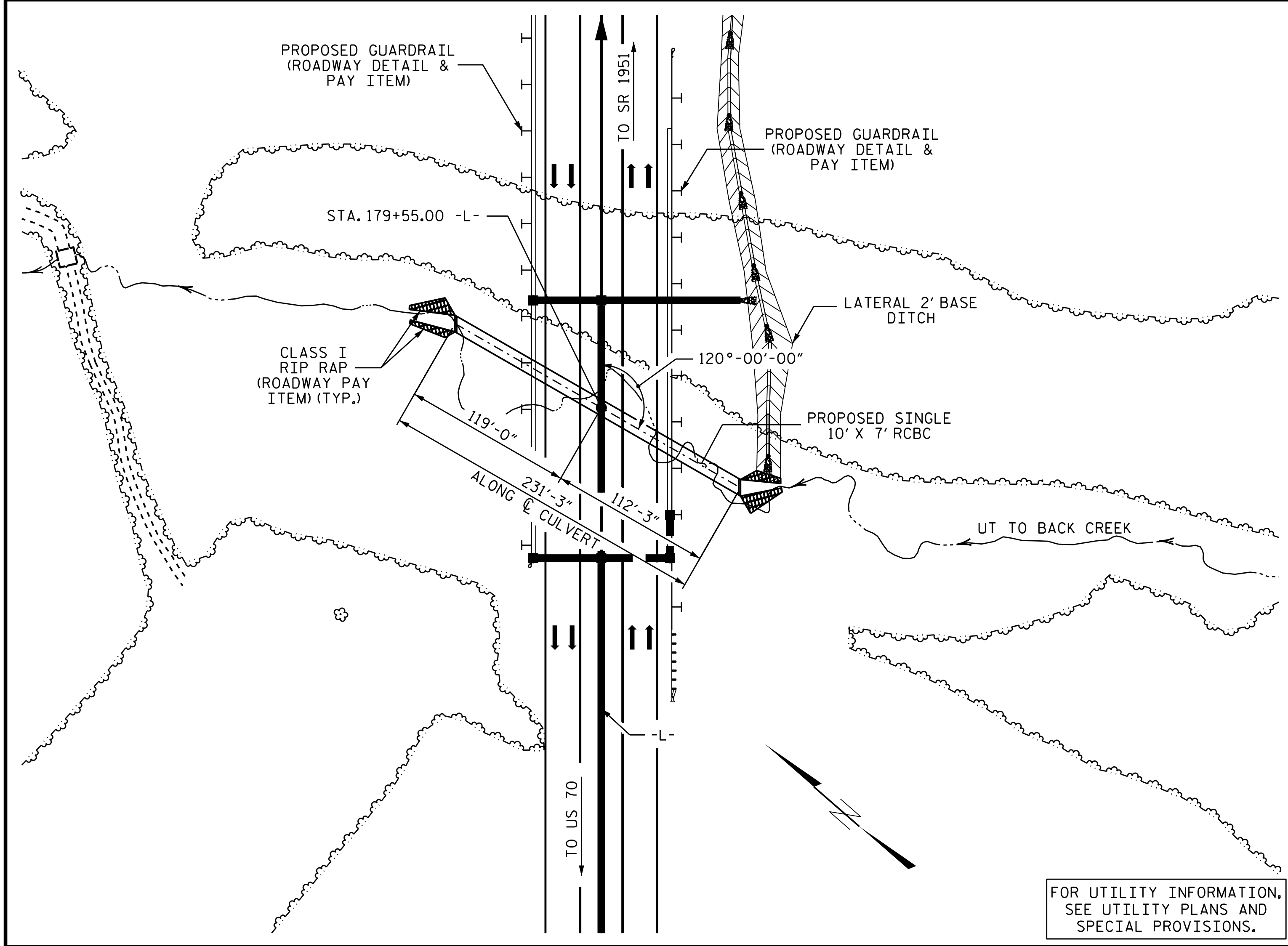


BENCHMARK #10: RAIL ROAD SPIKE IN BASE OF 15" MAPLE, STA. 184+72.00 -L-, 214' RIGHT, EL. 627.17

F.A. PROJECT NO.: STP-0119(9)



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.
 DESIGN FILL-----26.90'
 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 INCLUDING 4" 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 70 FT. 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 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 OF BARREL AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
 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 SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
 FOR CONSTRUCTION SEQUENCE, SEE EROSION CONTROL PLANS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES		
CLASS A CONCRETE		
BARREL @ 1.458 CY/FT	337.2	C.Y.
WINGS, ETC.	22.3	C.Y.
SILLS AND BAFFLES	3.4	C.Y.
TOTAL	362.9	C.Y.
REINFORCING STEEL		
BARREL	41,436	LBS.
WINGS, ETC.	1,321	LBS.
TOTAL	42,757	LBS.
FOUNDATION CONDITIONING MATERIAL	253	TONS
CULVERT EXCAVATION		LUMP SUM

HYDRAULIC DATA

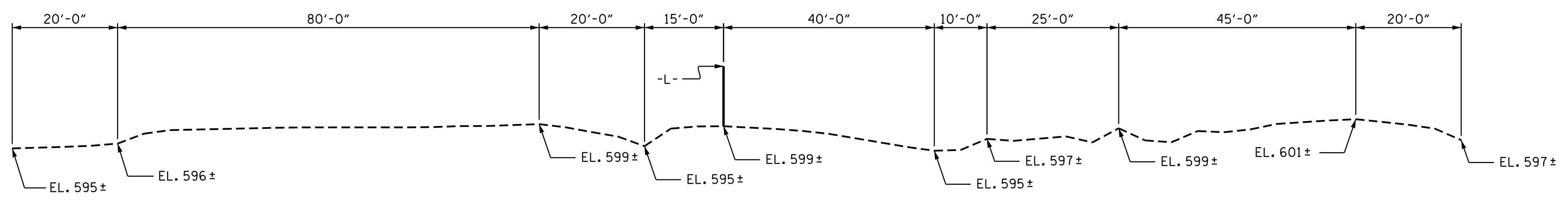
DESIGN DISCHARGE	= 350 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 602.50
DRAINAGE AREA	= 0.19 SQ. MI.
BASE DISCHARGE (Q100)	= 400 CFS
BASE HIGH WATER ELEVATION	= 603.09

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1100 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING FLOOD ELEVATION	= 621.80*

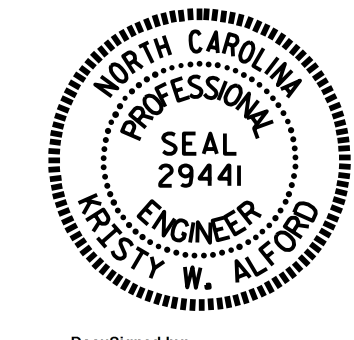
*OVERTOPS ROADWAY DITCH AT 177+00 -L- RT GRADE DATA

GRADE POINT ELEVATION @ STA. 179+55.00 -L-	= 627.83'
BED ELEVATION @ STA. 179+55.00 -L-	= 594.73'
ROADWAY FILL SLOPES	= 2:1



PROFILE ALONG CULVERT

ASSEMBLED BY : A. SORSENGINH DATE : 4/2014
 CHECKED BY : K.W. ALFORD DATE : 2/2017
 DESIGN ENGINEER OF RECORD: A. SORSENGINH DATE : 4/2014



DocuSigned by:
 K. W. ALFORD
 F245838306P40E
 3/16/2017

PROJECT NO. U-3109A
 ALAMANCE COUNTY
 STATION: 179+55.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SINGLE 10 FT. X 7 FT. CONCRETE BOX CULVERT
 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C2-1
1			3			TOTAL SHEETS
2			4			5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED