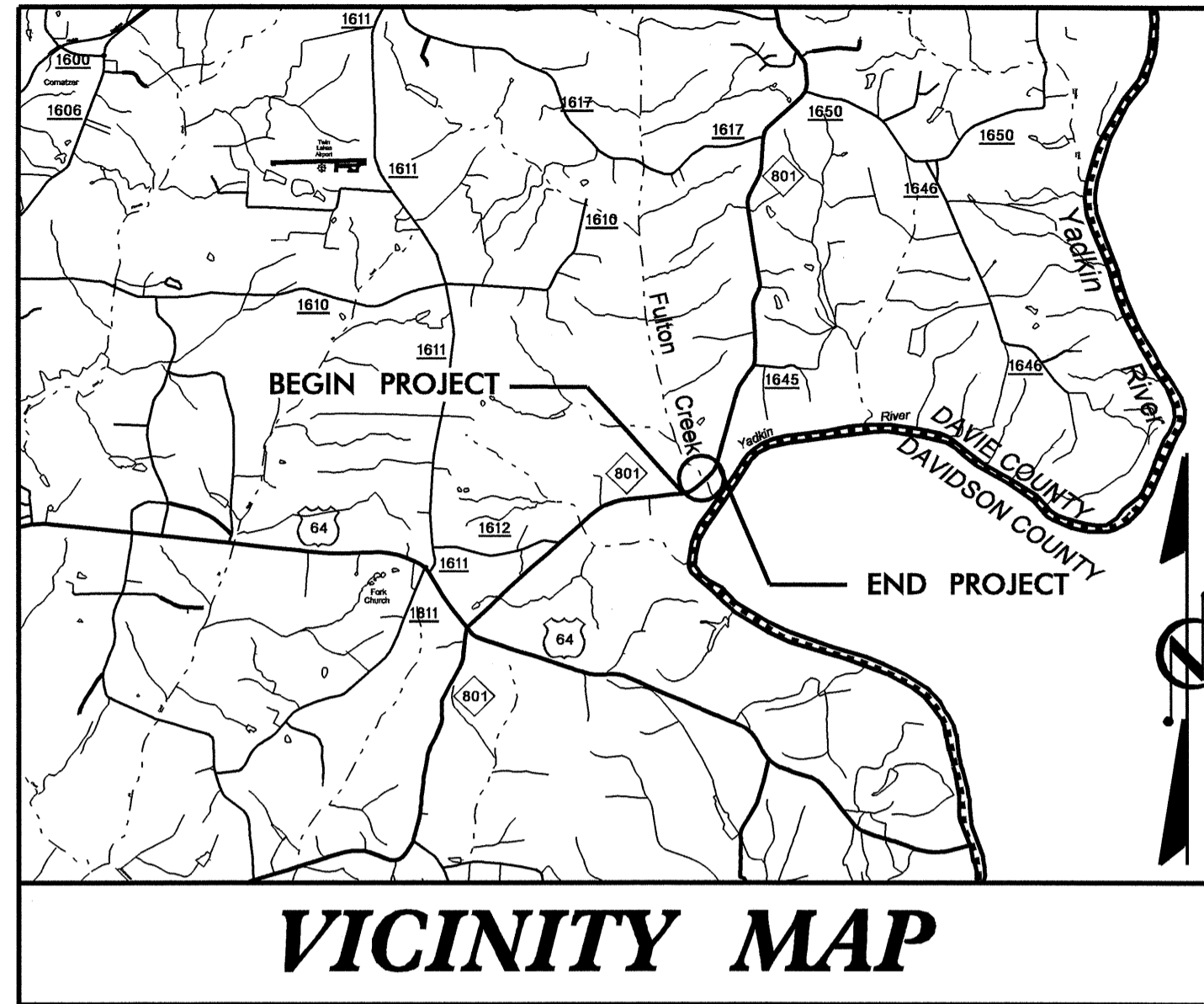


TIP PROJECT: B-4104

CONTRACT: C201758

STRUCTURE



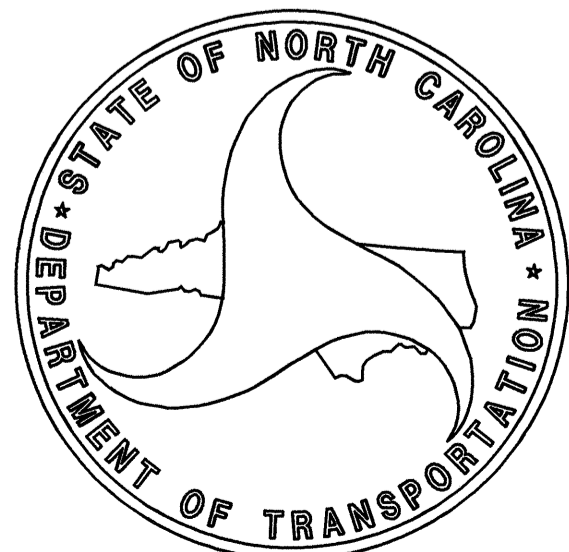
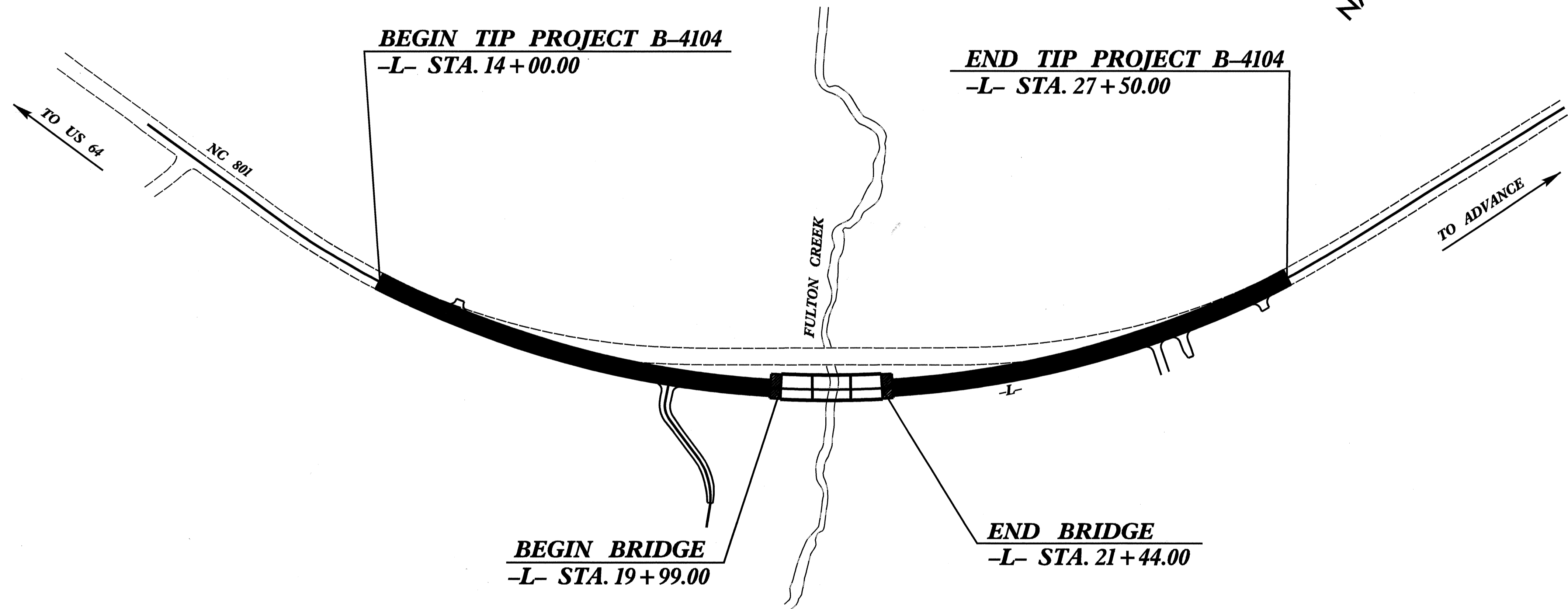
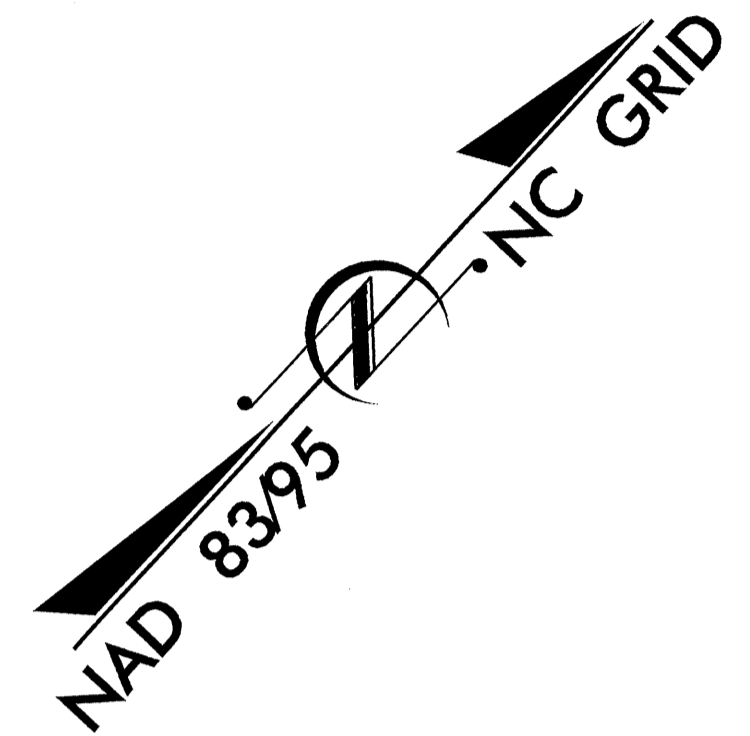
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIE COUNTY

**LOCATION: BRIDGE NO. 21 OVER FULTON CREEK
ON NC 801.**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4104		
WBS NO.	P.A. PROJ. NO.	DESCRIPTION	
33460.1.1	BRSTP-801(5)	P.E.	
33460.2.1	BRSTP-801(5)	R.W. & UTILITY	
33460.3.1	BRSTP-801(5)	CONST.	



DESIGN DATA

ADT 2007 = 3,180
ADT 2027 = 4,980
DHV = 10 %
D = 65 %
T = 4 % *
** V = 60 MPH
* TTST 1% DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4104 = 0.229 MI.
LENGTH STRUCTURES TIP PROJECT B-4104 = 0.027 MI.
TOTAL LENGTH OF TIP PROJECT B-4104 = 0.256 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Blrch Rldge Dr., Raleigh, NC 27610
2006 STANDARD SPECIFICATIONS

LETTING DATE:
JANUARY 15, 2008

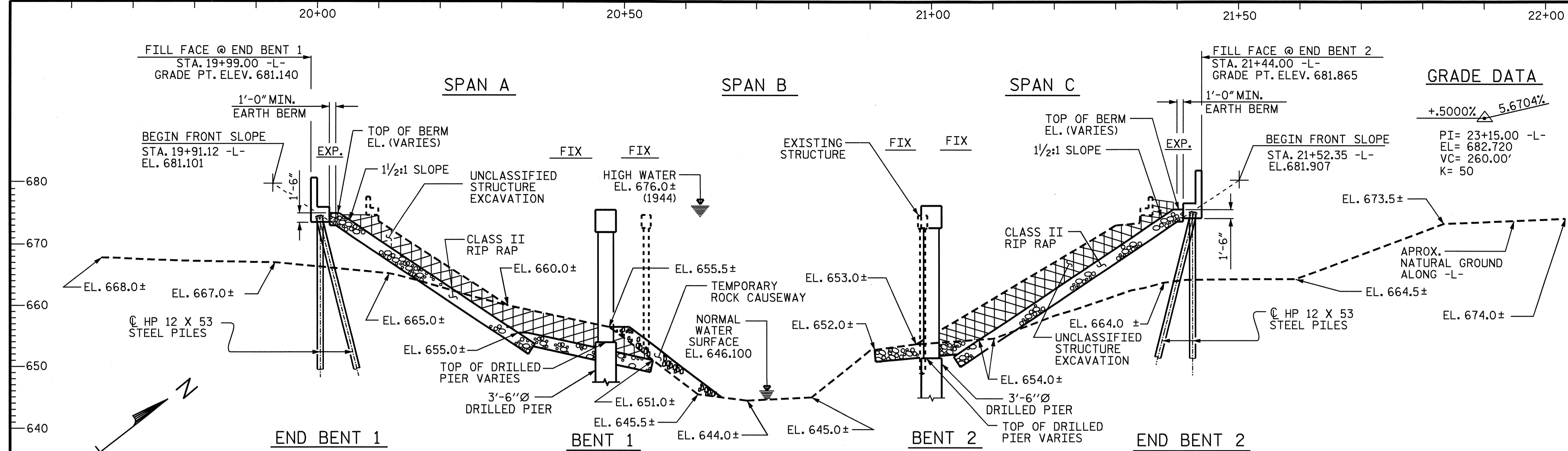
Roy Girolami, P.E.
PROJECT ENGINEER

David Anderson, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER



GRADE DATA

+5.000% Δ 5.6704%

PI = 23+15.00 -L-
 EL = 682.720
 VC = 260.00'
 K = 50

HORIZONTAL CURVE DATA

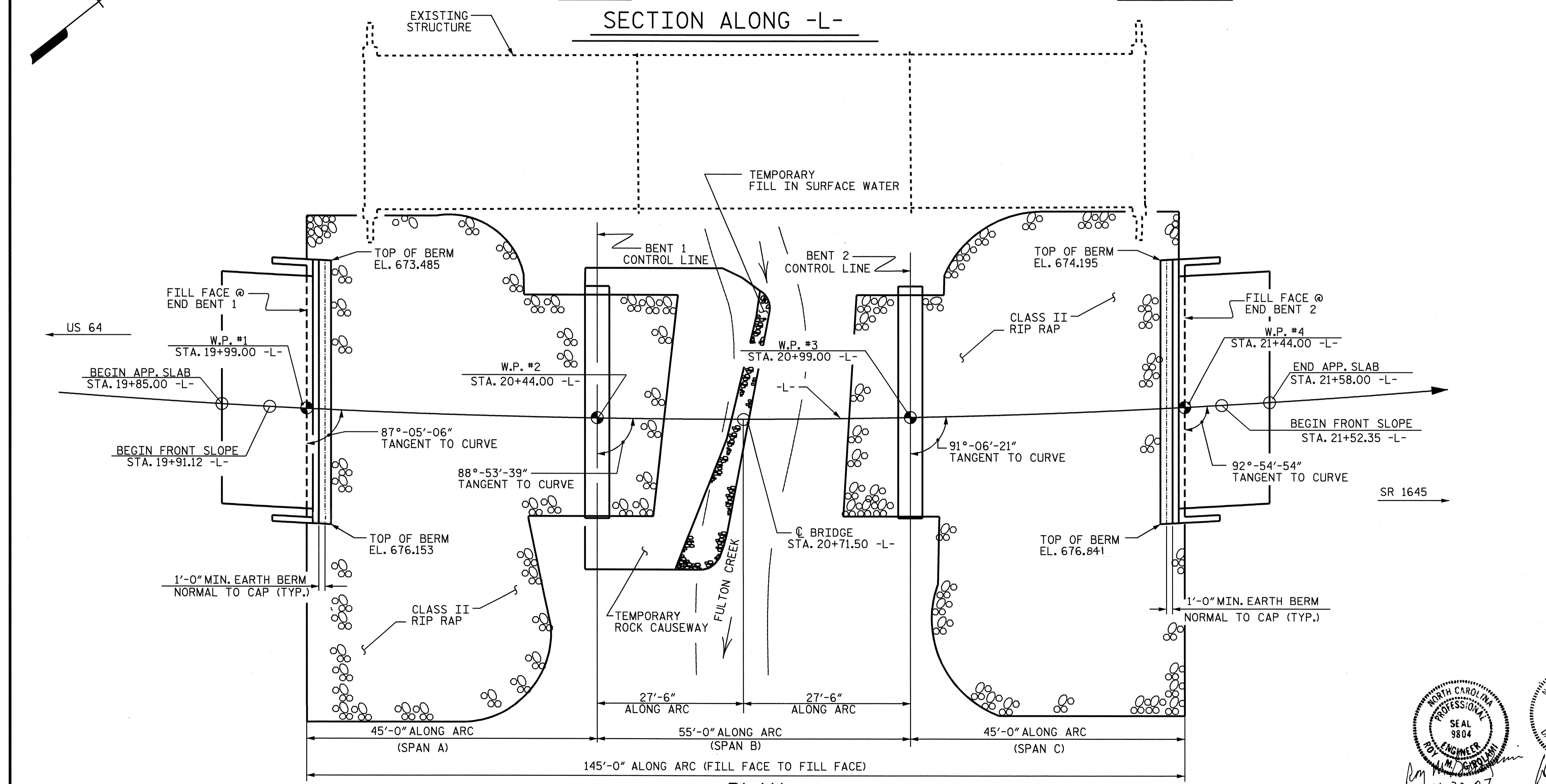
PI STA. 21+32.30 -L-
 Δ = 55°-13'-00.5" (LT)
 D = 4°-01'-14.7"
 L = 1373.29'
 T = 745.24'
 R = 1425.00
 SE = 0.06

HYDRAULIC DATA

DESIGN DISCHARGE..... 2300 CFS.
 FREQUENCY OF DESIGN FLOOD..... 50 YEARS
 DESIGN HIGH WATER ELEVATION..... 654.100
 DRAINAGE AREA..... 8.14 SQ. MI.
 BASIC DISCHARGE(Q100)..... 2800 CFS
 BASIC HIGH WATER ELEVATION..... 655.000

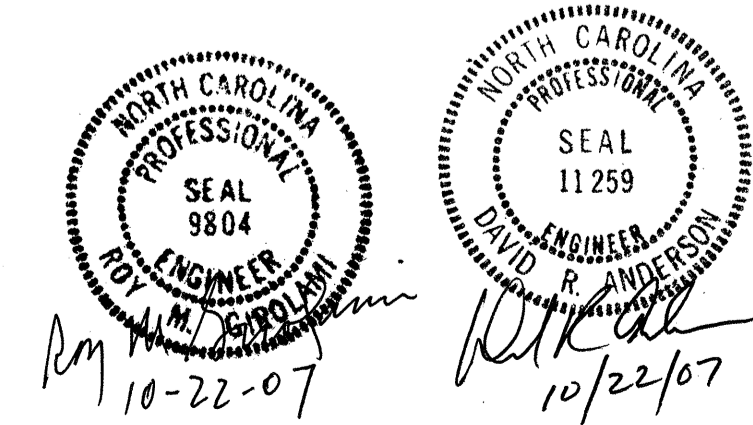
OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE 34,500 CFS
 FREQUENCY OF OVERTOPPING FLOOD..... 500+YRS.
 OVERTOPPING FLOOD ELEVATION..... 681.000



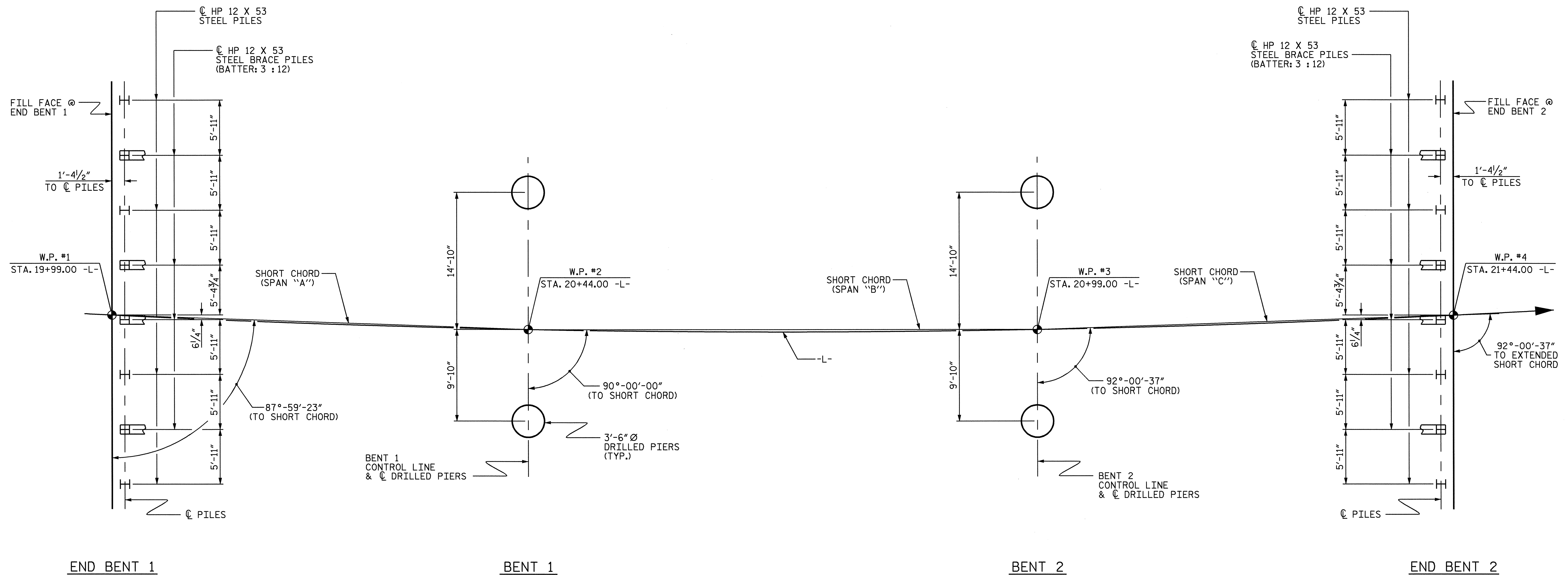
PROJECT NO. B-4104
 DAVIE COUNTY
 STATION: 20+71.50 -L-
 SHEET 1 OF 4 REPLACES BRIDGE #21

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE
 ON NC 801 OVER
 FULTON CREEK BETWEEN
 US 64 AND SR 1645



DRAWN BY : S.M. RASHIDI DATE : 1-20-06
 CHECKED BY : N.Q. TRAN DATE : 2-8-06

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

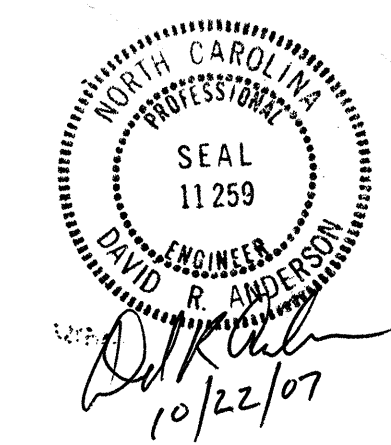


FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

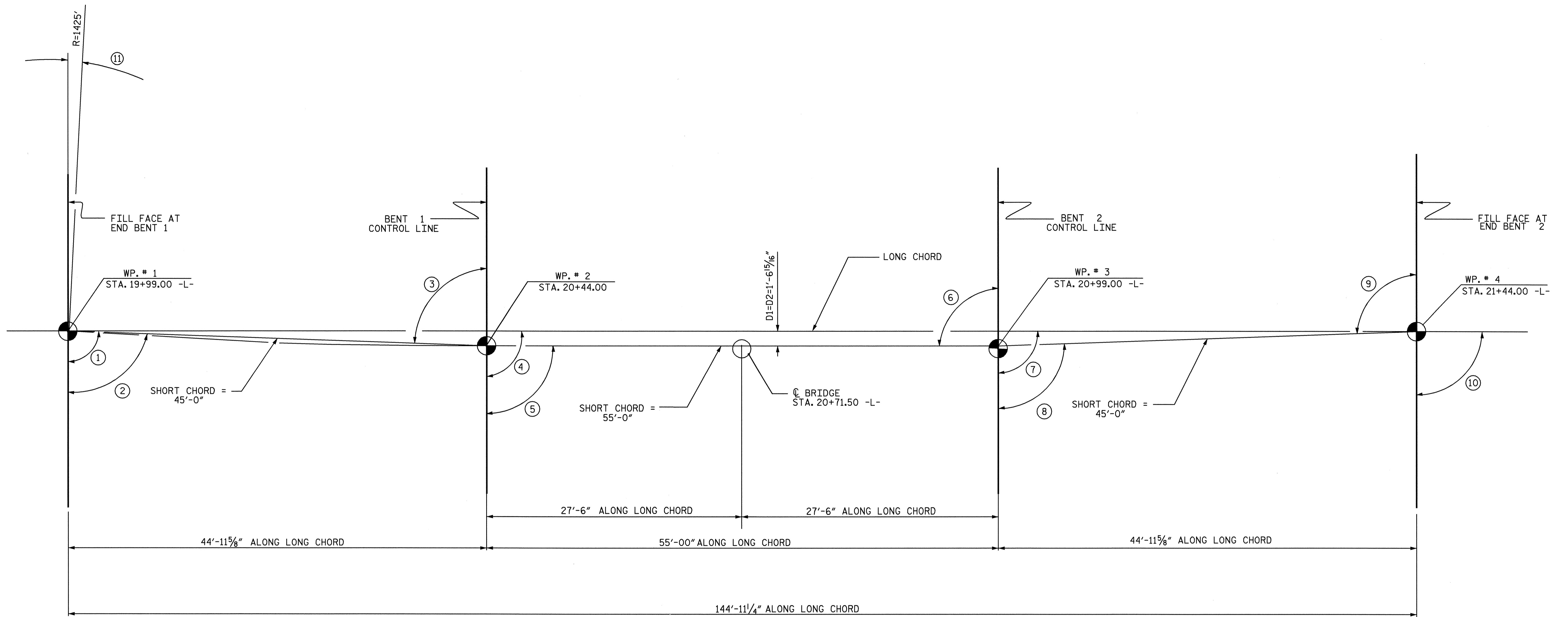
SHEET 2 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING
 FOUNDATION LAYOUT**

DRAWN BY: E.C. LOCKLEAR DATE: 3-22-07
 CHECKED BY: N.Q. TRAN DATE: 3-23-07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-2
2			4			TOTAL SHEETS 35



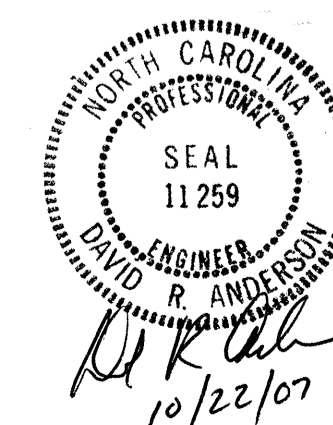
LONG CHORD LAYOUT

ANGLES

- ① = 90°-00'-00"
- ② = 87°-59'-23"
- ③ = 87°-59'-23"
- ④ = 90°-00'-00"
- ⑤ = 90°-00'-00"
- ⑥ = 90°-00'-00"
- ⑦ = 90°-00'-00"
- ⑧ = 92°-00'-37"
- ⑨ = 92°-00'-37"
- ⑩ = 90°-00'-00"
- ⑪ = 2°-54'-54"

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

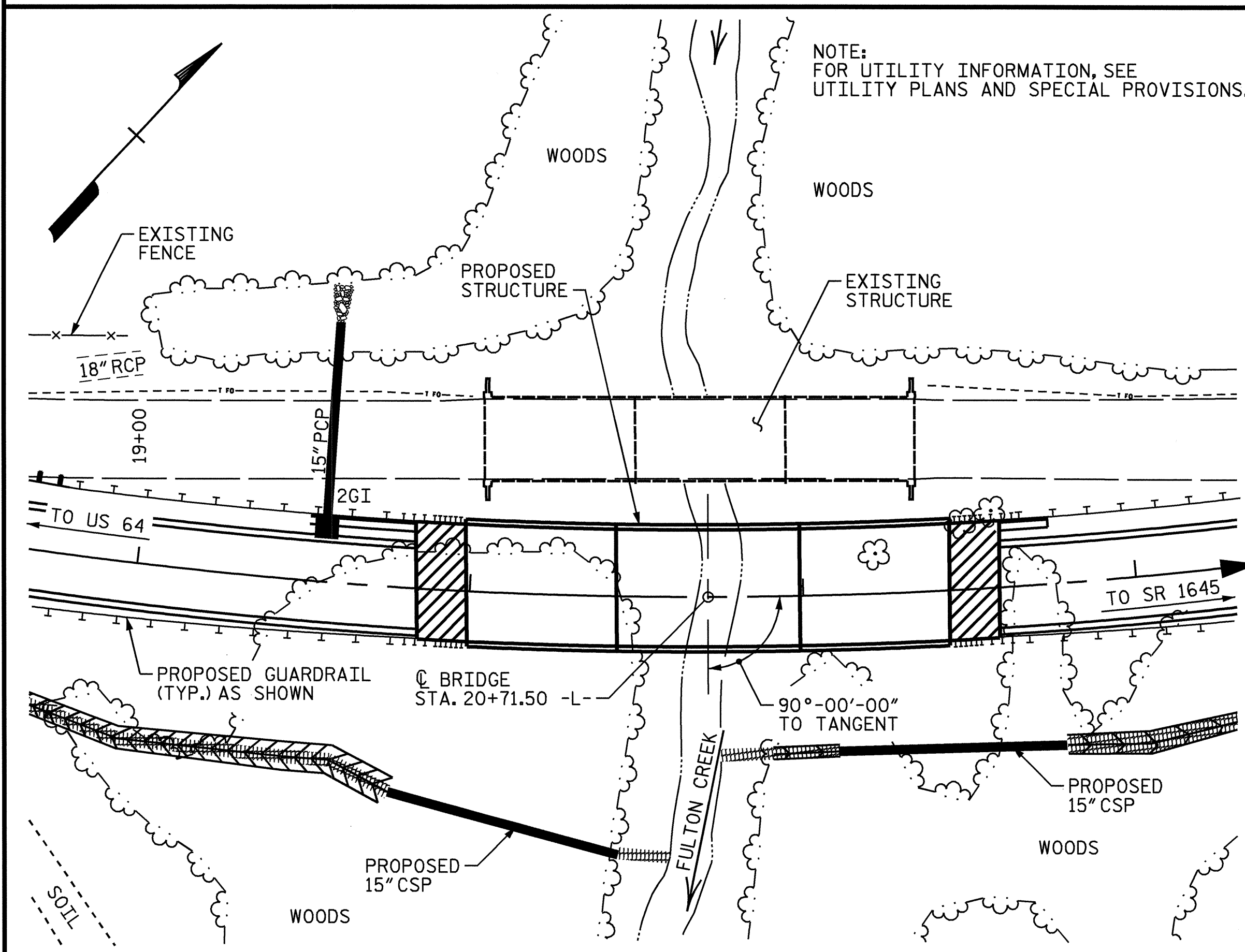
SHEET 3 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE ON NC 801 OVER
 FULTON CREEK BETWEEN
 US 64 AND SR 1645

DRAWN BY : S. M. RASHIDI DATE : 01/23/06
 CHECKED BY : N. Q. TRAN DATE : 02/15/06

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



LOCATION SKETCH

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

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

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

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

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

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

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

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

NOTES:

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS, 2 SPANS @ 42'-9" AND 1 SPAN @ 42'-6", WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND HAVING A REINFORCED CONCRETE DECK SUPPORTED BY I-BEAMS AND RC CAPS AND TIMBER PILES AT END BENTS AND RC POST AND BEAMS AT INTERIOR BENTS SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 20+71.50 -L-".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

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

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED BEARING CAPACITY OF 110 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO. THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 1 AND END BENT 2 IS 55 TONS PER PILE.

DRILLED PIERS AT BENT 1 AND BENT 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 40 TSF.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

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.

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

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS AT STATION 20+71.50 -L-.

DRILLED PIERS AT BENT 1 ARE DESIGNED FOR AN APPLIED LOAD OF 194 TONS (LT) AND 217 TONS (RT) AT THE TOP OF THE COLUMN.

DRILLED PIERS AT BENT 2 ARE DESIGNED FOR AN APPLIED LOAD OF 195 TONS (LT) AND 219 TONS (RT) AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1. IF REQUIRED, DO NOT EXTEND THE CASING BELOW ELEVATION 653.0 FT (LT) AND 647.0 FT (RT), WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING. SEE DRILLED PIERS SPECIAL PROVISION.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 2. IF REQUIRED, DO NOT EXTEND THE CASING BELOW ELEVATION 642.5 FT (LT) AND 645.5 FT (RT) WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING. SEE DRILLED PIERS SPECIAL PROVISION.

DRILLED PIERS AT BENT 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 647.0 FT (LT) AND 640.0 FT (RT) AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 637.0 FT (LT) AND 639.0 FT (RT) AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 651.0 FT (LT) AND 643.0 FT (RT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS ELEVATION 641.0 FT (LT) AND 644.0 FT (RT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT 1 AND BENT 2.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

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

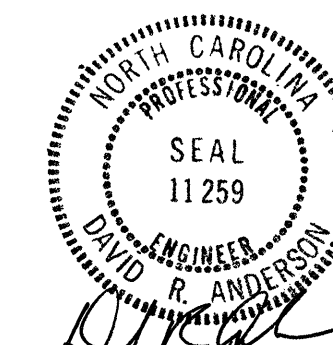
NO WAITING PERIOD IS REQUIRED AT END BENTS 1 AND 2.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL								
	CONST., MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM
SUPERSTRUCTURE								
END BENT 1								
BENT 1			13.4	10.0	10.4			
BENT 2			16.1	12.0	16.0			
END BENT 2								
TOTAL	LUMP SUM	LUMP SUM	29.5	22.0	26.4	2	1	LUMP SUM

TOTAL BILL OF MATERIAL															
	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	45" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS		
	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	5463	5466					12	563.33			285.83				
END BENT 1			23.8		3,562			8	140		420	465			
BENT 1			29.7		7,680	1,250									
BENT 2			31.5		8,269	1,507									
END BENT 2			23.8		3,562			8	260		415	460			
TOTAL	5463	5466	108.8	LUMP SUM	23,073	2,757	12	563.33	16	400	285.83	835	925	LUMP SUM	LUMP SUM

DRAWN BY: E.C. LOCKLEAR DATE: 8-8-07
CHECKED BY: S.M. RASHIDI DATE: 9-17-07



PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON NC 801 OVER
FULTON CREEK BETWEEN
US 64 AND SR 1645

REVISIONS					SHEET NO. 5-4
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 35
2			4		

NOTES

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

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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

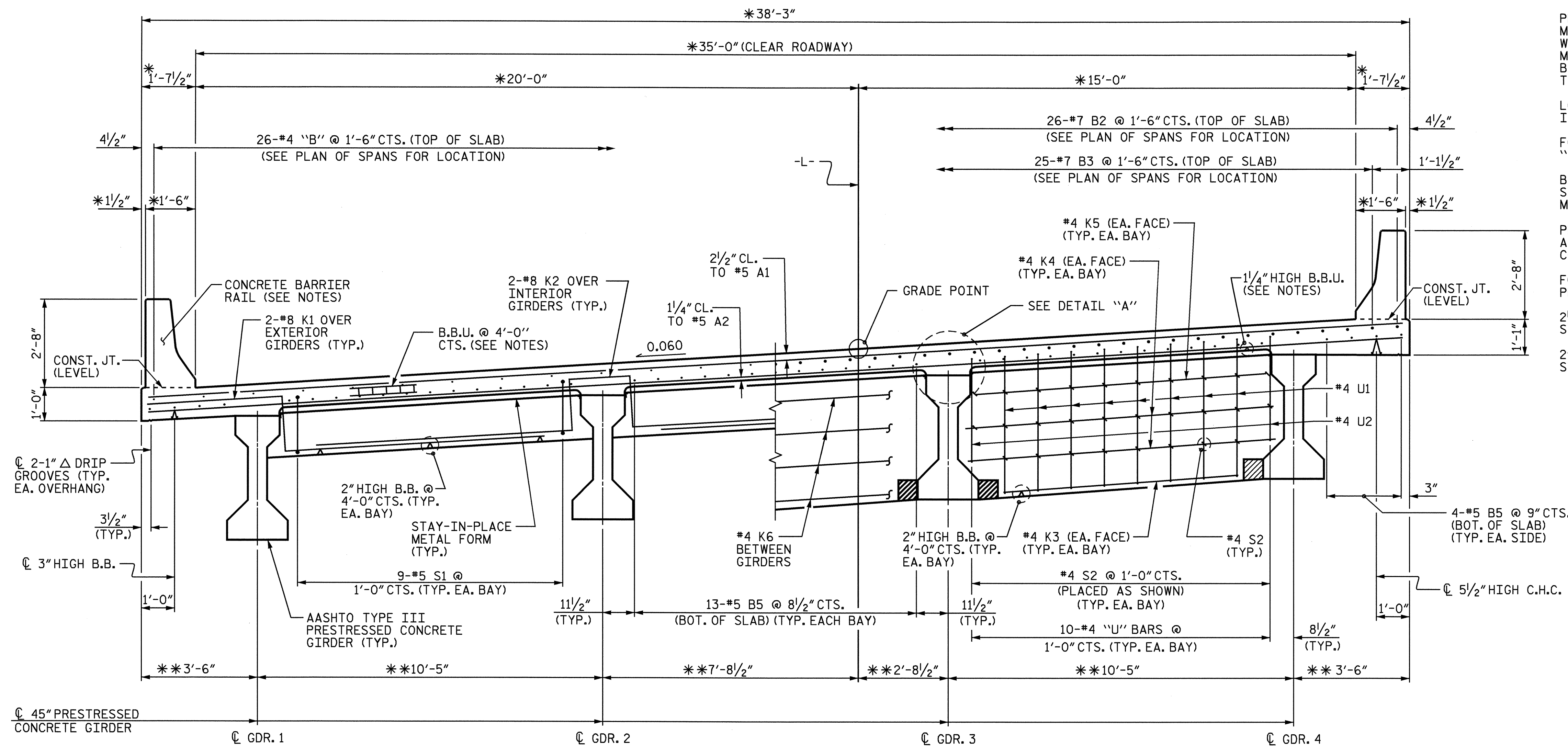
BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

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.

FOR DIAPHRAGM DETAILS SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR PRESTRESSED CONCRETE GIRDERS" SHEET.

2 1/2" HIGH B.B.U. LOCATED BETWEEN TOP & BOTTOM MATS OF REINFORCING STEEL AT THE #4 "B" BAR (TOP BAR) LOCATION ONLY, SEE PLAN OF SPANS.

2" HIGH B.B.U. LOCATED BETWEEN TOP & BOTTOM MATS OF REINFORCING STEEL AT THE #7 "B" BAR (TOP BAR) LOCATION ONLY, SEE PLAN OF SPANS.

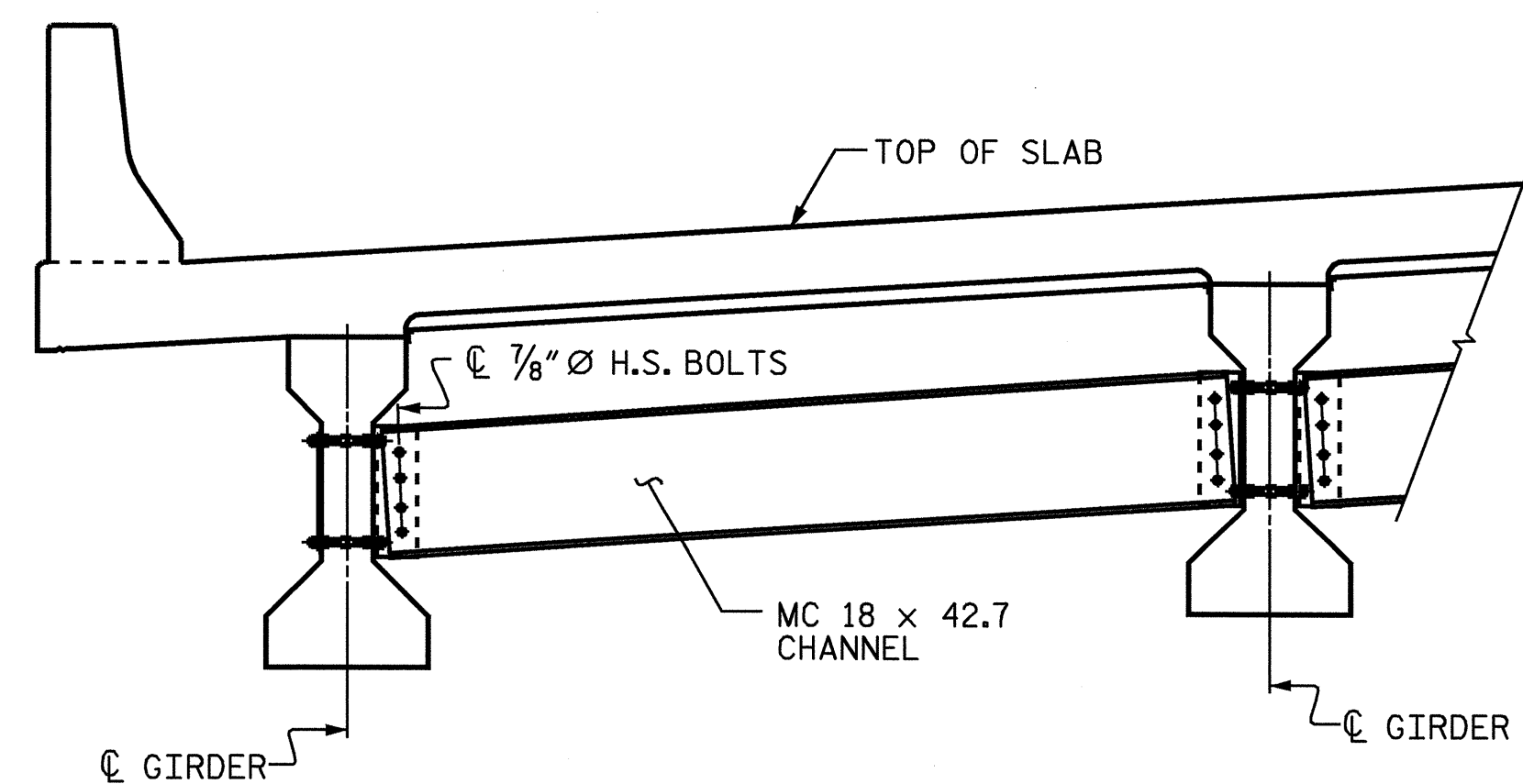


PART SECTION
SHOWING END BENT DIAPHRAGM

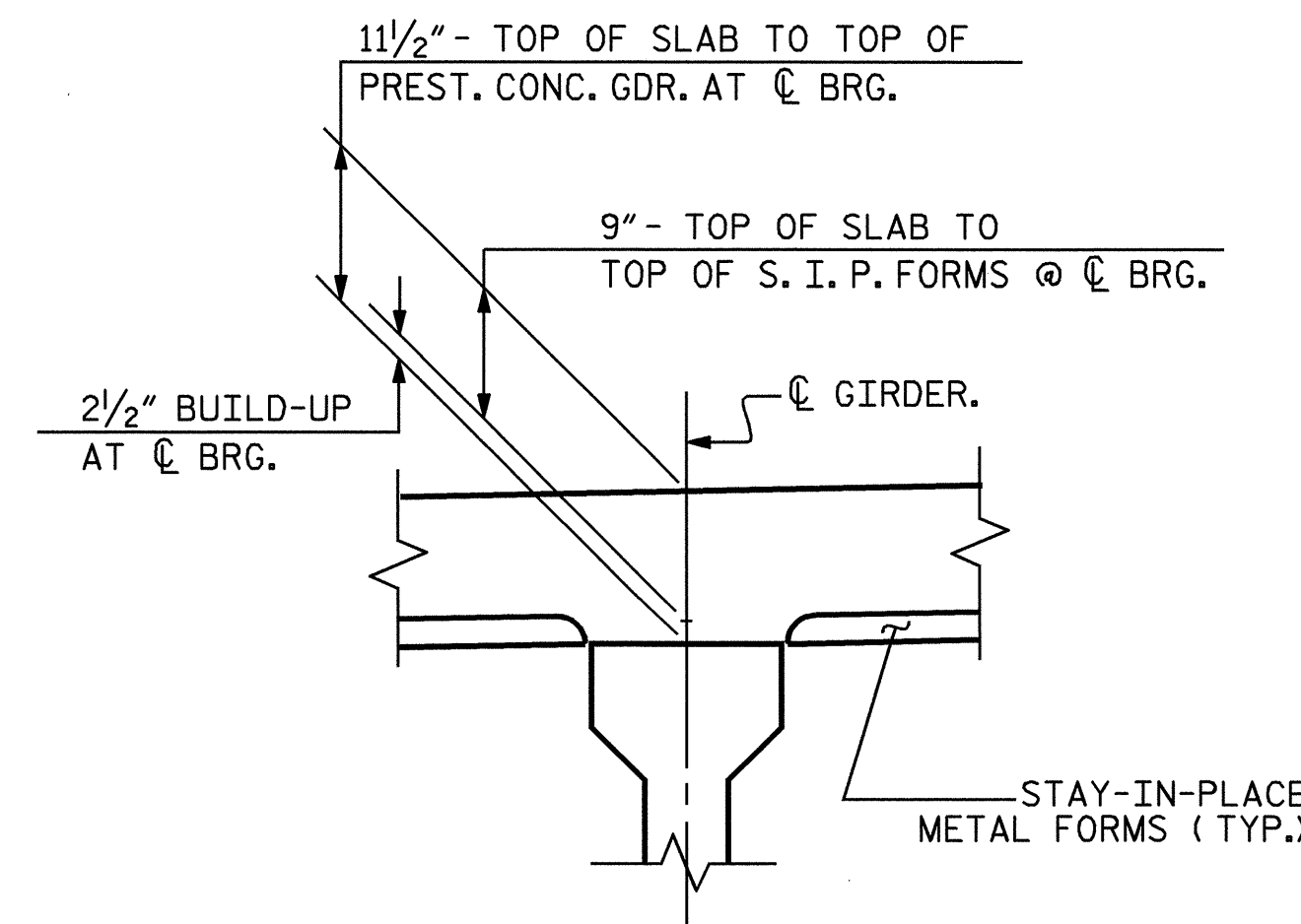
PART SECTION
SHOWING BENT DIAPHRAGM

TYPICAL SECTION

- * RADIAL DIMENSIONS TO -L-
- ** RADIAL THRU WORKPOINT



TYPICAL INTERMEDIATE DIAPHRAGM
(SEE NOTES)

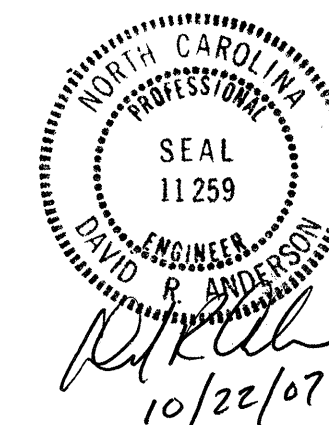


DETAIL "A"

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 1 OF 2

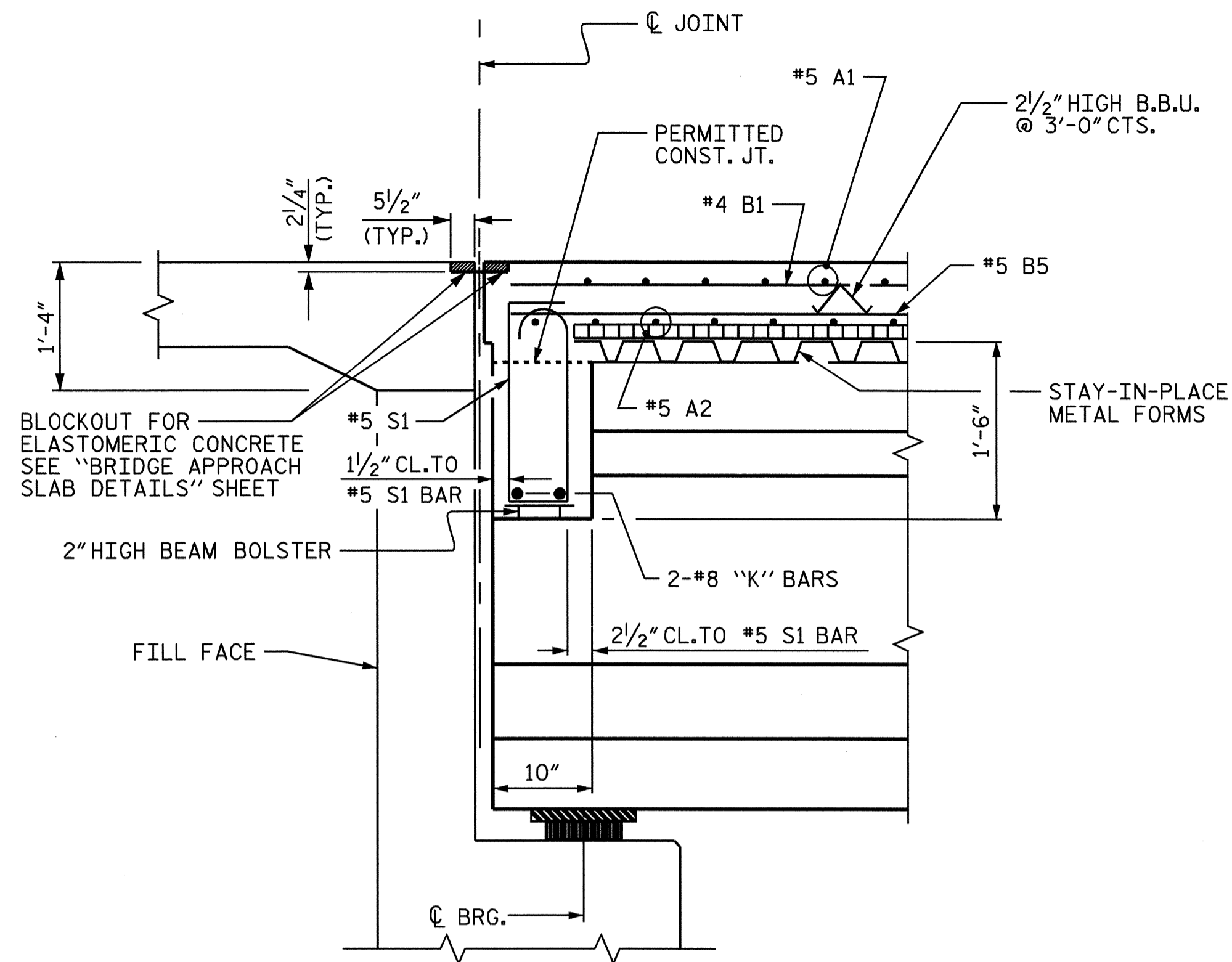
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION



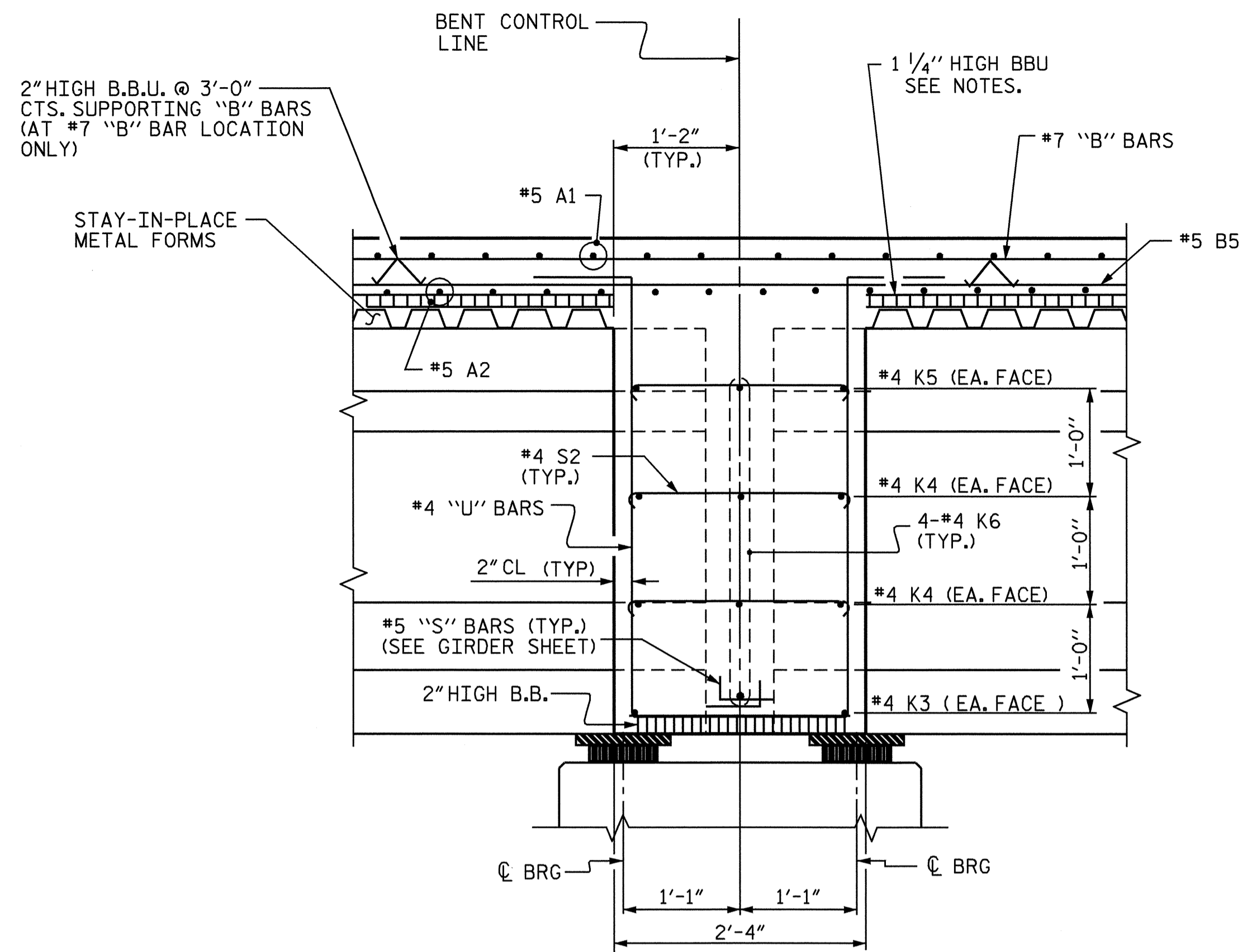
DRAWN BY: M.A. ALLEN DATE: 2/06
 CHECKED BY: W.F. PARKER DATE: 8/06

18-OCT-2007 12:23
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 glocklear

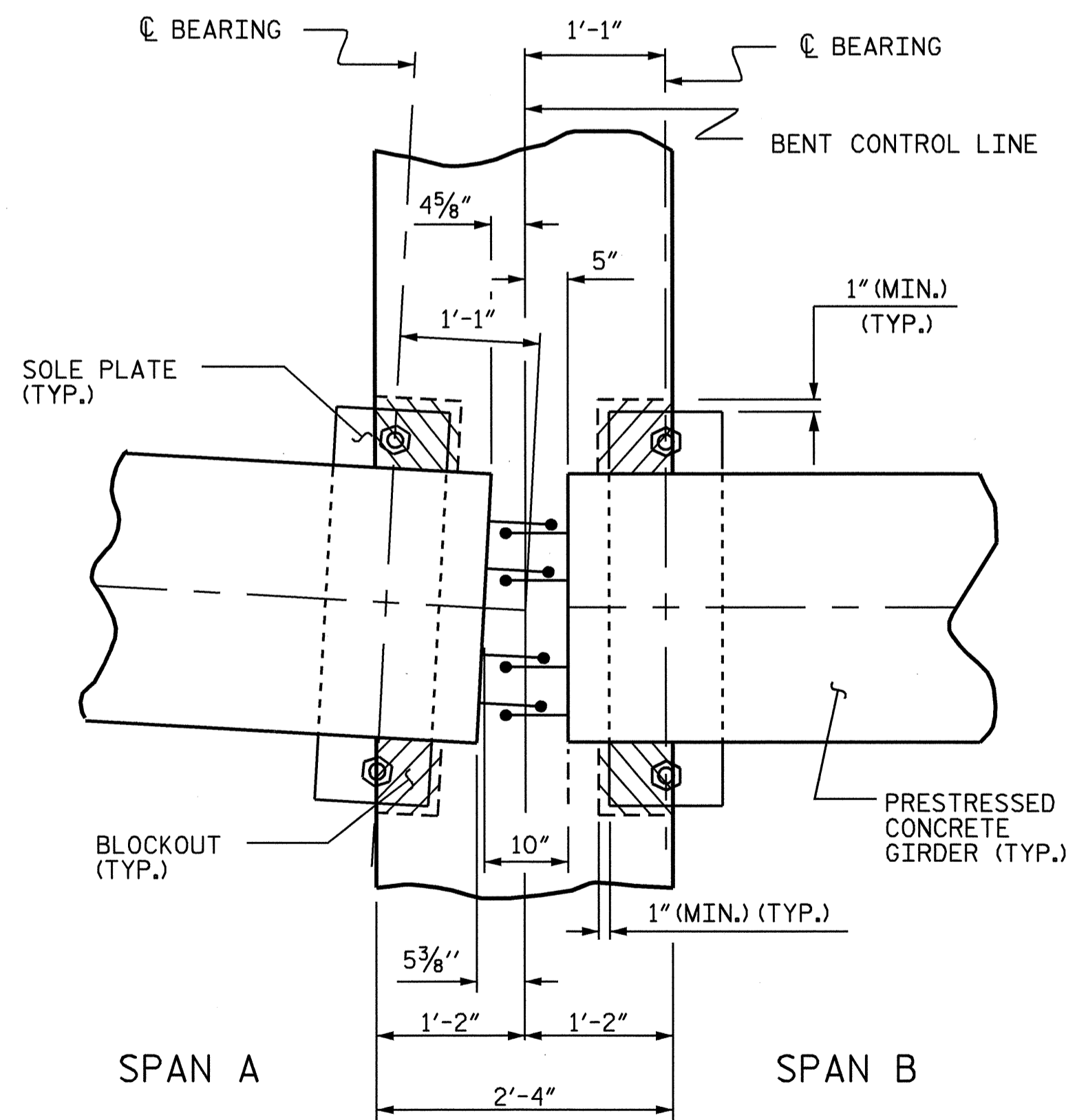
REVISIONS						SHEET NO. 5-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



