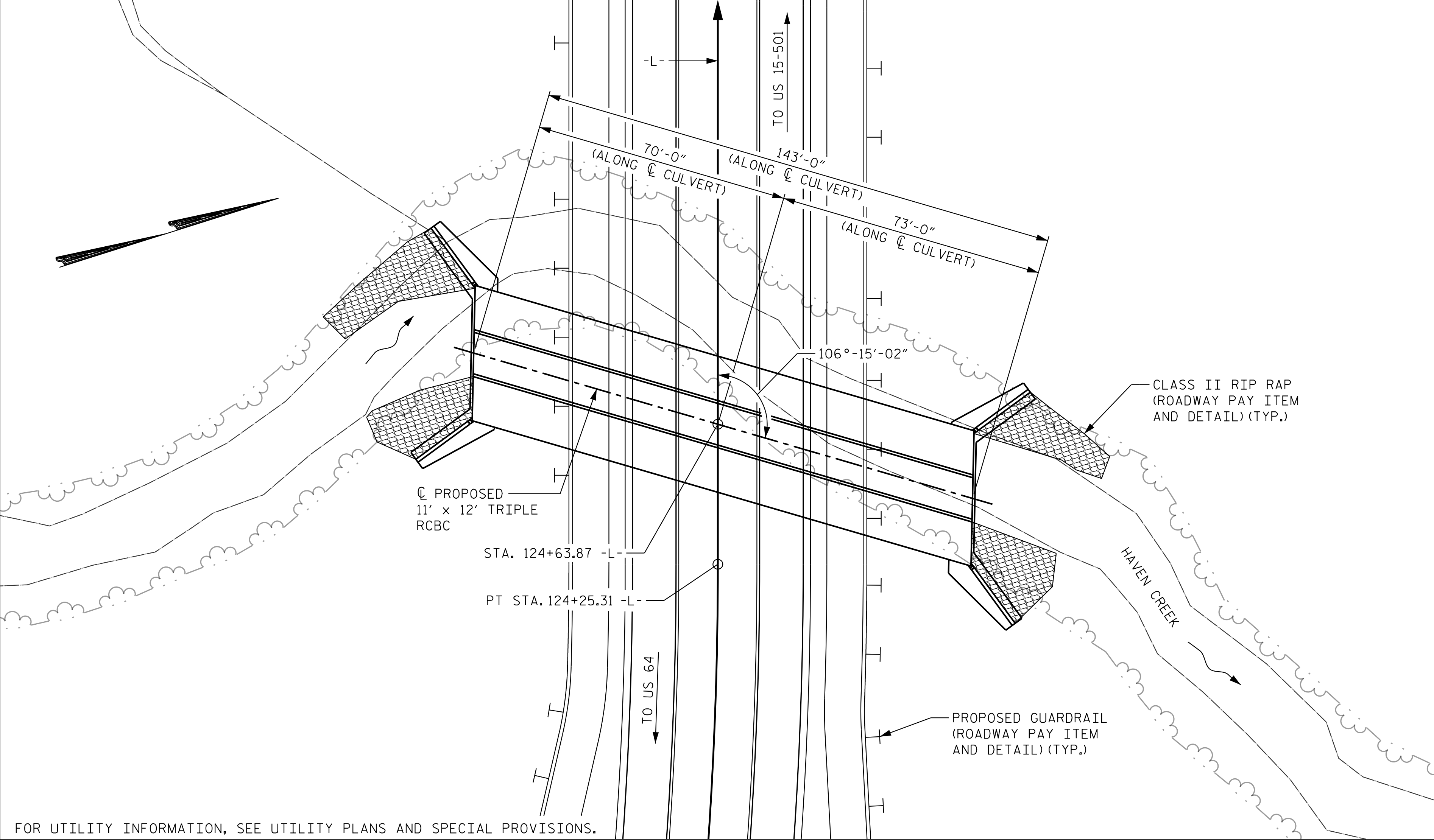


BENCHMARK: BM#7 RAILROAD SPIKE IN 18" OAK TREE, 513.62' LT. OF STA. 123+89.50 -L-, EL. 367.10', N 730600 E 1955611 NAD83

NOTES

- ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING
- DESIGN FILL -----13'-3" (MAX.)
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS.
- 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.
- CONCRETE IN THE CULVERT TO BE POURED IN THE FOLLOWING ORDER:
  1. WING FOOTINGS, CURTAIN WALLS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
  2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY SILLS/BAFFLES, ROOF SLAB AND HEADWALLS.
- DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON THE WING SHEET.
- AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACES OF THE EXTERIOR WALLS ABOVE THE 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 SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
- STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTORS OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES WILL BE PAID FOR BY THE CONTRACTOR.
- TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- 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.
- THE ENGINEER, IN CONSULTATION WITH DEO STAFF, SHALL REVIEW ALL MATERIAL TO BE USED AS BACKFILL PRIOR TO CONDUCTING THE BACKFILL ACTIVITY. BACKFILL SHALL CONSIST OF NATIVE MATERIAL ONLY UNLESS THE ENGINEER, IN CONSULTATION WITH DEO STAFF, DETERMINES THAT (1) THE NATIVE MATERIAL IS UNSUITABLE, OR (2) ADDITIONAL MATERIAL IS REQUIRED TO SUPPLEMENT THE NATIVE MATERIAL. THE CHOSEN BACKFILL MATERIAL SHALL NOT HAVE ADVERSE EFFECTS TO AQUATIC LIFE, AQUATIC LIFE PASSAGE, OR WATER QUALITY. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION.
- THE ENTIRE COST OF WORK REQUIRED TO PLACE EXCAVATED OR SUPPLEMENTAL MATERIAL AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.
- EXCAVATE A MINIMUM OF 1 FOOT BELOW CULVERT BEARING ELEVATION AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL PER SECTION 414 OF THE STANDARD SPECIFICATIONS.
- 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.



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE -----1400 CFS  
 FREQUENCY OF DESIGN FLOOD -----50 YR.  
 DESIGN HIGH WATER ELEVATION-----366.3  
 DRAINAGE AREA -----2.11 SQ. MI.  
 BASE DISCHARGE (Q100) -----1600 CFS  
 BASE HIGH WATER ELEVATION -----366.8

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE -----7300 CFS  
 FREQUENCY OF OVERTOPPING FLOOD --->500 YR.  
 OVERTOPPING FLOOD ELEVATION -----382.3 \*  
 \* OVERTOPPING WILL OCCUR AT STA. 124+89.45 -L-

ROADWAY DATA

GRADE POINT EL. @ STA. 124+63.87 -L- = 382.34'  
 INVERT ELEVATION @ STA. 124+63.87 -L- = 358.09'  
 ROADWAY SLOPES 2 : 1

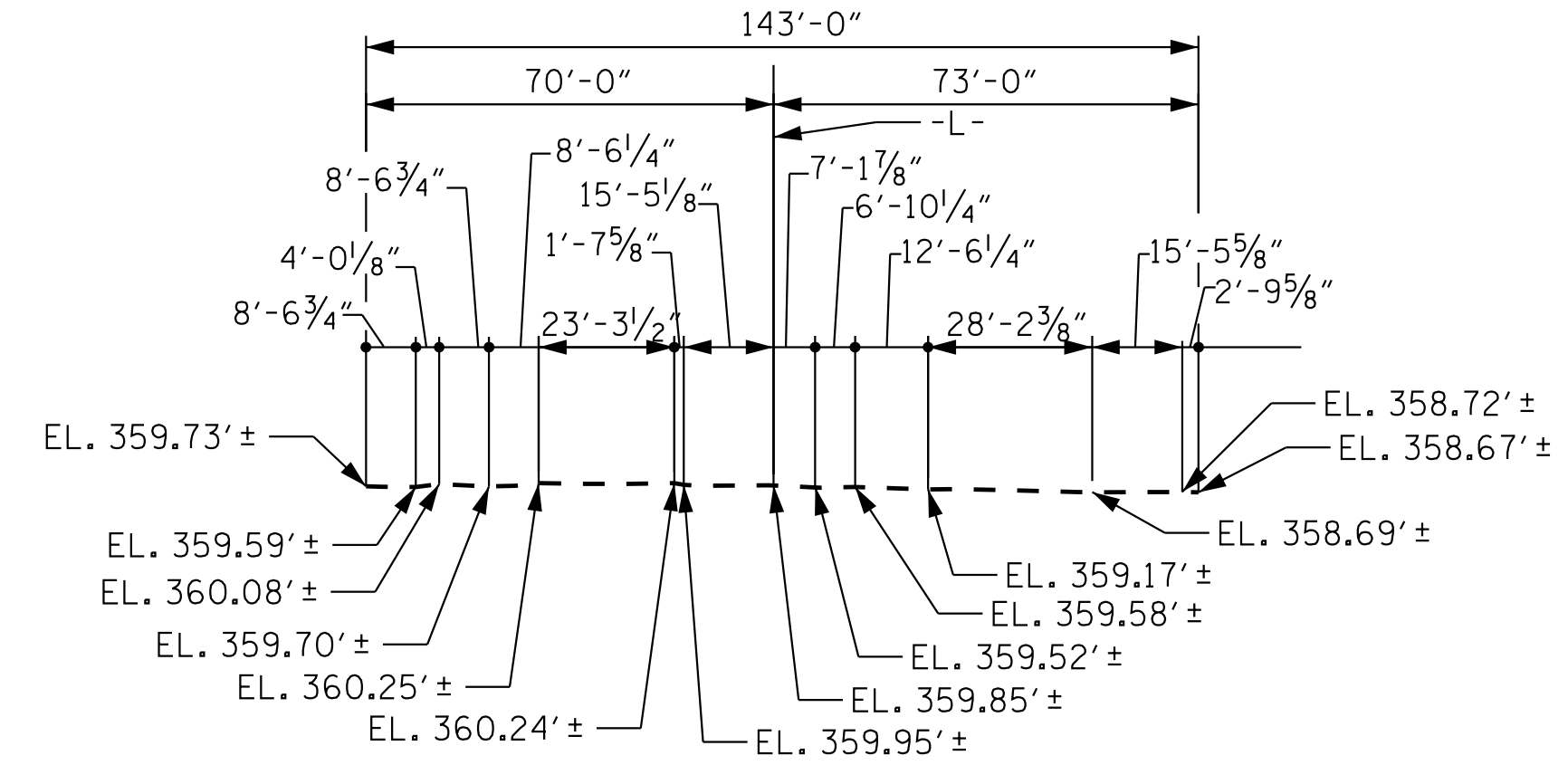
-L- HORIZONTAL CURVE DATA

PI STA. 117+97.54  
 $\Delta = 89^{\circ}-13'-43.9"$  (LT)  
 $D = 5^{\circ}-12'-31.3"$   
 $L = 1,713.07'$   
 $T = 1,085.29'$   
 $R = 1,100.00'$

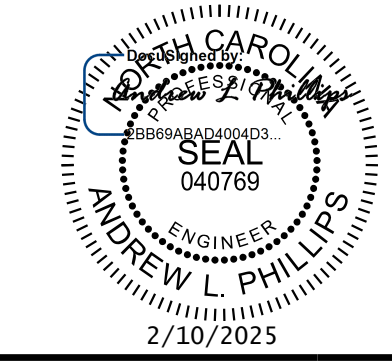
TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
BARREL @ 5.216 CY/FT	745.9 C.Y.
WINGS ETC.	71.2 C.Y.
SILLS	1.6 C.Y.
TOTAL	818.7 C.Y.
REINFORCING STEEL	
BARREL	104,834 LBS.
WINGS ETC.	10,825 LBS.
TOTAL	115,659 LBS.
CULVERT EXCAVATION STA. 124+63.87 -L-	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	414 TONS

PROJECT NO. R-5930B  
CHATHAM COUNTY  
 STATION: 124+63.87 -L-



PROFILE ALONG CULVERT



**Kimley»Horn**  
 421 Fayetteville Street, Suite 600  
 Raleigh, NC 27601-1772  
 Phone (919) 677-2000 NC LICENSE # F-0102

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

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 TRIPLE 11 FT. X 12 FT.  
 CONCRETE BOX CULVERT  
 106° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C4-1
1			3			TOTAL SHEETS
2			4			7

CULVERT 42C004

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 10/23/2024

DRAWN BY: D. D. LOWERY DATE: 10/2023  
 CHECKED BY: B. M. KROL DATE: 01/2024  
 DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 03/2024