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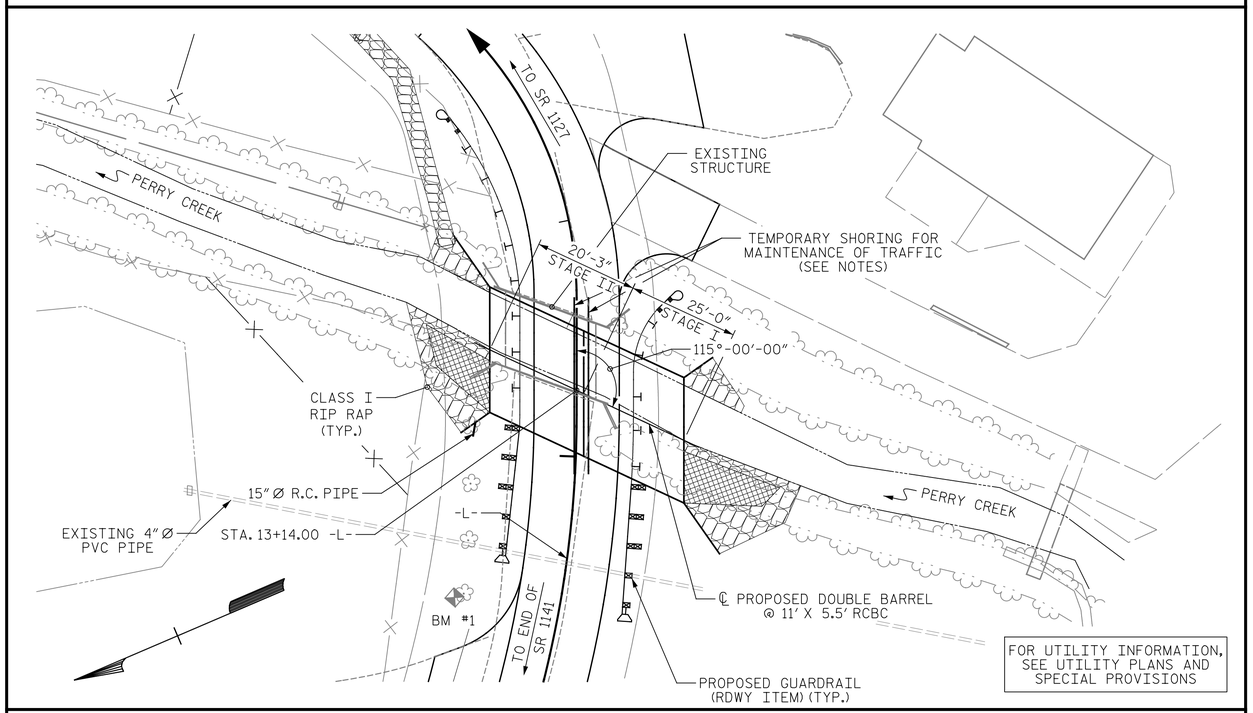
BENCH MARK #1 : NAVD 88, RR SPIKE IN 30" WHITE PINE, 22.18' LT., STA. 12+65.89 -L-, ELEV. 2158.23



LOCATION SKETCH

NOTES

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

THIS CULVERT IS LOCATED IN SEISMIC ZONE 1.

DESIGN FILL ---------- 1.26' MIN. AND 2.32' MAX.

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

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

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. STAGE I 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.
3. STAGE II WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
4. 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.

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.

TRAFFIC ON SR 1141 SHALL BE MAINTAINED. IN ORDER TO MAINTAIN TRAFFIC THE CULVERT SHALL BE CONSTRUCTED IN SECTIONS AS DIRECTED BY 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.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 1 SPAN AT 16'-6", WITH A CLEAR ROADWAY OF 19'-2" ON TIMBER JOISTS ON END BENTS WITH TIMBER CAPS ON TIMBER PILES LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

SEE SECTION 414 OF THE STANDARD SPECIFICATIONS FOR CULVERT EXCAVATION AND BACKFILLING.

