

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5114		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42252.1.1	BRZ-1619(5)	PE	
42252.2.FR1	BRZ-1619(5)	ROW	
42252.2.FR1	BRZ-1619(5)	UTL	
42252.3.FR1	BRZ-1619(5)	CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

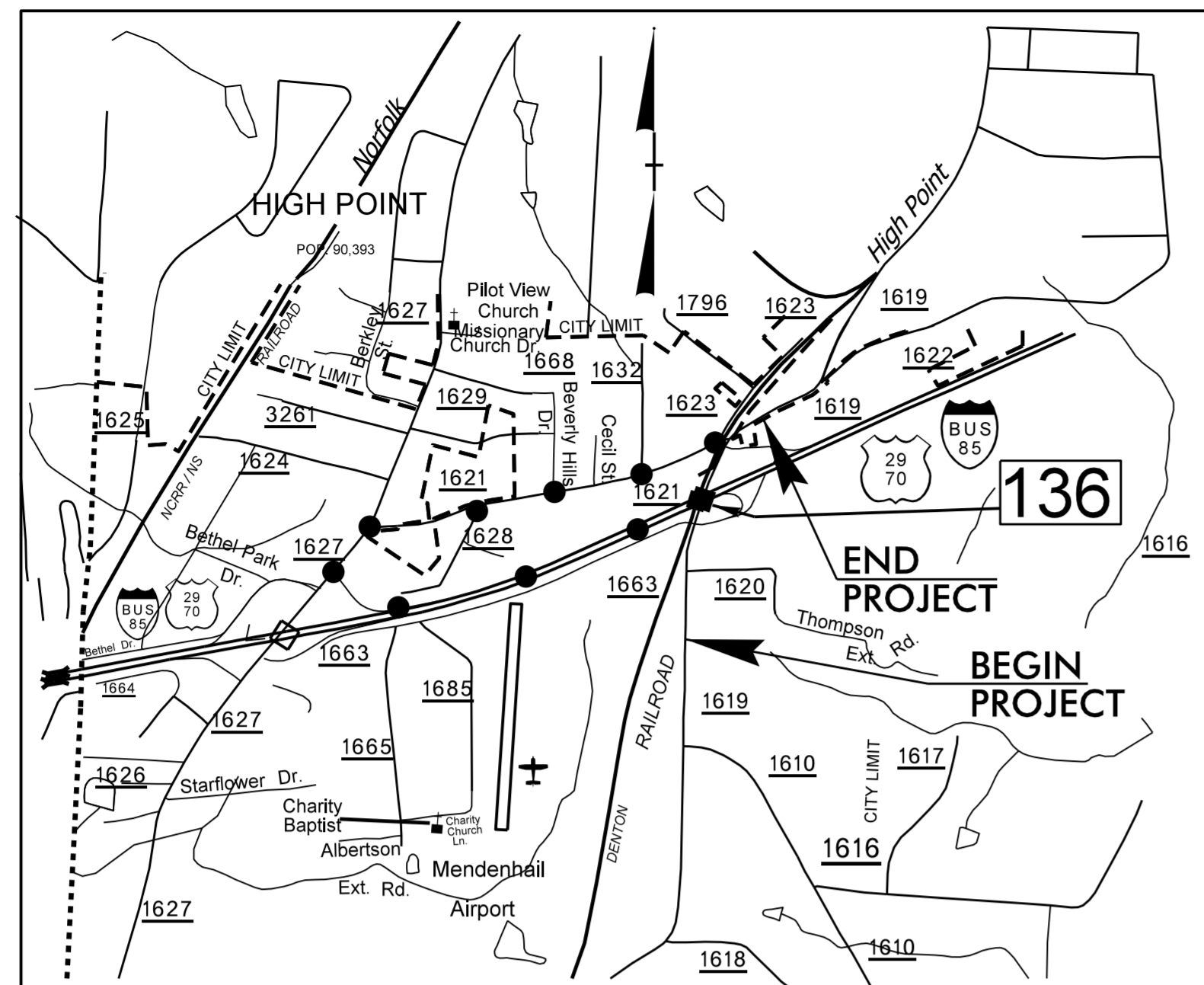
RANDOLPH COUNTY

LOCATION: BRIDGE 136 OVER US 29-70/I-85 BUSINESS ON SR 1619 (PROSPECT STREET) IN HIGH POINT

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

TIP PROJECT: B-5114

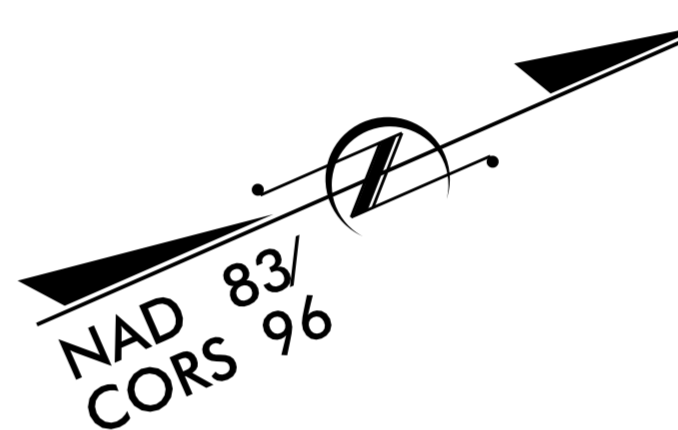
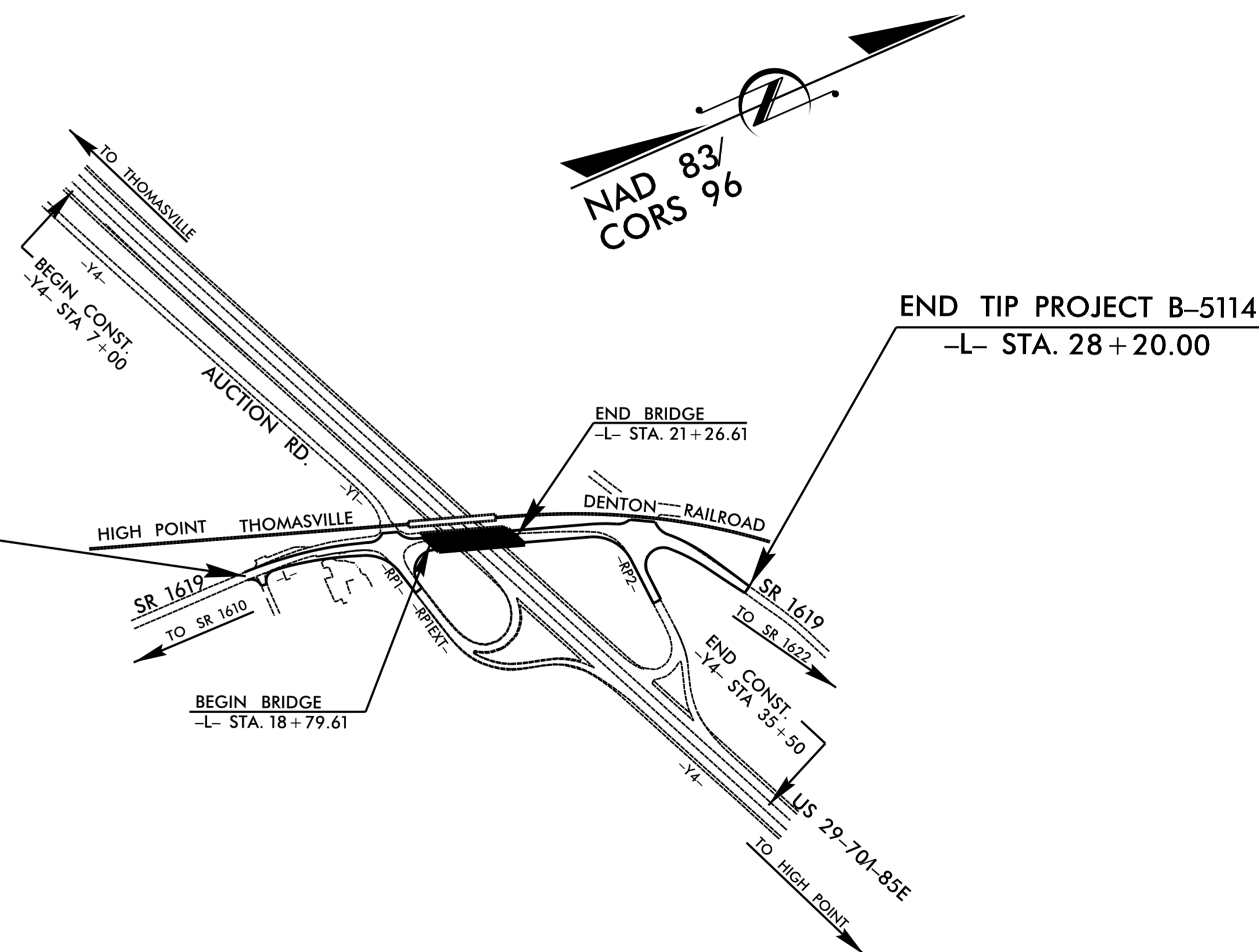
CONTRACT: C203589



VICINITY MAP

OFFSITE DETOUR

BEGIN TIP PROJECT B-5114
-L- STA. 13 + 34.42



DESIGN DATA

ADT 2015 = 8,300
 ADT 2035 = 12,300
 K = 11 %
 D = 70 %
 T = 8 % *
 V = 40 MPH
 * TTST 3% DUAL 5%
 FUNC CLASS = MINOR ARTERIAL

PROJECT LENGTH

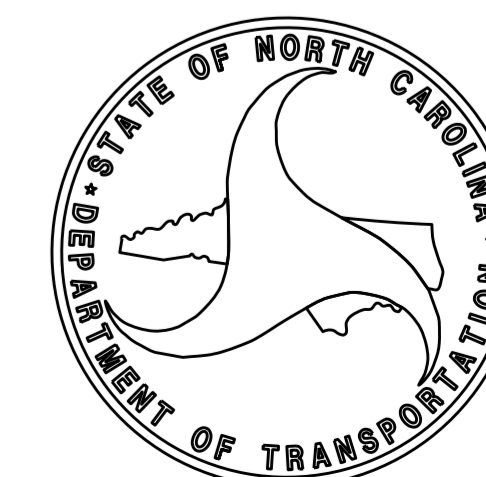
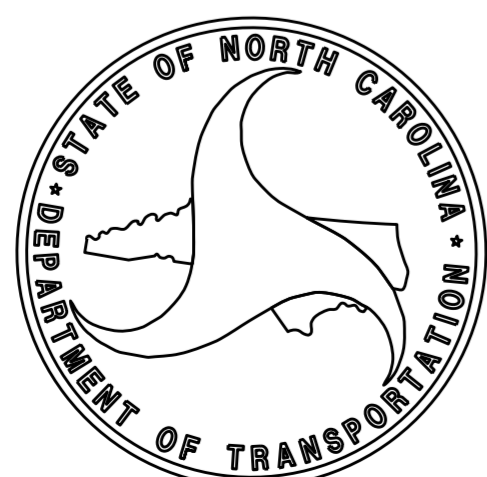
LENGTH ROADWAY TIP PROJECT B-5114 = 0.234 MI
 LENGTH STRUCTURE TIP PROJECT B-5114 = 0.047 MI
 TOTAL LENGTH OF TIP PROJECT B-5114 = 0.281 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS

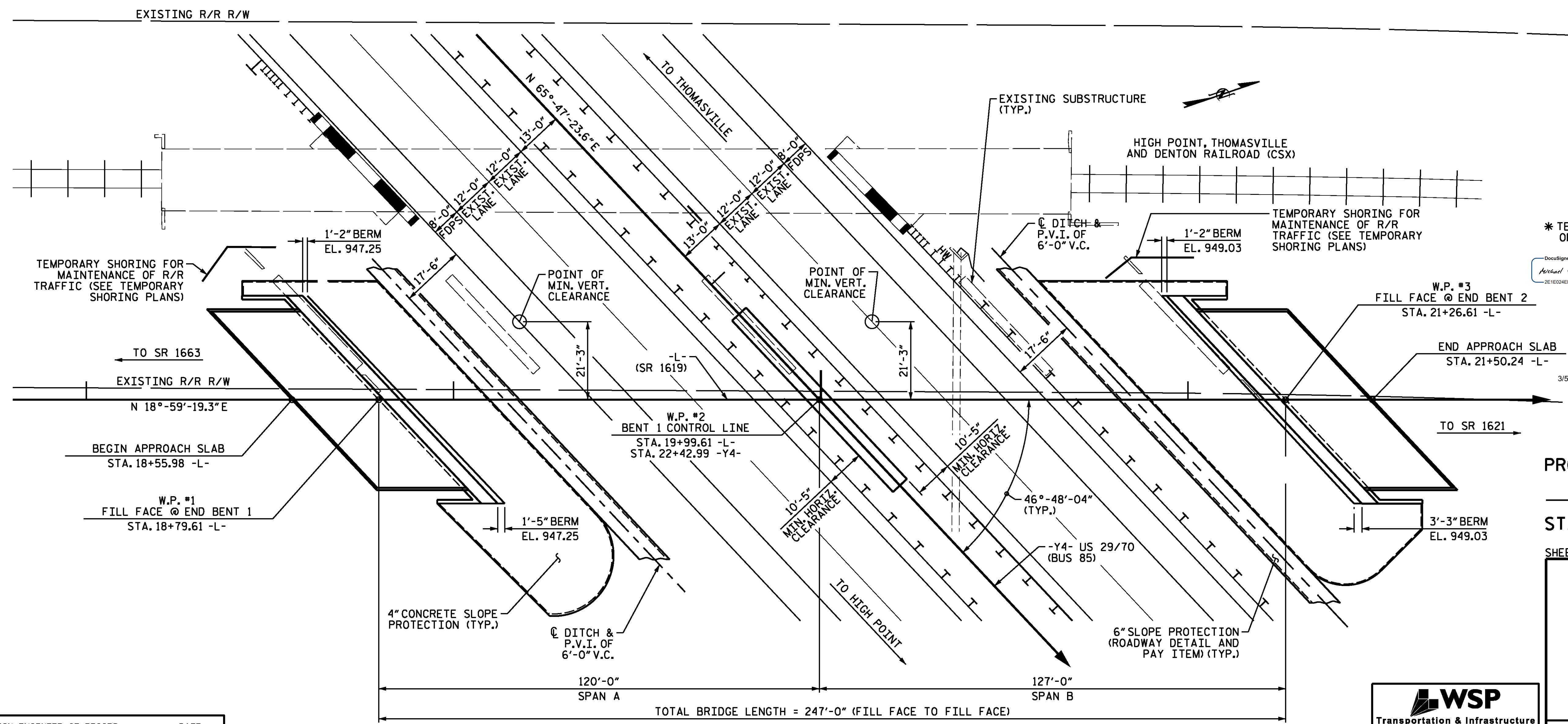
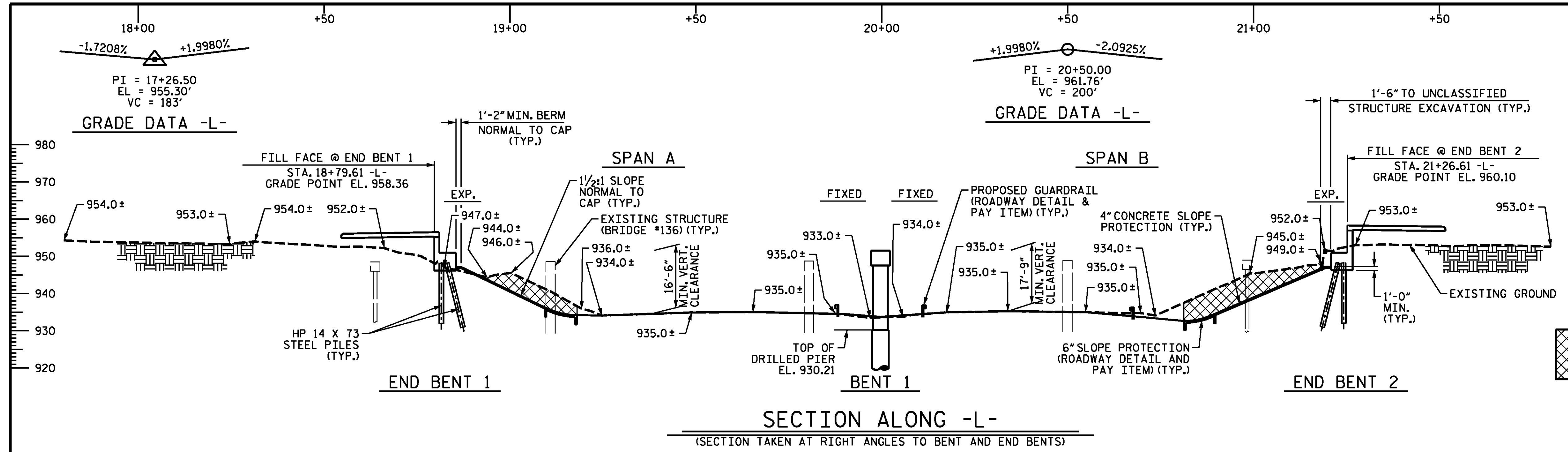
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

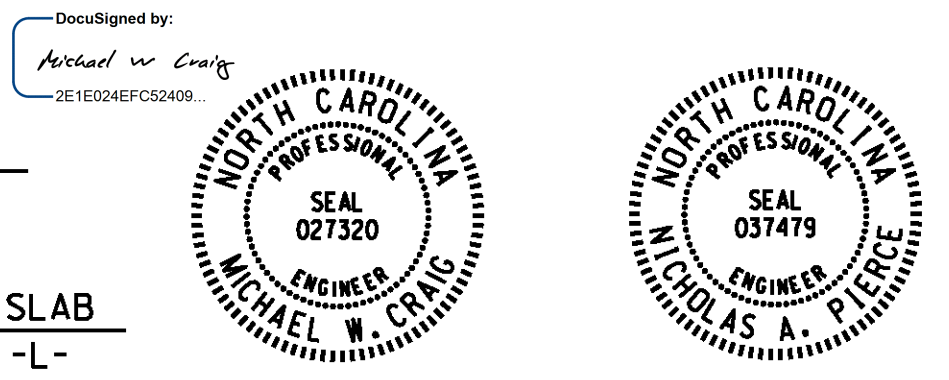
LETTING DATE:
JUNE 16, 2015



07-JAN-2015 11:36
 \$\$\$\$\$\$DGN\$\$\$\$\$
 gcrutcher



* TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.



PROJECT NO. **B-5114**
RANDOLPH COUNTY
STATION: **19+99.61 -L-**
22+42.99 -Y4-
SHEET 1 OF 3 REPLACES BRIDGE No. 136

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**GENERAL DRAWING
FOR BRIDGE ON SR 1619
OVER US 29/70/
(BUS 85) BETWEEN
SR 1663 AND SR 1621**

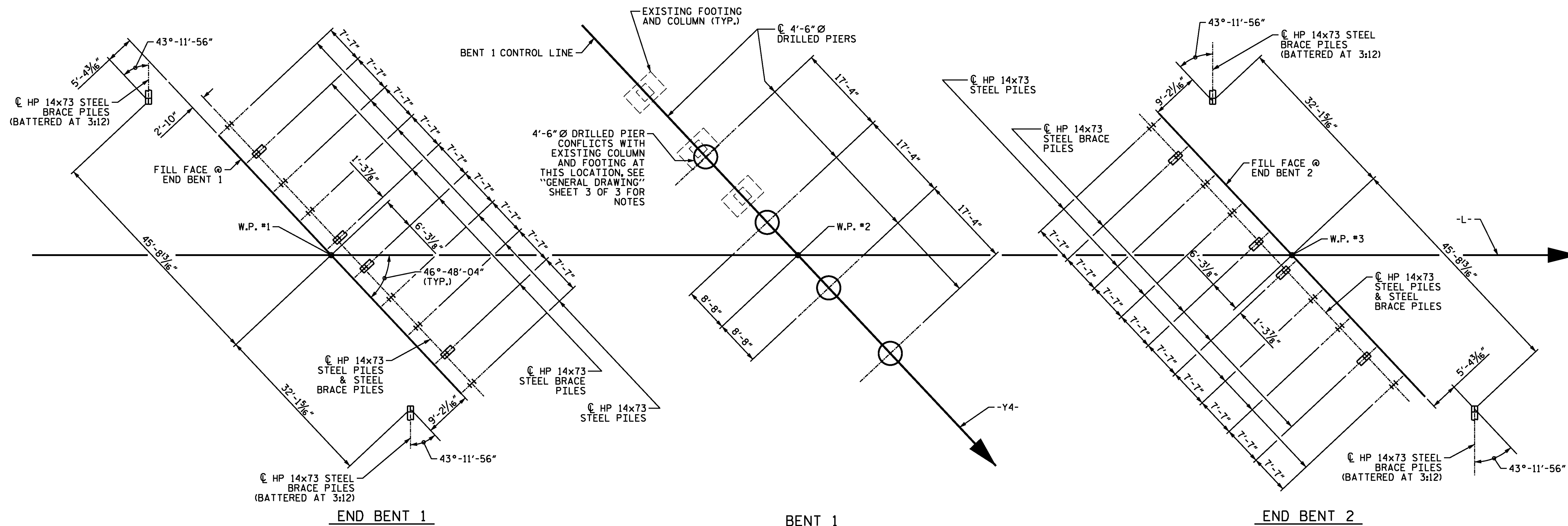
REVISIONS						SHEET NO. S01-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

DESIGN ENGINEER OF RECORD
N.A. PIERCE DATE: **12/2014**

DRAWN BY: **M.J. OSTRISHKO** DATE: **12/2014**

CHECKED BY: **N.A. PIERCE** DATE: **12/2014**

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891



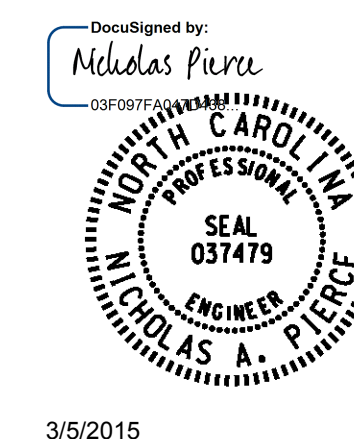
FOUNDATION LAYOUT

FOUNDATION NOTES

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 145 TONS PER PILE.
- DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 245 TONS PER PILE.
- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT 1 AND END BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- DRILLED PIERS AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 640 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 20 TSF.
- INSTALL DRILLED PIERS AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 909 FT. AND WITH THE REQUIRED TIP RESISTANCE.
- SPT MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1. THE ENGINEER WILL DETERMINE THE NEED FOR SPT. FOR SPT TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1619
 OVER US 29/70/
 (BUS 85) BETWEEN
 SR 1663 AND SR 1621

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 12/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S01-2
2			4			TOTAL SHEETS 36

TOTAL BILL OF MATERIAL

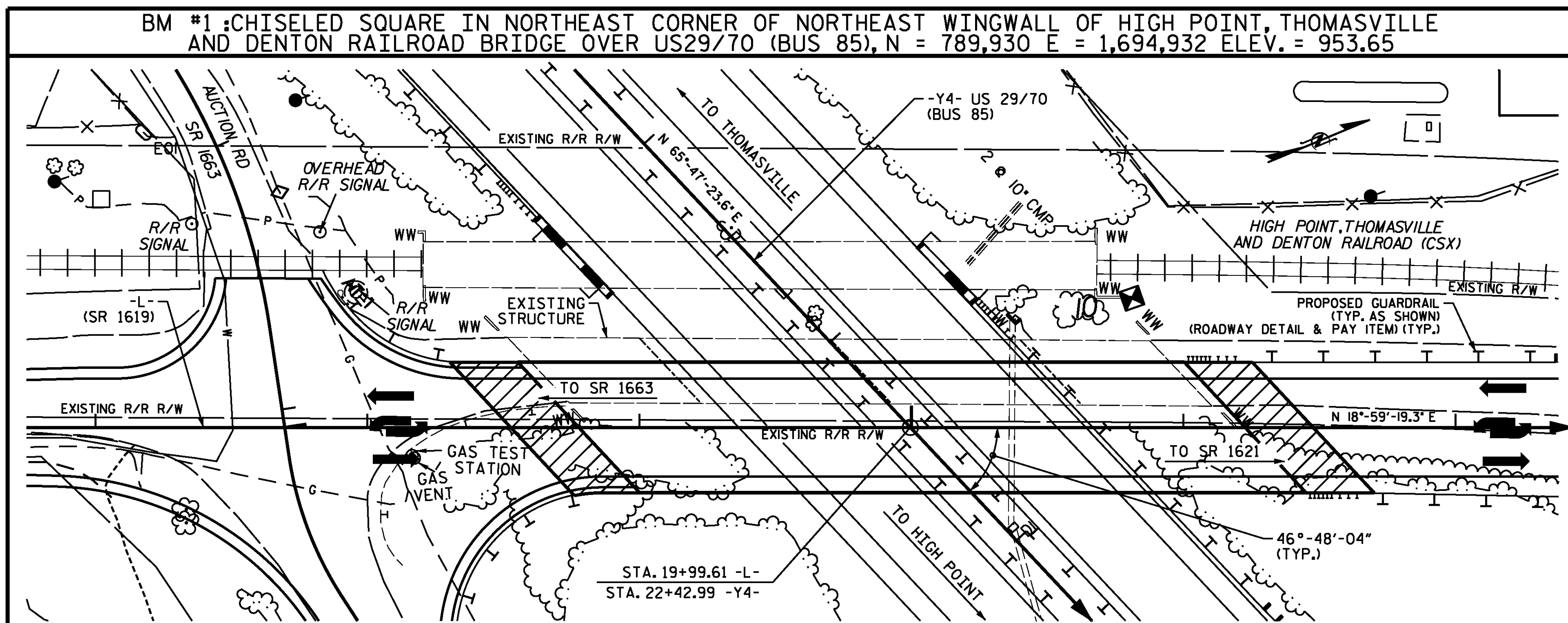
	TEMPORARY RAILROAD SHORING	REMOVAL OF EXISTING STRUCTURE	4'-6" DIA. DRILLED PIER IN NOT SOIL	4'-6" DIA. DRILLED PIER IN SOIL	SID INSPECTIONS	SPT TESTING	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONCRETE GIRDERS	HP 14 X 73 STEEL PILES	STEEL PILE POINTS	2 BAR METAL RAIL	1'-2" x 2'-6" CONCRETE PARAPET	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	FOAM JOINT SEALS		
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	No.	LIN. FT.	No.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE									12,350	13,831					12	1,442.0			470.86	488.28				
END BENT 1	LUMP SUM										95.0		14,090			12	240.0	12				388		
BENT 1			40	46	4	4					108.6		26,211	4,622										
END BENT 2	LUMP SUM										94.0		14,130			12	180.0	12				348		
TOTAL	LUMP SUM	LUMP SUM	40	46	4	4	1	LUMP SUM	12,350	13,831	297.6	LUMP SUM	54,431	4,622	12	1,442.0	24	420.0	24	470.86	488.28	736	LUMP SUM	LUMP SUM

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
 REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
 THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 50'-3", 2 SPANS @ 70'-0" & 1 SPAN @ 50'-3" REINFORCED CONCRETE DECK ON I-BEAMS (4 LINES W30x108 I-BEAMS (CONT.) @ 6'-9" CTS., SP#2 & 3 W/ COVER PLATES); 25'-10" CLEAR ROADWAY WIDTH WITH BITUMINOUS WEARING SURFACE ON END BENTS; REINFORCED CONCRETE CAPS ON TIMBER PILES, BENTS; 3 COLUMN RCP&B AND LOCATED AT PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMITS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 60 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 SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 THE ELEVATION(S) AND CLEARANCE(S) SHOWN ON THE PLANS AT THE POINT(S) OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATION(S) ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.
 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.
 FOR TEMPORARY RAILROAD SHORING, SEE SPECIAL PROVISIONS.
 THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLE 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.
 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 COST 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 "REMOVAL OF EXISTING STRUCTURE AT STATION 19+99.61 -L-".
 FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.
 THE EXISTING STRUCTURE COLUMNS SHALL BE CUT OFF 1 FOOT BELOW THE EXISTING GROUND LINE OR AT THE TOP OF FOOTINGS, AS DIRECTED BY THE ENGINEER.

THE CONTRACTORS ATTENTION IS CALLED TO THE FACT THAT DRILLED PIER 1 OF THE PROPOSED BRIDGE CONFLICTS WITH COLUMN AND FOOTING 2 OF THE EXISTING STRUCTURE, SEE SHEET 2 OF 3. THIS MAY REQUIRE THE USE OF TEMPORARY CASING TO REMOVE THE EXISTING FOOTING AS NEEDED, THIS WORK SHALL BE CONSIDERED INCIDENTAL TO DRILL PIER NOT IN SOIL.

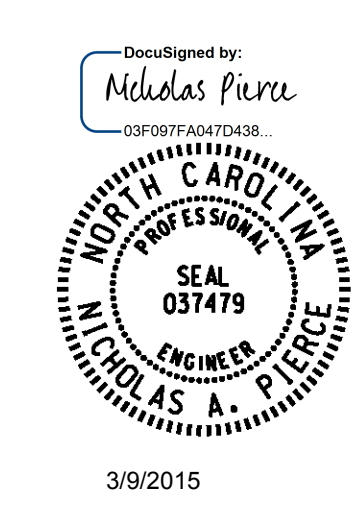


LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 12/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

3/9/2015
 RAB5114.Randolph County\Structures\Drafting\General.Drawing\401.003.B5114.SMU.GD.03.dgn
 usmo4281



WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0881

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 3 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1619
 OVER US 29/70/
 (BUS 85) BETWEEN
 SR 1663 AND SR 1621

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S01-3
2			4			TOTAL SHEETS 36

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.09	--	1.75	0.684	1.22	A	EL	57.6	0.875	1.29	B	EL	48.8	0.80	0.684	1.09	A	EL	57.6		
	HL-93 (OPERATING)	N/A		1.59	--	1.35	0.684	1.59	A	EL	57.6	0.875	2.02	B	EL	0.0	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.59	57	1.75	0.684	1.79	A	EL	57.6	0.875	2.19	B	EL	48.8	0.80	0.684	1.59	A	EL	57.6		
	HS-20 (OPERATING)	36.000		2.32	84	1.35	0.684	2.32	A	EL	57.6	0.875	2.94	B	EL	0.0	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.86	52	1.40	0.684	5.42	A	EL	57.6	0.875	7.17	B	EL	0.0	0.80	0.684	3.86	A	EL	57.6	
		SNGARBS2	20.000		2.76	55	1.40	0.684	3.87	A	EL	57.6	0.875	4.97	B	EL	0.0	0.80	0.684	2.76	A	EL	57.6	
		SNAGRIS2	22.000		2.56	56	1.40	0.684	3.60	A	EL	57.6	0.875	4.57	B	EL	0.0	0.80	0.684	2.56	A	EL	57.6	
		SNCOTTS3	27.250		1.92	52	1.40	0.684	2.69	A	EL	57.6	0.875	3.56	B	EL	0.0	0.80	0.684	1.92	A	EL	57.6	
		SNAGGRS4	34.925		1.56	54	1.40	0.684	2.19	A	EL	57.6	0.875	2.86	B	EL	0.0	0.80	0.684	1.56	A	EL	57.6	
		SNS5A	35.550		1.52	54	1.40	0.684	2.14	A	EL	57.6	0.875	2.84	B	EL	0.0	0.80	0.684	1.52	A	EL	57.6	
		SNS6A	39.950		1.38	55	1.40	0.684	1.94	A	EL	57.6	0.875	2.56	B	EL	0.0	0.80	0.684	1.38	A	EL	57.6	
		SNS7B	42.000		1.31	55	1.40	0.684	1.85	A	EL	57.6	0.875	2.47	B	EL	0.0	0.80	0.684	1.31	A	EL	57.6	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.68	55	1.40	0.684	2.36	A	EL	57.6	0.875	3.08	B	EL	0.0	0.80	0.684	1.68	A	EL	57.6	
		TNT4A	33.075		1.68	56	1.40	0.684	2.36	A	EL	57.6	0.875	3.04	B	EL	0.0	0.80	0.684	1.68	A	EL	57.6	
		TNT6A	41.600		1.36	57	1.40	0.684	1.91	A	EL	57.6	0.875	2.56	B	EL	0.0	0.80	0.684	1.36	A	EL	57.6	
		TNT7A	42.000		1.35	57	1.40	0.684	1.90	A	EL	57.6	0.875	2.52	B	EL	0.0	0.80	0.684	1.35	A	EL	57.6	
		TNT7B	42.000		1.38	58	1.40	0.684	1.94	A	EL	57.6	0.875	2.44	B	EL	0.0	0.80	0.684	1.38	A	EL	57.6	
		TNAGRIT4	43.000		1.33	57	1.40	0.684	1.87	A	EL	57.6	0.875	2.34	A	EL	46.0	0.80	0.684	1.33	A	EL	57.6	
		TNAGT5A	45.000		1.26	57	1.40	0.684	1.77	A	EL	57.6	0.875	2.30	A	EL	46.0	0.80	0.684	1.26	A	EL	57.6	
TNAGT5B	45.000	③	1.25	56	1.40	0.684	1.76	A	EL	57.6	0.875	2.17	B	EL	48.8	0.80	0.684	1.25	A	EL	57.6			

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

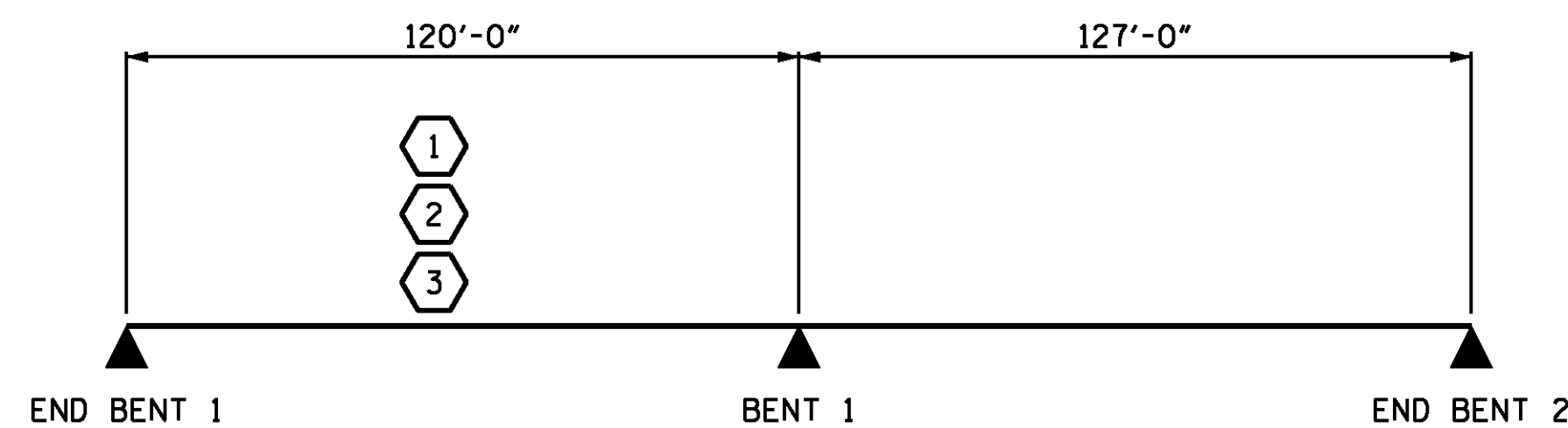
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

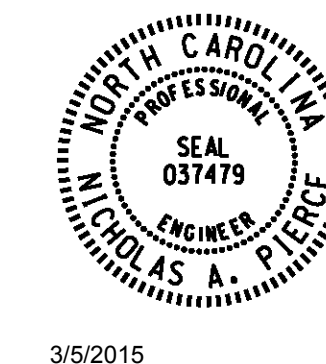
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61-L-

DocuSigned by:
Nicholas Pierce
03F097FAD07D438



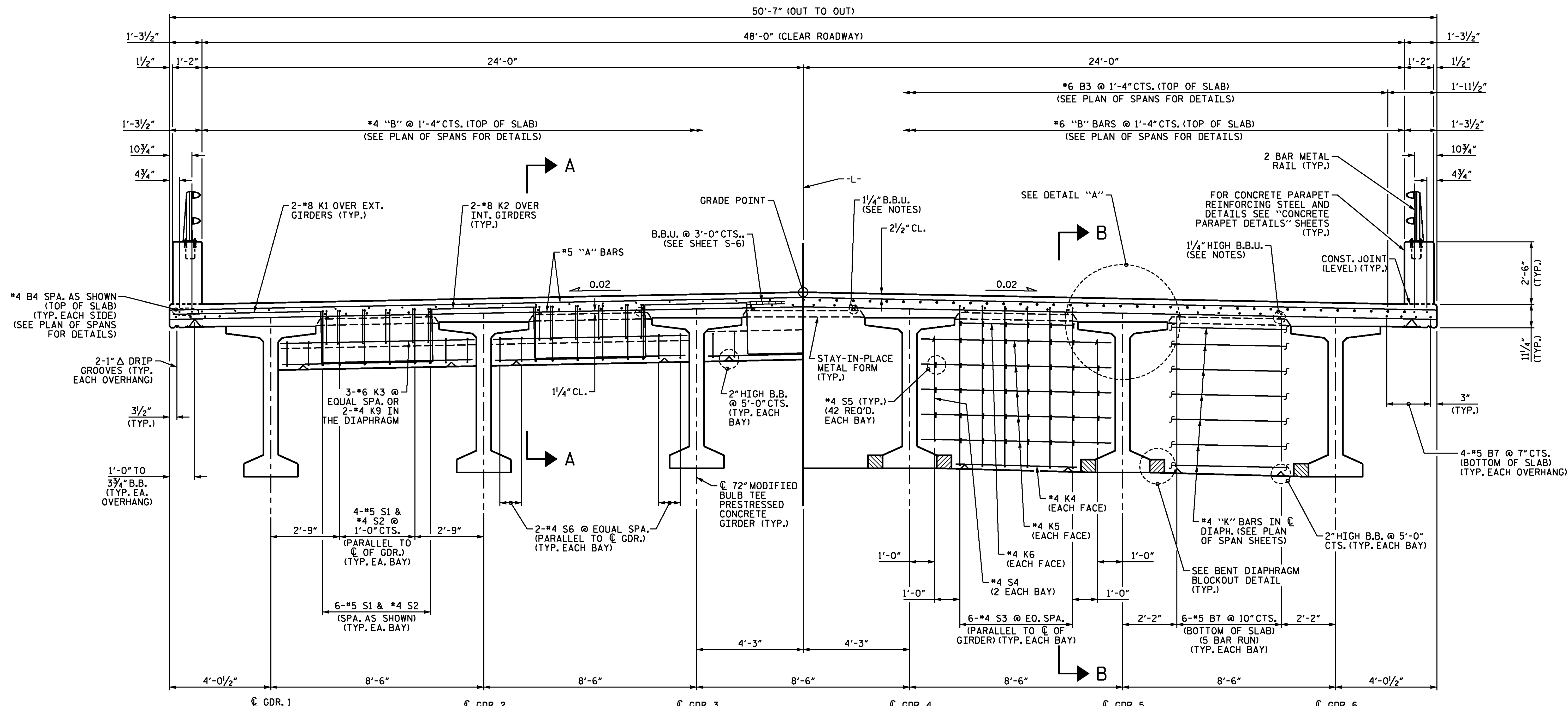
3/5/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014
ASSEMBLED BY : N.A. PIERCE CHECKED BY : M.T. MILLS	DATE : 11/14 DATE : 11/14
DRAWN BY : MAA CHECKED BY : GM/DI	1/08 2/08
REV. 11/12/08RR REV. 10/17/11	MAA/GM MAA/GM

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S01-4
2			4			TOTAL SHEETS 36



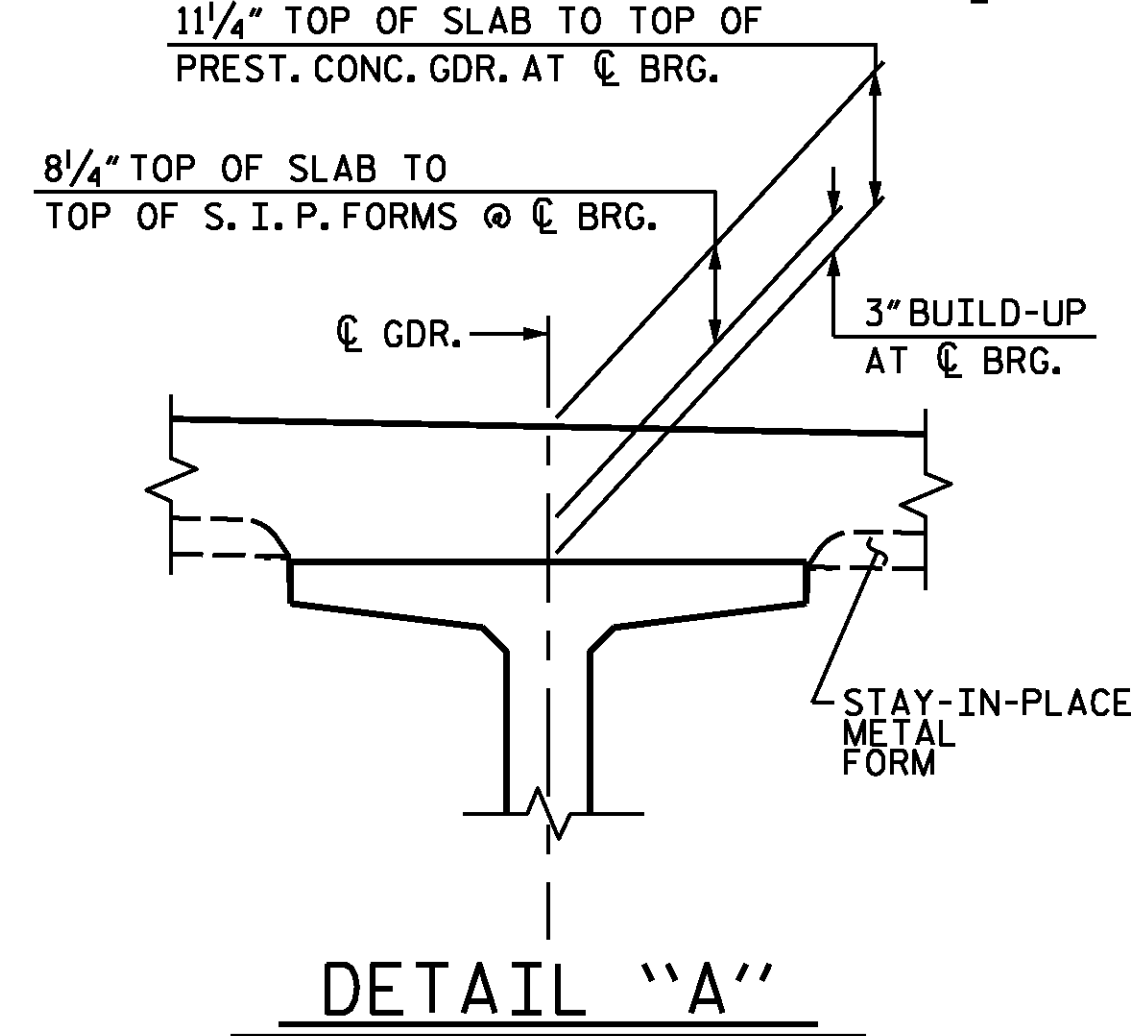
HALF - SECTION AT END BENT DIAPHRAGM

HALF - SECTION AT BENT DIAPHRAGM (SHOWING CONTINUOUS FOR LIVE LOAD DIAPHRAGM)

TYPICAL SECTION

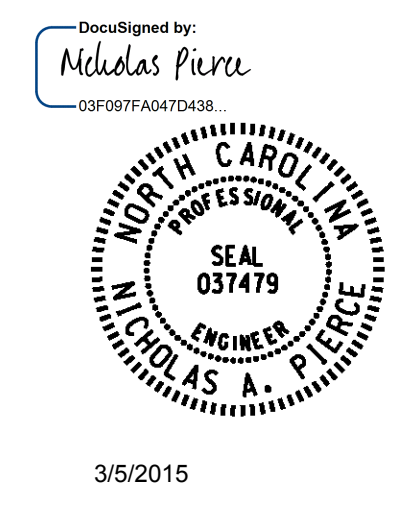
NOTES

- PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP HE 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 3" ABOVE THE TOP OF THE REMOVABLE FORM.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
- CONCRETE 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 3,000 PSI.
- FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGM FOR 72" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDER" SHEET.
- THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF THE PARAPET AND END POSTS.



PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

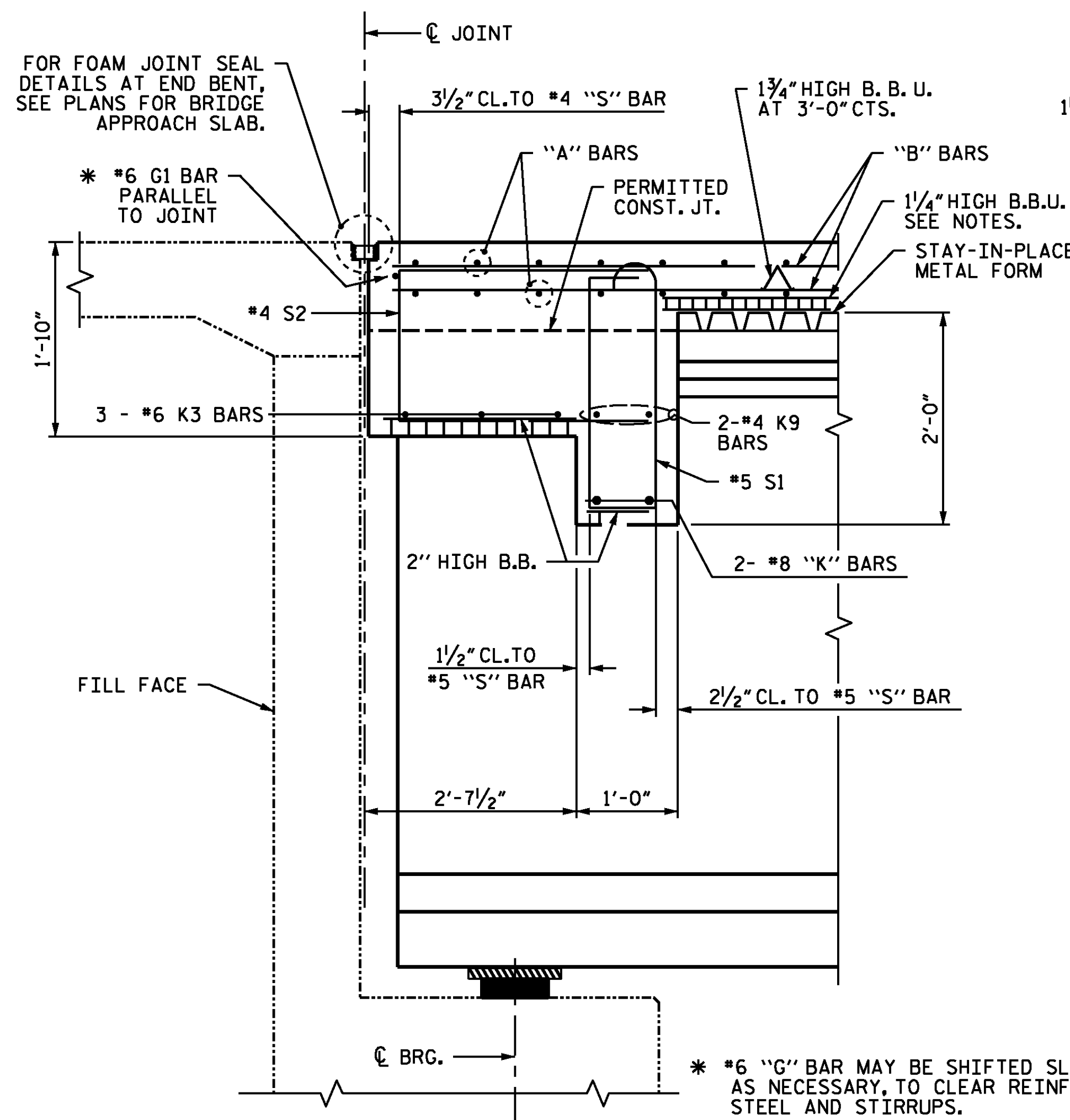
SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION



WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

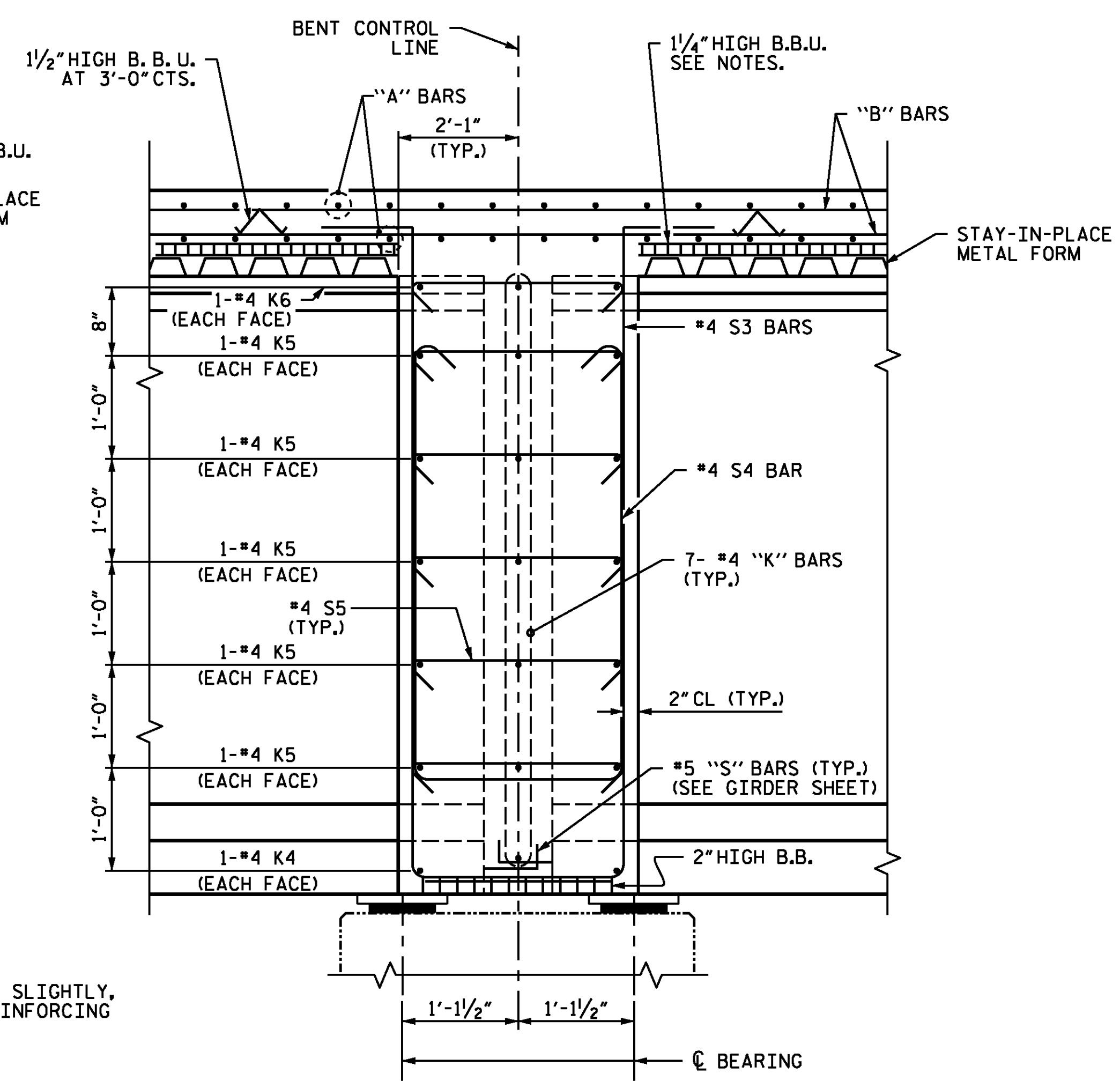
DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 04/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 04/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

REVISIONS						SHEET NO. S01-5
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			

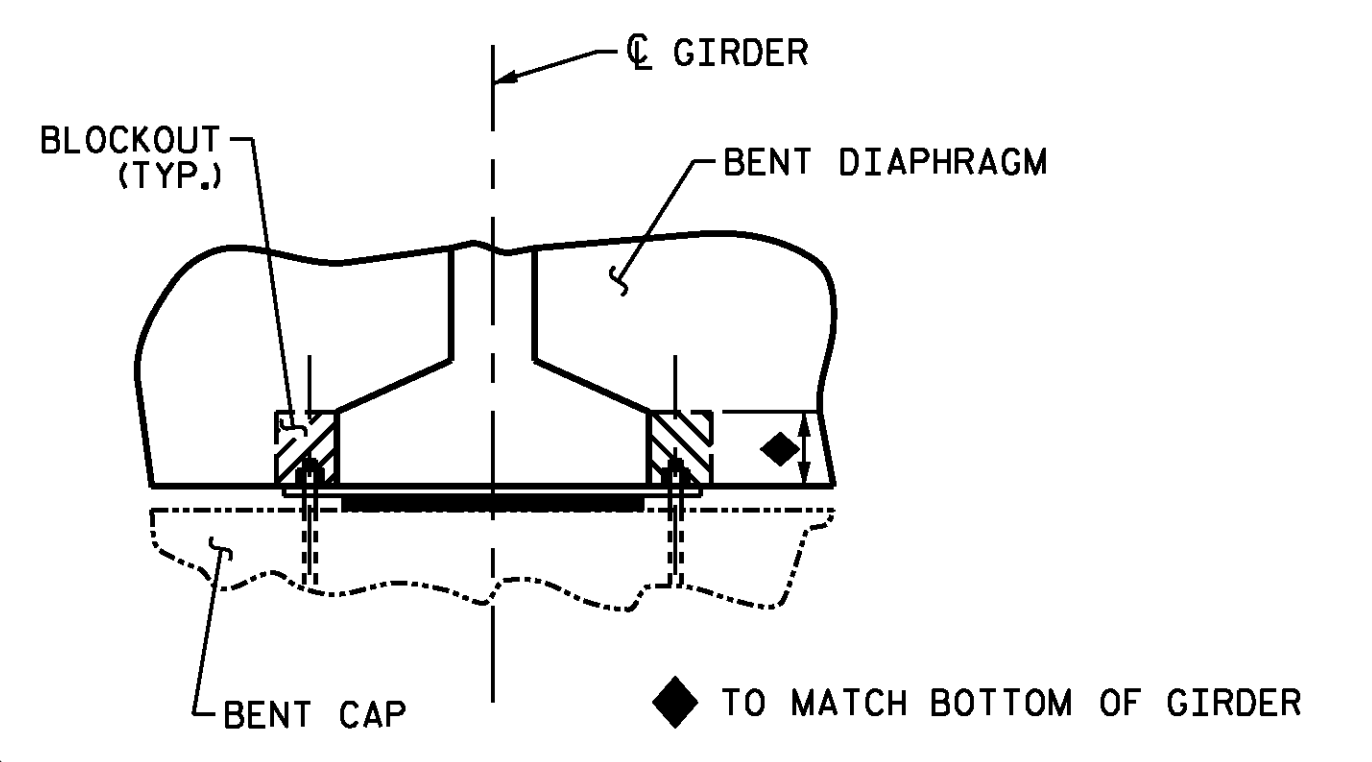


SECTION A-A

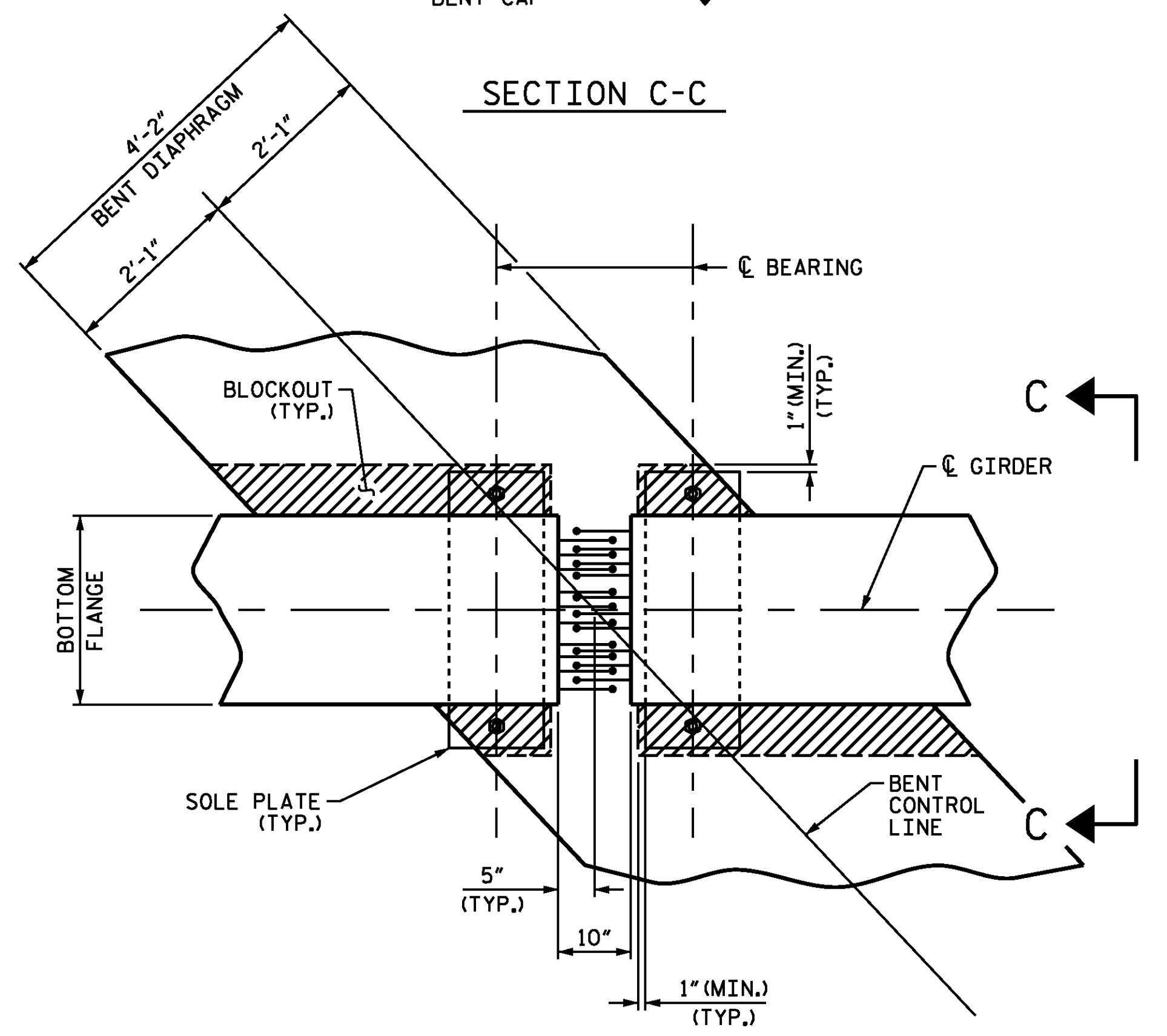
*#4 S9 BARS OMITTED FOR CLARITY, SEE "TYPICAL SECTION" SHEET 1 OF 2



SECTION B-B

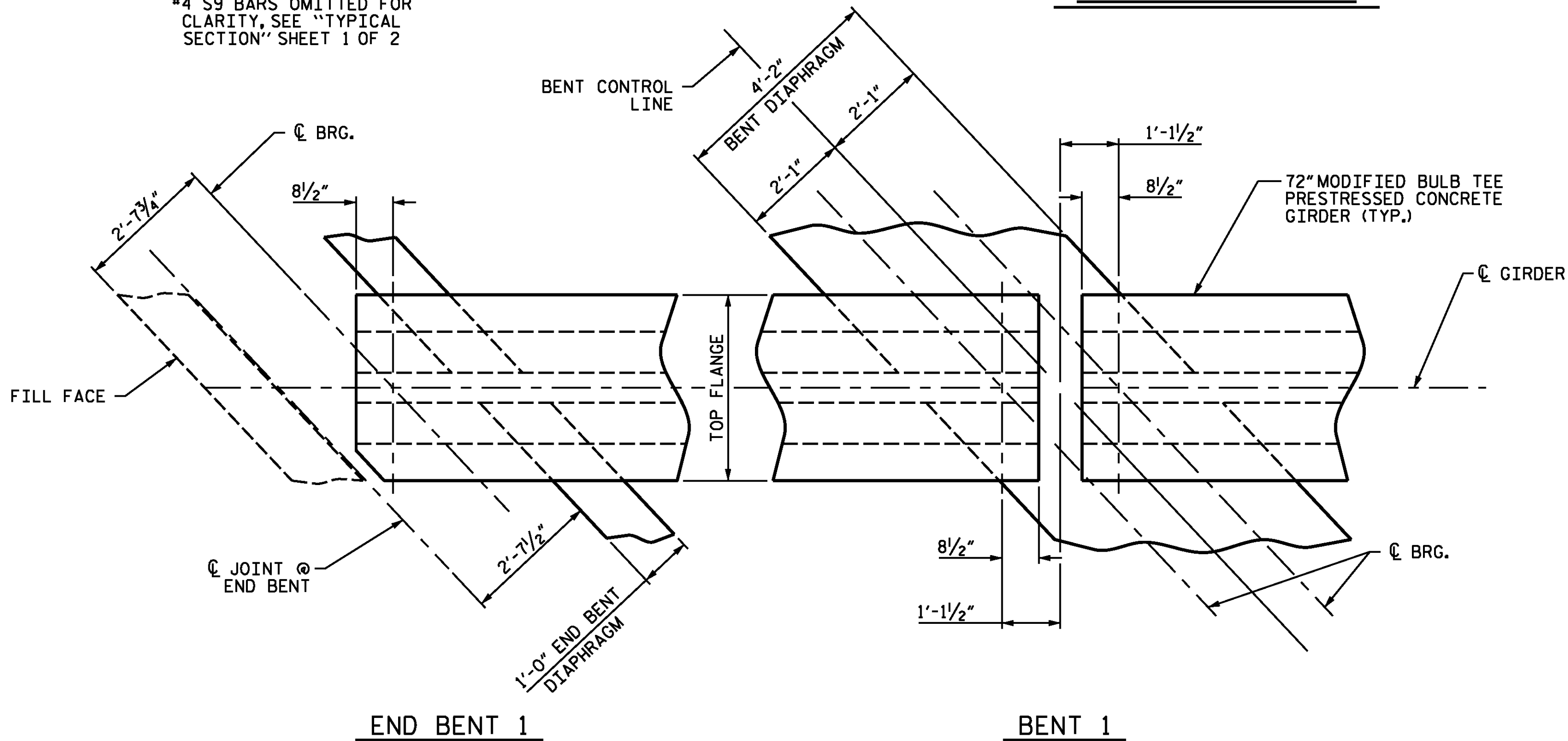


SECTION C-C



PLAN

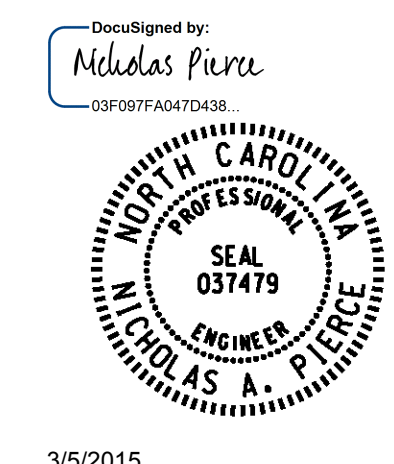
BENT DIAPHRAGM BLOCK-OUT DETAIL



PLAN OF DIAPHRAGMS
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 2 OF 2



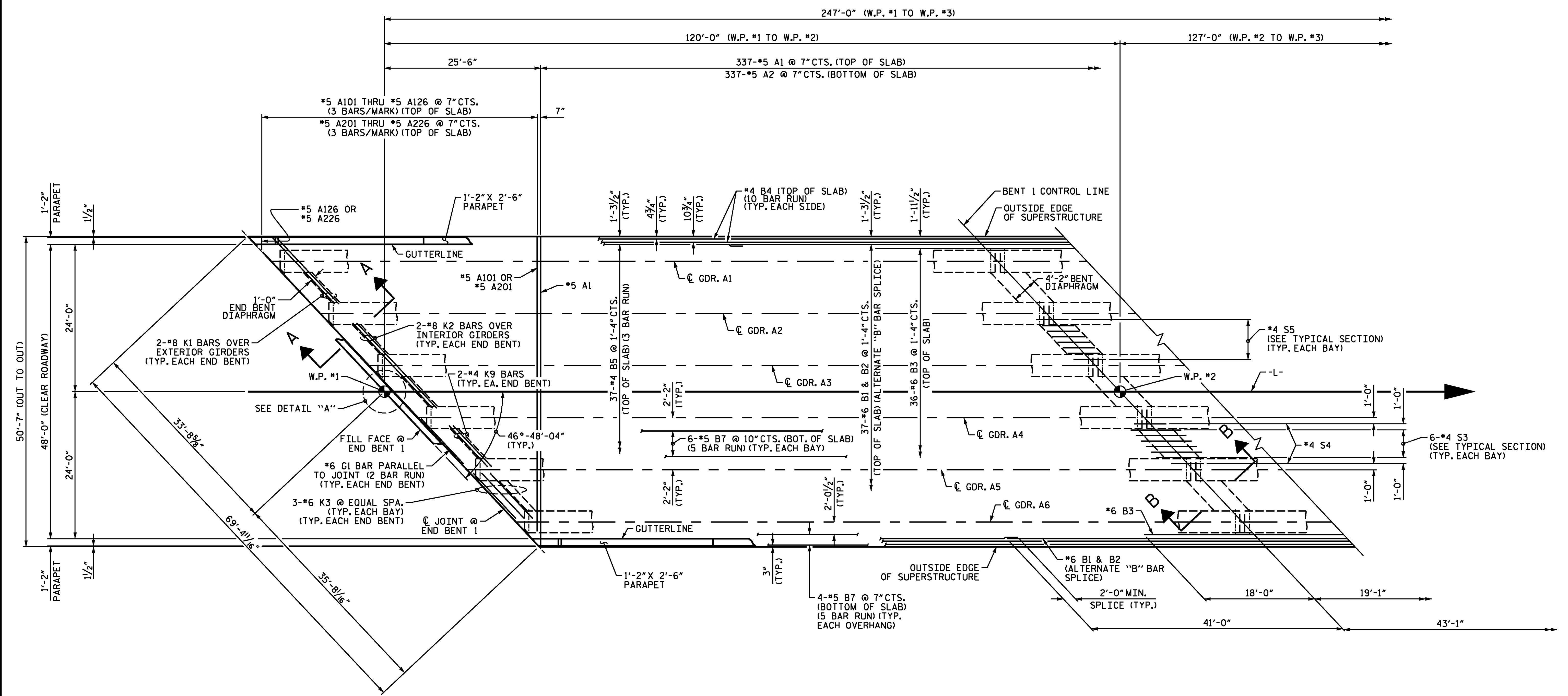
3/5/2015

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

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

REVISIONS						SHEET NO. S01-6
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			



PLAN OF SPAN A

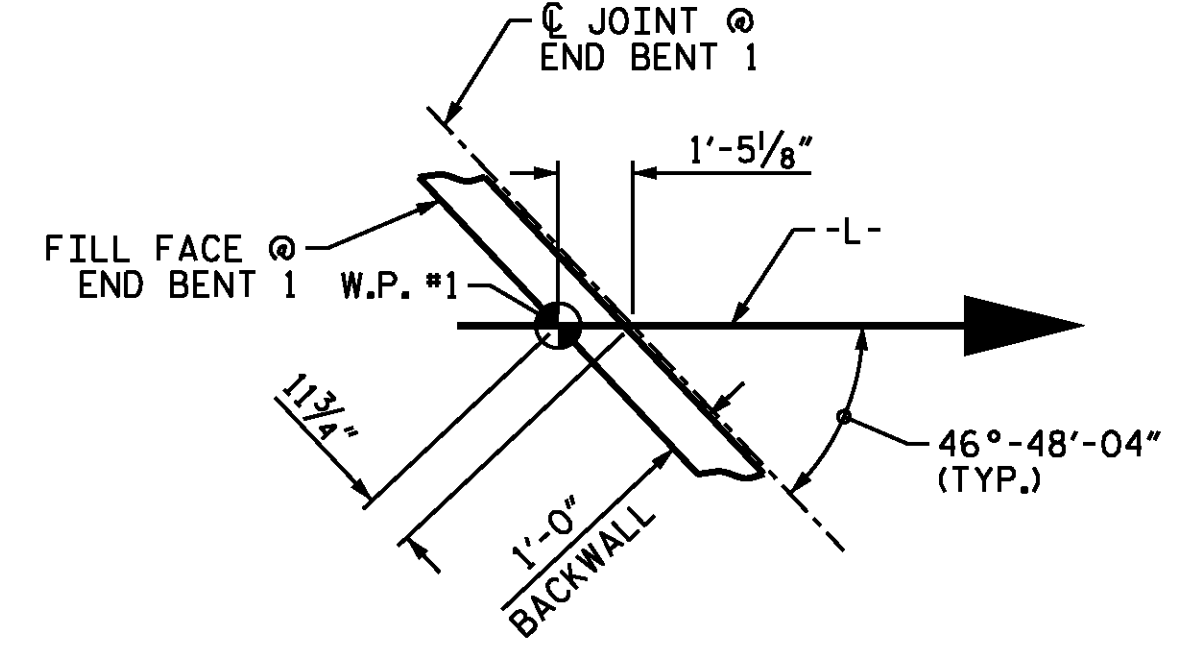
FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 72" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.

FOR ADDITIONAL REINFORCING STEEL (#6 A3, #5 S1 & #4 S2 BARS) AT SECTION A-A AT END BENT 1, SEE "PLAN OF SPAN B" SHEET S-8.

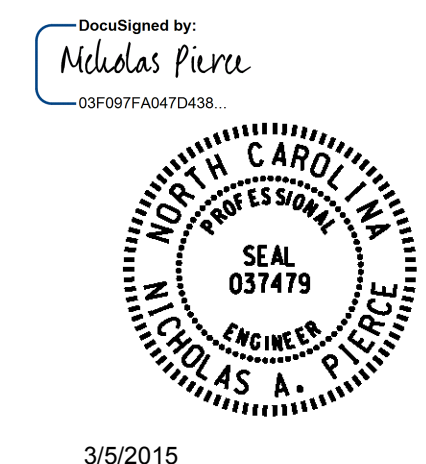
FOR ADDITIONAL REINFORCING STEEL (#4 K4 THRU #4 K8) AT SECTION B-B AT BENT 1 CONTROL LINE, SEE "PLAN OF SPAN B" SHEET S-8.

FOR 1'-2" x 2'-6" PARAPET DETAILS AND REINFORCING STEEL, SEE "CONCRETE PARAPET DETAILS" SHEETS.



DETAIL A
END BENT 1 SHOWN,
END BENT 2 SIMILAR.

PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61 -L-



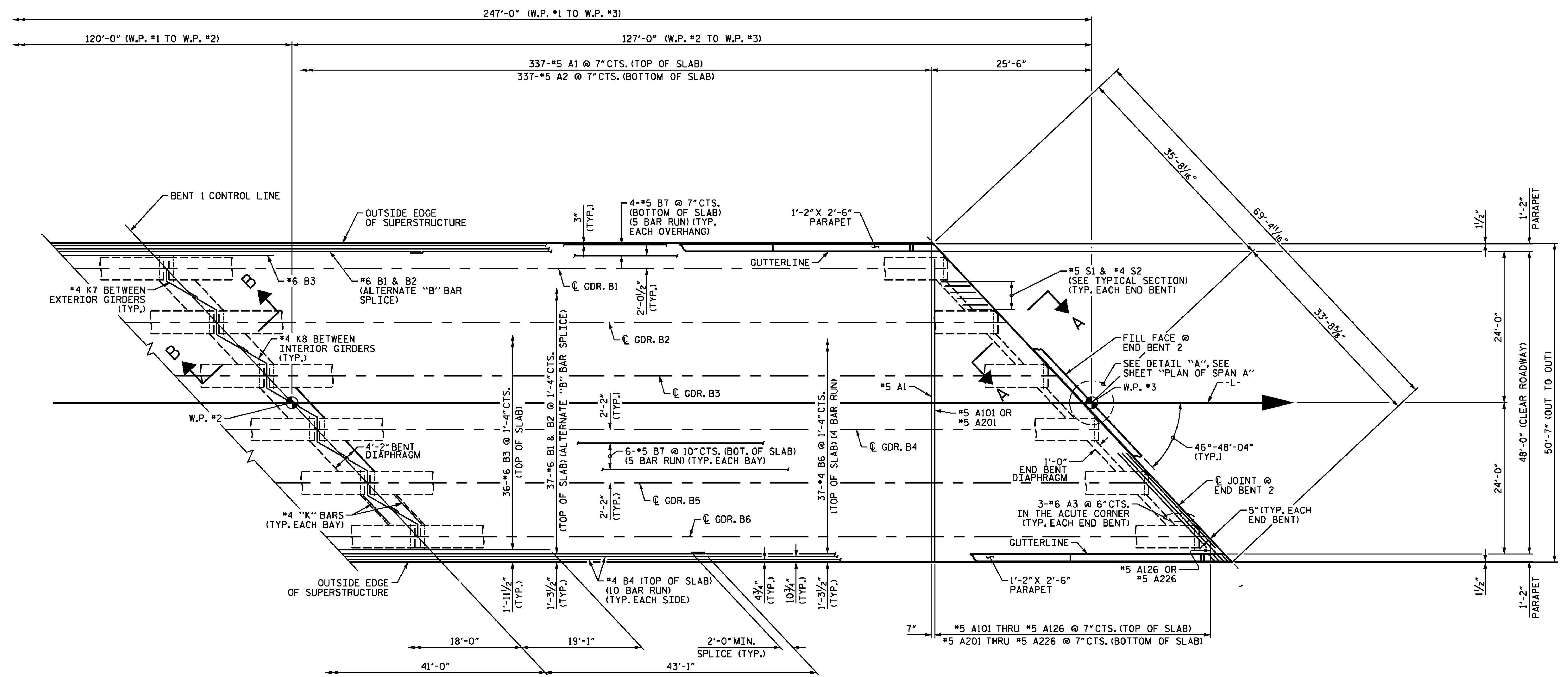
3/5/2015

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

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

REVISIONS						SHEET NO. S01-7
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			



PLAN OF SPAN B

FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 72" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET.

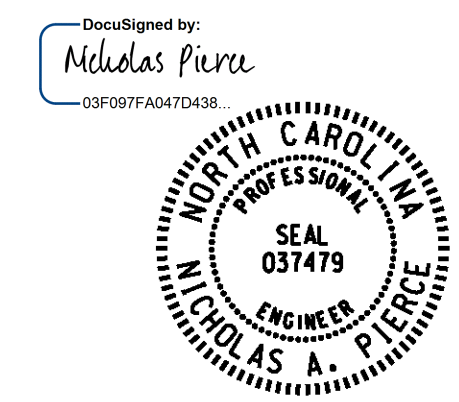
FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 2 OF 2.

FOR ADDITIONAL REINFORCING STEEL (#6 G1, #8 K1, #8 K2 & #6 K3) AT SECTION A-A AT END BENT 1, SEE "PLAN OF SPAN A" SHEET S-7.

FOR ADDITIONAL REINFORCING STEEL (#4 S3 THRU #4 S5) AT SECTION B-B AT BENT 1 CONTROL LINE, SEE "PLAN OF SPAN A" SHEET S-7.

FOR 1'-2" X 2'-6" PARAPET DETAILS AND REINFORCING STEEL, SEE "CONCRETE PARAPET DETAILS" SHEETS.

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-



3/5/2015

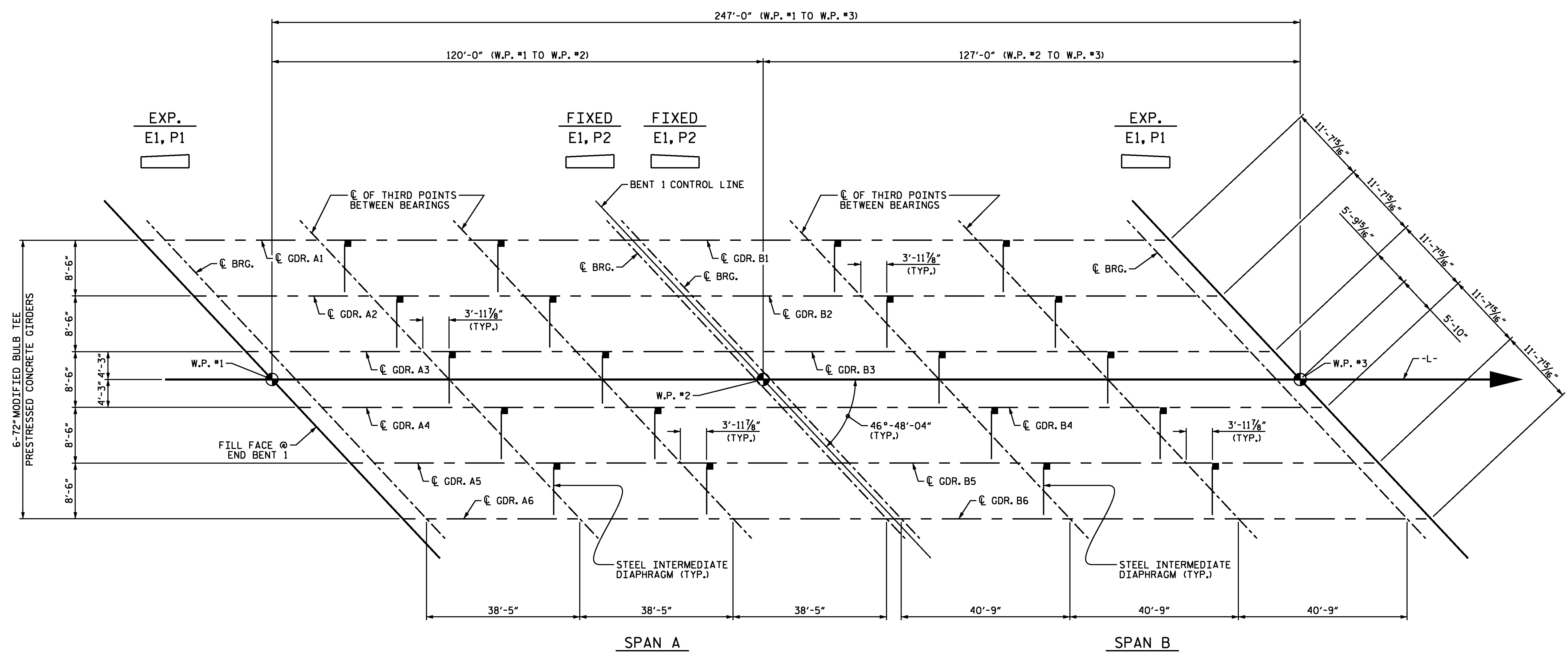
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN B

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

2/18/2015
 R:\B5114.Randolph County\Structures\Drafting\Superstructure\401.008.B5114.SMU.S02.dgn
 usmo04281

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

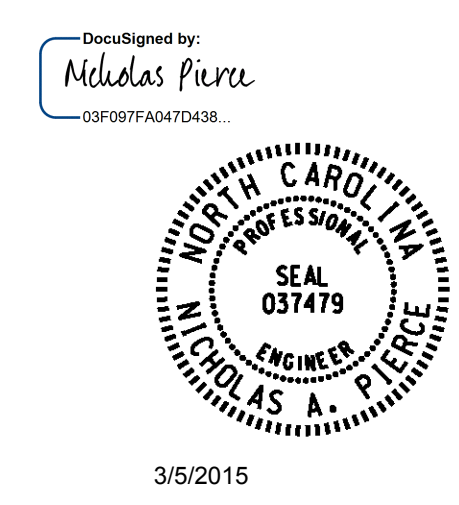
REVISIONS						SHEET NO.
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			S01-8
2			4			TOTAL SHEETS 36



GIRDER LAYOUT

END BENT DIAPHRAGMS AND BENT DIAPHRAGMS OMITTED FOR CLARITY.

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

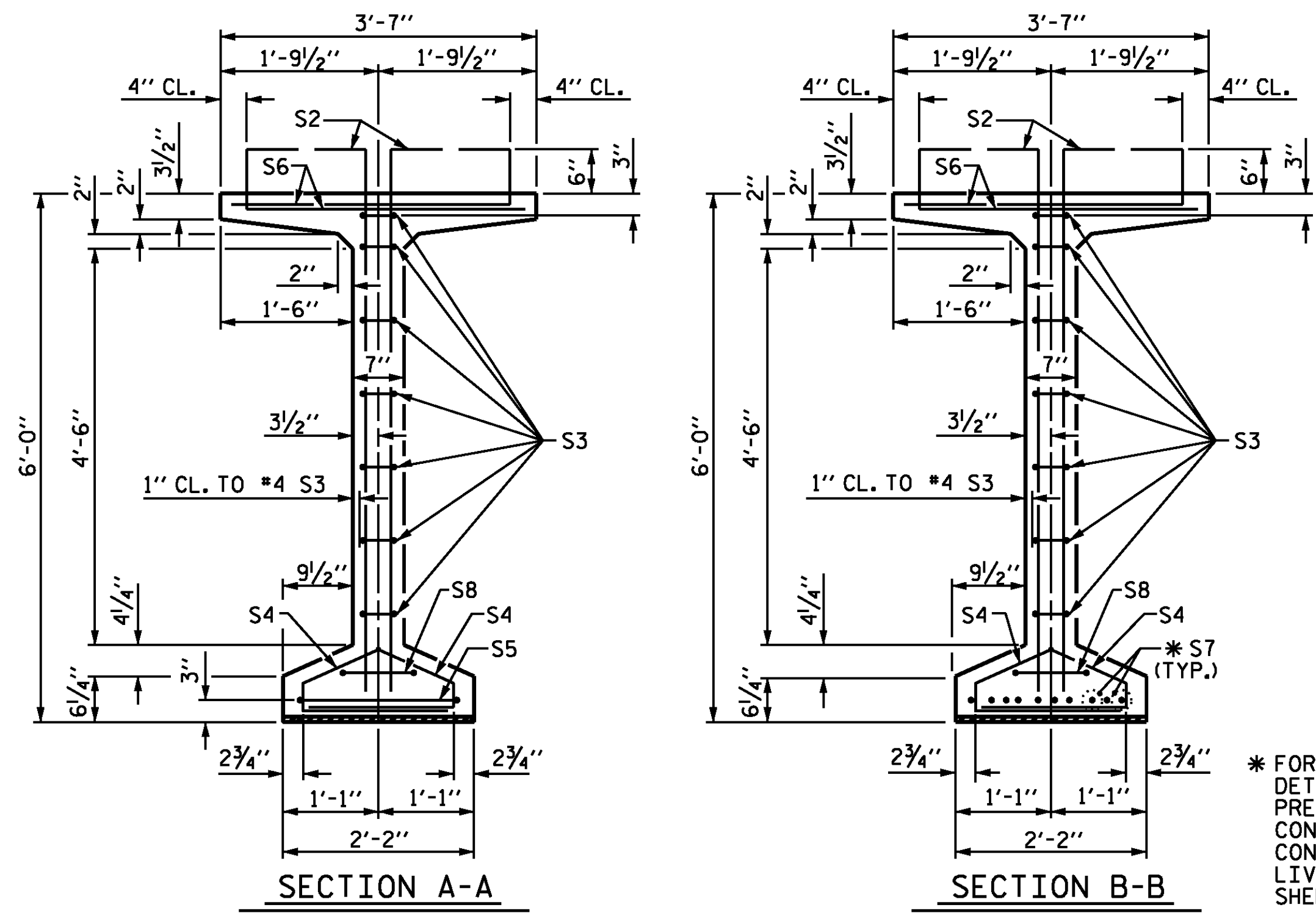


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

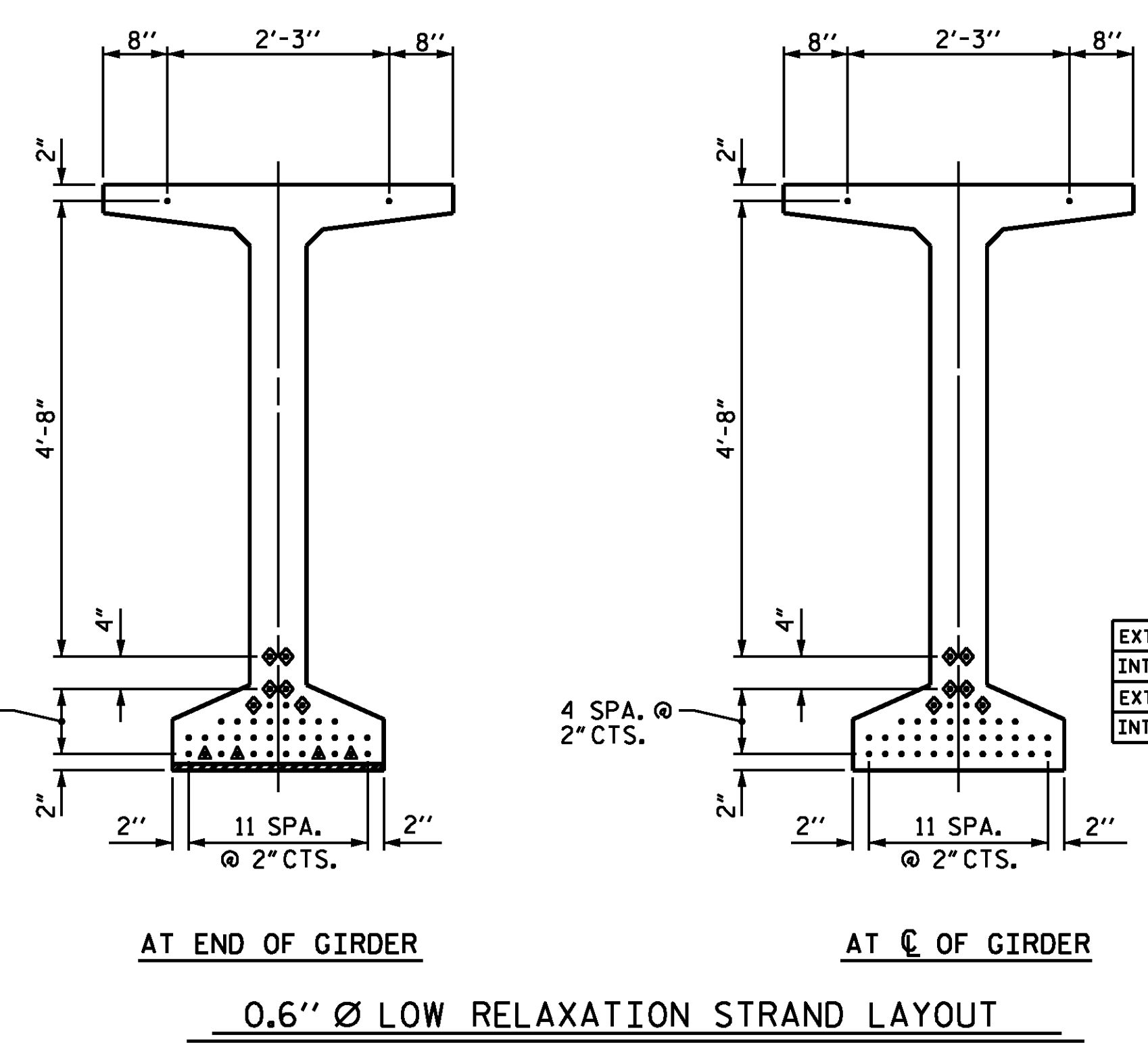
REVISIONS						SHEET NO.
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			S01-9
2			4			TOTAL SHEETS 36



DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 14'-0" FROM END OF GIRDER
- ◆ OPTIONAL FULLY DEBONDED STRANDS

* FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET 4 OF 4



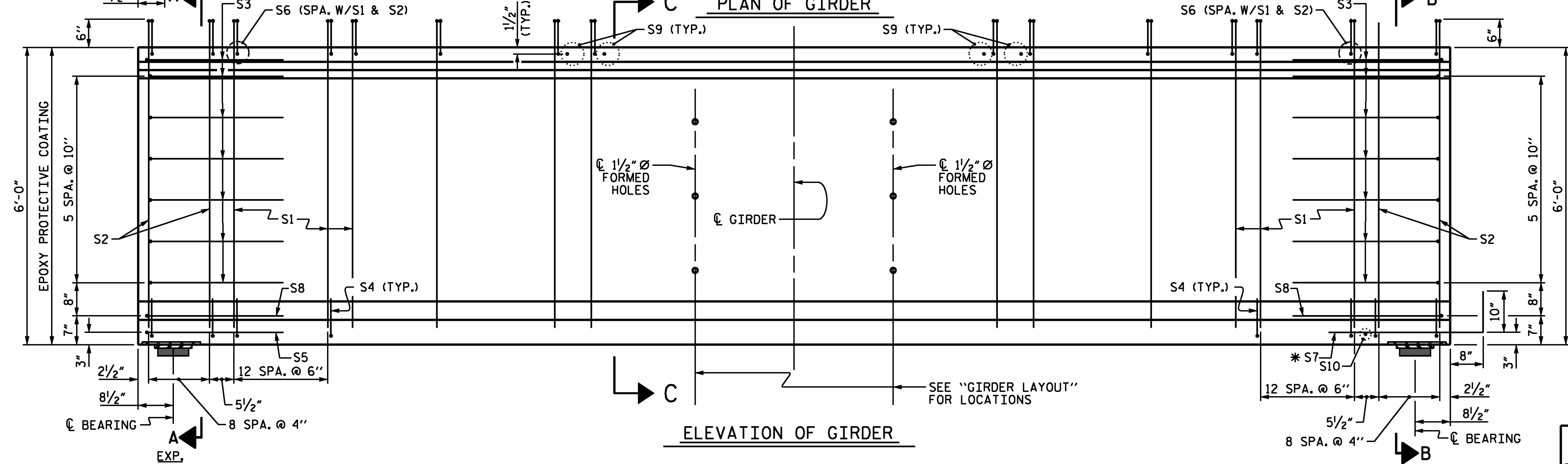
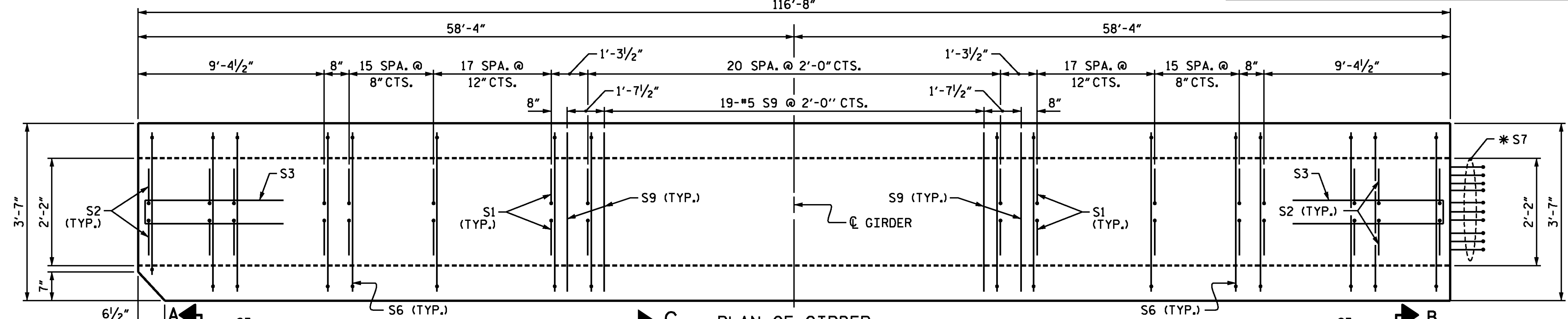
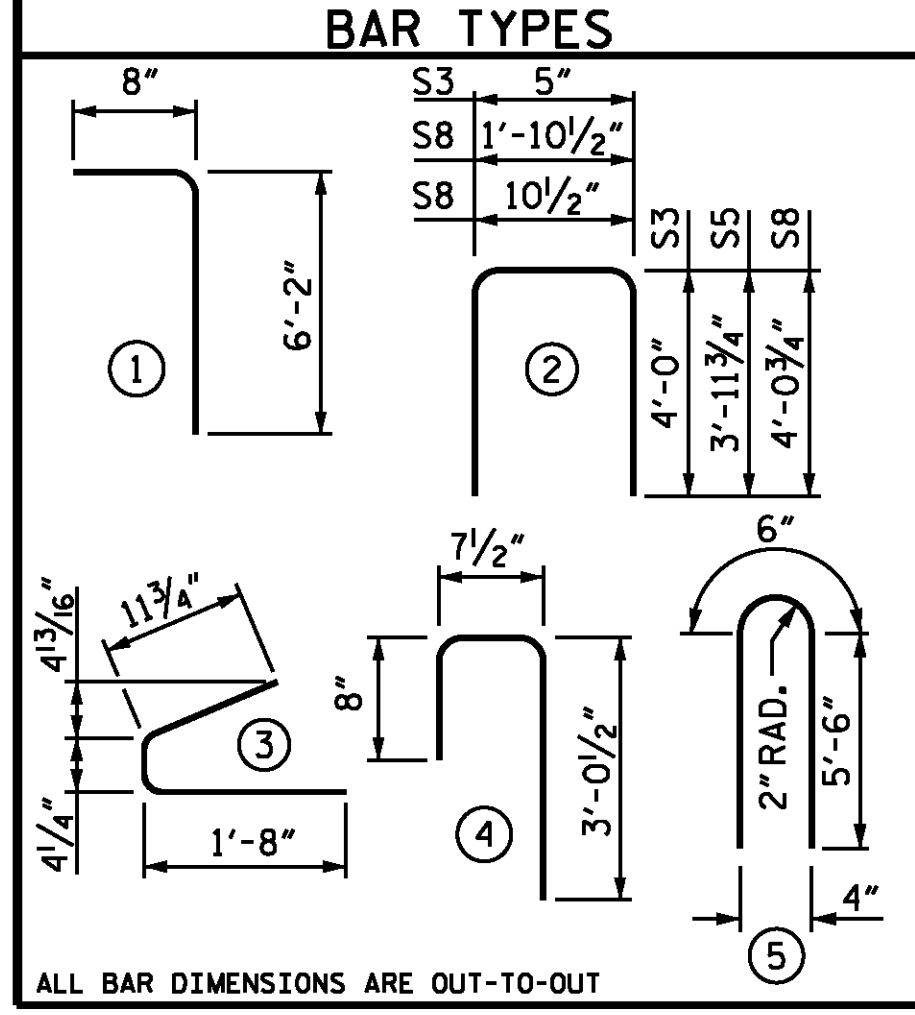
0.6" Ø L. R. GRADE 270 STRANDS

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

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	226	#4	1	6'-10"	1,032	
S2	36	#5	1	6'-10"	257	
S3	14	#4	2	8'-5"	79	
S4	88	#4	3	3'-0"	176	
S5	1	#5	2	9'-10"	10	
S6	262	#5	4	4'-4"	1,184	
*S7	10	#5	STR	3'-8"	38	
S8	2	#5	2	9'-0"	19	
S9	21	#5	STR	3'-3"	71	
S10	1	#3	STR	1'-10"	1	
EXTERIOR GDR.	S11	4	#5	5	11'-6"	48
INTERIOR GDR.	S11	8	#5	5	11'-6"	96
EXTERIOR GDR.	S12	8	#4	STR	8'-0"	43
INTERIOR GDR.	S13	8	#5	STR	47'-0"	392

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



NOTE: FOR SECTION "C-C", SEE SHEET 4 OF 4.

QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	8500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
GIRDERS 1 & 6	2,958	25.0	36
GIRDERS 2 - 5	3,355	25.0	36

GIRDERS REQUIRED

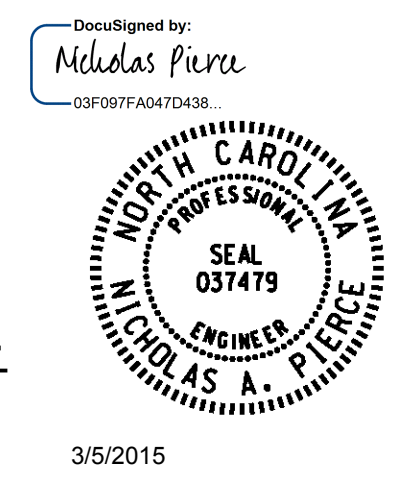
NUMBER	LENGTH	TOTAL LENGTH
6	116'-8"	700'-0"

PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

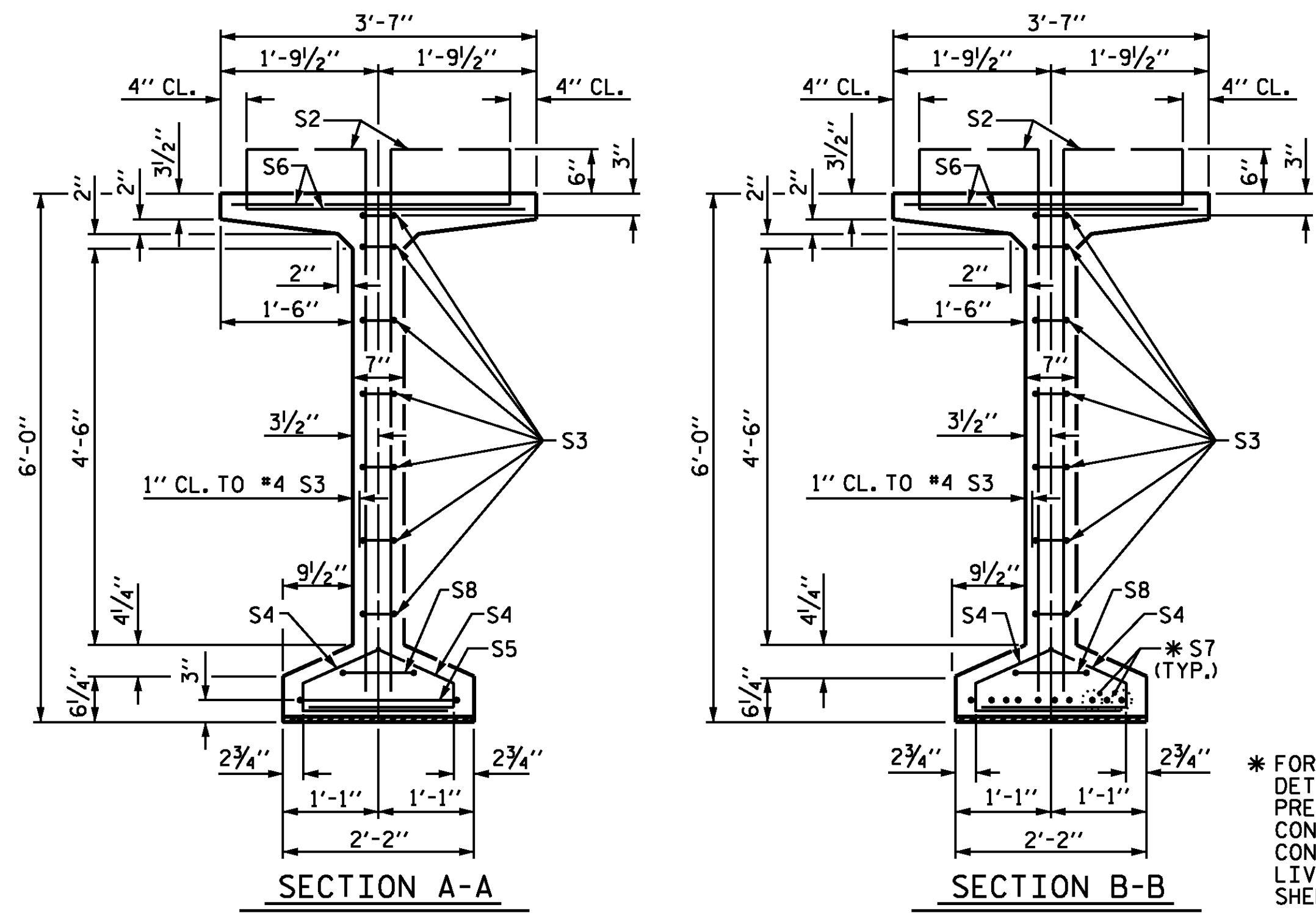
STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN A



WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0881

ASSEMBLED BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 11/2014
DRAWN BY : EEM 2/6/97	REV. 5/1/06R TLA/GM
CHECKED BY : VAP 2/6/97	REV. 10/1/11 MAA/GM
	REV. 6/13 MAA/GM
DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014

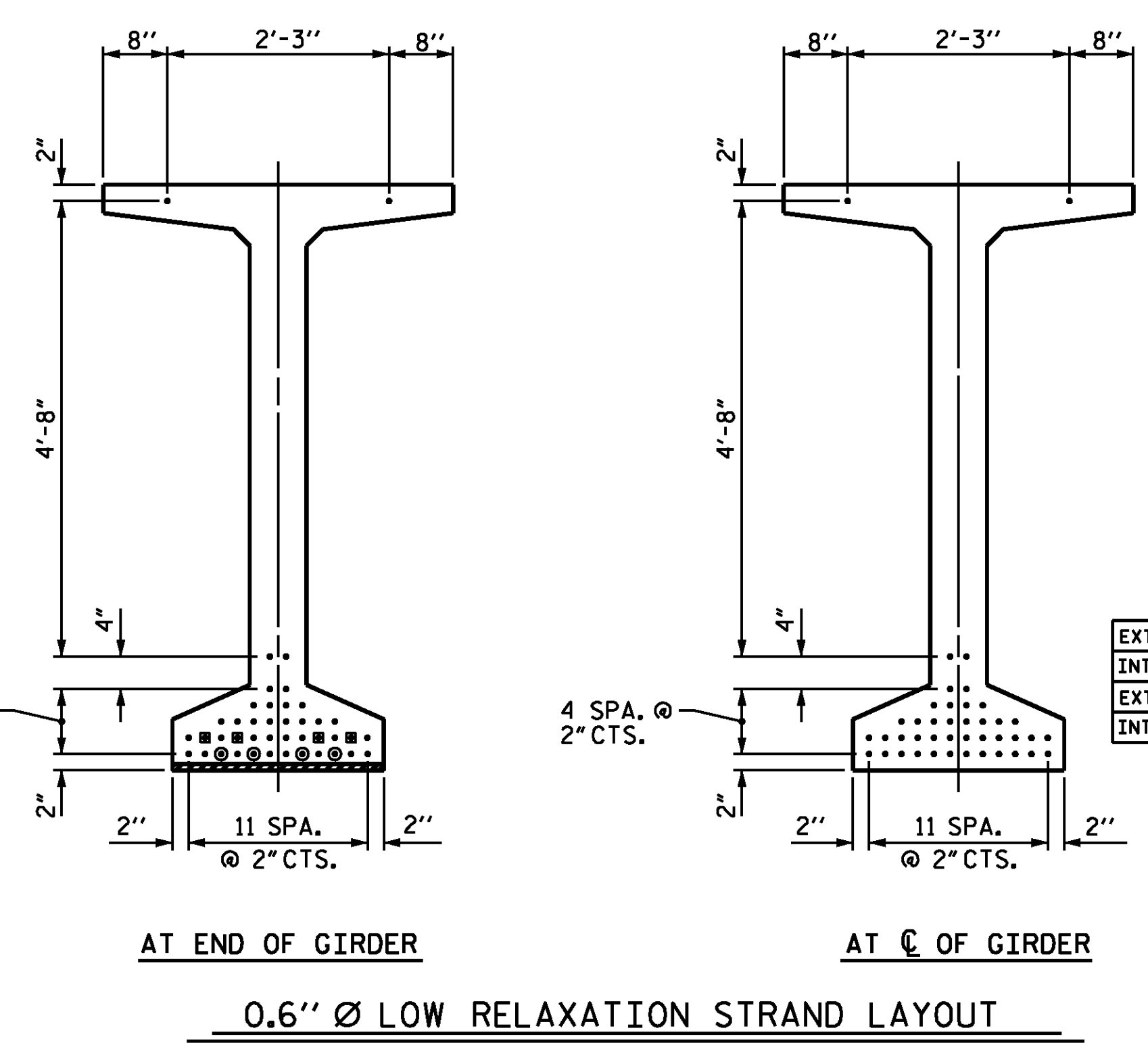
REVISIONS						SHEET NO. S01-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			



DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 24'-0" FROM END OF GIRDER

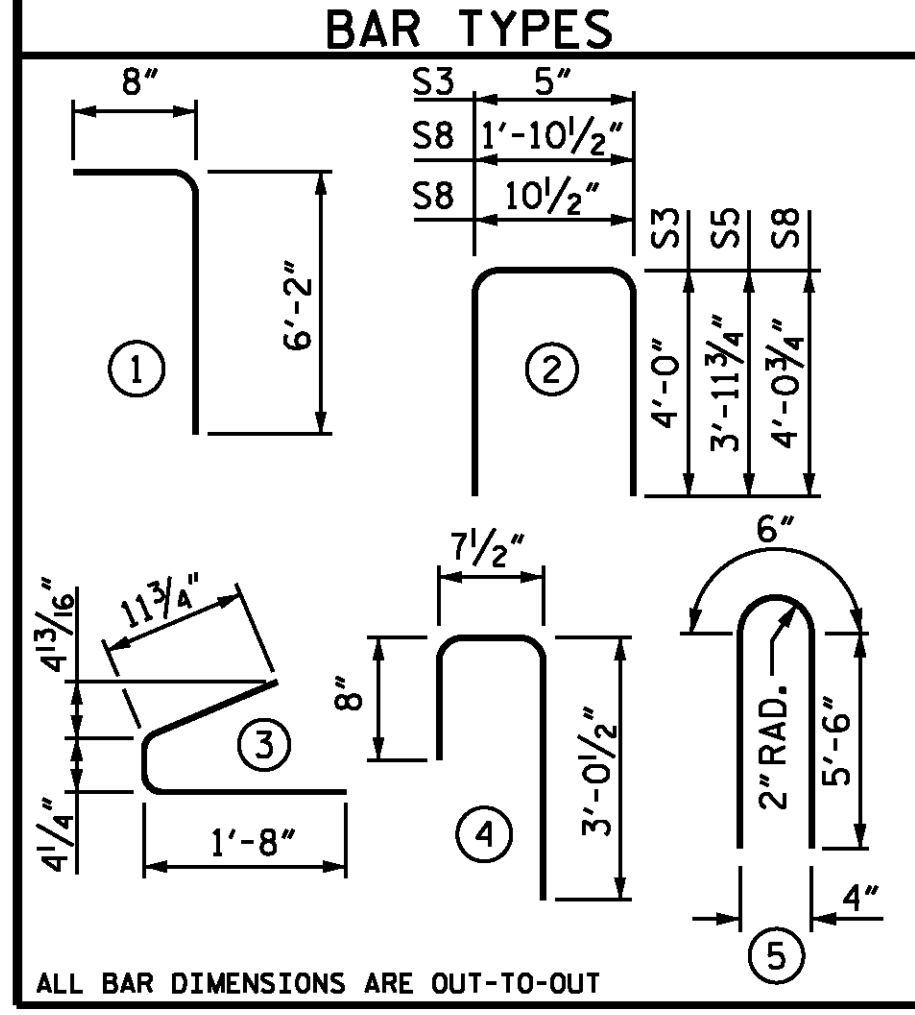
* FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET 4 OF 4



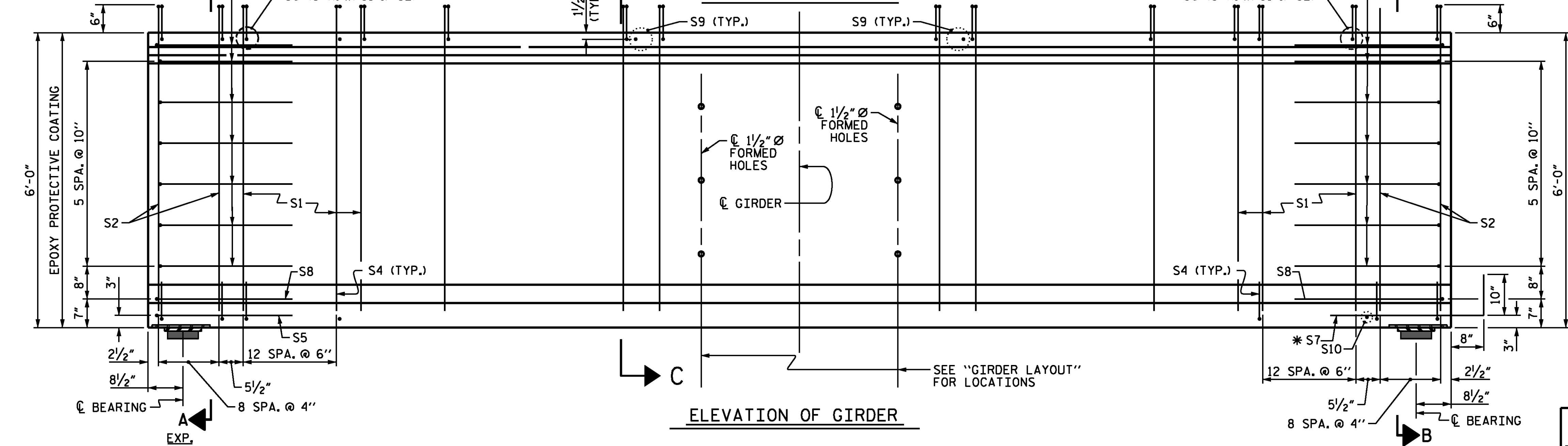
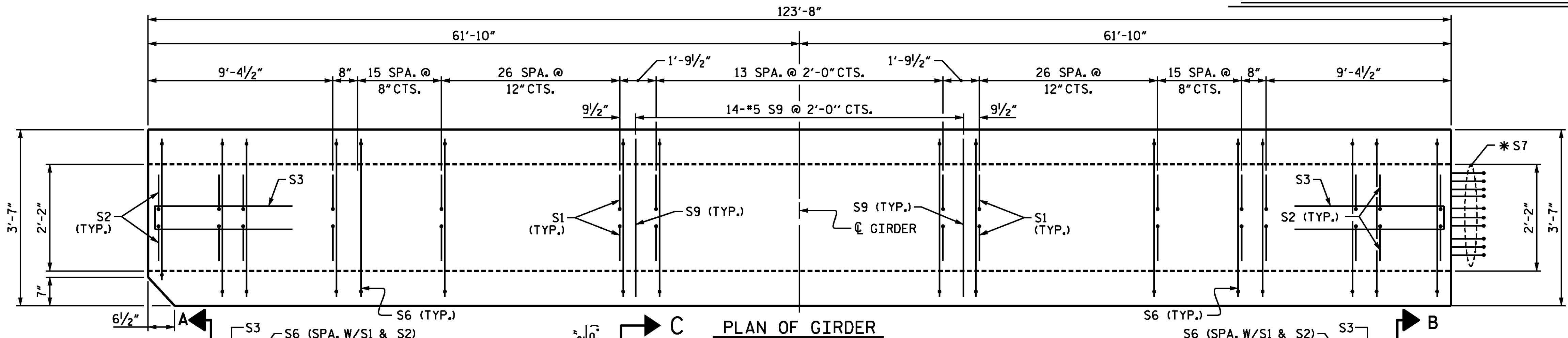
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	248	#4	1	6'-10"	1,132	
S2	36	#5	1	6'-10"	257	
S3	14	#4	2	8'-5"	79	
S4	88	#4	3	3'-0"	176	
S5	1	#5	2	9'-10"	10	
S6	284	#5	4	4'-4"	1,284	
*S7	10	#5	STR	3'-8"	38	
S8	2	#5	2	9'-0"	19	
S9	14	#5	STR	3'-3"	47	
S10	1	#3	STR	1'-10"	1	
EXTERIOR GDR.	S11	4	#5	5	11'-6"	48
INTERIOR GDR.	S11	8	#5	5	11'-6"	96
EXTERIOR GDR.	S12	8	#4	STR	8'-0"	43
INTERIOR GDR.	S13	8	#5	STR	47'-0"	392

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



ALL BAR DIMENSIONS ARE OUT-TO-OUT



NOTE: FOR SECTION "C-C", SEE SHEET 4 OF 4.



WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0881

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL		0.6" Ø L.R. STRANDS
	LB.	8500 PSI CONCRETE C.Y.	No.
GIRDERS 1 & 6	3,134	26.5	42
GIRDERS 2 - 5	3,531	26.5	42
GIRDERS REQUIRED			
NUMBER	LENGTH	TOTAL LENGTH	
6	123'-8"	742'-0"	

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-
 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN B

ASSEMBLED BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 11/2014
DRAWN BY : EEM 2/6/97	REV. 5/1/06R TLA/GM
CHECKED BY : VAP 2/6/97	REV. 10/1/11 MAA/GM
	REV. 6/13 MAA/GM
DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014

REVISIONS						SHEET NO. S01-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
SPAN A																						
0.6" Ø LOW RELAXATION	GIRDER A1 & A6																					
TENTH POINTS	℄ BRG.	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	℄ BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.042	0.082	0.121	0.156	0.187	0.213	0.234	0.249	0.259	0.262	0.259	0.249	0.234	0.213	0.187	0.156	0.121	0.082	0.042	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.027	0.054	0.077	0.101	0.120	0.138	0.150	0.162	0.166	0.170	0.166	0.162	0.150	0.138	0.119	0.101	0.077	0.054	0.027	0
FINAL CAMBER	↑	0	3/16"	5/16"	1/2"	11/16"	13/16"	7/8"	1"	11/16"	11/8"	11/8"	11/8"	11/16"	1"	7/8"	13/16"	11/16"	1/2"	5/16"	3/16"	0

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
SPAN A																						
0.6" Ø LOW RELAXATION	GIRDER A2, A3, A4, & A5																					
TENTH POINTS	℄ BRG.	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	℄ BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.042	0.082	0.121	0.156	0.187	0.213	0.234	0.249	0.259	0.262	0.259	0.249	0.234	0.213	0.187	0.156	0.121	0.082	0.042	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.022	0.045	0.065	0.086	0.102	0.118	0.128	0.138	0.142	0.145	0.142	0.138	0.128	0.118	0.072	0.027	0.036	0.045	0.022	0
FINAL CAMBER	↑	0	1/4"	7/16"	11/16"	13/16"	1"	11/8"	11/4"	13/16"	13/8"	13/8"	13/8"	15/16"	11/4"	11/8"	13/16"	13/16"	1"	7/16"	1/4"	0

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

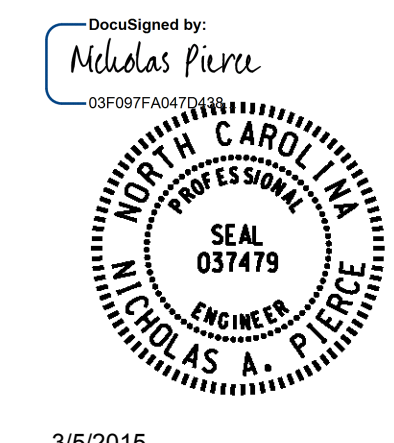
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
SPAN B																						
0.6" Ø LOW RELAXATION	GIRDER B1 & B6																					
TENTH POINTS	℄ BRG.	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	℄ BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.053	0.105	0.154	0.199	0.239	0.273	0.300	0.320	0.332	0.336	0.332	0.320	0.300	0.273	0.239	0.199	0.154	0.105	0.053	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.033	0.065	0.095	0.126	0.149	0.173	0.188	0.203	0.209	0.214	0.209	0.205	0.190	0.176	0.152	0.129	0.099	0.070	0.035	0
FINAL CAMBER	↑	0	1/4"	1/2"	11/16"	7/8"	11/16"	13/16"	15/16"	13/8"	11/2"	11/2"	11/2"	13/8"	15/16"	13/16"	11/16"	13/16"	5/8"	7/16"	3/16"	0

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
SPAN B																						
0.6" Ø LOW RELAXATION	GIRDER B2, B3, B4, & B5																					
TENTH POINTS	℄ BRG.	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	℄ BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.053	0.105	0.154	0.199	0.239	0.273	0.300	0.320	0.332	0.336	0.332	0.320	0.300	0.273	0.239	0.199	0.154	0.105	0.053	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.028	0.056	0.082	0.107	0.128	0.148	0.161	0.174	0.180	0.185	0.180	0.175	0.162	0.150	0.129	0.109	0.084	0.058	0.029	0
FINAL CAMBER	↑	0	5/16"	9/16"	7/8"	11/8"	15/16"	11/2"	111/16"	13/4"	113/16"	113/16"	113/16"	13/4"	15/8"	11/2"	15/16"	11/16"	7/8"	9/16"	5/16"	0

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

PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61 -L-



SHEET 3 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014
ASSEMBLED BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 11/2014
DRAWN BY : ELR 11/91	REV. 7/10/01RR LES/JDR
CHECKED BY : GRP 11/91	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S01-12
1			3			TOTAL SHEETS
2			4			36

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7000 PSI.

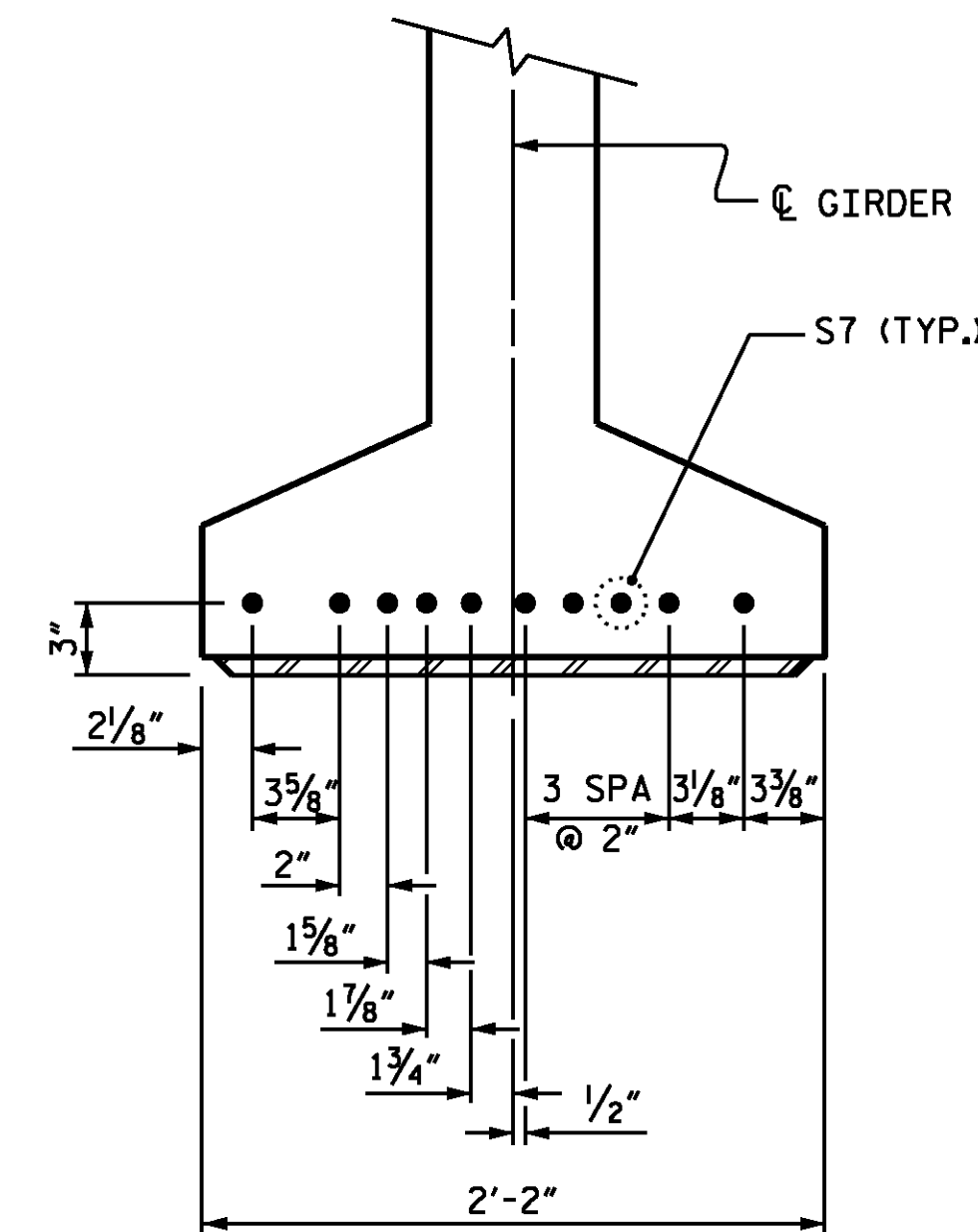
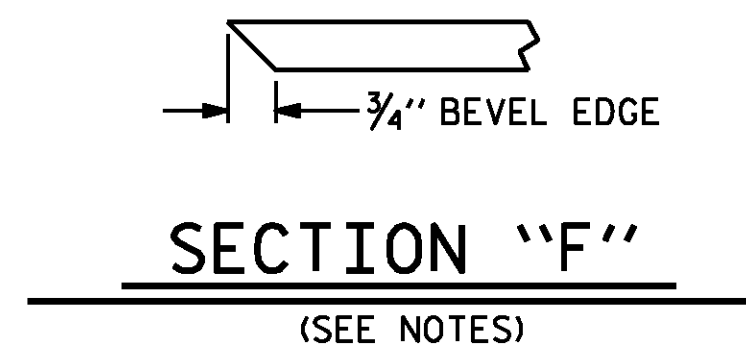
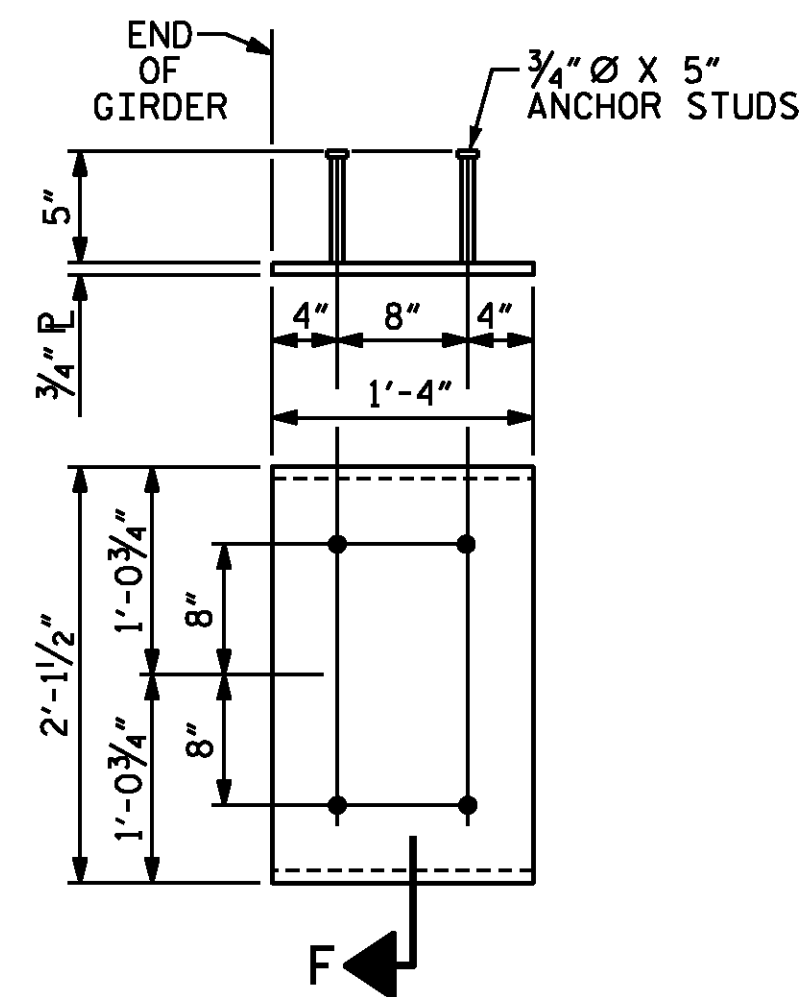
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

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

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

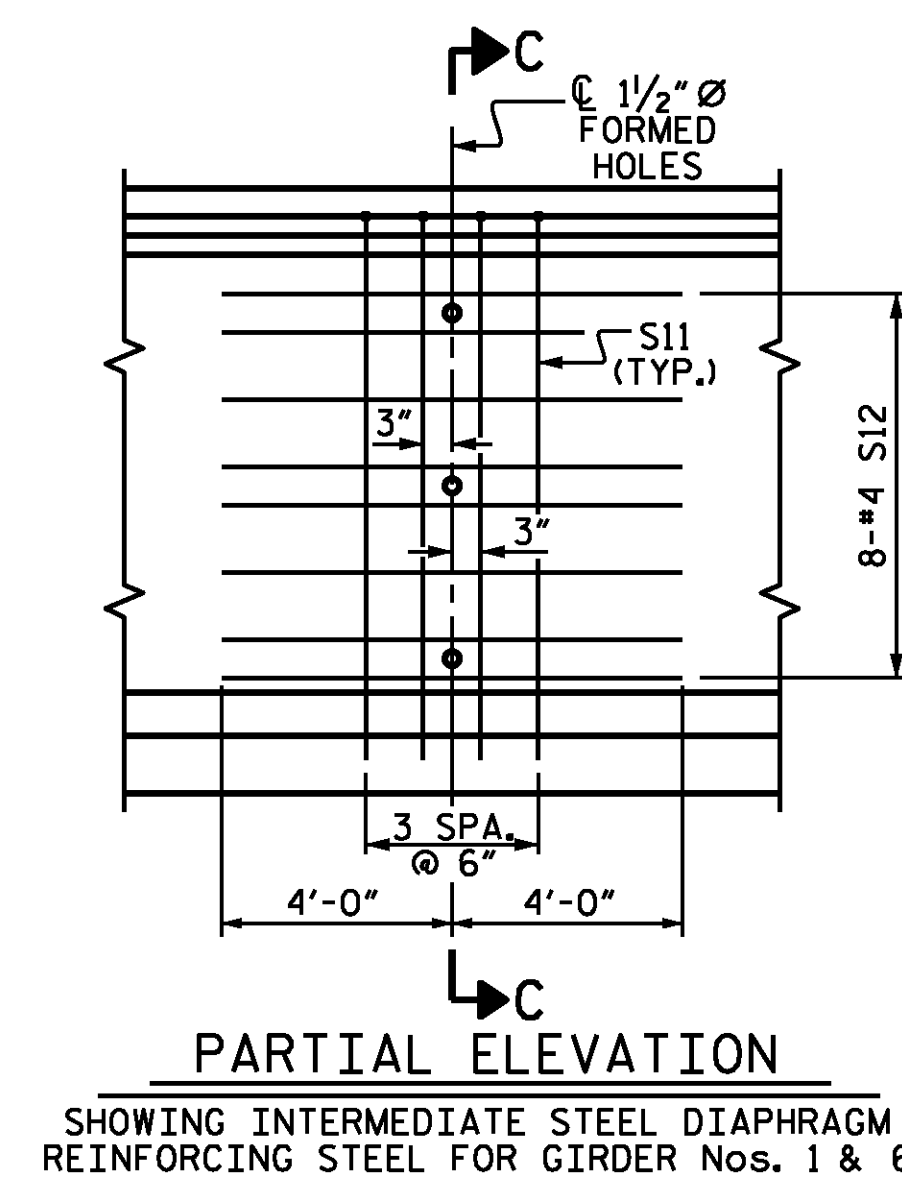
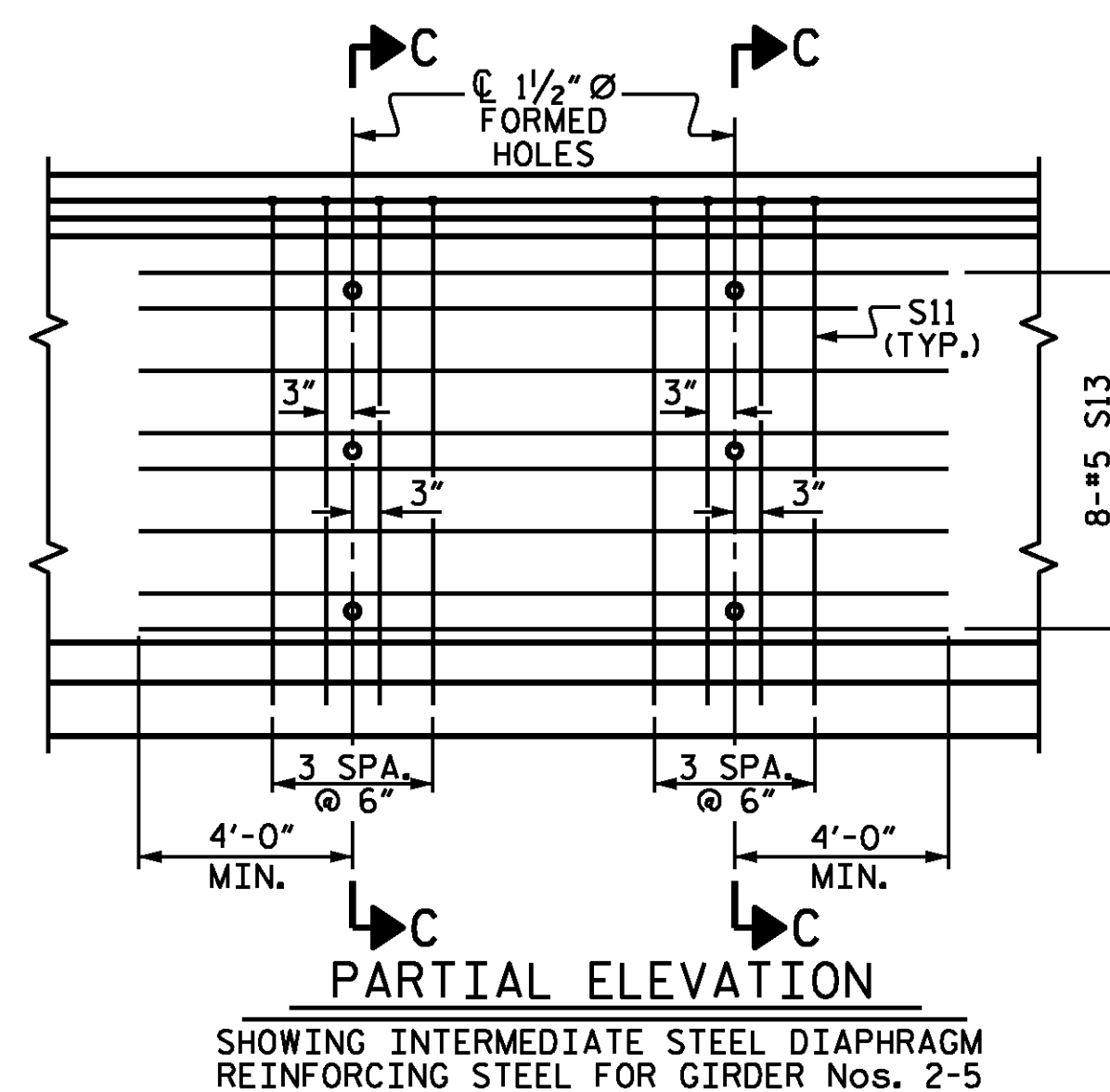
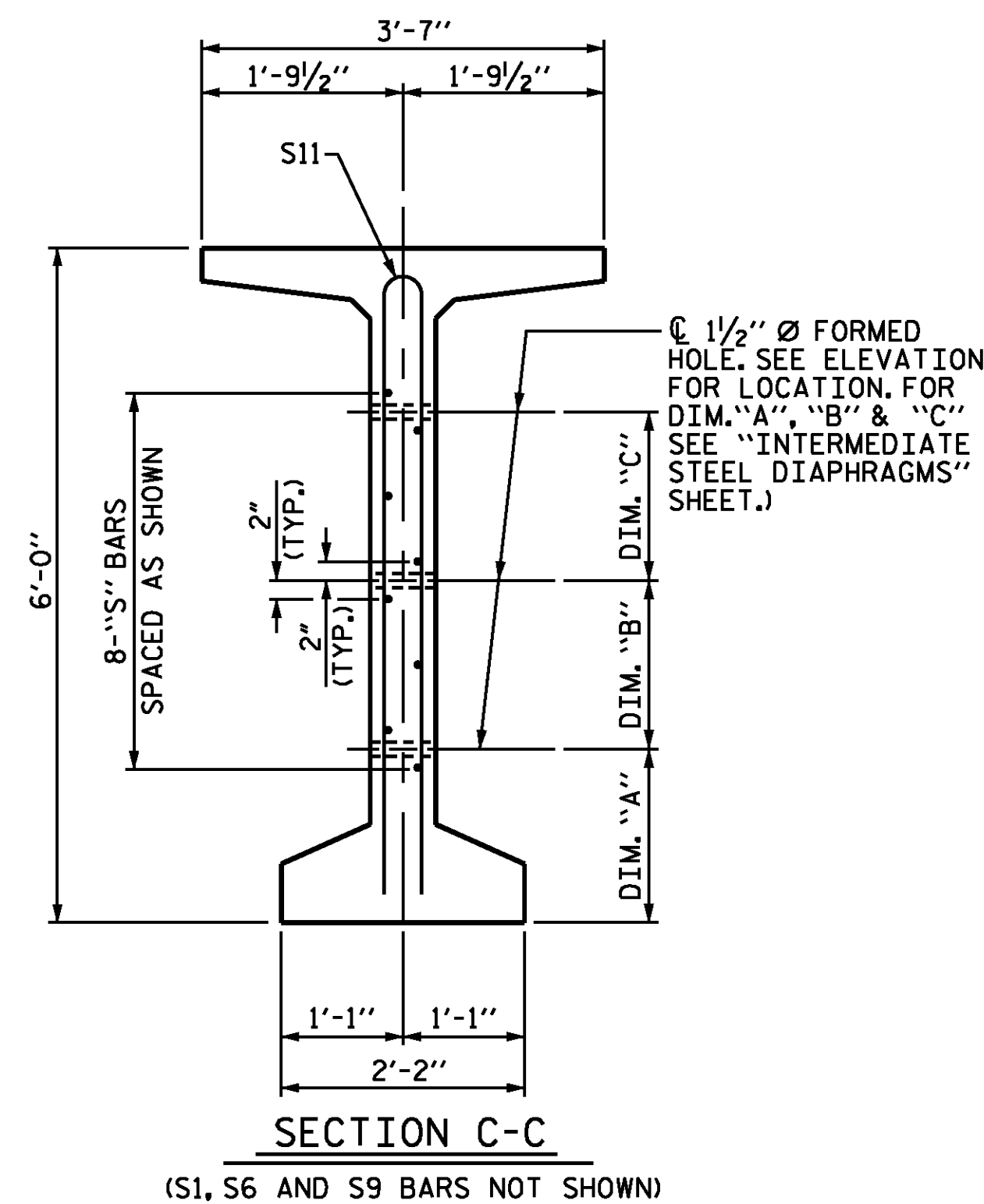
A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 72" MODIFIED BULB TEES ONLY.

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



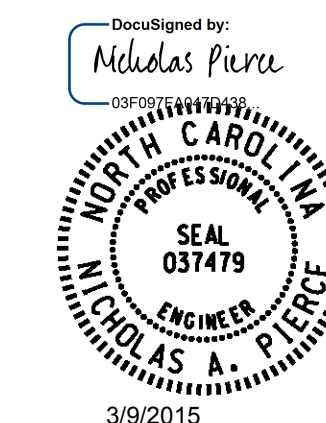
EMBEDDED PLATE "B-1" DETAILS FOR 72" MODIFIED BULB TEES
(2 REQ'D PER GIRDER)

DETAIL "C"
(FOR 72" MODIFIED BULB TEES)



PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61 -L-

SHEET 4 OF 4



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

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014
ASSEMBLED BY : M.J. OSTRISHKO CHECKED BY : N.A. PIERCE	DATE : 06/2014 DATE : 11/2014
DRAWN BY : ELR 11/91 CHECKED BY : GRP 11/91	REV. 7/10/01RR LES/RDR REV. 5/1/06 TLA/GM REV. 10/1/11 MAA/GM

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			101A
2			4			36

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

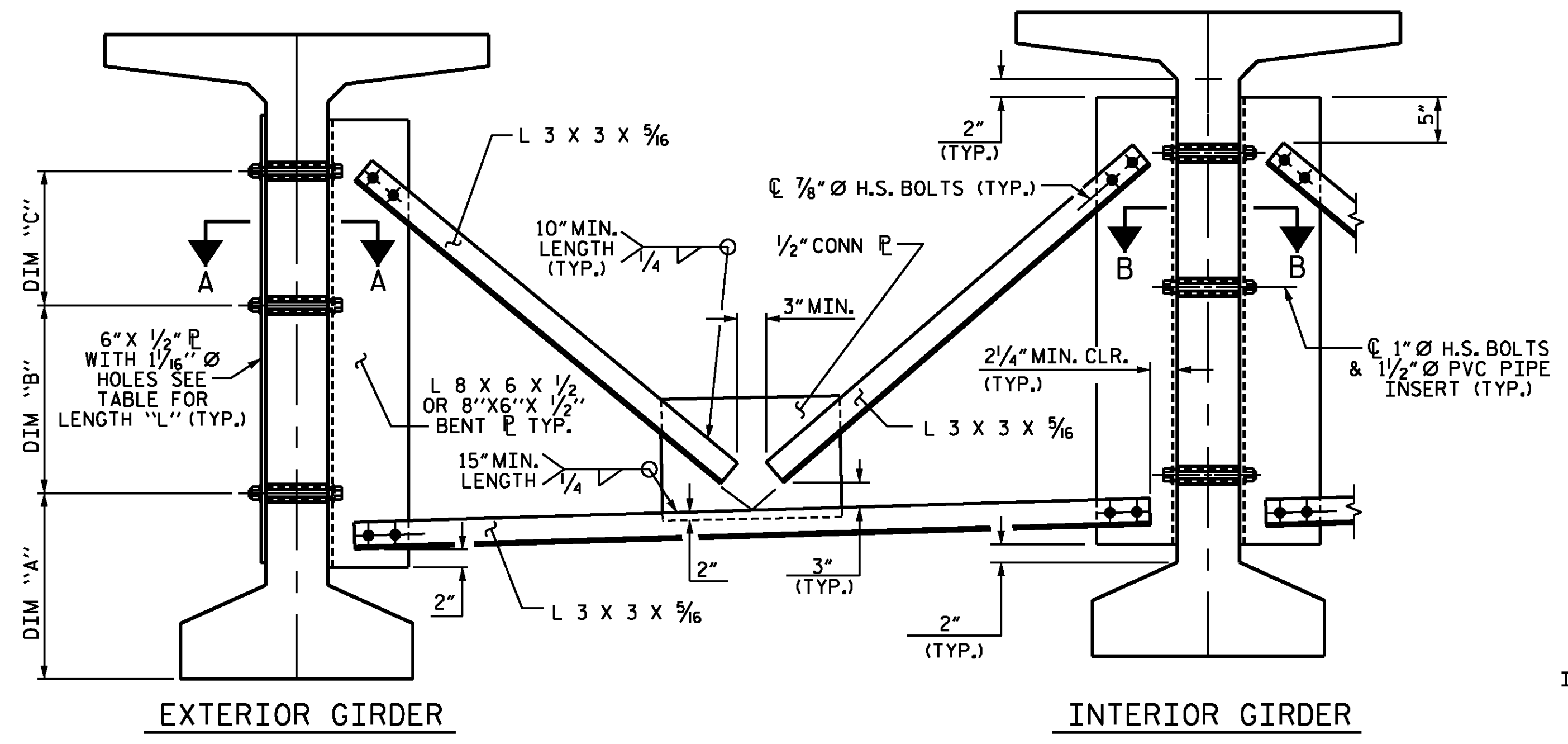
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

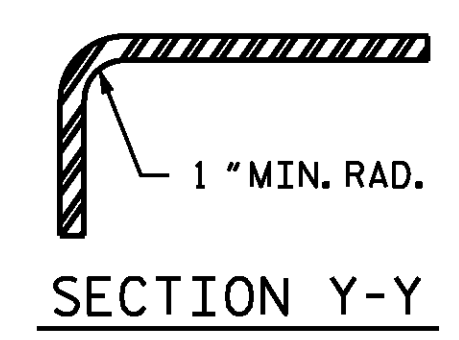
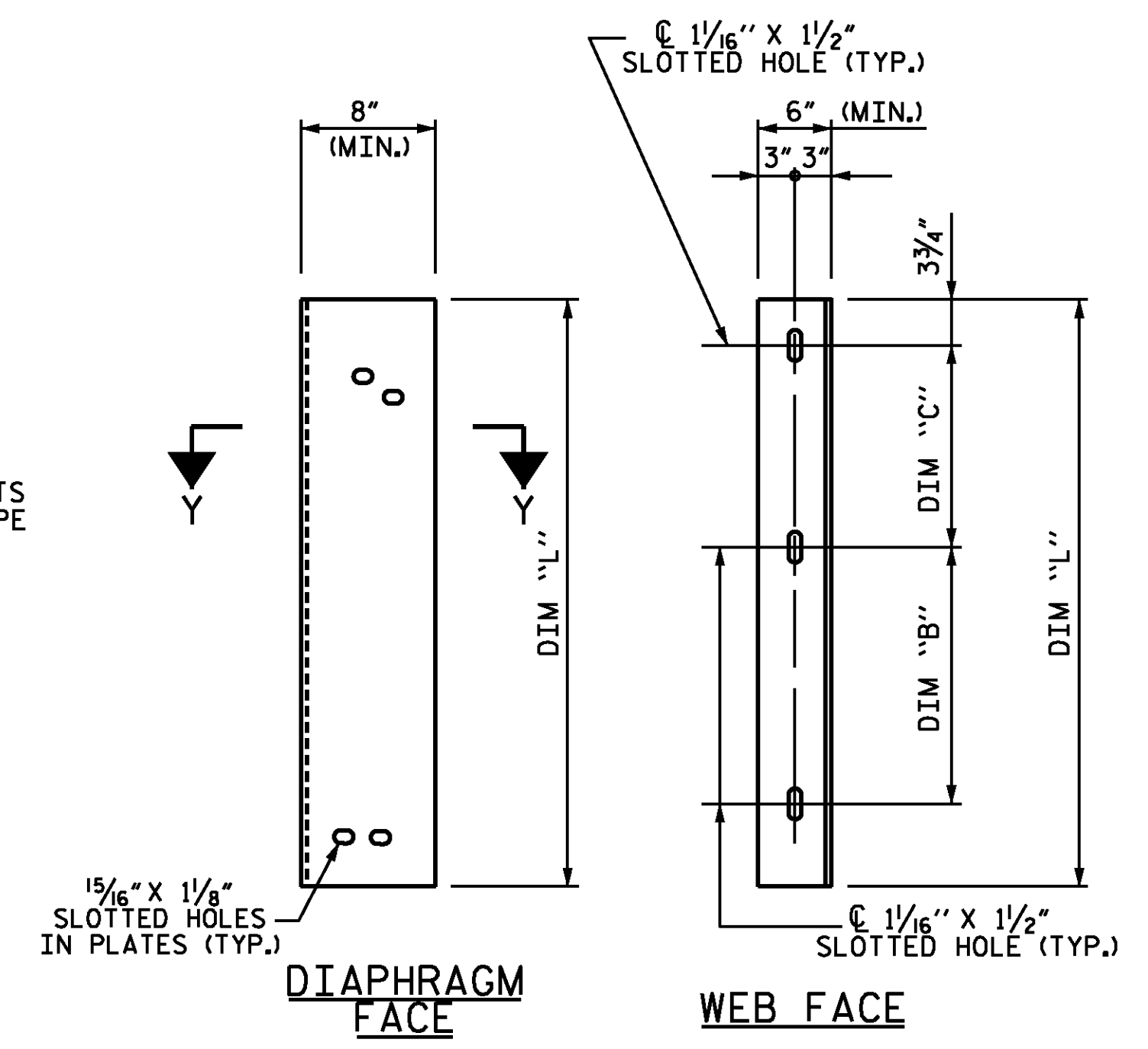
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

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



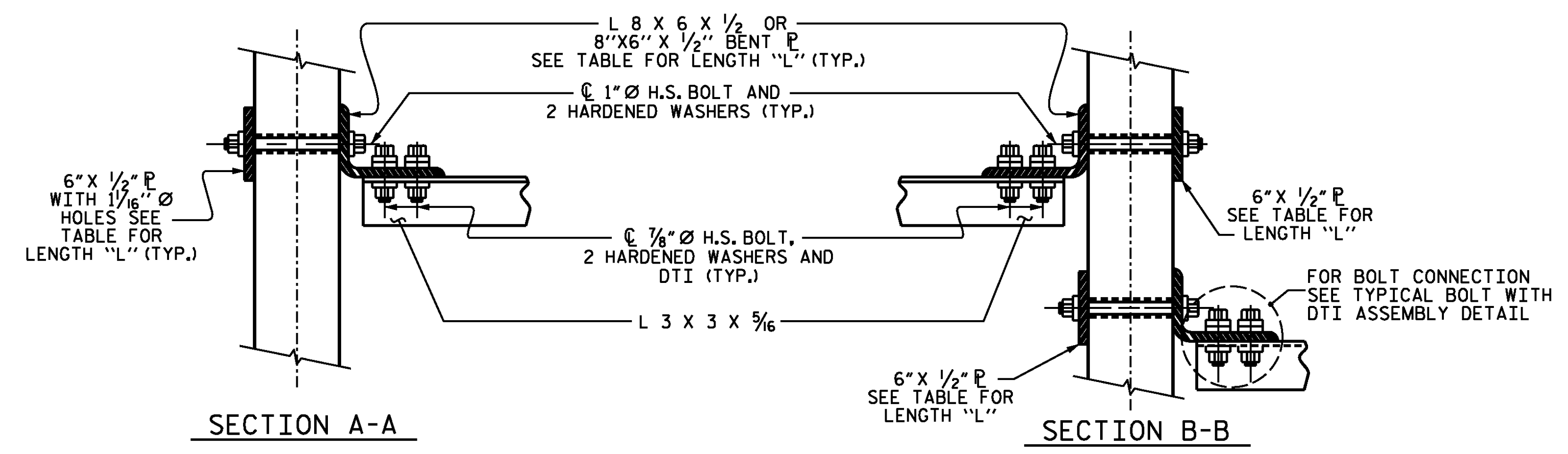
PART SECTION AT INTERMEDIATE DIAPHRAGM



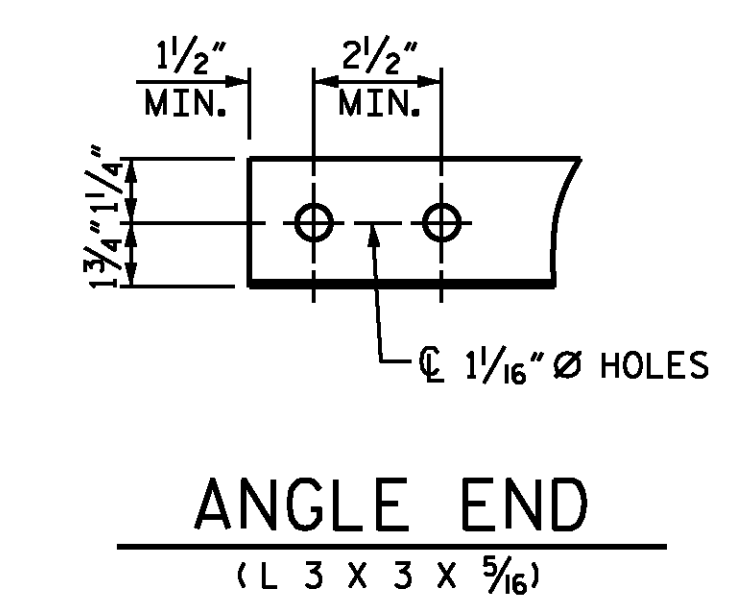
CONNECTOR PLATE DETAIL

TABLE

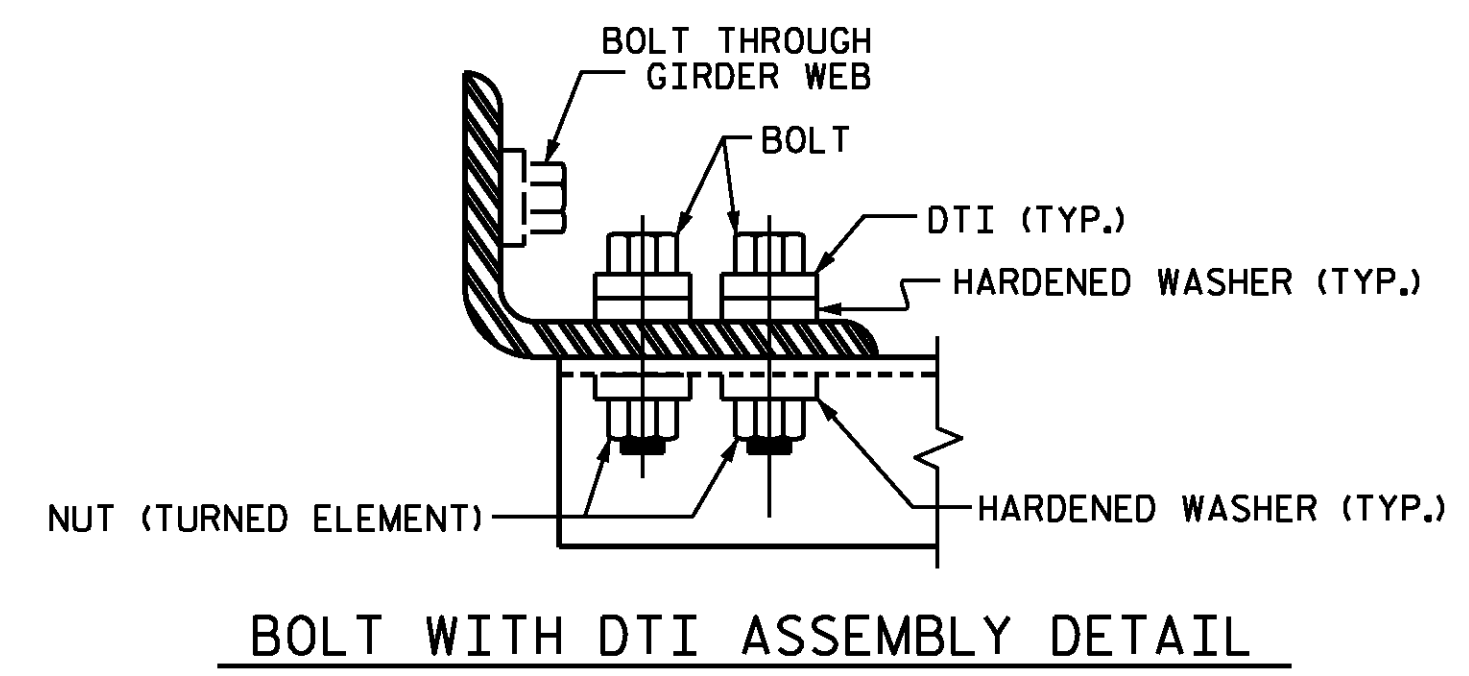
GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
72" BULB TEE	1'-7"	1'-5"	1'-6"	4'-2"



CONNECTION DETAILS
(SKEW > 110° SHOWN
SKEW < 70° SIM.)

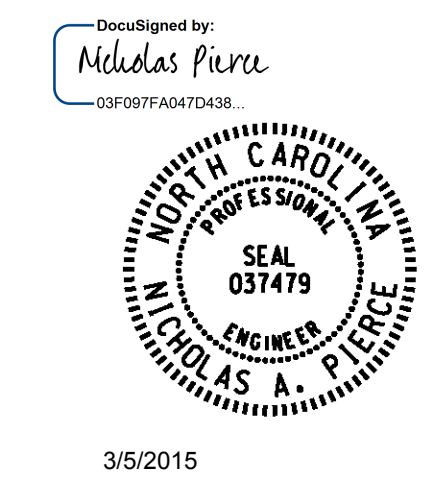


ANGLE END
(L 3 x 3 x 5/16)



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61 -L-

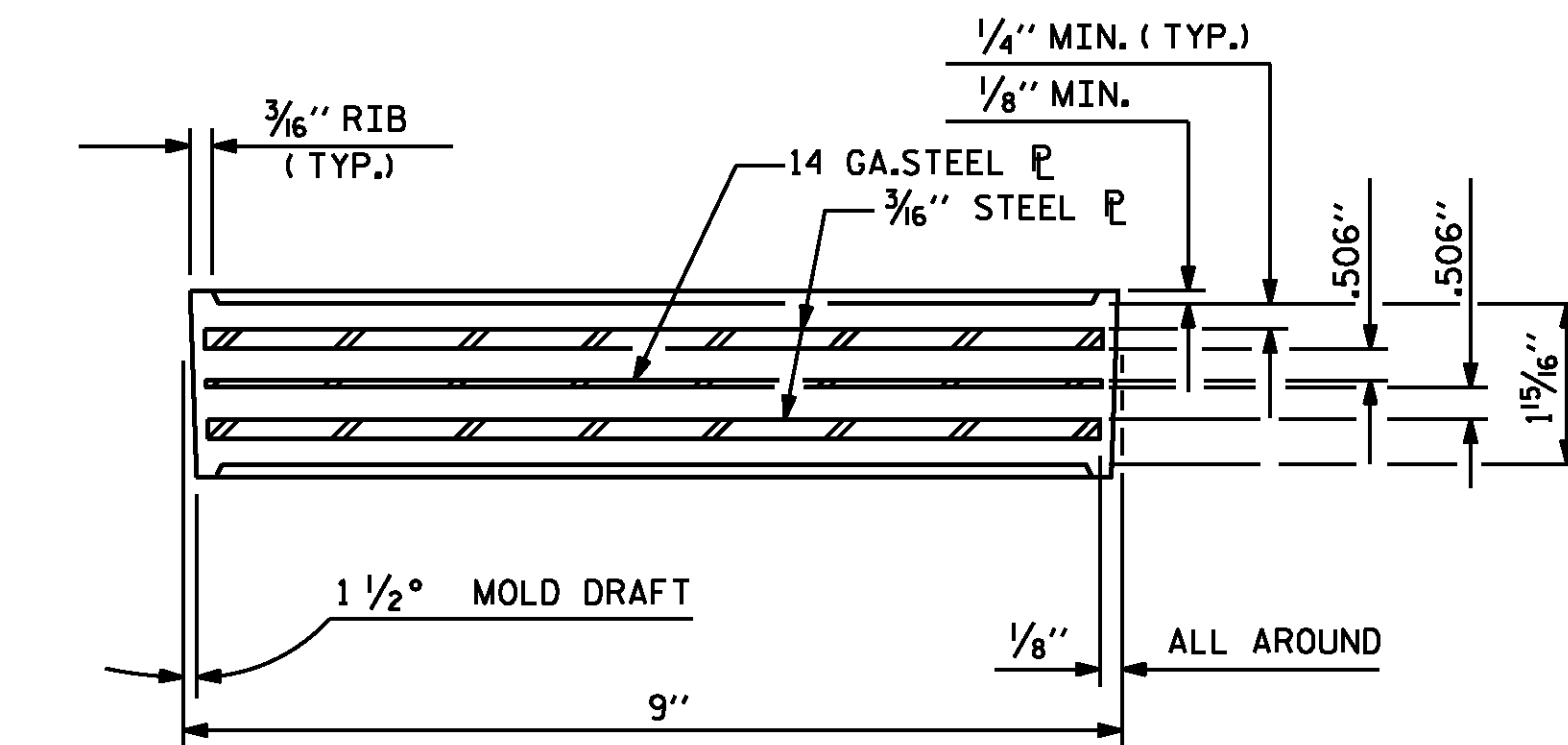
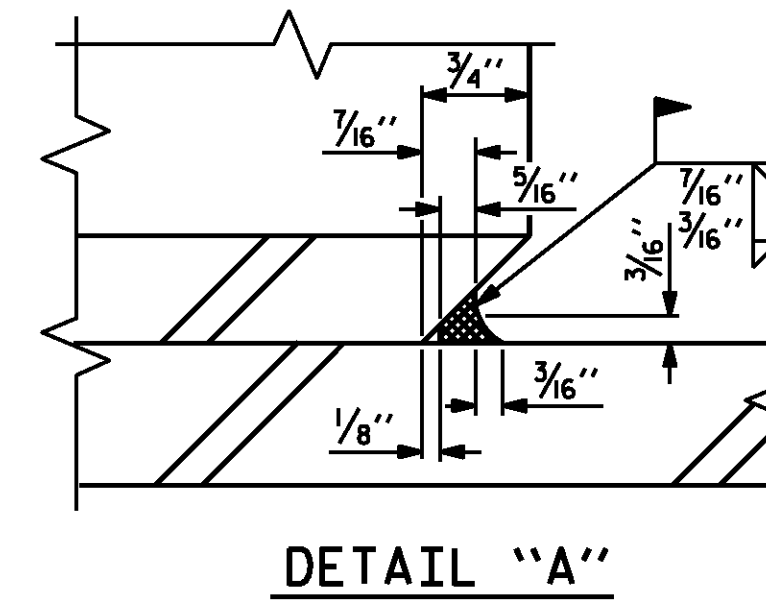
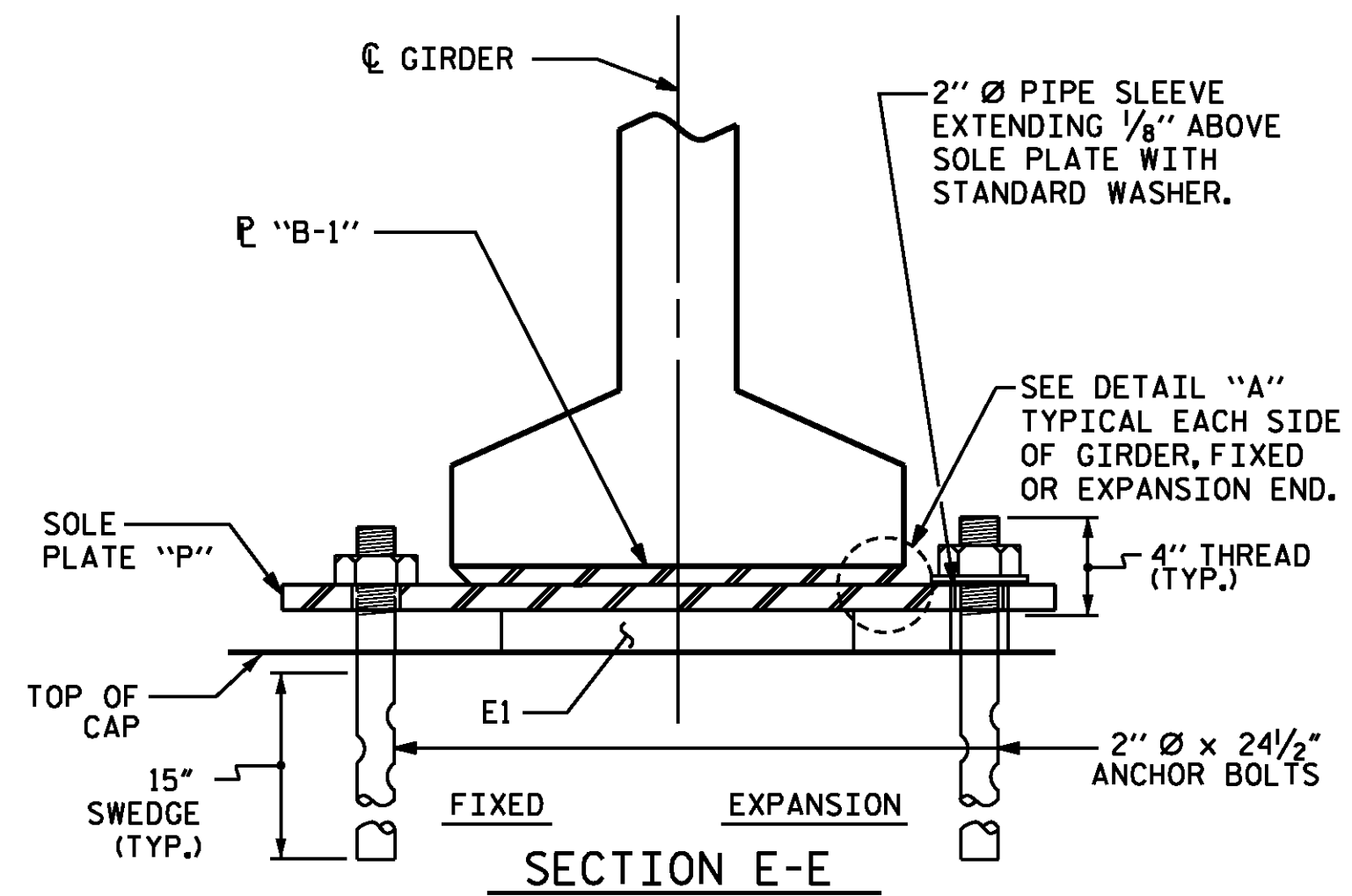


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR 63" & 72" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS

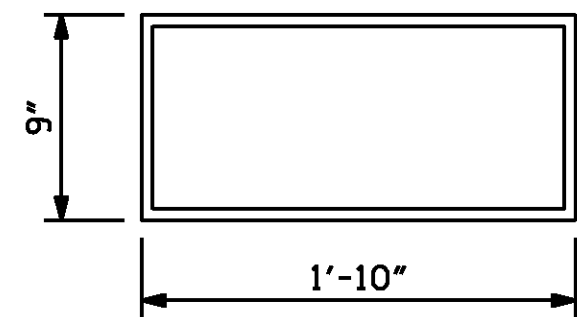
WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

REVISIONS						SHEET NO. S01-14
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
ASSEMBLED BY : M.J. OSTRISHKO	DATE : 12/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014
DRAWN BY : RW 11/09	ADDED 11/23/09R
CHECKED BY : GM 11/09	REV. 10/1/11

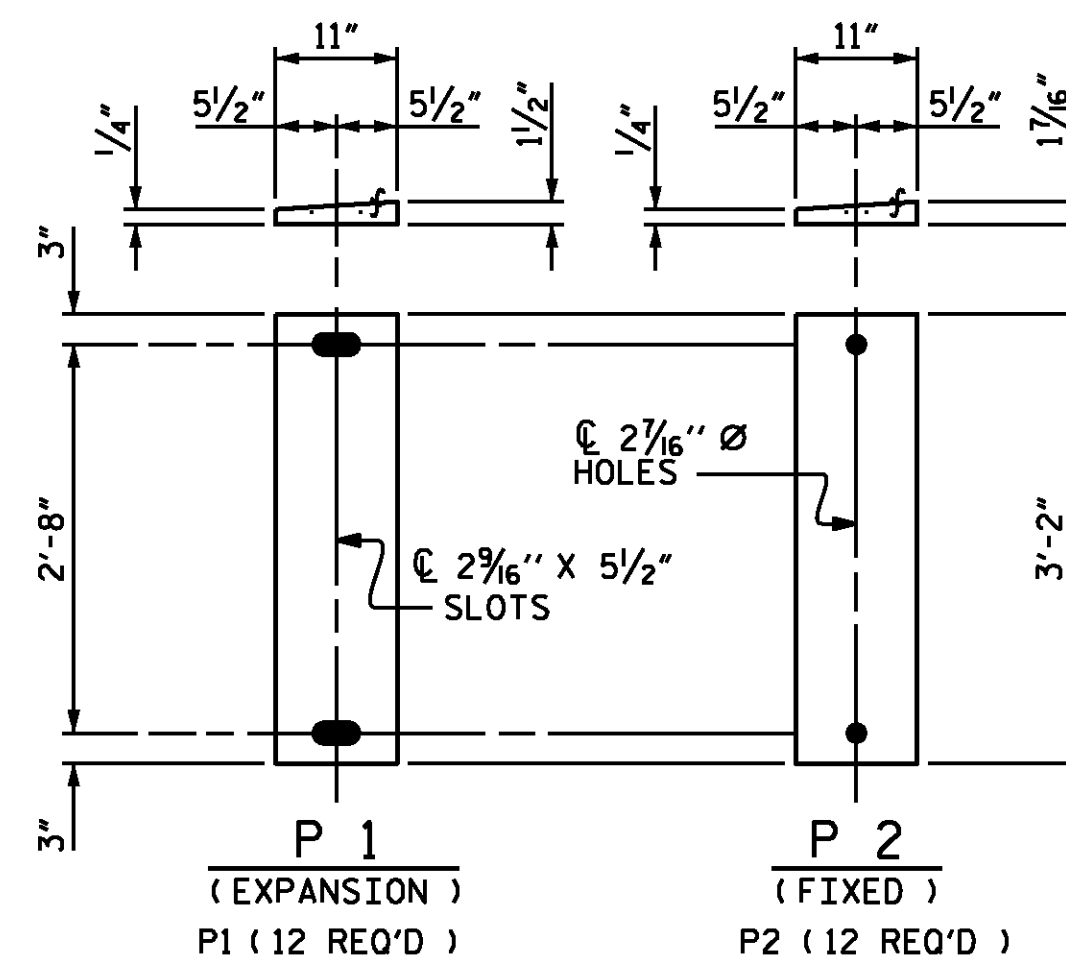
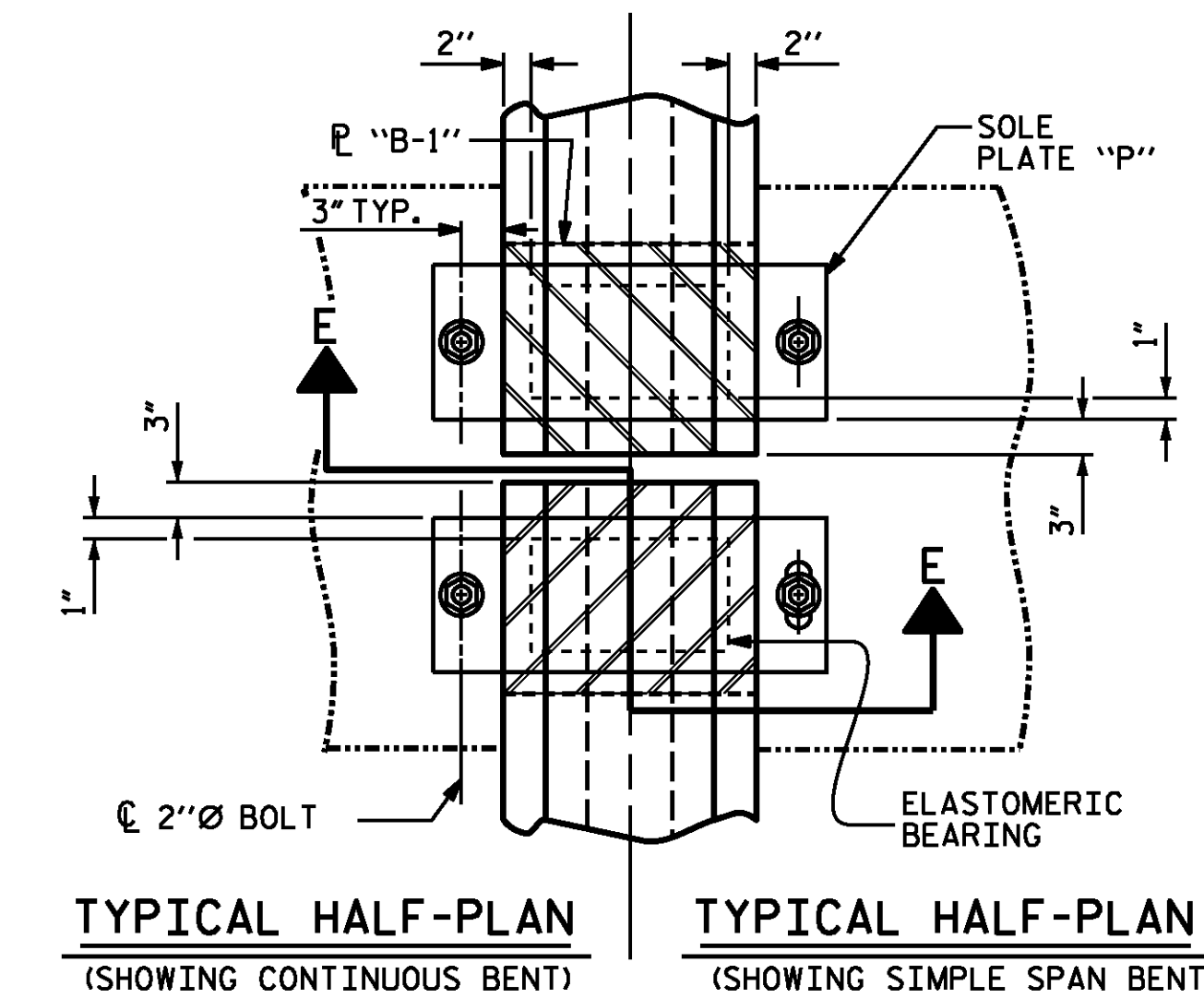


TYPICAL SECTION OF ELASTOMERIC BEARINGS



E1 (24 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE IV

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	225 k



SOLE PLATE DETAILS ("P")

NOTES

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

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

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

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

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

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

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

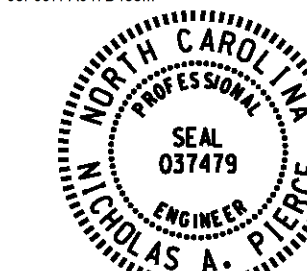
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
ASSEMBLED BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014
DRAWN BY : WJH 8/89	REV. 5/1/06 TLA/GM
CHECKED BY : CRK 8/89	REV. 10/1/11 MAA/CM
	REV. 6/13 AAC/MAA

Designed by:
Nicholas Pierce



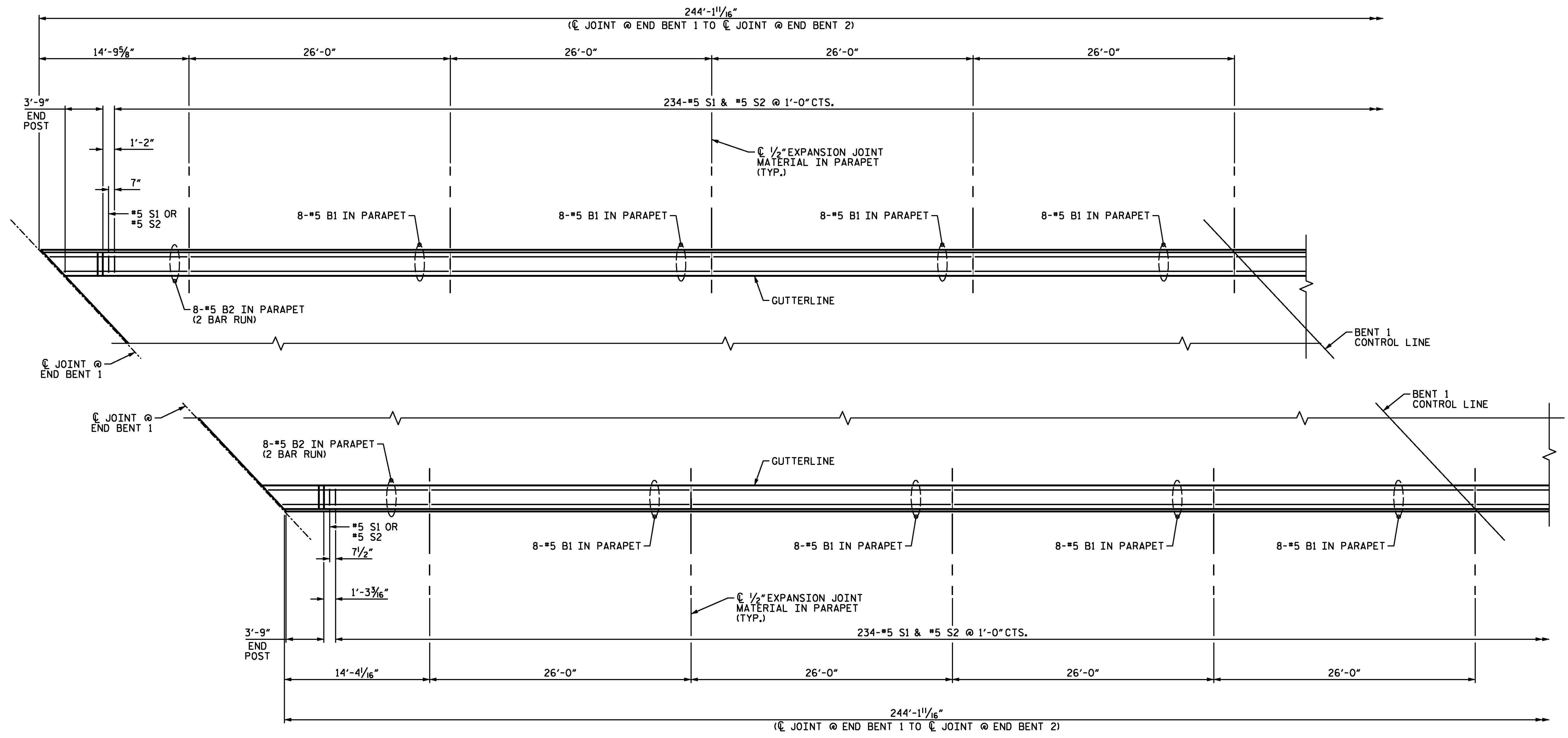
3/5/2015

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-9891

PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61 -L-

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

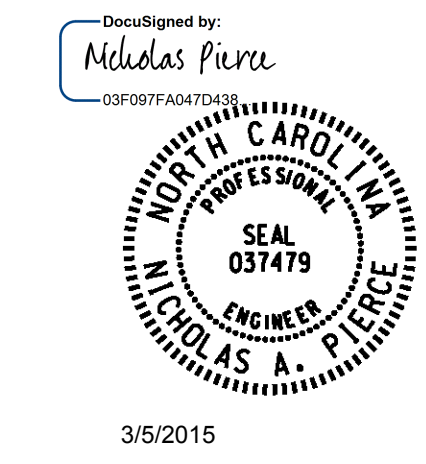
REVISIONS						SHEET NO. S01-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			



PLAN OF SPAN A - 1'-2" X 2'-6" PARAPET

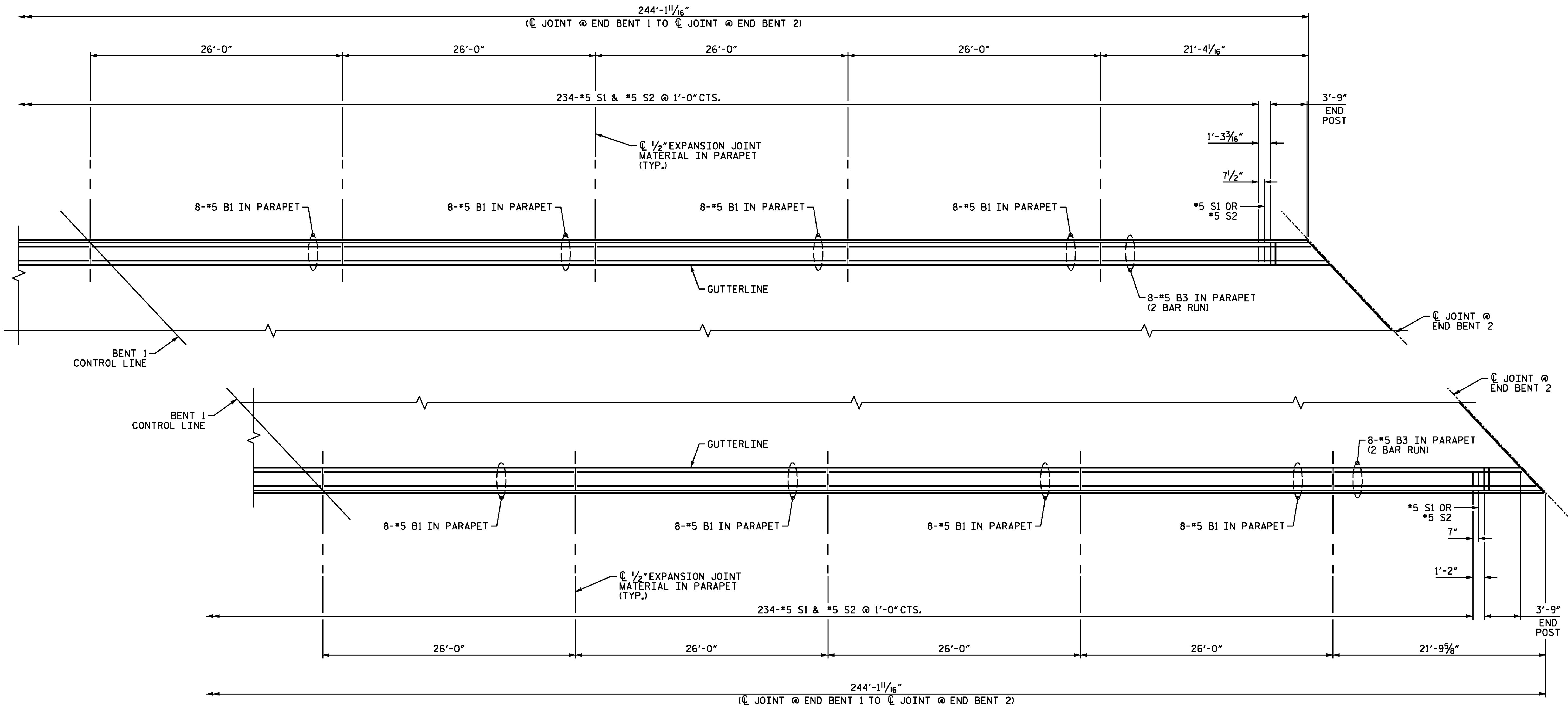
PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 SPAN A



DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

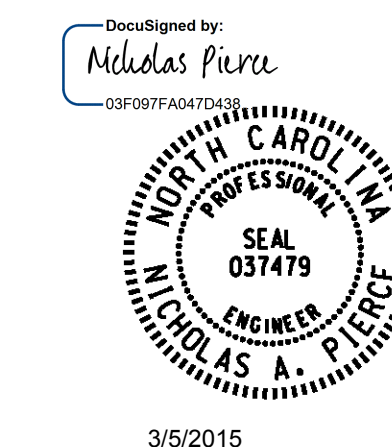
REVISIONS						SHEET NO. S01-16
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			



PLAN OF SPAN B - 1'-2" X 2'-6" PARAPET

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 2 OF 3

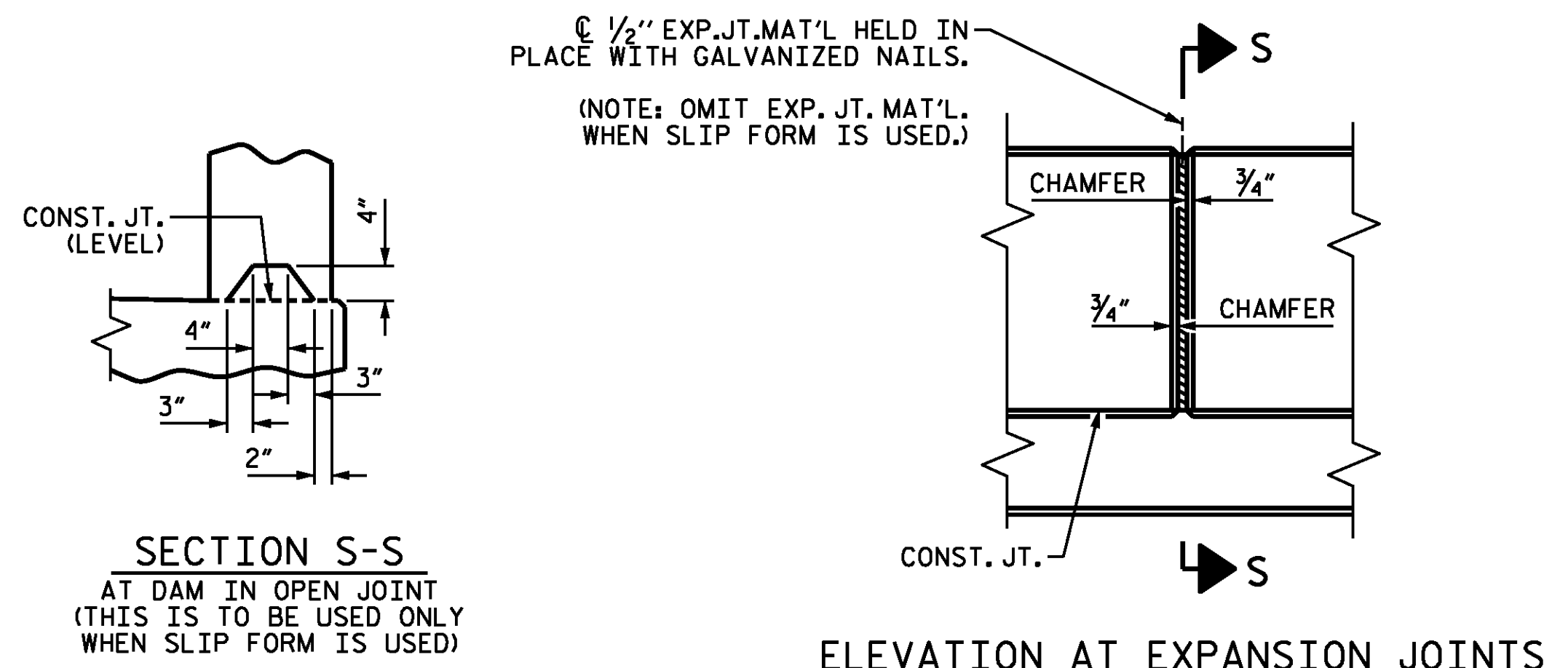


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 SPAN B

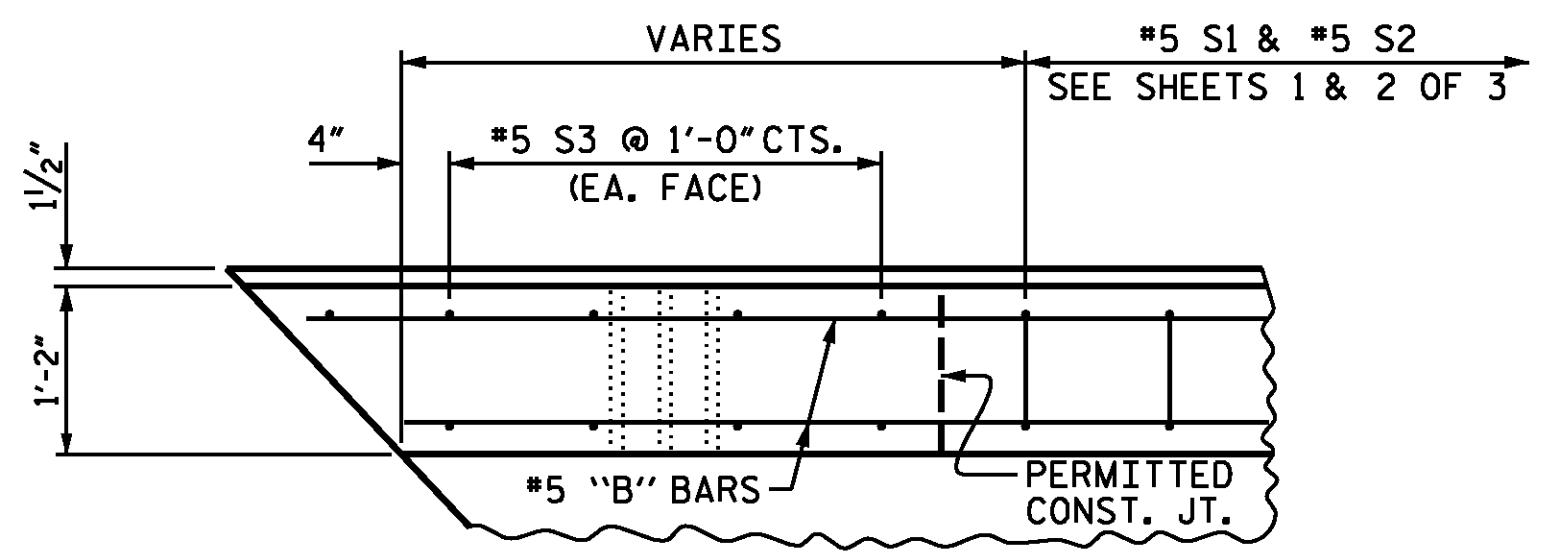
DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

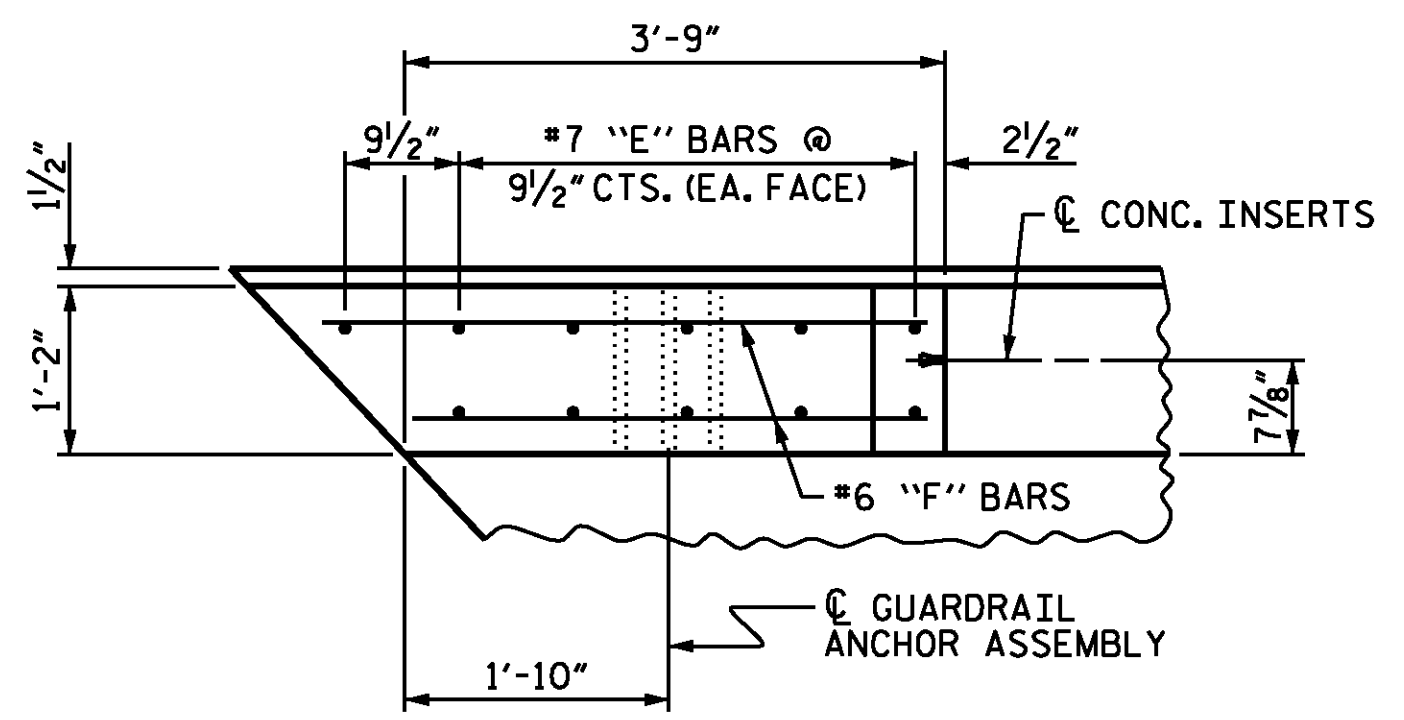
REVISIONS						SHEET NO.
NO.	BYs	DATEs	NO.	BYs	DATEs	TOTAL SHEETS
1			3			36
2			4			



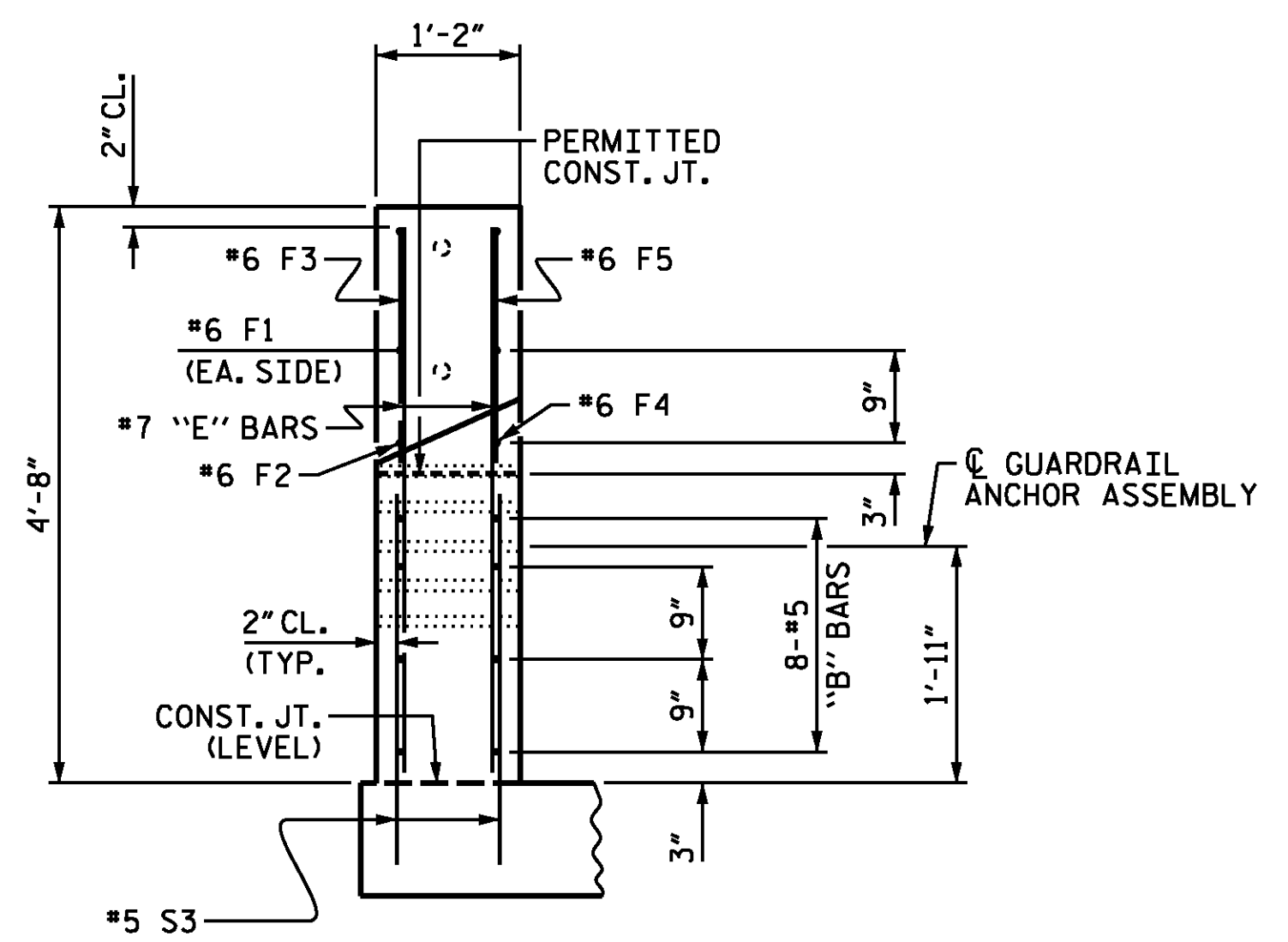
PARAPET DETAILS



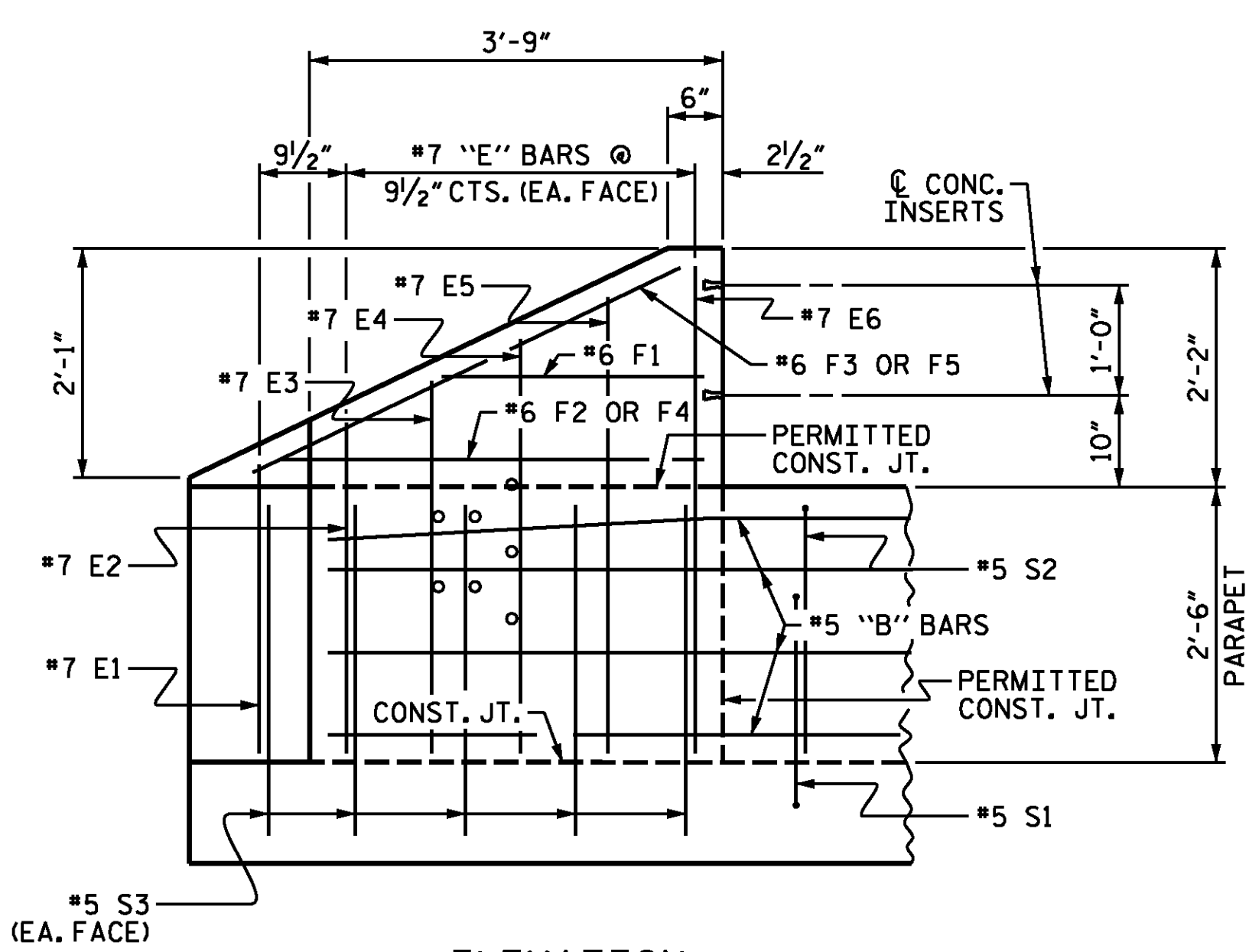
PLAN OF PARAPET



PLAN OF END POST



END VIEW



ELEVATION

PARAPET AND END POST FOR TWO BAR METAL RAIL

SPAN A SHOWN, SPAN B SIMILAR.

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 PARAPET AND END POSTS SHALL BE EPOXY COATED.

THE #5 S1 AND S2 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.

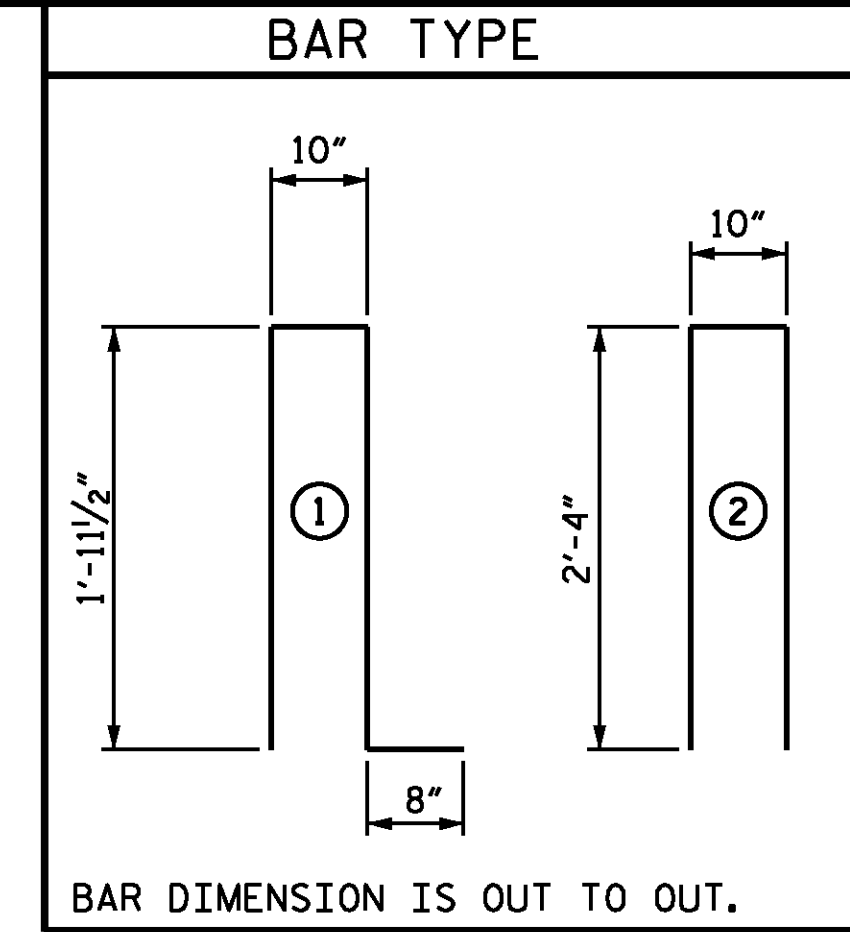
THE JOINTS IN THE DECK AT THE END BENTS SHALL BE SAWED PRIOR TO CASTING OF THE PARAPET.

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

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

FOR DETAILS AND LOCATION OF GUARDRAIL ANCHOR ASSEMBLIES, SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEET.

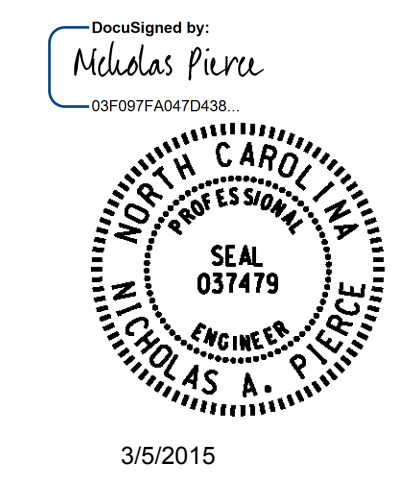
BILL OF MATERIAL FOR PARAPETS AND END POSTS						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B1	128	#5	STR	25'-8"	3,427	
*B2	32	#5	STR	8'-11"	298	
*B3	32	#5	STR	12'-5"	414	
*E1	4	#7	STR	2'-7"	21	
*E2	8	#7	STR	2'-11"	48	
*E3	8	#7	STR	3'-4"	55	
*E4	8	#7	STR	3'-8"	60	
*E5	8	#7	STR	4'-1"	67	
*E6	8	#7	STR	4'-4"	71	
*F1	8	#6	STR	2'-4"	28	
*F2	4	#6	STR	3'-11"	24	
*F3	4	#6	STR	4'-10"	29	
*F4	4	#6	STR	3'-5"	21	
*F5	4	#6	STR	3'-8"	22	
*S1	472	#5	1	5'-5"	2,667	
*S2	472	#5	2	5'-6"	2,708	
*S3	36	#5	STR	3'-0"	113	
*EPOXY COATED REINFORCING STEEL				LBS.	10,073	
CLASS "AA" CONCRETE				C.Y.	54.0	
1'-2" x 2'-6" CONCRETE PARAPET				L.F.	488.28	



PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 3 OF 3

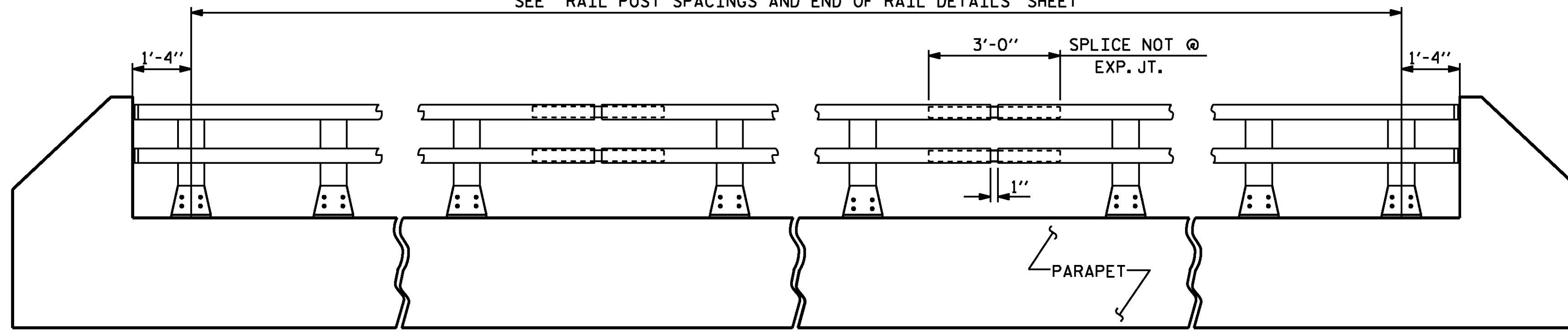
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CONCRETE PARAPET
 DETAILS
 1'-2" X 2'-6" PARAPET



DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

REVISIONS						SHEET NO.
NO.	BYs	DATEs	NO.	BYs	DATEs	TOTAL SHEETS
1			3			36
2			4			

SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET



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.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

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.

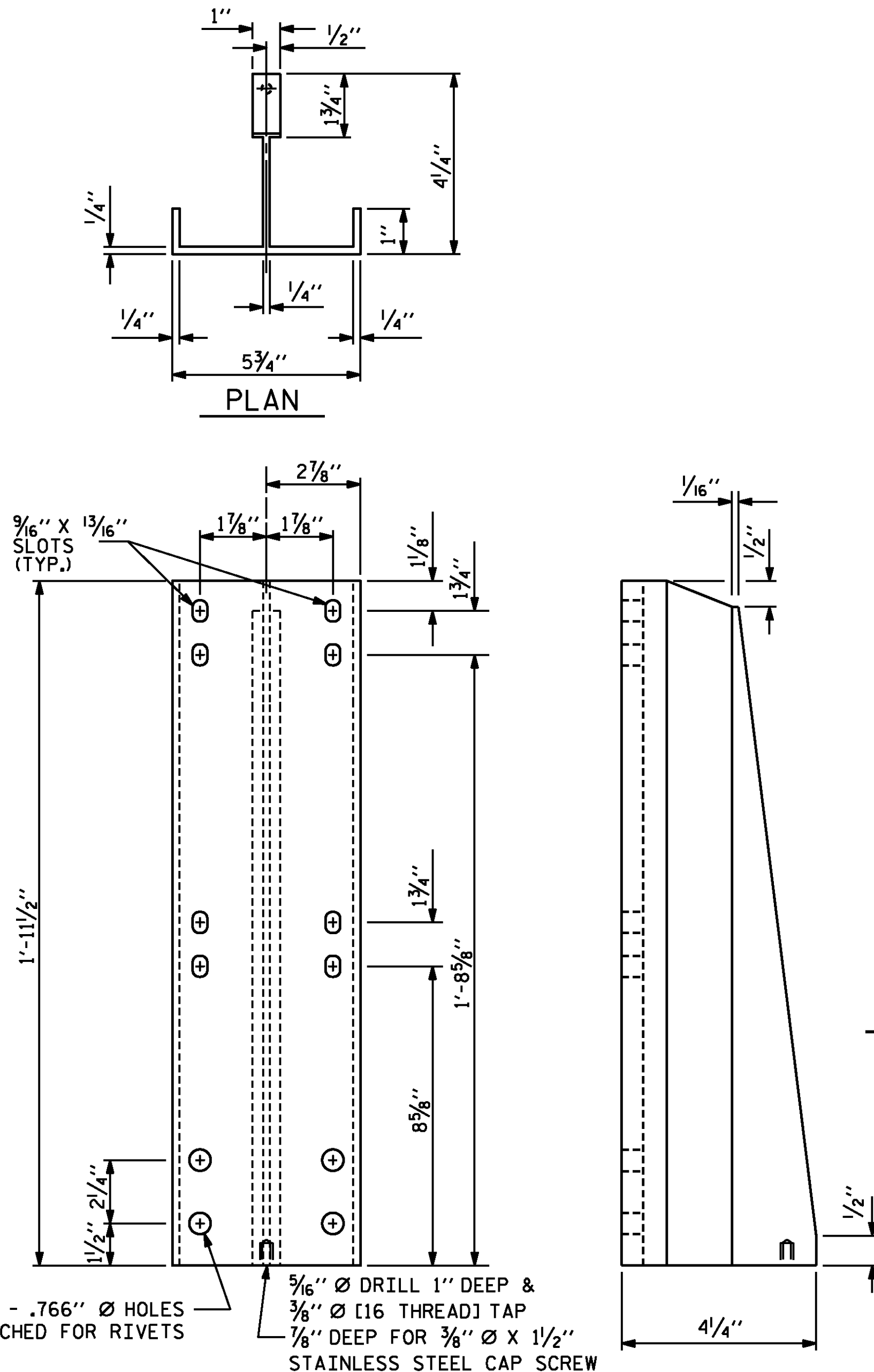
SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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 AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

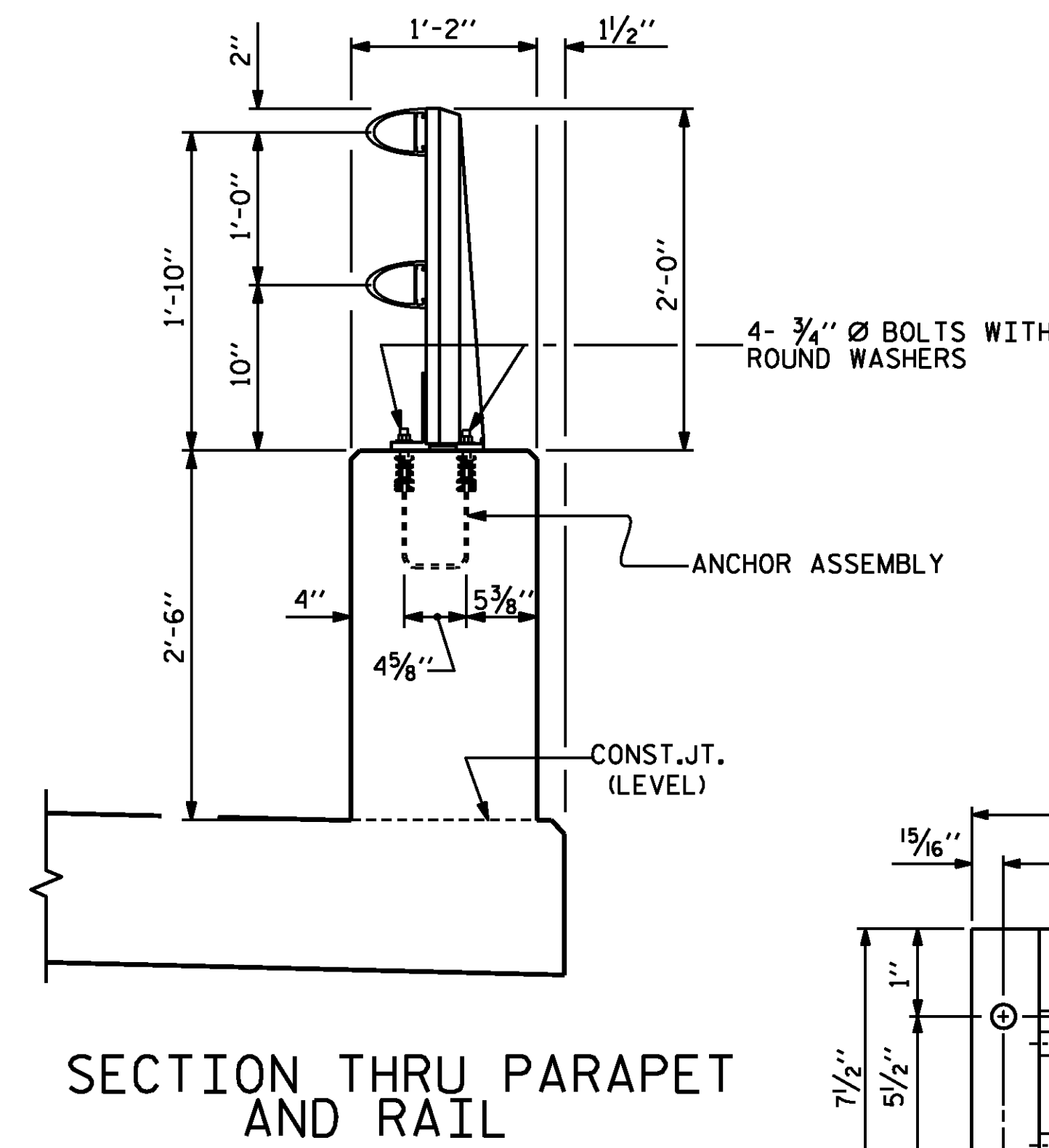
PAY LENGTH = 470.86 LIN. FT.



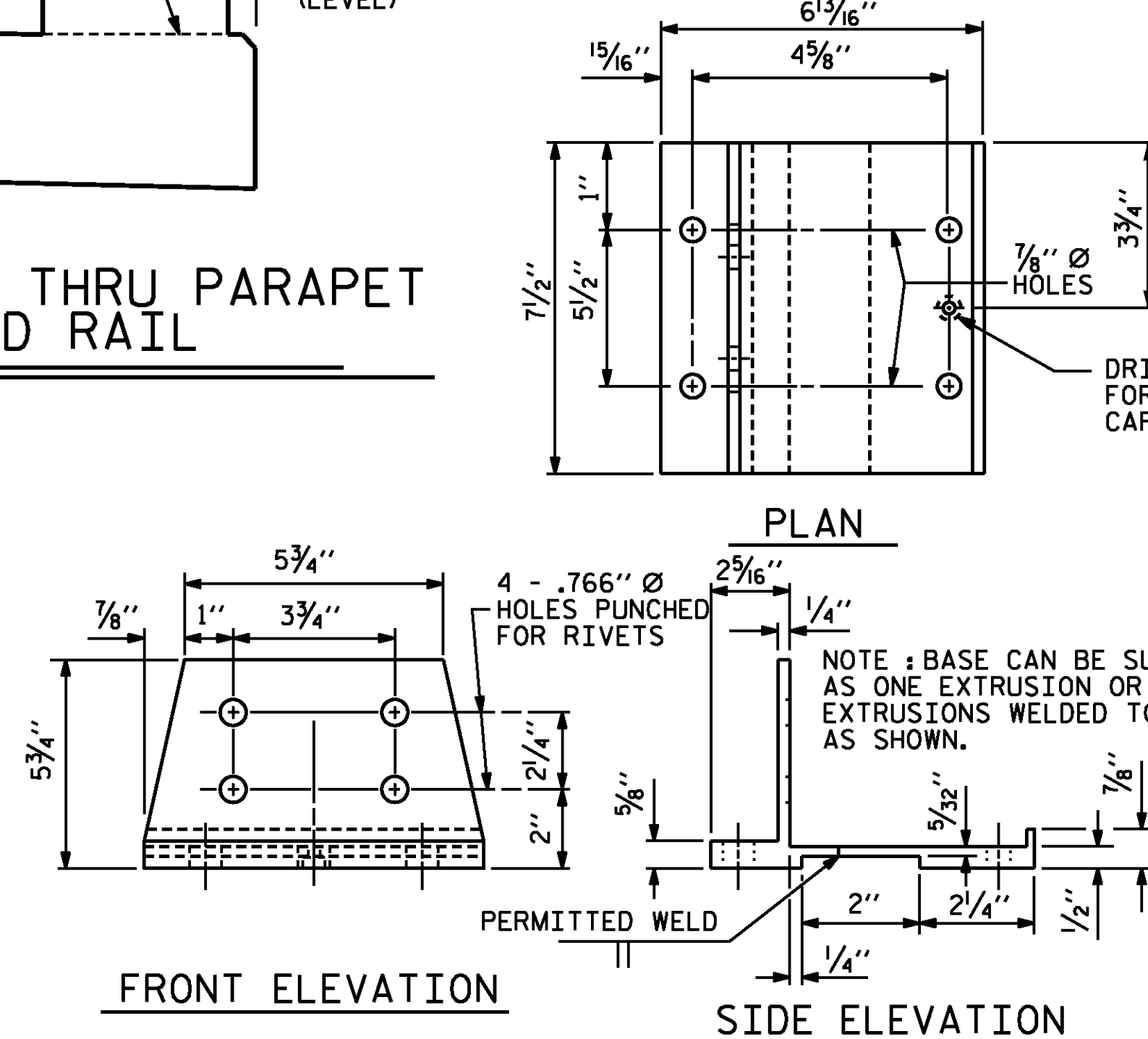
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



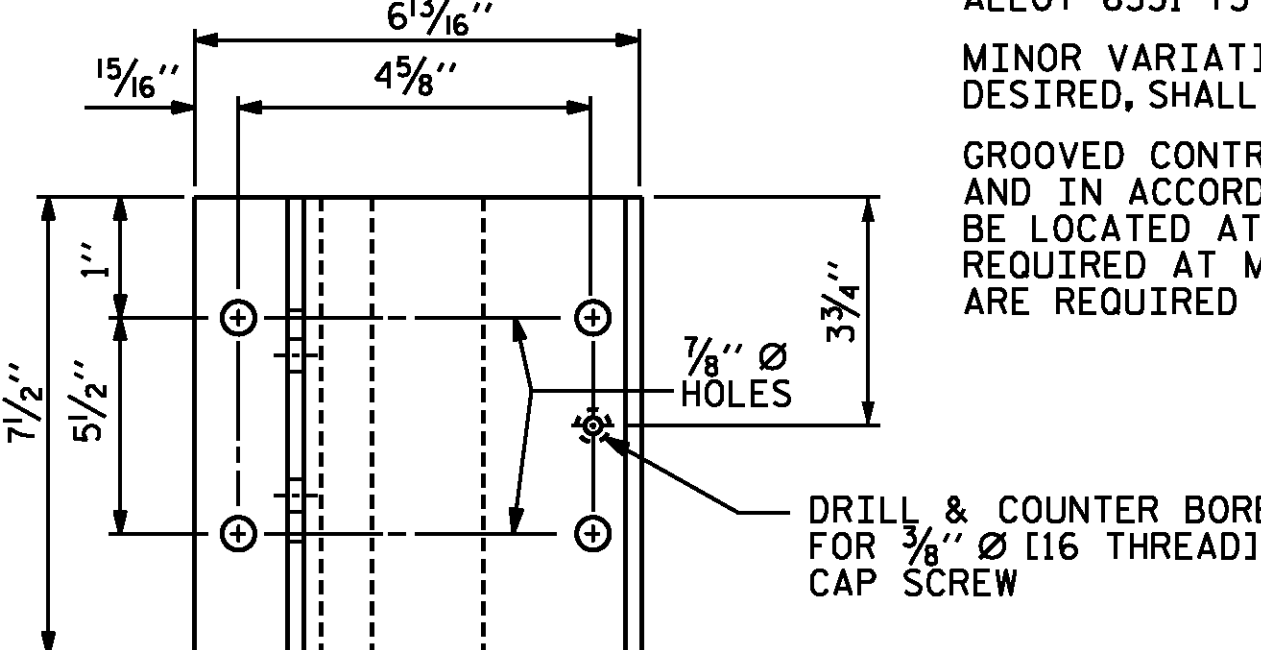
SECTION THRU PARAPET AND RAIL



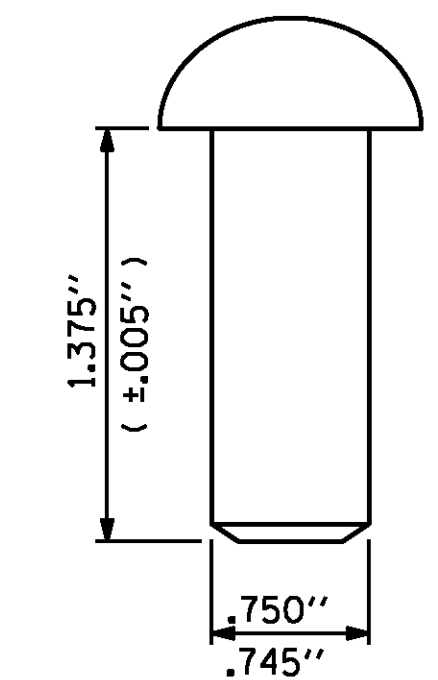
FRONT ELEVATION

SIDE ELEVATION

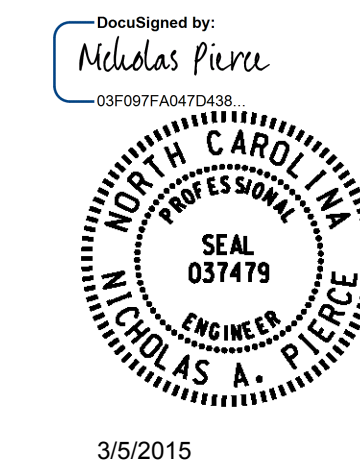
POST BASE DETAILS



PLAN



RIVET DETAIL



3/5/2015

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0881

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

2 BAR METAL RAIL

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

STD. NO. BMR3

NOTES

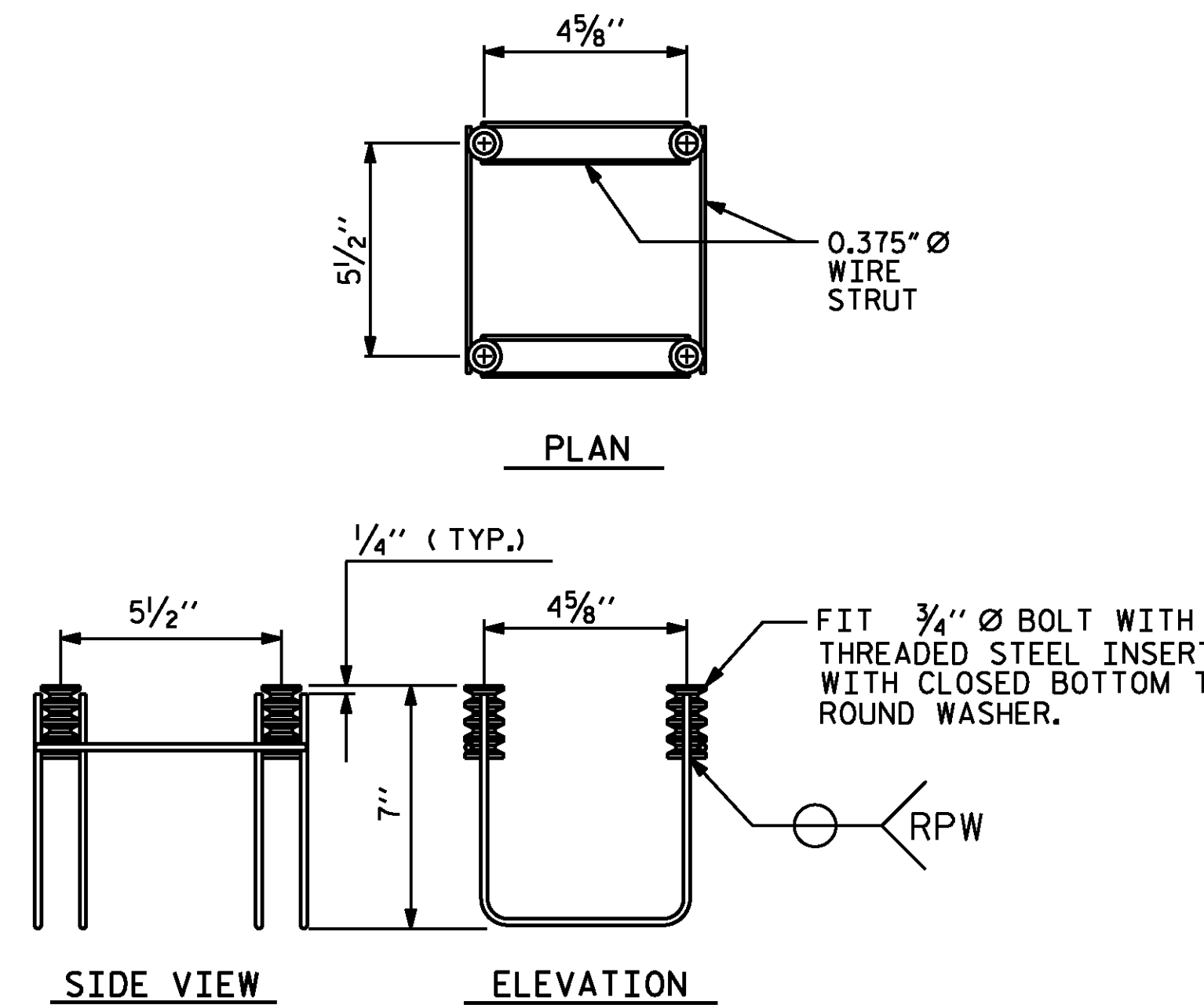
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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.

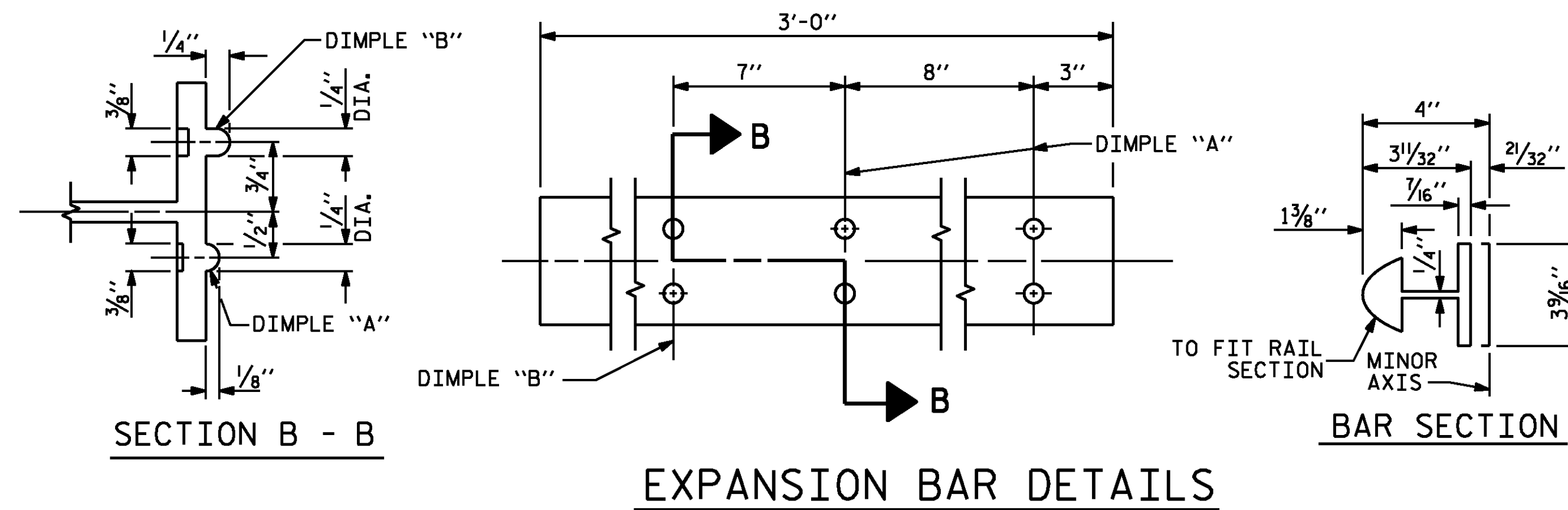
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

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.

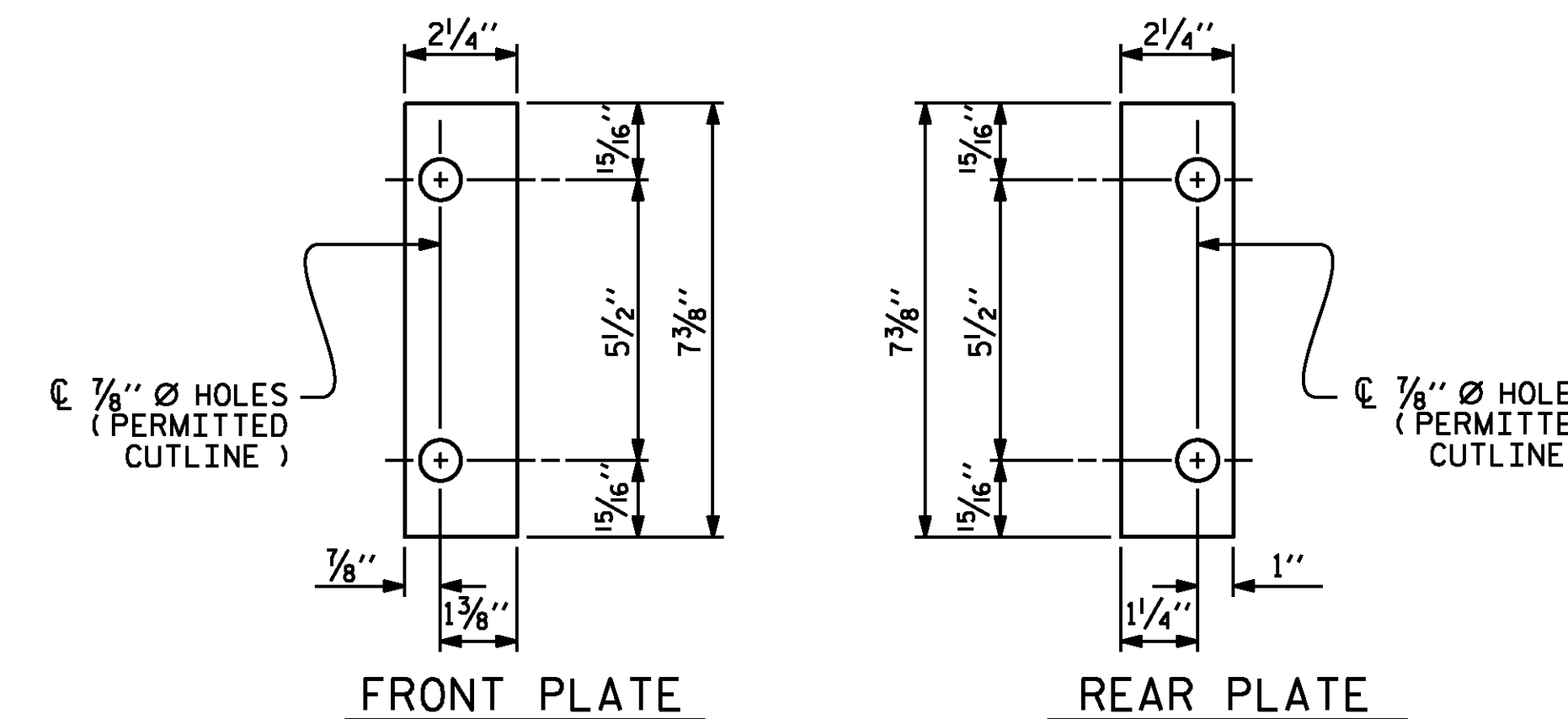


4-BOLT METAL RAIL ANCHOR ASSEMBLY

(78 ASSEMBLIES REQUIRED)

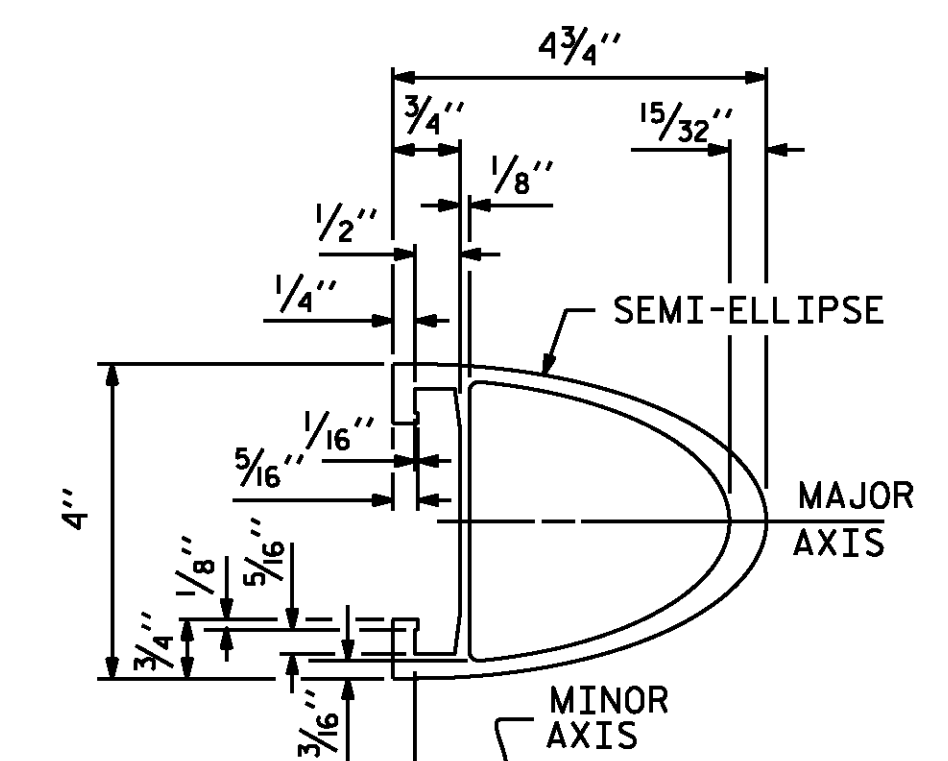


EXPANSION BAR DETAILS

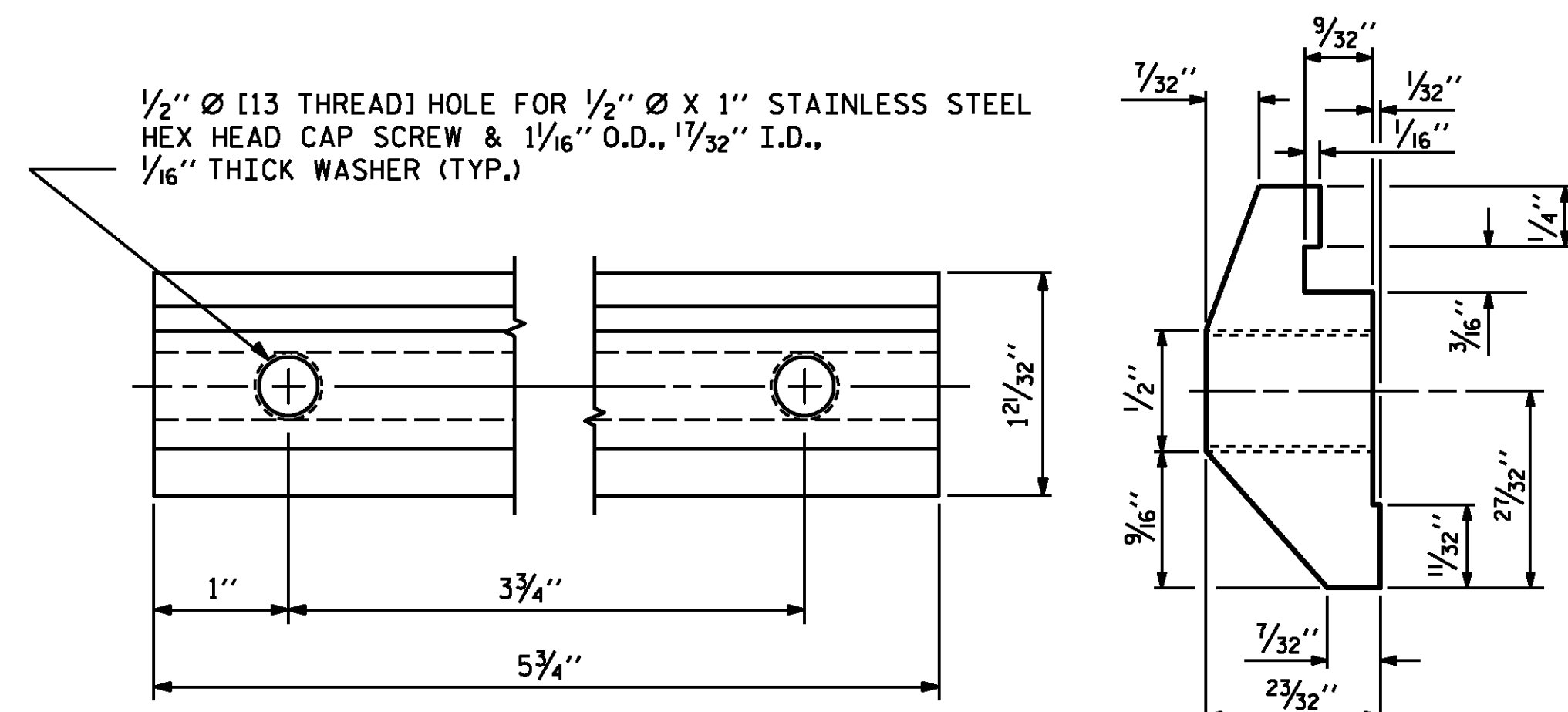


SHIM DETAILS

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

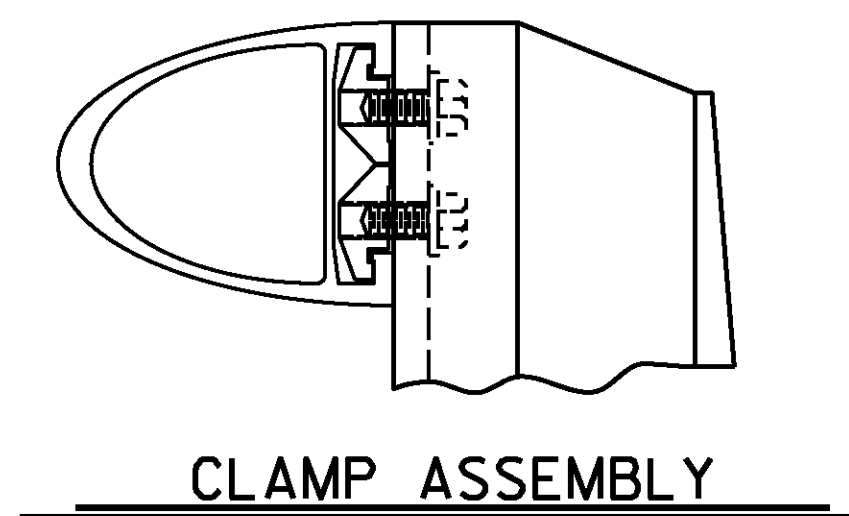


RAIL SECTION

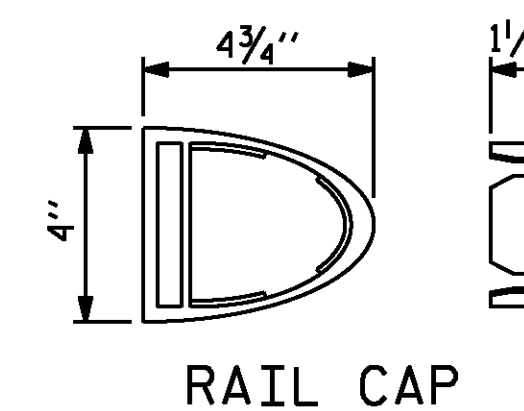


CLAMP BAR DETAIL

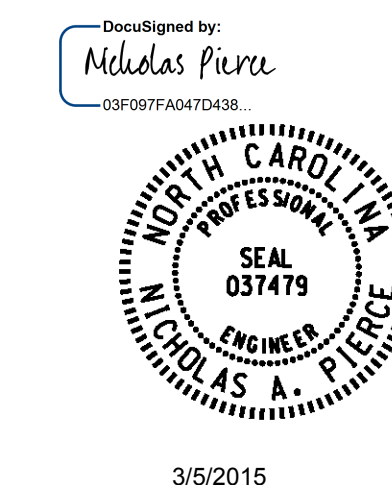
(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP



PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 2 BAR METAL RAIL

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 10/2014
ASSEMBLED BY : M.J. OSTRISHKO CHECKED BY : N.A. PIERCE	DATE : 06/2014 DATE : 10/2014
DRAWN BY : EEM 6/94 CHECKED BY : RCW 6/94	REV. 8/16/99 MAB/LES REV. 5/1/06R KMM/GM REV. 10/1/11 MAA/GM

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0881

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

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 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

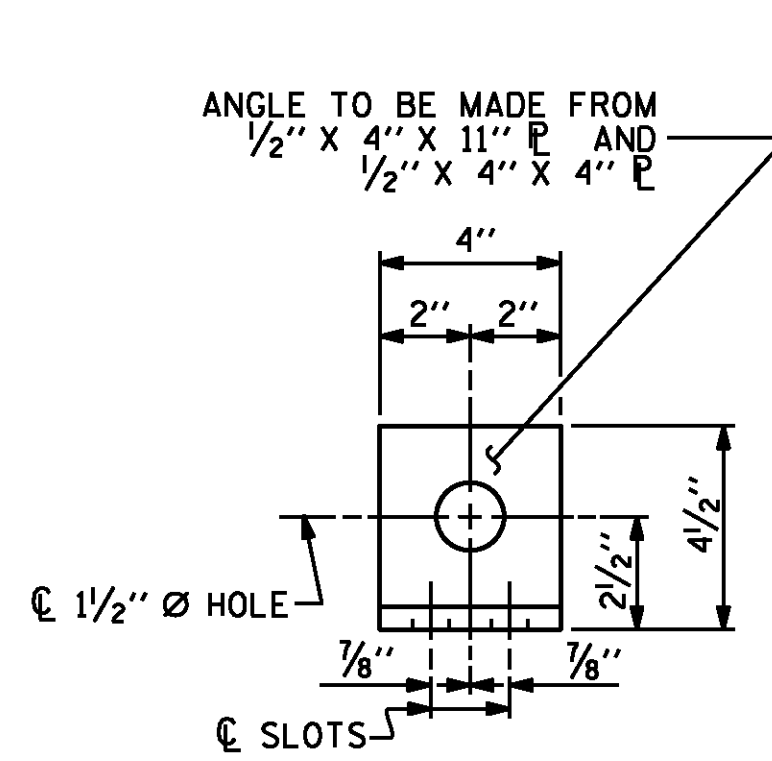
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 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°F.
 - 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 1 OR 2 BAR METAL RAILS.

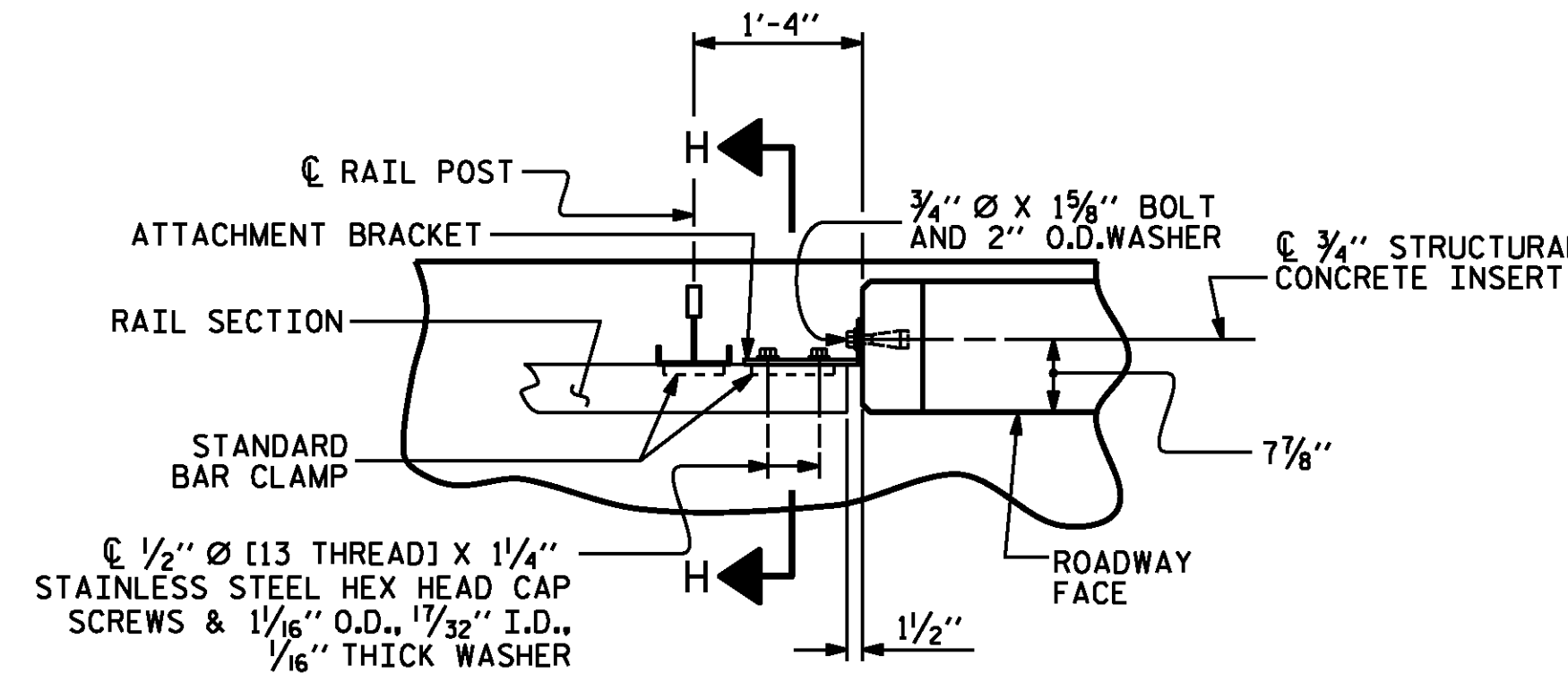
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

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.

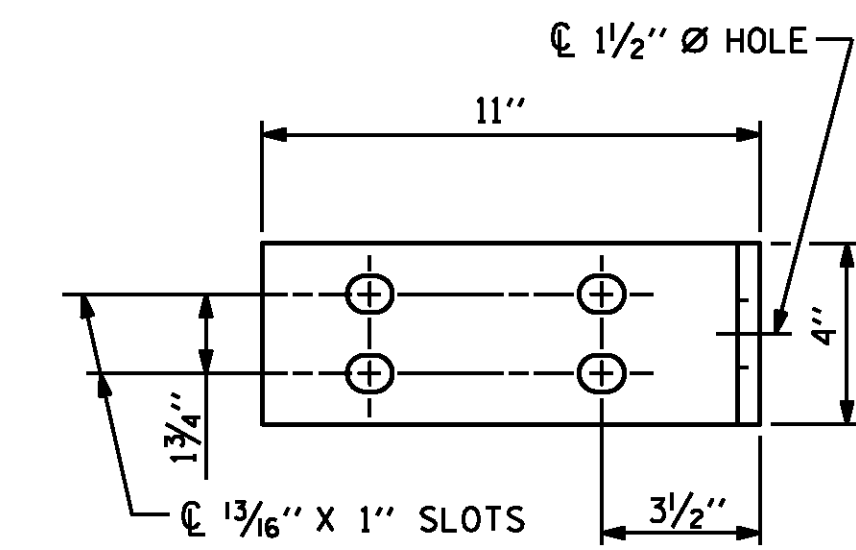
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT 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.



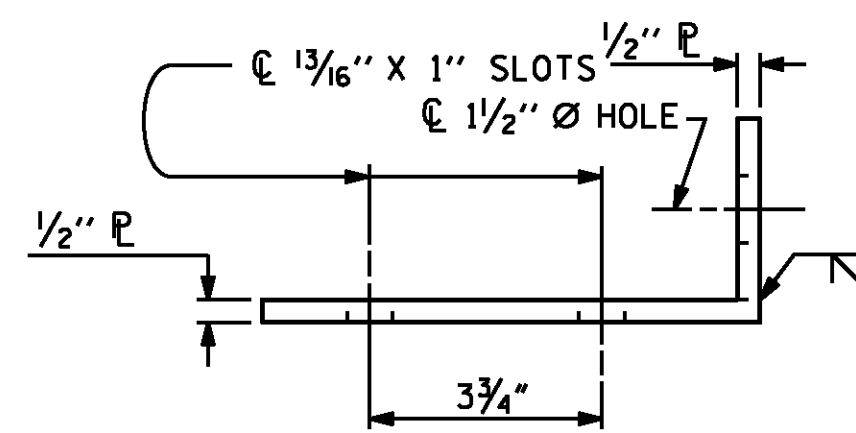
END VIEW (FIX AND EXP.)



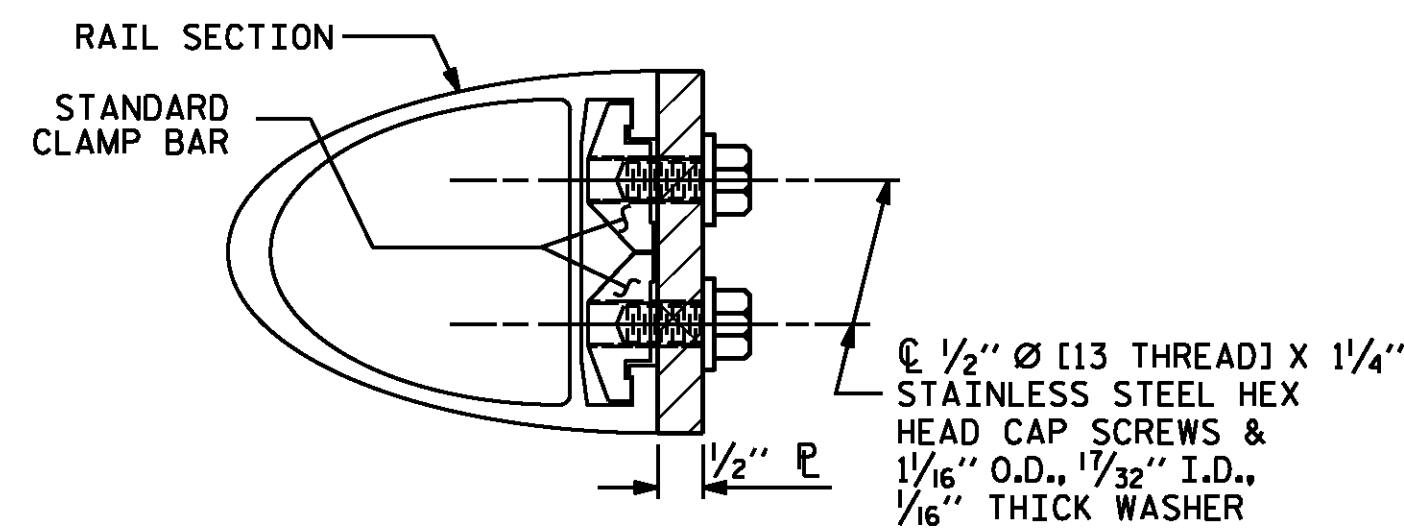
PLAN - RAIL AND END POST



ELEVATION

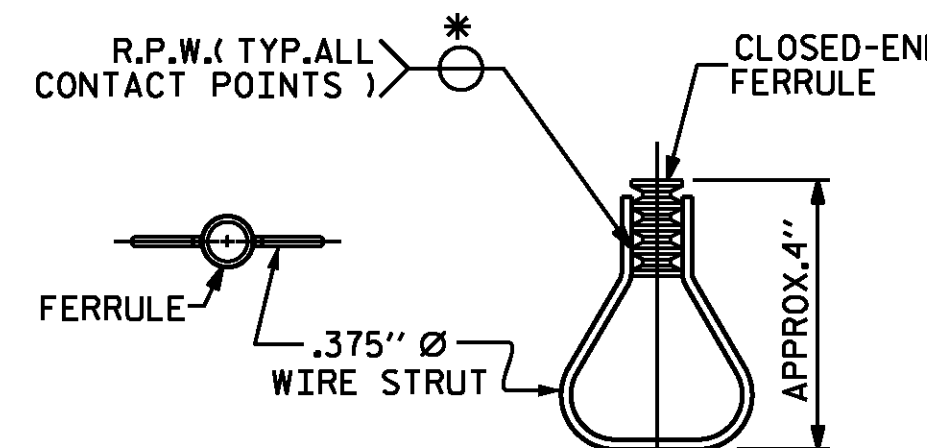


TOP VIEW



SECTION H-H (FIX)

FIXED



STRUCTURAL CONCRETE INSERT

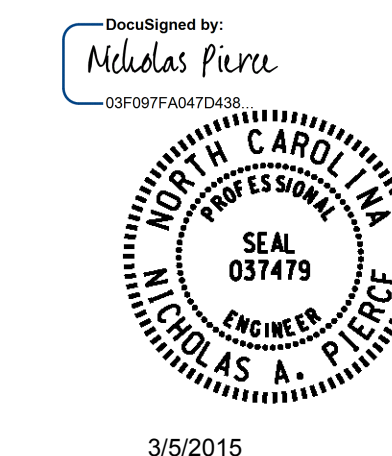
* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

DETAILS FOR ATTACHING METAL RAIL TO END POST

FOR PLAN OF RAIL POST SPACINGS, SEE SHEETS S-22 AND S-23

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

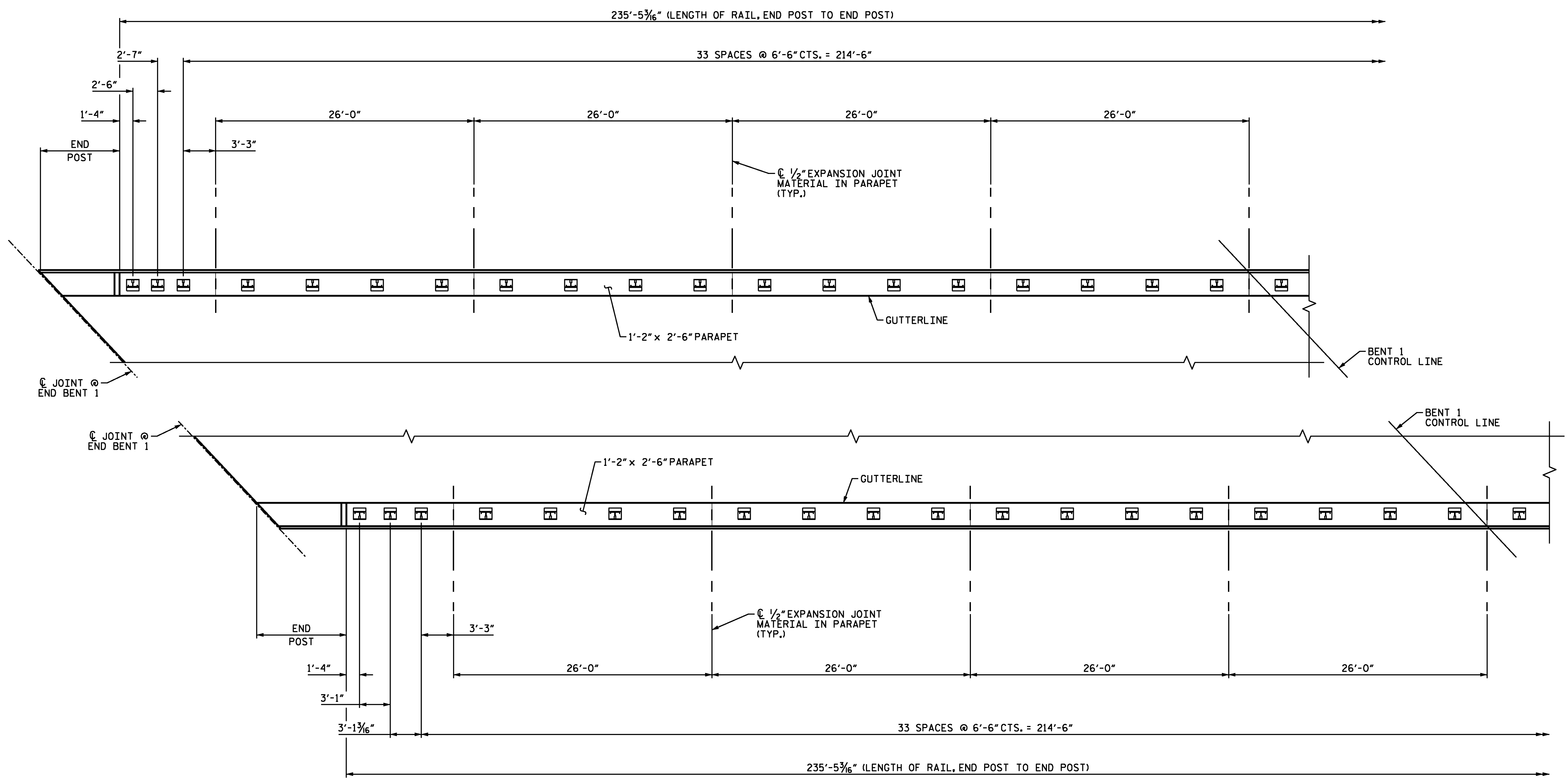
SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S01-21
1			3			TOTAL SHEETS
2			4			36

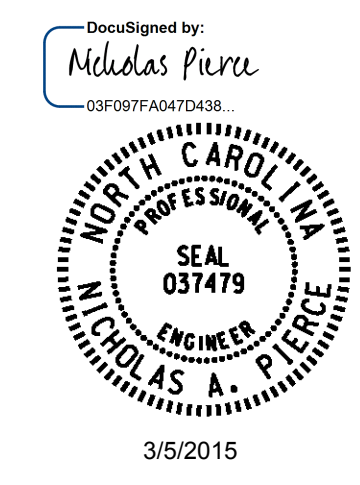
DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 10/2014
ASSEMBLED BY : M.J. OSTRISHKO CHECKED BY : N.A. PIERCE	DATE : 06/2014 DATE : 10/2014
DRAWN BY : FCJ 1/88 CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE REV. 5/1/06 TLA/GM REV. 10/1/11 MAA/GM



PLAN OF SPAN A - 1'-2" X 2'-6" PARAPET

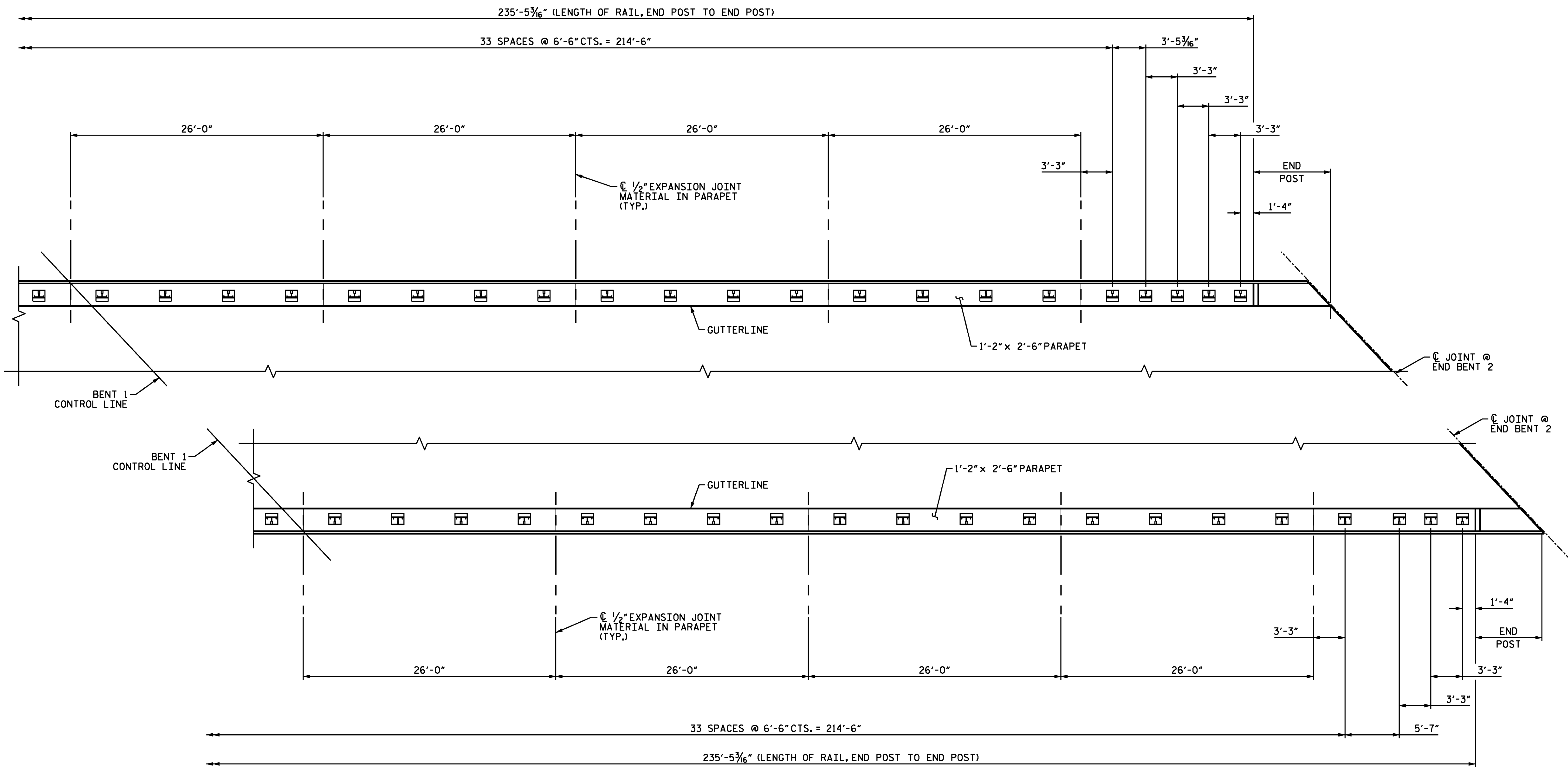
PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS



DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 01/2015
DRAWN BY : M.J. OSTRISHKO	DATE : 01/2015
CHECKED BY : N.A. PIERCE	DATE : 01/2015

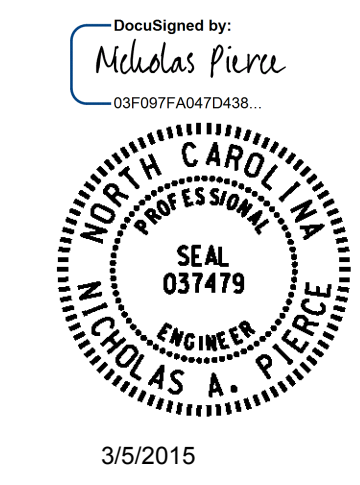
REVISIONS						SHEET NO. S01-22
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			



PLAN OF SPAN B - 1'-2" X 2'-6" PARAPET

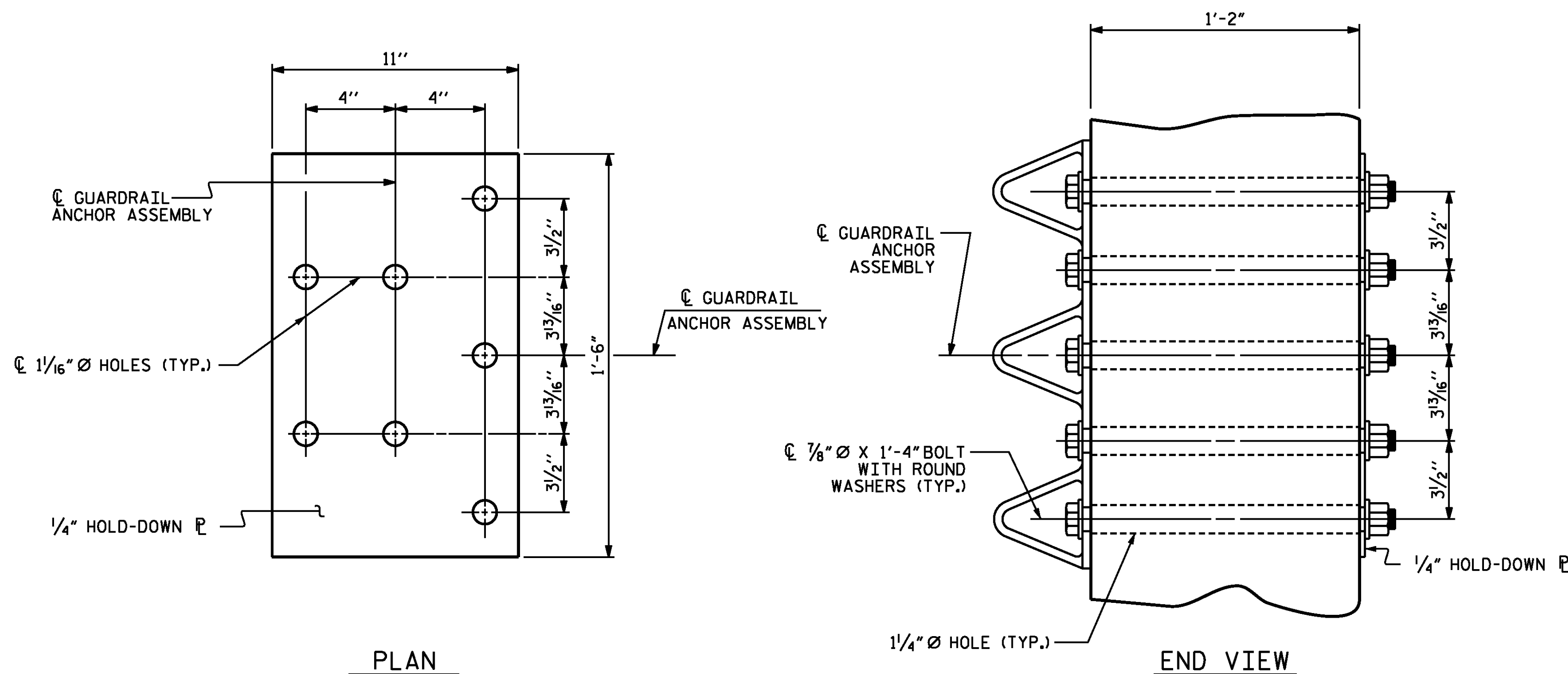
PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS**
 FOR ONE OR TWO BAR METAL RAILS



DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 01/2015
DRAWN BY : M.J. OSTRISHKO	DATE : 01/2015
CHECKED BY : N.A. PIERCE	DATE : 01/2015

REVISIONS						SHEET NO. S01-23
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			



GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 3/8" Ø BOLTS WITH NUTS AND WASHERS.

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

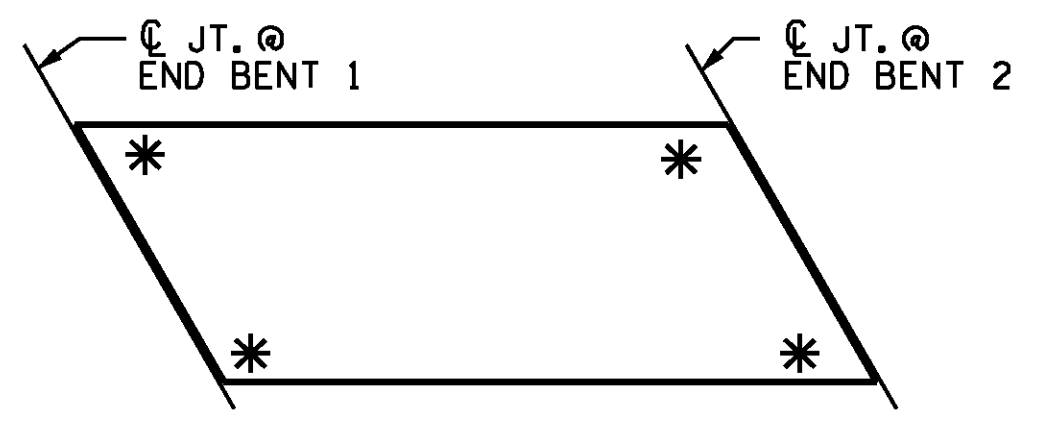
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

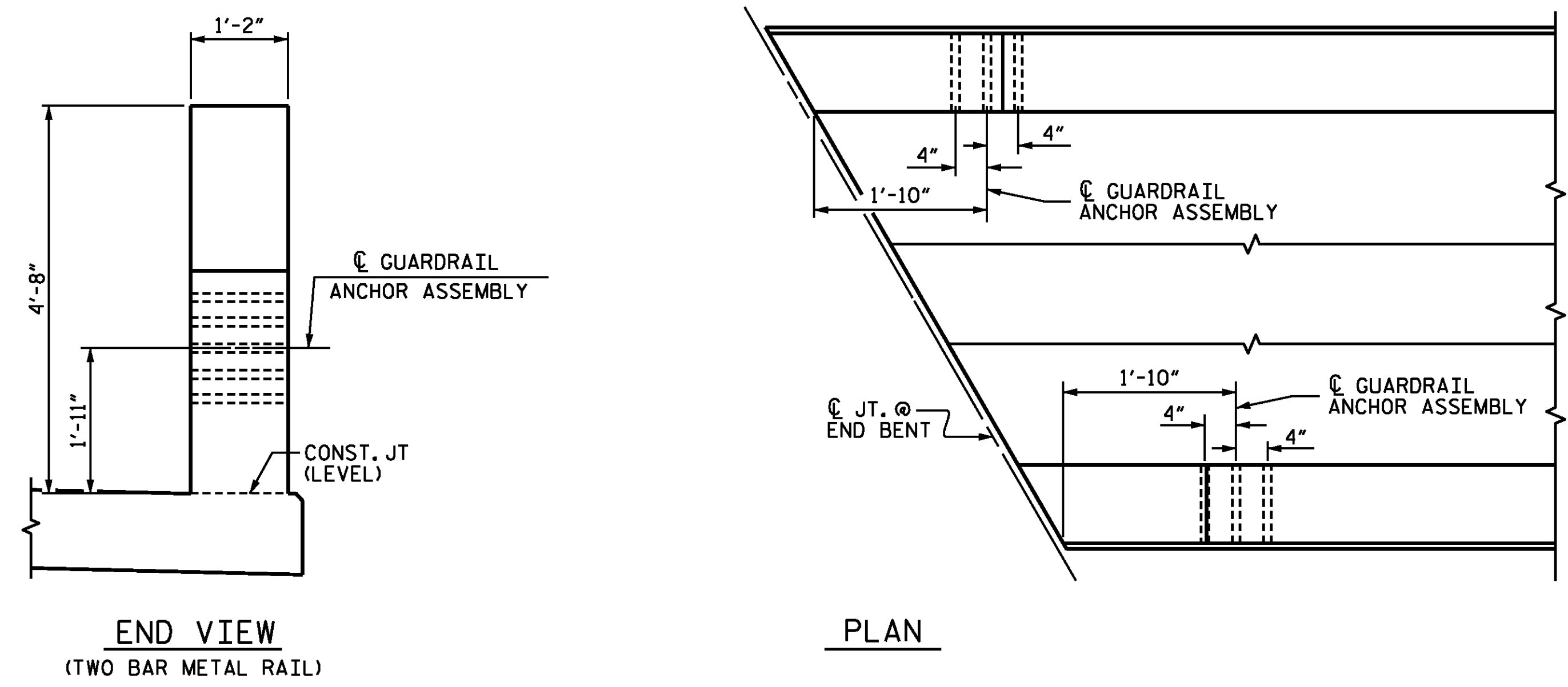
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1/16" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

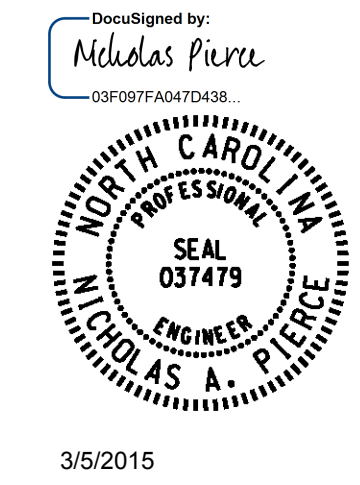


SKETCH SHOWING POINTS OF ATTACHMENT
* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

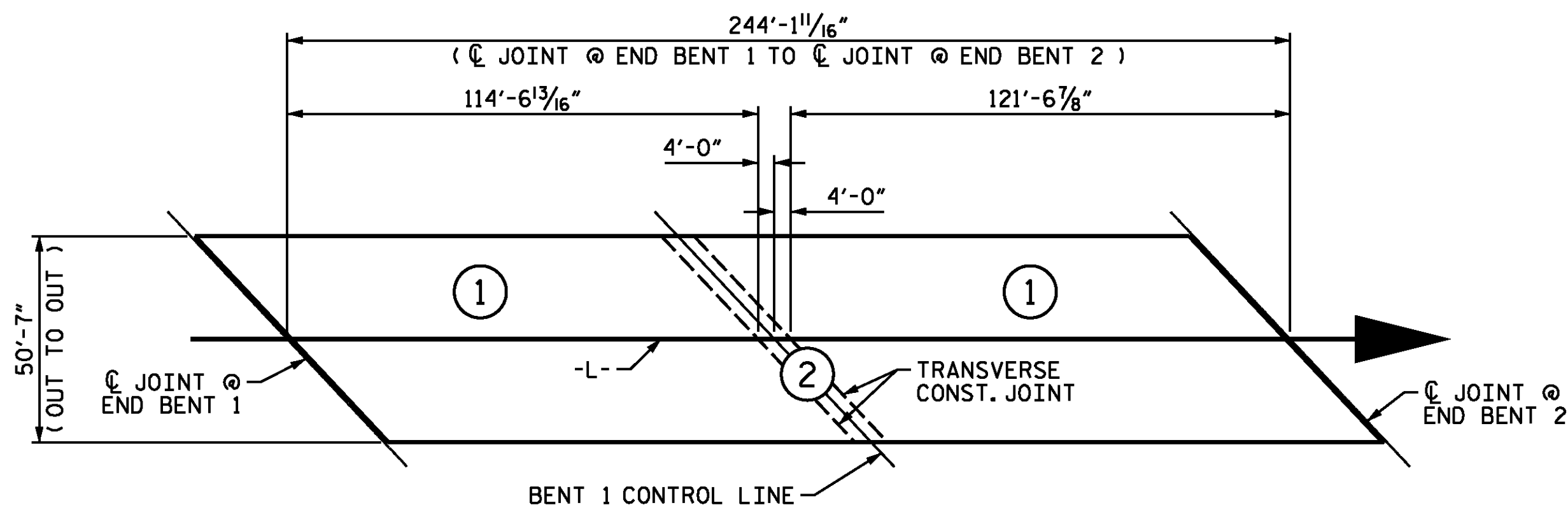


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS**

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
ASSEMBLED BY : M.J. OSTRISHKO	DATE : 06/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014
DRAWN BY : MAA 5/10	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/10	REV. 12/5/11 MAA/GM
	REV. 6/13 MAA/GM

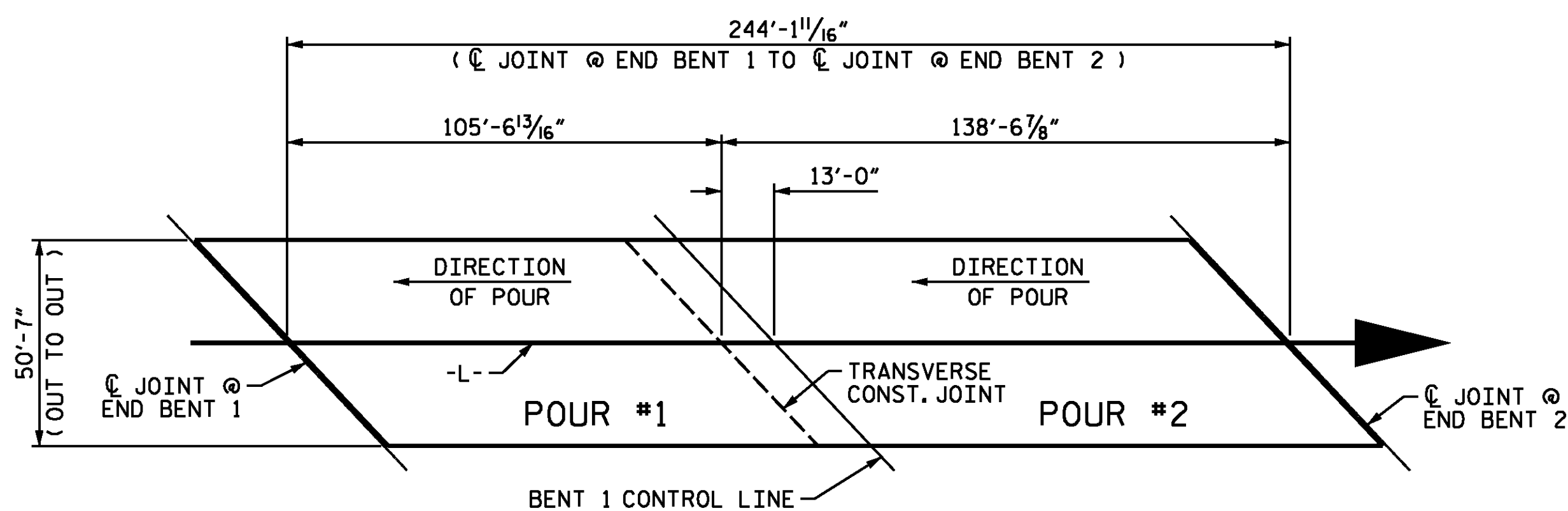
WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0881

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

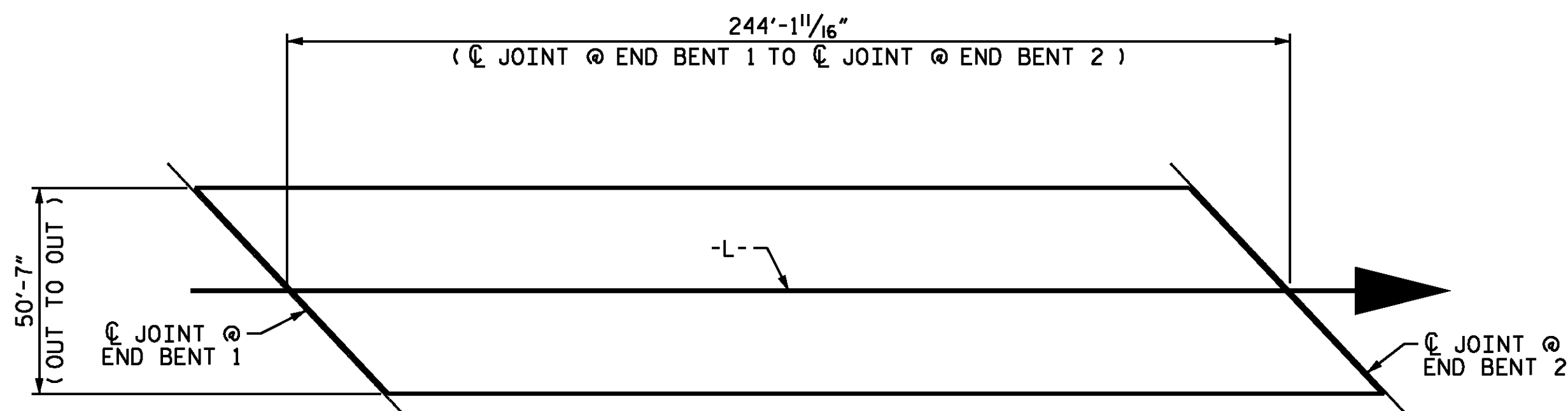


OPTIONAL POURING SEQUENCE

POUR ② CANNOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.



POURING SEQUENCE



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 12,350)

GROOVING BRIDGE FLOORS

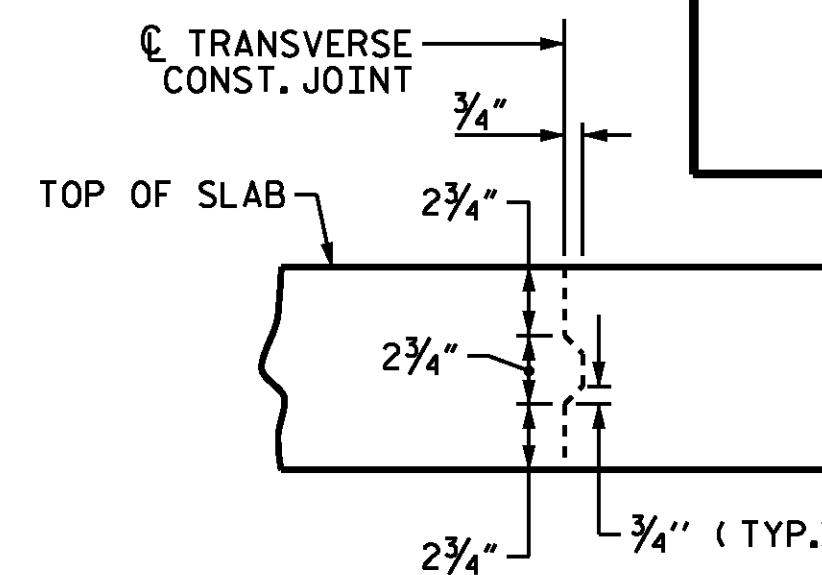
APPROACH SLABS	2,927	SQ.FT.
BRIDGE DECK	10,964	SQ.FT.
TOTAL	13,831	SQ.FT.

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
ASSEMBLED BY : M.J. OSTRISHKO	DATE : 07/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014
DRAWN BY : JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

BILL OF MATERIAL

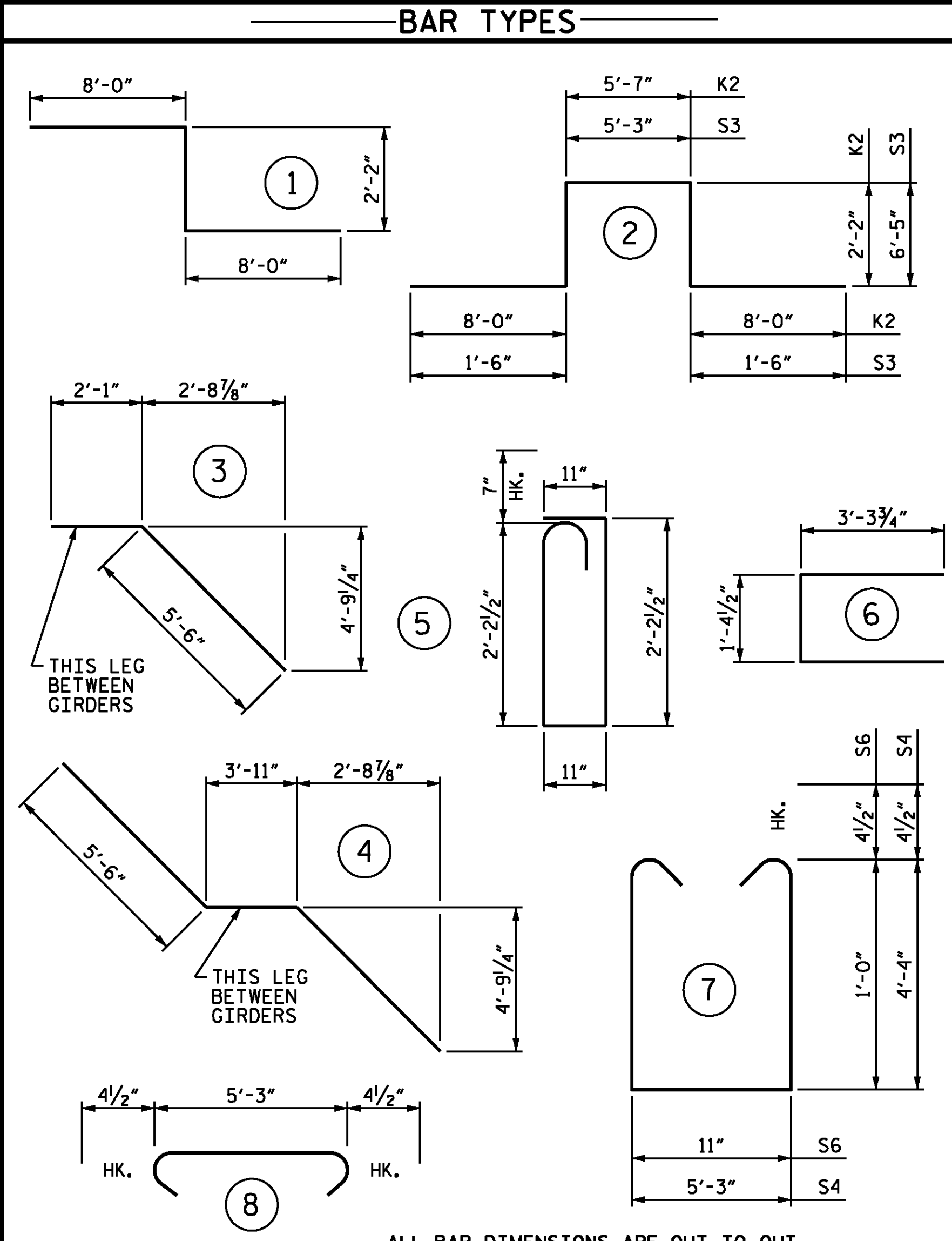
SPANS A & B

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	337	#5	STR	50'-3"	17,662	*B1	37	#6	STR	52'-4"	2,908
A2	337	#5	STR	50'-3"	17,662	*B2	37	#6	STR	35'-0"	1,945
*A3	6	#6	STR	23'-0"	207	*B3	36	#6	STR	37'-1"	2,005
*A101	6	#5	STR	48'-7"	304	*B4	40	#4	STR	26'-2"	699
*A102	6	#5	STR	46'-9"	293	*B5	111	#4	STR	28'-5"	2,107
*A103	6	#5	STR	44'-10"	281	*B6	148	#4	STR	23'-1"	2,282
*A104	6	#5	STR	43'-0"	269	B7	190	#5	STR	50'-10"	10,074
*A105	6	#5	STR	41'-1"	257	*G1	4	#6	STR	36'-3"	218
*A106	6	#5	STR	39'-3"	246						
*A107	6	#5	STR	37'-5"	234	*K1	8	#8	1	18'-2"	388
*A108	6	#5	STR	35'-6"	222	*K2	16	#8	2	25'-11"	1,107
*A109	6	#5	STR	33'-8"	211	K3	30	#6	STR	10'-2"	458
*A110	6	#5	STR	31'-10"	199	K4	10	#4	STR	6'-11"	46
*A111	6	#5	STR	29'-11"	187	K5	50	#4	STR	10'-4"	345
*A112	6	#5	STR	28'-1"	176	K6	10	#4	STR	6'-3"	42
*A113	6	#5	STR	26'-2"	164	K7	14	#4	3	7'-7"	71
*A114	6	#5	STR	24'-4"	152	K8	28	#4	4	14'-11"	279
*A115	6	#5	STR	22'-6"	141	K9	20	#4	STR	10'-2"	136
*A116	6	#5	STR	20'-7"	129						
*A117	6	#5	STR	18'-9"	117	*S1	60	#5	5	6'-10"	428
*A118	6	#5	STR	16'-11"	106	*S2	60	#5	6	8'-0"	501
*A119	6	#5	STR	15'-0"	94	S3	30	#4	2	21'-1"	423
*A120	6	#5	STR	13'-2"	82	S4	10	#4	7	14'-8"	98
*A121	6	#5	STR	11'-4"	71	S5	210	#4	8	6'-0"	842
*A122	6	#5	STR	9'-5"	59	S6	40	#4	8	3'-8"	34,688
*A123	6	#5	STR	7'-7"	47						
*A124	6	#5	STR	5'-9"	36						
*A125	6	#5	STR	3'-10"	24	REINFORCING STEEL			LBS.	34,688	
*A126	6	#5	STR	2'-0"	13	* EPOXY COATED					
						REINFORCING STEEL			LBS.	36,571	
A201	6	#5	STR	48'-7"	304						
A202	6	#5	STR	46'-9"	293						
A203	6	#5	STR	44'-10"	281						
A204	6	#5	STR	43'-0"	269						
A205	6	#5	STR	41'-1"	257						
A206	6	#5	STR	39'-3"	246						
A207	6	#5	STR	37'-5"	234						
A208	6	#5	STR	35'-6"	222						
A209	6	#5	STR	33'-8"	211						
A210	6	#5	STR	31'-10"	199						
A211	6	#5	STR	29'-11"	187						
A212	6	#5	STR	28'-1"	176						
A213	6	#5	STR	26'-2"	164						
A214	6	#5	STR	24'-4"	152						
A215	6	#5	STR	22'-6"	141						
A216	6	#5	STR	20'-7"	129						
A217	6	#5	STR	18'-9"	117						
A218	6	#5	STR	16'-11"	106						
A219	6	#5	STR	15'-0"	94						
A220	6	#5	STR	13'-2"	82						
A221	6	#5	STR	11'-4"	71						
A222	6	#5	STR	9'-5"	59						
A223	6	#5	STR	7'-7"	47						
A224	6	#5	STR	5'-9"	36						
A225	6	#5	STR	3'-10"	24						
A226	6	#5	STR	2'-0"	13						



TRANSVERSE CONSTRUCTION JOINT DETAIL

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



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

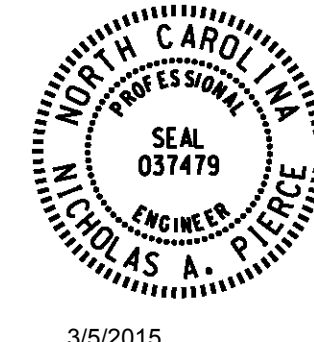
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	180.0	34,688	36,571
POUR #2	284.0		
TOTALS**	464.0	34,688	36,571

** QUANTITIES FOR CONCRETE PARAPET AND END RAILS ARE NOT INCLUDED

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"			

Designed by Nicholas Pierce



WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61 -L-

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

REVISIONS						SHEET NO. S01-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

STD. NO. BOM2

NOTES

*FOR LOCATION OF ELEVATION BETWEEN BUILDUPS, SEE SECTION A-A, ON SHEET 3 OF 3.

Δ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

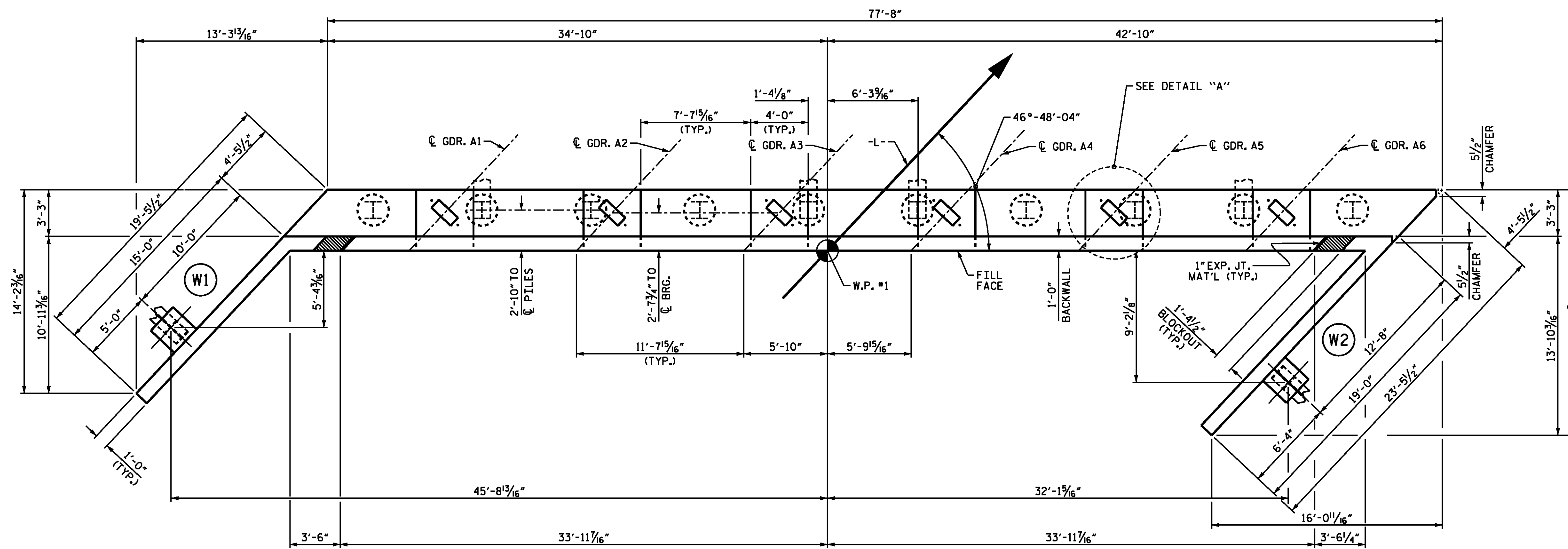
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

INSTALL THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL 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.

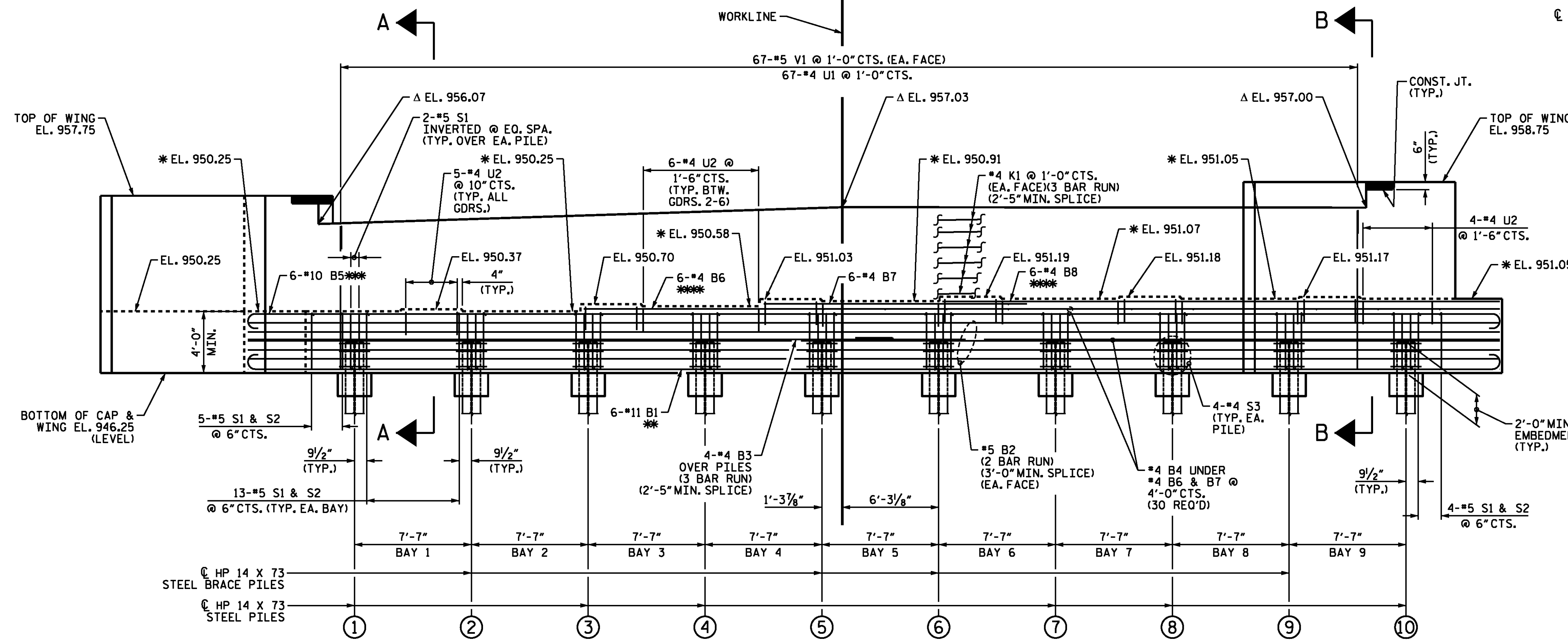
#5 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF BACKWALL.

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

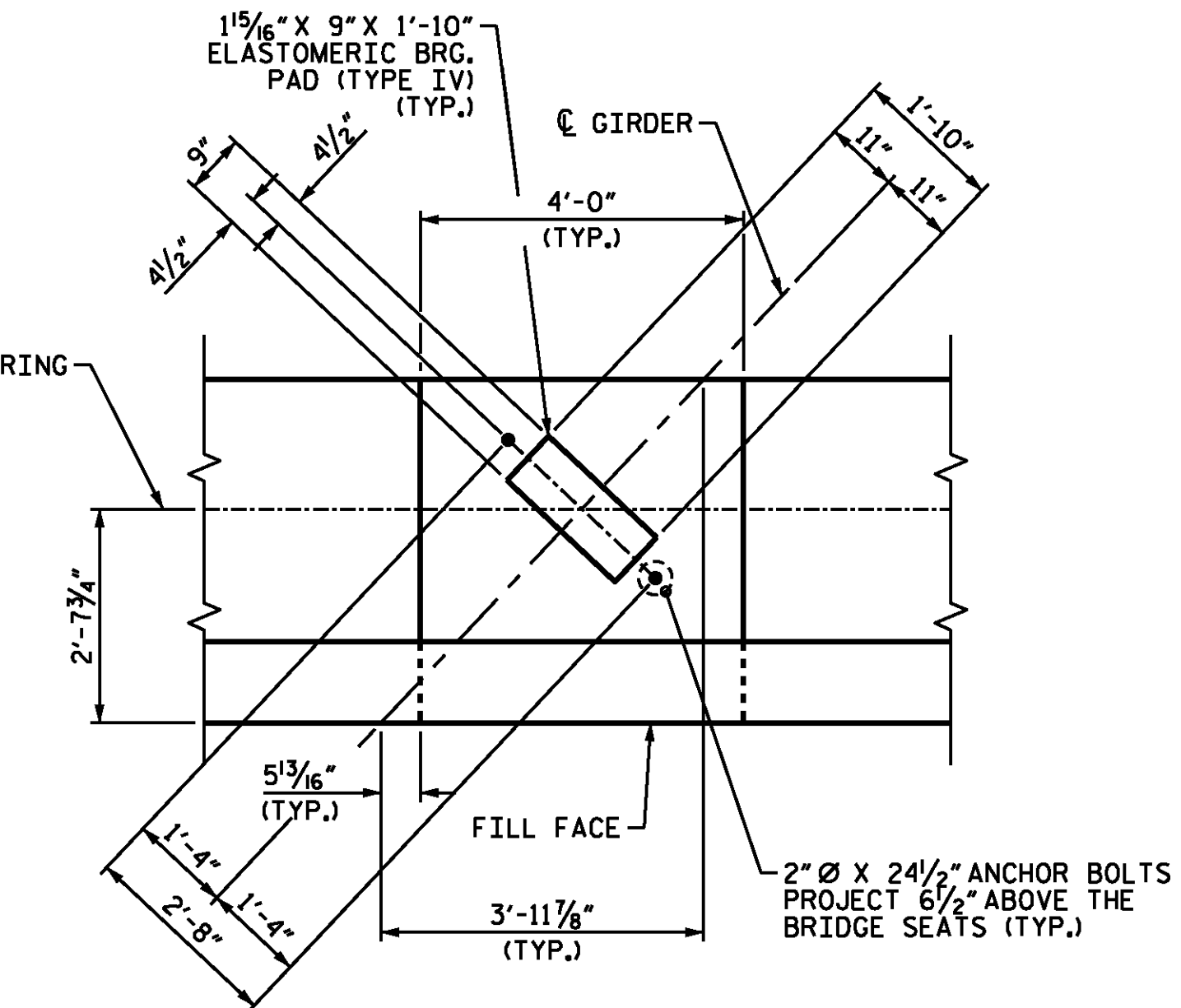
FOR CONCRETE COLLAR DETAILS, SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL" SHEET 3 OF 3.



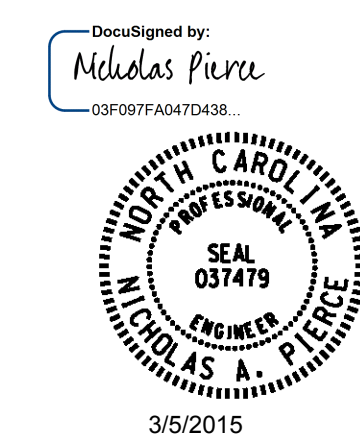
PLAN



ELEVATION



DETAIL "A"
(TYP. EA. GIRDER)



PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61-L-

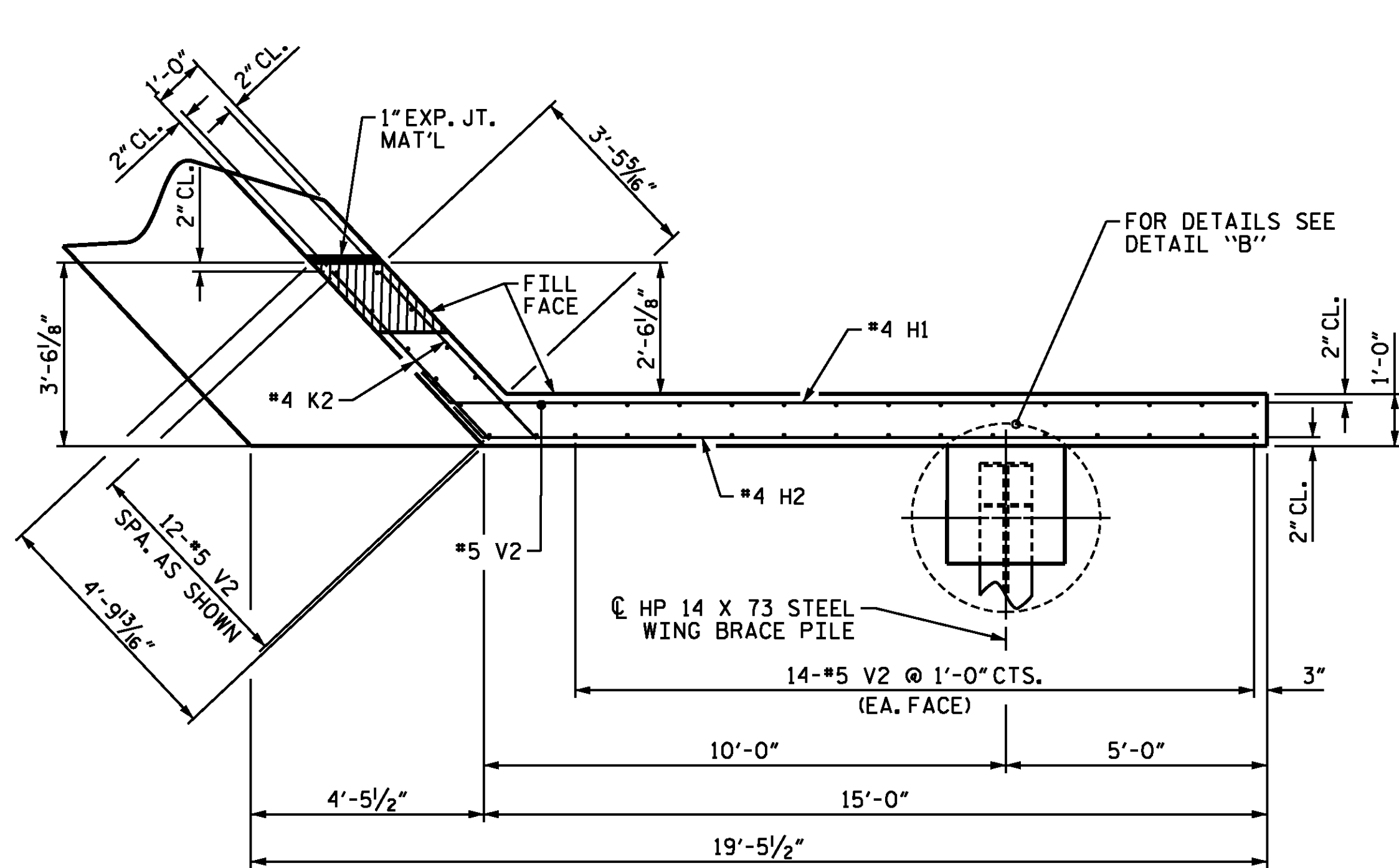
SHEET 1 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1

DESIGN ENGINEER OF RECORD DATE
N.A. PIERCE 11/14
DRAWN BY: N.A. PIERCE DATE: 11/14
CHECKED BY: M.J. OSTRISHKO DATE: 11/14

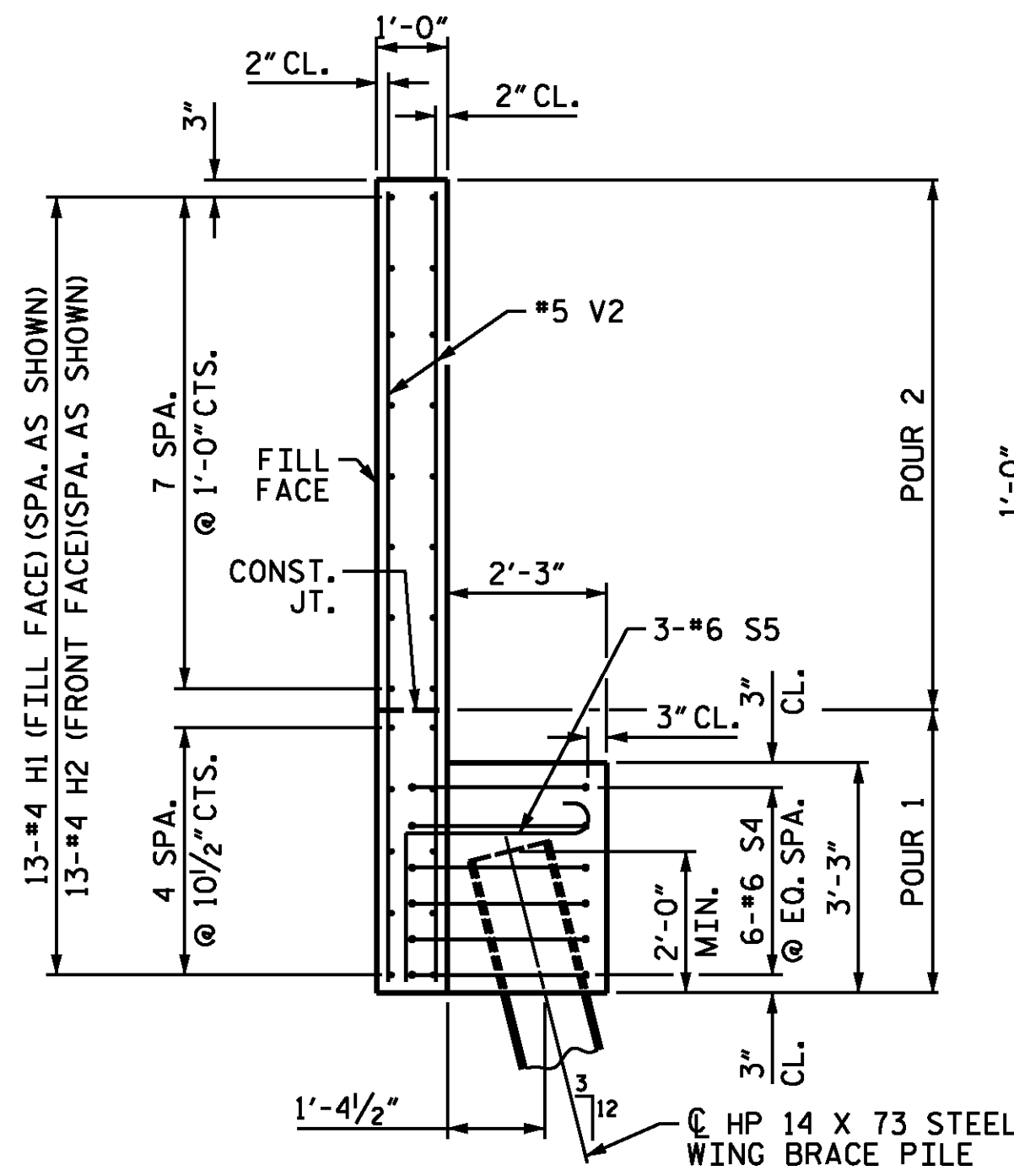
(WING BRACE PILES NOT SHOWN FOR CLARITY)
** (2 BAR RUN)(13'-7" MIN. SPLICE)
*** (2 BAR RUN)(11'-1" MIN. SPLICE)
**** (2 BAR RUN)(2'-5" MIN. SPLICE)

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-9891

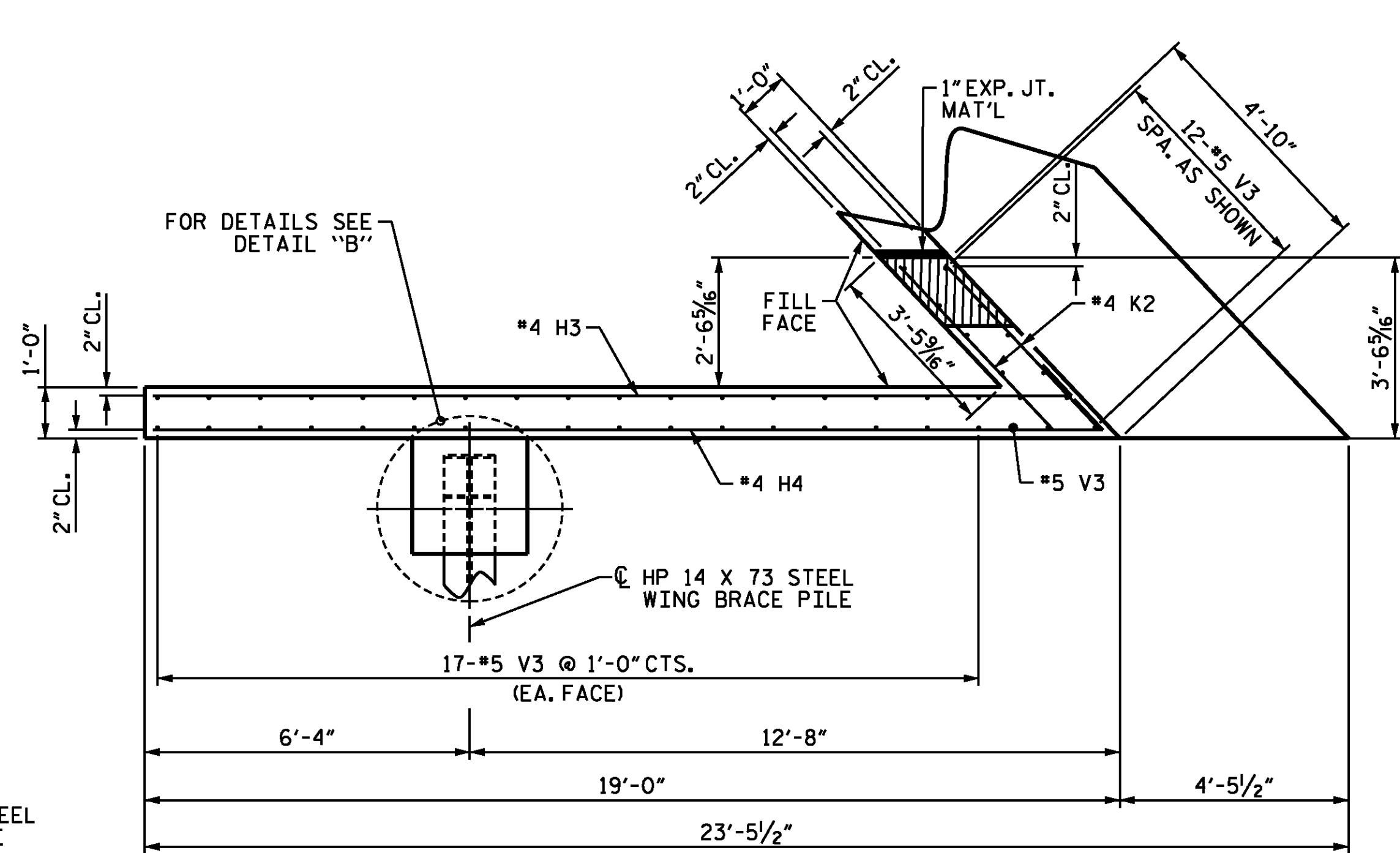
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S01-26
1			3			TOTAL SHEETS
2			4			36



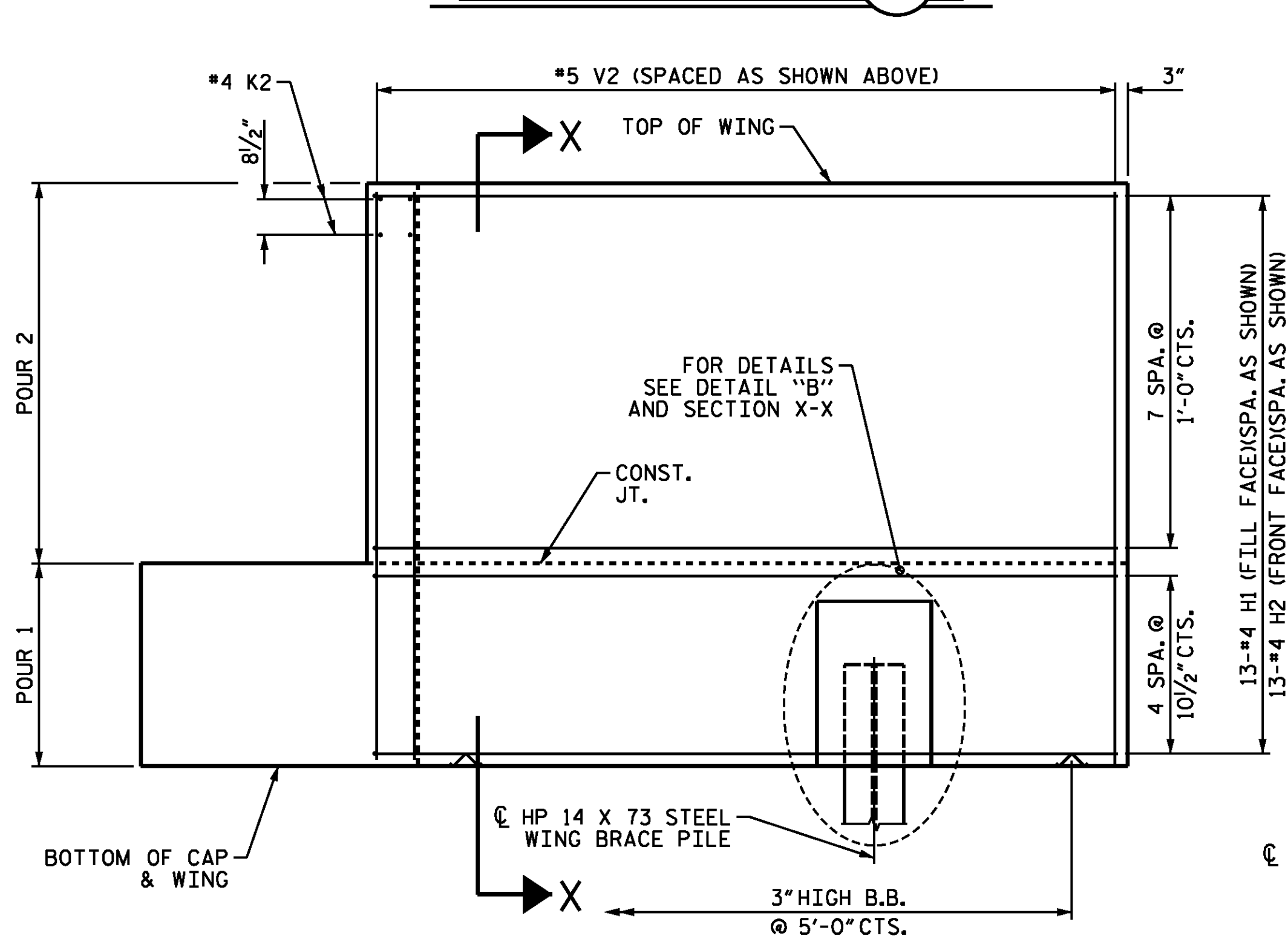
PLAN OF WING (W1)



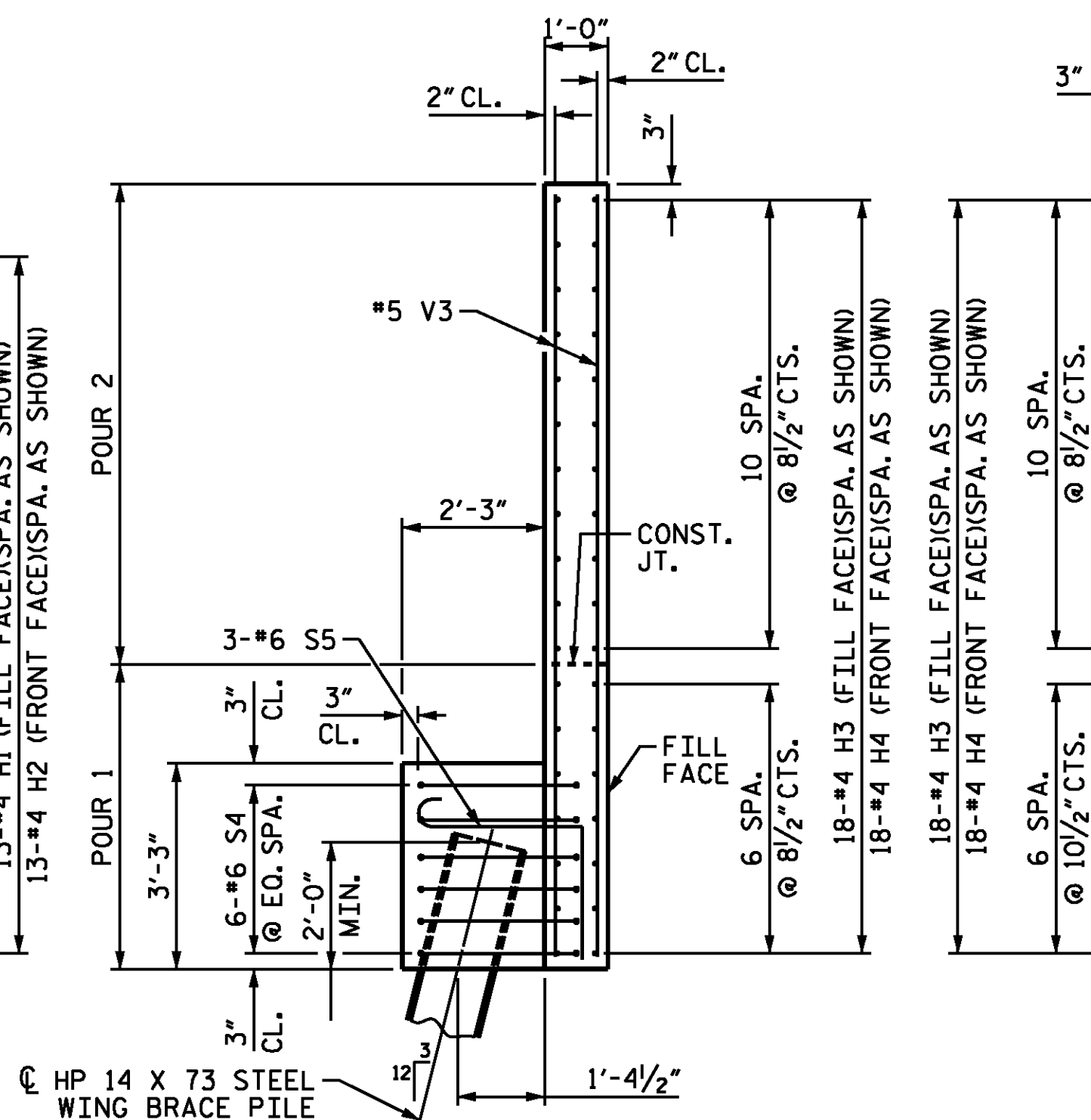
SECTION X-X



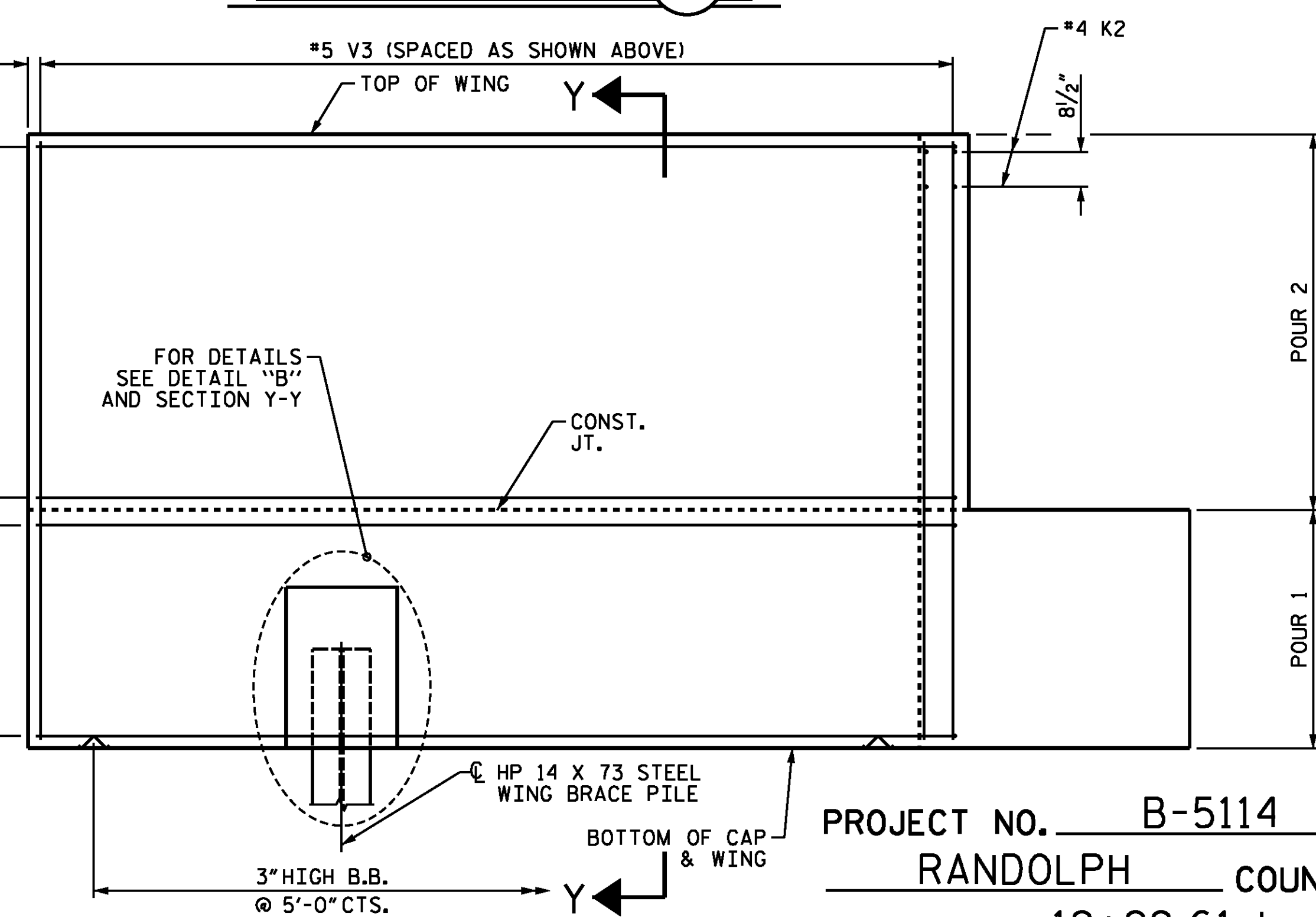
PLAN OF WING (W2)



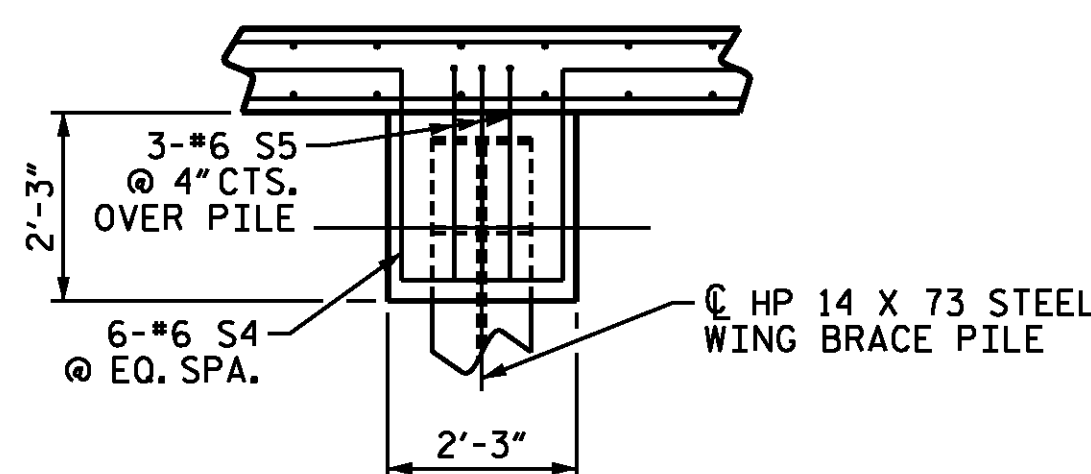
ELEVATION OF WING (W1)



SECTION Y-Y



ELEVATION OF WING (W2)

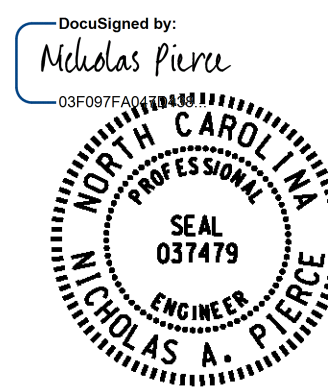


DETAIL "B"

PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

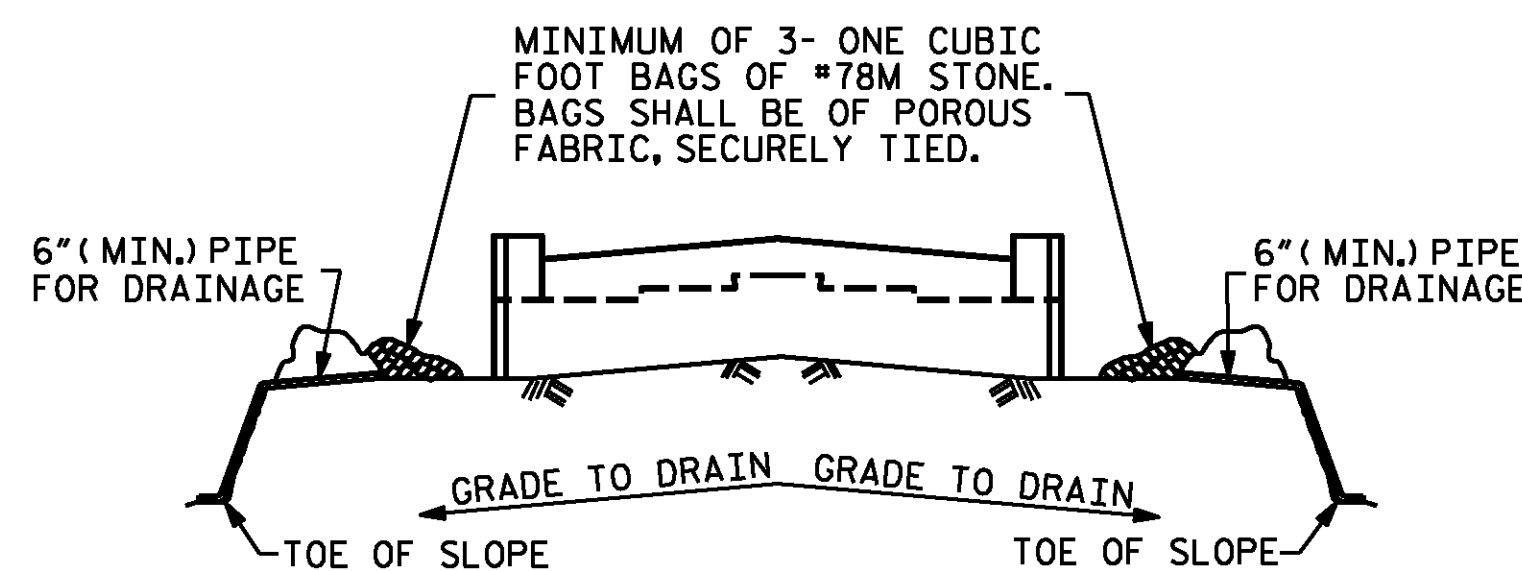


3/5/2015

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

REVISIONS						SHEET NO. S01-27
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/14
DRAWN BY : N.A. PIERCE	DATE : 11/14
CHECKED BY : M.J. OSTRISHKO	DATE : 11/14

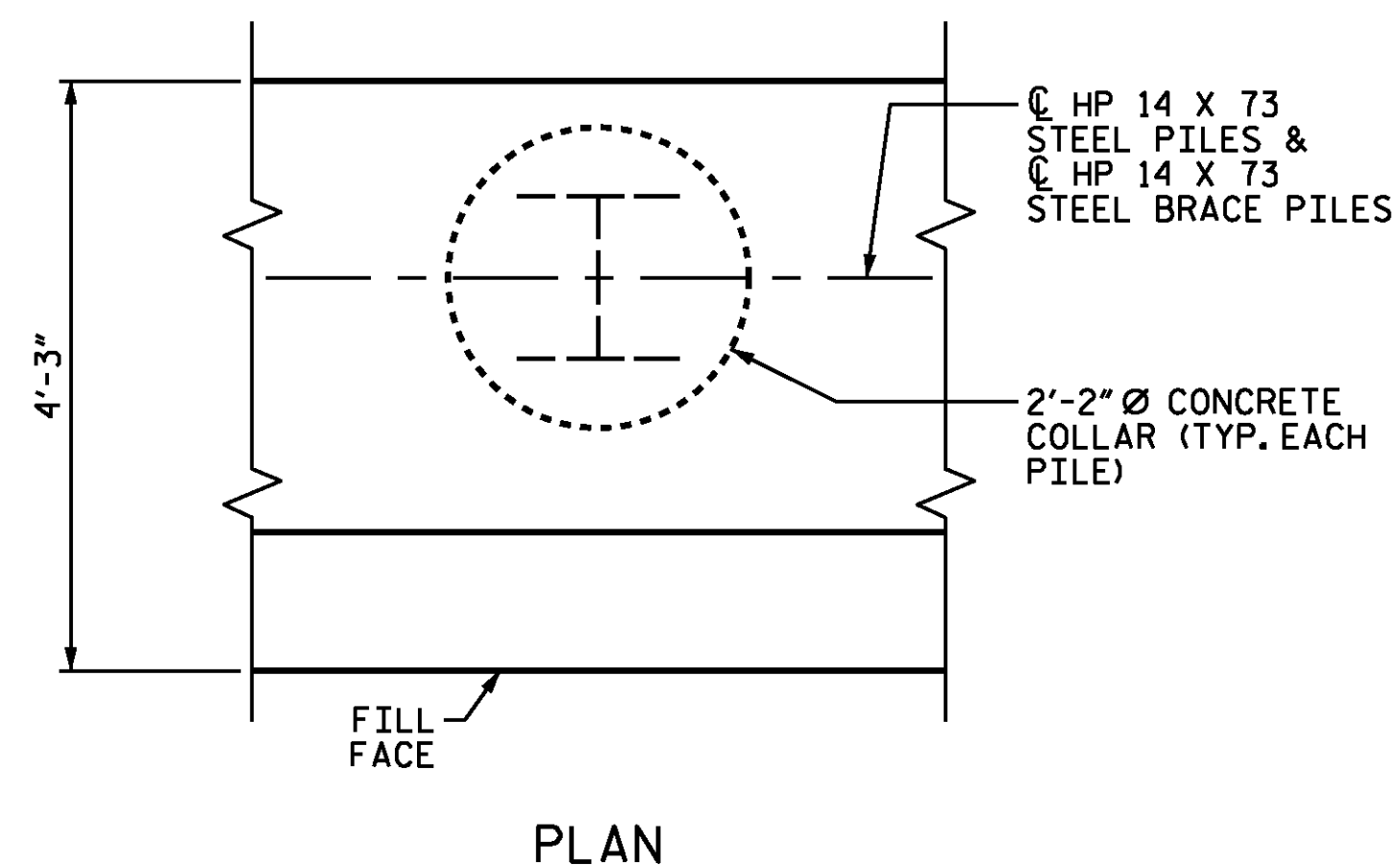
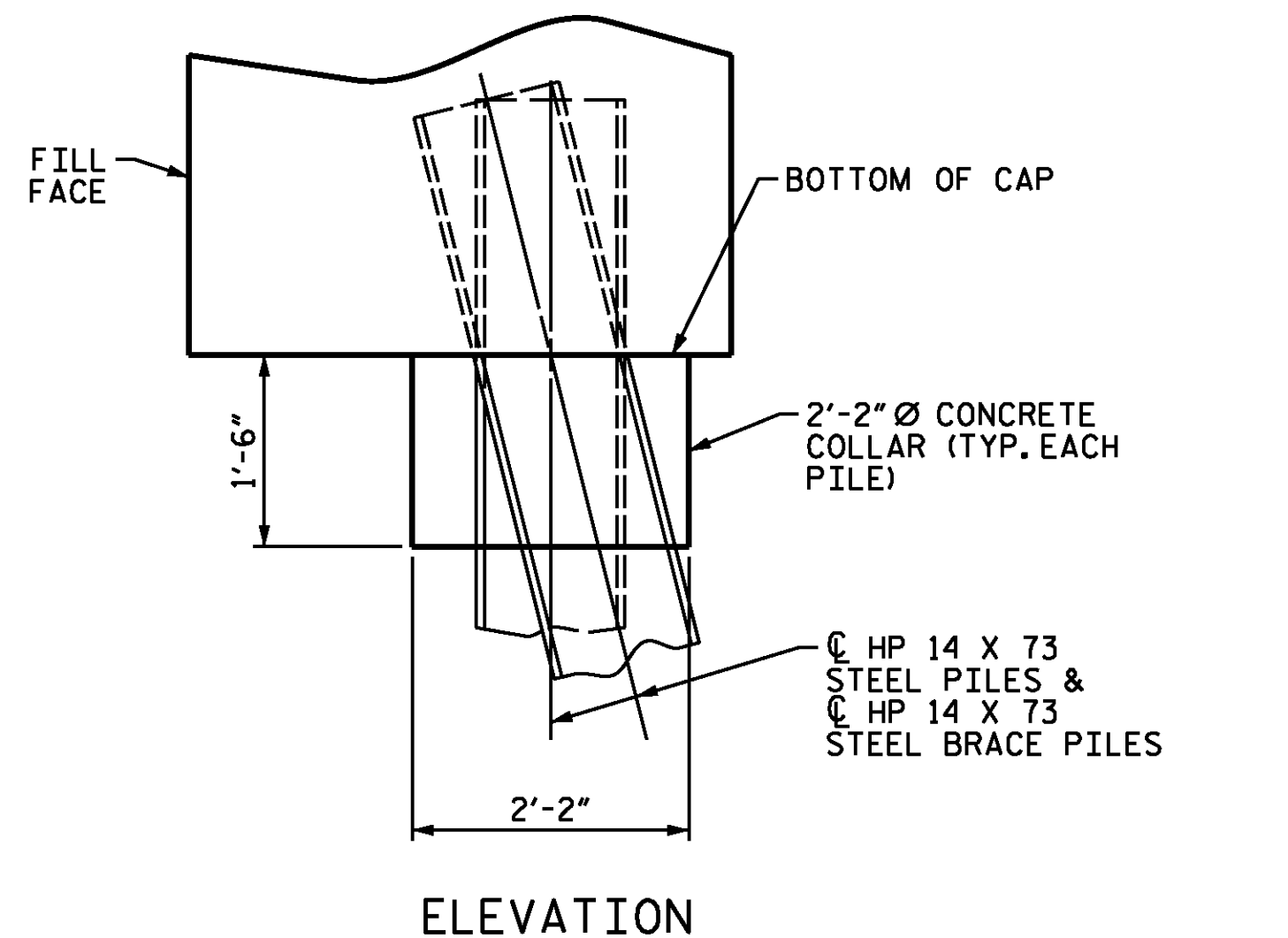


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

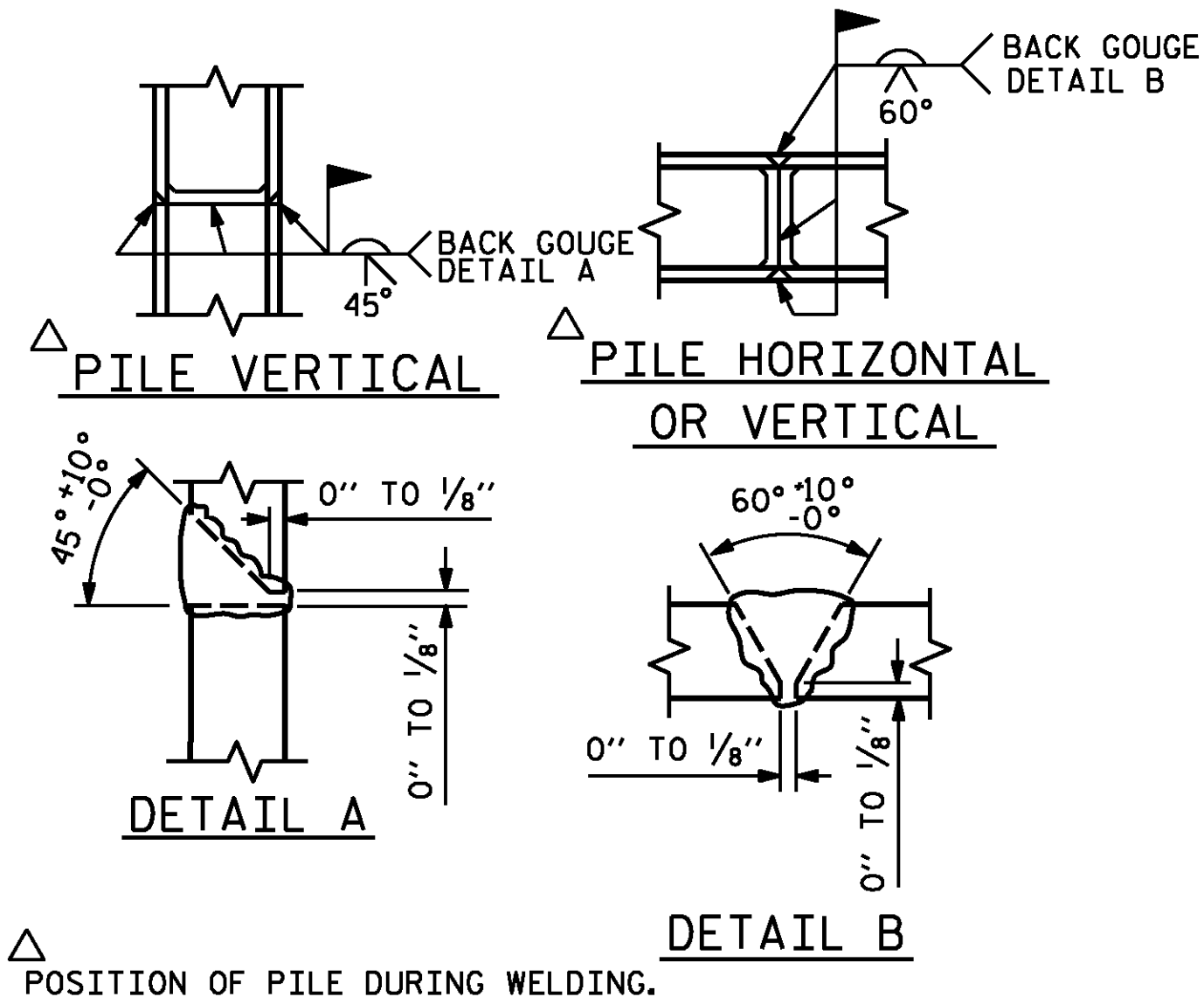
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

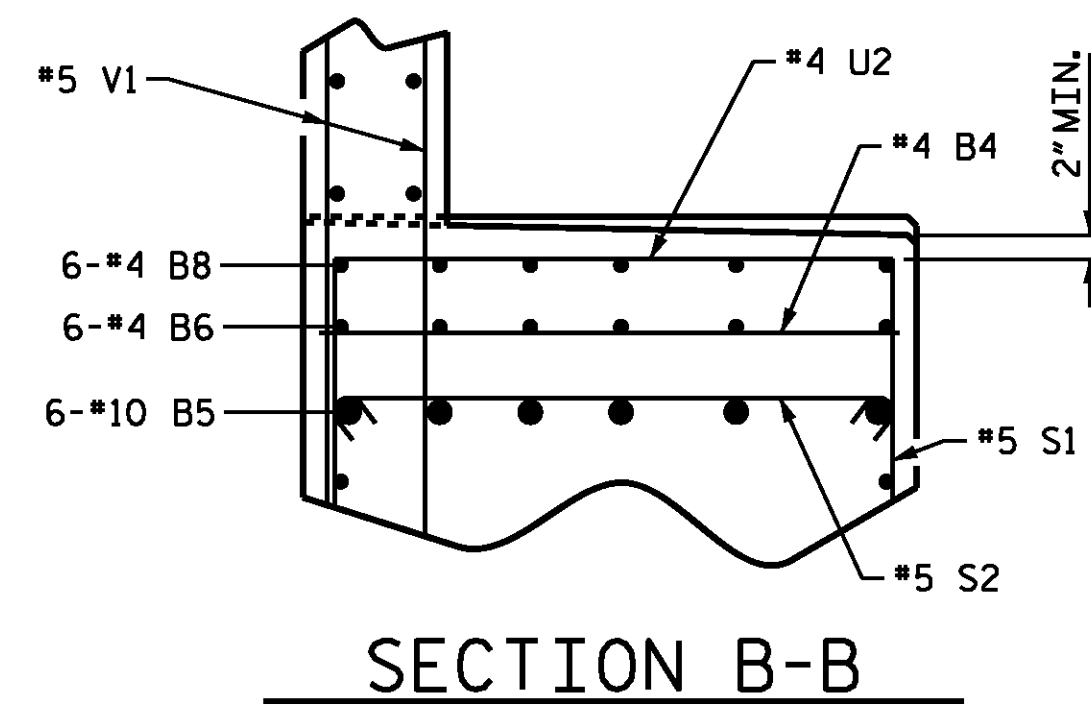
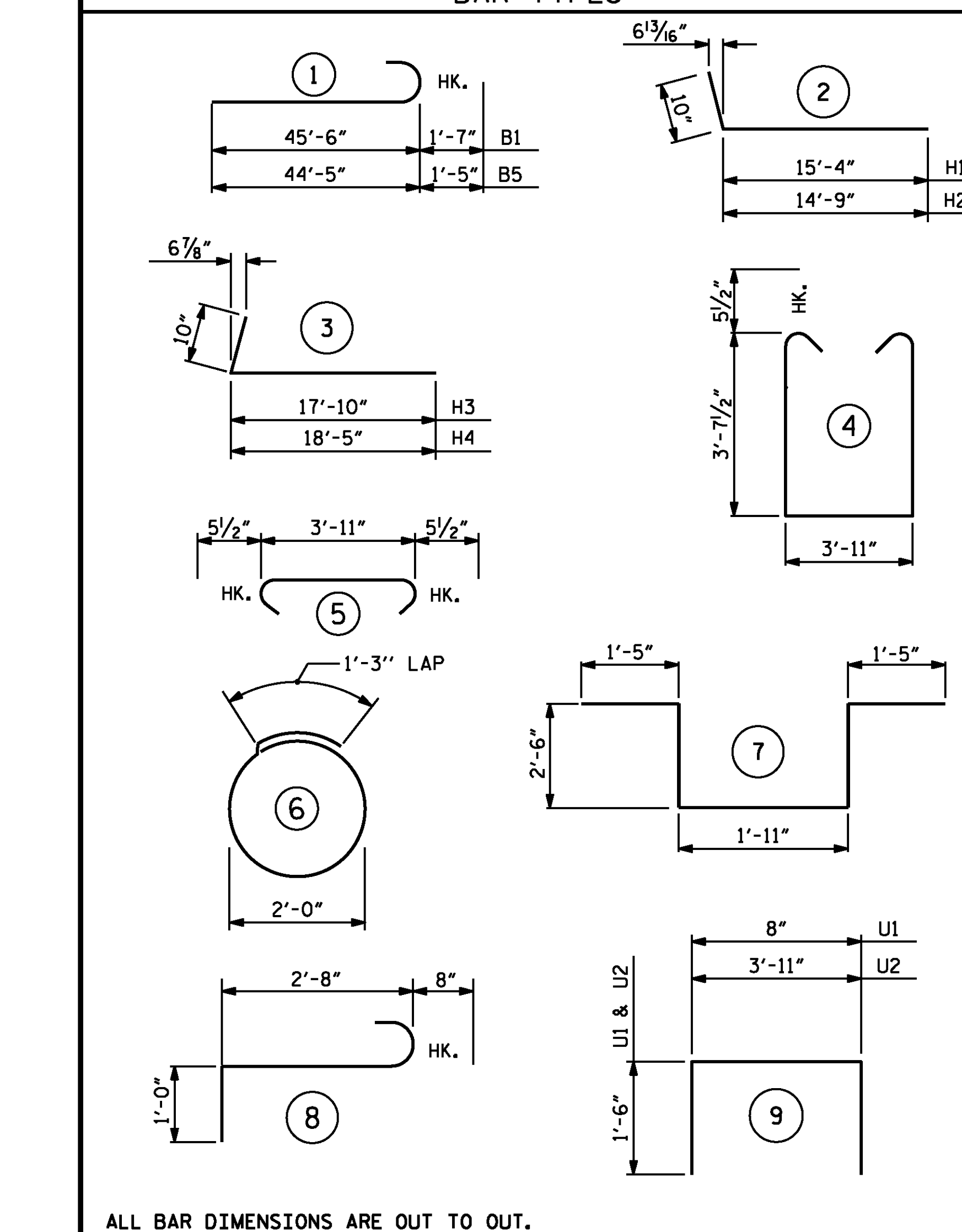
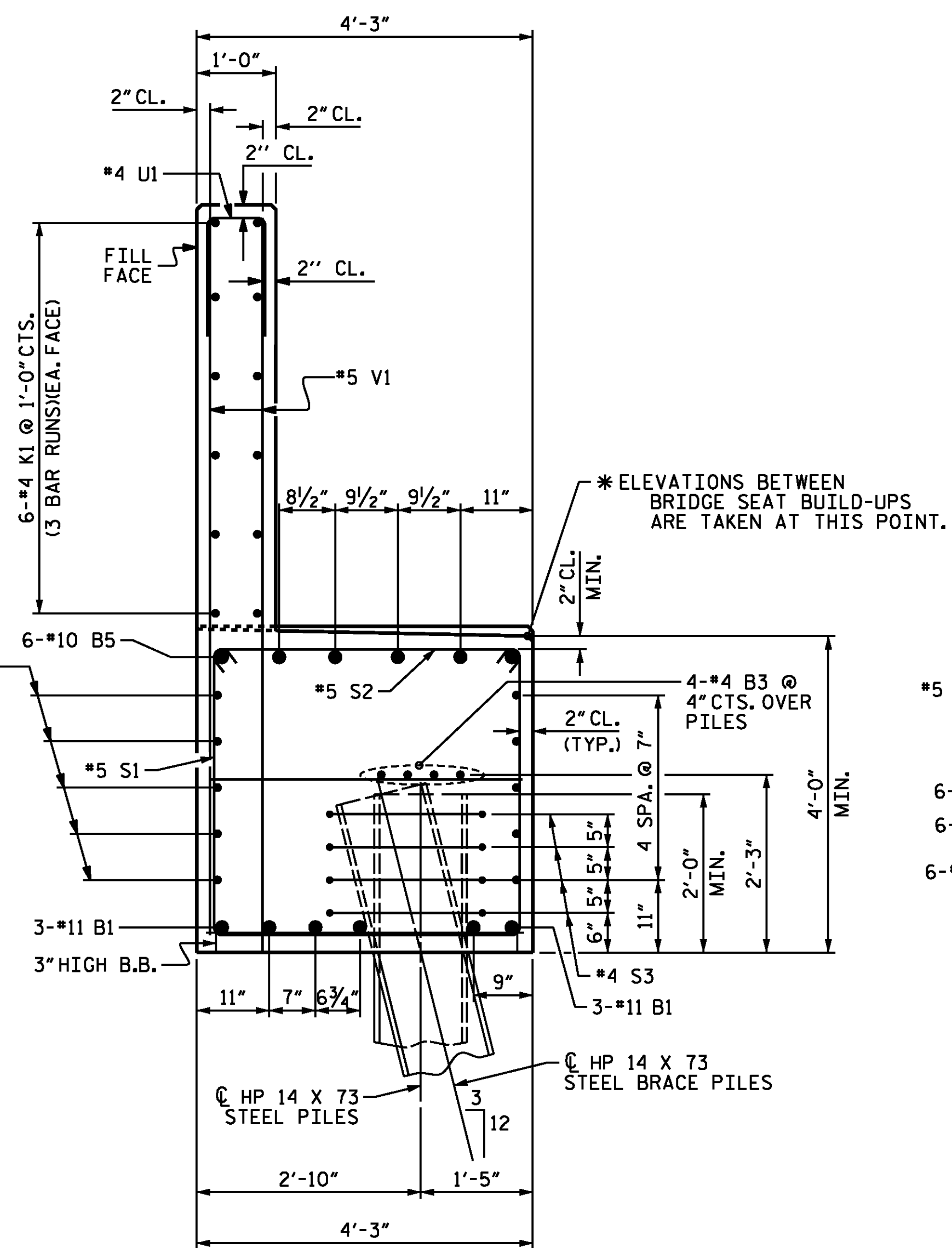


CORROSION PROTECTION FOR STEEL PILES DETAIL

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/14
DRAWN BY : N.A. PIERCE	DATE : 11/14
CHECKED BY : M.J. OSTRISHKO	DATE : 11/14



PILE SPLICE DETAILS



BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#11	1	47'-1"	3,002
B2	20	#5	STR	40'-4"	841
B3	12	#4	STR	27'-4"	219
B4	30	#4	STR	3'-11"	78
B5	12	#10	1	45'-10"	2,367
B6	12	#4	STR	30'-10"	247
B7	6	#4	STR	17'-0"	68
B8	12	#4	STR	19'-3"	154
H1	13	#4	2	16'-2"	140
H2	13	#4	2	15'-7"	135
H3	18	#4	3	18'-8"	224
H4	18	#4	3	19'-3"	231
K1	36	#4	STR	27'-4"	657
K2	8	#4	STR	4'-5"	24
S1	146	#5	4	12'-1"	1,840
S2	126	#5	5	4'-10"	635
S3	40	#4	6	7'-7"	203
S4	12	#6	7	9'-9"	176
S5	6	#6	8	4'-4"	39
U1	67	#4	9	3'-8"	164
U2	58	#4	9	6'-11"	268
V1	134	#5	STR	9'-4"	1,304
V2	41	#5	STR	11'-2"	478
V3	47	#5	STR	12'-2"	596

REINFORCING STEEL LBS. 14,090

CLASS A CONCRETE BREAKDOWN

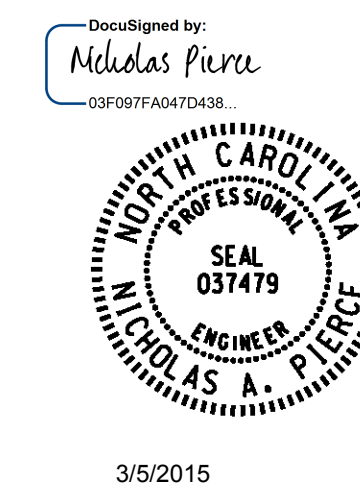
POUR #1 (CAP, LOWER WINGS, & CONCRETE COLLARS)	C.Y. 67.0
POUR #2 (BACKWALL & UPPER WINGS)	C.Y. 28.0
TOTAL CLASS A CONCRETE	C.Y. 95.0

HP 14 X 73 STEEL PILES

No. = 12	240.0 LIN. FT.
STEEL PILE POINTS	12 EA.

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61-L

SHEET 3 OF 3



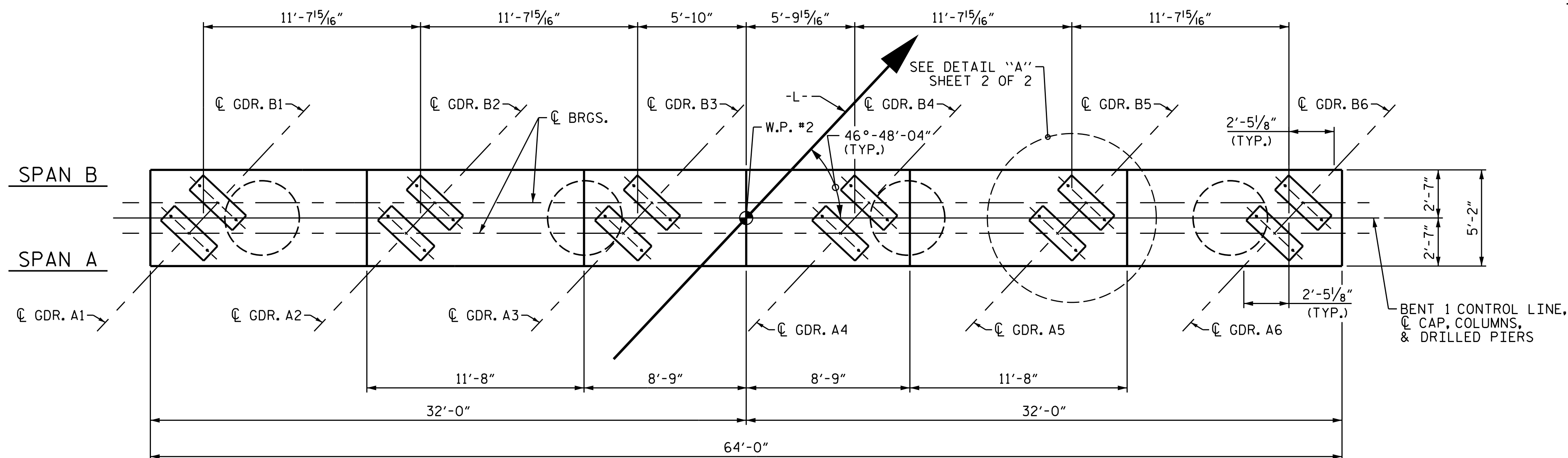
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

REVISIONS						SHEET NO.
NO.	BYs	DATEs	NO.	BYs	DATEs	TOTAL SHEETS
1			3			36
2			4			

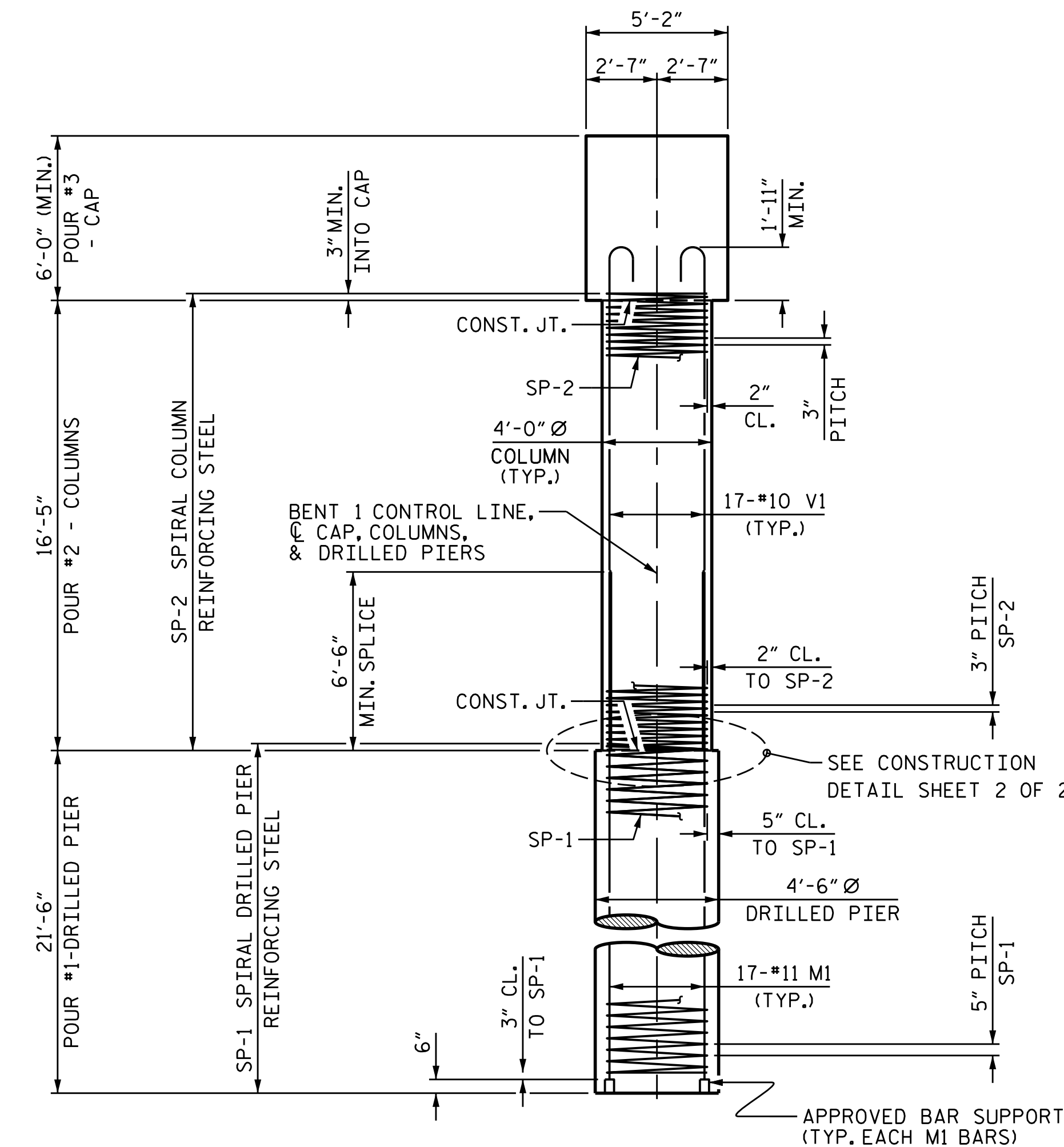
NOTES

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
 THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE FUTURE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.



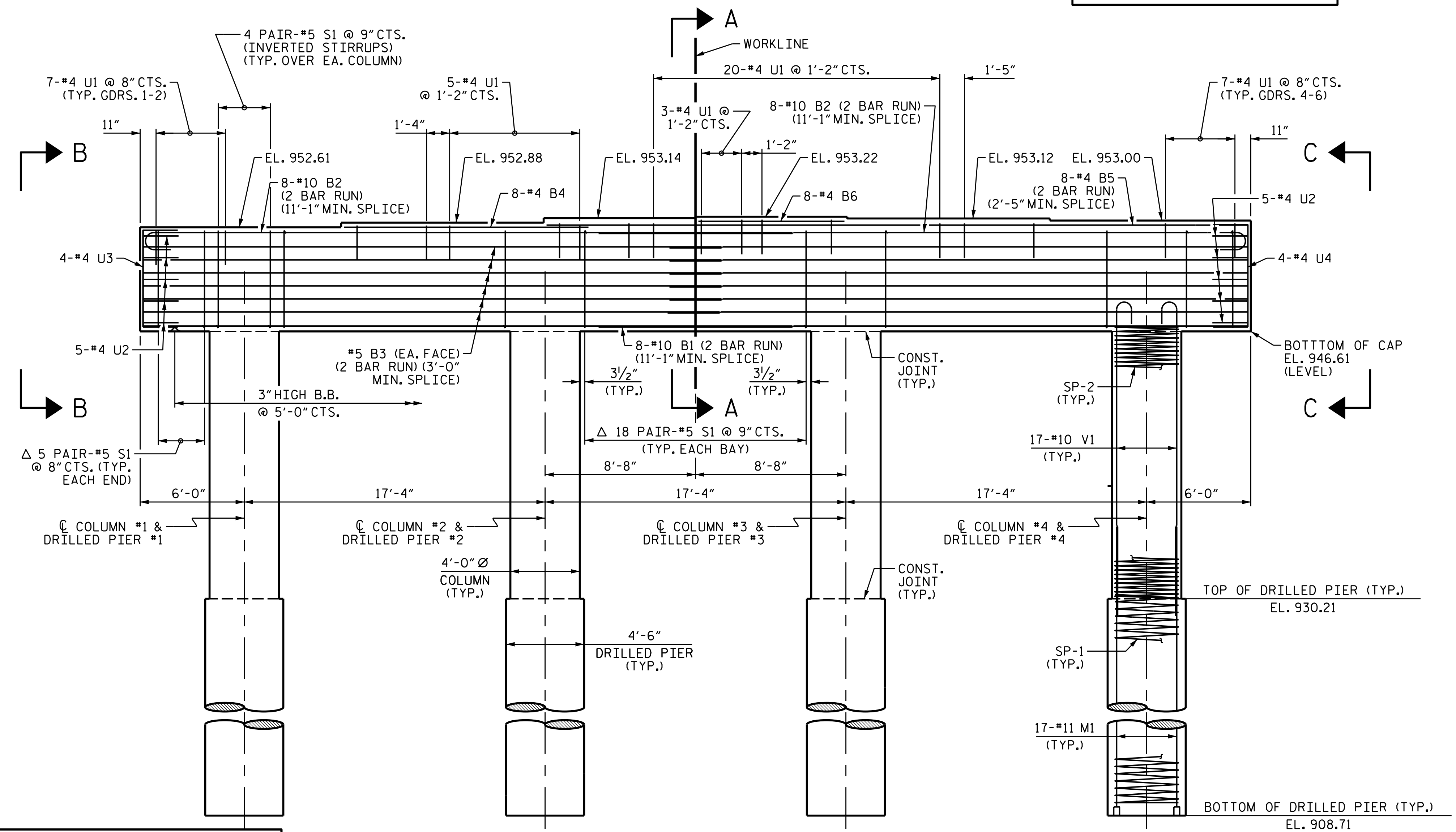
PLAN

△ INVERT ALTERNATE STIRRUPS



END ELEVATION

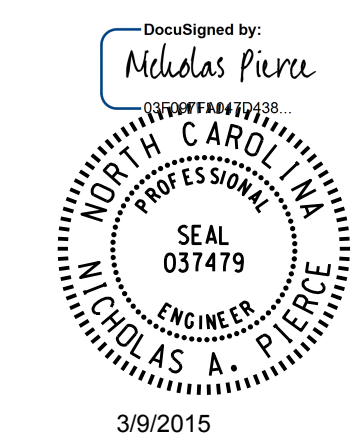
REINFORCING STEEL, DIMENSIONS, AND DETAILS ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER UNLESS OTHERWISE NOTED.



ELEVATION

PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61 -L-

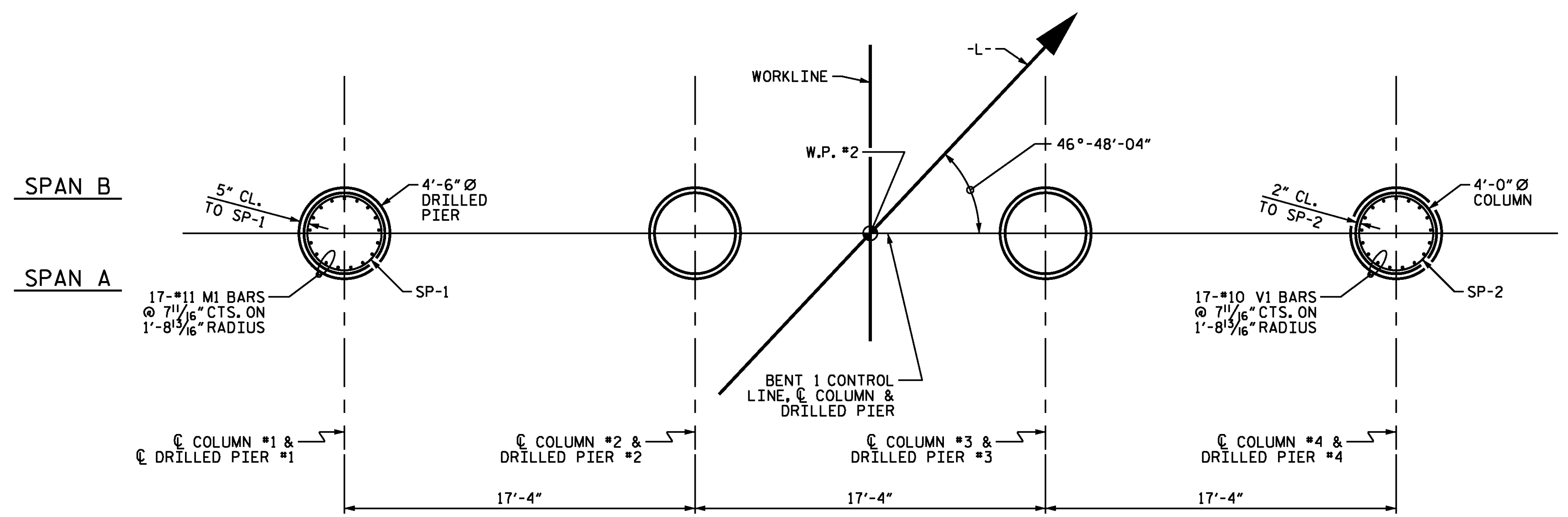
SHEET 1 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1



WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

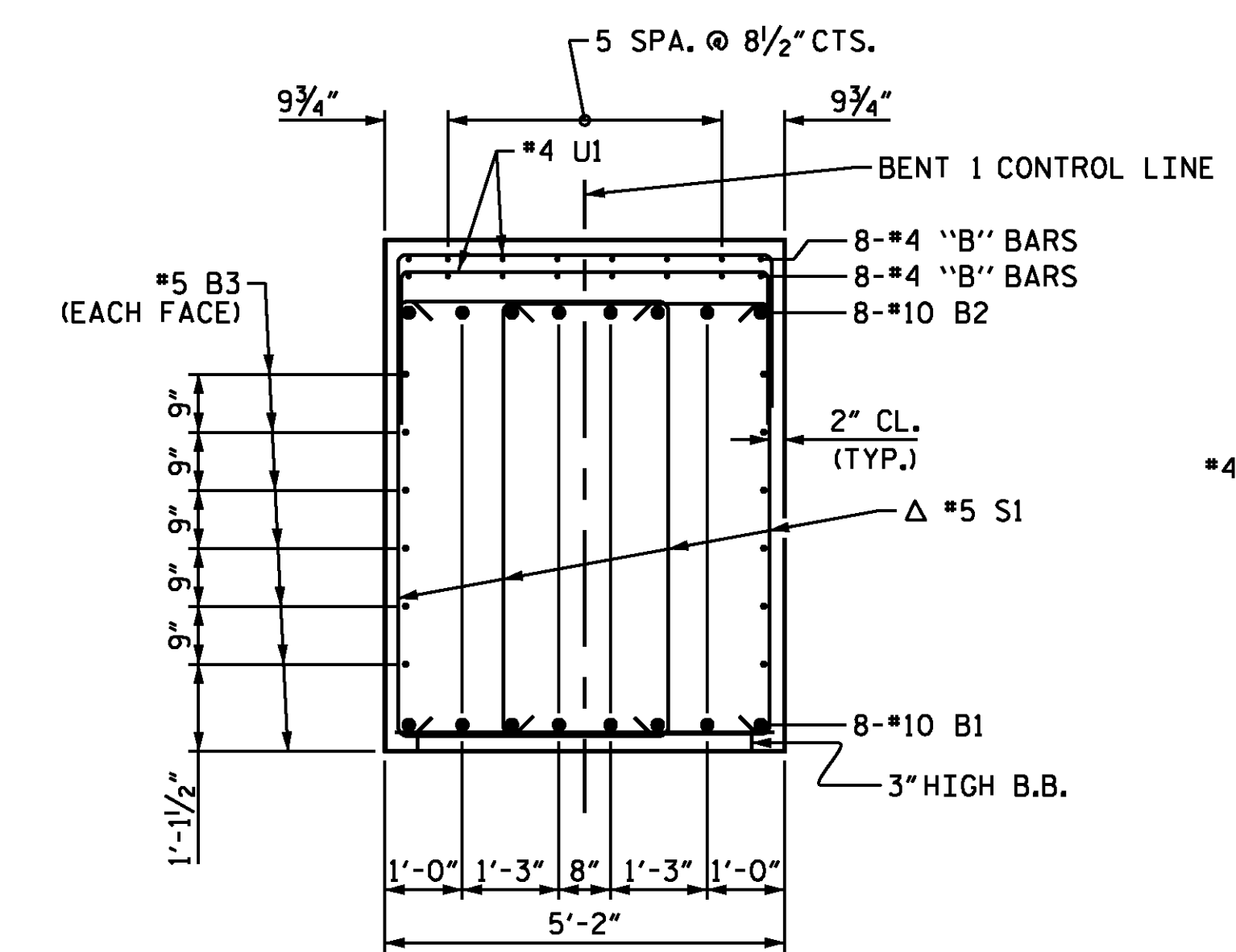
REVISIONS						SHEET NO. S01-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2014
DRAWN BY : M.J. OSTRISHKO	DATE : 12/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014

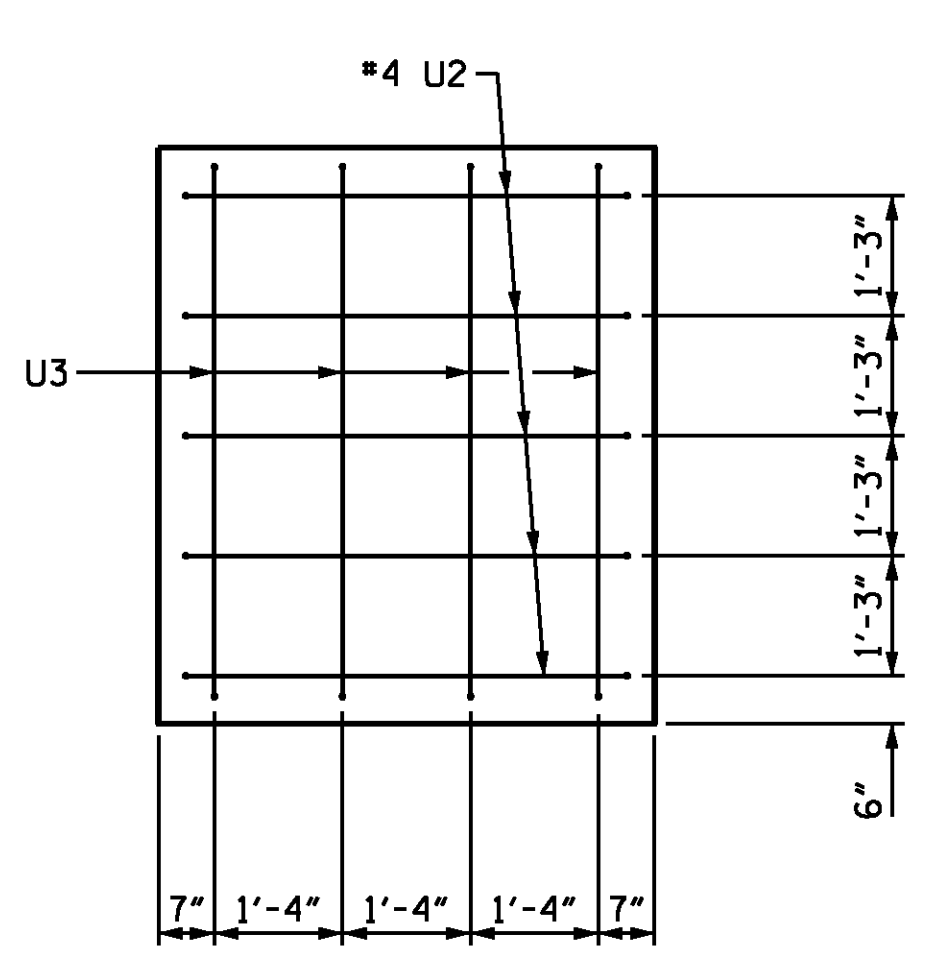


PLAN OF DRILLED PIERS AND COLUMNS

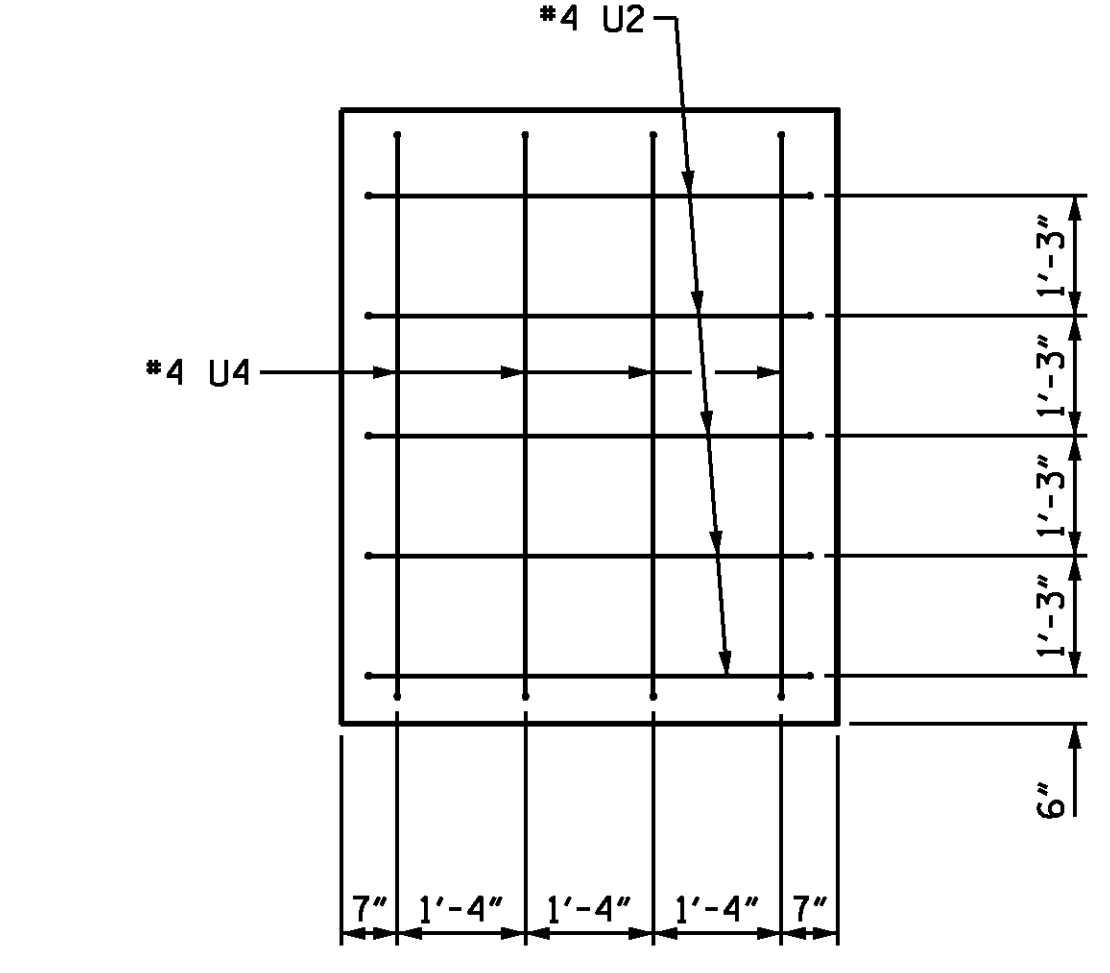
REINFORCING STEEL, AND DIMENSIONS ARE TYPICAL FOR EACH COLUMN OR DRILLED PIER UNLESS OTHERWISE NOTED.



SECTION A-A

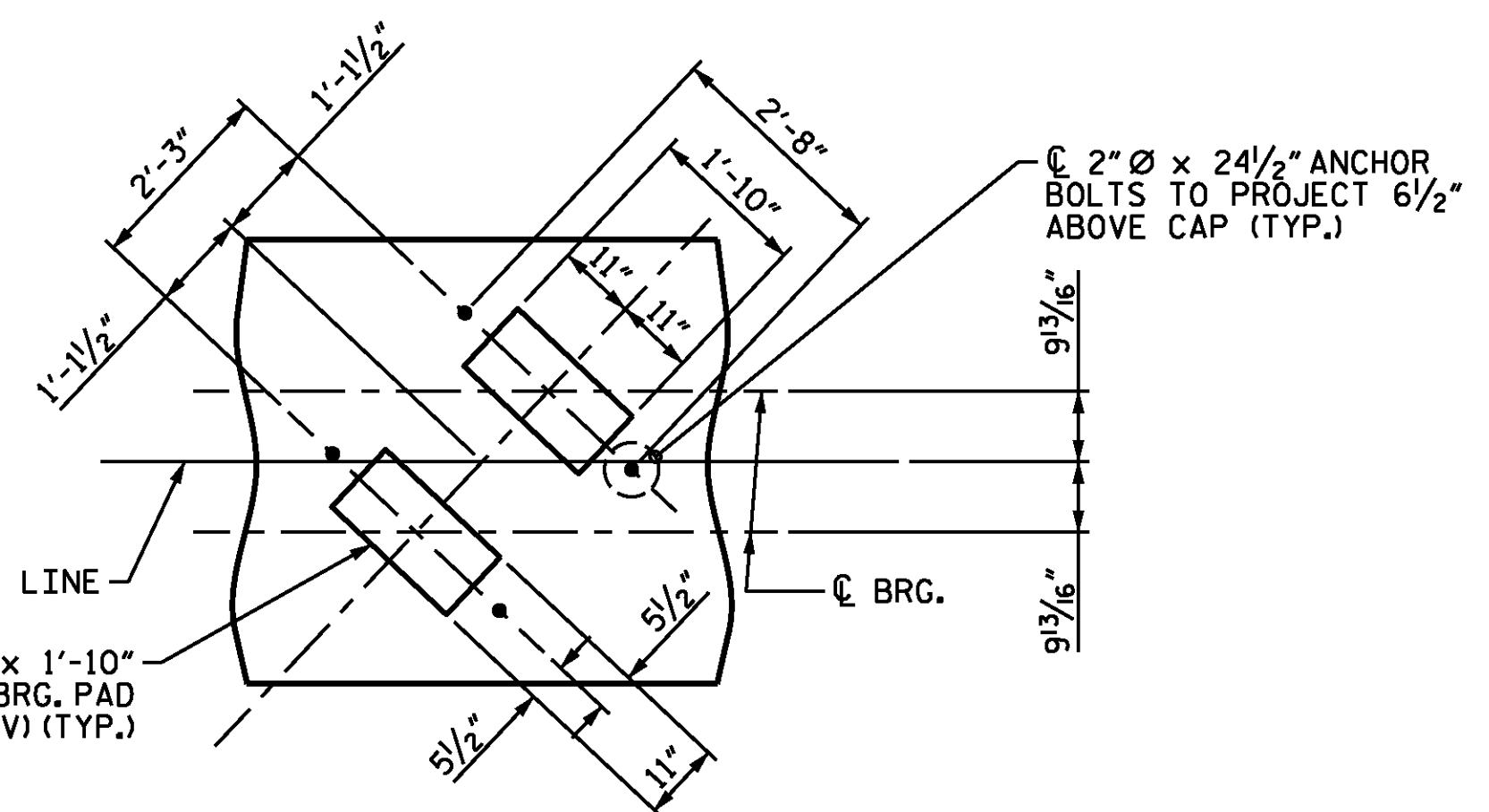


SECTION B-B



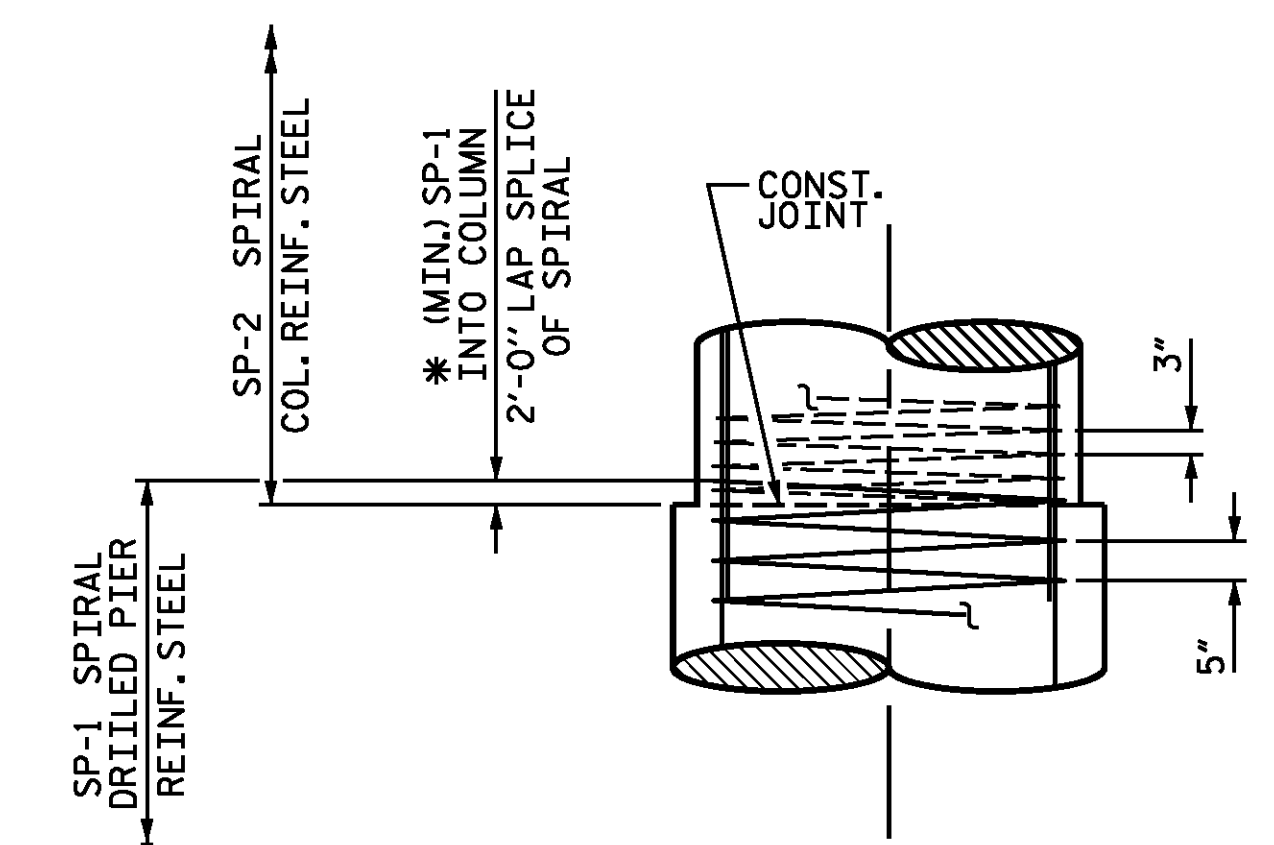
SECTION C-C

Δ INVERT ALTERNATE STIRRUPS AS SHOWN



DETAIL "A"

(TYP. EACH GIRDER)



CONSTRUCTION JOINT DETAIL

BAR TYPES

BILL OF MATERIAL BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#10	STR	37'-6"	2,582
B2	16	#10	1	38'-9"	2,668
B3	24	#4	STR	33'-6"	537
B4	8	#4	STR	14'-1"	75
B5	16	#4	STR	21'-5"	229
B6	8	#4	STR	8'-5"	45
MI	68	#11	STR	31'-0"	11,200
S1	160	#5	2	15'-8"	2,614
U1	63	#4	3	8'-10"	372
U2	10	#4	3	8'-8"	58
U3	4	#4	3	9'-7"	26
U4	4	#4	3	9'-11"	26
V1	68	#10	1	19'-9"	5,779
REINFORCING STEEL					LBS. 26,211
SP-1	4	*	4	608'-0"	2,537
SP-2	4	**	5	780'-4"	2,085
SPIRAL COLUMN REINFORCING STEEL					LBS. 4,622

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

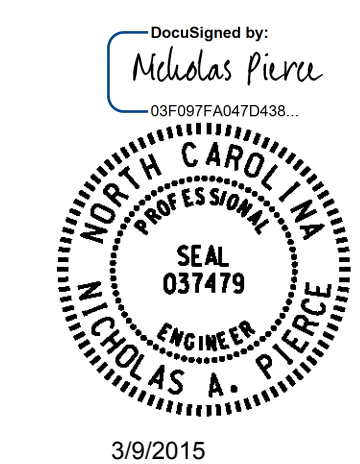
CLASS A CONCRETE BREAKDOWN

POUR #	ITEM	CU. YDS.	WEIGHT
POUR #2	COLUMNS	30.6	
POUR #3	CAP	78.0	
TOTAL		108.6	

4'-6" Ø DRILLED PIERS

ITEM	CU. YDS.	WEIGHT
DRILLED PIER CONCRETE POUR #1	50.7	
4'-6" Ø DRILLED PIERS NOT IN SOIL	40.0	LIN. FT.
4'-6" Ø DRILLED PIERS IN SOIL	46.0	LIN. FT.
CSL TUBES	368.00	LIN. FT.

ALL BAR DIMENSIONS ARE OUT TO OUT.



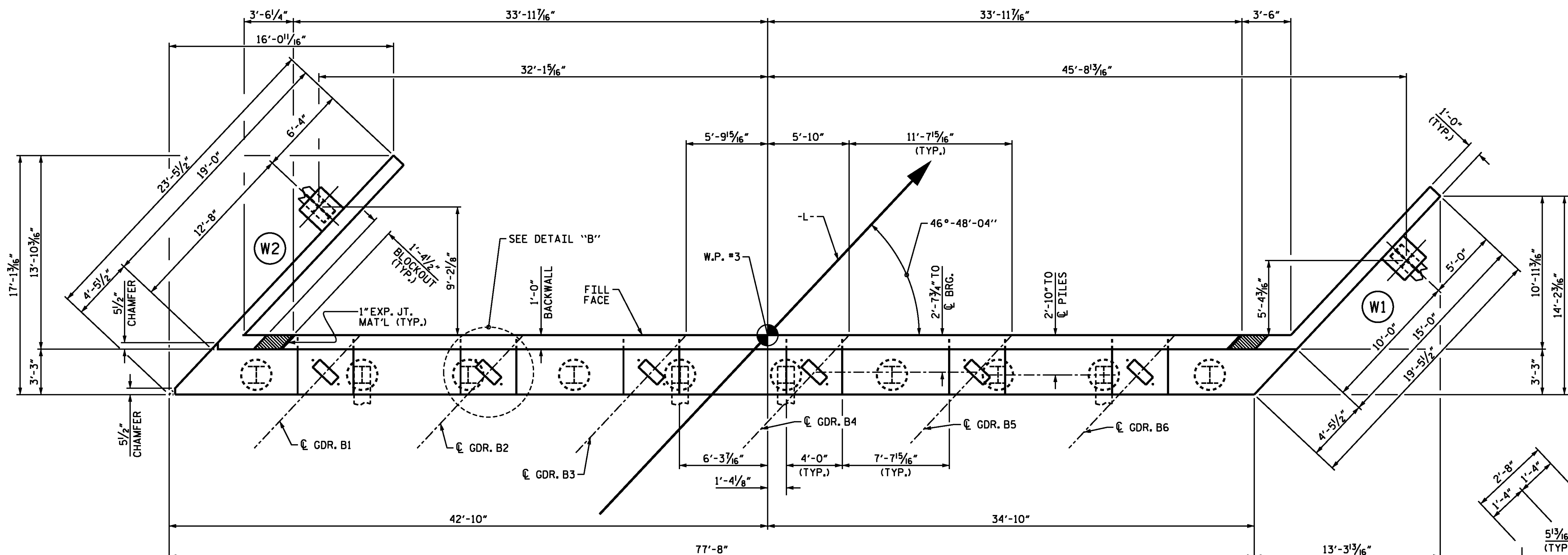
WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61 -L-

SHEET 2 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1

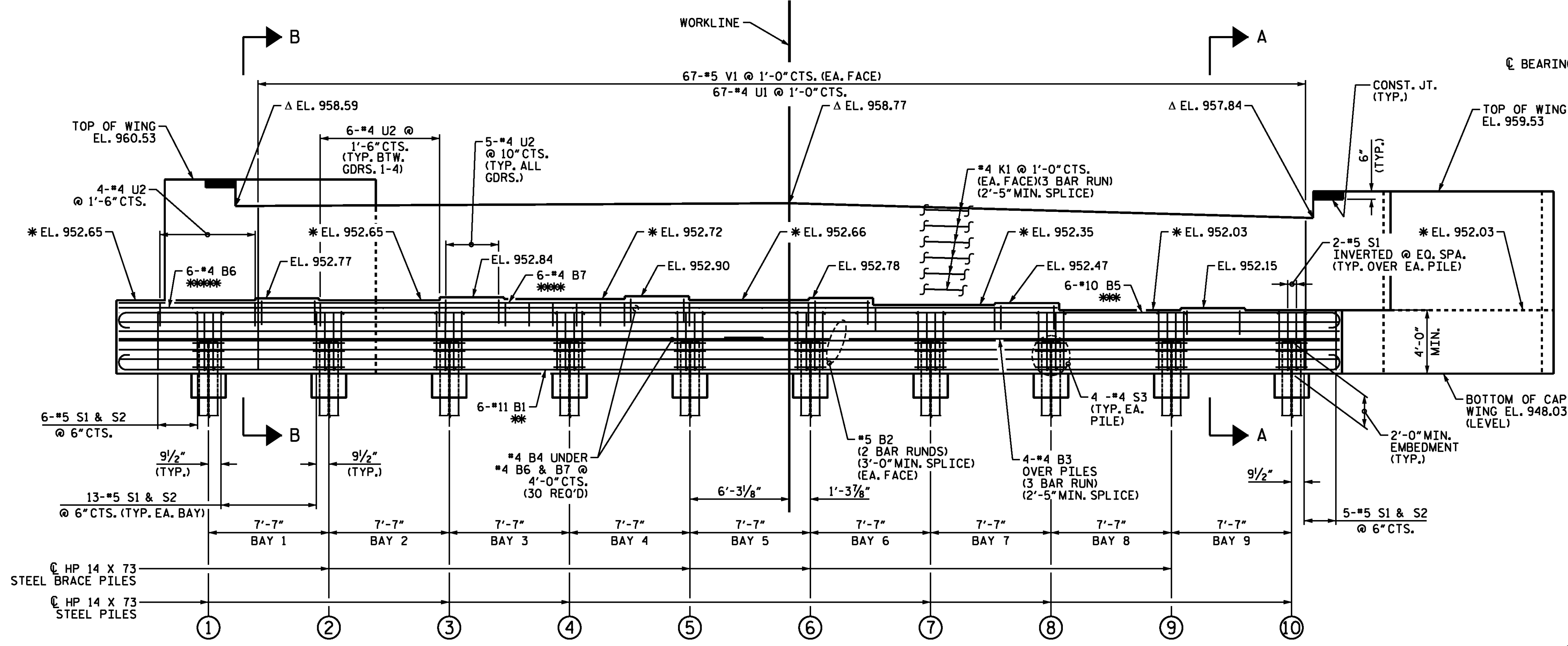
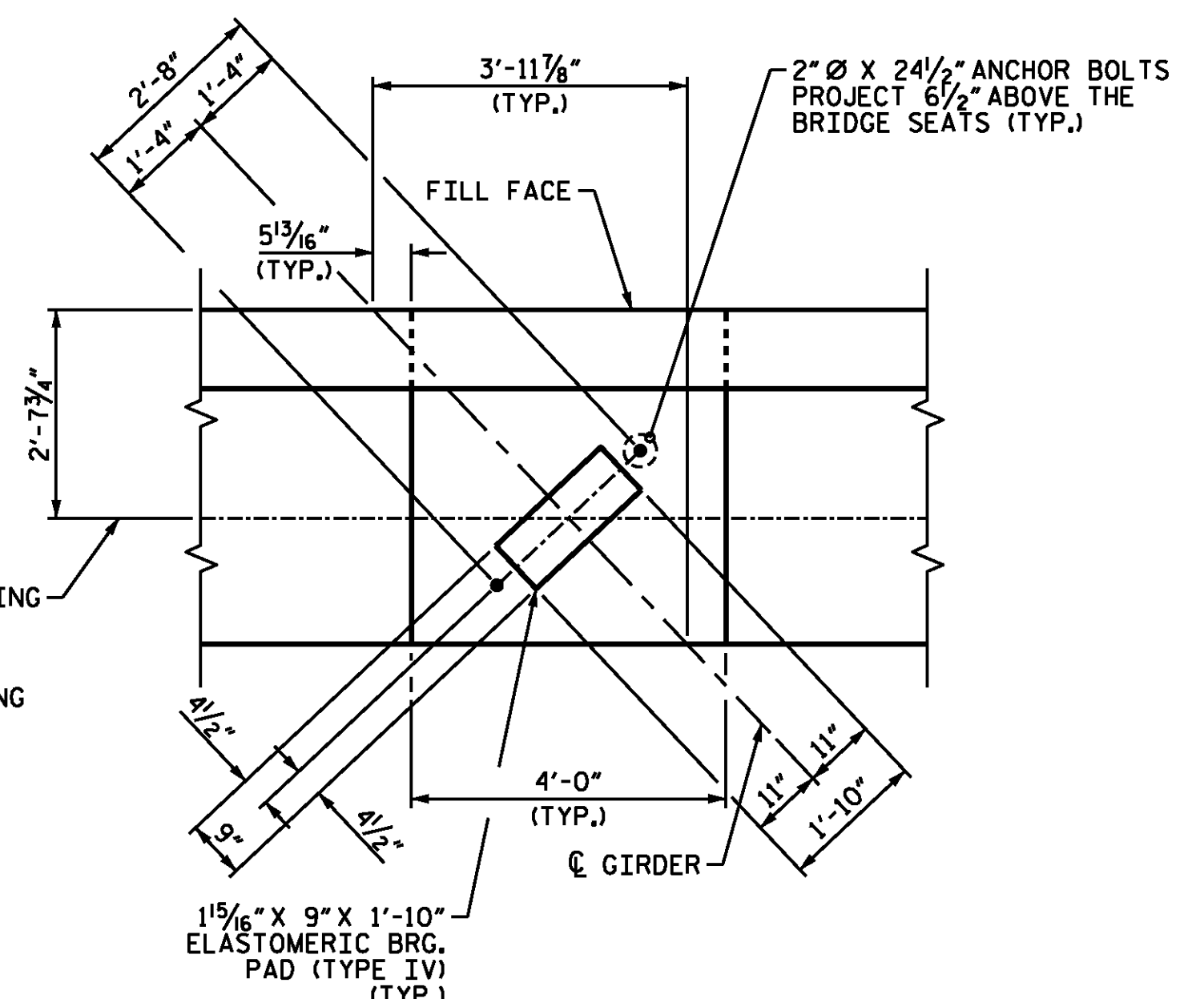
REVISIONS						SHEET NO. S01-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 12/2015
DRAWN BY : M.J. OSTRISHKO	DATE : 12/2014
CHECKED BY : N.A. PIERCE	DATE : 12/2014



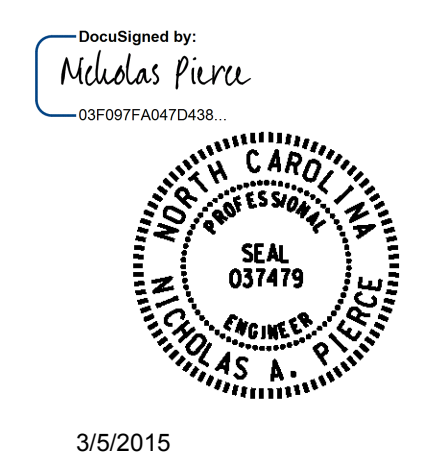
NOTES

- *FOR LOCATION OF ELEVATION BETWEEN BUILDUPS, SEE SECTION A-A, ON SHEET 3 OF 3.
- Δ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.
- INSTALL THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL 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 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF BACKWALL.
- STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- FOR CONCRETE COLLAR DETAILS, SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL" SHEET 3 OF 3.



PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61-L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



3/5/2015

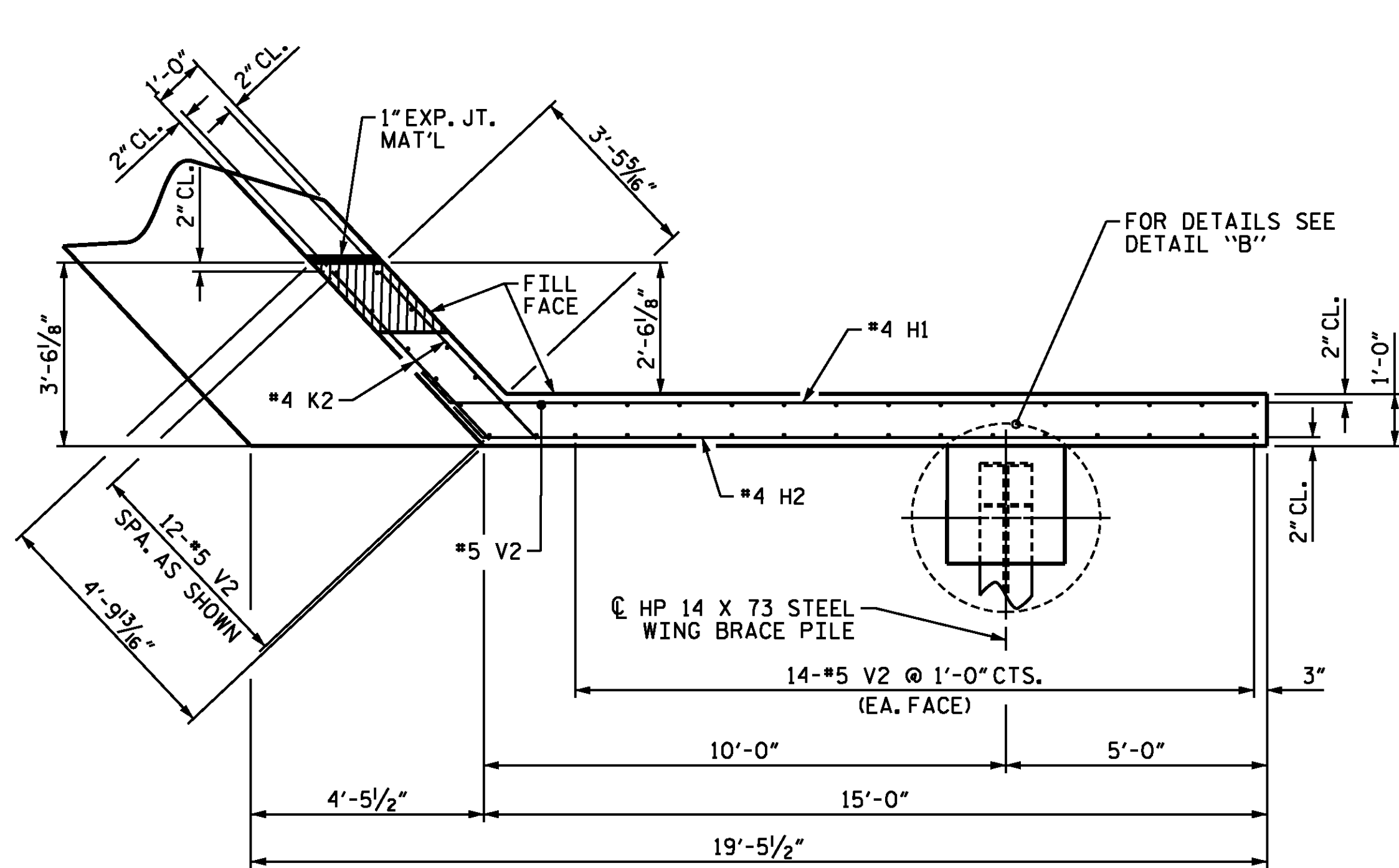
DESIGN ENGINEER OF RECORD
 N.A. PIERCE
 DATE 11/14

DRAWN BY: N.A. PIERCE DATE: 11/14
 CHECKED BY: M.J. OSTRISHKO DATE: 11/14

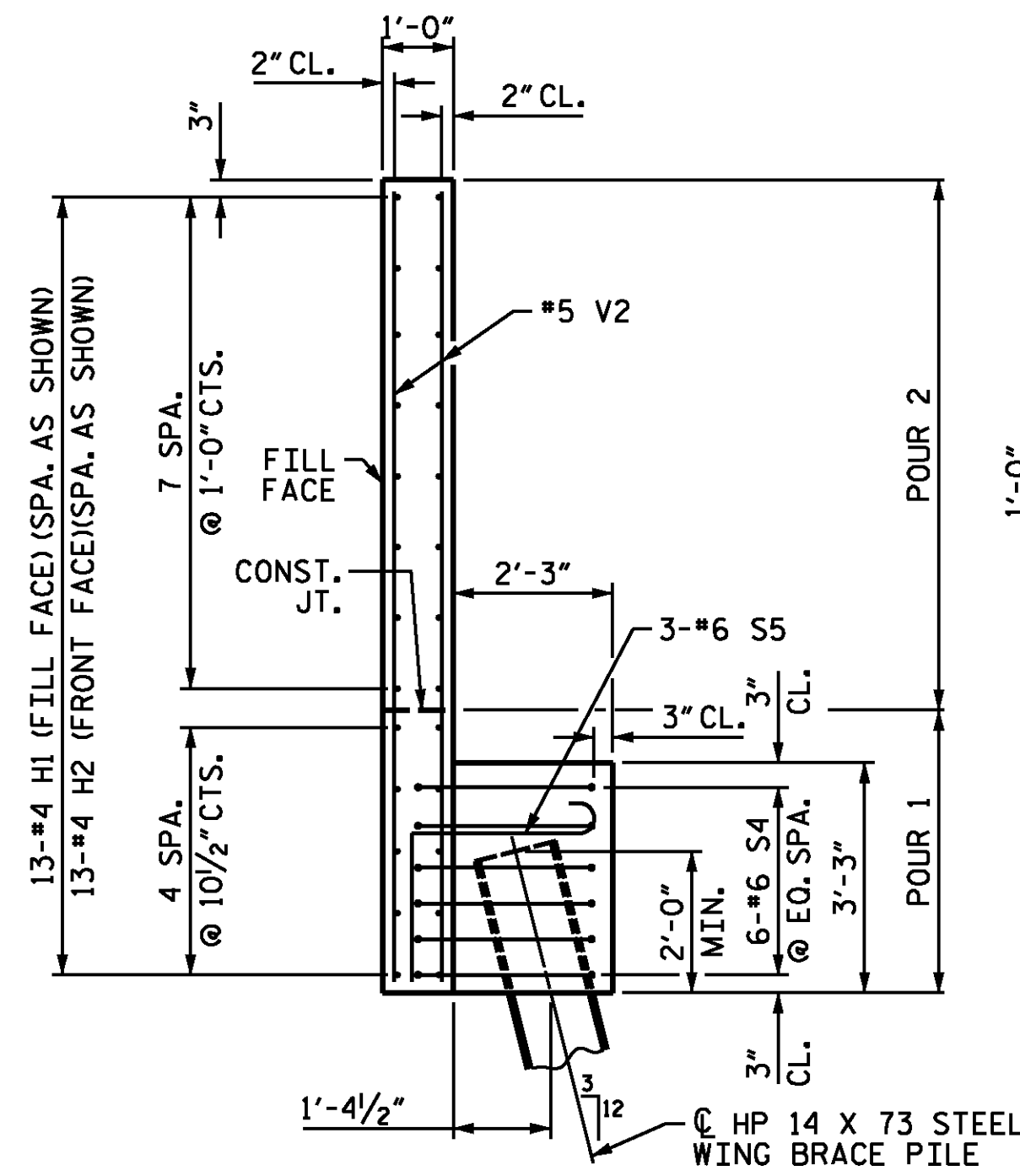
(WING BRACE PILES NOT SHOWN FOR CLARITY)
 ** (2 BAR RUN)(13'-7" MIN. SPLICE)
 *** (2 BAR RUN)(11'-1" MIN. SPLICE)
 **** (2 BAR RUN)(2'-5" MIN. SPLICE)

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

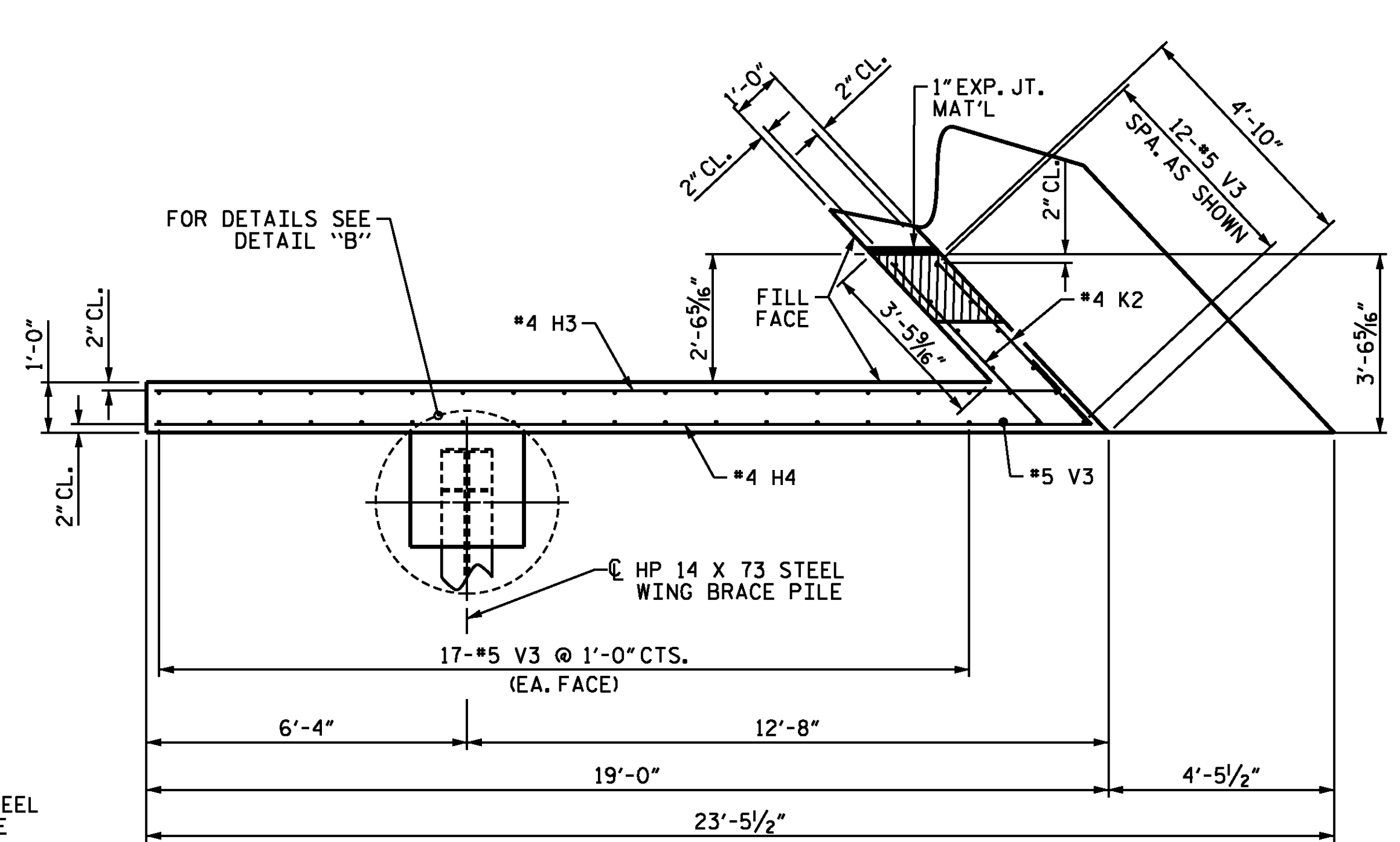
REVISIONS						SHEET NO. S01-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			



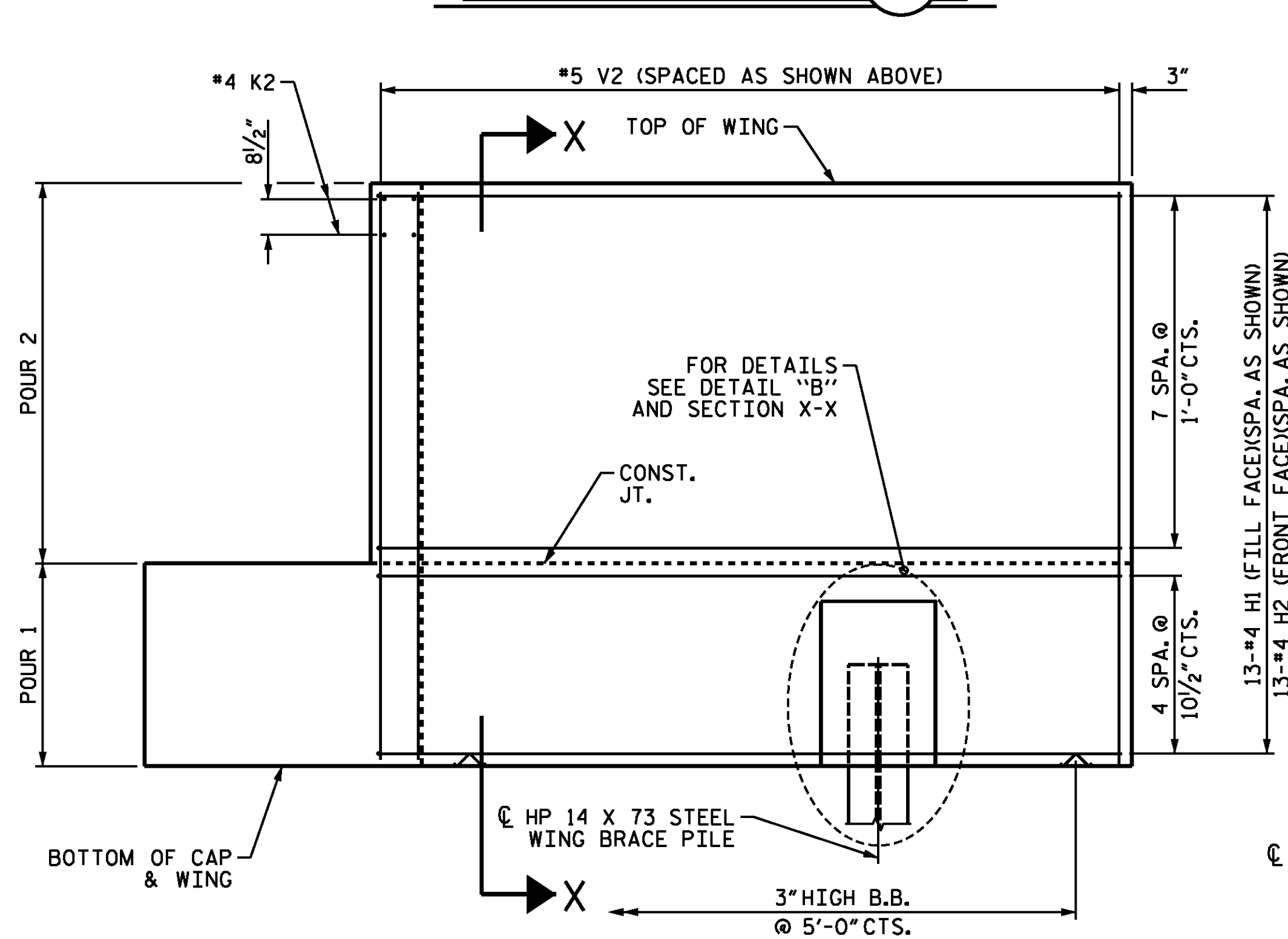
PLAN OF WING (W1)



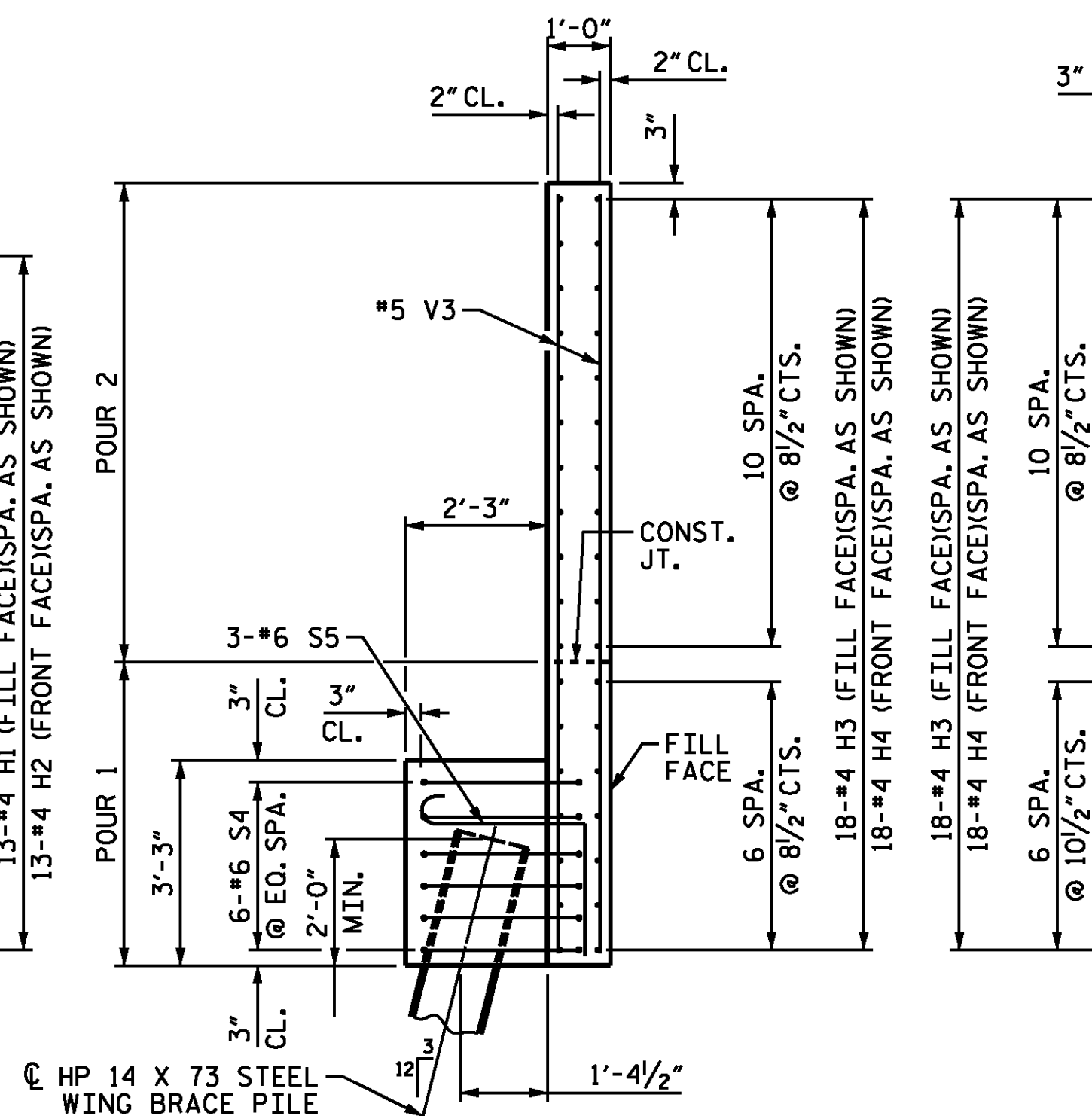
SECTION X-X



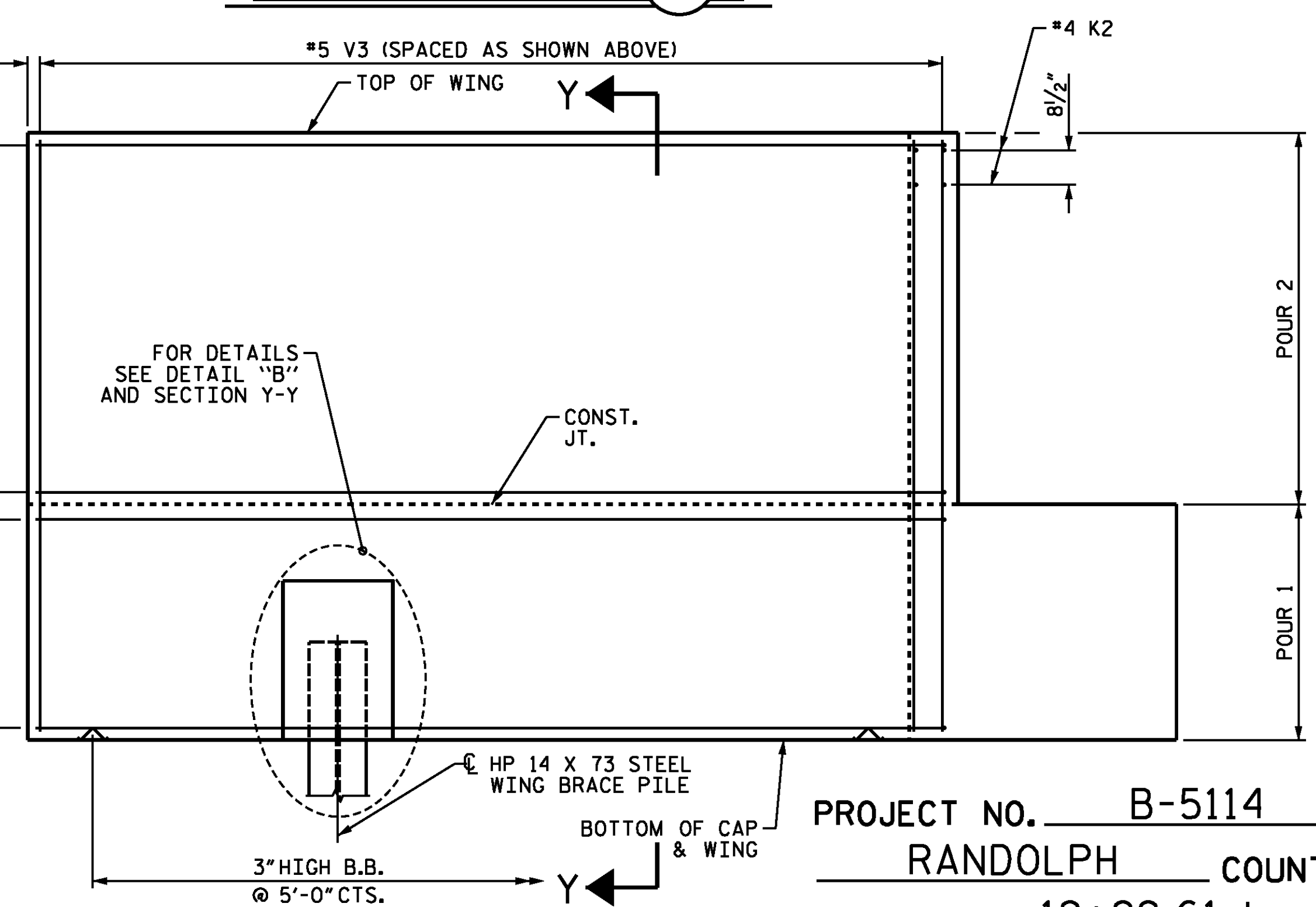
PLAN OF WING (W2)



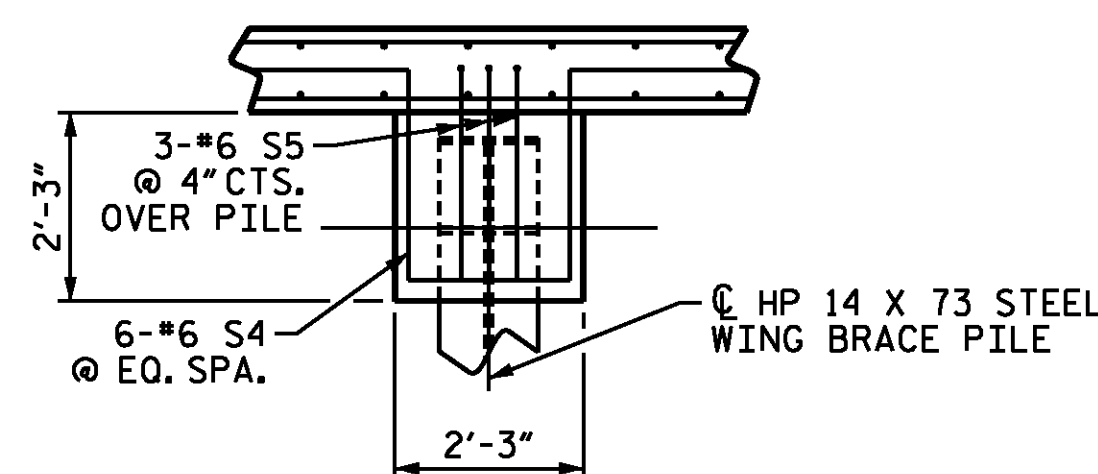
ELEVATION OF WING (W1)



SECTION Y-Y



ELEVATION OF WING (W2)



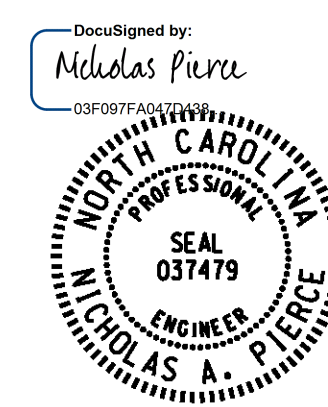
DETAIL "B"

PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2



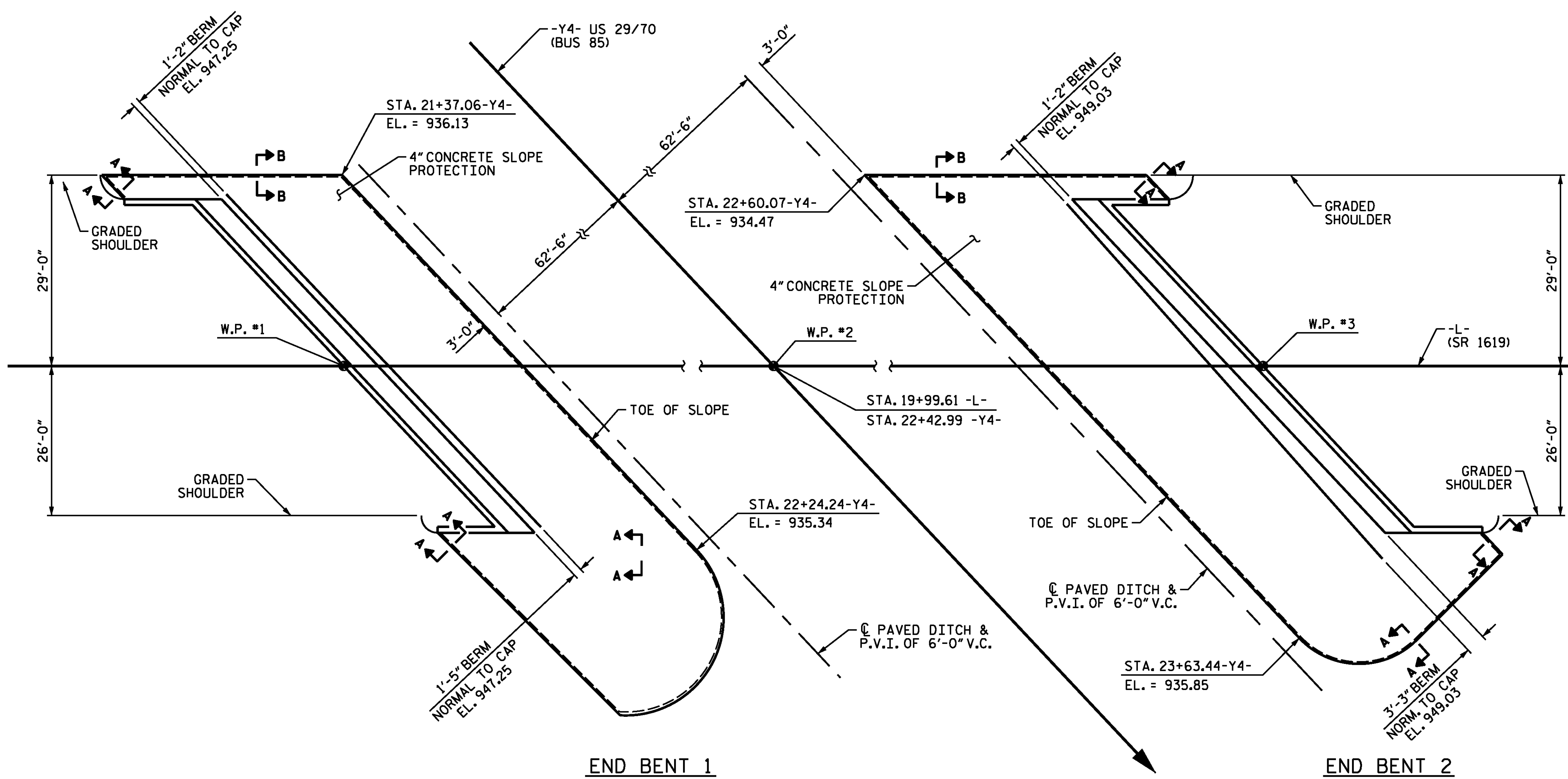
3/5/2015



DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/14
DRAWN BY : N.A. PIERCE	DATE : 11/14
CHECKED BY : M.J. OSTRISHKO	DATE : 11/14

2/18/2015
 RA\B5114.Randolph County\Structures\Drafting\Substructure\401.032.B5114.SMU.E2.2.dgn
 usmo04281

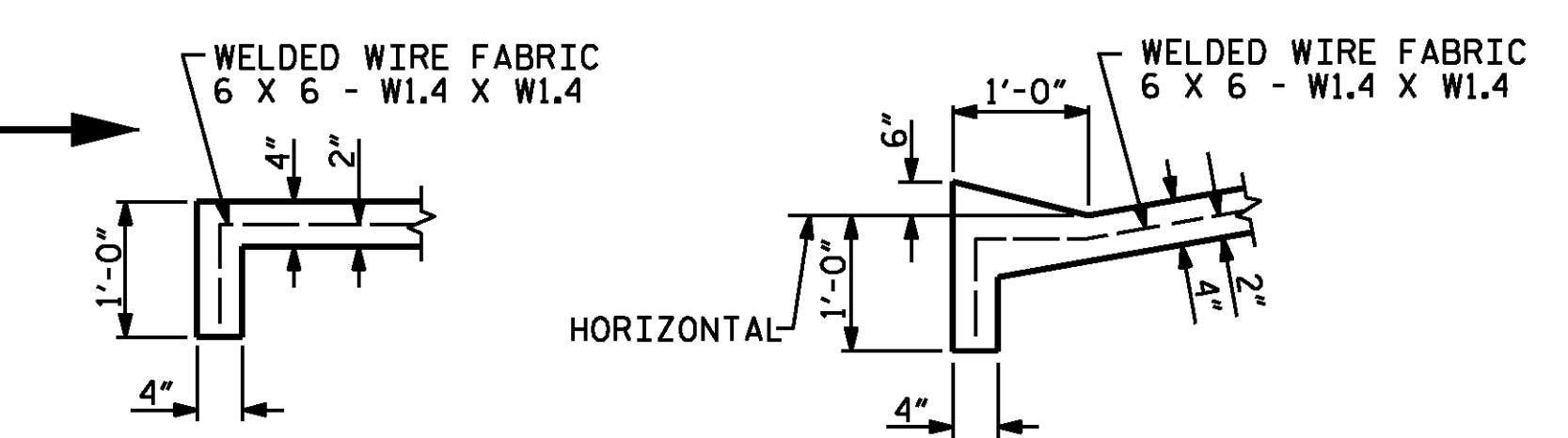
REVISIONS						SHEET NO. S01-32
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			



PLAN

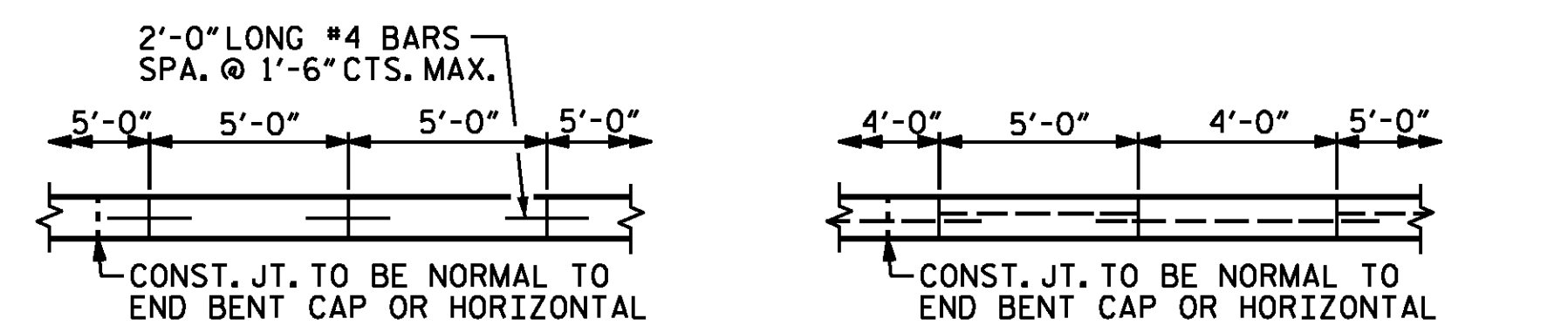
GENERAL NOTES
 SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

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.



SECTION A-A

SECTION B-B

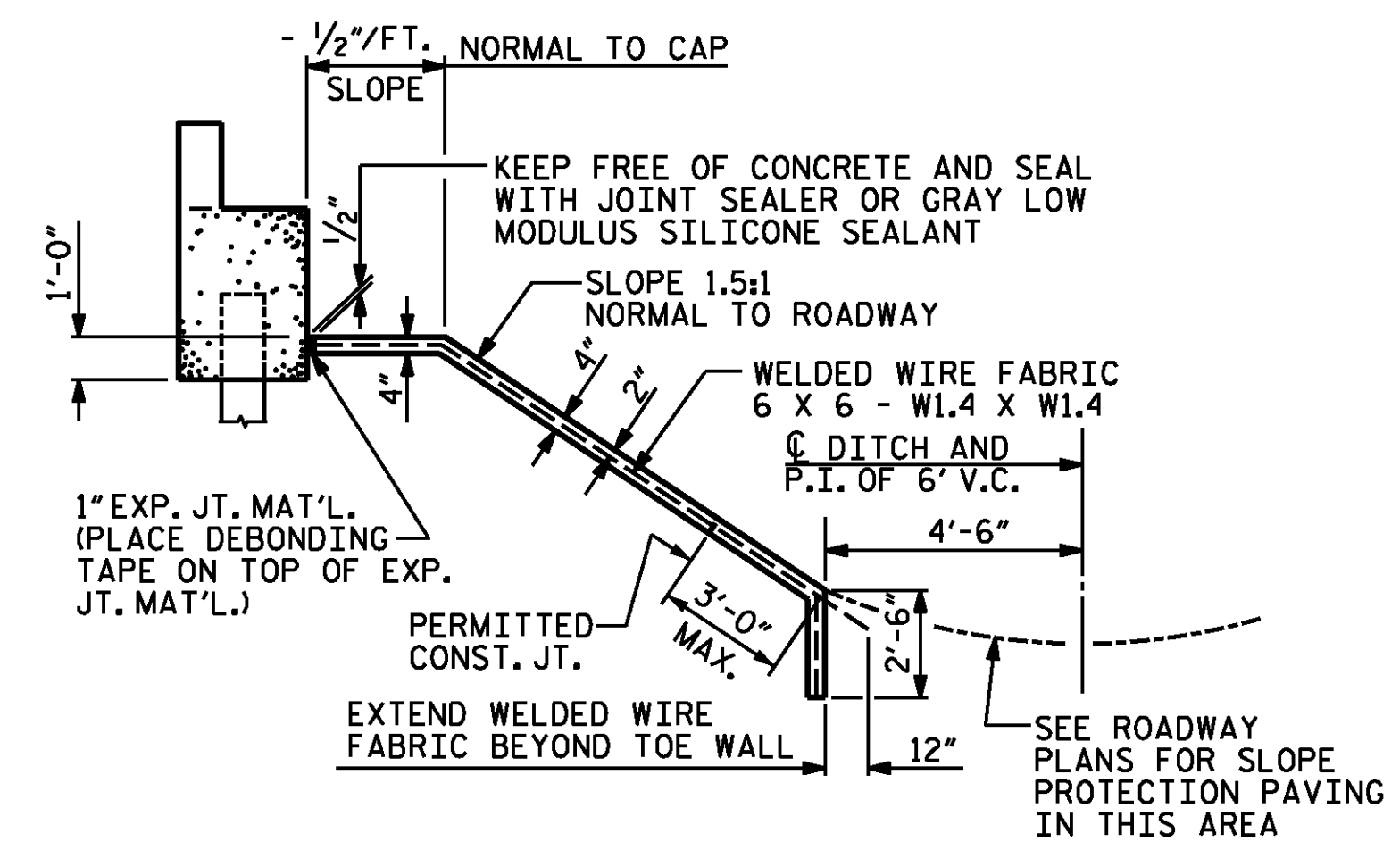


POURING DETAIL

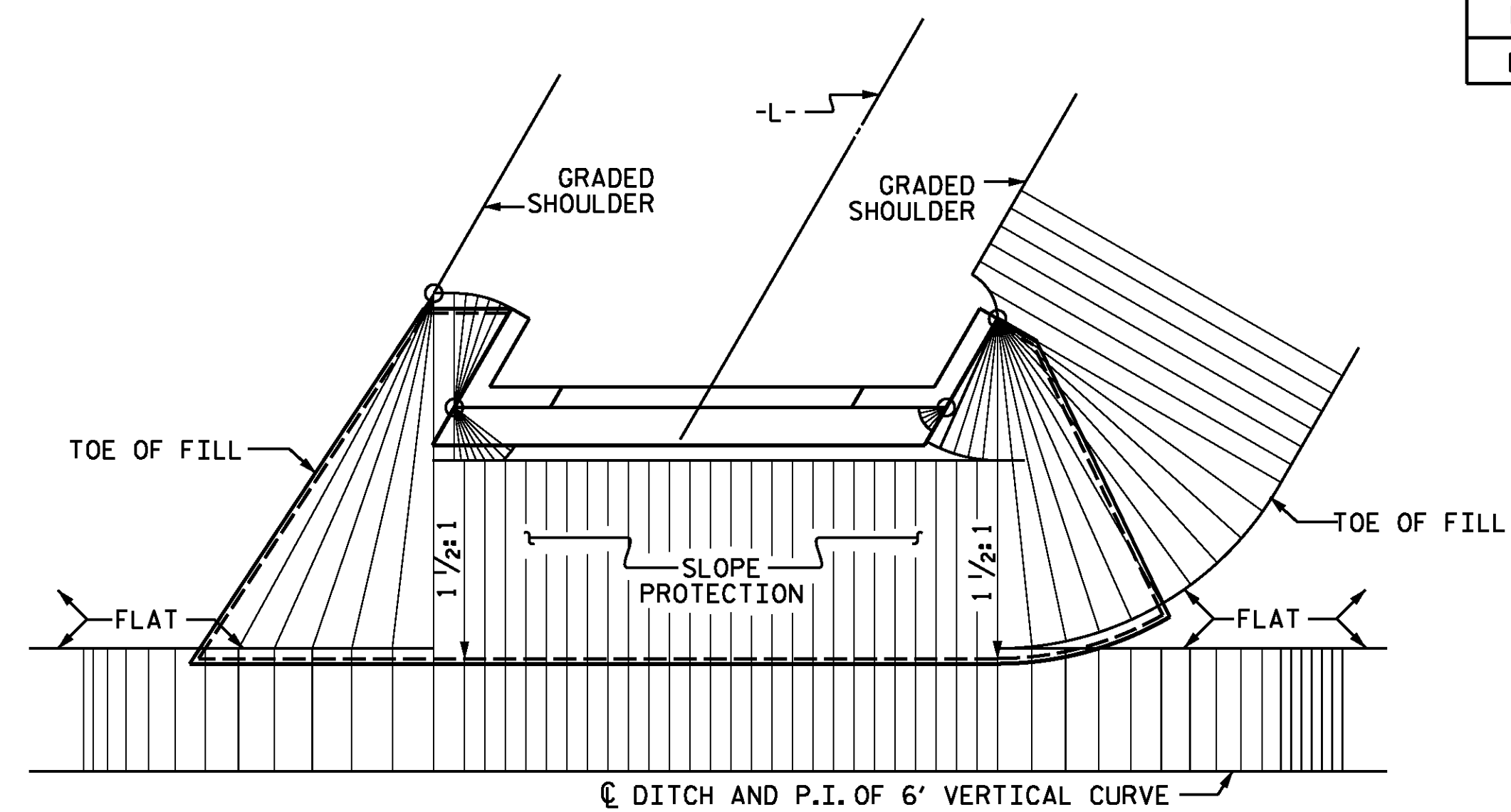
OPTIONAL POURING DETAIL

BRIDGE @ STA. 19+99.61 -L- STA. 22+42.99 -Y4-	4" INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	388	623
END BENT 2	348	560

* QUANTITY SHOWN IS BASED ON 5' POURS.

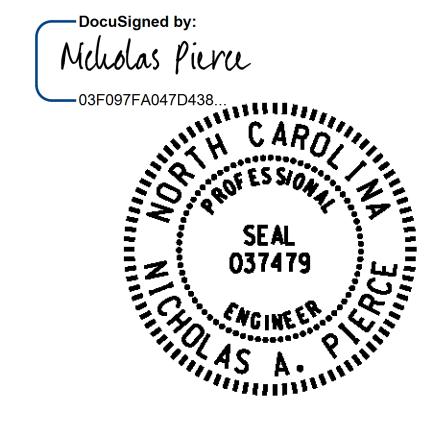


SECTION ALONG Q ROADWAY WHEN FILL CATCHES IN DITCH



PLAN - END BENT WITH SWEEP BACK WINGS - SKEWED

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014
ASSEMBLED BY : M. HOBBS	DATE : 11/2014
CHECKED BY : N. PIERCE	DATE : 11/2014
DRAWN BY : ELR 5/92	REV. 5/1/06 TLA/GM
CHECKED BY : GRP 6/92	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM



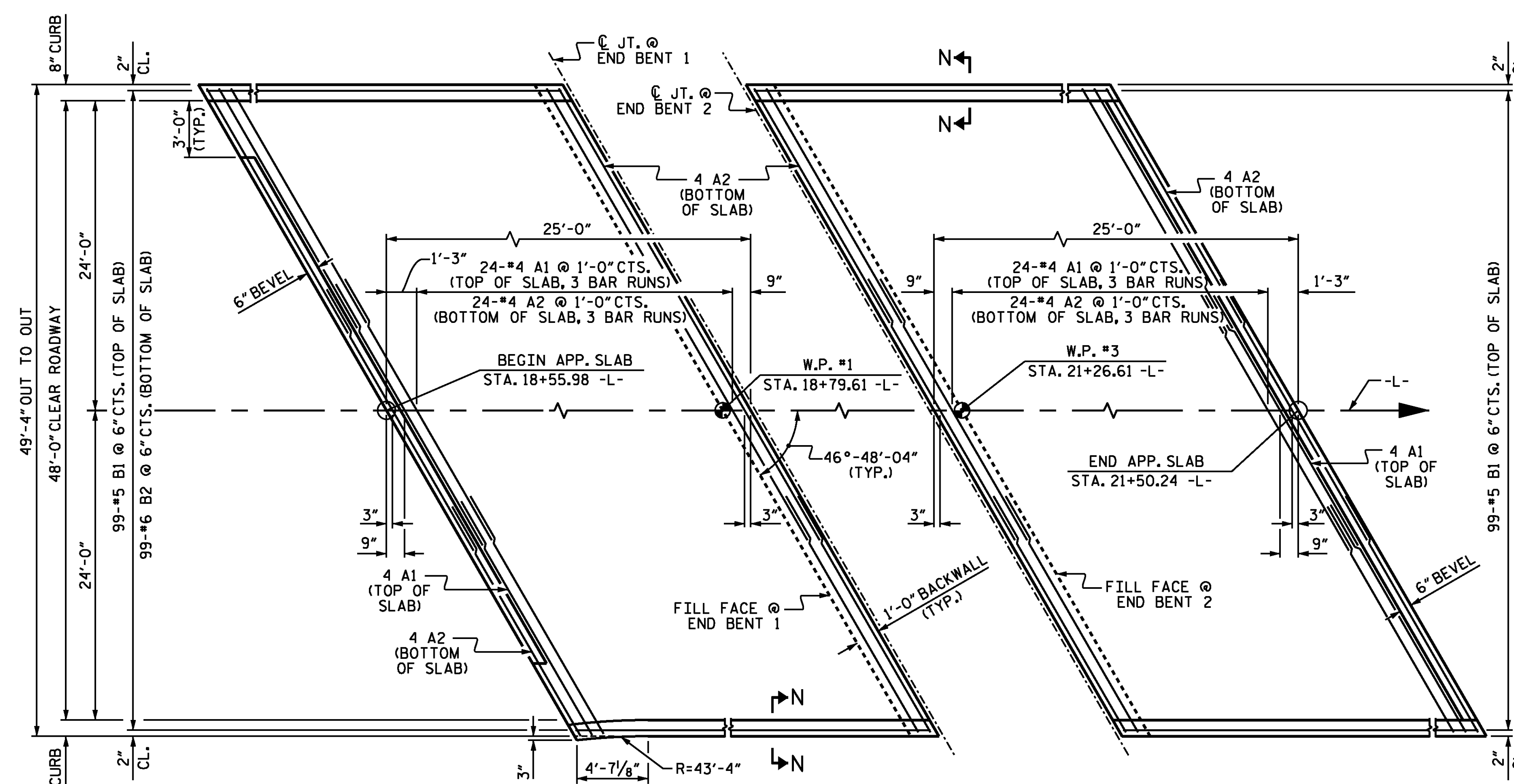
3/5/2015

WSP
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspgroup.com
 LICENSE NO. F-0891

PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

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

REVISIONS						SHEET NO. S01-34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			



PLAN @ END BENT 1 PLAN @ END BENT 2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
 FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
 THE JOINT SHALL BE SAWS CUT PRIOR TO THE CASTING OF THE BARRIER RAIL OR PARAPET AND END POST.
 WITH FOAM JOINT SEAL
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

APPROACH SLAB AT EB 1

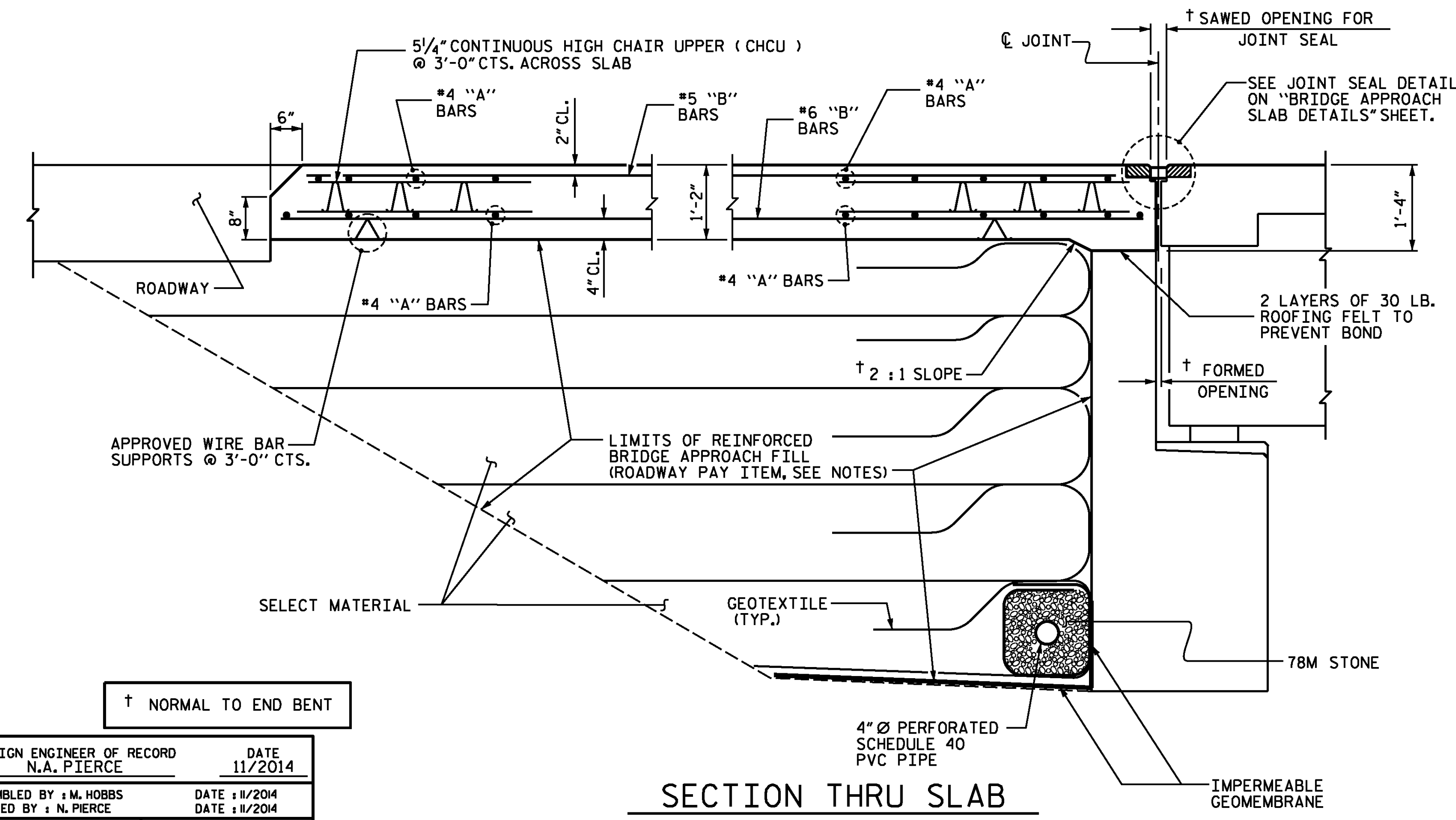
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	75	#4	STR	23'-11"	1,198
A2	78	#4	STR	23'-9"	1,237
*B1	99	#5	STR	23'-8"	2,444
B2	99	#6	STR	24'-8"	3,668
REINFORCING STEEL				LBS.	4,905
*EPOXY COATED REINFORCING STEEL				LBS.	3,642
CLASS AA CONCRETE				C. Y.	73

APPROACH SLAB AT EB 2

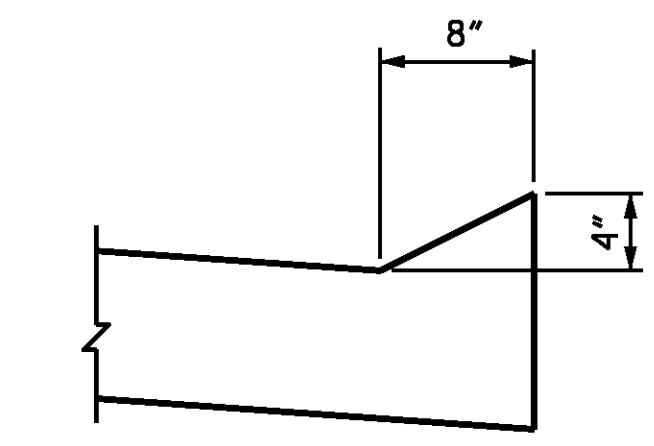
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	75	#4	STR	23'-9"	1,190
A2	78	#4	STR	23'-7"	1,229
*B1	99	#5	STR	23'-8"	2,444
B2	99	#6	STR	24'-8"	3,668
REINFORCING STEEL				LBS.	4,897
*EPOXY COATED REINFORCING STEEL				LBS.	3,634
CLASS AA CONCRETE				C. Y.	73

SPLICE LENGTHS

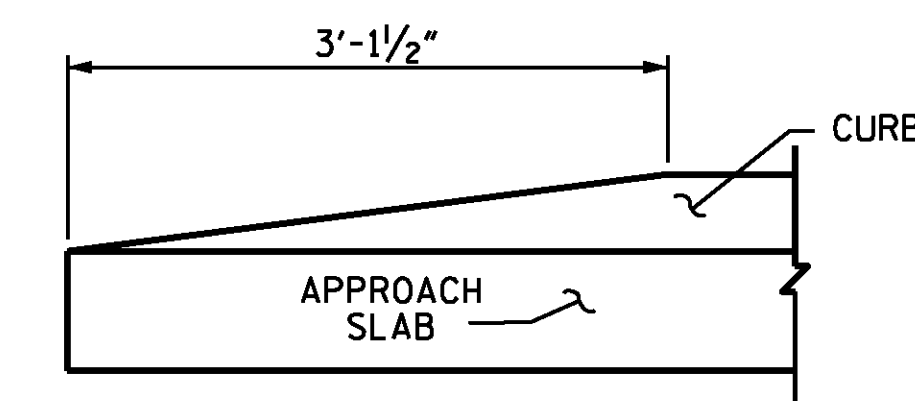
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



SECTION THRU SLAB

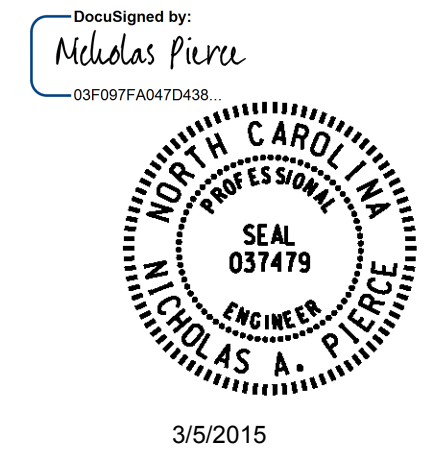


SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

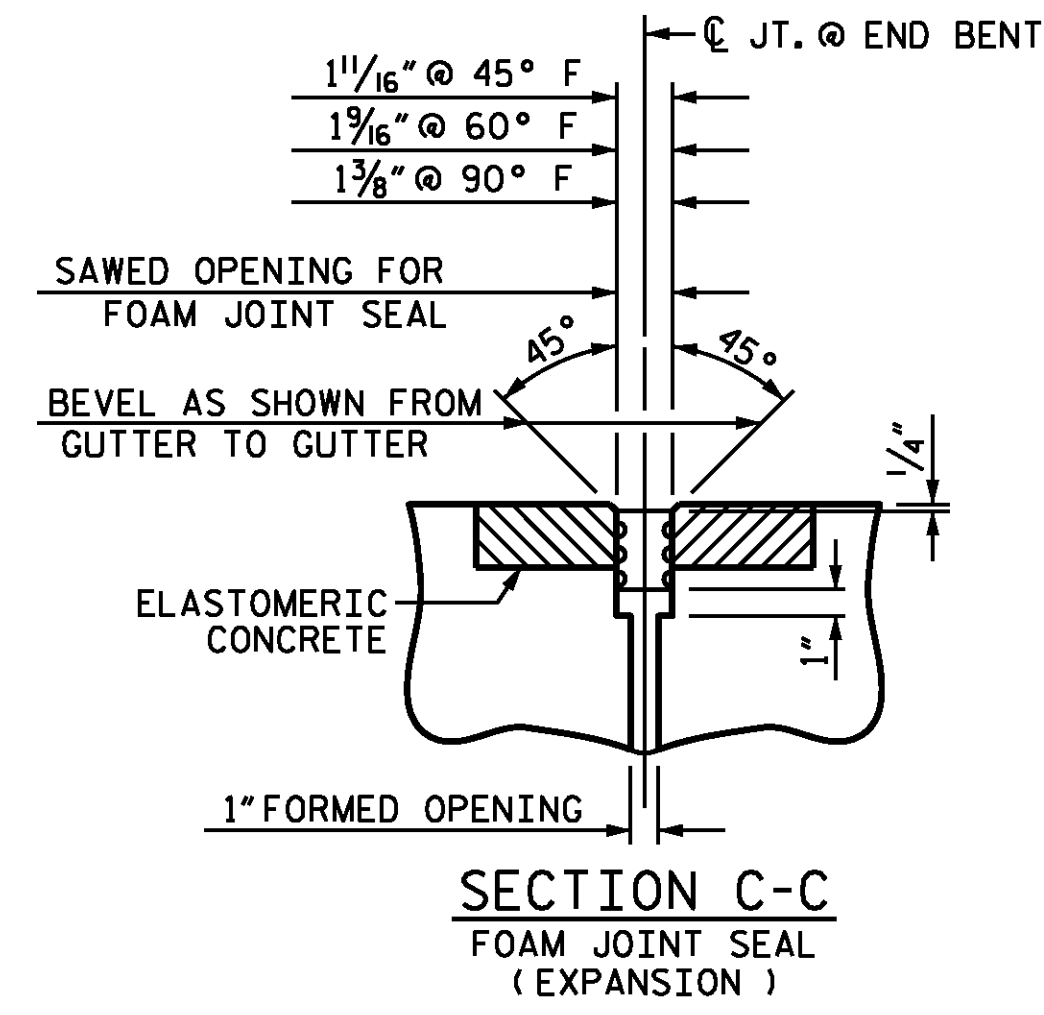
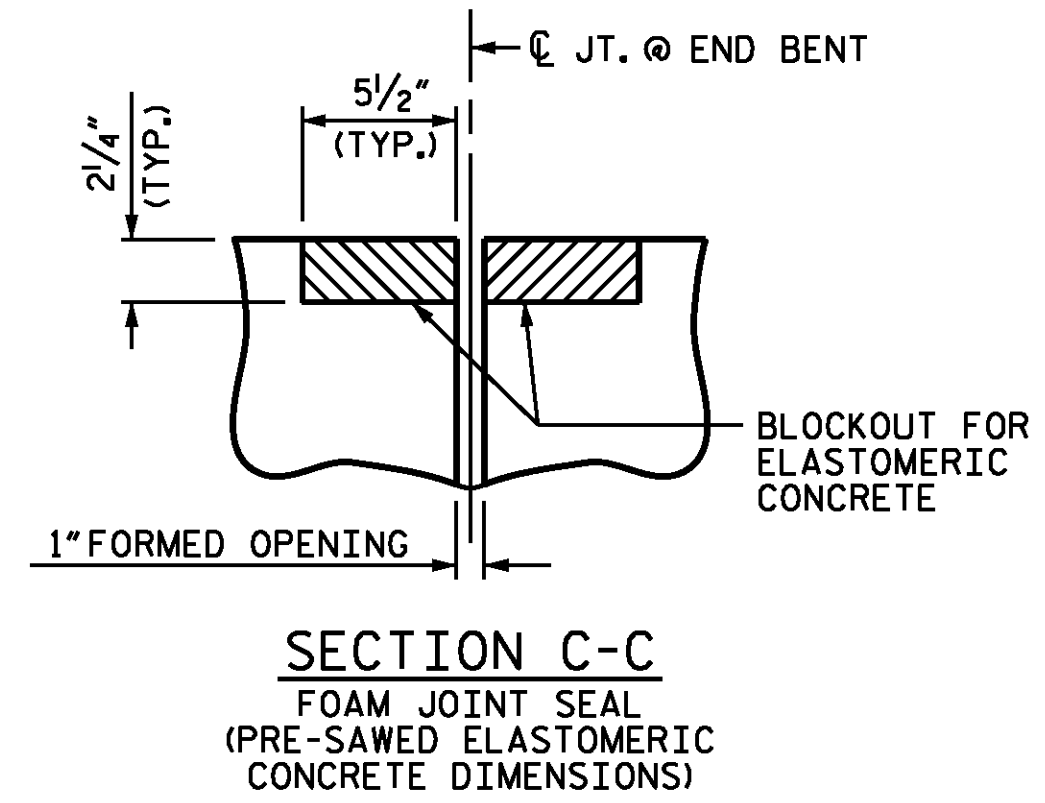
DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014
ASSEMBLED BY : M. HOBBS	DATE : 11/2014
CHECKED BY : N. PIERCE	DATE : 11/2014
DRAWN BY : EEM 3/95	REV. 10/11/11 MAA/GM
CHECKED BY : VAP 3/95	REV. 12/21/11 MAA/GM
	REV. 6/13 MAA/GM



PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-

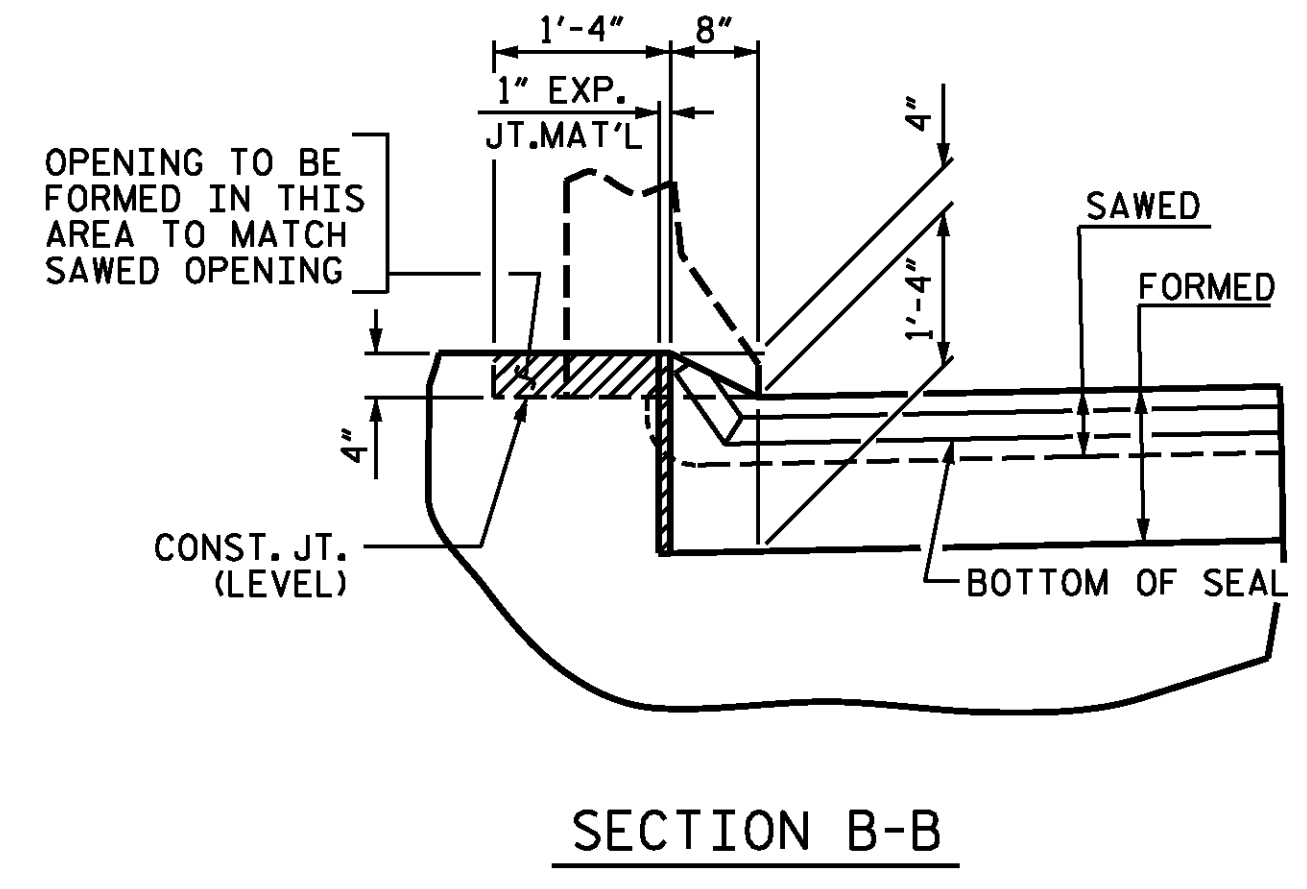
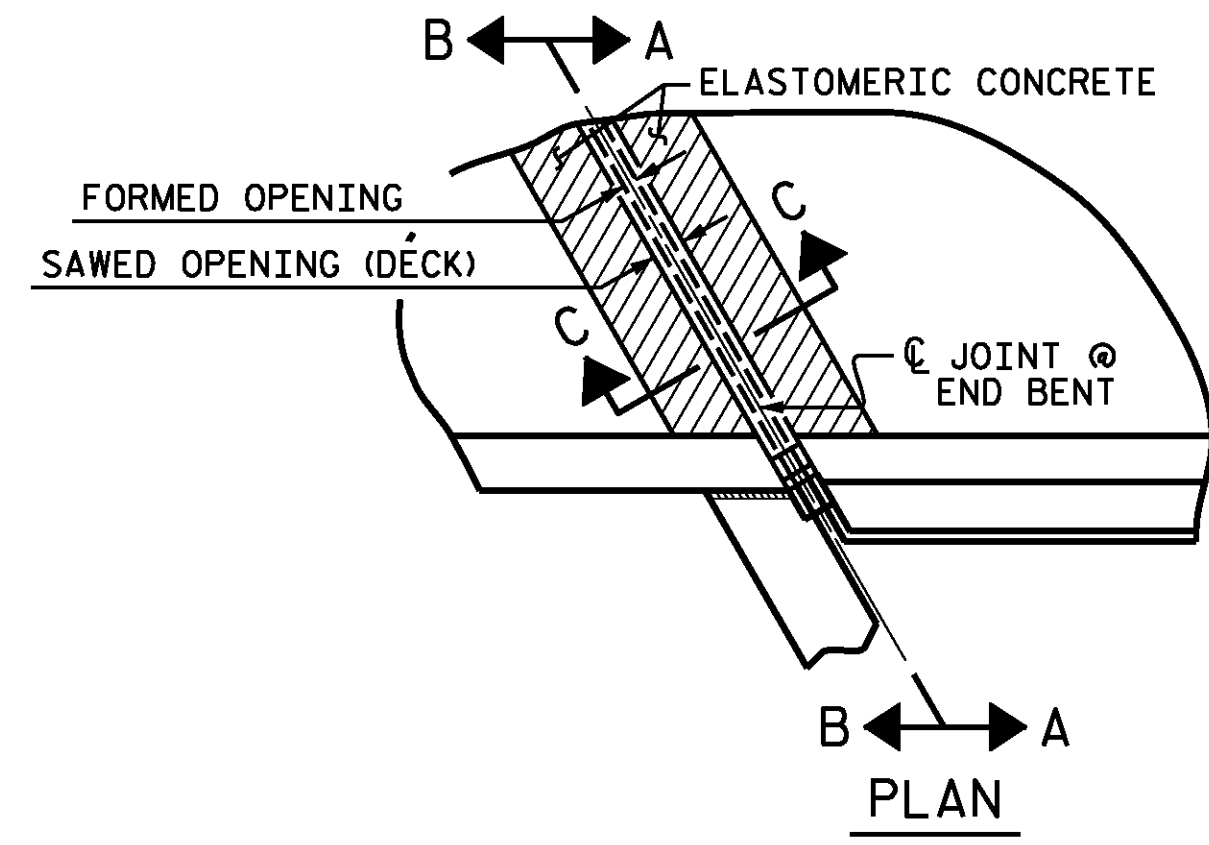
SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO.
NO.	BYs	DATEs	NO.	BYs	DATEs	TOTAL SHEETS
1			3			36
2			4			



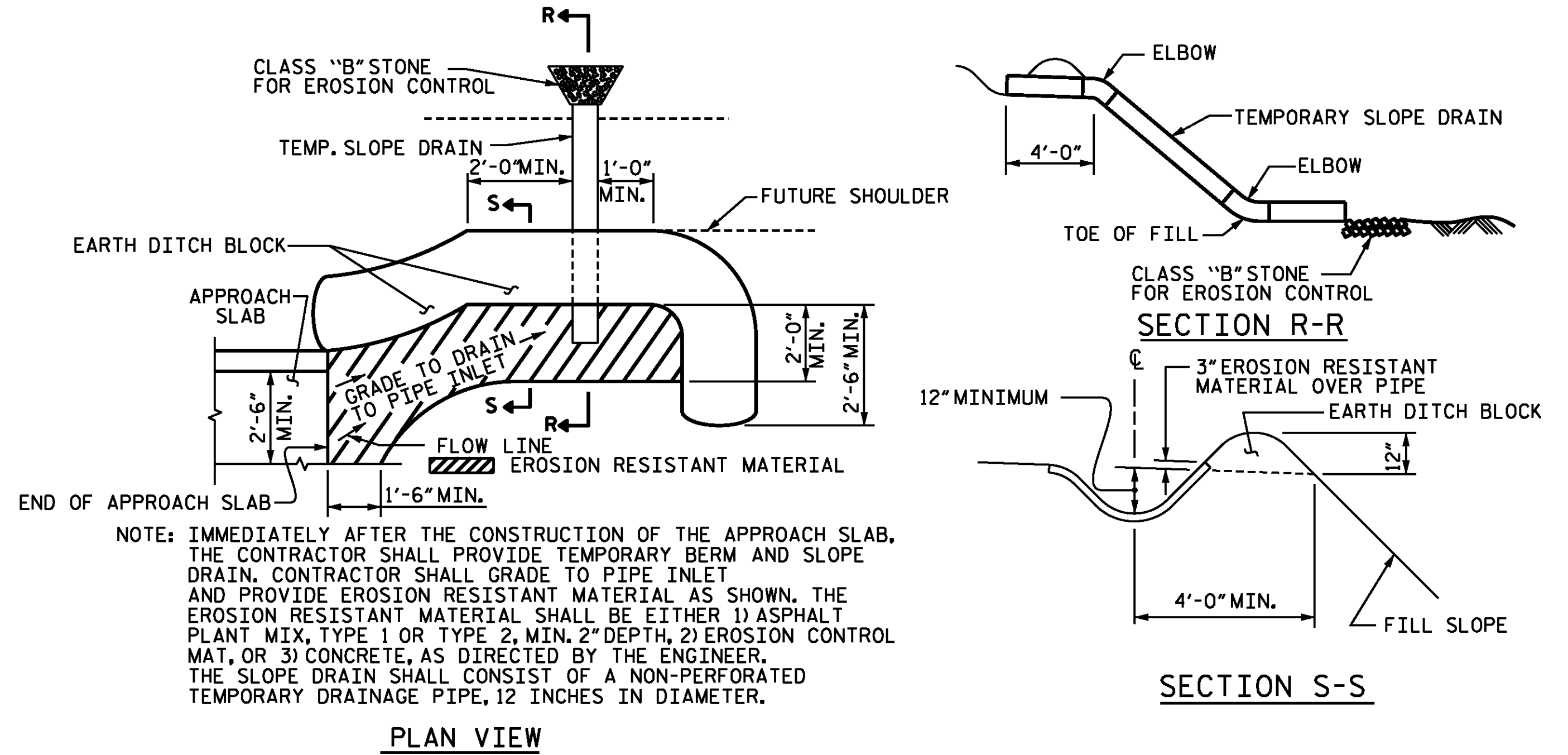
ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	11.32
2	11.32
TOTAL	22.64

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



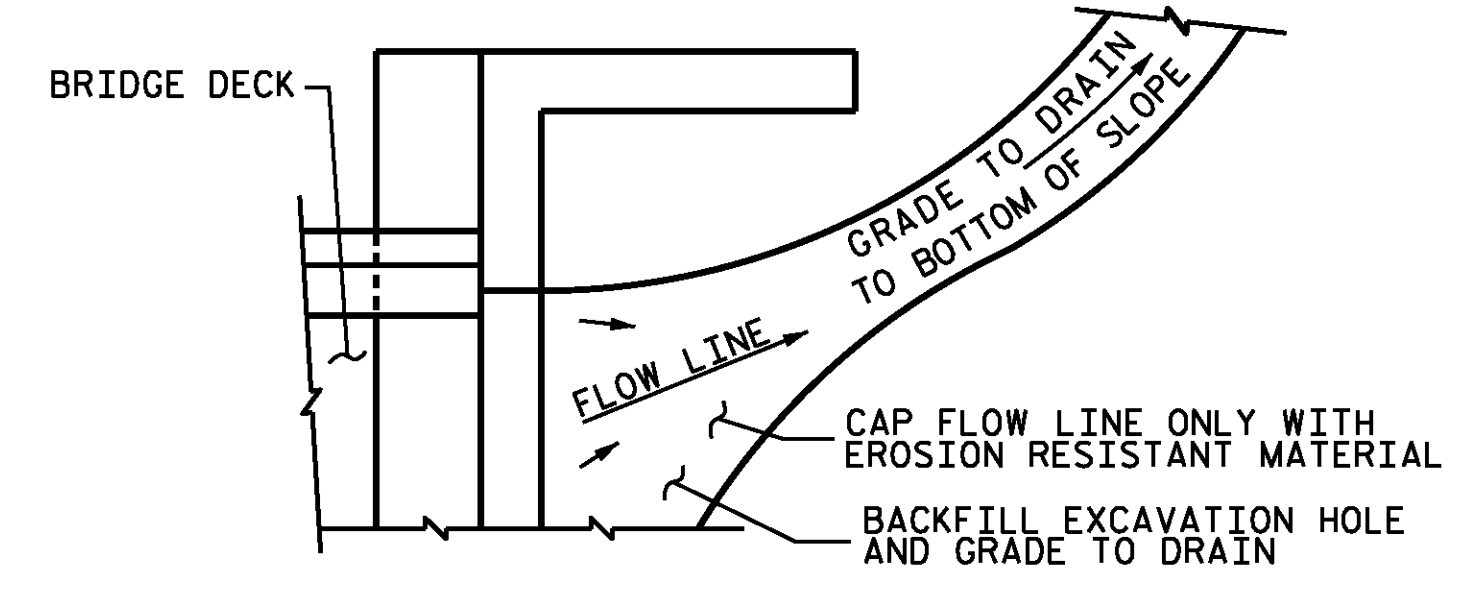
JOINT SEAL DETAILS @ END BENT

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.
THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

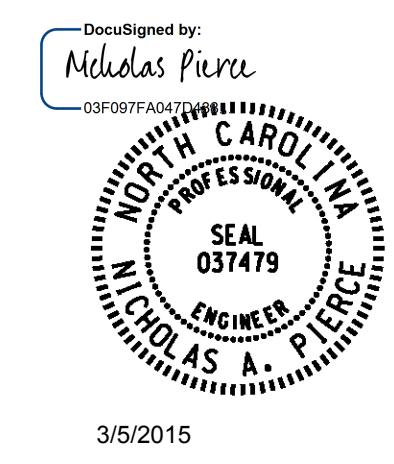


TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



TEMPORARY DRAINAGE DETAIL



PROJECT NO. B-5114
RANDOLPH COUNTY
STATION: 19+99.61-L-

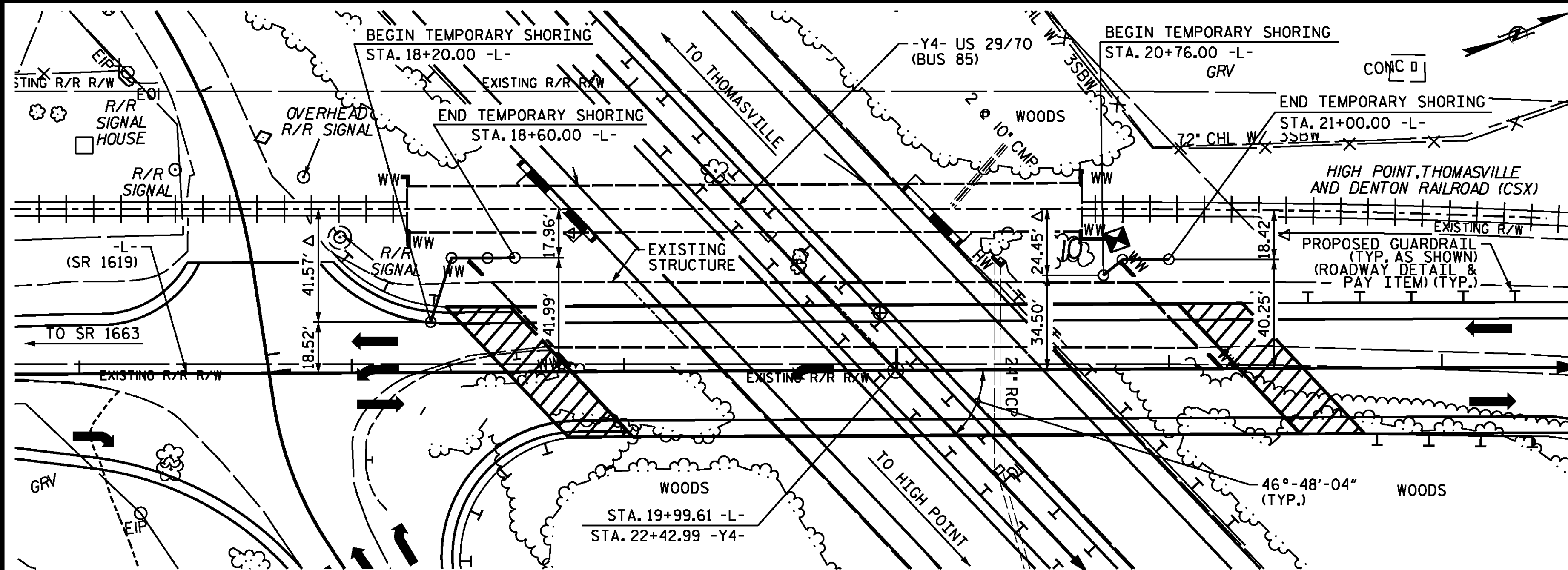
SHEET 2 OF 2
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH
SLAB DETAILS

DESIGN ENGINEER OF RECORD N. PIERCE	DATE 11/2014
ASSEMBLED BY : M. HOBBS CHECKED BY : N. PIERCE	DATE : 11/14 DATE : 11/14
DRAWN BY : FCJ CHECKED BY : ARB	11/88 11/88
REV. 10/1/11 REV. 7/12 REV. 6/13	MAA/GM MAA/GM MAA/GM

WSP
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspgroup.com
LICENSE NO. F-0891

REVISIONS						SHEET NO. S01-36
NO.	BYs	DATEs	NO.	BYs	DATEs	
1			3			TOTAL SHEETS 36
2			4			

BM #1 :CHISELED SQUARE IN NORTHEAST CORNER OF NORTHEAST WINGWALL OF HIGH POINT, THOMASVILLE AND DENTON RAILROAD BRIDGE OVER US29/70 (BUS 85), N = 789,930 E = 1,694,932 ELEV. = 953.65



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES:

FOR TEMPORARY RAILROAD SHORING, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR SHALL NOT BEGIN EXCAVATION AT THE LOCATIONS SHOWN ON THESE PLANS UNTIL NOTIFIED OF RAILROAD APPROVAL.
 Δ DIMENSION SHOWN IS TO C HP14X73 STEEL PILES.

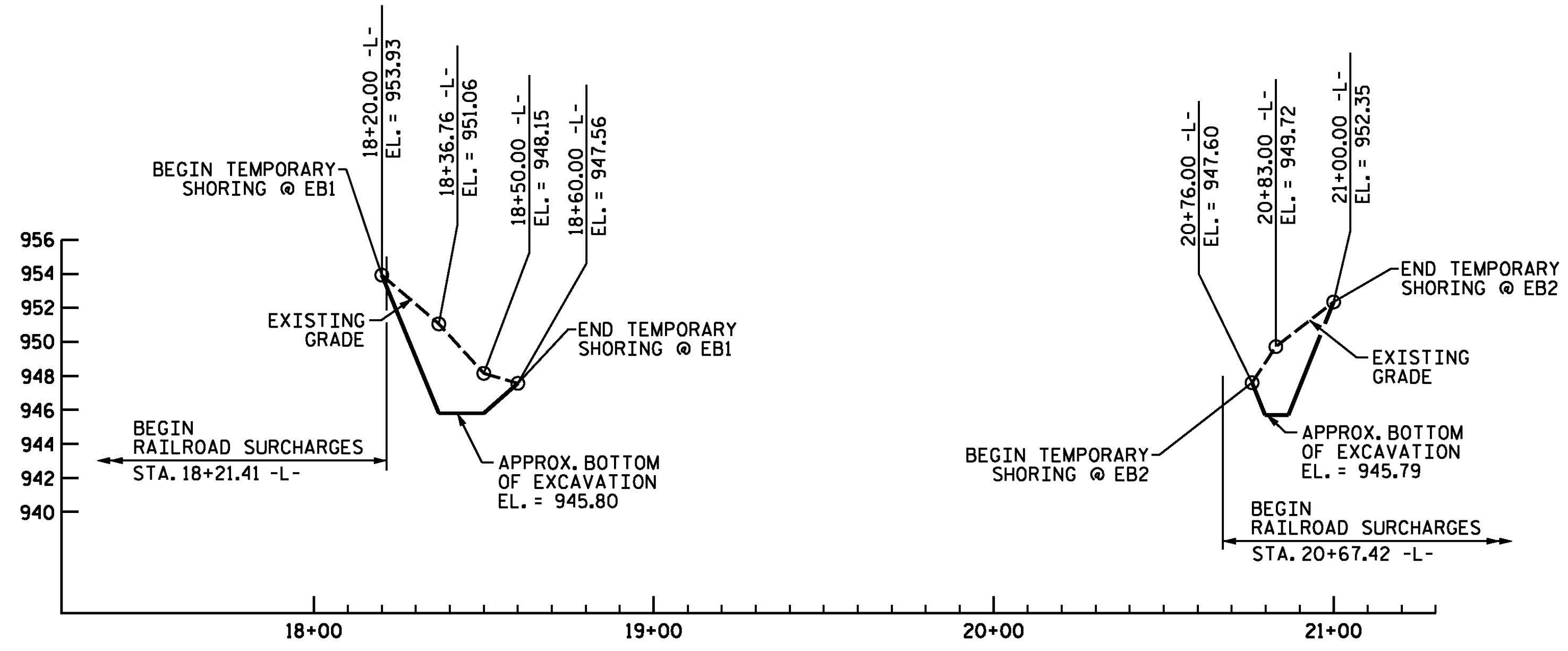
TEMPORARY SHORING ELEVATIONS

-L- STA.	OFFSET FROM C (LEFT)	* EXISTING GROUND ELEV. (±)	* APPROX. BOTTOM OF EXCAVATION ELEV. (±)
END BENT 1			
18+20.00 -L-	18.52	953.93	953.93
18+36.76 -L-	42.00	951.06	945.80
18+50.00 -L-	41.90	948.15	945.80
18+60.00 -L-	41.99	947.56	947.56
END BENT 2			
20+76.00 -L-	34.50	947.60	945.79
20+83.00 -L-	40.20	949.72	945.79
21+00.00 -L-	40.25	952.35	952.35

* ELEVATION OF EXISTING GRADE AND EXPOSED WALL HEIGHT DOES NOT INCLUDE EMBEDMENT DEPTH.

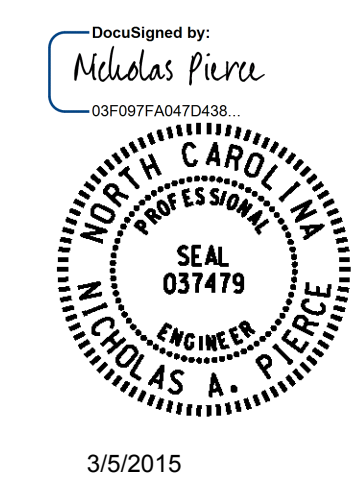
ESTIMATED PILE LENGTH/PILE

TYPE	NO.	LENGTH/EA.	TOTAL
END BENT 1			
HP14x74	10	24'-7"	245.83'
END BENT 2			
HP14x73	5	24'-7"	122.92'



VERTICAL PROFILE

PROJECT NO. B-5114
 RANDOLPH COUNTY
 STATION: 19+99.61 -L-
22+42.99 -Y4-
 SHEET 1 OF 2 MILE POST H 3.3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TEMPORARY SHORING FOR BRIDGE ON SR 1619 OVER US 29/70 (BUS 85) BETWEEN SR 1663 AND SR 1621

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TS01-1
1			3			101A SHEETS
2			4			2

DESIGN ENGINEER OF RECORD: N.A. PIERCE DATE: 10/2014
 DRAWN BY: M.A. HOBBS DATE: 10/2014
 CHECKED BY: N.A. PIERCE DATE: 10/2014

NOTES:

DRILLED-IN H-PILES ARE REQUIRED FOR RETAINING WALL AT END BENT 1 & 2.

USE A SOLDIER PILE RETAINING WALL WITH A TIMBER LAGGING RETAINING WALL AT END BENT 1 & 2.

BEFORE BEGINNING SOLDIER PILE WALL CONSTRUCTION FOR TEMPORARY SHORING AT END BENT 1 & 2, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

THE DRILLED-IN PILES SHALL HAVE A MINIMUM EMBEDMENT OF 19'-4".

FOR TEMPORARY SHORING, SEE "TEMPORARY RAILROAD SHORING" SPECIAL PROVISION.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE SHORING AND EXCAVATION PLANS HAVE BEEN SUBMITTED TO THE RAILROAD BY THE STATE. AS OF THE TIME OF PLAN PRINTING FOR ADVERTISEMENT FOR BIDS, RAILROAD APPROVAL HAS NOT BEEN RECEIVED. WHEN SUCH APPROVAL HAS BEEN RECEIVED, THE CONTRACTOR WILL BE NOTIFIED BY ADDENDUM. IN THE EVENT RAILROAD APPROVAL IS NOT GIVEN PRIOR TO SUBMISSION OF BIDS, THE CONTRACTOR SHALL SUBMIT BIDS BASED ON THE CONTRACT PLANS. THE CONTRACTOR SHALL NOT BEGIN EXCAVATION AT THE LOCATIONS SHOWN ON THESE PLANS UNTIL NOTIFIED.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF SHORING. DIRECT RUNOFF AWAY FROM SHORING.

FOR EXCAVATABLE FLOWABLE FILL, SEE SUBARTICLE 1000-6 OF THE STANDARD SPECIFICATIONS.

THE TOP OF INSTALLED PILES SHALL BE WITHIN 1 INCH OF THEIR PLAN LOCATION IN ANY HORIZONTAL OR VERTICAL DIRECTION AND 1/8" FROM VERTICAL.

NO SPLICES ARE PERMITTED IN H-PILES EXCEPT WHERE LOW VERTICAL CLEARANCE IS AN ISSUE.

DRILLED-IN H-PILES ARE REQUIRED. FOR DRILLED-IN H-PILES INSTALLATION, SEE SUBARTICLE 450-3(E) OF THE STANDARD SPECIFICATIONS EXCEPT EXCAVATABLE FLOWABLE FILL MUST BE USED ABOVE THE PROPOSED EXCAVATION ELEVATION.

THE EXCAVATED HOLE SHALL BE 30 INCH MINIMUM DIAMETER.

WITHIN 12 HOURS OF COMPLETING EACH HOLE, PLACE H-PILES, BACKFILL WITH CONCRETE AND EXCAVATABLE FLOWABLE FILL TO THE ELEVATIONS SHOWN IN DETAIL 'A'.

USE CLASS A CONCRETE THAT MEETS ARTICLE 1000-4 EXCEPT PROVIDING CONCRETE WITH A SLUMP OF 6" TO 8". AN APPROVED HIGH-RANGE WATER REDUCER MAY BE USED TO ACHIEVE THIS SLUMP.

DESIGN OF TEMPORARY SHORING IS IN ACCORDANCE WITH AREMA VOLUME 2, CHAPTER 8 AND CSXT SHORING REQUIREMENTS FOR COOPERS E-80 TRAIN LOADINGS.

TEMPORARY SHORING HAS BEEN DESIGNED FOR THE FOLLOWING SOIL PROPERTIES AND GROUND WATER ELEVATION:
 EFFECTIVE UNIT WEIGHT = 120 LB/CU.FT.
 FRICTION ANGLE = 28 DEGREES
 COHESION = 0 PSF
 GROUNDWATER ELEVATION = 928.00 FT

CURE CONCRETE AND EXCAVATABLE FLOWABLE FILL AT LEAST 7 DAYS BEFORE EXCAVATING IN FRONT OF TEMPORARY SHORING.

EXCAVATE IN FRONT OF PILES FROM THE TOP DOWN AND IMMEDIATELY INSTALL TIMBER LAGGING BETWEEN PILES TO RETAIN THE SOIL AS EXCAVATION PROGRESSES.

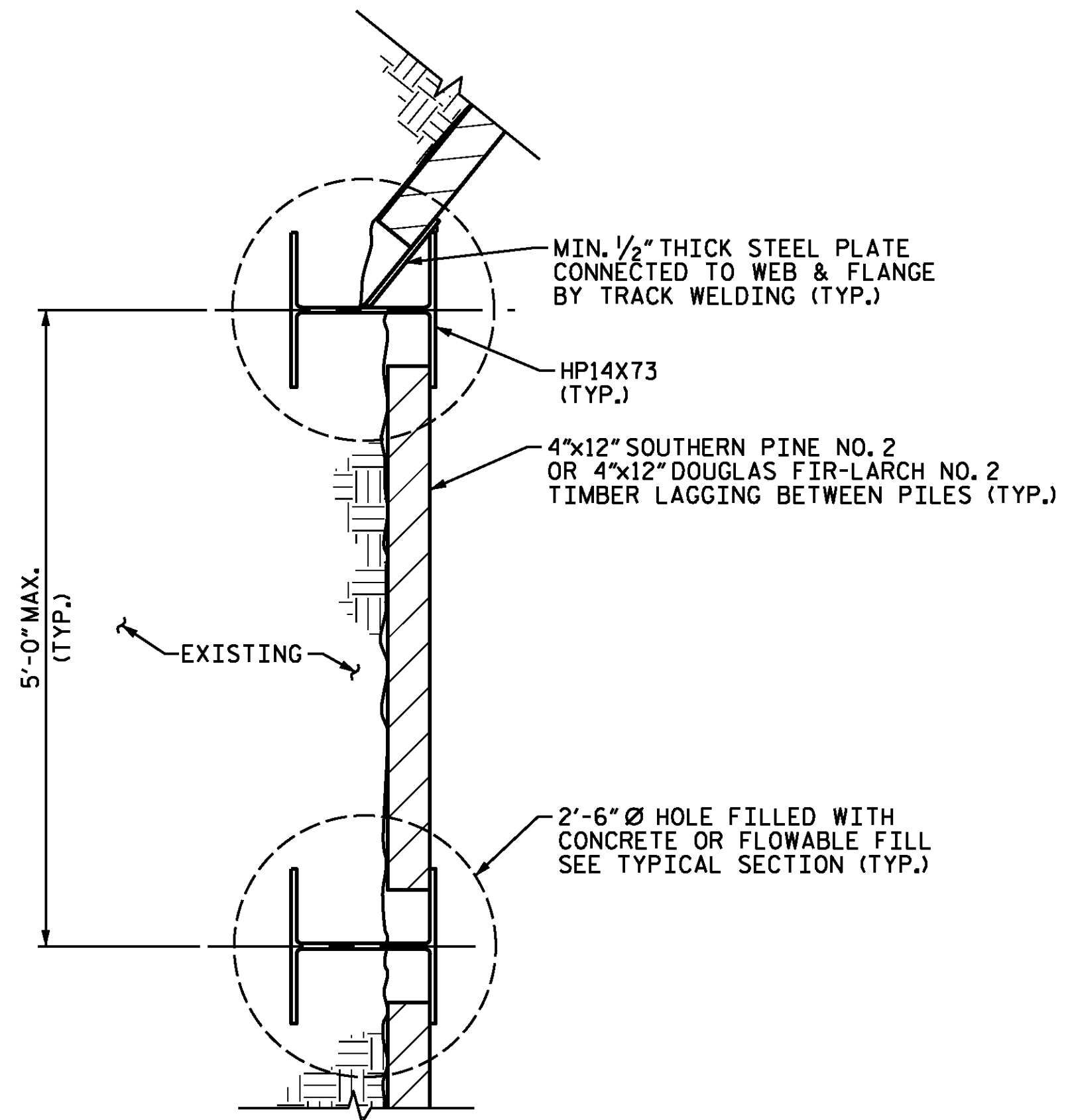
LIMIT OPEN EXCAVATION LIFT HEIGHT TO 6 FEET OR LESS IN HEIGHT.

POSITION LAGGING WITH AT LEAST 3" OF CONTACT IN THE HORIZONTAL DIRECTION BETWEEN LAGGING AND H-PILES FLANGES.

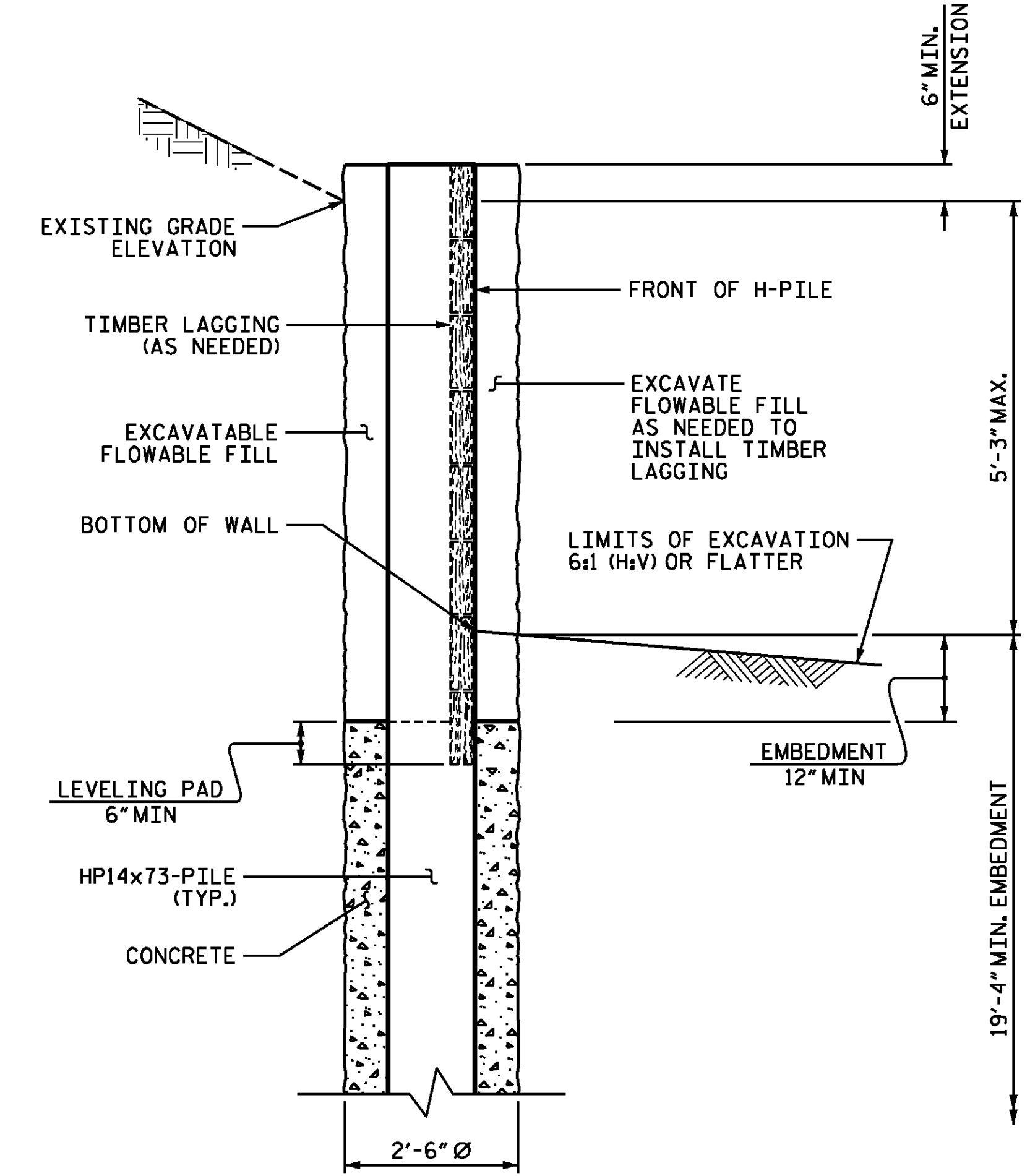
REMOVE TEMPORARY RAILROAD SHORING TO A MINIMUM OF TWO FEET BELOW PROPOSED GROUND.

ANY ALTERNATE DESIGN FOR TEMPORARY SHORING SHALL USE SOIL PARAMETERS NO BETTER THAN THOSE SHOWN ABOVE AND SHALL BE IN ACCORDANCE WITH AREMA VOLUME 2, CHAPTER 8 AND CSXT SHORING REQUIREMENTS FOR COOPERS E-80 TRAIN LOADINGS.

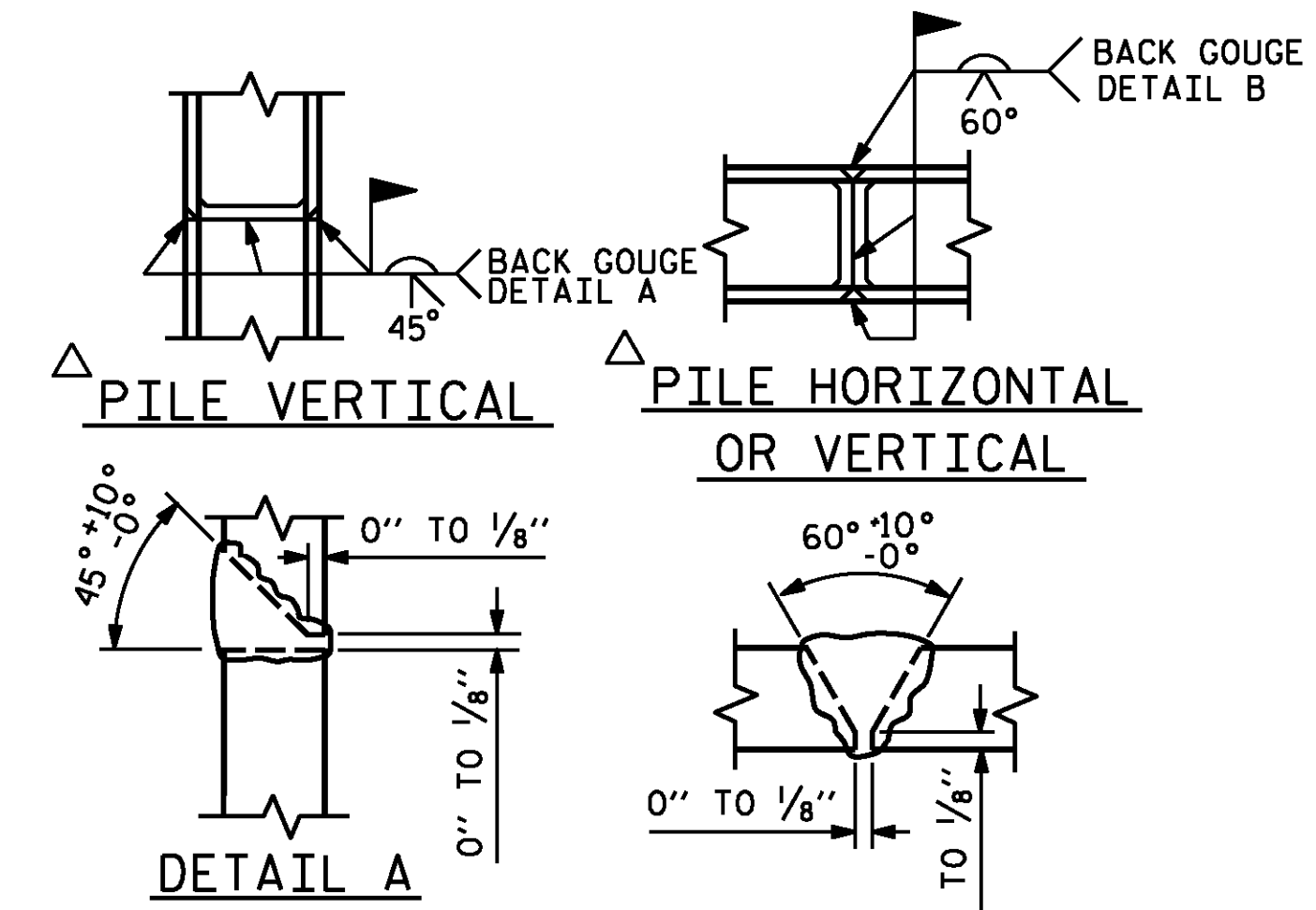
ANY ALTERNATE DESIGN FOR TEMPORARY SHORING SHALL HAVE A MAXIMUM DEFLECTION OF 1 INCH AT THE PILE TOP.



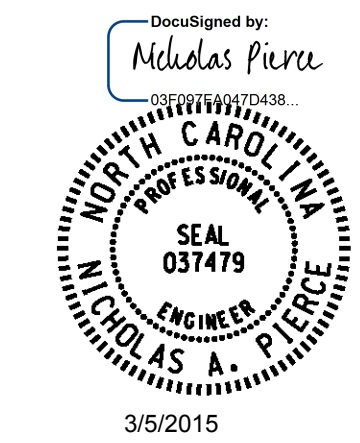
PLAN - SOLDIER PILE WALL



SOLDIER PILE WALL - TYPICAL SECTION



PILE SPLICE DETAILS



PROJECT NO. B-5114
RANDOLPH COUNTY
 STATION: 19+99.61 -L-
22+42.99 -Y4-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
TEMPORARY SHORING
 FOR BRIDGE ON SR 1619
 OVER US 29/70/
 (BUS 85) BETWEEN
 SR 1663 AND SR 1621



REVISIONS						SHEET NO.
NO.	BYs	DATEs	NO.	BYs	DATEs	TS01-2
1			3			TOTAL SHEETS
2			4			2

DESIGN ENGINEER OF RECORD N.A. PIERCE	DATE 11/2014
DRAWN BY : M.A. HOBBS	DATE : 11/2014
CHECKED BY : N.A. PIERCE	DATE : 11/2014

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

REINFORCING STEEL:

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

STRUCTURAL STEEL:

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

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
 METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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