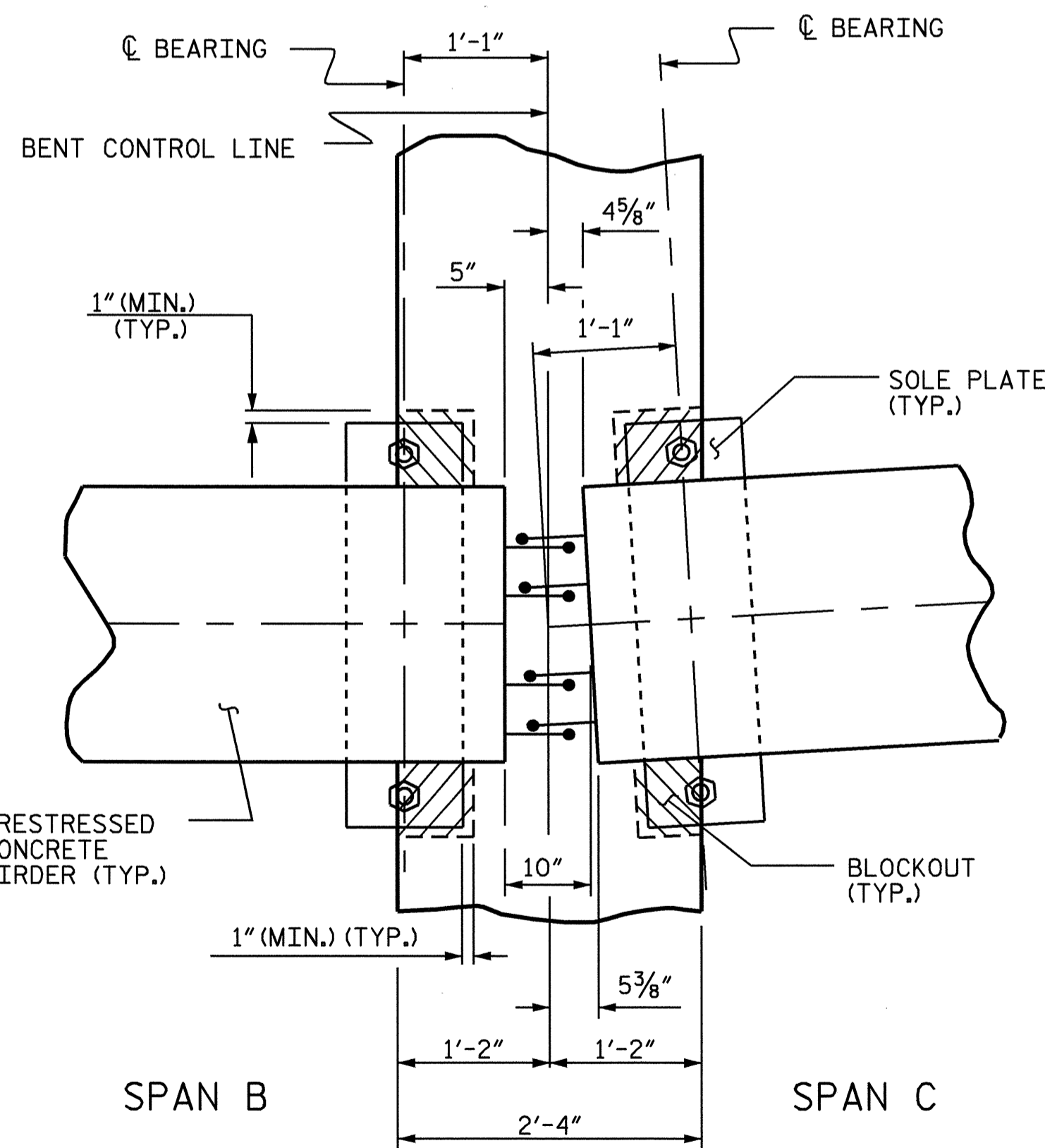
SECTION THRU
END BENT DIAPHRAGM



SECTION THRU BENT DIAPHRAGM

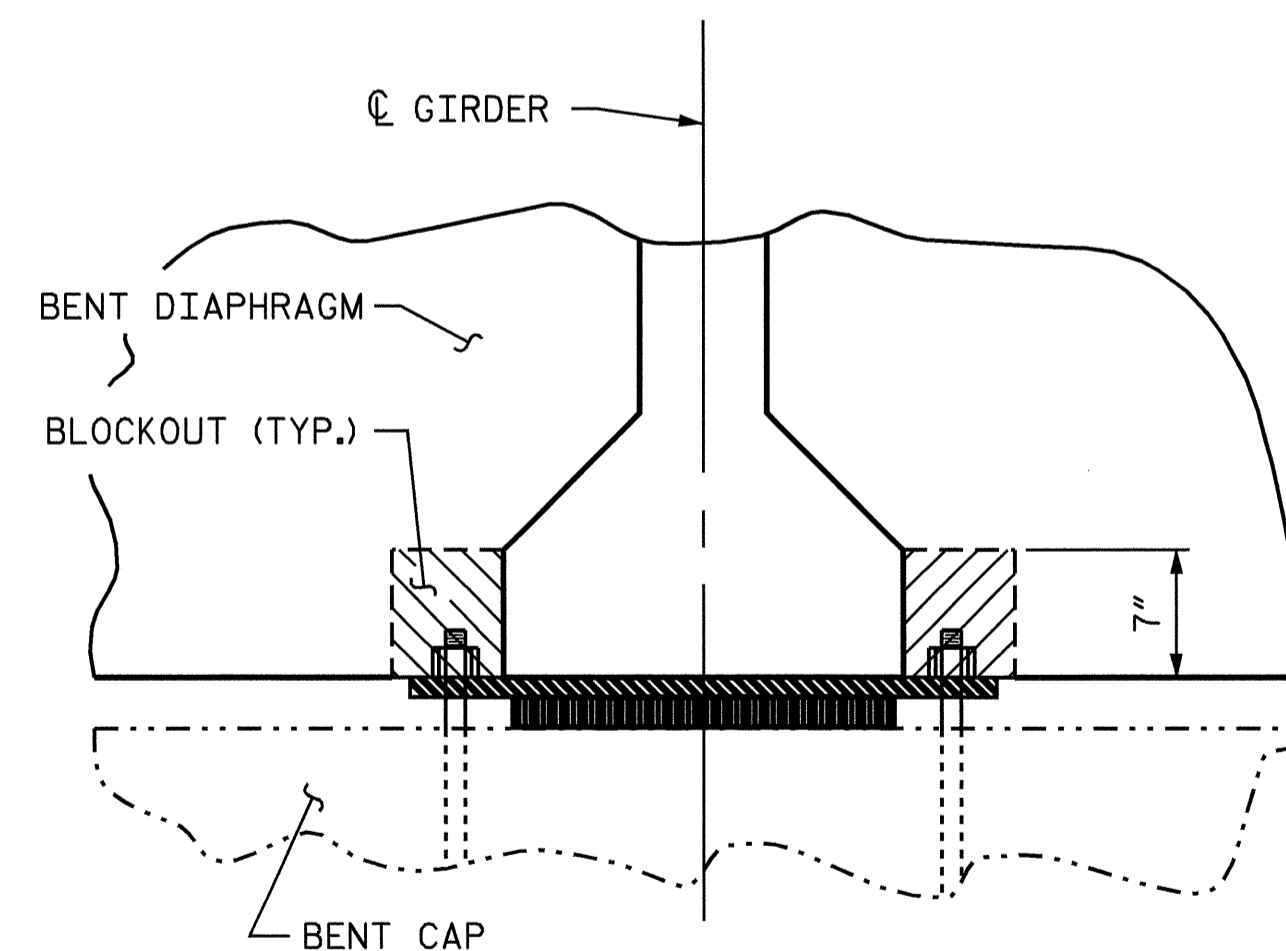


PLAN - BENT 1



PLAN - BENT 2

BENT DIAPHRAGM BLOCKOUT DETAIL

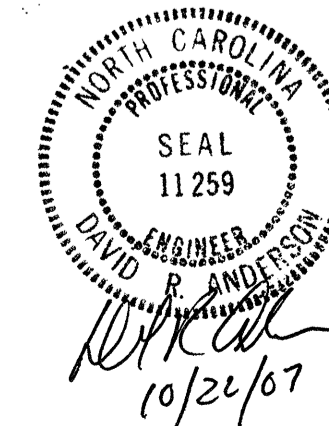


SECTION

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 2 OF 2

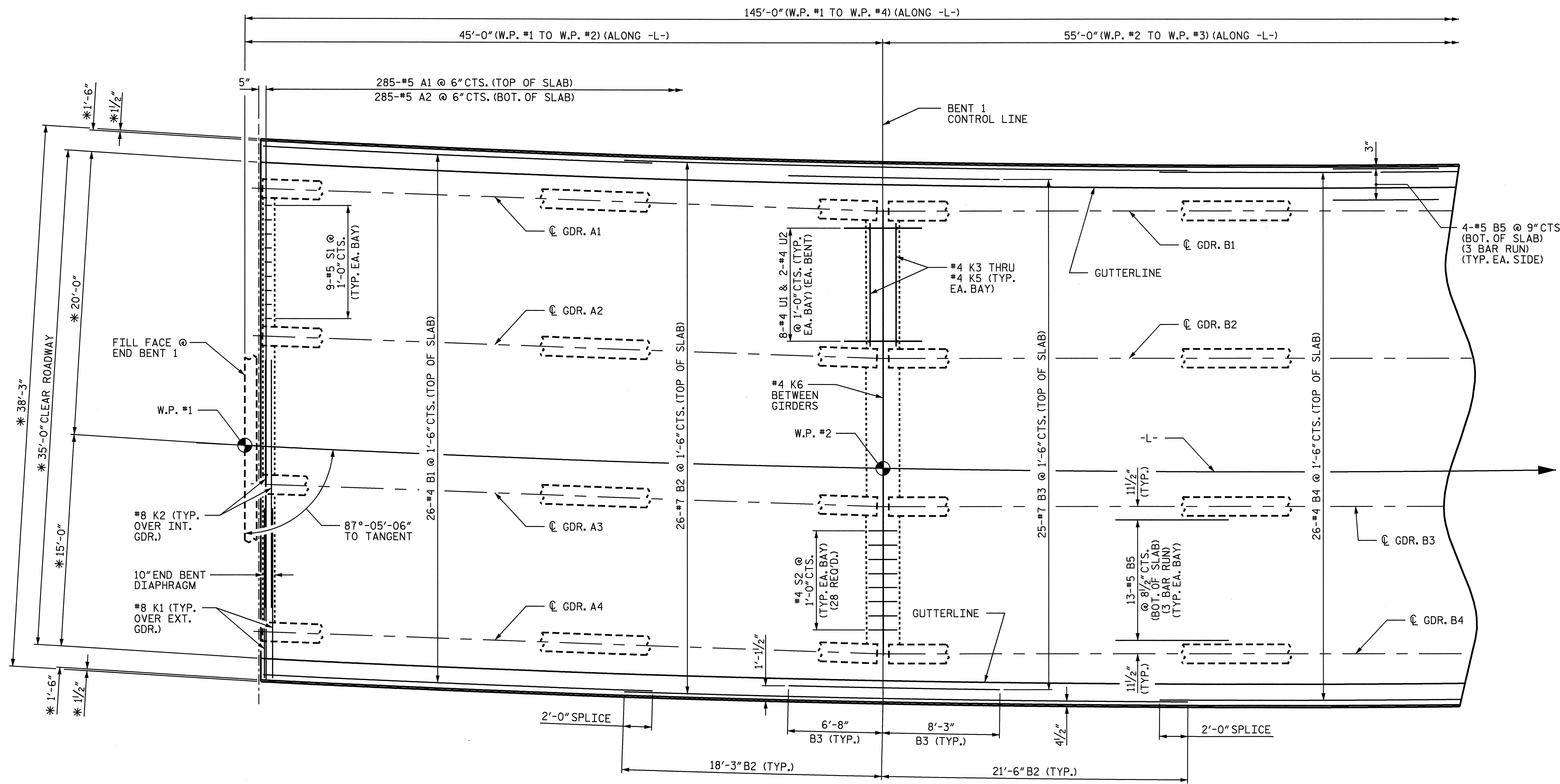
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION



DRAWN BY : M.A. ALLEN DATE : 2/06
 CHECKED BY : W.F. PARKER DATE : 8/06

18-OCT-2007 12:22
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 blocklear

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



PLAN OF SPANS A & B

BARRIER RAIL NOT SHOWN FOR CLARITY.

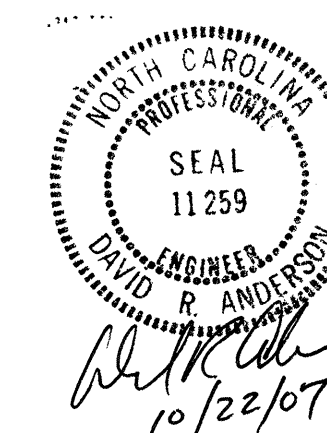
*RADIAL DIMENSIONS TO -L- .

FOR POUR SEQUENCE AND TRANSVERSE CONST. JOINT, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

"A" BARS ARE TO PLACED PERPENDICULAR TO LONG CHORD.

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

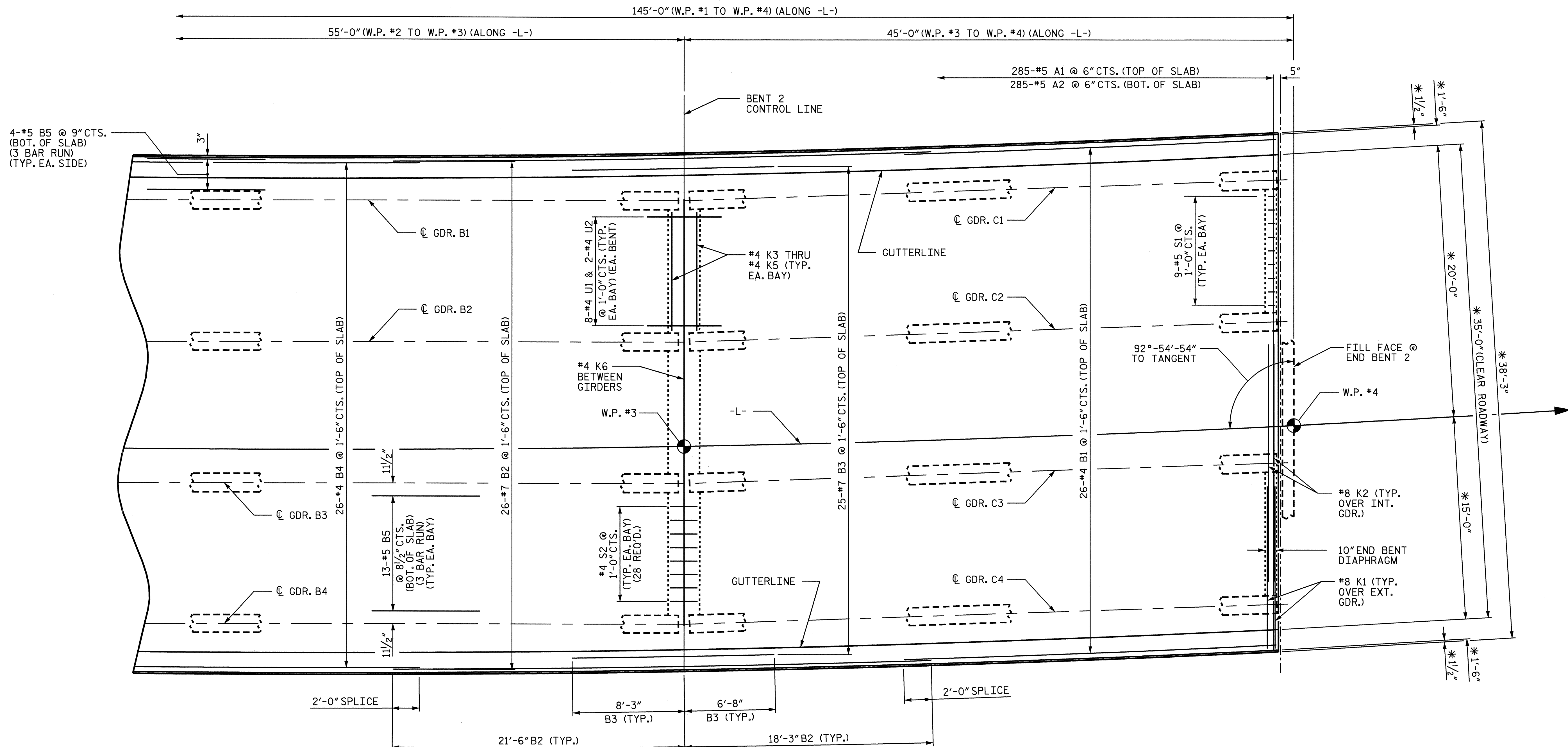
SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-7
1			3			TOTAL SHEETS
2			4			35

DRAWN BY: M.A. ALLEN DATE: 5-06
 CHECKED BY: W.F. PARKER DATE: 8-06



PLAN OF SPANS B & C

BARRIER RAIL NOT SHOWN FOR CLARITY.
 *RADIAL DIMENSIONS TO -L- .
 FOR POUR SEQUENCE AND TRANSVERSE CONST. JOINT,
 SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.
 **A" BARS ARE TO PLACED PERPENDICULAR TO LONG CHORD.

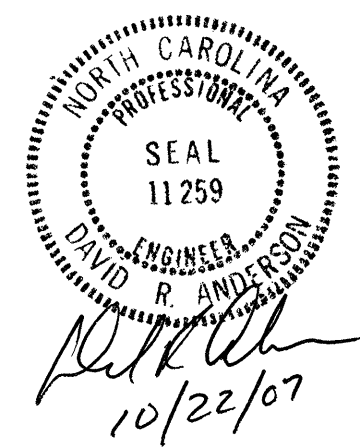
PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 2 OF 3

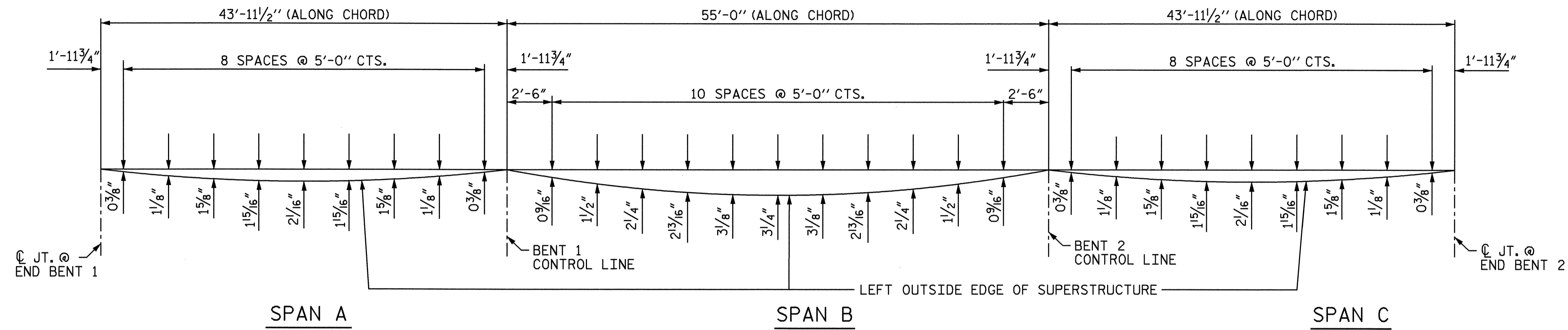
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS

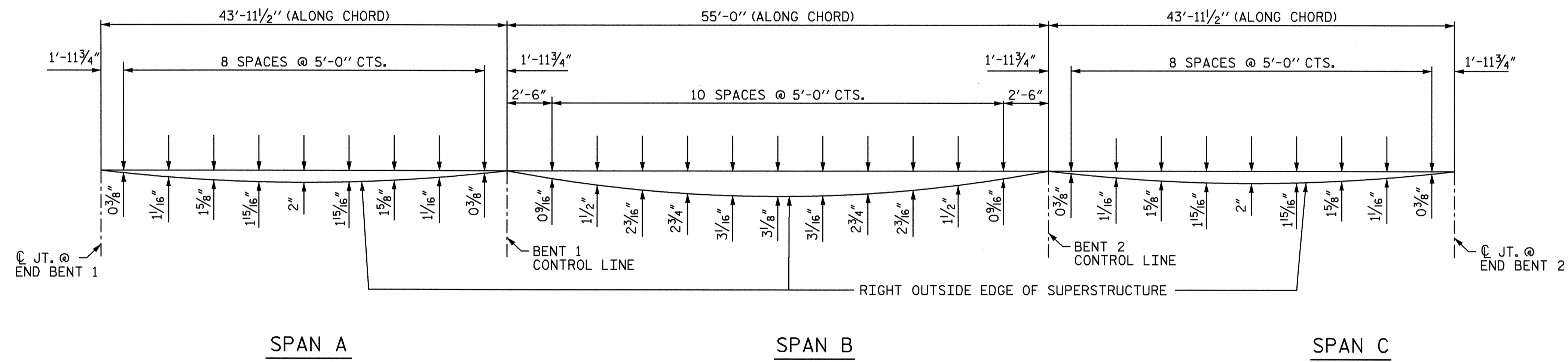
REVISIONS						SHEET NO. 5-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



DRAWN BY : M.A. ALLEN DATE : 5-06
 CHECKED BY : W.F. PARKER DATE : 8-06



ARC OFFSETS
(LEFT SIDE)



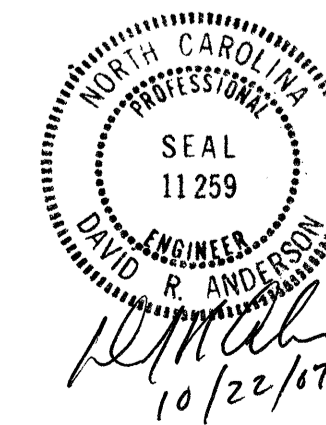
ARC OFFSETS
(RIGHT SIDE)

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

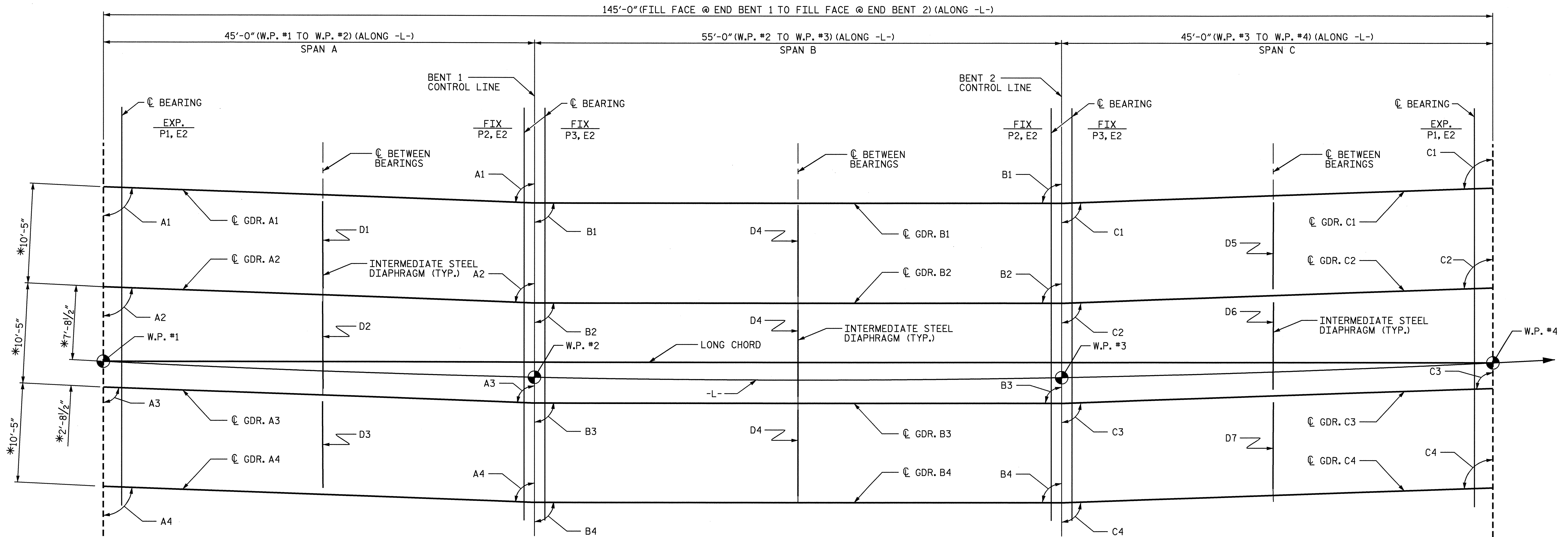
SUPERSTRUCTURE
 PLAN OF SPANS



DRAWN BY : M.A. ALLEN DATE : 5-06
 CHECKED BY : W.F. PARKER DATE : 8-06

18-OCT-2007 13:26
 G:\Structures\FINAL PLANS\b4104.sd.01.ps.dgn
 elocklear

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			35

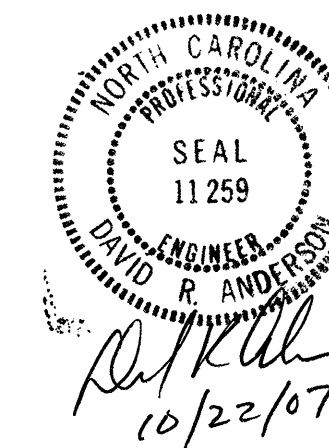


PLAN OF GIRDER LAYOUT

* RADIAL THRU WORKPOINT
 FOR INTERMEDIATE STEEL DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR PRESTRESSED CONCRETE GIRDERS" SHEET

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

GIRDER ANGLES					
SPAN A	ANGLES	SPAN B	ANGLES	SPAN C	ANGLES
A1	87°-57'-49"	B1	90°-00'-00"	C1	92°-02'-11"
A2	87°-58'-43"	B2	90°-00'-00"	C2	92°-01'-17"
A3	87°-59'-36"	B3	90°-00'-00"	C3	92°-00'-24"
A4	88°-00'-29"	B4	90°-00'-00"	C4	91°-59'-31"



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE GIRDER LAYOUT

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

SHEET NO. S-10
 TOTAL SHEETS 35

DRAWN BY: M.A. ALLEN DATE: 5-06
 CHECKED BY: W.F. PARKER DATE: 8-06

STRUCTURAL STEEL NOTES

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

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

TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE CHANNELS, ANGLES, BOLTS, WASHERS, PLATE WASHERS AND DIRECT TENSION INDICATORS 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 GIRDER SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

USE A MINIMUM 7/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS.

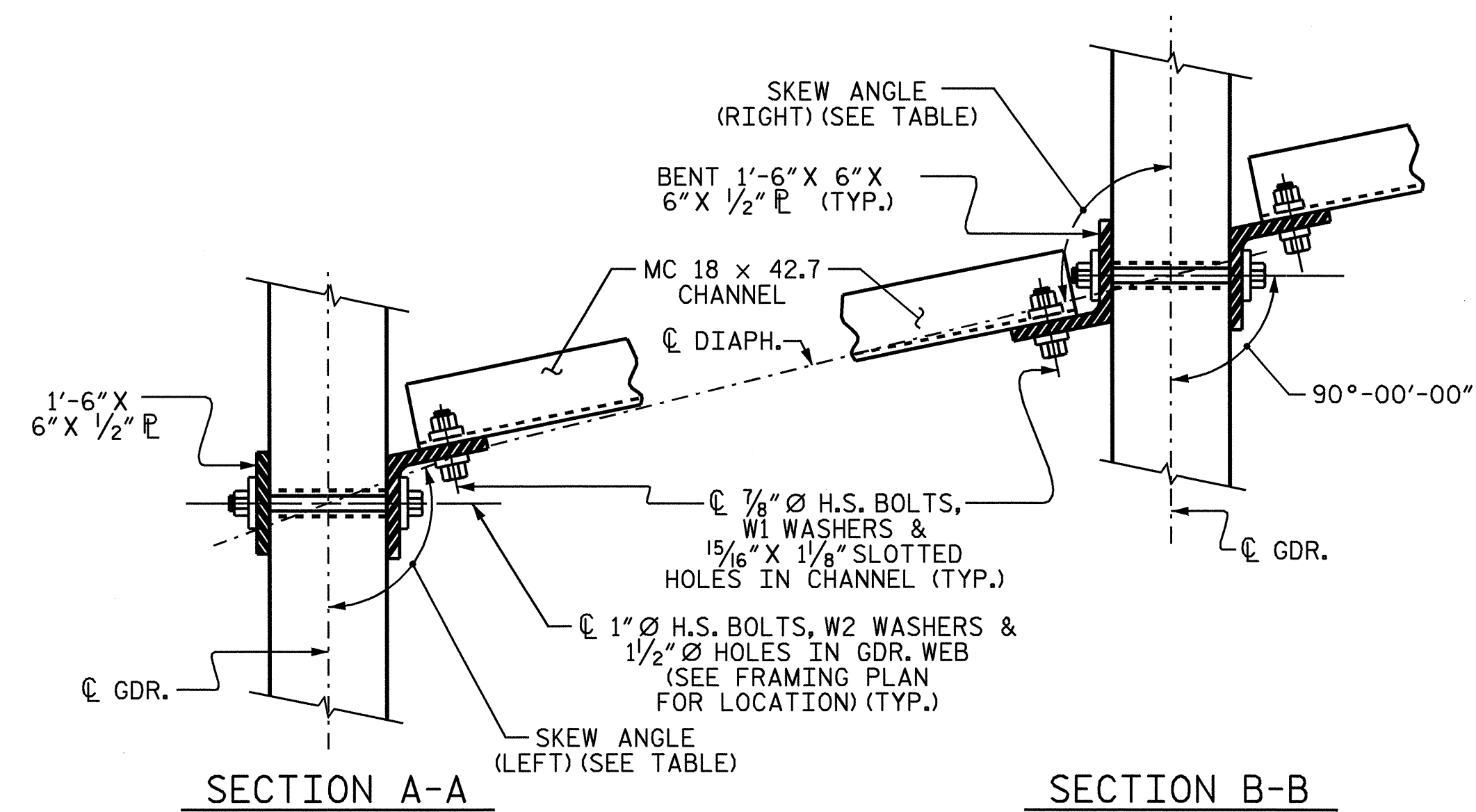
PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMODATE WASHERS, DIRECT TENSION INDICATORS, THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

CONTRACTOR SHALL 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.

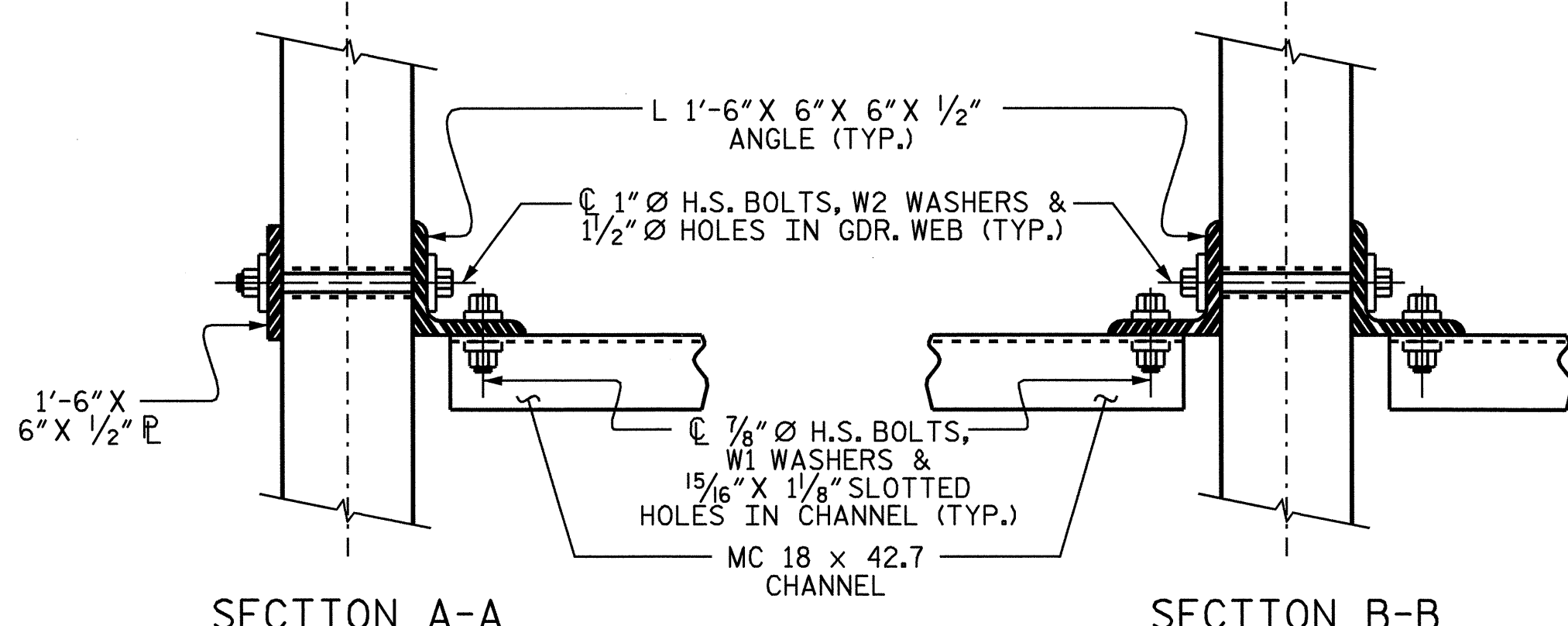
IN THE EXTERIOR BAYS, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

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



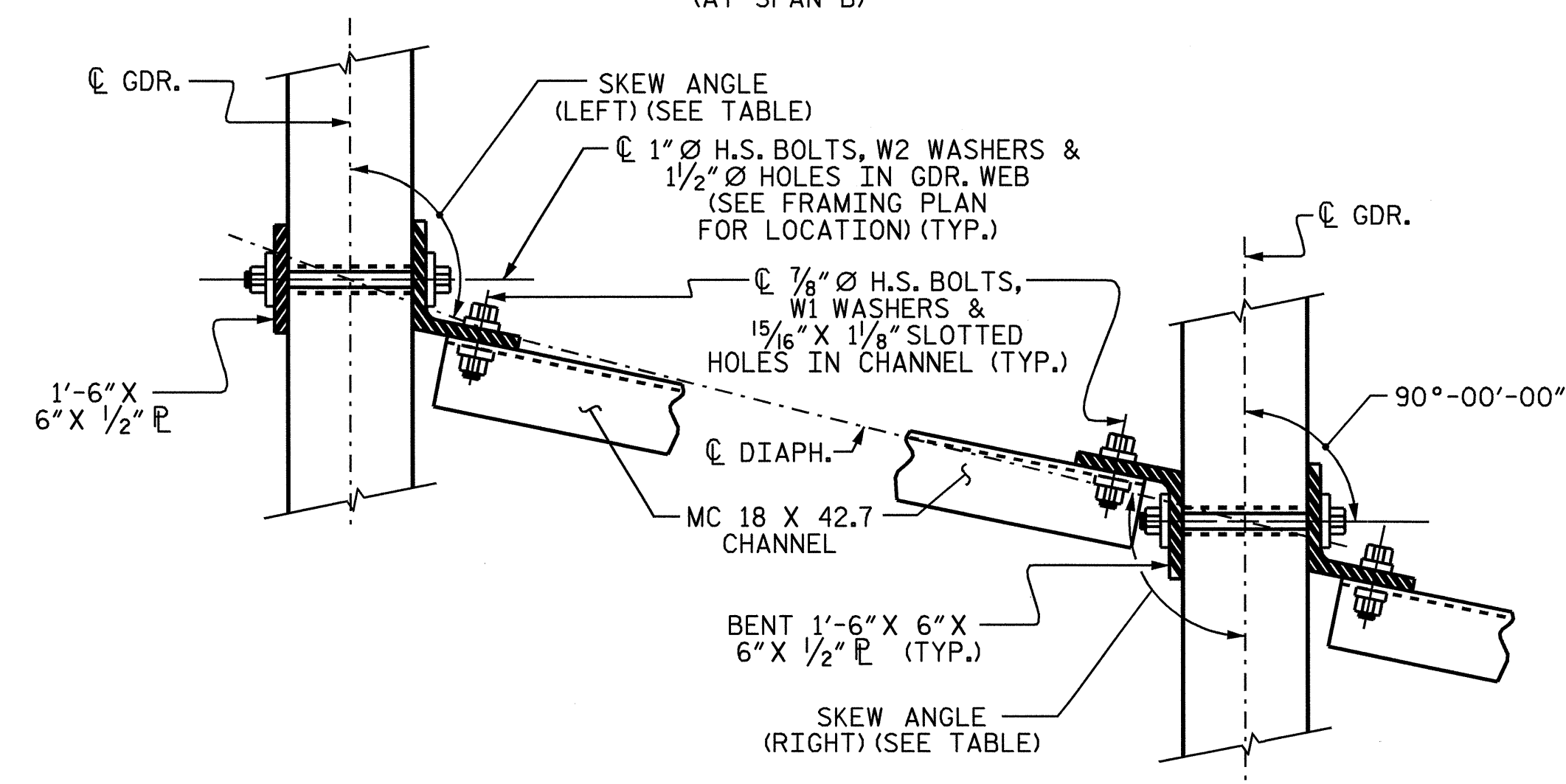
CONNECTION DETAILS

(AT SPAN A)



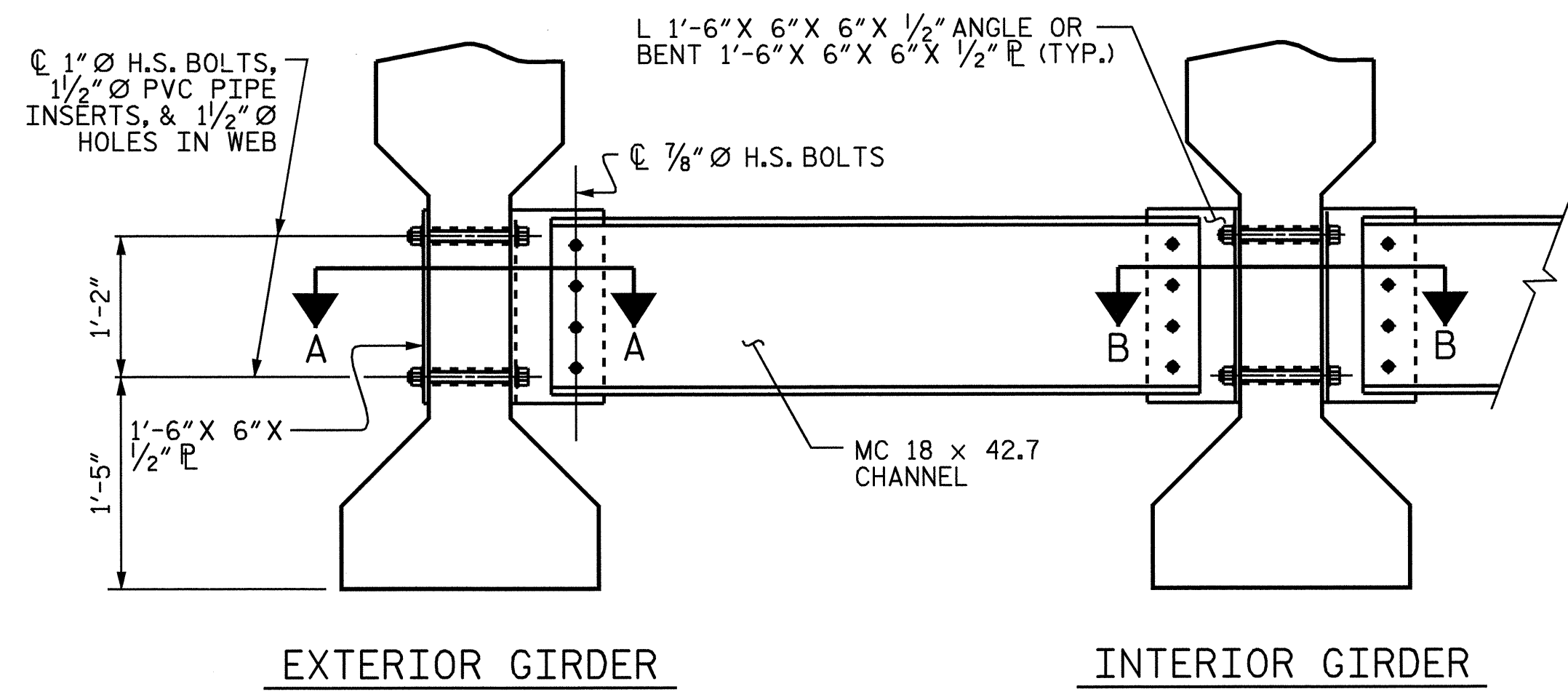
CONNECTION DETAILS

(AT SPAN B)

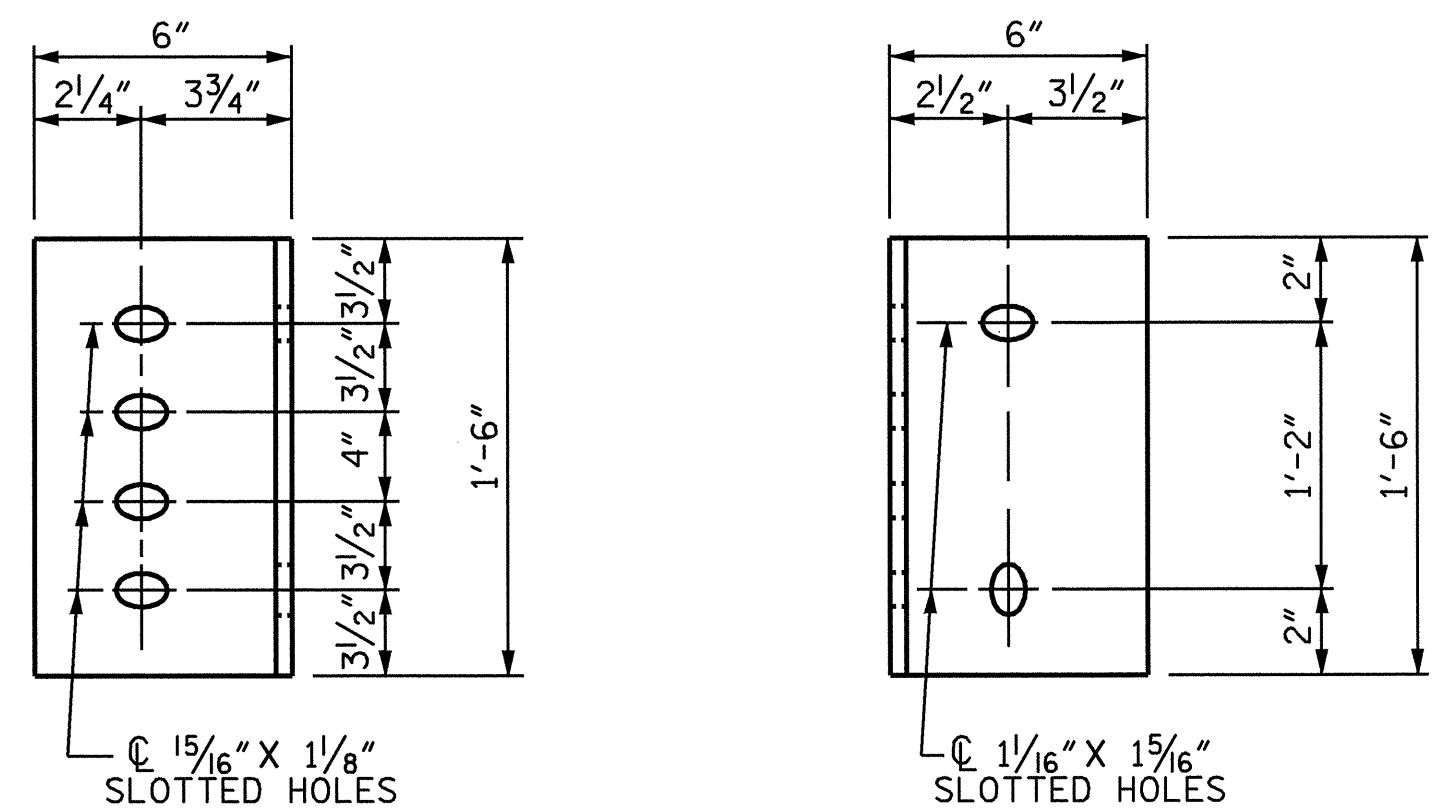


CONNECTION DETAILS

(AT SPAN C)



PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTOR PLATE DETAILS

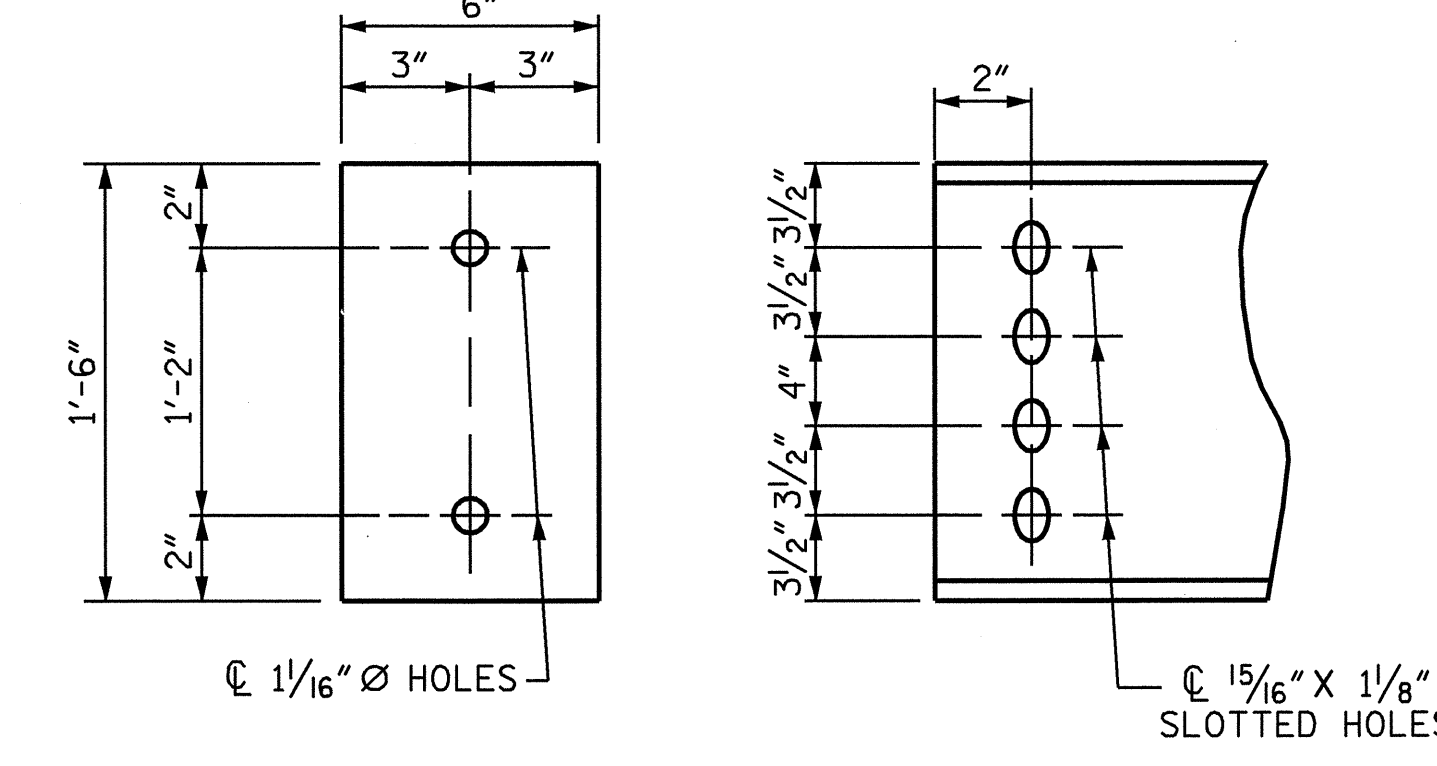
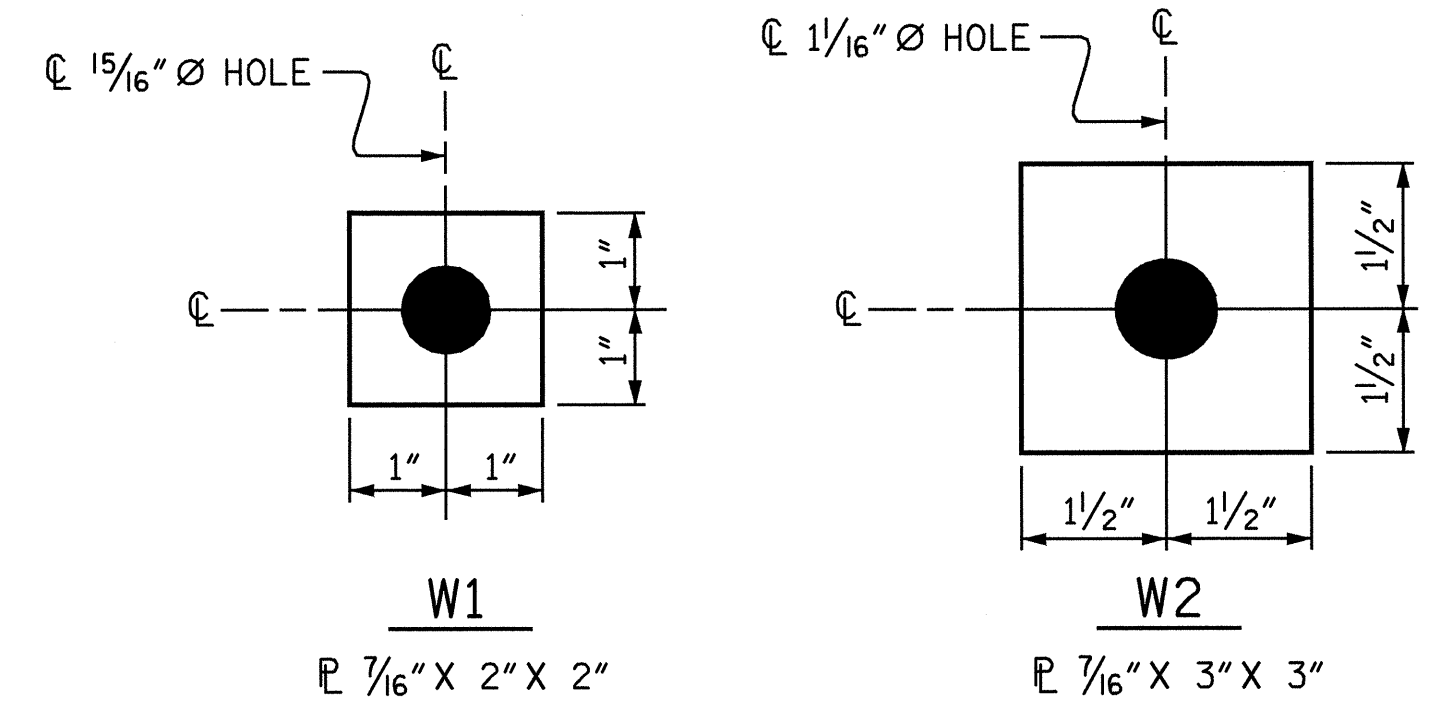


PLATE DETAILS CHANNEL END



WASHER DETAILS

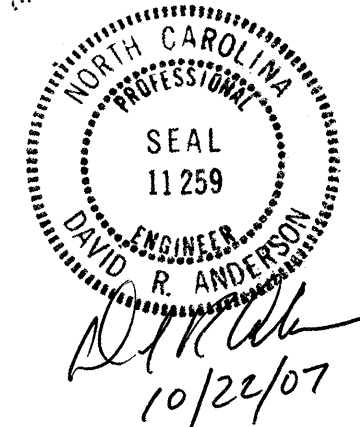
TABLE

DIAPHRAGM	SKIEW ANGLE (LEFT)	SKIEW ANGLE (RIGHT)
D1	92°-02'-17"	92°-01'-23"
D2	92°-01'-23"	92°-00'-30"
D3	92°-00'-30"	91°-59'-38"
D4	90°-00'-00"	90°-00'-00"
D5	92°-02'-17"	92°-01'-23"
D6	92°-01'-23"	92°-00'-30"
D7	92°-00'-30"	91°-59'-38"

(REFER TO "SUPERSTRUCTURE- GIRDER LAYOUT" SHEET FOR LOCATION OF DIAPHRAGMS D1 THRU D7)

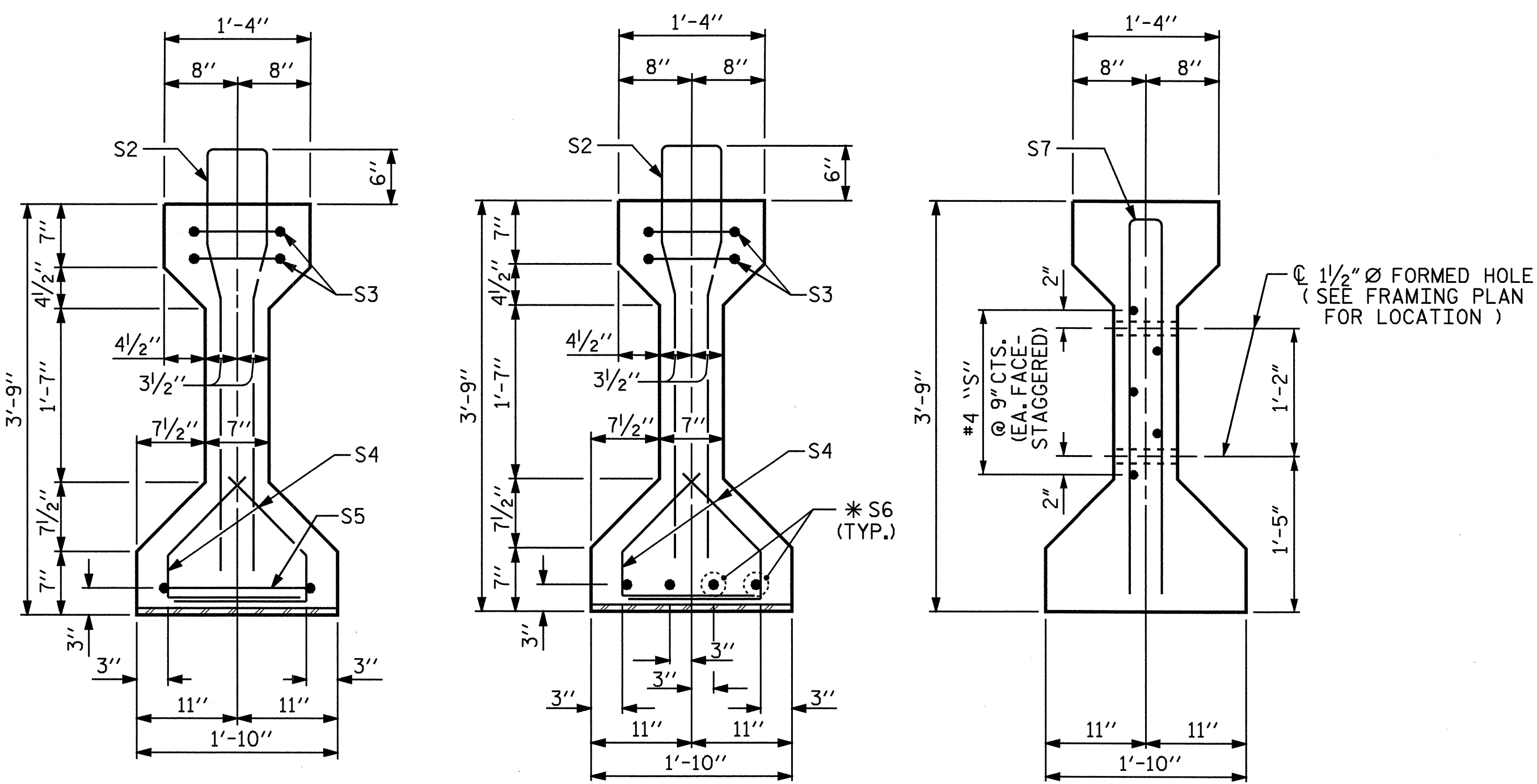
PROJECT NO. B-4104
 COUNTY DAVIE
 STATION: 20+71.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 INTERMEDIATE
 STEEL DIAPHRAGMS
 FOR PRESTRESSED
 CONCRETE GIRDERS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			11
2			4			35

ASSEMBLED BY :	M.A. ALLEN	DATE :	2/06
CHECKED BY :	W.F. PARKER	DATE :	8/06
DRAWN BY :	TLA 6/05	ADDED :	10/21/05
CHECKED BY :	VC 6/05	REV. :	5/1/06R KMM/GM

