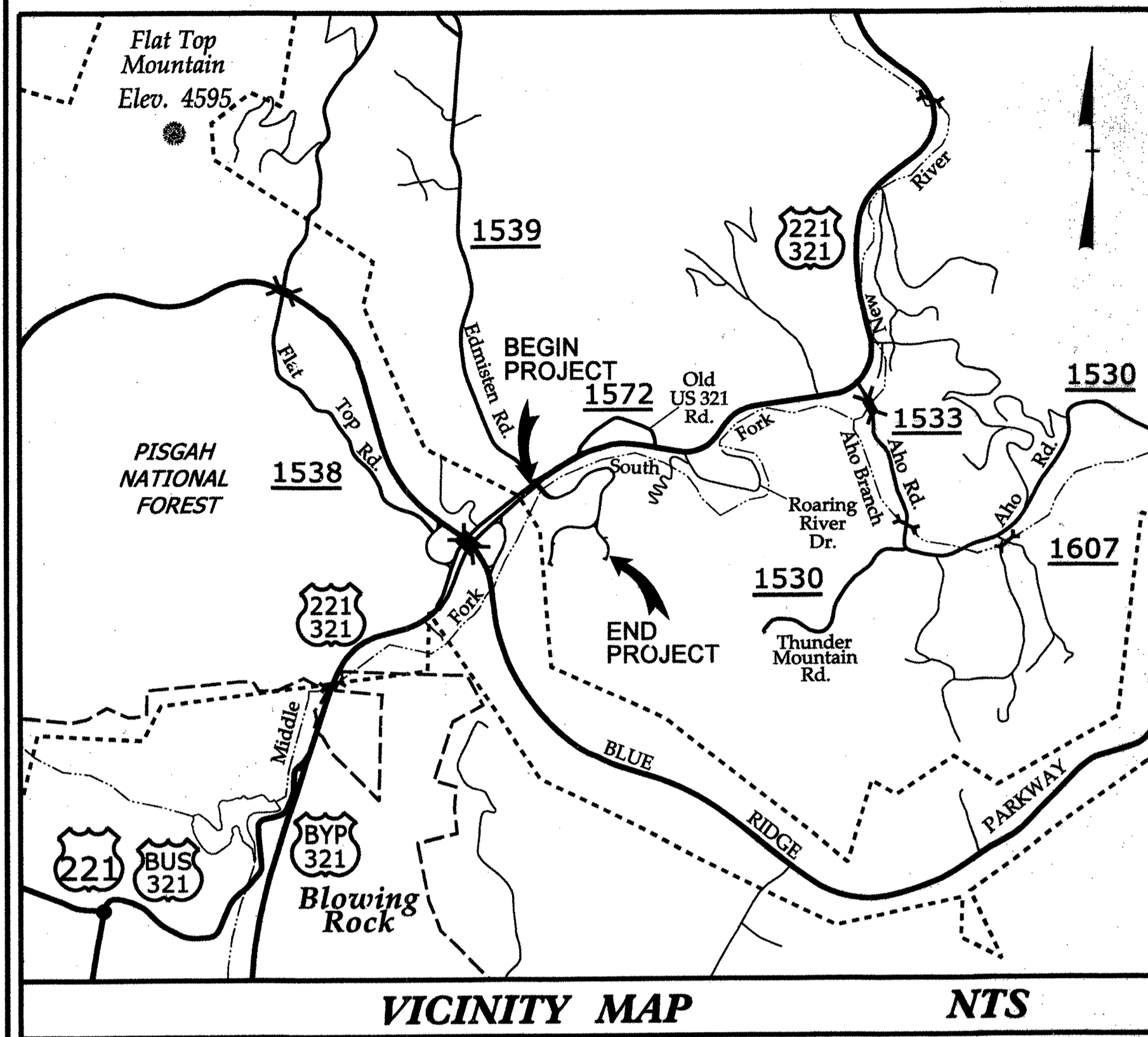


09/08/99

**TIP PROJECT: R-5525**

**C203598**

**CONTRACT:**

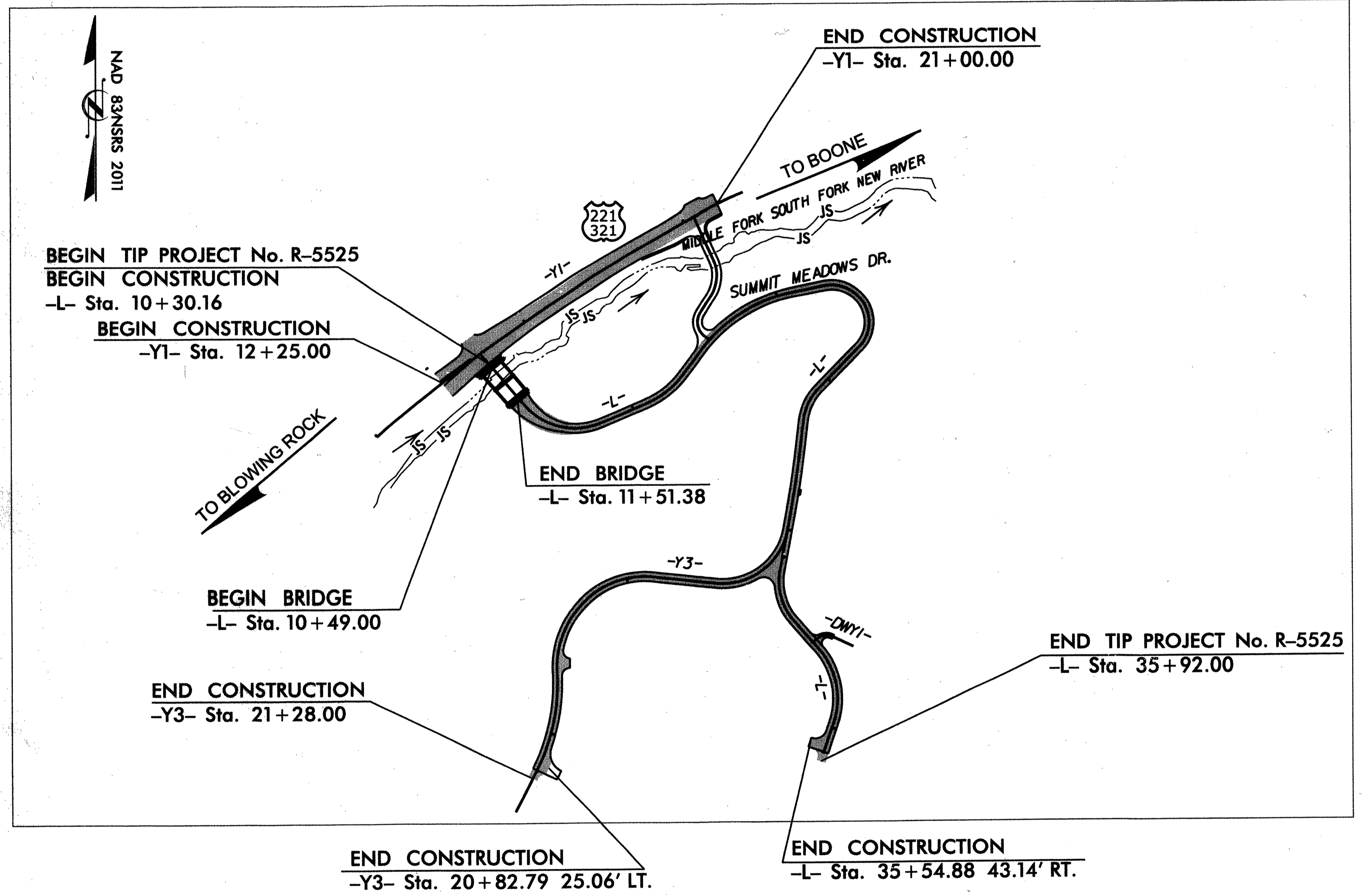


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**WATAUGA COUNTY**

**LOCATION: CONSTRUCTION ACCESS ROAD TO  
BLOWING ROCK POST-ACUTE CARE FACILITY**  
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5525		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
43761.3.FD1	APD-1103(29)	PE	
43761.3.1	APD-1103(29)	CONST.	



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**DESIGN DATA**

ADT	=	NA
ADT	=	NA
DHV	=	NA %
D	=	NA %
T	=	NA % *
V	=	25 MPH
* TTST	=	DUAL
FUNC CLASS	=	
LOCAL RURAL	=	
SUBREGIONAL TIER	=	

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT	=	0.466 MILES
LENGTH STRUCTURES PROJECT	=	0.019 MILES
TOTAL LENGTH PROJECT	=	0.485 MILES

Prepared In the Office of:  
**THE LOUIS BERGER GROUP, Inc.**  
1001 Wade Avenue, Suite 400  
Raleigh, North Carolina 27605  
License No.: F-0840

2012 STANDARD SPECIFICATIONS

**DEAN D. HATFIELD, PE**  
PROJECT ENGINEER

**PAUL HOLSHOUSER, PE**  
PROJECT DESIGN ENGINEER

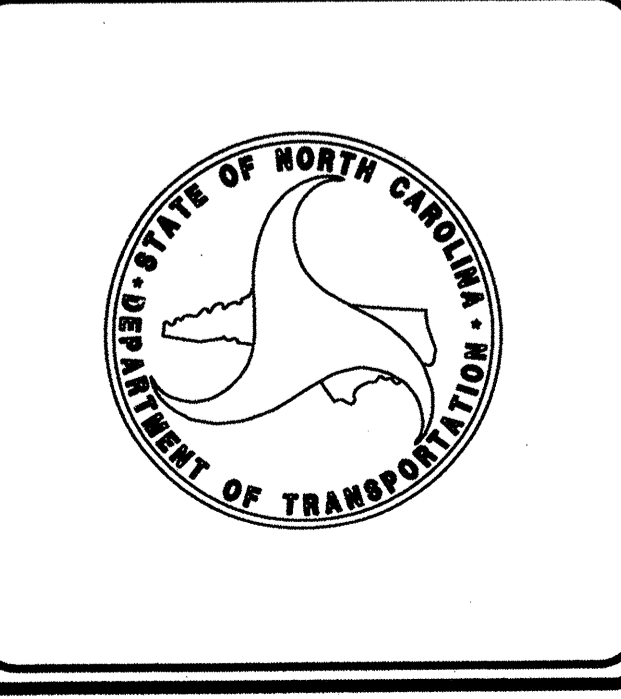
LETTING DATE:  
JULY 15, 2014

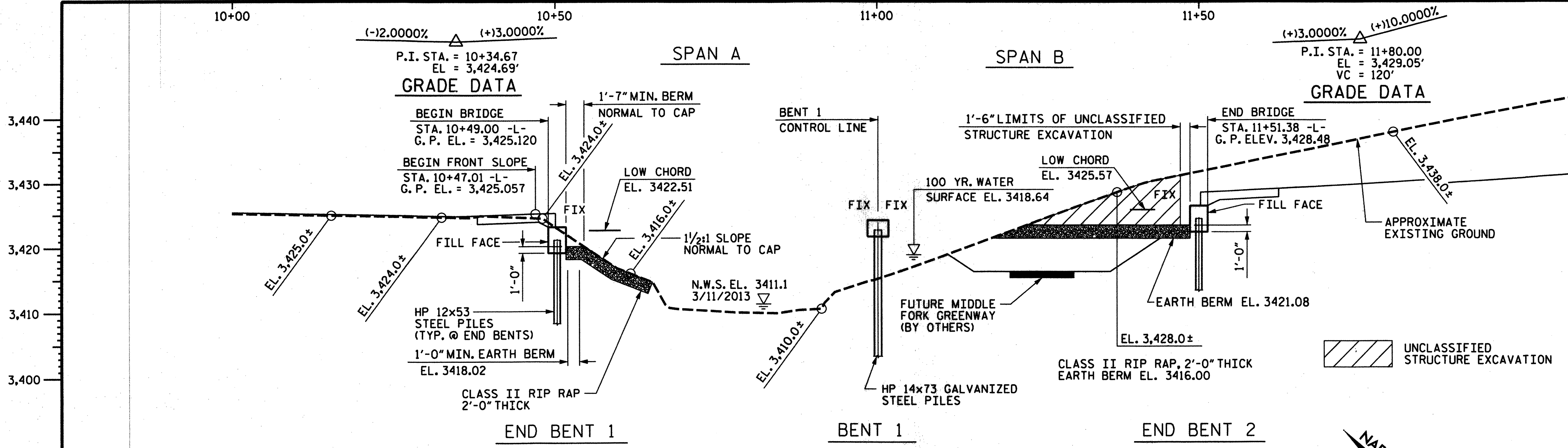
**STRUCTURE DESIGN ENGINEER**

**SEAL 20668**

12/14/14

*Paul R. Holshouser* P.E.  
SIGNATURE:





**NOTES:**

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR UTILITY INFORMATION, SEE UTILITY PLANS.

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, 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 SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 3410.0'. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

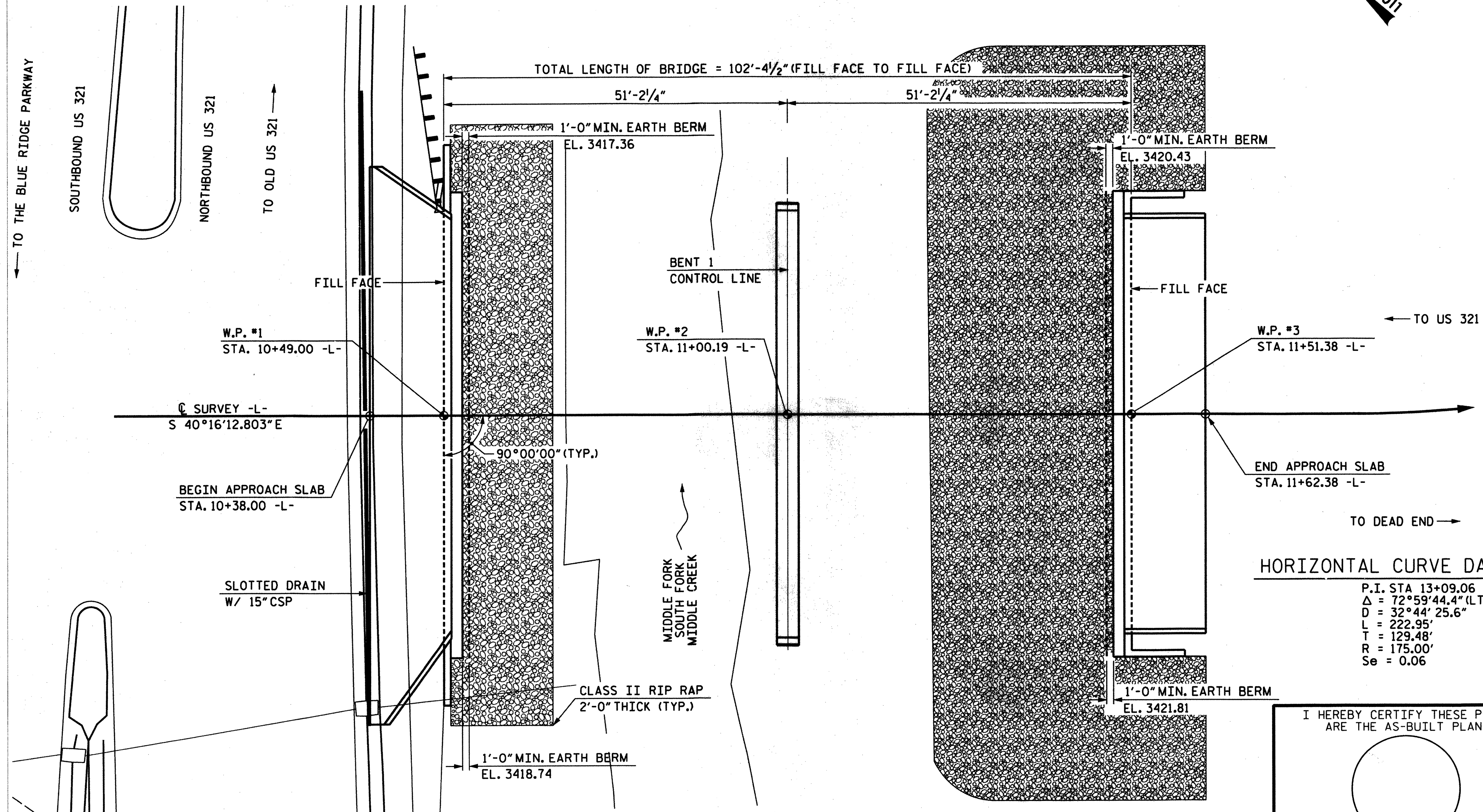
SPECIAL CONCRETE BARRIER RAIL WITH CAST-IN-PLACE SIMULATED STONE FORM LINER FINISH IS TO BE CONSTRUCTED USING CONVENTIONAL FORMS. SLIP FORMING THE RAIL IS NOT PERMITTED.

FOR CAST-IN-PLACE SIMULATED STONE FORM LINER FINISH, SEE SPECIAL PROVISIONS.

FOR SPECIAL CONCRETE BARRIER, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 33 FT LEFT AND 36 FT RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.



HYDRAULIC DATA	
DESIGN DISCHARGE	= 1140 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YEARS
DESIGN HIGH WATER ELEVATION	= 3417.00
DRAINAGE AREA	= 4.3 SQ. MI.
BASIC DISCHARGE (Q100)	= 1630 CFS
BASIC HIGH WATER ELEVATION	= 3418.64
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 5950 CFS
FREQUENCY OF OVERTOPPING FLOOD	= > 500 YRS.
OVERTOPPING FLOOD ELEVATION	= 3424.69

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 1 OF 3 BRIDGE #385

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING FOR BRIDGE  
 ON SUMMIT MEADOWS DRIVE  
 OVER MIDDLE FORK SOUTH FORK  
 MIDDLE CREEK BETWEEN  
 US 321 AND DEAD END

REVISIONS

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

SHEET NO. S-1  
 TOTAL SHEETS 18

THE LOUIS BERGER GROUP, Inc.  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC CCA No. F-0840

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

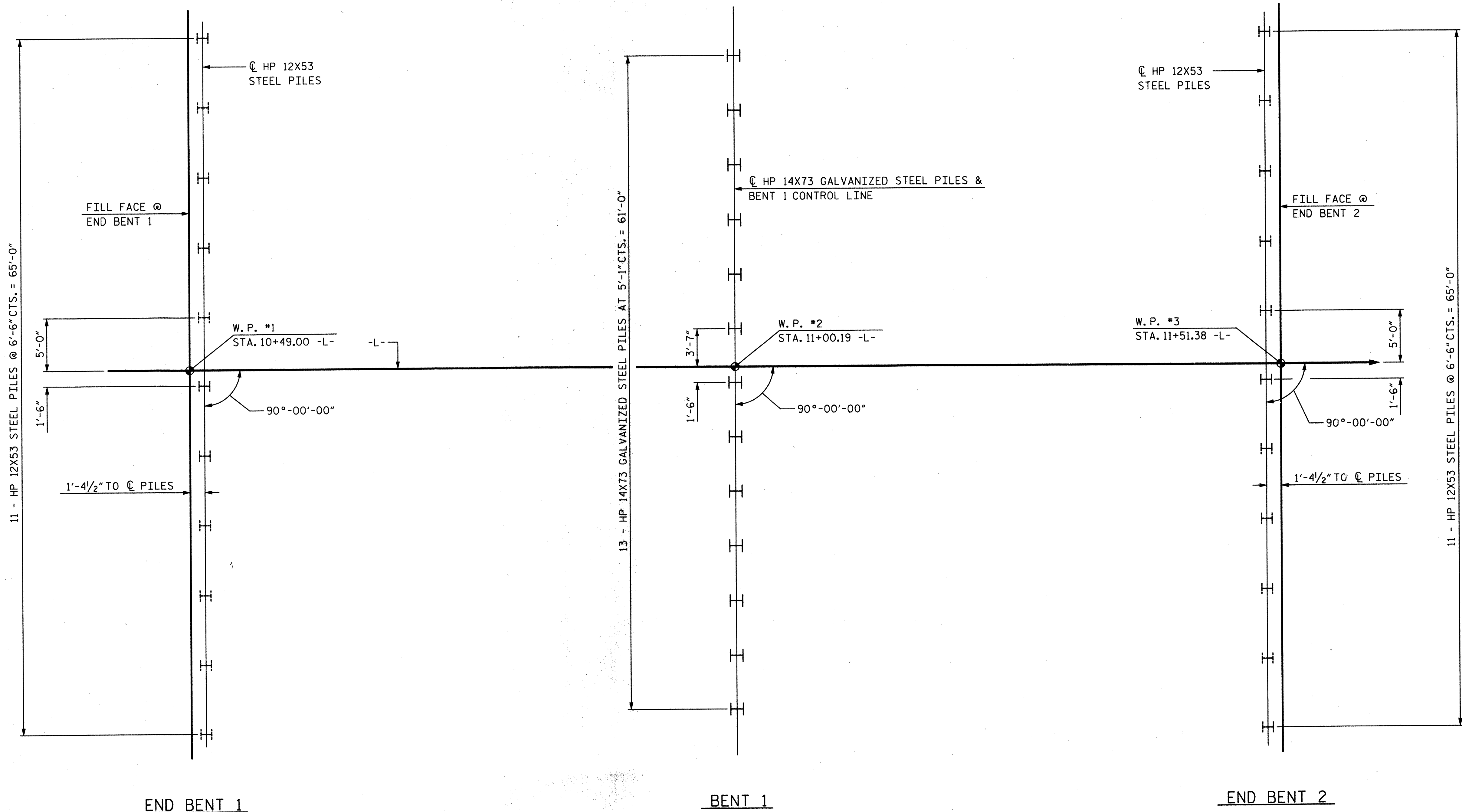
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DRAWN BY: R. KNIGHT DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY

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NAD 83 NSRS 2007



END BENT 1

BENT 1

END BENT 2

**FOUNDATION LAYOUT**

DIMENSIONS LOCATING PILES ARE TO CENTERLINE PILE.  
 FILL FACE AND ALL BENT CONTROL LINES ARE PARALLEL.

**FOUNDATION NOTES:**

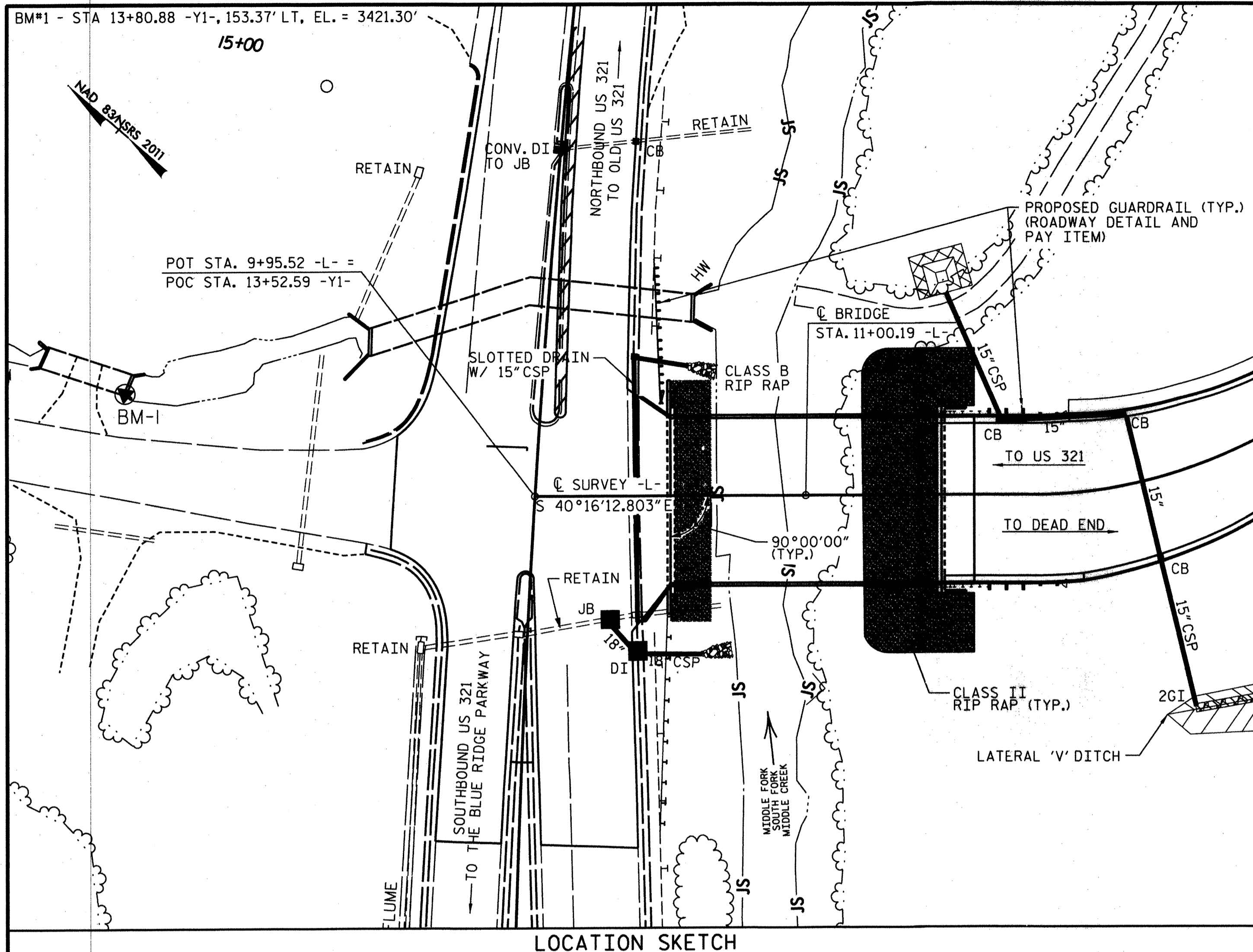
- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENTS NO.1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.
- DRIVE PILES AT END BENTS NO.1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.
- PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.
- DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 175 TONS PER PILE.
- PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT BENT NO.1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 3400 FEET. FOR PILE EXCAVATION SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO. 2. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 3410 AT THE LEFT SIDE AND ELEVATION 3412 AT THE RIGHT SIDE OF END BENT. FOR PILE EXCAVATION SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT BENT NO.1 AND END BENT NO. 2.
- INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 3400 FEET.
- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1. FOR STEEL POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 3407 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 2 OF 3

