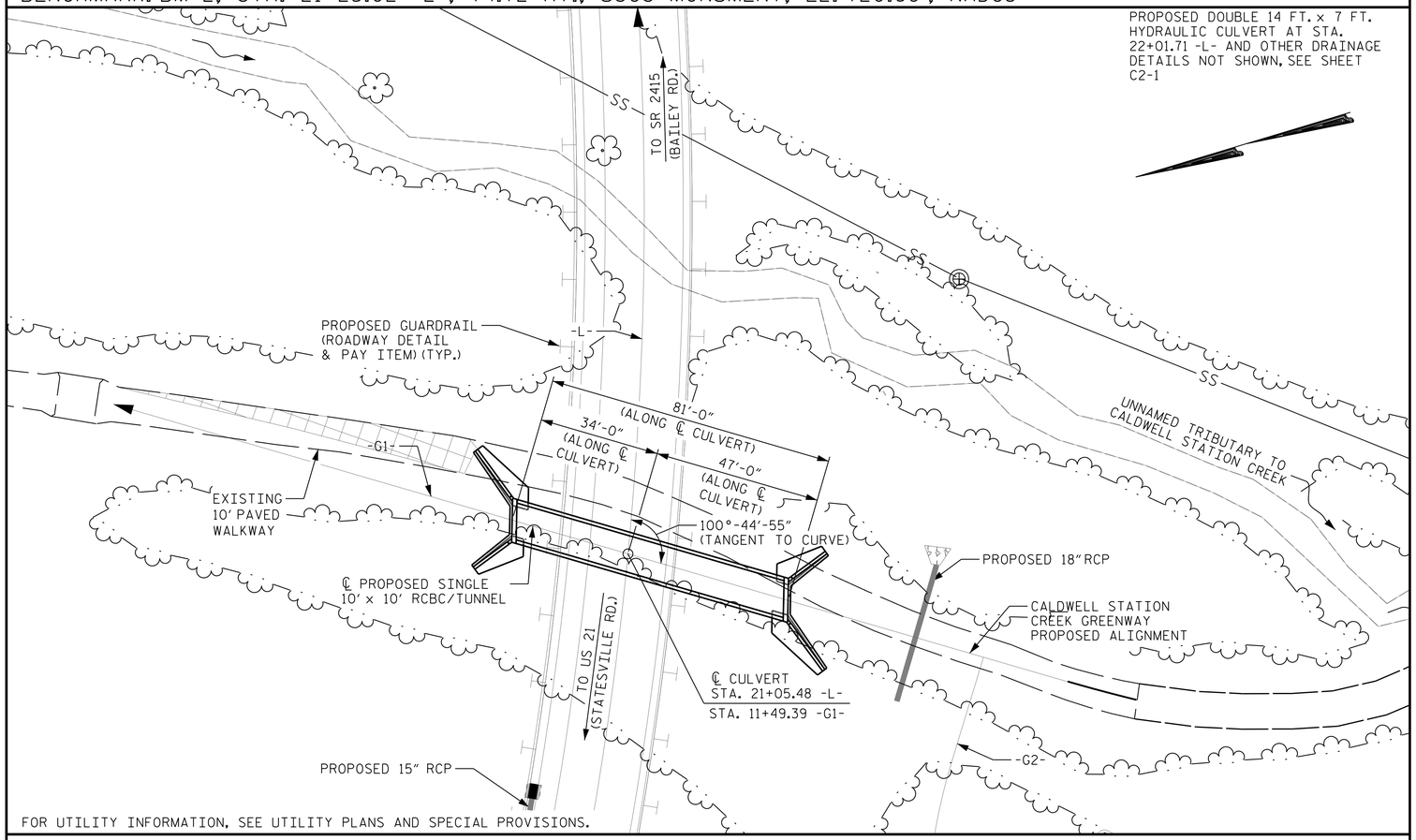
Docusign Envelope ID: 41135000-27AC-4215-BB4B-0D2F74257EE3

BENCHMARK: BM#2, STA. 21+25.02 -L-, 74.72' RT., USGS MONUMENT, EL. 720.69', NAD83

F.A. PROJECT NO. STBGDA-2415(001)



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD ---------- HL-93

DESIGN FILL ---------- 8'-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 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.

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.

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.

EXCAVATE A MINIMUM OF 1 FOOT BELOW CULVERT BEARING ELEVATION AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL PER SECTION 414 OF THE STANDARD SPECIFICATIONS.

BACKFILL WITH SELECT MATERIAL, CLASS VI MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.

BURY IN FOOTINGS FOR THE REINFORCED BOX CULVERT AT STATION 21+05.48 -L- AT LEAST 12" INTO SUITABLE RESIDUAL SOIL WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

INSTALL TYPE 4 GEOTEXTILE AT THE BOTTOM OF EXCAVATION PRIOR TO PLACING FOUNDATION CONDITIONING MATERIAL. THE GEOTEXTILE SHOULD BE PLACED AT THE BOTTOM OF THE EXCAVATION AND WRAPPED UP THE SIDE WALLS OF THE EXCAVATION.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS (360,000 KG) OF REINFORCING STEEL, ONE 30 INCH (760MM) SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS (360,000 KG) OF REINFORCING STEEL, TWO 30 INCH (760 MM) 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 VARIOUS PAY ITEMS.

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.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL STRUCTURE QUANTITIES

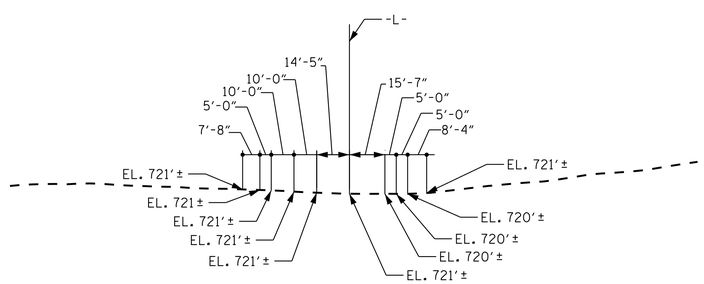
CLASS A CONCRETE			
BARREL @ 1.634 CY/FT	132.3	C.Y.	
WINGS ETC.	35.0	C.Y.	
TOTAL	167.3	C.Y.	
REINFORCING STEEL			
BARREL	19,317	LBS.	
WINGS ETC.	2,459	LBS.	
TOTAL	21,776	LBS.	
BOX CULVERT EXCAVATION STA. 21+05.48 -L-			LUMP SUM
FOUNDATION CONDITIONING MATERIAL, BOX CULVERT			92 TONS

-L- HORIZONTAL CURVE DATA

PI STA. 23+25.18
△ = 32°-54'-56.4" (LT)
D = 5°-40'-22.3"
L = 580.23'
T = 298.37'
R = 1,010.00'

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"



PROFILE ALONG ℄ CULVERT

ROADWAY DATA

GRADE POINT EL. @ STA. 21+05.48 -L- = 739.64'
BED ELEVATION @ STA. 11+49.39 -G1- = 721.93'
ROADWAY SLOPES 2 :1

PROJECT NO. U-6105
MECKLENBURG COUNTY
STATION: 21+05.48 -L-
11+49.39 -G1-
SHEET 1 OF 5

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
11/6/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 10 FT. X 10 FT. CONCRETE BOX CULVERT 100°44' 55" SKEW (PEDESTRIAN)

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

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adoption by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.
Copyright Kimley-Horn and Associates, Inc., 2025

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-1
1			3			TOTAL SHEETS
2			4			5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY: D. D. LOWERY DATE: 05/2024
CHECKED BY: B. M. KROL DATE: 05/2024
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 05/2024

K:\RDT_Structures_Culvert\NC\01036528 - U-6105\Cad\Dgn\411.001.U6105.SMU.CU01.dgn
11/6/2025

CULVERT 42C001