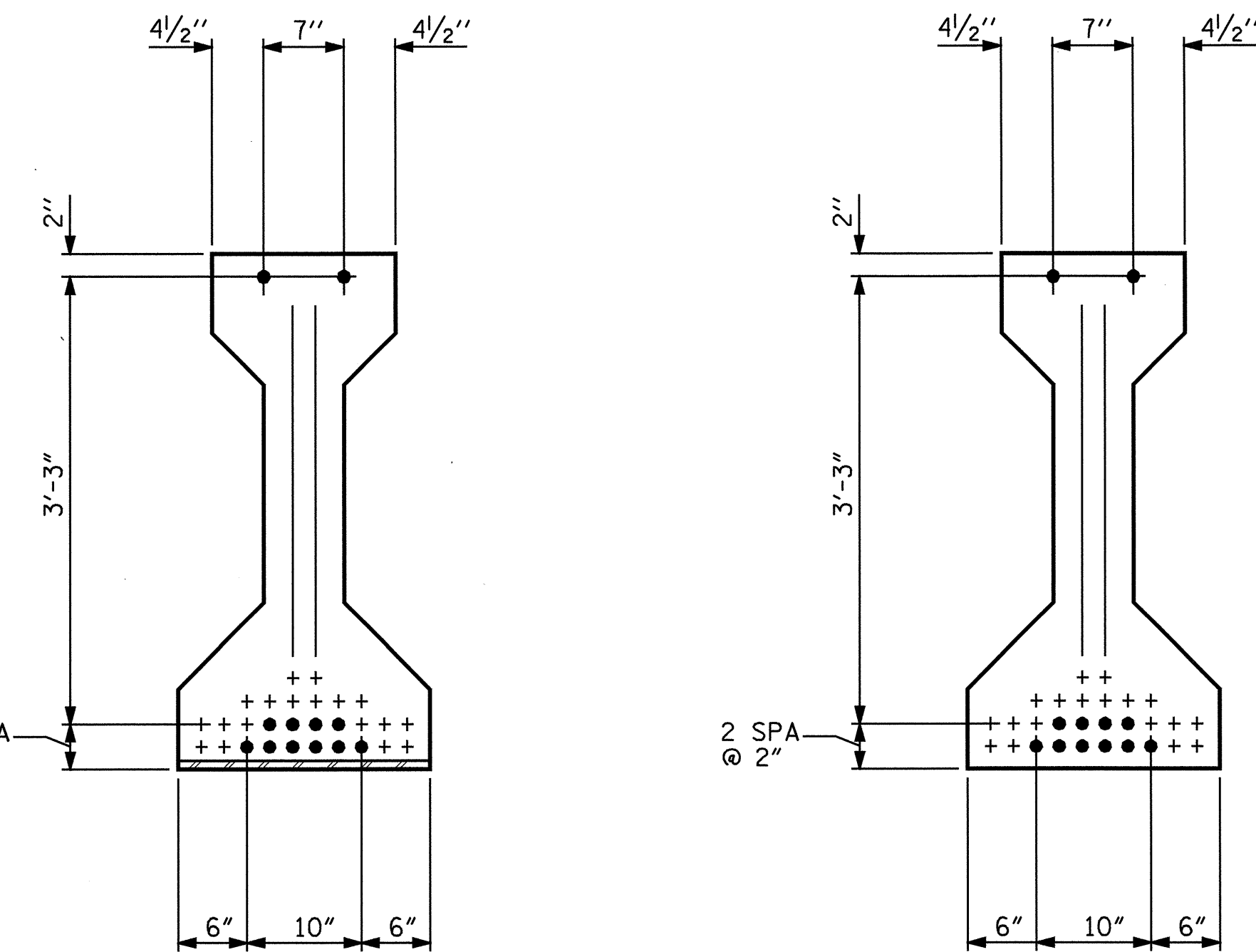


SECTION A-A

SECTION B-B

SECTION C-C

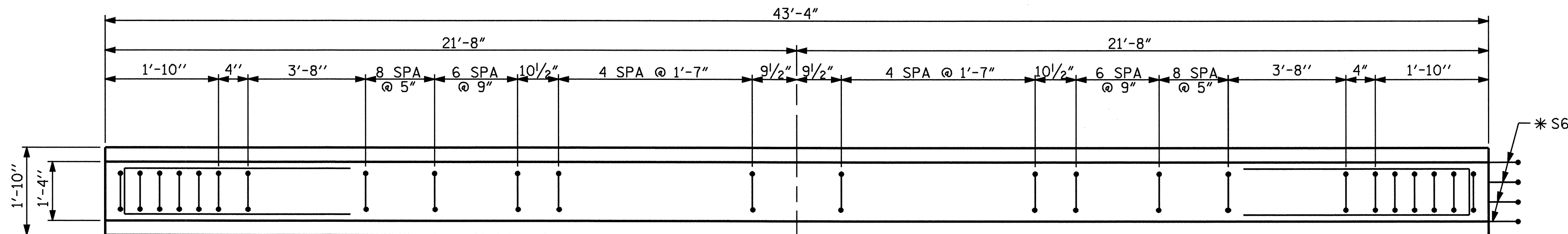
(S1 BARS NOT SHOWN)



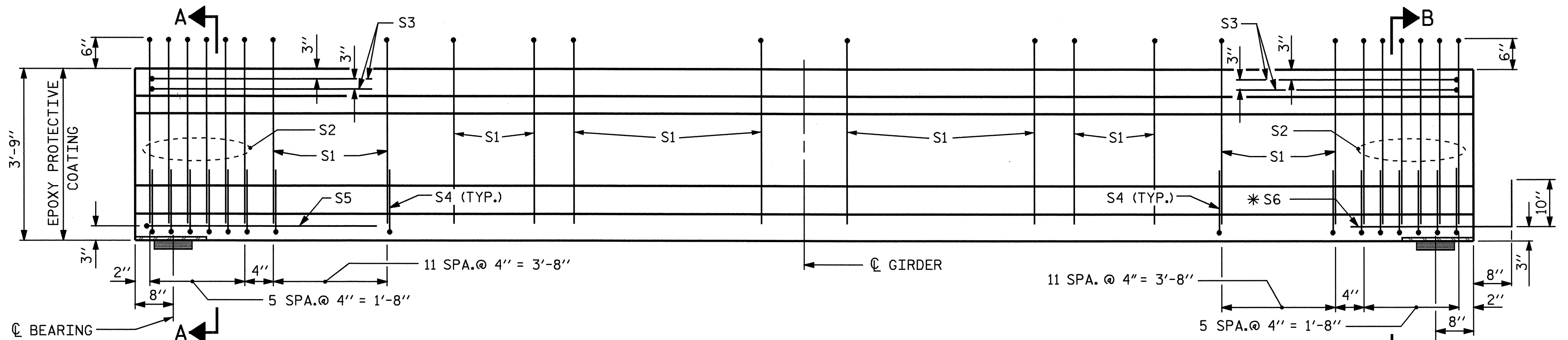
AT END OF GIRDER

AT C OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT

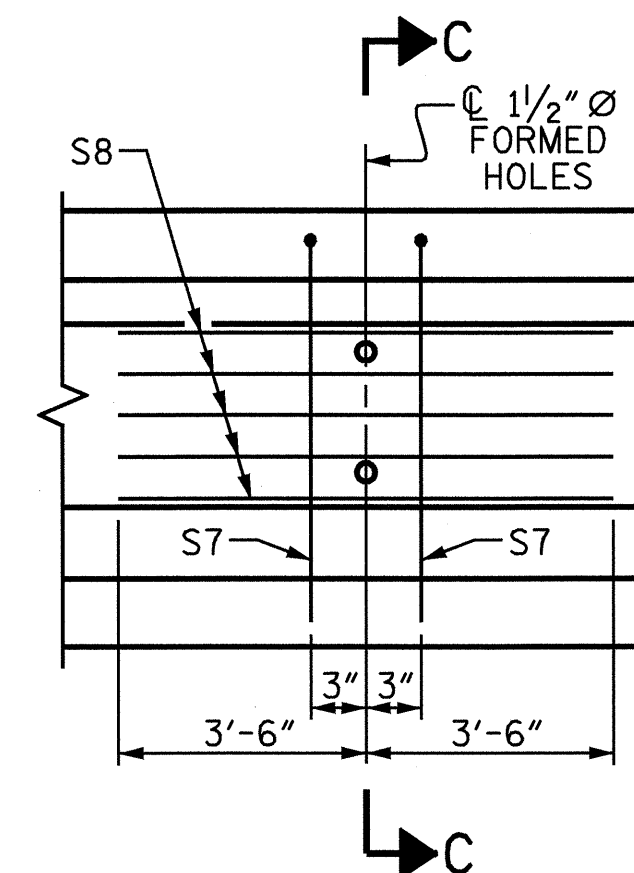


PLAN OF GIRDER



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. 1 THRU 4 (FOR ALL EXTERIOR GIRDERS AND INTERIOR GIRDERS WITH 70° ≤ SKEW ≤ 110°)

1/2" Ø L. R. GRADE 270 STRANDS

AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

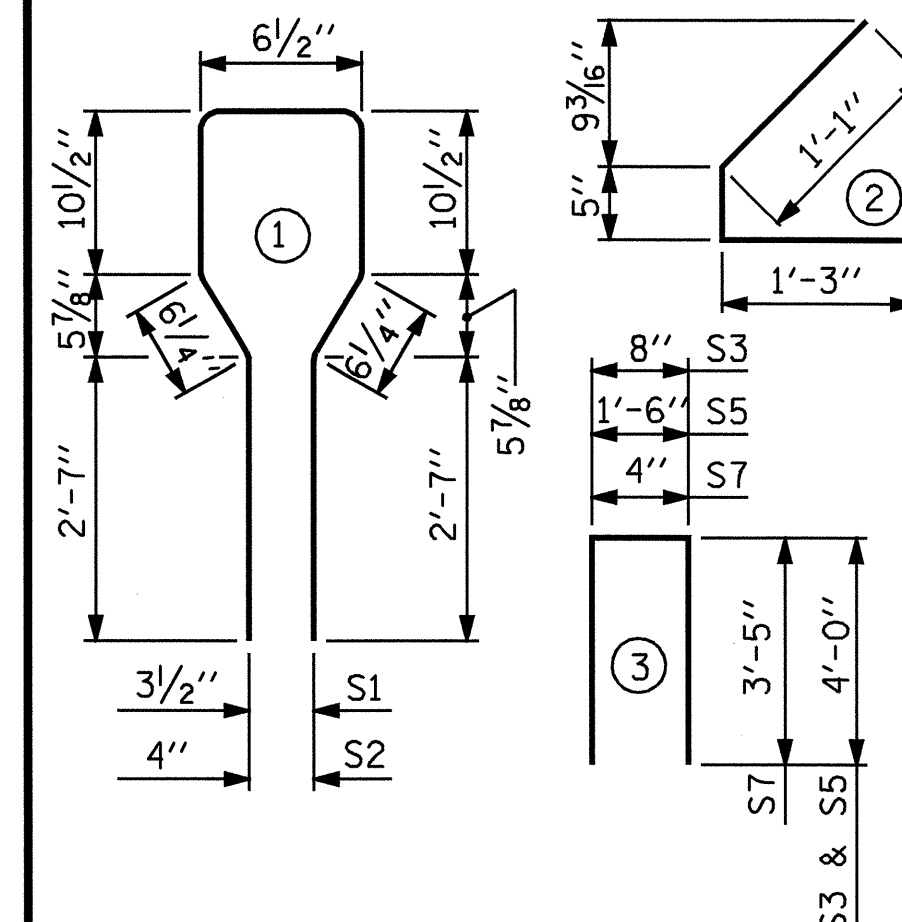
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	62	#4	1	8'-6"	352
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	72	#4	2	2'-9"	132
S5	1	#4	3	9'-6"	6
*S6	4	#5	STR	3'-8"	15
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

* NOTE: S6 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	5,000 PSI CONCRETE	1/2" Ø L.R. STRANDS
LB.	C.Y.	No.
719	6.2	12

GIRDERS REQUIRED

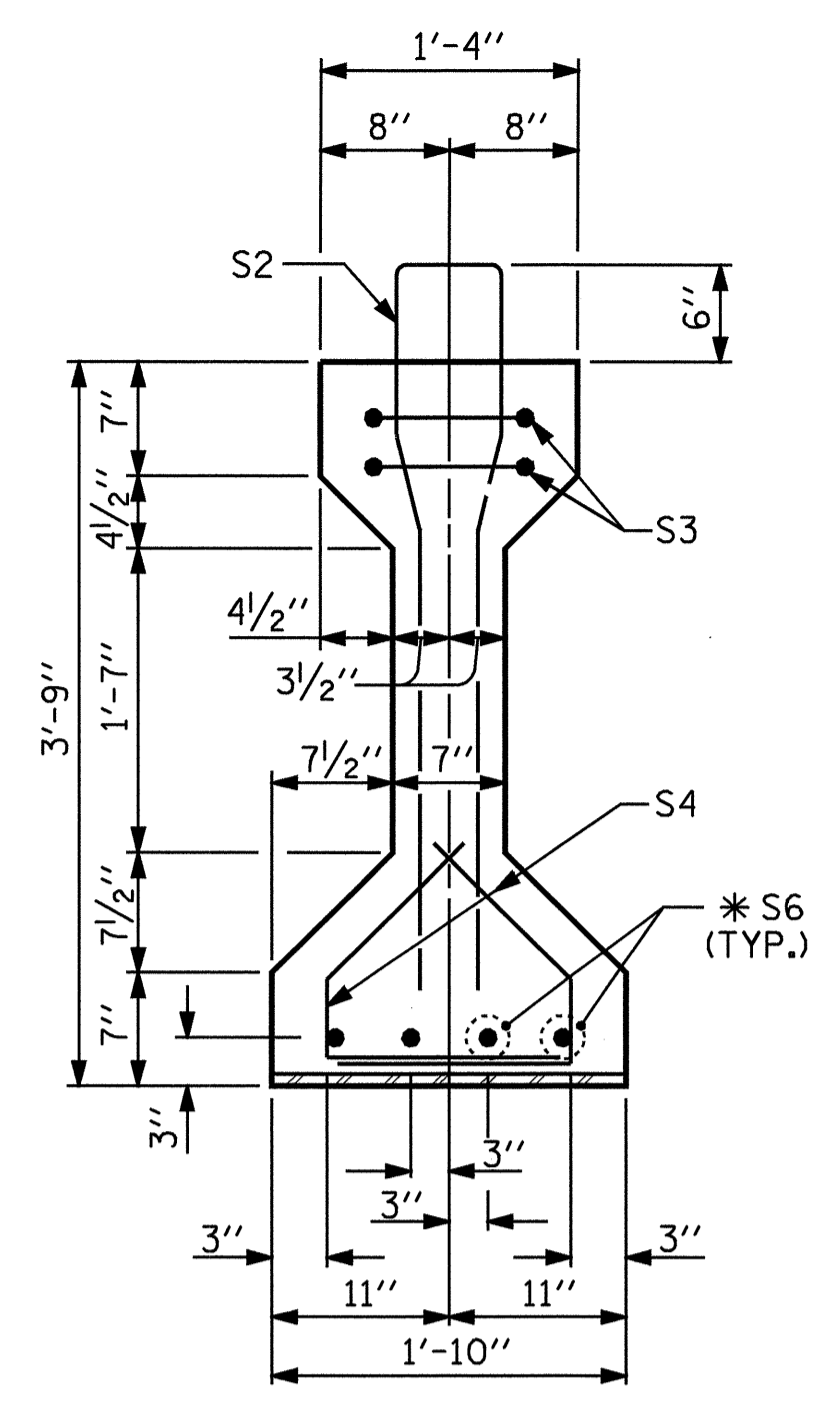
NUMBER	LENGTH	TOTAL LENGTH
4	43'-4"	173'-4"

PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

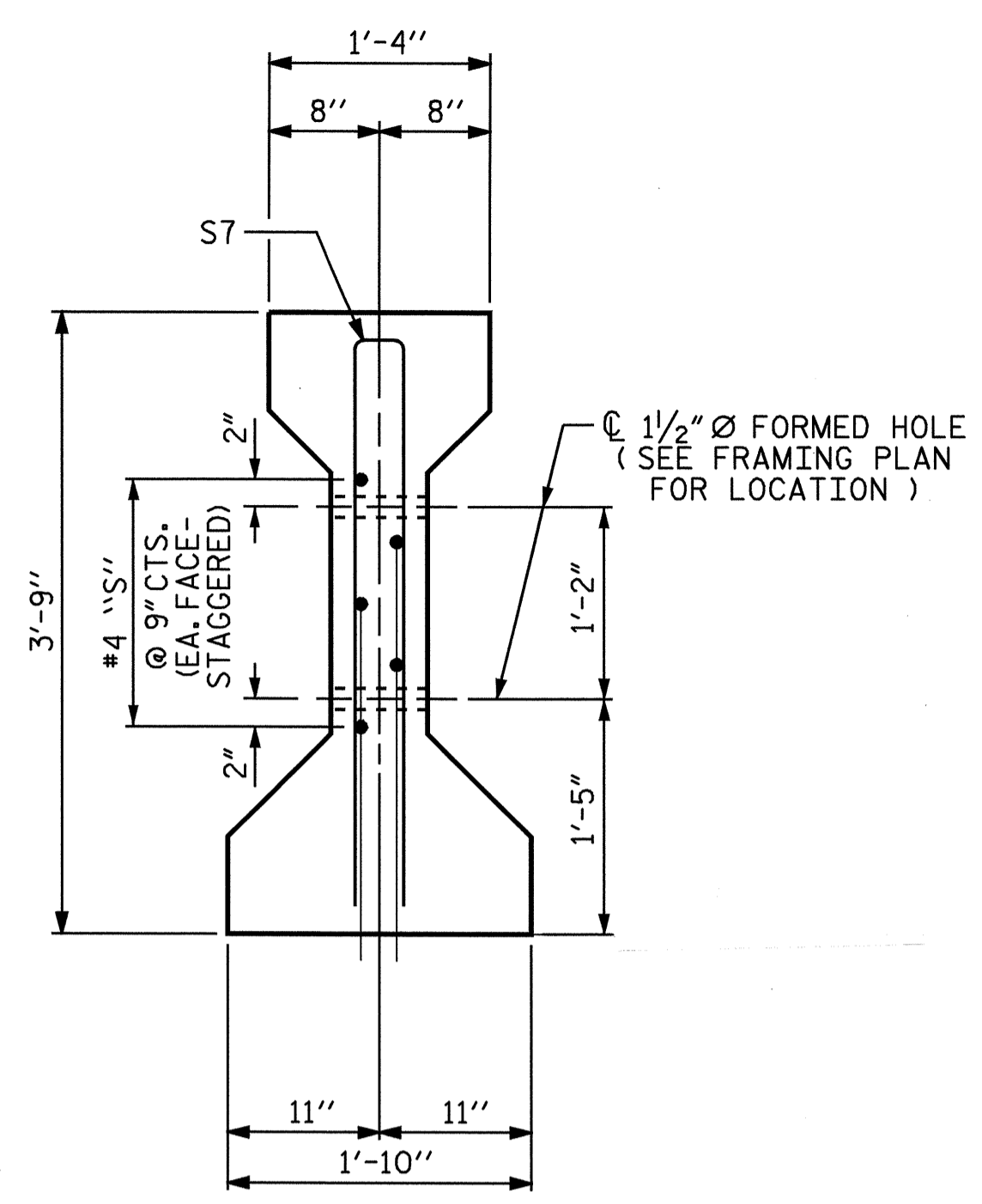
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE III
PRESTRESSED CONCRETE GIRDER
SPAN A
CONTINUOUS FOR LIVE LOAD

REVISIONS						SHEET NO. 5-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

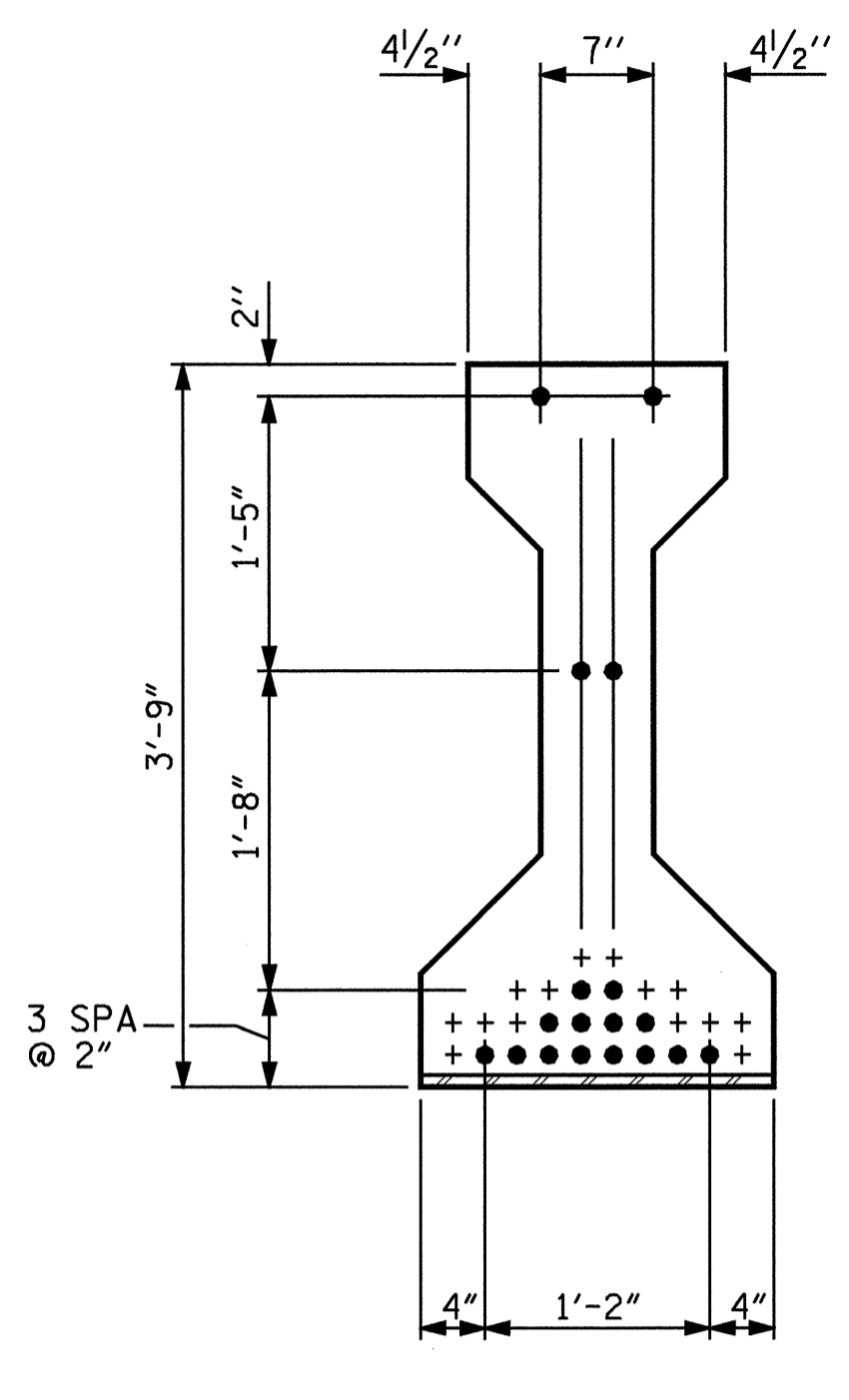
ASSEMBLED BY : M.A. ALLEN/SR	DATE : 5/06
CHECKED BY : W.F. PARKER	DATE : 8/06
DRAWN BY : ELR 8/91	REV. 7/17/98 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLA/GM



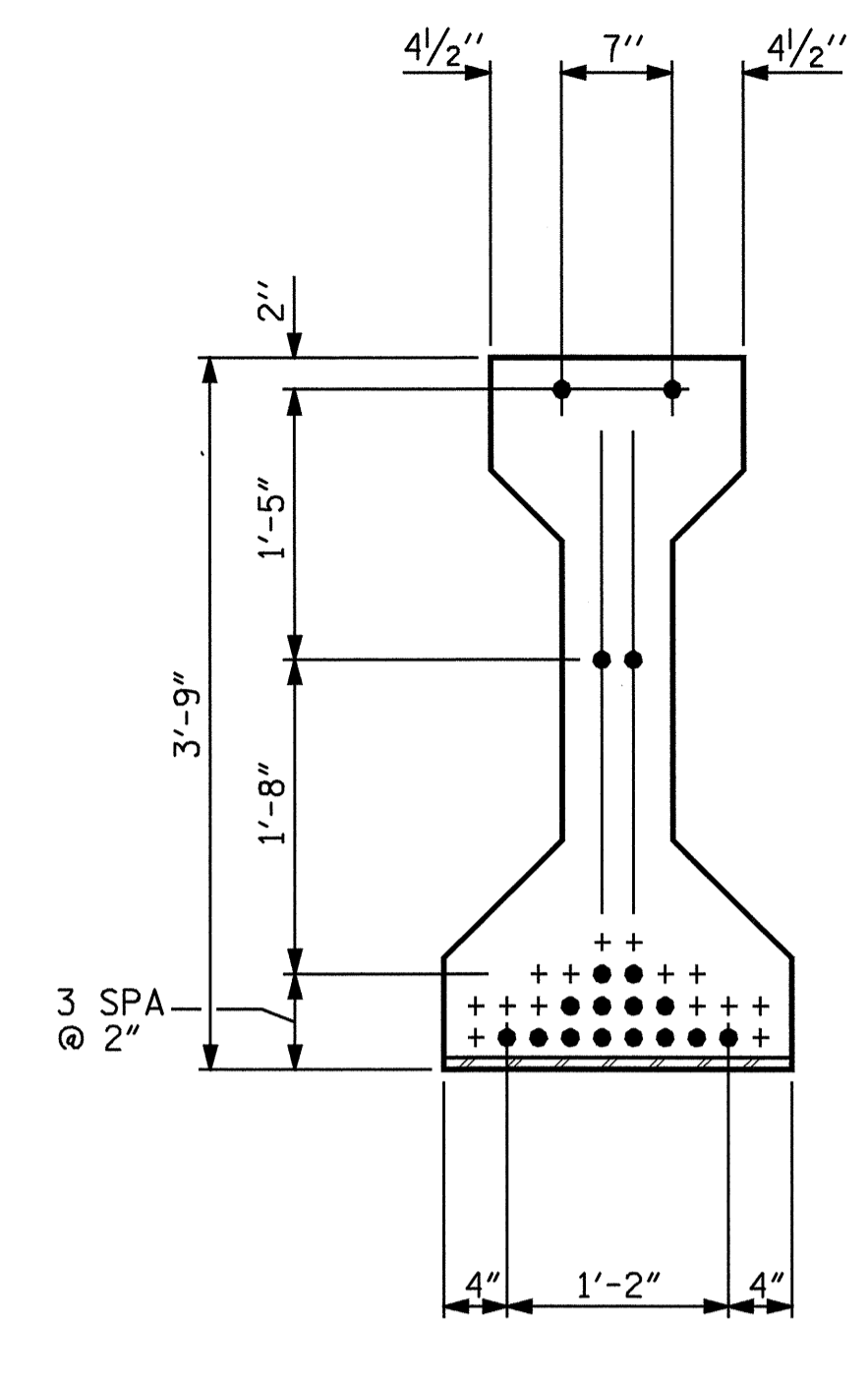
SECTION A-A



SECTION B-B
(S1 BARS NOT SHOWN)



AT END OF GIRDER



AT C OF GIRDER

1/2" Ø LOW RELAXATION STRAND LAYOUT

1/2" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

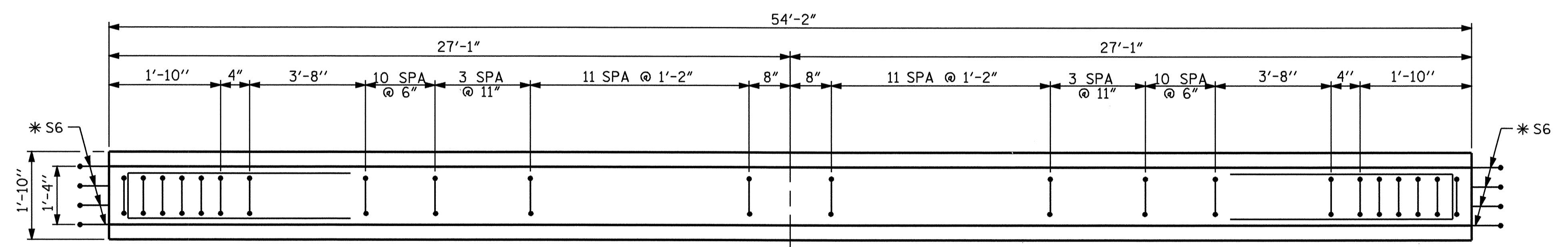
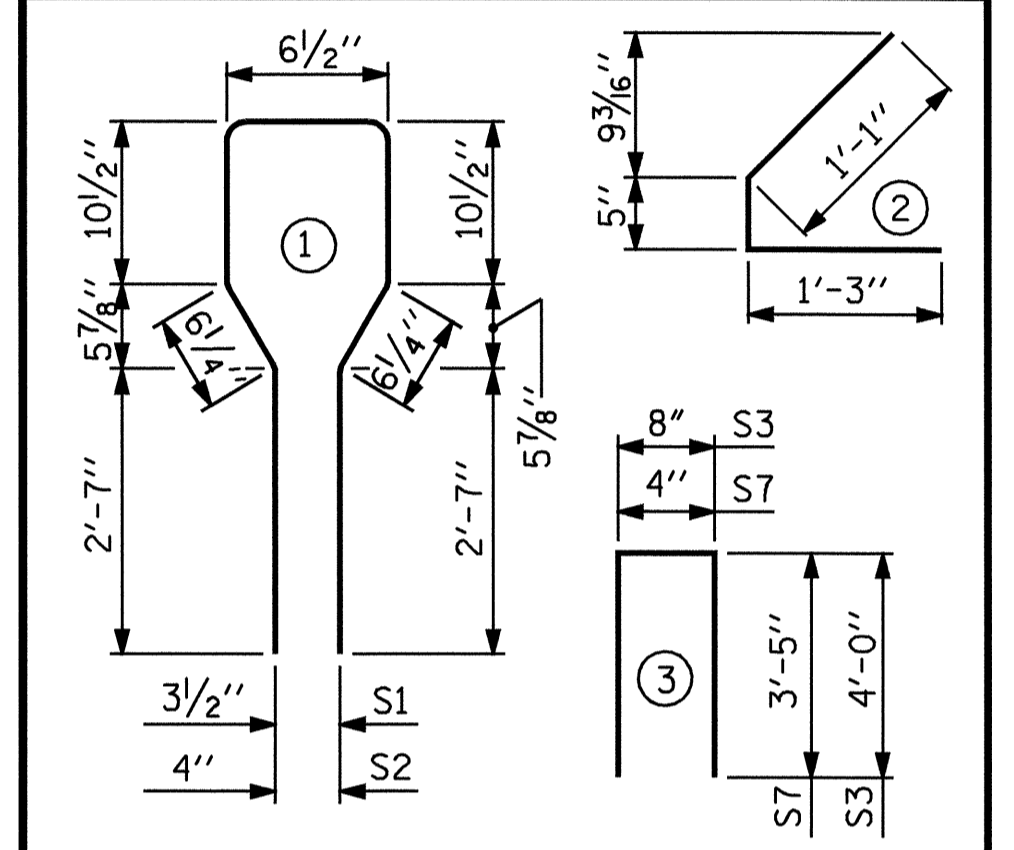
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	72	#4	1	8'-6"	409
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	72	#4	2	2'-9"	132
*S6	8	#5	STR	3'-8"	30
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

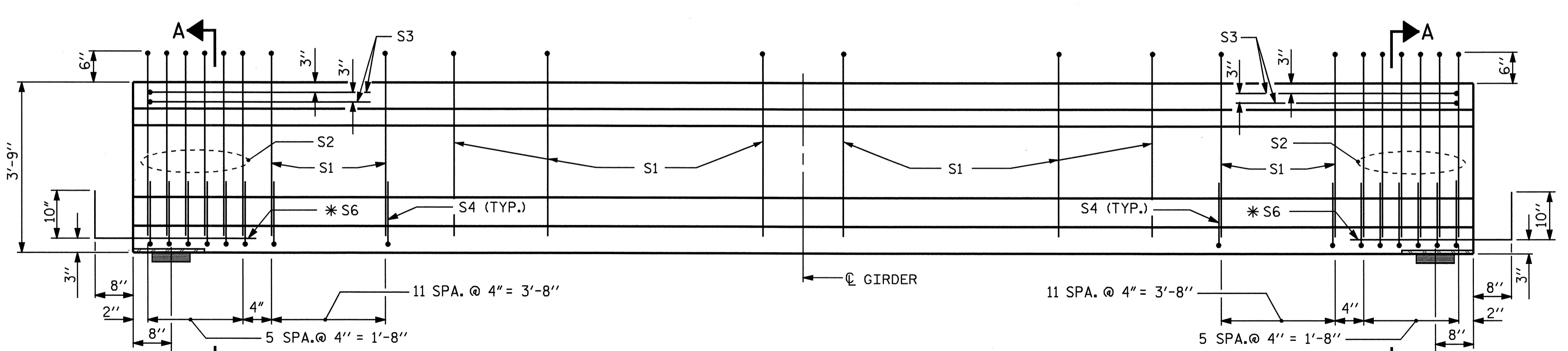
* NOTE: S6 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

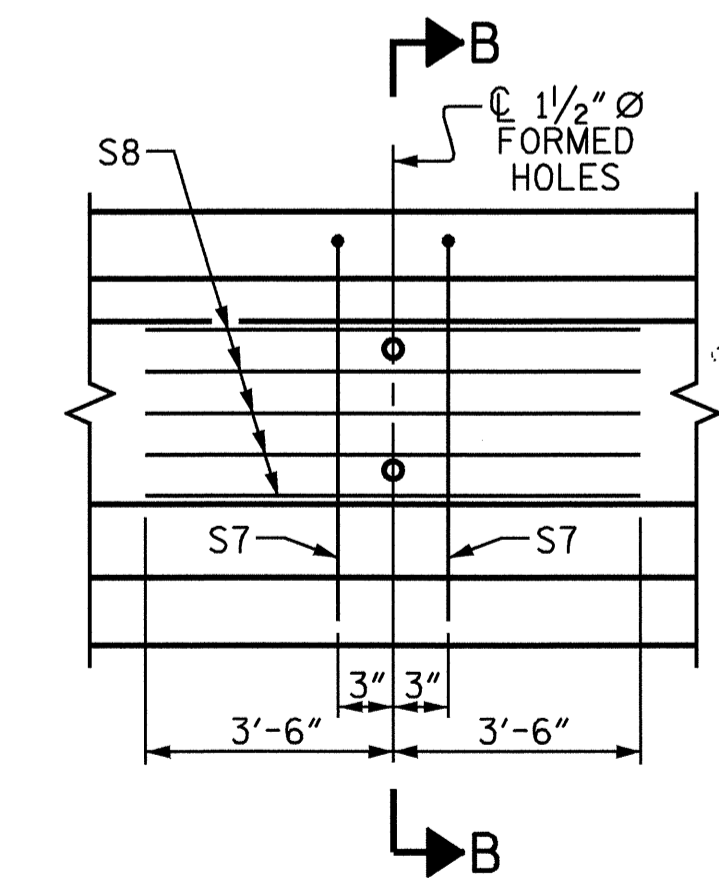
ALL BAR DIMENSIONS ARE OUT-TO-OUT



PLAN OF GIRDER

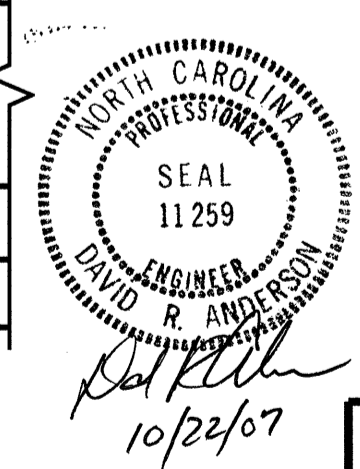


ELEVATION OF GIRDER
(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. 1 THRU 4 (FOR ALL EXTERIOR GIRDERS AND INTERIOR GIRDERS WITH 70° ≤ SKEW ≤ 110°)

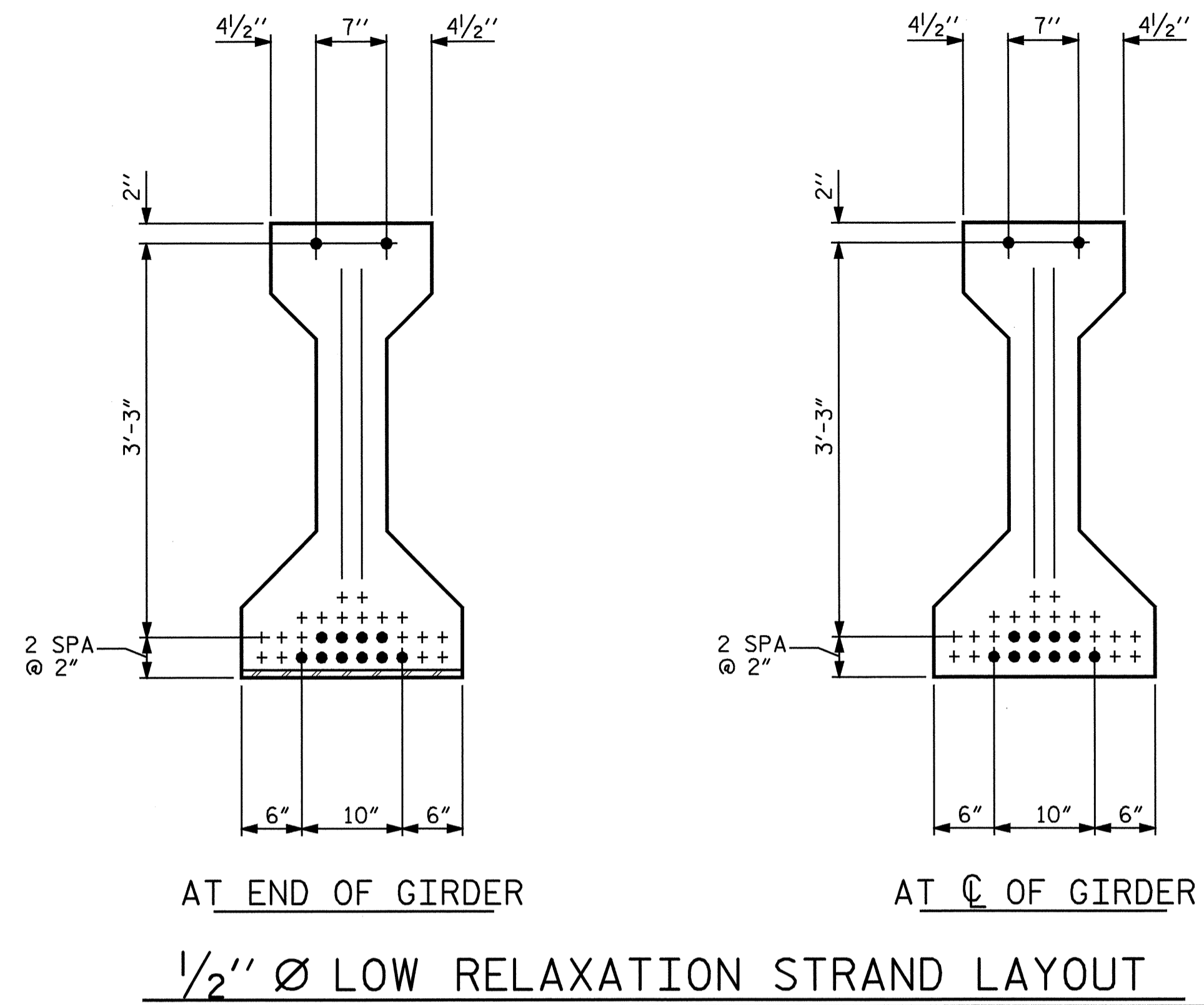
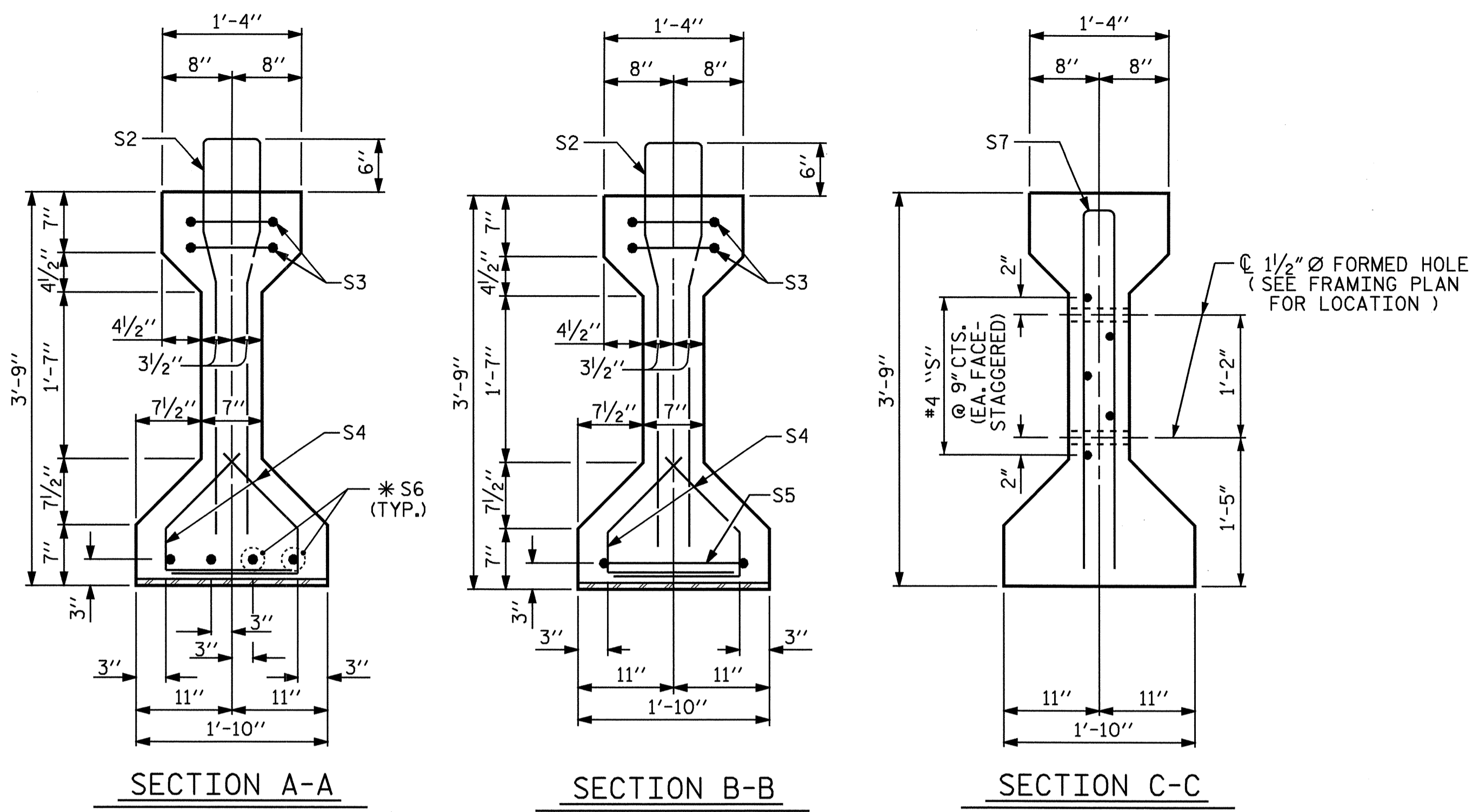


PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

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

ASSEMBLED BY : M.A. ALLEN/SR	DATE : 5/06
CHECKED BY : W.F. PARKER	DATE : 8/06
DRAWN BY : ELR 8/91	REV. 7/17/98 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO. 5-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			



1/2" Ø L. R. GRADE 270 STRANDS

AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

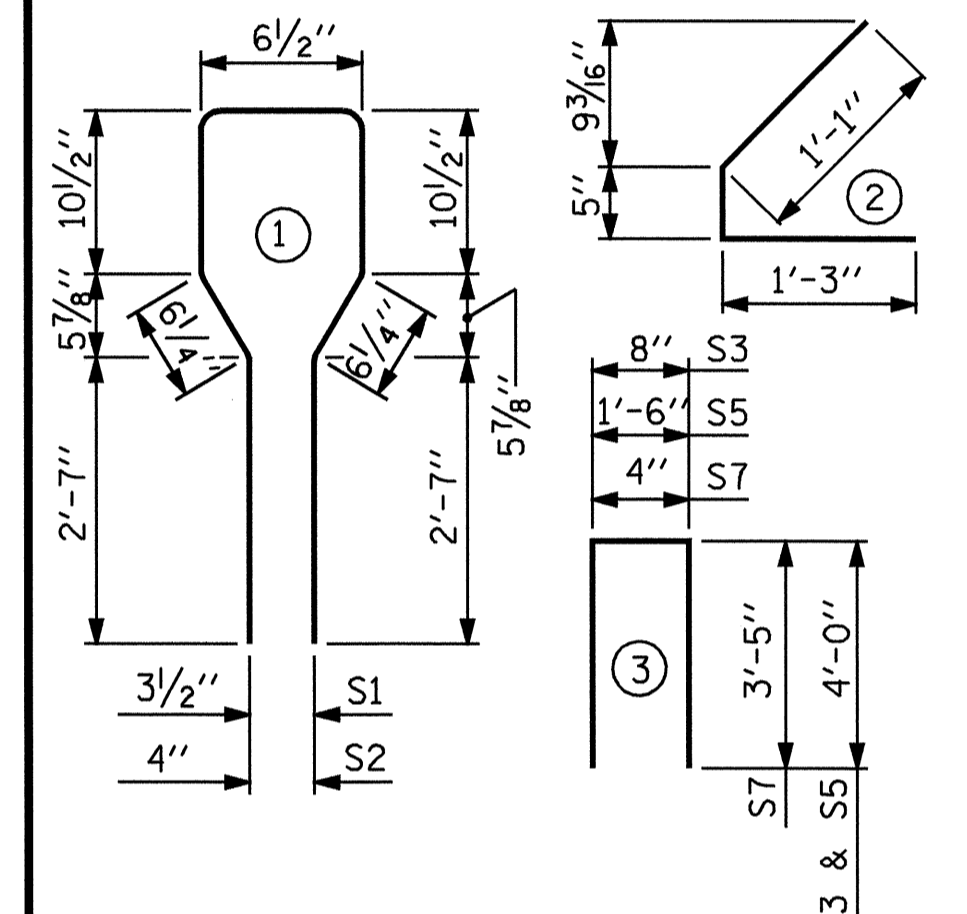
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	62	#4	1	8'-6"	352
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	72	#4	2	2'-9"	132
S5	1	#4	3	9'-6"	6
*S6	4	#5	STR	3'-8"	15
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

*NOTE: S6 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT

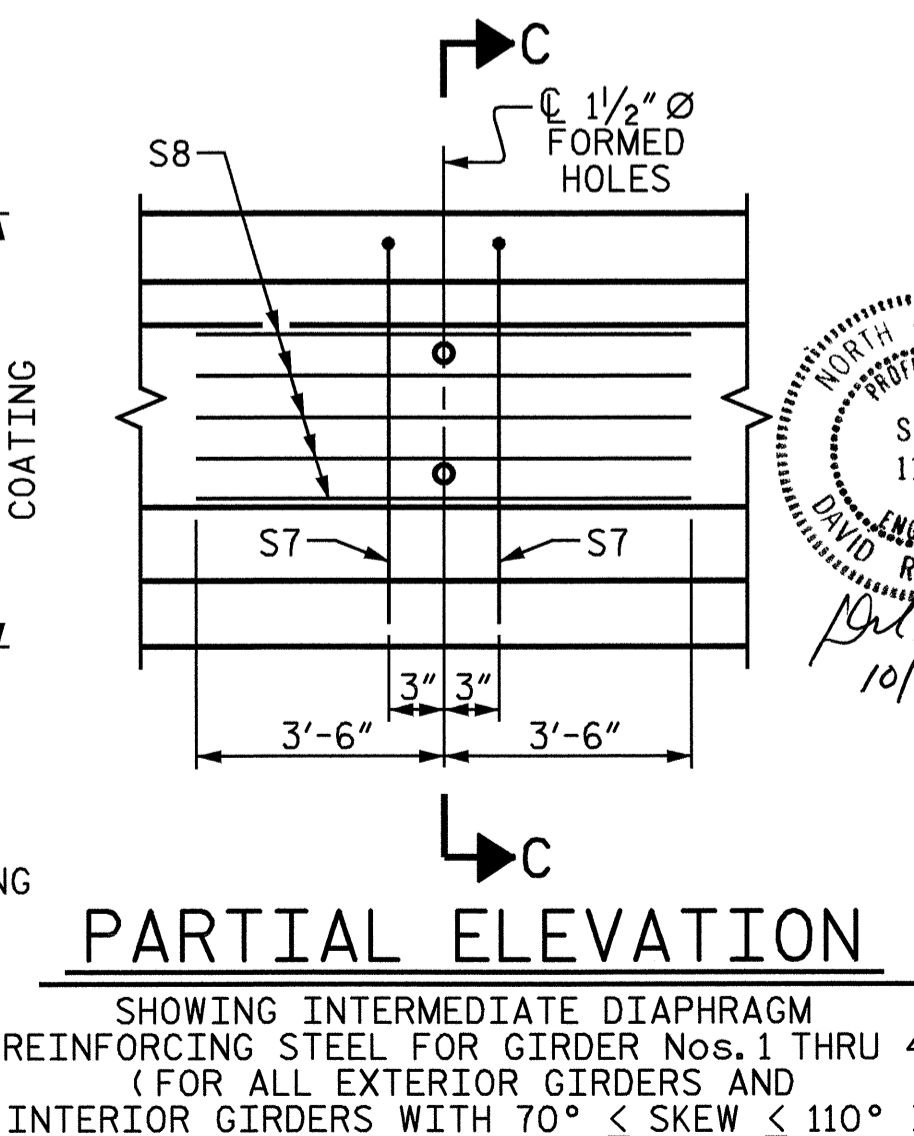
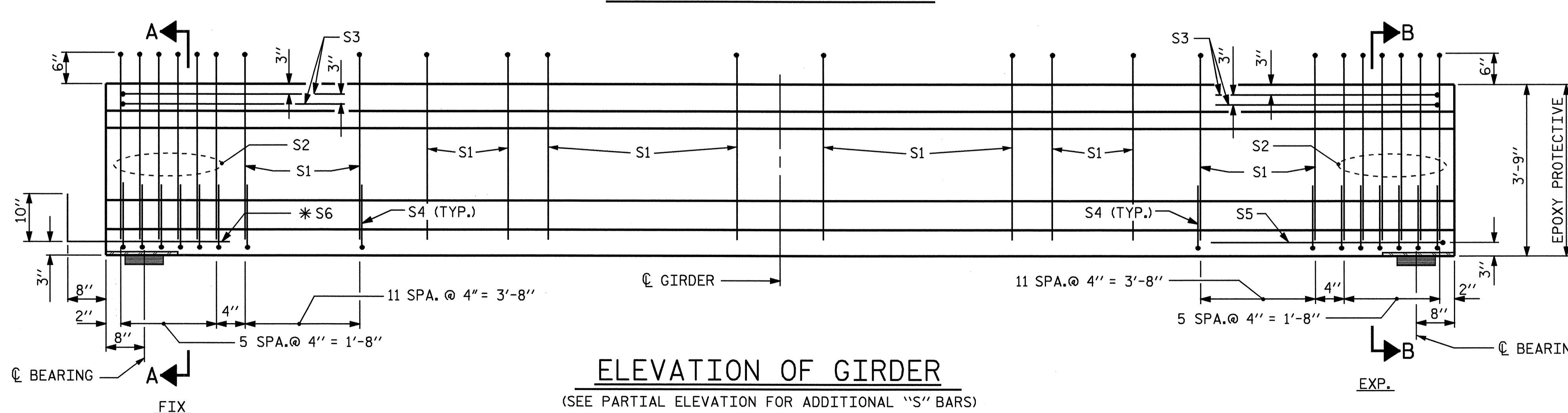
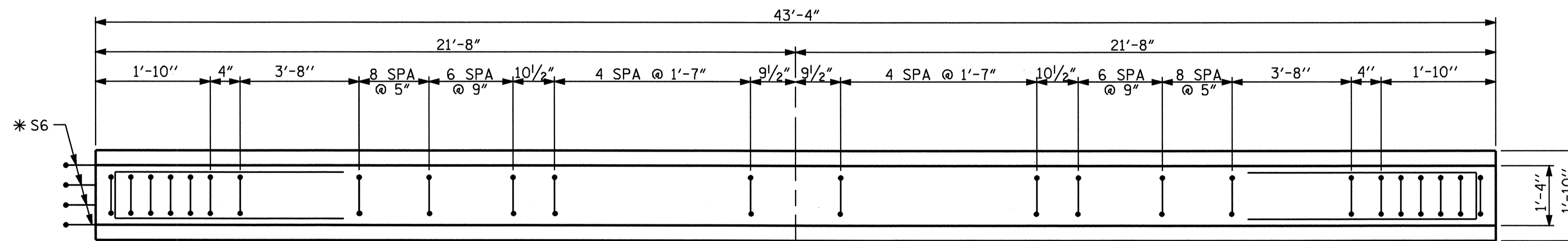


QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	5,000 PSI CONCRETE	1/2" Ø L.R. STRANDS
LB.	C.Y.	No.
719	6.2	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	43'-4"	173'-4"



PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

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

ASSEMBLED BY : M.A. ALLEN/SR	DATE : 5/06
CHECKED BY : W.F. PARKER	DATE : 8/06
DRAWN BY : ELR 8/91	REV. 7/17/98 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 TLA/GM

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 FOR SPANS A & C AND 4900 PSI FOR SPAN B.

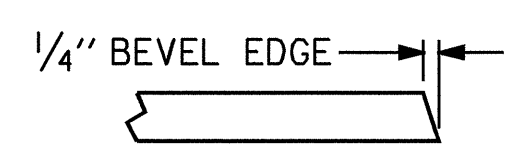
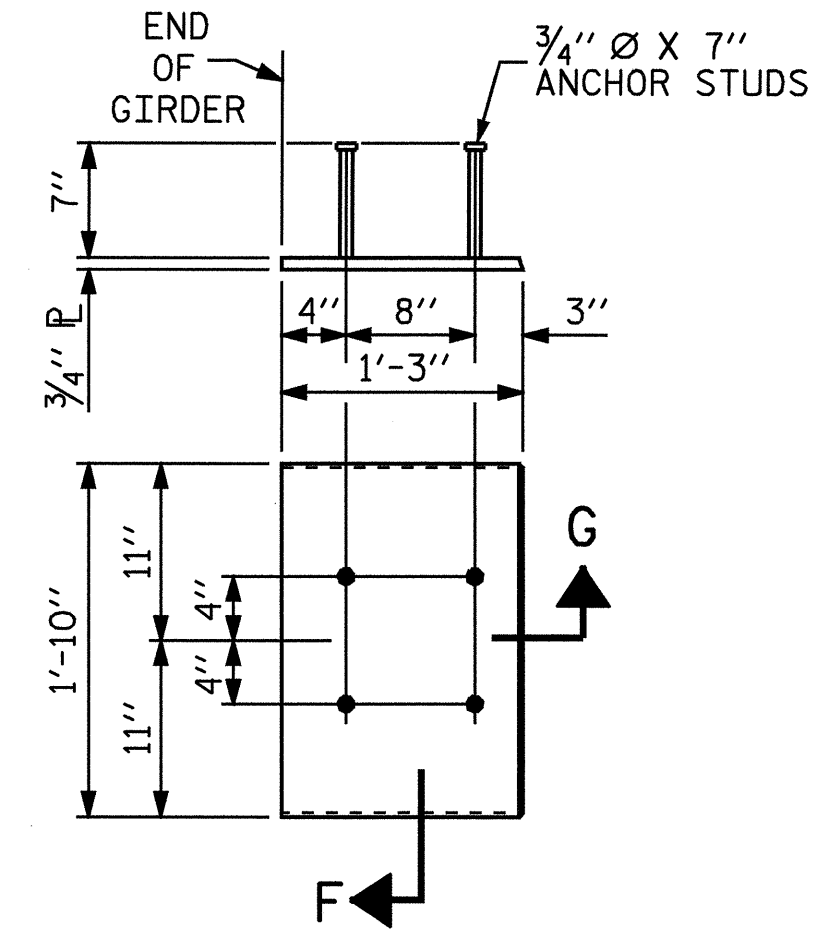
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

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

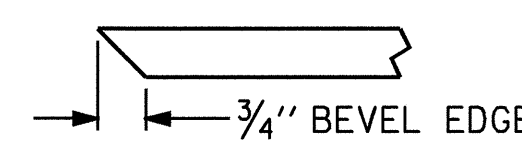
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

FOR CRACK REPAIR OF PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



SECTION "G"



SECTION "F"

(SEE NOTES)

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

0.6" Ø LOW RELAXATION	SPANS A AND C																																	
	GIRDER 1												GIRDERS 2 & 3												GIRDER 4									
	TENTH POINTS	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.017	0.033	0.045	0.052	0.055	0.052	0.045	0.033	0.017	0	0	0.017	0.033	0.045	0.052	0.055	0.052	0.045	0.033	0.017	0	0	0.017	0.033	0.045	0.052	0.055	0.052	0.045	0.033	0.017	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.005	0.010	0.013	0.015	0.016	0.015	0.013	0.010	0.005	0	0	0.006	0.011	0.016	0.018	0.019	0.018	0.016	0.011	0.006	0	0	0.005	0.010	0.014	0.016	0.017	0.016	0.014	0.010	0.005	0
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	7/16"	7/16"	3/8"	1/4"	1/8"	0	0	1/8"	1/4"	3/8"	7/16"	7/16"	7/16"	3/8"	1/4"	1/8"	0	0	1/8"	1/4"	3/8"	7/16"	7/16"	7/16"	3/8"	1/4"	1/8"	0

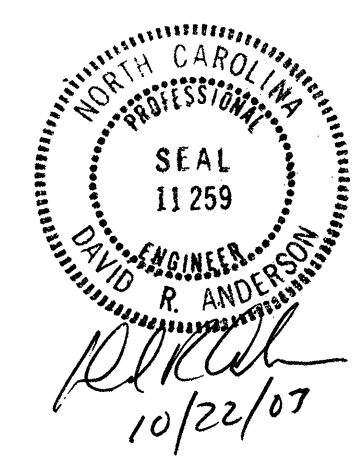
* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

0.6" Ø LOW RELAXATION	SPAN B																																	
	GIRDER 1												GIRDERS 2 & 3												GIRDER 4									
	TENTH POINTS	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.033	0.062	0.085	0.100	0.105	0.100	0.085	0.062	0.033	0	0	0.033	0.062	0.085	0.100	0.105	0.100	0.085	0.062	0.033	0	0	0.033	0.062	0.085	0.100	0.105	0.100	0.085	0.062	0.033	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.011	0.021	0.029	0.034	0.035	0.034	0.029	0.021	0.011	0	0	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0	0	0.011	0.022	0.030	0.035	0.037	0.035	0.030	0.022	0.011	0
FINAL CAMBER	↑	0	1/4"	1/2"	11/16"	13/16"	13/16"	13/16"	11/16"	1/2"	1/4"	0	0	1/4"	7/16"	5/8"	3/4"	3/4"	3/4"	5/8"	7/16"	1/4"	0	0	1/4"	1/2"	11/16"	3/4"	13/16"	3/4"	11/16"	1/2"	1/4"	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-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 DETAILS

REVISIONS						SHEET NO. 5-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

ASSEMBLED BY : M.A. ALLEN	DATE : 5/06
CHECKED BY : W.F. PARKER	DATE : 8/06
DRAWN BY : ELR 11/91	REV. 10/17/00 RWW/LES
CHECKED BY : GRP 11/91	REV. 7/10/01 RR LES/RDR
	REV. 5/1/06 TLA/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.

