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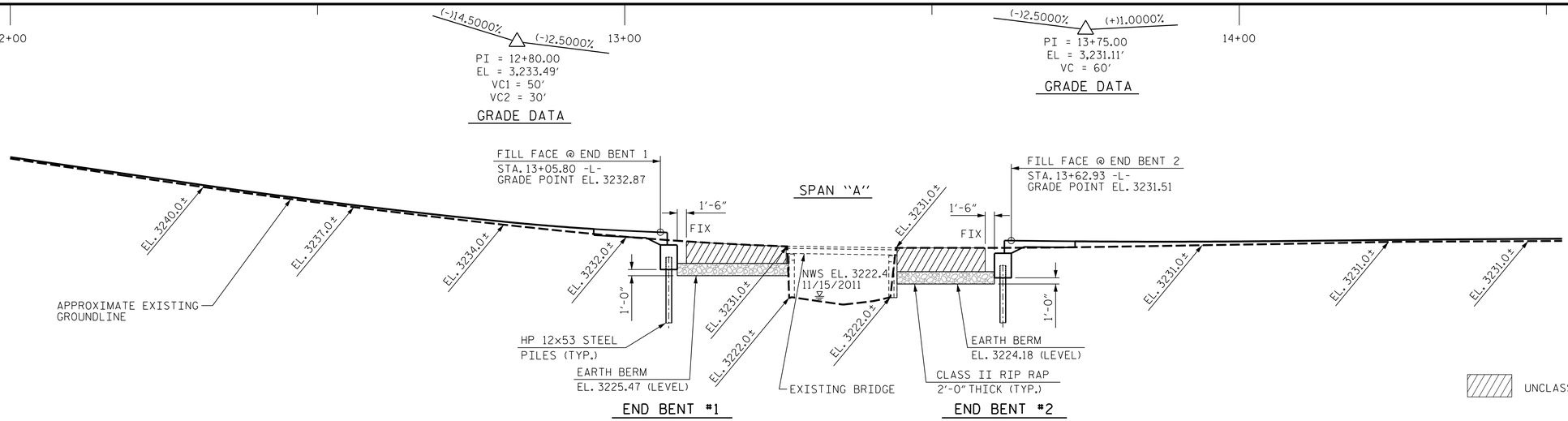
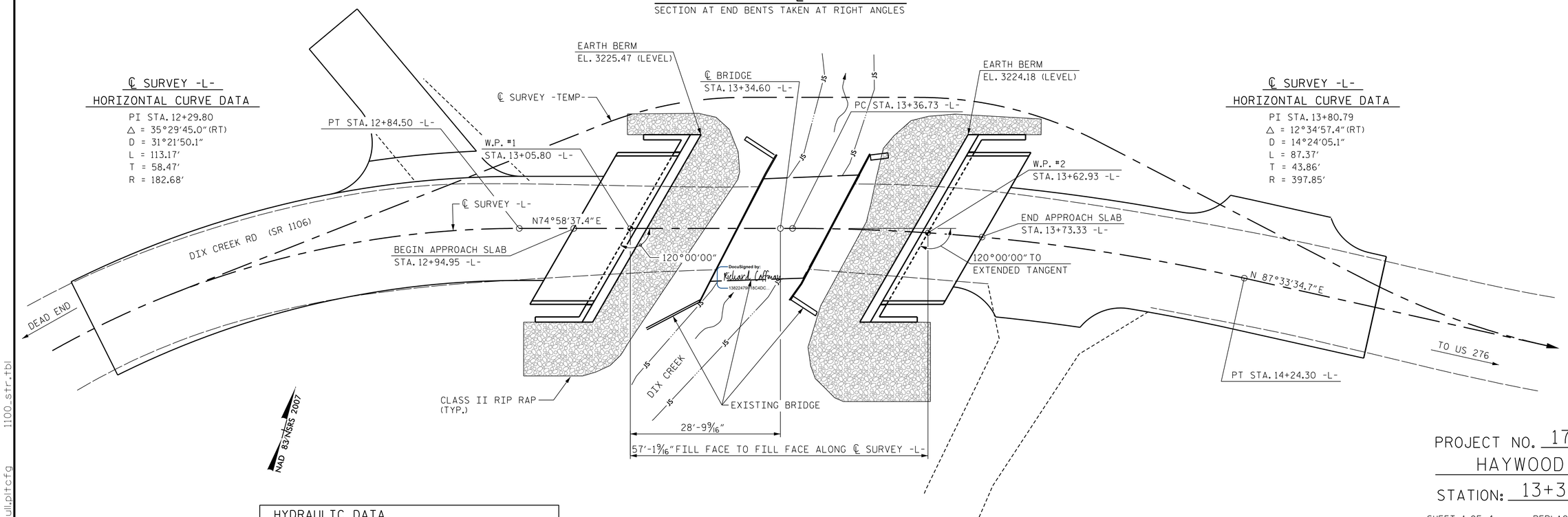


SECTION ALONG ℄ SURVEY -L-

SECTION AT END BENTS TAKEN AT RIGHT ANGLES

FOR NOTES, SEE SHEET S-4.



PLAN

HYDRAULIC DATA

DESIGN DISCHARGE	= 490 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YEAR
DESIGN HIGH WATER ELEVATION	= 3229.2
DRAINAGE AREA	= 1.33 SQ.MI.
BASE DISCHARGE (Q100)	= 700 CFS
BASE HIGH WATER ELEATION	= 3230.0

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 3300 CFS
FREQUENCY OF OVERTOPPING FLOOD	= >500 YEAR
OVERTOPPING FLOOD ELEVATION	= 3235.4

DrawnBy: R. KNIGHT DATE: AUG 2013
CheckedBy: R. COFFMAN DATE: AUG 2013
Design Engineer of Record: R. COFFMAN DATE: NOV 2013

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-

SHEET 1 OF 4 REPLACES BRIDGE No. 430350

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L COFFMAN

DocuSigned by: Richard Coffman 8/4/2015

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1106 OVER DIX CREEK BETWEEN US 276 AND DEAD END

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

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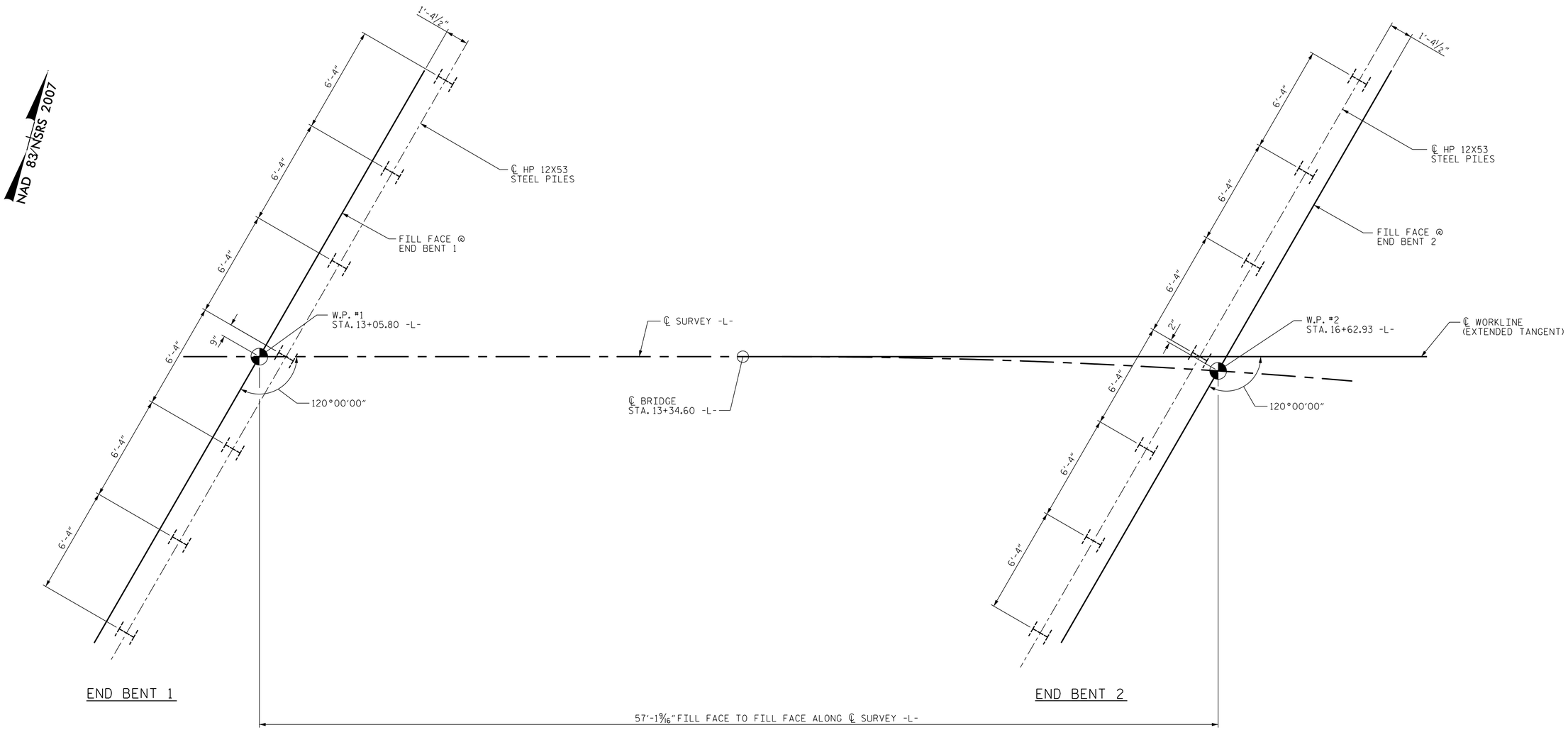

FOUNATION LAYOUT

FOUNDATION NOTES:

PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 71 TONS PER PILE.

DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 118 TONS PER PILE.

PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 71 TONS PER PILE.

DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 118 TONS PER PILE.

STEEL H PILE POINTS ARE REQUIRED FOR H PILES AT END BENTS 1 & 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATION.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATION.

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

SHEET 2 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L COFFMAN

DocuSigned by: Richard Coffman 8/4/2015

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1106 OVER DIX CREEK BETWEEN US 276 AND DEAD END

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

DRAWN BY:	M. HOGAN	DATE : AUG 2013
CHECKED BY:	R. COFFMAN	DATE : AUG 2013
DESIGN ENGINEER OF RECORD:	R. COFFMAN	DATE : NOV 2013

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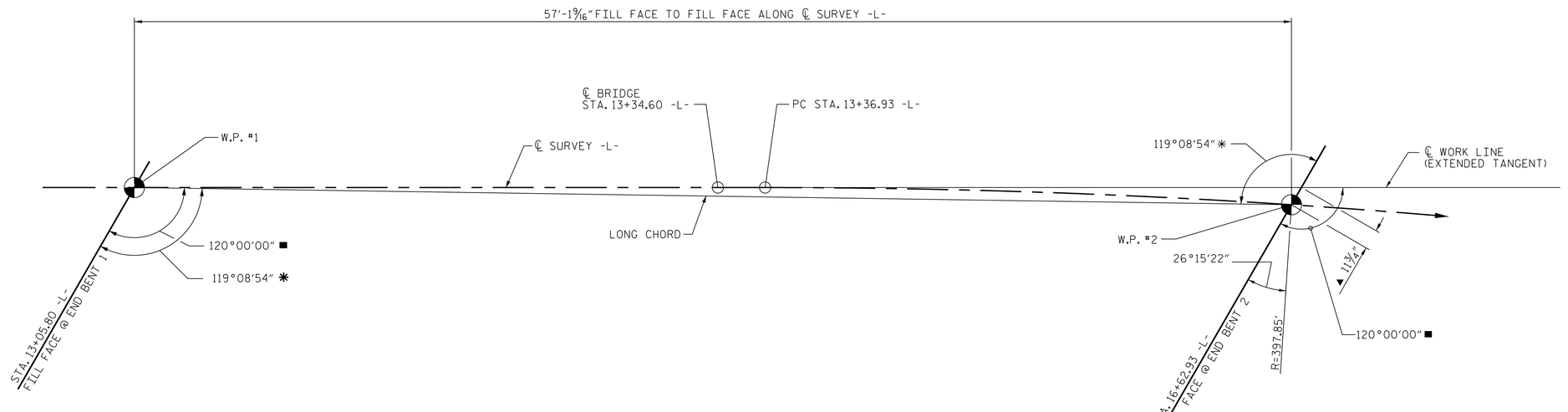

LONG CHORD LAYOUT

■ TO WORKLINE
✱ TO LONG CHORD
▲ ALONG FILL FACE

HORIZONTAL CURVE DATA

PI STA. = 13+80.79
△ = 12°34'57.4" (RT)
D = 14°24'05.1"
L = 87.37'
T = 43.86'
R = 397.85'

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-

SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by:
Richard Coffman
8/4/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1106 OVER DIX CREEK BETWEEN US 276 AND DEAD END

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

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1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322
NC COA No. F-0840

DRAWN BY: R. KNIGHT DATE: NOV 2013
CHECKED BY: R. COFFMAN DATE: NOV 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE: NOV 2013

