

TIP PROJECT: U-4007A

CONTRACT: C202647

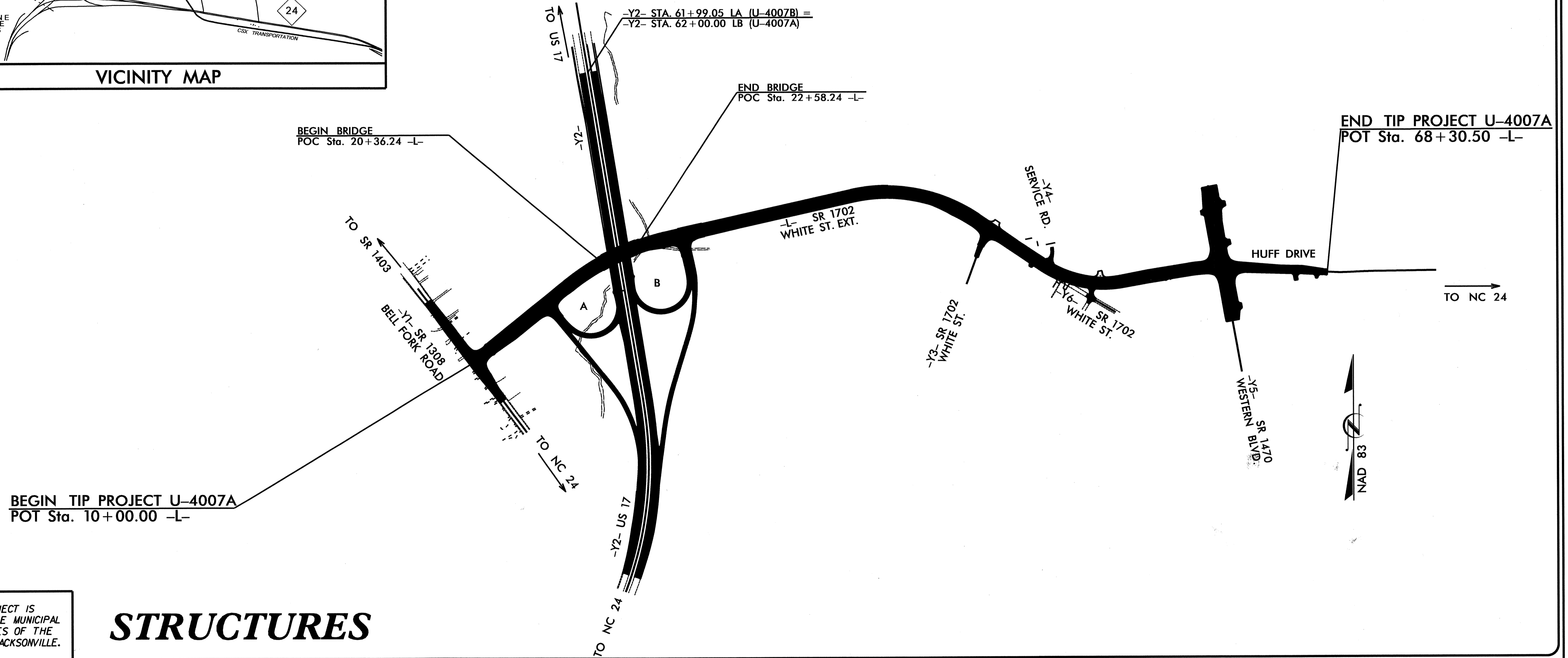
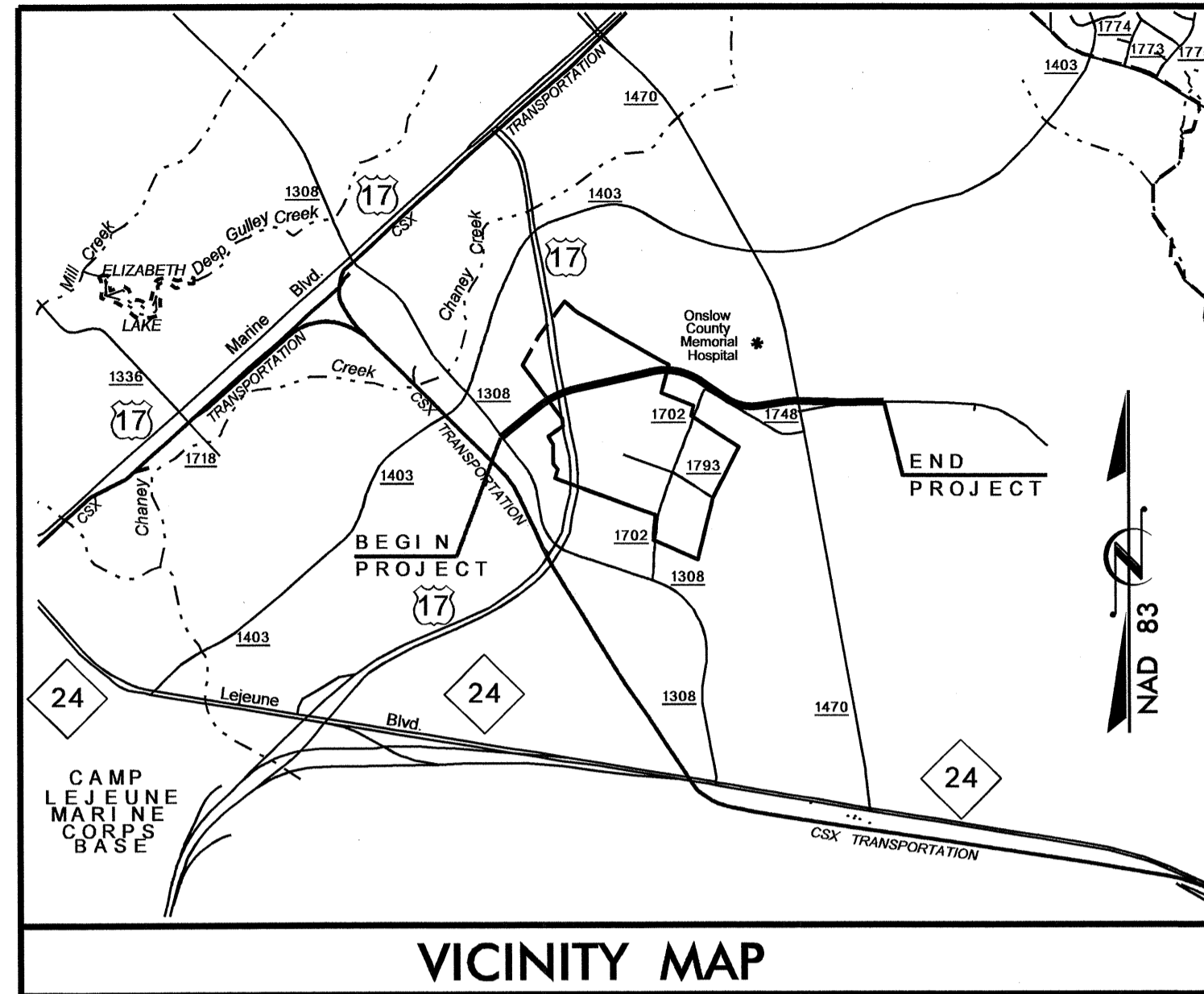
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

LOCATION: SR 1702 (WHITE STREET EXTENSION) FROM SR 1308 (BELL FORK ROAD) TO SR 1470 (WESTERN BOULEVARD)

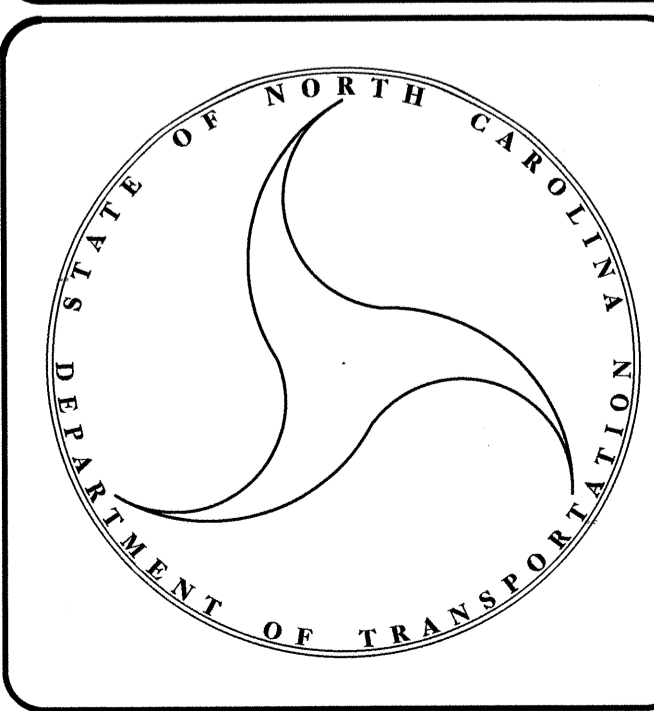
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, CULVERTS, SIGNALS, AND RETAINING WALL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007A		
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
35008.1.1	STPNHF-17(31)	PE	
35008.3.1	STPNHF-17(63)	RW & UTILS.	
35008.2.3	STPNHF-0017(102)	CONSTR.	



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF JACKSONVILLE.

STRUCTURES



DESIGN DATA	
ADT 2011	= 14,500
ADT 2031	= 18,400
DHV	= 10 %
D	= 65 %
T	= 2 % *
V	= 40 MPH
* (TTST 1 % + DUAL 1 %)	
URBAN MAJOR COLLECTOR	

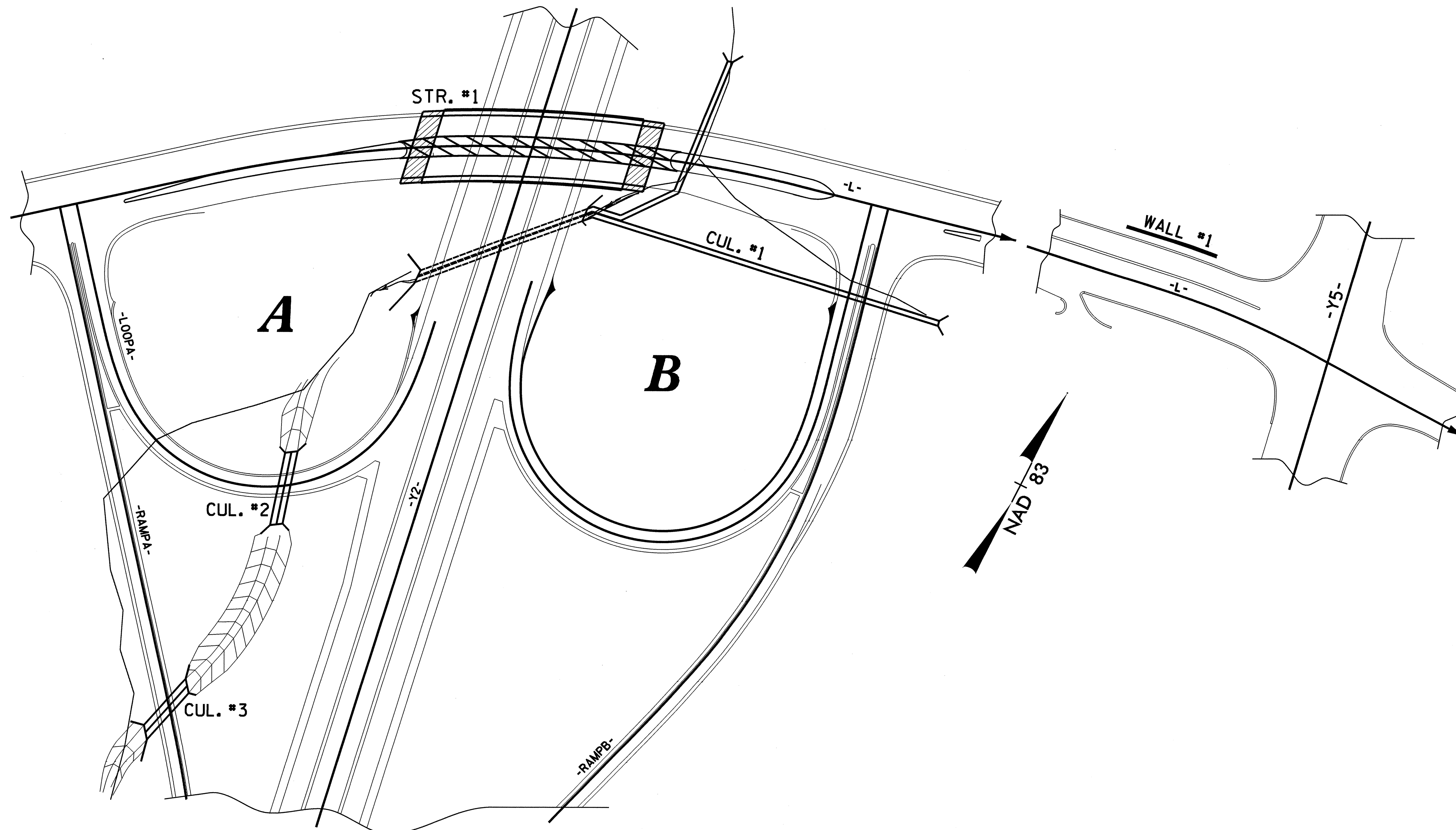
PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT U-4007A	= 1.062 mi.
LENGTH STRUCTURE TIP PROJECT U-4007A	= 0.042 mi.
TOTAL LENGTH TIP PROJECT U-4007A	= 1.104 mi.

Prepared in the Office of: DIVISION OF HIGHWAYS	
1000 BIRCH RIDGE DR., RALEIGH, NC 27610	
2006 STANDARD SPECIFICATIONS	
LETTING DATE: JULY 19th. 2011	B. Charles Hunt, PE PROJECT ENGINEER
	W. Kevin Fischer, PE PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

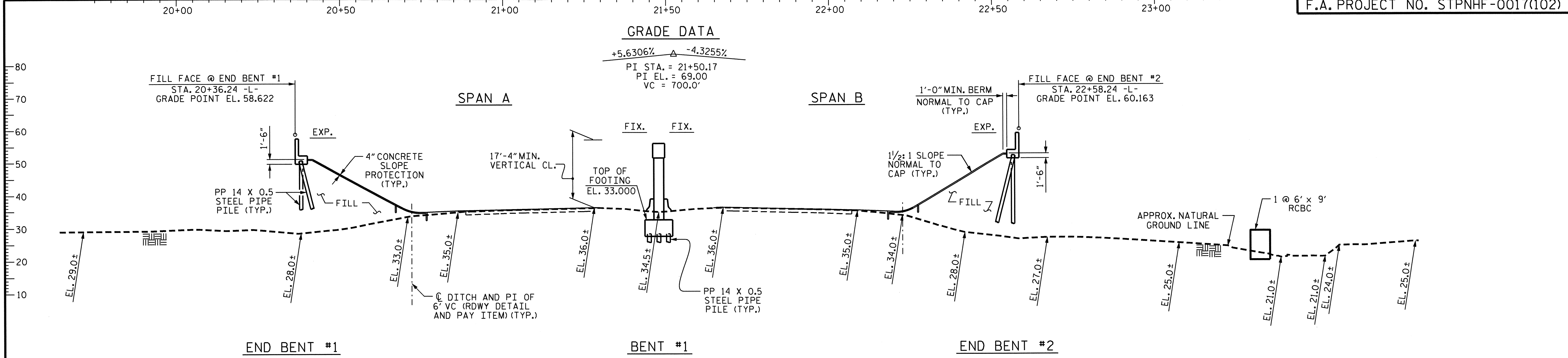


INDEX			
	STATION	DESCRIPTION	SHEET NUMBERS
STR. #1	STA. 21+47.74 -L-	BRIDGE ON SR 1702 (WHITE ST. EXT.) OVER US 17 BETWEEN SR 1308 AND SR 1470	S-1 THRU S-32
CUL. #1	STA. 23+32.00 -L- STA. 16+74.00 -RAMPB-	EXTENSION OF EXISTING DOUBLE 6' x 8' REINFORCED CONCRETE BOX CULVERT	C-1 THRU C-12
CUL. #2	STA. 2+18.00 -LOOPA-	DOUBLE 7x8 REINFORCED CONCRETE BOX CULVERT 109° SKEW	C-13 THRU C-16
CUL. #3	STA. 7+19.00 -RAMP A-	DOUBLE 7x8 REINFORCED CONCRETE BOX CULVERT 54° SKEW	C-17 THRU C-21
WALL #1	STA. 58+96.00 -L-	SEGMENTAL GRAVITY RETAINING WALL	W-1

PROJECT NO. U-4007A
ONslow COUNTY
 STATION: 21+47.74 -L-

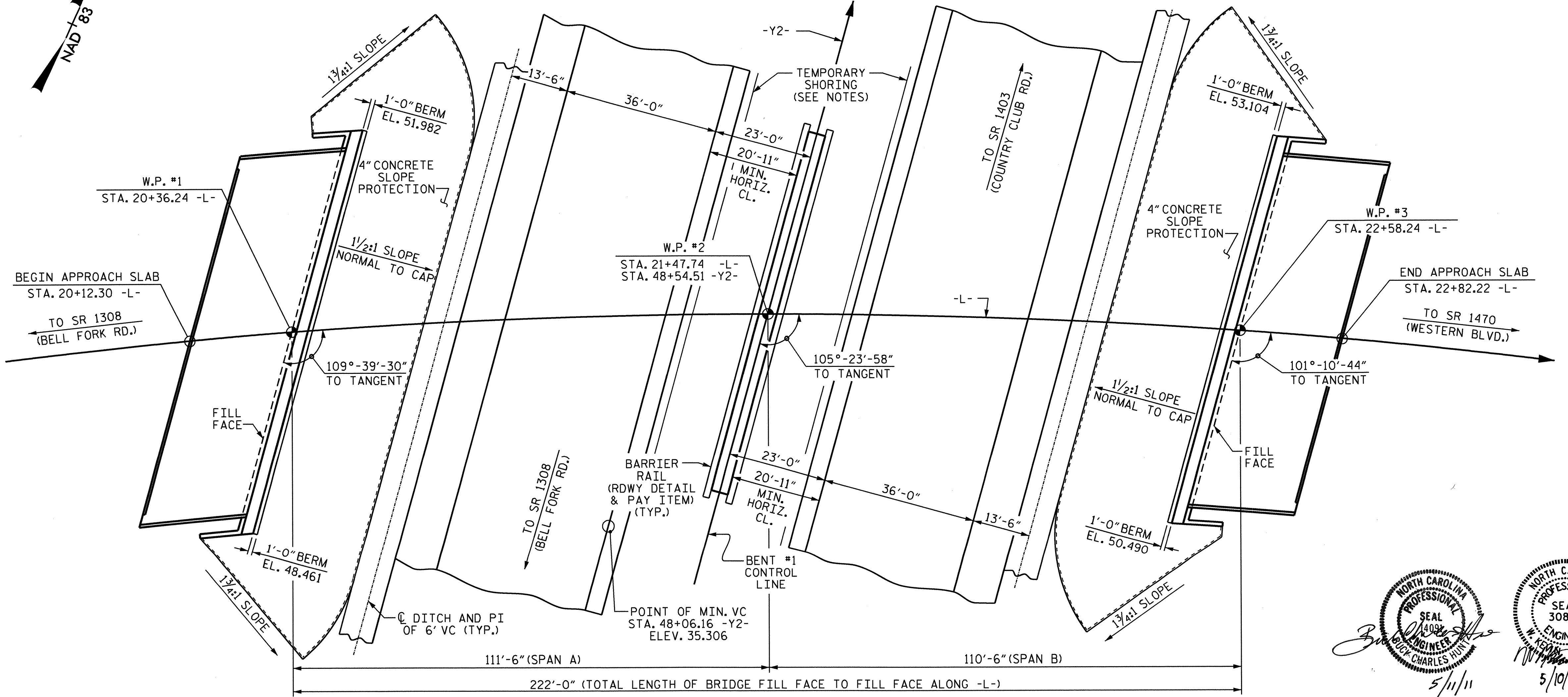
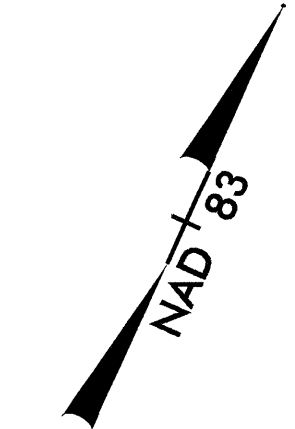
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
INDEX					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS

DRAWN BY: KEITH D. LAYNE DATE: 2/15/11
 CHECKED BY: W. K. FISCHER DATE: 3/15/11



SECTION ALONG -L-

SECTION TAKEN AT RIGHT ANGLES TO BENT AND END BENTS



PI STA. = 21+20.82
 $\Delta = 26^\circ-28'-47''$ (RT.)
 D = 3'-49'-11"
 L = 693.23'
 T = 352.92'
 R = 1500.00
 SE = 0.03

HORIZONTAL CURVE DATA -L-

PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-
 48+54.51 -Y2-
 SHEET 1 OF 4 BRIDGE #289

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON
 SR 1702 (WHITE ST. EXT.)
 OVER US 17 BETWEEN
 SR 1308 AND SR 1470

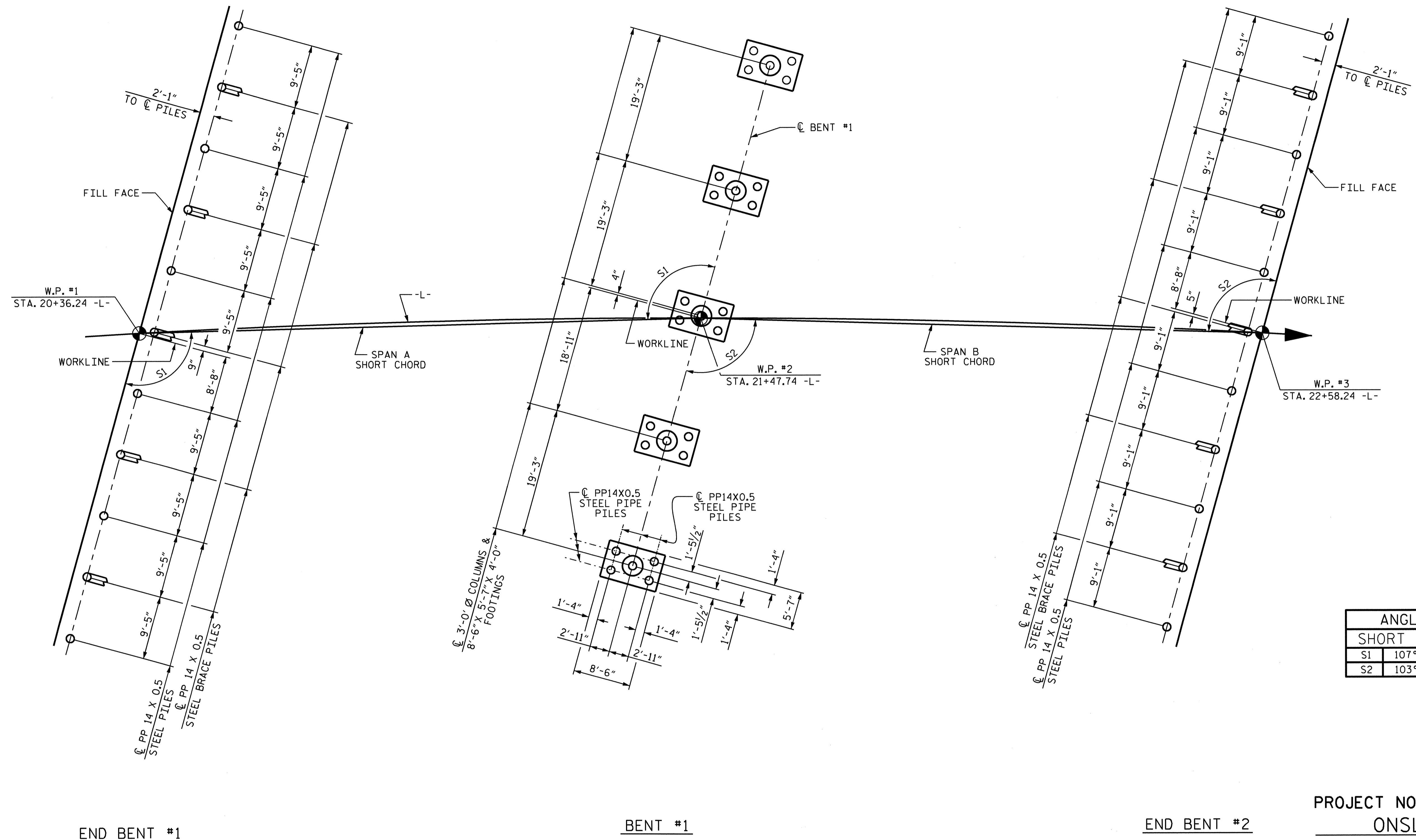


DRAWN BY: M.K. BEARD DATE: 1/29/10
 CHECKED BY: K.D. LAYNE DATE: 6/17/10

10-MAY-2011 14:12
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 wk.fischer

PLAN
 PILES AND FOOTINGS NOT SHOWN FOR CLARITY

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



ANGLES	
SHORT CHORD	
S1	107°-31'-44"
S2	103°-17'-21"

END BENT #1

BENT #1

END BENT #2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.

FOUNDATION NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT #1 AND END BENT #2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 150 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 250 TONS PER PILE.

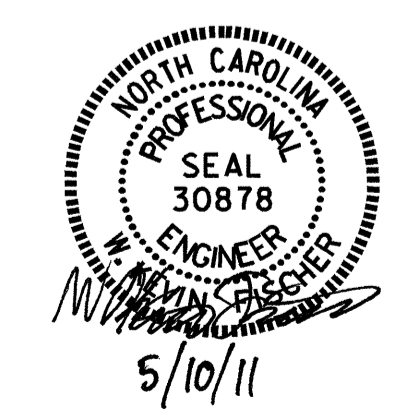
PILES AT BENT #1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 140 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 235 TONS PER PILE.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING.

PIPE PILE PLATES ARE REQUIRED FOR PIPE PILES AT END BENT #1, BENT #1 AND END BENT #2. USE PIPE PILE PLATES WITH A DIAMETER EQUAL TO THE PIPE PILE DIAMETER.

DRAWN BY : M.K. BEARD DATE : 1/29/10
 CHECKED BY : K.D. LAYNE DATE : 6/17/10

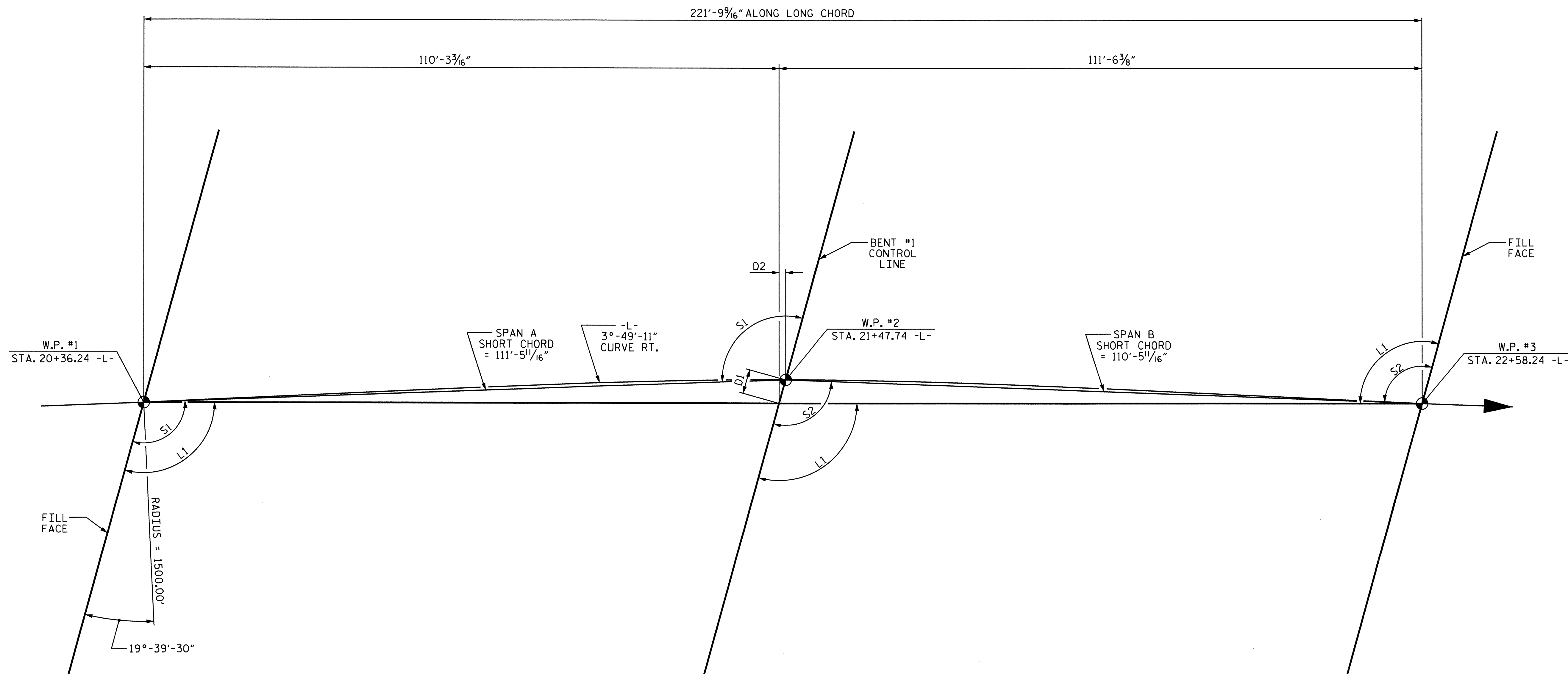
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 wkfischer



PROJECT NO. U-4007A
ONSLOW COUNTY
 STATION: 21+47.74 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
GENERAL DRAWING					
FOR BRIDGE ON					
SR 1702 (WHITE ST. EXT.)					
OVER US 17 BETWEEN					
SR 1308 AND SR 1470					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-2
					TOTAL SHEETS
					32



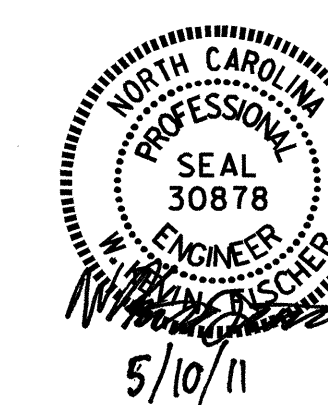
LONG CHORD LAYOUT

PROJECT NO. U-4007A
ONSLow COUNTY
 STATION: 21+47.74 -L-

SHEET 3 OF 4

ANGLES			
LONG CHORD		SHORT CHORD	
L1	105°-25'-07"	S1	107°-31'-44"
		S2	103°-17'-21"

OFFSETS	
D1	4'-3 3/8"
D2	1'-1 9/16"



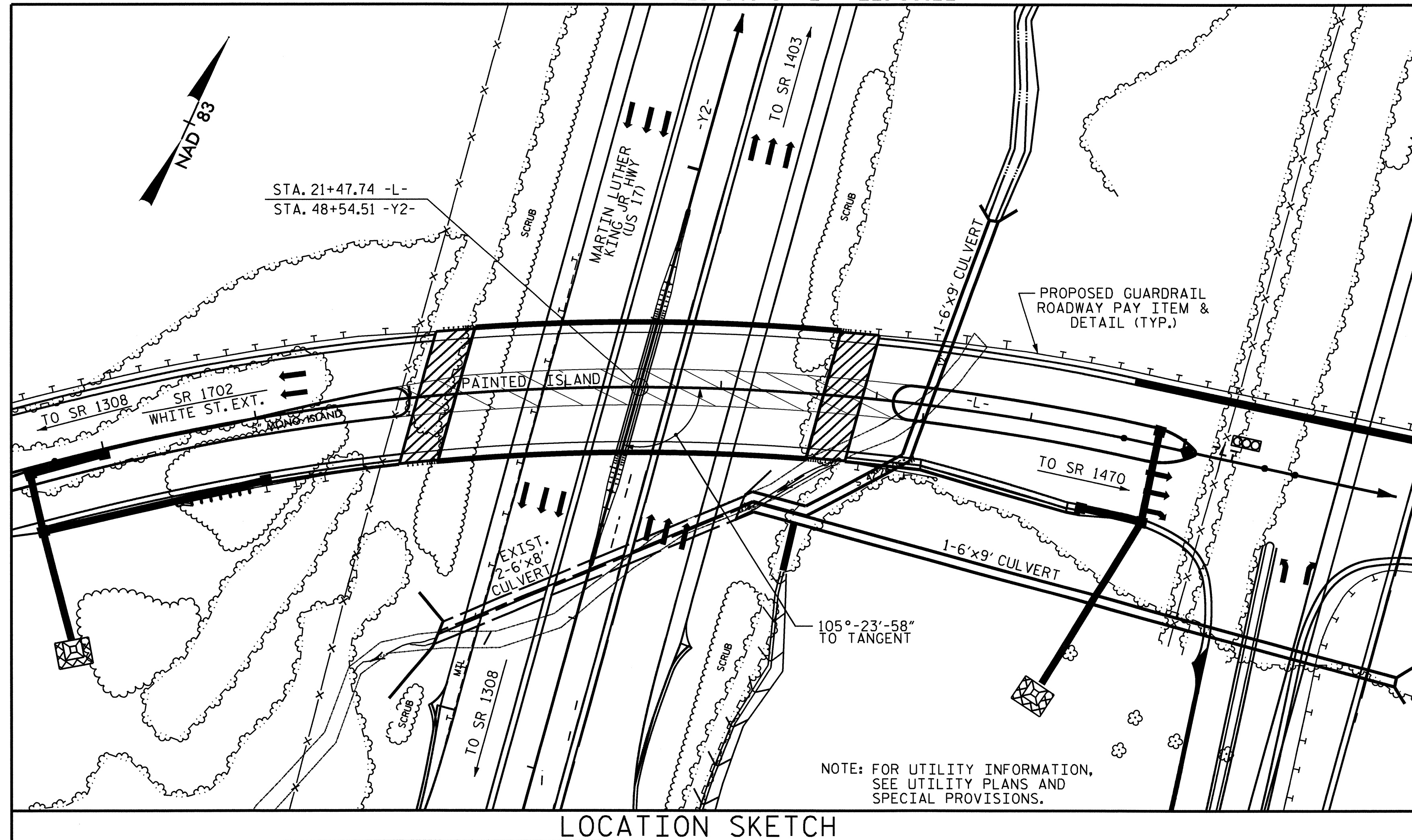
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON
 SR 1702 (WHITE ST. EXT.)
 OVER US 17 BETWEEN
 SR 1308 AND SR 1470

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

DRAWN BY : M.K. BEARD DATE : 1/29/10
 CHECKED BY : K.D. LAYNE DATE : 6/17/10

BL-2 1.64' RT. OF STA. 21+56.75 -L- EL. 35.22



NOTES

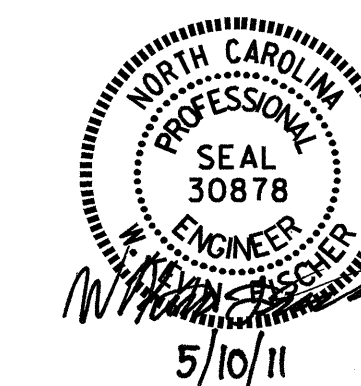
- ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- 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 CURING CONCRETE, SEE SPECIAL PROVISIONS.
- FOR FORMS FOR CONCRETE BRIDGE DECKS, SEE SPECIAL PROVISIONS.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.
- 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.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

TOTAL BILL OF MATERIAL

	PDA TESTING	PDA ASSISTANCE	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 63" PRESTRESSED CONC. GIRDER	PP 14 X 0.5 STEEL PILES	PIPE PILE PLATES	PILE REDRIVES	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	EA.	EA.	SO.FT.	SO.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	NO. LIN.FT.	NO. LIN.FT.	EA.	EA.	LIN.FT.	SO.YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			18,961	21,258		LUMP SUM			20 2171.71				439.72		LUMP SUM	LUMP SUM
END BENT NO.1					71.4		10,632			11 825	11	11		480		
BENT NO.1					124.8		16,628	1,824		25 1,375	25	25				
END BENT NO.2					68.3		10,394			11 880	11	11		530		
TOTAL	2	2	18,961	21,258	264.5	LUMP SUM	37,654	1,824	20 2171.71	47 3,080	47	47	439.72	1010	LUMP SUM	LUMP SUM

PROJECT NO. U-4007A
ON SLOW COUNTY
 STATION: 21+47.74 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON
 SR 1702 (WHITE ST. EXT.)
 OVER US 17 BETWEEN
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 CHECKED BY : K.D. LAYNE DATE : 6/17/10

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

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 (LRFD) 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								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.196	--	1.75	0.809	1.78	A	ER	53.969	0.918	1.34	A	I	86.295	0.80	0.809	1.20	A	ER	53.969		
	HL-93(Oper)	N/A	--	1.734	--	1.35	0.809	2.31	A	ER	53.969	0.918	1.73	A	I	86.295	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.698	61.139	1.75	0.809	2.53	A	ER	53.969	0.918	1.76	A	I	86.295	0.80	0.809	1.70	A	ER	53.969		
	HS-20(Oper)	36.000	--	2.28	82.089	1.35	0.809	3.27	A	ER	53.969	0.918	2.28	A	I	86.295	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	4.072	54.969	1.4	0.809	7.57	A	ER	53.969	0.918	5.39	A	I	86.295	0.80	0.809	4.07	A	ER	53.969	
		SNGARBS2	20.000	--	2.93	58.599	1.4	0.809	5.45	A	ER	53.969	0.918	3.78	A	I	86.295	0.80	0.809	2.93	A	ER	53.969	
		SNAGRIS2	22.000	--	2.733	60.127	1.4	0.809	5.08	A	ER	53.969	0.918	3.49	A	I	86.295	0.80	0.809	2.73	A	ER	53.969	
		SNCOTTS3	27.250	--	2.023	55.13	1.4	0.809	3.76	A	ER	53.969	0.918	2.69	A	I	86.295	0.80	0.809	2.02	A	ER	53.969	
		SNAGGRS4	34.925	--	1.65	57.64	1.4	0.809	3.07	A	ER	53.969	0.918	2.19	A	I	86.295	0.80	0.809	1.65	A	ER	53.969	
		SNS5A	35.550	--	1.617	57.47	1.4	0.809	3.01	A	ER	53.969	0.918	2.2	A	I	86.295	0.80	0.809	1.62	A	ER	53.969	
		SNS6A	39.950	--	1.467	58.603	1.4	0.809	2.73	A	ER	53.969	0.918	2	A	I	86.295	0.80	0.809	1.47	A	ER	53.969	
	SNS7B	42.000	--	1.396	58.646	1.4	0.809	2.6	A	ER	53.969	0.918	1.94	A	I	86.295	0.80	0.809	1.40	A	ER	53.969		
	TTST	TNAGRIT3	33.000	--	1.784	58.873	1.4	0.809	3.32	A	ER	53.969	0.918	2.39	A	I	86.295	0.80	0.809	1.78	A	ER	53.969	
		TNT4A	33.075	--	1.788	59.122	1.4	0.809	3.32	A	ER	53.969	0.918	2.34	A	I	86.295	0.80	0.809	1.79	A	ER	53.969	
		TNT6A	41.600	--	1.446	60.17	1.4	0.809	2.69	A	ER	53.969	0.918	2.04	A	I	86.295	0.80	0.809	1.45	A	ER	53.969	
		TNT7A	42.000	--	1.446	60.718	1.4	0.809	2.69	A	ER	53.969	0.918	2.01	A	I	86.295	0.80	0.809	1.45	A	ER	53.969	
		TNT7B	42.000	--	1.476	62.003	1.4	0.809	2.74	A	ER	53.969	0.918	1.91	A	I	86.295	0.80	0.809	1.48	A	ER	53.969	
		TNAGRIT4	43.000	--	1.419	61.003	1.4	0.809	2.64	A	ER	53.969	0.918	1.86	A	I	86.295	0.80	0.809	1.42	A	ER	53.969	
TNAGT5A		45.000	--	1.344	60.499	1.4	0.809	2.5	A	ER	53.969	0.918	1.82	A	I	86.295	0.80	0.809	1.34	A	ER	53.969		
TNAGT5B	45.000	3	1.334	60.042	1.4	0.809	2.48	A	ER	53.969	0.918	1.77	A	I	86.295	0.80	0.809	1.33	A	ER	53.969			

NOTES:

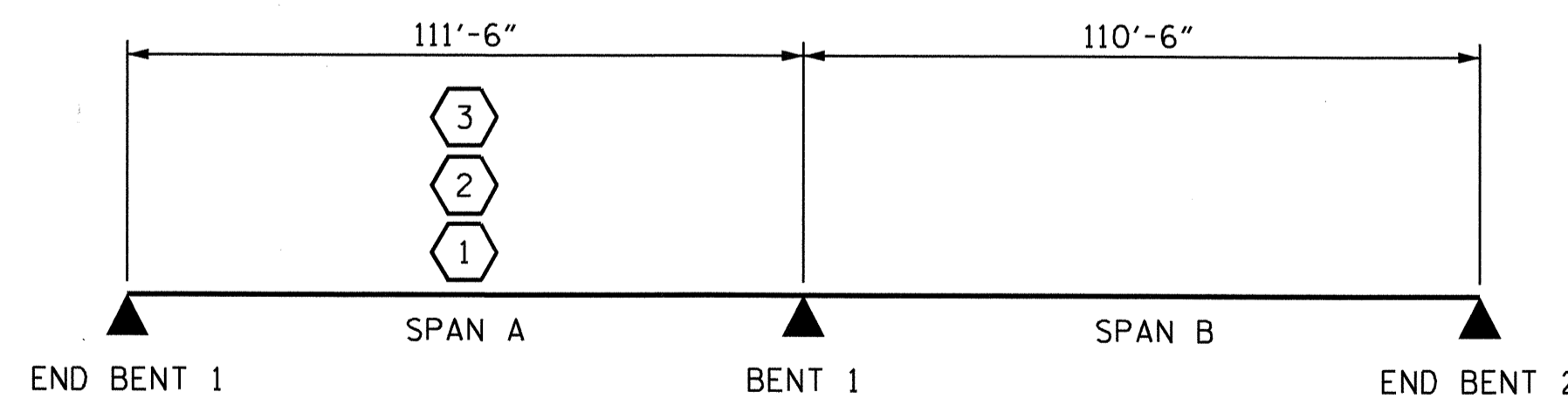
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

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

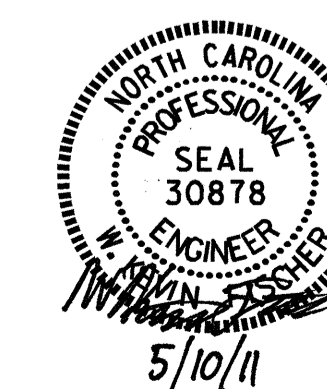
#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER	
EL - EXTERIOR LEFT GIRDER	
ER - EXTERIOR RIGHT GIRDER	



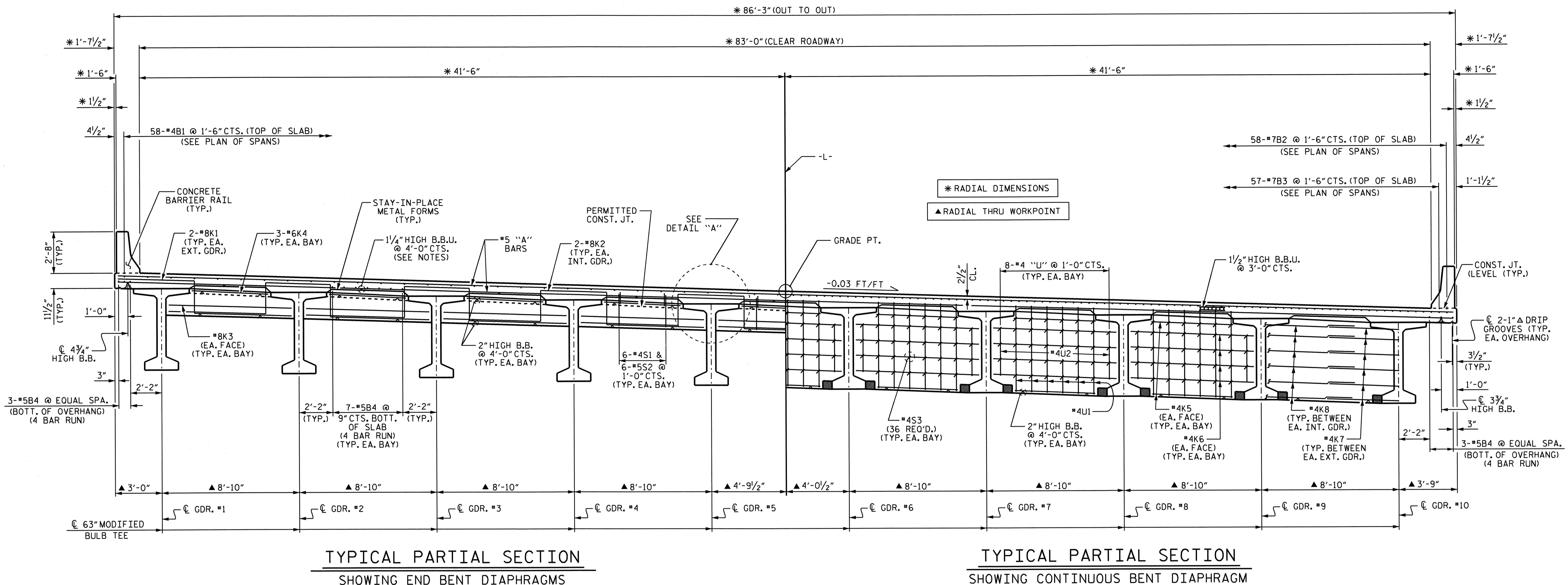
LRFR SUMMARY

PROJECT NO. U-4007A
ONSLow COUNTY
 STATION: 21+47.74 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
STANDARD LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)				
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
TOTAL SHEETS				32



ASSEMBLED BY : D.E. HENNESSEE DATE : 3-16-11
 CHECKED BY : B.L. GREEN DATE : 3-16-11
 DRAWN BY : MAA 1/08 REV. 11/2/OBR MAA/GM
 CHECKED BY : GM/DI 2/08

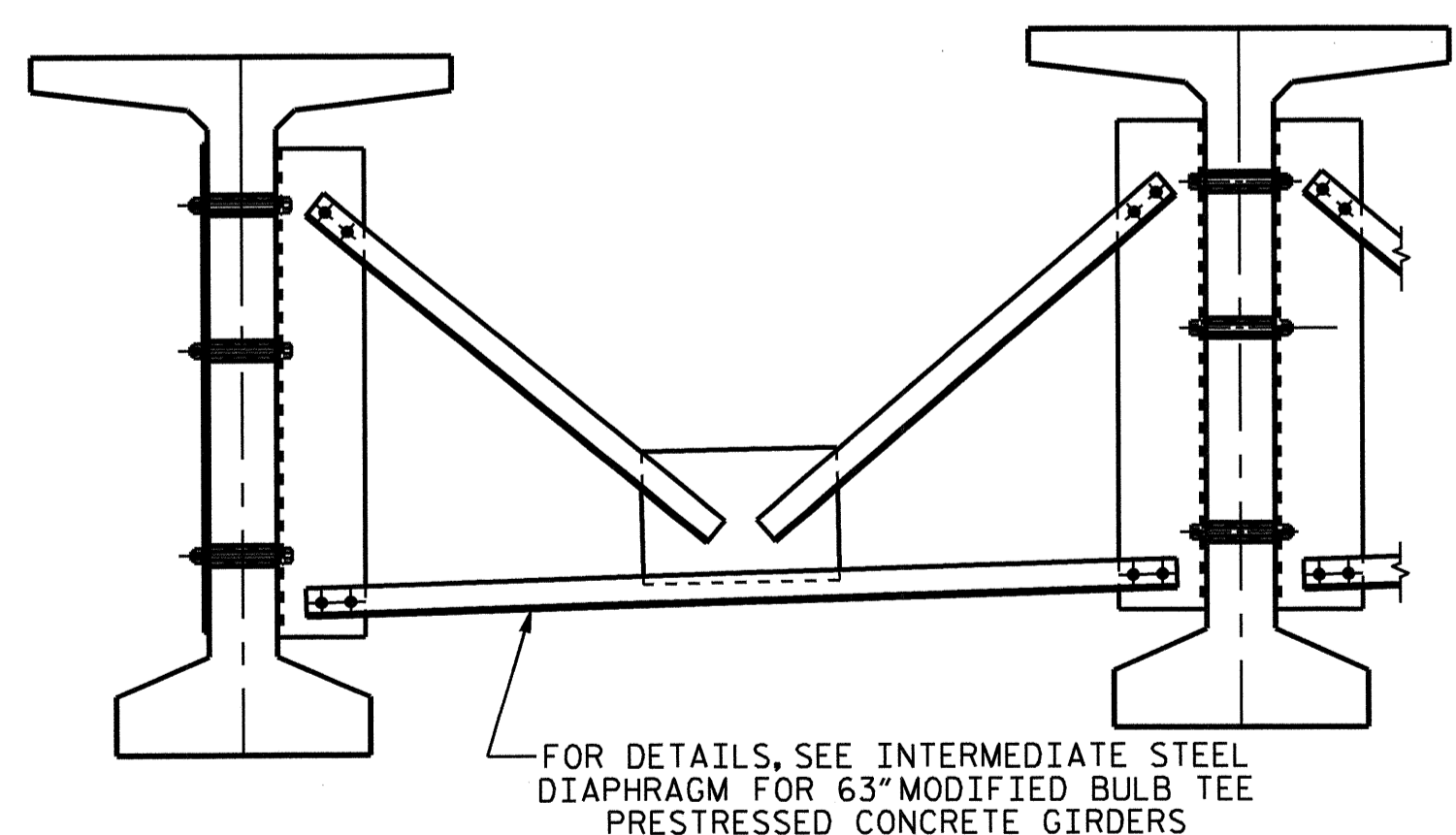


TYPICAL PARTIAL SECTION
SHOWING END BENT DIAPHRAGMS

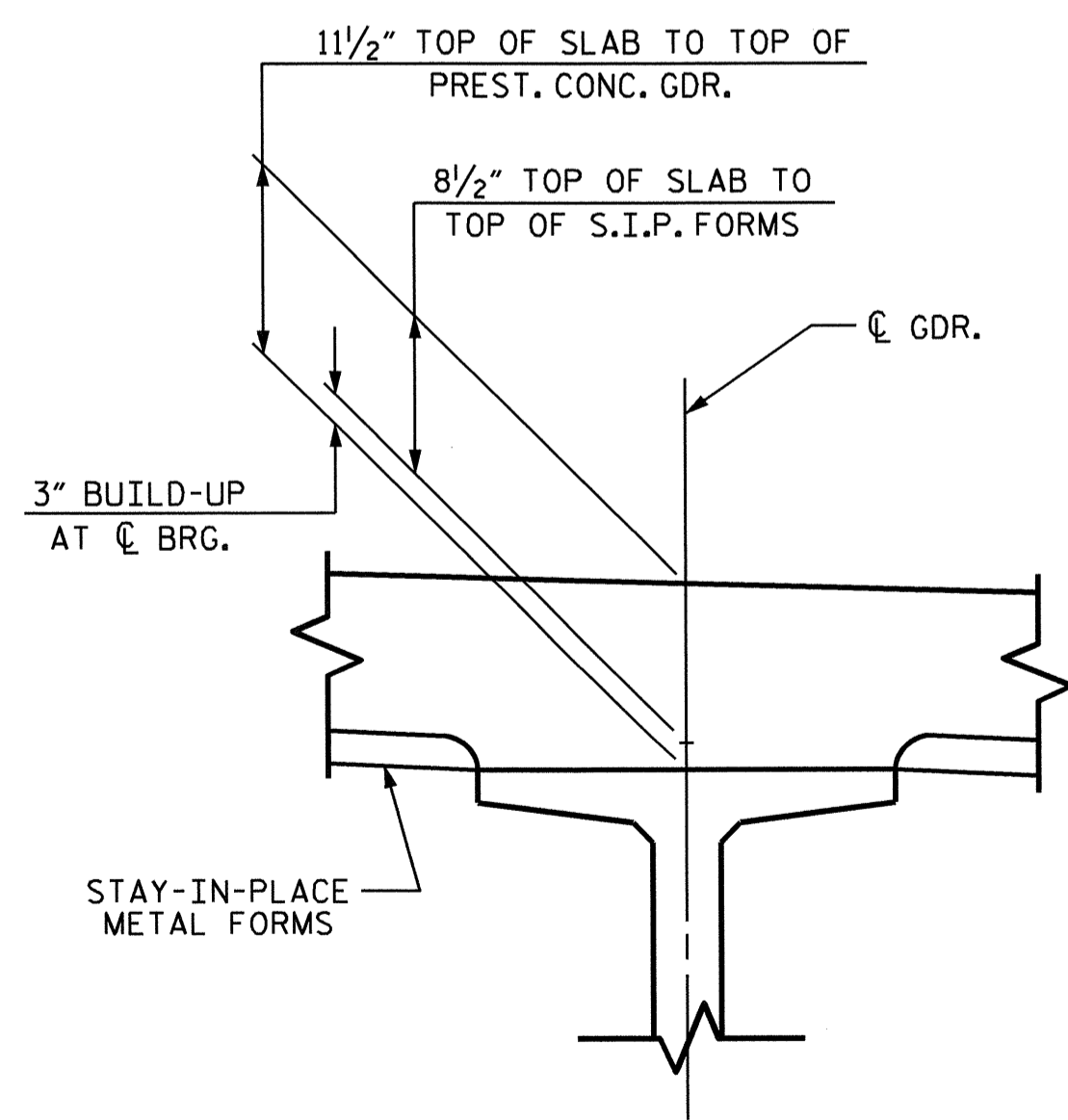
TYPICAL PARTIAL SECTION
SHOWING CONTINUOUS BENT DIAPHRAGM

NOTES

- PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
- PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.
- BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- #5 GI BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



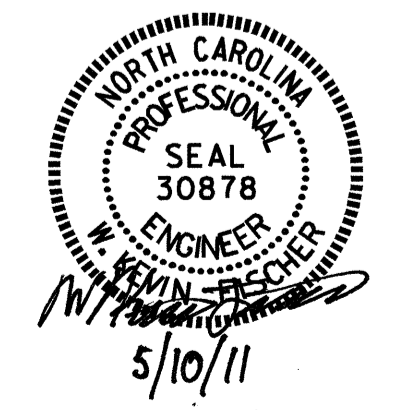
TYPICAL PARTIAL SECTION
SHOWING INTERMEDIATE STEEL DIAPHRAGM
(TYP. EA. BAY)



DETAIL "A"

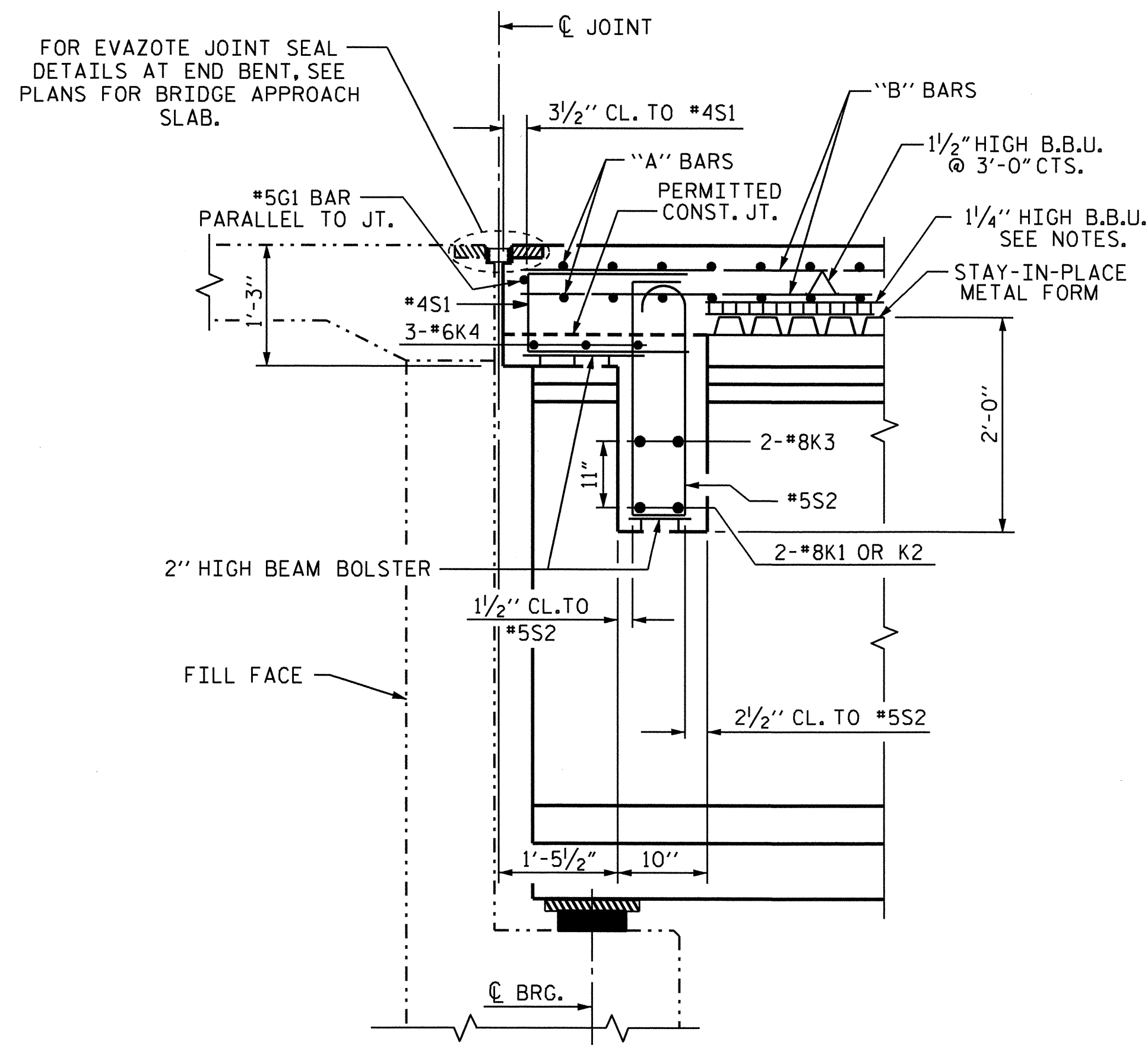
PROJECT NO. U-4007A
ONSLOW COUNTY
STATION: 21+47.74 -L-

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

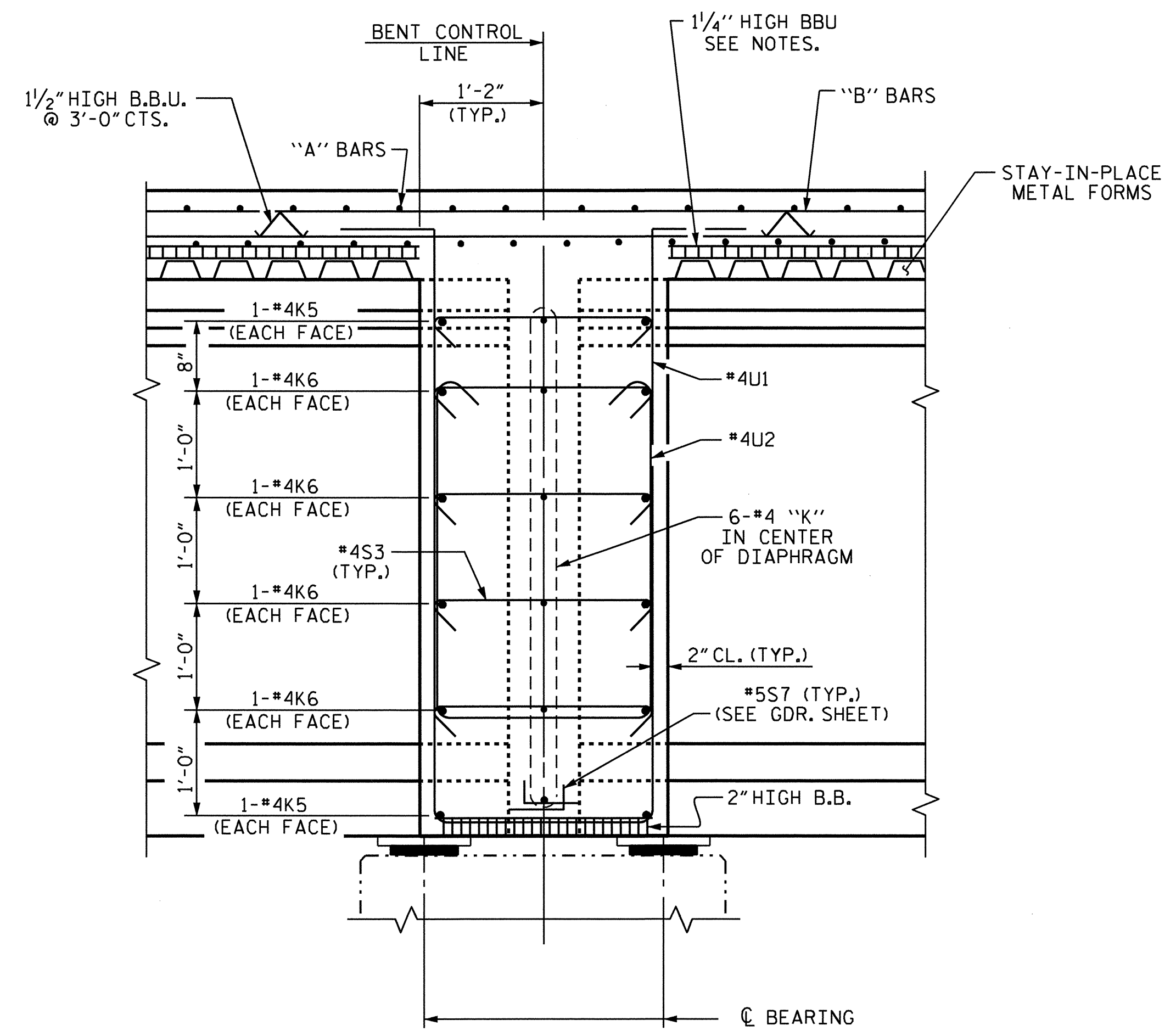


DRAWN BY: M.K. BEARD DATE: 11/5/09
CHECKED BY: J.P. ADAMS DATE: 2/8/10

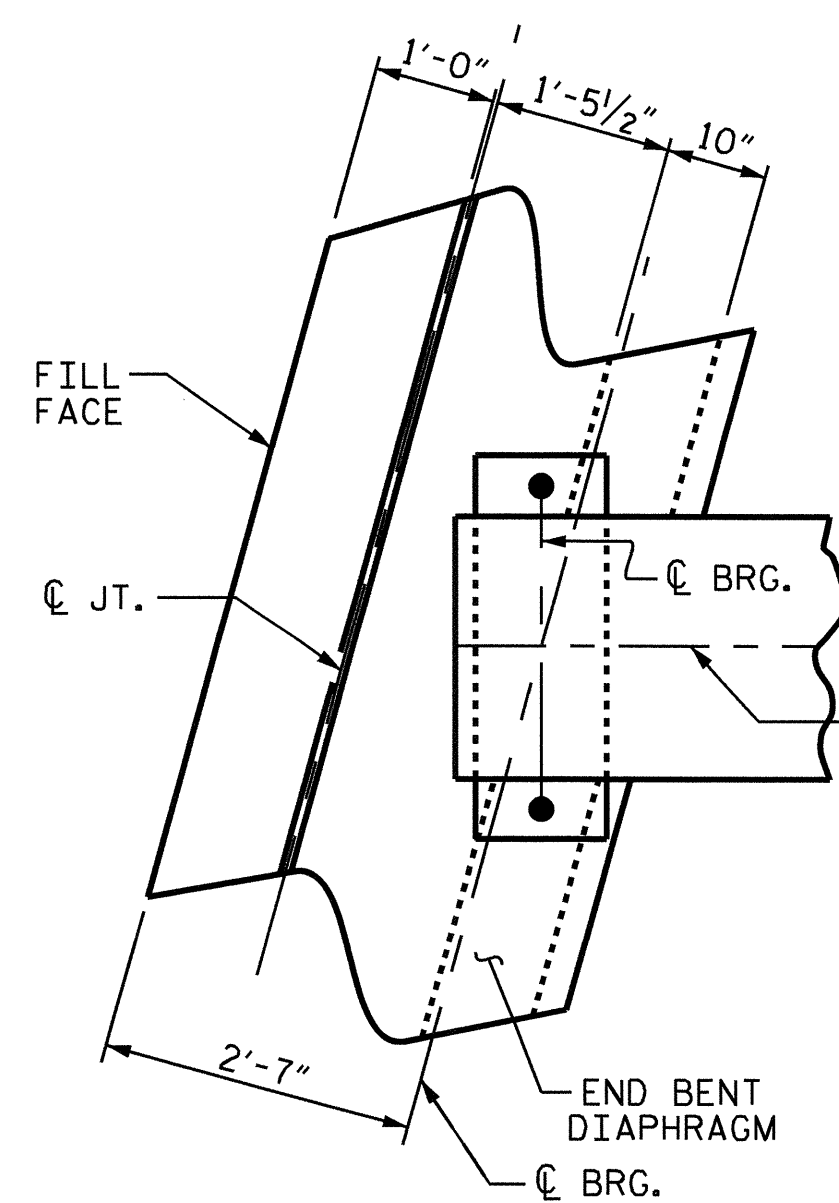
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
1			3			TOTAL SHEETS	
2			4			32	



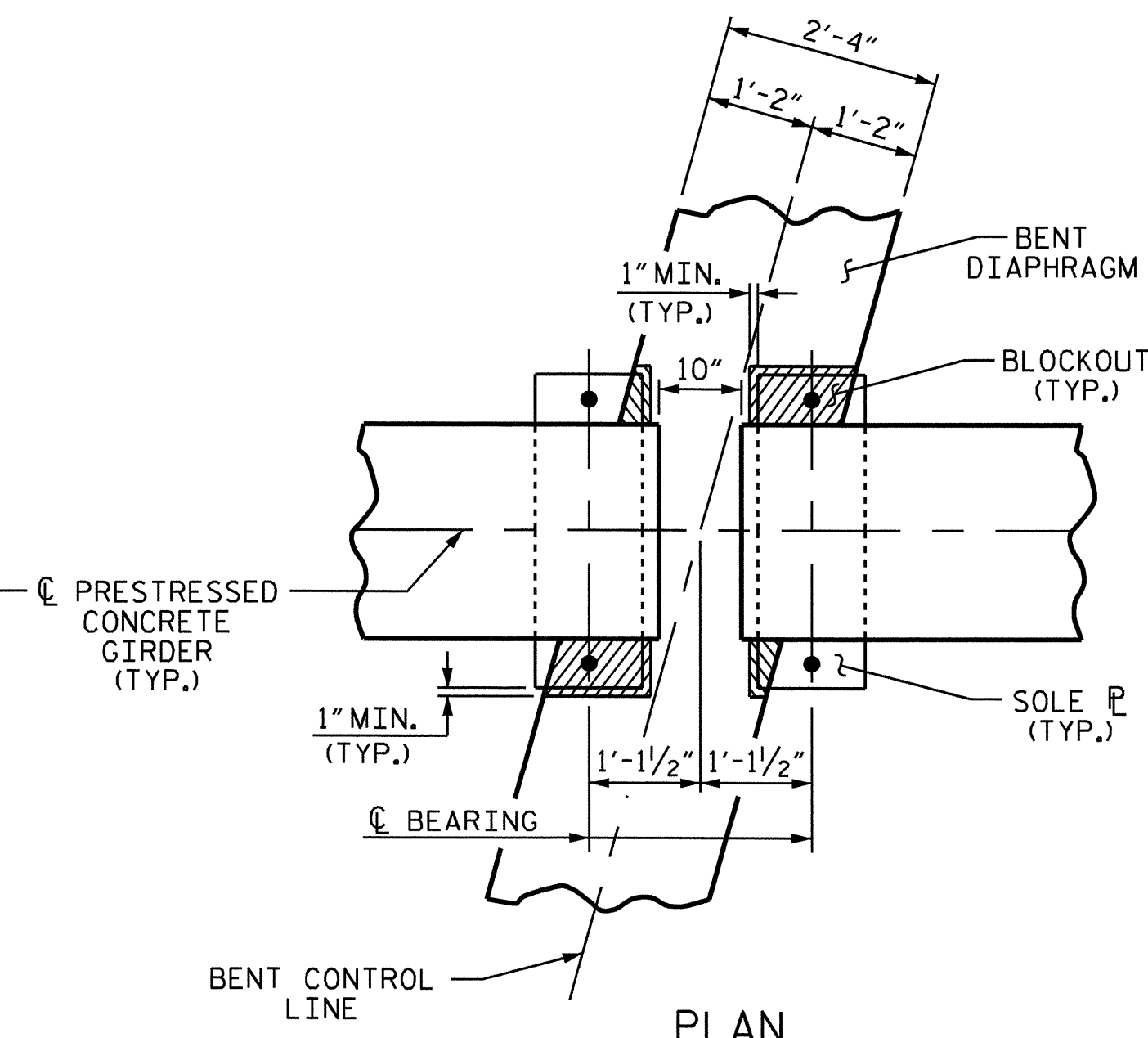
SECTION THRU END BENT DIAPHRAGM
(END BENT #1 SHOWN, END BENT #2 SIMILAR)



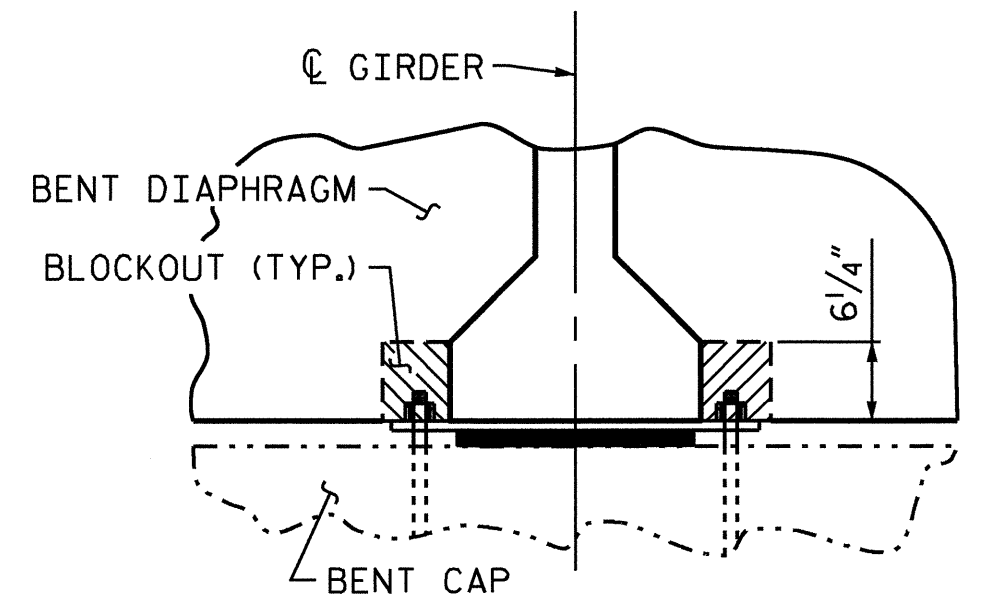
SECTION THRU CONTINUOUS BENT DIAPHRAGM



END BENT DIAPHRAGM

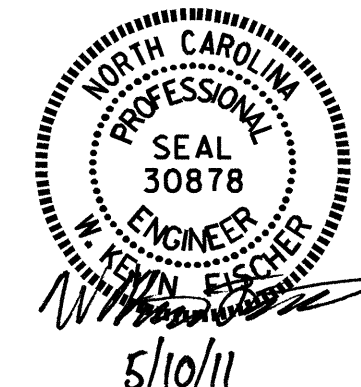


BENT DIAPHRAGM BLOCK-OUT DETAIL



SECTION

PROJECT NO. U-4007A
ON SLOW CO COUNTY
 STATION: 21+47.74 -L-
 SHEET 2 OF 2

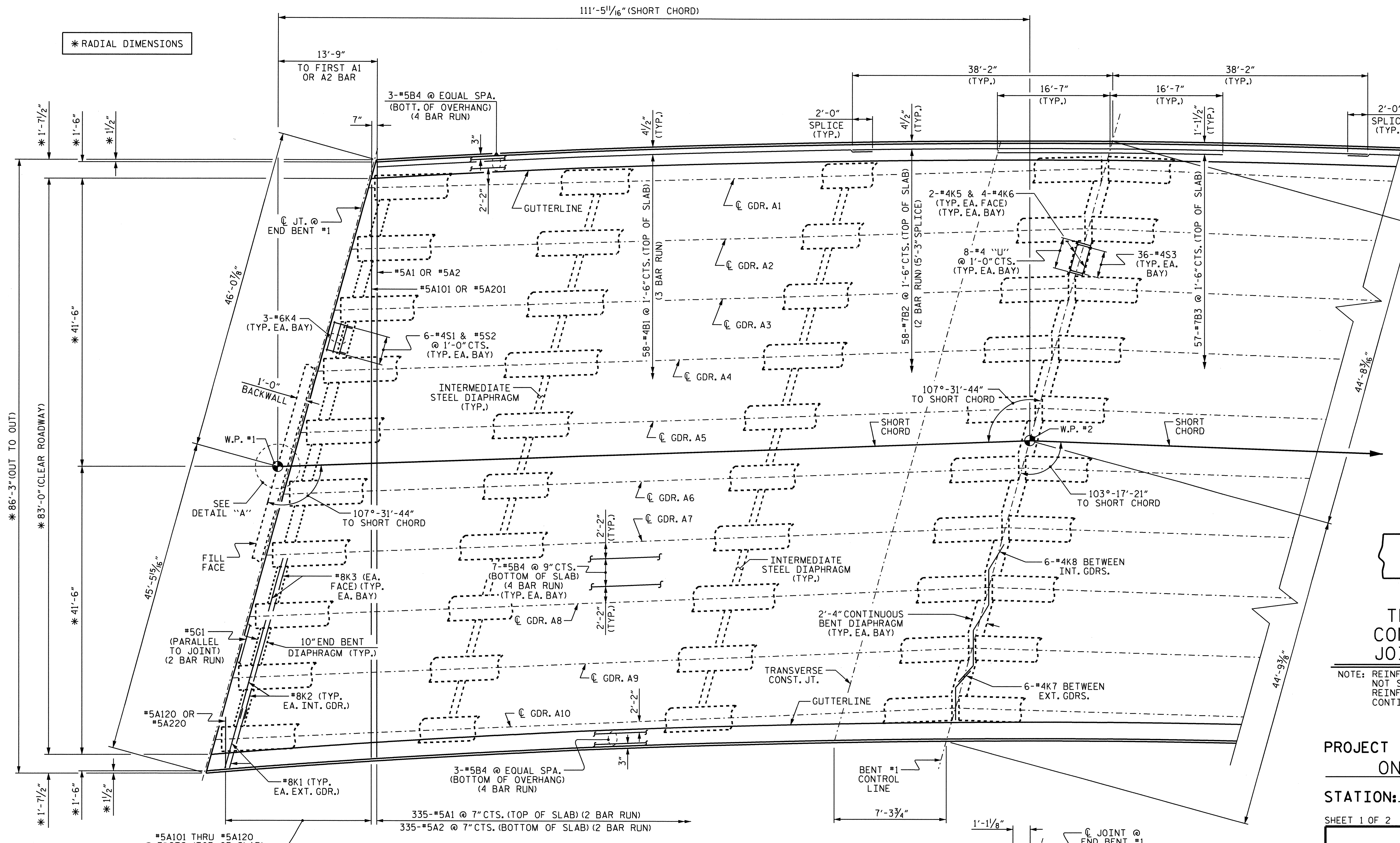


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

DRAWN BY: M.K. BEARD DATE: 11/5/09
 CHECKED BY: J.P. ADAMS DATE: 2/8/10

10-MAY-2011 14:12
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 wkfischer

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			32



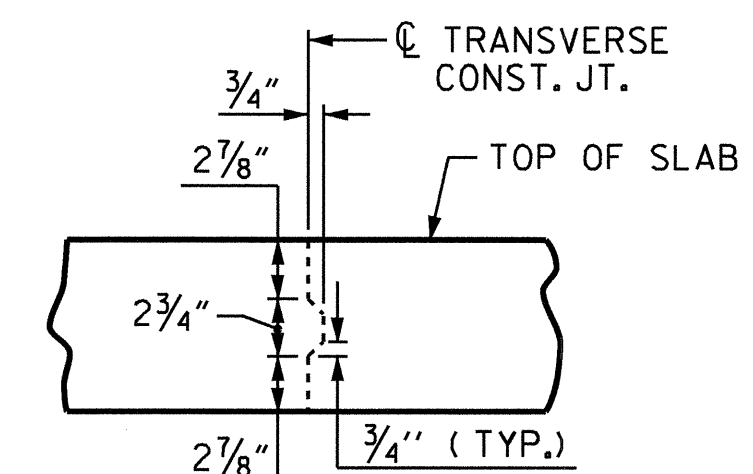
* RADIAL DIMENSIONS

#5A101 THRU #5A120 @ 7" CTS. (TOP OF SLAB) (2 BARS PER MARK)
 #5A201 THRU #5A220 @ 7" CTS. (BOTTOM OF SLAB) (2 BARS PER MARK)

NOTE: #5A101/#5A201 THRU #5A106/#5A206 ARE 2 BAR RUNS.

PLAN OF SPAN A

"A" BARS TO BE PLACED PERPENDICULAR TO AND ALONG LONG CHORD.



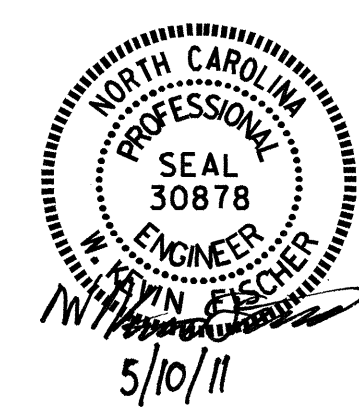
TRANSVERSE CONSTRUCTION JOINT DETAIL

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

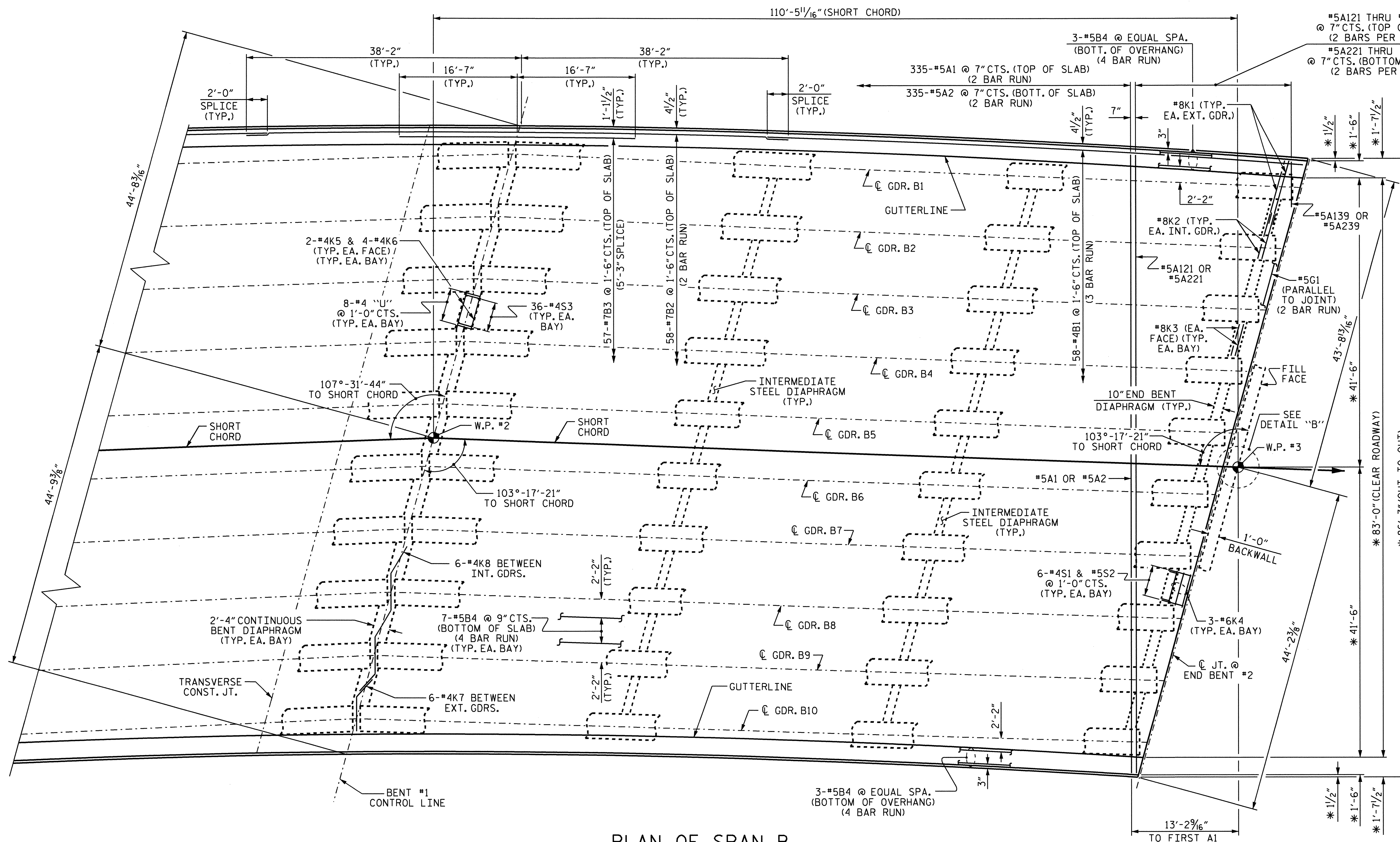
PROJECT NO. U-4007A
ONSLow COUNTY
 STATION: 21+47.74 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-8
SUPERSTRUCTURE PLAN OF SPAN A						
REVISIONS						TOTAL SHEETS 32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



DRAWN BY: M.K. BEARD DATE: 11/5/09
 CHECKED BY: J.P. ADAMS DATE: 2/8/10

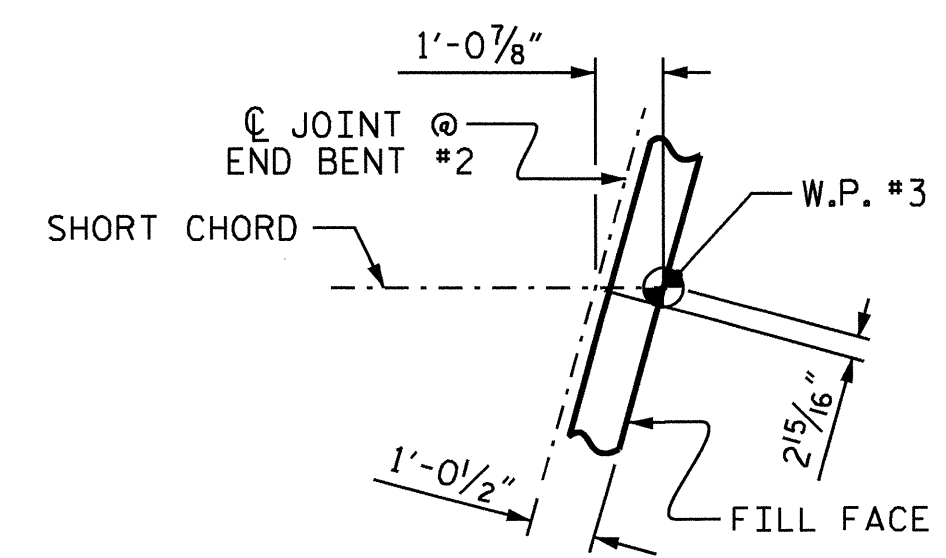


NOTE: #5A121/#5A221 THRU #5A126/#5A226 ARE 2 BAR RUNS.

* RADIAL DIMENSIONS

PLAN OF SPAN B

"A" BARS TO BE PLACED PERPENDICULAR TO AND ALONG LONG CHORD.