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 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
		GENERAL DRAWING FOR BRIDGE ON SUMMIT MEADOWS DRIVE OVER MIDDLE FORK SOUTH FORK MIDDLE CREEK BETWEEN US 321 AND DEAD END					
THE LOUIS BERGER GROUP, Inc. 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840		REVISIONS				SHEET NO. S-2 TOTAL SHEETS 18	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	PILE EXCAVATION IN-SOIL LIN. FT.	PILE EXCAVATION NOT-IN-SOIL LIN. FT.	UNCLASSIFIED STRUCTURE EXCAVATION LUMP SUM	CLASS A CONCRETE CU. YDS.	BRIDGE APPROACH SLABS LUMP SUM	REINFORCING STEEL LBS.	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		SPECIAL CONCRETE BARRIER RAIL LIN. FT.	RIP RAP CLASS II (2'-0" THICK) TONS	GEOTEXTILE FABRIC FOR DRAINAGE SQ. YDS.	ELASTOMERIC BEARINGS LUMP SUM	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
							NO.	LIN. FT.	NO.	LIN. FT.					NO.	LIN. FT.
SUPERSTRUCTURE											200.5				42	2,100
END BENT NO. 1				35.5		4,626	11	165		13	260	131	146			
BENT NO. 1	65	130		19.9		4,121										
END BENT NO. 2	35	85	LUMP SUM	33.9		4,474	11	165				409	454			
TOTAL	100	215	LUMP SUM	89.3	LUMP SUM	13,221	22	330	13	260	200.5	540	600	LUMP SUM	42	2,100

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING FOR BRIDGE  
 ON SUMMIT MEADOWS DRIVE  
 OVER MIDDLE FORK SOUTH FORK  
 MIDDLE CREEK BETWEEN  
 US 321 AND DEAD END

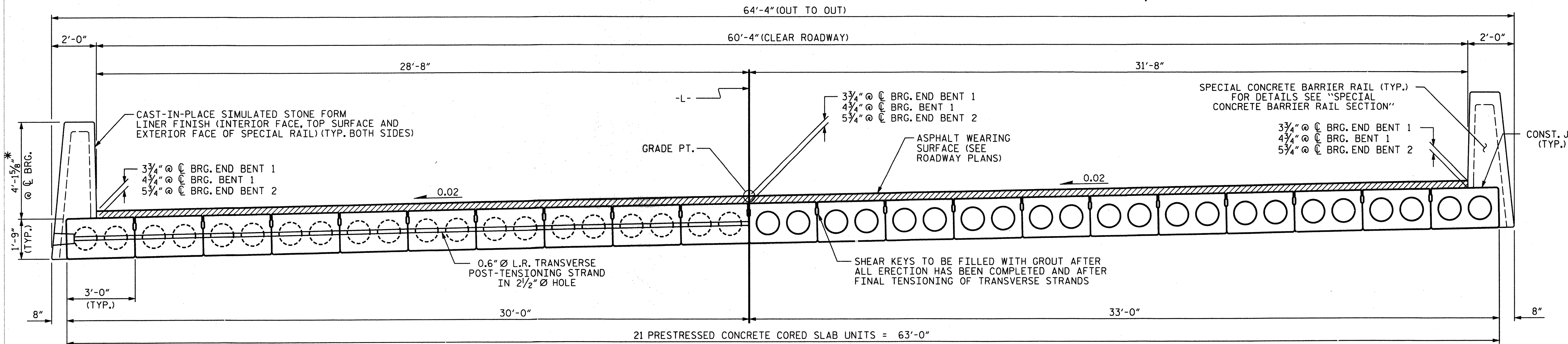
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 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

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

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HALF SECTION  
AT INTERMEDIATE DIAPHRAGMS

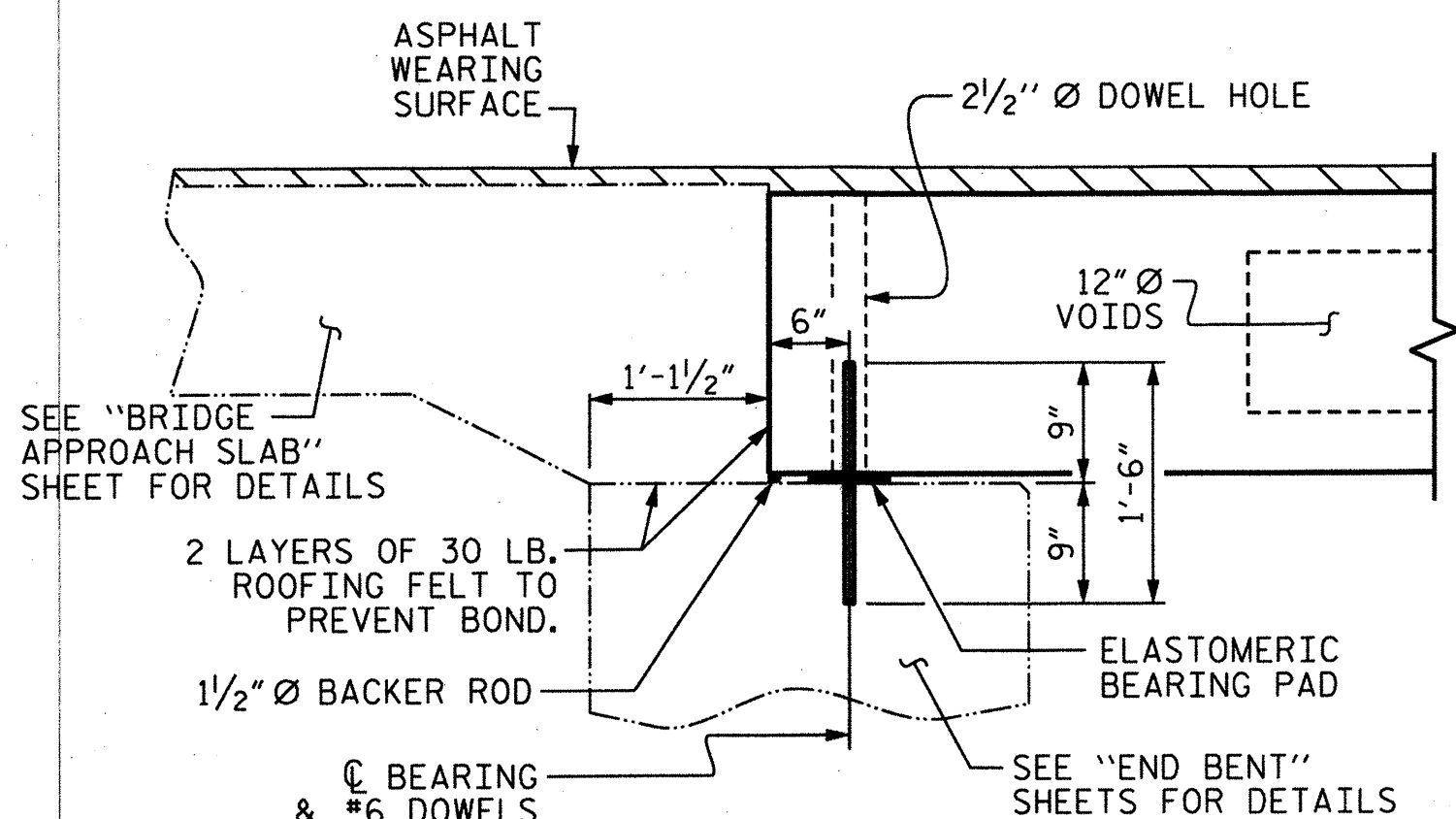
TYPICAL SECTION

HALF SECTION  
THROUGH VOIDS

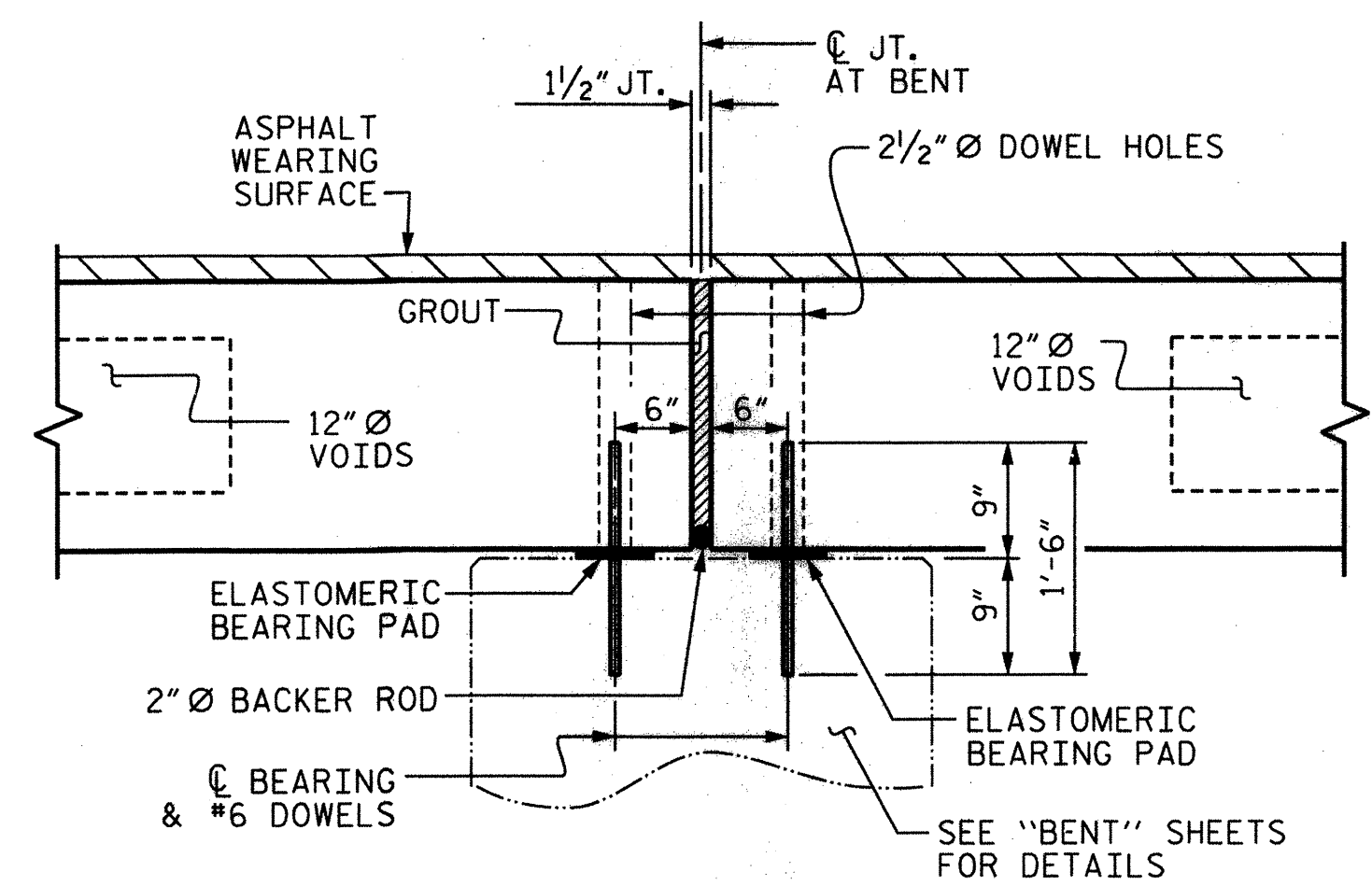
\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "SPECIAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

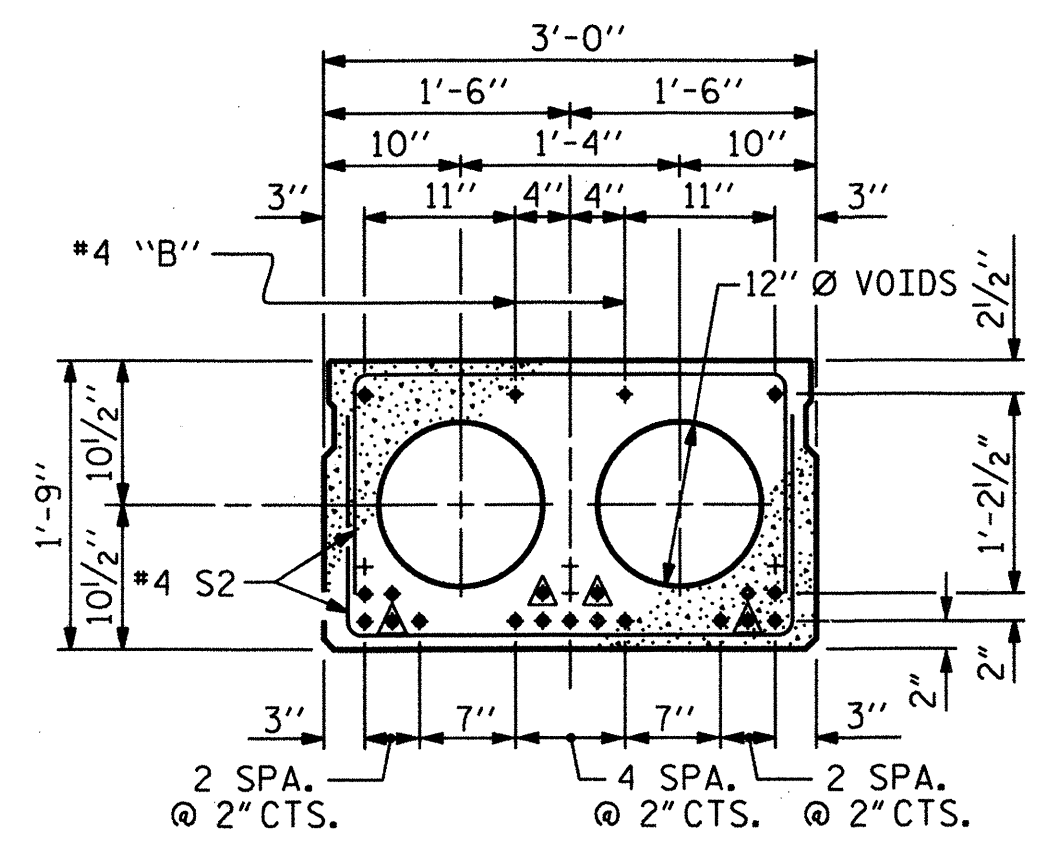
FIXED END      FIXED END



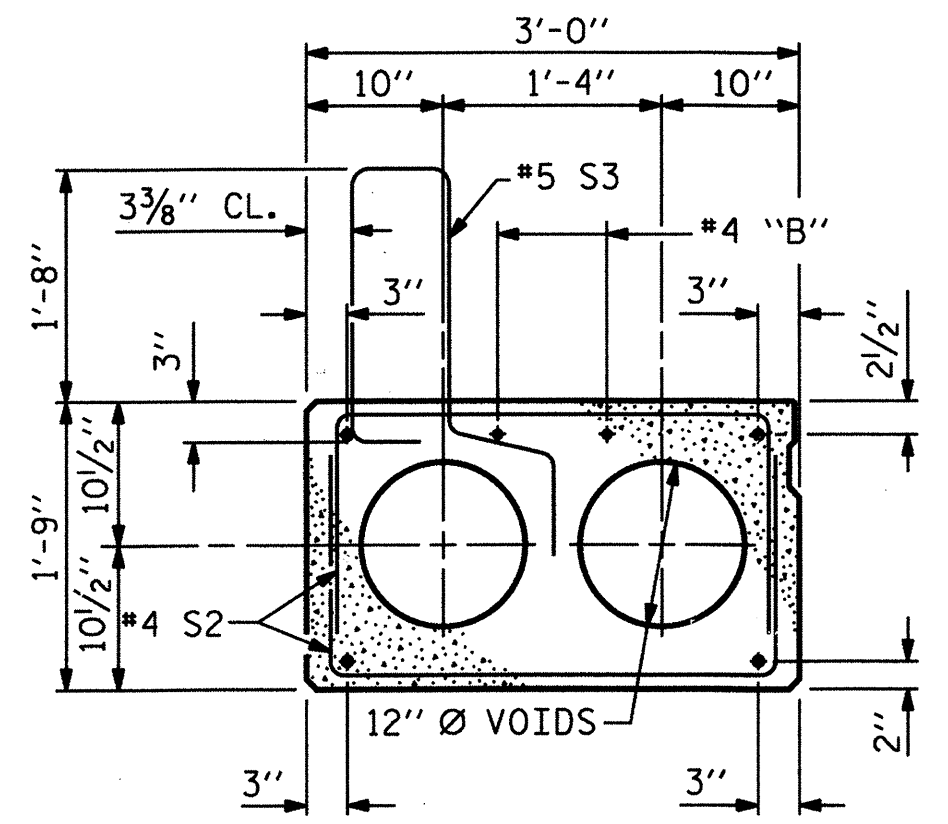
SECTION AT END BENT



SECTION AT BENT



INTERIOR SLAB SECTION  
(19 STRANDS REQUIRED)

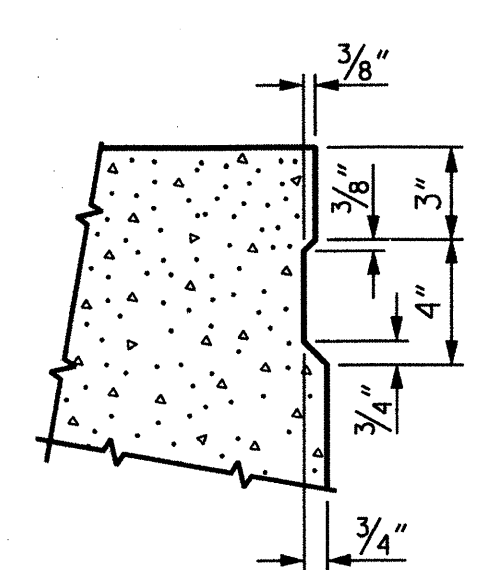


EXT. SLAB SECTION  
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

0.6" Ø LOW RELAXATION STRAND LAYOUT

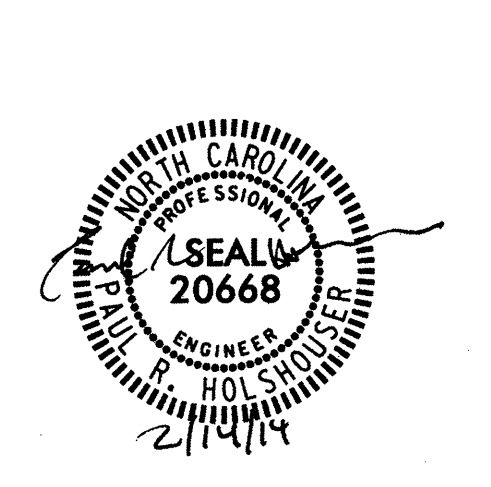


SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 90° SKEW

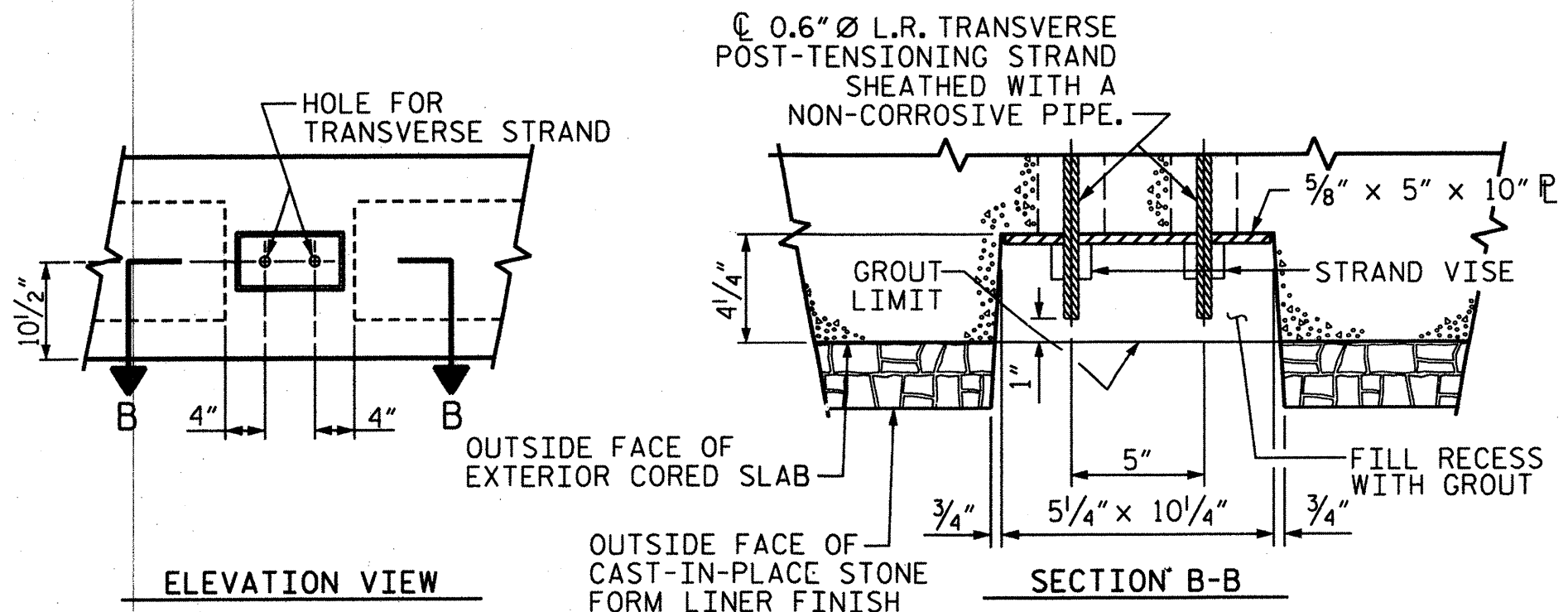
REVISIONS

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

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DRAWN BY: R. KNIGHT      DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER      DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER      DATE: AUG 2013

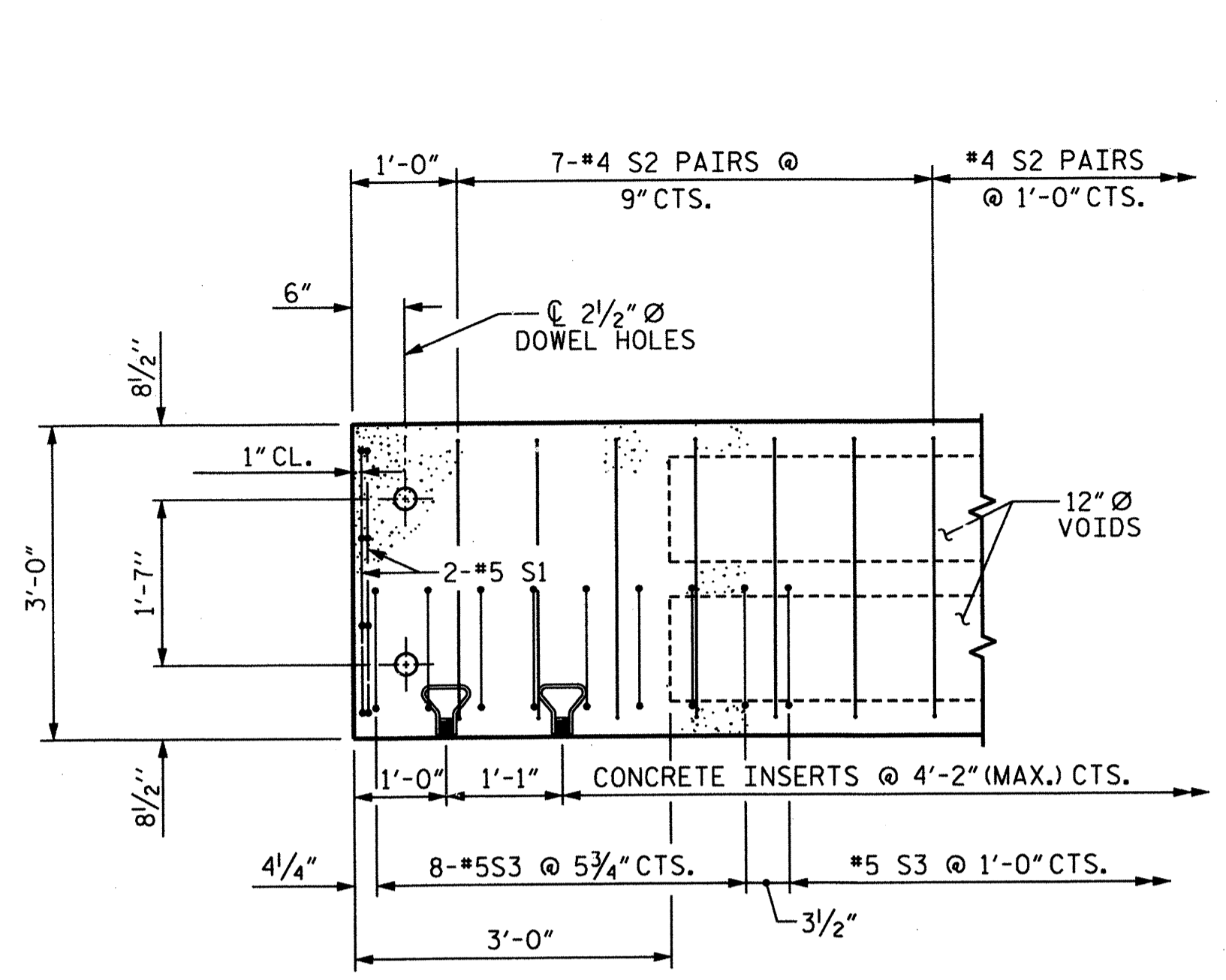
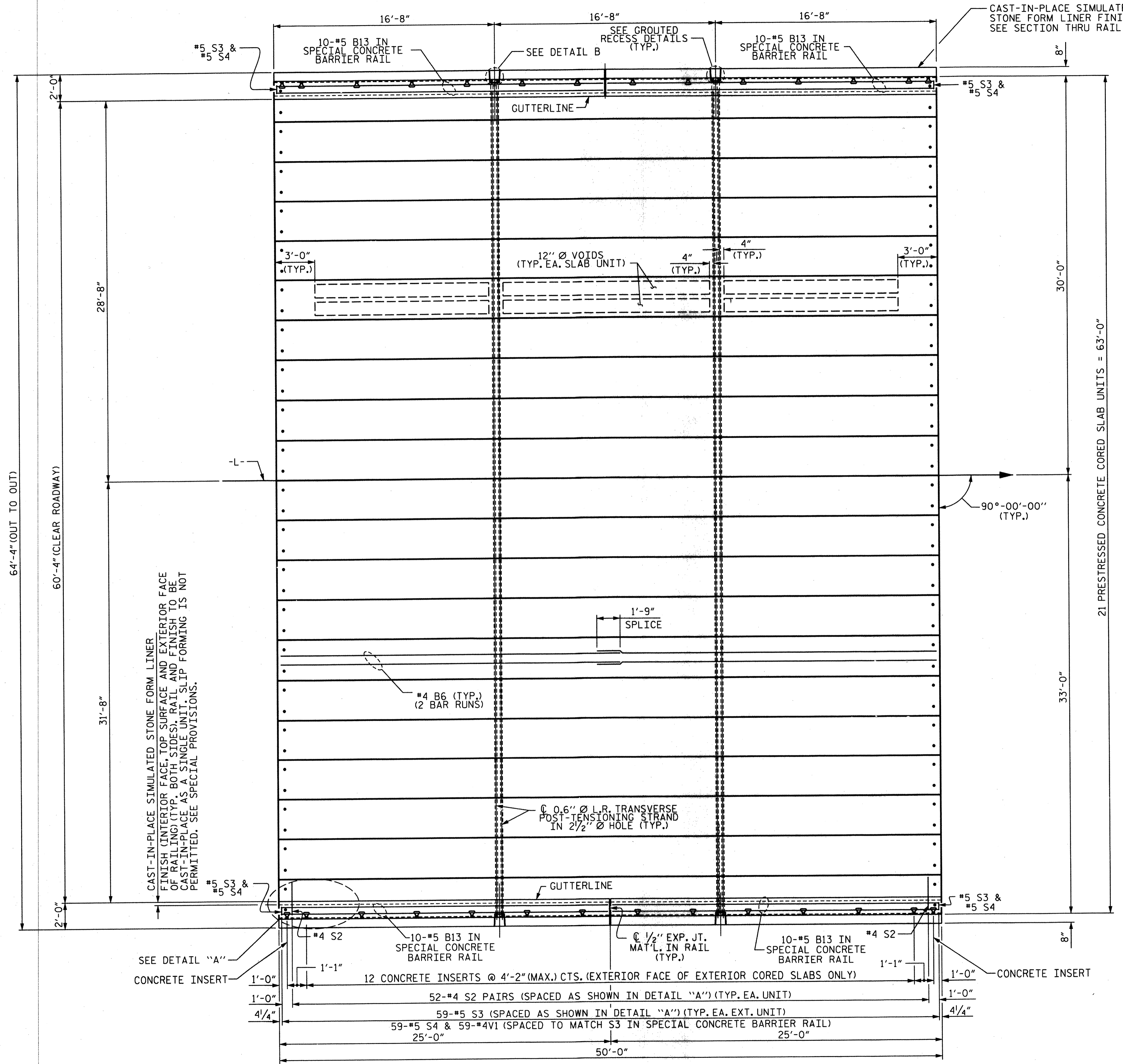
GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