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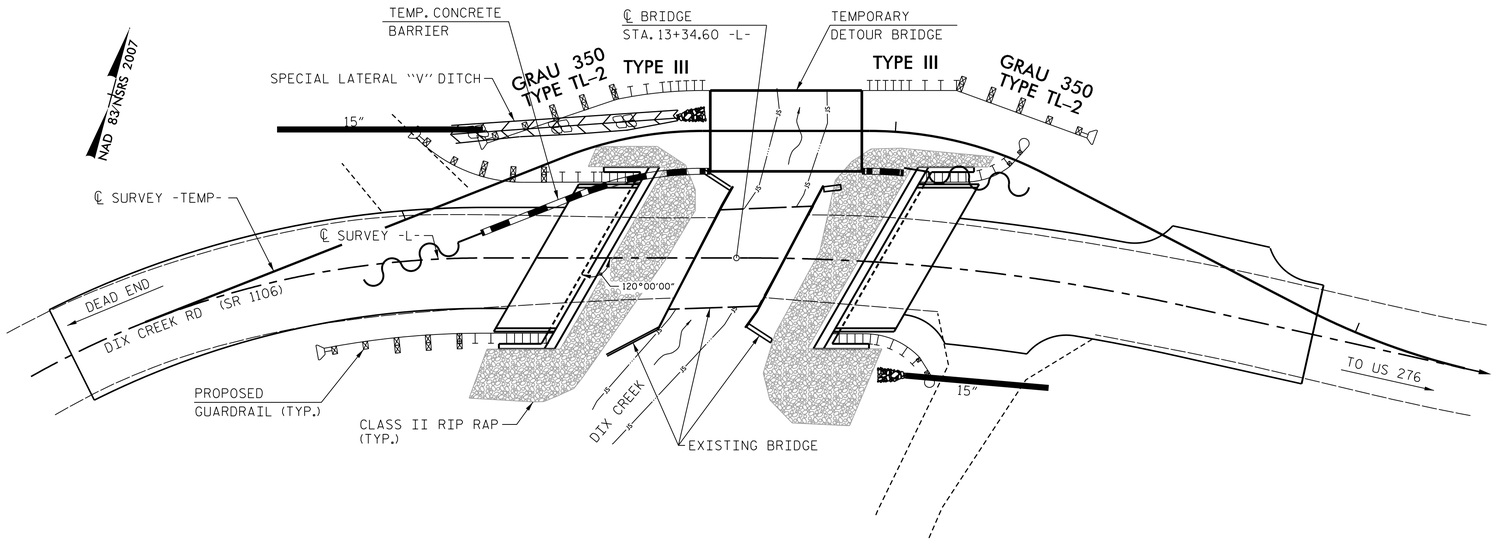
BM#1 -BL- STA 7+52.91 40.43' RT, EL. 3233.73



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLANS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF ONE 18'-6" SPAN CONSISTING OF TIMBER FLOOR ON TIMBER JOISTS ON TIMBER ABUTMENTS SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTUAL INTEGRITY OF THEE BRIDGE DETERIORATE A LOAD LIMIT MAY BE POSTED AND MAY BE PRODUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 19 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 11+78.36 -TEMP- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE BRIDGE RAILS ON THE TEMPORARY STRUCTURE SHALL BE DESIGNED FOR THE AASHTO LRFD TEST LEVEL 3 (TL-3) CRASH TEST CRITERIA. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

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

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

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

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

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP. STRUCTURE @ STA. 11+78.36 -TEMP-	REMOVAL OF EXISTING STRUCTURE @ STA. 13+34.60	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	TON	SQ. YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE					LUMP SUM					110.29			LUMP SUM	10	550
END BENT NO. 1			LUMP SUM	22.5		2,800	7	210	7		92	102			
END BENT NO. 2			LUMP SUM	23.2		3,023	7	70	7		125	139			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	45.7	LUMP SUM	5,823	14	280	14	110.29	217	241	LUMP SUM	10	550

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1106 OVER DIX CREEK BETWEEN US 276 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.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			20

DRAWN BY: R. KNIGHT DATE: JAN 2013
CHECKED BY: R. COFFMAN DATE: AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE: NOV 2013

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							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)	1.163	--	1.75	0.249	1.36	55′	EL	26.923	0.659	1.21	55′	EL	10.769	0.80	0.249	**1.16**	55′	EL	**26.923**	
		HL-93(Opr)	N/A	--	1.564	--	1.35	0.249	1.76	55′	EL	26.923	0.659	1.56	55′	EL	10.769	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	(2)	1.424	51.265	1.75	0.249	1.7	55′	EL	26.923	0.659	**1.42**	55′	EL	**10.769**	0.80	0.249	1.46	55′	EL	26.923	
		HS-20(Opr)	36.000	--	1.846	66.455	1.35	0.249	2.2	55′	EL	26.923	0.659	1.85	55′	EL	10.769	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.057	41.264	1.40	0.249	4.46	55′	EL	26.923	0.659	3.96	55′	EL	10.769	0.80	0.249	3.06	55′	EL	26.923	
		SNGARBS2	20.000	--	2.374	47.473	1.40	0.249	3.46	55′	EL	26.923	0.659	2.90	55′	EL	10.769	0.80	0.249	2.37	55′	EL	26.923	
		SNAGRIS2	22.000	--	2.291	50.392	1.40	0.249	3.34	55′	EL	26.923	0.659	2.72	55′	EL	10.769	0.80	0.249	2.29	55′	EL	26.923	
		SNCOTTS3	27.250	--	1.524	41.521	1.40	0.249	2.22	55′	EL	26.923	0.659	1.98	55′	EL	10.769	0.80	0.249	1.52	55′	EL	26.923	
		SNAGGRS4	34.925	--	1.31	45.740	1.40	0.249	1.91	55′	EL	26.923	0.659	1.71	55′	EL	10.769	0.80	0.249	1.31	55′	EL	26.923	
		SNS5A	35.550	--	1.278	45.439	1.40	0.249	1.86	55′	EL	26.923	0.659	1.76	55′	EL	10.769	0.80	0.249	1.28	55′	EL	26.923	
		SNS6A	39.950	--	1.189	47.481	1.40	0.249	1.73	55′	EL	26.923	0.659	1.63	55′	EL	10.769	0.80	0.249	1.19	55′	EL	26.923	
		SNS7B	42.000	--	1.132	47.562	1.40	0.249	1.65	55′	EL	26.923	0.659	1.64	55′	EL	10.769	0.80	0.249	1.13	55′	EL	26.923	
	TTST	TNAGRIT3	33.000	--	1.454	47.984	1.40	0.249	2.12	55′	EL	26.923	0.659	1.92	55′	EL	10.769	0.80	0.249	1.45	55′	EL	26.923	
		TNT4A	33.075	--	1.465	48.451	1.40	0.249	2.14	55′	EL	26.923	0.659	1.85	55′	EL	10.769	0.80	0.249	1.46	55′	EL	26.923	
		TNT6A	41.600	--	1.213	50.478	1.40	0.249	1.77	55′	EL	26.923	0.659	1.81	55′	EL	10.769	0.80	0.249	1.21	55′	EL	26.923	
		TNT7A	42.000	--	1.228	51.576	1.40	0.249	1.79	55′	EL	26.923	0.659	1.67	55′	EL	10.769	0.80	0.249	1.23	55′	EL	26.923	
		TNT7B	42.000	--	1.282	53.827	1.40	0.249	1.87	55′	EL	26.923	0.659	1.58	55′	EL	10.769	0.80	0.249	1.28	55′	EL	26.923	
		TNAGRIT4	43.000	--	1.213	52.158	1.40	0.249	1.77	55′	EL	26.923	0.659	1.52	55′	EL	10.769	0.80	0.249	1.21	55′	EL	26.923	
		TNAGT5A	45.000	--	1.136	51.134	1.40	0.249	1.66	55′	EL	26.923	0.659	1.55	55′	EL	10.769	0.80	0.249	1.14	55′	EL	26.923	
		TNAGT5B	45.000	(3)	1.116	50.224	1.40	0.249	1.63	55′	EL	26.923	0.659	1.44	55′	EL	10.769	0.80	0.249	**1.12**	55′	EL	**26.923**	

LOAD FACTORS:

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

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)

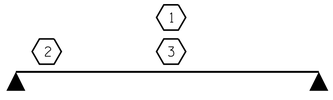
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

DRAWN BY: R. KNIGHT DATE : JULY 2012
CHECKED BY: R. COFFMAN DATE : AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 55′ CORED SLAB UNIT 60° SKEW & 120° SKEW (NON-INTERSTATE TRAFFIC)

REVISIONS

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

SHEET NO. S-5

TOTAL SHEETS 20

STD. NO. 21LRFR1_60&120S_55L

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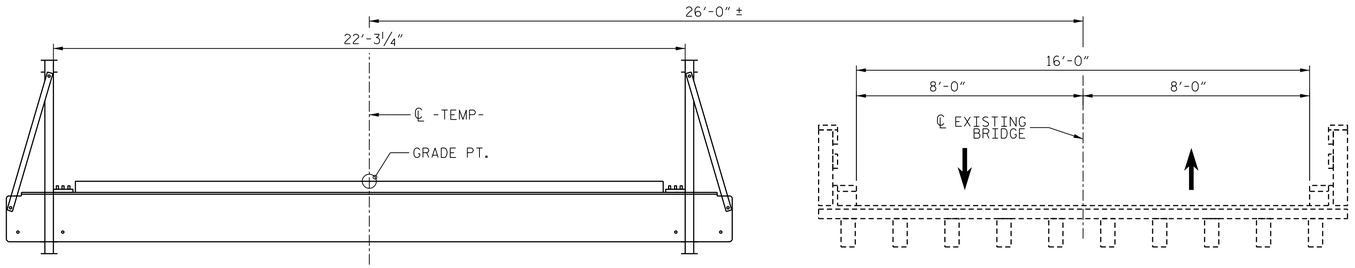
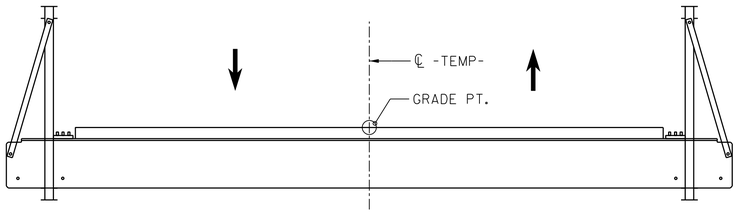
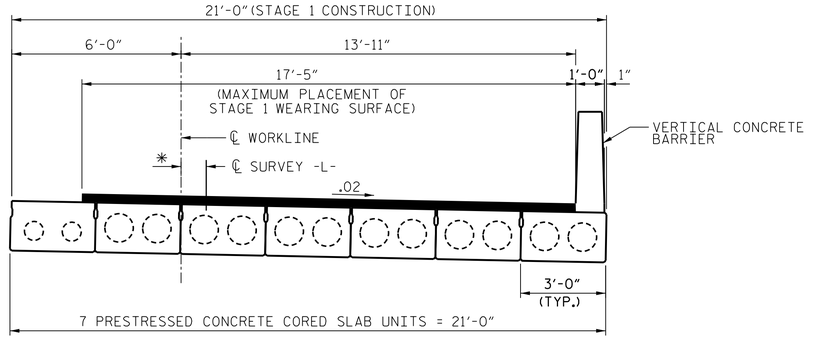


STAGE 1 CONSTRUCTION





STAGE 2 CONSTRUCTION

* 0" @ W.P. 1
11¾" @ W.P. 2

STAGE 3 CONSTRUCTION

FINAL STRUCTURE

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STAGING DIAGRAM FOR BRIDGE ON SR 1380 BETWEEN SR 1337 AND DEAD END

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
438334705194DC...

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

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

SHEET NO. S-6
TOTAL SHEETS 20

DRAWN BY: M. HOGAN DATE : JULY 2012
CHECKED BY: R. COFFMAN DATE : AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

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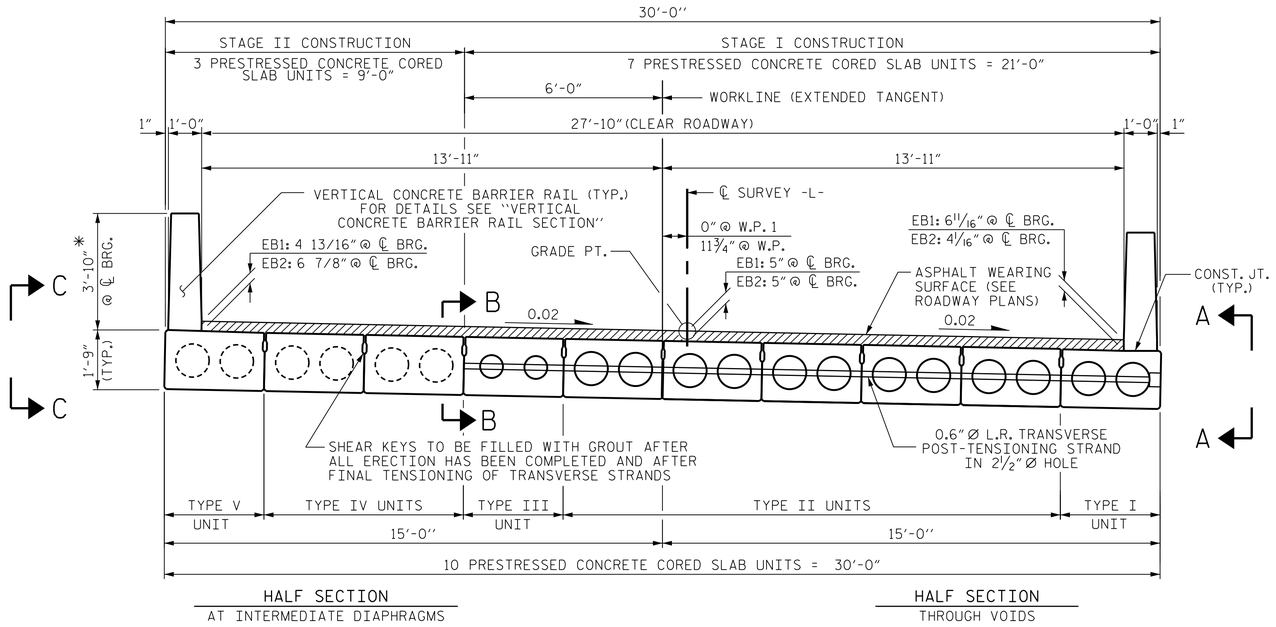
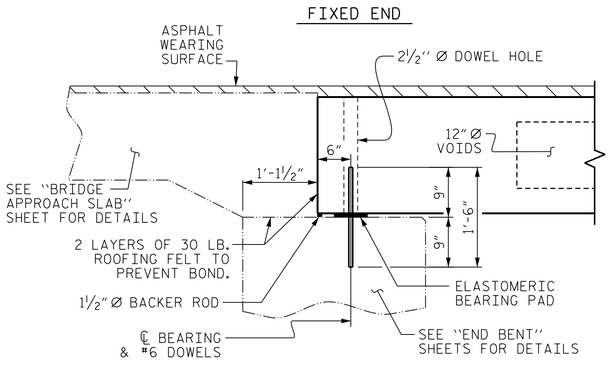
8/4/2015



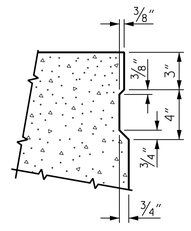
TYPICAL SECTION

FINAL BRIDGE (STAGE 1 AND 2 COMPLETED)
(FOR VIEWS A-A, B-B & C-C, SEE SHEET 2 OF 2)
(ALL DIMENSIONS ARE NORMAL TO WORKLINE)

* - 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 ''VERTICAL CONCRETE BARRIER RAIL SECTION'' DETAIL.



