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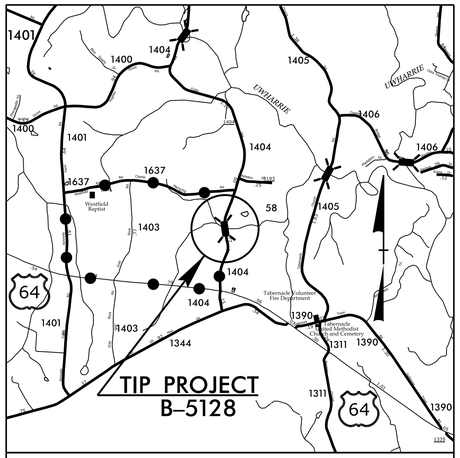
TIP NO. B-5128

CONTRACT: C203674



VICINITY MAP

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

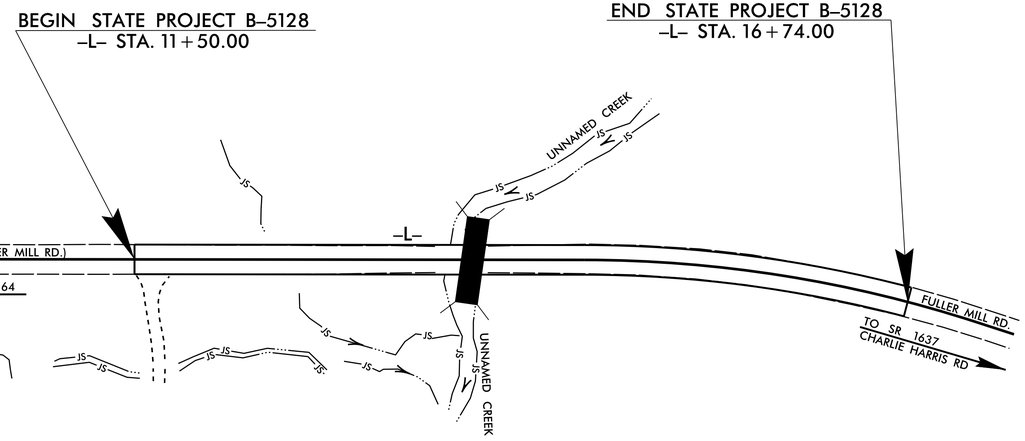
RANDOLPH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5128		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42286.1.1	BRZ-1404 (12)	PE
42286.2.FD1	BRZ-1404 (12)	R/W, UTL.
42286.3.FD1	BRZ-1404 (12)	CONST.

LOCATION: BRIDGE 58 ON SR 1404 (FULLER MILL RD.)
OVER AN UNNAMED TRIBUTARY OF LITTLE UWHARRIE RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT



CULVERT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 2015 = 600
ADT 2035 = 900
K = 10 %
D = 65 %
T = 5 % *
V = 55 MPH
* TTST 1% DUAL 4%
FUNC CLASS = RURAL LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5128 = 0.099 MI
TOTAL LENGTH TIP PROJECT B-5128 = 0.099 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE : MARCH 15, 2016

