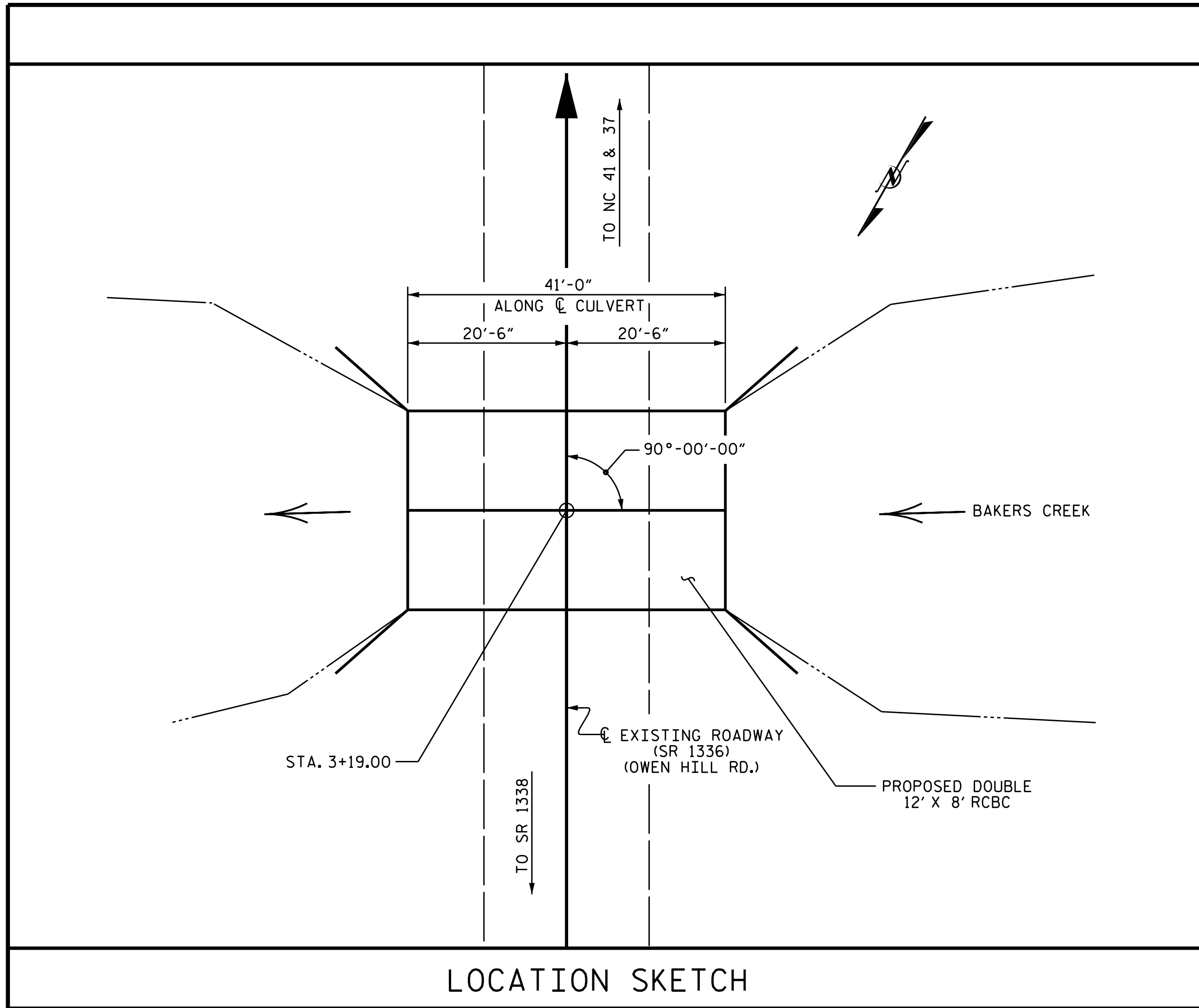


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LOCATION SKETCH

**NOTES**

ASSUMED LIVE LOAD-----HL-93 OR ALTERNATE LOADING.

DESIGN FILL: 9.00' MAX.  
3.35' MIN.

PROVIDED LENGTH OF CULVERT 41'-0" IS GOOD ONLY FOR MIN. FILL DEPTH OF 3.35'; IF FILL DEPTH NEEDS TO BE INCREASED, CULVERT LENGTH ALSO NEEDS TO BE INCREASED ACCORDINGLY.

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

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.

THE EXISTING STRUCTURE CONSISTING OF A REINFORCED CONCRETE CULVERT, 2 @ 12 FT.(W) X 8 FT.(D) SIZE, 41.0 FT. LONG AND LOCATED AT THE PROPOSED STRUCTURE, SHALL BE REMOVED.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

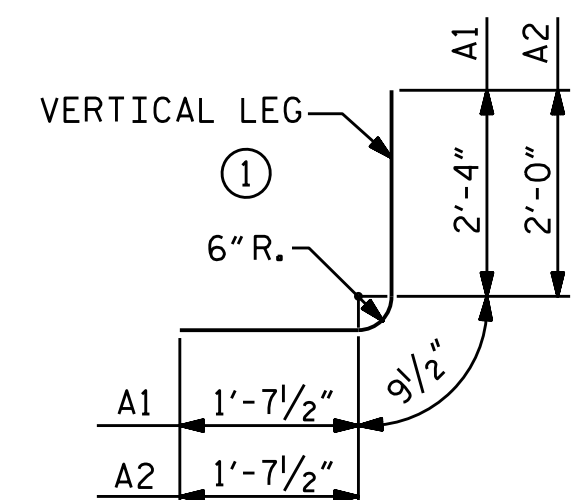
BENCH MARK INFORMATION SHALL TO BE DETERMINED IN THE FIELD.

**BILL OF MATERIAL**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A100	82	#5	STR	25'-7"	2188
A200	82	#5	STR	25'-7"	2188
A300	82	#5	STR	25'-7"	2188
A400	82	#5	STR	25'-7"	2188
A1	164	#4	1	4'-9"	520
A2	164	#4	1	4'-5"	484
B1	82	#4	STR	9'-7"	525
B2	164	#4	STR	7'-4"	803
B3	82	#4	STR	9'-7"	525
C1	184	#4	STR	21'-5"	2632
G1	8	#5	STR	25'-8"	214