SECTION AT END BENT



SHEAR KEY DETAIL

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

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0'' X 1'-9''
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
13822478E18C4DC...

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DRAWN BY:	R. KNIGHT	DATE : JULY 2012
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STD. NO. 21"PCS2_30_120S

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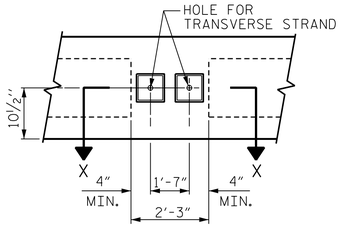
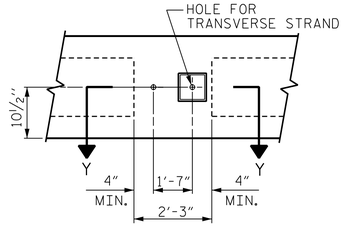
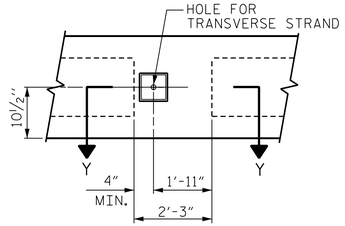


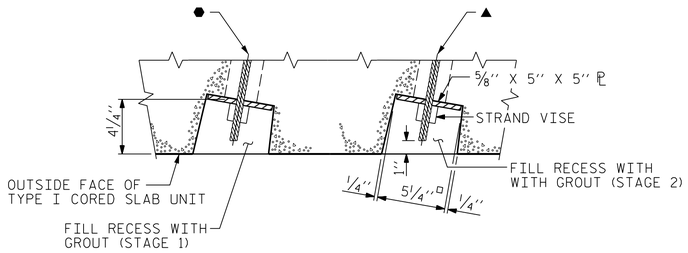
VIEW A-A



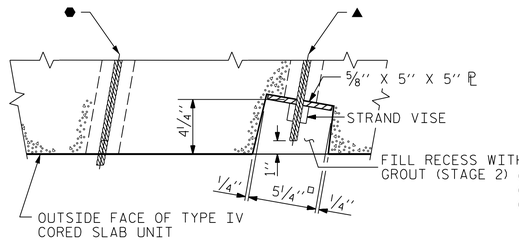
VIEW B-B



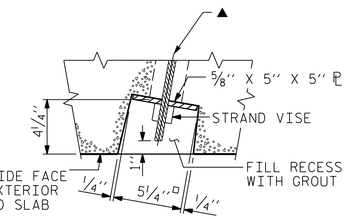
VIEW C-C



SECTION X-X



SECTION Y-Y

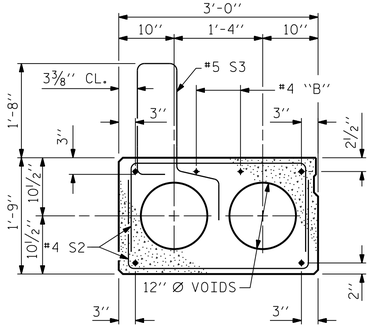


SECTION Z-Z

● ℄ 0.6 "Ø H.S. TRANSVERSE POST-TENSIONING STRAND SHEATHERD WITH A NON-CORROSIVE PIPE (TO BE TENSIONED DURING STAGE 1 CONST.)

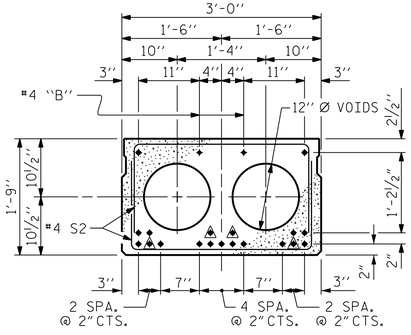
▲ ℄ 0.6 "Ø H.S. TRANSVERSE POST-TENSIONING STRAND SHEATHERD WITH A NON-CORROSIVE PIPE (TO BE TENSIONED DURING STAGE 2 CONST.)

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



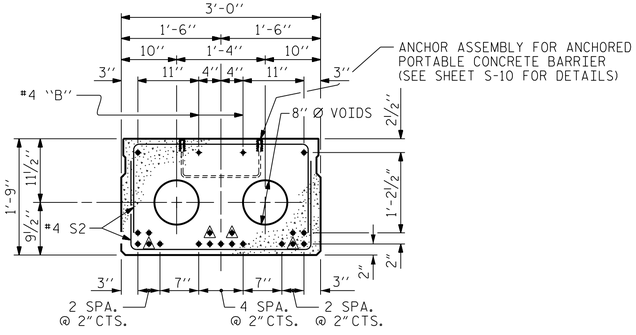
EXT. SLAB SECTION

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



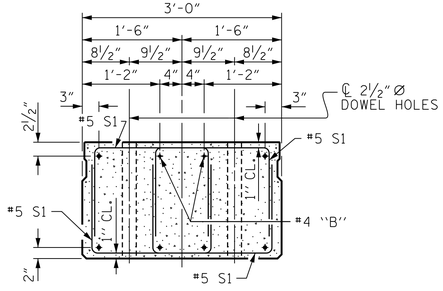
INTERIOR SLAB SECTION

(19 STRANDS REQUIRED)



INTERIOR SLAB SECTION

(19 STRANDS REQUIRED)
TYPE III UNIT



END ELEVATION

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

▲ 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

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

SHEET 2 OF 2

DRAWN BY:	J. MYA	DATE :	JULY 2012		
CHECKED BY:	R. COFFMAN	DATE :	AUG 2013		
DESIGN ENGINEER OF RECORD:	R. COFFMAN	DATE :	NOV 2013		

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 13822478E18C4DC...

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STATE OF NORTH CAROLINA
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RALEIGH

SUPERSTRUCTURE TYPICAL SECTION

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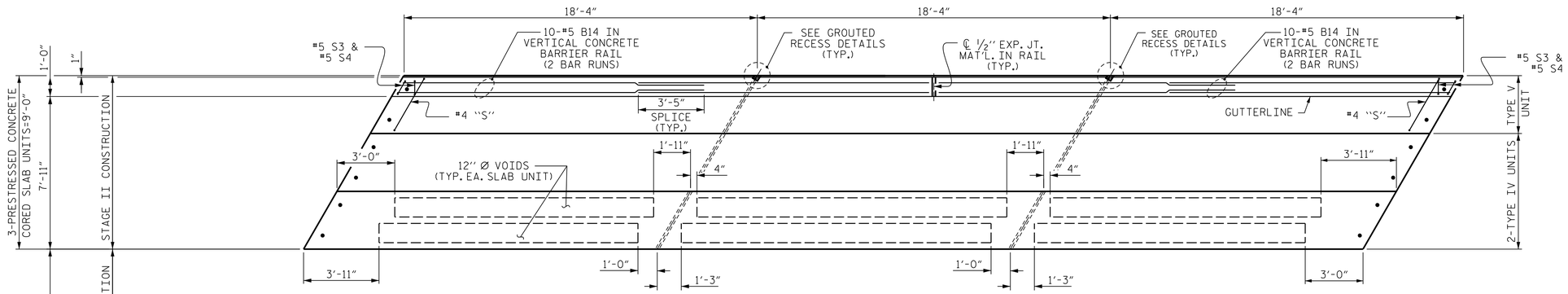
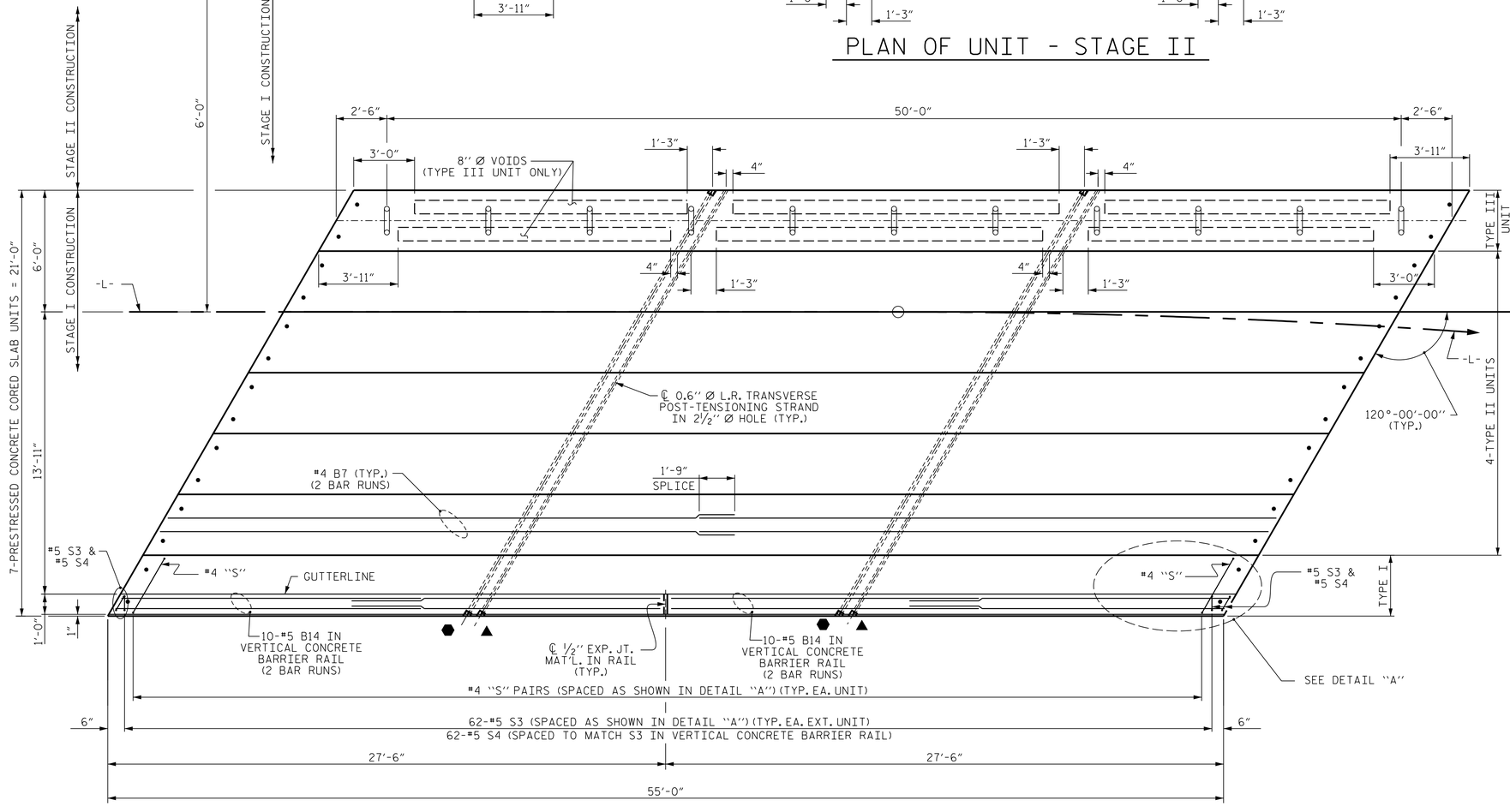
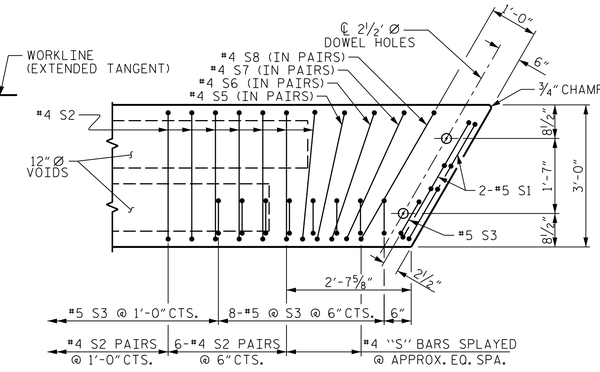
1			3			TOTAL SHEETS
2			4			20



PLAN OF UNIT - STAGE II



PLAN OF UNIT - STAGE I



DETAIL ″A″

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

NOTES:

- ⬢ STRAND #1 GOES THRU 7 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 1 CONSTRUCTION)
- ▲ STRAND #2 GOES THRU ALL 10 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)

STRAND #1 AND STRAND #2 ARE 0.6 ″Ø H.S. TRANSVERSE POST-TENSIONED STRANDS.

THE #4S2 AND #5S3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2″ MINIMUM CLEARANCE TO THE 2 1/2 ″ HOLES.

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

SHEET 1 OF 5

DRAWN BY: R. KNIGHT	DATE : FEB 2013				
CHECKED BY: R. COFFMAN	DATE : AUG 2013				
DESIGN ENGINEER OF RECORD: R. COFFMAN	DATE : NOV 2013				

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55′ UNIT 27′-10″ CLEAR ROADWAY 120° SKEW

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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STD. NO. 21″PCS_30_120S_55L

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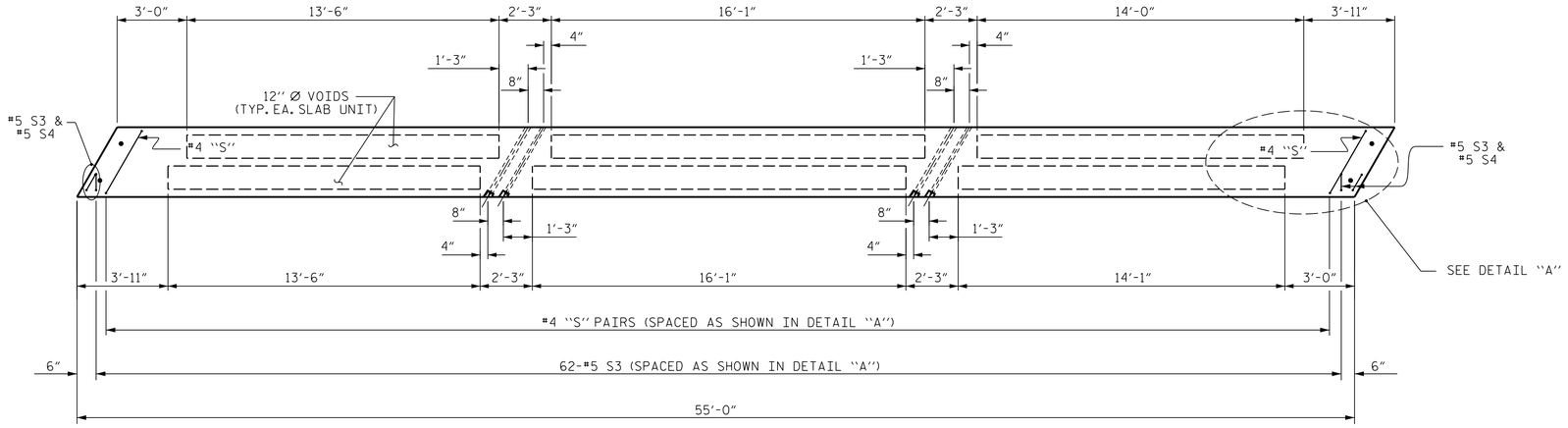
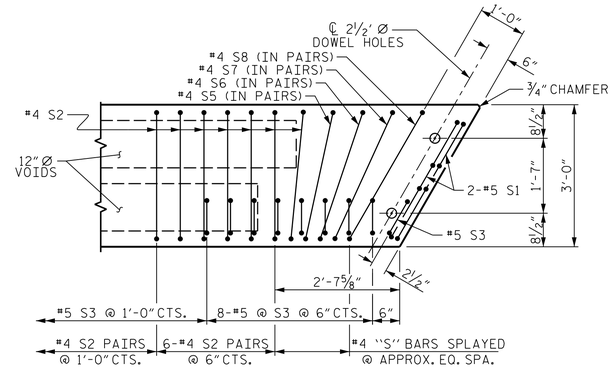
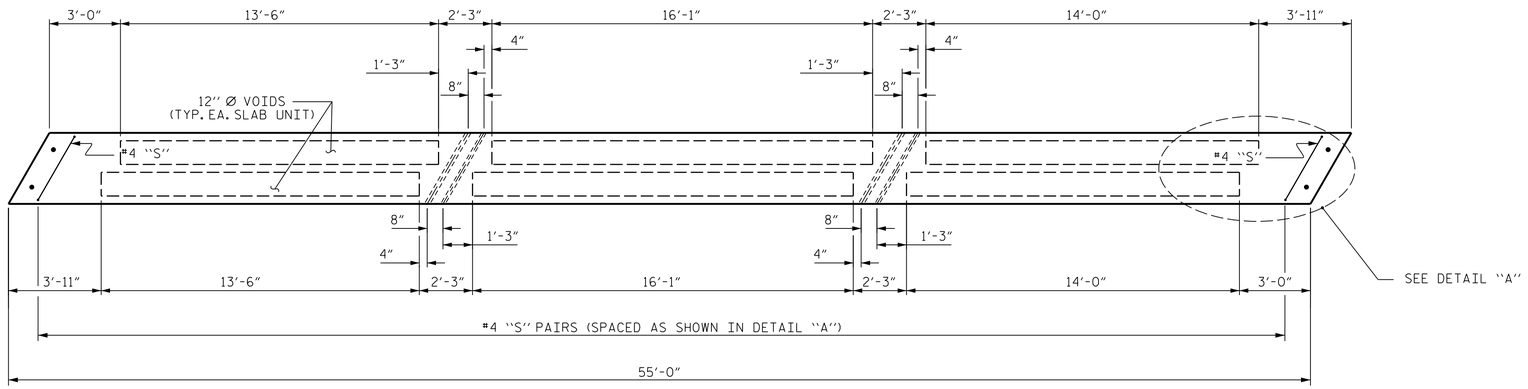


PLAN OF TYPE I CORED SLAB UNIT - STAGE I



DETAIL "A"

NOTE: EXTERIOR UNIT TYPE I SHOWN - INTERIOR UNIT TYPE II SIMILAR EXCEPT OMIT #5 S3 BARS.



PLAN OF TYPE II CORED SLAB UNIT - STAGE I

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55' UNIT
27'-10" CLEAR ROADWAY
120° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
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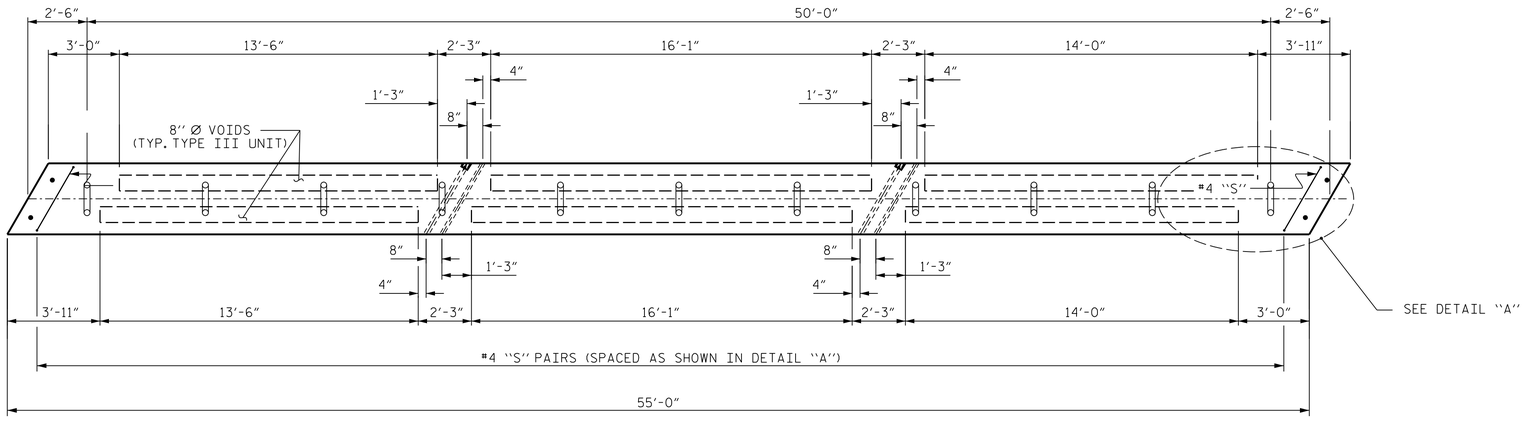
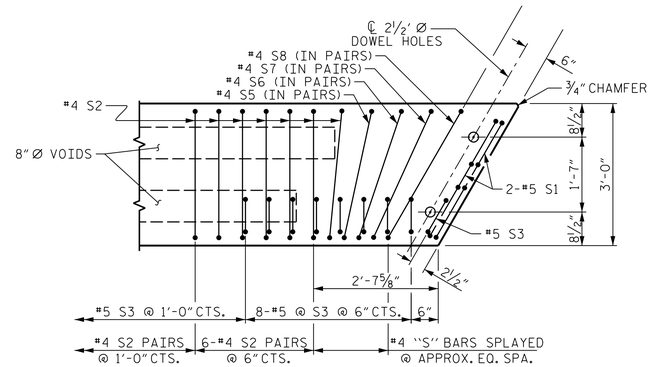


PLAN OF TYPE III CORED SLAB UNIT - STAGE I



DETAIL ''A''

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

ANCHOR ASSEMBLY NOTES:

THE ANCHOR ASSEMBLY FOR PORTABLE CONCRETE BARRIER SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OIF 2½".

B. 2-⅞" Ø x 1'-0" ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTSOF ASTM A307. ANCHOR BOLTS SHALL BE GALVANIZED. (AT THE OPTION OF THE CONTRACTOR'S OPTION STAINLESS STEEL BOLTS MAY BE USED AS AN ALTERNATE FOR THE ⅞" Ø x 1'-0" GALVANIZED BOLTS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

C. WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I.

ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

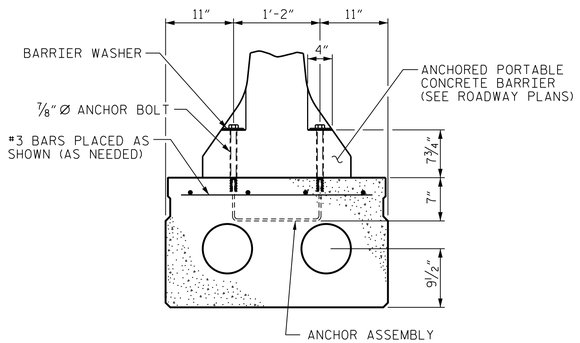
THE COST OF THE ANCHOR ASSEMBLY COMPLETE IN PLACE, SHALL BE INCLUDED, AS APPLICABLE, IN THE UNIT CONTRACT PRICE BID FOR 3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLAB OR LUMP SUM FOR THE APPROACH SLABS.

FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS OR POURING OF THE APPROACH SLABS AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

FOR 4" x 3½" x ½" BARRIER WASHER TO BE USED WITH THE ANCHOR ASSEMBLY, SEE ROADWAY PLANS.

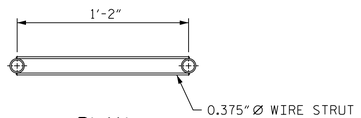
PAYMENT FOR THE ANCHORED PORTABLE CONCRETE BARRIER AND BARRIER WASHER ARE INCLUDED IN THE TRAFFIC CONTROL PLANS.



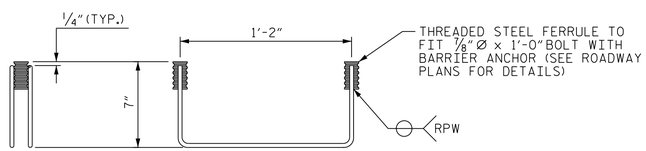
TYPE III CORED SLAB SECTION

(SHOWING PLACEMENT OF ANCHOR ASSEMBLY)

THE #3 BARS ARE INCIDENTAL AND THEIR COST SHALL BE INCLUDED IN THE PRICE BID FOR THE PRESTRESSED CONCRETE CORDED SLAB



PLAN



ELEVATION

ANCHOR ASSEMBLY FOR ANCHORED PORTABLE CONCRETE BARRIER

(6 ASSEMBLIES REQUIRED IN TYPE III CORED SLAB UNIT)
(4 ASSEMBLIES REQUIRED IN THE APPROACH SLABS)

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55' UNIT 27'-10" CLEAR ROADWAY 120° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
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DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

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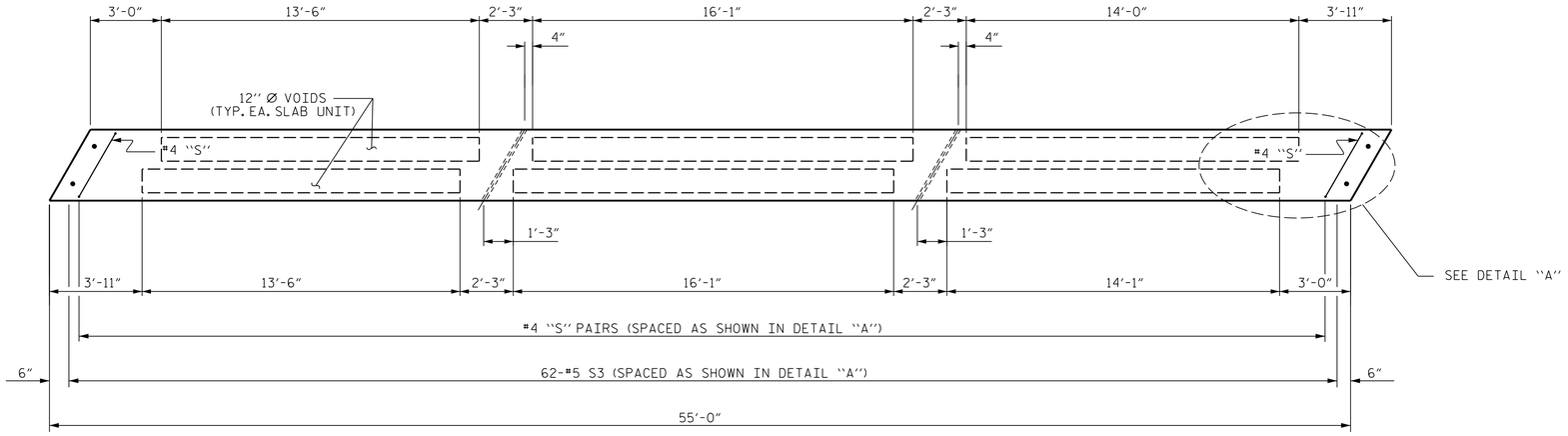
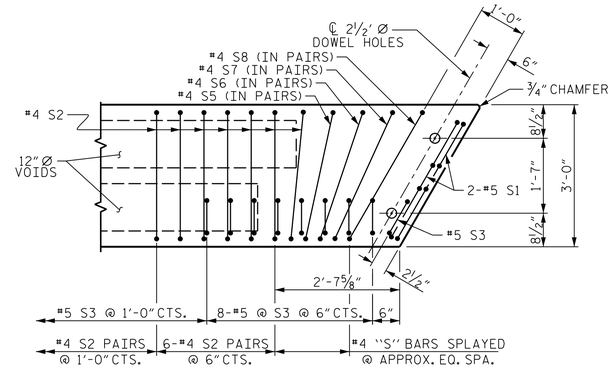
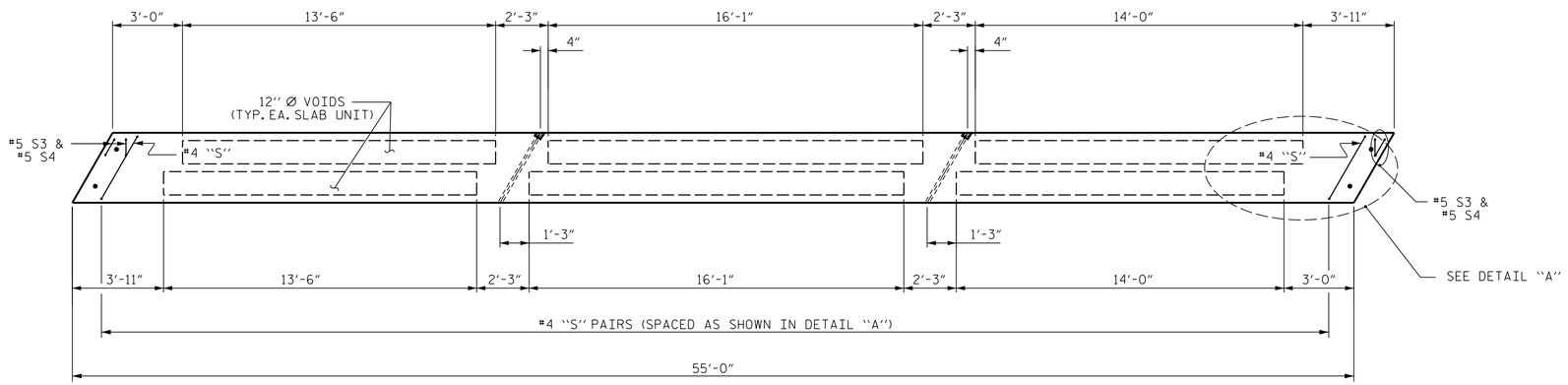


PLAN OF TYPE IV CORED SLAB UNIT - STAGE II



DETAIL "A"

NOTE: EXTERIOR UNIT TYPE I SHOWN - INTERIOR UNIT TYPE II SIMILAR EXCEPT OMIT #5 S3 BARS.



PLAN OF TYPE V CORED SLAB UNIT - STAGE II

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55' UNIT
27'-10" CLEAR ROADWAY
120° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L COFFMAN

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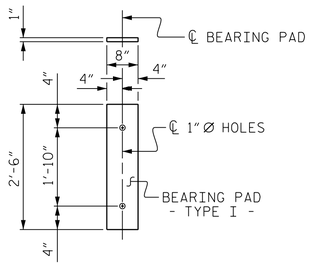
STD. NO. 21"PCS_30_120S_55L



FIXED END
(TYPE I - 20 REQ'D)

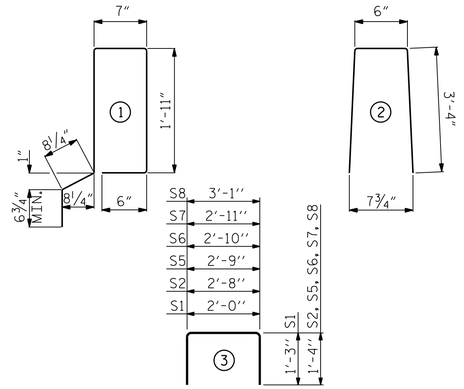
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

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

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	8	55'-0"	440'-0"
TOTAL	10		550'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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 CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2"Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" 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. A 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.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNIT	4900

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS 55' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B14	80	80	#5	STR	15'-6"	1293
✳S4	128	128	#5	2	7'-2"	957
✳EPOXY COATED REINFORCING STEEL				LBS.		2250
CLASS AA CONCRETE				CU.YDS.		14.4
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		110.29

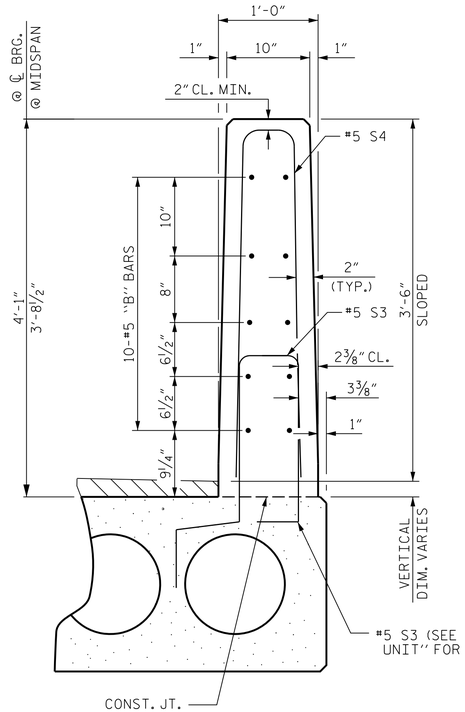
BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-2"	75	28'-2"	75
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	112	#4	3	5'-4"	399	5'-4"	399
✳S3	64	#5	1	6'-2"	412		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL			LBS.		571		571
✳EPOXY COATED REINFORCING STEEL			LBS.		412		
6500 P.S.I. CONCRETE			CU. YDS.		8.0		8.0
0.6" Ø L.R. STRANDS			No.		19		19

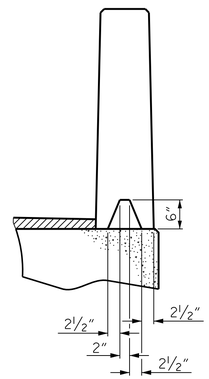
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT			
27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS		RAIL HEIGHT
55' UNITS			
	LEFT GUTTERLINE	RIGHT GUTTERLINE	
EB1 @ ℄ BRG.	4 13/16"	6 11/16"	4'-1"
@ MID-SPAN	2⅛"	2⅛"	3'-8½"
EB2 @ ℄ BRG.	6 7/16"	4 1/16"	4'-1"

DEAD LOAD DEFLECTION AND CAMBER	3'-0" x 1'-9"
55' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ✳✳	¼" ↓
FINAL CAMBER	2¼" ↑

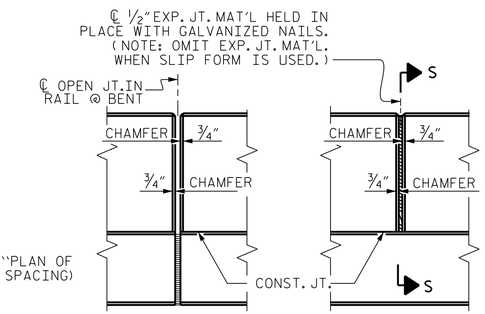
✳✳ INCLUDES FUTURE WEARING SURFACE



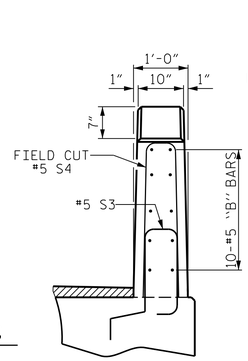
VERTICAL CONCRETE BARRIER RAIL SECTION



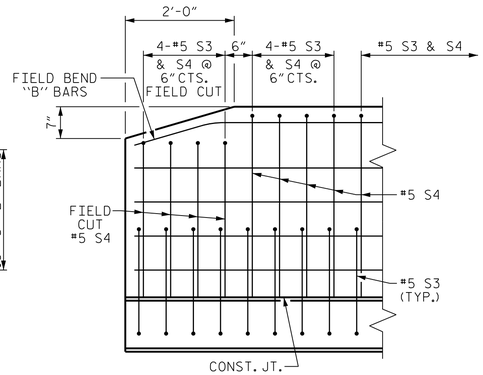
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 120° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
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1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322
NC COA No. F-0840

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

SHEET NO. S-13
TOTAL SHEETS 20

DRAWN BY: M. HOGAN DATE : AUG 2013
CHECKED BY: R. COFFMAN DATE : AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

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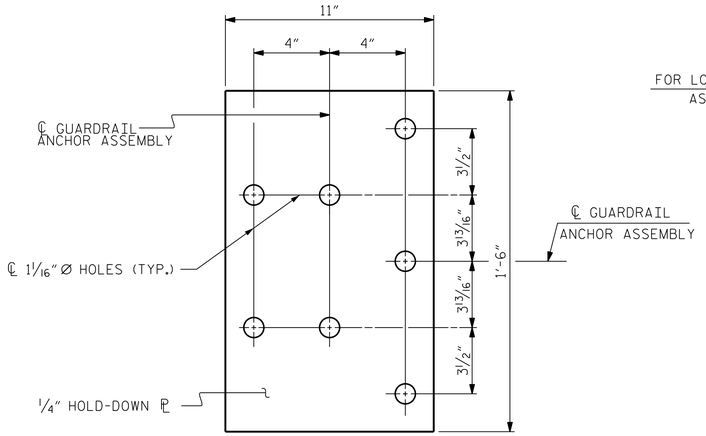
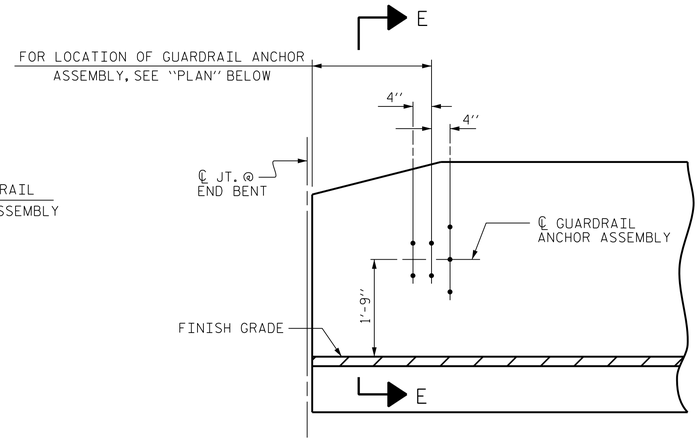
8/4/2015 1100_PDF_full.dtcfg 1100_str.tbl

STD. NO. 21"PCS3_30_120S



PLAN



ELEVATION

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.)

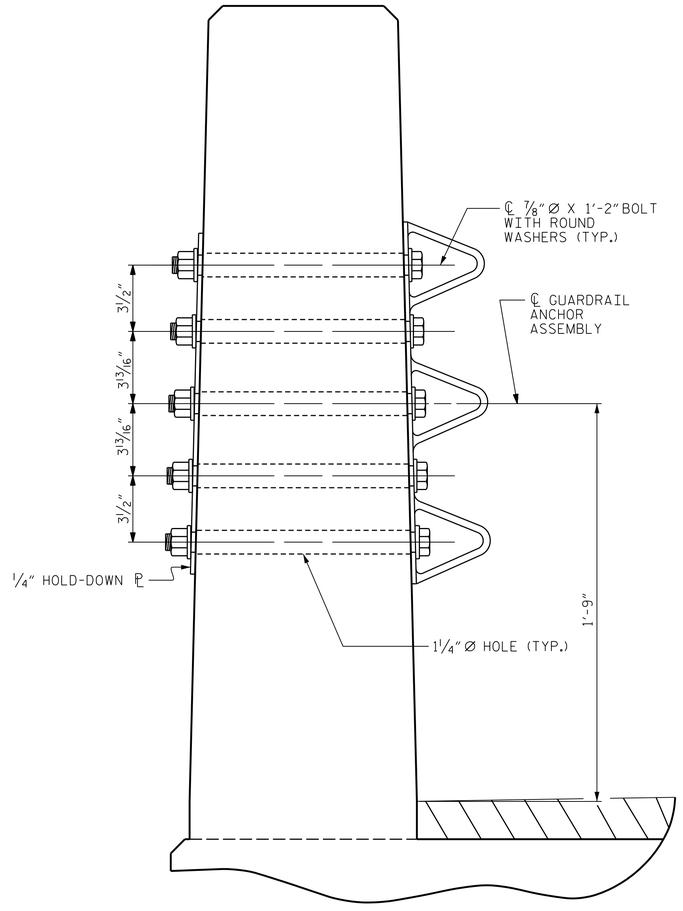
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 VERTICAL CONCRETE BARRIER RAIL.

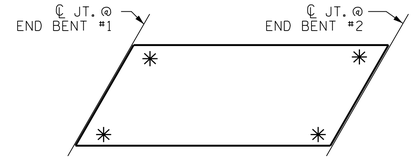
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.



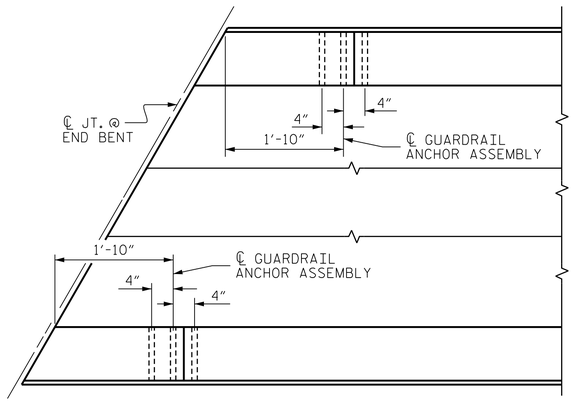
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015

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Raleigh, NC 27605-3322
NC COA No. F-0840

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			20

DRAWN BY: R. KNIGHT DATE : JUL 2012
CHECKED BY: S.COOK DATE : AUG 2012
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

(SHT 2)

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8/4/2015 1100_PDF_full.pltcfg 1100_str.tbl

NOTES

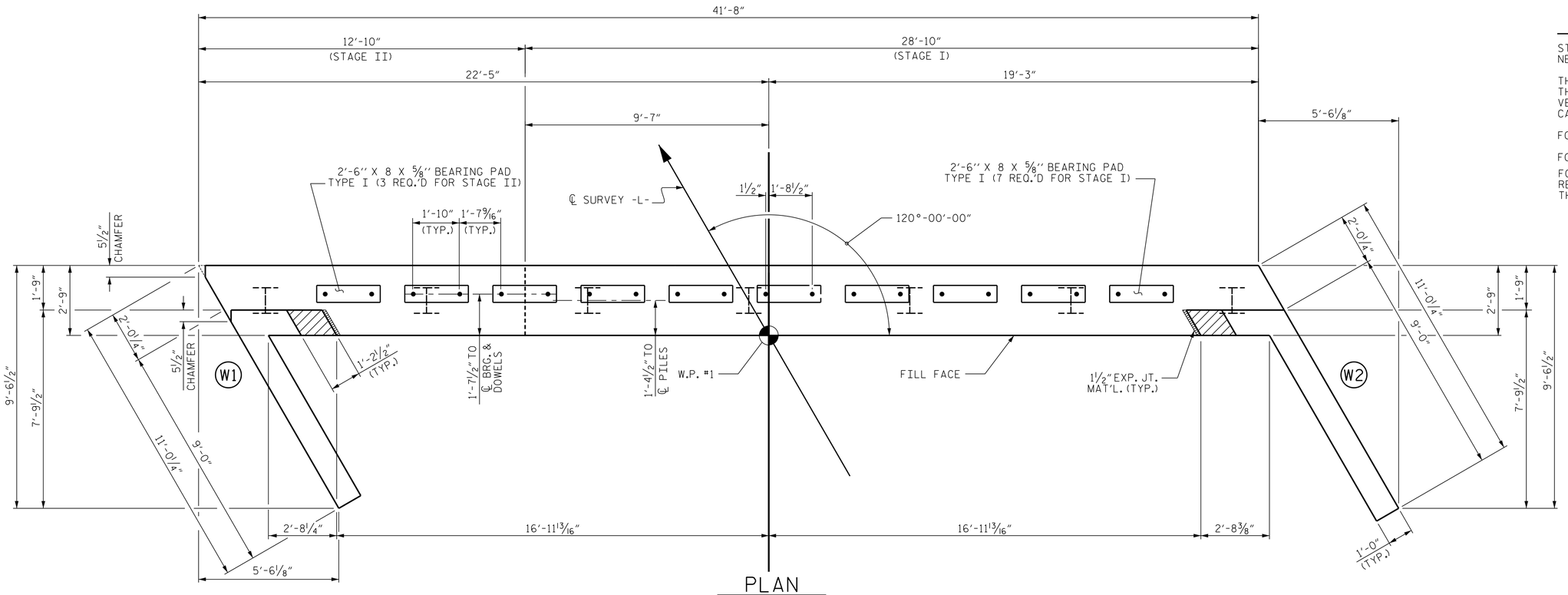
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SECTION 425-5 OF THE STANDARD SPECIFICATIONS.



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015

DRAWN BY: R. KNIGHT	DATE : JAN 2013
CHECKED BY: R. COFFMAN	DATE : AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN	DATE : NOV 2013

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Raleigh, NC 27605-3322
NC COA No. F-0840

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			20

STD. NO. EB_30_120S4

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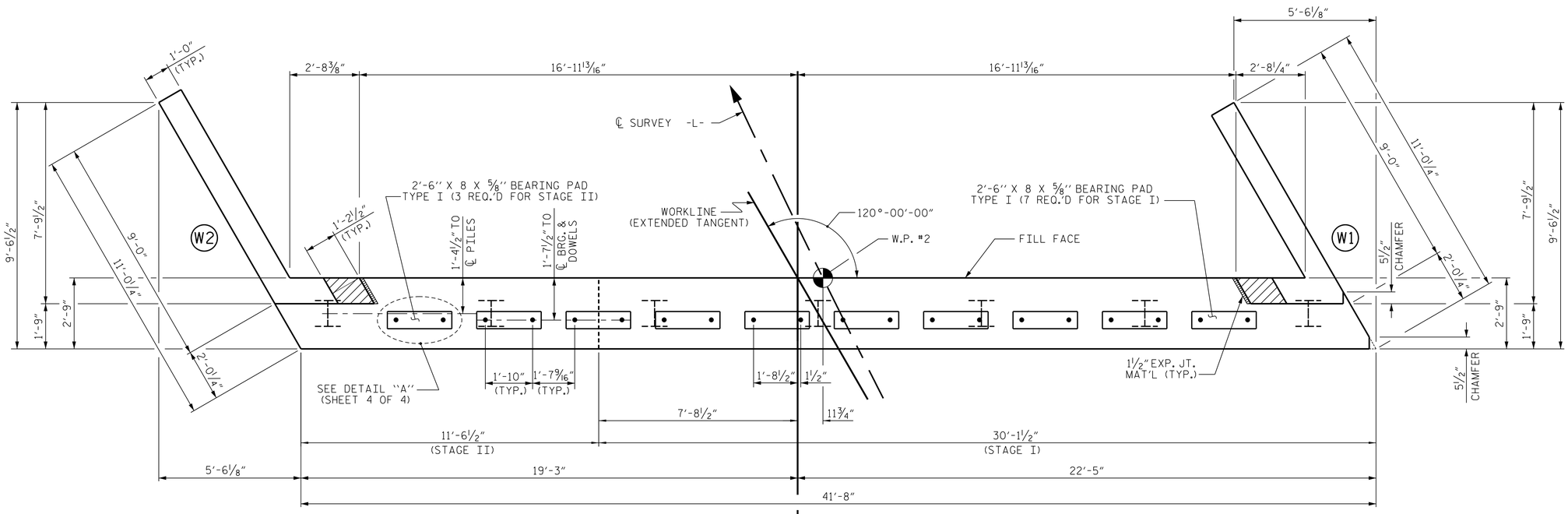
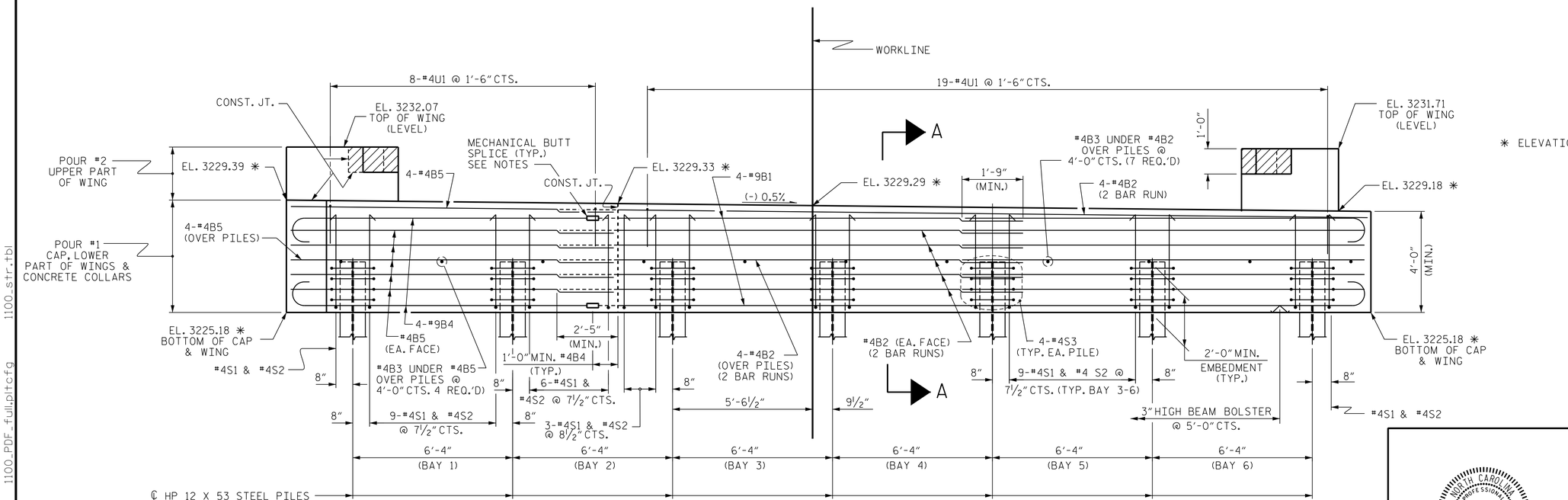


PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SECTION 425-5 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

SHEET 2 OF 4

DRAWN BY: R. KNIGHT DATE : JAN 2103
CHECKED BY: R. COFFMAN DATE : AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
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Raleigh, NC 27605-3322
NC COA No. F-0840

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			20

STD. NO. EB_30_120S4

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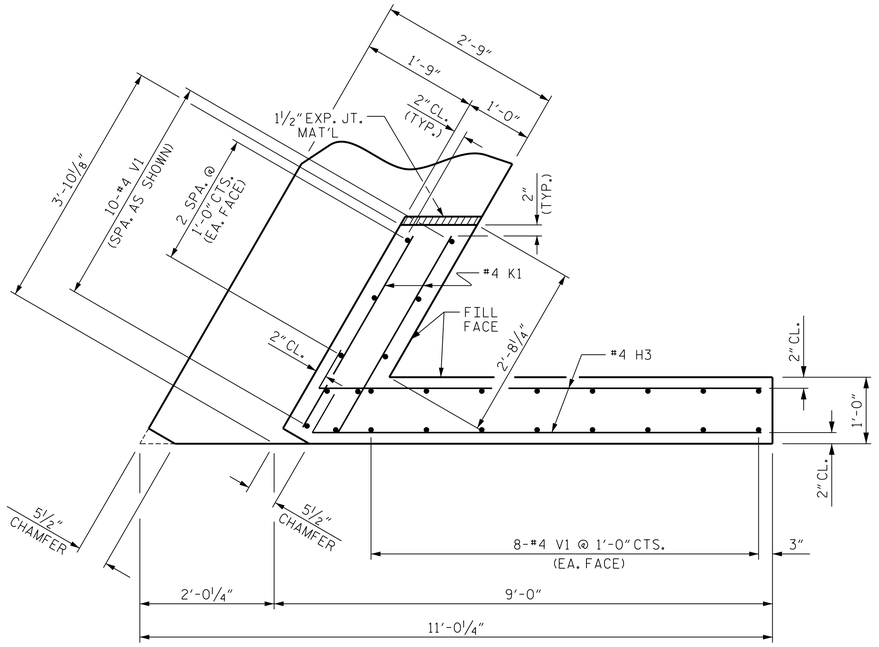
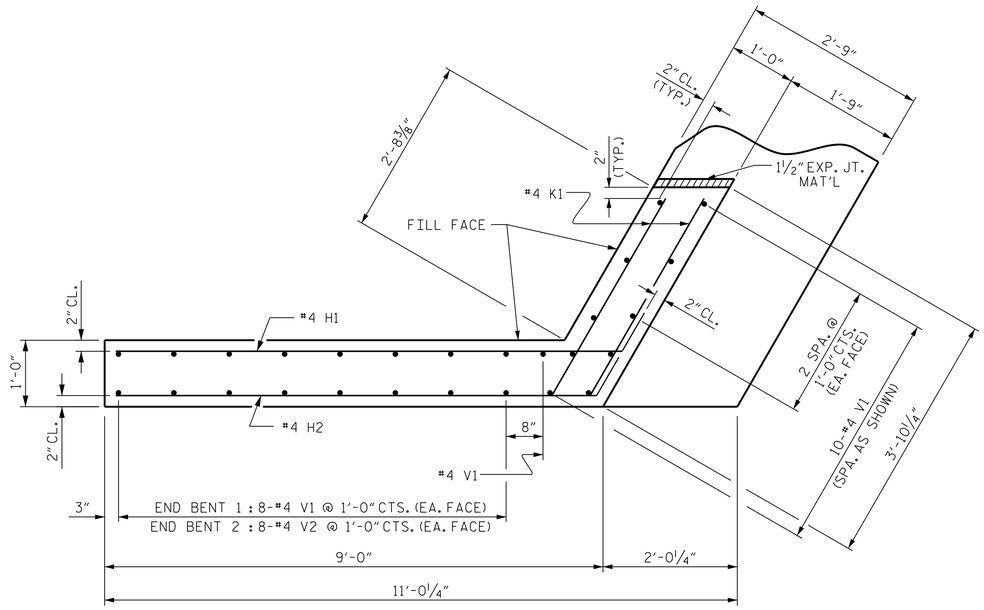
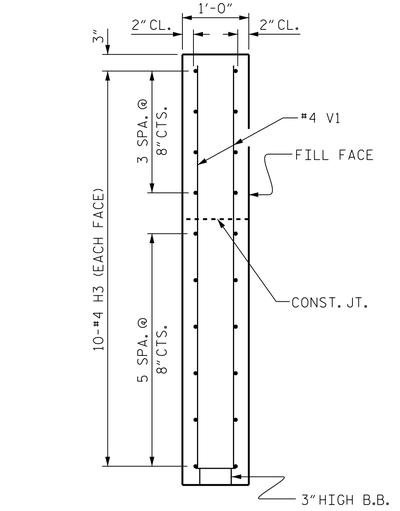


