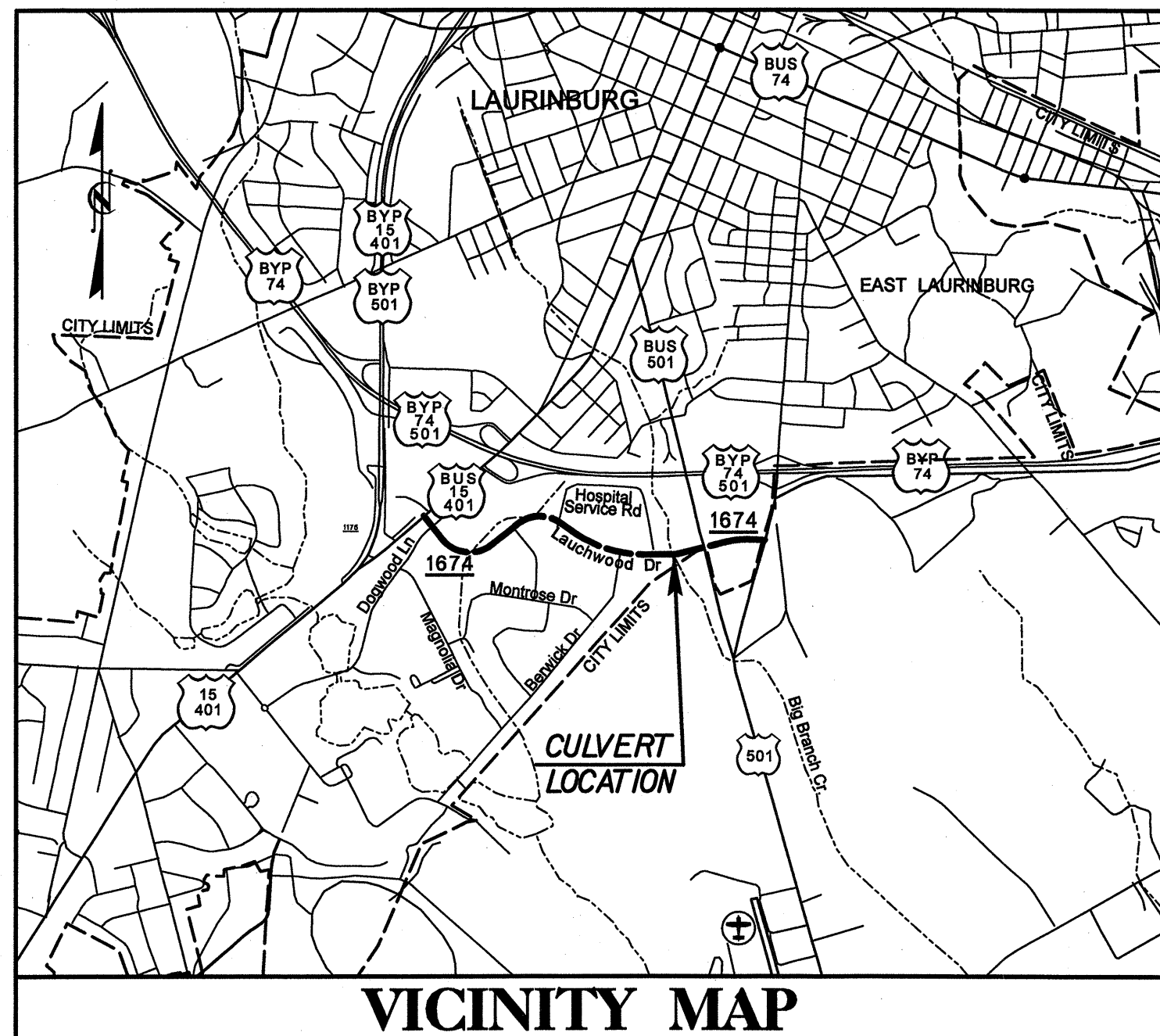


7/2/99

TIP PROJECT: U-5027

CONTRACT: C202074



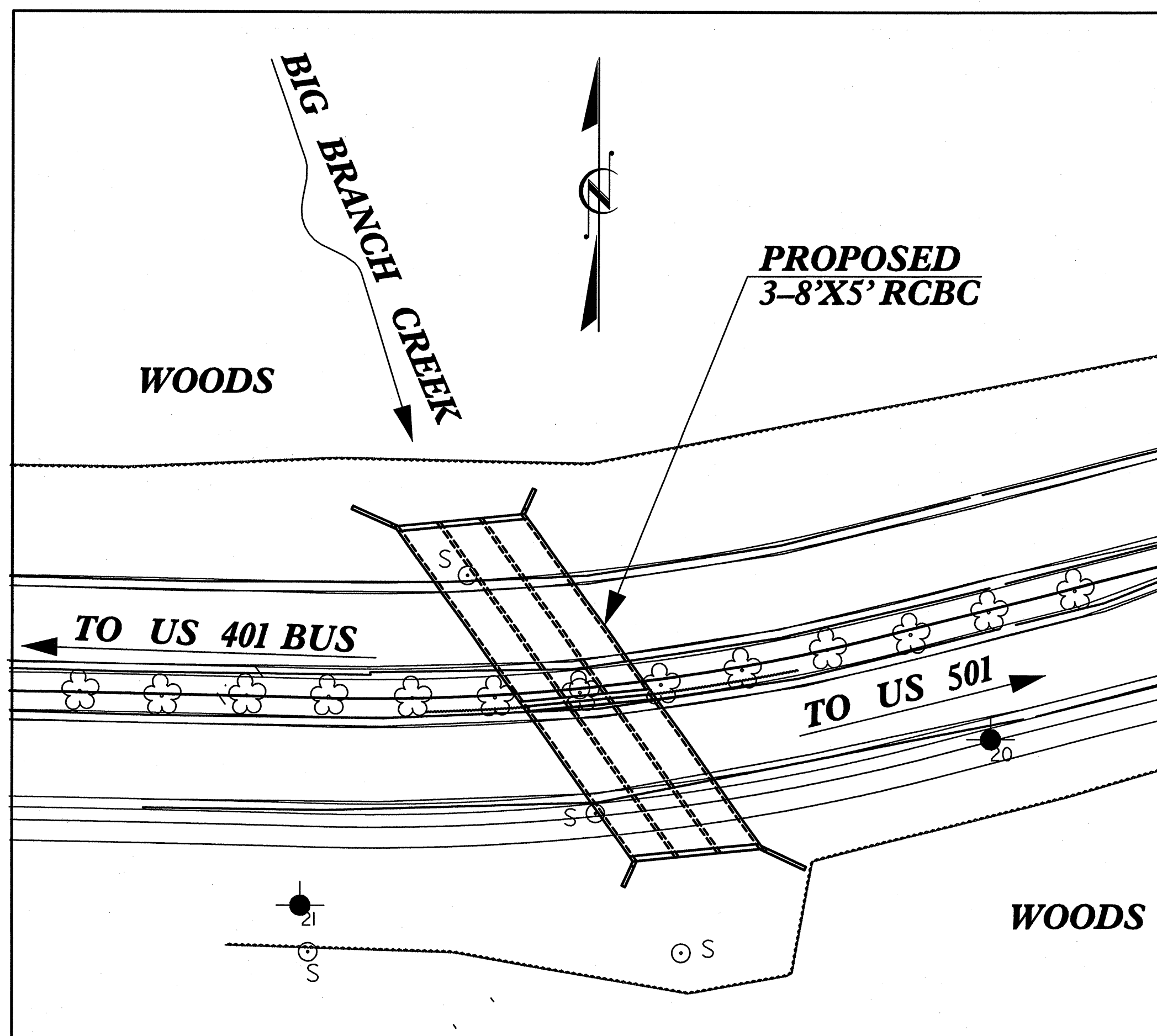
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SCOTLAND COUNTY

LOCATION: Lauchwood Dr. over Big Branch Creek

TYPE OF WORK: Culvert

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5027	S-0	8
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41900.1.1	-	P.E.	
41900.2.1	-	R.O.W./Utilities	
41900.3.ST1	-	Construction	



INDEX OF SHEETS

SHEET NUMBER	SHEET
S-0	TITLE SHEET
S-1 THRU S-6	CULVERT DRAWINGS
SN	STANDARD STRUCTURE NOTES

DESIGN DATA

ADT 2004 = 4,900
 ADT 2025 = 7,350
 DHV = 10 %
 D = 50 %
 T = 6 % *
 V = 40 MPH

* TTST 2% DUAL 4%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-5027 1.19 mi.
 LENGTH OF STRUCTURE TIP PROJECT U-5027 0.01 mi.
 TOTAL LENGTH TIP PROJECT U-5027 1.20 mi.

