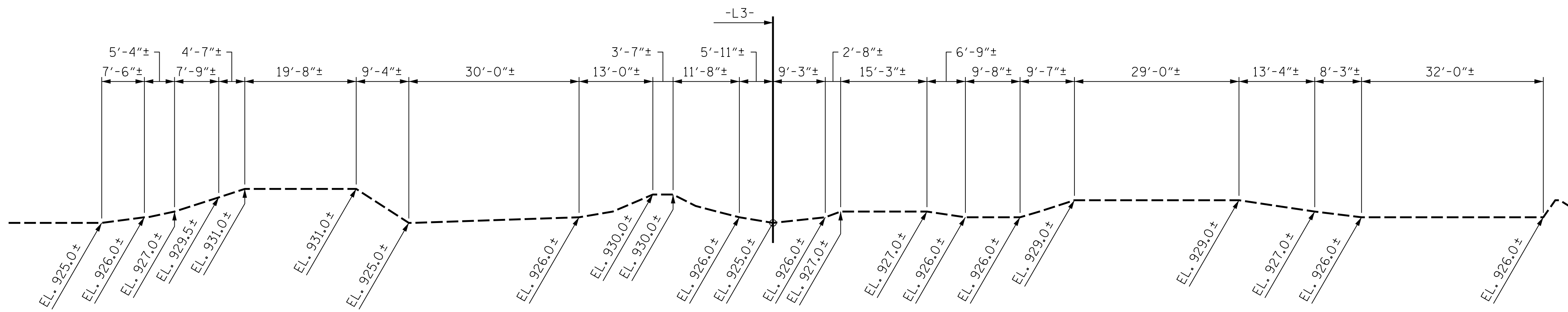


LOCATION SKETCH



PROFILE ALONG CULVERT

ROADWAY DATA

GRADE PT. EL. @ STA. 874+45.00 -L3- = 952.0
 BED EL. @ STA. 874+45.00 -L3- = 924.5
 ROADWAY SLOPES @ STA. 874+45.00 -L3- = 2:1

HYDRAULIC DATA

DESIGN DISCHARGE = 940 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YR.
 DESIGN HIGH WATER ELEVATION = 934.3
 DRAINAGE AREA = 1.81 SQ. MI.
 BASE DISCHARGE (Q100) = 1,260 C.F.S.
 BASE HIGH WATER ELEVATION = 935.6

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 4,700 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 500+ YR.
 OVERTOPPING FLOOD ELEVATION = 950.8

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
ASBESTOS ASSESSMENT	LUMP SUM
FOUNDATION COND. MATERIAL	533 TONS
CLASS A CONCRETE	
BARREL @ 5.13 CY/FT	1,034.5 C.Y.
WING ETC.	44.2 C.Y.
BAFFLES / SILLS ETC.	4.3 C.Y.
TOTAL	1,083.0 C.Y.
REINFORCING STEEL	
BARREL @	112,029 LBS.
WING ETC.	2,829 LBS.
TOTAL	114,858 LBS.

DESIGNED BY:	J. BORUTA	DATE:	MAY 2019
DRAWN BY:	K. WHITE	DATE:	MAY 2019
CHECKED BY:	B. LOFLIN	DATE:	MAY 2019
DESIGN ENGINEER OF RECORD:	J. DOUGHTY	DATE:	NOV 2019

NOTES:

- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- DESIGN FILL ----- 19.0 FT.
- FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTES SHEET.
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 - WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 - THE REMAINING PORTIONS OF THE WALLS, SILLS, AND WING WALLS 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.
- STEEL IN 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 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.

DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS CULVERT SHALL BE SUBMITTED. SEE SHEET SN.

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.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

BACKFILL BARRELS WITH NATIVE BED MATERIAL. NATIVE BED MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

THE ENTIRE COST OF WORK REQUIRED TO PLACE NATIVE BED MATERIAL AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR CULVERT EXCAVATION.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING 32'-0" LONG DUAL 6FT. X 6FT. REINFORCED BOX CULVERT LOCATED AT THE OUTLET END OF THE PROPOSED CULVERT SHALL BE REMOVED.

FOR BOX CULVERT EXCAVATION, SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

THE REINFORCED CONCRETE BOX CULVERT SHALL BE PLACED ON THE STANDARD 1.0 FOOT BLANKET OF FOUNDATION CONDITIONING MATERIAL.

UNDERCUT SOFT/VERY LOOSE SOILS THAT MAY BE ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATION CONDITIONING MATERIAL, BACKFILL UNDERCUT AREAS WITH FOUNDATION CONDITIONING MATERIAL. IF MORE THAN 1 FT. UNDERCUT IS REQUIRED, CONTACT OPERATIONS ENGINEER FOR APPROVAL.

THE REINFORCED CONCRETE BOX CULVERT SHALL BE CONSTRUCTED WITH 6" OF CAMBER TO ACCOUNT FOR THE ANTICIPATED SETTLEMENT.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

PROJECT NO. R-2233BB
RUTHERFORD COUNTY
 STATION: 874+45.00 -L3-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TRIPLE 10 FT. X 10 FT. CONCRETE BOX CULVERT
 117°-00'-00" SKEW

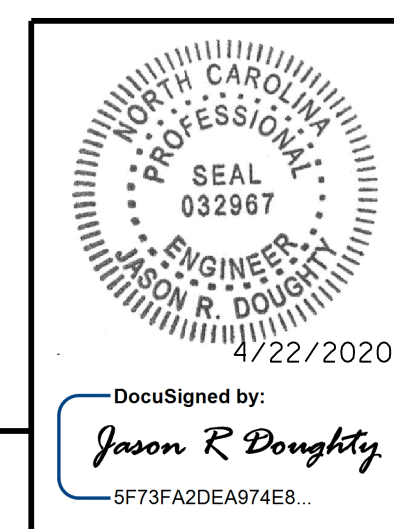
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C3-1
 TOTAL SHEETS 5



333 FAYETTEVILLE STREET, SUITE 500
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



4/22/2020
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