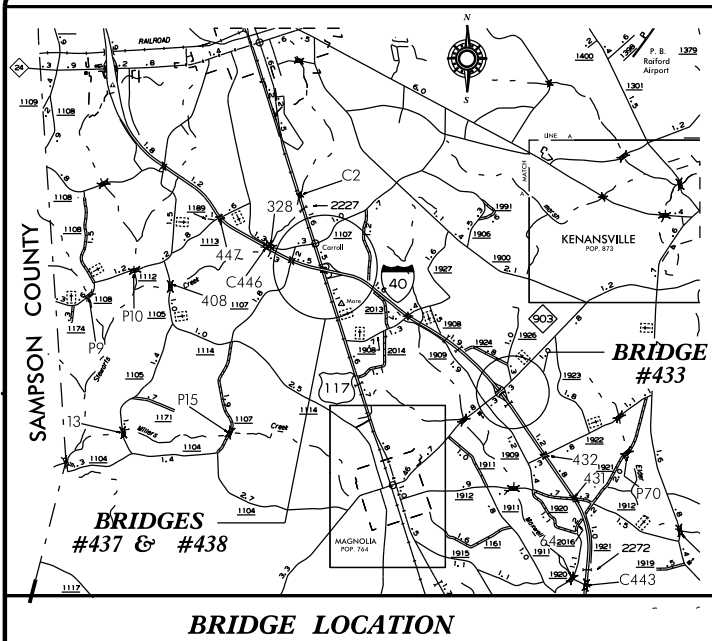


CONTRACT: DC00049 PROJECT: WBS# 15B.13.25



BRIDGE LOCATION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DUPLIN COUNTY

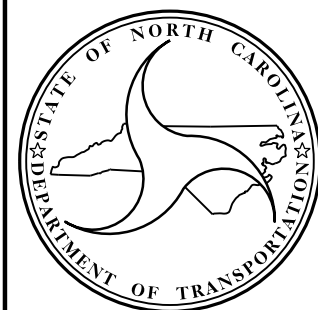
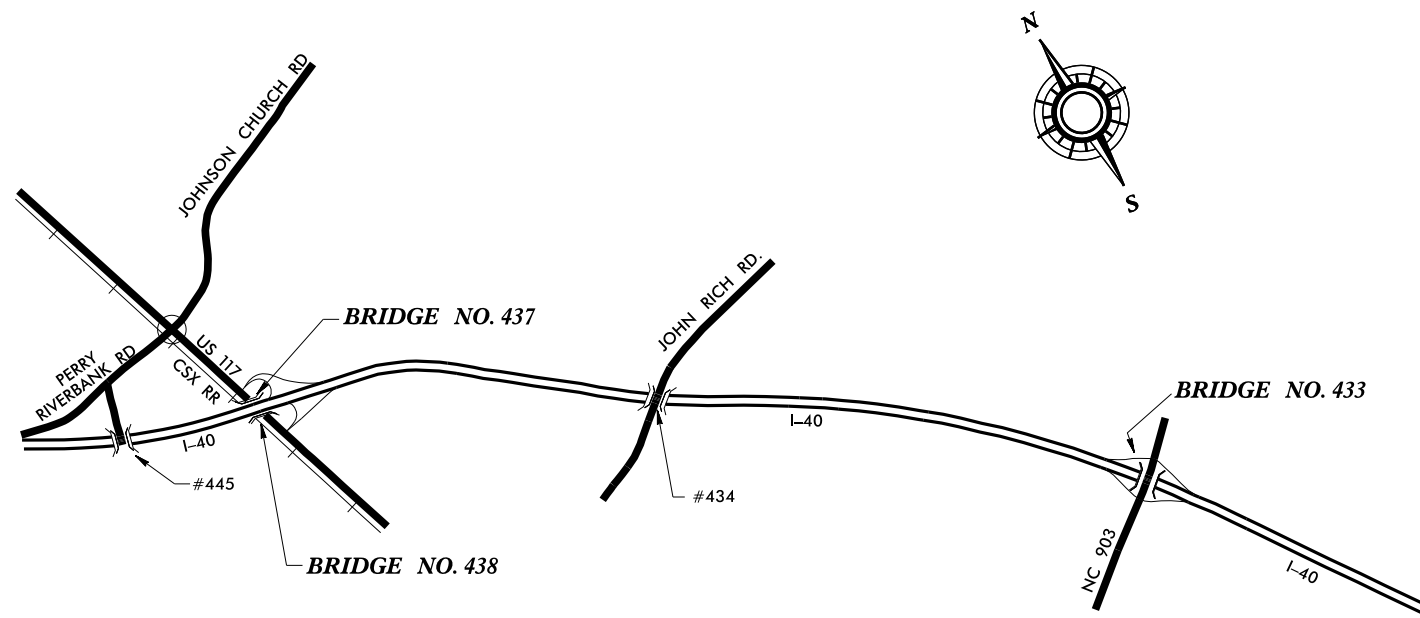
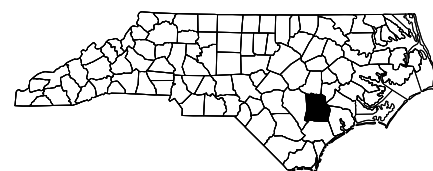
LOCATION: DUPLIN COUNTY BRIDGE #433 ON NC 903 OVER I-40
DUPLIN COUNTY BRIDGE #437 ON I-40 WESTBOUND OVER CSX RR AND US 117
DUPLIN COUNTY BRIDGE #438 ON I-40 EASTBOUND OVER CSX RR AND US 117