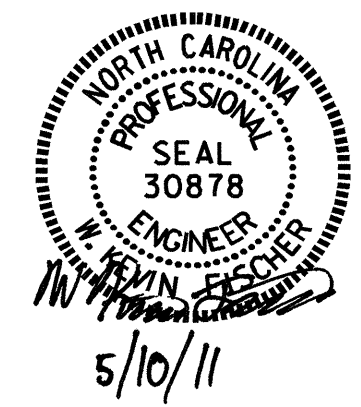


DETAIL "B"

PROJECT NO. U-4007A
ONslow COUNTY
 STATION: 21+47.74 -L-

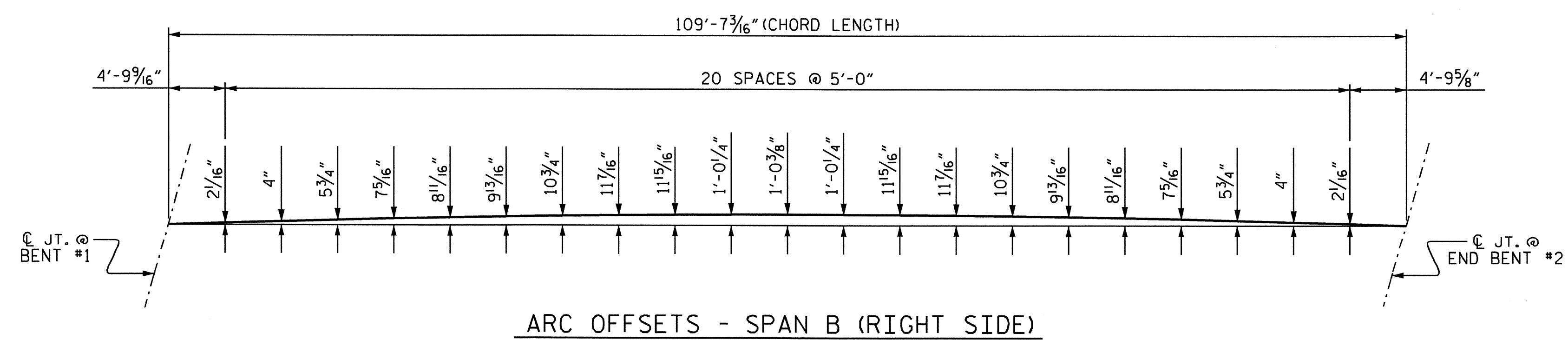
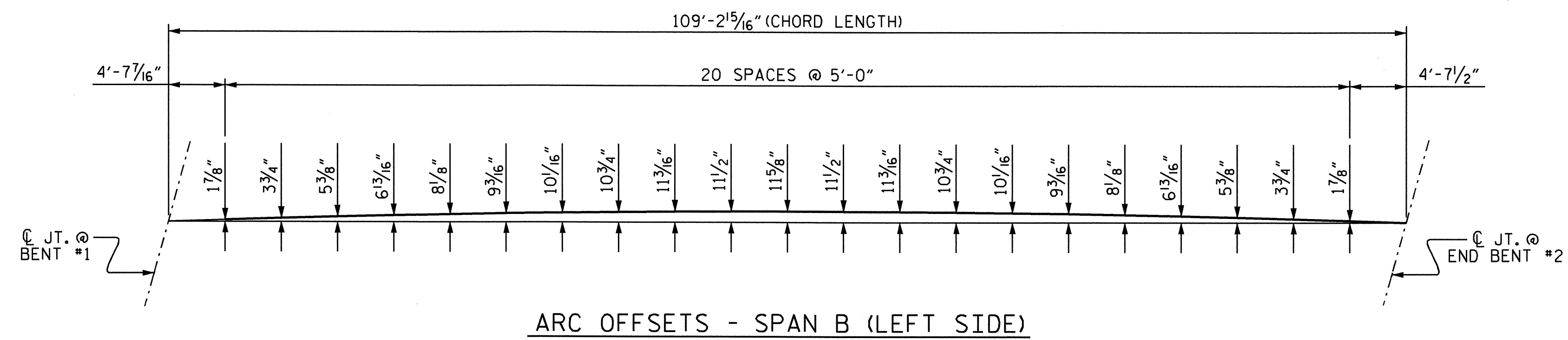
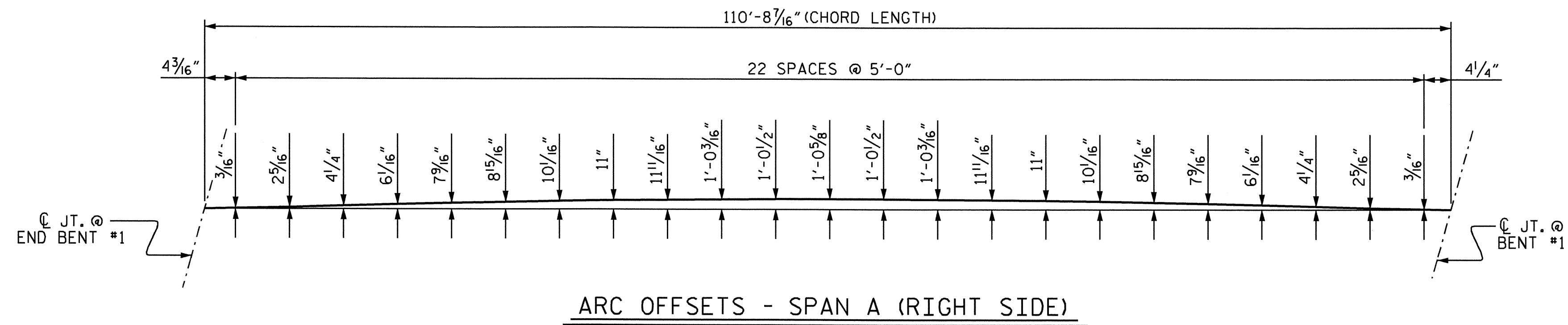
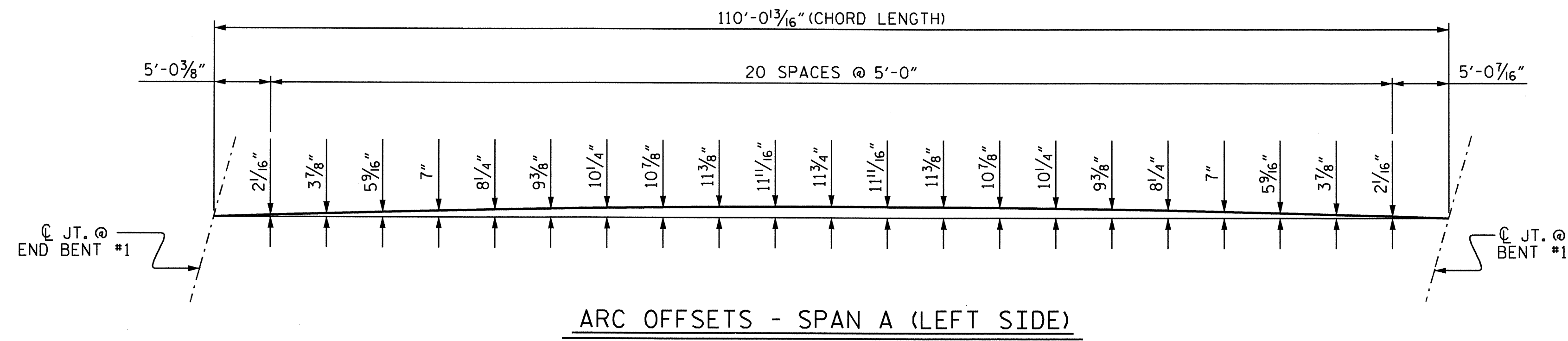
SHEET 2 OF 2

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



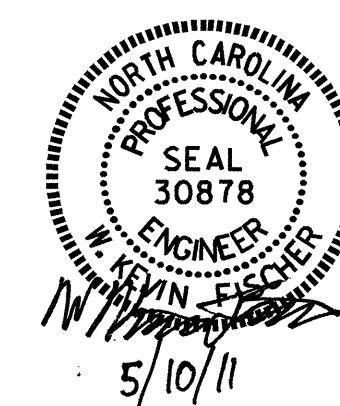
REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			32

DRAWN BY : M.K. BEARD DATE : 11/5/09
 CHECKED BY : J.P. ADAMS DATE : 2/8/10



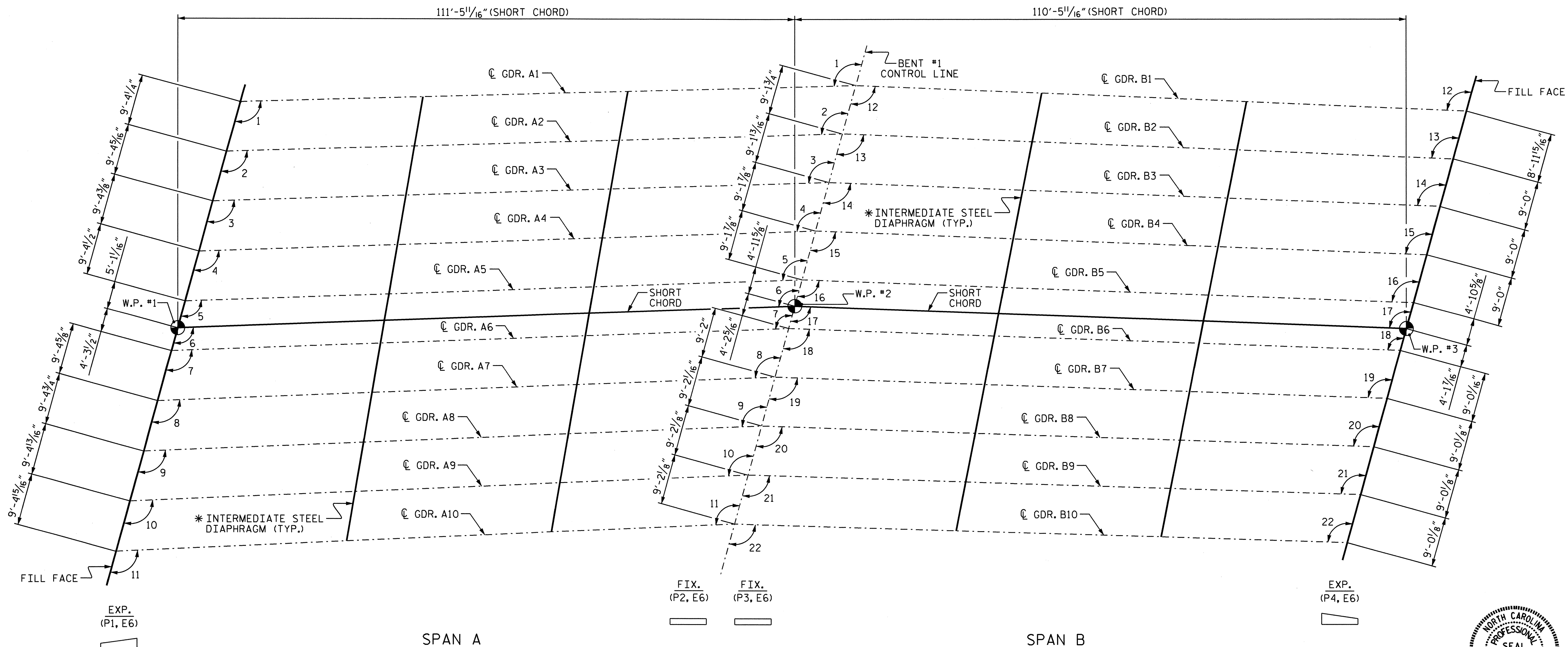
DRAWN BY : M.K. BEARD DATE : 11/5/09
 CHECKED BY : J.P. ADAMS DATE : 2/8/10

10-MAY-2011 14:13
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 wk.fischer



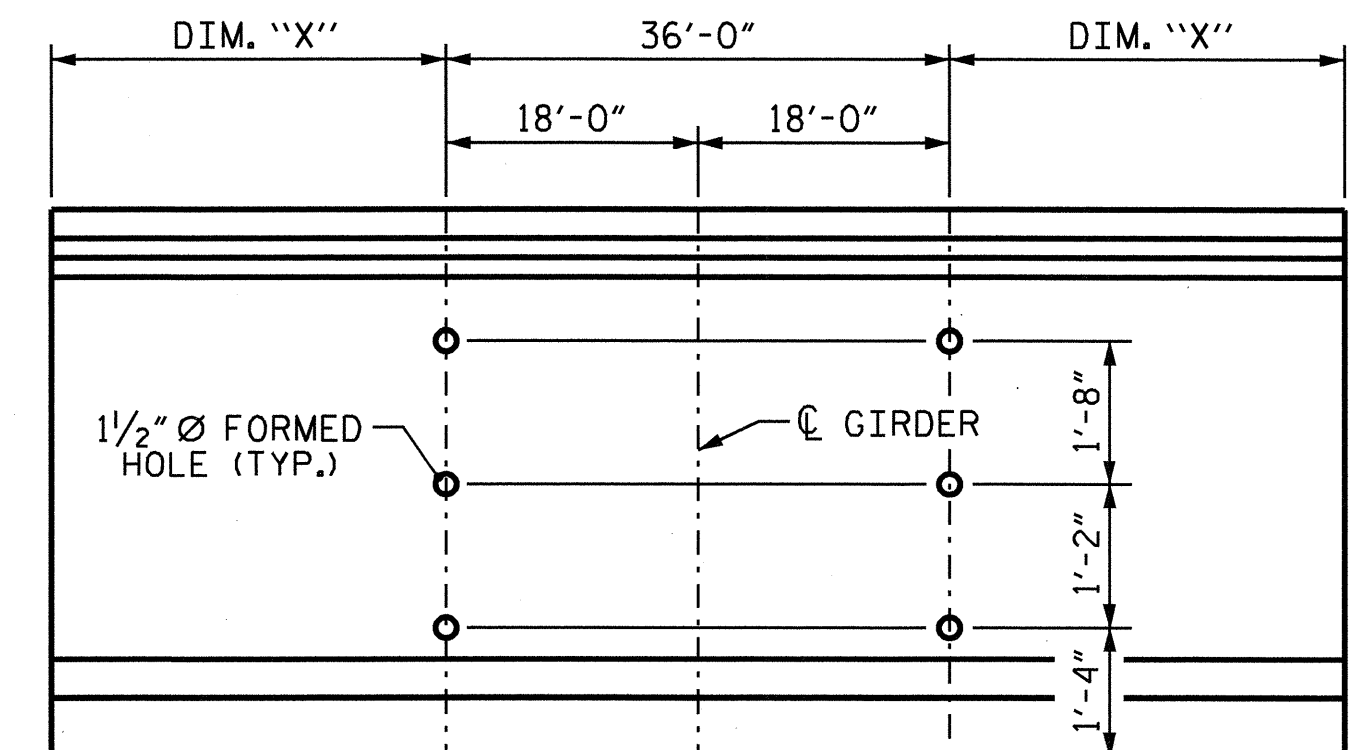
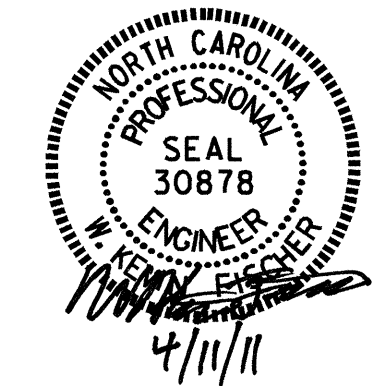
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-10
SUPERSTRUCTURE						TOTAL
ARC OFFSETS SPANS A & B						32
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



GIRDER LAYOUT

* SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS".



GIRDER ELEVATION

SEE CHART FOR DIM. "X"

CHART FOR DIMENSIONS TO FORMED HOLES

GIRDER	DIM. "X"	GIRDER	DIM. "X"
A1	36'-4 1/16"	B1	35'-11 3/4"
A2	36'-5"	B2	35'-11 15/16"
A3	36'-5 3/8"	B3	36'-0 1/8"
A4	36'-5 3/4"	B4	36'-0 3/8"
A5	36'-6 1/8"	B5	36'-0 9/16"
A6	36'-6 1/2"	B6	36'-0 3/4"
A7	36'-6 7/8"	B7	36'-1"
A8	36'-7 5/16"	B8	36'-1 3/16"
A9	36'-7 11/16"	B9	36'-1 7/16"
A10	36'-8 1/8"	B10	36'-1 1/16"

ANGLES

1	107°-03'-26"	12	102°-56'-11"
2	107°-09'-32"	13	103°-00'-44"
3	107°-15'-42"	14	103°-05'-21"
4	107°-21'-57"	15	103°-10'-02"
5	107°-28'-16"	16	103°-14'-45"
6	107°-31'-44"	17	103°-17'-21"
7	107°-34'-40"	18	103°-19'-32"
8	107°-41'-09"	19	103°-24'-23"
9	107°-47'-43"	20	103°-29'-17"
10	107°-54'-22"	21	103°-34'-15"
11	108°-01'-05"	22	103°-39'-17"

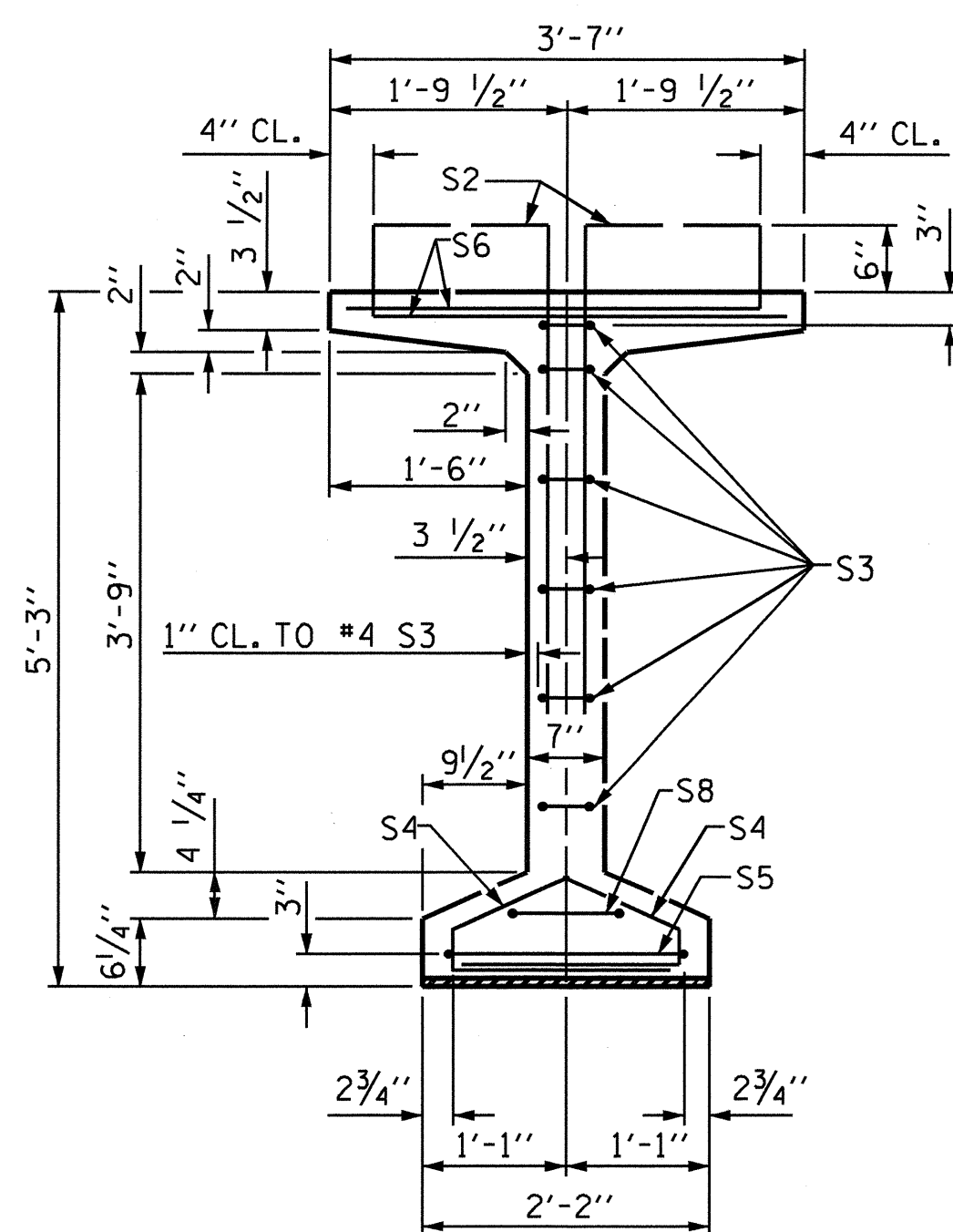
PROJECT NO. U-4007A
ONslow COUNTY
 STATION: 21+47.74 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

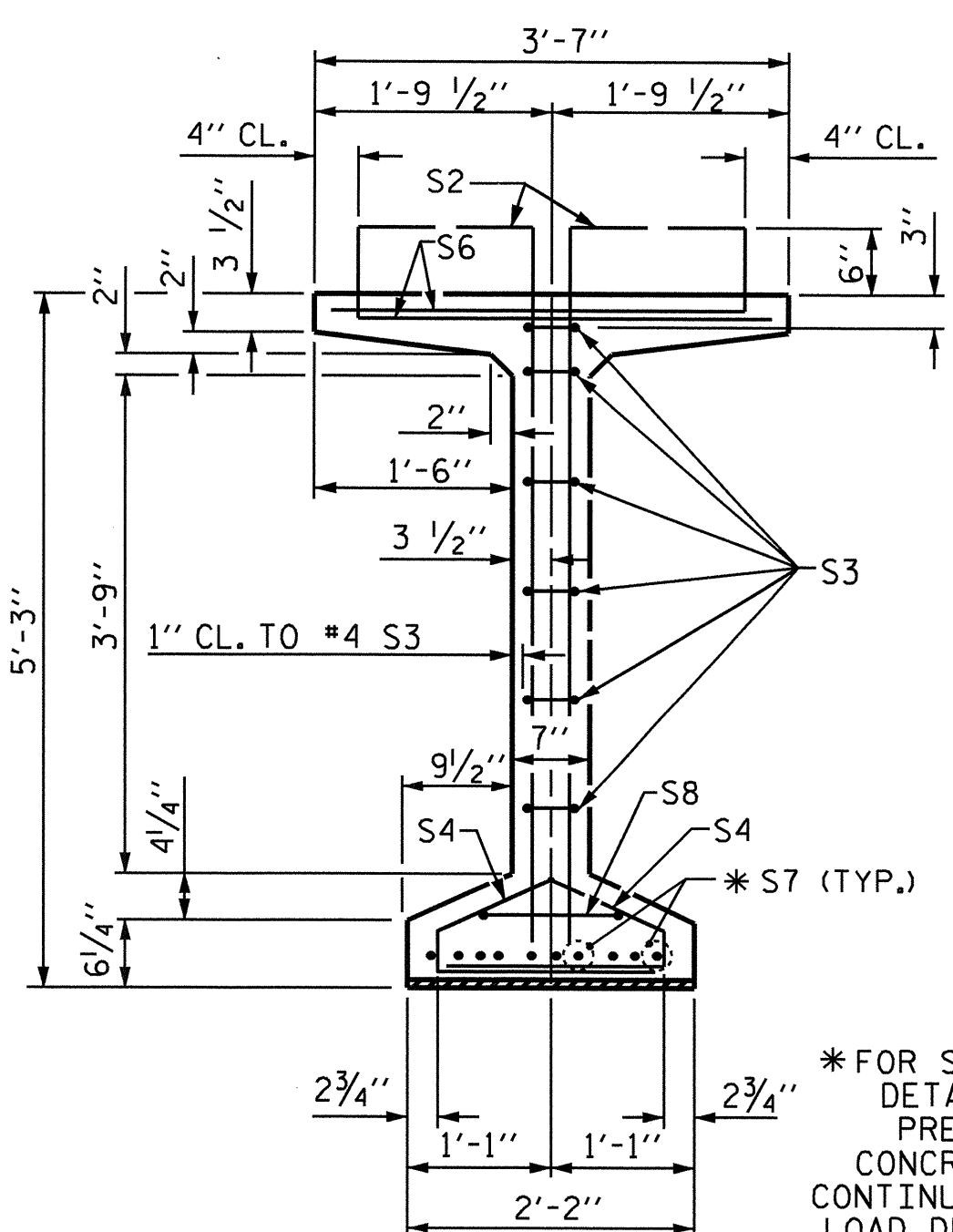
**SUPERSTRUCTURE
 GIRDER LAYOUT**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			32

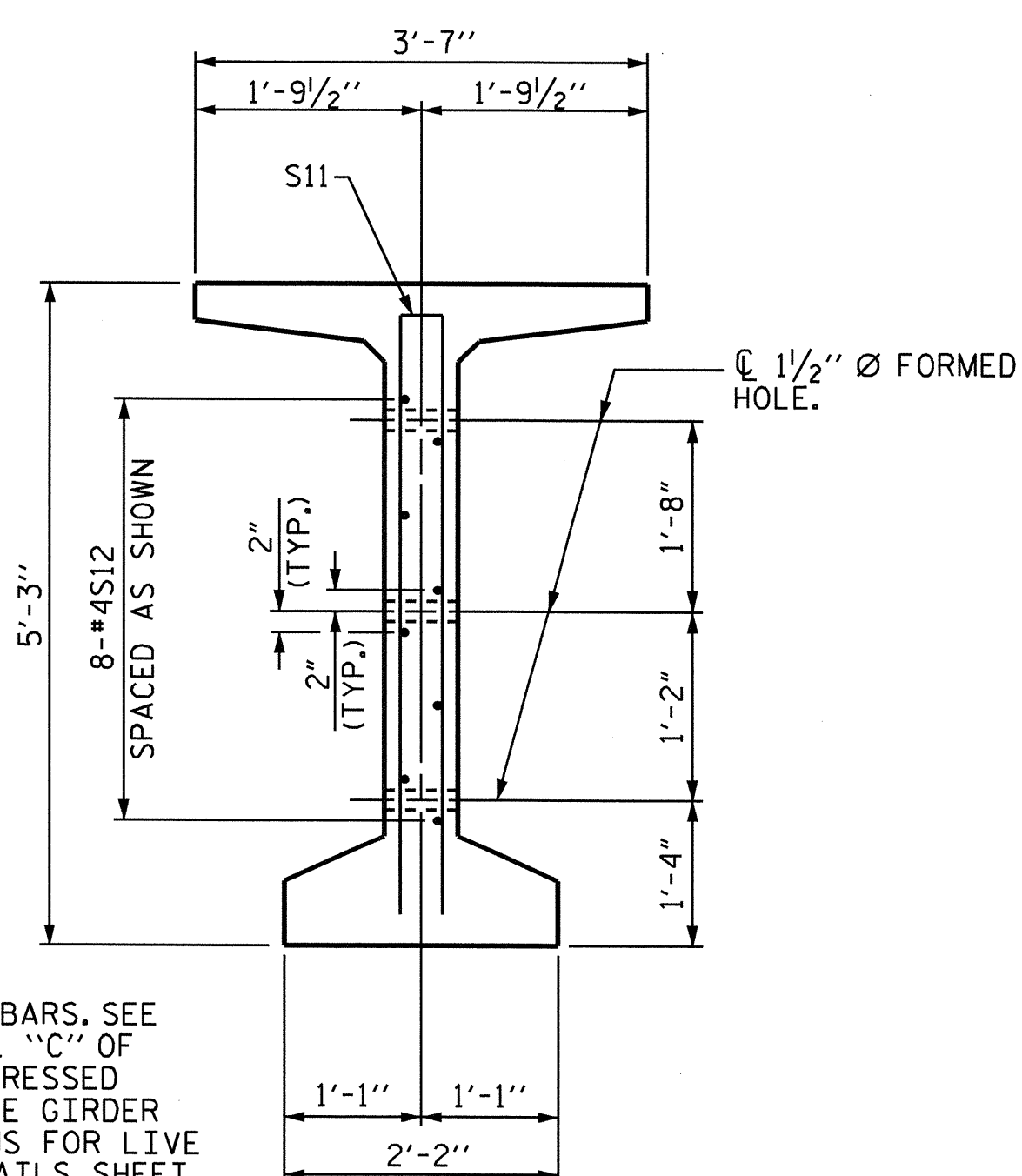
DRAWN BY: M.K. BEARD DATE: 11/5/09
 CHECKED BY: J.P. ADAMS DATE: 2/8/10



SECTION A-A



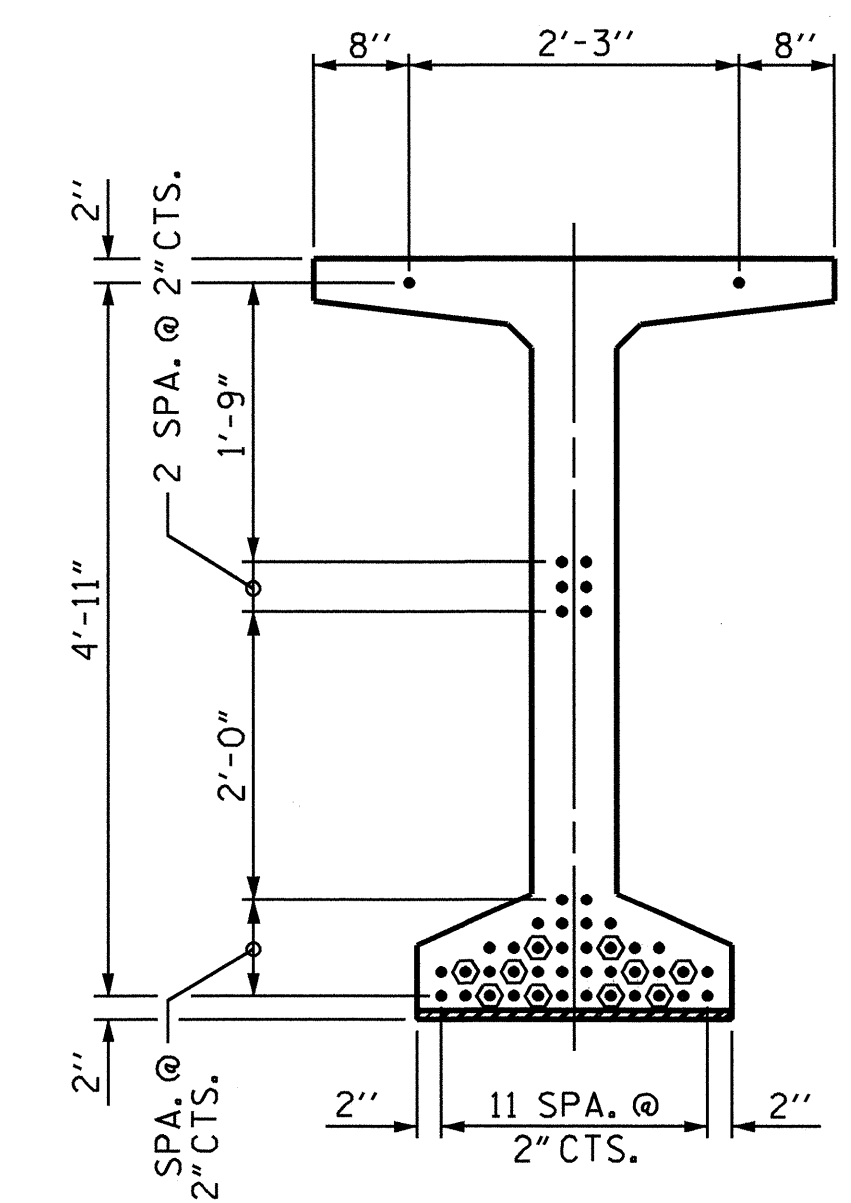
SECTION B-B



SECTION C-C

(S1, S6 AND S9 BARS NOT SHOWN)

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



0.6" Ø LOW RELAXATION STRAND LAYOUT

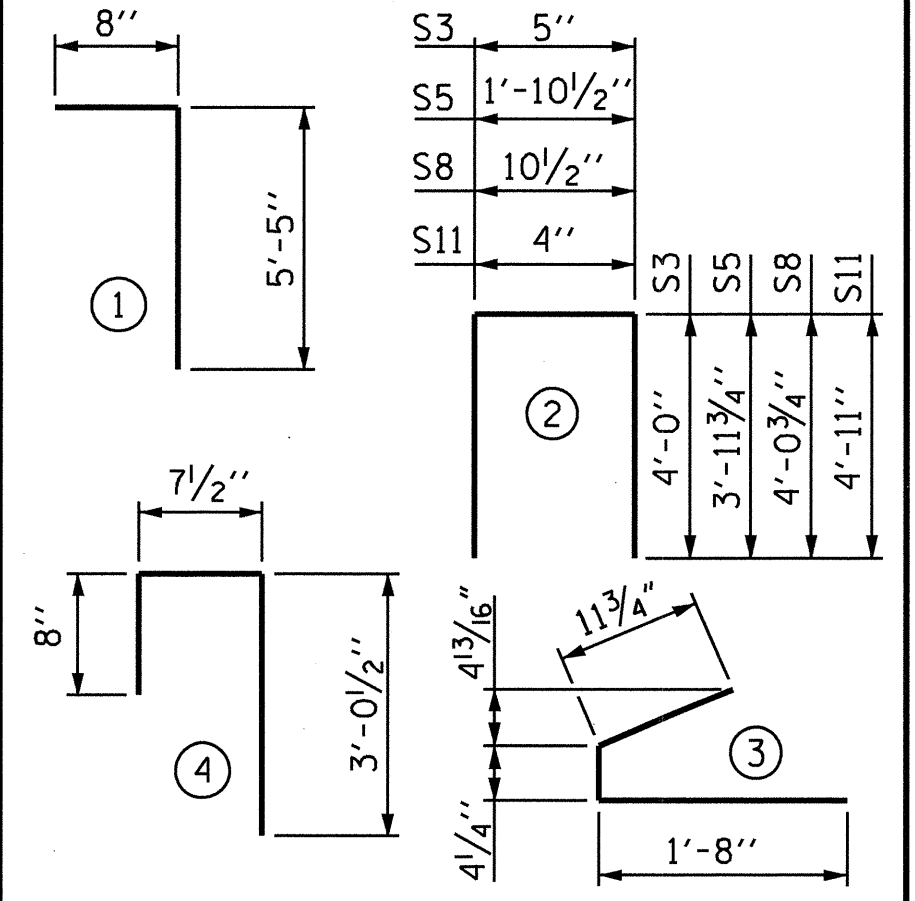
DEBONDING LEGEND
 ● FULLY BONDED STRANDS
 ⊙ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

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	172	#4	1	6'-1"	699
S2	24	#5	1	6'-1"	152
S3	12	#4	2	8'-5"	67
S4	72	#4	3	3'-0"	144
S5	1	#5	2	9'-10"	10
S6	196	#5	4	4'-4"	885
* S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	41	#5	STR	3'-3"	139
S10	1	#3	STR	1'-10"	1
S11	8	#5	2	10'-2"	85
S12	16	#4	STR	8'-0"	86

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

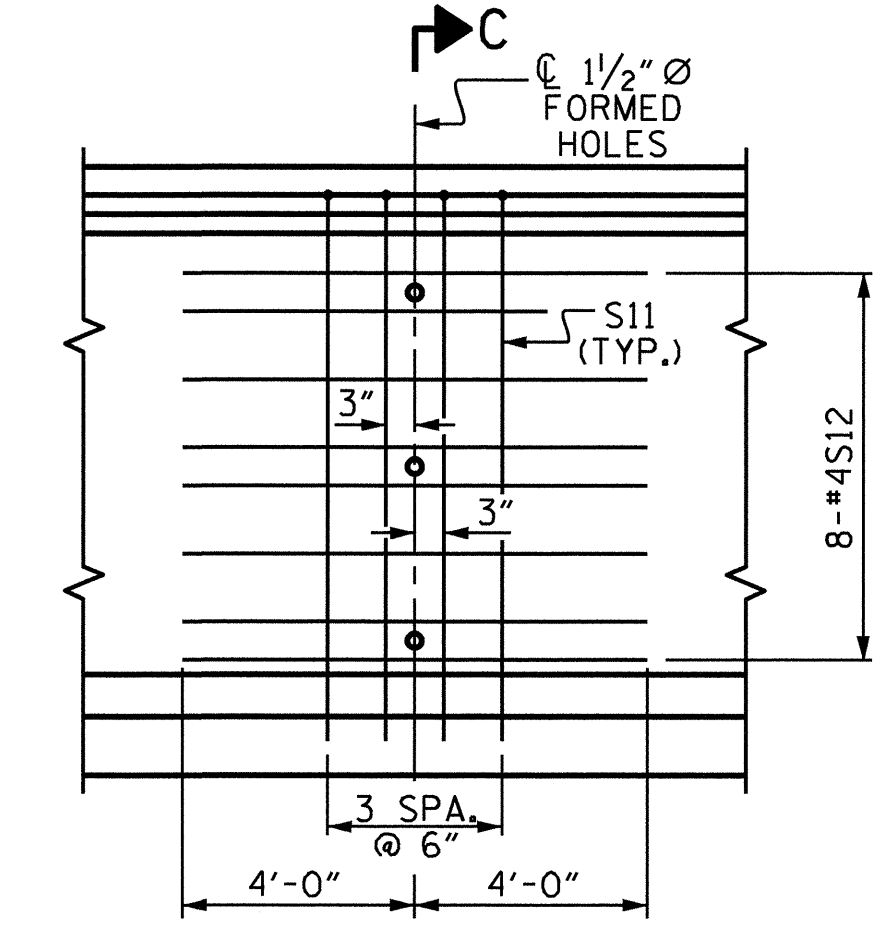
BAR TYPES



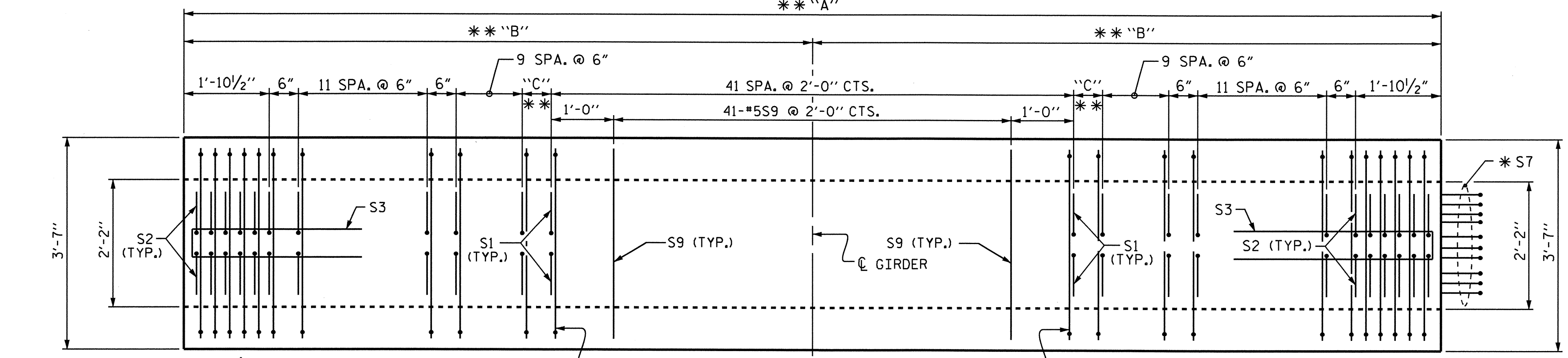
ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	9800 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN A	2325	21.6	46

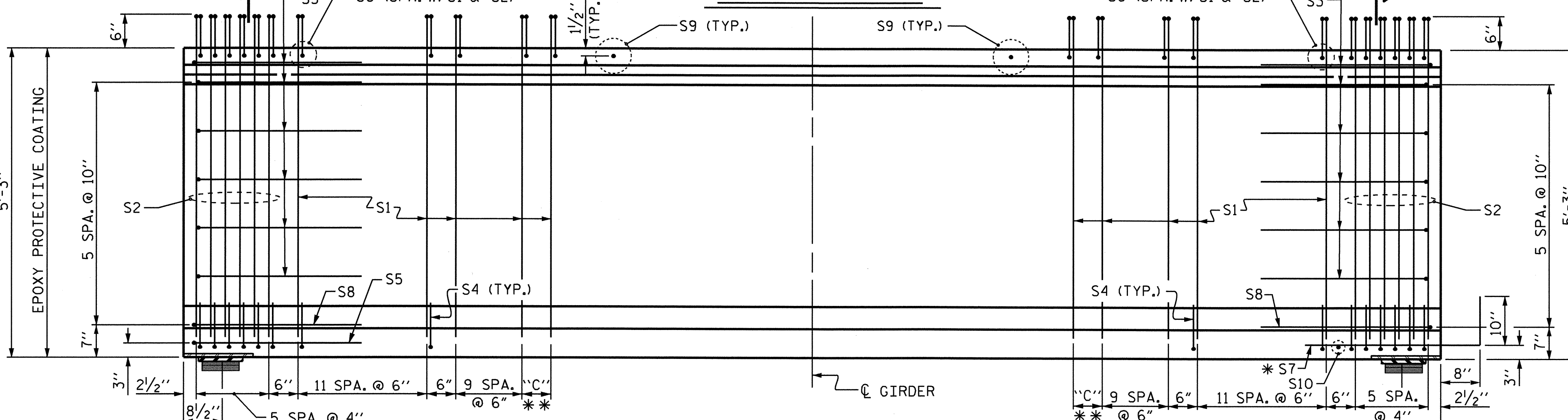
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
10	** "A"	1090.57



PARTIAL ELEVATION
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL



PLAN OF GIRDER

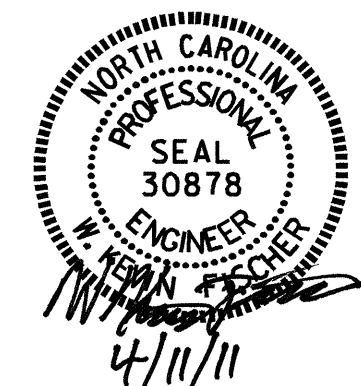


ELEVATION OF GIRDER

** SEE "GIRDER DIMENSIONS" CHART ON SHEET 3 OF 3.

ASSEMBLED BY: M.K. BEARD DATE: 11/5/09
 CHECKED BY: J.P. ADAMS DATE: 2/8/10
 DRAWN BY: EEM 2/6/97 REV. 8/16/99 RWW/LES
 CHECKED BY: VAP 2/6/97 REV. 10/17/00 RWW/LES
 REV. 5/1/06R TLA/GM

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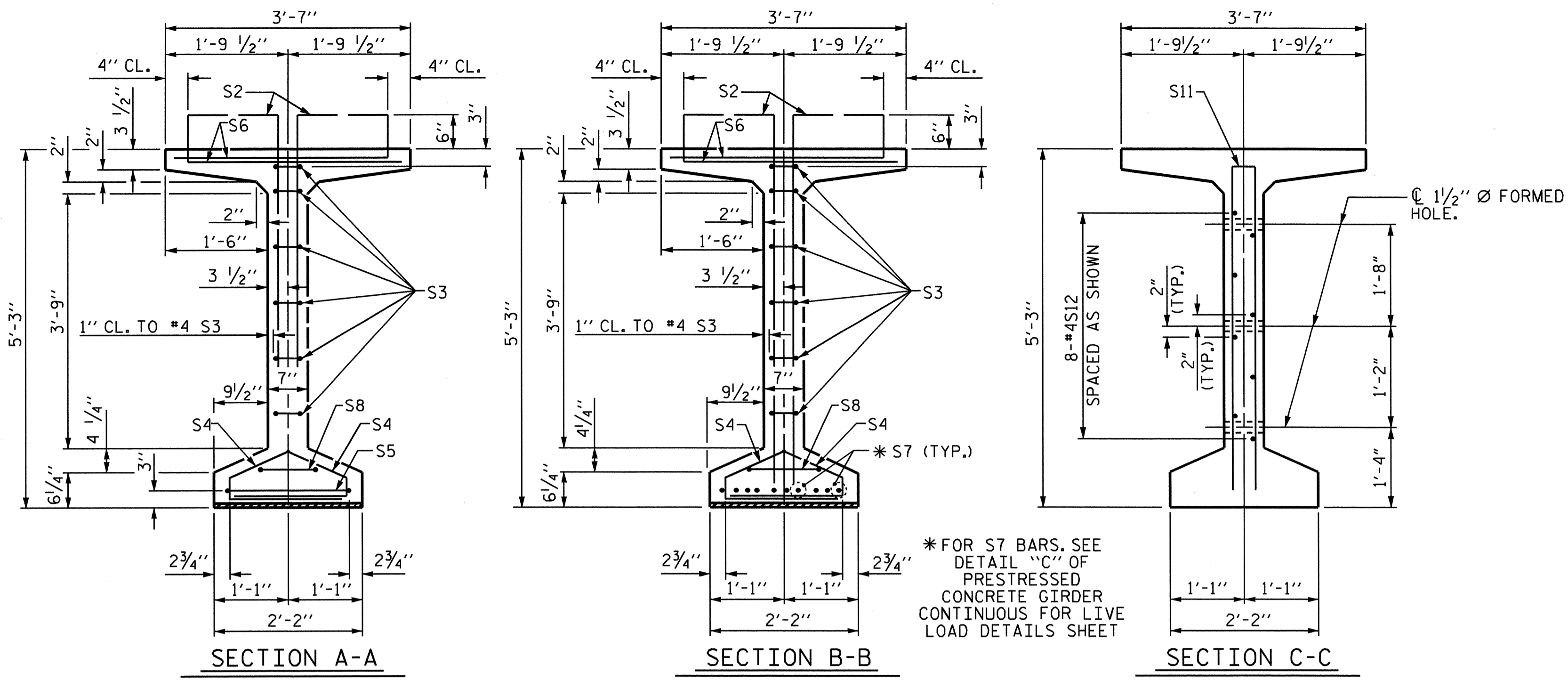
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-

SHEET 1 OF 3

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

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

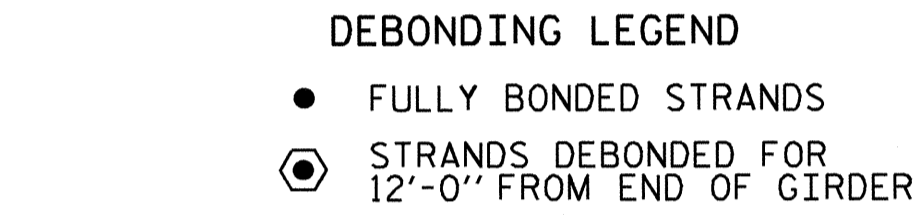
STD. NO. PCG9 (Sht. 1)



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

(S1, S6 AND S9 BARS NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT

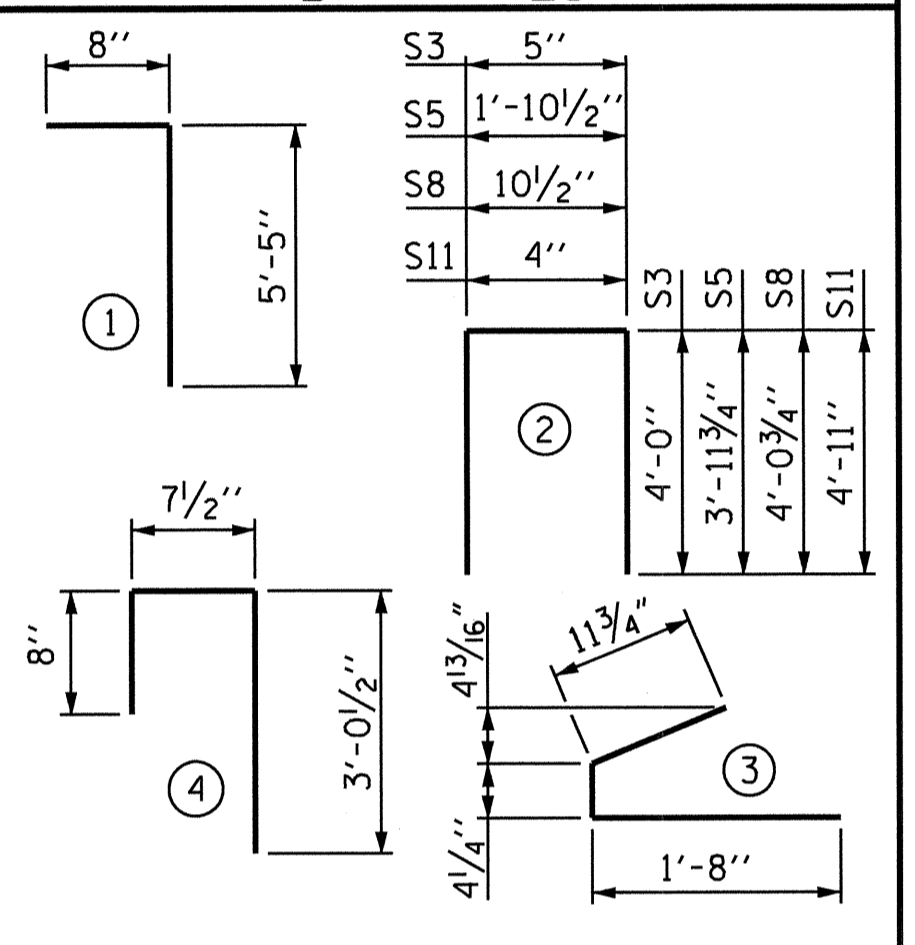


0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	168	#4	1	6'-1"	683
S2	24	#5	1	6'-1"	152
S3	12	#4	2	8'-5"	67
S4	72	#4	3	3'-0"	144
S5	1	#5	2	9'-10"	10
S6	192	#5	4	4'-4"	868
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	41	#5	STR	3'-3"	139
S10	1	#3	STR	1'-10"	1
S11	8	#5	2	10'-2"	85
S12	16	#4	STR	8'-0"	86

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

BAR TYPES

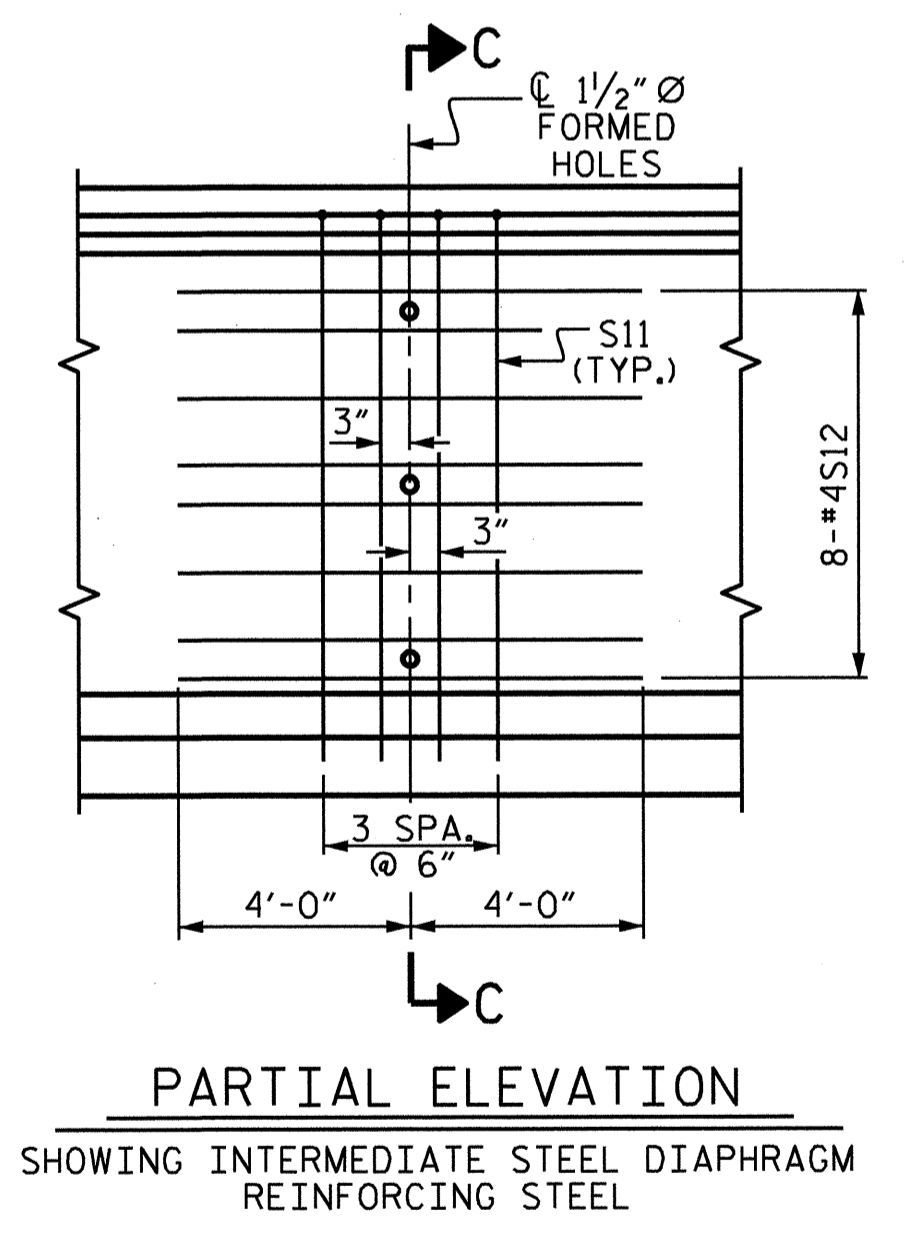


ALL BAR DIMENSIONS ARE OUT-TO-OUT

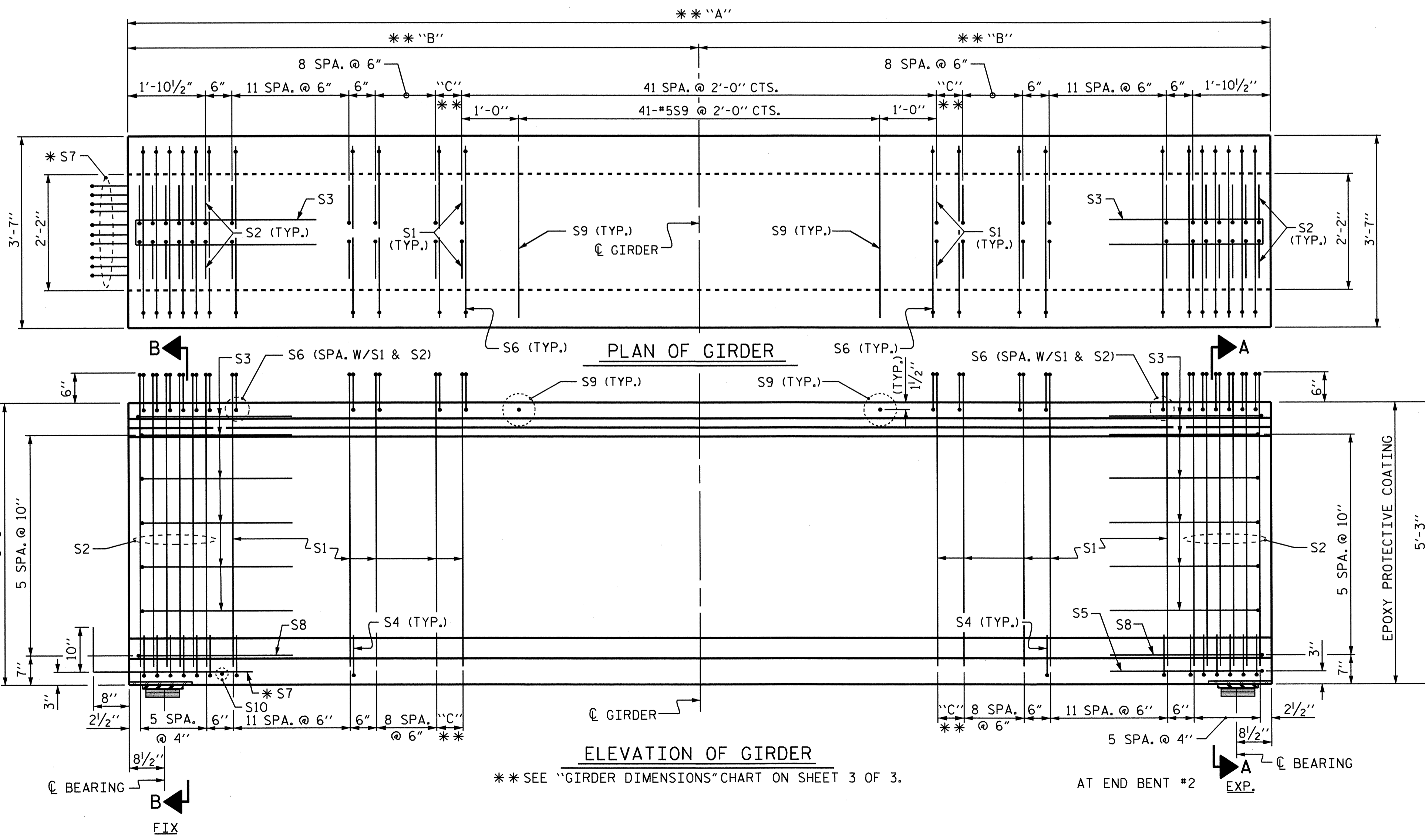
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	9800 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN B	2292	21.4	46

GIRDERS REQUIRED

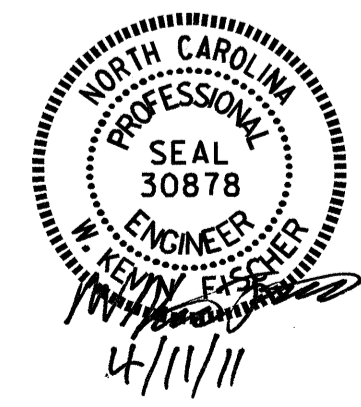
NUMBER	LENGTH	TOTAL LENGTH
10	** "A"	1081.14



SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL



** SEE "GIRDER DIMENSIONS" CHART ON SHEET 3 OF 3.



ASSEMBLED BY: M.K. BEARD	DATE: 11/5/09
CHECKED BY: J.P. ADAMS	DATE: 2/8/10
DRAWN BY: EEM 2/16/97	REV. 8/16/99 RWW/LES
CHECKED BY: VAP 2/16/97	REV. 10/17/00 RWW/LES
	REV. 5/1/06R TLA/GM

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PROJECT NO. U-4007A
ONslow COUNTY
STATION: 21+47.74 -L-
SHEET 2 OF 3

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			32

STD. NO. PCG9 (Sht. 1)

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 8200 PSI.

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

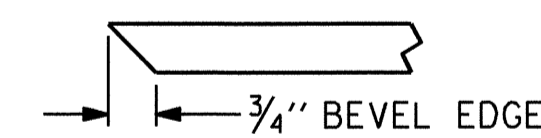
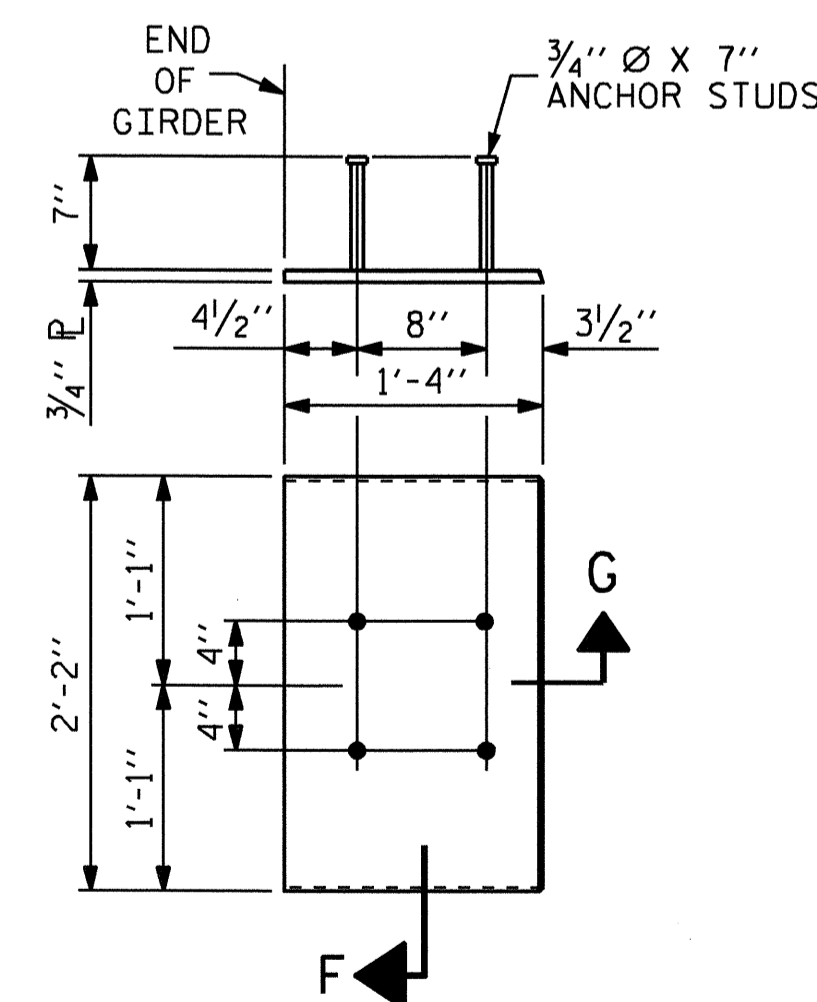
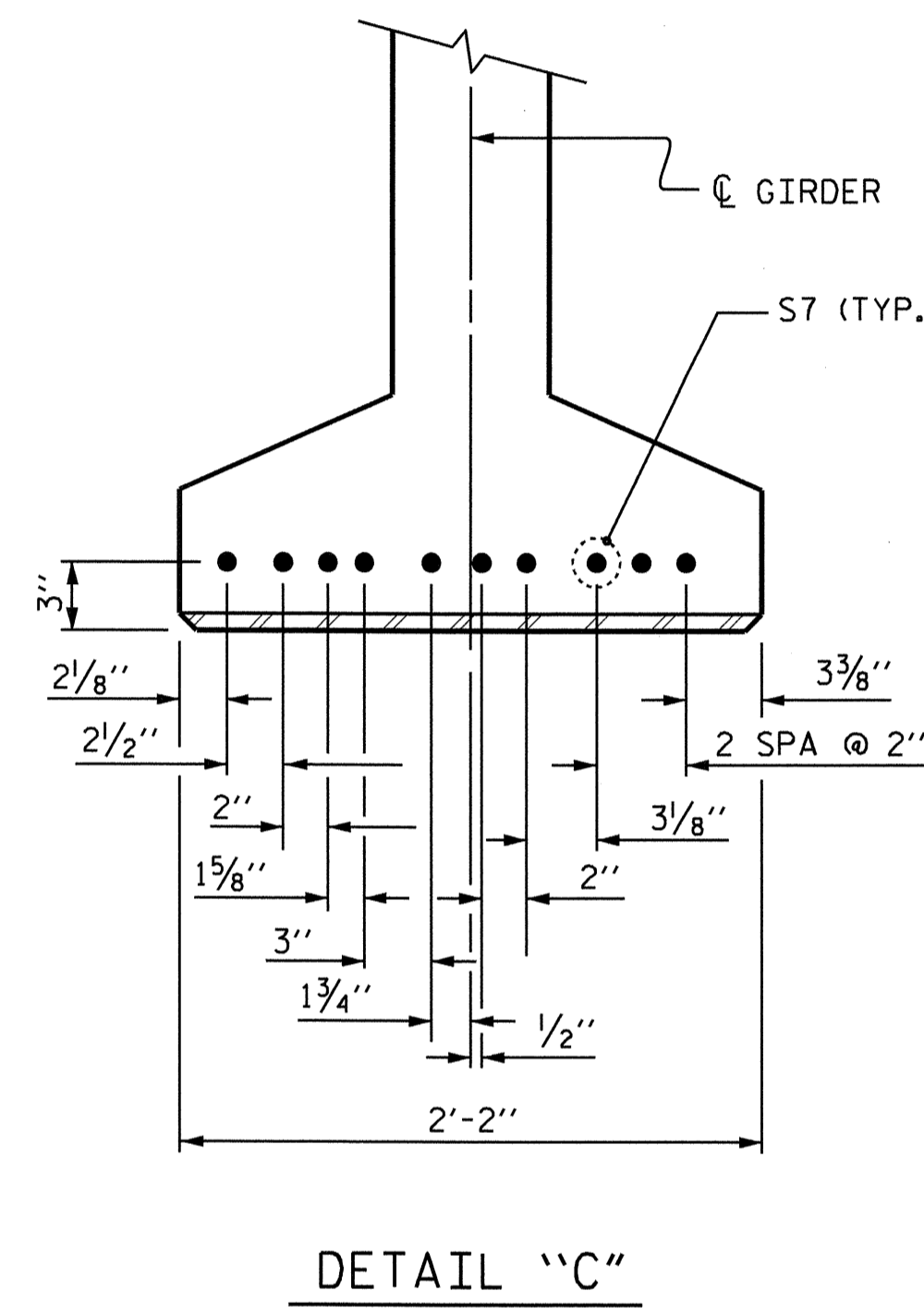
THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" MODIFIED BULB TEES.

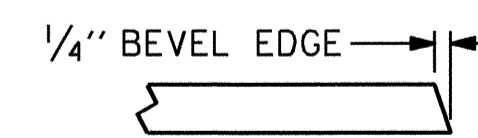
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

GIRDER DIMENSIONS			
SPAN A			
GDR.	"A"	"B"	"C"
1	108'-9 3/8"	54'-4 1/16"	6 3/16"
2	108'-10"	54'-5"	6 1/2"
3	108'-10 3/4"	54'-5 3/8"	6 3/8"
4	108'-11 1/2"	54'-5 3/4"	7 1/4"
5	109'-0 1/4"	54'-6 1/8"	7 5/8"
6	109'-1"	54'-6 1/2"	8"
7	109'-1 3/4"	54'-6 7/8"	8 3/8"
8	109'-2 5/8"	54'-7 5/16"	8 13/16"
9	109'-3 3/8"	54'-7 11/16"	9 3/16"
10	109'-4 1/4"	54'-8 1/8"	9 5/8"
SPAN B			
GDR.	"A"	"B"	"C"
1	107'-11 1/2"	53'-11 3/4"	7 1/4"
2	107'-11 7/8"	53'-11 5/16"	7 7/16"
3	108'-0 1/4"	54'-0 1/8"	7 5/8"
4	108'-0 3/4"	54'-0 3/8"	7 7/8"
5	108'-1 1/8"	54'-0 9/16"	8 1/16"
6	108'-1 1/2"	54'-0 3/4"	8 1/4"
7	108'-2"	54'-1"	8 1/2"
8	108'-2 3/8"	54'-1 3/16"	8 11/16"
9	108'-2 7/8"	54'-1 7/16"	8 15/16"
10	108'-3 3/8"	54'-1 11/16"	9 3/16"



SECTION "F"
(SEE NOTES)



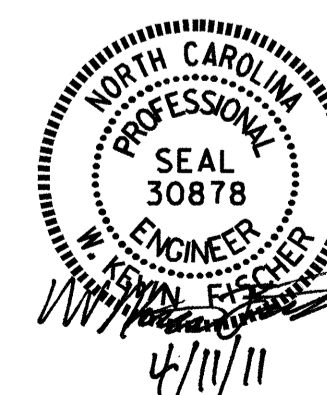
SECTION "G"

EMBEDDED PLATE "B-1" DETAILS
FOR 63" MODIFIED BULB TEES

(2 REQ'D PER GIRDER)

ASSEMBLED BY : M.K. BEARD	DATE : 11/5/09
CHECKED BY : J.P. ADAMS	DATE : 2/8/10
DRAWN BY : ELR 11/91	REV. 10/17/00 RWW/LES
CHECKED BY : GRP 11/91	REV. 7/10/01RR LES/RDR
	REV. 5/1/06 TLA/GM

06-APR-2011 13:40
X:\Structures\plans\U4007a.sd.g*.dgn
kloyne

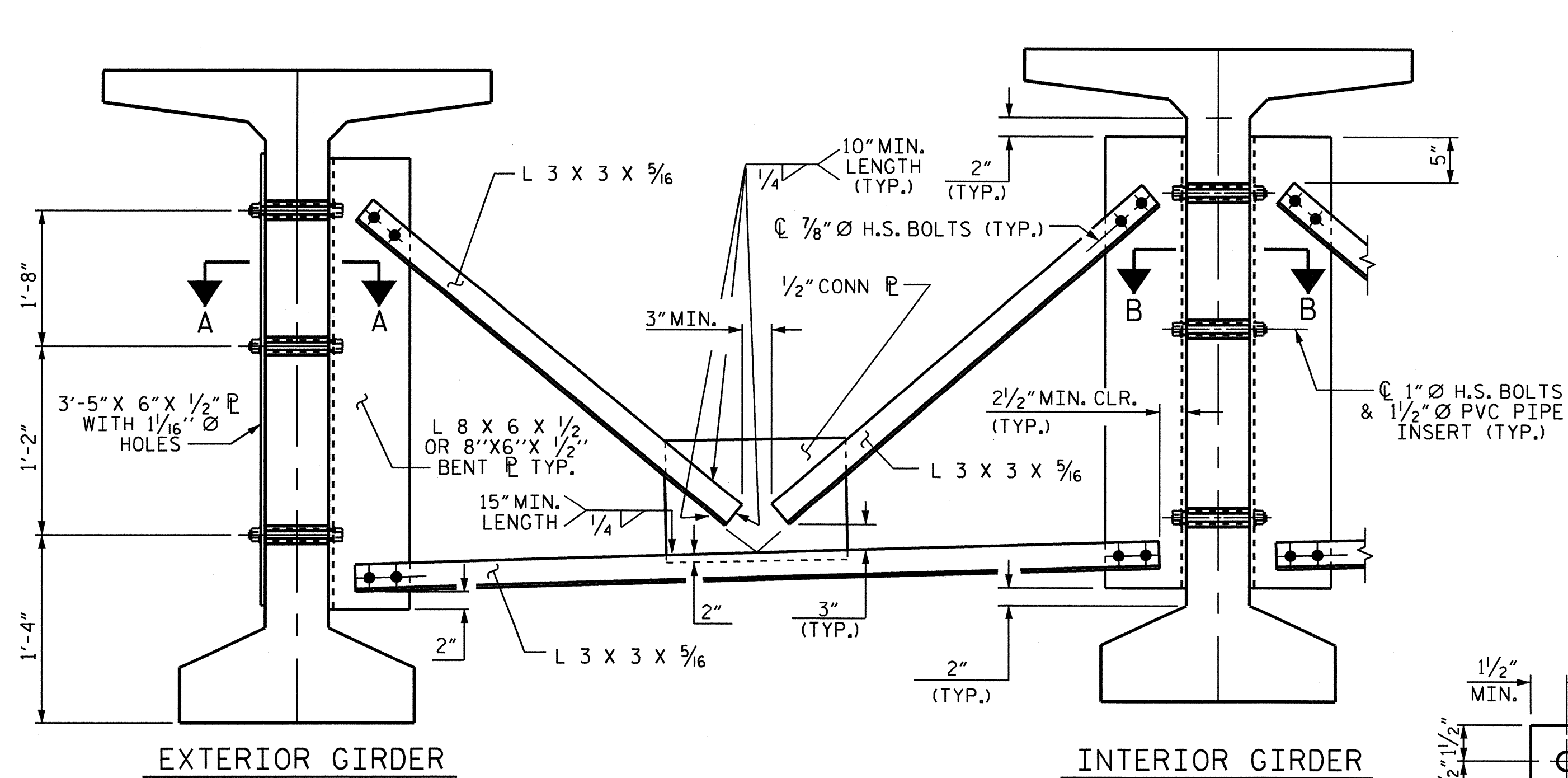


PROJECT NO. U-4007A
ONSLow COUNTY
STATION: 21+47.74 -L-

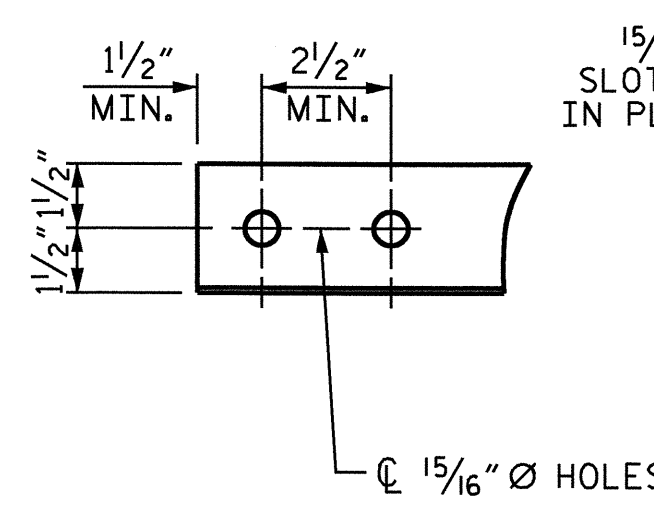
SHEET 3 OF 3

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

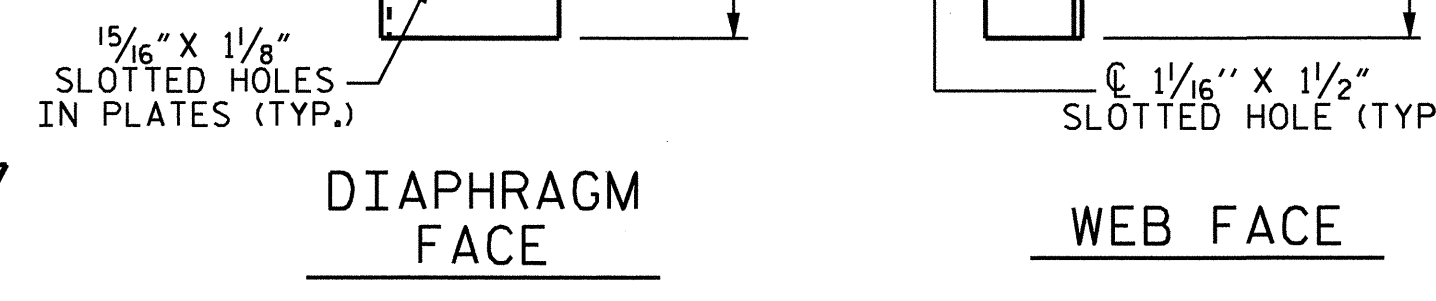
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			32



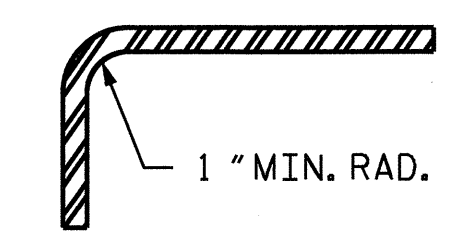
PART SECTION AT INTERMEDIATE DIAPHRAGM



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

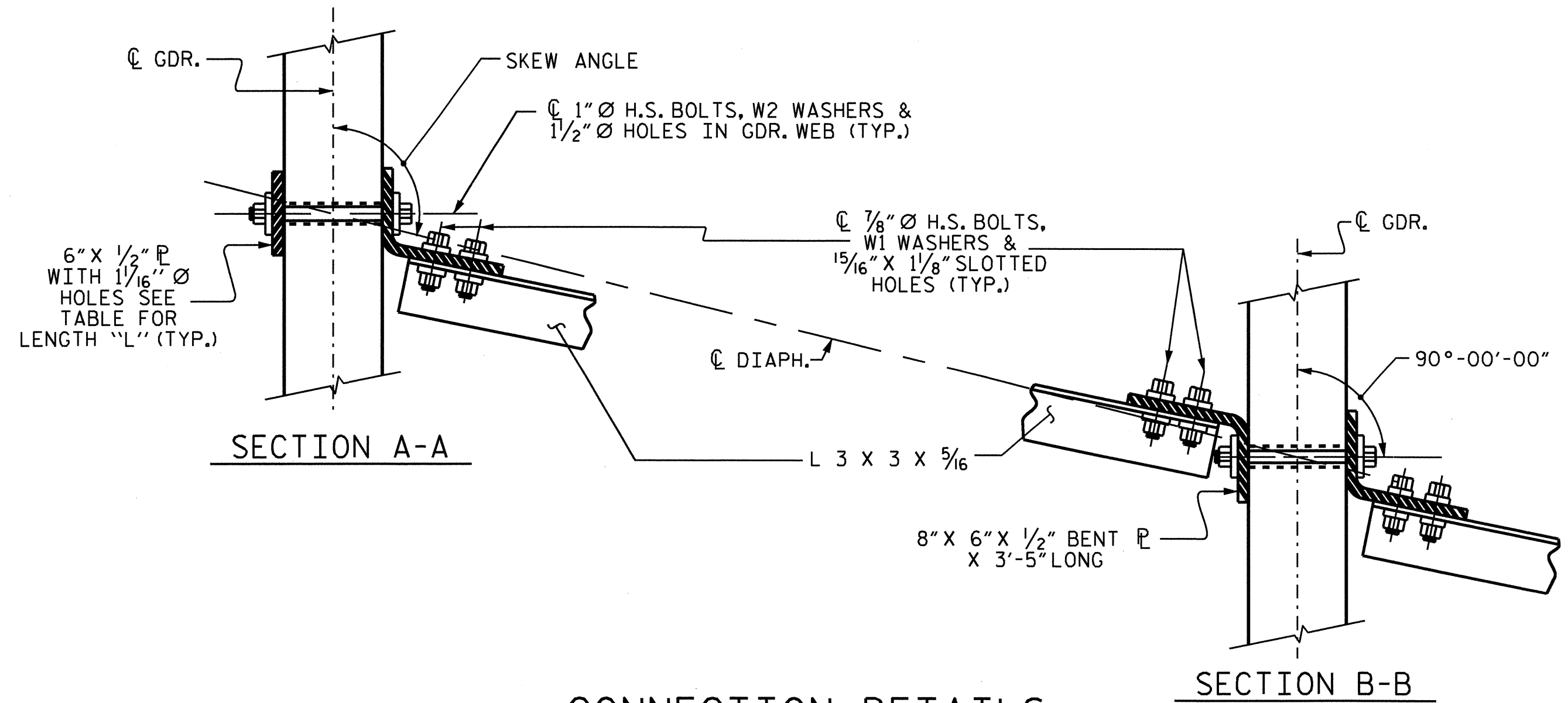


DIAPHRAGM FACE
WEB FACE

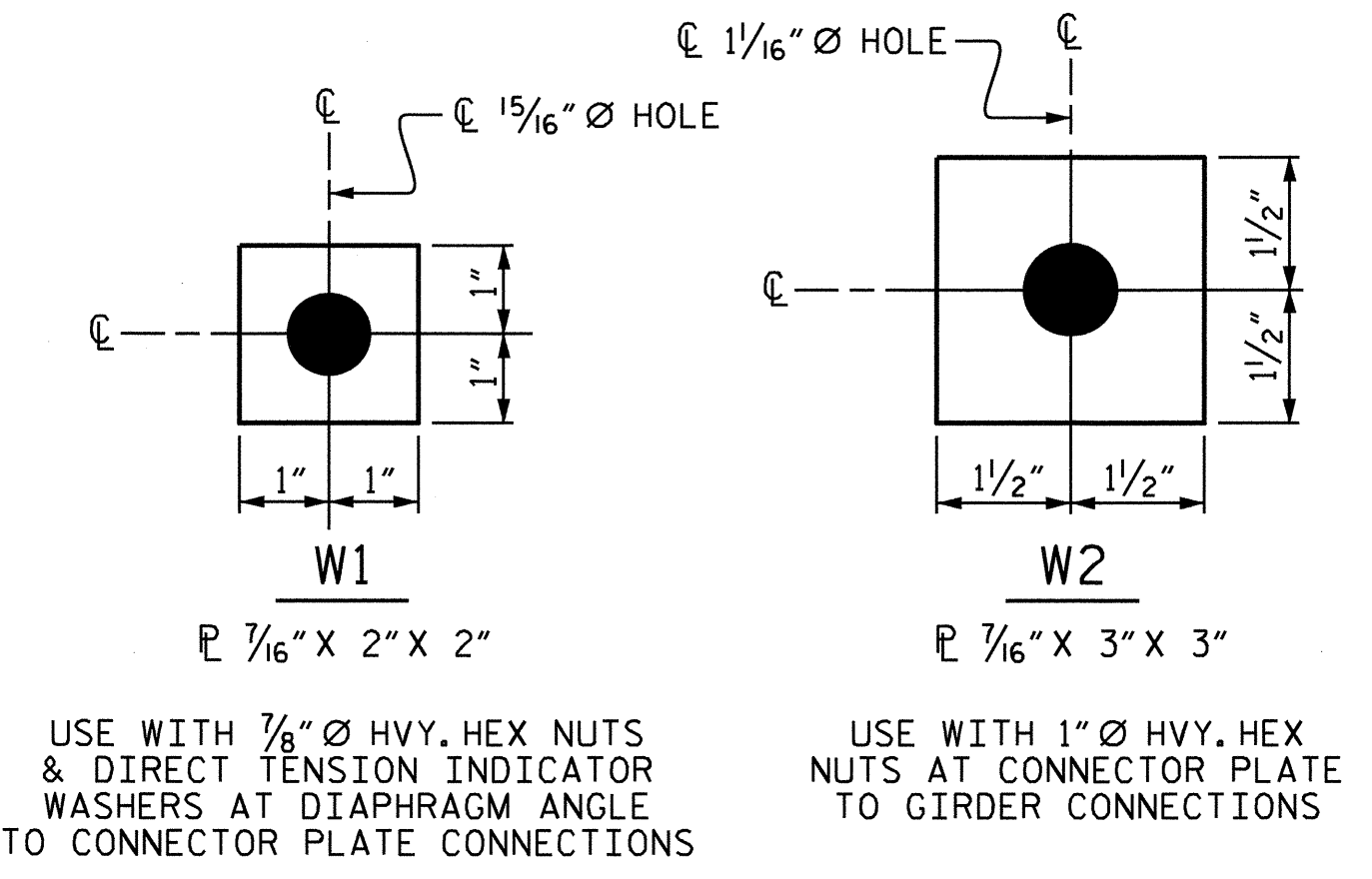


SECTION Y-Y

CONNECTOR PLATE DETAILS



CONNECTION DETAILS



WASHER DETAILS

STRUCTURAL STEEL NOTES

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

TENSION ON THE AASHTO M164 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISION.

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

THE PLATES, BENT PLATES, ANGLES, AND PLATE WASHERS 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 PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

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

USE A MINIMUM 7/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. HARDENED WASHERS AND DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS IN THE L 3 X 3 X 5/16 ANGLE MEMBER CONNECTION.

