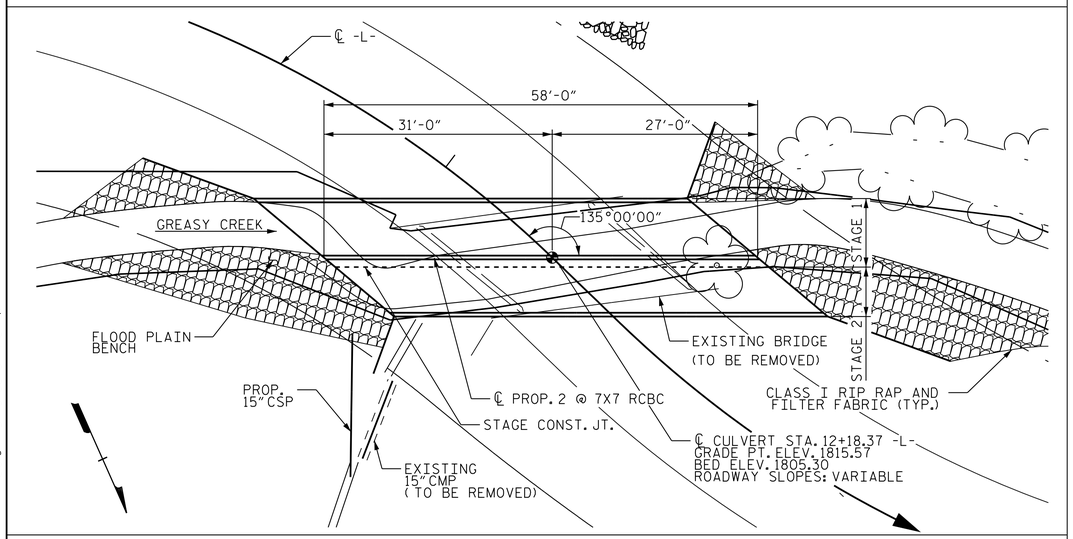
DocuSign Envelope ID: 7E43F06D-C2FB-463B-B185-F7A7DBD0548D

BENCH MARK: -BL- STATION 5+00.00 S 58°13'14.24"E DIST. 59.10 8 INCH SPIKE IN BASE OF 20 INCH MAPLE ELEV. 1818.41




## LOCATION SKETCH

NO KNOWN UTILITY CONFLICTS

## OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE ---------- = 520 CFS
FREQUENCY OF OVERTOPPING ---------- = 25 YR.
OVERTOPPING FLOOD ELEVATION -------- = 1808.7

## HYDRAULIC DATA

DESIGN DISCHARGE ---------- = 380 CFS
FREQUENCY OF DESIGN FLOOD ---------- = 10 YR.
DESIGN HIGH WATER ELEVATION --------- = 1809.7
BASIC DRAINAGE (Q100) ---------- = 750 CFS
BASIC HIGH WATER ELEVATION --------- = 1810.07
DRAINAGE AREA ---------- = 1.45 SQ. MI.

## TOTAL STRUCTURE QUANTITIES

| | | | | |
|---|---|---|---|---|
| CLASS A CONCRETE | | | | |
| BARREL @ | 1.613 | CY/FT | 93.6 | C.Y. |
| SILL WALLS | | 2.0 | | C.Y. |
| WING ETC. | | 28.1 | | C.Y. |
| TOTAL | | 123.7 | | C.Y. |
| REINFORCING STEEL | | | | |
| BARREL | | 9,909 | | LBS. |
| SILL WALLS | | 206 | | LBS. |
| WINGS ETC. | | 1502 | | LBS. |
| TOTAL | | 11,617 | | LBS. |

FOUNDATION CONDITIONING MATERIAL = 87 TONS

RIP RAP, CLASS I = 60 TONS

RIP RAP, CLASS B = 41 TONS

GEOTEXTILE FOR DRAINAGE = 85 S.Y.

CULVERT EXCAVATION = LUMP SUM

REMOVAL OF EXISTING STRUCTURE AT STATION 12+18.37 -L- = LUMP SUM

## NOTES

ASSUMED LIVE LOAD ----------HS20-44 OR ALTERNATE LOADING.

