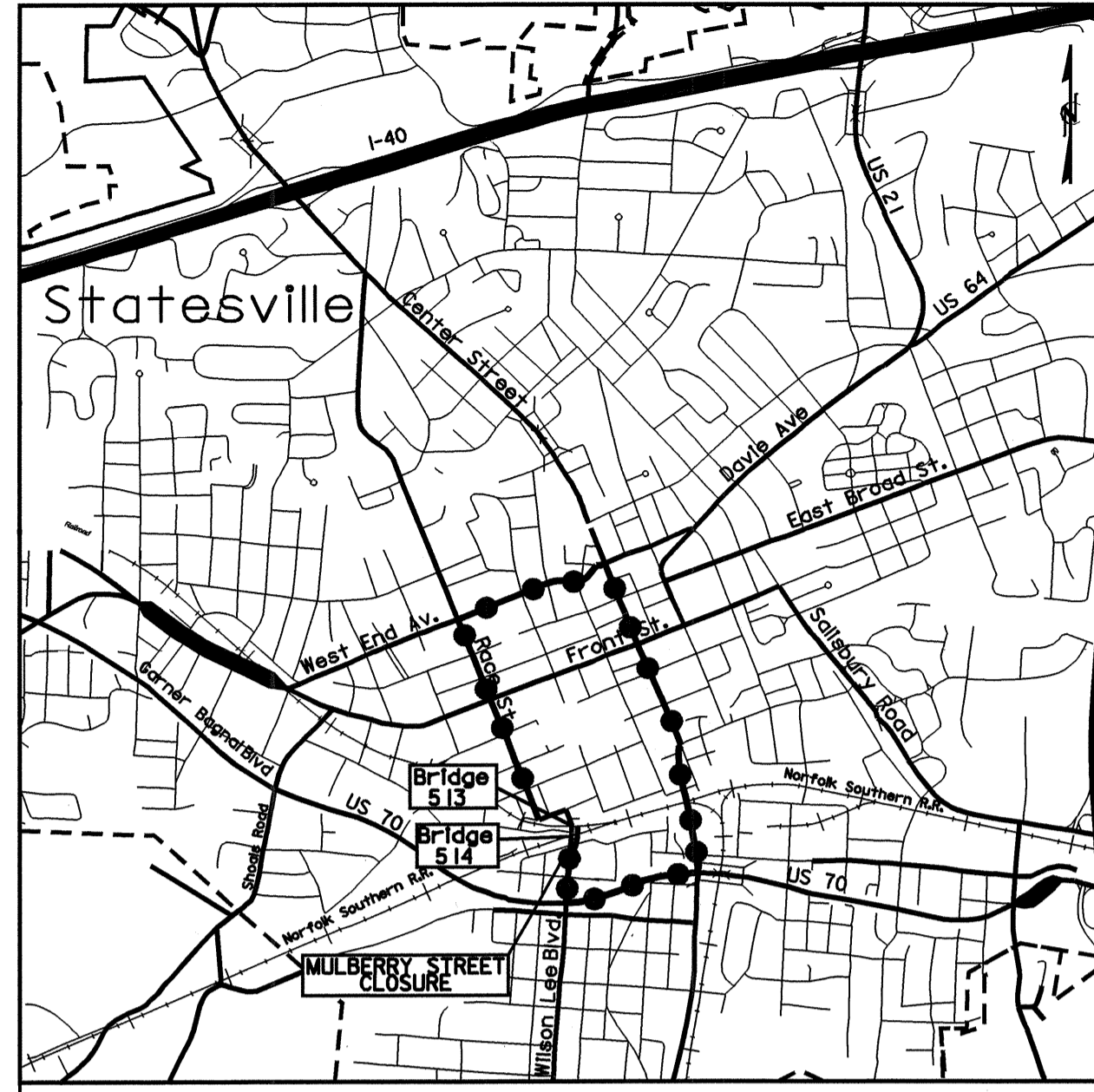


CONTRACT: C202158 TIP PROJECT: B-2576

STRUCTURES



VICINITY MAP
STATESVILLE, NC

OFFSITE DETOUR

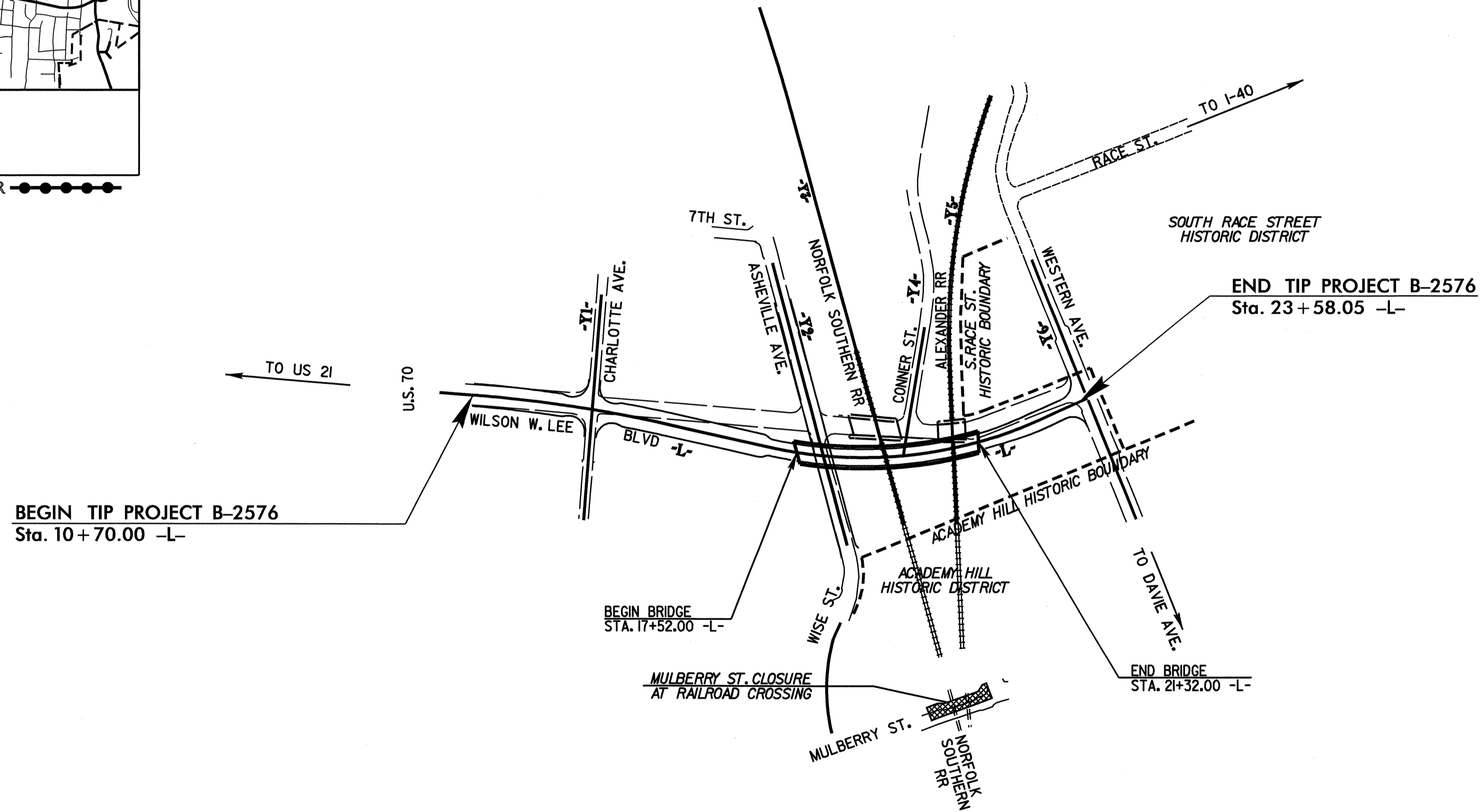
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

IREDELL COUNTY

LOCATION: BRIDGES 513 AND 514 ON WILSON W. LEE BOULEVARD OVER NORFOLK SOUTHERN RAILROAD IN STATESVILLE

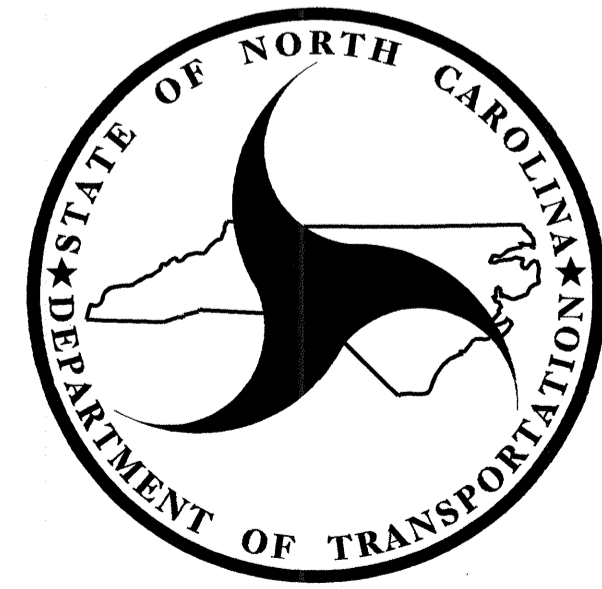
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	
N.C.	B-2576	
WBS PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
32669.1.1	BRSTP-1421(3)	P.E.
32669.2.1	BRSTP-1421(3)	ROW, UTIL.
32669.3.3	BRSTP-1421(3)	CONSTR.



NAD 83
NCGRID

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.



DESIGN DATA
URBAN MINOR ART.

ADT 2009 =	6,133
ADT 2029 =	10,467
DHV =	11 %
D =	60 %
T =	4 % *
V =	30 MPH
* TTST 1% +	DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-2576 =	0.172 MI
LENGTH STRUCTURE TIP PROJECT B-2576 =	0.072 MI
TOTAL LENGTH TIP PROJECT B-2576 =	0.244 MI

2006 STANDARDS SPECIFICATION

LETTING DATE:
FEBRUARY 16, 2010

Prepared In the Office of:
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
1000 Birch Ridge Drive Raleigh, N.C. 27610

B.S. COX, P.E.
PROJECT ENGINEER

T.J. BEACH, P.E.
PROJECT DESIGN ENGINEER

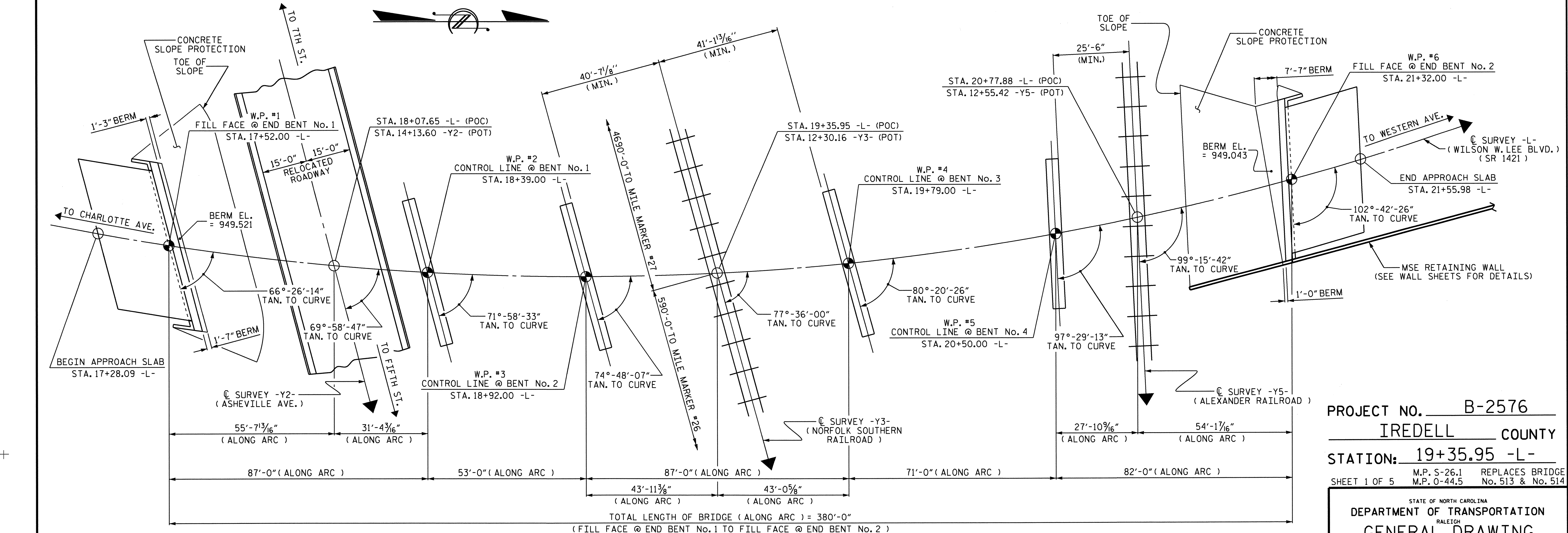
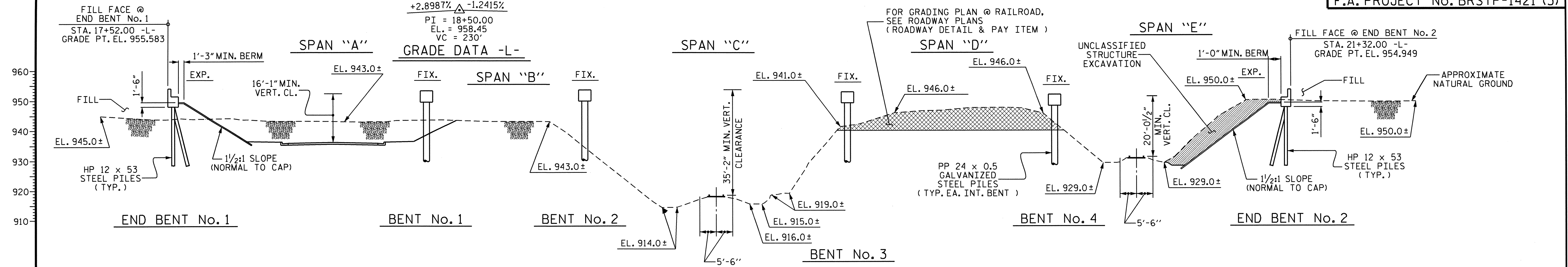
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY ENGINEER - DESIGN

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

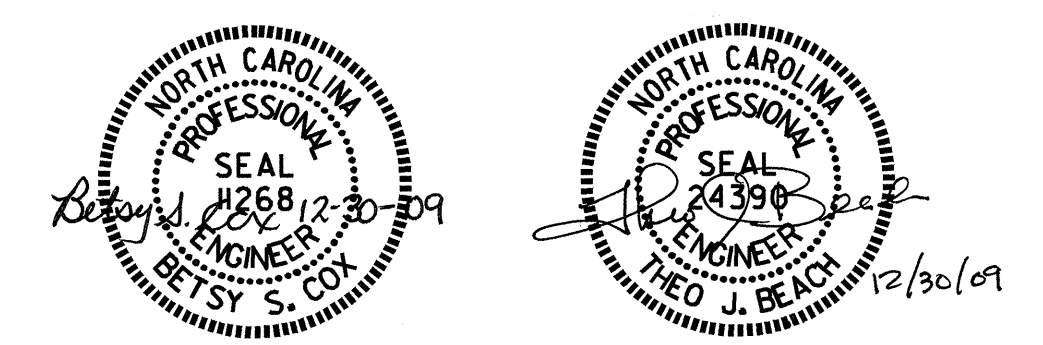
APPROVED FOR
DIVISION ADMINISTRATOR

DATE



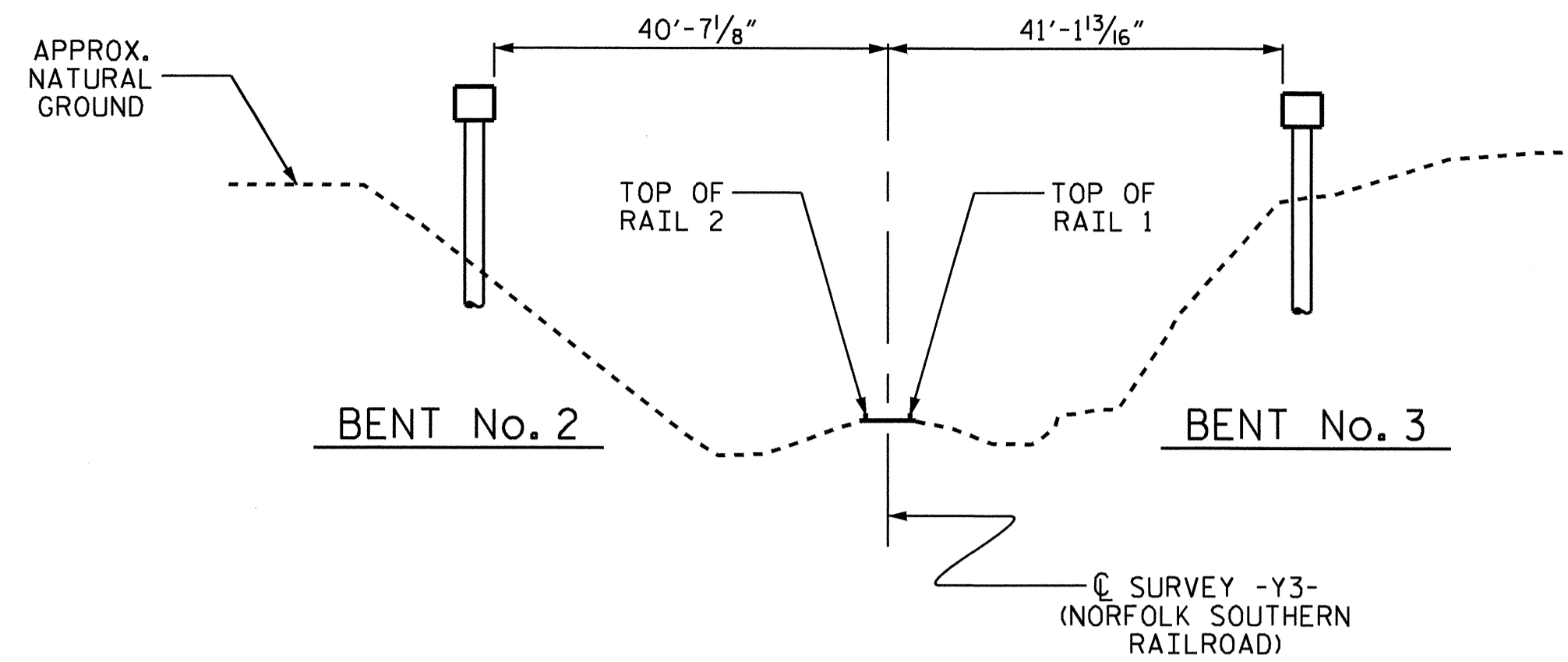
PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-
 M.P. S-26.1 REPLACES BRIDGE
 SHEET 1 OF 5 M.P. 0-44.5 No. 513 & No. 514

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER ASHEVILLE AVE.,
 NORFOLK SOUTHERN RAILROAD,
 & ALEXANDER RAILROAD ON
 SR 1421 (WILSON W. LEE BLVD.)
 BETWEEN
 CHARLOTTE AVE. & WESTERN AVE.

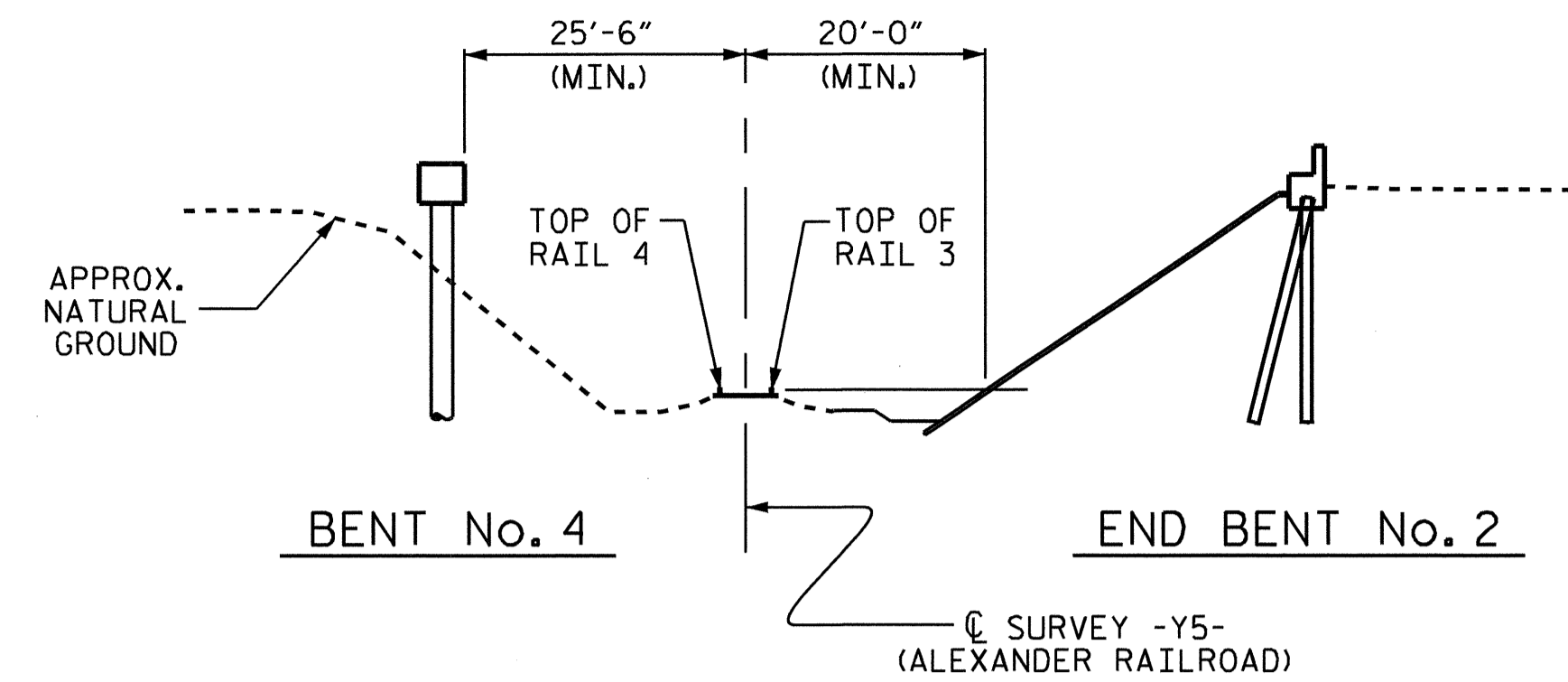


DRAWN BY: P. ROYSTER/JMB DATE: 4-9-09
 CHECKED BY: T.J. BEACH DATE: 10/09

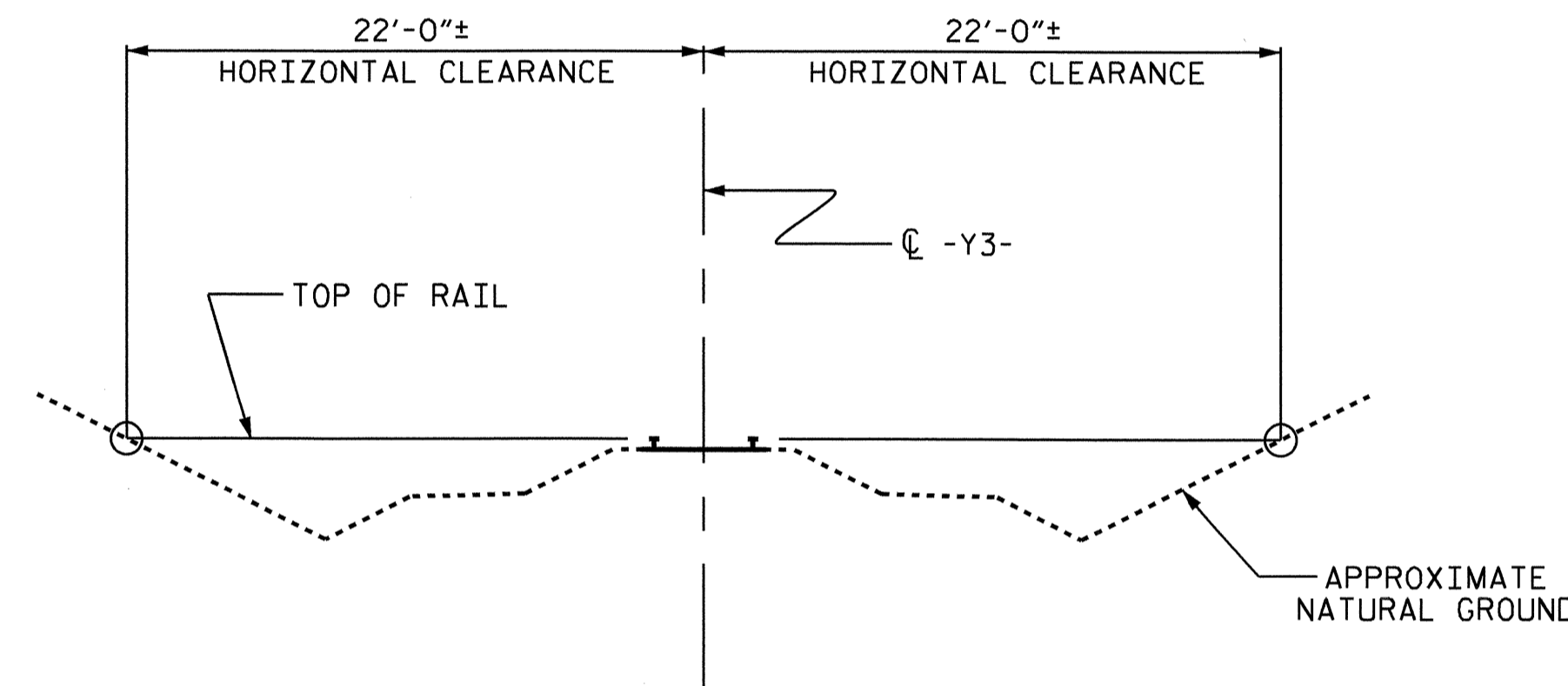
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			59



SPAN "C" MINIMUM CLEARANCE - RAILROAD
(LOOKING BACK STATION -Y3-)



SPAN "E" MINIMUM CLEARANCE - RAILROAD
(LOOKING BACK STATION -Y5-)



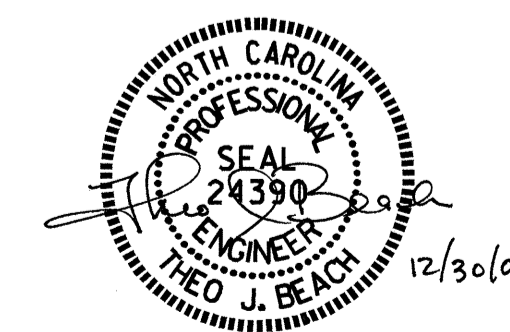
SECTION THROUGH RAILROAD
(TAKEN AT RIGHT ANGLE TO RAILROAD)

TOP OF RAIL ELEVATIONS -Y3-		
STA. -Y3-	RAIL 1	RAIL 2
10+80.00	916.35	916.36
11+00.00	916.54	916.56
11+20.00	916.74	916.75
11+40.00	916.93	916.93
11+60.00	917.14	917.15
11+80.00	917.36	917.37
12+00.00	917.58	917.59
12+20.00	917.81	917.81
12+40.00	918.03	918.03
12+60.00	918.25	918.25
12+80.00	918.47	918.47
13+00.00	918.69	918.68
13+20.00	918.89	918.89
13+40.00	919.10	919.09
13+60.00	919.29	919.28

TOP OF RAIL ELEVATIONS -Y5-		
STA. -Y5-	RAIL 3	RAIL 4
11+60.00	932.09	932.11
11+80.00	931.80	931.82
12+00.00	931.49	931.52
12+20.00	931.19	931.23
12+40.00	930.93	930.95
12+60.00	930.66	930.66
12+80.00	930.41	930.41
13+00.00	930.16	930.16
13+20.00	929.92	929.92
13+40.00	929.68	929.68

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

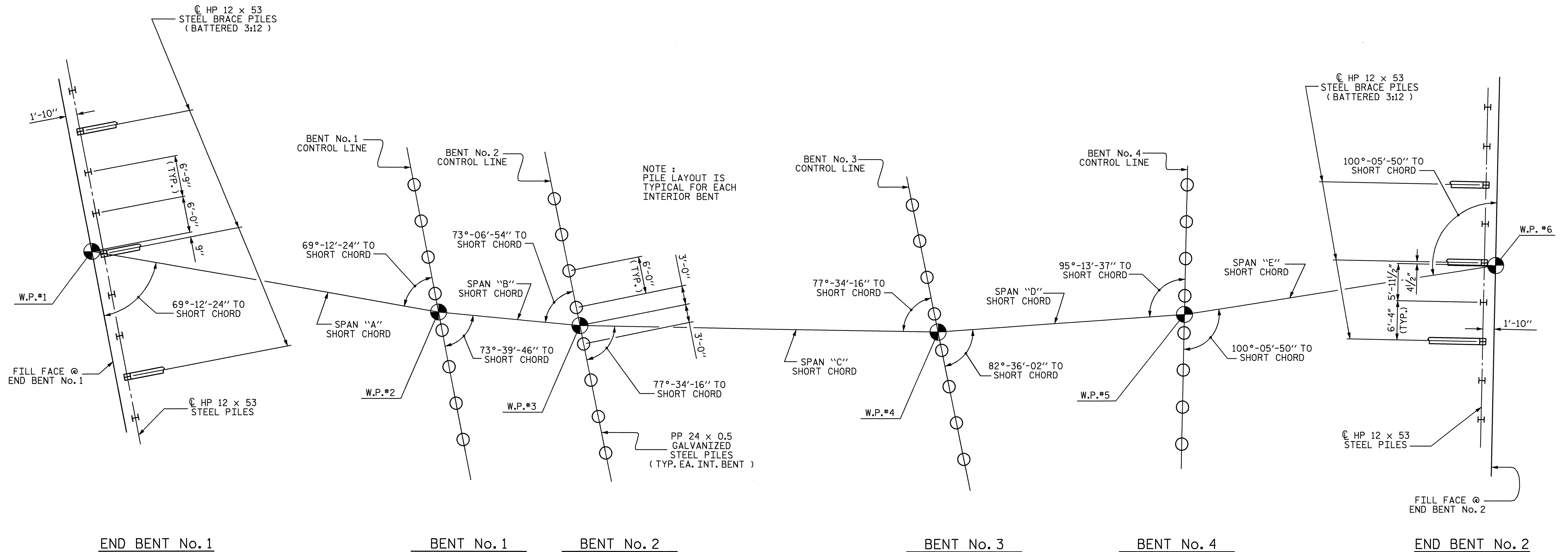
SHEET 2 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER ASHEVILLE AVE.,
 NORFOLK SOUTHERN RAILROAD,
 & ALEXANDER RAILROAD ON
 SR 1421 (WILSON W. LEE BLVD.)
 BETWEEN
 CHARLOTTE AVE. & WESTERN AVE.

DRAWN BY : P. ROYSTER DATE : 4/07
 CHECKED BY : T.J. BEACH DATE : 10/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			59



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE TO THE PILE CENTERLINE AT THE BOTTOM OF THE CAP)

NOTES :

THE EXISTING STRUCTURE (BRIDGE No. 513) CONSISTING OF SPANS OF 1 @ 19'-10", 1 @ 20'-4" & 1 @ 16'-7" WITH A CLEAR ROADWAY WIDTH OF 29'-4" ON TIMBER DECK ON I-BEAMS & TIMBER JOISTS ON TIMBER CAP END BENTS & TIMBER CAPS & PILES W/CONCRETE PEDESTAL INTERIOR BENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE EXISTING STRUCTURE (BRIDGE No. 514) CONSISTING OF SPANS OF 1 @ 16'-8", 1 @ 13'-10", 1 @ 14'-2", 1 @ 21'-0", 1 @ 16'-6" & 1 @ 18'-8" WITH A CLEAR ROADWAY WIDTH OF 30'-10" ON TIMBER DECK ON I-BEAMS & TIMBER JOISTS ON TIMBER CAP END BENTS & TIMBER CAPS & PILES W/CONCRETE PEDESTAL INTERIOR BENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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 STRUCTURES AT STATION 19+35.95 -L-".

DRIVE PILES AT END BENTS No.1 AND No.2 TO A REQUIRED BEARING CAPACITY OF 140 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 BENTS No.1 AND No.2 IS 70 TONS PER PILE.

DRIVE PILES AT BENTS No.1,2,3 AND 4 TO A REQUIRED BEARING CAPACITY OF 350 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 BENTS No.1,2,3 AND 4 IS 175 TONS PER PILE.

INSTALL PILES AT BENTS No.1,2,3 AND 4 TO A TIP ELEVATION NO HIGHER THAN 923 FT., 906 FT., 899 FT. AND 912 FT., RESPECTIVELY.

TESTING THE FIRST PRODUCTION PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENTS No.1, 2, 3 AND 4. SEE PILE DRIVING ANALYZER SPECIAL PROVISION.

PIPE PILE PLATES ARE NOT REQUIRED FOR THE PIPE PILES AT BENTS No.1, 2, 3 AND 4.

STEEL PILE POINTS (WITH TEETH) ARE REQUIRED FOR STEEL PILES AT END BENTS No.1 AND No.2.

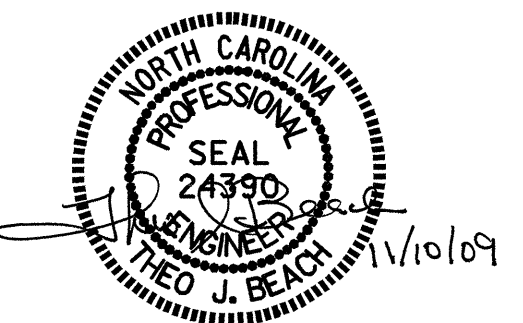
STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT BENTS No.1, 2, 3 AND 4. STEEL PILE POINTS SHALL BE INSIDE-FLANGE OPEN-END CUTTING SHOES.

PRE-DRILLING OF PILES TO ELEVATION 905 FT. AND 925 FT. MAY BE UTILIZED TO INSTALL PILES AT BENTS No.3 AND No.4, RESPECTIVELY. SEE PRE-DRILLING OF PILES SPECIAL PROVISION.

FOR PILES, SEE SPECIAL PROVISIONS.

FUTURE EXCAVATION ADJACENT TO BENTS No.2, 3 AND 4 SHALL EXTEND NO LOWER THAN EL. 925.0, 924.0 AND 932.0, RESPECTIVELY.

FOR ADDITIONAL NOTES, SEE SHEET 5 OF 5.



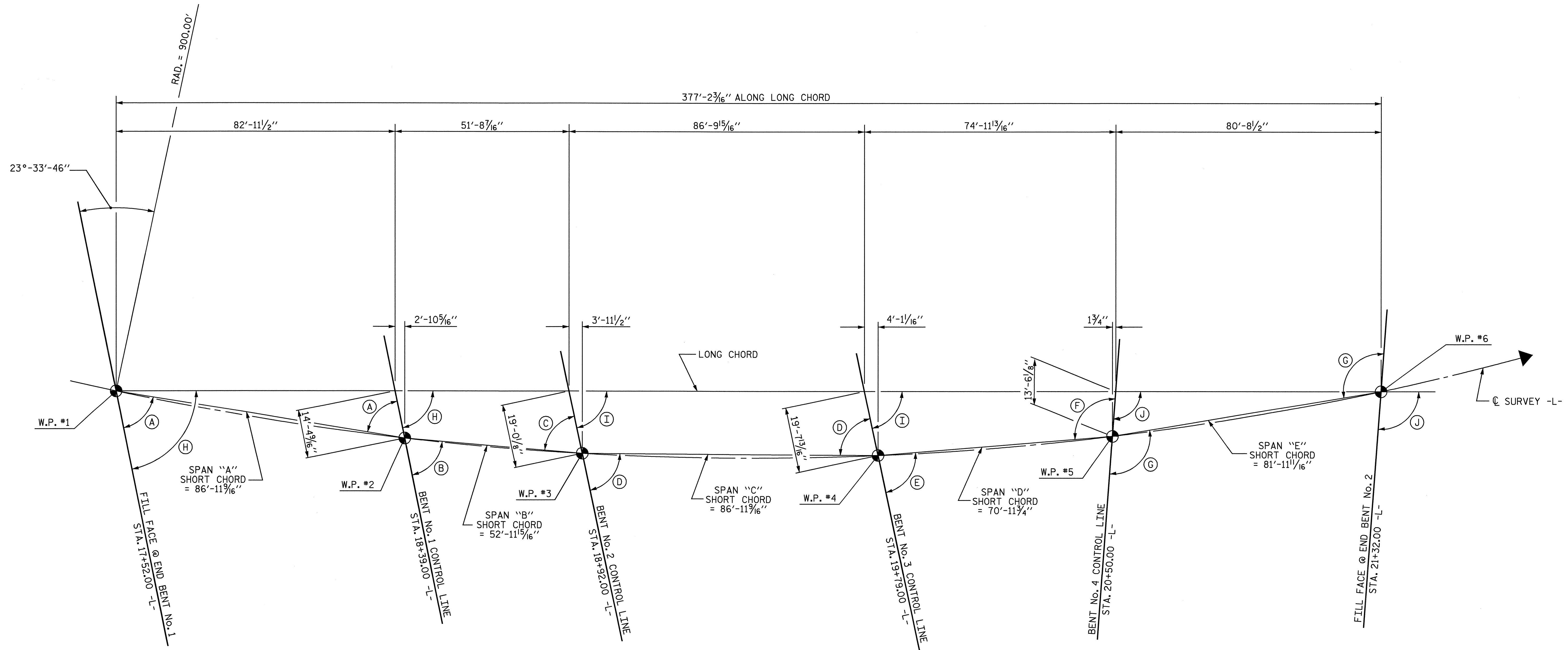
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE OVER ASHEVILLE AVE.,
 NORFOLK SOUTHERN RAILROAD,
 & ALEXANDER RAILROAD ON
 SR 1421 (WILSON W. LEE BLVD.)
 BETWEEN
 CHARLOTTE AVE. & WESTERN AVE.

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3	
1			3			TOTAL SHEETS	
2			4			59	

DRAWN BY : MIKE BRITT DATE : 4-14-09
 CHECKED BY : T.J. BEACH DATE : 10/09



LONG CHORD LAYOUT

ANGLES

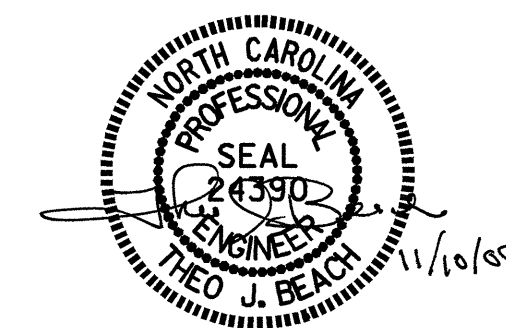
- | | |
|-----------------|------------------|
| (A) 69°-12'-24" | (F) 95°-13'-37" |
| (B) 73°-39'-46" | (G) 100°-05'-50" |
| (C) 73°-06'-54" | (H) 78°-31'-59" |
| (D) 77°-34'-16" | (I) 77°-59'-06" |
| (E) 82°-36'-02" | (J) 90°-36'-41" |

HORIZONTAL CURVE DATA -L-

PI = 19+96.19 -L-
 Δ = 37°-08'-39.2" (LT)
D = 6°-21'-58.3"
L = 583.46'
T = 302.40'
R = 900.00'

PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-

SHEET 4 OF 5

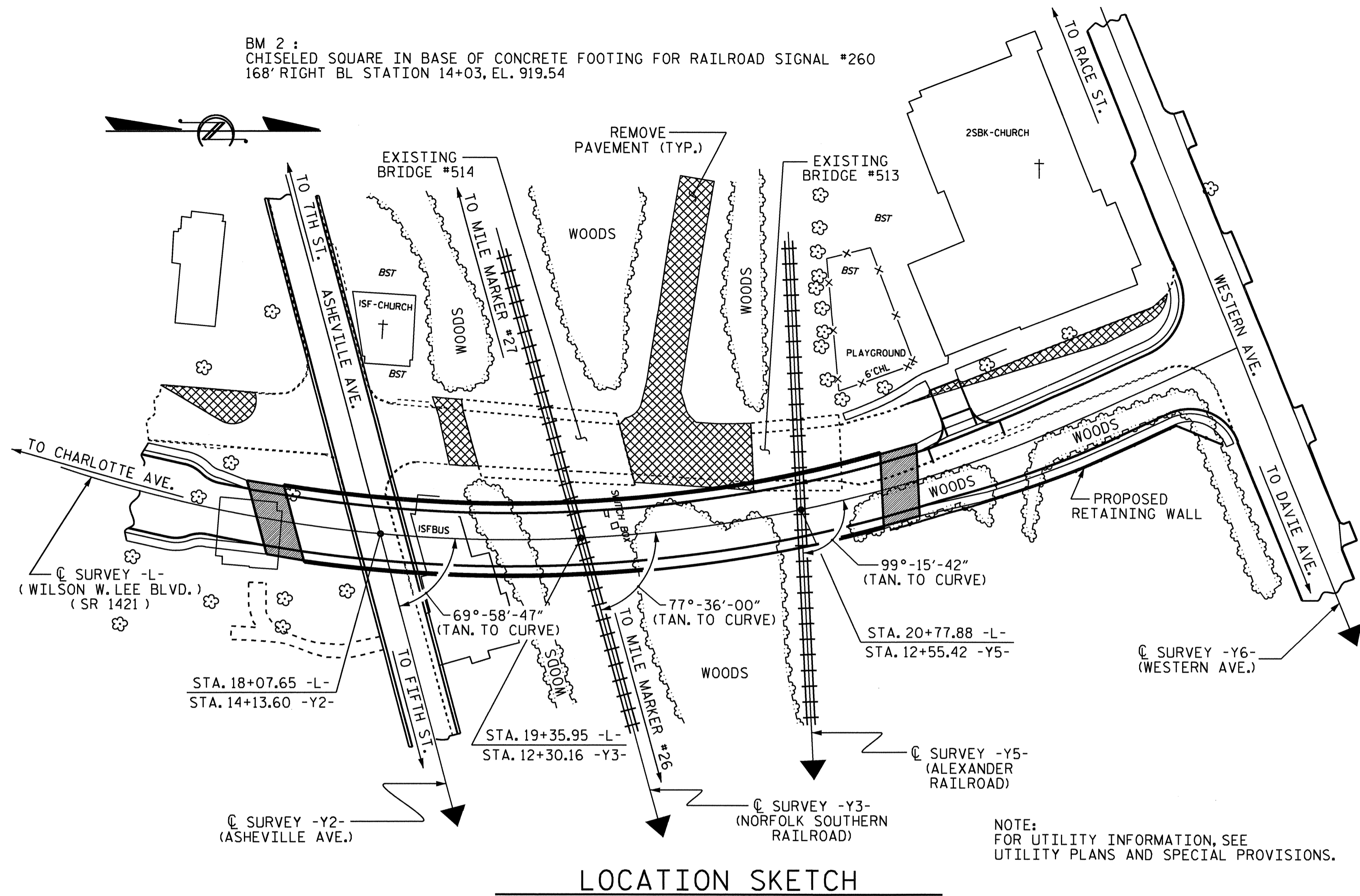


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE OVER ASHEVILLE AVE.,
NORFOLK SOUTHERN RAILROAD,
& ALEXANDER RAILROAD ON
SR 1421 (WILSON W. LEE BLVD.)
BETWEEN
CHARLOTTE AVE. & WESTERN AVE.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			59

DRAWN BY : MIKE BRITT DATE : 4-14-09
CHECKED BY : T.J. BEACH DATE : 10/09

BM 2 :
CHISELED SQUARE IN BASE OF CONCRETE FOOTING FOR RAILROAD SIGNAL #260
168' RIGHT BL STATION 14+03, EL. 919.54



NOTES : (CONTINUED FROM SHEET 3 OF 5)

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT GIRDERS ARE DESIGNED FOR HS 25.

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

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

WORK SHALL NOT BE STARTED ON BENT No.1 UNTIL ROADWAY SECTION HAS BEEN EXCAVATED.

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

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE RAILROAD TRACK TOP OF RAIL ELEVATIONS SHOWN ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

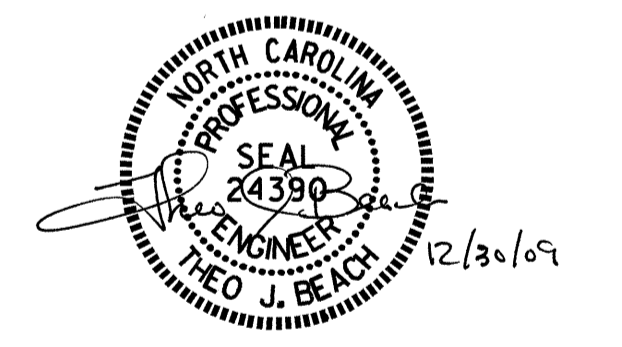
FOR ALL INTERIOR BENTS, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED, SEE INTERIOR BENT SHEETS FOR DETAILS.

NOTE:
FOR UTILITY INFORMATION, SEE
UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURES	PDA TESTING	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 x 53 STEEL PILES		PP 24 x 0.5 GALVANIZED STEEL PILES		STEEL PILE POINTS	TWO BAR METAL RAIL	1'-2" x 3'-7 3/8" CONCRETE PARAPET	1'-2" x 3'-3 3/8" CONCRETE PARAPET	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	
											No.	LIN. FT.	No.	LIN. FT.								EA.
SUPERSTRUCTURE	LUMP SUM				17,968	13,130				509,000						739.61	383.44	372.11				
END BENT No. 1							37.2		5836		9	765			9				300			
BENT No. 1		1	1				26.7		4562				8	680	8							
BENT No. 2		1	1				26.2		4552				8	720	8							
BENT No. 3		1	1				25.9		4548				8	600	8							
BENT No. 4		1	1				26.4		4557				8	440	8							
END BENT No. 2				LUMP SUM			30.9		4925		9	605			9				272			
TOTAL	LUMP SUM	4	4	LUMP SUM	17,968	13,130	173.3	LUMP SUM	28,980	509,000	18	1370	32	2440	50	739.61	383.44	372.11	572	LUMP SUM	LUMP SUM	



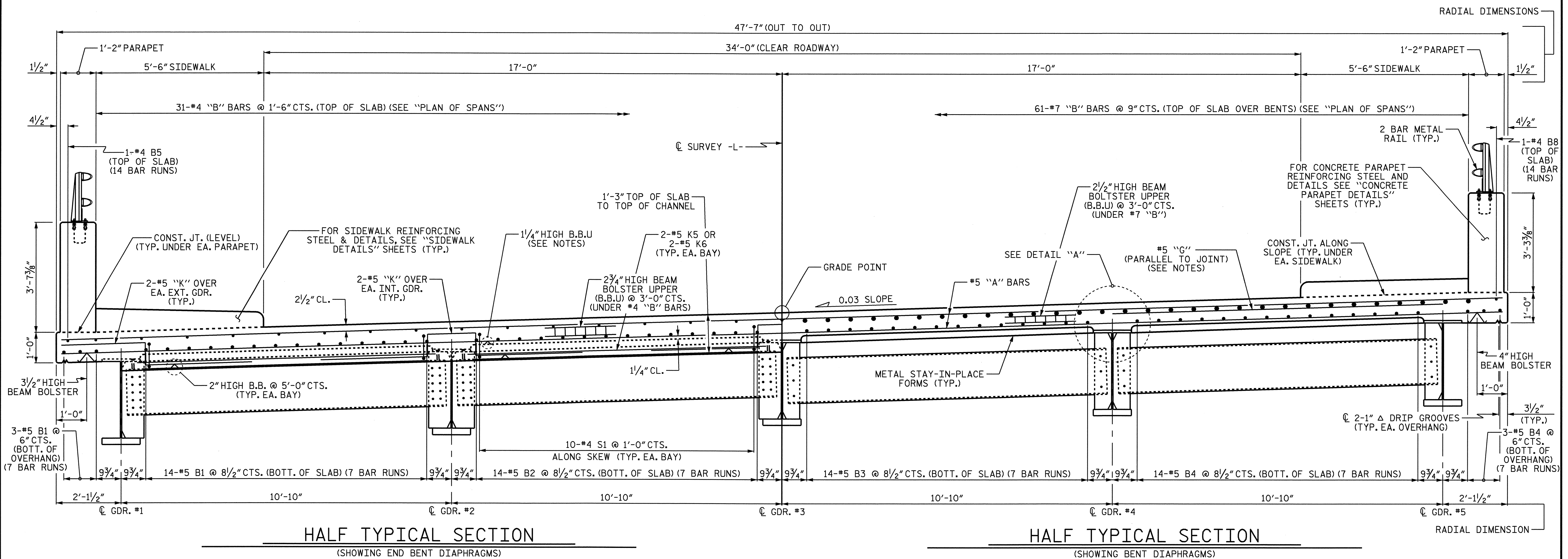
PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE OVER ASHEVILLE AVE.,
NORFOLK SOUTHERN RAILROAD,
& ALEXANDER RAILROAD ON
SR 1421 (WILSON W. LEE BLVD.)
BETWEEN
CHARLOTTE AVE. & WESTERN AVE.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS 59
2			4			

DRAWN BY : P. ROYSTER/JMB DATE : 4-15-09
CHECKED BY : T.J. BEACH DATE : 10/09



HALF TYPICAL SECTION
(SHOWING END BENT DIAPHRAGMS)

HALF TYPICAL SECTION
(SHOWING BENT DIAPHRAGMS)

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.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

#5 "G" BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

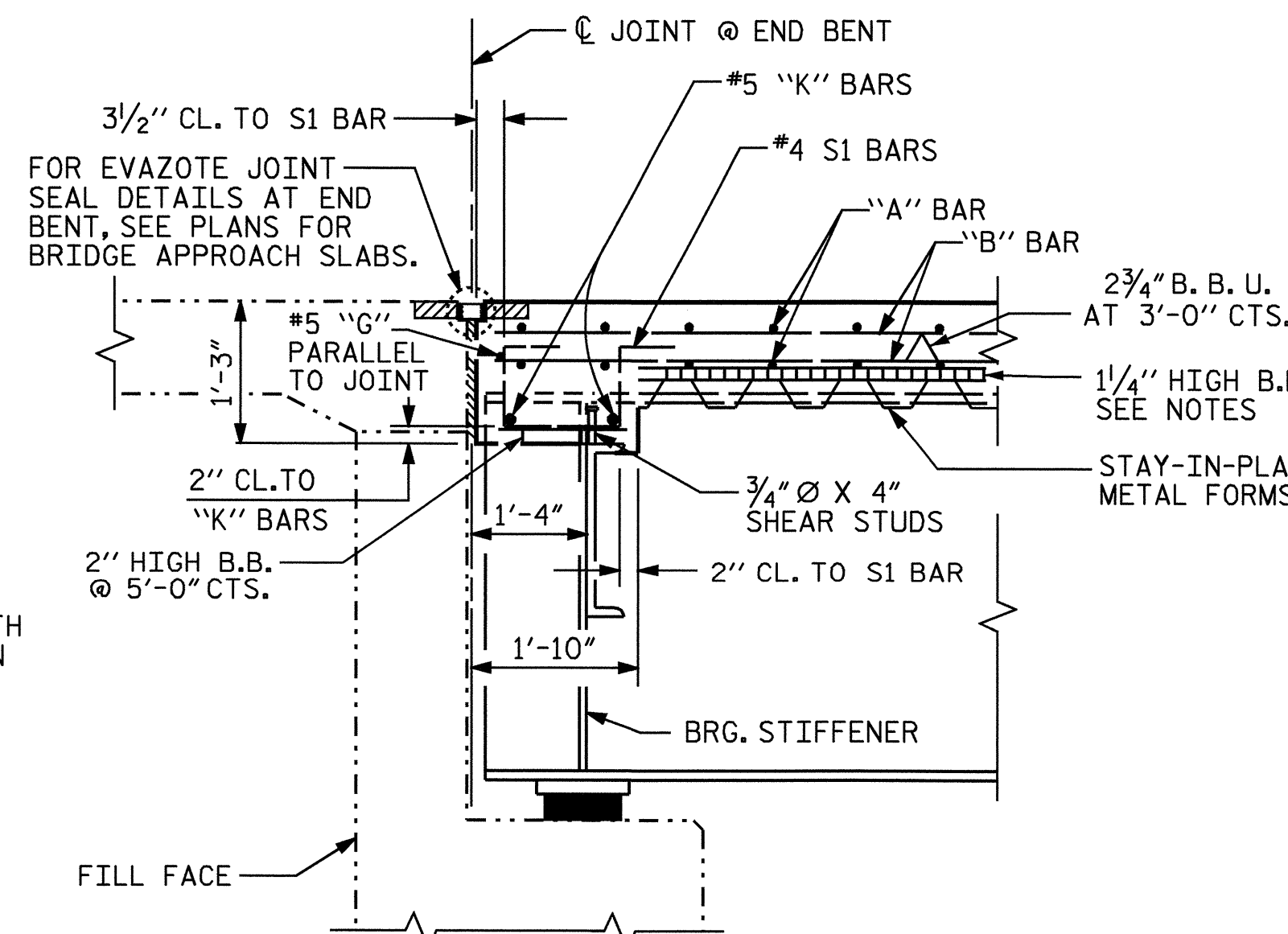
PARAPET IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

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

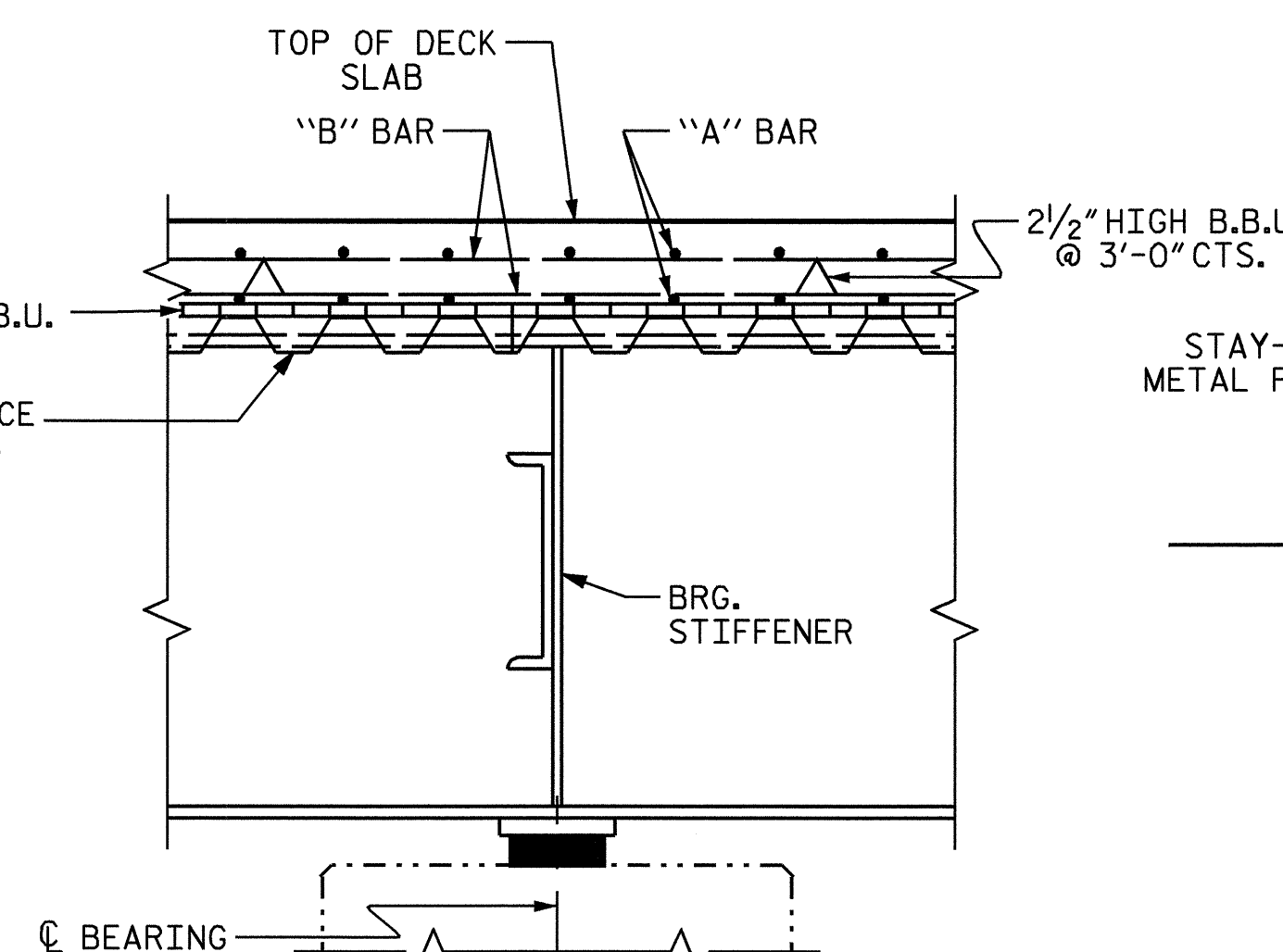
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

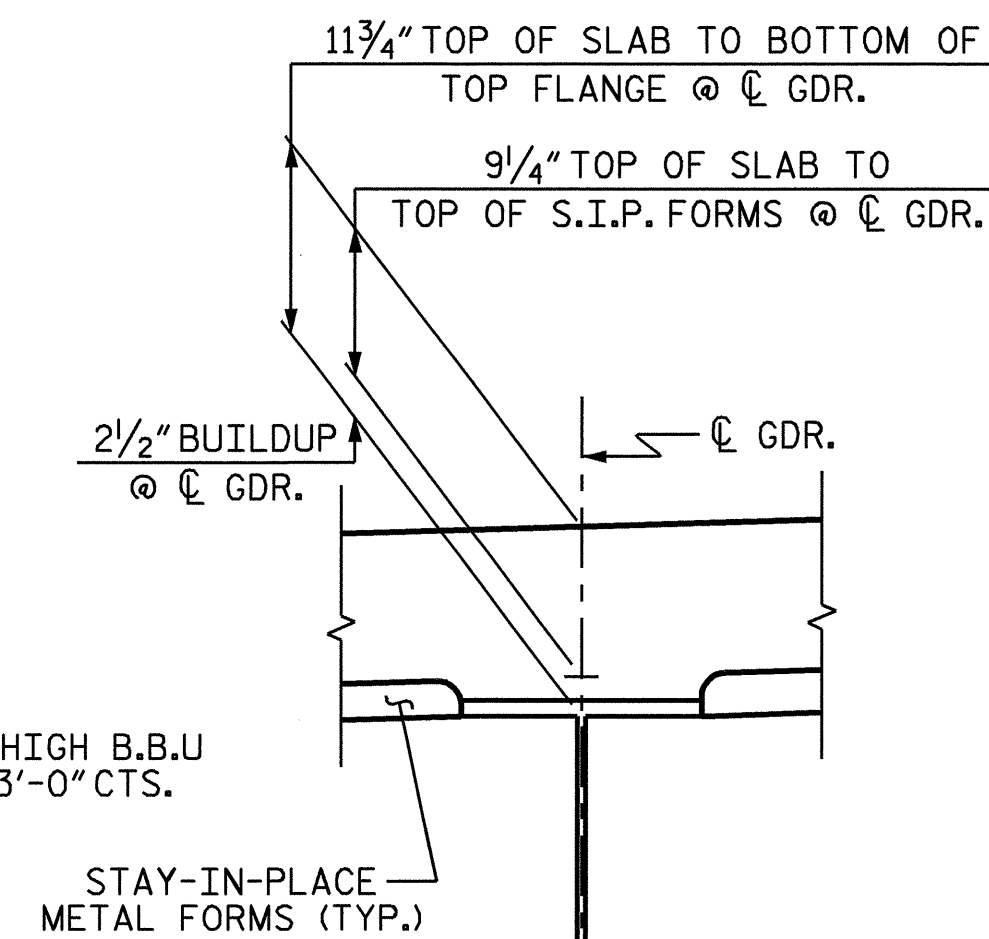
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3/16" AT END BENTS. FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.



SECTION THRU END BENT
END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR



SECTION AT BENT



DETAIL "A"

PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION



DRAWN BY: T.BANKOVICH DATE: 10-2008
CHECKED BY: D.G. ELY DATE: 12-2008

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

TOTAL SHEETS: 59

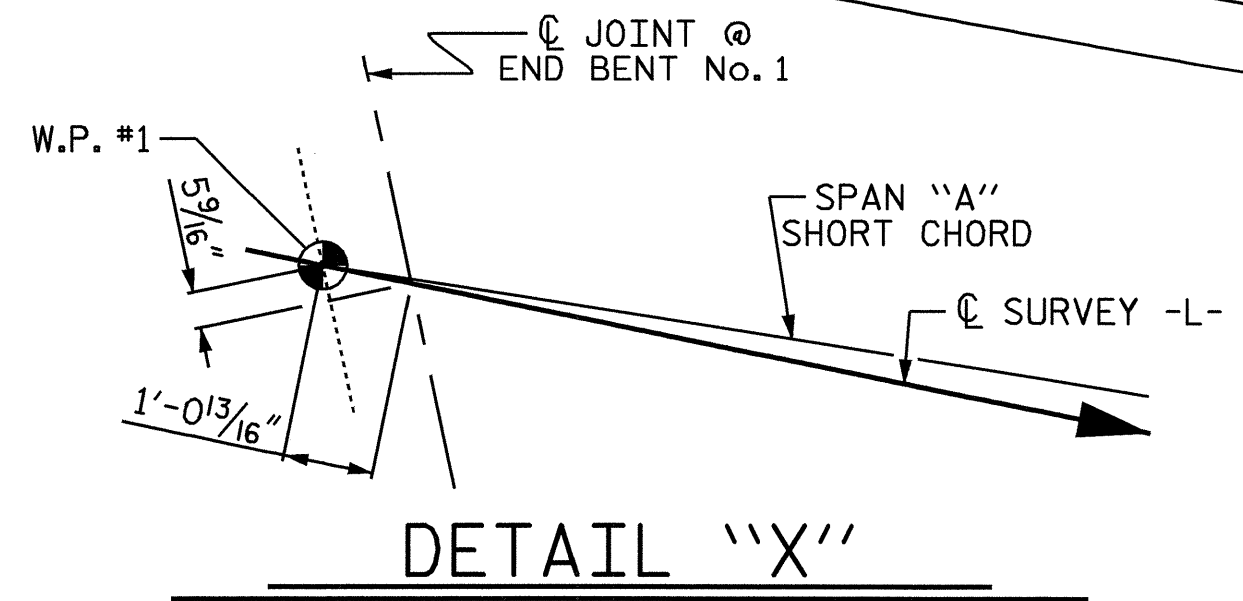
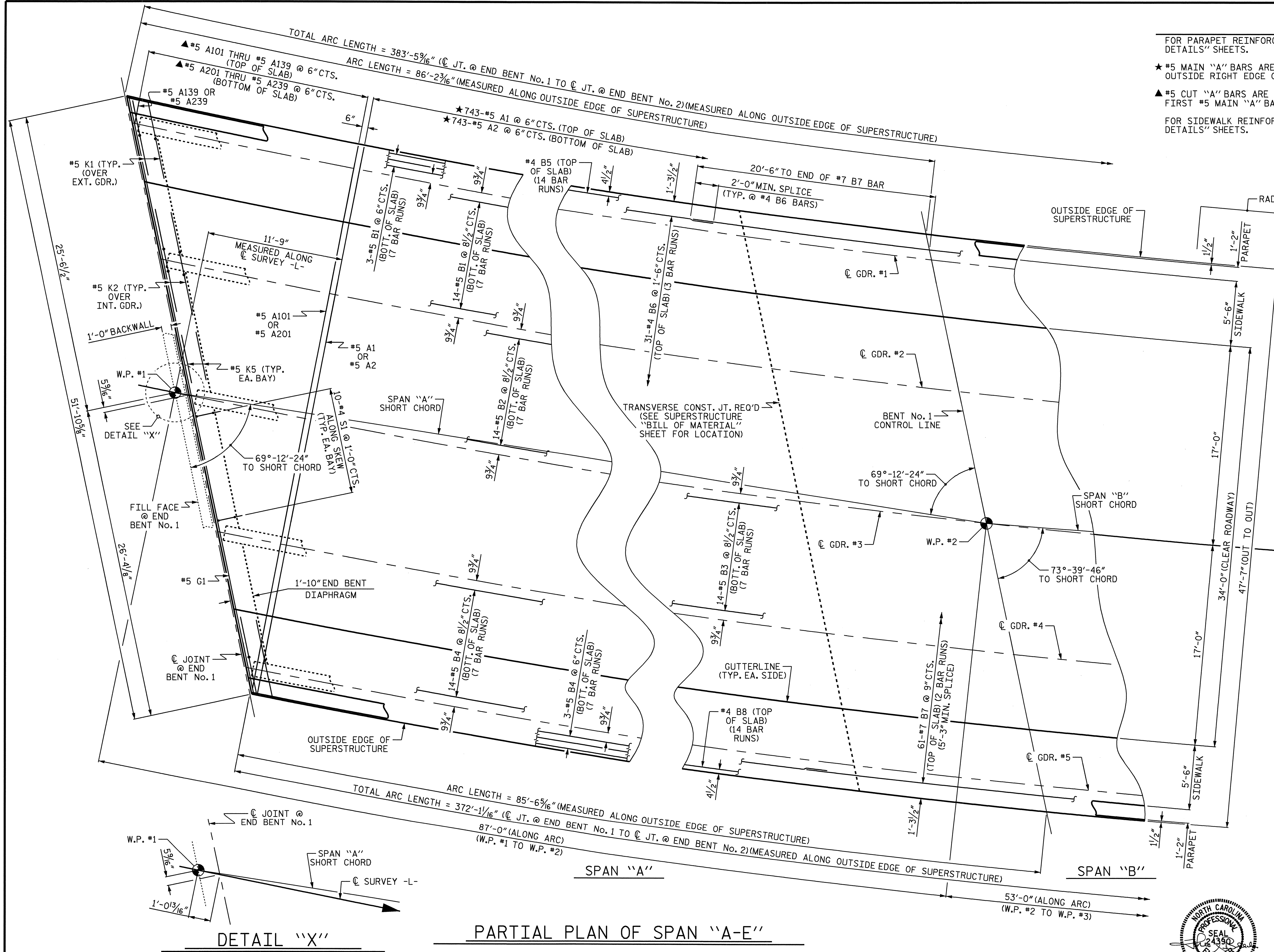
NOTES:

FOR PARAPET REINFORCING STEEL, SEE "CONCRETE PARAPET DETAILS" SHEETS.

★ #5 MAIN "A" BARS ARE TO BE PLACED RADIALLY ALONG OUTSIDE RIGHT EDGE OF SUPERSTRUCTURE.

▲ #5 CUT "A" BARS ARE TO BE PLACED PARALLEL TO THE FIRST #5 MAIN "A" BAR.

FOR SIDEWALK REINFORCING STEEL, SEE "SIDEWALK DETAILS" SHEETS.



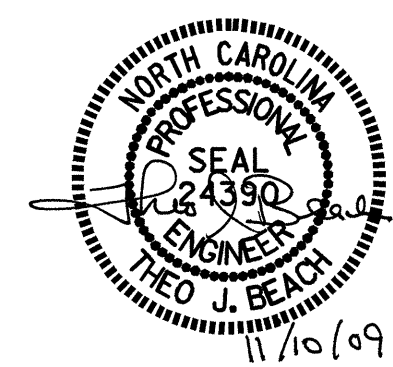
PARTIAL PLAN OF SPAN "A-E"

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS



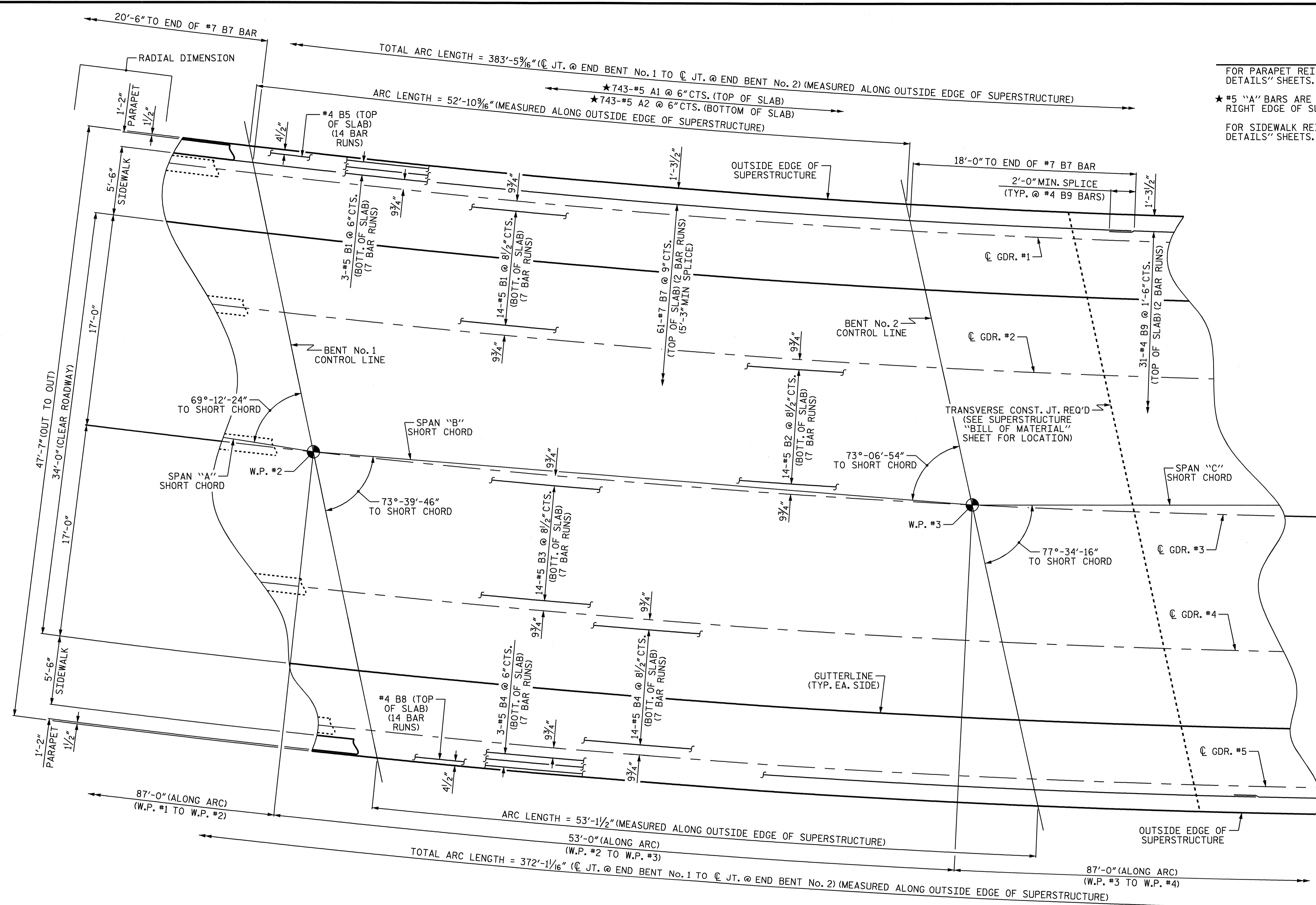
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : T. BANKOVICH DATE : 10-2008
 CHECKED BY : D.G. ELY DATE : 12-2008

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 tjbankovich

NOTES:

FOR PARAPET REINFORCING STEEL, SEE "CONCRETE PARAPET DETAILS" SHEETS.
 *#5 "A" BARS ARE TO BE PLACED RADIALLY ALONG OUTSIDE RIGHT EDGE OF SUPERSTRUCTURE.
 FOR SIDEWALK REINFORCING STEEL, SEE "SIDEWALK DETAILS" SHEETS.

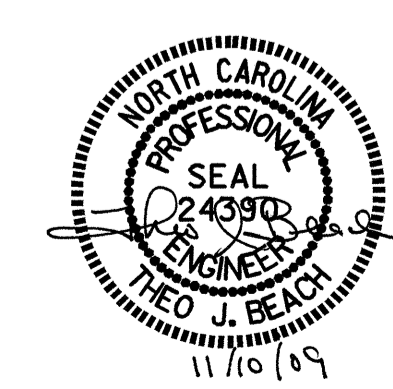


PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 2 OF 5

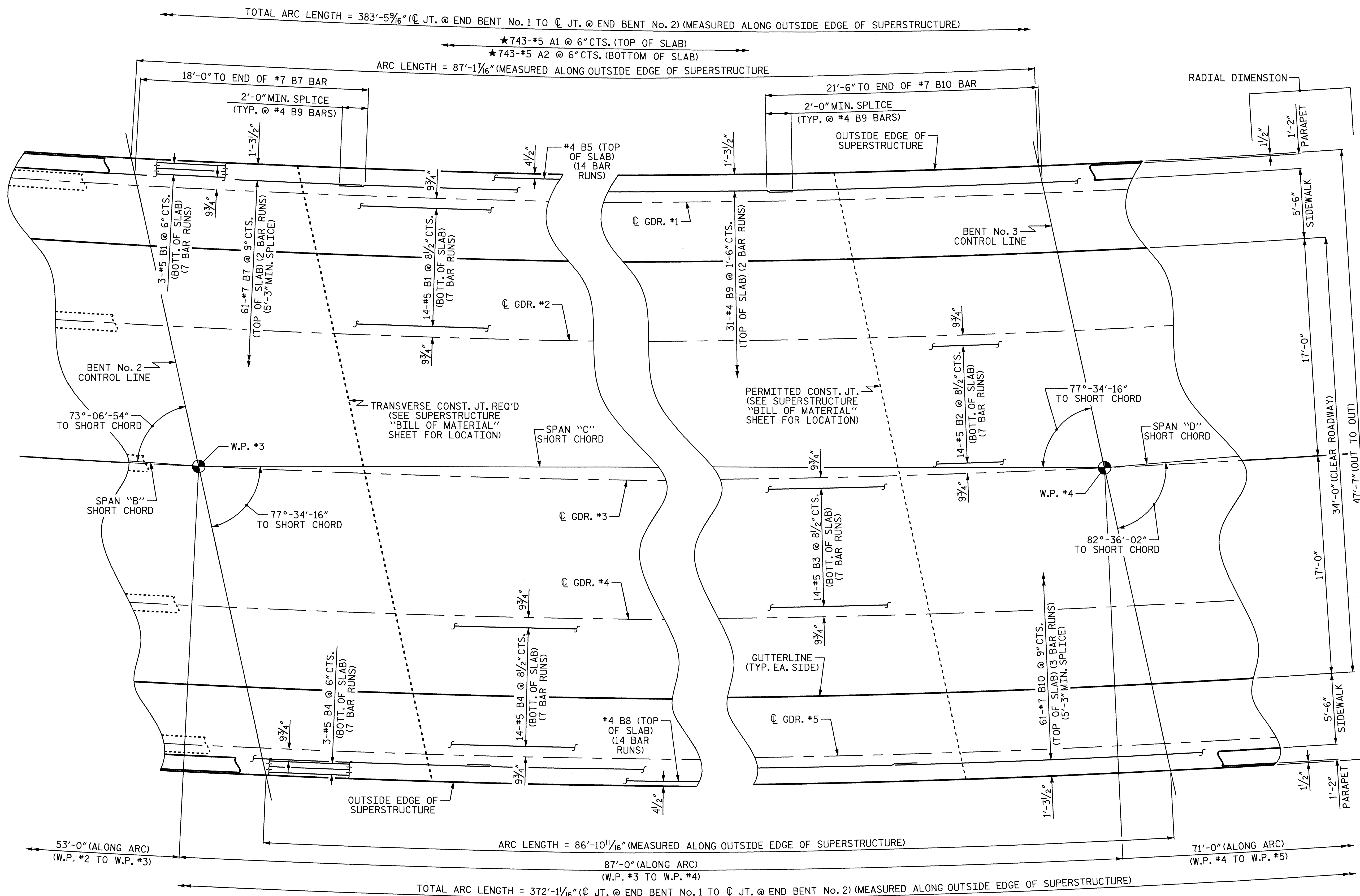
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			59



DRAWN BY: I. BANKOVICH DATE: 10-2008
 CHECKED BY: D.G. ELY DATE: 12-2008



NOTES:
 FOR PARAPET REINFORCING STEEL, SEE "CONCRETE PARAPET DETAILS" SHEETS.
 ★#5 "A" BARS ARE TO BE PLACED RADIALLY ALONG OUTSIDE RIGHT EDGE OF SUPERSTRUCTURE.
 FOR SIDEWALK REINFORCING STEEL, SEE "SIDEWALK DETAILS" SHEETS.

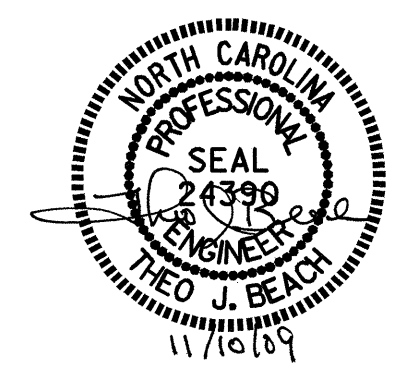
PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			59



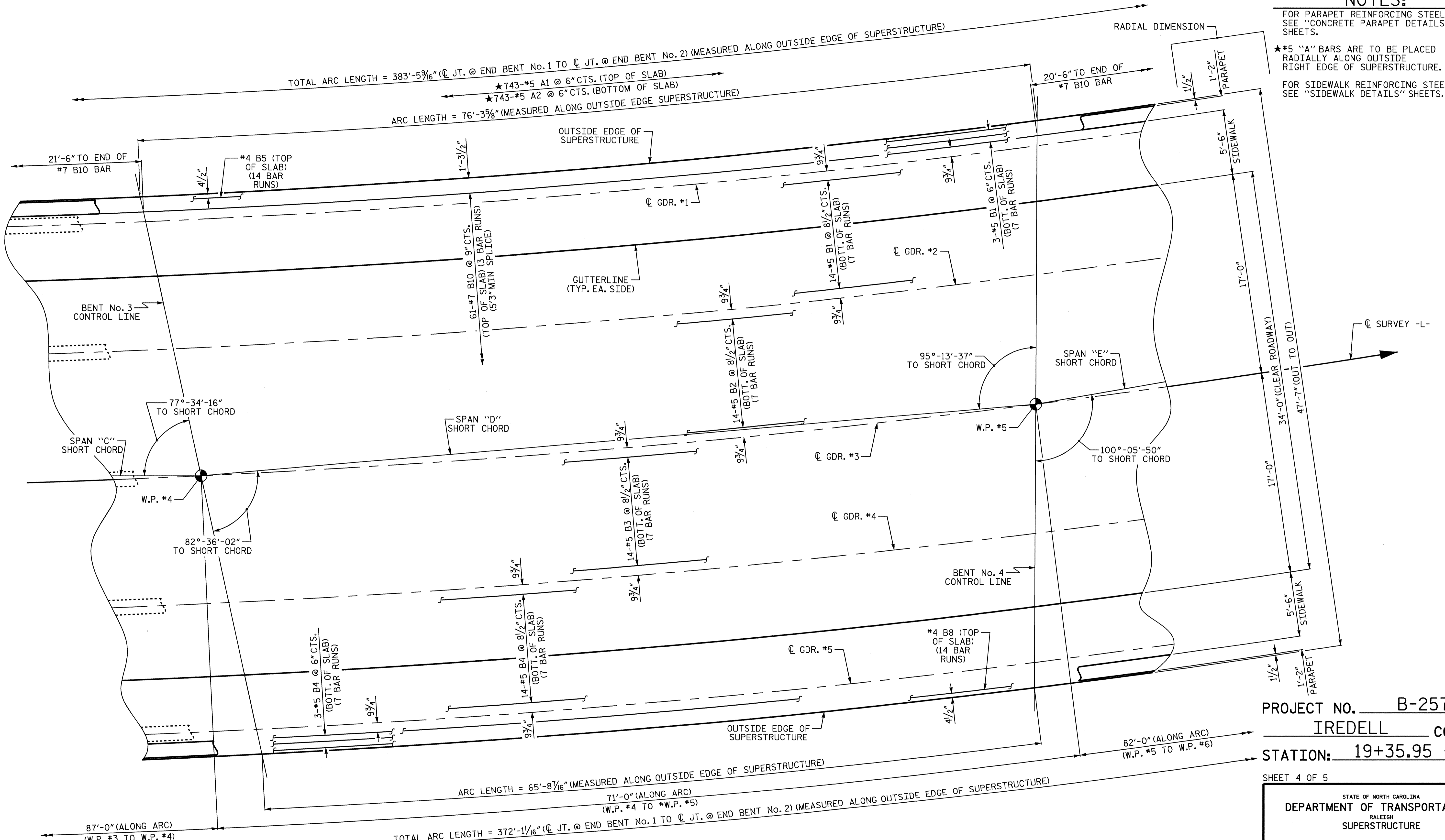
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 CHECKED BY: D.G. ELY DATE: 12-2008

NOTES:

FOR PARAPET REINFORCING STEEL, SEE "CONCRETE PARAPET DETAILS" SHEETS.

★ #5 "A" BARS ARE TO BE PLACED RADIALLY ALONG OUTSIDE RIGHT EDGE OF SUPERSTRUCTURE.

FOR SIDEWALK REINFORCING STEEL, SEE "SIDEWALK DETAILS" SHEETS.



PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	
2			4			59	



DRAWN BY : T. BANKOVICH DATE : 10-2008
 CHECKED BY : D.G. ELY DATE : 12-2008

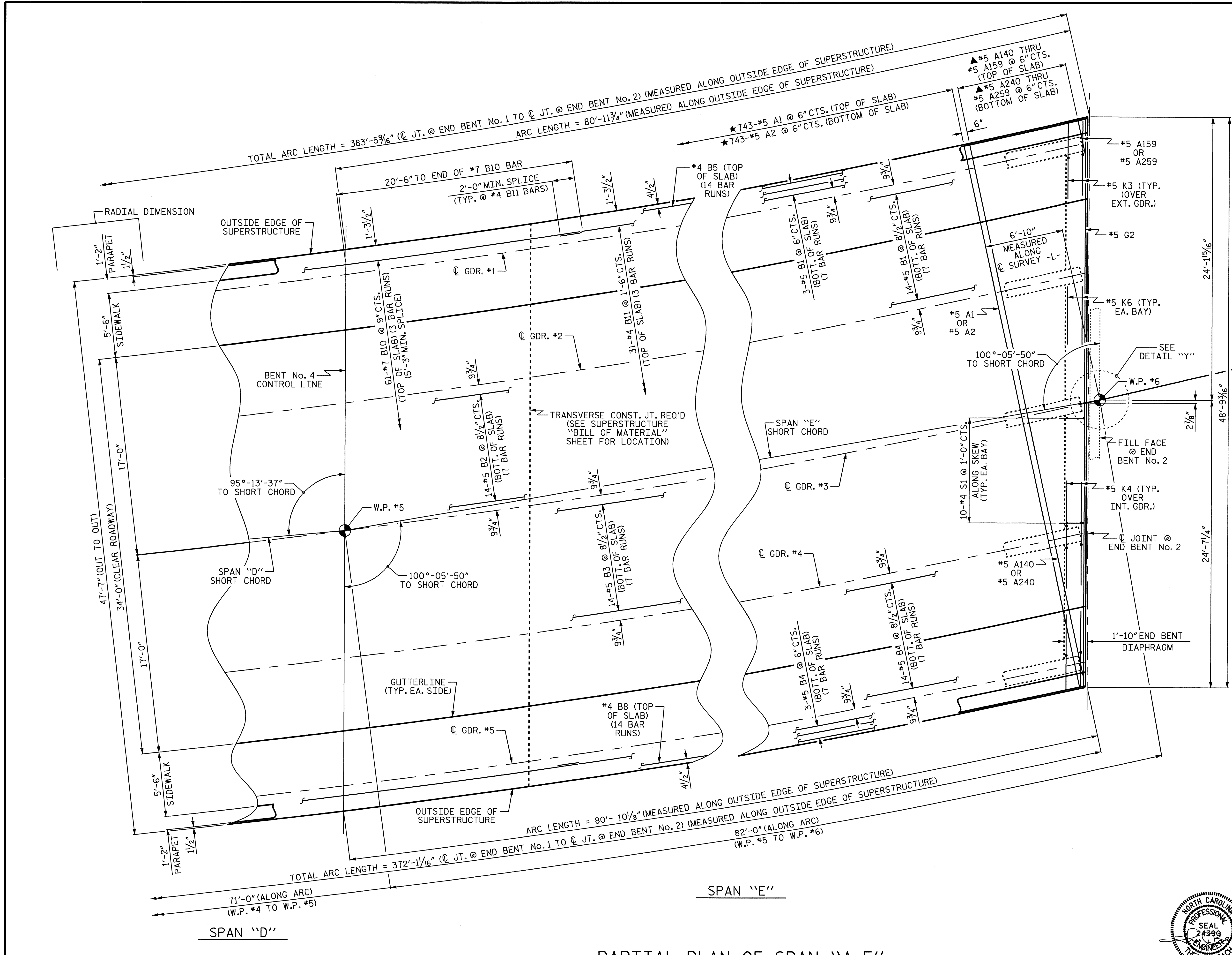
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PARTIAL PLAN OF SPAN "A-E"

SPAN "C"

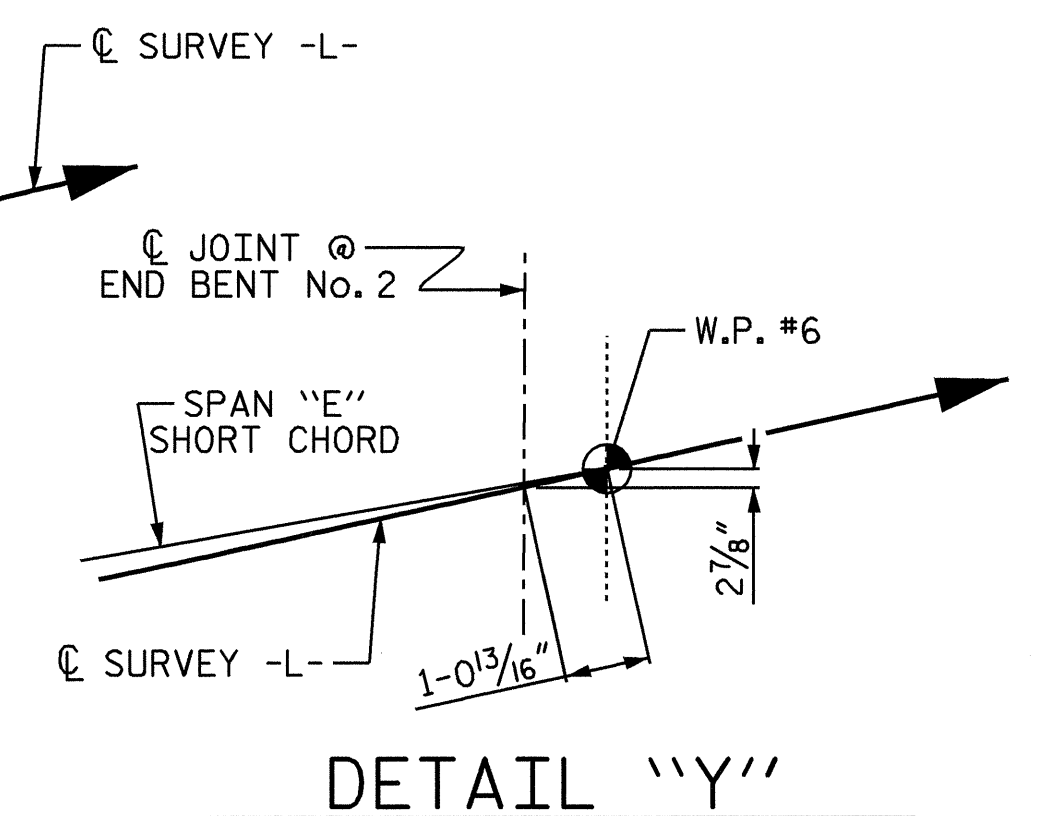
SPAN "D"

SPAN "E"



NOTES:

- FOR PARAPET REINFORCING STEEL, SEE "CONCRETE PARAPET DETAILS" SHEETS.
- ★ #5 MAIN "A" BARS ARE TO BE PLACED RADIALLY ALONG OUTSIDE RIGHT EDGE OF SUPERSTRUCTURE.
- ▲ #5 CUT "A" BARS ARE TO BE PLACED PARALLEL TO THE FIRST #5 MAIN "A" BAR.
- FOR SIDEWALK REINFORCING STEEL, SEE "SIDEWALK DETAILS" SHEETS.



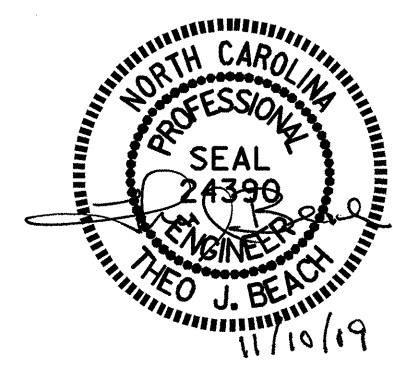
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			59



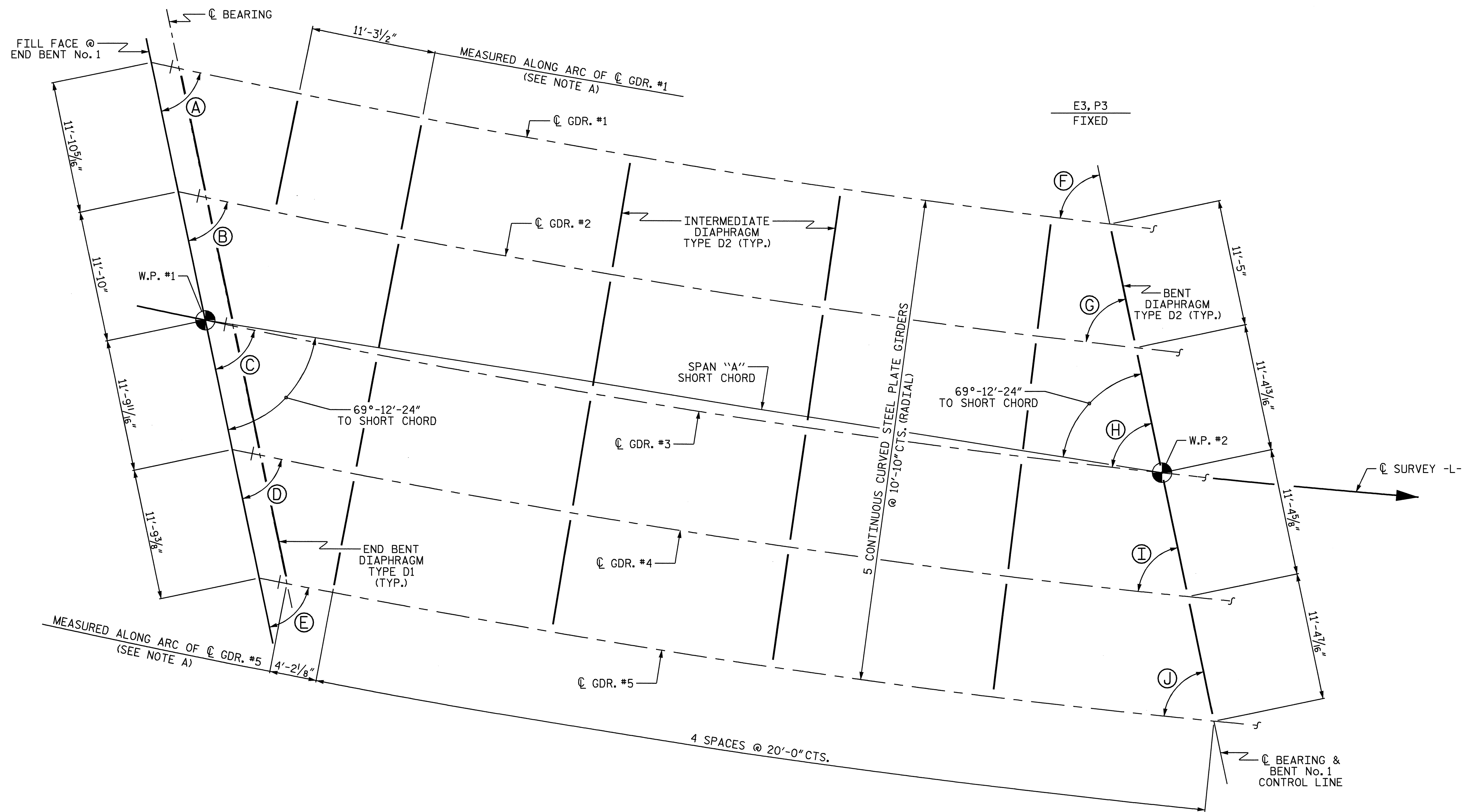
DRAWN BY : T. BANKOVICH DATE : 10-2008
 CHECKED BY : D.G. ELY DATE : 12-2008

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 tjbankovich

PARTIAL PLAN OF SPAN "A-E"

E1, P1
EXPANSION

E3, P3
FIXED



SPAN "A" FRAMING PLAN

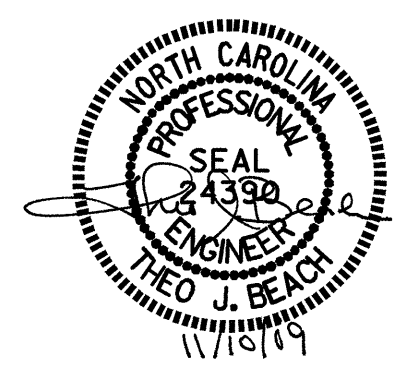
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 5

NOTE A:
 ALL INTERMEDIATE DIAPHRAGMS
 ARE TO BE PLACED RADially
 TO GIRDERS

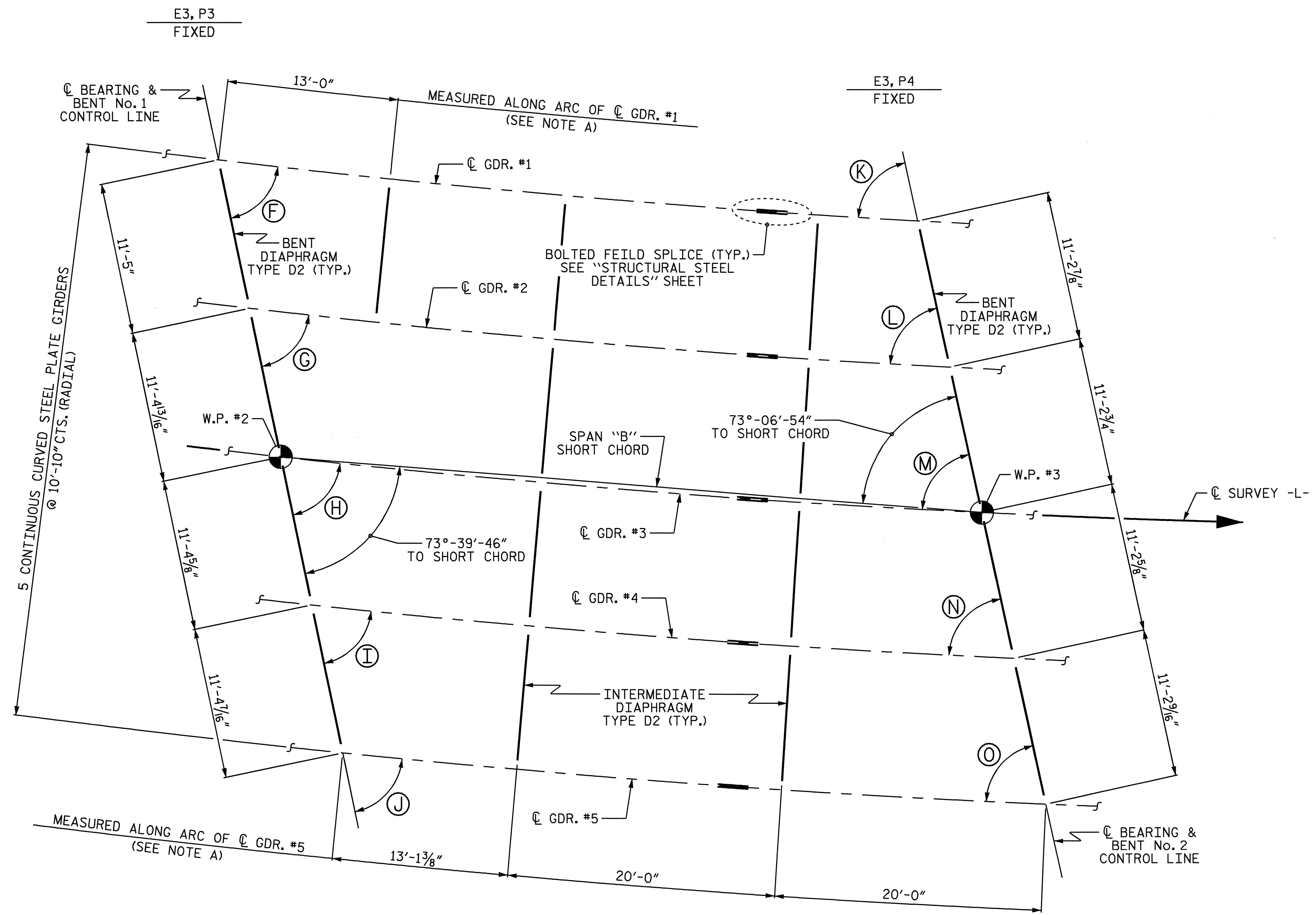
ANGLES
 ANGLES ARE TANGENT TO CURVE AT FILL FACE AND BENT CONTROL LINE

- | | |
|-----------------|-----------------|
| (A) 65°-49'-10" | (F) 71°-30'-55" |
| (B) 66°-07'-57" | (G) 71°-44'-55" |
| (C) 66°-26'-14" | (H) 71°-58'-33" |
| (D) 66°-44'-03" | (I) 72°-11'-51" |
| (E) 67°-01'-24" | (J) 72°-24'-49" |



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE					
FRAMING PLAN (SPAN "A")					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 59

DRAWN BY : T. BANKOVICH DATE : 10-2008
 CHECKED BY : D.G. ELY DATE : 12-2008



SPAN "B" FRAMING PLAN

NOTE A:
 ALL INTERMEDIATE DIAPHRAGMS
 ARE TO BE PLACED RADIALY
 TO GIRDERS

ANGLES
 ANGLES ARE TANGENT TO CURVE AT BENT CONTROL LINES

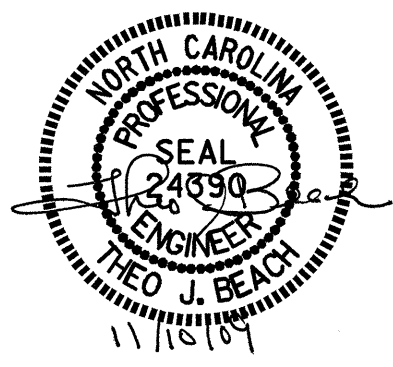
(F)	71°-30'-55"	(K)	74°-25'-04"
(G)	71°-44'-55"	(L)	74°-36'-44"
(H)	71°-58'-33"	(M)	74°-48'-07"
(I)	72°-11'-51"	(N)	74°-59'-13"
(J)	72°-24'-49"	(O)	75°-10'-03"

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 5

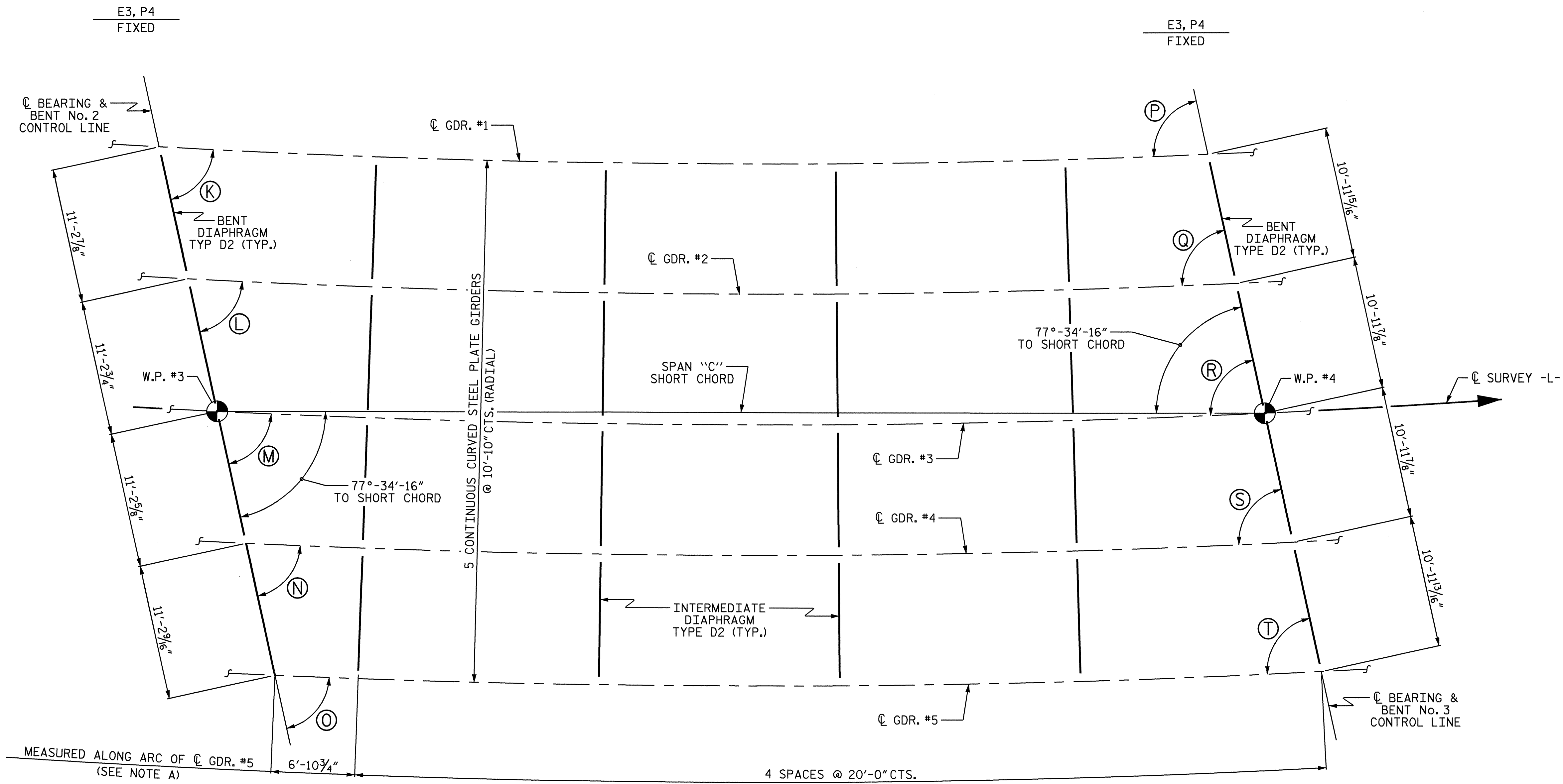
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

FRAMING PLAN
 (SPAN "B")



DRAWN BY : T. BANKOVICH DATE : 10-2008
 CHECKED BY : D.G. ELY DATE : 12-2008

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			59



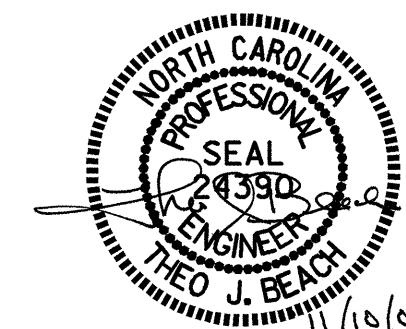
SPAN "C" FRAMING PLAN

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

FRAMING PLAN
 (SPAN "C")



NOTE A:

ALL INTERMEDIATE DIAPHRAGMS
 ARE TO BE PLACED RADIALLY
 TO GIRDERS

ANGLES

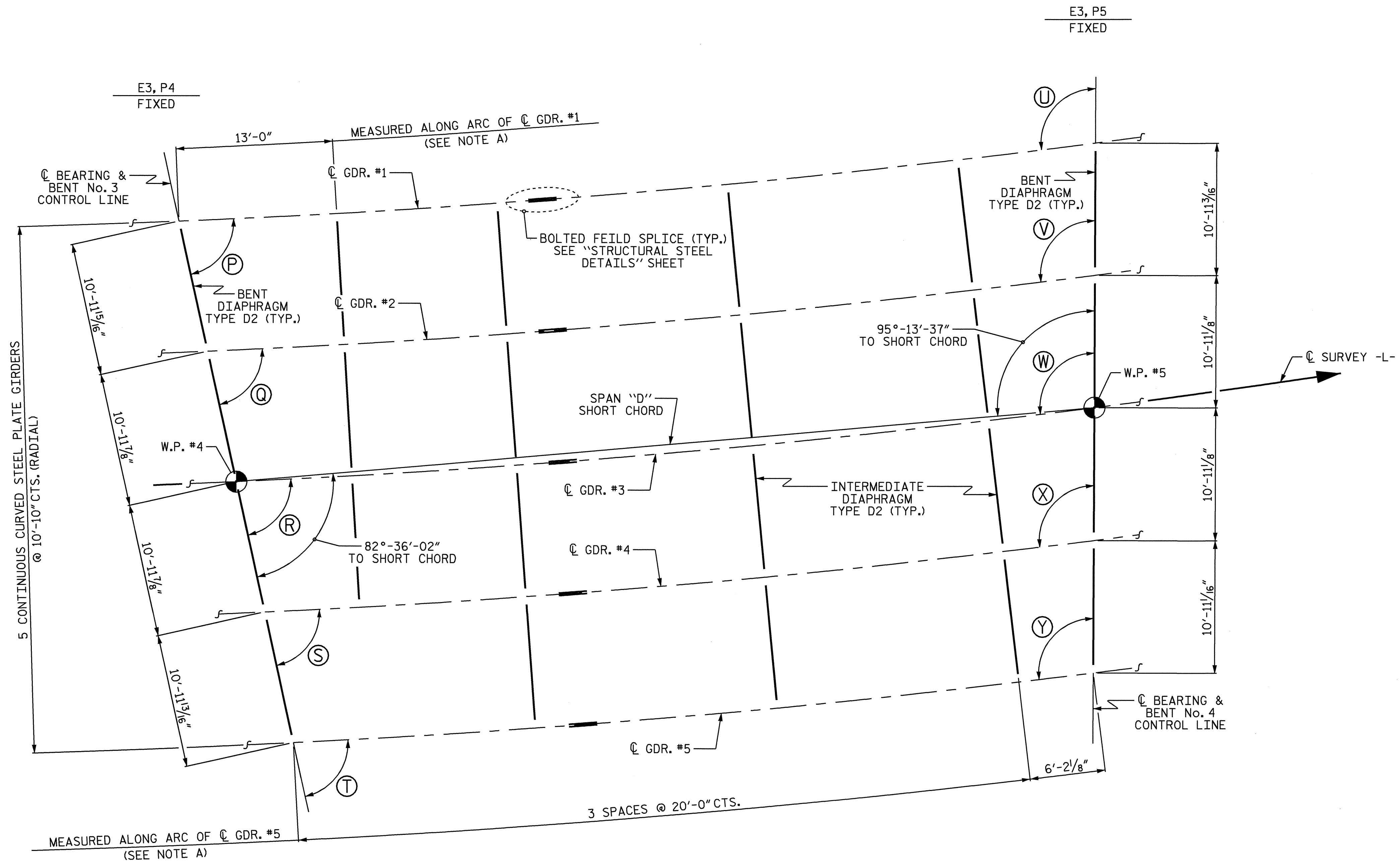
ANGLES ARE TANGENT TO CURVE AT BENT CONTROL LINES

- | | |
|-----------------|-----------------|
| (K) 74°-25'-04" | (P) 80°-06'-00" |
| (L) 74°-36'-44" | (Q) 80°-13'-18" |
| (M) 74°-48'-07" | (R) 80°-20'-26" |
| (N) 74°-59'-13" | (S) 80°-27'-23" |
| (O) 75°-10'-03" | (T) 80°-34'-11" |

DRAWN BY: T. BANKOVICH DATE: 10-2008
 CHECKED BY: D.G. ELY DATE: 12-2008

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

SHEET NO. S-14
TOTAL SHEETS 59



SPAN "D" FRAMING PLAN

NOTE A:
 ALL INTERMEDIATE DIAPHRAGMS
 ARE TO BE PLACED RADIALY
 TO GIRDERS

ANGLES
 ANGLES ARE TANGENT TO CURVE AT BENT CONTROL LINES

(P) 80°-06'-00"	(U) 97°-40'-22"
(Q) 80°-13'-18"	(V) 97°-34'-44"
(R) 80°-20'-26"	(W) 97°-29'-13"
(S) 80°-27'-23"	(X) 97°-23'-51"
(T) 80°-34'-11"	(Y) 97°-18'-36"

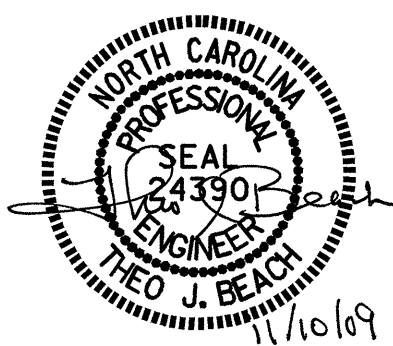
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

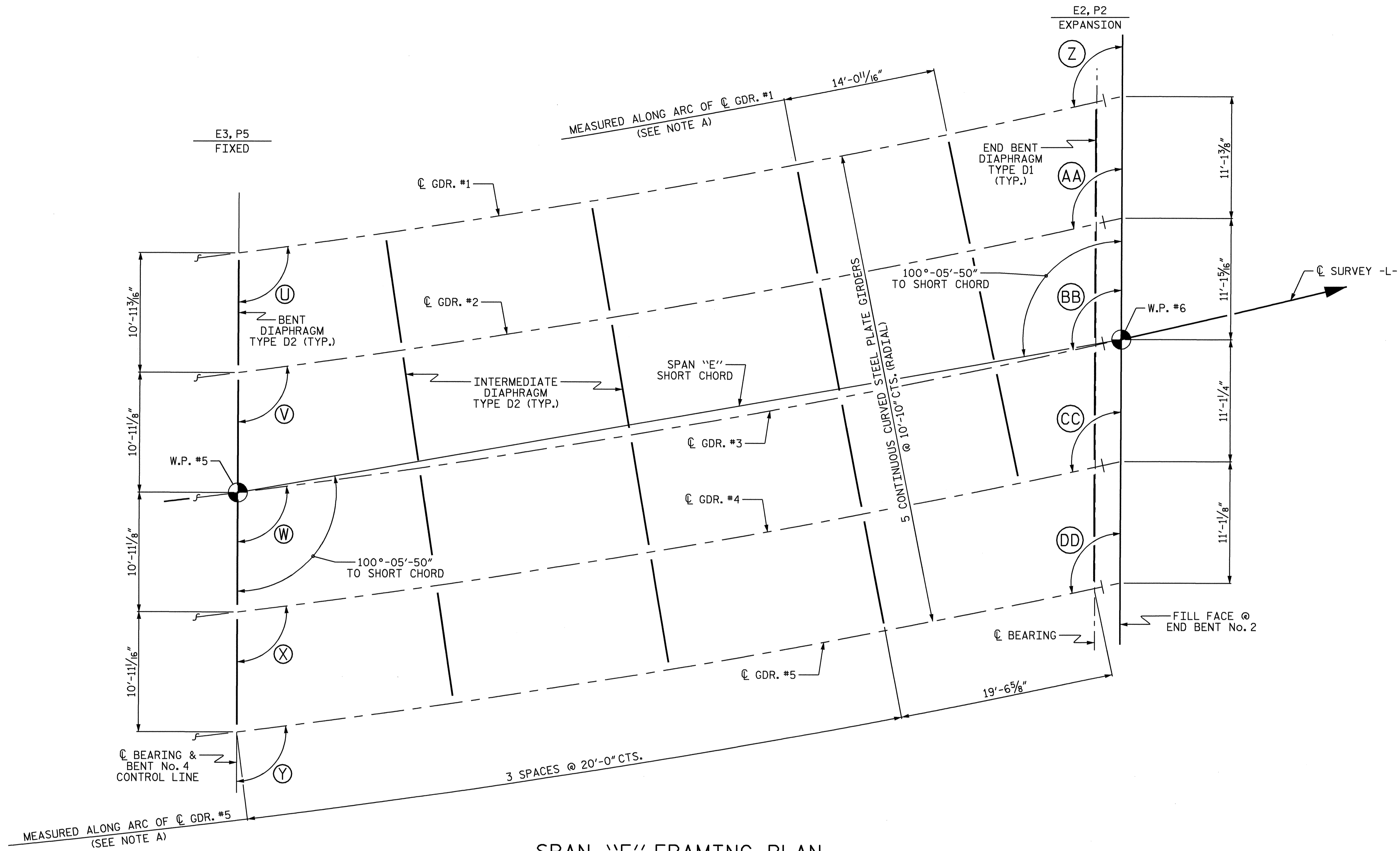
FRAMING PLAN
 (SPAN "D")

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

SHEET NO. S-15
 TOTAL SHEETS 59



DRAWN BY: T. BANKOVICH DATE: 10-2008
 CHECKED BY: D.G. FLY DATE: 12-2008



SPAN 'E' FRAMING PLAN

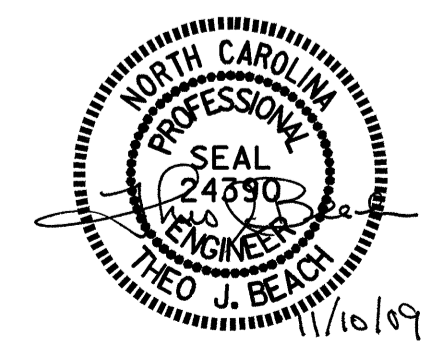
NOTE A:
 ALL INTERMEDIATE DIAPHRAGMS
 ARE TO BE PLACED RADIALY
 TO GIRDERS

ANGLES
 ANGLES ARE TANGENT TO CURVE AT FILL FACE AND BENT CONTROL LINE

- | | | | |
|---|-------------|----|--------------|
| U | 97°-40'-22" | Z | 103°-01'-34" |
| V | 97°-34'-44" | AA | 102°-51'-53" |
| W | 97°-29'-13" | BB | 102°-42'-26" |
| X | 97°-23'-51" | CC | 102°-33'-13" |
| Y | 97°-18'-36" | DD | 102°-24'-14" |

DRAWN BY : T. BANKOVICH DATE : 10-2008
 CHECKED BY : D.G. ELY DATE : 12-2008

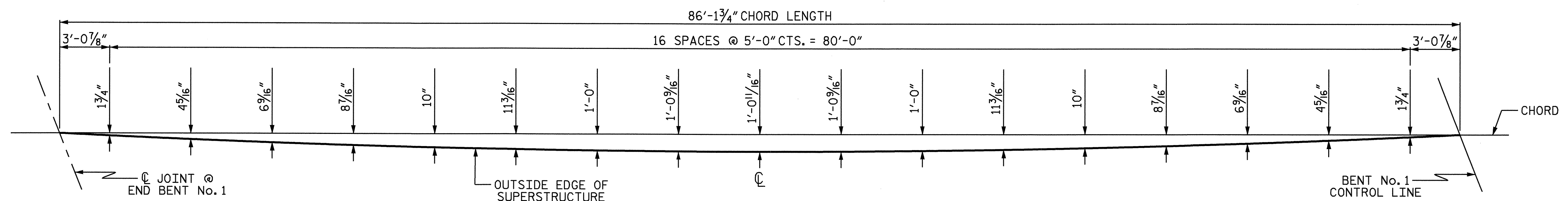
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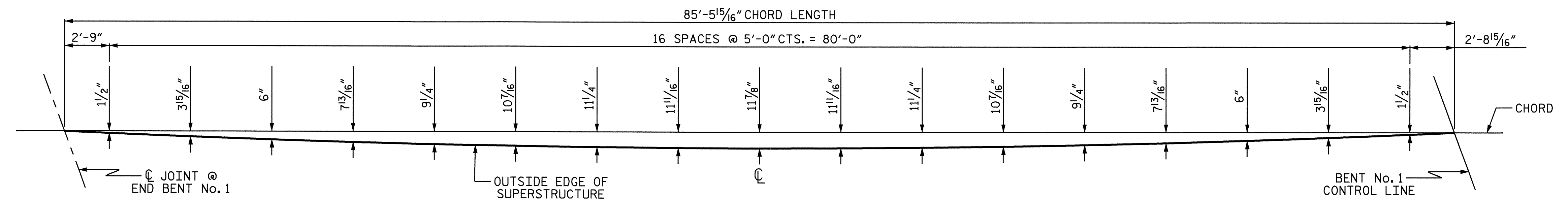
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 5 OF 5

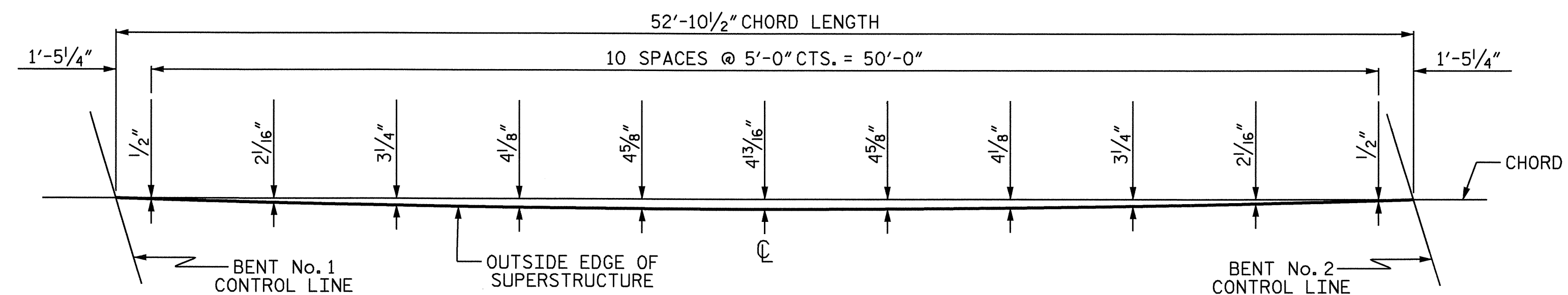
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE					
FRAMING PLAN (SPAN 'E')					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 59



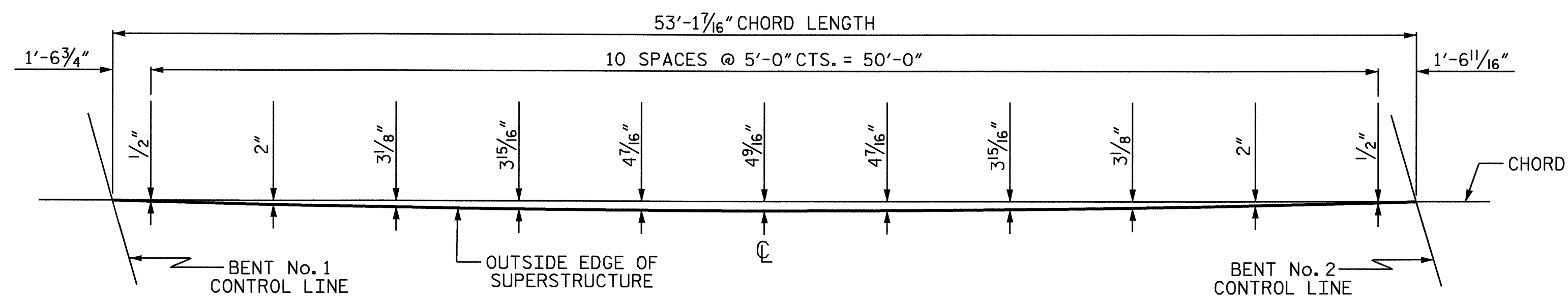
SPAN "A" LEFT SIDE ARC OFFSETS



SPAN "A" RIGHT SIDE ARC OFFSETS



SPAN "B" LEFT SIDE ARC OFFSETS



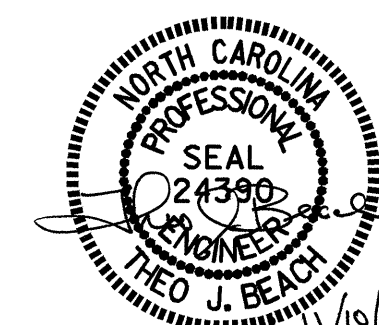
SPAN "B" RIGHT SIDE ARC OFFSETS

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

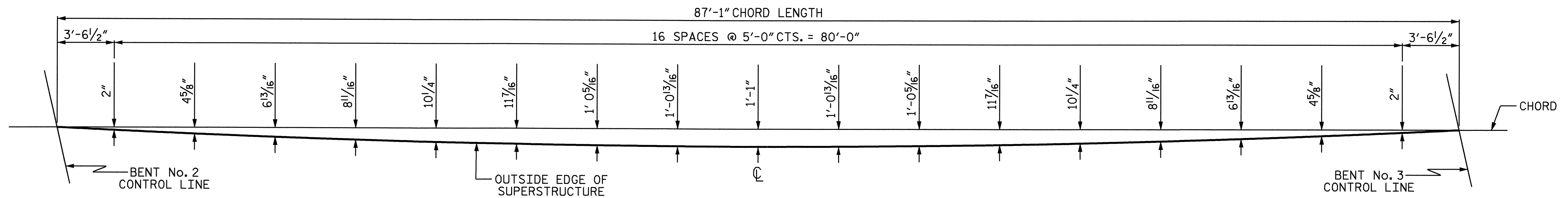
ARC OFFSETS
 SPANS "A" & "B"



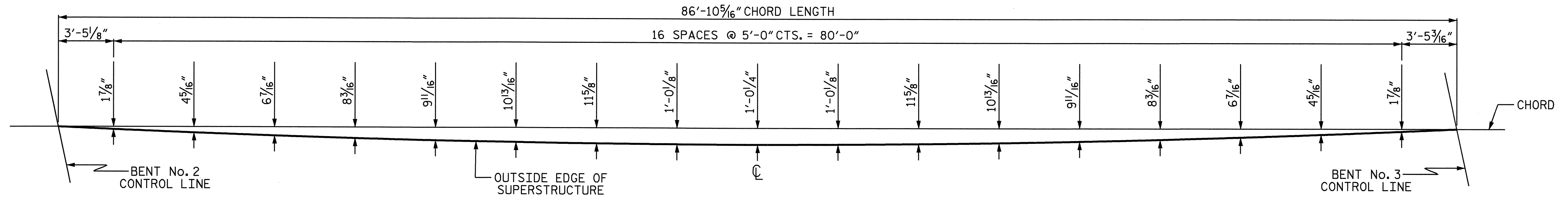
DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : D.G. ELY DATE : 12-2008

10-NOV-2009 15:47
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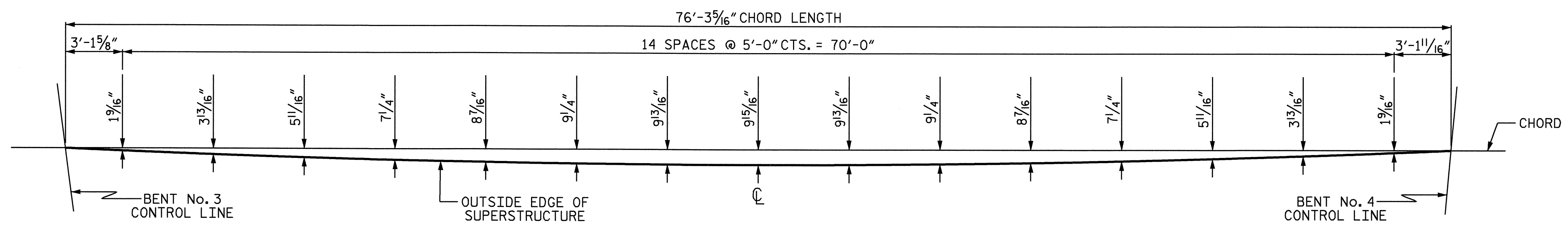
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			59



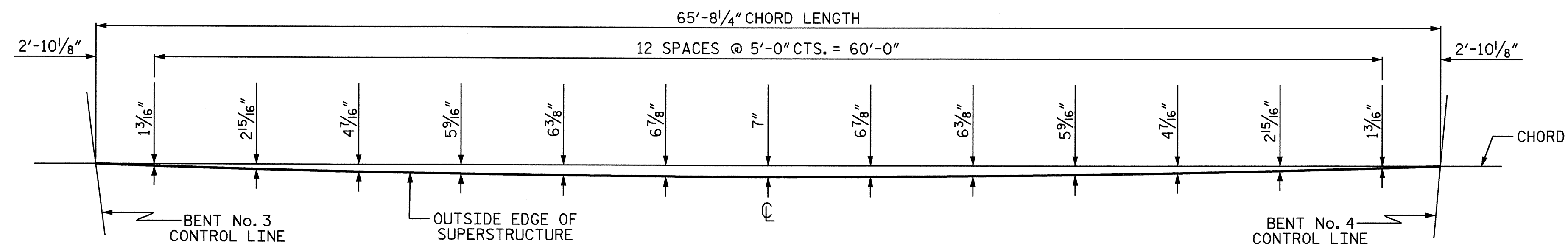
SPAN "C" LEFT SIDE ARC OFFSETS



SPAN "C" RIGHT SIDE ARC OFFSETS



SPAN "D" LEFT SIDE ARC OFFSETS



SPAN "D" RIGHT SIDE ARC OFFSETS

PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

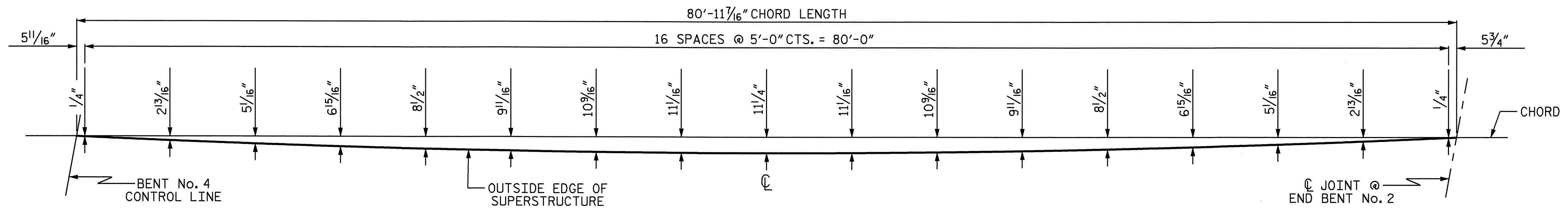
ARC OFFSETS
SPANS "C" & "D"



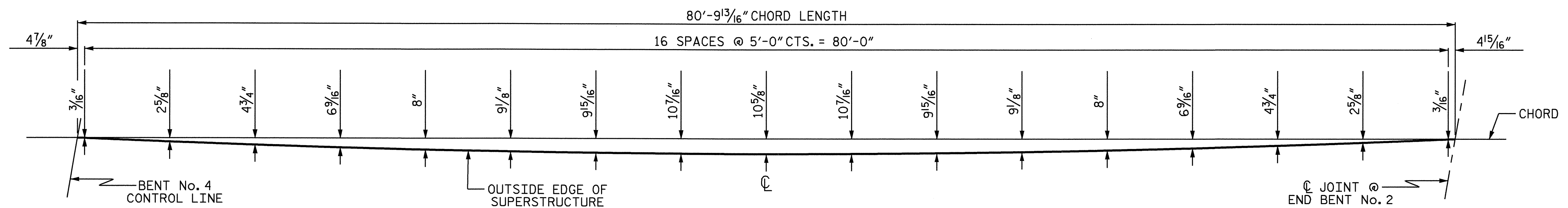
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CHECKED BY : D.G. ELY DATE : 12-2008

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			59



SPAN "E" LEFT SIDE ARC OFFSETS



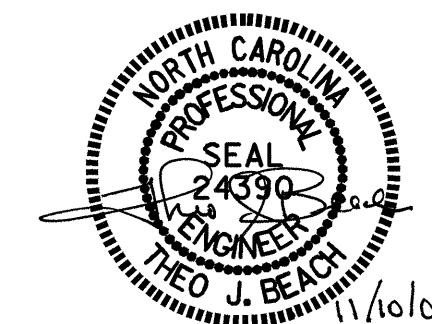
SPAN "E" RIGHT SIDE ARC OFFSETS

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

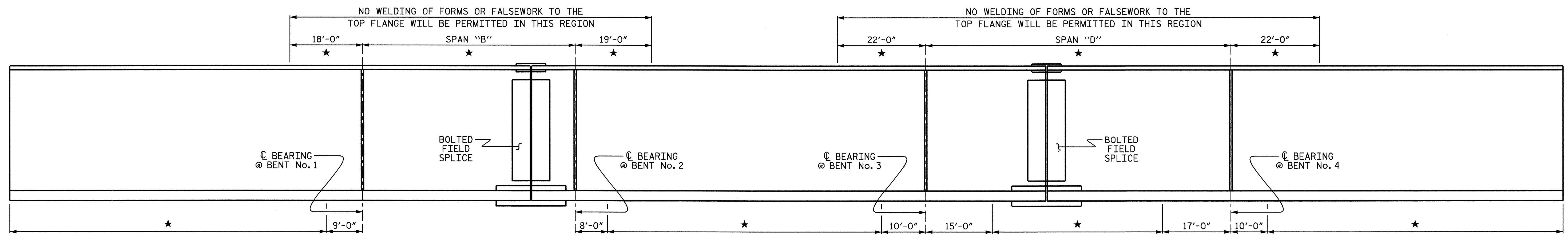
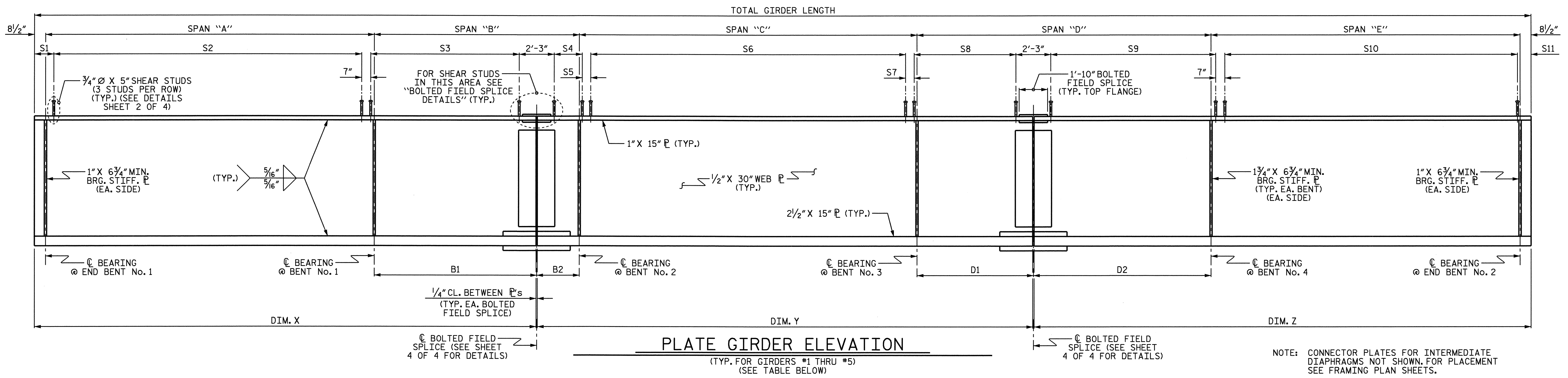
ARC OFFSETS
 SPAN "E"



DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : D.G. ELY DATE : 12-2008

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 tjbankovich

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-19
1			3			TOTAL SHEETS
2			4			59



★ CHARPY V-NOTCH TEST ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS. CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL WEB PLATES AND ALL SPLICE PLATES. IF THE PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

SHEAR STUD SPACING TABLE FOR SPAN "A-E" GIRDERS

GIRDER	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
#1	1'-2 ⁷ / ₈ "	144 ROWS @ 7" CTS.	124 ROWS @ 4" CTS.	31 ROWS @ 4" CTS.	6 ⁵ / ₈ "	148 ROWS @ 7" CTS.	6 ⁵ / ₈ "	88 ROWS @ 4" CTS.	136 ROWS @ 4" CTS.	136 ROWS @ 7" CTS.	9"
#2	11 ³ / ₄ "	144 ROWS @ 7" CTS.	115 ROWS @ 4" CTS.	41 ROWS @ 4" CTS.	4 ¹ / ₈ "	148 ROWS @ 7" CTS.	4 ¹ / ₈ "	84 ROWS @ 4" CTS.	133 ROWS @ 4" CTS.	136 ROWS @ 7" CTS.	9 ⁷ / ₈ "
#3	1'-0 ³ / ₄ "	144 ROWS @ 7" CTS.	105 ROWS @ 4" CTS.	50 ROWS @ 4" CTS.	5 ⁵ / ₈ "	148 ROWS @ 7" CTS.	5 ⁵ / ₈ "	79 ROWS @ 4" CTS.	130 ROWS @ 4" CTS.	136 ROWS @ 7" CTS.	10 ³ / ₄ "
#4	9 ⁷ / ₈ "	144 ROWS @ 7" CTS.	96 ROWS @ 4" CTS.	60 ROWS @ 4" CTS.	5 ¹ / ₈ "	148 ROWS @ 7" CTS.	5 ¹ / ₈ "	74 ROWS @ 4" CTS.	128 ROWS @ 4" CTS.	135 ROWS @ 7" CTS.	1'-2 ⁵ / ₈ "
#5	1'-2 ¹ / ₄ "	143 ROWS @ 7" CTS.	87 ROWS @ 4" CTS.	69 ROWS @ 4" CTS.	4 ⁹ / ₁₆ "	148 ROWS @ 7" CTS.	4 ⁹ / ₁₆ "	70 ROWS @ 4" CTS.	125 ROWS @ 4" CTS.	136 ROWS @ 7" CTS.	8 ⁵ / ₈ "

TABLE "A-E"

GIRDER	RADIUS	SPAN "A"		SPAN "B"		SPAN "C"		SPAN "D"		SPAN "E"		B1 C BRG. TO C BFS.	B2 C BFS. TO C BRG.	D1 C BRG. TO C BFS.	D2 C BFS. TO C BRG.	DIM. X WEB P AND TOP & BOTTOM FLANGE P LENGTHS	DIM. Y WEB P AND TOP & BOTTOM FLANGE P LENGTHS	DIM. Z WEB P AND TOP & BOTTOM FLANGE P LENGTHS	TOTAL GIRDER LENGTH
		C BRG. TO C BRG.	C BRG. TO C BRG.	C BRG. TO C BRG.	C BRG. TO C BRG.	C BRG. TO C BRG.	C BRG. TO C BRG.												
#1	878'-4"	84'-9 ⁹ / ₈ "	52'-10 ³ / ₄ "	87'-1 ¹ / ₄ "	75'-9 ⁷ / ₈ "	79'-8 ¹ / ₈ "	41'-10 ³ / ₄ "	11'-0"	30'-0"	45'-9 ⁷ / ₈ "	127'-4 ¹ / ₄ "	128'-1"	126'-2 ³ / ₈ "	381'-8 ¹ / ₈ "					
#2	889'-2"	84'-7 ¹ / ₄ "	52'-11 ³ / ₈ "	87'-0 ⁵ / ₈ "	73'-5"	79'-7 ⁵ / ₈ "	38'-9 ¹ / ₂ "	14'-1 ¹ / ₈ "	28'-5 ³ / ₄ "	44'-11 ¹ / ₄ "	124'-1 ¹ / ₈ "	129'-8"	125'-3 ¹ / ₄ "	379'-0 ¹ / ₈ "					
#3	900'-0"	84'-5 ¹ / ₂ "	53'-0"	87'-0"	71'-0"	79'-7 ¹ / ₄ "	35'-8 ¹ / ₄ "	17'-3 ³ / ₄ "	26'-11 ¹ / ₂ "	44'-0 ¹ / ₂ "	120'-10 ¹ / ₈ "	131'-3"	124'-4 ¹ / ₈ "	376'-5 ³ / ₄ "					
#4	910'-10"	84'-3 ³ / ₄ "	53'-0 ⁵ / ₈ "	86'-11 ³ / ₈ "	68'-7"	79'-7"	32'-7 ¹ / ₈ "	20'-5 ¹ / ₂ "	25'-5 ³ / ₈ "	43'-1 ¹ / ₈ "	117'-7 ¹ / ₄ "	132'-10"	123'-5"	373'-10 ³ / ₄ "					
#5	921'-8"	84'-2 ¹ / ₈ "	53'-1 ³ / ₈ "	86'-10 ³ / ₄ "	66'-2 ¹ / ₈ "	79'-6 ⁵ / ₈ "	29'-6 ¹ / ₈ "	23'-7 ¹ / ₄ "	23'-11 ¹ / ₈ "	42'-3"	114'-4 ⁵ / ₈ "	134'-4 ¹ / ₈ "	122'-6"	371'-4"					

NOTE: ALL GIRDER DIMENSIONS IN THE TABLES ARE MEASURED ALONG THE C GIRDER ARCS.

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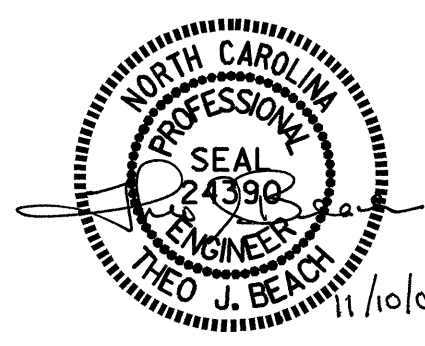
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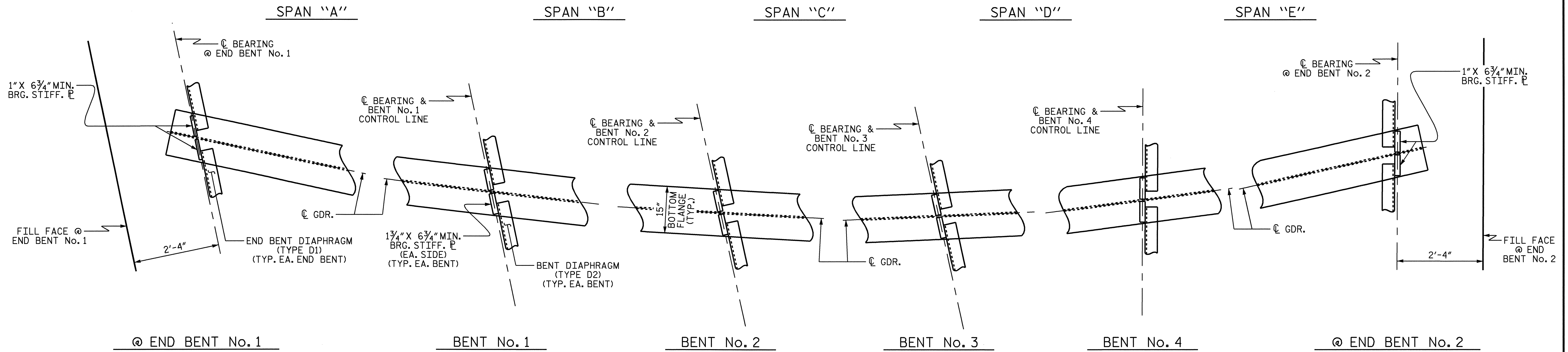
PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-
SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

**STRUCTURAL STEEL
DETAILS**

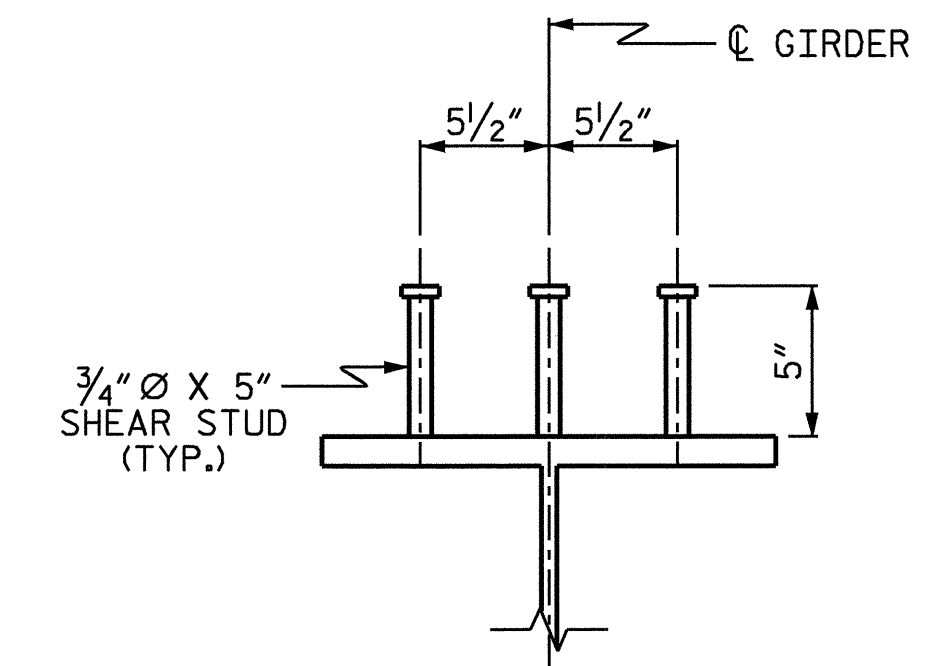
REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 59
2			4			





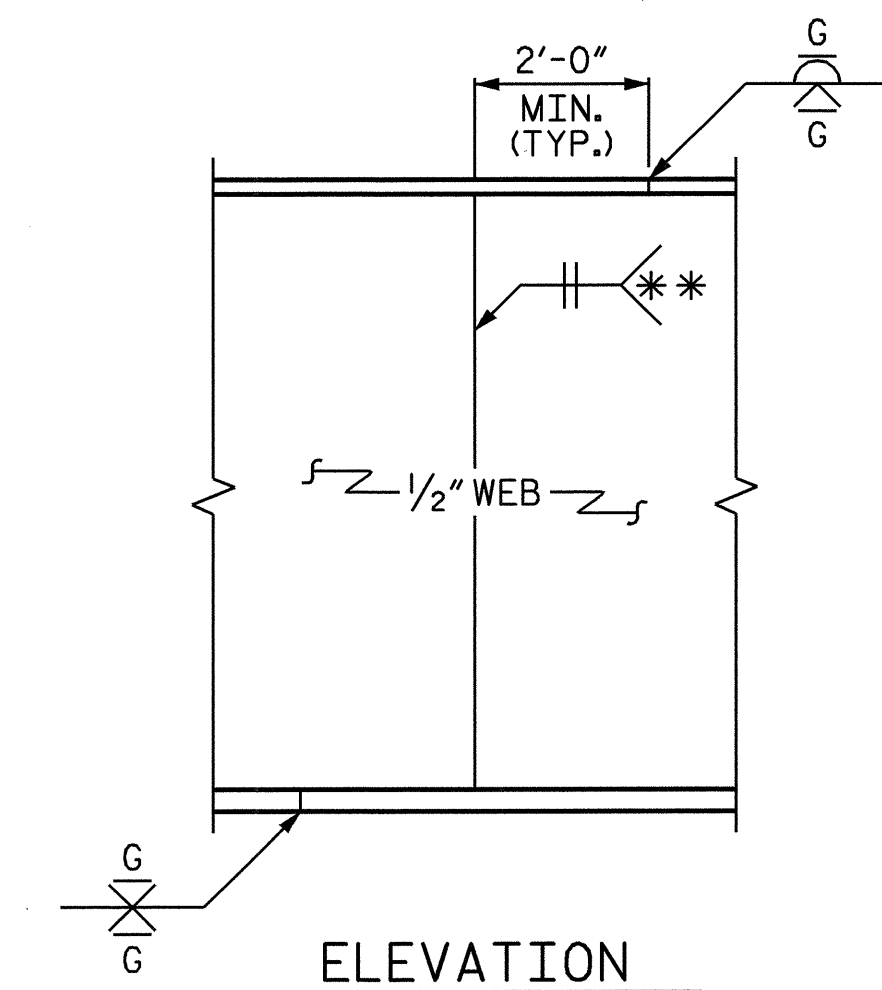
SPAN "A-E" BOTTOM FLANGE DETAIL

(INTERMEDIATE DIAPHRAGMS NOT SHOWN, SEE FRAMING PLAN SHEETS FOR LOCATIONS)



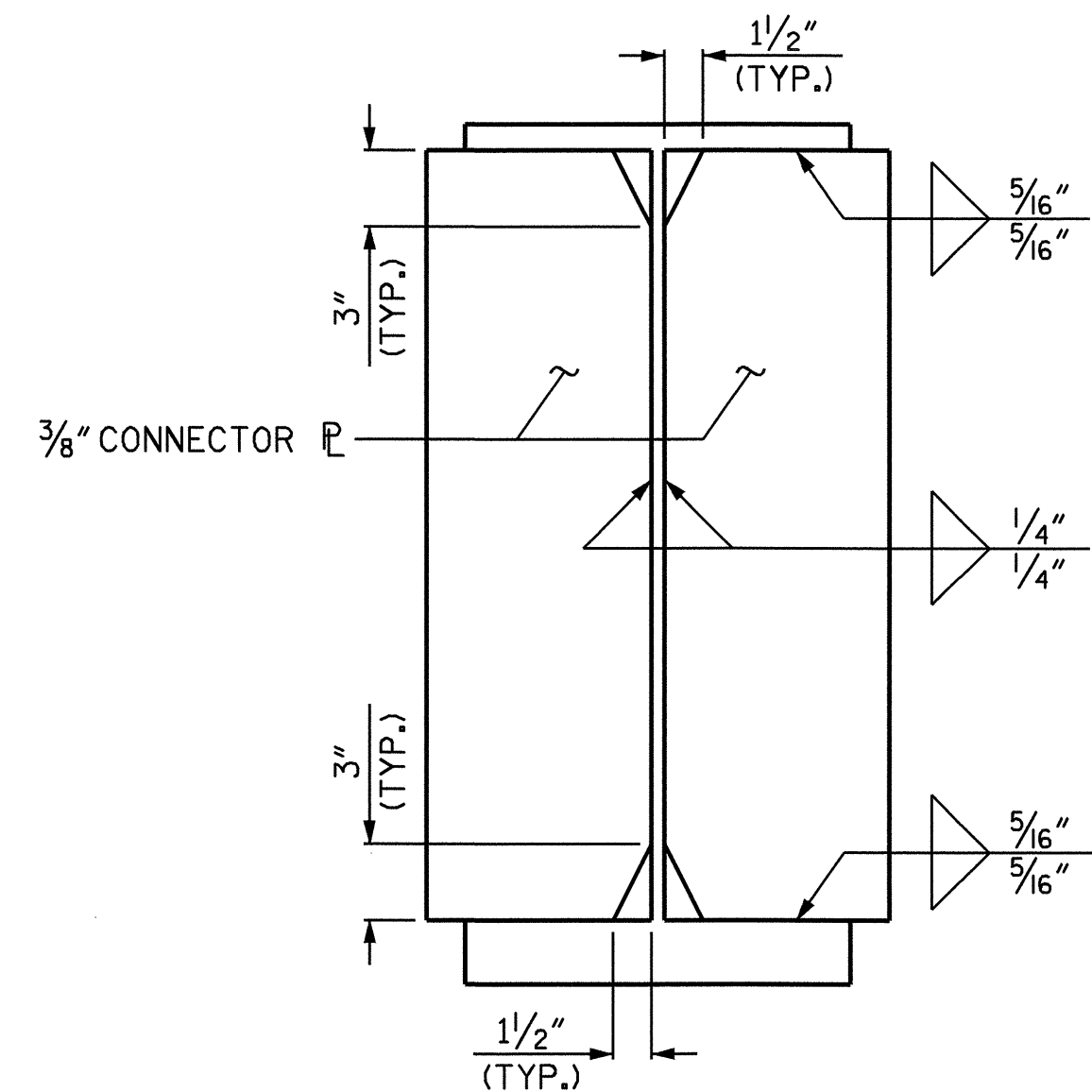
SHEAR STUD DETAILS

(TYPICAL EXCEPT @ SPLICE PLATES)



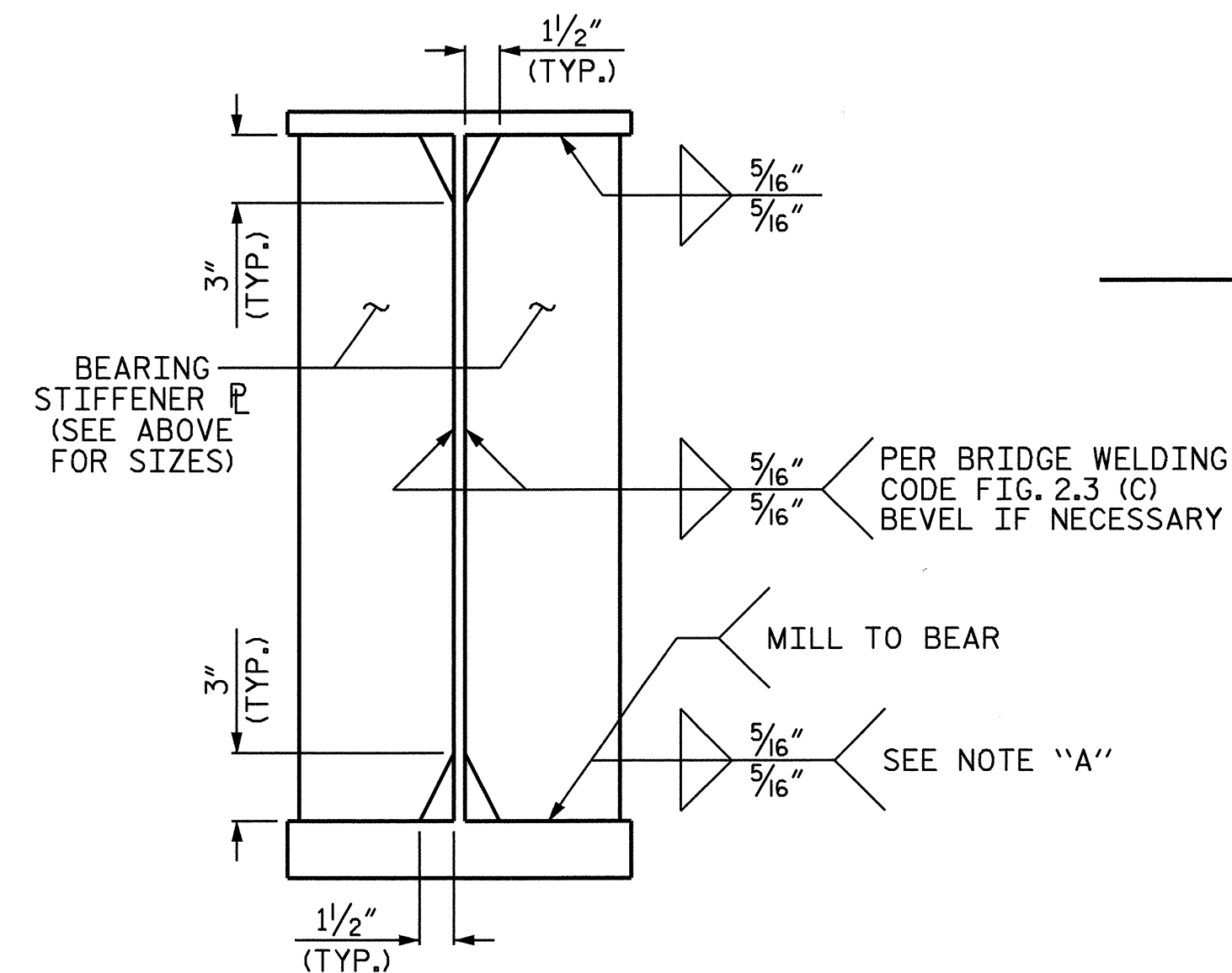
PERMISSIBLE SHOP FLANGE & WEB SPLICE

** GRIND SMOOTH AND FLUSH ON OUTSIDE OF EXTERIOR GIRDERS



CONNECTOR PLATE

(AT INTERMEDIATE DIAPHRAGMS)



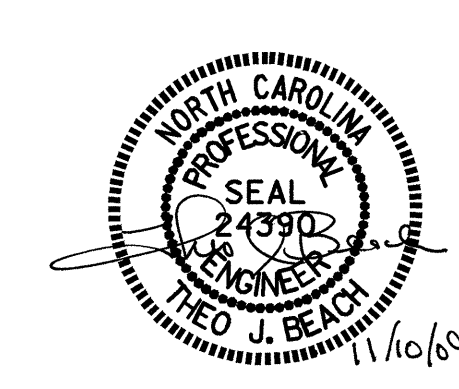
BEARING STIFFENER

NOTE "A"
WELD BEARING STIFFENER TO BOTTOM FLANGE IF BEARING STIFFENER IS TO BE USED AS A CONNECTOR PLATE.

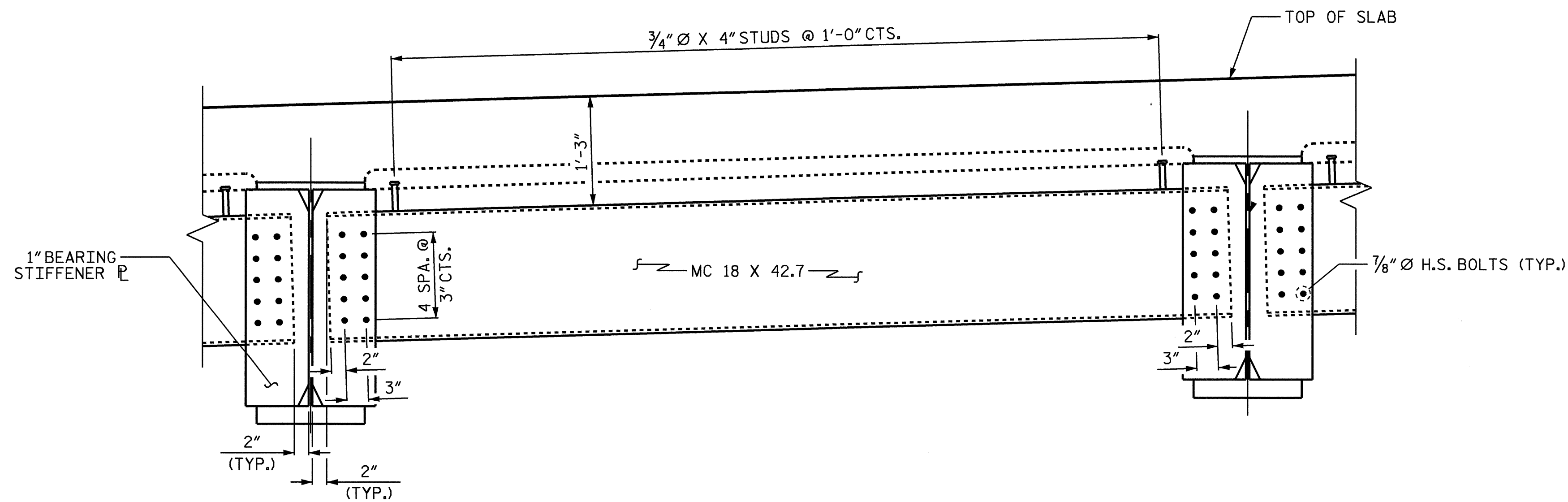
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 4

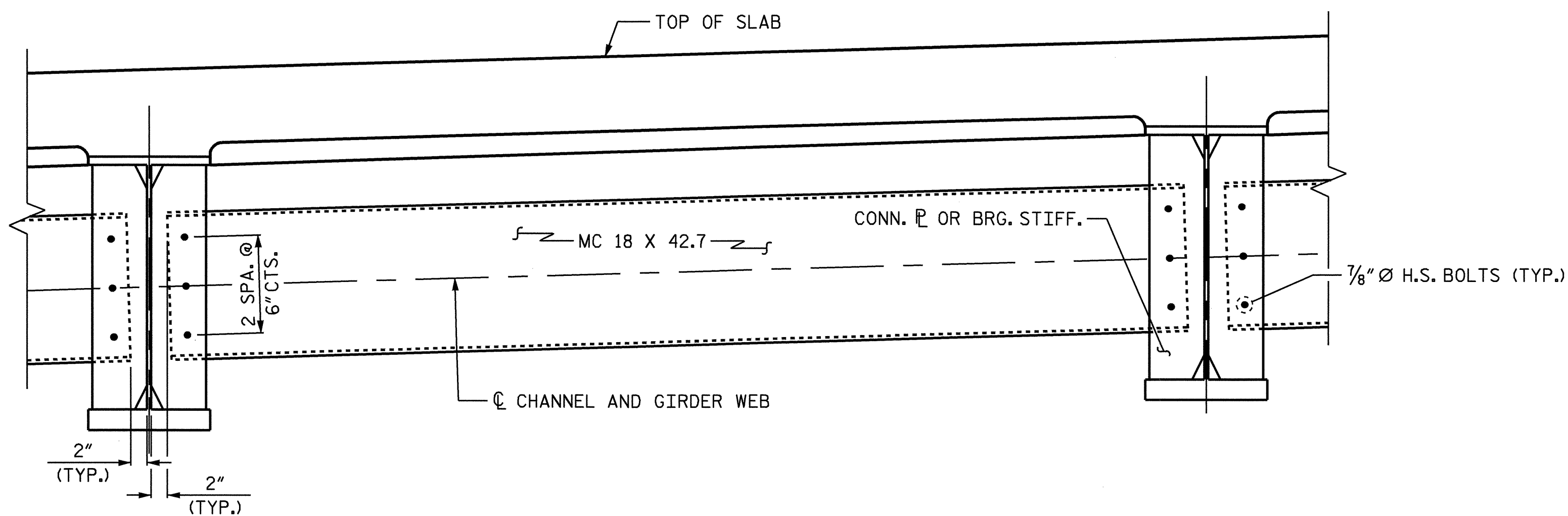
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE STRUCTURAL STEEL DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-21					TOTAL SHEETS 59



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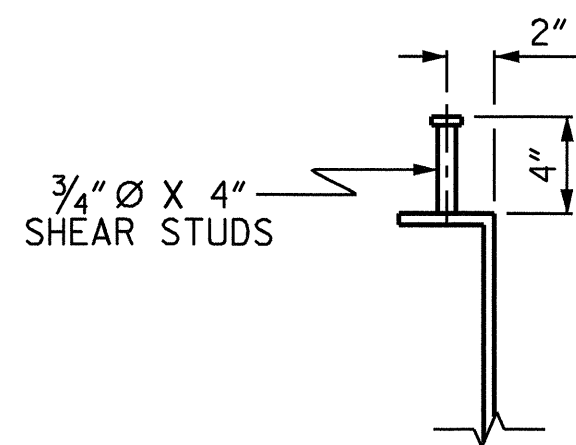


TYPICAL END BENT DIAPHRAGM (D1)



TYPICAL INTERMEDIATE & BENT DIAPHRAGM (D2)

USE 3/8" THICK PLATES FOR CONN. PL. AT INTERMEDIATE DIAPHRAGMS
 USE 1/4" THICK PLATES WHERE BRG. STIFF. ARE USED AS CONN. PL. AT BENT DIAPHRAGMS



SHEAR STUD DETAIL

(TYP. EA. END BENT DIAPHRAGM)

STRUCTURAL STEEL NOTES:

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

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

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED. FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

BEARING STIFFENERS ARE TO BE PLACED ALONG SKEW AND SHALL BE PLUMB.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

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

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

FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISIONS.

END OF GIRDERS SHALL BE PLUMB.

BEARING STIFFENER PLATE WIDTHS SHOWN ON THE PLANS ARE A MINIMUM WIDTH. THE BEARING STIFFENER PLATE WIDTHS MAY BE INCREASED AS NECESSARY IN ORDER TO CONNECT THE DIAPHRAGM MEMBERS.

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

A CHARPY V-NOTCH TEST IS REQUIRED FOR GIRDER MEMBERS AS INDICATED ON THE PLANS. SEE SHEET 2 OF 4 FOR "CHARPY V-NOTCH TEST FOR CONTINUOUS PLATE GIRDERS."

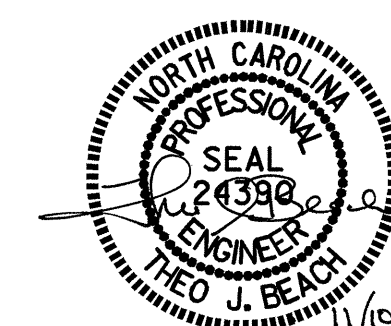
THE CONTRACTOR SHALL MAINTAIN STABILITY OF THE CURVED GIRDERS UNTIL ALL FIELD SPLICES AND DIAPHRAGM CONNECTIONS HAVE BEEN COMPLETED. STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

CURVATURE OF STEEL GIRDERS MAY BE ACCOMPLISHED BY CUTTING PLATES TO THE REQUIRED CURVATURE OR BY HEAT TREATMENT.