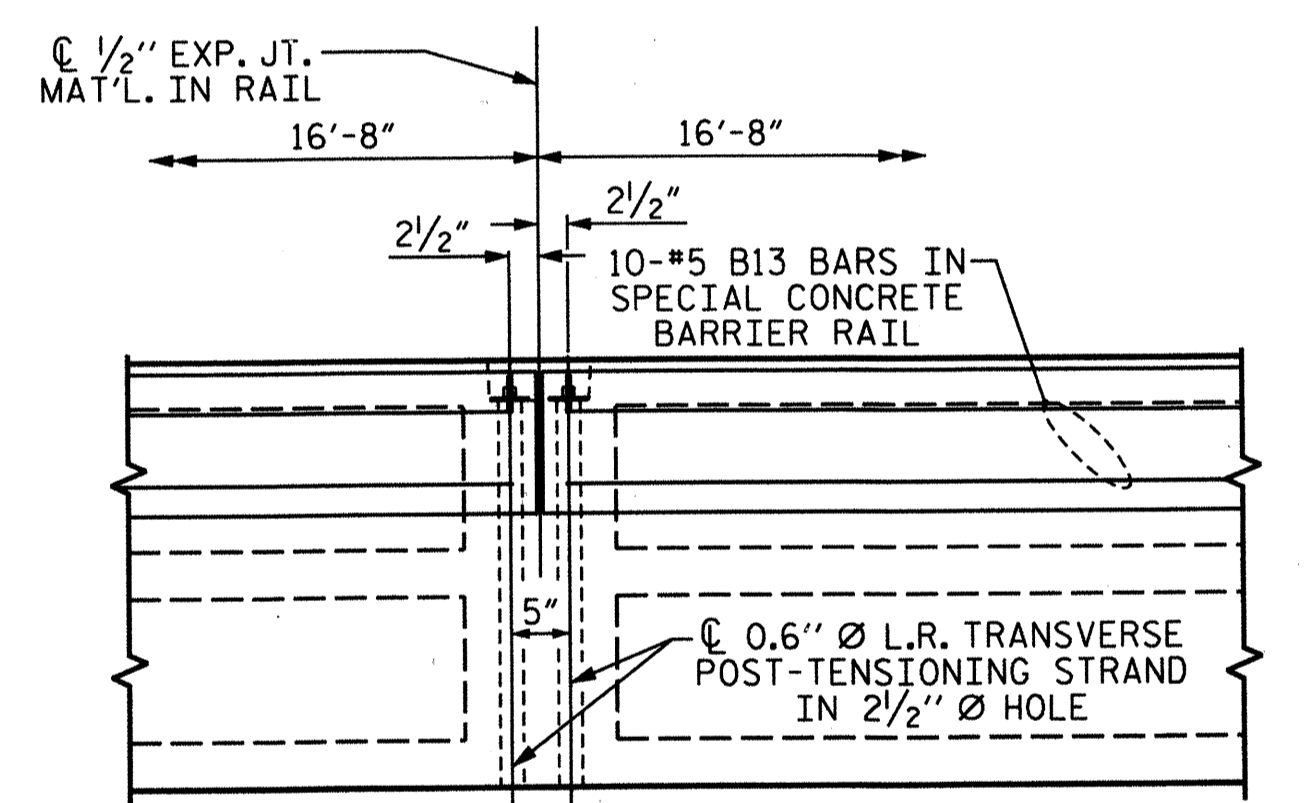
END ELEVATION

SHOWING LOCATION OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)  
 INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

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**DETAIL "A"**  
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT. #5 S3 BARS AND CONCRETE INSERTS.



**DETAIL "B"**  
 #4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-  
 SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN OF 50' UNIT  
 60'-4" CLEAR ROADWAY  
 90° SKEW**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			18

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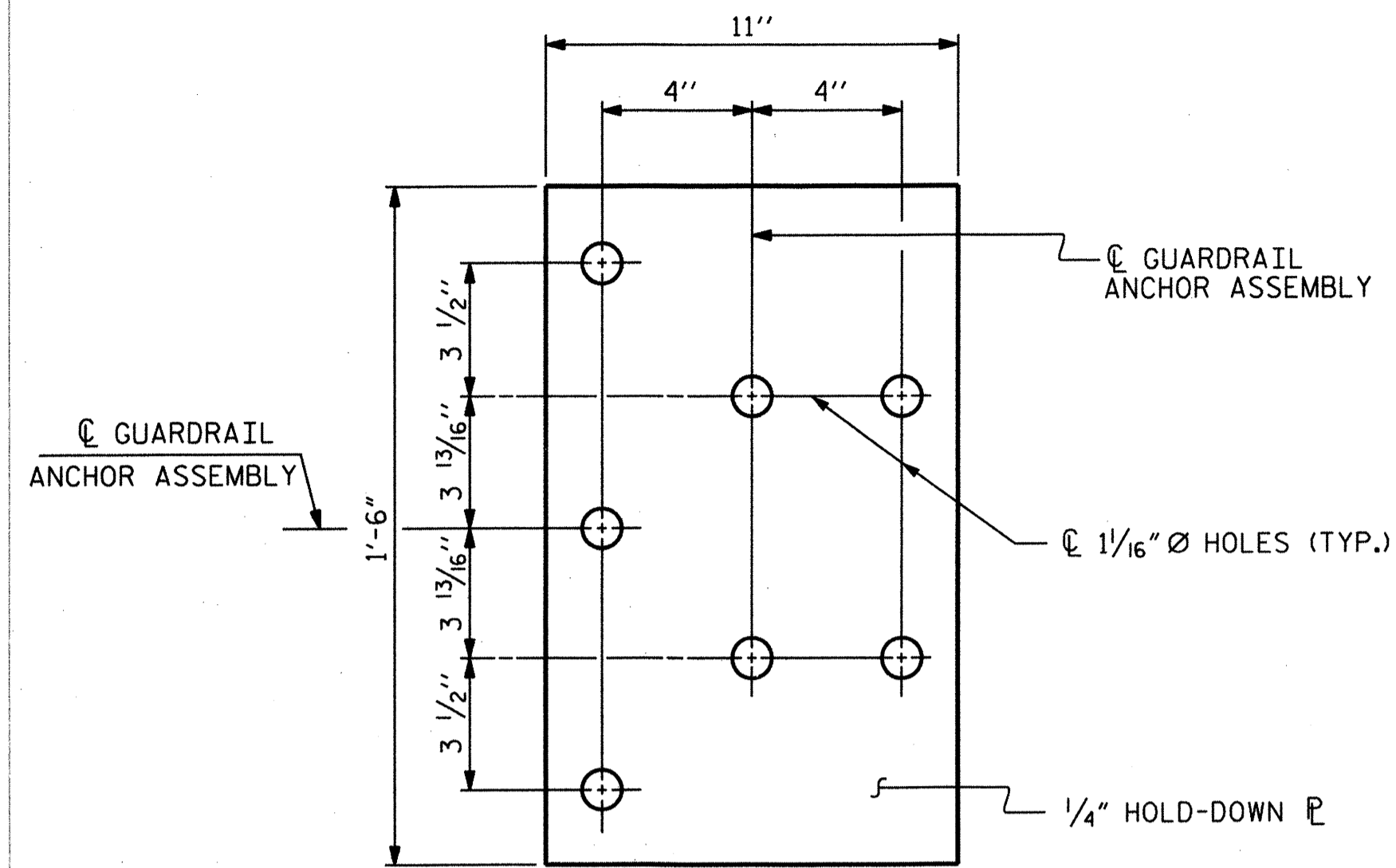
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 CHECKED BY: P.R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P.R. HOLSHOUSER DATE: AUG 2013

**PLAN OF UNIT**

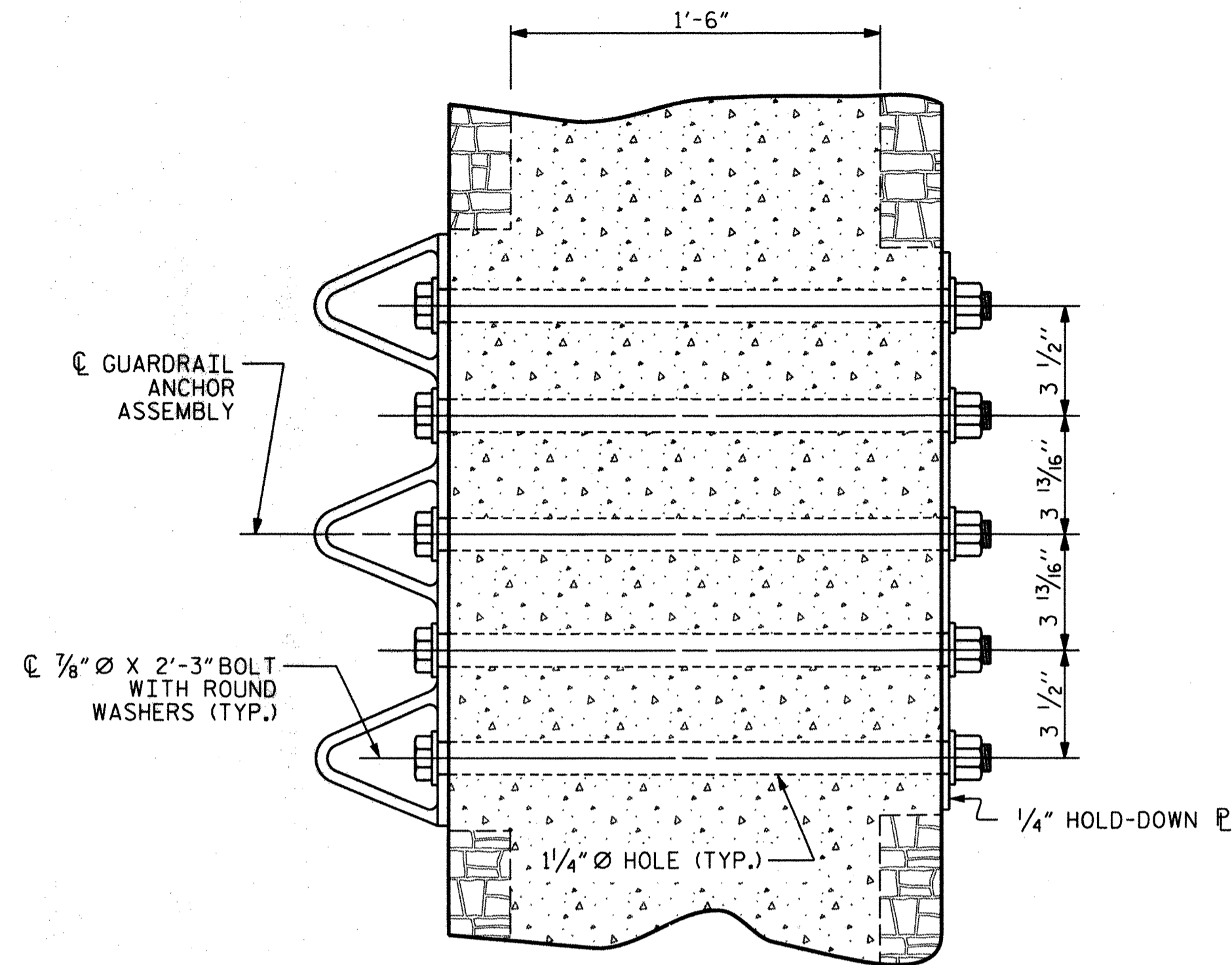




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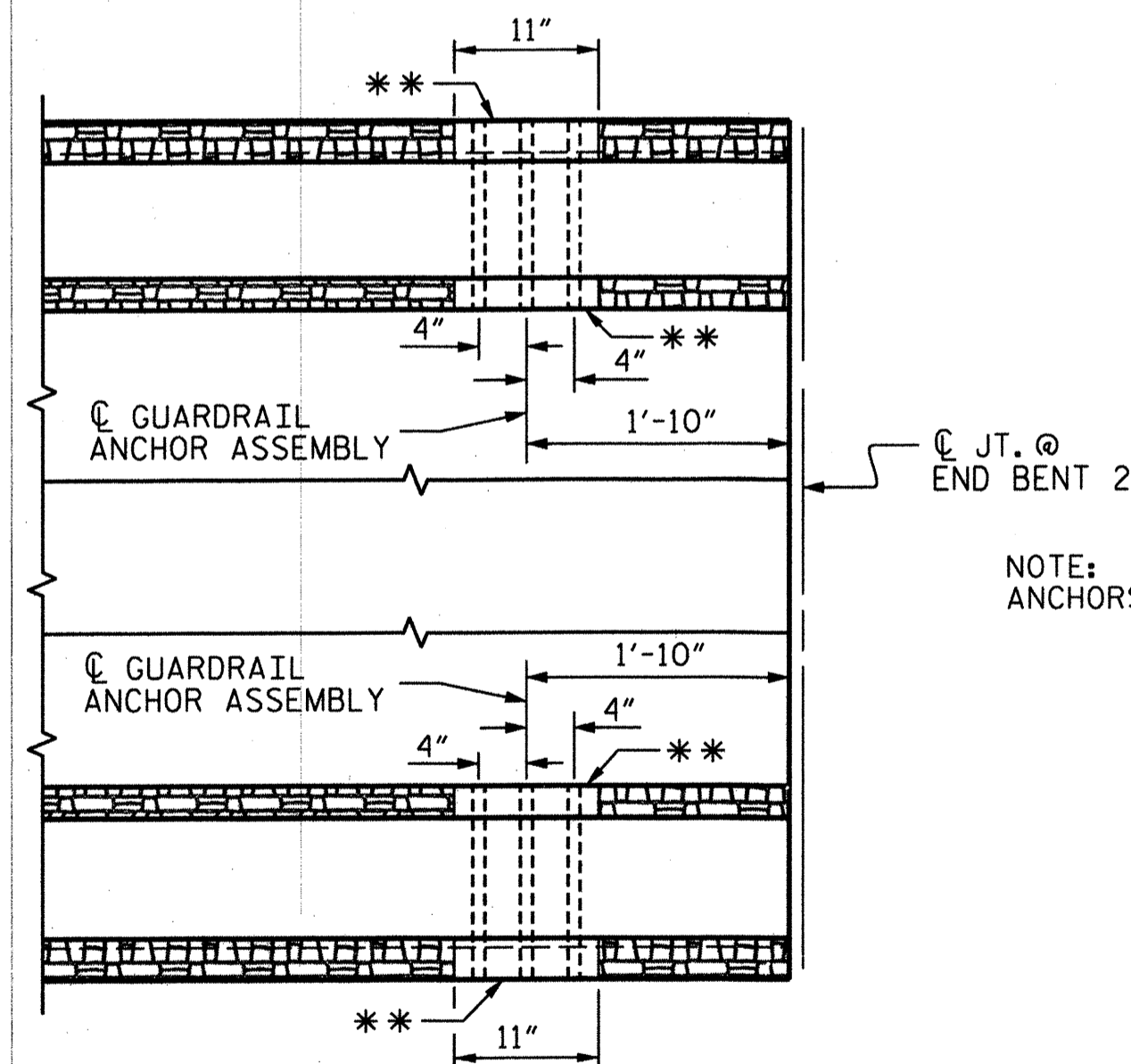


PLAN



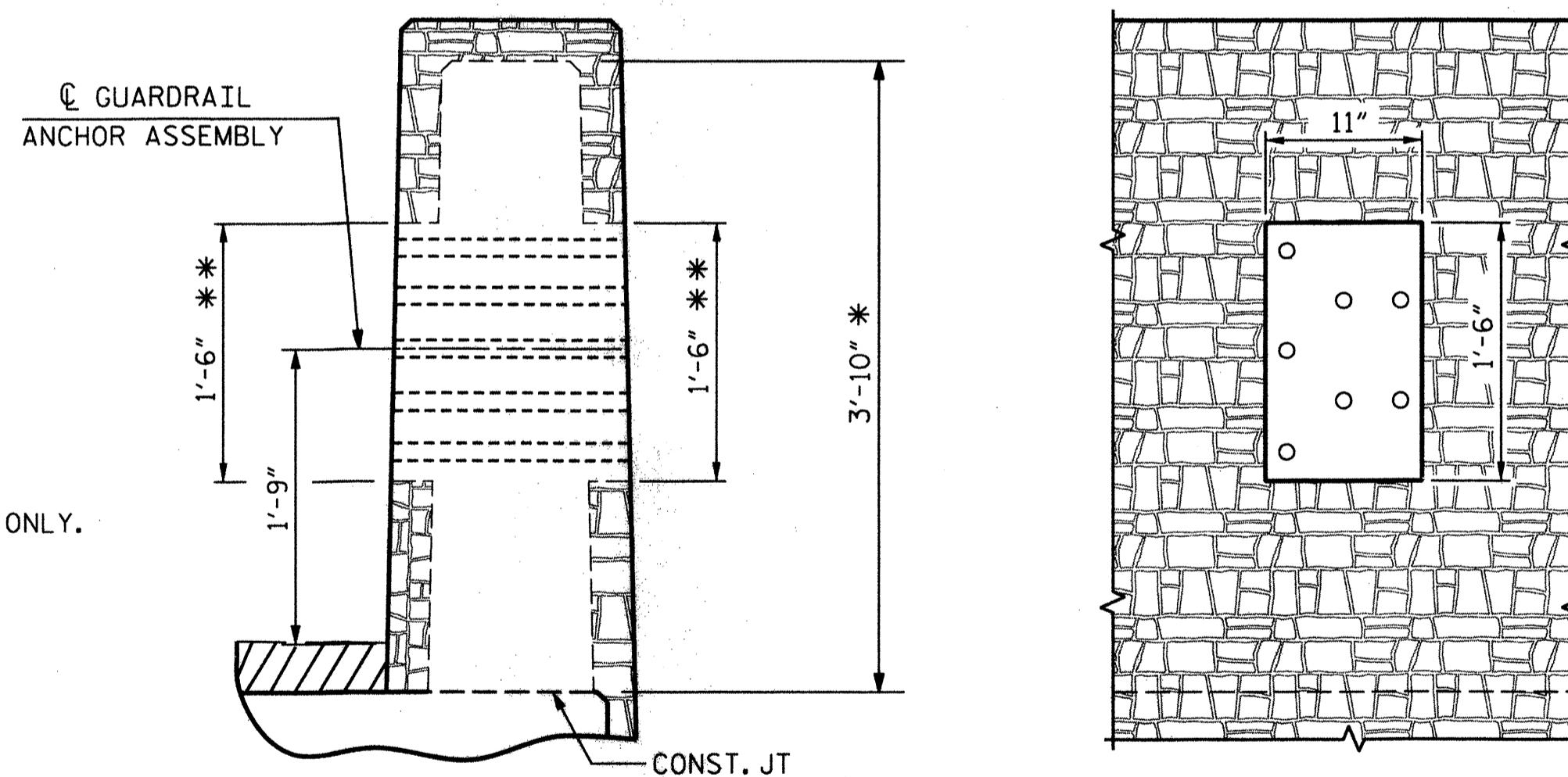
END VIEW

**GUARDRAIL ANCHOR ASSEMBLY DETAILS**



PLAN @ END BENT 2

NOTE:  
ANCHORS AT EB #2 ONLY.



END VIEW

\* BASED ON 3 3/4" WEARING SURFACE

\*\* DO NOT USE 3" FORM LINER EITHER FACE OF RAIL AT LOCATION OF GUARDRAIL ATTACHMENT.

**LOCATION OF GUARDRAIL ANCHOR AT END POST**

**NOTES**

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 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.

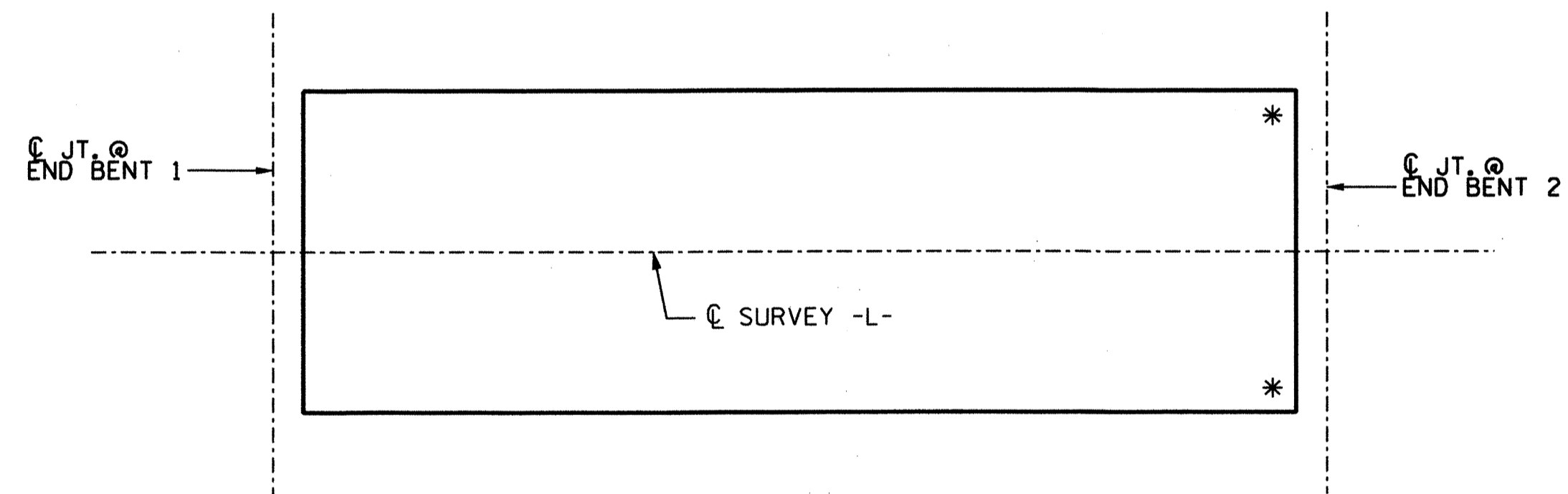
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

\*\* DO NOT USE 3" FORM LINER ON EITHER FACE OF RAIL AT LOCATION OF GUARDRAIL ATTACHMENT. CONCRETE BETWEEN ANCHOR ASSEMBLY AT FRONT FACE AND PLATE AT BACK FACE TO BE SOLID FACE TO FACE EXCEPT HOLES FOR THRU BOLTS. IN ADDITION, BLOCKOUT FORM LINER AT BENT CAP TO ACCOMMODATE LATERAL GUIDES AT BENT CAP, IF REQUIRED.