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

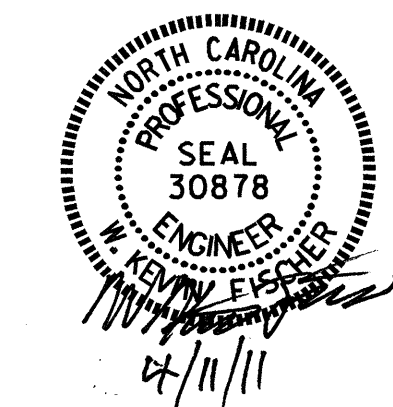
INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

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

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

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

PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-



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

ASSEMBLED BY : M.K. BEARD	DATE : 11/5/09
CHECKED BY : J.P. ADAMS	DATE : 2/8/10
DRAWN BY : RWW 11/09	ADDED 11/23/09
CHECKED BY : GM 11/09	

REVISIONS					SHEET NO. S-15
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS
2			4		32

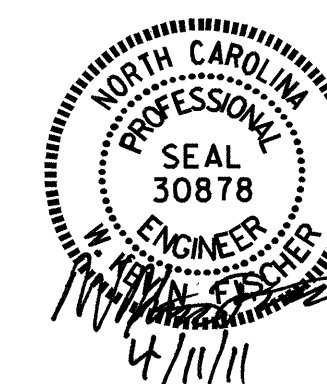
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																	
0.6" Ø LOW RELAXATION	SPAN A											SPAN A										SPAN A											
	GIRDER 1											GIRDERS 2 THRU 9										GIRDER 10											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	.139	.262	.359	.420	.441	.420	.359	.262	.139	0.000	0.000	.139	.264	.361	.423	.444	.423	.361	.264	.139	0.000	0.000	.139	.264	.361	.423	.444	.423	.361	.264	.139	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.000	.041	.078	.107	.126	.132	.126	.107	.078	.041	0.000	0.000	.045	.085	.116	.136	.143	.136	.116	.085	.045	0.000	0.000	.045	.085	.117	.137	.144	.137	.117	.085	.045	0.000
FINAL CAMBER ↑	0	1 ³ / ₁₆ "	2 ³ / ₁₆ "	3"	3 ³ / ₁₆ "	3 ¹ / ₁₆ "	3 ³ / ₁₆ "	3"	2 ³ / ₁₆ "	1 ³ / ₁₆ "	0	0	1 ¹ / ₈ "	2 ¹ / ₈ "	2 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	3 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	2 ⁵ / ₁₆ "	2 ¹ / ₈ "	1 ¹ / ₈ "	0	0	1 ¹ / ₈ "	2 ¹ / ₈ "	2 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	3 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	2 ⁵ / ₁₆ "	2 ¹ / ₈ "	1 ¹ / ₈ "	0

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																	
0.6" Ø LOW RELAXATION	SPAN B											SPAN B										SPAN B											
	GIRDER 1											GIRDERS 2 THRU 9										GIRDER 10											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	.137	.260	.356	.416	.437	.416	.356	.260	.137	0.000	0.000	.138	.261	.357	.418	.439	.418	.357	.261	.138	0.000	0.000	.138	.261	.357	.418	.439	.418	.357	.261	.138	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.000	.040	.076	.104	.122	.128	.122	.104	.076	.040	0.000	0.000	.043	.082	.112	.131	.138	.131	.112	.082	.043	0.000	0.000	.043	.082	.112	.132	.138	.132	.112	.082	.043	0.000
FINAL CAMBER ↑	0	1 ³ / ₁₆ "	2 ³ / ₁₆ "	3"	3 ³ / ₁₆ "	3 ¹ / ₁₆ "	3 ³ / ₁₆ "	3"	2 ³ / ₁₆ "	1 ³ / ₁₆ "	0	0	1 ¹ / ₈ "	2 ¹ / ₈ "	2 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	3 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	2 ⁵ / ₁₆ "	2 ¹ / ₈ "	1 ¹ / ₈ "	0	0	1 ¹ / ₈ "	2 ¹ / ₈ "	2 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	3 ⁵ / ₁₆ "	3 ⁷ / ₁₆ "	2 ⁵ / ₁₆ "	2 ¹ / ₈ "	1 ¹ / ₈ "	0

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

PROJECT NO. U-4007A
ONslow COUNTY
STATION: 21+47.74 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
DEAD LOAD DEFLECTIONS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-16
TOTAL SHEETS					32

DRAWN BY : M.K. BEARD DATE : 11/5/09
CHECKED BY : J.P. ADAMS DATE : 2/8/10

NOTES

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

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

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

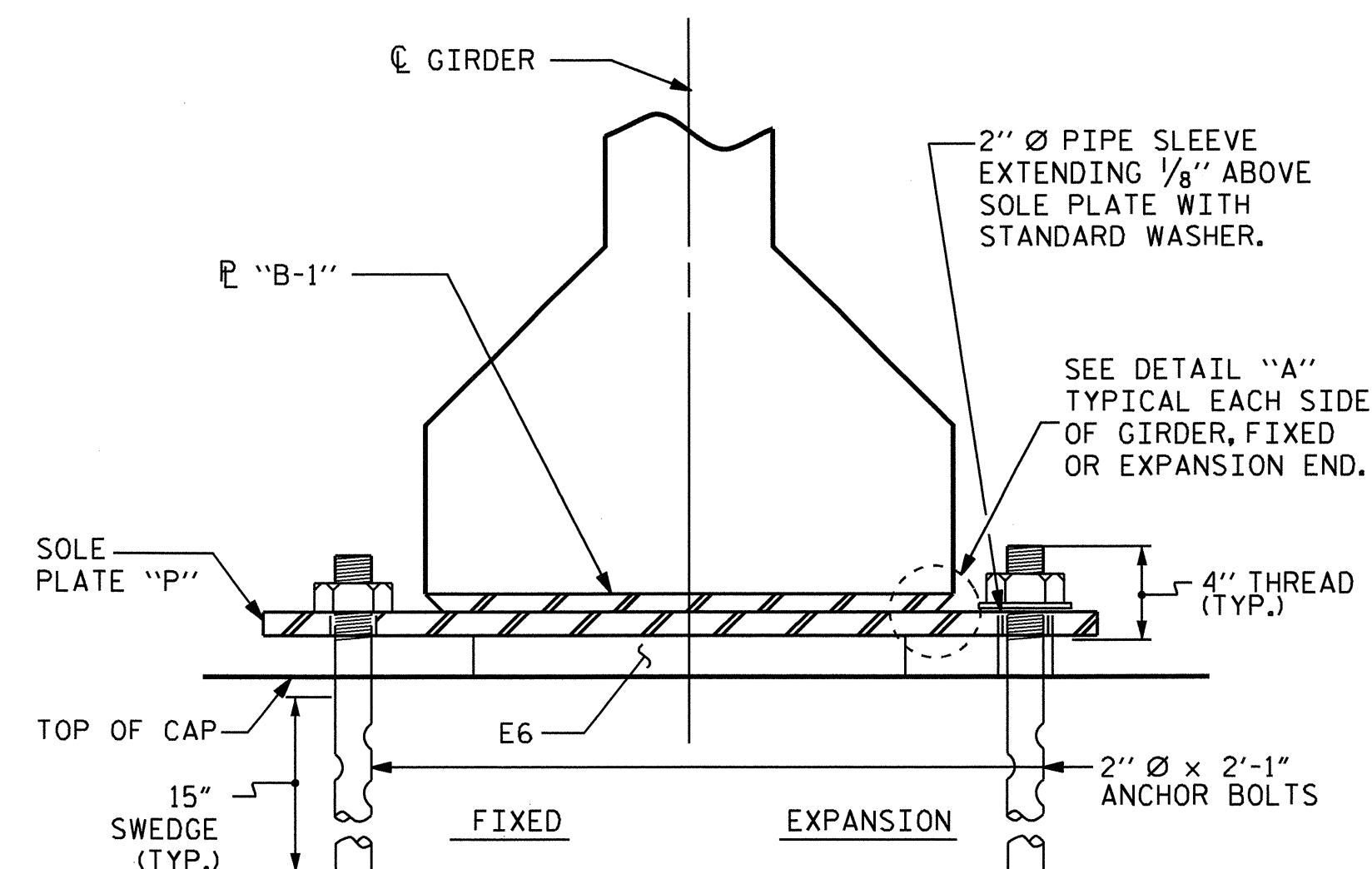
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

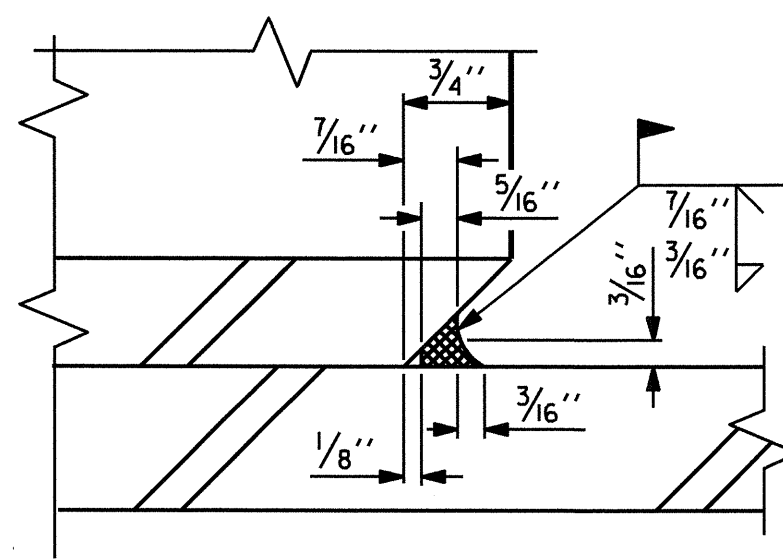
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

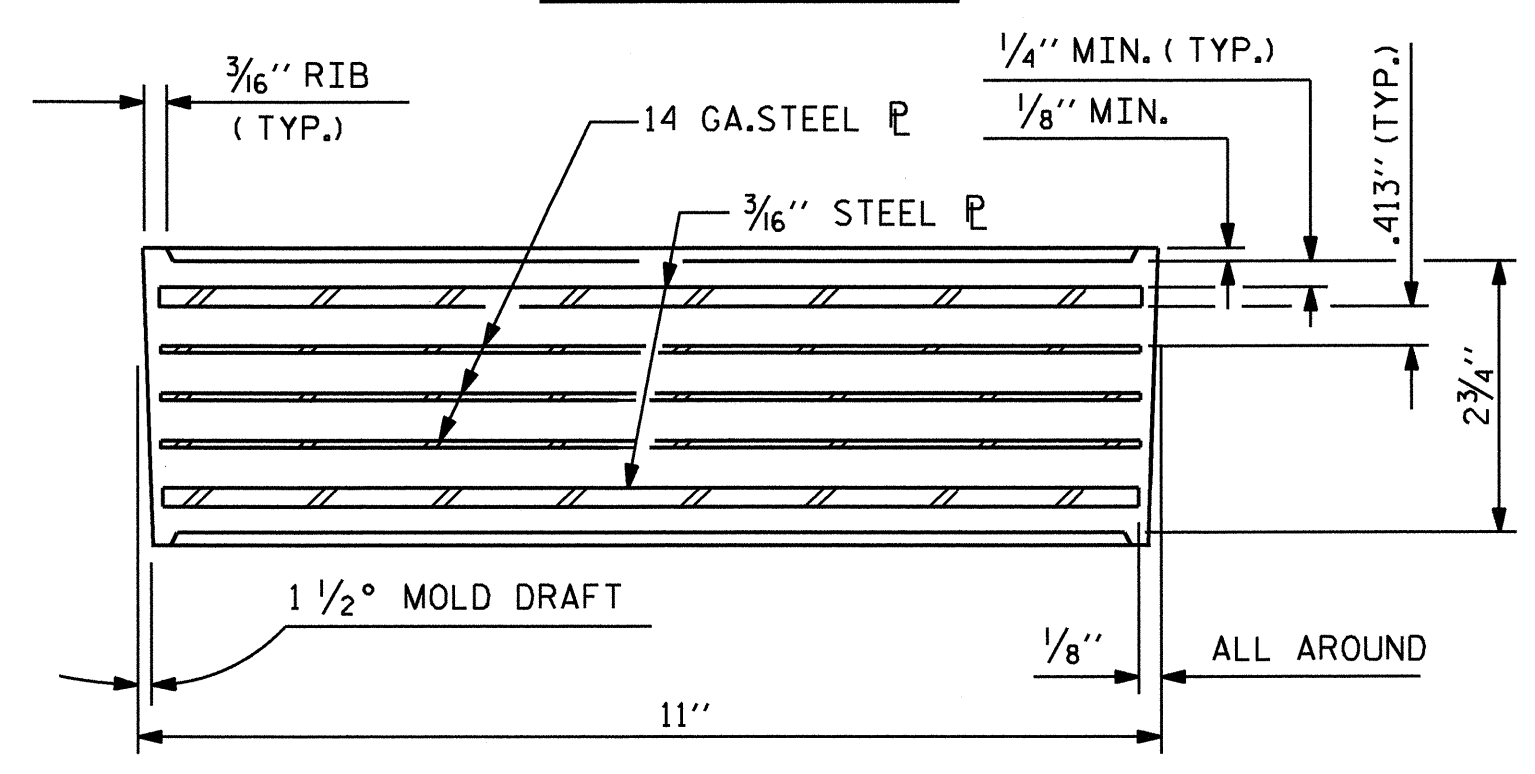
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



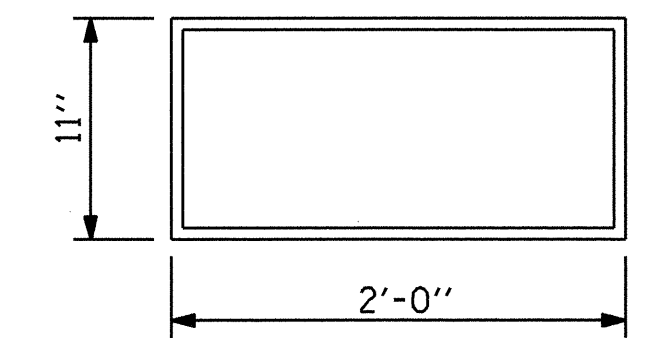
SECTION E-E



DETAIL "A"



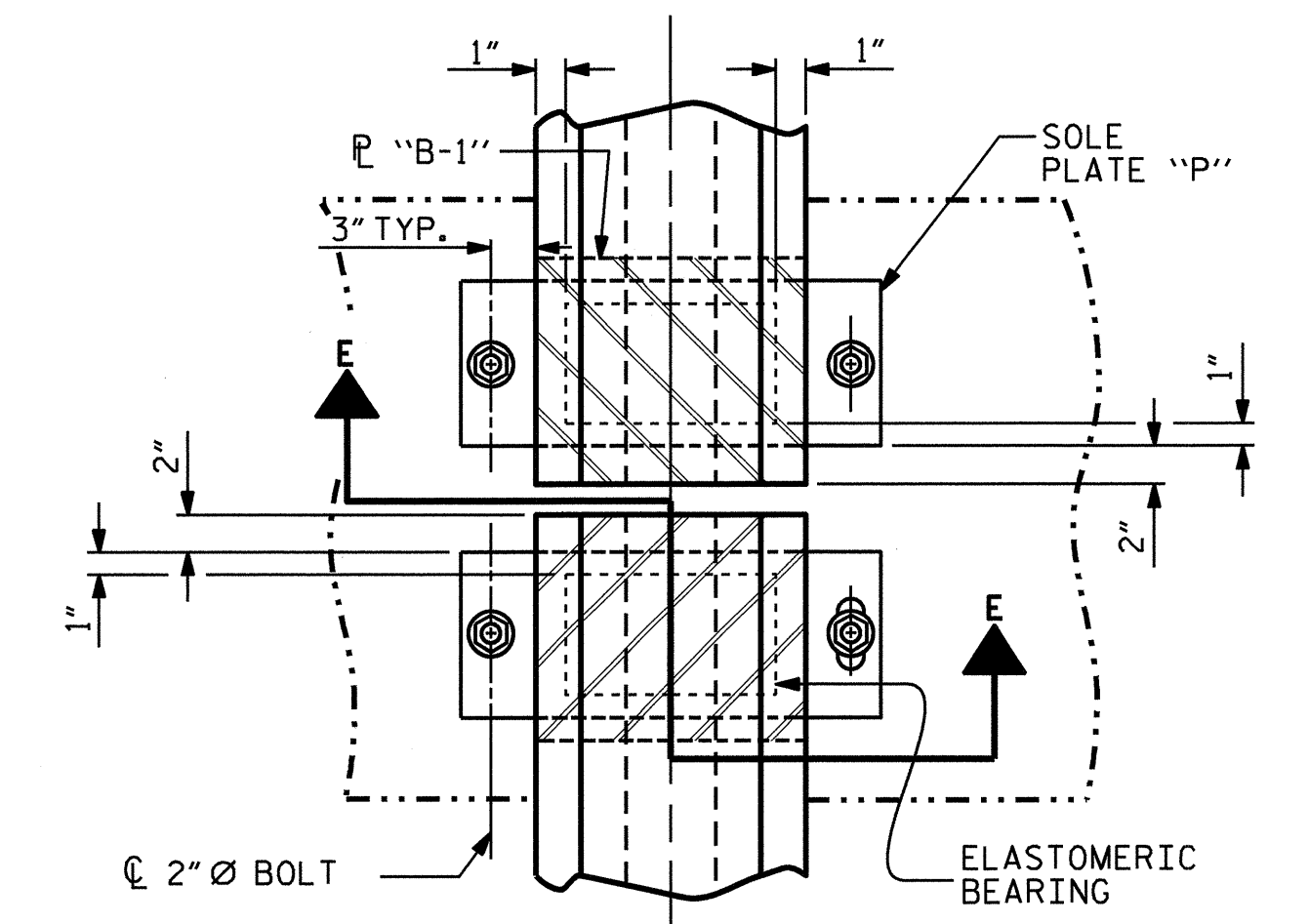
TYPICAL SECTION OF ELASTOMERIC BEARINGS



**E6 (40 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING**

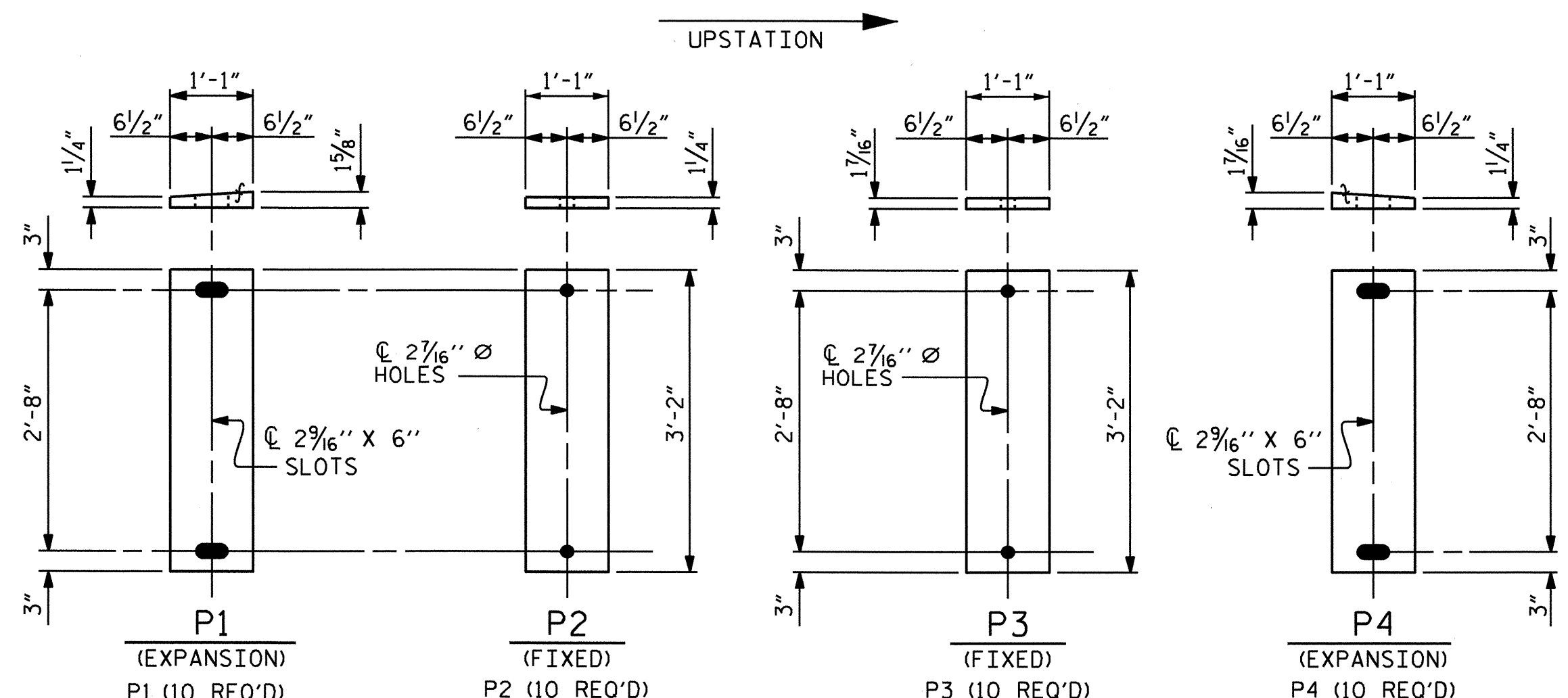
TYPE VII

50 DUROMETER HARDNESS



**TYPICAL HALF-PLAN
(SHOWING CONTINUOUS BENT)**

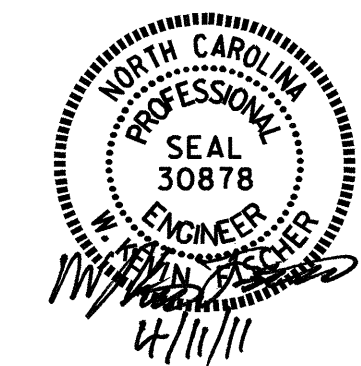
**TYPICAL HALF-PLAN
(SHOWING SIMPLE SPAN BENT)**



SOLE PLATE DETAILS ("P")

LOAD RATINGS	
TYPE VII	MAX.D.L.+ L.L. 264 K

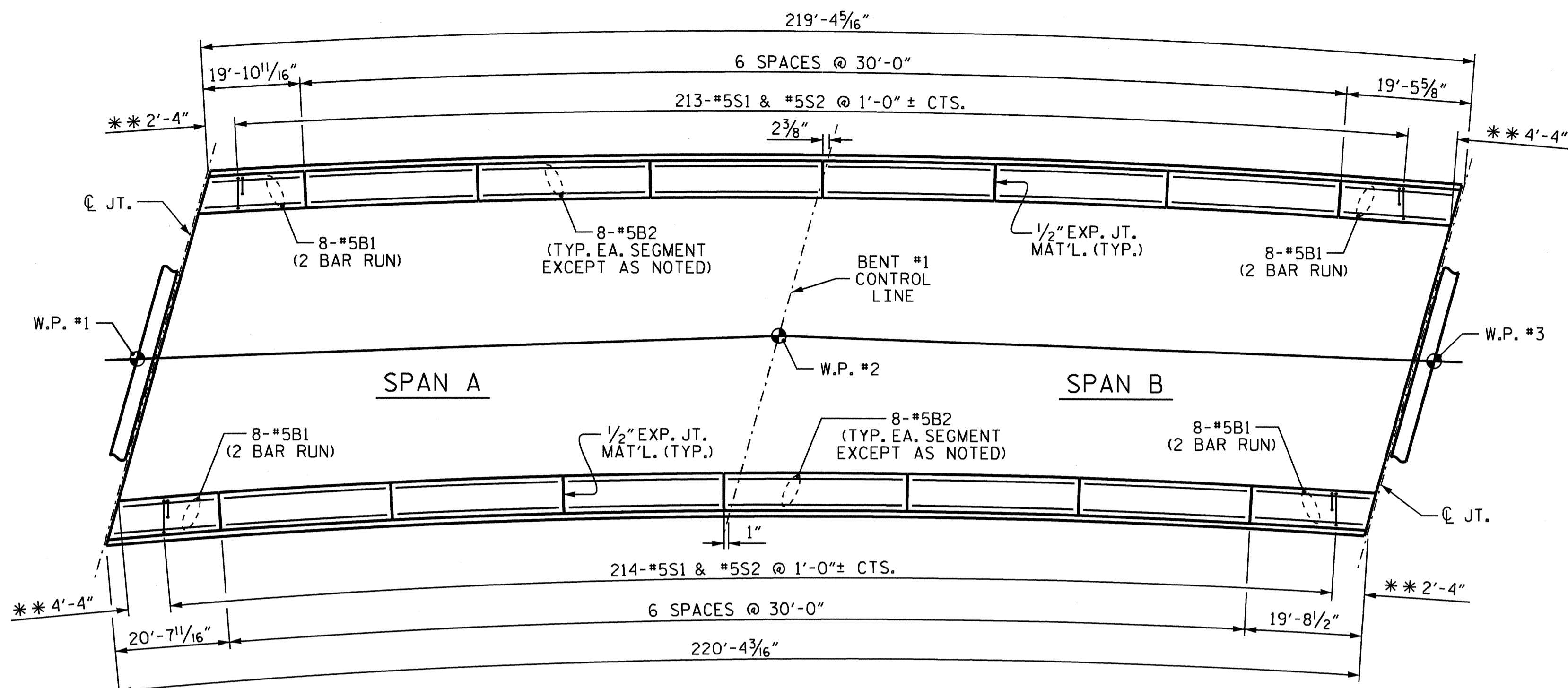
PROJECT NO. U-4007A
ONslow COUNTY
 STATION: 21+47.74 -L-



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			32

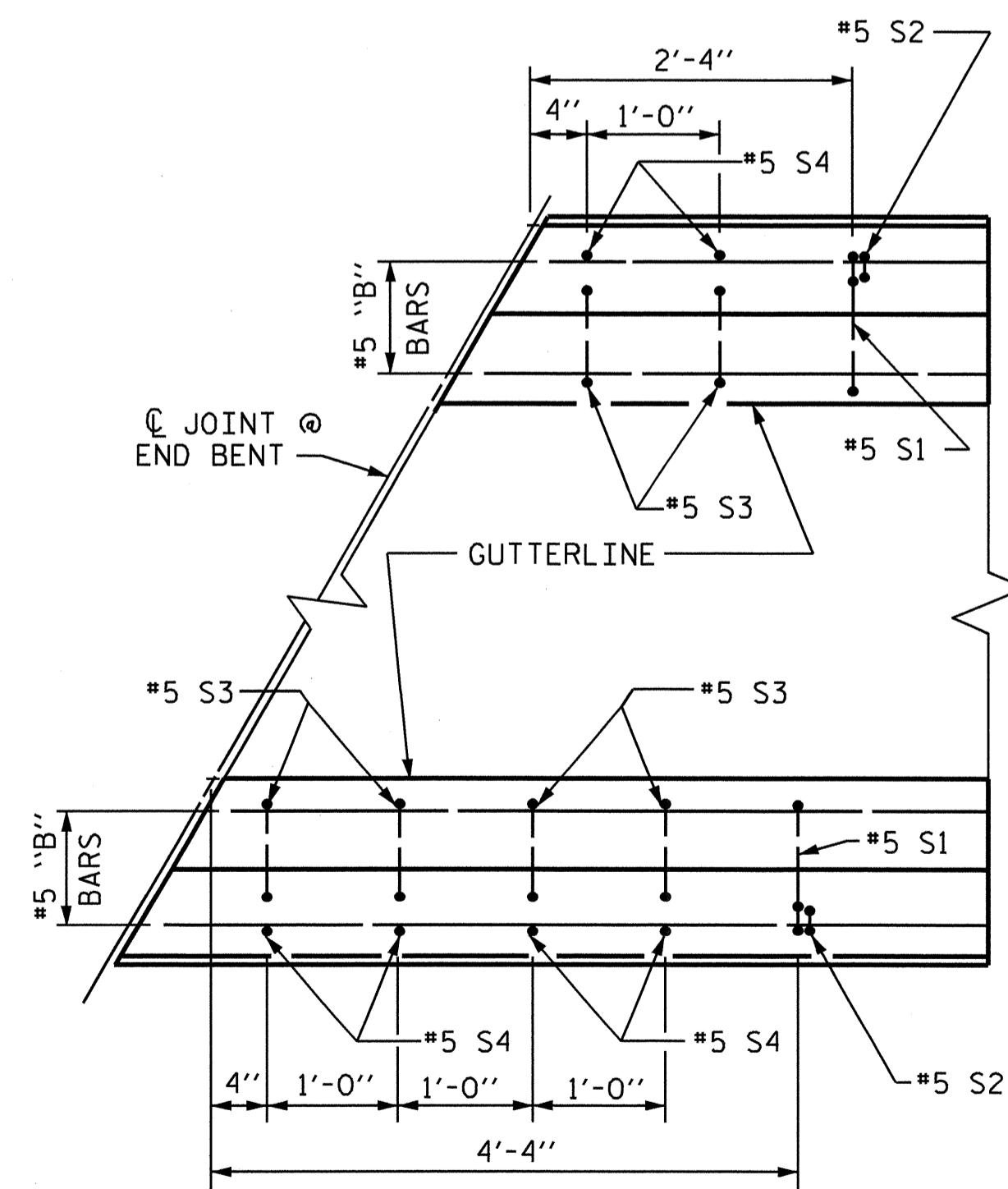
ASSEMBLED BY : M.K. BEARD	DATE : 11/5/09
CHECKED BY : J.P. ADAMS	DATE : 2/8/10
DRAWN BY : EEM 2/97	REV. 8/16/99 RWW/LES
CHECKED BY : VAP 2/97	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM



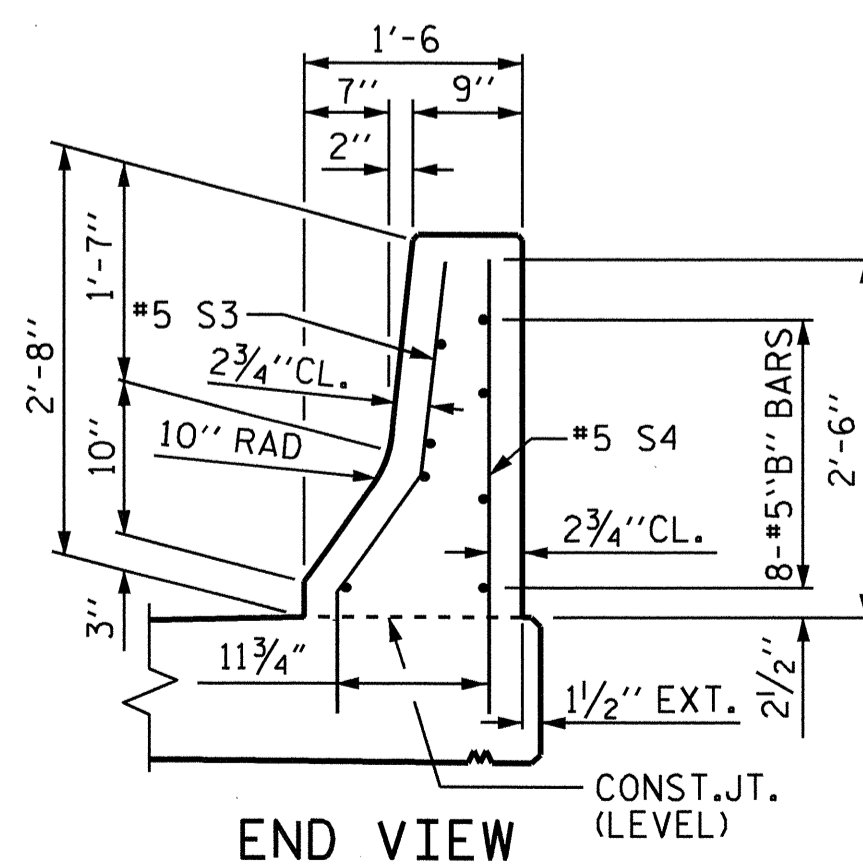
PLAN OF BARRIER RAIL

MEASUREMENTS TAKEN ALONG BACK FACE OF BARRIER RAIL

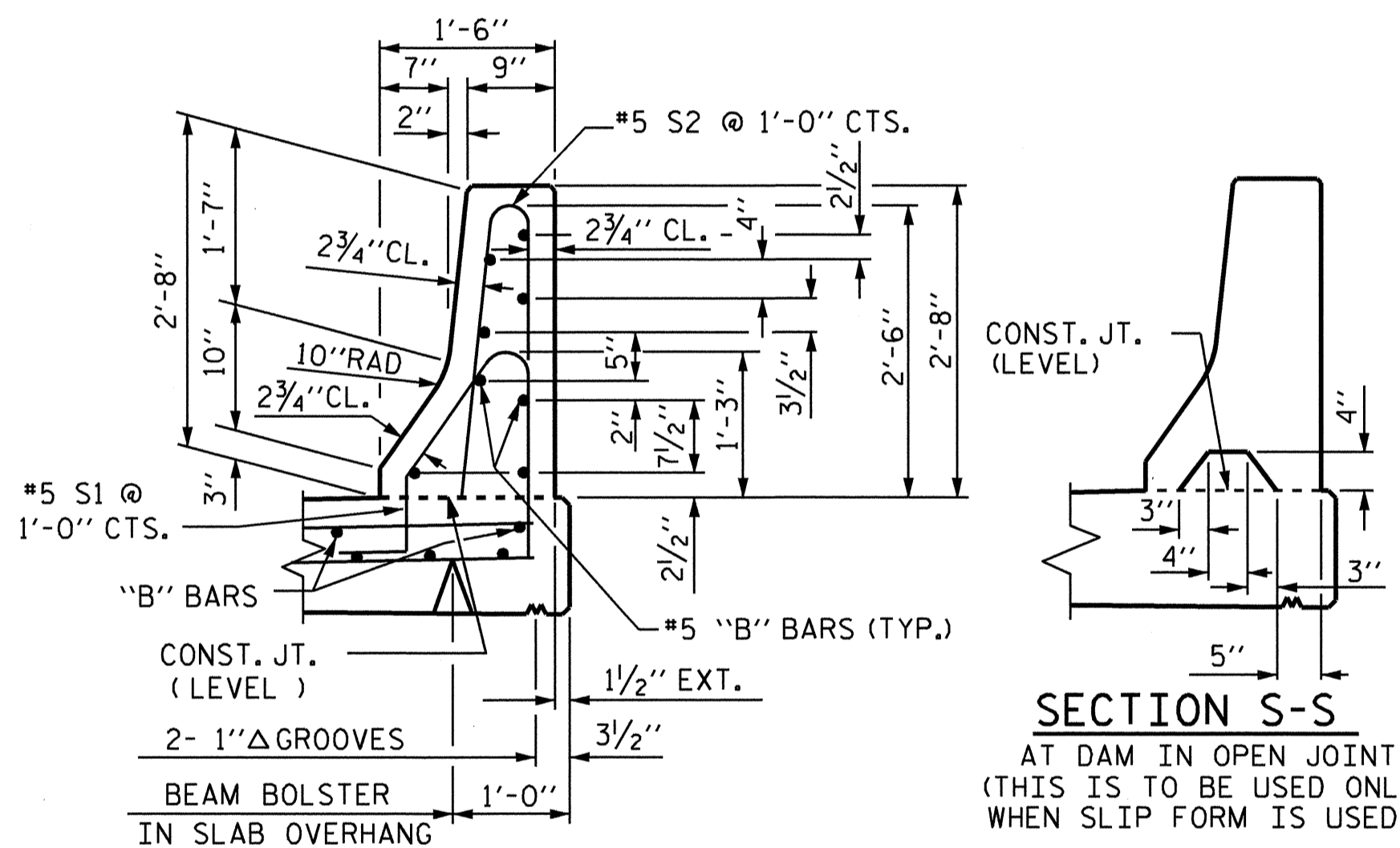
** SEE "END OF RAIL DETAILS" FOR ADDITIONAL REINFORCEMENT



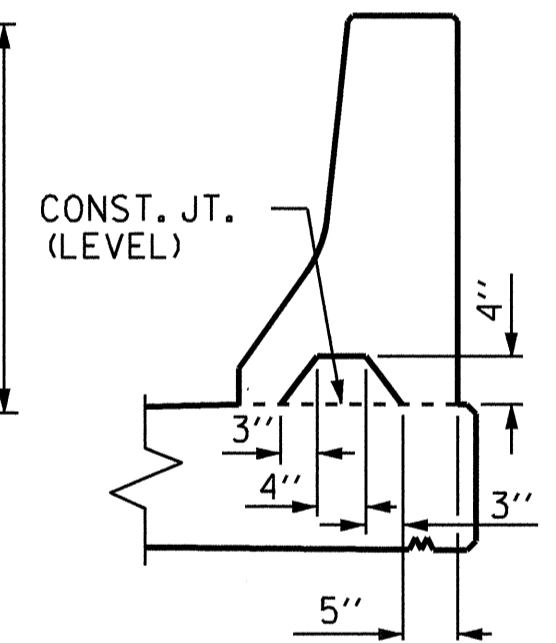
PLAN



END VIEW

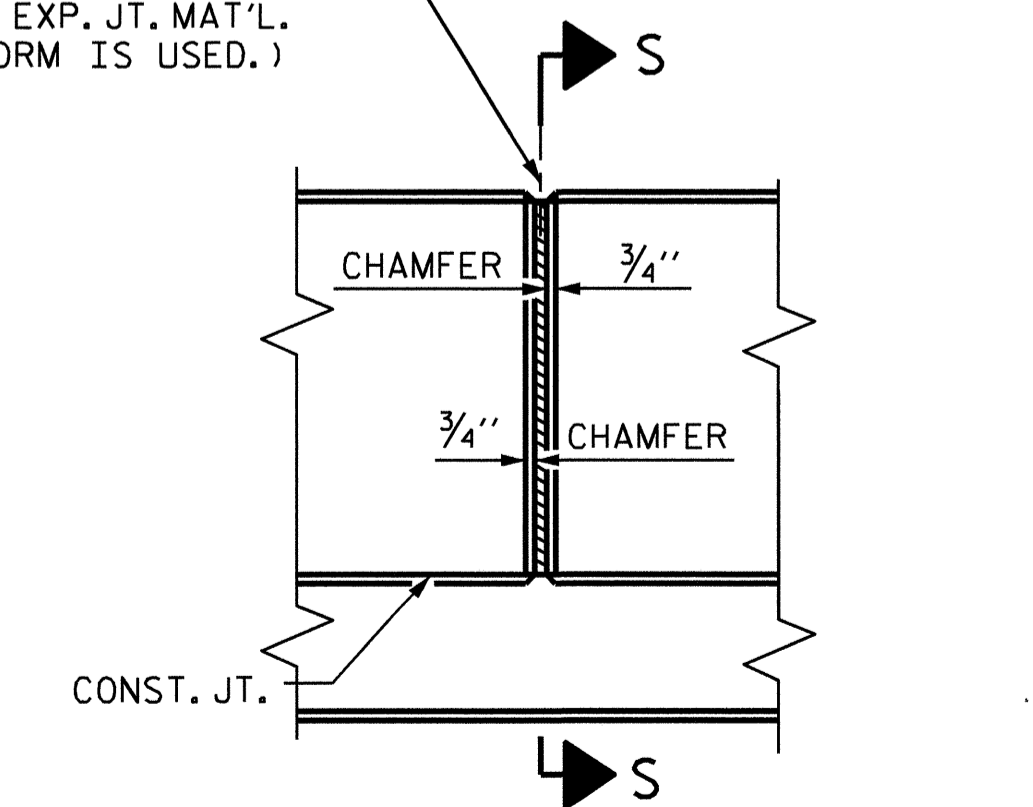


SECTION THRU RAIL



SECTION S-S

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



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

NOTES

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

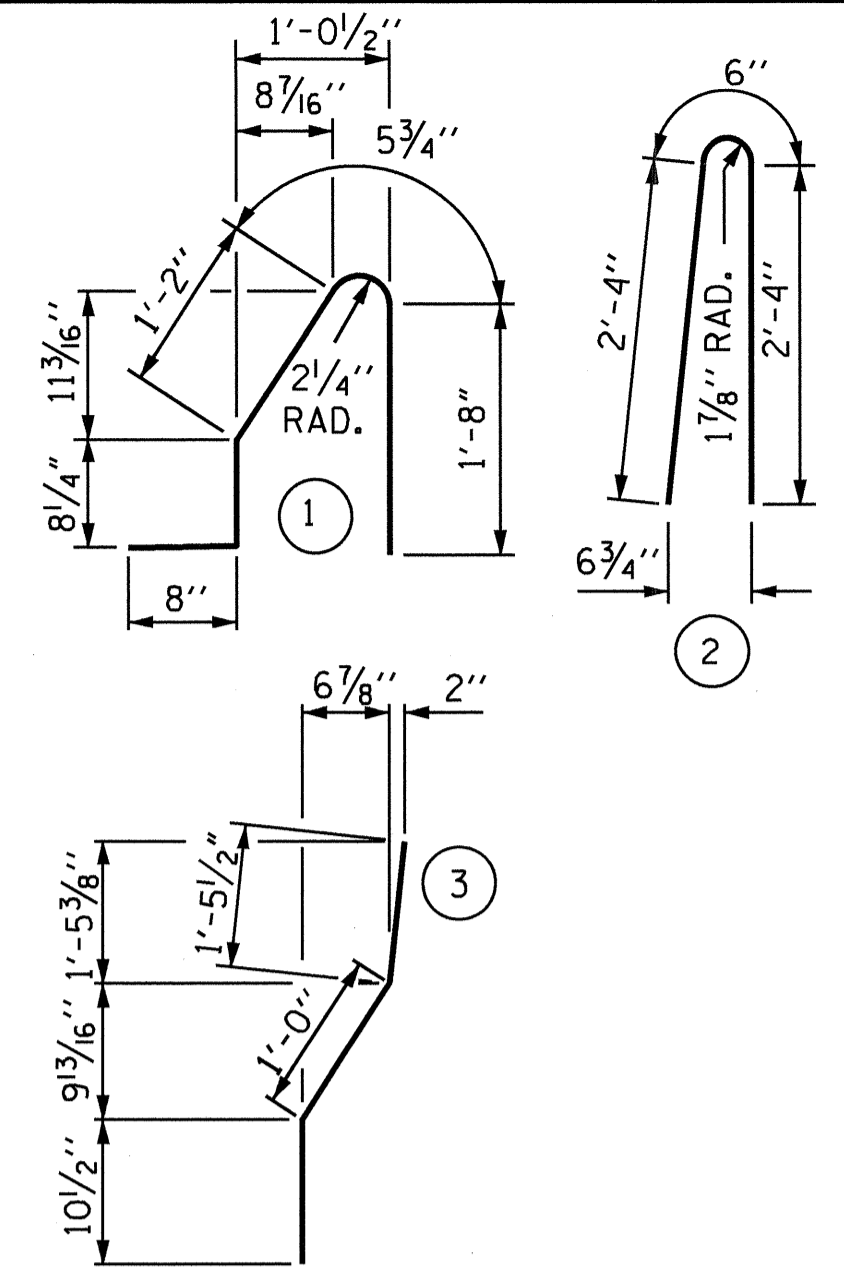
WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

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

BAR TYPES



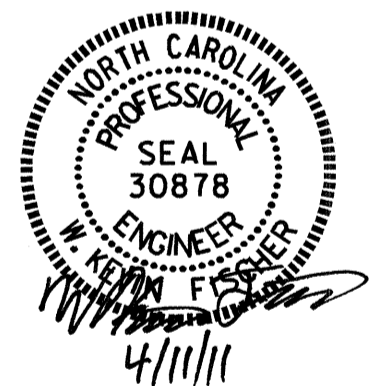
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	64	#5	STR	12'-0"	801
* B2	96	#5	STR	29'-7"	2962
* S1	427	#5	1	4'-8"	2078
* S2	427	#5	2	5'-2"	2301
* S3	12	#5	3	3'-4"	42
* S4	12	#5	STR	3'-2"	40

* EPOXY COATED REINFORCING STEEL	8224 LBS.
CLASS AA CONCRETE	44.0 CU. YDS.
CONCRETE BARRIER RAIL	439.72 LIN. FT.



PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 CONCRETE
 BARRIER RAIL

ASSEMBLED BY : M.K. BEARD	DATE : 11/5/09
CHECKED BY : J.P. ADAMS	DATE : 2/8/10
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R TLA/GM

END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS

REVISIONS					SHEET NO. S-18
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 32
2			4		

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

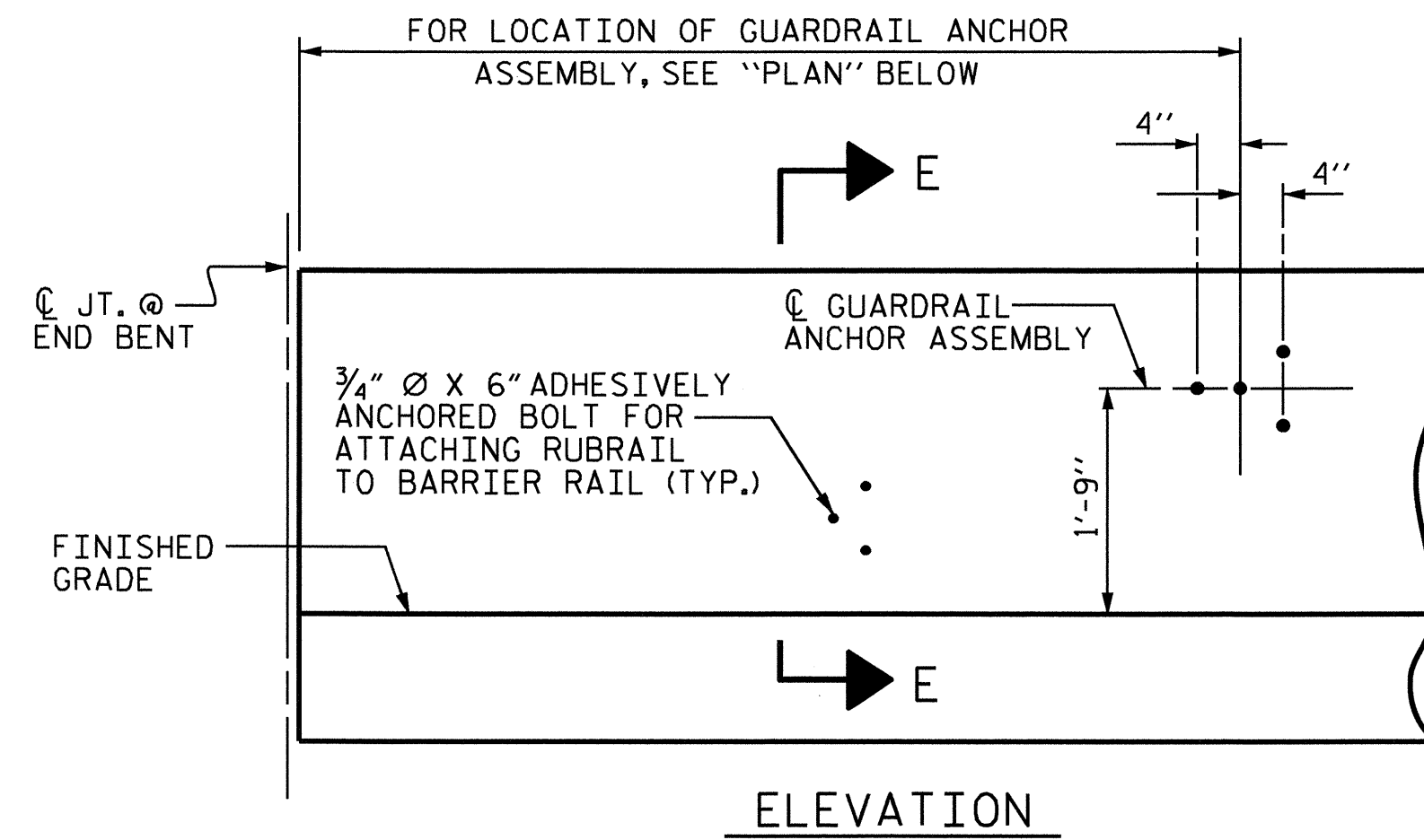
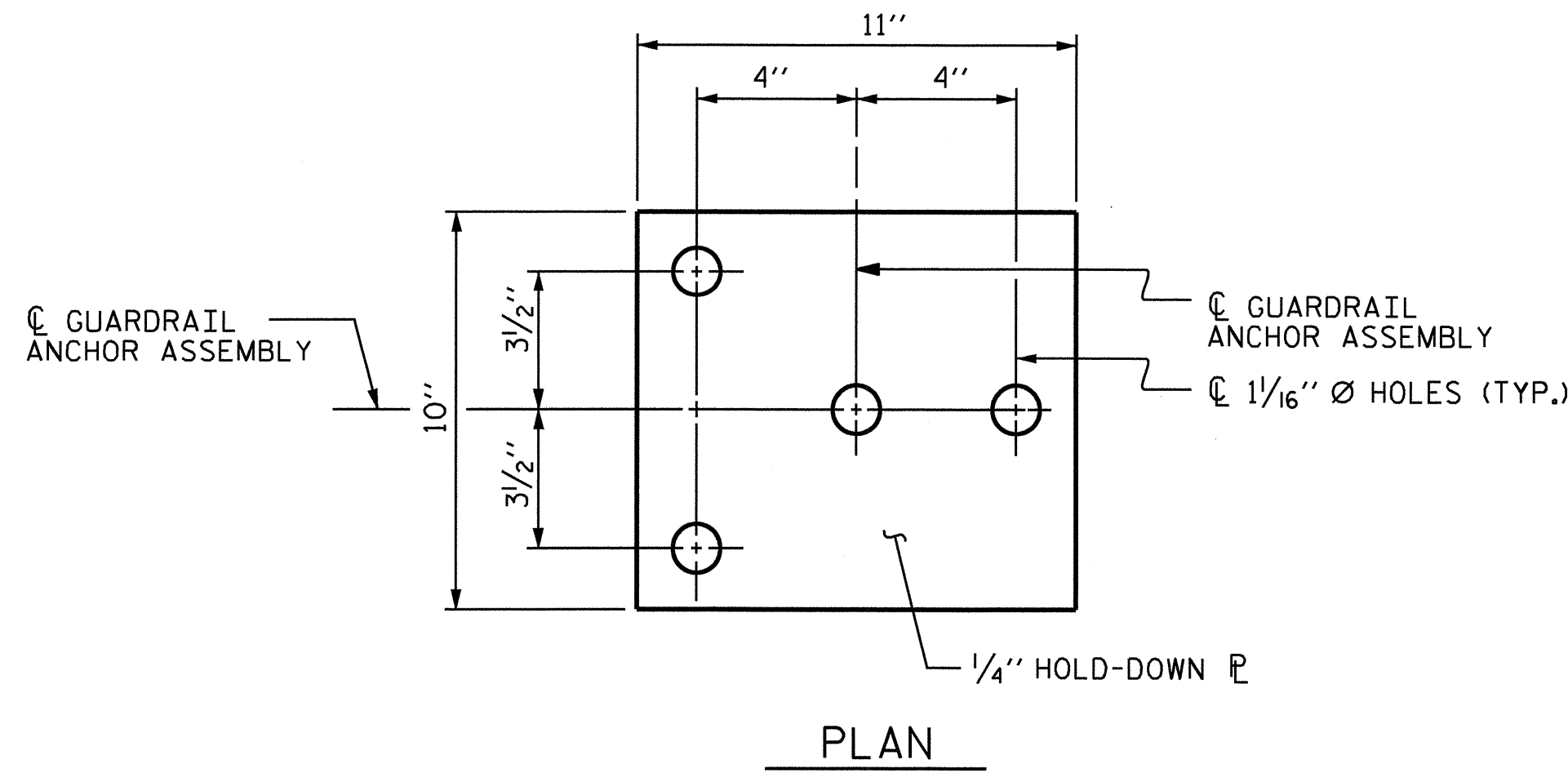
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

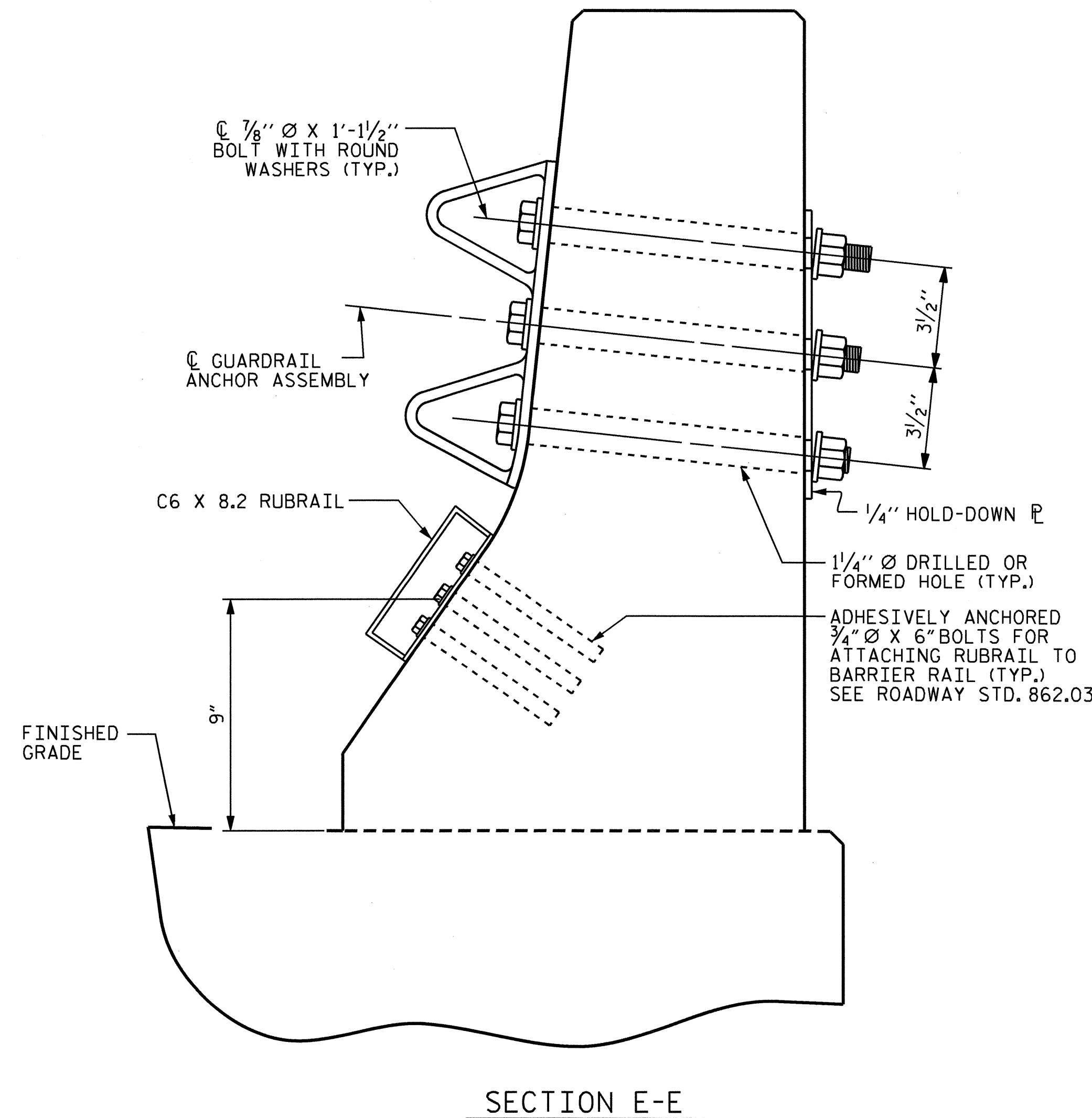
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

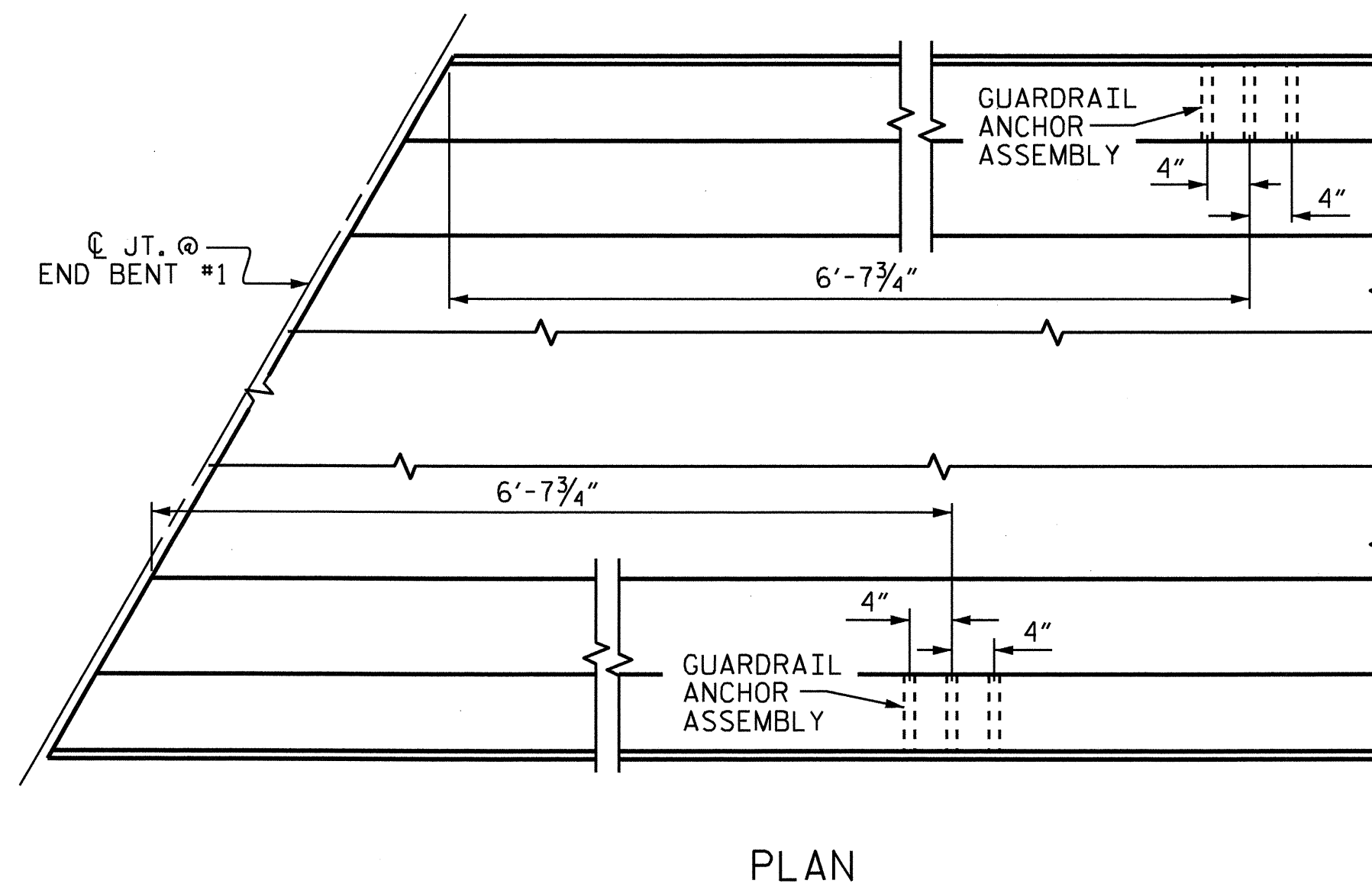
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

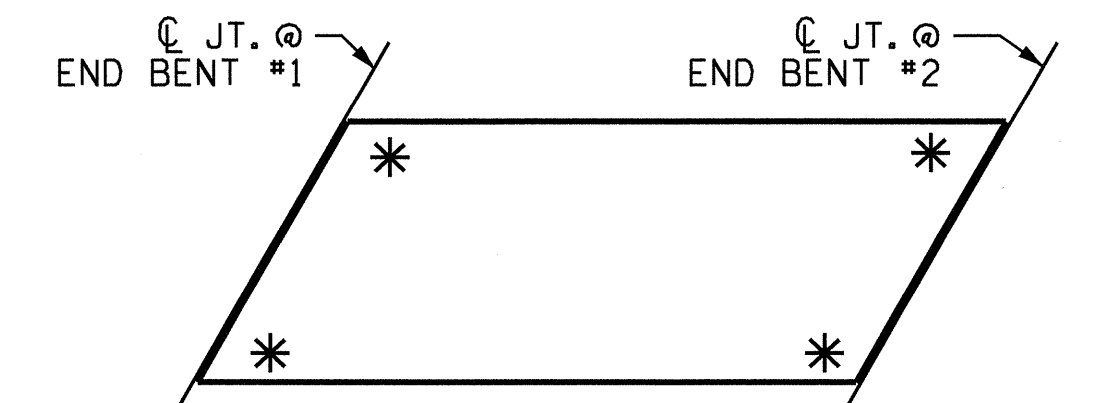


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

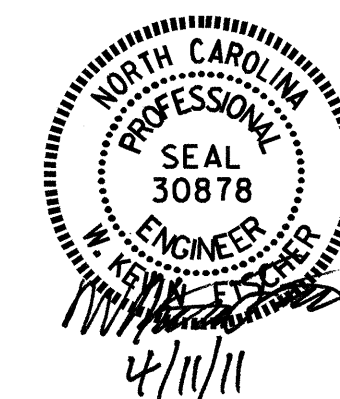
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. U-4007A
ONSLow COUNTY
 STATION: 21+47.74 -L-



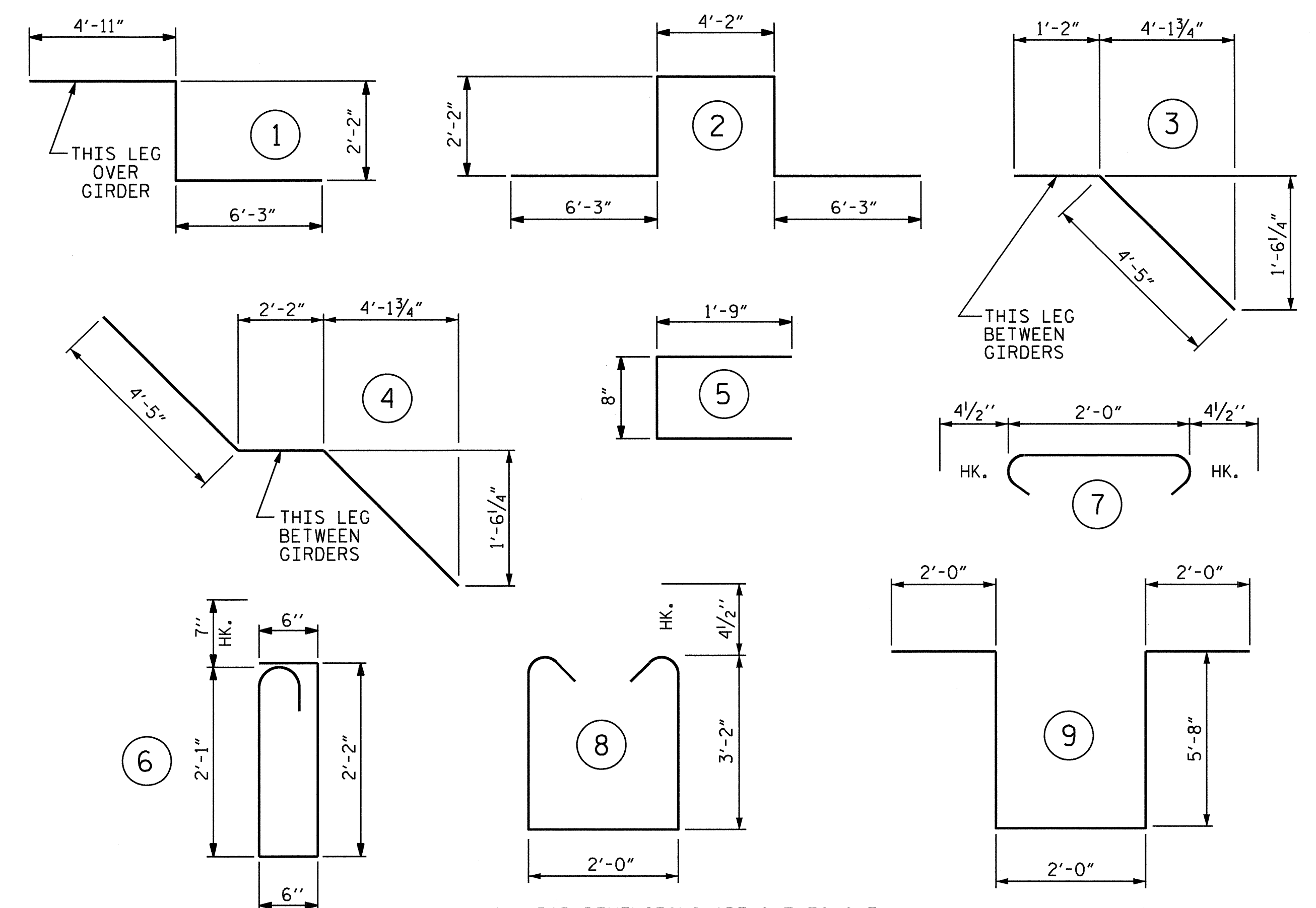
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-19
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL						
REVISIONS						TOTAL SHEETS 32
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : M.K. BEARD	DATE : 11/5/09
CHECKED BY : J.P. ADAMS	DATE : 2/8/10
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

BILL OF MATERIAL																	
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	670	#5	STR	44'-4"	30981	*A136	2	#5	STR	18'-2"	38	A234	2	#5	STR	26'-10"	56
A2	670	#5	STR	44'-2"	30864	*A137	2	#5	STR	13'-11"	29	A235	2	#5	STR	22'-6"	47
						*A138	2	#5	STR	9'-7"	20	A236	2	#5	STR	18'-2"	38
*A101	4	#5	STR	42'-10	179	*A139	2	#5	STR	5'-3"	11	A237	2	#5	STR	13'-11"	29
*A102	4	#5	STR	40'-9"	170							A238	2	#5	STR	9'-7"	20
*A103	4	#5	STR	38'-8"	161	A201	4	#5	STR	42'-8"	178	A239	2	#5	STR	5'-3"	11
*A104	4	#5	STR	36'-7"	153	A202	4	#5	STR	40'-7"	169						
*A105	4	#5	STR	34'-6"	144	A203	4	#5	STR	38'-6"	161	*B1	348	#4	STR	26'-6"	6160
*A106	4	#5	STR	32'-5"	135	A204	4	#5	STR	36'-5"	152	*B2	116	#7	STR	40'-10"	9682
*A107	2	#5	STR	58'-2"	121	A205	4	#5	STR	34'-4"	143	*B3	57	#7	STR	33'-2"	3864
*A108	2	#5	STR	54'-0"	113	A206	4	#5	STR	32'-3"	135	B4	276	#5	STR	56'-7"	16289
*A109	2	#5	STR	49'-11"	104	A207	2	#5	STR	58'-2"	121						
*A110	2	#5	STR	45'-9"	95	A208	2	#5	STR	54'-0"	113	*G1	4	#5	STR	46'-11"	196
*A111	2	#5	STR	41'-7"	87	A209	2	#5	STR	49'-11"	104						
*A112	2	#5	STR	37'-5"	78	A210	2	#5	STR	45'-9"	95	*K1	8	#8	1	13'-4"	285
*A113	2	#5	STR	33'-4"	70	A211	2	#5	STR	41'-7"	87	*K2	32	#8	2	21'-0"	1794
*A114	2	#5	STR	29'-2"	61	A212	2	#5	STR	37'-5"	78	*K3	36	#8	STR	8'-1"	777
*A115	2	#5	STR	25'-0"	52	A213	2	#5	STR	33'-4"	70	*K4	54	#6	STR	5'-1"	412
*A116	2	#5	STR	20'-11"	44	A214	2	#5	STR	29'-2"	61	K5	36	#4	STR	5'-5"	130
*A117	2	#5	STR	16'-9"	35	A215	2	#5	STR	25'-0"	52	K6	72	#4	STR	8'-2"	393
*A118	2	#5	STR	12'-8"	26	A216	2	#5	STR	20'-11"	44	K7	12	#4	3	5'-7"	45
*A119	2	#5	STR	8'-6"	18	A217	2	#5	STR	16'-9"	35	K8	48	#4	4	11'-0"	353
*A120	2	#5	STR	4'-4"	9	A218	2	#5	STR	12'-8"	26						
*A121	4	#5	STR	42'-9"	178	A219	2	#5	STR	8'-6"	18	*S1	108	#4	5	4'-2"	301
*A122	4	#5	STR	40'-7"	169	A220	2	#5	STR	4'-4"	9	*S2	108	#5	6	5'-10"	657
*A123	4	#5	STR	38'-5"	160	A221	4	#5	STR	42'-7"	178	S3	324	#4	7	2'-9"	595
*A124	4	#5	STR	36'-3"	151	A222	4	#5	STR	40'-5"	169						
*A125	4	#5	STR	34'-1"	142	A223	4	#5	STR	38'-3"	160	U1	54	#4	9	17'-4"	625
*A126	4	#5	STR	31'-11"	133	A224	4	#5	STR	36'-1"	151	U2	18	#4	8	9'-1"	109
*A127	2	#5	STR	57'-0"	119	A225	4	#5	STR	33'-11"	142						
*A128	2	#5	STR	52'-9"	110	A226	4	#5	STR	31'-9"	132						
*A129	2	#5	STR	48'-5"	101	A227	2	#5	STR	57'-0"	119						
*A130	2	#5	STR	44'-1"	92	A228	2	#5	STR	52'-9"	110						
*A131	2	#5	STR	39'-9"	83	A229	2	#5	STR	48'-5"	101						
*A132	2	#5	STR	35'-6"	74	A230	2	#5	STR	44'-1"	92						
*A133	2	#5	STR	31'-2"	65	A231	2	#5	STR	39'-9"	83						
*A134	2	#5	STR	26'-10"	56	A232	2	#5	STR	35'-6"	74						
*A135	2	#5	STR	22'-6"	47	A233	2	#5	STR	31'-2"	65						

REINFORCING STEEL 53,031 LBS.
*EPOXY COATED REINFORCING STEEL 58,742 LBS.

BAR TYPES



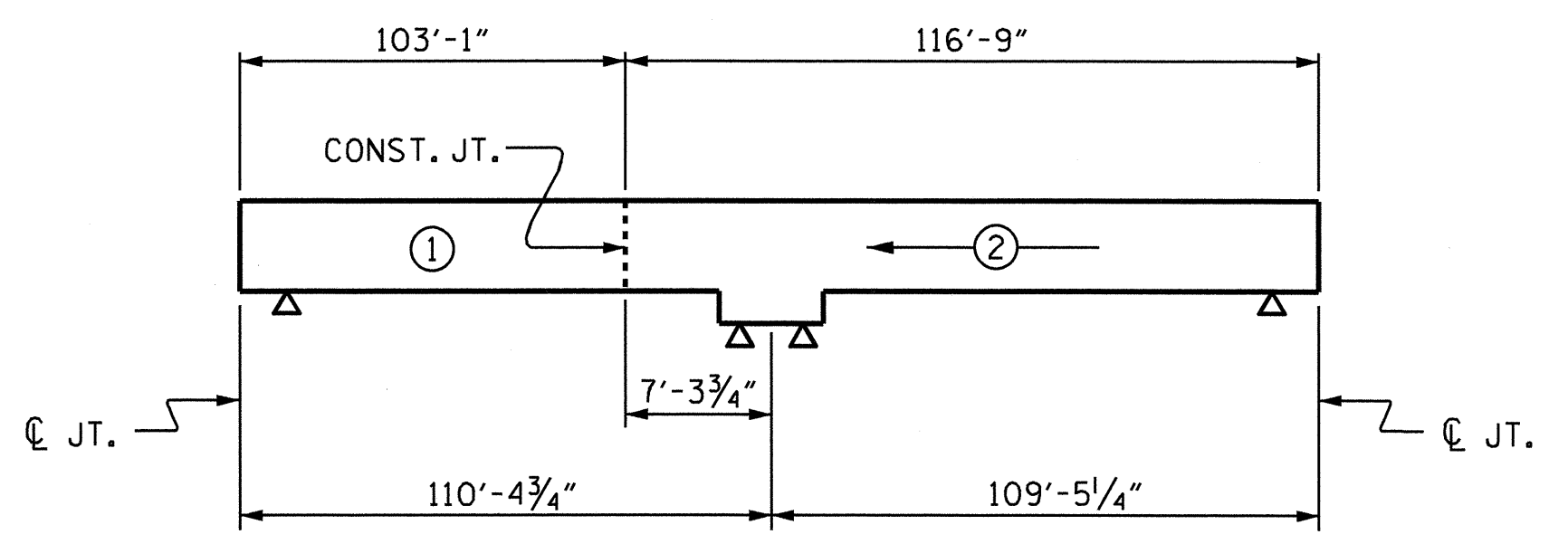
ALL BAR DIMENSIONS ARE OUT TO OUT

GROOVING BRIDGE FLOORS	
APPROACH SLABS	3,781 SQ.FT.
BRIDGE DECK	17,477 SQ.FT.
TOTAL	21,258 SQ.FT.

—SUPERSTRUCTURE BILL OF MATERIAL—			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	295.7	53,031	58,742
POUR #2	370.4		
TOTALS**	666.1	53,031	58,742

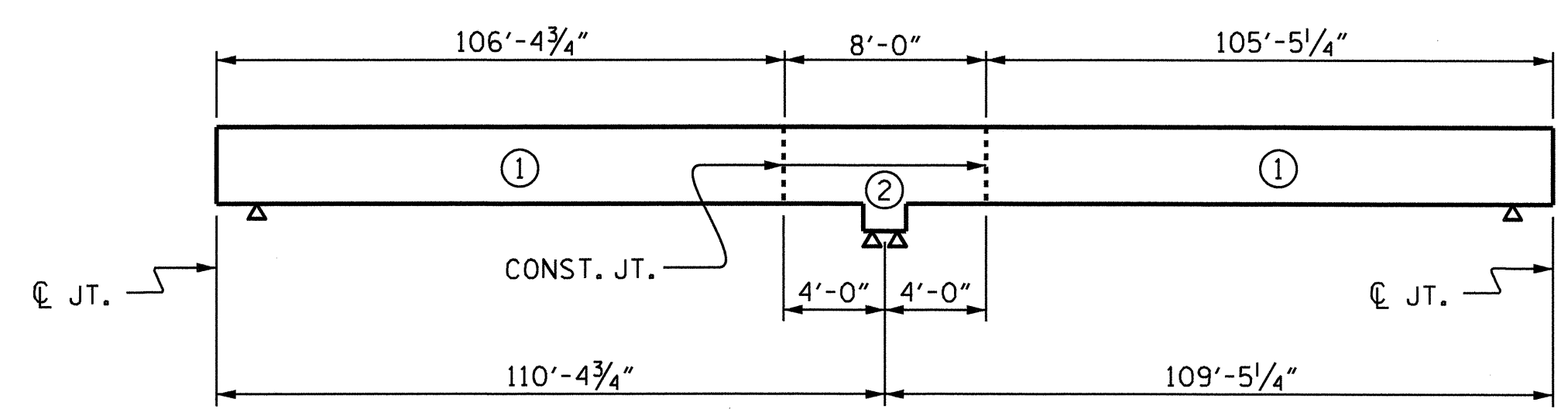
**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

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"			



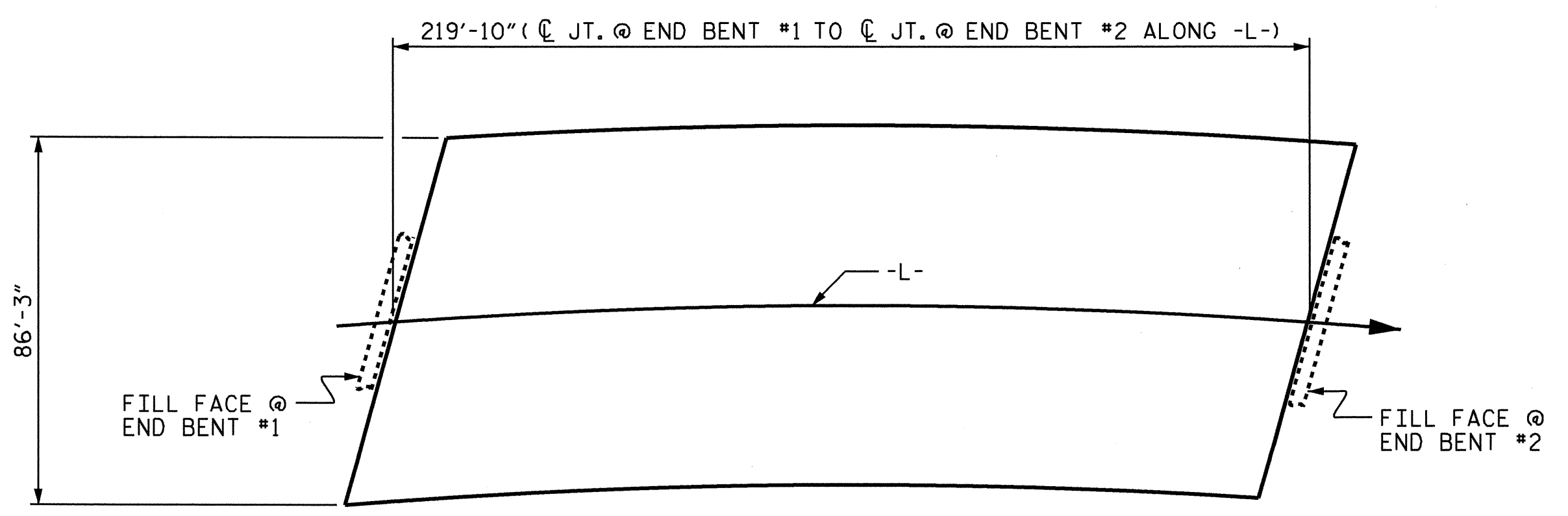
POURING SEQUENCE

DIRECTION OF POUR



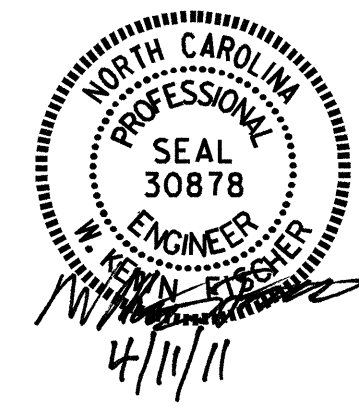
OPTIONAL POURING SEQUENCE

POUR ② CANNOT BE STARTED UNTIL POUR ① REACHES A MINIMUM OF 3,000 PSI.



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 18,961)

PROJECT NO. U-4007A
ON SLOW COUNTY
STATION: 21+47.74 -L-

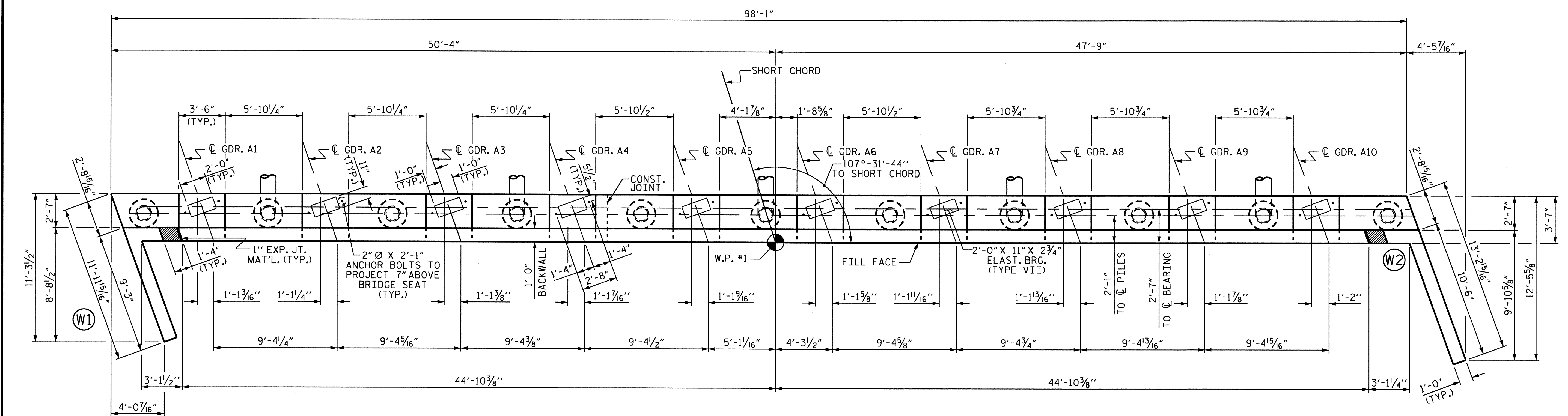


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD SUPERSTRUCTURE BILL OF MATERIAL					
REVISIONS					SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		
TOTAL SHEETS					32

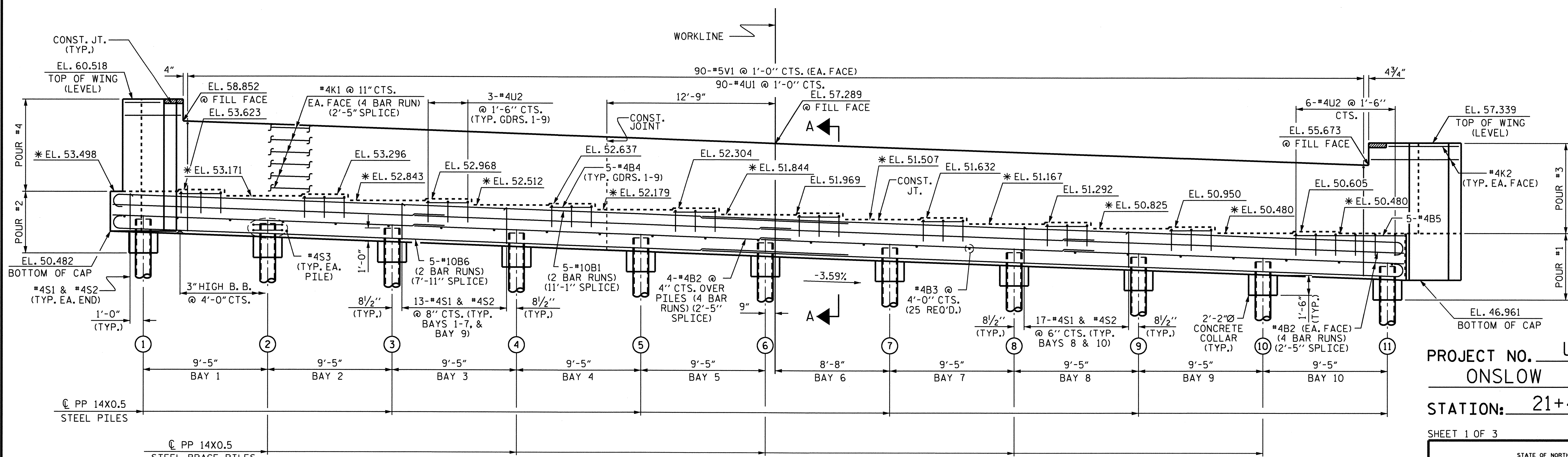
ASSEMBLED BY: M.K. BEARD	DATE: 11/5/09
CHECKED BY: J.P. ADAMS	DATE: 2/8/10
DRAWN BY: JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY: SJD 9/87	REV. 8/16/99 RWW/LES
	REV. 5/1/06 TLA/GM

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klayne

STD. NO. BOM2



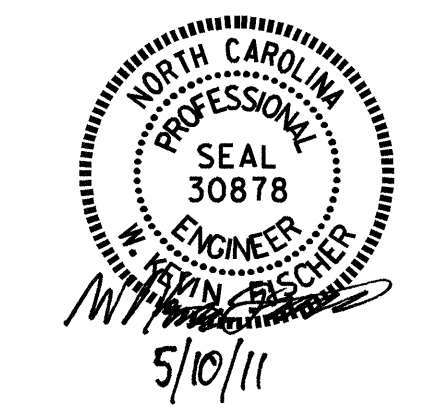
PLAN



ELEVATION

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

PILE NO.	TOP OF PILE EL.
1	51.413
2	51.075
3	50.737
4	50.399
5	50.061
6	49.723
7	49.385
8	49.047
9	48.709
10	48.371
11	48.033



PROJECT NO. **U-4007A**
ONSLOW COUNTY
 STATION: **21+47.74 -L-**

SHEET 1 OF 3

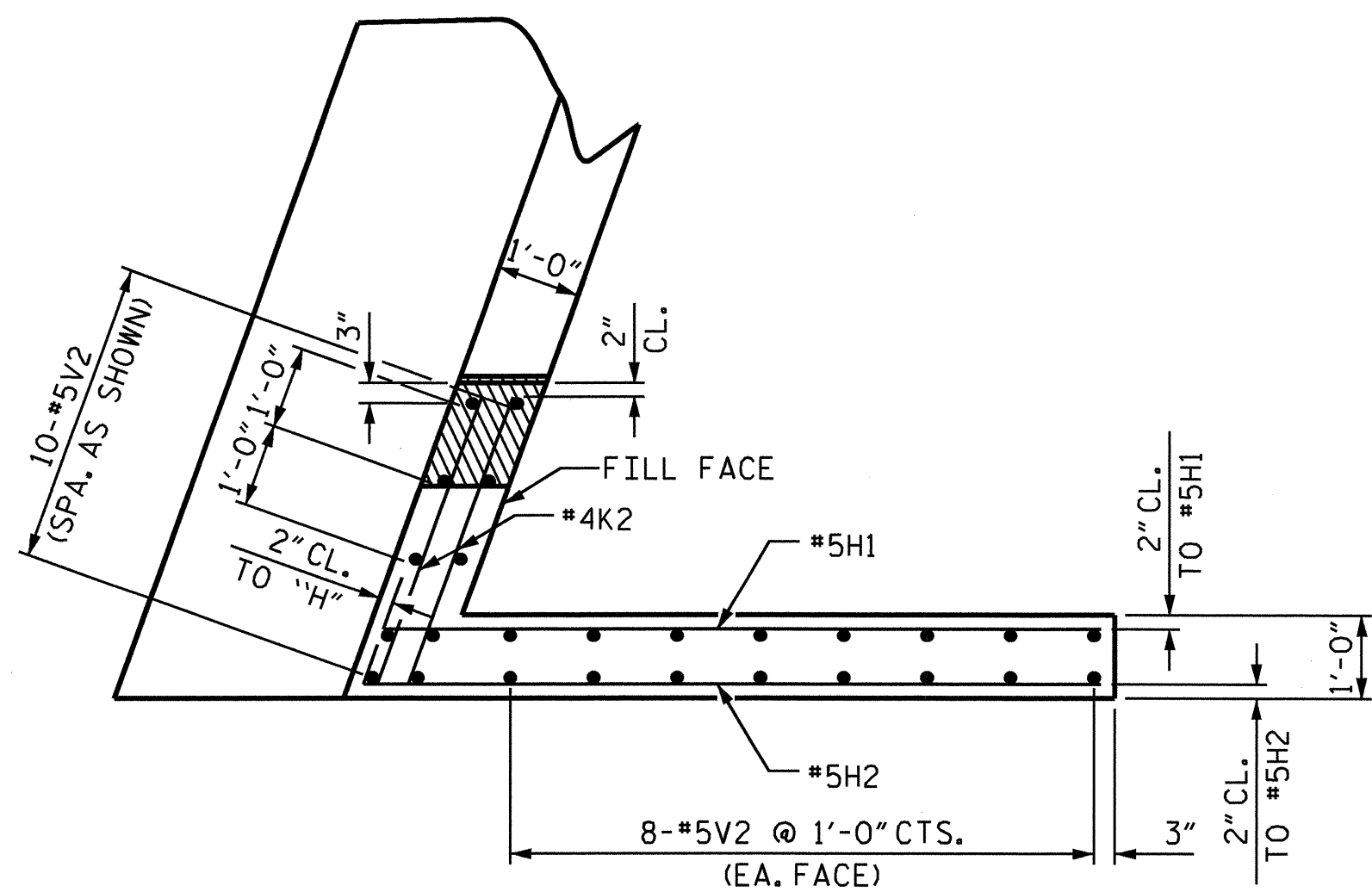
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