PROJECT NO. B-2576
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 STATION: 19+35.95 -L-

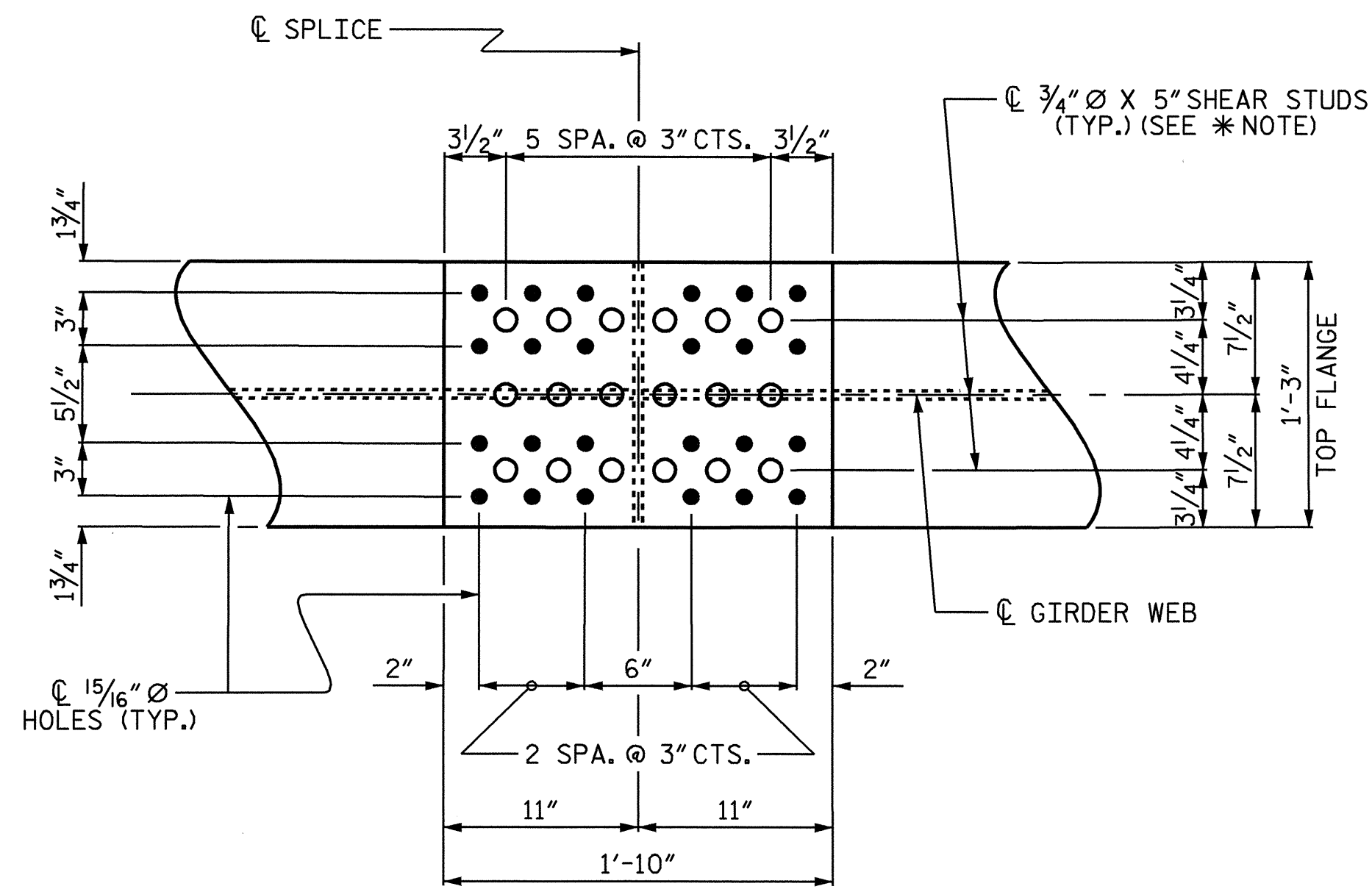
SHEET 3 OF 4

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

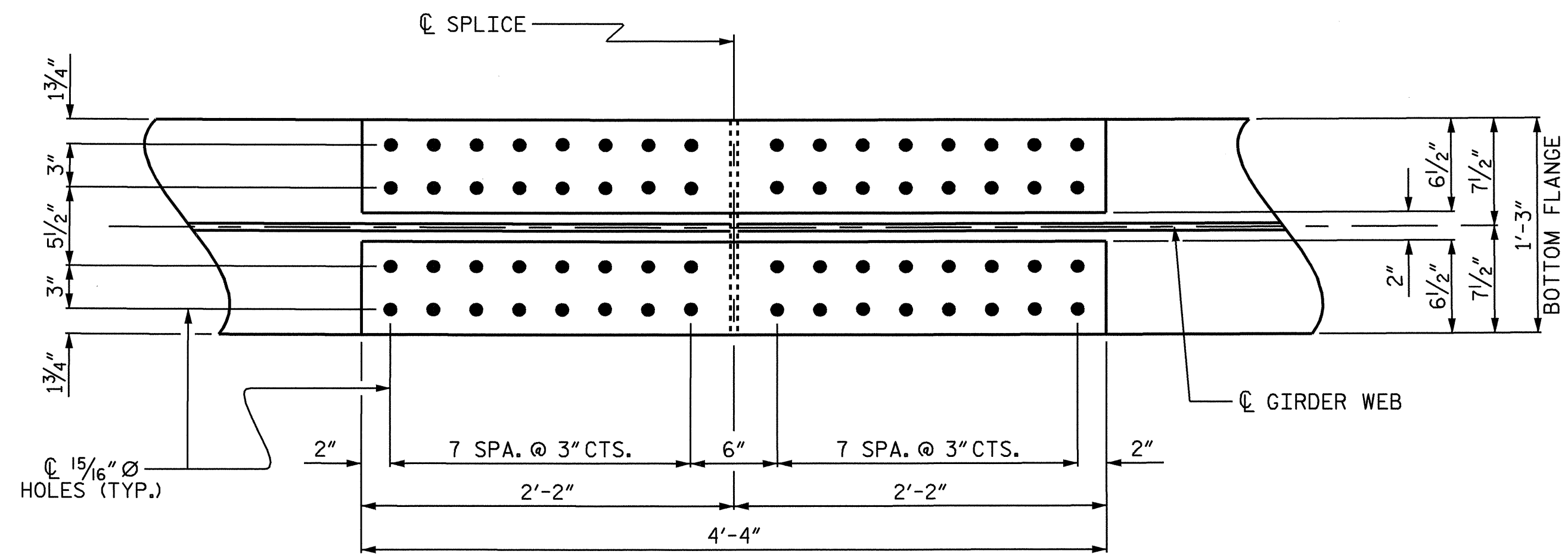


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NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			59

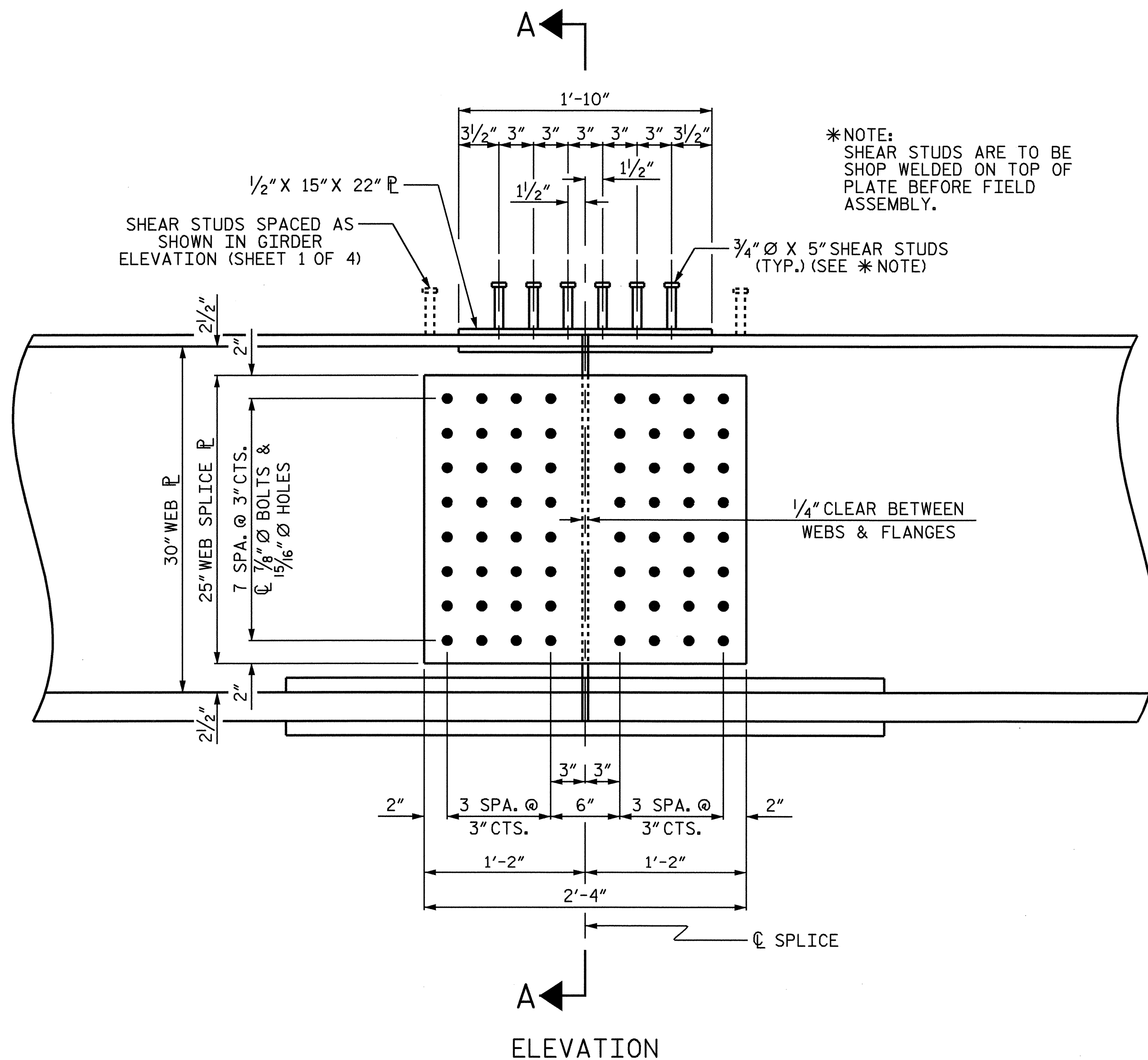
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PLAN (TOP OF TOP FLANGE)

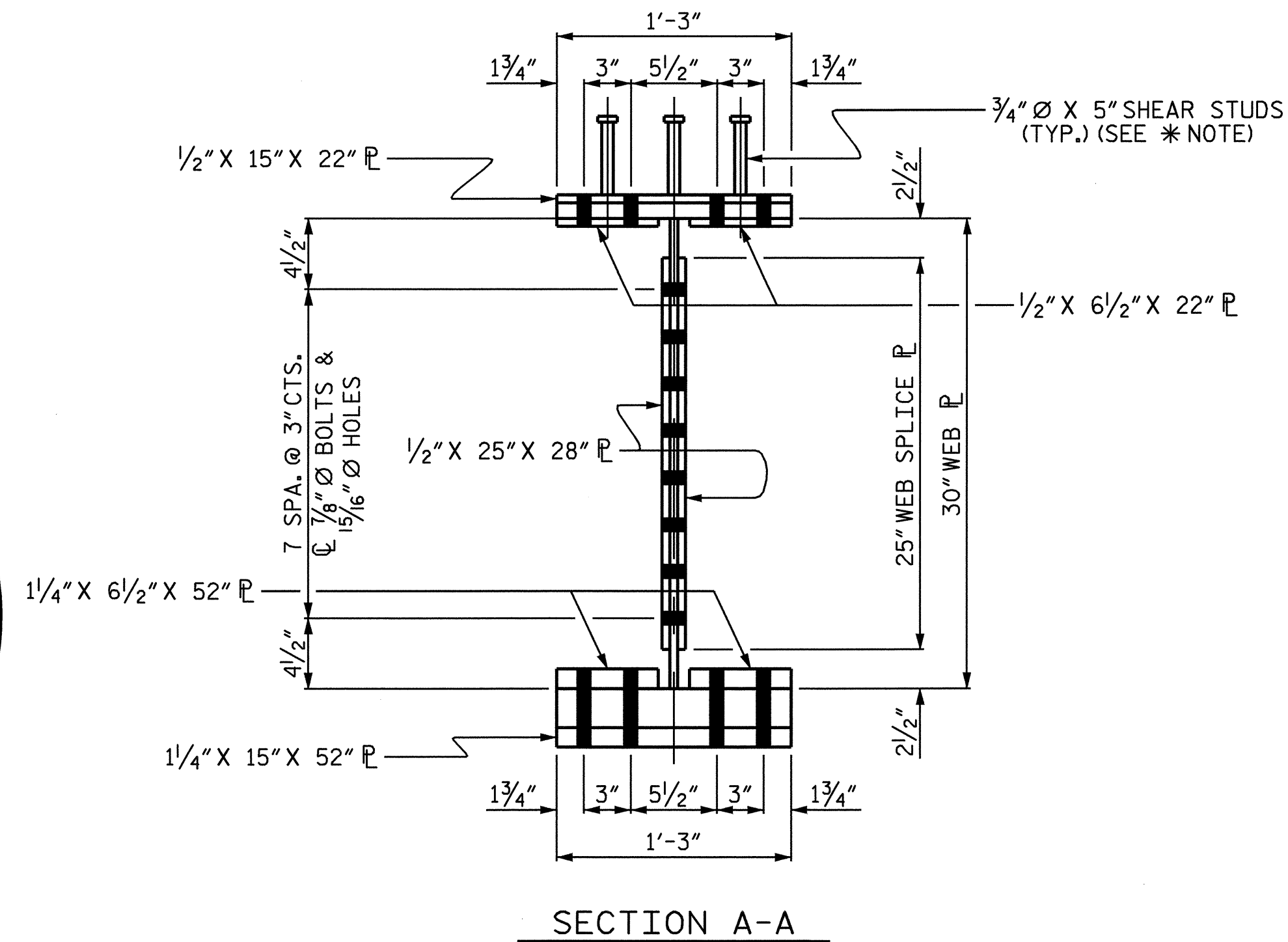


PLAN (TOP OF BOTTOM FLANGE)

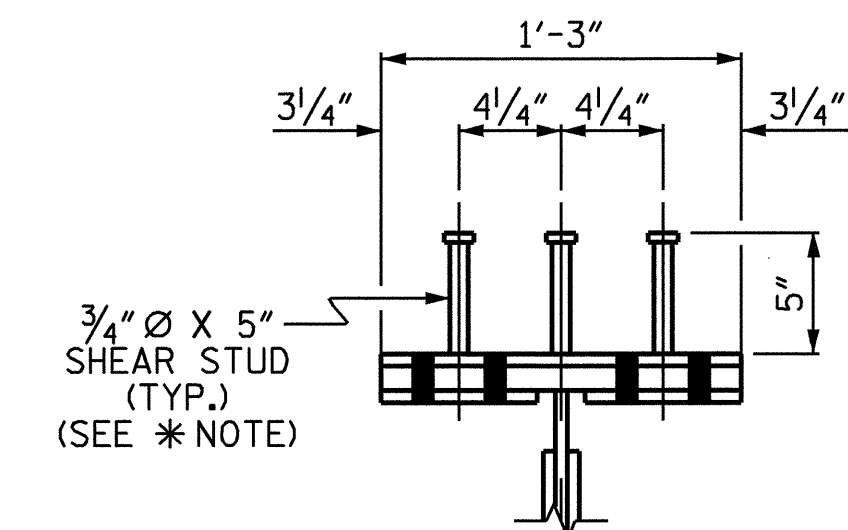


ELEVATION

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



SECTION A-A



SHEAR STUD DETAIL FOR
TOP FLANGE SPLICE PLATE

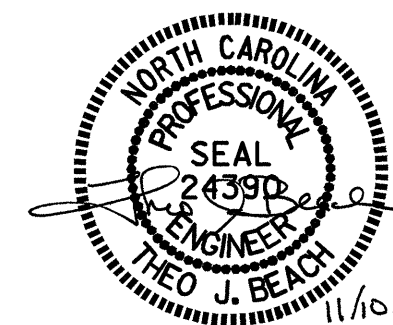
BOLTED FIELD SPLICE DETAILS

(SPAN "B" SHOWN, SPAN "D" SIMILAR)

PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
**STRUCTURAL STEEL
DETAIL**
(BOLTED FIELD SPLICE)



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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-23
1			3			TOTAL SHEETS
2			4			59

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

TENTH POINTS	GIRDER #1											GIRDER #2										
	SPAN "A"											SPAN "A"										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.014	0.026	0.035	0.040	0.040	0.037	0.029	0.020	0.010	0	0	0.015	0.027	0.036	0.041	0.041	0.038	0.030	0.021	0.009	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.060	0.114	0.151	0.172	0.175	0.159	0.126	0.087	0.041	0	0	0.073	0.134	0.182	0.207	0.211	0.191	0.154	0.106	0.046	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.022	0.040	0.054	0.062	0.064	0.060	0.049	0.035	0.017	0	0	0.014	0.027	0.036	0.040	0.041	0.039	0.032	0.023	0.010	0
TOTAL DEAD LOAD DEFLECTION	0	0.096	0.180	0.240	0.274	0.279	0.256	0.204	0.142	0.068	0	0	0.102	0.188	0.254	0.289	0.294	0.268	0.216	0.150	0.065	0
VERTICAL CURVE ORDINATE	0	0.061	0.109	0.143	0.164	0.171	0.164	0.143	0.109	0.061	0	0	0.060	0.106	0.139	0.159	0.166	0.159	0.139	0.106	0.060	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.005	0.009	0.011	0.013	0.013	0.012	0.010	0.007	0.003	0	0	0.004	0.008	0.011	0.012	0.012	0.011	0.009	0.006	0.003	0
REQUIRED CAMBER	0	1 ¹ / ₁₆ "	3 ³ / ₁₆ "	4 ³ / ₁₆ "	5 ⁷ / ₁₆ "	5 ⁹ / ₁₆ "	5 ³ / ₁₆ "	4 ⁹ / ₁₆ "	3 ¹ / ₈ "	1 ¹ / ₁₆ "	0	0	2"	3 ³ / ₁₆ "	4 ¹³ / ₁₆ "	5 ¹ / ₂ "	5 ¹ / ₁₆ "	5 ¹ / ₄ "	4 ³ / ₈ "	3 ¹ / ₈ "	1 ¹ / ₁₆ "	0
TENTH POINTS	SPAN "B"											SPAN "B"										
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	-0.003	-0.006	-0.007	-0.008	-0.008	-0.007	-0.006	-0.005	-0.003	0	0	-0.004	-0.006	-0.007	-0.008	-0.008	-0.008	-0.007	-0.005	-0.003	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	-0.015	-0.025	-0.031	-0.033	-0.034	-0.032	-0.029	-0.022	-0.012	0	0	-0.017	-0.031	-0.037	-0.040	-0.041	-0.038	-0.034	-0.026	-0.016	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	-0.005	-0.008	-0.010	-0.010	-0.010	-0.010	-0.009	-0.008	-0.005	0	0	-0.004	-0.006	-0.007	-0.008	-0.008	-0.008	-0.007	-0.006	-0.003	0
TOTAL DEAD LOAD DEFLECTION	0	-0.023	-0.039	-0.048	-0.051	-0.052	-0.049	-0.044	-0.035	-0.020	0	0	-0.025	-0.043	-0.051	-0.056	-0.057	-0.054	-0.048	-0.037	-0.022	0
VERTICAL CURVE ORDINATE	0	0.024	0.042	0.056	0.063	0.066	0.063	0.056	0.042	0.024	0	0	0.023	0.041	0.054	0.062	0.065	0.062	0.054	0.041	0.023	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.008	0.013	0.016	0.018	0.018	0.017	0.015	0.012	0.007	0	0	0.007	0.012	0.014	0.016	0.016	0.015	0.013	0.010	0.006	0
REQUIRED CAMBER	0	1 ¹ / ₈ "	3 ¹ / ₁₆ "	5 ¹ / ₁₆ "	3 ³ / ₈ "	3 ³ / ₈ "	3 ³ / ₈ "	5 ¹ / ₁₆ "	1 ¹ / ₄ "	1 ¹ / ₈ "	0	0	1 ¹ / ₁₆ "	1 ¹ / ₈ "	3 ¹ / ₁₆ "	1 ¹ / ₄ "	5 ¹ / ₁₆ "	1 ¹ / ₄ "	1 ¹ / ₄ "	3 ¹ / ₁₆ "	1 ¹ / ₁₆ "	0
TENTH POINTS	SPAN "C"											SPAN "C"										
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.008	0.015	0.022	0.026	0.027	0.025	0.021	0.014	0.006	0	0	0.008	0.016	0.023	0.028	0.029	0.027	0.022	0.014	0.007	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.034	0.064	0.095	0.113	0.118	0.108	0.088	0.059	0.025	0	0	0.042	0.081	0.119	0.139	0.145	0.136	0.112	0.074	0.034	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.015	0.027	0.039	0.045	0.047	0.044	0.036	0.024	0.011	0	0	0.009	0.018	0.025	0.030	0.031	0.028	0.023	0.016	0.007	0
TOTAL DEAD LOAD DEFLECTION	0	0.057	0.106	0.156	0.184	0.192	0.177	0.145	0.097	0.042	0	0	0.059	0.115	0.167	0.197	0.205	0.191	0.157	0.104	0.048	0
VERTICAL CURVE ORDINATE	0	0.064	0.113	0.148	0.168	0.175	0.166	0.144	0.107	0.056	0	0	0.062	0.109	0.143	0.162	0.168	0.160	0.138	0.101	0.052	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.003	0.005	0.008	0.009	0.009	0.009	0.007	0.005	0.002	0	0	0.003	0.005	0.007	0.009	0.009	0.008	0.007	0.005	0.002	0
REQUIRED CAMBER	0	1 ¹ / ₂ "	2 ¹ / ₁₆ "	3 ³ / ₄ "	4 ⁹ / ₁₆ "	4 ¹ / ₂ "	4 ¹ / ₄ "	3 ⁹ / ₁₆ "	2 ¹ / ₂ "	1 ³ / ₁₆ "	0	0	1 ¹ / ₂ "	2 ³ / ₄ "	3 ¹³ / ₁₆ "	4 ¹ / ₁₆ "	4 ⁹ / ₁₆ "	4 ⁹ / ₁₆ "	3 ⁵ / ₈ "	2 ¹ / ₂ "	1 ¹ / ₄ "	0
TENTH POINTS	SPAN "D"											SPAN "D"										
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	-0.001	-0.001	0.000	0.000	0.001	0.000	0.000	-0.001	-0.002	0	0	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	-0.008	-0.008	-0.006	-0.002	-0.002	-0.003	-0.006	-0.010	-0.008	0	0	-0.010	-0.011	-0.007	-0.005	-0.004	-0.006	-0.008	-0.011	-0.011	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.001	0.004	0.009	0.012	0.013	0.012	0.009	0.005	0.001	0	0	0.000	0.001	0.003	0.004	0.005	0.004	0.003	0.001	-0.001	0
TOTAL DEAD LOAD DEFLECTION	0	-0.008	-0.005	0.003	0.010	0.012	0.009	0.003	-0.006	-0.009	0	0	-0.012	-0.012	-0.006	-0.002	0.000	-0.003	-0.007	-0.012	-0.014	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.002	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.002	0	0	0.002	0.002	0.001	0.000	0.000	0.000	0.001	0.002	0.002	0
REQUIRED CAMBER	0	-1 ¹ / ₁₆ "	-1 ¹ / ₁₆ "	1 ¹ / ₁₆ "	1 ¹ / ₈ "	3 ¹ / ₁₆ "	1 ¹ / ₈ "	1 ¹ / ₁₆ "	-1 ¹ / ₁₆ "	-1 ¹ / ₁₆ "	0	0	-1 ¹ / ₈ "	-1 ¹ / ₈ "	-1 ¹ / ₁₆ "	0	0	-1 ¹ / ₁₆ "	-1 ¹ / ₈ "	-1 ¹ / ₈ "	0	
TENTH POINTS	SPAN "E"											SPAN "E"										
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.006	0.013	0.020	0.025	0.028	0.028	0.025	0.019	0.010	0	0	0.007	0.014	0.022	0.027	0.030	0.029	0.027	0.020	0.011	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.026	0.056	0.087	0.109	0.119	0.119	0.108	0.081	0.045	0	0	0.034	0.068	0.110	0.137	0.151	0.151	0.134	0.101	0.055	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.010	0.021	0.033	0.040	0.044	0.044	0.039	0.029	0.016	0	0	0.007	0.014	0.021	0.026	0.028	0.028	0.025	0.019	0.010	0
TOTAL DEAD LOAD DEFLECTION	0	0.042	0.090	0.140	0.174	0.191	0.191	0.172	0.129	0.071	0	0	0.048	0.096	0.153	0.190	0.209	0.208	0.186	0.140	0.076	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.002	0.005	0.008	0.010	0.011	0.011	0.010	0.008	0.004	0	0	0.002	0.005	0.008	0.010	0.011	0.011	0.009	0.007	0.004	0
REQUIRED CAMBER	0	1 ¹ / ₂ "	1 ¹ / ₈ "	1 ¹³ / ₁₆ "	2 ³ / ₁₆ "	2 ¹ / ₁₆ "	2 ¹ / ₁₆ "	2 ³ / ₁₆ "	1 ⁵ / ₈ "	7 ¹ / ₁₆ "	0	0	5 ¹ / ₈ "	1 ³ / ₁₆ "	1 ¹⁵ / ₁₆ "	2 ³ / ₈ "	2 ⁵ / ₈ "	2 ⁵ / ₈ "	2 ⁵ / ₈ "	1 ³ / ₄ "	1 ⁵ / ₁₆ "	0

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

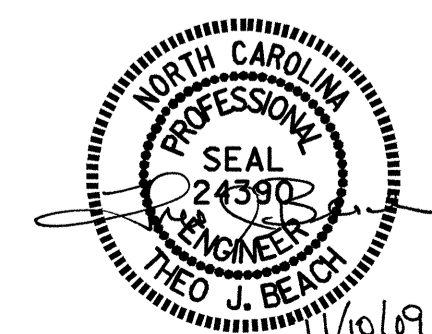
DEFLECTIONS ARE TAKEN AT TENTH POINTS BETWEEN BEARINGS

NOTE: ORDINATE DUE TO SUPERELEVATION IS 0.0 FOR ALL GIRDERS

SIGN CONVENTION	+ DEFLECTION = ↓
	- DEFLECTION = ↑
	+ CAMBER = ↑
	- CAMBER = ↓

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 DEAD LOAD DEFLECTIONS

DRAWN BY: T. BANKOVICH DATE: 11-2008
 CHECKED BY: D.G. ELY DATE: 1-2009

10-NOV-2009 15:45
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 tjbankovich

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

S-24
TOTAL SHEETS: 59

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

TENTH POINTS	GIRDER #3											GIRDER #4										
	SPAN "A"											SPAN "A"										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.015	0.027	0.036	0.041	0.042	0.038	0.031	0.021	0.010	0	0	0.015	0.028	0.037	0.042	0.042	0.039	0.031	0.020	0.010	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.078	0.145	0.195	0.220	0.222	0.202	0.164	0.111	0.052	0	0	0.074	0.141	0.186	0.210	0.212	0.194	0.158	0.102	0.052	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.011	0.020	0.027	0.031	0.032	0.029	0.025	0.017	0.008	0	0	0.012	0.023	0.031	0.035	0.034	0.029	0.020	0.011	0	0
TOTAL DEAD LOAD DEFLECTION	0	0.104	0.192	0.258	0.292	0.296	0.269	0.220	0.149	0.070	0	0	0.101	0.192	0.254	0.287	0.291	0.267	0.218	0.142	0.073	0
VERTICAL CURVE ORDINATE	0	0.058	0.103	0.136	0.155	0.161	0.155	0.136	0.103	0.058	0	0	0.057	0.100	0.132	0.151	0.157	0.151	0.132	0.100	0.057	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.004	0.007	0.010	0.011	0.011	0.010	0.008	0.006	0.003	0	0	0.003	0.007	0.009	0.010	0.010	0.009	0.007	0.005	0.002	0
REQUIRED CAMBER	0	2"	3 5/8"	4 13/16"	5 1/2"	5 5/8"	5 3/8"	4 3/8"	3 1/8"	1 5/8"	0	0	1 5/8"	3 1/8"	4 3/4"	5 3/8"	5 1/2"	5 1/8"	4 5/8"	3"	1 5/8"	0
TENTH POINTS	SPAN "B"											SPAN "B"										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
	DEFLECTION DUE TO WEIGHT OF GIRDERS	0	-0.003	-0.006	-0.007	-0.008	-0.009	-0.008	-0.007	-0.005	-0.003	0	0	-0.003	-0.006	-0.008	-0.009	-0.009	-0.008	-0.007	-0.006	-0.003
DEFLECTION DUE TO WEIGHT OF SLAB *	0	-0.017	-0.030	-0.040	-0.044	-0.045	-0.042	-0.036	-0.029	-0.017	0	0	-0.017	-0.029	-0.038	-0.043	-0.044	-0.041	-0.035	-0.027	-0.015	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	-0.002	-0.004	-0.005	-0.006	-0.006	-0.006	-0.005	-0.004	-0.002	0	0	-0.003	-0.006	-0.007	-0.008	-0.008	-0.007	-0.007	-0.005	-0.003	0
TOTAL DEAD LOAD DEFLECTION	0	-0.022	-0.040	-0.052	-0.058	-0.060	-0.056	-0.048	-0.038	-0.022	0	0	-0.023	-0.041	-0.053	-0.060	-0.061	-0.056	-0.049	-0.038	-0.021	0
VERTICAL CURVE ORDINATE	0	0.023	0.041	0.053	0.061	0.063	0.061	0.053	0.041	0.023	0	0	0.022	0.040	0.052	0.059	0.062	0.059	0.052	0.040	0.022	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.005	0.009	0.012	0.014	0.014	0.013	0.011	0.009	0.005	0	0	0.005	0.009	0.011	0.012	0.012	0.012	0.010	0.008	0.004	0
REQUIRED CAMBER	0	1/16"	1/8"	1/8"	3/16"	3/16"	3/16"	3/16"	1/8"	1/16"	0	0	1/16"	1/8"	1/8"	1/8"	3/16"	3/16"	1/8"	1/8"	1/16"	0
TENTH POINTS	SPAN "C"											SPAN "C"										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
	DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.008	0.017	0.024	0.028	0.029	0.027	0.023	0.015	0.007	0	0	0.008	0.017	0.025	0.029	0.030	0.029	0.024	0.015	0.008
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.042	0.089	0.128	0.150	0.158	0.148	0.121	0.078	0.039	0	0	0.040	0.089	0.124	0.146	0.153	0.145	0.118	0.076	0.040	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.007	0.014	0.019	0.023	0.023	0.022	0.018	0.012	0.006	0	0	0.008	0.017	0.023	0.027	0.029	0.027	0.023	0.016	0.008	0
TOTAL DEAD LOAD DEFLECTION	0	0.057	0.120	0.171	0.201	0.210	0.197	0.162	0.105	0.052	0	0	0.056	0.123	0.172	0.202	0.212	0.201	0.165	0.107	0.056	0
VERTICAL CURVE ORDINATE	0	0.060	0.106	0.138	0.156	0.162	0.153	0.131	0.095	0.048	0	0	0.058	0.102	0.133	0.150	0.155	0.146	0.124	0.088	0.044	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.002	0.005	0.007	0.008	0.008	0.008	0.006	0.004	0.002	0	0	0.002	0.004	0.006	0.007	0.007	0.007	0.006	0.004	0.002	0
REQUIRED CAMBER	0	1/16"	2 3/4"	3 3/16"	4 3/8"	4 9/16"	4 5/8"	3 9/16"	2 7/16"	1 1/4"	0	0	1 3/8"	2 3/4"	3 3/4"	4 5/8"	4 1/2"	4 1/4"	3 1/2"	2 3/8"	1 1/4"	0
TENTH POINTS	SPAN "D"											SPAN "D"										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
	DEFLECTION DUE TO WEIGHT OF GIRDERS	0	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	0	0	-0.003	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.003
DEFLECTION DUE TO WEIGHT OF SLAB *	0	-0.012	-0.014	-0.013	-0.010	-0.011	-0.012	-0.013	-0.014	-0.013	0	0	-0.012	-0.017	-0.018	-0.018	-0.018	-0.019	-0.019	-0.017	-0.015	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	-0.001	-0.001	0.000	0.000	0.001	0.000	0.000	-0.001	-0.001	0	0	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	0
TOTAL DEAD LOAD DEFLECTION	0	-0.015	-0.018	-0.016	-0.013	-0.013	-0.015	-0.016	-0.018	-0.017	0	0	-0.018	-0.024	-0.025	-0.024	-0.024	-0.025	-0.025	-0.023	-0.020	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0	0	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0
REQUIRED CAMBER	0	-3/16"	-3/16"	-3/16"	-1/8"	-3/16"	-3/16"	-3/16"	-3/16"	-3/16"	0	0	-3/16"	-1/4"	-5/16"	-1/4"	-1/4"	-5/16"	-1/4"	-1/4"	0	0
TENTH POINTS	SPAN "E"											SPAN "E"										
	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
	DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.007	0.014	0.022	0.028	0.031	0.030	0.027	0.021	0.011	0	0	0.008	0.015	0.023	0.029	0.032	0.031	0.028	0.021	0.011
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.039	0.075	0.120	0.149	0.163	0.163	0.146	0.110	0.059	0	0	0.040	0.075	0.116	0.146	0.160	0.158	0.141	0.107	0.057	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.006	0.011	0.016	0.020	0.022	0.021	0.019	0.014	0.007	0	0	0.007	0.014	0.020	0.024	0.026	0.026	0.022	0.017	0.009	0
TOTAL DEAD LOAD DEFLECTION	0	0.052	0.100	0.158	0.197	0.216	0.214	0.192	0.145	0.077	0	0	0.055	0.104	0.159	0.199	0.218	0.215	0.191	0.145	0.077	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.002	0.004	0.007	0.009	0.010	0.009	0.008	0.006	0.003	0	0	0.002	0.004	0.006	0.008	0.009	0.008	0.007	0.006	0.003	0
REQUIRED CAMBER	0	5/8"	1 1/4"	2"	2 1/2"	2 11/16"	2 11/16"	2 3/8"	1 3/8"	1"	0	0	1 1/16"	1 5/8"	2"	2 1/2"	2 11/16"	2 11/16"	2 3/8"	1 3/8"	1 5/8"	0

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

DEFLECTIONS ARE TAKEN AT TENTH POINTS BETWEEN BEARINGS
 NOTE: ORDINATE DUE TO SUPERELEVATION IS 0.0 FOR ALL GIRDERS

SIGN CONVENTION	+ DEFLECTION = ↓
	- DEFLECTION = ↑
	+ CAMBER = ↑
	- CAMBER = ↓

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

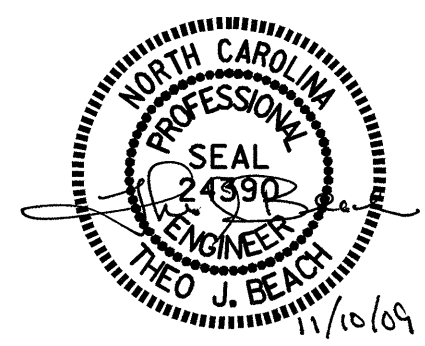
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
RALEIGH
 SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS

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

S-25
TOTAL SHEETS 59



DRAWN BY: I. BANKOVICH DATE: 11-2008
 CHECKED BY: D.G. ELY DATE: 1-2009

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

GIRDER #5											
SPAN "A"											
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.016	0.030	0.039	0.044	0.045	0.041	0.033	0.022	0.012	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.069	0.125	0.165	0.187	0.191	0.176	0.142	0.096	0.051	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.021	0.039	0.051	0.058	0.060	0.056	0.046	0.032	0.017	0
TOTAL DEAD LOAD DEFLECTION	0	0.106	0.194	0.255	0.289	0.296	0.273	0.221	0.150	0.080	0
VERTICAL CURVE ORDINATE	0	0.055	0.098	0.128	0.147	0.153	0.147	0.128	0.098	0.055	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.003	0.006	0.007	0.008	0.009	0.008	0.006	0.004	0.002	0
REQUIRED CAMBER	0	1 ⁵ / ₁₆ "	3 ³ / ₁₆ "	4 ¹ / ₁₆ "	5 ⁵ / ₁₆ "	5 ¹ / ₂ "	5 ¹ / ₈ "	4 ¹ / ₄ "	3"	1 ⁵ / ₈ "	0
SPAN "B"											
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	-0.004	-0.007	-0.009	-0.010	-0.010	-0.009	-0.008	-0.006	-0.003	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	-0.017	-0.029	-0.038	-0.042	-0.042	-0.039	-0.034	-0.027	-0.015	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	-0.005	-0.009	-0.011	-0.012	-0.012	-0.011	-0.010	-0.007	-0.004	0
TOTAL DEAD LOAD DEFLECTION	0	-0.026	-0.045	-0.058	-0.064	-0.064	-0.059	-0.052	-0.040	-0.022	0
VERTICAL CURVE ORDINATE	0	0.022	0.039	0.051	0.058	0.061	0.058	0.051	0.039	0.022	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.005	0.008	0.010	0.011	0.011	0.010	0.009	0.007	0.004	0
REQUIRED CAMBER	0	0	0	1 ¹ / ₁₆ "	1 ¹ / ₁₆ "	1 ¹ / ₈ "	1 ¹ / ₈ "	1 ¹ / ₈ "	1 ¹ / ₁₆ "	1 ¹ / ₁₆ "	0
SPAN "C"											
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.009	0.019	0.026	0.031	0.033	0.031	0.026	0.017	0.009	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.038	0.080	0.111	0.130	0.139	0.132	0.109	0.073	0.040	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.014	0.029	0.040	0.047	0.049	0.047	0.038	0.027	0.014	0
TOTAL DEAD LOAD DEFLECTION	0	0.061	0.128	0.177	0.208	0.221	0.210	0.173	0.117	0.063	0
VERTICAL CURVE ORDINATE	0	0.056	0.098	0.128	0.144	0.148	0.139	0.117	0.081	0.041	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.002	0.004	0.005	0.006	0.006	0.006	0.005	0.003	0.002	0
REQUIRED CAMBER	0	1 ¹ / ₁₆ "	2 ³ / ₄ "	3 ³ / ₄ "	4 ⁵ / ₁₆ "	4 ¹ / ₂ "	4 ¹ / ₄ "	3 ³ / ₁₆ "	2 ⁷ / ₁₆ "	1 ¹ / ₄ "	0
SPAN "D"											
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	-0.003	-0.005	-0.006	-0.006	-0.006	-0.006	-0.005	-0.005	-0.003	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	-0.012	-0.021	-0.025	-0.027	-0.027	-0.028	-0.026	-0.020	-0.015	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	-0.002	-0.003	-0.003	-0.001	-0.001	-0.001	-0.002	-0.003	-0.004	0
TOTAL DEAD LOAD DEFLECTION	0	-0.017	-0.029	-0.034	-0.034	-0.034	-0.035	-0.033	-0.028	-0.022	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.008	0.013	0.015	0.015	0.015	0.016	0.015	0.013	0.010	0
REQUIRED CAMBER	0	-1 ¹ / ₈ "	-3 ³ / ₁₆ "	-1 ¹ / ₄ "	-1 ¹ / ₄ "	-1 ¹ / ₄ "	-1 ¹ / ₄ "	-3 ³ / ₁₆ "	-3 ³ / ₁₆ "	-1 ¹ / ₈ "	0
SPAN "E"											
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDERS	0	0.009	0.017	0.024	0.029	0.034	0.034	0.030	0.023	0.013	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.038	0.071	0.100	0.125	0.145	0.143	0.125	0.095	0.054	0
DEFLECTION DUE TO WEIGHT OF PARAPET & SIDEWALK	0	0.013	0.024	0.033	0.040	0.045	0.044	0.039	0.029	0.016	0
TOTAL DEAD LOAD DEFLECTION	0	0.060	0.112	0.157	0.194	0.224	0.221	0.194	0.147	0.083	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBER DUE TO DISSIPATION RESULTING FROM HEAT CURVING	0	0.002	0.004	0.005	0.007	0.008	0.007	0.007	0.005	0.003	0
REQUIRED CAMBER	0	3 ³ / ₄ "	1 ³ / ₈ "	1 ⁵ / ₁₆ "	2 ⁷ / ₁₆ "	2 ³ / ₄ "	2 ³ / ₄ "	2 ³ / ₈ "	1 ¹³ / ₁₆ "	1"	0

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

DEFLECTIONS ARE TAKEN AT TENTH POINTS BETWEEN BEARINGS

NOTE: ORDINATE DUE TO SUPERELEVATION IS 0.0 FOR ALL GIRDERS

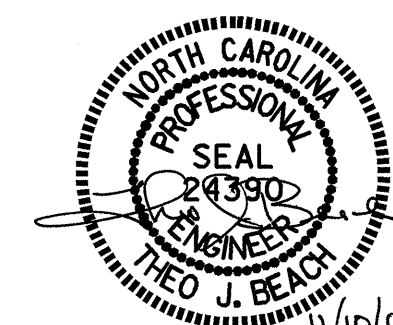
SIGN CONVENTION	+DEFLECTION = ↓
	-DEFLECTION = ↑
	+CAMBER = ↑
	-CAMBER = ↓

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

**DEAD LOAD
 DEFLECTIONS**



DRAWN BY : T. BANKOVICH DATE : 11-2008
 CHECKED BY : D.G. ELY DATE : 1-2009

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 tjbankovich

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			59

NOTES:

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

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

THE PAYMENT FOR THE PIPE SLEEVES AND 4" Ø X 1'-6 1/4" STANDARD PIPE ASSEMBLY SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

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

THE CLOSURE PLATE AND STANDARD PIPE NEED NOT BE GALVANIZED.

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

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

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE CONTRACTOR'S ATTENTION IS CALL TO THE FOLLOWING PROCEDURE, WHICH MAY BE REQUIRED BY THE ENGINEER, TO RESET ELASTOMERIC BEARINGS DUE TO GIRDER TRANSLATION AND END ROTATION:

1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ANCHOR BOLTS, SOLE PLATE, AND ELASTOMERIC BEARING SLOTS SHALL BE CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F. (16° C)
2. AFTER CENTERING THE ELASTOMERIC BEARING SLOTS AND ANCHOR BOLTS, THE ANCHOR BOLTS SHALL BE GROUDED.

THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

ELASTOMER IN ALL EXPANSION BEARINGS (E1 & E2) SHALL BE 50 DUROMETER HARDNESS.

ELASTOMER IN ALL FIXED BEARING (E3) SHALL BE 60 DUROMETER HARDNESS.

-LOAD RATINGS-

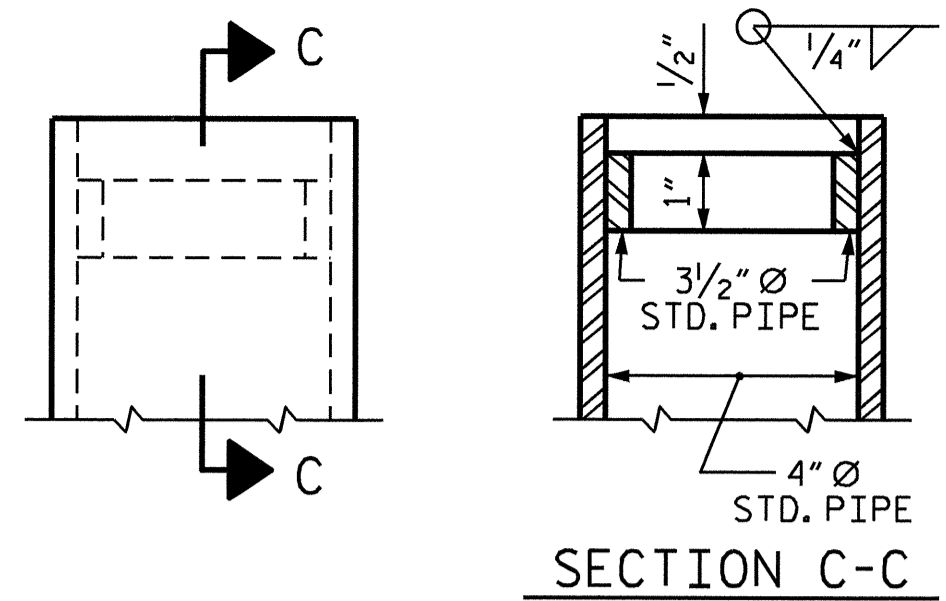
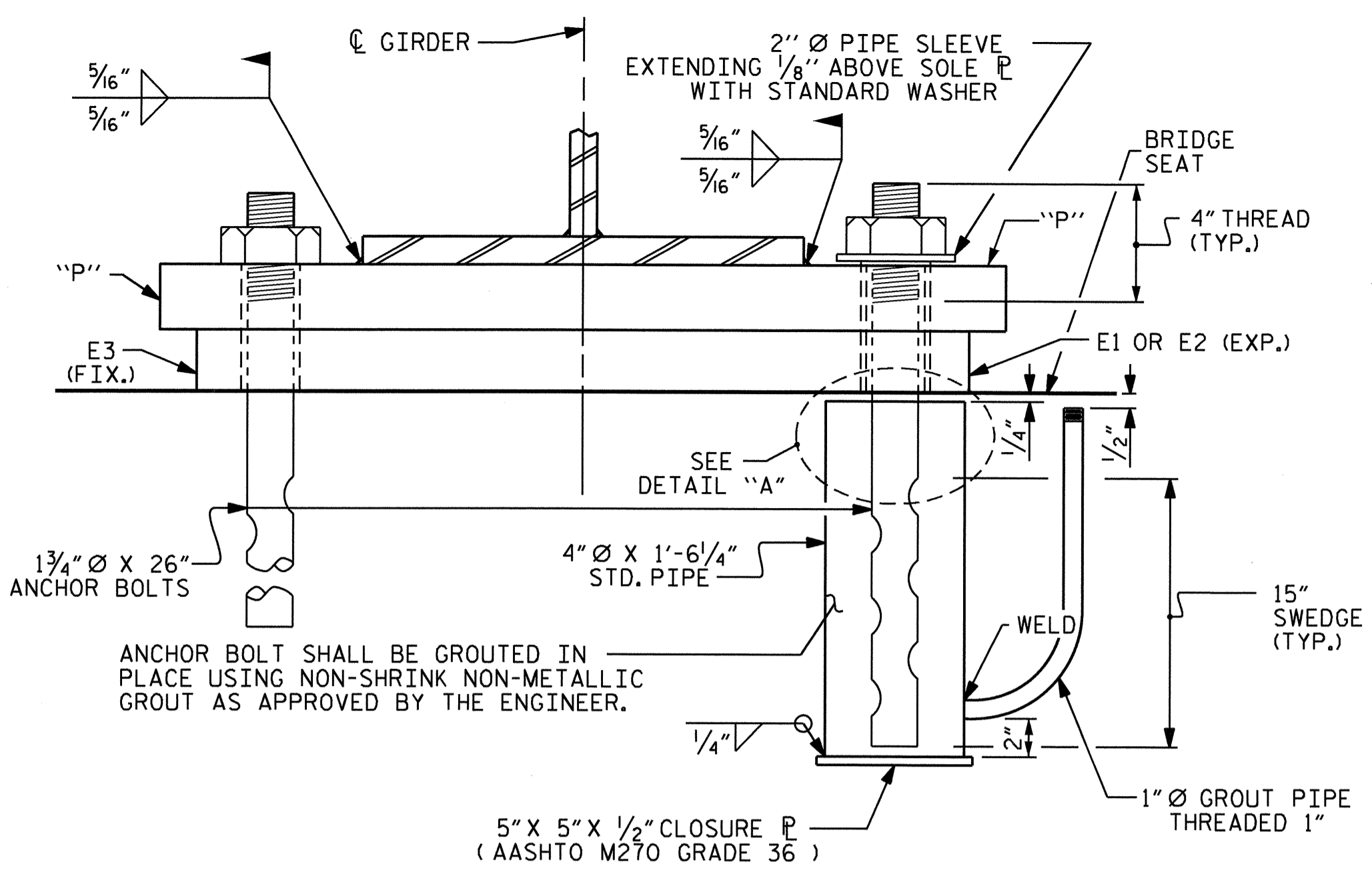
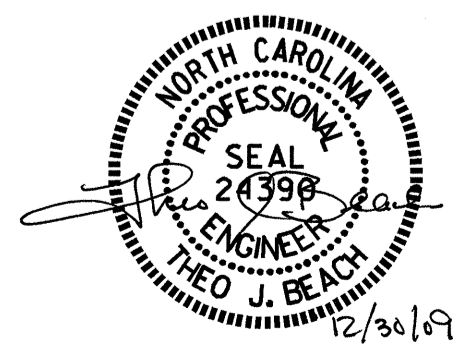
TYPE	MAX. D.L. + L.L.
E1, E2 (50 DUROMETER)	200 K
E3 (60 DUROMETER)	291 K

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

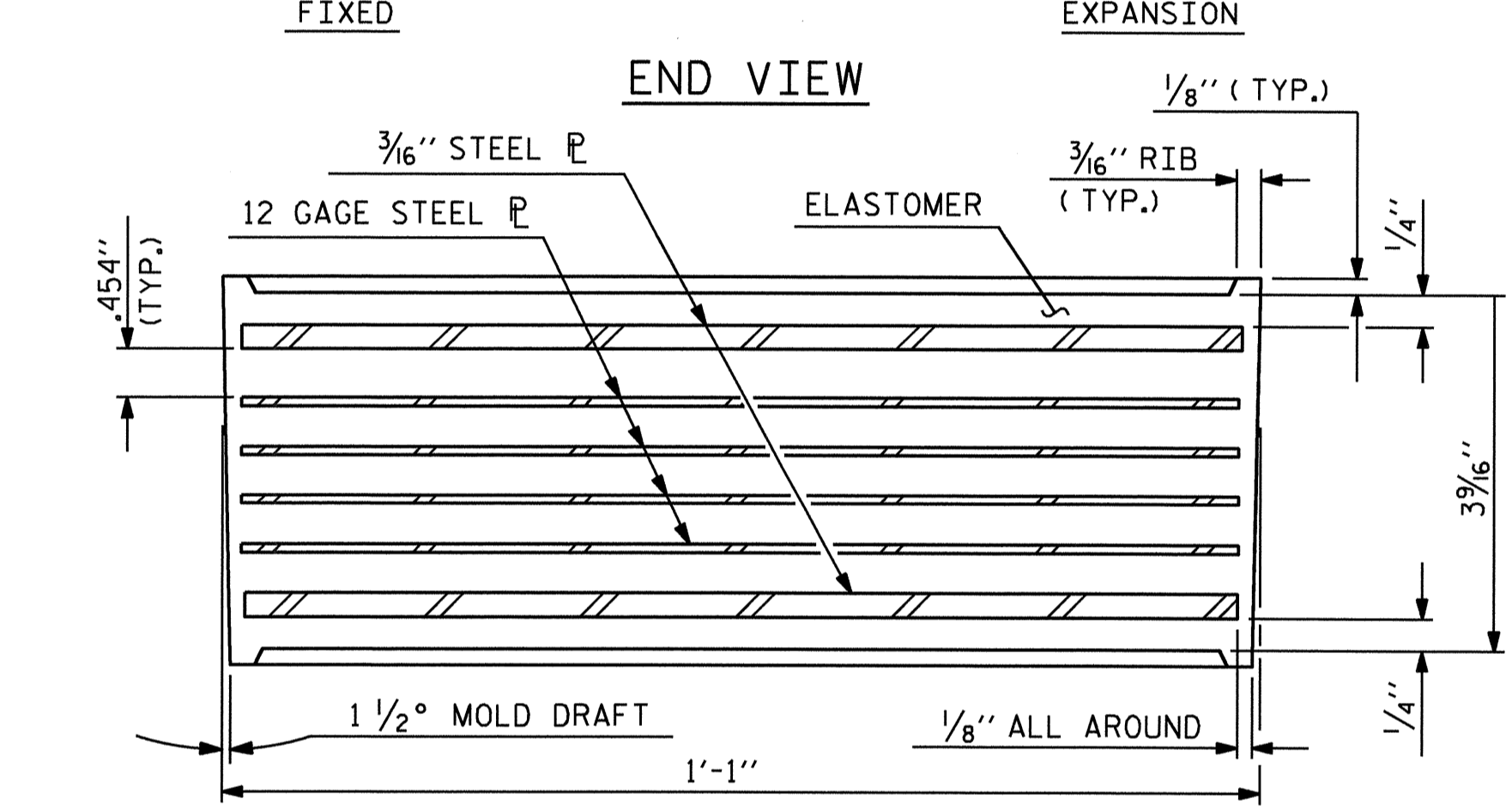
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
ELASTOMERIC BEARING
DETAILS
 (STEEL SUPERSTRUCTURE)

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

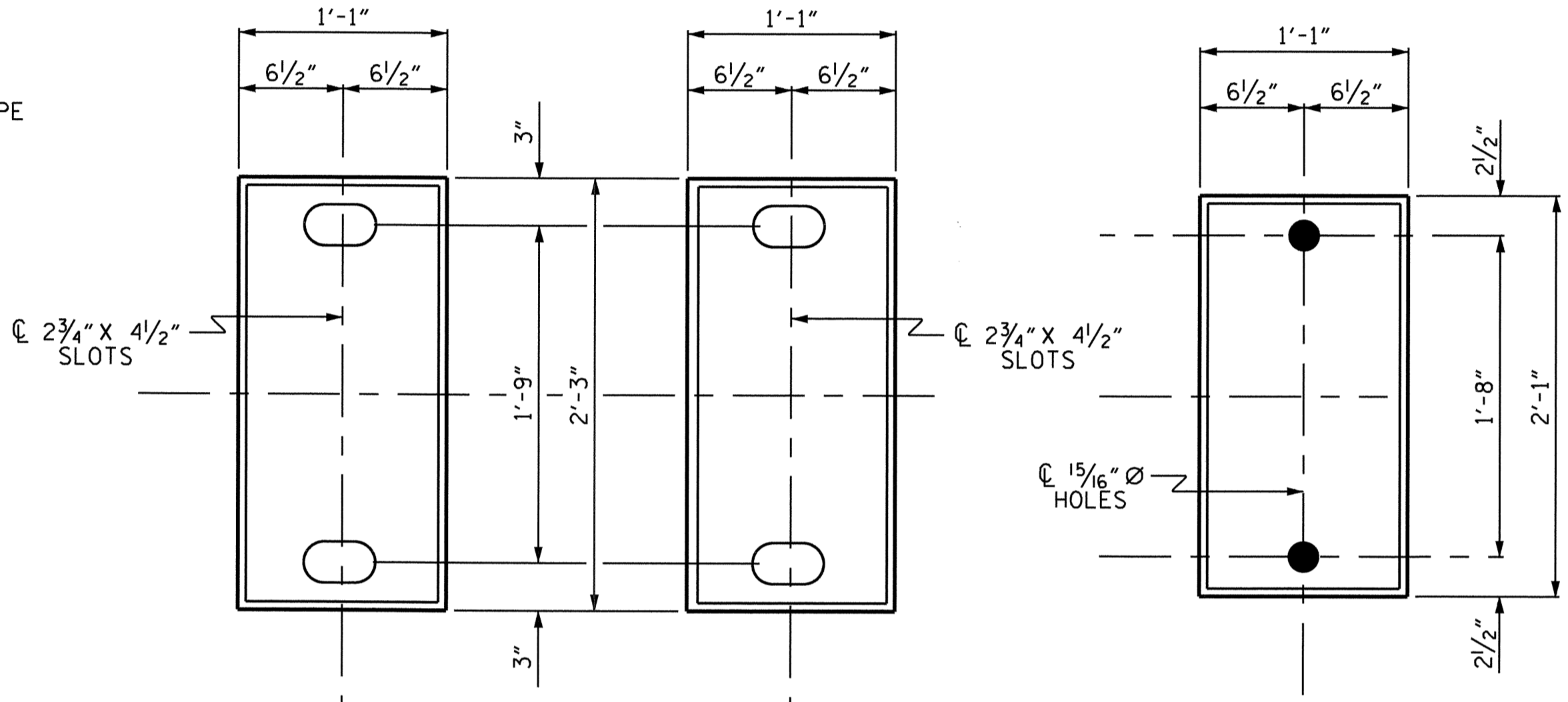
TOTAL SHEETS: 59



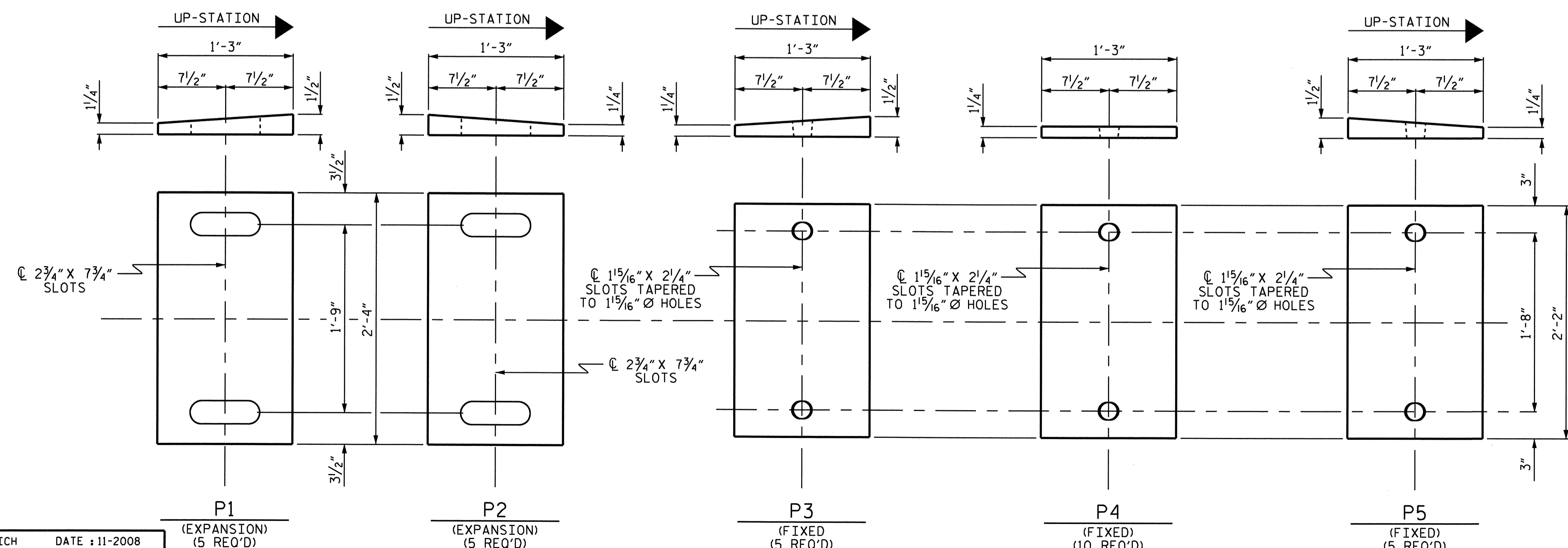
DETAIL "A"



TYPICAL SECTION OF ELASTOMERIC BEARING

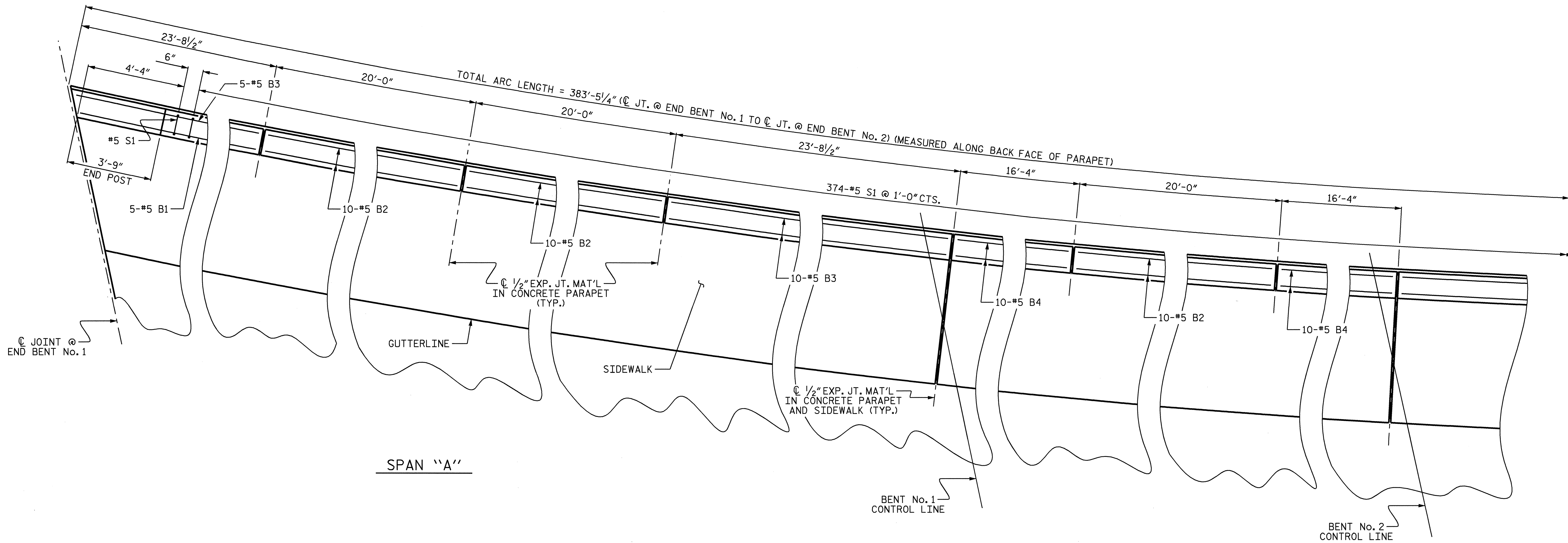


PLAN VIEW OF ELASTOMERIC BEARINGS



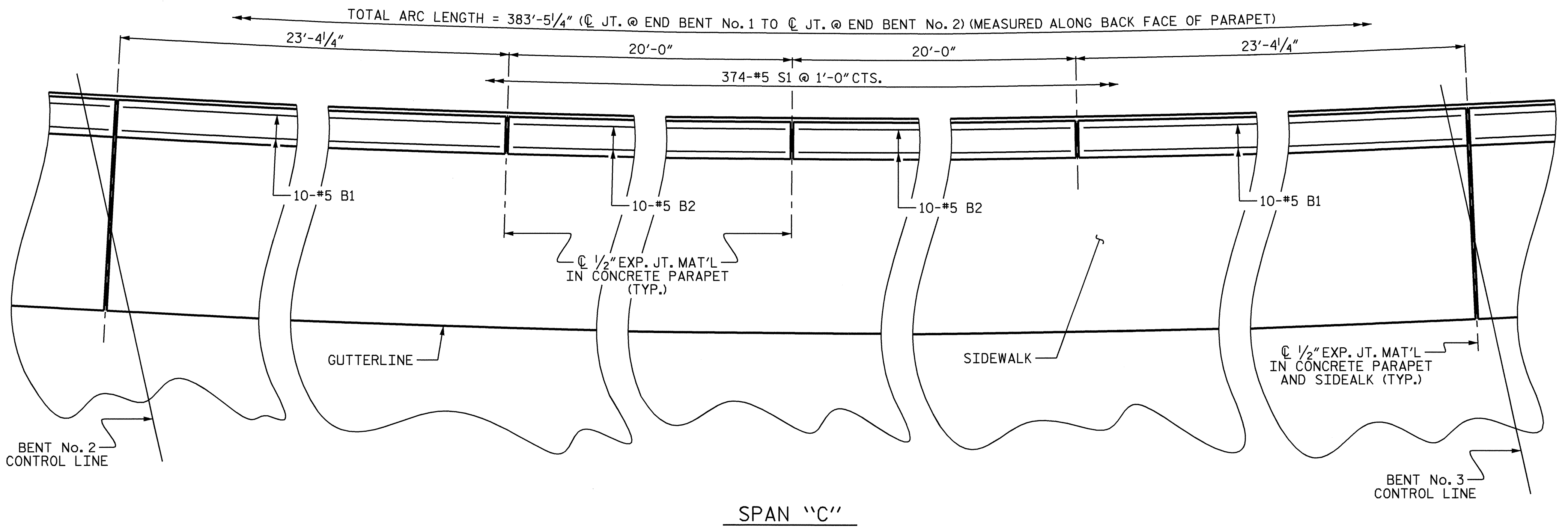
SOLE PLATE DETAILS ("P")

ASSEMBLED BY : T. BANKOVICH	DATE : 11-2008
CHECKED BY : D.G. ELY	DATE : 1-2009
DRAWN BY : EEM 10/95	REV. 10/17/00 RWW/LES
CHECKED BY : PEK 10/95	REV. 7/10/01 LES/RDR
	REV. 5/1/06 TLA/GM



SPAN "A"

SPAN "B"



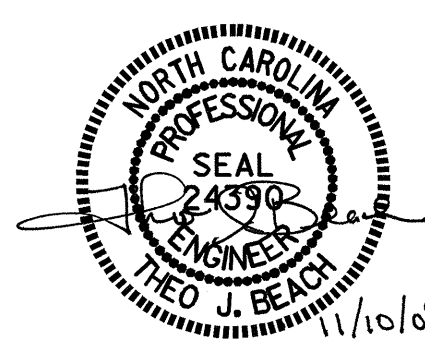
SPAN "C"

LEFT SIDE PARTIAL PLAN OF PARAPET

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 6

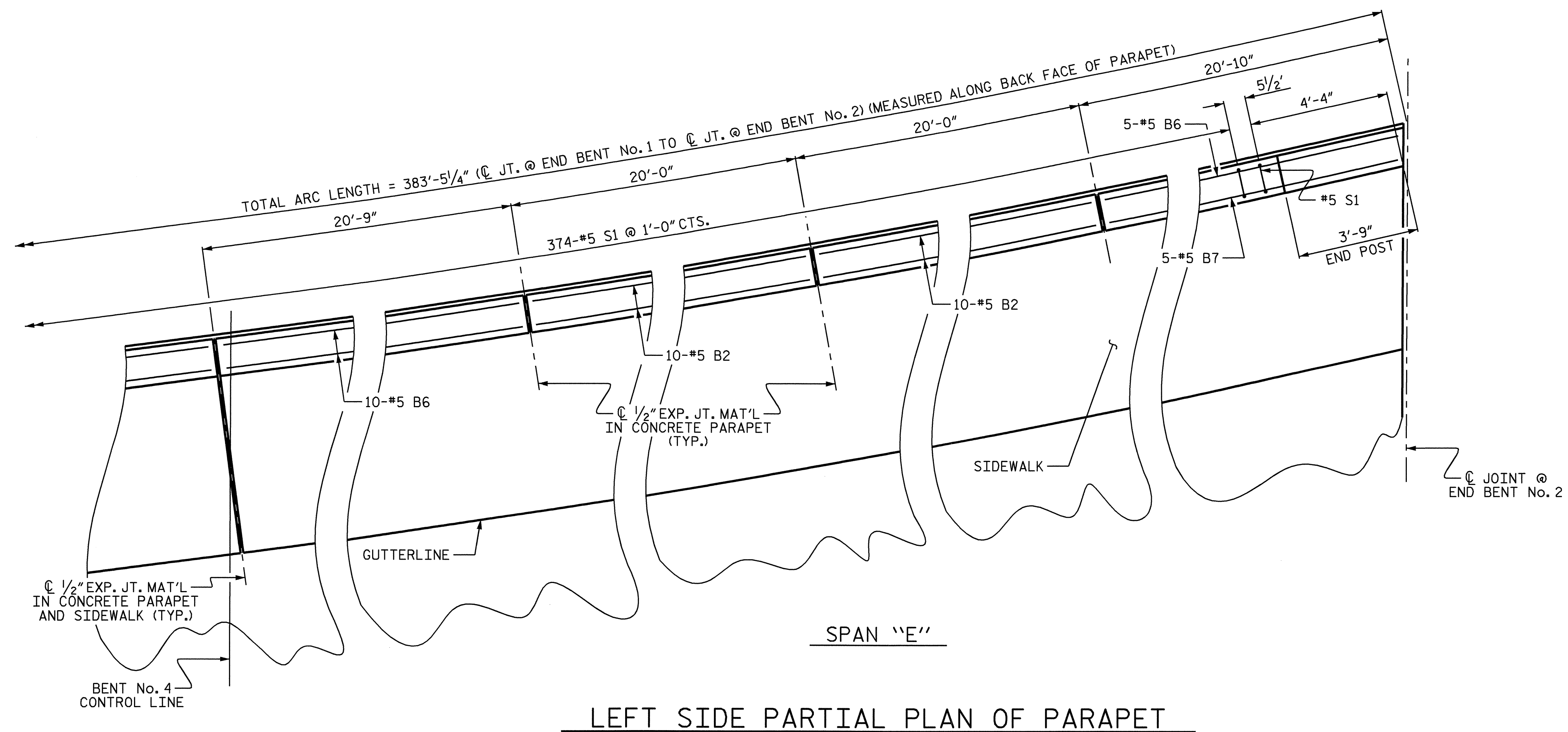
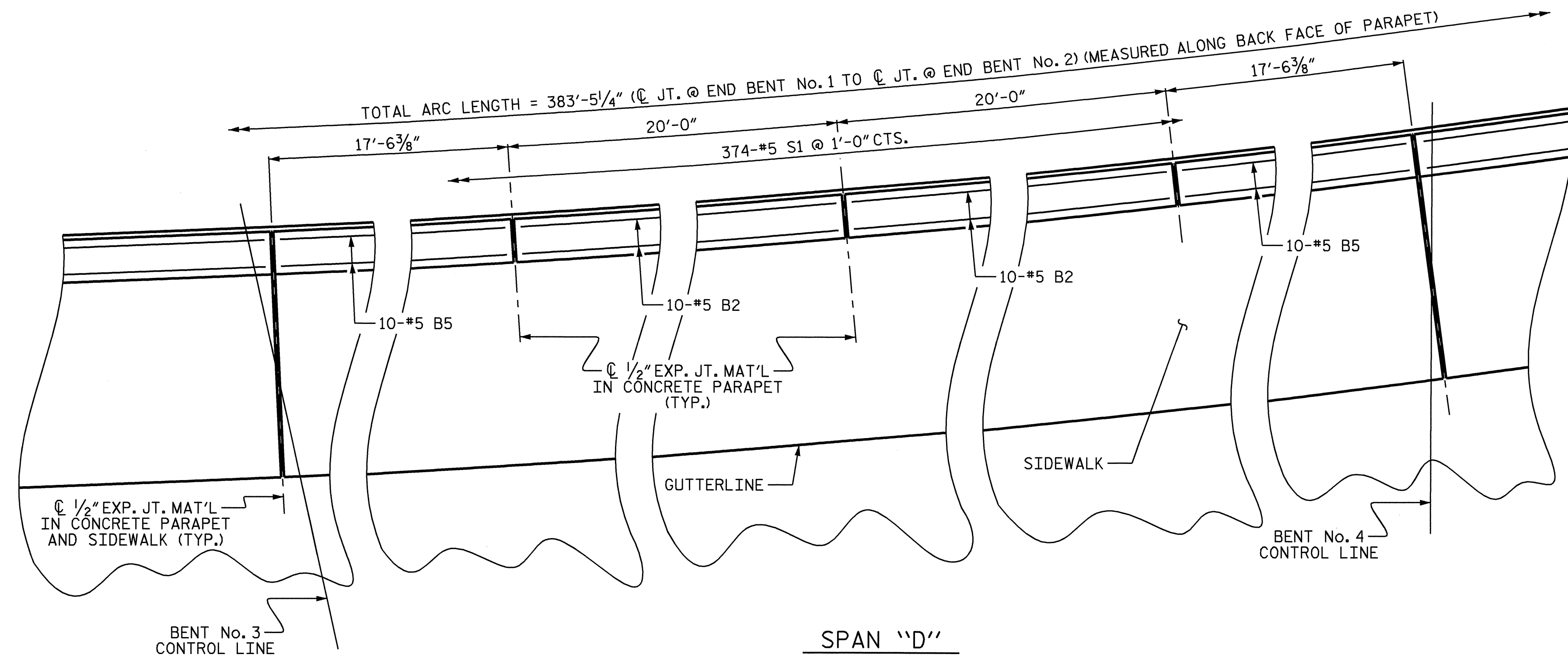
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 (LEFT SIDE)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			59

DRAWN BY: T. BANKOVICH DATE: 11-2008
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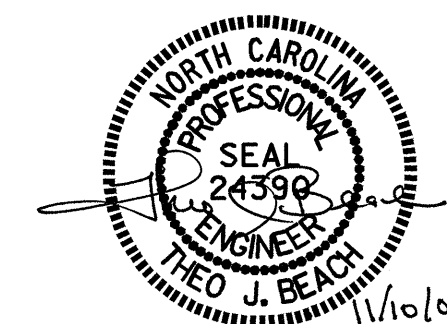


LEFT SIDE PARTIAL PLAN OF PARAPET

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 (LEFT SIDE)



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 CHECKED BY : D.G. ELY DATE : 1-2009

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			59

NOTES:

THE PARAPET IN THE 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.

ALL REINFORCING STEEL IN PARAPETS AND END POSTS SHALL BE EPOXY COATED.

THE #5 S1 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN PARAPET.

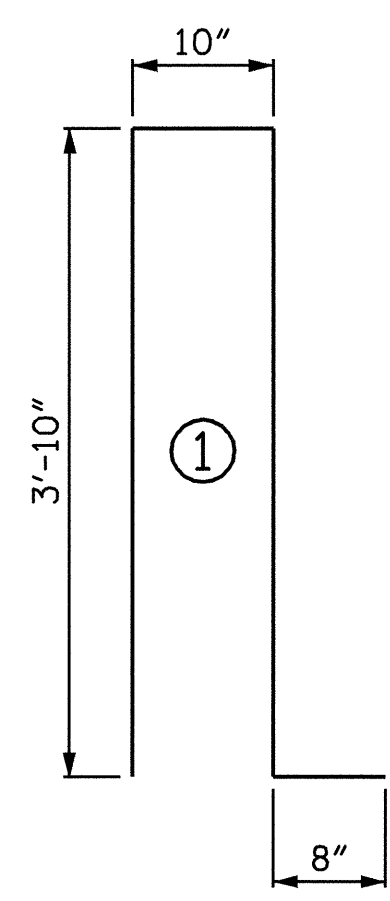
FOR DETAILS OF CONCRETE INSERTS IN END POSTS, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET.

THE JOINTS IN THE DECK AT THE END BENTS SHALL BE SAWED PRIOR TO CASTING OF THE PARAPET.

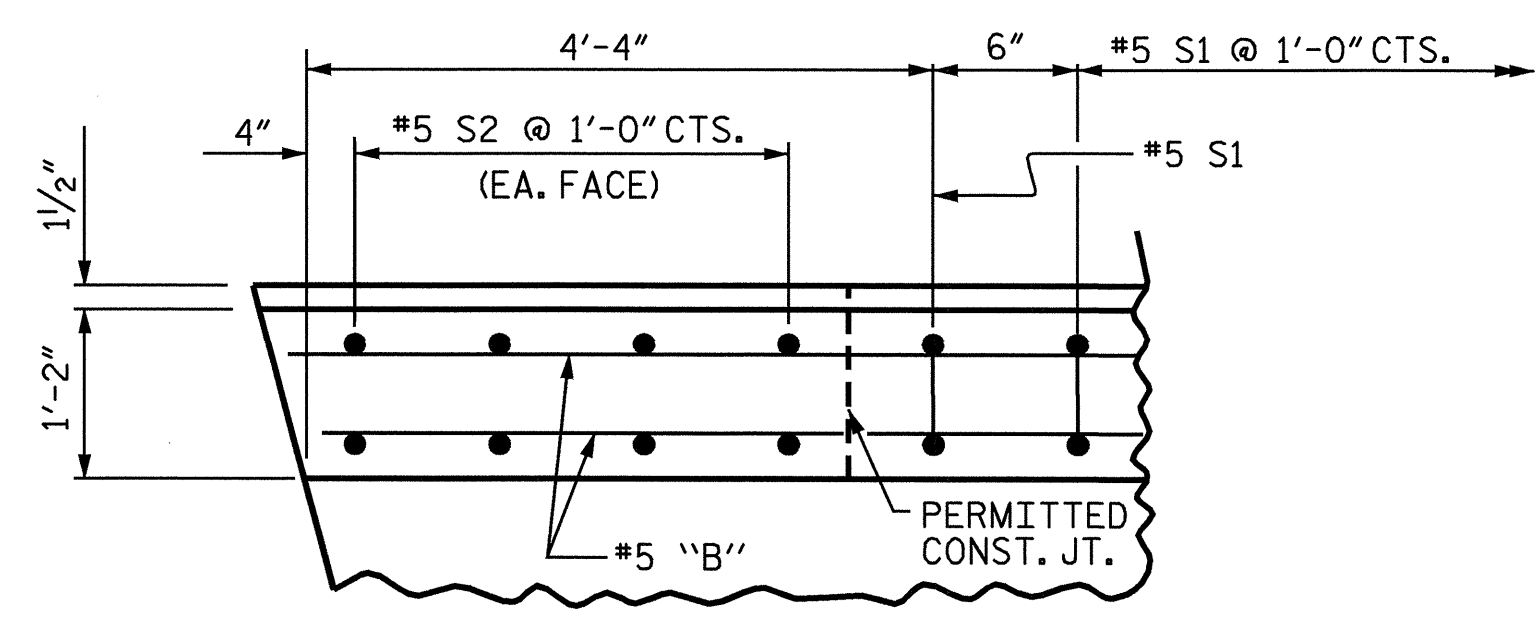
THE #5 S2 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD FOR THE #5 S2 BAR IS 18.6 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

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

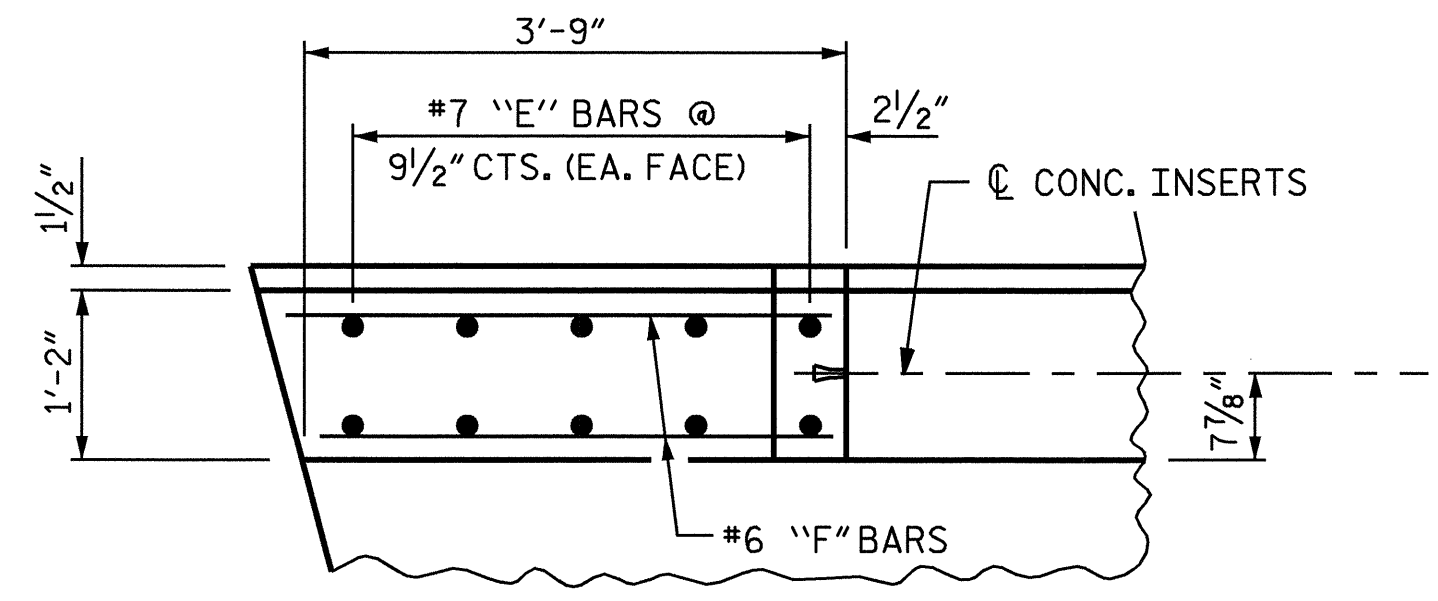
BAR TYPE		BILL OF MATERIAL				
PARAPET AND END POST						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	25	#5	STR	22'-11"	598	
* B2	90	#5	STR	19'-6"	1830	
* B3	15	#5	STR	23'-2"	362	
* B4	20	#5	STR	15'-11"	332	
* B5	20	#5	STR	17'-1"	356	
* B6	15	#5	STR	20'-3"	317	
* B7	5	#5	STR	20'-1"	105	
* E1	4	#7	STR	3'-6"	29	
* E2	4	#7	STR	3'-11"	32	
* E3	4	#7	STR	4'-5"	36	
* E4	4	#7	STR	4'-10"	39	
* E5	4	#7	STR	5'-2"	42	
* F1	4	#6	STR	1'-8"	10	
* F2	2	#6	STR	3'-0"	9	
* F3	2	#6	STR	3'-9"	11	
* F4	1	#6	STR	3'-5"	5	
* F5	1	#6	STR	4'-0"	6	
* F6	1	#6	STR	3'-2"	5	
* F7	1	#6	STR	3'-11"	6	
* S1	376	#5	1	9'-2"	3595	
* S2	16	#5	STR	4'-1"	68	
* EPOXY COATED REINF. STEEL				7,793	LBS.	
CLASS AA CONCRETE				60.2	C.Y.	
1'-2" X 3'-7 3/8"				383.44	L.F.	
CONCRETE PARAPET				* THESE BARS ARE EPOXY COATED		



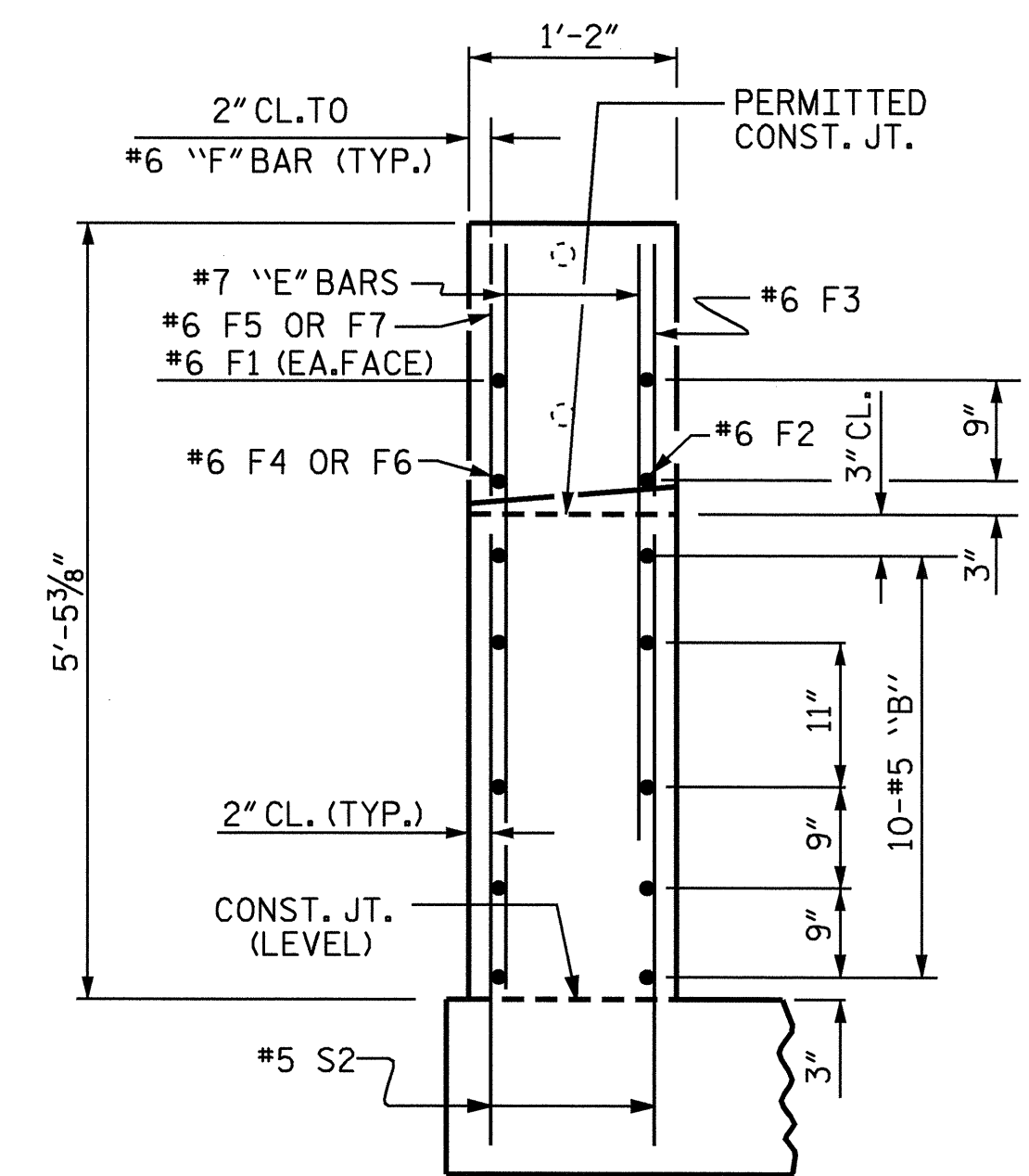
ALL BAR DIMENSIONS ARE OUT TO OUT



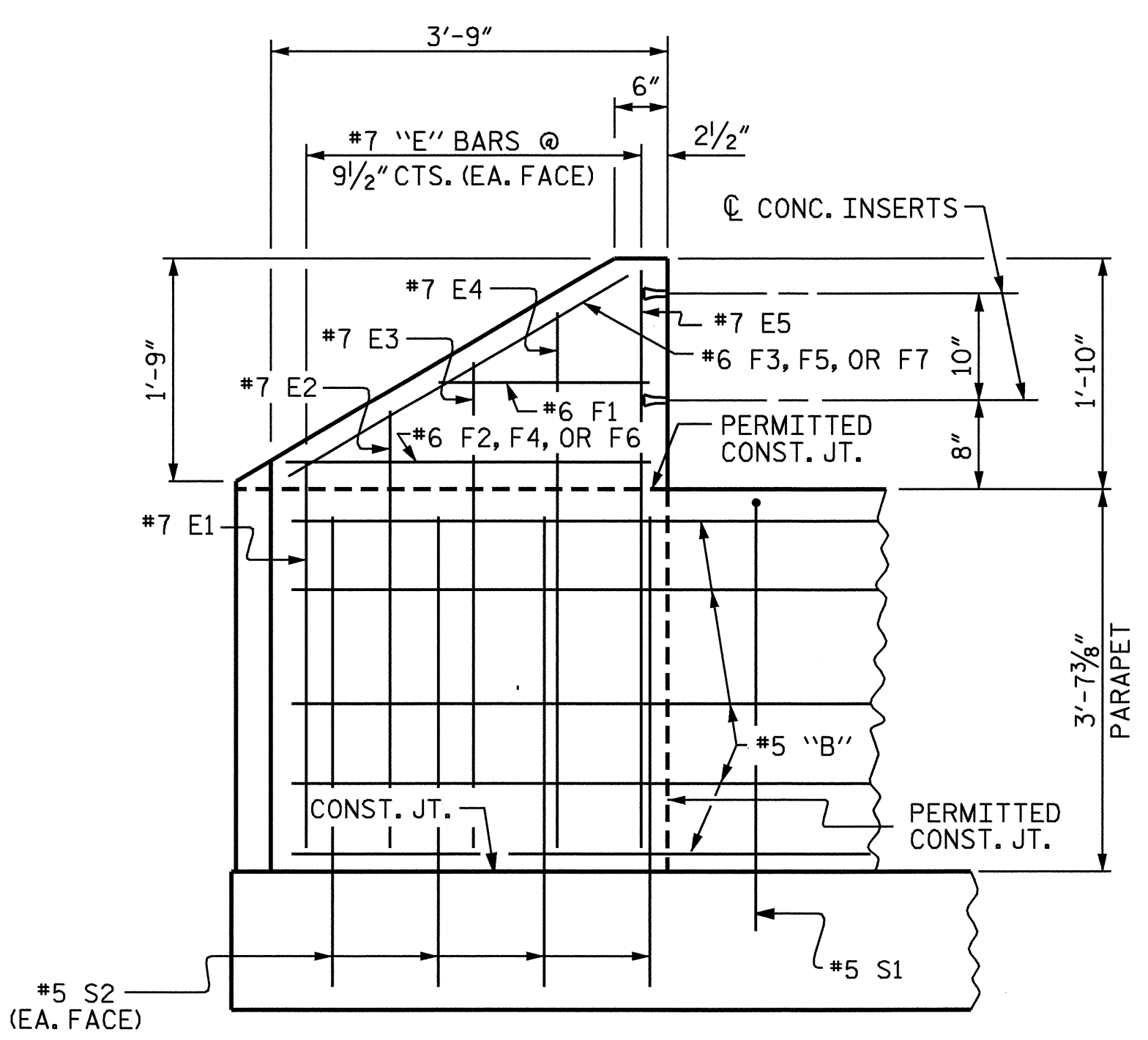
PLAN OF PARAPET



PLAN OF END POST



END VIEW



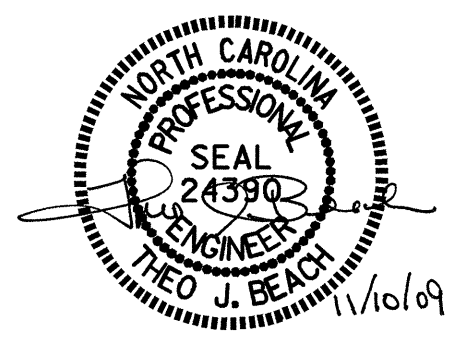
ELEVATION

LEFT SIDE PARAPET AND END POST FOR TWO BAR RAIL

END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**CONCRETE PARAPET
 DETAILS
 (LEFT SIDE)**

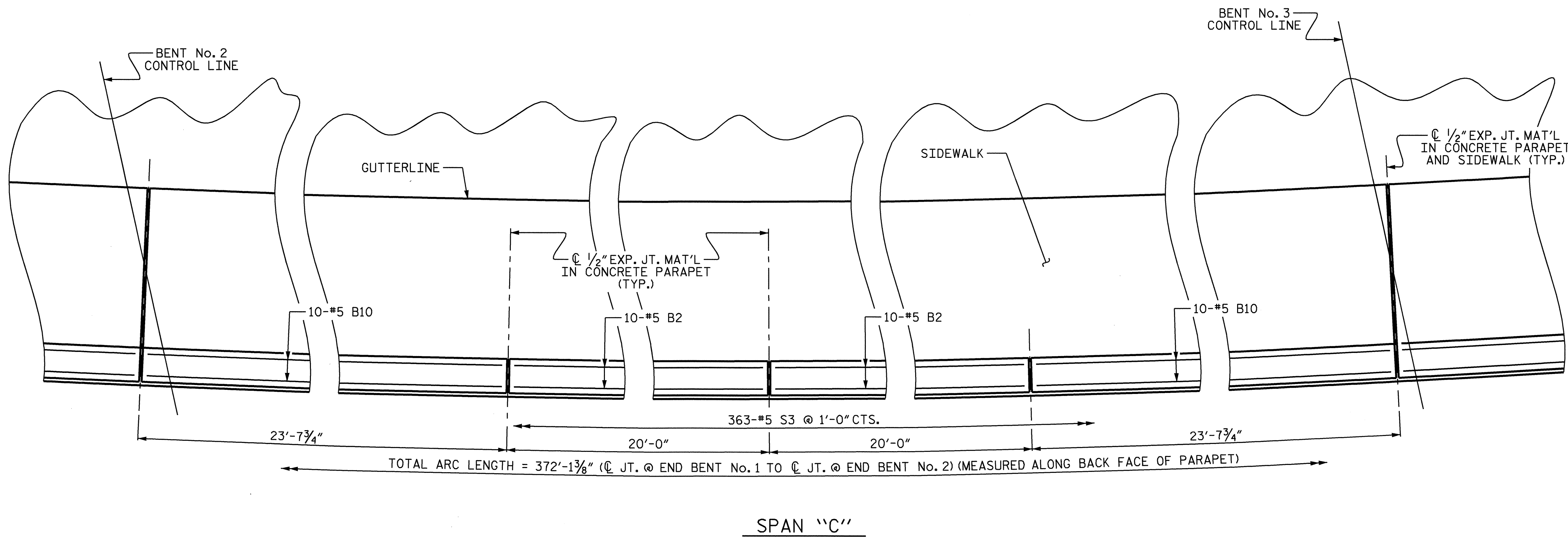
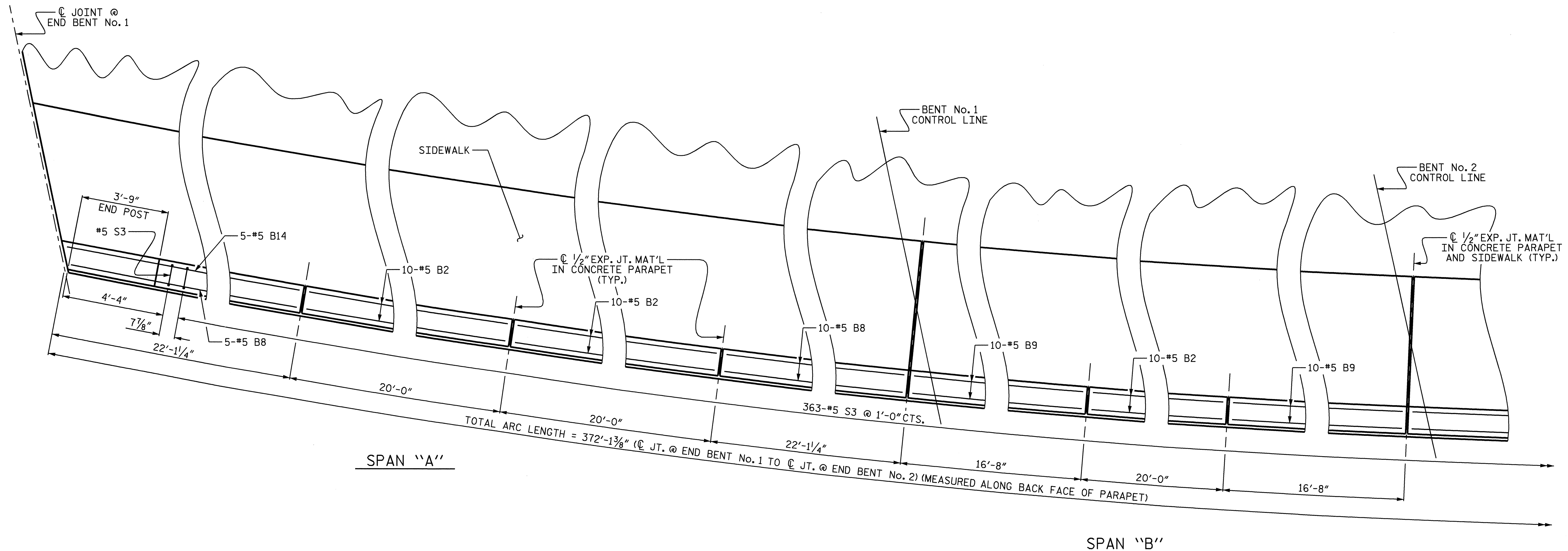


DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : D.G. ELY DATE : 1-2009

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

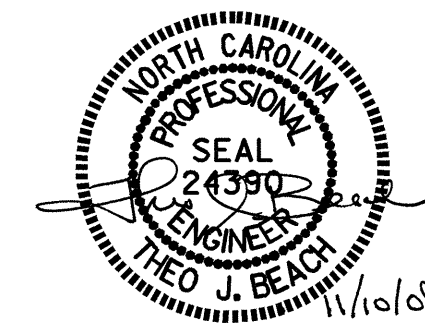
TOTAL SHEETS: 59



RIGHT SIDE PARTIAL PLAN OF PARAPET

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 4 OF 6

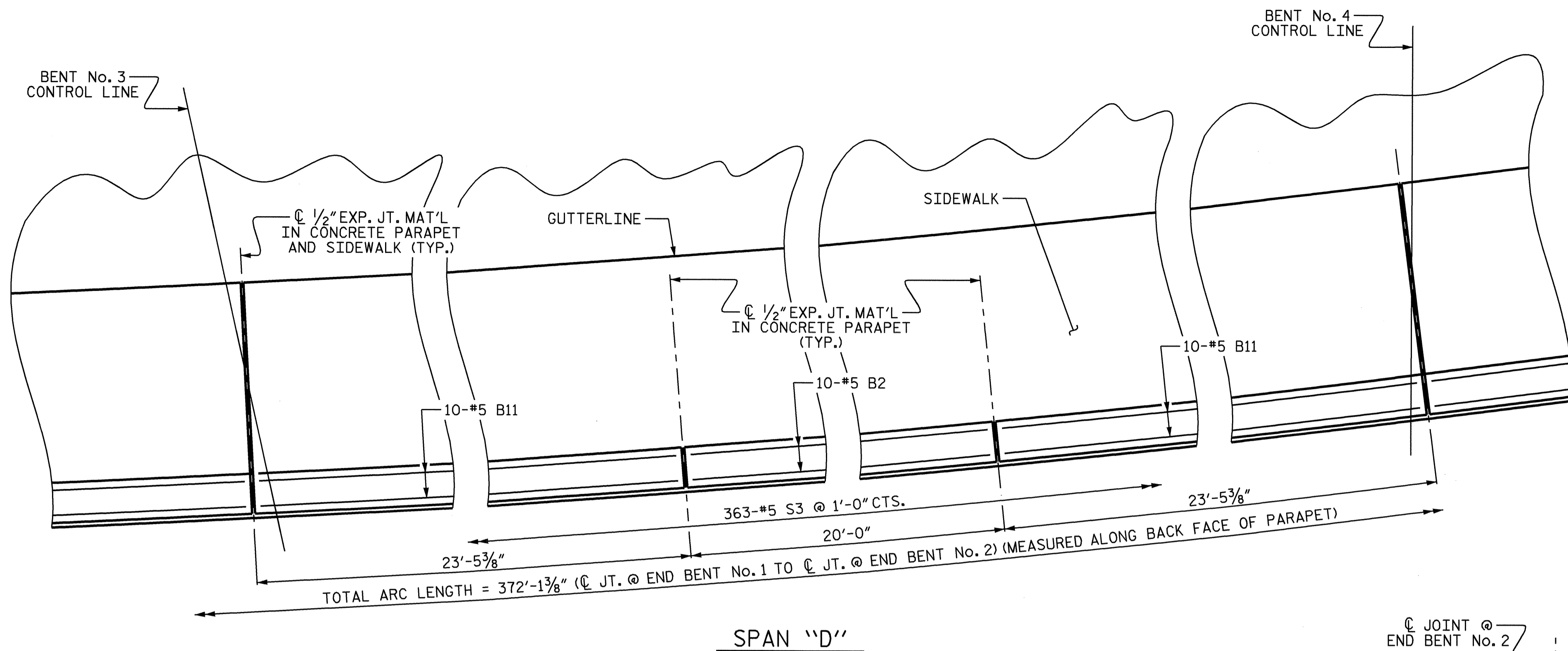
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 (RIGHT SIDE)



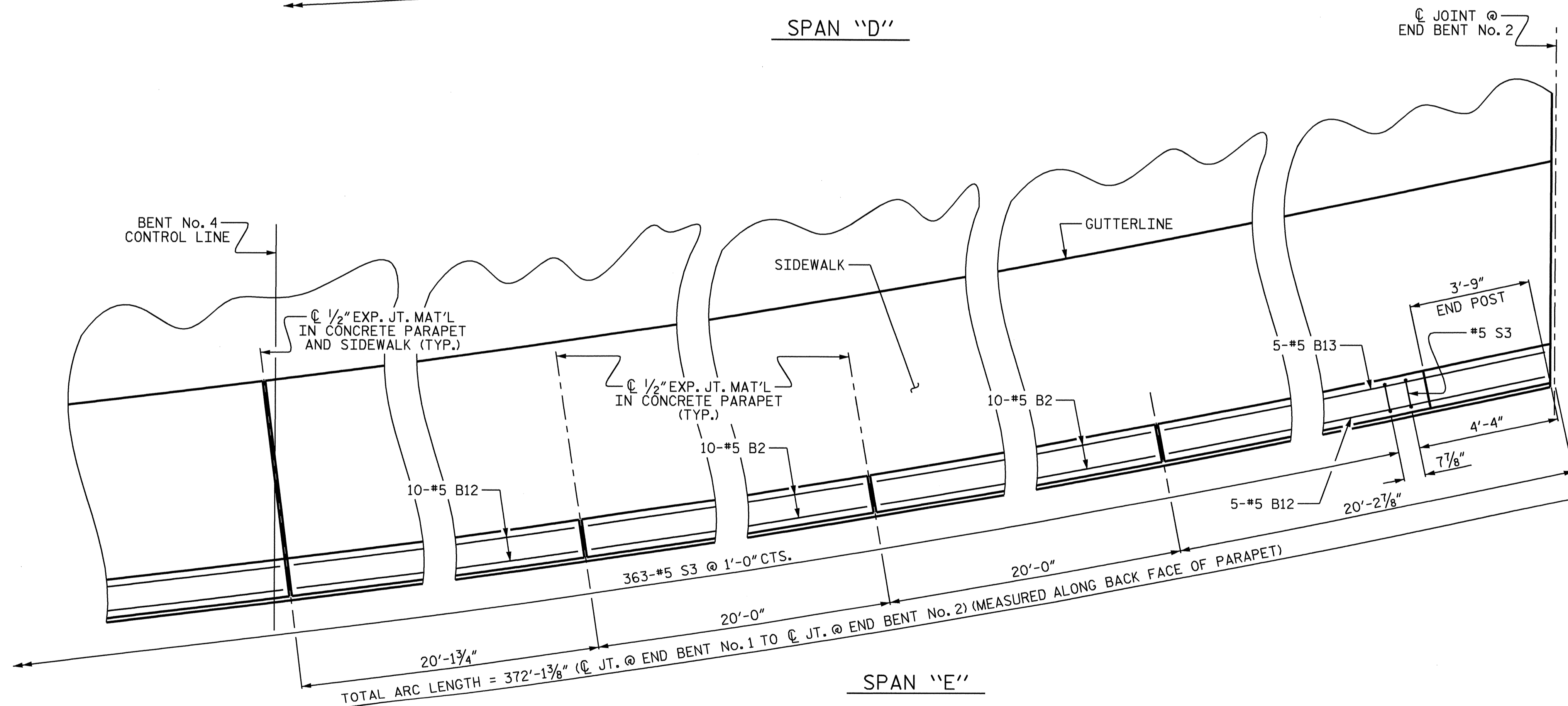
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			59

DRAWN BY : T. BANKOVICH DATE : 11-2008
 CHECKED BY : D.G. FLY DATE : 1-2009

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 tjbankovich



SPAN "D"



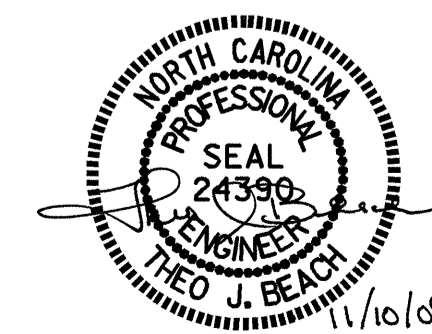
SPAN "E"

RIGHT SIDE PARTIAL PLAN OF PARAPET

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 (RIGHT SIDE)



DRAWN BY: T. BANKOVICH DATE: 11-2008
 CHECKED BY: D.G. ELY DATE: 1-2009

10-NOV-2009 15:40
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 tbankovich

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

TOTAL SHEETS: 59

THE PARAPET IN THE 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.

