

| ROADWAY DATA | |
|---------------------------------------|----------|
| GRADE POINT ELEV. @ STATION 792+88.12 | = 873.57 |
| BED ELEV. @ STATION 792+88.12 | = 848.20 |
| ROADWAY SLOPES | = 4:1 |

LOCATION SKETCH
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

| HYDRAULIC DATA | |
|-----------------------------|----------------|
| DESIGN DISCHARGE | = 180 CFS |
| FREQUENCY OF DESIGN FLOOD | = 50 YR. |
| DESIGN HIGH WATER ELEVATION | = 857.3 |
| DRAINAGE AREA | = 0.09 SQ. MI. |
| BASE DISCHARGE (Q100) | = 200 CFS |
| BASE HIGH WATER ELEVATION | = 857.6 |

| OVERTOPPING FLOOD DATA | |
|--------------------------------|------------|
| OVERTOPPING DISCHARGE | = 490 CFS |
| FREQUENCY OF OVERTOPPING FLOOD | = >500 YR. |
| OVERTOPPING FLOOD ELEVATION | = 871.0 |

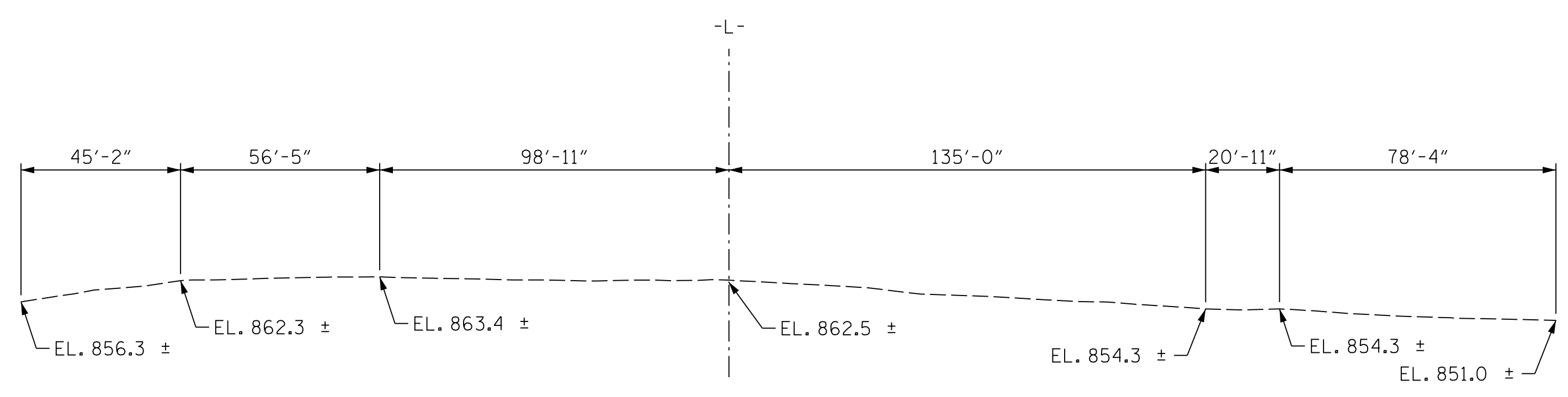
| TOTAL STRUCTURE QUANTITIES | |
|-------------------------------------|--------------------|
| CLASS A CONCRETE | |
| BARREL @ 0.949 C.Y./FT. | 304.0 C.Y. |
| WINGS ETC. | 56.8 C.Y. |
| SILLS/BAFFLES | 3.8 C.Y. |
| TOTAL | 364.6 C.Y. |
| REINFORCING STEEL | |
| BARREL, HEADWALLS, SILLS, & BAFFLES | 60,518 LBS. |
| WINGS | 5,323 LBS. |
| TOTAL | 65,841 LBS. |
| CULVERT EXCAVATION | LUMP SUM |
| FOUNDATION CONDITIONING MATERIAL | 260 TONS |
| GEOTEXTILE FOR DRAINAGE | 1020 SY |

| 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 $f_y = 60$ ksi.

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
DESIGN FILL = 19.76'
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 THE JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
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 PLANS, THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCING CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.
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 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 THE 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 - 1,020 SYDS.
THE REINFORCED CONCRETE BOX CULVERT SHALL BE CONSTRUCTED WITH 3 INCHES OF CAMBER TO ACCOUNT FOR ANTICIPATED SETTLEMENT.



PROFILE ALONG CULVERT

PROJECT NO. U-2579AB
FORSYTH COUNTY
STATION: 792+88.12 -L-

SHEET 1 OF 6

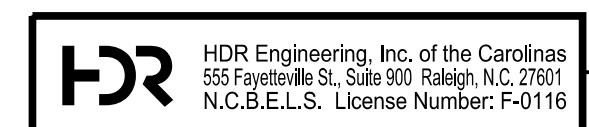
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SINGLE BARREL
6 FT. X 7 FT.
CONCRETE BOX CULVERT
89°/65°45'00" SKEW**



10/11/2021

| | | | |
|----------------------|-------------|----------------------|-------------|
| 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 |



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

| REVISIONS | | | | | |
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| 2 | | | 4 | | |

SHEET NO. C2-1
TOTAL SHEETS 6

PLOT DRIVER: NCDOT_pdf_color_eng-50.ppt
 USER: PETERSON
 DATE: 10/11/2021
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