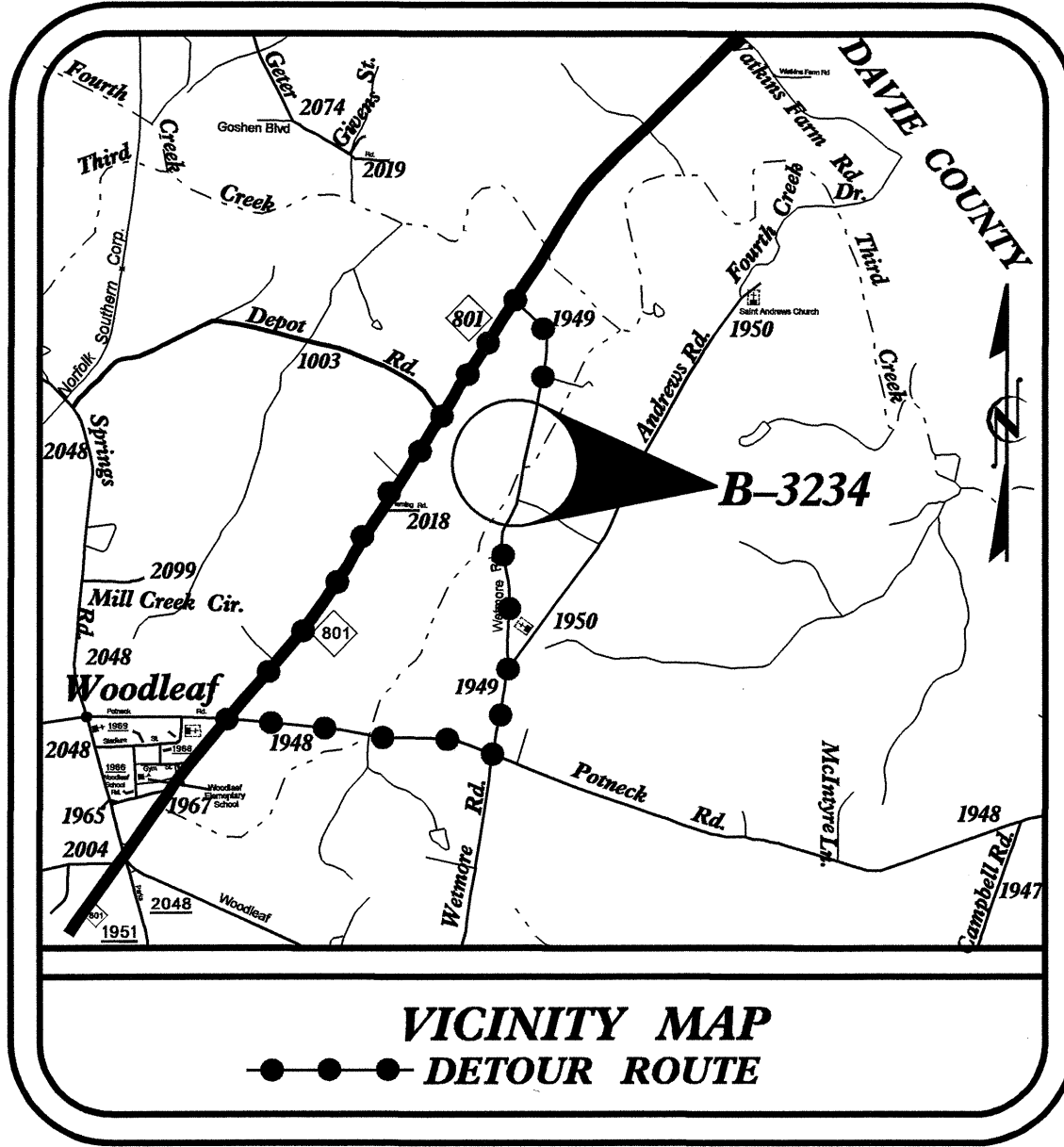


TIP PROJECT: B-3234

CONTRACT: C202152

CULVERT

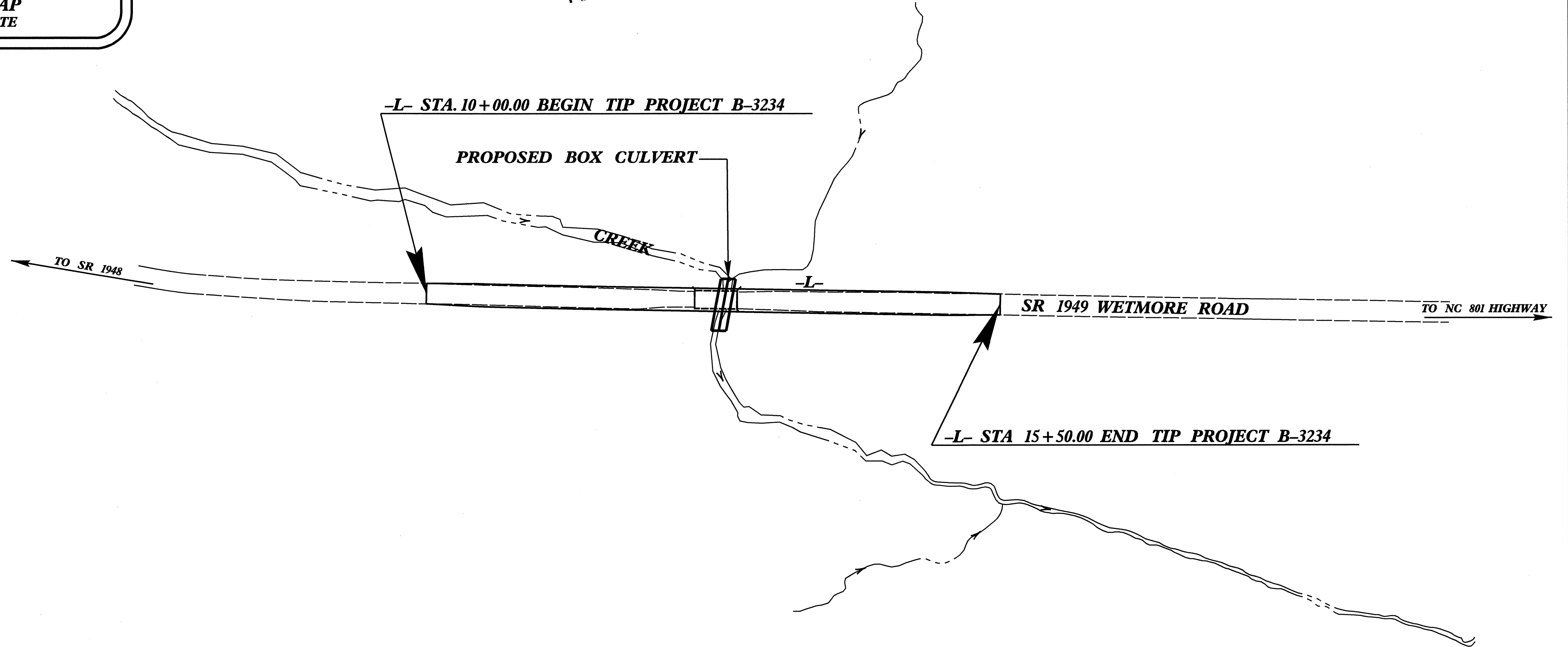
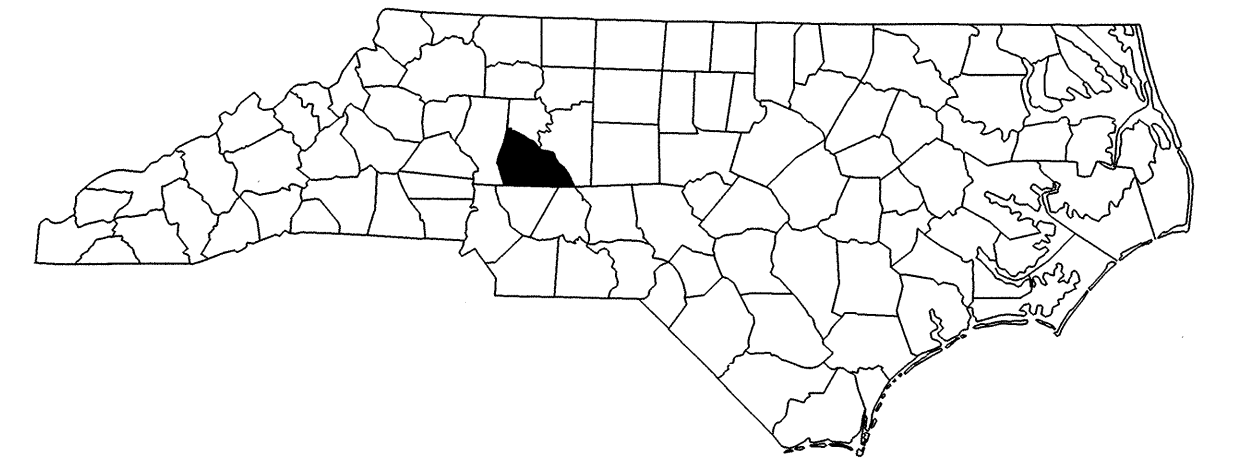


