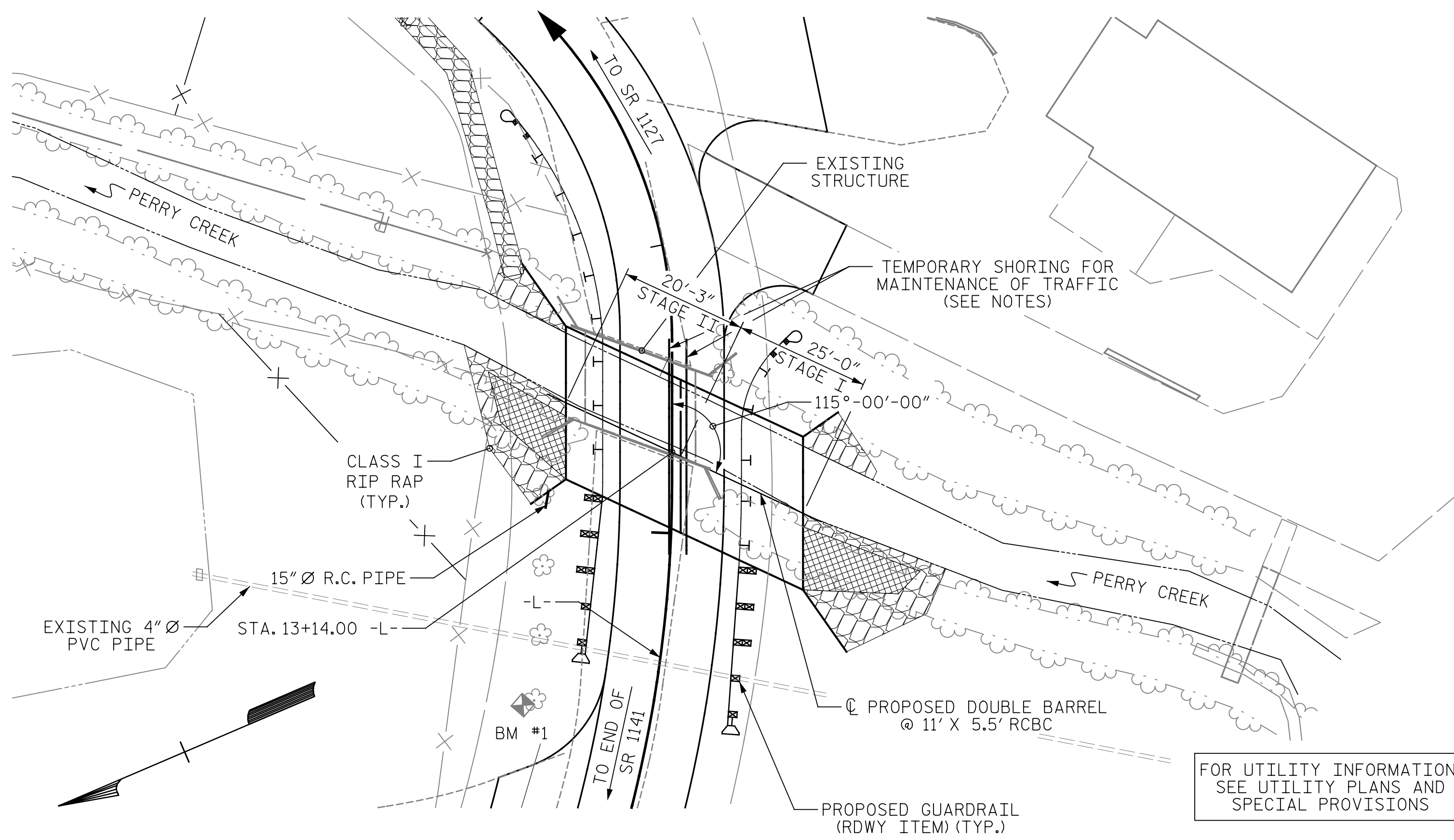


**This electronic collection of documents is provided
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and is Not a Certified Document –**

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

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

BENCH MARK #1 : NAVD 88, RR SPIKE IN 30" WHITE PINE, 22.18' LT., STA. 12+65.89 -L-, ELEV. 2158.23



LOCATION SKETCH

HYDRAULIC DATA

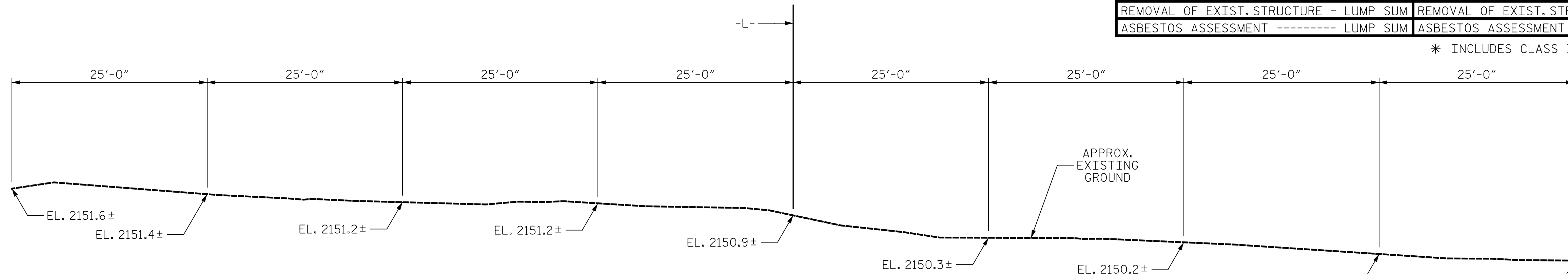
DESIGN DISCHARGE = 430 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 25 YRS
 DESIGN HIGH WATER ELEVATION = 2156.0 FT
 DRAINAGE AREA = 1.1 SQ. MI.
 BASE DISCHARGE (Q100) = 600 C.F.S.
 BASE HIGH WATER ELEVATION = 2157.22 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 720 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 100+ YRS
 OVERTOPPING FLOOD ELEVATION = 2157.8 FT

GRADE DATA

GRADE POINT ELEV. @ STA. 13+14.00 -L- = 2158.48
 BED ELEV. @ STA. 13+14.00 -L- = 2149.7
 ROADWAY FILL SLOPES = 2:1



PROFILE ALONG CULVERT BARREL

DRAWN BY : T.J. KIRSCHBAUM DATE : 1/9/15
 CHECKED BY : R.F. WERTMAN DATE : 1/20/15
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 1/20/15

NOTES

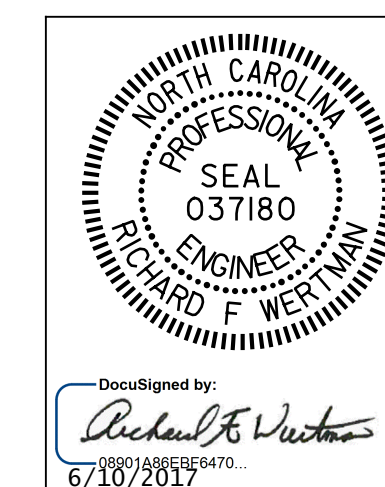
- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- THIS CULVERT IS LOCATED IN SEISMIC ZONE 1.
- DESIGN FILL ----- 1.26' MIN. AND 2.32' MAX.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 - STAGE I WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 - THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 - STAGE II WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 - THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- TRAFFIC ON SR 1141 SHALL BE MAINTAINED. IN ORDER TO MAINTAIN TRAFFIC THE CULVERT SHALL BE CONSTRUCTED IN SECTIONS AS DIRECTED BY THE ENGINEER.
- STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
- AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 1 SPAN AT 16'-6", WITH A CLEAR ROADWAY OF 19'-2" ON TIMBER JOISTS ON END BENTS WITH TIMBER CAPS ON TIMBER PILES LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- 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.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- SEE SECTION 414 OF THE STANDARD SPECIFICATIONS FOR CULVERT EXCAVATION AND BACKFILLING.
- EXCAVATE AT LEAST 3 FEET BELOW CULVERT AND FOOTINGS AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICLE 414-4 OF THE STANDARD SPECIFICATIONS.

TOTAL STRUCTURE QUANTITIES			
STAGE I		STAGE II	
CLASS A CONCRETE		CLASS A CONCRETE	
BARREL @ 2.564 CY/FT	59.9 C.Y.	BARREL @ 2.564 CY/FT	56.2 C.Y.
WINGS, ETC.	12.2 C.Y.	WINGS, ETC.	12.2 C.Y.
TOTAL	72.1 C.Y.	TOTAL	68.4 C.Y.
REINFORCING STEEL		REINFORCING STEEL	
BARREL	9151 LBS.	BARREL	8537 LBS.
WINGS, ETC.	465 LBS.	WINGS, ETC.	526 LBS.
TOTAL	9616 LBS.	TOTAL	9063 LBS.
CULVERT EXCAVATION ----- * LUMP SUM		CULVERT EXCAVATION ----- * LUMP SUM	
FOUNDATION COND. MAT'L. ----- 119 TONS		FOUNDATION COND. MAT'L. ----- 111 TONS	
CLASS I RIP RAP ----- 43 TONS		CLASS I RIP RAP ----- 37 TONS	
GEOTEXTILE FABRIC ----- 58 SQ.YD.		GEOTEXTILE FABRIC ----- 50 SQ.YD.	
REMOVAL OF EXIST. STRUCTURE - LUMP SUM		REMOVAL OF EXIST. STRUCTURE - LUMP SUM	
ASBESTOS ASSESSMENT ----- LUMP SUM		ASBESTOS ASSESSMENT ----- LUMP SUM	

* INCLUDES CLASS II SELECT BACKFILL

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
 HENDERSON COUNTY
 STATION: 13+14.00 -L-

SHEET 1 OF 10 REPLACES BRIDGE NO. 440314



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DOUBLE
 11 FT. X 5.5 FT.
 CONCRETE BOX CULVERT
 115° SKEW

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 2610 Wycliff Road
 Suite 102
 Raleigh, NC 27607-3073
 (919) 420-7660
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CUL #314

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ _{L1})	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (FT)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.08	--	1.75	1.59	1	TOP SLAB	4.33	1.08	1	TOP SLAB	9.99	1	
	HL-93 (OPERATING)	N/A		1.39	--	1.35	2.05	1	TOP SLAB	4.33	1.39	1	TOP SLAB	9.99	1	
	HS-20 (INVENTORY)	36.000	②	1.13	40.68	1.75	1.55	1	BOTTOM SLAB	11.00	1.13	1	TOP SLAB	9.99	1	
	HS-20 (OPERATING)	36.000		1.46	52.56	1.35	2.01	1	BOTTOM SLAB	11.00	1.46	1	TOP SLAB	9.99	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.98	40.23	1.40	2.98	1	TOP SLAB	4.33	3.11	1	TOP SLAB	9.99	1
		SNGARBS2	20.000		2.71	54.20	1.40	2.78	1	TOP SLAB	4.33	2.71	1	BOTTOM SLAB	10.22	1
		SNAGRIS2	22.000		2.47	54.34	1.40	2.90	1	BOTTOM SLAB	11.00	2.47	1	BOTTOM SLAB	10.22	1
		SNCOTTS3	27.250		1.36	37.06	1.40	1.98	1	TOP SLAB	4.33	1.36	1	TOP SLAB	9.99	1
		SNAGGRS4	34.925		1.56	54.48	1.40	1.80	1	BOTTOM SLAB	11.00	1.56	1	BOTTOM SLAB	10.22	1
		SNS5A	35.550		1.53	54.39	1.40	1.76	1	BOTTOM SLAB	11.00	1.53	1	TOP SLAB	9.99	1
		SNS6A	39.950		1.48	59.12	1.40	1.75	1	BOTTOM SLAB	11.00	1.48	1	TOP SLAB	9.99	1
		SNS7B	42.000		1.44	60.48	1.40	1.70	1	BOTTOM SLAB	11.00	1.44	1	BOTTOM SLAB	10.22	1
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.66	54.78	1.40	1.96	1	BOTTOM SLAB	11.00	1.66	1	BOTTOM SLAB	10.22	1
		TNT4A	33.075		1.61	53.25	1.40	1.90	1	BOTTOM SLAB	11.00	1.61	1	TOP SLAB	9.99	1
		TNT6A	41.600		1.50	62.40	1.40	1.77	1	BOTTOM SLAB	11.00	1.50	1	TOP SLAB	9.99	1
		TNT7A	42.000		1.44	60.48	1.40	1.67	1	BOTTOM SLAB	11.00	1.44	1	BOTTOM SLAB	10.22	1
		TNT7B	42.000		1.56	65.52	1.40	1.79	1	BOTTOM SLAB	11.00	1.56	1	TOP SLAB	9.99	1
		TNAGRIT4	43.000	③	1.28	55.04	1.40	1.49	1	BOTTOM SLAB	11.00	1.28	1	BOTTOM SLAB	10.22	1
TNAGT5A	45.000		1.44	64.80	1.40	1.71	1	BOTTOM SLAB	11.00	1.44	1	BOTTOM SLAB	10.22	1		
TNAGT5B	45.000		1.30	58.50	1.40	1.54	1	BOTTOM SLAB	11.00	1.30	1	BOTTOM SLAB	10.22	1		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

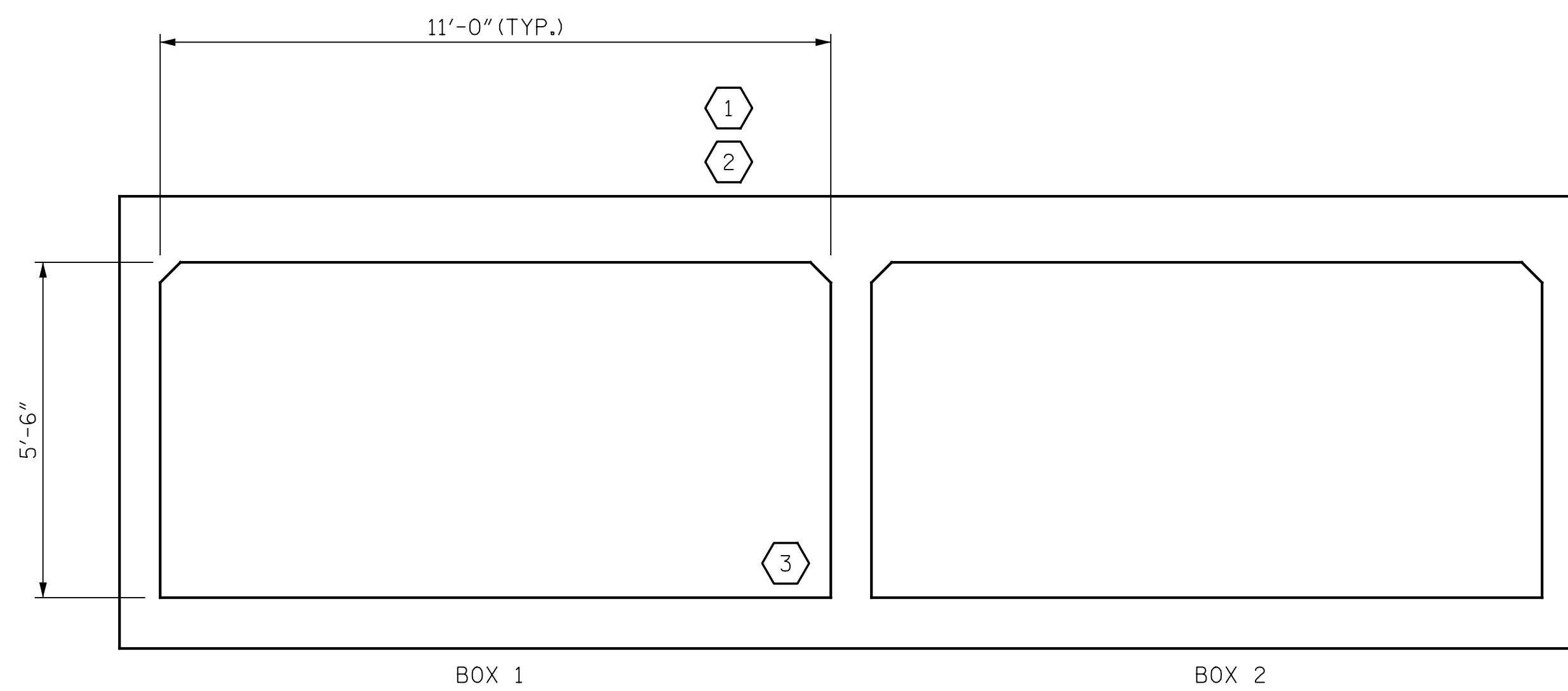
NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