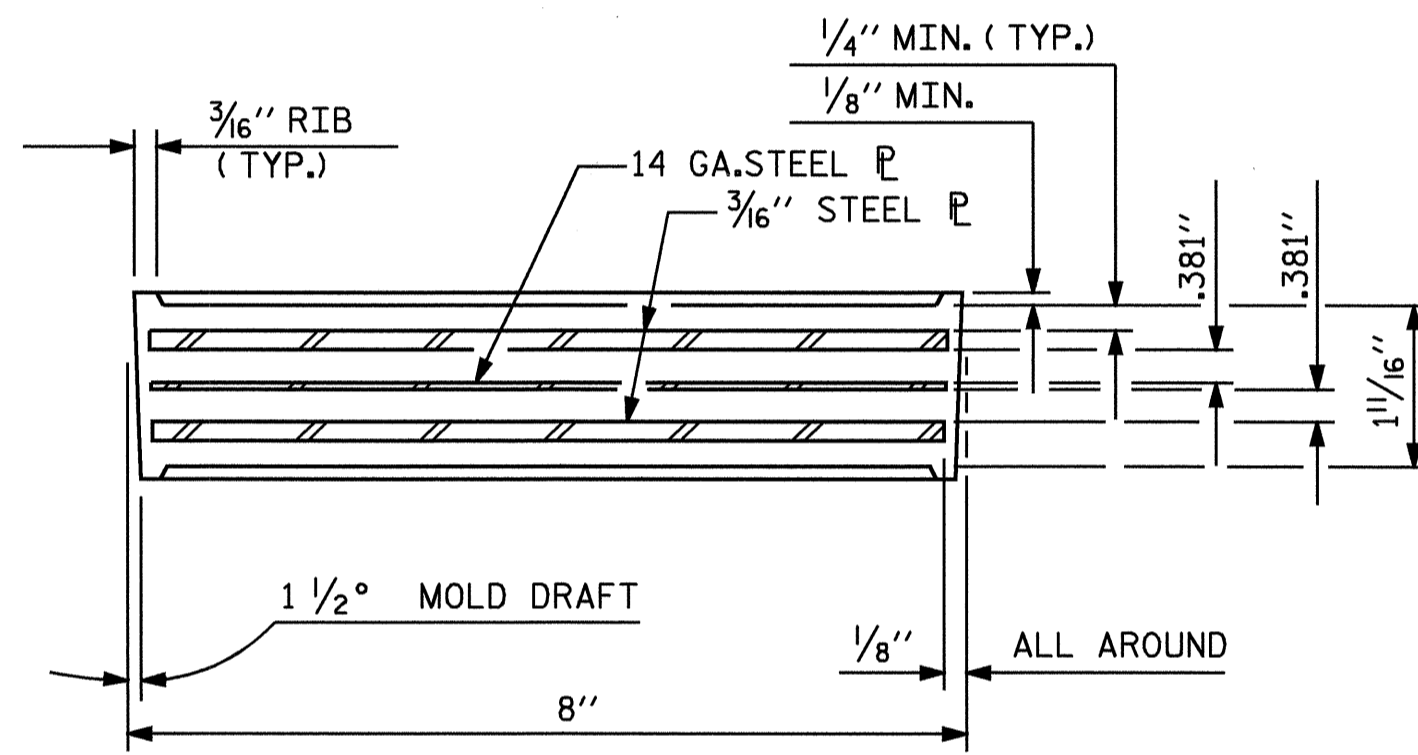
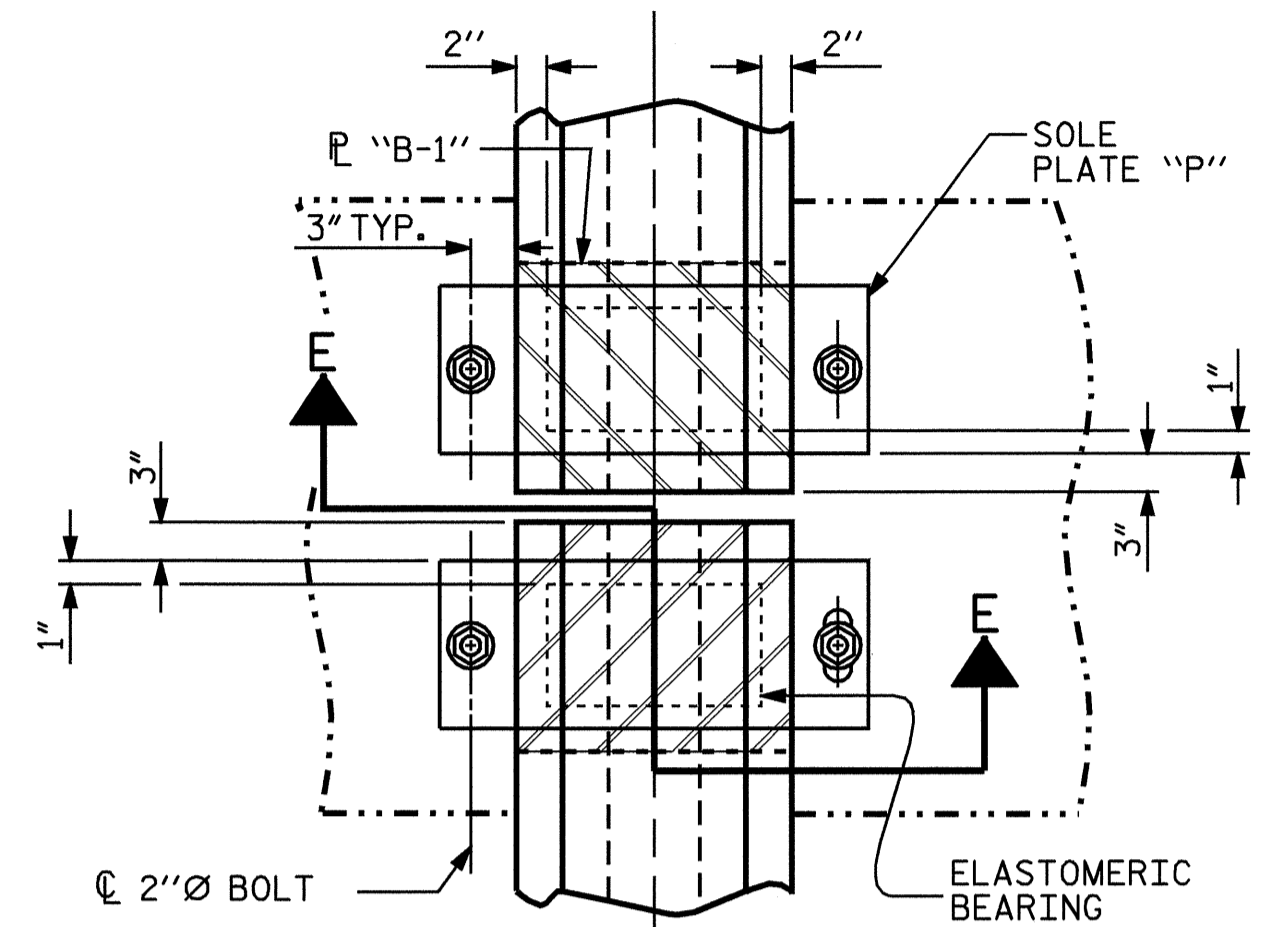
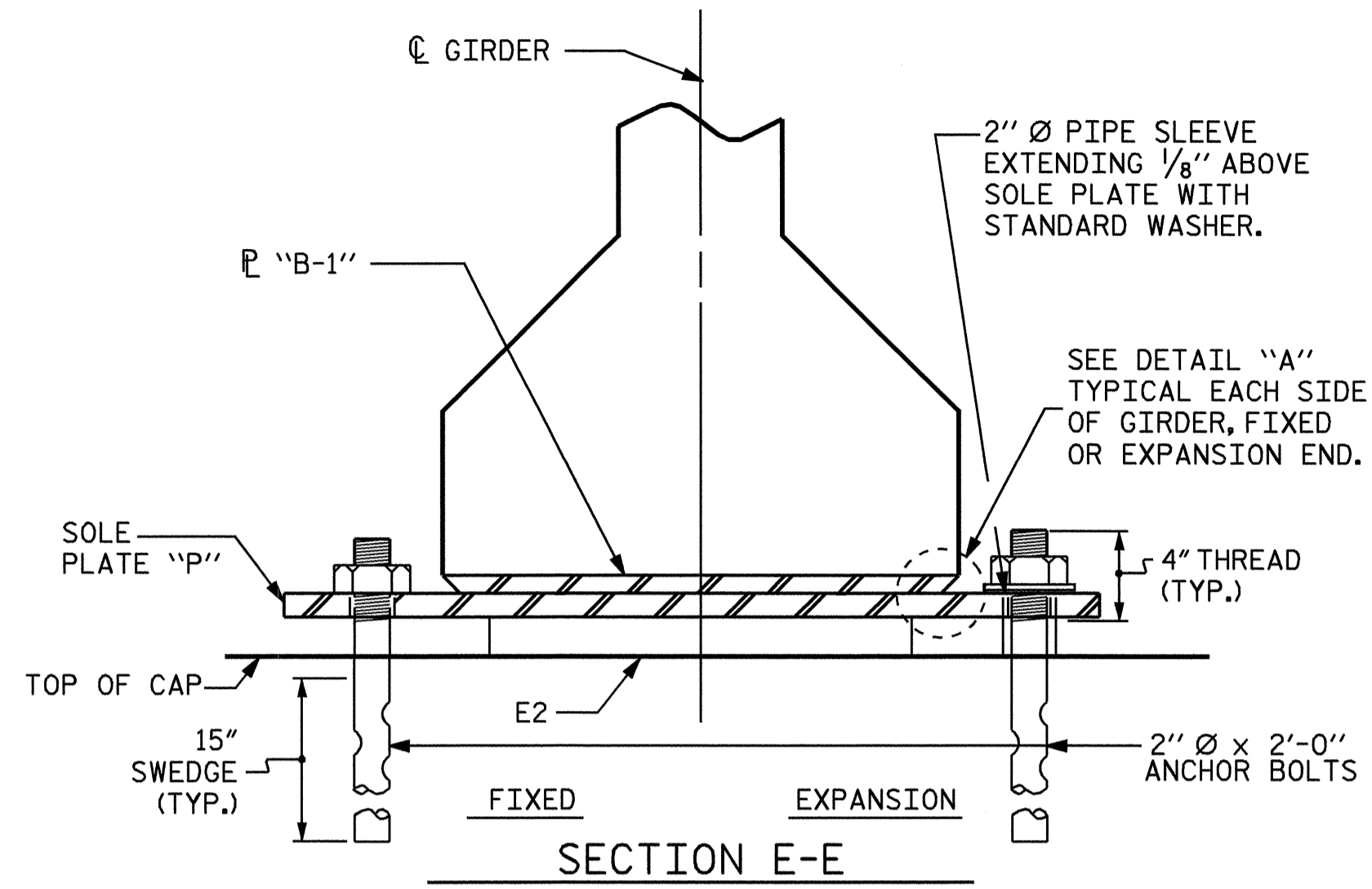
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

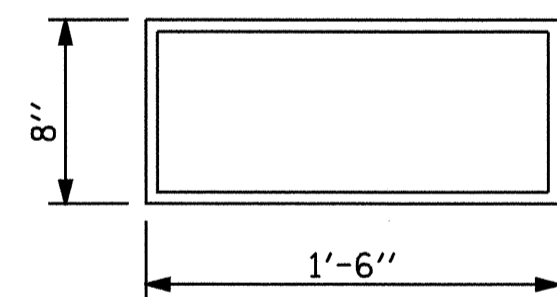
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

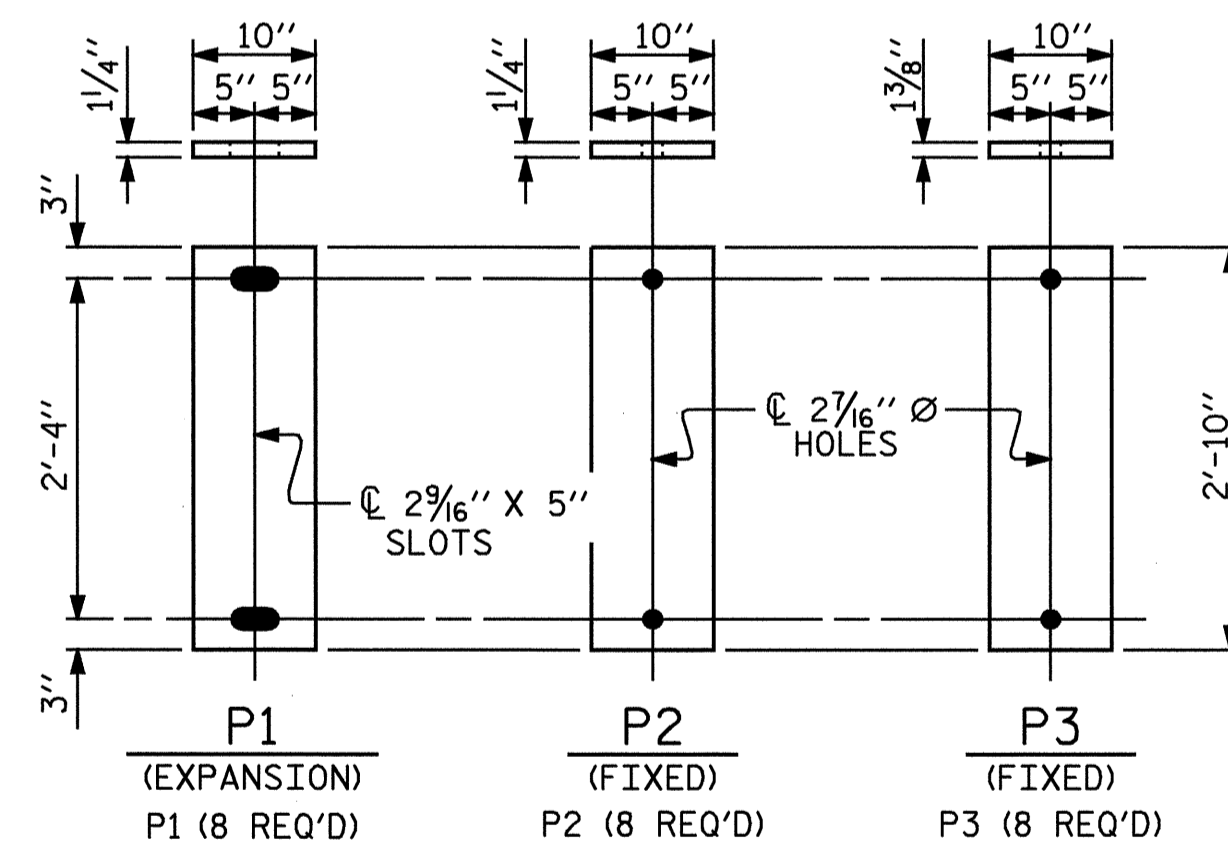
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



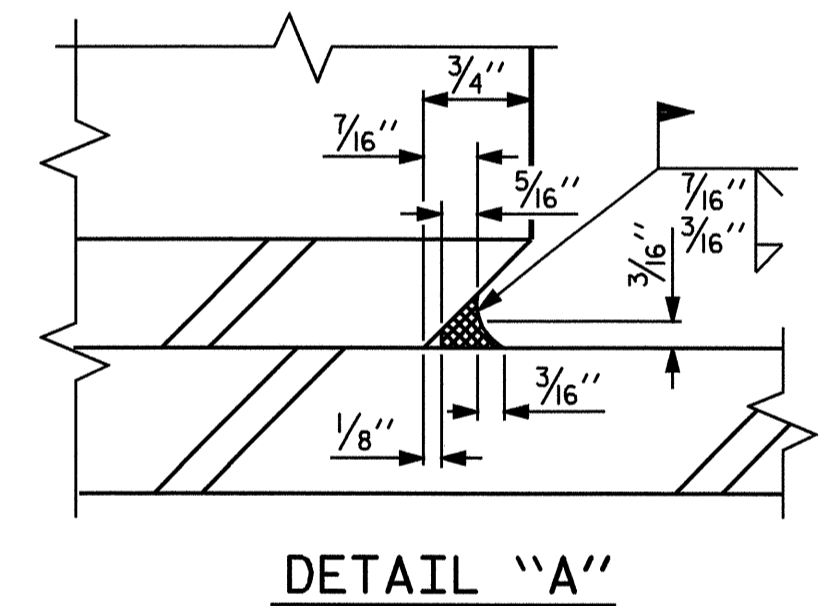
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E2 (24 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE III



SOLE PLATE DETAILS ("P")

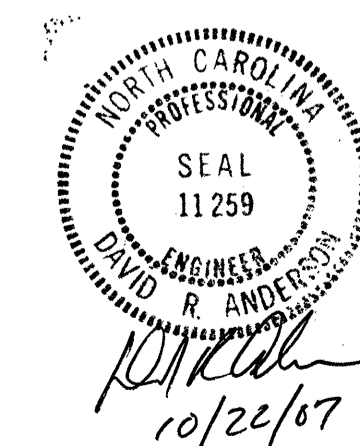


DETAIL "A"

— LOAD RATINGS —	
	MAX.D.L.+L.L.
45"PCG -TYPE III	115 K

ASSEMBLED BY : M.A. ALLEN	DATE : 5/06
CHECKED BY : W.F. PARKER	DATE : 8/06
DRAWN BY : WJH 8/89	REV. 10/17/00 RWW/LES
CHECKED BY : CRK 8/89	REV. 7/10/01 RWW/LES
	REV. 5/1/06 TLA/GM

18-OCT-2007 14:05
G:\Structures\FINAL PLANS\b4104.ed.01.bg.dgn
elocklear



PROJECT NO. B-4104
DAVIE COUNTY
STATION: 21+71.50 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD ELASTOMERIC BEARING DETAILS						S-16
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE						
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	35
1			3			
2			4			

NOTES

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

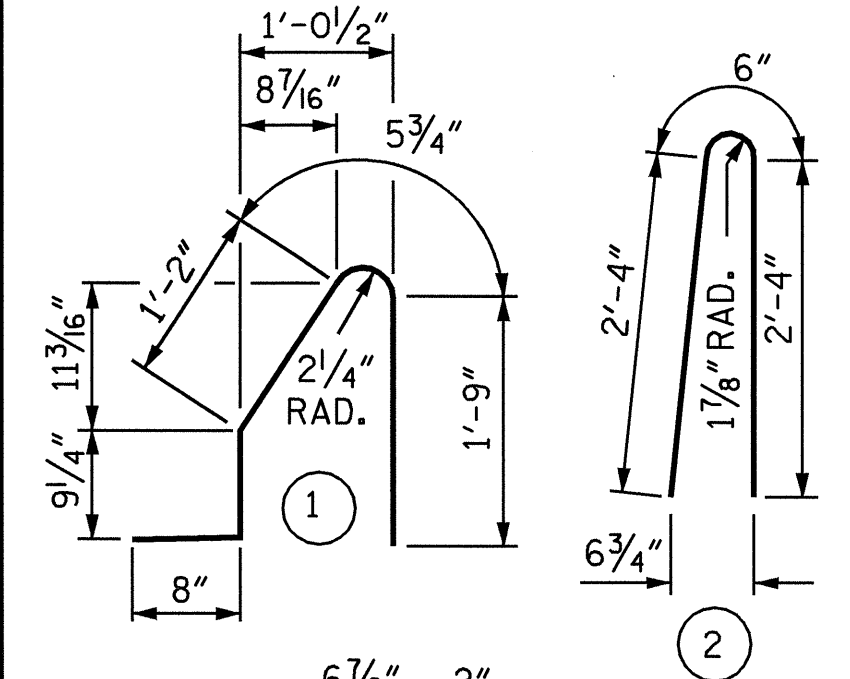
WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

BAR TYPES

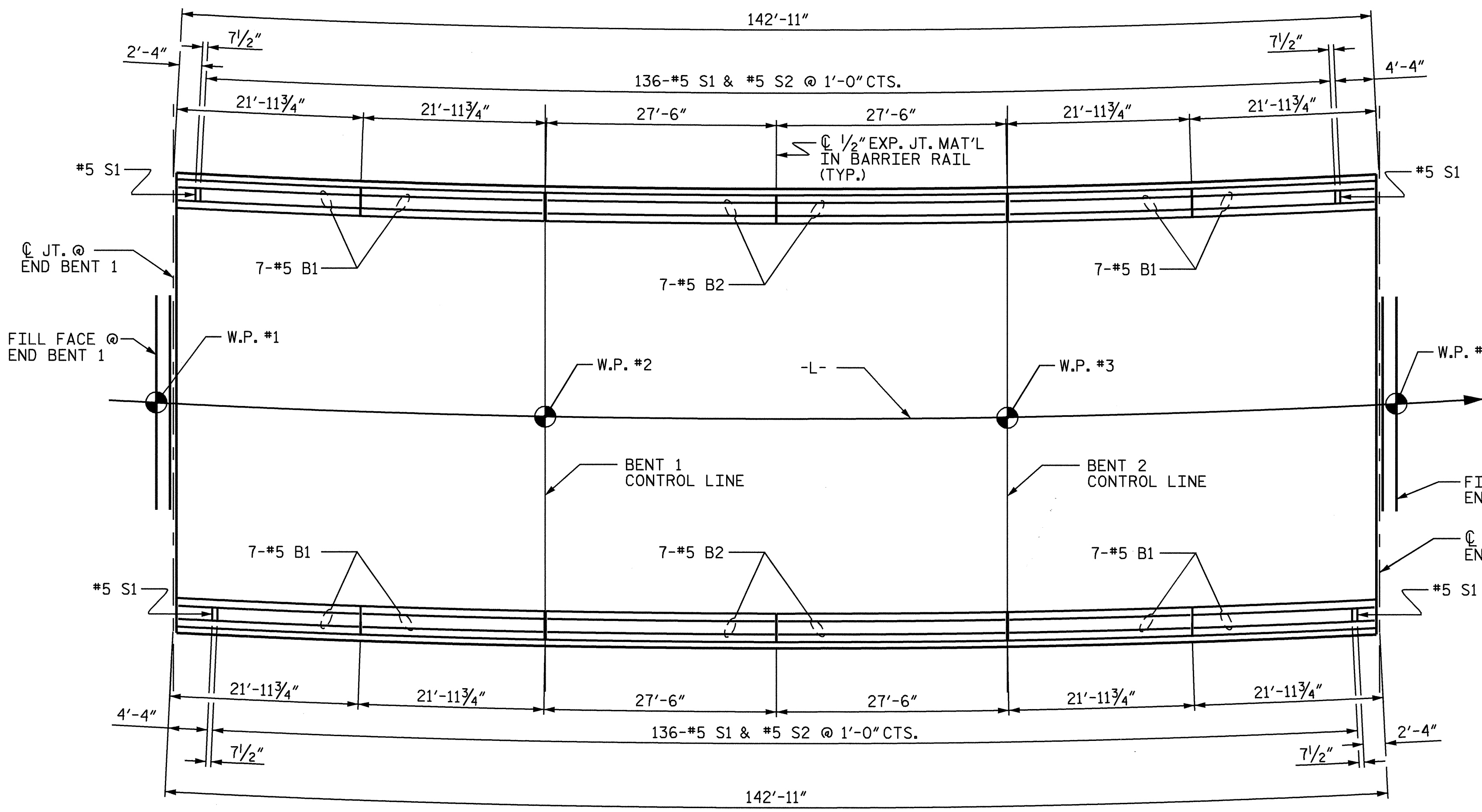


ALL BAR DIMENSIONS ARE OUT TO OUT

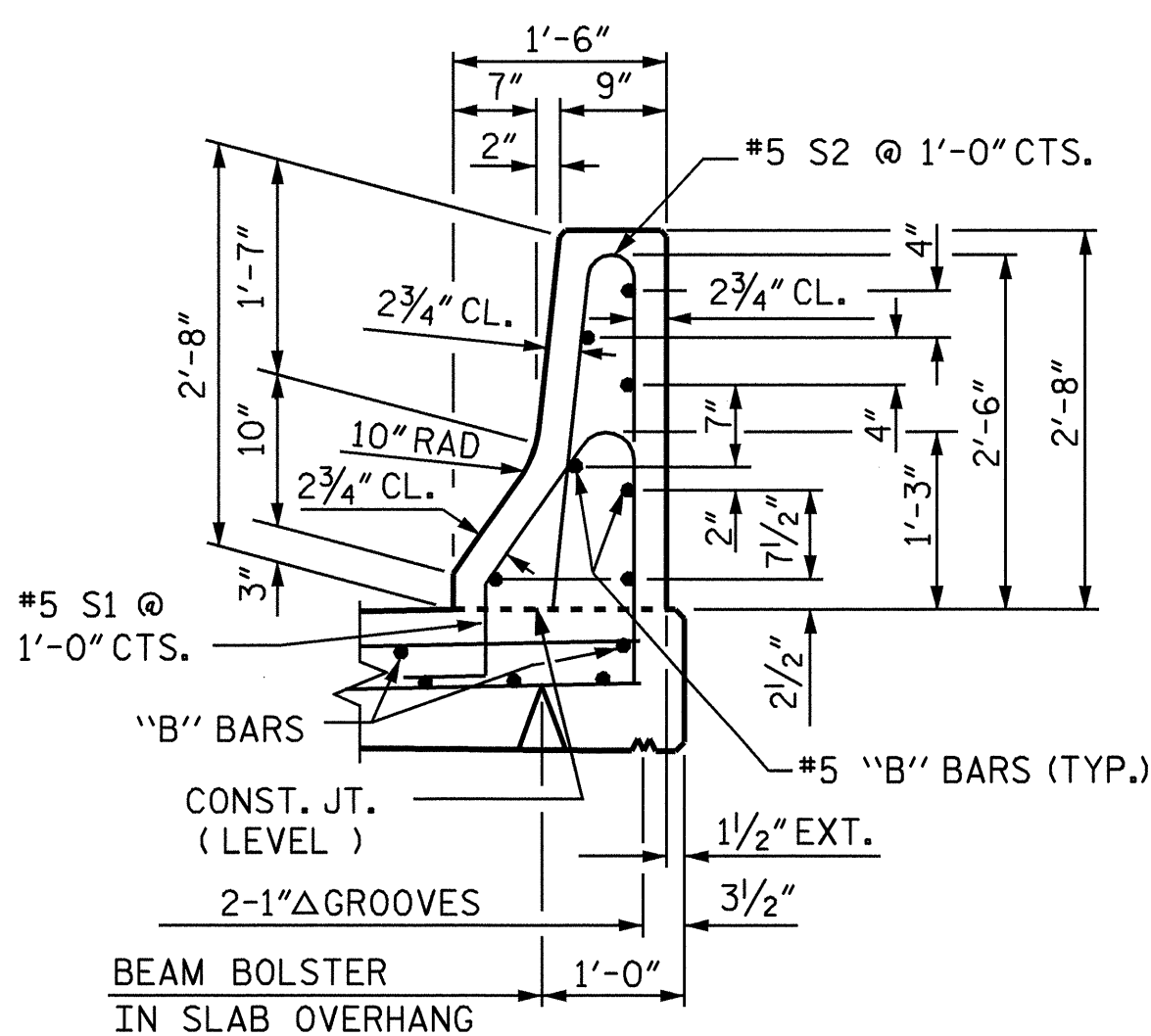
BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

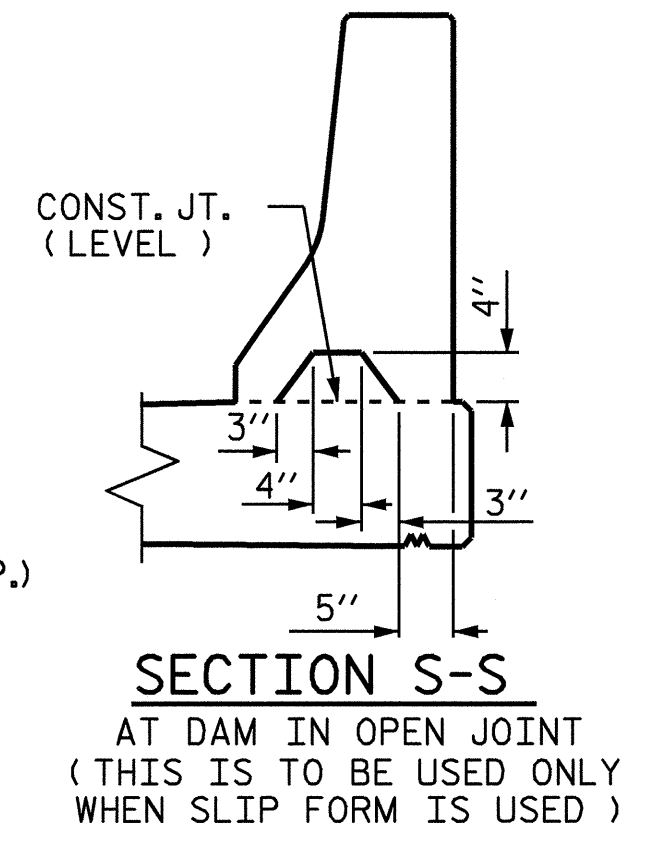
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	56	#5	STR	21'-6"	1256
* B2	28	#5	STR	27'-1"	791
* S1	276	#5	1	4'-10"	1391
* S2	276	#5	2	5'-2"	1487
* S3	12	#5	3	3'-4"	42
* S4	12	#5	STR	3'-2"	40
* EPOXY COATED REINFORCING STEEL					5,007 LBS.
CLASS AA CONCRETE					28.6 CU. YDS.
CONCRETE BARRIER RAIL					285.83 LIN. FT.



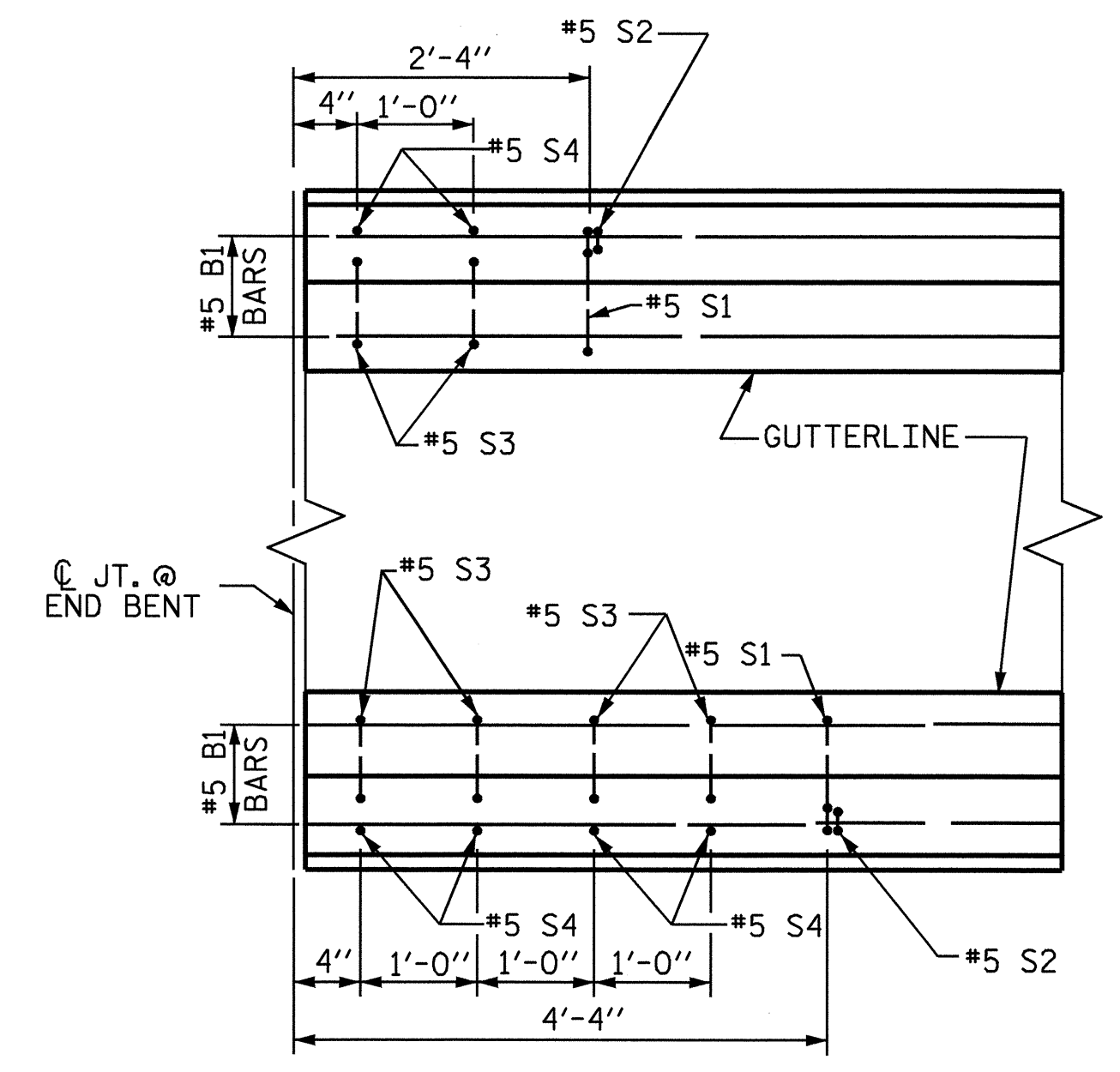
PLAN OF BARRIER RAIL



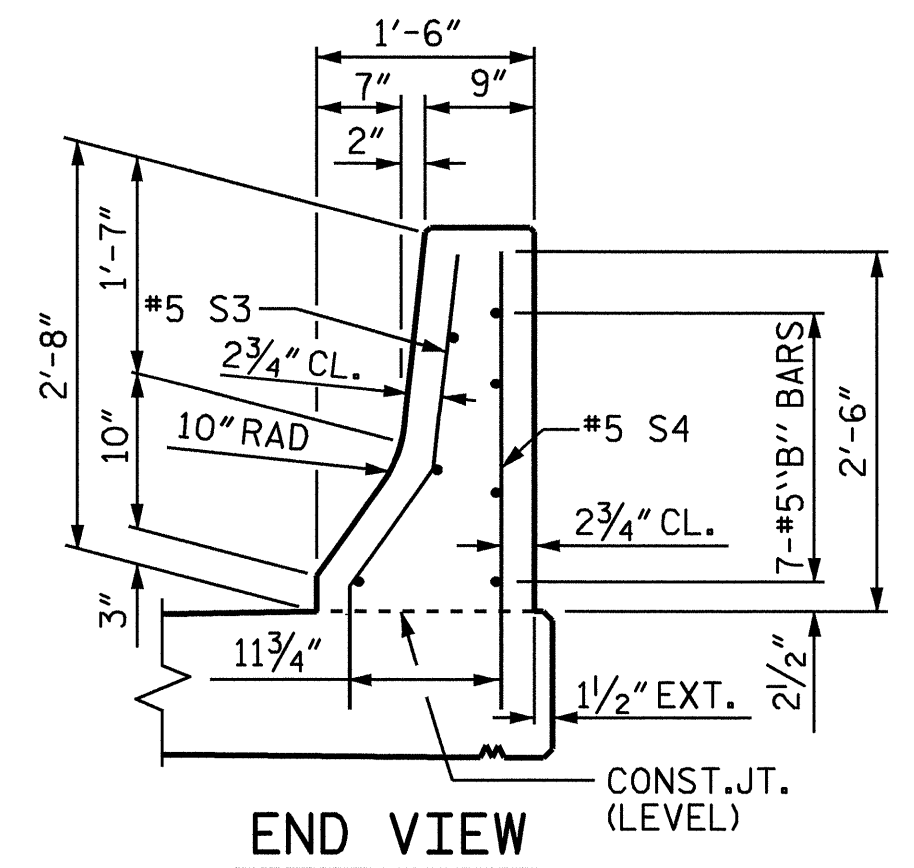
SECTION THRU RAIL



SECTION S-S

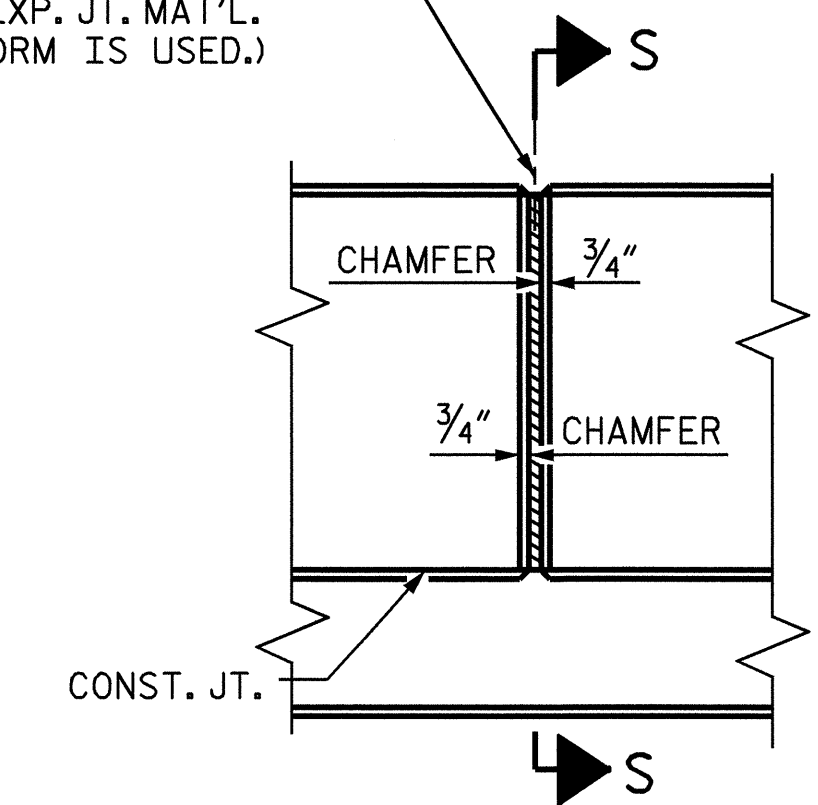


PLAN

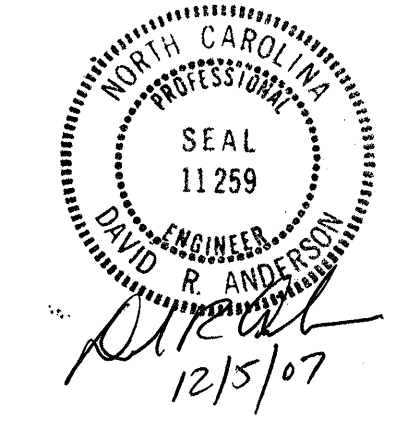


END VIEW

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



ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS



PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

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

ASSEMBLED BY : M.A. ALLEN	DATE : 5/06
CHECKED BY : W.F. PARKER	DATE : 8/06
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

END OF RAIL DETAILS
FOR ADHESIVE ANCHORING AT SAWED JOINTS

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 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

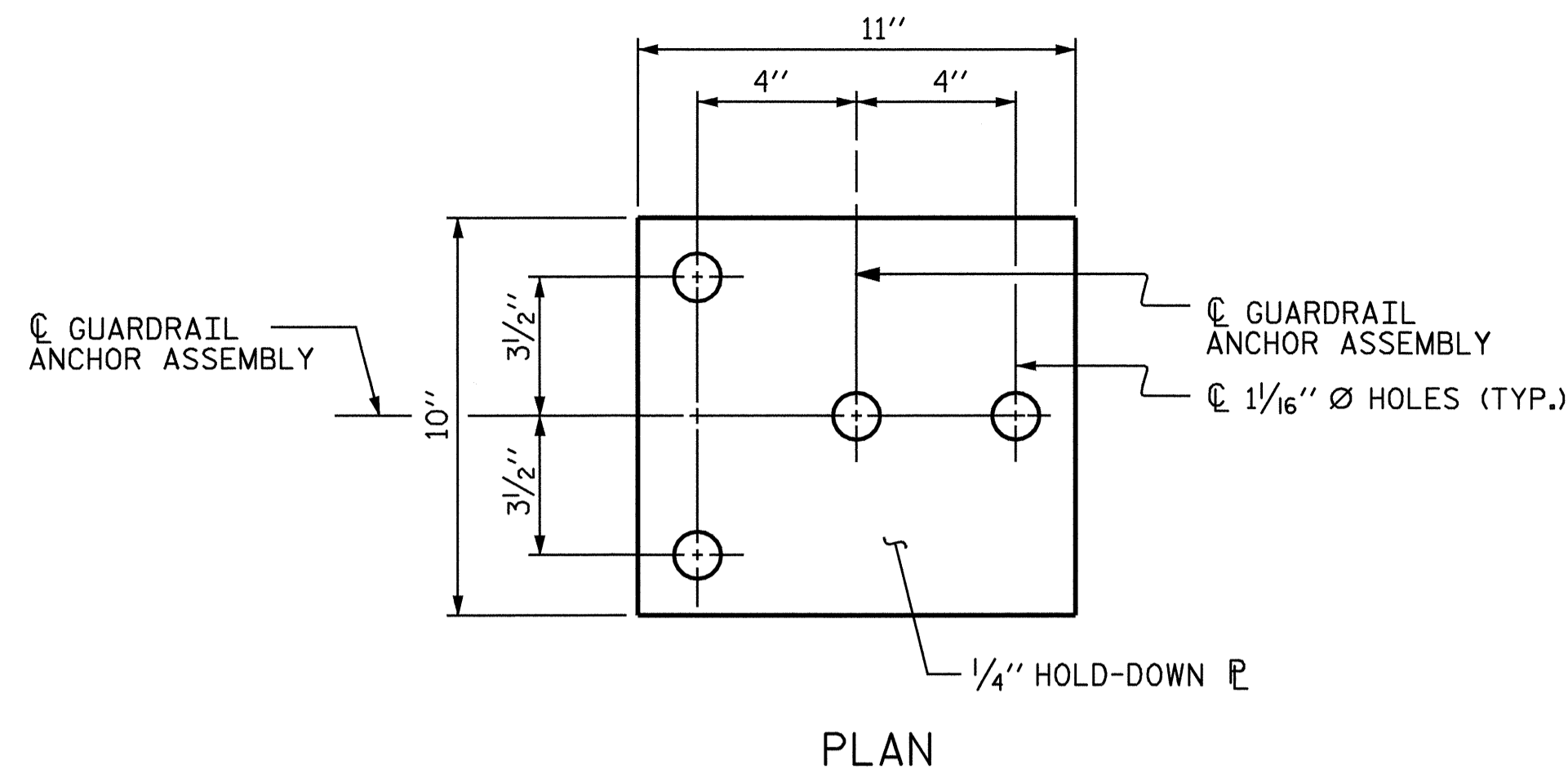
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

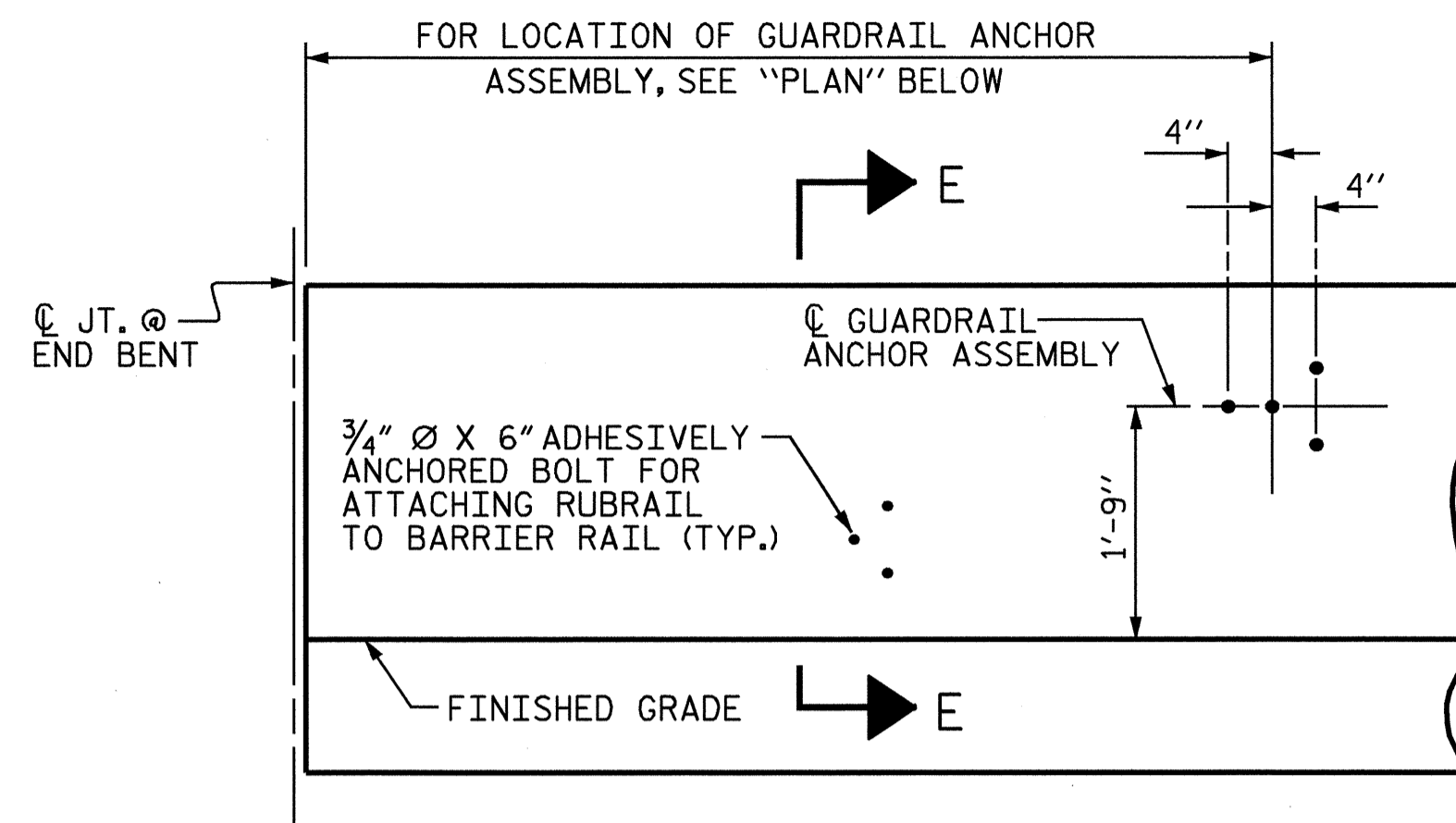
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

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

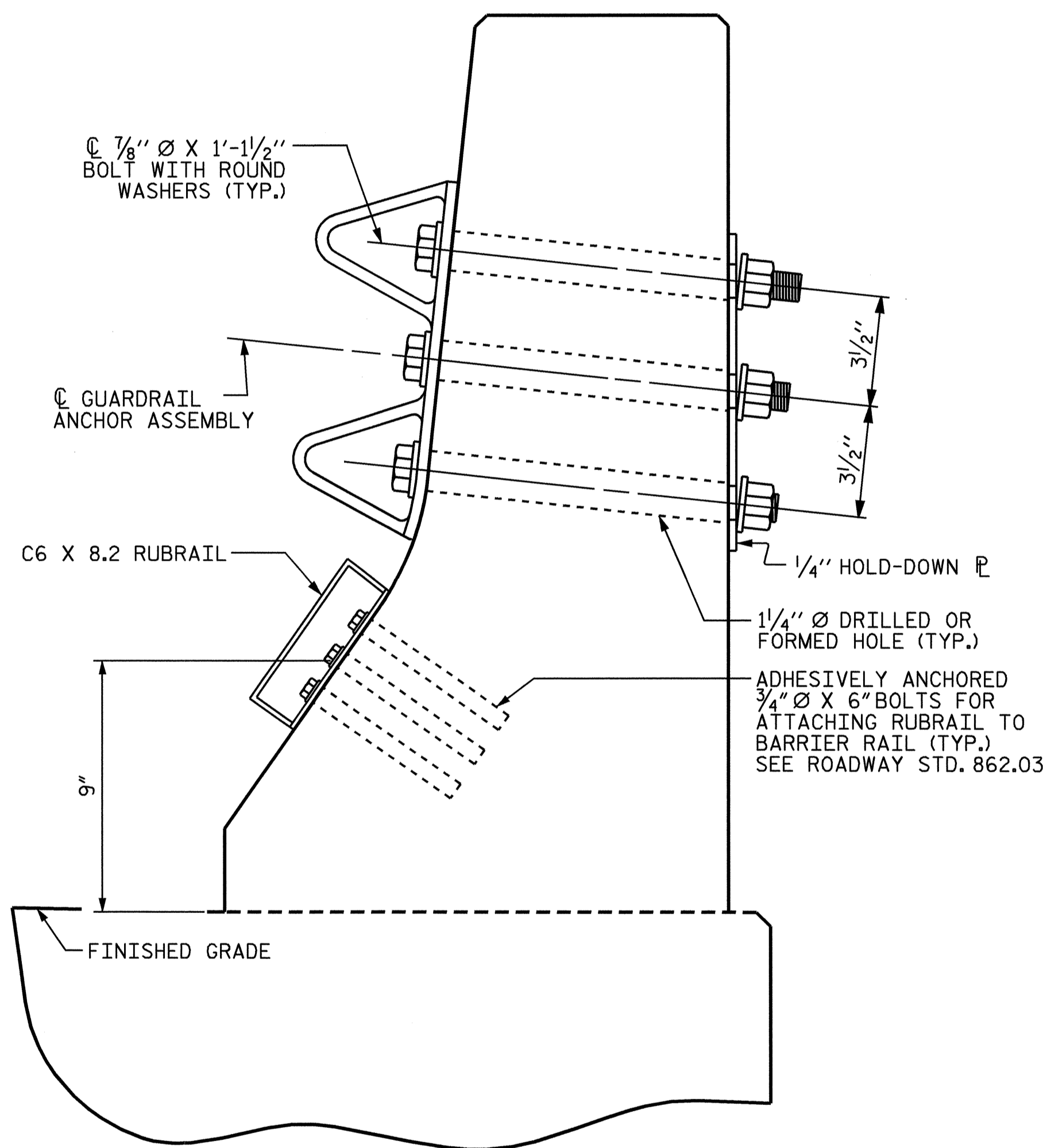


PLAN



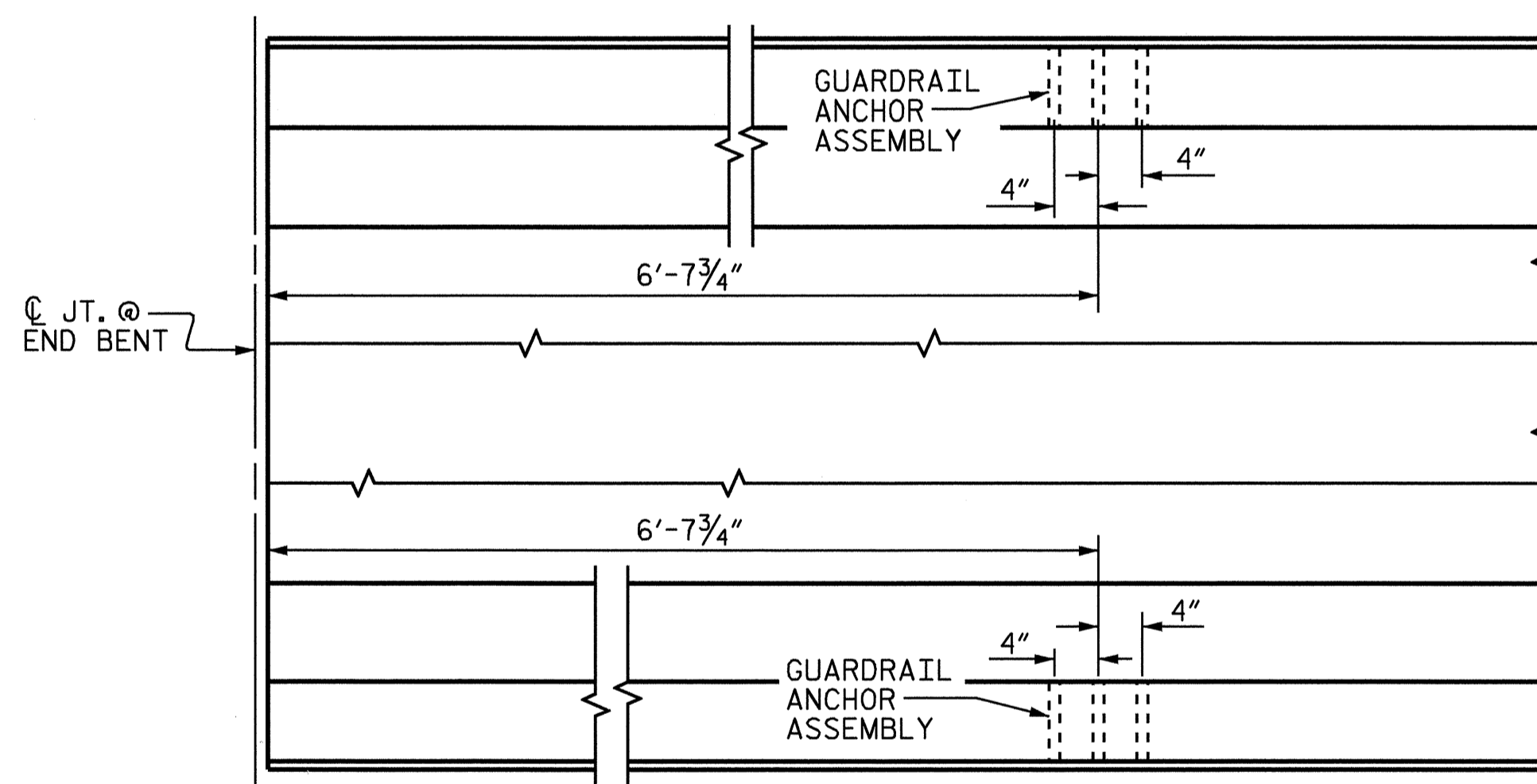
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

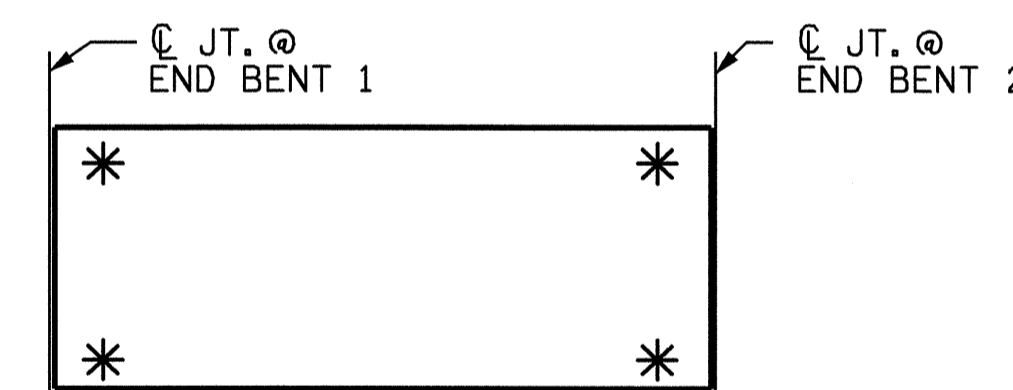
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

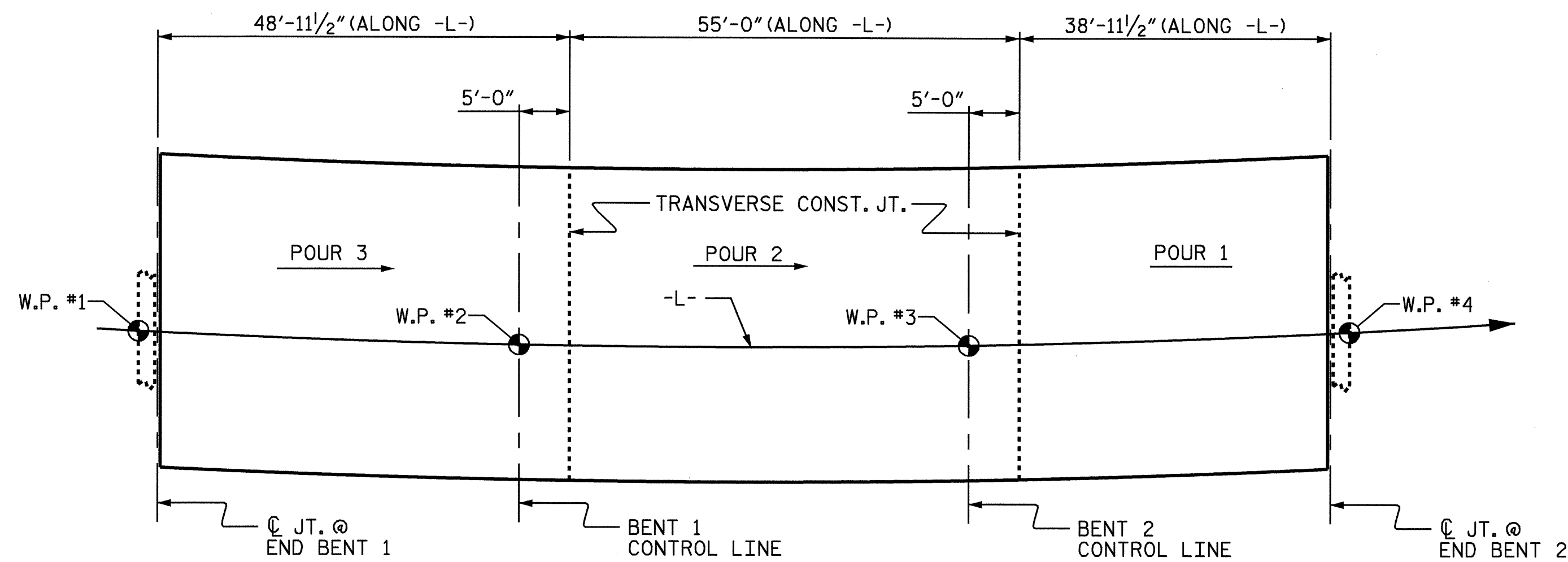
PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-