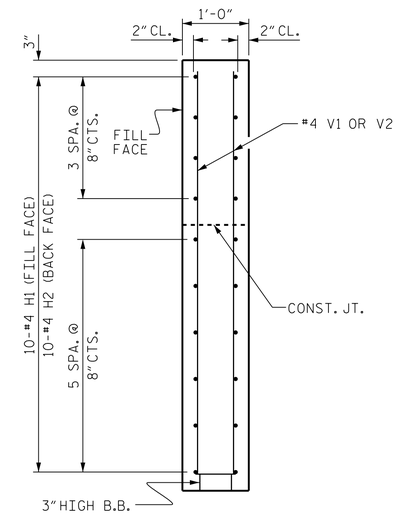
PLAN OF WING (W1)



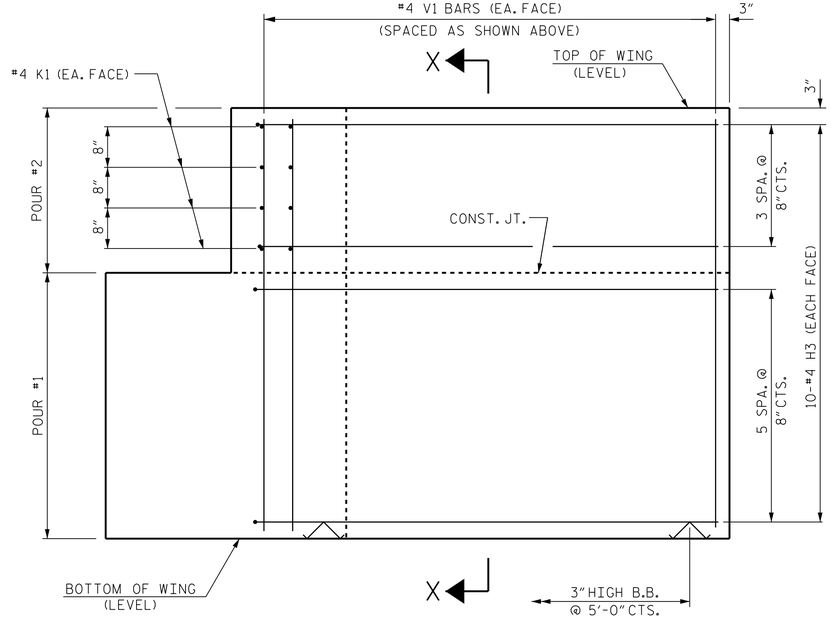
PLAN OF WING (W2)



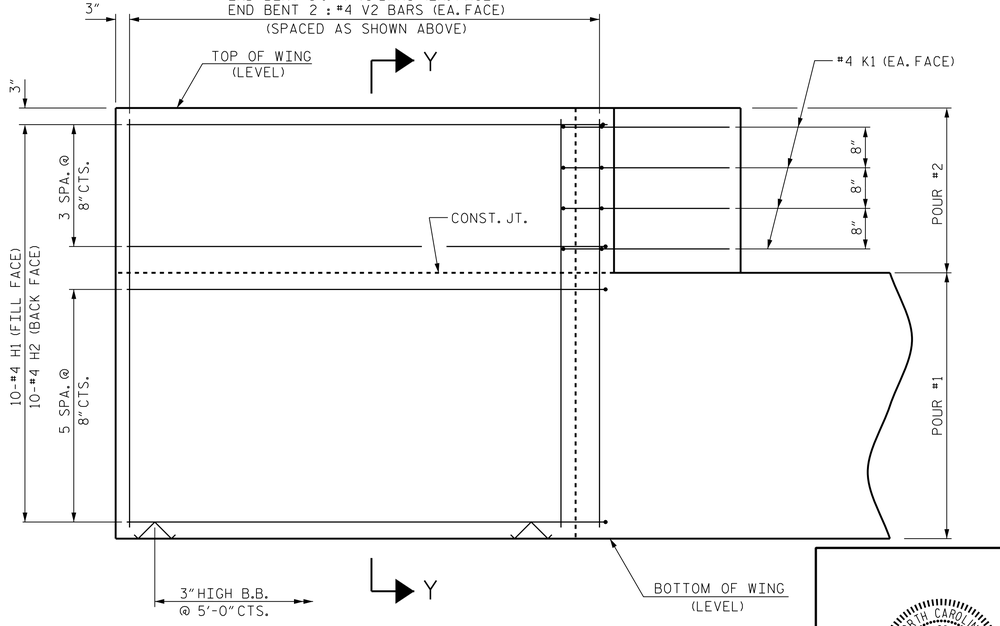
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

SHEET 3 OF 4

DRAWN BY:	R. KNIGHT	DATE :	JAN 2013
CHECKED BY:	R. COFFMAN	DATE :	AUG 2013
DESIGN ENGINEER OF RECORD:	R. COFFMAN	DATE :	NOV 2013

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			20

STD. NO. EB_30_120S4

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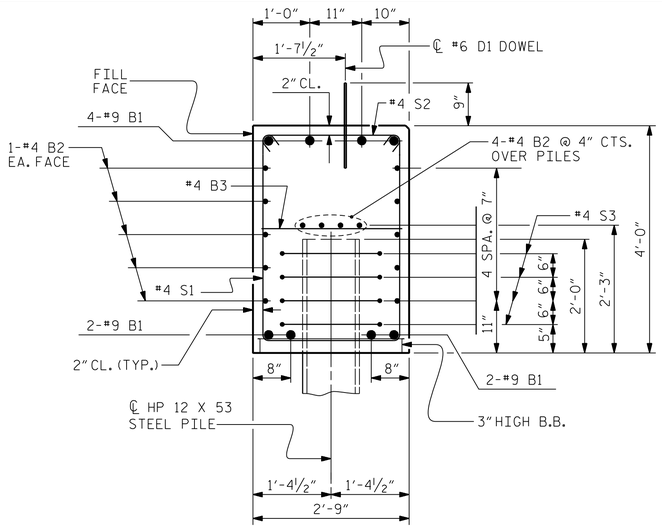
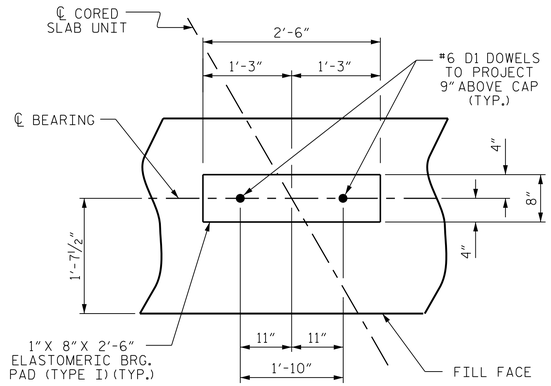
8/4/2015 1100_PDF_full.pltcfg 1100_str.tbl



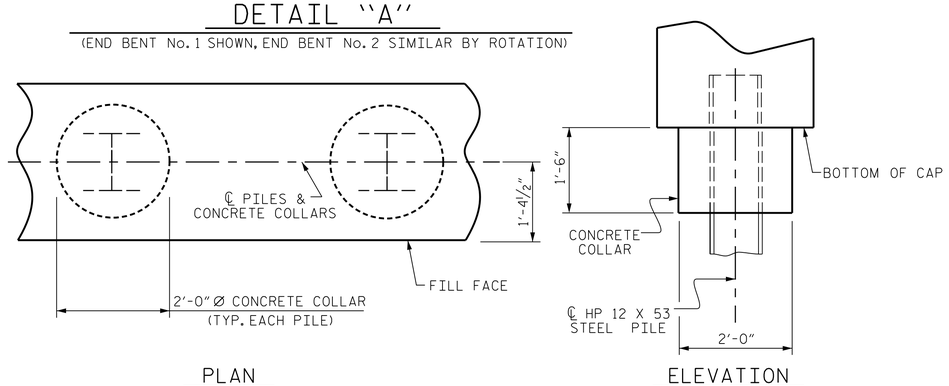
SECTION A-A

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



DETAIL "A"

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

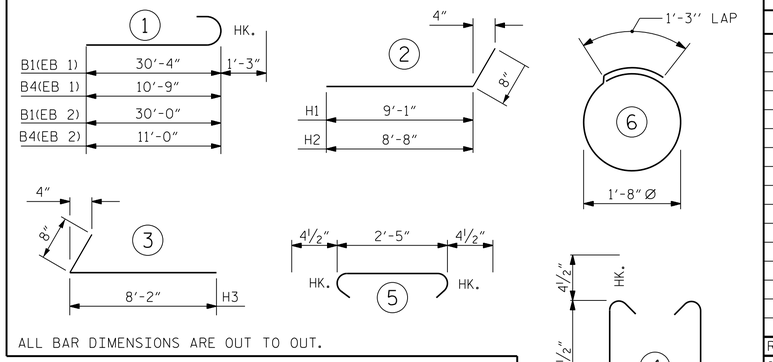


PLAN ELEVATION

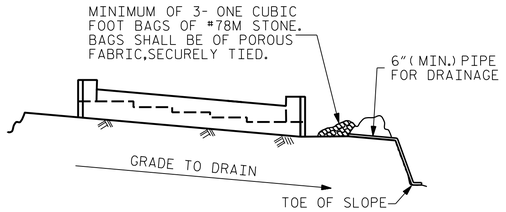
CORROSION PROTECTION FOR STEEL PILES DETAIL

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.



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.

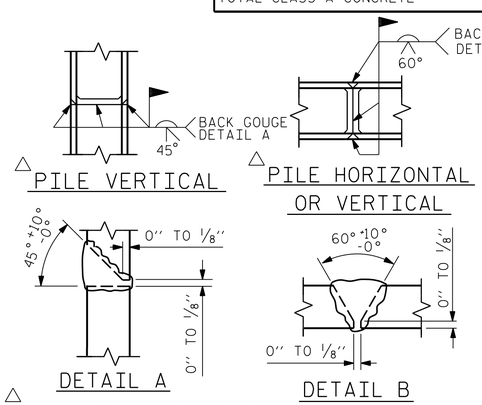
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

END BENT No. 1
HP 12 X 53 STEEL PILES
NO: 7 LIN. FT.= 210.0

END BENT No. 2
HP 12 X 53 STEEL PILES
NO: 7 LIN. FT.= 70.0



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BILL OF MATERIAL-END BENT 1

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	31'-7"	859
B2	28	#4	STR	17'-0"	318
B3	8	#4	STR	2'-5"	13
D1	15	#6	STR	1'-6"	34
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
K1	8	#4	STR	3'-3"	17
S1	40	#4	4	10'-5"	278
S2	40	#4	5	3'-2"	85
S3	20	#4	6	6'-6"	87
V1	27	#4	STR	6'-3"	113

REINFORCING STEEL 1931 LBS.

CLASS A CONCRETE BREAK DOWN
POUR #1 CAP, LOWER PART OF WING & COLLARS 14.1 C.Y.
POUR #2 UPPER PART OF WING 1.0 C.Y.
TOTAL CLASS A CONCRETE 15.1 C.Y.

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	3	#4	STR	2'-5"	5
B4	8	#9	1	12'-0"	326
B5	14	#4	STR	11'-0"	103
D1	5	#6	STR	1'-6"	11
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-3"	17
S1	16	#4	4	10'-5"	111
S2	16	#4	5	3'-2"	34
S3	8	#4	6	6'-6"	35
V1	26	#4	STR	6'-3"	109

REINFORCING STEEL 869 LBS.

CLASS A CONCRETE BREAKDOWN
POUR #1 CAP, LOWER PART OF WING & COLLARS 6.4 C.Y.
POUR #2 UPPER PART OF WING 1.0 C.Y.
TOTAL CLASS A CONCRETE 7.4 C.Y.

BILL OF MATERIAL-END BENT 2

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	31'-3"	850
B2	36	#4	STR	17'-0"	409
B3	8	#4	STR	2'-5"	13
D1	15	#6	STR	1'-6"	34
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
K1	8	#4	STR	3'-3"	17
S1	40	#4	4	10'-5"	278
S2	40	#4	5	3'-2"	85
S3	20	#4	6	6'-6"	87
U1	19	#4	STR	5'-5"	69
V1	27	#4	STR	6'-3"	113

REINFORCING STEEL 2082 LBS.

CLASS A CONCRETE BREAK DOWN
POUR #1 CAP, LOWER PART OF WING & COLLARS 14.4 C.Y.
POUR #2 UPPER PART OF WING 1.0 C.Y.
TOTAL CLASS A CONCRETE 15.4 C.Y.

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	3	#4	STR	2'-5"	5
B4	8	#9	STR	12'-3"	333
B5	18	#4	STR	11'-0"	132
D1	5	#6	STR	1'-6"	11
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-3"	17
S1	16	#4	4	10'-5"	111
S2	16	#4	5	3'-2"	34
S3	8	#4	6	6'-6"	35
U1	8	#4	7	5'-5"	29
V1	11	#4	STR	6'-3"	46
V2	16	#4	STR	6'-7"	70

REINFORCING STEEL 941 LBS.

CLASS A CONCRETE BREAKDOWN
POUR #1 CAP, LOWER PART OF WING & COLLARS 6.8 C.Y.
POUR #2 UPPER PART OF WING 1.0 C.Y.
TOTAL CLASS A CONCRETE 7.8 C.Y.