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

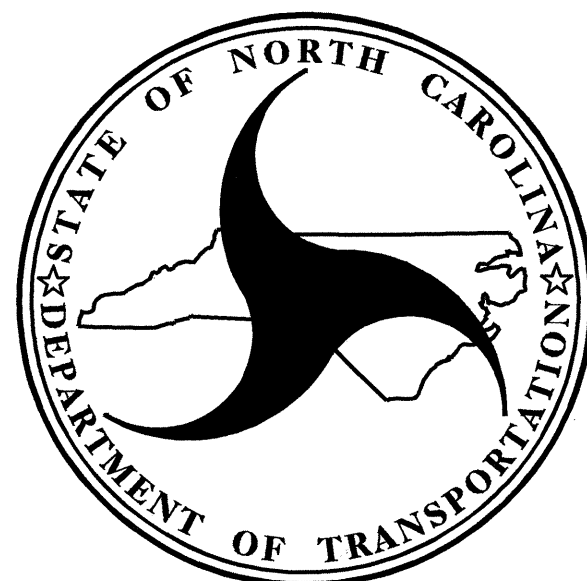
ROWAN COUNTY

LOCATION: BRIDGE 78 OVER A CREEK ON SR 1949 (WETMORE ROAD)

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3234		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32950.1.1	BRZ-1949(1)	P.E.	
32950.2.1	BRZ-1949(1)	RW & UTIL	
32950.3.1	BRZ-1949(1)	CONST.	



DESIGN DATA

ADT 2008	=	1624
ADT 2030	=	2600
DHV	=	11 %
D	=	40 %
T	=	4 % *
V	=	40 MPH
FUNC. CLASS	=	LOCAL
* TTST 2		DUAL 2

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3234	=	.104 mi.
TOTAL LENGTH OF TIP PROJECT B-3234	=	.104 mi.

Prepared in the Office of:

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS	
LETTING DATE: JULY 21, 2009	OMAR R. AZIZI, PE PROJECT ENGINEER
	E. E. MURRAY, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

SIGNATURE: _____ P.E.
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

BM #1, -BL- STA. 10+65.00 -L-, 197' RIGHT, 8" SPIKE IN ROOT OF 14" BEECH TREE, EL. 665.59'

F.A. PROJECT NO.: BRZ-1949(1)

ROADWAY DATA

GRADE POINT ELEV. @ STATION 12+66.00 -L- 662.16 FT.
 BED ELEV. @ STATION 12+66.00 -L- 650.46 FT.
 ROADWAY SLOPES 2:1

HYDRAULIC DATA

DESIGN DISCHARGE 480 C.F.S.
 FREQUENCY OF DESIGN FLOOD 25 YRS
 DESIGN HIGH WATER ELEVATION 658.6 FT.*
 DRAINAGE AREA 1.0 SQ. MI
 BASIC DISCHARGE (Q100) 750 C.F.S.
 BASIC HIGH WATER ELEVATION 660.2 FT.*

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE 840 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD 100+ YR.
 OVERTOPPING FLOOD ELEVATION 660.8 FT.*

*EL. ARE FROM HEC-RAS RIVER STATION 1140

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 1.366	CY/FT	73.4 C.Y.
WING ETC.		20.7 C.Y.
TOTAL		94.1 C.Y.
REINFORCING STEEL		
BARREL		11231 LBS.
WINGS ETC.		1277 LBS.
TOTAL		12508 LBS.
CULVERT EXCAVATION		LUMP SUM
FOUNDATION COND. MAT'L.		61.0 TONS
REMOVAL OF EXISTING STRUCTURE AT STATION 12+66.00		LUMP SUM

NOTES

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 THE ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+66.00."

NOTES

ASSUMED LIVE LOAD -----HS20-44 OR ALTERNATE LOADING.

MAX DESIGN FILL----- 4.88 FT
 MIN DESIGN FILL----- 4.23 FT

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.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE 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 BOX CULVERT, SEE SPECIAL PROVISIONS.

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.

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

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.

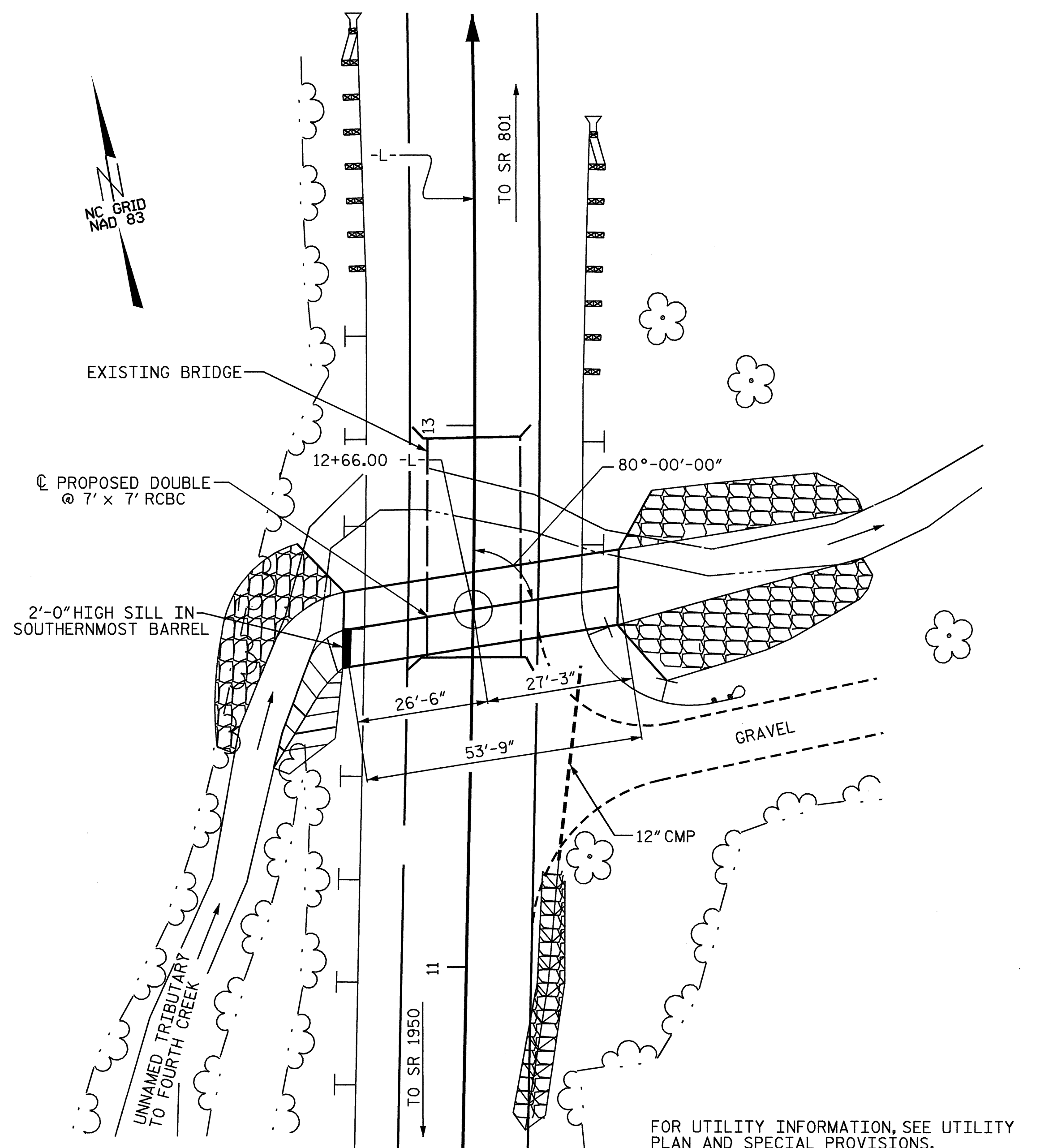
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