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

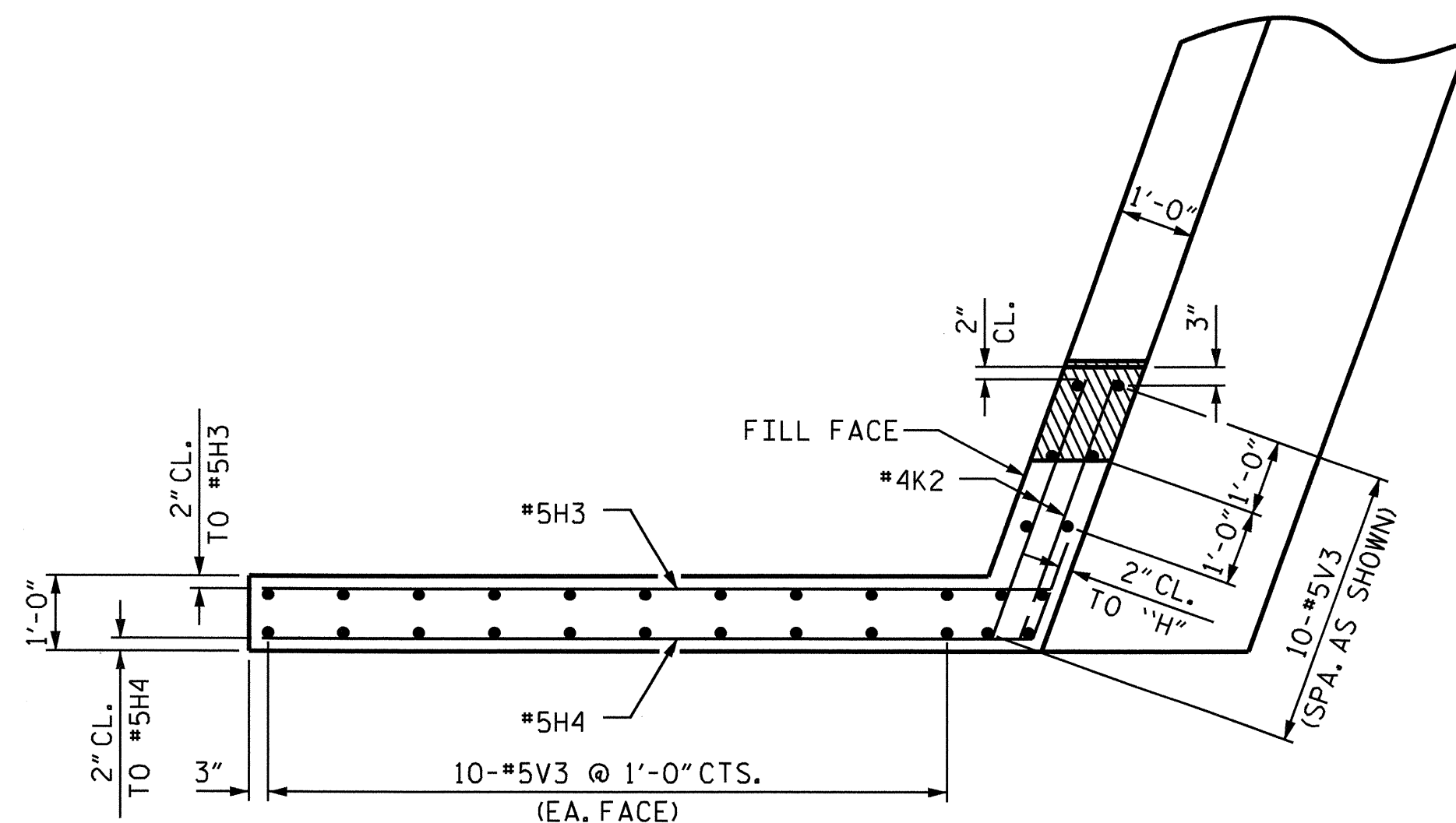
TOTAL SHEETS	32
SHEET NO.	S-21

DRAWN BY: **R. G. EMERSON** DATE: **01/10**
 CHECKED BY: **K. D. LAYNE** DATE: **01/10**

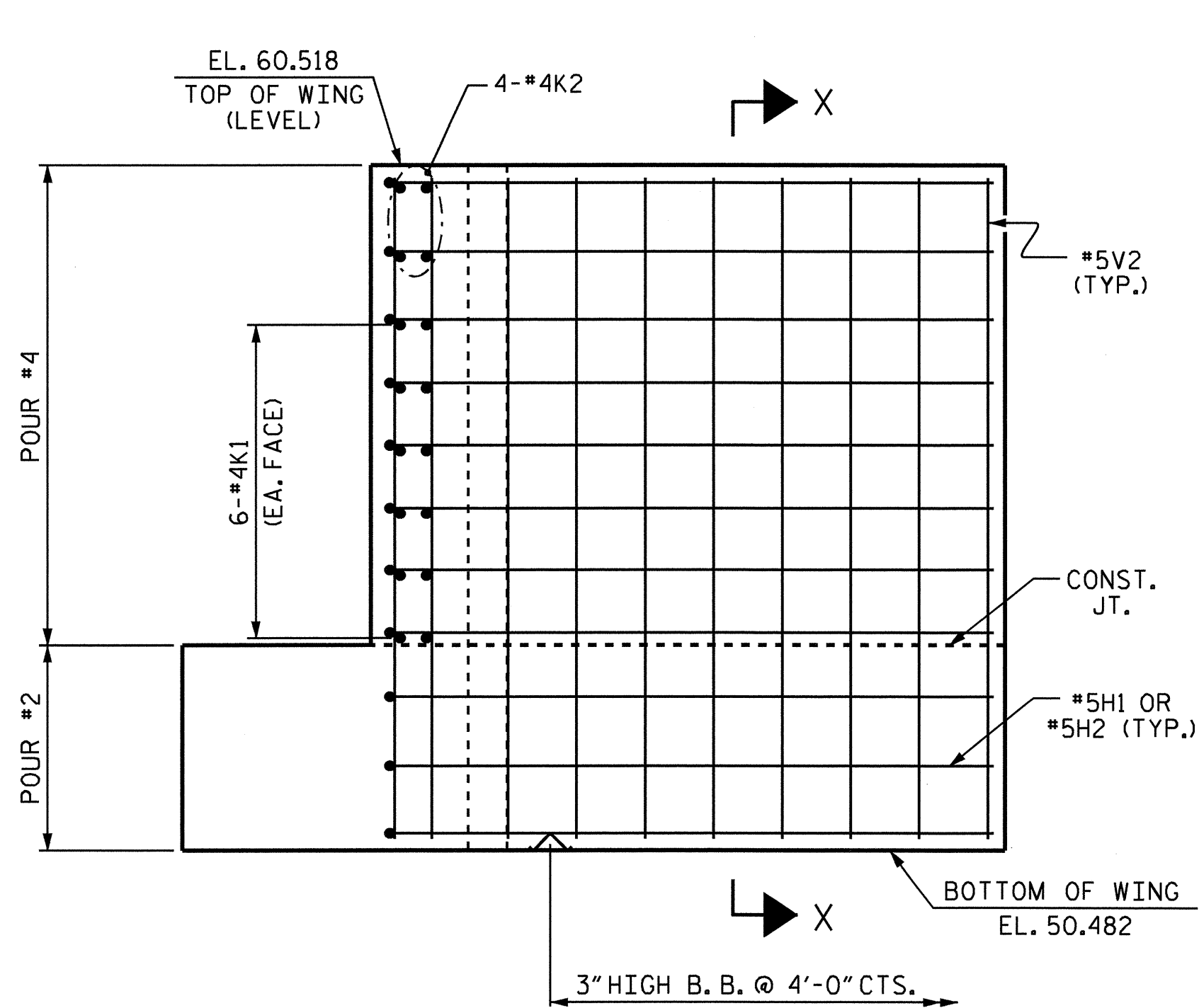
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 wkfischer



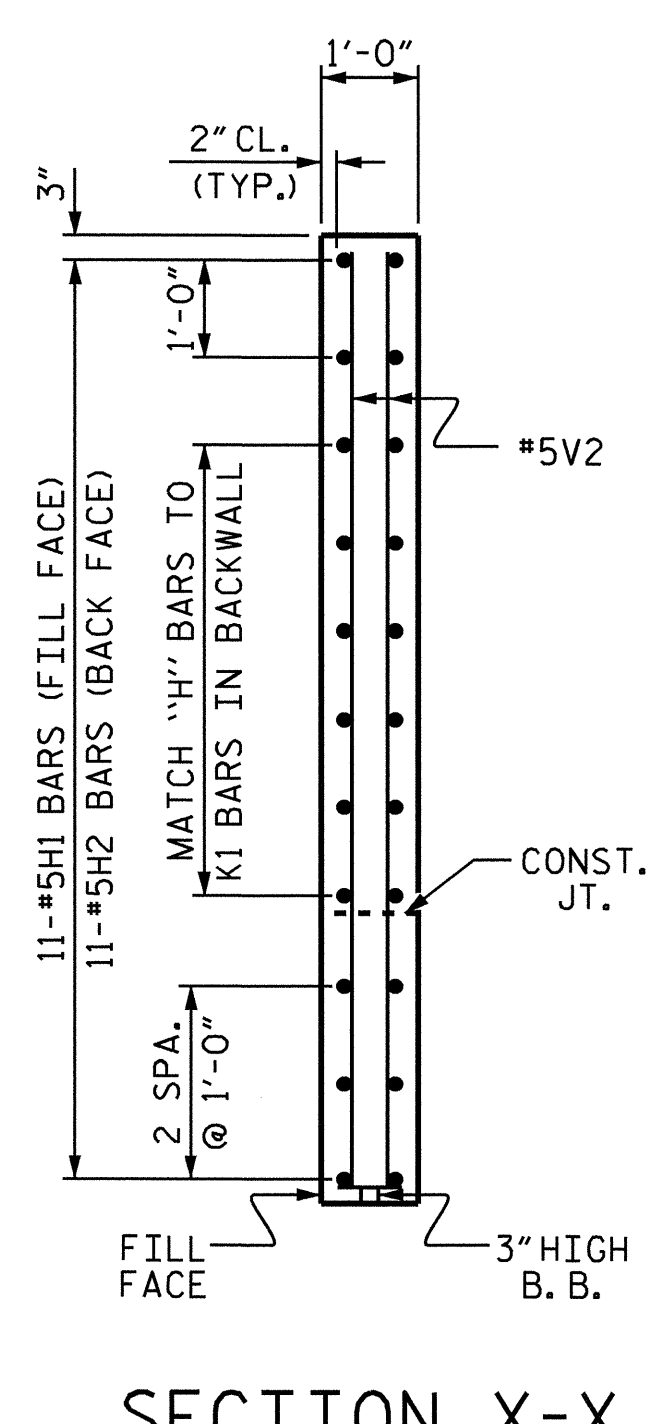
PLAN OF WING - (W1)



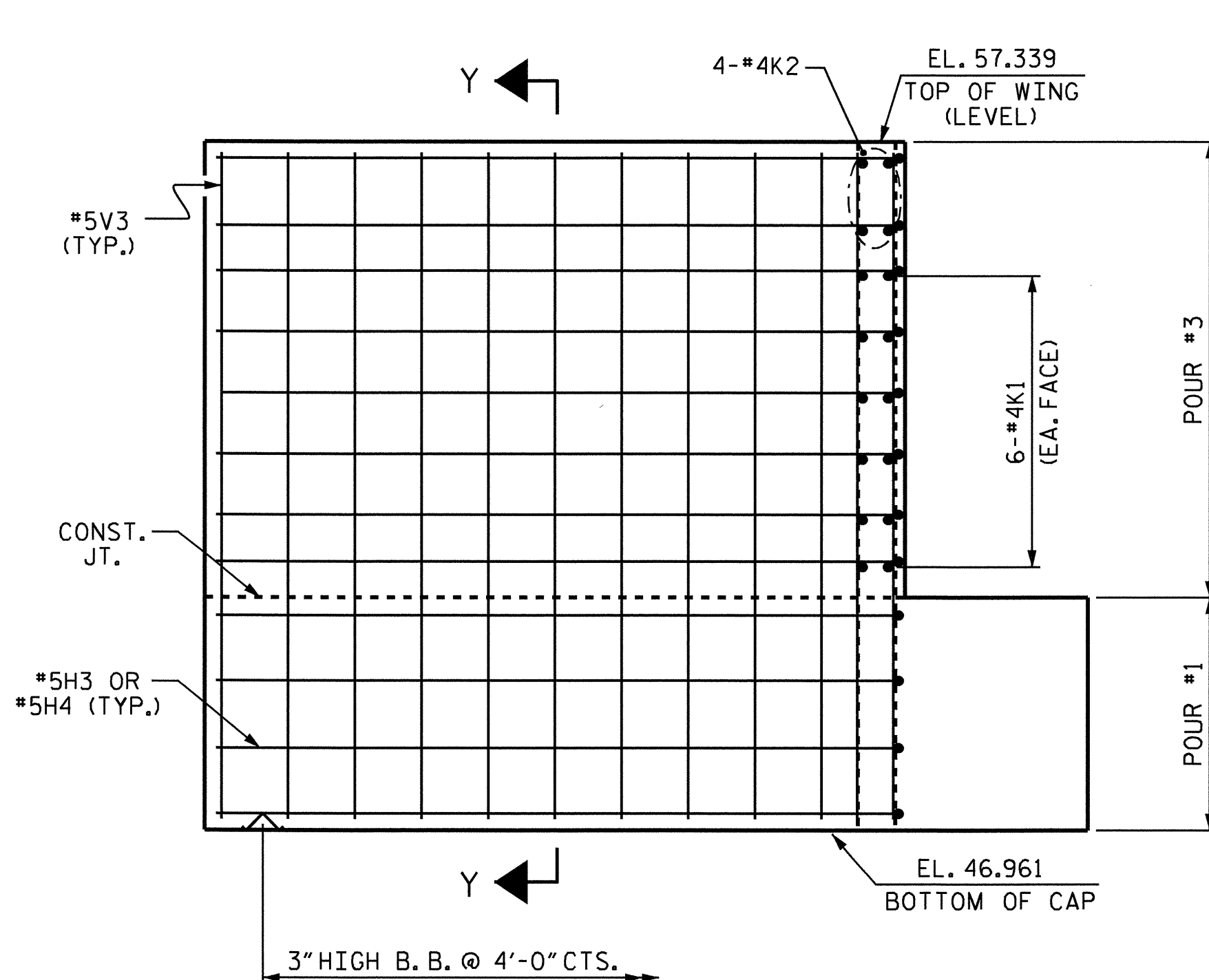
PLAN OF WING - (W2)



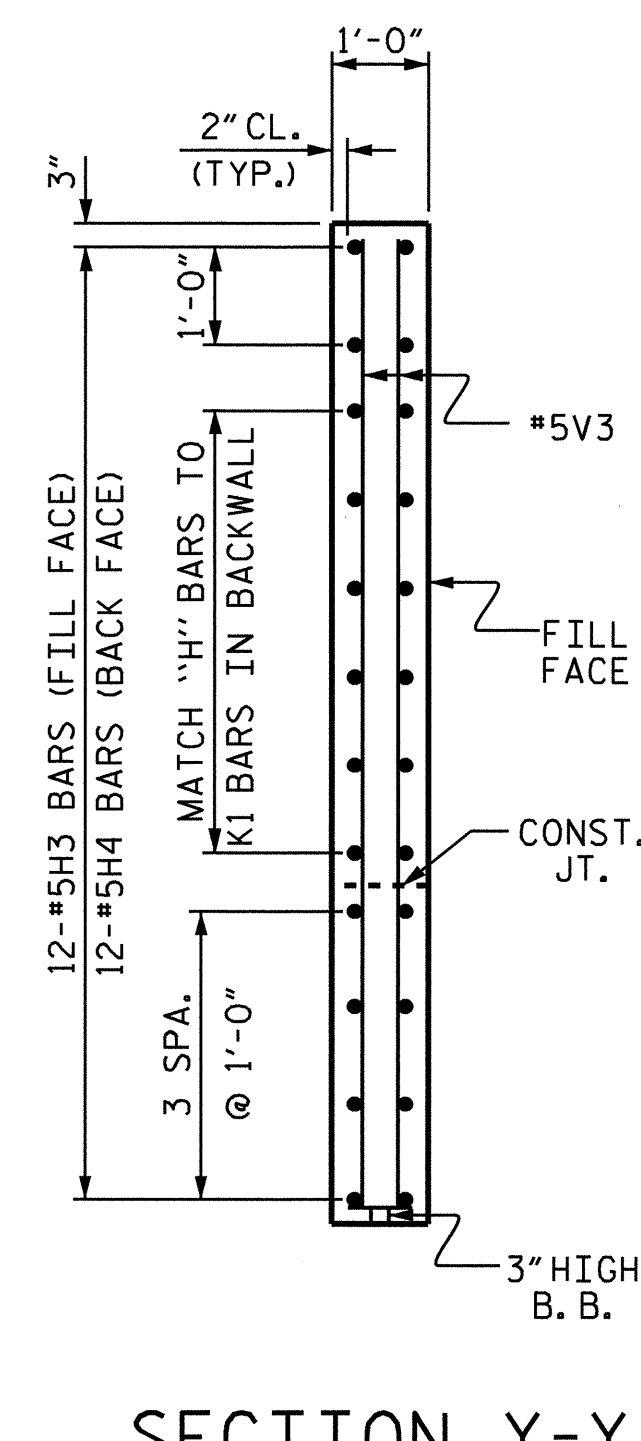
ELEVATION OF WING - (W1)



SECTION X-X



ELEVATION OF WING - (W2)



SECTION Y-Y

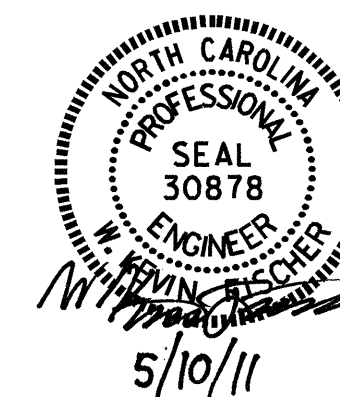
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

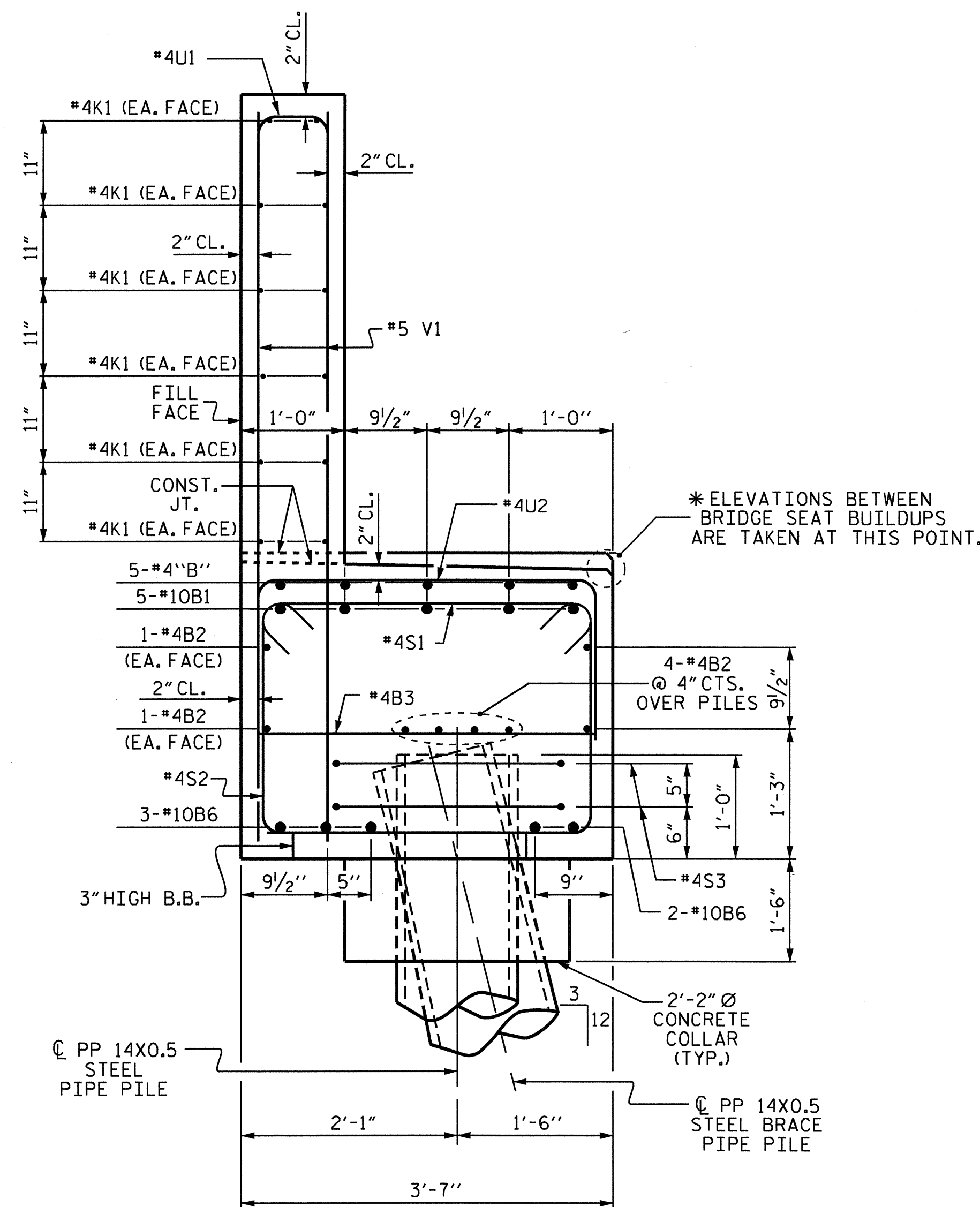
END BENT #1



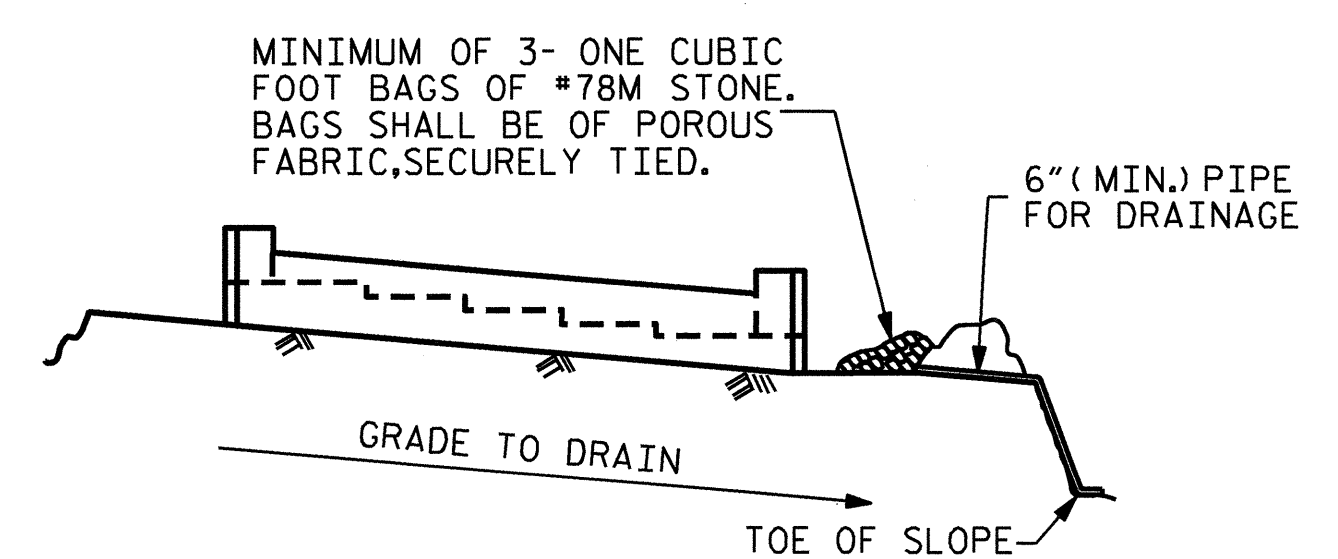
DRAWN BY: R. G. EMERSON DATE: 01/10
 CHECKED BY: K. D. LAYNE DATE: 01/10

09-MAY-2011 16:24
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 wkfischer

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			32



SECTION A-A



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

DRAWN BY : R. G. EMERSON DATE : 01/10
 CHECKED BY : K. D. LAYNE DATE : 01/10

NOTES:

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

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

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

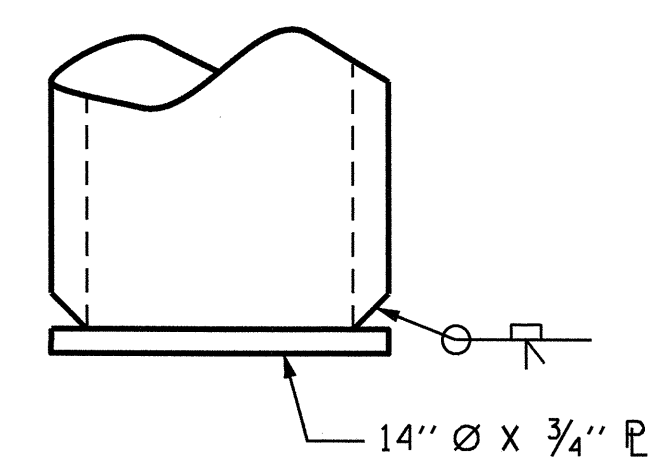
THE CONTRACTOR MAY PROPOSE AN ALTERNATE METHOD FOR PLUGGING THE STEEL PIPE PILE, SUBJECT TO APPROVAL BY THE ENGINEER.

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

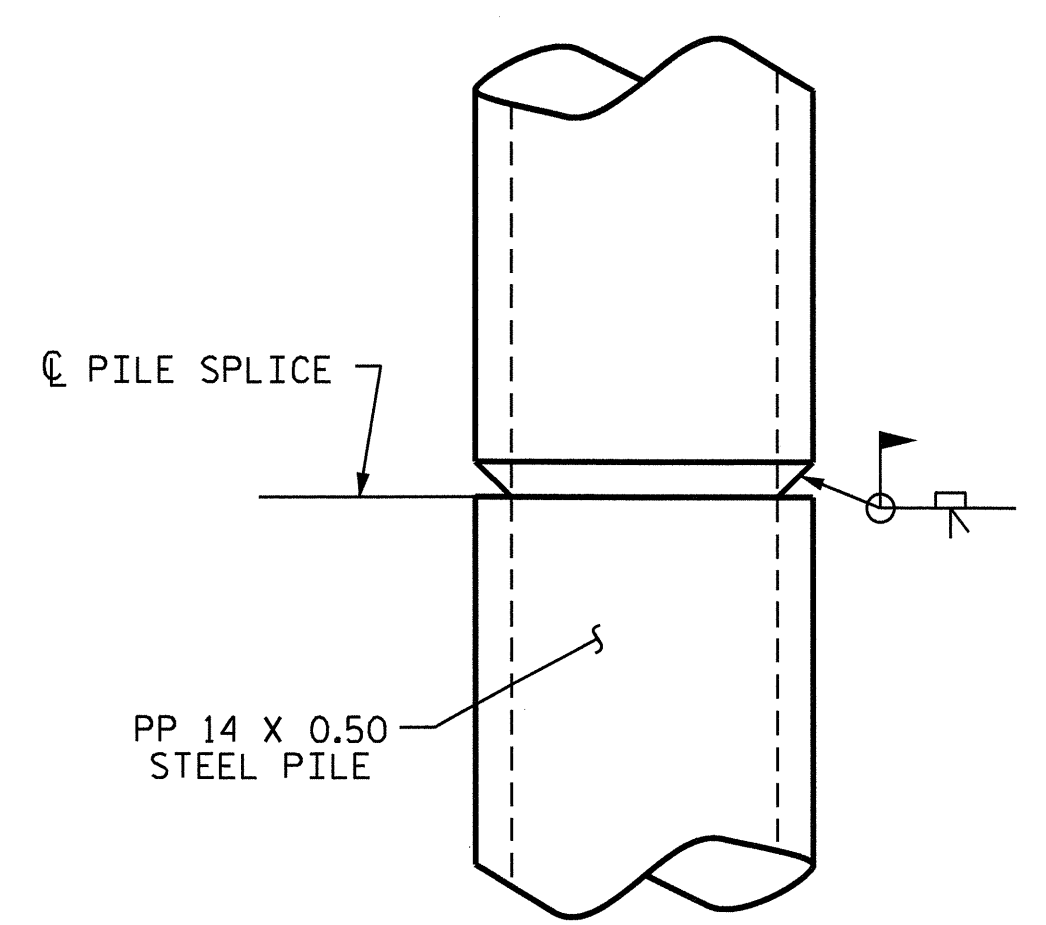
PIPE PILE PLATES SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

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

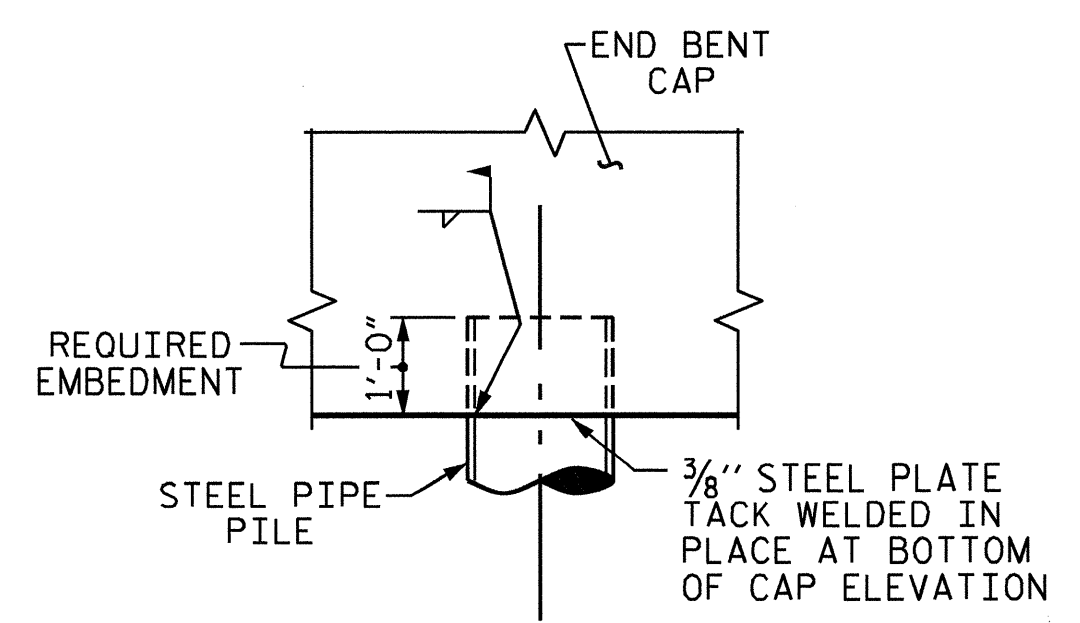
PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.



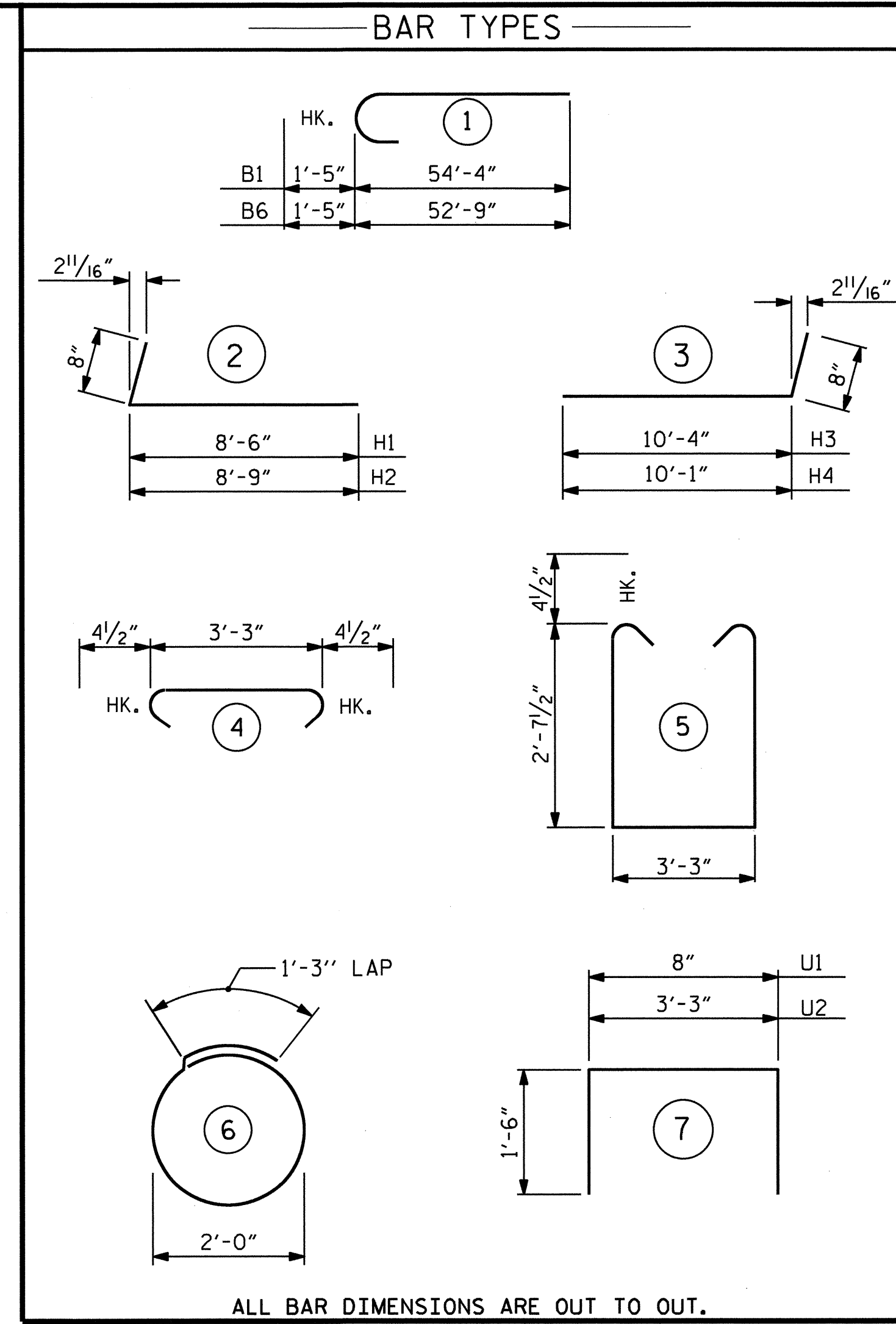
PIPE PILE PLATE DETAIL



PIPE PILE SPLICE DETAIL



PIPE PILE IN CAP DETAIL



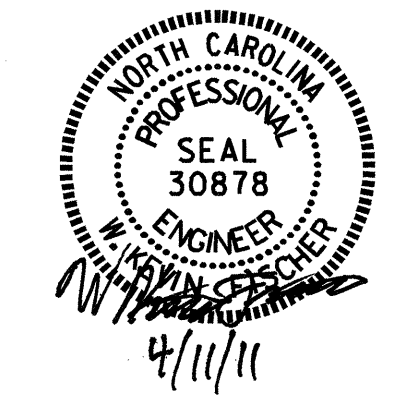
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

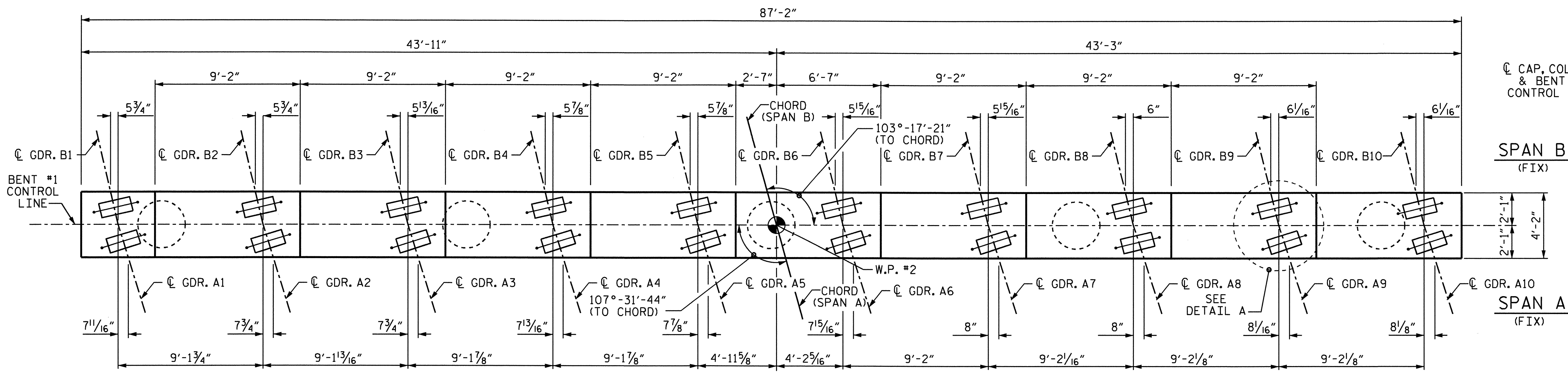
END BENT #1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	10	#10	1	55'-9"	2399
B2	32	#4	STR.	26'-3"	561
B3	25	#4	STR.	3'-3"	54
B4	45	#4	STR.	3'-2"	95
B5	5	#4	STR.	8'-3"	28
B6	10	#10	1	54'-2"	2331
H1	11	#5	2	9'-2"	105
H2	11	#5	2	9'-5"	108
H3	12	#5	3	11'-0"	138
H4	12	#5	3	10'-9"	135
K1	48	#4	STR.	26'-3"	842
K2	8	#4	STR.	3'-9"	20
S1	140	#4	4	4'-0"	374
S2	140	#4	5	9'-3"	865
S3	22	#4	6	7'-7"	111
U1	90	#4	7	3'-8"	220
U2	33	#4	7	6'-3"	138
V1	180	#5	STR.	8'-2"	1533
V2	26	#5	STR.	9'-8"	262
V3	30	#5	STR.	10'-0"	313
REINFORCING STEEL					10632
CLASS "A" CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER WING & COLLARS RIGHT END					28.7 CY.
POUR #2 CAP, LOWER WING & COLLARS LEFT END					17.8 CY.
POUR #3 UPPER WING & BACKWALL RIGHT END					15.4 CY.
POUR #4 UPPER WING & BACKWALL LEFT END					9.5 CY.
CLASS "A" CONCRETE TOTAL					71.4 CY.
PP 14x0.5 STEEL PILES					
No. 11 LIN. FT.					825
PILES REDRIVES EA.					11
PIPE PILE PLATES EA.					11

PROJECT NO. U-4007A
ONslow COUNTY
 STATION: 21+47.74 -L-
 SHEET 3 OF 3

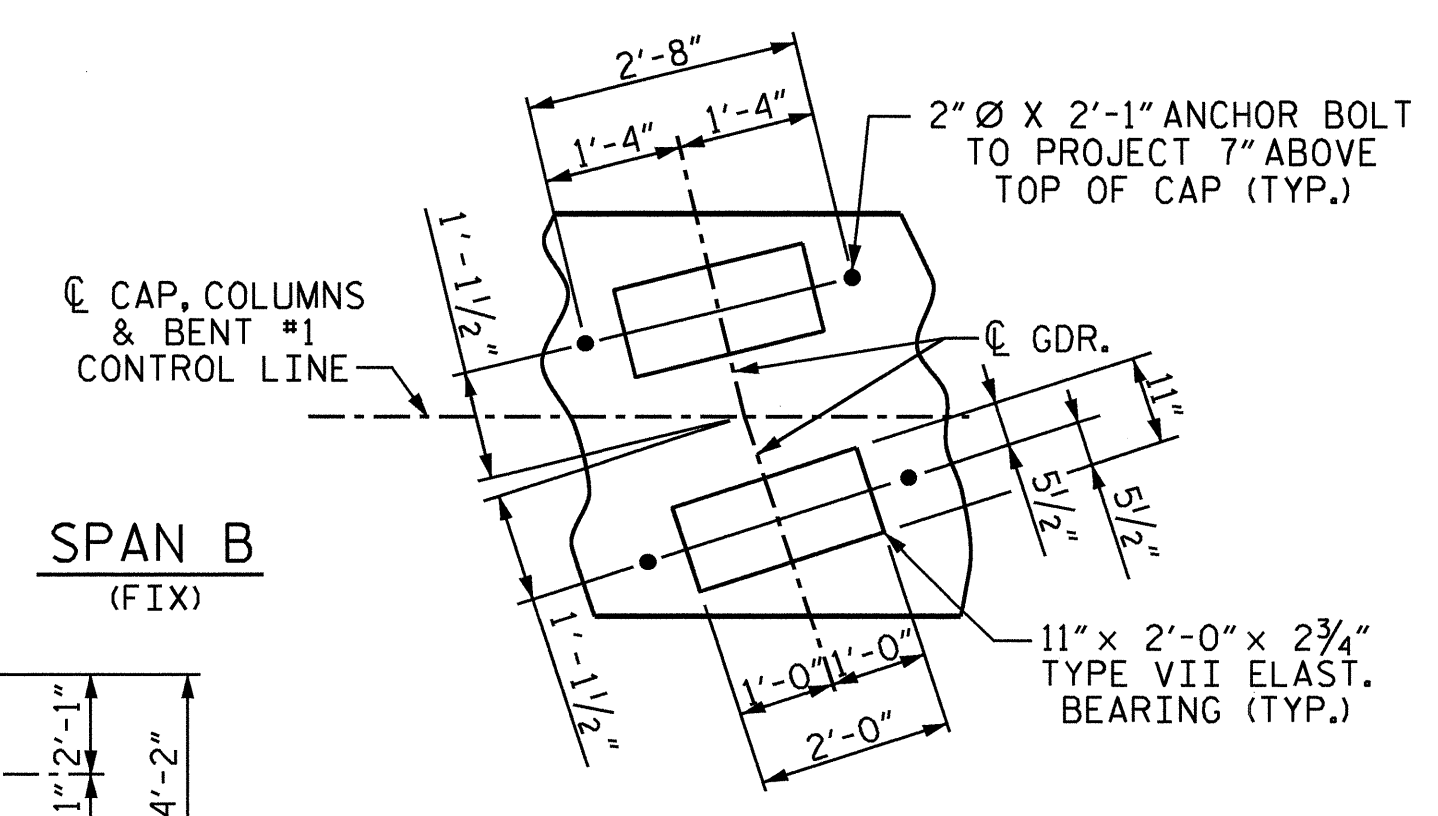
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #1



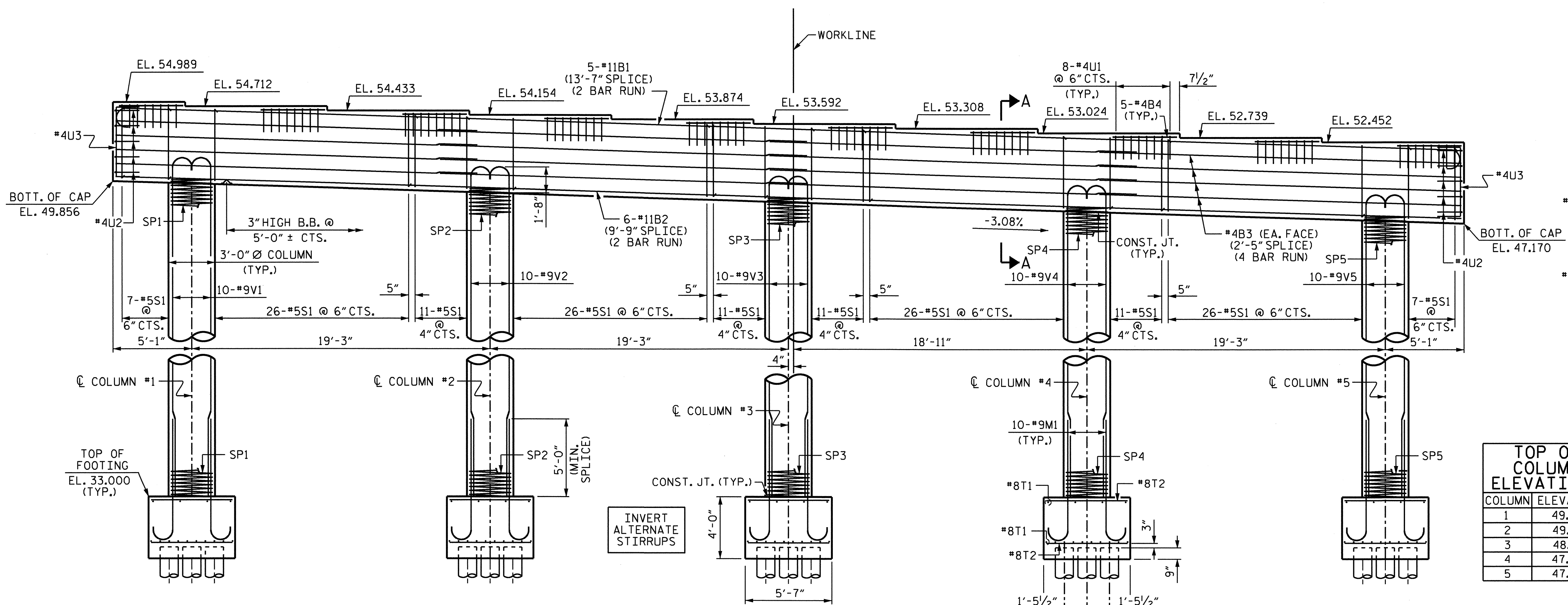
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			32



PLAN



DETAIL "A"
TYPICAL AT EACH BEARING



TOP OF COLUMN ELEVATIONS

COLUMN	ELEVATION
1	49.699
2	49.106
3	48.513
4	47.920
5	47.327

END VIEW

ELEVATION

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

PROJECT NO. U-4007A
ONSLow COUNTY
 STATION: 21+47.74 -L-

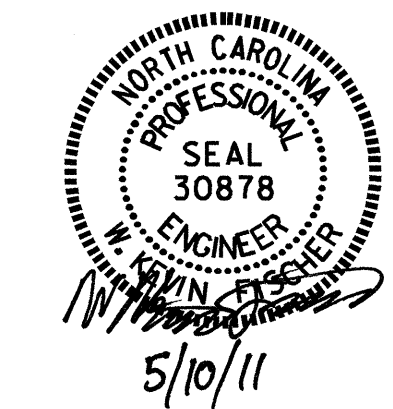
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 BENT #1**

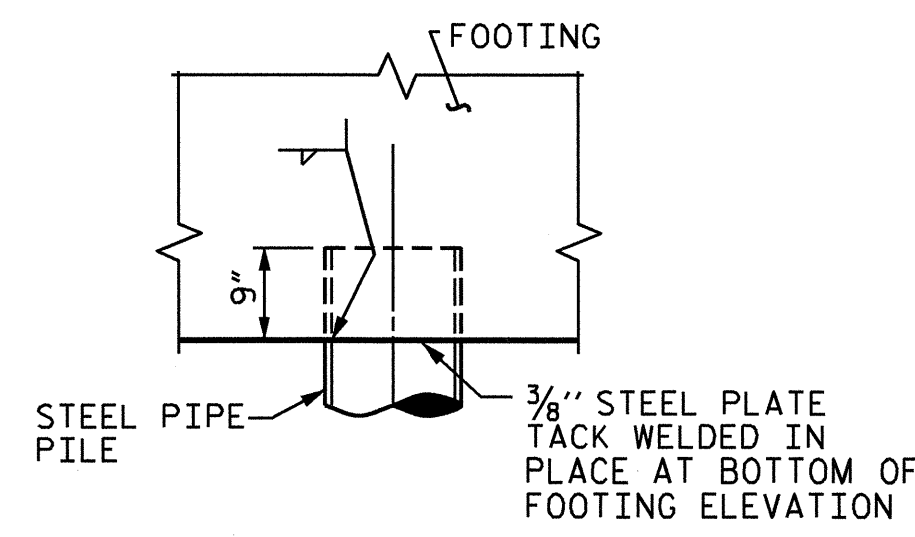
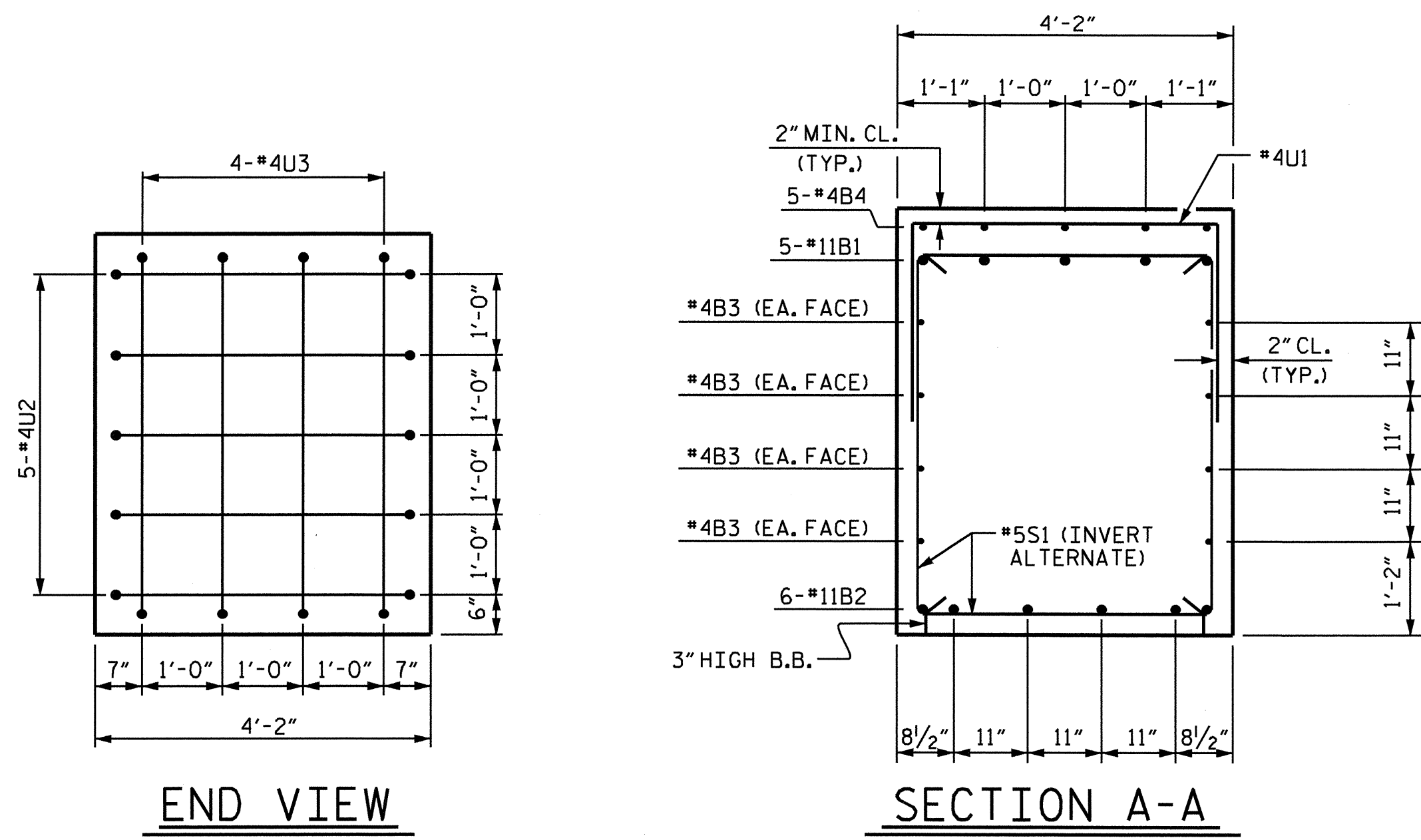
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-24
 TOTAL SHEETS 32

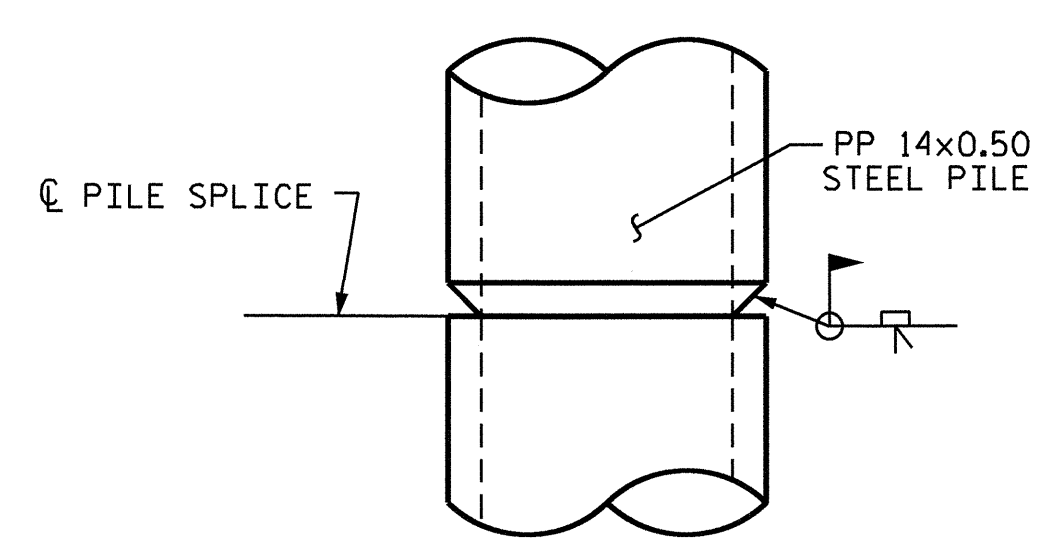


DRAWN BY: Keith D. Layne DATE: 1/07/10
 CHECKED BY: R. G. EMERSON DATE: 7/10

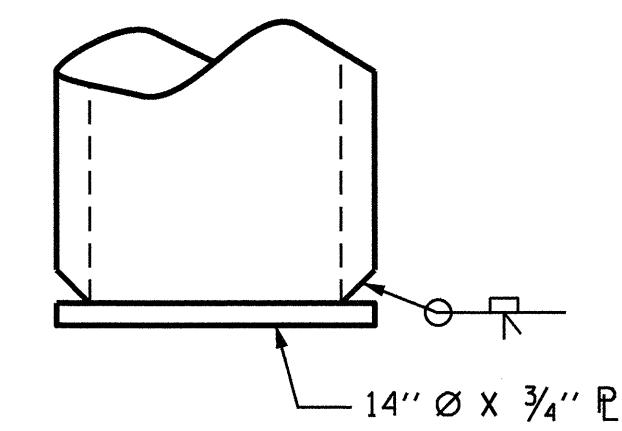
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 wk fischer



PIPE PILE IN FOOTING DETAIL
 THE CONTRACTOR MAY PROPOSE AN ALTERNATE METHOD FOR PLUGGING THE STEEL PIPE PILE, SUBJECT TO APPROVAL BY THE ENGINEER.



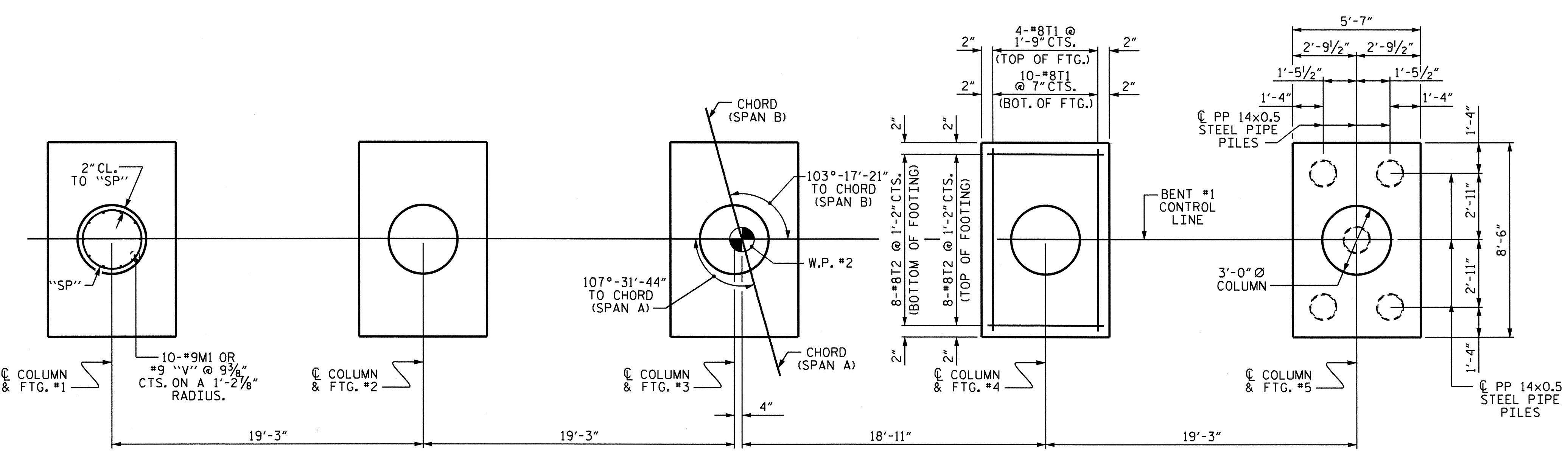
PIPE PILE SPlice DETAIL



PIPE PILE PLATE DETAIL

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	51'-9"	2,749
B2	12	#11	STR	48'-4"	3,082
B3	32	#4	STR	23'-7"	504
B4	50	#4	STR	4'-2"	139
M1	50	#9	1	9'-1"	1,544
S1	162	#5	2	14'-0"	2,366
T1	70	#8	STR	8'-2"	1,526
T2	80	#8	STR	5'-3"	1,121
U1	80	#4	3	6'-10"	365
U2	10	#4	3	6'-8"	45
U3	8	#4	3	7'-7"	41
V1	10	#9	1	19'-8"	669
V2	10	#9	1	19'-2"	652
V3	10	#9	1	18'-6"	629
V4	10	#9	1	17'-11"	609
V5	10	#9	1	17'-3"	587
REINFORCING STEEL					16,628 LBS.
SP1	1	**	4	585'-10"	391
SP2	1	**	4	565'-2"	378
SP3	1	**	4	546'-8"	365
SP4	1	**	4	526'-0"	351
SP5	1	**	4	507'-5"	339
SPIRAL COLUMN REINFORCING STEEL (SP1)					= 1,824 LBS
CLASS A CONCRETE BREAKDOWN:					
POUR #1 (FOOTINGS)					35.2 C.Y.
POUR #2 (COLUMNS)					20.3 C.Y.
POUR #3 (CAP)					69.3 C.Y.
TOTAL CLASS A CONCRETE					124.8 C.Y.
PP 14x0.5 STEEL PIPE PILES No. 25					LIN. FT. 1,375
PILE REDRIVES					EA. 25
PIPE PILE PLATES					EA. 25

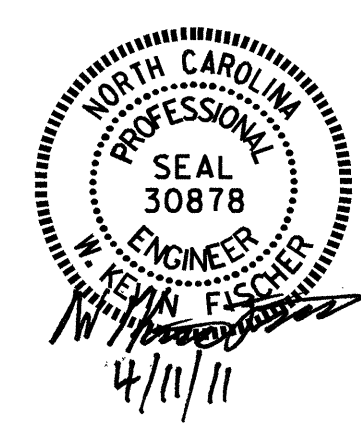
NOTES:
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.
 PIPE PILE PLATES SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.
 REMOVE AND REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.
 PIPE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.



PLAN OF FOOTINGS & COLUMNS
 REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED.

DRAWN BY: Keith D. Layne DATE: 1/07/10
 CHECKED BY: R. G. EMERSON DATE: 7/10

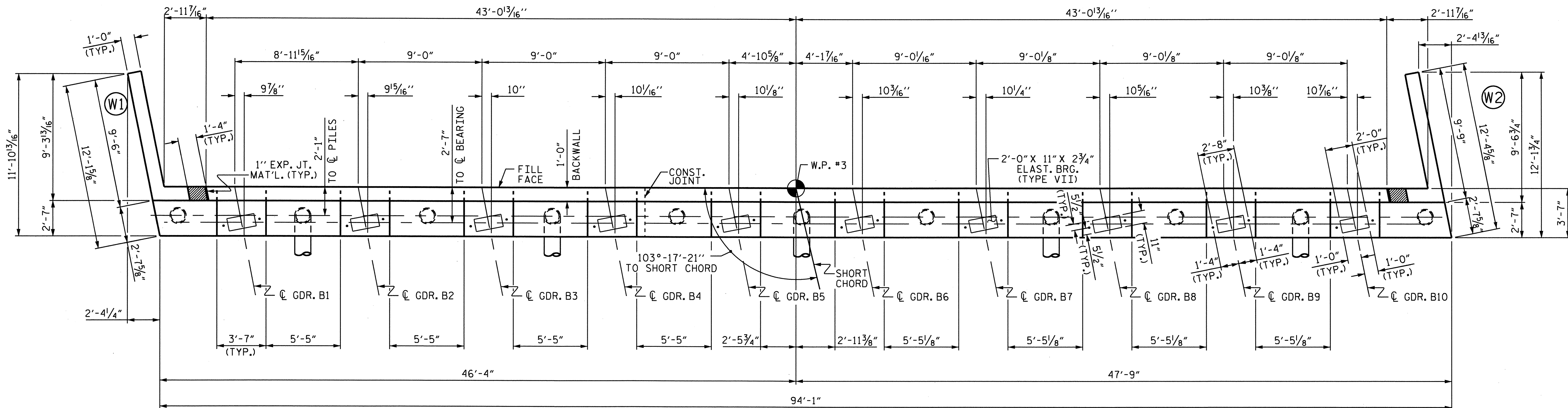
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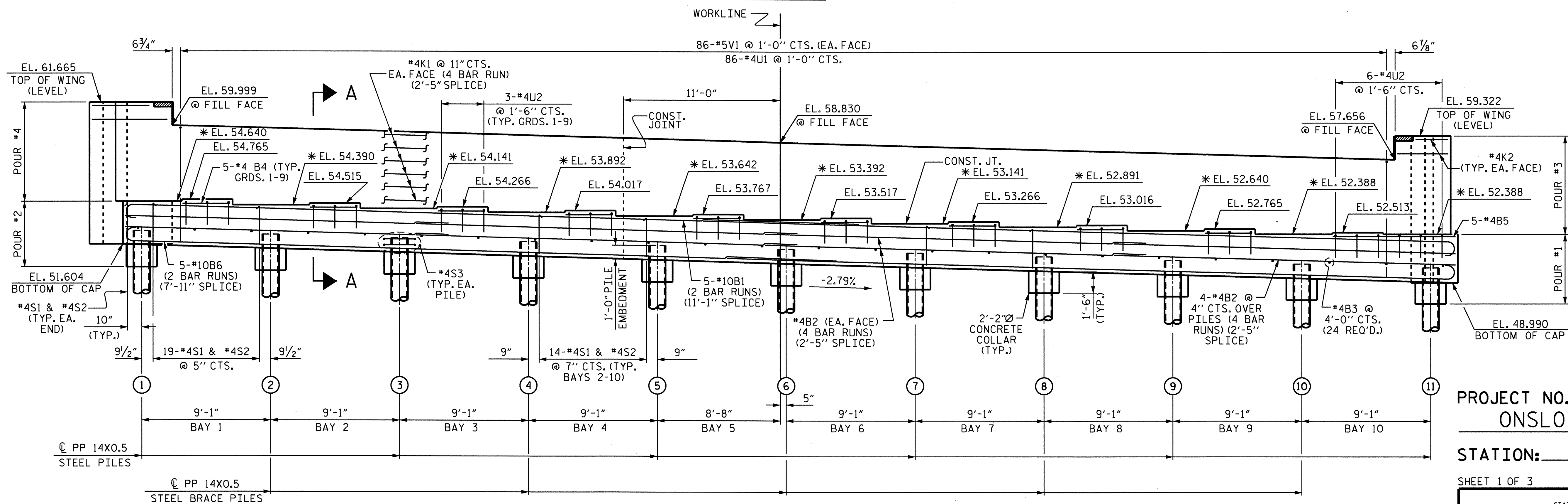
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-

SHEET 2 OF 2

REVISIONS						SHEET NO. S-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			



PLAN



ELEVATION

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

PILE NO.	TOP OF PILE EL.
1	52.583
2	52.331
3	52.078
4	51.826
5	51.574
6	51.321
7	51.069
8	50.817
9	50.564
10	50.312
11	50.059

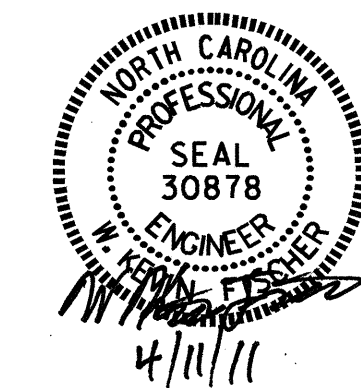
PROJECT NO. U-4007A
ON SLOW COUNTY
 STATION: 21+47.74 -L-

SHEET 1 OF 3

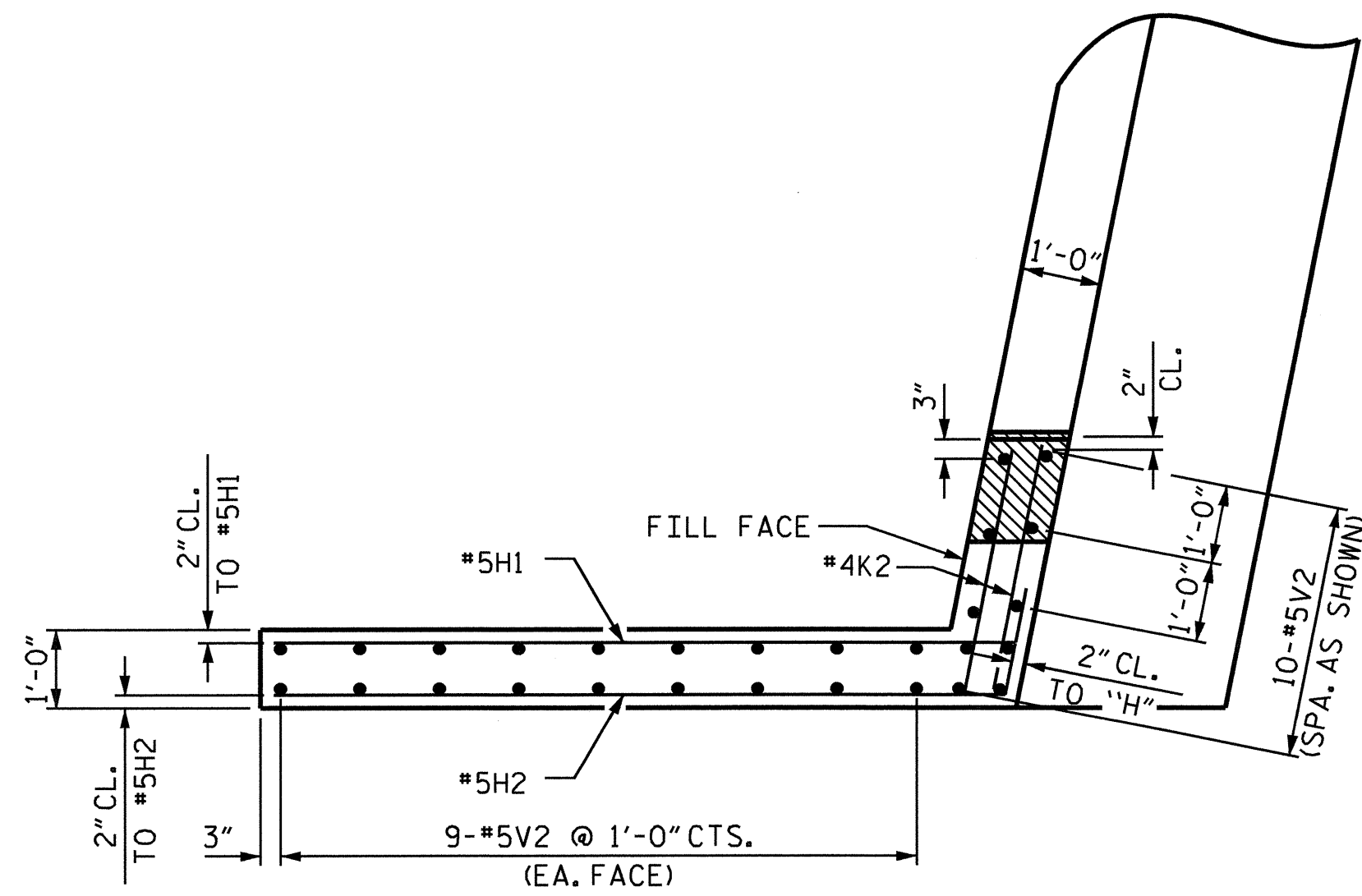
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

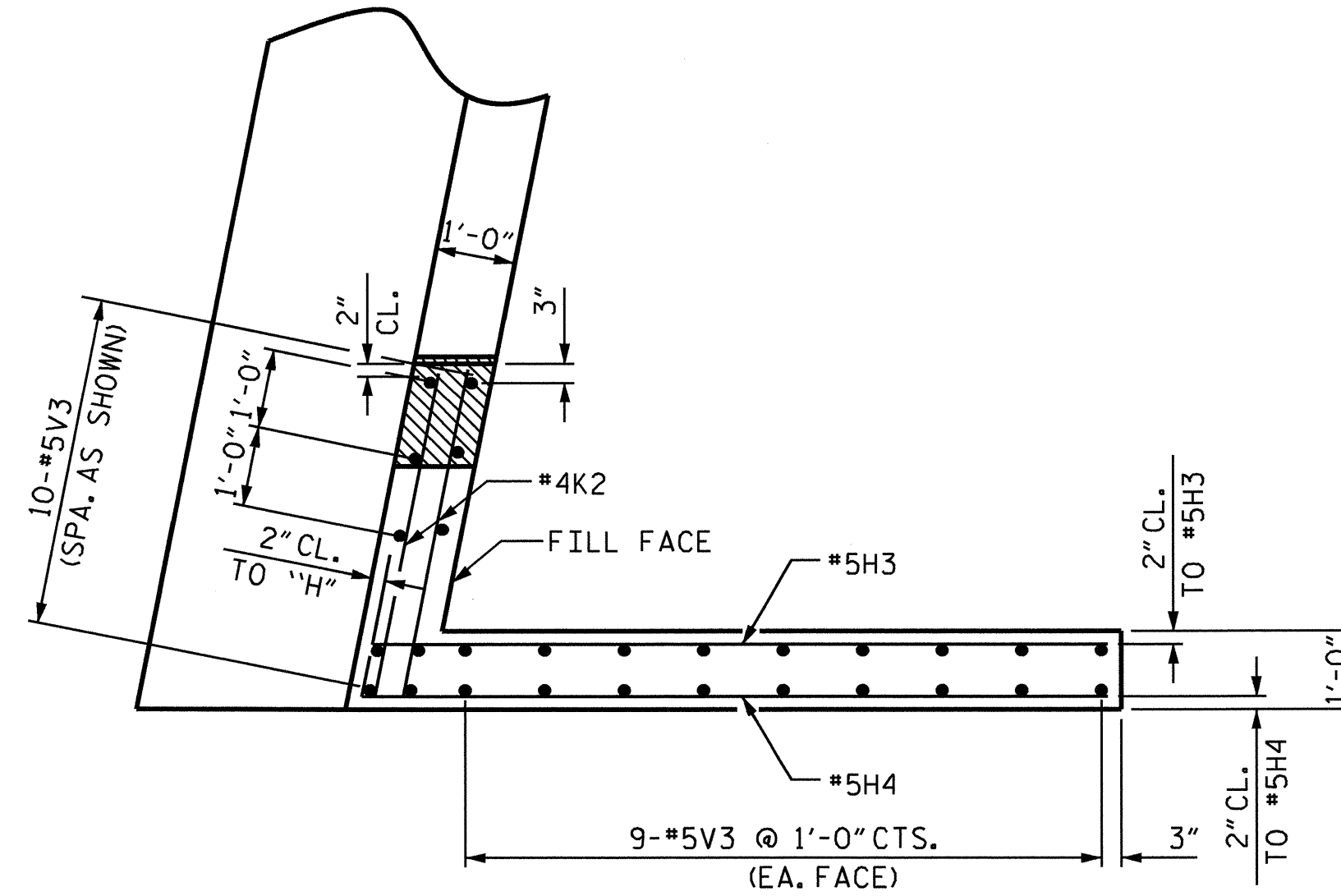
REVISIONS				SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			32



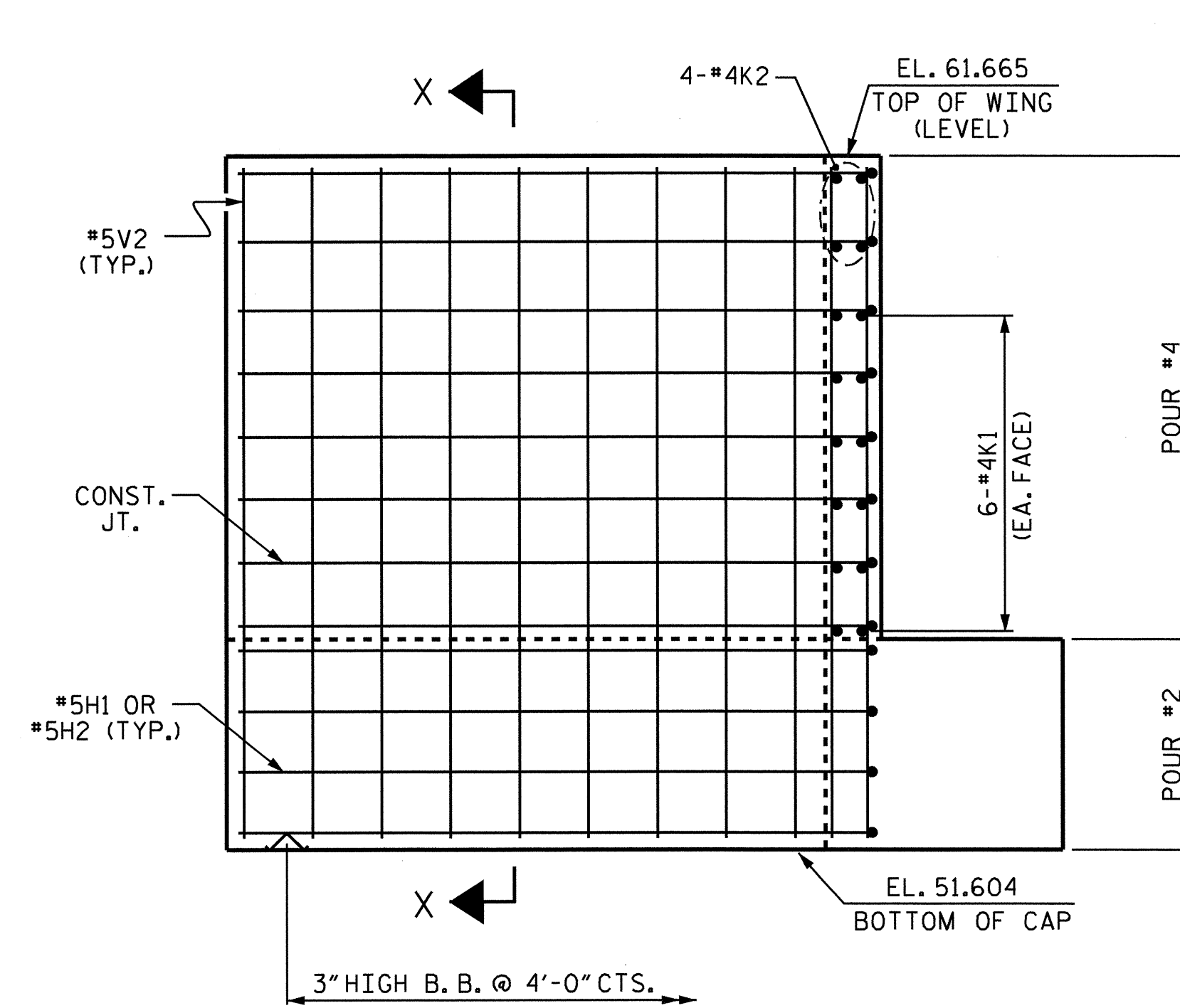
DRAWN BY: R. G. EMERSON DATE: 01/10
 CHECKED BY: K. D. LAYNE DATE: 01/10



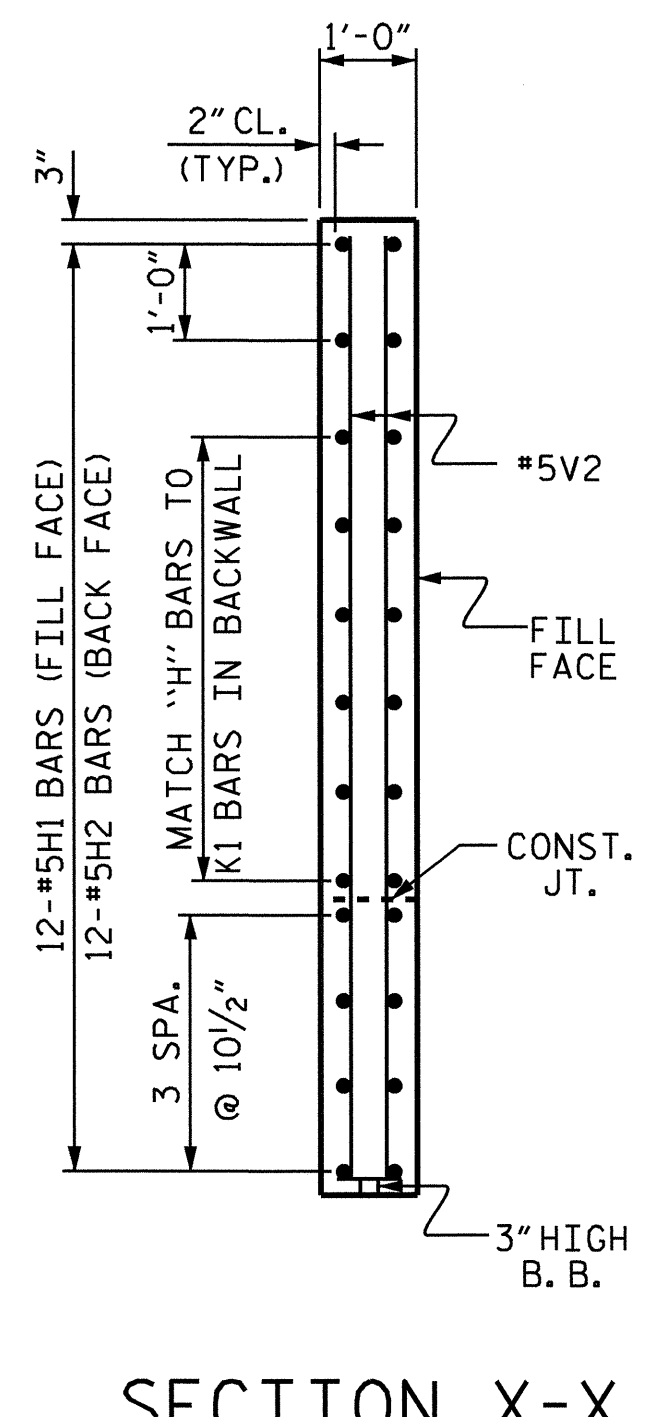
PLAN OF WING - (W1)



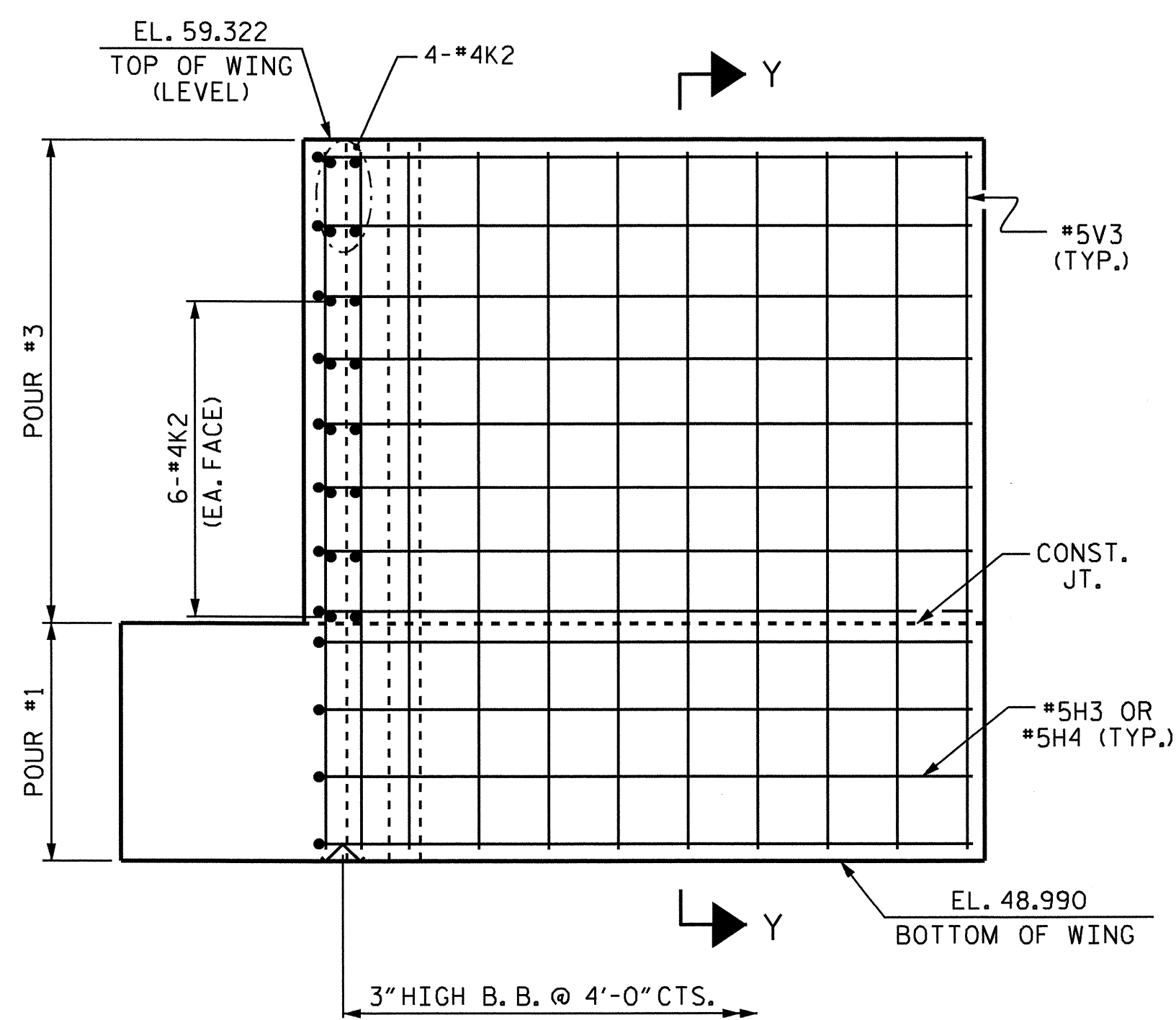
PLAN OF WING - (W2)



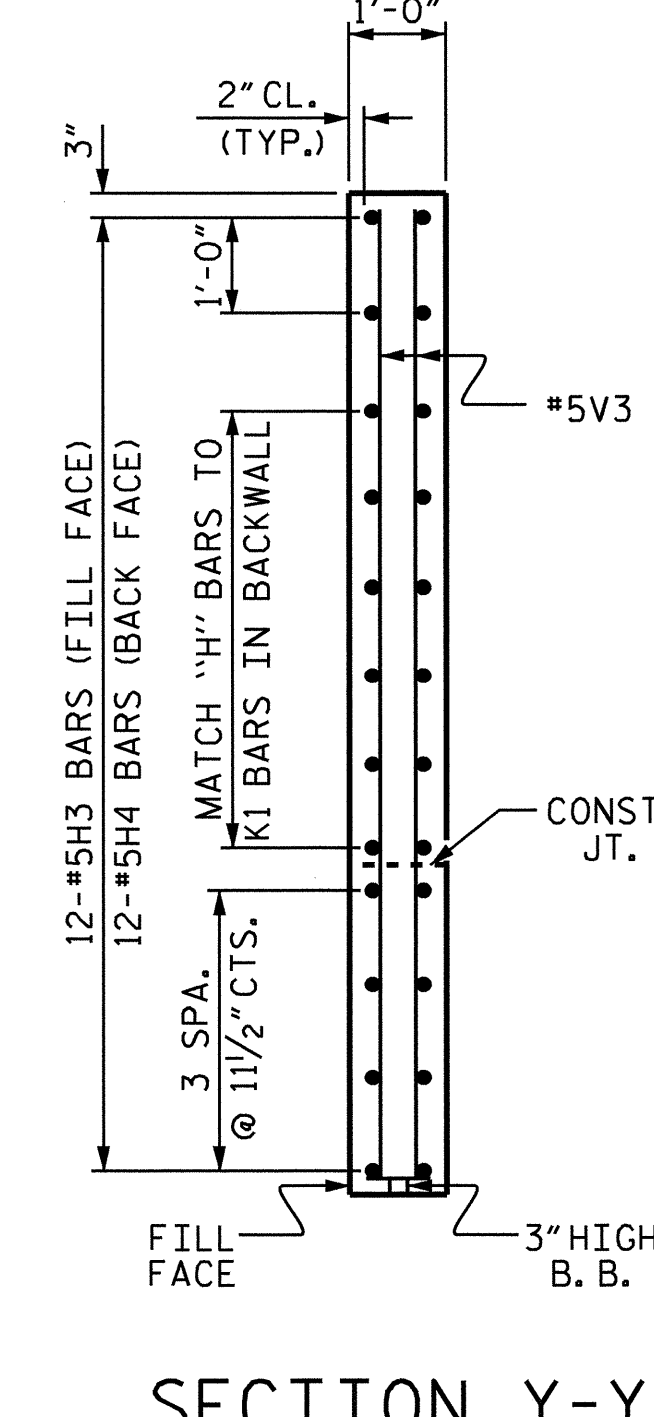
ELEVATION OF WING - (W1)



SECTION X-X



ELEVATION OF WING - (W2)

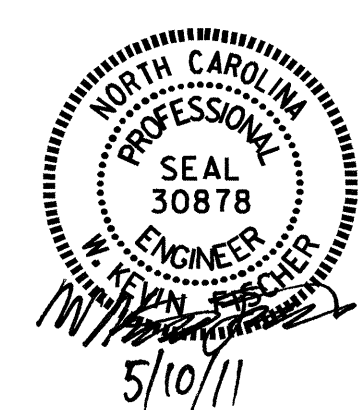


SECTION Y-Y

PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-

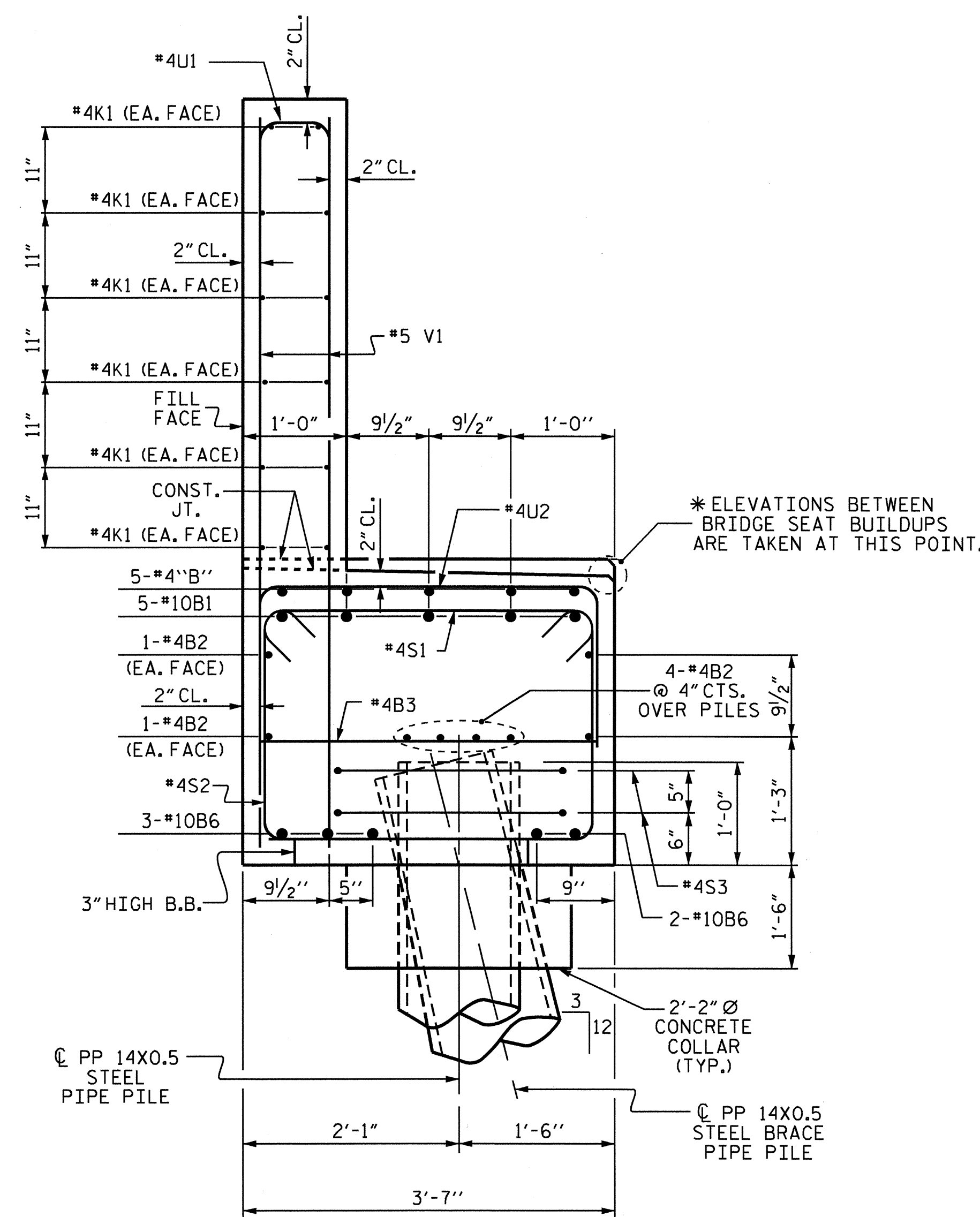
SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT #2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-27
					TOTAL SHEETS
					32

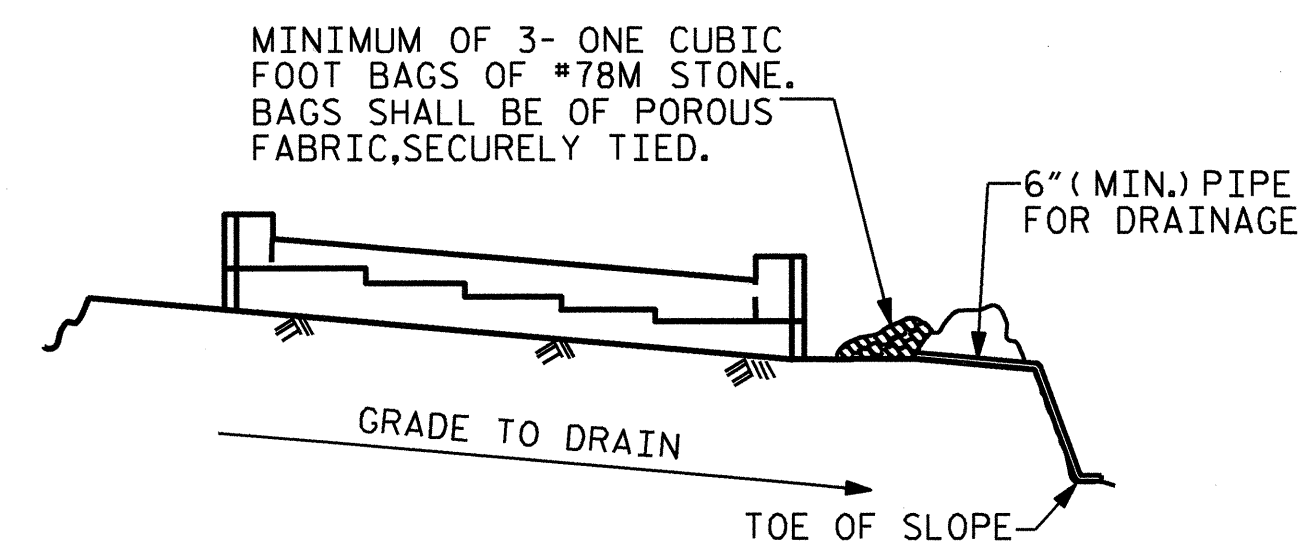


DRAWN BY: R. G. EMERSON DATE: 01/10
 CHECKED BY: K. D. LAYNE DATE: 01/10

09-MAY-2011 16:25
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 wk.fischer



SECTION A-A

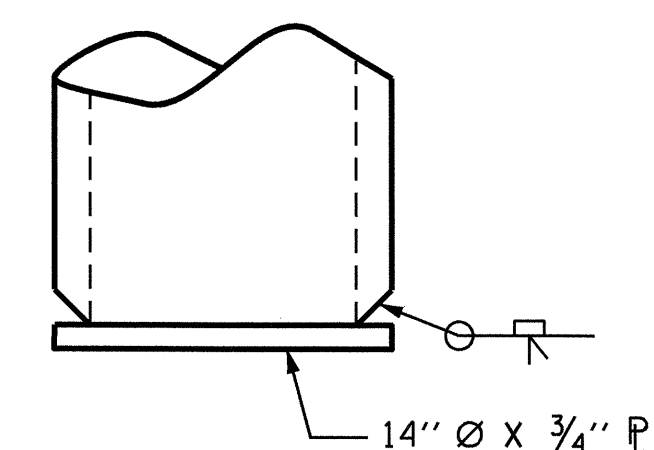


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

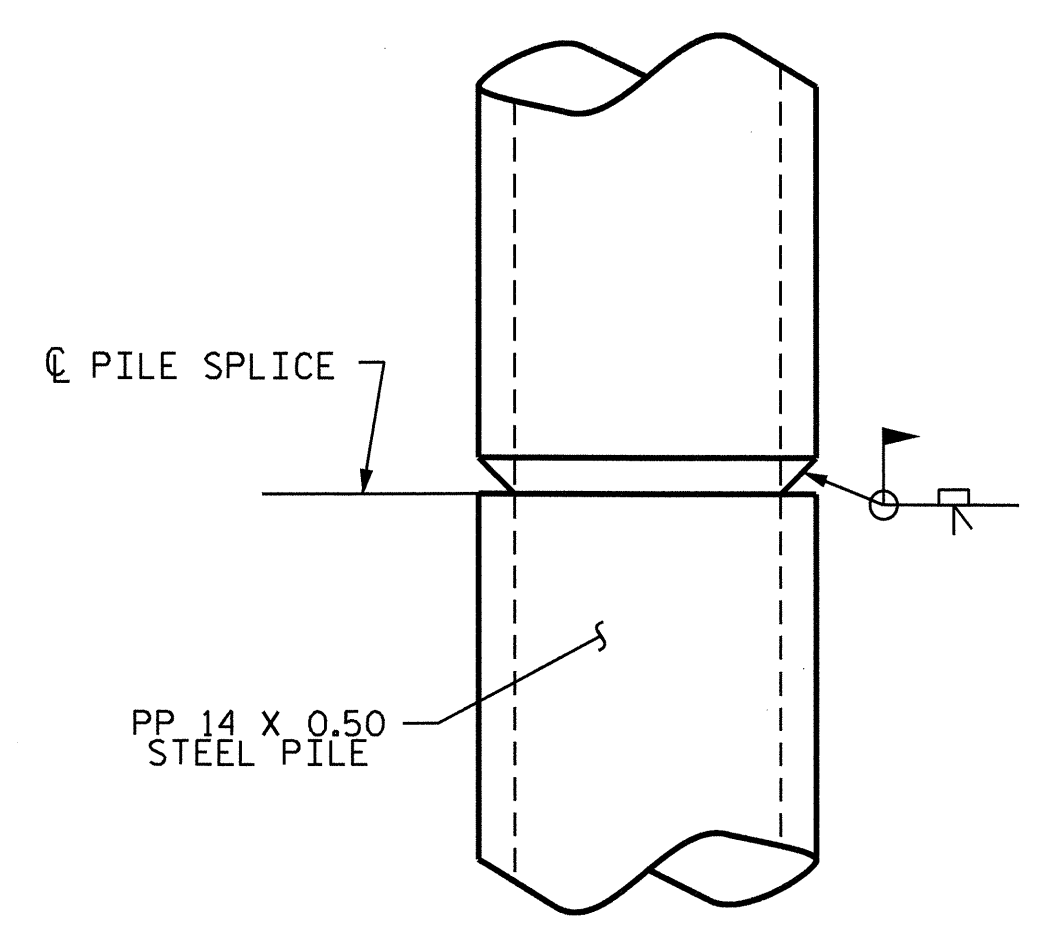
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



PIPE PILE PLATE DETAIL



PIPE PILE SPlice DETAIL

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

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

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

THE CONTRACTOR MAY PROPOSE AN ALTERNATE METHOD FOR PLUGGING THE STEEL PIPE PILE, SUBJECT TO APPROVAL BY THE ENGINEER.

