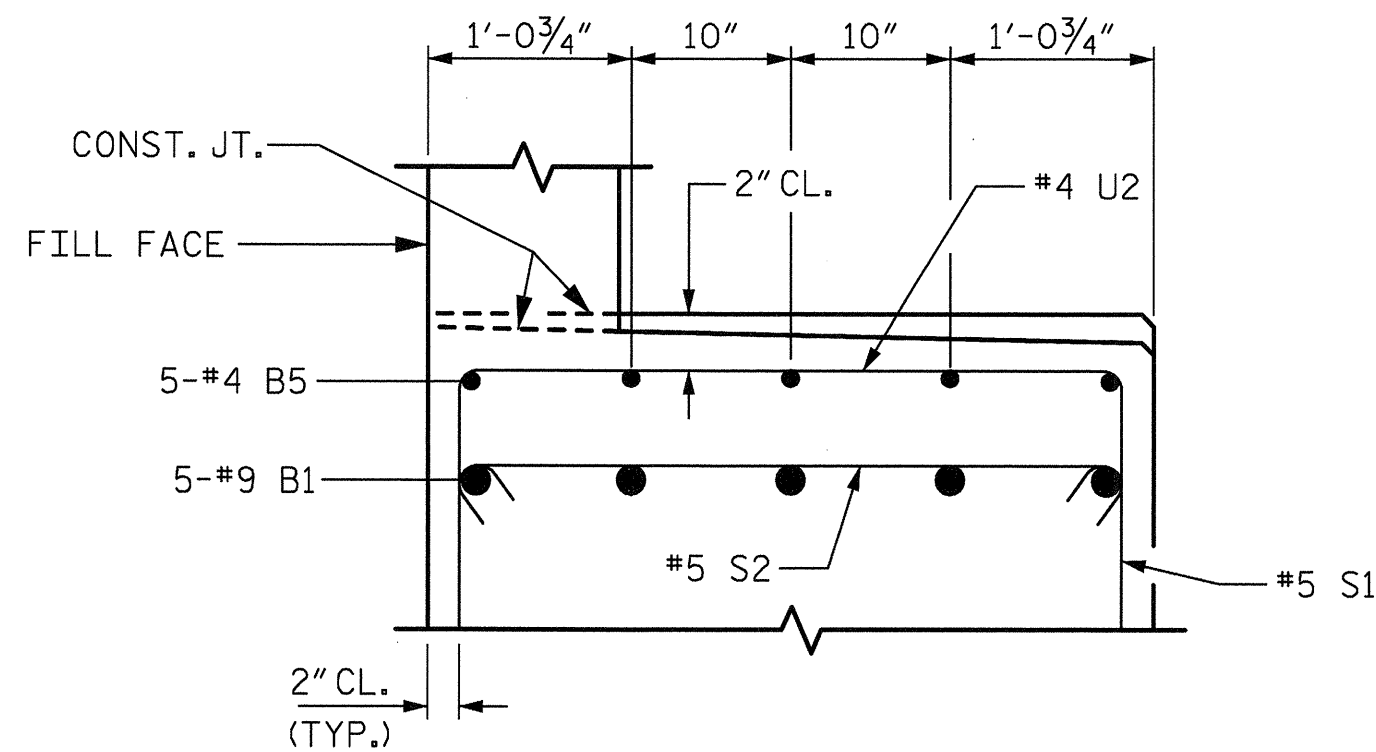
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

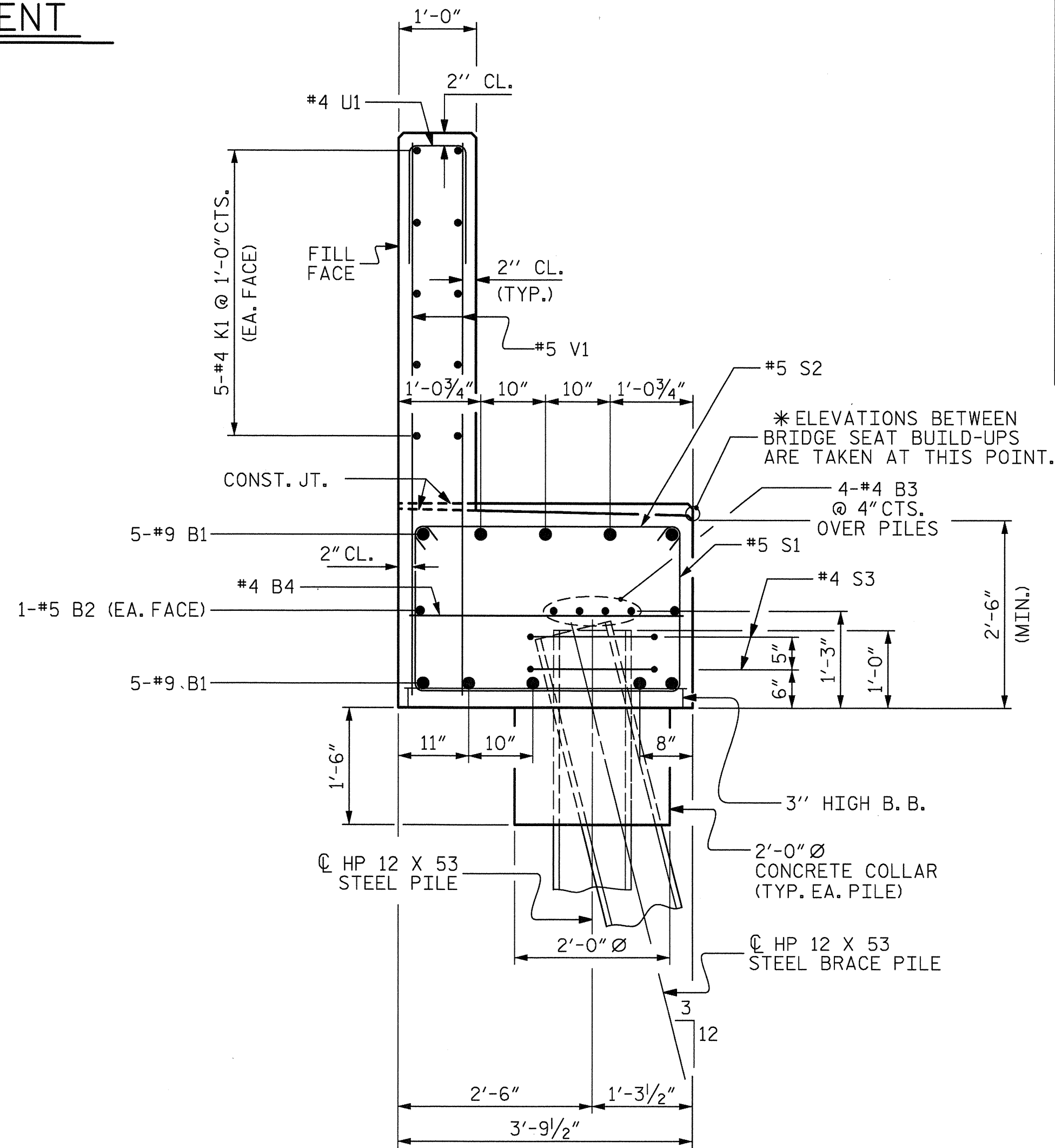


PILE SPLICE DETAILS

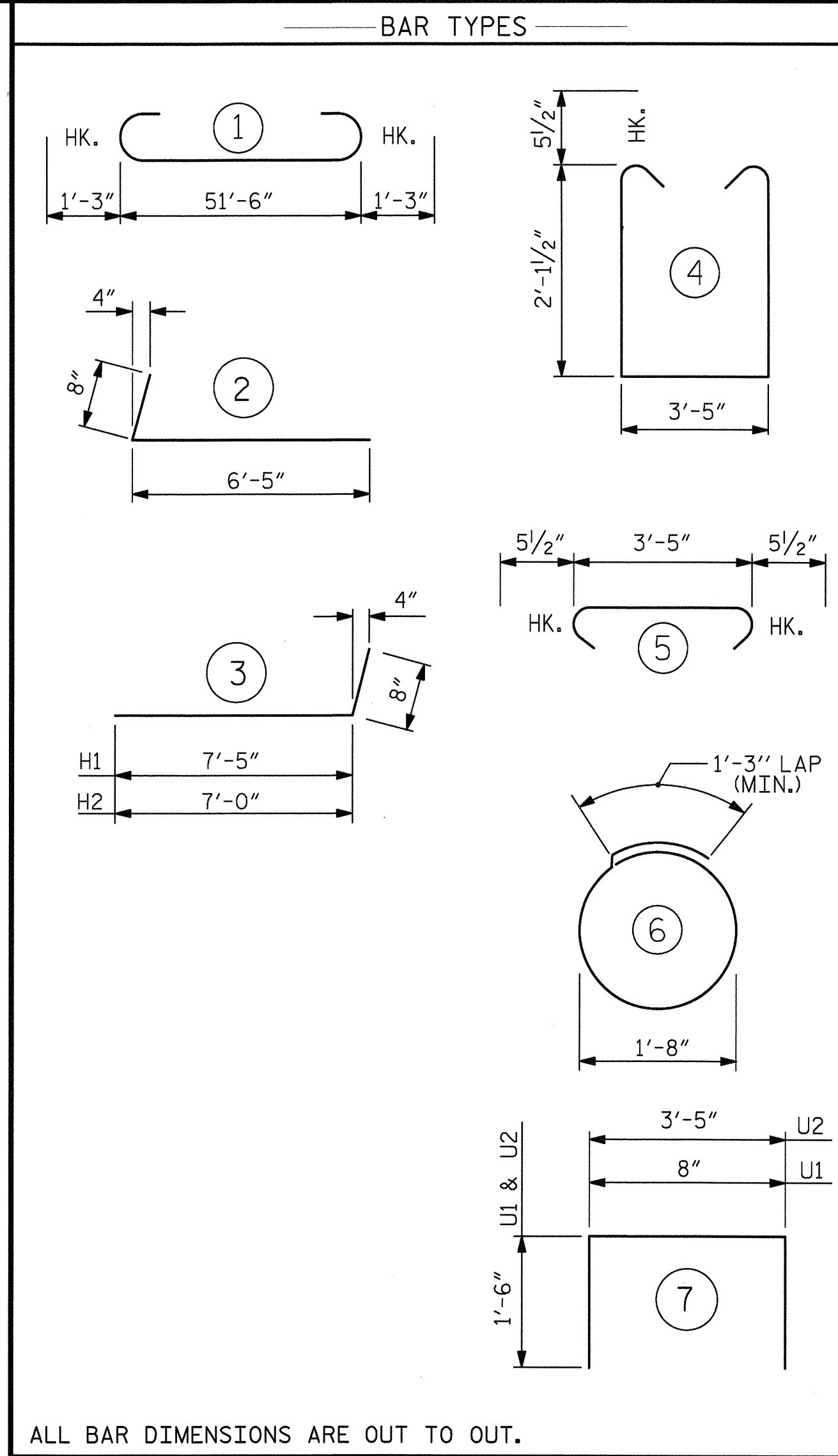


PARTIAL SECTION B-B

(TYP. @ BRG. A2 & A3)



SECTION A-A



BILL OF MATERIAL

END BENT #2

BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	54'-0"	1836
B2	2	#5	STR	51'-8"	108
B3	8	#4	STR	27'-0"	144
B4	14	#4	STR	3'-5"	32
B5	10	#4	STR	2'-11"	19
H1	10	#4	3	8'-1"	54
H2	10	#4	3	7'-8"	51
H3	10	#4	2	7'-1"	47
H4	10	#4	2	7'-1"	47
K1	20	#4	STR	27'-0"	361
K2	4	#4	STR	3'-0"	8
K3	4	#4	STR	2'-10"	8
S1	106	#5	4	8'-7"	954
S2	106	#5	5	4'-4"	484
S3	14	#4	6	6'-6"	61
U1	46	#4	7	3'-8"	113
U2	6	#4	7	6'-5"	26
V1	92	#5	STR	6'-8"	640
V2	41	#4	STR	8'-0"	219

REINFORCING STEEL 5212 LBS.

CLASS A CONCRETE

POUR #1 (CAP, LOWER WINGS & COLLARS) 21.3 C.Y.

POUR #2 (UPPER WINGS & BACKWALL) 12.0 C.Y.

TOTAL 33.3 C.Y.

HP 12 X 53 STEEL PILES

No. = 7 210.0 LIN. FT.

PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #2**

REVISIONS

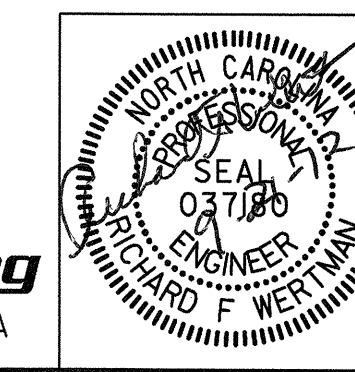
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2			4		