ALL REINFORCING STEEL IN PARAPETS AND END POSTS SHALL BE EPOXY COATED.

THE #5 S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN PARAPET.

FOR DETAILS OF CONCRETE INSERTS IN END POSTS, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET.

THE JOINTS IN THE DECK AT THE END BENTS SHALL BE SAWED PRIOR TO CASTING OF THE PARAPET.

NOTES:

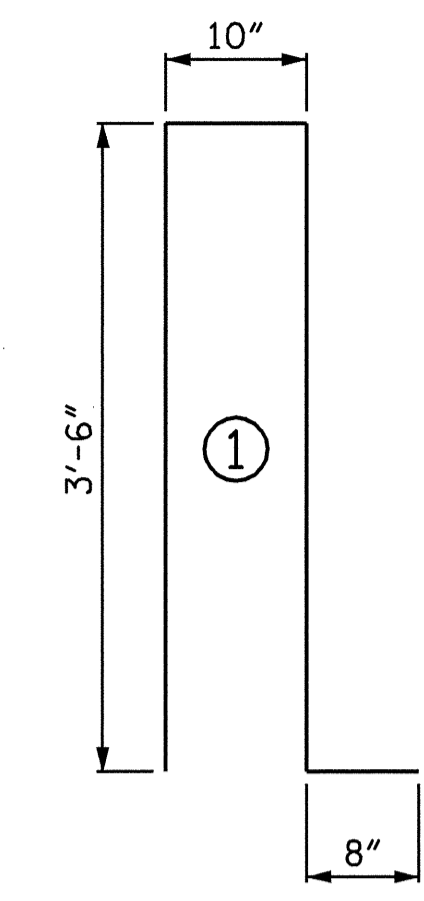
THE #5 S4 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD FOR THE #5 S4 BAR IS 18.6 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

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

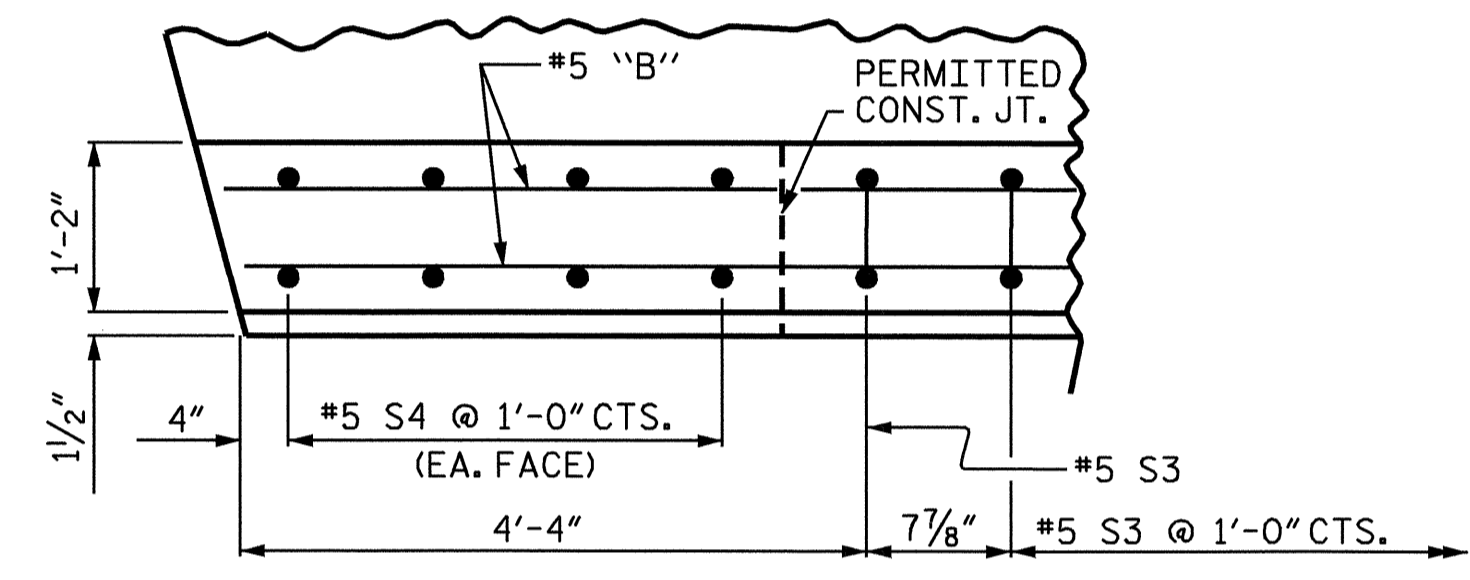
BAR TYPE

BILL OF MATERIAL

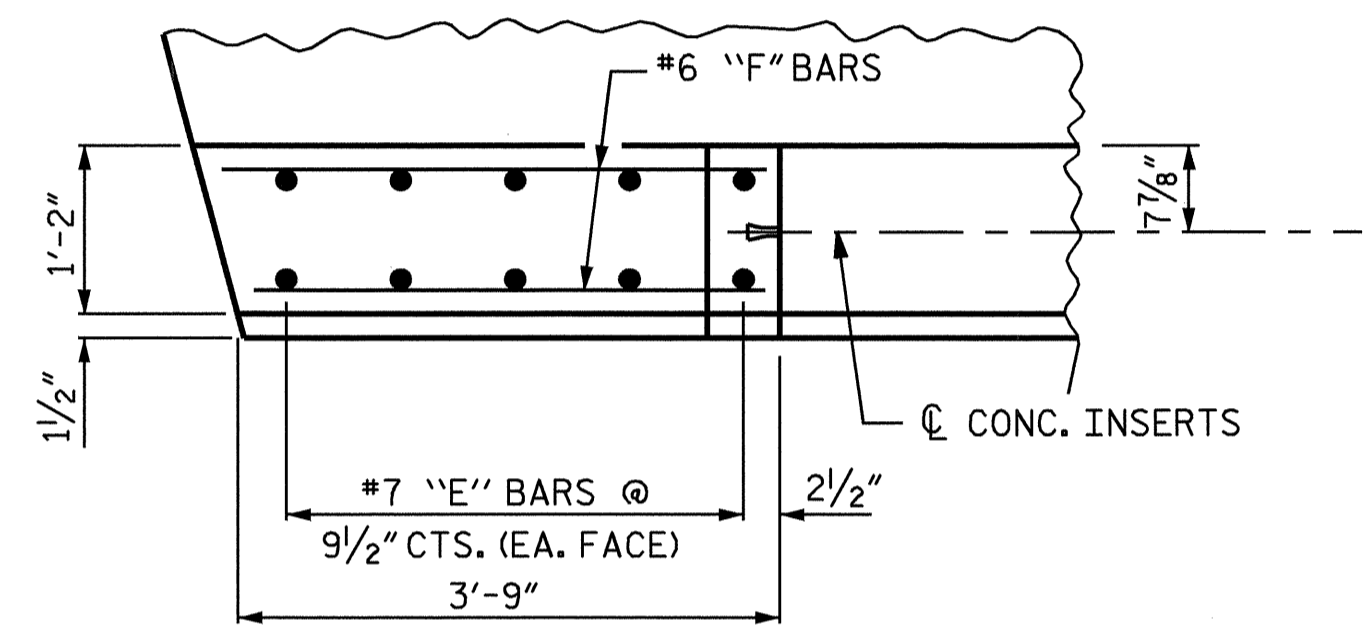
PARAPET AND END POST					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B2	80	#5	STR	19'-6"	1627
* B8	15	#5	STR	21'-8"	339
* B9	20	#5	STR	16'-2"	337
* B10	20	#5	STR	23'-2"	483
* B11	20	#5	STR	23'-0"	480
* B12	15	#5	STR	19'-8"	308
* B13	5	#5	STR	19'-11"	104
* B14	5	#5	STR	21'-11"	114
* E6	4	#7	STR	3'-2"	26
* E7	4	#7	STR	3'-7"	29
* E8	4	#7	STR	4'-1"	33
* E9	4	#7	STR	4'-6"	37
* E10	4	#7	STR	4'-10"	39
* F1	4	#6	STR	1'-8"	10
* F2	2	#6	STR	3'-0"	9
* F3	2	#6	STR	3'-9"	11
* F4	1	#6	STR	3'-5"	5
* F5	1	#6	STR	4'-0"	6
* F6	1	#6	STR	3'-2"	5
* F7	1	#6	STR	3'-11"	6
* S3	365	#5	1	8'-6"	3236
* S4	16	#5	STR	3'-9"	63
* EPOXY COATED REINF. STEEL					7,307 LBS.
CLASS AA CONCRETE					53.2 C.Y.
1'-2" X 3'-3 3/8"					
CONCRETE PARAPET					372.11 L.F.
* THESE BARS ARE EPOXY COATED					



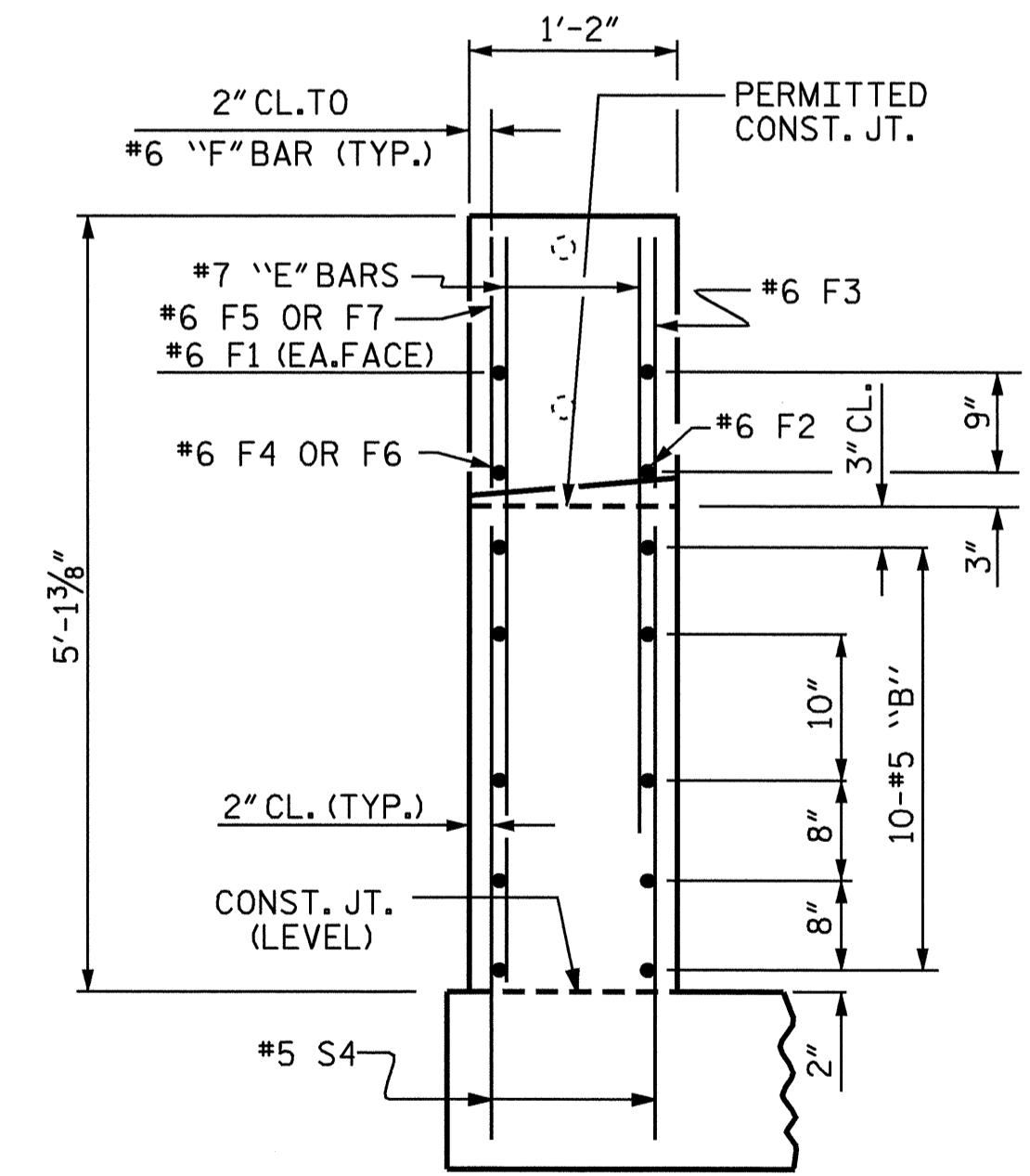
ALL BAR DIMENSIONS ARE OUT TO OUT



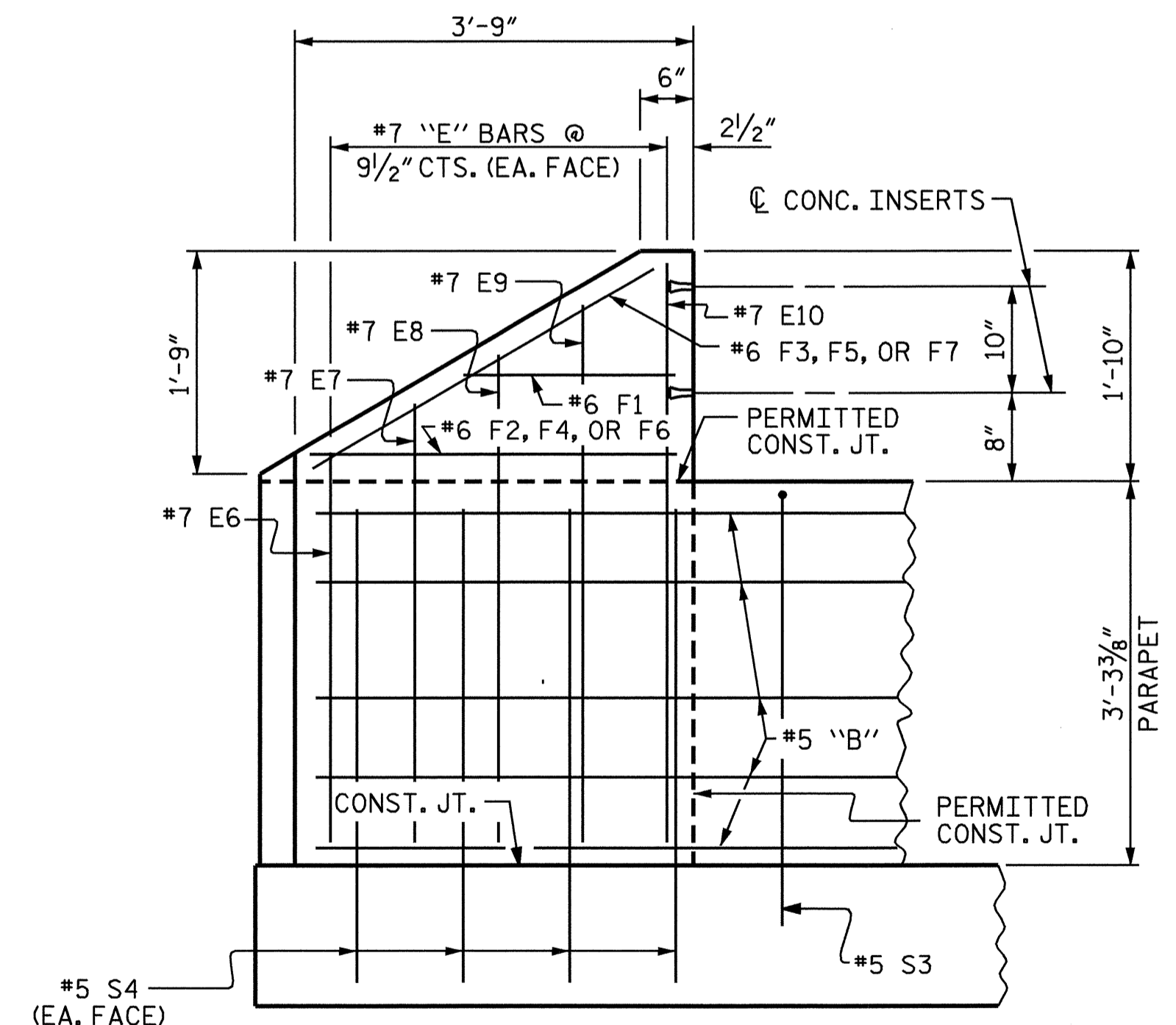
PLAN OF PARAPET



PLAN OF END POST



END VIEW



ELEVATION

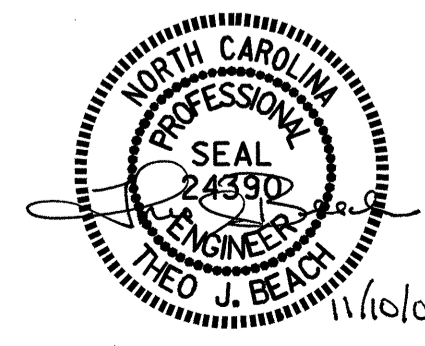
RIGHT SIDE PARAPET AND END POST FOR TWO BAR RAIL

END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR

PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-

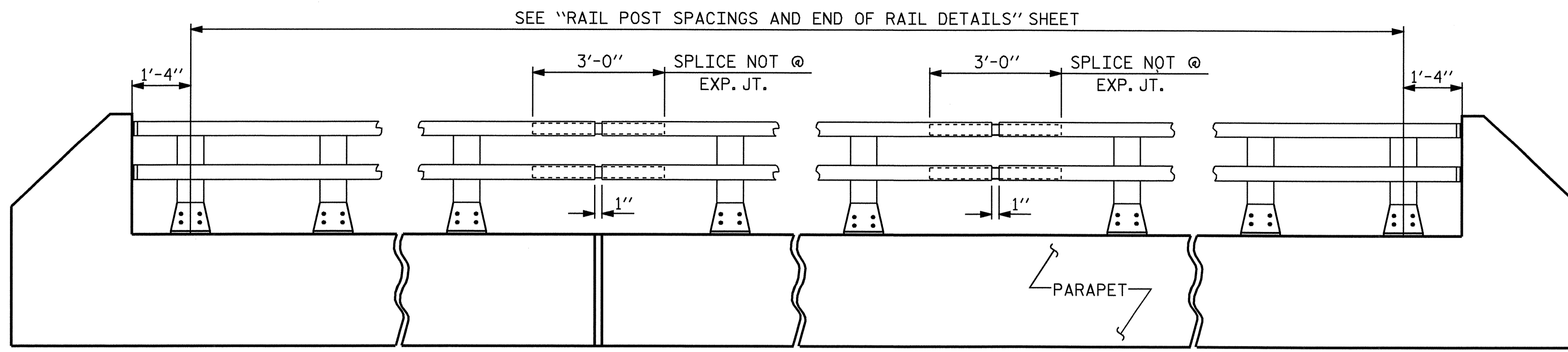
SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 (RIGHT SIDE)



REVISIONS						SHEET NO. S-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 59
2			4			

DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : D.G. ELY DATE : 1-2009



ELEVATION

NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

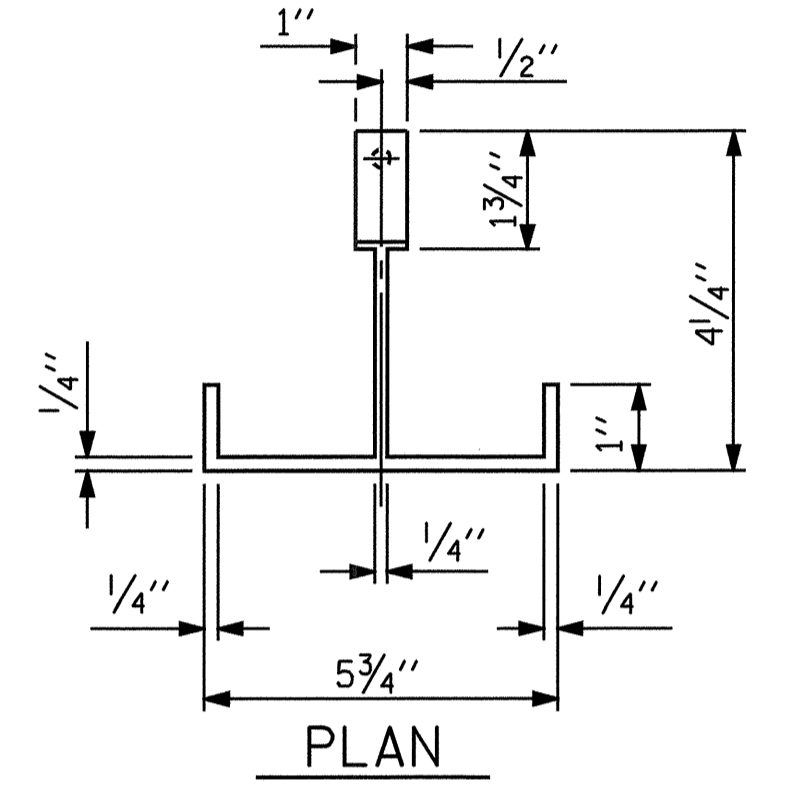
TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

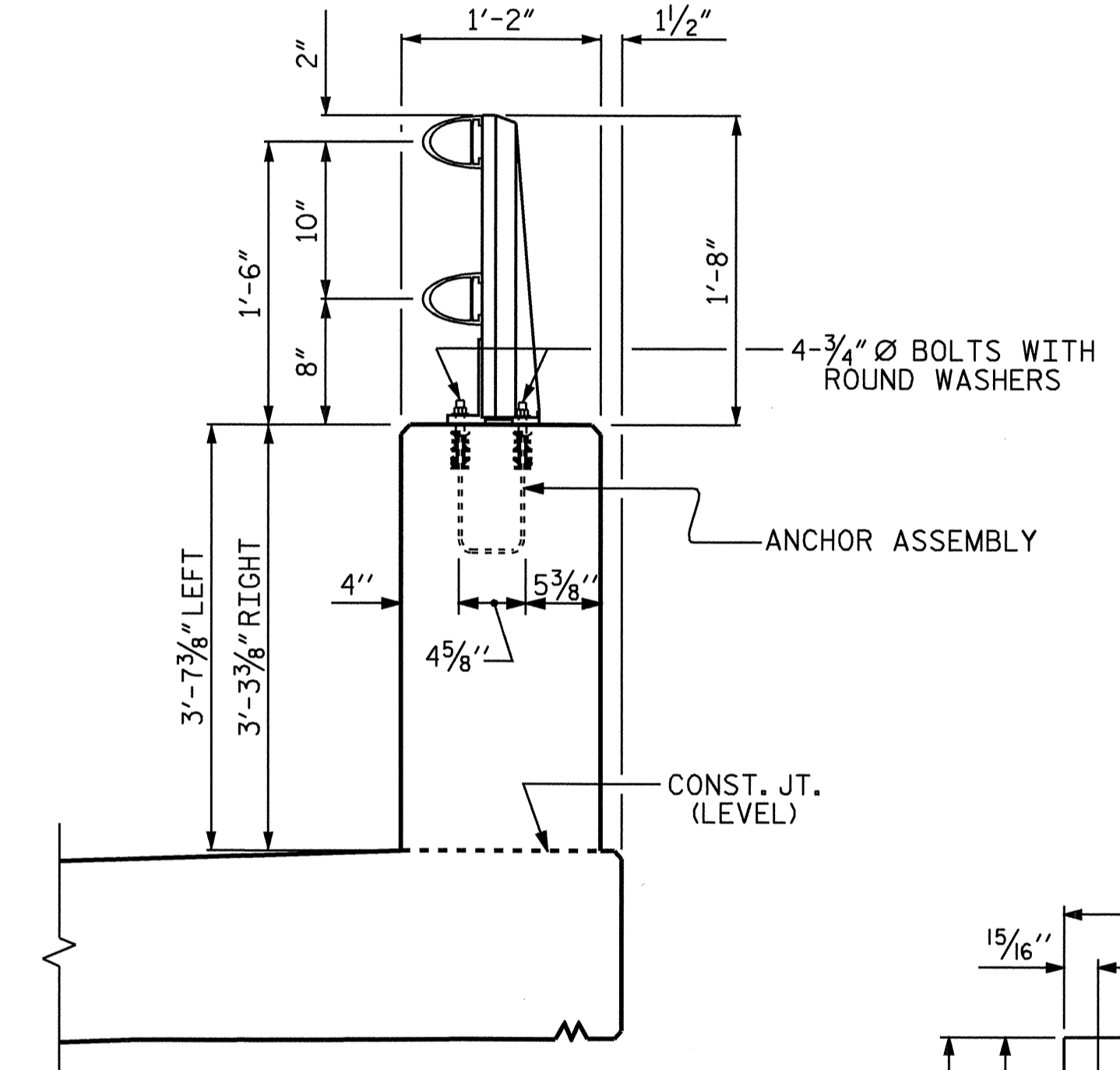
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

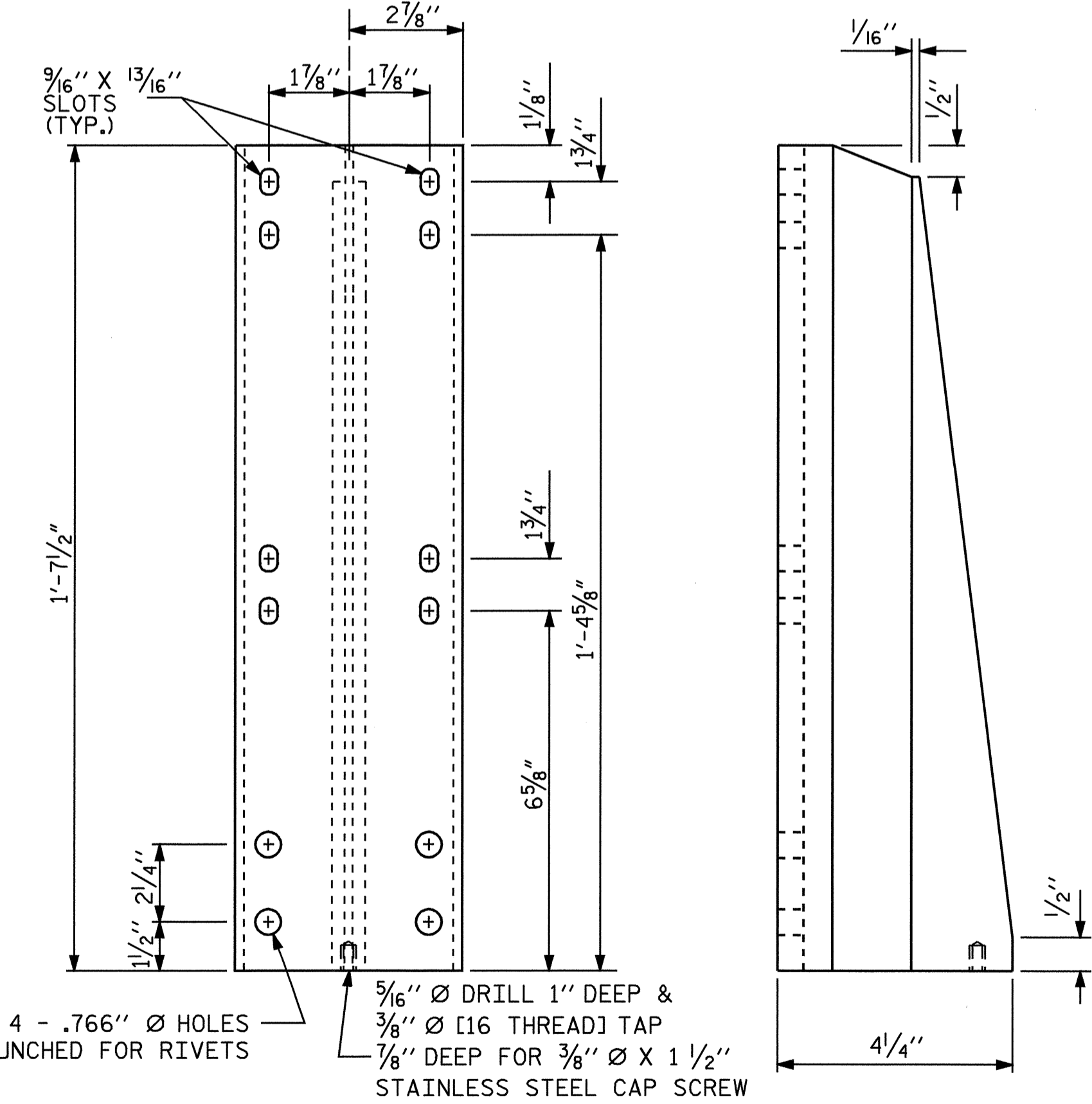
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8FT. TO 10FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR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



PLAN



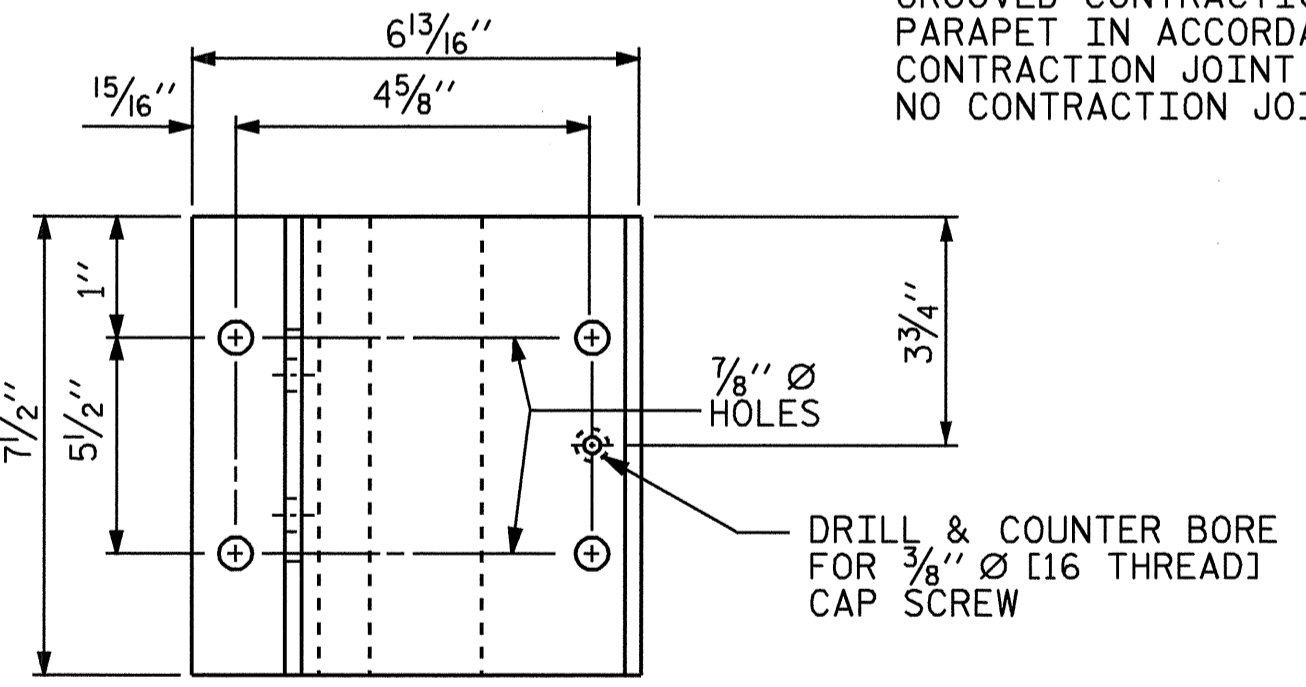
SECTION THRU PARAPET AND RAIL



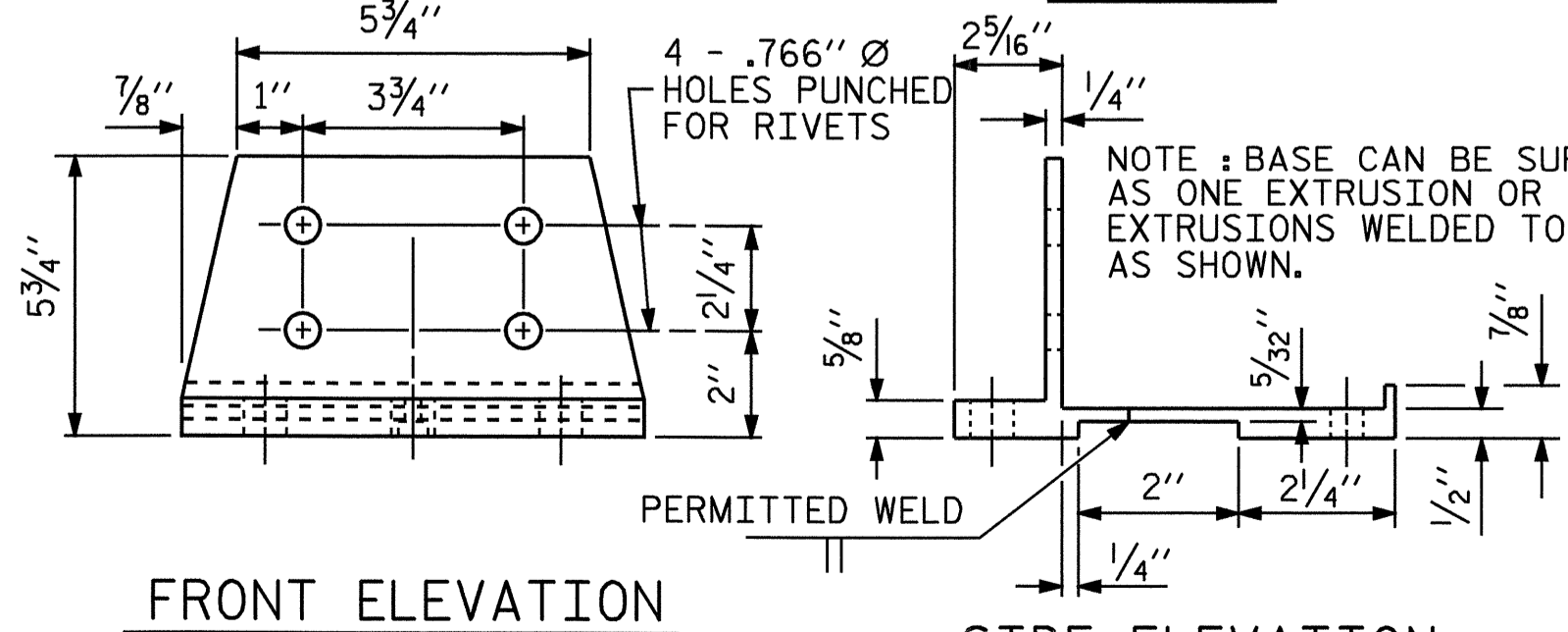
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



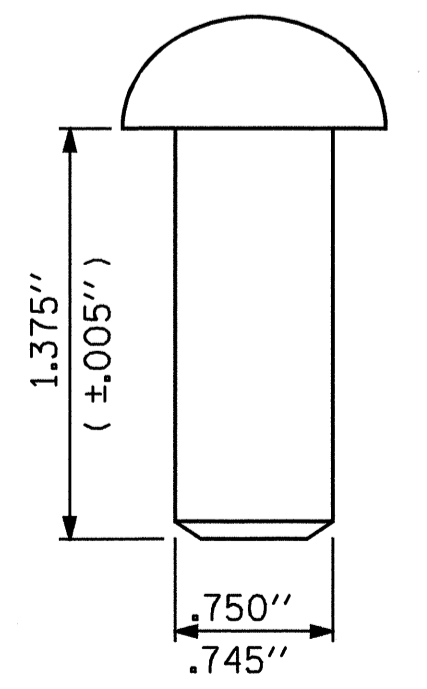
PLAN



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

PAY LENGTH = 739.61 LIN. FT.

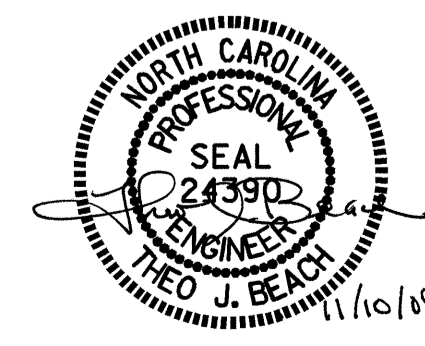
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 STANDARD
 2 BAR METAL RAIL

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

TOTAL SHEETS: 59



ASSEMBLED BY : T. BANKOVICH	DATE : 11-2008
CHECKED BY : D. G. ELY	DATE : 1-2009
DRAWN BY : EEM 6/94	REV. 10/17/00 LES/RDR
CHECKED BY : RGW 6/94	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

NOTES

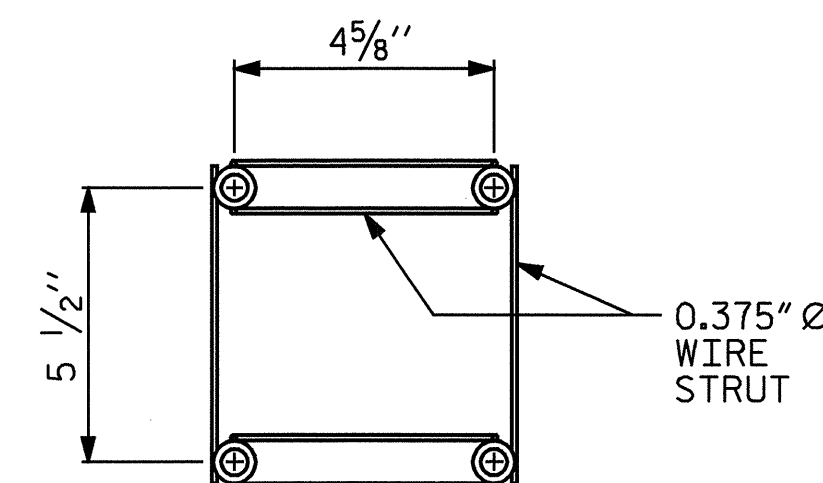
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

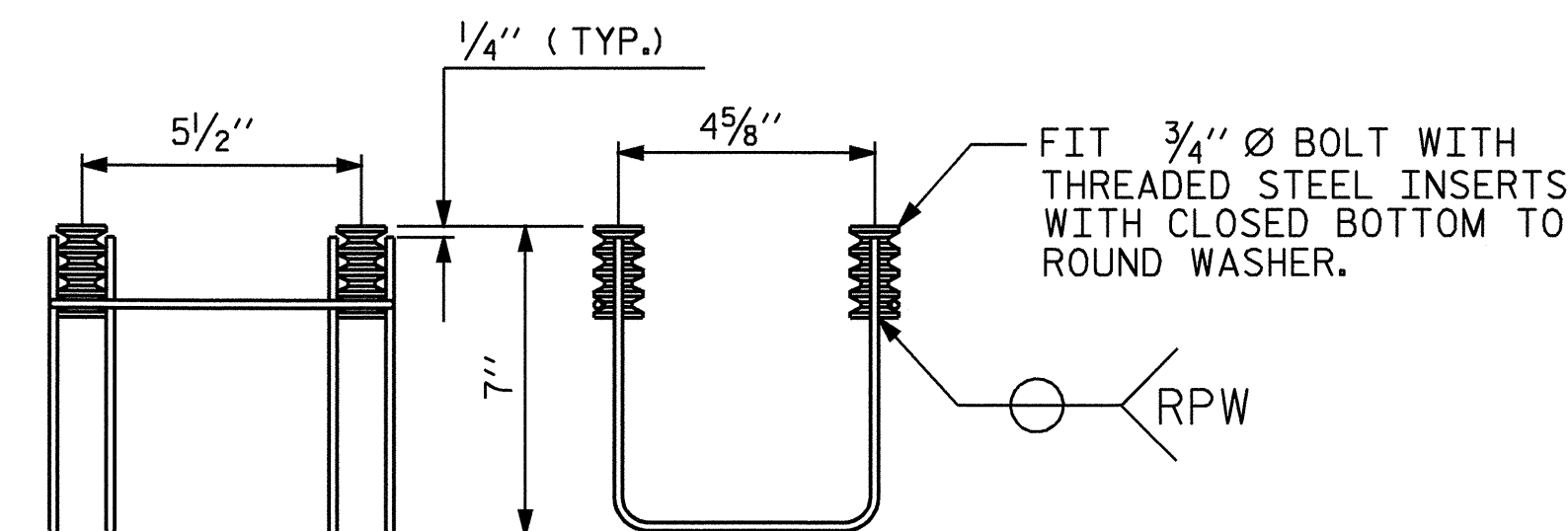
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN



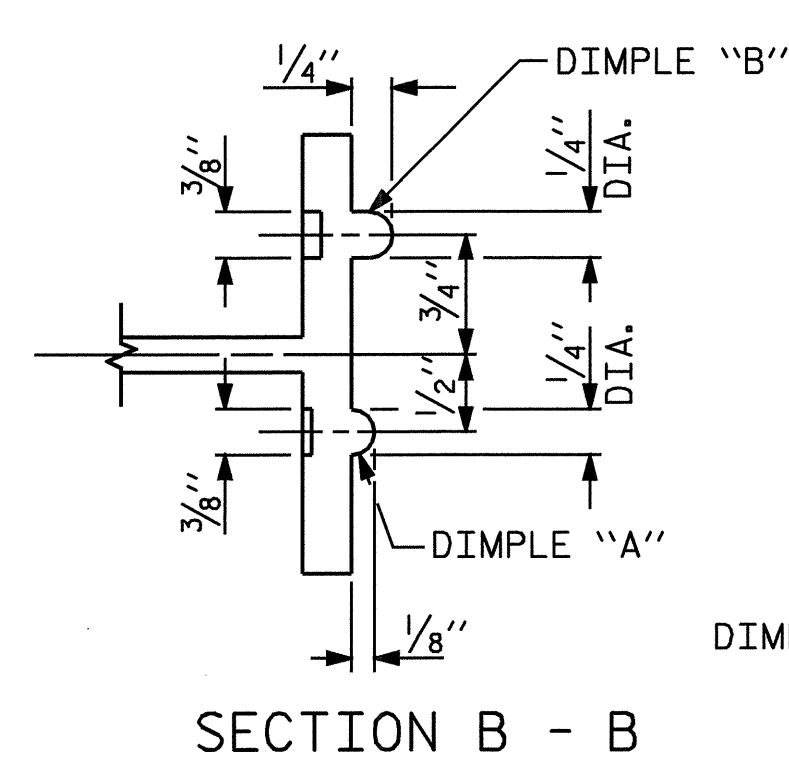
SIDE VIEW

ELEVATION

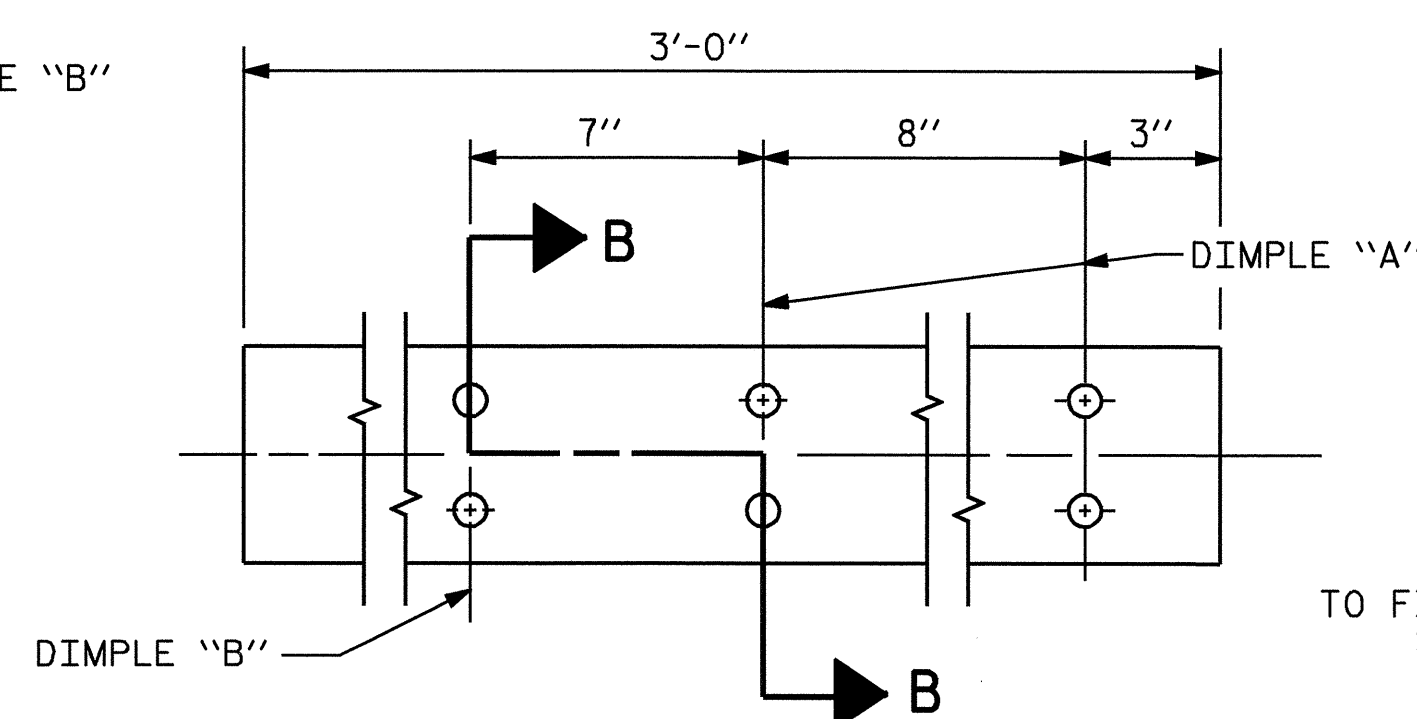
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

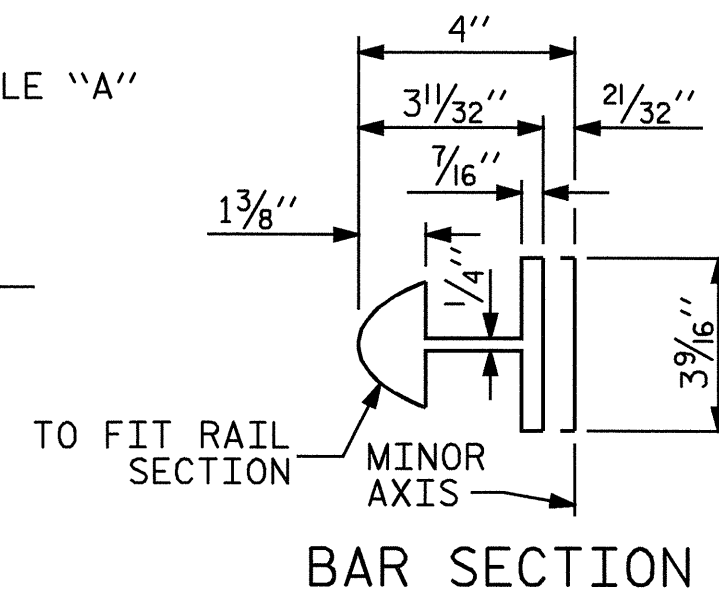
(119 ASSEMBLIES REQUIRED)



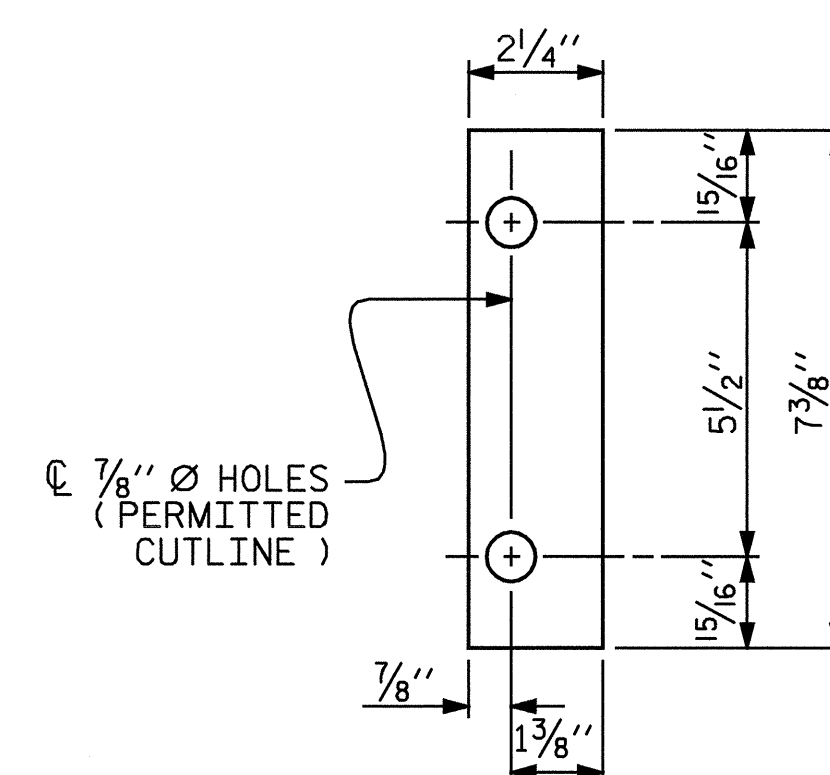
SECTION B - B



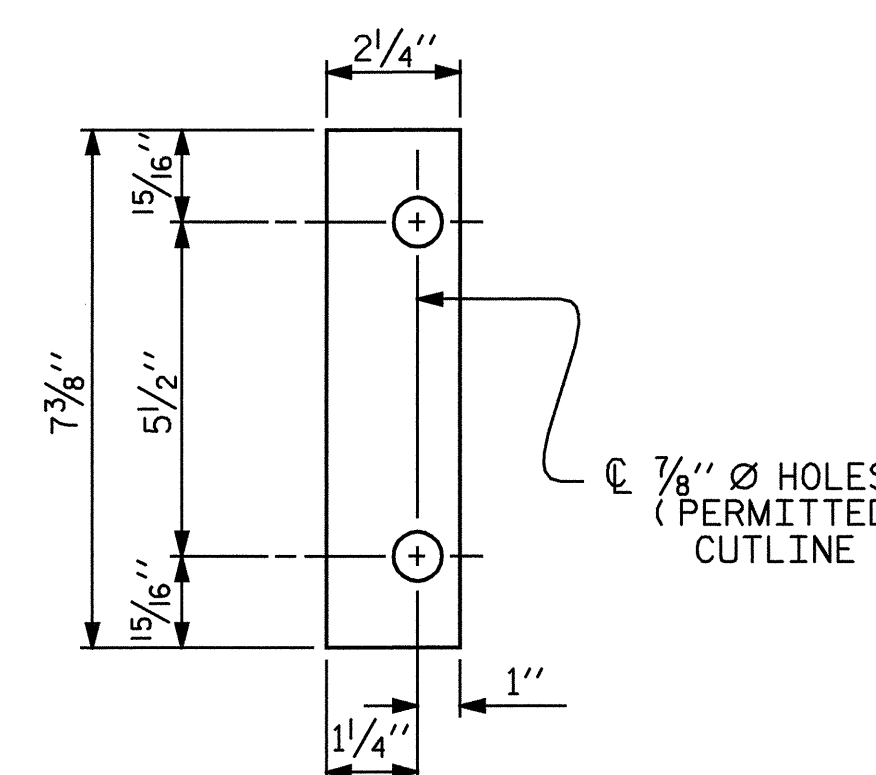
EXPANSION BAR DETAILS



BAR SECTION



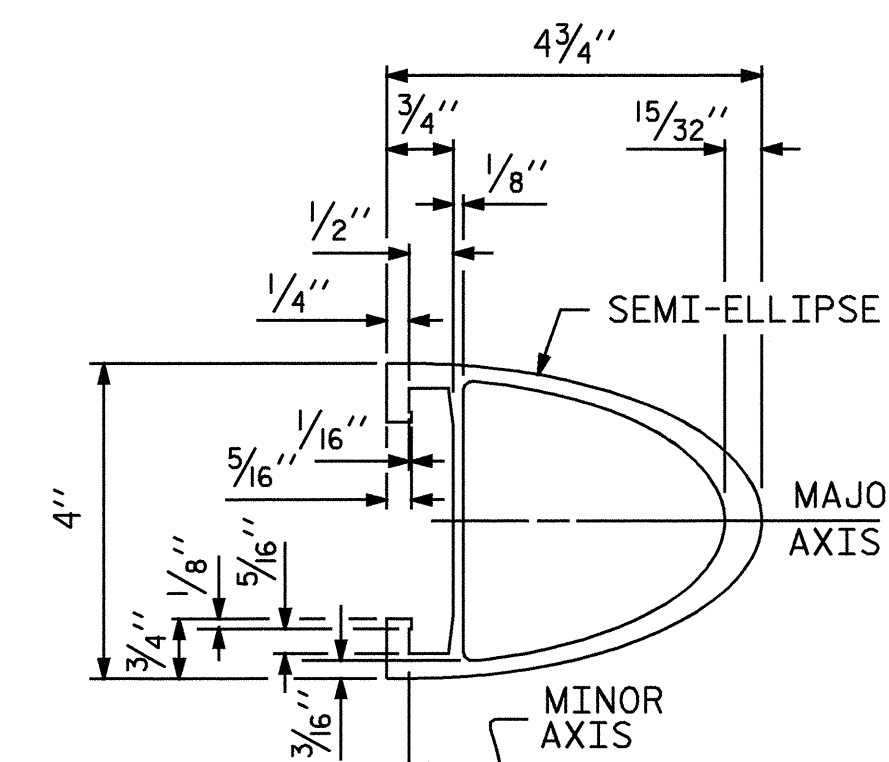
FRONT PLATE



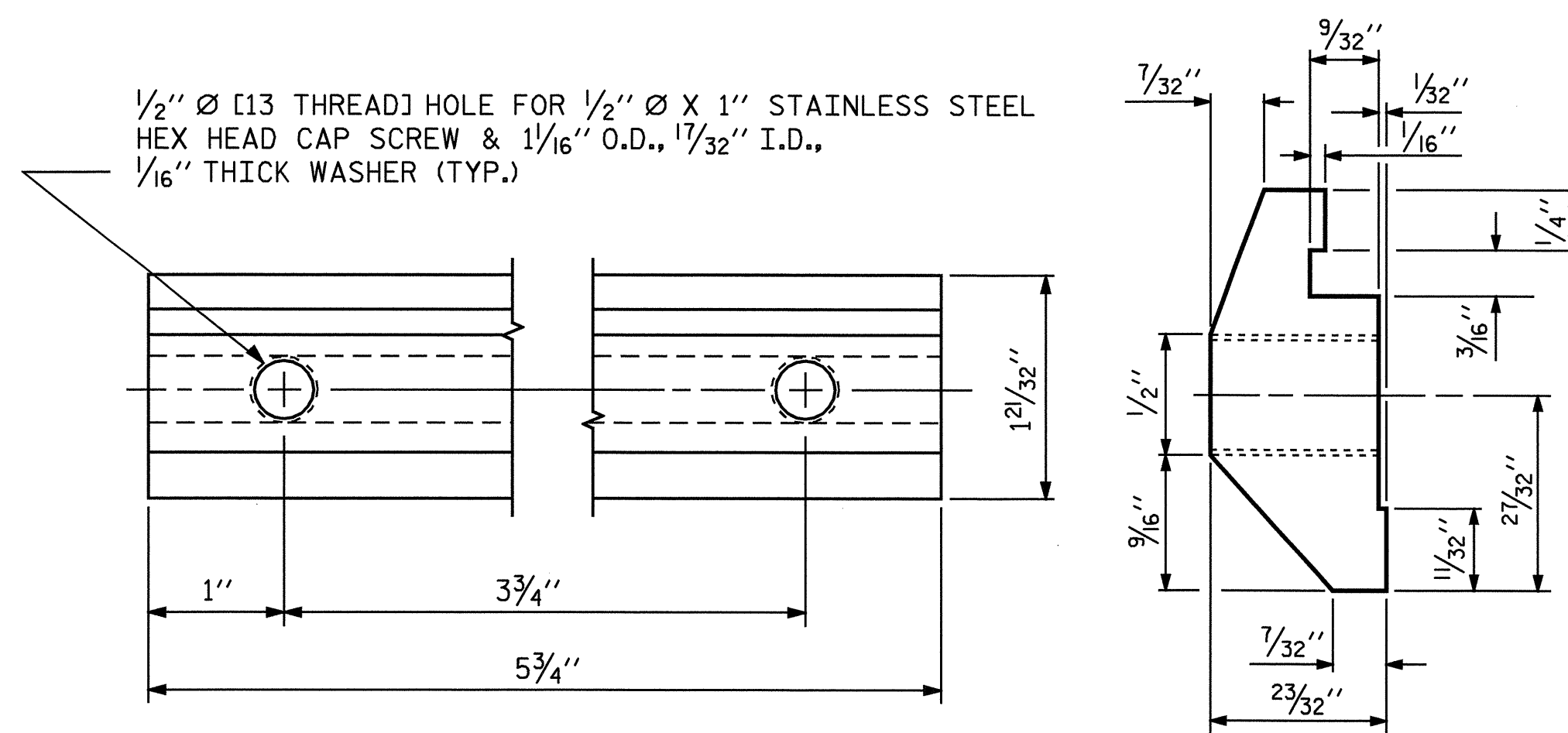
REAR PLATE

SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

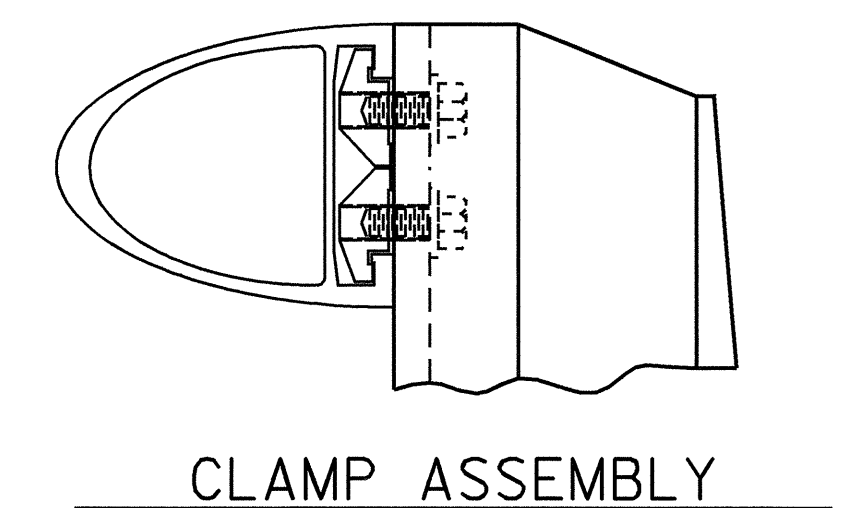


RAIL SECTION

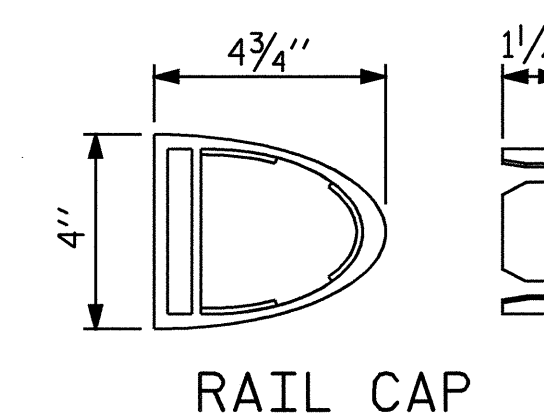


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

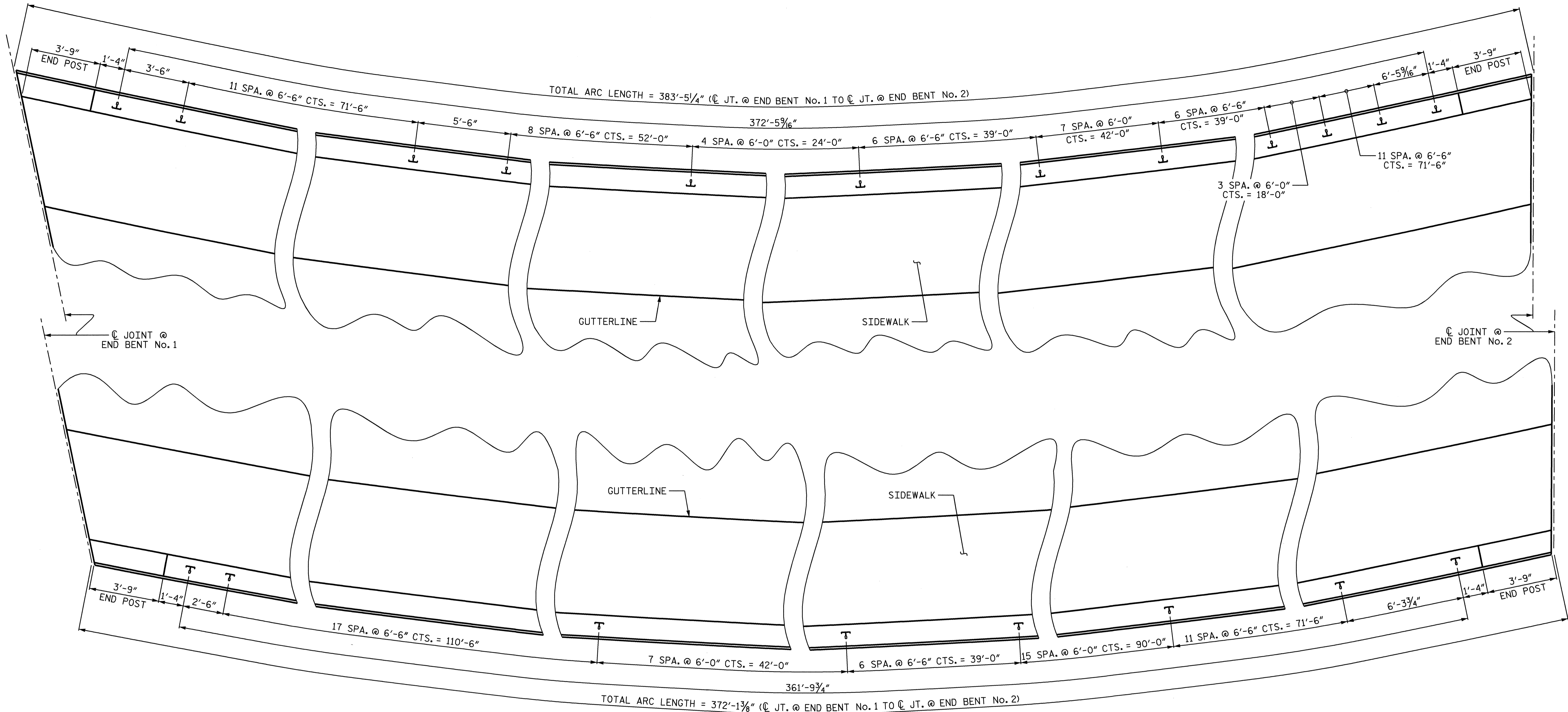
STANDARD

2 BAR METAL RAIL

ASSEMBLED BY : T. BANKOVICH	DATE : 11-2008
CHECKED BY : D.G. ELY	DATE : 1-2009
DRAWN BY : EEM 6/94	REV. 2/6/97 EEM/RGW
CHECKED BY : RGW 6/94	REV. 8/16/99 MAB/LES
	REV. 5/1/06R KMM/GM



REVISIONS						SHEET NO. S-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 59
2			4			



PLAN OF RAIL POST SPACING

ALL DIMENSIONS ARE TAKEN ALONG ARC AT BACK FACE PARAPET

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

RAIL POST SPACINGS



DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : D.G. ELY DATE : 1-2009

10-NOV-2009 15:39
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 tjbankovich

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			59

NOTES

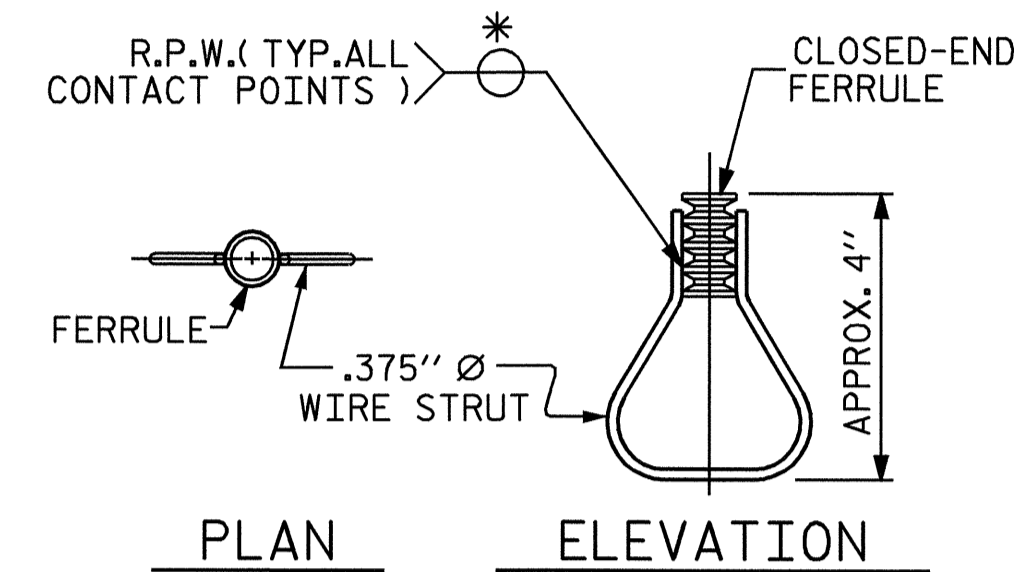
STRUCTURAL CONCRETE INSERT

- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1/2".
 - B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 3/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

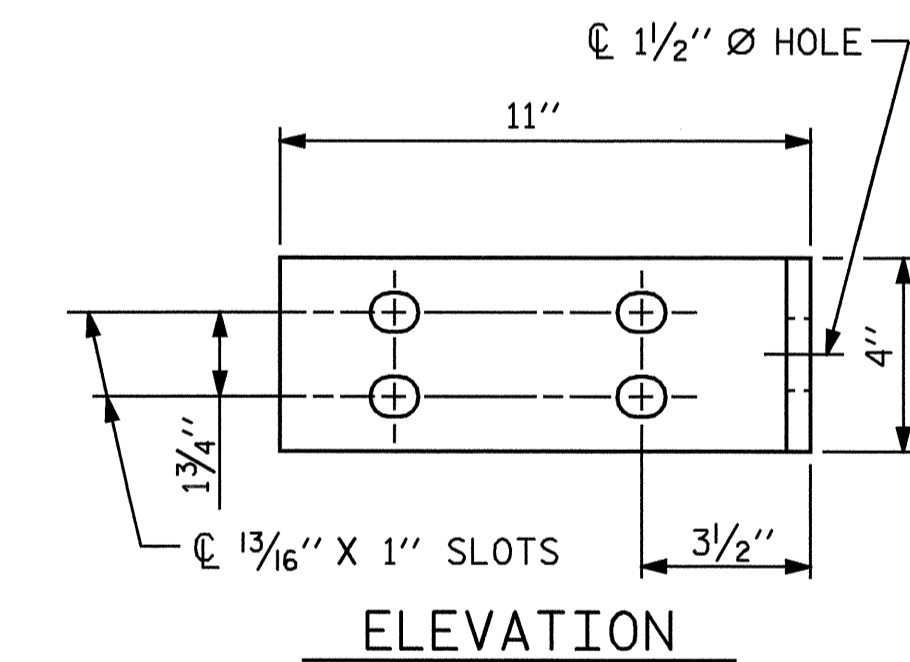
METAL RAIL TO END POST CONNECTION

- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.
 - C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°.
 - D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.
- THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 2 BAR METAL RAILS.
- THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
- THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

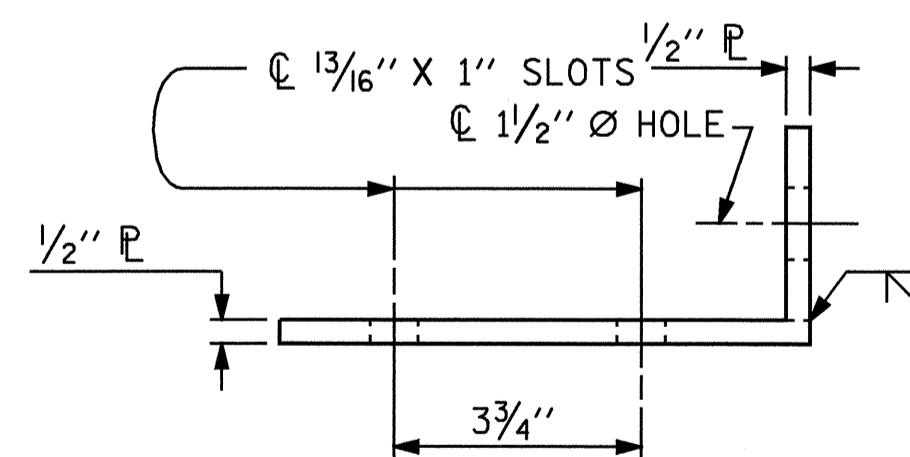


STRUCTURAL CONCRETE INSERT

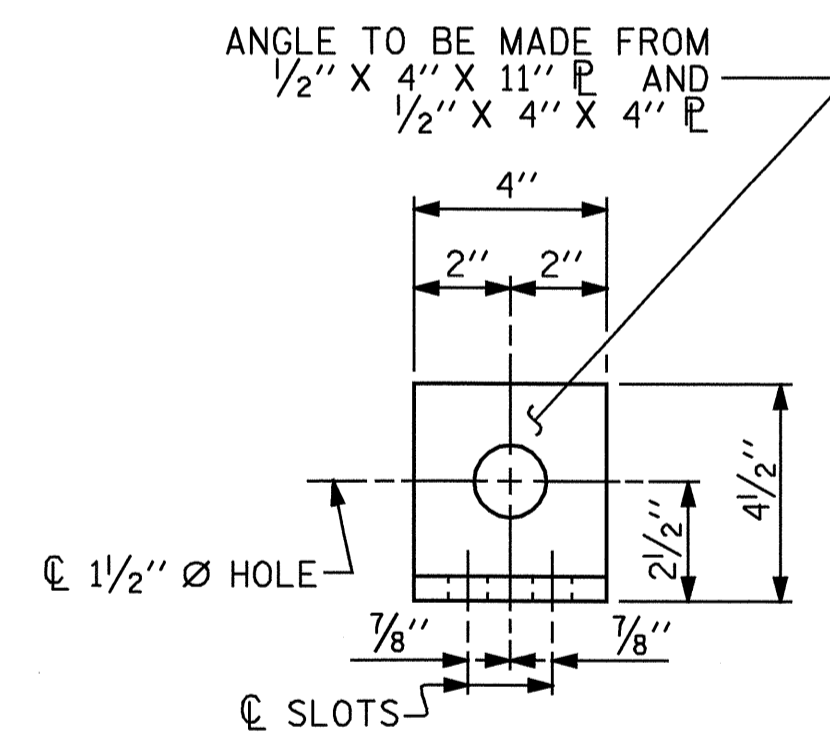
* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



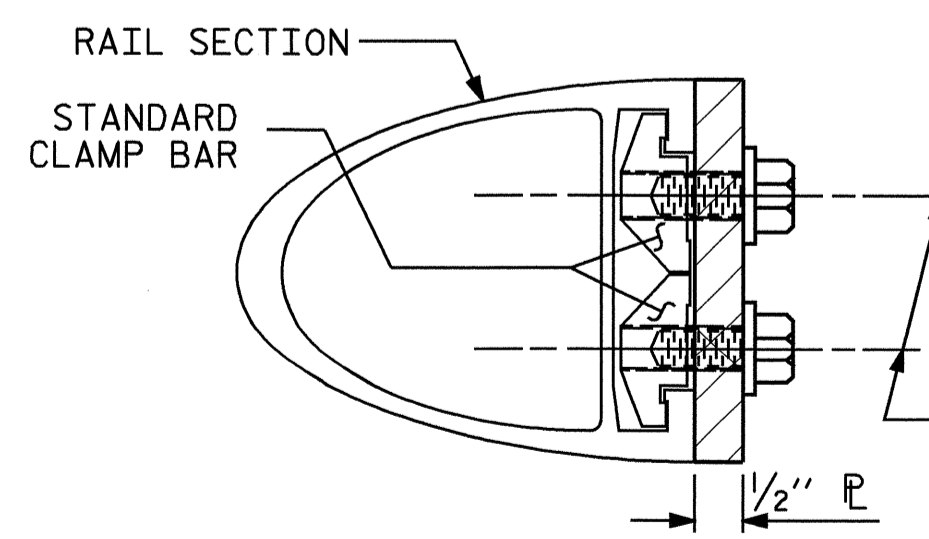
ELEVATION



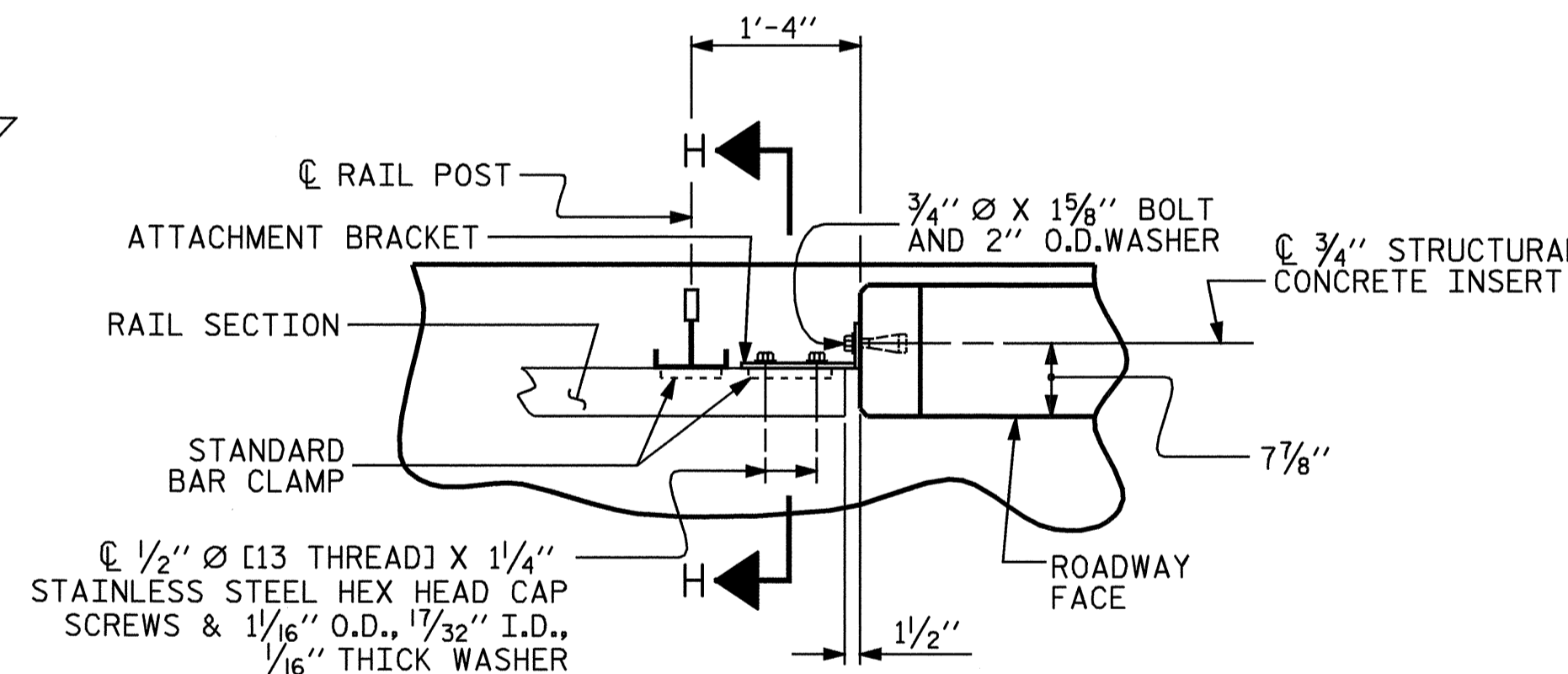
TOP VIEW



END VIEW



SECTION H-H



PLAN - RAIL AND END POST

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS

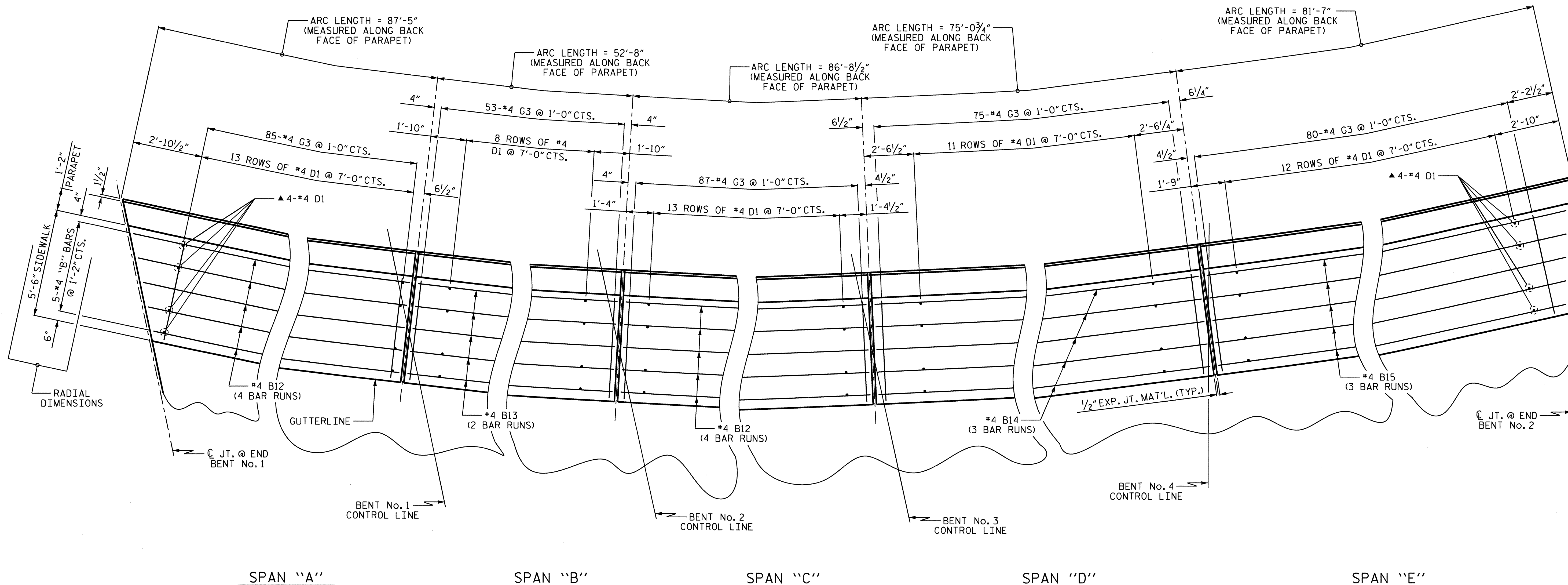


ASSEMBLED BY : T. BANKOVICH	DATE : 12-2008
CHECKED BY : D.G. ELY	DATE : 1-2009
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

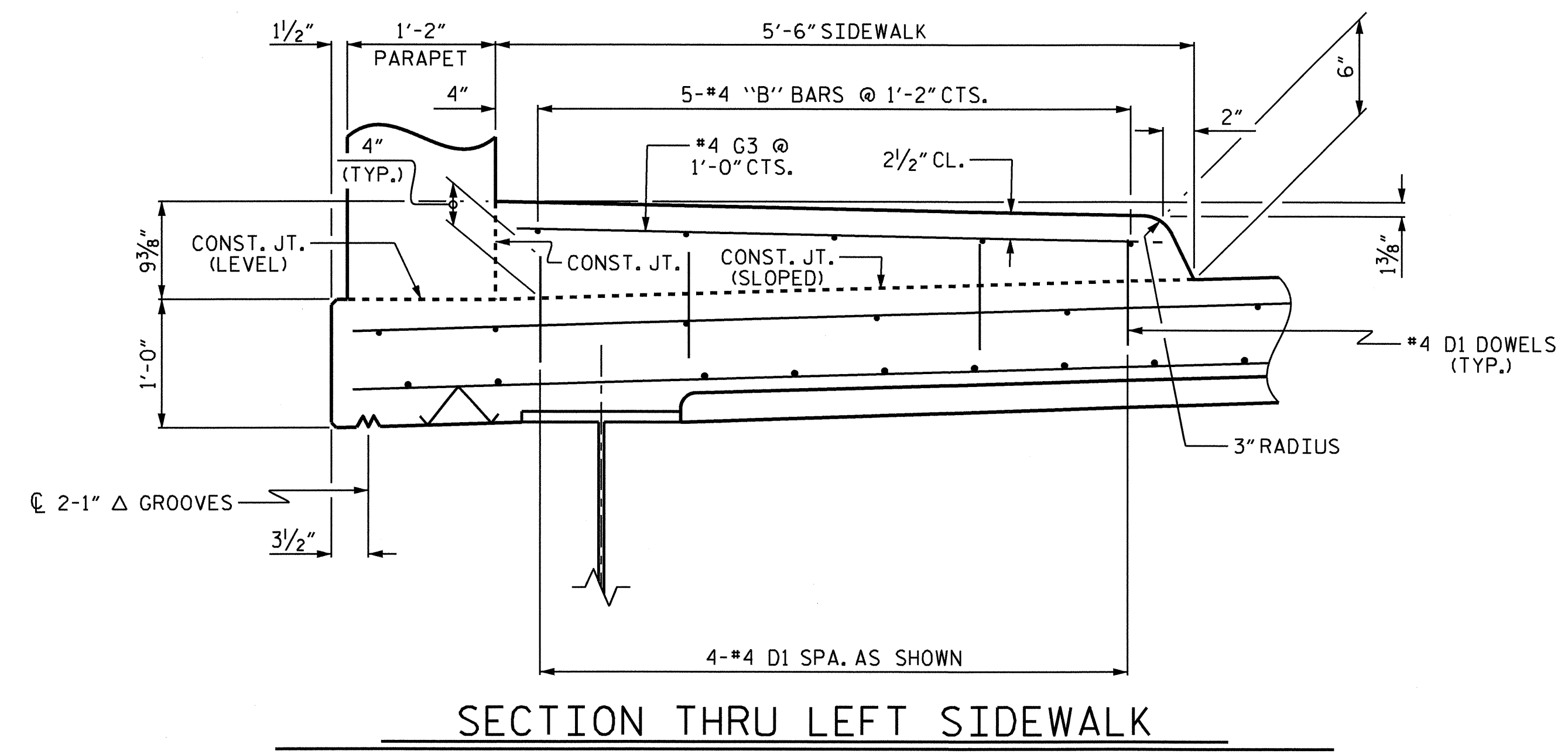
DETAILS FOR ATTACHING METAL RAIL TO END POST

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

TOTAL SHEETS 59



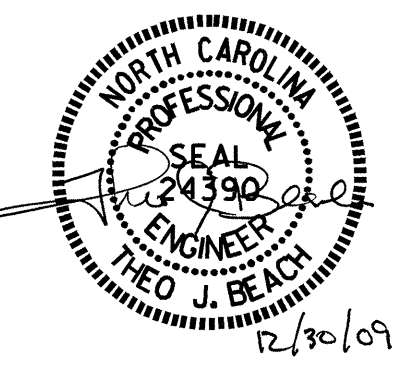
PLAN OF LEFT SIDEWALK



SECTION THRU LEFT SIDEWALK

NOTES:

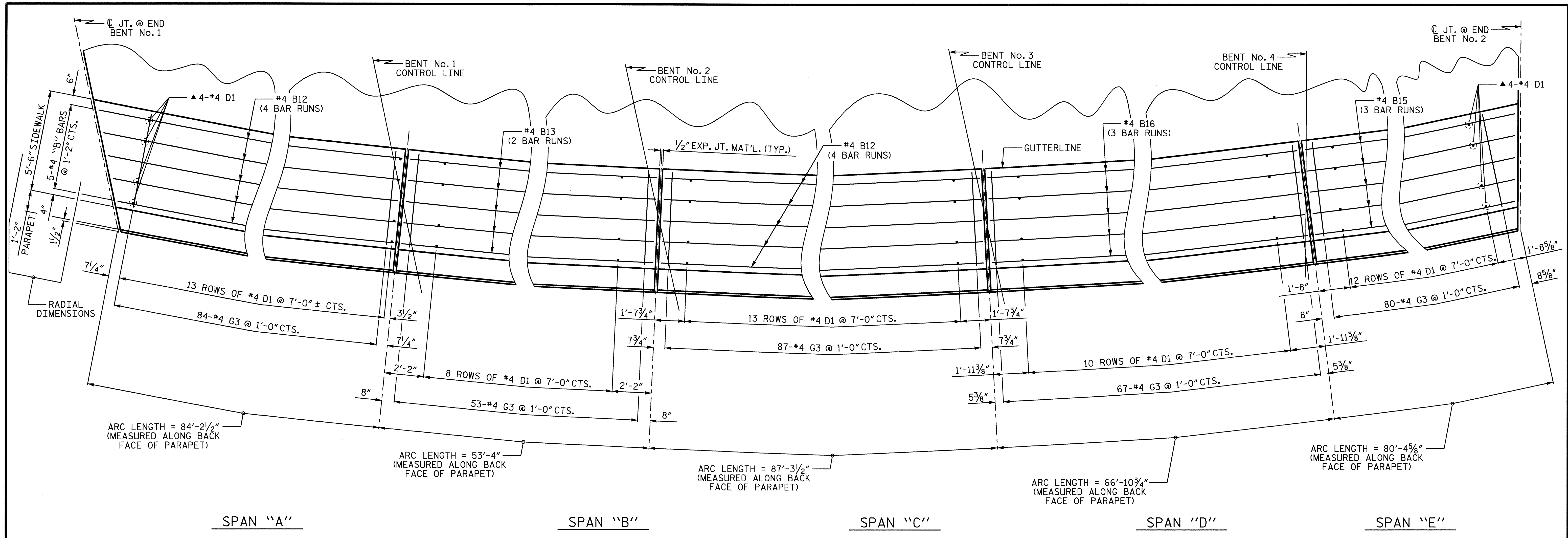
- THE JOINTS IN THE DECK AT THE END BENTS SHALL BE SAWED PRIOR TO THE CASTING OF THE SIDEWALKS.
- THE #4 D1 DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE SPAN HAS BEEN SCREEDED OFF, EXCEPT AS NOTED.
- THE SIDEWALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
- ALL REINFORCING STEEL IN SIDEWALK SHALL BE EPOXY COATED.
- GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINT WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FT. IN LENGTH.
- FOR SIDEWALK QUANTITIES, SEE SUPERSTRUCTURE "BILL OF MATERIAL" SHEET.
- ▲ THESE DOWELS ARE TO BE PLACED AFTER SAWING OF THE JOINT AT THE END BENTS. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.
- #4 G3 BARS AND #4 D1 DOWELS ARE TO BE PLACED RADIALLY ALONG BACK FACE OF PARAPET.
- PAYMENT FOR CLASS AA CONCRETE AND REINFORCING STEEL USED IN SIDEWALK SHALL BE INCLUDED IN SO.FT.COST OF REINFORCED CONCRETE DECK SLAB.



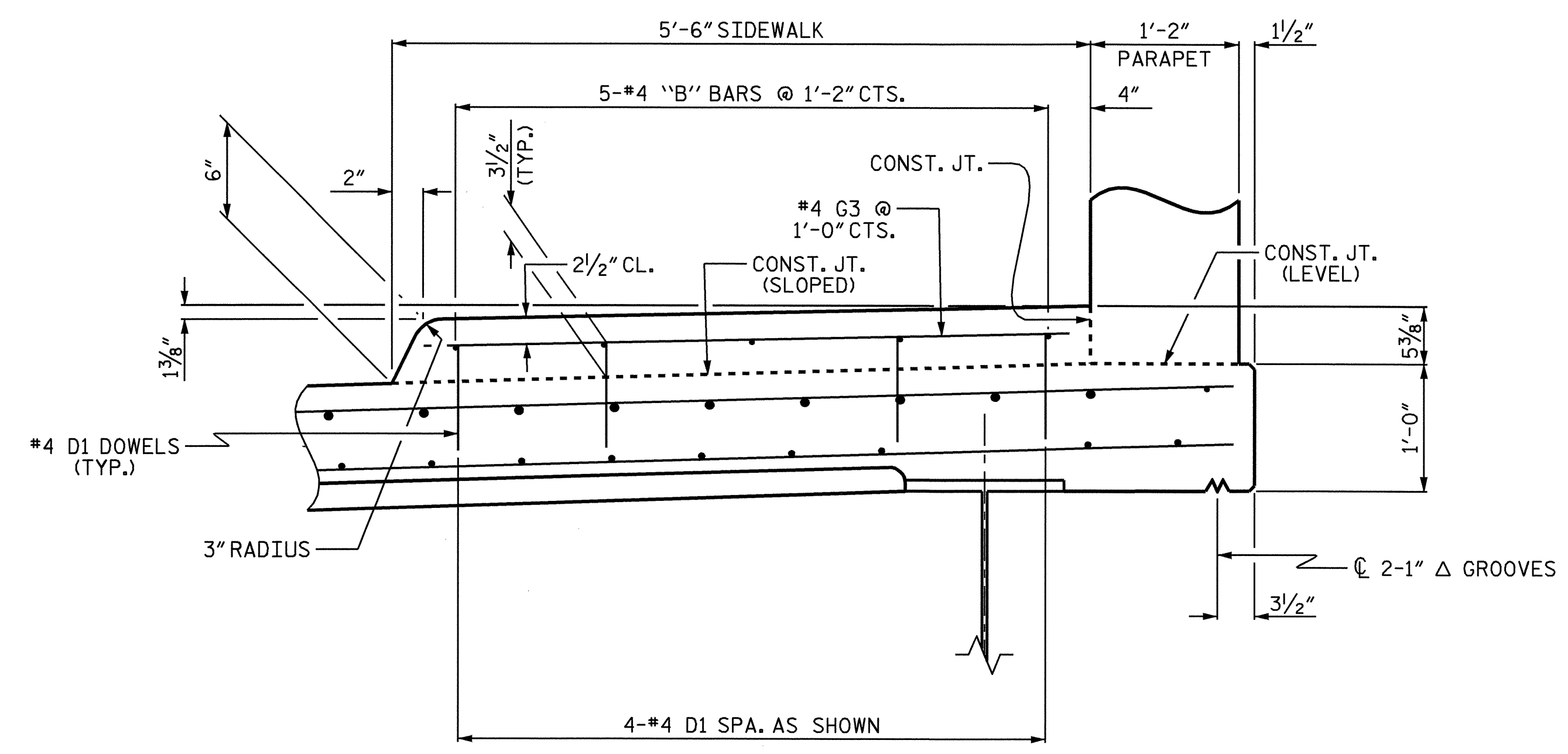
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE					
SIDEWALK DETAILS (LEFT SIDE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-38
					TOTAL SHEETS 59

DRAWN BY: T. BANKOVICH DATE: 11-2008
 CHECKED BY: D.G. ELY DATE: 1-2009



PLAN OF RIGHT SIDEWALK

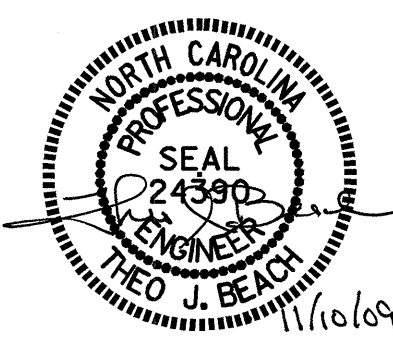


SECTION THRU RIGHT SIDEWALK

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 2

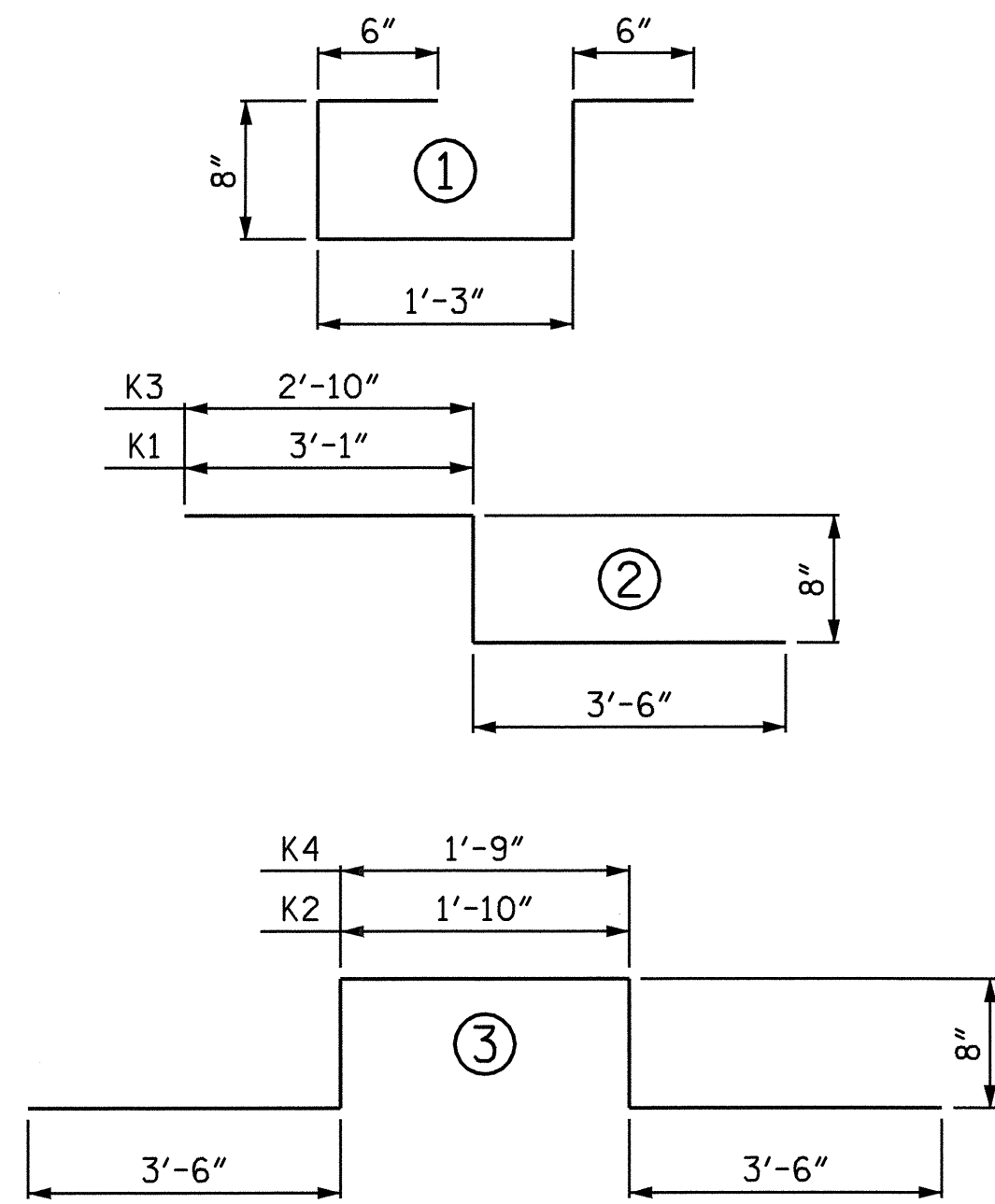
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			59



DRAWN BY: T. BANKOVICH DATE: 11-2008
 CHECKED BY: D.G. ELY DATE: 1-2009

10-NOV-2009 15:38
 r:\structures\superstructuredrawings\b-2576.sd.sw.dgn
 tjbankovich

BAR TYPE



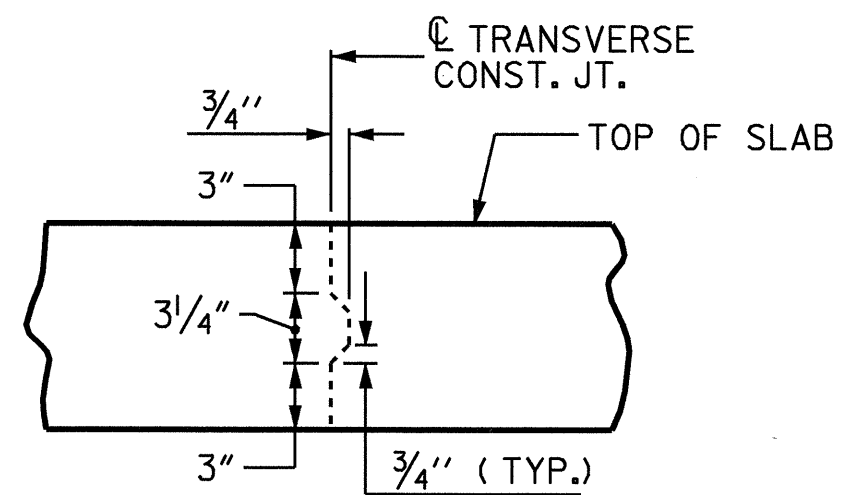
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	743	#5	STR	47'-3"	36616	* A130	1	#5	STR	12'-7"	13	A201	1	#5	STR	46'-11"	49	A232	1	#5	STR	10'-3"	11	B3	98	#5	STR	55'-10"	5707	
* A101	1	#5	STR	46'-11"	49	* A131	1	#5	STR	11'-5"	12	A202	1	#5	STR	45'-9"	48	A233	1	#5	STR	9'-1"	9	B4	119	#5	STR	55'-5"	6878	
* A102	1	#5	STR	45'-9"	48	* A132	1	#5	STR	10'-3"	11	A203	1	#5	STR	44'-6"	46	A234	1	#5	STR	7'-11"	8	* B5	14	#4	STR	29'-3"	274	
* A103	1	#5	STR	44'-6"	46	* A133	1	#5	STR	9'-1"	9	A204	1	#5	STR	43'-4"	45	A235	1	#5	STR	6'-9"	7	* B6	93	#4	STR	23'-11"	1486	
* A104	1	#5	STR	43'-4"	45	* A134	1	#5	STR	7'-11"	8	A205	1	#5	STR	42'-2"	44	A236	1	#5	STR	5'-6"	6	* B7	122	#7	STR	48'-6"	12094	
* A105	1	#5	STR	42'-2"	44	* A135	1	#5	STR	6'-9"	7	A206	1	#5	STR	41'-0"	43	A237	1	#5	STR	4'-4"	5	* B8	14	#4	STR	28'-5"	266	
* A106	1	#5	STR	41'-0"	43	* A136	1	#5	STR	5'-6"	6	A207	1	#5	STR	39'-9"	41	A238	1	#5	STR	3'-2"	3	* B9	62	#4	STR	26'-10"	1111	
* A107	1	#5	STR	39'-9"	41	* A137	1	#5	STR	4'-4"	5	A208	1	#5	STR	38'-7"	40	A239	1	#5	STR	2'-0"	2	* B10	183	#7	STR	43'-0"	16084	
* A108	1	#5	STR	38'-7"	40	* A138	1	#5	STR	3'-2"	3	A209	1	#5	STR	37'-5"	39	A240	1	#5	STR	46'-6"	48	* B11	93	#4	STR	22'-1"	1372	
* A109	1	#5	STR	37'-5"	39	* A139	1	#5	STR	2'-0"	2	A210	1	#5	STR	36'-3"	38	A241	1	#5	STR	44'-2"	46	* B12	80	#4	STR	23'-3"	1242	
* A110	1	#5	STR	36'-3"	38	* A140	1	#5	STR	46'-6"	48	A211	1	#5	STR	35'-1"	37	A242	1	#5	STR	41'-11"	44	* B13	20	#4	STR	27'-5"	366	
* A111	1	#5	STR	35'-1"	37	* A141	1	#5	STR	44'-2"	46	A212	1	#5	STR	33'-10"	35	A243	1	#5	STR	39'-7"	41	* B14	15	#4	STR	26'-5"	265	
* A112	1	#5	STR	33'-10"	35	* A142	1	#5	STR	41'-11"	44	A213	1	#5	STR	32'-8"	34	A244	1	#5	STR	37'-4"	39	* B15	30	#4	STR	28'-4"	568	
* A113	1	#5	STR	32'-8"	34	* A143	1	#5	STR	39'-7"	41	A214	1	#5	STR	31'-6"	33	A245	1	#5	STR	35'-0"	37	* B16	15	#4	STR	23'-6"	235	
* A114	1	#5	STR	31'-6"	33	* A144	1	#5	STR	37'-4"	39	A215	1	#5	STR	30'-4"	32	A246	1	#5	STR	32'-9"	34							
* A115	1	#5	STR	30'-4"	32	* A145	1	#5	STR	35'-0"	37	A216	1	#5	STR	29'-2"	30	A247	1	#5	STR	30'-5"	32	* D1	452	#4	STR	10"	252	
* A116	1	#5	STR	29'-2"	30	* A146	1	#5	STR	32'-9"	34	A217	1	#5	STR	27'-11"	29	A248	1	#5	STR	28'-2"	29							
* A117	1	#5	STR	27'-11"	29	* A147	1	#5	STR	30'-5"	32	A218	1	#5	STR	26'-9"	28	A249	1	#5	STR	25'-11"	27	* G1	1	#5	STR	51'-2"	53	
* A118	1	#5	STR	26'-9"	28	* A148	1	#5	STR	28'-2"	29	A219	1	#5	STR	25'-7"	27	A250	1	#5	STR	23'-7"	25	* G2	1	#5	STR	48'-1"	50	
* A119	1	#5	STR	25'-7"	27	* A149	1	#5	STR	25'-11"	27	A220	1	#5	STR	24'-5"	25	A251	1	#5	STR	21'-4"	22	* G3	751	#4	STR	5'-0"	2508	
* A120	1	#5	STR	24'-5"	25	* A150	1	#5	STR	23'-7"	25	A221	1	#5	STR	23'-3"	24	A252	1	#5	STR	19'-0"	20							
* A121	1	#5	STR	23'-3"	24	* A151	1	#5	STR	21'-4"	22	A222	1	#5	STR	22'-0"	23	A253	1	#5	STR	16'-9"	17	* K1	4	#5	2	7'-3"	30	
* A122	1	#5	STR	22'-0"	23	* A152	1	#5	STR	19'-0"	20	A223	1	#5	STR	20'-10"	22	A254	1	#5	STR	14'-5"	15	* K2	6	#5	3	10'-2"	64	
* A123	1	#5	STR	20'-10"	22	* A153	1	#5	STR	16'-9"	17	A224	1	#5	STR	19'-8"	21	A255	1	#5	STR	12'-2"	13	* K3	4	#5	2	7'-0"	29	
* A124	1	#5	STR	19'-8"	21	* A154	1	#5	STR	14'-5"	15	A225	1	#5	STR	18'-6"	19	A256	1	#5	STR	9'-10"	10	* K4	6	#5	3	10'-1"	63	
* A125	1	#5	STR	18'-6"	19	* A155	1	#5	STR	12'-2"	13	A226	1	#5	STR	17'-4"	18	A257	1	#5	STR	7'-7"	8	* K5	8	#5	STR	9'-5"	79	
* A126	1	#5	STR	17'-4"	18	* A156	1	#5	STR	9'-10"	10	A227	1	#5	STR	16'-2"	17	A258	1	#5	STR	5'-3"	5	* K6	8	#5	STR	8'-9"	73	
* A127	1	#5	STR	16'-2"	17	* A157	1	#5	STR	7'-7"	8	A228	1	#5	STR	14'-11"	16	A259	1	#5	STR	3'-0"	3							
* A128	1	#5	STR	14'-11"	16	* A158	1	#5	STR	5'-3"	5	A229	1	#5	STR	13'-9"	14													
* A129	1	#5	STR	13'-9"	14	* A159	1	#5	STR	3'-0"	3	A230	1	#5	STR	12'-7"	13	B1	119	#5	STR	56'-8"	7033							
A2	743	#5	STR	47'-3"	36616	A231	1	#5	STR	11'-5"	12	B2	98	#5	STR	56'-2"	5741													

* THESE BARS ARE EPOXY COATED

REINFORCING STEEL 63,483 LBS.
* EPOXY COATED REINFORCING STEEL 76,879 LBS.



TRANSVERSE CONSTRUCTION JOINT DETAIL

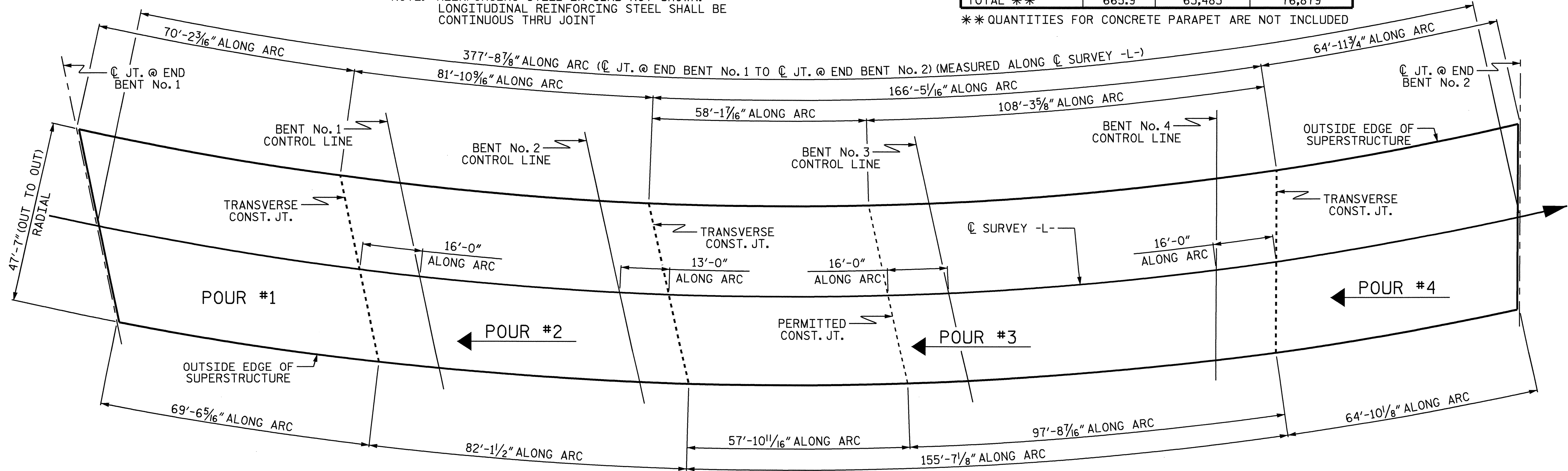
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	108.2		
POUR #2	125.4		
POUR #3	246.2		
POUR #4	100.5		
SIWALK			
LEFT	49.7		
RIGHT	35.9		
TOTAL **	665.9	63,483	76,879

GROOVING AREA	
APPROACH SLABS	1,465 SQ. FT.
BRIDGE DECK	11,665 SQ. FT.
TOTAL	13,130 SQ. FT.

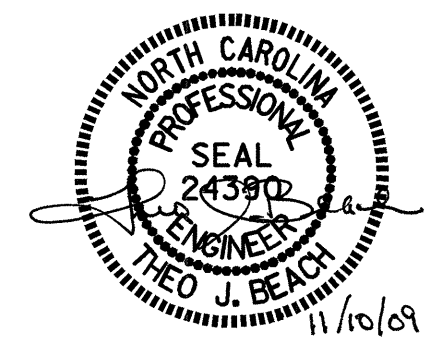
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

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"			



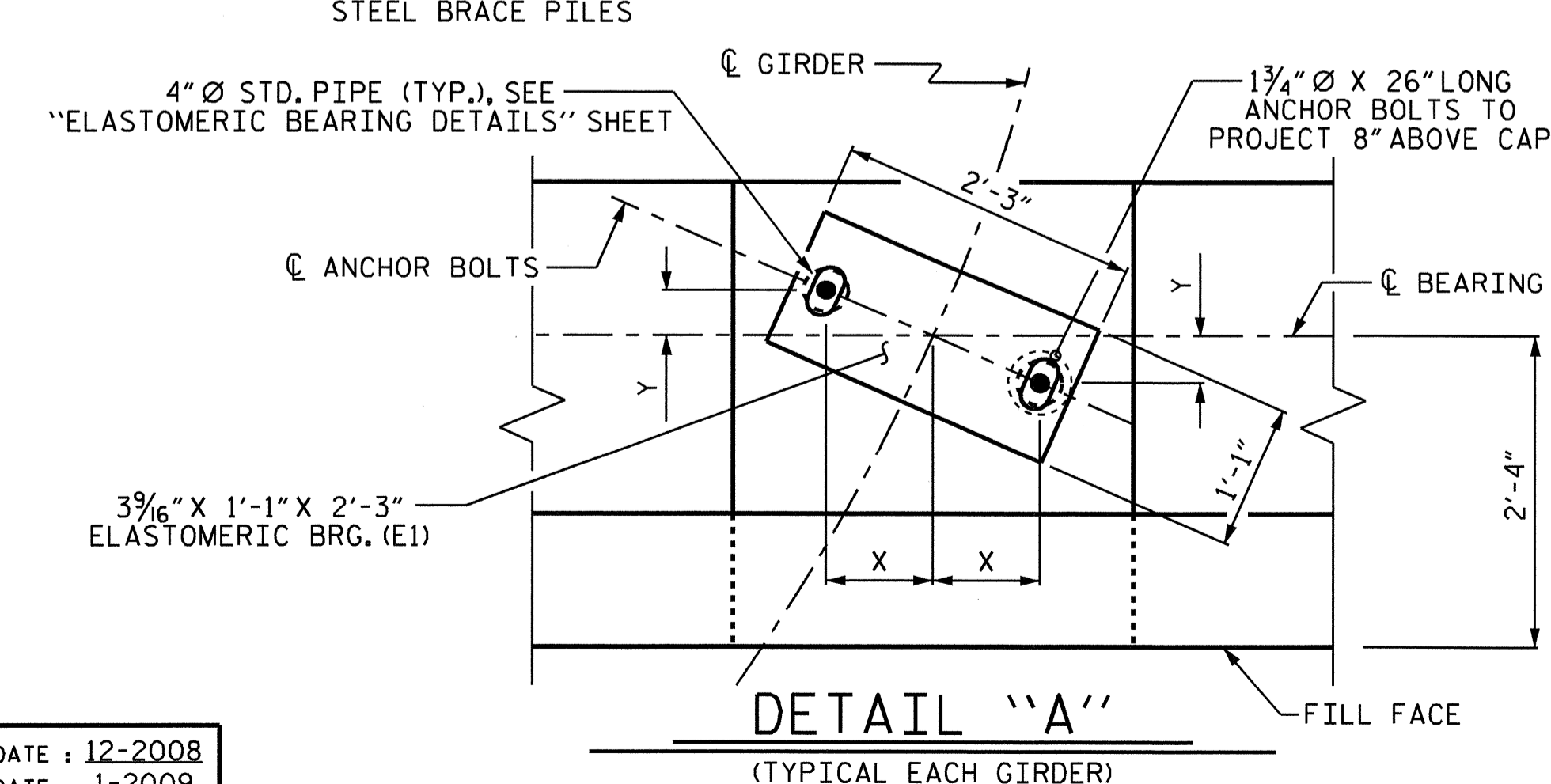
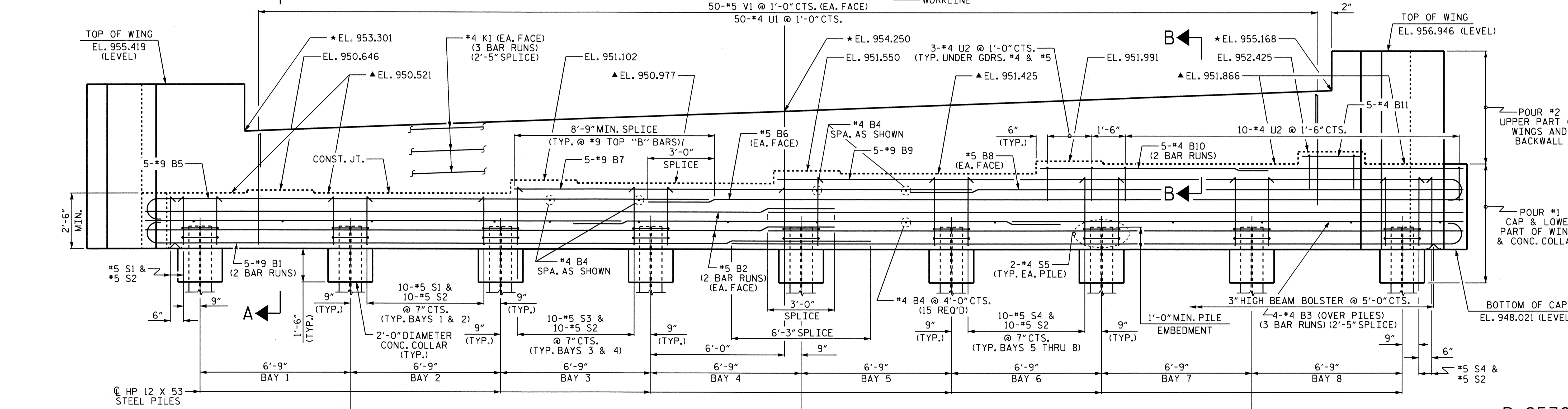
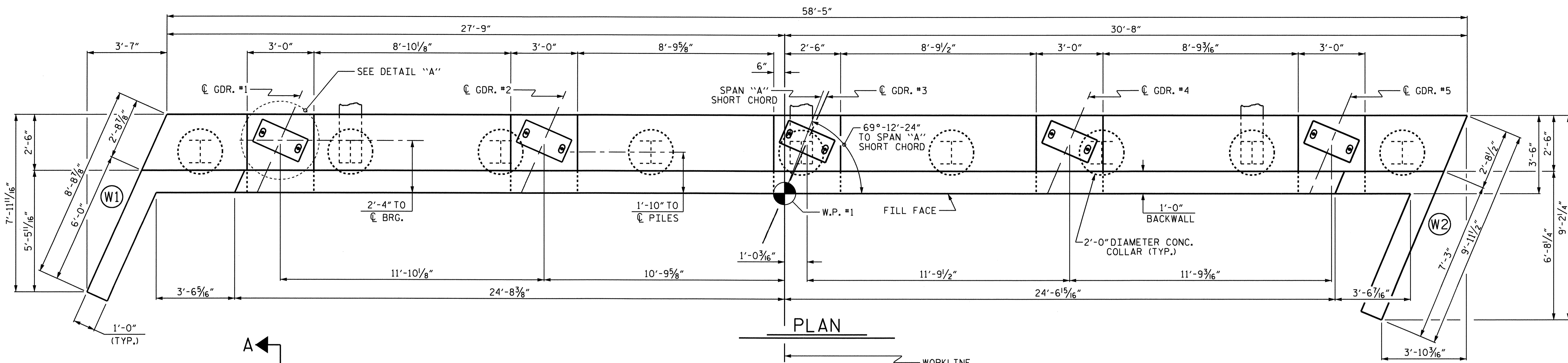
CONCRETE POURING SEQUENCE AND LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 17,968)

PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE BILL OF MATERIAL					
REVISIONS				SHEET NO. S-40	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: T. BANKOVICH DATE: 11-2008
CHECKED BY: D.G. ELY DATE: 1-2009



ANCHOR BOLT LOCATION

GIRDER	X	Y
1	9 3/4"	3 13/16"
2	9 13/16"	3 3/4"
3	9 13/16"	3 3/4"
4	9 13/16"	3 11/16"
5	9 7/8"	3 5/8"

NOTES:

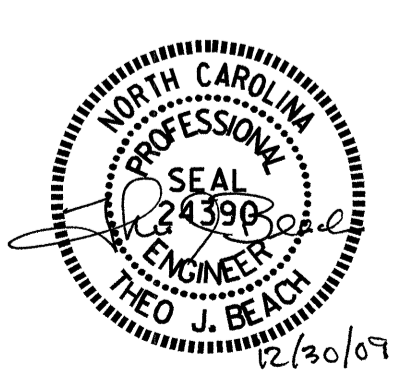
- ▲ FOR LOCATION OF ELEVATION BETWEEN BUILDUPS, SEE SECTION A-A, ON SHEET 3 OF 3.
- * THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.
- FOR SECTION B-B, SEE SHEET 3 OF 3.
- NOTES CONTINUE ON SHEET 3 OF 3.

PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 3

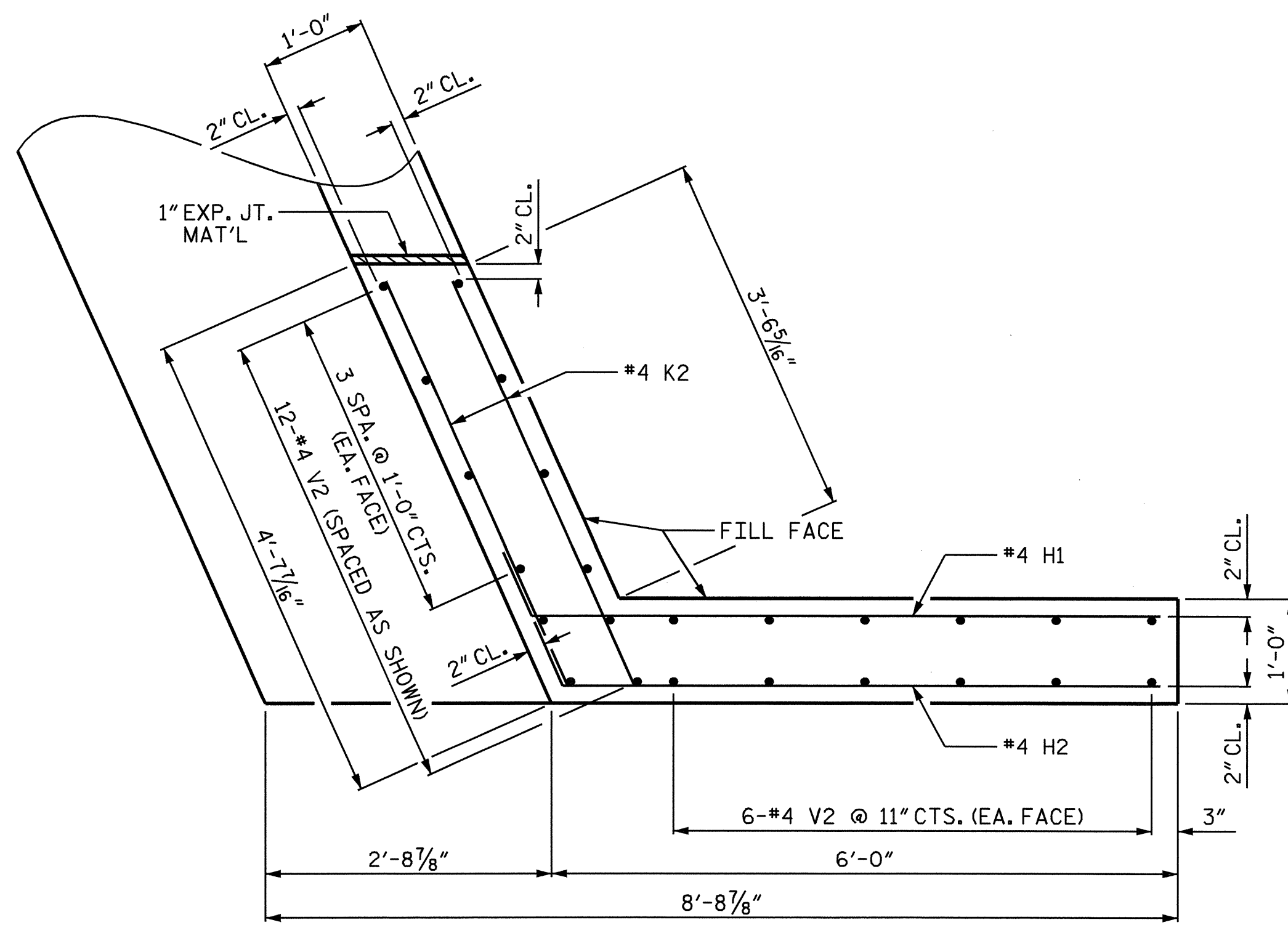
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 1

REVISIONS						SHEET NO. S-41
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 59
2			4			

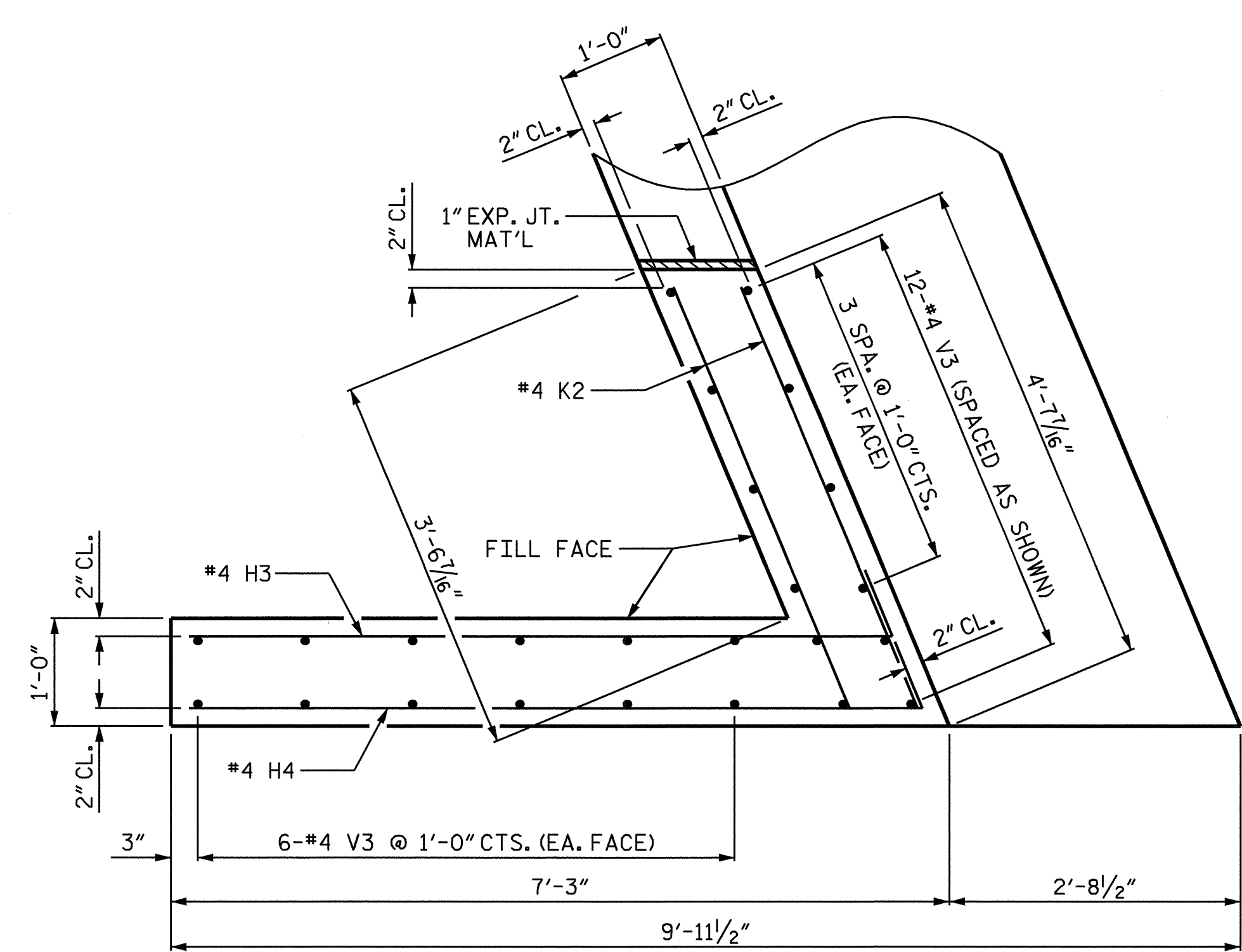


DRAWN BY: T. BANKOVICH DATE: 12-2008
 CHECKED BY: S.B. WILLIAMS DATE: 1-2009

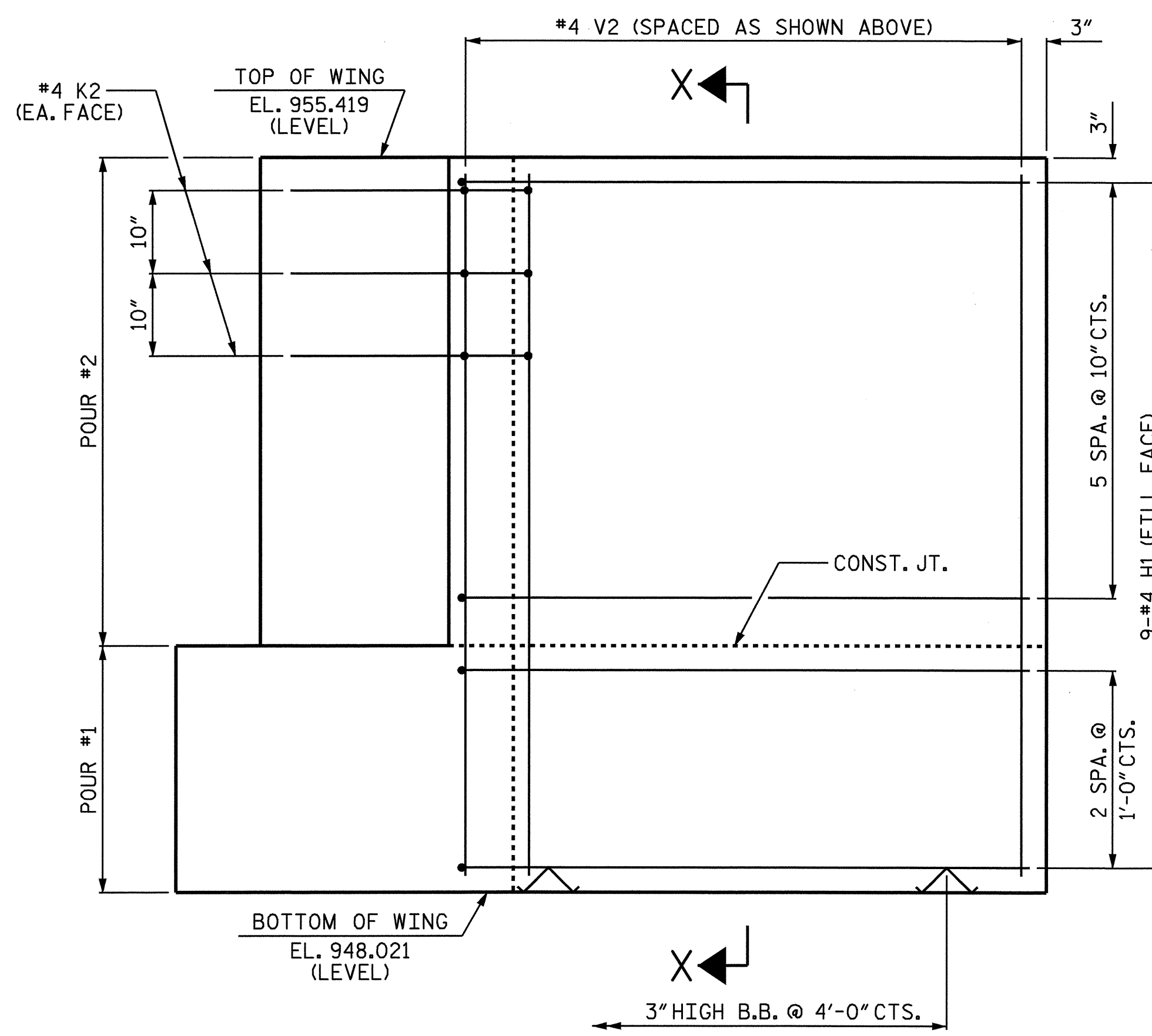
29-DEC-2009 14:04
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 aroyal



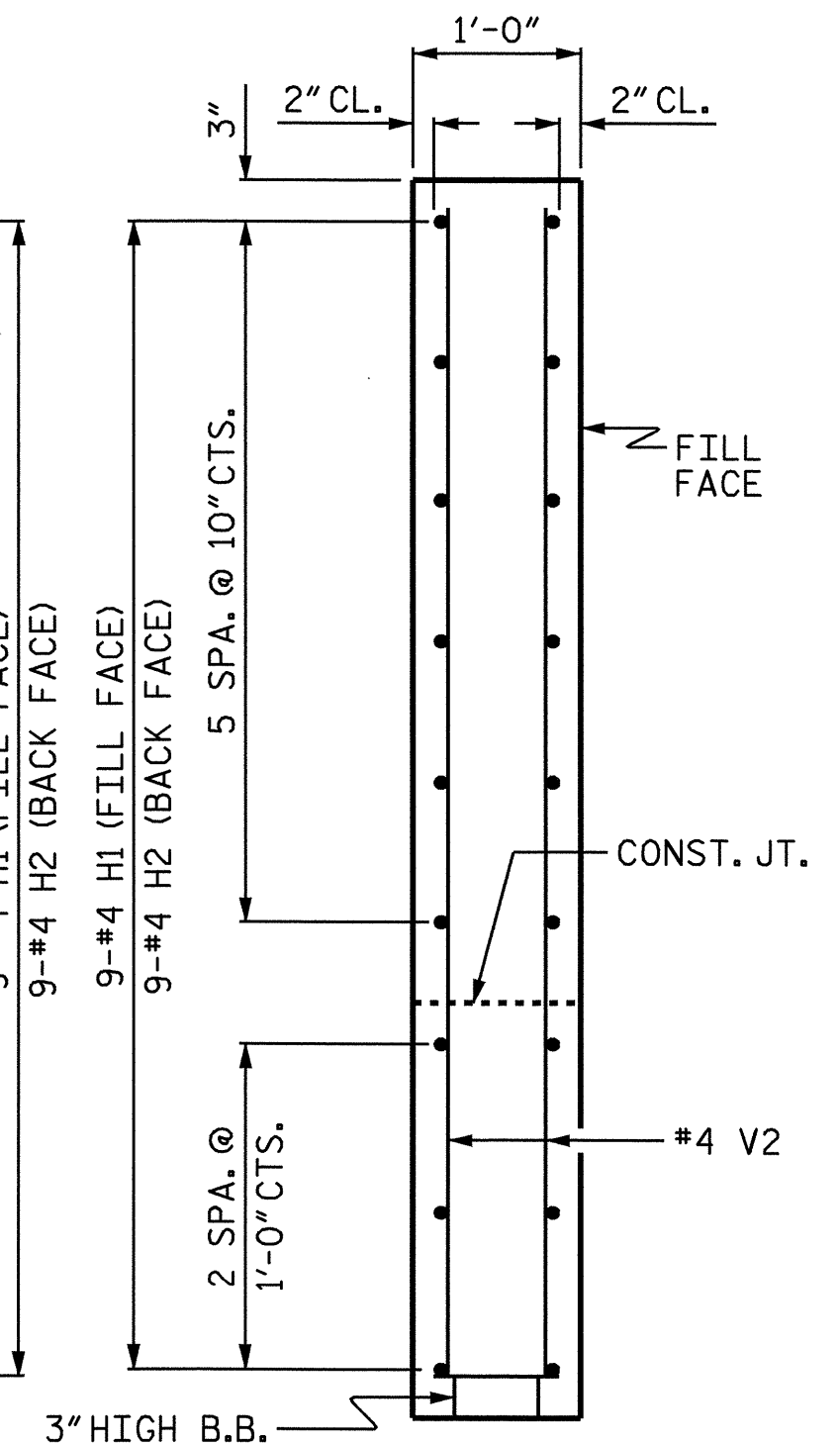
PLAN OF WING (W1)



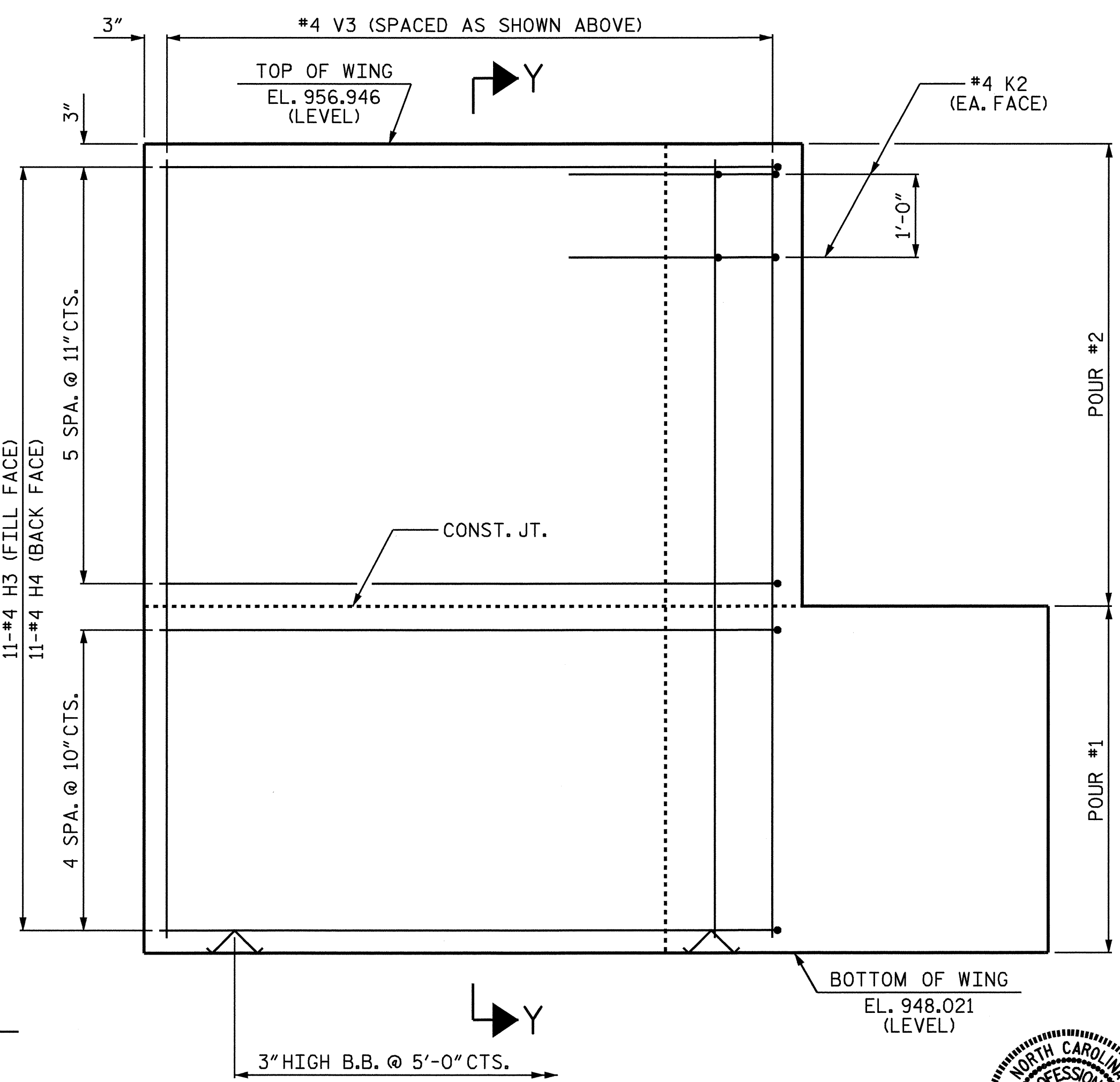
PLAN OF WING (W2)



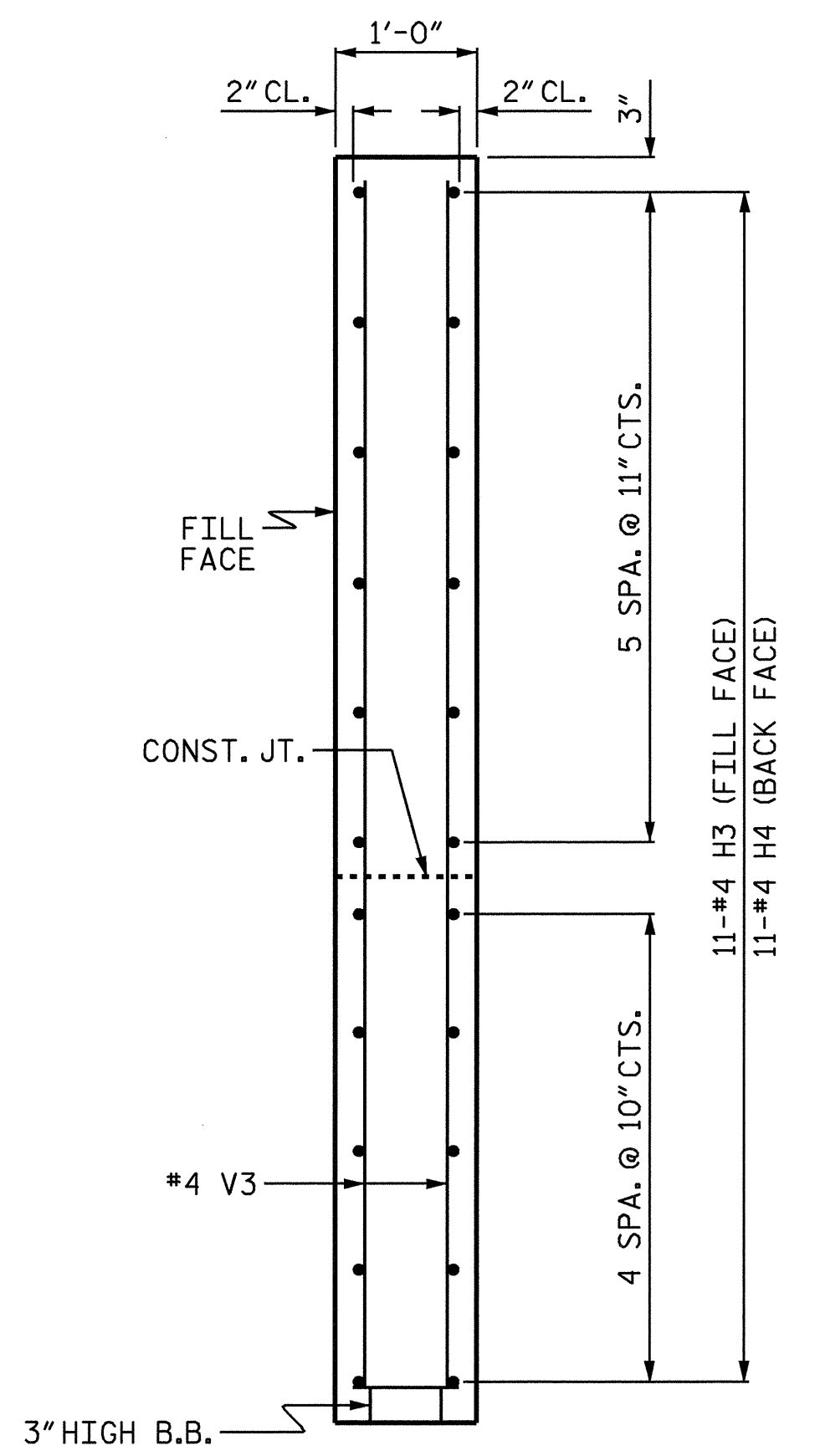
ELEVATION OF WING (W1)



SECTION X-X



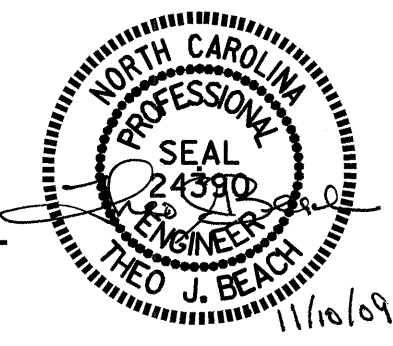
ELEVATION OF WING (W2)



SECTION Y-Y

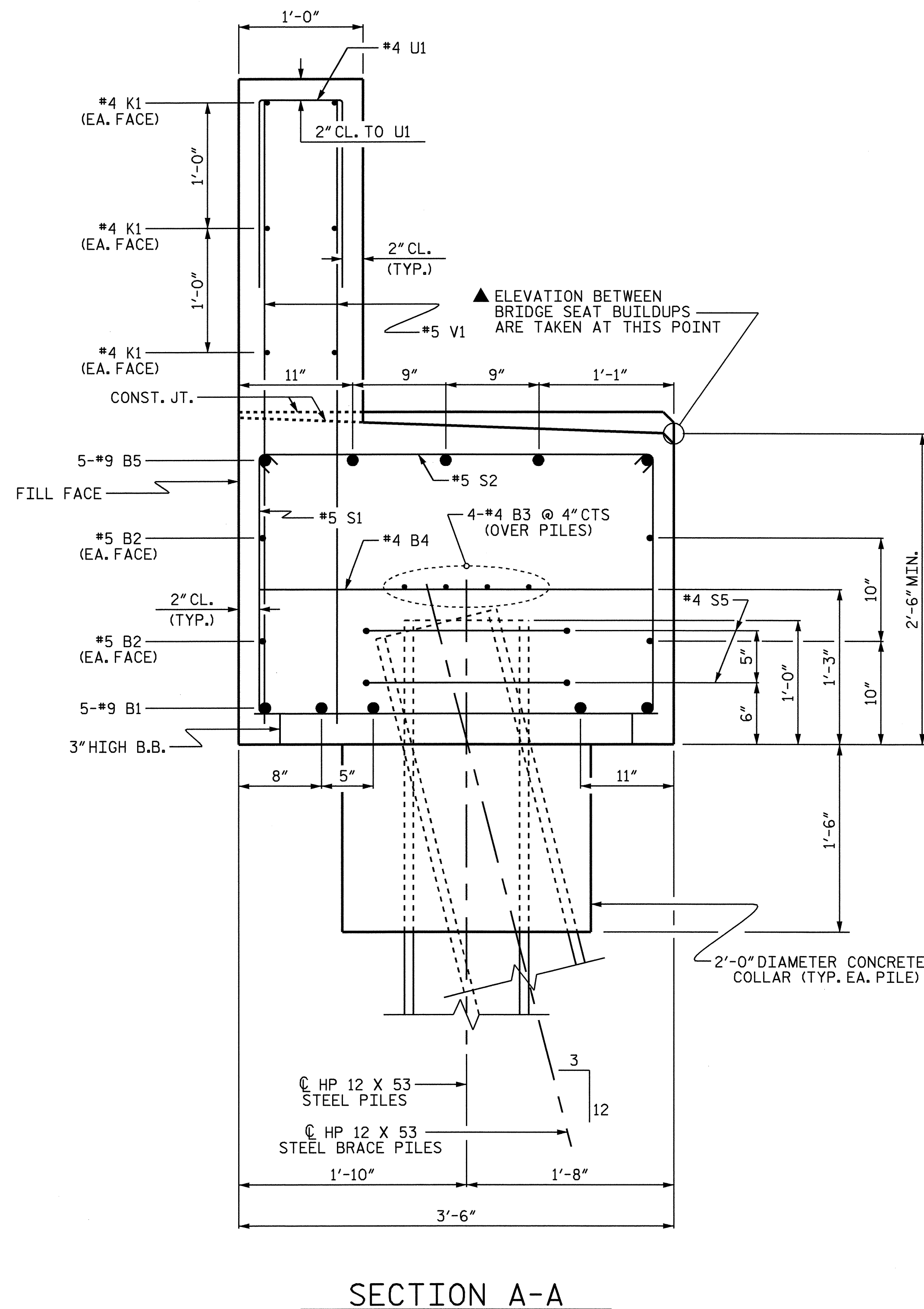
PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 1



DRAWN BY: T. BANKOVICH DATE: 12-2008
 CHECKED BY: S.B. WILLIAMS DATE: 1-2009

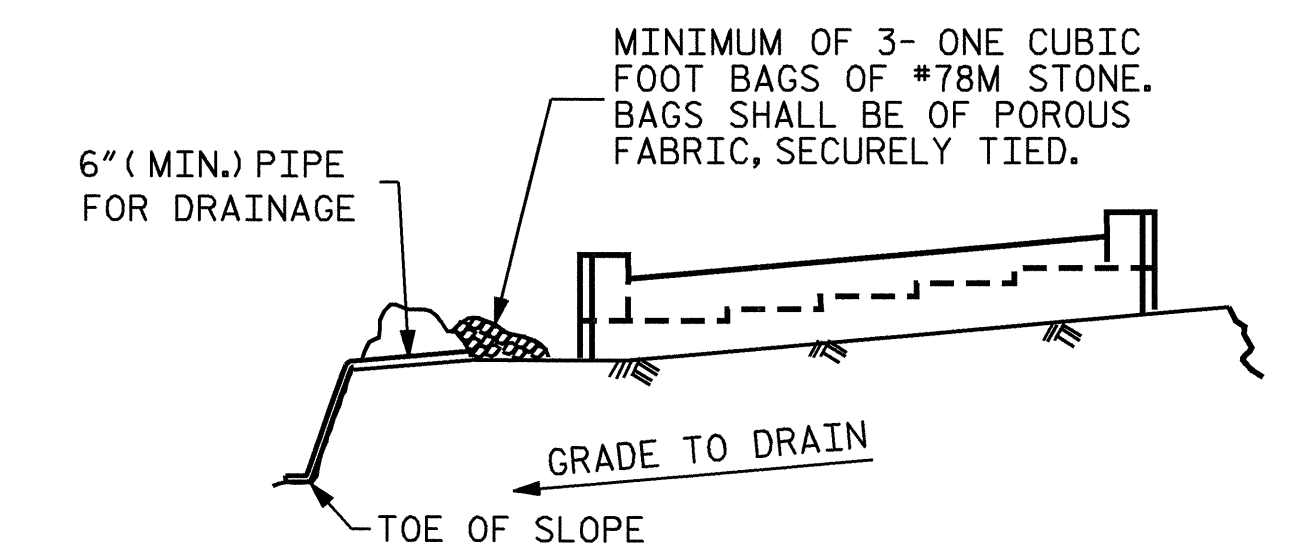
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS 59
2			4			



SECTION A-A

DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : S.B. WILLIAMS DATE : 1-2009

10-NOV-2009 15:37
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 tjbankovich

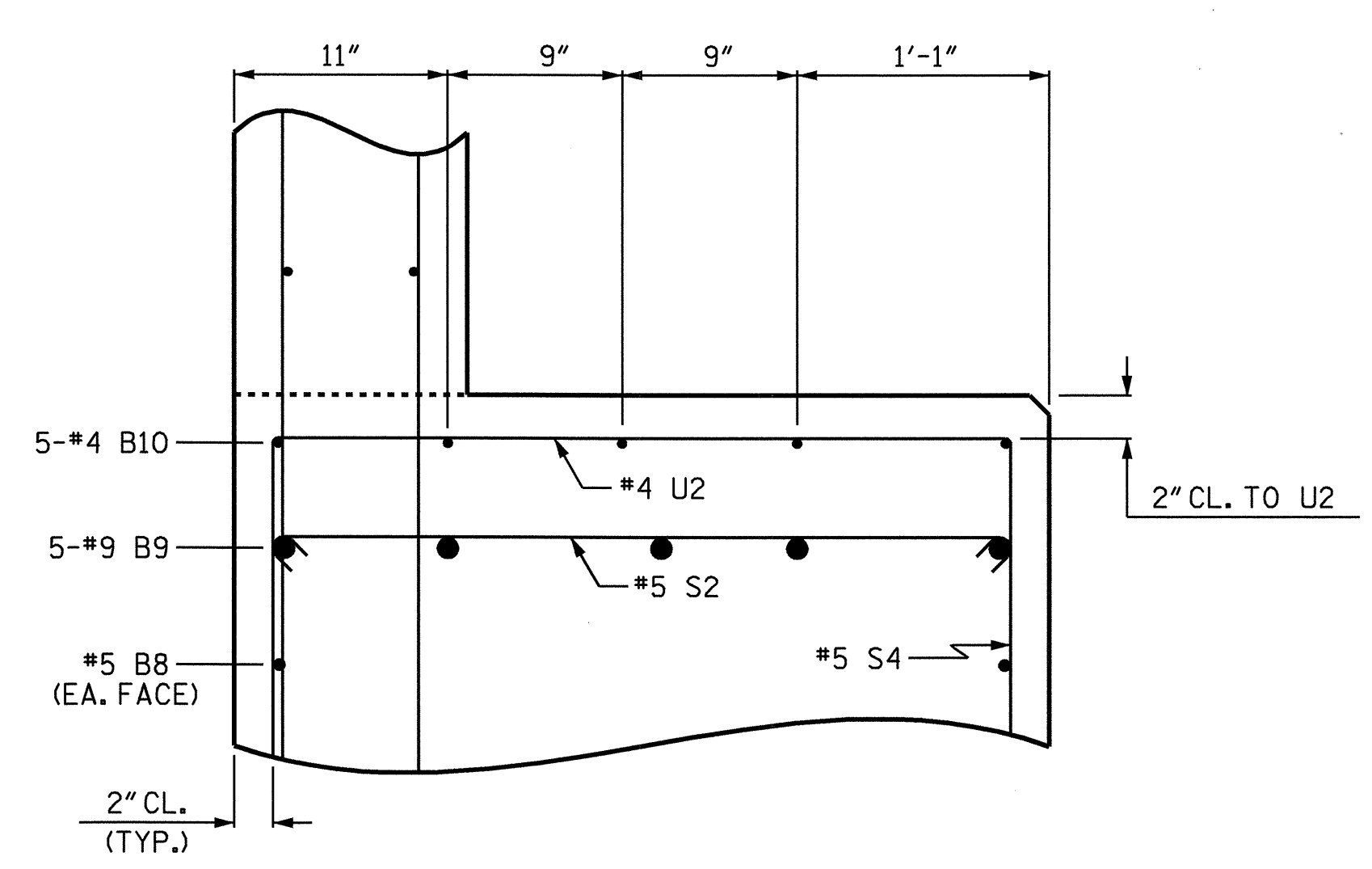


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

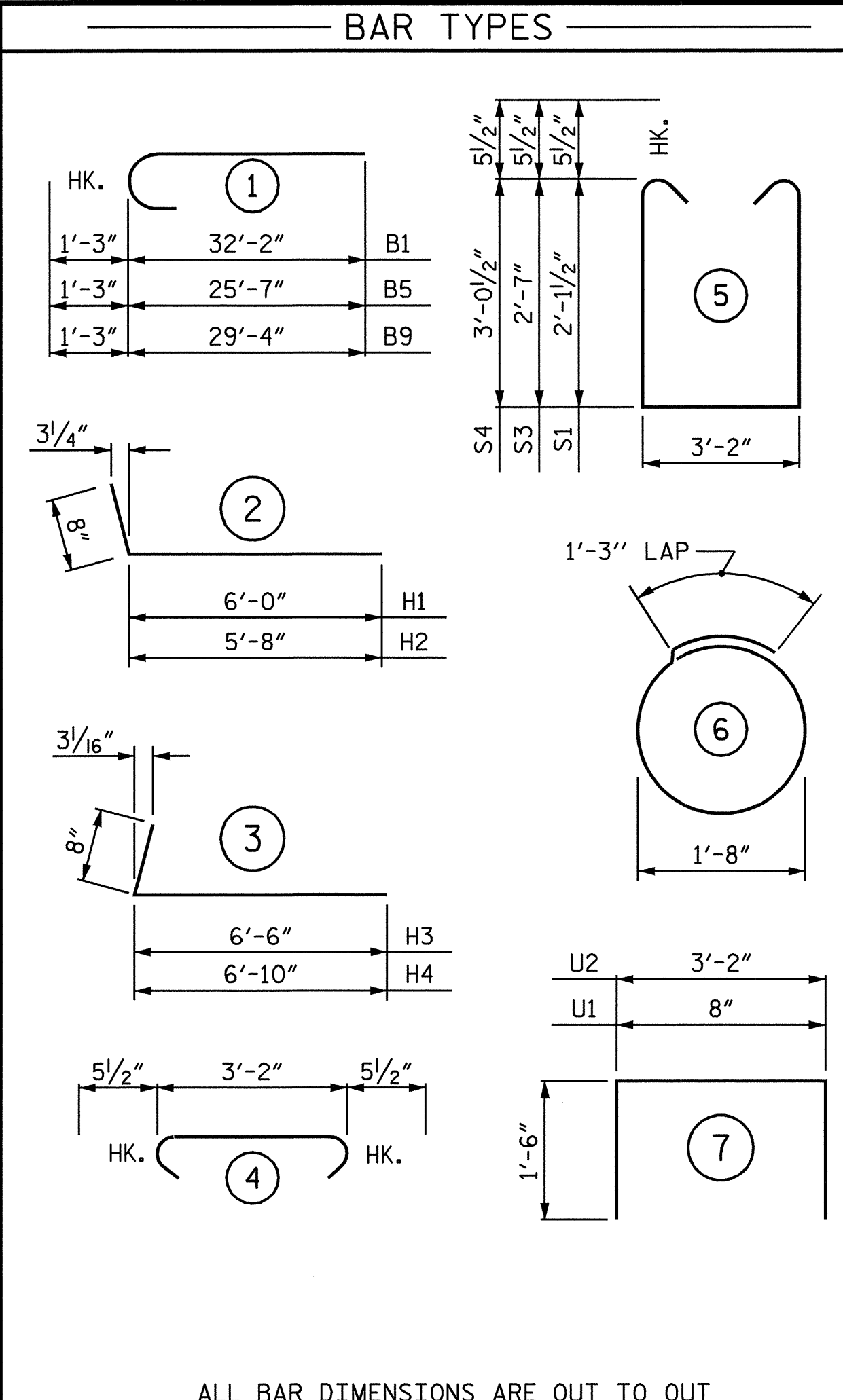
TEMPORARY DRAINAGE AT END BENT



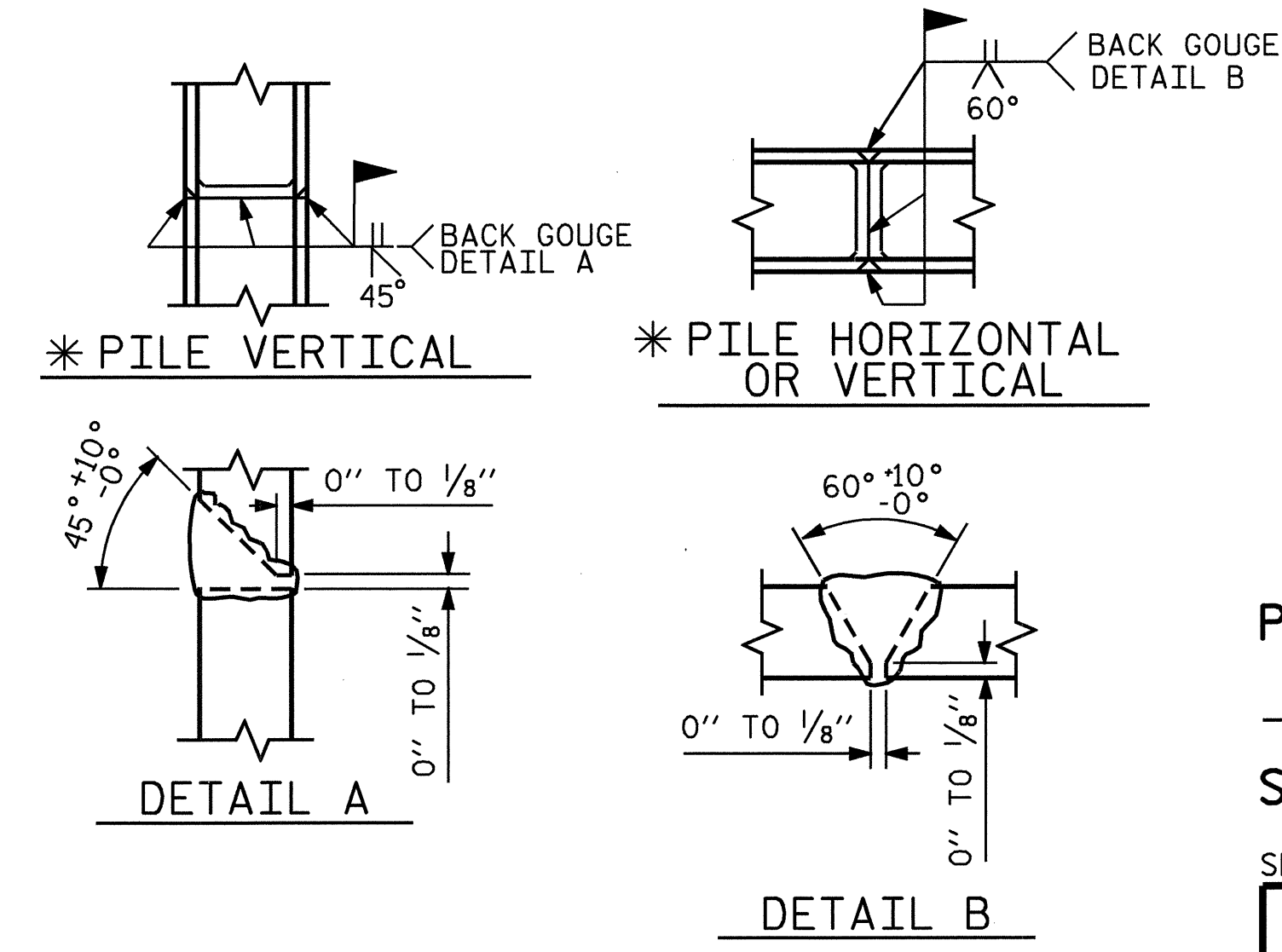
PARTIAL SECTION B-B

NOTES:

- STIRRUPS AND U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- #5 V1 BARS IN BACKWALL SHALL BE PLACED 2" FROM TOP OF BACKWALL.
- EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS AND ANCHOR BOLTS ARE GROUTED.



