

BENCHMARK: RR SPIKE IN BASE OF 900mm TWIN OAK, AT STA. 10+27 -BY1- , 30.2m RT. ELV. 48.634m

**NOTES**

- ASSUMED LIVE LOAD -----MS18 OR ALTERNATE LOADING.  
 DESIGN FILL-----2.960m  
 FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.  
 76mm 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 100mm 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.  
 TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 21.0m. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.  
 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 900mm 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.  
 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.  
 ALL ELEVATIONS ARE IN METERS.  
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.  
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.  
 TOP OF BOTTOM SLAB IS TO BE BURIED 305mm BELOW STREAM BED.  
 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 WILL 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.

**ROADWAY DATA**

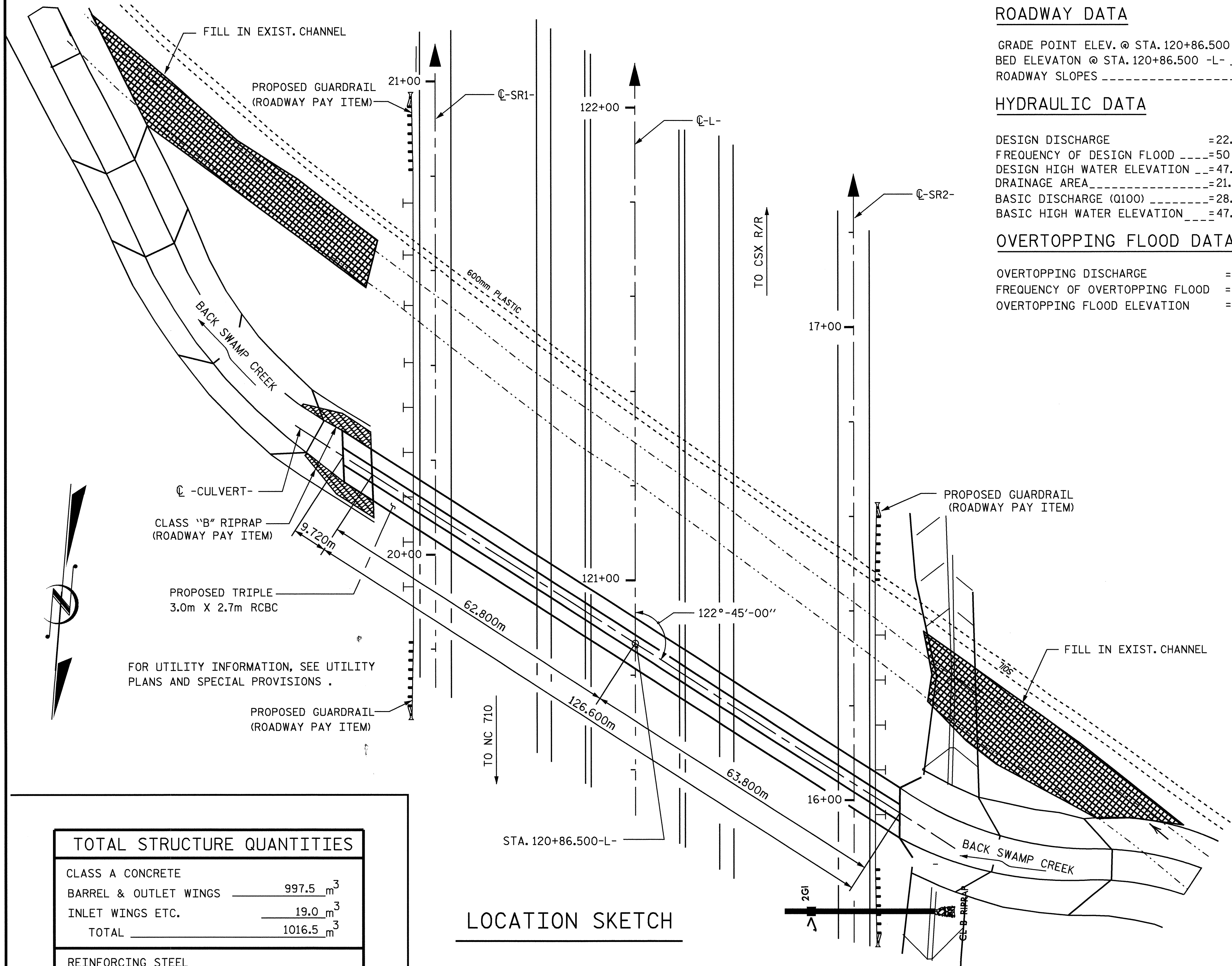
GRADE POINT ELEV. @ STA. 120+86.500 -L- 48.750  
 BED ELEVATION @ STA. 120+86.500 -L- 44.040  
 ROADWAY SLOPES -----3:1

**HYDRAULIC DATA**

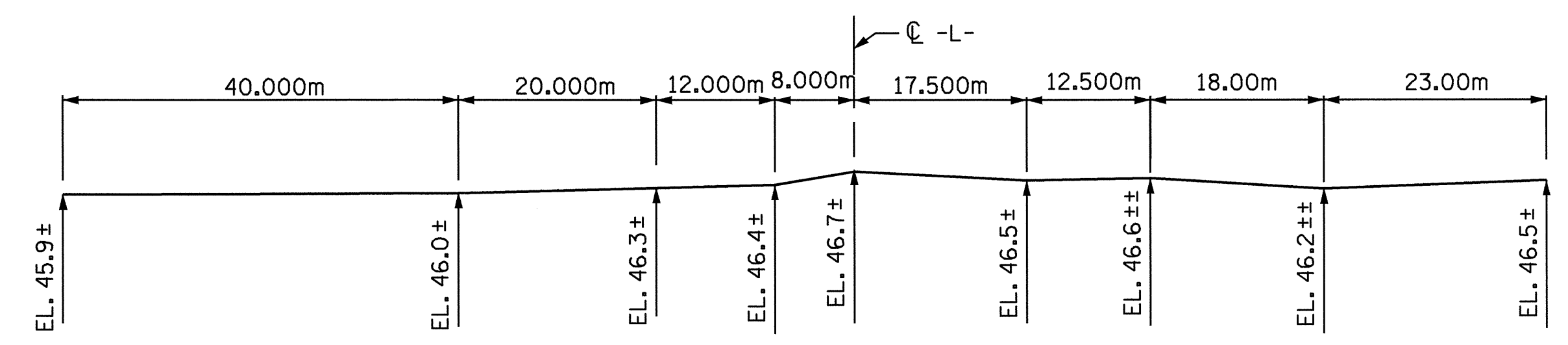
DESIGN DISCHARGE = 22.5 m<sup>3</sup>/s  
 FREQUENCY OF DESIGN FLOOD = 50 YEARS  
 DESIGN HIGH WATER ELEVATION = 47.360  
 DRAINAGE AREA = 21.5 Sq. Km  
 BASIC DISCHARGE (Q100) = 28.0 m<sup>3</sup>/s  
 BASIC HIGH WATER ELEVATION = 47.570

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE = 42.6m<sup>3</sup>/s  
 FREQUENCY OF OVERTOPPING FLOOD = 500 (-) YEARS  
 OVERTOPPING FLOOD ELEVATION = 48.160



LOCATION SKETCH

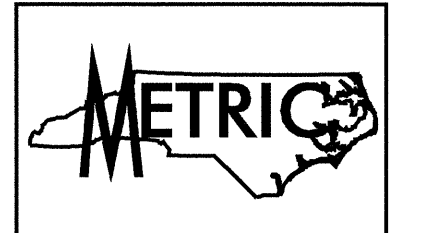


PROFILE ALONG CULVERT

**TOTAL STRUCTURE QUANTITIES**

CLASS A CONCRETE	
BARREL & OUTLET WINGS	997.5 m <sup>3</sup>
INLET WINGS ETC.	19.0 m <sup>3</sup>
TOTAL	1016.5 m <sup>3</sup>
REINFORCING STEEL	
BARREL AND OUTLET WING	120,370 kg
INLET WINGS ETC.	713 kg
TOTAL	121,083 kg
CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MAT'L	907 METRIC TONS

ASSEMBLED BY : N. Q. TRAN DATE : 2-13-03  
 CHECKED BY : SWANCEPE DATE : 08-06-04  
 DRAWN BY : EEM 6/97  
 CHECKED BY : ARB 7/97

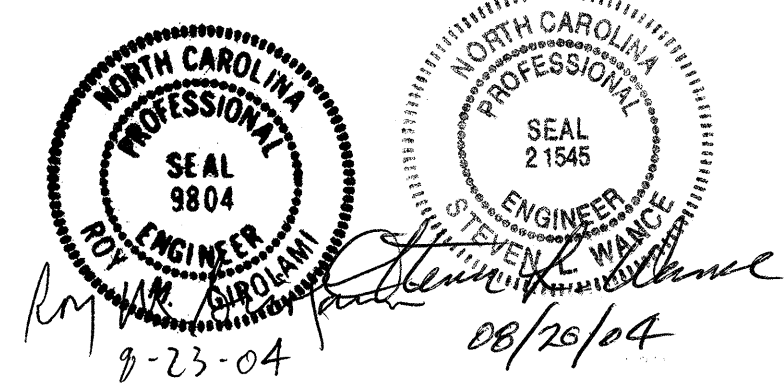


PROJECT NO. R-513BA  
ROBESON COUNTY  
 STATION: 120+86.500 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TRIPLE 3.000m X 2.700m  
 CONCRETE BOX CULVERT



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-20
1			3			TOTAL SHEETS 24
2			4			