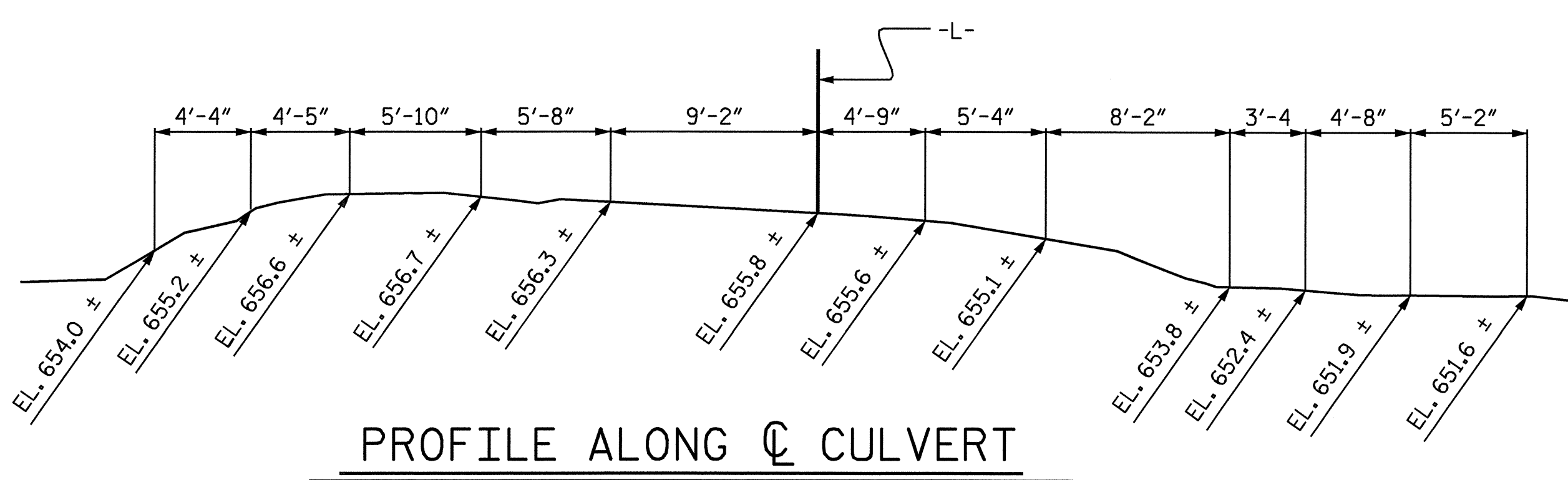
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF 1, 48'-8" SPAN WITH A 17'-3" CLEAR ROADWAY WIDTH WITH TIMBER FLOOR ON STEEL STRINGERS AND MASS CONCRETE ABUTMENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.



LOCATION SKETCH



PROFILE ALONG CULVERT

ASSEMBLED BY : J.B. WILSON	DATE : 10/16/08	SPECIAL
CHECKED BY : B.N. BARODAWALA	DATE : 3/27/09	
DRAWN BY : R.W. WRIGHT	DATE : OCT. 1989	STANDARD
CHECKED BY : A.R. BISSETTE	DATE : OCT. 1989	

02-JUN-2009 07:54
 r:\structures\jwilson\mcarostation\str #1b3234.sd.cu.dgn
 darutcher

PROJECT NO. B-3234

ROWAN COUNTY

STATION: 12+66.00 -L-

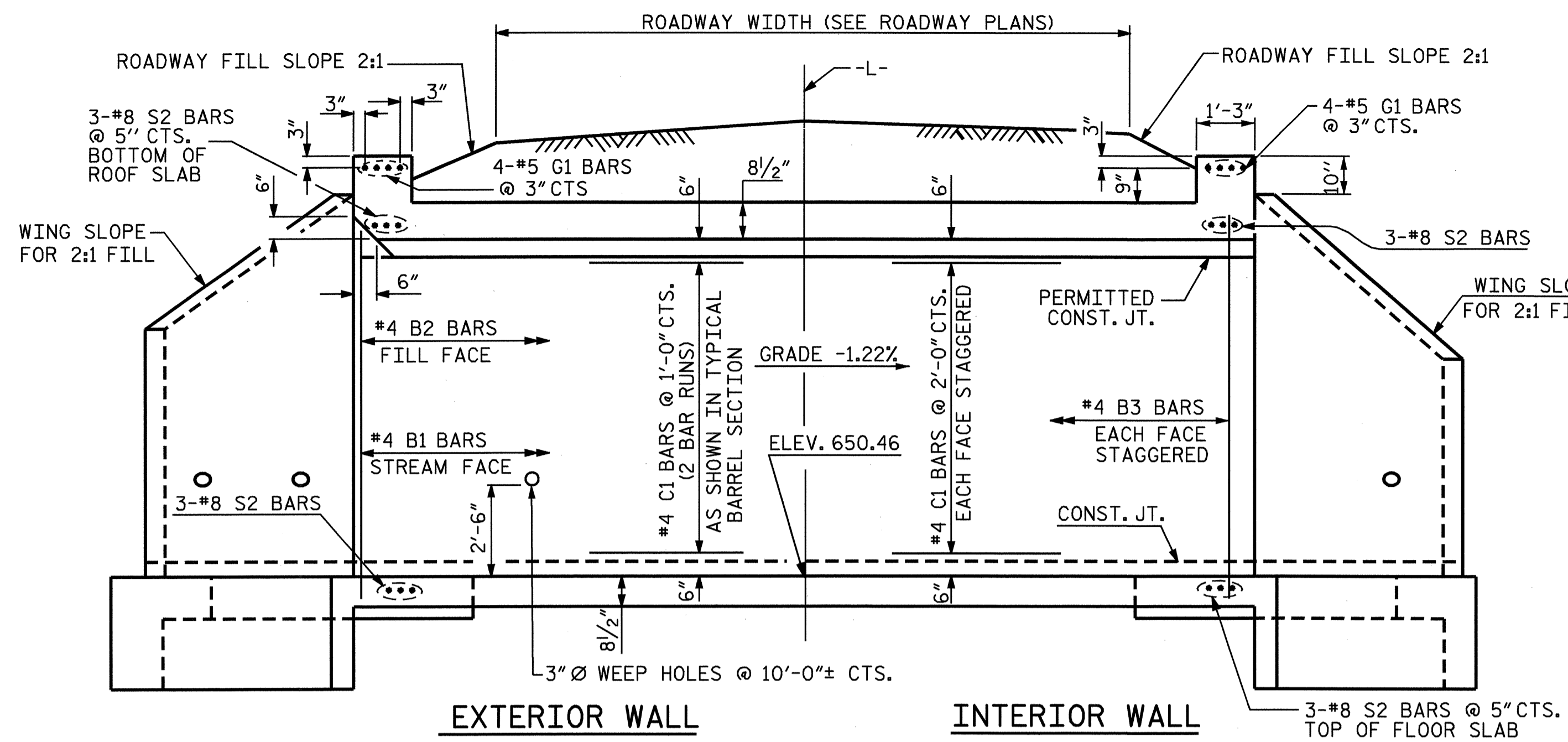
SHEET 1 OF 4 REPLACE BRIDGE No. 78

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BARREL STANDARD
**DOUBLE 7.0 FT. X 7.0 FT.
 CONCRETE BOX CULVERT
 80° SKEW**