EXCAVATE AT LEAST 3 FEET BELOW CULVERT AND FOOTINGS AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICLE 414-4 OF THE STANDARD SPECIFICATIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 430 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 2156.0 FT
DRAINAGE AREA	= 1.1 SQ. MI.
BASE DISCHARGE (Q100)	= 600 C.F.S.
BASE HIGH WATER ELEVATION	= 2157.22 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 720 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 100+ YRS
OVERTOPPING FLOOD ELEVATION	= 2157.8 FT

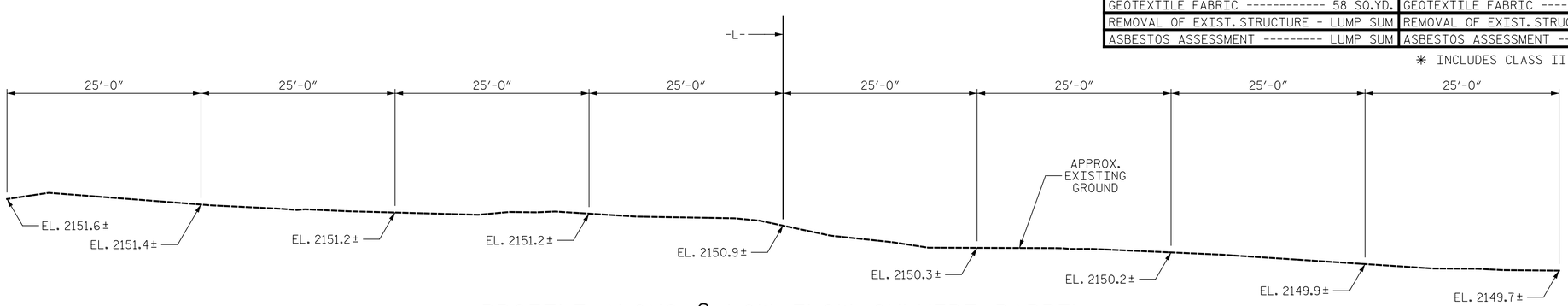
GRADE DATA

GRADE POINT ELEV. @ STA. 13+14.00 -L-	= 2158.48
BED ELEV. @ STA. 13+14.00 -L-	= 2149.7
ROADWAY FILL SLOPES	= 2:1

TOTAL STRUCTURE QUANTITIES

STAGE I	STAGE II
CLASS A CONCRETE	CLASS A CONCRETE
BARREL @ 2.564 CY/FT 59.9 C.Y.	BARREL @ 2.564 CY/FT 56.2 C.Y.
WINGS, ETC. 12.2 C.Y.	WINGS, ETC. 12.2 C.Y.
TOTAL 72.1 C.Y.	TOTAL 68.4 C.Y.
REINFORCING STEEL	REINFORCING STEEL
BARREL 9151 LBS.	BARREL 8537 LBS.
WINGS, ETC. 465 LBS.	WINGS, ETC. 526 LBS.
TOTAL 9616 LBS.	TOTAL 9063 LBS.
CULVERT EXCAVATION ------- * LUMP SUM	CULVERT EXCAVATION ------- * LUMP SUM
FOUNDATION COND. MAT'L. -------- 119 TONS	FOUNDATION COND. MAT'L. -------- 111 TONS
CLASS I RIP RAP ---------- 43 TONS	CLASS I RIP RAP ---------- 37 TONS
GEOTEXTILE FABRIC ---------- 58 SQ.YD.	GEOTEXTILE FABRIC ---------- 50 SQ.YD.
REMOVAL OF EXIST. STRUCTURE - LUMP SUM	REMOVAL OF EXIST. STRUCTURE - LUMP SUM
ASBESTOS ASSESSMENT --------- LUMP SUM	ASBESTOS ASSESSMENT --------- LUMP SUM

* INCLUDES CLASS II SELECT BACKFILL



PROFILE ALONG ℄ LOW FLOW CULVERT BARREL

PROJECT NO. 17BP.14.R.44
CULVERT #440314
HENDERSON COUNTY
STATION: 13+14.00 -L-

SHEET 1 OF 10 REPLACES BRIDGE NO. 440314

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 11 FT. X 5.5 FT. CONCRETE BOX CULVERT 115° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 037180 ENGINEER RICHARD F. WERTMAN

DocuSigned by: Richard F. Wertman
6/10/2017

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		C-1
1			3				TOTAL SHEETS
2			4				10

DRAWN BY : T.J. KIRSCHBAUM DATE : 1/9/15
CHECKED BY : R.F. WERTMAN DATE : 1/20/15
DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 1/20/15

PLANS PREPARED BY:
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(919) 420-7660
NC Lic. No. F-0270

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CUL. #314