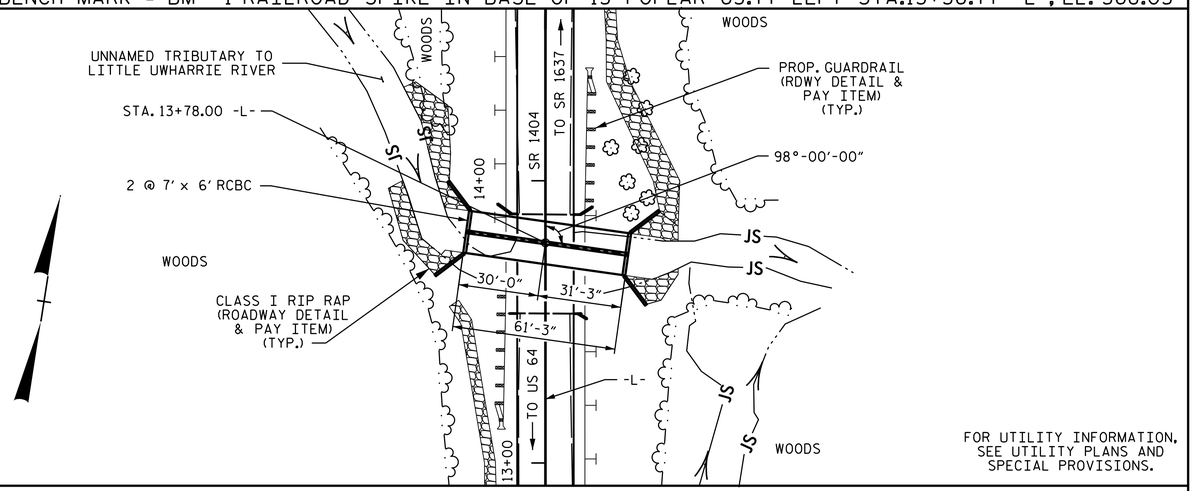
K. W. ALFORD, PE
PROJECT ENGINEER

J. M. BAILEY
PROJECT DESIGN ENGINEER

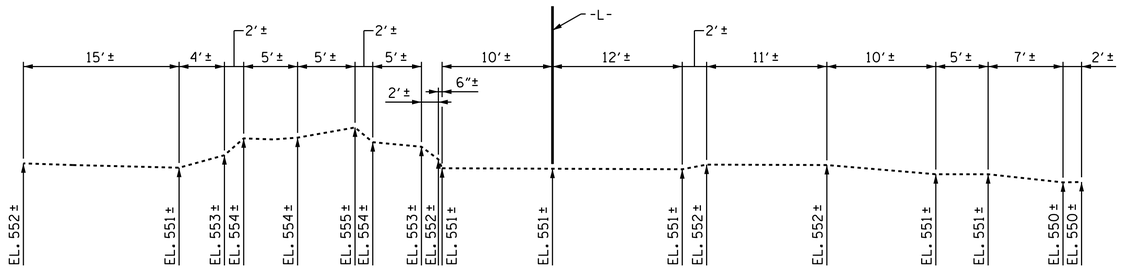
28-JAN-2016 09:08
R:\Structures\Plans\B5128_SD_01_CUL.dgn
kalford

F. A. PROJECT NO. : BRZ-1404 (12)

BENCH MARK = BM #1 RAILROAD SPIKE IN BASE OF 15" POPLAR 63.77' LEFT STA.13+36.77 -L-, EL. 568.05



LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

NOTES

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

DESIGN FILL----------7.58'.

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 WALL ABOVE LOWER CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTHS CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE CULVERT, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

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 TIMBER DECK WITH 1" AWS ON TIMBER JOISTS (1 SPAN @ 18'-1" & 1 SPAN @ 17'-8"), ON TIMBER CAPS WITH TIMBER PILES AND TIMBER BULKHEADS, WITH A CLEAR ROADWAY WIDTH OF 19'-1" AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT.

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 BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

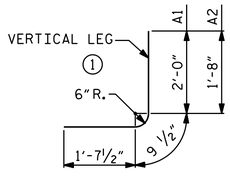
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

BACKFILL BOTH BARRELS OF RCBC WITH NATIVE MATERIAL TO A DEPTH OF 1 FOOT. NATIVE MATERIAL SHALL CONSIST OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	246	#4	1	4'-5"	726
A2	246	#4	1	4'-1"	671
A100	123	#4	STR	15'-7"	1280
A200	123	#4	STR	15'-7"	1280
A300	123	#4	STR	15'-7"	1280
A400	123	#4	STR	15'-7"	1280
B1	123	#4	STR	6'-11"	568
B2	246	#4	STR	5'-4"	876
B3	123	#4	STR	6'-11"	568
C1	174	#4	STR	21'-9"	2528
D1	18	#6	STR	1'-4"	36
G1	8	#5	STR	15'-8"	131
REINFORCING STEEL = 11224 LBS					

