

BM - 9, A NAIL IN ROOT OF 12" GUM, LOCATED AT STA. 162+08.847 -L-, OFFSET 15.45m LEFT. EL. 12.80

ROADWAY DATA

CL GR. PT. ELEV. @ STA. 161+33.500 -L- MED. = 9.775
 BED ELEV. @ STA. 161+33.500 -L- MED. = 10.940
 ROADWAY SLOPES = 2:1

HYDROGRAPHIC DATA

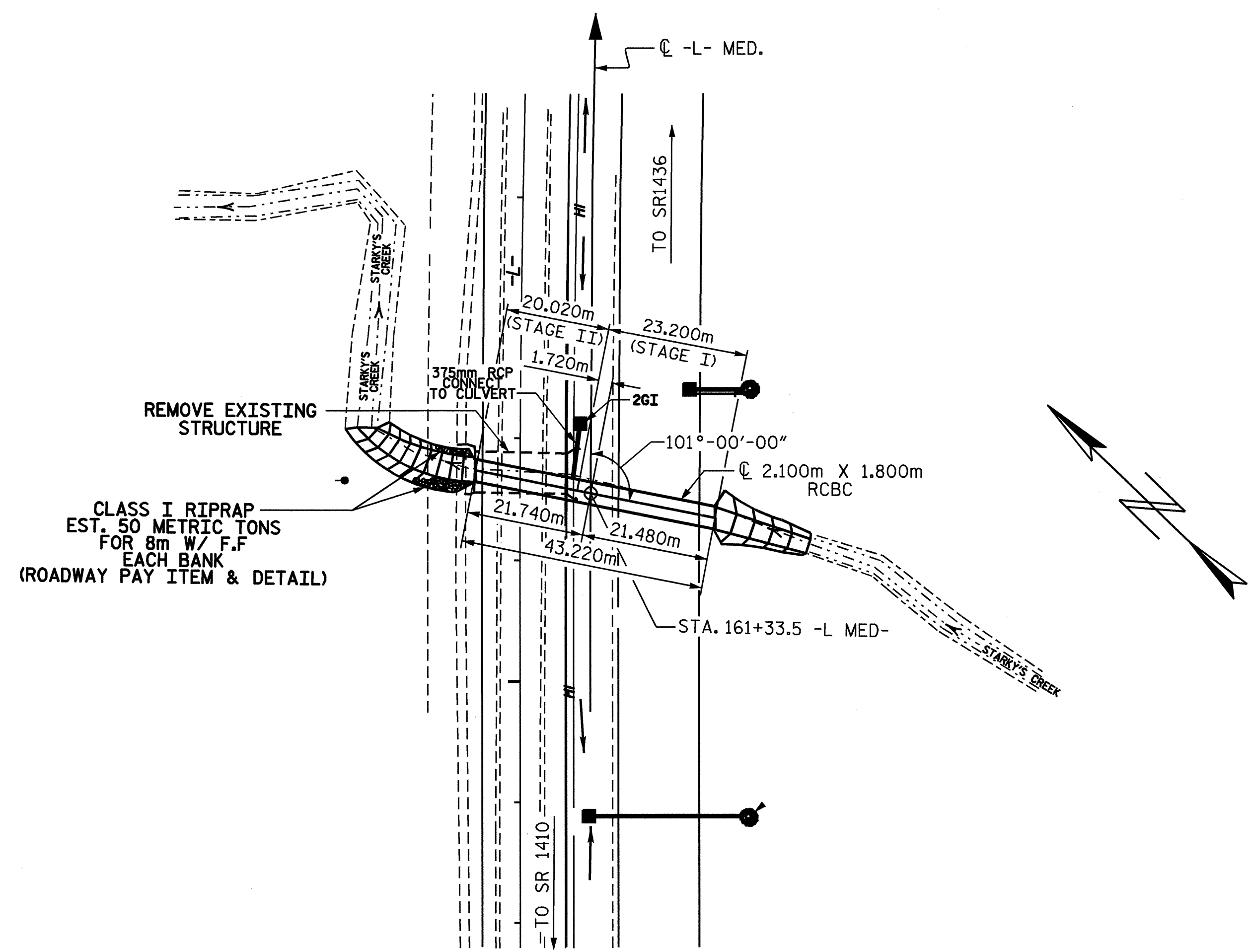
DESIGN DISCHARGE = 16.0 m³/s
 FREQUENCY OF DESIGN FLOOD = 50 YR.
 DESIGN HIGH WATER ELEVATION = 12.90 m
 DRAINAGE AREA = 3.6 sq. Km
 BASIC DISCHARGE (Q100) = 22 m³/s
 BASIC HIGH WATER ELEVATION = 13.31 m

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = ~ 34 m³/s
 FREQUENCY OF OVERTOPPING FLOOD = 500 YR.
 OVERTOPPING FLOOD ELEVATION = 14.50 m

NOTES

ASSUMED LIVE LOAD -----MS18 OR ALTERNATE LOADING.
 DESIGN FILL----- 1.800m
 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.
 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.
 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
 ALL ELEVATIONS ARE IN METERS.
 A 900mm STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
 THE 375mm PIPETHROUGH THE SIDEWALL OF THE CULVERT WILL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL WILL BE CUT AND FIELD BENT AS NECESSARY.
 THE EXISTING 3.08m(W) x 1.22m(H) DOUBLE BARREL CULVERT SHALL BE REMOVED (APPROXIMATE LENGTH = 15.4m)

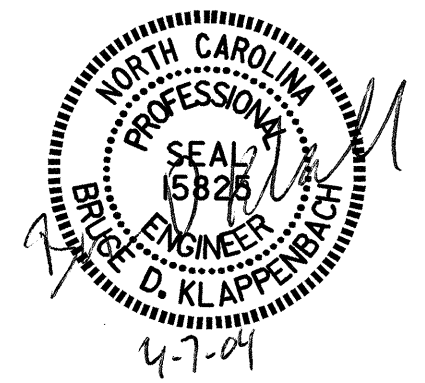
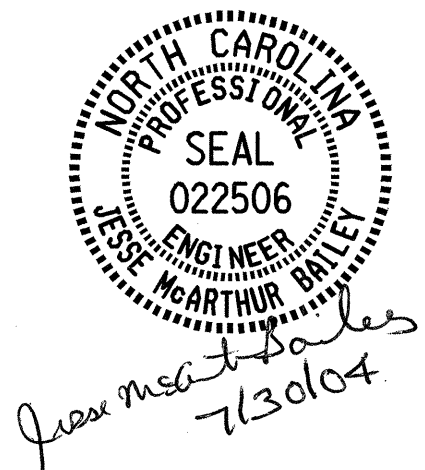


LOCATION SKETCH

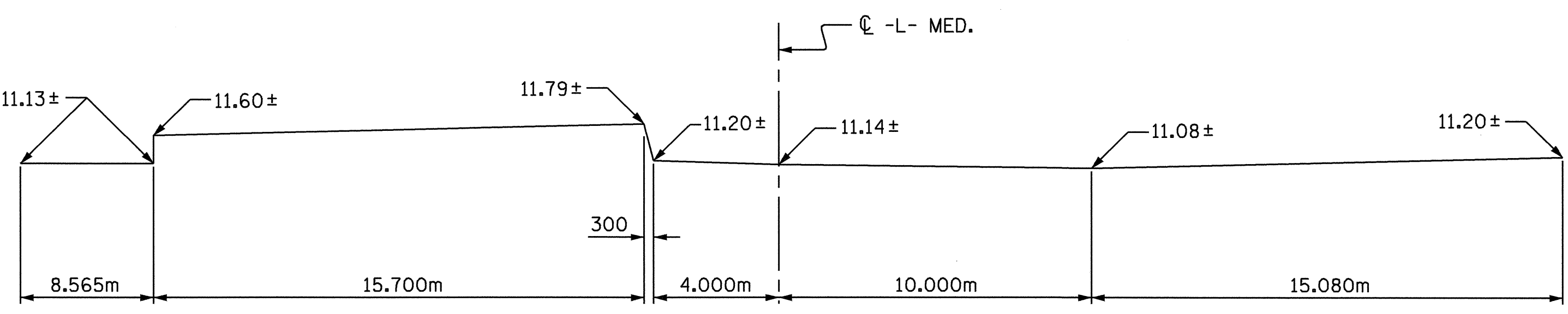
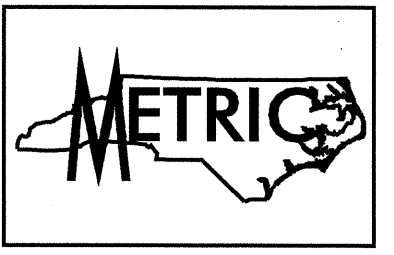
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

STRUCTURE QUANTITIES (STAGE I)	
CLASS A CONCRETE	
BARREL @ 3.13 m ³ /m	72.6 m ³
WINGS ETC.	6.3 m ³
TOTAL	78.9 m ³
REINFORCING STEEL	
BARREL	6431 kg
WINGS ETC.	211 kg
TOTAL	6642 kg
CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MAT'L	76 METRIC TONS

STRUCTURE QUANTITIES (STAGE II)	
CLASS A CONCRETE	
BARREL @ 3.13 m ³ /m	62.7 m ³
WINGS ETC.	6.3 m ³
TOTAL	69.0 m ³
REINFORCING STEEL	
BARREL	5663 kg
WINGS ETC.	212 kg
TOTAL	5875 kg
CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MAT'L	65 METRIC TONS
REMOVAL OF EXISTING STRUCTURE	LUMP SUM



John McArthur
7/30/04



PROFILE ALONG CULVERT

TOTAL STRUCTURE QUANTITIES					
	CLASS A CONCRETE	REINFORCING STEEL	FOUNDATION COND. MAT'L	CULVERT EXCAVATION	REMOVAL OF EXISTING STRUCTURE
	m ³	kg	METRIC TONS	LUMP SUM	LUMP SUM
STAGE I	78.9	6642	76	LUMP SUM	
STAGE II	69.0	5875	65	LUMP SUM	LUMP SUM
TOTAL	147.9	12517	141	LUMP SUM	LUMP SUM

PROJECT NO. R-2514A
ONSLOW COUNTY
 STATION: 161+33.500 -L- MED.

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DOUBLE 2.100m X 1.800m CONCRETE BOX CULVERT
 101° SKEW**

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

SHEET NO. C-5
 TOTAL SHEETS 9

DRAWN BY : D. A. GLADDEN DATE : 4-2-03
 CHECKED BY : M. G. SHAIKH DATE : 7-03