REINFORCING STEEL 14,455 LBS

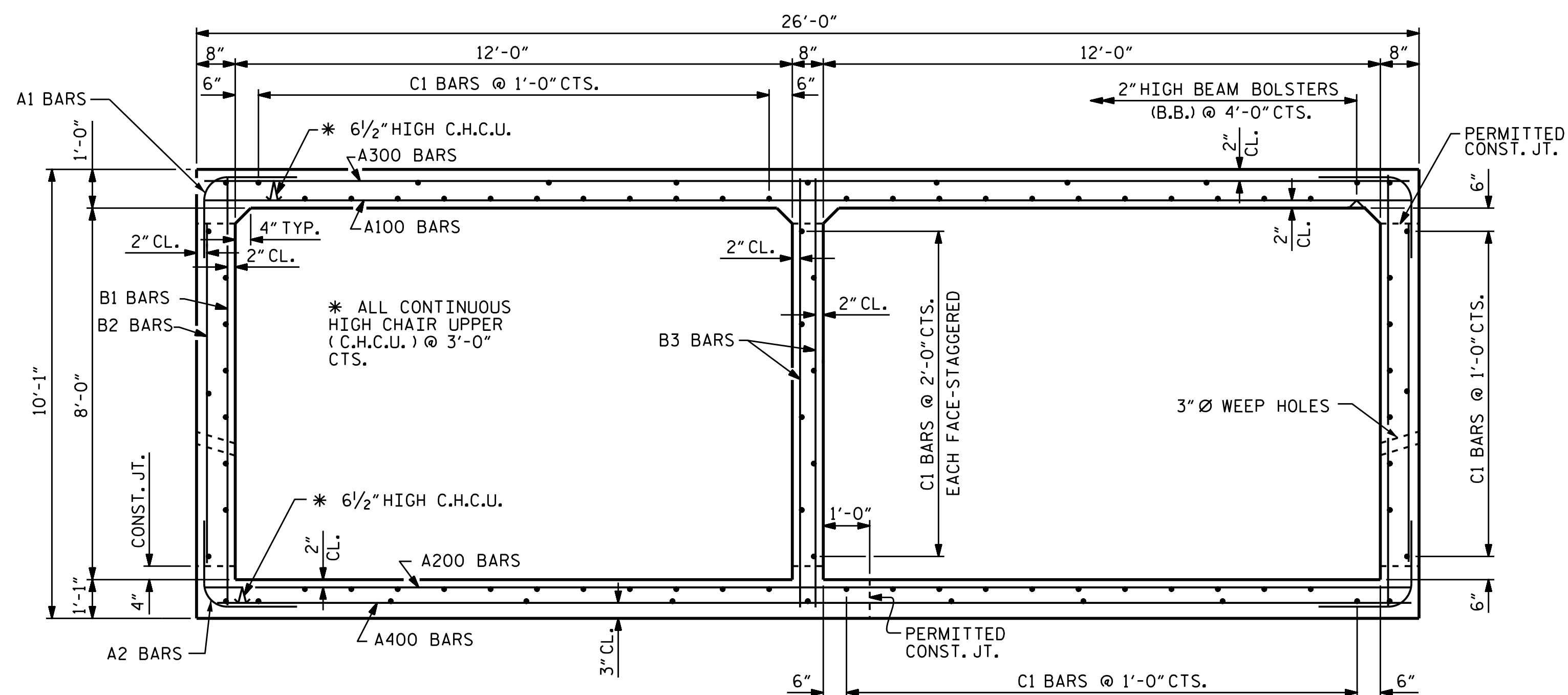
**BAR TYPES**



BAR DIMENSIONS ARE OUT TO OUT

**SPLICE LENGTH CHART**

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



RIGHT ANGLE SECTION OF BARREL

THERE ARE 92 "C" BARS IN SECTION OF BARREL.

**TOTAL STRUCTURE QUANTITIES**

CLASS A CONCRETE	
BARREL @ 2.607 CY/FT	106.9 C.Y.
WING ETC.	26.7 C.Y.
TOTAL	133.6 C.Y.
REINFORCING STEEL	
BARREL	14,455 LBS.
WINGS ETC.	1,453 LBS.
TOTAL	15,908 LBS.
FOUNDATION CONDITIONING MATERIAL	75 TONS
CULVERT EXCAVATION	LUMP SUM
REMOVAL OF EXISTING STRUCTURE	LUMP SUM

PROJECT NO. 009-071

BLADEN COUNTY

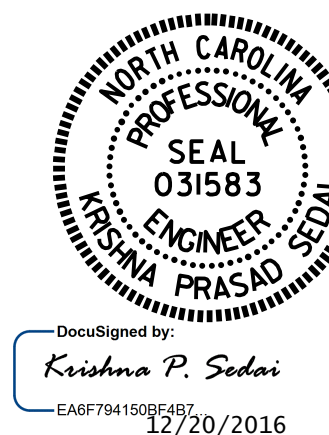
STATION: 3+19.00

SHEET 1 OF 5

REPLACES BRIDGE #7

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DOUBLE 12 FT. X 8 FT.  
CONCRETE BOX CULVERT  
90° SKEW



DRAWN BY : M.K. BEARD DATE : 12/16  
CHECKED BY : K. P. SEDAI DATE : 12/16  
DESIGN ENGINEER OF RECORD: M. M. AHMED DATE : 12/16

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			5

## 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		
						MOMENT				SHEAR						
						LIVE-LOAD FACTORS (LL)	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	1.01	--	1.75	1.77	1	Top Slab	5.38	1.01	1	Top Slab	11.61		
	HL-93 (OPERATING)	N/A		1.31	--	1.35	2.30	1	Top Slab	5.38	1.31	1	Top Slab	11.61		
	HS-20 (INVENTORY)	36.000	②	1.04	37.49	1.75	1.88	1	Bottom Slab	11.72	1.04	1	Bottom Slab	11.55		
	HS-20 (OPERATING)	36.000		1.35	48.60	1.35	2.44	1	Bottom Slab	11.72	1.35	1	Bottom Slab	11.55		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.46	33.17	1.40	4.56	1	Top Slab	5.38	2.46	1	Top Slab	11.61	
		SNGARBS2	20.000		2.08	41.63	1.40	3.66	1	Bottom Slab	11.72	2.08	1	Bottom Slab	11.55	
		SNAGRIS2	22.000		1.91	41.95	1.40	3.42	1	Bottom Slab	11.72	1.91	1	Bottom Slab	11.55	
		SNCOTTS3	27.250		1.25	34.10	1.40	2.21	1	Top Slab	5.38	1.25	1	Top Slab	11.61	
		SNAGGRS4	34.925		1.25	43.52	1.40	2.15	1	Bottom Slab	11.72	1.25	1	Bottom Slab	11.55	
		SNS5A	35.550		1.25	44.37	1.40	2.15	1	Bottom Slab	11.72	1.25	1	Top Slab	11.61	
		SNS6A	39.950		1.21	48.21	1.40	2.08	1	Bottom Slab	11.72	1.21	1	Bottom Slab	11.55	
		SNS7B	42.000		1.16	48.90	1.40	2.06	1	Bottom Slab	11.72	1.16	1	Bottom Slab	11.55	
	TRUCK TRACTOR SEMI-TRAILER (TTS1)	TNAGRIT3	33.000		1.40	46.06	1.40	2.54	1	Bottom Slab	11.72	1.40	1	Bottom Slab	11.55	
		TNT4A	33.075		1.48	48.99	1.40	2.51	1	Bottom Slab	11.72	1.48	1	Bottom Slab	11.55	
		TNT6A	41.600		1.26	52.31	1.40	2.32	1	Bottom Slab	11.72	1.26	1	Top Slab	11.61	
		TNT7A	42.000		1.24	52.23	1.40	2.25	1	Bottom Slab	11.72	1.24	1	Bottom Slab	11.55	
		TNT7B	42.000		1.34	56.23	1.40	2.27	1	Bottom Slab	11.72	1.34	1	Bottom Slab	11.55	
		TNAGRIT4	43.000		1.16	49.99	1.40	2.04	1	Bottom Slab	11.72	1.16	1	Bottom Slab	11.55	
TNAGT5A	45.000		1.12	50.52	1.40	2.00	1	Bottom Slab	11.72	1.12	1	Bottom Slab	11.55			
TNAGT5B	45.000		③	1.04	46.87	1.40	1.88	1	Bottom Slab	11.72	1.04	1	Bottom Slab	11.55		

### LOAD FACTORS:

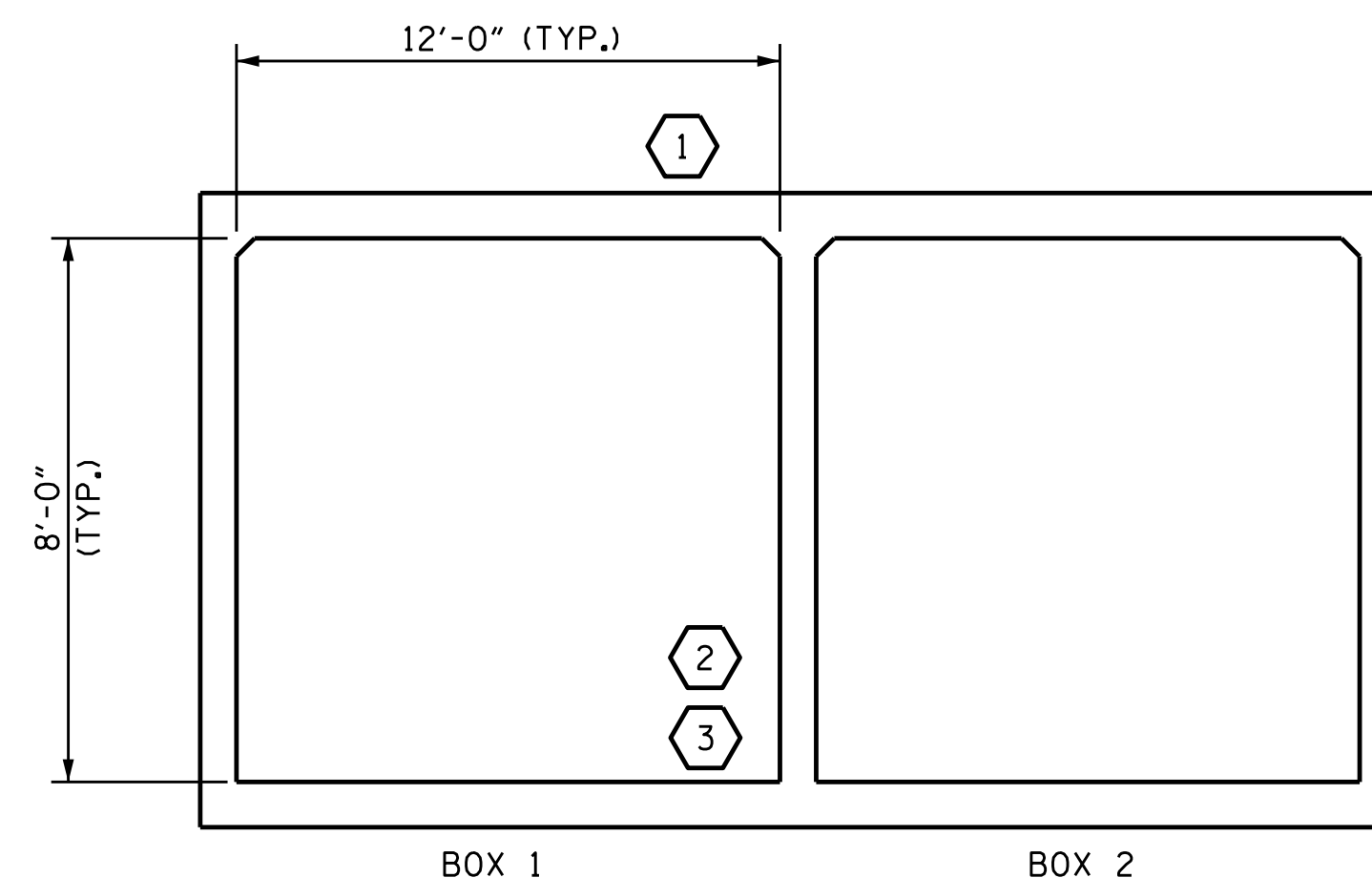
#### DESIGN LOAD RATING FACTORS

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.

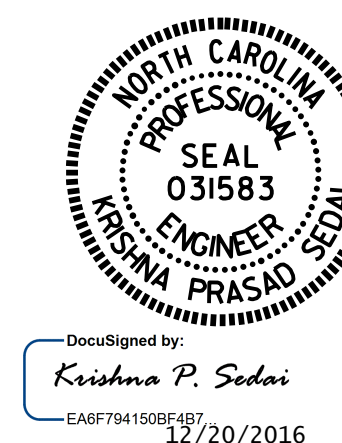
#	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	



**LRFR SUMMARY**  
(LOOKING DOWNSTREAM)

PROJECT NO. 009-071  
BLADEN COUNTY  
STATION: 3+19.00

SHEET 2 OF 5

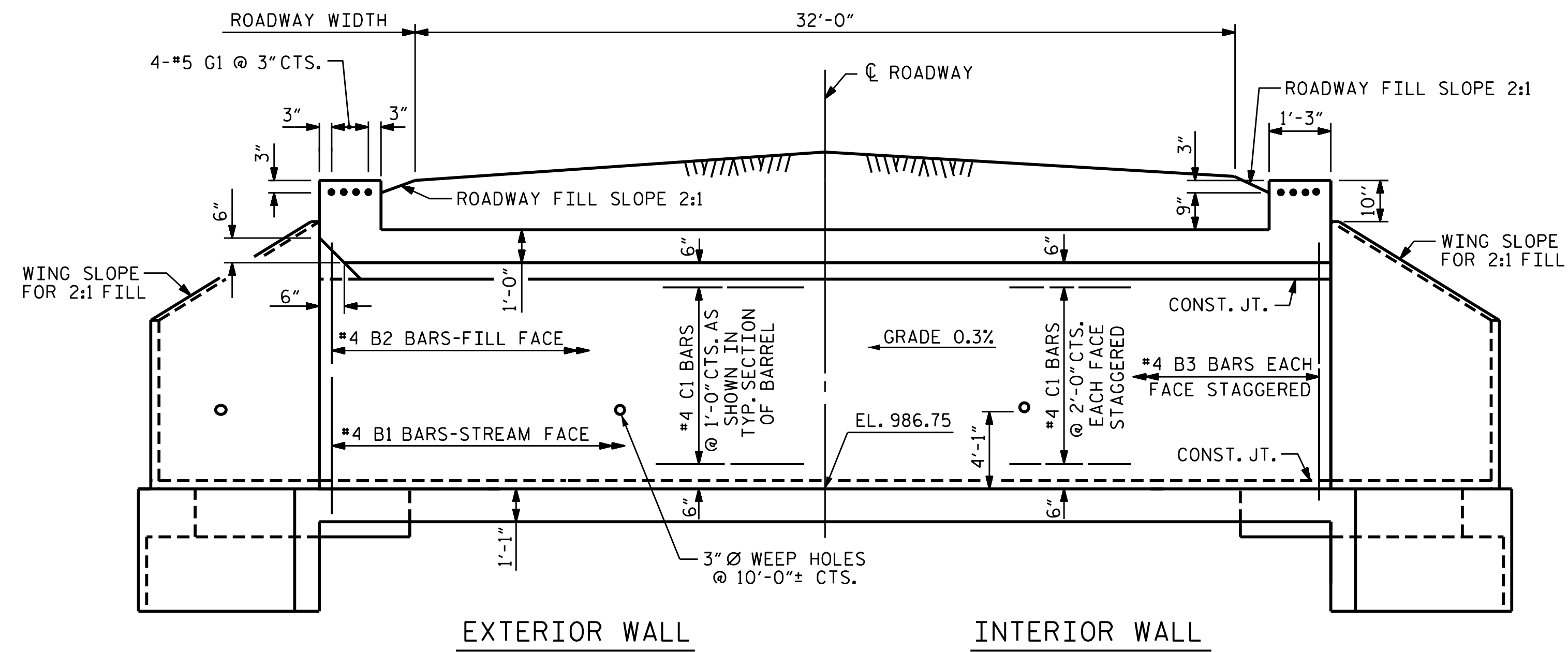


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**STANDARD  
LRFR SUMMARY FOR  
REINFORCED CONCRETE  
BOX CULVERTS  
(NON-INTERSTATE TRAFFIC)**

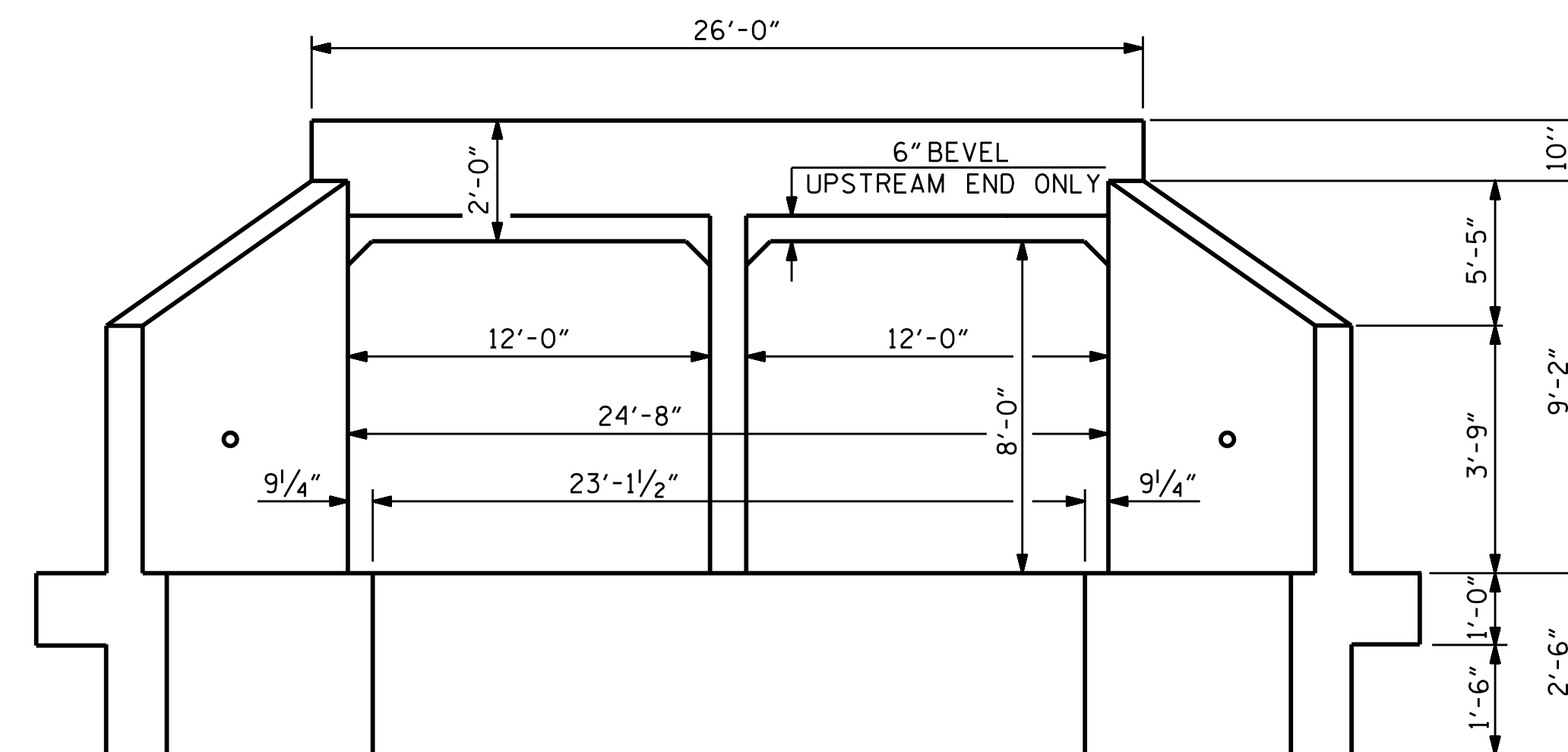
DRAWN BY : M. M. AHMED DATE : 11/23/16  
CHECKED BY : K. P. SEDAI DATE : 12/16/16  
DESIGN ENGINEER OF RECORD: M. M. AHMED DATE : 12/16/16

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SIGNATURES COMPLETED

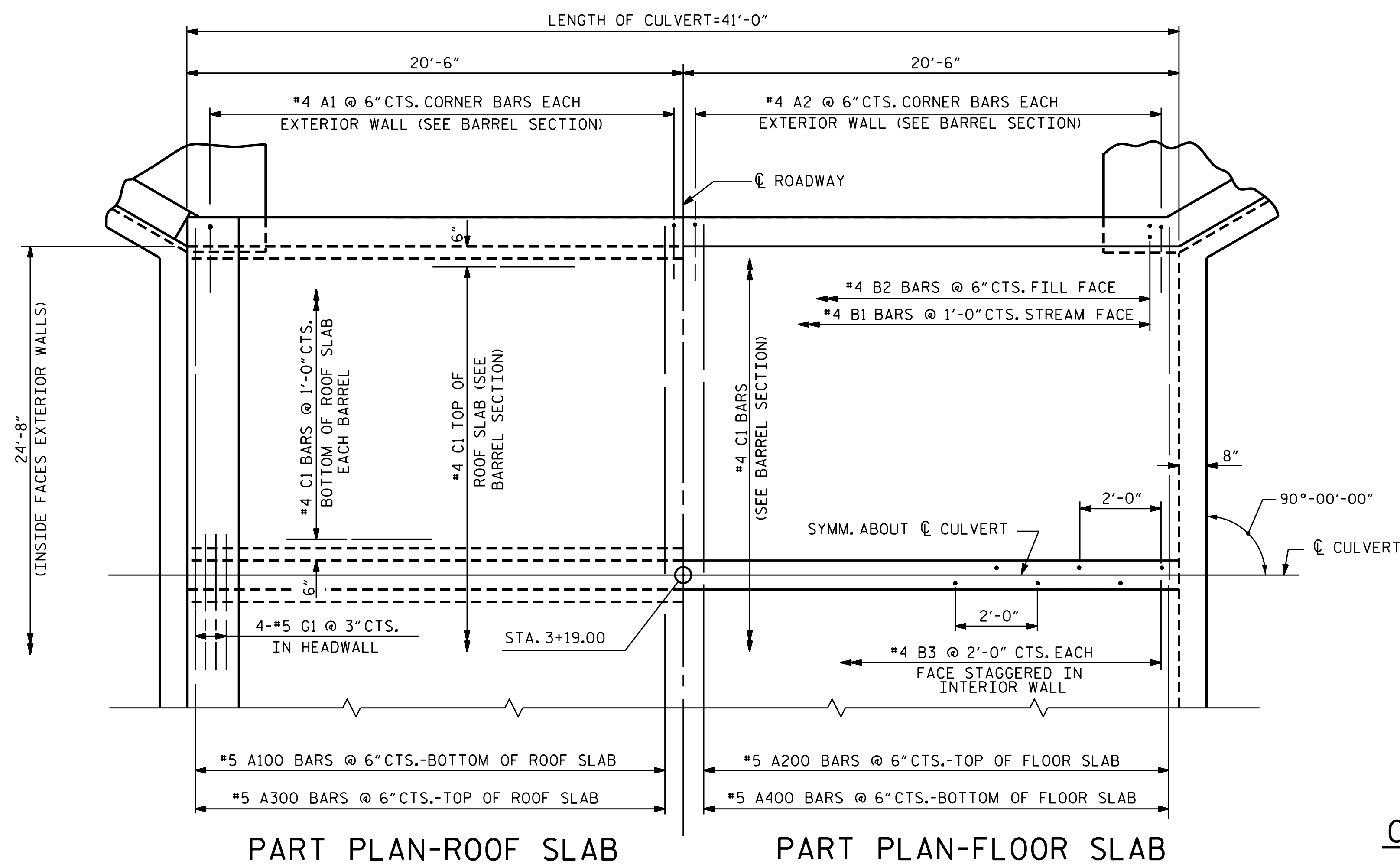
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			5



**CULVERT SECTION NORMAL TO ROADWAY**

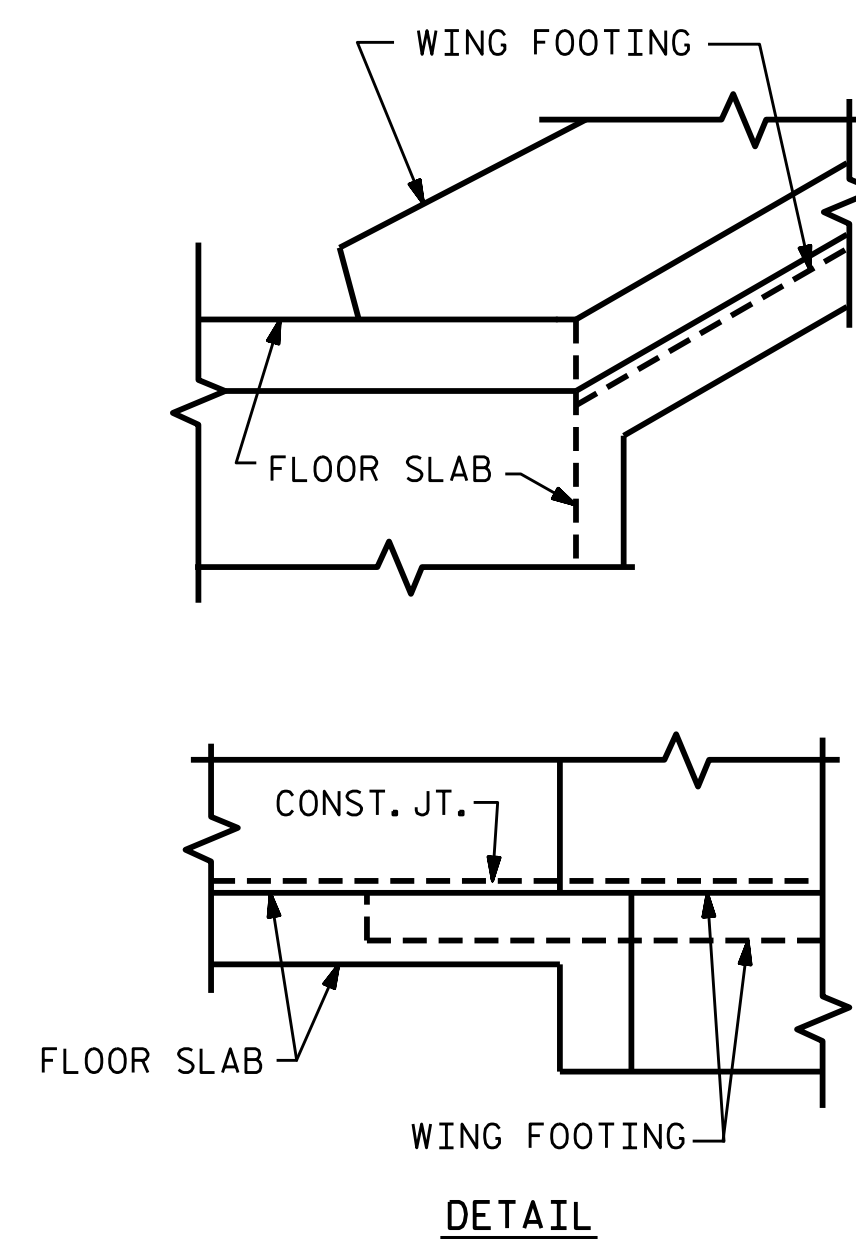


**END ELEVATION**



**PART PLAN-ROOF SLAB**

**PART PLAN-FLOOR SLAB**



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

PROJECT NO. 009-071  
BLADEN COUNTY  
 STATION: 3+19.00

SHEET 3 OF 5



DocuSigned by:  
 Krishna P. Sedai  
 EA6F7941509F497  
 12/20/2016

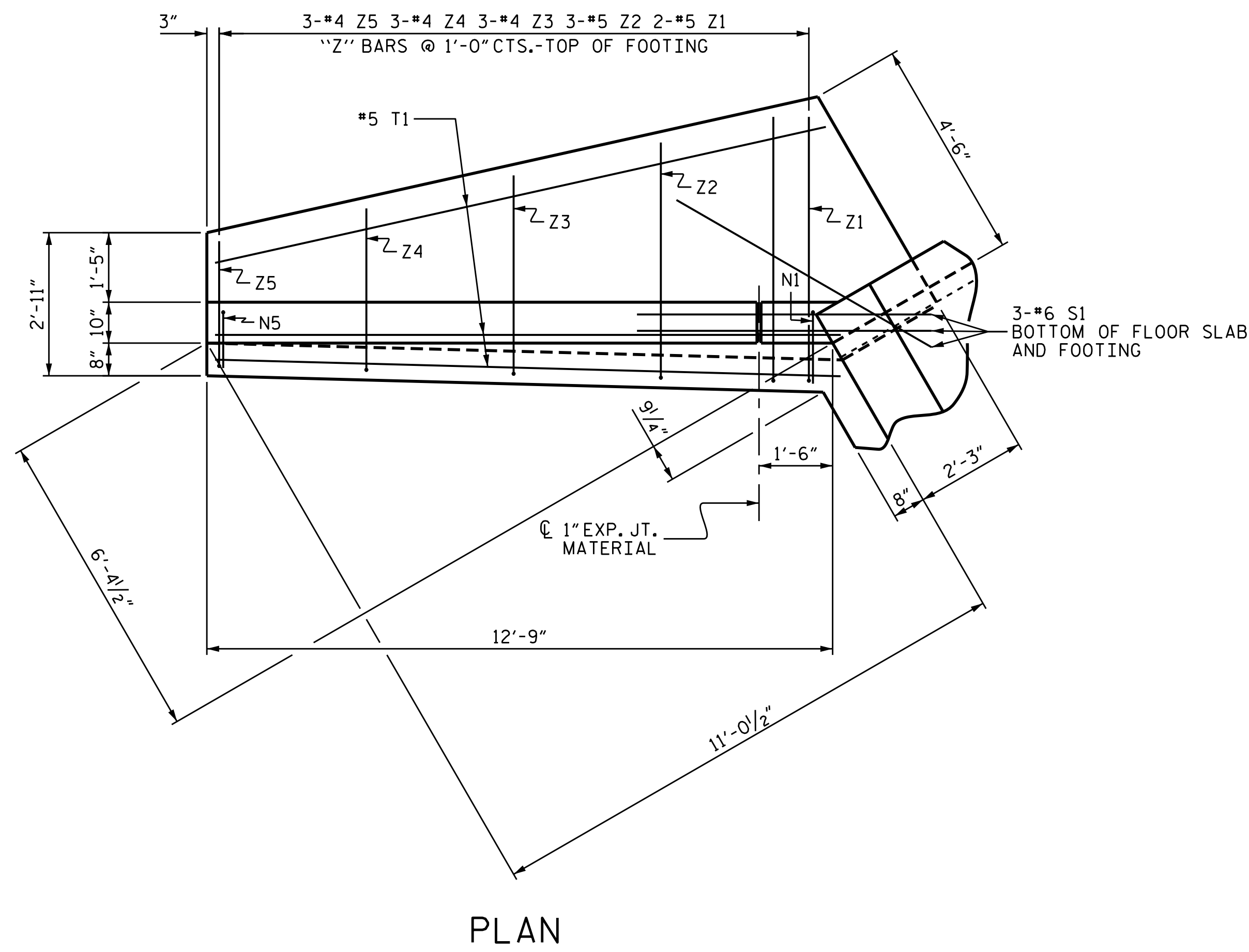
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BARREL STANDARD  
 DOUBLE 12 FT. X 8 FT.  
 CONCRETE BOX CULVERT  
 90° SKEW**

1971

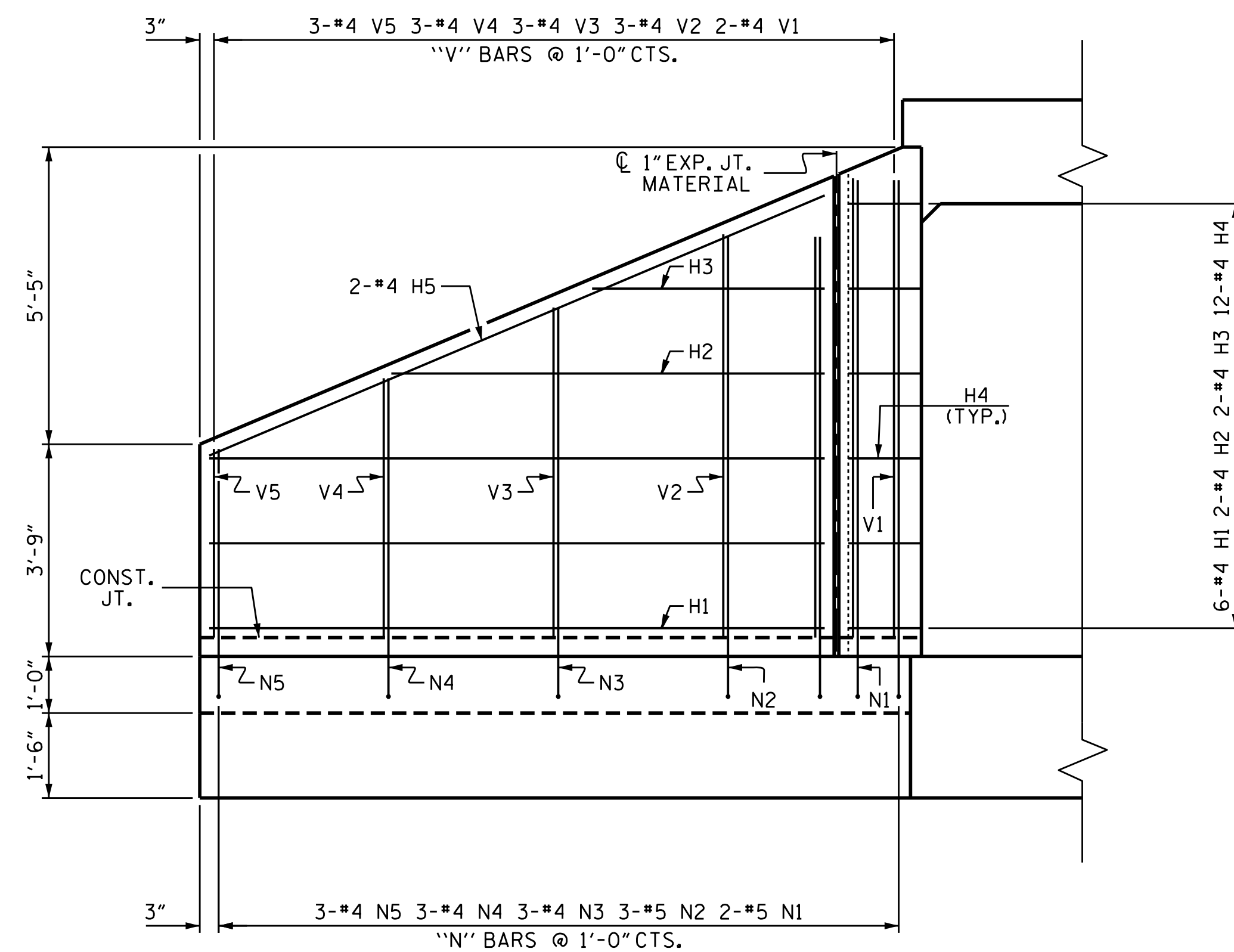
DRAWN BY : M.K. BEARD DATE : 12/16  
 CHECKED BY : K.P. SEDAI DATE : 12/16  
 DESIGN ENGINEER OF RECORD : M.M. AHMED DATE : 12/16

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

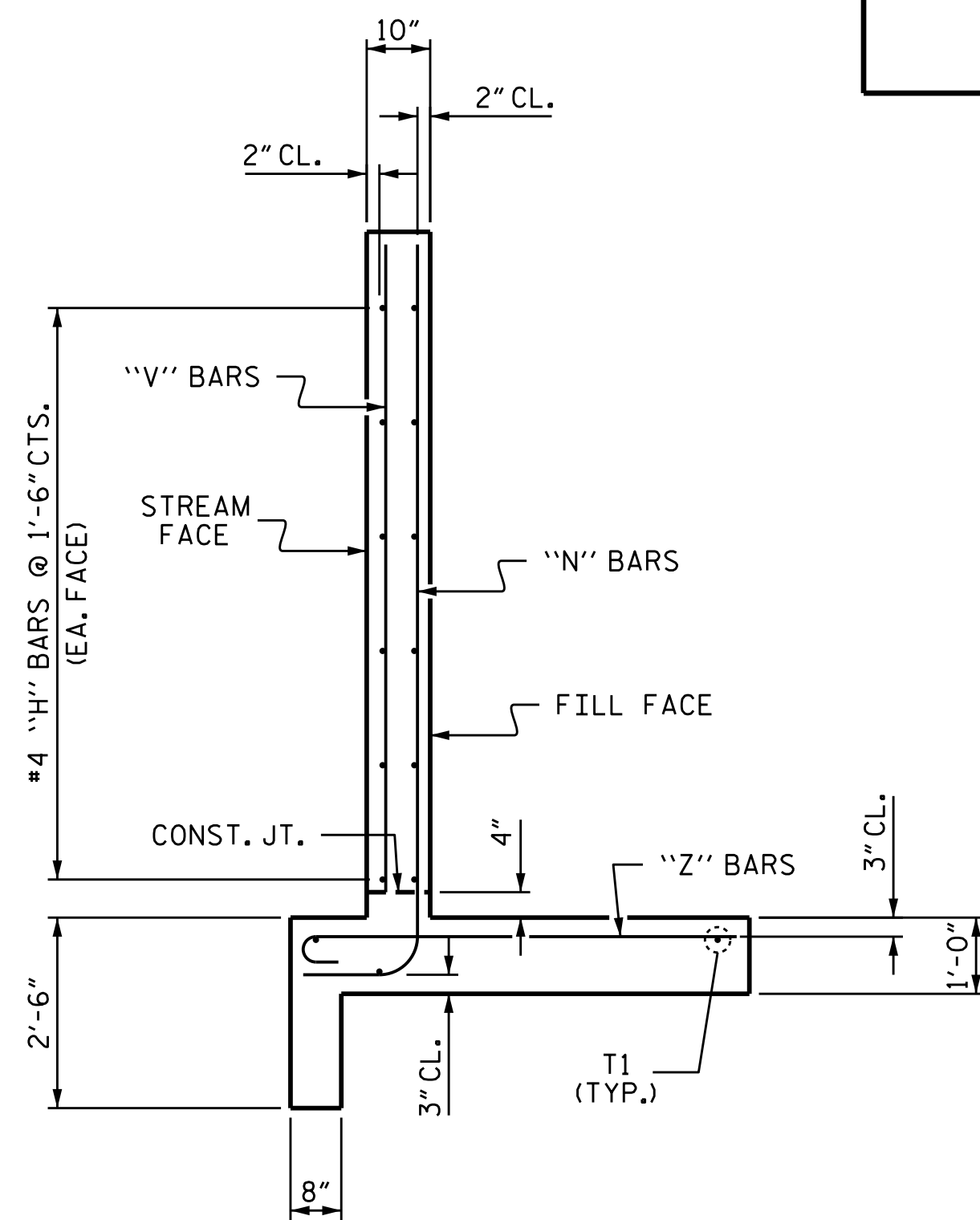
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NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			5



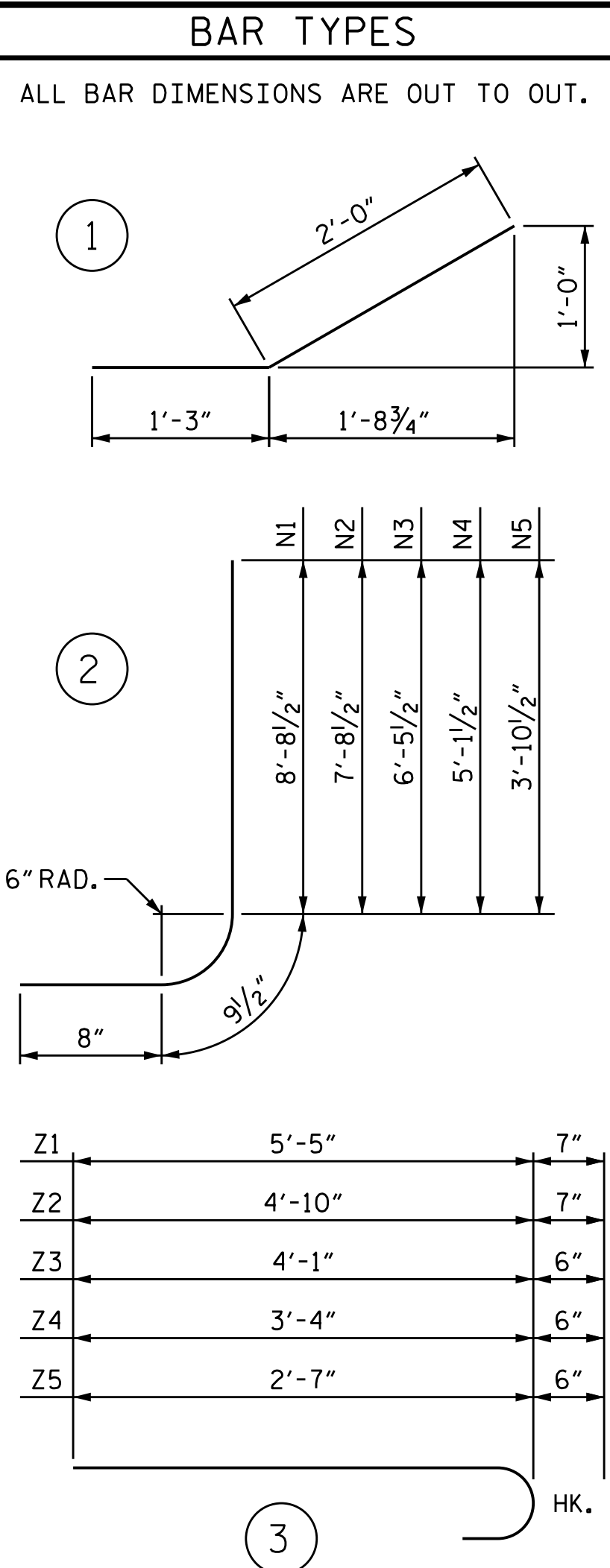
PLAN



ELEVATION



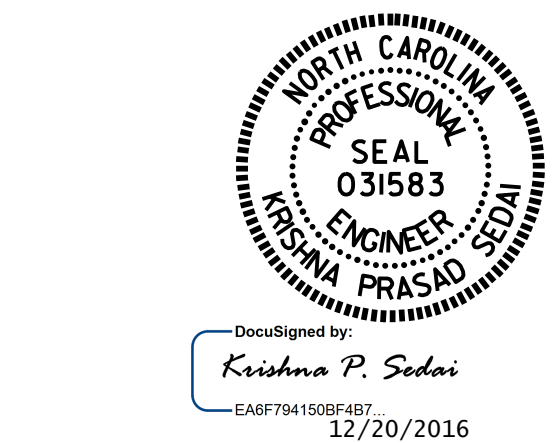
TYPICAL WING SECTION



BAR TYPES				BILL OF MATERIAL		
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
H1	24	#4	STR	10'-10"	174	
H2	8	#4	STR	7'-8"	41	
H3	8	#4	STR	4'-1"	22	
H4	48	#4	1	3'-3"	104	
H5	8	#4	STR	11'-9"	63	
N1	8	#5	2	10'-2"	85	
N2	12	#5	2	9'-2"	115	
N3	12	#4	2	7'-11"	63	
N4	12	#4	2	6'-7"	53	
N5	12	#4	2	5'-4"	43	
S1	12	#6	STR	6'-0"	108	
T1	12	#5	STR	12'-9"	160	
V1	8	#4	STR	8'-1"	43	
V2	12	#4	STR	7'-1"	57	
V3	12	#4	STR	5'-10"	47	
V4	12	#4	STR	4'-7"	37	
V5	12	#4	STR	3'-4"	27	
Z1	8	#5	3	6'-0"	50	
Z2	12	#5	3	5'-5"	68	
Z3	12	#4	3	4'-7"	37	
Z4	12	#4	3	3'-10"	31	
Z5	12	#4	3	3'-1"	25	

REINFORCING STEEL FOR 4 WINGS 1453 LBS  
 CLASS A CONCRETE  
 4 WINGS 21.4 CY  
 2 HEADWALLS 2.4 CY  
 2 END CURTAIN WALLS 2.9 CY  
 TOTAL 26.7 CY

DRAWN BY : M.K. BEARD DATE : 12/16  
 CHECKED BY : K. P. DESAI DATE : 12/16  
 DESIGN ENGINEER OF RECORD : M. M. AHMED DATE : 12/16



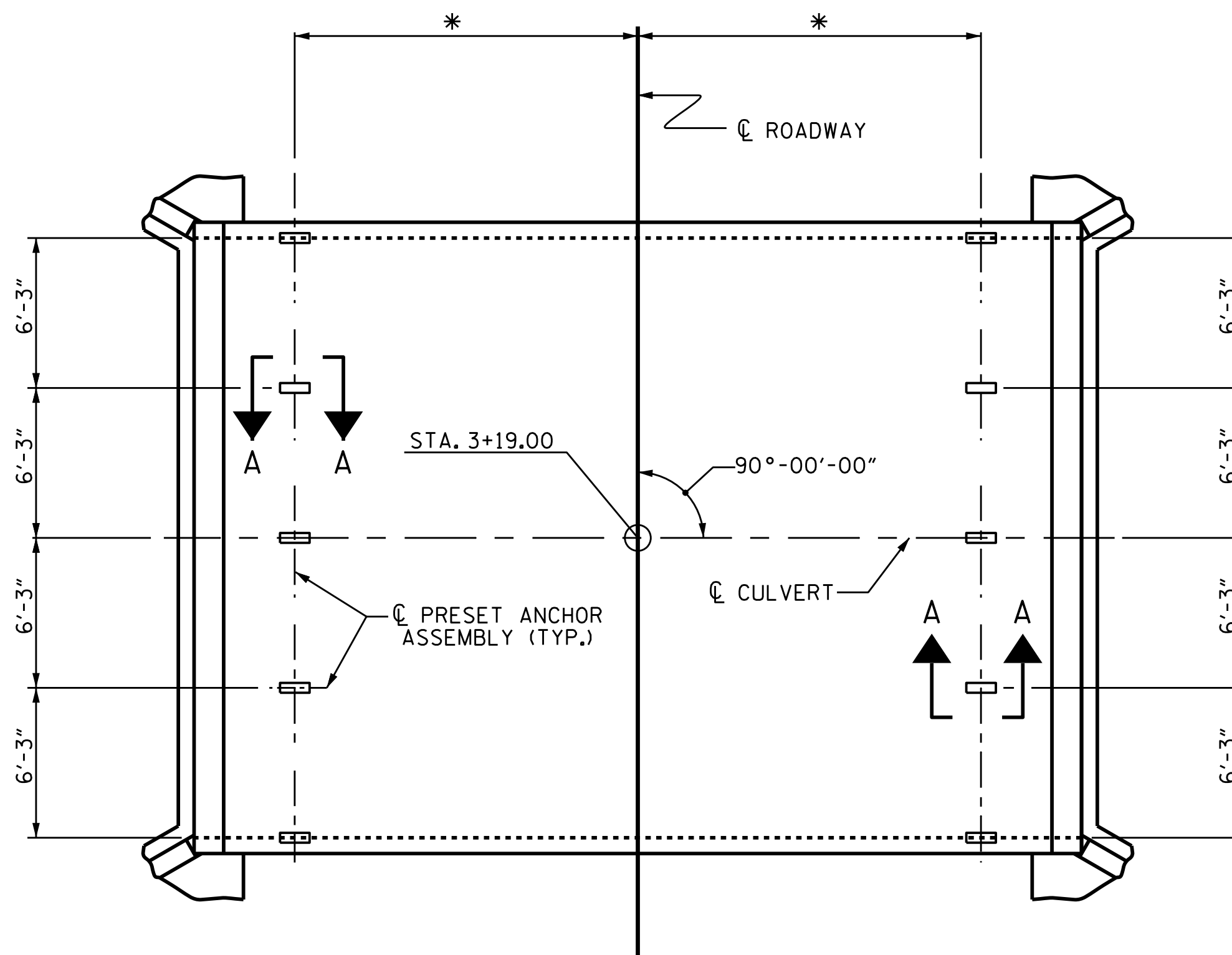
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PROJECT NO. 009-071  
 BLADEN COUNTY  
 STATION: 3+19.00

SHEET 4 OF 5  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**STANDARD WINGS FOR CONCRETE BOX CULVERT**  
 H = 8'-0" SLOPE = 2:1  
 90° SKEW

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

NOTES



\* THIS DIMENSION TO BE FURNISHED BY THE ENGINEER

- 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.

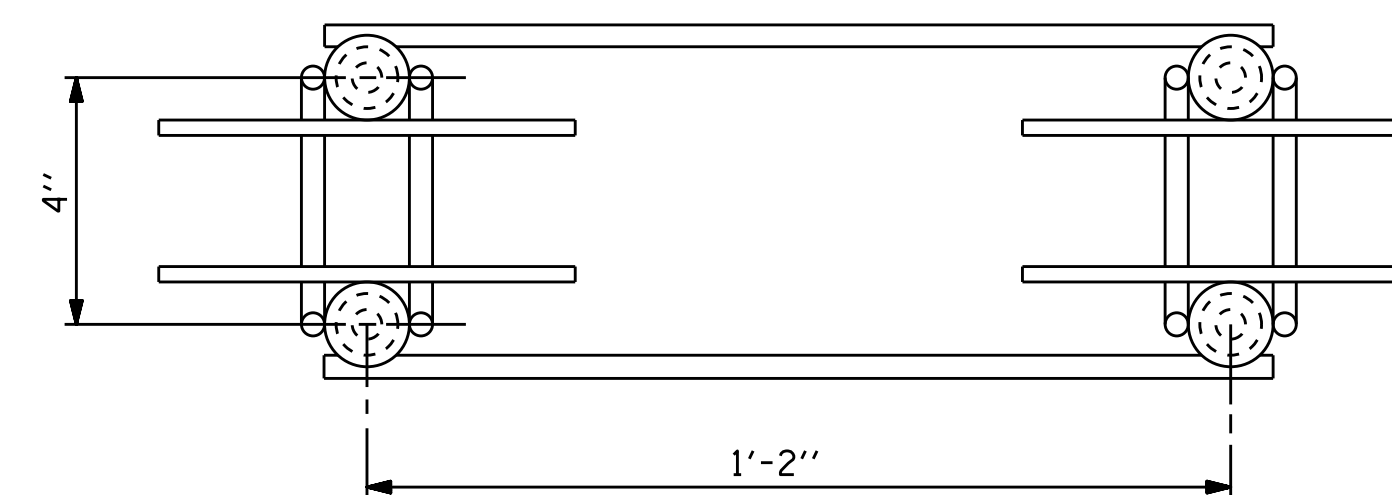
PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

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.

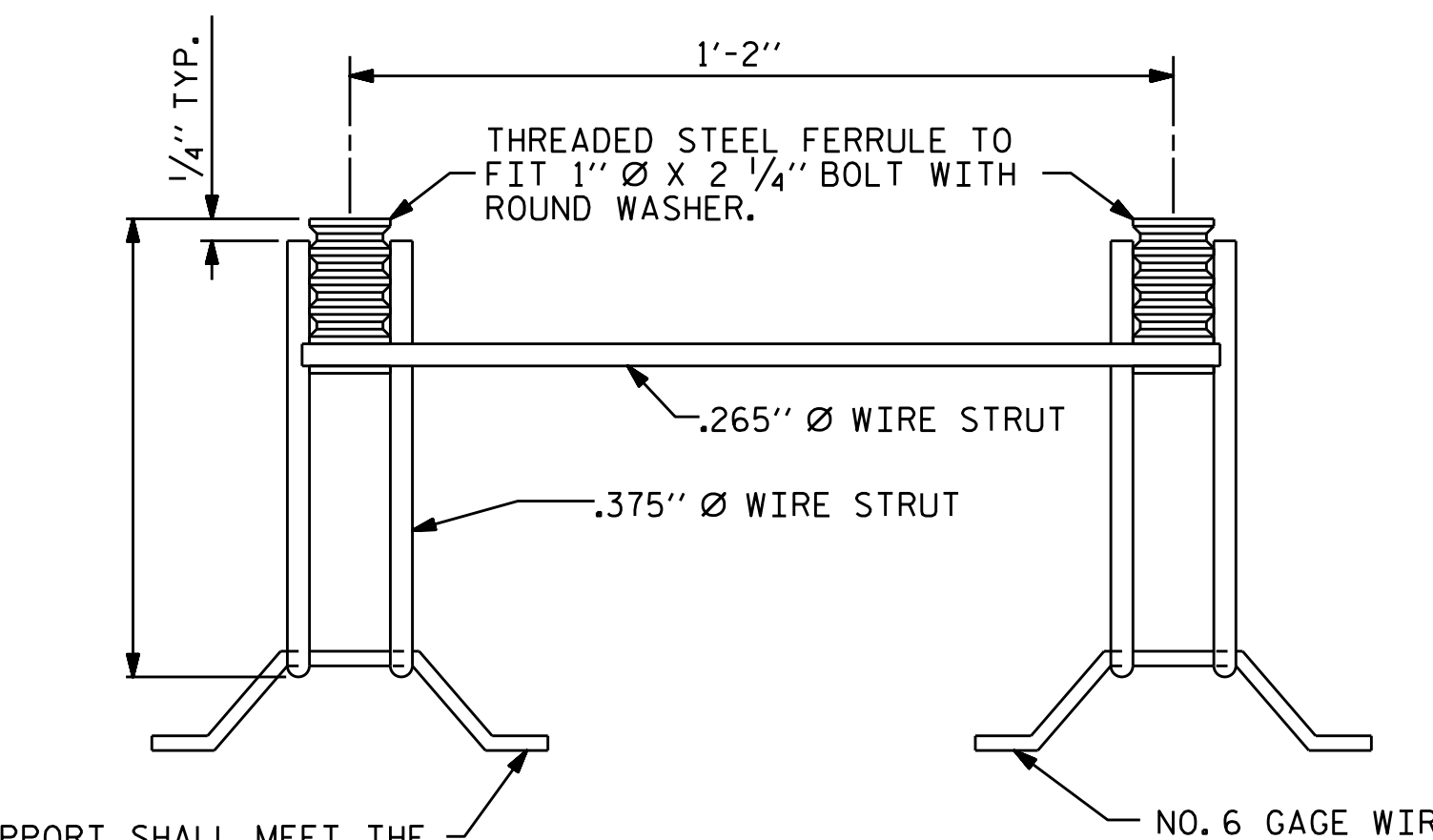
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

PLAN

SHOWING : GUARDRAIL ANCHOR ASSEMBLY SPACING.

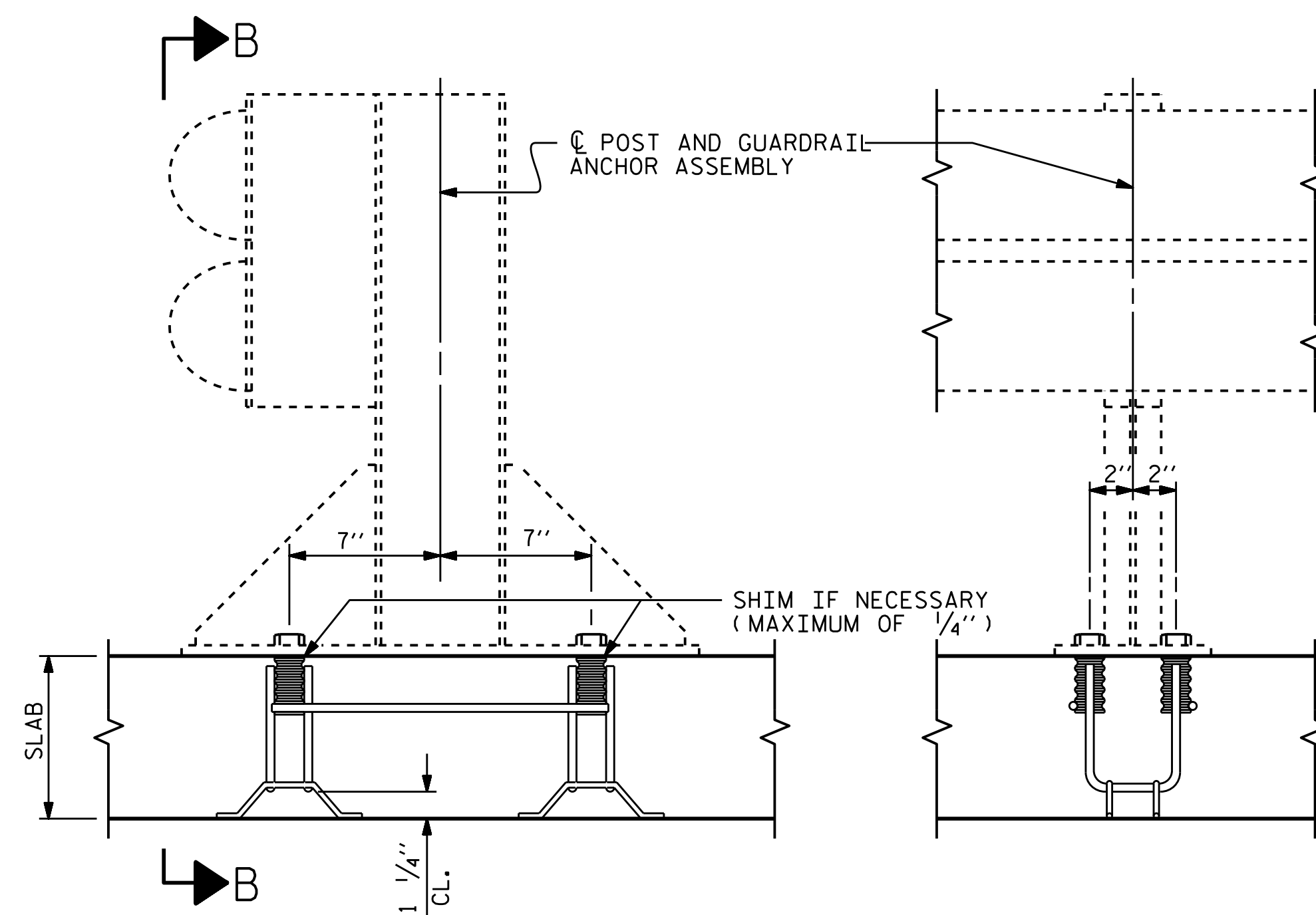


PLAN



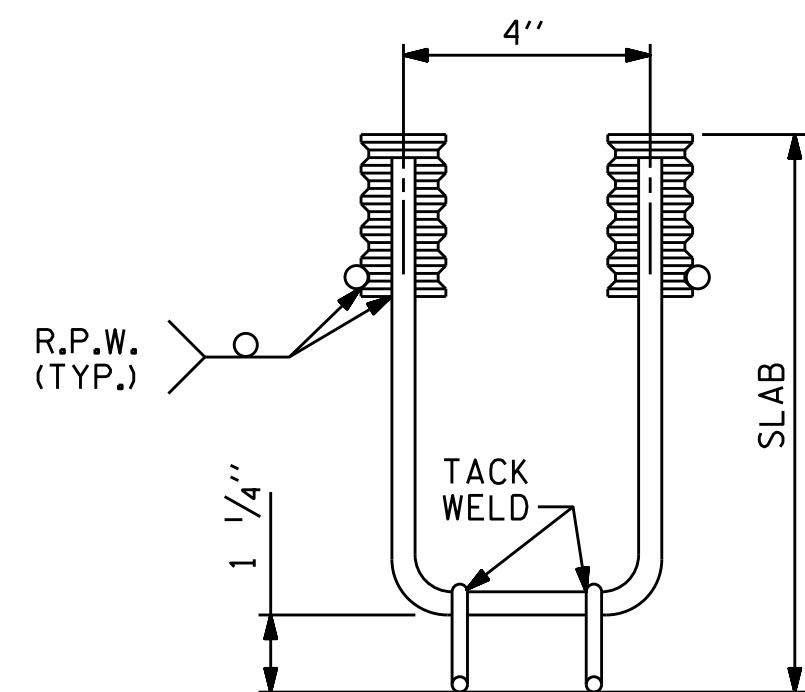
SIDE VIEW

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



SECTION A-A

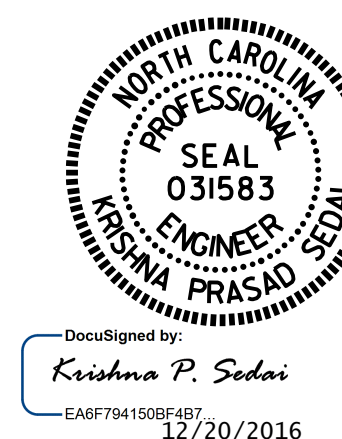
SECTION B-B



ELEVATION

PROJECT NO. 009-071  
BLADEN COUNTY  
STATION: 3+19.00

SHEET 5 OF 5



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

ASSEMBLED BY :	K. P. SEDAI	DATE :	12/20/16
CHECKED BY :	S. B. WILLIAMS	DATE :	12/20/16
DRAWN BY :	FCJ	6/88	REV. 5/7/03 RWW/JTE
CHECKED BY :	ARB	6/88	REV. 5/1/06R KMM/GM
			REV. 10/1/11 MAA/GM

GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

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

STD. NO. GRA1

## 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

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