

BENCH MARK #1:
RR SPIKE SET IN 15" LOCUST; STA. 12+08.58 -L-;
62.22' LT.; ELEV. 1063.66

NOTES

ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
DESIGN FILL----- 1.11' MIN. FILL AND 2.89' MAX. FILL.
FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES SHEET.
3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
CONCRETE IN EACH STAGE 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.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FT. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

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 CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

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 VARIOUS PAY ITEMS.

FOR TRAFFIC PHASING, SEE TRAFFIC CONTROL PLANS.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

DOWELS SHALL BE USED TO CONNECT THE STAGE II TO STAGE I. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.

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.

UNDERCUT SOFT/VERY LOOSE SOILS IF ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATION CONDITIONING MATERIAL, BACKFILL UNDERCUT AREAS WITH FOUNDATION CONDITIONING MATERIAL. IF MORE THAN 1 FT UNDERCUT IS REQUIRED, CONTACT THE OPERATIONS ENGINEER FOR APPROVAL.

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

ROADWAY DATA

GRADE POINT ELEV. @ STA. 12+93.03 -L- = 1070.77'
BED ELEV. @ STA. 12+93.03 -L- = 1060.0'
ROADWAY SLOPES = VARIES

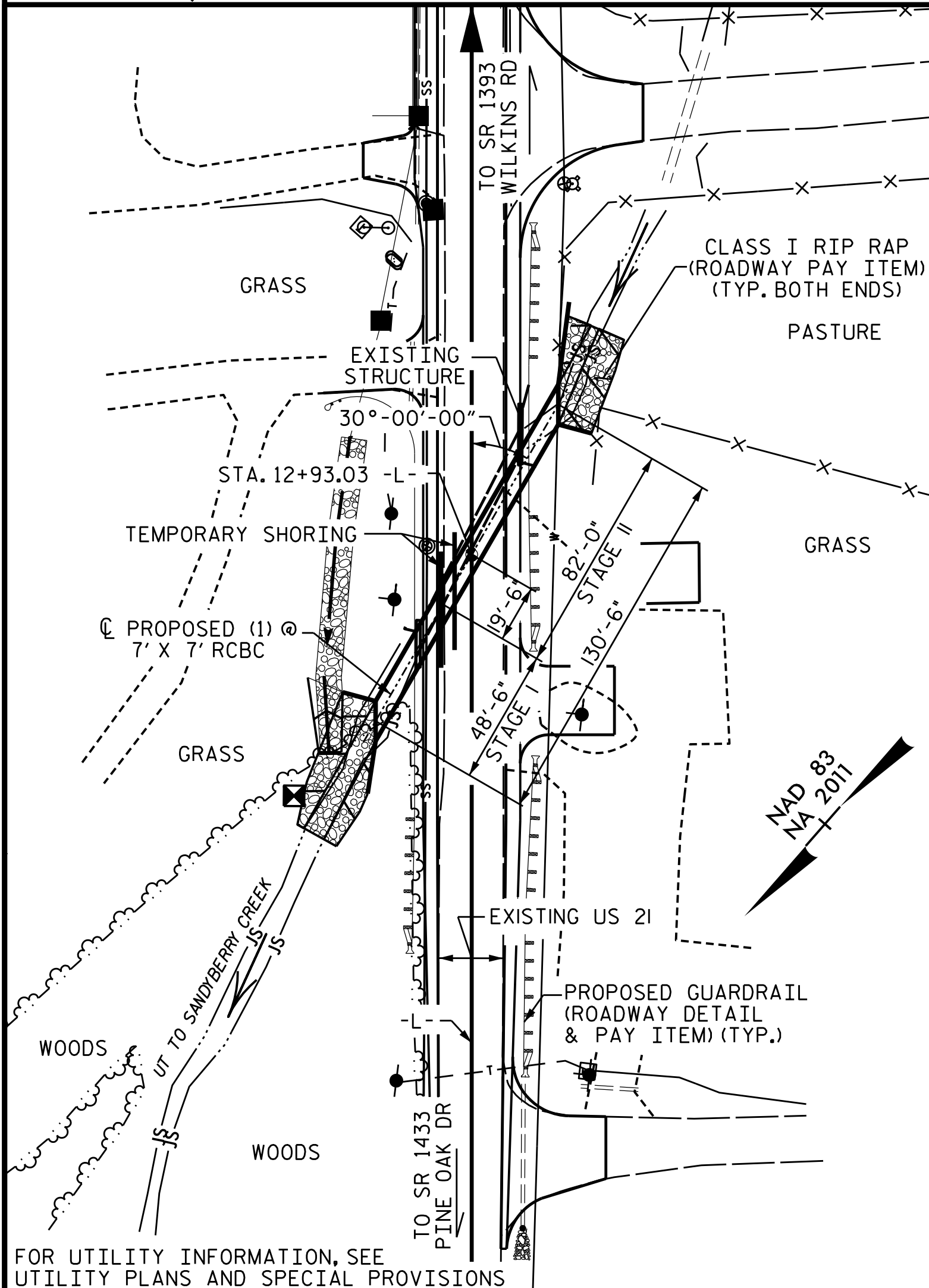
HYDRAULIC DATA

DESIGN DISCHARGE = 320 CFS
FREQUENCY OF DESIGN FLOOD = 50 YRS
DESIGN HIGH WATER ELEVATION = 1068.5'
DRAINAGE AREA = 0.33 SQ. MI.
BASIC DISCHARGE (Q100) = 350 CFS
BASIC HIGH WATER ELEVATION = 1068.9'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = N/A
FREQUENCY OF OVERTOPPING FLOOD = >500+ YRS
OVERTOPPING FLOOD ELEVATION = 1069.9 *

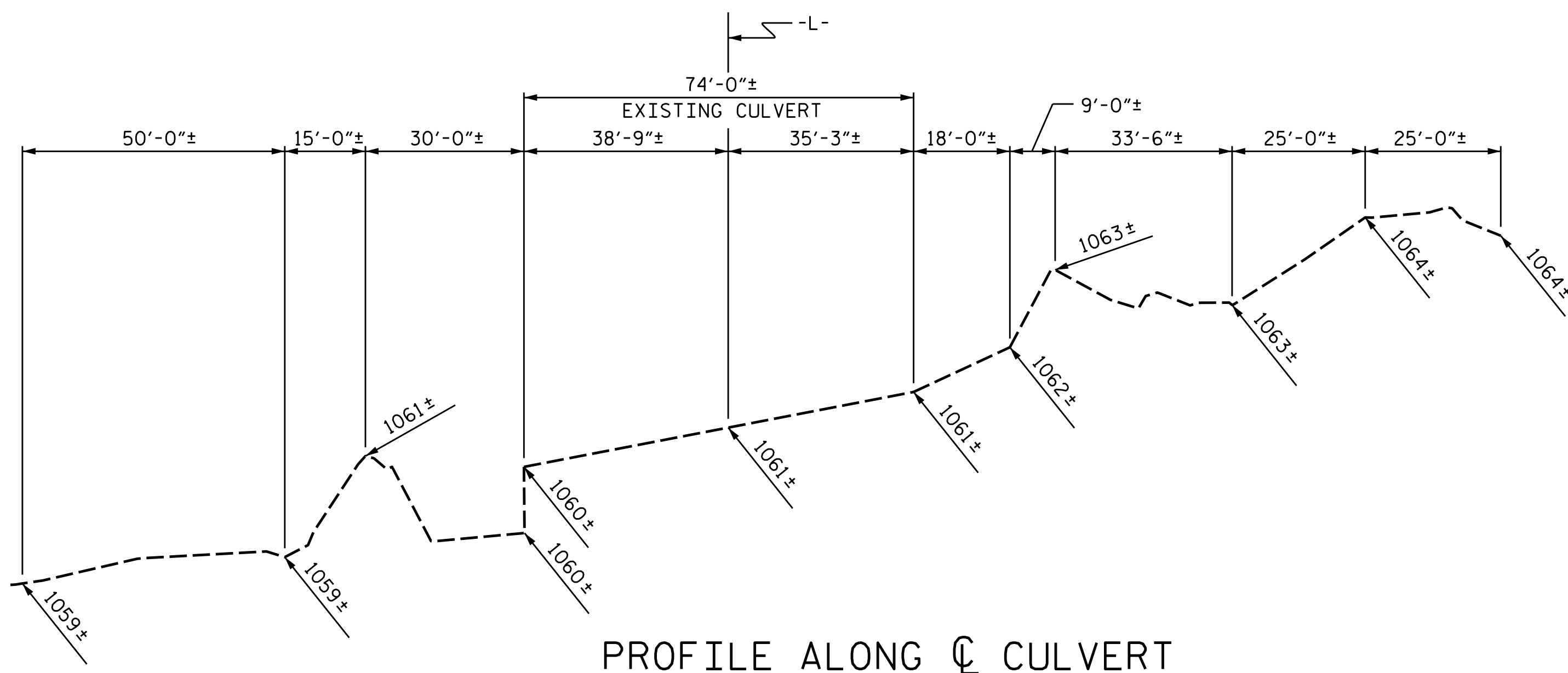
* NATURAL GROUND @ STA. 12+19 -L- RT.



LOCATION SKETCH

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE		REINFORCING STEEL		FOUNDATION COND. MAT'L.	
STAGE I	67.1 C.Y.	STAGE I	7,353 LBS.	STAGE I	42 TONS
STAGE II	95.4 C.Y.	STAGE II	10,150 LBS.	STAGE II	71 TONS
TOTAL	162.5 C.Y.	TOTAL	17,503 LBS.	TOTAL	113 TONS
REMOVAL OF EXISTING STRUCTURE	LUMP SUM	CULVERT EXCAVATION	LUMP SUM		



PROFILE ALONG CULVERT

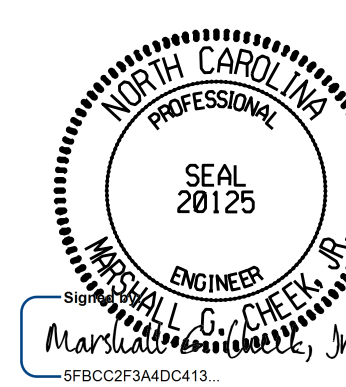
SAMPLE BAR REPLACEMENT

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

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

PROJECT NO. B-5833
YADKIN COUNTY
STATION: 12+93.03 -L-

SHEET 1 OF 9 REPLACES CULVERT #982099



11/20/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SINGLE 7 FT. X 7 FT.
CONCRETE BOX CULVERT
30°-00'-00" SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			9

DRAWN BY: ZCS DATE: 10/21
CHECKED BY: MGC DATE: 3/22
DESIGN ENGINEER OF RECORD: ZCS DATE: 3/22