TYPE OF WORK: BRIDGE REHABILITATION - JOINT REPLACEMENT AND REHABILITATION

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | WBS 15B.13.25 | 1 | 6 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| WBS 15B.13.25 | | | |
| | | | |
| | | | |
| | | | |
| | | | |

INDEX OF SHEETS

| SHEET # | DESCRIPTION |
|--------------|-----------------|
| 1 | TITLE SHEET |
| S-1 THRU S-4 | STRUCTURE PLANS |
| SN | STANDARD NOTES |



DESIGN DATA

DUPLIN COUNTY:
 #433 ADT 2010 = 9900
 #437 ADT 2010 = 11000
 #438 ADT 2010 = 11000

PROJECT LENGTH

DUPLIN COUNTY:
 BRIDGE #433 - 0.037 MILES
 BRIDGE #437 - 0.055 MILES
 BRIDGE #438 - 0.055 MILES

Prepared in the Office of:
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
 STRUCTURES MANAGEMENT UNIT - PRESERVATION & REPAIR GROUP
 1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

ROY GIROLAMI, P.E.
 PROJECT ENGINEER

2012 STANDARD SPECIFICATIONS

LETTING DATE:
 OCTOBER 17, 2013

DANIEL MULLER, P.E.
 PROJECT DESIGN ENGINEER

SCOPE OF WORK

- 1. REMOVAL OF EXISTING JOINTS, ELASTOMERIC CONCRETE AND UNSOUND ADJACENT DECK CONCRETE
- 2. REFORMING JOINT AND PLACING NEW ELASTOMERIC CONCRETE AND NEW DECK REPAIR CONCRETE
- 3. INSTALLATION OF NEW EXPANSION JOINT MATERIAL

GENERAL NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH STRUCTURE, SEE SPECIAL PROVISIONS.

FOR RAILROAD COORDINATION, SEE "RAILROAD GENERAL SPECIAL PROVISIONS - CSX TRANSPORTATION, INC".

FOR "JOINT REPAIR", SEE SPECIAL PROVISIONS.

FOR "CONCRETE FOR DECK REPAIR", SEE SPECIAL PROVISIONS.

CONCRETE FOR DECK REPAIR SHALL BE VOLUMETRICALLY MIXED AND PROPORTIONED, SEE SPECIAL PROVISION FOR "VOLUMETRIC MIXER".

FOR "SYNTHETIC RUBBER EXPANSION JOINT SEAL", SEE SPECIAL PROVISIONS.

FOR "ELASTOMERIC CONCRETE", SEE SPECIAL PROVISIONS.

FOR "SUBMITTAL OF WORKING DRAWINGS", SEE SPECIAL PROVISIONS.