**SKETCH SHOWING POINTS OF ATTACHMENT**

\* LOCATION OF GUARDRAIL ATTACHMENT

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-

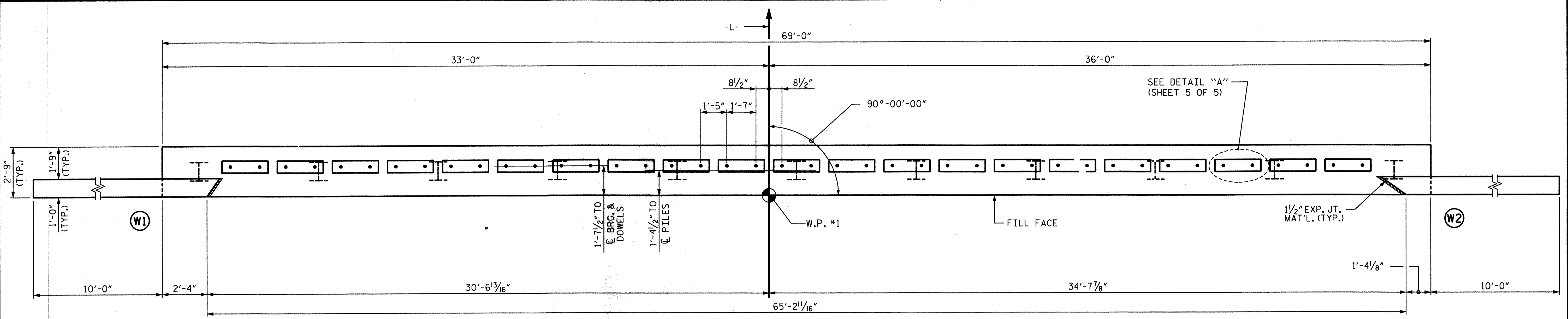


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
**GUARDRAIL ANCHORAGE  
 DETAILS FOR VERTICAL  
 CONCRETE BARRIER RAIL**

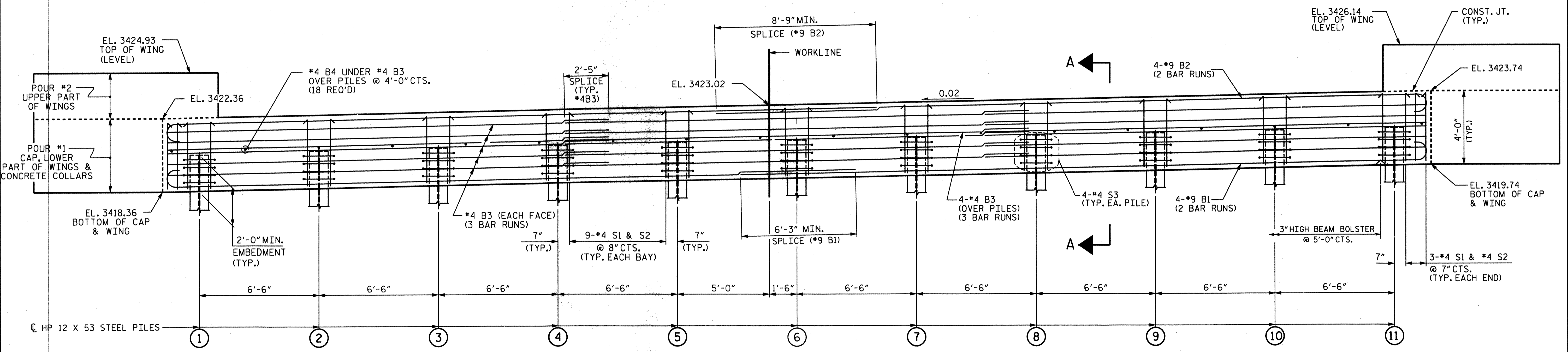
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CHECKED BY: GM	5/10	REV. 10/1/11	MAA/GM
		REV. 12/5/11	MAA/GM
DRAWN BY: R. KNIGHT	DATE: AUG 2012		
CHECKED BY: P. R. HOLSHOUSER	DATE: AUG 2012		
DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER	DATE: AUG 2012		

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-8
1			3			TOTAL SHEETS
2			4			18

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PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 5 OF 5.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

PROJECT NO. R-5525  
 WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 1 OF 5

TOP OF PILE ELEVATIONS					
①	3420.41	⑤	3420.93	⑨	3421.45
②	3420.54	⑥	3421.06	⑩	3421.58
③	3420.67	⑦	3421.19	⑪	3421.71
④	3420.80	⑧	3421.32		

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.  
 FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.  
 FOR WING DETAILS, SEE SHEET 3 OF 5.

DRAWN BY: R. KNIGHT DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

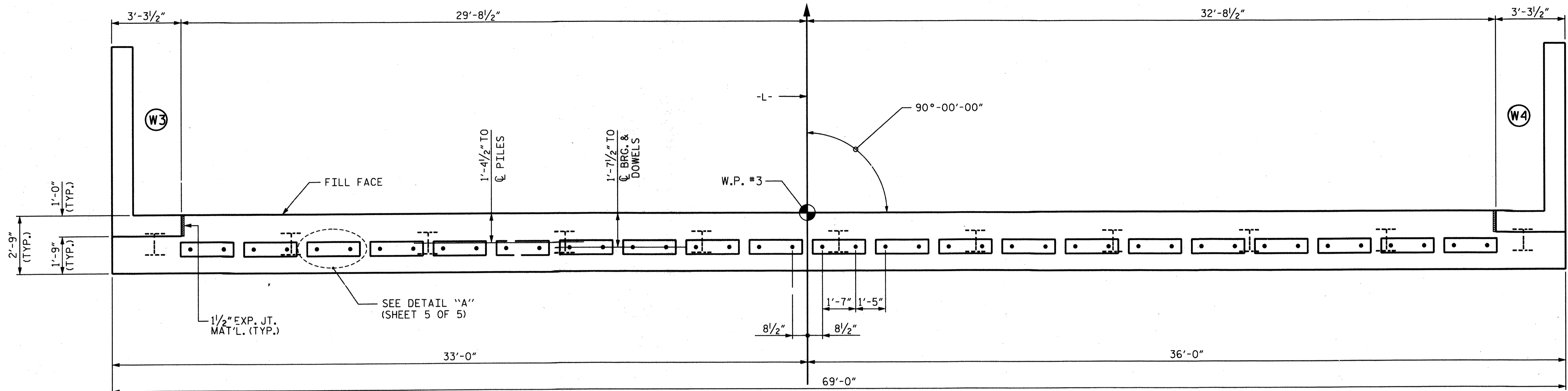
## SUBSTRUCTURE PLAN OF END BENT 1

SHEET NO.  
 S-9  
 TOTAL SHEETS  
 18

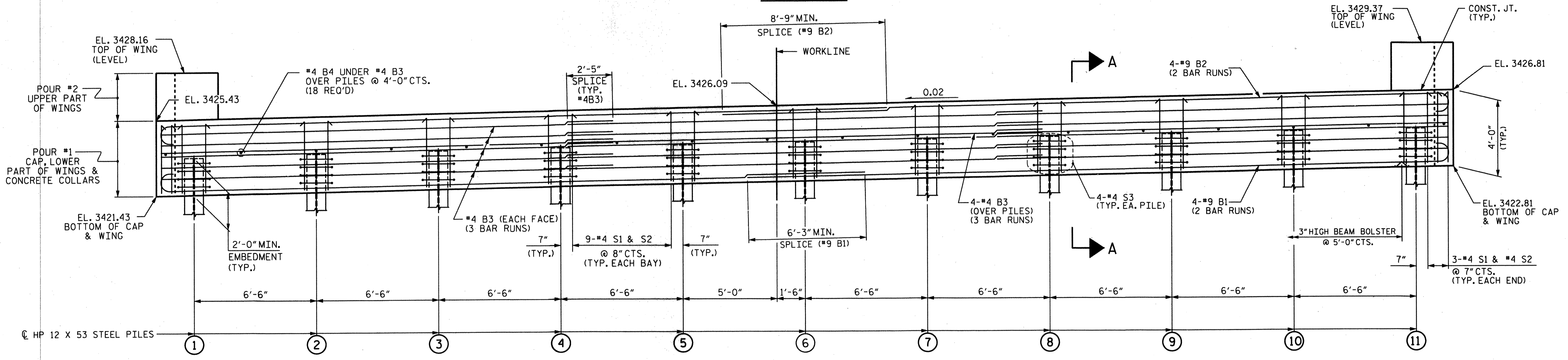
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

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 NC COA No. F-0840

G:\CKE Projects\CKE21004 Limited Services Division Offices\R-5525\Structures\R5525\_SD\_EB01.dgn  
 2/14/2014 1:23:12 PM CKE21004\_PDF\_full.plt cke21004\_str.tbl



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 5 OF 5.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

PROJECT NO. R-5525  
 WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 2 OF 5

TOP OF PILE ELEVATIONS					
①	3423.48	⑤	3424.00	⑨	3424.52
②	3423.61	⑥	3424.13	⑩	3424.65
③	3423.74	⑦	3424.26	⑪	3424.78
④	3423.87	⑧	3424.39		

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.  
 FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.  
 FOR WING DETAILS, SEE SHEET 3 OF 5.

G:\CKE Projects\CKE21004 Limited Services Division Offices\R-5525\Structures\R5525\_SD\_EB02.dgn  
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DRAWN BY: R. KNIGHT DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

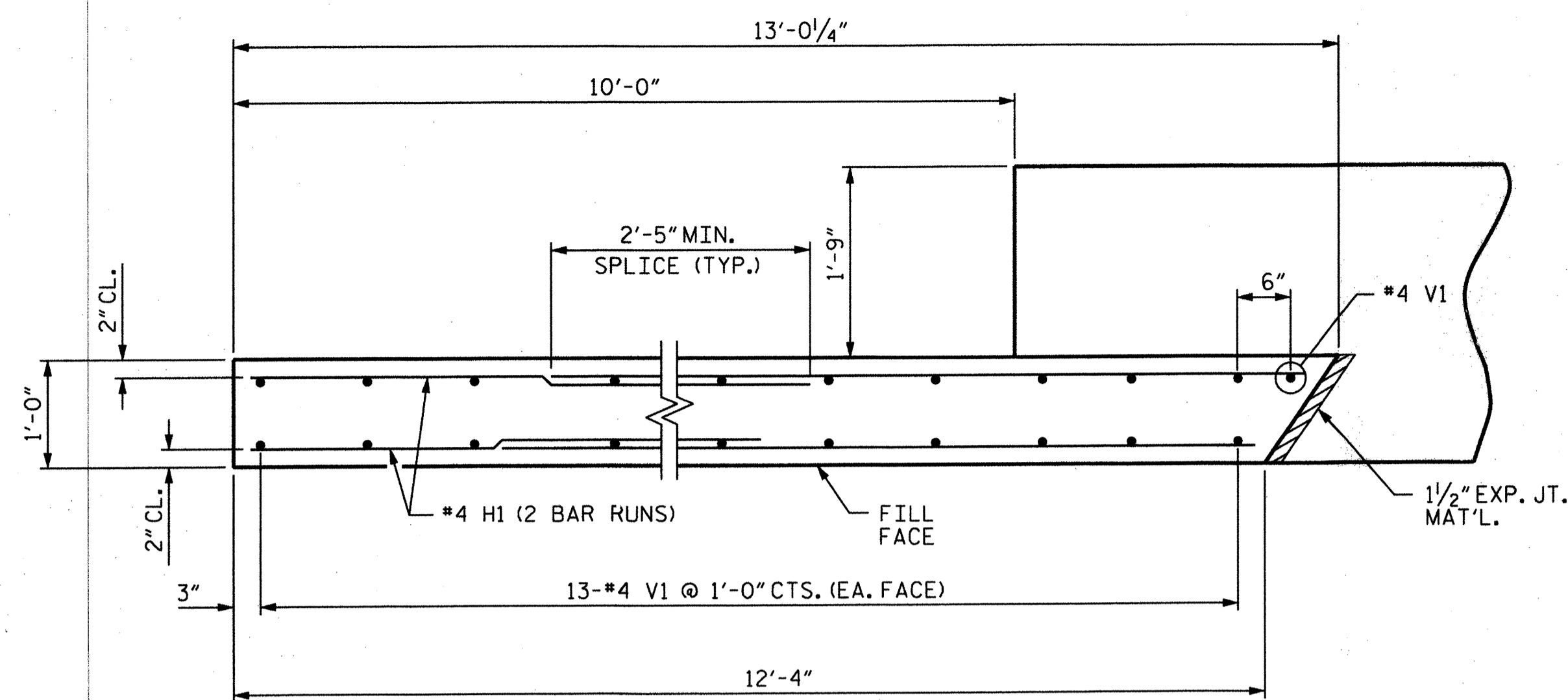
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 PLAN OF  
 END BENT 2**

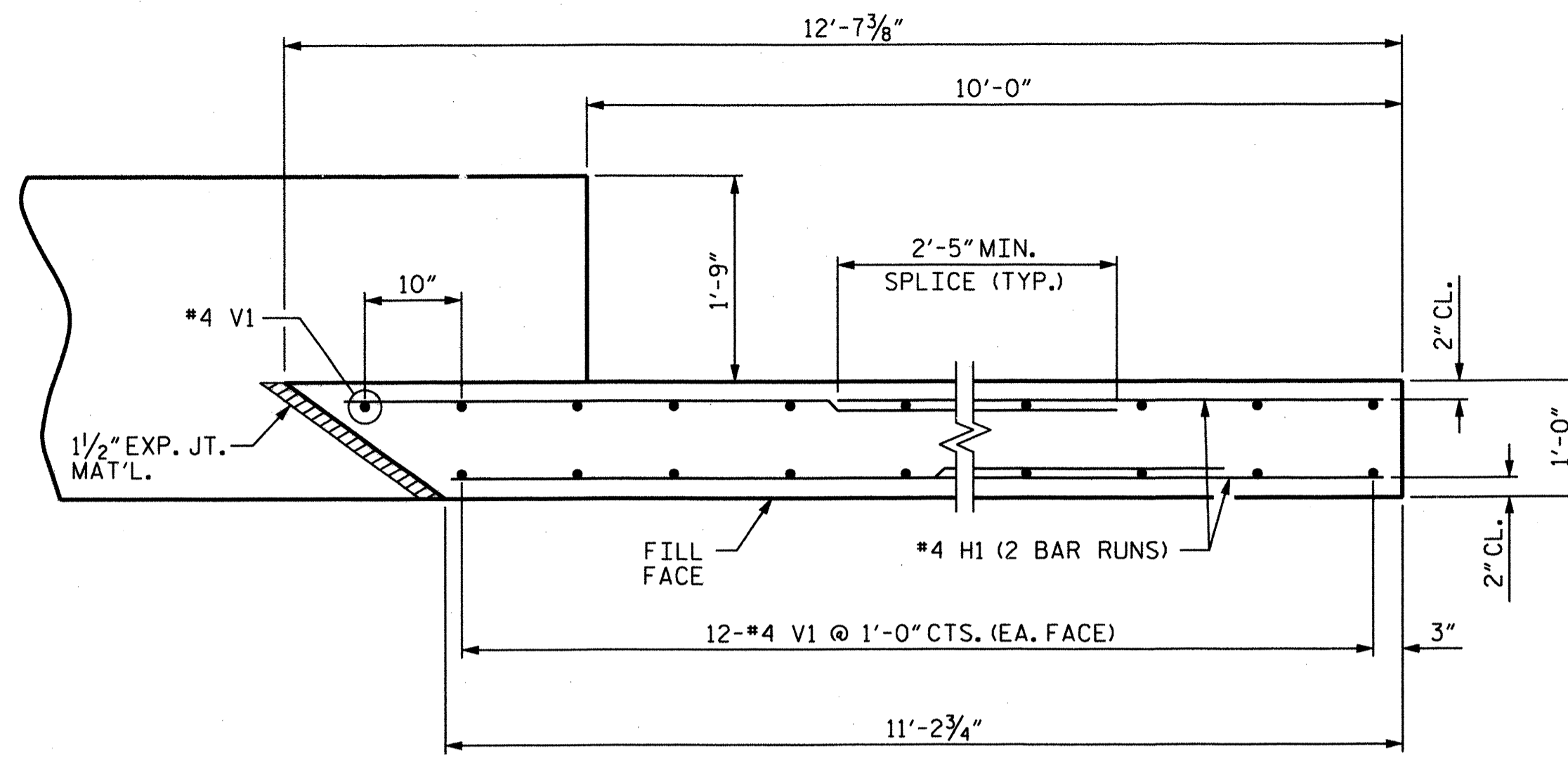
REVISIONS

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

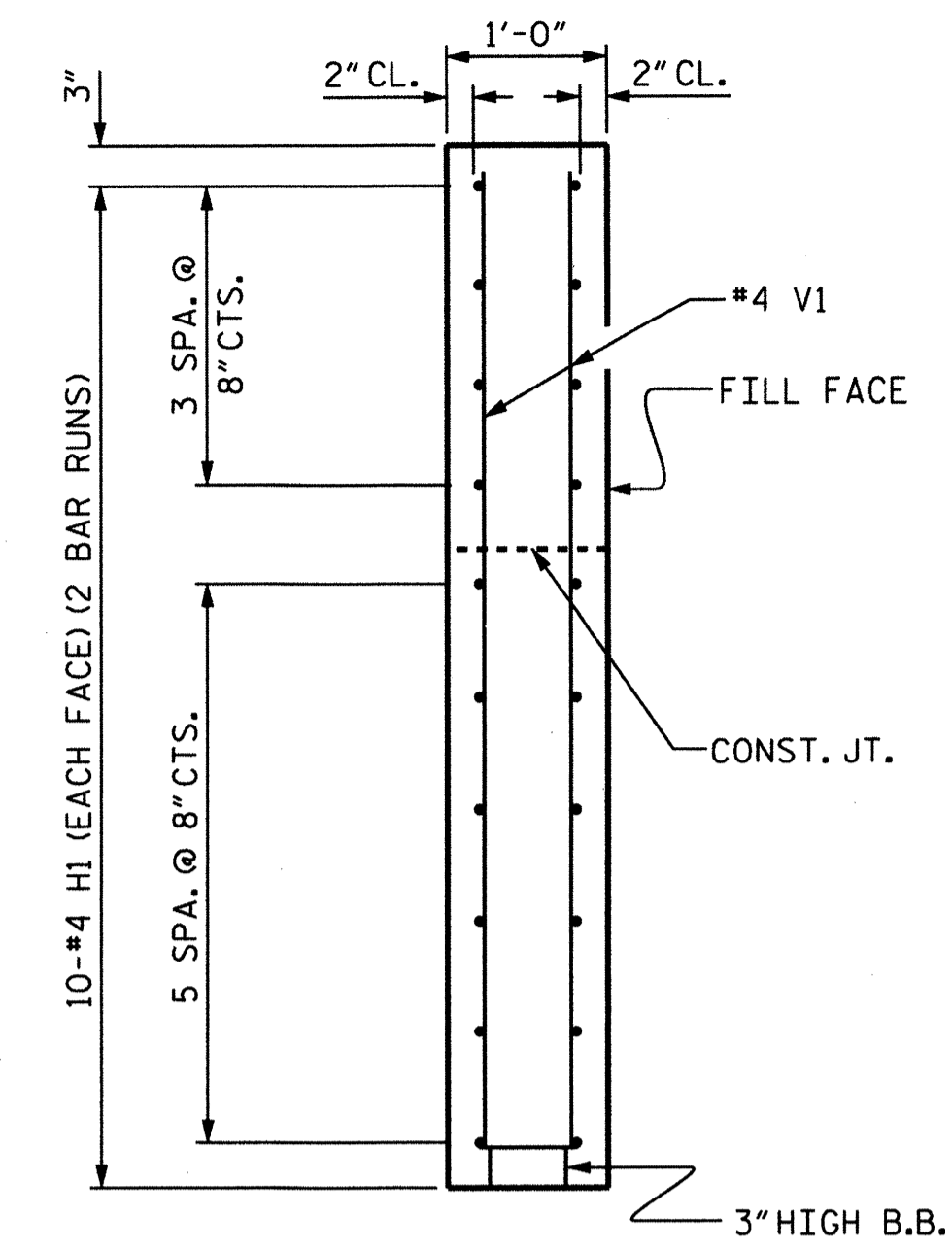
SHEET NO. S-10  
 TOTAL SHEETS 18



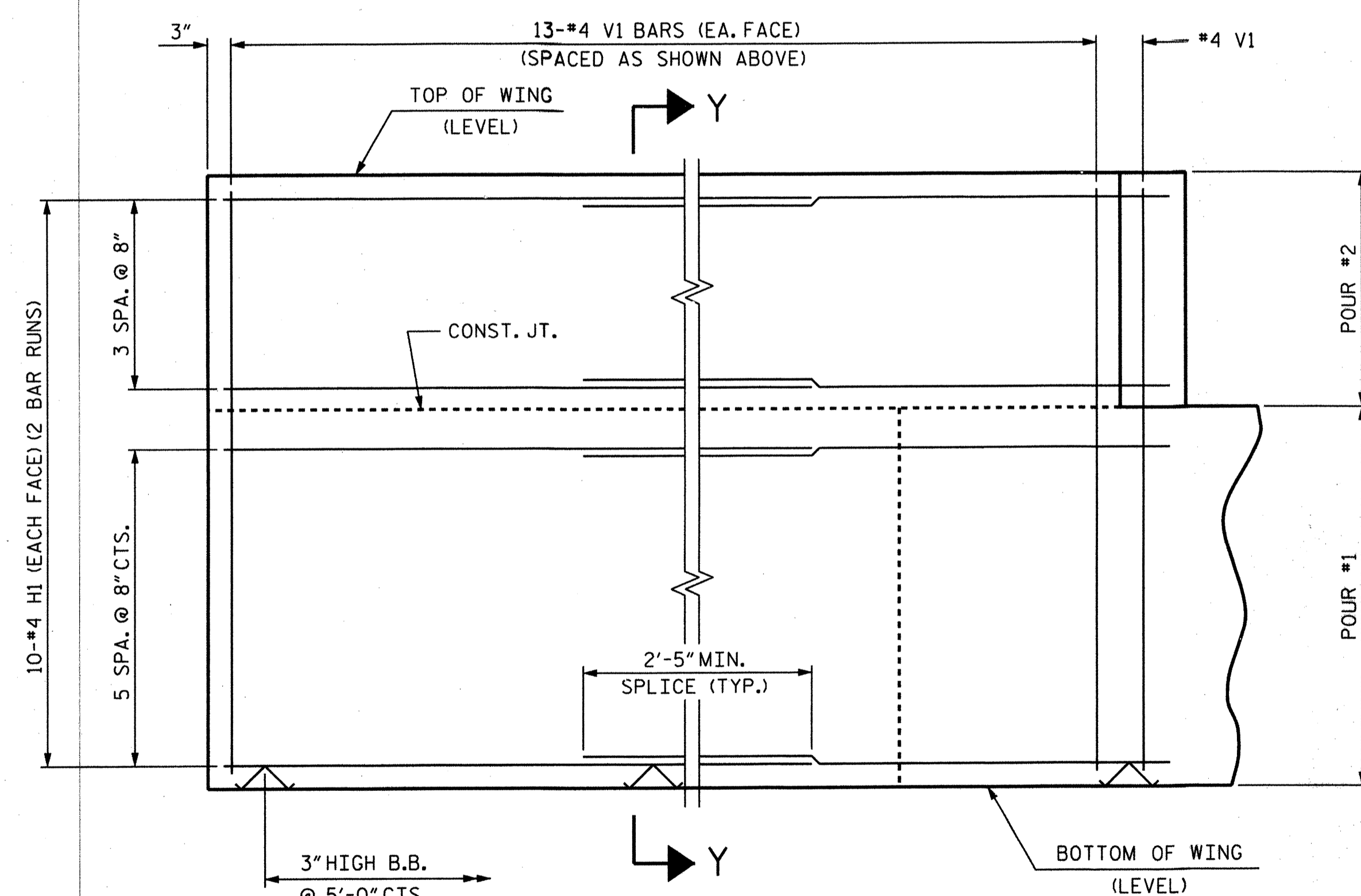
PLAN OF WING (W1)



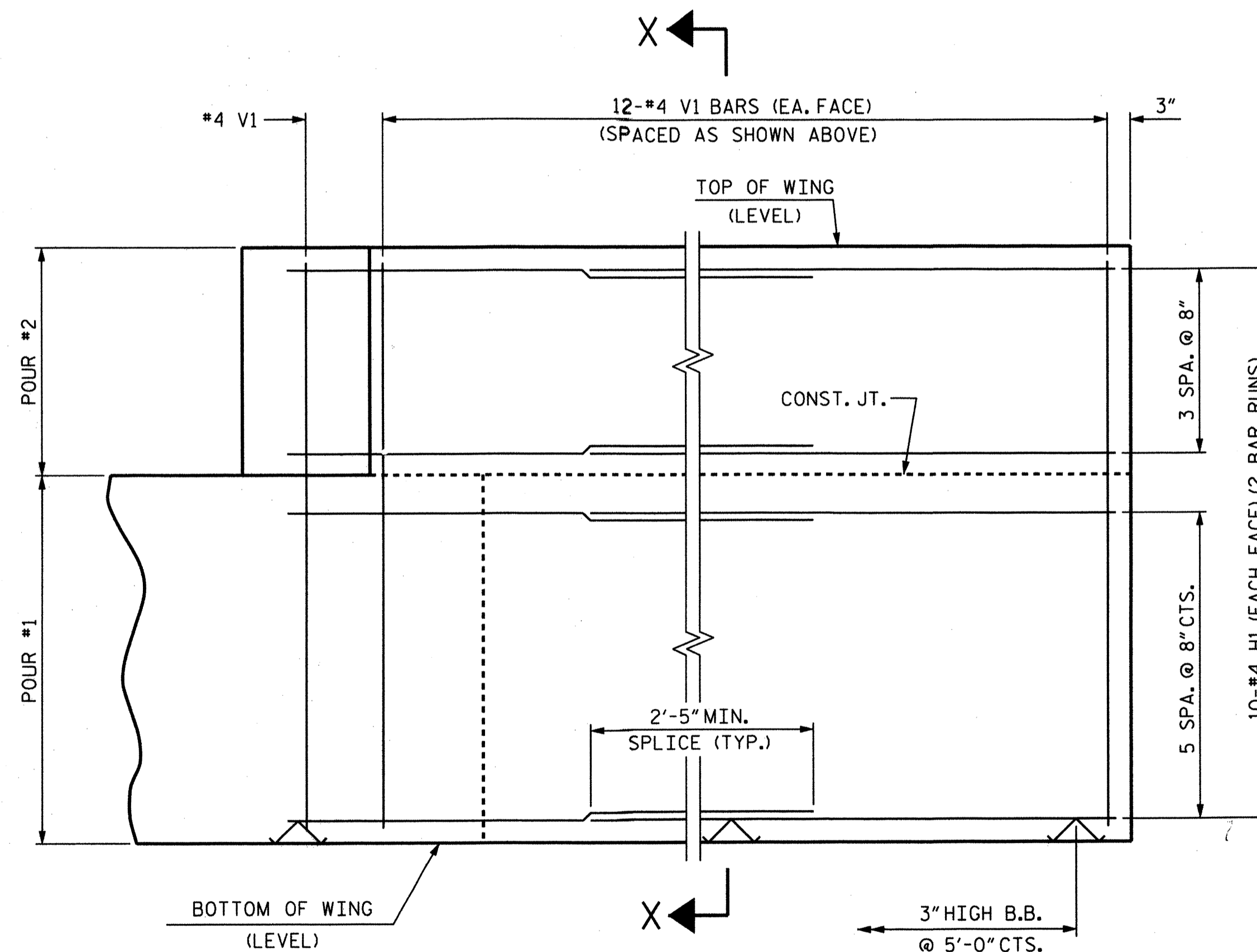
PLAN OF WING (W2)



