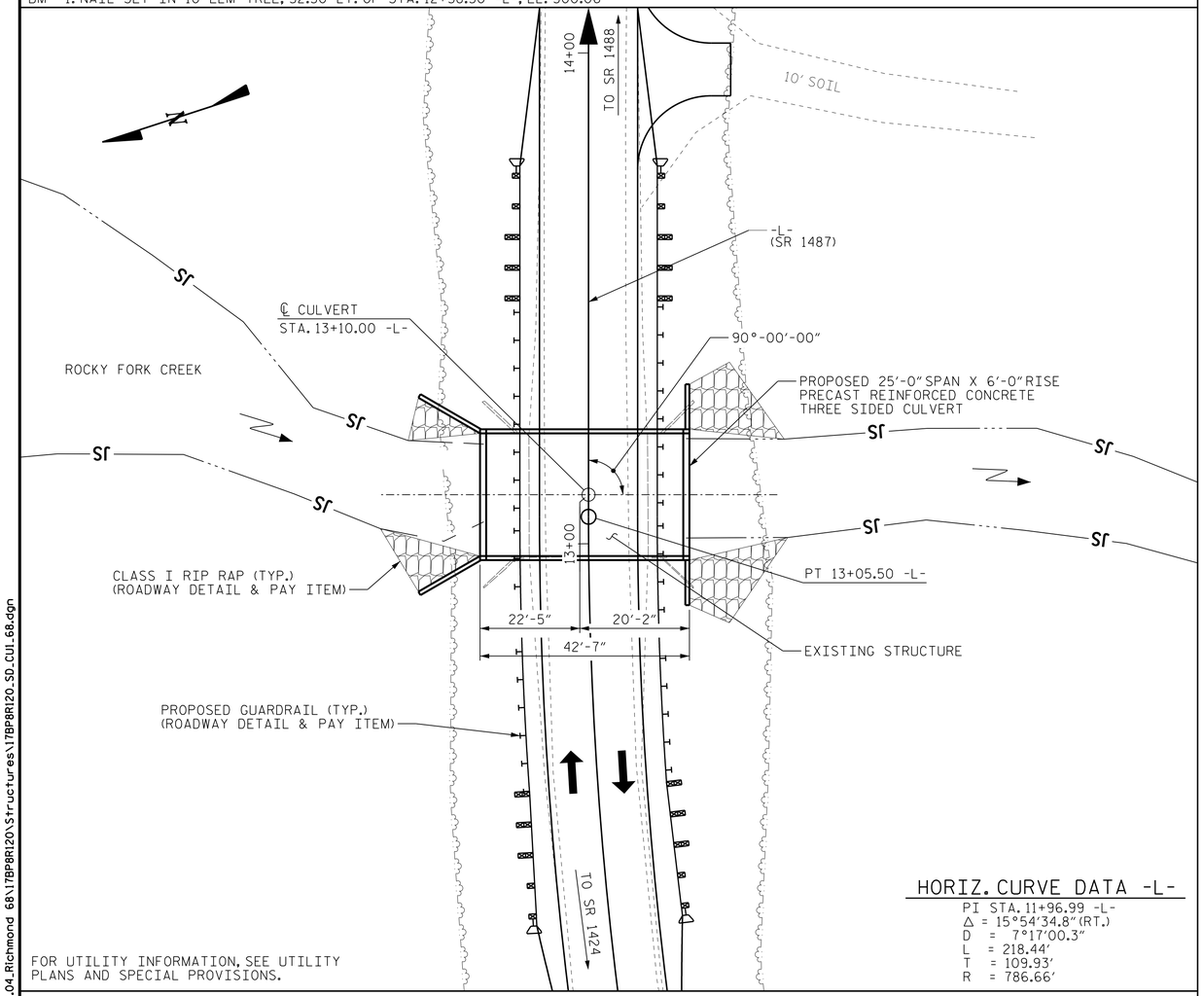
BM #1: NAIL SET IN 10" ELM TREE, 52.30' LT. OF STA. 12+38.50 -L-, EL. 300.06

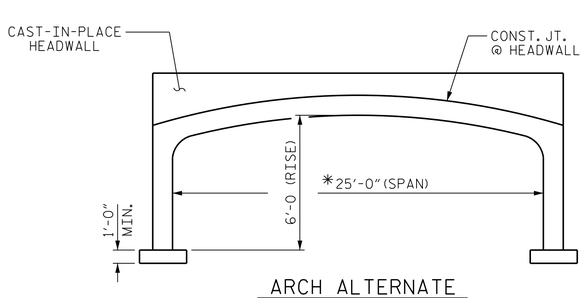


FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

HORIZ. CURVE DATA -L-

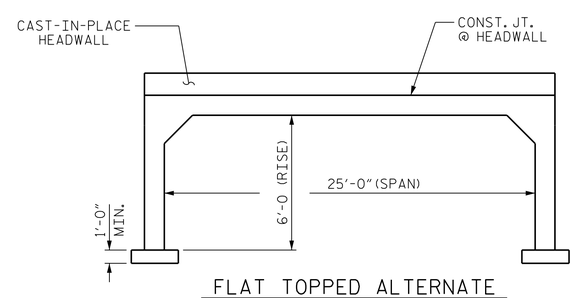
PI STA. 11+96.99 -L-
Δ = 15°54'34.8" (RT.)
D = 7°17'00.3"
L = 218.44'
T = 109.93'
R = 786.66'

LOCATION SKETCH



ARCH ALTERNATE

* INCREASE AS NECESSARY TO SATISFY MIN. REQUIRED WATERWAY OPENING



FLAT TOPPED ALTERNATE

RIGHT ANGLE SECTION OF PRECAST CONCRETE THREE-SIDED CULVERT

MIN. REQUIRED WATERWAY OPENING = 148 SQ. FT.
MIN. LOW CHORD ELEV. = 297.56 AT ℄ CULVERT

NOTES

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

DESIGN FILL----------2.21 FT.

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.

THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL PROVIDE DESIGNS AND DETAILS FOR THE PRECAST THREE-SIDED CULVERT, FOUNDATION, AND CAST-IN-PLACE HEADWALLS, WINGWALLS AND FOOTINGS FOR REVIEW AND APPROVAL THAT MEET THE REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

THE ENTIRE COST OF THE WORK REQUIRED TO CONSTRUCT THE PRECAST THREE-SIDED CULVERT INCLUDING CAST-IN-PLACE HEADWALLS, WINGWALLS, AND ALL FOUNDATIONS, SHALL BE INCLUDED IN THE LUMP SUM BID FOR PRECAST THREE-SIDED CULVERT.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+10.00 -L-"

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN AT 25'-6" WITH A TIMBER DECK ON I-BEAMS AND A CLEAR ROADWAY WIDTH OF 24'-6" ON TIMBER CAPS AND TIMBER PILES ON CONCRETE SILL 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 POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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 SPECIFICATION.

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 THE DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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 FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

THE PRECAST CULVERT SECTIONS AND WINGS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE	LUMP SUM
ASBESTOS ASSESSMENT	LUMP SUM
UNCLASSIFIED STRUCTURE EXCAVATION	LUMP SUM
PRECAST REINFORCED CONCRETE THREE SIDED CULVERT AT STA. 13+10.00 -L-	LUMP SUM

FOUNDATION NOTES

THE SCOUR CRITICAL ELEVATION FOR THE THREE-SIDED CULVERT IS THE BOTTOM OF FOOTING ELEVATION. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SPREAD FOOTINGS AT THE THREE-SIDED CULVERT ARE DESIGNED FOR A FACTORED RESISTANCE OF 5 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 12 TSF JUST BEFORE PLACING CONCRETE.

TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, DO NOT CONSTRUCT SPREAD FOOTINGS FOR THE THREE-SIDED CULVERT AT AN ELEVATION HIGHER THAN SHOWN ON THE PLANS.

KEY IN SPREAD FOOTINGS AT THE THREE-SIDED CULVERT AT LEAST 12" INTO ROCK WITH MINIMUM THICKNESS AS SHOWN ON THE PLANS.

THE BOTTOM OF FOOTING ELEVATIONS MAY BE LOWERED IN ORDER TO SATISFY BEARING CAPACITY AND MINIMUM ROCK EMBEDMENT REQUIREMENTS.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.

HYDROGRAPHIC DATA

DESIGN DISCHARGE ..... = 560 CFS
FREQUENCY OF DESIGN FLOOD ..... = 25 YRS.
DESIGN HIGH WATER ELEVATION ..... = 297.5
DRAINAGE AREA ..... = 14.70 SQ. MI.
BASE DISCHARGE (Q100) ..... = 750 CFS
BASE HIGH WATER ELEVATION ..... = 298.0

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE ..... = 1350 CFS
FREQUENCY OF OVERTOPPING FLOOD ..... = 500+ YRS.
OVERTOPPING FLOOD ELEVATION ..... = 300.8 *
* SAG AT STA. 13+20.51 -L-

-L- PROFILE DATA

PVI STA. 13+35.00 -L-
PVI EL. = 296.70
VC = 370.0
g1 = -3.9355%
g2 = 4.6042%

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.8.R.120
RICHMOND COUNTY
STATION: 13+10.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 68

NORTH CAROLINA PROFESSIONAL SEAL 24939 ENGINEER BYRON E. ATKINSON
4/18/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT ON SR 1487 AT ROCKY FORK CREEK 90° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

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

SHEET NO. C-1
TOTAL SHEETS 3

DRAWN BY :	J.I. BREWER	DATE :	01/18
CHECKED BY :	B.E. ATKINSON	DATE :	02/18
DESIGN ENGINEER OF RECORD :	B.E. ATKINSON	DATE :	02/18

4/18/2018
11:13:08 AM
User: blanning
Filename: P:\NC Bridges\MI6006_CH Eng_Div. 8 Br. Repl. (5 Bridges)\MI6006_04_Richmond 68\17BP8R120\Structures\17BP8R120_SD_CUL_68.dgn