TOTAL BILL OF MATERIAL END BENT 1

REINFORCING STEEL	
STAGE I	1931 LBS.
STAGE II	869 LBS.
TOTAL REINFORCING STEEL	2800 LBS.
CLASS A CONCRETE	
STAGE I	15.1 C.Y.
STAGE II	7.4 C.Y.
TOTAL CLASS A CONCRETE	22.5 C.Y.

TOTAL BILL OF MATERIAL END BENT 2

REINFORCING STEEL	
STAGE I	2082 LBS.
STAGE II	941 LBS.
TOTAL REINFORCING STEEL	3023 LBS.
CLASS A CONCRETE	
STAGE I	15.4 C.Y.
STAGE II	7.8 C.Y.
TOTAL CLASS A CONCRETE	23.2 C.Y.

PROJECT NO. 17BP.14.R.5
HAYWOOD COUNTY
STATION: 13+34.60 -L-
SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
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THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322
NC COA No. F-0840

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			20

DRAWN BY: R. KNIGHT DATE : JAN 2013
CHECKED BY: R. COFFMAN DATE : AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

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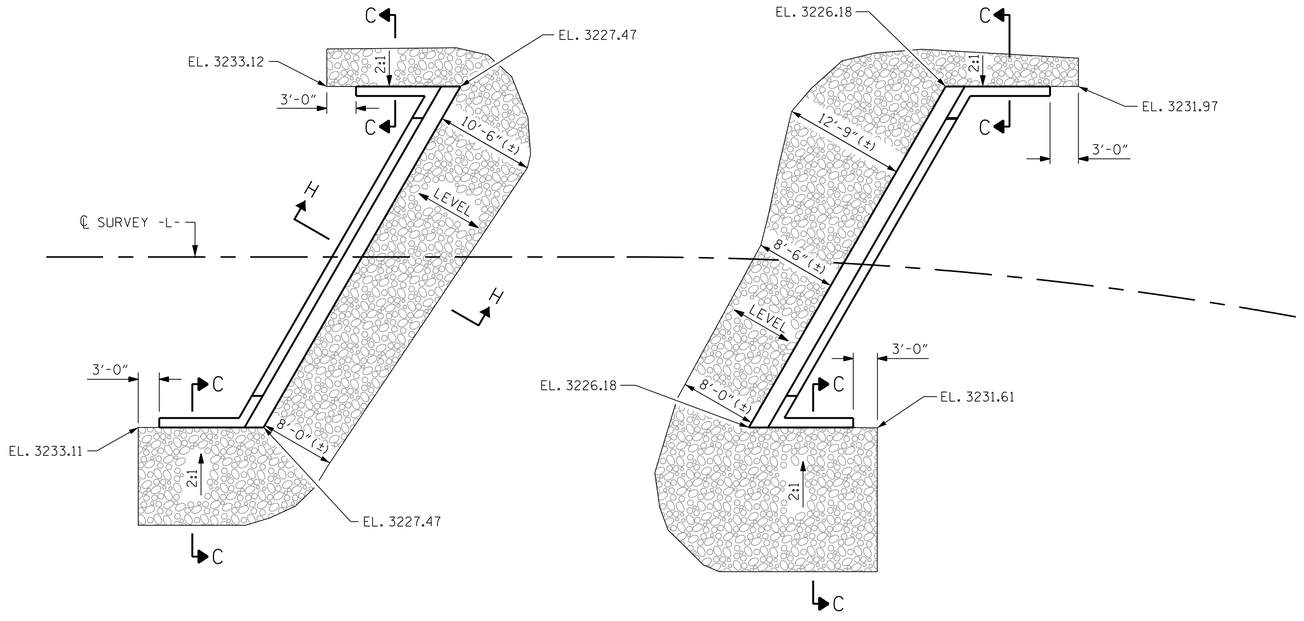
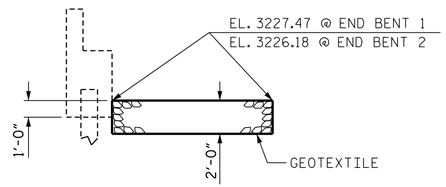
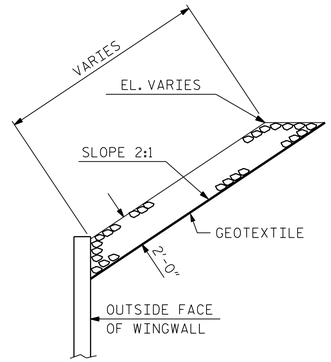
STD. NO. EB_30_120S4



ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+34.60 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	92	102
END BENT 2	125	139



SECTION H-H



SECTION C-C

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			20

ASSEMBLED BY : R. KNIGHT	DATE :	OCT 2013
CHECKED BY : R. COFFMAN	DATE :	NOV 2013
ENGINEER OF RECORD : R. COFFMAN	DATE :	NOV 2013
DRAWN BY : REK 1/84	REV. 5/1/06R	TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11	MAA/GM
	REV. 12/21/11	MAA/GM

STD. NO. RR1

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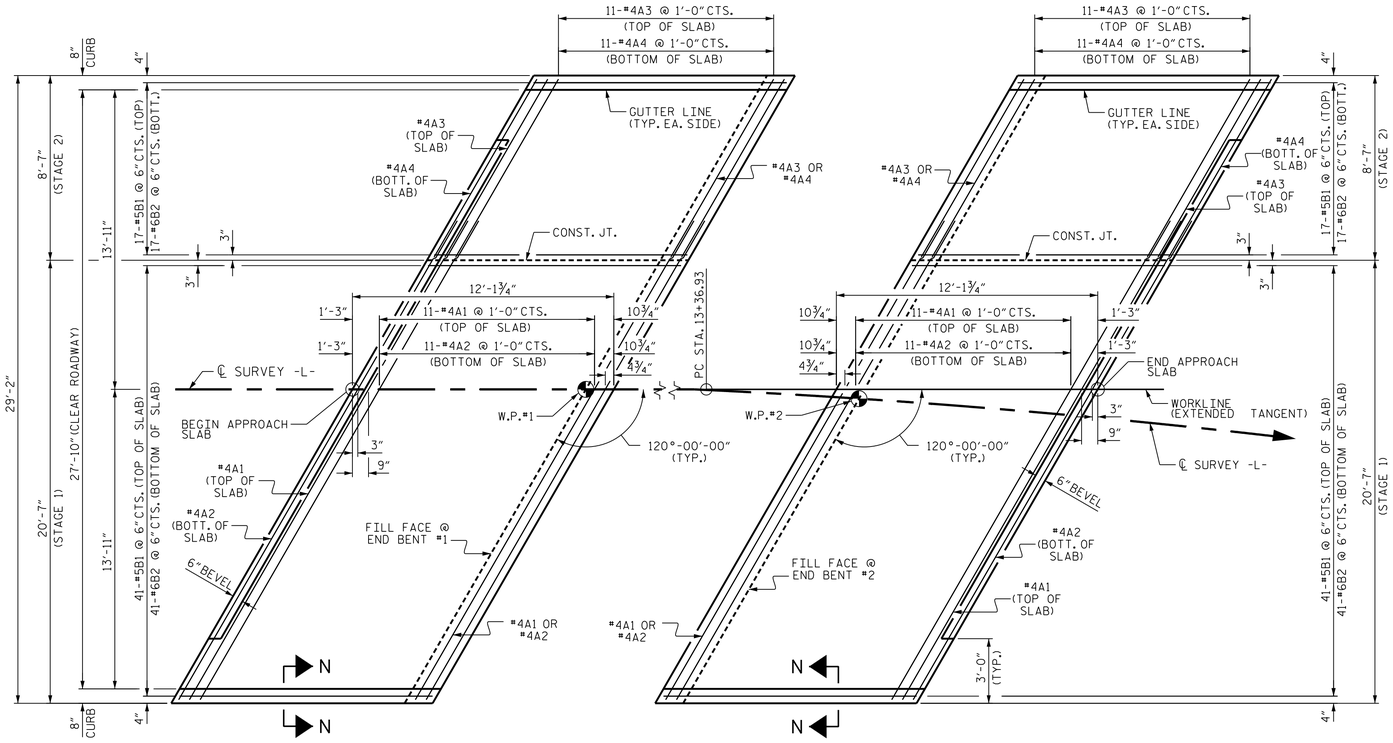
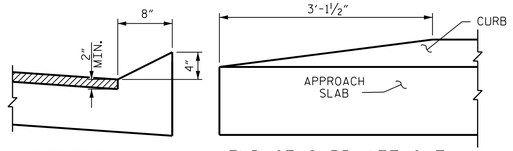


PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

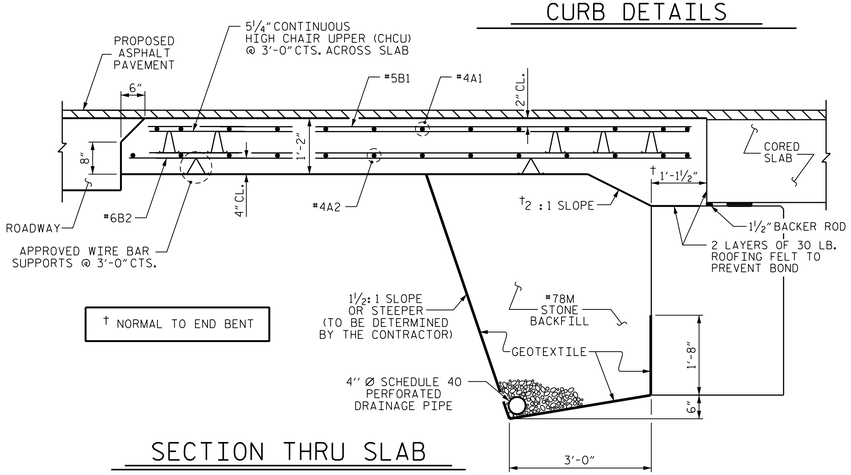
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



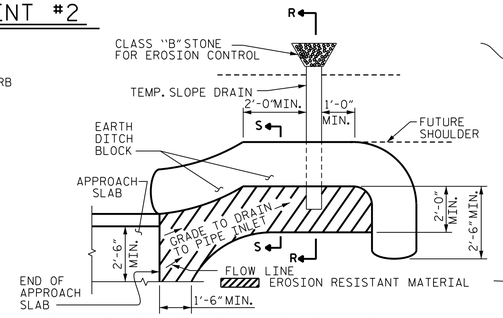
SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

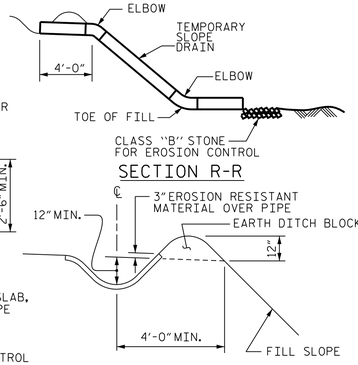


SECTION THRU SLAB



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

PLAN VIEW



SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL

APP. SLB. AT EB #1 (STAGE 1)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	13	#4	STR	25'-9"	224
A2	14	#4	STR	25'-9"	241
✳ B1	41	#5	STR	11'-2"	478
B2	41	#6	STR	11'-9"	724
REINFORCING STEEL				LBS.	965
✳ EPOXY COATED REINFORCING STEEL				LBS.	702
CLASS AA CONCRETE				C. Y.	11.5

APP. SLB. AT EB #1 (STAGE 2)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A3	13	#4	STR	9'-7"	83
A4	14	#4	STR	9'-7"	90
✳ B1	17	#5	STR	11'-2"	198
B2	17	#6	STR	11'-9"	300
REINFORCING STEEL				LBS.	390
✳ EPOXY COATED REINFORCING STEEL				LBS.	281
CLASS AA CONCRETE				C. Y.	4.8

APP. SLB. AT EB #2 (STAGE 1)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	13	#4	STR	25'-9"	224
A2	14	#4	STR	25'-9"	241
✳ B1	41	#5	STR	11'-2"	478
B2	41	#6	STR	11'-9"	724
REINFORCING STEEL				LBS.	965
✳ EPOXY COATED REINFORCING STEEL				LBS.	702
CLASS AA CONCRETE				C. Y.	11.5

APP. SLB. AT EB #2 (STAGE 2)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A3	13	#4	STR	9'-7"	83
A4	14	#4	STR	9'-7"	90
✳ B1	17	#5	STR	11'-2"	198
B2	17	#6	STR	11'-9"	300
REINFORCING STEEL				LBS.	390
✳ EPOXY COATED REINFORCING STEEL				LBS.	281
CLASS AA CONCRETE				C. Y.	4.8

NOTES

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

GEOTEXTILE SHALL BE TYPE 1IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

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

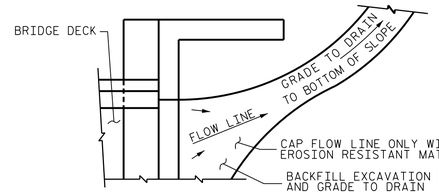
#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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.

4" PERFORATED PIPE OUTFALL SHALL BE ABOVE THE WATER SURFACE ELEVATION.



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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. 17BP.14.R.5

HAYWOOD COUNTY

STATION: 13+34.60 -L-

DRAWN BY: M. HOGAN DATE : FEB 2013
CHECKED BY: R. COFFMAN DATE : AUG 2013
DESIGN ENGINEER OF RECORD: R. COFFMAN DATE : NOV 2013

NORTH CAROLINA PROFESSIONAL SEAL 29112 ENGINEER RICHARD L. COFFMAN

DocuSigned by: Richard Coffman 8/4/2015
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NC COA No. F-0840

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW

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

STD. NO. BAS_30_120S

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS 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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REV. 8-16-99 RWW (c) LES REV. 5-1-06 TLA (c) GM

ENGLISH

JANUARY, 1990

STD. NO. SN