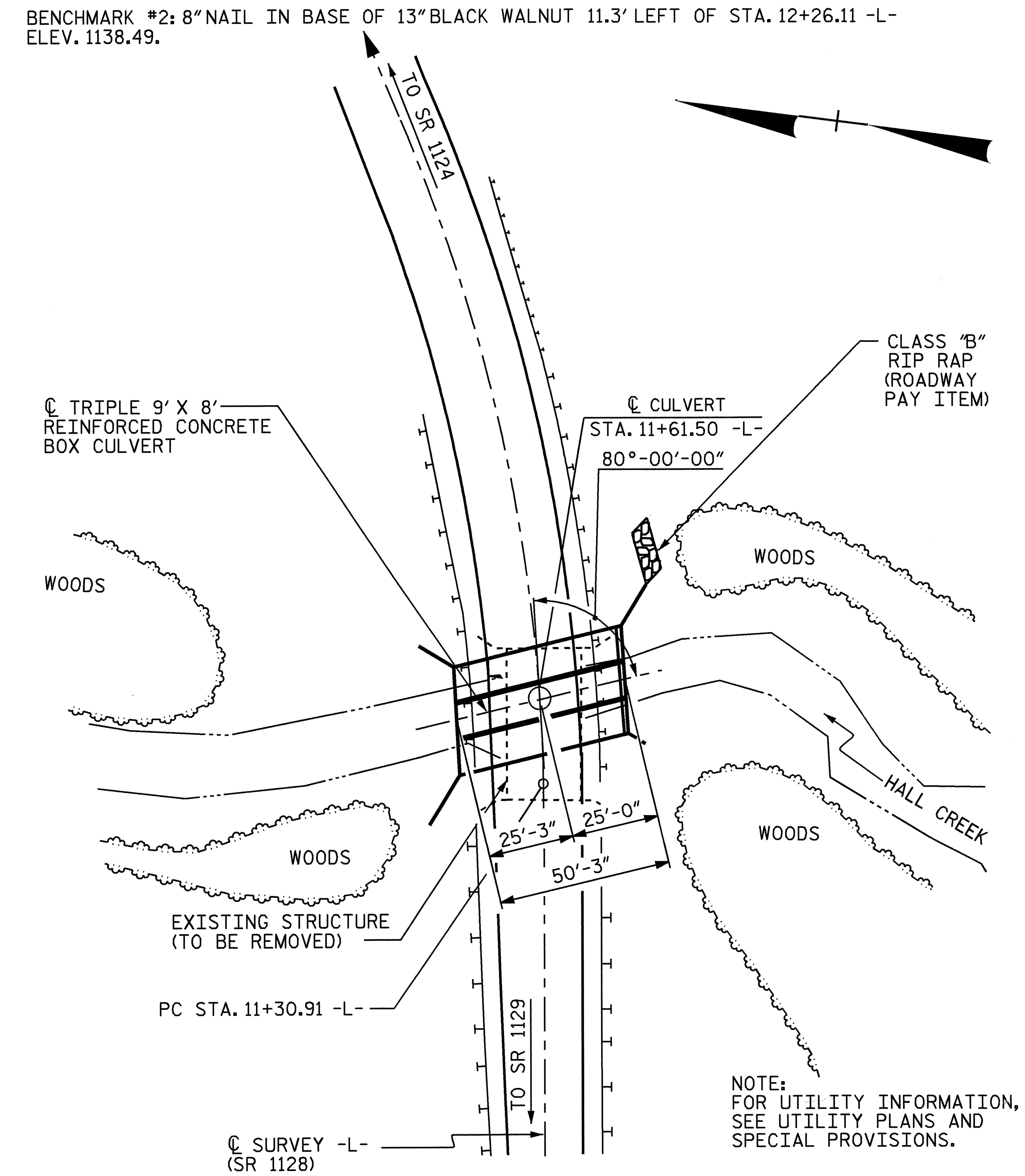
09-SEP-2005 07:49
M:\Structures\b4040\PaulLackey\Microstation\B-4040_sd_CU.
dkpatel

F.A. PROJECT NO. BRZ-1128(5)

BENCHMARK #2: 8" NAIL IN BASE OF 13" BLACK WALNUT 11.3' LEFT OF STA. 12+26.11 -L-
ELEV. 1138.49.



LOCATION SKETCH

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 2.709 CY/FT	136.1	C.Y.
WINGS ETC.	28.8	C.Y.
SILLS	1.4	C.Y.
TOTAL	166.3	C.Y.
REINFORCING STEEL		
BARREL & SILLS	28,572	LBS.
WINGS ETC.	1,547	LBS.
TOTAL	30,119	LBS.
CULVERT EXCAVATION	LUMP SUM	
FOUNDATION CONDITIONING MAT'L	105 TONS	
REMOVAL OF EXISTING STRUCTURE	LUMP SUM	

HYDROGRAPHIC DATA

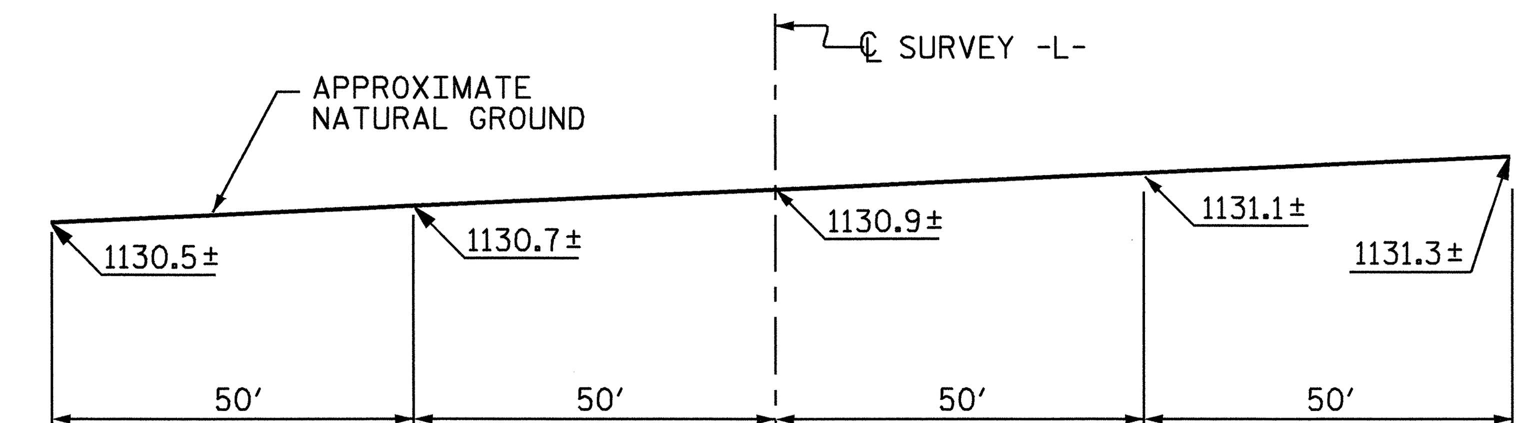
DESIGN DISCHARGE	1500 CFS
FREQUENCY OF DESIGN FLOOD	25 YRS.
DESIGN HIGH WATER ELEVATION	1140.6
DRAINAGE AREA	6.0 SQ. MI.
BASIC DISCHARGE (Q100)	2300 CFS
BASIC HIGH WATER ELEVATION	1141.79

OVERTOPPING FLOOD DATA

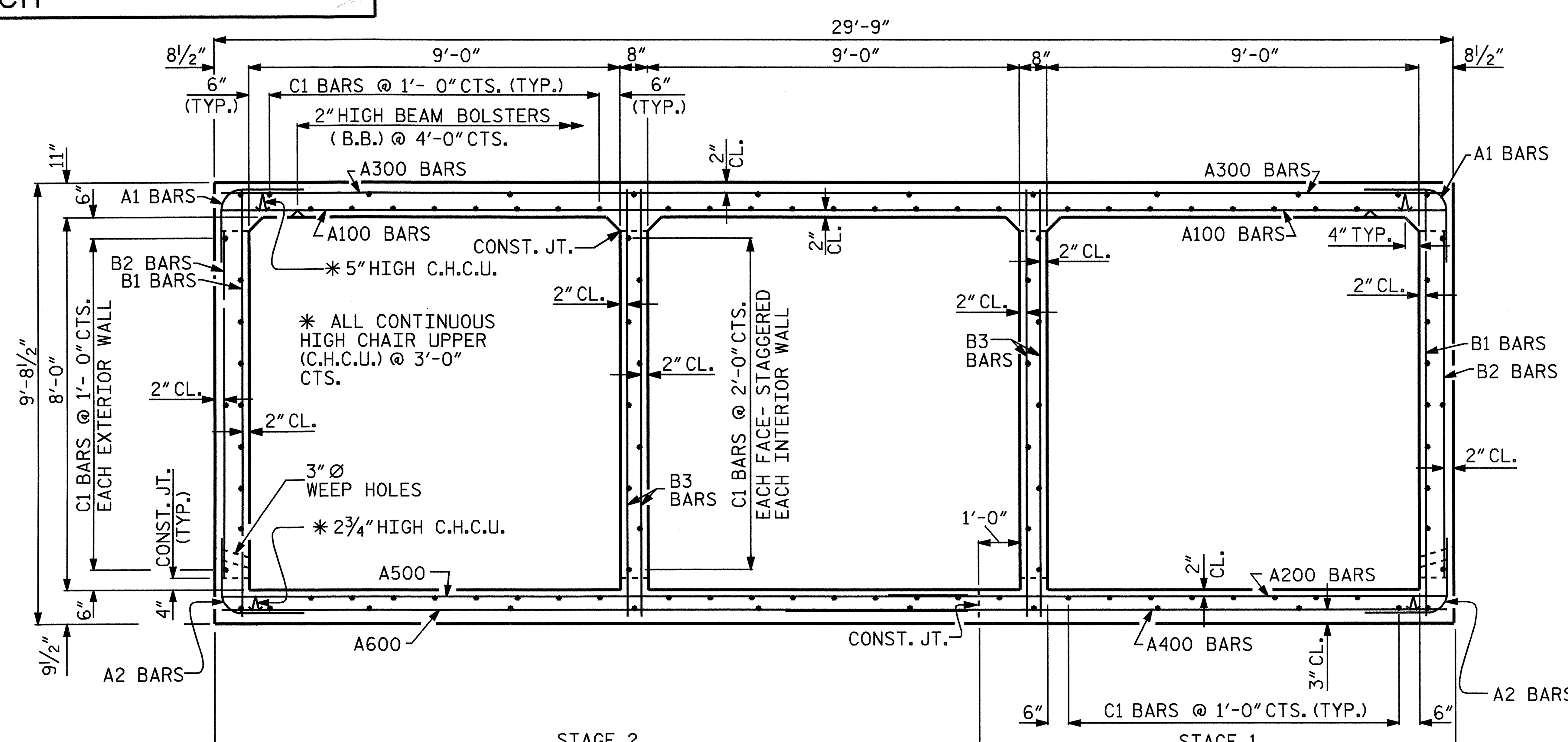
OVERTOPPING DISCHARGE	1440 CFS
FREQUENCY OF OVERTOPPING FLOOD	< 25 YR.
OVERTOPPING FLOOD ELEVATION	1140.6

GRADE DATA

GRADE POINT ELEVATION @ STA. 11+61.50 -L-	1140.95
BED ELEVATION @ STA. 11+61.50 -L-	1129.90
ROADWAY SLOPES	2:1



PROFILE ALONG ℄ CULVERT



RIGHT ANGLE SECTION OF BARREL

(LOOKING DOWNSTREAM)
(THERE ARE 108 "C" BARS IN SECTION OF BARREL)

NOTES

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

DESIGN FILL----------------- = 1.25 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 OF STAGE 1 INCLUDING 4" OF VERTICAL WALLS.
2. THE REMAINING PORTIONS OF STAGE 1 WALLS AND WINGS FULL HEIGHT.
3. THE 1'-0" x 1'-6" SILL IN STAGE 1 BARREL.
4. WING FOOTINGS AND FLOOR SLAB OF STAGE 2 INCLUDING 4" OF VERTICAL WALLS.
5. THE REMAINING PORTION OF STAGE 2 WALLS AND WINGS FULL HEIGHT.
6. THE SILLS IN STAGE 2.
7. THE ENTIRE 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 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.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION SEQUENCE, SEE EROSION CONTROL PLANS.

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

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 THE DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

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 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 MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

THE EXISTING BRIDGE CONSISTING OF 2 SPANS @ 20'-3", TIMBER FLOOR ON STEEL GIRDERS FLOOR BEAM SYSTEM WITH 19'-2" CLEAR ROADWAY ON TIMBER CAPS WITH TIMBER PILES 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.

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 11+61.50 -L-."

EXISTING BED MATERIAL WILL BE STOCK PILED ON SITE AND REUSED AS BACK FILL MATERIAL INSIDE THE CULVERT TO BURY THE BOTTOM OF THE CULVERT THE REQUIRED 1'-0".

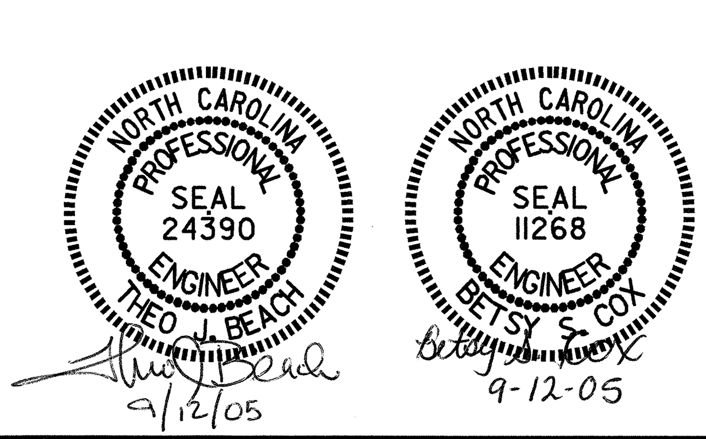
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4040

BURKE COUNTY

STATION: 11+61.50 -L-

SHEET 1 OF 5 REPLACES BRIDGE NO. 251



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD
TRIPLE 9 FT. X 8 FT.
CONCRETE BOX CULVERT
80° SKEW

AUGUST 1989

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

ADDED 11-1-90

ASSEMBLED BY :	P.E. LACKEY	DATE :	9/04
CHECKED BY :	S.B. WILLIAMS	DATE :	9/04
DRAWN BY :	R.W. WRIGHT	DATE :	OCT. 1989
CHECKED BY :	A.R. BISSETTE	DATE :	OCT. 1989