ALL BAR DIMENSIONS ARE OUT TO OUT



PILE SPLICE DETAILS

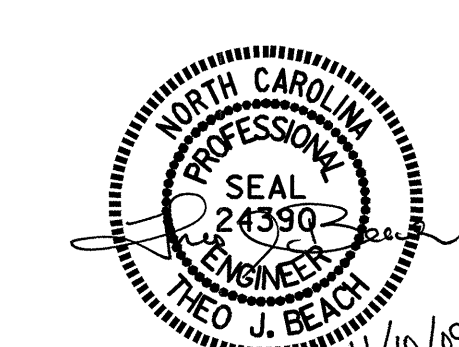
BILL OF MATERIAL					
END BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	33'-5"	1136
B2	8	#5	STR	30'-6"	254
B3	12	#4	STR	21'-0"	168
B4	19	#4	STR	3'-2"	40
B5	5	#9	1	26'-10"	456
B6	2	#5	STR	35'-5"	74
B7	5	#9	STR	22'-1"	375
B8	2	#5	STR	23'-7"	49
B9	5	#9	1	30'-7"	520
B10	10	#4	STR	10'-9"	72
B11	5	#4	STR	2'-8"	9
H1	9	#4	2	6'-8"	40
H2	9	#4	2	6'-4"	38
H3	11	#4	3	7'-2"	53
H4	11	#4	3	7'-6"	55
K1	18	#4	STR	21'-0"	253
K2	10	#4	STR	4'-3"	28
S1	22	#5	5	8'-4"	191
S2	84	#5	4	4'-4"	358
S3	20	#5	5	9'-3"	193
S4	42	#5	5	10'-2"	445
S5	18	#4	6	6'-6"	78
U1	50	#4	7	3'-8"	122
U2	16	#4	7	6'-2"	66
V1	100	#5	STR	4'-11"	513
V2	24	#4	STR	7'-0"	112
V3	24	#4	STR	8'-7"	138
REINFORCING STEEL					5836 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, LOWER WING & CONC. COLLARS)					27.9 C.Y.
POUR #2 (BACKWALL & UPPER WING)					9.3 C.Y.
TOTAL CLASS A CONCRETE					37.2 C.Y.
HP 12 X 53 STEEL PILES					
No. = 9					765 LIN. FT.
STEEL PILE POINTS					NO. = 9

PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 1

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

SHEET NO. S-43
 TOTAL SHEETS 59



NOTES:

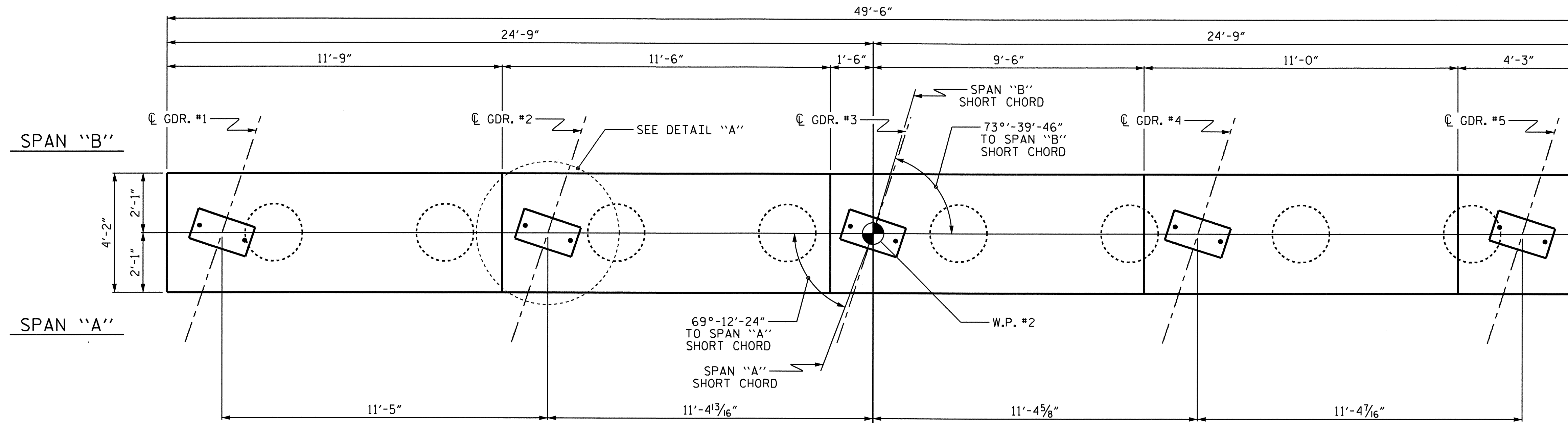
STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

* INVERT ALTERNATE STIRRUPS AS SHOWN

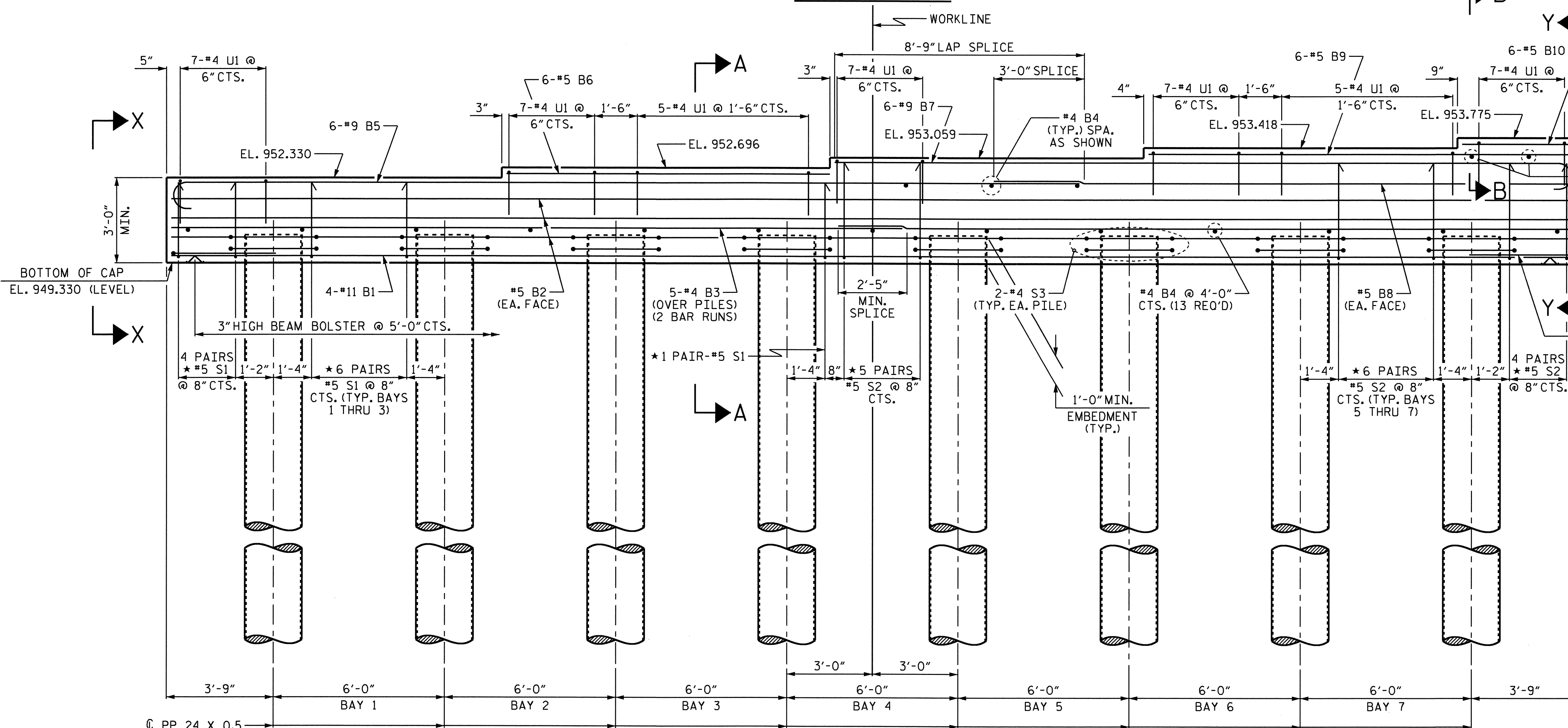
GALVANIZE THE TOP 25 FEET OF EACH INTERIOR BENT NO. 1 PILE IN ACCORDANCE WITH SECTION 1076 OF STANDARD SPECIFICATIONS.

FOR ADDITIONAL REINFORCING STEEL IN END OF CAP, SEE VIEW X-X AND Y-Y SHEET 2 OF 2.

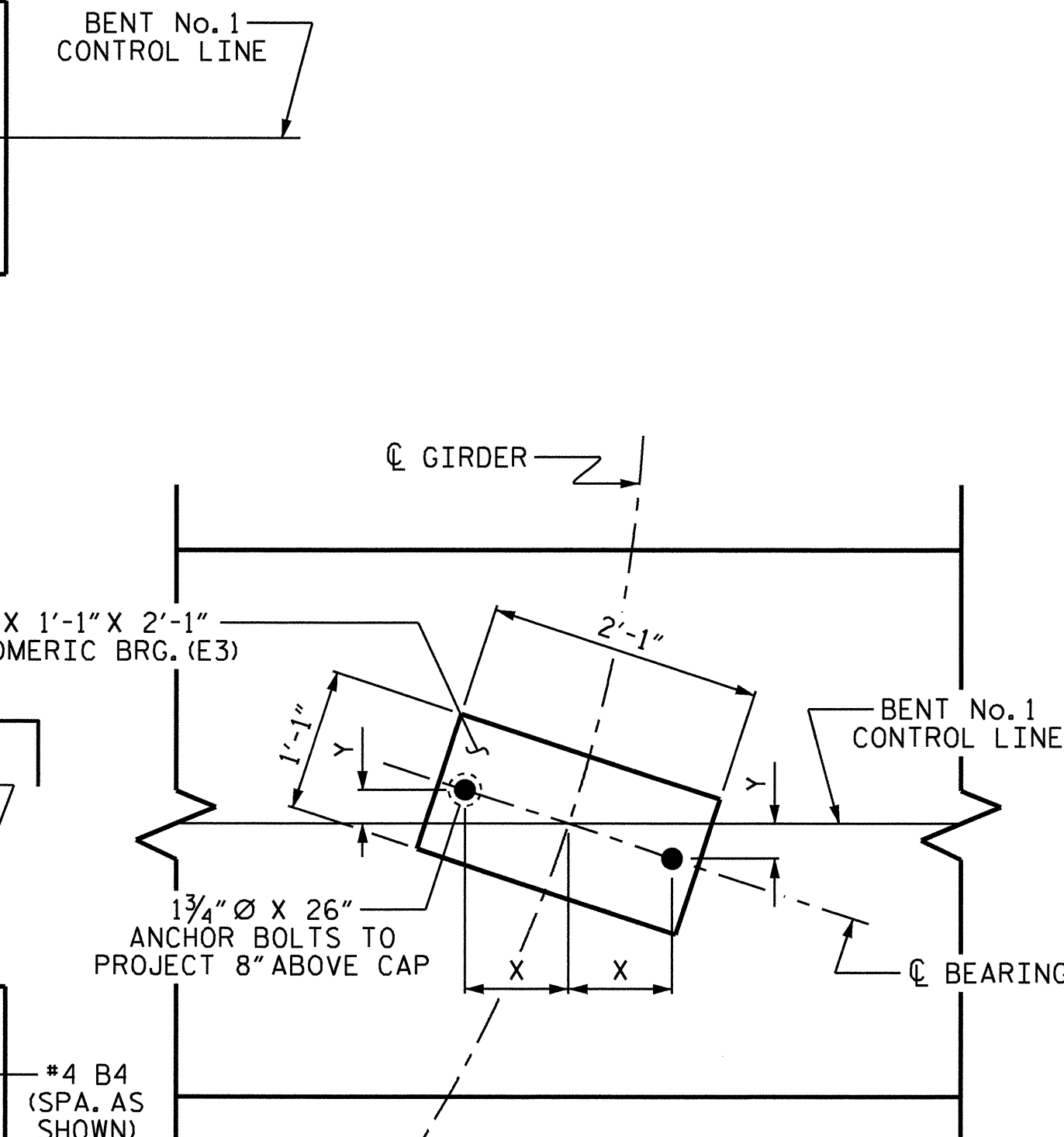
FILL PIPE PILES WITH CLASS A CONCRETE FROM EL. 932 TO THE BOTTOM OF THE 5'-0" (MIN.) CONCRETE PLUG. (SEE 24" GALVANIZED STEEL PIPE PILE SHEET)



PLAN



ELEVATION



DETAIL "A"
(TYP. EA. GIRDER)

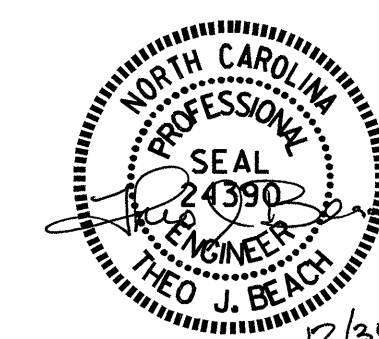
ANCHOR BOLT LOCATION

GIRDER	X	Y
1	9/2"	3 3/16"
2	9/2"	3 3/8"
3	9/2"	3 3/8"
4	9/2"	3 3/16"
5	9 3/16"	3"

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 1 OF 2

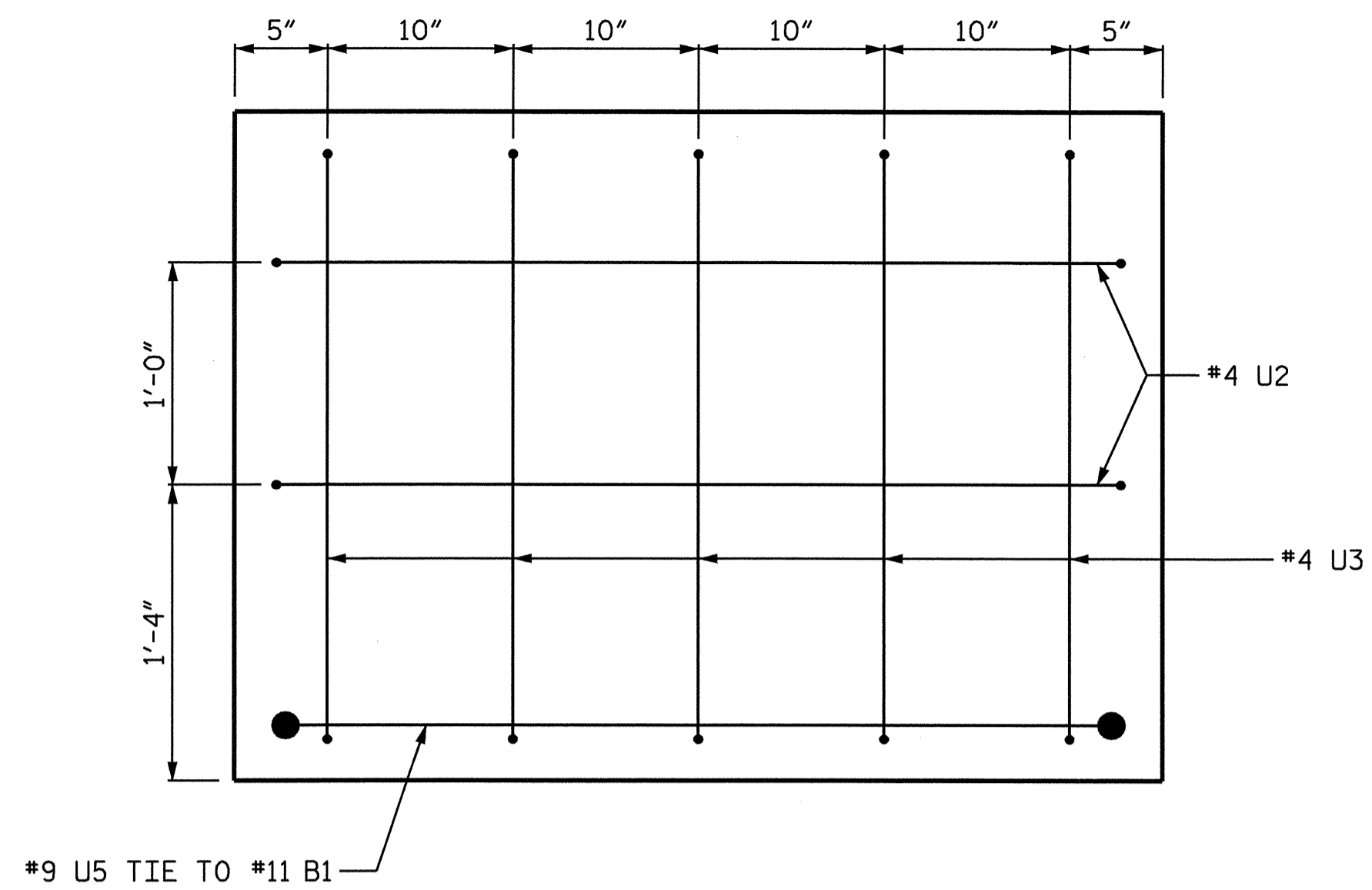
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENT No. 1



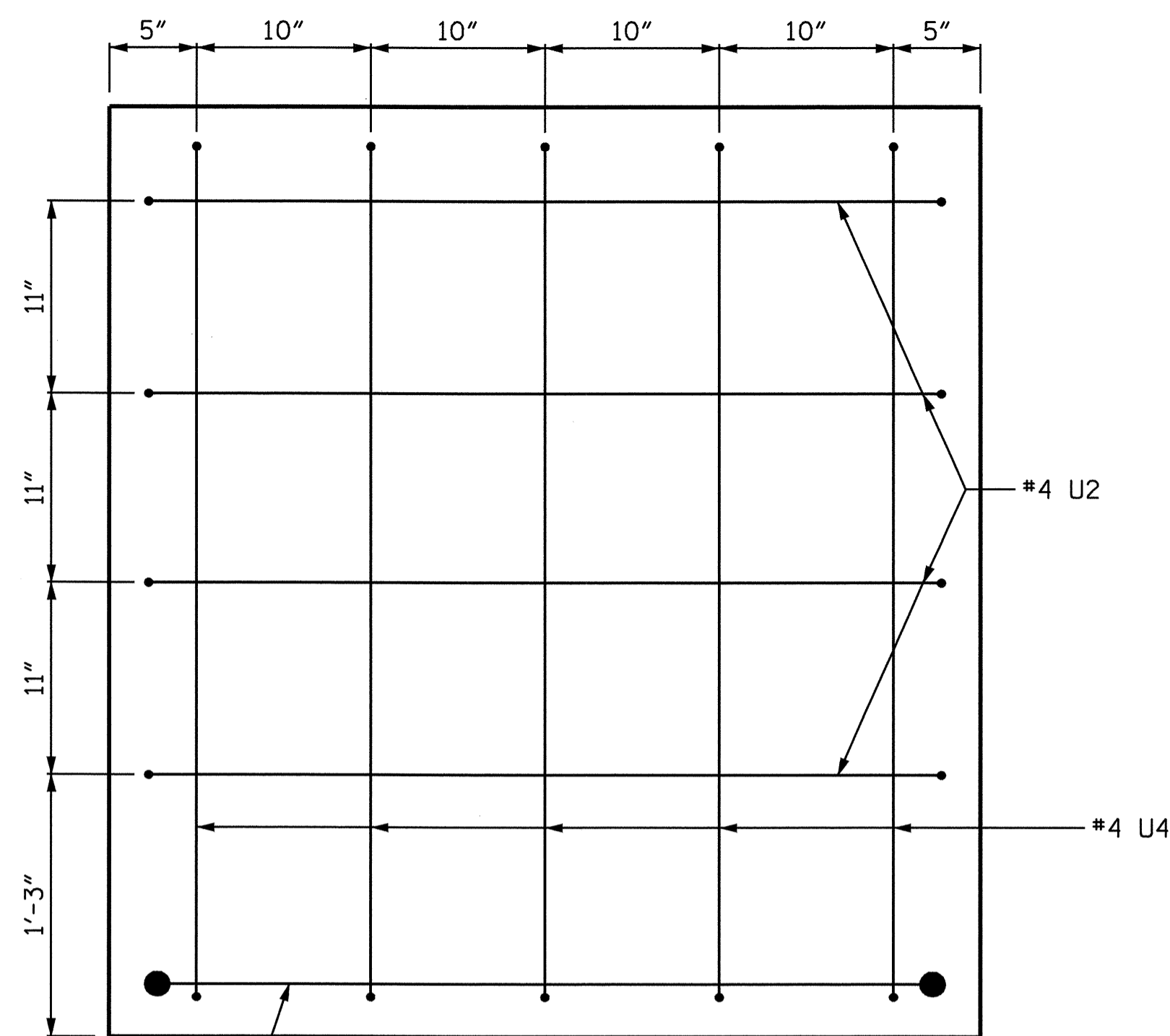
DRAWN BY : T. BANKOVICH DATE : 8-2008
 CHECKED BY : M.L. BROWN DATE : 9-2008

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

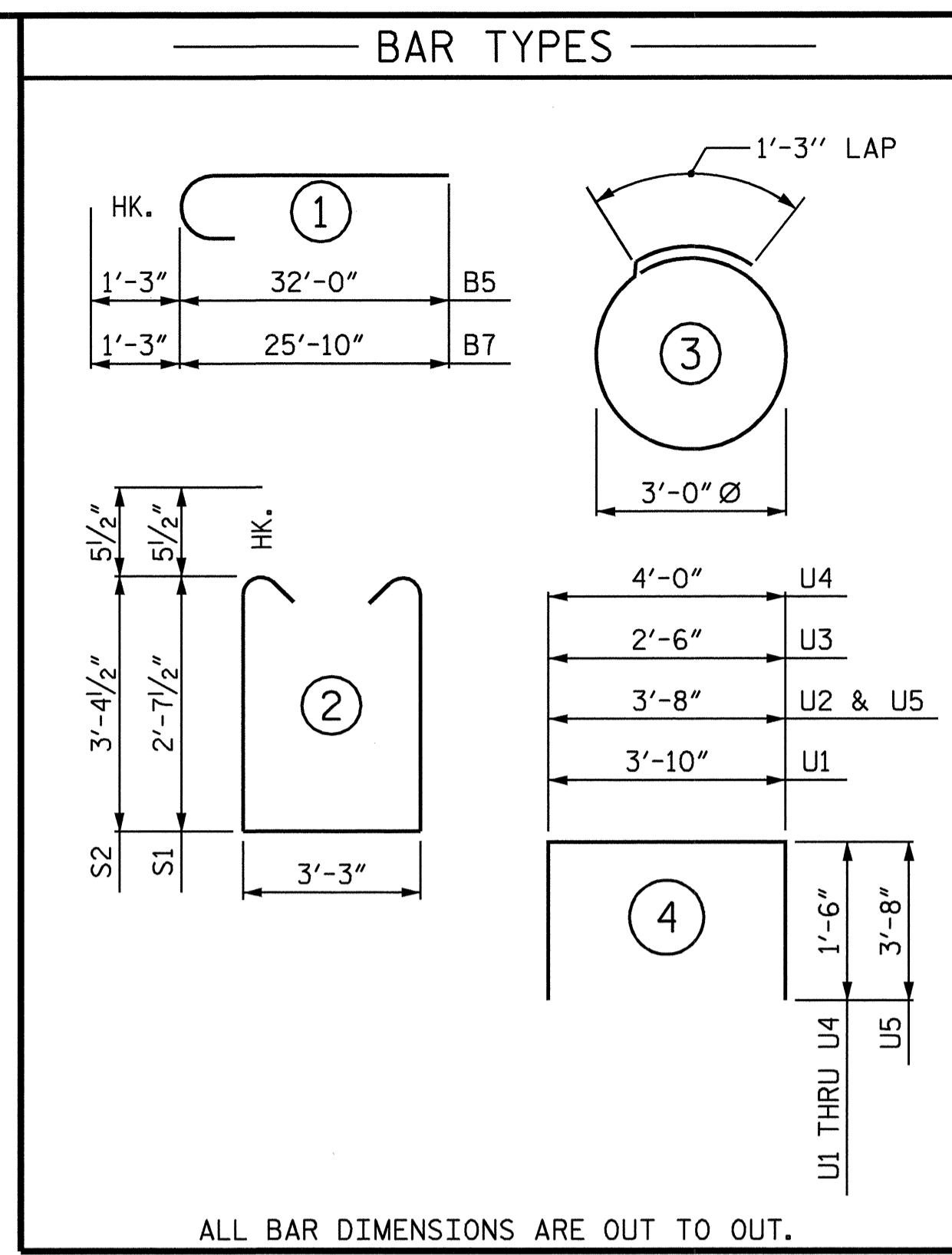
TOTAL SHEETS: 59



VIEW X-X



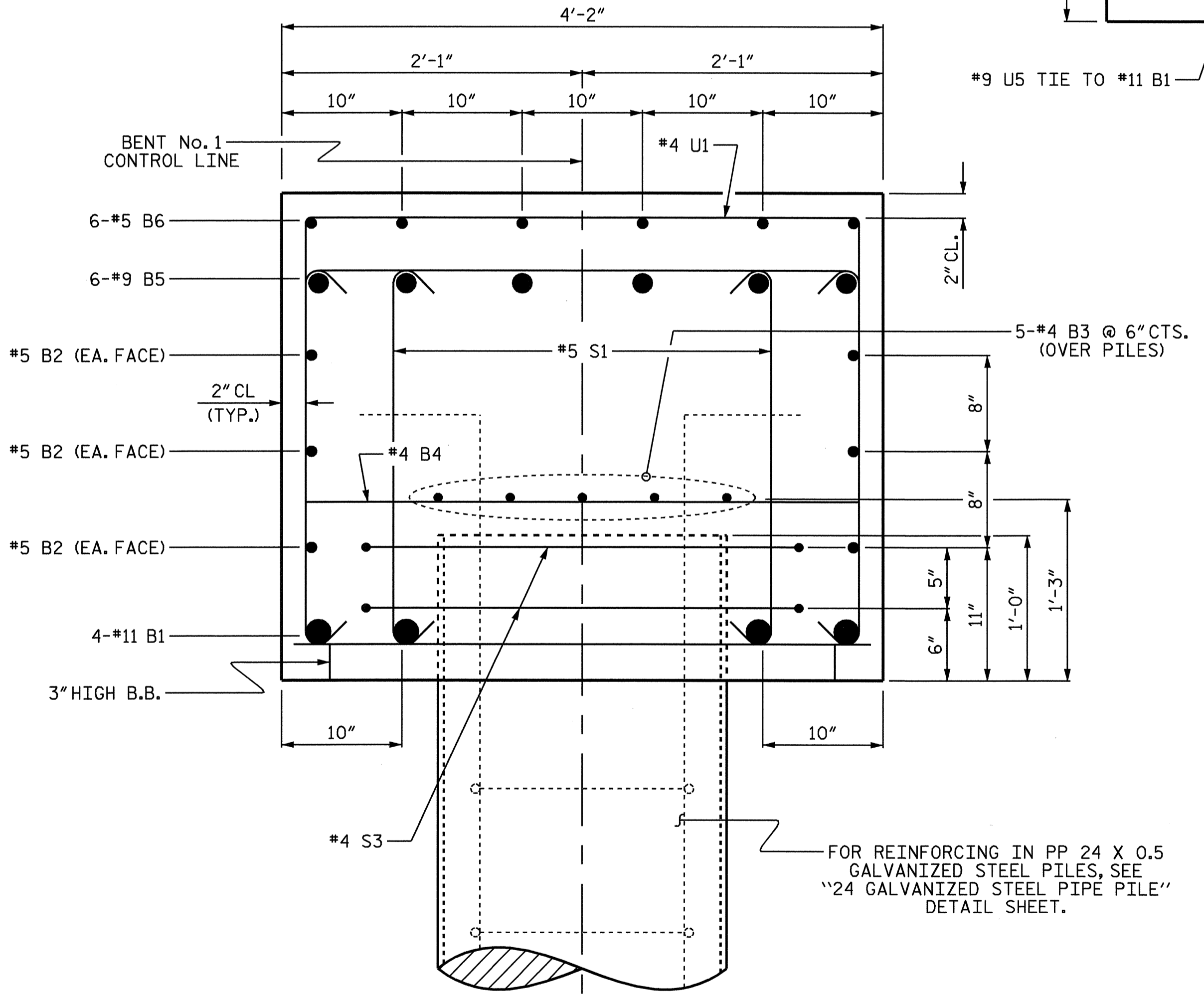
VIEW Y-Y



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL						
BENT No. 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	4	#11	STR	49'-2"	1045	
B2	6	#5	STR	49'-2"	308	
B3	10	#4	STR	25'-10"	173	
B4	18	#4	STR	3'-10"	46	
B5	6	#9	1	33'-3"	678	
B6	6	#5	STR	11'-4"	71	
B7	6	#9	1	27'-1"	552	
B8	2	#5	STR	20'-2"	42	
B9	6	#5	STR	14'-11"	93	
B10	6	#5	STR	3'-11"	25	
S1	46	#5	2	9'-5"	452	
S2	54	#5	2	10'-11"	615	
S3	16	#4	3	10'-8"	114	
U1	45	#4	4	6'-10"	205	
U2	6	#4	4	6'-8"	27	
U3	5	#4	4	5'-6"	18	
U4	5	#4	4	7'-0"	23	
U5	2	#9	4	11'-0"	75	
REINFORCING STEEL					4562 LBS	
CLASS A CONCRETE						
POUR #1 (CAP)					26.7 C.Y.	
TOTAL					26.7 C.Y.	
PP 24 X 0.5 GALVANIZED STEEL PILES						
No. = 8					680 LIN. FT.	
STEEL PILE POINTS					No. = 8	

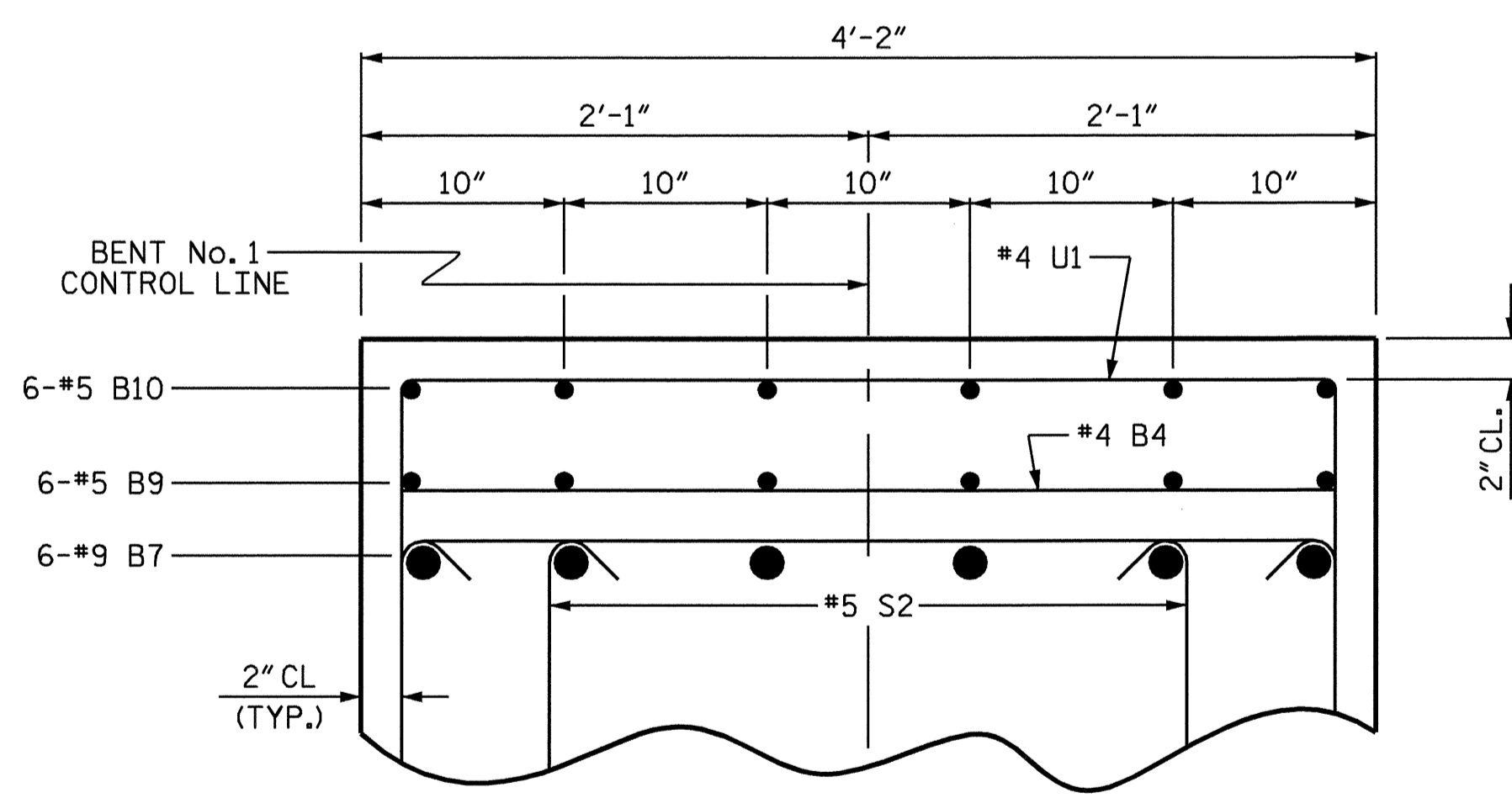
THE CONCRETE DISPLACED BY THE FILLED PP 24 X 0.5 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE QUANTITY OF CLASS A CONCRETE FOR THE BENT CAP



SECTION A-A

FOR REINFORCING IN PP 24 X 0.5 GALVANIZED STEEL PILES, SEE "24 GALVANIZED STEEL PIPE PILE" DETAIL SHEET.

PP 24 X 0.5 GALVANIZED STEEL PILES

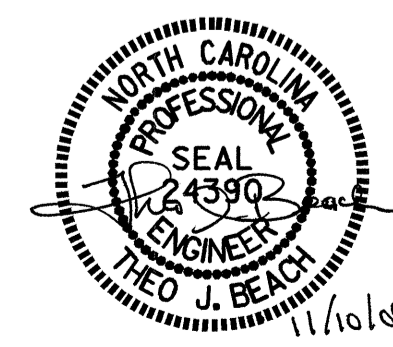


SECTION B-B

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 1



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45	
1			3			TOTAL SHEETS	59
2			4				

DRAWN BY: T. BANKOVICH DATE: 8-2008
 CHECKED BY: M.L. BROWN DATE: 9-2008

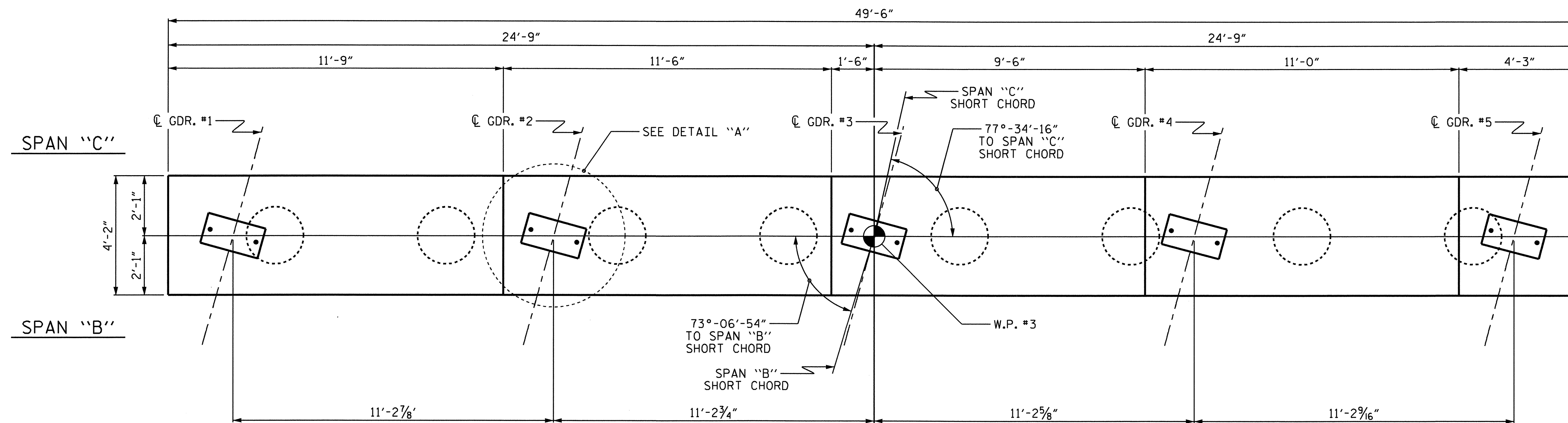
NOTES:

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

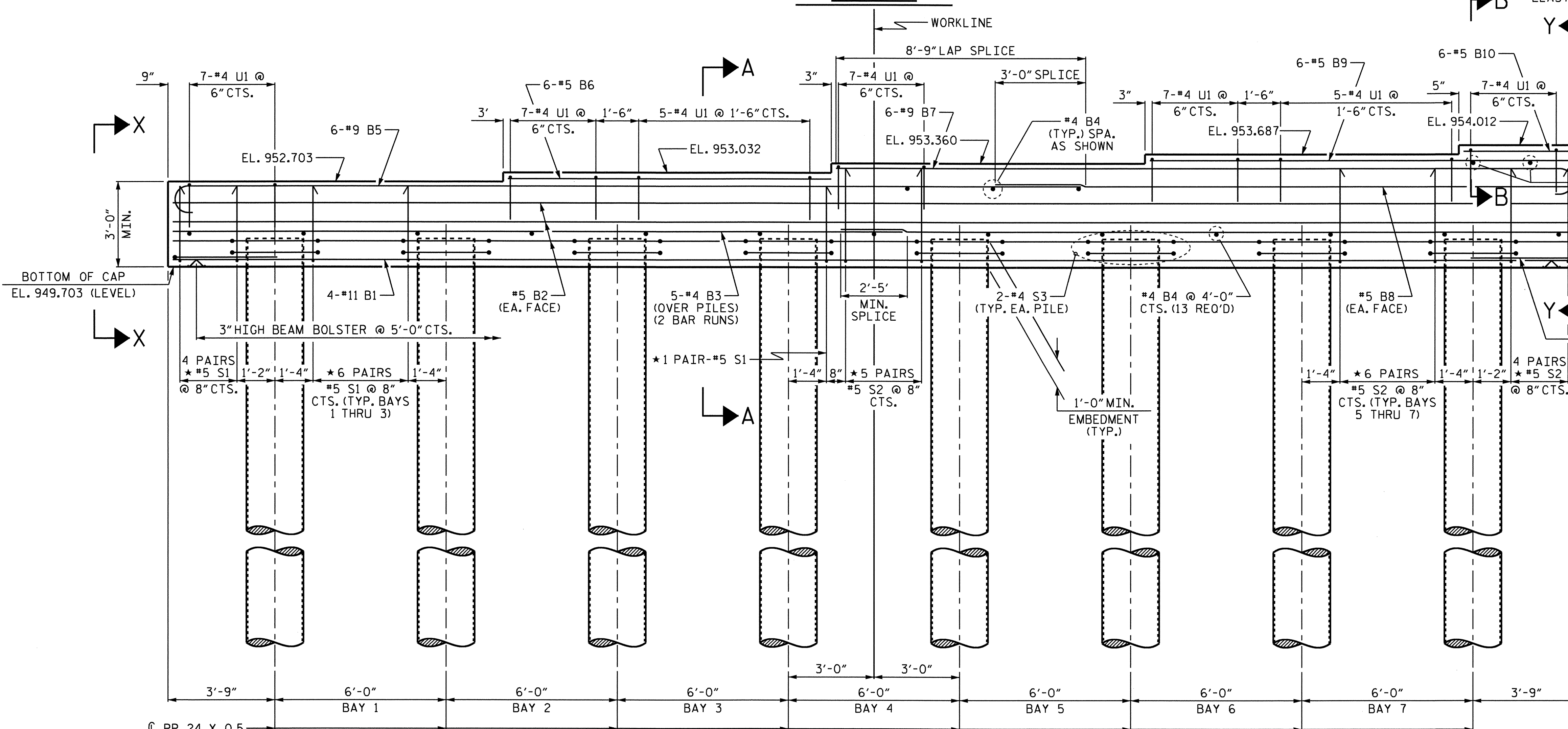
* INVERT ALTERNATE STIRRUPS AS SHOWN

GALVANIZE THE TOP 35 FEET OF EACH INTERIOR BENT NO. 2 PILE IN ACCORDANCE WITH SECTION 1076 OF STANDARD SPECIFICATIONS.

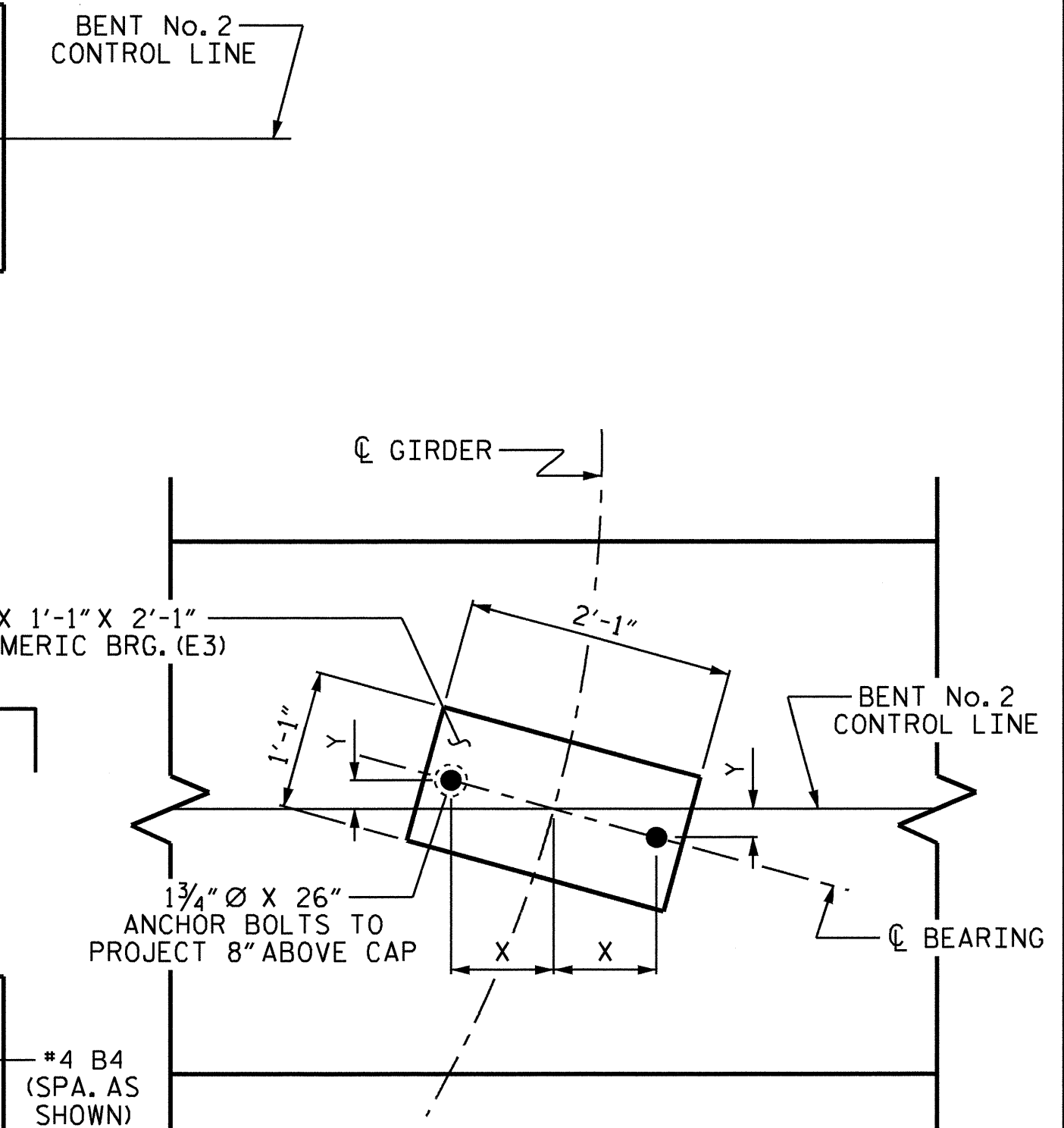
FOR ADDITIONAL REINFORCING STEEL IN END OF CAP, SEE VIEW X-X AND Y-Y SHEET 2 OF 2.



PLAN



ELEVATION



DETAIL "A"

(TYP. EA. GIRDER)

ANCHOR BOLT LOCATION		
GIRDER	X	Y
1	9 5/8"	2 1/16"
2	9 7/8"	2 7/8"
3	9 5/8"	2 5/8"
4	9 1/16"	2 9/16"
5	9 1/16"	2 9/16"

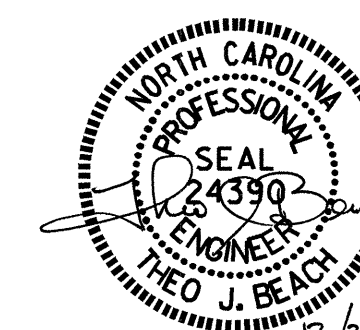
PROJECT NO. B-2576

IREDELL COUNTY

STATION: 19+35.95 -L-

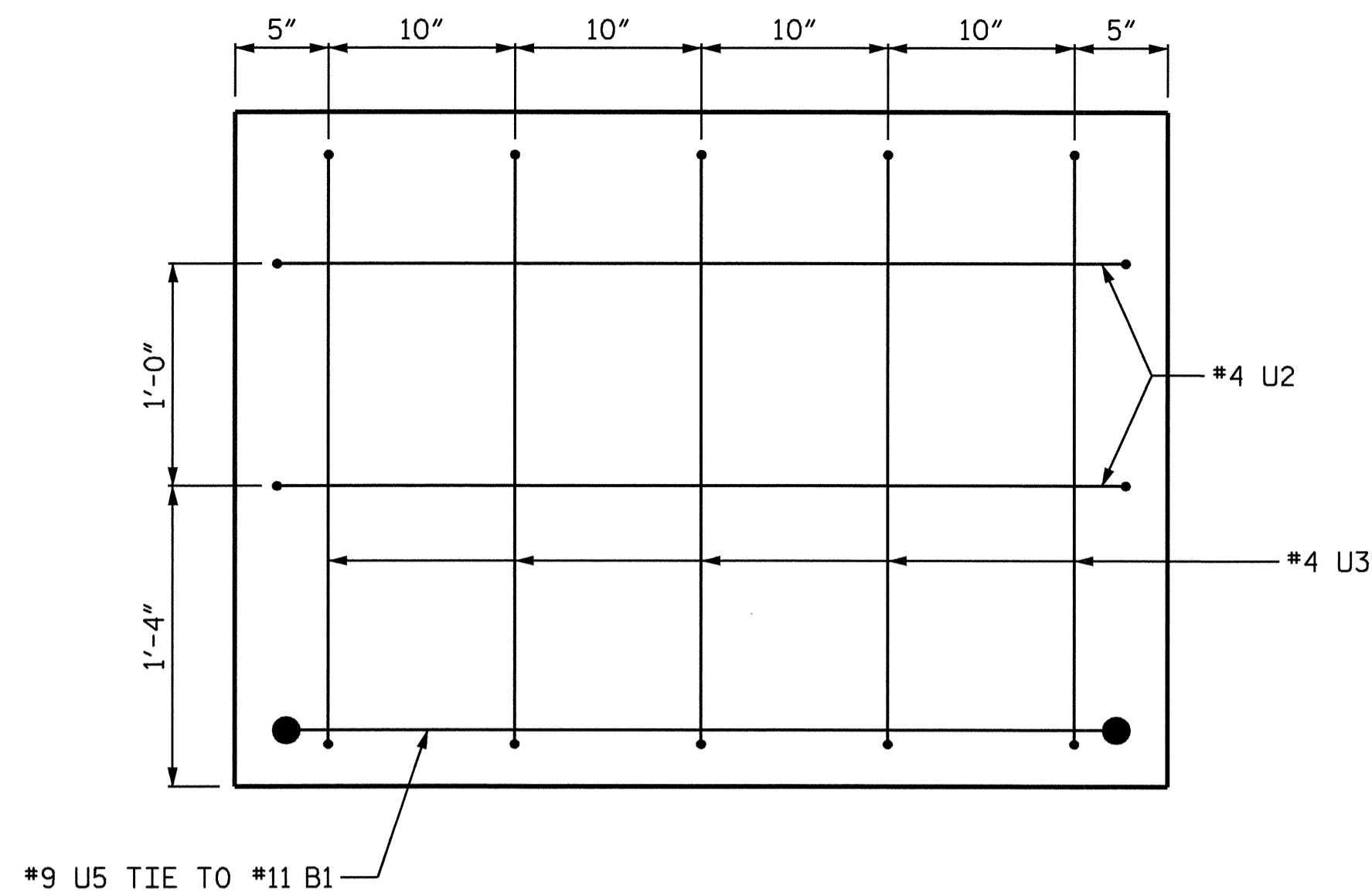
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT No. 2

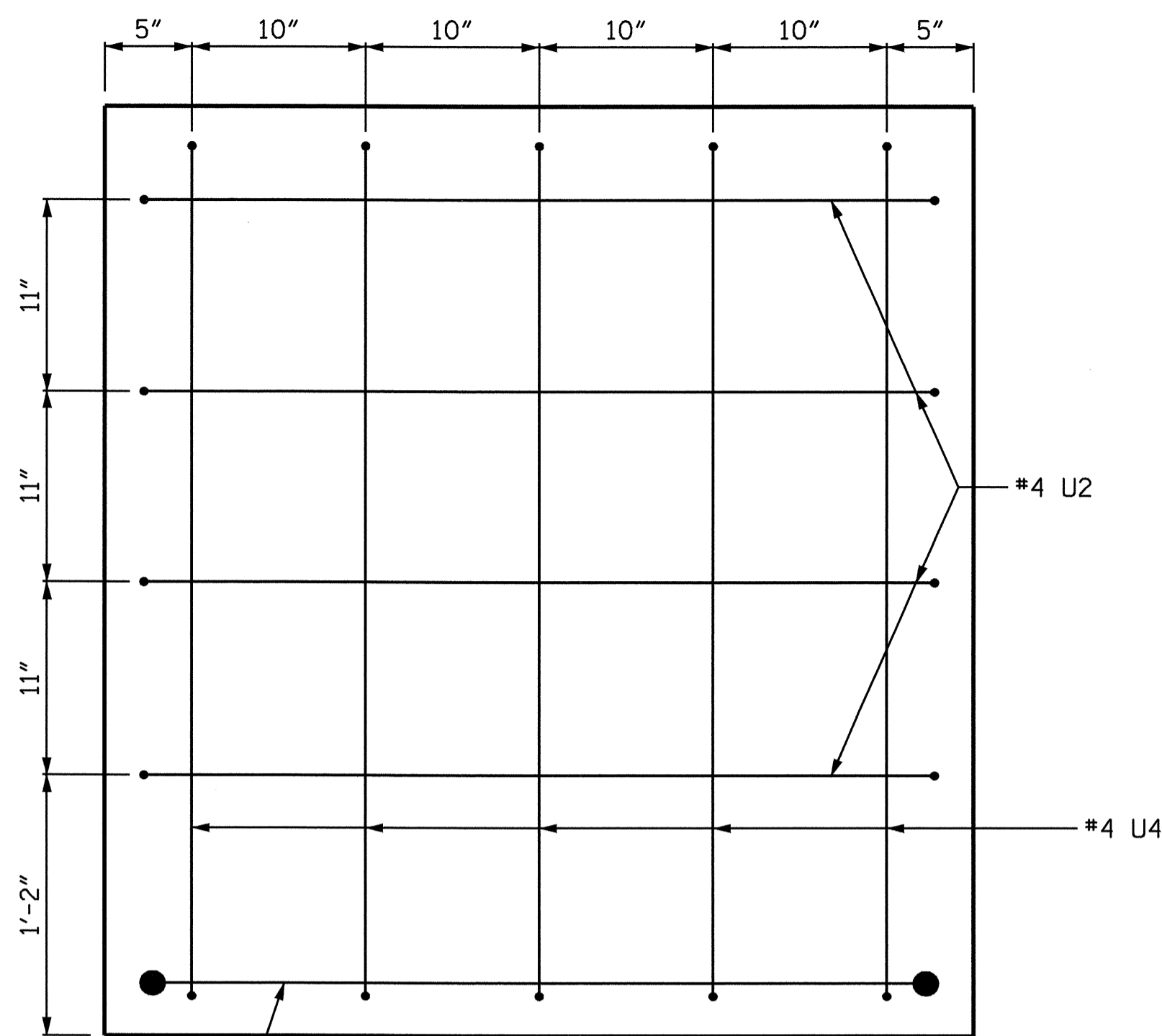


DRAWN BY: T. BANKOVICH DATE: 8-2008
CHECKED BY: M.L. BROWN DATE: 9-2008

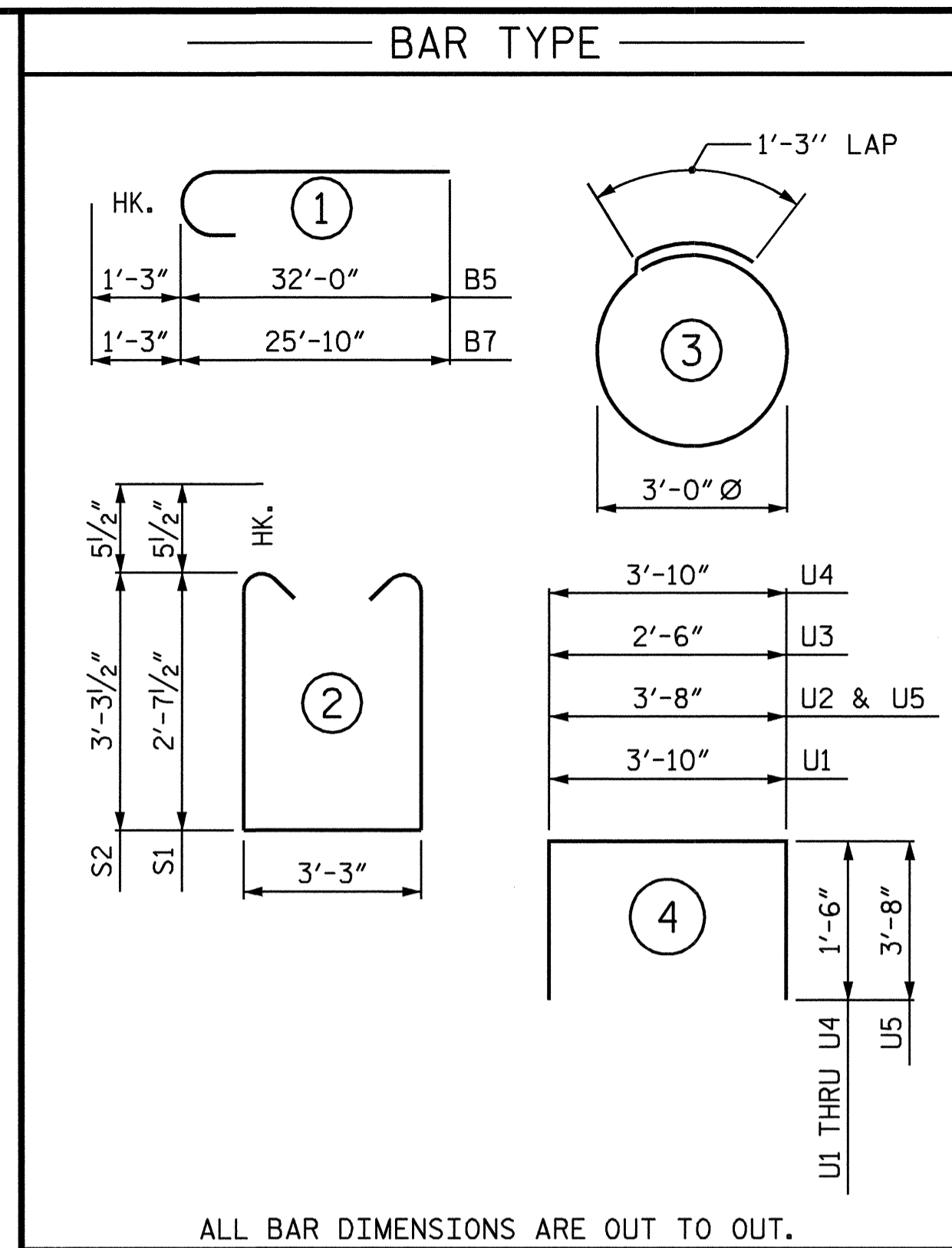
REVISIONS						SHEET NO. S-46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 59
2			4			



VIEW X-X



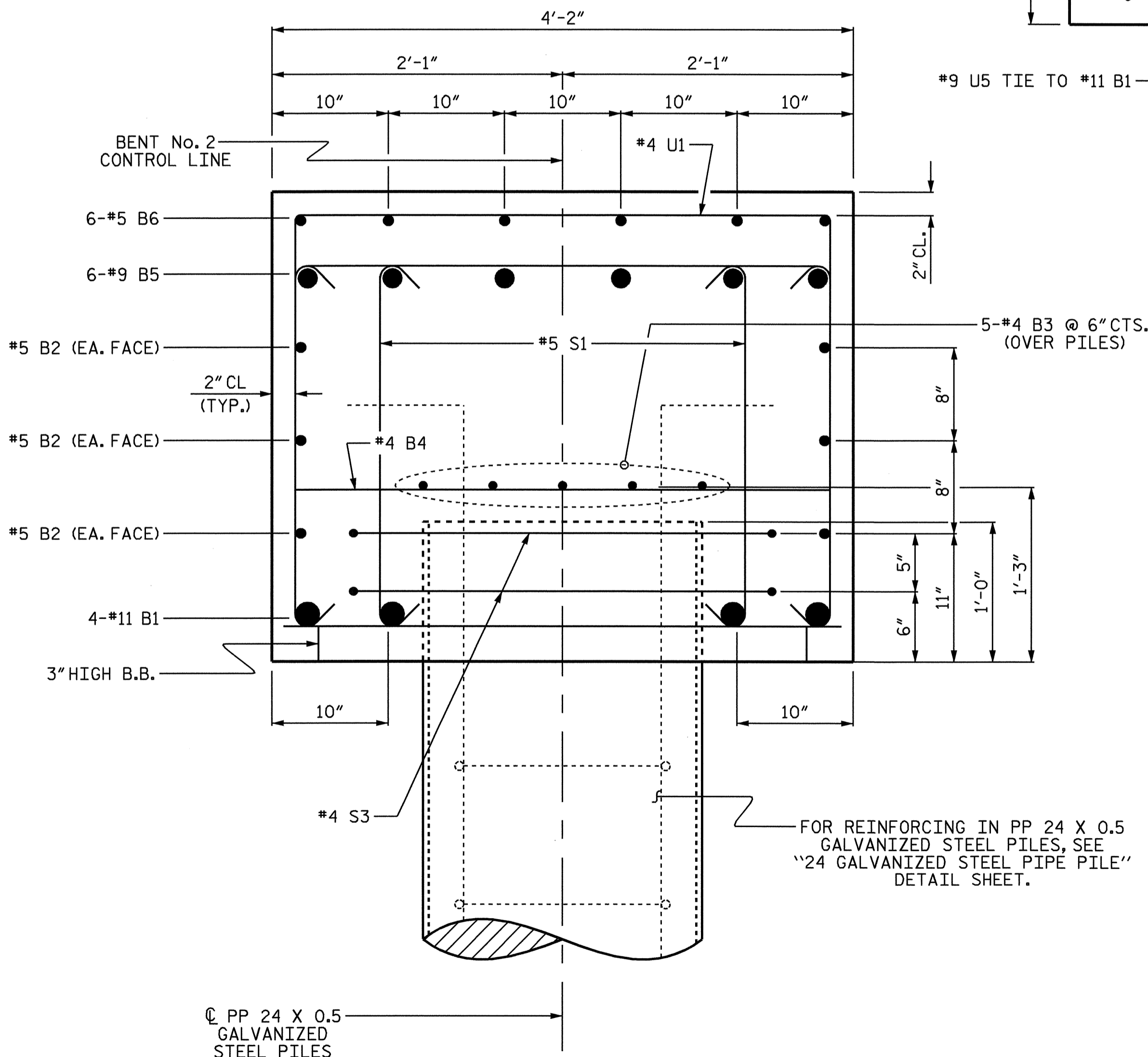
VIEW Y-Y



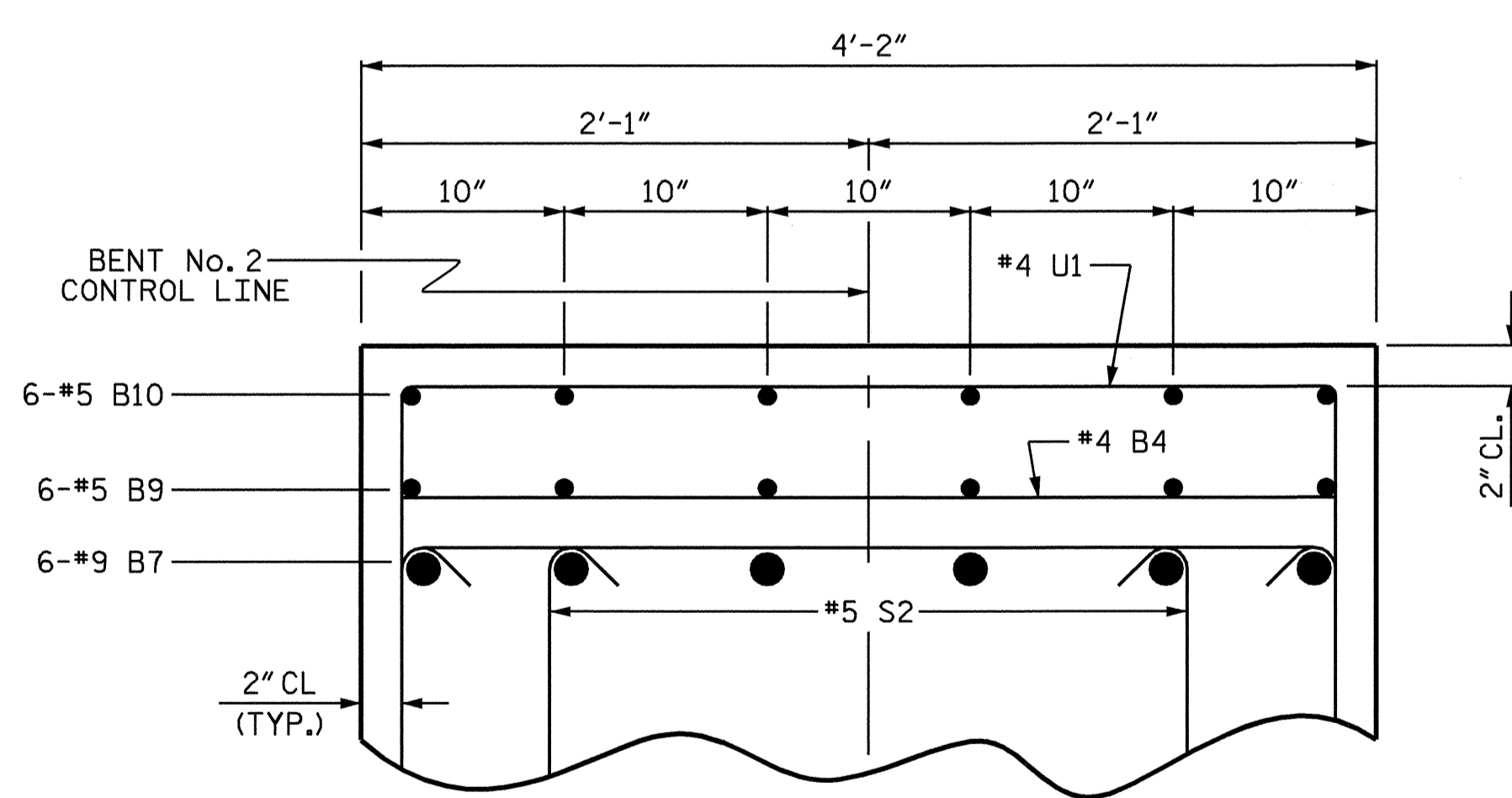
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL						
BENT No. 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	4	#11	STR	49'-2"	1045	
B2	6	#5	STR	49'-2"	308	
B3	10	#4	STR	25'-10"	173	
B4	18	#4	STR	3'-10"	46	
B5	6	#9	1	33'-3"	678	
B6	6	#5	STR	11'-4"	71	
B7	6	#9	1	27'-1"	552	
B8	2	#5	STR	20'-2"	42	
B9	6	#5	STR	14'-11"	93	
B10	6	#5	STR	3'-11"	25	
S1	46	#5	2	9'-5"	452	
S2	54	#5	2	10'-9"	605	
S3	16	#4	3	10'-8"	114	
U1	45	#4	4	6'-10"	205	
U2	6	#4	4	6'-8"	27	
U3	5	#4	4	5'-6"	18	
U4	5	#4	4	6'-10"	23	
U5	2	#9	4	11'-0"	75	
REINFORCING STEEL					4552 LBS	
CLASS A CONCRETE						
POUR #1 (CAP)					26.2 C.Y.	
TOTAL					26.2 C.Y.	
PP 24 X 0.5 GALVANIZED STEEL PILES						
No. = 8					720 LIN. FT.	
STEEL PILE POINTS					No. = 8	

THE CONCRETE DISPLACED BY THE FILLED PP 24 X 0.5 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE QUANTITY OF CLASS A CONCRETE FOR THE BENT CAP



SECTION A-A



SECTION B-B

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 2

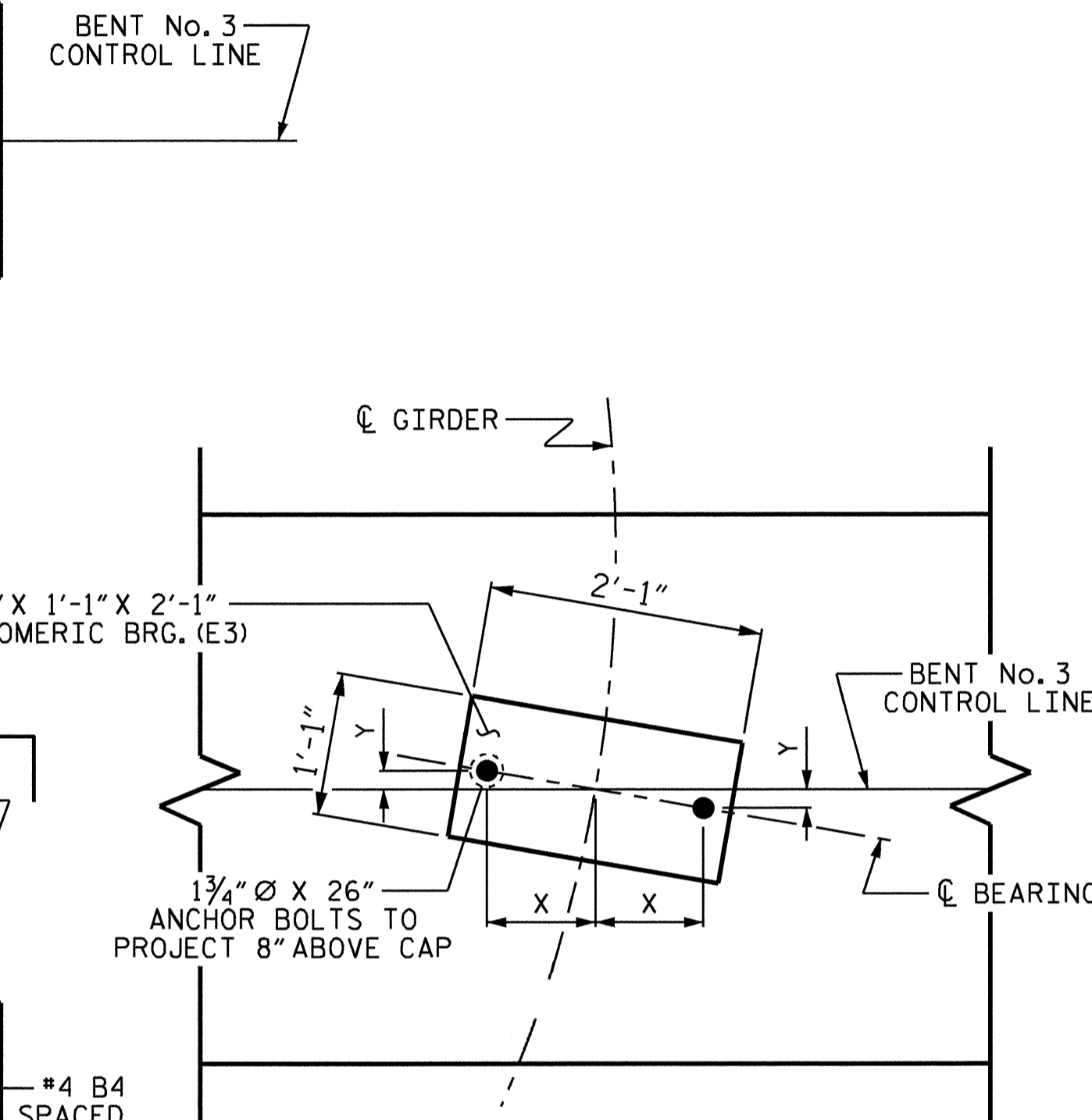
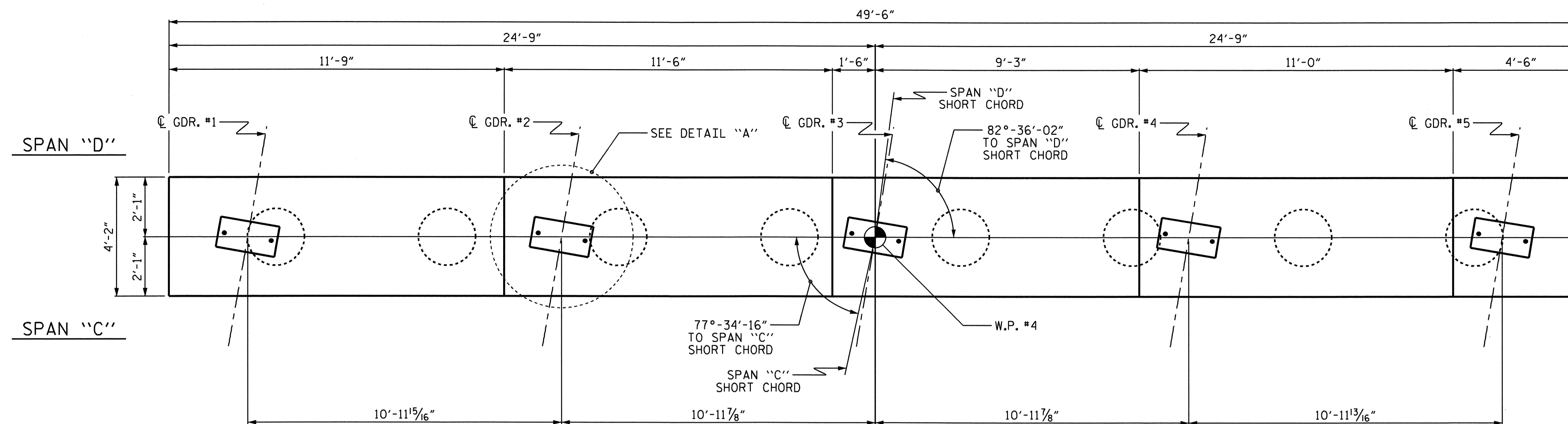


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47	
1			3			TOTAL SHEETS	59
2			4				

DRAWN BY : T. BANKOVICH DATE : 8-2008
 CHECKED BY : M.L. BROWN DATE : 9-2008

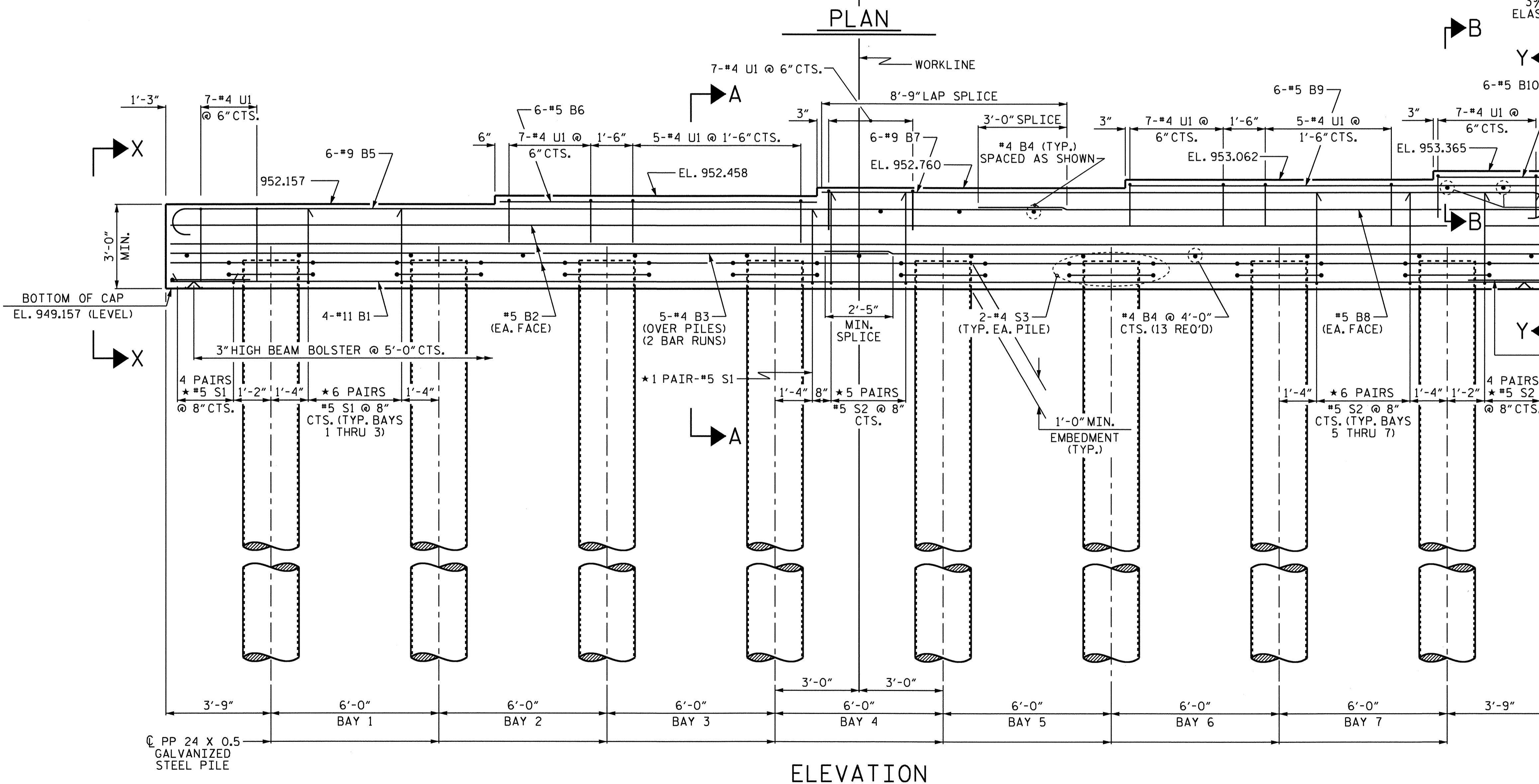
NOTES:

- STIRRUPS & "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- * INVERT ALTERNATE STIRRUPS AS SHOWN
- GALVANIZE THE TOP 35 FEET OF EACH INTERIOR BENT NO. 3 PILE IN ACCORDANCE WITH SECTION 1076 OF STANDARD SPECIFICATIONS.
- FOR ADDITIONAL REINFORCING STEEL IN END OF CAP, SEE VIEW X-X AND VIEW Y-Y SHEET 2 OF 2.



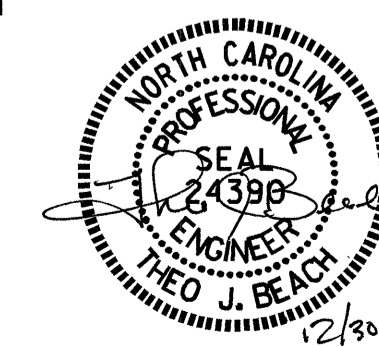
DETAIL "A"
(TYPICAL EACH GIRDER)

ANCHOR BOLT LOCATION		
GIRDER	X	Y
1	9 7/8"	1 3/4"
2	9 7/8"	1 11/16"
3	9 7/8"	1 11/16"
4	9 7/8"	1 11/16"
5	9 7/8"	1 5/8"



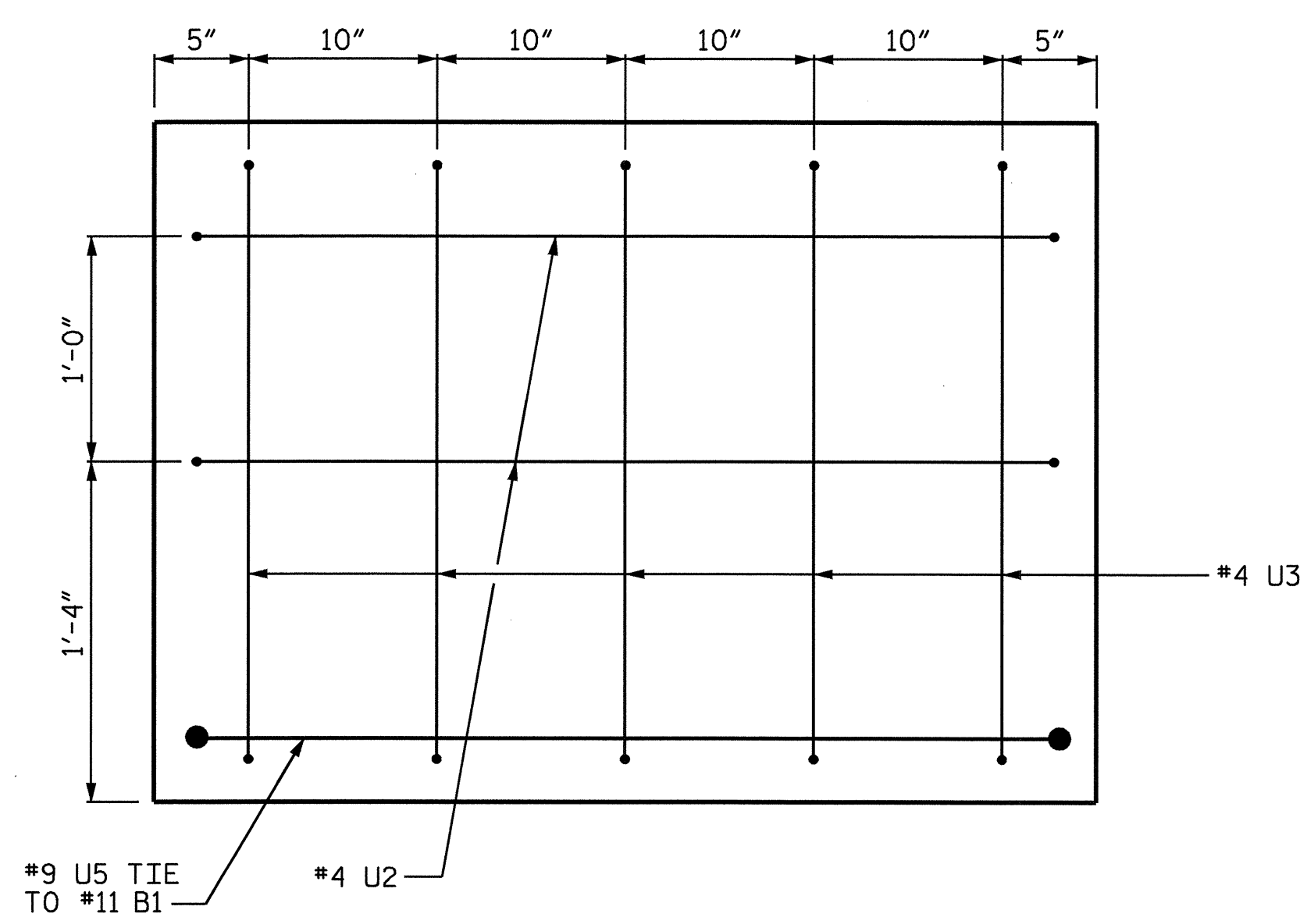
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 3

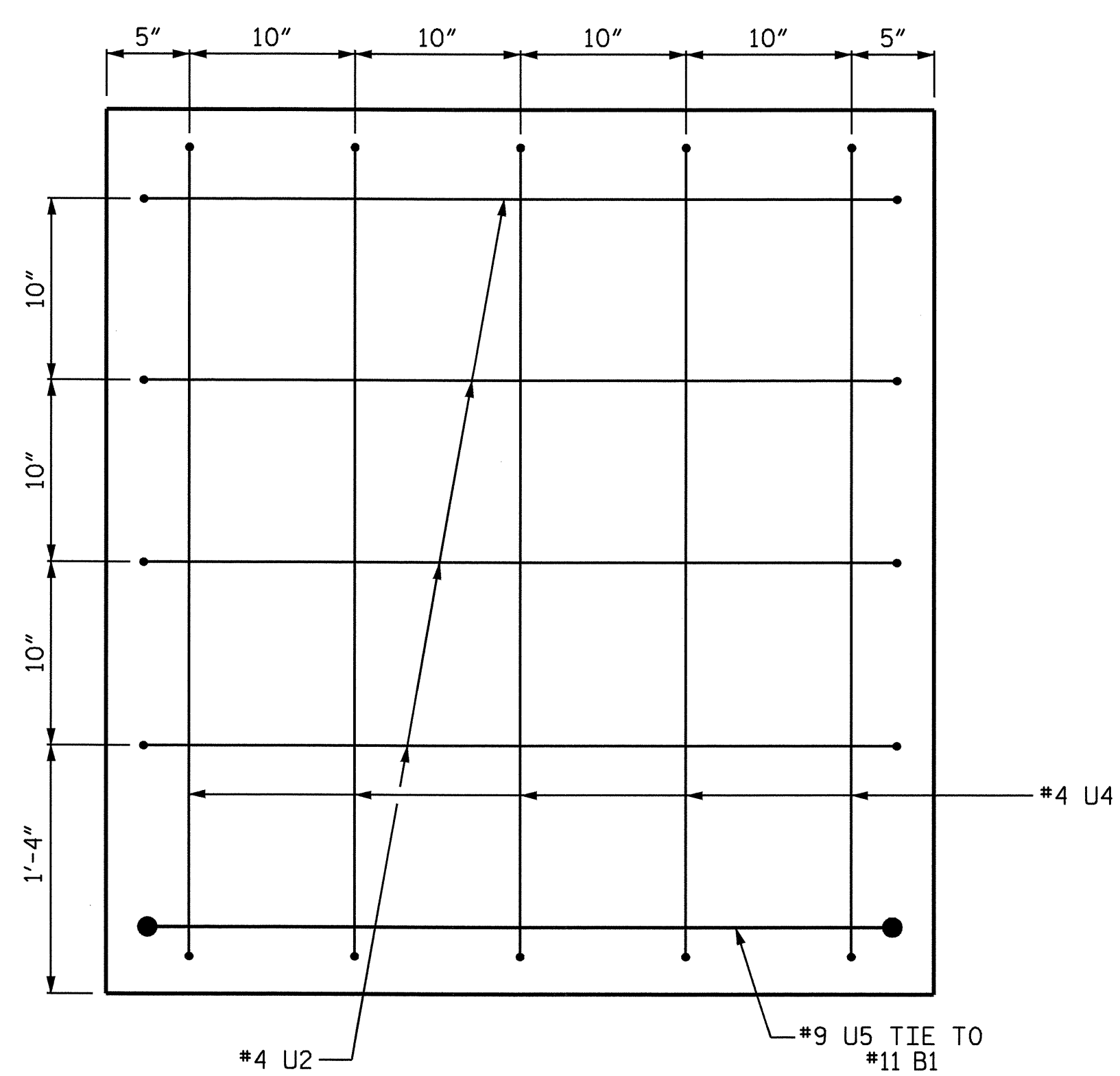


DRAWN BY: T. BANKOVICH DATE: 8-2008
 CHECKED BY: M.L. BROWN DATE: 9-2008

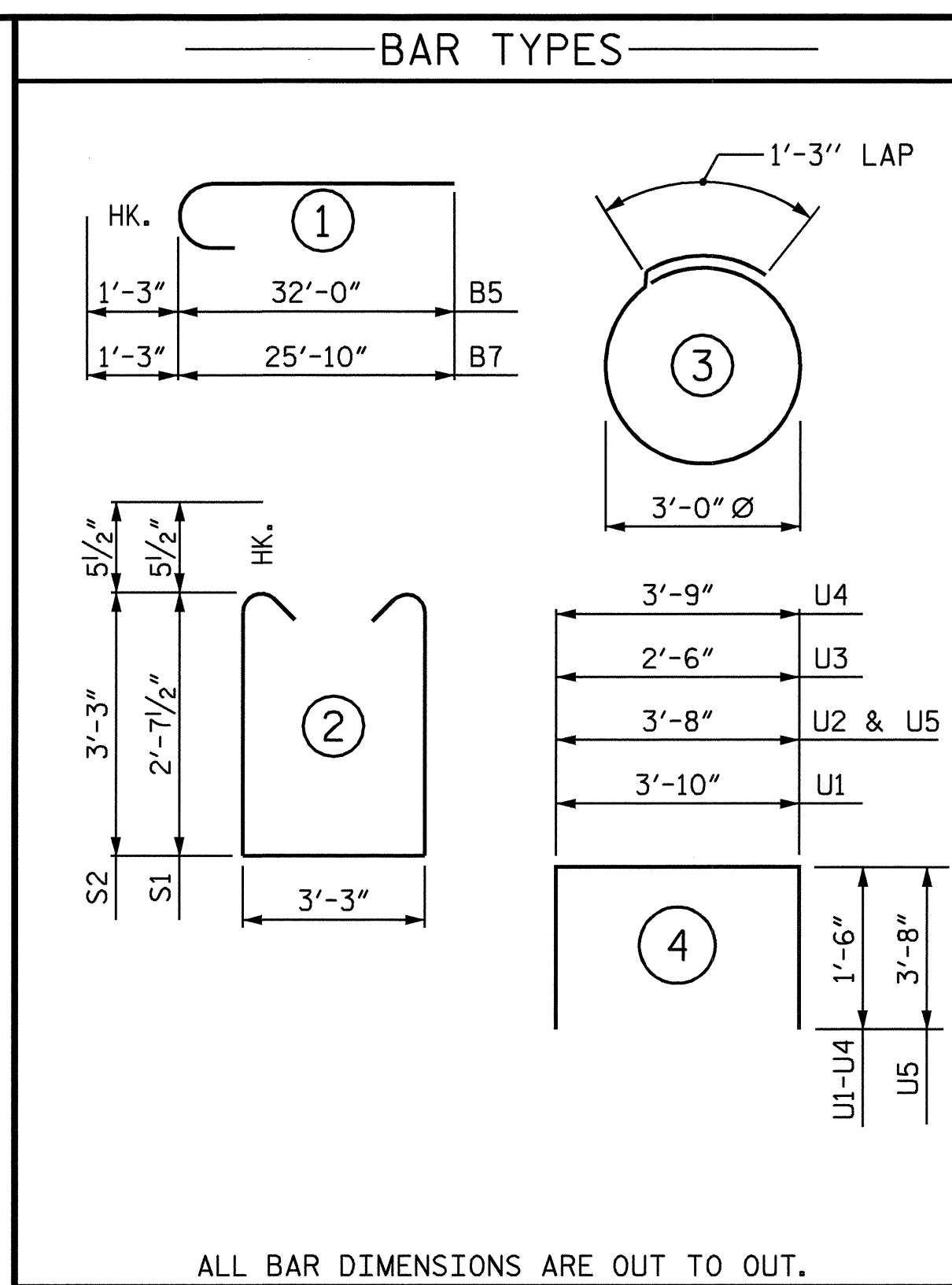
REVISIONS						SHEET NO. 5-48
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 59
2			4			



VIEW X-X

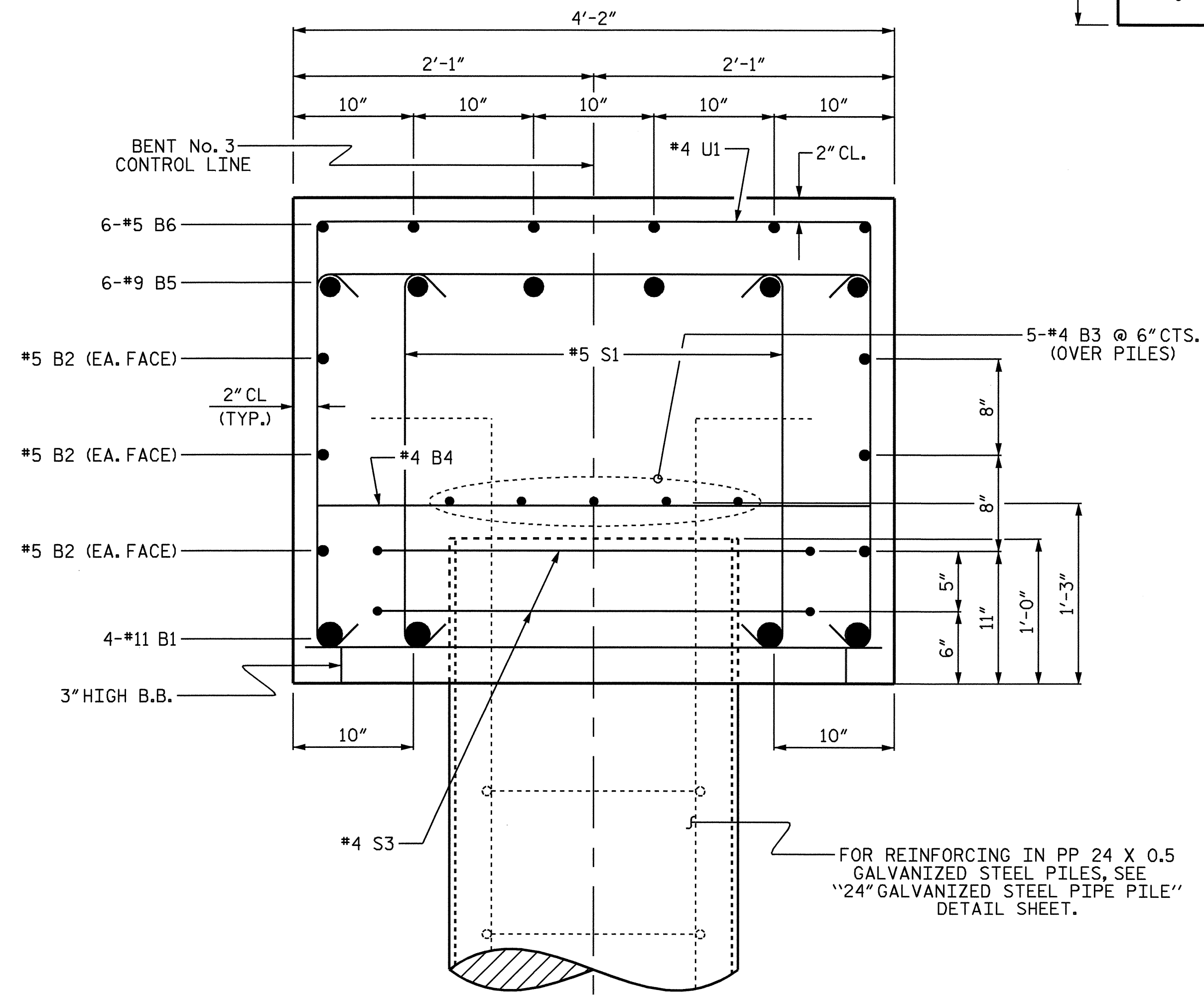


VIEW Y-Y

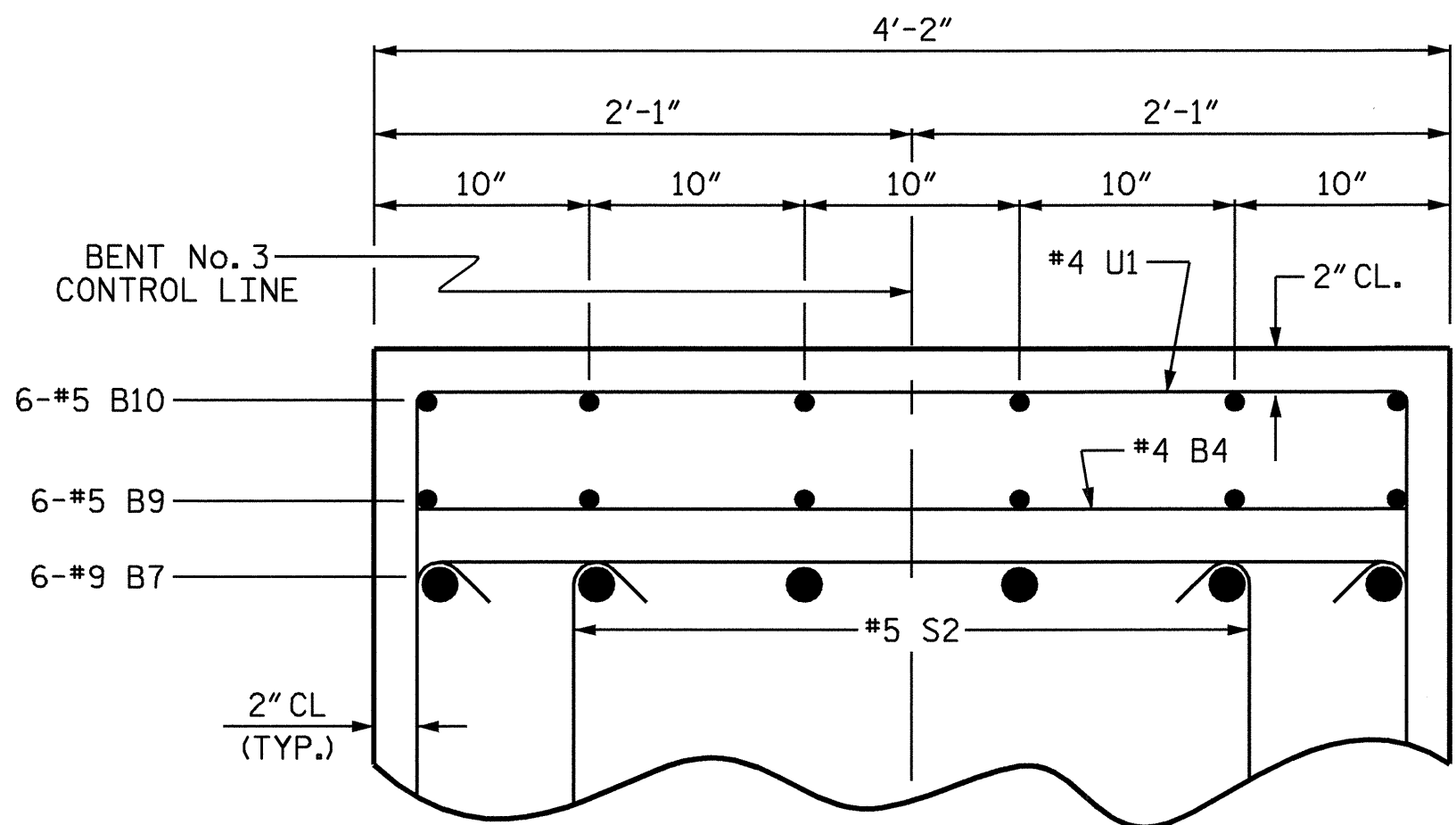


ALL BAR DIMENSIONS ARE OUT TO OUT.
THE CONCRETE DISPLACED BY THE FILLED PP 24 X 0.5 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE QUANTITY OF CLASS A CONCRETE FOR THE BENT CAP

BILL OF MATERIAL					
BENT No. 3					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#11	STR	49'-2"	1045
B2	6	#5	STR	49'-2"	308
B3	10	#4	STR	25'-10"	173
B4	18	#4	STR	3'-10"	46
B5	6	#9	1	33'-3"	678
B6	6	#5	STR	11'-4"	71
B7	6	#9	1	27'-1"	552
B8	2	#5	STR	20'-2"	42
B9	6	#5	STR	14'-11"	93
B10	6	#5	STR	3'-11"	25
S1	45	#4	2	9'-5"	452
S2	54	#5	2	10'-8"	601
S3	16	#4	3	10'-8"	114
U1	45	#4	4	6'-10"	205
U2	6	#4	4	6'-8"	27
U3	5	#4	4	5'-6"	18
U4	5	#4	4	6'-9"	23
U5	2	#9	4	11'-0"	75
REINFORCING STEEL					4548 LBS
CLASS A CONCRETE					
POUR #1 (CAP)					25.9 C.Y.
TOTAL					25.9 C.Y.
PP 24 X 0.5 GALVANIZED STEEL PILES					
No. = 8					600 LIN. FT.
STEEL PILE POINTS					No. = 8



SECTION A-A



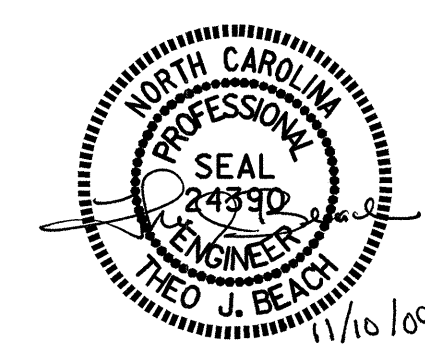
SECTION B-B

FOR REINFORCING IN PP 24 X 0.5 GALVANIZED STEEL PILES, SEE "24" GALVANIZED STEEL PIPE PILE" DETAIL SHEET.

PP 24 X 0.5 GALVANIZED STEEL PILES

PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT No. 3



DRAWN BY: T. BANKOVICH DATE: 8-2008
CHECKED BY: M.L. BROWN DATE: 9-2008

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

SHEET NO. S-49
TOTAL SHEETS 59

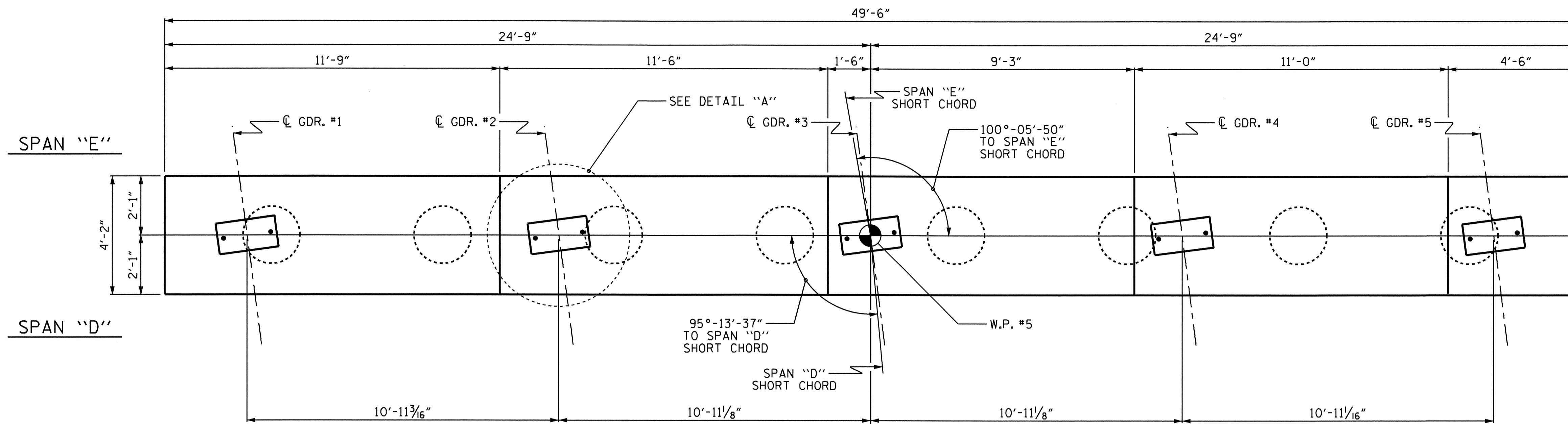
NOTES:

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

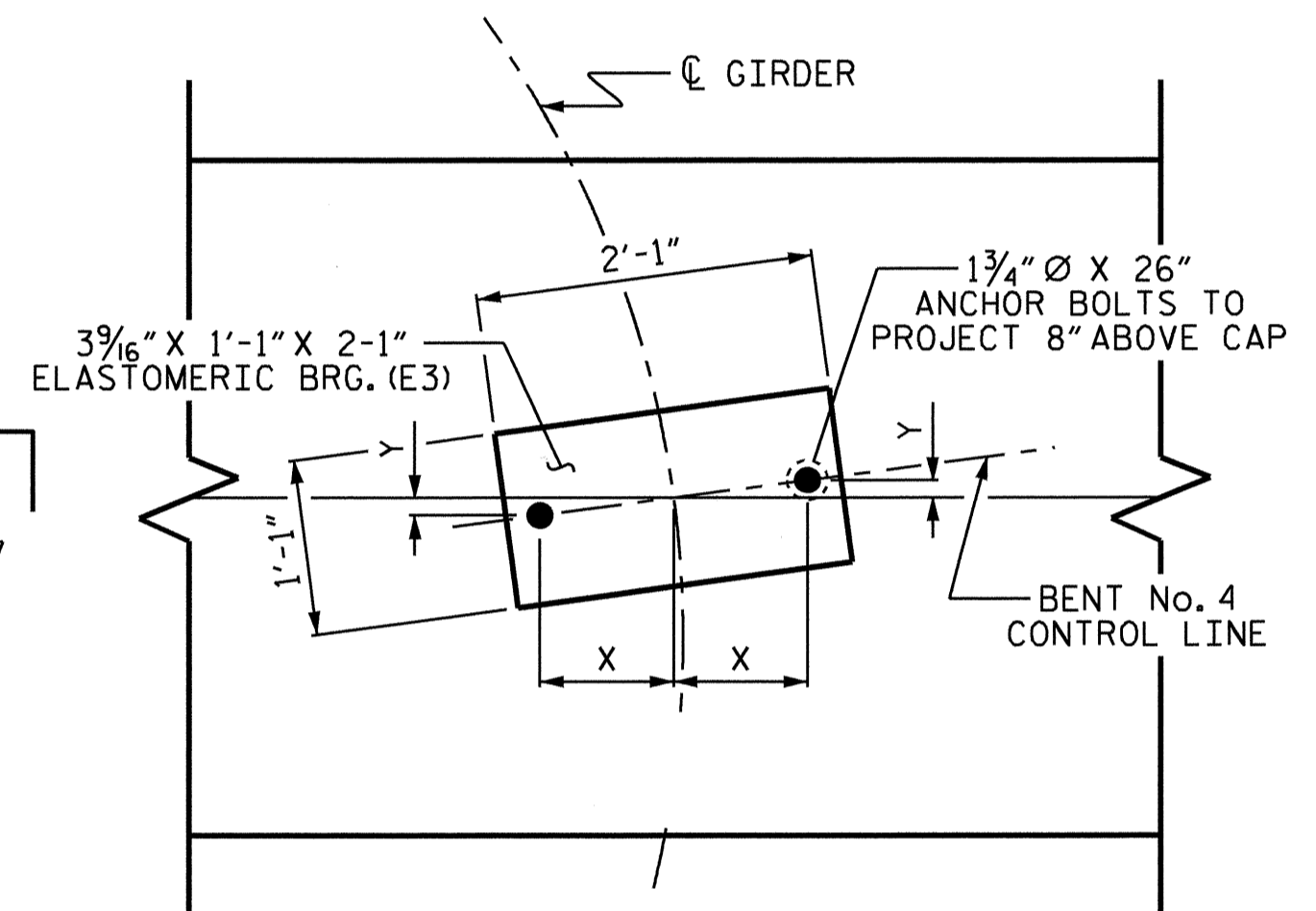
* INVERT ALTERNATE STIRRUPS AS SHOWN

GALVANIZE THE TOP 30 FEET OF EACH INTERIOR BENT No. 4 PILE IN ACCORDANCE WITH SECTION 1076 OF STANDARD SPECIFICATIONS.

FOR ADDITIONAL REINFORCING STEEL IN END OF CAP, SEE VIEW X-X AND VIEW Y-Y SHEET 2 OF 2.



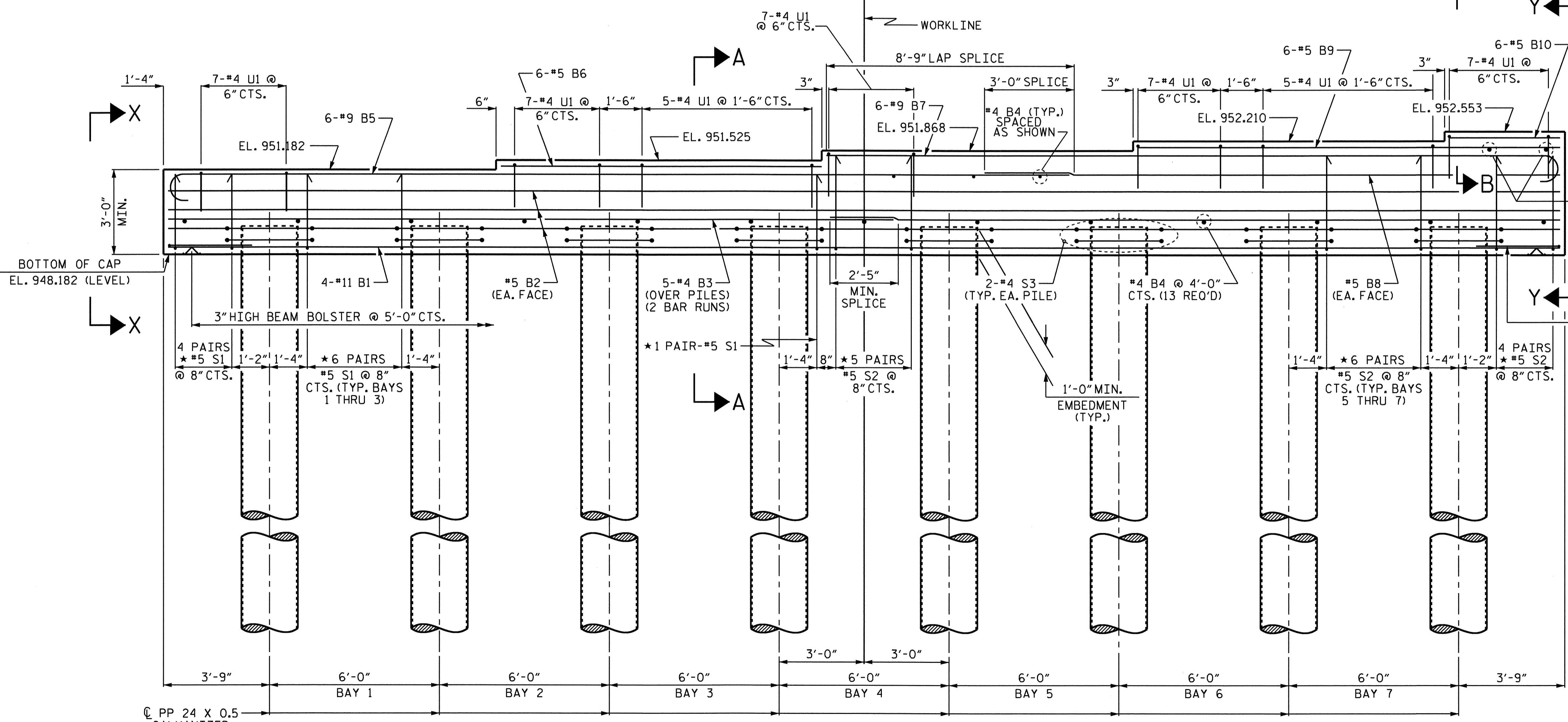
PLAN



DETAIL "A"

(TYPICAL EACH GIRDER)

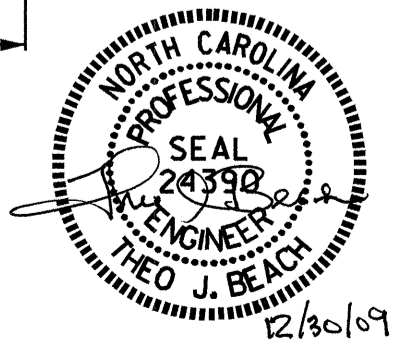
ANCHOR BOLT LOCATION		
GIRDER	X	Y
1	9 5/16"	1 5/16"
2	9 5/16"	1 5/16"
3	9 5/16"	1 5/16"
4	9 5/16"	1 5/16"
5	9 5/16"	1 1/4"



ELEVATION

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-
 SHEET 1 OF 2

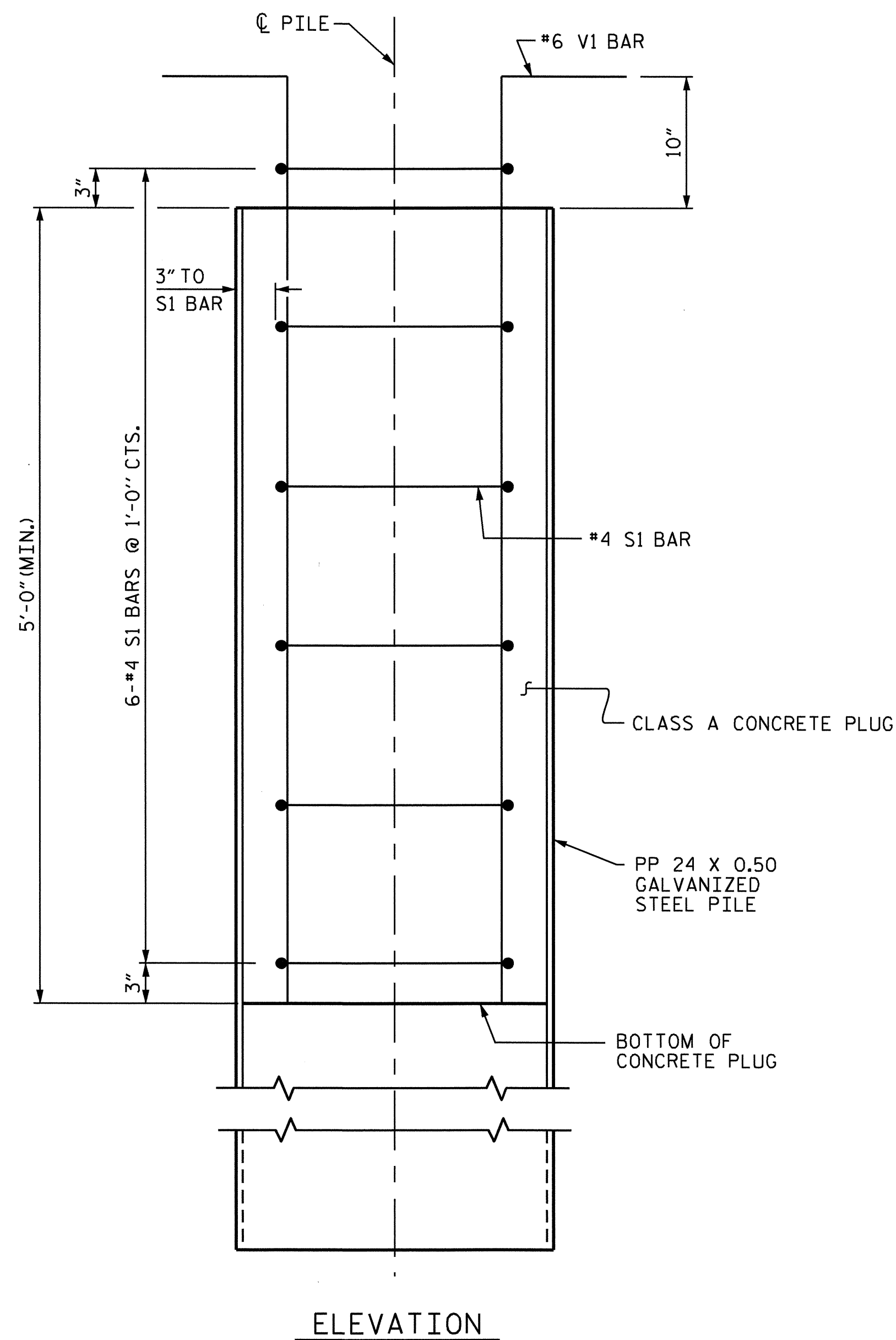
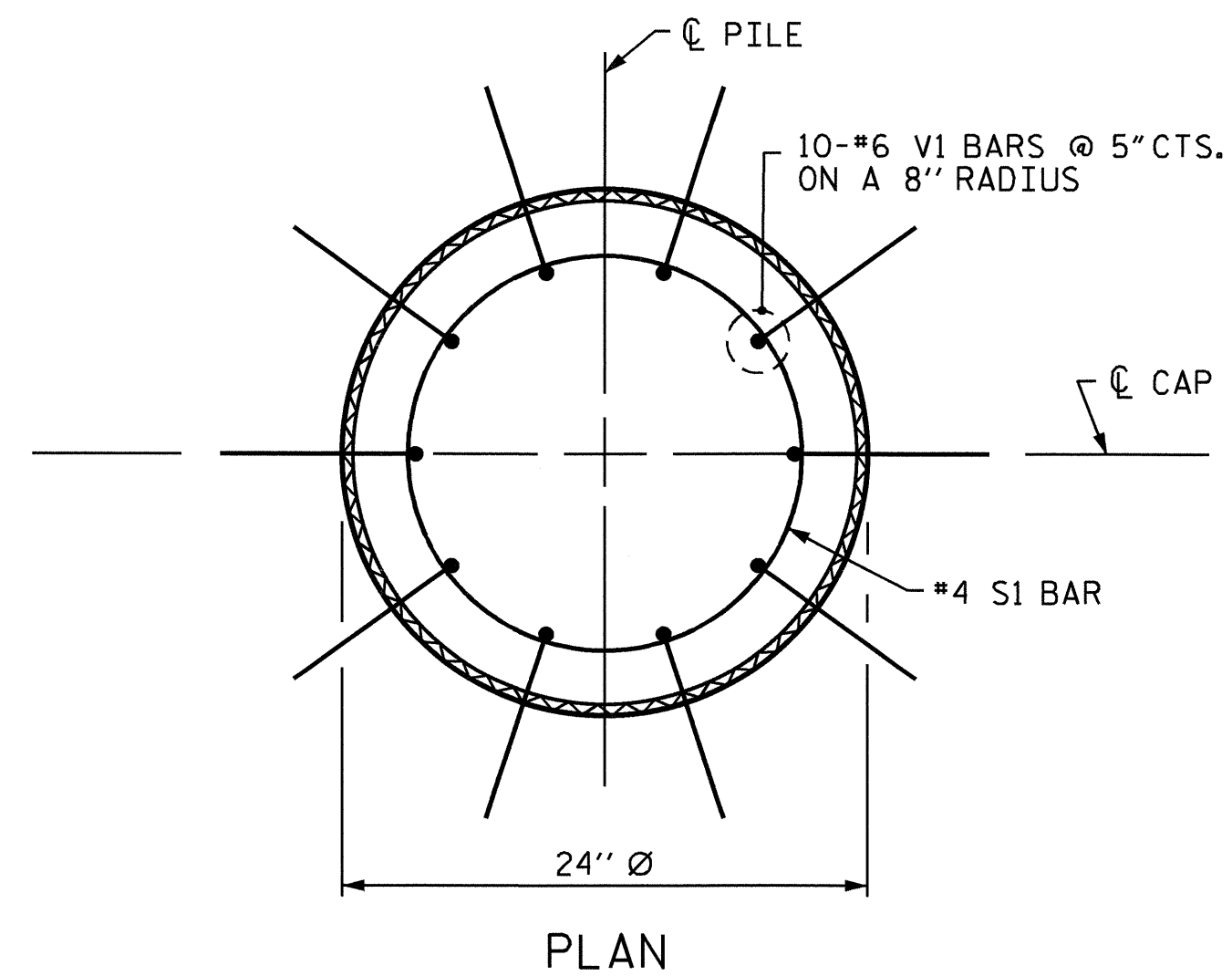
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENT No. 4



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50	
1			3			TOTAL SHEETS 59	
2			4				

DRAWN BY : T. BANKOVICH DATE : 8-2008
 CHECKED BY : M.L. BROWN DATE : 9-2008

29-DEC-2009 14:08
 F:\structures\substructure\drawings\b-2576.sd.b*.4.dgn
 aroyal



PP 24 X 0.50 GALVANIZED STEEL PILE
(OPEN END)

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

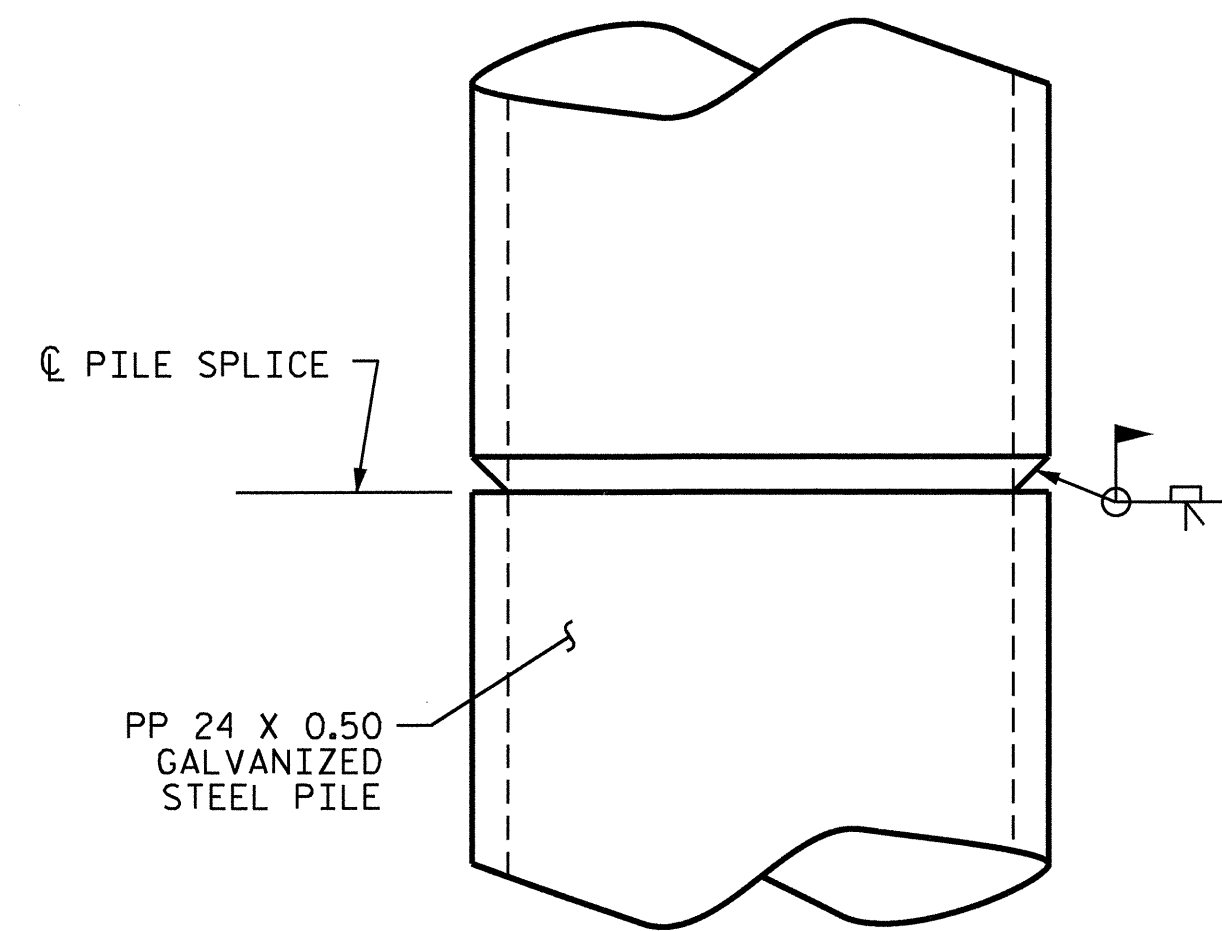
PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FILL PIPE PILES AT BENT NO. 1 WITH CLASS A CONCRETE FROM EL. 932.0 TO THE BOTTOM OF THE 5'-0" (MIN.) CONCRETE PLUG. REINFORCING STEEL IN THE PIPE PILES IS ONLY REQUIRED IN THE 5'-0" (MIN.) CONCRETE PLUG.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 24 X 0.50 GALVANIZED STEEL PILES.

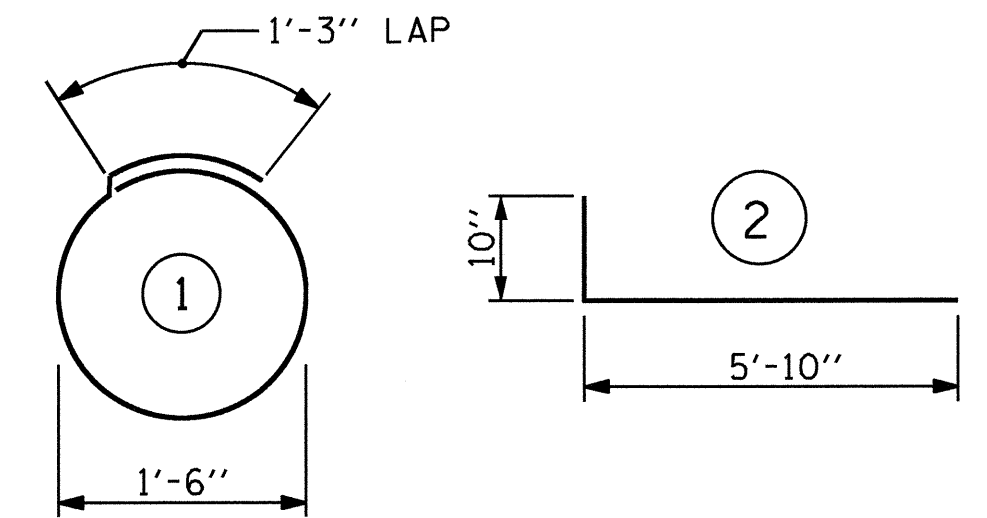


BILL OF MATERIAL FOR ONE
PP 24 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	6'-0"	24
V1	10	#6	2	6'-8"	100
REINFORCING STEEL =				124	lbs

CLASS A CONCRETE	
5'-0" MINIMUM PLUG	0.5 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

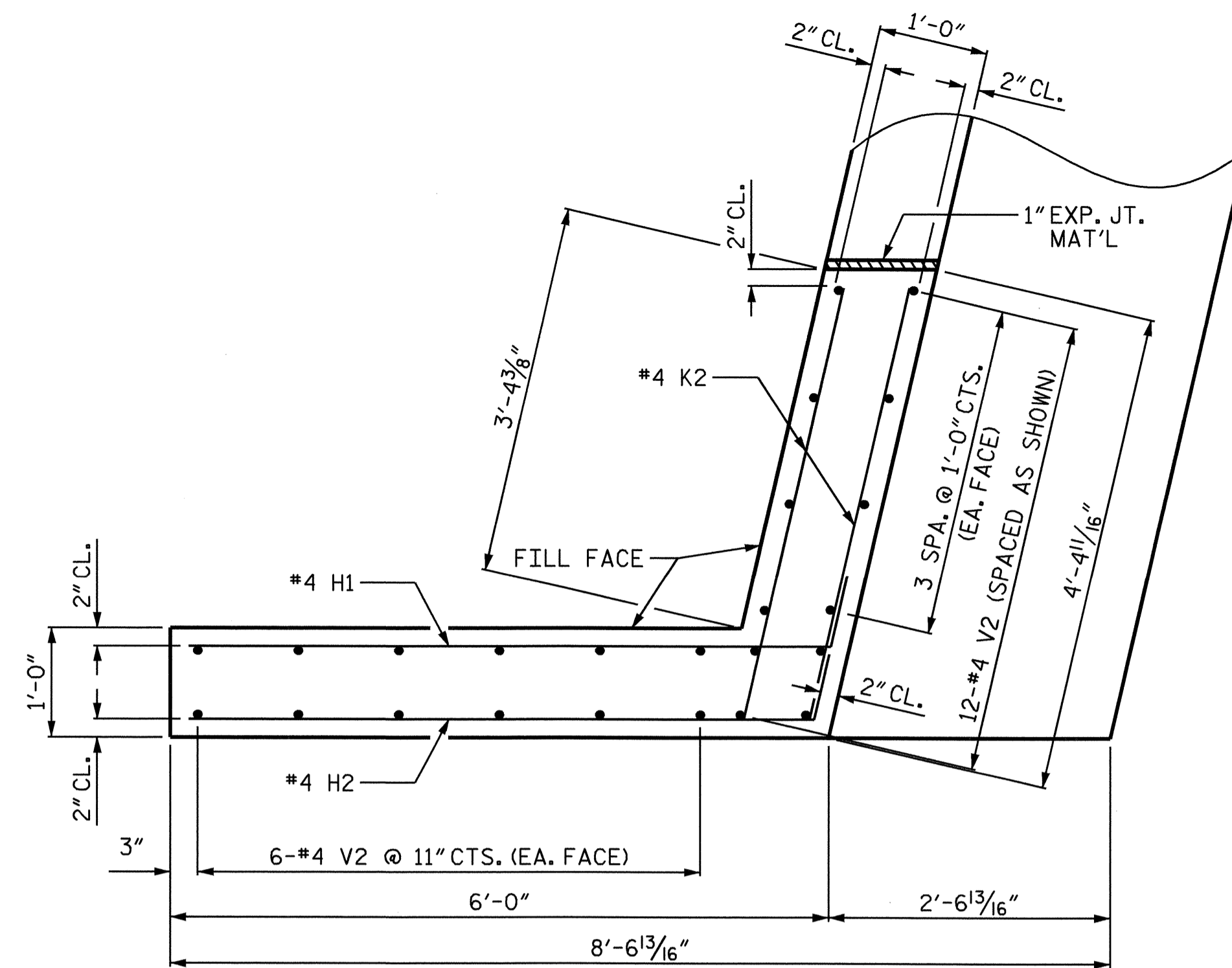
PROJECT NO. B-2576
IREDELL COUNTY
STATION: 19+35.95 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
24" GALVANIZED
STEEL PIPE PILE

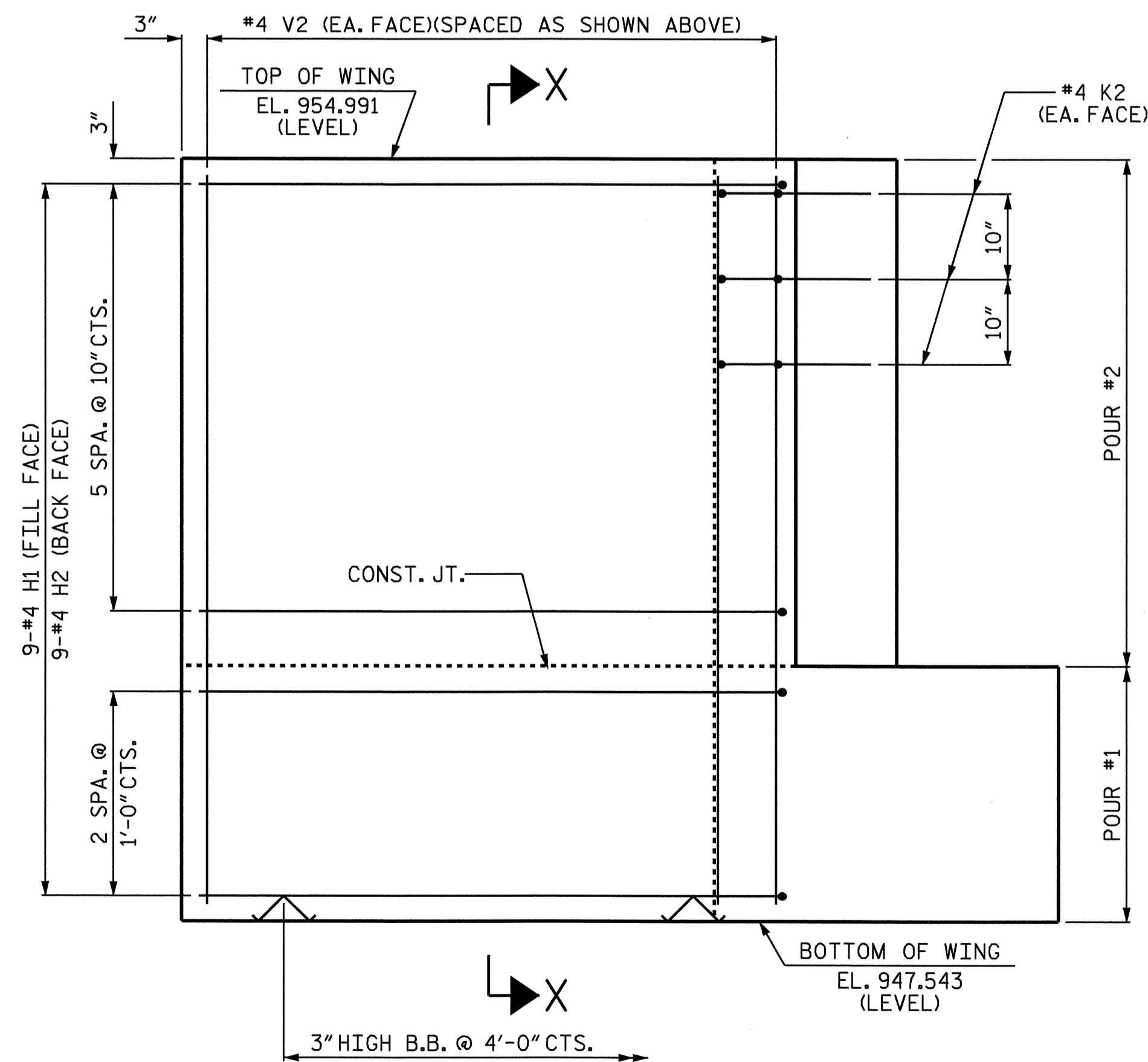


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52	
1			3			TOTAL	59
2			4			SHEETS	59

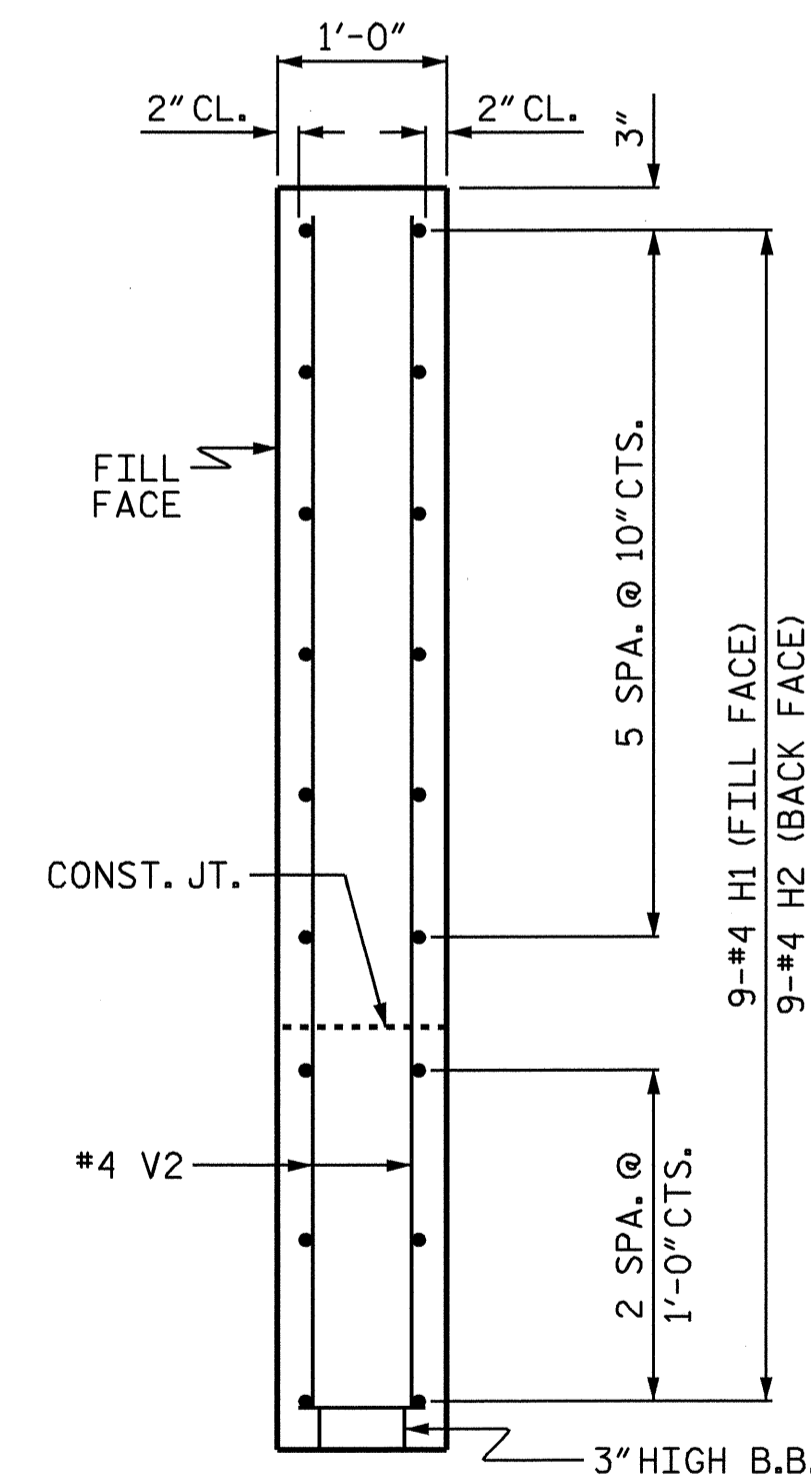
ASSEMBLED BY : T. BANKOVICH	DATE : 8-2008
CHECKED BY : M.L. BROWN	DATE : 9-2008
DRAWN BY : TLA 8/05	ADDED 10/1/05
CHECKED BY : GM 9/05	REV. 5/1/06R MAA/KMM



PLAN OF WING (W1)



ELEVATION OF WING (W1)



SECTION X-X

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

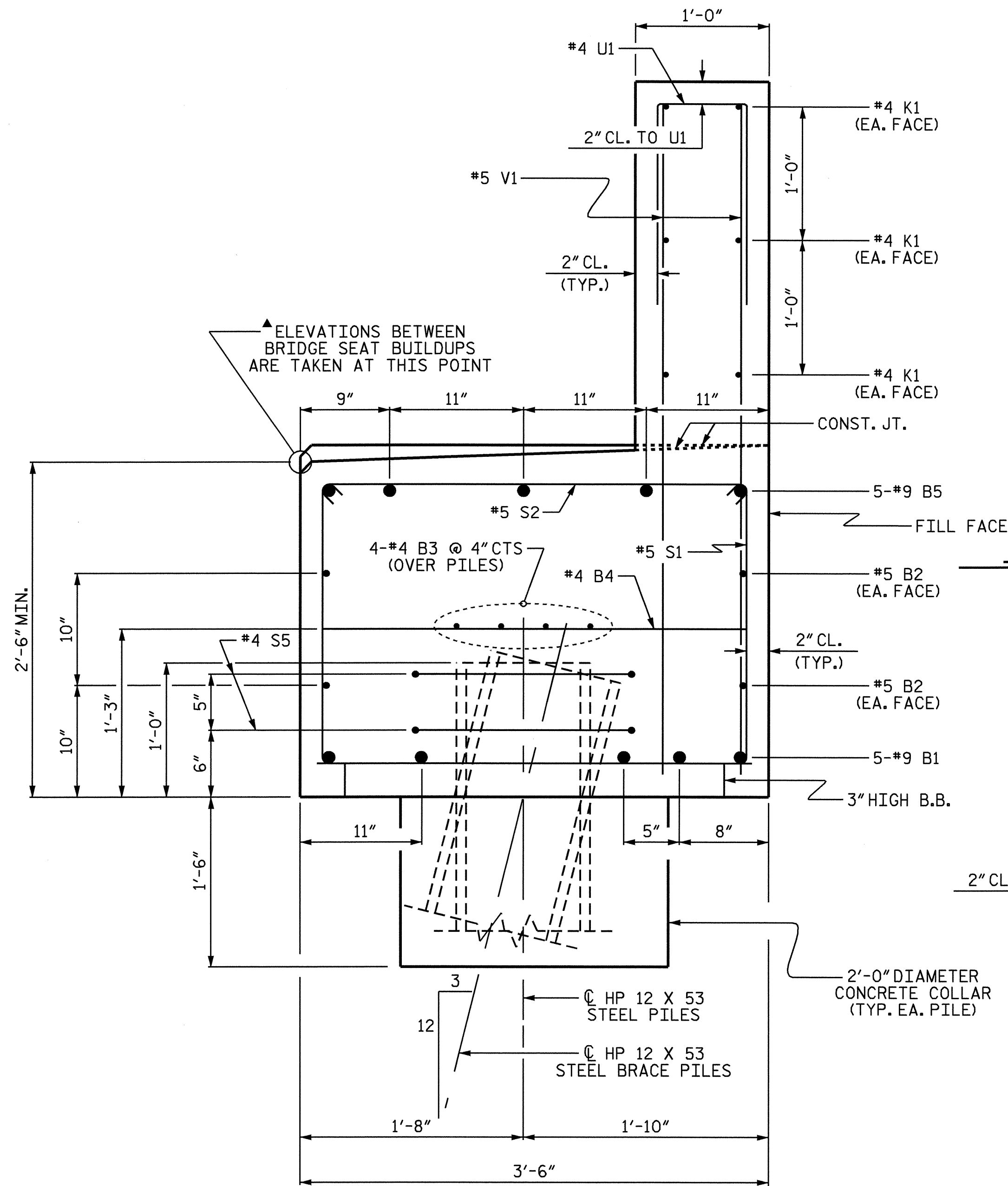
END BENT No. 2



DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : SWB/TB DATE : 11-2009

10-NOV-2009 15:33
 r:\structures\substructuredrawings\b-2576_sd.e*.2.dgn
 tjbankovich

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			59



SECTION A-A

NOTES:

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

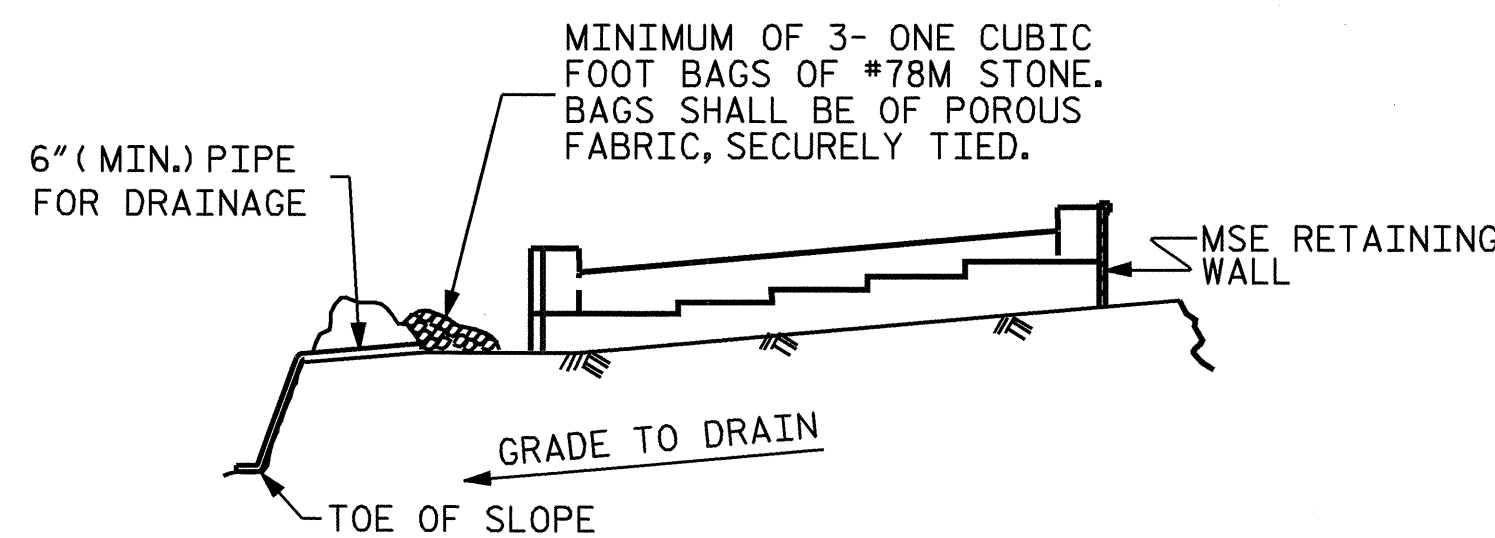
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

#5 V1 BARS IN BACKWALL SHALL BE PLACED 2" FROM TOP OF BACKWALL.

EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS AND ANCHOR BOLTS ARE GROUTED.

DRAWN BY : T. BANKOVICH DATE : 12-2008
 CHECKED BY : SBW/TB DATE : 11-2009

10-NOV-2009 15:33
 r:\structures\substructuredrawings\b-2576.sd.e*.2.dgn
 tjbankovich

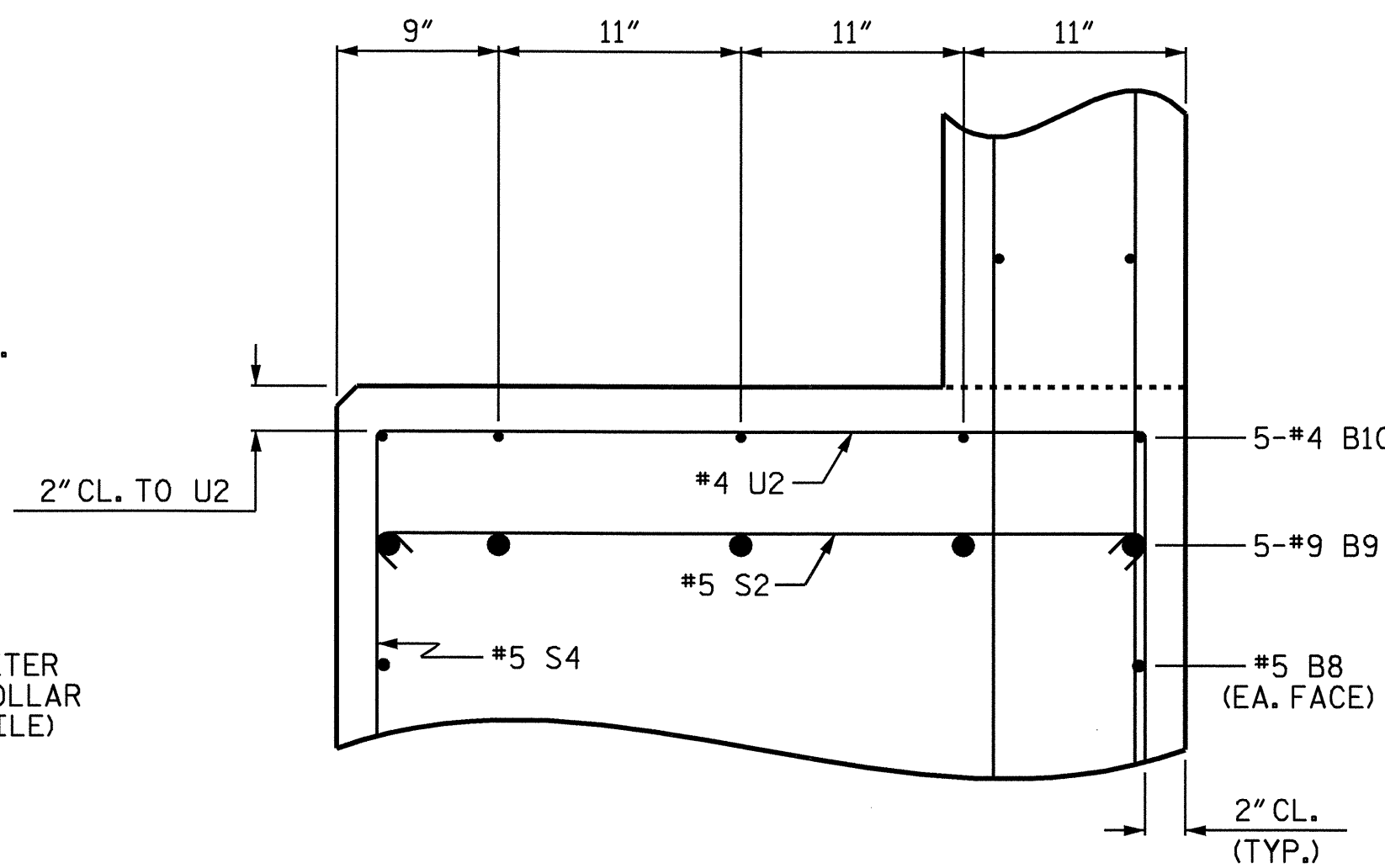


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

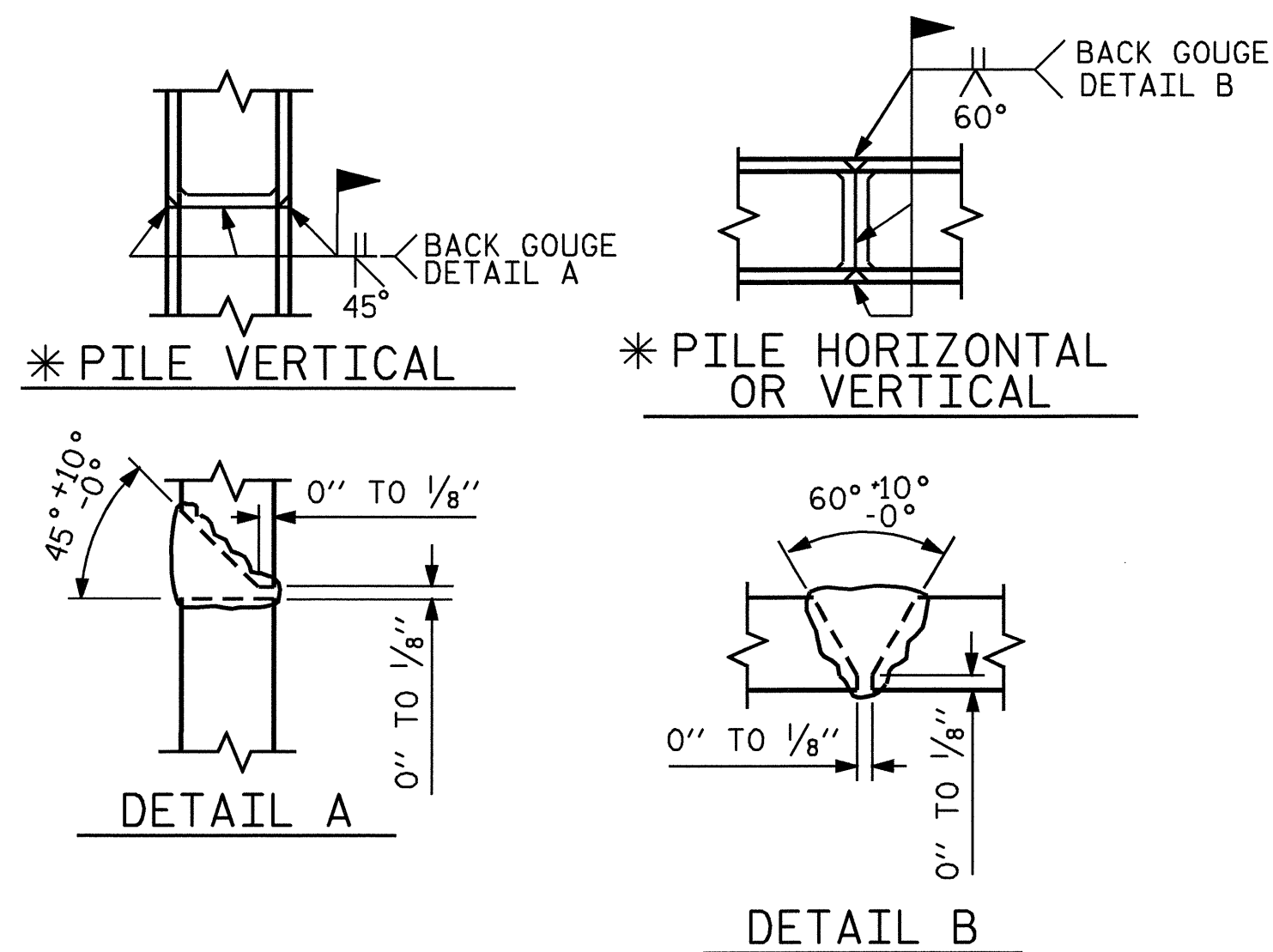
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT

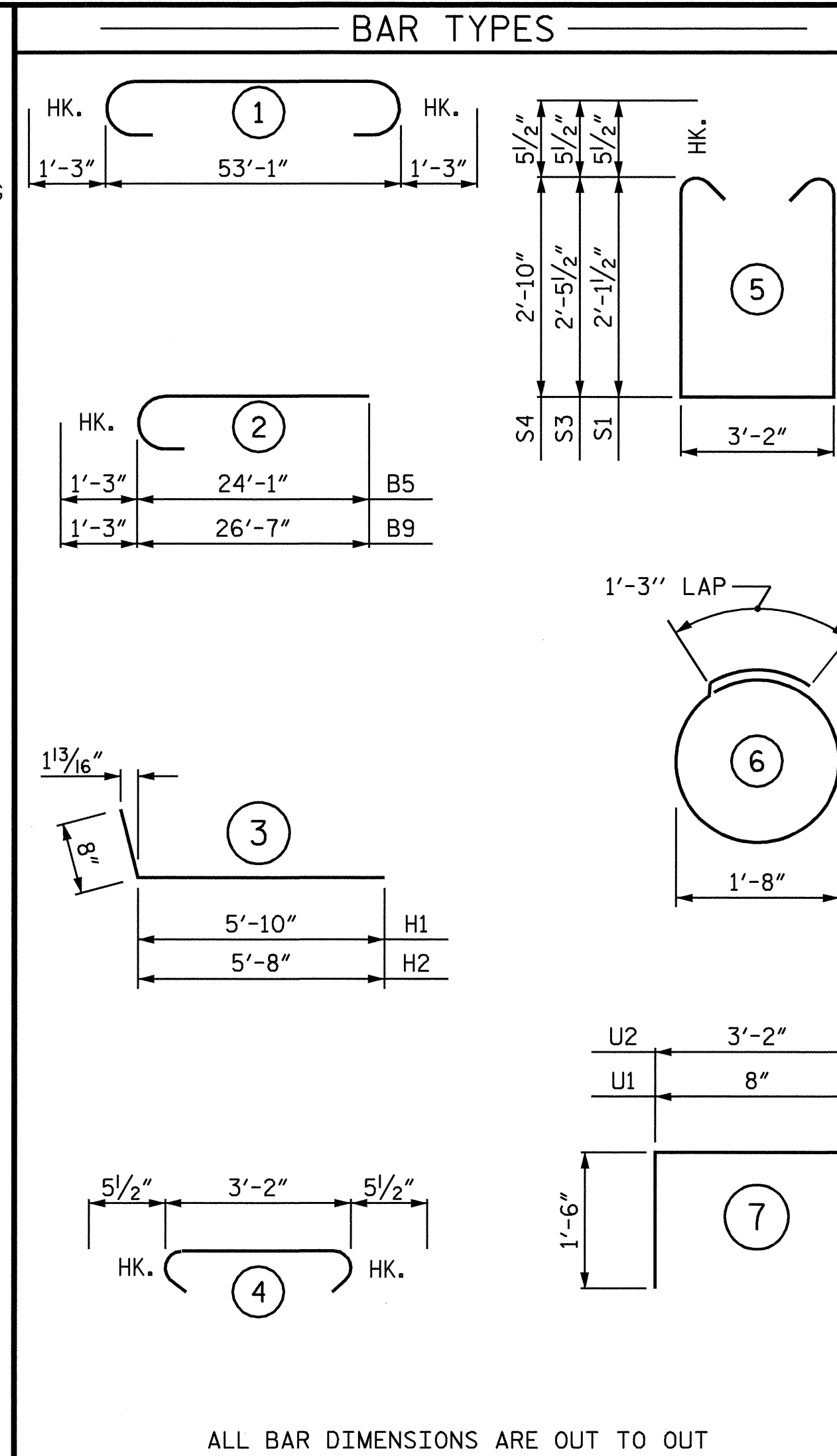


PARTIAL SECTION B-B



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT No. 2

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#9		55'-7"	945
B2	4	#5	STR	53'-3"	222
B3	8	#4	STR	27'-10"	149
B4	17	#4	STR	3'-2"	36
B5	5	#9	2	25'-4"	431
B6	2	#5	STR	32'-3"	67
B7	5	#9	STR	20'-8"	351
B8	2	#5	STR	21'-0"	44
B9	5	#9	2	27'-10"	473
B10	10	#4	STR	9'-4"	62
B11	5	#4	STR	2'-8"	9
H1	9	#4	3	6'-6"	39
H2	9	#4	3	6'-4"	38
K1	12	#4	STR	27'-10"	223
K2	6	#4	STR	4'-0"	16
K3	4	#4	STR	2'-7"	7
S1	18	#5	5	8'-4"	156
S2	66	#5	4	4'-1"	281
S3	15	#5	5	9'-0"	141
S4	33	#5	5	9'-9"	336
S5	18	#4	6	6'-6"	78
U1	47	#4	7	3'-8"	115
U2	14	#4	7	6'-2"	58
V1	94	#5	STR	5'-0"	490
V2	24	#4	STR	7'-1"	114
V3	8	#4	STR	8'-3"	44
REINFORCING STEEL				4925 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, LOWER WING & CONCRETE COLLARS)				23.6 C.Y.	
POUR #2 (BACKWALL & UPPER WING)				7.3 C.Y.	
TOTAL CLASS A CONCRETE				30.9 C.Y.	
HP 12 X 53 STEEL PILES					
No. = 9				605 LIN. FT.	
STEEL PILE POINTS				No. = 9	

PROJECT NO. B-2576
 IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT No. 2



REVISIONS

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

SHEET NO. S-55
 TOTAL SHEETS 59

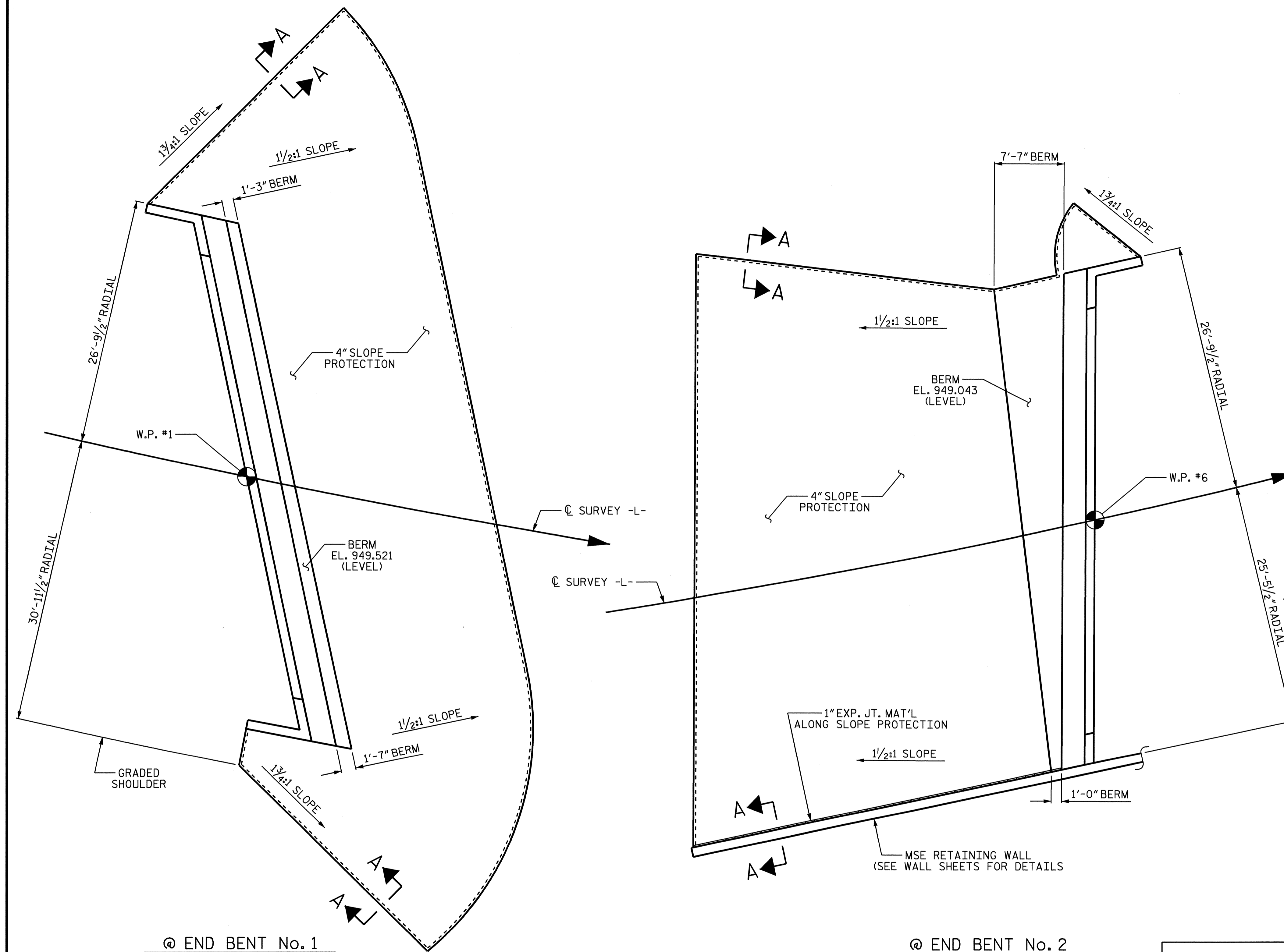
GENERAL NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

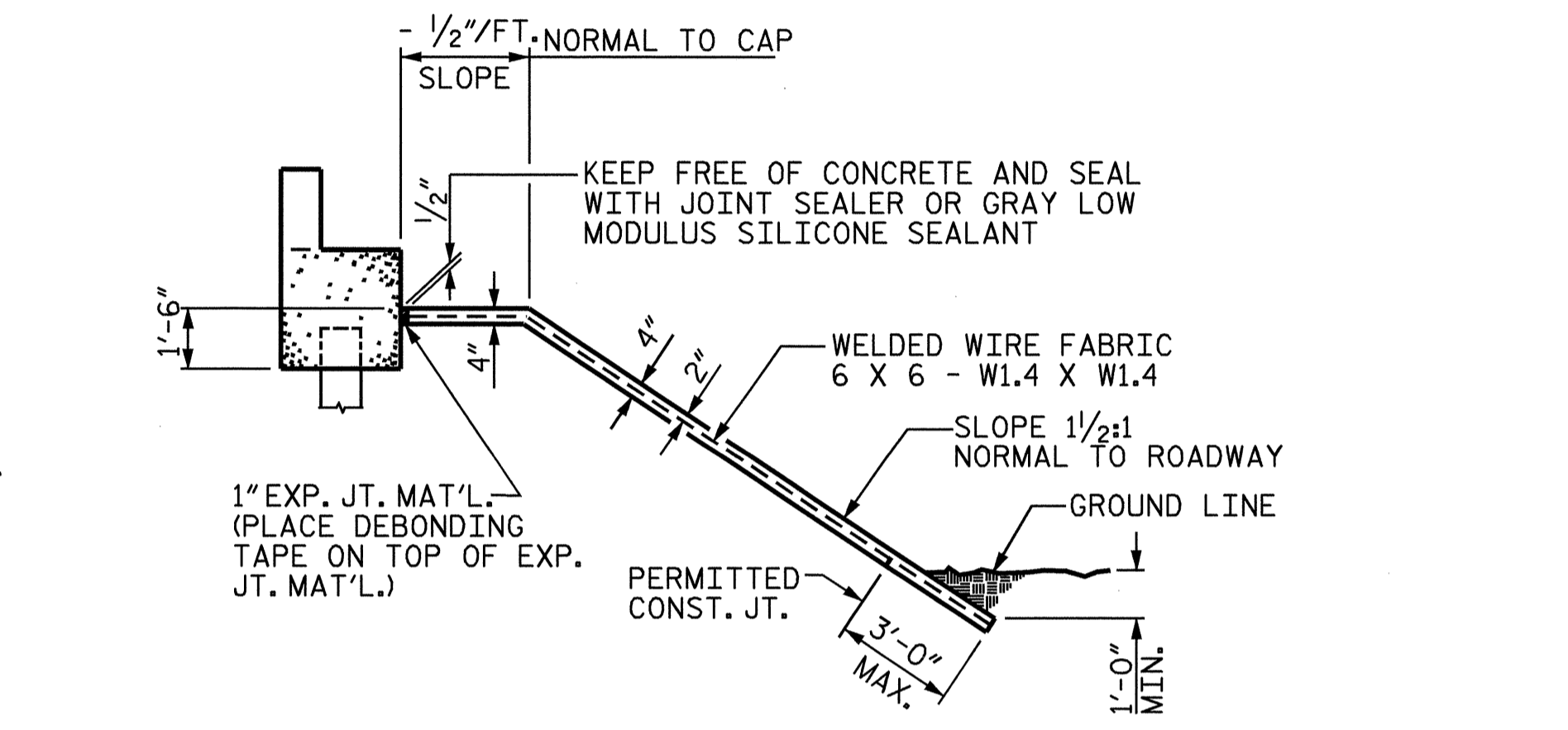
SLOPE PROTECTION

SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

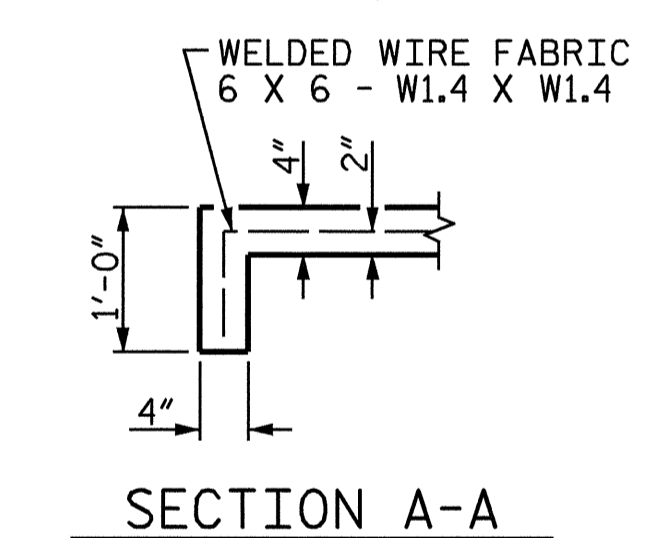
LIMITS OF SLOPE PROTECTION @ END BENT No. 2 MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO PROTECT PROPOSED FRONT SLOPE AND EXISTING FRONT SLOPES DISTURBED BY CONSTRUCTION OF NEW BRIDGE, RETAINING WALL, AND REMOVAL OF EXISTING BRIDGE.



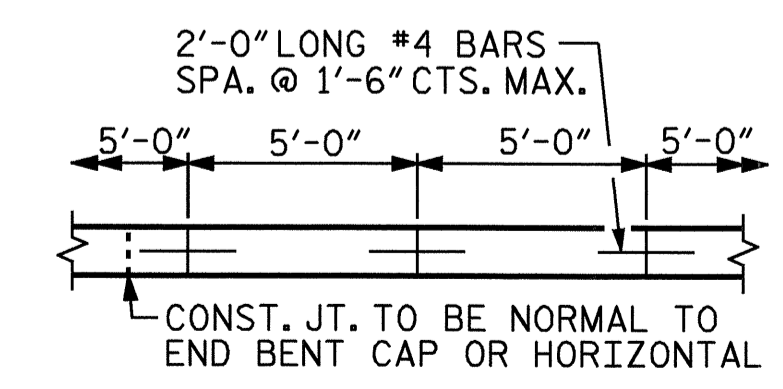
PLAN OF SLOPE PROTECTION



SECTION ALONG ROADWAY WHEN DITCH IS NOT PROVIDED



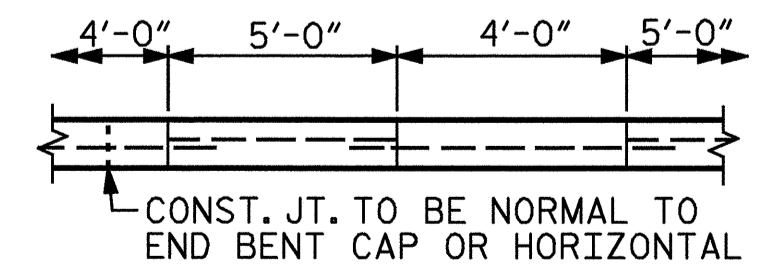
DETAILS FOR SLOPE PROTECTION



CONST. JT. TO BE NORMAL TO END BENT CAP OR HORIZONTAL

STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL



CONST. JT. TO BE NORMAL TO END BENT CAP OR HORIZONTAL

POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

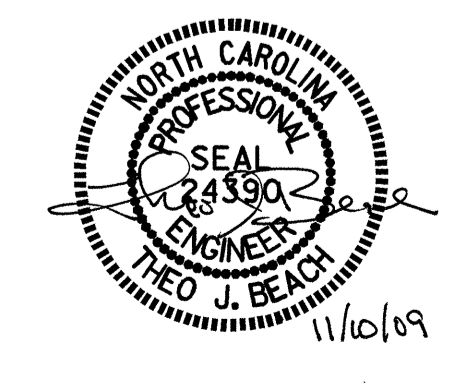
OPTIONAL POURING DETAIL

BRIDGE @ STA. 19+35.95 -L-	4 INCH SLOPE PROTECTION	WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. LF.
END BENT 1	300	540
END BENT 2	272	490

* QUANTITY SHOWN IS BASED ON 5' POURS.

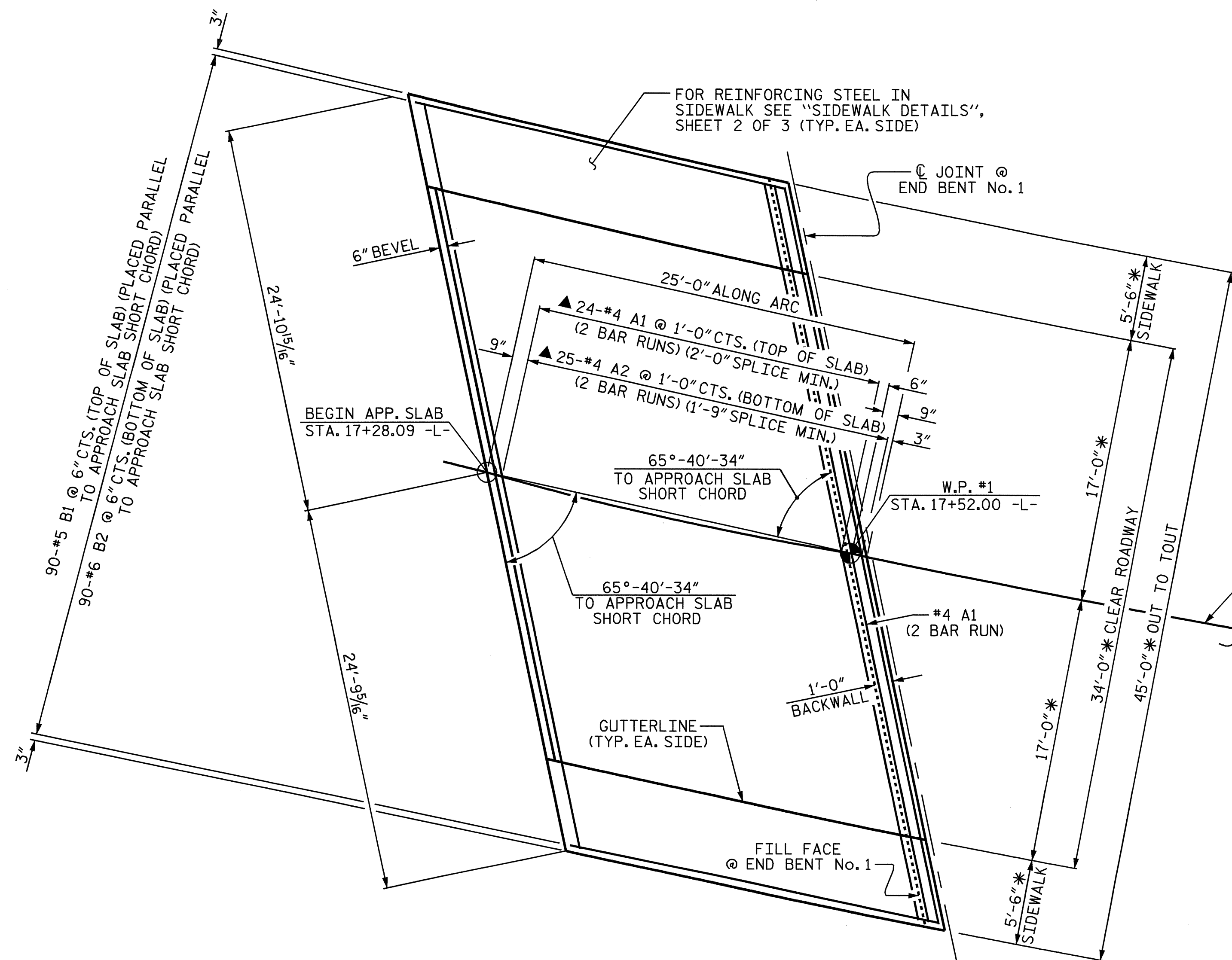
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**SLOPE PROTECTION
 DETAILS**

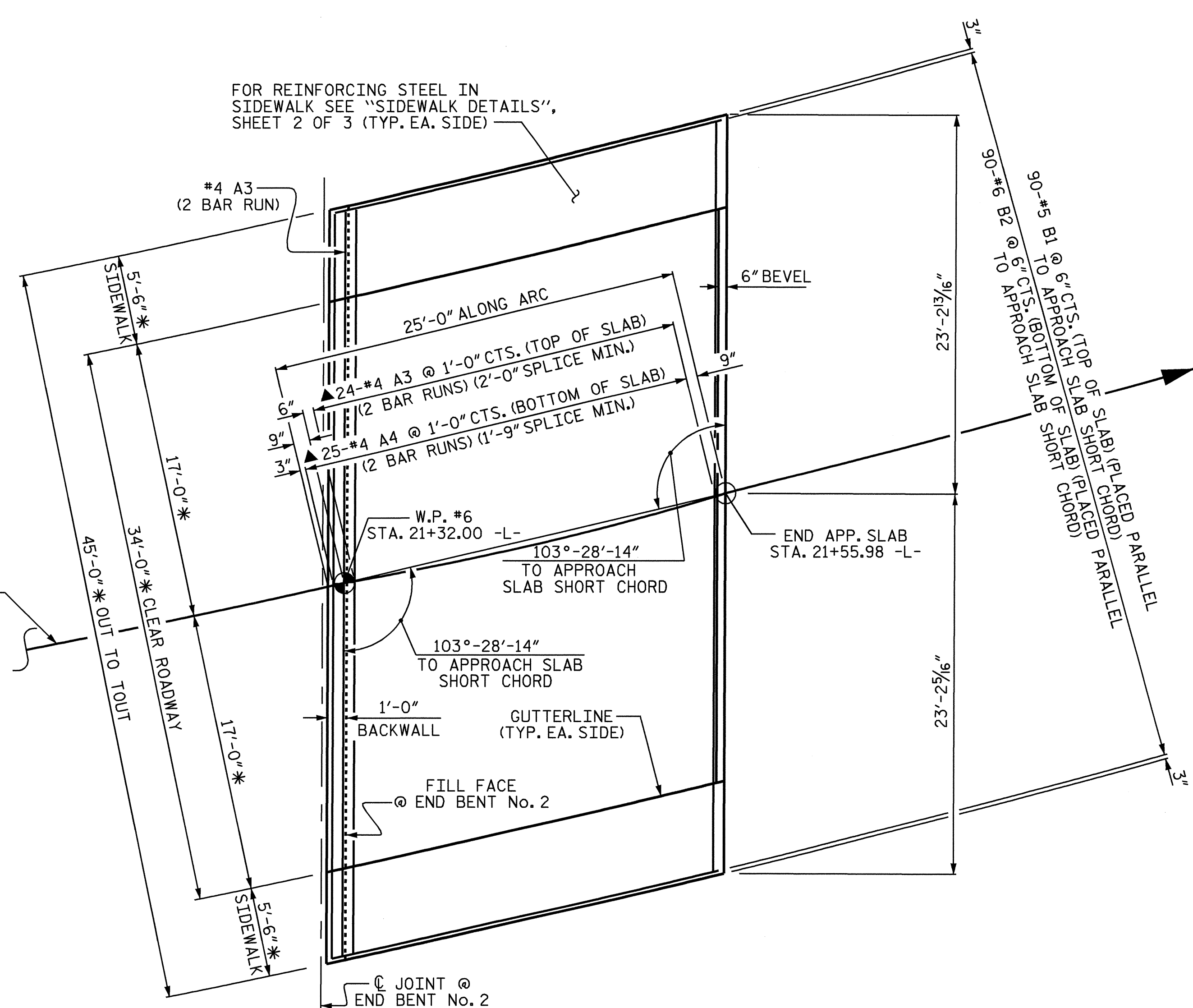


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS 59
2			4			

ASSEMBLED BY : T. BANKOVICH	DATE : 3-2009
CHECKED BY : B. COX	DATE : 10-2009
DRAWN BY : ELR 5/92	REV. 7/10/01 LES/RDR
CHECKED BY : GRP 6/92	REV. 5/7/03 RHW/JTE
	REV. 5/1/06 TLA/GM



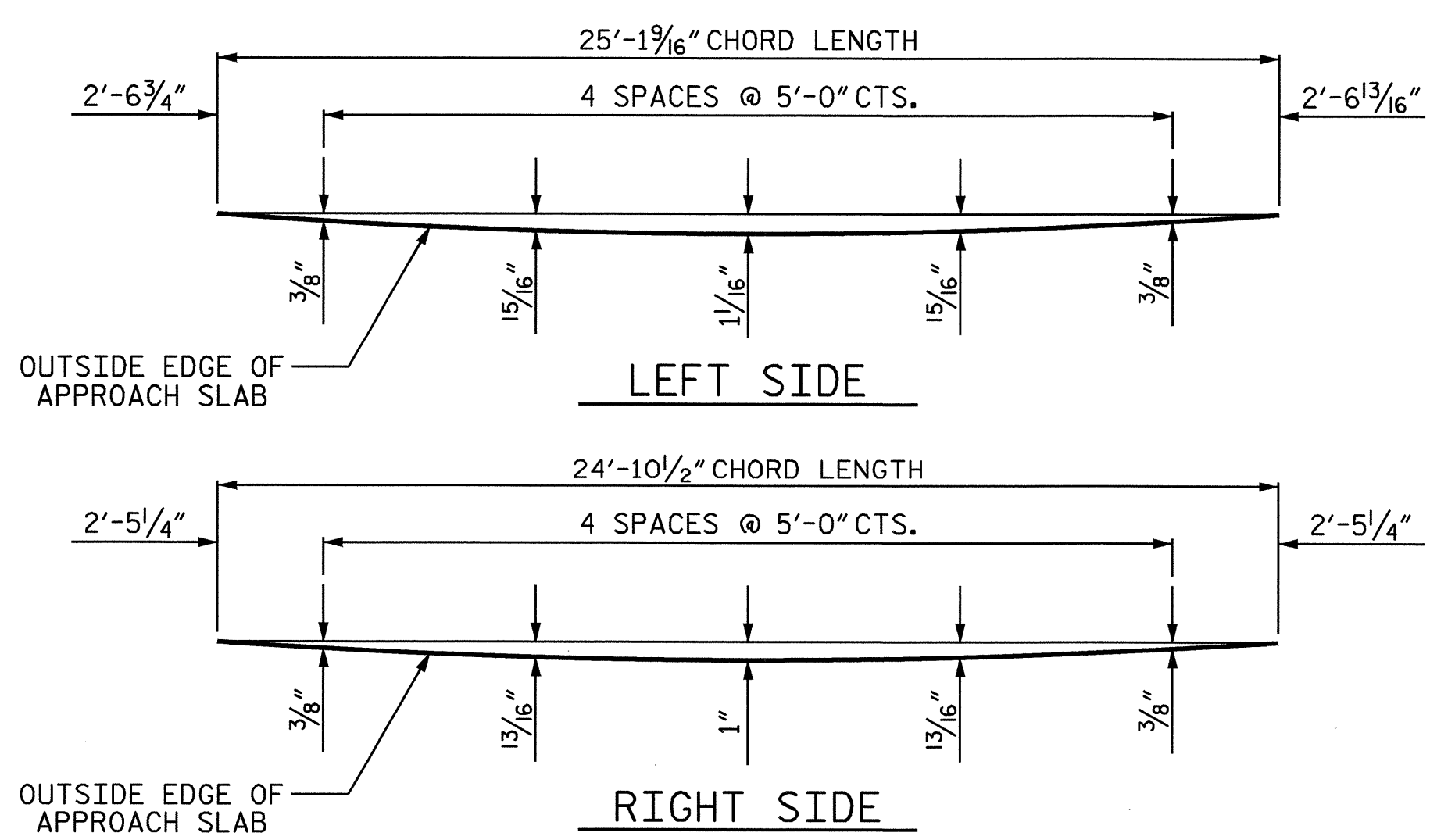
PLAN @ END BENT No. 1



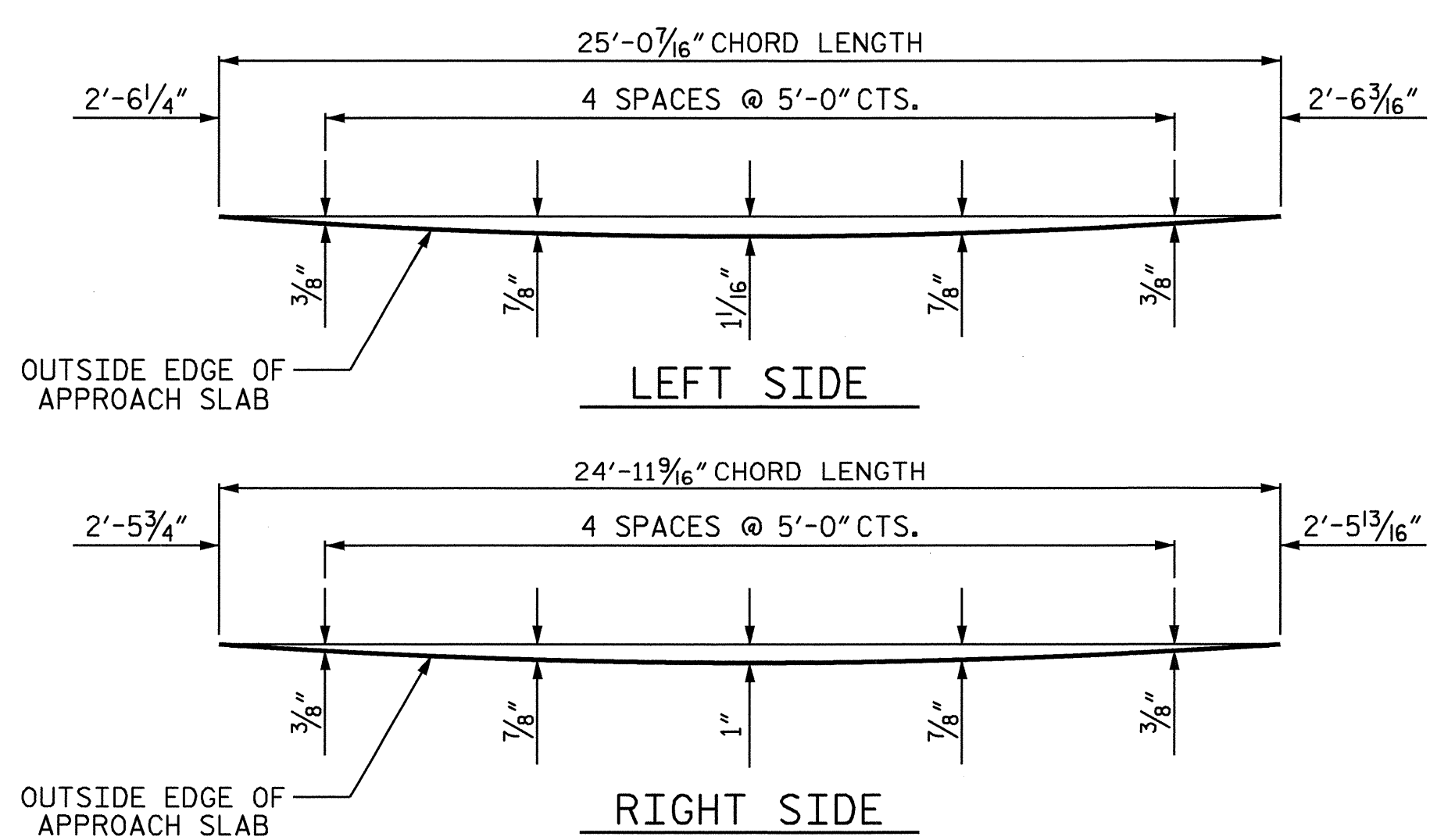
PLAN @ END BENT No. 2

PLAN OF APPROACH SLABS

NOTES:
 * MEASURED RADIALLY
 ▲ "A" BARS ARE SPACED ALONG APPROACH SLAB CHORD AND PLACED PARALLEL TO FILL FACE



ARC OFFSETS @ END BENT No. 1



ARC OFFSETS @ END BENT No. 2

PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

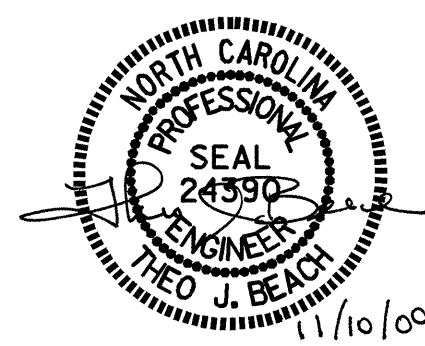
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

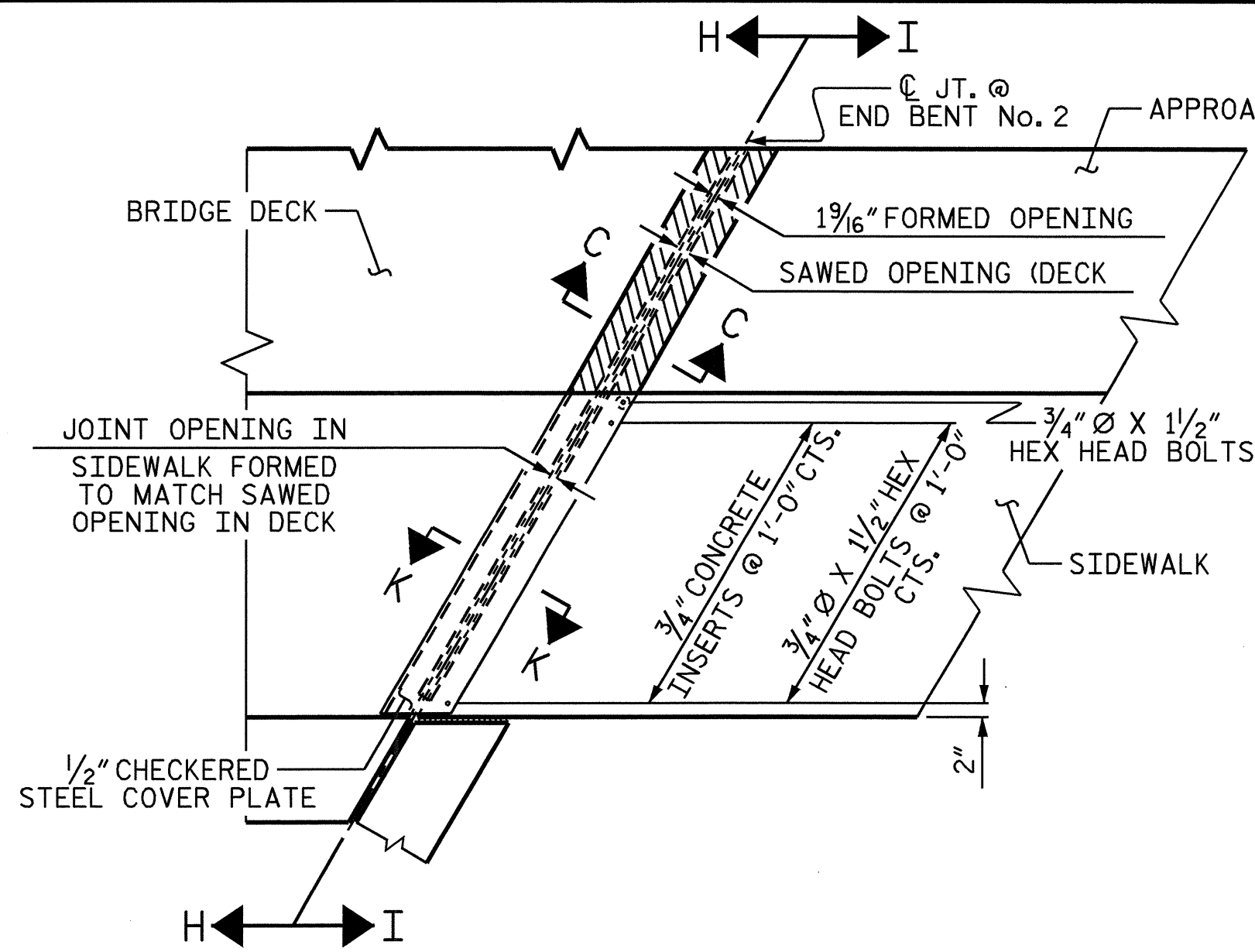
BRIDGE APPROACH SLAB
 AND ARC OFFSETS

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

SHEET NO. S-57
 TOTAL SHEETS 59



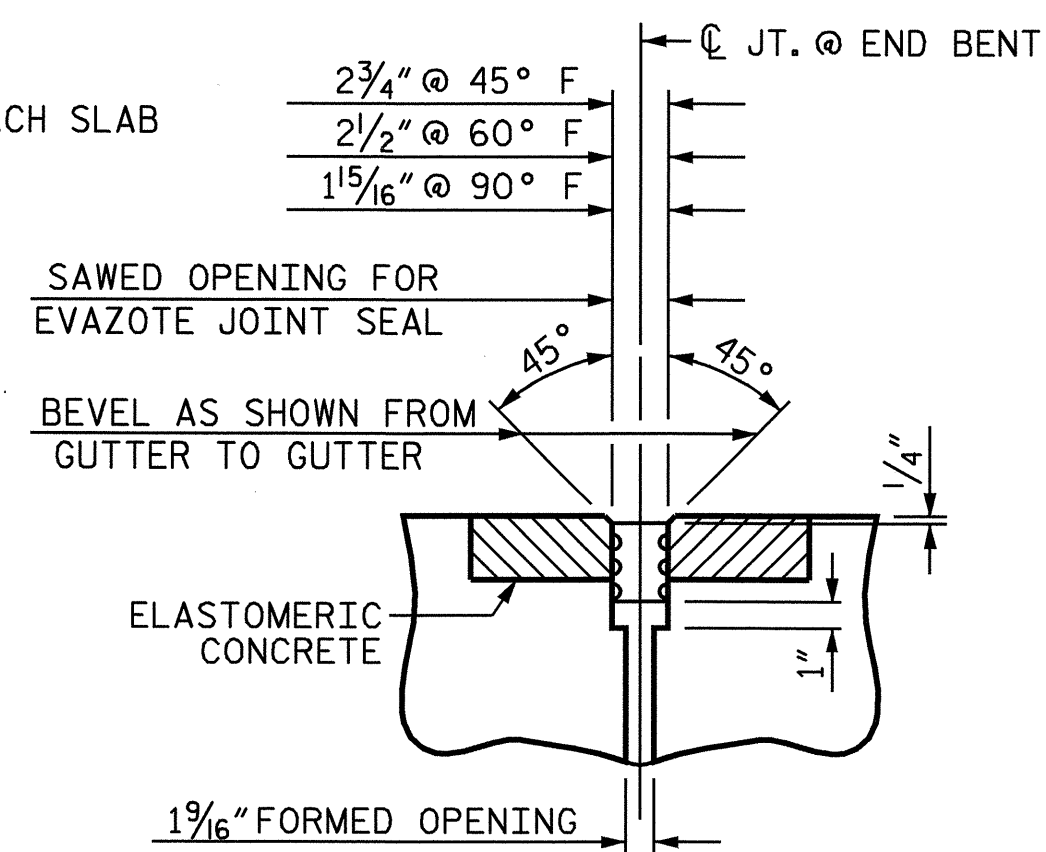
DRAWN BY: S.B. WILLIAMS DATE: 3-09
 CHECKED BY: A.V. ROYAL DATE: 3-09



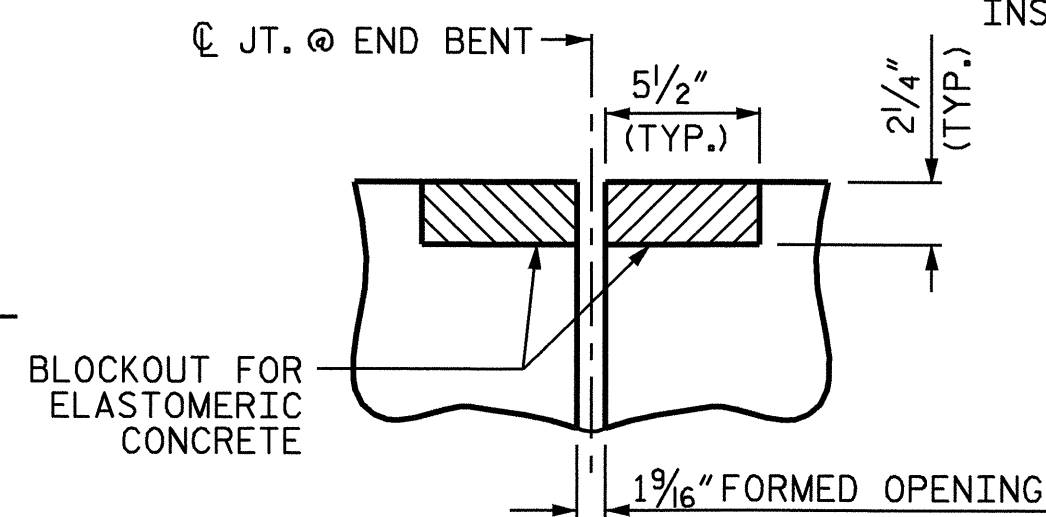
PLAN VIEW OF EVAZOTE JOINT SEAL @ END BENT FOR SIDEWALK
 PLAN VIEW @ END BENT No. 2 SHOWN END BENT No. 1 SIMILAR

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.4
2	6.0
TOTAL	12.4

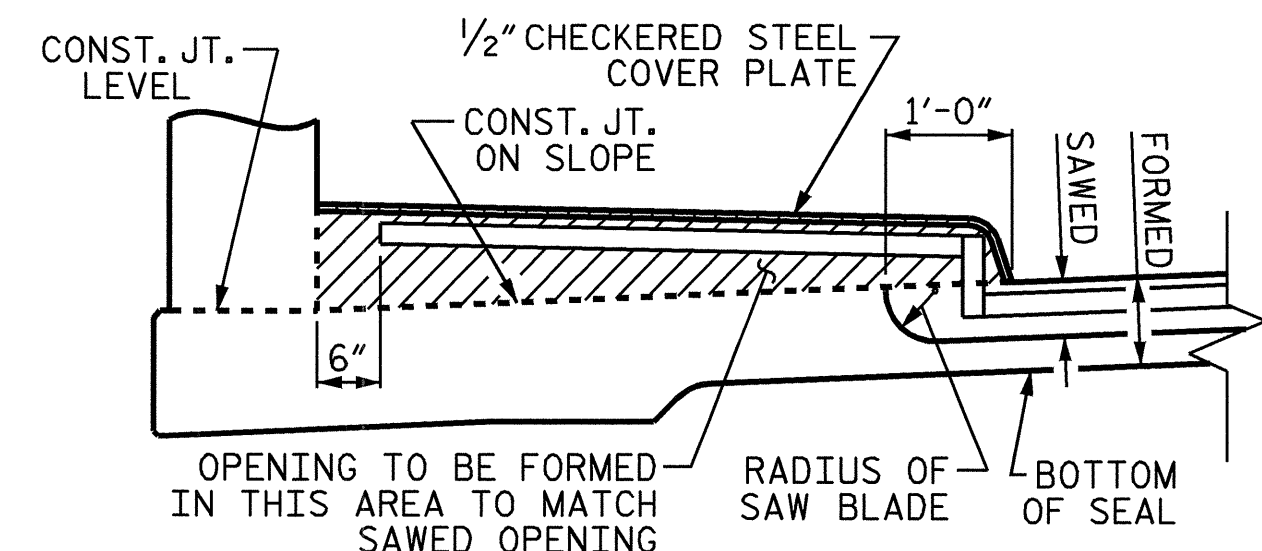
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



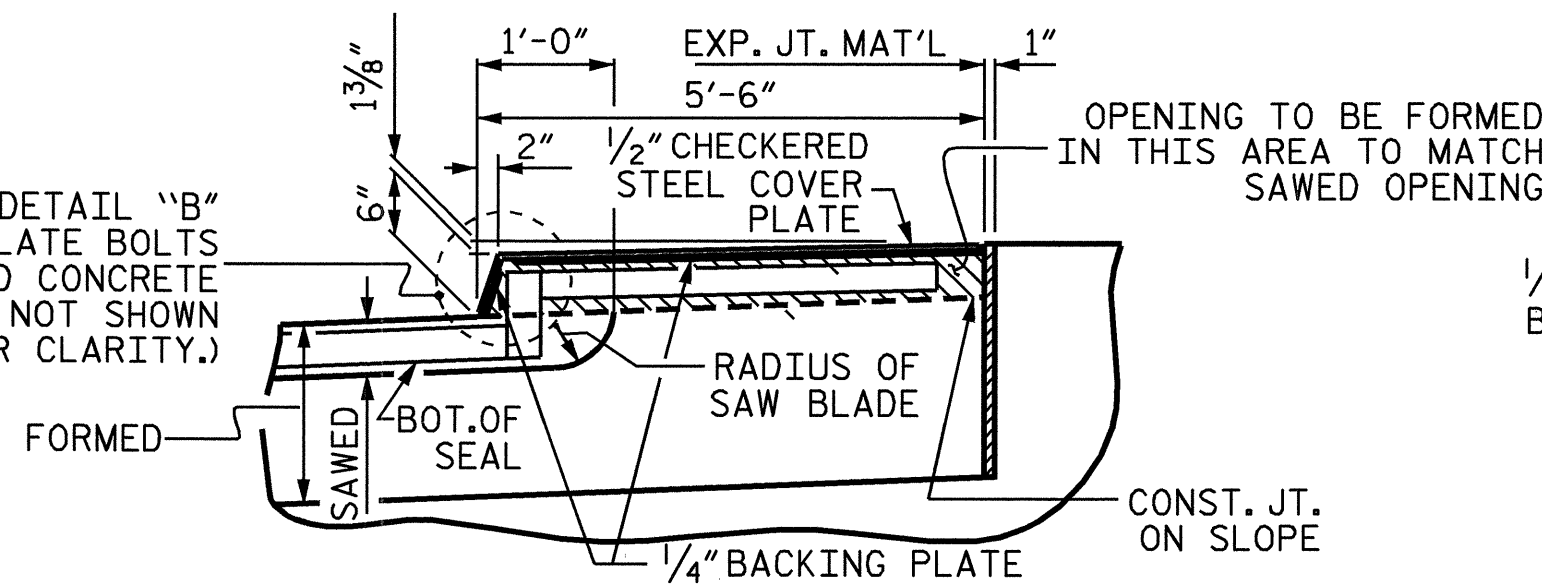
SECTION C-C
 EVAZOTE JOINT SEAL (EXPANSION)



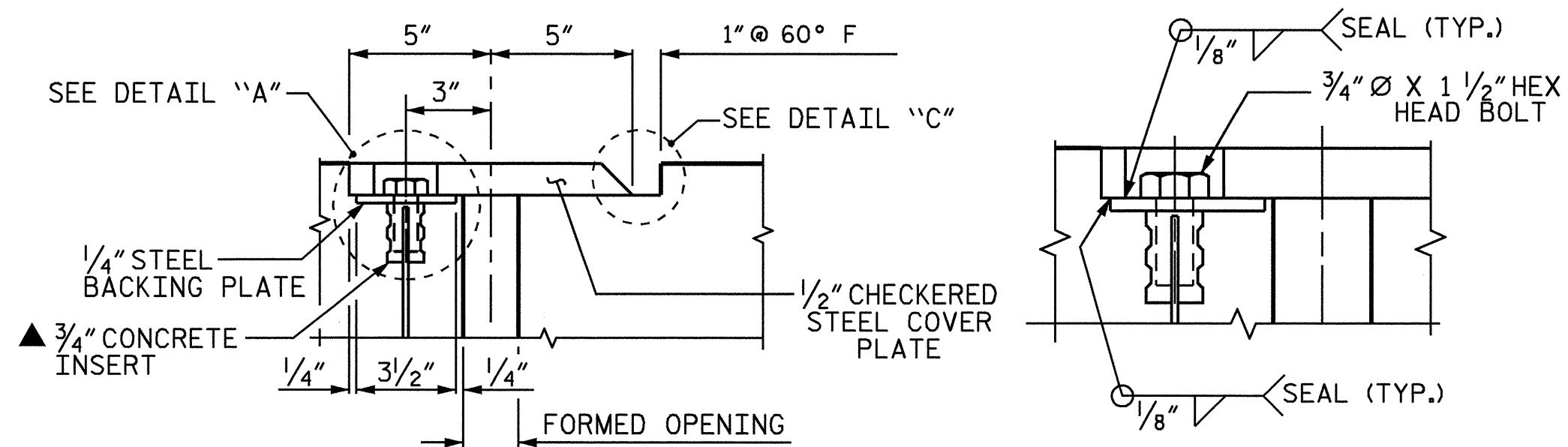
SECTION C-C
 EVAZOTE JOINT SEAL (PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)



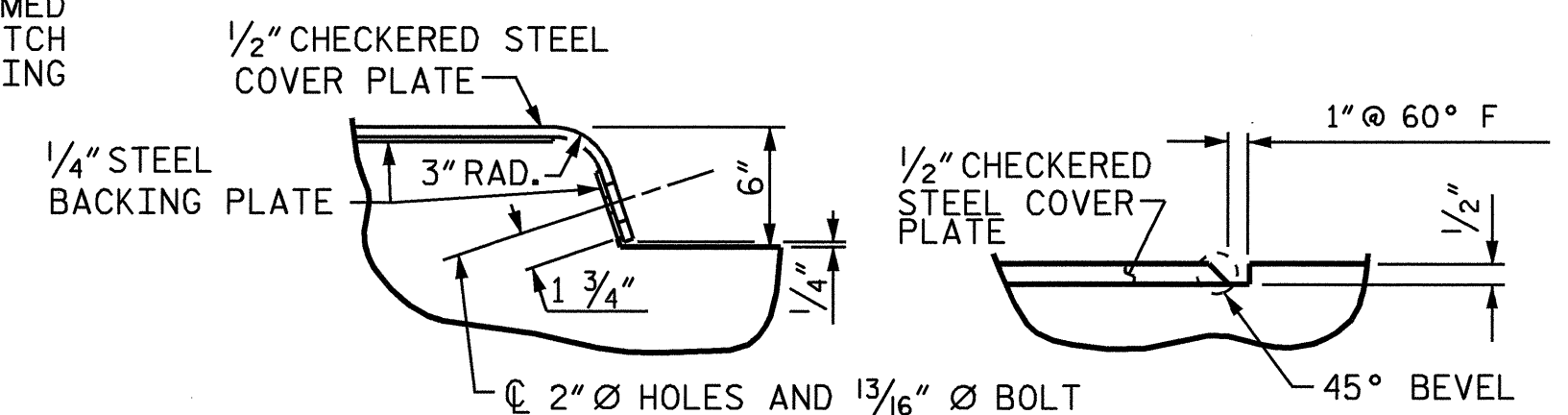
SECTION H-H



SECTION I-I



SECTION K-K



DETAIL "A"

DETAIL "B"

DETAIL "C"

COVER PLATE NOTES:

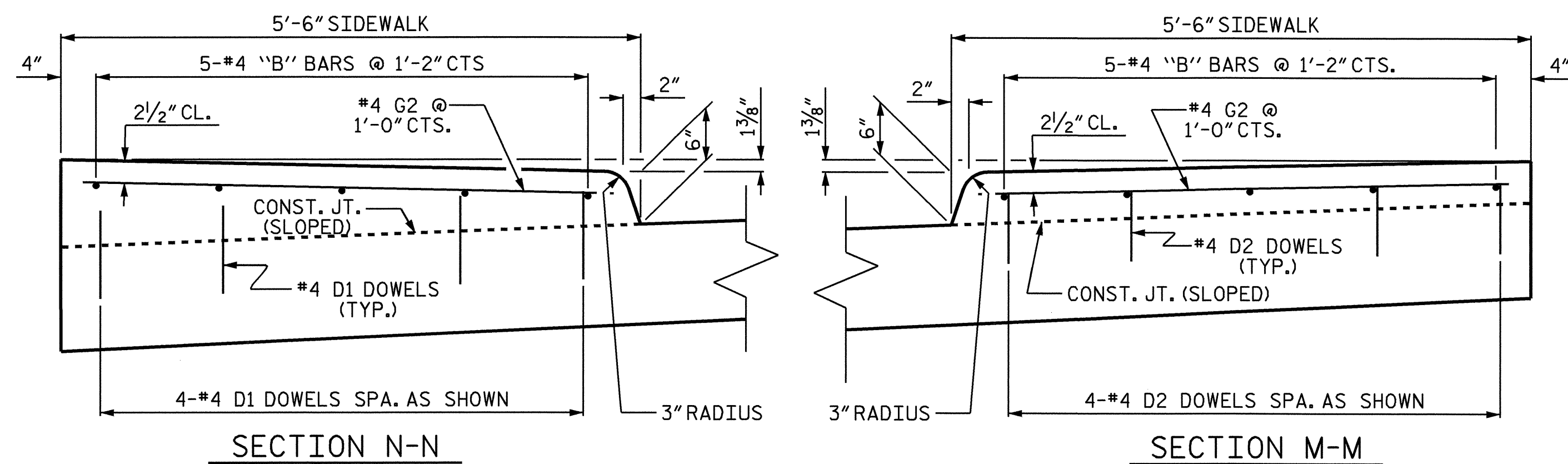
THE STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR APPROVED EQUAL. AFTER FABRICATION, THE PLATES SHALL BE COMMERCIALY BLAST CLEANED AND COATED WITH A MINIMUM THICKNESS OF 4 MILS (DRY) OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. AT THE CONTRACTOR'S OPTION, THESE SURFACES MAY BE METALLIZED TO A MINIMUM THICKNESS OF 6 MILS. SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

THE 3/4" Ø HEX HEAD BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL.

▲ THE 3/4" CONCRETE INSERTS SHALL BE CLOSED-END FERRULES WITH LOOPED WIRE STRUTS ATTACHED TO THEM. THE INSERTS SHALL CONFORM TO AASHTO M169, GRADE 12L14, AND THE INSERTS SHALL HAVE A TENSILE WORKING LOAD CAPACITY OF 3000 LBS.

NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE COVER PLATE. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR EVAZOTE JOINT SEALS.

JOINT SEAL DETAILS @ END BENT



SECTION N-N

SECTION M-M

SECTION THRU SIDEWALK

SIDEWALK NOTES:

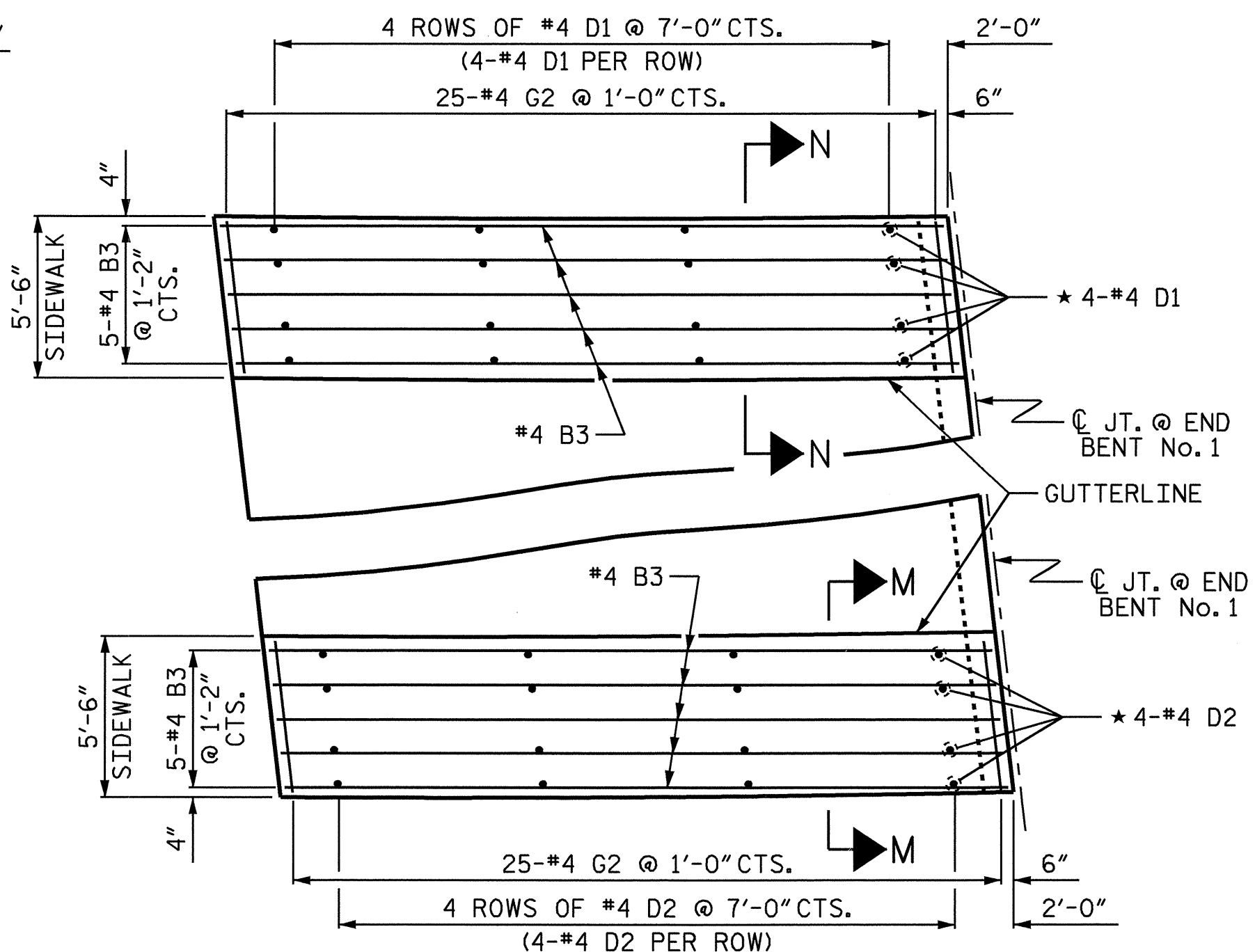
THE JOINT IN THE DECK AT THE END BENTS SHALL BE SAWS PRIOR TO THE CASTING OF THE SIDEWALK.

* THESE DOWELS ARE TO BE PLACED AFTER SAWING OF THE JOINT AT THE END BENTS. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.

THE DOWELS (EXCEPT AS NOTED ABOVE) MAY BE PUSHED INTO GREEN CONCRETE AFTER THE APPROACH SLAB IS FINISHED.

ALL REINFORCING STEEL IN THE SIDEWALK SHALL BE EPOXY COATED.

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



PLAN

DETAILS OF SIDEWALK ON APPROACH SLAB

END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR

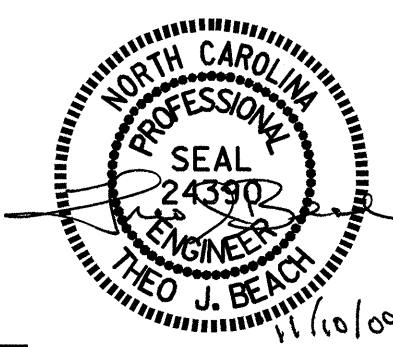
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS

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

TOTAL SHEETS 59



ASSEMBLED BY : S.B. WILLIAMS DATE : 3-2009
 CHECKED BY : A.V. ROYAL DATE : 3-2009
 DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES
 CHECKED BY : ARB 11/88 REV. 5/7/03 RWW/JTE
 REV. 5/1/06R MAA/KMM

NOTES

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

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

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

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

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

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

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE PARAPET AND SIDEWALK.

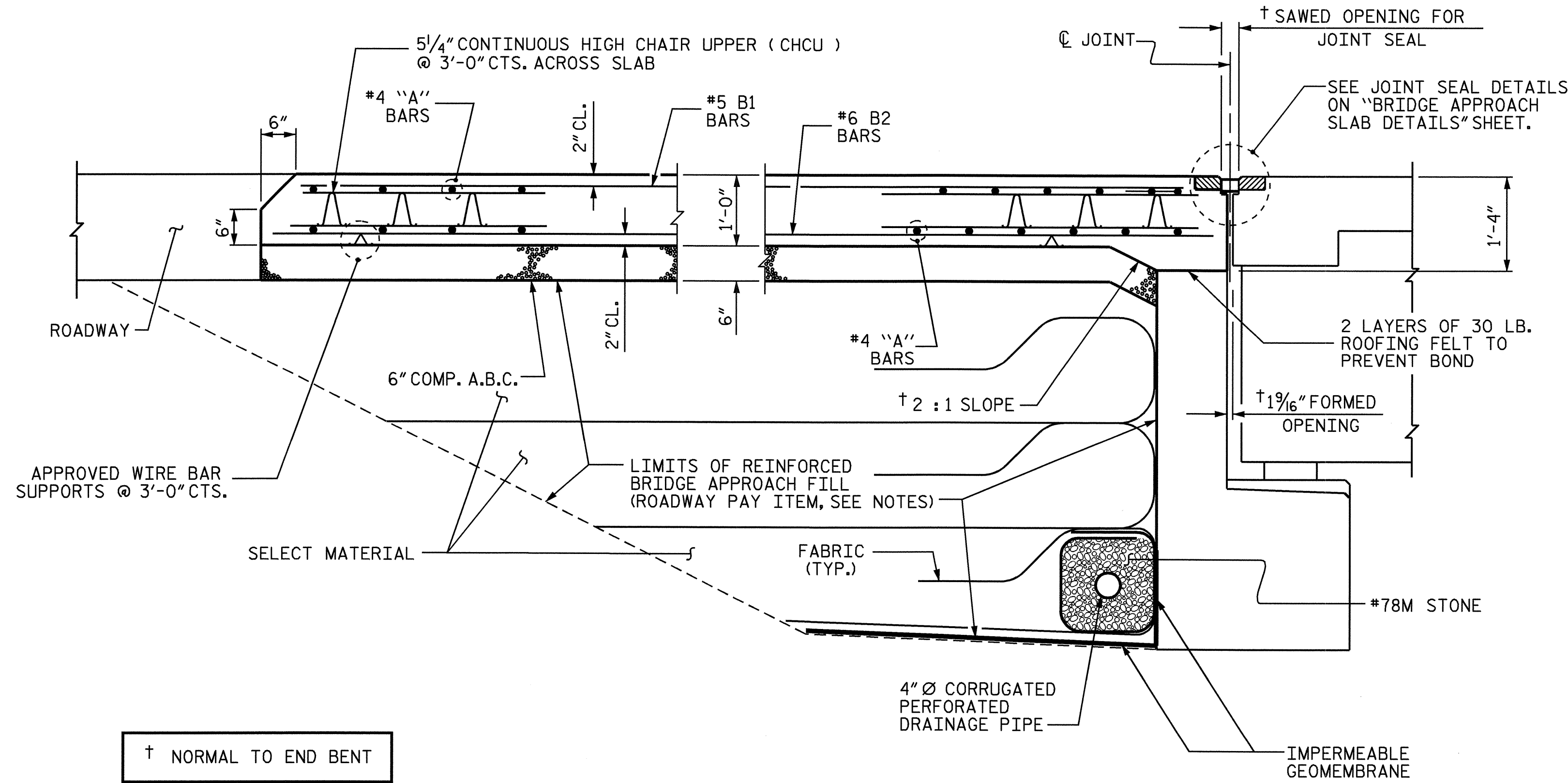
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3/16".

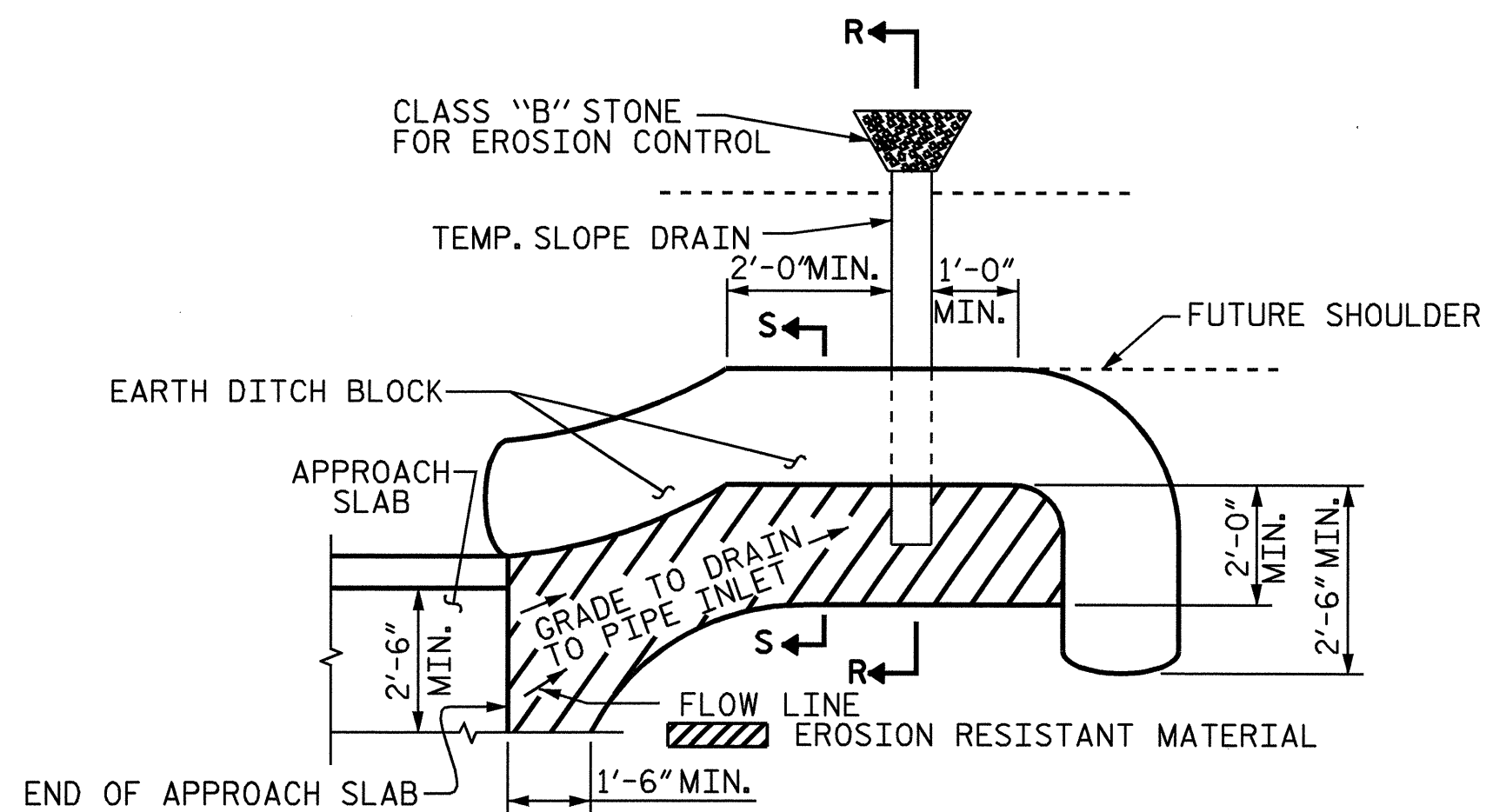
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	25'-7"	854
A2	50	#4	STR	25'-6"	852
*B1	90	#5	STR	24'-0"	2253
B2	90	#6	STR	24'-6"	3312
*B3	10	#4	STR	24'-6"	164
*D1	16	#4	STR	11"	10
*D2	16	#4	STR	10"	9
*G2	50	#4	STR	5'-0"	167
REINFORCING STEEL					4164 LBS.
*EPOXY COATED REINFORCING STEEL					3457 LBS.
CLASS AA CONCRETE					
POUR #1 (SLAB)					42.3 C. Y.
POUR #2 (SIDEWALKS)					5.7 C. Y.
TOTAL					48.0 C. Y.
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	50	#4	STR	23'-11"	799
A4	50	#4	STR	23'-9"	793
*B1	90	#5	STR	24'-0"	2253
B2	90	#6	STR	24'-6"	3312
*B3	10	#4	STR	24'-6"	164
*D1	16	#4	STR	11"	10
*D2	16	#4	STR	10"	9
*G2	50	#4	STR	5'-0"	167
REINFORCING STEEL					4105 LBS.
*EPOXY COATED REINFORCING STEEL					3402 LBS.
CLASS AA CONCRETE					
POUR #1 (SLAB)					42.3 C. Y.
POUR #2 (SIDEWALKS)					5.7 C. Y.
TOTAL					48.0 C. Y.



SECTION THRU SLAB

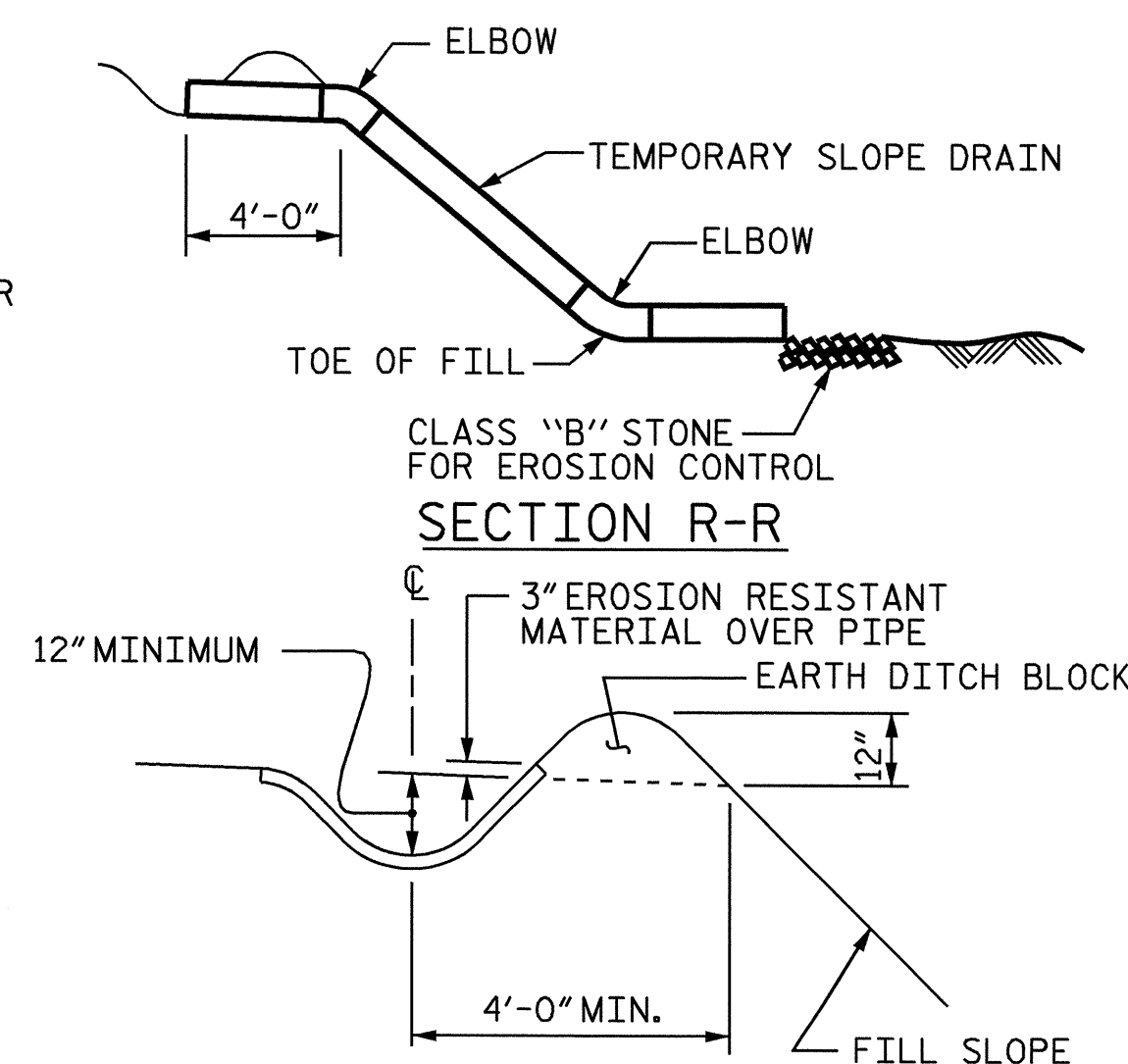


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

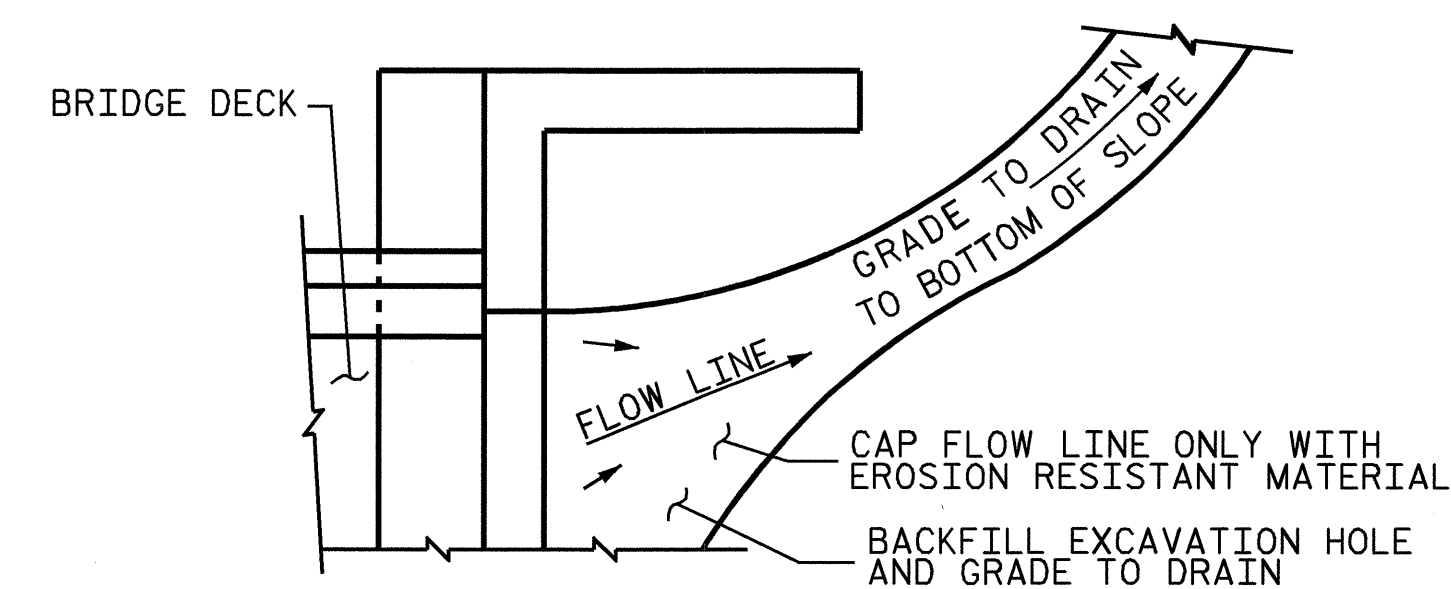
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION S-S



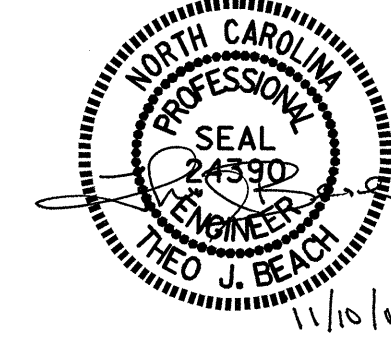
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

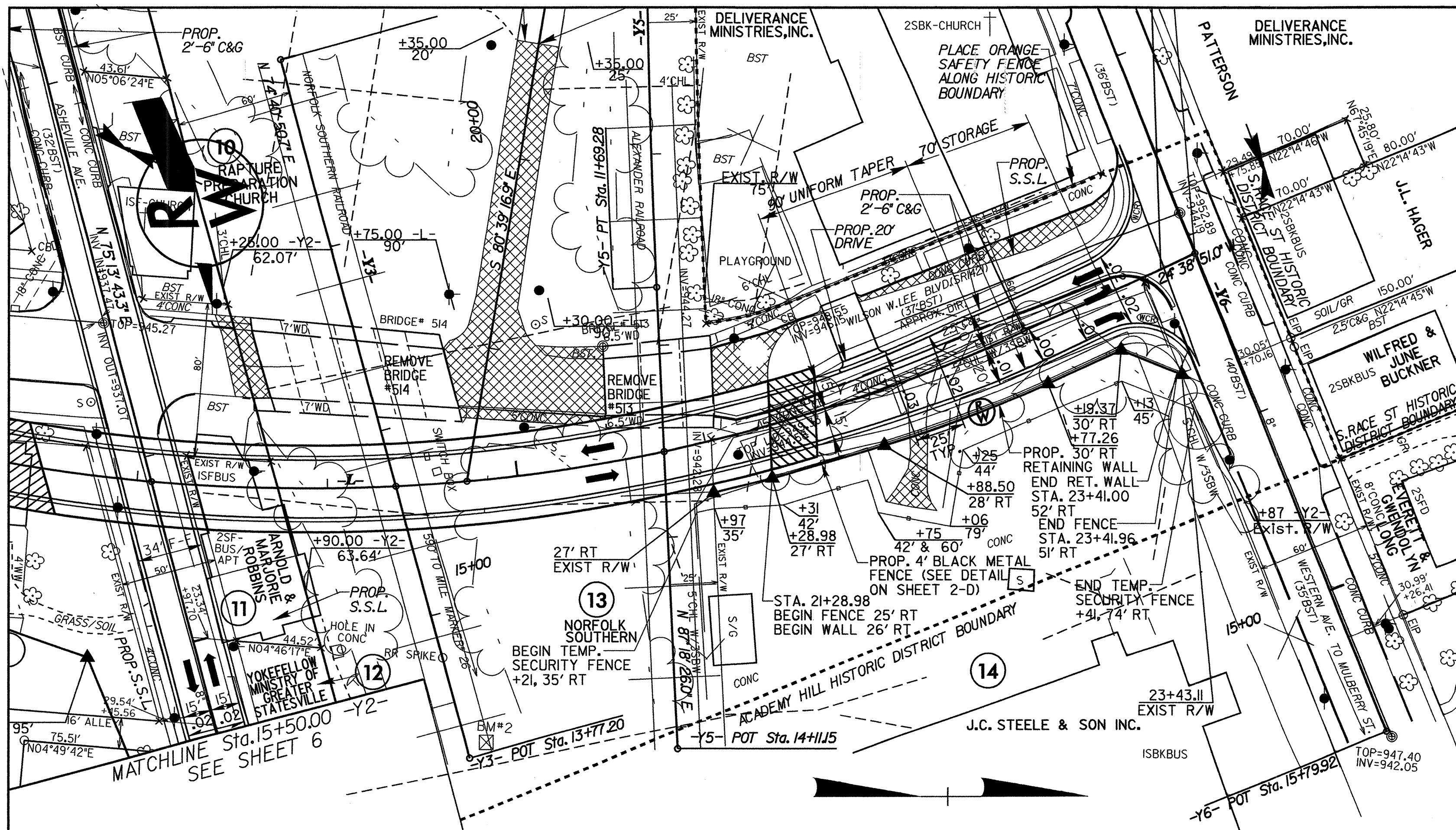
PROJECT NO. B-2576
IREDELL COUNTY
 STATION: 19+35.95 -L-

SHEET 3 OF 3

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

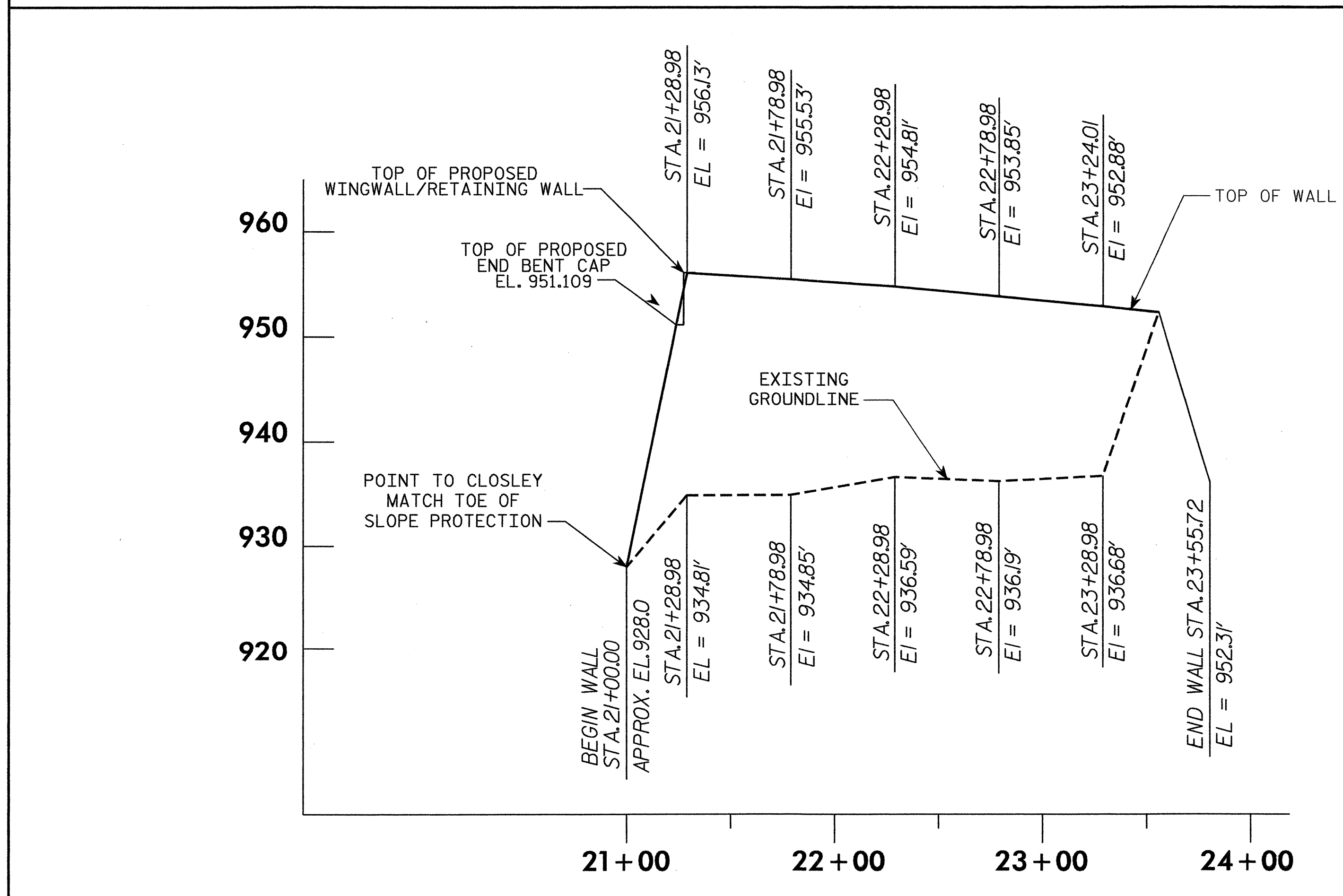


ASSEMBLED BY : S.B. WILLIAMS	DATE : 3-2009
CHECKED BY : A.V. ROYAL	DATE : 3-2009
DRAWN BY : EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY : VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM



LOCATION SKETCH

TOTAL BILL OF MATERIAL	
MSE RETAINING WALL AT STA. 21+00.00 -L- (26' RT) TO STA. 23+55.72 -L- (52' RT)	4292 SO. FT.



WALL ENVELOPE
SHOWING STATIONS AND ELEVATIONS

NOTE: MSE WALL IS TO BE CONSTRUCTED ADJACENT TO END BENT 2 (RIGHT SIDE) AND ACT AS A WINGWALL FOR THE STRUCTURE

PREPARED BY: EJS DATE: 6/09
REVIEWED BY: SCC DATE: 12/31/09

GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PROJECT NO.: B-2576
 IREDELL COUNTY
 STATION: 21+00.00 -L- TO 23+55.72 -L-
 SHEET 1 OF 3

REVISIONS						SHEET NO. W-1 TOTAL SHEETS 3
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

GEOTECHNICAL ENGINEER
 ENGINEER

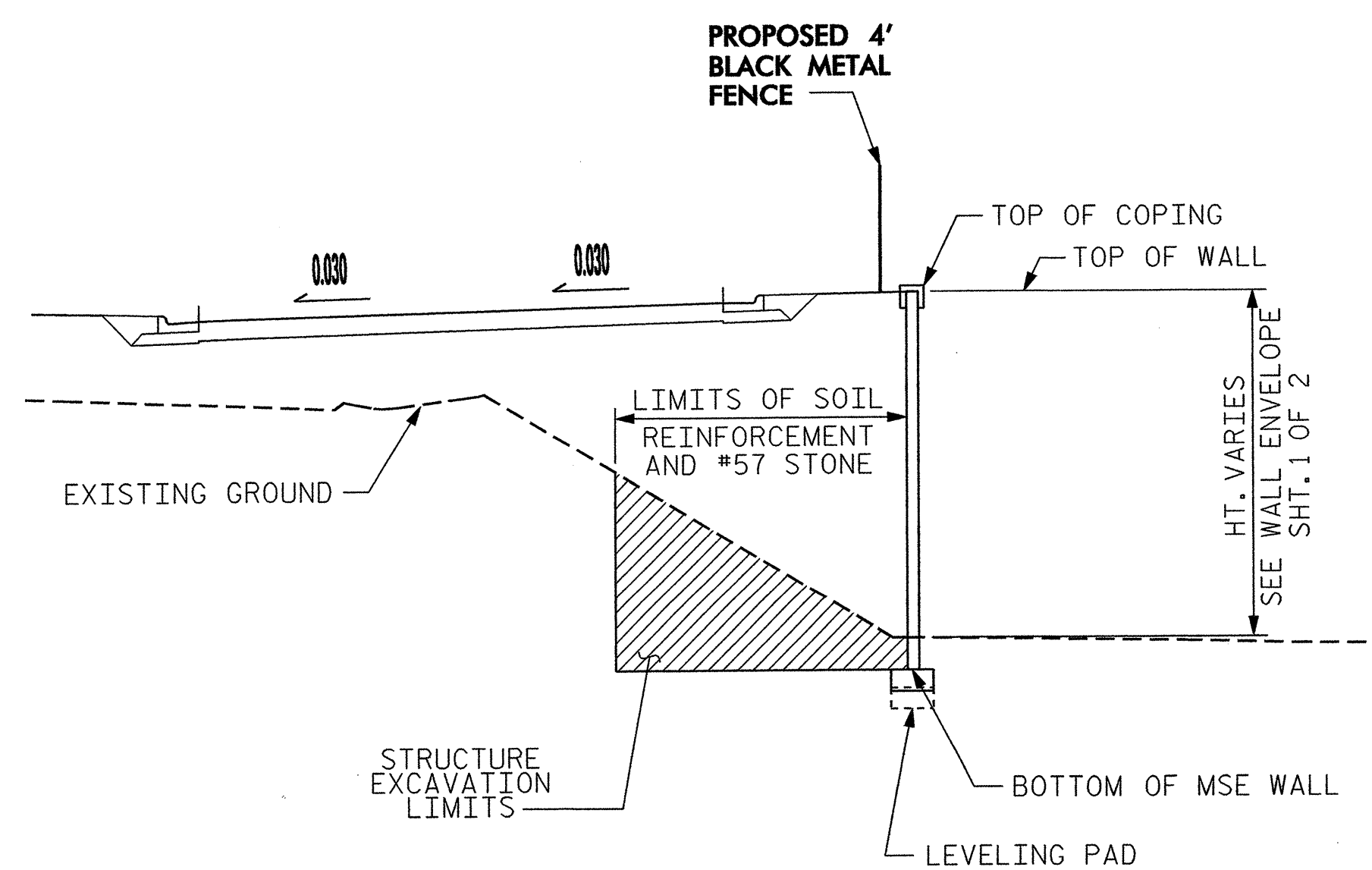
SEAL 29869
 ENGINEER
 THANE C CLARK

DATE



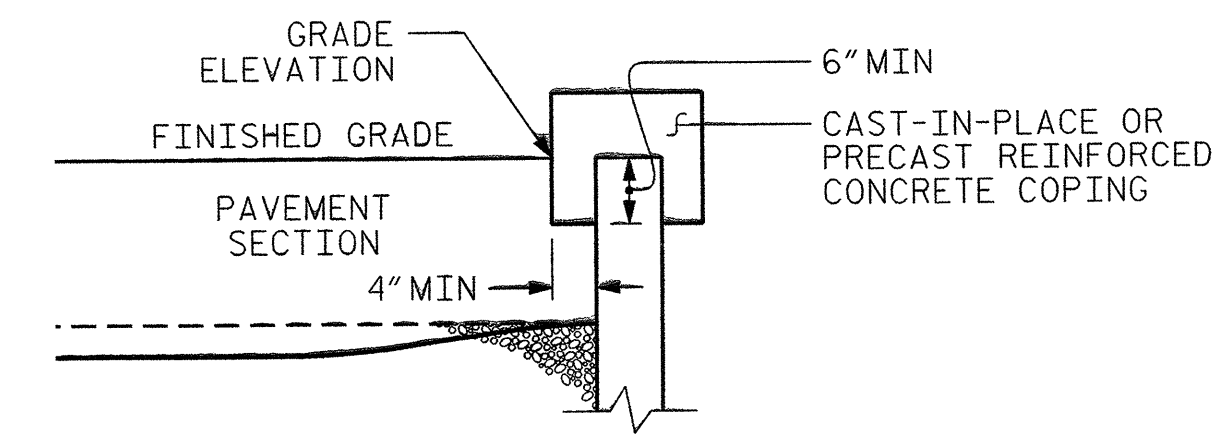
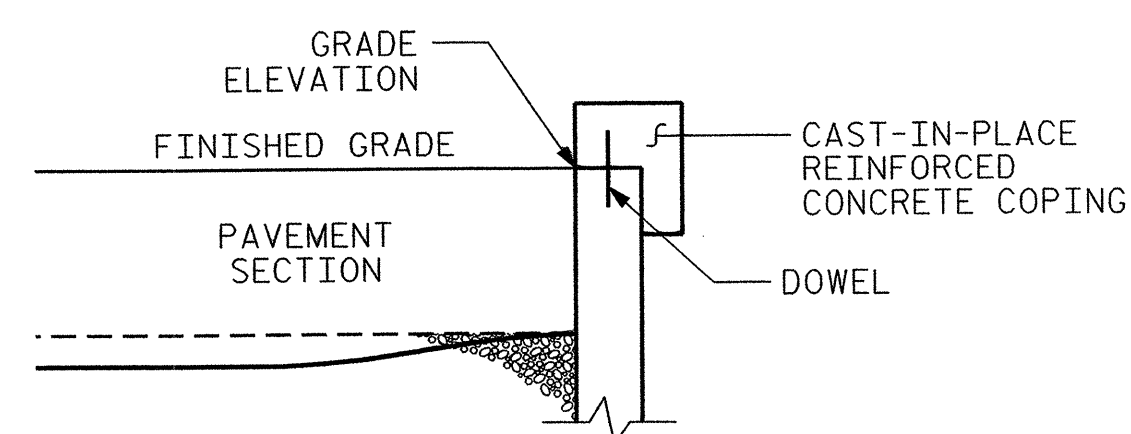
Signature: *Shane C. Clark* DATE: 12/31/09

SIGNATURE DATE



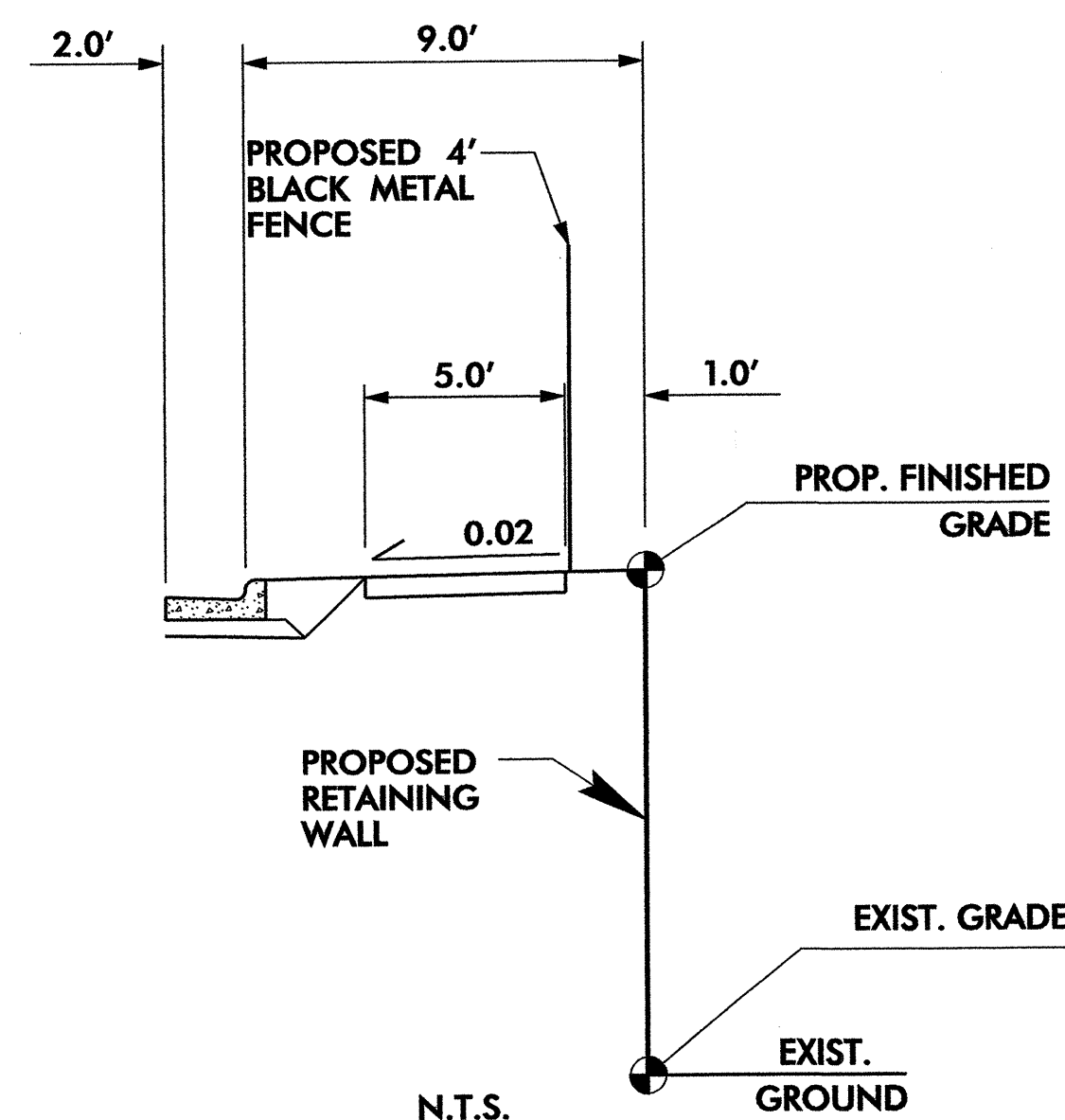
TYPICAL SECTION

STA. 21+00.00 -L- TO STA. 23+55.72 -L-

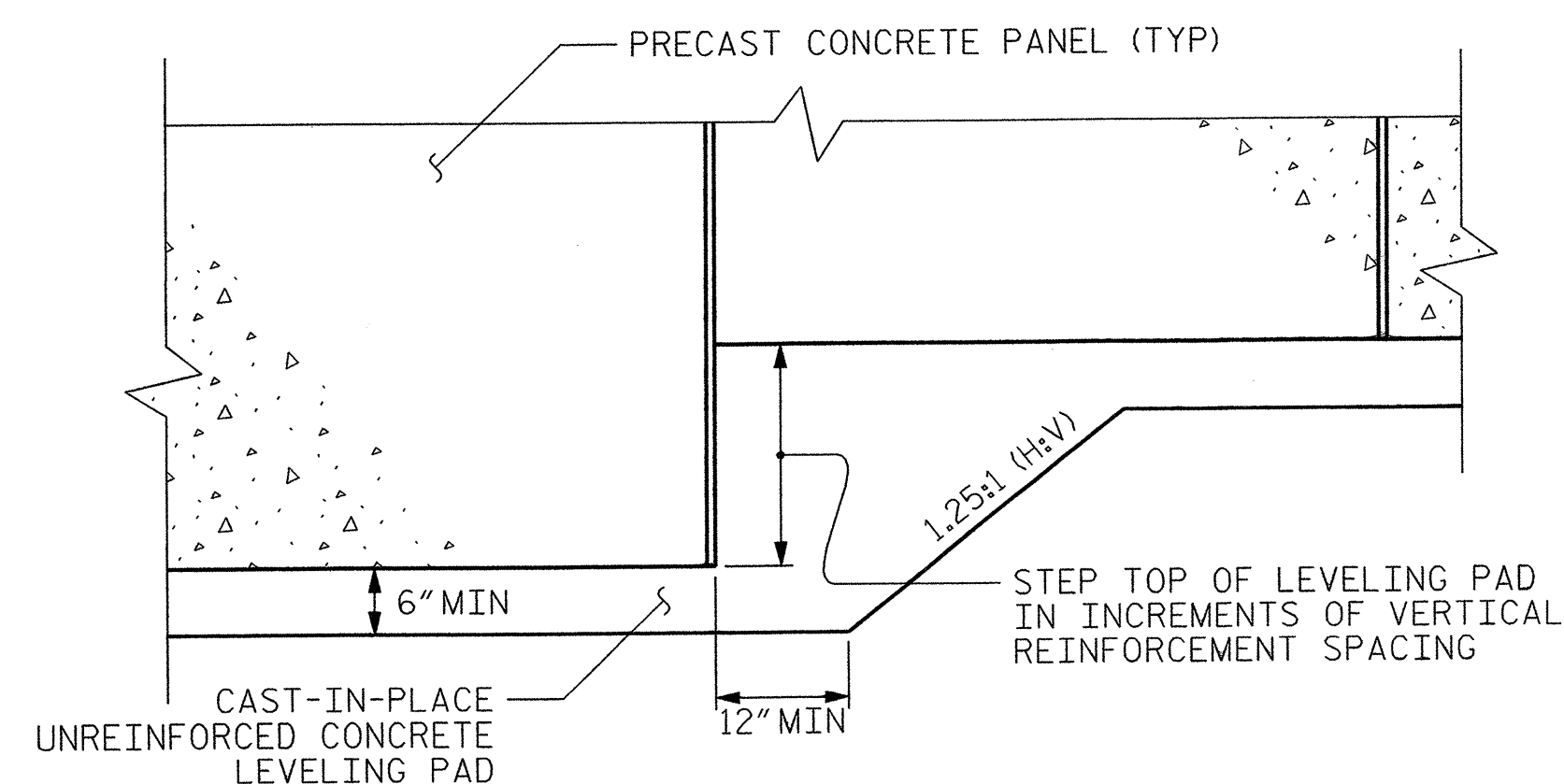


COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO PANELS WITH DOWELS OR EXTEND COPING DOWN BACK OF PANELS.



SECTION SHOWING LOCATION OF FENCE



LEVELING PAD STEP DETAILS

PROJECT NO.: B-2576
 IREDELL COUNTY
 STATION: 21+00.00 -L- TO 23+55.72 -L-
 SHEET 2 OF 3

GEOTECHNICAL ENGINEERING UNIT
 EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**RETAINING WALL
 MSE RETAINING WALL**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-2
1			3			TOTAL SHEETS
2			4			3

PREPARED BY: EJS DATE: 5/09
 REVIEWED BY: SCC DATE: 12/31/09



Signature: *S. Coak* Date: 12/31/09

Signature: _____ Date: _____

NOTES

INSTALL PILES FOR END BENT 2 PRIOR TO CONSTRUCTION OF RETAINING WALL

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

A FENCE OR HAND RAIL IS REQUIRED ON TOP OF RETAINING WALL NO. . SEE ROADWAY PLANS FOR FENCE OR HAND RAIL ATTACHMENT DETAILS.

DO NOT USE STANDARD SIZE NO. 2S OR 2MS FOR SELECT MATERIAL FOR RETAINING WALL.

DO NOT USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS FOR RETAINING WALL.

CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL.

AN ASHLAR ARCHITECTURAL FINISH IS REQUIRED FOR FRONT FACES OF PRECAST CONCRETE PANELS FOR RETAINING WALL.

A DRAIN IS REQUIRED FOR RETAINING WALL.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL, SURVEY EXISTING GROUND ELEVATIONS SHOWN ON THE WALL PROFILE VIEW (WALL ENVELOPE) AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT (DIFFERENCE BETWEEN GRADE ELEVATION AND BOTTOM OF WALL ELEVATION) PLUS EMBEDMENT (DIFFERENCE BETWEEN BOTTOM OF WALL ELEVATION AND TOP OF LEVELING PAD ELEVATION).

DESIGN RETAINING WALL NO. FOR THE FOLLOWING:

- 1) MINIMUM SERVICE LIFE = 100 YEARS
- 2) ALLOWABLE BEARING CAPACITY = 3000 PSF
- 3) SELECT MATERIAL PARAMETERS:

MATERIAL STANDARD SIZE NO. (IN ACCORDANCE WITH SECTIONS 1005 AND 1014 OF THE STANDARD SPECIFICATIONS)	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
57, 67 AND 78M	110	38	0

4) IN-SITU ASSUMED MATERIAL PARAMETERS:

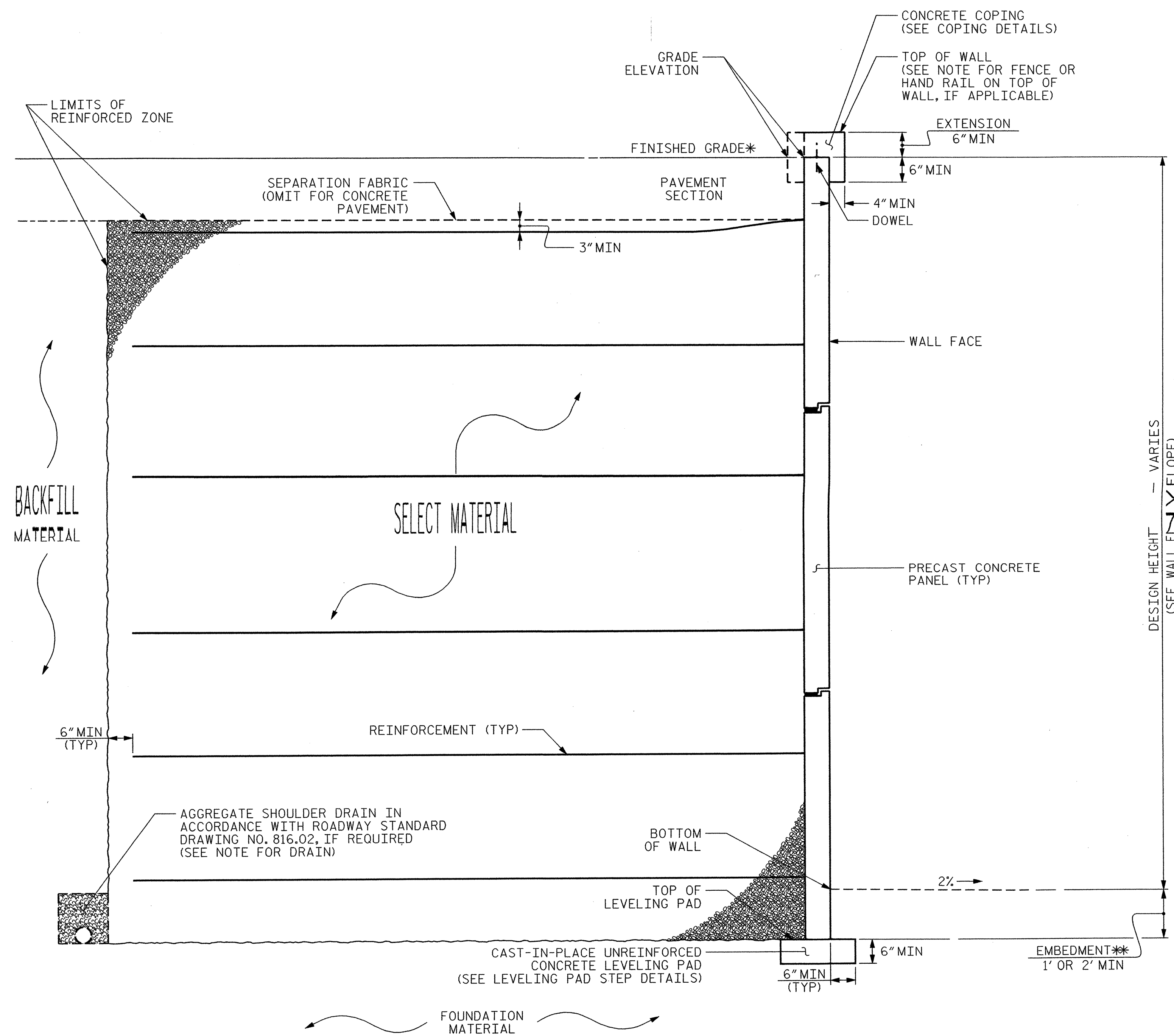
MATERIAL TYPE	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL.

DO NOT PLACE LEVELING PAD CONCRETE, SELECT MATERIAL OR REINFORCEMENT FOR RETAINING WALL NO. UNTIL OBTAINING APPROVAL OF THE EXCAVATION DEPTH AND FOUNDATION MATERIAL.

"TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE REQUIRED FOR RETAINING WALL. FOR TEMPORARY SHORING FOR WALL CONSTRUCTION, SUBMIT WORKING DRAWINGS AND DESIGN CALCULATIONS WITH THE MSE WALL DESIGN SUBMITTAL AND DESIGN AND CONSTRUCT THE SHORING IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. NO SEPARATE PAYMENT WILL BE MADE FOR TEMPORARY SHORING FOR WALL CONSTRUCTION. PAYMENT WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE MSE RETAINING WALL.



MSE WALL WITH PRECAST PANELS TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
**SEE MSE RETAINING WALLS PROVISION FOR EMBEDMENT REQUIREMENTS.

PROJECT NO.: **B-2576**
IREDELL COUNTY
 STATION: **21+00.00 -L- TO 23+55.72 -L-**
 SHEET 3 OF 3

GEOTECHNICAL ENGINEERING UNIT

- EASTERN REGIONAL OFFICE
- WESTERN REGIONAL OFFICE
- CONTRACT OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-3
2			4			TOTAL SHEETS 3

PREPARED BY: EJS DATE: 10/09
 REVIEWED BY: SCC DATE: 12/31/09

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 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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