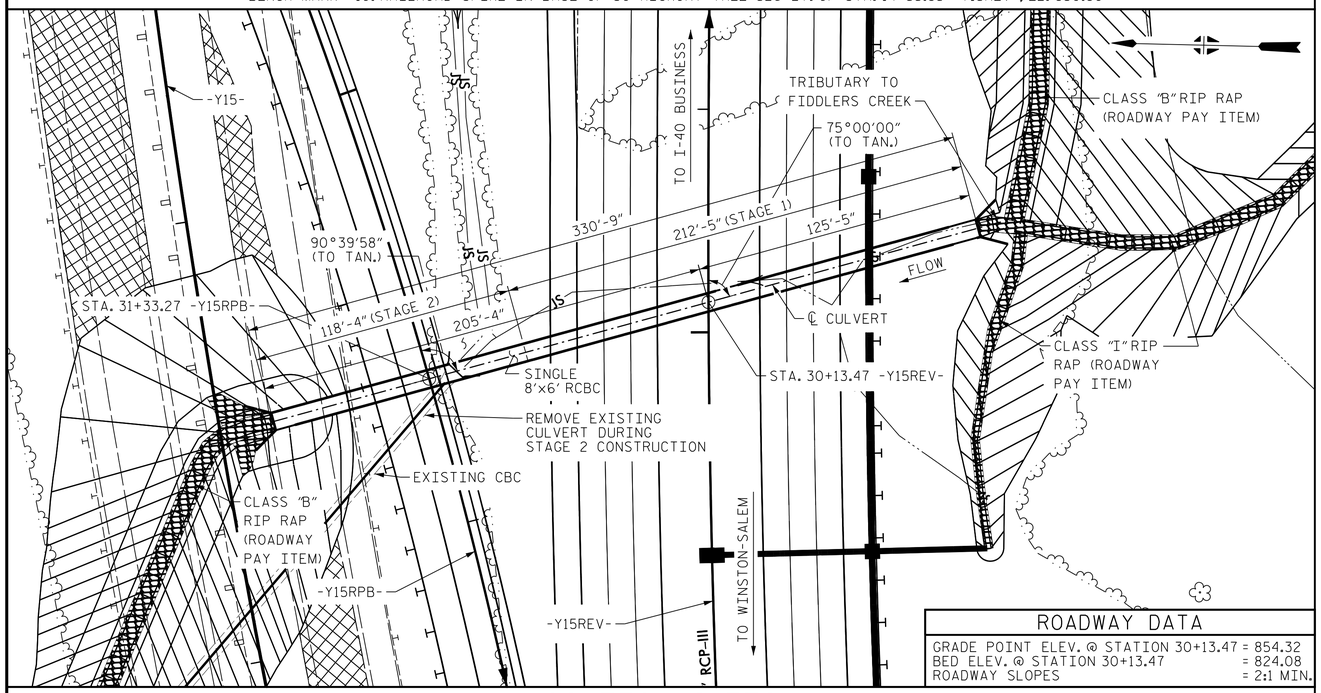
F.A. PROJ. NO.: NHPIM-0040(68)

BENCH MARK #10: RAILROAD SPIKE IN BASE OF 30" HICKORY TREE 526' LT. OF STA. 14+55.85 -Y15REV-, EL. 830.80'



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

ROADWAY DATA	
GRADE POINT ELEV. @ STATION 30+13.47	= 854.32
BED ELEV. @ STATION 30+13.47	= 824.08
ROADWAY SLOPES	= 2:1 MIN.

HYDRAULIC DATA	
DESIGN DISCHARGE	= 370 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YR.
DESIGN HIGH WATER ELEVATION	= 831.24
DRAINAGE AREA	= 0.33 SQ. MI.
BASE DISCHARGE (Q100)	= 430 CFS
BASE HIGH WATER ELEVATION	= 831.93

OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 1380 CFS
FREQUENCY OF OVERTOPPING FLOOD	= >500 YR.
OVERTOPPING FLOOD ELEVATION	= 851.93

TOTAL STRUCTURE QUANTITIES		
CLASS A CONCRETE		
BARREL @ 1.078 C.Y./FT.	356.6	C.Y.
WINGS ETC.	22.6	C.Y.
TOTAL	379.2	C.Y.
REINFORCING STEEL		
BARREL, HEADWALLS	76,421	LBS.
WINGS	2,263	LBS.
TOTAL	78,684	LBS.
CULVERT EXCAVATION		LUMP SUM
FOUNDATION CONDITIONING MATERIAL		311 TONS
REMOVAL OF EXISTING STRUCTURE		LUMP SUM
GEOTEXTILE FOR DRAINAGE		990 SY
ASBESTOS ASSESSMENT		LUMP SUM

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60 ksi.

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN FILL = 26.33'

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

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

CONCRETE IN THE 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 THE WING SHEETS.

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.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

A 3 FOOT STRIP OF GEOTEXTILE SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

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 PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

TRAFFIC AND STREAM FLOW SHALL BE MAINTAINED THROUGH ALL STAGES OF CONSTRUCTION. THE CULVERT SHALL BE CONSTRUCTED IN STAGES AS SHOWN IN THE PLANS, AND IN ACCORDANCE WITH THE TRANSPORTATION MANAGEMENT PLAN (TMP).

CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A DETAILED DEMOLITION PLAN FOR THE REMOVAL OF THE EXISTING CULVERT PER SECTION 402 OF THE STANDARD SPECIFICATIONS AND AS INDICATED ON THE PLANS.

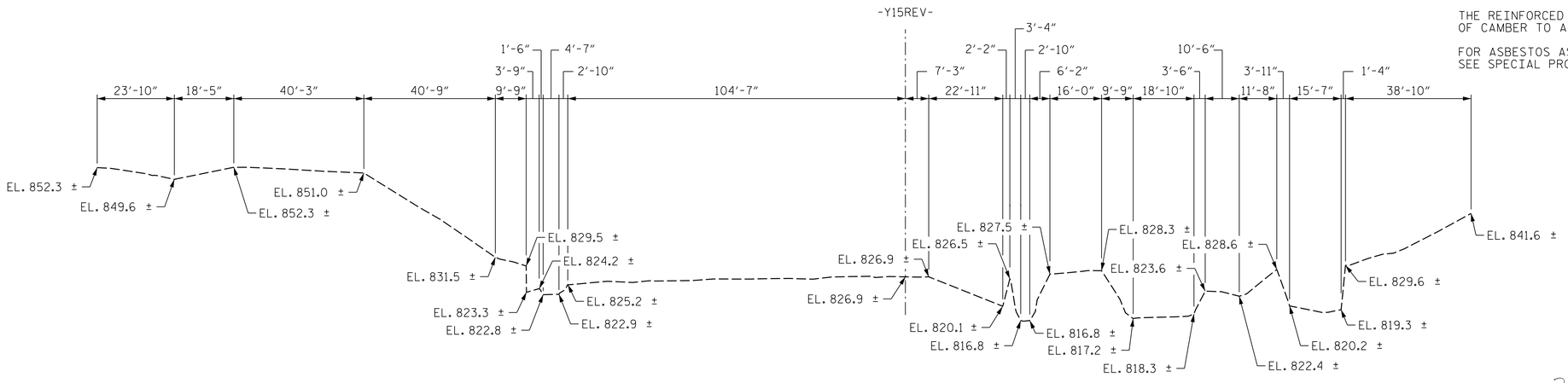
FOR BOX CULVERT EXCAVATION, SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

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

INSTALL TYPE 2 GEOTEXTILE ON THE SIDES AND TOP OF THE CULVERT FOR ITS ENTIRE LENGTH. OVERLAP GEOTEXTILES A MINIMUM OF 18 INCHES. ESTIMATED TYPE 2 GEOTEXTILE QUANTITY - 990 SYDS.

THE REINFORCED CONCRETE BOX CULVERT SHALL BE CONSTRUCTED WITH 4 INCHES OF CAMBER TO ACCOUNT FOR ANTICIPATED SETTLEMENT.

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



PROFILE ALONG ℄ CULVERT

PROJECT NO. U-2579AB

FORSYTH COUNTY

STATION: 30+13.47 -Y15REV-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE BARREL 8 FT. X 6 FT. CONCRETE BOX CULVERT 75° SKEW

REVISIONS						SHEET NO. C4-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

NORTH CAROLINA PROFESSIONAL SEAL 29589 ENGINEER DOMENIC A. COLETTI

Domenic A. Coletti 10/11/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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N.C.B.E.L.S. License Number: F-0116

DES BY: T. MCALEENAN	DATE: 11/19	DWG BY: T. MCALEENAN	DATE: 11/19
DES CHK: R. TURNAGE	DATE: 11/19	CHK BY: R. TURNAGE	DATE: 11/19

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