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

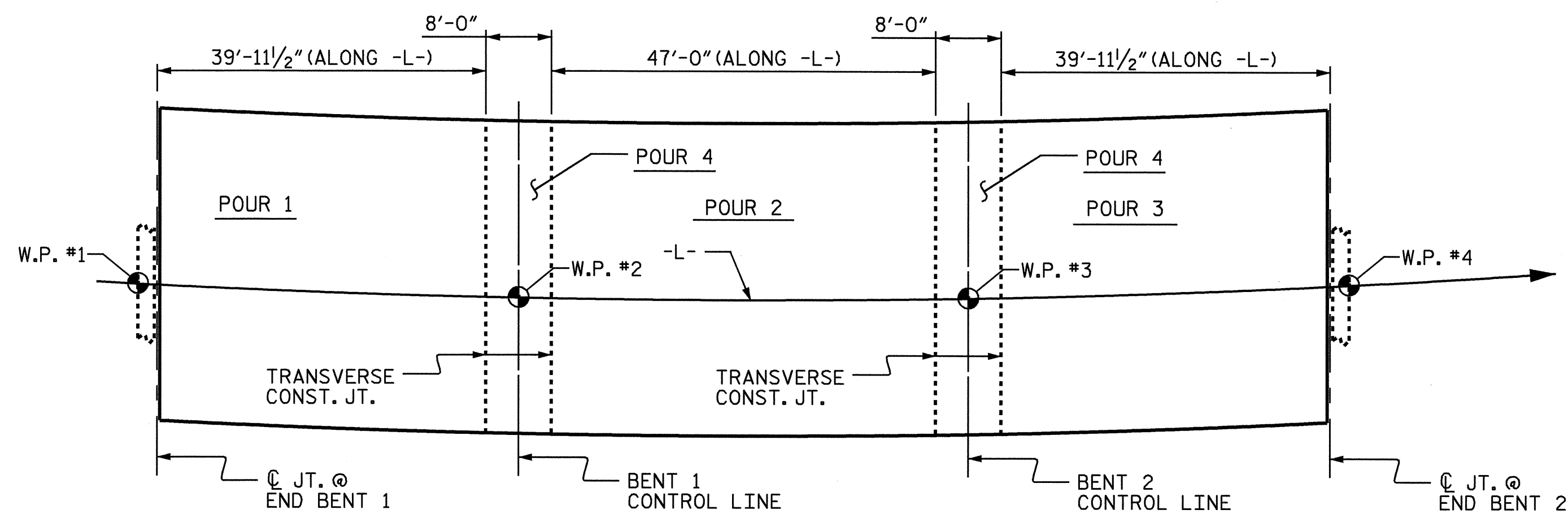
ASSEMBLED BY : E.C. LOCKLEAR DATE : 9-17-07
 CHECKED BY : S. WANCE PE DATE : 9-17-07
 DRAWN BY : TLA 5/06 ADDED 5/1/06R KMM/GM
 CHECKED BY : GM 5/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-18
1			3			TOTAL SHEETS
2			4			35



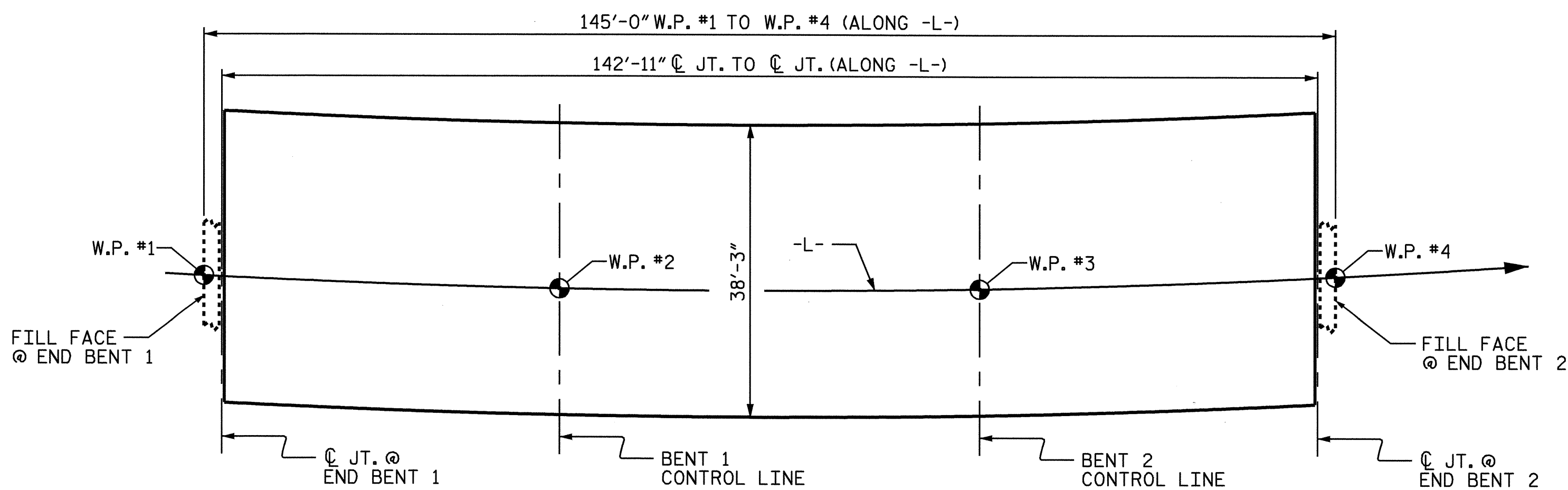
POUR SEQUENCE

TRANSVERSE CONST. JT. TO BE PLACED PARALLEL TO ADJACENT BENT CONTROL LINE



OPTIONAL POUR SEQUENCE

POUR 4 CAN NOT BE STARTED UNTIL BOTH ADJACENT POUR 1 AND POUR 2 ; OR, POUR 2 AND POUR 3 REACH A MINIMUM OF 3000 PSI
TRANSVERSE CONST. JT. TO BE PLACED PARALLEL TO ADJACENT BENT CONTROL LINE



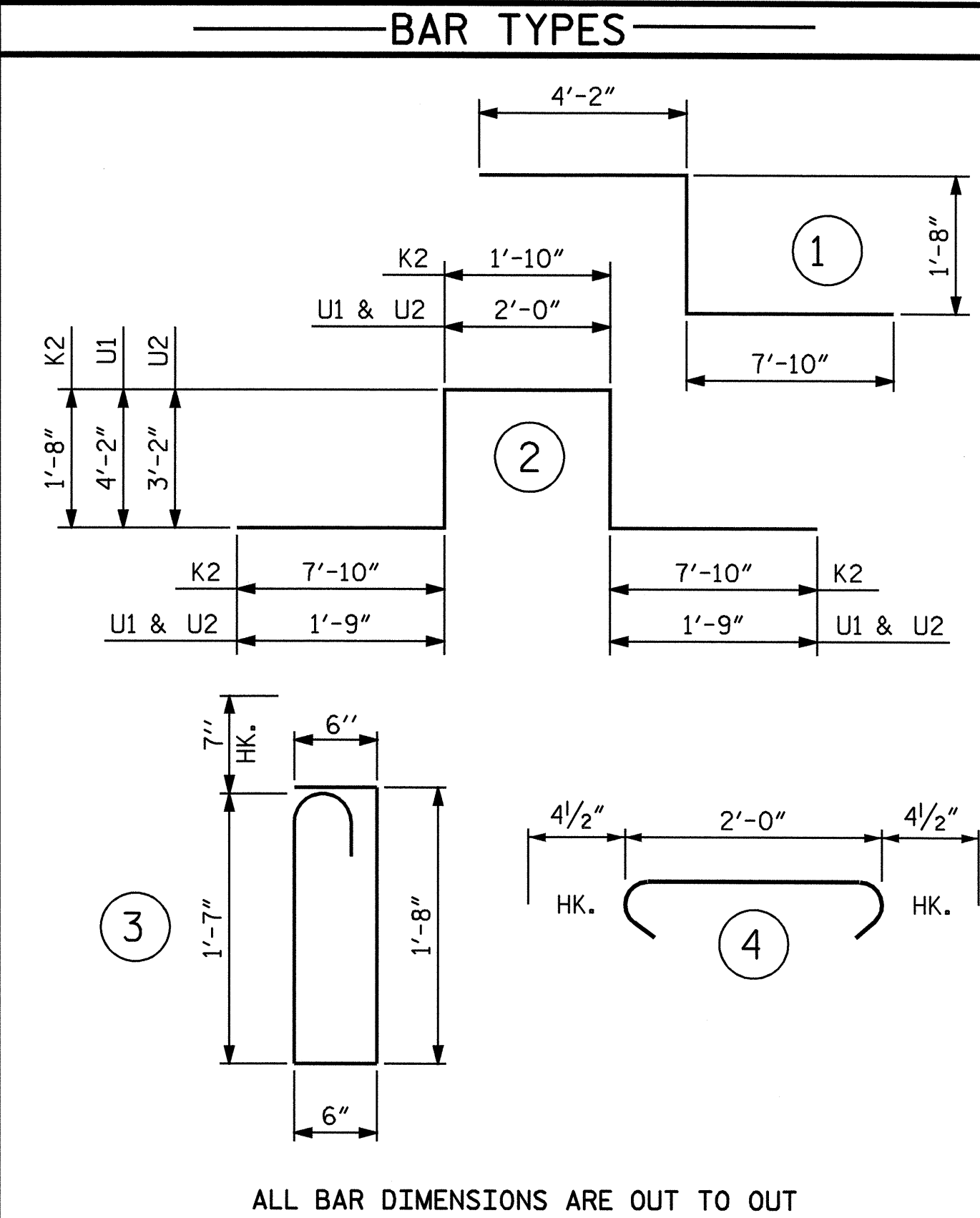
LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 5463)

ASSEMBLED BY :	M.A. ALLEN	DATE :	6/06
CHECKED BY :	W.F. PARKER	DATE :	8/06
DRAWN BY :	JMB 5/87	REV. 6/1/94	EEM/GRP
CHECKED BY :	SJD 9/87	REV. 8/16/99	RWW/LES

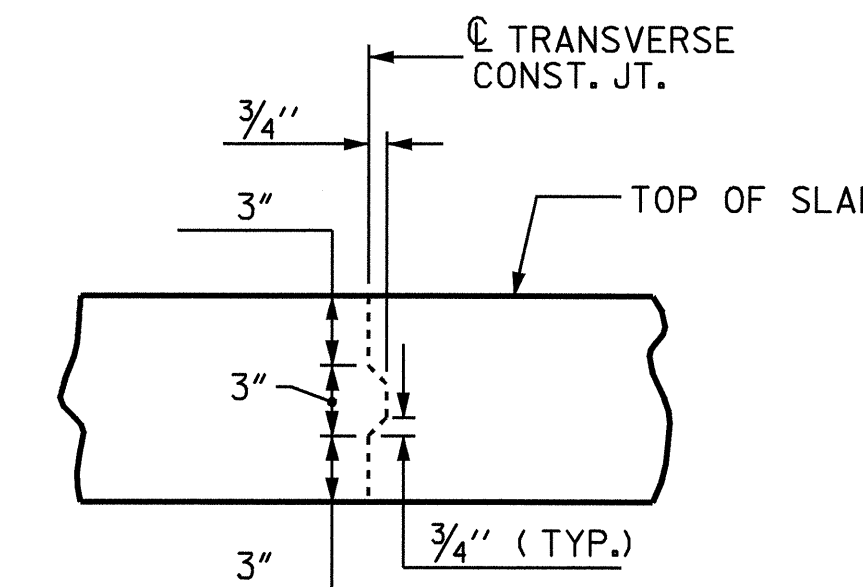
BILL OF MATERIAL

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	285	5	STR 37'-11"	11271	
A2	285	5	STR 37'-11"	11271	
* B1	52	4	STR 27'-6"	955	
* B2	52	7	STR 39'-9"	4225	
* B3	50	7	STR 14'-11"	1524	
* B4	26	4	STR 16'-0"	278	
B5	141	5	STR 48'-11"	7194	
* K1	8	8	1	13'-8"	292
* K2	8	8	2	20'-10"	445
K3	12	4	STR 7'-1"	57	
K4	24	4	STR 9'-3"	148	
K5	12	4	STR 8'-9"	70	
K6	8	4	STR 30'-0"	160	
* S1	54	5	3	4'-10"	272
S2	168	4	4	2'-9"	309
U1	48	4	2	13'-10"	444
U2	12	4	2	11'-10"	95
REINFORCING STEEL				LBS.	19,748
* EPOXY COATED REINFORCING STEEL				LBS.	19,262
				CLASS AA CONCRETE	
				(CU. YDS.)	
POUR 1					50.3
POUR 2					79.1
POUR 3					72.9
TOTALS**					202.3

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED



ALL BAR DIMENSIONS ARE OUT TO OUT



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

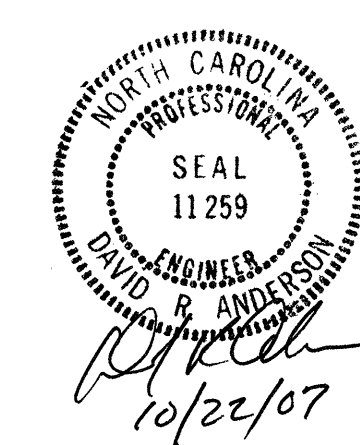
GROOVING BRIDGE FLOORS

APPROACH SLABS	907 SQ.FT.
BRIDGE DECK	4559 SQ.FT.
TOTAL	5466 SQ.FT.

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"			

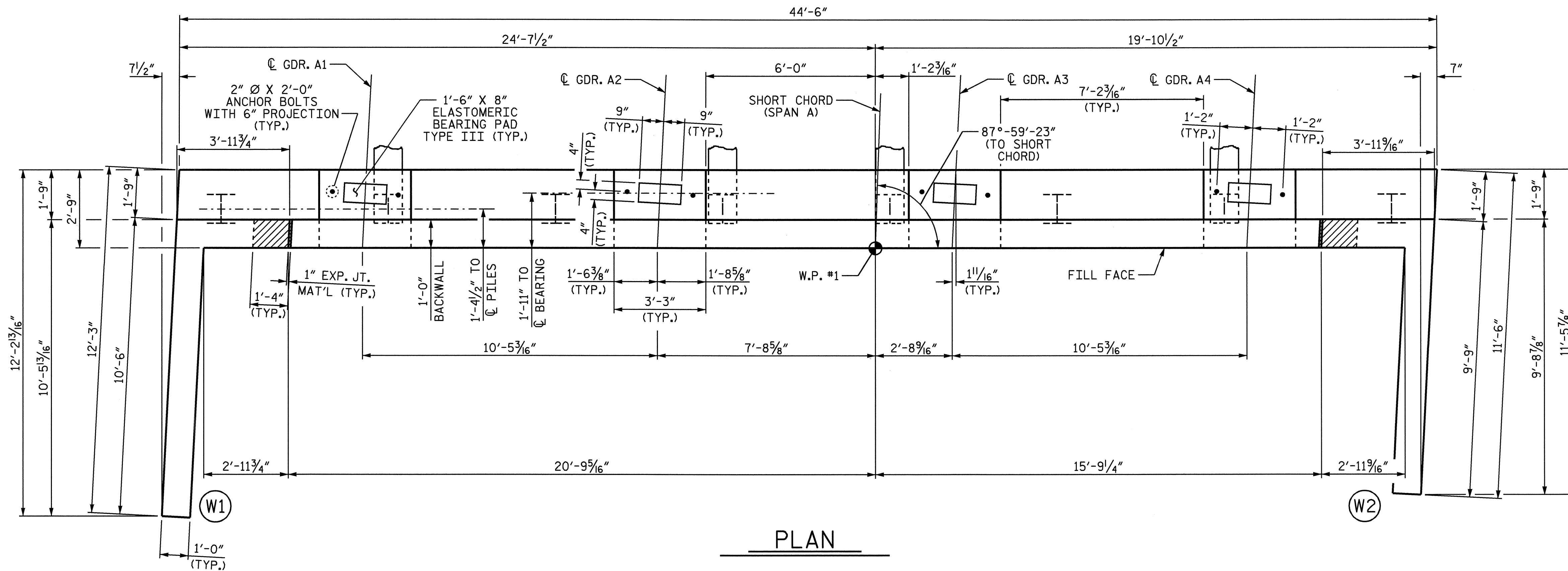
PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-19
2			4			TOTAL SHEETS 35

STD. NO. BOM2



PLAN

NOTES

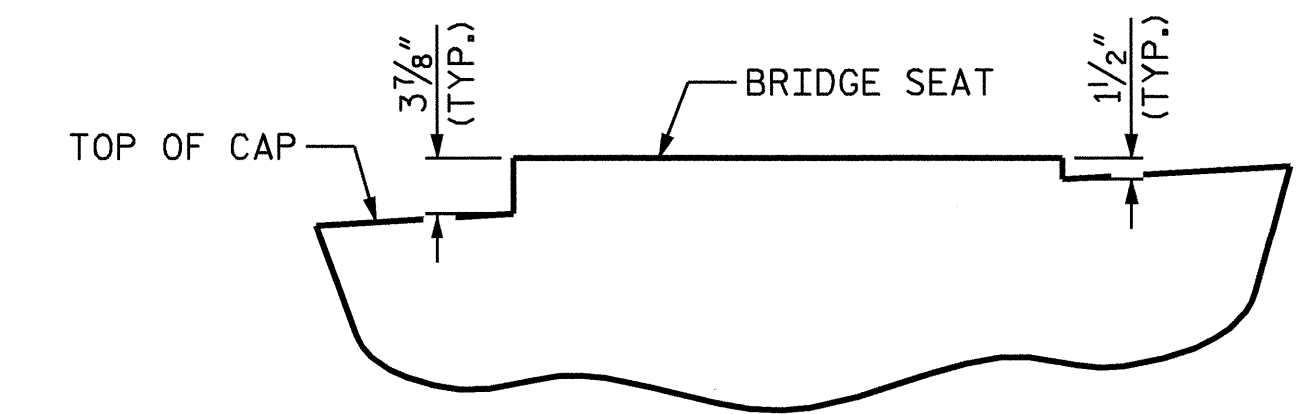
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

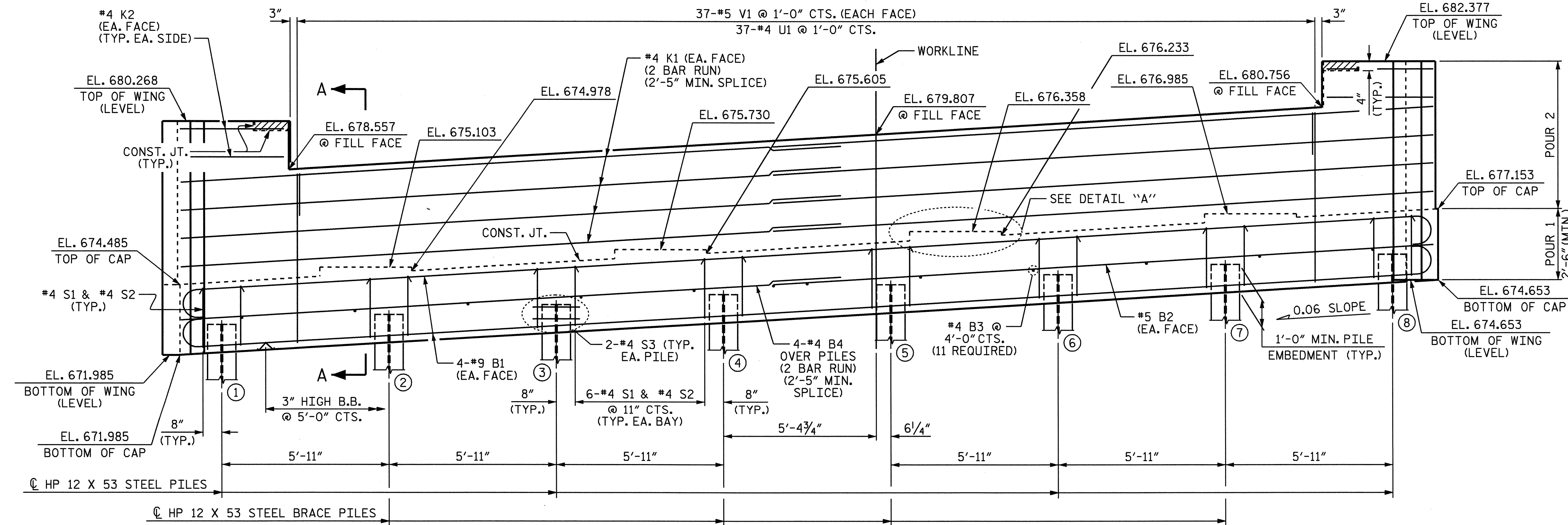
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

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



DETAIL "A"
(TYP. EA. BRIDGE SEAT)



ELEVATION

TOP OF PILE ELEVATIONS	
PILE NO.	ELEVATION
1	673.074
2	673.429
3	673.784
4	674.139
5	674.494
6	674.849
7	675.204
8	675.559

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 1 OF 3

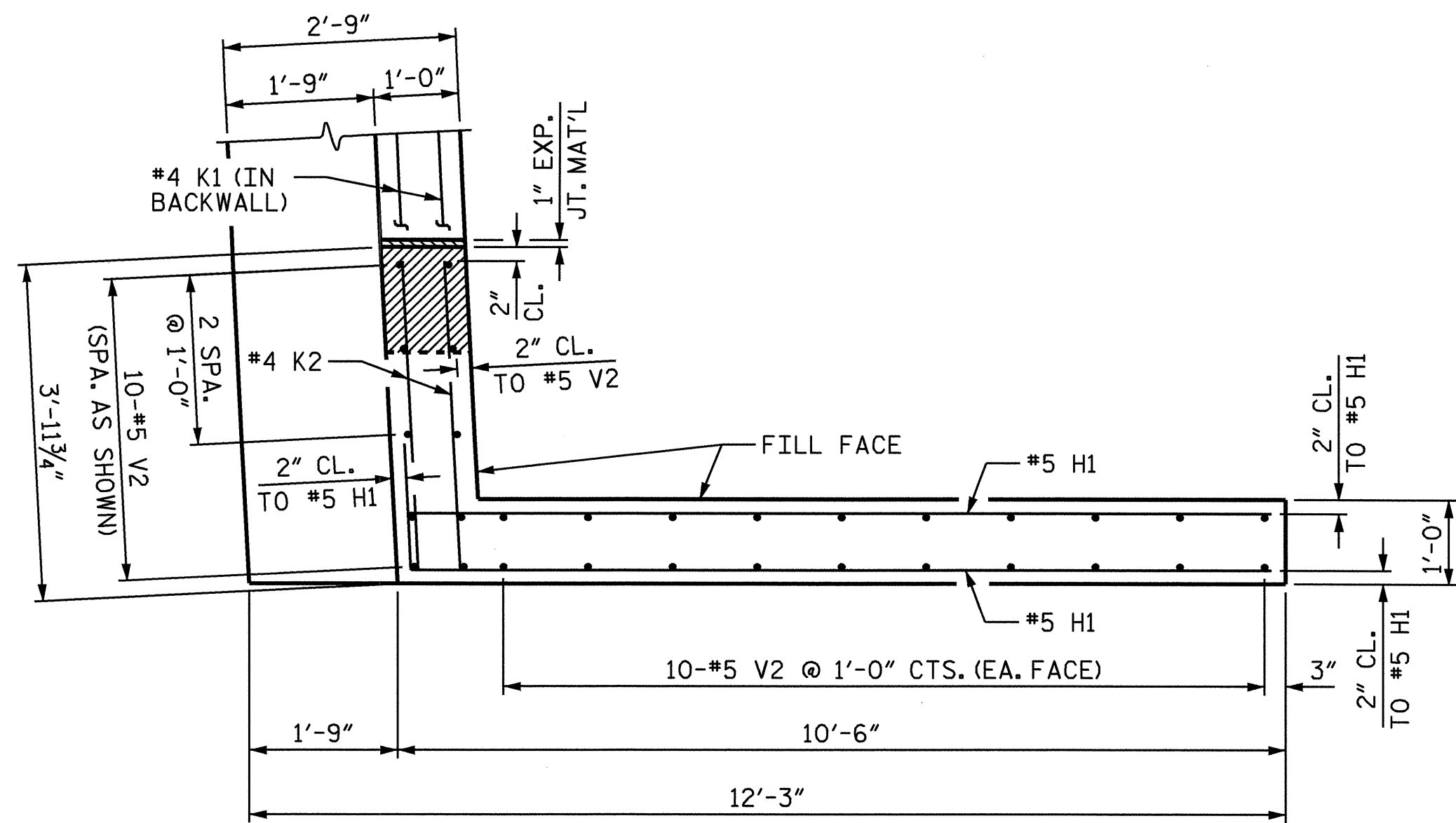


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

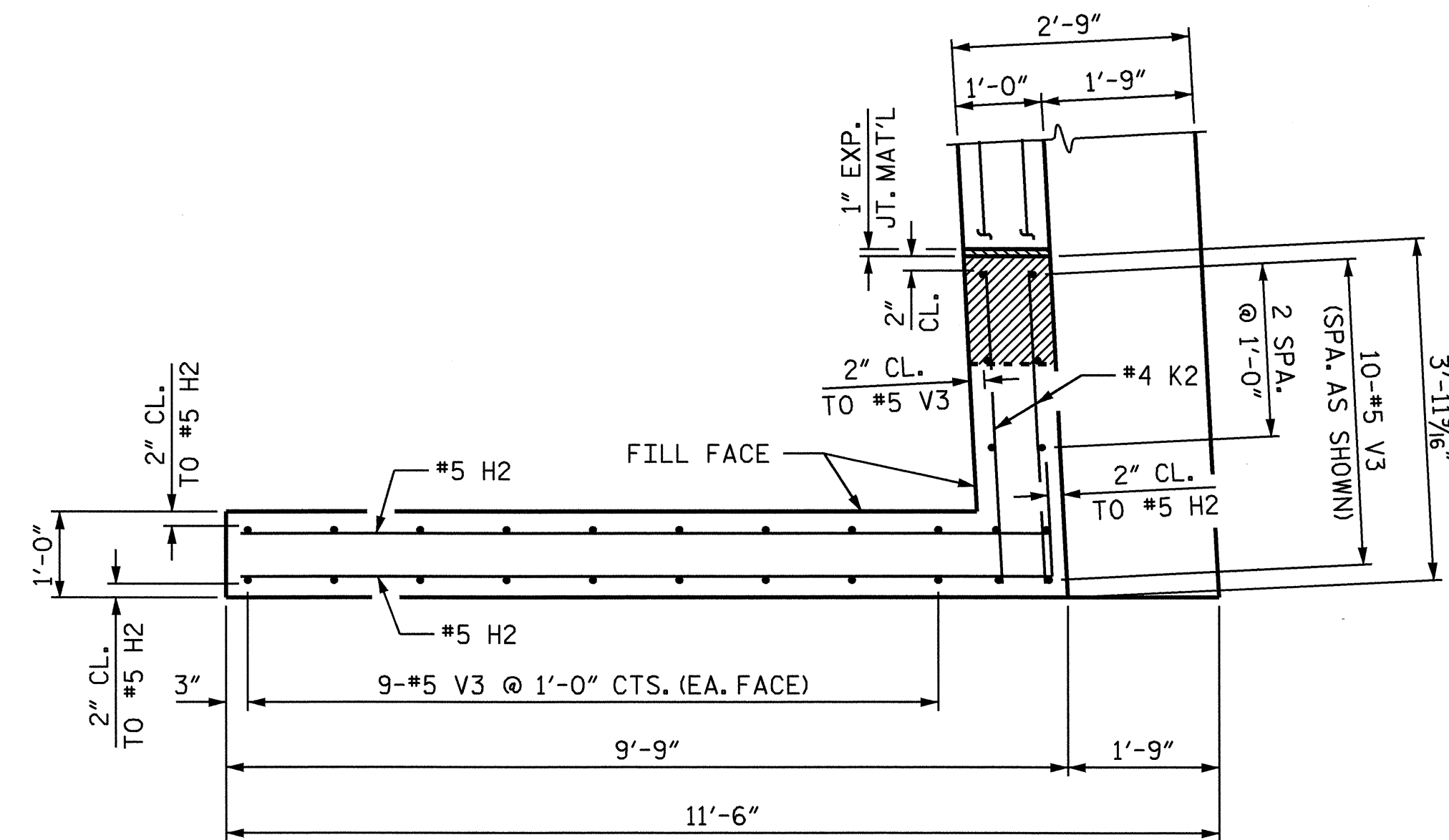
**SUBSTRUCTURE
 END BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-20
1			3			TOTAL SHEETS
2			4			35

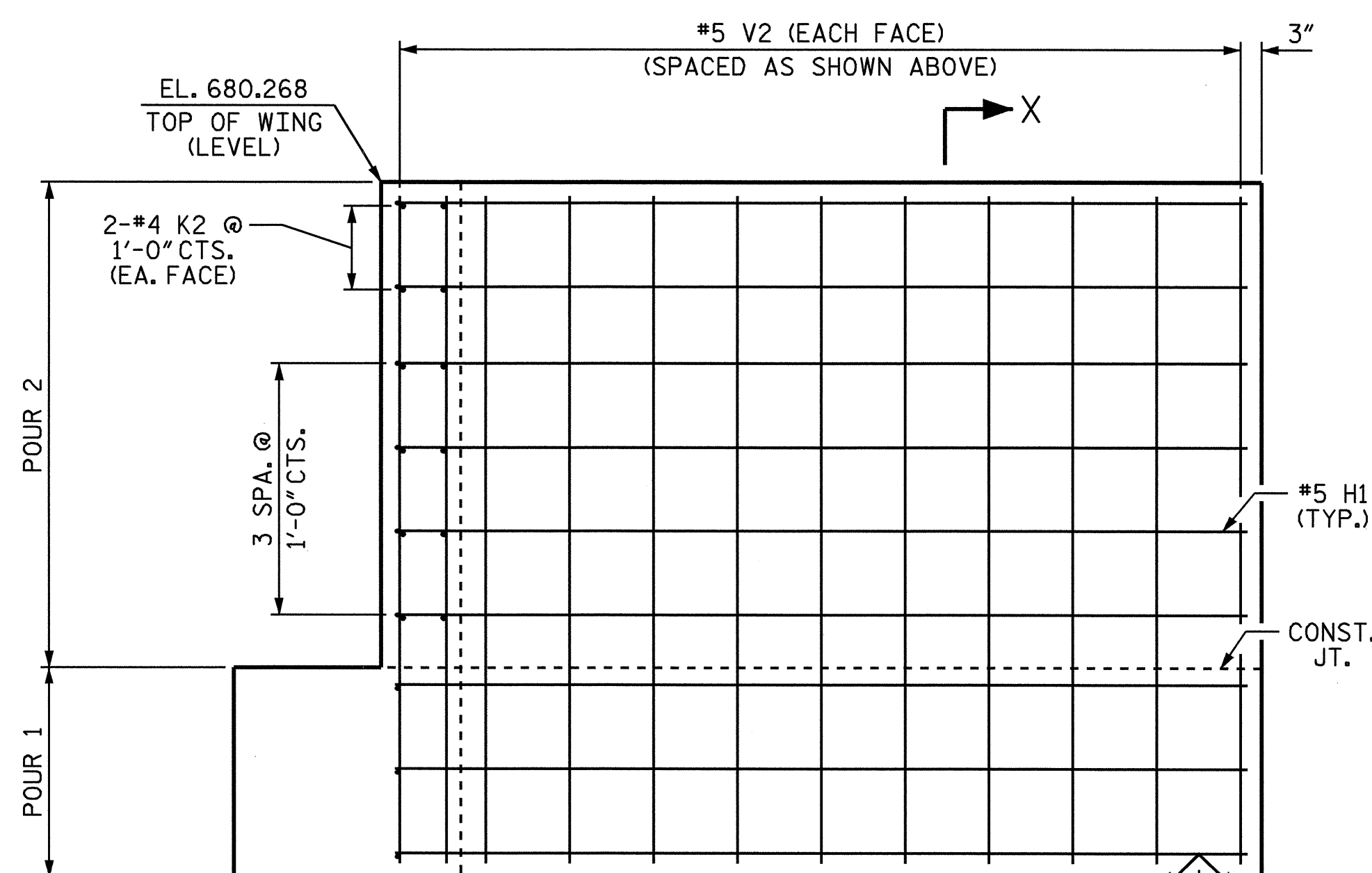
DRAWN BY: T.A. HARRIS DATE: 12-29-06
 CHECKED BY: B.L. GREEN DATE: 3-28-07



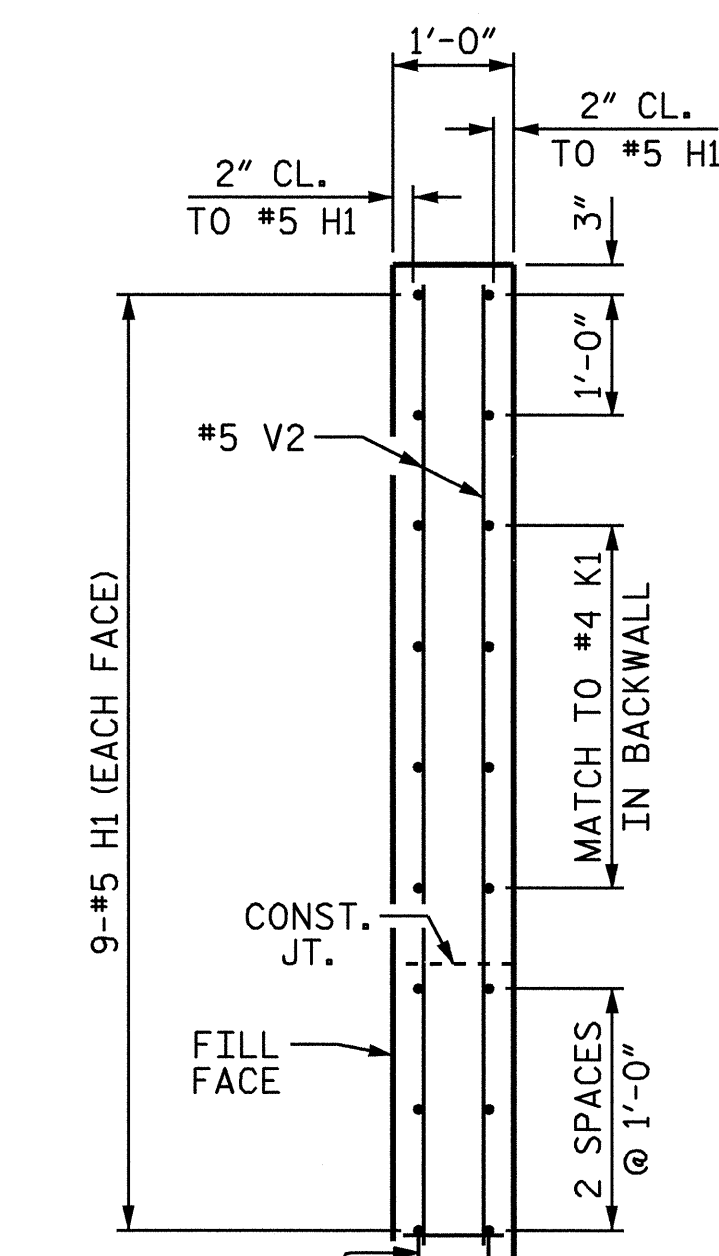
PLAN OF WING (W1)



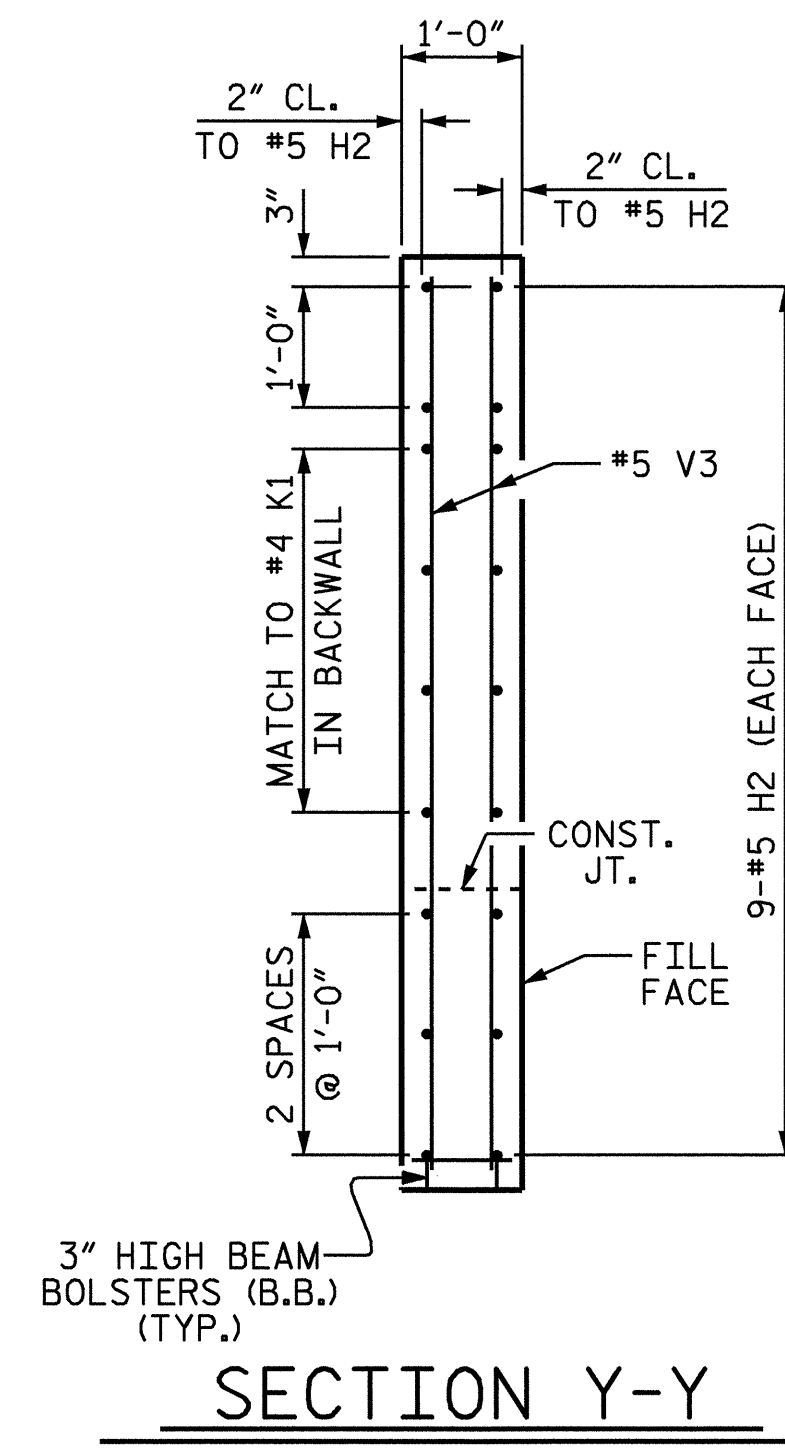
PLAN OF WING (W2)



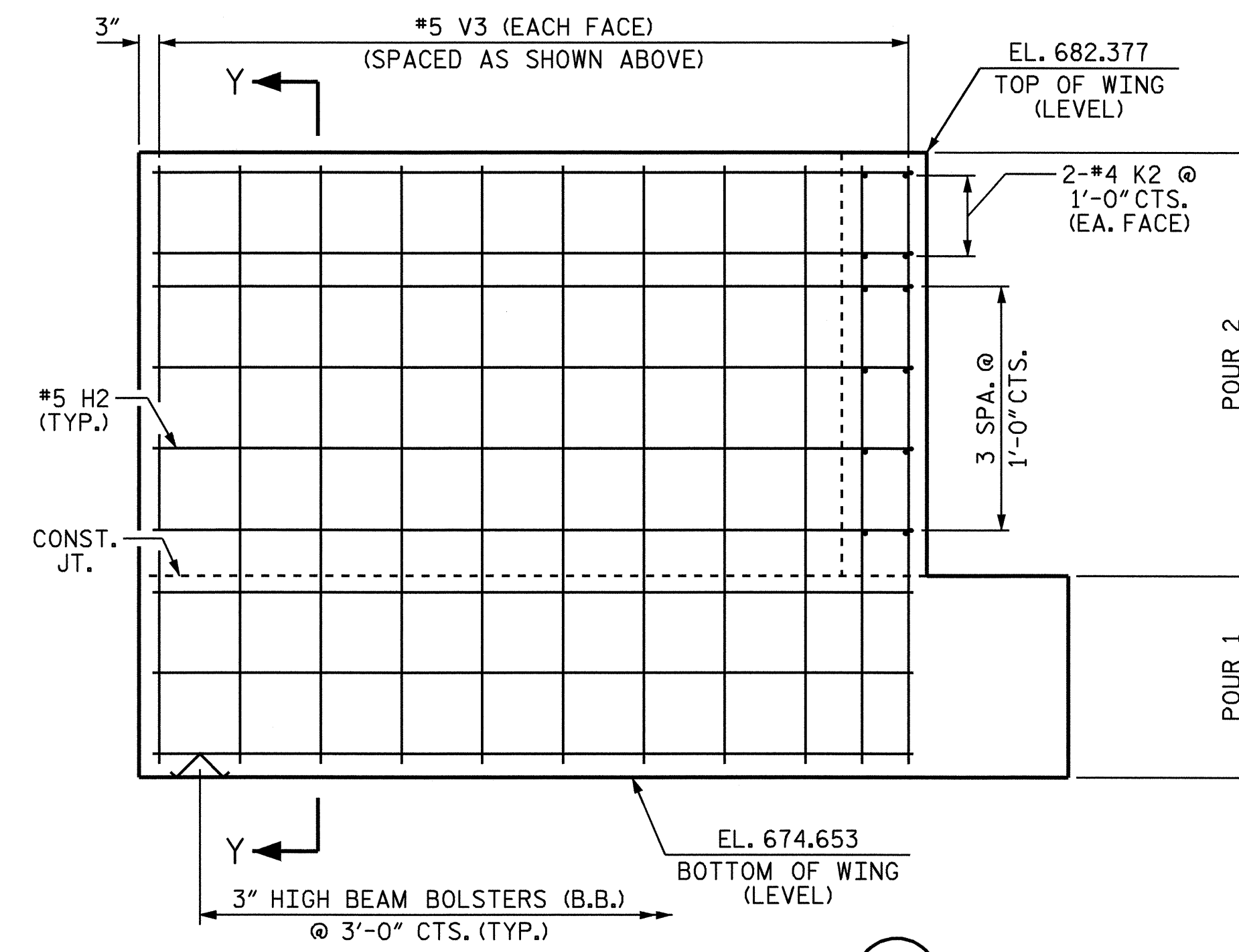
ELEVATION OF WING (W1)



SECTION X-X



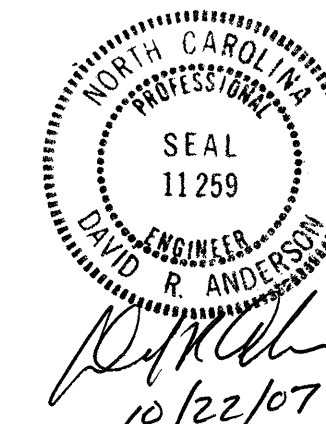
SECTION Y-Y



ELEVATION OF WING (W2)

PROJECT NO. B-4104
 DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 2 OF 3

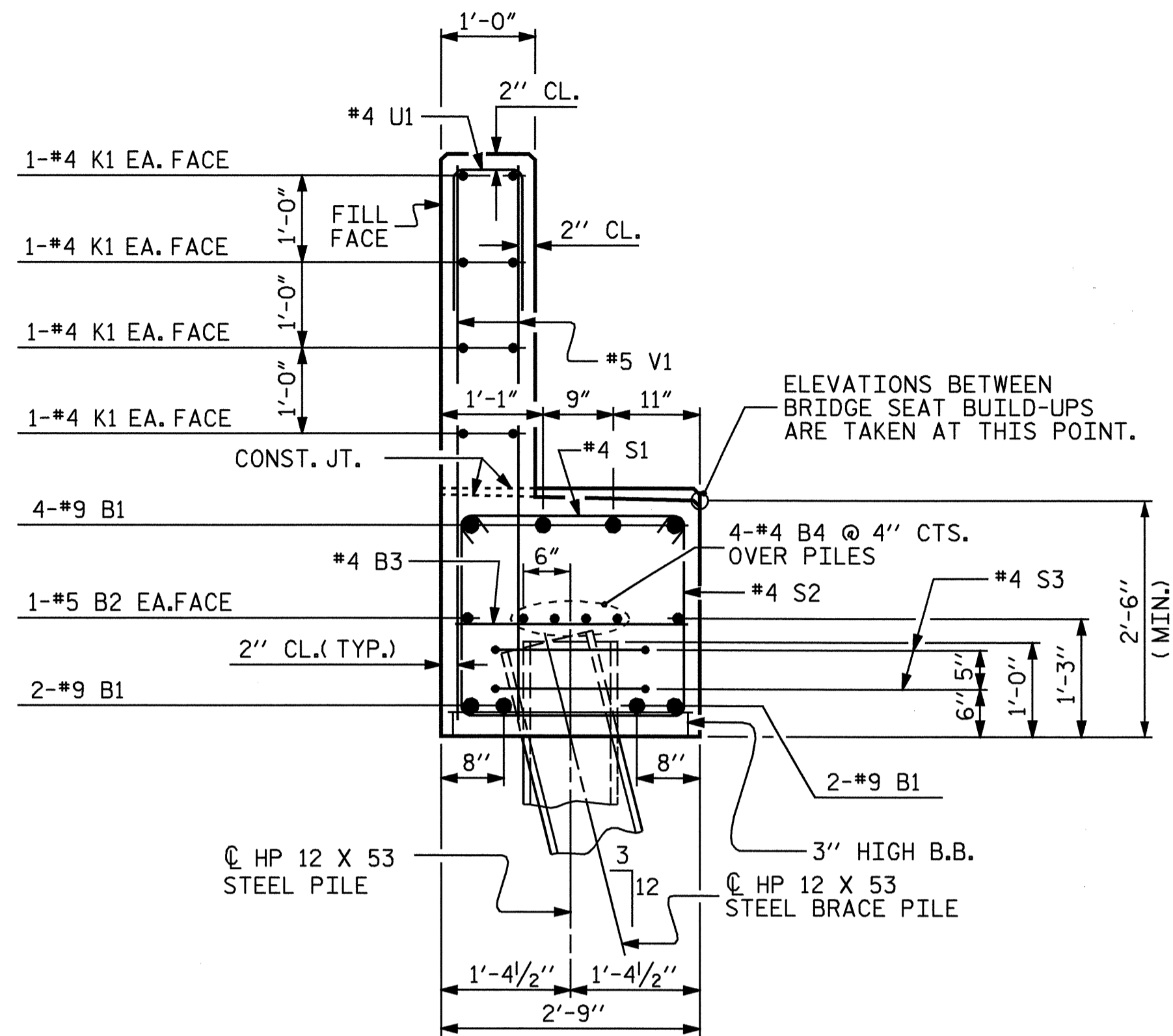


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

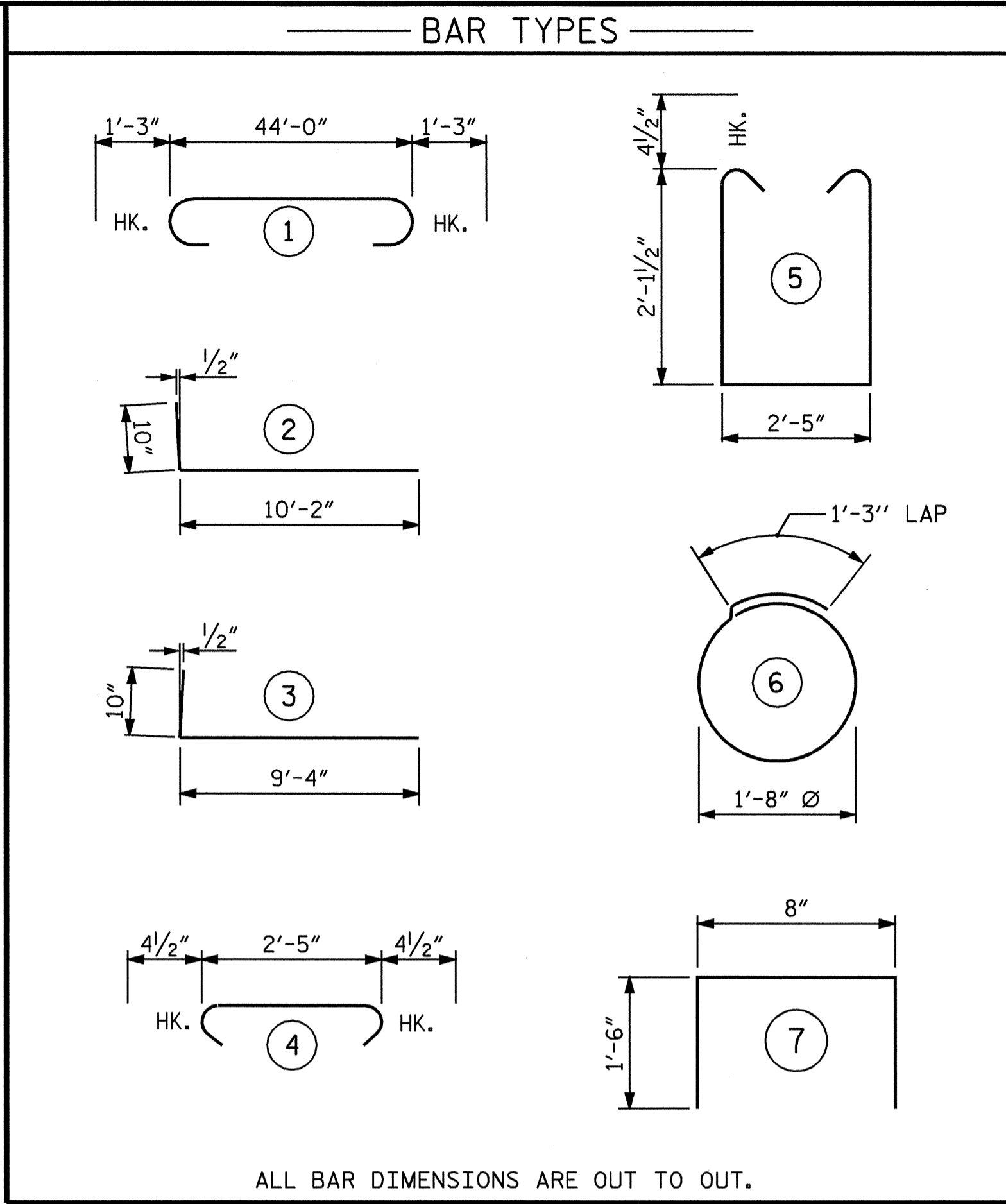
SUBSTRUCTURE
 END BENT 1

DRAWN BY: T.A. HARRIS DATE: 12-29-06
 CHECKED BY: B.L. GREEN DATE: 3-28-07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9-21
1			3			TOTAL SHEETS
2			4			35

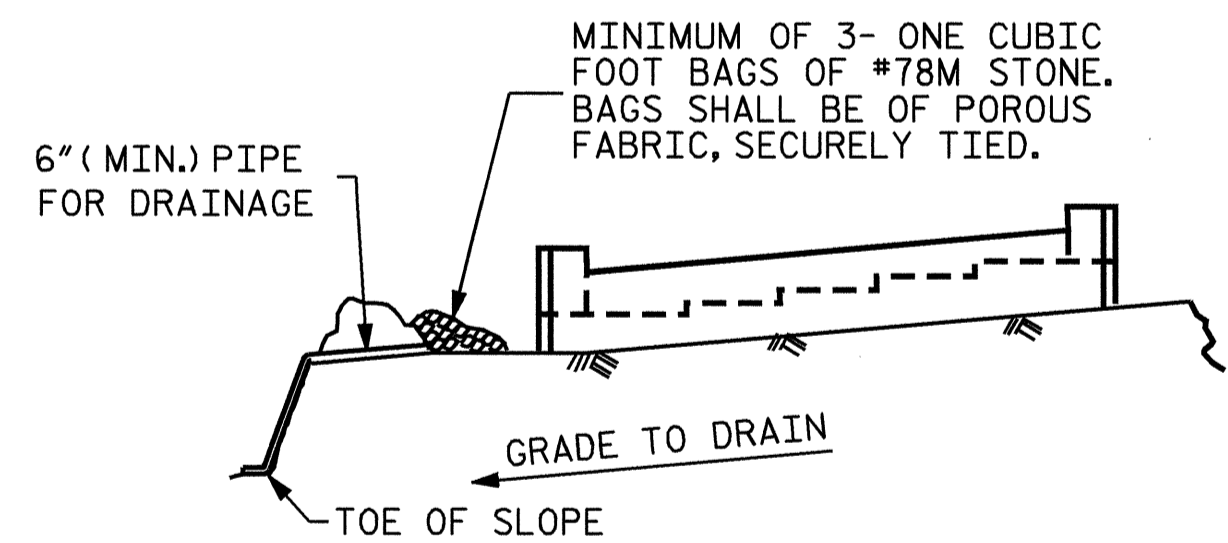


SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		46'-6"	1265
B2	2	#5	STR	44'-2"	92
B3	11	#4	STR	2'-5"	18
B4	8	#4	STR	23'-4"	125
H1	18	#5	2	11'-0"	207
H2	18	#5	3	10'-2"	191
K1	16	#4	STR	23'-4"	249
K2	8	#4	STR	3'-7"	19
S1	44	#4	4	3'-2"	93
S2	44	#4	5	7'-5"	218
S3	16	#4	6	6'-6"	69
U1	37	#4	7	3'-8"	91
V1	74	#5	STR	6'-0"	463
V2	30	#5	STR	7'-11"	248
V3	28	#5	STR	7'-4"	214
REINFORCING STEEL					LBS. 3562
CLASS A CONCRETE BREAKDOWN:					
POUR 1 (CAP & LOWER PART OF WINGS)				C.Y.	13.3
POUR 2 (BACKWALL & UPPER WINGS)				C.Y.	10.5
TOTAL CLASS A CONCRETE				C.Y.	23.8
HP 12 X 53 STEEL PILES NO. = 8 LIN. FT. = 140.0					

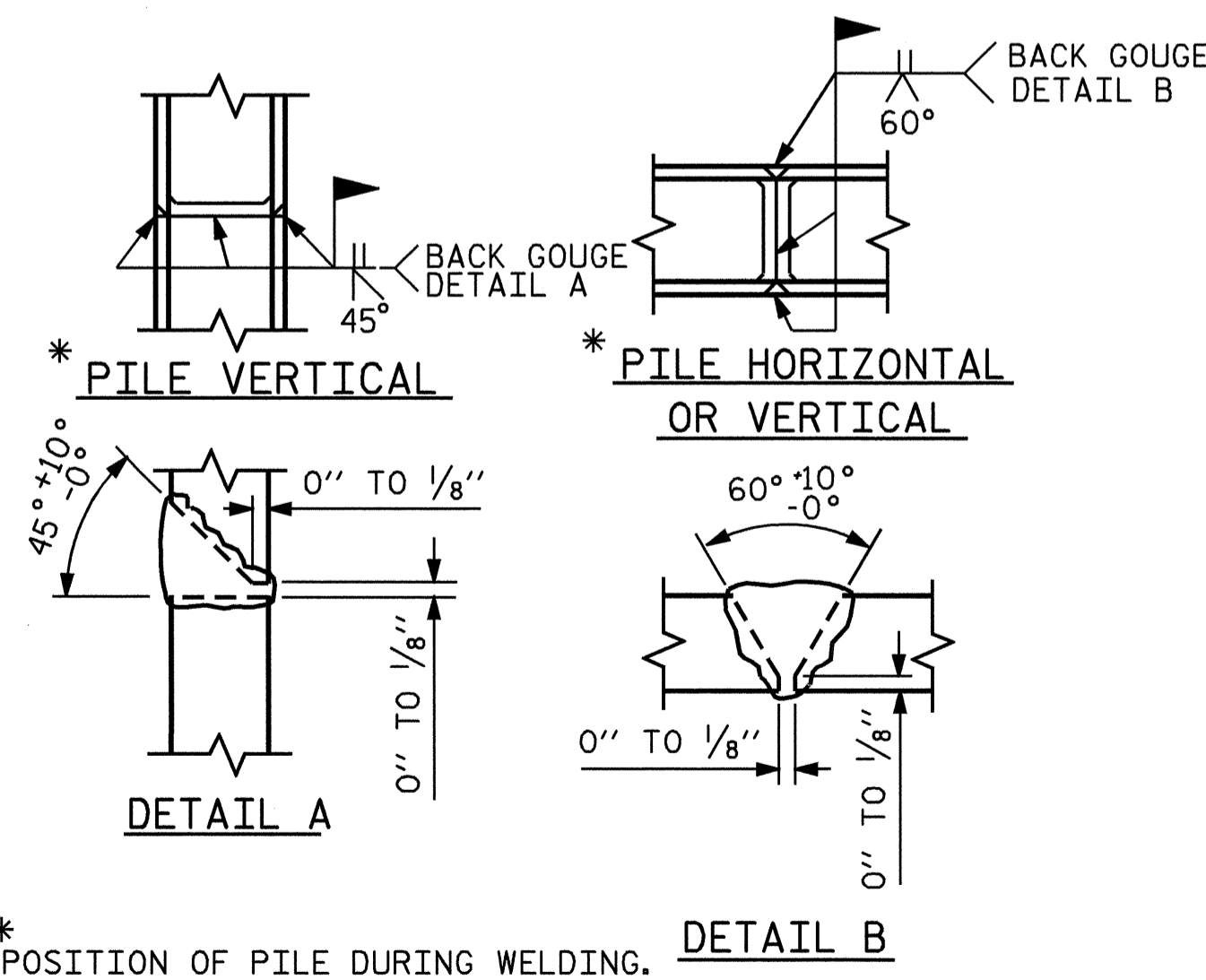


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



* POSITION OF PILE DURING WELDING.