FOR "FALSEWORK AND FORMWORK", SEE SPECIAL PROVISIONS.

FOR "CRANE SAFETY", SEE SPECIAL PROVISIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

TOTAL BILL OF MATERIAL

| | MOBILIZATION | JOINT REPAIR | CONCRETE FOR DECK REPAIR | VOLUMETRIC MIXER | SYNTHETIC RUBBER EXPANSION JOINT SEAL |
|-------------|--------------|--------------|--------------------------|------------------|---------------------------------------|
| | LUMP SUM | S.F. | C.Y. | LUMP SUM | LUMP SUM |
| BRIDGE #433 | | 270.0 | 3.5 | | |
| BRIDGE #437 | | 501.0 | 6.0 | | |
| BRIDGE #438 | | 501.0 | 6.0 | | |
| TOTAL | LUMP SUM | 1272.0 | 15.5 | LUMP SUM | LUMP SUM |

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 15B.13.25
DUPLIN COUNTY
 BRIDGES: 433, 437 & 438

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SCOPE OF WORK
 GENERAL NOTES
 BILL OF MATERIAL

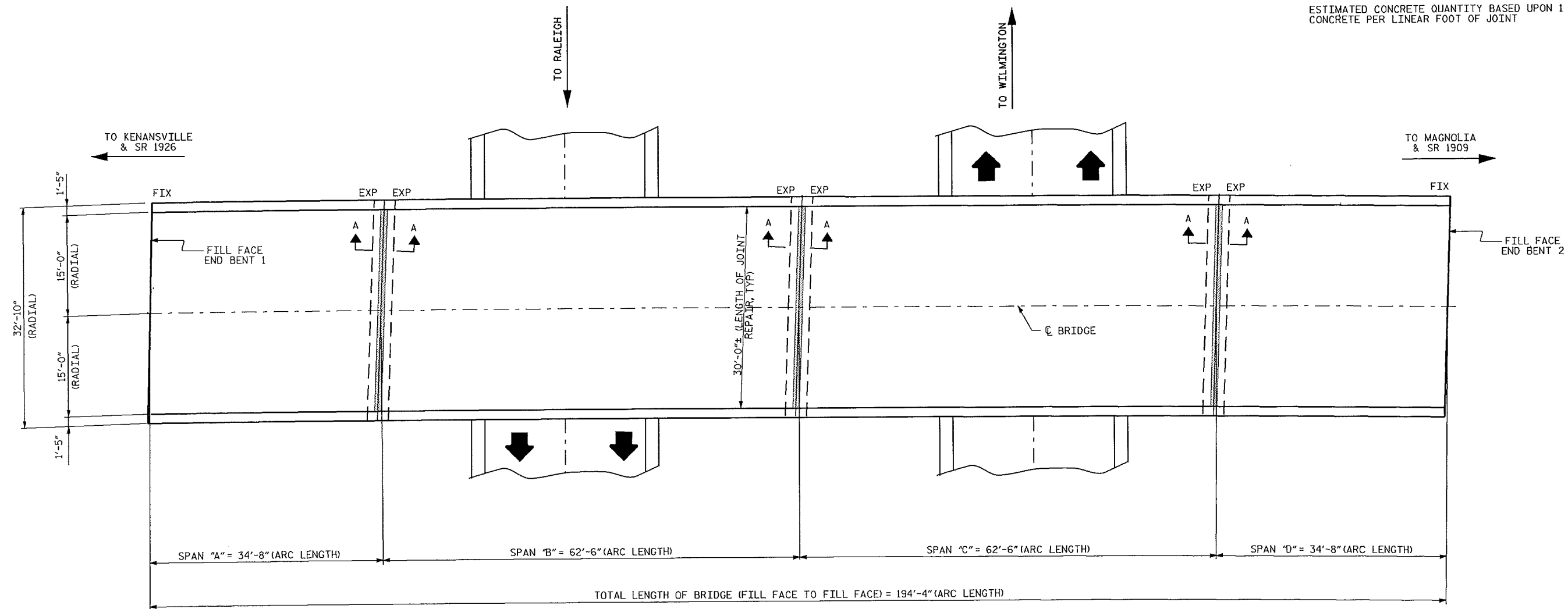


DRAWN BY : D. MULLER DATE : 8-2013
 CHECKED BY : M. CLARKE DATE : 8-2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 8-2013