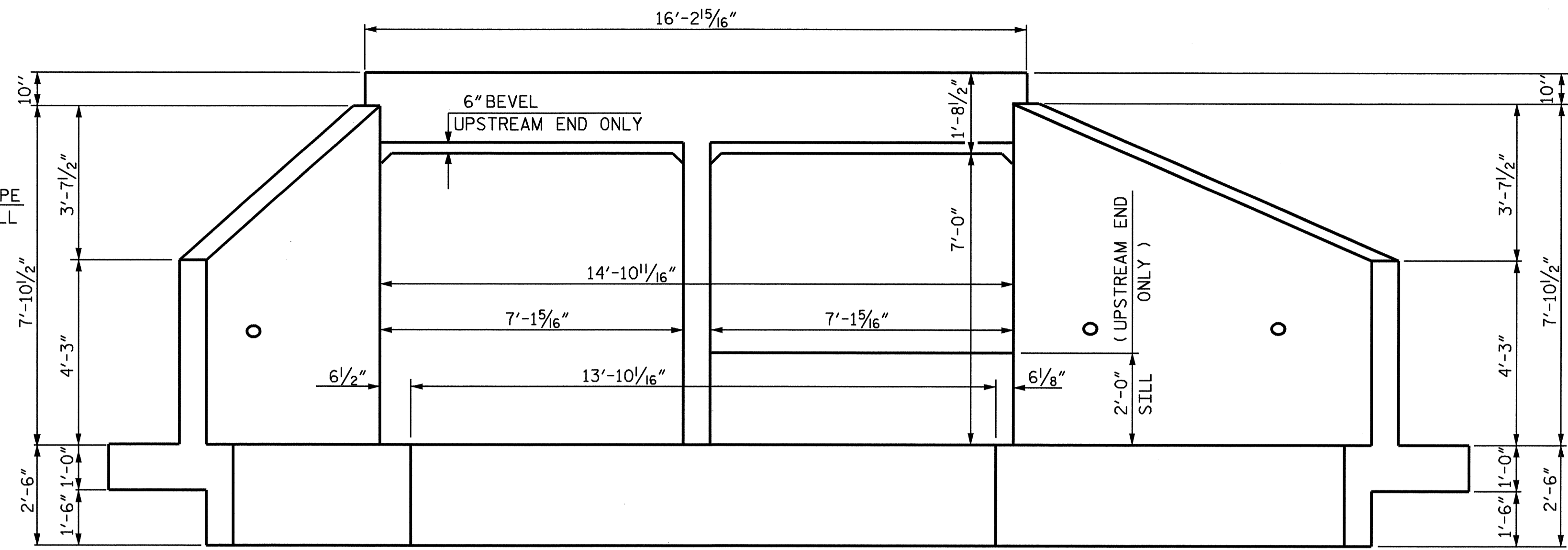


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			4

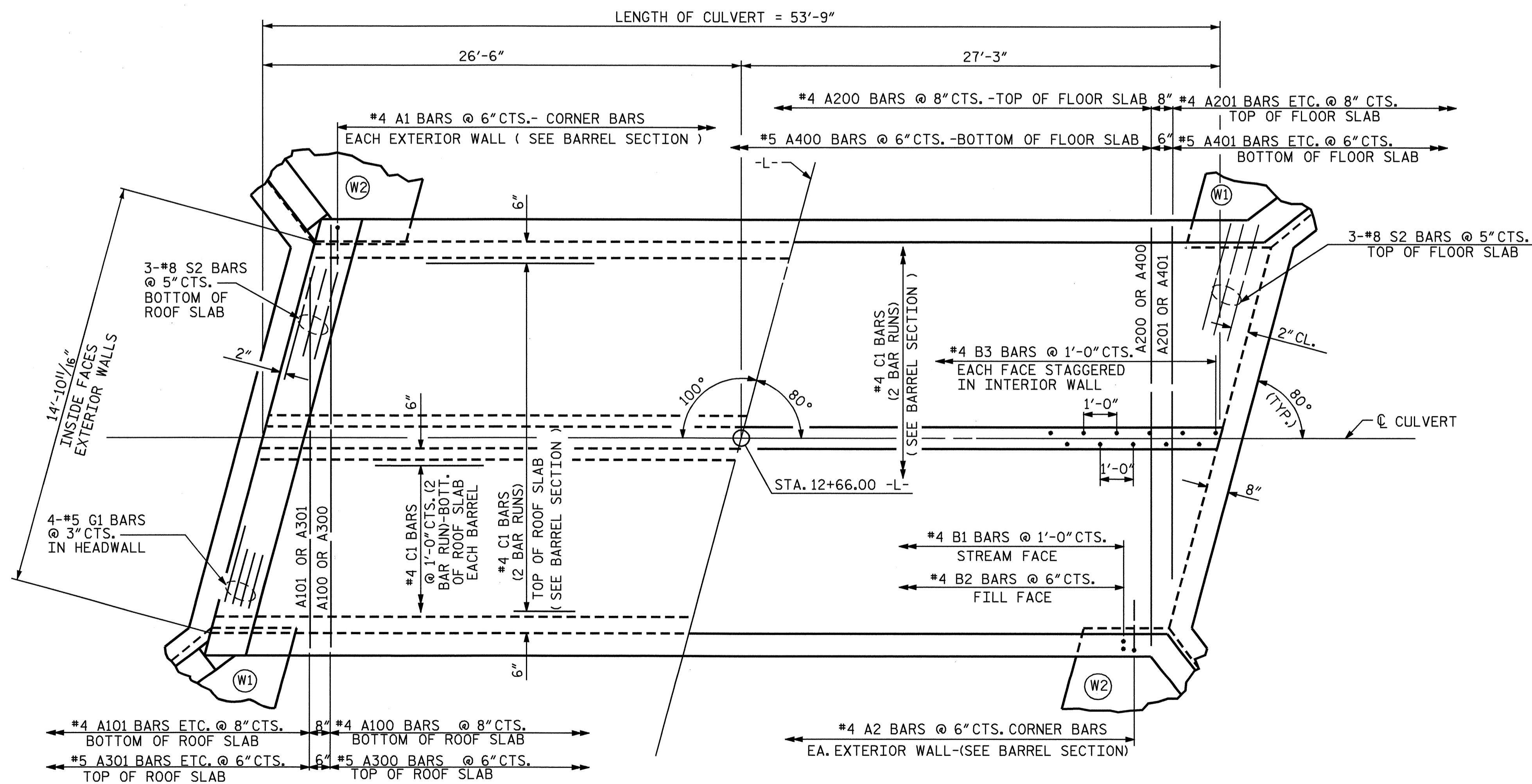
STD. NO. CB22A



CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW



PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB

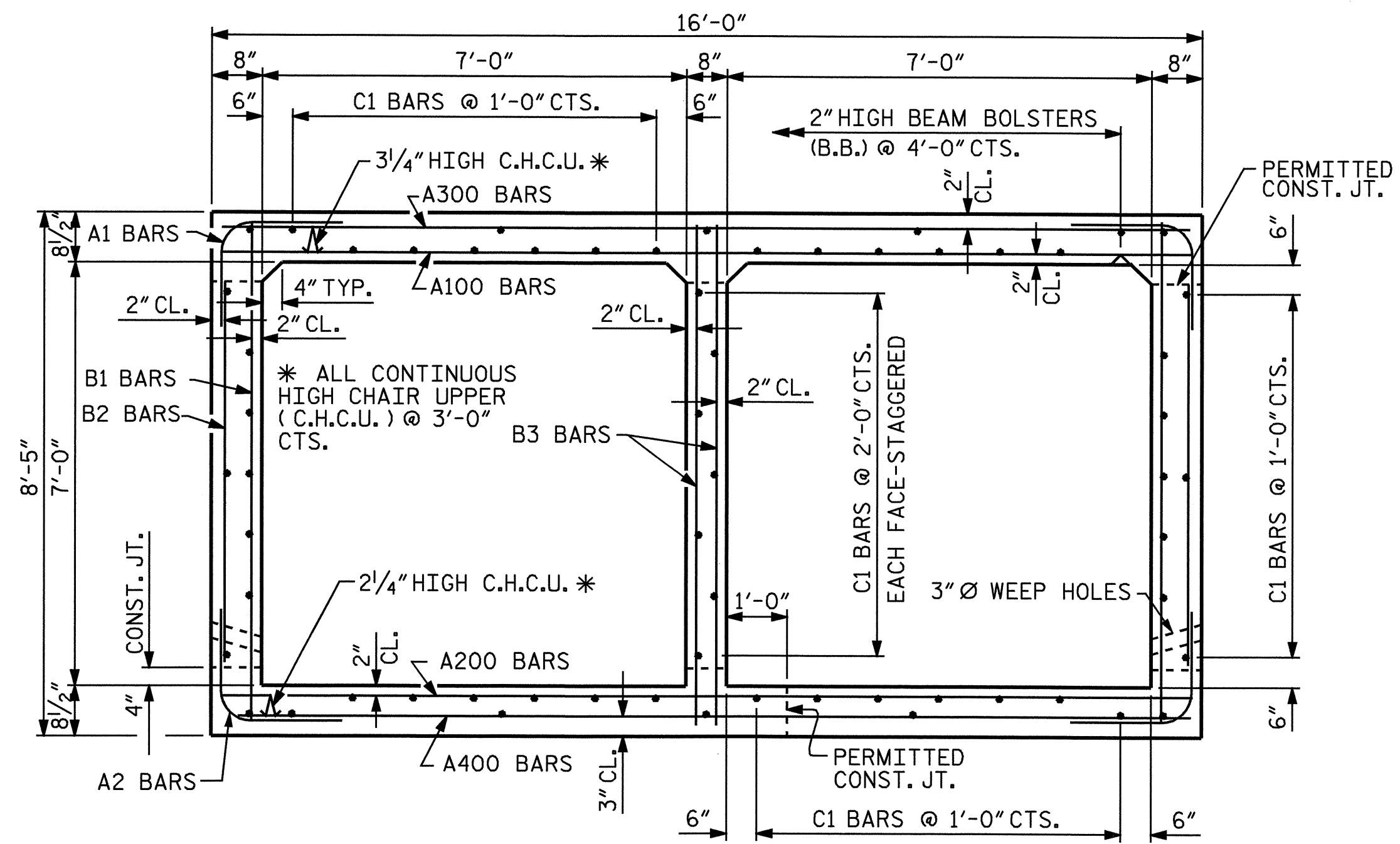
PROJECT NO. B-3234
ROWAN COUNTY
 STATION: 12+66.00 -L-