BAR TYPE



BAR DIMENSIONS ARE OUT TO OUT

HYDRAULIC DATA

DESIGN DISCHARGE	= 340 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YEARS
DESIGN HIGH WATER ELEVATION	= 554.9
DRAINAGE AREA	= 0.69 SQ. MI.
BASE DISCHARGE (Q100)	= 550 CFS
BASE HIGH WATER ELEVATION	= 556.5

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1375 CFS.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING FLOOD ELEVATION	= 562.8 *

ROADWAY DATA

G.P. EL. @ STA. 13+78.00 -L-	= 562.94
BED EL. @ STA. 13+78.00 -L-	= 549.41
ROADWAY SLOPES	= 2:1

* OVERTOPPING OCCURS AT SAG LOCATION STA.14+35.00 -L-. OVERTOPPING ELEVATION REPRESENTS HIGH SIDE OF SUPER ELEVATION.

SPLICE LENGTHS CHART

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

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 1.292 CY/FT	79.1	C.Y.
SILLS	1.6	C.Y.
WINGS ETC.	17.0	C.Y.
TOTAL	97.7	C.Y.
REINFORCING STEEL		
BARREL & SILLS	11224	LBS.
WINGS ETC.	793	LBS.
TOTAL	12017	LBS.
FOUNDATION COND. MAT'L =	LUMP SUM	
CULVERT EXCAVATION =	LUMP SUM	
REMOVAL OF EXIST. STR. =	LUMP SUM	
ASBESTOS ASSESSMENT =	LUMP SUM	

PROJECT NO. B-5128

RANDOLPH COUNTY

STATION: 13+78.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 58

NORTH CAROLINA PROFESSIONAL SEAL 022506 ENGINEER JESSE McARTHUR BAILEY

DocuSigned by: J. M. Bailey 90265540952BA71...

1/28/2016

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

DocuSigned by: Kristy W. Alford F2458389308F40E...

1/28/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD DOUBLE 7 FT. X 6 FT. CONCRETE BOX CULVERT 98° SKEW

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : William F Parker DATE : 10/2014
CHECKED BY : T.L. AVERETTE DATE : 1/20/15