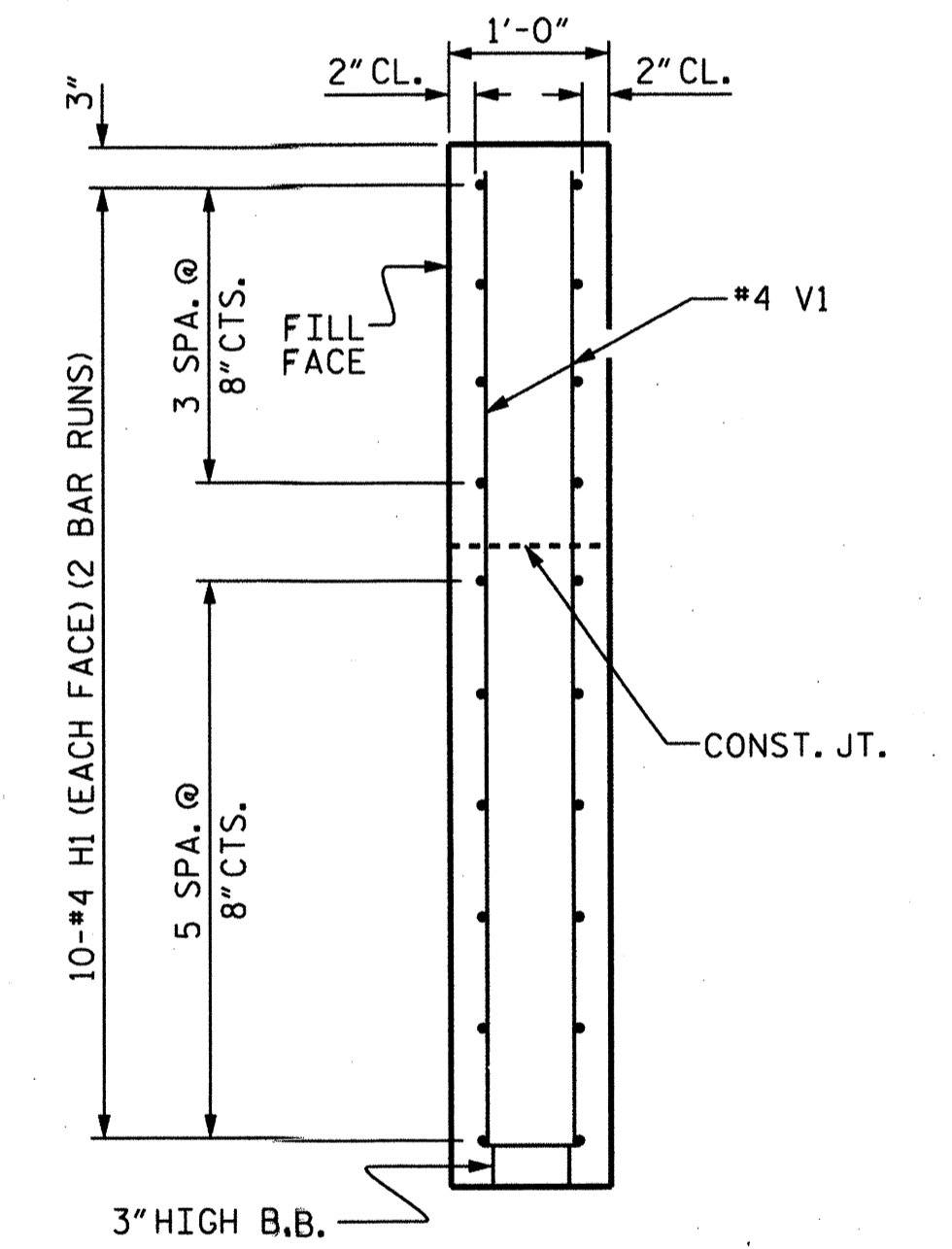
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

WING DETAILS

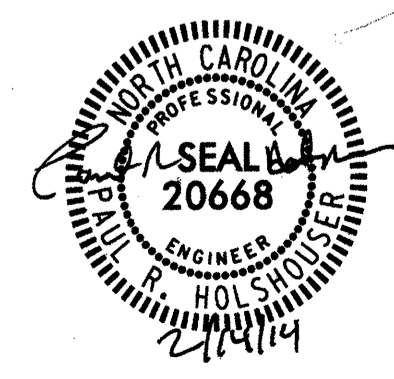
PROJECT NO. R-5525  
 WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT 1  
WING DETAILS

REVISIONS						SHEET NO. 5-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

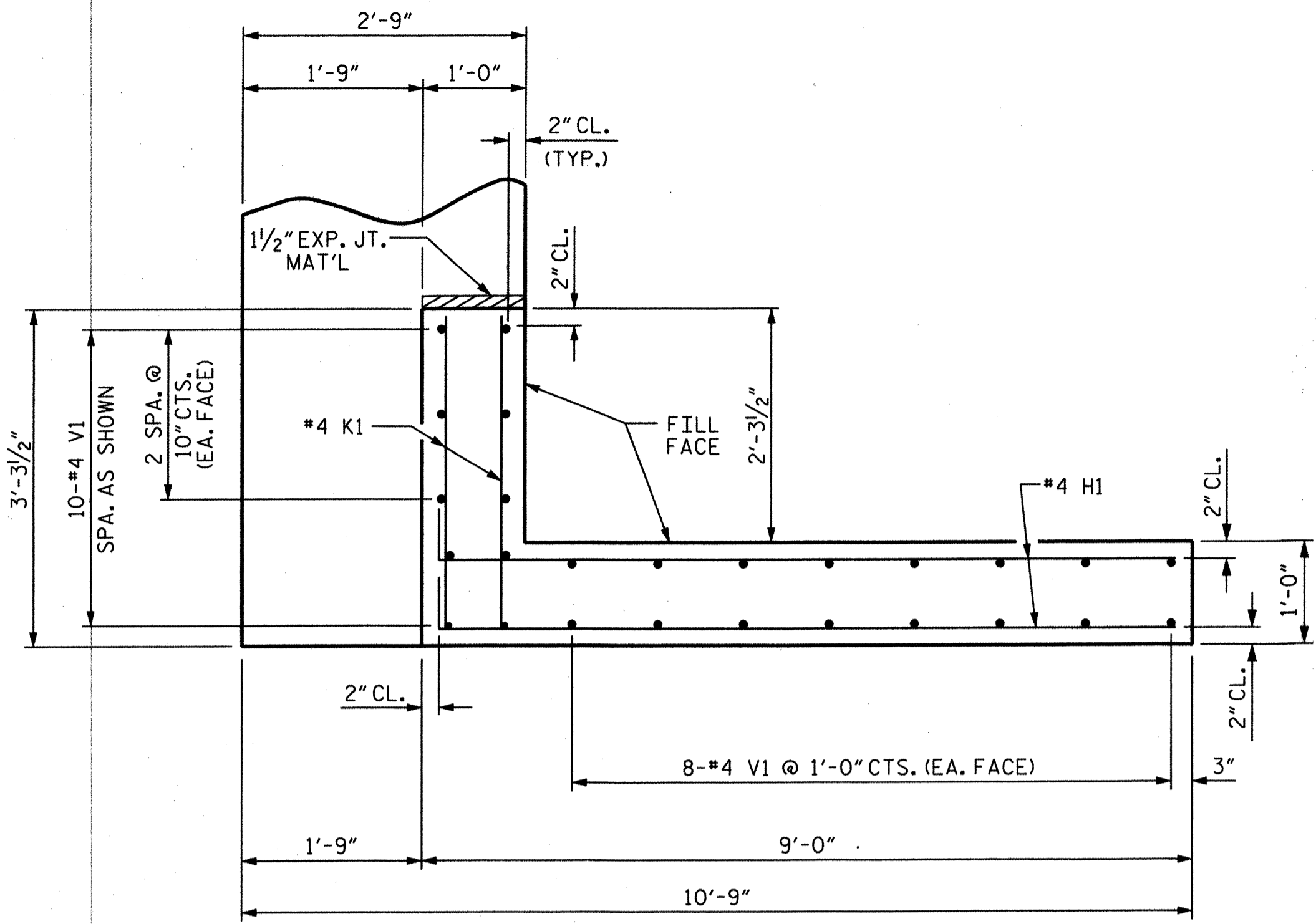


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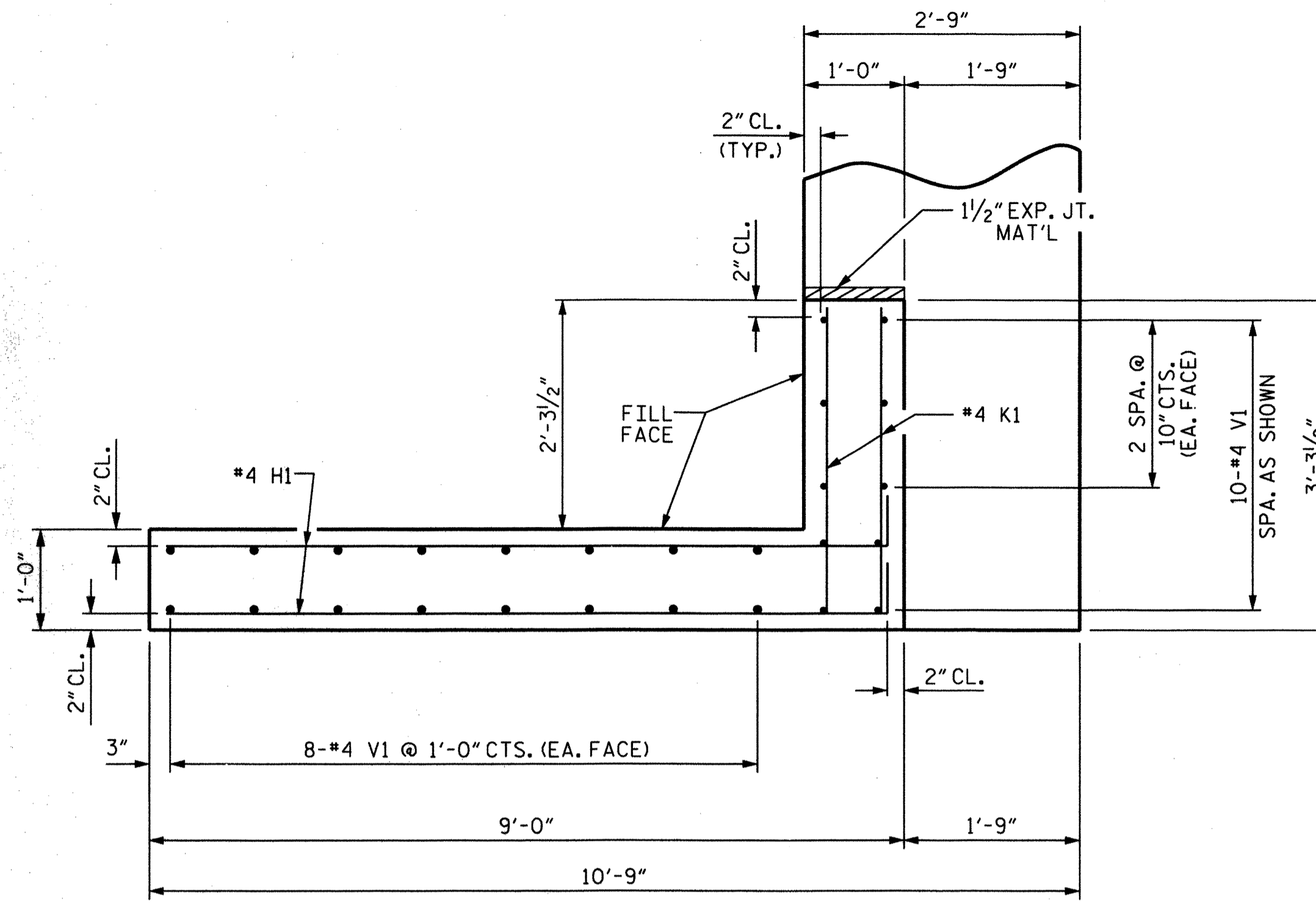
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DRAWN BY: R. KNIGHT DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

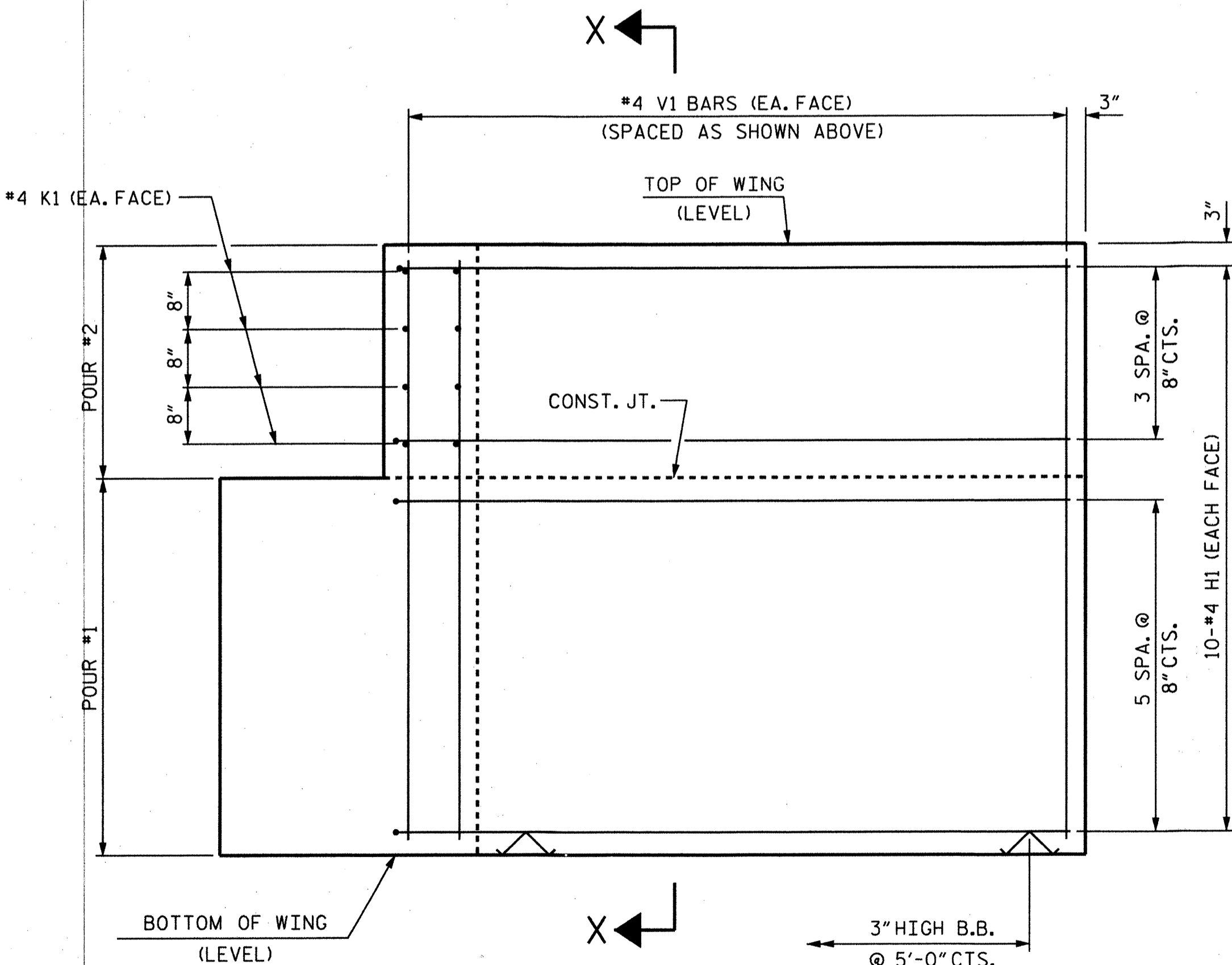
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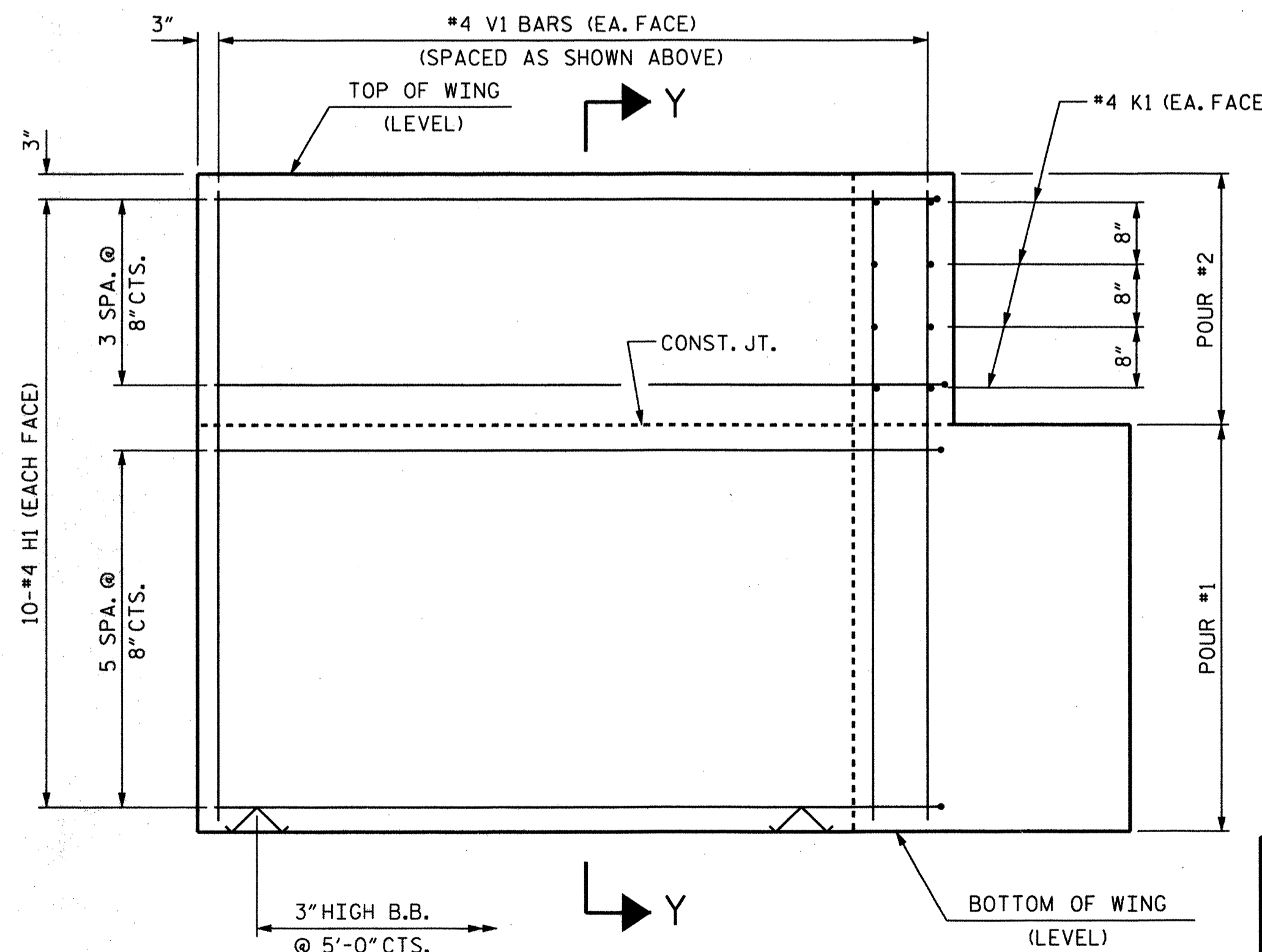
PLAN OF WING (W4)



PLAN OF WING (W3)

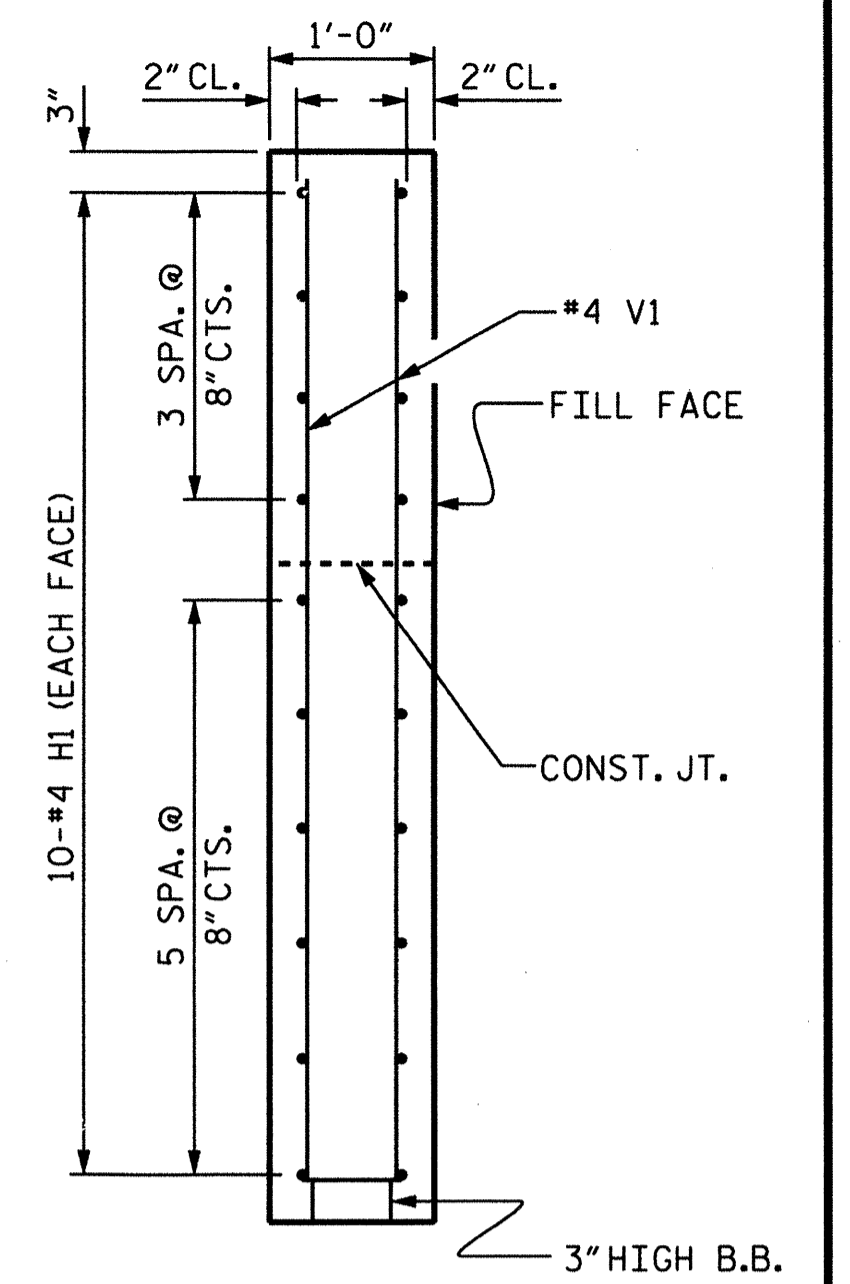


ELEVATION OF WING (W4)

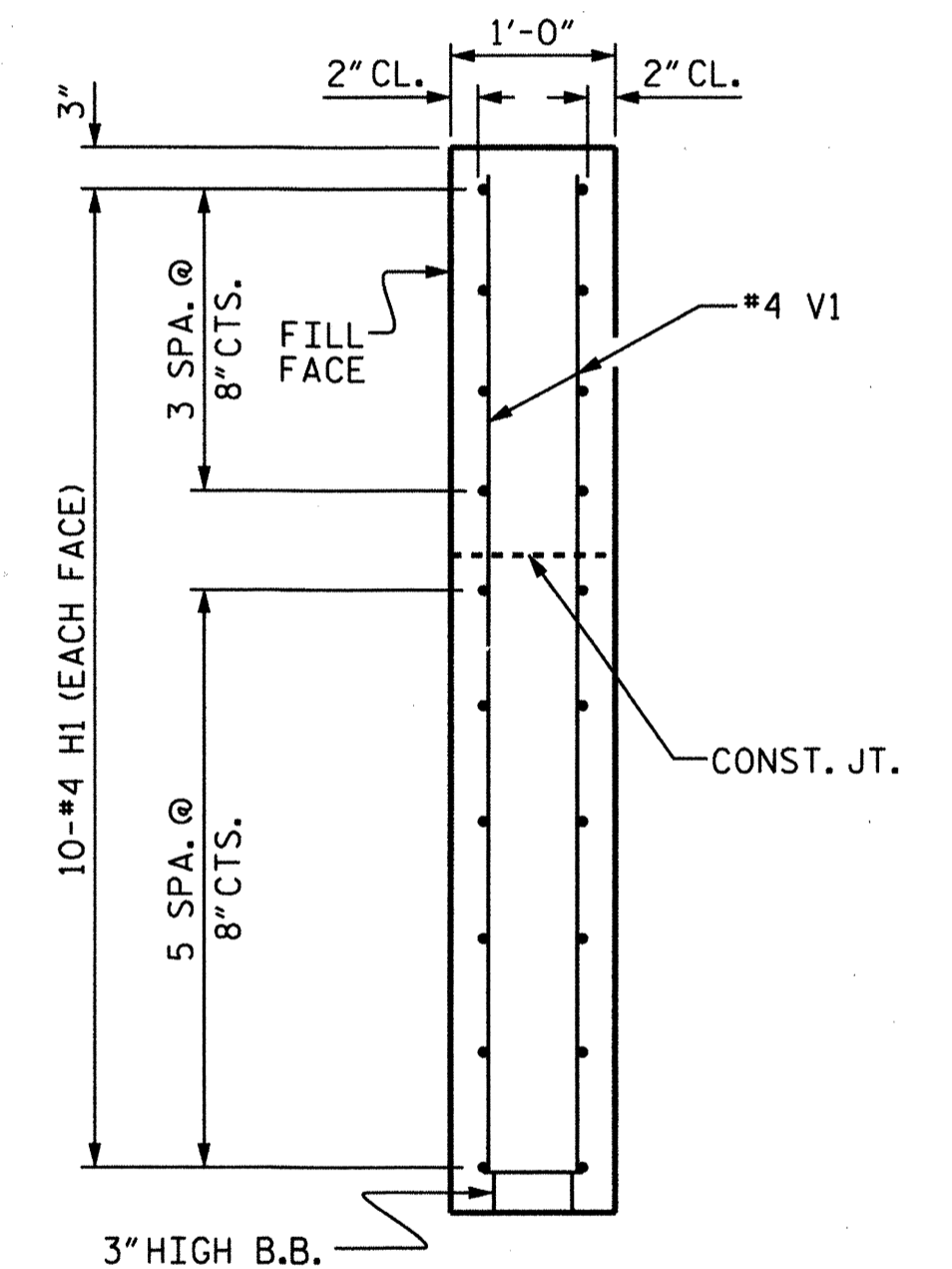


ELEVATION OF WING (W3)

WING DETAILS



SECTION X-X



SECTION Y-Y

PROJECT NO. R-5525  
 WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 4 OF 5