Prepared In the Office of:

HNTB

HNTB NORTH CAROLINA, P.C.
 343 E. Six Forks Road, Suite 200
 Raleigh, North Carolina 27609

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 AUGUST 8, 2004

LETTING DATE:
 March 17, 2009

ENRICO A. ROQUE, P.E.
 PROJECT ENGINEER

PHILLIP E. ROGERS, EI
 PROJECT DESIGNER

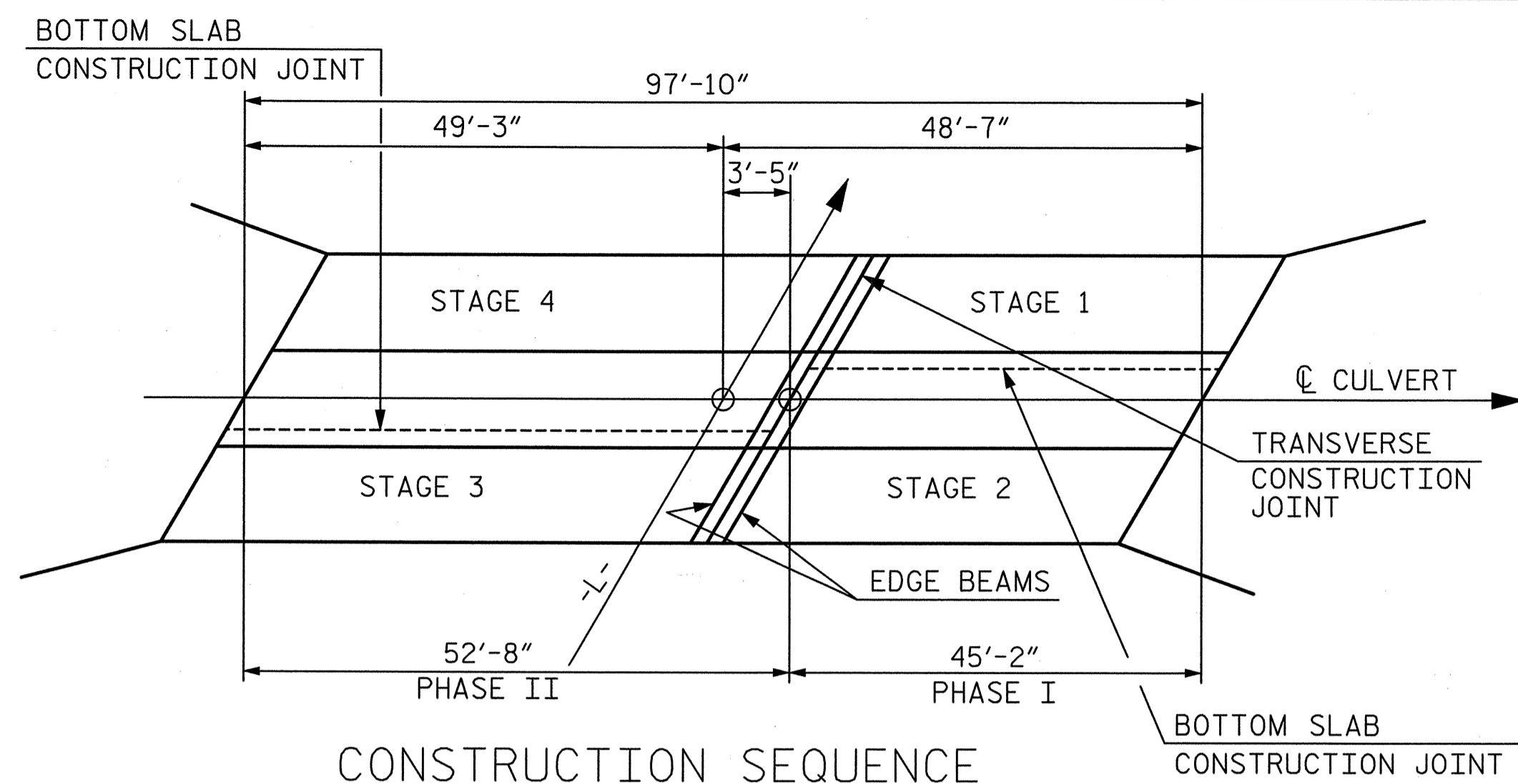
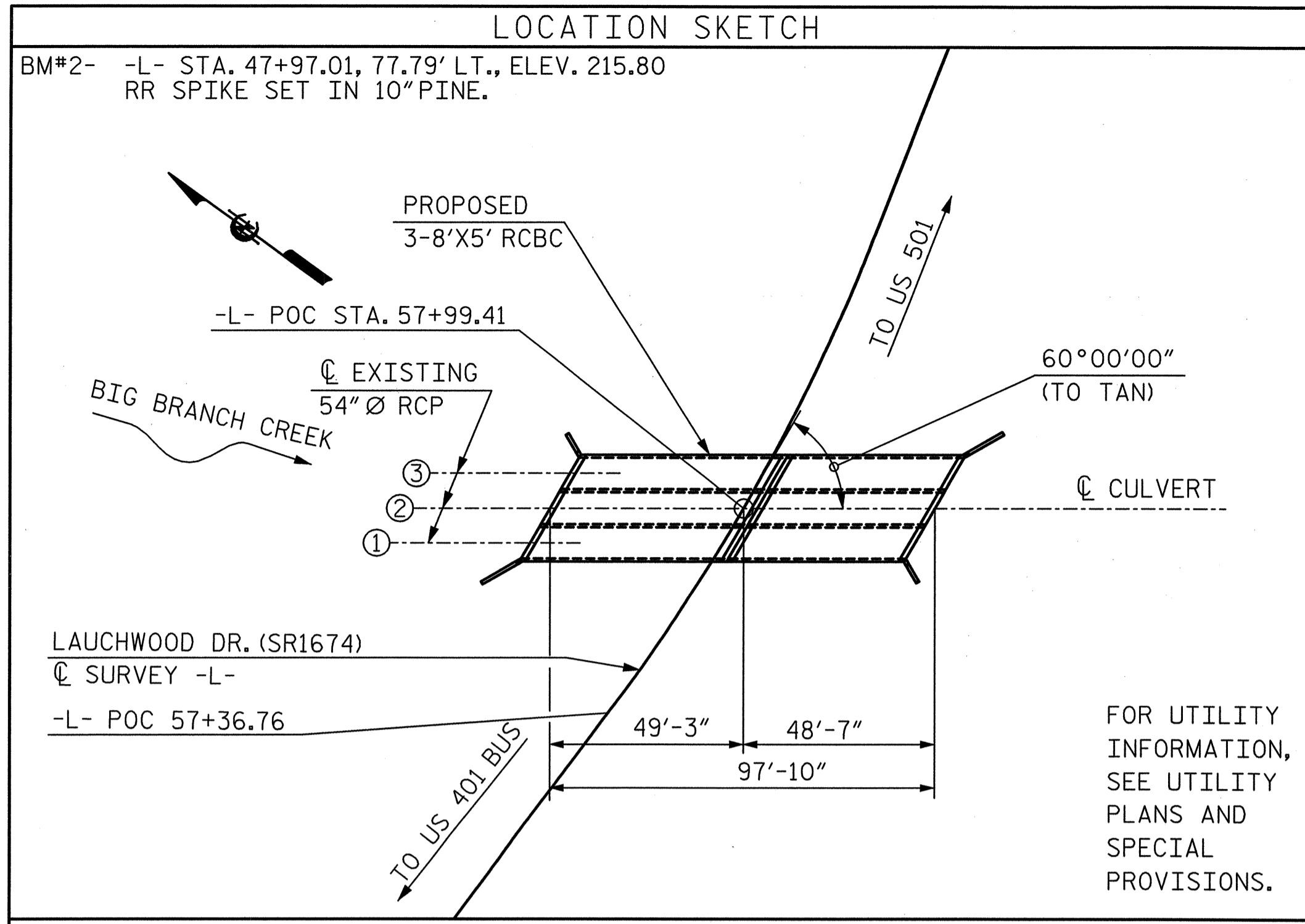
ALISON WHITESELL, P.E.
 NCDOT CONTACT

STRUCTURAL ENGINEER

Paul J. Barber
 11/30/08

SIGNATURE: _____ P.E.

\$DCN\$
 \$DATE\$
 \$TIME\$



NOTE: PHASING REQUIRES TRAFFIC SHIFTS - SEE TRAFFIC CONTROL PLANS.
STAGING REQUIRES CREEK FLOW DIVERSION - SEE EROSION CONTROL PLANS.

GRADE DATA

GRADE POINT ELEV. @ STA.
57+89.82 (16' LEFT) = 207.91
59+08.32 (16' RIGHT) = 207.73
BED ELEVATION @ STA. 57+99.41 = 199.60
ROADWAY SLOPES 2:1

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
BARREL @ 2.07 CY/FT	202.5 C.Y.
WING ETC.	23.4 C.Y.
TOTAL	225.9 C.Y.
REINFORCING STEEL	
BARREL	52,069 LBS.
WINGS ETC.	807 LBS.
TOTAL	52,876 LBS.
FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	
	186 TONS
CULVERT EXCAVATION AT STATION 57+99.41 -L-	
	LUMP SUM

NOTES

ASSUMED LIVE LOAD HS20-44 OR ALTERNATE LOADING.

