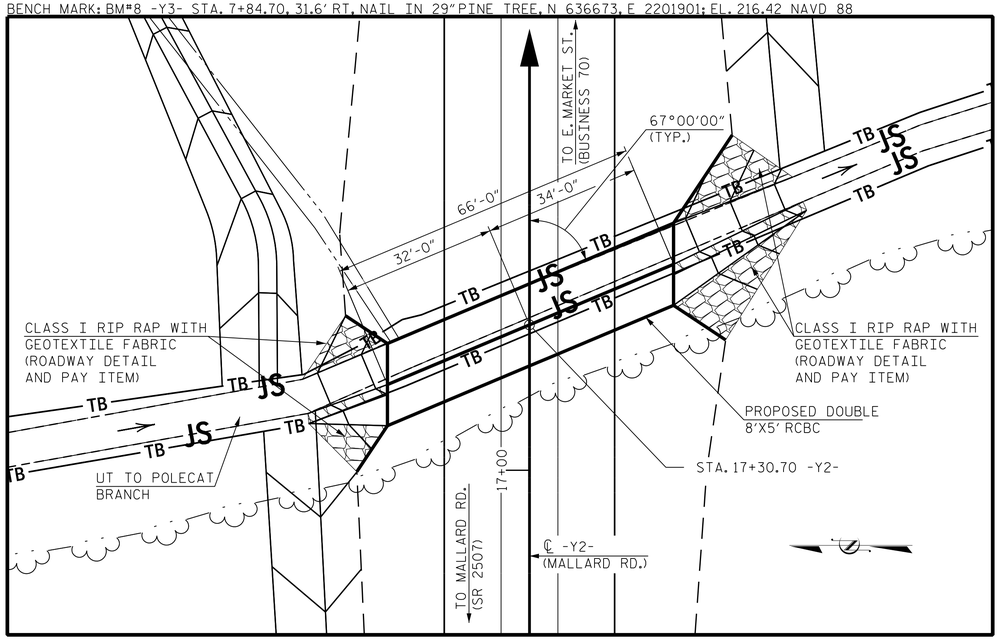
F.A. PROJECT NO. NHP-0095(045)

BENCH MARK: BM#8 -Y3- STA. 7+84.70, 31.6' RT, NAIL IN 29" PINE TREE, N 636673, E 2201901; EL. 216.42 NAVD 88



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS
GRADE POINT ELEVATION AT STA. 17+30.70 -Y2- = 149.7
BED ELEVATION AT STA. 17+30.70 -Y2- = 141.55
ROADWAY SLOPES = 3:1

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE

BARREL @	1.83	CY/FT	121.0	C.Y.
WING ETC.	22.6			C.Y.
SILLS/BAFFLES	2.0			C.Y.
TOTAL	145.6			C.Y.

REINFORCING STEEL

BARREL	18,387	LBS.
WINGS ETC.	1,448	LBS.
TOTAL	19,835	LBS.

CULVERT EXCAVATION ---------- LUMP SUM

FOUNDATION CONDITIONING MATERIAL--- 102 TONS

HYDRAULIC DATA

DESIGN DISCHARGE----------200 C.F.S.
FREQUENCY OF DESIGN FLOOD----------25 YR.
DESIGN HIGH WATER ELEVATION----------145.4
DRAINAGE AREA----------0.23 SQ. MI.
BASE DISCHARGE (Q100)----------260 C.F.S.
BASE HIGH WATER ELEVATION----------145.8

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE----------650 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD-----500+ YR
OVERTOPPING FLOOD ELEVATION---------149.7
OVERTOPPING OCCURS AT STA. 17+05 -Y2-

NOTES:

ASSUMED LIVE LOAD ----------HL-93 OR ALTERNATE LOADING

DESIGN FILL----------3.0 FT. (MIN.), 4.2 FT. (MAX.)

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTES SHEET.

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

CONCRETE IN CULVERT 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, SILLS 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 THE 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 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.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WINGS COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES WILL BE PAID FOR BY THE CONTRACTOR.

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.

EXCAVATE 1-FT BELOW CULVERT BEARING ELEVATION AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL (SELECT MATERIAL CLASS VI).

UNDERCUT ANY SOFT/LOOSE ALLUVIAL SOILS THAT MAY BE ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATION CONDITIONING MATERIAL. BACKFILL UNDERCUT AREA WITH FOUNDATION CONDITIONING MATERIAL.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

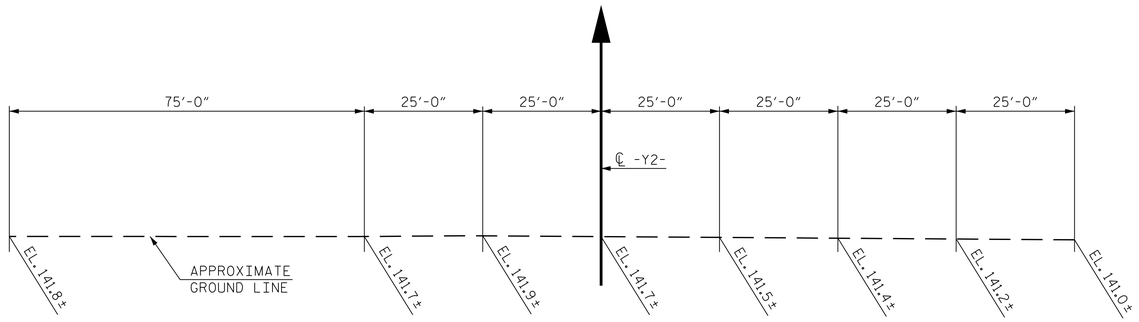
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION SEQUENCE, SEE EROSION CONTROL PLANS.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.



PROFILE ALONG ℄ CULVERT

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 = 60ksi.

PROJECT NO. I-5972
JOHNSTON COUNTY
STATION: 17+30.70 -Y2-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 8 FT. X 5 FT. CONCRETE BOX CULVERT 67°00'00" SKEW

RK&K
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NORTH CAROLINA PROFESSIONAL SEAL 10966 ENGINEER RICKY V. KEITH
Ricky Keith
9/30/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DRAWN BY : J. BOXLEY DATE : JUL. 2021
CHECKED BY : A. L. STROUD DATE : JUL. 2021
DESIGN ENGINEER OF RECORD : R. V. KEITH DATE : JUL. 2021

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