SHEET 2 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BARREL STANDARD
 DOUBLE 7.0 FT. X 7.0 FT.
 CONCRETE BOX CULVERT
 80° SKEW



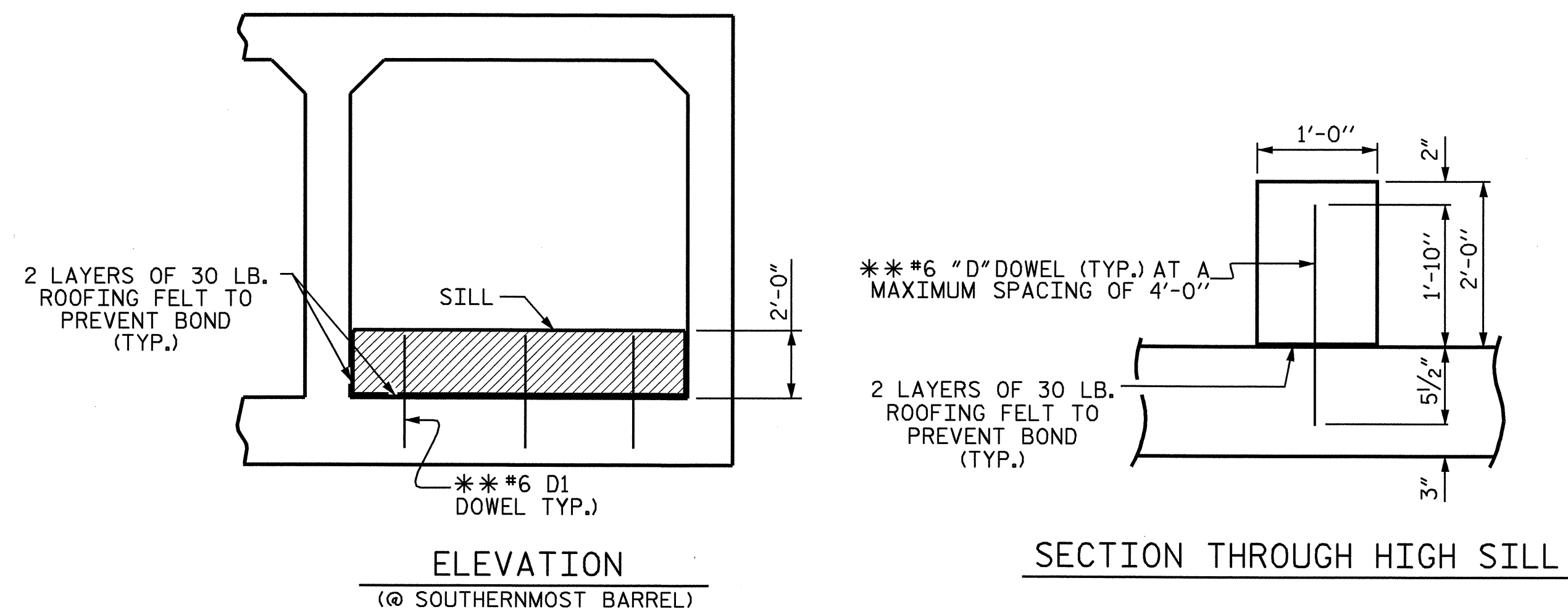
ASSEMBLED BY: J.B. WILSON	DATE: 10/16/08	SPECIAL
CHECKED BY: B.N. BARODAWALA	DATE: 3/27/09	
DRAWN BY: W.BRYAN STALEY II	DATE: SEPT. 24, 1971	STANDARD
CHECKED BY: JOEL A. JOHNSON	DATE: NOV. 12, 1971	

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



RIGHT ANGLE SECTION OF BARREL

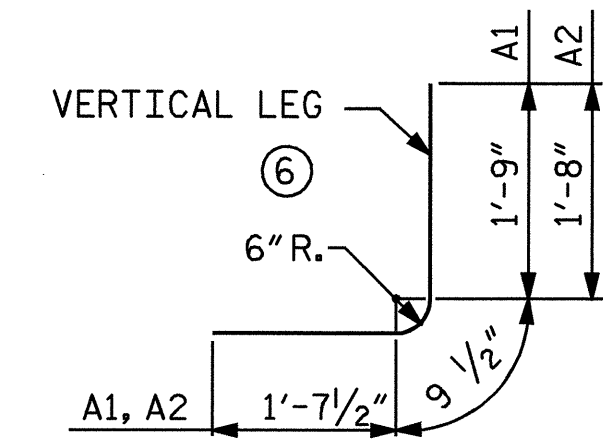
THERE ARE 61 "C" BARS IN SECTION OF BARREL.



SILL DETAILS

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

BAR TYPES



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	216	#4	6	4'-2"	601
A100	77	#4	STR	15'-7"	802
A101	2	#4	STR	11'-0"	15
A102	2	#4	STR	7'-3"	10
A103	2	#4	STR	3'-5"	5
A2	216	#4	6	4'-1"	589
A200	77	#4	STR	15'-7"	802
A201	2	#4	STR	11'-0"	15
A202	2	#4	STR	7'-3"	10
A203	2	#4	STR	3'-5"	5
A300	102	#5	STR	15'-7"	1658
A301	4	#5	STR	9'-1"	38
A302	4	#5	STR	3'-5"	14
A400	102	#5	STR	15'-7"	1658
A401	4	#5	STR	9'-1"	38
A402	4	#5	STR	3'-5"	14
B1	108	#4	STR	7'-11"	571
B2	216	#4	STR	6'-4"	914
B3	108	#4	STR	7'-11"	571
C1	122	#4	STR	27'-9"	2262
A200	4		1'-9"		
A400	5		1'-9"		
B1	4		1'-9"		
B3	4		1'-9"		
C1	4		1'-11"		
REINFORCING STEEL					= 11231 LBS

SPLICE CHART

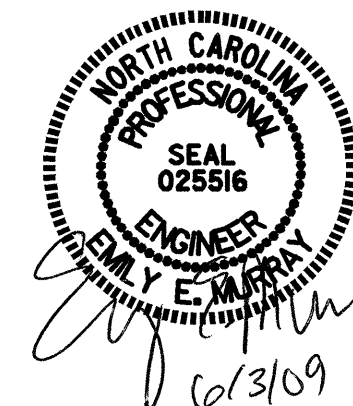
BAR	SIZE	SPLICE CHART
C1	122	#4 STR 27'-9"
A200	4	1'-9"
A400	5	1'-9"
B1	4	1'-9"
B3	4	1'-9"
C1	4	1'-11"

PROJECT NO. B-3234
ROWAN COUNTY
 STATION: 12+66.00 -L-

SHEET 3 OF 4

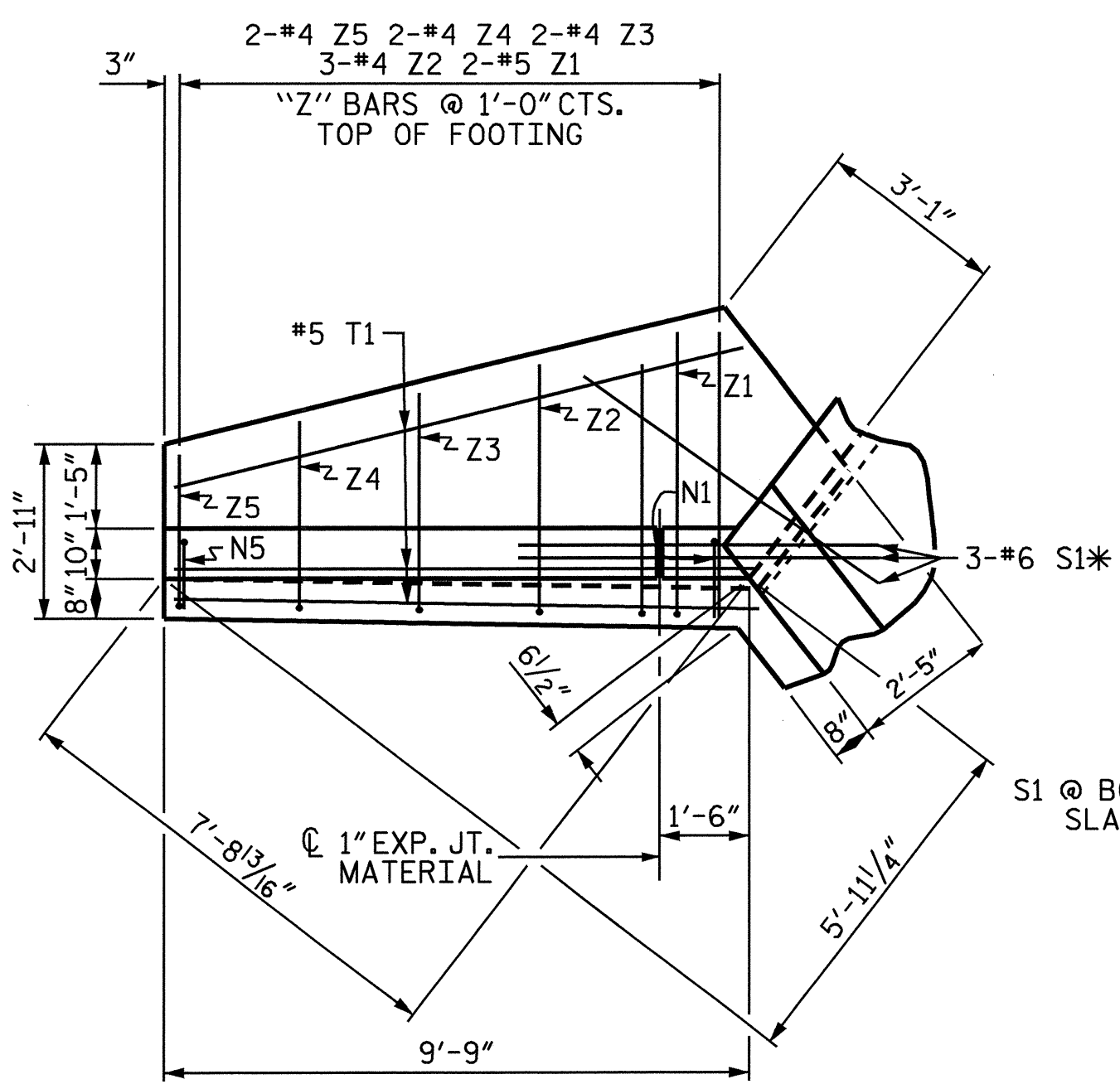
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DOUBLE 7.0 FT. X 7.0 FT.
 CONCRETE BOX CULVERT
 80° SKEW**