DESIGN FILL - 3.39'

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 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:
PHASE I: AFTER SHIFTING TRAFFIC TO PHASE II AREA, AND DIVERTING STREAM FLOW TO EXISTING PIPE #1:
1) CONSTRUCT STAGE 1 WING FOOTING AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALLS.
2) CONSTRUCT REMAINING STAGE 1 PORTIONS OF THE WALLS AND WING FULL HEIGHT.
3) DIVERT STREAM FLOW THROUGH EXISTING PIPE #3 AND STAGE 1 CULVERT.
4) CONSTRUCT STAGE 2 WING FOOTING AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALLS.
5) CONSTRUCT REMAINING STAGE 2 PORTIONS OF THE WALLS AND WING FULL HEIGHT.
6) CONSTRUCT ENTIRE ROOF SLAB AND HEADWALL FOR PHASE I.

PHASE II: AFTER SHIFTING TRAFFIC TO PHASE I AREA:
1) CONSTRUCT STAGE 3 WING FOOTING AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALLS.
2) CONSTRUCT REMAINING STAGE 3 PORTIONS OF THE WALLS AND WING FULL HEIGHT.
3) DIVERT STREAM FLOW THROUGH STAGE 3 (AND STAGE 2) BOX CULVERT.
4) CONSTRUCT STAGE 4 WING FOOTING AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALLS.
5) CONSTRUCT REMAINING STAGE 4 PORTIONS OF THE WALLS AND WING FULL HEIGHT.
6) CONSTRUCT ENTIRE ROOF SLAB AND HEADWALL FOR PHASE II.

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.

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.

NO BACKFILLING OF EXTERIOR WALLS SHALL BE PERMITTED UNTIL TOP SLAB HAS BEEN PLACED AND CURED. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARILY BRACING WALLS UNTIL TOP SLAB IS COMPLETED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY DIVERTING STREAM FLOW BETWEEN EXISTING PIPES AND THE NEW CULVERT BARREL DURING PHASING. TEMPORARY DETAILS SHALL ENSURE AGAINST SCOURING OF THE CULVERT BED AND PERMIT FULL WATER DEPTH IN THE EXISTING PIPE. APPROVAL OF PROPOSED DETAILS BY THE ENGINEER PRIOR TO CONSTRUCTION IS REQUIRED.

NO WORK ON A STAGE SHALL BE DONE ON THE CULVERT AT STA. 57+99.41 -L- UNTIL THE AREA OF THE BOX CULVERT HAS BEEN UNDERCUT TO ELEV. 195.60 AND UNSUITABLE MATERIAL REPLACED WITH SUITABLE MATERIAL, PROPERLY COMPACTED TO THE ELEVATION OF THE BOTTOM OF THE PROPOSED FLOOR SLAB. THE LIMITS OF THIS UNDERCUT EXCAVATION SHALL BE AT LEAST THE LIMITS OF THE BOX CULVERT INCLUDING THE WINGS. NO SEPARATE PAYMENT WILL BE MADE FOR ANY TEMPORARY SHEETING, UNDERCUT OR UNSUITABLE MATERIAL REPLACEMENT AS REQUIRED TO CONSTRUCT THE PROPOSED CULVERT. PAYMENT IS INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.

NO SEPARATE PAYMENT WILL BE MADE FOR REMOVAL OF EXISTING RCP PIPES. PAYMENT IS INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.

PROJECT NO. U-5027
SCOTLAND COUNTY
STATION: 57+99.41 -L-
SHEET 1 OF 6 BRIDGE # _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

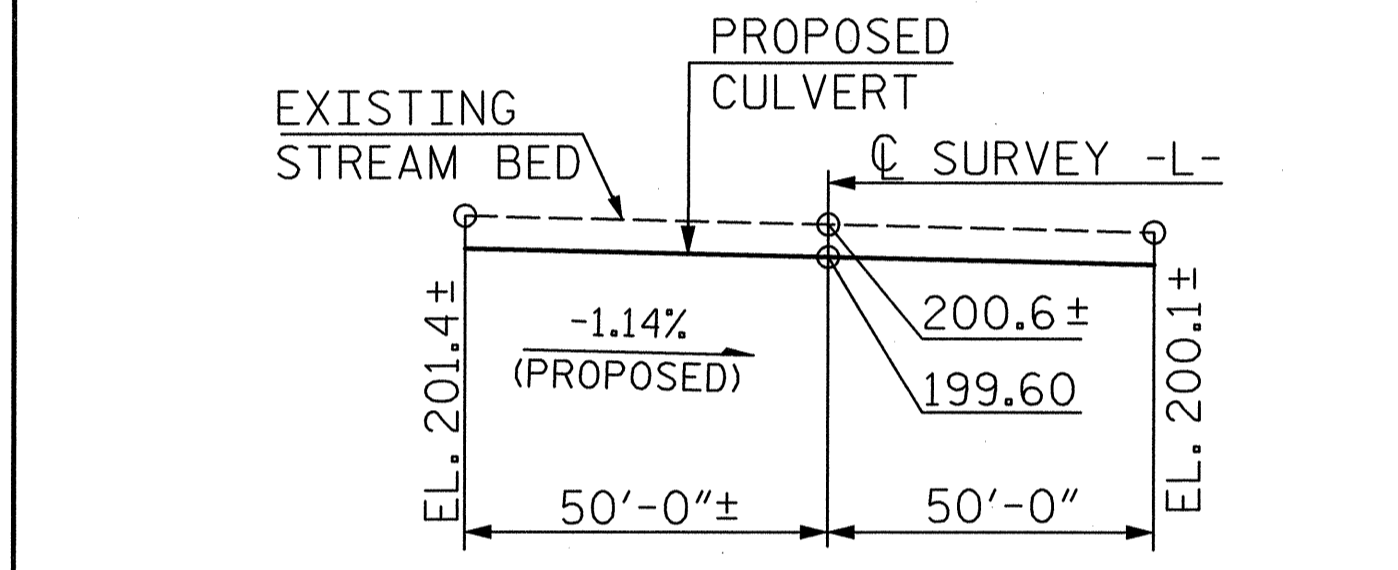
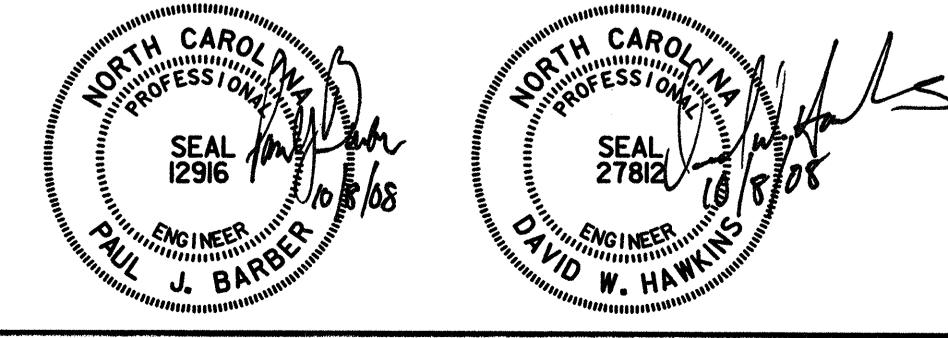
BARREL STANDARD
TRIPLE 8 FT. X 5 FT.
CONCRETE BOX CULVERT
60° SKEW

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

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 6/04
CHECKED BY: P. BARBER DATE: 6/04