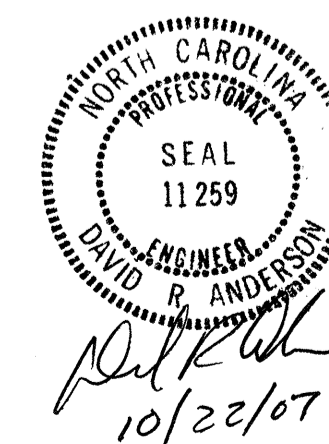
PILE SPLICE DETAILS

PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1



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

SHEET NO. S-22
TOTAL SHEETS 35

DRAWN BY: T.A. HARRIS DATE: 12-29-06
CHECKED BY: B.L. GREEN DATE: 3-28-07

NOTES:

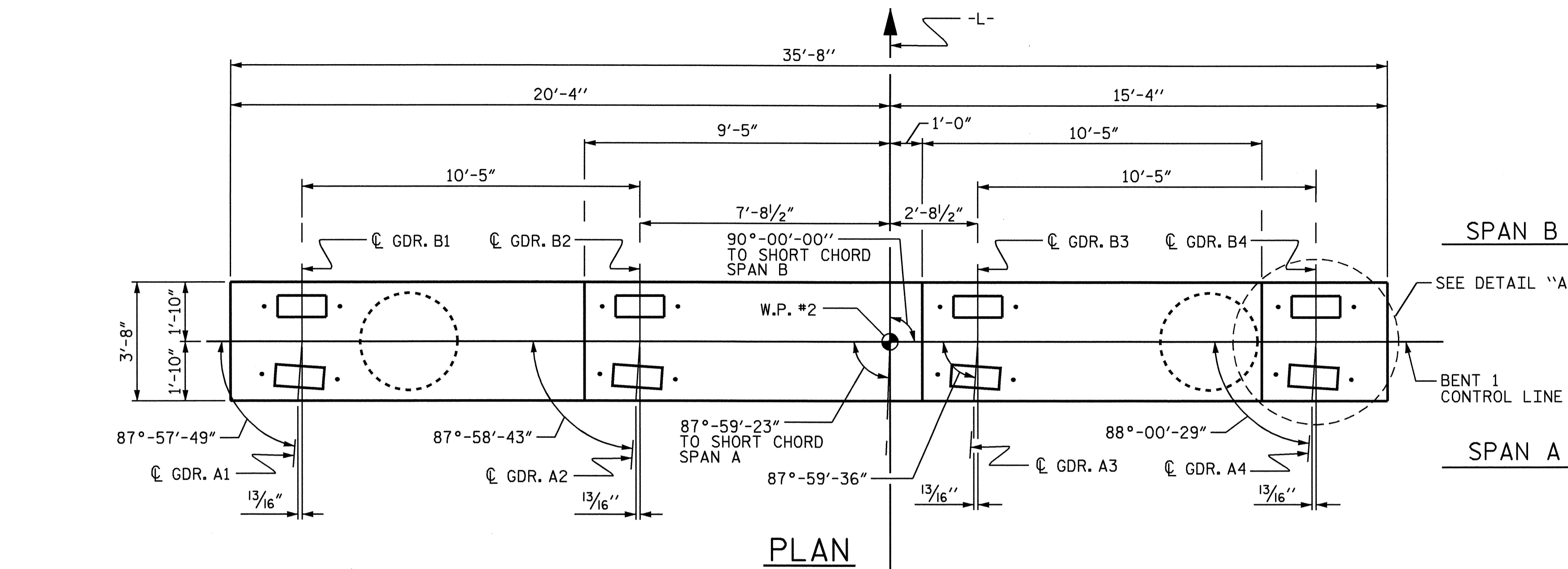
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

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.

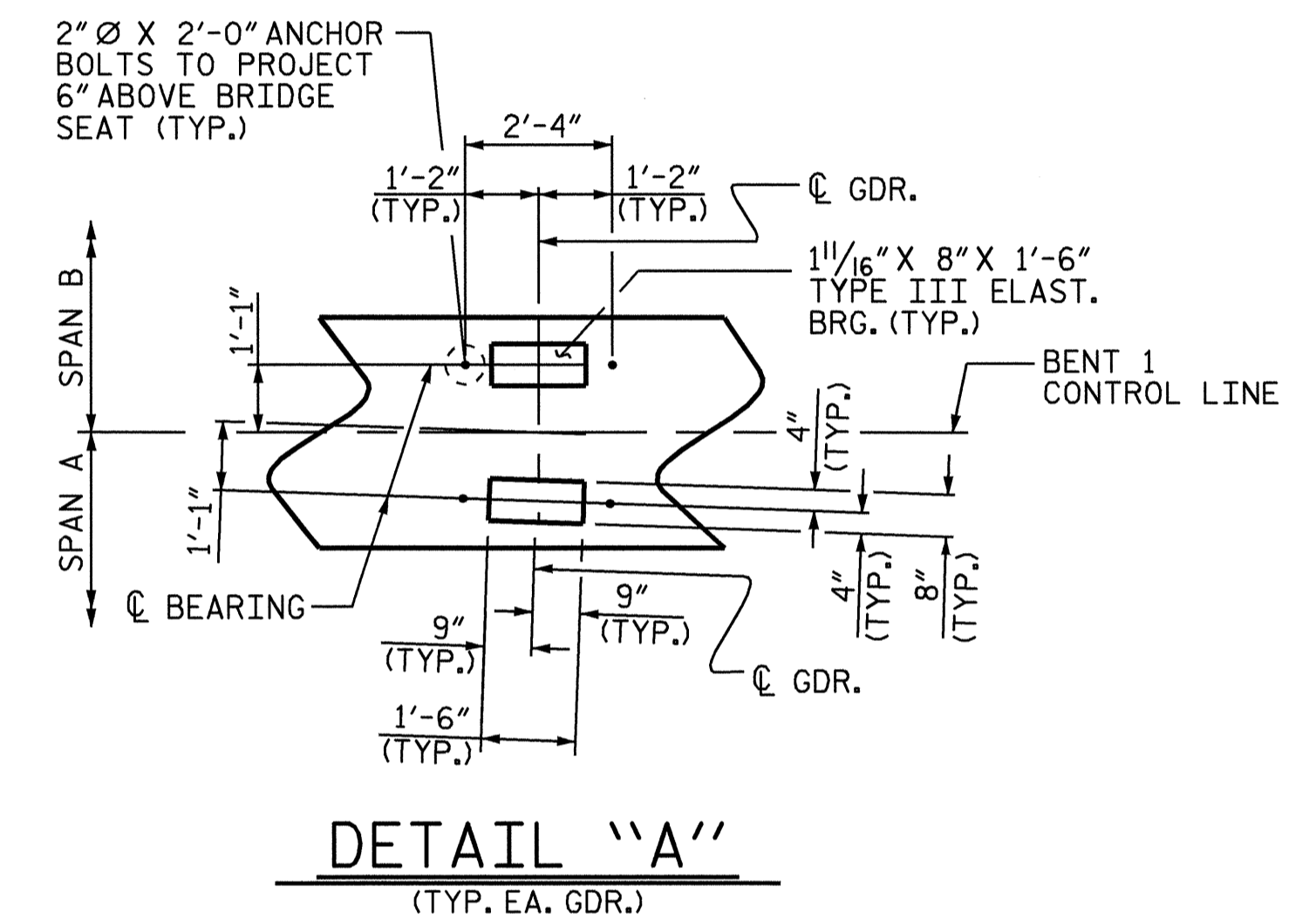
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING CAP REINFORCING STEEL.

STIRRUPS AND U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

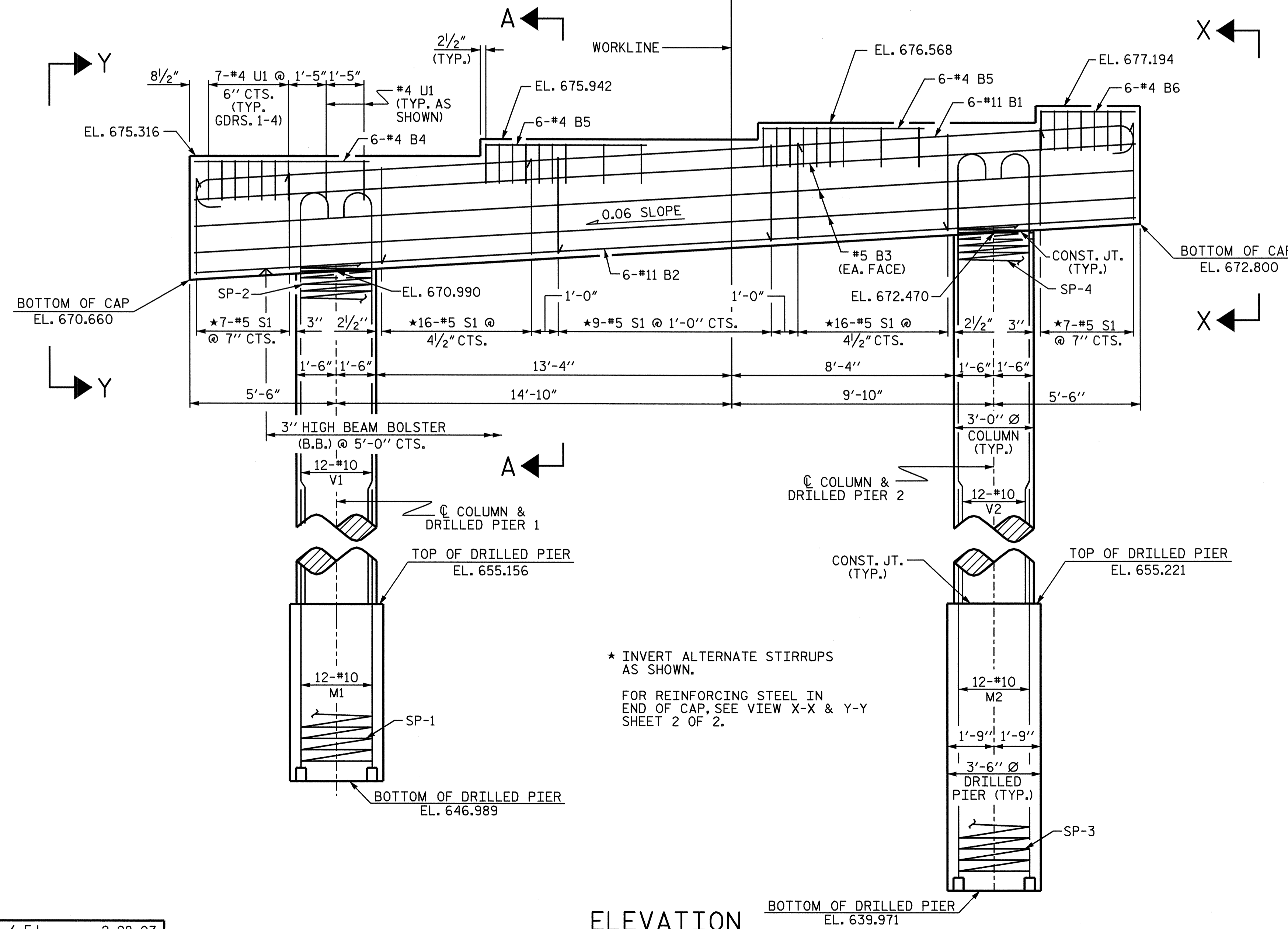
FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.



PLAN



DETAIL "A"
(TYP. EA. GDR.)

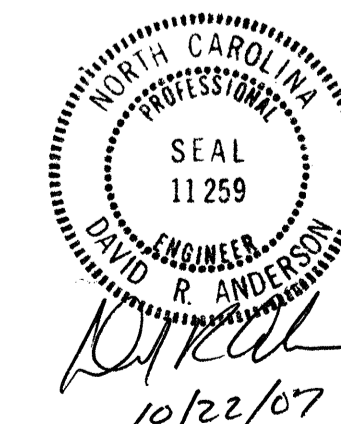


ELEVATION

* INVERT ALTERNATE STIRRUPS AS SHOWN.
FOR REINFORCING STEEL IN END OF CAP, SEE VIEW X-X & Y-Y SHEET 2 OF 2.

PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

SHEET 1 OF 2

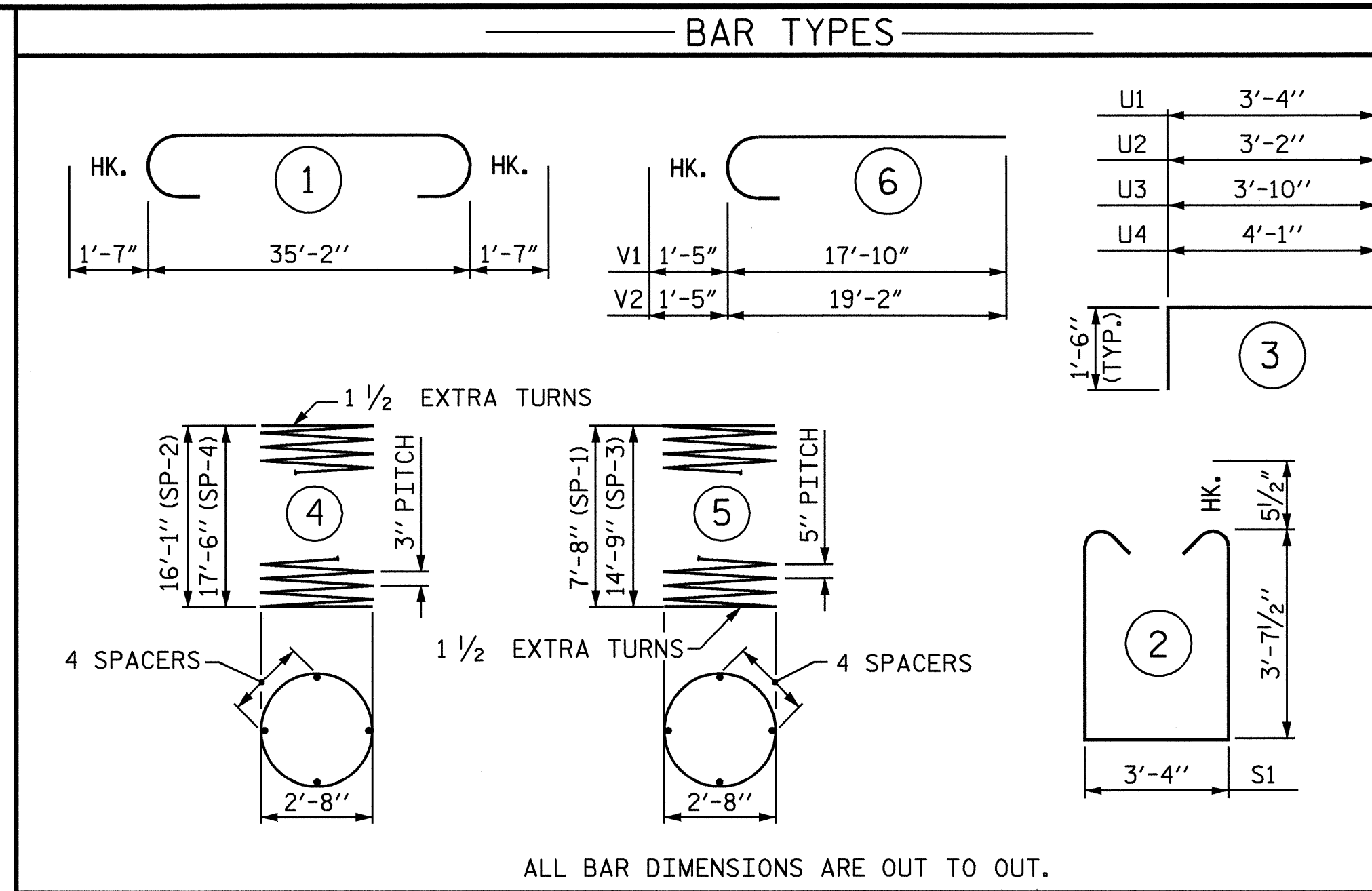
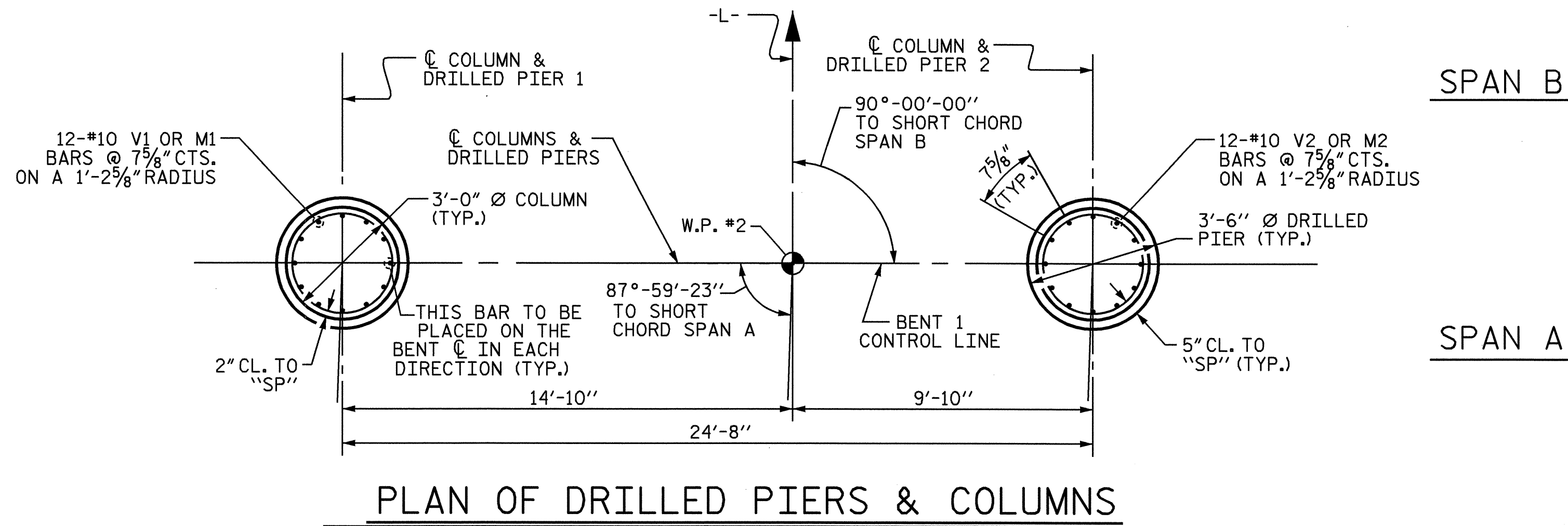


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

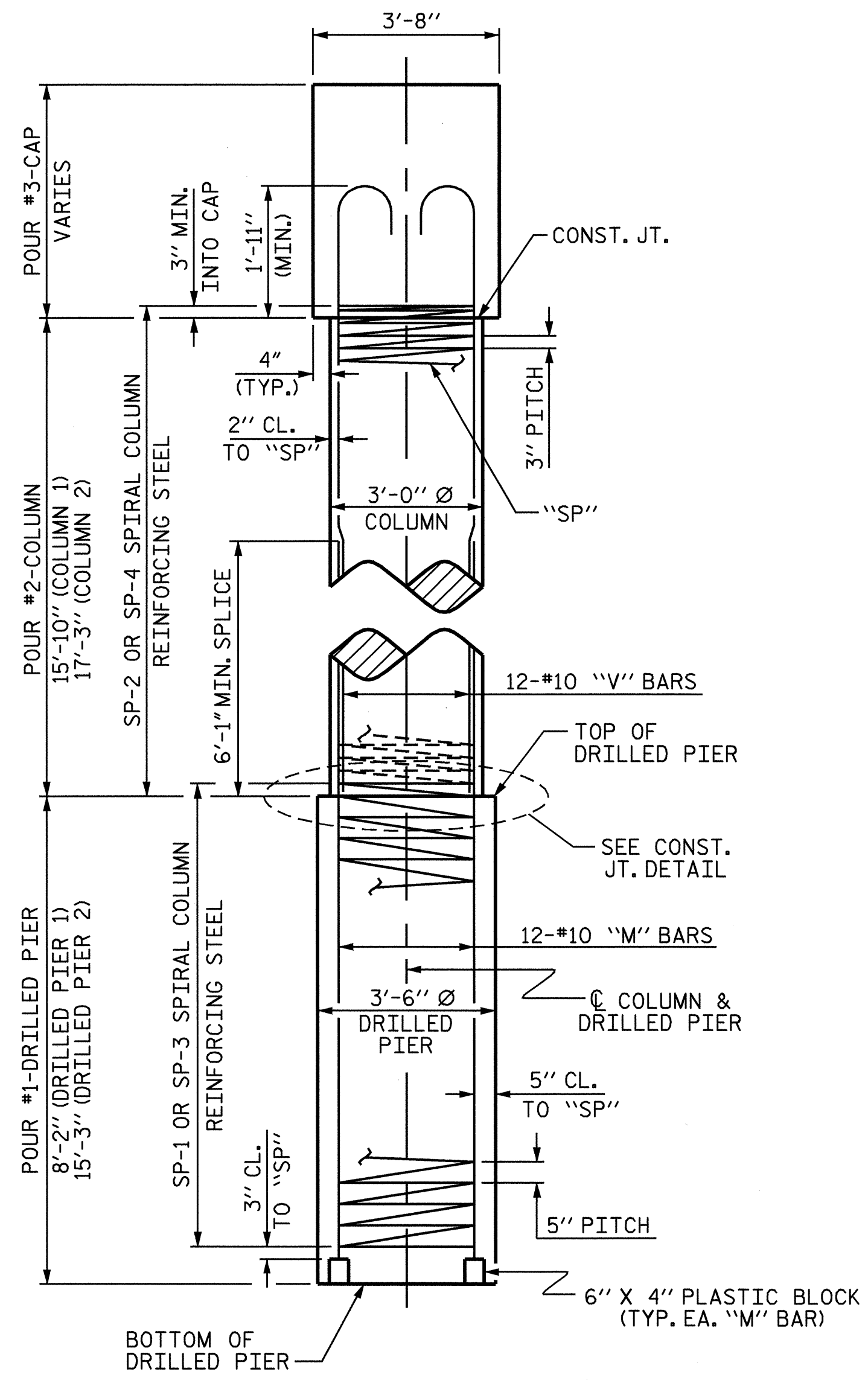
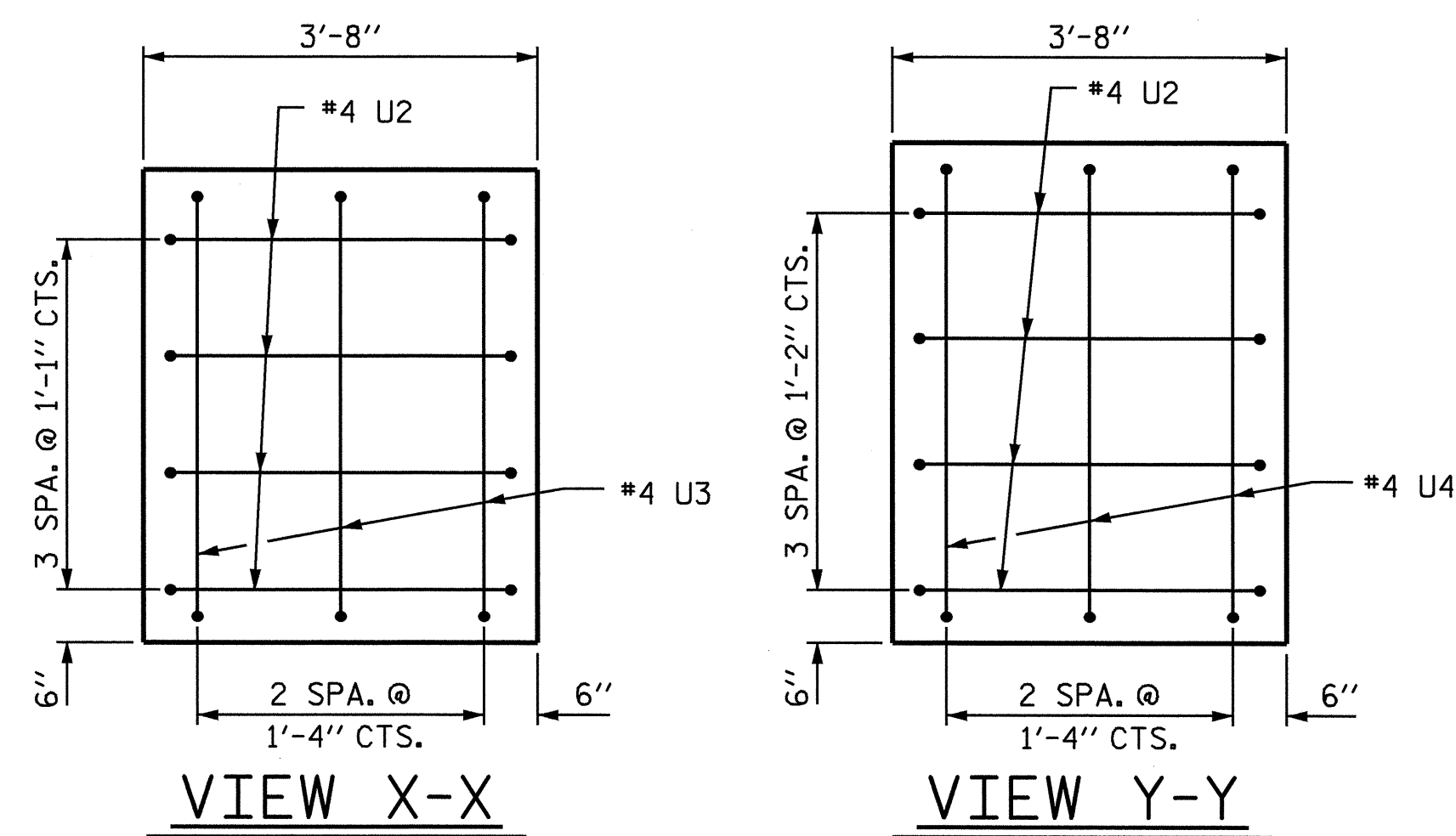
SUBSTRUCTURE
BENT 1

REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 35
2			4			

DRAWN BY: B. L. GREEN / E.L. DATE: 2-28-07
CHECKED BY: P.C. BREWER DATE: 8-15-07



BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	1	38'-4"	1222
B2	6	#11	STR	35'-4"	1126
B3	6	#5	STR	35'-4"	221
B4	6	#4	STR	6'-7"	26
B5	12	#4	STR	6'-1"	49
B6	6	#4	STR	3'-7"	14
M1	12	#10	STR	16'-10"	869
M2	12	#10	STR	23'-10"	1231
S1	55	#5	2	11'-6"	660
U1	34	#4	3	6'-4"	144
U2	8	#4	3	6'-2"	33
U3	3	#4	3	6'-10"	14
U4	3	#4	3	7'-1"	14
V1	12	#10	6	19'-3"	994
V2	12	#10	6	20'-7"	1063
REINFORCING STEEL =				LBS 7680	
SP-1	1	*	5	164'-6"	172
SP-2	1	**	4	544'-7"	364
SP-3	1	*	5	304'-4"	317
SP-4	1	**	4	594'-1"	397
SPIRAL COLUMN REINFORCING STEEL =				LBS 1250	
CLASS A CONCRETE (C.Y.)					
POUR #2 (COLUMNS) =				C.Y. 8.7	
POUR #3 (CAP) =				C.Y. 21.0	
TOTAL =				C.Y. 29.7	
DRILLED PIERS:					
DRILLED PIER CONCRETE (C.Y.)					
POUR #1 (DRILLED PIERS) =				C.Y. 8.3	
3'-6" DIA. DRILLED PIERS IN SOIL				LIN. FT. 13.4	
3'-6" DIA. DRILLED PIERS NOT IN SOIL				LIN. FT. 10.0	
PERMANENT STEEL CASING FOR 3'-6" DIA. DRILLED PIERS				LIN. FT. 10.4	
CSL TUBES				LIN. FT. 113.7	



ALL BAR DIMENSIONS ARE OUT TO OUT.

POUR #3-CAP VARIES INTO CAP

POUR #2-COLUMN 15'-10" (COLUMN 1) 17'-3" (COLUMN 2)

POUR #1-DRILLED PIER 1 8'-2" (DRILLED PIER 1) 15'-3" (DRILLED PIER 2)

CONST. JT.

SEE CONST. JT. DETAIL

6" X 4" PLASTIC BLOCK (TYP. EA. "M" BAR)

* THE SP-1 AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

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

PROJECT NO. B-4104

DAVIE COUNTY

STATION: 20+71.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. 5-24

TOTAL SHEETS 35

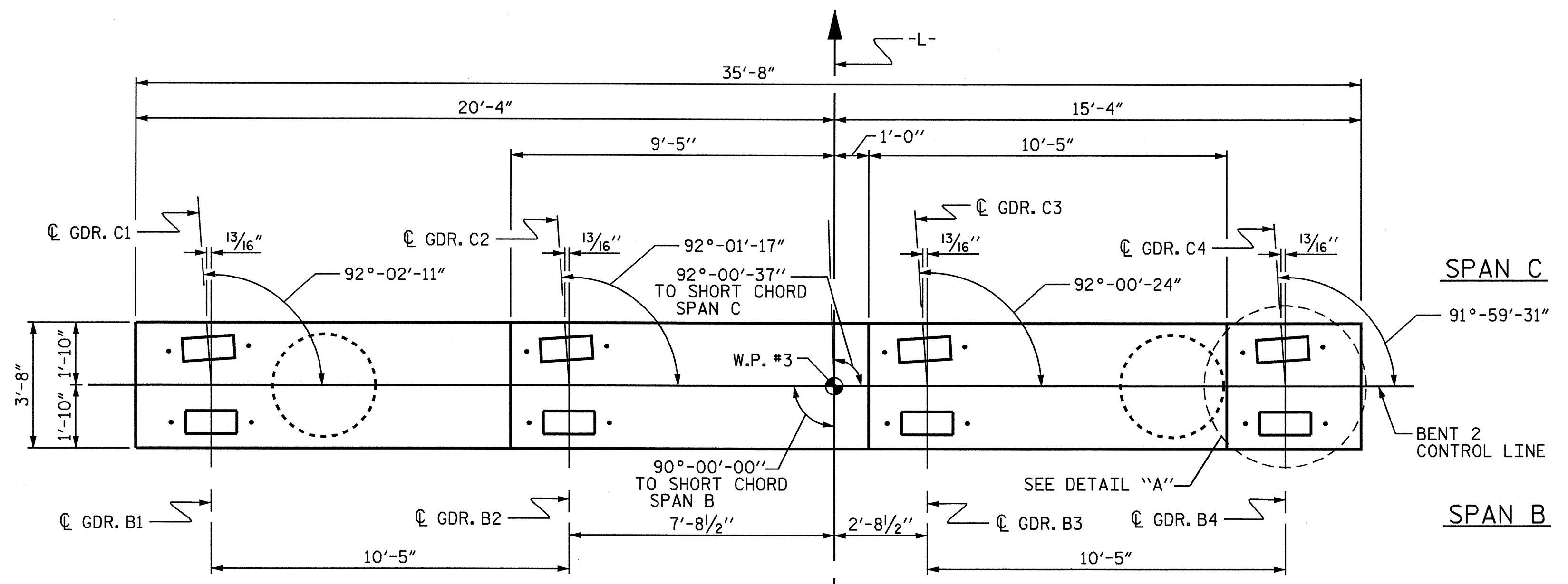
SEAL 11259

DAVID R. ANDERSON

10/22/07

DRAWN BY: B. L. GREEN / E.L. DATE: 3-5-07

CHECKED BY: P.C. BREWER DATE: 8-15-07



NOTES:

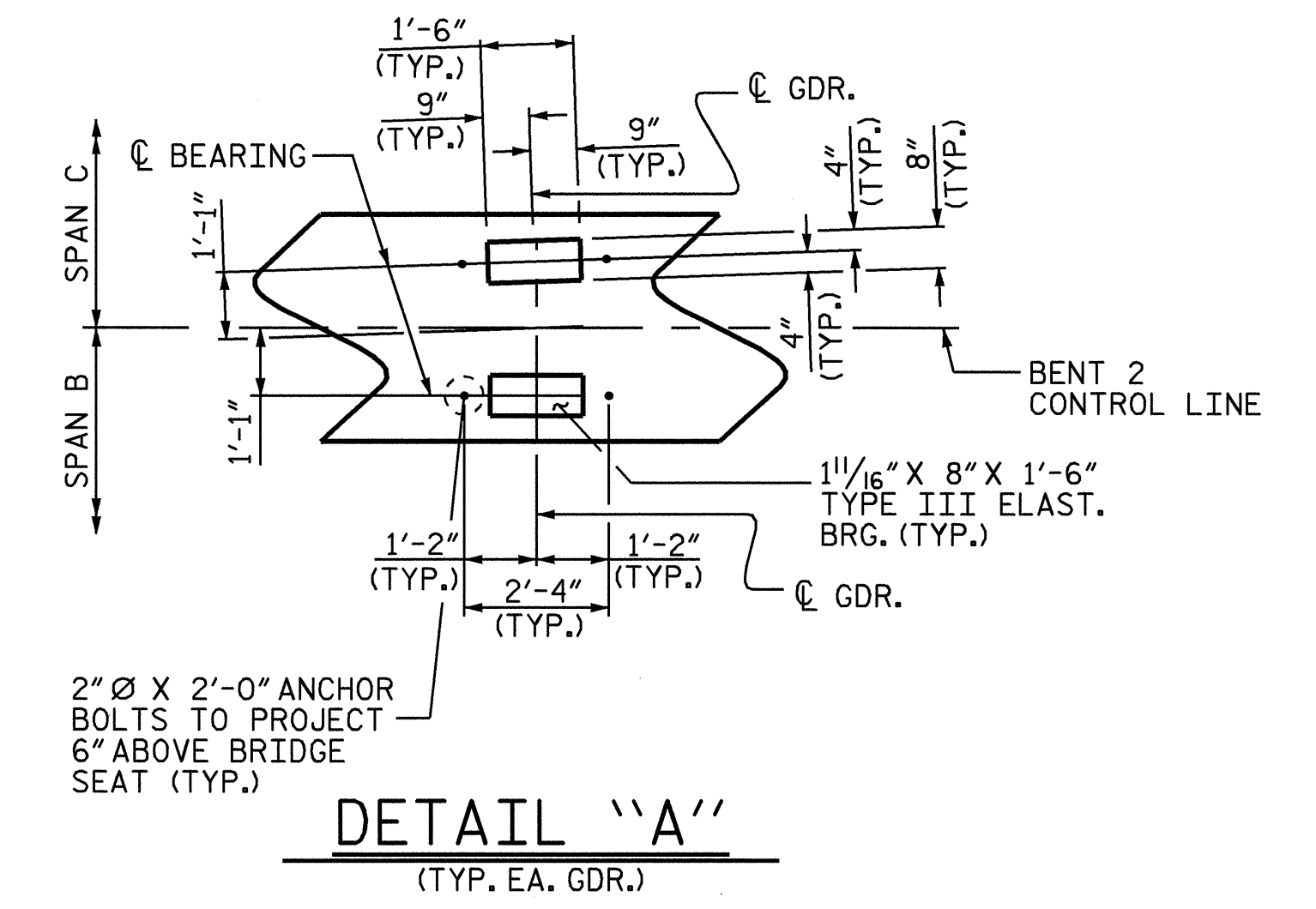
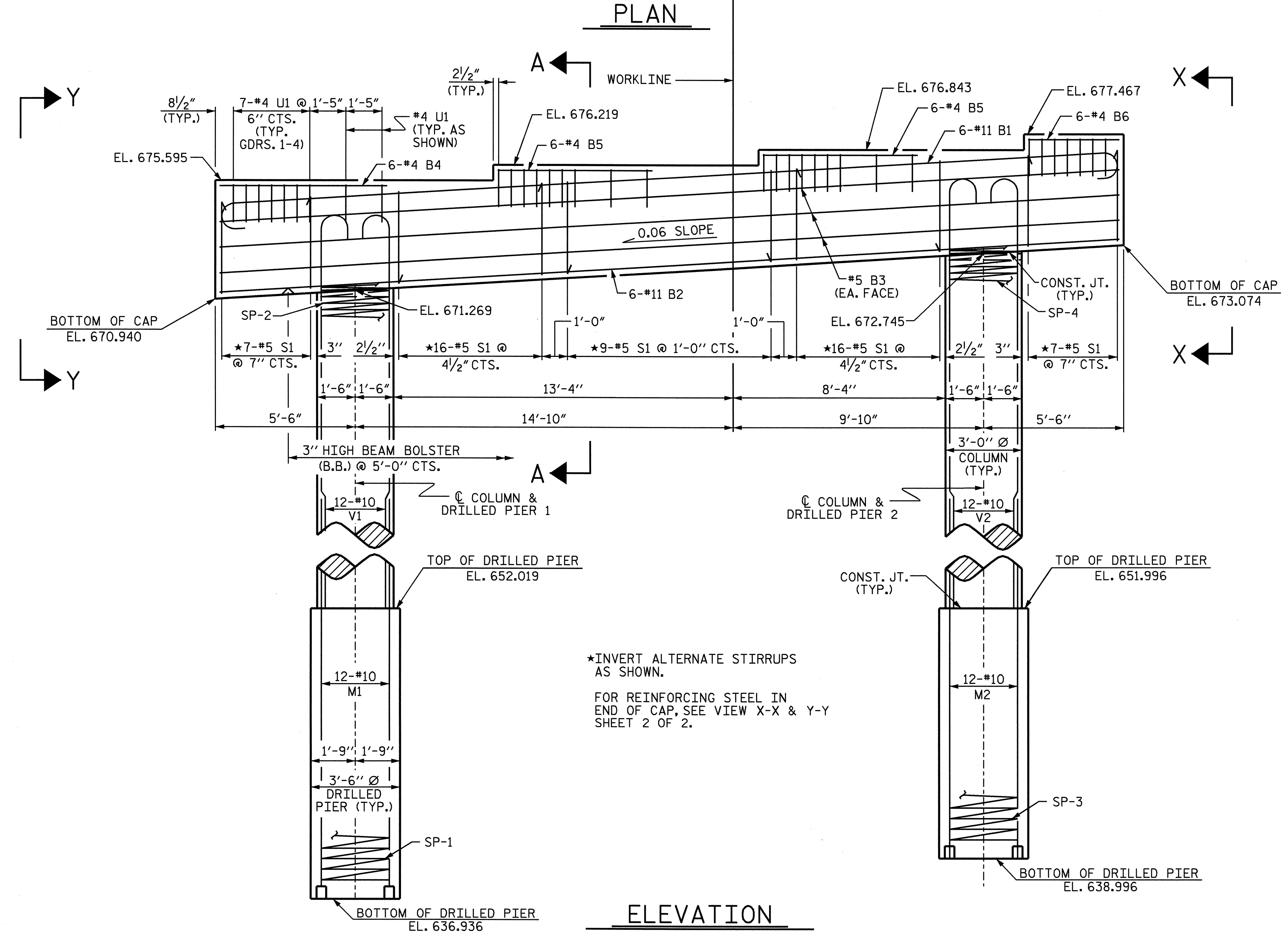
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

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.

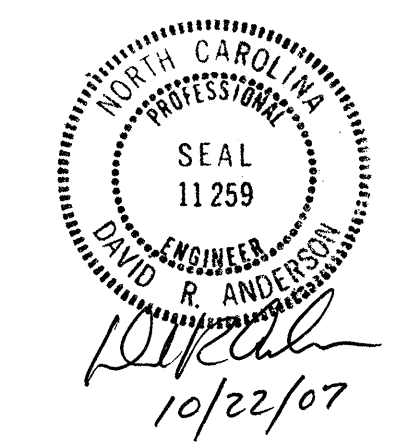
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING CAP REINFORCING STEEL.

STIRRUPS AND U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

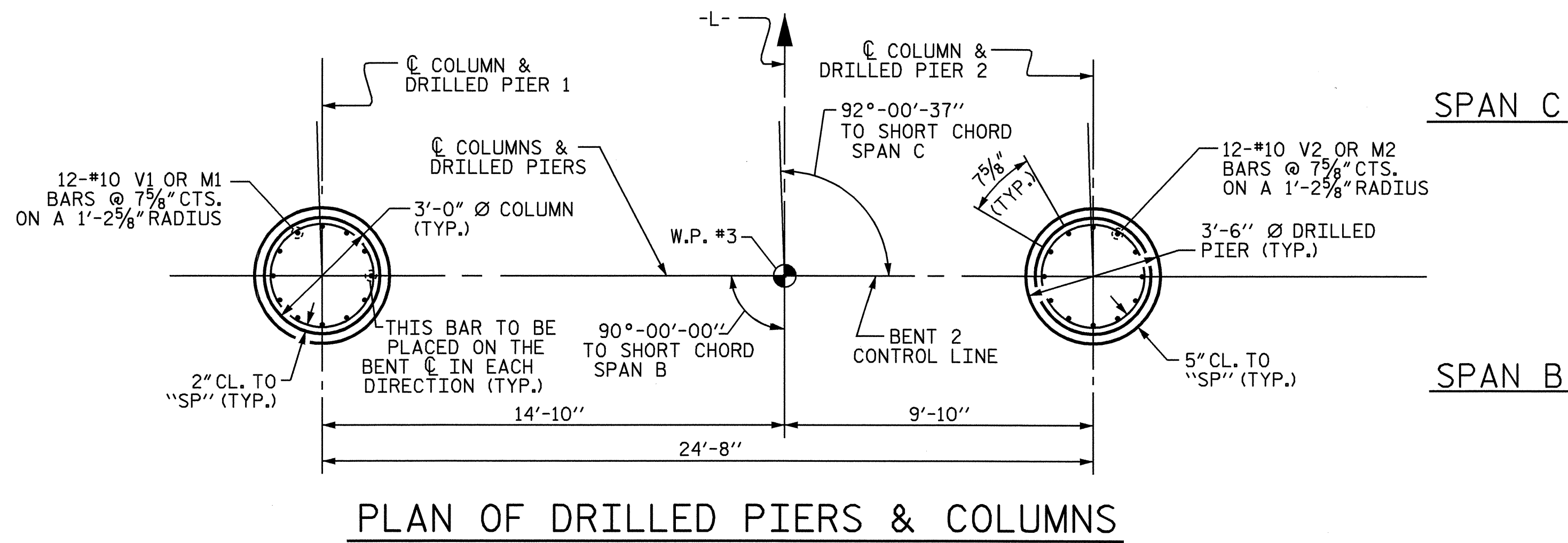


PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

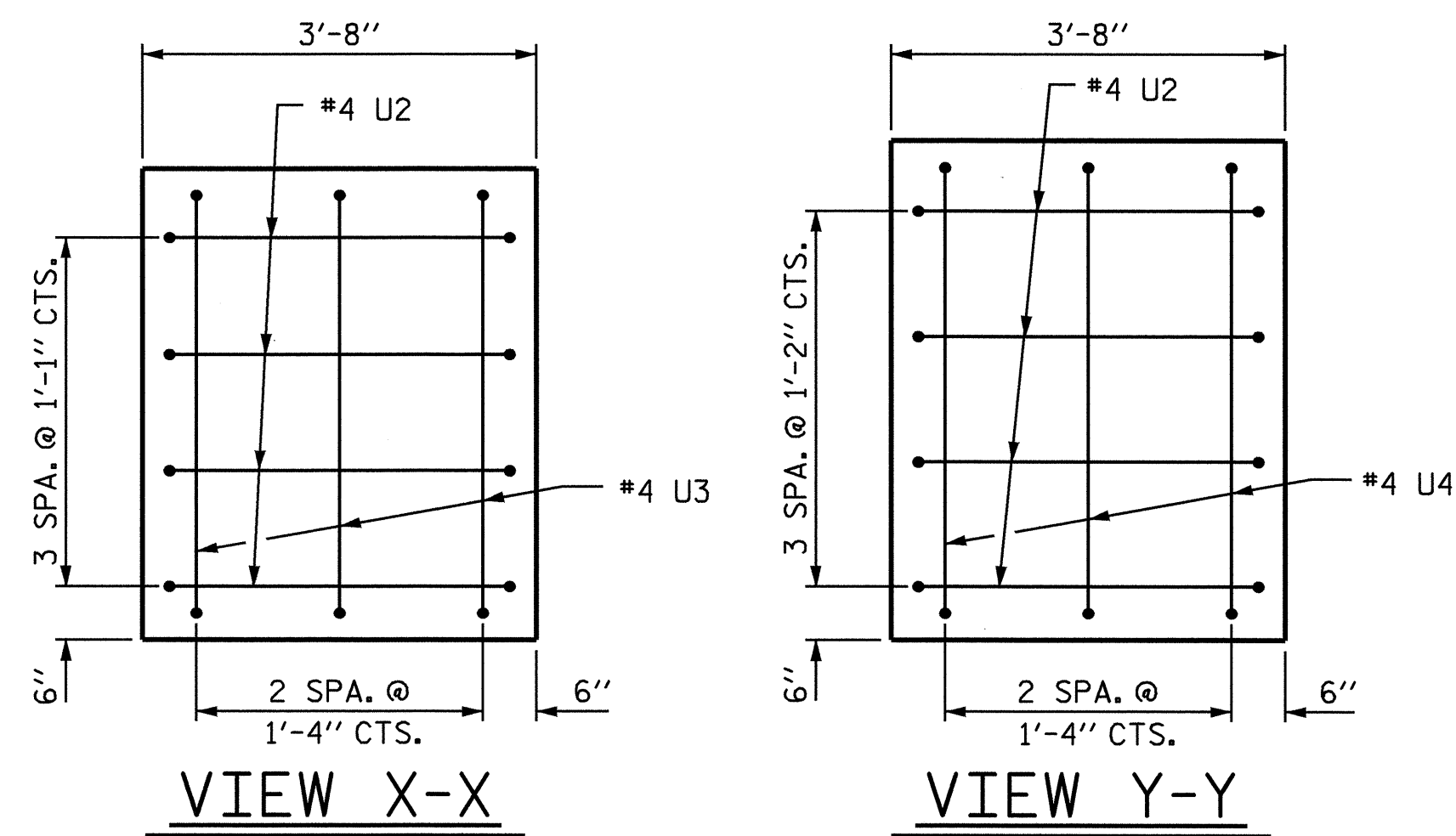


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 35

DRAWN BY: B. L. GREEN / E.L. DATE: 2-28-07
 CHECKED BY: P.C. BREWER DATE: 8-15-07

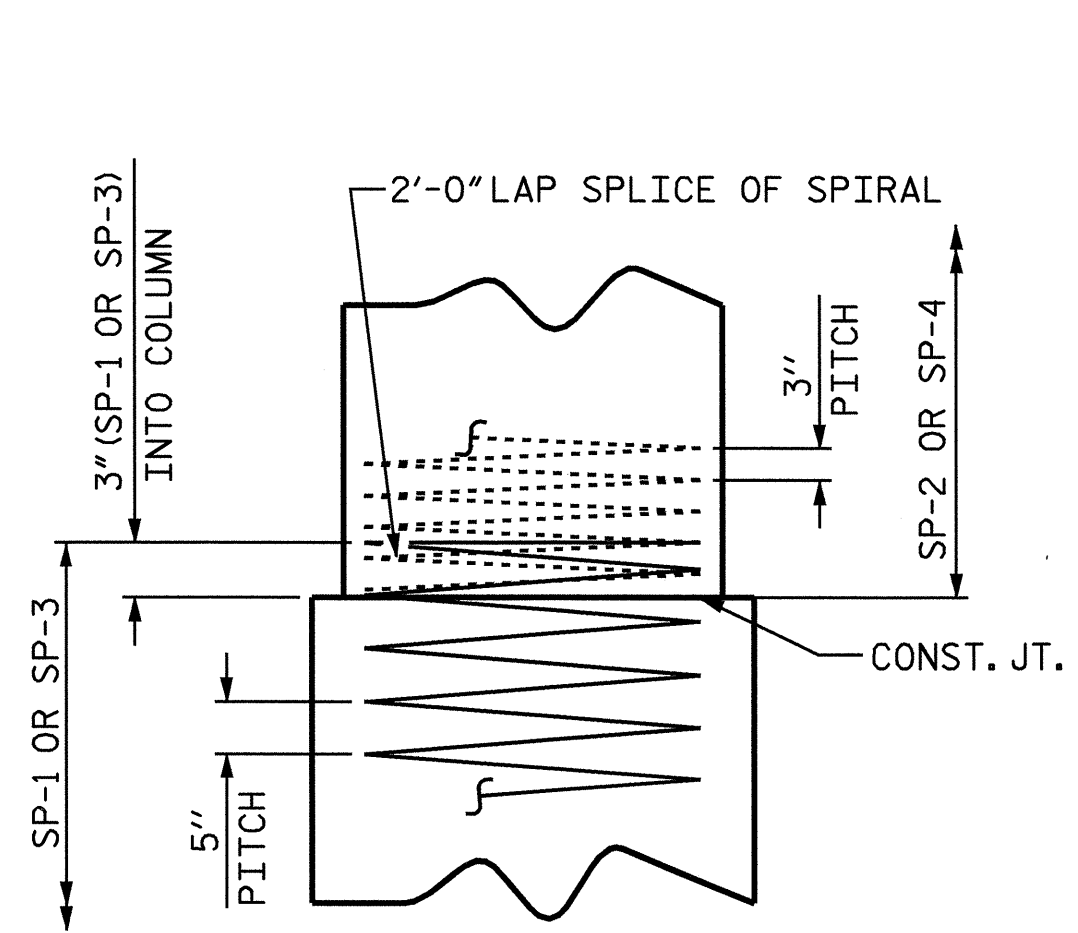


PLAN OF DRILLED PIERS & COLUMNS

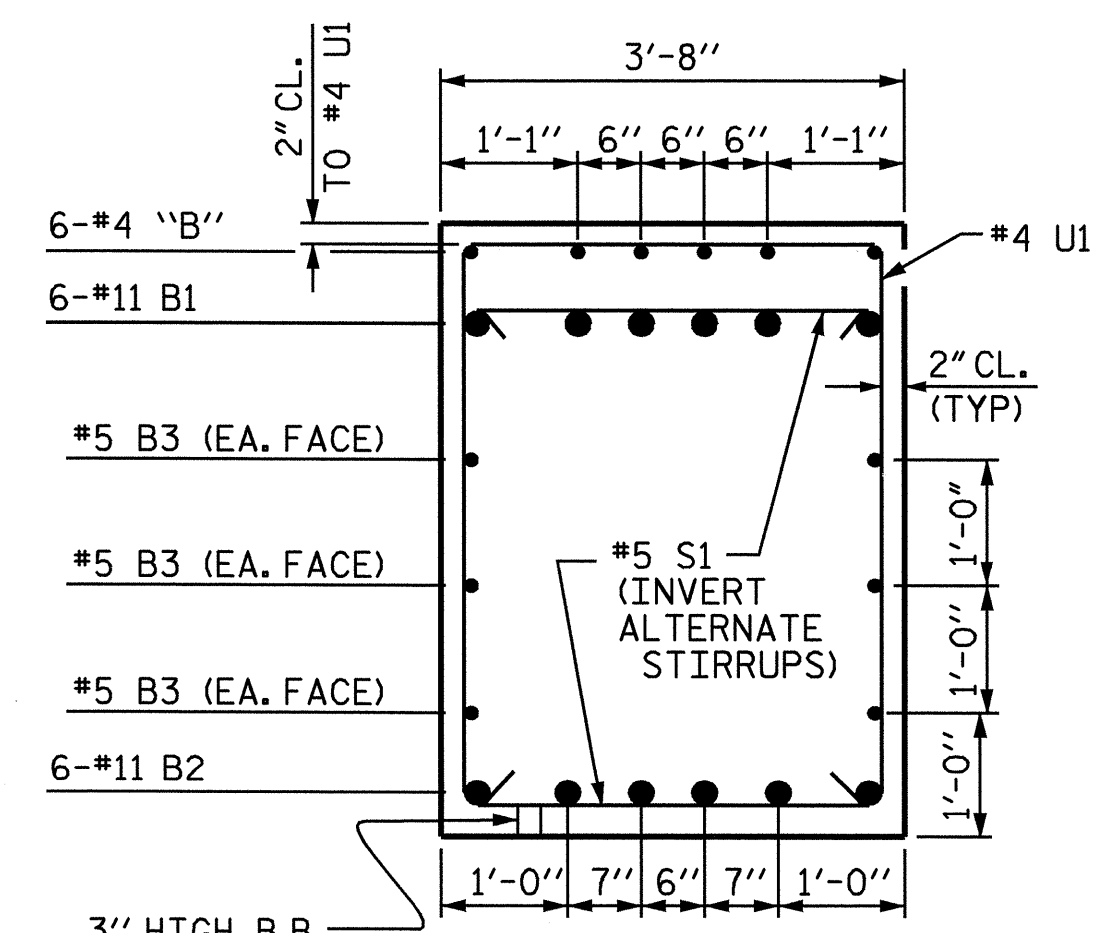


VIEW X-X

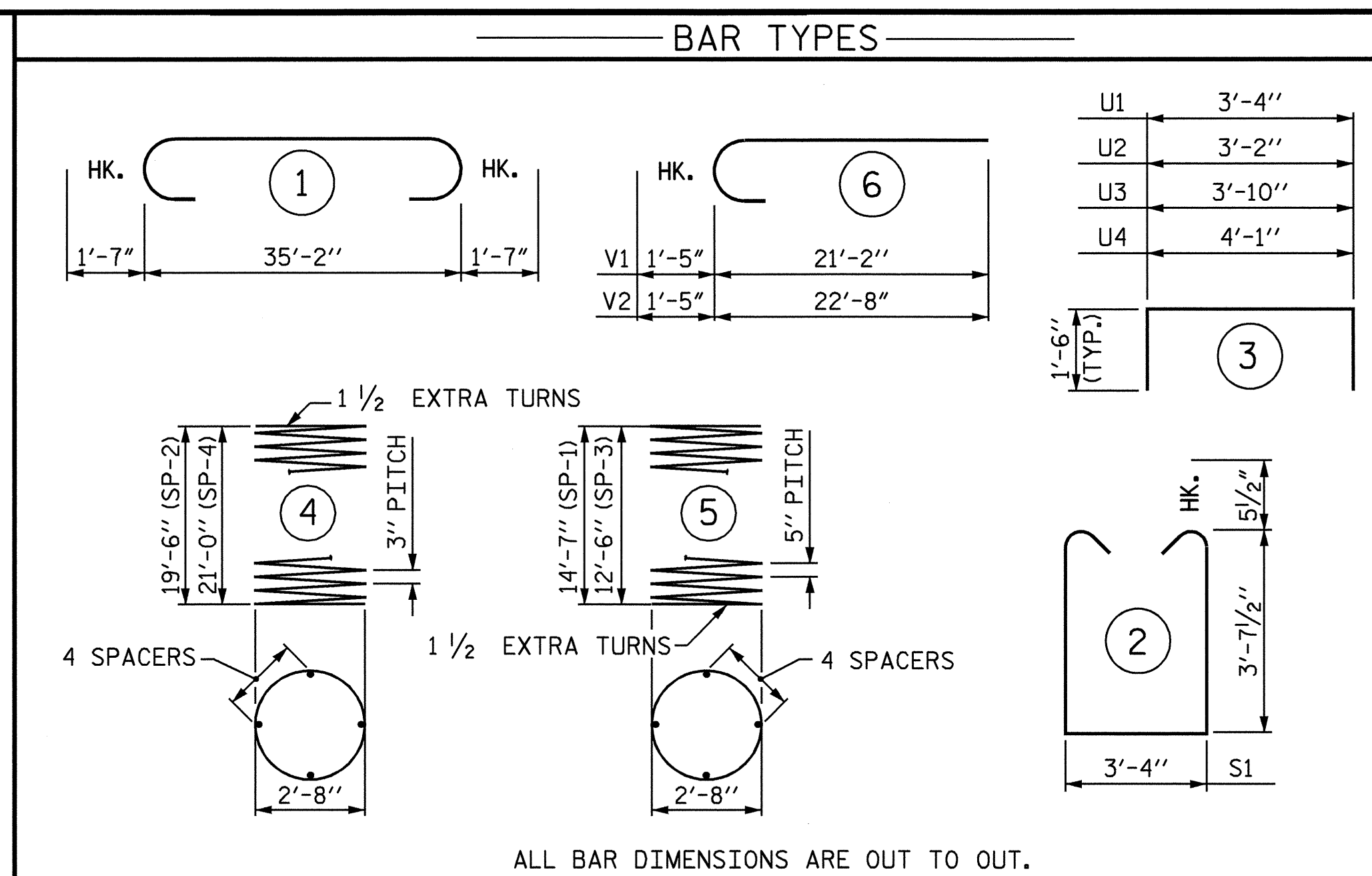
VIEW Y-Y



CONSTRUCTION JOINT DETAIL



SECTION A-A



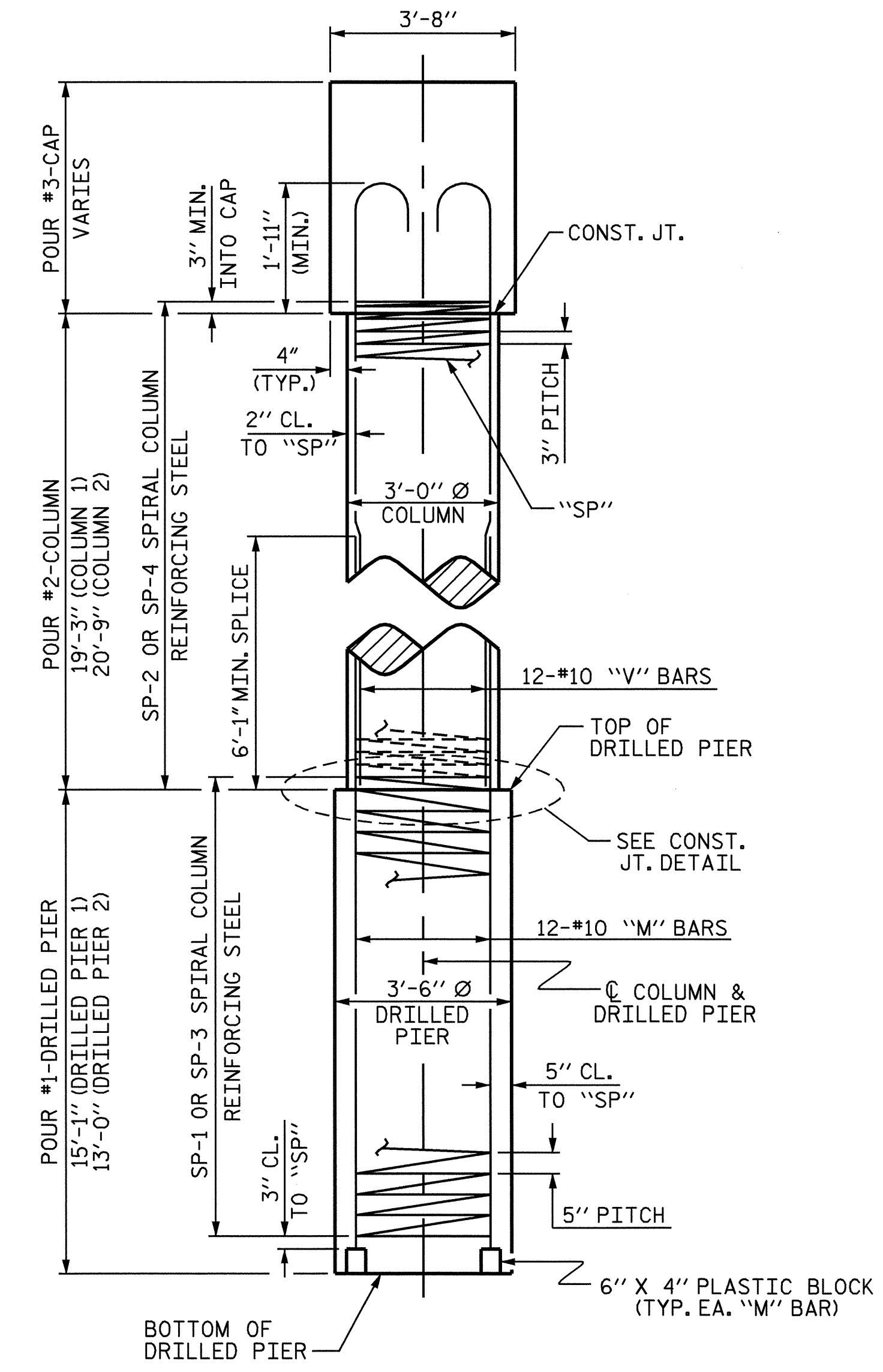
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL								
BENT 2								
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT			
B1	6	#11	1	38'-4"	1222			
B2	6	#11	STR	35'-4"	1126			
B3	6	#5	STR	35'-4"	221			
B4	6	#4	STR	6'-7"	26			
B5	12	#4	STR	6'-1"	49			
B6	6	#4	STR	3'-7"	14			
M1	12	#10	STR	23'-8"	1222			
M2	12	#10	STR	21'-7"	1114			
S1	55	#5	2	11'-6"	660			
U1	34	#4	3	6'-4"	144			
U2	8	#4	3	6'-2"	33			
U3	3	#4	3	6'-10"	14			
U4	3	#4	3	7'-1"	14			
V1	12	#10	6	22'-7"	1166			
V2	12	#10	6	24'-1"	1244			
REINFORCING STEEL =				LBS 8269				
SP-1				1	*	5	304'-4"	317
SP-2				1	**	4	660'-1"	441
SP-3				1	*	5	263'-3"	275
SP-4				1	**	4	709'-7"	474
SPIRAL COLUMN REINFORCING STEEL =				LBS 1507				
CLASS A CONCRETE (C.Y.)								
POUR #2 (COLUMNS) =				C.Y.	10.5			
POUR #3 (CAP) =				C.Y.	21.0			
TOTAL =				C.Y.	31.5			