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

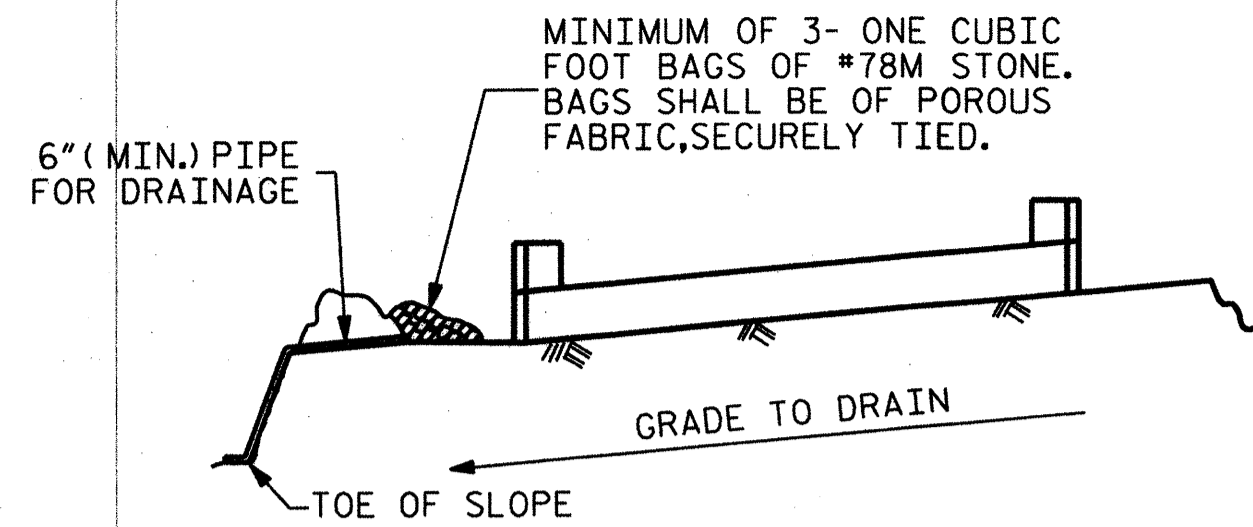
SUBSTRUCTURE  
 END BENT 2  
 WING DETAILS

DRAWN BY: R. KNIGHT DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

DRAWN BY: WJH 12/11  
 CHECKED BY: AAC 12/11

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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS	
2			4			18	

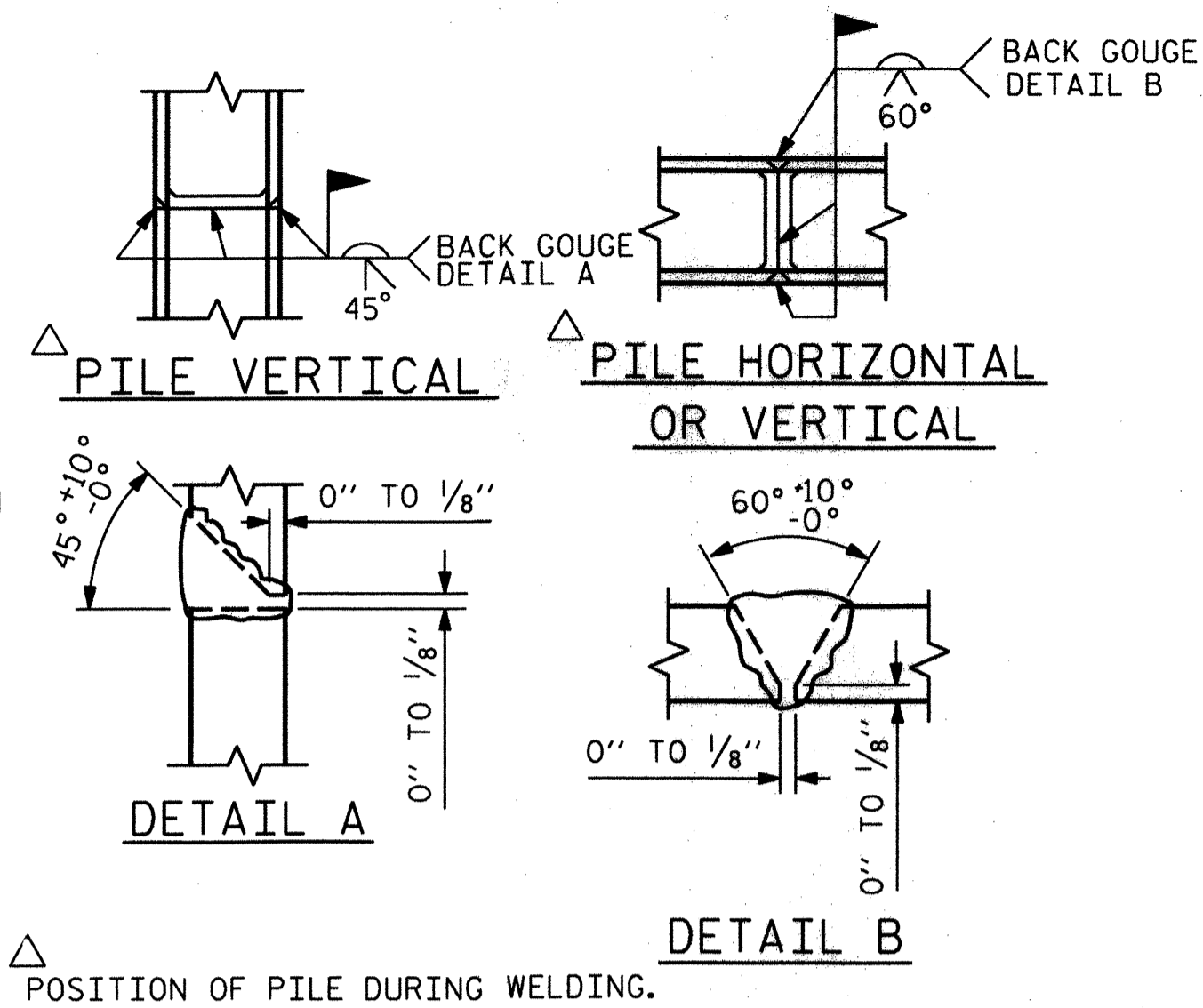


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

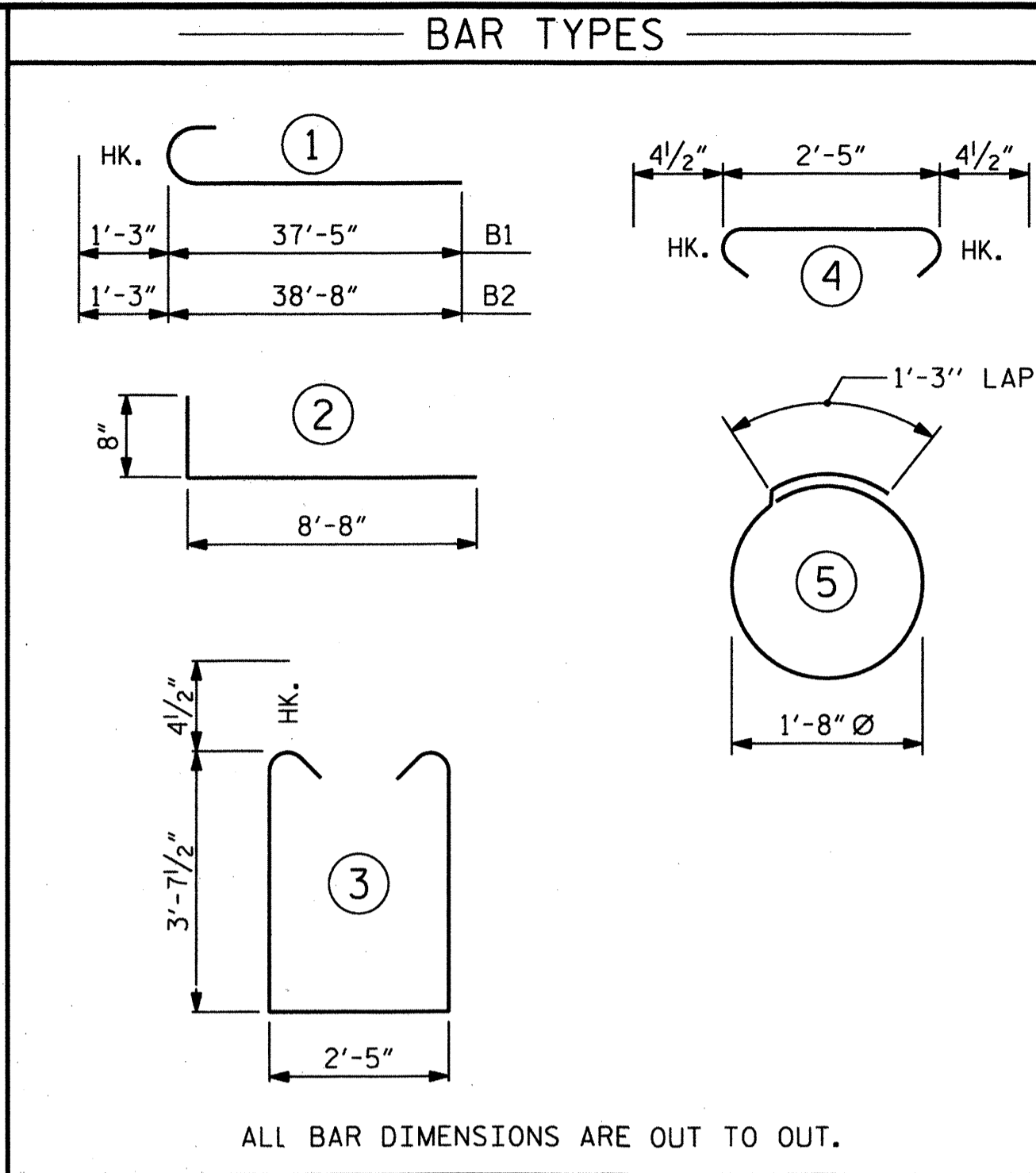
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

### TEMPORARY DRAINAGE AT END BENT

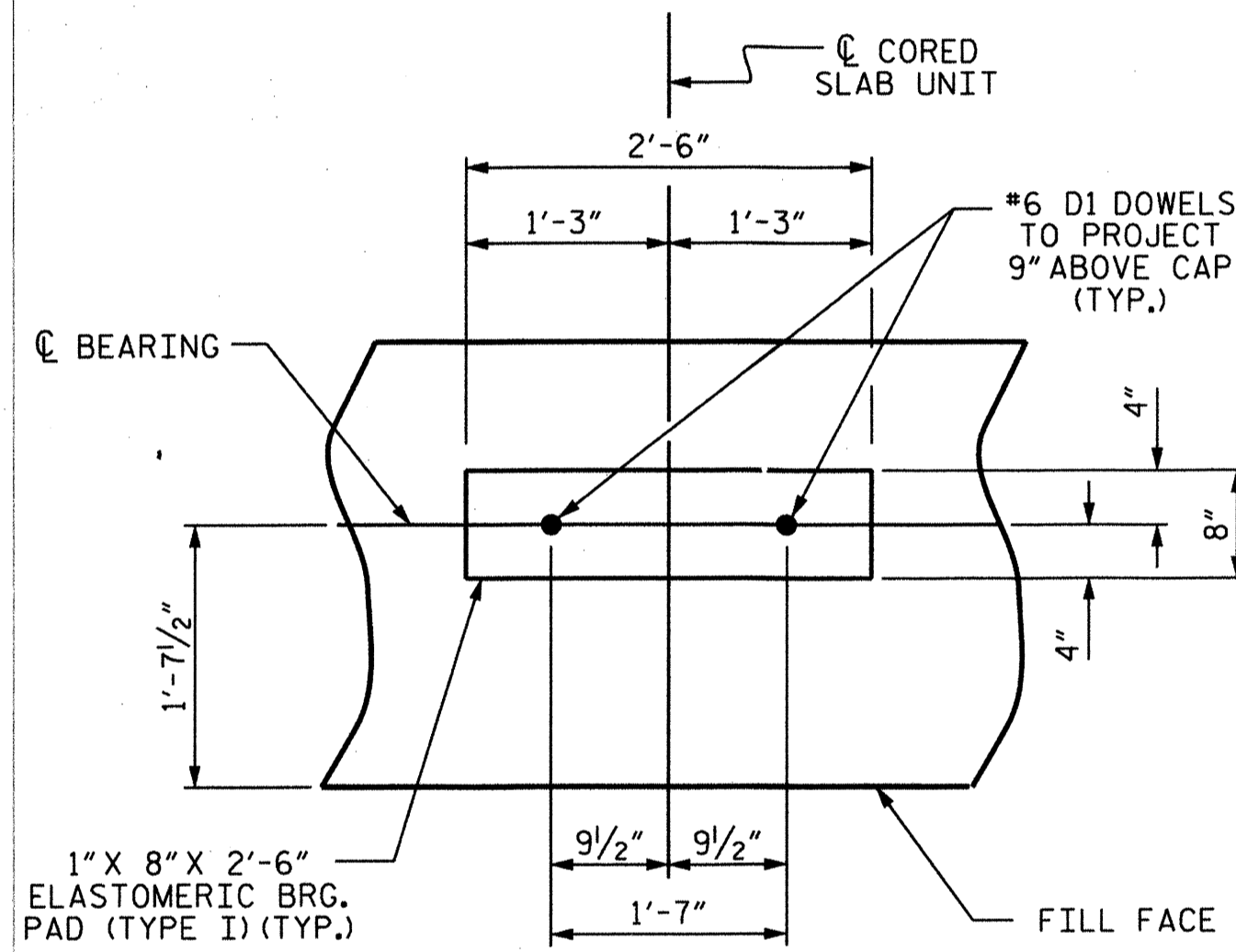


### PILE SPLICE DETAILS

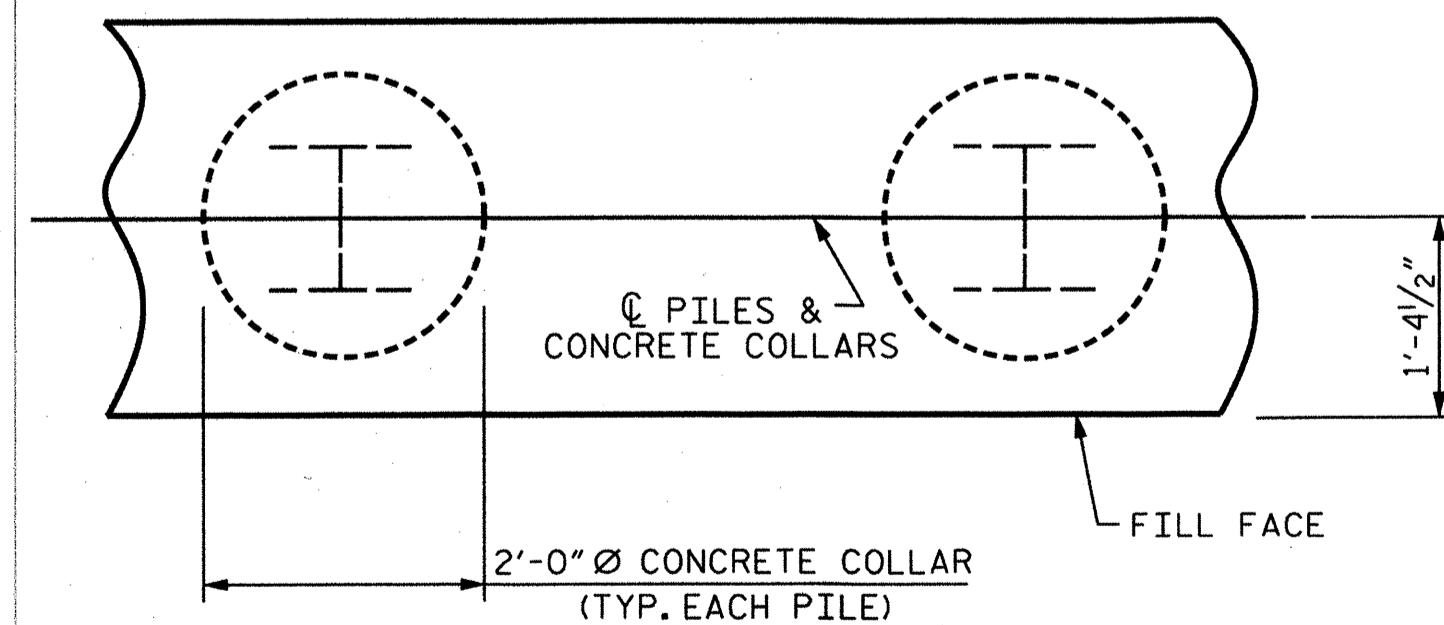


### BILL OF MATERIAL

END BENT 1						END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-8"	1052	B1	8	#9	1	38'-8"	1052
B2	8	#9	1	39'-11"	1086	B2	8	#9	1	39'-11"	1086
B3	42	#4	STR	24'-6"	687	B3	42	#4	STR	24'-6"	687
B4	18	#4	STR	2'-5"	29	B4	18	#4	STR	2'-5"	29
D1	42	#6	STR	1'-6"	95	D1	42	#6	STR	1'-6"	95
H1	80	#4	STR	7'-6"	401	H1	40	#4	2	9'-4"	249
S1	96	#4	3	10'-5"	668	S1	96	#4	3	10'-5"	668
S2	96	#4	4	3'-2"	203	S2	96	#4	4	3'-2"	203
S3	44	#4	5	6'-6"	191	S3	44	#4	5	6'-6"	191
V1	52	#4	STR	6'-2"	214	V1	52	#4	STR	6'-2"	214
REINFORCING STEEL						REINFORCING STEEL					
						4626 LBS.					
						4474 LBS.					
CLASS A CONCRETE BREAKDOWN						CLASS A CONCRETE BREAKDOWN					
POUR #1		CAP, LOWER PART OF WINGS & COLLARS			33.0 C.Y.	POUR #1		CAP, LOWER PART OF WINGS & COLLARS			31.7 C.Y.
POUR #2		UPPER PART OF WINGS			2.5 C.Y.	POUR #2		UPPER PART OF WINGS			2.1 C.Y.
TOTAL CLASS A CONCRETE					35.5 C.Y.	TOTAL CLASS A CONCRETE					33.9 C.Y.
END BENT No. 1						END BENT No. 2					
HP 12 X 53 STEEL PILES						HP 12 X 53 STEEL PILES					
NO: 11						NO: 11					
LIN. FT.= 165						LIN. FT.= 165					

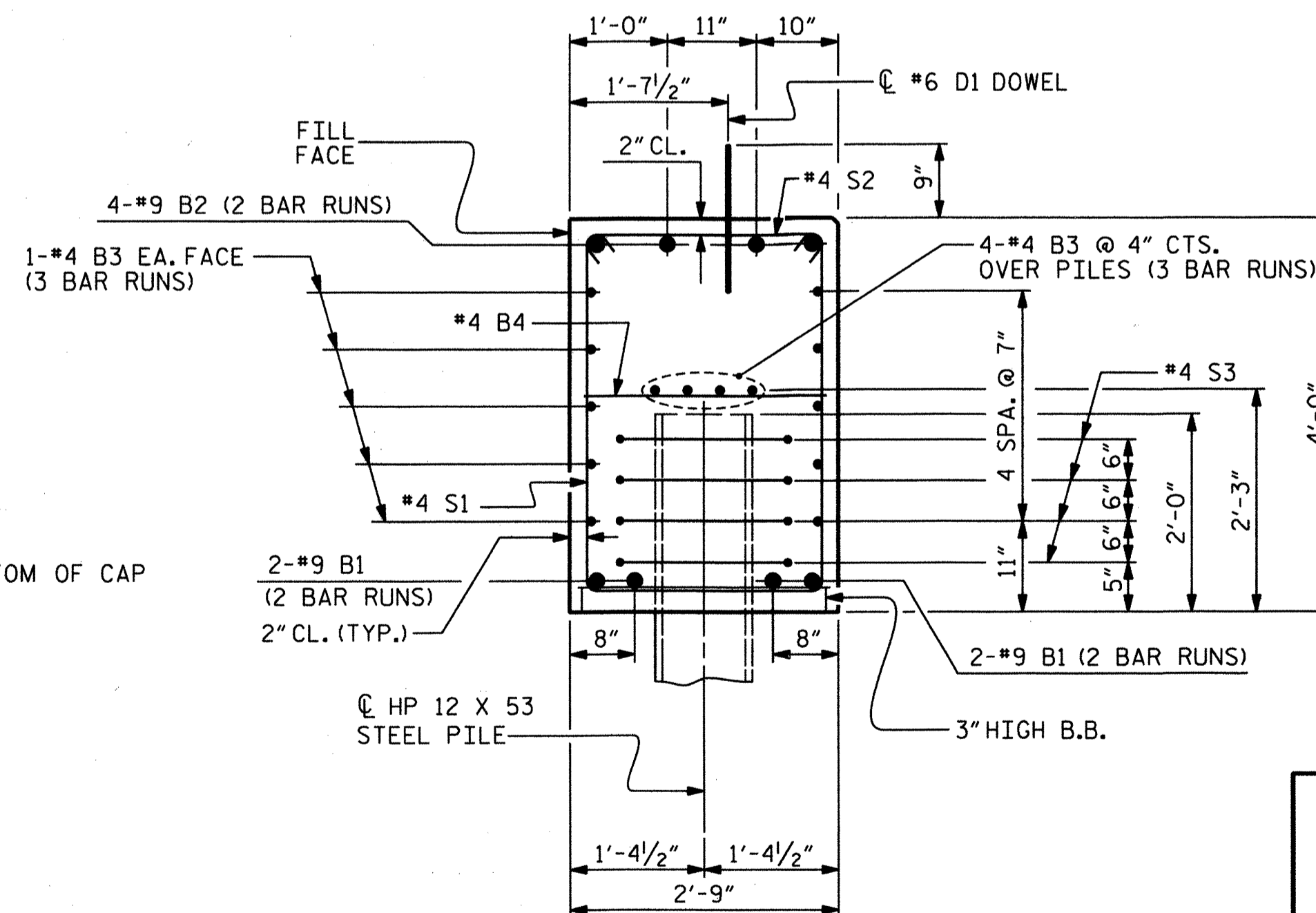
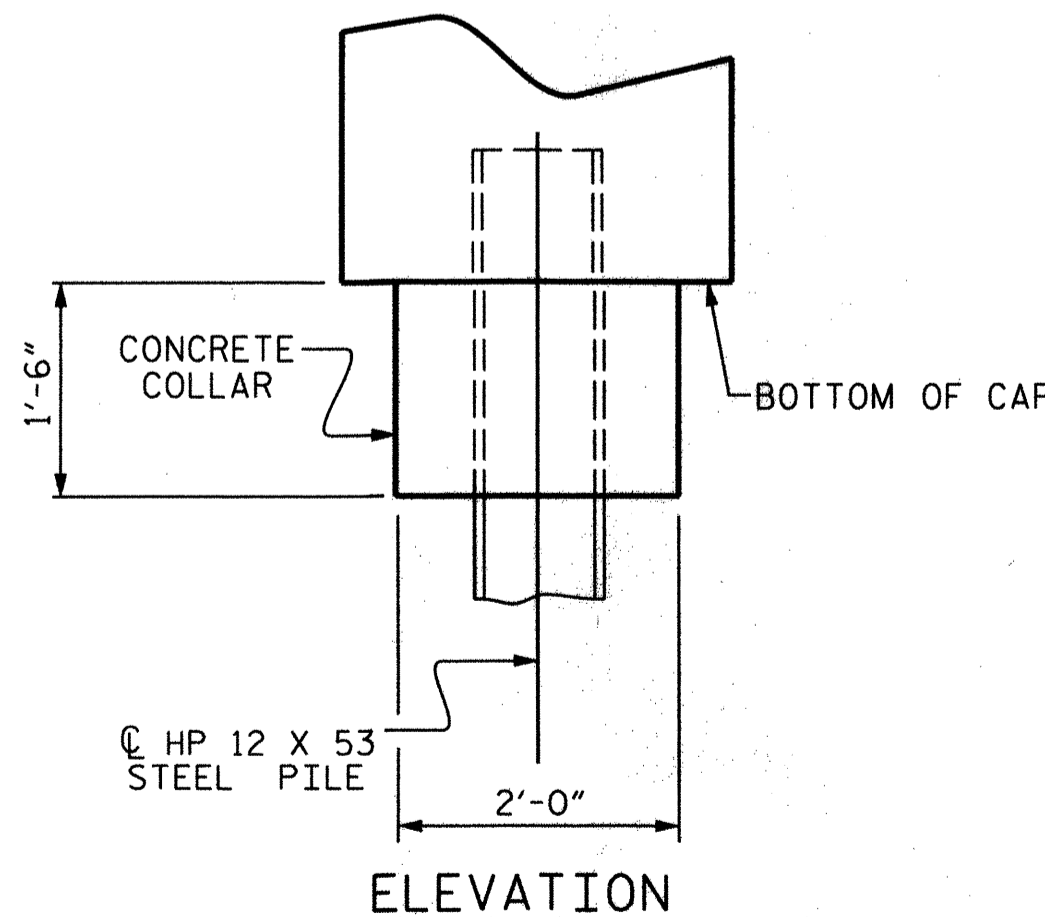


(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



### CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



### SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

PROJECT NO. R-5525

WATAUGA COUNTY

STATION: 11+00.19 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2  
DETAILS

REVISIONS

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

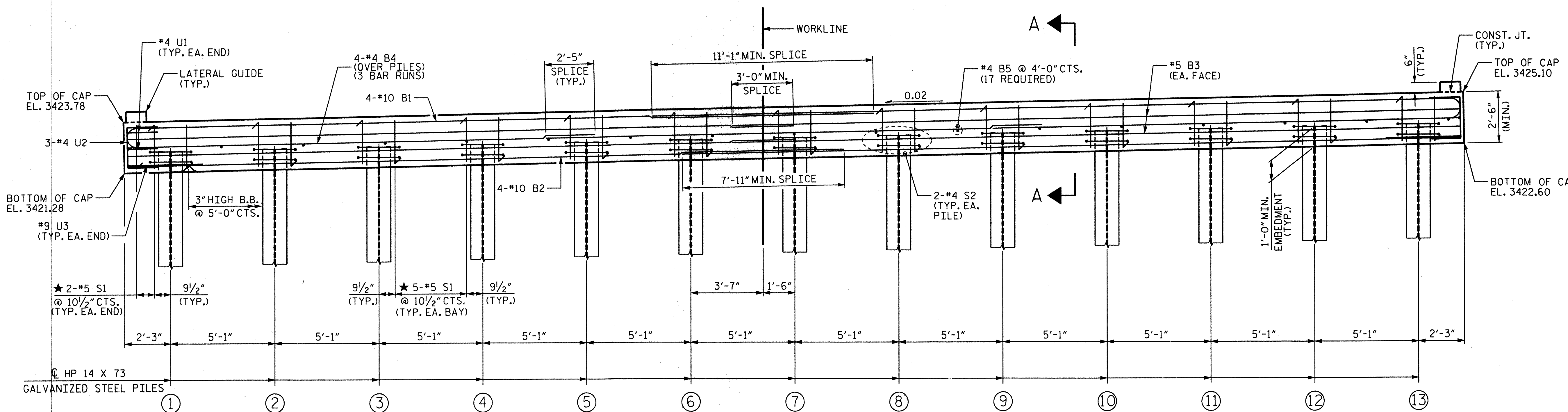
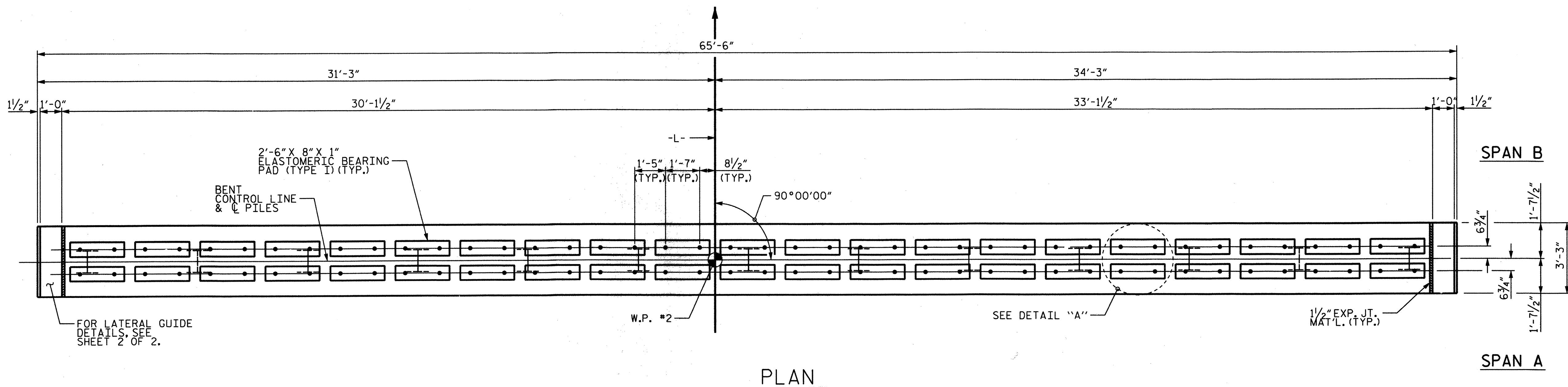
SHEET NO.  
S-13

TOTAL  
SHEETS  
18

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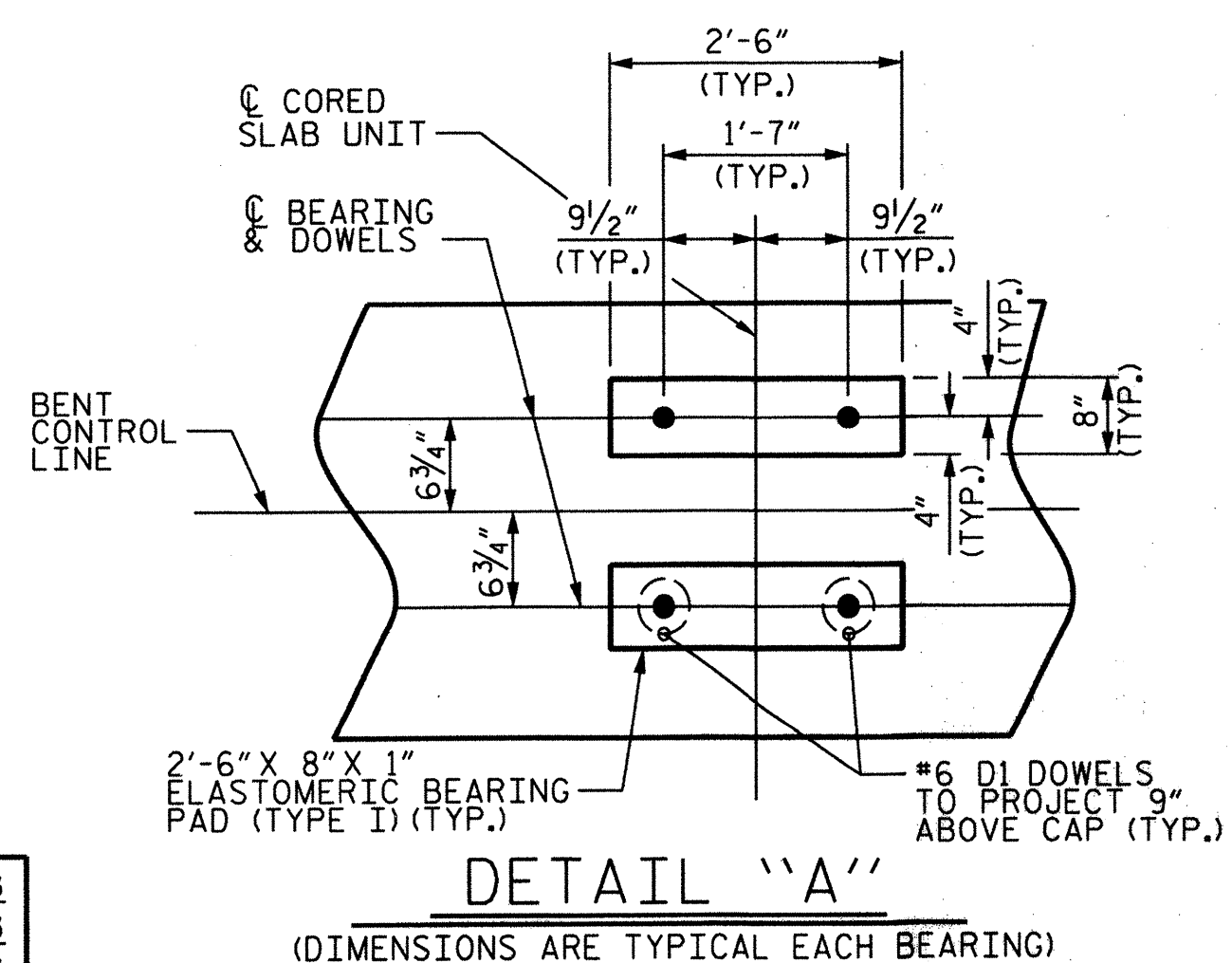
DRAWN BY: R. KNIGHT DATE: AUG 2013  
CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

DRAWN BY: WJH 12/11  
CHECKED BY: AAC 12/11



**TOP OF PILE ELEVATIONS**

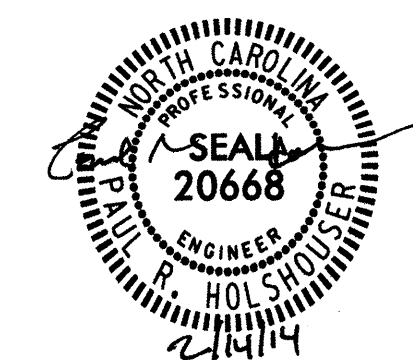
①	3422.34
②	3422.44
③	3422.54
④	3422.64
⑤	3422.75
⑥	3422.85
⑦	3422.95
⑧	3423.05
⑨	3423.16
⑩	3423.26
⑪	3423.36
⑫	3423.46
⑬	3423.57



**NOTES**

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
- ★ INVERT ALTERNATE STIRRUPS.
- GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.
- FOR PILE SPLICE DETAILS, SEE SHEET 2 OF 2.

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-  
 SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**STANDARD  
 SUBSTRUCTURE  
 INTERIOR BENT**

REVISIONS

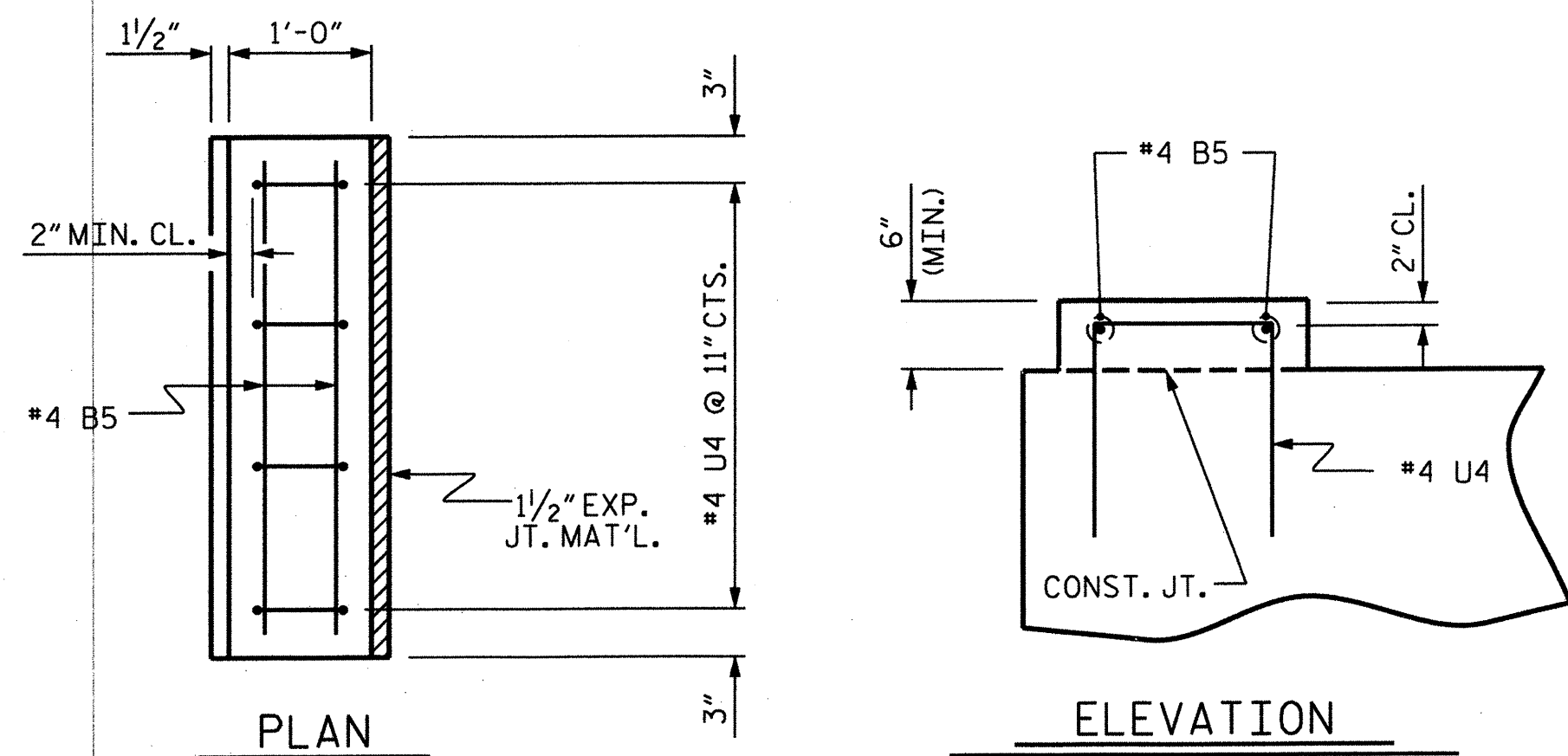
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

SHEET NO. S-14
TOTAL SHEETS 18

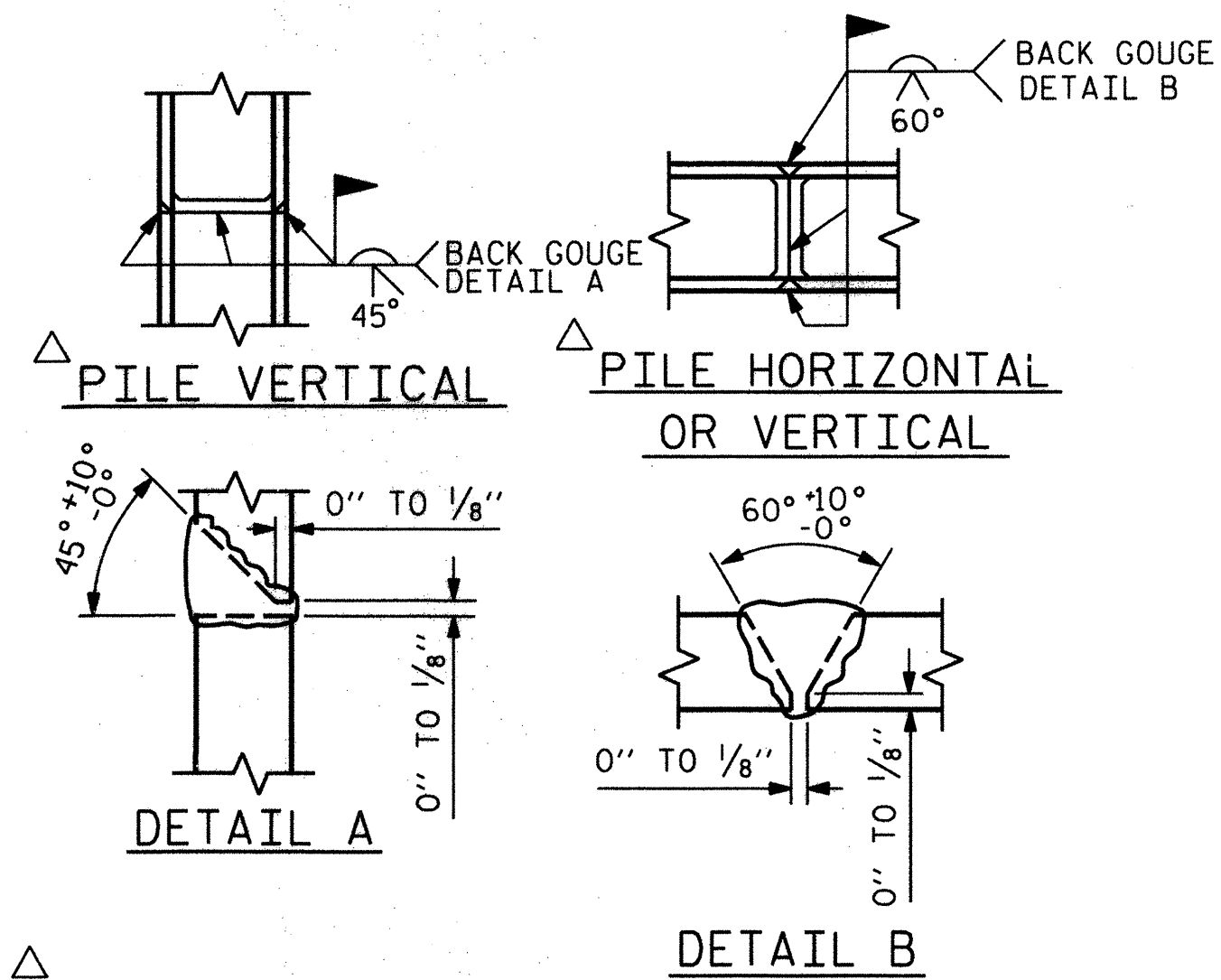
DRAWN BY: M. HOGAN DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

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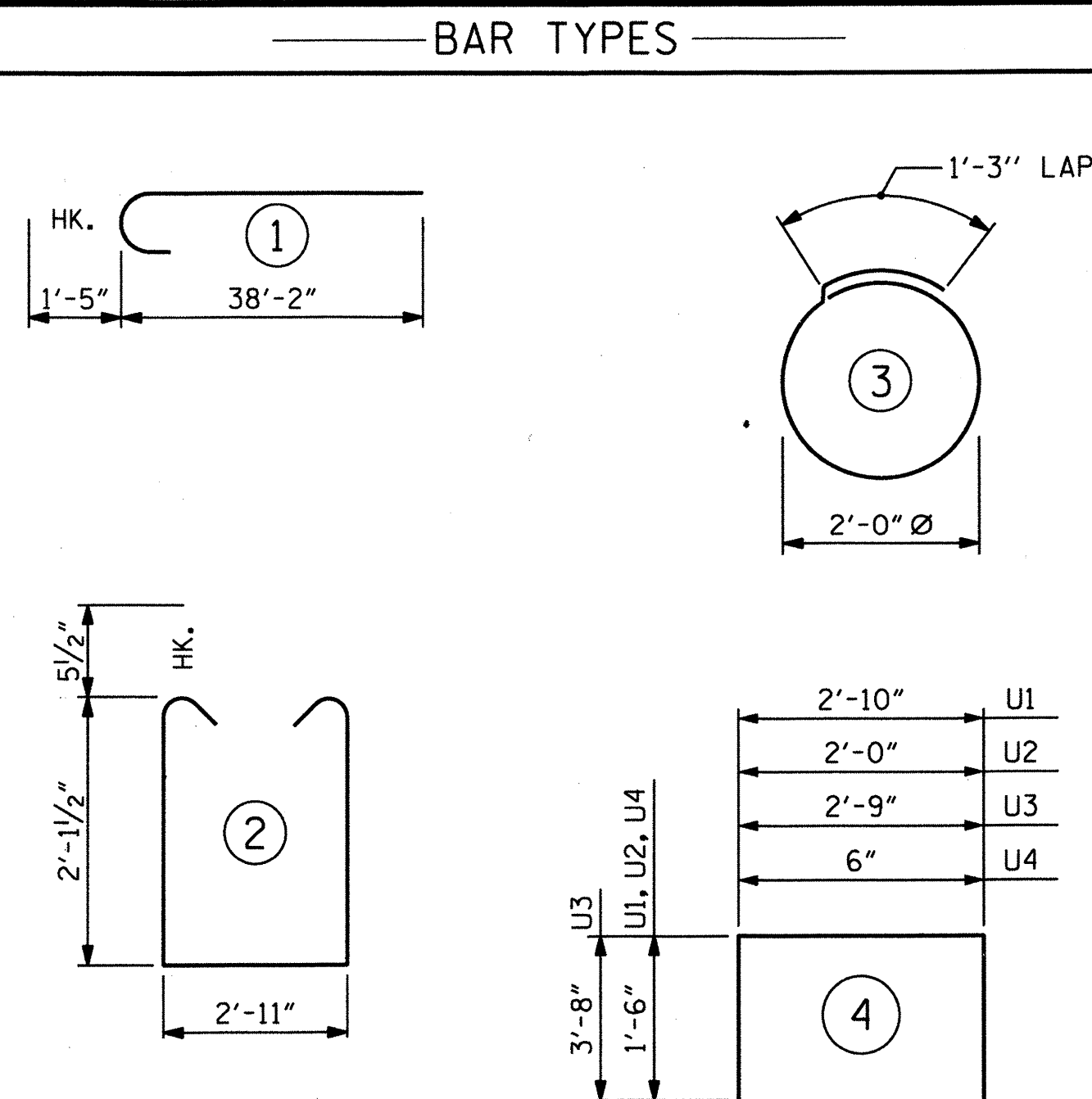
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**LATERAL GUIDE DETAILS**  
 (LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



**PILE SPLICE DETAILS**  
 SCALE - 3/4" = 1'-0"

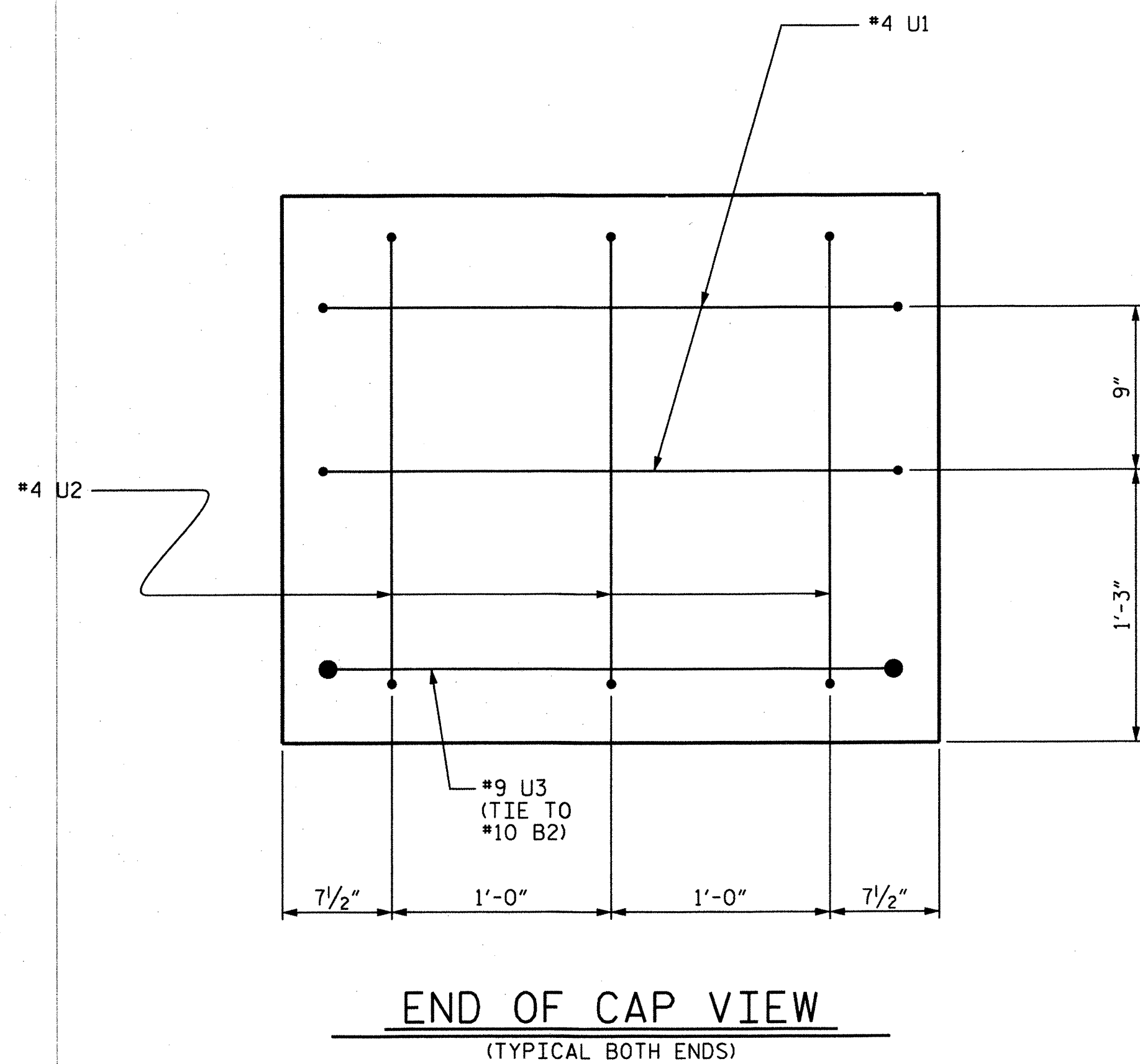


ALL BAR DIMENSIONS ARE OUT TO OUT.