DWG. NO. 1

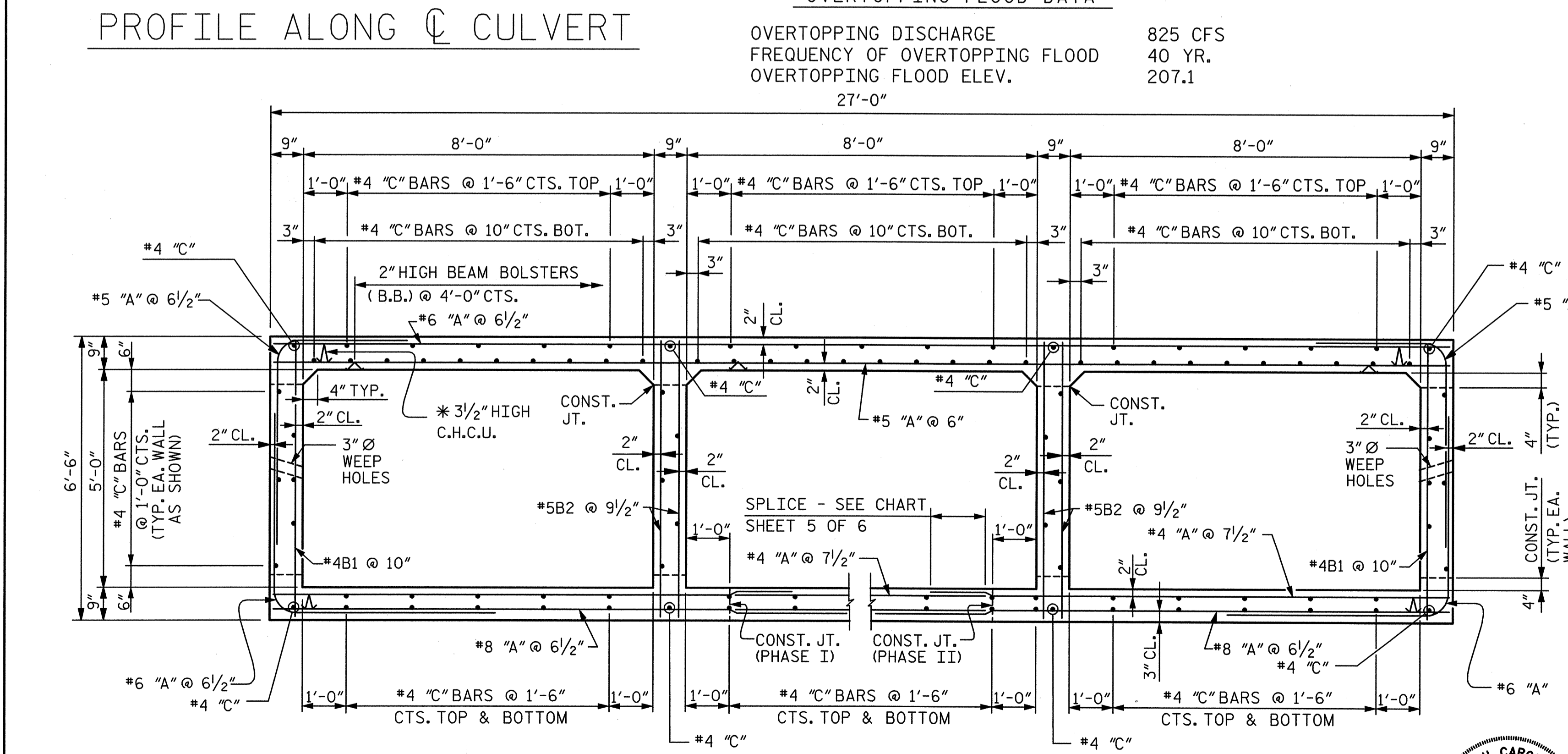


HYDRAULIC DATA

DESIGN DISCHARGE 753 CFS
FREQUENCY OF DESIGN FLOOD 25 YR.
DESIGN HIGH WATER ELEV. 206.5
DRAINAGE AREA 2.0 SQ. MI.
BASIC DISCHARGE (Q100) 993 CFS
BASIC HIGH WATER ELEV. 207.7

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE 825 CFS
FREQUENCY OF OVERTOPPING FLOOD 40 YR.
OVERTOPPING FLOOD ELEV. 207.1
27'-0"

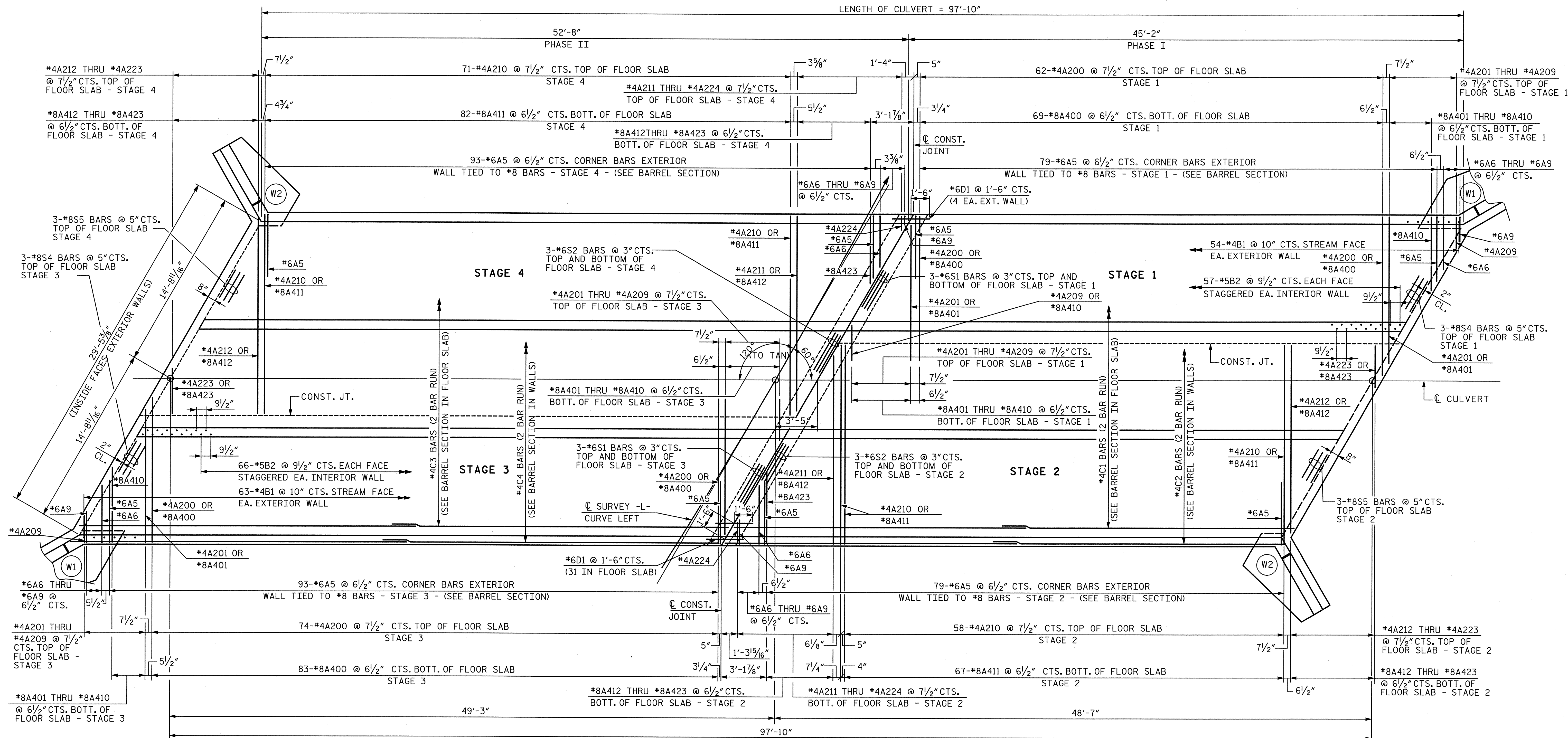


* ALL CONTINUOUS HIGH CHAIR UPPER (C.H.C.U.) @ 3'-0" CTS.

RIGHT ANGLE SECTION OF BARREL

THERE ARE 105 "C" BARS IN SECTION OF BARREL.

DATE\$
TIME\$
FILE\$



PHASE II CONSTRUCTION

PHASE I CONSTRUCTION

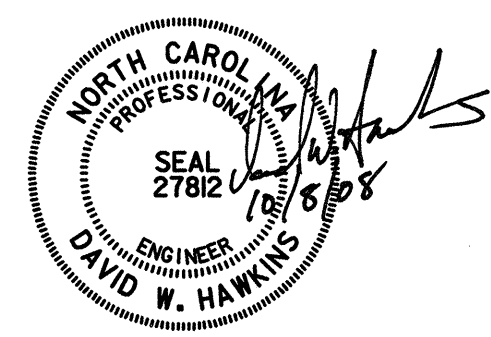
PLAN - FLOOR SLAB

PROJECT NO. U-5027

SCOTLAND COUNTY

STATION: 57+99.41 -L-

SHEET 2 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BARREL STANDARD
 TRIPLE 8 FT. X 5 FT.
 CONCRETE BOX CULVERT
 60° SKEW

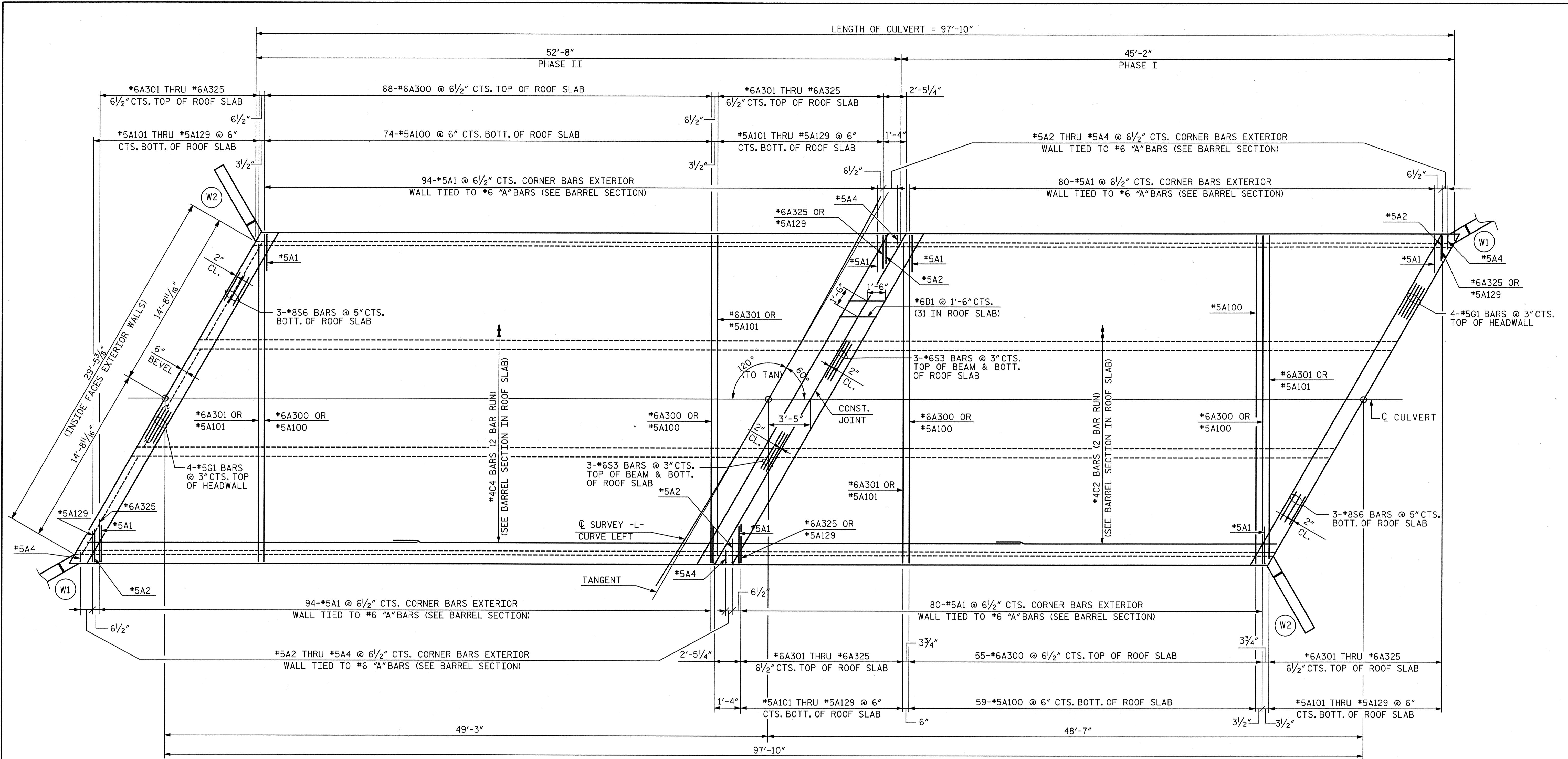
AUG. 1989

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY M. WRIGHT DATE 6/04
 CHECKED BY P. BARBER DATE 6/04
 DWG. NO. 2

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

STD. NO. CB33A

DATE
 9/1/89
 9/1/89
 9/1/89



PHASE II CONSTRUCTION

PHASE I CONSTRUCTION

PLAN - ROOF SLAB

PROJECT NO. U-5027

SCOTLAND COUNTY

STATION: 57+99.41 -L-

SHEET 3 OF 6



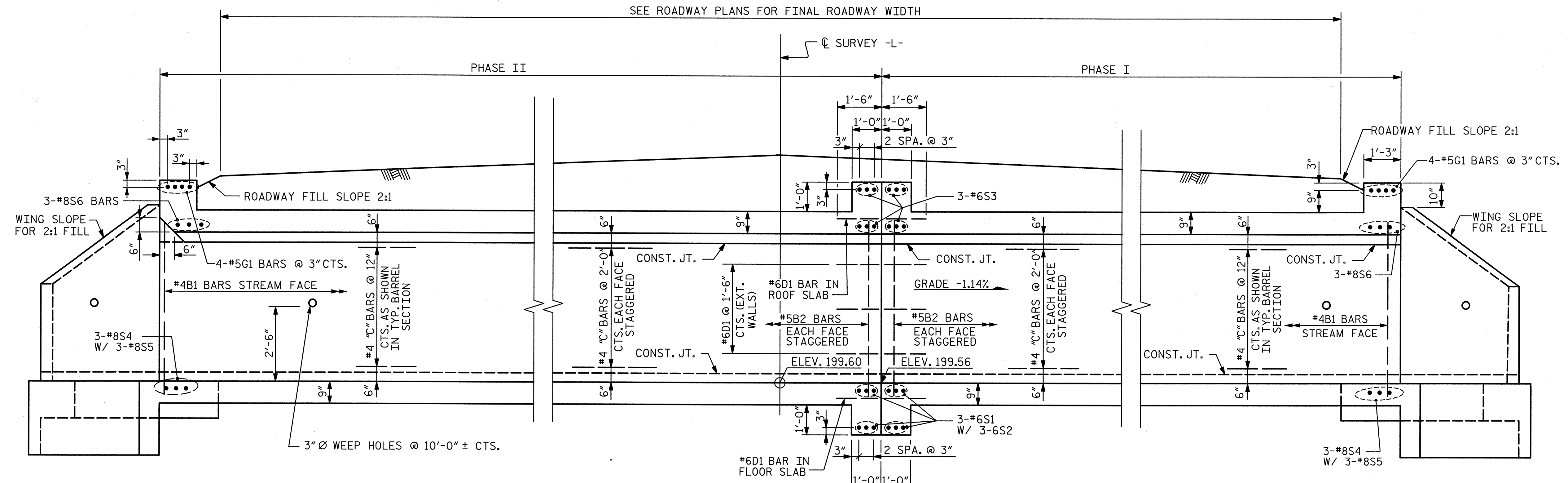
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BARREL STANDARD
 TRIPLE 8 FT. X 5 FT.
 CONCRETE BOX CULVERT
 60° SKEW

AUG. 1989

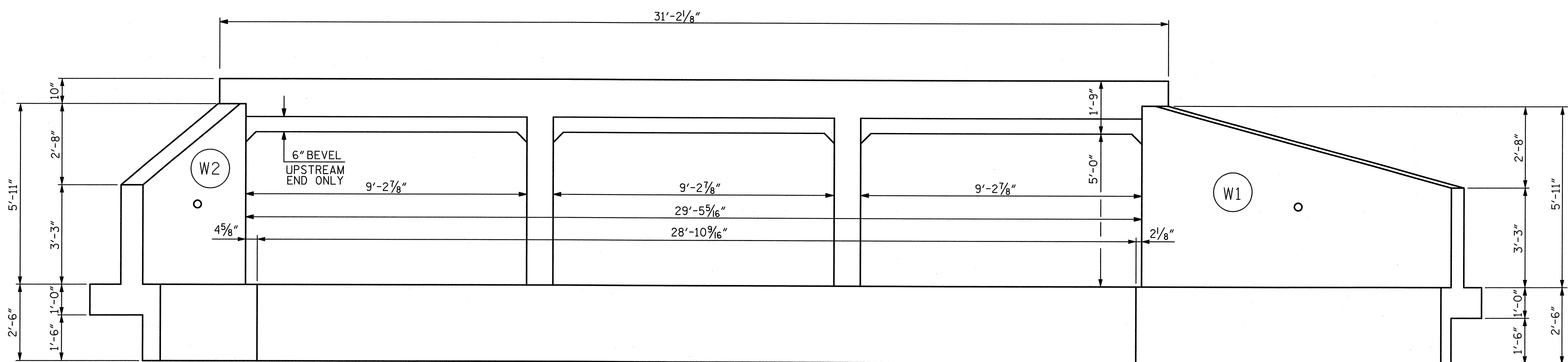
HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY M. WRIGHT DATE 6/04
 CHECKED BY P. BARBER DATE 6/04
 DWG. NO. 3

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

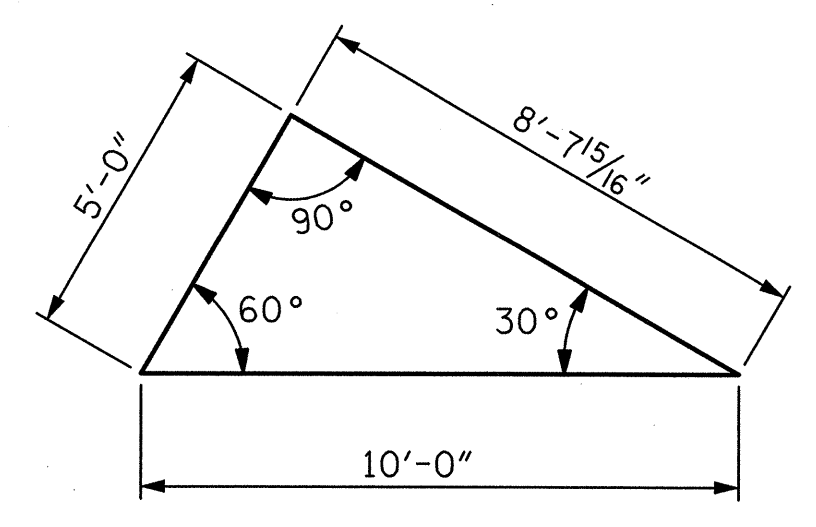
STD. NO. CB33A



EXTERIOR WALL PHASE II INTERIOR WALL PHASE II INTERIOR WALL PHASE I EXTERIOR WALL PHASE I
CULVERT SECTION NORMAL TO ROADWAY

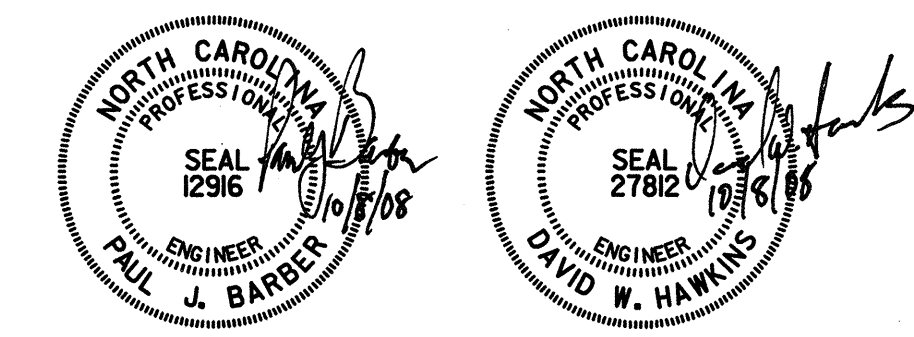


END ELEVATION NORMAL TO SKEW



SKEW TRIANGLE

PROJECT NO. U-5027
SCOTLAND COUNTY
 STATION: 57+99.41 -L-
 SHEET 4 OF 6



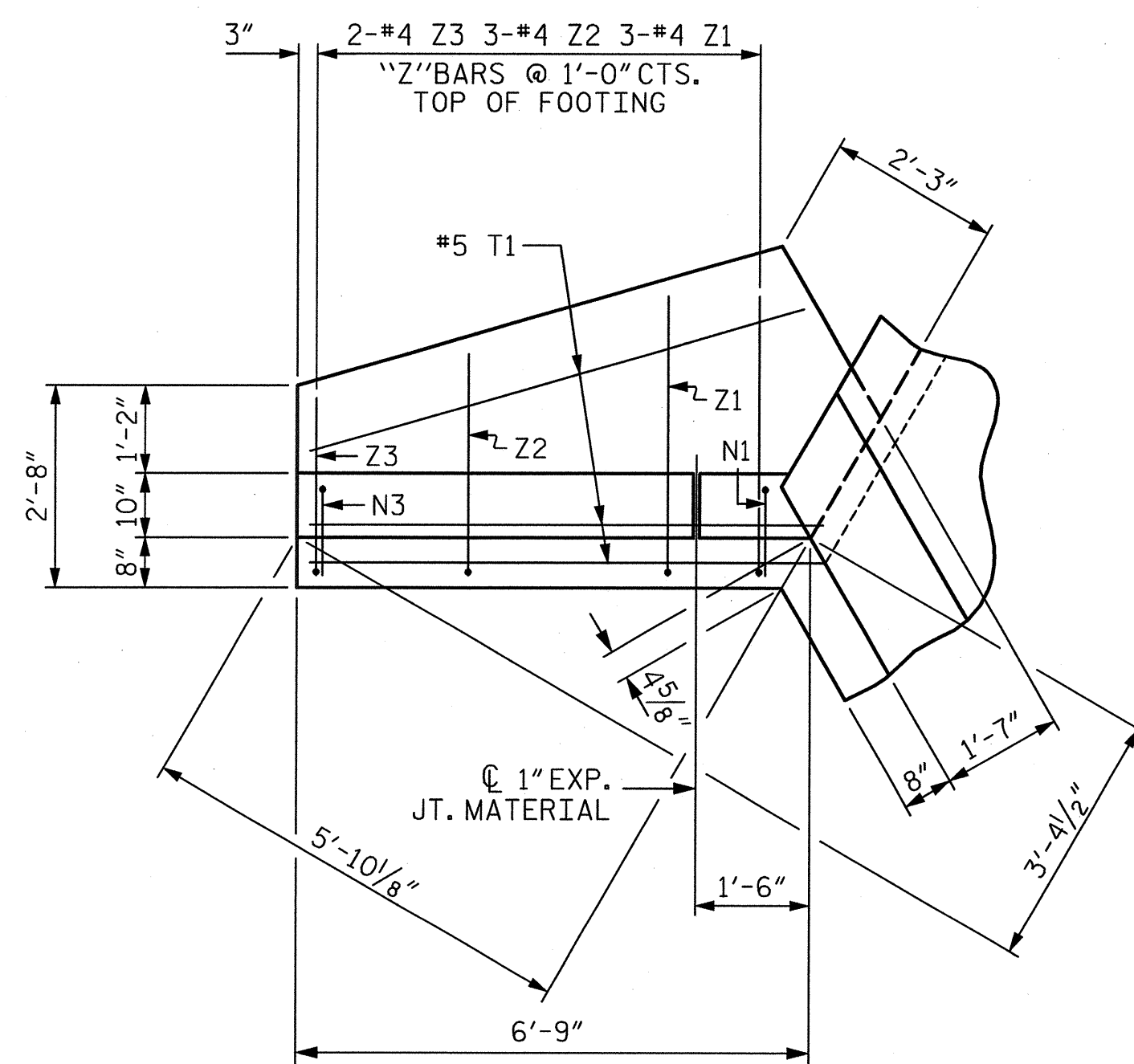
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BARREL STANDARD
 TRIPLE 8 FT. X 5 FT.
 CONCRETE BOX CULVERT
 60° SKEW

ASSEMBLED BY : M. WRIGHT	DATE : 6/04	SPECIAL
CHECKED BY : P. BARBER	DATE : 6/04	
DRAWN BY : R.F. HOLMES	DATE : NOV. 1971	STANDARD
CHECKED BY : J.A. JOHNSON	DATE : NOV. 1971	

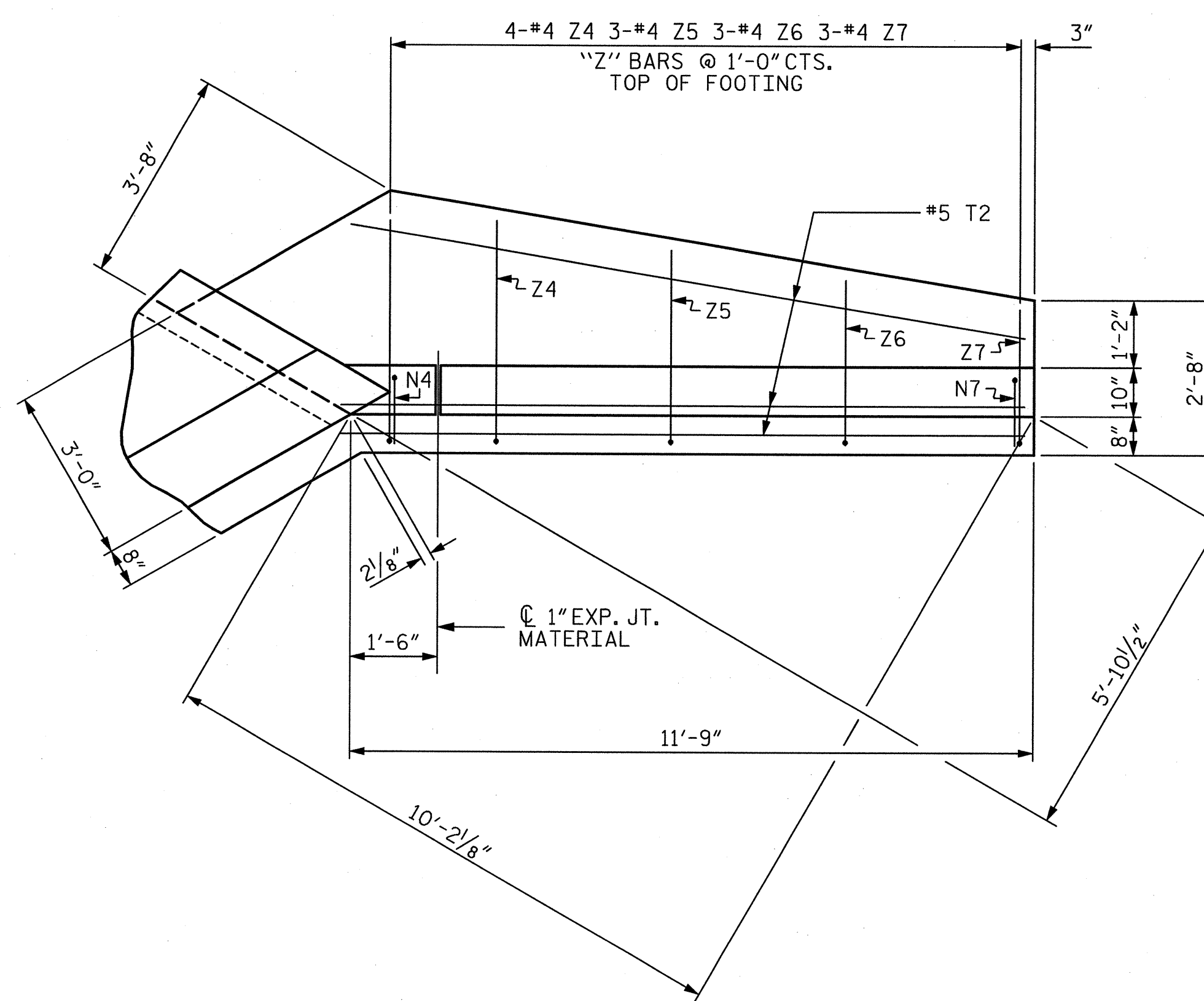
HNTB HNTB NORTH CAROLINA, P.C.
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY : M. WRIGHT DATE : 6/04
 CHECKED BY : P. BARBER DATE : 6/04 DWG. NO. 4