SHEET NO. S-30

TOTAL SHEETS 33

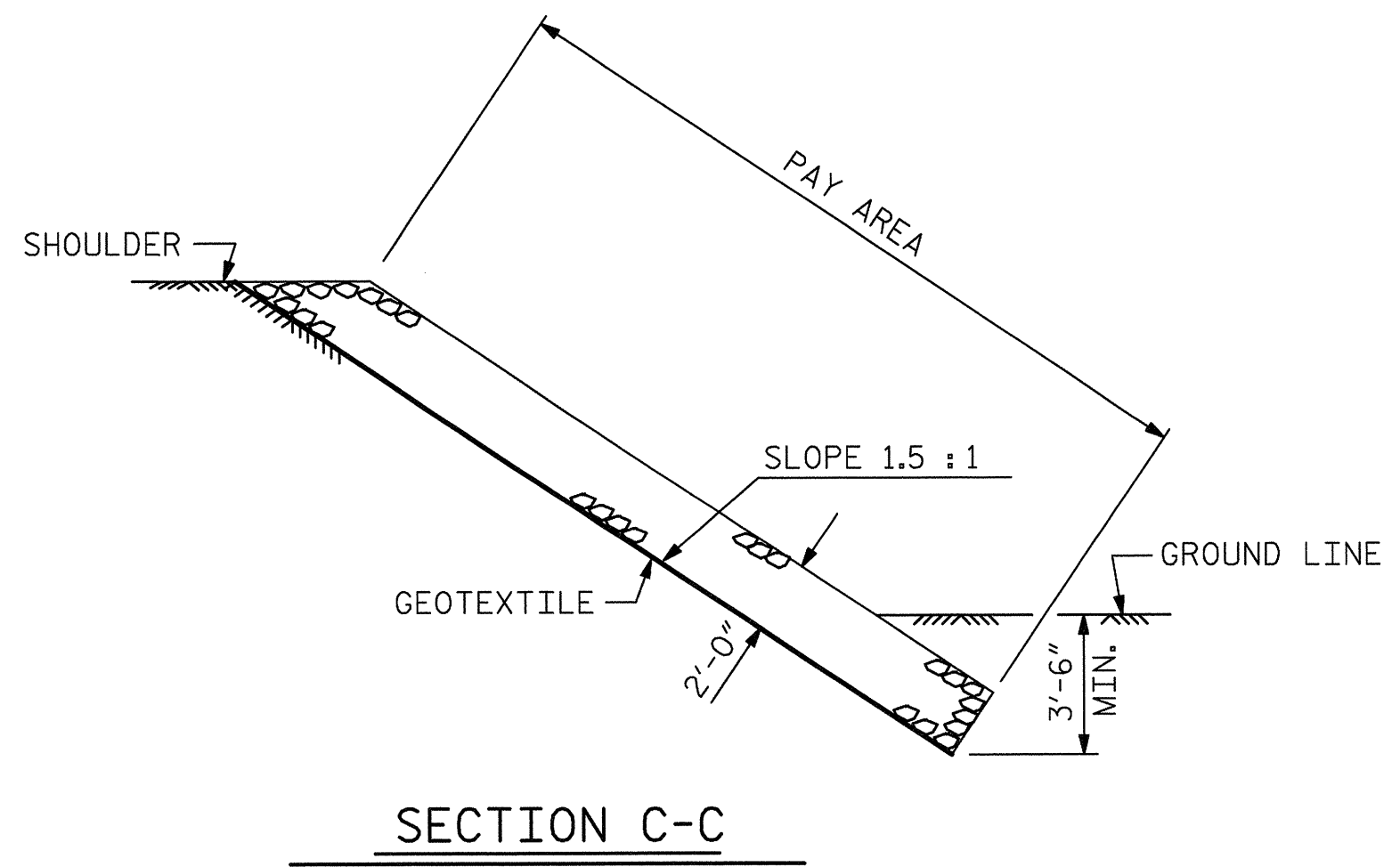
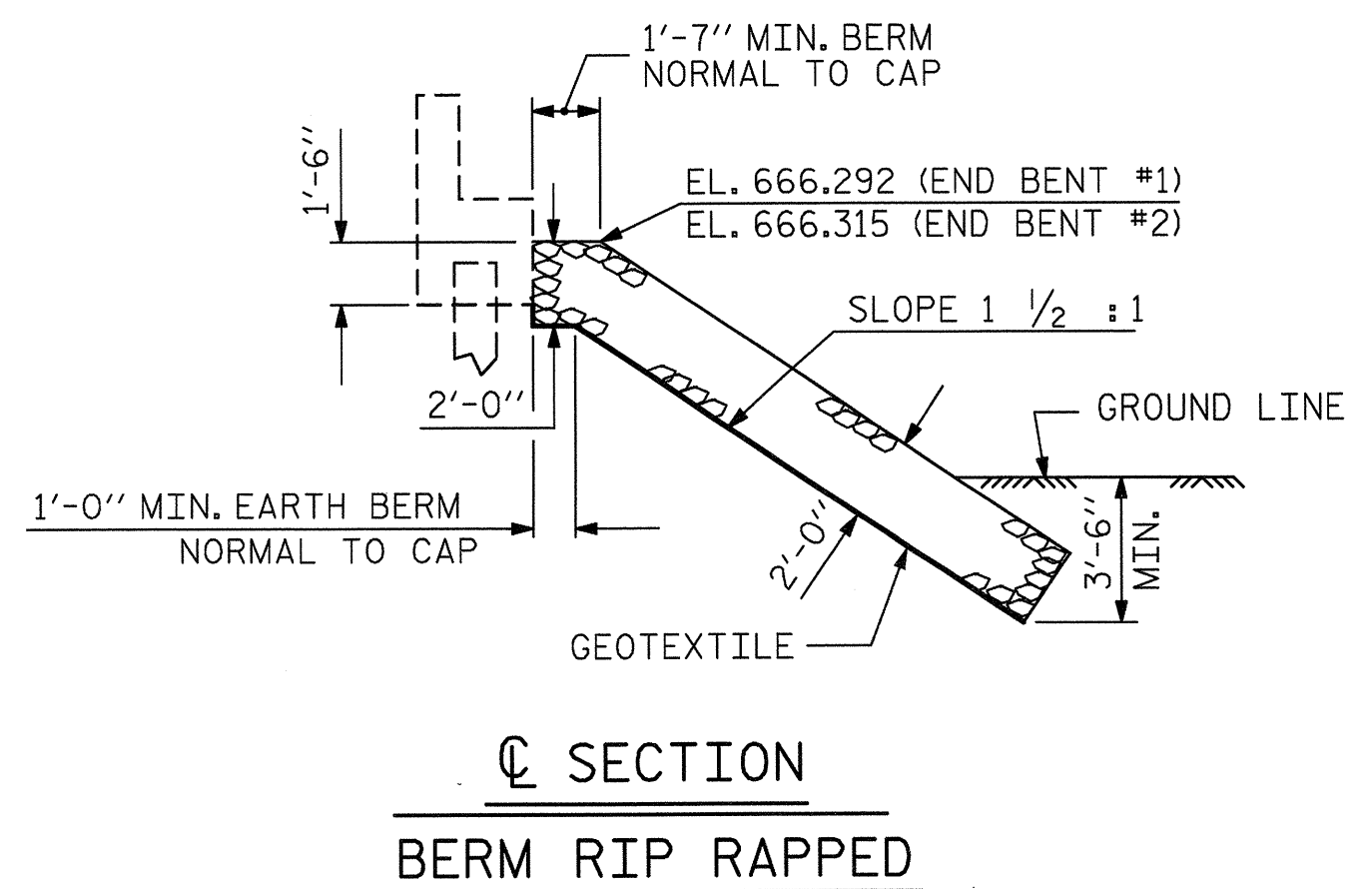
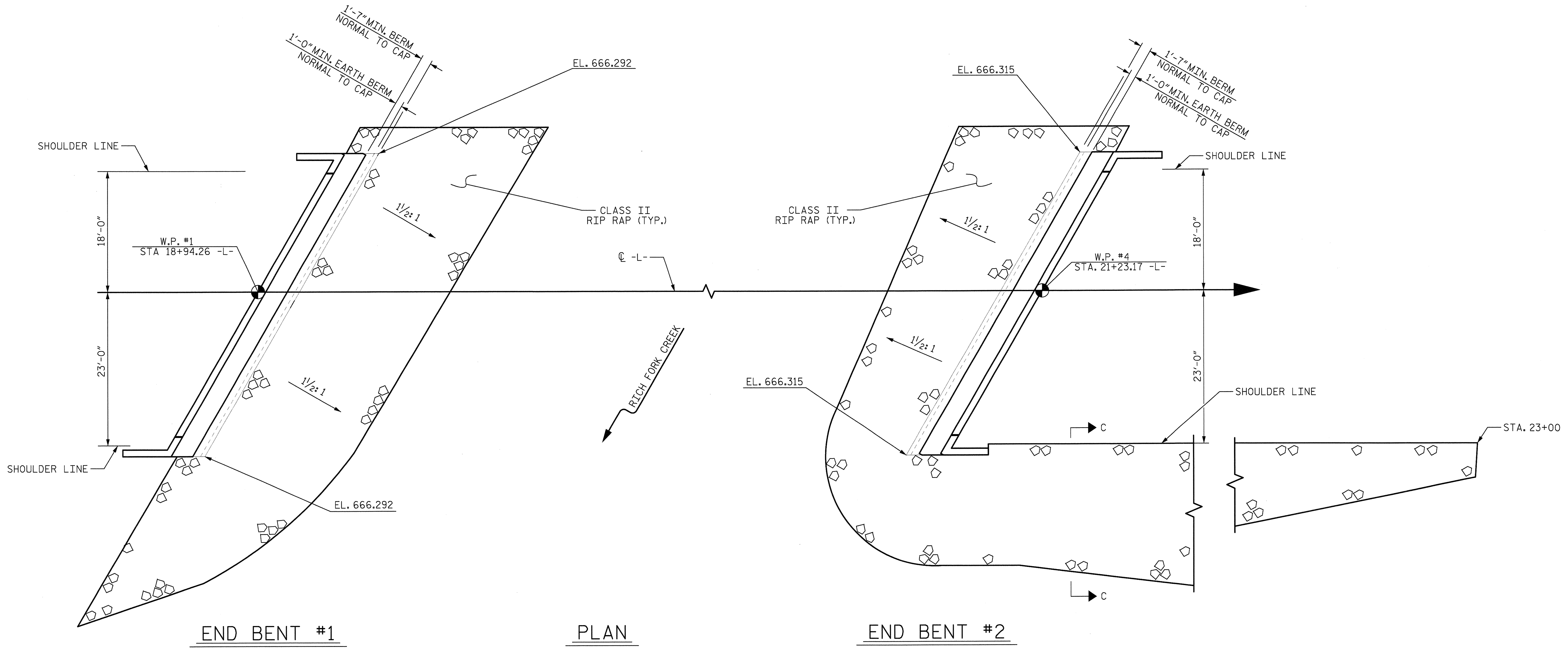
PLANS PREPARED BY:

Gannett Fleming
 RALEIGH, NORTH CAROLINA



FILE: KA055342 Davidson_City_Structure\Drawn\DNKB-4859_S0_CD.dwg
 DATE: 28-Mar-2012 11:50

DRAWN BY: J.M. KEPICH DATE: 03/26/12
 CHECKED BY: R.F. WERTMAN DATE: 03/28/12



ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+08.71 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	203	225
END BENT 2	531	589

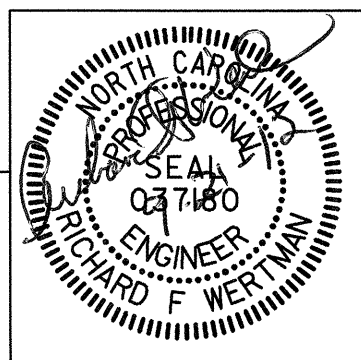
PROJECT NO. B-4859
DAVIDSON COUNTY
 STATION: 20+08.71 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 —RIP RAP DETAILS—

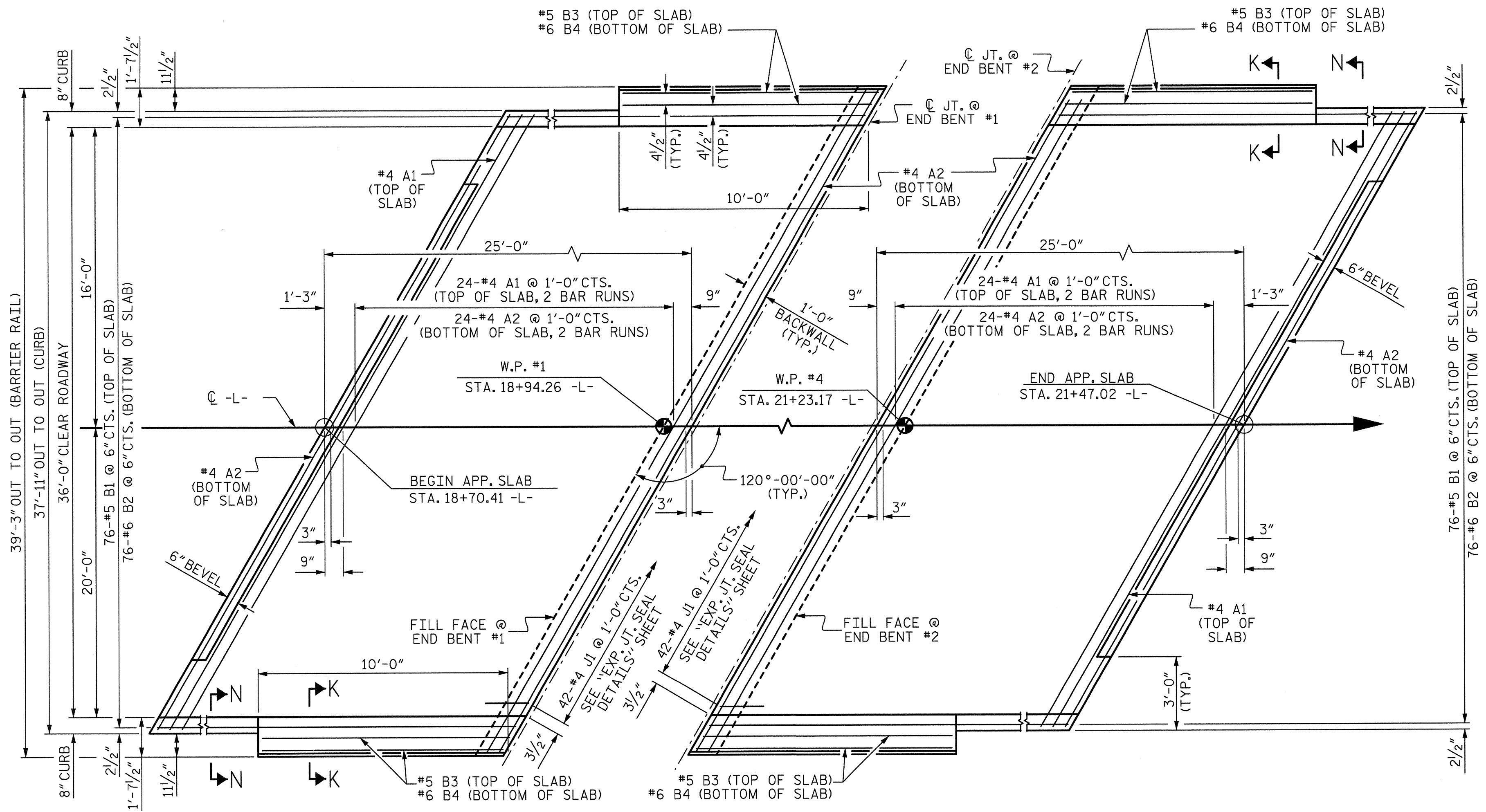
ASSEMBLED BY : J.M. KEPICH DATE : 03/14/12
 CHECKED BY : R.F. WERTMAN DATE : 03/16/12
 DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM
 CHECKED BY : RDU 1/84 REV. 10/1/11 MAA/GM
 REV. 12/21/11 MAA/GM

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			33



PLAN @ END BENT #1

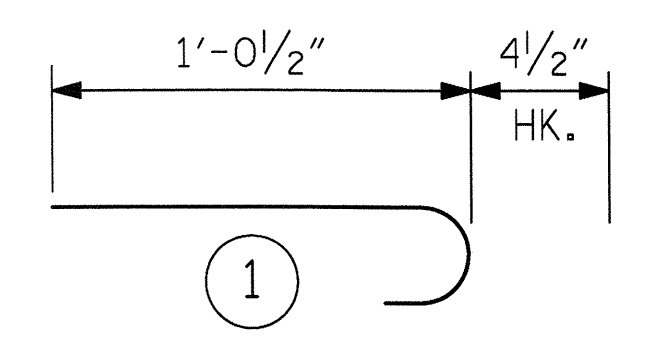
PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
 FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 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.
 FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

BAR TYPES

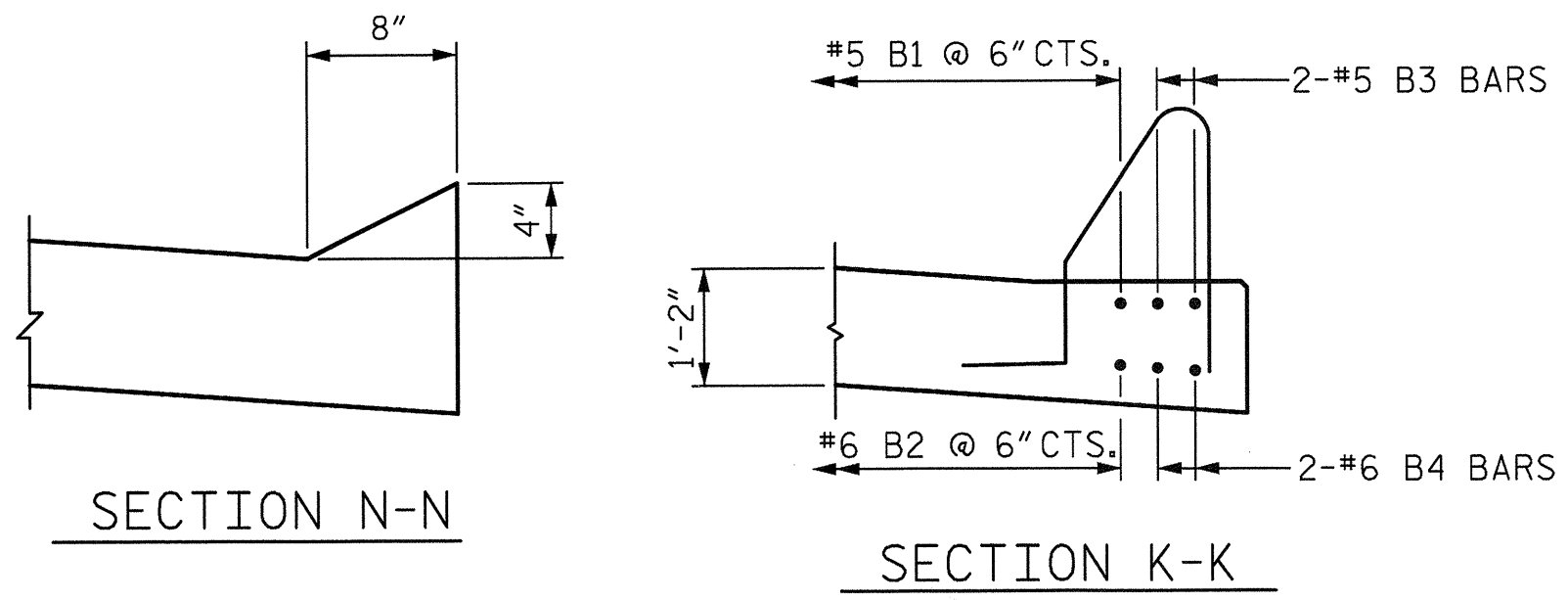


ALL BAR DIMENSION ARE OUT TO OUT

BILL OF MATERIAL

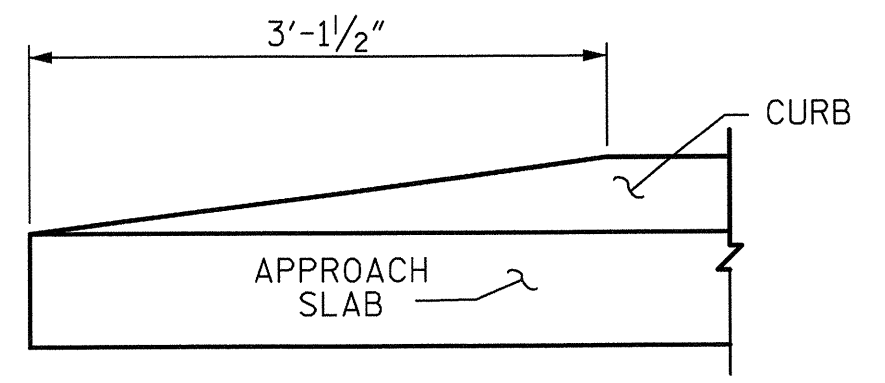
APPROACH SLAB AT EB #1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	50	#4	STR	23'-6"	785
A2	52	#4	STR	23'-4"	811
*B1	76	#5	STR	24'-1"	1909
B2	76	#6	STR	24'-7"	2806
*B3	4	#5	STR	9'-7"	40
B4	4	#6	STR	9'-7"	58
*J1	42	#4	1	1'-5"	40
REINFORCING STEEL				LBS.	3675
*EPOXY COATED REINFORCING STEEL				LBS.	2774
CLASS AA CONCRETE				C. Y.	41.3
APPROACH SLAB AT EB #2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	50	#4	STR	23'-6"	785
A2	52	#4	STR	23'-4"	811
*B1	76	#5	STR	24'-1"	1909
B2	76	#6	STR	24'-7"	2806
*B3	4	#5	STR	9'-7"	40
B4	4	#6	STR	9'-7"	58
*J1	42	#4	1	1'-5"	40
REINFORCING STEEL				LBS.	3675
*EPOXY COATED REINFORCING STEEL				LBS.	2774
CLASS AA CONCRETE				C. Y.	41.3

SPLICE LENGTHS CHART		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



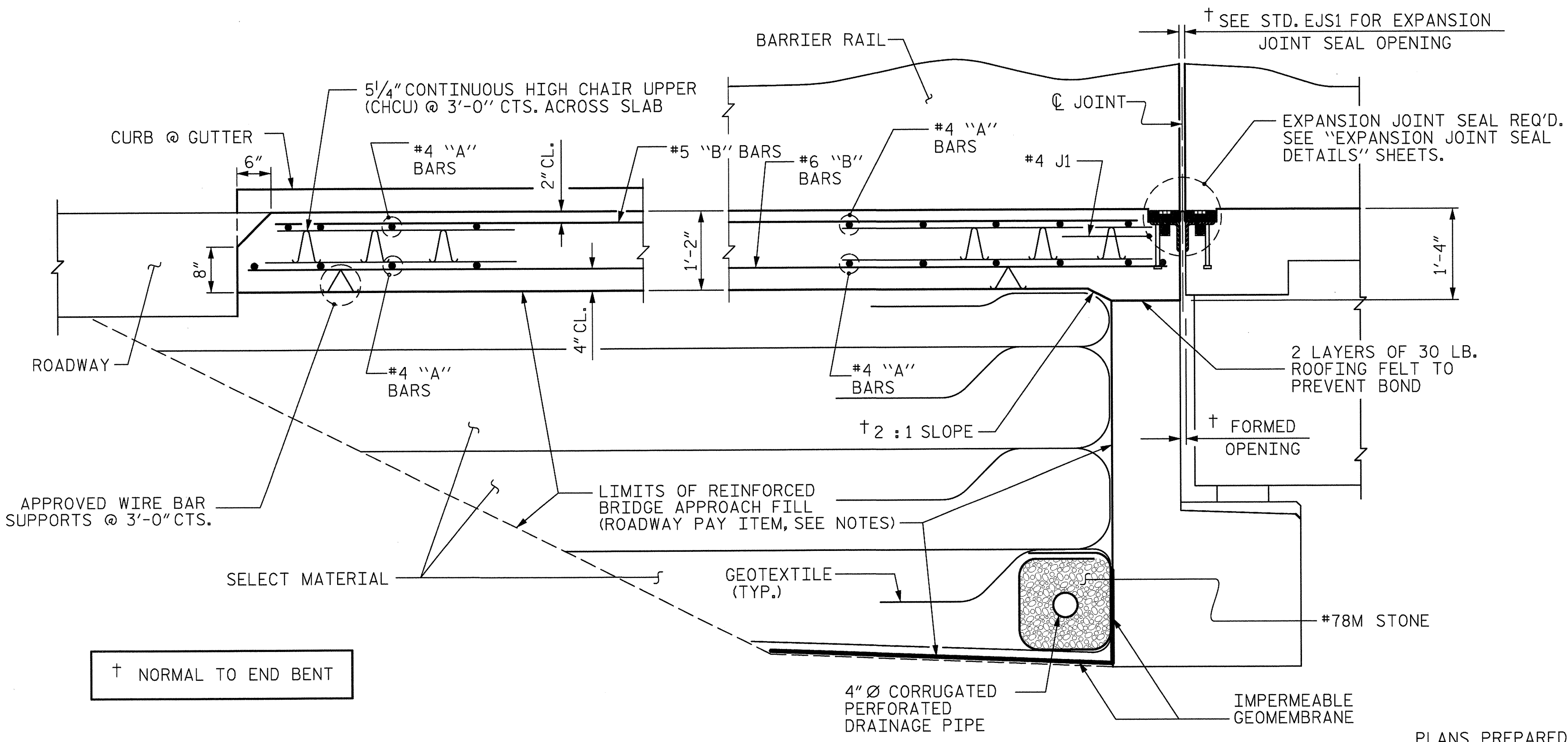
SECTION N-N

SECTION K-K



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

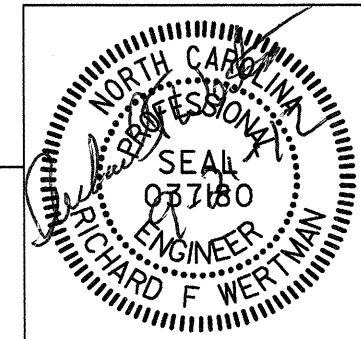


SECTION THRU SLAB

PLANS PREPARED BY:



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PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 1 OF 2

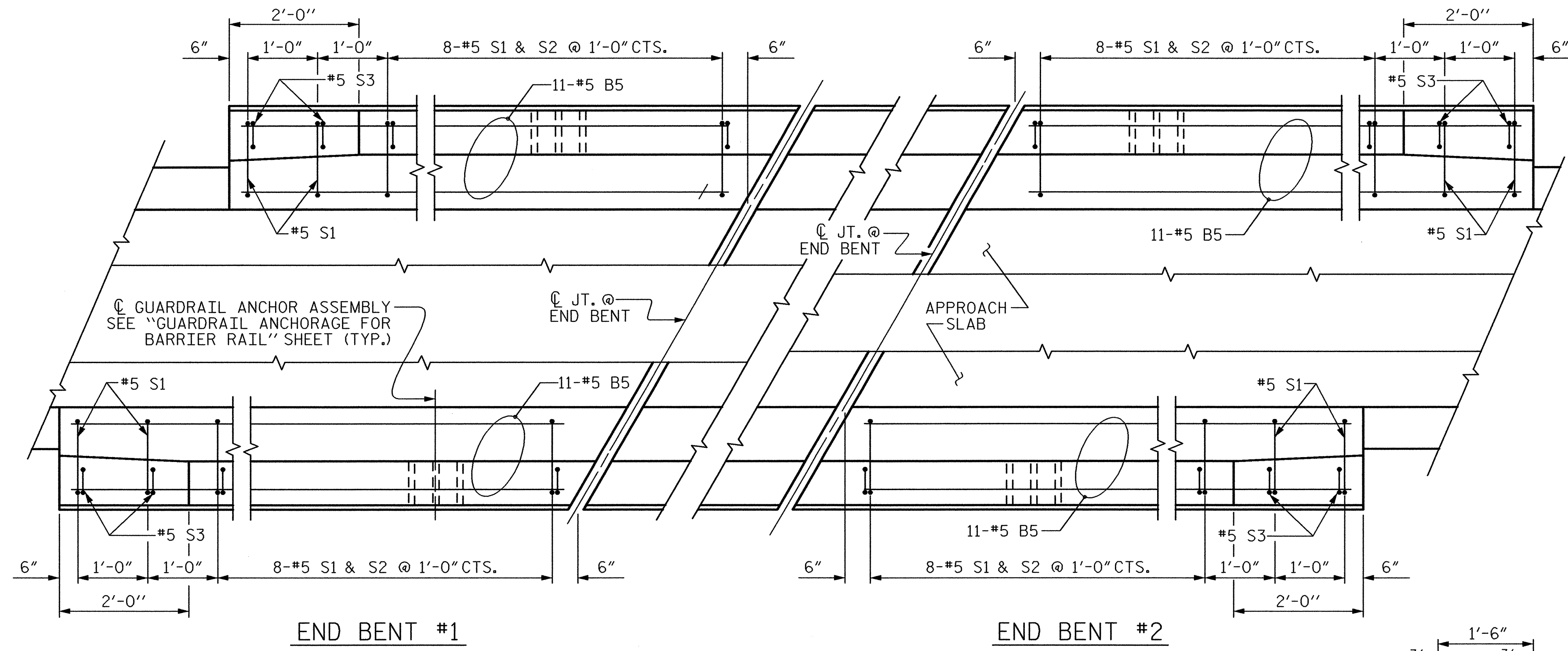
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			33

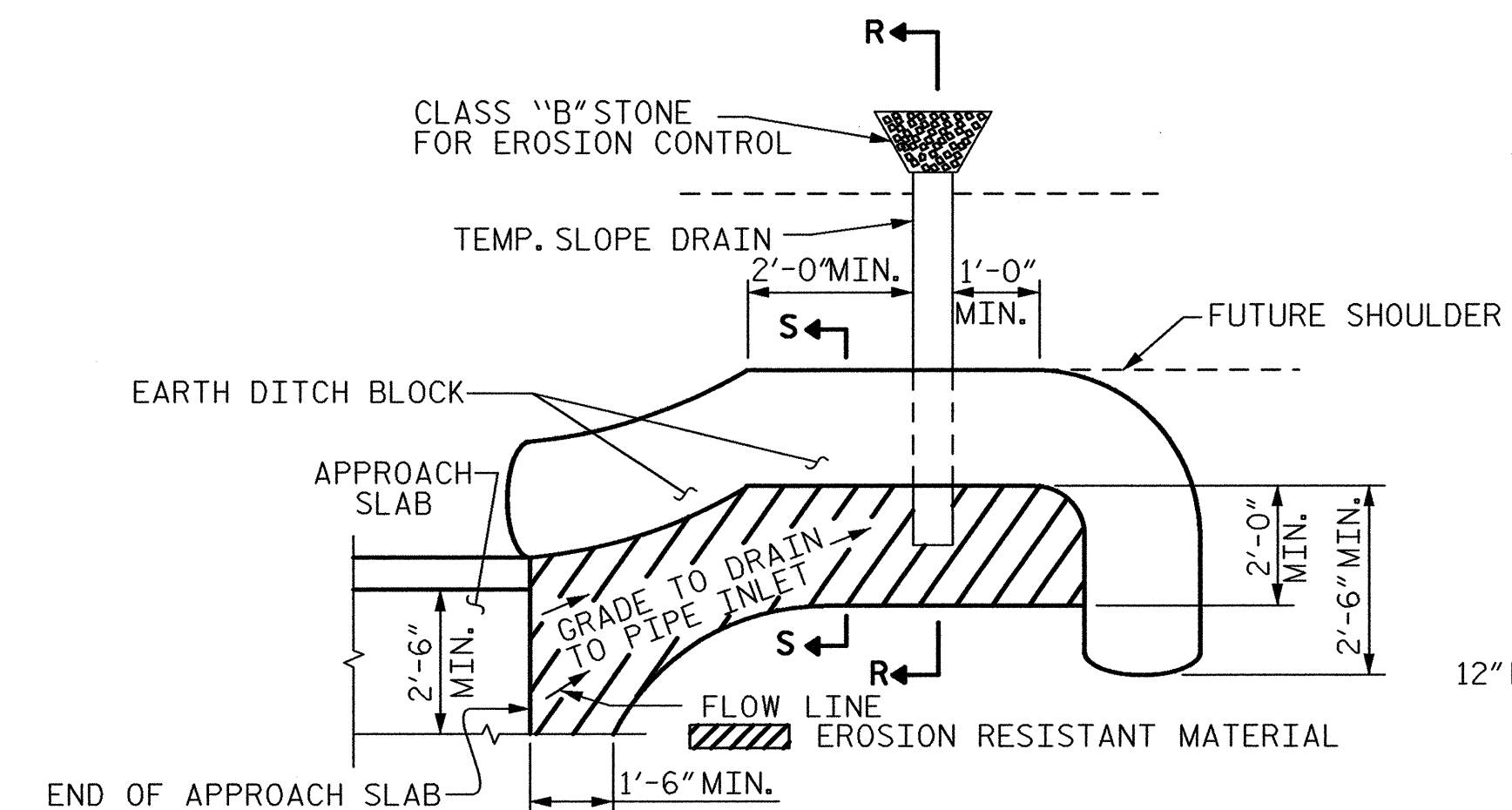
STD. NO. BAS2

FILE: 05532.Davidson_Cty_Structure.DGN B-4859-3D.dwg

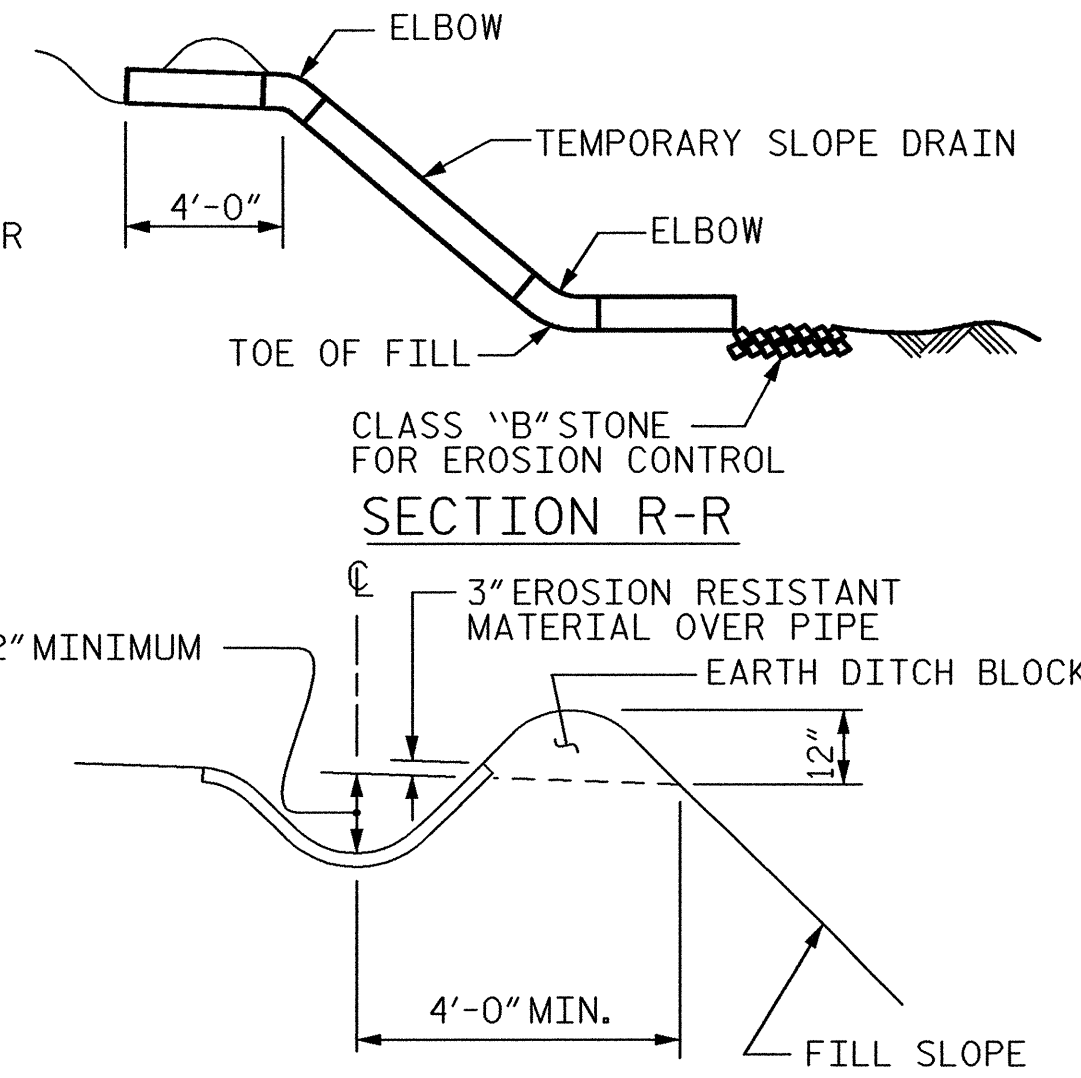
ASSEMBLED BY: J.M. KEPIC	DATE: 03/13/12
CHECKED BY: R.F. WERTMAN	DATE: 03/14/12
DRAWN BY: EEM 3/95	REV. 5/1/06RR KMM/GM
CHECKED BY: VAP 3/95	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM



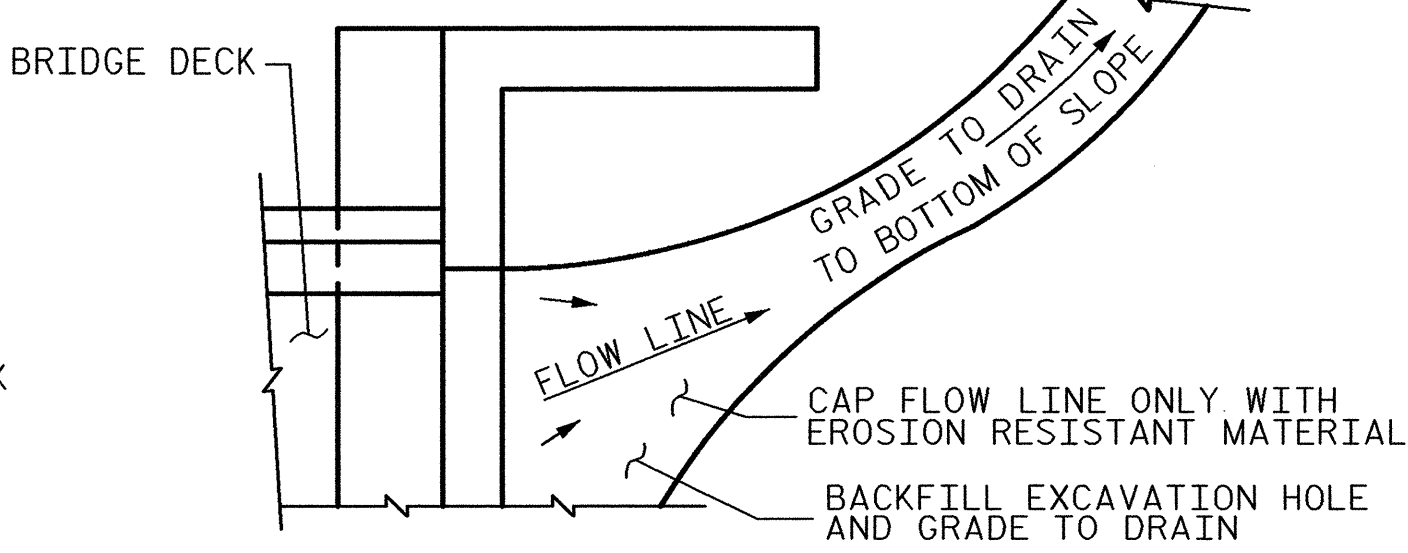
PLAN OF BARRIER RAIL



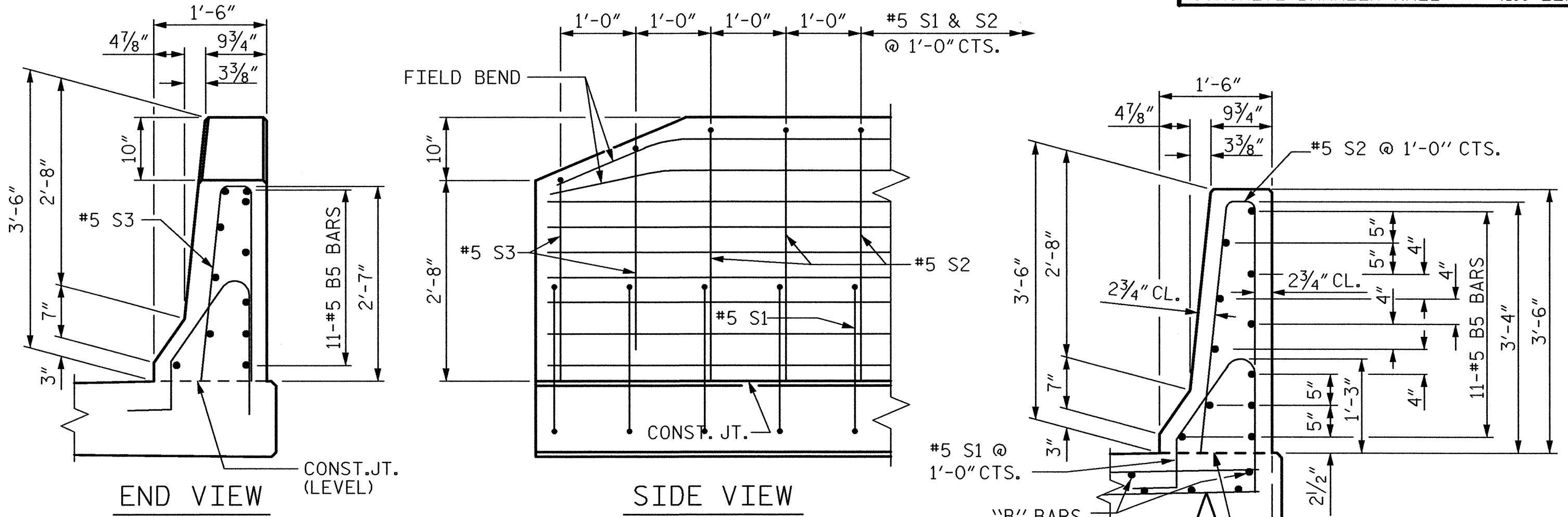
PLAN VIEW



SECTION S-S



TEMPORARY DRAINAGE DETAIL



END OF RAIL DETAILS

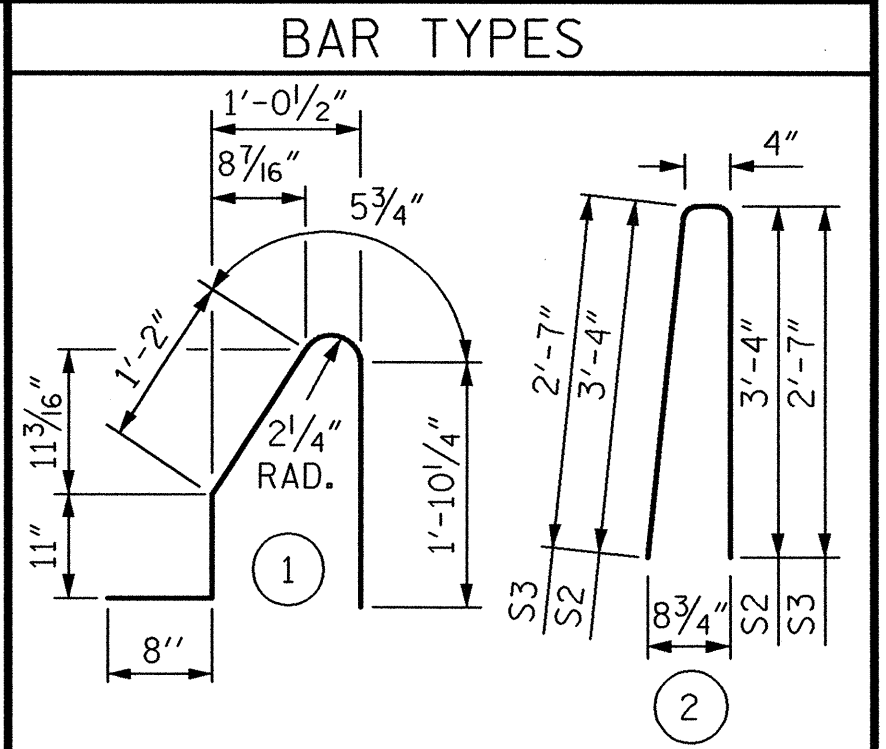
SECTION THRU RAIL

NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH 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.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

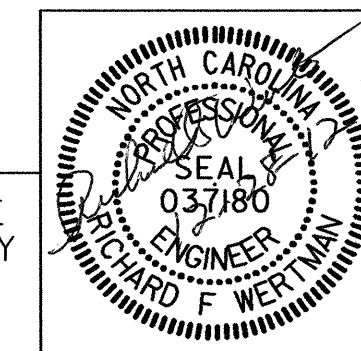
BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B5	44	#5	STR	9'-7"	440
*S1	40	#5	1	5'-1"	212
*S2	32	#5	2	7'-0"	234
*S3	8	#5	2	5'-6"	46
*EPOXY COATED REINFORCING STEEL				LBS.	932
CLASS AA CONCRETE				C. Y.	5.7
CONCRETE BARRIER RAIL				41.6 LIN. FT.	

PROJECT NO. B-4859
 DAVIDSON COUNTY
 STATION: 20+08.71 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH
 SLAB DETAILS



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

SHEET NO. S-33
 TOTAL SHEETS 33

PLANS PREPARED BY:
Gannett Fleming
 RALEIGH, NORTH CAROLINA

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

ASSEMBLED BY: J.M. KEPICH DATE: 03/13/12
 CHECKED BY: R.F. WERTMAN DATE: 03/14/12
 DRAWN BY: FCJ 11/88 REV. 5/7/03 RWW/JTE
 CHECKED BY: ARB 11/88 REV. 5/1/06RRR MAA/KMM
 REV. 10/1/11 MAA/GM

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.
WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".
EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990