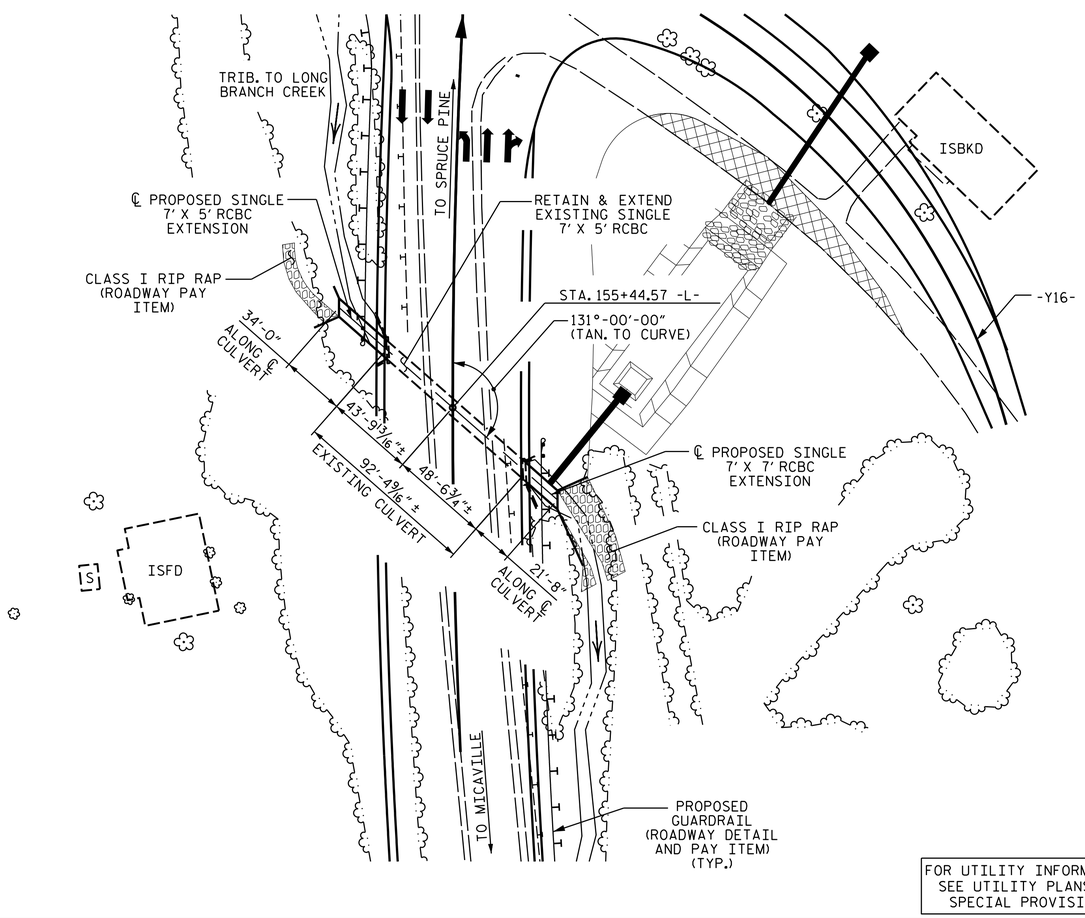
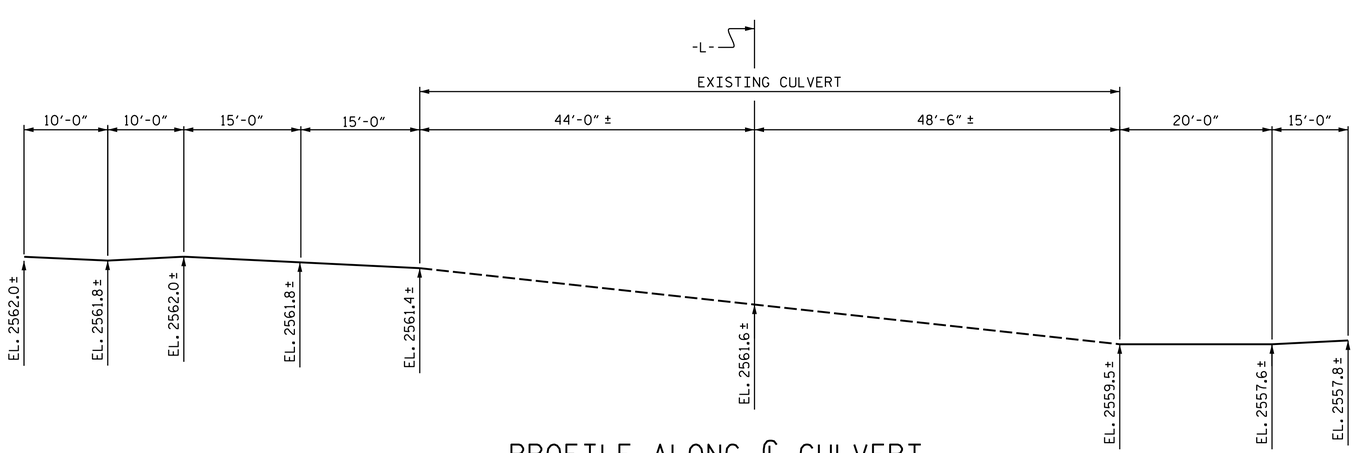
BENCHMARK #12: SPIKE SET IN 22" WHITE PINE, STA. 157+59.38 -L-, 125.54 LT, ELEV. = 2575.05



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

ASSEMBLED BY : A. SORSENGINH/JRM DATE : 5/2013
CHECKED BY : H. KIM/WJH DATE : 6/2013

NOTES

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

DESIGN FILL---------- 6.3 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:

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.

THE 36"DIA. PIPE THROUGH THE SIDEWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.

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.

IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY USE THE EXISTING WINGS AS TEMPORARY SHORING FOR THE CONSTRUCTION OF THE CULVERT EXTENSIONS. IN THIS CASE, THE BOTTOM SLAB OF THE EXTENSION SHALL BE POURED AT LEAST 72 HOURS PRIOR TO CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAILED 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.

DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CULVERT DIVERSION DETAILS, SEE EROSION CONTROL PLANS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 320 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 2567.80
DRAINAGE AREA	= 0.44 SQ. MI.
BASE DISCHARGE (Q100)	= 390 CFS
BASE HIGH WATER ELEVATION	= 2568.75

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 413 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 100 + YRS.
OVERTOPPING FLOOD ELEVATION	= 2569.17

GRADE DATA

GRADE POINT ELEVATION @ STA. 155+44.57 -L-	= 2570.76
BED ELEVATION @ STA. 155+44.57 -L-	= 2559.40
ROADWAY FILL SLOPES	= 2:1

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		
LEFT EXTENSION	31.7	C.Y.
RIGHT EXTENSION	31.9	C.Y.
TOTAL	63.6	C.Y.
REINFORCING STEEL		
LEFT EXTENSION	3,630	LBS.
RIGHT EXTENSION	3,383	LBS.
TOTAL	7,013	LBS.
FOUNDATION CONDITIONING MATERIAL		
LEFT EXTENSION	20	TONS
RIGHT EXTENSION	13	TONS
TOTAL	33	TONS
CULVERT EXCAVATION	LUMP	SUM

PROJECT NO. R-2519B
YANCEY COUNTY
STATION: 155+44.57 -L-

SHEET 1 OF 11

NORTH CAROLINA PROFESSIONAL SEAL 13014 ENGINEER QUANG H. NGUYEN
9/2/2014
DocuSigned by: Quang H. Nguyen
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NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
8/27/2014
DocuSigned by: Marshall G. Cheek, Jr.
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE CONCRETE BOX CULVERT LEFT & RIGHT EXTENSIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-30
1			3			TOTAL SHEETS
2			4			87

STR. #9