



**HYDRAULIC DATA**

DESIGN DISCHARGE	= 590.0 CMS
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 466.660
DRAINAGE AREA	= 1086 SQ. KM.
BASIC DISCHARGE (Q 100)	= 670.0 CMS
BASIC HIGH WATER ELEVATION	= 467.010

**OVERTOPPING FLOOD DATA**

OVERTOPPING FLOOD DISCHARGE	= 780.0+ CMS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING ELEVATION	= 478.000

NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**LOCATION SKETCH**

**TOTAL BILL OF MATERIAL**

	CONSTRUCTION MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	2134mm DIA DRILLED PIERS IN SOIL	2134mm DIA DRILLED PIERS NOT IN SOIL	SID INSPECTION	SPT TESTING	CROSSHOLE SONIC LOGGING	CSL TUBES	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE)	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL
	LUMP SUM	METERS	METERS	EACH	EACH	EACH	METERS	SQ. METERS	SQ. METERS	CU. METERS	LUMP SUM	kg
SUPERSTRUCTURE								3137.4	2896.8		LUMP SUM	
END BENT 1										81.3		4785
BENT 1		5.8	8.0	1	1	1	91.8			127.9		16266
BENT 2		6.4	9.0	1	1	1	101.1			120.0		15982
END BENT 2										80.2		4781
TOTAL	LUMP SUM	12.2	17.0	2	2	2	192.9	3137.4	2896.8	409.4	LUMP SUM	41814

	SPIRAL COLUMN REINFORCING STEEL	STRUCTURAL STEEL	HP 310 X 79 STEEL PILES	CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (600mm THICK)	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS	MODULAR EXPANSION JOINT SEALS	STRUCTURE DRAINAGE SYSTEM	PIN ROCKER BEARINGS
	kg	APPROX. kg	NO.	METERS	METERS	METRIC TON	SQ. METERS	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE		800,650			442.192			LUMP SUM	LUMP SUM	LUMP SUM
END BENT 1			22	308.0		2340	2387			
BENT 1	3204									
BENT 2	3008									
END BENT 2			22	330.0		1862	1900			
TOTAL	6212	800,650	44	638.0	442.192	4202	4287	LUMP SUM	LUMP SUM	LUMP SUM

DRAWN BY : B.N.B. / TAW DATE : 10-27-04  
 CHECKED BY : L.E. SUTTON DATE : 11-8-04

11-JAN-2005 14:40  
 W:\SquadL\r0977a\str\l\walter\R0977A.sd.GD.0l.dgn  
 lsutton

**NOTES**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.  
 ALL ELEVATIONS ARE IN METERS.  
 ASSUMED LIVE LOAD = MS 18 OR ALTERNATE LOADING.  
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SNSM.  
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.  
 THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.  
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER 1995.  
 ALL STRUCTURAL STEEL, EXCEPT SPECIFIED FLANGE LOCATIONS, SHALL BE AASHTO M270 GRADE 345W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS. STRUCTURAL STEEL IN SPECIFIED FLANGE LOCATIONS SHALL BE ASTM A709-03A GRADE 485W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS.  
 FOR HIGH PERFORMANCE STEEL, SEE SPECIAL PROVISIONS.  
 REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.  
 THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE).  
 FOR REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE), SEE SPECIAL PROVISIONS.  
 FOR SAND LIGHTWEIGHT CONCRETE, SEE SPECIAL PROVISIONS.  
 FOR PIN ROCKER BEARINGS, SEE SPECIAL PROVISIONS.  
 FOR STRUCTURE DRAINAGE SYSTEM, SEE SPECIAL PROVISIONS.  
 FOR TEMPORARY WORK BRIDGE, SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 16+02.300 -LC1B-.  
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY B.  
 THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 760mm 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.  
 THE USE OF NEEDLE BEAMS TO SUPPORT THE DECK SLAB WILL ONLY BE ALLOWED IN THE ACUTE CORNERS OF THE SLAB.  
 SUBMIT PLANS AND CALCULATIONS FOR BRACING OF GIRDERS DURING ERECTION FOR REVIEW AND APPROVAL OF THE ENGINEER BEFORE BEGINNING WORK AT THIS LOCATION. DRAWINGS AND CALCULATIONS SHALL BE PREPARED, SIGNED, AND SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER. THE APPROVAL OF THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR THE SAFETY OF THE METHOD OR EQUIPMENT.

FOR FABRICATED METAL STAY-IN-PLACE FORMS, SEE SPECIAL PROVISIONS.  
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.  
 FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.  
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.  
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.  
 THE CONTRACTOR SHALL OBSERVE A ONE MONTH WAITING PERIOD BEFORE BEGINNING ANY WORK FOR END BENT CONSTRUCTION AFTER COMPLETION OF THE EMBANKMENT AT EACH END BENT. THE CONTRACTOR MAY BEGIN THE REINFORCED BRIDGE APPROACH FILL CONSTRUCTION AFTER COMPLETION OF END BENT INCLUDING WINGWALLS.  
 FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.  
 THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 300mm BELOW THE GROUND LINE.  
 THE DRILLED PIERS AT BENTS NO.1 AND BENT NO.2 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 2900 kPa.  
 THE REQUIRED TIP BEARING CAPACITY AT BENT NO.1 AND BENT NO.2 SHALL BE VERIFIED.  
 DRILLED PIERS FOR BENT NO.1 AND BENT NO.2 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 9367 kN EACH AT THE TOP OF THE COLUMN.  
 PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT BENT NO.1 AND BENT NO.2.  
 DRILLED PIERS AT BENT NO.1 AND BENT NO.2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 457.0 AND SATISFY THE REQUIRED TIP BEARING CAPACITY.  
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 460.5. THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 461.0.  
 THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.  
 SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.  
 SPT TESTING IS REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT BENT NO.1 AND BENT NO.2. SEE DRILLED PIERS SPECIAL PROVISION.  
 SID INSPECTIONS ARE REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT NO.1 AND BENT NO.2. SEE DRILLED PIERS SPECIAL PROVISION.  
 CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENT NO.1 AND BENT NO.2. SEE SPECIAL PROVISION FOR CROSSHOLE SONIC LOGGING.  
 PILES FOR END BENT NO.1 AND END BENT NO.2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 530 kN EACH.  
 WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

PROJECT NO. R-977A  
 CHEROKEE COUNTY  
 STATION: 16+02.300-LC1B-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING  
 FOR BRIDGE ON US 64  
 OVER HIWASSEE RIVER  
 BETWEEN  
 US 19 AND SR 1558**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			230