DRILLED PIERS:					
DRILLED PIER CONCRETE (C.Y.)					
POUR #1 (DRILLED PIERS) = C.Y. 10.0					
3'-6" DIA. DRILLED PIERS IN SOIL				LIN. FT.	16.1
3'-6" DIA. DRILLED PIERS NOT IN SOIL				LIN. FT.	12.0
PERMANENT STEEL CASING FOR 3'-6" DIA. DRILLED PIERS				LIN. FT.	16.0
CSL TUBES				LIN. FT.	132.3

* THE SP-1 AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

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



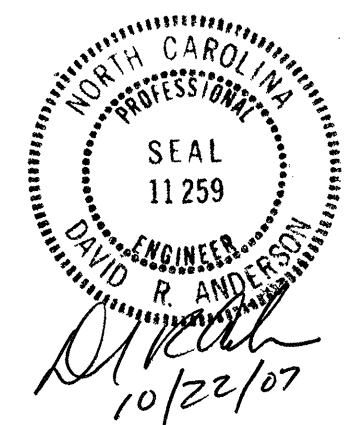
END ELEVATION

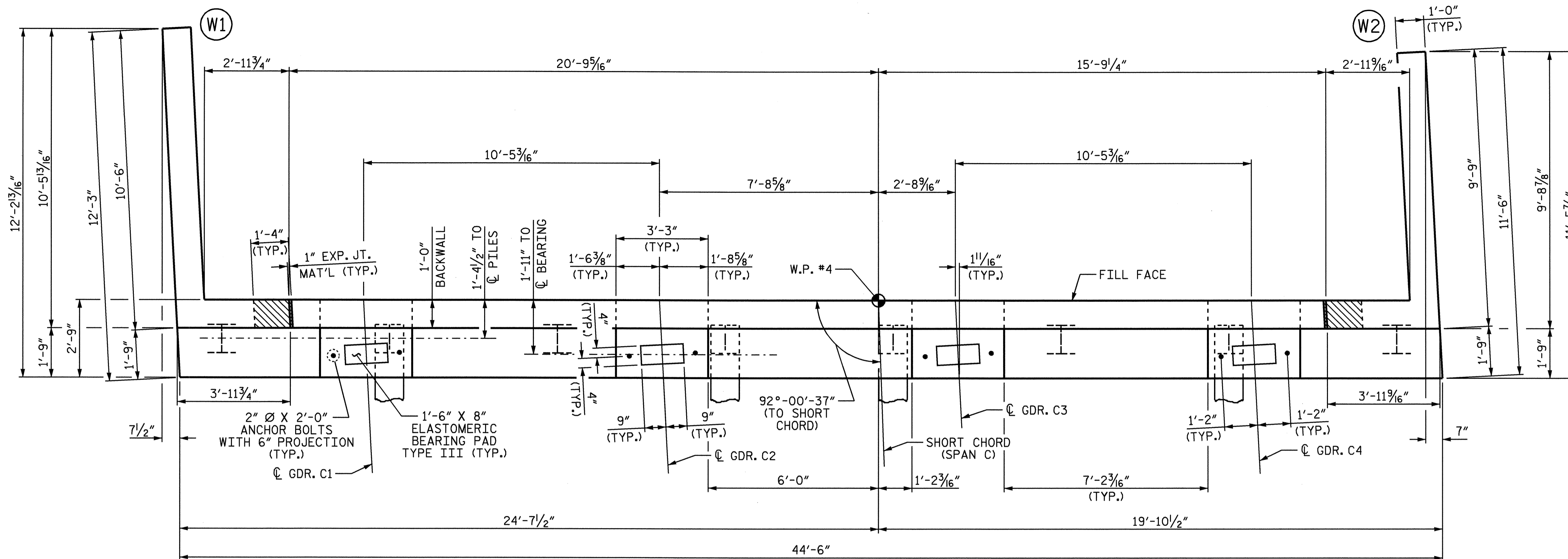
PROJECT NO. B-4104
 DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					35

DRAWN BY: B. L. GREEN / E.L. DATE: 3-5-07
 CHECKED BY: P.C. BREWER DATE: 8-15-07

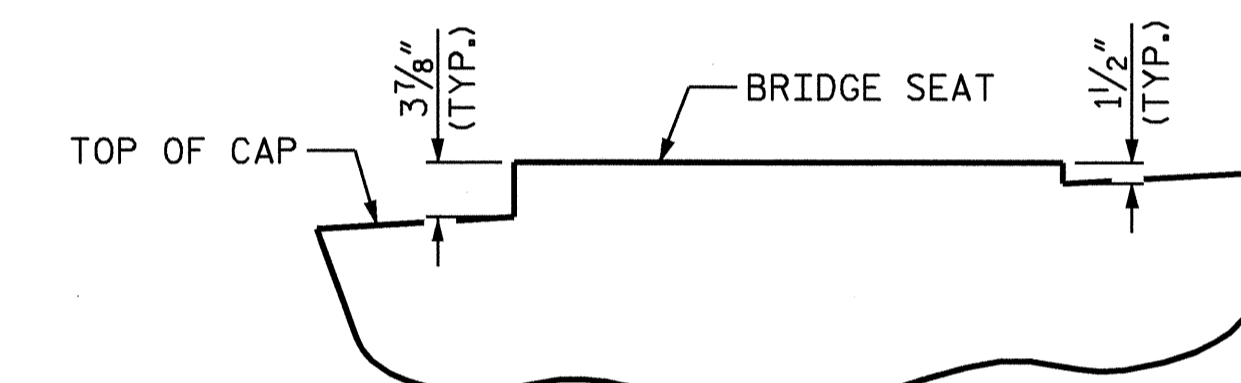




PLAN

NOTES

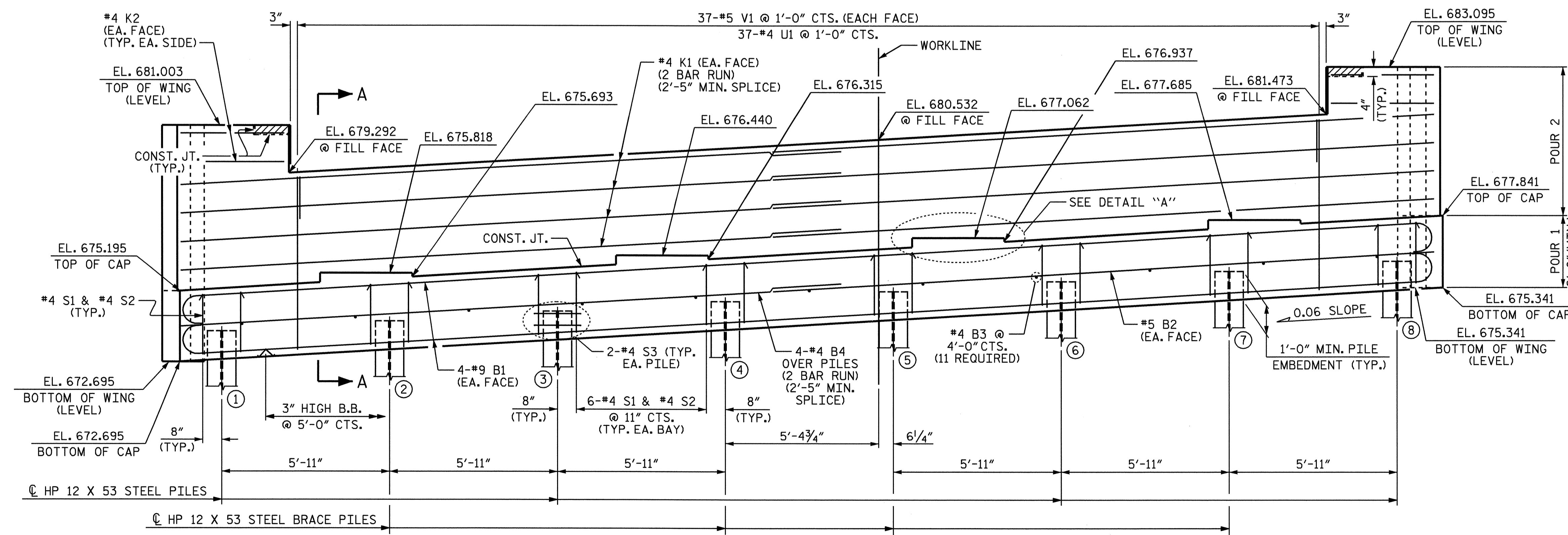
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- 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 CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAILS ARE CAST IF SLIP FORMING IS USED.



DETAIL "A"

(TYP. EA. BRIDGE SEAT)

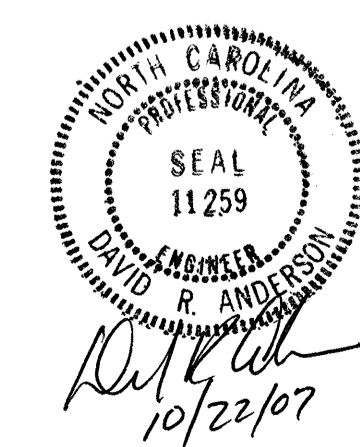
TOP OF PILE ELEVATIONS	
PILE NO.	ELEVATION
1	673.779
2	674.134
3	674.489
4	674.844
5	675.199
6	675.554
7	675.909
8	676.264



ELEVATION

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 1 OF 3



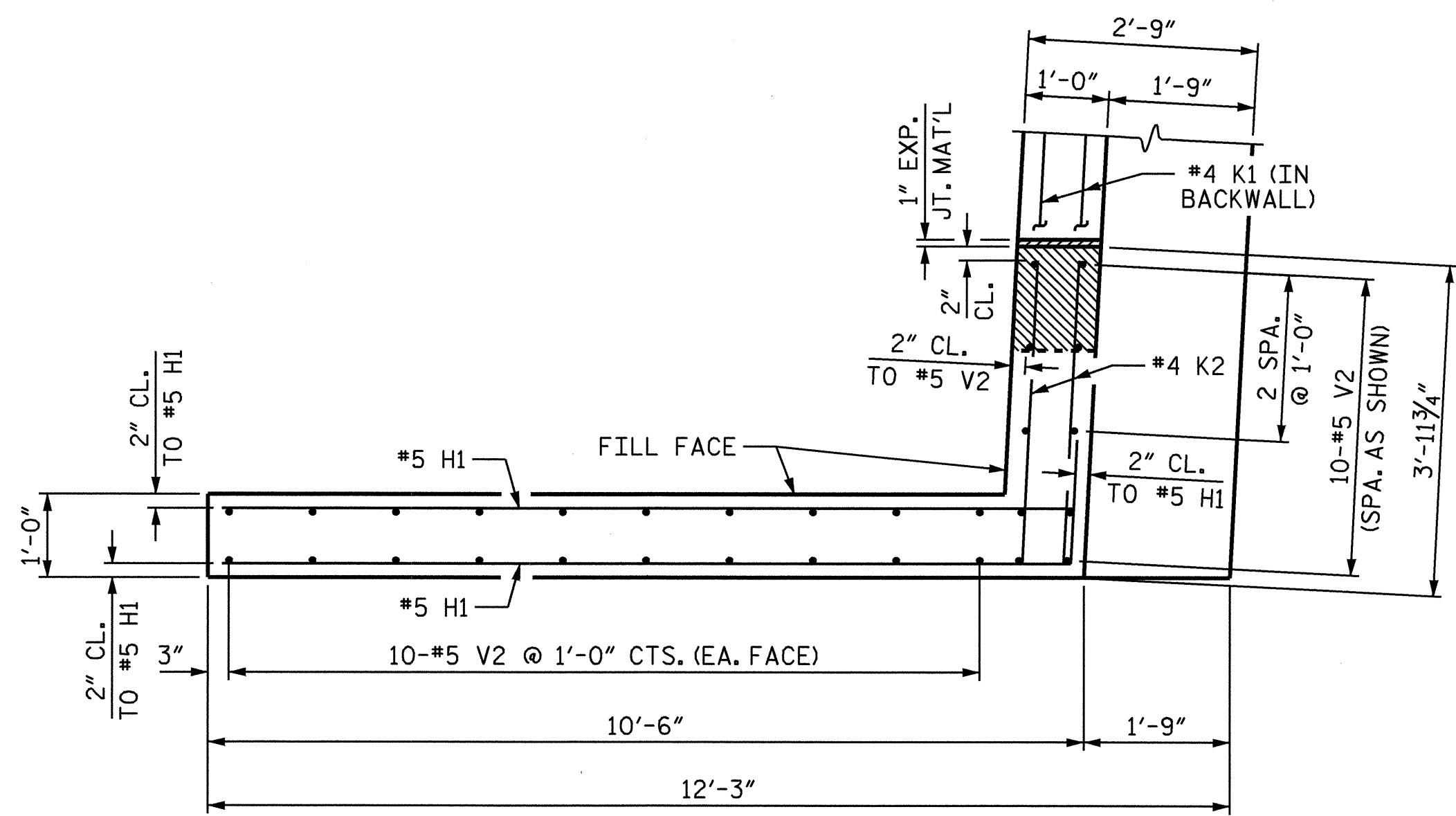
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 2**

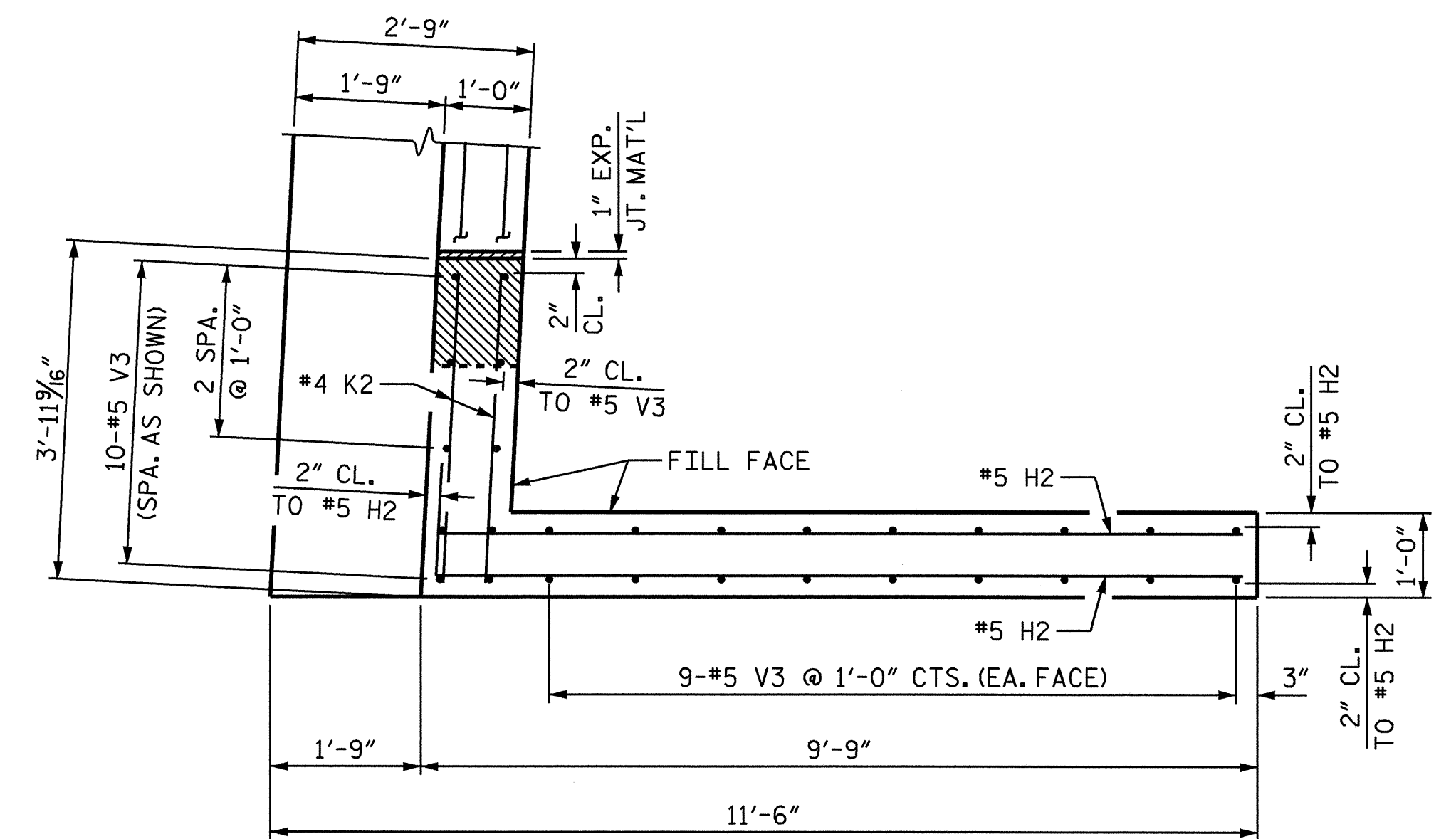
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			35

DRAWN BY: T.A. HARRIS DATE: 12-29-06
 CHECKED BY: B.L. GREEN DATE: 3-28-07

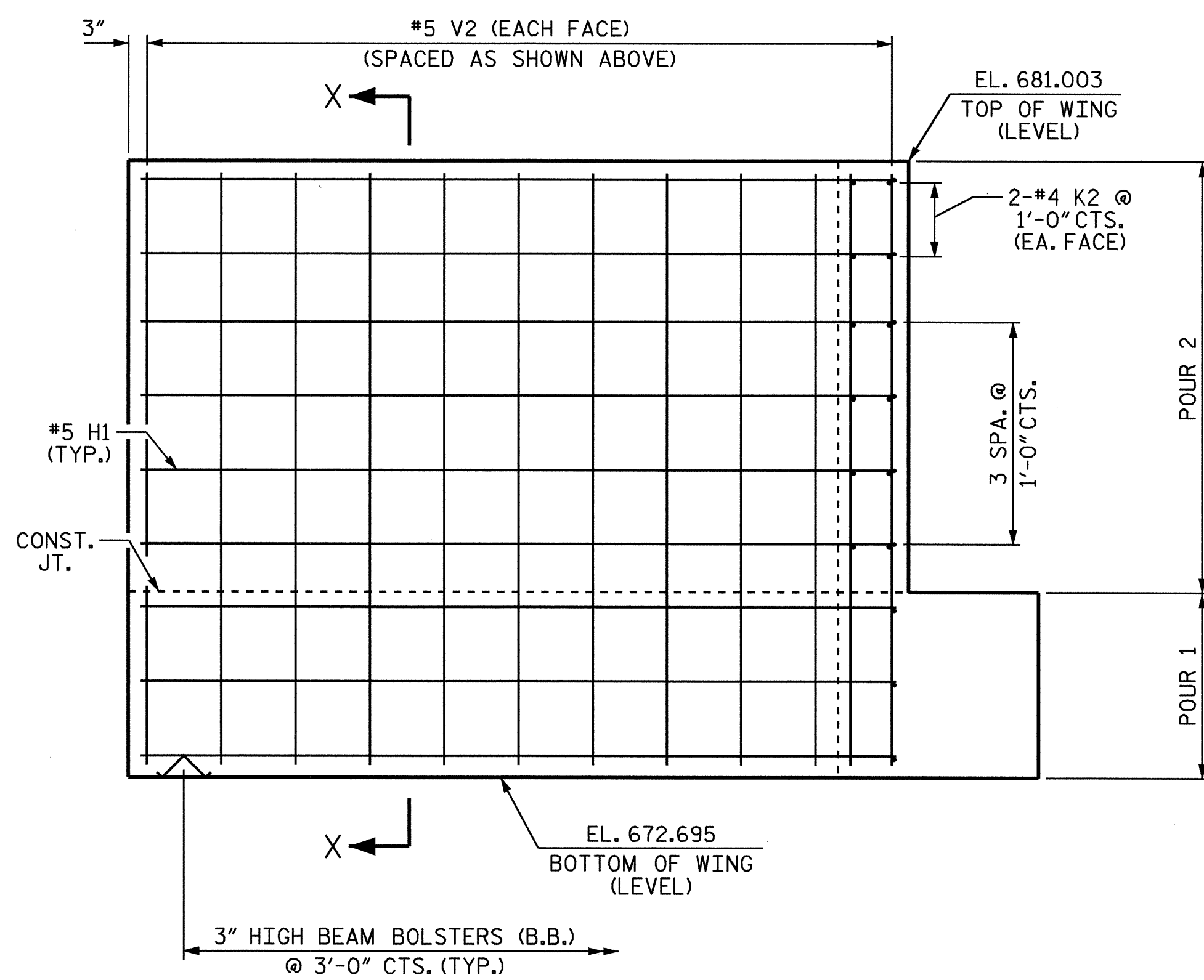
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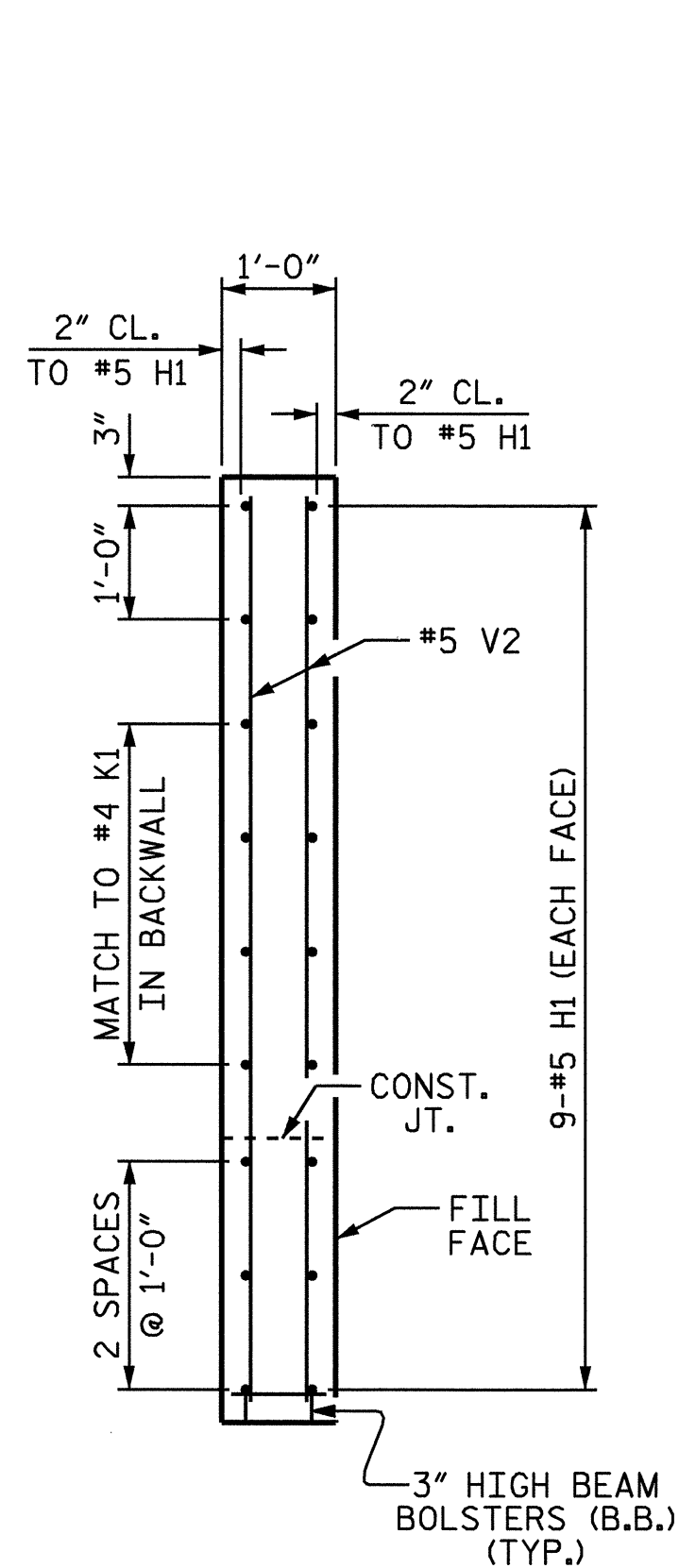
PLAN OF WING (W1)



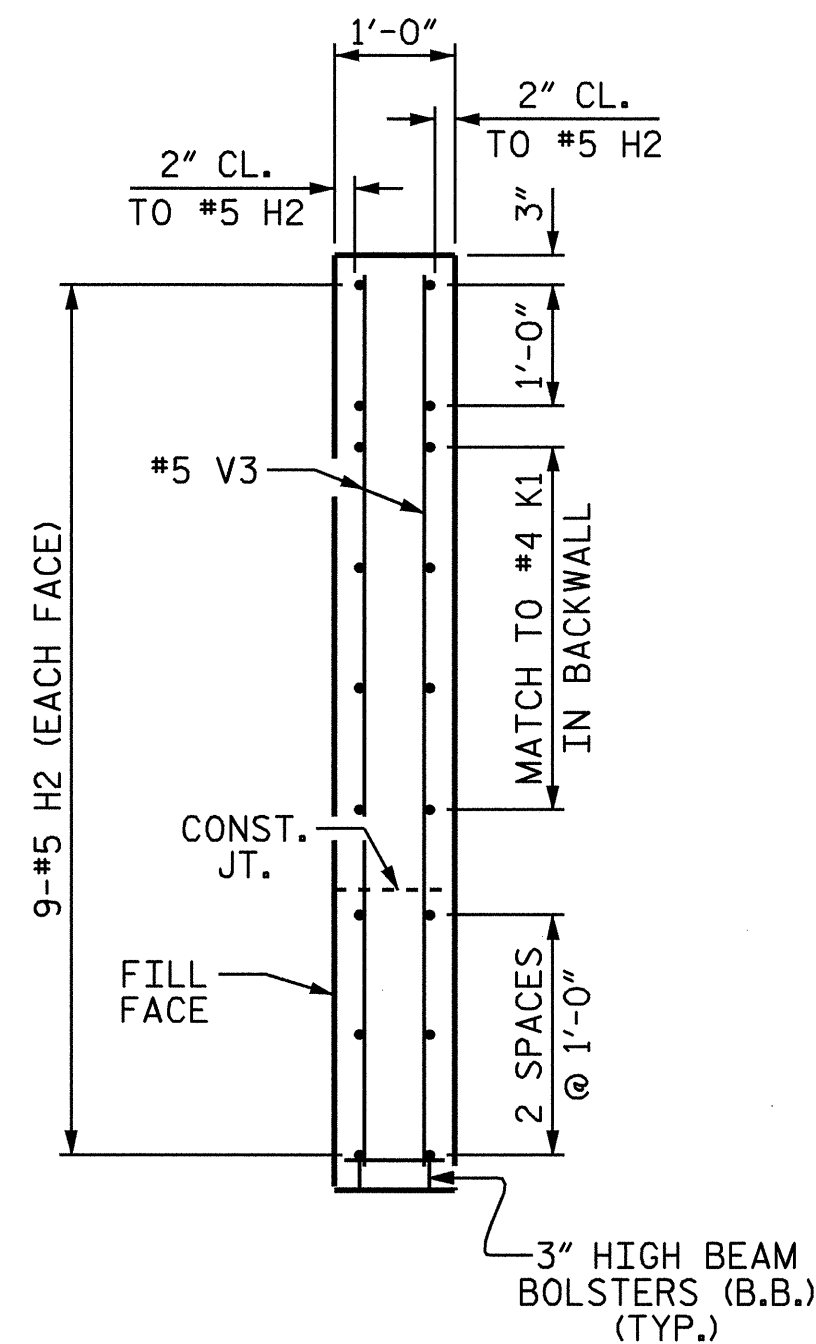
PLAN OF WING (W2)



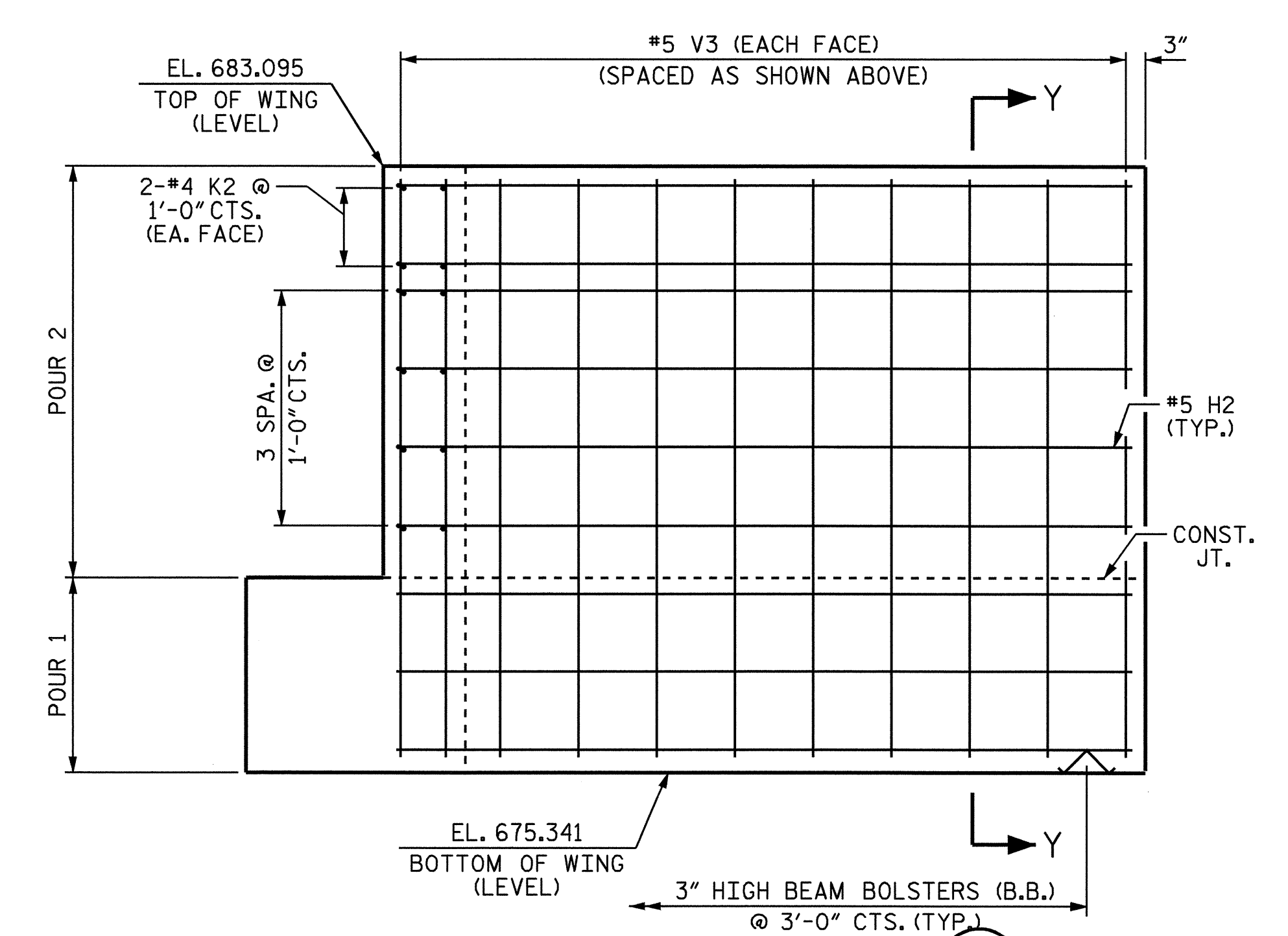
ELEVATION OF WING (W1)



SECTION X-X



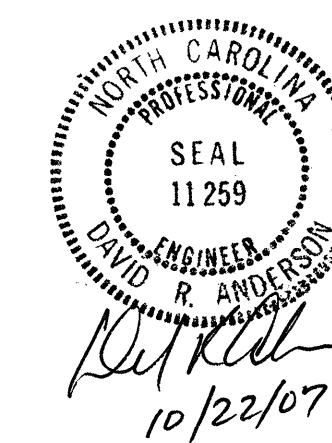
SECTION Y-Y



ELEVATION OF WING (W2)

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 2 OF 3

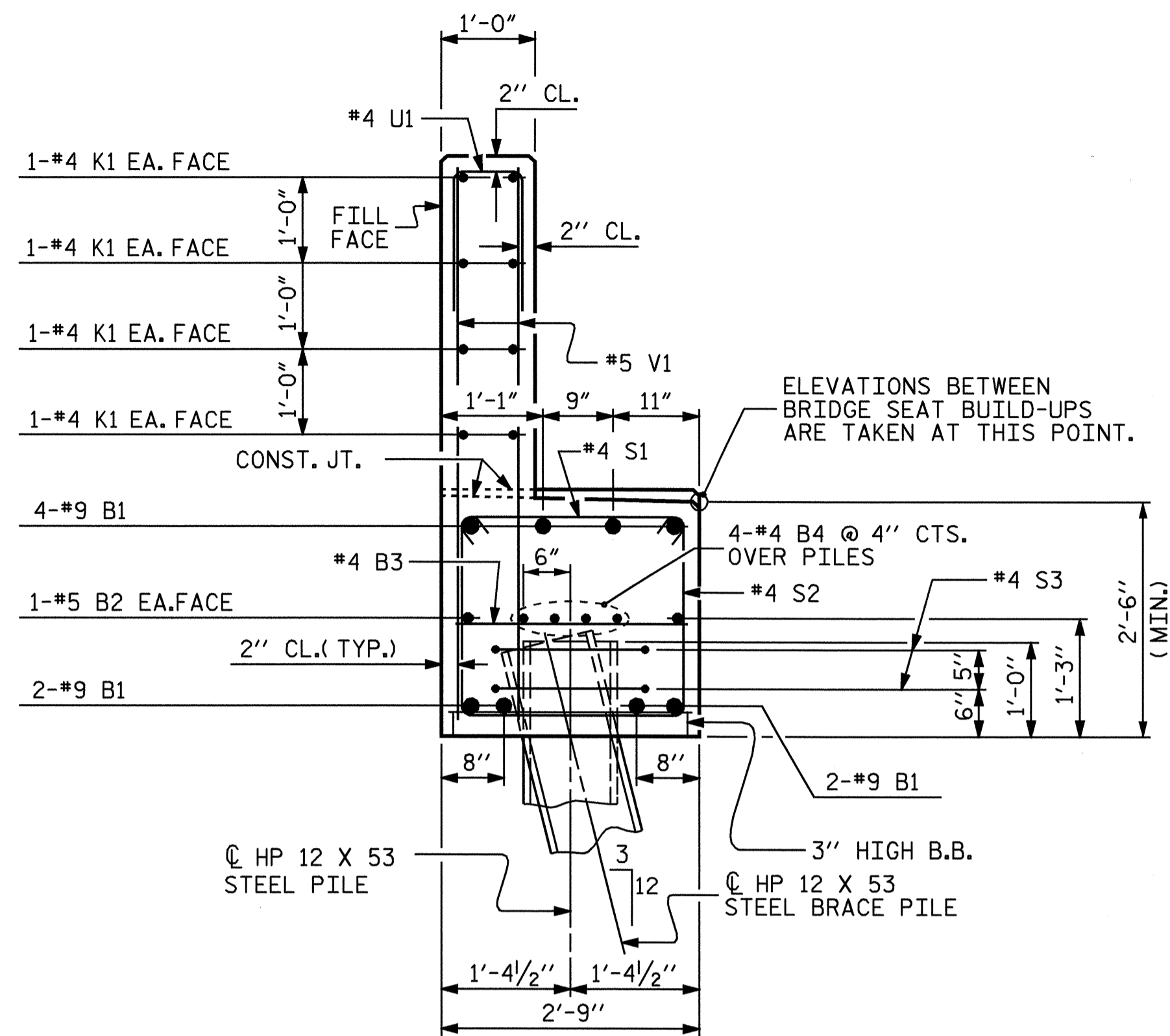


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

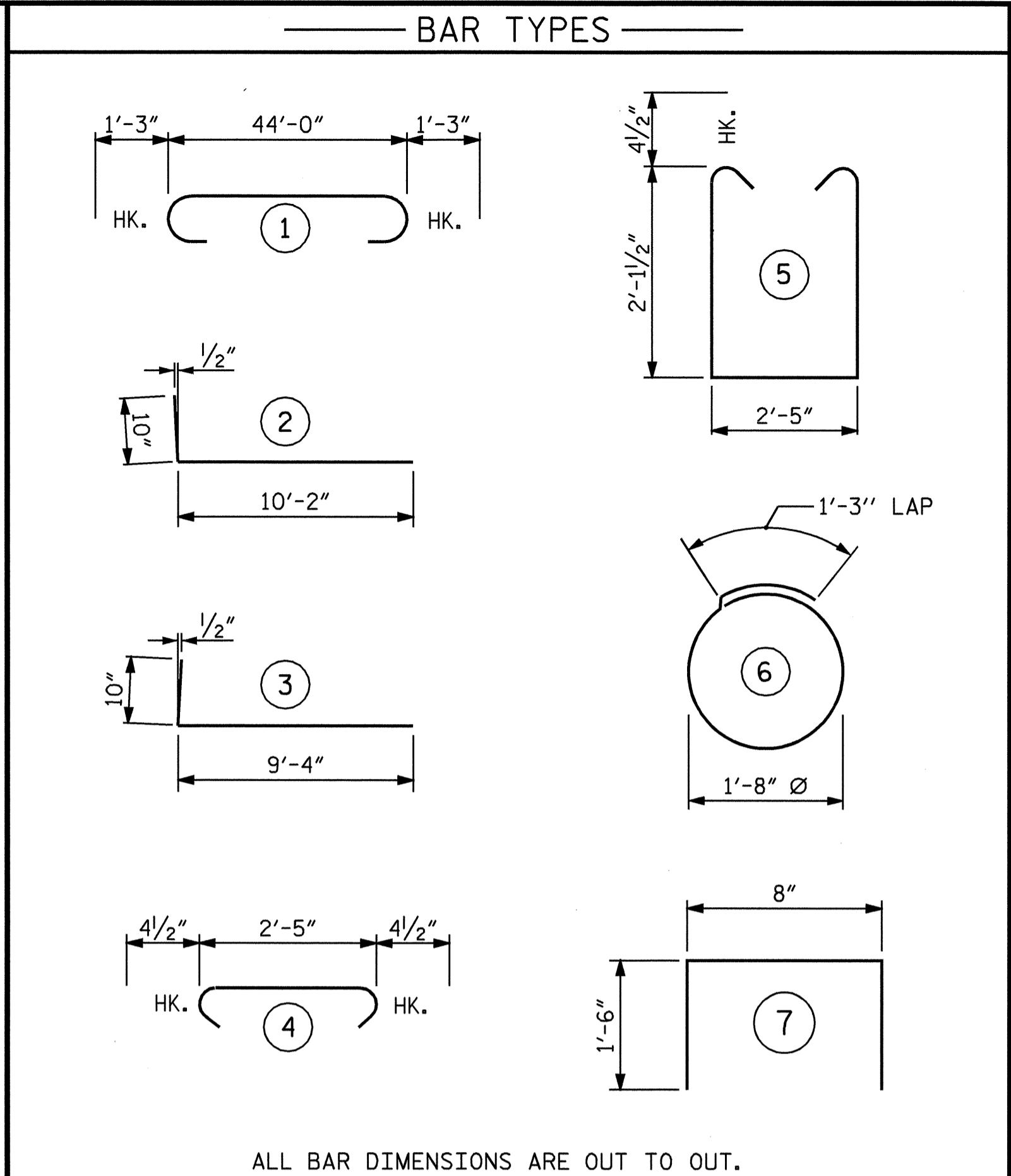
SUBSTRUCTURE
 END BENT 2

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS	35
2			4				

DRAWN BY: T.A. HARRIS DATE: 12-29-06
 CHECKED BY: B.L. GREEN DATE: 3-28-07



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

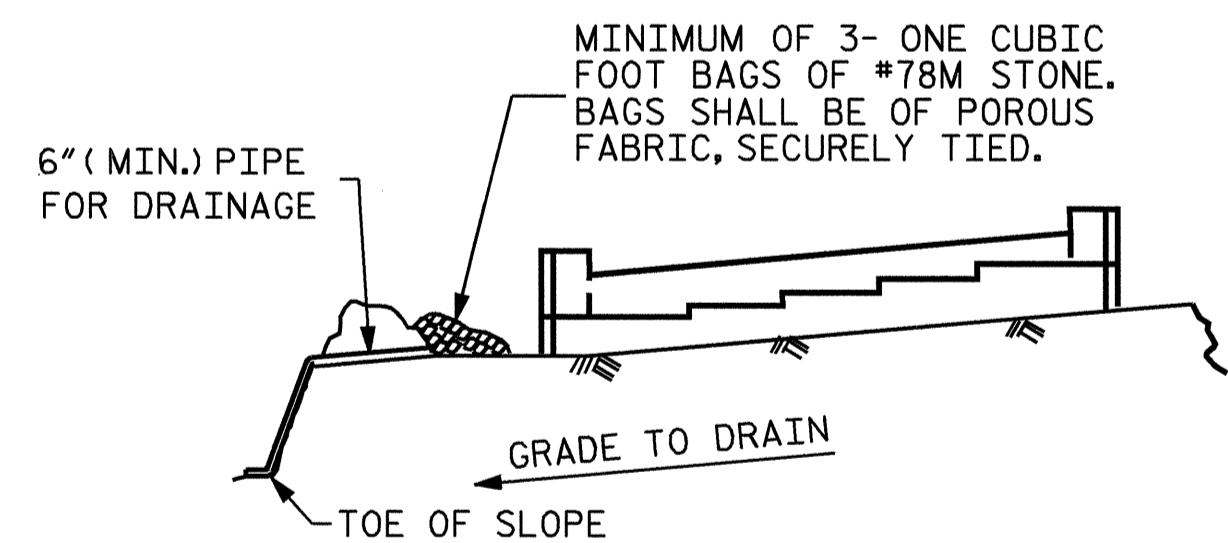
END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	46'-6"	1265
B2	2	#5	STR	44'-2"	92
B3	11	#4	STR	2'-5"	18
B4	8	#4	STR	23'-4"	125
H1	18	#5	2	11'-0"	207
H2	18	#5	3	10'-2"	191
K1	16	#4	STR	23'-4"	249
K2	8	#4	STR	3'-7"	19
S1	44	#4	4	3'-2"	93
S2	44	#4	5	7'-5"	218
S3	16	#4	6	6'-6"	69
U1	37	#4	7	3'-8"	91
V1	74	#5	STR	6'-0"	463
V2	30	#5	STR	7'-11"	248
V3	28	#5	STR	7'-4"	214
REINFORCING STEEL				LBS.	3562

CLASS A CONCRETE BREAKDOWN:

POUR	DESCRIPTION	C.Y.	WEIGHT
POUR 1	(CAP & LOWER PART OF WINGS)	C.Y.	13.3
POUR 2	(BACKWALL & UPPER WINGS)	C.Y.	10.5
TOTAL CLASS A CONCRETE		C.Y.	23.8

HP 12 X 53 STEEL PILES
NO. = 8 LIN. FT. = 260.0

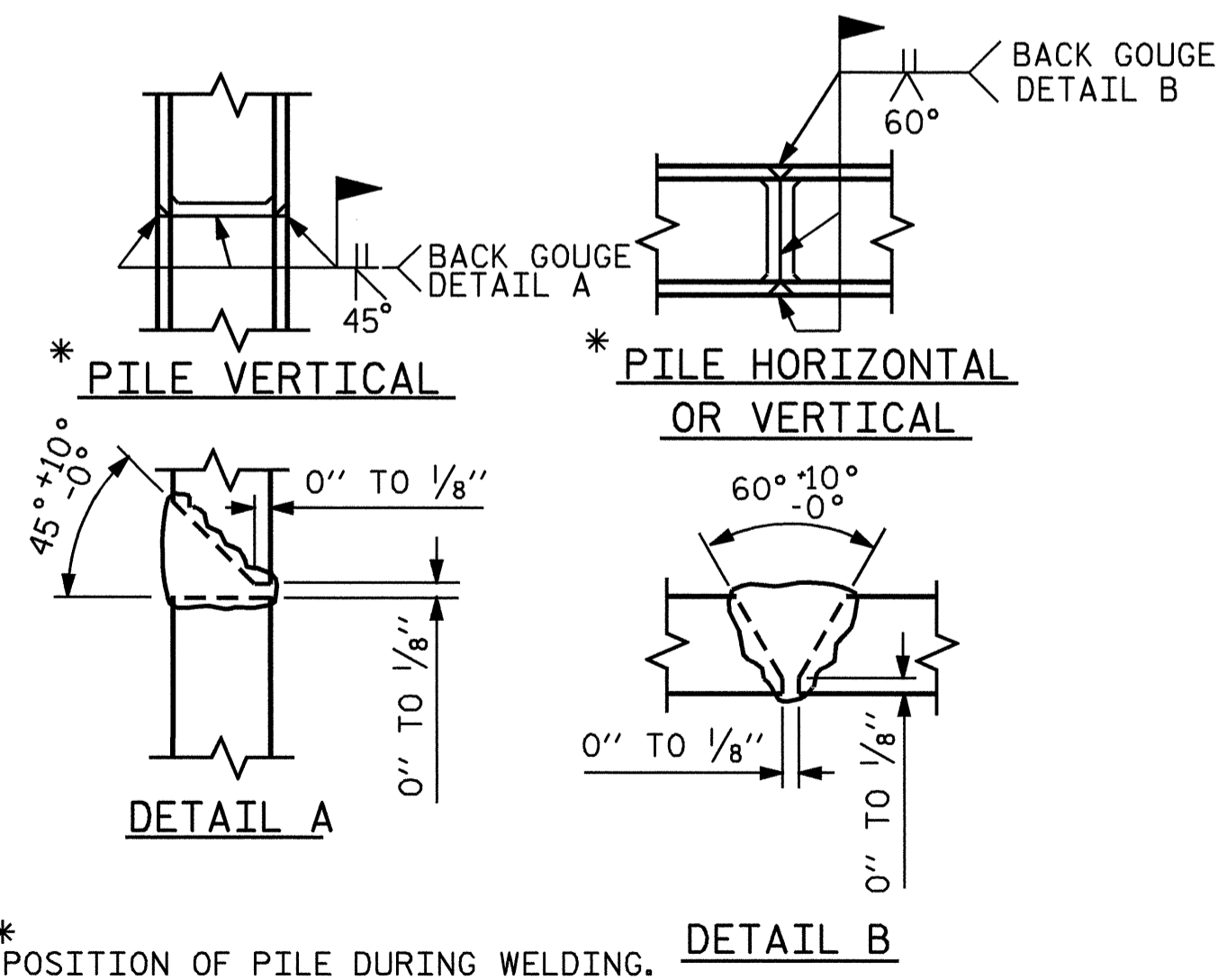


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



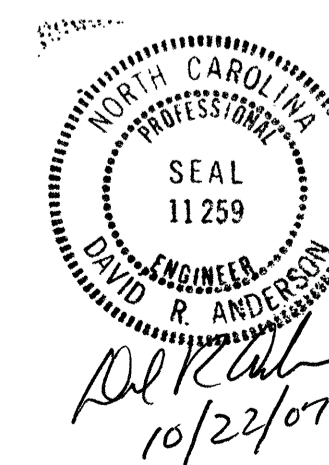
POSITION OF PILE DURING WELDING. PILE SPLICE DETAILS

PROJECT NO. B-4104
DAVIE COUNTY
STATION: 20+71.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

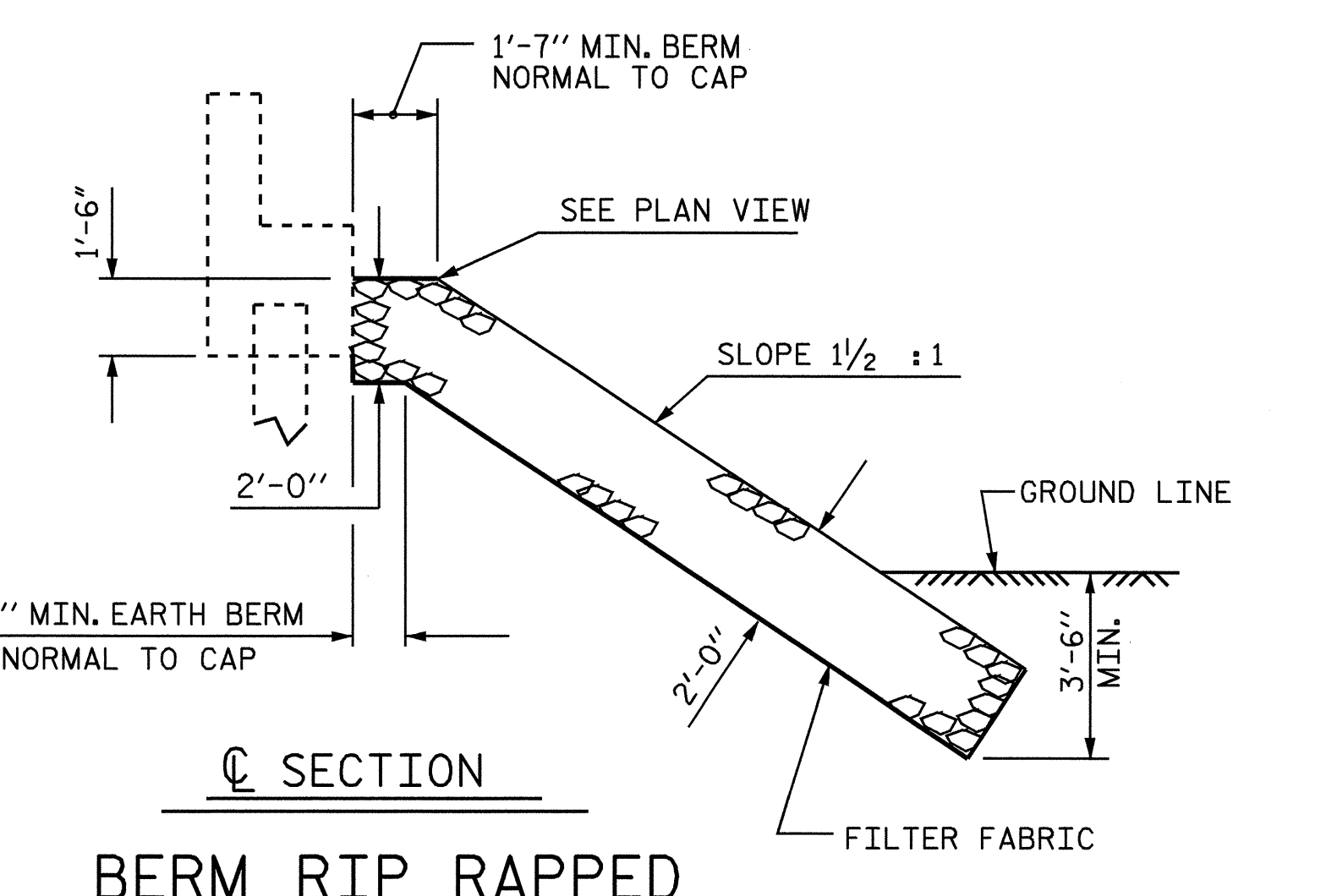
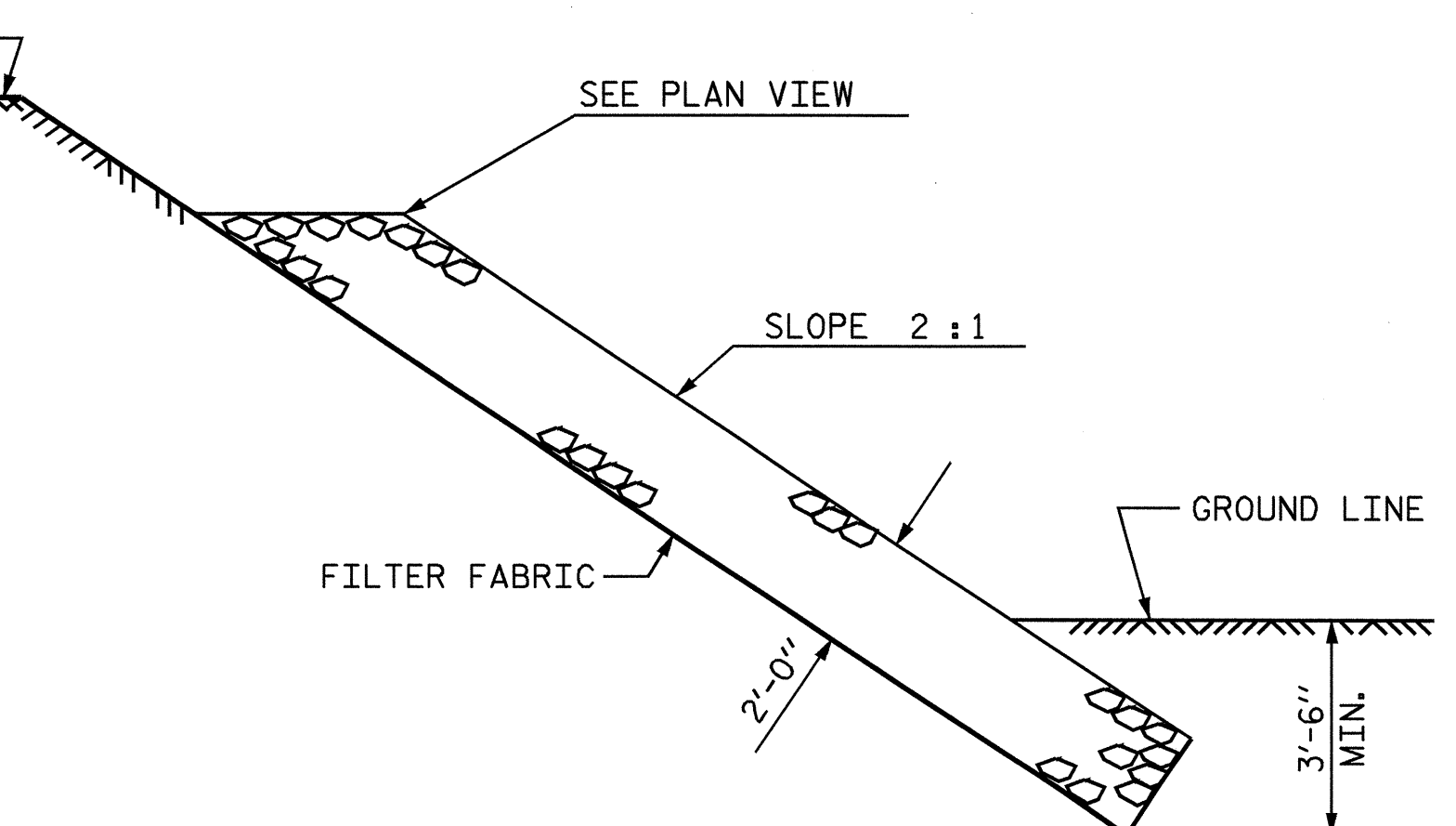
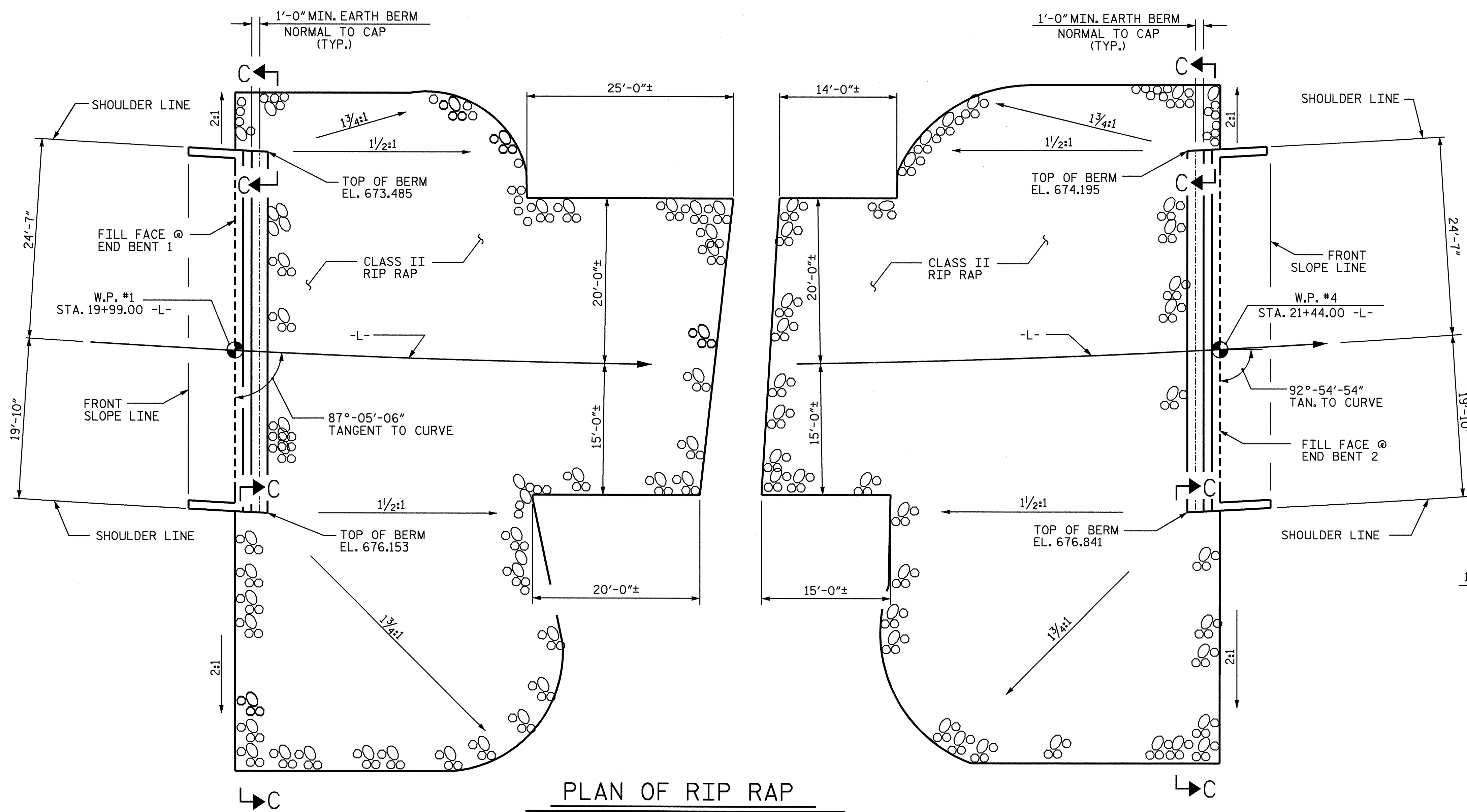
SUBSTRUCTURE
END BENT 2