DRAWN BY : R.W. WRIGHT DATE : JULY, 1990
CHECKED BY : D.A. GLADDEN DATE : JULY, 1990

SPECIAL
STANDARD

ADDED NOV. 1, 1990

STD. NO. CB12A

20-JAN-2016 08:16
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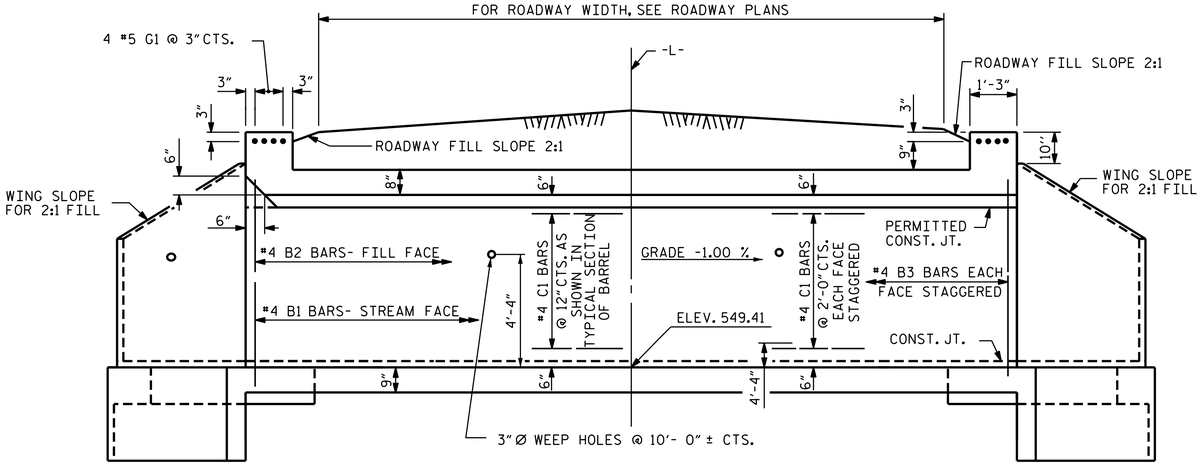
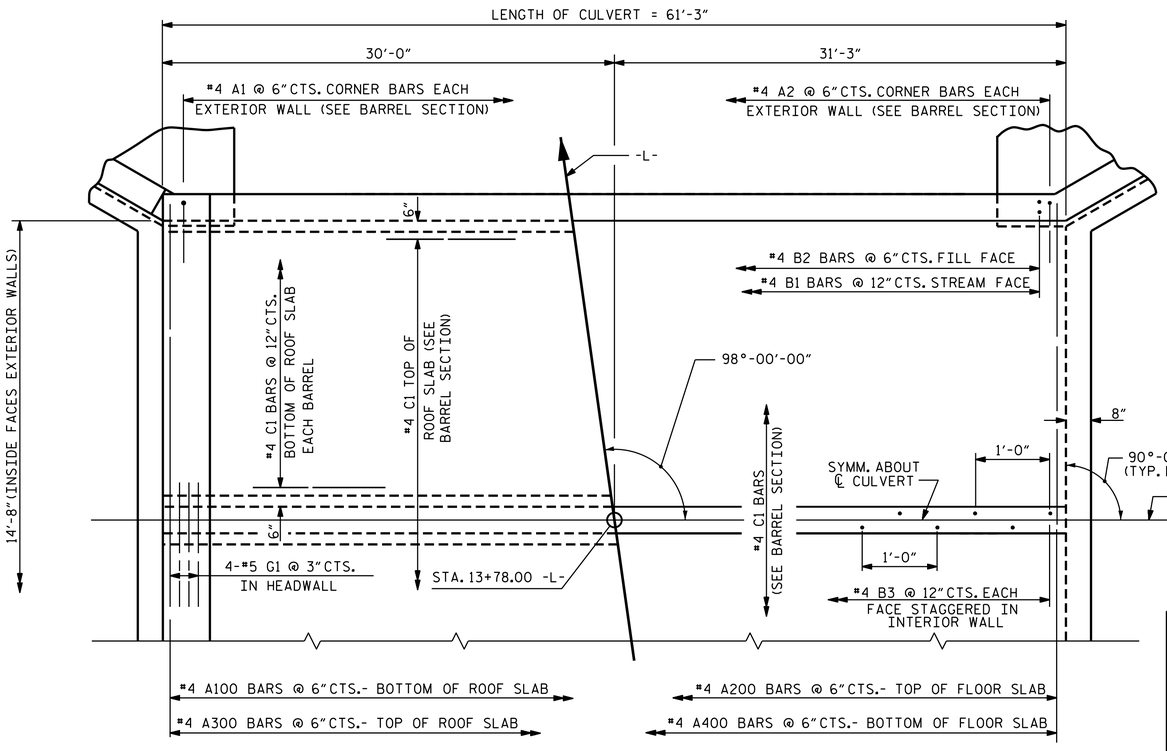
kalford

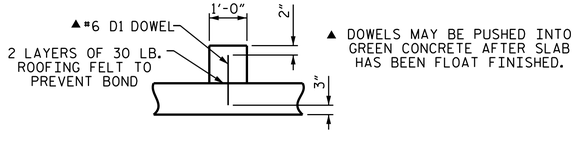


EXTERIOR WALL INTERIOR WALL

CULVERT SECTION NORMAL TO ROADWAY

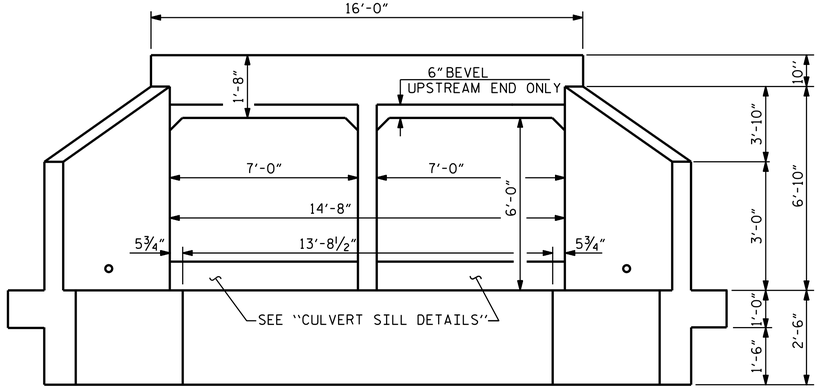


PART PLAN-ROOF SLAB PART PLAN-FLOOR SLAB

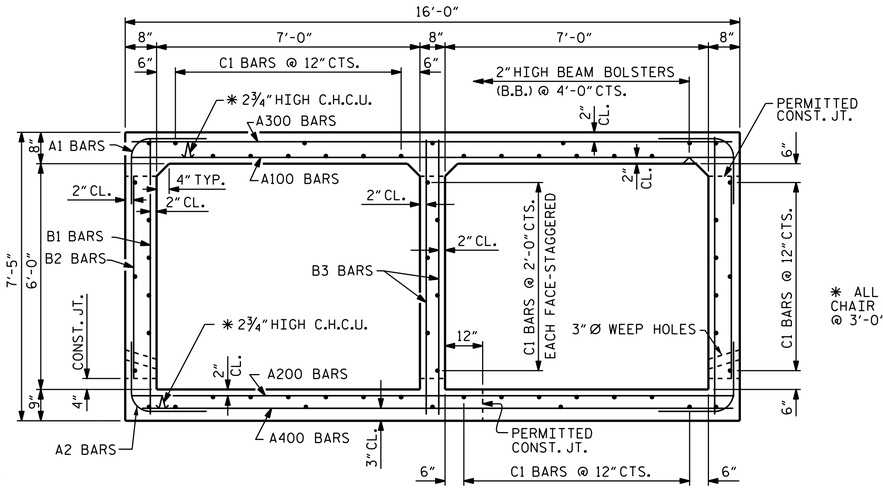


▲ DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.

SECTION THROUGH SILL



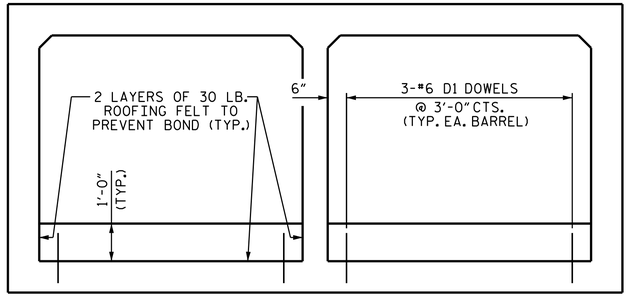
END ELEVATION



✱ ALL CONTINUOUS HIGH CHAIR UPPER (C.H.C.U.) @ 3'-0"CTS.

RIGHT ANGLE SECTION OF BARREL

THERE ARE 58 "C" BARS IN SECTION OF BARREL. (3 BAR RUNS)



CULVERT SILL DETAILS

SILLS ARE LOCATED IN EACH BARREL AT INLET, OUTLET, AND MIDPOINT OF CULVERT

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

DocuSigned by: F24583B930BF40E...

1/20/2016

PROJECT NO. B-5128
RANDOLPH COUNTY
STATION: 13+78.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD DOUBLE 7 FT. X 6 FT. CONCRETE BOX CULVERT 98° SKEW

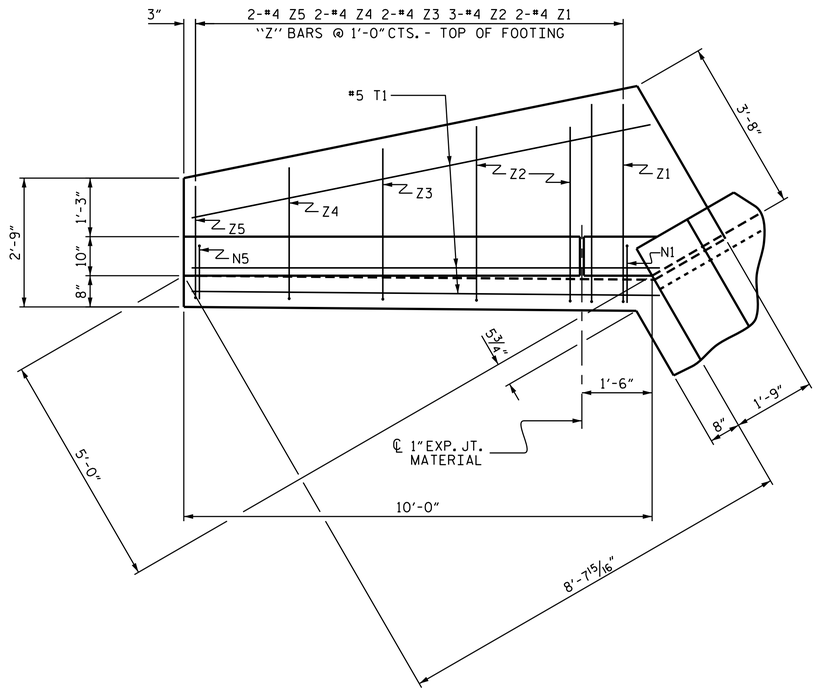
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

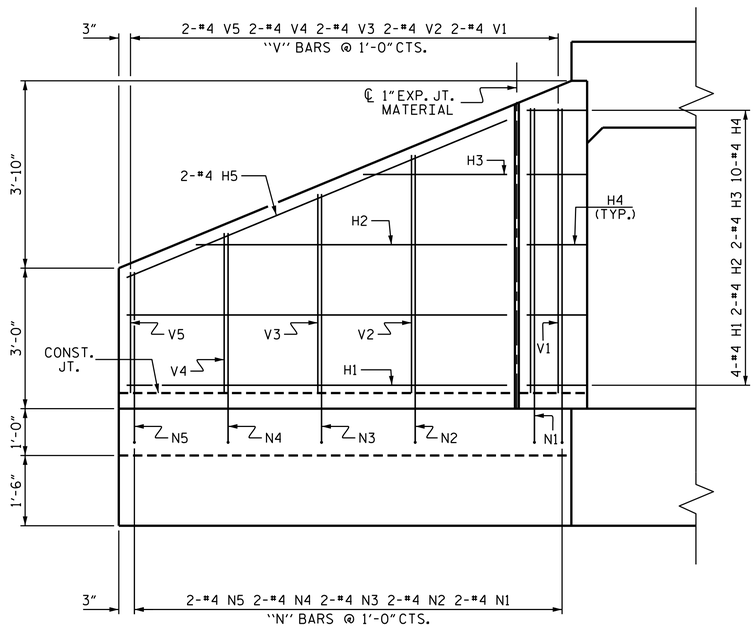
ASSEMBLED BY : William F Parker	DATE : 10/2014	SPECIAL	
CHECKED BY : T.L. AVERETTE	DATE : 1/20/15		
DRAWN BY : RALPH D. UNDERWOOD	DATE : MAY 1971	STANDARD	
CHECKED BY : JOEL A. JOHNSON	DATE : JULY 1971		

STD. NO. CB12

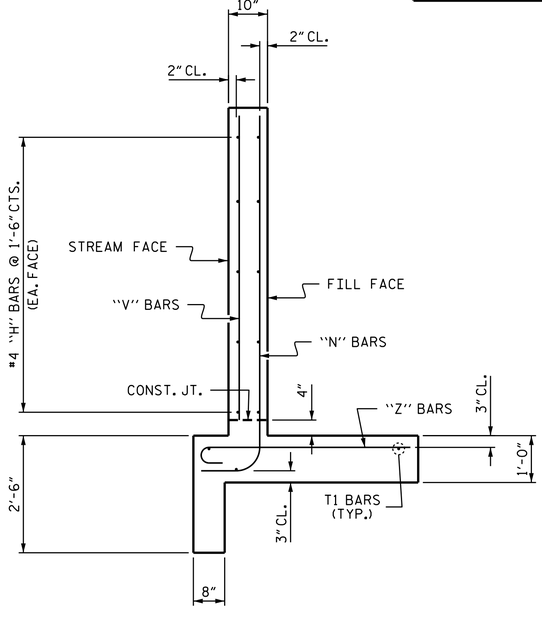
REVISED 11-9-99 BY M.M. CHECKED BY R.W.W.
REDRAWN NOV. 1990 BY TSS CHECKED BY ARB



PLAN



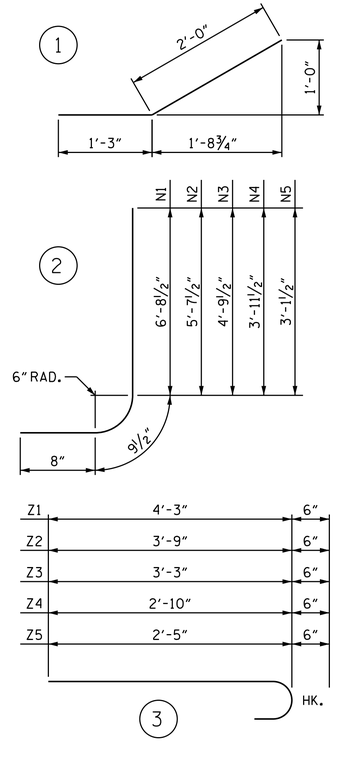
ELEVATION



TYPICAL WING SECTION

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	8'-1"	86
H2	8	#4	STR	6'-8"	36
H3	8	#4	STR	3'-1"	16
H4	40	#4	1	3'-3"	87
H5	8	#4	STR	8'-9"	47
N1	8	#4	2	8'-2"	44
N2	8	#4	2	7'-1"	38
N3	8	#4	2	6'-3"	33
N4	8	#4	2	5'-5"	29
N5	8	#4	2	4'-7"	24
T1	12	#5	STR	10'-0"	125
V1	8	#4	STR	6'-1"	33
V2	8	#4	STR	5'-1"	27
V3	8	#4	STR	4'-3"	23
V4	8	#4	STR	3'-5"	18
V5	8	#4	STR	2'-7"	14
Z1	8	#4	3	4'-9"	25
Z2	12	#4	3	4'-3"	34
Z3	8	#4	3	3'-9"	20
Z4	8	#4	3	3'-4"	18
Z5	8	#4	3	2'-11"	16

REINFORCING STEEL FOR 4 WINGS 793 LBS

CLASS A CONCRETE
- 4 WINGS 13.8 CY
- 2 HEADWALLS 1.5 CY
- END CURTAIN WALLS 1.7 CY
- TOTAL 17.0 CY

ASSEMBLED BY : William T Parker DATE : 10/2014
CHECKED BY : T.L. AVERETTE DATE : 1/20/15

DRAWN BY : CCJ 10/99
CHECKED BY : RWW 03/00

DocuSigned by: F24583893OBF40E... 1/20/2016

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

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PROJECT NO. B-5128
RANDOLPH COUNTY
STATION: 13+78.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD WINGS FOR CONCRETE BOX CULVERT