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

| SUMMARY OF QUANTITIES | | |
|--------------------------|-----------|---------|
| BRIDGE #433 | | |
| | ESTIMATED | ACTUAL* |
| JOINT REPAIR | 270 SF | SF |
| CONCRETE FOR DECK REPAIR | 3.5 CY | CY |

*ACTUAL QUANTITIES TO BE DETERMINED AND RECORDED BY THE ENGINEER
 ESTIMATED JOINT REPAIR BASED ON 3 SQUARE FEET OF REPAIR PER LINEAR FOOT OF JOINT
 ESTIMATED CONCRETE QUANTITY BASED UPON 1 CUBIC FOOT OF CONCRETE PER LINEAR FOOT OF JOINT



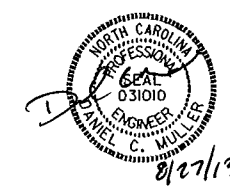
EXPANSION JOINT REPAIR PLAN VIEW

NOTES:

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
 FOR JOINT REPAIR DETAILS, SEE SHEET S-4.

HATCHED AREA DENOTES AREAS OF REQUIRED JOINT REPAIR

PROJECT NO. 15B.13.25
DUPLIN COUNTY
 BRIDGES: 433, 437 & 438



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

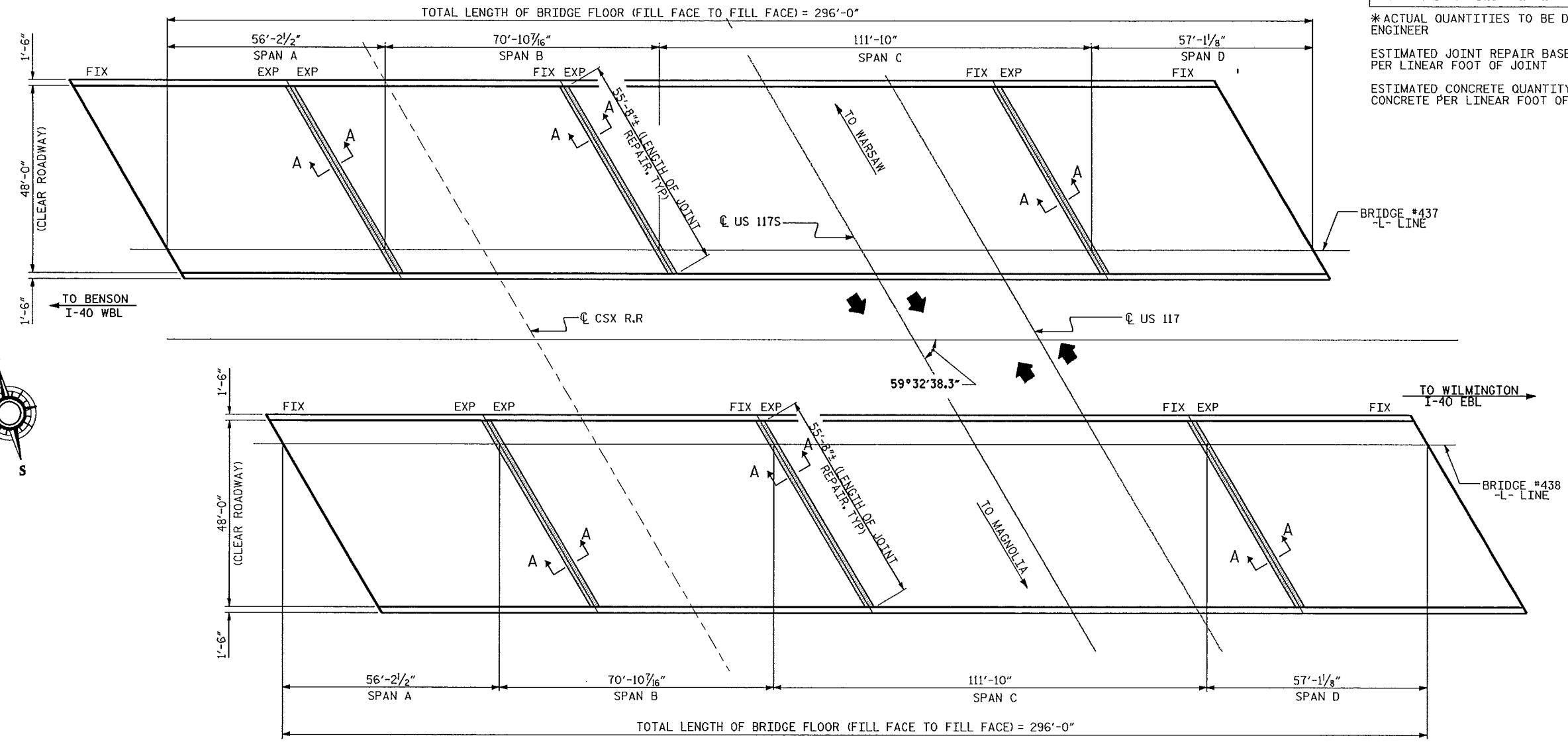
PLAN VIEW
 BRIDGE #433

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

DRAWN BY : S. T. SANDOR DATE : 01/13