1. BOX STRUCTURE IS SYMMETRICAL, THEREFORE BOX 1 RATINGS SIMILAR TO BOX 2.

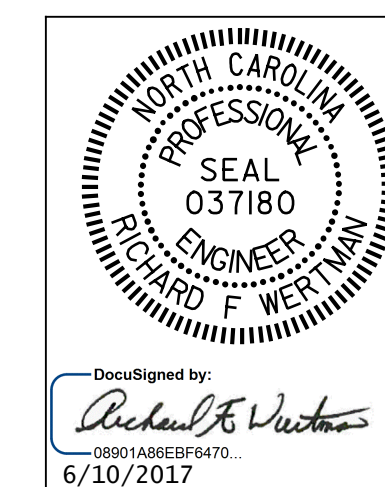
①	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
HENDERSON COUNTY
 STATION: 13+14.00 -L-

SHEET 2 OF 10



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 REINFORCED CONCRETE
 BOX CULVERTS
 (NON-INTERSTATE TRAFFIC)

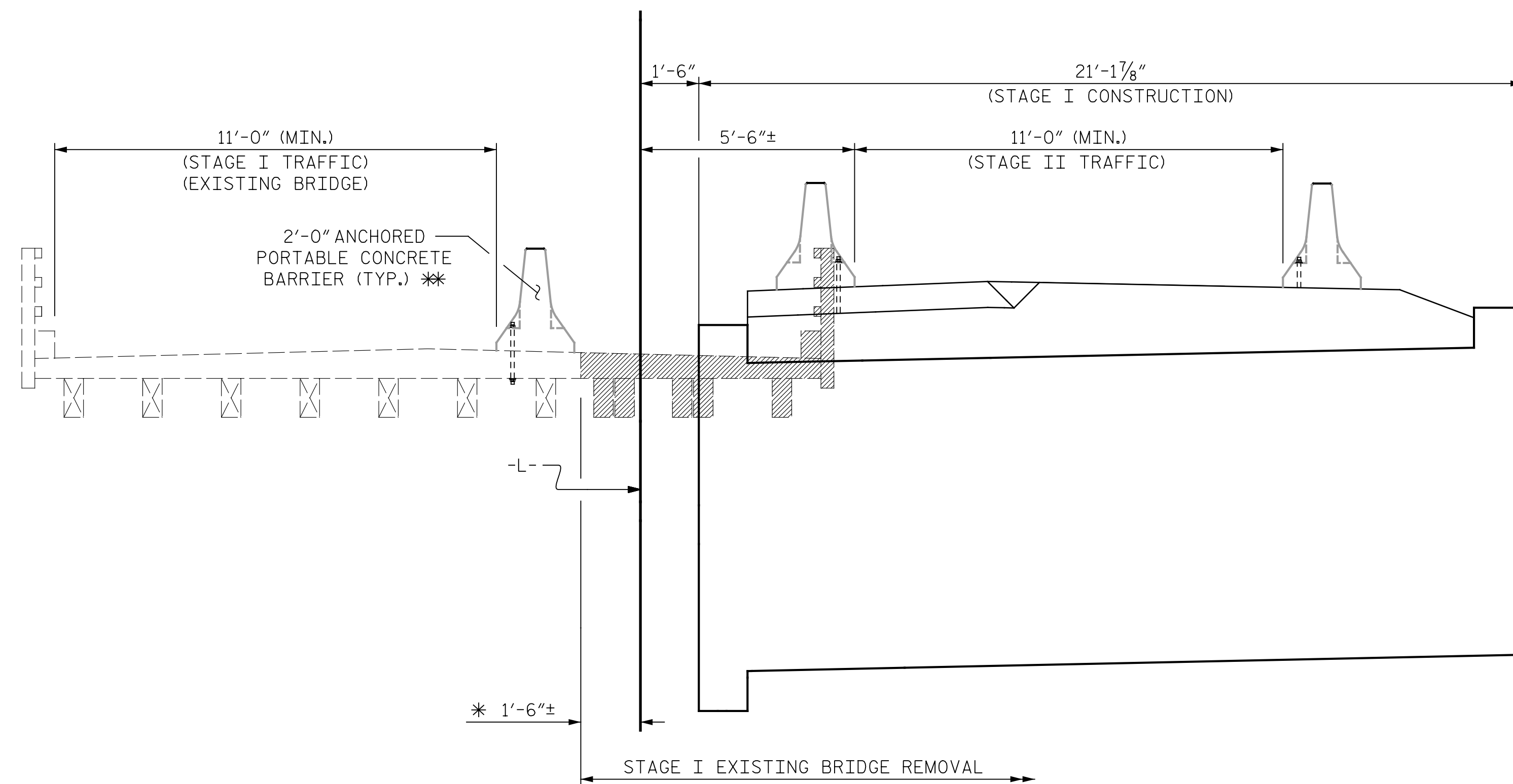
ASSEMBLED BY : T.J. KIRSCHBAUM DATE : 1/14/15
 CHECKED BY : R.F. WERTMAN DATE : 1/21/15
 DRAWN BY : WMC 7/11 REV.10/1/1 MAA/GM
 CHECKED BY : GM 7/11

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered *As Promised* INC Lic. No. F-0270
 2610 Wycliff Road
 Suite 102
 Raleigh, NC 27607-3073
 (919) 420-7660

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

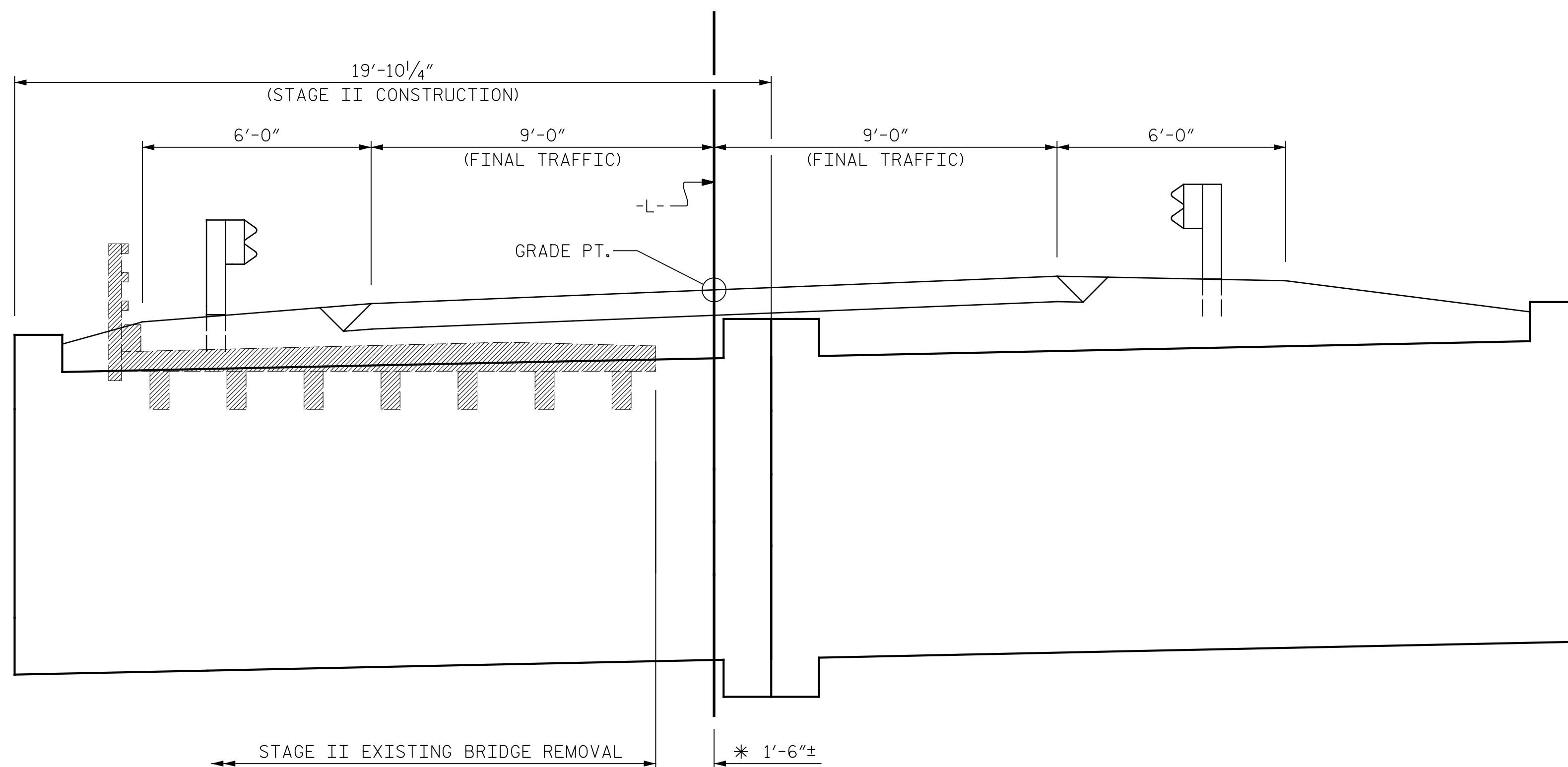
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



STAGE I CONSTRUCTION

(NORMAL TO -L-)



STAGE II CONSTRUCTION

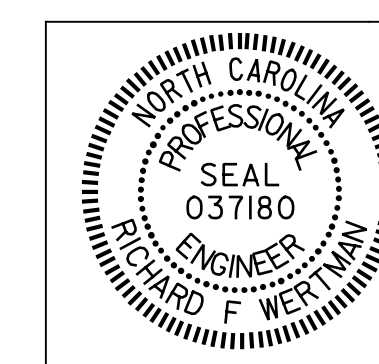
(NORMAL TO -L-)

NOTES

- * 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 SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- ** THE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF ANCHORED PORTABLE CONCRETE BARRIER.

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
HENDERSON COUNTY
 STATION: 13+14.00 -L-

SHEET 3 OF 10



DocuSigned by:
Richard F. Wertman
 09001A88E8F6470
 6/10/2017

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONSTRUCTION SEQUENCE

REVISIONS

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

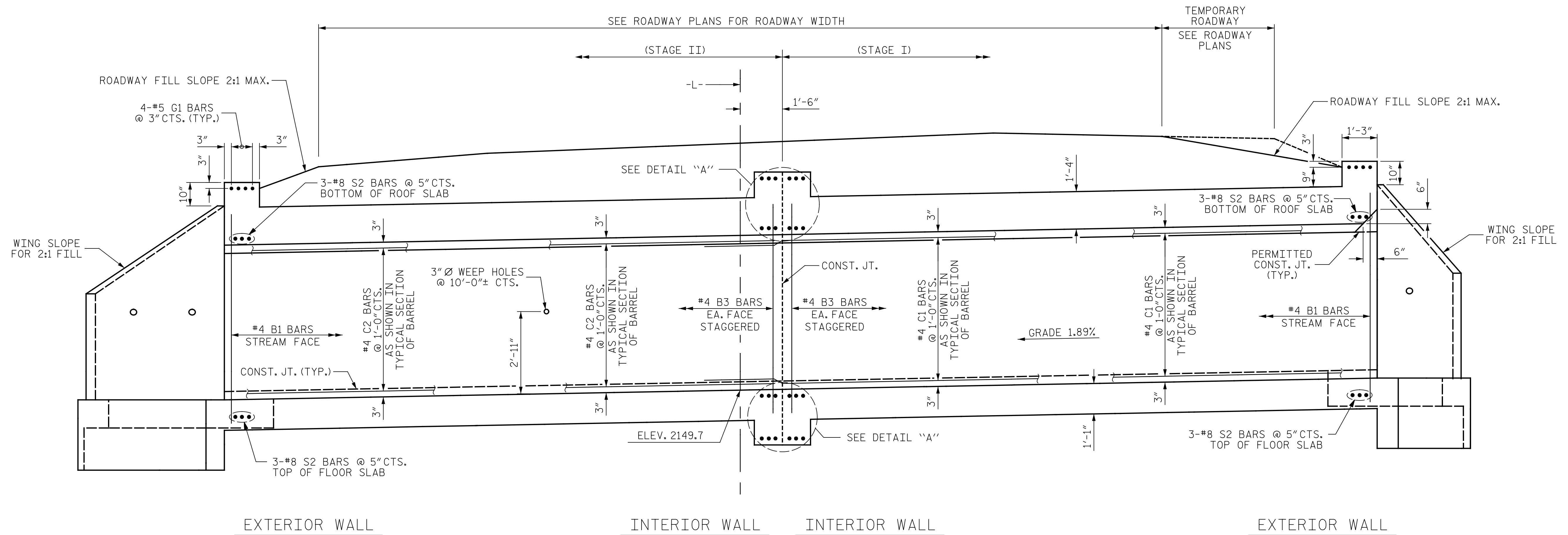
SHEET NO.
 C-3
 TOTAL SHEETS
 10

DRAWN BY : T.J. KIRSCHBAUM DATE : 5/14/15
 CHECKED BY : R.F. WERTMAN DATE : 5/15/15
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 5/15/15

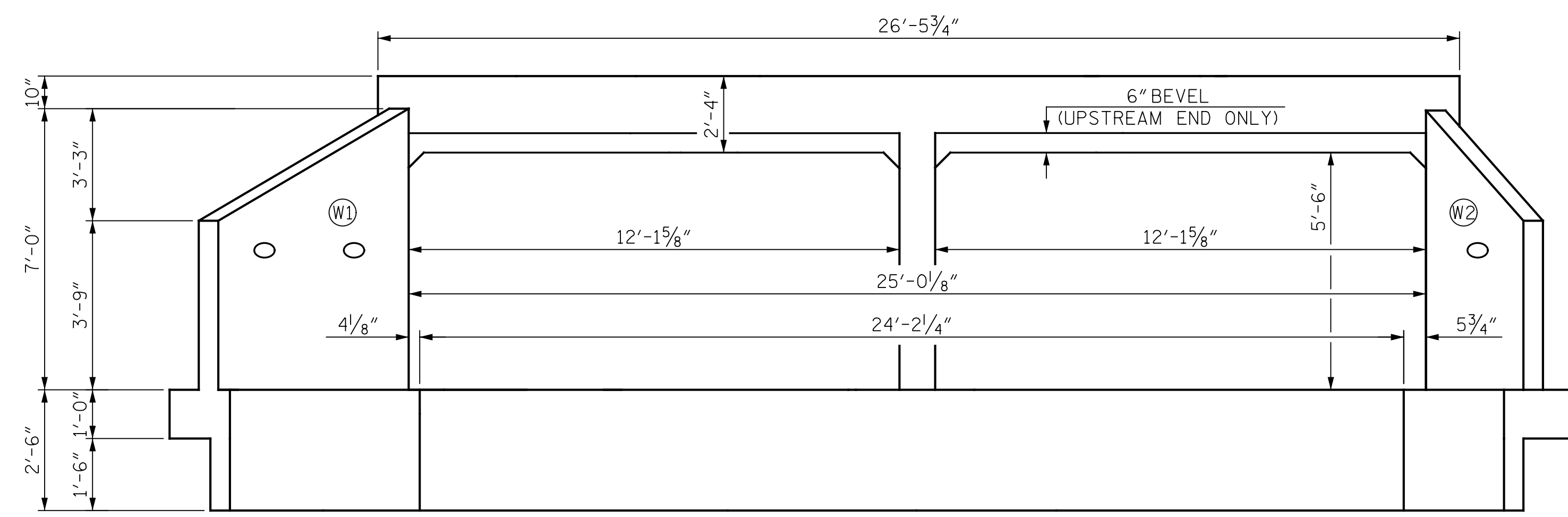
PLANS PREPARED BY:
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 Excellence Delivered *As Promised*
 2610 Wycliff Road
 Suite 102
 Raleigh, NC 27607-3073
 (919) 420-7660
 NC Lic. No. F-0270

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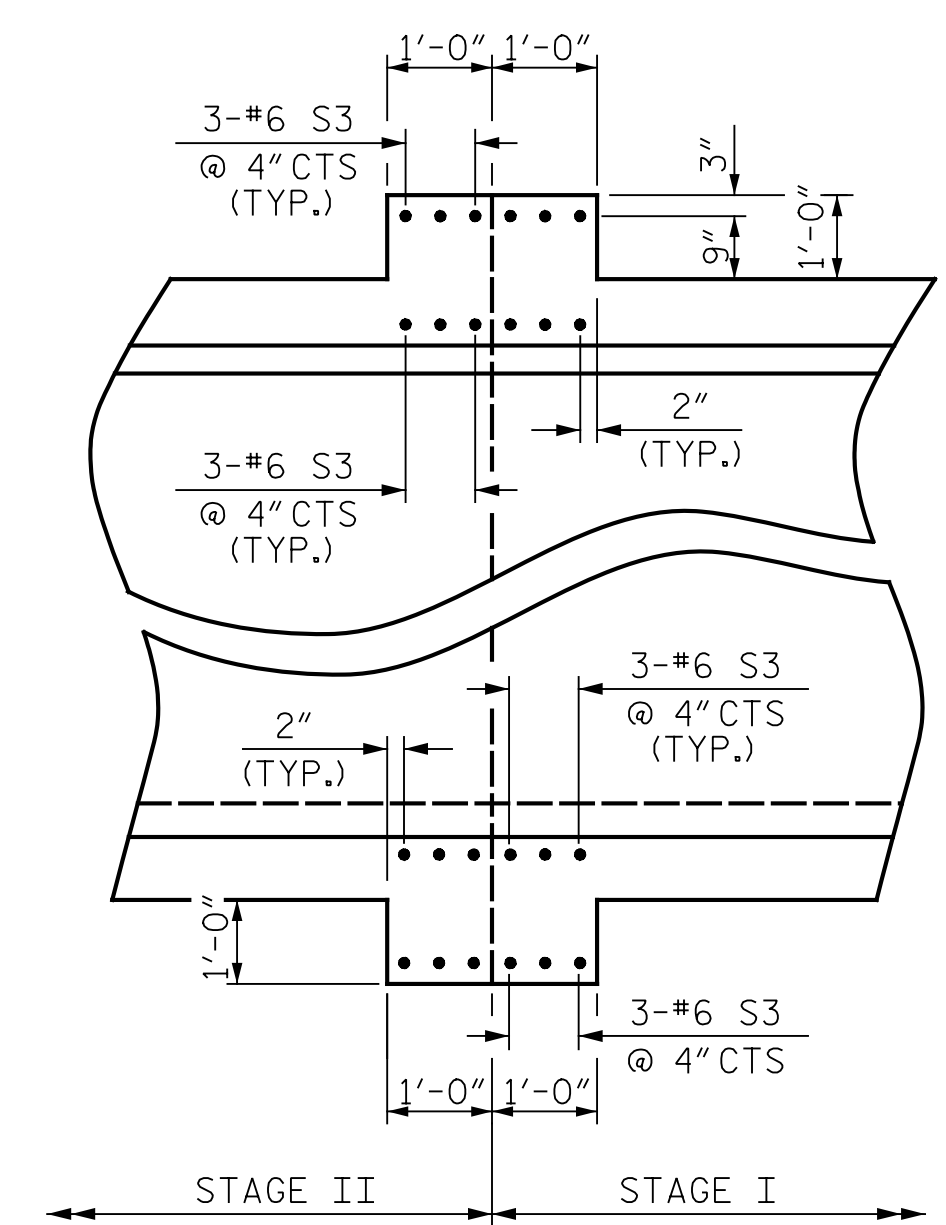
CUL. #314



CULVERT SECTION NORMAL TO ROADWAY

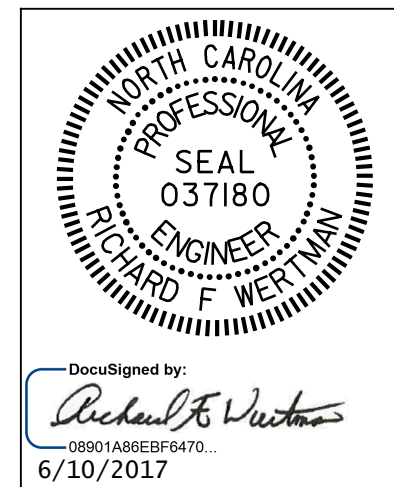


END ELEVATION NORMAL TO SKEW
(STAGE I AND STAGE II)



DETAIL "A"

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
 HENDERSON COUNTY
 STATION: 13+14.00 -L-
 SHEET 4 OF 10



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DOUBLE
 11 FT. X 5.5 FT.
 CONCRETE BOX CULVERT
 115° SKEW**

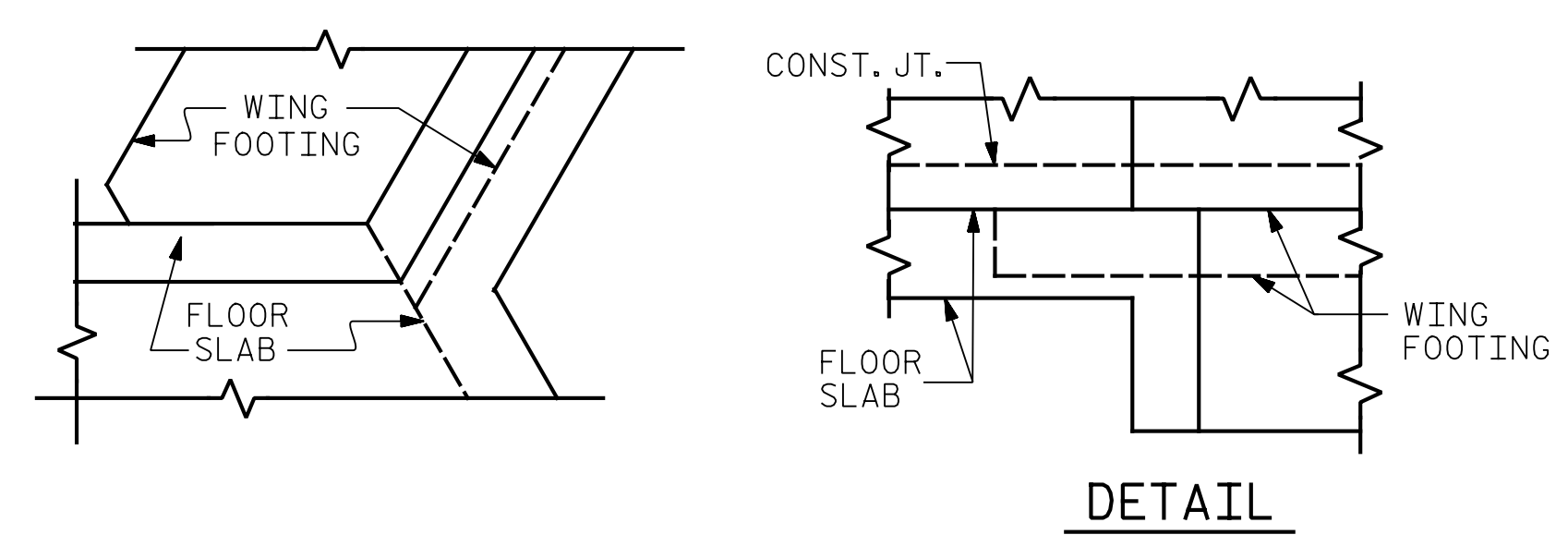
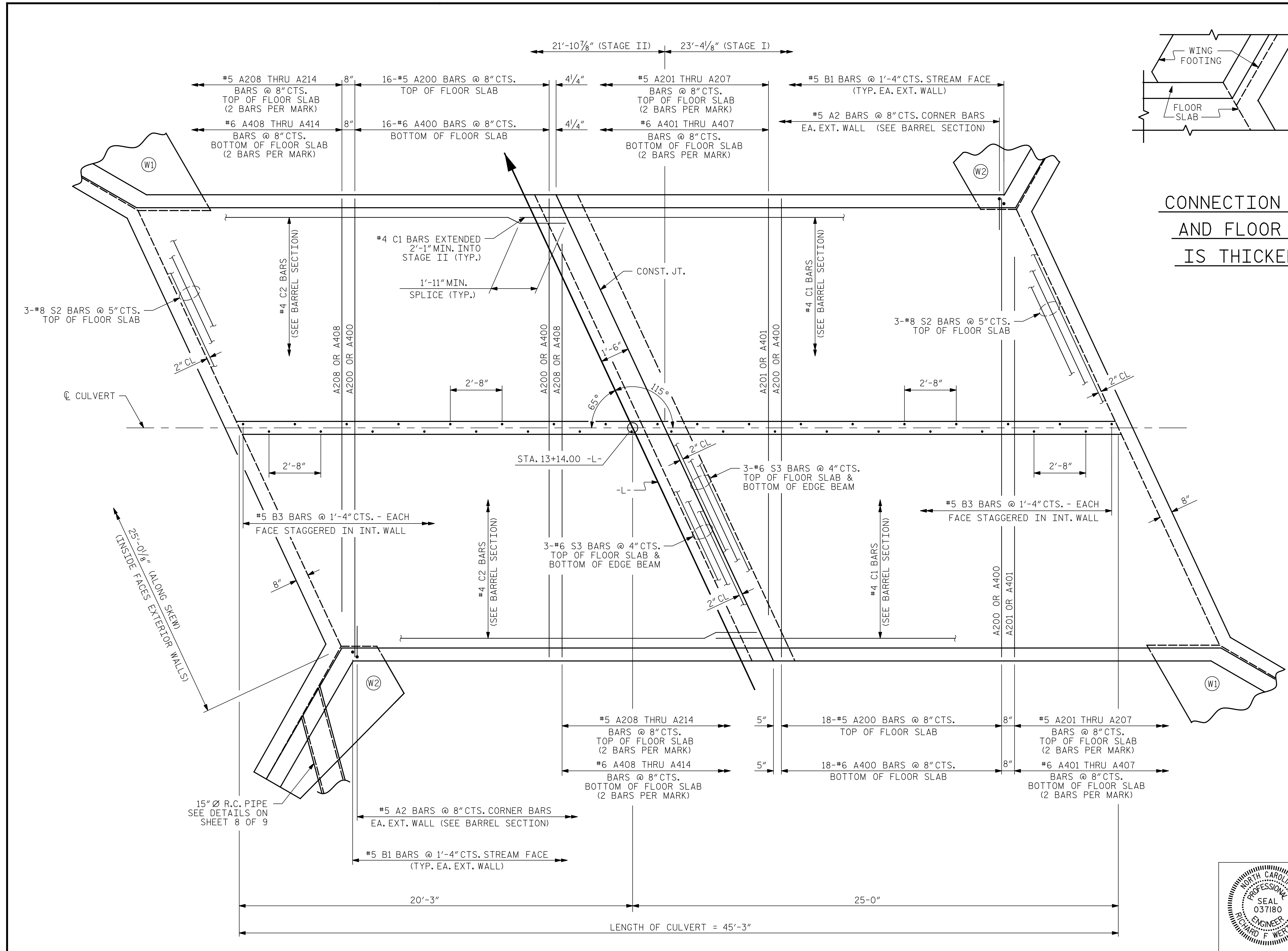
DRAWN BY : T.J. KIRSCHBAUM DATE : 1/9/15
 CHECKED BY : R.F. WERTMAN DATE : 1/21/15
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 1/21/15

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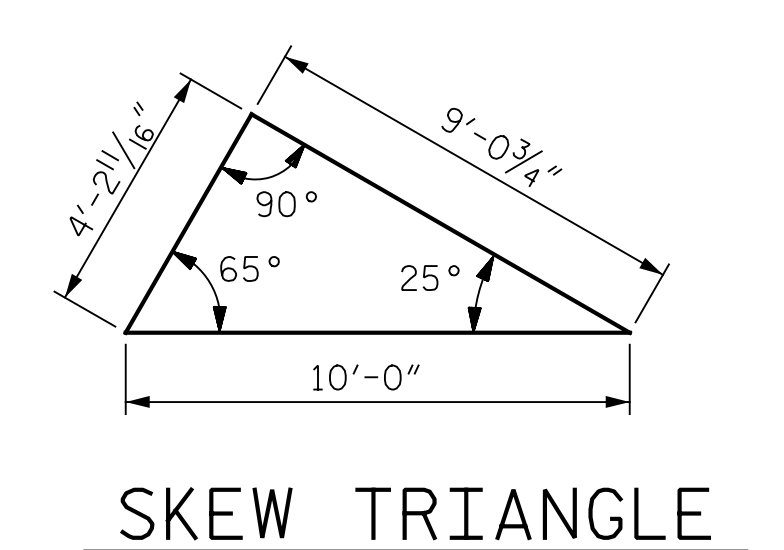
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 SIGNATURES COMPLETED

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

TOTAL SHEETS: 10
 SHEET NO. C-4



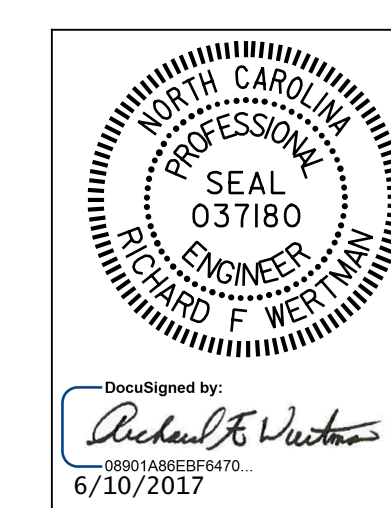
CONNECTION OF WING FOOTING AND FLOOR SLAB WHEN SLAB IS THICKER THAN FOOTING



SKEW TRIANGLE

DRAWN BY : T.J. KIRSCHBAUM DATE : 1/13/15
 CHECKED BY : R.F. WERTMAN DATE : 1/21/15
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 1/21/15

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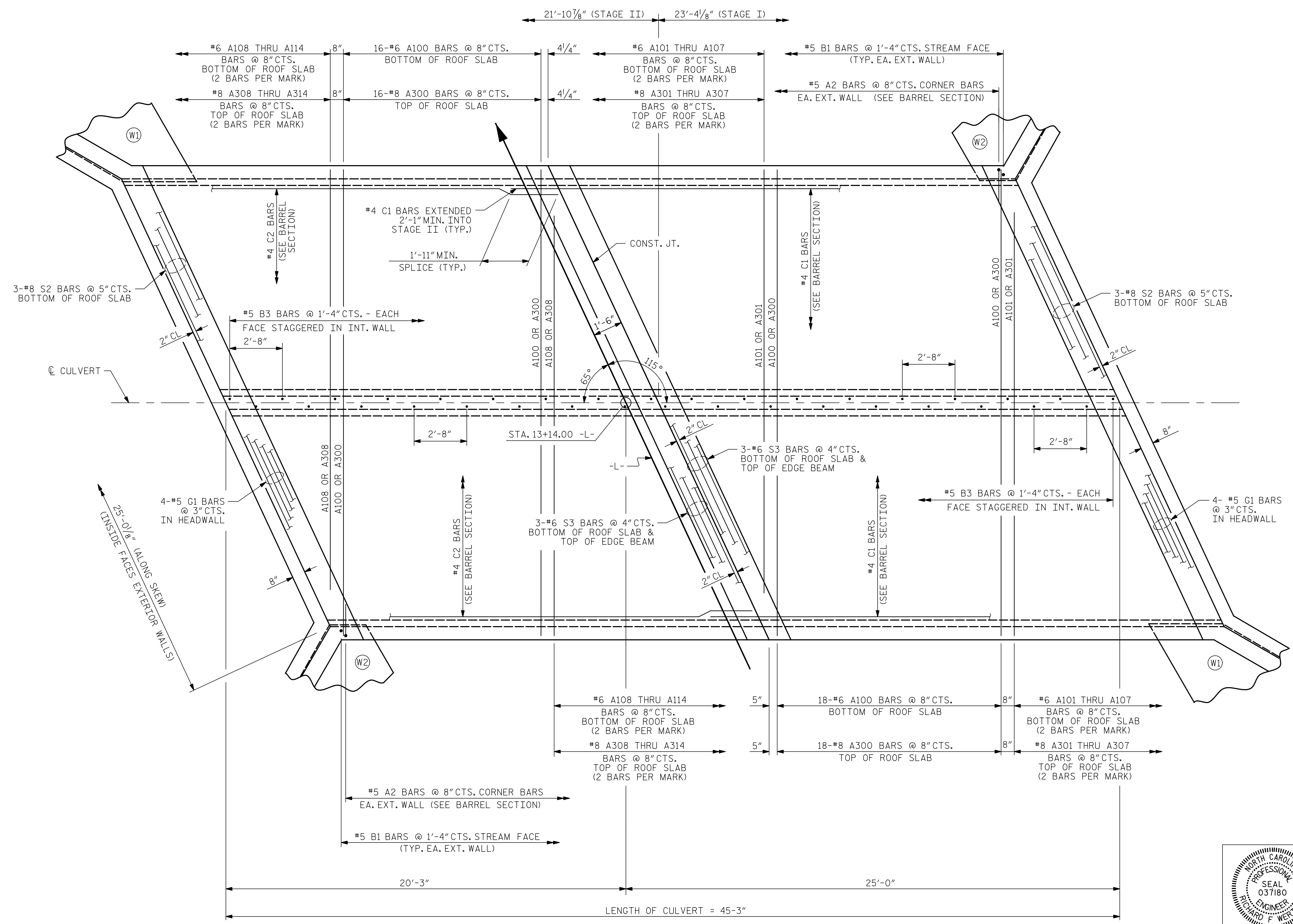


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PROJECT NO. 17BP.14.R.44
 CULVERT #440314
 HENDERSON COUNTY
 STATION: 13+14.00 -L-
 SHEET 5 OF 10

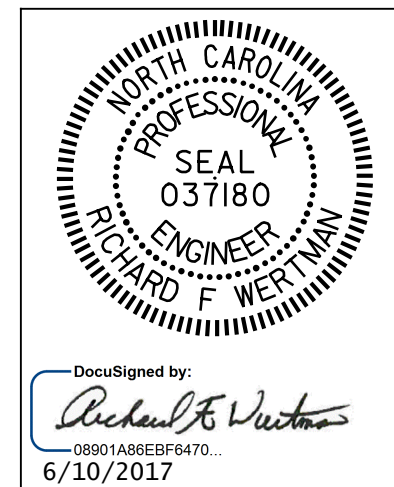
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DOUBLE 11 FT. X 5.5 FT. CONCRETE BOX CULVERT 115° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C-5					TOTAL SHEETS 10

PLAN OF FLOOR SLAB



PLAN OF ROOF SLAB

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
 HENDERSON COUNTY
 STATION: 13+14.00 -L-
 SHEET 6 OF 10



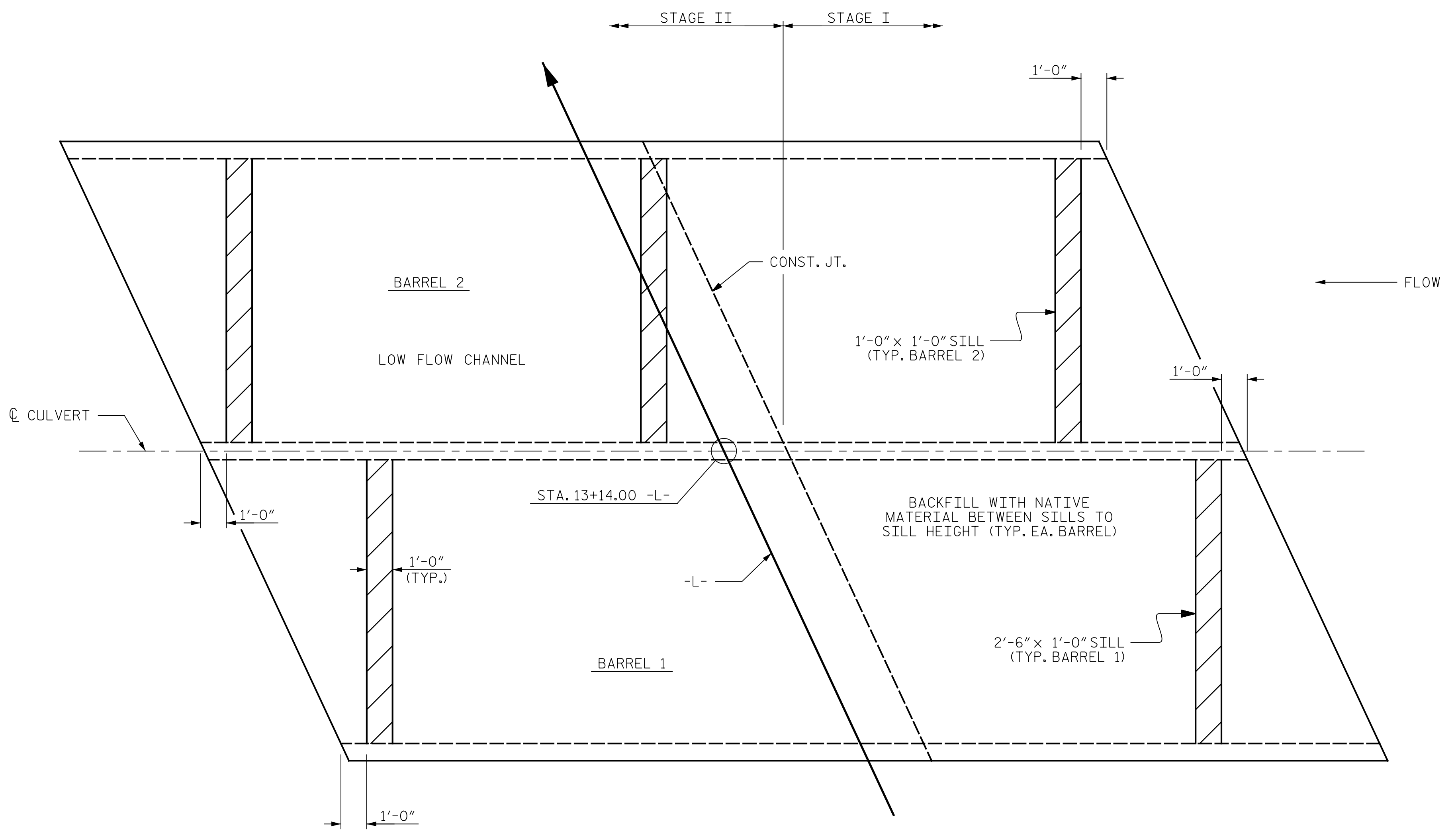
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE
 11 FT. X 5.5 FT.
 CONCRETE BOX CULVERT
 115° SKEW

DRAWN BY : T.J. KIRSCHBAUM DATE : 1/13/15
 CHECKED BY : R.F. WERTMAN DATE : 1/26/15
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 1/26/15

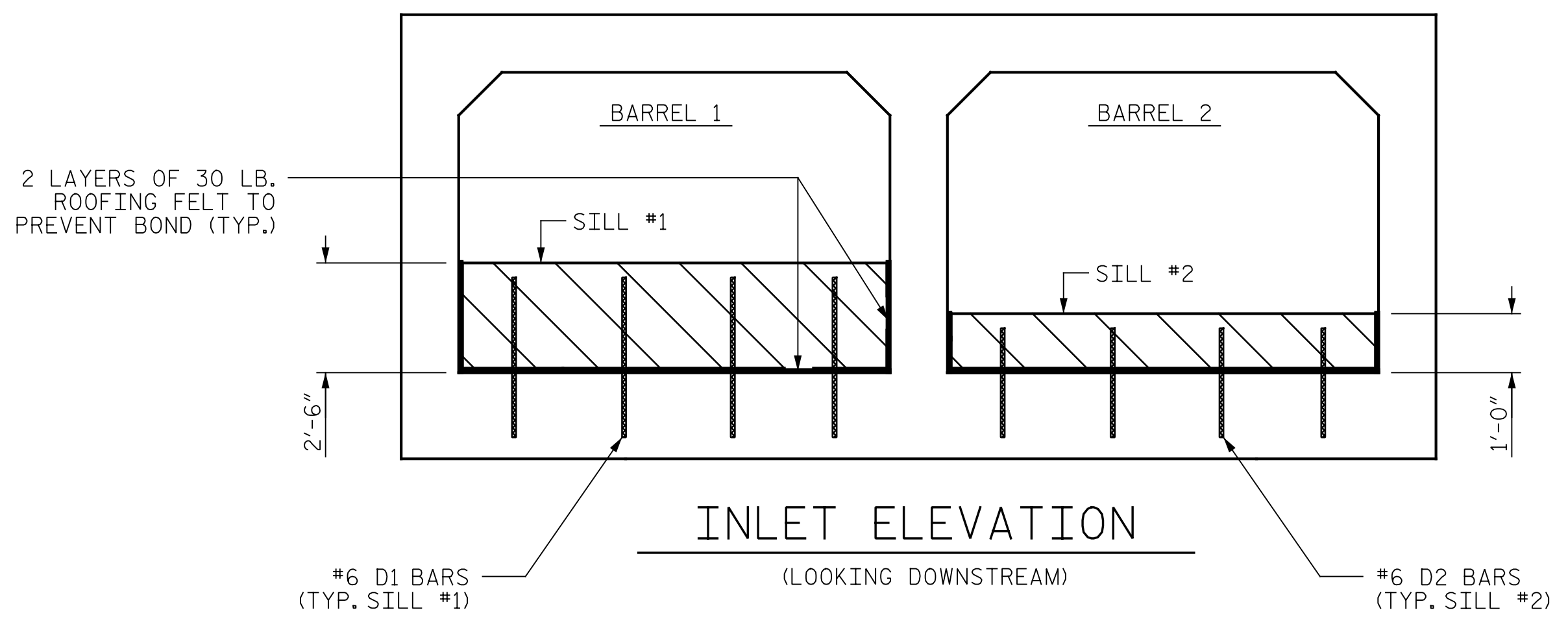
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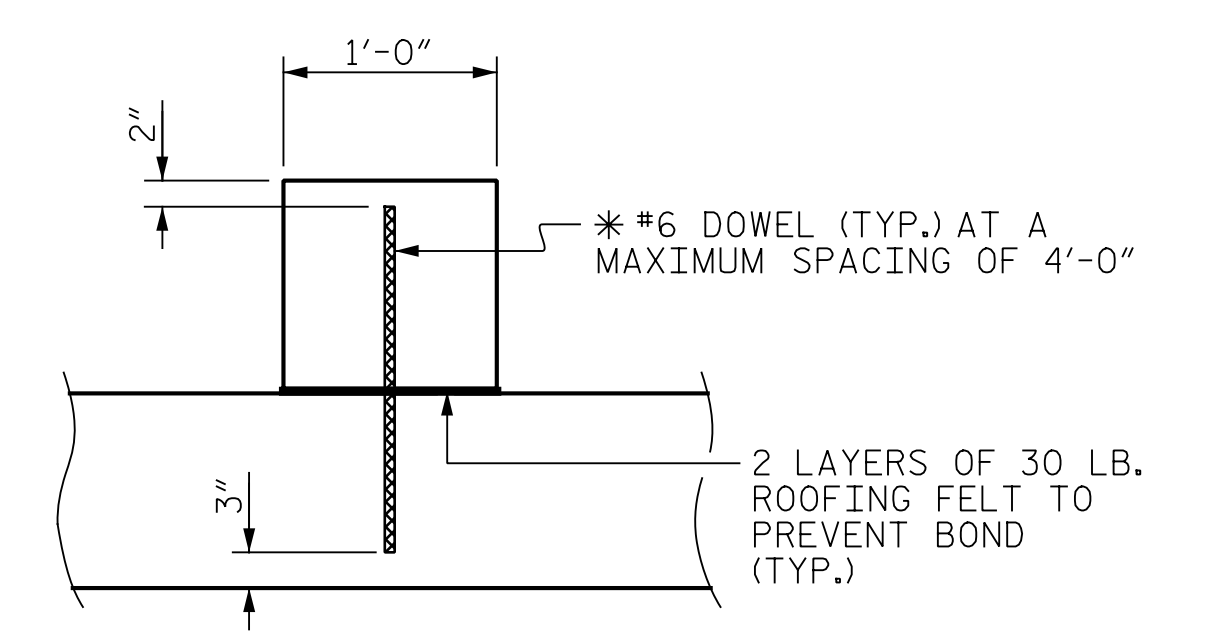
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			10



FLOOR SILL LAYOUT



INLET ELEVATION



SECTION THROUGH SILL

* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.

CULVERT SILL DETAILS

NOTES

NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPERATELY AND ATTACHED BY DOWELS.

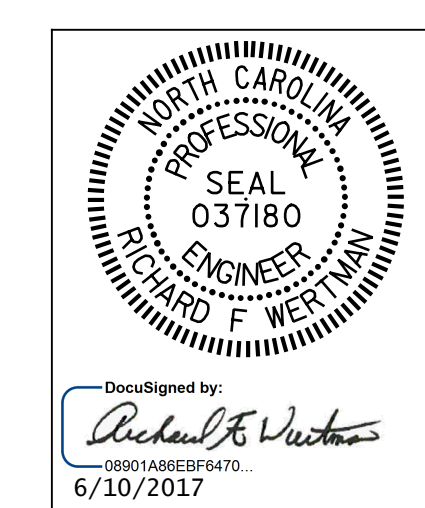
TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM.

DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.

NUMBER OF SILLS DETERMINED BY THE ENGINEER.

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
HENDERSON COUNTY
 STATION: 13+14.00 -L-

SHEET 7 OF 10



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DOUBLE
 11 FT. X 5.5 FT.
 CONCRETE BOX CULVERT
 115° SKEW**

DRAWN BY : T.J. KIRSCHBAUM DATE : 1/9/15
 CHECKED BY : R.F. WERTMAN DATE : 1/26/15
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 1/26/15

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 2610 Wycliff Road
 Suite 102
 Raleigh, NC 27607-3073
 (919) 420-7660
 NC Lic. No. F-0270

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

TOTAL SHEETS: 10

CUL. #314

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2 1/2".
- B. 4 - 1" Ø X 2 1/4" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2 1/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS "A" CONCRETE.

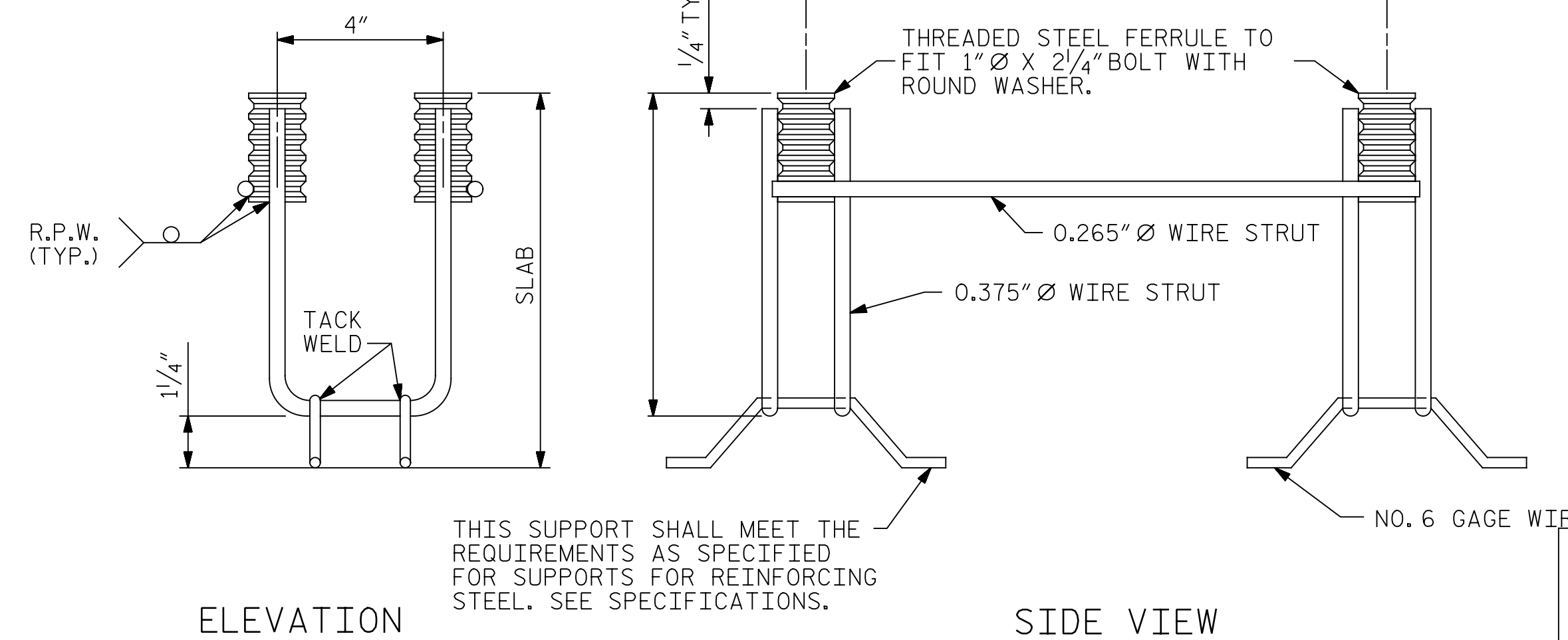
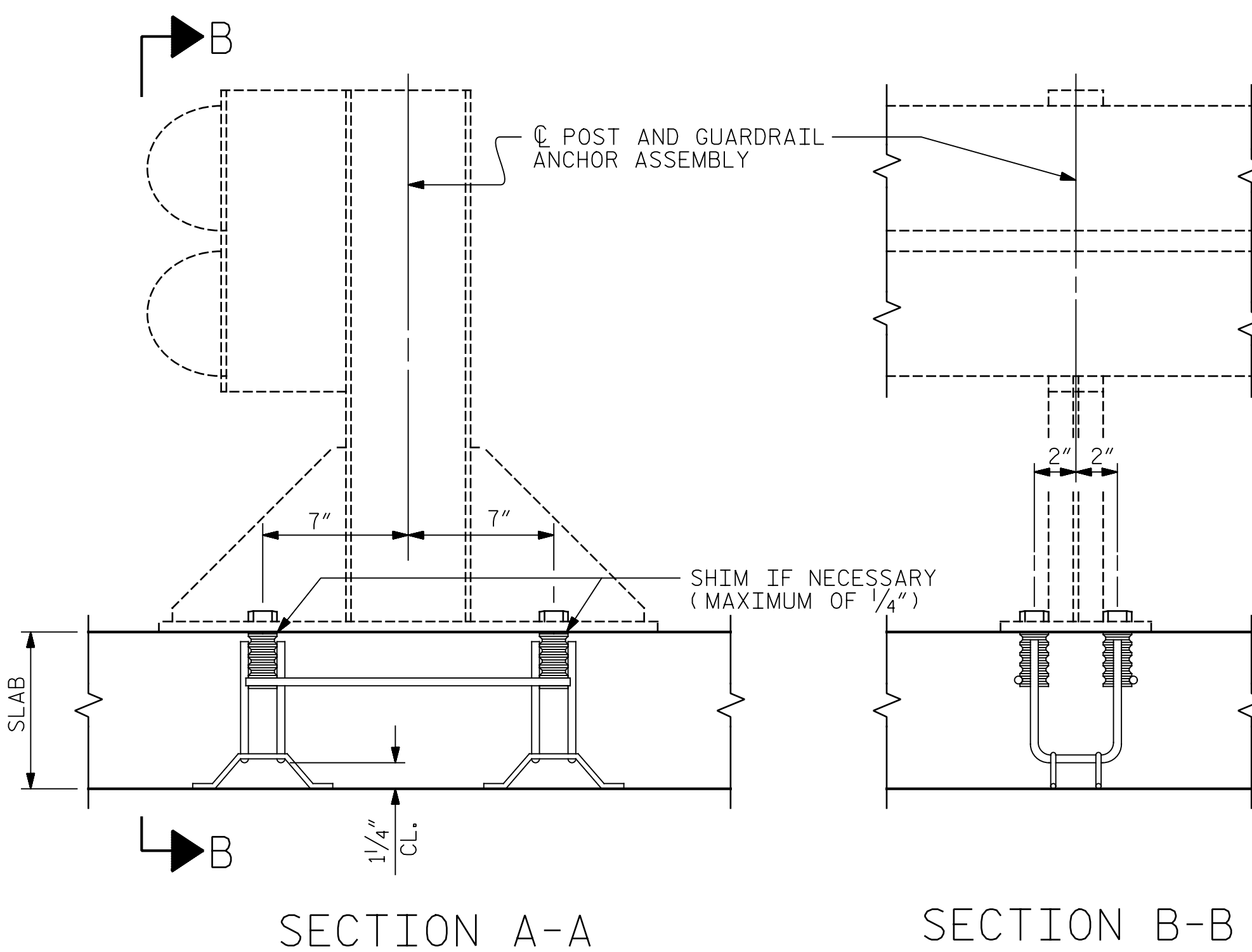
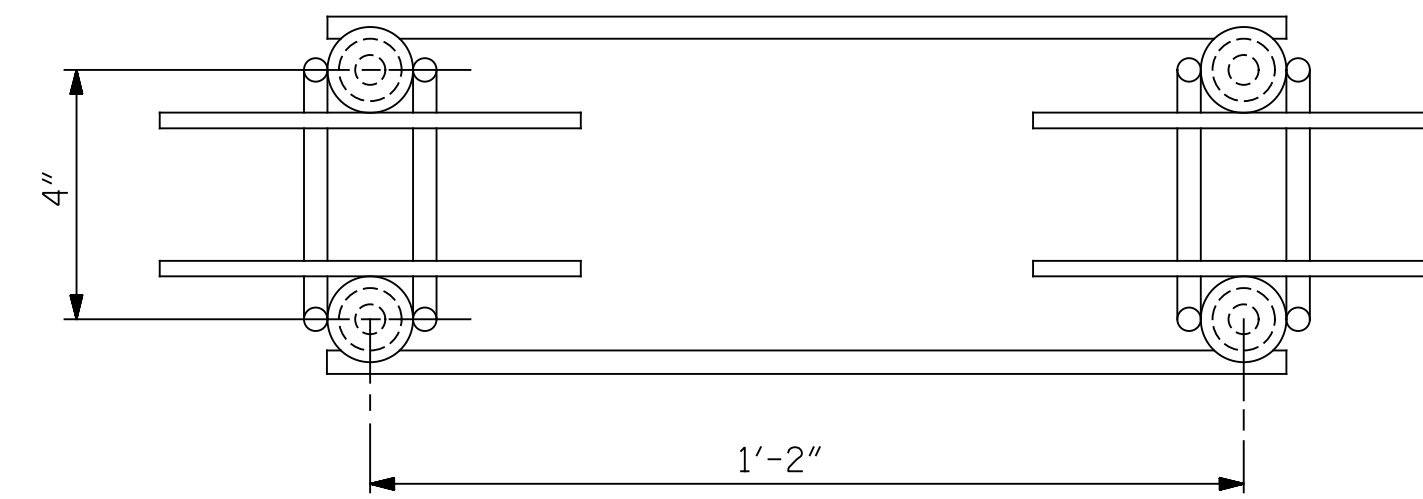
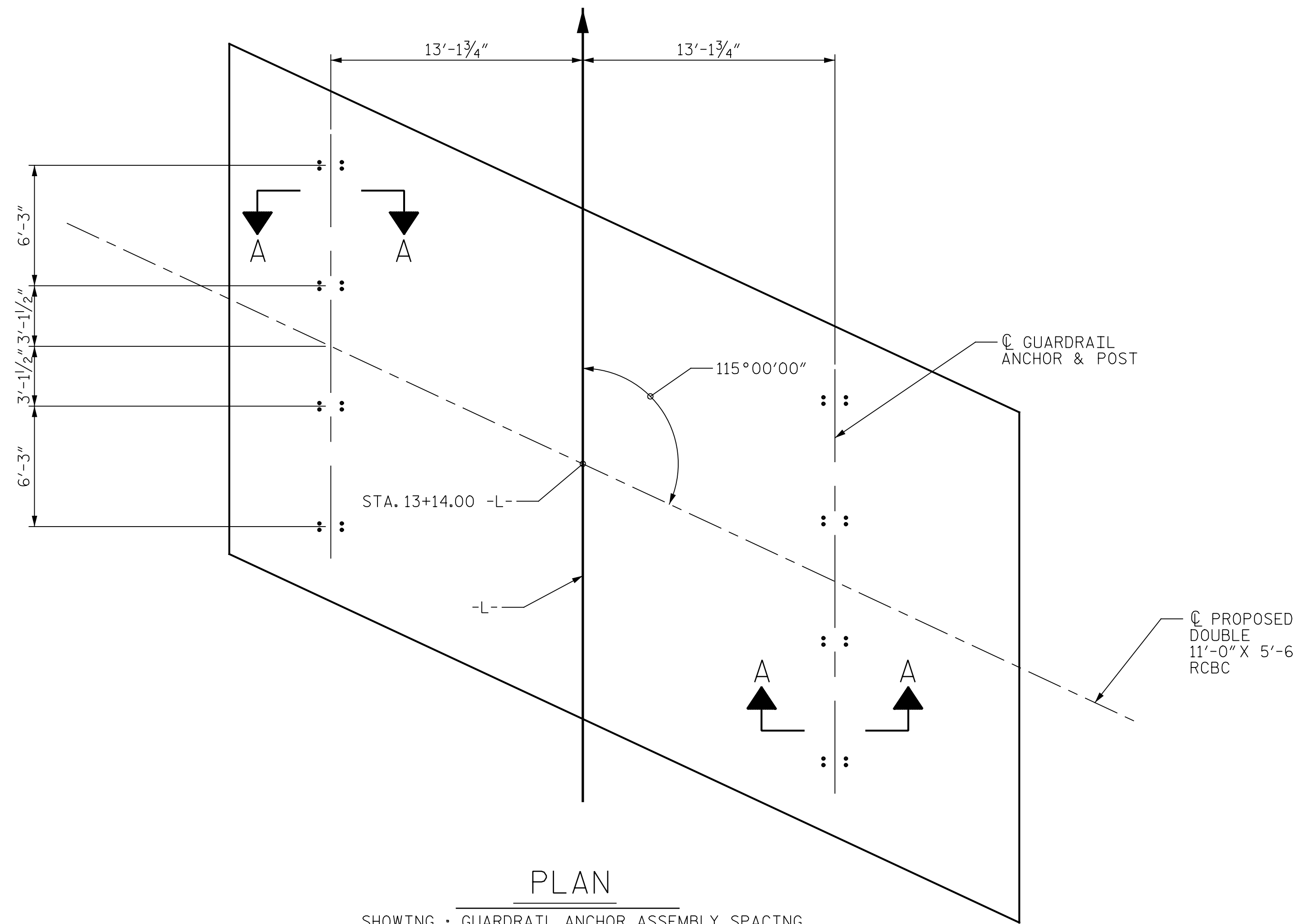
FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

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

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

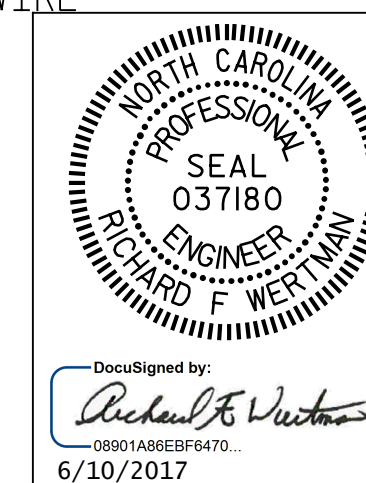


THIS SUPPORT SHALL MEET THE REQUIREMENTS AS SPECIFIED FOR SUPPORTS FOR REINFORCING STEEL. SEE SPECIFICATIONS.

GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

PROJECT NO. 17BP.14.R.44
CULVERT #440314
HENDERSON COUNTY
STATION: 13+14.00 -L-

SHEET 8 OF 10



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ANCHORAGE DETAILS FOR
GUARDRAIL ANCHOR ASSEMBLY
FOR CULVERTS

ASSEMBLED BY : T.J. KIRSCHBAUM	DATE : 5/13/15
CHECKED BY : R.F. WERTMAN	DATE : 5/14/15
DRAWN BY : FCJ 6/88	REV. 7/10/01 LES/RDR
CHECKED BY : ARB 6/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R KMM/GM

PLANS PREPARED BY:

Gannett Fleming
Excellence Delivered As Promised

2610 Wycliff Road
Suite 102
Raleigh, NC 27607-3073
(919) 420-7660
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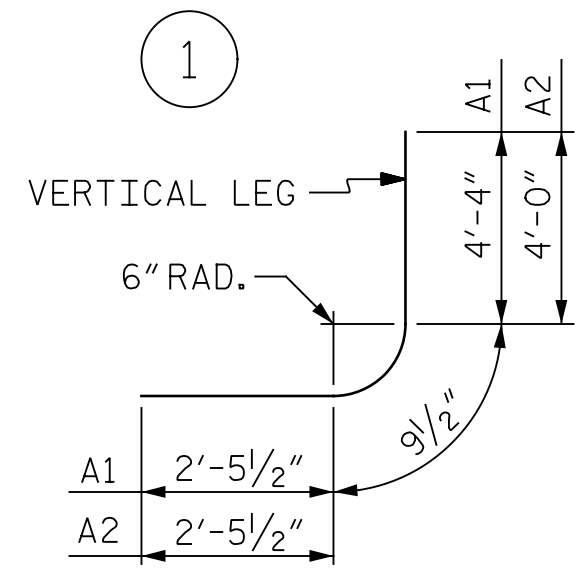
THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-8
1			3			TOTAL SHEETS 10
2			4			

SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
C1	4	1'-11"

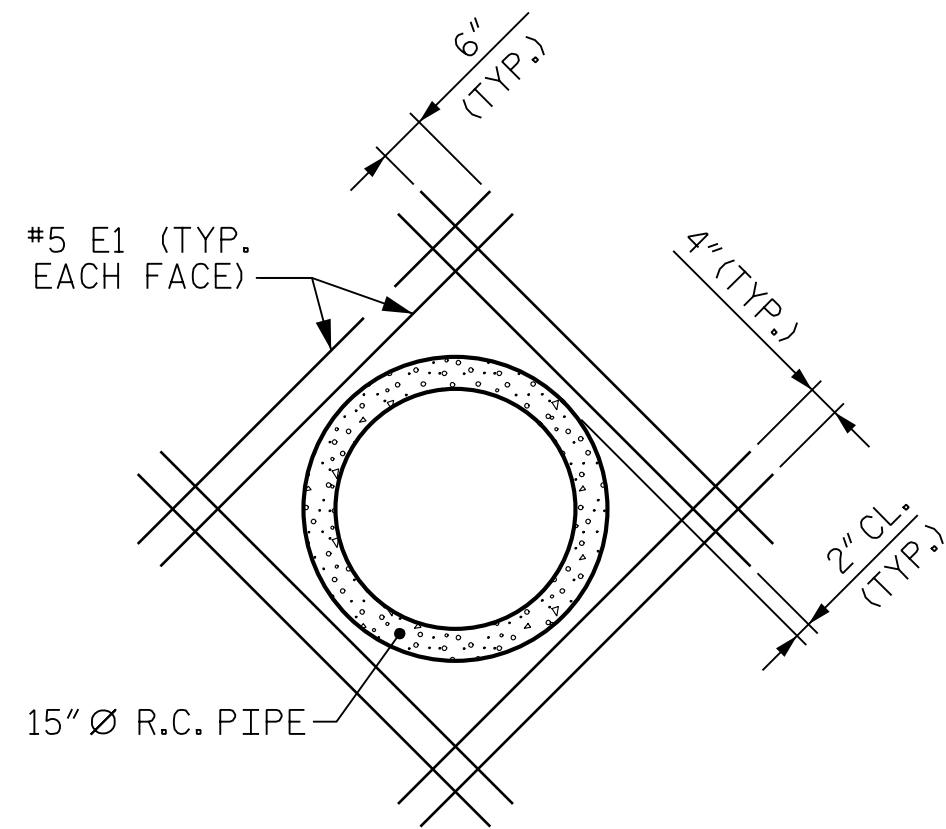
BAR TYPES



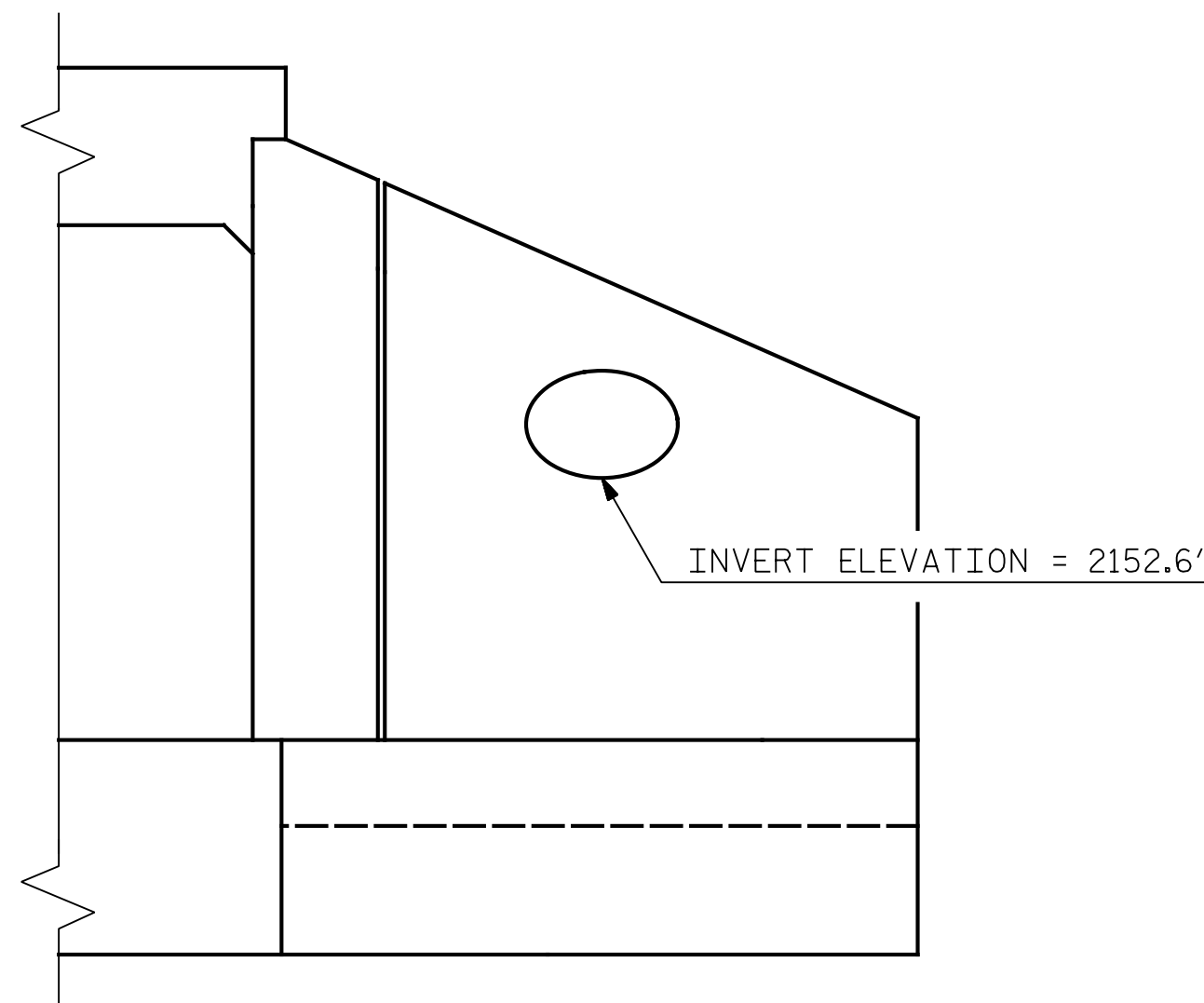
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIALS

STAGE I										STAGE II													
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	68	5	1	7'-7"	538	A400	18	6	STR	23'-8"	640	A1	64	5	1	7'-7"	506	A400	16	6	STR	23'-8"	569
A2	68	5	1	7'-3"	514	A401	4	6	STR	21'-5"	129	A2	64	5	1	7'-3"	484	A408	4	6	STR	21'-3"	128
						A402	4	6	STR	18'-6"	111							A409	4	6	STR	18'-5"	111
A100	18	6	STR	23'-8"	640	A403	4	6	STR	15'-8"	94	A100	16	6	STR	23'-8"	569	A410	4	6	STR	15'-7"	94
A101	4	6	STR	21'-5"	129	A404	4	6	STR	12'-10"	77	A108	4	6	STR	21'-3"	128	A411	4	6	STR	12'-8"	76
A102	4	6	STR	18'-6"	111	A405	4	6	STR	9'-11"	60	A109	4	6	STR	18'-5"	111	A412	4	6	STR	9'-10"	59
A103	4	6	STR	15'-8"	94	A406	4	6	STR	7'-1"	43	A110	4	6	STR	15'-7"	94	A413	4	6	STR	7'-0"	42
A104	4	6	STR	12'-10"	77	A407	4	6	STR	4'-3"	26	A111	4	6	STR	12'-8"	76	A414	4	6	STR	4'-1"	25
A105	4	6	STR	9'-11"	60							A112	4	6	STR	9'-10"	59						
A106	4	6	STR	7'-1"	43	B1	36	5	STR	7'-5"	278	A113	4	6	STR	7'-0"	42	B1	34	5	STR	7'-5"	263
A107	4	6	STR	4'-3"	26	B3	18	5	STR	7'-5"	139	A114	4	6	STR	4'-1"	25	B3	17	5	STR	7'-5"	132
A200	18	5	STR	23'-8"	444	C1	82	4	STR	25'-3"	1383	A200	16	5	STR	23'-8"	395	C2	82	4	STR	21'-7"	1182
A201	4	5	STR	21'-5"	89							A208	4	5	STR	21'-3"	89						
A202	4	5	STR	18'-6"	77	D1	4	6	STR	3'-2"	19	A209	4	5	STR	18'-5"	77	D1	4	6	STR	3'-2"	19
A203	4	5	STR	15'-8"	65	D2	4	6	STR	1'-8"	10	A210	4	5	STR	15'-7"	65	D2	8	6	STR	1'-8"	20
A204	4	5	STR	12'-10"	54							A211	4	5	STR	12'-8"	53						
A205	4	5	STR	9'-11"	41	G1	4	5	STR	26'-1"	109	A212	4	5	STR	9'-10"	41	G1	4	5	STR	26'-1"	109
A206	4	5	STR	7'-1"	30							A213	4	5	STR	7'-0"	29						
A207	4	5	STR	4'-3"	18	S2	6	8	STR	26'-1"	418	A214	4	5	STR	4'-1"	17	S2	6	8	STR	26'-1"	418
A300	18	8	STR	23'-8"	1137	S3	12	6	STR	26'-1"	470	A300	16	8	STR	23'-8"	1011	S3	12	6	STR	26'-1"	470
A301	4	8	STR	21'-5"	229							A308	4	8	STR	21'-3"	227						
A302	4	8	STR	18'-6"	198							A309	4	8	STR	18'-5"	197						
A303	4	8	STR	15'-8"	167							A310	4	8	STR	15'-7"	166						
A304	4	8	STR	12'-10"	137							A311	4	8	STR	12'-8"	135						
A305	4	8	STR	9'-11"	106							A312	4	8	STR	9'-10"	105						
A306	4	8	STR	7'-1"	76							A313	4	8	STR	7'-0"	75						
A307	4	8	STR	4'-3"	45							A314	4	8	STR	4'-1"	44						
REINFORCING STEEL 9151 LBS.										REINFORCING STEEL 8537 LBS.													
CLASS A CONCRETE										CLASS A CONCRETE													
BARREL @ 2.564 CY/FT 59.9 C.Y.										BARREL @ 2.564 CY/FT 56.2 C.Y.													