H = 6'-0" SLOPE = 2:1
90° SKEW

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

STD. NO. CW9006

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_{LL})	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	1.32	--	1.75	2.50	1	TOP SLAB	3.45	**1.32**	1	TOP SLAB	**6.85**	
		HL-93 (OPERATING)	N/A		1.71	--	1.35	3.24	1	TOP SLAB	3.45	1.71	1	TOP SLAB	6.85	
		HS-20 (INVENTORY)	36.00	⬡2	1.97	70.98	1.75	3.64	1	TOP SLAB	3.45	**1.97**	1	TOP SLAB	**6.85**	
		HS-20 (OPERATING)	36.00		2.56	92.01	1.35	4.72	1	TOP SLAB	3.45	2.56	1	TOP SLAB	6.85	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.50		3.52	47.58	1.40	6.58	1	TOP SLAB	3.45	3.52	1	TOP SLAB	6.85	
		SNGARBS2	20.00		3.33	66.59	1.40	6.19	1	TOP SLAB	3.45	3.33	1	TOP SLAB	6.85	
		SNAGRIS2	22.00		3.52	77.54	1.40	6.58	1	TOP SLAB	3.45	3.52	1	TOP SLAB	6.85	
		SNCOTTS3	27.25	⬡3	1.63	44.41	1.40	3.12	1	TOP SLAB	3.45	**1.63**	1	TOP SLAB	**6.85**	
		SNAGGRS4	34.93		1.92	66.97	1.40	3.38	1	BOTTOM SLAB	7.09	1.92	1	TOP SLAB	6.85	
		SNS5A	35.55		1.77	62.97	1.40	3.16	1	BOTTOM SLAB	7.09	1.77	1	TOP SLAB	6.85	
		SNS6A	39.95		1.79	71.47	1.40	3.16	1	BOTTOM SLAB	7.09	1.79	1	TOP SLAB	6.85	
		SNS7B	42.00		1.79	75.14	1.40	3.16	1	BOTTOM SLAB	7.09	1.79	1	TOP SLAB	6.85	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.00		2.57	84.92	1.40	4.64	1	BOTTOM SLAB	7.09	2.57	1	BOTTOM SLAB	6.85	
		TNT4A	33.08		1.94	64.17	1.40	3.70	1	BOTTOM SLAB	7.09	1.94	1	TOP SLAB	6.85	
		TNT6A	41.60		1.88	78.33	1.40	3.41	1	BOTTOM SLAB	7.09	1.88	1	TOP SLAB	6.85	
		TNT7A	42.00		1.94	81.34	1.40	3.77	1	BOTTOM SLAB	7.09	1.94	1	TOP SLAB	6.85	
		TNT7B	42.00		1.87	78.59	1.40	3.27	1	BOTTOM SLAB	7.09	1.87	1	BOTTOM SLAB	6.85	
		TNAGRIT4	43.00		1.85	79.63	1.40	3.29	1	BOTTOM SLAB	7.09	1.85	1	TOP SLAB	6.85	
		TNAGT5A	45.00		1.89	85.26	1.40	3.38	1	BOTTOM SLAB	7.09	1.89	1	TOP SLAB	6.85	
		TNAGT5B	45.00		1.90	85.49	1.40	3.44	1	BOTTOM SLAB	7.09	1.90	1	TOP SLAB	6.85	

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.

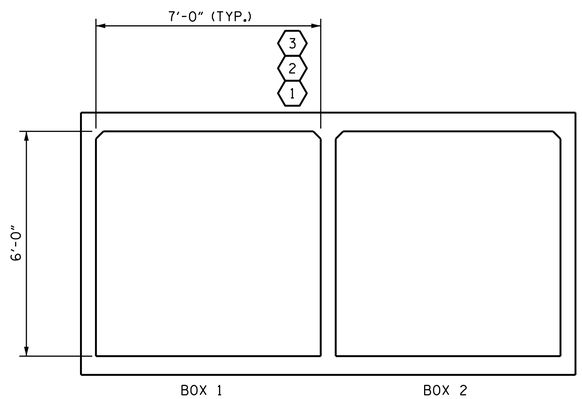
⬡# CONTROLLING LOAD RATING

⬡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. B-5128

RANDOLPH COUNTY

STATION: 13+78.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 29441 ENGINEER KRISTY W. ALFORD

DocuSigned by: F2458389308F40E...

1/20/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS
(NON-INTERSTATE TRAFFIC)

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

STD. NO. LRFR5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : William F. Parker	DATE : 10/2014		
CHECKED BY : T.L. AVERETTE	DATE : 1/20/15		
DRAWN BY : WMC	7/11	REV. 10/17/11	MAA/GM
CHECKED BY : GM	7/11		

20-JAN-2016 08:16
R:\Structures\Plans\B5128_SD_01_CUL.dgn
kalford

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. 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.

ENGLISH

JANUARY, 1990