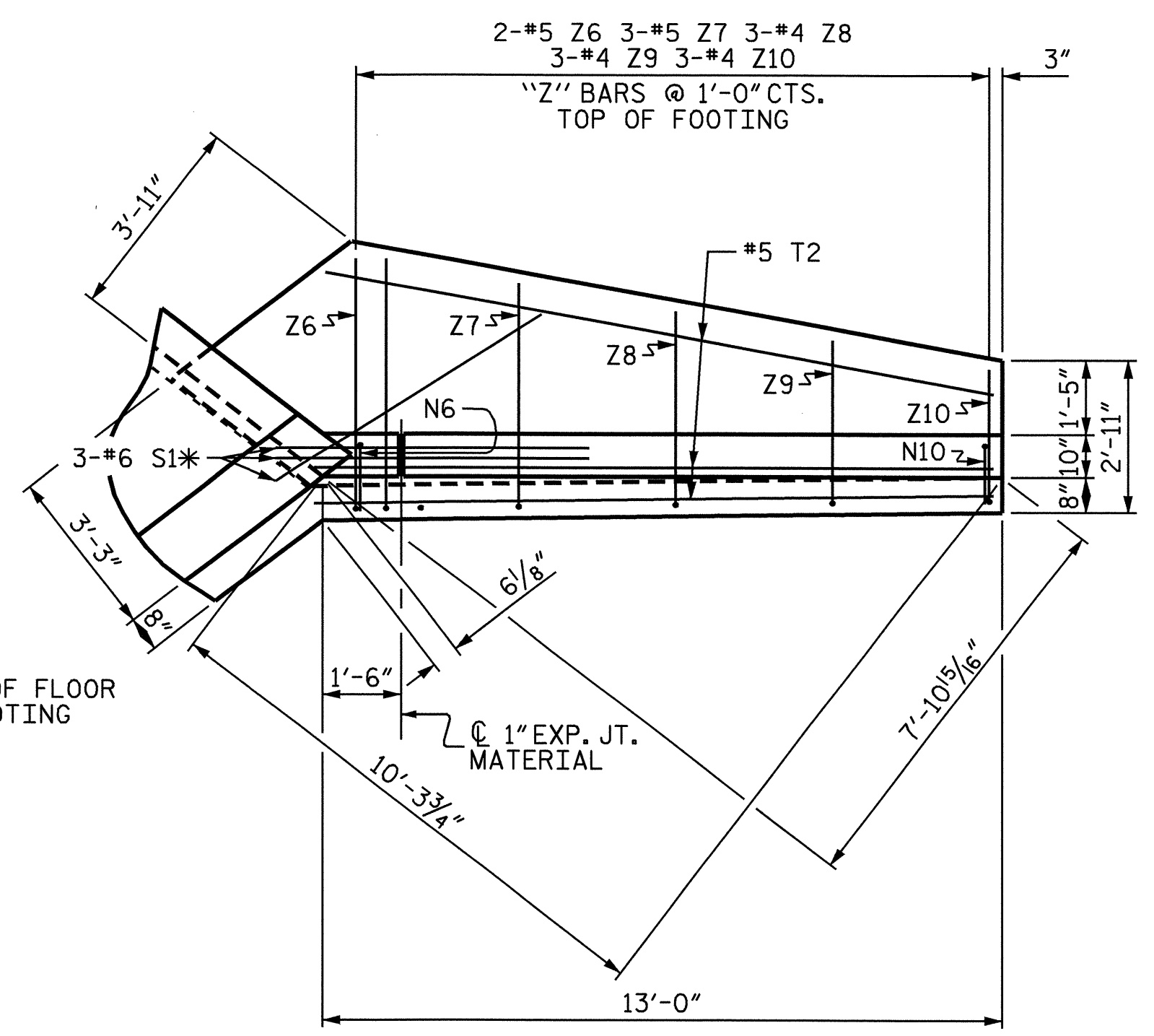


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			4

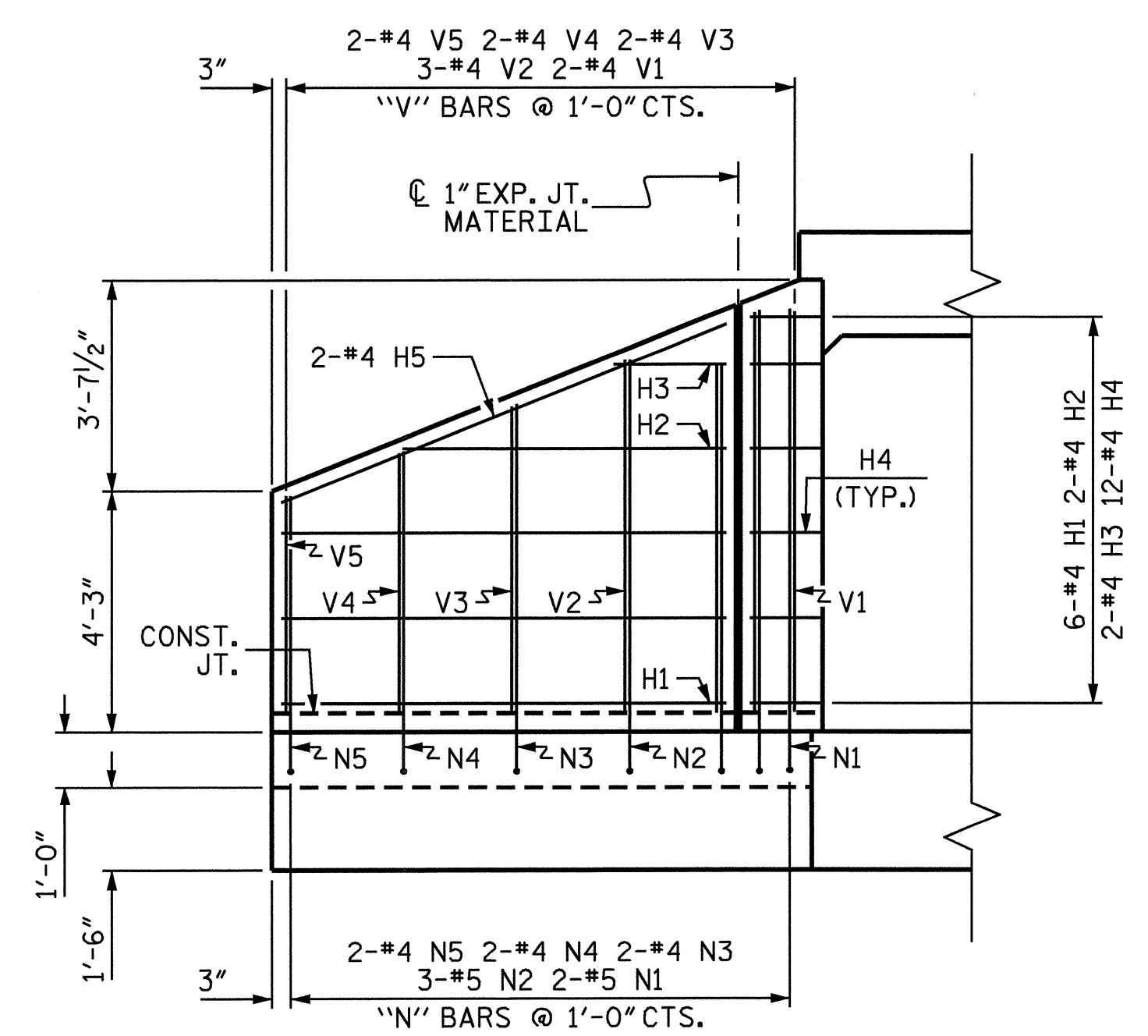
DRAWN BY : J.B. WILSON DATE : 10/16/08
 CHECKED BY : B.N. BARODAWALA DATE : 3/27/09



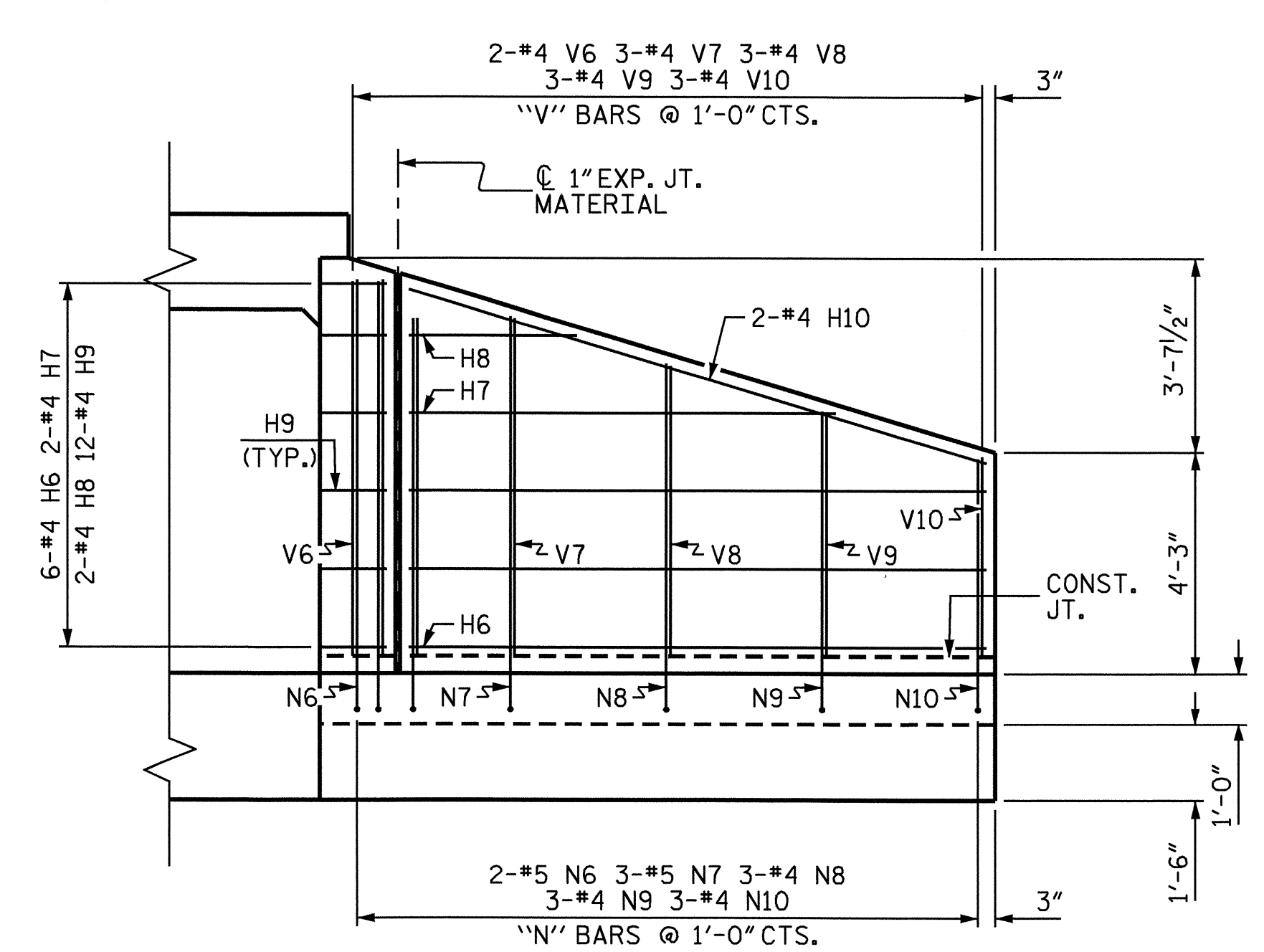
PLAN W2



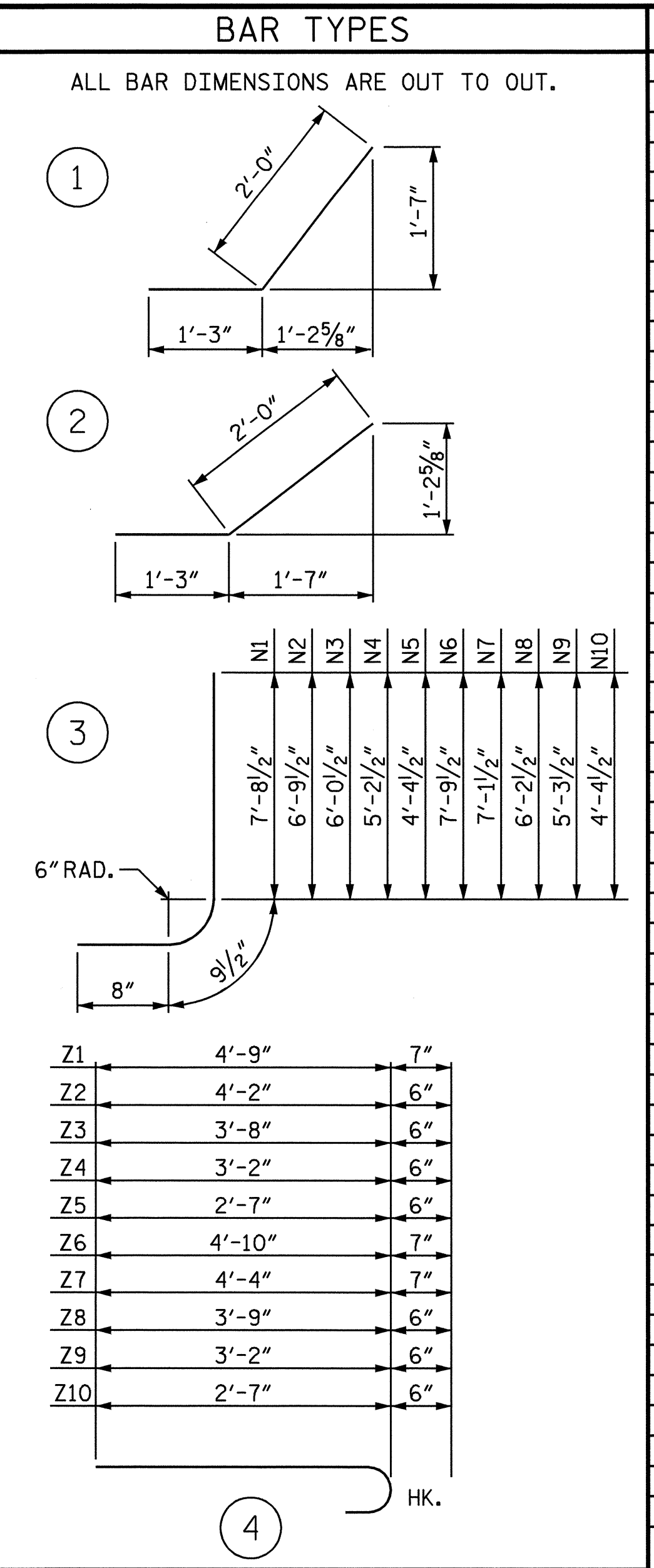
PLAN W1



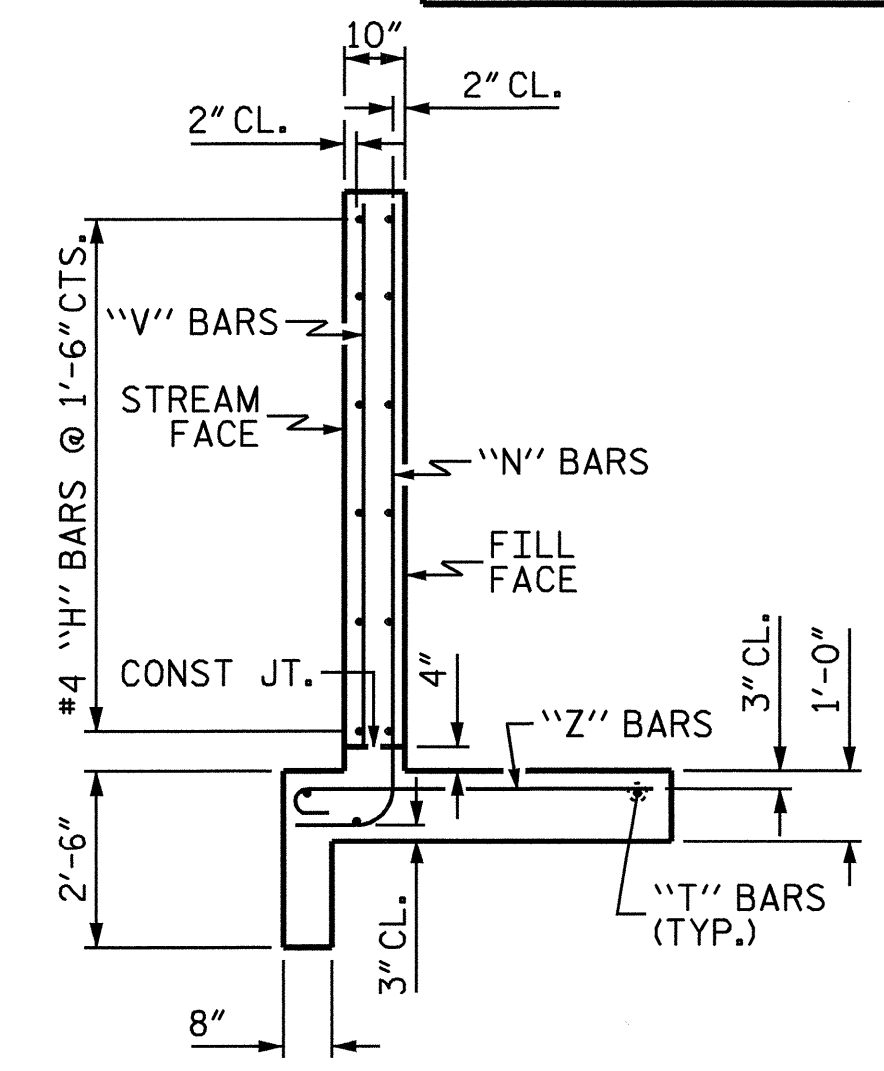
ELEVATION W2



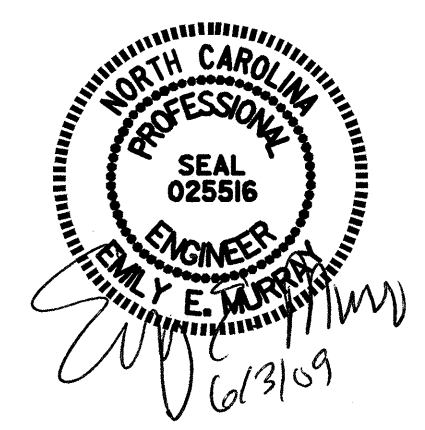
ELEVATION W1



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	7'-10"	63
H2	4	#4	STR	5'-8"	15
H3	4	#4	STR	2'-0"	5
H4	24	#4	1	3'-3"	52
H5	4	#4	STR	8'-5"	22
H6	12	#4	STR	11'-1"	89
H7	4	#4	STR	8'-2"	22
H8	4	#4	STR	3'-3"	9
H9	24	#4	2	3'-3"	52
H10	4	#4	STR	11'-7"	31
N1	4	#5	3	9'-2"	38
N2	6	#5	3	8'-3"	52
N3	4	#4	3	7'-6"	20
N4	4	#4	3	6'-8"	18
N5	4	#4	3	5'-10"	16
N6	4	#5	3	9'-3"	39
N7	6	#5	3	8'-7"	54
N8	6	#4	3	7'-8"	31
N9	6	#4	3	6'-9"	27
N10	6	#4	3	5'-10"	23
S1	12	#6	STR	6'-0"	108
T1	6	#5	STR	9'-9"	61
T2	6	#5	STR	13'-0"	81
V1	4	#4	STR	7'-1"	19
V2	6	#4	STR	6'-3"	25
V3	4	#4	STR	5'-5"	14
V4	4	#4	STR	4'-7"	12
V5	4	#4	STR	3'-10"	10
V6	4	#4	STR	7'-3"	19
V7	6	#4	STR	6'-6"	26
V8	6	#4	STR	5'-7"	22
V9	6	#4	STR	4'-8"	19
V10	6	#4	STR	3'-10"	15
Z1	4	#5	4	5'-4"	22
Z2	6	#4	4	4'-8"	19
Z3	4	#4	4	4'-2"	11
Z4	4	#4	4	3'-8"	10
Z5	4	#4	4	3'-1"	8
Z6	4	#5	4	5'-5"	23
Z7	6	#5	4	4'-11"	31
Z8	6	#4	4	4'-3"	17
Z9	6	#4	4	3'-8"	15
Z10	6	#4	4	3'-1"	12
REINFORCING STEEL FOR 4 WINGS					1277 LBS
CLASS A CONCRETE					
4 WINGS					18.2 CY
2 HEADWALLS					1.5 CY
2 END CURTAIN WALLS					1.0 CY
TOTAL					20.7 CY



TYPICAL WING SECTION



PROJECT NO. B-3234
ROWAN COUNTY
 STATION: 12+66.00 -L-

SHEET 4 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD WINGS FOR CONCRETE BOX CULVERT
 H = 7'-0" SLOPE = 2:1
 75° SKEW

ASSEMBLED BY : J. B. WILSON DATE : 10/16/08
 CHECKED BY : B.N. BARODAWALA DATE : 3/27/09
 DRAWN BY : CCJ 12/99
 CHECKED BY : RWW 03/00

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

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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