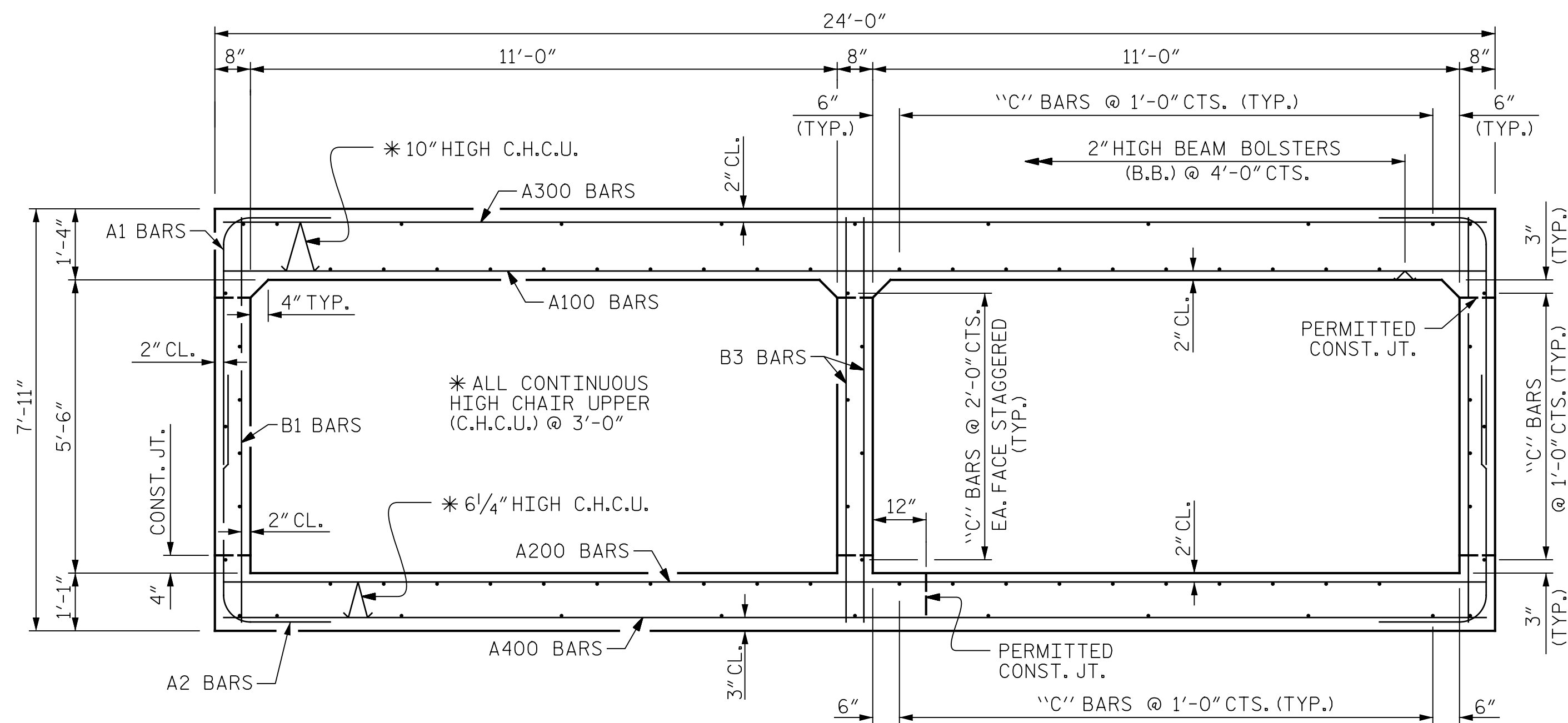


DETAIL OF REINFORCING AROUND 15" Ø PIPE



ELEVATION OF 15" Ø PIPE IN WINGWALL W2 AT OUTLET

THE 15" Ø R.C. PIPE THROUGH WINGWALL W2 AT THE OUTLET END OF THE CULVERT WILL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL WILL BE FIELD BENT AND/OR CUT AS NECESSARY TO CLEAR PIPE.

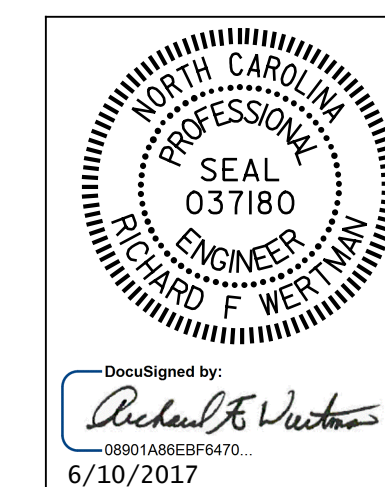


RIGHT ANGLE SECTION OF BARREL

THERE ARE 82 1/2" BARS IN SECTION OF BARREL. (LOOKING DOWNSTREAM)

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
 HENDERSON COUNTY
 STATION: 13+14.00 -L-

SHEET 9 OF 10



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE
 11 FT. X 5.5 FT.
 CONCRETE BOX CULVERT
 115° SKEW

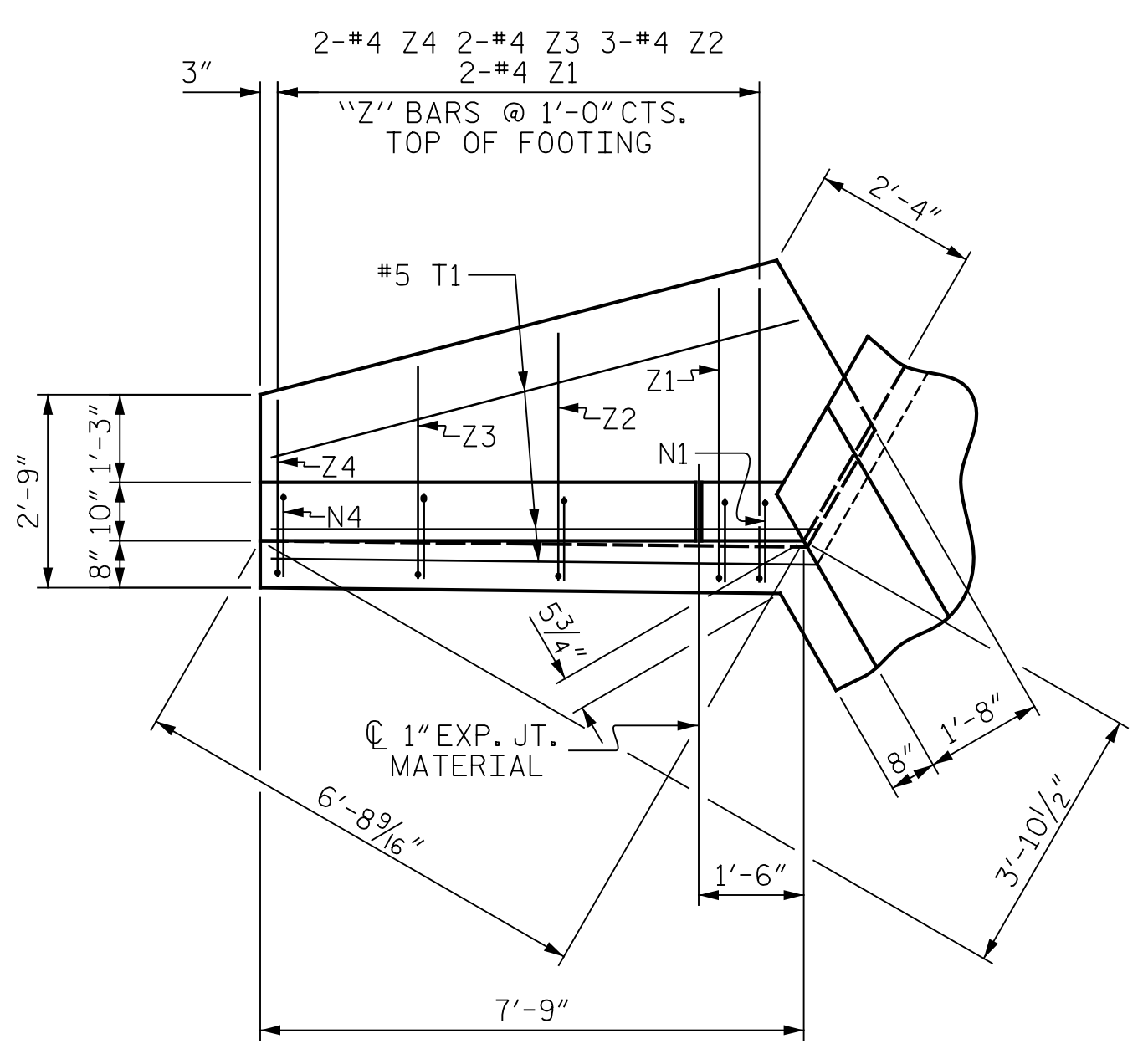
DRAWN BY : T.J. KIRSCHBAUM DATE : 1/9/15
 CHECKED BY : R.F. WERTMAN DATE : 1/26/15
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 1/26/15

PLANS PREPARED BY:
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 Suite 102
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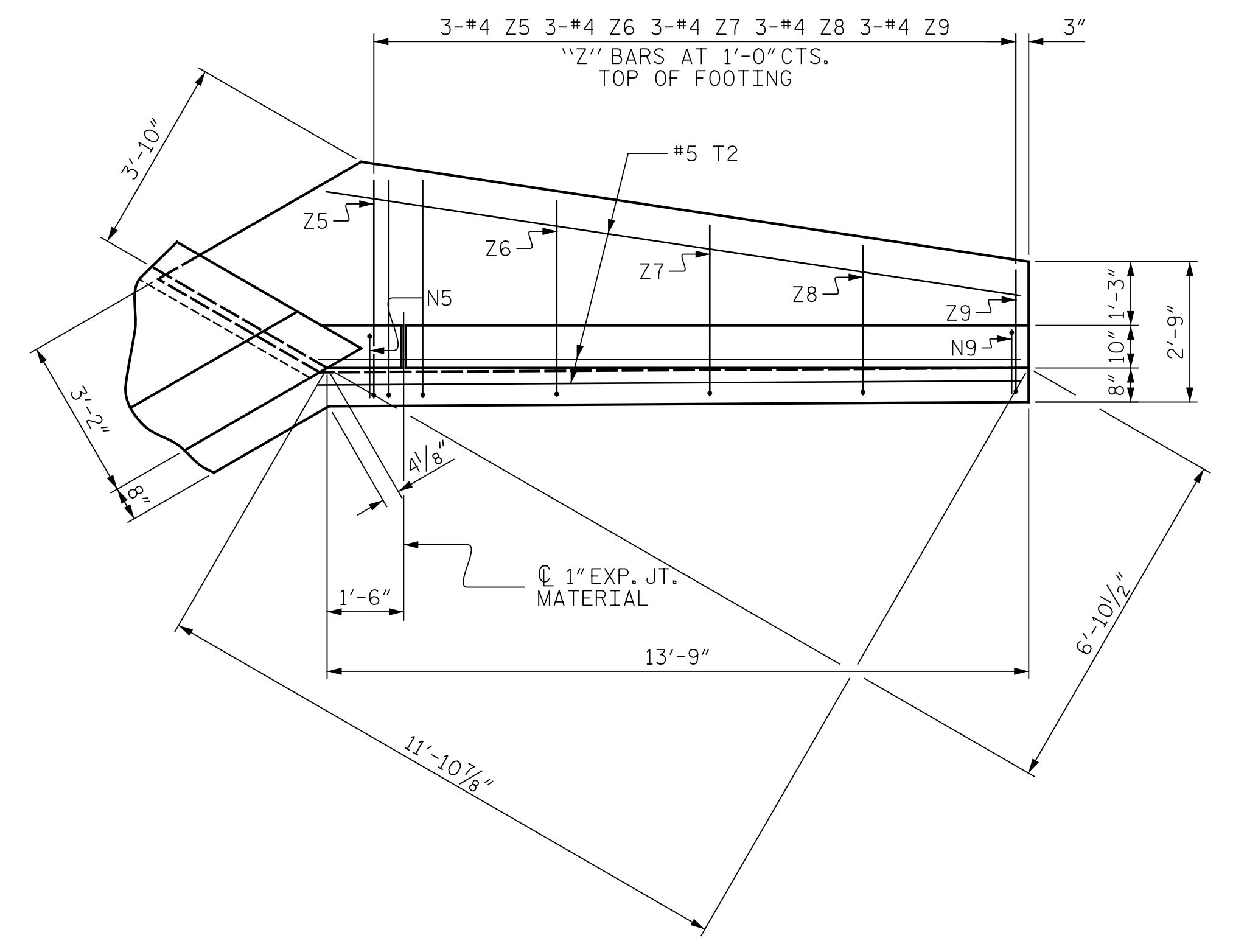
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REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