 CHECKED BY : D. MULLER DATE : 02/13
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 02/13

| SUMMARY OF QUANTITIES | | |
|--------------------------|-----------|---------|
| BRIDGE #437 | | |
| | ESTIMATED | ACTUAL* |
| JOINT REPAIR | 501 SF | SF |
| CONCRETE FOR DECK REPAIR | 6 CY | CY |
| BRIDGE #438 | | |
| | ESTIMATED | ACTUAL* |
| JOINT REPAIR | 501 SF | SF |
| CONCRETE FOR DECK REPAIR | 6 CY | CY |

*ACTUAL QUANTITIES TO BE DETERMINED AND RECORDED BY THE ENGINEER
 ESTIMATED JOINT REPAIR BASED ON 3 SQUARE FEET OF REPAIR PER LINEAR FOOT OF JOINT
 ESTIMATED CONCRETE QUANTITY BASED UPON 1 CUBIC FOOT OF CONCRETE PER LINEAR FOOT OF JOINT



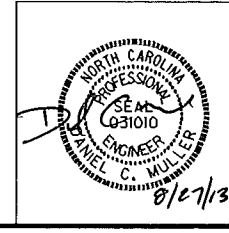
EXPANSION JOINT REPAIR PLAN VIEW

HATCHED AREA DENOTES AREAS OF REQUIRED JOINT REPAIR

PROJECT NO. 15B.13.25
 DUPLIN COUNTY
 BRIDGES: 433, 437 & 438

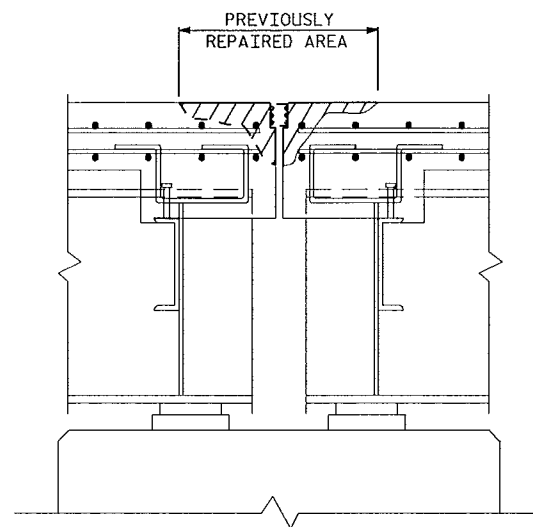
NOTES:
 EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
 FOR JOINT REPAIR DETAILS, SEE SHEET S-4.

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN VIEW
 BRIDGES 437 & 438

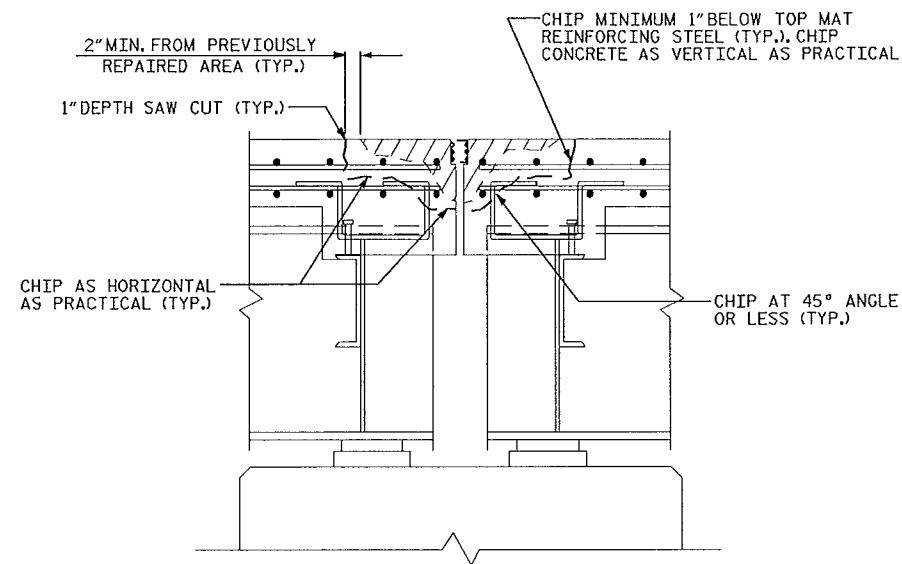


DRAWN BY : S. T. SANDOR DATE : 10/2012
 CHECKED BY : D. MULLER DATE : 11/2012
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 11/2012

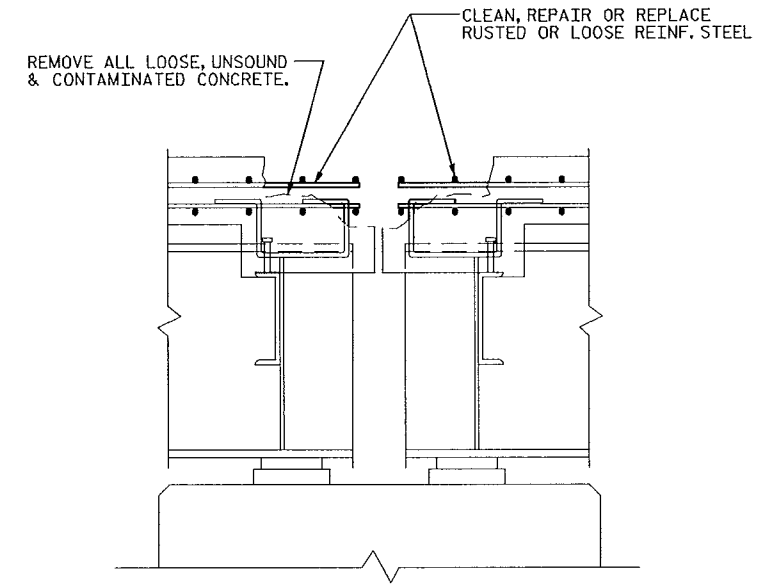
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|-----------|-----|-------|-----|-----|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | TOTAL SHEETS |
| 1 | | | 3 | | | S-3 |
| 2 | | | 4 | | | 4 |



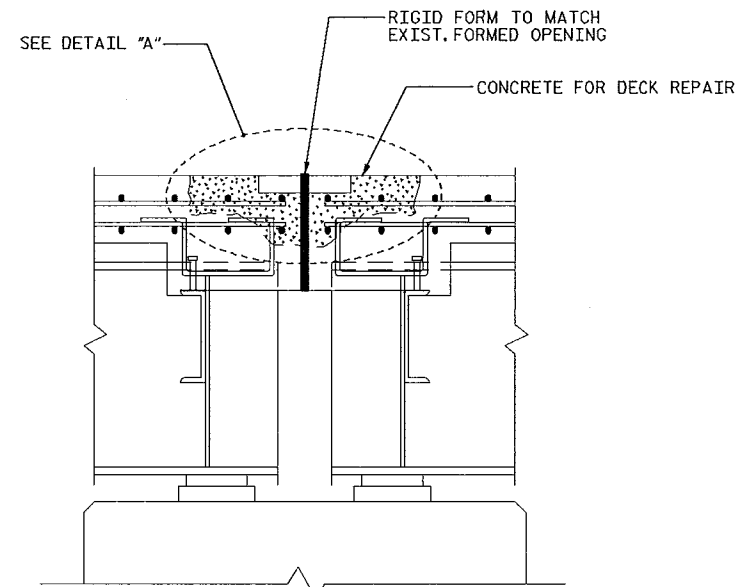
SECTION A-A
(SHOWING PREVIOUSLY REPAIRED AREA)



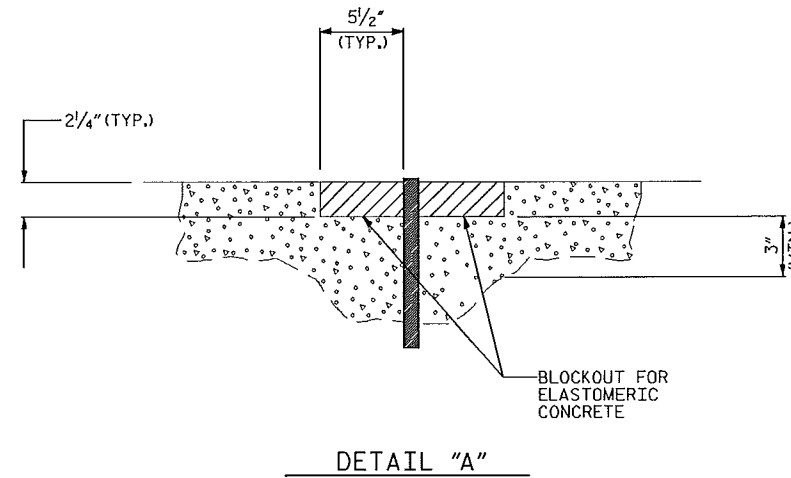
SECTION A-A
(SHOWING CHIPPING OUT OLD REPAIR AREA)



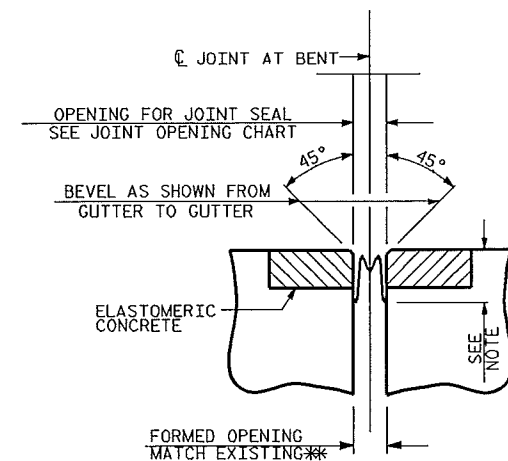
SECTION A-A
(SHOWING CLEANING LOOSE CONCRETE & REINF. STEEL)



SECTION A-A
(SHOWING CASTING CONCRETE FOR DECK REPAIR)



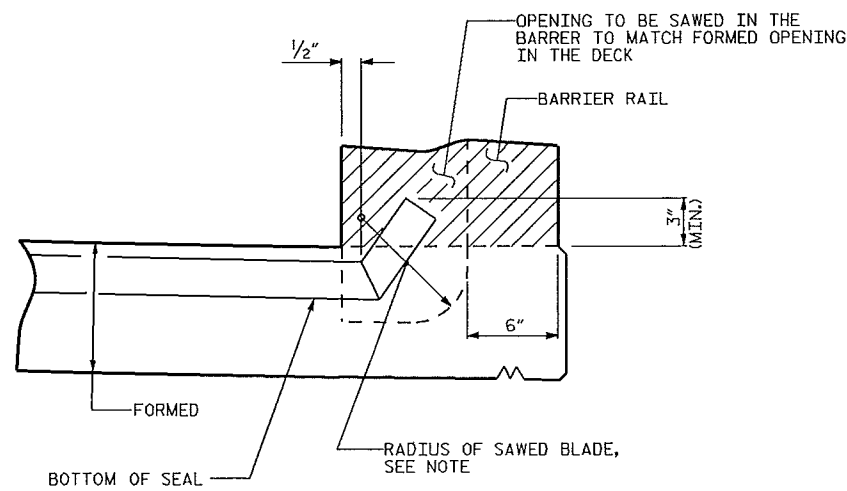
DETAIL "A"



SYNTHETIC RUBBER EXP. JT. SEAL
NOTE: DEPTH OF JOINT SEAL INSTALLATION SHALL BE IN ACCORDANCE WITH APPROVED SUBMITTAL.
** CONTRACTOR SHALL FIELD VERIFY EXISTING FORMED OPENING PRIOR TO DEMO AND JOINT SELECTION.

| JOINT OPENING CHART | | | |
|---------------------|---------|---------|------|
| BRIDGE #433 | | | |
| | A | B | C |
| BENT #1 | 2 3/4" | 3 1/4" | 1/2" |
| BENT #2 | 2 3/4" | 3 1/4" | 1/2" |
| BENT #3 | 2 3/4" | 3 1/4" | 1/2" |
| BRIDGES #437 & #438 | | | |
| | A | B | C |
| BENT #1 | 1 1/16" | 2 5/16" | 1/4" |
| BENT #2 | 1/8" | 2" | 1/8" |
| BENT #3 | 1/8" | 1 1/2" | 5/8" |

"A" - MIN OPENING AT JOINT
"B" - MAX OPENING AT JOINT
"C" - TOTAL REQ'D MOVEMENT



SECTION THRU BARRIER RAIL

NOTE: SAWCUT BARRIER AS NEEDED TO PLACE TURNED UP SEAL SECTION AS SHOWN.

PROJECT NO. 15B.13.25
DUPLIN COUNTY
BRIDGES 433, 437 & 438

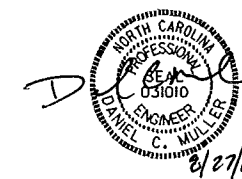
SHEET OF

| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
|--|-----|-------|-----|-----|-------|
| JOINT REPAIR DETAILS | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. S-4
TOTAL SHEETS 4

DRAWN BY: T.J. BEACH DATE: 10/12
CHECKED BY: D. MULLER DATE: 11/12
DESIGN ENGINEER OF RECORD: D. MULLER DATE: 11/12

27-AUG-2013 15:52
S:\PRSV\PC\Squad C:\Preservation\Projects\15B.13.25\MotorStation\Duplin_Joint_Repair.dgn
dmuller



STANDARD NOTES

DESIGN DATA:

| | | |
|---|-------|-------------------------|
| SPECIFICATIONS | ----- | A.A.S.H.T.O. (CURRENT) |
| LIVE LOAD | ----- | SEE PLANS |
| IMPACT ALLOWANCE | ----- | SEE A.A.S.H.T.O. |
| STRESS IN EXTREME FIBER OF | | |
| STRUCTURAL STEEL - AASHTO M270 GRADE 36 | - | 20,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50W | - | 27,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50 | - | 27,000 LBS. PER SQ. IN. |
| REINFORCING STEEL IN TENSION | | |
| GRADE 60 | -- | 24,000 LBS. PER SQ. IN. |
| CONCRETE IN COMPRESSION | ----- | 1,200 LBS. PER SQ. IN. |
| CONCRETE IN SHEAR | ----- | SEE A.A.S.H.T.O. |
| STRUCTURAL TIMBER - TREATED OR | | |
| UNTREATED - EXTREME FIBER STRESS | ----- | 1,800 LBS. PER SQ. IN. |
| COMPRESSION PERPENDICULAR TO GRAIN | | |
| OF TIMBER | ----- | 375 LBS. PER SQ. IN. |
| EQUIVALENT FLUID PRESSURE OF EARTH | ----- | 30 LBS. PER CU. FT. |
| | | (MINIMUM) |

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT; CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING STEEL ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN