

PROJECT: B-5545

CONTRACT: C203130

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

|                 |                             |             |              |
|-----------------|-----------------------------|-------------|--------------|
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
| N.C.            | B-5545                      | 1A          |              |
| STATE PROJ. NO. | E.A. PROJECT                | DESCRIPTION |              |
| 45528.1.1       | NA                          | PE          |              |
| 45528.3.1       | NA                          | CONSTR.     |              |

**HARNETT COUNTY**

LOCATION: BRIDGE #57 ON SR1002 OVER I-95  
BRIDGE #66 ON SR1793 OVER I-95  
BRIDGE #80 ON SR1808 OVER I-95

TYPE OF WORK: GIRDER REPLACEMENT, BEARING REPLACEMENT

INDEX OF SHEETS

|               |                          |
|---------------|--------------------------|
| 1             | TITLE SHEET              |
| 1A            | INDEX OF SHEETS          |
| 2             | SUMMARY OF QUANTITIES    |
|               | STRUCTURES               |
| S-1 - S-7     | BRIDGE #57               |
| S-8 - S-14    | BRIDGE #66               |
| S-15 - S-21   | BRIDGE #80               |
| TMP-1 - TMP-8 | TRAFFIC MANAGEMENT PLANS |



Prepared For  
**STRUCTURES MANAGEMENT UNIT**  
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

LETTING DATE:  
SEPTEMBER 18, 2012

RICK NELSON, P.E.  
PROJECT ENGINEER

ENGINEER

FARZIN ASEFANIA, P.E.

\*FILES\*

\*TIMES\*

\*DATES\*

8/2/08/99

**PROJECT: B-5545**

**CONTRACT: C203130**

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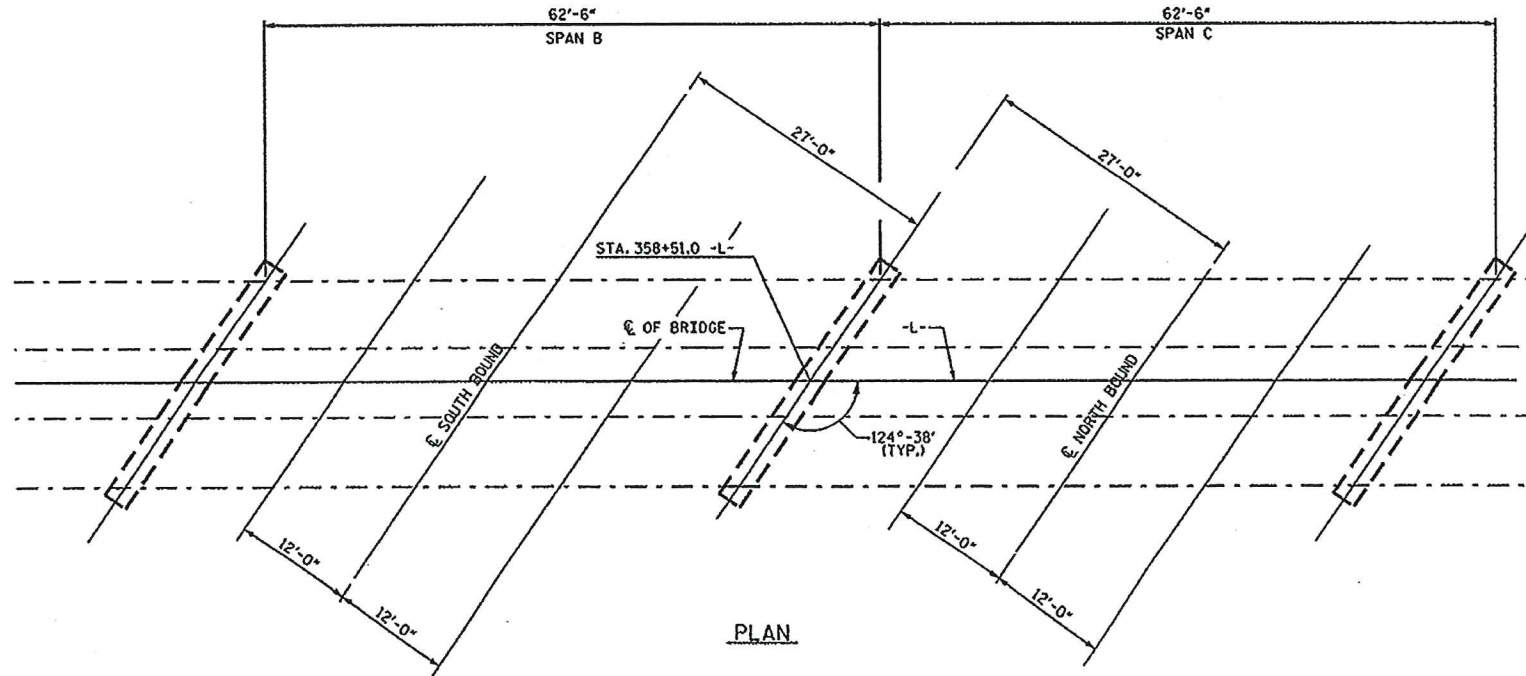
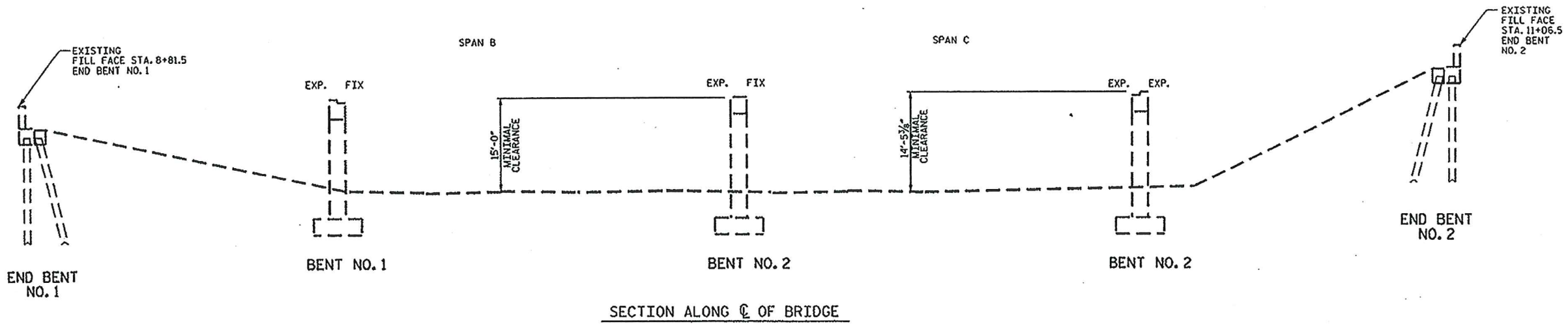
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

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| STATE | STATE PROJECT REFERENCE NO. | SHEET | TOTAL  |
| N.C.  | B-5545                      | 2     | SHEETS |

**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203130

| ItemNumber   | Sec # | Quantity | Unit | Description   |
|--------------|-------|----------|------|---|
| 0000100000-N | 800   | Lump Sum |      | MOBILIZATION  |
| 4400000000-E | 1110  | 778      | SF   | WORK ZONE SIGNS (STATIONARY)  |
| 4405000000-E | 1110  | 352      | SF   | WORK ZONE SIGNS (PORTABLE)  |
| 4410000000-E | 1110  | 60       | SF   | WORK ZONE SIGNS (BARRICADE MOUNTED)                                     |
| 4415000000-N | 1115  | 4        | EA   | FLASHING ARROW BOARD  |
| 4420000000-N | 1120  | 5        | EA   | PORTABLE CHANGEABLE MESSAGE SIGN  |
| 4430000000-N | 1130  | 500      | EA   | DRUMS   |
| 4435000000-N | 1135  | 41       | EA   | CONES   |
| 4445000000-E | 1145  | 256      | LF   | BARRICADES (TYPE III)   |
| 4455000000-N | 1150  | 96       | DAY  | FLAGGER   |
| 4480000000-N | 1165  | 2        | EA   | TMA   |
| 4510000000-N | SP    | 1,728    | HR   | LAW ENFORCEMENT   |
| 4795000000-E | 1205  | 60       | LF   | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (24") (IV)         |
| 4810000000-E | 1205  | 3,200    | LF   | PAINT PAVEMENT MARKING LINES (4")                                       |
| 8280000000-E | 440   | 1        | LS   | APPROX ..... LBS STRUCTURAL STEEL                                       |
| 8657000000-N | 430   | Lump Sum |      | ELASTOMERIC BEARINGS  |
| 8860000000-N | SP    | Lump Sum |      | GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXT STRUCTURES AT BRIDGE #057 |
| 8860000000-N | SP    | Lump Sum |      | GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXT STRUCTURES AT BRIDGE #066 |
| 8860000000-N | SP    | Lump Sum |      | GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXT STRUCTURES AT BRIDGE #080 |



PROJECT NO. B-5545  
 HARNETT COUNTY  
 STATION: 358+51.0 -L-  
 SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

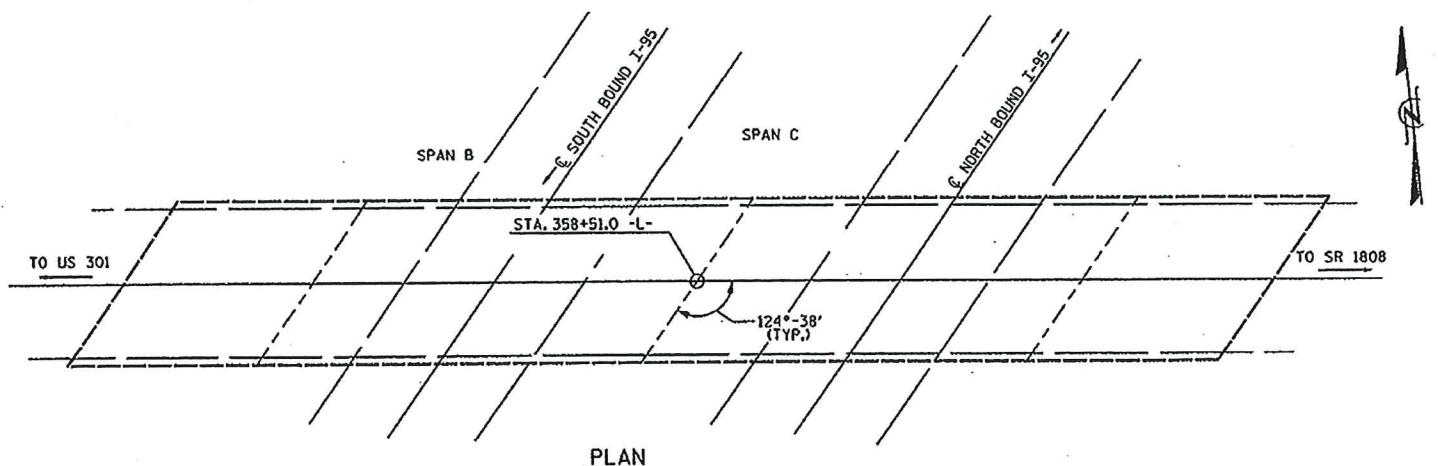
GENERAL DRAWING  
 BRIDGE NO. 80 OVER I-95  
 ON SR 1808 BETWEEN  
 SR 1806 AND US 301

| REVISIONS |    |      |     |    |      | SHEET NO.       |
|-----------|----|------|-----|----|------|-----------------|
| NO.       | BY | DATE | NO. | BY | DATE | S-15            |
| 1         |    |      | 3   |    |      | TOTAL SHEETS 21 |
| 2         |    |      | 4   |    |      |                 |



DRAWN BY: M. WELDON DATE: 7/2012  
 CHECKED BY: F. ASEFNIA DATE: 7/2012

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 revision



PLAN

LOCATION SKETCH

**NOTES:**

- REMOVAL OF THE EXISTING GIRDERS SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE ROADWAY.
- 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.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
- THE ANCHOR BOLTS SHALL BE BASED ON A MINIMUM OF 9" EMBEDMENT INTO EXISTING CONCRETE CAP AND SHALL BE INSTALLED BASED ON MANUFACTURER'S RECOMMENDATION.
- EXISTING ANCHOR BOLTS ARE TO BE CUT FLUSH WITH THE EXISTING CAP. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

| TOTAL BILL OF MATERIAL |                                   |                     |
|------------------------|-----------------------------------|---------------------|
|                        | APPROXIMATE LBS. STRUCTURAL STEEL | ELASTOMERIC BEARING |
| SUPERSTRUCTURE         | LBS.                              | LUMP SUM            |
| TOTAL                  | 76,124                            | LUMP SUM            |

PROJECT NO. B-5545  
HARNETT COUNTY  
 STATION: 358+51.0 -L-

SHEET 2 OF 2

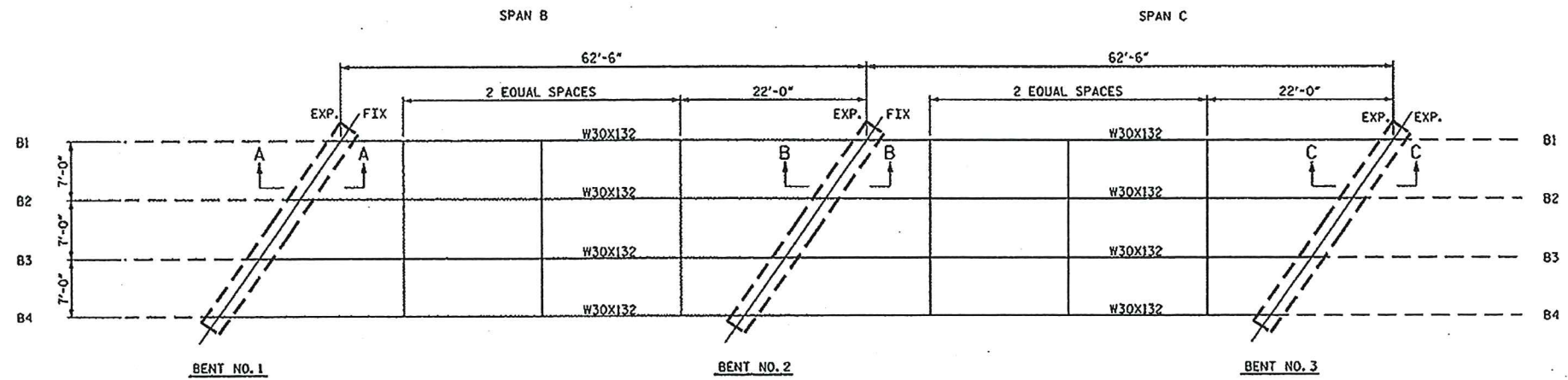
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION  
 GENERAL DRAWING  
 BRIDGE NO. 80 OVER I-95  
 ON SR 1808 BETWEEN  
 SR 1806 AND US 301



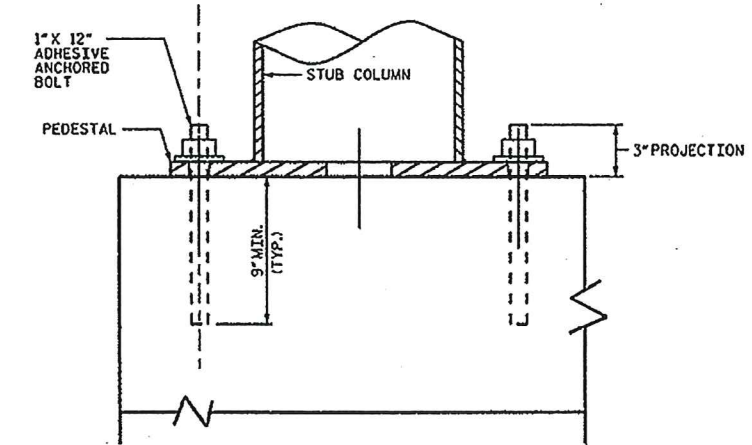
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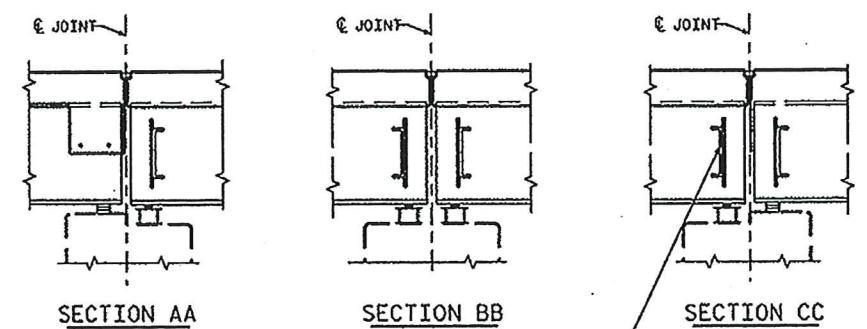
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 mweldon



FRAMING PLAN



PROPOSED ADHESIVE ANCHOR DETAIL

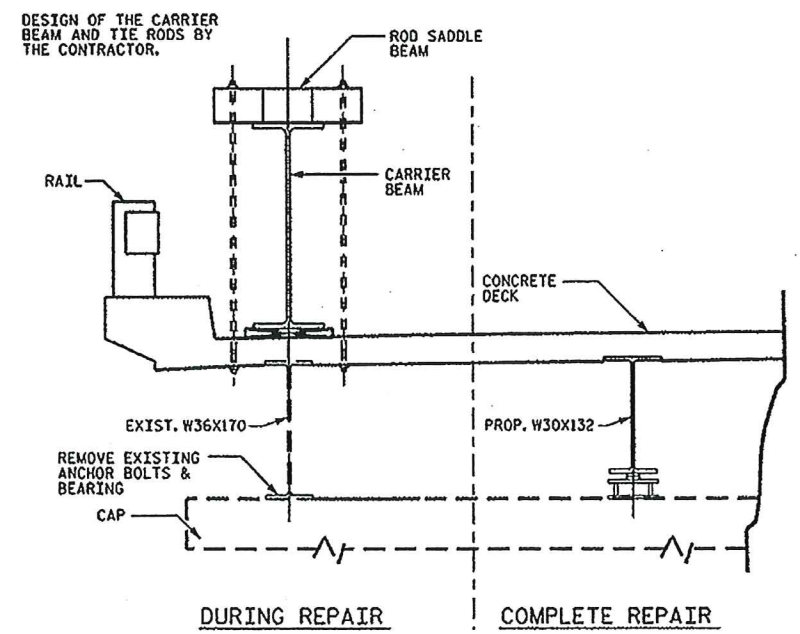


SECTION AA

SECTION BB

SECTION CC

PROPOSED NEW BENT DIAPHRAGM (TYP.)



DURING REPAIR

COMPLETE REPAIR

PROJECT NO. B-5545  
 HARNETT COUNTY  
 STATION: 358+51.0 -L-

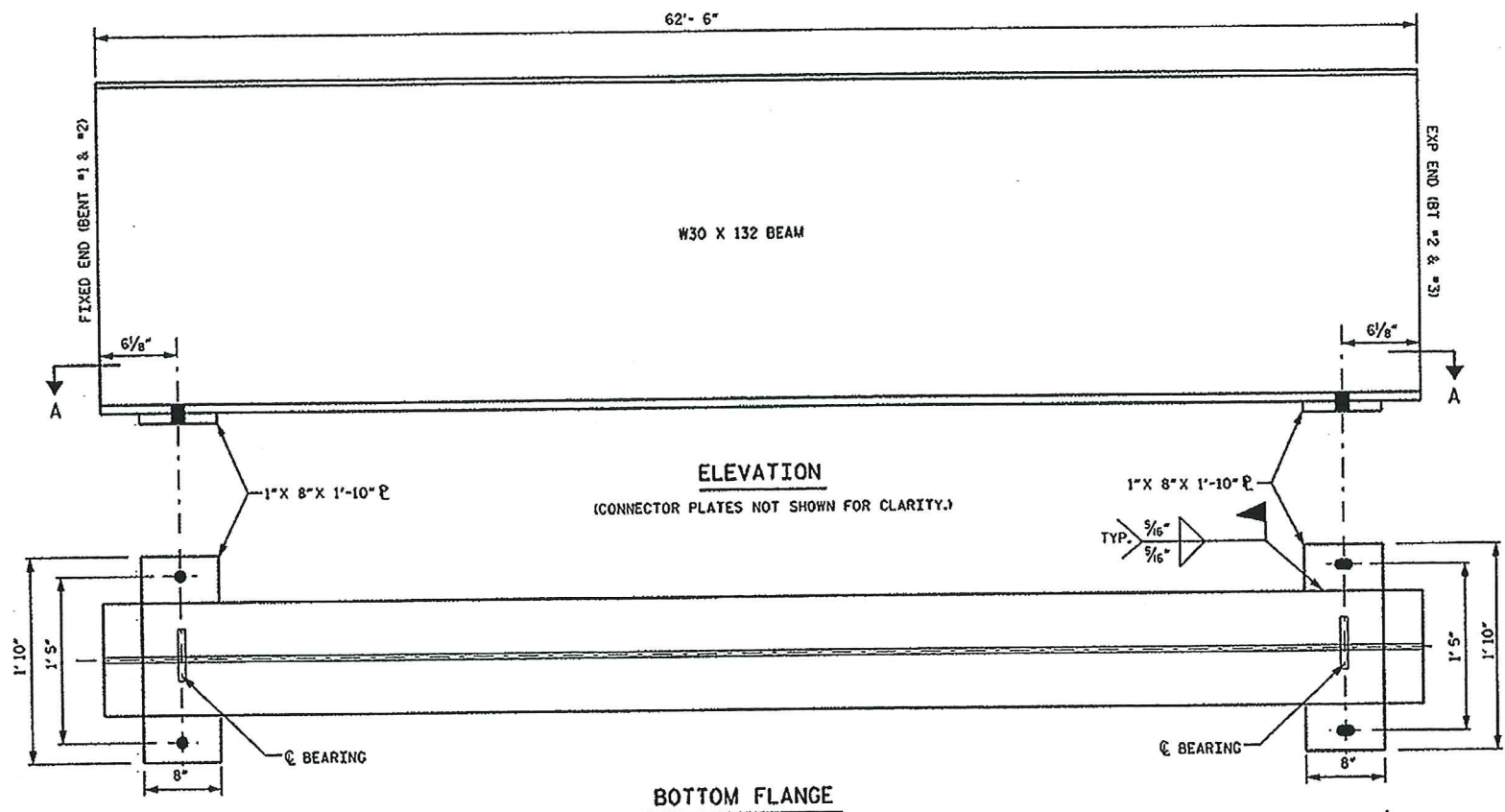
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 EXISTING  
 SUPERSTRUCTURE  
 FRAMING PLAN  
 TYPICAL SECTIONS  
 BRIDGE NO. 80



| REVISIONS |    |      |     |    |      | SHEET NO.       |  |
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| NO.       | BY | DATE | NO. | BY | DATE | S-17            |  |
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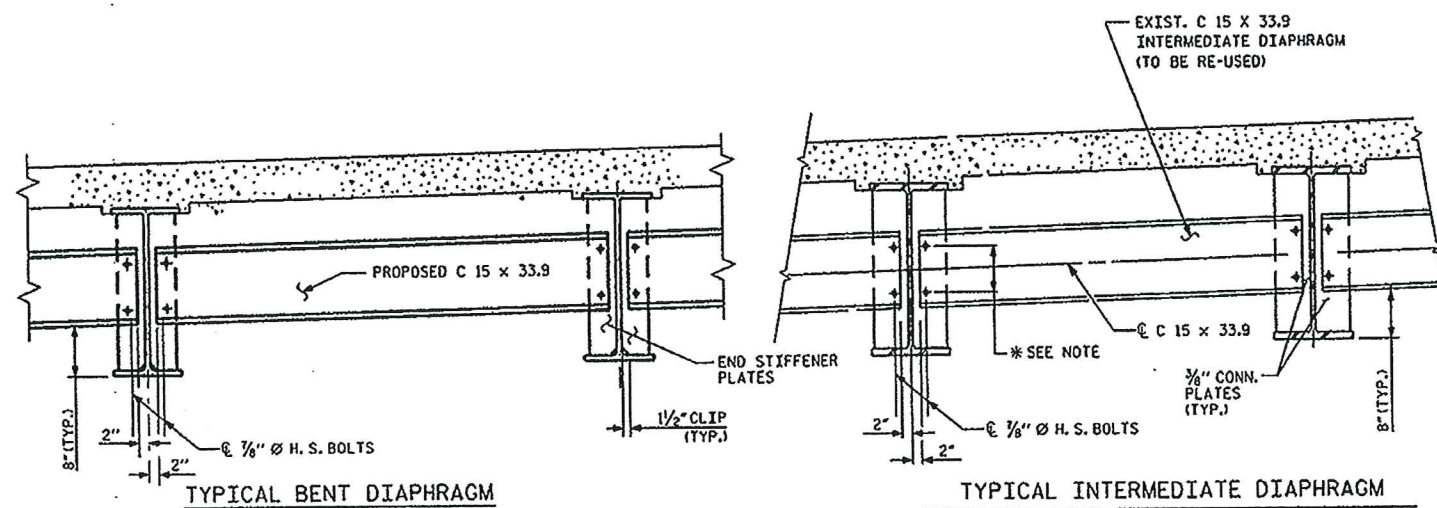
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**GENERAL NOTES:**

- 1) ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- 2) ALL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.
- 3) UNLESS NOTED OTHERWISE, ALL STEEL ON THIS DRAWING SHALL MEET THE REQUIREMENTS OF AASHTO M270 (GRADE 50) AND ITS SUPPLEMENTARY LONGITUDINAL CHARPY V-NOTCH TEST REQUIREMENTS (FOR AASHTO M270 ZONE 1). ASTM A-572 (GR 50) OR A-588 (GR 50) STEEL MAY BE SUBSTITUTED AS LONG AS THE SUPPLEMENTARY REQUIREMENTS TO THE ABOVE AASHTO SPECS ARE MET.
- 4) WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY PER DESIGN.
- 5) THE CONTRACTOR SHALL USE EXISTING UNDAMAGED INTERMEDIATE DIAPHRAGMS. THESE MEMBERS SHALL BE CLEANED AND NEW HOLES SHALL BE DRILLED ON THE WELDED SIDED AFTER SPACING VERIFICATION.
- 6) WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
- 7) REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.
- 8) AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER STANDARD SPECIFICATIONS.

\* THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.



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HARNETT COUNTY  
 STATION: 358+051.0 -L-

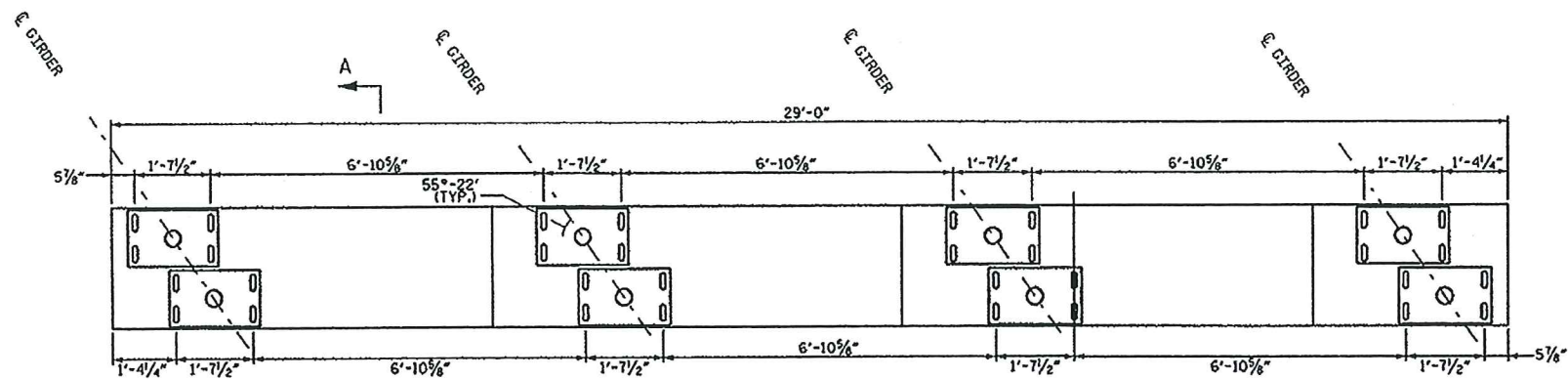
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 REPLACEMENT BEAM  
 AND DIAPHRAGMS  
 BRIDGE NO. 80

| REVISIONS |    |      |     |    |      | SHEET NO.<br>S-18  |
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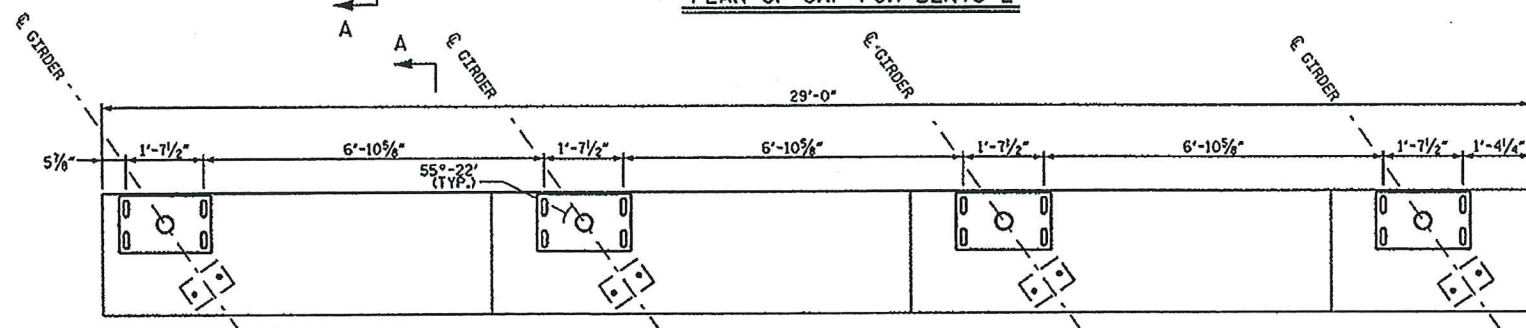


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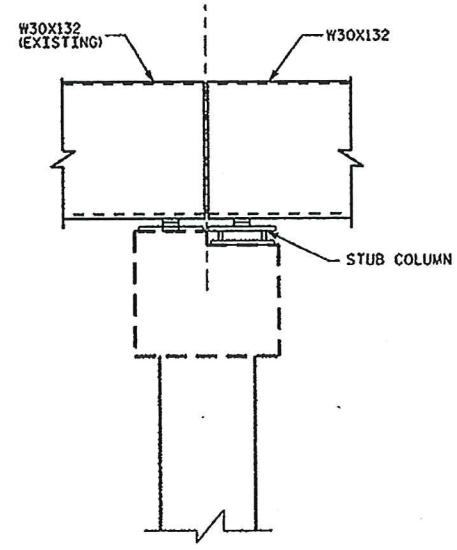
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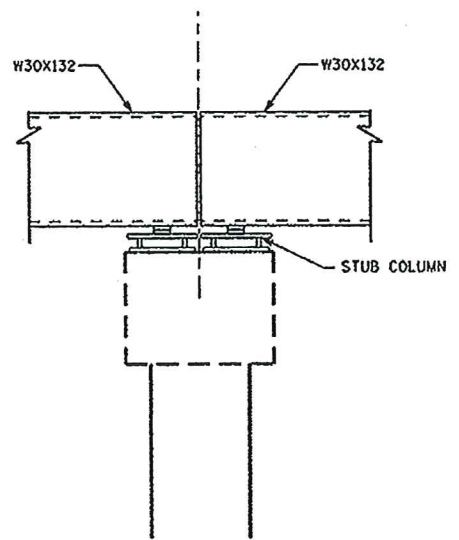
PLAN OF CAP FOR BENTS 2



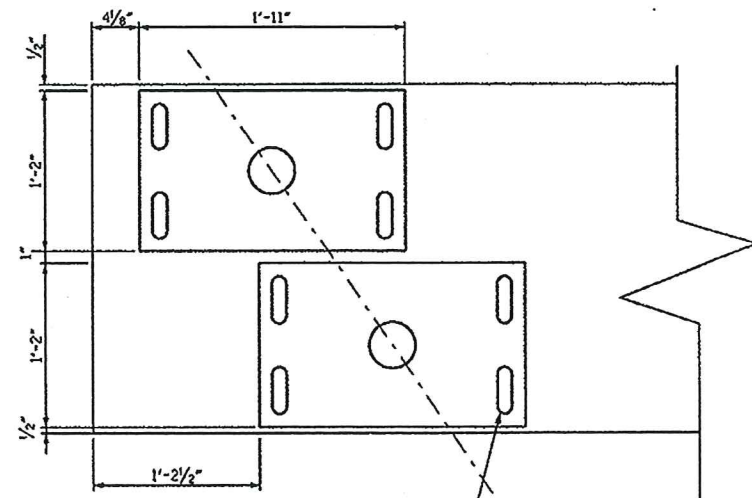
PLAN OF CAP FOR BENTS 1 & 3



SECTION A-A  
BENTS 1 & 3  
(TYPICAL)



SECTION A-A  
BENT 2



4-1" APPROVED ADHESIVE ANCHORS WITH A MINIMUM TENSILE STRENGTH OF 6,000 LBS AND A MINIMUM SHEAR STRENGTH OF 14,000 LBS (TYP)

DETAIL OF BOTTOM PLATE ORIENTATION

NOTES  
CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

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STATION: 358+51.0 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

INTERIOR BENTS

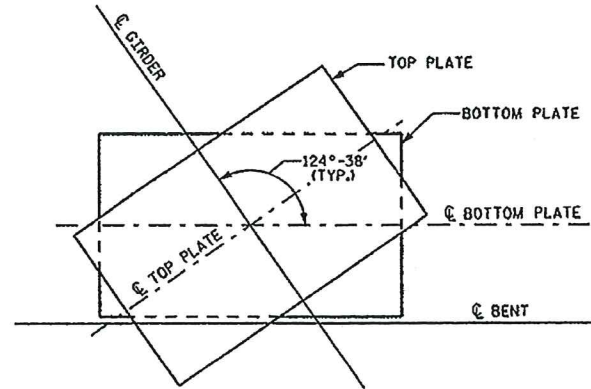
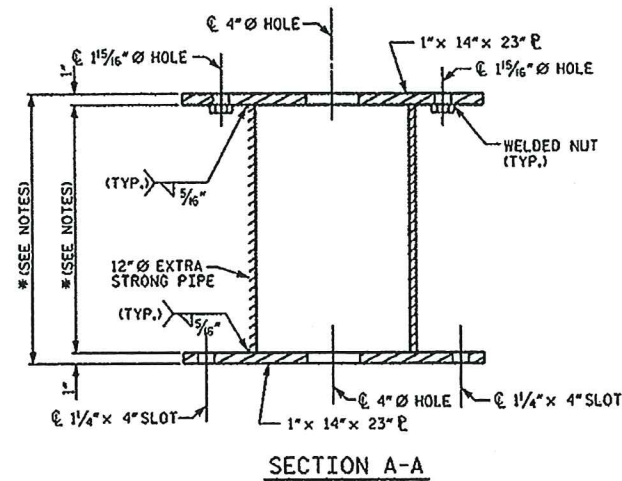
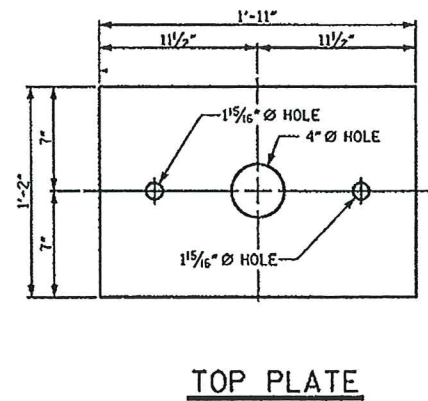
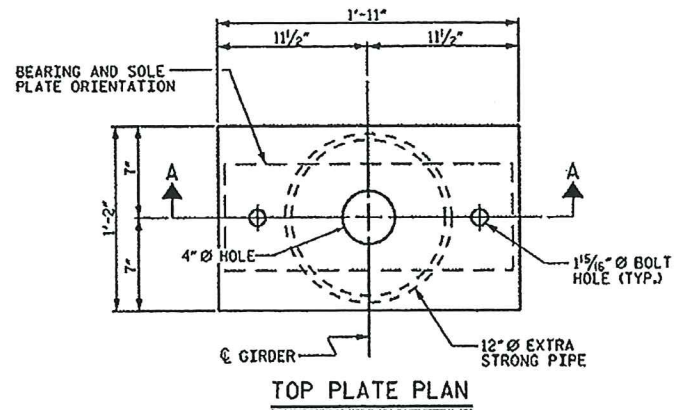
BRIDGE NO. 80

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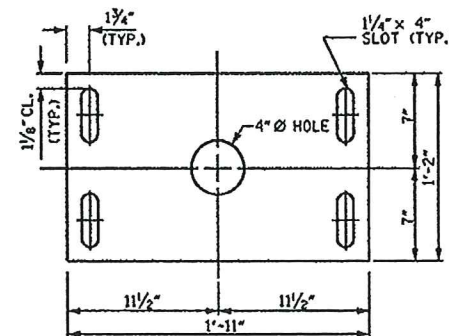
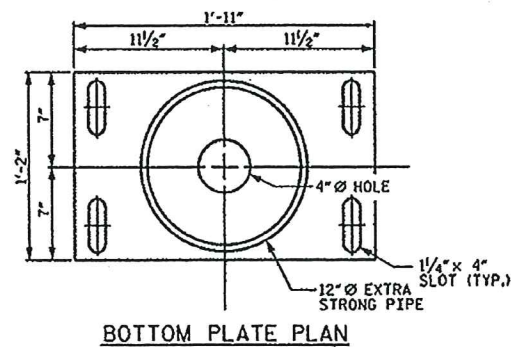


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CHECKED BY: F. ASEENIA DATE: 7/12

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TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)  
(HOLES, SLOTS, & SOLE PLATE HAVE BEEN OMITTED FOR CLARITY)



STUB COLUMN DETAILS  
(STUB COLUMN - 16 REQUIRED)

BOTTOM PLATE

NOTES:

- ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
- ALL 12" Ø PIPES SHALL BE EXTRA STRONG ASTM SPECIFICATION A53 GRADE B OR A501 OR APPROVED EQUAL.
- ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 50 STEEL OR APPROVED EQUAL.
- ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
- ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.
- AFTER LOWERING EACH SPAN ONTO THE STUB COLUMN ASSEMBLY, TIGHTEN THE ANCHOR BOLTS AT BOTTOM PLATE PER MANUFACTURERS RECOMMENDATIONS.
- ALL GALVANIZED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE PREPARED AND SHALL RECEIVE TWO COATS OF ORGANIC ZINC REPAIR PAINT, AS OUTLINED IN ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.
- THE TOP OF THE DECK ELEVATION SHALL REMAIN THE SAME DURING AND AFTER CONSTRUCTION.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE BEAM PEDESTAL AND ALL OTHER STRUCTURAL STEEL PRIOR TO FABRICATION.
- THE CONTRACTOR SHALL FIELD VERIFY THE STUB COLUMN ASSEMBLY HEIGHTS PRIOR TO FABRICATION.

\* THE PROPOSED PEDESTALS ARE INTENDED TO ADD 6" TO THE CLEARANCE OF THE BRIDGE, IN ORDER TO DETERMINE THE HEIGHT OF THE PEDESTAL, THE CONTRACTOR SHALL VERIFY THE DIFFERENCE OF ELEVATION FROM TOP OF THE BENTS TO THE BOTTOM OF THE EXISTING GIRDER AT EACH BEARING AND ADD 6".

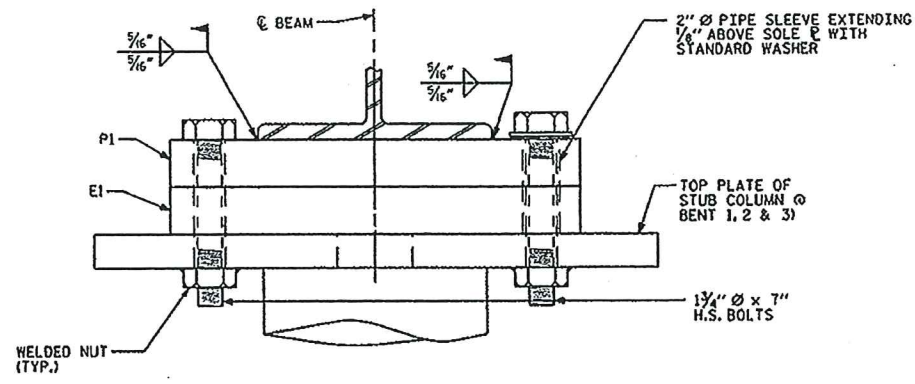
PROJECT NO. B-5545  
HARNETT COUNTY  
 STATION: 358+51.0 -L-

|   |    |      |     |    |           |
|---|----|------|-----|----|-----------|
| STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RAILROAD |    |      |     |    |           |
| STRUCTURAL STEEL<br>DETAILS   |    |      |     |    |           |
| BRIDGE NO. 80   |    |      |     |    |           |
| REVISIONS   |    |      |     |    | SHEET NO. |
| NO.   | BY | DATE | NO. | BY | DATE      |
| 1   |    |      | 2   |    |           |
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|   |    |      |     |    | 5-20      |
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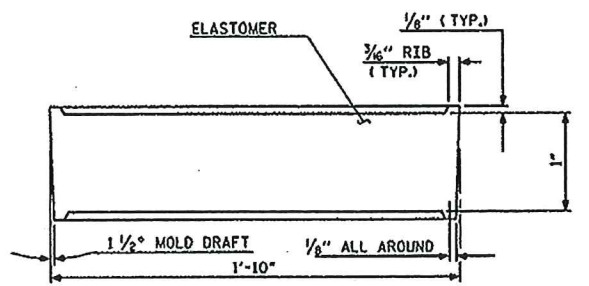


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 CHECKED BY: E. ASEFNIA DATE: 7/2012

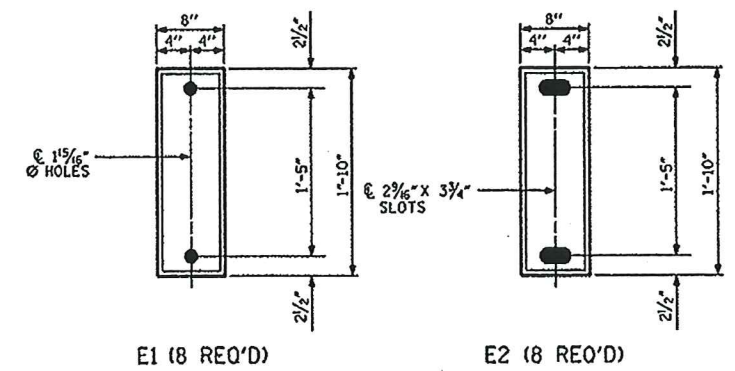




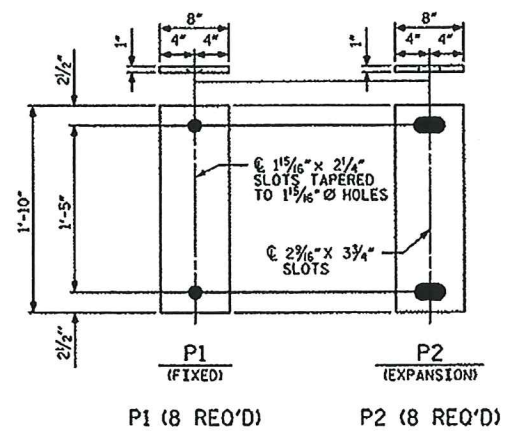
FIXED EXPANSION  
END VIEW @ BENTS



TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING TYPE I



SOLE PLATE DETAILS ("P")

NOTES

- AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.
- THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.
- THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.
- SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
- WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
- REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.
- AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE STANDARD SPECIFICATIONS.
- ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.
- FOR HIGH STRENGTH BOLTS, SEE STANDARD SPECIFICATIONS.

PROJECT NO. B-5545  
HARNETT COUNTY  
STATION: 358+51.0 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

ELASTOMERIC BEARING  
DETAILS

BRIDGE NO. 80

| REVISIONS |    |      |     |    |      | SHEET NO.       |  |
|-----------|----|------|-----|----|------|-----------------|--|
| NO.       | BY | DATE | NO. | BY | DATE | S-21            |  |
| 1         |    |      | 3   |    |      | TOTAL SHEETS 21 |  |
| 2         |    |      | 4   |    |      |                 |  |



DRAWN BY: M. WELDON DATE: 07/2012  
CHECKED BY: F. ASEENIA DATE: 07/2012