DESIGN FILL----------3.28'

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

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

CONCRETE IN 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.

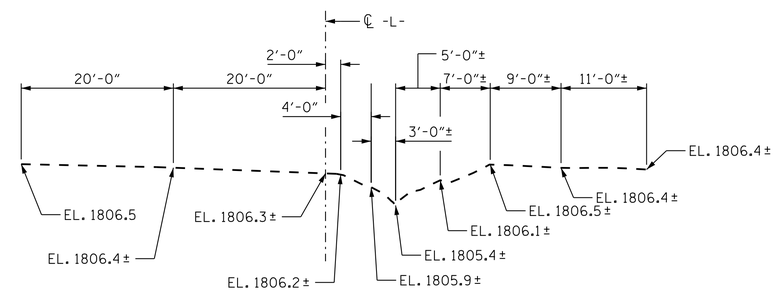
THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

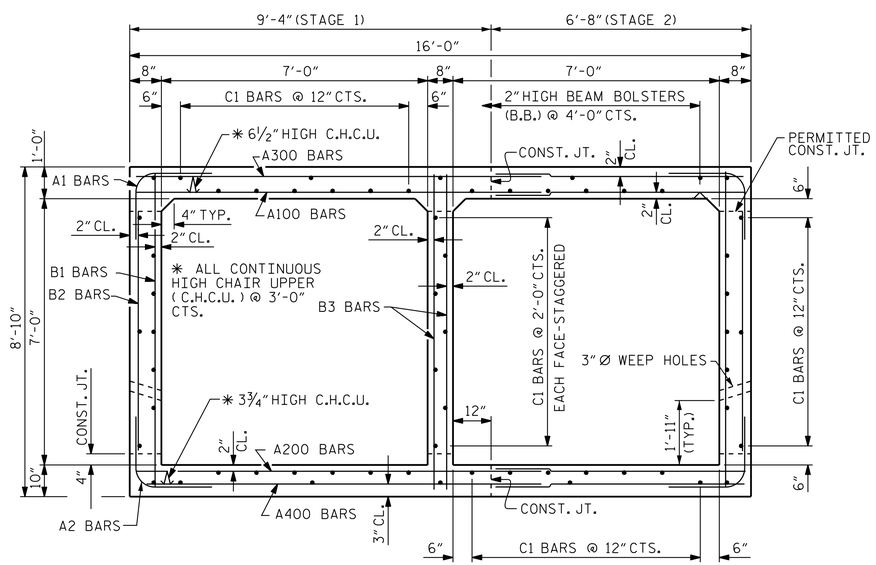
AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

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 EXISTING STRUCTURE CONSISTING OF ONE, 18"-6' LONG TIMBER JOIST SPAN WITH 15'-9"± OF CLEAR ROADWAY AND A TIMBER DECK WITH AN ASPHALT WEARING SURFACE ON END BENTS WITH TIMBER CAPS/ POSTS AND SILLS @ 7' CENTERS AND LOCATED @ THE SAME STATION AS THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.




## PROFILE ALONG ℄ CULVERT




## RIGHT ANGLE SECTION OF BARREL

THERE ARE 61 "C" BARS IN SECTION OF BARREL.

PROJECT NO. 17BP.14.R.38

CLAY COUNTY

STATION: 12+18.37 -L-

SHEET 1 OF 7 REPLACES BRIDGE NO. 78

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD
DOUBLE 7 FT. X 7 FT.
CONCRETE BOX CULVERT
135°00'00" SKEW

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

| | | | |
|---|---|---|---|
| ASSEMBLED BY : T.R. DUDECK | DATE : 04/2012 | SPECIAL | |
| CHECKED BY : J.T. KELVINGTON | DATE : 04/2012 | | |
| DRAWN BY : D.P.DONOVAN | DATE : DEC.1989 | STANDARD | |
| CHECKED BY : M. A. JONES | DATE : NOV 90 | | |

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

NORTH CAROLINA PROFESSIONAL SEAL 31462 ENGINEER THOMAS R. DUDECK
9/1/2016

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

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