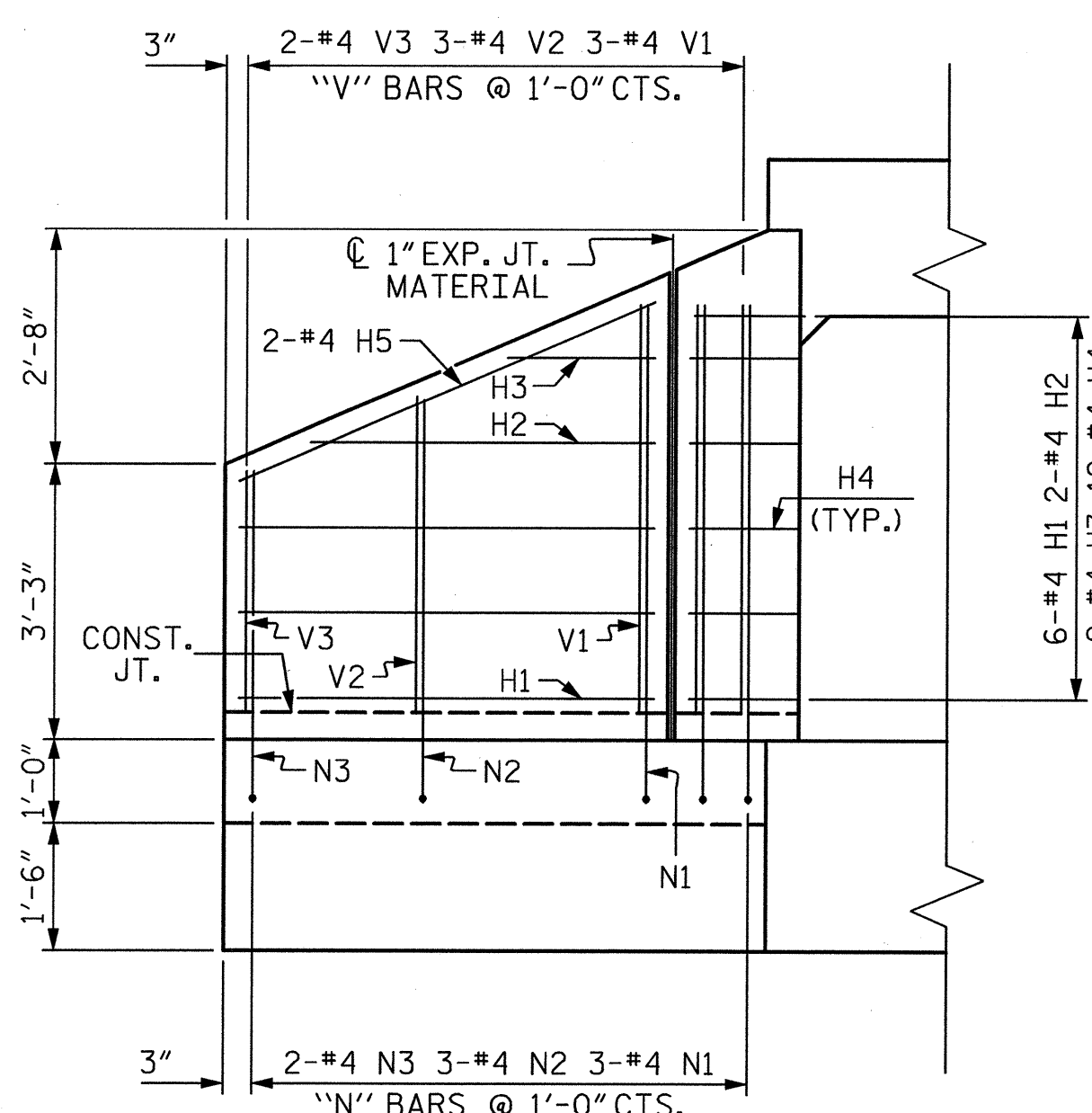
REVISIONS						SHEET NO. S-4
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			



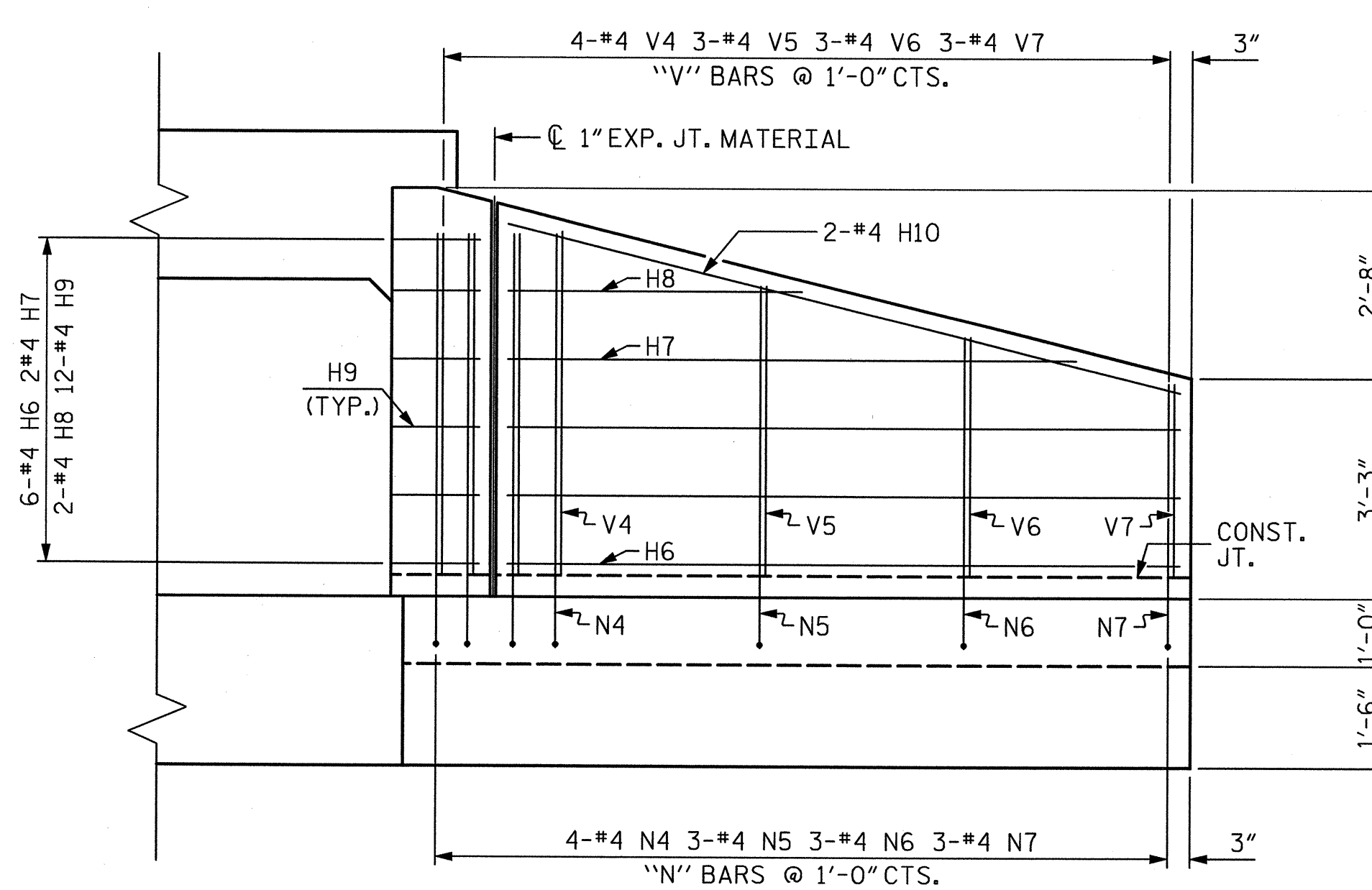
PLAN W2



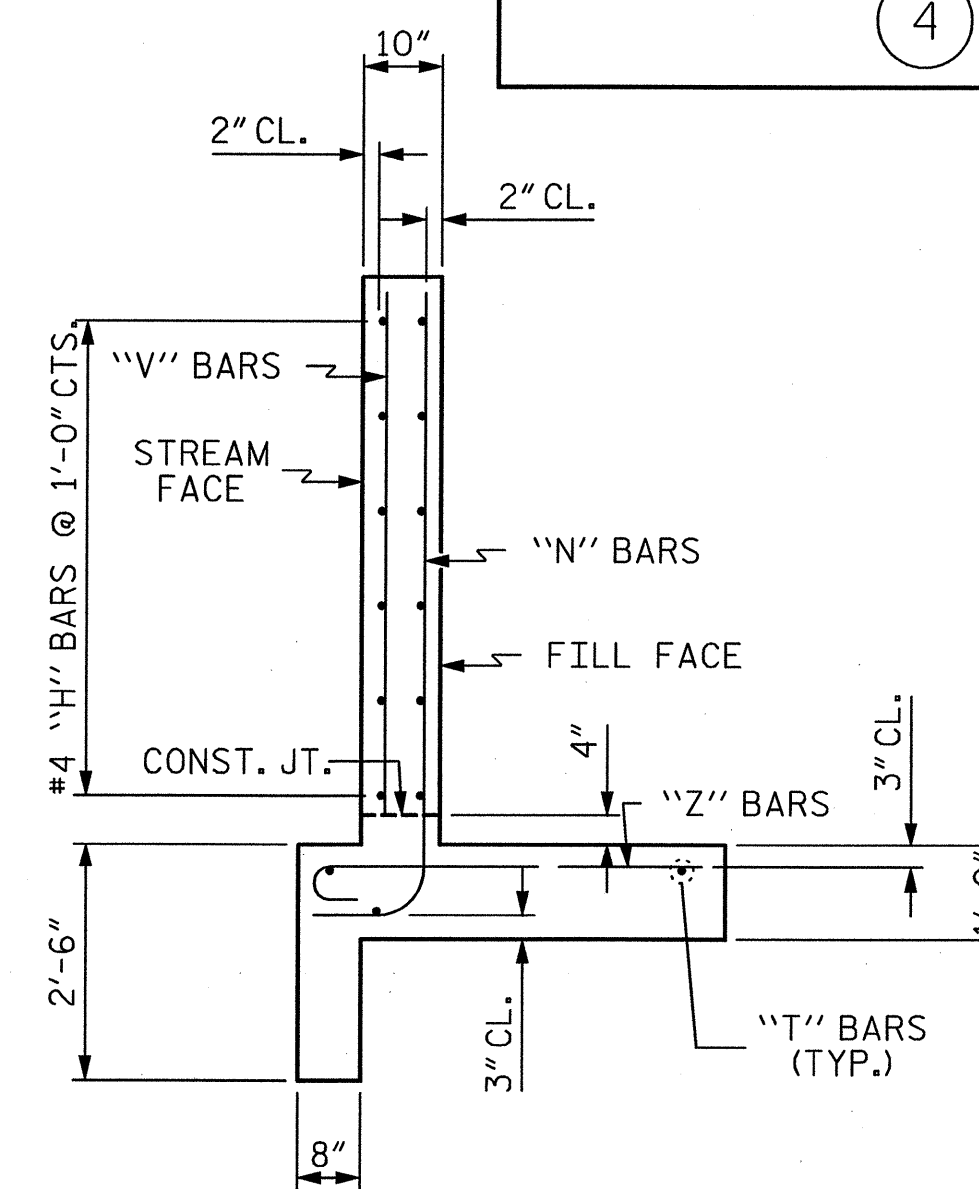
PLAN W1



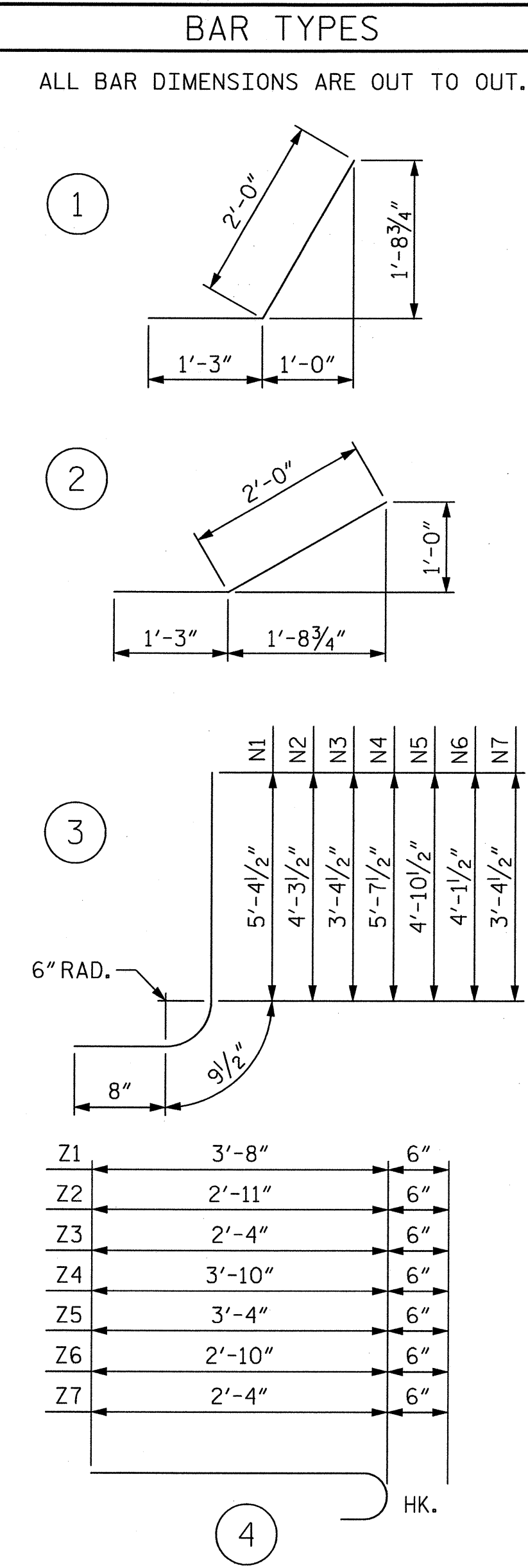
ELEVATION W2



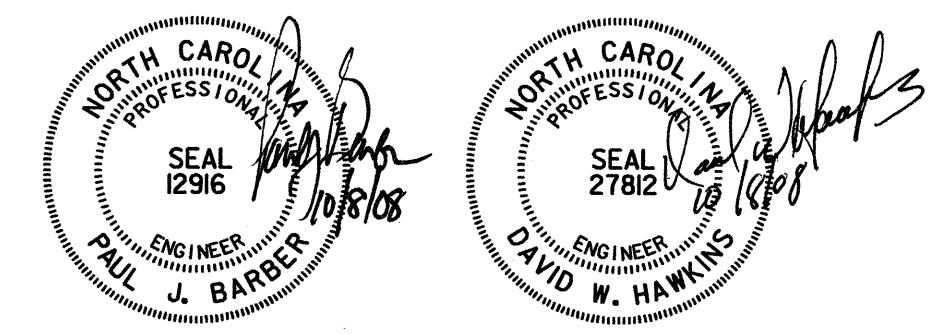
ELEVATION W1



TYPICAL WING SECTION



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	4'-10"	39
H2	4	#4	STR	4'-0"	11
H3	4	#4	STR	1'-9"	5
H4	24	#4	1	3'-3"	52
H5	4	#4	STR	5'-3"	14
H6	12	#4	STR	9'-10"	79
H7	4	#4	STR	8'-4"	22
H8	4	#4	STR	4'-3"	11
H9	24	#4	2	3'-3"	52
H10	4	#4	STR	10'-2"	27
N1	6	#4	3	6'-10"	27
N2	6	#4	3	5'-9"	23
N3	4	#4	3	4'-10"	13
N4	8	#4	3	7'-1"	38
N5	6	#4	3	6'-4"	25
N6	6	#4	3	5'-7"	22
N7	6	#4	3	4'-10"	19
T1	6	#5	STR	6'-9"	42
T2	6	#5	STR	11'-9"	74
V1	6	#4	STR	4'-9"	19
V2	6	#4	STR	3'-8"	15
V3	4	#4	STR	2'-10"	8
V4	8	#4	STR	5'-0"	27
V5	6	#4	STR	4'-3"	17
V6	6	#4	STR	3'-6"	14
V7	6	#4	STR	2'-10"	11
Z1	6	#4	4	4'-2"	17
Z2	6	#4	4	3'-4"	13
Z3	4	#4	4	2'-10"	8
Z4	8	#4	4	4'-4"	23
Z5	6	#4	4	4'-0"	16
Z6	6	#4	4	3'-4"	13
Z7	6	#4	4	2'-10"	11
REINFORCING STEEL FOR 4 WINGS				807 LBS	
CLASS A CONCRETE - PHASE I					
2 WINGS				6.1 CY	
1 HEADWALL				1.4 CY	
1 END CURTAIN WALL				1.8 CY	
TOTAL				9.3 CY	
CLASS A CONCRETE - PHASE II					
2 WINGS				6.1 CY	
1 HEADWALL				1.4 CY	
1 END CURTAIN WALL				1.8 CY	
TOTAL				9.3 CY	



PROJECT NO. U-5027
 SCOTLAND COUNTY
 STATION: 57+99.41 -L-
 SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD WINGS
 FOR
 CONCRETE BOX CULVERT
 H = 5'-0" SLOPE = 2:1
 60° OR 120° SKEW

ASSEMBLED BY: M. WRIGHT DATE: 6/04
 CHECKED BY: P. BARBER DATE: 6/04
 DRAWN BY: CCJ 11/99
 CHECKED BY: RWW 03/00

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY: M. WRIGHT DATE: 6/04
 CHECKED BY: P. BARBER DATE: 6/04 DWG. NO. 6

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

SHEET NO. S-6
 TOTAL SHEETS

STD. NO. CW6005

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. 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.

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