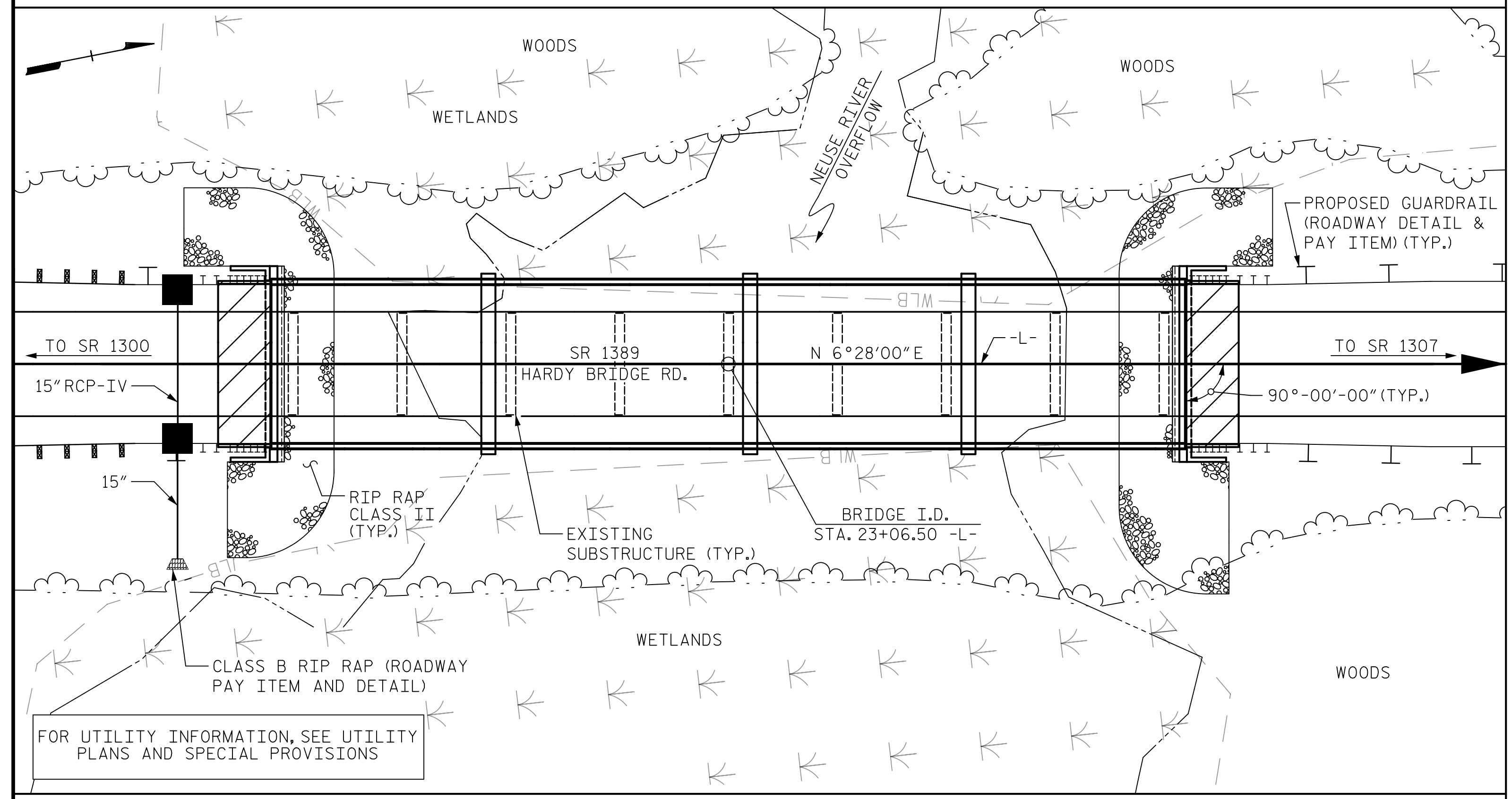


BM #1: R/R SPIKE IN 18" GUM TREE, 59.06' RT. OF STA. 23+89.93 -L- EL. 38.64



LOCATION SKETCH

**NOTES:**

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.  
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.  
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.  
 THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.  
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.  
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.  
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.  
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.  
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.  
 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.  
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 23+06.50 -L-."  
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.  
 AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT AND BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.  
 MATERIAL SHOWN IN THE HATCHED AREA ON SHEET 1 OF 2 SHALL BE EXCAVATED FOR A DISTANCE OF 29 FT± LEFT AND 32 FT± RIGHT OF CENTERLINE ROADWAY AT END BENT 1, AND 28 FT± LEFT AND 44 FT± RIGHT AT END BENT 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.  
 THE EXISTING STRUCTURE CONSISTING OF 8 SPANS @ 25'-0" CLEAR ROADWAY WIDTH OF 22'-0" ON A REINFORCED CONCRETE DECK AND STEEL I-BEAM SUPERSTRUCTURE; END BENTS AND INTERIOR BENTS WITH REINFORCED CONCRETE CAPS ON TIMBER PILES, AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.  
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.  
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.  
 FOR INTERIOR BENTS 1-3, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.  
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."  
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

**TOTAL BILL OF MATERIAL**

|                | REMOVAL OF EXISTING STRUCTURE AT STA. 23+06.50 -L- | ASBESTOS ASSESSMENT | PDA TESTING | UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 23+06.50 -L- | CLASS A CONCRETE | BRIDGE APPROACH SLABS STA. 23+06.50 -L- | REINFORCING STEEL | EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES | PILE DRIVING EQUIPMENT SETUP FOR PP 18 X 0.50 GALV. STEEL PILES | HP 12 X 53 STEEL PILES | PP 18 X 0.50 GALVANIZED STEEL PILES | PILE REDRIVES | VERTICAL CONCRETE BARRIER RAIL | RIP RAP CLASS II (2'-0" THICK) | GEOTEXTILE FOR DRAINAGE | ELASTOMERIC BEARINGS | 3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS |                 |     |          |
|----------------|--|---------------------|-------------|--|------------------|---|-------------------|--|---|------------------------|-------------------------------------|---------------|--------------------------------|--------------------------------|-------------------------|----------------------|--|-----------------|-----|----------|
|                | LUMP SUM   | LUMP SUM            | EACH        | LUMP SUM   | CU. YDS.         | LUMP SUM                                | LBS.              | EACH                                       | EACH  | NO.                    | LIN. FT.                            | NO.           | LIN. FT.                       | EACH                           | LIN. FT.                | TONS                 | SQ. YDS.                                       | LUMP SUM        | NO. | LIN. FT. |
| SUPERSTRUCTURE |  |                     |             |  |                  |   |                   |  |   |                        |                                     |               | 421.0                          |                                |                         |                      |  |                 | 52  | 2,730.00 |
| END BENT 1     |  |                     |             | LUMP SUM   | 24.2             |   | 2,921             | 7  |   | 7                      | 420                                 | 4             |                                | 228                            | 253                     |                      |  |                 |     |          |
| BENT 1         |  |                     |             |  | 12.0             |   | 2,457             |  | 8   |                        | 680                                 | 4             |                                |                                |                         |                      |  |                 |     |          |
| BENT 2         |  |                     |             |  | 12.0             |   | 2,457             |  | 8   |                        | 680                                 | 4             |                                |                                |                         |                      |  |                 |     |          |
| BENT 3         |  |                     |             |  | 12.0             |   | 2,457             |  | 8   |                        | 680                                 | 4             |                                |                                |                         |                      |  |                 |     |          |
| END BENT 2     |  |                     |             | LUMP SUM   | 24.2             |   | 2,921             | 7  |   | 7                      | 420                                 | 4             |                                | 262                            | 291                     |                      |  |                 |     |          |
| <b>TOTAL</b>   | <b>LUMP SUM</b>                                    | <b>LUMP SUM</b>     | <b>2</b>    | <b>LUMP SUM</b>  | <b>84.4</b>      | <b>LUMP SUM</b>                         | <b>13,213</b>     | <b>14</b>                                  | <b>24</b>   | <b>14</b>              | <b>840</b>                          | <b>20</b>     | <b>421.0</b>                   | <b>490</b>                     | <b>544</b>              | <b>LUMP SUM</b>      | <b>52</b>                                      | <b>2,730.00</b> |     |          |

**SAMPLE BAR REPLACEMENT**

| #   | 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 fy = 60ksi.

**HYDRAULIC DATA**

DESIGN DISCHARGE = 32,400 CFS  
 FREQUENCY OF DESIGN DISCHARGE = 25 YEARS  
 DESIGN HIGH WATER ELEVATION = 48.8  
 DRAINAGE AREA = 2,600 SQ. MI.  
 BASE DISCHARGE (Q100) = 44,000 CFS  
 BASE HIGH WATER ELEVATION = 51.2

**OVERTOPPING DATA**

OVERTOPPING DISCHARGE = 24,500 CFS  
 FREQUENCY OF OVERTOPPING = 10- YEARS  
 \* OVERTOPPING ELEVATION = 46.8  
 \* OVERTOPPING WOULD OCCUR AT STA. 55+30 -L-

**FOUNDATION NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 PILES AT END BENT NO.1 AND NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 73 TONS PER PILE.  
 DRIVE PILES AT END BENT NO.1 AND NO.2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.  
 PILES AT BENT NO.1 TO NO.3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE.  
 DRIVE PILES AT BENT NO.1 TO NO.3 TO A REQUIRED DRIVING RESISTANCE OF 215 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR SCOUR.  
 INSTALL PILES AT BENT NO.1 TO NO.3 TO A TIP ELEVATION NO HIGHER THAN 1 FT.  
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 TO NO.3 IS ELEVATION 21.0 FEET. THE SCOUR CRITICAL ELEVATION IS USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40,000 TO 70,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1 TO NO.3. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.  
 TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT END BENT NO.1 OR NO.2. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT NO.1, NO.2 OR NO.3. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 PIPE PILE PLATES ARE NOT REQUIRED FOR STEEL PIPE PILES AT BENT NO.1 TO NO.3.



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PROJECT NO. B-5619  
LENOIR COUNTY  
 STATION: 23+06.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE OVER NEUSE RIVER OVERFLOW ON SR 1389 BETWEEN SR 1300 & SR 1307

DRAWN BY : J.S. HOBSON DATE : 12/22/20  
 CHECKED BY : J.A. BOYER DATE : 01/02/21  
 DESIGN ENGINEER OF RECORD : J.S. HOBSON DATE : 02/09/21

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S2-02        |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 23           |