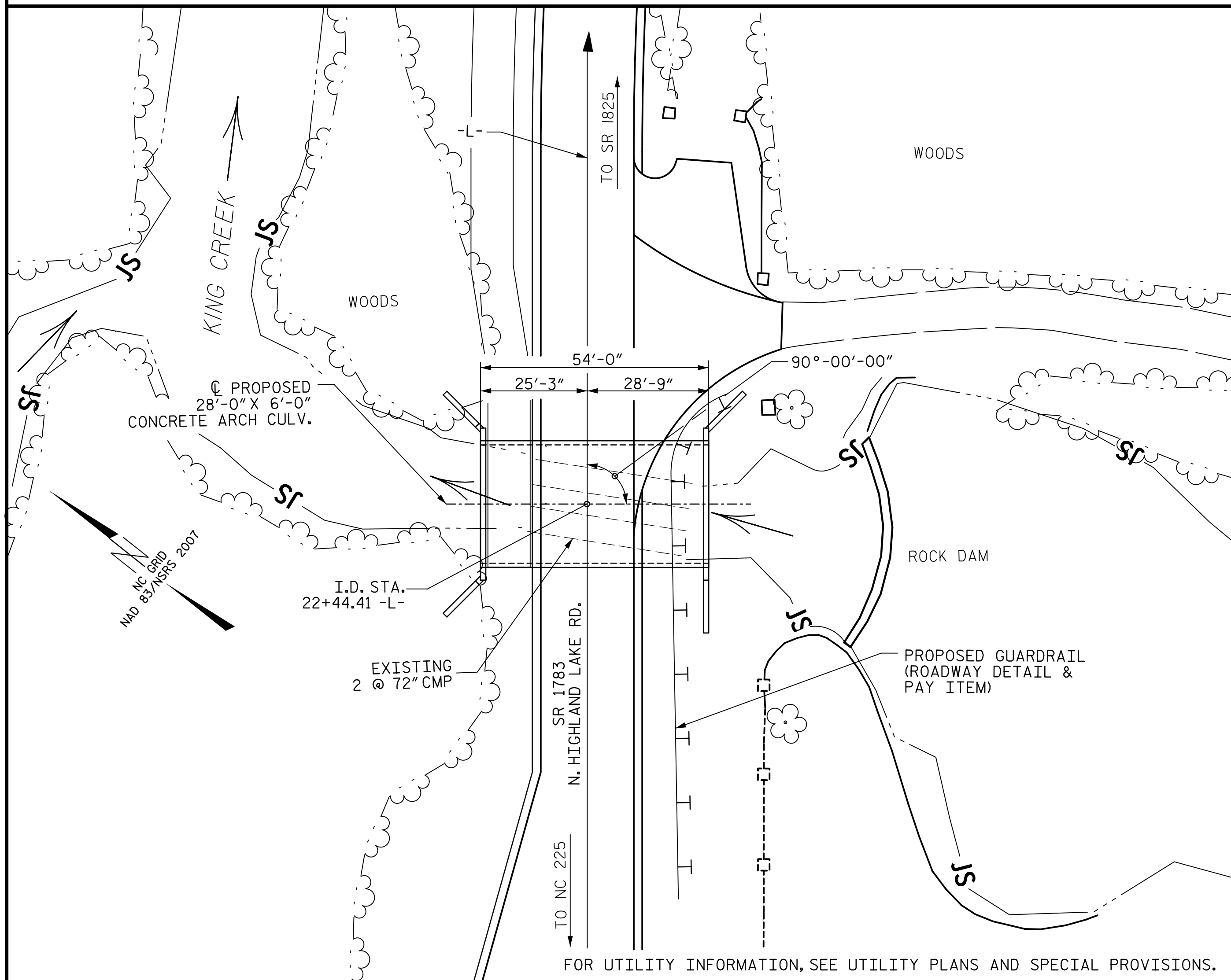


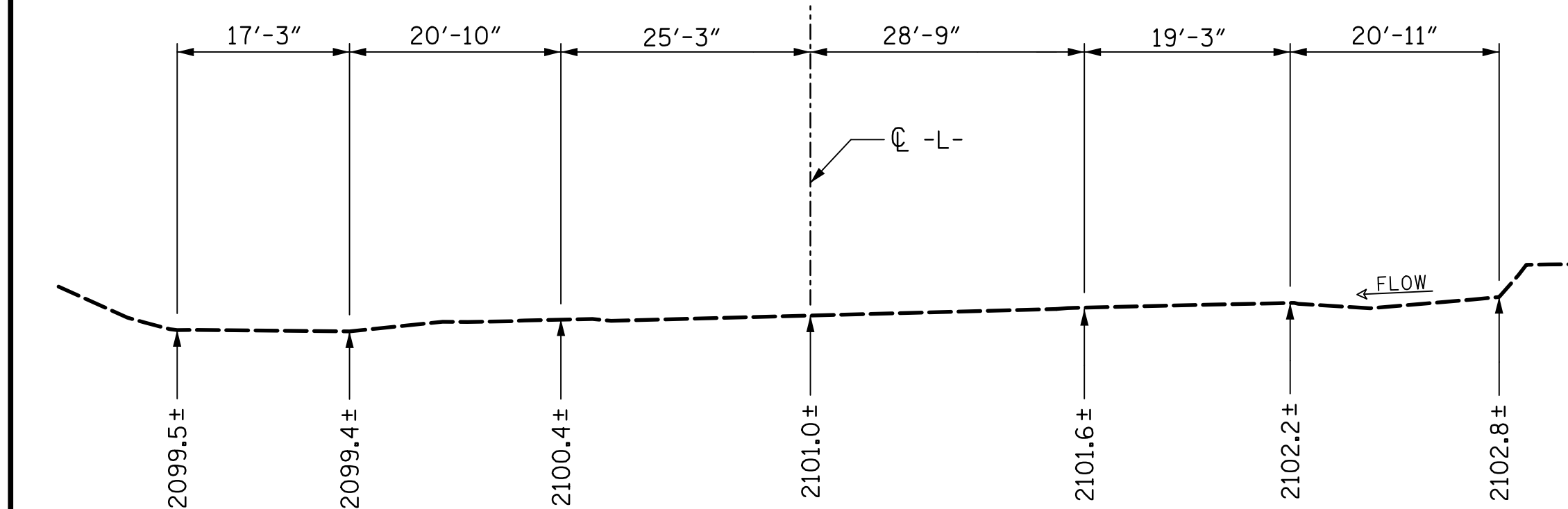
BM #3: NAIL SET IN BASE OF 48" DBL. POPLAR
 -L- STA. 21+22.46 52.22' LT EL. 2109.70'



— LOCATION SKETCH —

GRADE DATA

GRADE POINT ELEV. @ STATION 22+44.41 = 2111.23±
 BED ELEV. @ STATION 22+44.41 = 2100.82±
 ROADWAY SLOPES 2:1

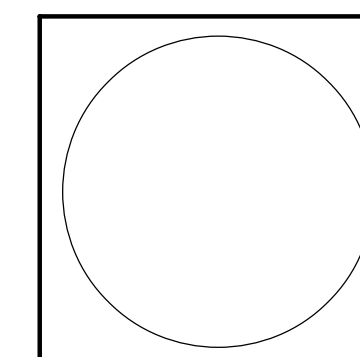


PROFILE ALONG CULVERT

HYDRAULIC DATA

DESIGN DISCHARGE	= 1000	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2108.1	FT
DRAINAGE AREA	= 3.8	SQ. MI.
BASE DISCHARGE	= 1500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2111.2	FT
OVERTOPPING DISCHARGE	= 1350	CFS
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING ELEVATION	= 2110.8	FT

I HEREBY CERTIFY
 THAT THESE PLANS
 ARE THE
 AS-BUILT PLANS.



NOTES

- ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.
- DESIGN FILL ----- MAX.=4.83' MIN.=4.08'
- FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES 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.
- CAST-IN-PLACE CONCRETE SHALL BE POURED IN THE FOLLOWING ORDER:
 - FOOTINGS.
 - HEADWALL FOOTINGS, WALLS AND WINGS FULL HEIGHT, EXCEPT FOR RAIL PARAPET PORTION OF OUTLET HEADWALL.
 - RAIL PARAPET ON OUTLET HEADWALL.
 - A 3'-0" STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENDING LENGTH OF THE EXPANSION JOINT.
- FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC MANAGEMENT PLANS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR PILES SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- TEMPORARY SHORING MAY BE REQUIRED. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.
- THE EXISTING STRUCTURE, CONSISTING OF TWO LINES OF 72" CMP AND LOCATED AT THE PROPOSED STRUCTURE, SHALL BE REMOVED.
- ARCHITECTURAL SURFACE TREATMENT IS REQUIRED FOR THE EXPOSED FACES OF THE WINGWALLS, THE FRONT FACE OF HEADWALLS, INTERIOR AND EXTERIOR FACES OF THE CONCRETE PARAPET AND END POSTS. FOR ARCHITECTURAL SURFACE TREATMENT, SEE SPECIAL PROVISIONS.

- FOR PRECAST REINFORCED THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOOTING IS DESIGNED FOR ASSUMED PRECAST CULVERT WALL THICKNESS OF 1'-0". HEADWALL IS DESIGNED FOR ASSUMED PRECAST CULVERT TOP SLAB THICKNESS OF 10" AT CROWN. ANY CHANGE IN DESIGN DIMENSIONS WILL REQUIRE ADJUSTMENT OF DETAILS AND REINFORCEMENT LENGTHS.
- FOR 18" STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

(NOTES CONTINUED ON SHEET C-4)

FOUNDATION RECOMMENDATIONS:

- THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 4 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 9 TSF JUST BEFORE PLACING CONCRETE.
- KEY SPREAD FOOTINGS AT LEAST 12" INTO WEATHERED ROCK OR ROCK WITH MINIMUM THICKNESS AS SHOWN ON THE PLANS.
- THE SCOUR CRITICAL ELEVATION IS THE BOTTOM OF FOOTING. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- SPREAD FOOTINGS MUST BE PLACED ON NON-SCOURABLE ROCK. IF ADEQUATE MATERIAL IS NOT ENCOUNTERED AT THE PLAN BOTTOM OF FOOTING EXCAVATION, EXCAVATE DOWN AND 1-FOOT INTO NON-SCOURABLE ROCK.
- IF THE TOP OF NON-SCOURABLE ROCK IS LOCATED AT A DEPTH GREATER THAN 3 FEET BELOW PLAN BOTTOM OF FOOTING ELEVATION, DRILLED-IN PILES ARE RECOMMENDED.
- DRILLED-IN PILES SHALL BE INSTALLED VERTICAL, WITH A CENTER-TO-CENTER SPACING NO GREATER THAN 5 FEET, AND WITH A PENETRATION OF AT LEAST 10 FEET INTO WEATHERED ROCK/CRYSTALLINE ROCK. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATION.
- CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATIONS.
- IF THE TOP OF NON-SCOURABLE ROCK IS LOCATED BELOW THE PLANNED BOTTOM OF FOOTING ELEVATION, P227 SHEETING SHALL BE USED TO PROVIDE SCOUR PROTECTION. SHEETING SHALL BE DRIVEN TO REFUSAL AND THE TOP CAST DIRECTLY INTO THE FOOTING CONCRETE. REFUSAL ELEVATIONS ARE EXPECTED TO BE VARIABLE, RANGING FROM APPROXIMATELY 2,108 FEET TO 2,088 FEET ALONG THE EAST FOOTING TO APPROXIMATELY 2,101 FEET TO 2,102 FEET ALONG THE WEST FOOTING.

TOTAL CULVERT QUANTITIES

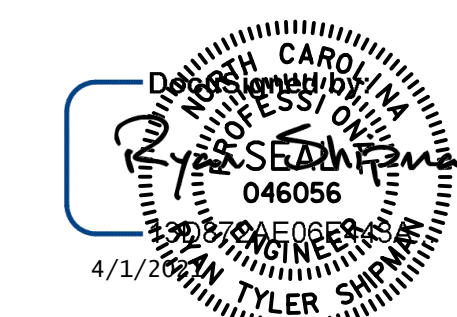
REMOVAL OF EXISTING STRUCTURE AT STA. 22+44.41 -L-	LUMP SUM
PRECAST REINFORCED CONCRETE THREE SIDED CULVERT AT STA. 22+44.41 -L-	LUMP SUM
PILE EXCAVATION IN SOIL	64 LIN. FT.
PILE EXCAVATION NOT IN SOIL	80 LIN. FT.
UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 22+44.41 -L-	LUMP SUM
CLASS 'A' CONCRETE	175.4 CU. YDS.
REINFORCING STEEL	16,844 LBS.
HP12x53 STEEL PILES	152 LIN. FT.
ANODIZED TWO BAR METAL RAIL	28.5 LIN. FT.
18" STEEL SHEET PILES	440 SQ. FT.
FOUNDATION EXCAVATION	629 CU. YDS.
ARCHITECTURAL SURFACE TREATMENT	1274 SQ. FT.
EPOXY COATED REINFORCING STEEL	396 LBS.
1'-3" X 2'-6" CONCRETE PARAPET	36.0 LIN. FT.
PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	8 EA.

PROJECT NO. U-5887

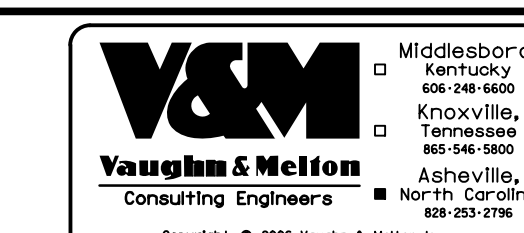
HENDERSON COUNTY

STATION: 22+44.41 -L-

SHEET 1 OF 21 NEW STRUCTURE 440394



DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



DRAWN BY: HL DATE: 03/2020
 CHECKED BY: CBC DATE: 03/2020
 ENG. OF RECORD: CBC DATE: 03/2020

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 28'-0" X 6'-0" PRECAST
 CONCRETE ARCH CULVERT
 ALONG KING CREEK
 ON SR 1783 (N. HIGHLAND LAKE RD)
 90° SKEW

REVISIONS						SHEET NO. C-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			