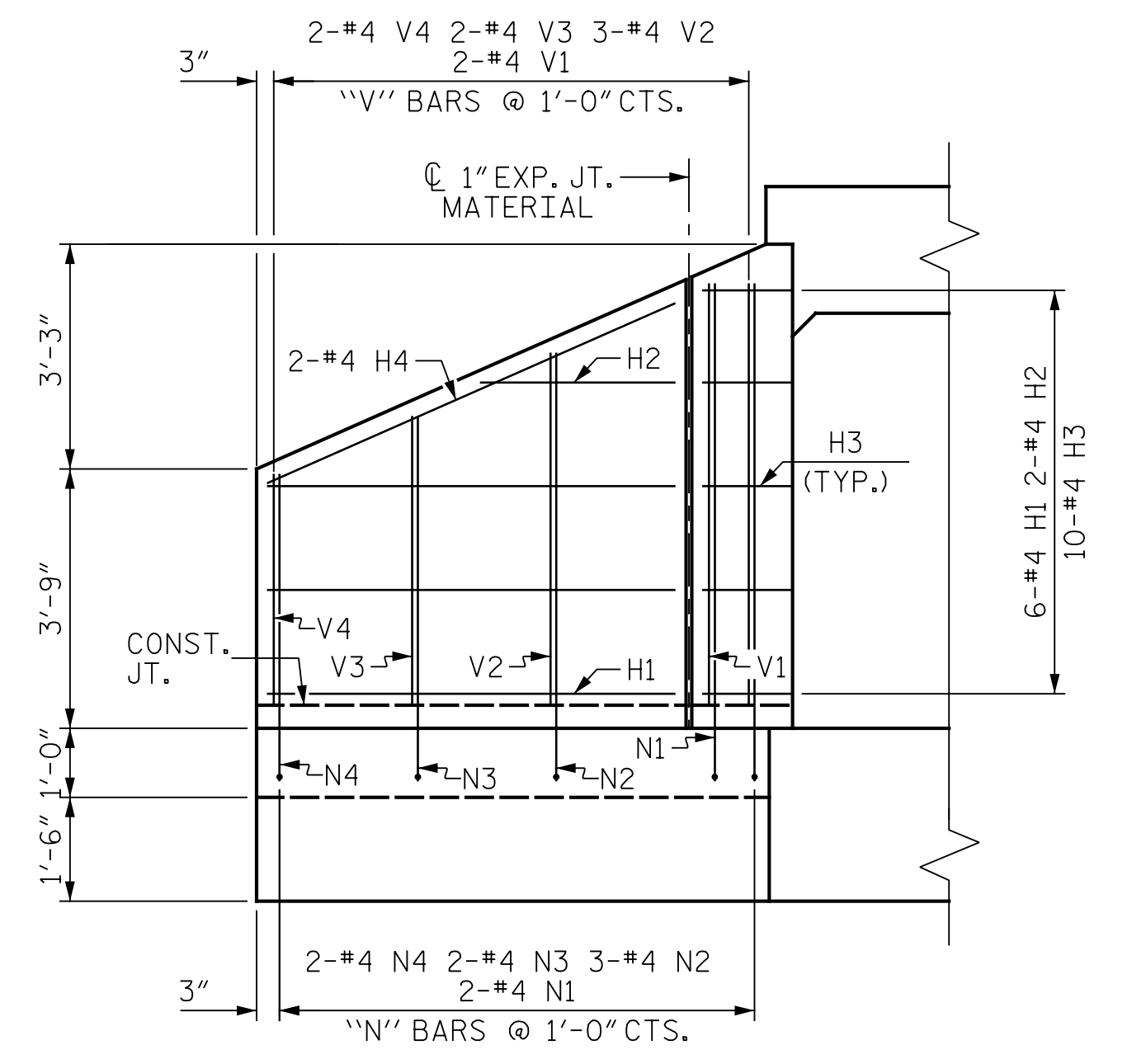
TOTAL SHEETS 10



PLAN W2

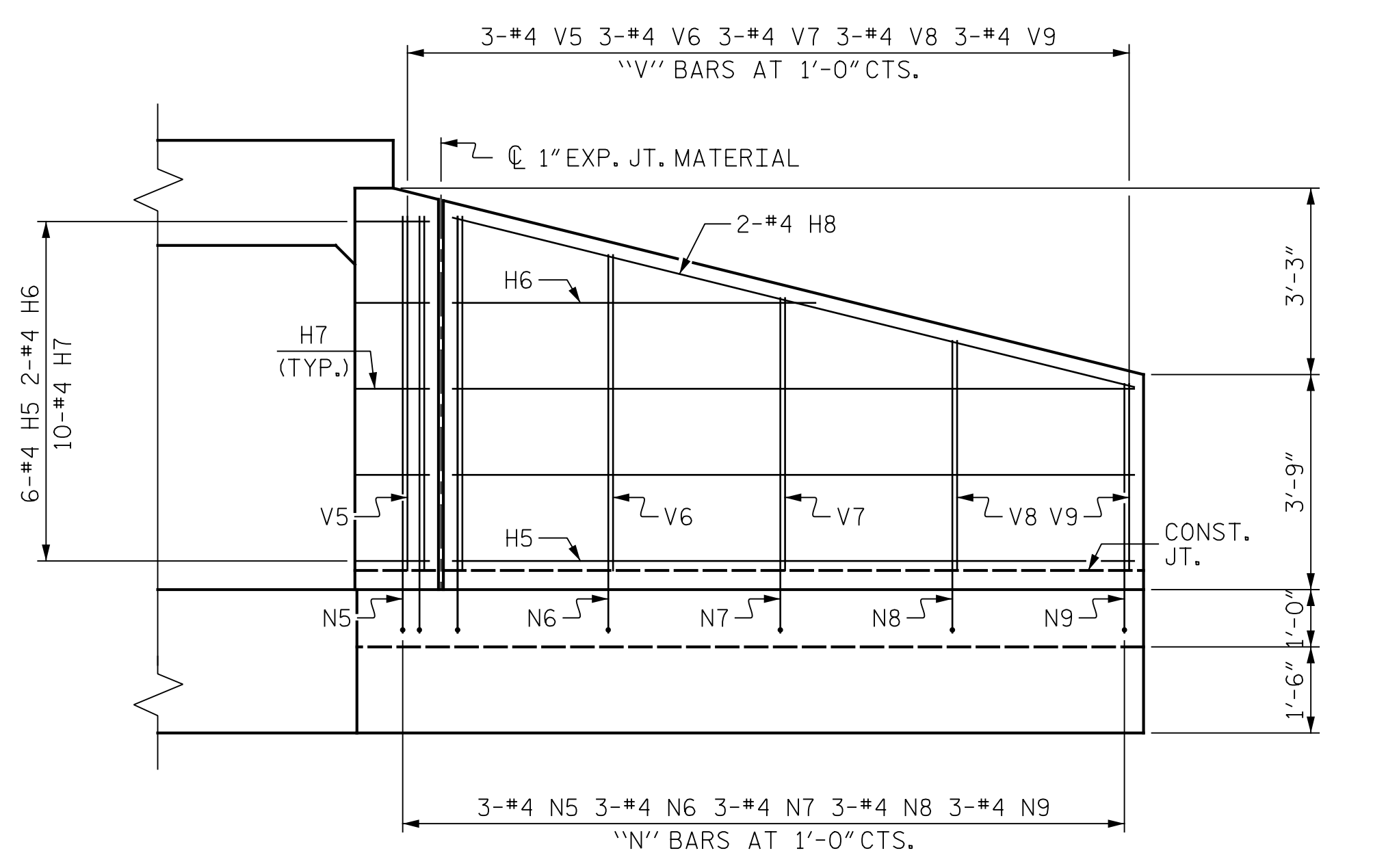


PLAN W1

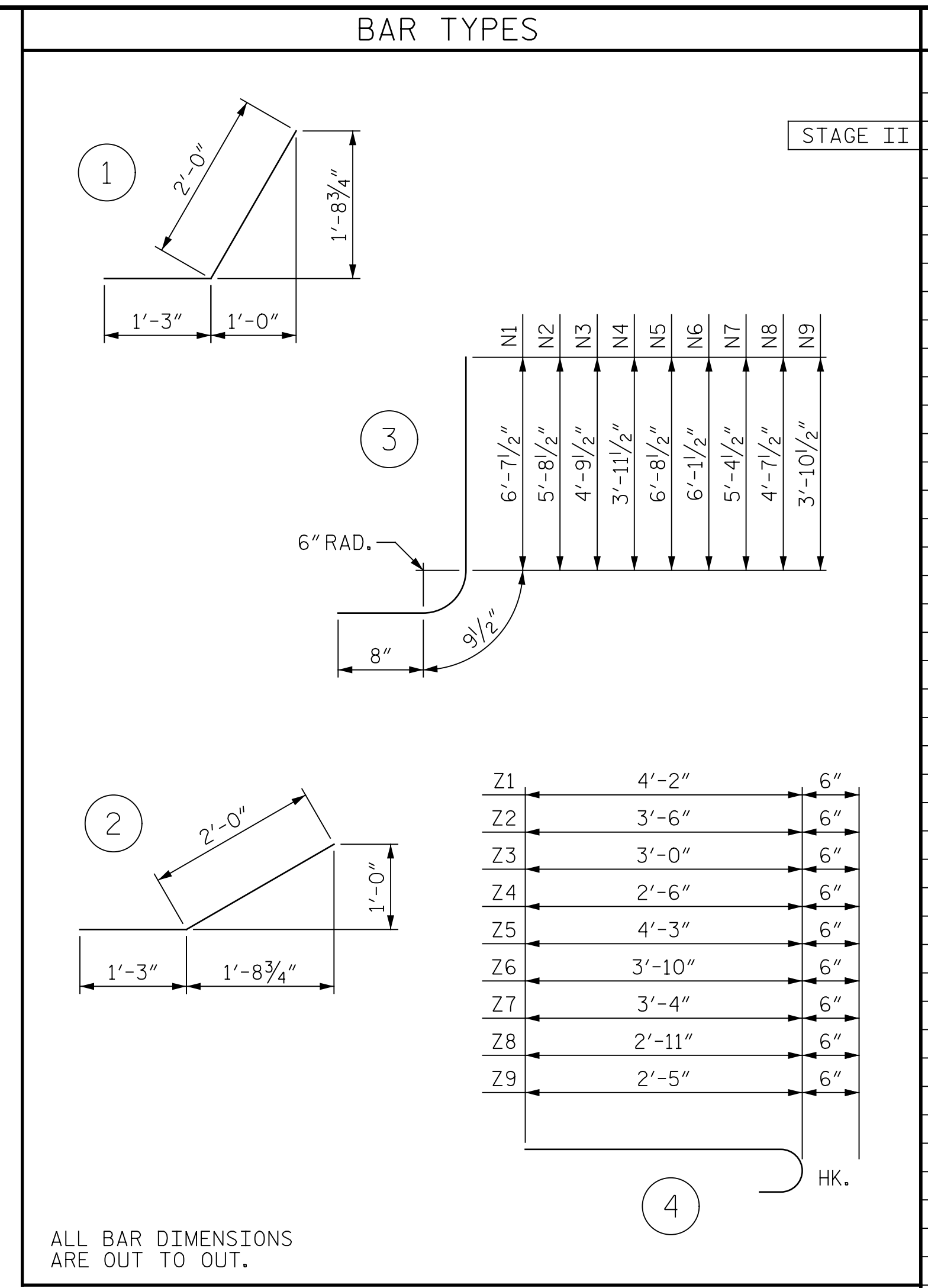


ELEVATION W2

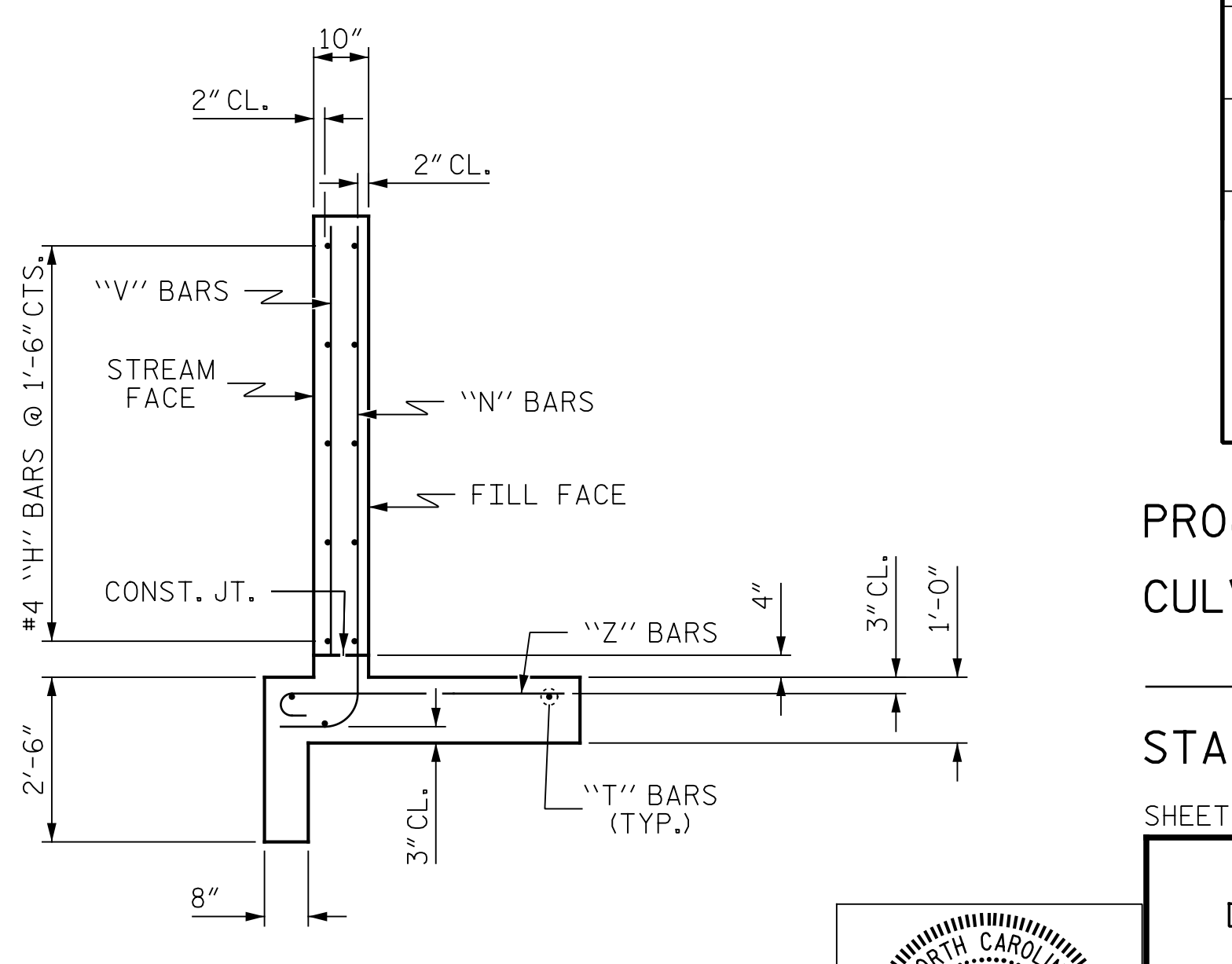
* FOR 15" Ø R.C. PIPE LOCATION
SEE DETAILS ON SHEETS C314-4 & C314-7



ELEVATION W1



ALL BAR DIMENSIONS ARE OUT TO OUT.

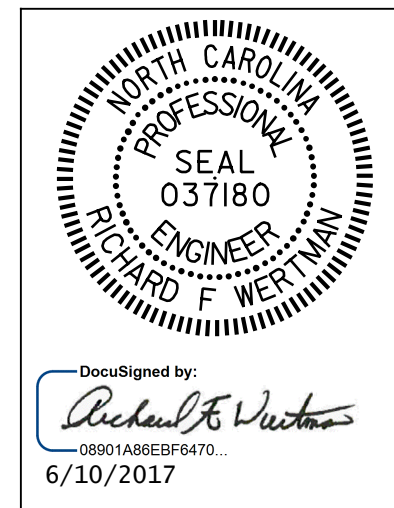


TYPICAL WING SECTION

BILL OF MATERIAL					
EACH STAGE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
E1	16	#5	STR	3'-8"	61
H1	6	#4	STR	5'-10"	23
H2	2	#4	STR	2'-9"	4
H3	10	#4	1	3'-3"	22
H4	2	#4	STR	6'-5"	9
H5	6	#4	STR	11'-10"	47
H6	2	#4	STR	6'-3"	8
H7	10	#4	2	3'-3"	22
H8	2	#4	STR	12'-2"	16
N1	2	#4	3	8'-1"	11
N2	3	#4	3	7'-2"	14
N3	2	#4	3	6'-3"	8
N4	2	#4	3	5'-5"	7
N5	3	#4	3	8'-2"	16
N6	3	#4	3	7'-7"	15
N7	3	#4	3	6'-10"	14
N8	3	#4	3	6'-1"	12
N9	3	#4	3	5'-4"	11
T1	3	#5	STR	7'-9"	24
T2	3	#5	STR	13'-9"	43
V1	2	#4	STR	6'-1"	8
V2	3	#4	STR	5'-1"	10
V3	2	#4	STR	4'-2"	6
V4	2	#4	STR	3'-4"	4
V5	3	#4	STR	6'-2"	12
V6	3	#4	STR	5'-6"	11
V7	3	#4	STR	4'-9"	10
V8	3	#4	STR	4'-0"	8
V9	3	#4	STR	3'-3"	7
Z1	2	#4	4	4'-8"	6
Z2	3	#4	4	4'-0"	8
Z3	2	#4	4	3'-6"	5
Z4	2	#4	4	3'-0"	4
Z5	3	#4	4	4'-9"	10
Z6	3	#4	4	4'-4"	9
Z7	3	#4	4	3'-10"	8
Z8	3	#4	4	3'-5"	7
Z9	3	#4	4	2'-11"	6
REINFORCING STEEL FOR 2 WINGS (STAGE I)				465	LBS
REINFORCING STEEL FOR 2 WINGS (STAGE II)				526	LBS
CLASS A CONCRETE					
2 WINGS				7.2	CY
1 HEADWALL				1.2	CY
2 EDGE BEAMS				2.0	CY
1 END CURTAIN WALL				1.8	CY
TOTAL				12.2	CY

PROJECT NO. 17BP.14.R.44
 CULVERT #440314
 HENDERSON COUNTY
 STATION: 13+14.00 -L-

SHEET 10 OF 10



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD WINGS FOR CONCRETE BOX CULVERT
 H = 5'-6" SLOPE = 2:1
 115° SKEW

ASSEMBLED BY : T.J. KIRSCHBAUM	DATE : 1/9/15
CHECKED BY : R.F. WERTMAN	DATE : 1/29/15
DRAWN BY : CCJ	11/99
CHECKED BY : RWW	03/00

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 2610 Wycliff Road, Suite 102, Raleigh, NC 27607-3073
 (919) 420-7660
 INC Lic. No. F-0270

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SHEET NO. C-10
 TOTAL SHEETS 10

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990