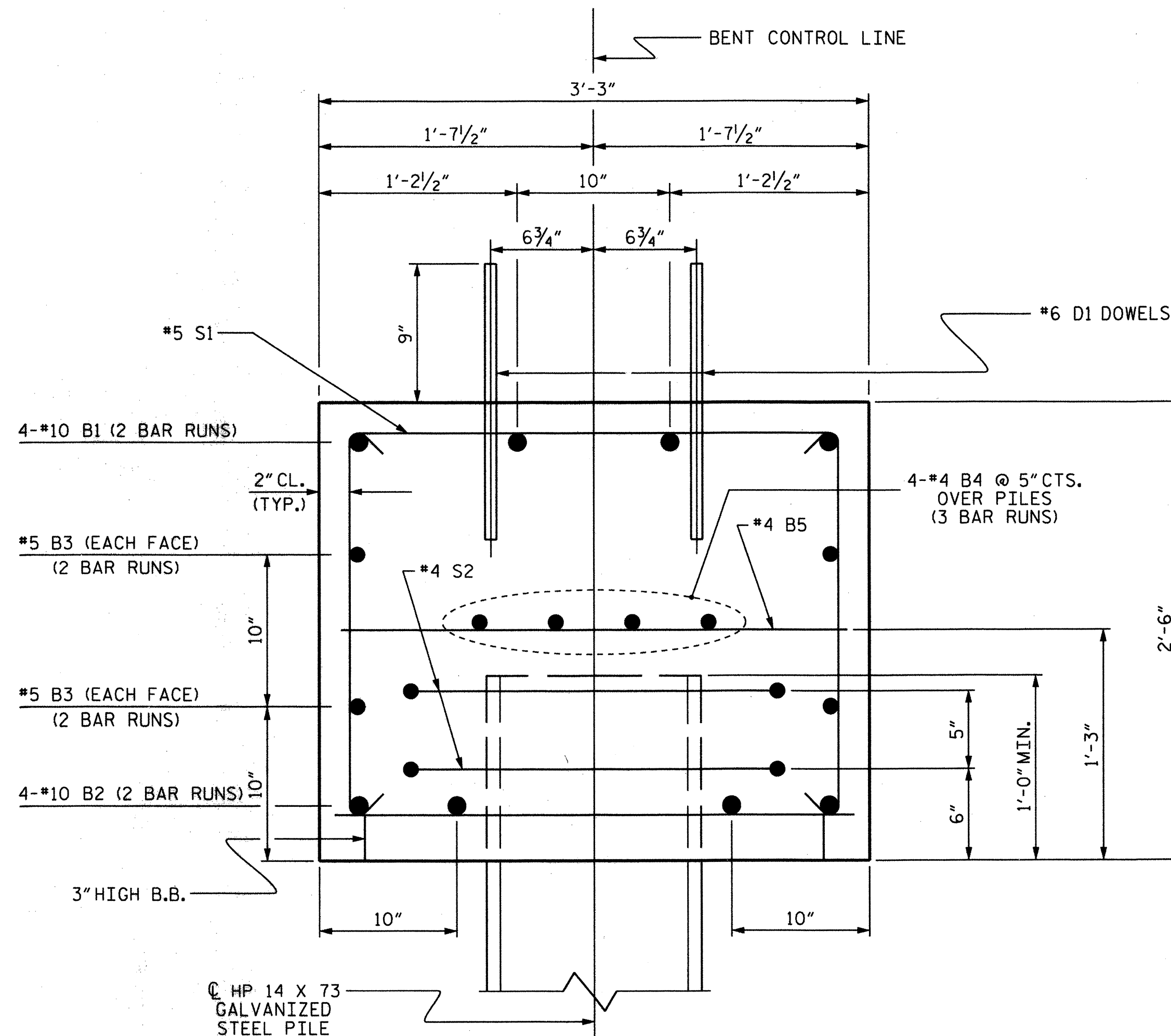
**BILL OF MATERIAL**

**FOR ONE BENT**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	1	39'-7"	1363
B2	8	#10	STR	36'-7"	1259
B3	8	#5	STR	34'-1"	284
B4	12	#4	STR	23'-7"	189
B5	21	#4	STR	2'-11"	41
D1	84	#6	STR	1'-6"	189
S1	64	#5	2	8'-1"	540
S2	26	#4	3	7'-7"	132
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19
REINFORCING STEEL					4121 LBS
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP)					19.7 C.Y.
POUR #2 (LATERAL GUIDES)					0.2 C.Y.
TOTAL CLASS A CONCRETE					19.9 C.Y.
HP 14 X 73 GALVANIZED STEEL PILES					
No. 13					LIN. FT. 260



**END OF CAP VIEW**  
 (TYPICAL BOTH ENDS)



**SECTION A-A**

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-  
 SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 INTERIOR BENT

REVISIONS

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

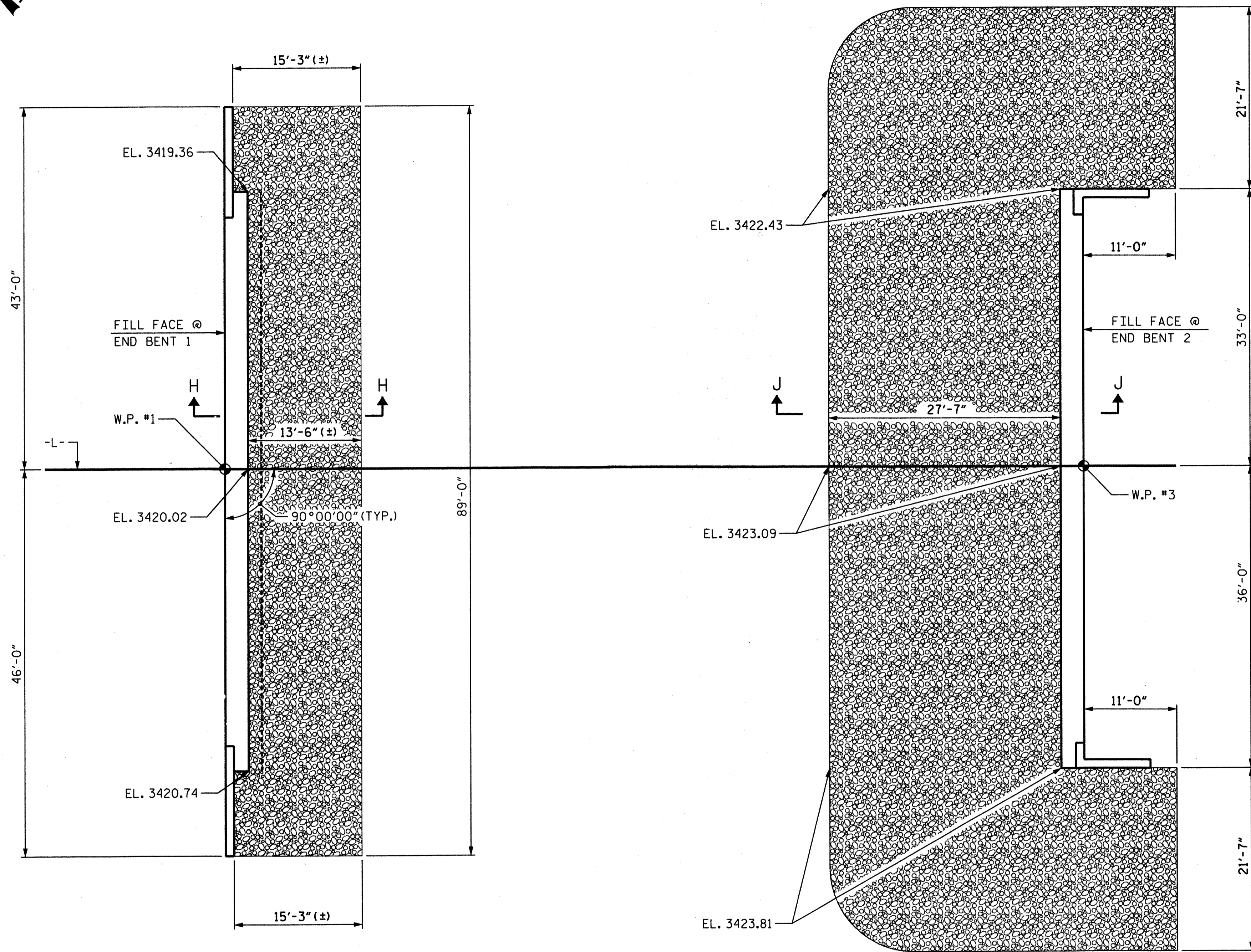
SHEET NO. S-15  
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DRAWN BY: M. HOGAN DATE: AUG 2013  
 CHECKED BY: P. R. HOLSHOUSER DATE: AUG 2013  
 DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: AUG 2013

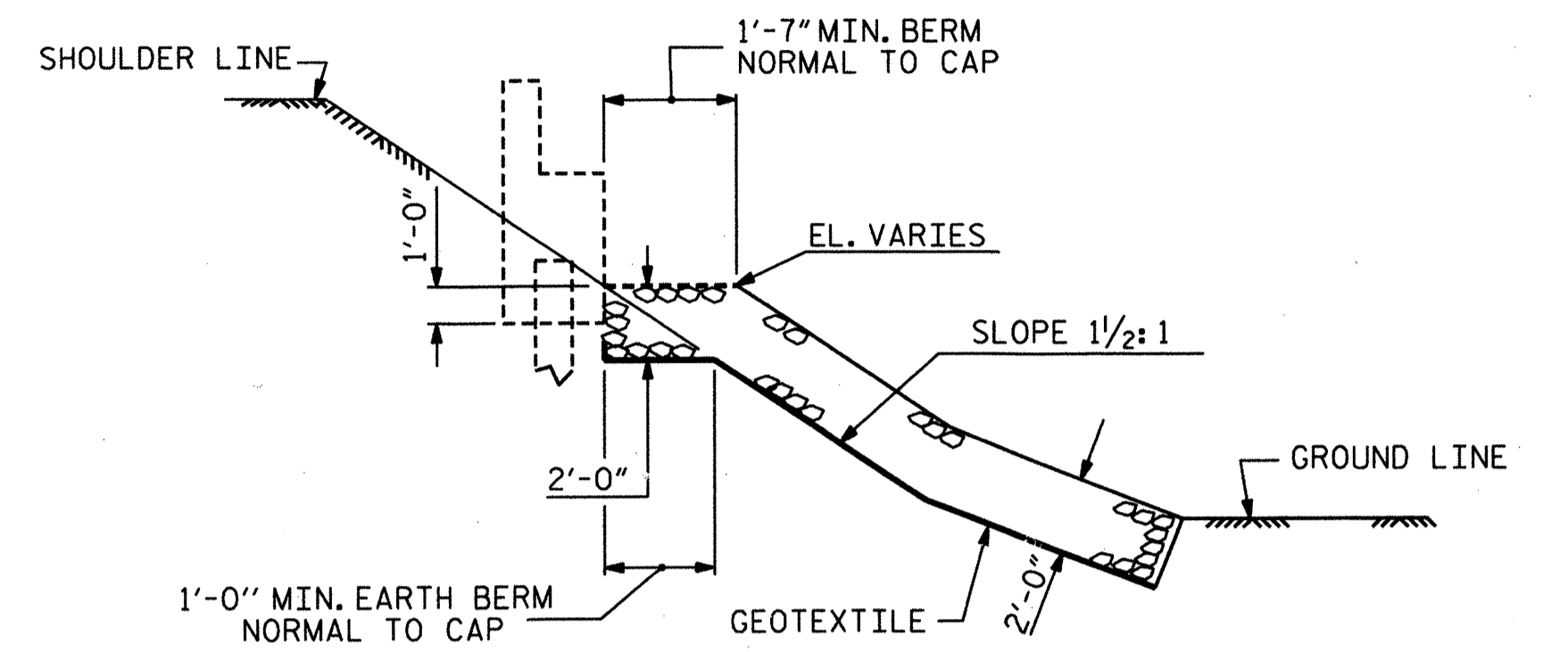
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 NC COA No. F-0840



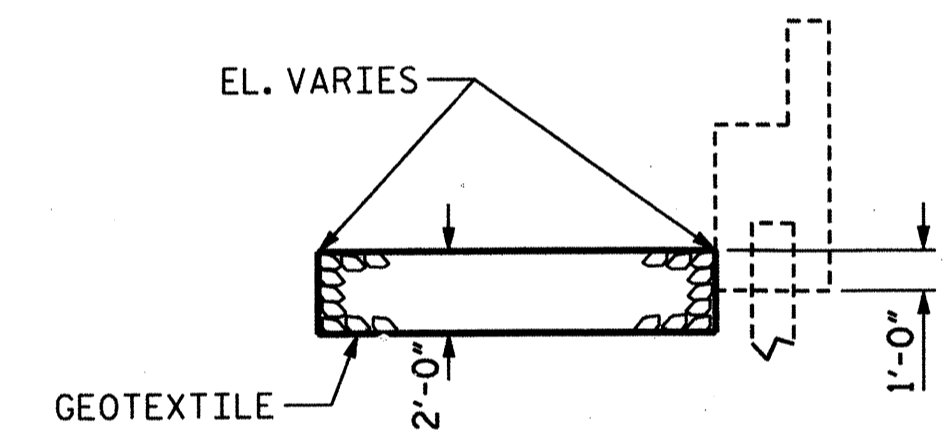
NAD 83/NSRS 2011



NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



SECTION H-H

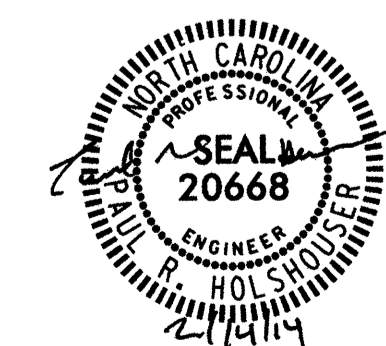


SECTION J-J

PROJECT NO. R-5525  
WATAUGA COUNTY  
STATION: 11+00.19 -L-

ESTIMATED QUANTITIES

BRIDGE @ STA. 11+00.19 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	131	146
END BENT 2	409	454



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

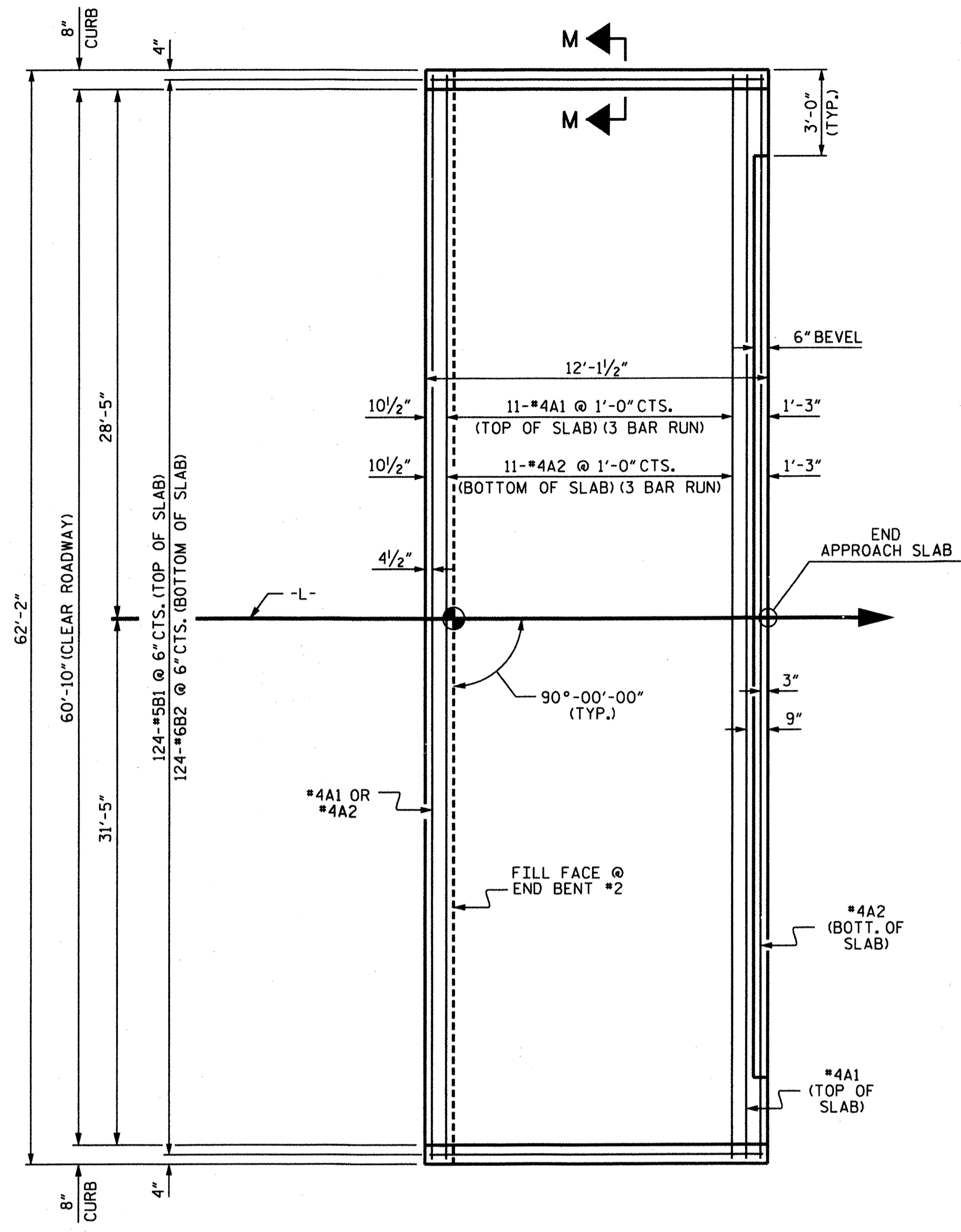
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CHECKED BY: RDU 1/84 REV. 10/1/11 MAA/GM  
REV. 12/21/11 MAA/GM  
DRAWN BY: R. KNIGHT DATE: SEPT 2013  
CHECKED BY: P. R. HOLSHOUSER DATE: SEPT 2013  
DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER DATE: SEPT 2013

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NC COA No. F-0840

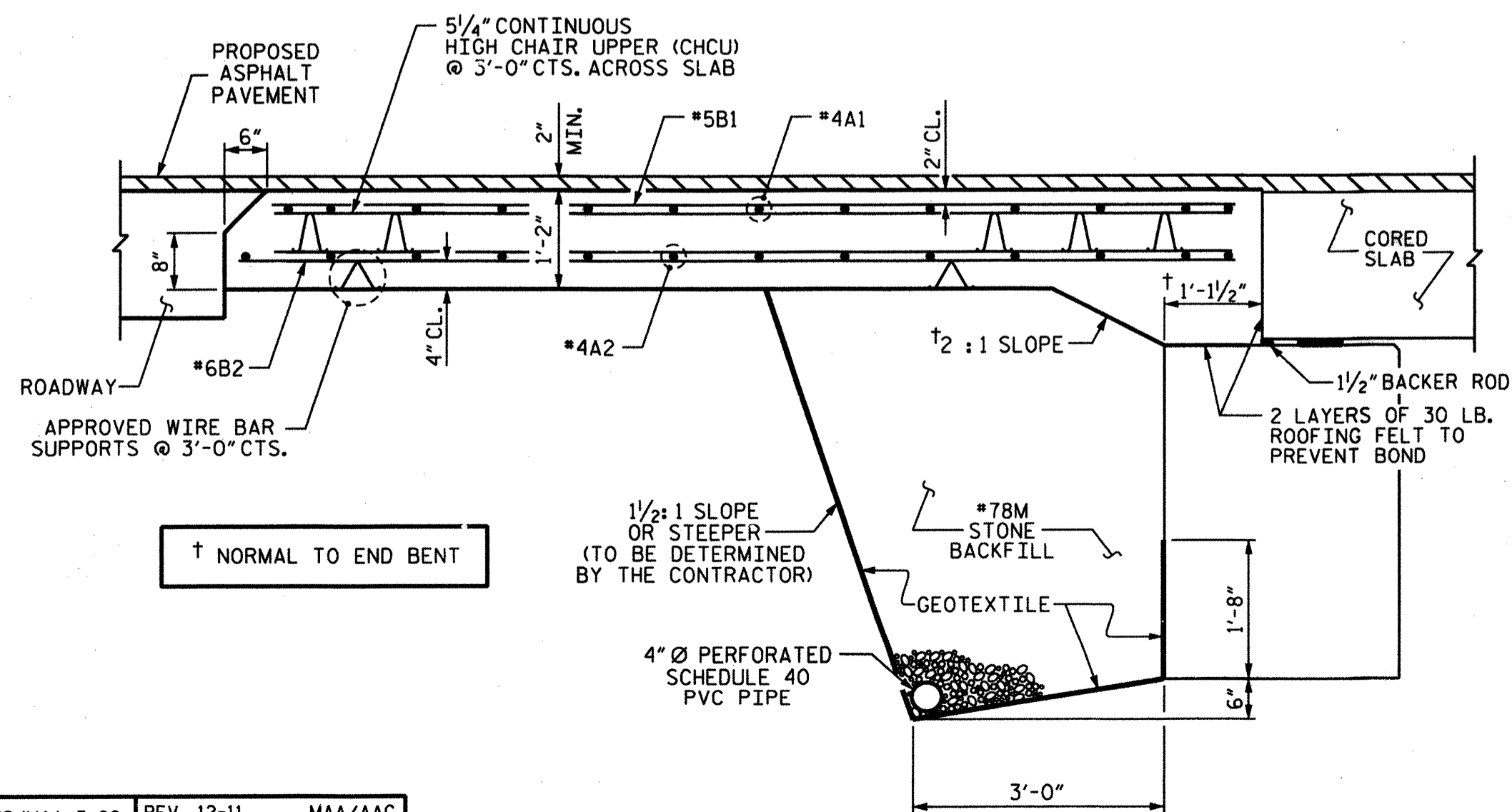
REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			



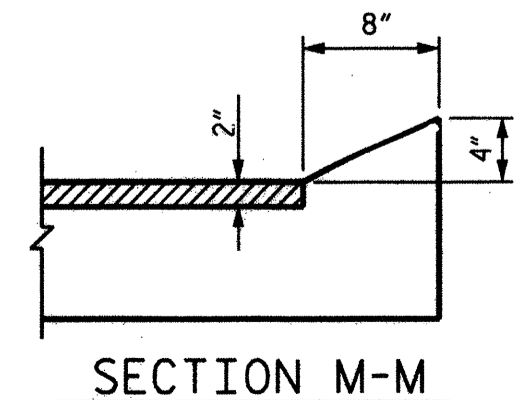
G:\CKE Projects\CKE21004 Limited Services Division Offices\R-5525\Structures\R5525\_SD\_AS02.dgn  
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PLAN @ END BENT #2



SECTION THRU SLAB



CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE I1N ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

\*78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

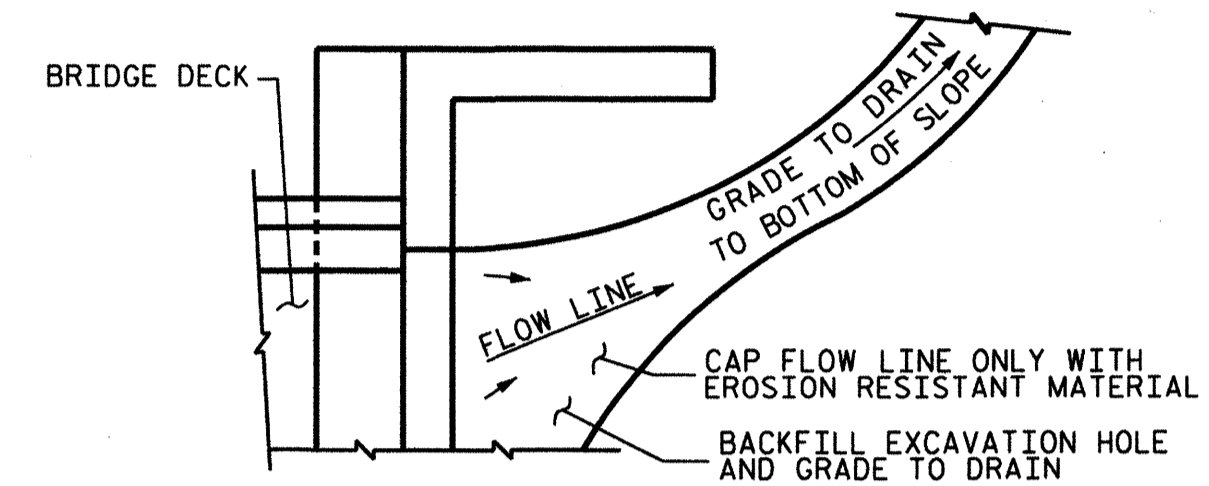
\*78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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.

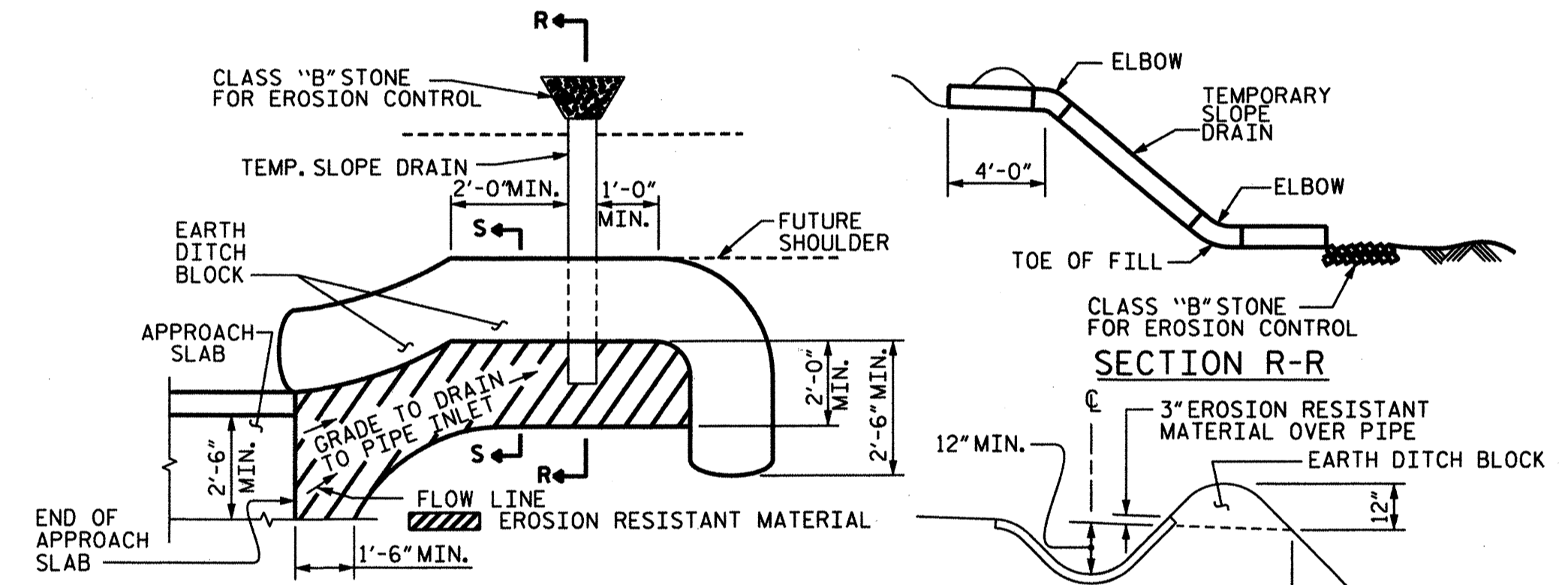
APPROACH SLAB GROOVING IS NOT REQUIRED.

APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	39	#4	STR	21'-11"	571
A2	39	#4	STR	21'-9"	567
*B1	124	#5	STR	11'-2"	1444
B2	124	#6	STR	11'-8"	2173
REINFORCING STEEL				LBS.	2740
*EPOXY COATED REINFORCING STEEL				LBS.	2015
CLASS AA CONCRETE				C. Y.	35.2



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



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

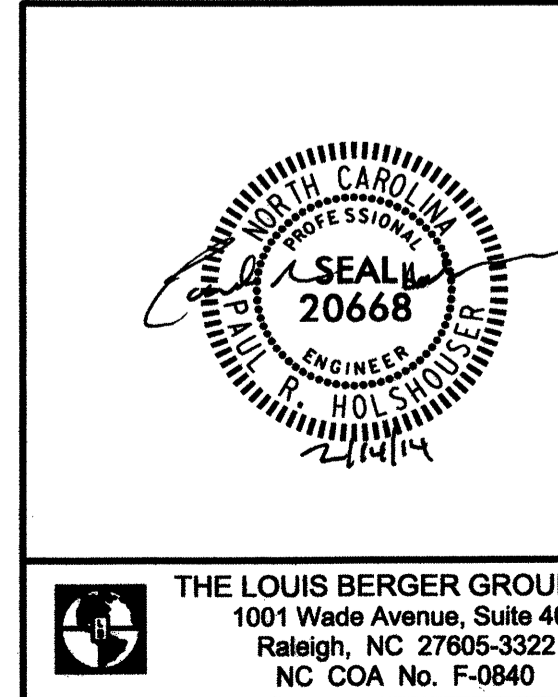
TEMPORARY BERM AND SLOPE DRAIN DETAILS  
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. R-5525  
WATAUGA COUNTY  
 STATION: 11+00.19 -L-

SHEET 2 OF 2

DRAWN BY: SHS/MAA 5-09	REV. 12-11	MAA/AAC
CHECKED BY: BCH 5-09		
DRAWN BY: R. KNIGHT	DATE: AUG 2013	
CHECKED BY: P. R. HOLSHOUSER	DATE: AUG 2013	
DESIGN ENGINEER OF RECORD: P. R. HOLSHOUSER	DATE: AUG 2013	

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



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 (SUB-REGIONAL TIER)

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

SHEET NO. S-18  
 TOTAL SHEETS 18

THE LOUIS BERGER GROUP, Inc.  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

## STANDARD NOTES

### DESIGN DATA:

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

### MATERIAL AND WORKMANSHIP:

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

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

### CONCRETE:

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

### CONCRETE CHAMFERS:

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

### DOWELS:

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

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

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

### REINFORCING STEEL:

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

### STRUCTURAL STEEL:

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

### HANDRAILS AND POSTS:

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

### SPECIAL NOTES:

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

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# ENGLISH

JANUARY, 1990

STD. NO. SN