DRAWN BY: T.A. HARRIS DATE: 12-29-06
CHECKED BY: B.L. GREEN DATE: 3-28-07

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

TOTAL SHEETS: 35



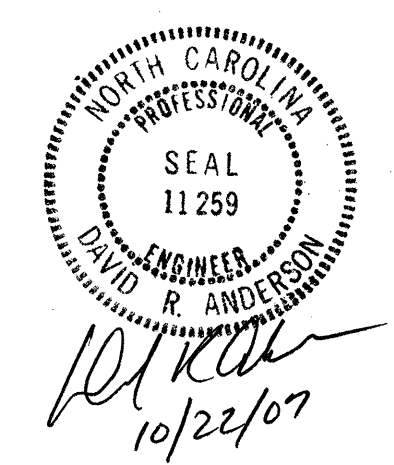
PLAN OF RIP RAP

BERM RIP RAPPED

NOTE: FILTER FABRIC SHALL BE PLACED UNDER ENTIRE AREA OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+71.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	420	465
END BENT 2	415	460

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-



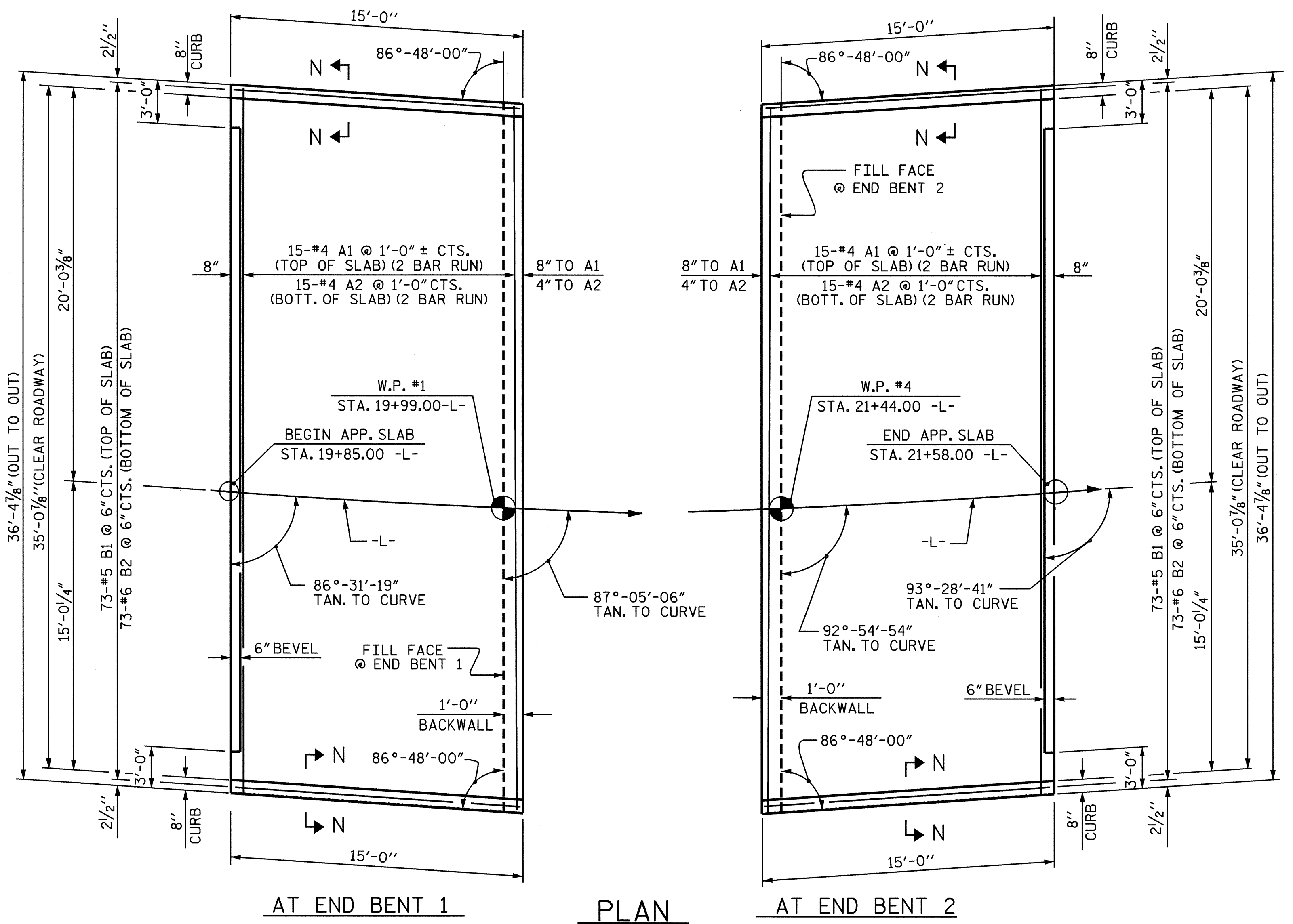
STATE OF NORTH CAROLINA
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 RALEIGH

RIP RAP DETAILS

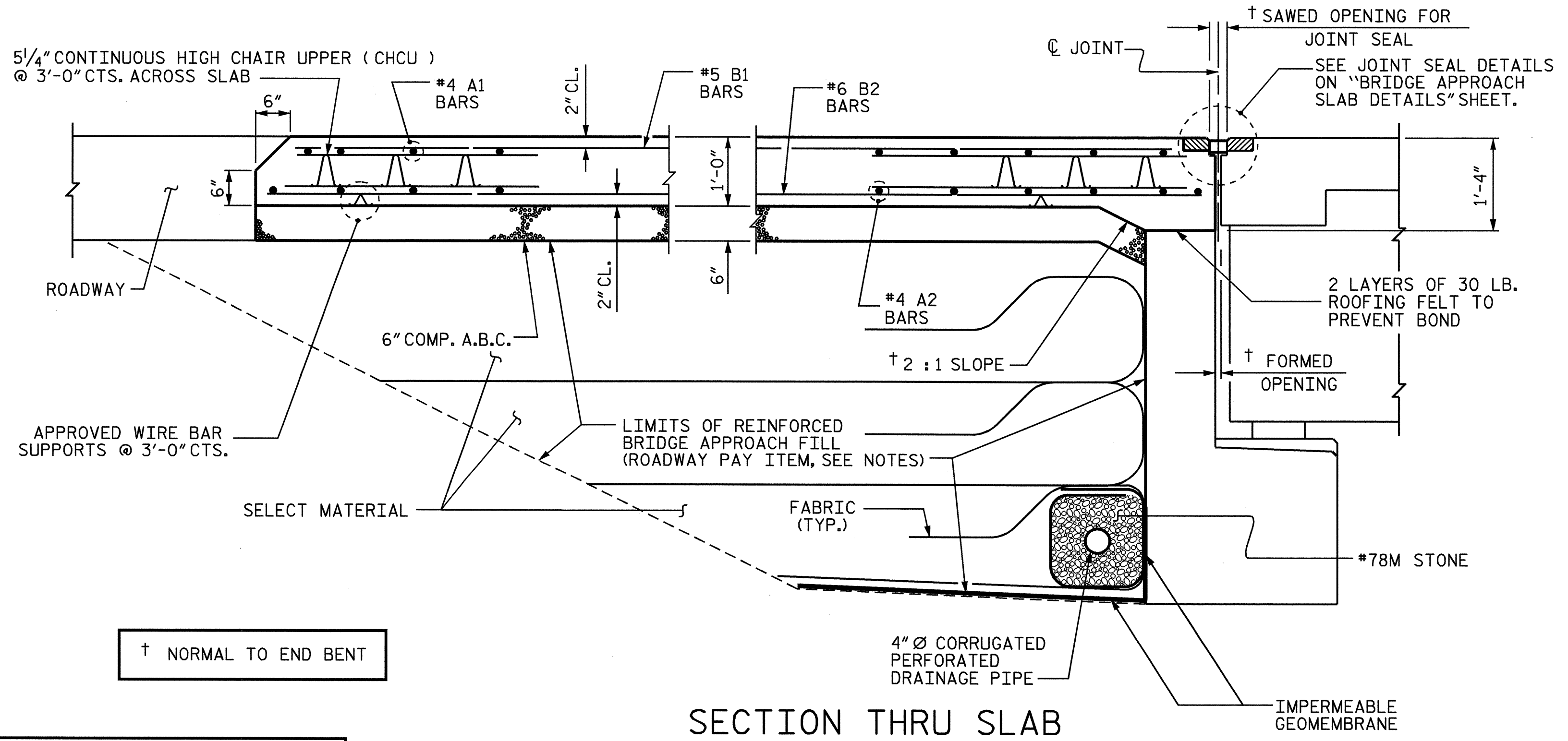
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

DRAWN BY: S.M. RASHIDI DATE: 01-03-06
 CHECKED BY: N.Q. TRAN DATE: 02-13-06

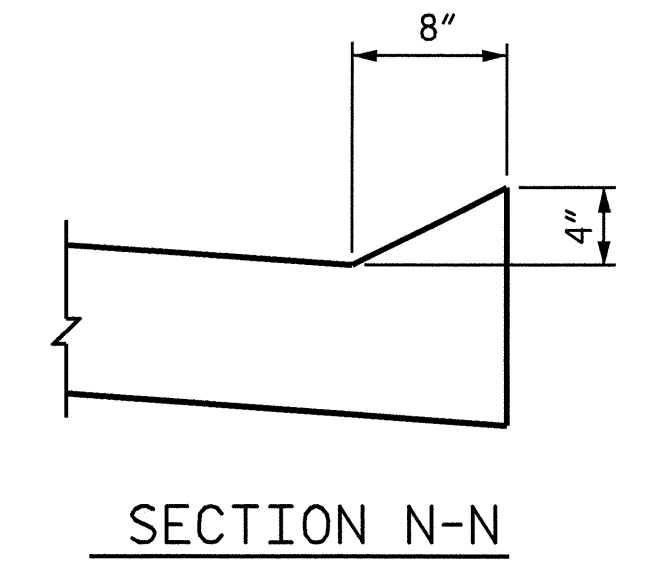
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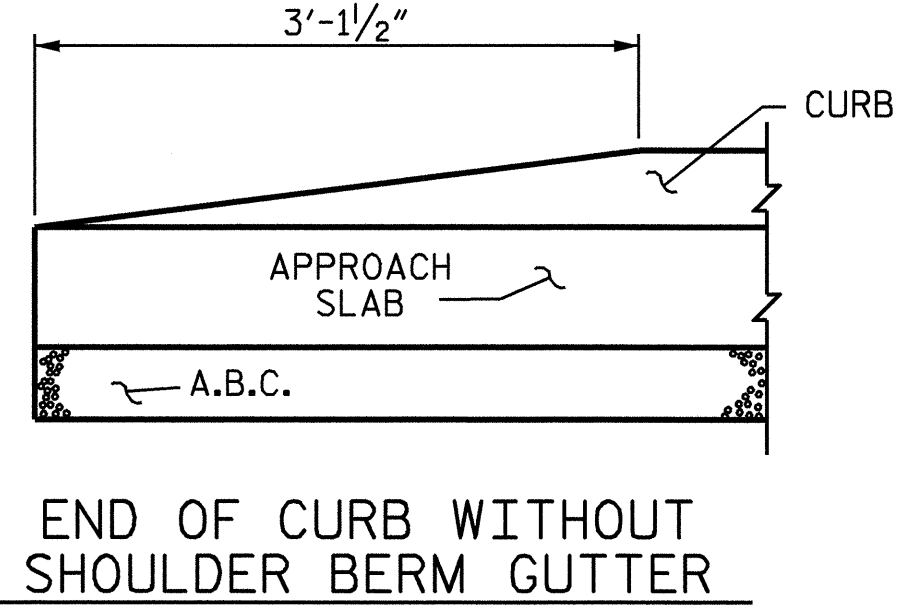
AT END BENT 1 PLAN AT END BENT 2



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

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

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

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

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL.

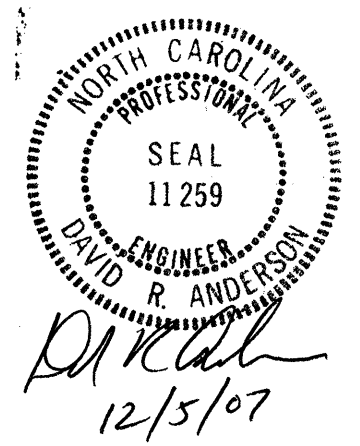
CONSTRUCT LEFT AND RIGHT EDGE OF APPROACH SLABS ALONG A TANGENT LINE. ARC OFFSETS ARE NOT NECESSARY AT THIS LOCATION.

BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	19'-0"	381
A2	30	#4	STR	18'-11"	379
*B1	73	#5	STR	14'-2"	1079
B2	73	#6	STR	14'-8"	1608
REINFORCING STEEL				LBS.	1987
*EPOXY COATED REINFORCING STEEL				LBS.	1460
CLASS AA CONCRETE				C. Y.	20.6

PROJECT NO. B-4104
 DAVIE COUNTY
 STATION: 20+71.50 -L-

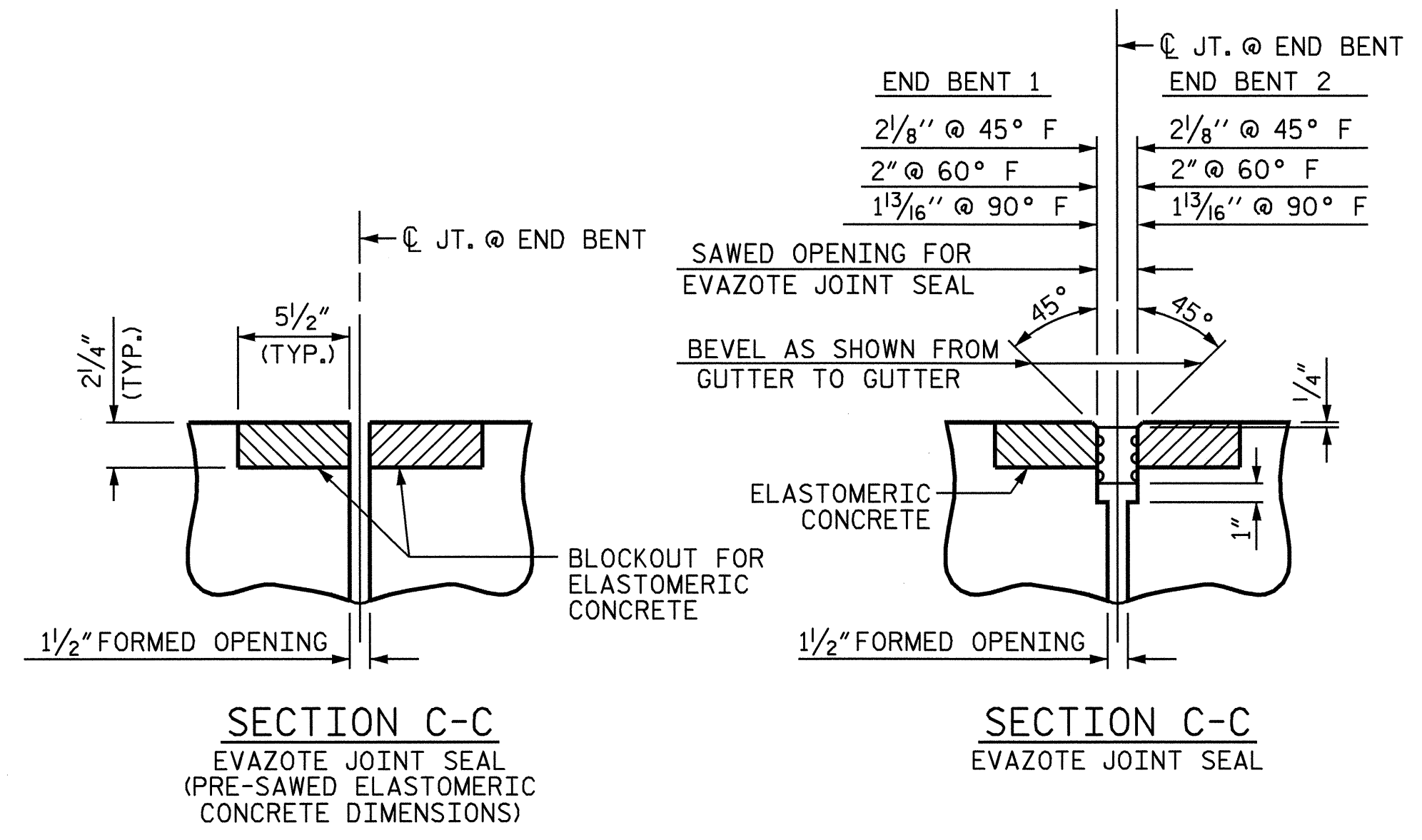
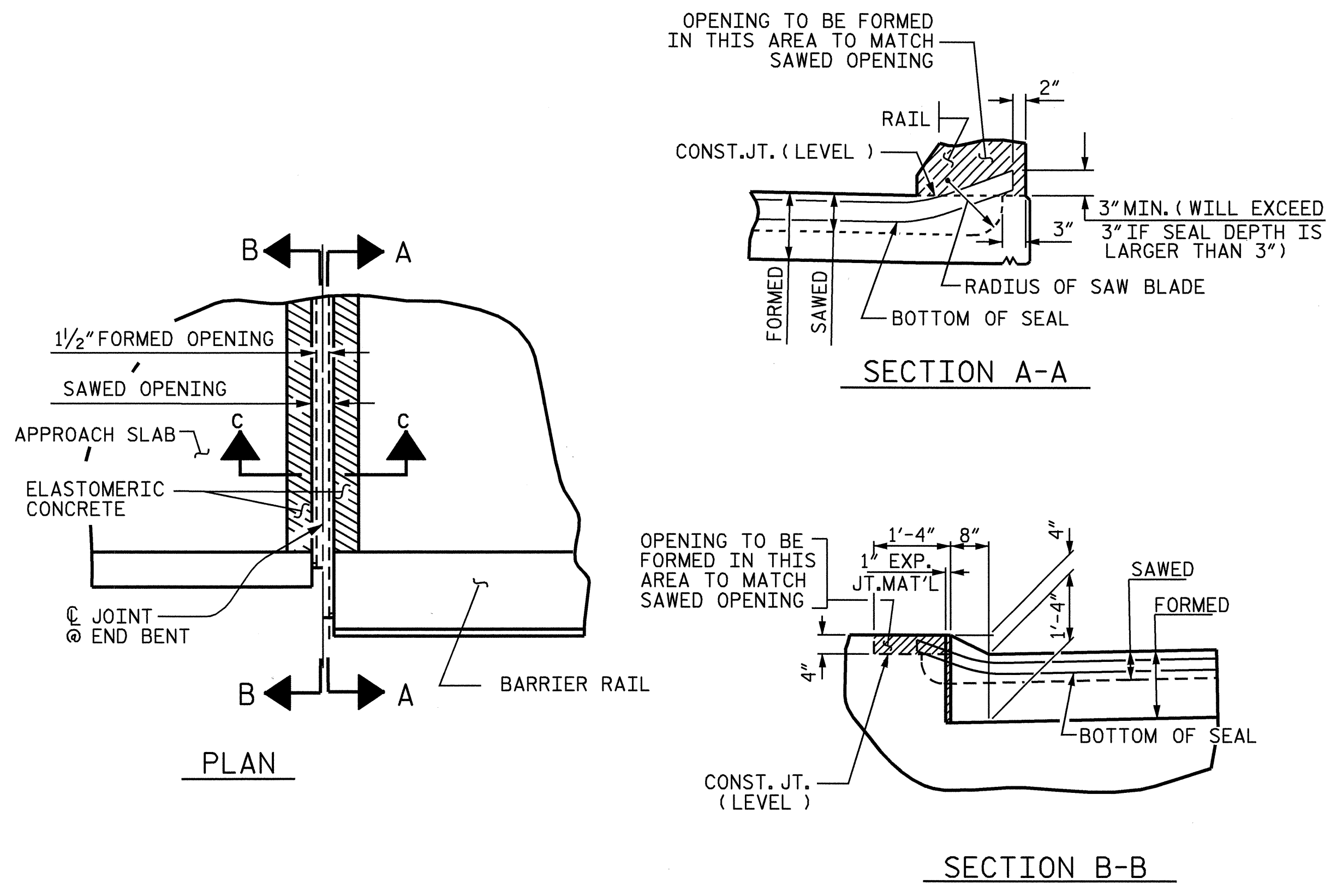
SHEET 1 OF 2

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

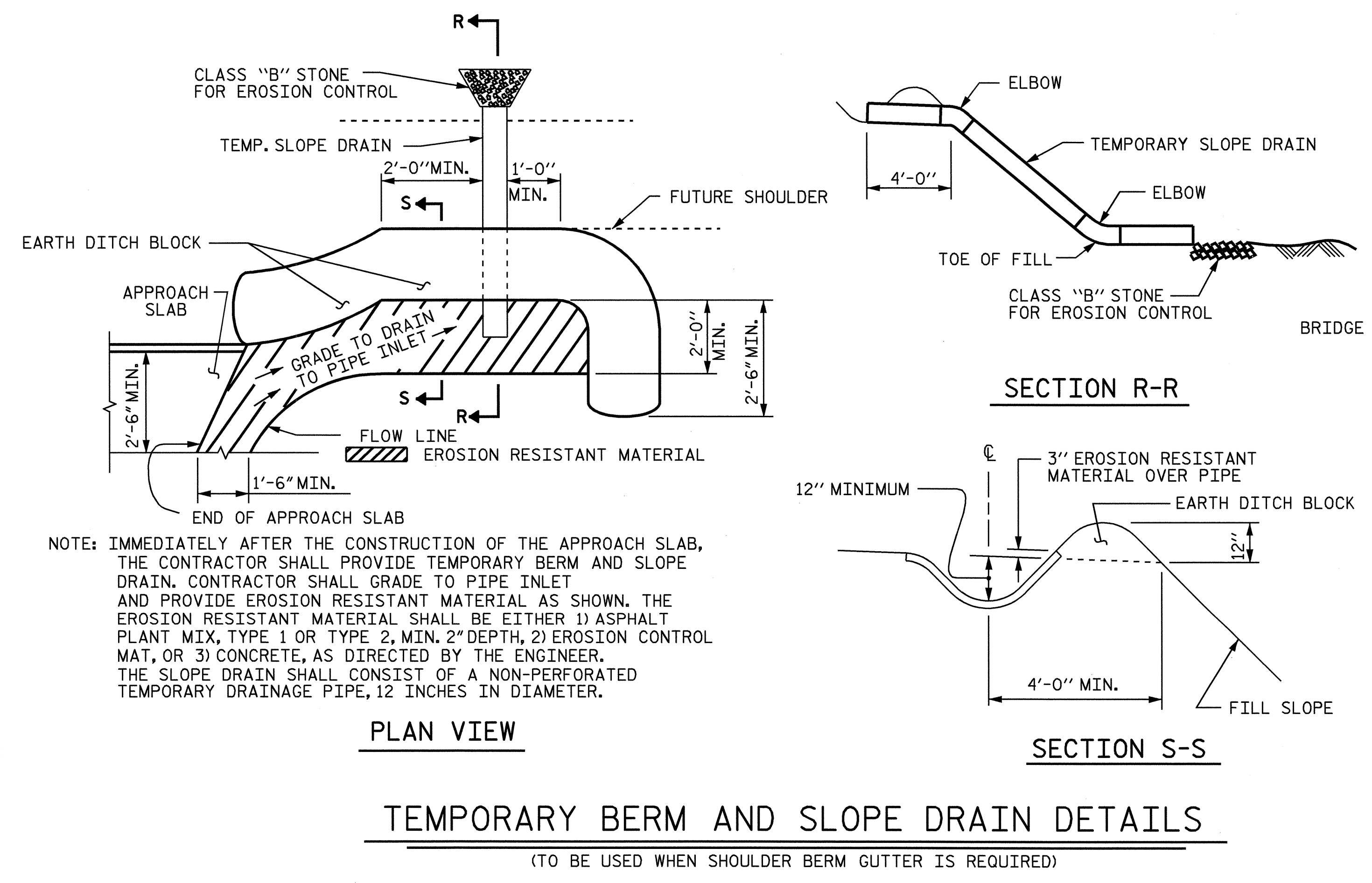


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-31
2			4			TOTAL SHEETS 35

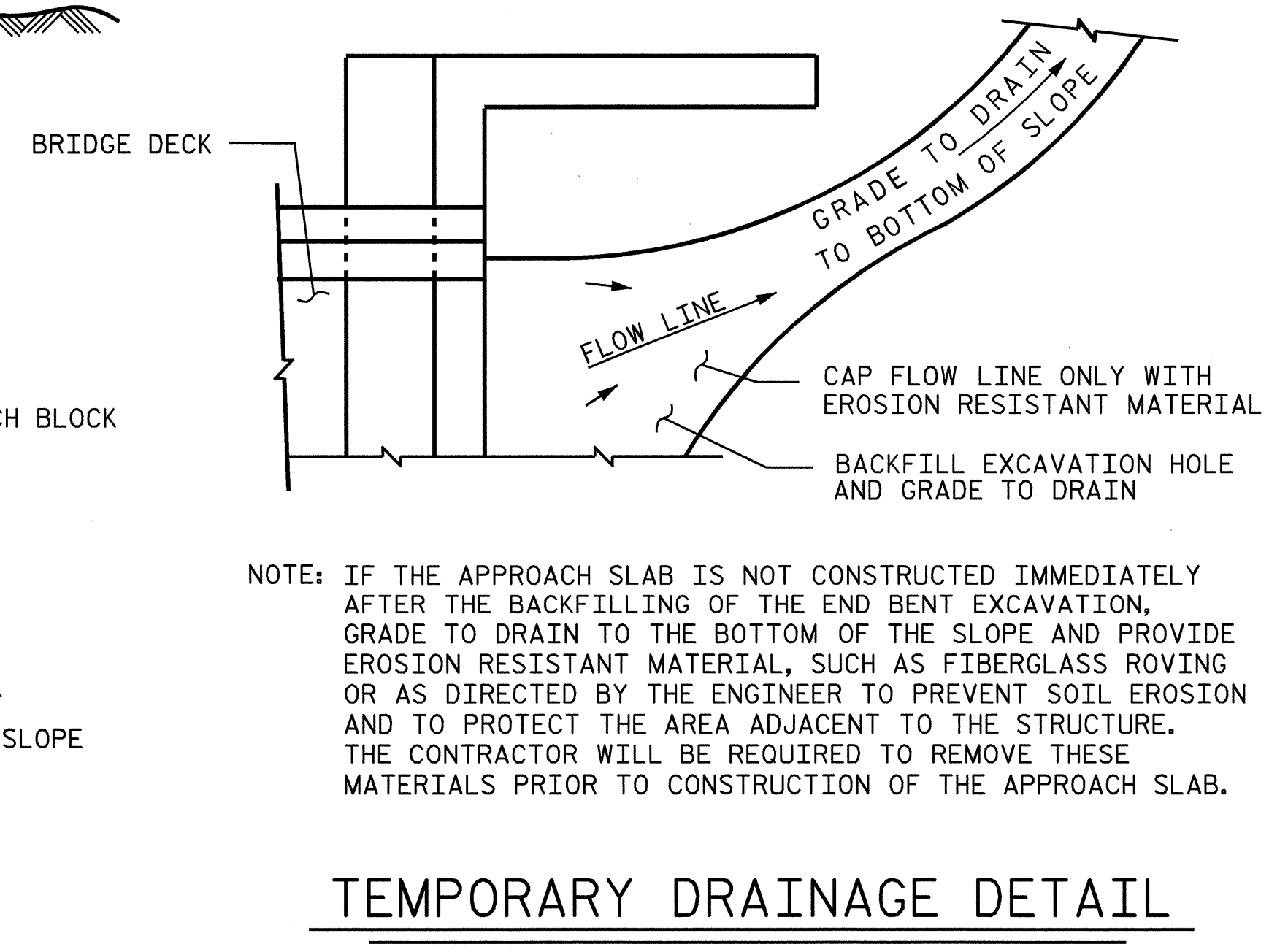
ASSEMBLED BY : S. M. RASHIDI DATE : 1-25-06
 CHECKED BY : N. Q. TRAN DATE : 3-21-06
 DRAWN BY : EEM 3/95 REV. 7/10/01 LES/RDR
 CHECKED BY : VAP 3/95 REV. 5/7/03R RWW/JTE
 REV. 5/1/06R KMM/GM



JOINT SEAL DETAILS AT END BENTS
(SHOWING PARTIAL DEPTH BLOCKOUT)



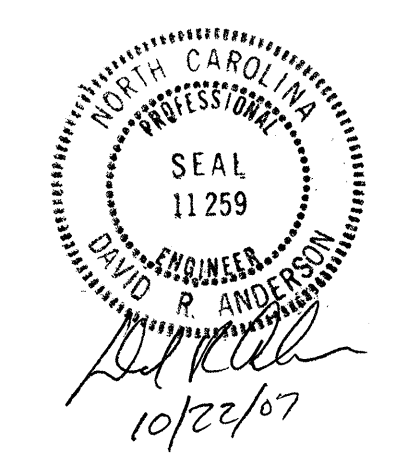
TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



ELASTOMERIC CONCRETE	
@ END BENT	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.3
2	6.3
TOTAL	12.6

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-
 SHEET 2 OF 2



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

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB DETAILS

TOTAL SHEETS: 35

DRAWN BY: S. M. RASHIDI DATE: 1-25-06
 CHECKED BY: N. Q. TRAN DATE: 3-21-06

OVERHANG BRACKET CALCULATION INSTRUCTIONS

AASHTO SHAPES - TYPES III, IV, V, AND VI

- RECORD KNOWN INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- CALCULATE THE MAXIMUM SCREED LOAD PER BRACKET (SLPB) WITH AN ESTIMATED $R = 1.5$. $SLPB = R \times W$. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE ESTIMATED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE THE BRACKET SPACING, S.
- CALCULATE S/D1 AND S/D2, ROUNDING UP TO NEAREST VALUE IN TABLE 2. ENTER TABLE 2 AND DETERMINE R VALUE.
- CALCULATE REVISED SLPB. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE REVISED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3 OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE REVISED BRACKET SPACING, S.
- CONTINUE ITERATIONS OF STEPS 4-6 UNTIL THE REVISED BRACKET SPACING, S, IS THE SAME AS THE PREVIOUS S VALUE.
- CHECK LUMBER JOIST SPACING: WITH BRACKET SPACING VALUE, S, ROUND THIS VALUE UP TO THE NEAREST VALUE OF ALLOWABLE SPAN LENGTH OF JOIST OF TABLE 3. USING THIS VALUE, ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE, DETERMINE JOIST SPACING FROM TABLE 3. IF NECESSARY, ADJUST LUMBER JOIST SIZE AND/OR JOIST SPACING TO MEET ALLOWABLE SPAN LENGTH OF JOIST.
- CONVERSELY, IF THE DESIRED JOIST SPACING IS KNOWN, USE THIS ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE TO DETERMINE IF ALLOWABLE SPAN LENGTH OF JOIST IS GREATER THAN THE BRACKET SPACING, S. IF NECESSARY, ADJUST LUMBER JOIST SIZE TO MEET REQUIREMENTS OF ALLOWABLE SPAN LENGTH OF JOIST AND JOIST SPACING.
- RECORD REMAINING INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" FORM.
- SUBMIT FORM AND CALCULATIONS FOR REVIEW AND APPROVAL.

TABLE 1-1 (FOR USE ON UP TO 2'-0" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30	3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	4000
	40	3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	4000
	50	3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	4000
12	30	3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	4000
	40	3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	4000
	50	3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	4000
14	30	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	4000
	40	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	4000
	50	2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	4000
16	30	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	4000
	40	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	4000
	50	2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	4000

TABLE 1-2 (FOR USE ON OVER 2'-0" TO 2'-6" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	4000
	40	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	4000
	50	3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	4000
12	30	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	4000
	40	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	4000
14	30	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	4000
	40	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	4000
	50	2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	4000
16	30	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	4000
	40	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	4000
	50	2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	4000

TABLE 1-3 (FOR USE ON OVER 2'-6" TO 3'-0" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30										4000
	40	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-7"	4000
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-7"	4000
12	30										4000
	40	2'-5"	2'-10"	3'-2"	3'-6"	3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	4000
	50	2'-5"	2'-10"	3'-2"	3'-6"	3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	4000
14	30										4000
	40	2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	5'-6"	4000
	50	2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	5'-6"	4000
16	30										4000
	40	2'-0"	2'-4"	2'-7"	2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	5'-0"	4000
	50	2'-0"	2'-4"	2'-7"	2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	5'-0"	4000

TABLE 1-4 (FOR USE ON OVER 3'-0" TO 3'-6" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
10	30										4000
	40										4000
	50	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	5'-9"	4000
12	30										4000
	40										4000
	50	2'-1"	2'-4"	2'-8"	3'-0"	3'-4"	3'-7"	3'-11"	4'-3"	5'-2"	4000
14	30										4000
	40										4000
	50										4000
16	30										4000
	40										4000
	50										4000

DEFINITIONS

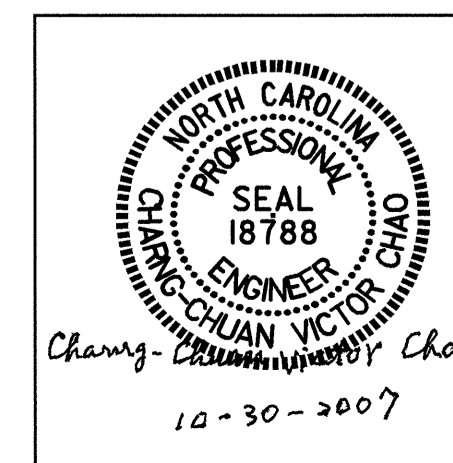
- SLPB = SCREED LOAD PER BRACKET (R x W)
- R = SCREED LOAD FACTOR, OBTAINED FROM TABLE 2
- W = WHEEL LOAD
- S = BRACKET SPACING
- T = AVERAGE SLAB THICKNESS
- SWL = SAFE WORKING LOAD
- K = DIMENSION DEFINED ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- L = OVERHANG MEASURED FROM EDGE OF TOP FLANGE TO EDGE OF SUPERSTRUCTURE

PROJECT NO. B-4104
 DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES
 III, IV, V, AND VI



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

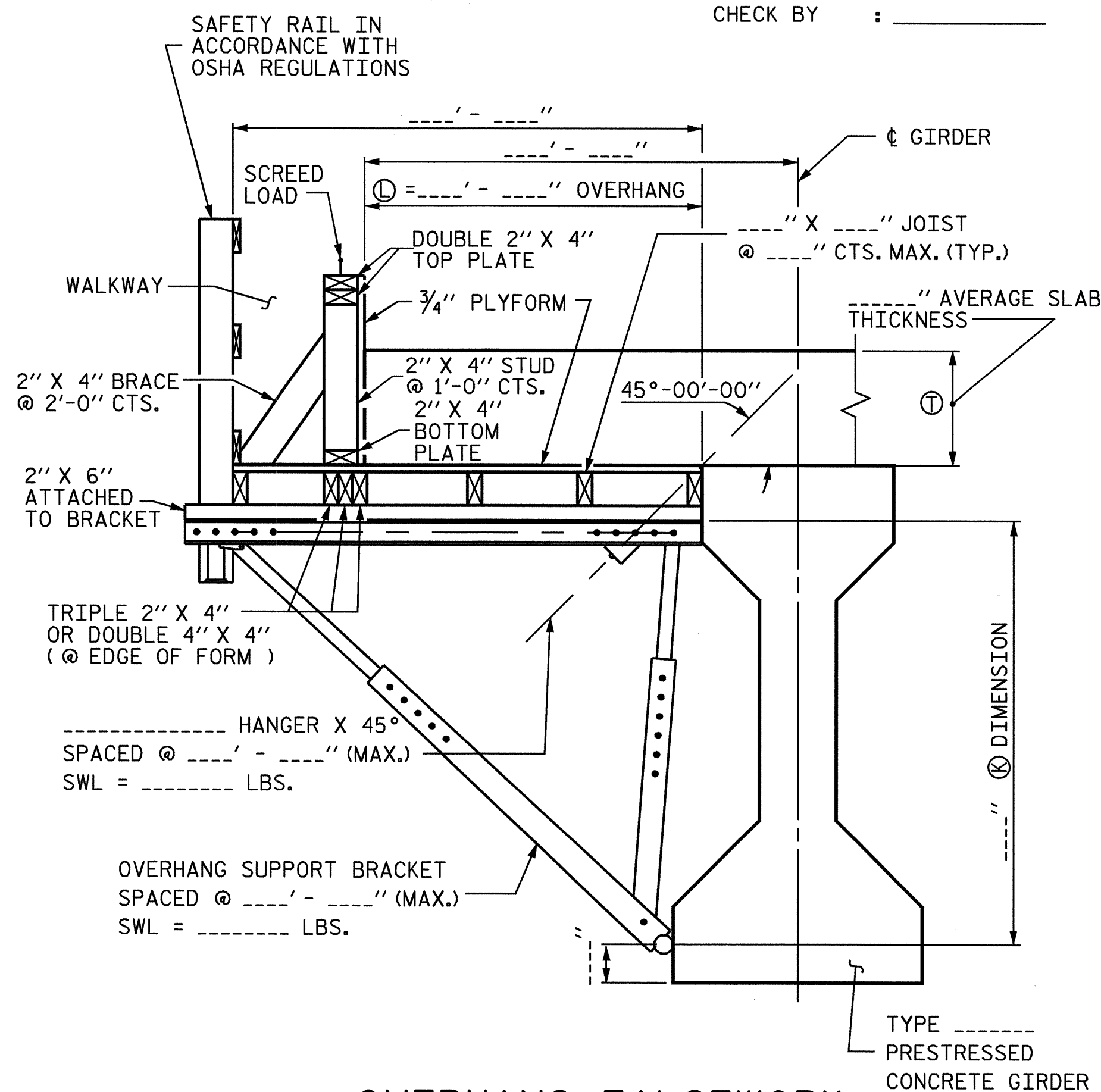
ASSEMBLED BY:	DATE:
CHECKED BY:	DATE:
DRAWN BY: R. WRIGHT 06/04	REV.
CHECKED BY: C. V. CHAO 06/04	

BRIDGE OVERHANG BRACKET SUMMARY

TOTAL SCREED WEIGHT = _____ LBS.
 NUMBER OF SCREED WHEELS = _____
 SCREED WHEEL LOAD (W) = _____ LBS.
 SCREED LOAD PER BRACKET = _____ LBS.

PROJECT No. : _____
 COUNTY : _____
 STATION : _____
 DESCRIPTION : _____

DATE : _____
 DESIGN BY : _____
 CHECK BY : _____



OVERHANG FALSEWORK

NOTES

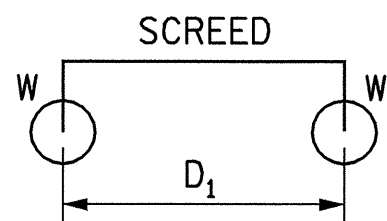
DESIGN INCLUDES CONSTRUCTION LIVE LOAD 20 PSF ON THE AREA SUPPORTED AND 75 PLF AT THE OUTSIDE DECK OF OVERHANGS.

REQUIRED MINIMUM DIAGONAL LEG CAPACITY: 3600 LB WORKING LOAD

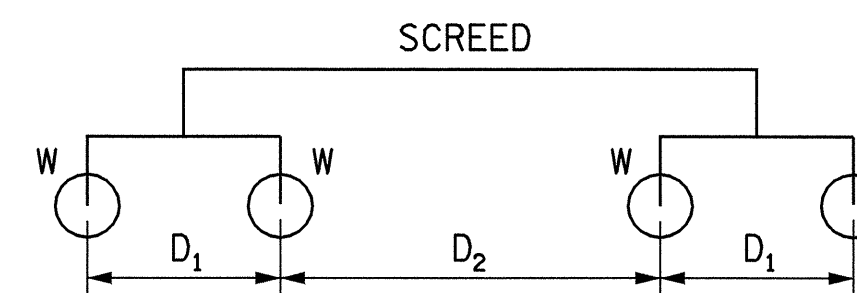
THE CONTRACTOR HAS THE OPTION OF SUBMITTING HIS OWN DESIGN FOR OVERHANG FALSEWORK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

SUBMITTALS UTILIZING THE INSTRUCTIONS AND PROCEDURES DESCRIBED ON SHEET 1 OF 3 SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS, EXCEPT THAT CALCULATIONS FOR OVERHANG FALSEWORK NEED NOT BE SEALED BY A REGISTERED ENGINEER.

FOR OVERHANG FALSEWORK BRACING DESIGN, SEE SHEET 3 OF 3.



4-WHEEL MACHINE



8-WHEEL MACHINE

TABLE 2: SCREED LOAD FACTOR "R"

4 WHEEL MACHINE	
S/D1	R
<= 1.0	1.00
1.1	1.09
1.2	1.17
1.3	1.23
1.4	1.29
1.5	1.33
1.6	1.38
1.7	1.41
1.8	1.44
1.9	1.47
2.0	1.50
2.2	1.55
2.4	1.58
2.6	1.62
2.8	1.64
3.0	1.67
3.5	1.71
4.0	1.75

		THE SCREED LOAD FACTOR R (FOR 8 WHEEL MACHINE)																	
		S/D ₂																	
S/D ₁		<= 1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.5	4.0
		<= 1.0		1.00	1.09	1.17	1.23	1.29	1.33	1.38	1.41	1.44	1.47	1.50	1.55	1.58	1.62	1.64	1.67
1.1		1.09	1.18	1.26	1.32	1.38	1.42	1.47	1.50	1.54	1.56	1.59	1.64	1.67	1.71	1.73	1.76	1.81	1.84
1.2		1.17	1.26	1.33	1.40	1.45	1.50	1.54	1.58	1.61	1.64	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92
1.3		1.23	1.32	1.40	1.46	1.52	1.56	1.61	1.64	1.68	1.70	1.73	1.78	1.81	1.85	1.87	1.90	1.95	1.98
1.4		1.29	1.38	1.45	1.52	1.57	1.62	1.66	1.70	1.73	1.76	1.79	1.83	1.87	1.90	1.93	1.95	2.00	2.07
1.5		1.33	1.42	1.50	1.56	1.62	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92	1.95	1.98	2.00	2.10	2.17
1.6		1.38	1.47	1.54	1.61	1.66	1.71	1.75	1.79	1.82	1.85	1.88	1.92	1.96	1.99	2.04	2.08	2.18	2.25
1.7		1.41	1.50	1.58	1.64	1.70	1.75	1.79	1.82	1.86	1.89	1.91	1.96	2.00	2.05	2.11	2.16	2.25	2.32
1.8		1.44	1.54	1.61	1.68	1.73	1.78	1.82	1.86	1.89	1.92	1.94	1.99	2.06	2.12	2.17	2.22	2.32	2.39
1.9		1.47	1.56	1.64	1.70	1.76	1.81	1.85	1.89	1.92	1.95	1.97	2.04	2.11	2.18	2.23	2.28	2.38	2.45
2.0		1.50	1.59	1.67	1.73	1.79	1.83	1.88	1.91	1.94	1.97	2.00	2.09	2.17	2.23	2.29	2.33	2.43	2.50
2.2		1.55	1.64	1.71	1.78	1.83	1.88	1.92	1.96	1.99	2.04	2.09	2.18	2.26	2.32	2.38	2.42	2.52	2.59
2.4		1.58	1.67	1.75	1.81	1.87	1.92	1.96	2.00	2.06	2.11	2.17	2.26	2.33	2.40	2.45	2.50	2.60	2.67
2.6		1.62	1.71	1.78	1.85	1.90	1.95	1.99	2.05	2.12	2.18	2.23	2.32	2.40	2.46	2.52	2.56	2.66	2.73
2.8		1.64	1.73	1.81	1.87	1.93	1.98	2.04	2.11	2.17	2.23	2.29	2.38	2.45	2.52	2.57	2.62	2.71	2.79
3.0		1.67	1.76	1.83	1.90	1.95	2.00	2.08	2.16	2.22	2.28	2.33	2.42	2.50	2.56	2.62	2.67	2.76	2.83
3.5		1.71	1.81	1.88	1.95	2.00	2.10	2.18	2.25	2.32	2.38	2.43	2.52	2.60	2.66	2.71	2.76	2.86	2.93
4.0		1.75	1.84	1.92	1.98	2.07	2.17	2.25	2.32	2.39	2.45	2.50	2.59	2.67	2.73	2.79	2.83	2.93	3.00

TABLE 3: ALLOWABLE SPAN LENGTH OF JOISTS AND JOIST SPACINGS

AVG. SLAB THICKNESS (IN)	LUMBER JOIST SIZE (IN X IN)	JOIST SPACINGS			
		15 IN	12 IN	10 IN	8 IN
10	2 X 4	—	4' - 6"	4' - 9"	5' - 0"
	4 X 4	5' - 9"	6' - 3"	6' - 6"	6' - 7"
12	2 X 4	—	4' - 3"	4' - 9"	5' - 0"
	4 X 4	5' - 3"	6' - 0"	6' - 3"	6' - 5"
14	2 X 4	—	4' - 0"	4' - 6"	5' - 0"
	4 X 4	—	5' - 6"	6' - 0"	6' - 4"
16	2 X 4	—	4' - 0"	4' - 3"	4' - 9"
	4 X 4	—	5' - 3"	5' - 9"	6' - 3"

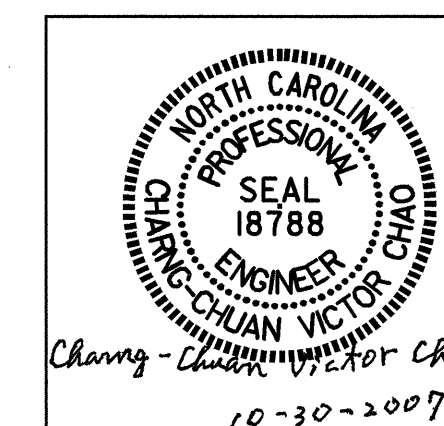
PROJECT NO. B-4104
DAVIE COUNTY
 STATION: 20+71.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

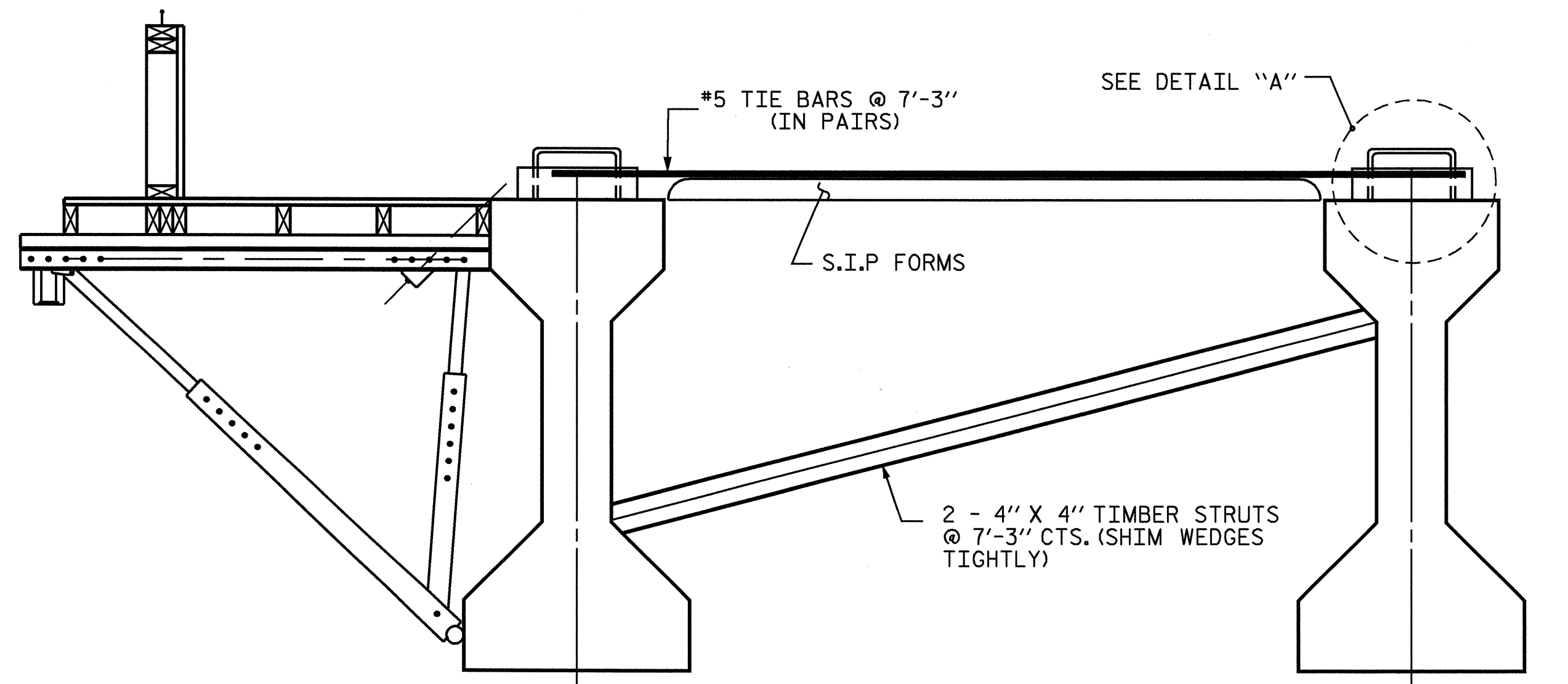
STANDARD OVERHANG FALSEWORK

AASHTO TYPES
 III, IV, V, AND VI



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

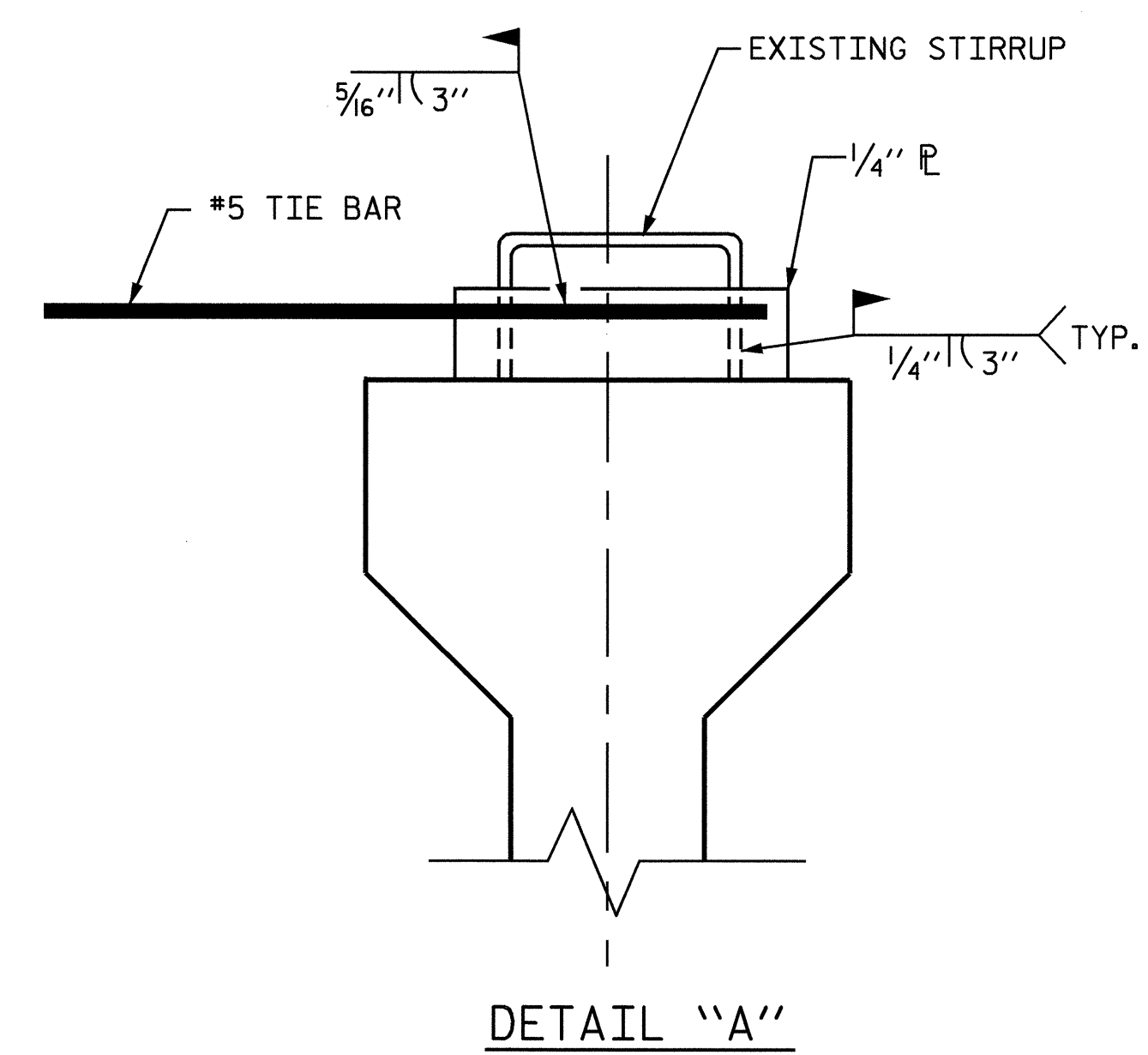
ASSEMBLED BY:	DATE:
CHECKED BY:	DATE:
DRAWN BY: R. WRIGHT 06/04	REV.
CHECKED BY: C. V. CHAO 06/04	



EXTERIOR GIRDER

INTERIOR GIRDER

DETAIL OF REQUIRED OVERHANG FALSEWORK BRACING SYSTEM



NOTES:

EACH #5 TIE BAR SHALL BE WELDED TO ONE STIRRUP LOOP AS SHOWN IN DETAIL "A". #5 TIE BARS SHALL BE WELDED TO TWO ADJACENT STIRRUPS OF THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER BETWEEN PERMANENT DIAPHRAGMS. WELD STEEL PLATES IN BETWEEN THE TIE BARS AND THE STIRRUP LOOP. WELDING TWO TIE BARS TO THE SAME STIRRUP LOOP SHALL NOT BE PERMITTED.

MAXIMUM SPACING BETWEEN THE BRACING (TIE BARS-TIMBER STRUT) IS 7'-3" CTS. #5 TIE BARS SHALL BE LOCATED OVER A TIMBER STRUT.

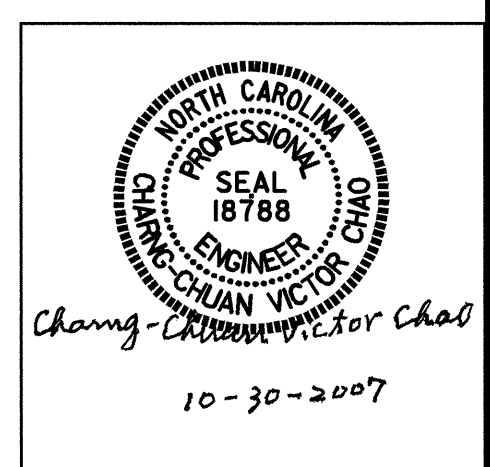
INSTALL TIE BARS AND TIMBER STRUTS PRIOR TO PLACEMENT OF CONCRETE OR SCREED WEIGHT ONTO THE OVERHANG FALSEWORK.

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SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES
 III, IV, V, AND VI



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

DRAWN BY: R. WRIGHT 06/04 DATE : _____
 CHECKED BY: C. V. CHAO 06/04 DATE : _____

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN