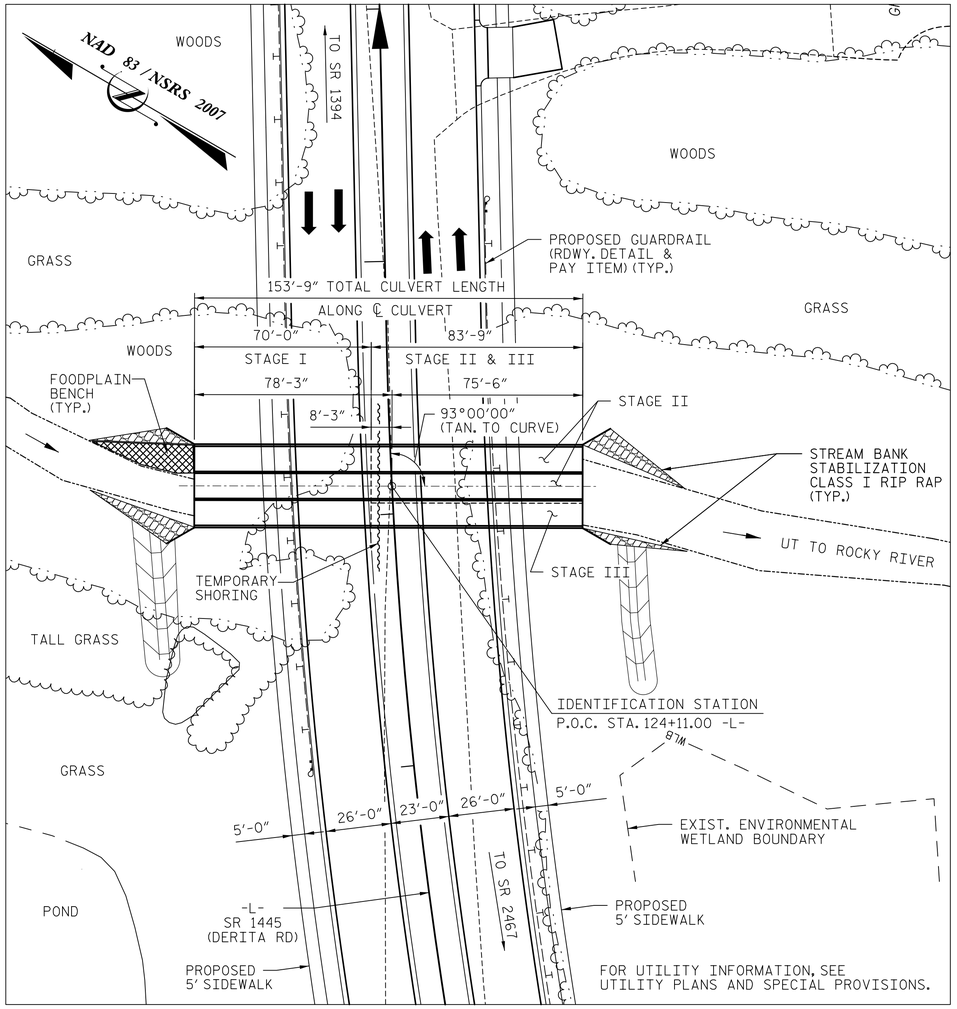
BENCH MARK: TBM #109 - BENCH TIE NAIL SET IN A 16" PINE, -L- STA. 129+77.98, 91.75' LEFT
N=597727', E=1485493'
ELEV. 652.61', NAVD 88



GRADE PT. ELEV. @ STA. 124+11.00 -L- = 625.22
BED ELEV. @ STA. 124+11.00 -L- = 605.65
ROADWAY SLOPES = 2:1

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	1500	CFS
FREQUENCY OF DESIGN FLOOD	50	YR.
DESIGN HIGH WATER ELEVATION	613.7	FT.
BASE DISCHARGE (Q100)	1700	CFS
BASE HIGH WATER ELEVATION	614.50	FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	2700+	CFS
FREQUENCY OF OVERTOPPING FLOOD	500+	YR.
OVERTOPPING FLOOD ELEVATION	✳627.08	FT.

✳LT. SHOULDER POINT @ 124+19 -L-

STAGE I STRUCTURE QUANTITIES

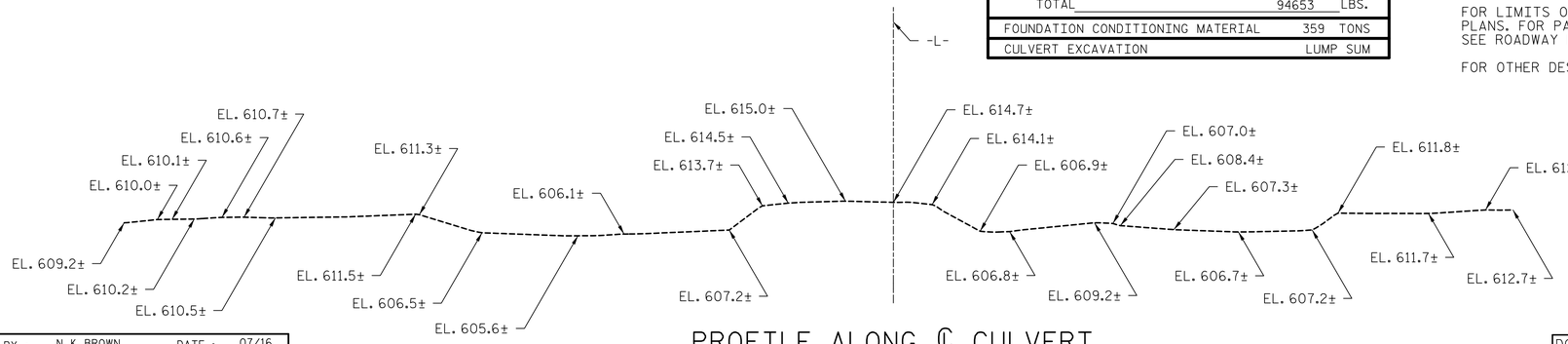
CLASS A CONCRETE		
BARREL @ 3.35 CY/FT	234.5	C.Y.
SILLS	0.7	C.Y.
INLET WINGS	13.9	C.Y.
TOTAL	249.1	C.Y.
REINFORCING STEEL		
BARREL	41979	LBS.
INLET WINGS	734	LBS.
TOTAL	42713	LBS.
FOUNDATION CONDITIONING MATERIAL	163	TONS
CULVERT EXCAVATION	LUMP SUM	

STAGE II & III STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 3.35 CY/FT	280.6	C.Y.
SILLS	0.7	C.Y.
INLET WINGS	13.9	C.Y.
TOTAL	295.2	C.Y.
REINFORCING STEEL		
BARREL	51206	LBS.
INLET WINGS	734	LBS.
TOTAL	51940	LBS.
FOUNDATION CONDITIONING MATERIAL	196	TONS
CULVERT EXCAVATION	LUMP SUM	

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
BARREL @ 3.35 CY/FT	515.1	C.Y.
SILLS	1.4	C.Y.
INLET WINGS	27.8	C.Y.
TOTAL	544.3	C.Y.
REINFORCING STEEL		
BARREL	93185	LBS.
INLET WINGS	1468	LBS.
TOTAL	94653	LBS.
FOUNDATION CONDITIONING MATERIAL	359	TONS
CULVERT EXCAVATION	LUMP SUM	



PROFILE ALONG ℄ CULVERT

NOTES:

ASSUMED LIVE LOAD ---------- HL-93 OR ALTERNATE LOADING.

DESIGN FILL---------- 12.2 FT.

THE EXISTING STRUCTURE CONSISTING OF 3 - 73"x 55"CSPA LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED. THE EXISTING STRUCTURE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SEE SHEET NO. TMP-02B FOR CULVERT CONSTRUCTION SEQUENCE.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

STAGE I
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.

STAGE II
1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF BARREL 3 VERTICAL WALLS AND CURTAIN WALLS TO CONSTRUCTION JOINTS.
2. THE REMAINING PORTION OF BARREL 3 WALLS AND WINGS FULL HEIGHT.

STAGE III
1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF BARRELS 1 & 2 VERTICAL WALLS AND CURTAIN WALLS TO CONSTRUCTION JOINTS.
2. THE REMAINING PORTIONS OF BARRELS 2&3 WALLS AND WING FULL HEIGHT.
3. ROOF SLAB FOR ALL BARRELS AND HEAD WALLS.
4. CONSTRUCTION OF SILLS IN BARREL 1.

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.

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 CONTRACTOR.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FEET. 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.

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 DESIGN. FOR OPTIONAL PRECAST REINFORCED 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 PROJECT 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 TEH 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.

EXCAVATE 1.0 FEET BELOW THE BARREL AND FOOTINGS AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL.

CONSTRUCT THE REINFORCED BOX CULVERT AT STA. 124+11 WITH 3" OF CAMBER TO ACCOUNT FOR ANTICIPATED SETTLEMENT.

BACKFILL WITH SELECT MATERIAL, CLASS VI MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CULVERT DIVERSION DETAILS, SEE EROSION CONTROL PLANS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR LIMITS OF TEMPORARY SHORING, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING, SEE ROADWAY PLANS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

F.A. PROJECT NO. STPDA-1445(008)

PROJECT NO. U-4910A
CABARRUS COUNTY
STATION: 124+11.00 -L-

DRAWN BY : N. K. BROWN DATE : 07/16
CHECKED BY : J. C. MORRISON DATE : 07/16
DESIGNED BY : N. K. BROWN DATE : 07/16

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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AECOM License No. F-0342

11/30/2016

NORTH CAROLINA PROFESSIONAL SEAL 030474 ENGINEER JOHN C. MORRISON
Docusigned by: John C. Morrison
A2FDE142C82F4AB...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SR 1445 (DERITA ROAD)
OVER UT TO ROCKY RIVER

TRIPLE 10 FT. X 8 FT.
CONCRETE BOX CULVERT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-01
	.	.				TOTAL SHEETS 7

DATE: 11/30/2016
TIME: 9:42:57 AM
USER: kylazampan
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