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

PIPE PILE PLATES SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

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

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

BAR TYPES					BILL OF MATERIAL																																													
					<p>END BENT #2</p> <table border="1"> <thead> <tr> <th>BAR NO.</th> <th>SIZE</th> <th>TYPE</th> <th>LENGTH</th> <th>WEIGHT</th> </tr> </thead> <tbody> <tr><td>B1</td><td>10</td><td>#10</td><td>1</td><td>53'-9"</td><td>2313</td></tr> <tr><td>B2</td><td>32</td><td>#4</td><td>STR.</td><td>25'-3"</td><td>540</td></tr> <tr><td>B3</td><td>24</td><td>#4</td><td>STR.</td><td>3'-3"</td><td>52</td></tr> <tr><td>B4</td><td>45</td><td>#4</td><td>STR.</td><td>3'-3"</td><td>98</td></tr> <tr><td>B5</td><td>5</td><td>#4</td><td>STR.</td><td>7'-10"</td><td>26</td></tr> <tr><td>B6</td><td>10</td><td>#10</td><td>1</td><td>52'-2"</td><td>2245</td></tr> </tbody> </table>					BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	B1	10	#10	1	53'-9"	2313	B2	32	#4	STR.	25'-3"	540	B3	24	#4	STR.	3'-3"	52	B4	45	#4	STR.	3'-3"	98	B5	5	#4	STR.	7'-10"	26	B6	10	#10	1	52'-2"	2245
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B6	10	#10	1	52'-2"	2245																																													
					<table border="1"> <tbody> <tr><td>H1</td><td>12</td><td>#5</td><td>2</td><td>9'-11"</td><td>124</td></tr> <tr><td>H2</td><td>12</td><td>#5</td><td>2</td><td>9'-9"</td><td>122</td></tr> <tr><td>H3</td><td>12</td><td>#5</td><td>3</td><td>9'-10"</td><td>123</td></tr> <tr><td>H4</td><td>12</td><td>#5</td><td>3</td><td>9'-11"</td><td>124</td></tr> </tbody> </table>					H1	12	#5	2	9'-11"	124	H2	12	#5	2	9'-9"	122	H3	12	#5	3	9'-10"	123	H4	12	#5	3	9'-11"	124																	
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K2	8	#4	STR.	3'-7"	19																																													
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S1	147	#4	4	4'-0"	393																																													
S2	147	#4	5	9'-3"	908																																													
S3	22	#4	6	7'-7"	111																																													
					<table border="1"> <tbody> <tr><td>U1</td><td>86</td><td>#4</td><td>7</td><td>3'-8"</td><td>211</td></tr> <tr><td>U2</td><td>33</td><td>#4</td><td>7</td><td>6'-3"</td><td>138</td></tr> </tbody> </table>					U1	86	#4	7	3'-8"	211	U2	33	#4	7	6'-3"	138																													
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U2	33	#4	7	6'-3"	138																																													
					<table border="1"> <tbody> <tr><td>V1</td><td>172</td><td>#5</td><td>STR.</td><td>8'-2"</td><td>1465</td></tr> <tr><td>V2</td><td>28</td><td>#5</td><td>STR.</td><td>9'-8"</td><td>282</td></tr> <tr><td>V3</td><td>28</td><td>#5</td><td>STR.</td><td>9'-11"</td><td>290</td></tr> </tbody> </table>					V1	172	#5	STR.	8'-2"	1465	V2	28	#5	STR.	9'-8"	282	V3	28	#5	STR.	9'-11"	290																							
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V3	28	#5	STR.	9'-11"	290																																													
					<p>REINFORCING STEEL 10394</p> <p>CLASS "A" CONCRETE BREAKDOWN</p> <table border="1"> <tbody> <tr><td>POUR #1</td><td>CAP, LOWER WING & COLLARS RIGHT END</td><td>27.7</td><td>CY.</td></tr> <tr><td>POUR #2</td><td>CAP, LOWER WING & COLLARS LEFT END</td><td>16.6</td><td>CY.</td></tr> <tr><td>POUR #3</td><td>UPPER WING & BACKWALL RIGHT END</td><td>15.0</td><td>CY.</td></tr> <tr><td>POUR #4</td><td>UPPER WING & BACKWALL LEFT END</td><td>9.0</td><td>CY.</td></tr> <tr><td colspan="2">CLASS "A" CONCRETE TOTAL</td><td>68.3</td><td>CY.</td></tr> </tbody> </table>					POUR #1	CAP, LOWER WING & COLLARS RIGHT END	27.7	CY.	POUR #2	CAP, LOWER WING & COLLARS LEFT END	16.6	CY.	POUR #3	UPPER WING & BACKWALL RIGHT END	15.0	CY.	POUR #4	UPPER WING & BACKWALL LEFT END	9.0	CY.	CLASS "A" CONCRETE TOTAL		68.3	CY.																					
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CLASS "A" CONCRETE TOTAL		68.3	CY.																																															
					<p>PPI4X0.5 STEEL PILES</p> <table border="1"> <tbody> <tr><td>No. 11</td><td>LIN. FT.</td><td>880</td></tr> </tbody> </table>					No. 11	LIN. FT.	880																																						
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ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. U-4007A
ONSLOW COUNTY
STATION: 21+47.74 -L-

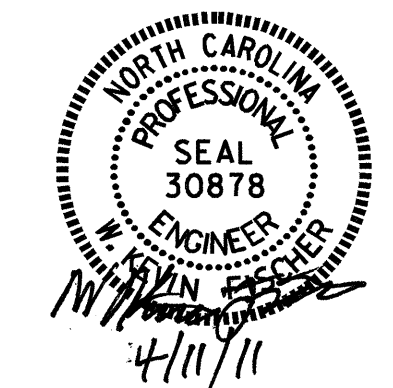
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			32

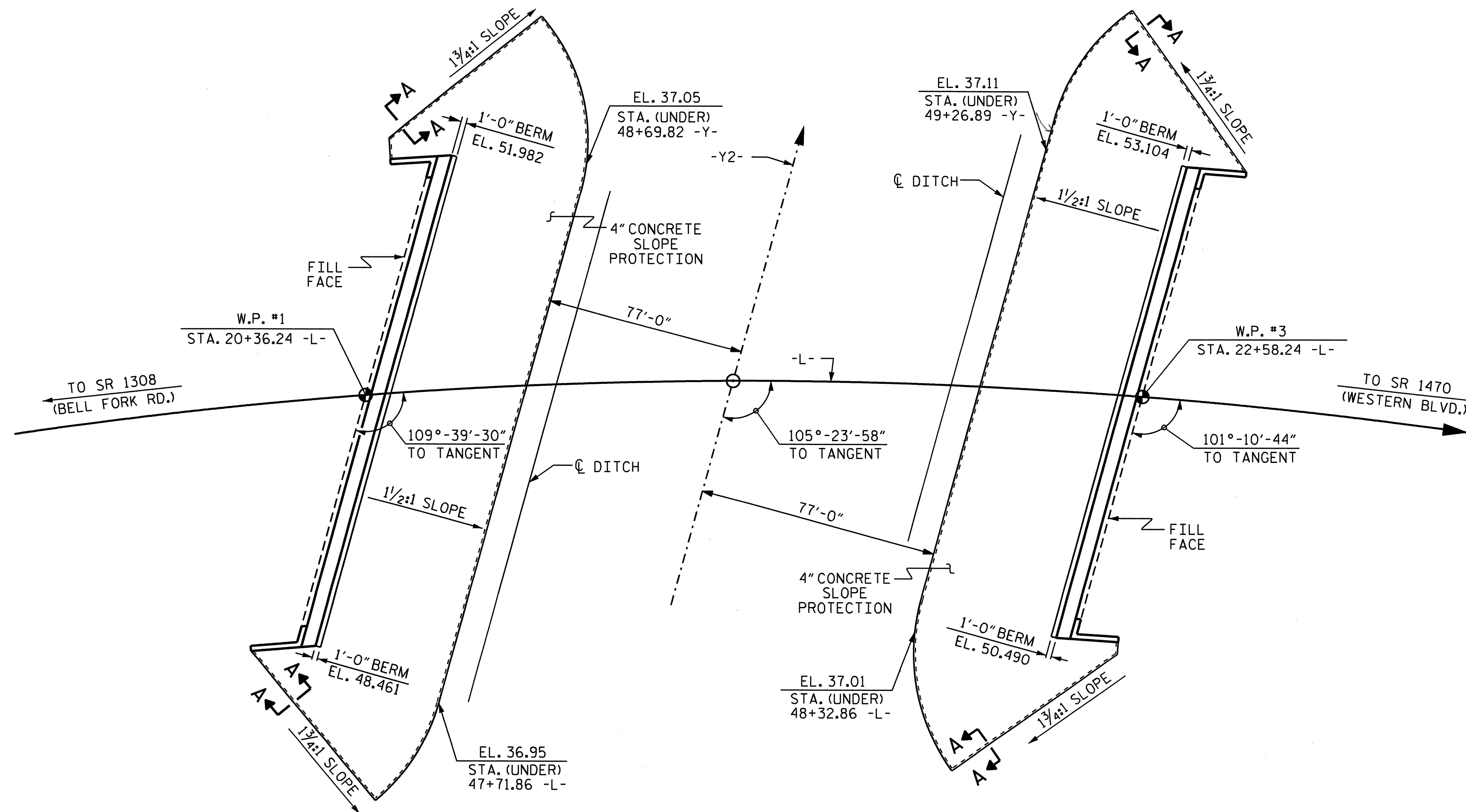
DRAWN BY: R. G. EMERSON DATE: 01/10
CHECKED BY: K. D. LAYNE DATE: 01/10



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.

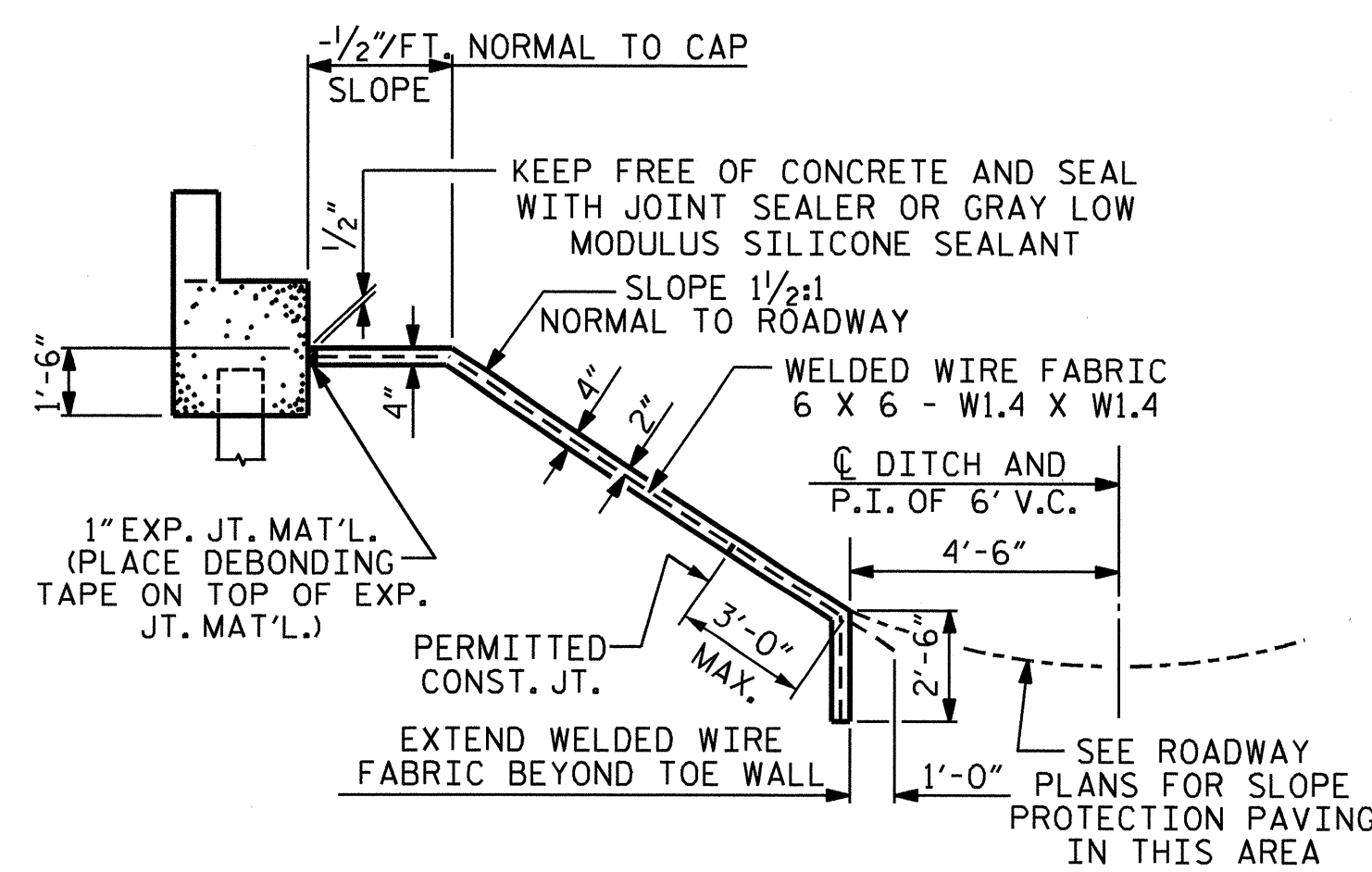
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL 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.



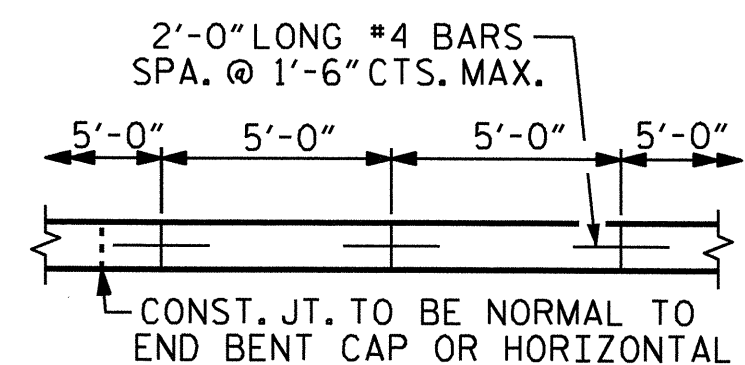
BRIDGE @ STA. 21+47.74 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT #1	480	960
END BENT #2	530	1060

* QUANTITY SHOWN IS BASED ON 5' POURS.

PLAN OF SLOPE PROTECTION

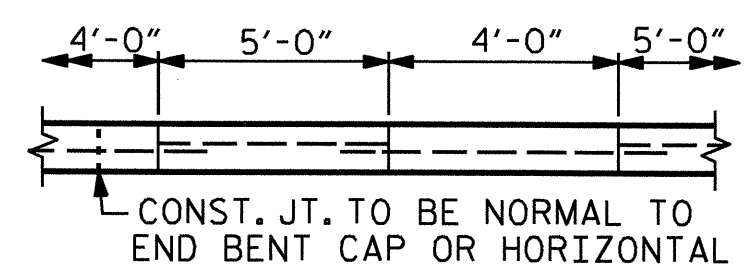


SECTION ALONG ROADWAY



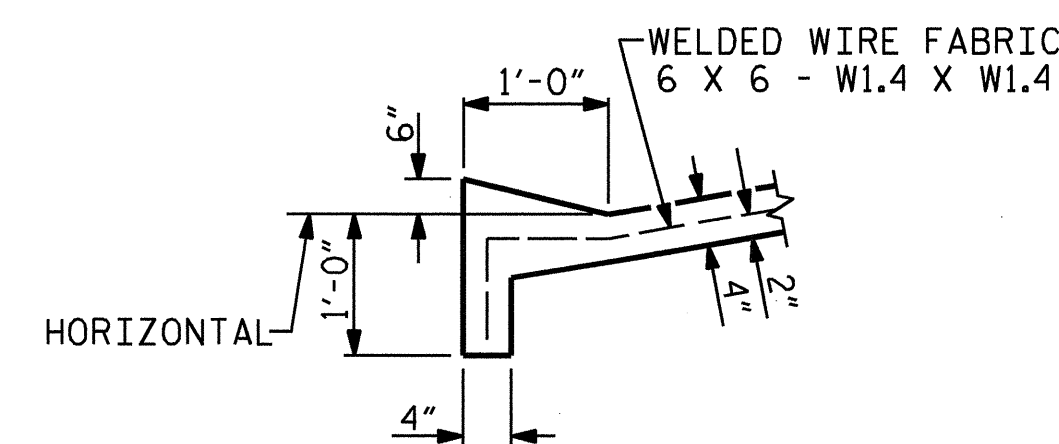
STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL



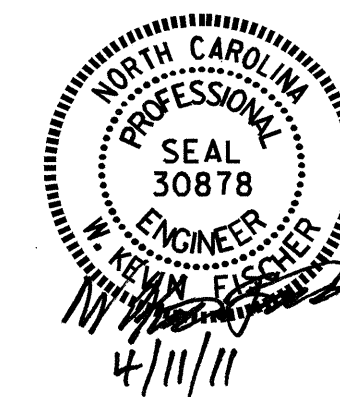
POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL



SECTION A-A

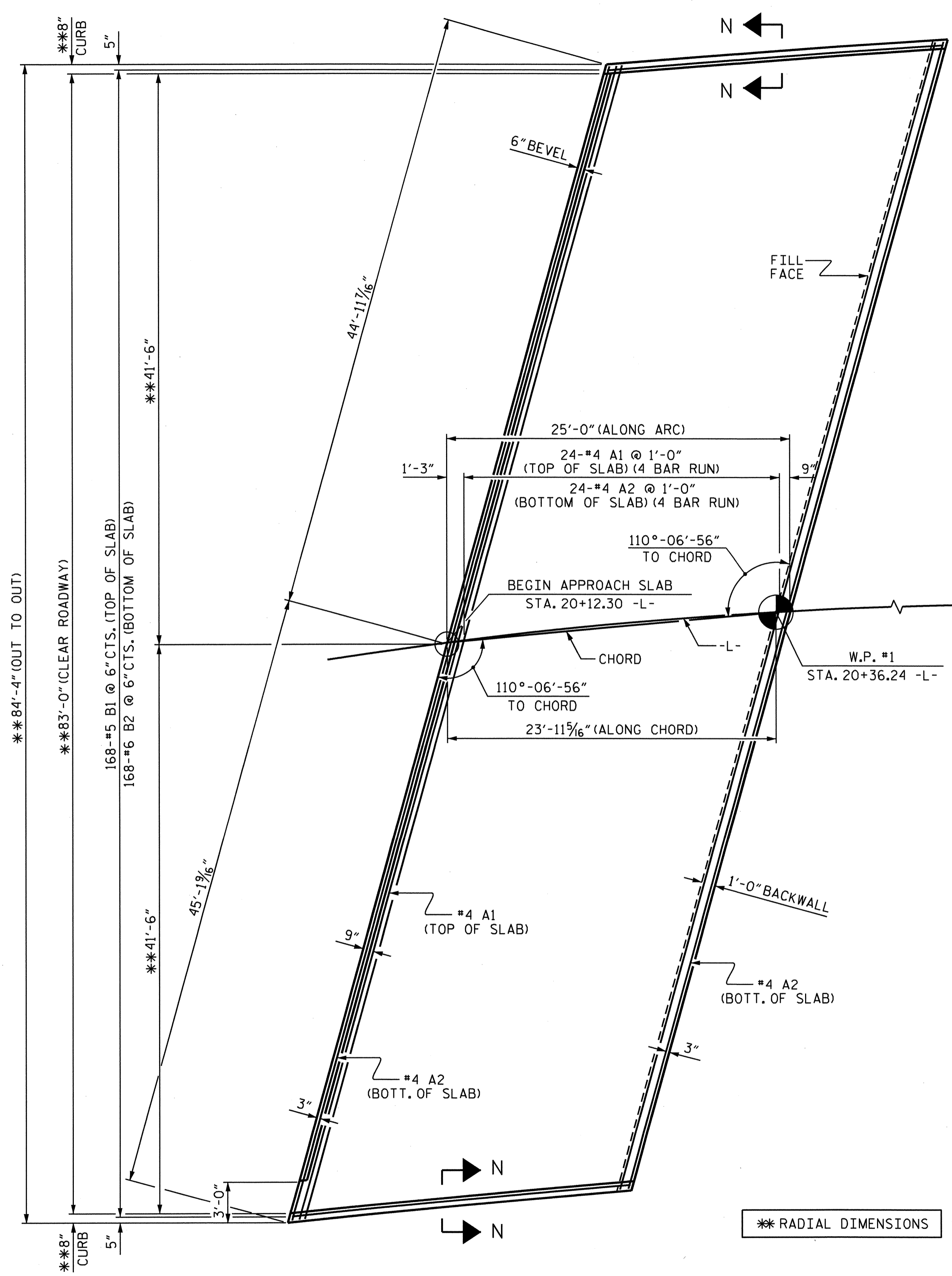
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 21+47.74 -L-



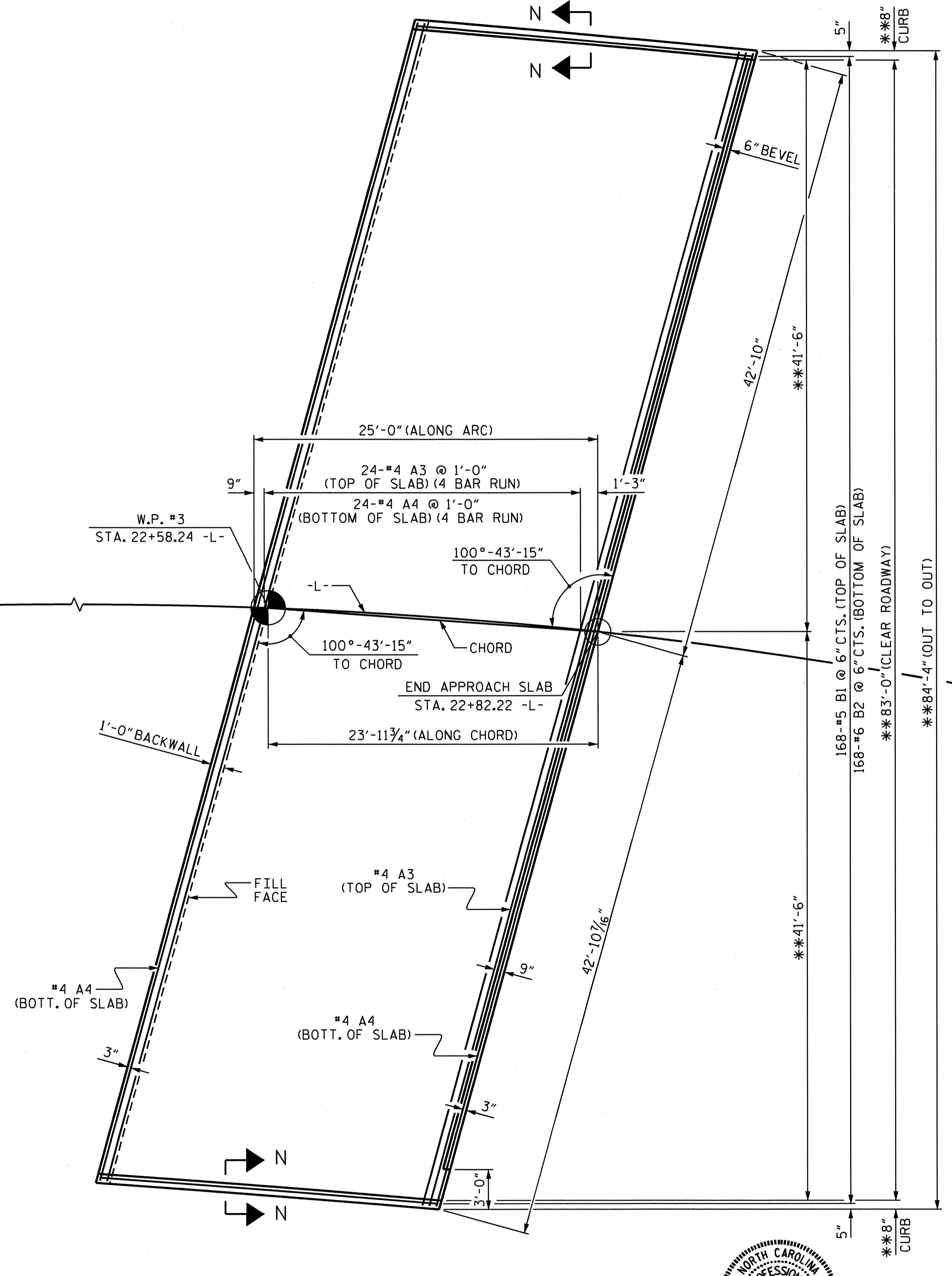
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SLOPE PROTECTION
 DETAILS

ASSEMBLED BY: R. G. EMERSON	DATE: 05/09
CHECKED BY: M. K. BEARD	DATE: 07/09
DRAWN BY: ELR 5/92	REV. 7/10/01 LES/RDR
CHECKED BY: GRP 6/92	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			32



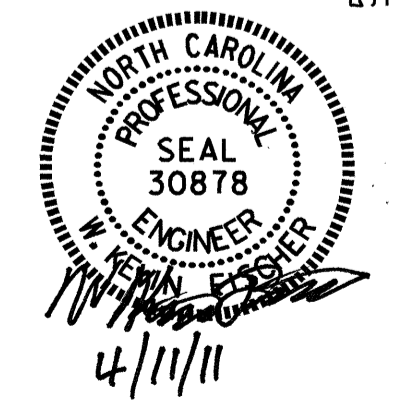
PLAN @ END BENT #1



PLAN @ END BENT #2

* RADIAL DIMENSIONS

SPLICE CHART	
#4 A1	2'-0"
#4 A2	1'-9"
#4 A3	2'-0"
#4 A4	1'-9"



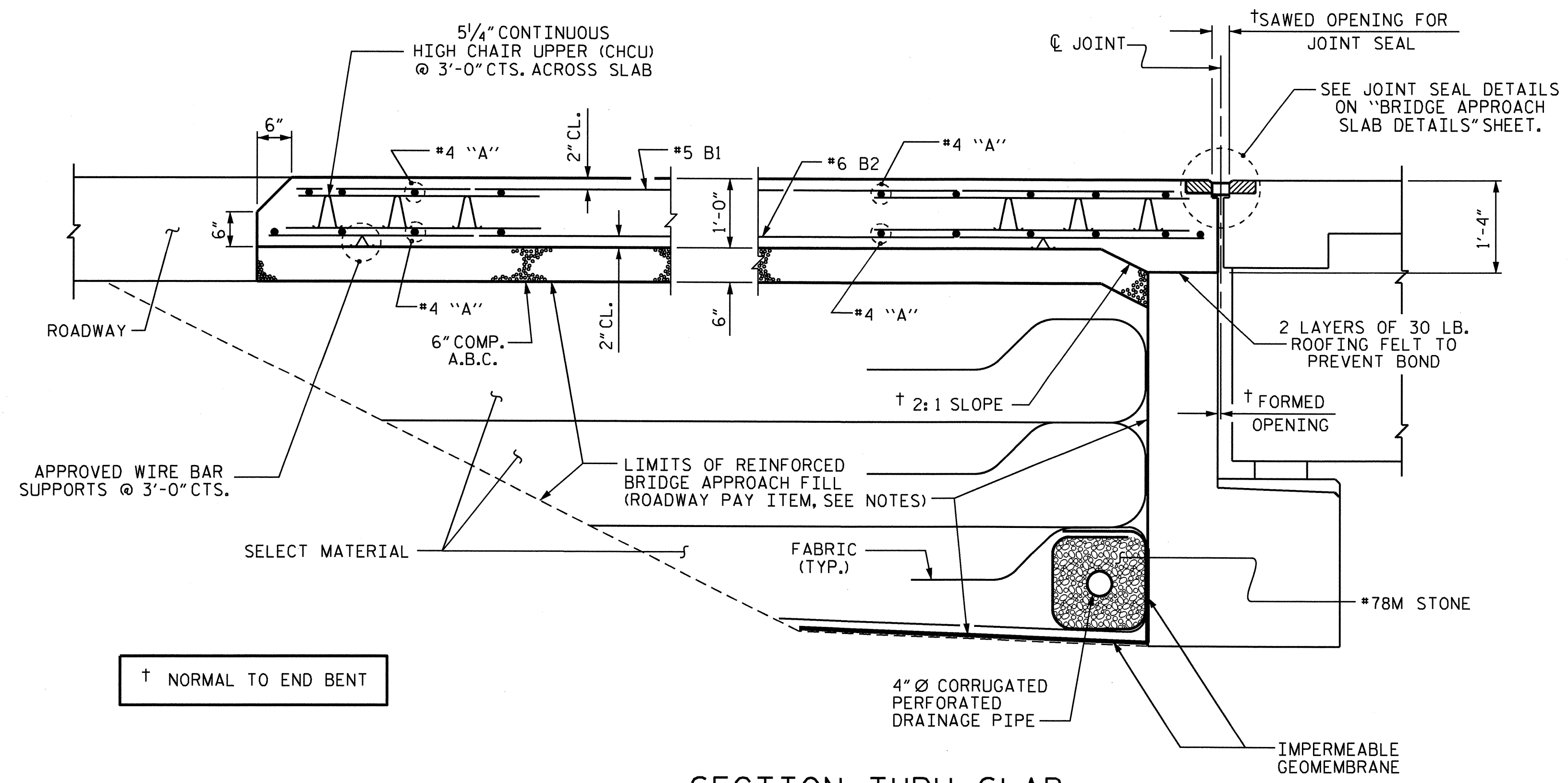
PROJECT NO. U-4007A
ONSLOW COUNTY
 STATION: 21+47.74 -L-
 SHEET 1 OF 3

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

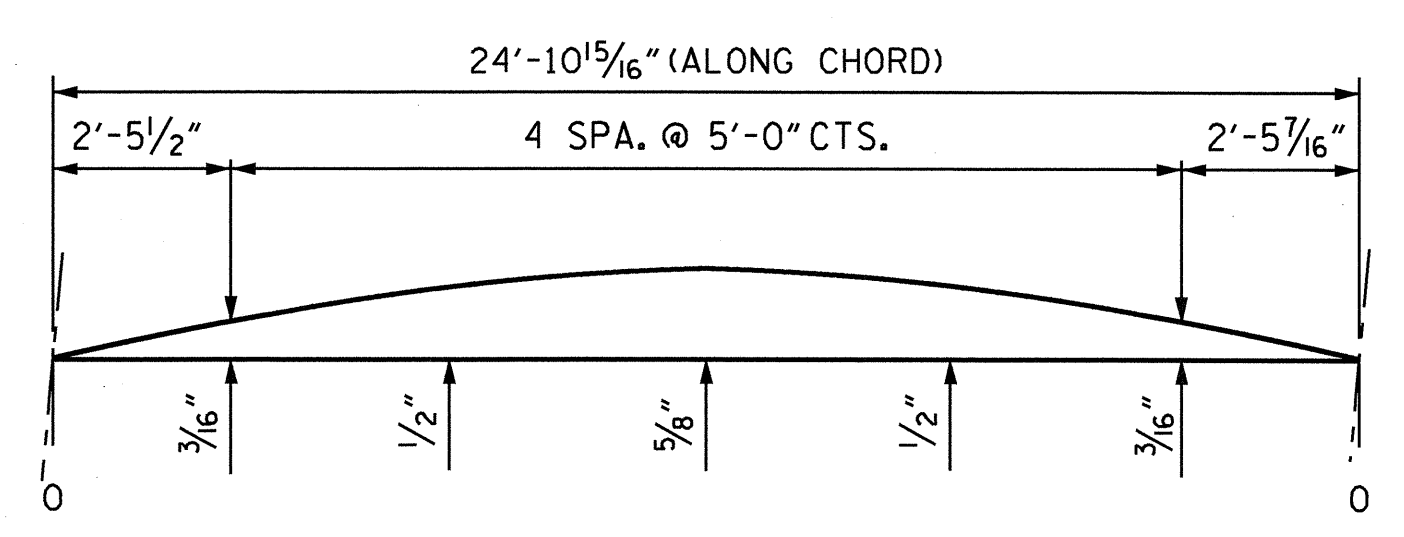
DRAWN BY: R. G. EMERSON DATE: 05/09
 CHECKED BY: M. K. BEARD DATE: 07/09

11-APR-2011 16:16
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 wkfischer

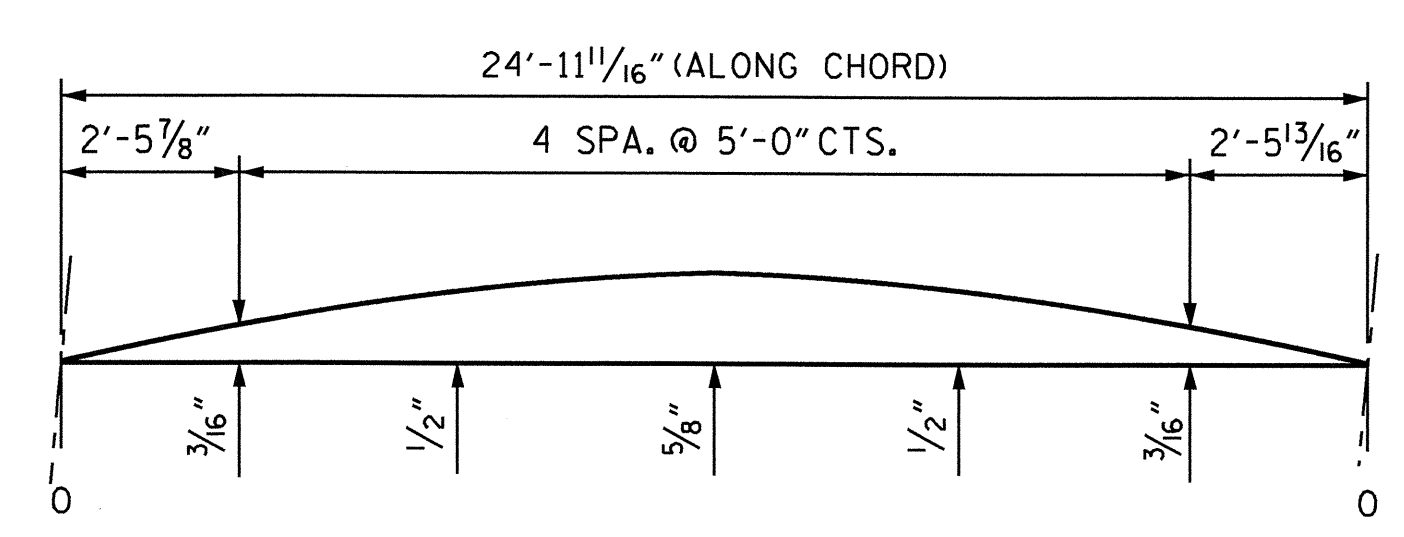
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			32



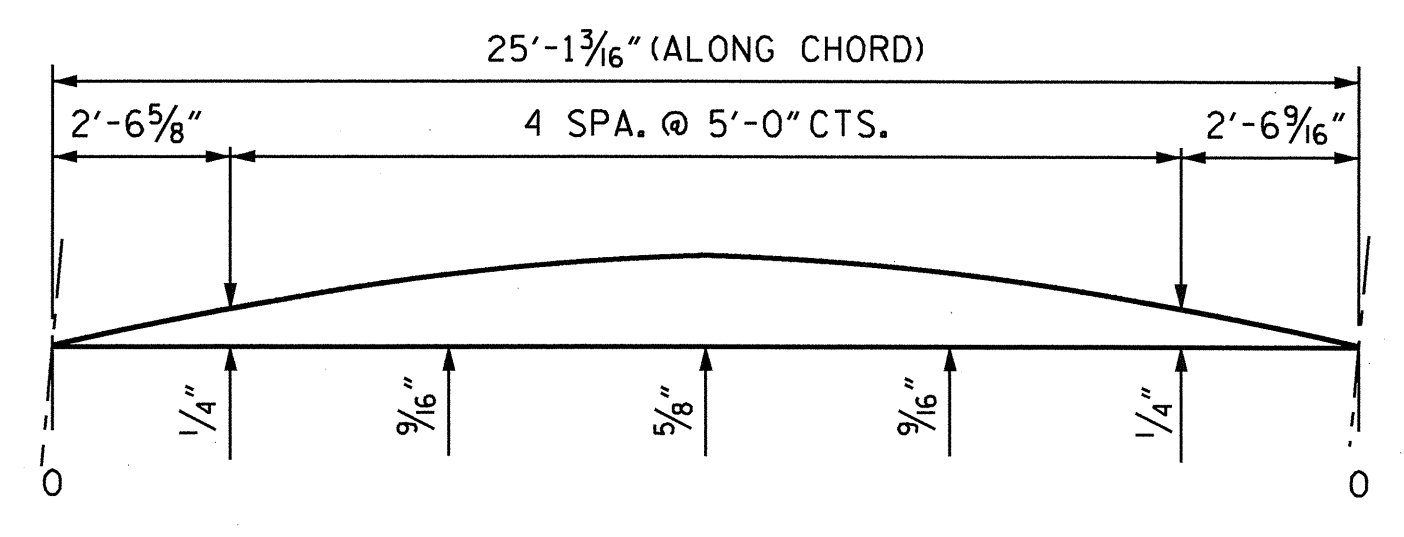
SECTION THRU SLAB



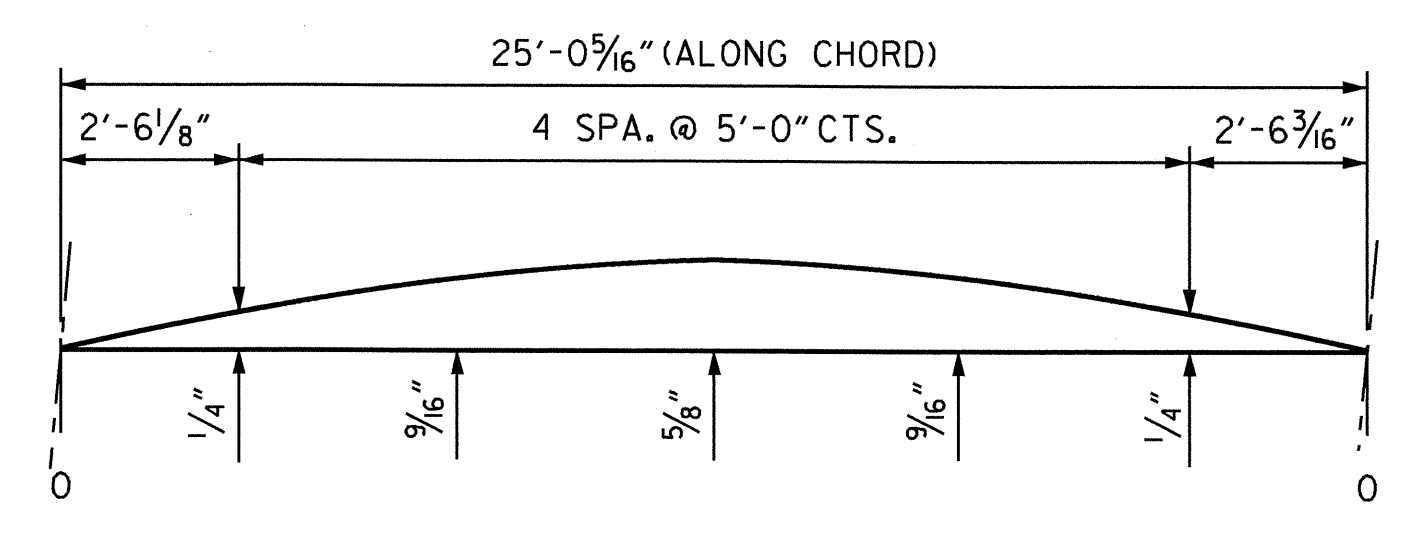
ARC OFFSET - LEFT SIDE APPROACH SLAB @ END BENT #1



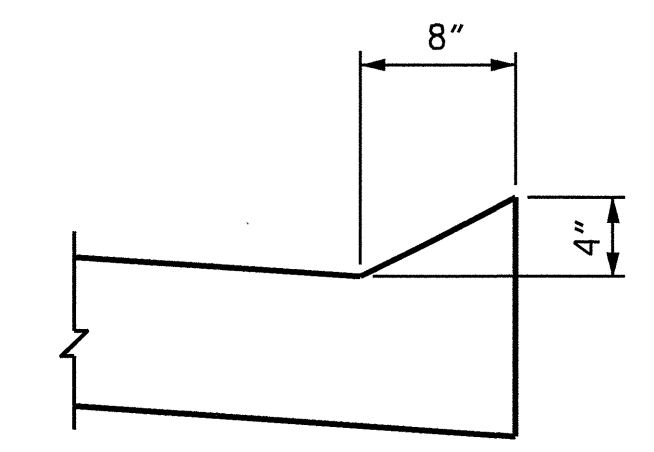
ARC OFFSET - LEFT SIDE APPROACH SLAB @ END BENT #2



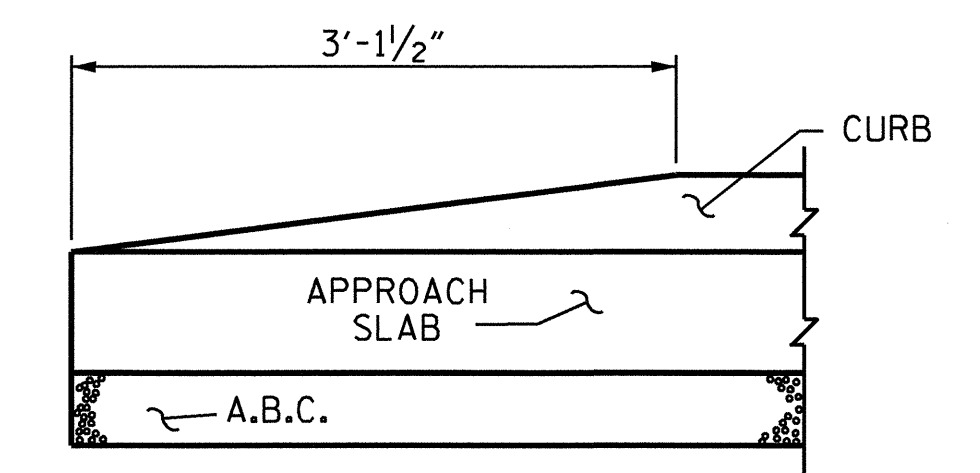
ARC OFFSET - RIGHT SIDE APPROACH SLAB @ END BENT #1



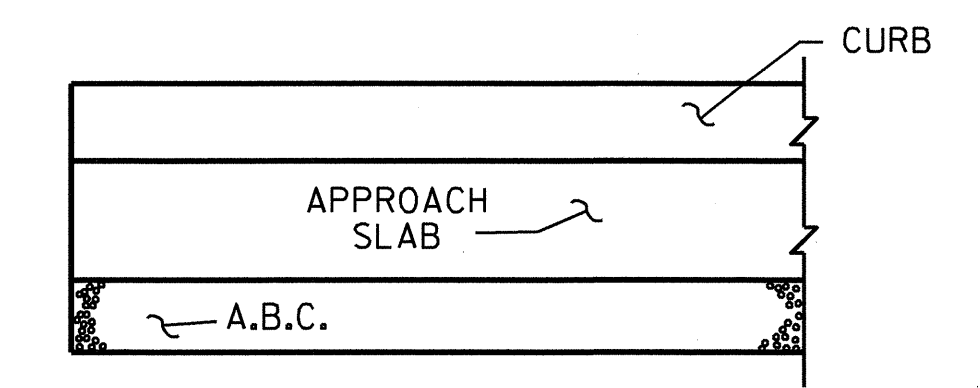
ARC OFFSET - RIGHT SIDE APPROACH SLAB @ END BENT #2



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER



END OF CURB WITH SHOULDER BERM GUTTER

CURB DETAILS



NOTES

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

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

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

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

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

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

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

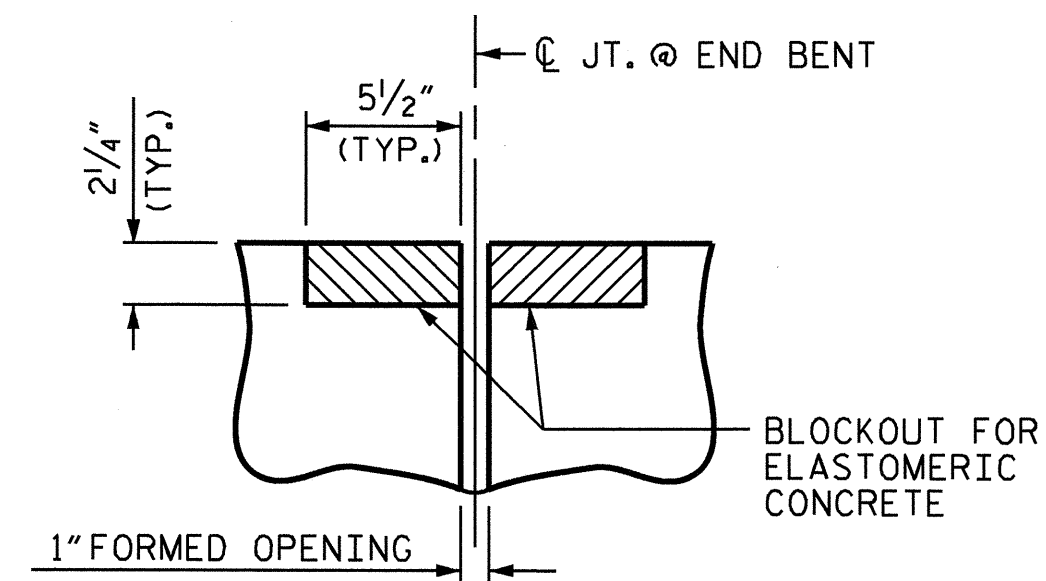
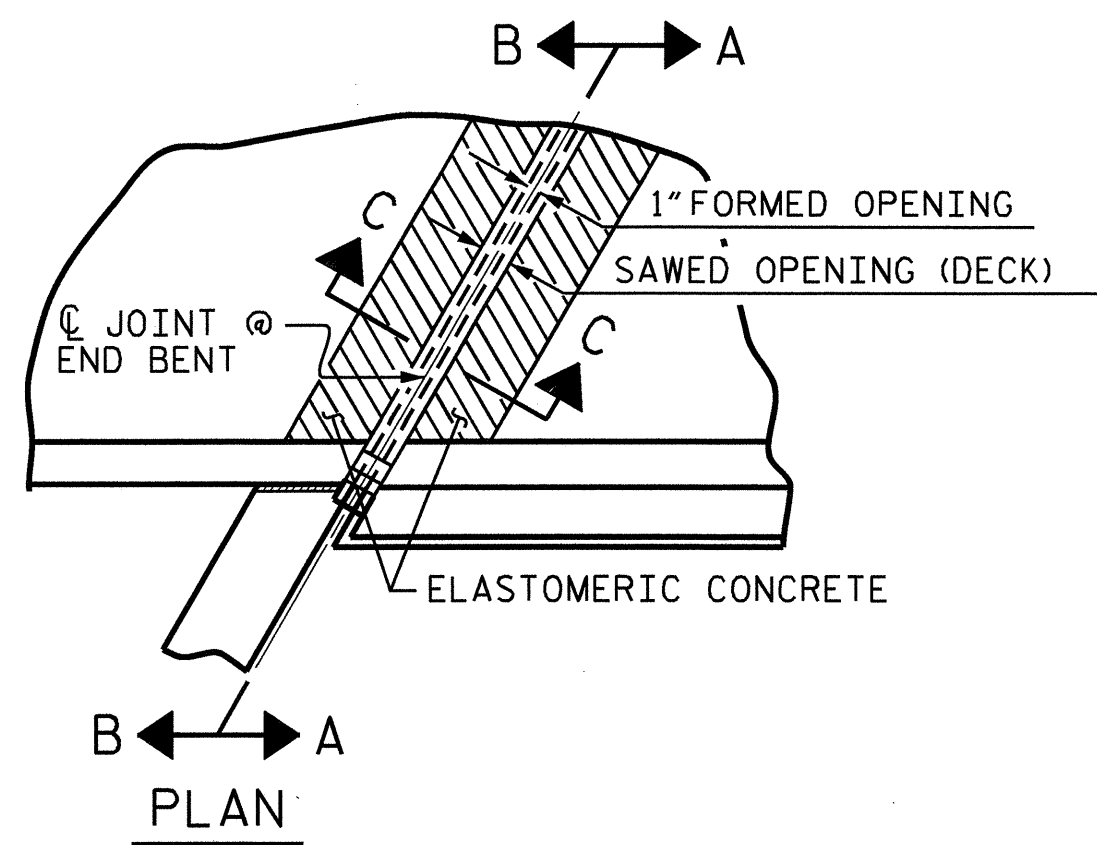
FOR APPROACH SLAB @ END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	100	#4	STR	24'-0"	1603
A2	104	#4	STR	23'-9"	1650
*B1	168	#5	STR	23'-8"	4147
B2	168	#6	STR	24'-7"	6203
REINFORCING STEEL					LBS. 7853
*EPOXY COATED REINFORCING STEEL					LBS. 5750
CLASS AA CONCRETE					C. Y. 79.3
FOR APPROACH SLAB @ END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	100	#4	STR	22'-10"	1525
A4	104	#4	STR	22'-8"	1575
*B1	168	#5	STR	23'-8"	4147
B2	168	#6	STR	24'-7"	6203
REINFORCING STEEL					LBS. 7778
*EPOXY COATED REINFORCING STEEL					LBS. 5672
CLASS AA CONCRETE					C. Y. 79.3

ASSEMBLED BY: R. G. EMERSON	DATE: 05/09
CHECKED BY: M. K. BEARD	DATE: 07/09
DRAWN BY: EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY: VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM

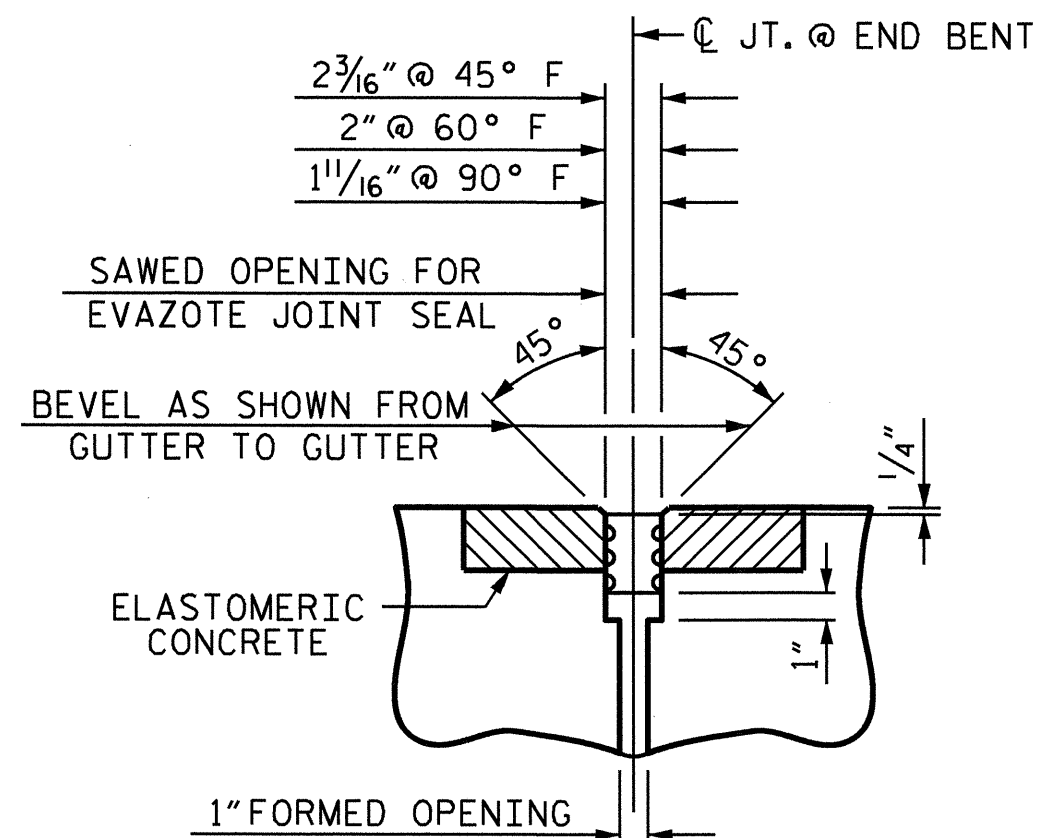
PROJECT NO. U-4007A
ONSLow COUNTY
STATION: 21+47.74 -L-

SHEET 2 OF 3

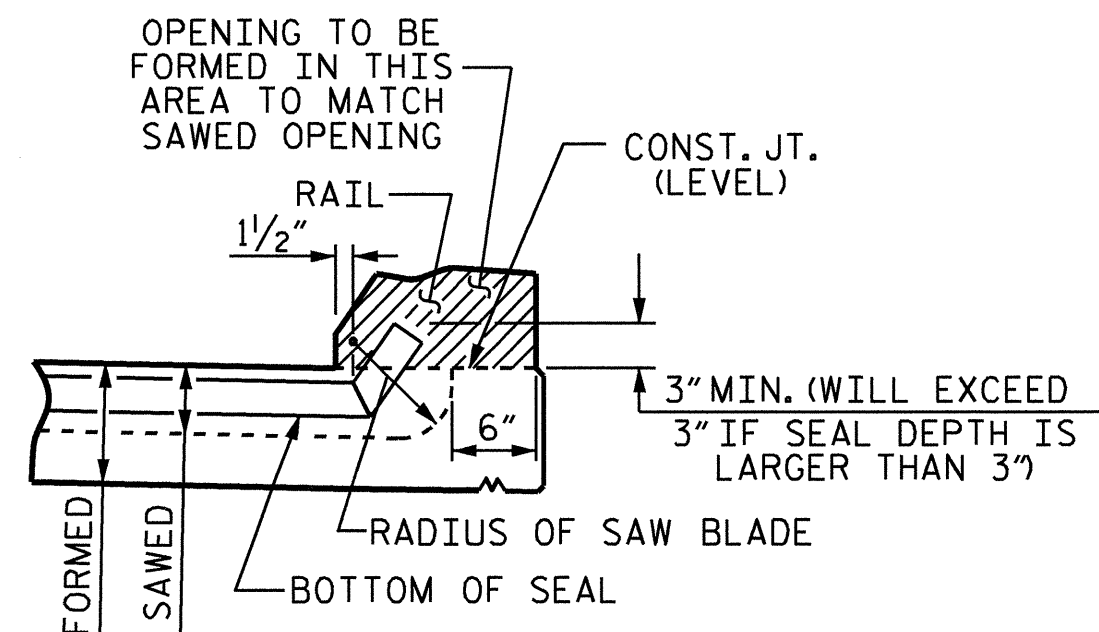
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO.
STANDARD BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT					S-31
REVISIONS					TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					32



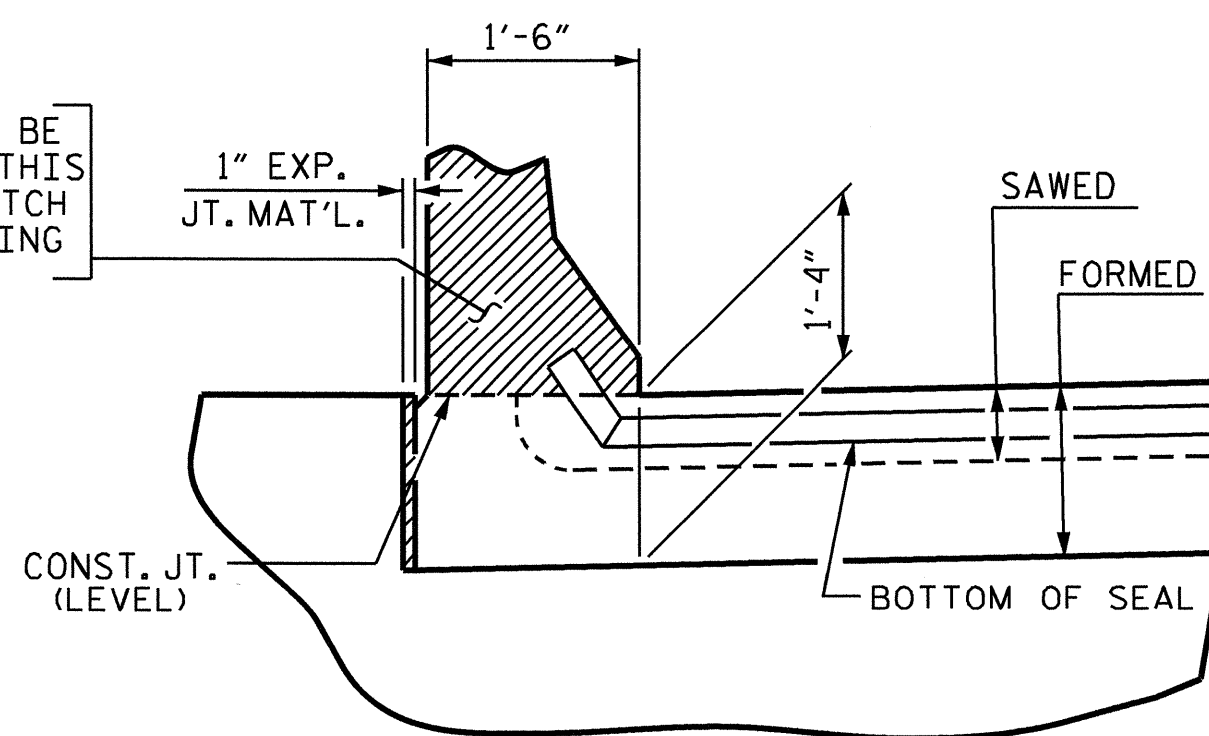
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



SECTION C-C
EVAZOTE JOINT SEAL
(EXPANSION AT END BENT #1
AND END BENT #2)



SECTION A-A

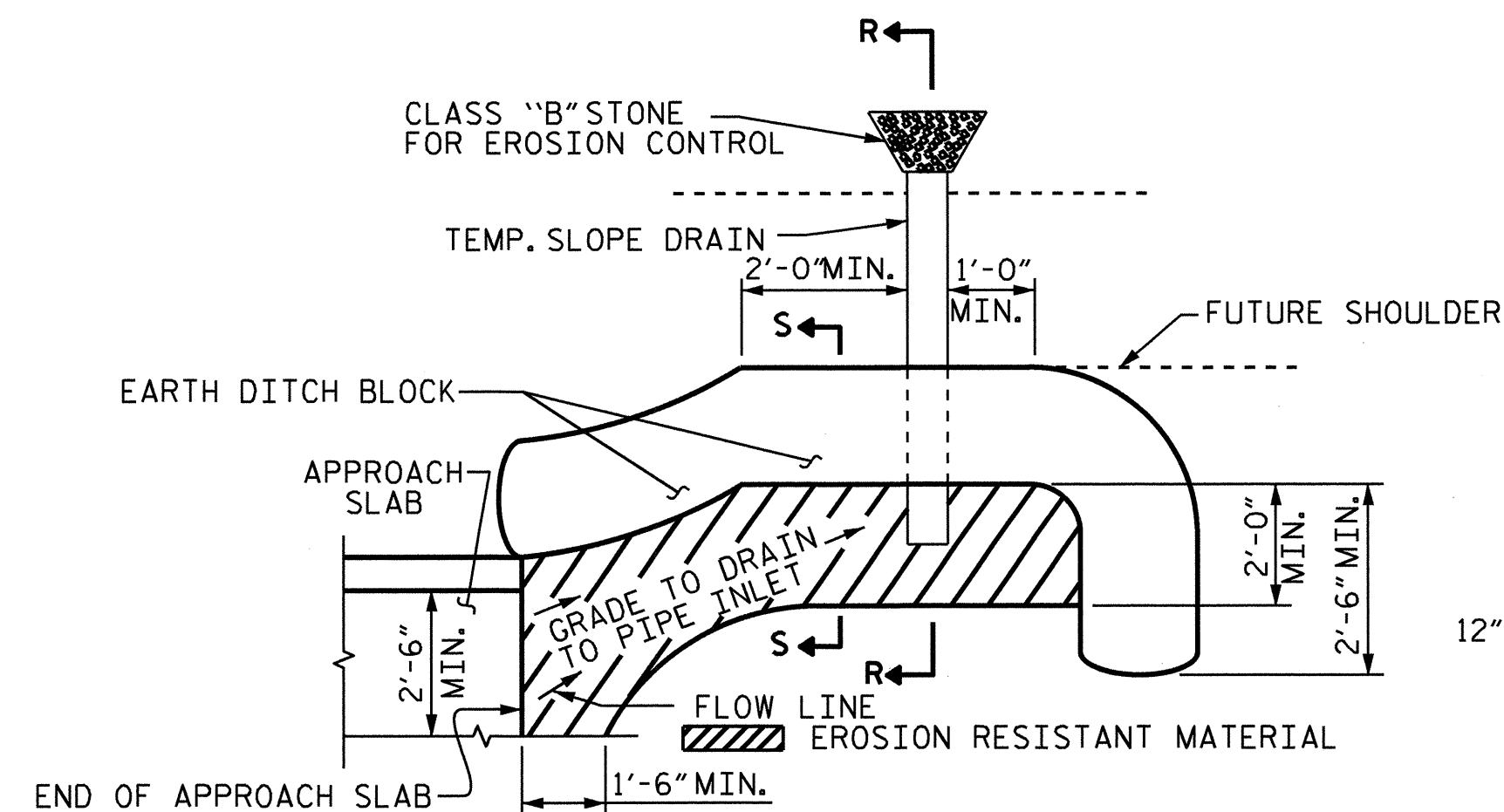


SECTION B-B

JOINT SEAL DETAILS @ END BENT

EVAZOTE 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.

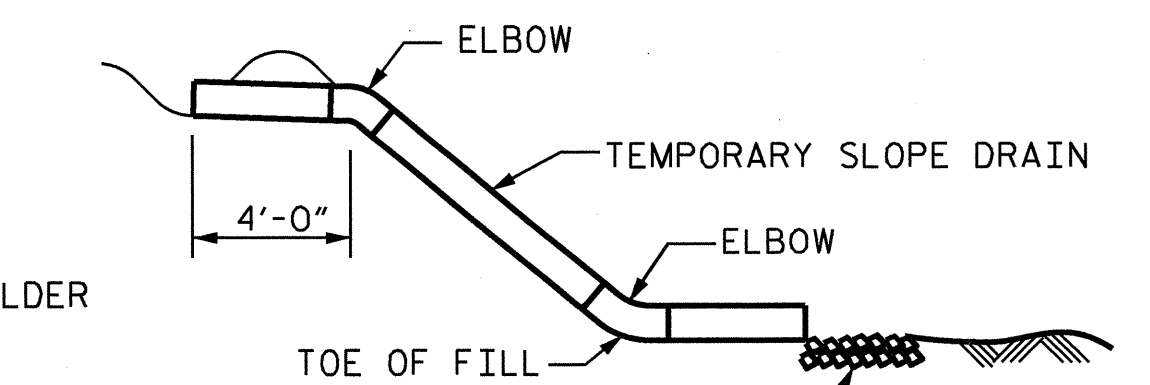


PLAN VIEW

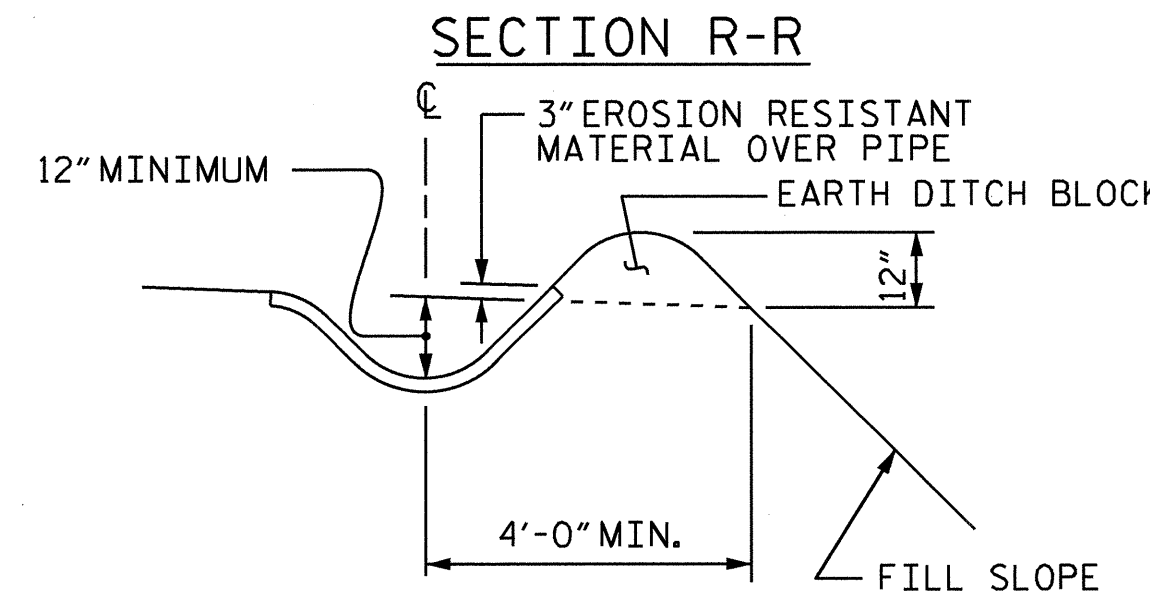
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

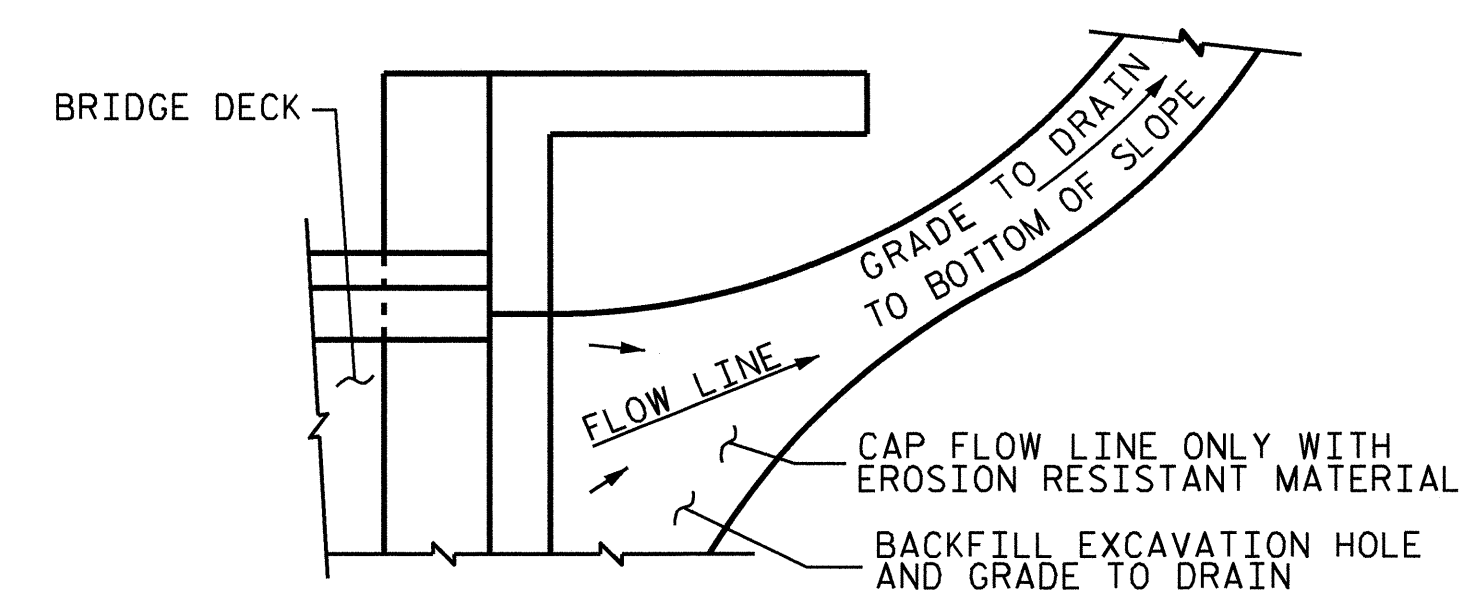
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION R-R



SECTION S-S



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

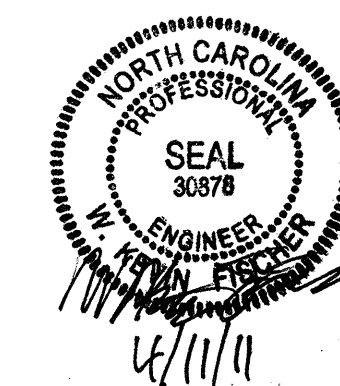
TEMPORARY DRAINAGE DETAIL

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	15.2
2	14.6
TOTAL	29.8

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

ASSEMBLED BY: R. G. EMERSON	DATE: 05/09
CHECKED BY: M. K. BEARD	DATE: 07/09
DRAWN BY: FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY: ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

06-APR-2011 13:40
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klayne



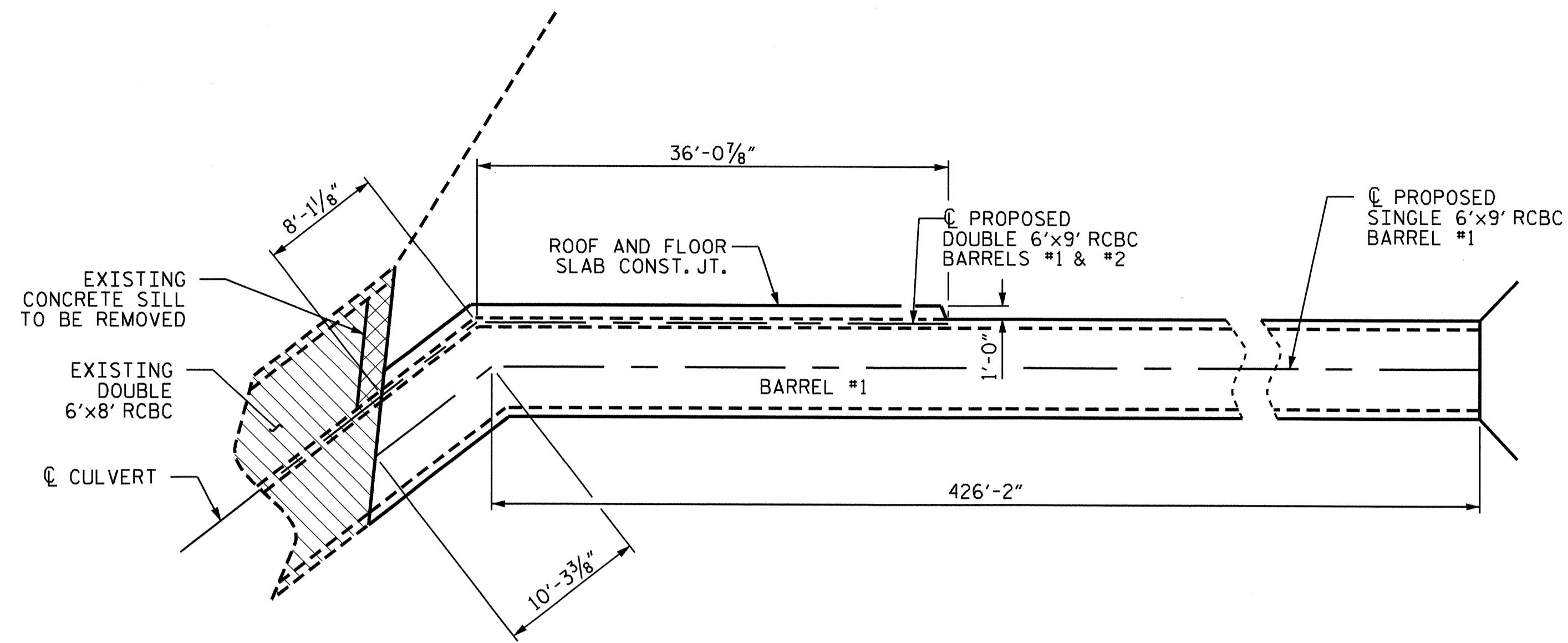
PROJECT NO. U-4007A
ONSLOW COUNTY
STATION: 21+47.74 -L-

SHEET 3 OF 3

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

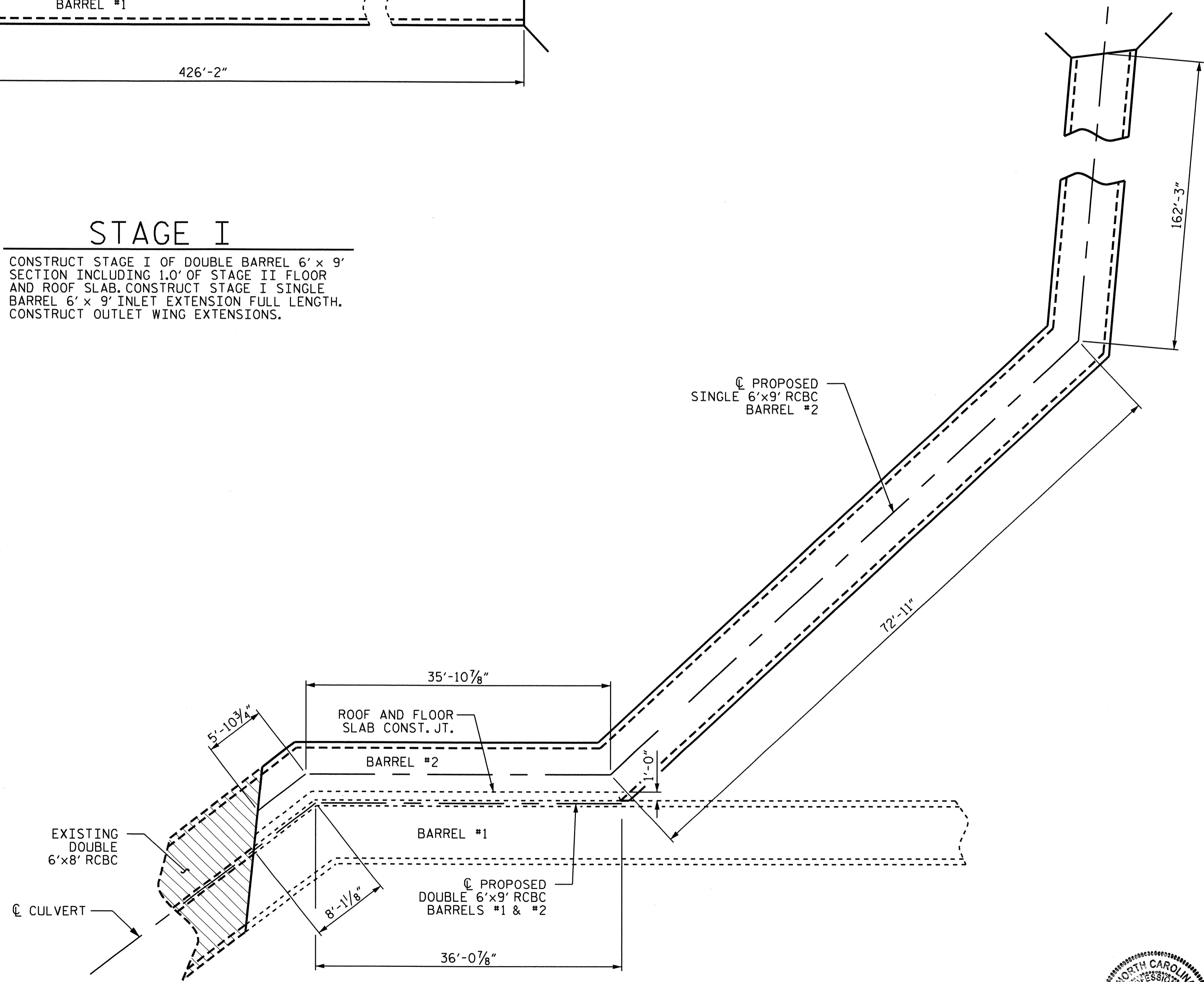
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			32

STD. NO. BAS10



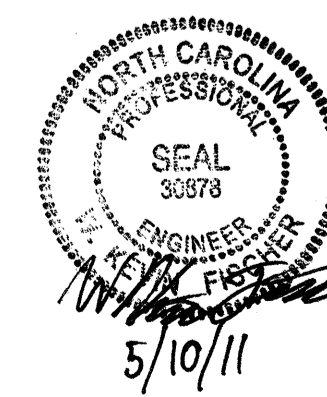
STAGE I

CONSTRUCT STAGE I OF DOUBLE BARREL 6' x 9' SECTION INCLUDING 1.0' OF STAGE II FLOOR AND ROOF SLAB. CONSTRUCT STAGE I SINGLE BARREL 6' x 9' INLET EXTENSION FULL LENGTH. CONSTRUCT OUTLET WING EXTENSIONS.



STAGE II

CONSTRUCT STAGE II OF DOUBLE BARREL 6' x 9' SECTION. CONSTRUCT STAGE II SINGLE BARREL 6' x 9' INLET EXTENSION FULL LENGTH.



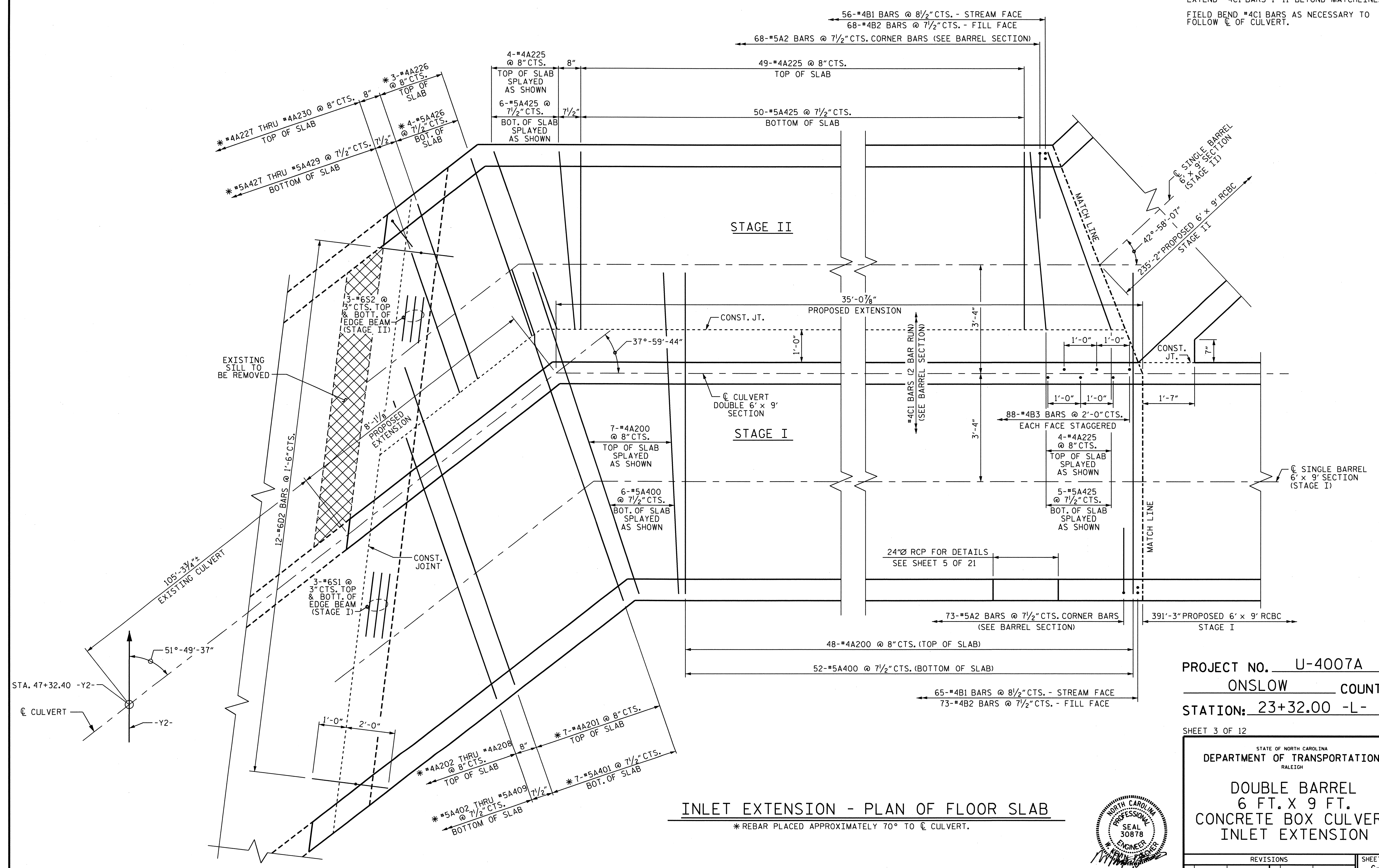
PROJECT NO. U-4007A
ONSLOW COUNTY
 STATION: 23+32.00 -L-

SHEET 2 OF 12

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
CONCRETE BOX CULVERT EXTENSION STAGING PLAN						C-2
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	21
1			3			
2			4			

DRAWN BY : W.K. FISCHER DATE : 4/1/11
 CHECKED BY : M.K. BEARD DATE : 4/4/11

EXTEND #4C1 BARS 1'-11" BEYOND MATCHLINE.
FIELD BEND #4C1 BARS AS NECESSARY TO FOLLOW C OF CULVERT.

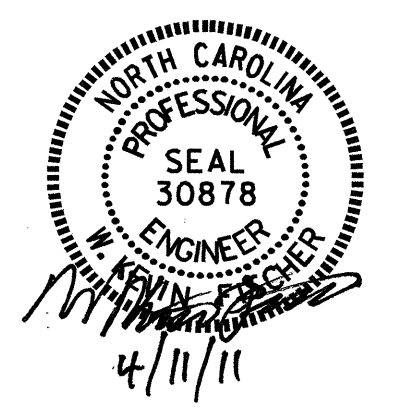


INLET EXTENSION - PLAN OF FLOOR SLAB
* REBAR PLACED APPROXIMATELY 70° TO C OF CULVERT.

PROJECT NO. U-4007A
ONSLow COUNTY
STATION: 23+32.00 -L-
SHEET 3 OF 12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

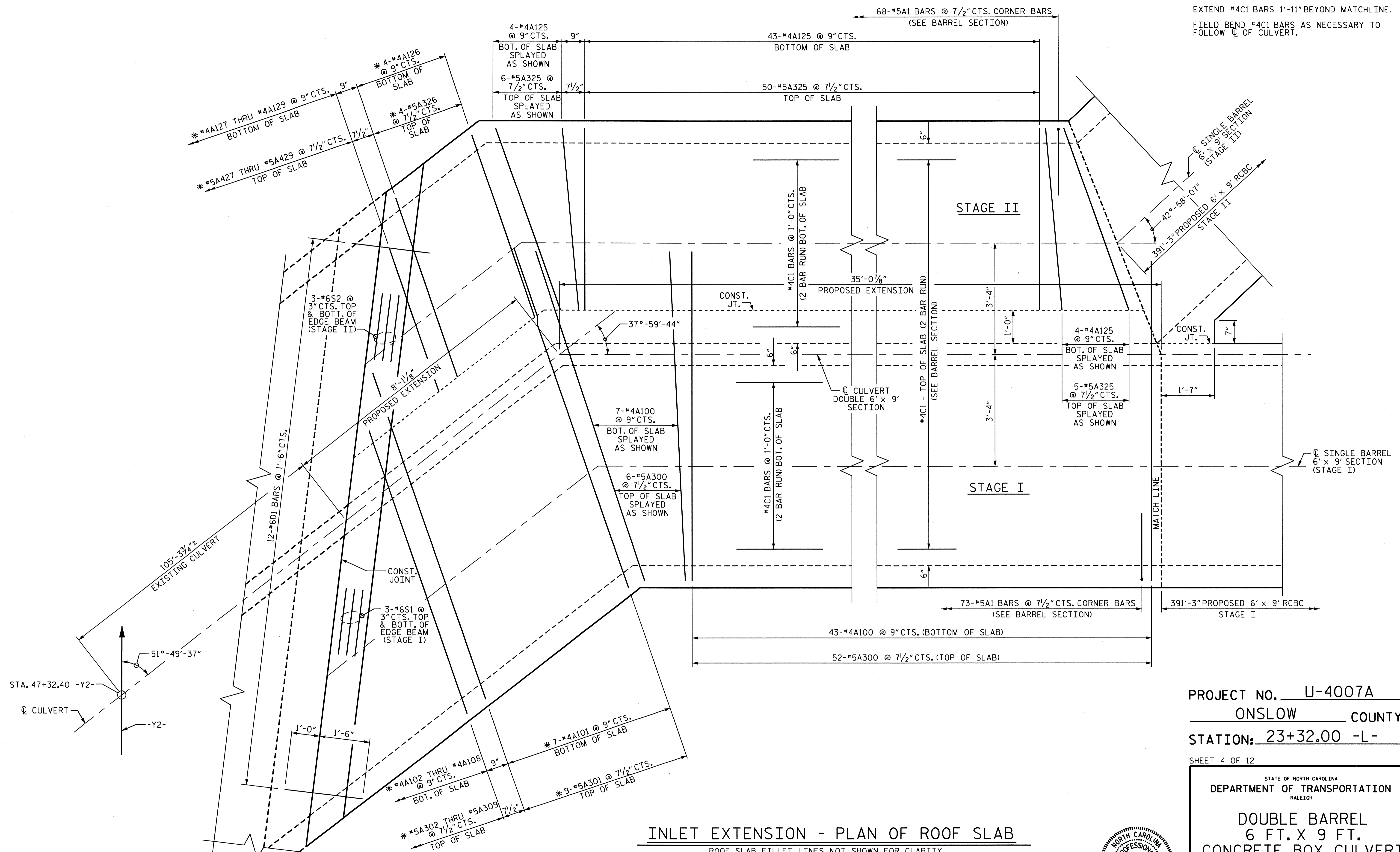
**DOUBLE BARREL
6 FT. X 9 FT.
CONCRETE BOX CULVERT
INLET EXTENSION**



DRAWN BY: KEITH D. LAYNE DATE: 12/02/10
CHECKED BY: M. K. BEARD DATE: 2/14/11

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

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wk fischer



EXTEND #4C1 BARS 1'-11" BEYOND MATCHLINE.
FIELD BEND #4C1 BARS AS NECESSARY TO FOLLOW C OF CULVERT.

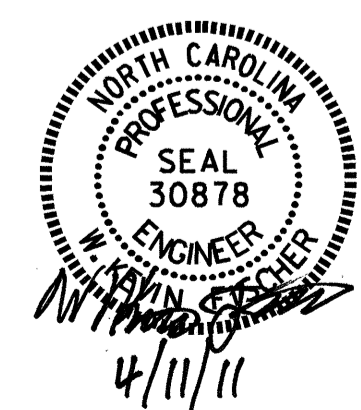
INLET EXTENSION - PLAN OF ROOF SLAB

ROOF SLAB FILLET LINES NOT SHOWN FOR CLARITY
* REBAR PLACED APPROXIMATELY 70° TO C OF CULVERT.

PROJECT NO. U-4007A
ONSLOW COUNTY
STATION: 23+32.00 -L-

SHEET 4 OF 12

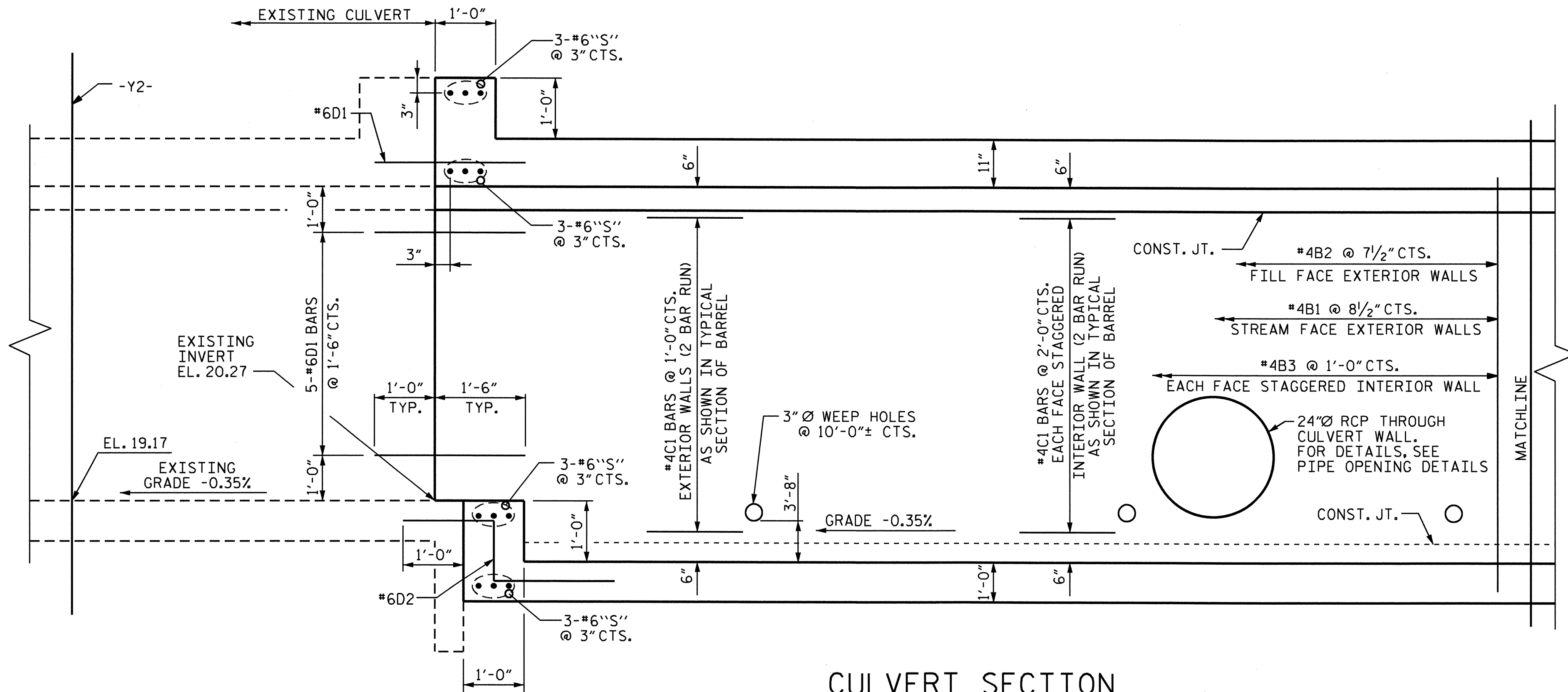
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**DOUBLE BARREL
6 FT. X 9 FT.
CONCRETE BOX CULVERT
INLET EXTENSION**



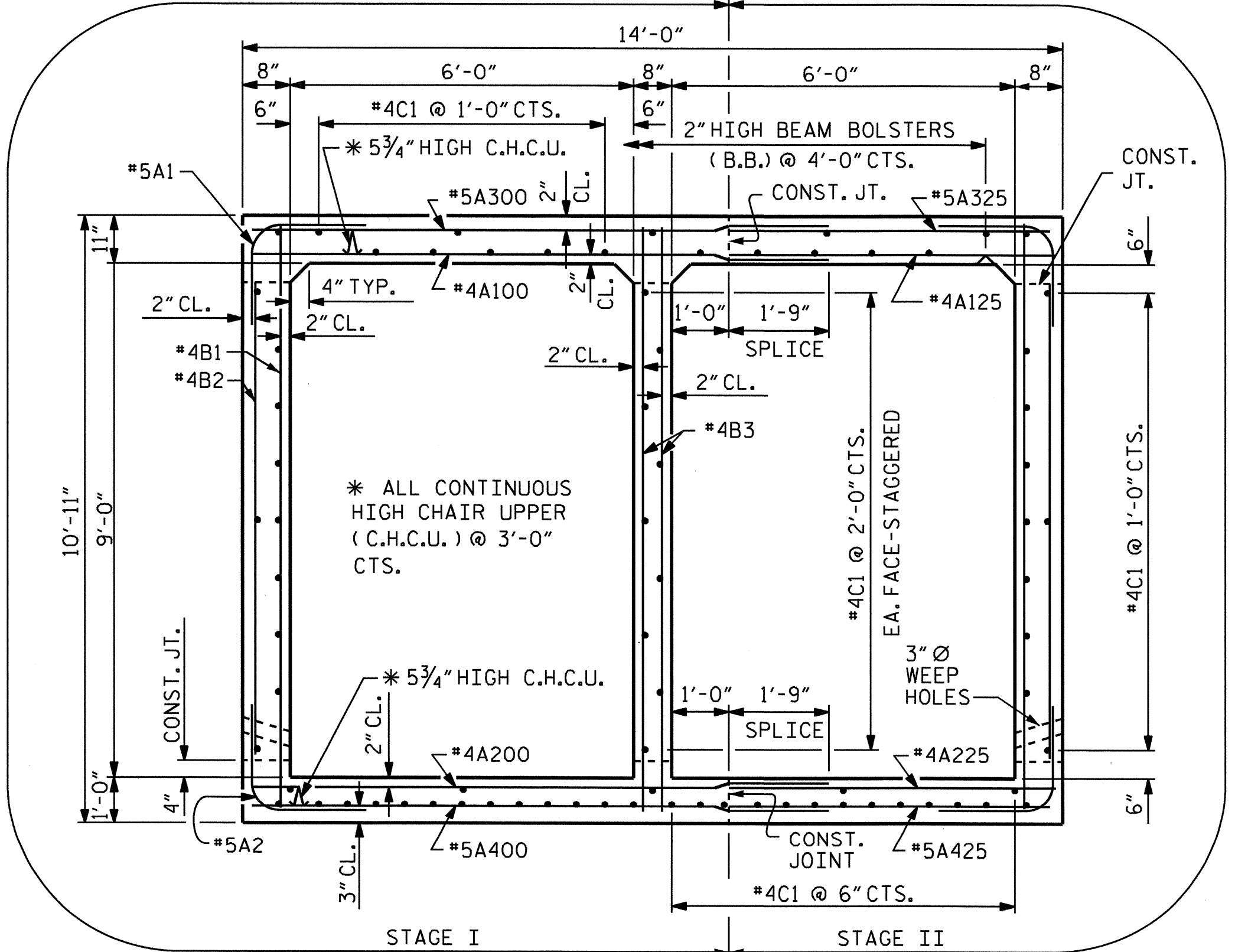
DRAWN BY: KEITH D. LAYNE DATE: 12/02/10
CHECKED BY: M. K. BEARD DATE: 2/14/11

11-APR-2011 16:27
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wk.fischer

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



CULVERT SECTION



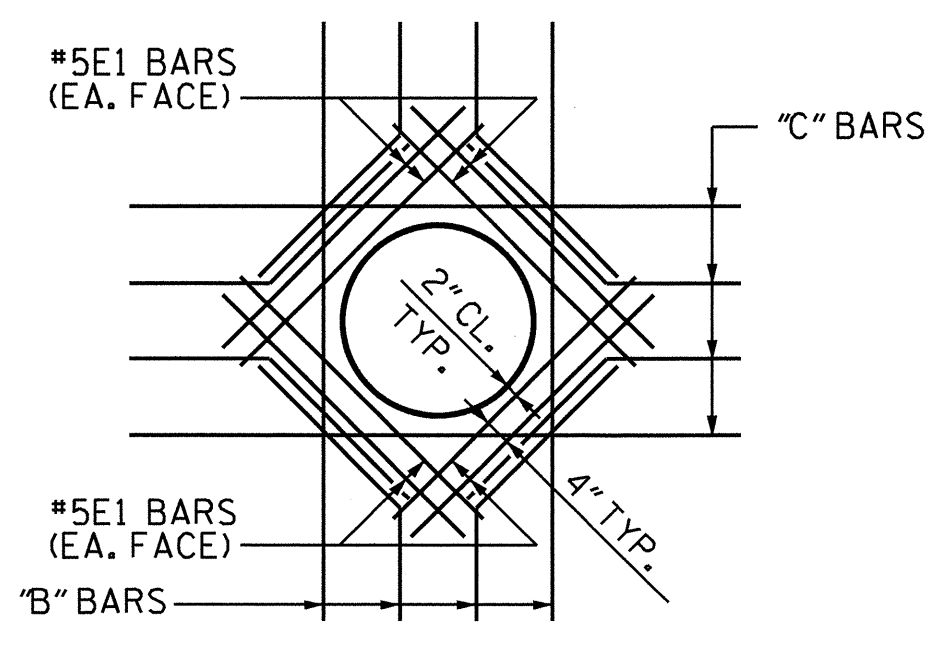
RIGHT ANGLE SECTION OF BARREL

THERE ARE 77 "C" BARS IN SECTION OF BARREL.
(LOOKING DOWNSTREAM)

BAR TYPE		REINFORCING STEEL									
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A100	43	#4	STR.	9'-10"	282	A325	61	#5	STR.	5'-5"	344
A101	7	#4	STR.	10'-5"	49	A326	4	#5	STR.	5'-9"	24
A102	1	#4	STR.	10'-2"	7	A327	1	#5	STR.	5'-3"	5
A103	1	#4	STR.	8'-10"	6	A328	1	#5	STR.	4'-2"	4
A104	1	#4	STR.	7'-7"	5	A329	1	#5	STR.	3'-2"	3
A105	1	#4	STR.	6'-3"	4						
A106	1	#4	STR.	5'-0"	3	A400	58	#5	STR.	9'-10"	595
A107	1	#4	STR.	3'-9"	3	A401	7	#5	STR.	10'-4"	75
A108	1	#4	STR.	2'-5"	2	A402	1	#5	STR.	10'-2"	11
						A403	1	#5	STR.	9'-2"	10
A125	51	#4	STR.	5'-5"	185	A404	1	#5	STR.	8'-1"	8
A126	4	#4	STR.	5'-9"	15	A405	1	#5	STR.	7'-0"	7
A127	1	#4	STR.	5'-4"	4	A406	1	#5	STR.	5'-11"	6
A128	1	#4	STR.	4'-1"	3	A407	1	#5	STR.	4'-10"	5
A129	1	#4	STR.	2'-10"	2	A408	1	#5	STR.	3'-10"	4
						A409	1	#5	STR.	2'-9"	3
A200	55	#4	STR.	9'-11"	364	A425	61	#5	STR.	5'-5"	344
A201	7	#4	STR.	10'-5"	49	A426	4	#5	STR.	5'-9"	24
A202	1	#4	STR.	9'-8"	6	A427	1	#5	STR.	4'-10"	5
A203	1	#4	STR.	8'-6"	6	A428	1	#5	STR.	3'-9"	4
A204	1	#4	STR.	7'-5"	5	A429	1	#5	STR.	2'-8"	3
A205	1	#4	STR.	6'-3"	4						
A206	1	#4	STR.	5'-1"	3						
A207	1	#4	STR.	4'-0"	3	A1	141	#5	6	4'-8"	686
A208	1	#4	STR.	2'-10"	2	A2	141	#5	6	4'-8"	686
A225	57	#4	STR.	5'-5"	206	B1	121	#4	STR.	10'-5"	842
A226	3	#4	STR.	5'-9"	12	B2	141	#4	STR.	8'-4"	785
A227	1	#4	STR.	5'-8"	4	B3	88	#4	STR.	10'-5"	612
A228	1	#4	STR.	4'-6"	3						
A229	1	#4	STR.	3'-4"	2	C1	154	#4	STR.	24'-11"	2,563
A230	1	#4	STR.	2'-3"	2						
						D1	22	#6	STR.	2'-6"	83
A300	58	#5	STR.	9'-10"	595	D2	12	#6	7	4'-0"	72
A301	7	#5	STR.	10'-4"	75						
A302	1	#5	STR.	9'-7"	10	E1	16	#5	STR.	4'-7"	76
A303	1	#5	STR.	8'-6"	9						
A304	1	#5	STR.	7'-6"	8	S1	12	#6	STR.	13'-4"	240
A305	1	#5	STR.	6'-5"	7	S2	12	#6	STR.	7'-9"	140
A306	1	#5	STR.	5'-4"	6						
A307	1	#5	STR.	4'-3"	4						
A308	1	#5	STR.	3'-2"	3						
A309	1	#5	STR.	2'-2"	2						
TOTAL (LBS.) = 10,229											

SPLICE LENGTHS CHART

BAR	SIZE	SPLICE LENGTH
A100	#4	1' - 9"
A200	#4	1' - 9"
A300	#5	1' - 9"
A400	#5	1' - 9"
B1	#4	1' - 9"
B3	#4	1' - 9"
C1	#4	1' - 11"
S1	#6	1' - 9"



PIPE OPENING DETAILS

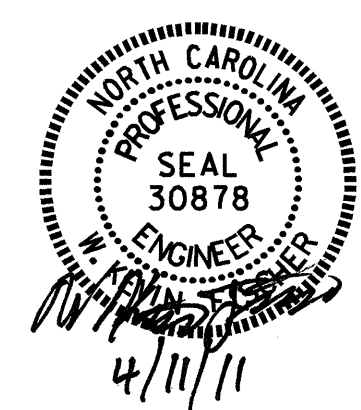
NOTE:-THE 24" CSP THROUGH WING WALL OF THE CULVERT WILL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL WILL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.

PROJECT NO. U-4007A
ONSLow COUNTY
 STATION: 23+32.00 -L-

SHEET 5 OF 12

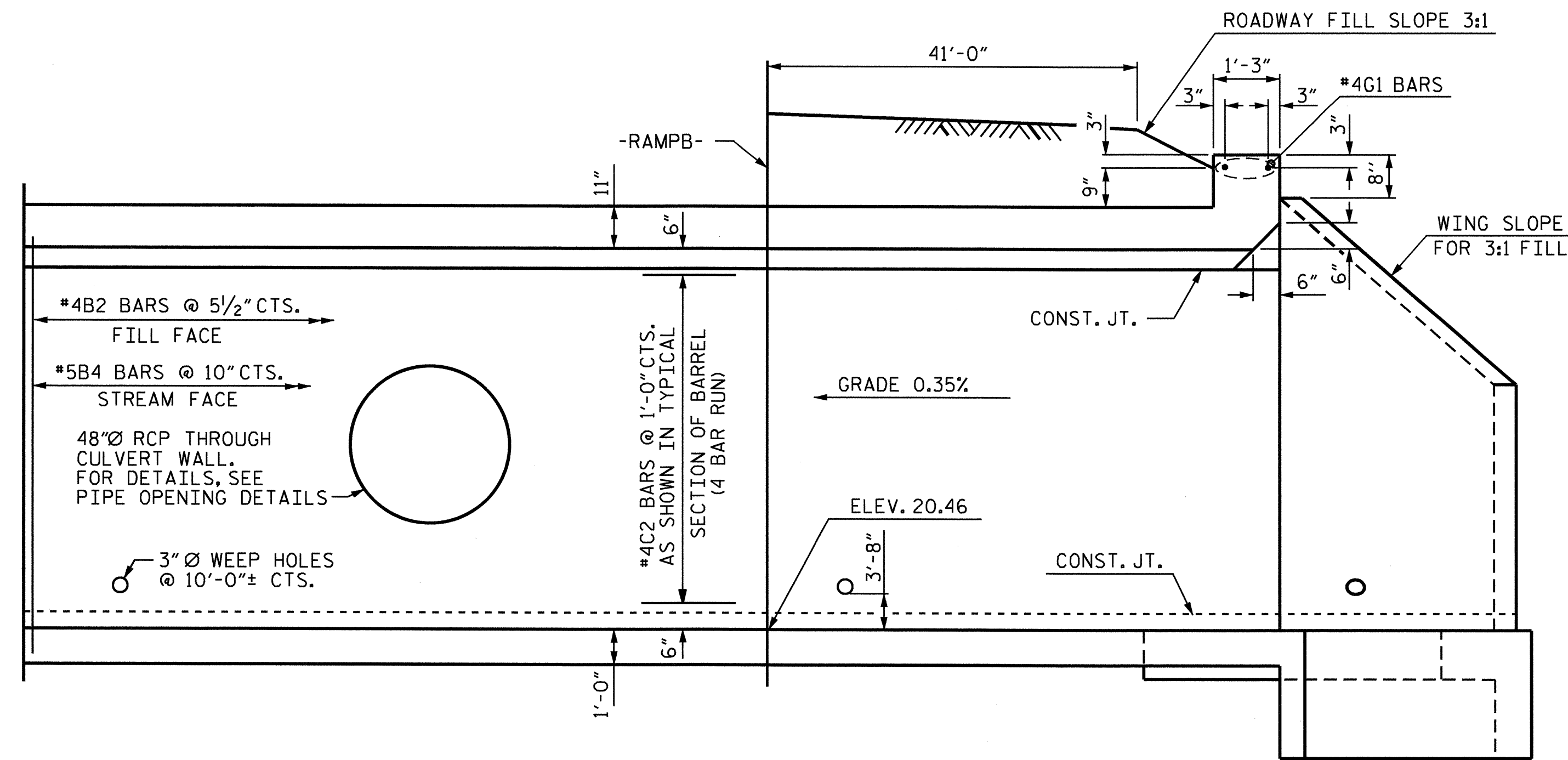
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DOUBLE BARREL
 6 FT. X 9 FT.
 CONCRETE BOX CULVERT
 INLET EXTENSION**

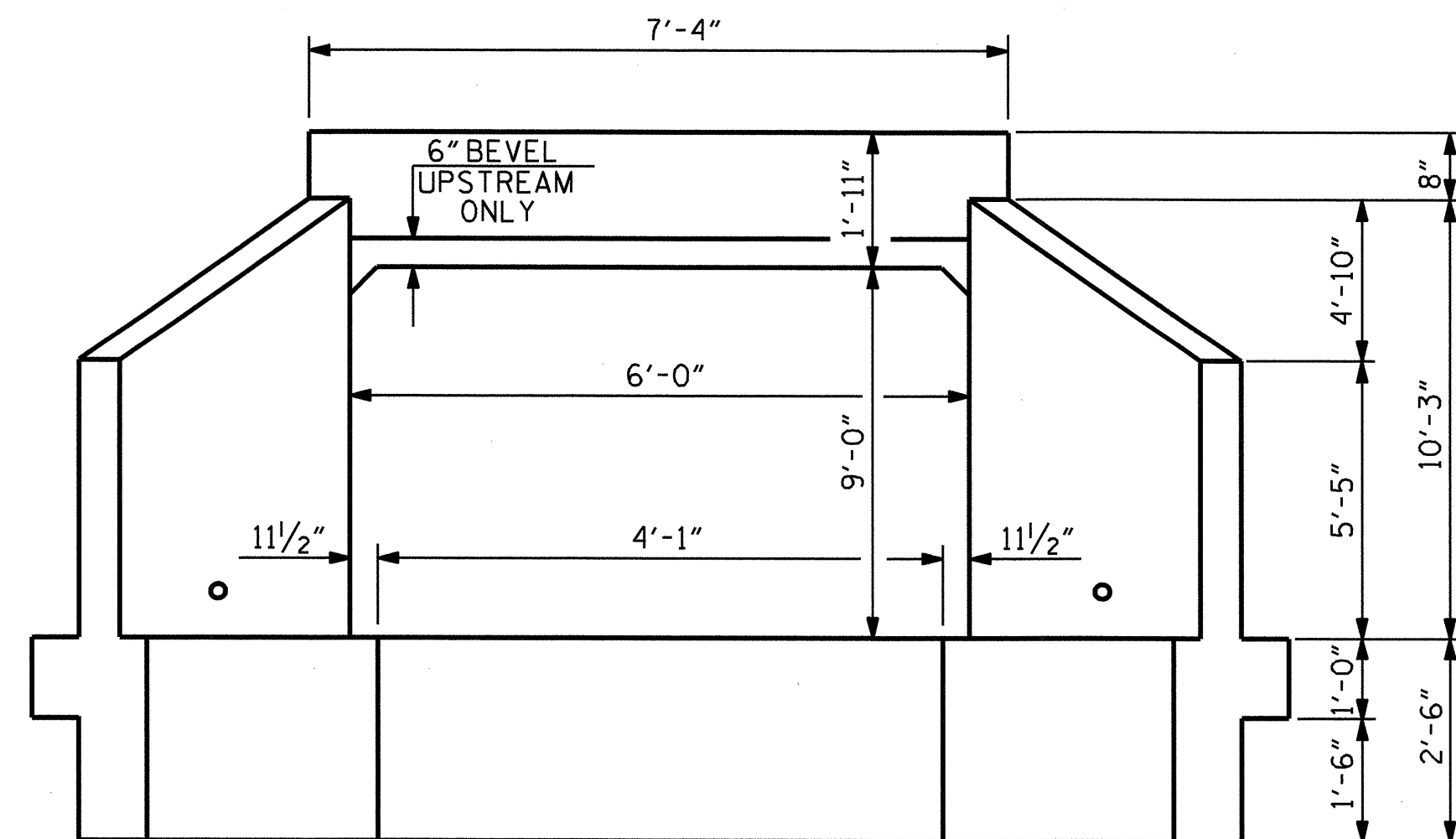


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			21

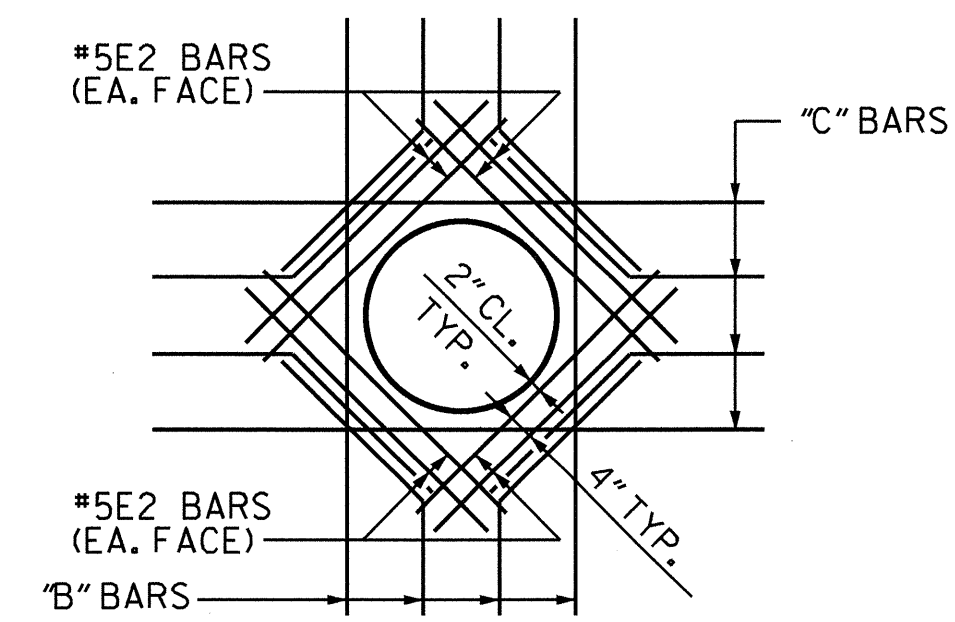
DRAWN BY: KEITH D. LAYNE DATE: 12/02/10
 CHECKED BY: M. K. BEARD DATE: 2/14/11



CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



PIPE OPENING DETAILS

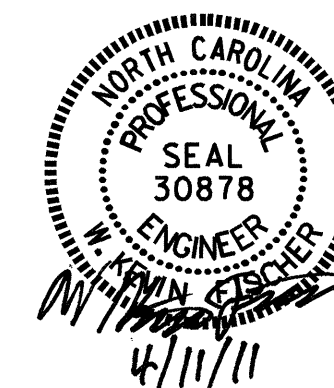
NOTE:-THE 48"Ø CSP THROUGH WING WALL OF THE CULVERT WILL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL WILL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.

AFTER SERVING AS TEMPORARY DIVERSION PIPE, THE 48"Ø PIPE EXTENDING INTO THE CULVERT WILL REMAIN IN PLACE AND BE PLUGGED WITH GROUT. THE COST OF THE GROUT WILL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

PROJECT NO. U-4007A
ONSLOW COUNTY
 STATION: 23+32.00 -L-

SHEET 7 OF 12

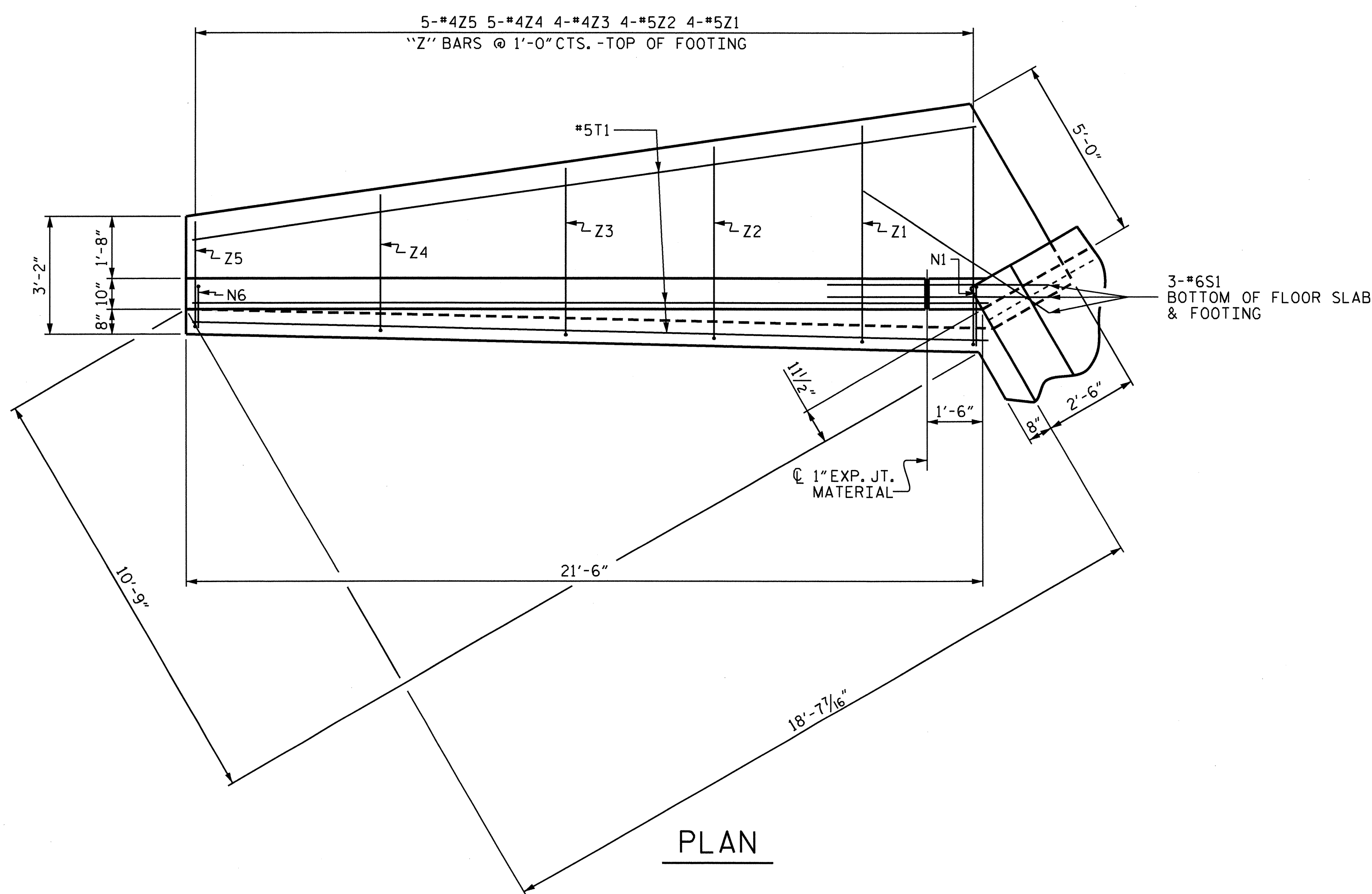
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE BARREL
 6 FT. X 9 FT.
 CONCRETE BOX CULVERT
 INLET EXTENSION
 STAGE I



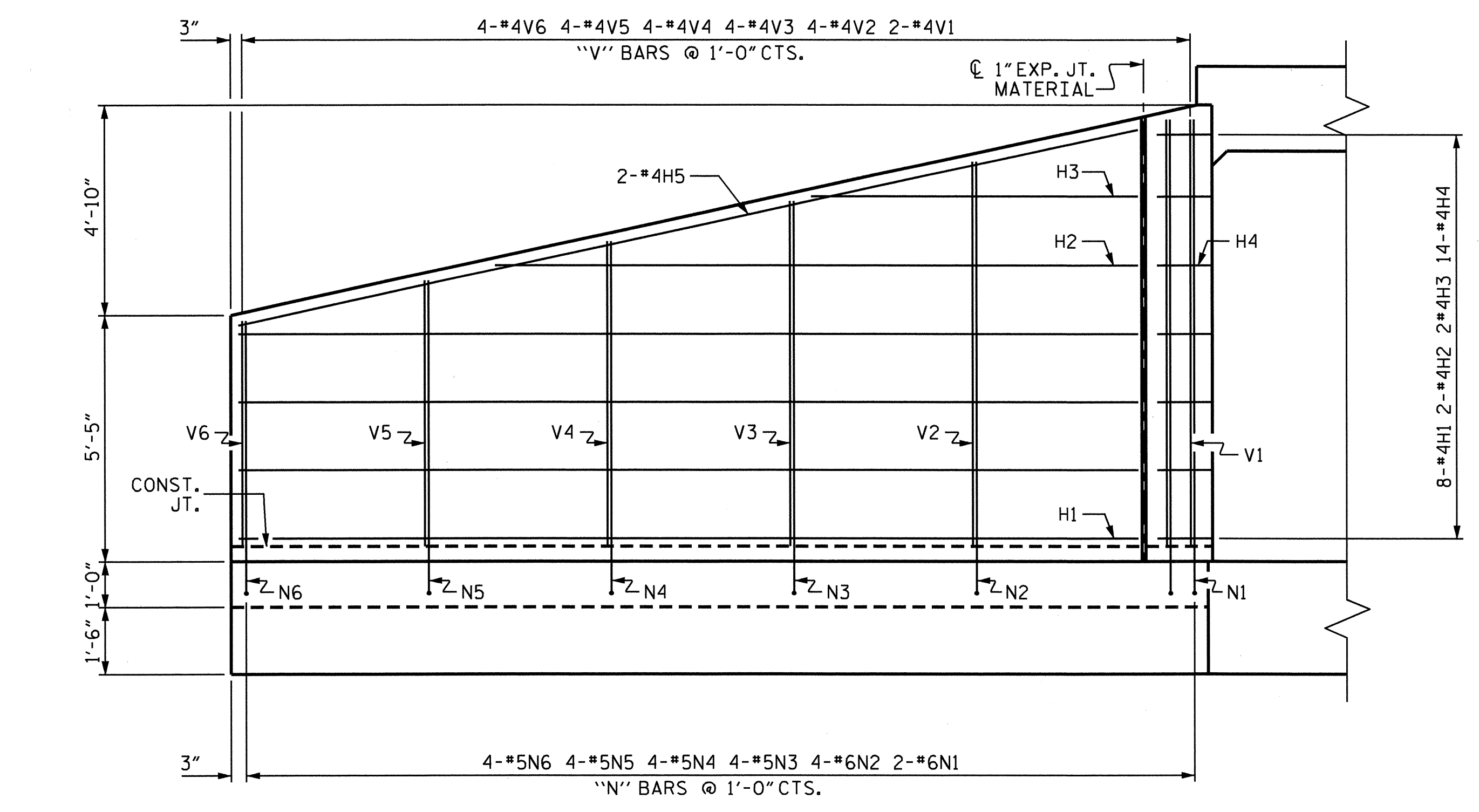
DRAWN BY : KEITH D. LAYNE DATE : 12/02/10
 CHECKED BY : M. K. BEARD DATE : 2/14/11

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 klayne

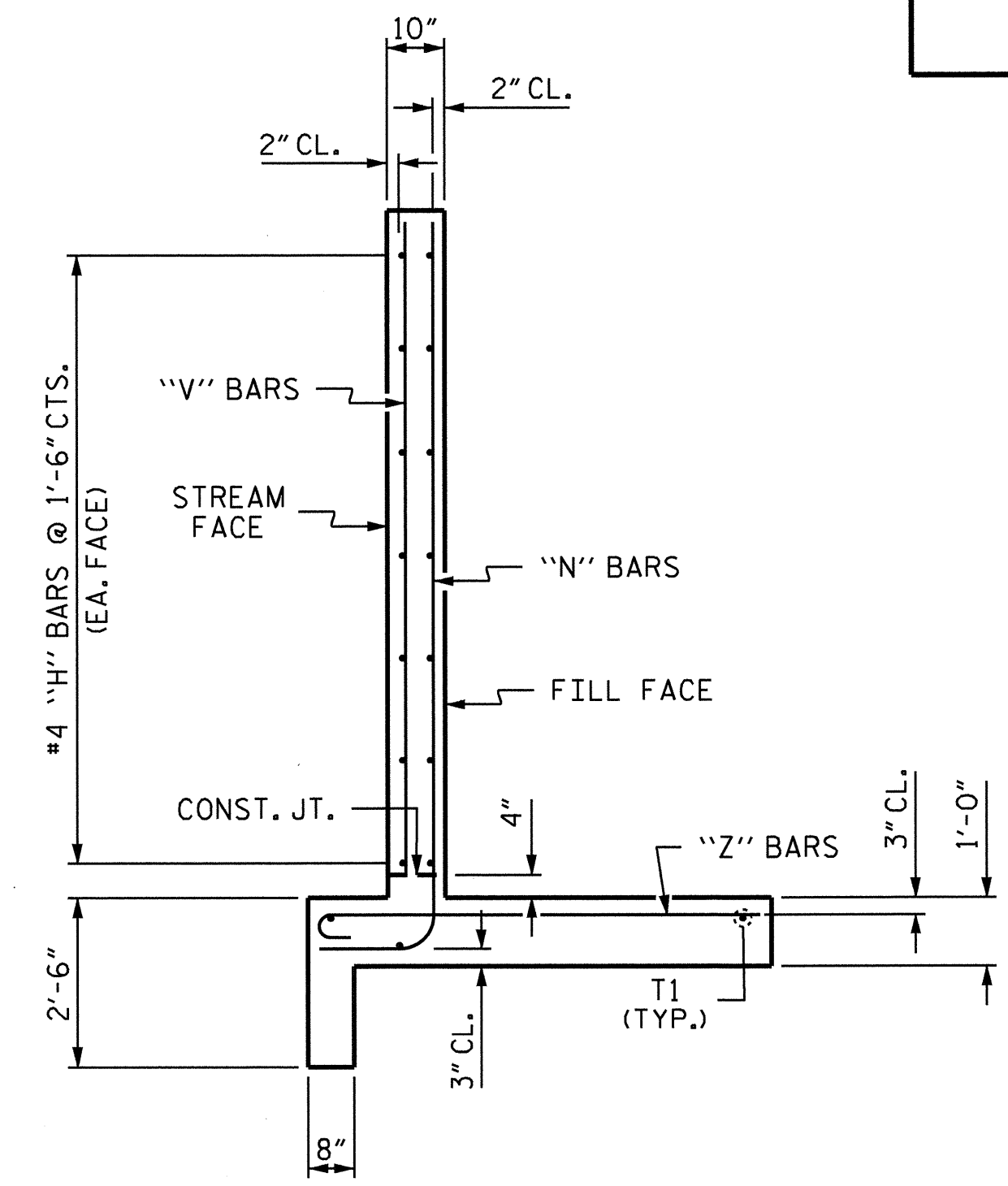
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NO.	BY:	DATE:	NO.	BY:	DATE:	C-7
1			3			TOTAL SHEETS
2			4			21



PLAN



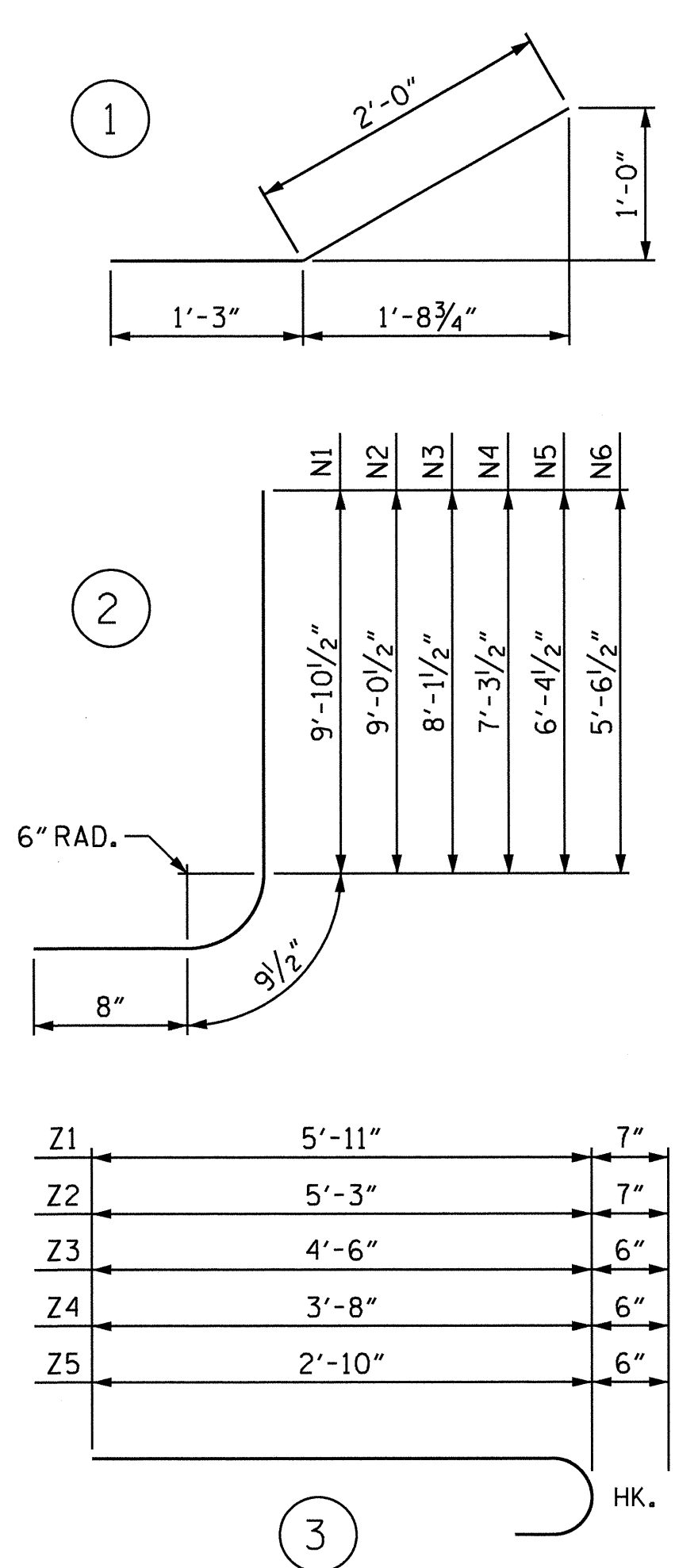
ELEVATION



TYPICAL WING SECTION

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

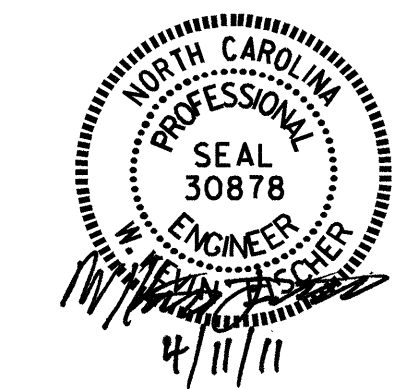
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	19'-8"	210
H2	4	#4	STR	14'-1"	38
H3	4	#4	STR	7'-2"	19
H4	28	#4	1	3'-3"	61
H5	4	#4	STR	20'-2"	54
N1	4	#6	2	11'-4"	68
N2	8	#6	2	10'-6"	126
N3	8	#5	2	9'-7"	80
N4	8	#5	2	8'-9"	73
N5	8	#5	2	7'-10"	65
N6	8	#5	2	7'-0"	58
S1	6	#6	STR	6'-0"	54
T1	6	#5	STR	21'-6"	135
V1	4	#4	STR	9'-4"	25
V2	8	#4	STR	8'-5"	45
V3	8	#4	STR	7'-6"	40
V4	8	#4	STR	6'-8"	36
V5	8	#4	STR	5'-10"	31
V6	8	#4	STR	4'-11"	26
Z1	8	#5	3	6'-6"	54
Z2	8	#5	3	5'-10"	49
Z3	8	#4	3	5'-0"	27
Z4	10	#4	3	4'-2"	28
Z5	10	#4	3	3'-4"	22

REINFORCING STEEL FOR 2 WINGS 1,424 LBS

CLASS A CONCRETE
 2 WINGS 20.1 CY
 1 HEADWALL 0.3 CY
 1 END CURTAIN WALL 0.3 CY
 TOTAL 20.7 CY

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 DATE : 12/02/10
 DATE : 2/14/11

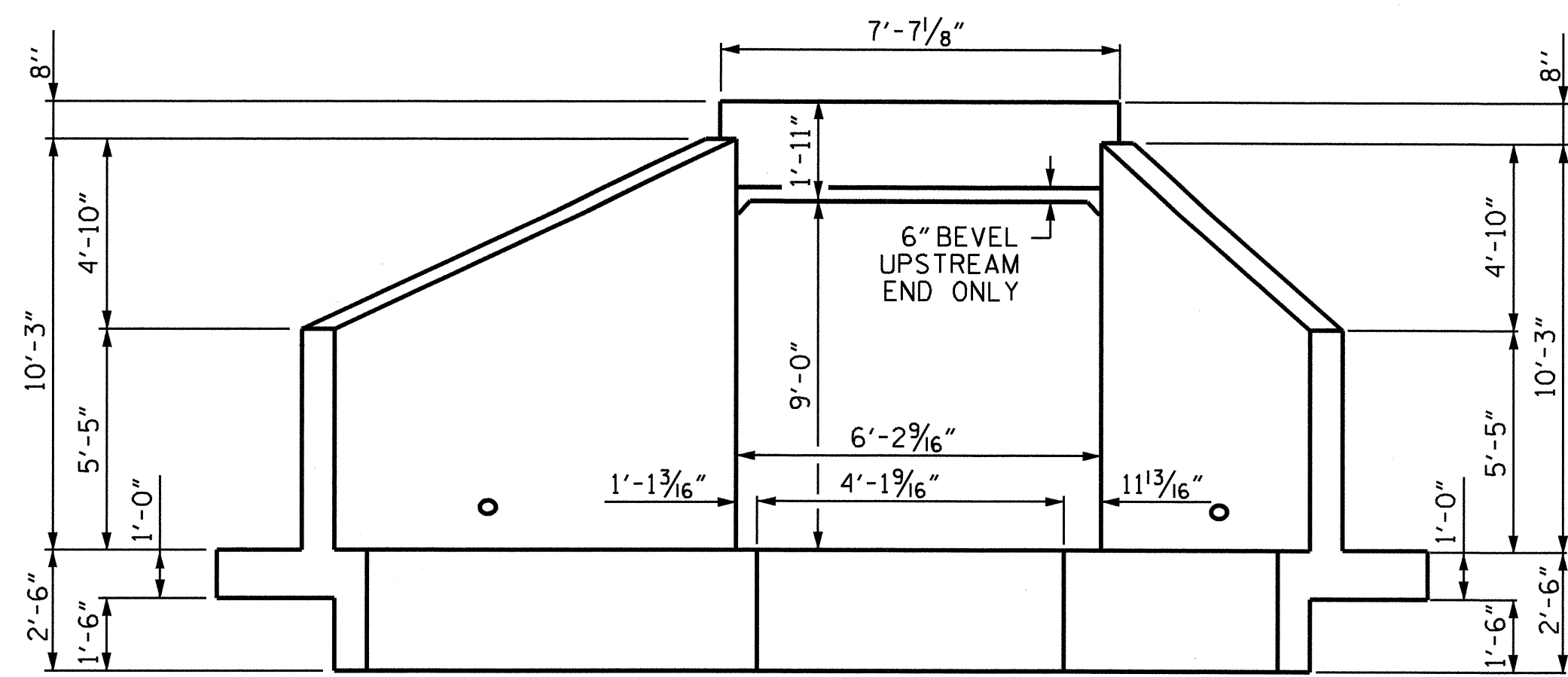
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 23+32.00 -L-
 SHEET 8 OF 12



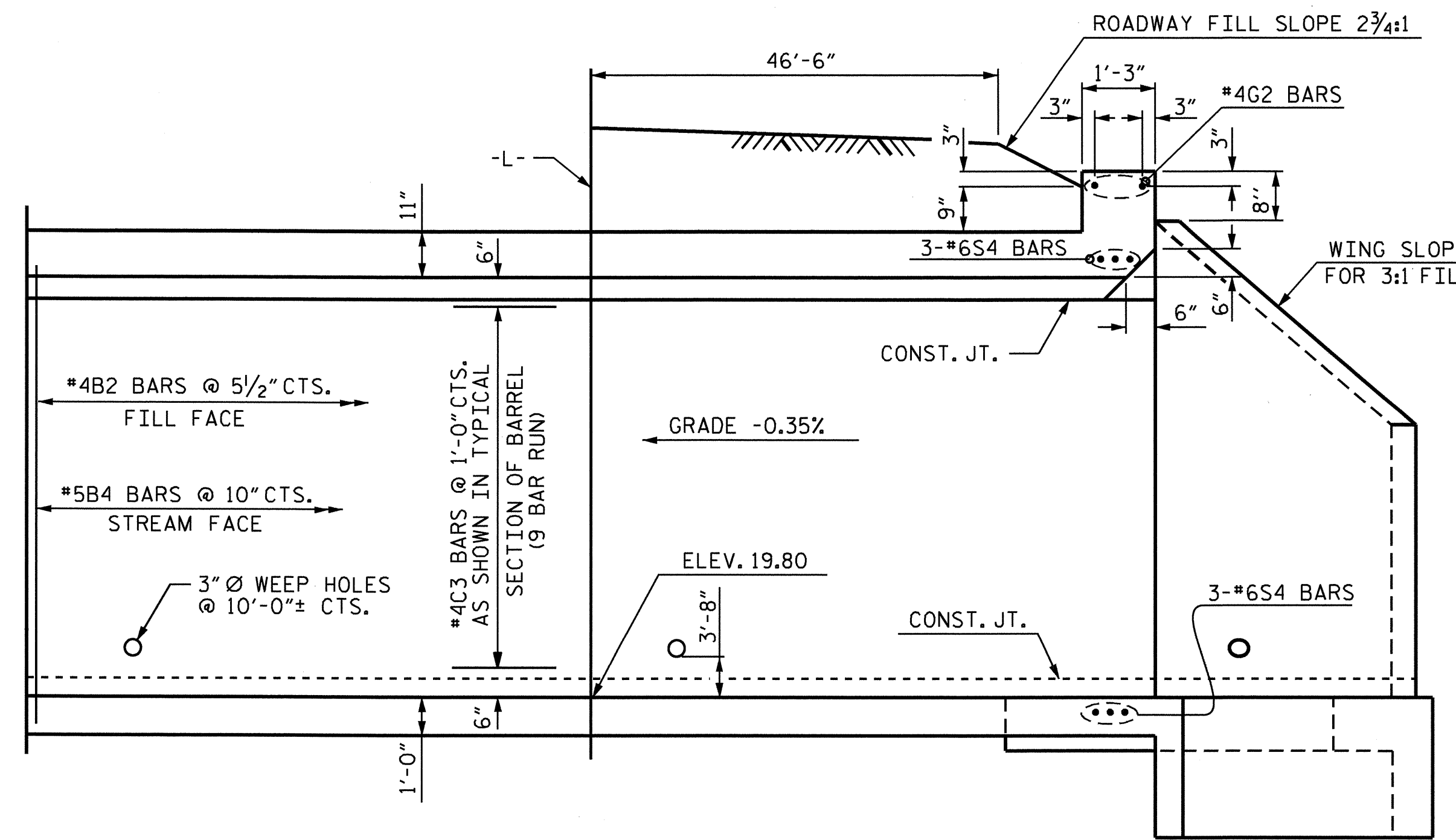
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

WINGS FOR CONCRETE BOX CULVERT
 H = 9'-0" SLOPE = 3:1
 90° SKEW

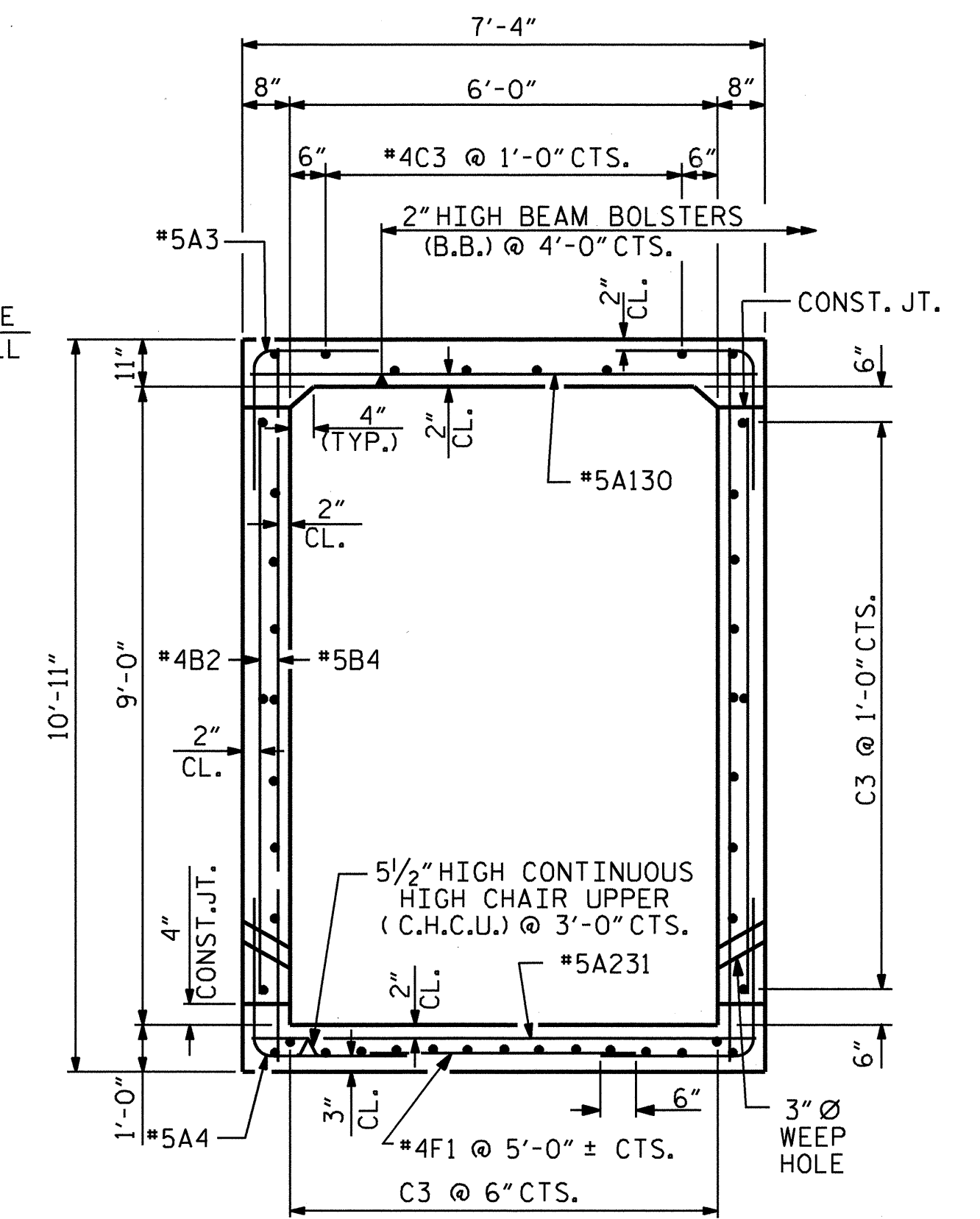
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-8
1			3			TOTAL SHEETS
2			4			21



END ELEVATION NORMAL TO SKEW

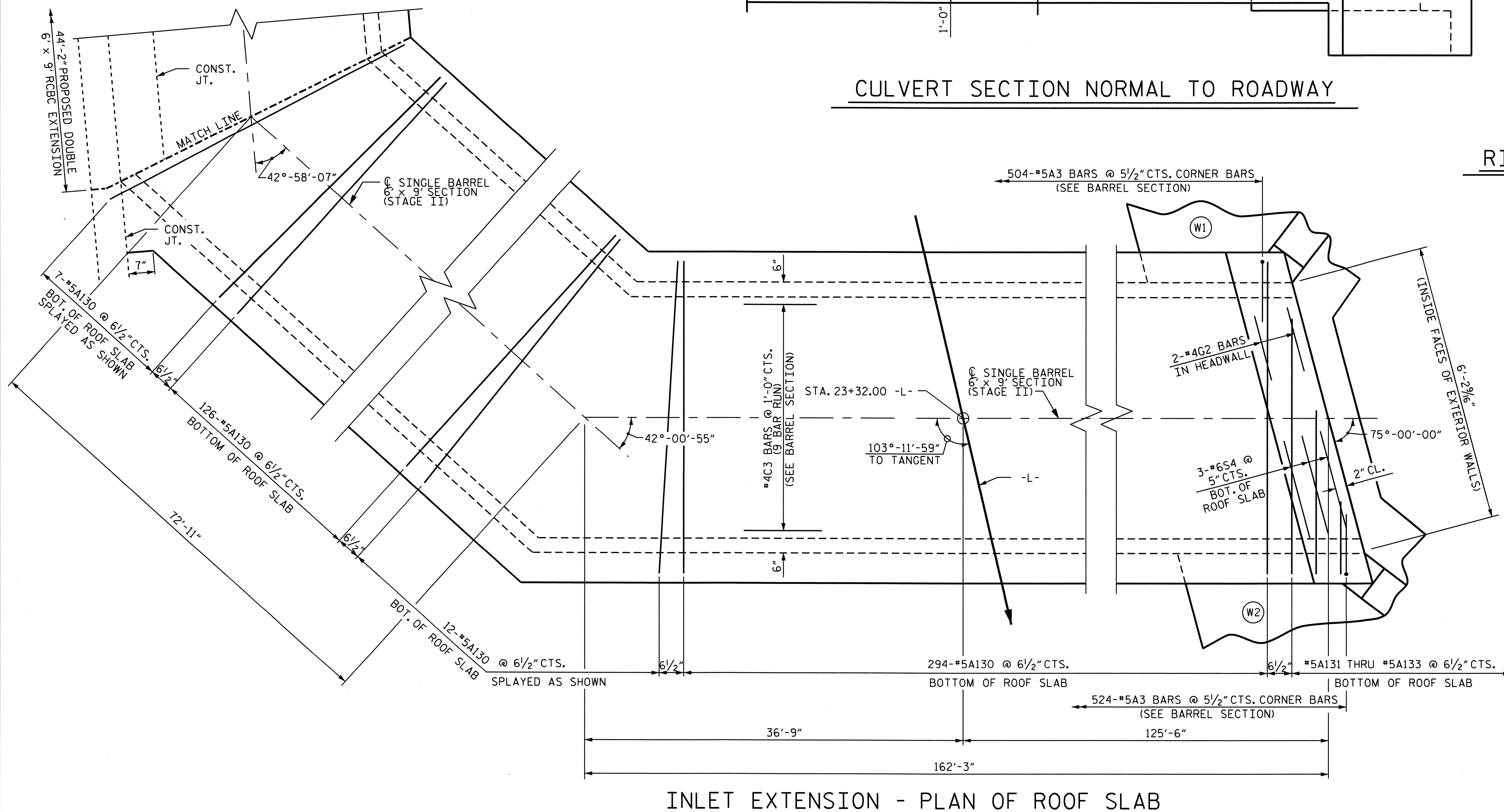


CULVERT SECTION NORMAL TO ROADWAY



RIGHT ANGLE SECTION OF BARREL

THERE ARE 44 "C" BARS IN SECTION OF BARREL



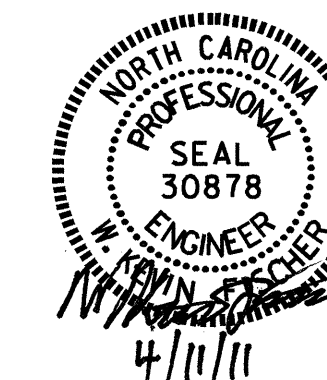
INLET EXTENSION - PLAN OF ROOF SLAB

STAGE II
(FIELD BEND #4C3 BARS)

PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 23+32.00 -L-

SHEET 9 OF 12

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE BARREL
 6 FT. X 9 FT.
 CONCRETE BOX CULVERT
 INLET EXTENSION
 STAGE II



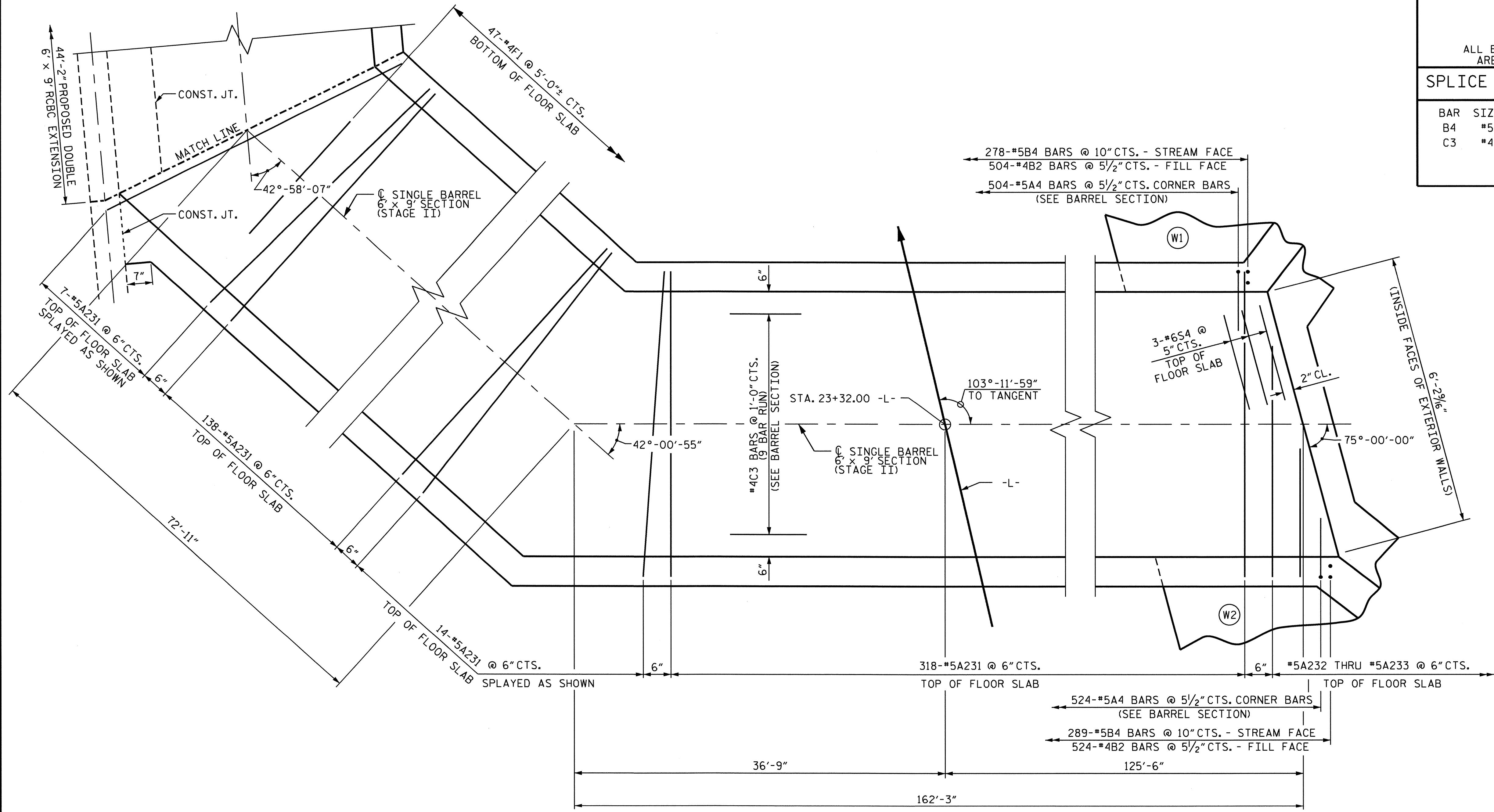
DRAWN BY: KEITH D. LAYNE DATE: 12/02/10
 CHECKED BY: M. K. BEARD DATE: 2/14/11

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

BAR TYPE		REINFORCING STEEL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
A130	439	#5	STR	6'-11"	3,167	
A131	1	#5	STR	5'-8"	6	
A132	1	#5	STR	3'-7"	4	
A133	1	#5	STR	1'-7"	2	
A231	477	#5	STR	6'-11"	3,441	
A232	1	#5	STR	5'-8"	6	
A233	1	#5	STR	3'-9"	4	
A3	1028	#5	6	5'-8"	6,076	
A4	1028	#5	6	5'-8"	6,076	
B2	1028	#4	STR	8'-4"	5,723	
B4	567	#5	STR	10'-5"	6,160	
C3	396	#4	STR	28'-4"	7,495	
TOTAL (LBS.)					38,342	

ALL BAR DIMENSIONS ARE OUT TO OUT

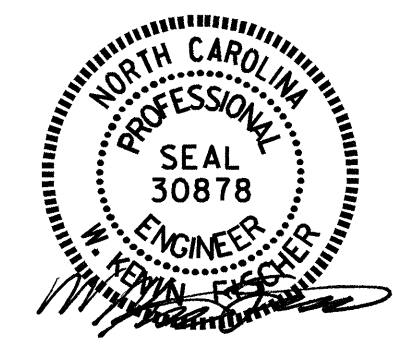
SPLICE LENGTHS CHART				
BAR	SIZE	SPLICE LENGTH		
B4	#5	1'-9"		
C3	#4	1'-11"		



INLET EXTENSION - PLAN OF FLOOR SLAB
 STAGE II
 (FIELD BEND #4C3 BARS)

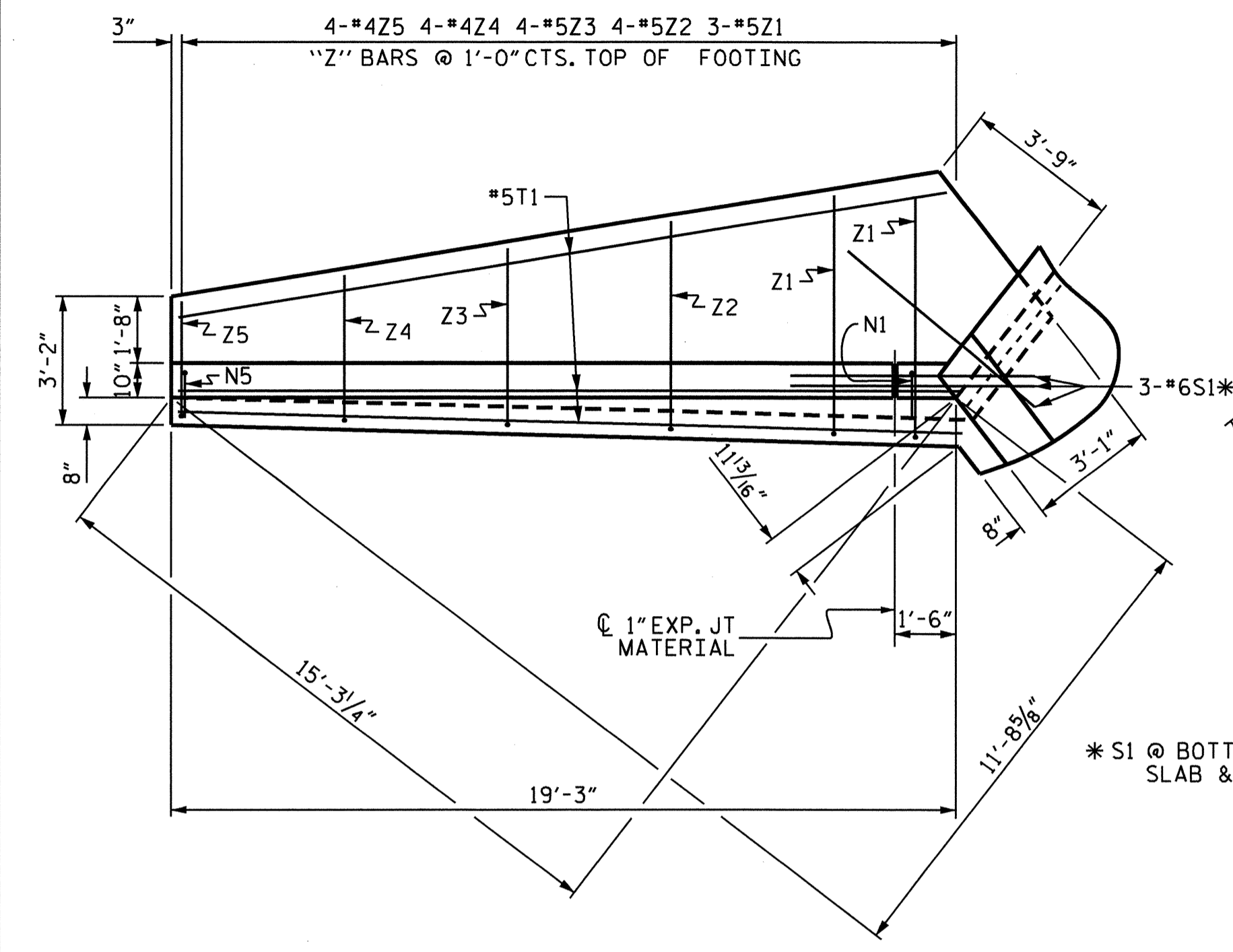
PROJECT NO. U-4007A
ONSLow COUNTY
 STATION: 23+32.00 -L-
 SHEET 10 OF 12

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SINGLE BARREL
 6 FT. X 9 FT.
 CONCRETE BOX CULVERT
 INLET EXTENSION
 STAGE II**

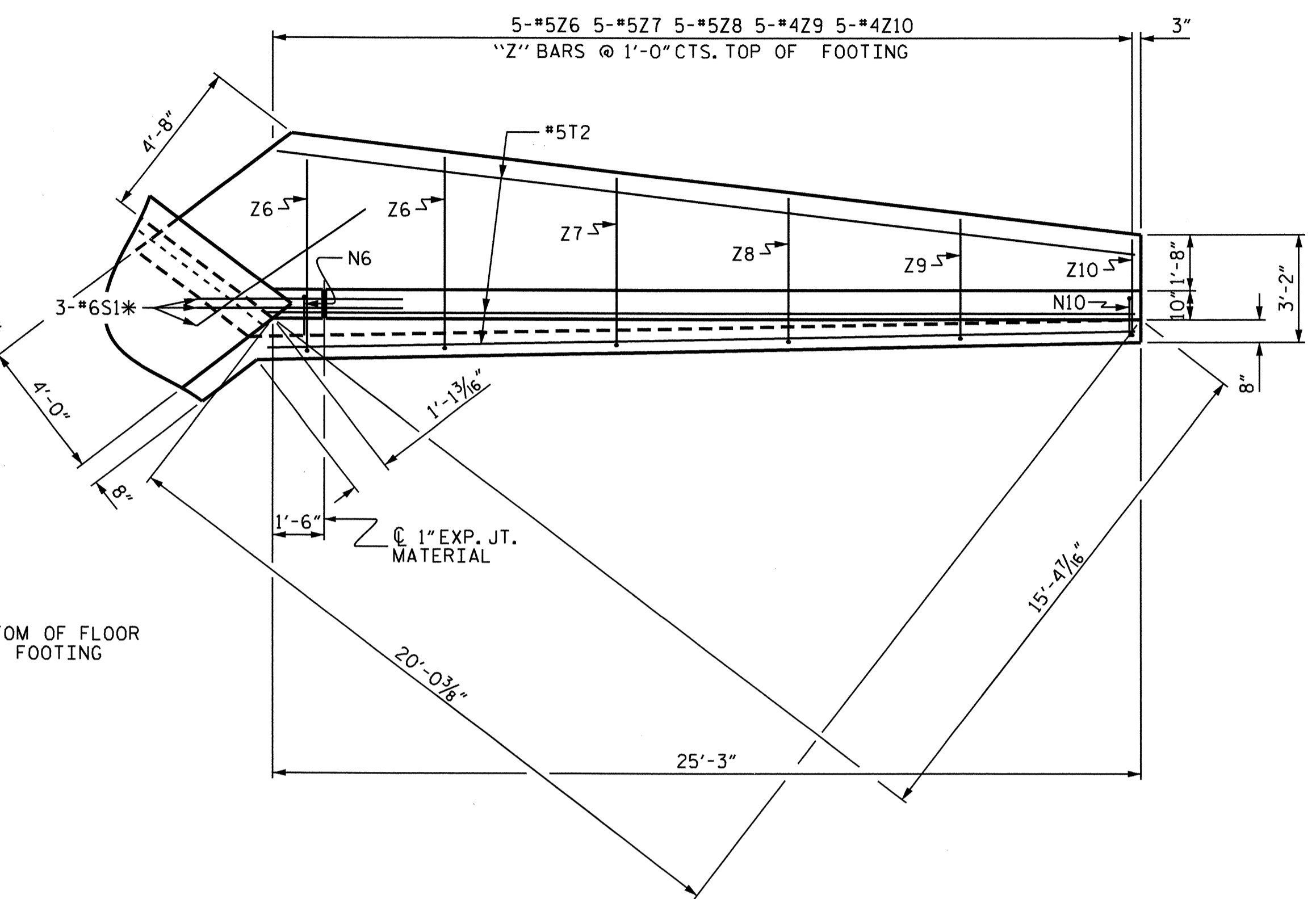


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-10
1			3			TOTAL SHEETS
2			4			21

