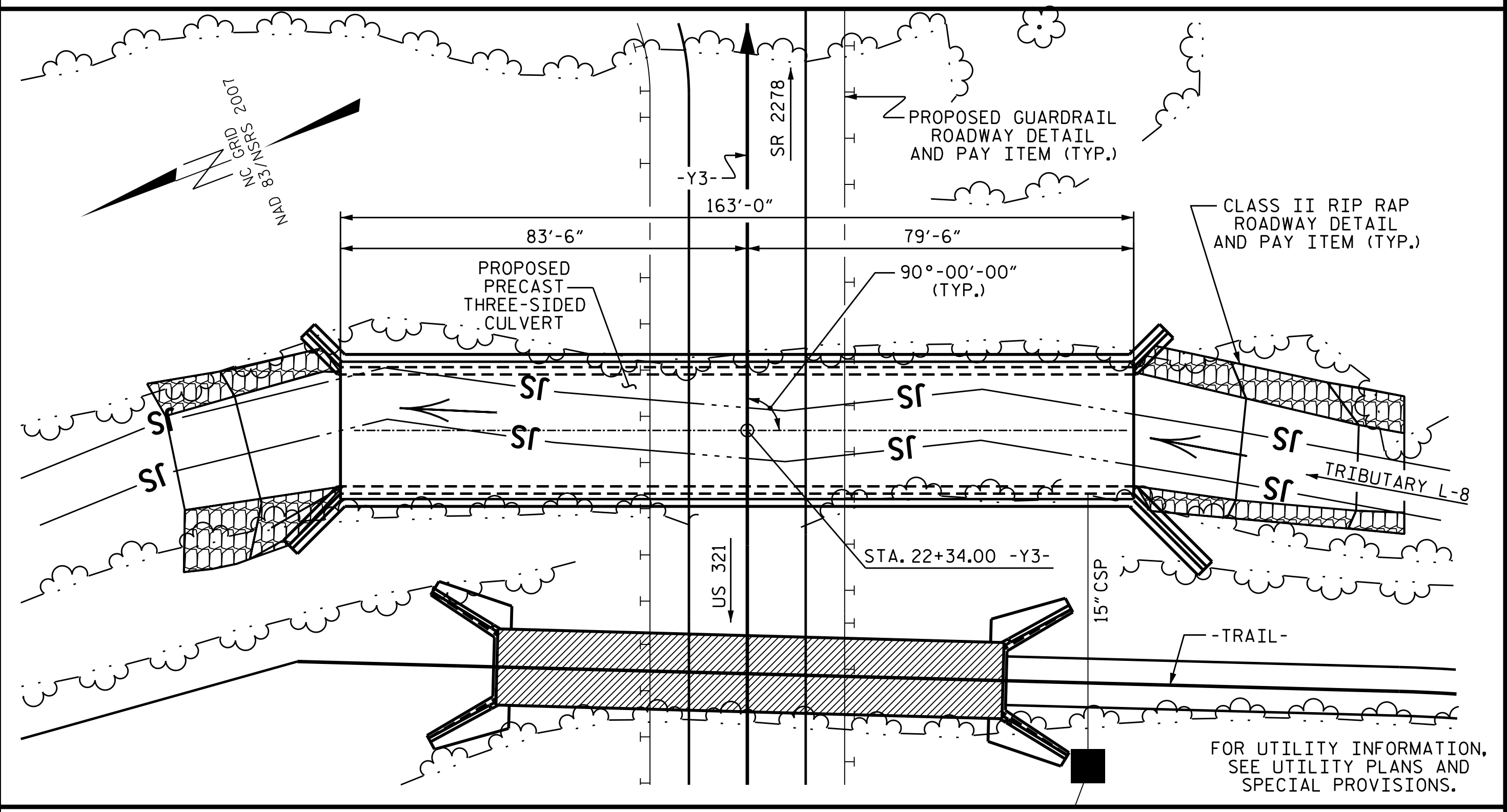
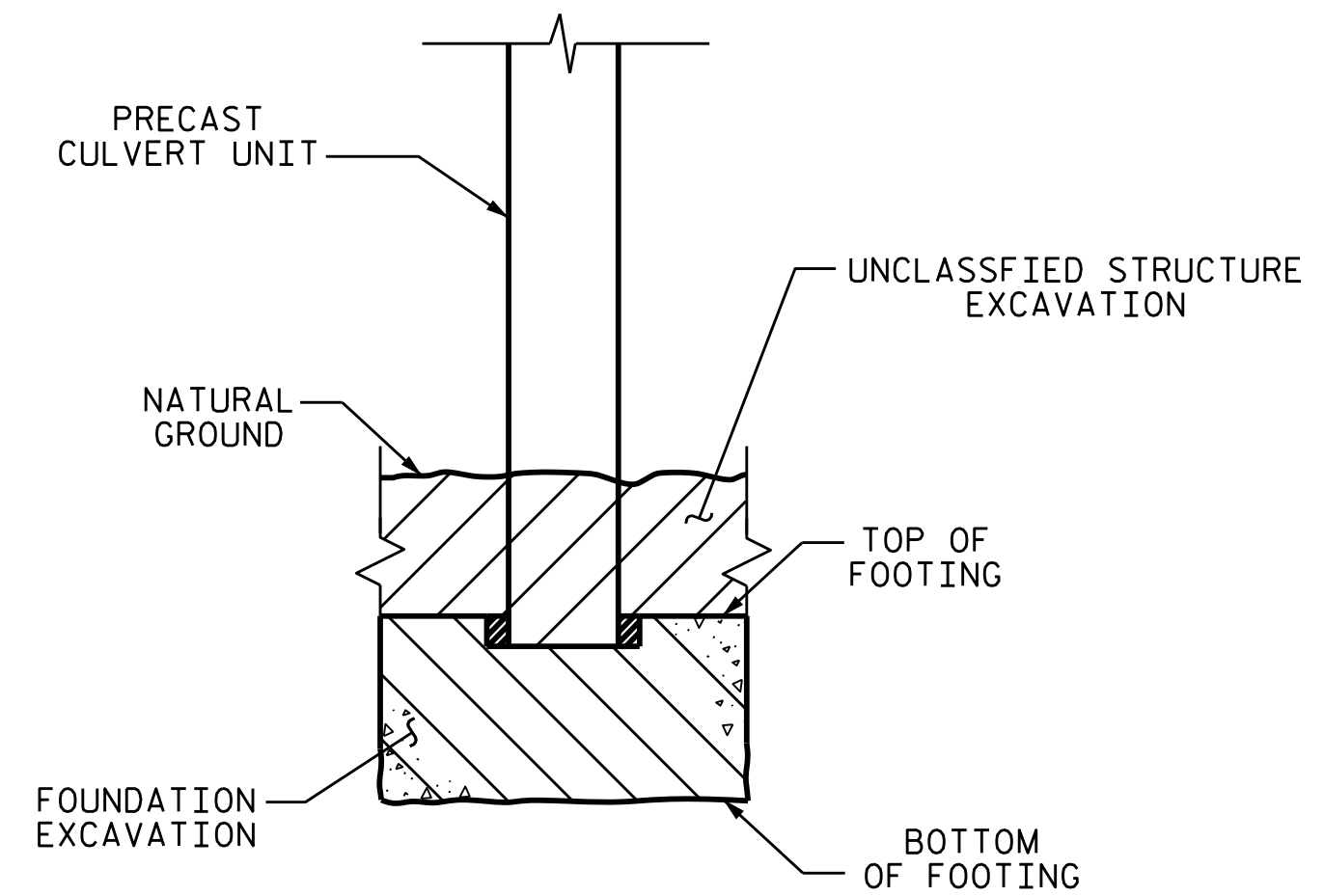


BENCHMARK #3: CHISELED SQUARE IN CORNER OF UTILITY BOX BASE, STA. 11+80.00 -Y1- 56 FT. LEFT; EL. 739.23; N 567774 E 1347226



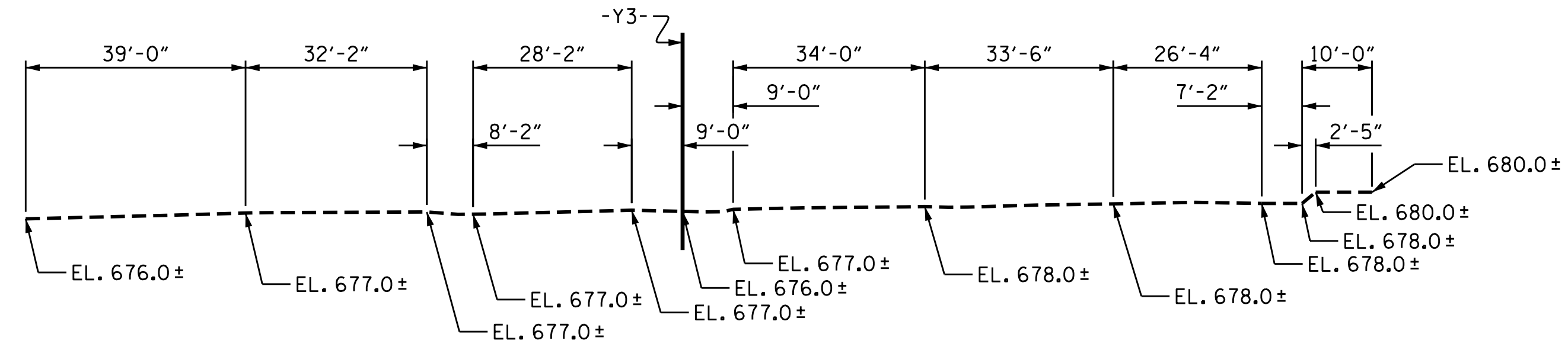
LOCATION SKETCH



EXCAVATION DETAIL

TOTAL STRUCTURE QUANTITIES	
UNCLASSIFIED STRUCTURE EXCAVATION	LUMP SUM
FOUNDATION EVCAVATION	111.0 C. Y.
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 22+34.00 -Y3-	LUMP SUM
* CLASS A CONCRETE	151.0 C. Y.

* CLASS A CONCRETE QUANTITY SHOWN IS ESTIMATED AND IS BASED UPON THE BEST INFORMATION AVAILABLE. ESTIMATED QUANTITY INCLUDES HEADWALLS, WINGS, CULVERT FOOTINGS AND/OR SUB-FOOTINGS (IF USED).



PROFILE ALONG CULVERT

ROADWAY DATA

GRADE POINT ELEV. @ STA. 22+34.00 -Y3- = 715.15
 BED ELEV. @ STA. 22+34.00 -Y3- = 678.2
 ROADWAY SLOPES = 2:1

HYDRAULIC DATA

DESIGN DISCHARGE = 950 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YEARS
 DESIGN HIGH WATER ELEVATION = 683.7
 DRAINAGE AREA = 1.28 SQ. MI.
 BASE DISCHARGE (Q100) = 1100 C.F.S.
 BASE HIGH WATER ELEVATION = 684.30

OVERTOPPING FLOOD DATA

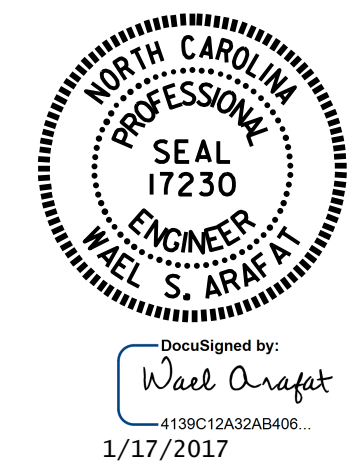
OVERTOPPING DISCHARGE = 6700 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 500+ YEARS
 OVERTOPPING FLOOD ELEVATION = 707.6
 AT STA. 23+61.09 -Y3-

NOTES

- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- DESIGN FILL ----- 27.73 (MIN.) 29.65 (MAX.)
- FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
- 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.
- 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 BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPliced WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- THE 15" DIA. PIPE THROUGH THE SIDEWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. REINFORCING STEEL IN THE PRECAST CULVERT SHALL BE BENT AS NECESSARY TO CLEAR PIPE.
- 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 SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- THE SCOUR CRITICAL ELEVATION FOR THE CULVERT IS THE BOTTOM OF FOOTING ELEVATION. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- THE SPREAD FOOTINGS FOR THE CULVERT ARE DESIGNED FOR A FACTORED RESISTANCE OF 4 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 9 TSF JUST BEFORE PLACING CONCRETE.
- KEY IN SPREAD FOOTINGS FOR THE CULVERT AT LEAST 12 INCHES INTO WEATHERED ROCK OR CRYSTALLINE ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.
- THE BOTTOM OF FOOTING ELEVATIONS MAY BE LOWERED IF NECESSARY TO ACHIEVE REQUIRED BEARING CAPACITY.
- FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18 "EVALUATING SCOUR AT BRIDGES."
- FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- A SPREAD FOOTING IS REQUIRED FOR THE PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT FOUNDATION. THE CONTRACTOR SHALL PROVIDE THE FOOTING DESIGN TO THE ENGINEER FOR REVIEW AND APPROVAL.
- THE CULVERT SECTIONS AND WINGS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.

DRAWN BY : H. T. BARBOUR DATE : 11-29-16
 CHECKED BY : T. L. AVERETTE DATE : 11-16

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PROJECT NO. I-5000
 GASTON COUNTY
 STATION: 22+34.00 -Y3-

SHEET 1 OF 3 BRIDGE No. 446

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PRECAST REINFORCED
 CONCRETE THREE-SIDED
 CULVERT
 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			26