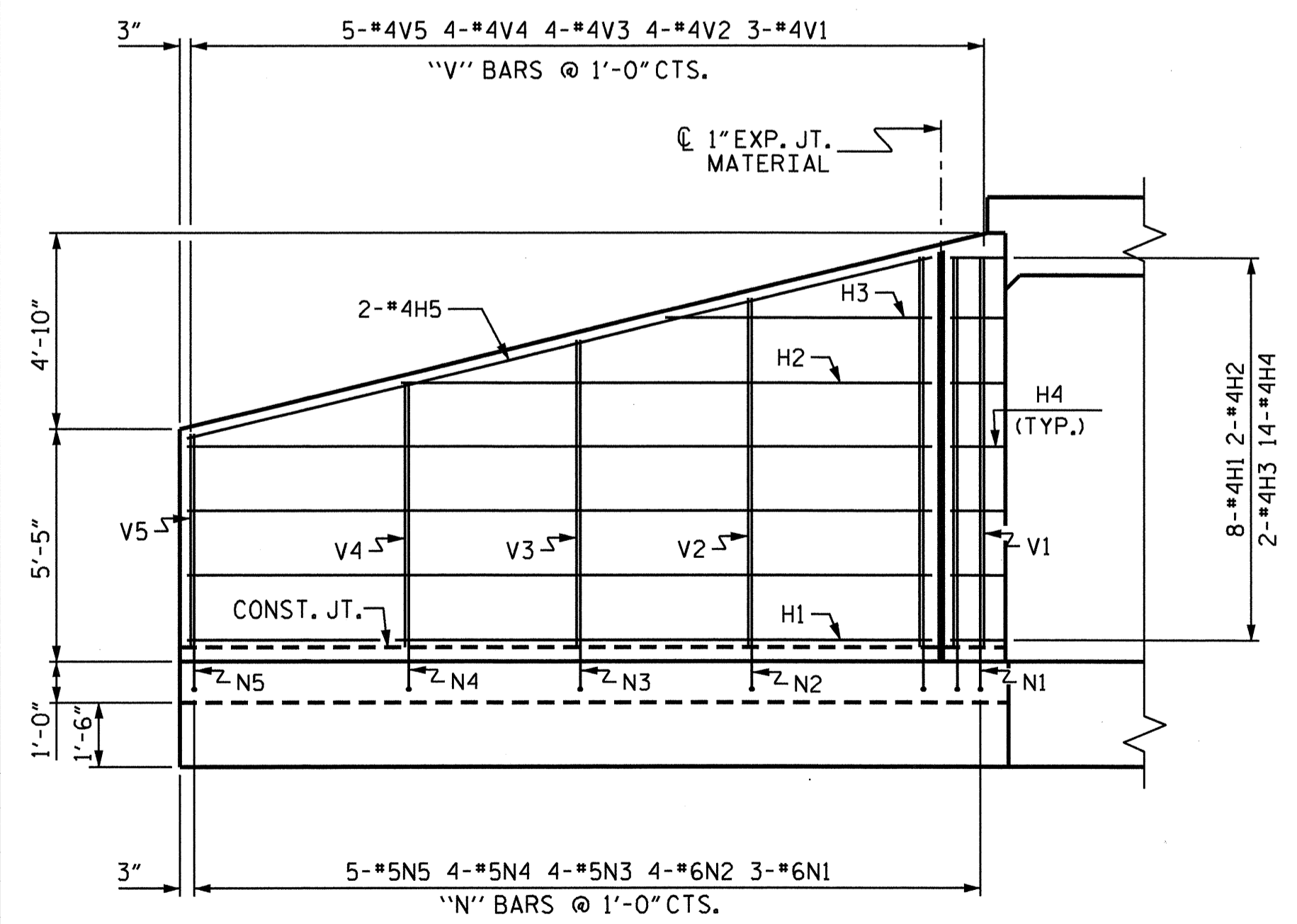
DRAWN BY: KEITH D. LAYNE DATE: 12/02/10
 CHECKED BY: M. K. BEARD DATE: 2/14/11



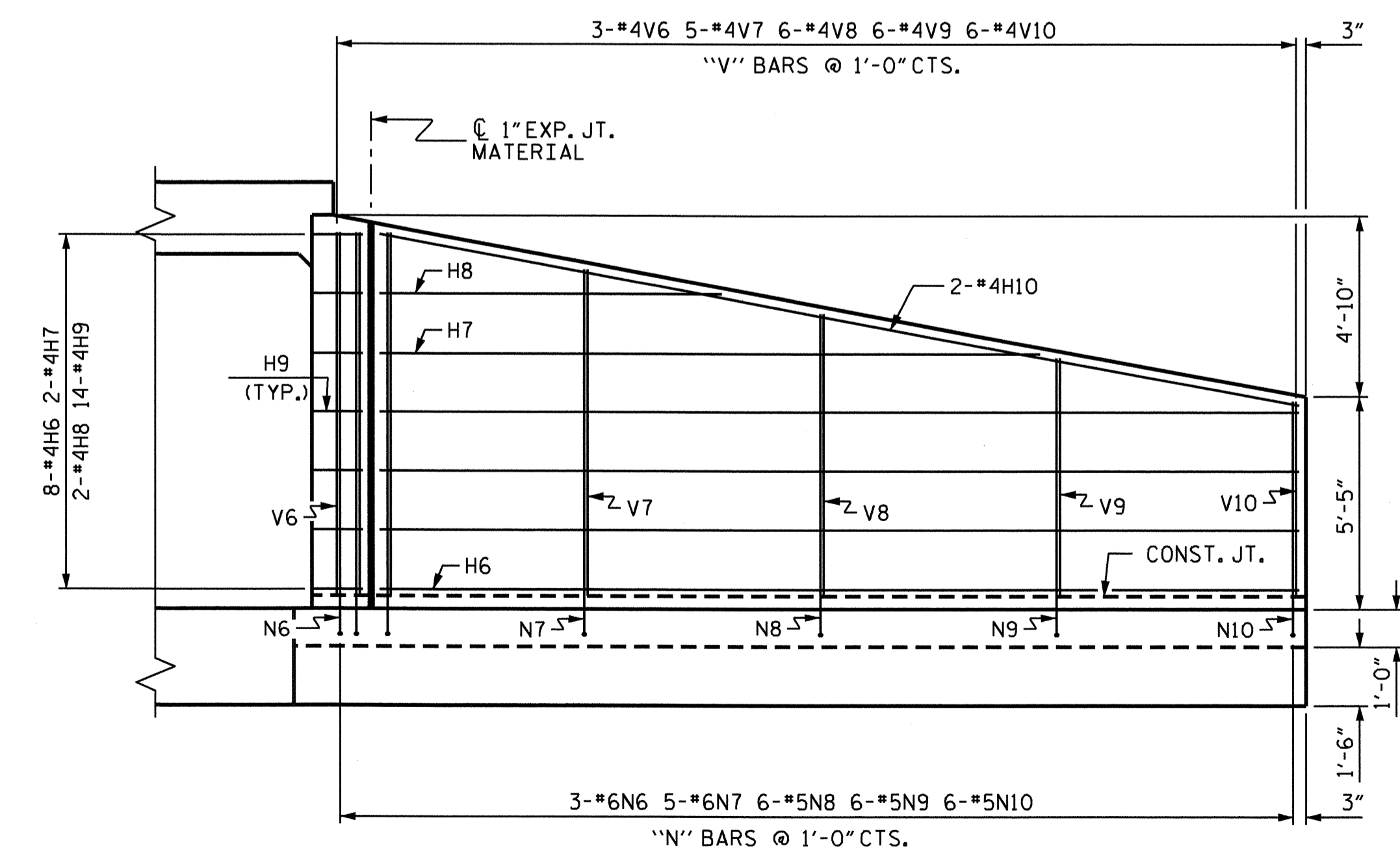
PLAN W1



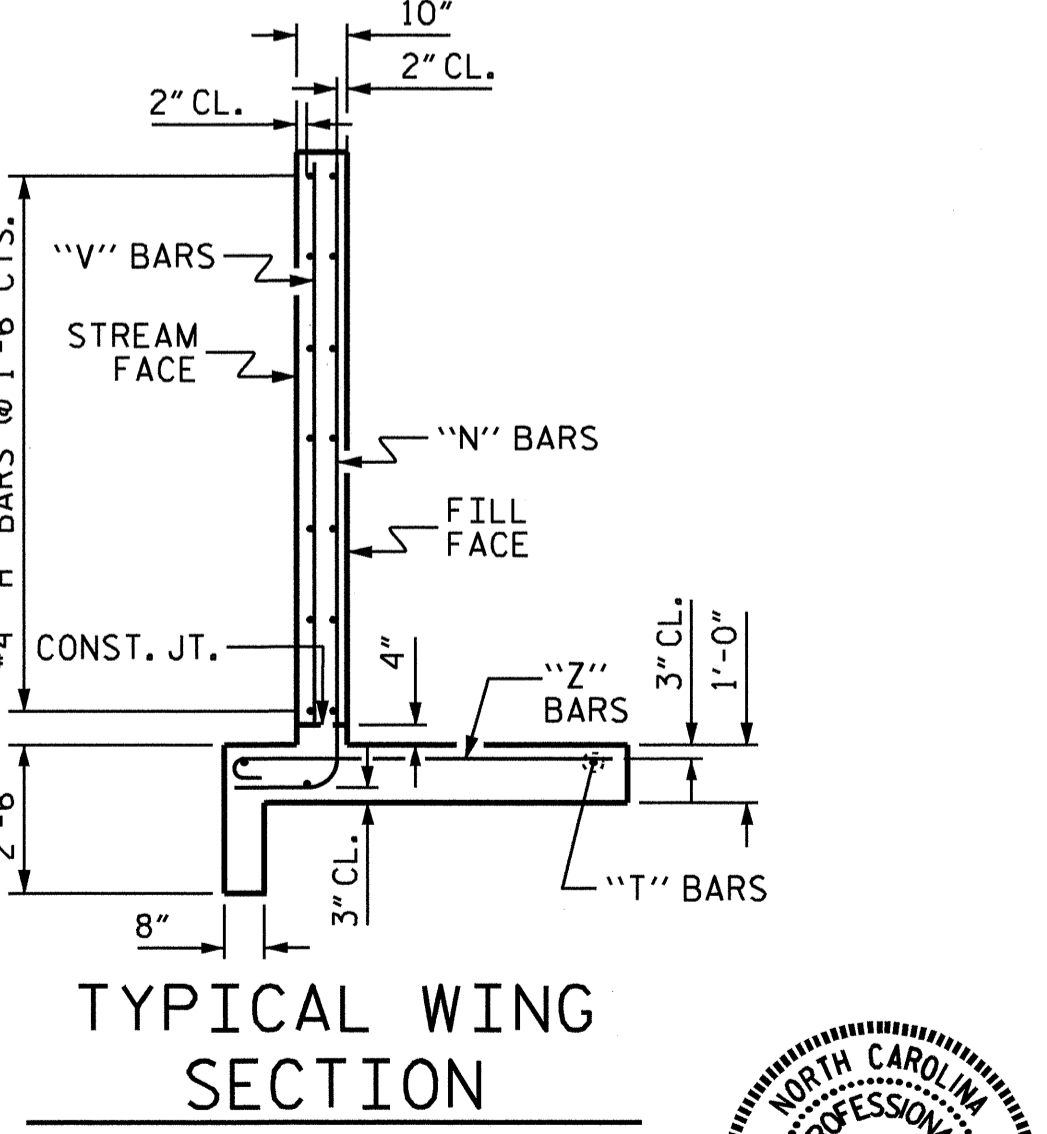
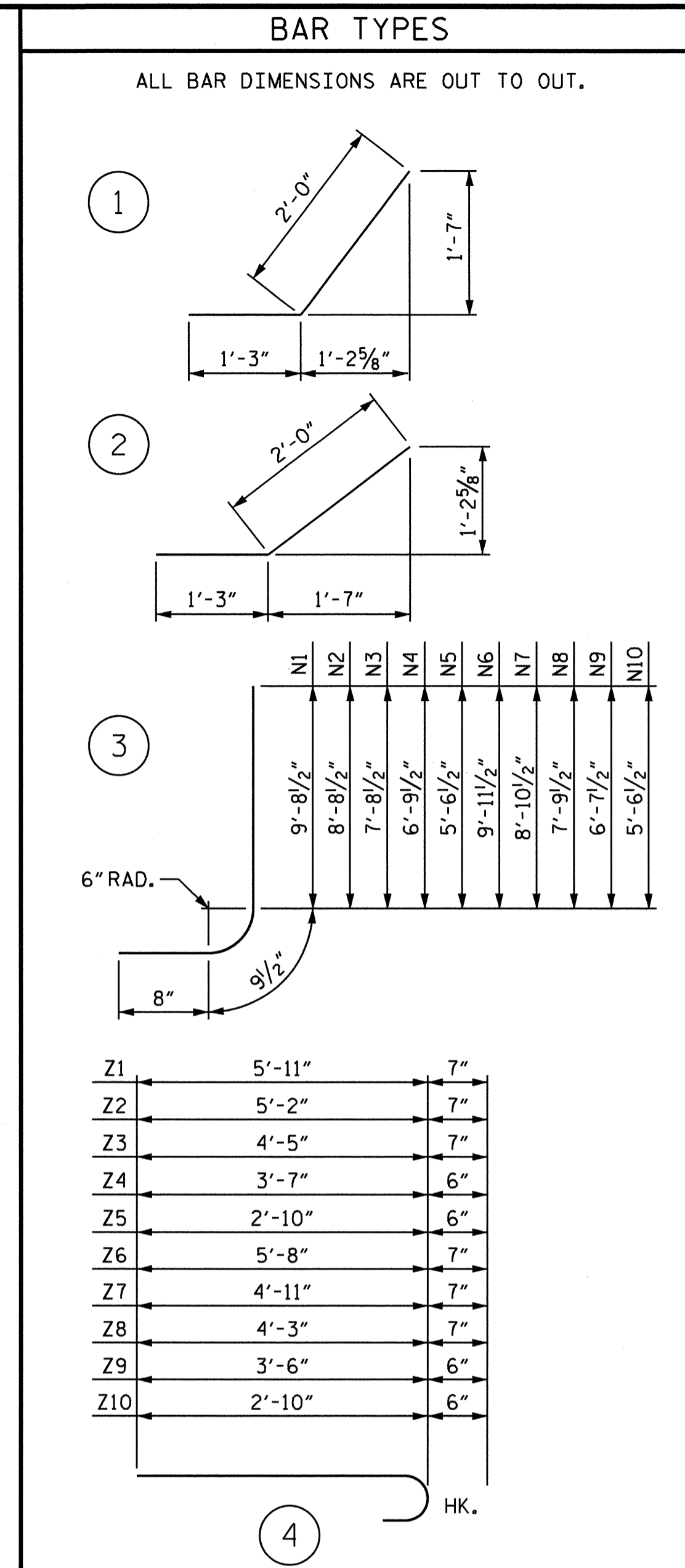
PLAN W2



ELEVATION W1



ELEVATION W2

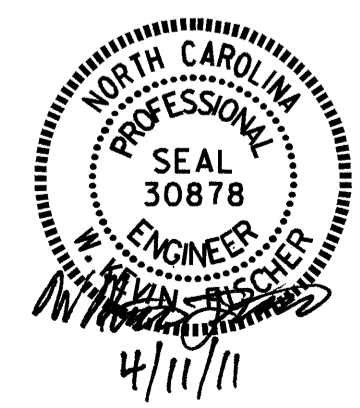


TYPICAL WING SECTION

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	#4	STR	17'-4"	93
H2	2	#4	STR	12'-4"	16
H3	2	#4	STR	6'-2"	8
H4	14	#4	1	3'-3"	30
H5	2	#4	STR	17'-10"	24
H6	8	#4	STR	23'-4"	125
H7	2	#4	STR	16'-9"	22
H8	2	#4	STR	8'-8"	12
H9	14	#4	2	3'-3"	30
H10	2	#4	STR	23'-9"	32
N1	3	#6	3	11'-2"	50
N2	4	#6	3	10'-2"	61
N3	4	#5	3	9'-2"	38
N4	4	#5	3	8'-3"	34
N5	5	#5	3	7'-0"	37
N6	3	#6	3	11'-3"	51
N7	5	#6	3	10'-4"	78
N8	6	#5	3	9'-3"	58
N9	6	#5	3	8'-1"	51
N10	6	#5	3	7'-0"	44
S1	6	#6	STR	6'-0"	54
T1	3	#5	STR	19'-3"	60
T2	3	#5	STR	25'-3"	79
V1	3	#4	STR	9'-2"	18
V2	4	#4	STR	8'-2"	22
V3	4	#4	STR	7'-2"	19
V4	4	#4	STR	6'-2"	16
V5	5	#4	STR	4'-11"	16
V6	3	#4	STR	9'-4"	19
V7	5	#4	STR	8'-4"	28
V8	6	#4	STR	7'-3"	29
V9	6	#4	STR	6'-1"	24
V10	6	#4	STR	4'-11"	20
Z1	3	#5	4	6'-6"	20
Z2	4	#5	4	5'-9"	24
Z3	4	#5	4	5'-0"	21
Z4	4	#4	4	4'-1"	11
Z5	4	#4	4	3'-4"	9
Z6	5	#5	4	6'-3"	33
Z7	5	#5	4	5'-6"	29
Z8	5	#5	4	4'-10"	25
Z9	5	#4	4	4'-0"	13
Z10	5	#4	4	3'-4"	11
REINFORCING STEEL FOR 2 WINGS					1,494 LBS
CLASS A CONCRETE					
2 WINGS					20.8 CY
1 HEADWALL					0.4 CY
1 END CURTAIN WALL					0.3 CY
TOTAL					21.5 CY

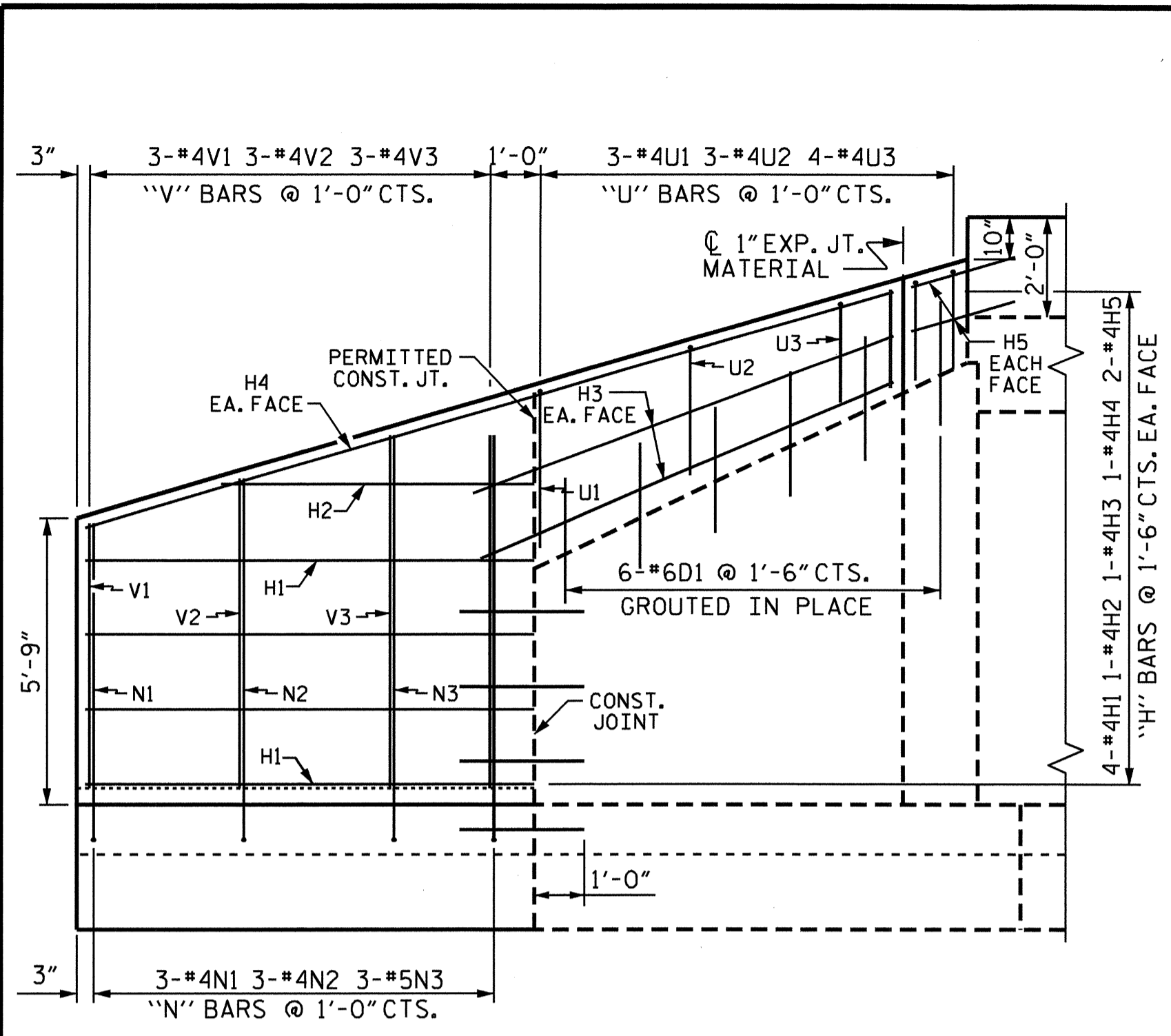
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 23+32.00 -L-

SHEET 11 OF 12
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 WINGS FOR CONCRETE BOX CULVERT
 H = 9'-0" SLOPE = 3:1
 75° SKEW

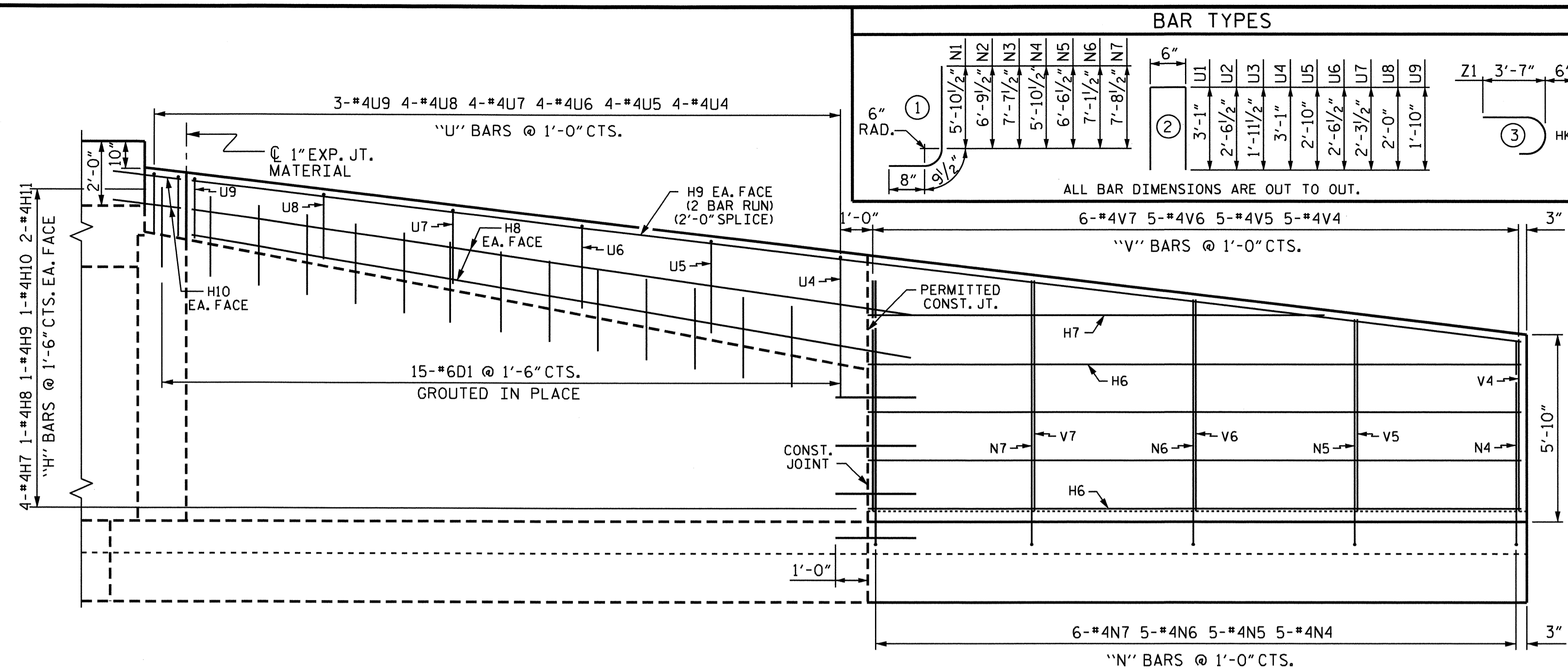


DRAWN BY : KEITH D. LAYNE
 CHECKED BY : M. K. BEARD
 DATE : 12/02/10
 DATE : 2/14/11

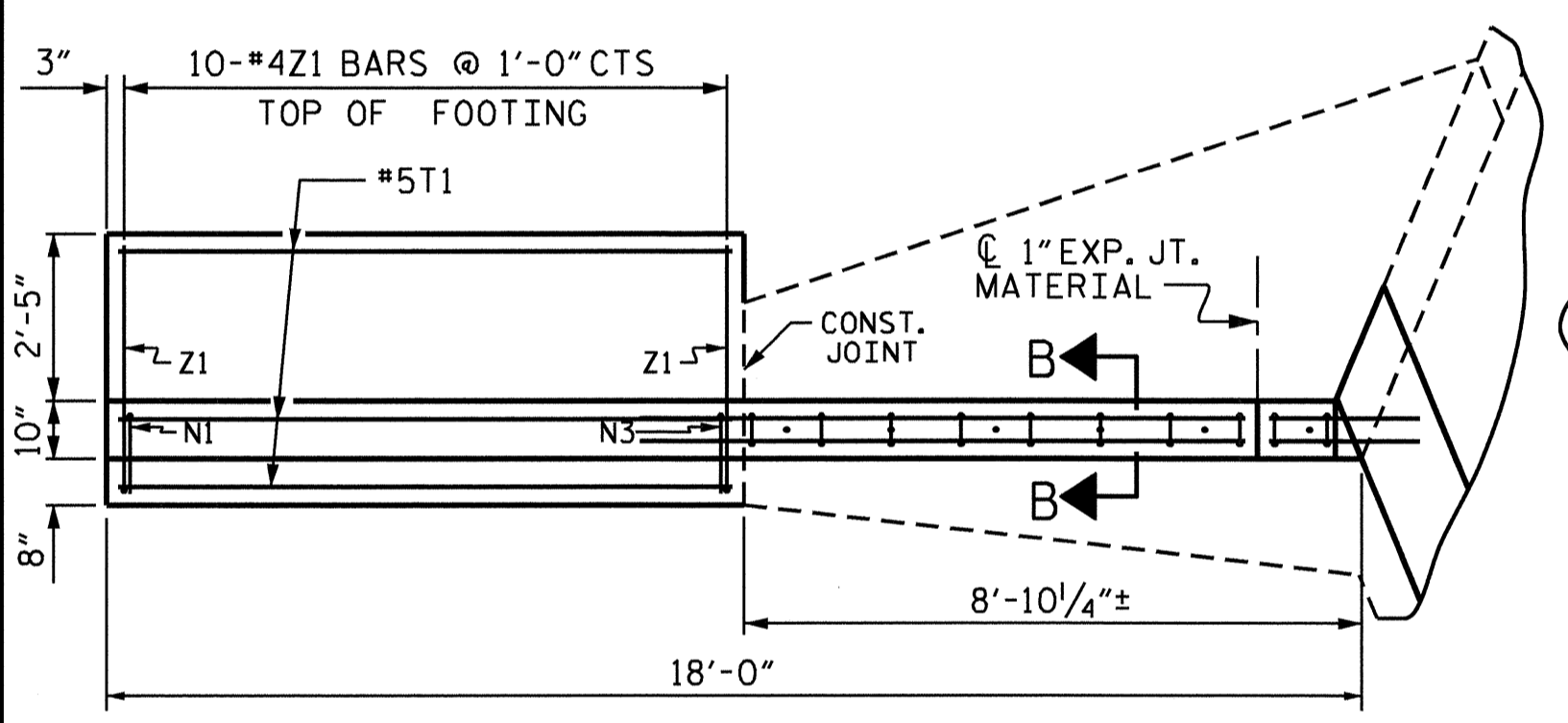
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	C-11	
1			3			TOTAL SHEETS	
2			4			21	



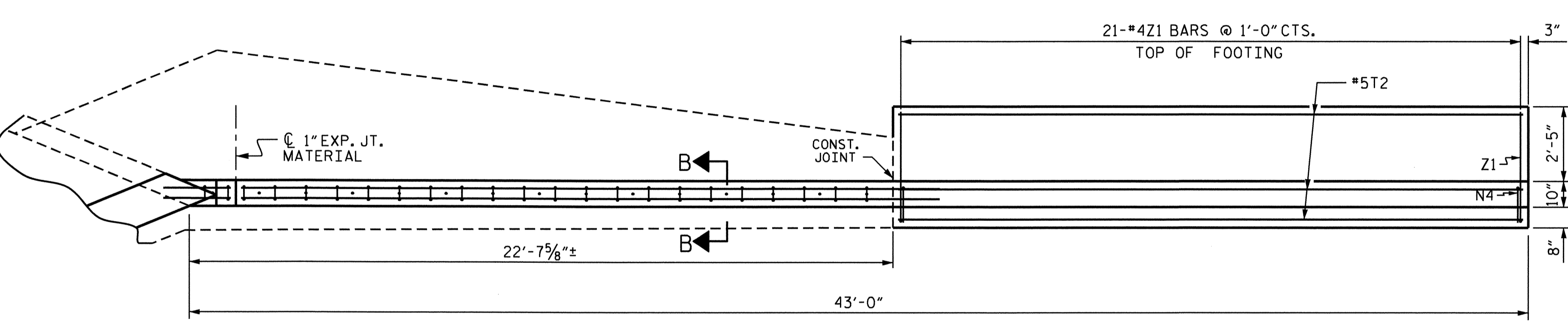
ELEVATION LEFT WING EXTENSION



ELEVATION RIGHT WING EXTENSION



PLAN LEFT WING EXTENSION

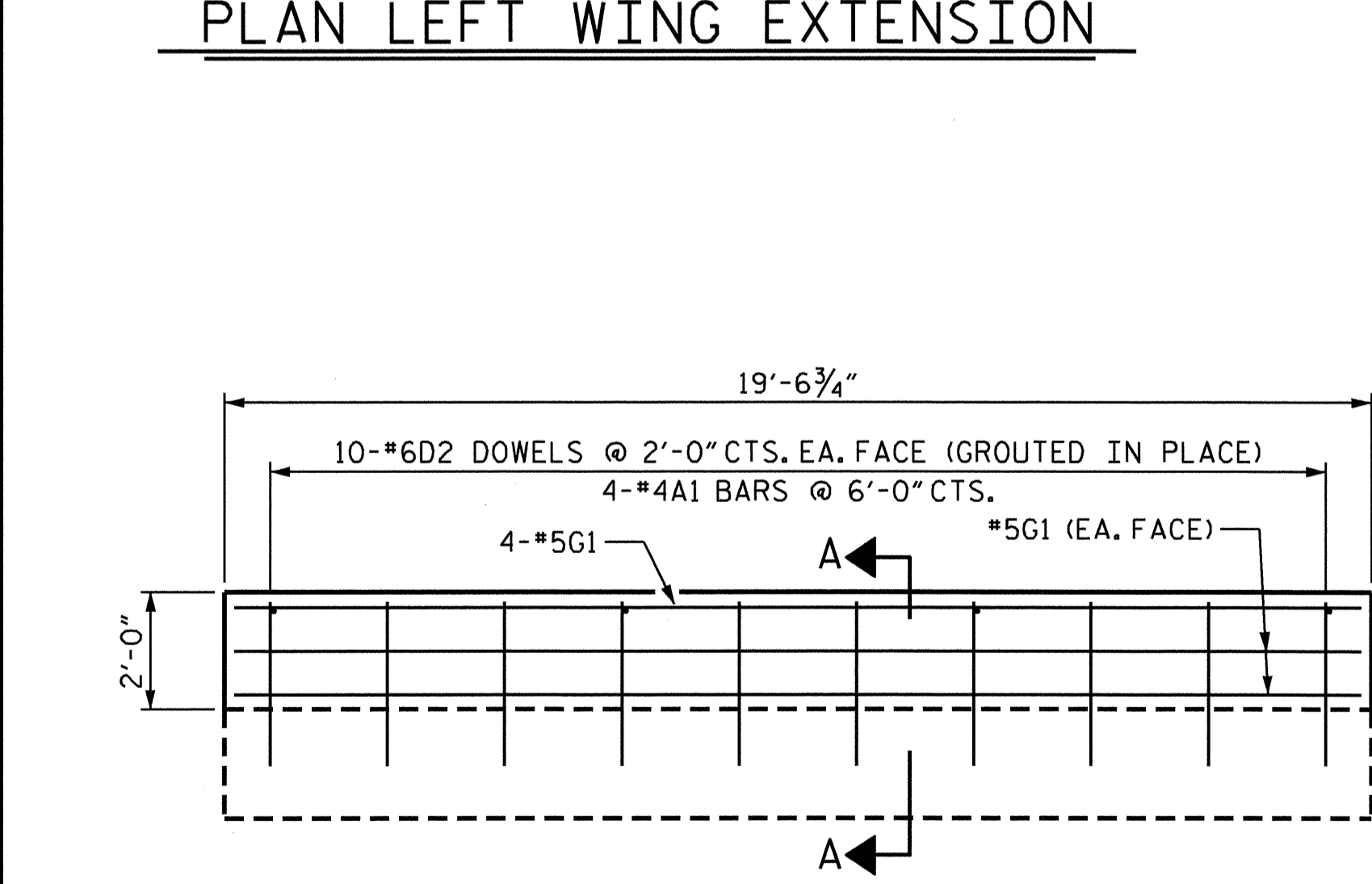


PLAN RIGHT WING EXTENSION

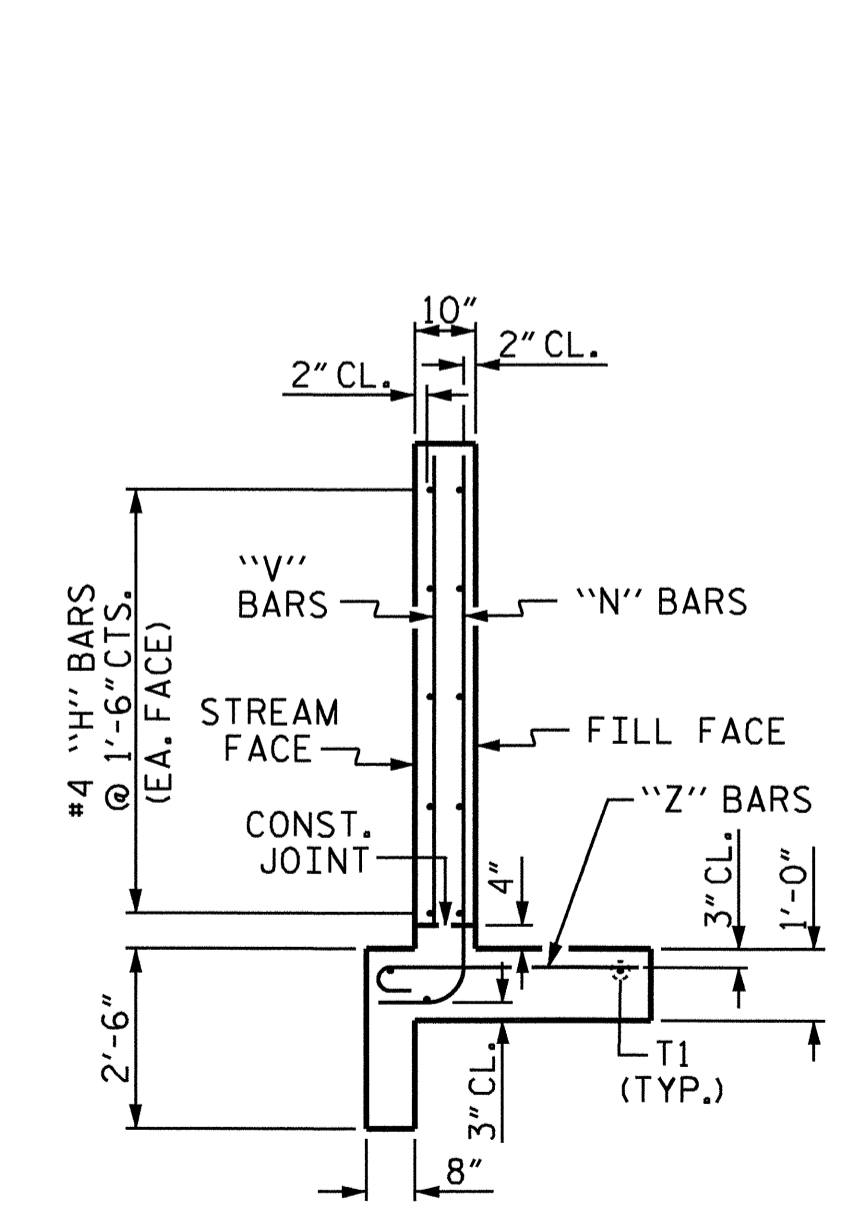
BAR TYPES

BILL OF MATERIAL

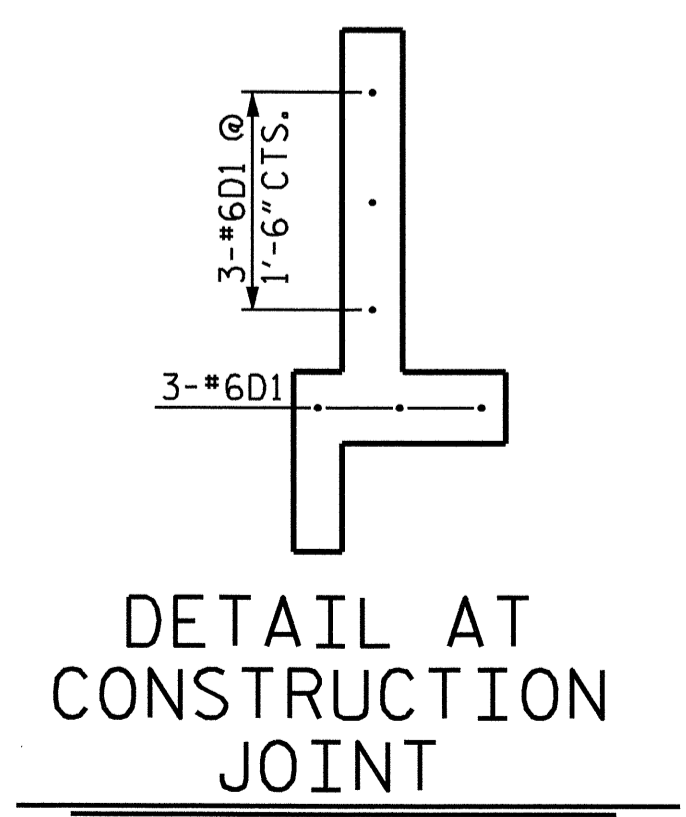
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	4	#4	STR	11"	2
D1	33	#6	STR	2'-6"	124
D2	20	#6	STR	2'-10"	85
G1	8	#5	STR	19'-2"	160
H1	8	#4	STR	8'-11"	48
H2	2	#4	STR	6'-3"	8
H3	4	#4	STR	9'-0"	24
H4	2	#4	STR	16'-9"	22
H5	4	#4	STR	2'-2"	6
H6	8	#4	STR	20'-2"	108
H7	2	#4	STR	14'-1"	19
H8	4	#4	STR	22'-7"	60
H9	4	#4	STR	21'-8"	58
H10	4	#4	STR	2'-2"	6
N1	3	#4	1	7'-4"	15
N2	3	#4	1	8'-3"	17
N3	3	#5	1	9'-1"	28
N4	5	#4	1	7'-4"	24
N5	5	#4	1	8'-0"	27
N6	5	#4	1	8'-7"	29
N7	6	#5	1	9'-2"	57
T1	3	#5	STR	8'-9"	27
T2	3	#5	STR	20'-0"	63
U1	3	#4	2	6'-8"	13
U2	3	#4	2	5'-7"	11
U3	4	#4	2	4'-5"	12
U4	4	#4	2	6'-8"	18
U5	4	#4	2	6'-2"	16
U6	4	#4	2	5'-7"	15
U7	4	#4	2	5'-1"	14
U8	4	#4	2	4'-6"	12
U9	3	#4	2	4'-2"	8
V1	3	#4	STR	5'-3"	11
V2	3	#4	STR	6'-2"	12
V3	3	#4	STR	7'-0"	14
V4	5	#4	STR	5'-4"	18
V5	5	#4	STR	5'-11"	20
V6	5	#4	STR	6'-6"	22
V7	6	#4	STR	7'-2"	29
Z1	31	#4	3	4'-1"	85
REINFORCING STEEL				1,347 LBS.	
CLASS A CONCRETE				16.3 CU. YDS.	



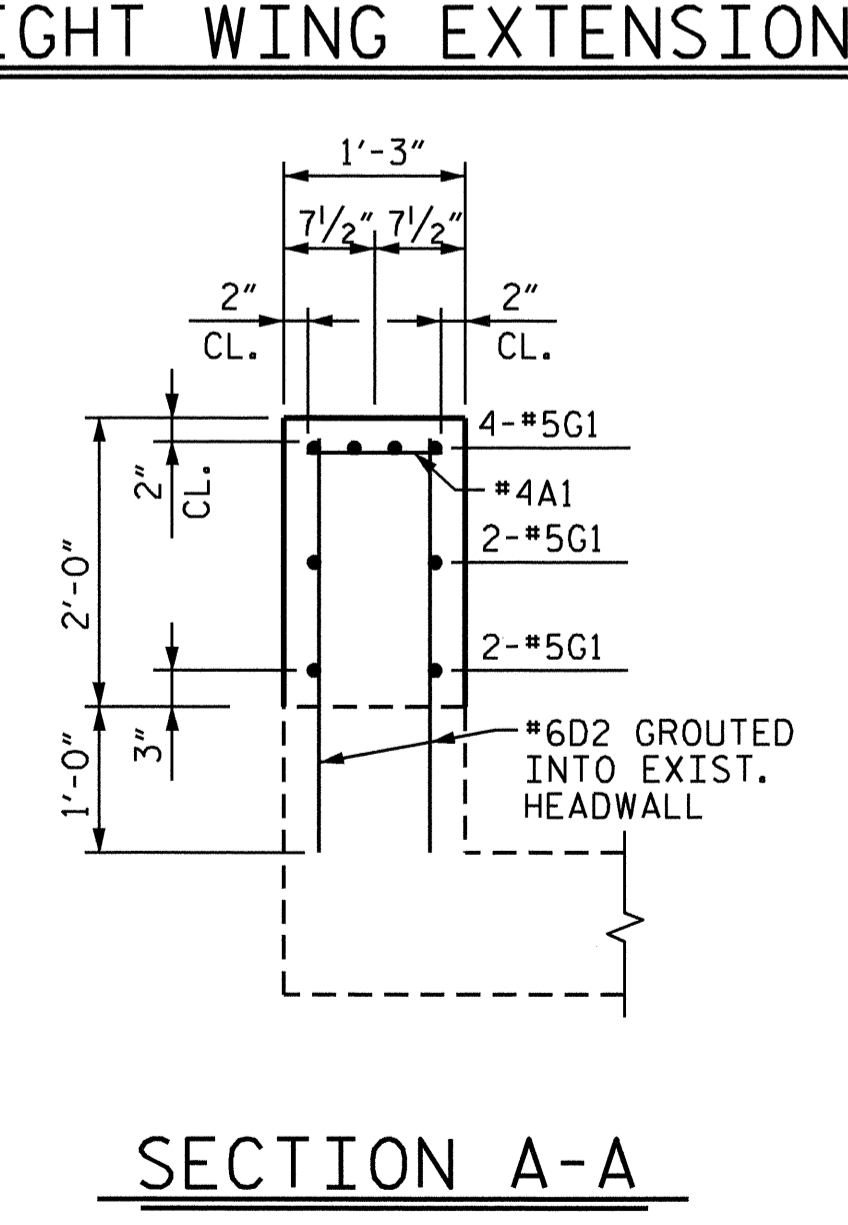
HEADWALL EXTENSION



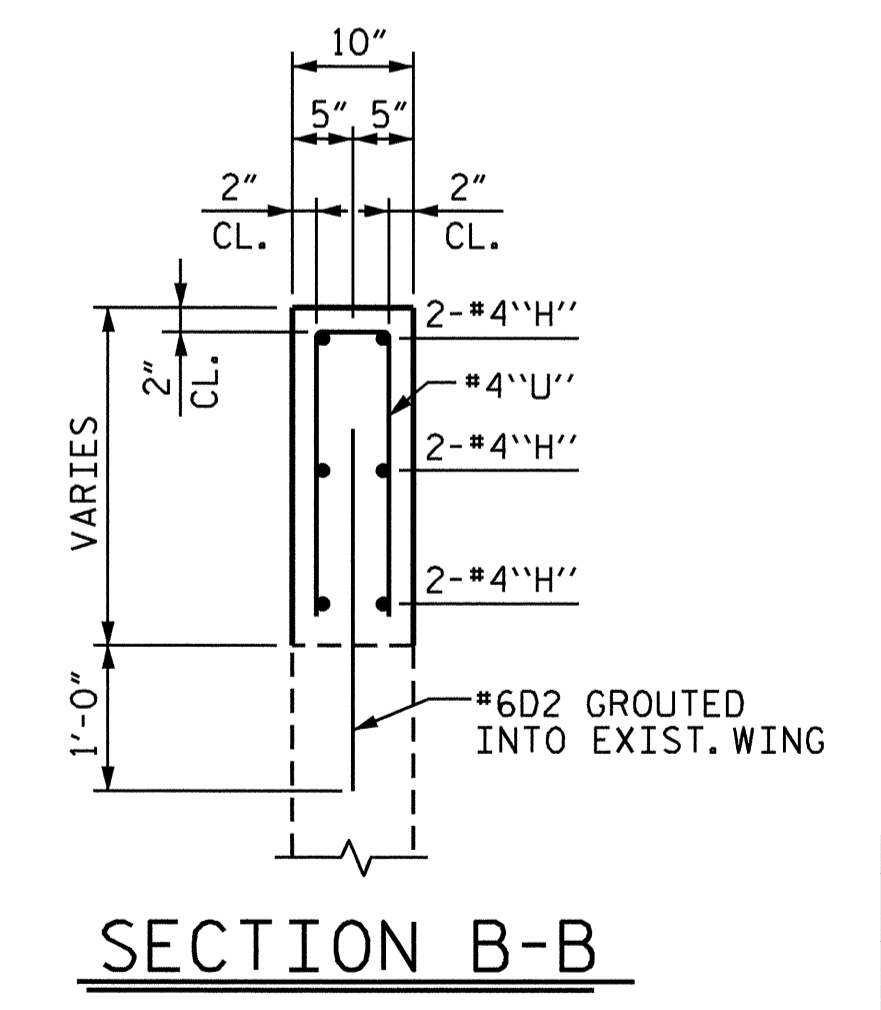
TYPICAL WING SECTION



DETAIL AT CONSTRUCTION JOINT



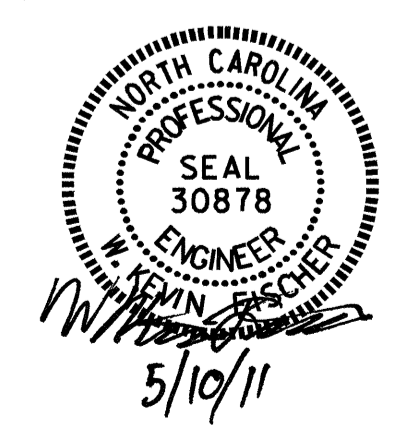
SECTION A-A



SECTION B-B

DRAWN BY: KEITH D. LAYNE DATE: 12/02/10
 CHECKED BY: M. K. BEARD DATE: 2/14/11

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PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 23+32.00 -L-
 SHEET 12 OF 12

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

EXISTING
 OUTLET WING
 EXTENSIONS

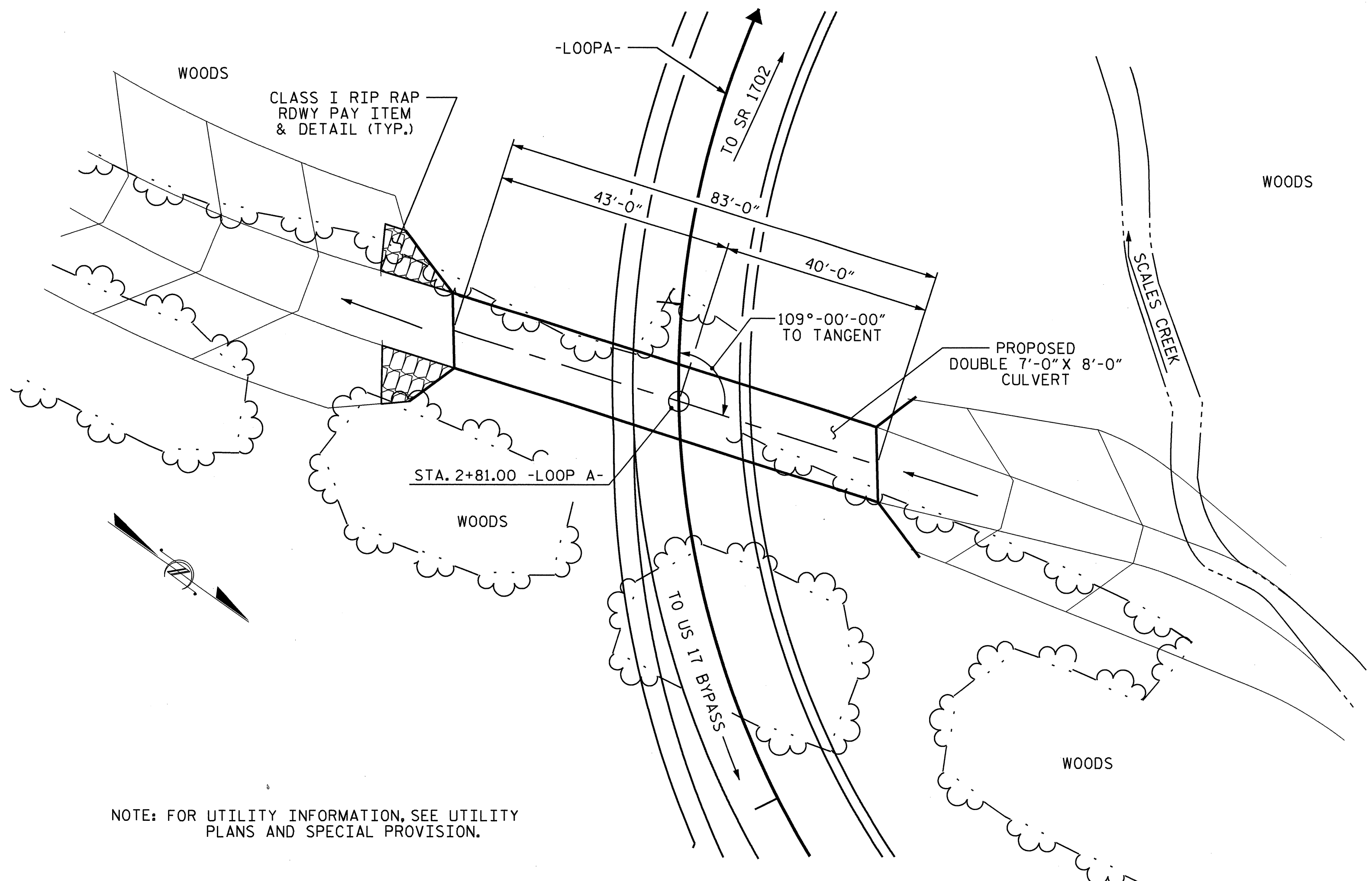
REVISIONS						SHEET NO. C-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

BM -BL2- 1.64' RIGHT OF STA. 21+56.75 -L-, EL. 35.22

F. A. PROJECT NO. STPNHF-0017(102)

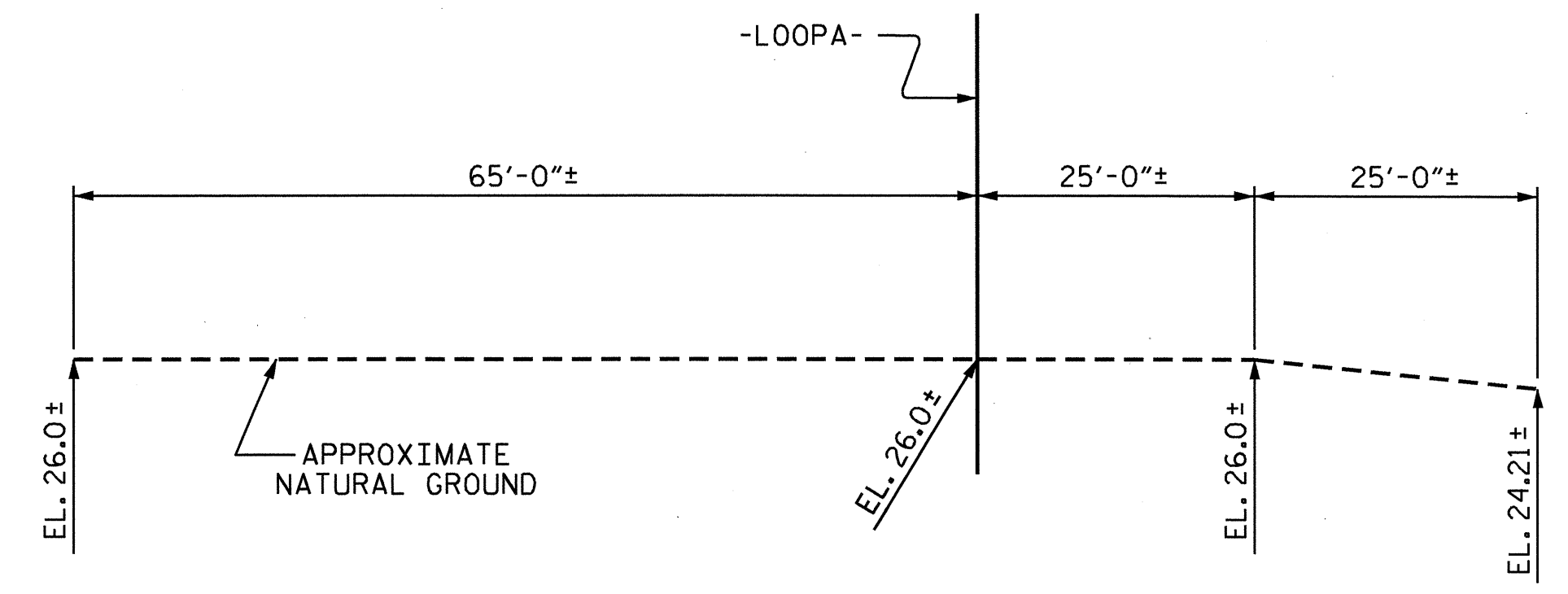
NOTES

- ASSUMED LIVE LOAD -----HS20-44 OR ALTERNATE LOADING.
 DESIGN FILL-----3.08 FT.
 FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
 TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FT. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
 STEEL IN THE BOTTOM SLAB MAY BE SPICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 AT THE CONTRACTOR'S OPTION, HE MAY SPlice THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
 THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
 A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.



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

LOCATION SKETCH



PROFILE ALONG Q CULVERT

ROADWAY DATA

GRADE POINT EL. @ STA. 2+81.00 -LOOPA- = 29.990
 BED EL. @ STA. 2+81.00 -LOOPA- = 17.910
 ROADWAY SLOPES @ STA. 2+81.00 -LOOPA- = 6:1 LT./4:1 RT.

HYDRAULIC DATA

DESIGN DISCHARGE = 540 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YR.
 DESIGN HIGH WATER ELEVATION = 27.400
 DRAINAGE AREA = 0.47 SQ. MI.
 BASIC DISCHARGE (Q100) = 630 C.F.S.
 BASIC HIGH WATER ELEVATION = 28.100

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 630+ C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 100+ YR.
 OVERTOPPING FLOOD ELEVATION = 29.400

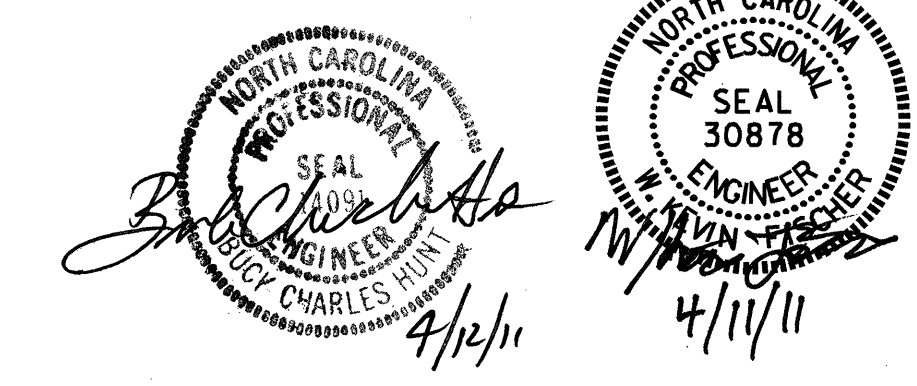
TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE			
BARREL @	1.588	CY/FT	131.8 C.Y.
WING ETC.			29.1 C.Y.
TOTAL			160.9 C.Y.
REINFORCING STEEL			
BARREL		19,405	LBS.
WINGS ETC.		1,941	LBS.
TOTAL		21,346	LBS.
CULVERT EXCAVATION		LUMP	SUM
FOUNDATION COND. MAT'L.		95	TONS

PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 2+81.00 -LOOPA-

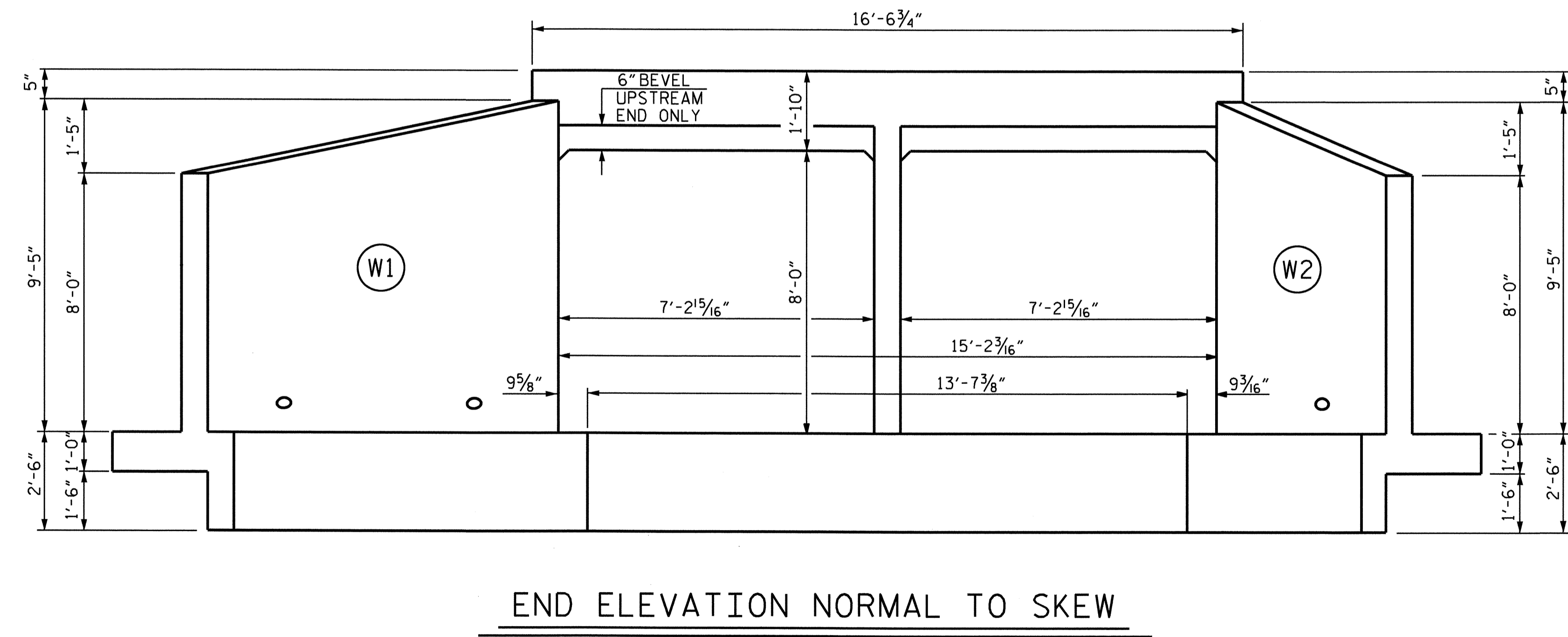
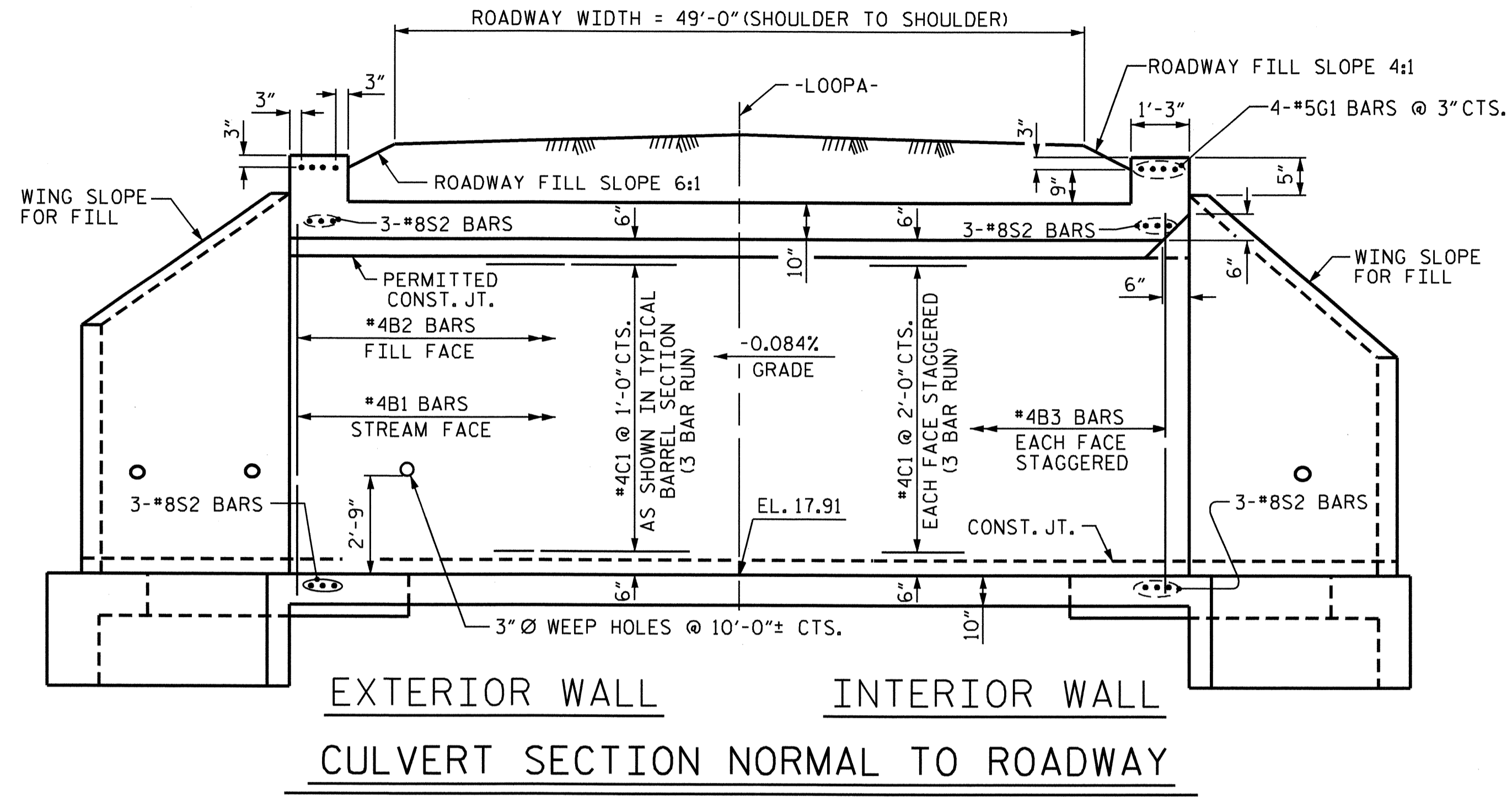
SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE 7 FT. X 8 FT.
 CONCRETE BOX CULVERT
 109° SKEW



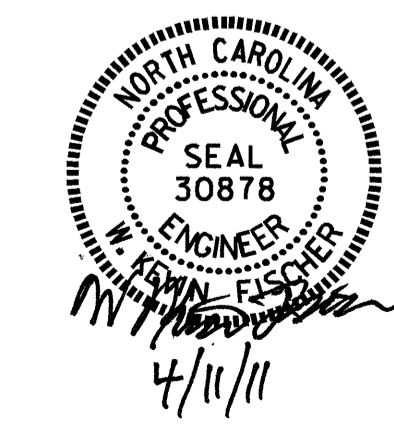
ASSEMBLED BY : M.K. BEARD	DATE : 11/23/10	SPECIAL
CHECKED BY : T. BANKOVICH	DATE : 2/11	
DRAWN BY : R.W. WRIGHT	DATE : OCT. 1989	STANDARD
CHECKED BY : C.R.K.	DATE : OCT. 1989	

REVISIONS						SHEET NO. C-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			



PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 2+81.00 -LOOPA-

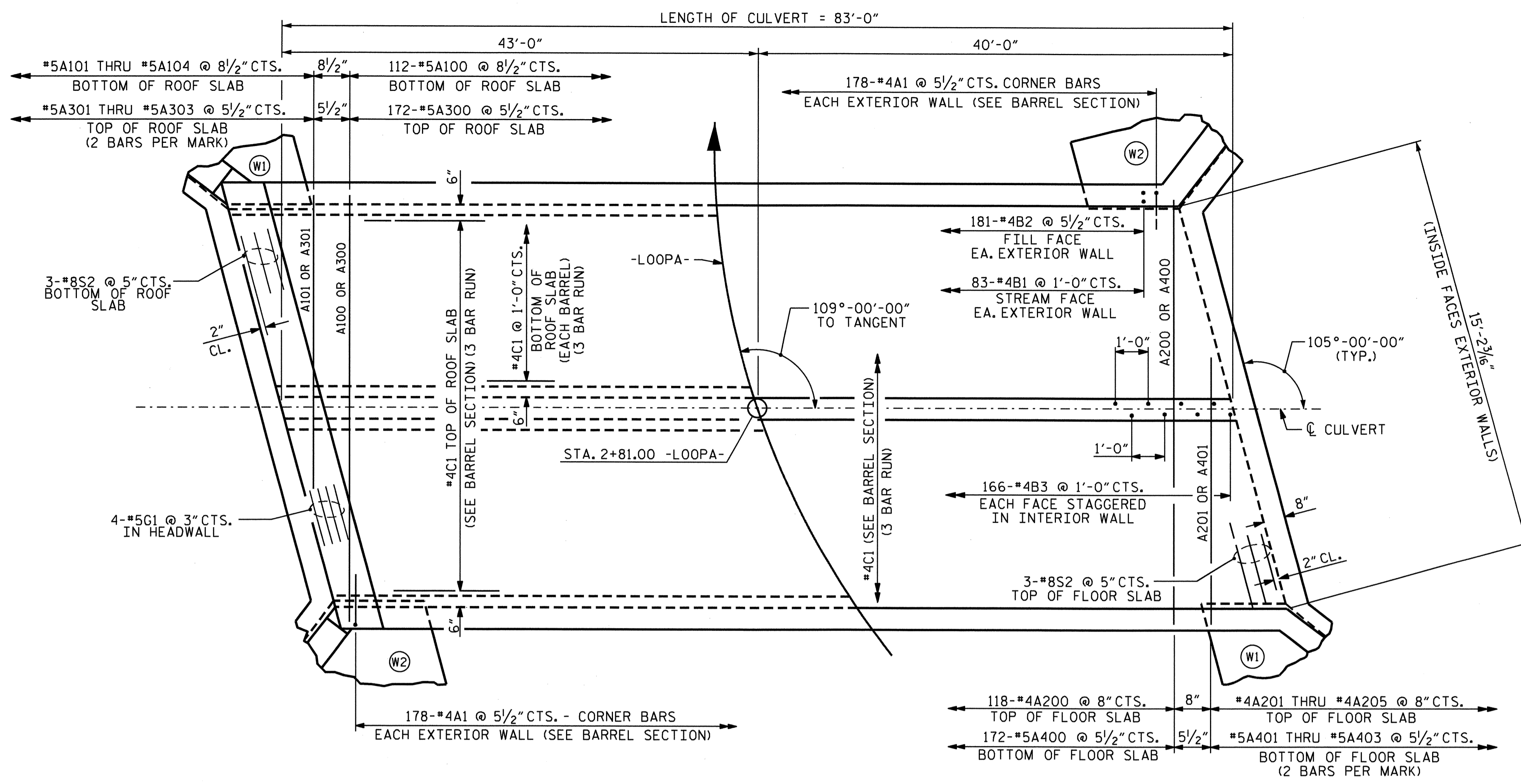
SHEET 2 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE 7 FT. X 8 FT.
 CONCRETE BOX CULVERT
 109° SKEW



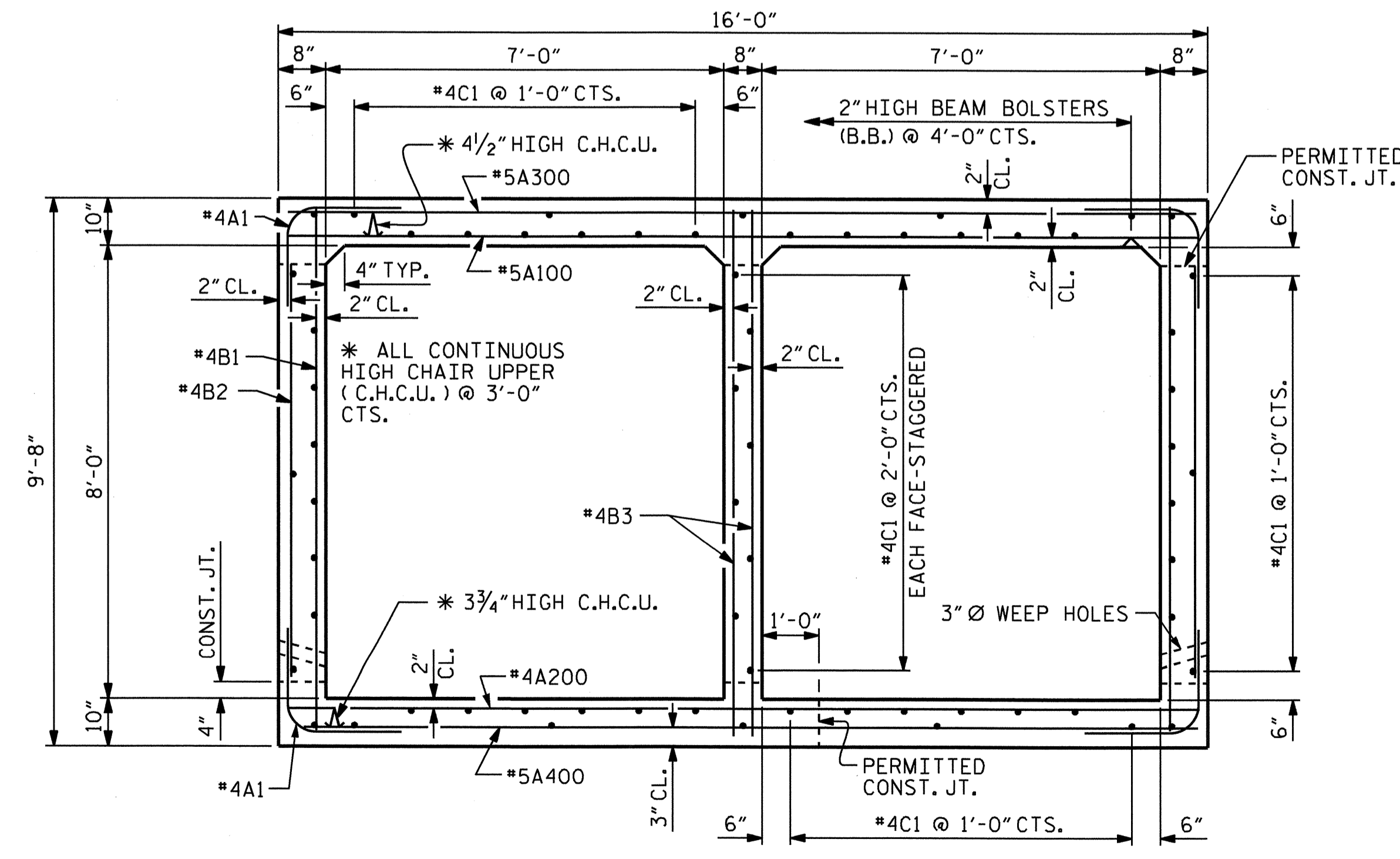
REVISED 11-19-99 BY M.M. CHECKED BY P.W.W.
 REVISED 8-28-92 BY E.B. CHECKED BY G.P.P.
 REDRAWN 11-30-90 BY A.R.B. CHECKED BY C.R.K.

ASSEMBLED BY : M.K. BEARD	DATE : 11/23/10	SPECIAL
CHECKED BY : T. BANKOVICH	DATE : 2/11	
DRAWN BY : W. BRYAN STANLEY II	DATE : NOV. 1971	STANDARD
CHECKED BY : JOEL A. JOHNSON	DATE : DEC. 1971	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-14
1			3			TOTAL SHEETS
2			4			21



PART PLAN - ROOF SLAB **PART PLAN - FLOOR SLAB**

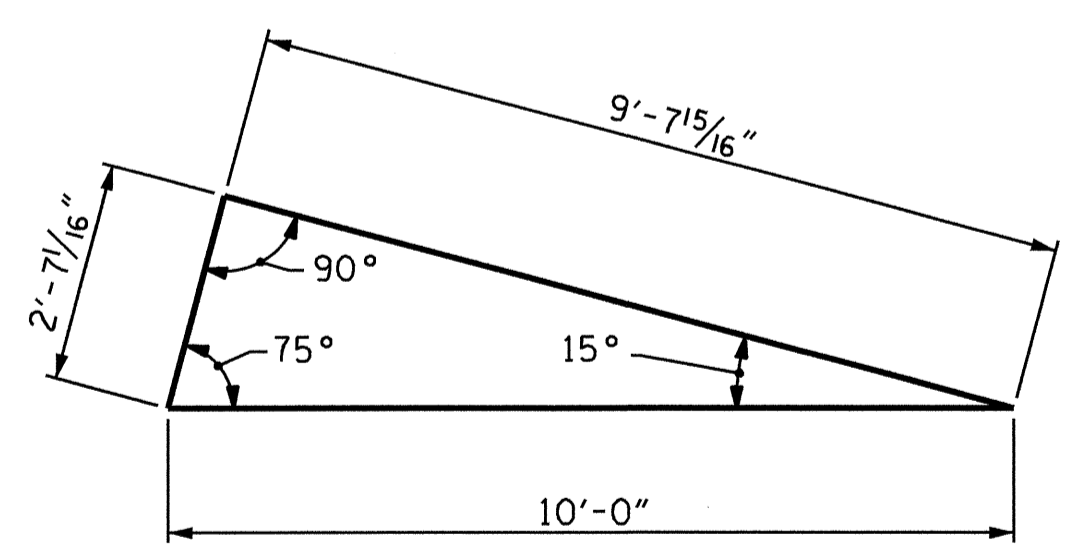


RIGHT ANGLE SECTION OF BARREL

THERE ARE 64 "C" BARS IN SECTION OF BARREL.

BAR TYPE		BILL OF MATERIAL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
A100	112	#5	STR	15'-7"	1820	
A101	2	#5	STR	12'-6"	26	
A102	2	#5	STR	9'-10"	21	
A103	2	#5	STR	7'-2"	15	
A104	2	#5	STR	4'-6"	9	
A200	118	#4	STR	15'-7"	1228	
A201	2	#4	STR	12'-7"	17	
A202	2	#4	STR	10'-2"	14	
A203	2	#4	STR	7'-8"	10	
A204	2	#4	STR	5'-2"	7	
A205	2	#4	STR	2'-8"	4	
A300	172	#5	STR	15'-7"	2796	
A301	4	#5	STR	11'-8"	49	
A302	4	#5	STR	8'-3"	34	
A303	4	#5	STR	4'-10"	20	
A400	172	#5	STR	15'-7"	2796	
A401	4	#5	STR	11'-8"	49	
A402	4	#5	STR	8'-3"	34	
A403	4	#5	STR	4'-10"	20	
A1	712	#4	1	4'-9"	2259	
B1	166	#4	STR	9'-2"	1016	
B2	362	#4	STR	7'-4"	1773	
B3	166	#4	STR	9'-2"	1016	
C1	192	#4	STR	29'-0"	3719	
G1	8	#5	STR	16'-2"	135	
S2	12	#8	STR	16'-2"	518	
TOTAL =					19,405 LBS.	

SPlice LENGTHS CHART		
BAR	SIZE	SPlice LENGTH
A200	#4	1'-9"
A400	#5	2'-2"
B1	#4	1'-9"
B3	#4	1'-9"
C1	#4	1'-11"

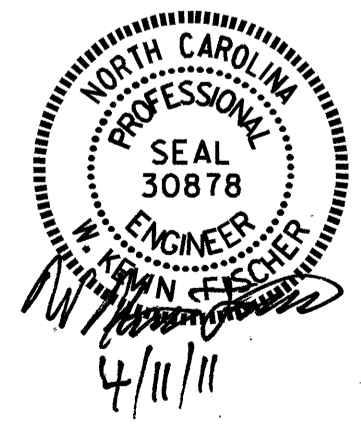


SKEW TRIANGLE

DRAWN BY : M.K. BEARD DATE : 11/23/10
 CHECKED BY : T. BANKOVICH DATE : 2/11

06-APR-2011 11:51
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 klayne

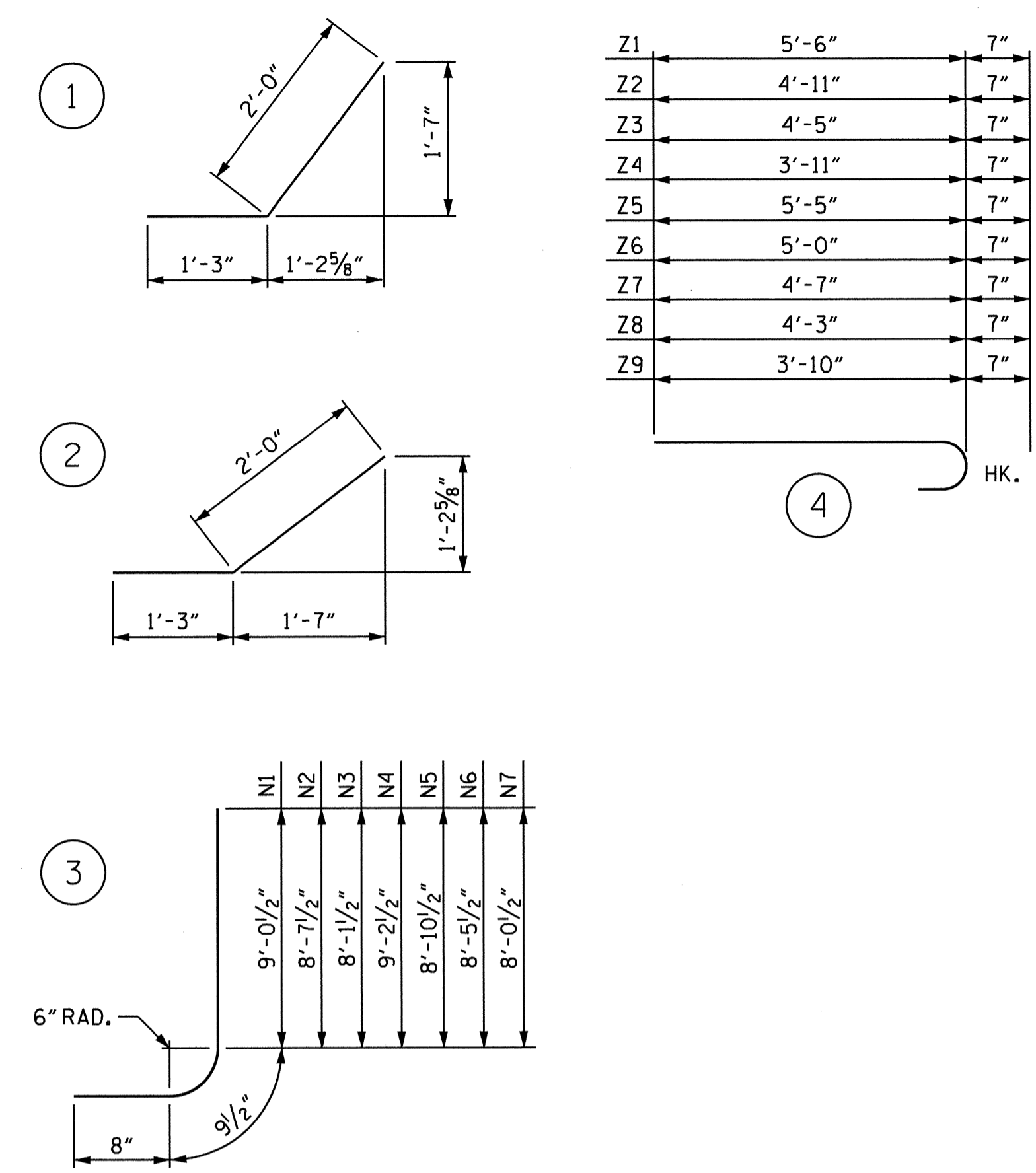
PROJECT NO. U-4007A
ONslow COUNTY
 STATION: 2+81.00 -LOOPA-
 SHEET 3 OF 4



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
DOUBLE 7 FT. X 8 FT. CONCRETE BOX CULVERT 109° SKEW				
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
				C-15
				TOTAL SHEETS 21

BAR TYPES

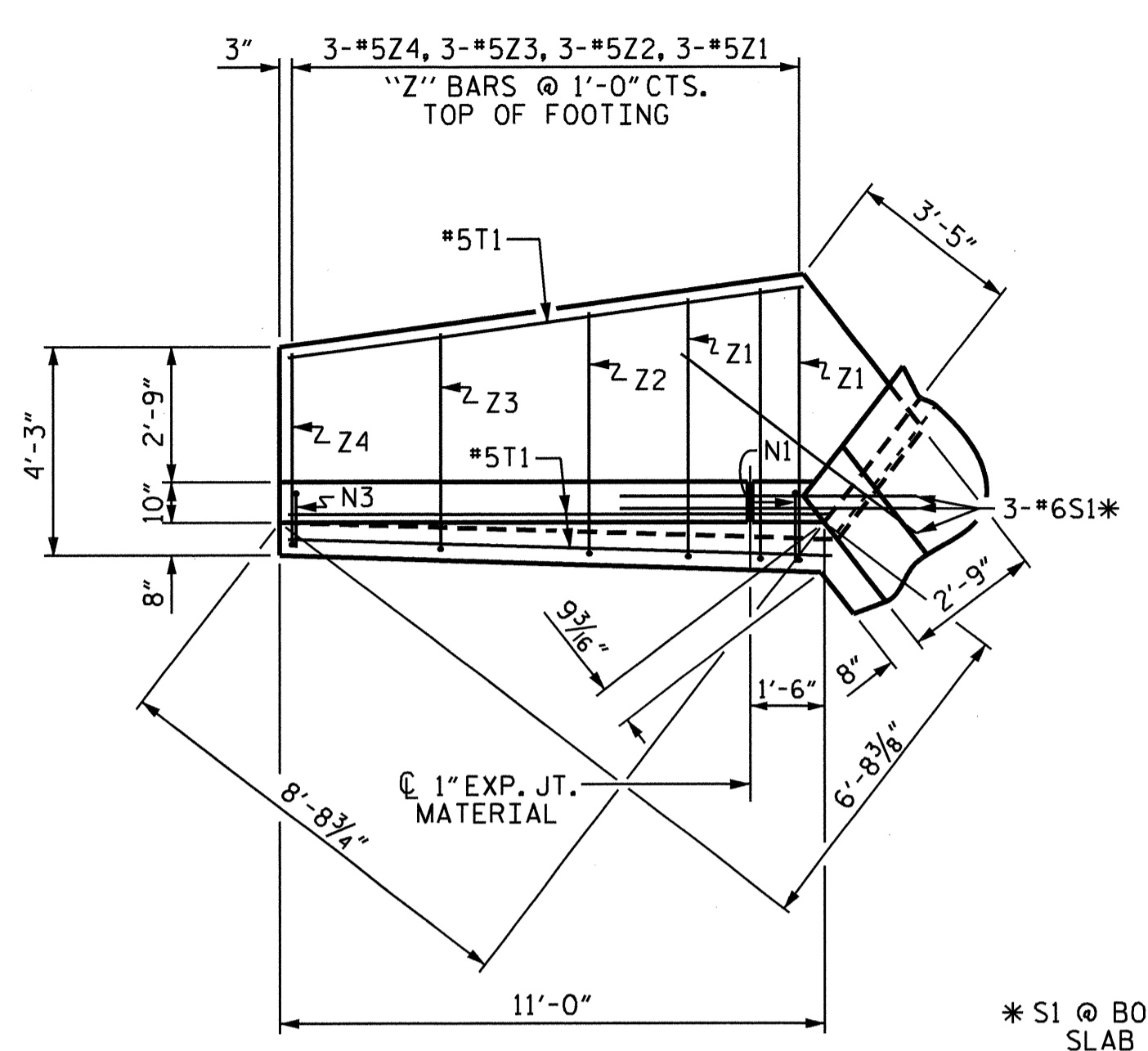
ALL BAR DIMENSIONS ARE OUT TO OUT.



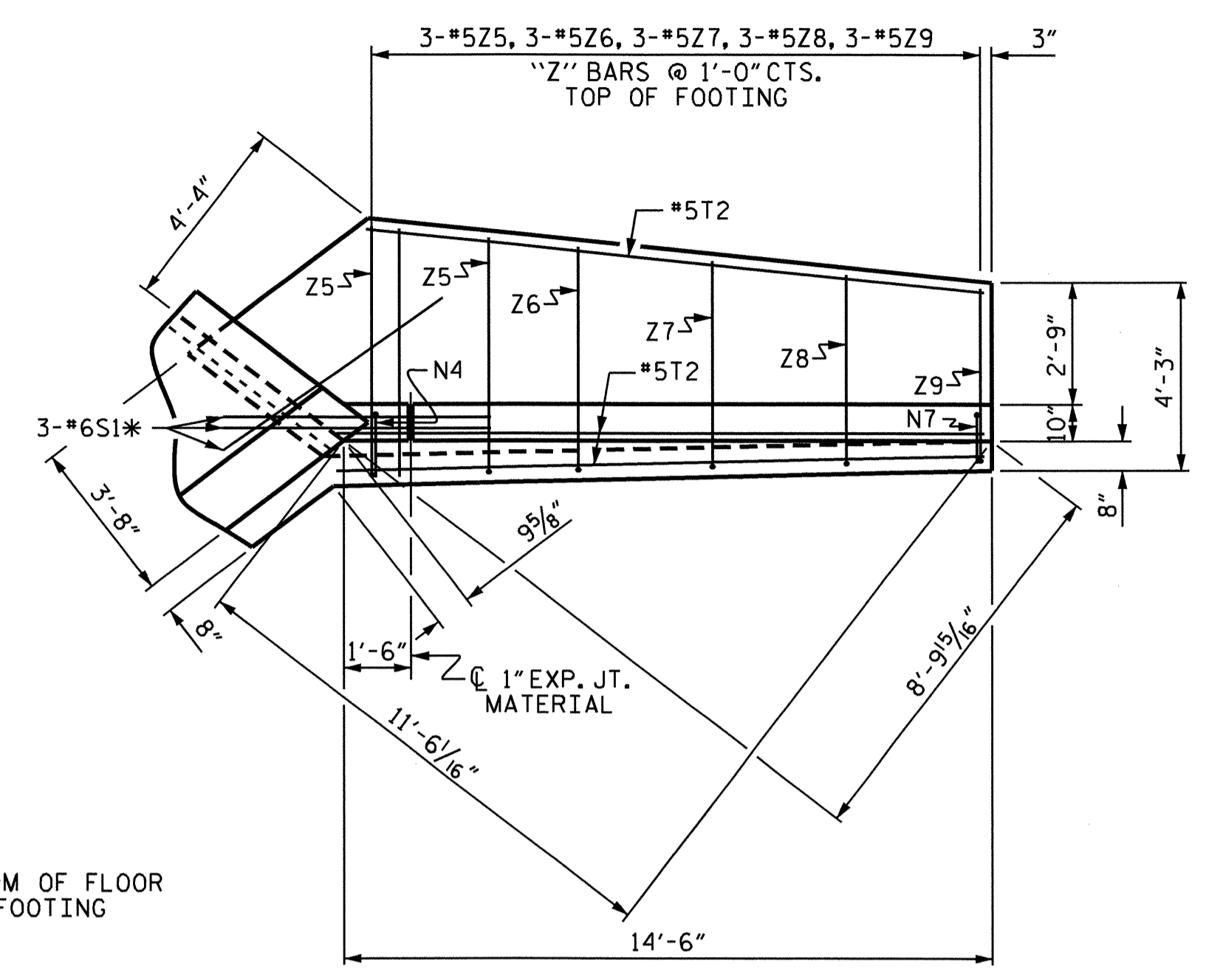
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	20	#4	STR	9'-1"	121
H2	4	#4	STR	7'-6"	20
H3	4	#4	STR	9'-2"	24
H4	24	#4	1	3'-3"	52
H5	20	#4	STR	12'-7"	168
H6	4	#4	STR	10'-5"	28
H7	24	#4	2	3'-3"	52
H8	4	#4	STR	12'-7"	34
N1	8	#5	3	10'-6"	88
N2	8	#5	3	10'-1"	84
N3	8	#5	3	9'-7"	80
N4	8	#5	3	10'-8"	89
N5	8	#5	3	10'-4"	86
N6	8	#5	3	9'-11"	83
N7	8	#5	3	9'-6"	79
S1	12	#6	STR	6'-0"	108
T1	6	#5	STR	10'-5"	65
T2	6	#5	STR	13'-9"	86
V1	8	#4	STR	8'-6"	45
V2	8	#4	STR	8'-0"	43
V3	8	#4	STR	7'-6"	40
V4	8	#4	STR	8'-8"	46
V5	8	#4	STR	8'-3"	44
V6	8	#4	STR	7'-11"	42
V7	8	#4	STR	7'-6"	40
Z1	6	#5	4	6'-1"	38
Z2	6	#5	4	5'-6"	34
Z3	6	#5	4	5'-0"	31
Z4	6	#5	4	4'-6"	28
Z5	6	#5	4	6'-0"	38
Z6	6	#5	4	5'-7"	35
Z7	6	#5	4	5'-2"	32
Z8	6	#5	4	4'-10"	30
Z9	6	#5	4	4'-5"	28

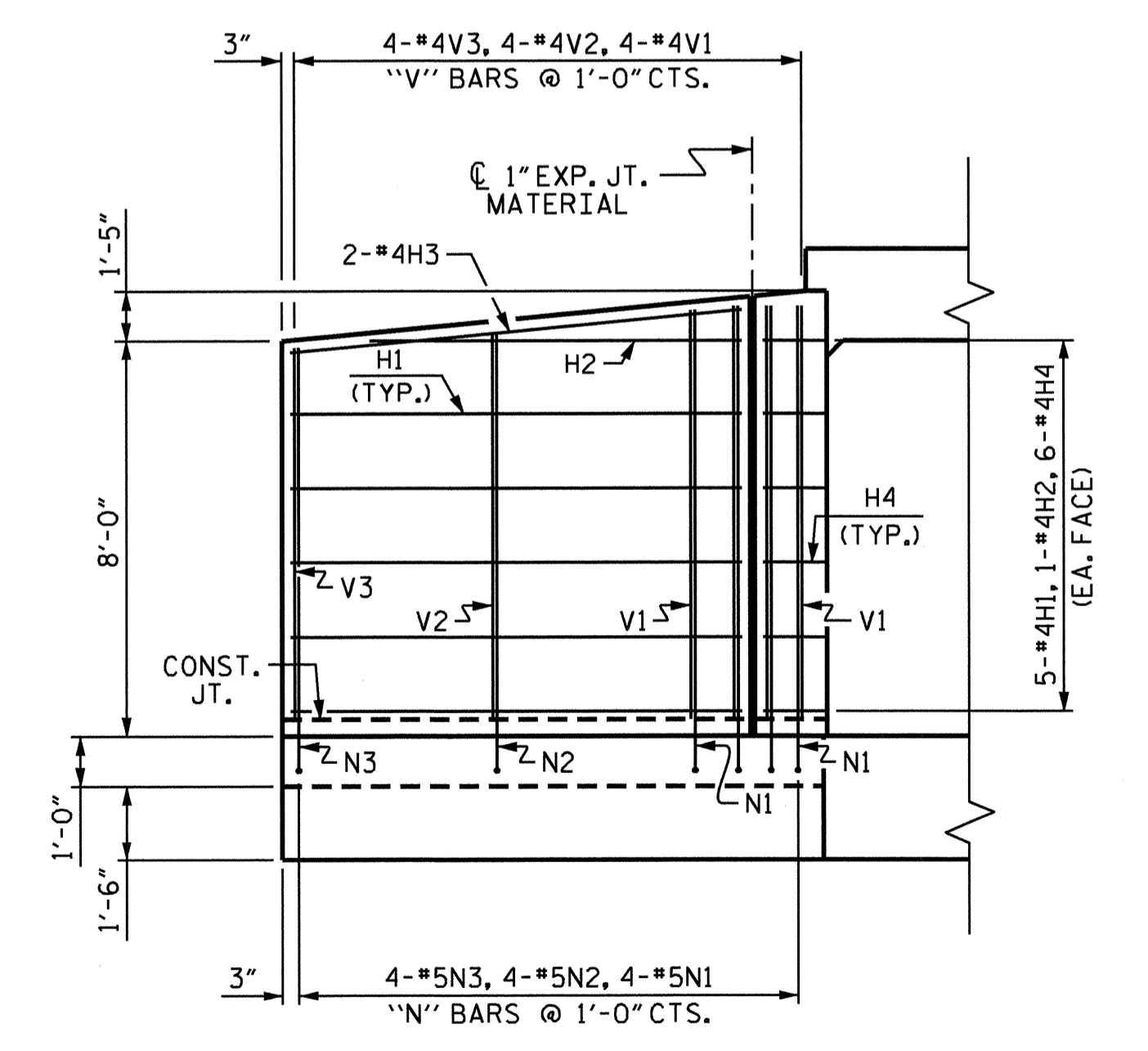
REINFORCING STEEL FOR 4 WINGS 1941 LBS
 CLASS A CONCRETE
 4 WINGS 25.9 CY
 2 HEADWALLS 1.5 CY
 2 END CURTAIN WALLS 1.7 CY
 TOTAL 29.1 CY



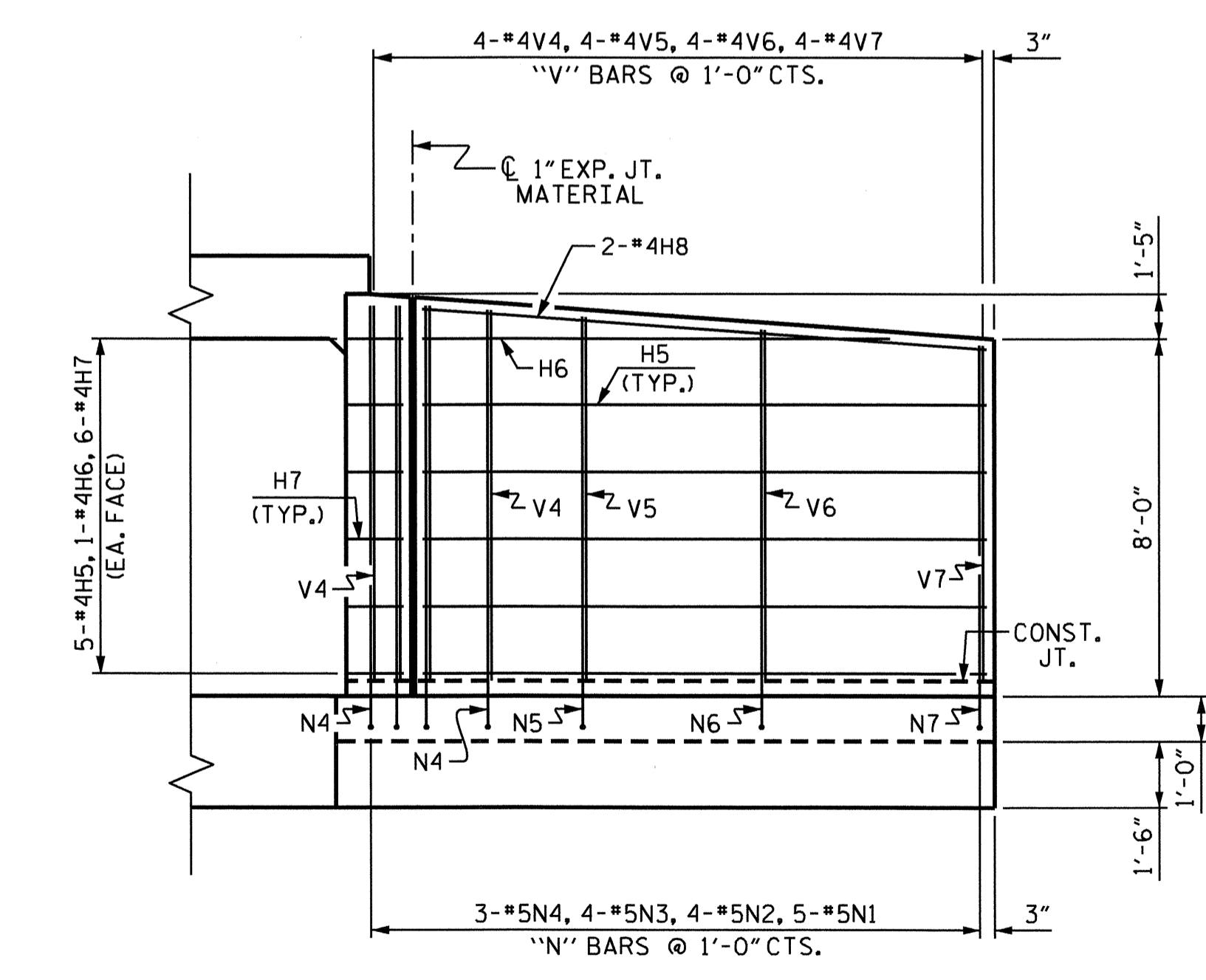
PLAN W2



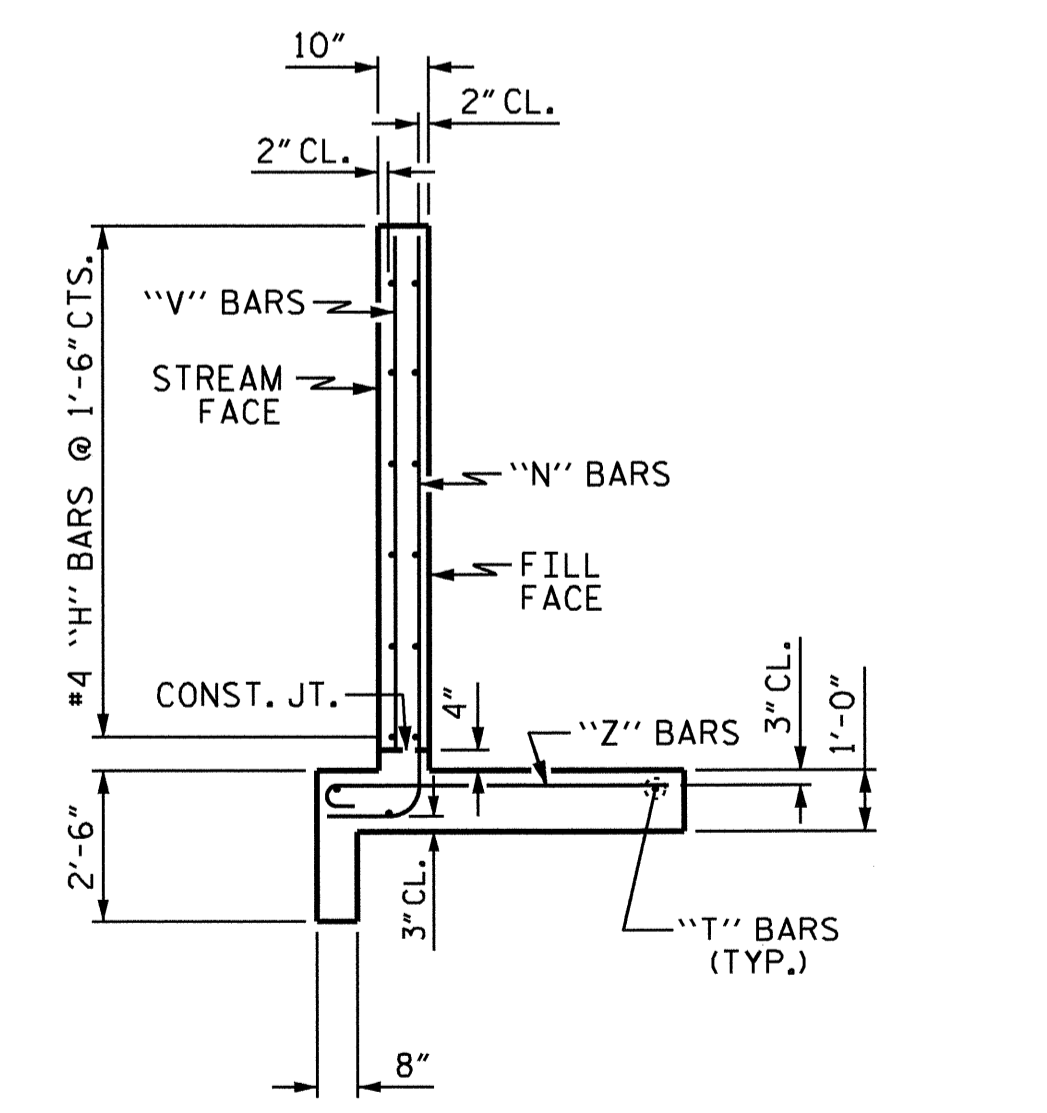
PLAN W1



ELEVATION W2



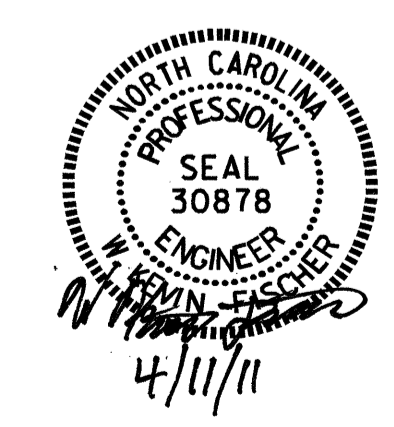
ELEVATION W1



TYPICAL WING SECTION

PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 2+81.00 -LOOPA-

SHEET 4 OF 4



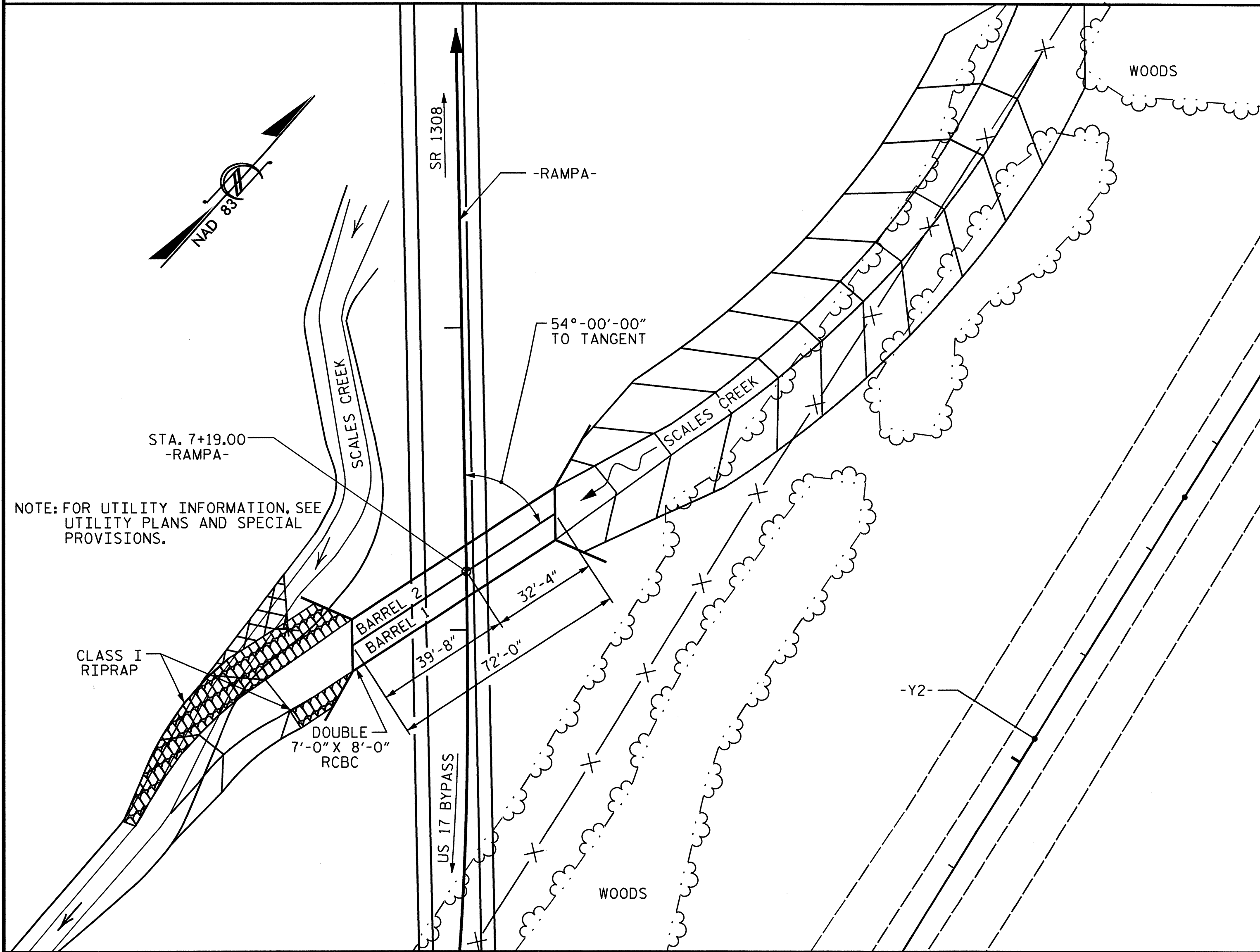
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 WINGS FOR
 CONCRETE BOX CULVERT
 H = 8'-0"
 105° SKEW SLOPE = 6:1 LT.
 4:1 RT.

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

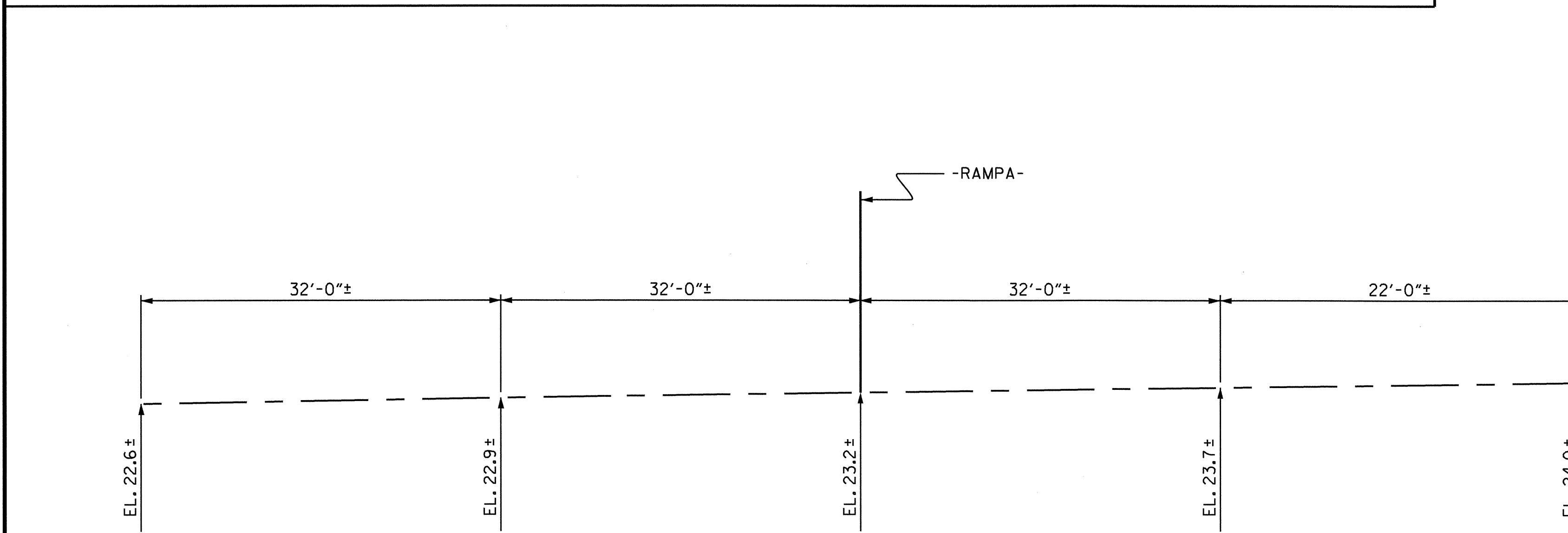
TOTAL SHEETS 21

ASSEMBLED BY: M.K. BEARD DATE: 11/23/10
 CHECKED BY: J. BANKOVICH DATE: 2/11

BM-BL2-, 1.64' RIGHT OF STA 21+56.75 -L-, EL. 35.220



LOCATION SKETCH



PROFILE ALONG CULVERT

ROADWAY DATA

GRADE PT. EL. @ STA. 7+19.00-RAMPA-..... = 30.520
 BED EL. @ STA. 7+19.00-RAMPA-..... = 17.670
 ROADWAY SLOPES @ STA. 7+19.00-RAMPA-..... = 4:1

HYDRAULIC DATA

DESIGN DISCHARGE..... = 540 C. F. S.
 FREQUENCY OF DESIGN FLOOD..... = 50 YRS.
 DESIGN HIGH WATER ELEVATION..... = 26.600
 DRAINAGE AREA..... = 0.47 SQ. MI.
 BASIC DISCHARGE (Q100)..... = 630 C. F. S.
 BASIC HIGH WATER ELEVATION..... = 27.100

OVERTOPPING FLOOD DATA

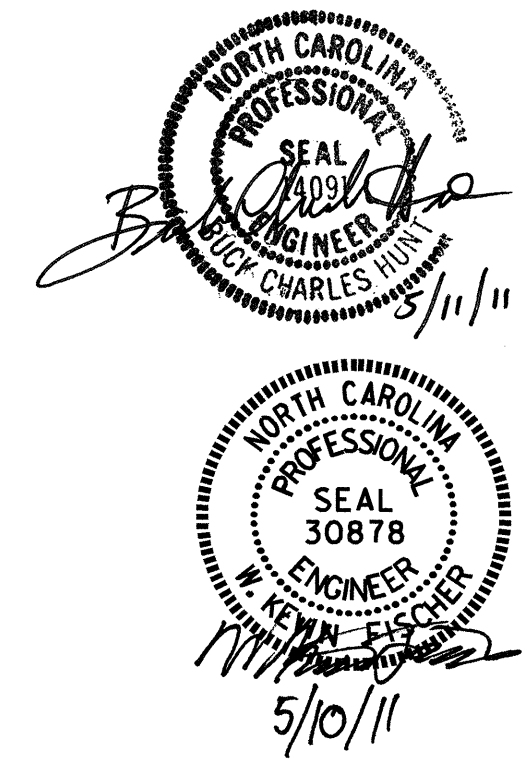
OVERTOPPING DISCHARGE..... = 630+ C. F. S.
 FREQUENCY OF OVERTOPPING FLOOD..... = 100+ YRS.
 OVERTOPPING FLOOD ELEVATION..... = 27.510

NOTES

- ASSUMED LIVE LOAD -----HS20-44 OR ALTERNATE LOADING.
- DESIGN FILL -----3.65 FT.
- FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
- 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- THIS BARREL STANDARD TO BE USED ONLY ON CULVERTS ON 60° SKEW AND TO BE USED WITH STANDARD WING SHEET WITH THE SAME SKEW AND VERTICAL CLEARANCE.
- DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
- STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
- AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
- NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
- 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.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE			
BARREL @	1.588	CY/FT	114.3 C.Y.
OUTLET WINGS ETC.			24.9 C.Y.
INLET WINGS ETC.			21.7 C.Y.
TOTAL			160.9 C.Y.
REINFORCING STEEL			
BARREL	15,742		LBS.
OUTLET WINGS ETC.	1,814		LBS.
INLET WINGS ETC.	1,357		LBS.
TOTAL	18,913		LBS.
CULVERT EXCAVATION			LUMP SUM
FOUNDATION COND. MAT'L.	85		TONS



PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 7+19.00-RAMPA-

SHEET 1 OF 5

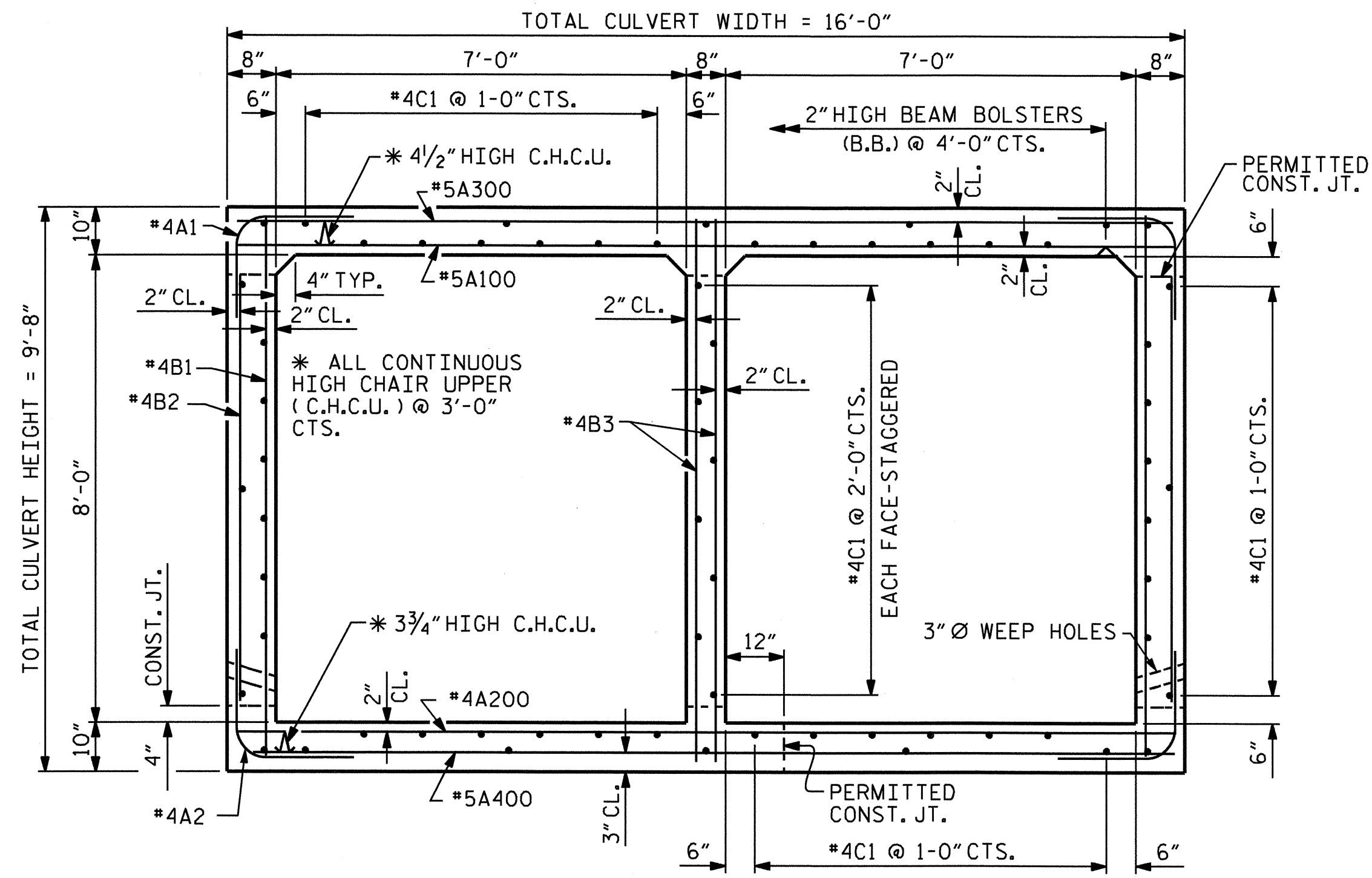
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BARREL STANDARD
 DOUBLE 7 FT. X 8 FT.
 CONCRETE BOX CULVERT
 60° SKEW

SEPTEMBER 1990					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. C-17
					TOTAL SHEETS 21

ADDED 10-1-90

ASSEMBLED BY : R. G. EMERSON	DATE : 12/10	SPECIAL
CHECKED BY : M. K. BEARD	DATE : 1/28/11	
DRAWN BY : B. WYNN/D.DONOVAN	DATE : SEPT. 1990	STANDARD
CHECKED BY : A.R.BISSETTE	DATE : OCT. 90	

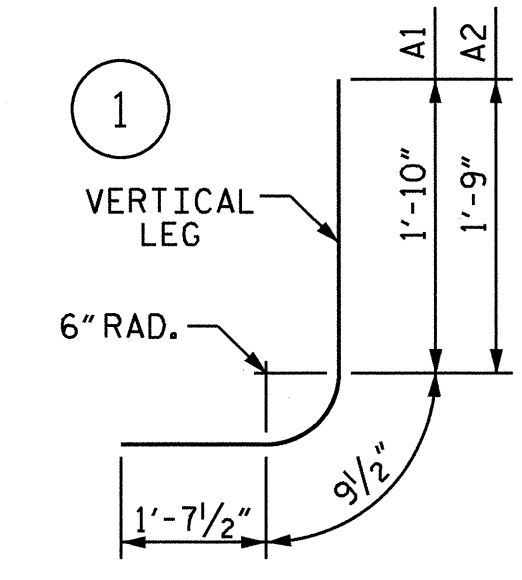
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 wkfisher



RIGHT ANGLE SECTION OF BARREL

THERE ARE 64 "C" BARS IN SECTION OF BARREL.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

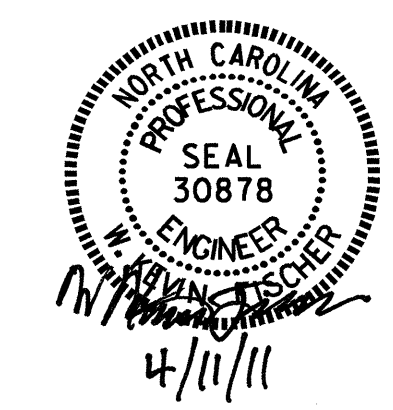
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	280	#4	1	4'-3"	795
A2	280	#4	1	4'-2"	779
A100	76	#5	STR	15'-7"	1235
A101	2	#5	STR	14'-0"	29
A102	2	#5	STR	12'-6"	26
A103	2	#5	STR	11'-1"	23
A104	2	#5	STR	9'-8"	20
A105	2	#5	STR	8'-2"	17
A106	2	#5	STR	6'-9"	14
A107	2	#5	STR	5'-4"	11
A108	2	#5	STR	3'-10"	8
A109	2	#5	STR	2'-5"	5
A200	89	#4	STR	15'-7"	926
A201	4	#4	STR	13'-0"	35
A202	4	#4	STR	10'-6"	28
A203	4	#4	STR	8'-1"	22
A204	4	#4	STR	5'-7"	15
A205	4	#4	STR	3'-2"	8
A300	126	#5	STR	15'-7"	2048
A301	4	#5	STR	13'-8"	57
A302	4	#5	STR	11'-11"	50
A303	4	#5	STR	10'-3"	43
A304	4	#5	STR	8'-6"	35
A305	4	#5	STR	6'-9"	28
A306	4	#5	STR	5'-0"	21
A307	4	#5	STR	3'-4"	14
A400	126	#5	STR	15'-7"	2048
A401	4	#5	STR	13'-8"	57
A402	4	#5	STR	11'-11"	50
A403	4	#5	STR	10'-3"	43
A404	4	#5	STR	8'-6"	35
A405	4	#5	STR	6'-9"	28
A406	4	#5	STR	5'-0"	21
A407	4	#5	STR	3'-4"	14
B1	144	#4	STR	9'-2"	882
B2	288	#4	STR	7'-4"	1411
B3	144	#4	STR	9'-2"	882
C1	192	#4	STR	25'-4"	3249
G1	8	#5	STR	18'-1"	151
S1	12	#8	STR	18'-1"	579
REINFORCING STEEL					15,742 LBS.

SPLICE LENGTH CHART

BAR	SIZE	SPLICE LENGTH
A200	#4	1'-9"
A400	#5	1'-9"
B1	#4	1'-9"
B3	#4	1'-9"
C1	#4	1'-11"

PROJECT NO. U-4007A
ONslow COUNTY
 STATION: 7+19.00 -RAMPA-
 SHEET 3 OF 5

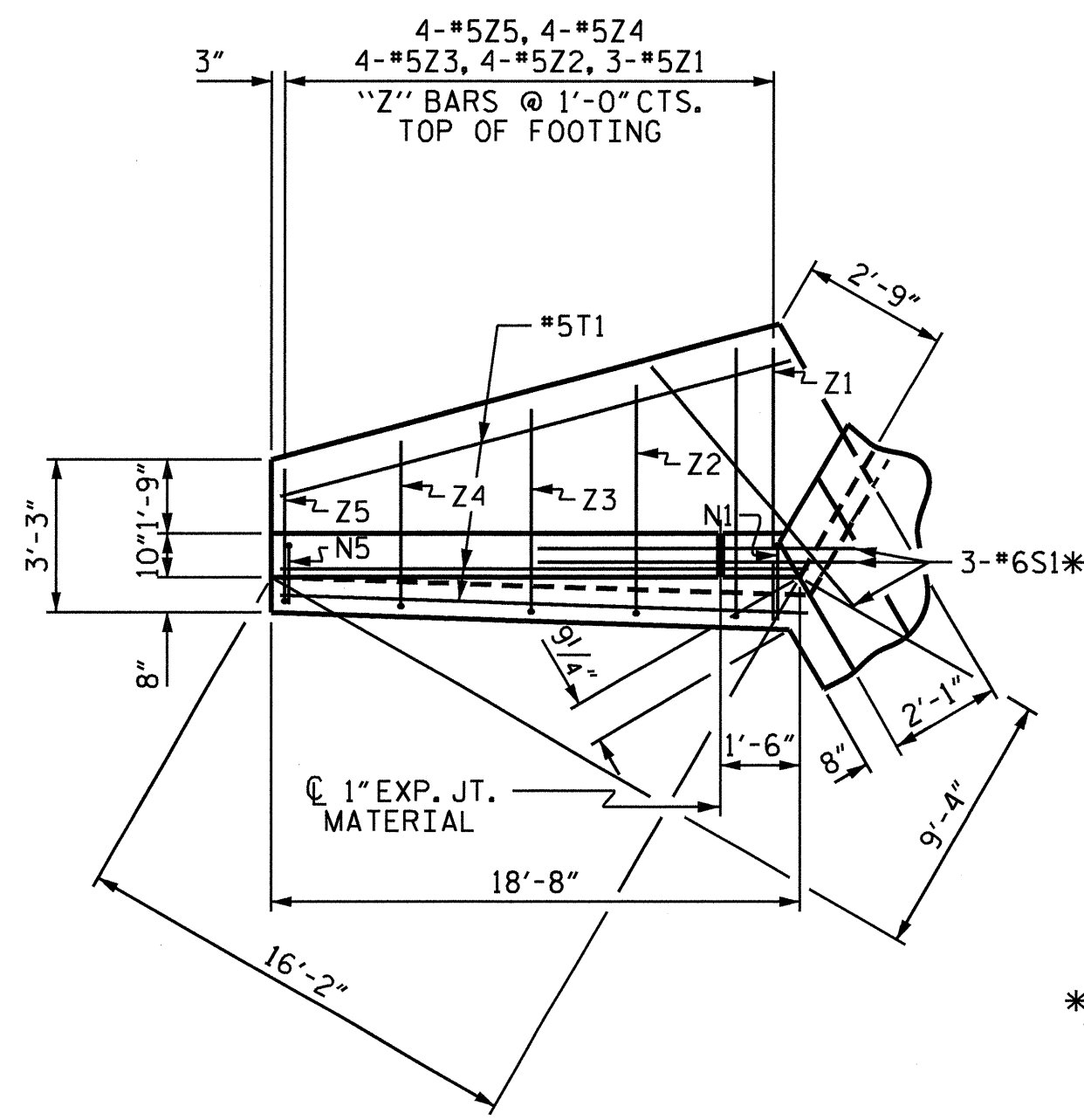


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE 7 FT. X 8 FT.
 CONCRETE BOX CULVERT
 60° SKEW

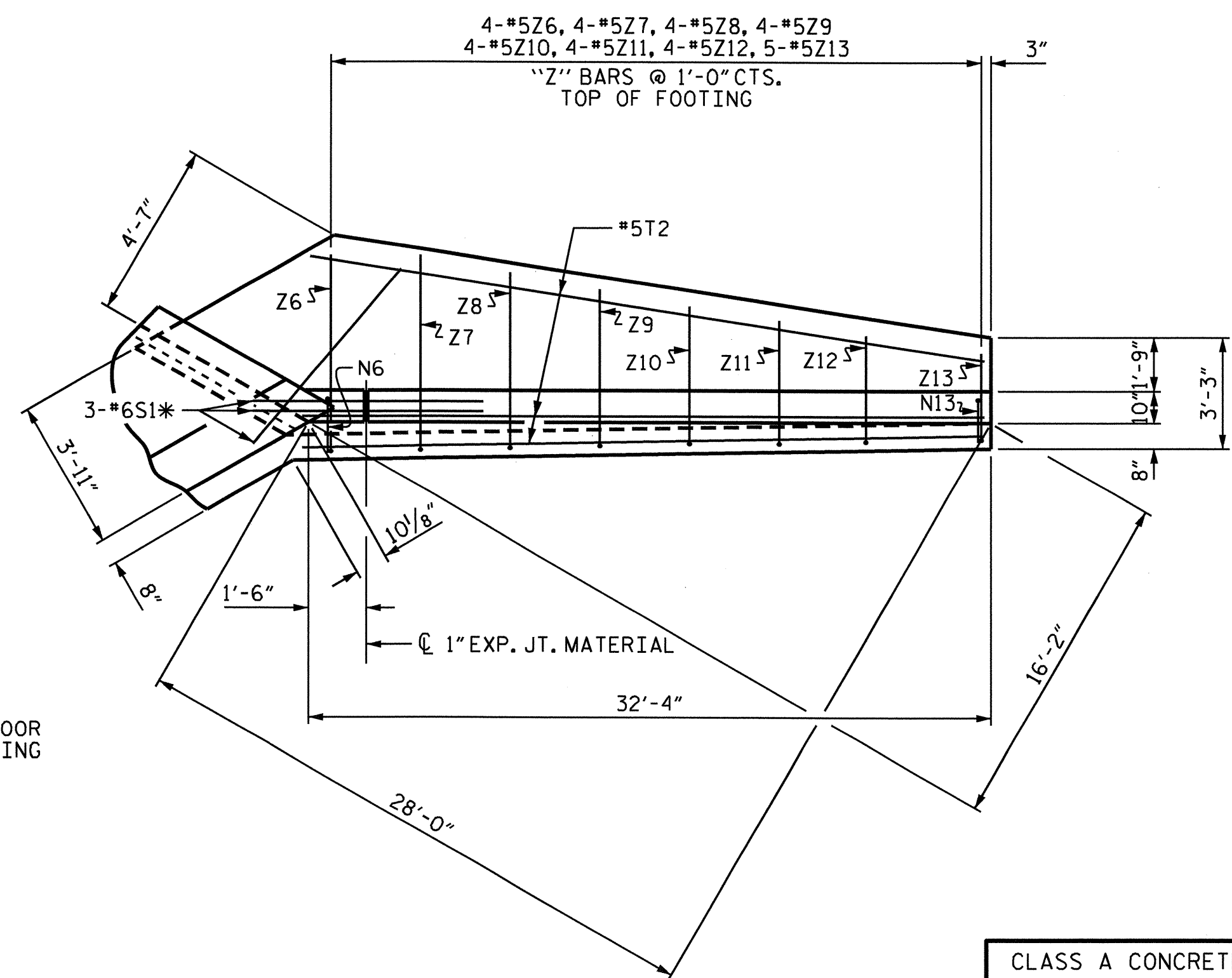
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-19
1			3			TOTAL SHEETS
2			4			21

DRAWN BY: R. G. EMERSON DATE: 12/10
 CHECKED BY: M. K. BEARD DATE: 1/28/11

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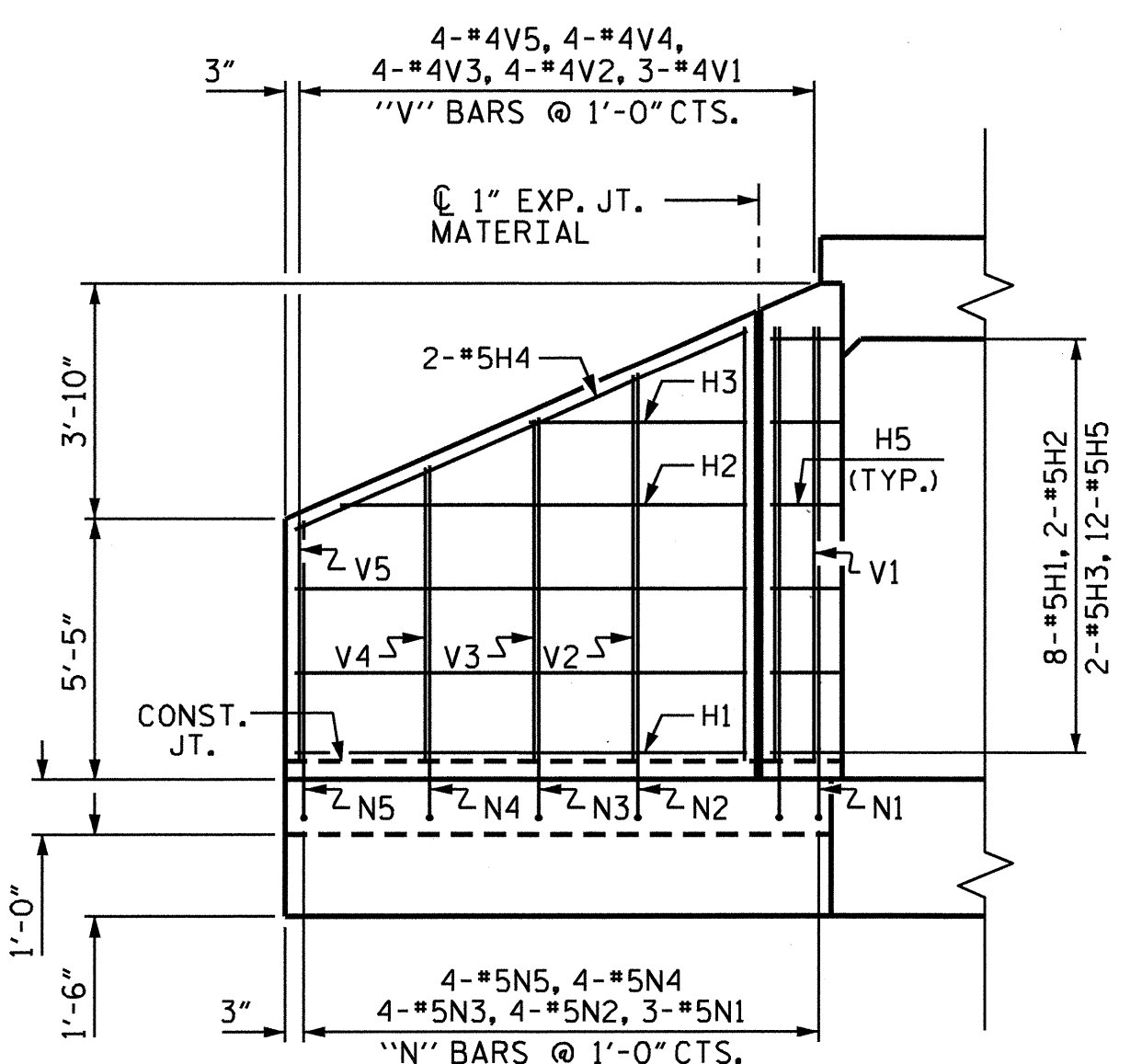
PLAN W4



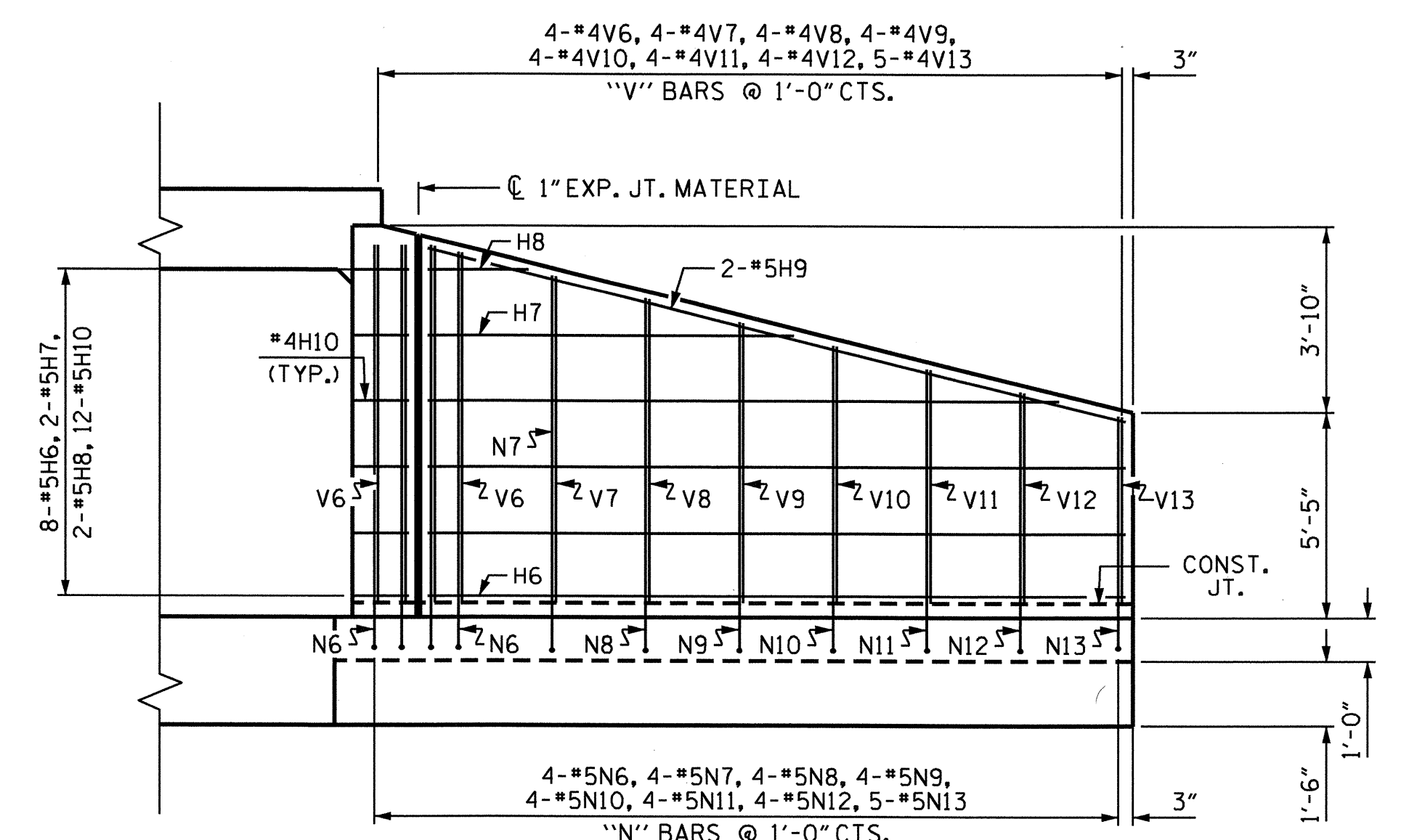
PLAN W3

CLASS A CONCRETE		
2 WINGS	23.1	CY
1 HEADWALL	0.9	CY
1 END CURTAIN WALL	0.9	CY
TOTAL	24.9	CY

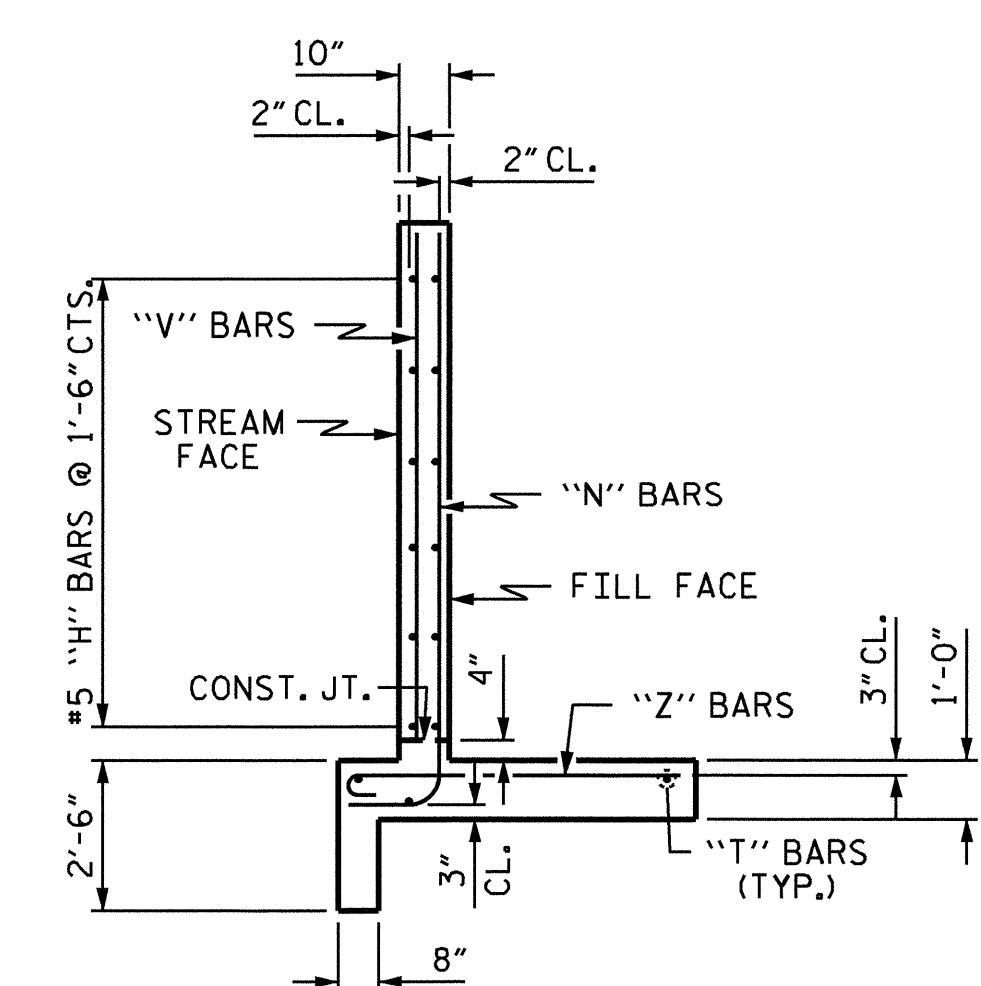
*BOTTOM OF FLOOR SLAB AND FOOTING



ELEVATION W4



ELEVATION W3



TYPICAL WING SECTION

BAR TYPES

BILL OF MATERIAL

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	#5	STR	16'-9"	140
H2	#5	STR	10'-9"	22
H3	#5	STR	3'-6"	7
H4	#5	STR	17'-1"	36
H5	#5	1	3'-3"	41
H6	#5	STR	30'-5"	254
H7	#5	STR	20'-0"	42
H8	#5	STR	7'-4"	15
H9	#5	STR	30'-6"	64
H10	#5	2	3'-3"	41
N1	#5	3	10'-5"	33
N2	#5	3	9'-6"	40
N3	#5	3	8'-8"	36
N4	#5	3	7'-9"	32
N5	#5	3	7'-0"	29
N6	#5	3	10'-5"	43
N7	#5	3	9'-11"	41
N8	#5	3	9'-6"	40
N9	#5	3	8'-11"	37
N10	#5	3	8'-5"	35
N11	#5	3	8'-0"	33
N12	#5	3	7'-6"	31
N13	#5	3	7'-0"	37
S1	#6	STR	6'-0"	54
T1	#5	STR	18'-8"	58
T2	#5	STR	32'-4"	101
V1	#4	STR	8'-3"	17
V2	#4	STR	7'-5"	20
V3	#4	STR	6'-7"	18
V4	#4	STR	5'-8"	15
V5	#4	STR	4'-11"	13
V6	#4	STR	8'-4"	22
V7	#4	STR	7'-10"	21
V8	#4	STR	7'-5"	20
V9	#4	STR	6'-11"	18
V10	#4	STR	6'-5"	17
V11	#4	STR	5'-11"	15
V12	#4	STR	5'-6"	13
V13	#4	STR	4'-11"	13
Z1	#5	4	5'-9"	18
Z2	#5	4	5'-2"	22
Z3	#5	4	4'-8"	19
Z4	#5	4	4'-1"	17
Z5	#5	4	3'-6"	15
Z6	#5	4	5'-10"	24
Z7	#5	4	5'-6"	23
Z8	#5	4	5'-2"	22
Z9	#5	4	4'-10"	20
Z10	#5	4	4'-6"	19
Z11	#5	4	4'-2"	17
Z12	#5	4	3'-10"	16
Z13	#5	4	3'-6"	18

ALL BAR DIMENSIONS ARE OUT TO OUT.

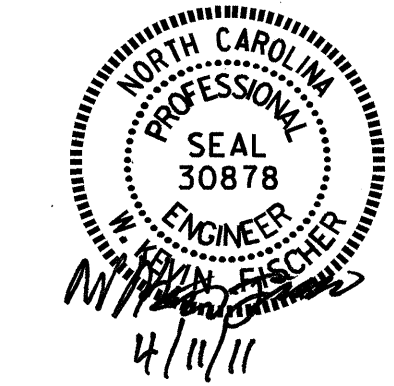
REINFORCING STEEL 1814

DRAWN BY : R. G. EMERSON DATE : 11/10
 CHECKED BY : M. K. BEARD DATE : 1/28/11

06-APR-2011 11:51
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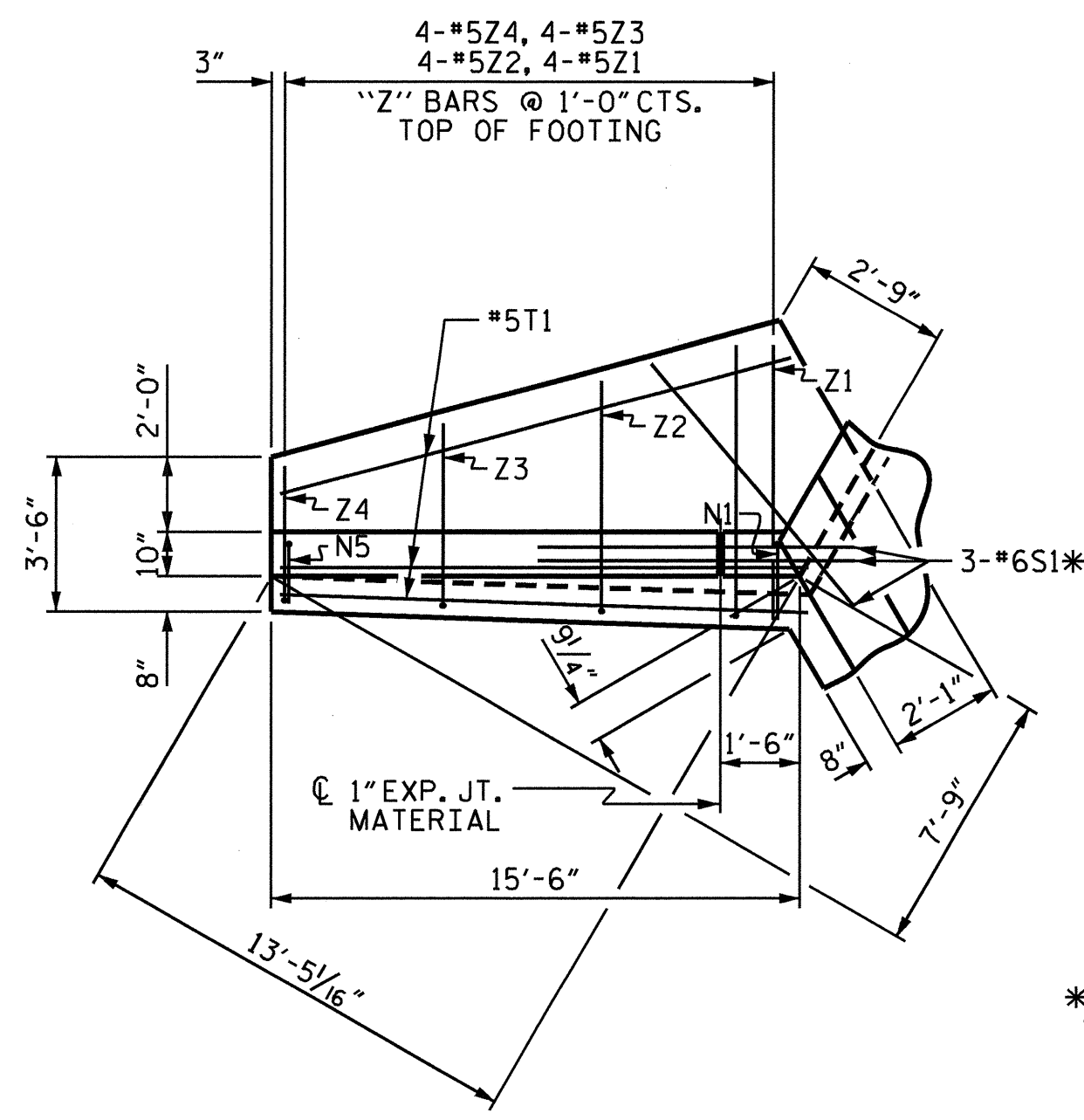
PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 7+19.00 -RAMPA-

SHEET 4 OF 5
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 OUTLET END
 WINGS FOR
 CONCRETE BOX CULVERT
 H = 8'-0" SLOPE = 4:1
 60° SKEW

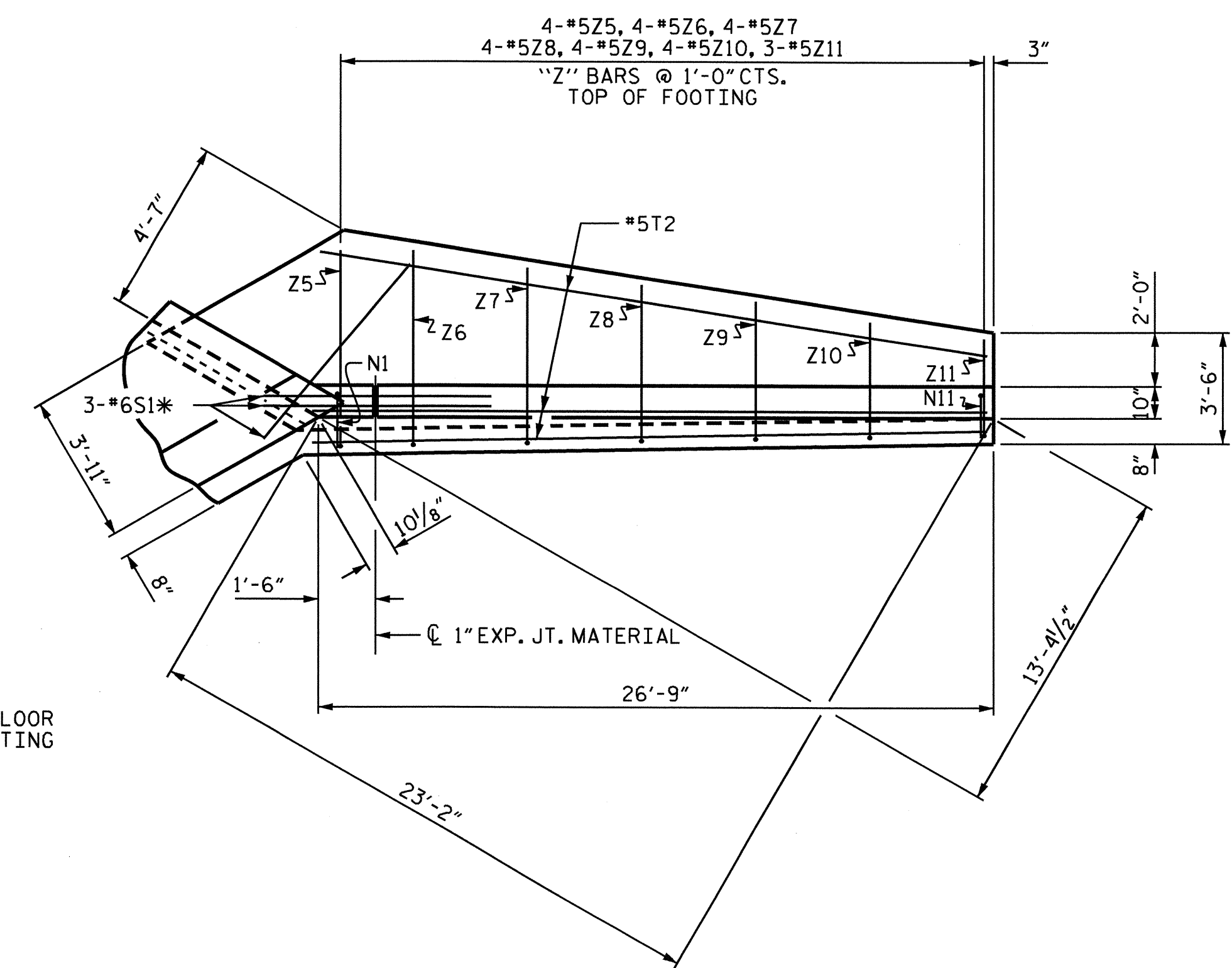


REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

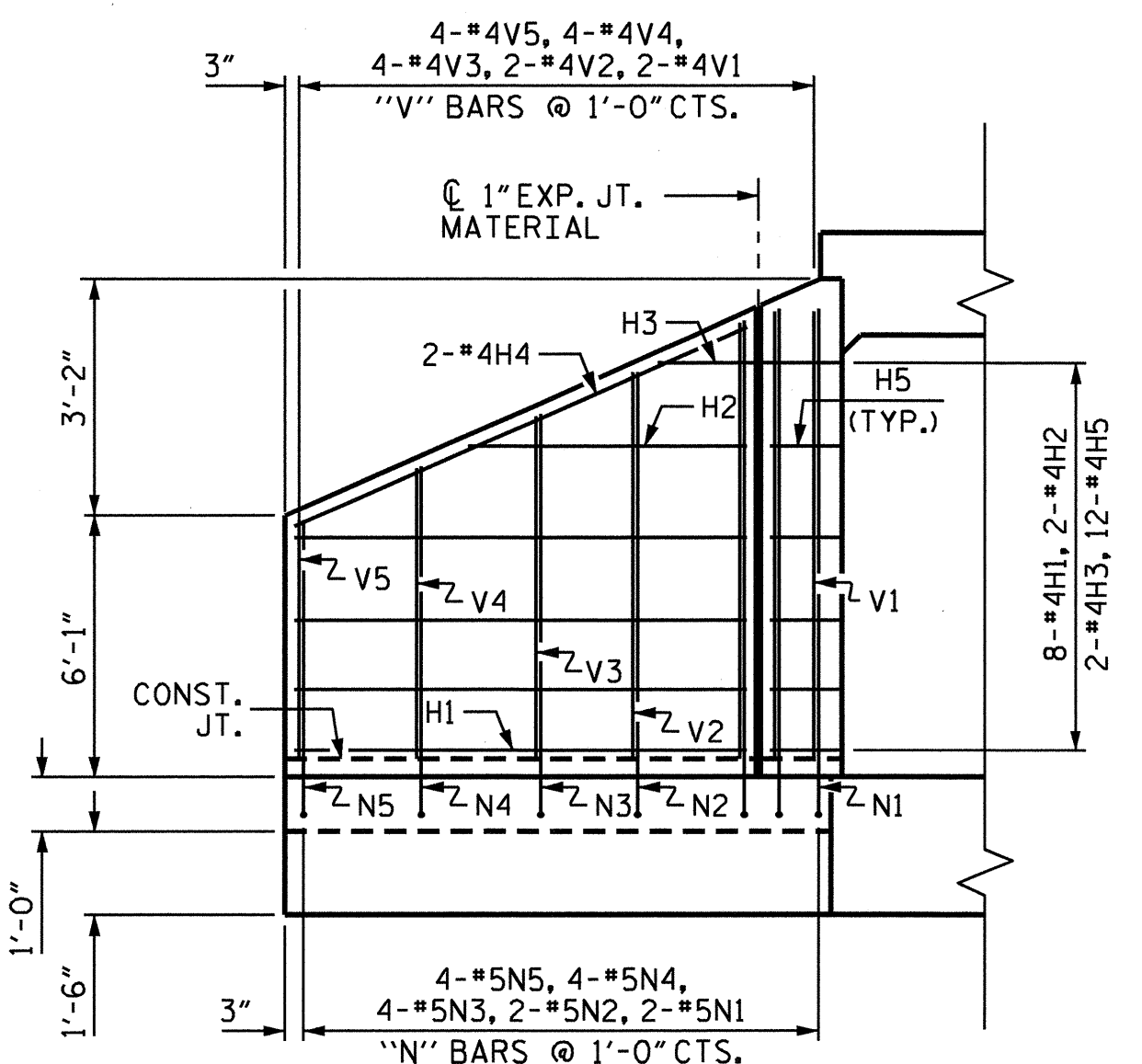
C-20
 TOTAL SHEETS
 21



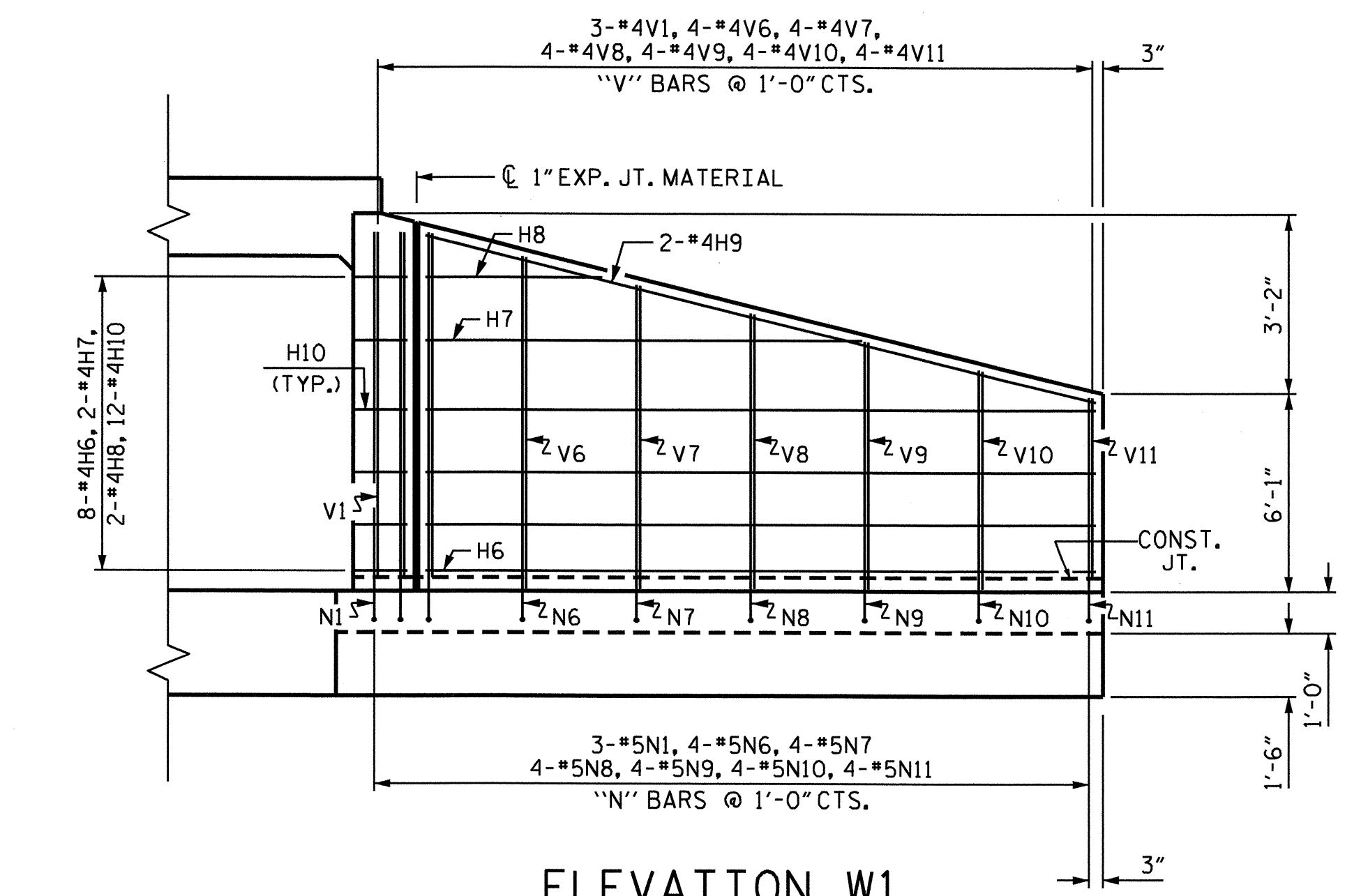
PLAN W2



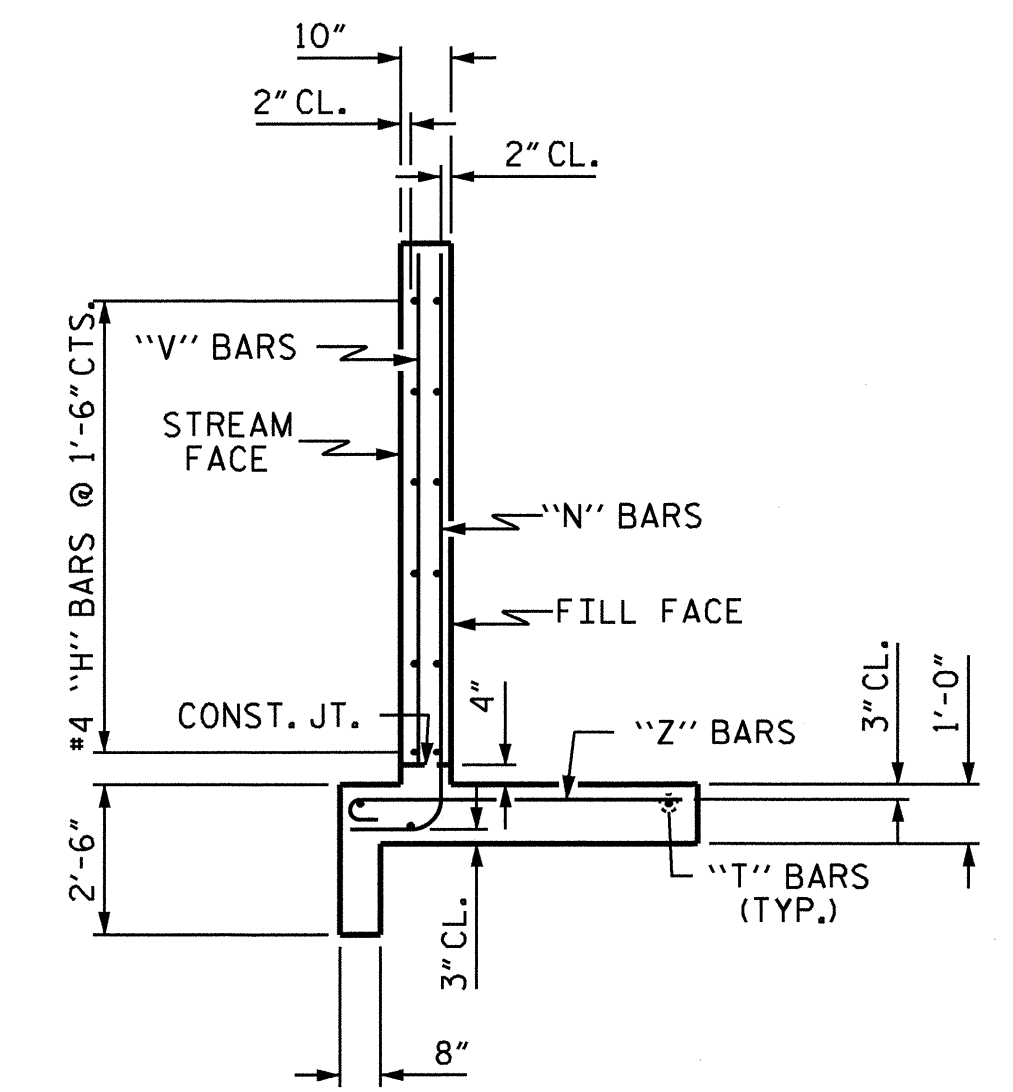
PLAN W1



ELEVATION W2



ELEVATION W1



TYPICAL WING SECTION

BAR TYPES

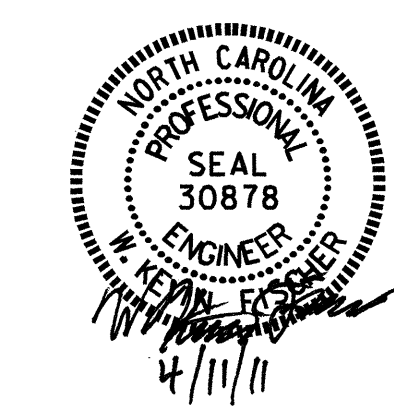
ALL BAR DIMENSIONS ARE OUT TO OUT.

1
2
3
4

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	#4	STR	13'-7"	73
H2	2	#4	STR	10'-6"	14
H3	2	#4	STR	3'-2"	4
H4	2	#4	STR	13'-10"	18
H5	12	#4	1	3'-3"	26
H6	8	#4	STR	24'-10"	133
H7	2	#4	STR	19'-5"	26
H8	2	#4	STR	6'-9"	9
H9	2	#4	STR	25'-0"	33
H10	12	#4	2	3'-3"	26
N1	5	#5	3	10'-5"	54
N2	2	#5	3	10'-1"	21
N3	4	#5	3	9'-2"	38
N4	4	#5	3	8'-5"	35
N5	4	#5	3	7'-8"	32
N6	4	#5	3	9'-10"	41
N7	4	#5	3	9'-6"	40
N8	4	#5	3	8'-11"	37
N9	4	#5	3	8'-6"	35
N10	4	#5	3	8'-1"	34
N11	4	#5	3	7'-7"	32
S1	6	#6	STR	6'-0"	54
T1	3	#5	STR	15'-3"	48
T2	3	#5	STR	26'-9"	84
V1	5	#4	STR	8'-5"	28
V2	2	#4	STR	8'-1"	11
V3	4	#4	STR	7'-2"	19
V4	4	#4	STR	6'-4"	17
V5	4	#4	STR	5'-7"	15
V6	4	#4	STR	7'-10"	21
V7	4	#4	STR	7'-6"	20
V8	4	#4	STR	6'-11"	18
V9	4	#4	STR	6'-6"	17
V10	4	#4	STR	6'-0"	16
V11	4	#4	STR	5'-7"	15
Z1	4	#5	4	5'-7"	23
Z2	4	#5	4	5'-0"	21
Z3	4	#5	4	4'-4"	18
Z4	4	#5	4	3'-9"	16
Z5	4	#5	4	5'-10"	24
Z6	4	#5	4	5'-6"	23
Z7	4	#5	4	5'-1"	21
Z8	4	#5	4	4'-9"	20
Z9	4	#5	4	4'-5"	18
Z10	4	#5	4	4'-0"	17
Z11	3	#5	4	3'-9"	12
REINFORCING STEEL				1357	LBS
CLASS A CONCRETE					
2 WINGS				19.9	CY
1 HEADWALL				0.9	CY
1 END CURTAIN WALL				0.9	CY
TOTAL				21.7	CY

PROJECT NO. U-4007A
 ONSLOW COUNTY
 STATION: 7+19.00 -RAMPA-

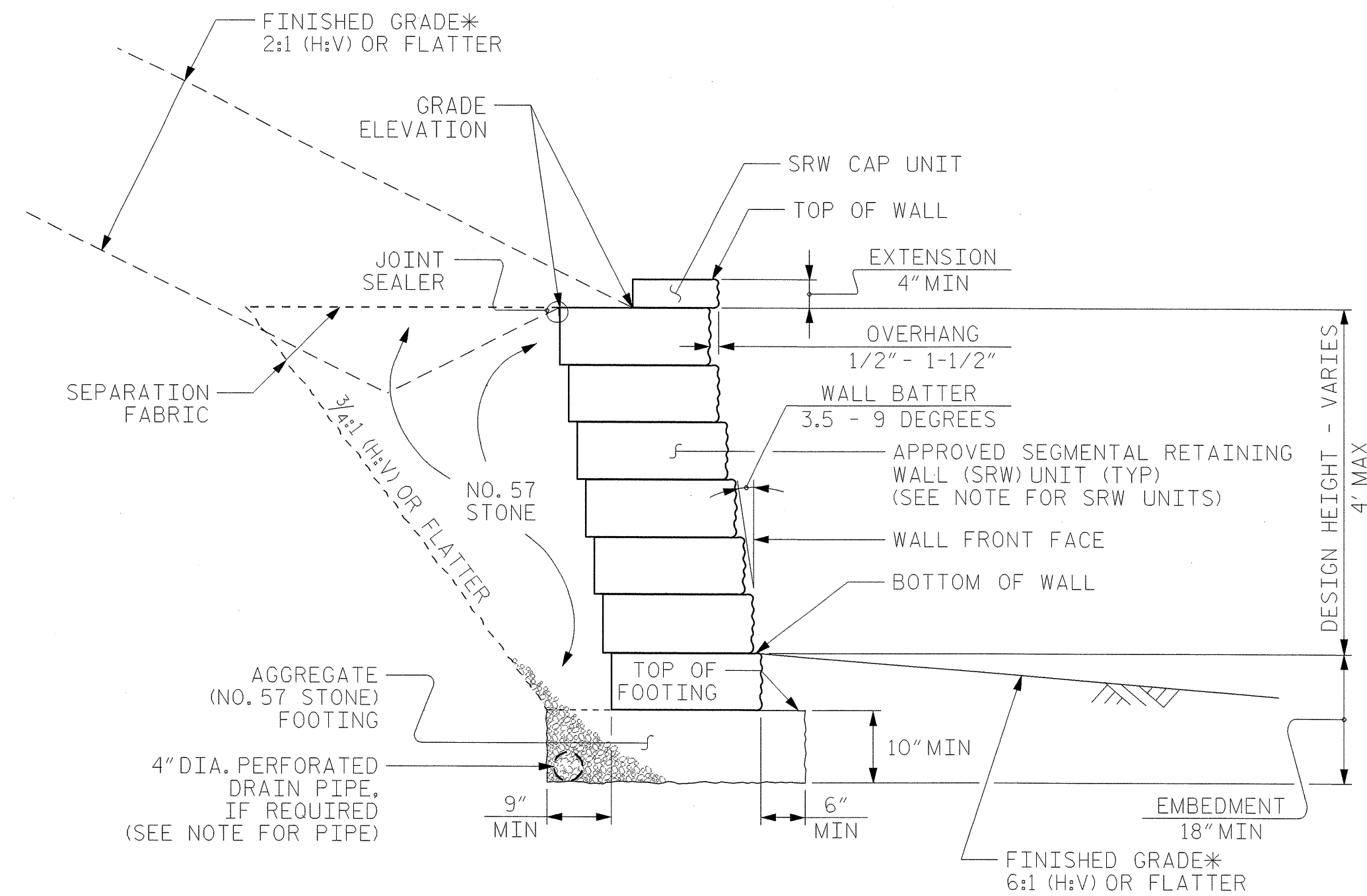
SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**INLET END
 WINGS FOR
 CONCRETE BOX CULVERT**
 H = 8'-0" SLOPE = 4:1
 60° SKEW

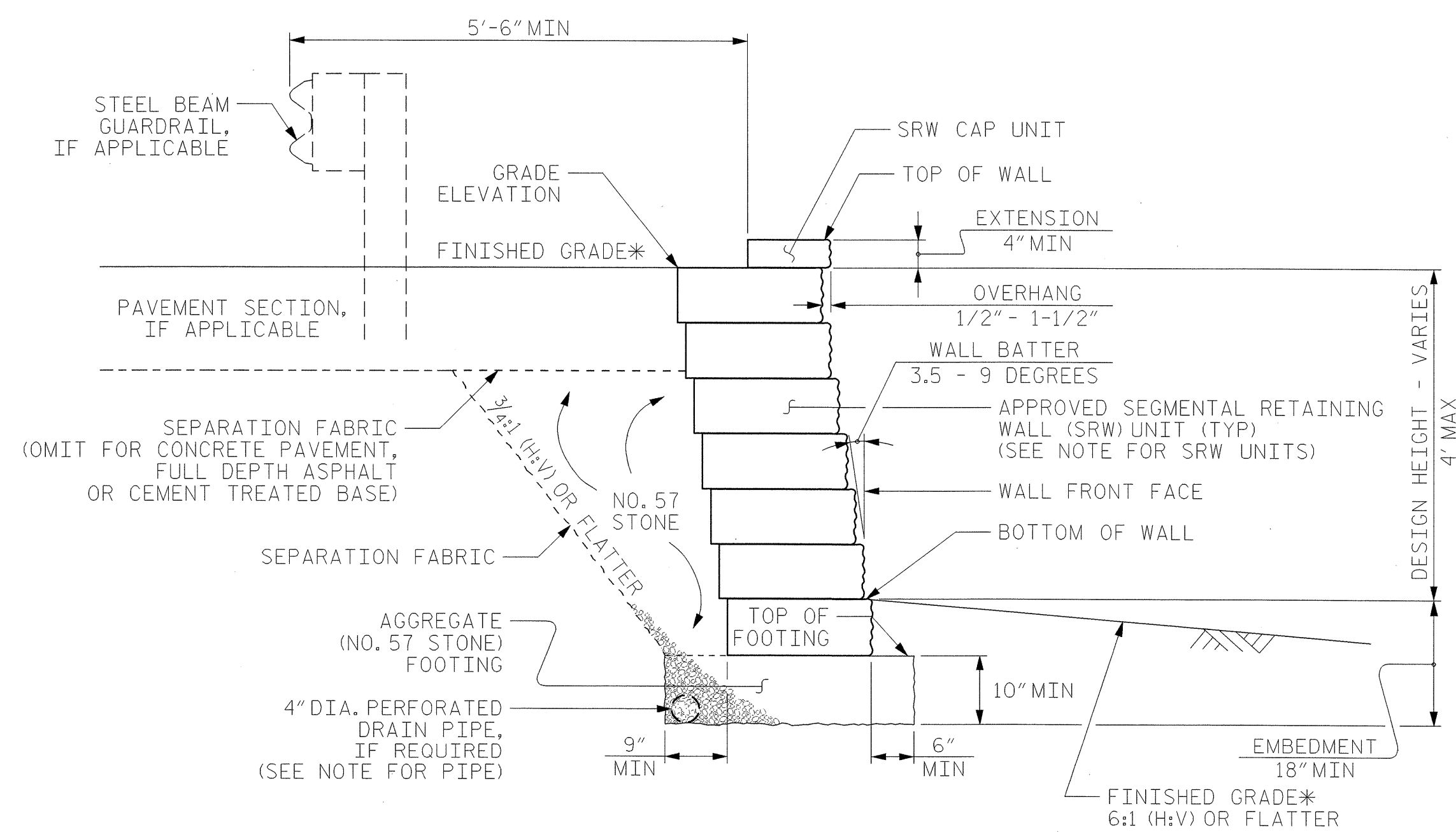
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-21
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : R. G. EMERSON
 CHECKED BY : M. K. BEARD
 DATE : 11/10
 DATE : 1/28/11



STANDARD SEGMENTAL GRAVITY WALL WITH BACK SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE AND DITCH DETAILS.



STANDARD SEGMENTAL GRAVITY WALL WITHOUT BACK SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

FOR STANDARD SEGMENTAL GRAVITY RETAINING WALLS, SEE SEGMENTAL GRAVITY RETAINING WALLS PROVISION.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

DO NOT ATTACH FENCES OR HANDRAILS TO STANDARD SEGMENTAL GRAVITY WALLS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS FOR INTERSTATE HIGHWAY OR RAILROAD PROJECTS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN SURCHARGE LOADS WILL BE LOCATED CLOSER THAN 5'-6" FROM THE BACK OF WALLS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW WALLS.

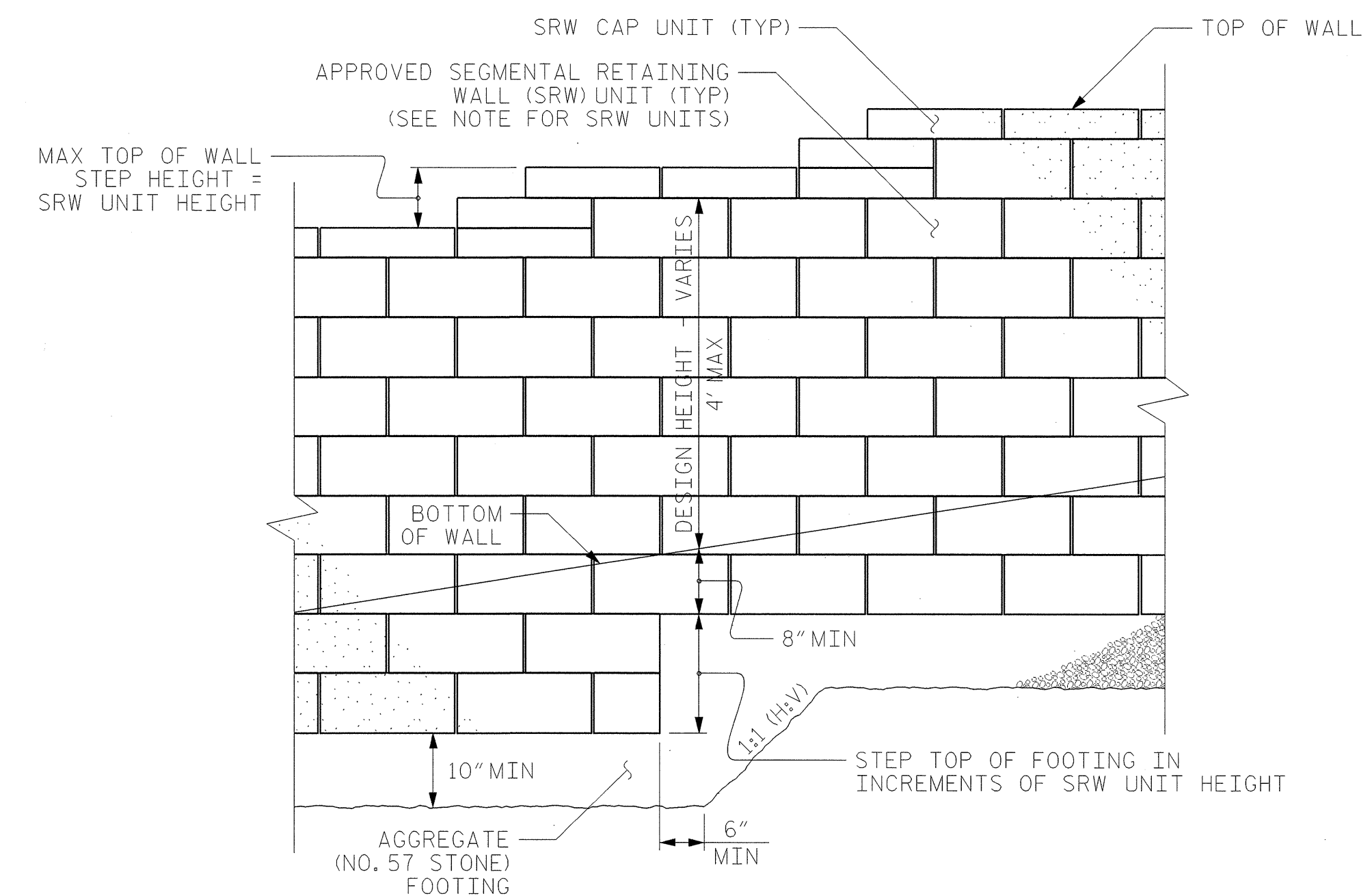
SRW UNITS ARE APPROVED FOR EITHER 2' OR 4' MAXIMUM DESIGN HEIGHTS. FOR DETAILS AND DIMENSIONS OF APPROVED SRW UNITS AND MAXIMUM DESIGN HEIGHTS, SEE www.ncdot.org/doh/preconstruct/highway/geotech/seggravwalls

DO NOT MIX APPROVED SRW UNITS FROM DIFFERENT VENDORS ON THE SAME STANDARD SEGMENTAL GRAVITY WALL. USE THE SAME SIZE APPROVED SRW UNITS FOR EACH WALL SECTION.

BEFORE BEGINNING STANDARD SEGMENTAL GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.

A DRAIN PIPE IS REQUIRED IF GROUNDWATER IS ABOVE BOTTOM OF FOOTINGS.

DO NOT PLACE NO. 57 STONE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



STANDARD SEGMENTAL GRAVITY WALL - PARTIAL ELEVATION

WALL	BEGIN STATION	END STATION	OFFSET	ESTIMATED AREA
NO. 1	58+96 -L-	60+05 -L-	58.25 FT. LT	250 SF

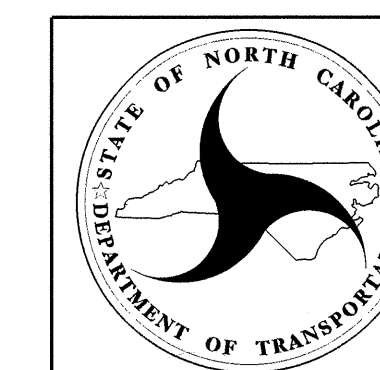
PROJECT NO.: 35008.1.1 (U-4007A)

ONSLow COUNTY

STATION: 59+00 -L-

SHEET 1 OF 1

STANDARD DRAWING NO. 453.02



GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD SEGMENTAL GRAVITY RETAINING WALL

SHEET NO. W-1 TOTAL SHEETS 1

DATE: 6/21/11

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN