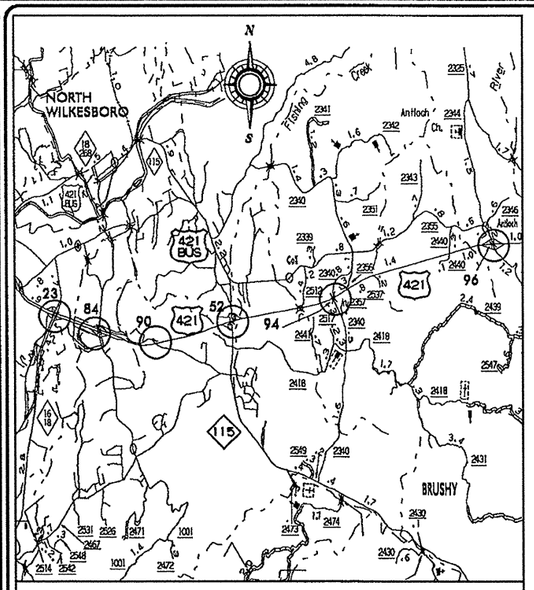
PROJECT: 17BP.11.H.4

CONTRACT: C203335



LOCATION MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILKES COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.11.H.4	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.11.H.4		P.E.
17BP.11.H.4		CONST.

LOCATION: WILKES COUNTY:
BRIDGE #23 ON NC 16, NC 18 OVER US 421
BRIDGE #84 ON SR 1001 OVER US 421
BRIDGE #94 ON SR 2340 OVER US 421
BRIDGE #96 ON SR 2433 OVER US 421

TYPE OF WORK: BRIDGE PRESERVATION – GIRDER REPLACEMENT AND BRIDGE PRESERVATION WITH LATEX MODIFIED CONCRETE AND/OR SUBSTRUCTURE REPAIRS.

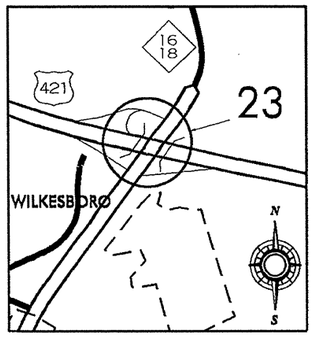
LOCATION: WILKES COUNTY:
BRIDGE #52 ON NC 115 OVER US 421

TYPE OF WORK: BRIDGE PRESERVATION – PARTIAL SUPERSTRUCTURE REPLACEMENT AND BRIDGE PRESERVATION WITH LATEX MODIFIED CONCRETE AND SUBSTRUCTURE REPAIRS.

LOCATION: WILKES COUNTY:
BRIDGE #90 ON SR 2461 OVER US 421

TYPE OF WORK: BRIDGE PRESERVATION – BRIDGE JACKING AND BRIDGE PRESERVATION WITH LATEX MODIFIED CONCRETE.

BRIDGE #23



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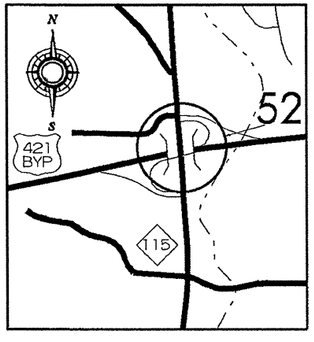

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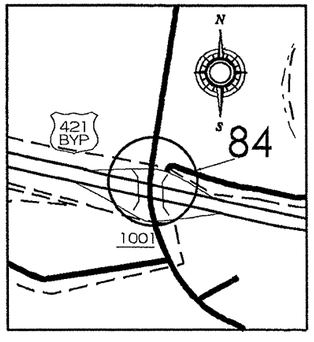
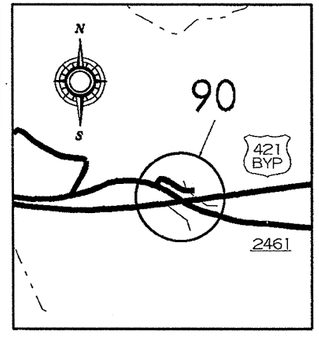


BRIDGE #90



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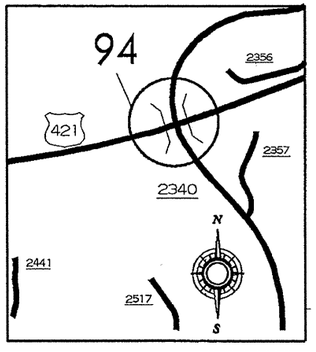
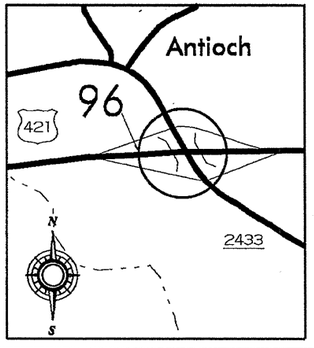


BRIDGE #96



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

WILKES

#23	ADT 2009	=	20000
#52	ADT 2009	=	8200
#84	ADT 2009	=	8500
#90	ADT 2009	=	1000
#94	ADT 2008	=	500
#96	ADT 2007	=	550

PROJECT LENGTH

BRIDGE WILKES #23	=	.0395 MILE
BRIDGE WILKES #52	=	.0348 MILE
BRIDGE WILKES #84	=	.0390 MILE
BRIDGE WILKES #90	=	.0683 MILE
BRIDGE WILKES #94	=	.0375 MILE
BRIDGE WILKES #96	=	.0426 MILE

Prepared In the Office of:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

LETTING DATE:
JUNE 18, 2013

RICK NELSON, PE
PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

04/12/13

TIMOTHY M. SHERRILL, PE.
PROJECT DESIGN ENGINEER

PROJECT: 17BP.11.H.4

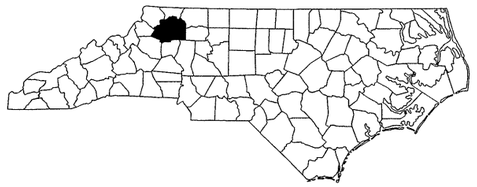
CONTRACT: C203335

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILKES COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.11.H.4	1A	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.11.H.4		P.E.
17BP.11.H.4		CONST.



LOCATION: WILKES COUNTY:
BRIDGE #23 ON NC 16, NC 18 OVER US 421 BYPASS.
BRIDGE #84 ON SR 1001 OVER US 421 BYPASS.
BRIDGE #94 ON SR 2340 OVER US 421.
BRIDGE #96 ON SR 2433 OVER US 421.

BRIDGE PRESERVATION – GIRDER REPLACEMENT AND BRIDGE PRESERVATION WITH LATEX MODIFIED CONCRETE AND/OR SUBSTRUCTURE REPAIRS.

LOCATION: WILKES COUNTY:
BRIDGE #52 ON NC 115 OVER US 421 BYPASS.

BRIDGE PRESERVATION – PARTIAL SUPERSTRUCTURE REPLACEMENT AND BRIDGE PRESERVATION WITH LATEX MODIFIED CONCRETE AND SUBSTRUCTURE REPAIRS.

LOCATION: WILKES COUNTY:
BRIDGE #90 ON SR 2461 OVER US 421 BYPASS.

TYPE OF WORK: BRIDGE PRESERVATION – BRIDGE JACKING AND BRIDGE PRESERVATION WITH LATEX MODIFIED CONCRETE.

INDEX OF SHEETS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203335

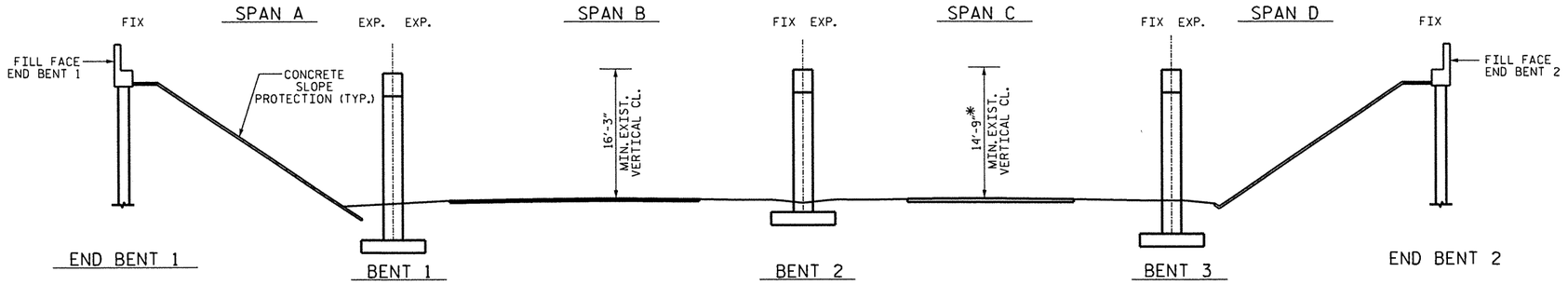
ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (7+90.76)
1121000000-E	520	13	TON	AGGREGATE BASE COURSE
1330000000-E	607	1,948	SY	INCIDENTAL MILLING
1489000000-E	610	24	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1519000000-E	610	187	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	12	TON	ASPHALT BINDER FOR PLANT MIX
1891000000-E	SP	226	SY	GENERIC PAVING ITEM REMOVE EXISTING ISLAND
2647000000-E	852	92	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)
2655000000-E	852	134	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
3345000000-E	864	220	LF	REMOVE & RESET EXISTING GUARD-RAIL
4400000000-E	1110	3,237	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	896	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	270	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	6	EA	FLASHING ARROW BOARD
4420000000-N	1120	4	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4430000000-N	1130	120	EA	DRUMS
4445000000-E	1145	192	LF	BARRICADES (TYPE III)
4465000000-N	1160	4	EA	TEMPORARY CRASH CUSHIONS
4470000000-N	1160	8	EA	RESET TEMPORARY CRASH CUSHION
4480000000-N	1165	4	EA	TMA
4485000000-E	1170	1,210	LF	PORTABLE CONCRETE BARRIER
4500000000-E	1170	1,580	LF	RESET PORTABLE CONCRETE BAR-RIER
4510000000-N	SP	350	HR	LAW ENFORCEMENT

ItemNumber	Sec #	Quantity	Unit	Description
4516000000-N	1180	60	EA	SKINNY DRUM
4685000000-E	1205	5,124	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	4,525	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	277	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	93	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	6	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	7	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	5,574	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)
4900000000-N	1251	15	EA	PERMANENT RAISED PAVEMENT MARKERS
4905000000-N	1253	45	EA	SNOWPLOWABLE PAVEMENT MARKERS
8147000000-E	420	4,277	SF	REINFORCED CONCRETE DECK SLAB
8161000000-E	420	31,809	SF	GROOVING BRIDGE FLOORS
8280000000-E	440	209,600	LS	APPROX ..... LBS STRUCTURAL STEEL
8503000000-E	460	256	LF	CONCRETE BARRIER RAIL
8559000000-E	SP	208	SY	CLASS II, SURFACE PREPARATION
8566000000-E	SP	6	SY	CLASS III, SURFACE PREPARATION
8573000000-E	SP	186.2	CY	LATEX MODIFIED CONC OVERLAY
8580000000-E	SP	3,621.1	SY	PLACING & FINISHING OF LATEX MODIFIED CONC OVERLAY
8657000000-N	430	Lump Sum		ELASTOMERIC BEARINGS
8664000000-E	SP	207.5	CF	SHOTCRETE REPAIRS
8678000000-E	SP	254.8	LF	EPOXY RESIN INJECTION
8692000000-N	SP	Lump Sum		FOAM JOINT SEALS
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #23
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #84

ItemNumber	Sec #	Quantity	Unit	Description
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #90
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #94
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #96
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CURTAIN WALL REHABILITATION
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE #23
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE #52
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE #84
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE #94
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE #96
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM VOLUMETRIC MIXER
8882000000-E	SP	27	CF	GENERIC STRUCTURE ITEM CONCRETE FOR DECK REPAIR
8893000000-E	SP	3,620.8	SY	GENERIC STRUCTURE ITEM HYDRO-DEMOLITION OF BRIDGE DECK
8893000000-E	SP	3,620.8	SY	GENERIC STRUCTURE ITEM SCARIFYING BRIDGE DECK

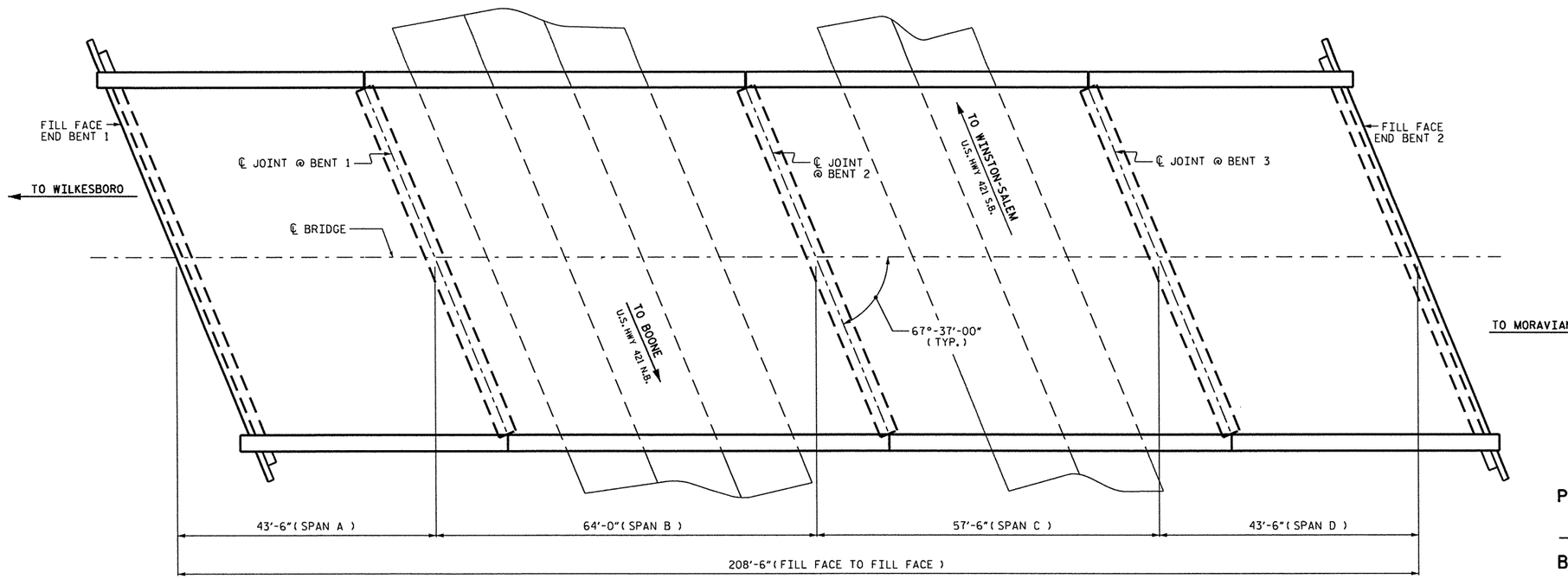
SCOPE OF WORK:

- SUBSTRUCTURE REPAIRS.
- BRIDGE JACKING, SPAN C.
- REMOVE AND REPLACE TWO EXISTING BEAMS.
- ADD STUB COLUMN AND BEARINGS.



*PROPOSED VERTICAL CLEARANCE TO BE A MINIMUM OF 15'-6"

SECTION ALONG ℄ ROADWAY



PLAN VIEW

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 23

SHEET 1 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 03/2013
CHECKED BY : D. N. SNOKE DATE : 03/2013
DESIGN ENGINEER OF RECORD: _____ DATE : -

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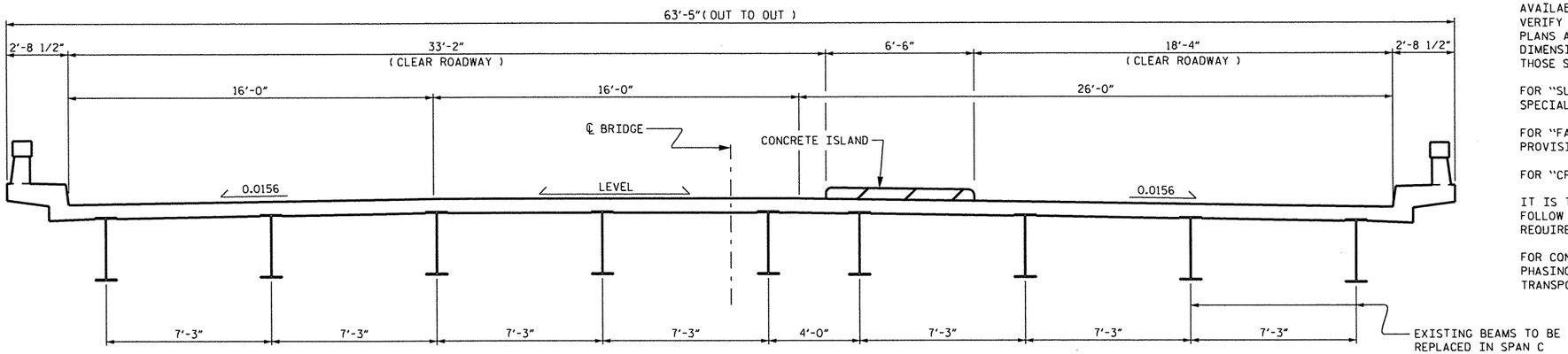

TYPICAL SECTION

NOTES:

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

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.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

TOTAL BILL OF MATERIAL

APPROX. 22,100 LBS. STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SHOTCRETE REPAIRS	BRIDGE JACKING BRIDGE #23	PARTIAL REMOVAL OF EXISTING STRUCTURE #23
LUMP SUM	LUMP SUM	CU. FT.	LUMP SUM	LUMP SUM
LUMP SUM	LUMP SUM	76.5	LUMP SUM	LUMP SUM

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 23

SHEET 2 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 3/11/13
CHECKED BY : D.N. SNOKE DATE : 3/11/13
DESIGN ENGINEER OF RECORD: - DATE : -

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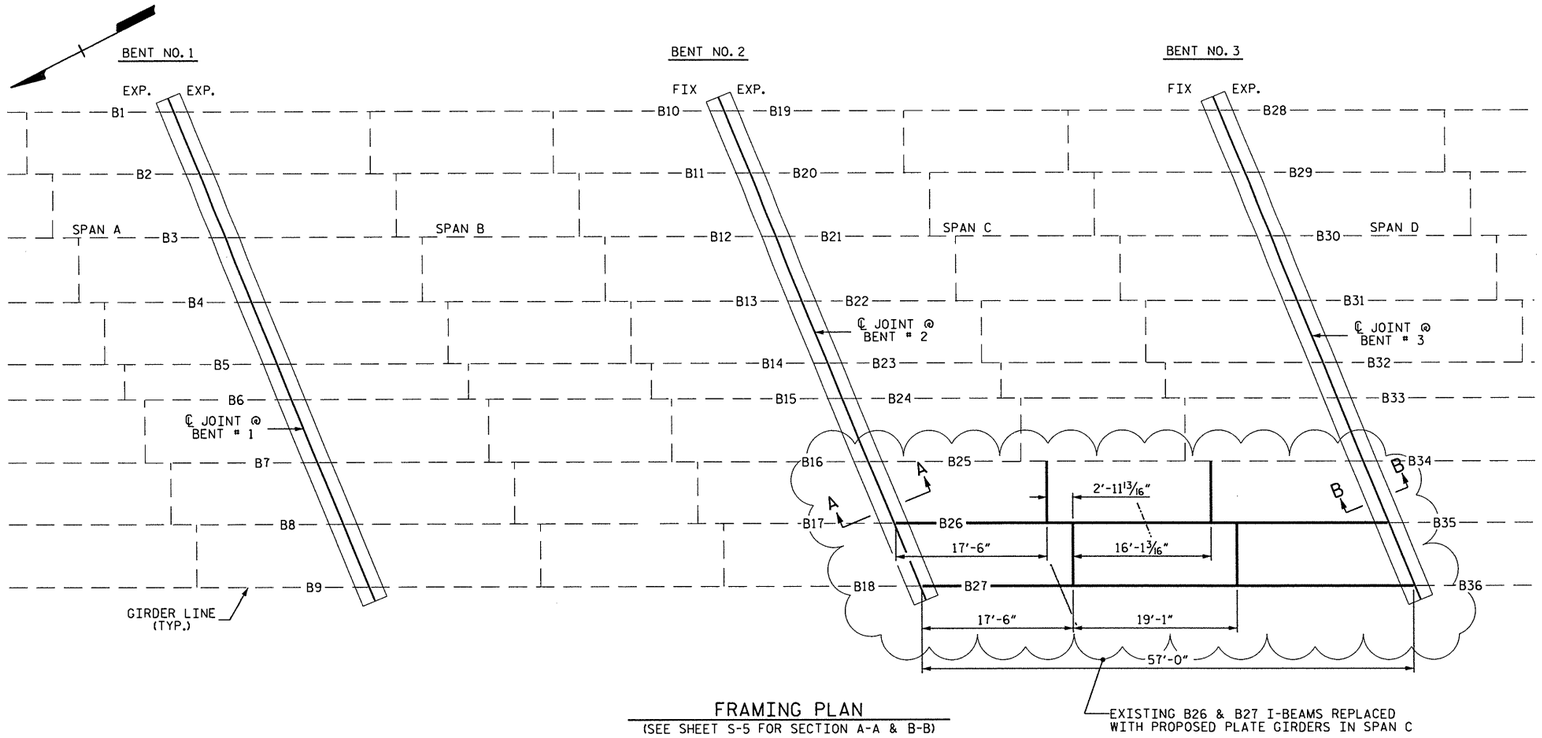


FRAMING PLAN

(SEE SHEET S-5 FOR SECTION A-A & B-B)

JACKING NOTES:

CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA FOR REVIEW AND APPROVAL.

THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLANS.

PRIOR TO BRIDGE JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED. THIS MAY INCLUDE BUT NOT LIMITED TO METAL RAILINGS AND UTILITIES.

THE CONTRACTOR MAY NEED TO REINFORCE EXISTING BRIDGE MEMBERS OR ADD MEMBERS TO WITHSTAND THE JACKING FORCES.

PROVISIONS SHALL BE MADE TO ACCOUNT FOR THERMAL MOVEMENTS OR LATERAL FORCES SUCH AS WIND LOADS DURING THE PERIOD THAT THE STRUCTURE IS RESTING ON THE TEMPORARY SUPPORTS.

ALL JACKS AND JACKING SUPPORTS SHALL BE PLUMB.

EACH HYDRAULIC JACK SHALL HAVE A RATED CAPACITY CLEARLY SHOWN, WITH MINIMUM RATED CAPACITY OF 1.3 TIMES THE CALCULATED LOAD REACTION ADJACENT TO THE POINT OF JACKING.

JACKS WITHOUT A MECHANICAL LOAD HOLDER (LOCK-OFF) SHALL BE SECURED BY BLOCKING IF THE JACKING OPERATION IN ANY ONE LOCATION LASTS LONGER THAN 30 MINUTES.

HYDRAULIC SYSTEM SHALL BE CONNECTED SUCH THAT ALL JACKS LIFT SIMULTANEOUSLY.

LIFTING FRAME SHALL EXTEND BEYOND THE LENGTH OF THE LIFTED SPAN AND PROVIDE BEARINGS AT THE SAME LOCATION AS THE ADJACENT GIRDER BEARINGS.

CONTRACTOR SHALL SHIM BRIDGE SPAN DURING JACKING SUCH THAT THE MAXIMUM UNSHIMMED LIFT IS 1".

CONTRACTOR SHALL PROVIDE SPAN LIFT POINTS AS CLOSE AS POSSIBLE TO THE FACE OF BENT CAP.

IF DURING THE JACKING PROCESS OR WHILE THE SPAN IS BEING SUPPORTED, THE BEAMS SHIFT FROM THEIR ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

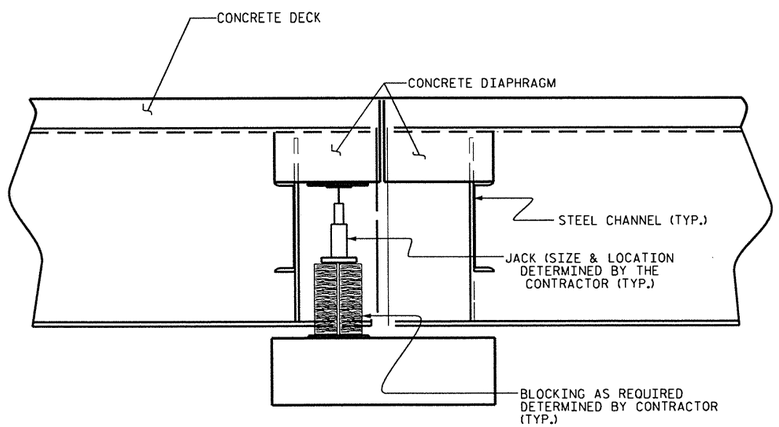
ALL ADJACENT BEARINGS OF BEAMS NOT BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARING LOOSENED SHALL BE TIGHTENED BACK AFTER THE BEAMS ARE REPAIRED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

PRIOR TO INSTALLING BEARING PEDESTALS AND NEW BEARINGS, CONTRACTOR SHALL MAKE ANY REPAIRS TO BENTS AS REQUIRED IN THE CONTRACT DOCUMENTS.

TRAFFIC SHALL NOT BE ALLOWED ON THE STRUCTURE UNTIL THE WORK REQUIRED BY THE CONTRACT DOCUMENTS IS COMPLETE.

FOR ADDITIONAL INFORMATION ON "BRIDGE JACKING", SEE SPECIAL PROVISIONS.

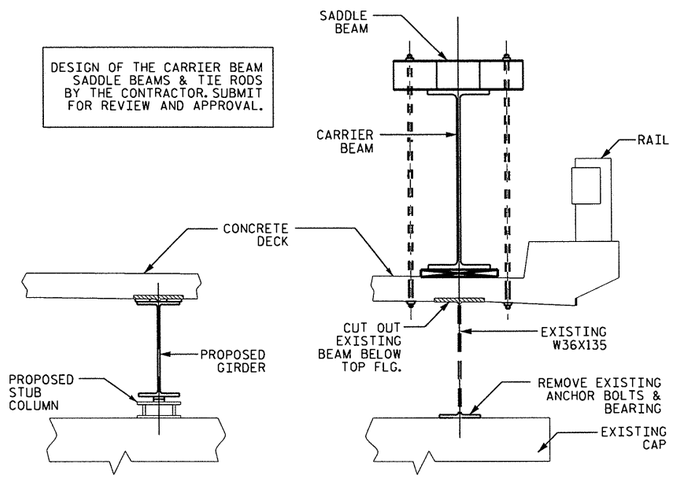
FOR ADDITIONAL NOTES, SEE "REPLACEMENT BEAM AND DIAPHRAGMS" SHEET.



SECTION THRU DIAPHRAGM

DRAWING PROVIDED AS AN EXAMPLE OF A TYPICAL BRIDGE JACKING SET-UP AND IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL DESIGN AND SUBMIT APPROPRIATE SET-UP FOR SPECIFIC BRIDGE JACKING.

DESIGN OF THE CARRIER BEAM SADDLE BEAMS & TIE RODS BY THE CONTRACTOR. SUBMIT FOR REVIEW AND APPROVAL.



COMPLETE REPAIR

DURING REPAIR

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

3/11/13

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 23

SHEET 3 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EXISTING SUPERSTRUCTURE FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			84

DRAWN BY :	R.PUTEK	DATE :	12/12
CHECKED BY :	D. N. SNOKE	DATE :	03/13
DESIGN ENGINEER OF RECORD:	-	DATE :	-

23-APR-2013 09:37
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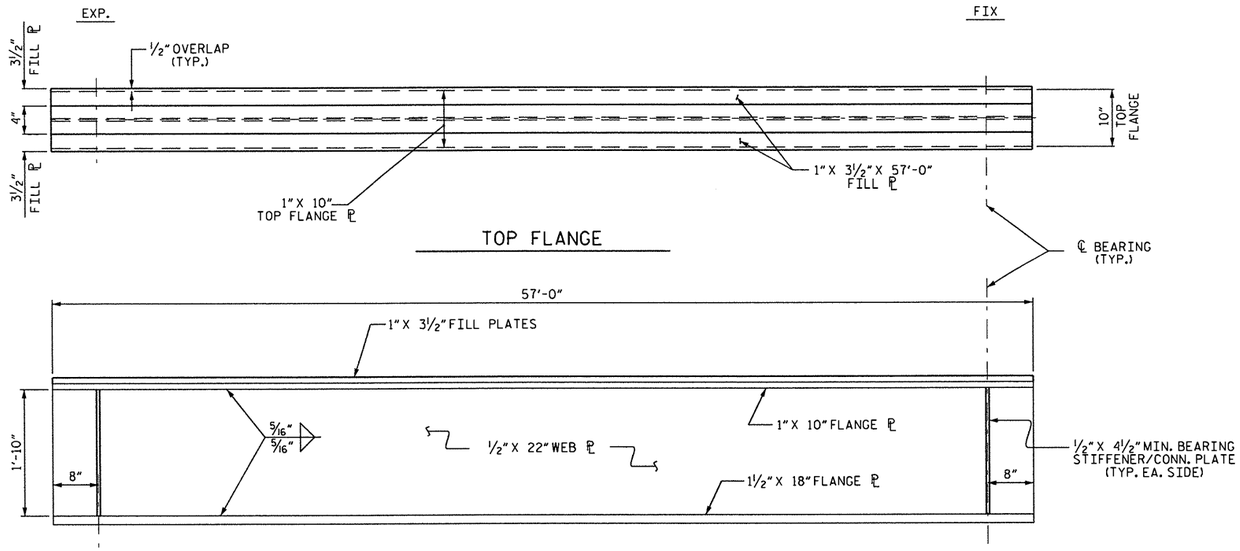


TOP FLANGE

ELEVATION OF GIRDER

NOTES:

THE CONTRACTOR MAY RETAIN AND CLEAN THE EXISTING INTERMEDIATE DIAPHRAGMS FOR RE-USE.

THE CONTRACTOR IS RESPONSIBLE TO EVALUATE THE STRUCTURAL CONDITION OF THE EXISTING INTERMEDIATE DIAPHRAGMS, AND RECIEVE APPROVAL FROM THE ENGINEER. IF EXISTING DIAPHRAGMS ARE NOT ACCEPTABLE FOR RE-USE, FABRICATE NEW DIAPHRAGMS TO MATCH EXISTING DIAPHRAGMS IN GOOD CONDITION.

RE-USED DIAPHRAGMS SHALL HAVE DAMAGED PAINT AREAS REPAIRED ACCORDING TO ARTICLE 442-11 OF THE STANDARD SPECIFICATION, AND APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL DRILL HOLES IN DIAPHRAGM OR CONNECTION PLATE AS NECESSARY TO ATTACH THE DIAPHRAGM TO THE BEAM.

ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

ALL STRUCTURAL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED.

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.

PLACE WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY TO MATCH EXISTING.

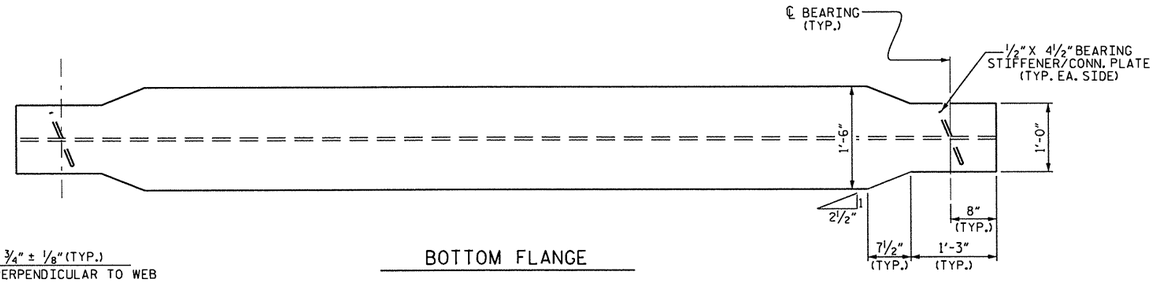
REMOVE PAINT OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS PRIOR TO WELDING.

AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE PAINT HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER ARTICLE 442-11 OF THE STANDARD SPECIFICATION.

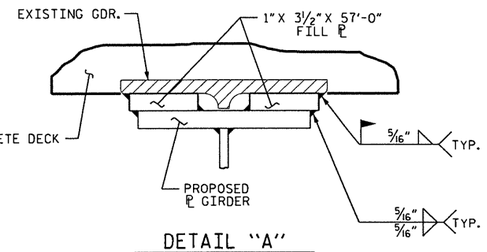
THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.

FOR "PARTIAL REMOVAL OF EXISTING STRUCTURE", SEE SPECIAL PROVISIONS.

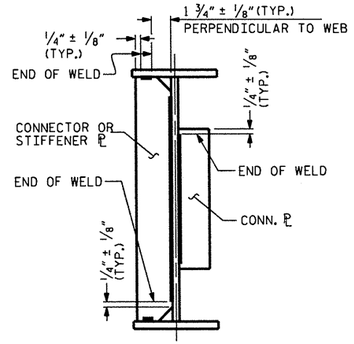
TOTAL CAMBER SHALL BE 2½" UPWARD



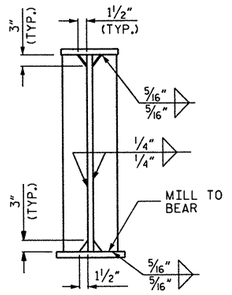
BOTTOM FLANGE



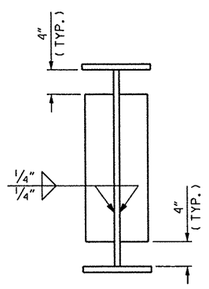
DETAIL "A"



WELD TERMINATION DETAILS

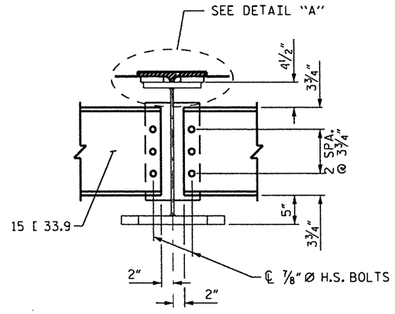


BEARING STIFFENER



INTERMEDIATE CONNECTOR ℄

ONLY ONE SIDE SHOWN FOR CLARITY



TYPICAL DIAPHRAGM CONNECTION DETAIL

DRAWN BY :	R.PUTEK	DATE :	11/12
CHECKED BY :	D. N. SNOKE	DATE :	03/13
DESIGN ENGINEER OF RECORD:	-	DATE :	-

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

23-APR-2013 09:37
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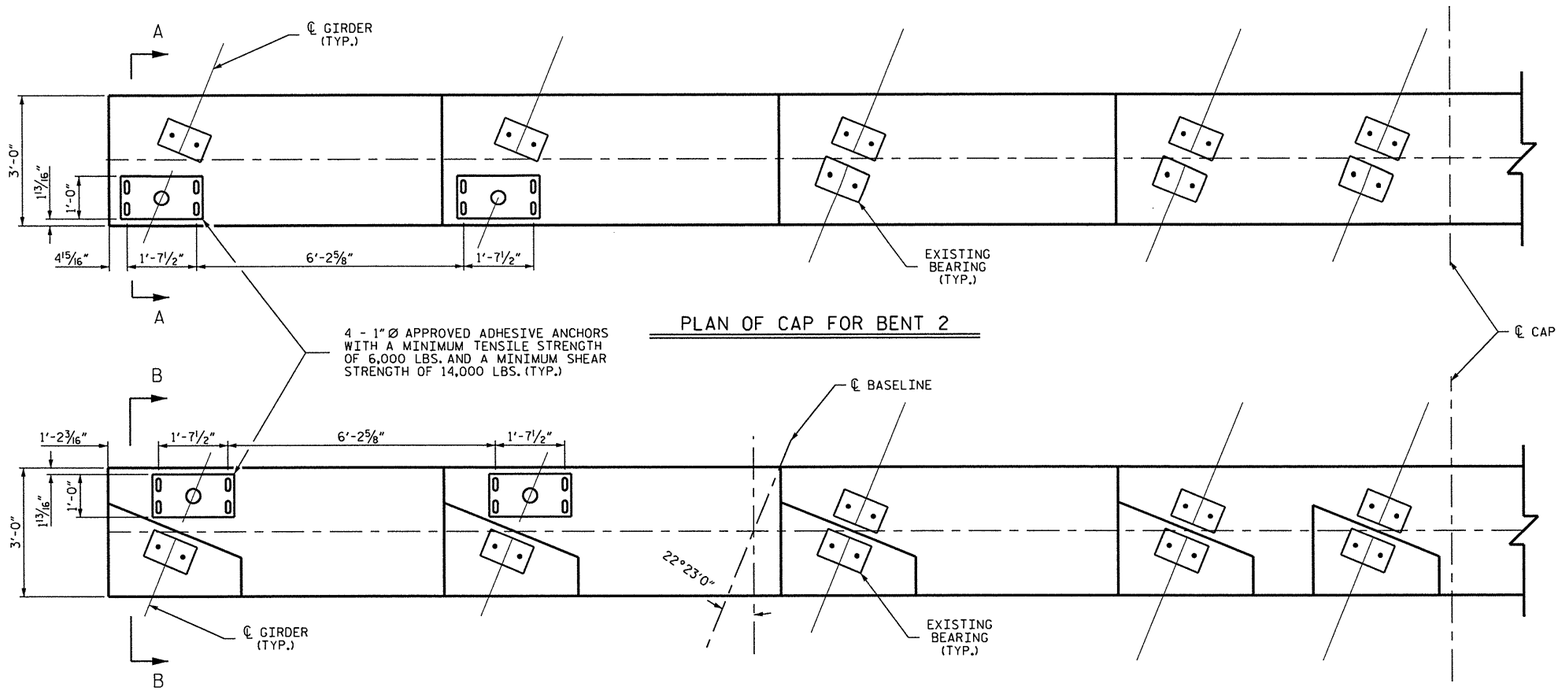
PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 23

SHEET 4 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REPLACEMENT BEAM AND DIAPHRAGMS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			84



PLAN OF CAP FOR BENT 2

PLAN OF CAP FOR BENT 3

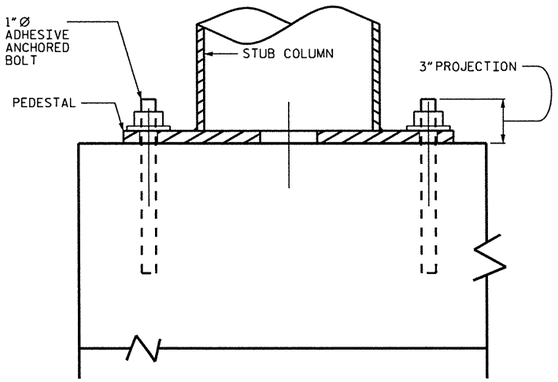
NOTES

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

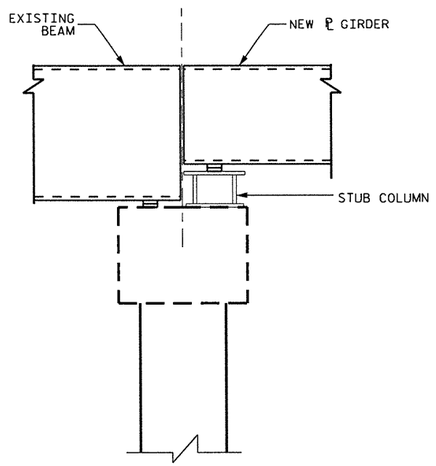
THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1" Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 9", OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER.

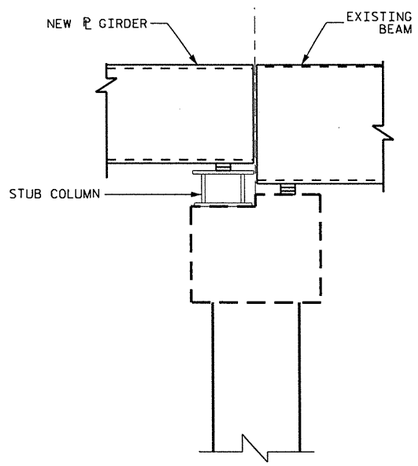
NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 18,000 LBS. TENSION.



PROPOSED ADHESIVE ANCHOR DETAIL



SECTION A-A
(BENT 2)



SECTION B-B
(BENT 3)

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 23

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT
(INTERIOR BENTS)

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			84

DRAWN BY :	R.PUTEK	DATE : 01/13
CHECKED BY :	D. N. SNOKE	DATE : 03/13
DESIGN ENGINEER OF RECORD:	-	DATE : -

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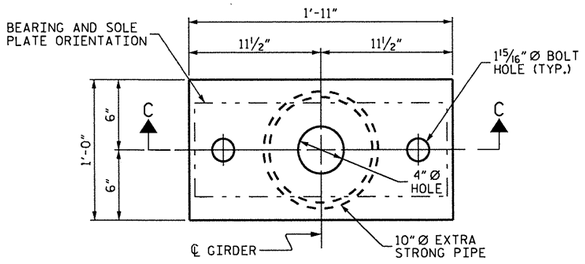
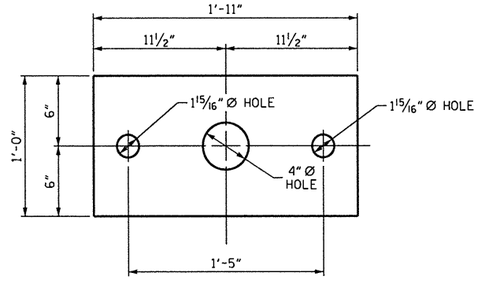
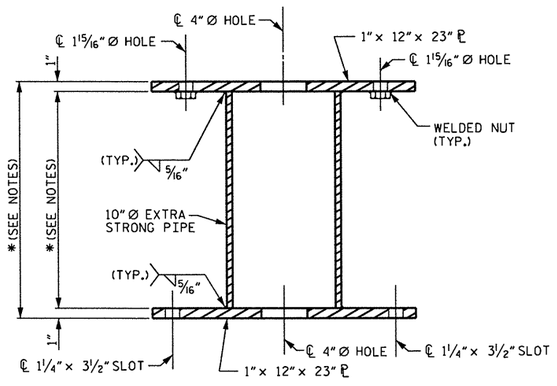


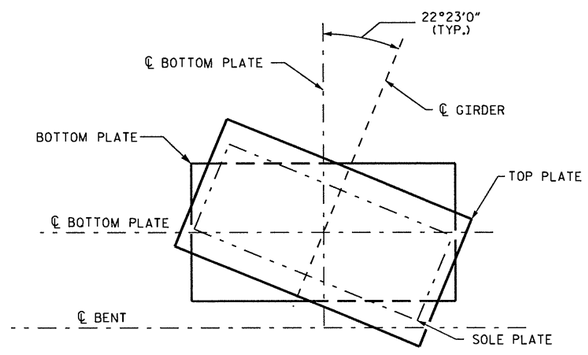
TOP PLATE PLAN



TOP PLATE

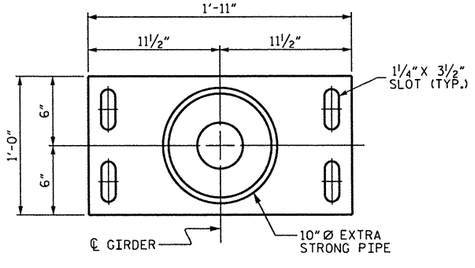


SECTION C-C

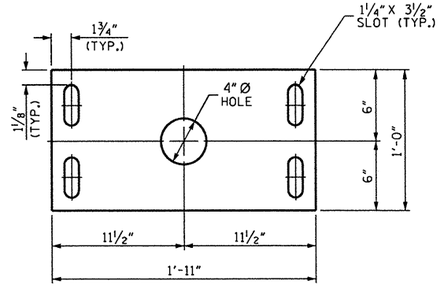


TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)

(HOLES & SLOTS HAVE BEEN OMITTED FOR CLARITY)



BOTTOM PLATE PLAN



BOTTOM PLATE

NOTES:

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 10" 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 SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED.

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 PAINTED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE REPAINTED, AS OUTLINED IN ARTICLE 442-11 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.

THE CONTRACTOR SHALL DETERMINE THE STUB COLUMN ASSEMBLY HEIGHTS PRIOR TO FABRICATION; SEE NOTE BELOW.

* THE PROPOSED PEDESTALS ARE INTENDED TO ADD MINIMUM 9" TO THE VERTICAL CLEARANCE OF THE BRIDGE. THE CONTRACTOR SHALL FIELD VERIFY APPROPRIATE EXISTING ELEVATIONS. USING THIS ELEVATION INFORMATION WITH DIMENSIONS OF THE NEW GIRDER, BEARING, AND OTHER COMPONENTS, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE HEIGHT OF EACH PEDESTAL.

STUB COLUMN DETAILS

(STUB COLUMN - 4 REQUIRED)

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WILKES COUNTY

BRIDGE NO.: 23

SHEET 6 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURAL STEEL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R.PUTEK DATE : 12/12
CHECKED BY : D. N. SNOKE DATE : 03/13
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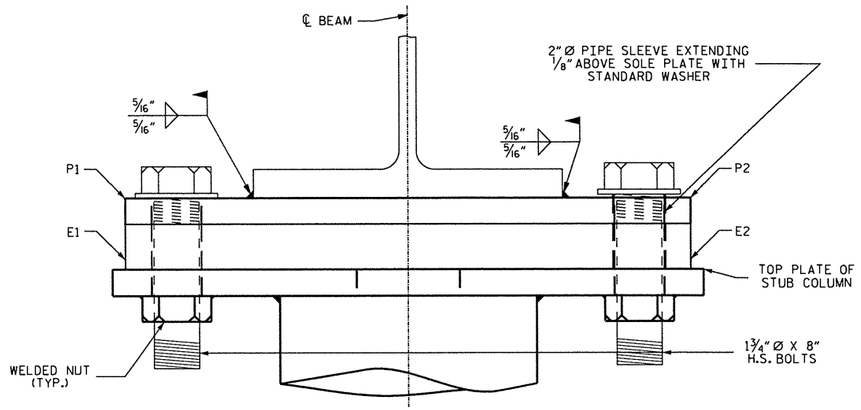
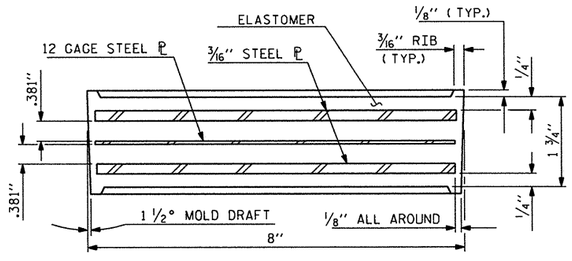
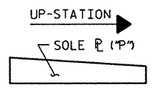


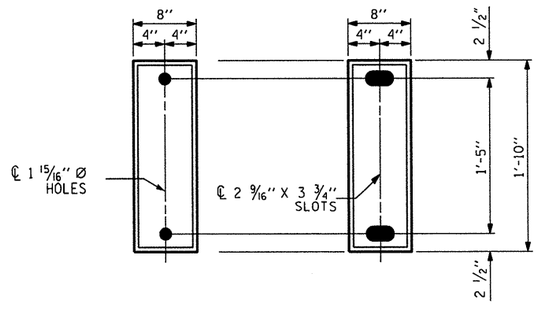
END VIEW @ BENTS



TYPICAL SECTION OF ELASTOMERIC BEARINGS



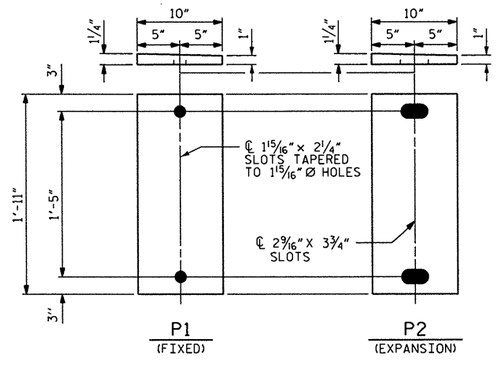
SOLE ℄ PLACEMENT DETAIL



E1 (2 REQ'D) E2 (2 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE I



P1 (2 REQ'D) P2 (2 REQ'D)

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 ½ 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 REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 ksi. IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

FOR HIGH STRENGTH BOLTS, SEE STANDARD SPECIFICATIONS.

—LOAD RATINGS—	
	MAX.D.L.+L.L.
TYPE I	140 K

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WILKES COUNTY

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STATE OF NORTH CAROLINA
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RALEIGH

ELASTOMERIC BEARING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			84

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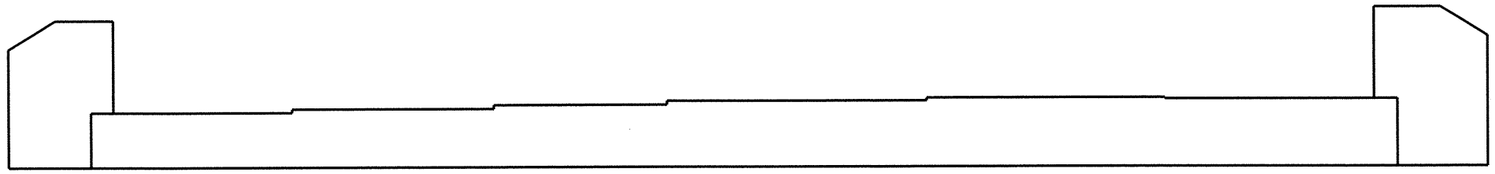
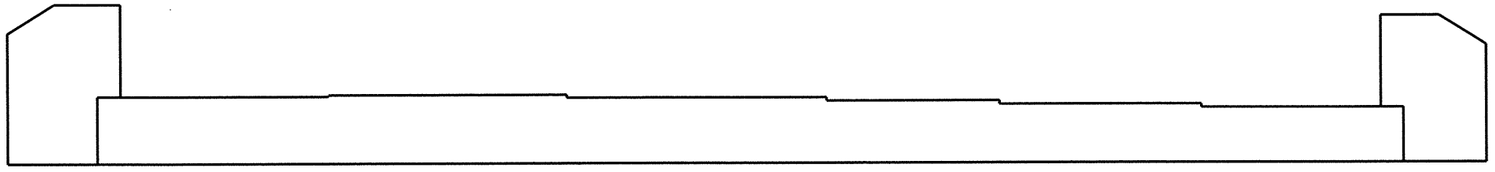
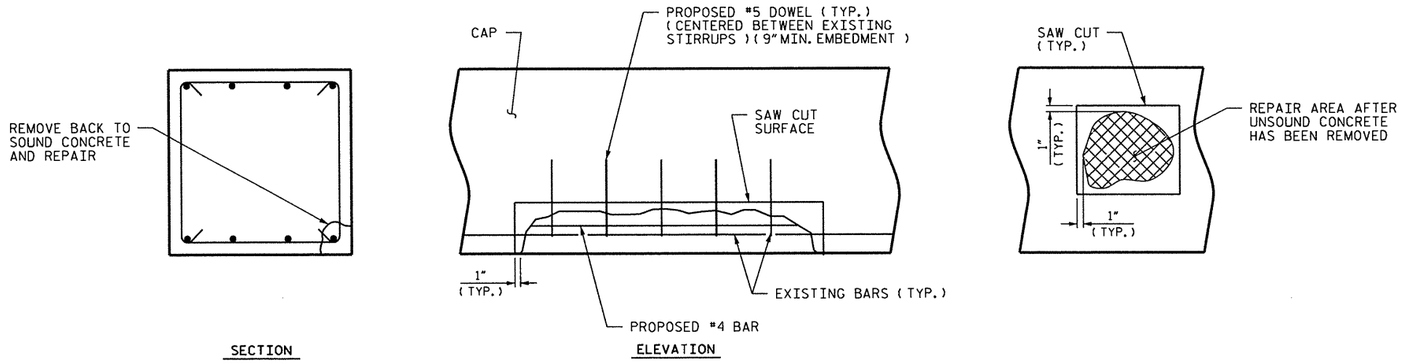


END BENT 1
(LOOKING NORTH)



END BENT 2
(LOOKING SOUTH)



SECTION

ELEVATION

CORNER REPAIR

FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAIL

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			

REPAIRS END BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

NO DAMAGE OBSERVED ON THE END BENTS, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

BENT DIAPHRAGMS AND OTHER CONCRETE COMPONENTS MAY BE REPAIRED UNDER SHOTCRETE REPAIRS OR CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

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SHEET 8 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : P.C. BREWER DATE : 2/27/13
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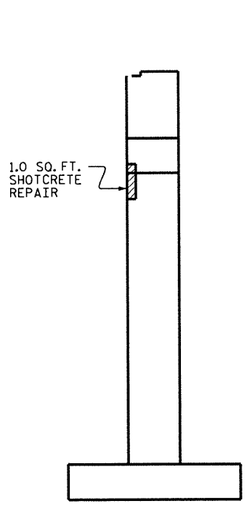
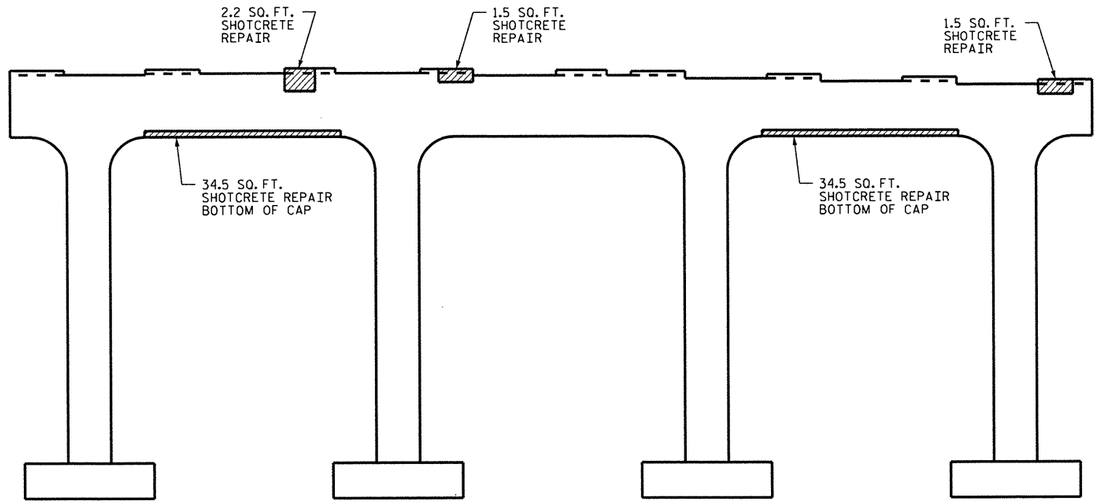
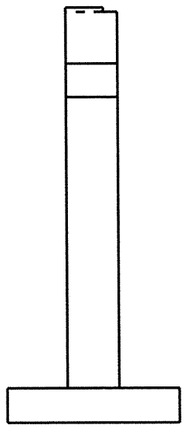


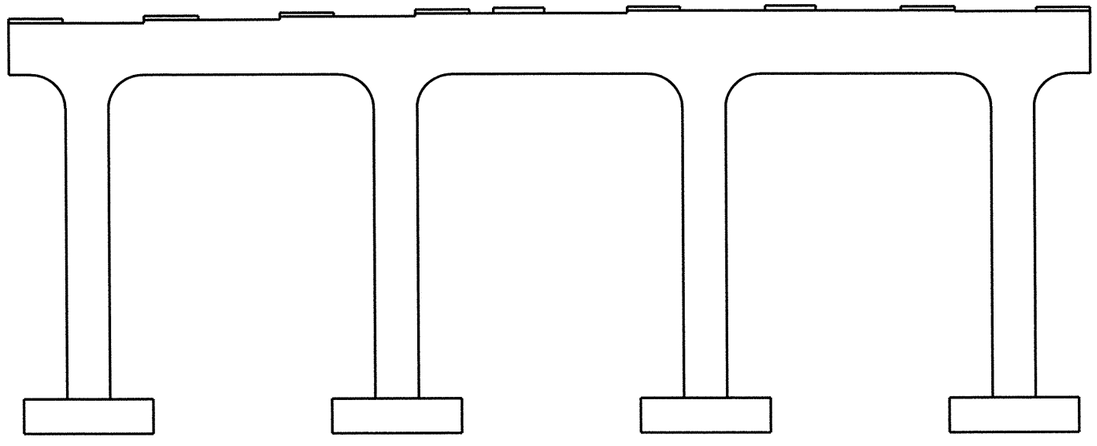
BENT 1 - EAST END



BENT 1 - SPAN A SIDE



BENT 1 - WEST END



BENT 1 - SPAN B SIDE

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	5.2	3.3			
CAP (HORIZONTAL, CORNER)	69.0	43.5			
COLUMN	1.0	0.6			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

NO DAMAGE OBSERVED ON BENT 1 - SPAN B SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

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SHEET 9 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : P.C. BREWER DATE : 2/27/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
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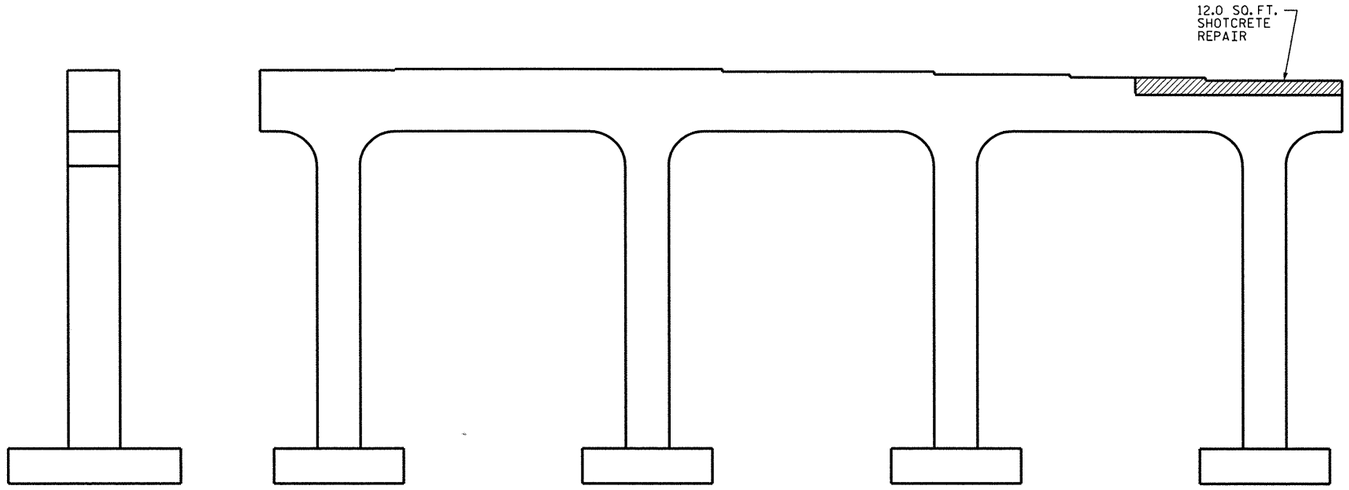


BENT 2 - EAST END

BENT 2 - SPAN B SIDE

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	12.0	7.5			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

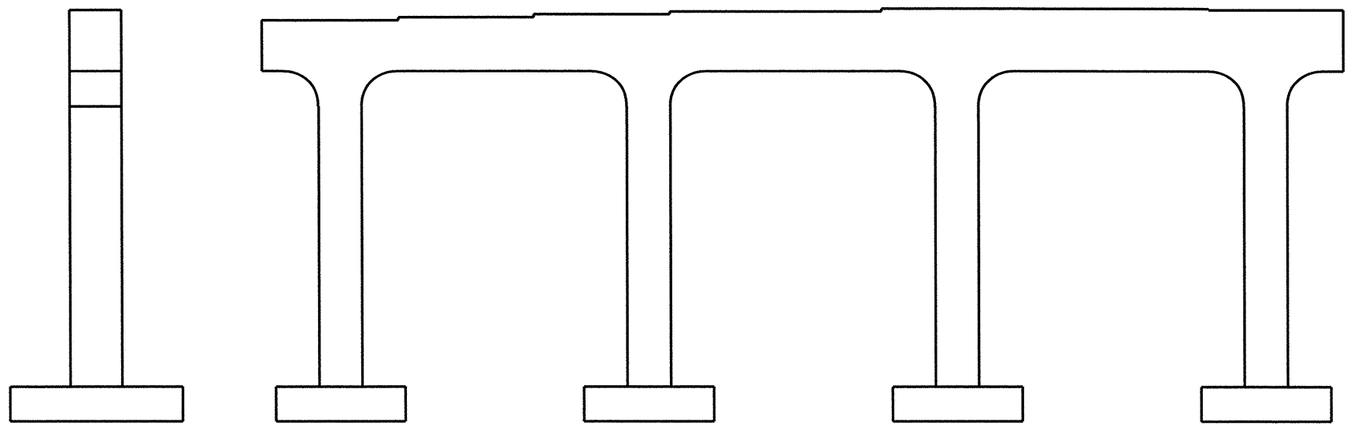
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

NO DAMAGE OBSERVED ON BENT 2 - SPAN C SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.



BENT 2 - WEST END

BENT 2 - SPAN C SIDE

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 23
SHEET 10 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 2/27/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:37
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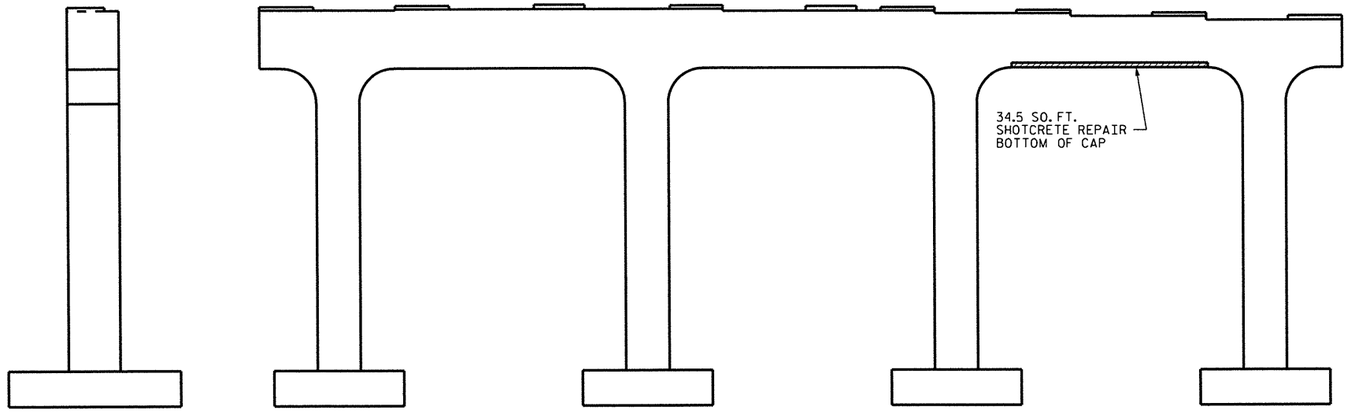
dsnoke



BENT 3 - EAST END

BENT 3 - SPAN C SIDE

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	34.5	21.6			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

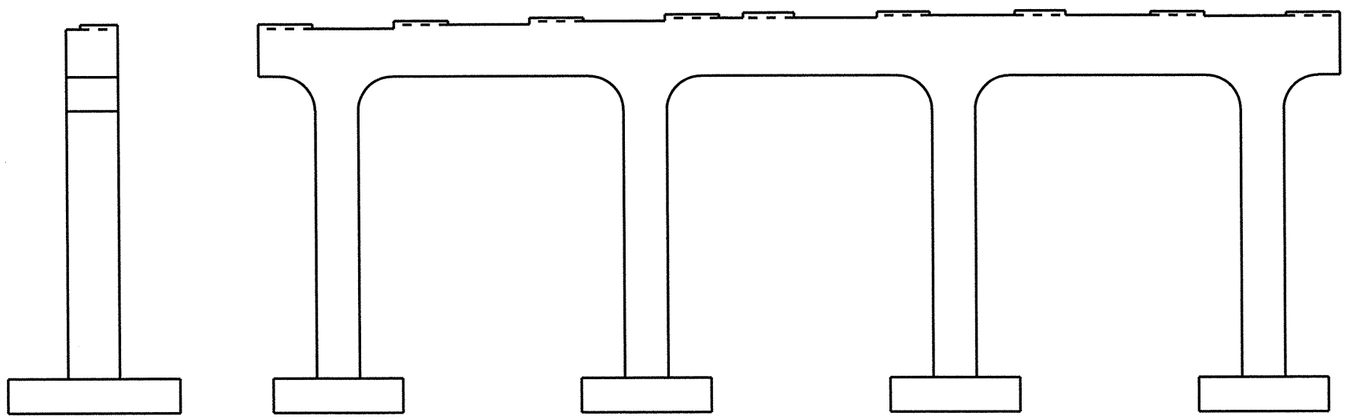
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

NO DAMAGE OBSERVED ON BENT 3 - SPAN D SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.



BENT 3 - WEST END

BENT 3 - SPAN D SIDE

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 23
SHEET 11 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 2/27/13
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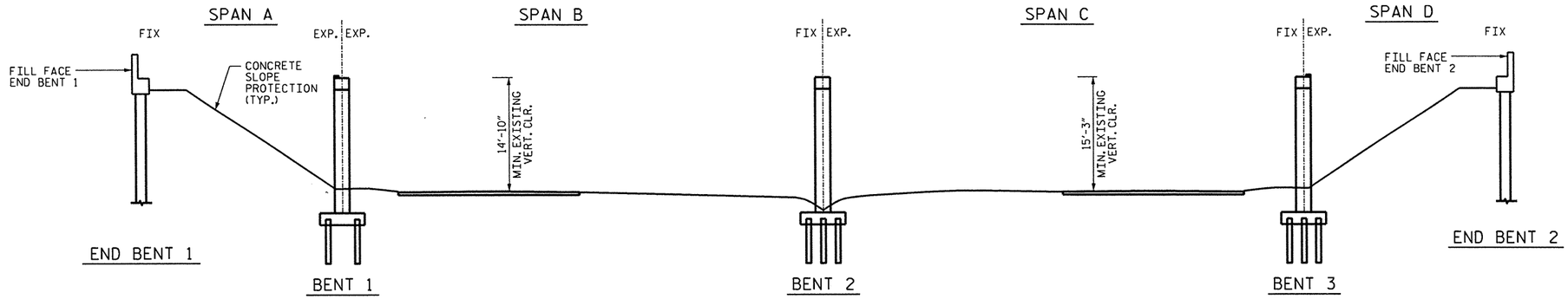
dsnoke

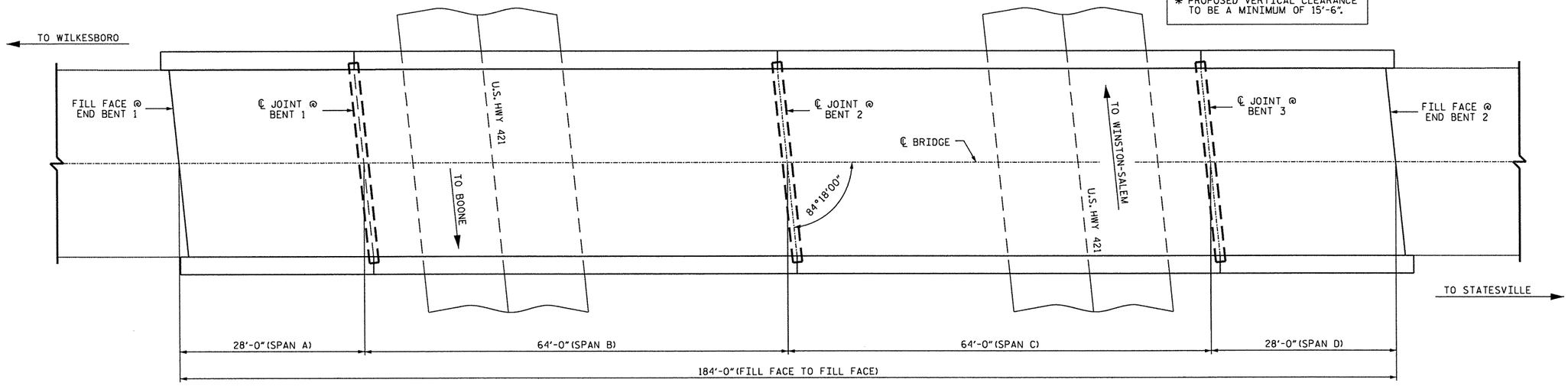
SCOPE OF WORK:

-SUBSTRUCTURE REPAIRS.
-REPLACE SUPERSTRUCTURE, SPANS B & C.
-DECK OVERLAY, SPANS A & D.



SECTION ALONG ℄ ROADWAY

* PROPOSED VERTICAL CLEARANCE TO BE A MINIMUM OF 15'-6".



PLAN VIEW

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOOR	APPROX 92,200 LBS STRUCTURAL STEEL	CONCRETE BARRIER RAIL	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE	ELASTOMERIC BEARINGS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	PARTIAL REMOVAL OF EXISTING STRUCTURE #52	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK
SQ. YDS.	TONS	SQ. FT.	SQ. FT.	LUMP SUM	LIN. FT.	C.Y.	SQ. YDS.	LUMP SUM	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	SQ.YDS.	SQ.YDS.
327	37	4,277	4,500	LUMP SUM	256	12.1	174.3	LUMP SUM	117.1	125.2	LUMP SUM	LUMP SUM	174	174

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
STATION: 52

SHEET 1 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 03/2013
CHECKED BY : D. N. SNOKE DATE : 03/2013
DESIGN ENGINEER OF RECORD: - DATE : -

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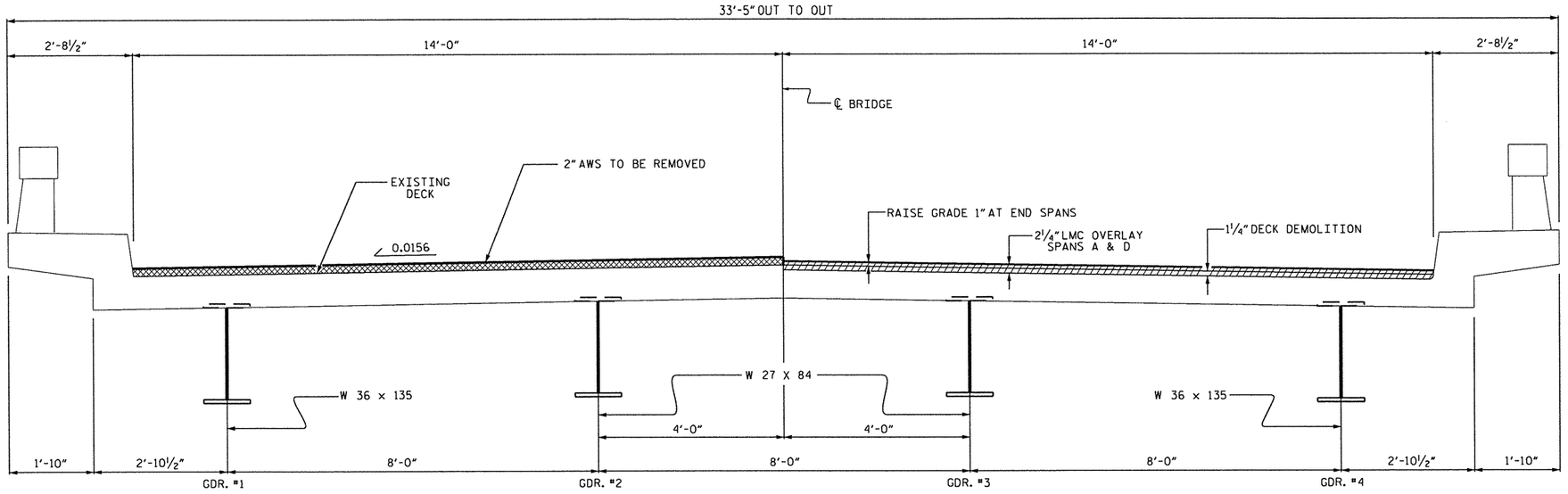
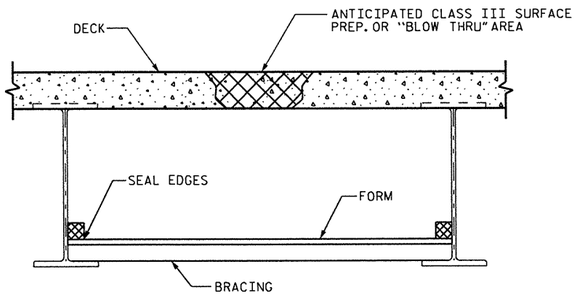
dsnoke



HALF SECTION SHOWING EXISTING DECK

HALF SECTION SHOWING PROPOSED DECK

TYPICAL SECTION
(SPANS A & D)

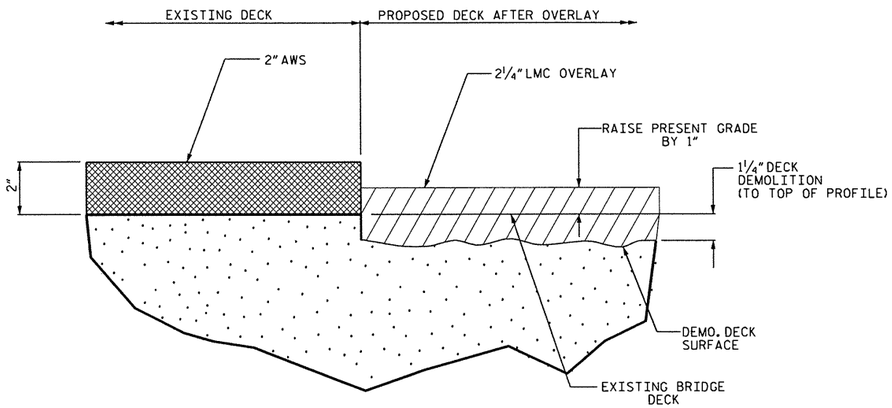


TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COST FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



DECK DEMO. AND OVERLAY DETAIL

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 2 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PRESERVATION

TYPICAL SECTION
SPANS A AND D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

1-2013

DRAWN BY : T.J. BEACH DATE : 01/2013
CHECKED BY : D.N. SNOKE DATE : 3/13
DESIGN ENGINEER OF RECORD: T.J. BEACH DATE : 01/2013

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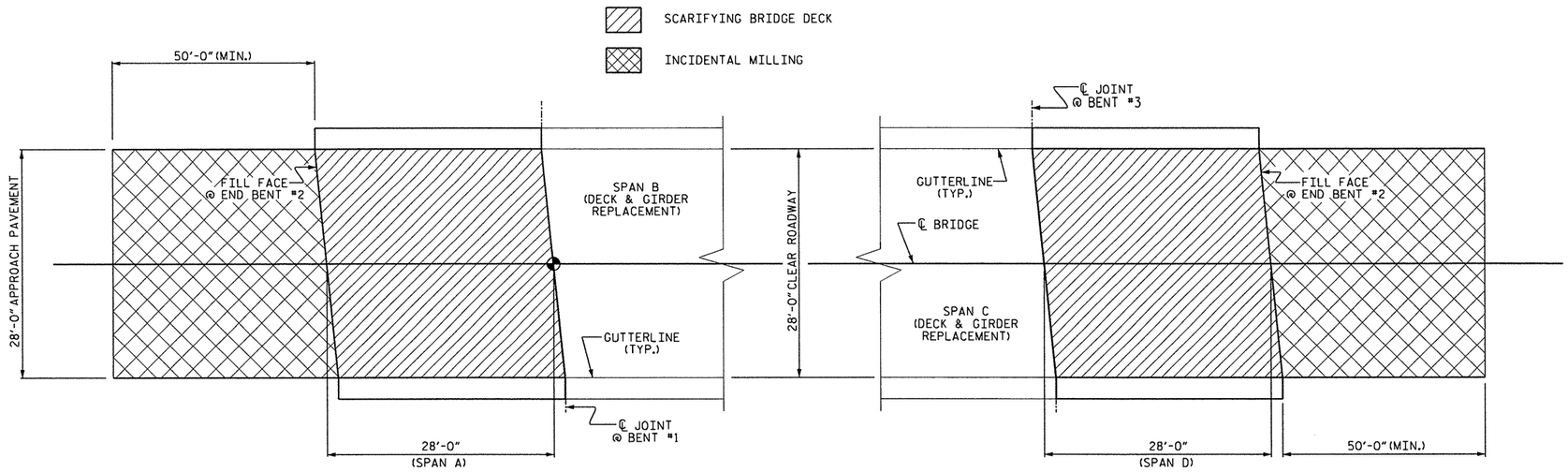
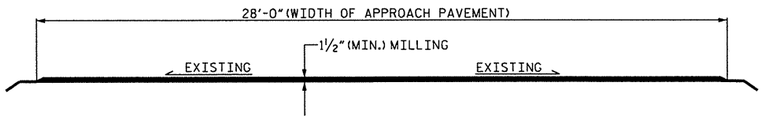
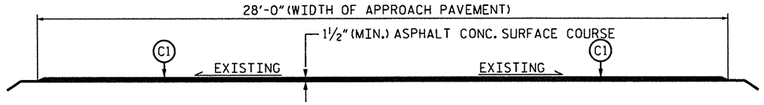


SURFACE PREPARATION PLAN VIEW



TYPICAL ROADWAY MILLING SECTION



TYPICAL PROPOSED ROADWAY SECTION

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" DEPTH.

NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY SLABS, AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRODEMOLITION PROCESS, SEE "OVERLAY SURFACE PREPARATION."

FOR FURTHER DETAILS ON "OVERLAY SURFACE PREPARATION", SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 3 OF 20

STATE OF NORTH CAROLINA
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RALEIGH
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SURFACE PRESERVATION AND MILLING SPANS A & D

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

1-2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : T.J. BEACH DATE : 01/2013
CHECKED BY : D.N. SNOKE DATE : 3/13
DESIGN ENGINEER OF RECORD: T.J. BEACH DATE : 01/2013

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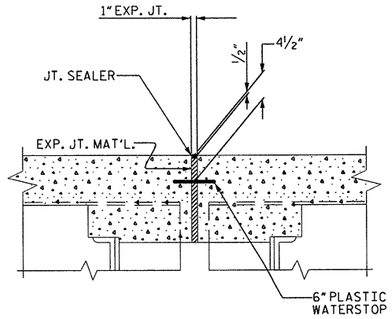
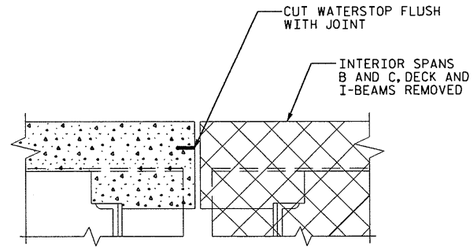


EXTERIOR SPAN INTERIOR SPAN

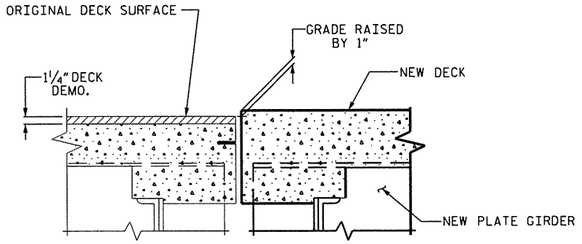
SECTION B-B
(EXISTING JOINT)



EXTERIOR SPAN INTERIOR SPAN

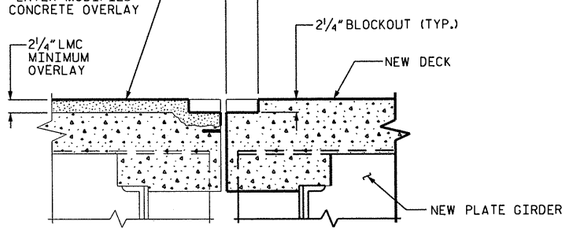
SECTION B-B
(INTERIOR SPAN DEMOLITION)

IF THE EMBEDDED PORTION OF THE EXISITNG PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, THE ENTIRE WATERSTOP SHALL BE REMOVED



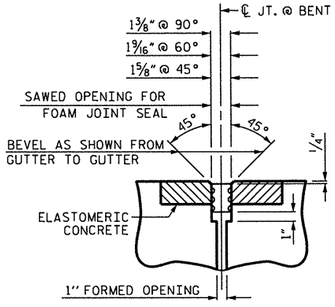
EXTERIOR SPAN INTERIOR SPAN

SECTION B-B
(MINIMUM EXISTING JOINT DEMOLITION)



EXTERIOR SPAN INTERIOR SPAN

SECTION B-B



SECTION @ JOINT
FOAM JOINT SEAL

ELASTOMERIC CONCRETE	
BENT NO. 1	4.9 (CU. FT.)
BENT NO. 2	4.9 (CU. FT.)
BENT NO. 3	4.9 (CU. FT.)
TOTAL	14.7 (CU. FT.)

NOTES:

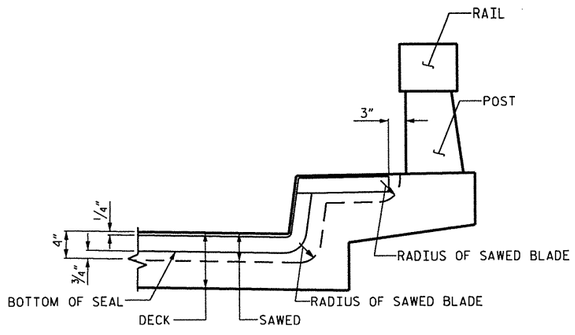
FOR "FOAM JOINT SEAL", SEE SPECIAL PROVISIONS.

FOR "ELASTOMERIC CONCRETE", SEE SPECIAL PROVISIONS.

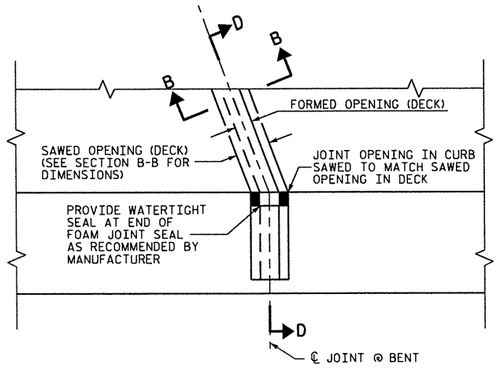
THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE 2".

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.



SECTION D-D



FOAM JOINT SEAL DETAILS

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

STATION: 52

SHEET 4 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PRESERVATION

JOINT DETAILS AT BENTS 1 AND 3 SPANS A & D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER TIMOTHY J. BEACH

1-2013

DRAWN BY :	T.J. BEACH	DATE : 01/2013
CHECKED BY :	D.N. SNOKE	DATE : 3/13
DESIGN ENGINEER OF RECORD:	T.J. BEACH	DATE : 01/2013

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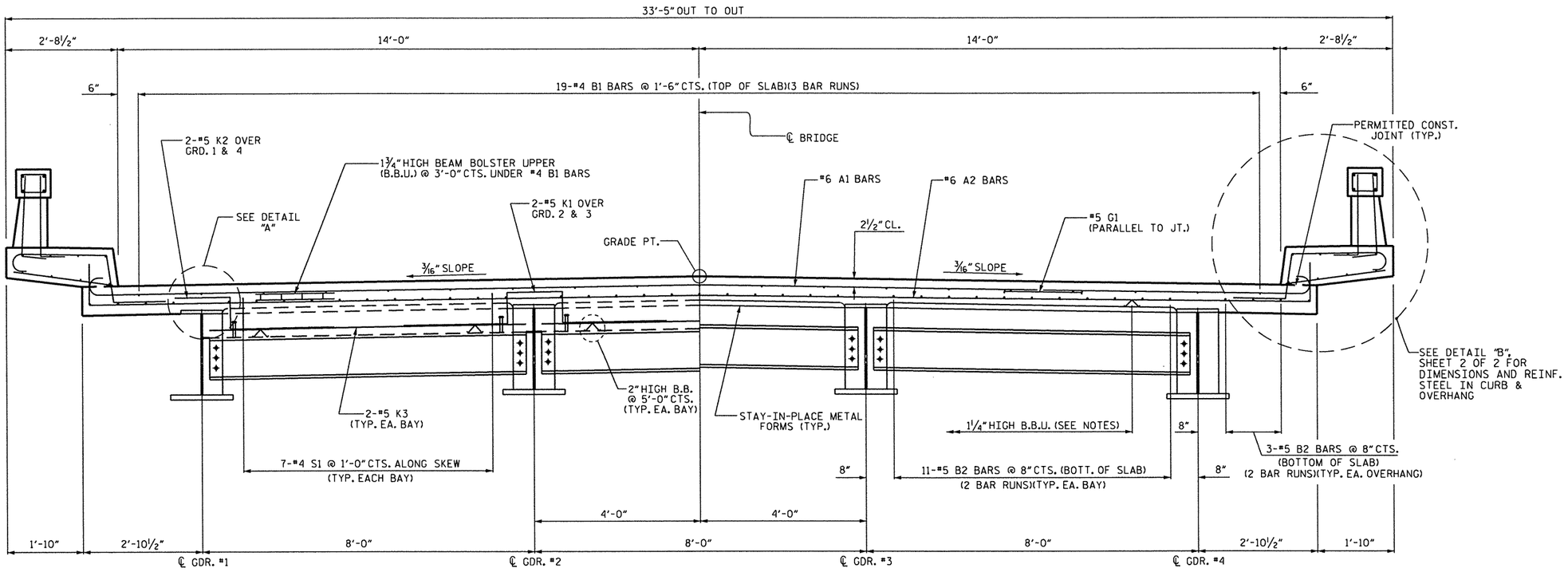
dsnake

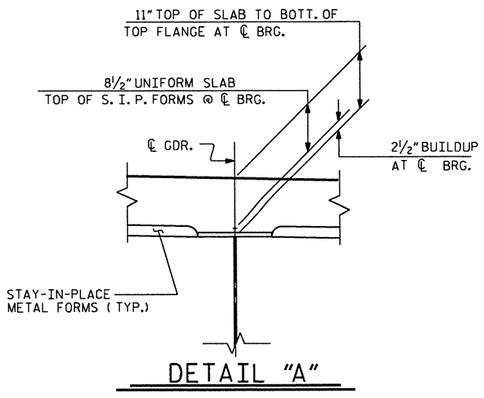


HALF SECTION @ BENT DIAPHRAGM

HALF SECTION @ INTERMEDIATE DIAPHRAGM

TYPICAL SECTION

(SPANS B AND C)



DETAIL "A"

NOTES - SPANS B AND C

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2½" ABOVE THE TOP OF THE REMOVABLE FORM.

#5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

DURING THE JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

ALL REINFORCING STEEL IN THE CURB, POST AND RAIL SHALL BE EPOXY COATED.

JOINTS AT BENT 1 AND 3 SHALL NOT BE PLACED UNTIL LMC DECK OVERLAYS ARE FINISHED IN SPANS A & D.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER TREG J. BEACH

1-2013

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO. 52

SHEET 5 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION SPANS B AND C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			84

DRAWN BY :	T.J. BEACH	DATE : 01/2013
CHECKED BY :	D.N. SNOKE	DATE : 3/13
DESIGN ENGINEER OF RECORD:	T.J. BEACH	DATE : 01/2013

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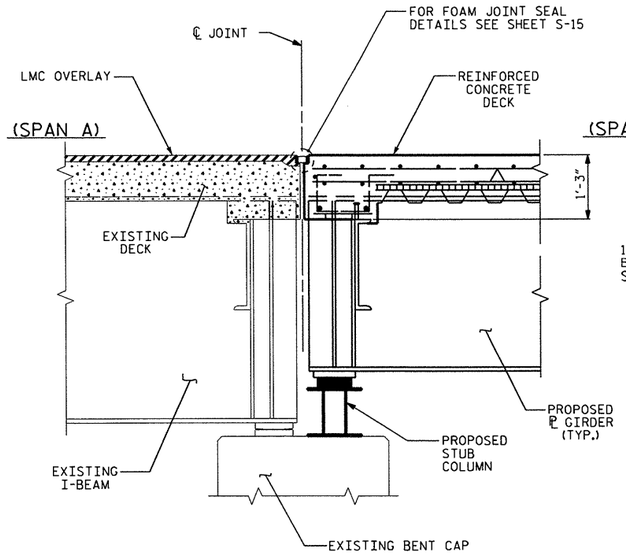
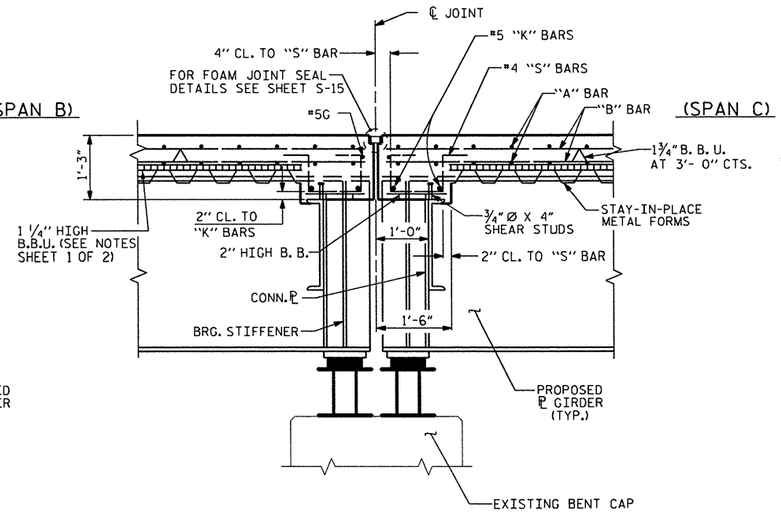
dsnoke

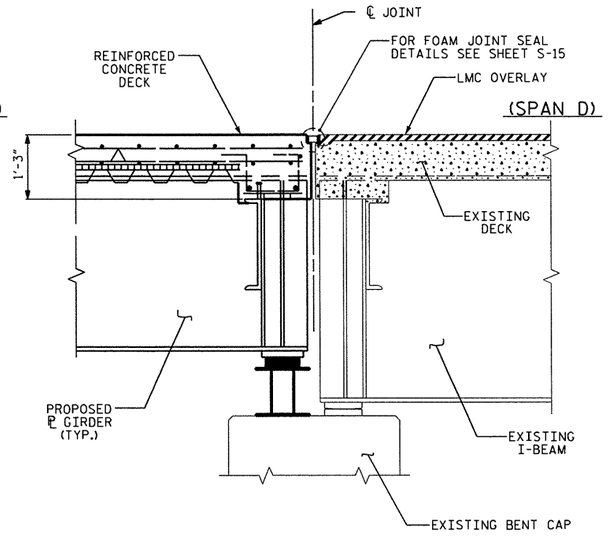


SECTION THRU BENT NO. 1

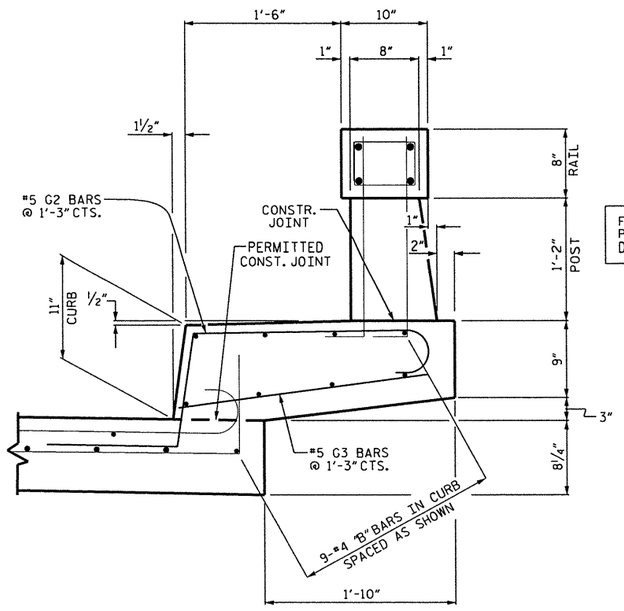


SECTION THRU BENT NO. 2

(DETAILS TYPICAL SPANS B & C)



SECTION THRU BENT NO. 3



DETAIL "B"

(TYP. EA. CURB & OVERHANG)

FOR REINFORCING STEEL IN POST & RAIL, SEE "POST & RAIL DETAILS" SHEET.

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO. 52

SHEET 6 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION DETAILS SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

1-2013

DRAWN BY :	T.J. BEACH	DATE : 01/2013
CHECKED BY :	D.N. SNOKE	DATE : 3/13
DESIGN ENGINEER OF RECORD:	T.J. BEACH	DATE : 01/2013

23-APR-2013 09:37
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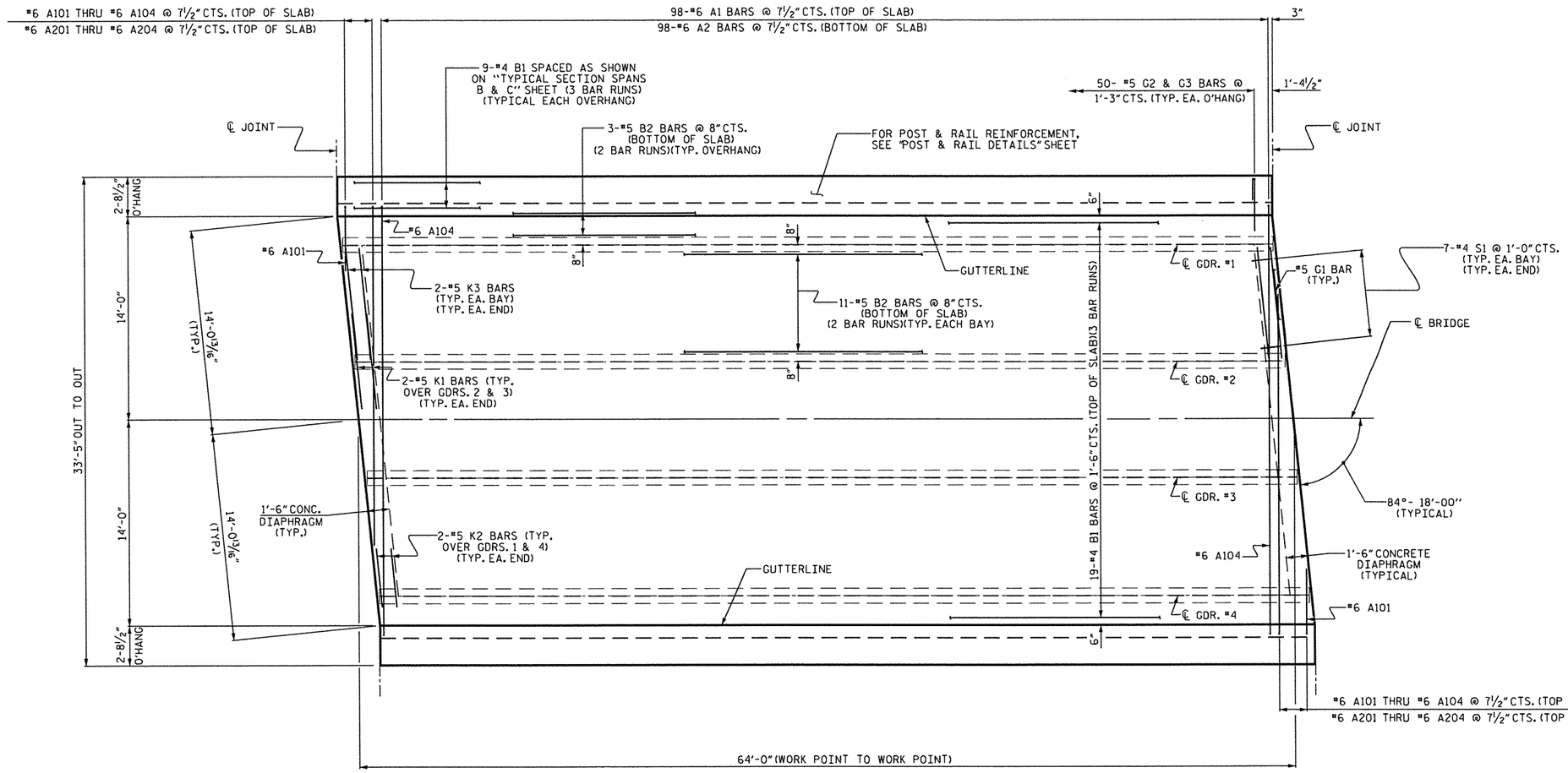

PLAN OF SPANS B OR C
(SHOWING DECK REINFORCEMENT ONLY)

PROJECT NO. 17BP.H.11.4
WILKES COUNTY
BRIDGE NO.: 52
SHEET 7 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPAN
SPANS B OR C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
1-2013

DRAWN BY : T.J. BEACH DATE : 01/2013
CHECKED BY : D.N. SNOKE DATE : 3/13
DESIGN ENGINEER OF RECORD: T.J. BEACH DATE : 01/2013

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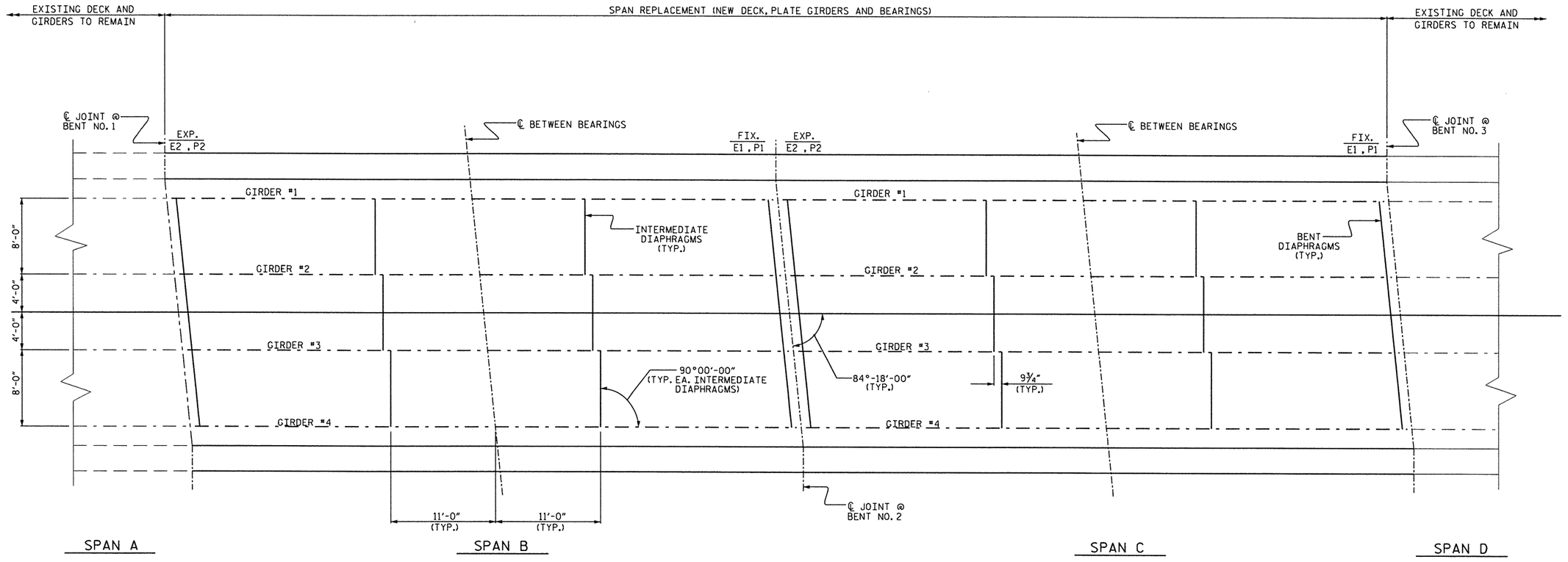

FRAMING PLAN

(FRAMING PLAN DIMENSIONS TYPICAL FOR BOTH SPANS B & C)

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 8 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN
SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. SERGIS

1-2013

DRAWN BY :	T.J. BEACH	DATE : 01/2013
CHECKED BY :	D.N. SNOKE	DATE : 3/13
DESIGN ENGINEER OF RECORD:	T.J. BEACH	DATE : 01/2013

23-APR-2013 09:37
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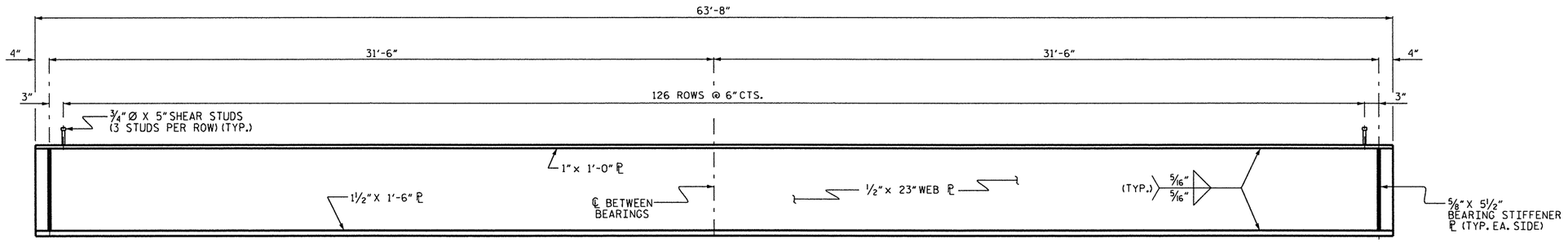
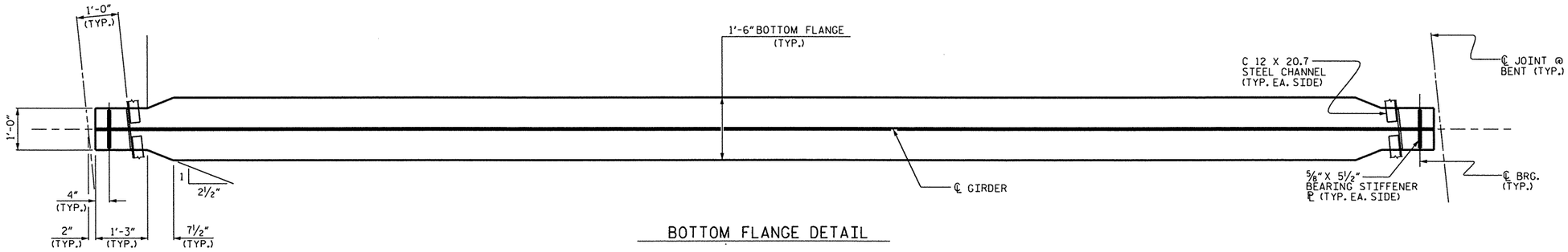
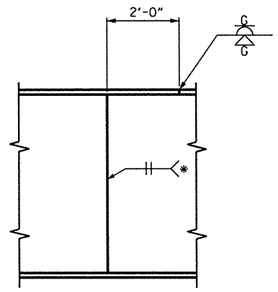


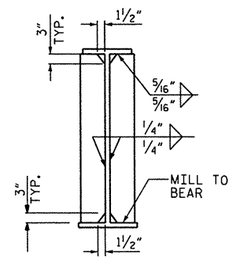
ELEVATION OF GIRDER
(FOR CLARITY, CONNECTOR PL's NOT SHOWN



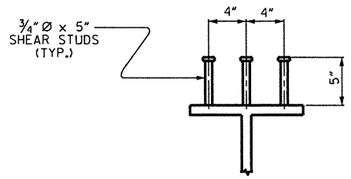
BOTTOM FLANGE DETAIL



PERMISSIBLE SHOP WEB SPLICE
* GRIND SMOOTH AND FLUSH OF EXTERIOR GIRDERS



BEARING STIFFENER



SHEAR STUD DETAIL

PROJECT NO. 17BP.H.11.4
WILKES COUNTY
BRIDGE NO.: 52
SHEET 9 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER MATTEO J. BEACH
1-2013

DRAWN BY :	T.J. BEACH	DATE : 01/2013
CHECKED BY :	D.N. SNOKE	DATE : 3/13
DESIGN ENGINEER OF RECORD:	T.J. BEACH	DATE : 01/2013

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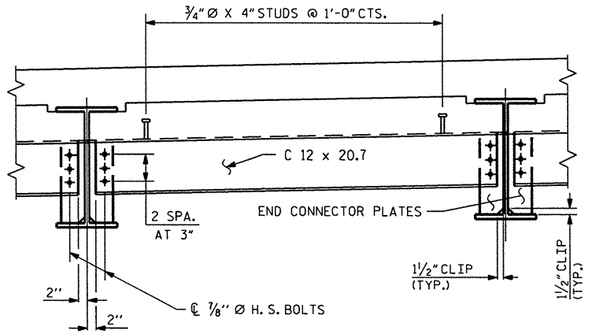
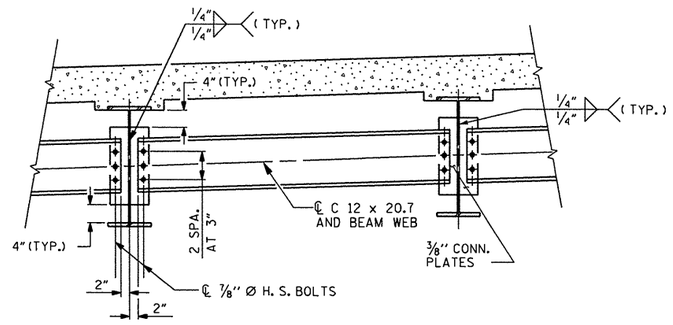


TYPICAL BENT DIAPHRAGM



TYPICAL INTERMEDIATE DIAPHRAGM

NOTES:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50 AND PAINTED IN ACCORDANCE WITH SYSTEM 1 OF ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

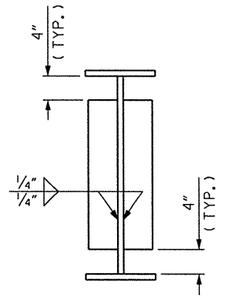
STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES AND IN ACCORDANCE WITH ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.

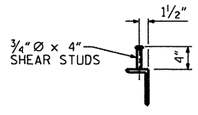
END OF GIRDERS SHALL BE PLUMB.

NEEDLE BEAM TYPE SUPPORTS ARE REQUIRED FOR OVERHANG FALSEWORK FOR SPANS B AND C.

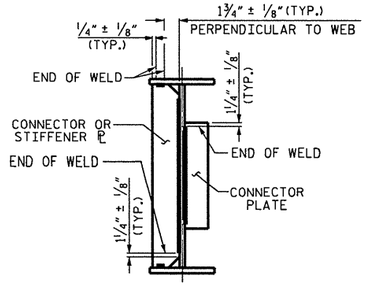


INTERMEDIATE CONNECTOR ℄

ONLY ONE SIDE SHOWN FOR CLARITY



SHEAR STUD DETAIL



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 10 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER MATTEO J. BEACH

1-2013

DRAWN BY : T.J. BEACH DATE : 01/2013
CHECKED BY : D.N. SNOKE DATE : 3/13
DESIGN ENGINEER OF RECORD: T.J. BEACH DATE : 01/2013

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DEAD LOAD DEFLECTION TABLE FOR GIRDERS - SPAN B AND C

	GIRDER 1											GIRDER 2										
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	0.011	0.020	0.028	0.033	0.034	0.033	0.028	0.020	0.011	0	0	0.011	0.020	0.028	0.033	0.034	0.033	0.028	0.020	0.011	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.067	0.126	0.173	0.203	0.213	0.203	0.173	0.126	0.067	0	0	0.057	0.108	0.148	0.173	0.182	0.173	0.148	0.108	0.057	0
DEFLECTION DUE TO WEIGHT OF PARAPET	0	0.011	0.022	0.029	0.034	0.036	0.034	0.029	0.022	0.011	0	0	0.011	0.022	0.029	0.034	0.036	0.034	0.029	0.022	0.011	0
TOTAL DEAD LOAD DEFLECTION	0	0.089	0.168	0.230	0.270	0.283	0.270	0.230	0.168	0.089	0	0	0.079	0.150	0.205	0.240	0.252	0.240	0.205	0.150	0.079	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	1 1/16"	2"	2 3/4"	3 1/4"	3 3/8"	3 1/4"	2 3/4"	2"	1 1/16"	0	0	15/16"	1 13/16"	2 7/16"	2 7/8"	3"	2 7/8"	2 7/16"	1 13/16"	15/16"	0

	GIRDER 3											GIRDER 4										
TENTH POINTS	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	BRG.	BRG.	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	
DEFLECTION DUE TO WEIGHT OF GIRDER	0	0.011	0.020	0.028	0.033	0.034	0.033	0.028	0.020	0.011	0	0	0.011	0.020	0.028	0.033	0.034	0.033	0.028	0.020	0.011	0
DEFLECTION DUE TO WEIGHT OF SLAB *	0	0.057	0.108	0.148	0.173	0.182	0.173	0.148	0.108	0.057	0	0	0.067	0.126	0.173	0.203	0.213	0.203	0.173	0.126	0.067	0
DEFLECTION DUE TO WEIGHT OF PARAPET	0	0.011	0.022	0.029	0.034	0.036	0.034	0.029	0.022	0.011	0	0	0.011	0.022	0.029	0.034	0.036	0.034	0.029	0.022	0.011	0
TOTAL DEAD LOAD DEFLECTION	0	0.079	0.150	0.205	0.240	0.252	0.240	0.205	0.150	0.079	0	0	0.089	0.168	0.230	0.270	0.283	0.270	0.230	0.168	0.089	0
VERTICAL CURVE ORDINATE	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
REQUIRED CAMBER	0	15/16"	1 13/16"	2 7/16"	2 7/8"	3"	2 7/8"	2 7/16"	1 13/16"	15/16"	0	0	1 1/16"	2"	2 3/4"	3 1/4"	3 3/8"	3 1/4"	2 3/4"	2"	1 1/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 11 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS SPANS B & C

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER TJ BEACH

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : T.J. BEACH DATE : 01/2013
CHECKED BY : D.N. SNOKE DATE : 03/2013

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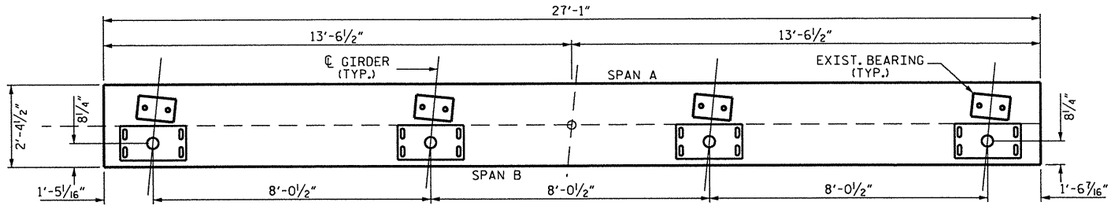
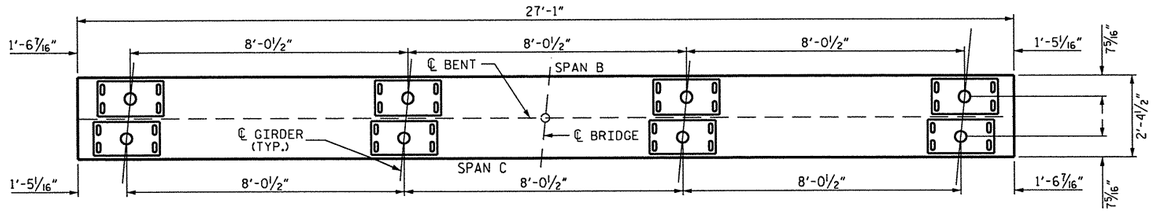
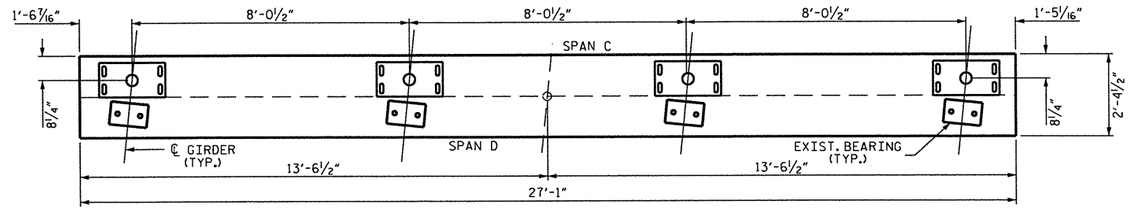


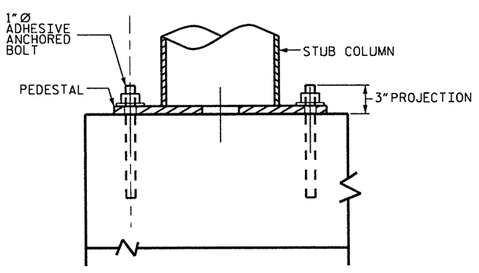
PLAN OF CAP FOR BENT 2



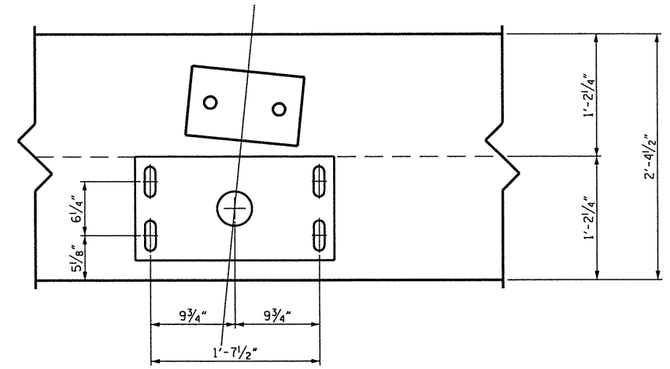
PLAN OF CAP FOR BENT 3



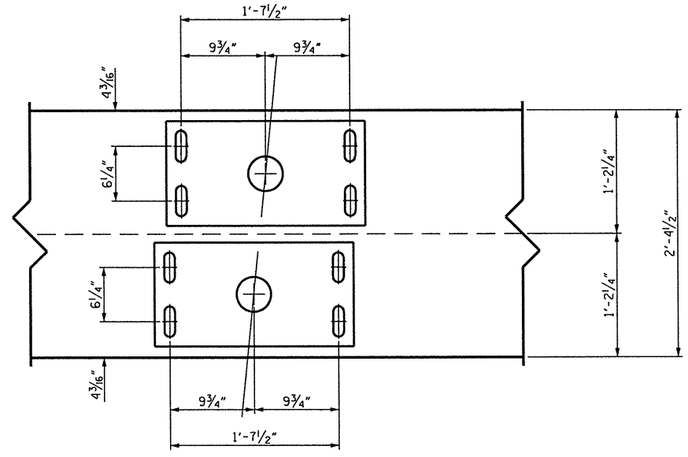
PLAN OF CAP FOR BENT 4



PROPOSED ADHESIVE ANCHOR DETAIL



DETAIL OF BOTTOM PLATE ORIENTATION - BENT 2 & 4



DETAIL OF BOTTOM PLATE ORIENTATION - BENT 3

NOTES

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1" Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 9", OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER.

NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 18,000 LBS. TENSION.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

3/11/13

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

STATION: 52

SHEET 12 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			84

DRAWN BY :	R.PUTEK	DATE :	03/13
CHECKED BY :	D.SNOKE	DATE :	03/13
DESIGN ENGINEER OF RECORD:	-	DATE :	-

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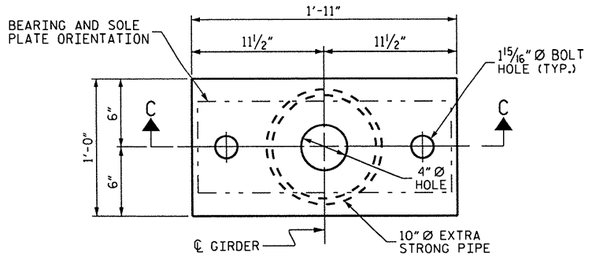
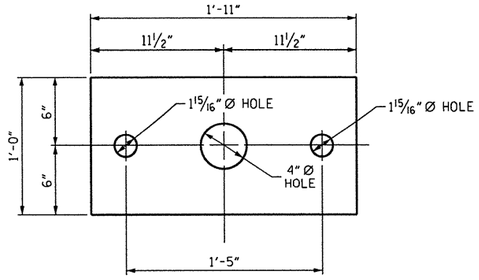


TOP PLATE PLAN



TOP PLATE

NOTES:

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 10" 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 SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 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.

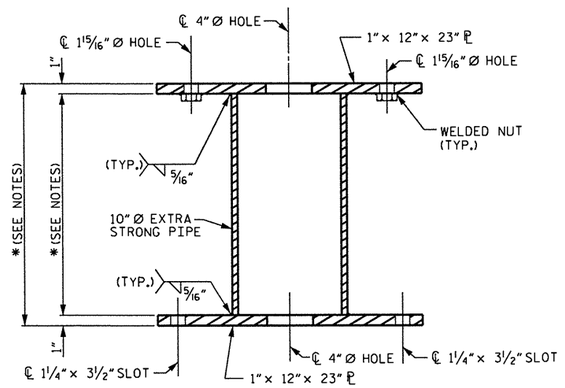
ALL PAINTED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE REPAINTED, AS OUTLINED IN ARTICLE 442-11 OF THE STANDARD SPECIFICATIONS.

THE TOP OF THE DECK ELEVATION SHALL REMAIN THE SAME DURING AND AFTER CONSTRUCTION.

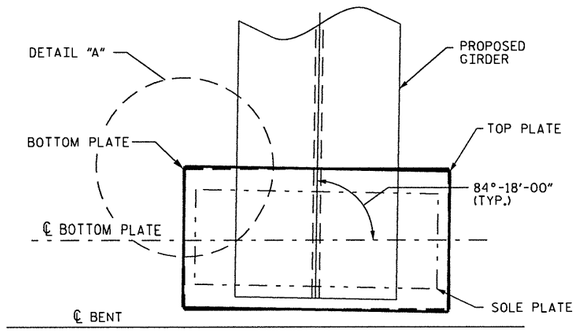
THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE BEAM PEDESTAL AND ALL OTHER STRUCTURAL STEEL.

THE CONTRACTOR SHALL DETERMINE THE STUB COLUMN ASSEMBLY HEIGHTS PRIOR TO FABRICATION; SEE NOTE BELOW.

* THE PROPOSED PEDESTALS ARE INTENDED TO ADD MINIMUM 8" TO THE VERTICAL CLEARANCE OF THE BRIDGE. THE CONTRACTOR SHALL FIELD VERIFY APPROPRIATE EXISTING ELEVATIONS. USING THIS ELEVATION INFORMATION WITH DIMENSIONS OF THE NEW GIRDER, BEARING, AND OTHER COMPONENTS, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE HEIGHT OF EACH PEDESTAL.

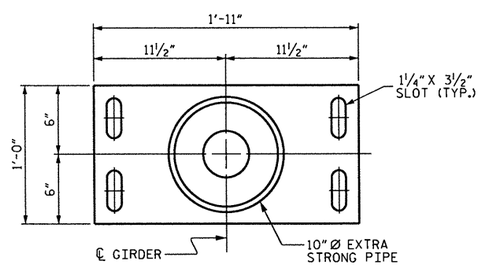


SECTION C-C

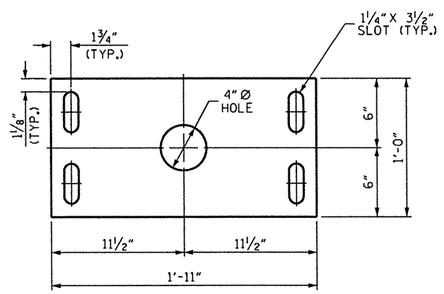


TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)

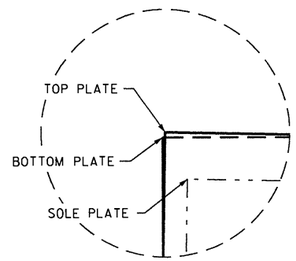
(HOLES & SLOTS HAVE BEEN OMITTED FOR CLARITY)



BOTTOM PLATE PLAN



BOTTOM PLATE



DETAIL "A"

STUB COLUMN DETAILS

(STUB COLUMN - 16 REQUIRED)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 13 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN DETAILS SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

3/11/13

DRAWN BY : P.C. BREWER DATE : 03/13

CHECKED BY : D. N. SNOKE DATE : 03/13

DESIGN ENGINEER OF RECORD: _____ DATE : _____

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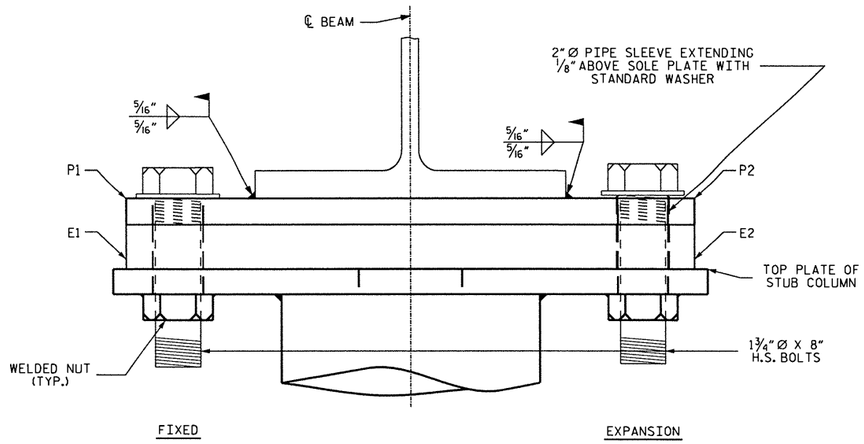
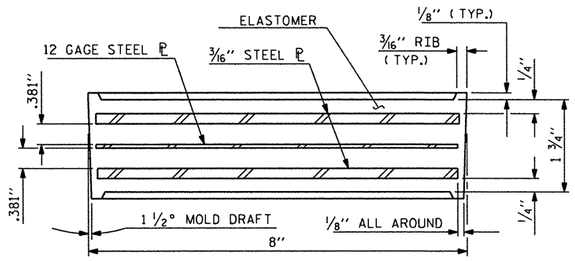
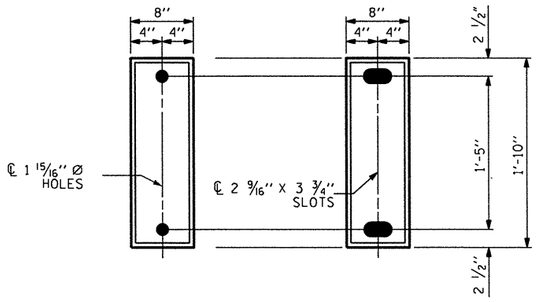


END VIEW @ BENTS



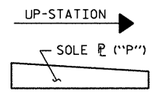
TYPICAL SECTION OF ELASTOMERIC BEARINGS



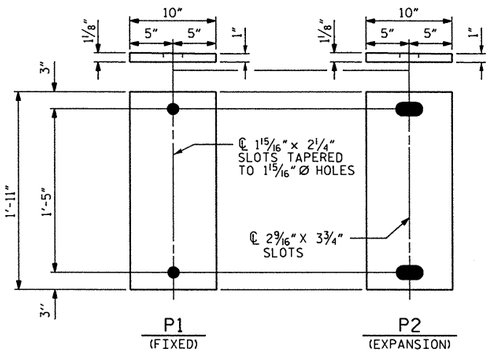
E1 (8 REQ'D) E2 (8 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE I



SOLE ℙ PLACEMENT DETAIL



P1 (8 REQ'D) P2 (8 REQ'D)

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 ½ 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.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 ksi, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

-LOAD RATINGS-	
	MAX.D.L.+L.L.
TYPE I	140 K

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

STATION: 52

SHEET 14 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY :	R. PUTEK	DATE : 11/12
CHECKED BY :	D. N. SNOKE	DATE : 03/13
DESIGN ENGINEER OF RECORD:		DATE :

23-APR-2013 09:38
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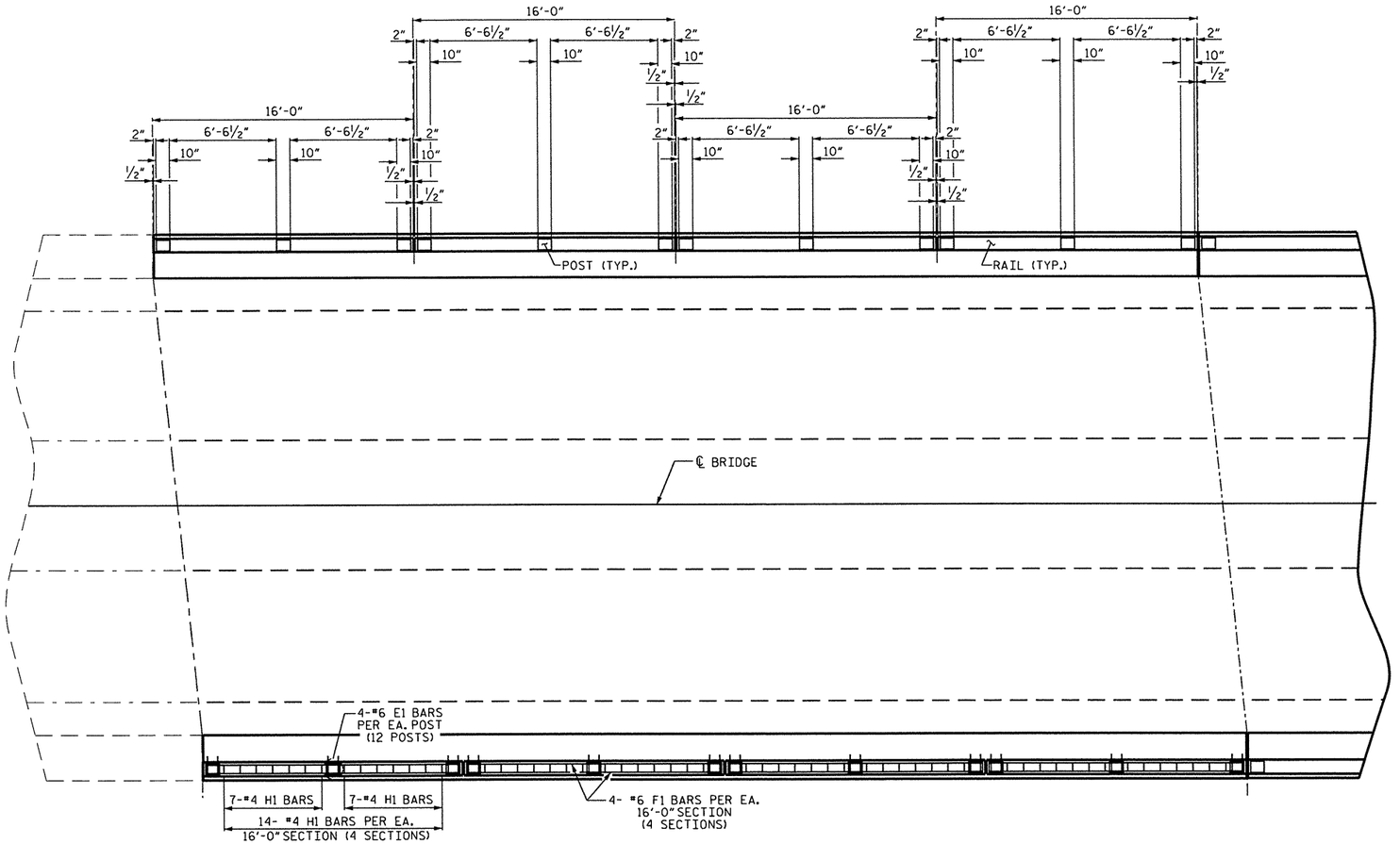
dsnoke

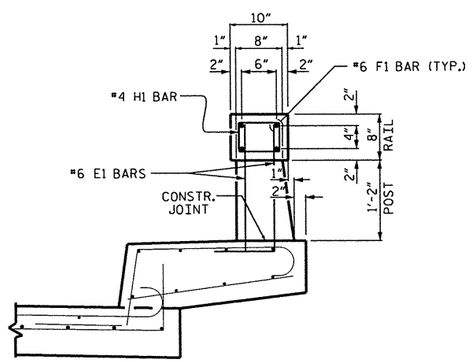


SPAN A

SPAN B

(SPAN B SHOWN, SPAN C DIMENSIONS & REINFOREMENT SIMILAR)

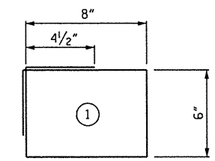
SPAN C

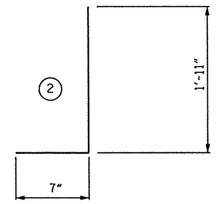


SECTION OF POST AND RAIL

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT





BILL OF MATERIAL

FOR POST & RAIL ONLY

(QUANTITIES FOR SPANS B & C)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
E1	192	#6	2	2'-6"	721
F1	64	#6	STR	15'-7"	1498
H1	224	#4	1	3'-1"	461
EPOXY COATED REINFORCING STEEL					2680
CLASS AA CONCRETE					13.2 CU. YDS.
POST AND RAIL					256 LIN. FEET

PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 15 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

POST & RAIL DETAILS SPANS B & C

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER TIMOTHY J. BEACH

1-2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : T.J. BEACH DATE : 01/2013
CHECKED BY : D.N. SNOKE DATE : 3/13
DESIGN ENGINEER OF RECORD: T.J. BEACH DATE : 01/2013

23-APR-2013 09:38
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dsnoke

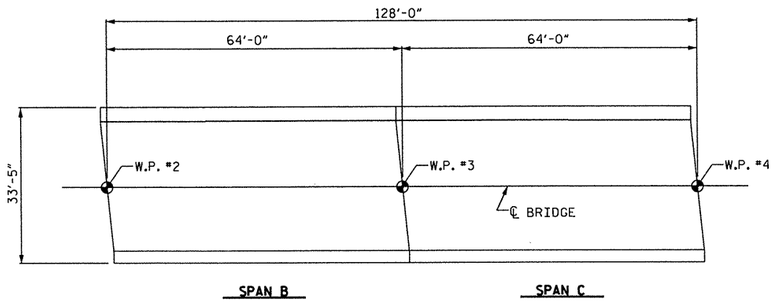
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	196	#6	1	30'-8"	9028
A2	196	#6	3	31'-4"	9224
* A101	4	#6	2	5'-2"	31
* A102	4	#6	2	11'-5"	69
* A103	4	#6	2	17'-8"	106
* A104	4	#6	2	23'-11"	144
A201	4	#6	4	5'-2"	31
A202	4	#6	4	11'-9"	71
A203	4	#6	4	18'-0"	108
A204	4	#6	4	24'-3"	146
* B1	222	#4	STR	22'-7"	3349
B2	156	#5	STR	32'-11"	5356
* G1	4	#5	STR	29'-6"	123
* G2	200	#5	5	5'-3"	1095
* G3	200	#5	STR	2'-6"	522
* K1	16	#5	8	7'-11"	132
* K2	16	#5	6	7'-8"	128
* K3	24	#5	STR	7'-8"	192
* S1	84	#4	7	3'-4"	187
REINFORCING STEEL					14,936 LBS.
* EPOXY COATED REINFORCING STEEL					15,106 LBS.

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
TOTAL	128.0	14,936	15,106

** QUANTITIES FOR POST & RAIL ARE NOT INCLUDED

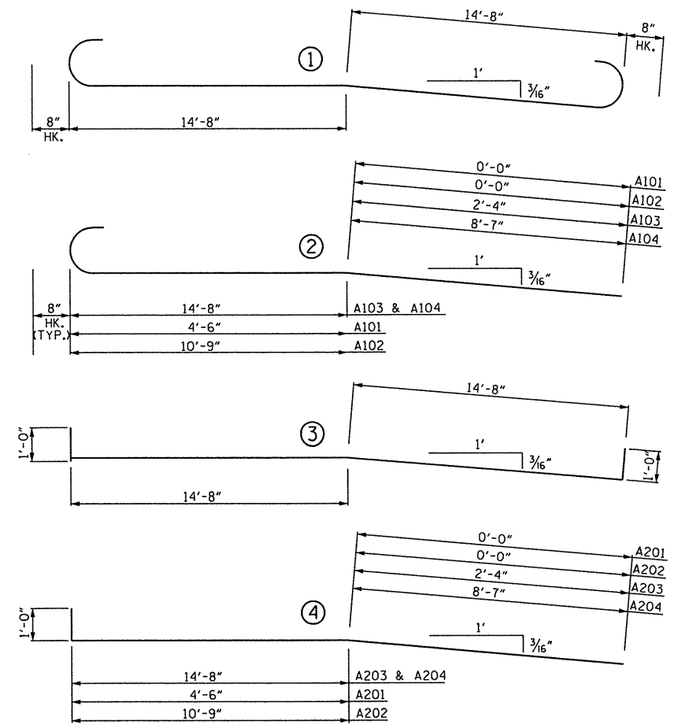
GROOVING AREA	
BRIDGE DECK	3,133 SQ. FT.
TOTAL	3,133 SQ. FT.

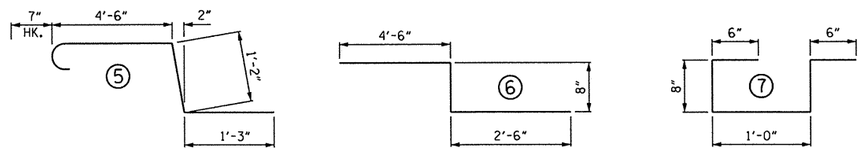


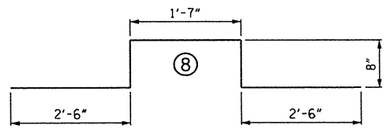
CONCRETE POURING SEQUENCE AND LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4,277)

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT







PROJECT NO. 17BP.H.11.4

WILKES COUNTY

BRIDGE NO.: 52

SHEET 16 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

BILL OF MATERIAL
SPANS B & C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

1-2013

DRAWN BY : T.J. BEACH DATE : 01/2013
CHECKED BY : D.N. SNOKE DATE : 03/2013

23-APR-2013 09:38
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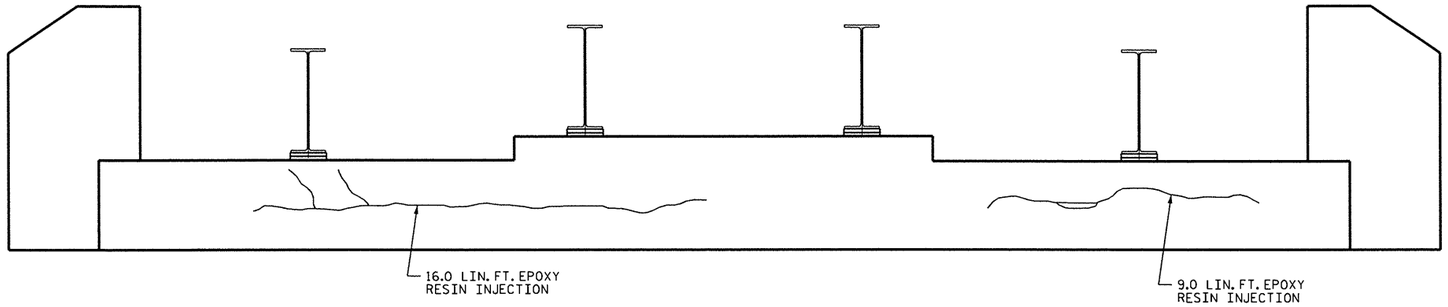
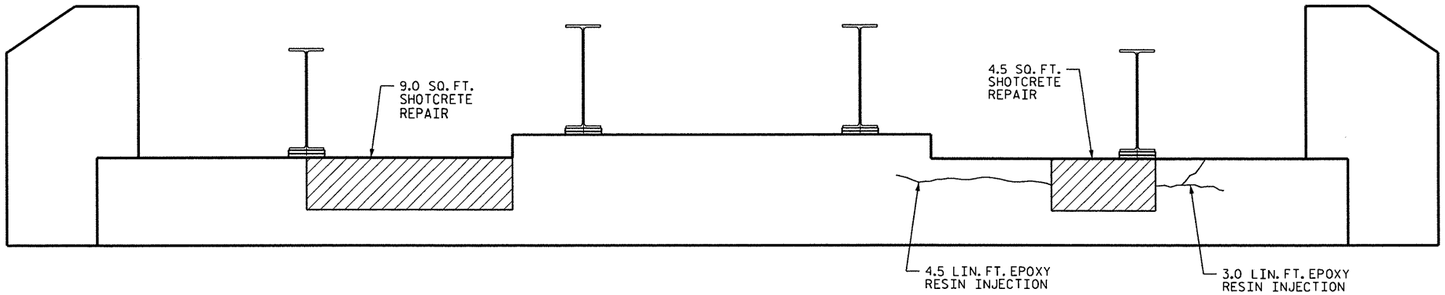
dsnoke



END BENT 1



END BENT 2

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		25			

REPAIRS END BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	13.5	8.4			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		7.5			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

BENT DIAPHRAGMS AND OTHER CONCRETE COMPONENTS MAY BE REPAIRED UNDER SHOTCRETE REPAIRS OR CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

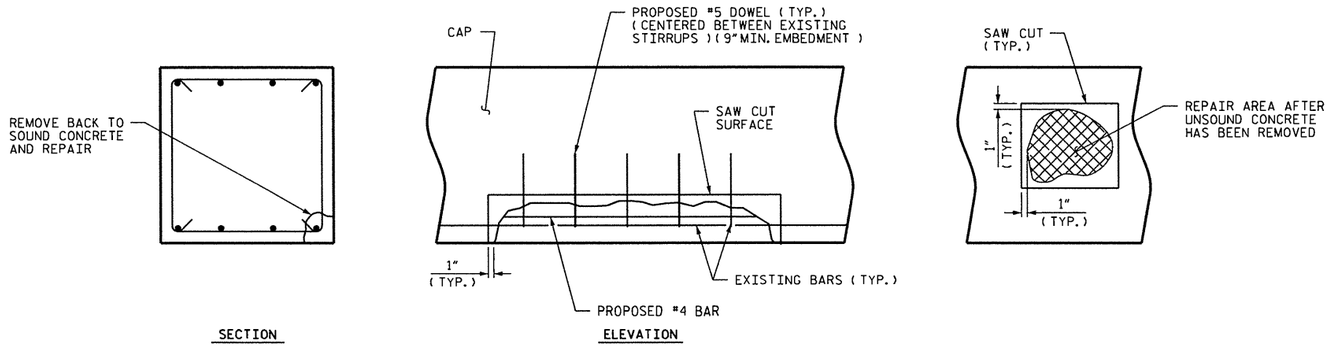
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



SECTION ELEVATION

CORNER REPAIR FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAIL

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 52

SHEET 17 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/8/13

DRAWN BY :	P.C. BREWER	DATE :	3/4/13
CHECKED BY :	D.N. SNOKE	DATE :	3/6/13
DESIGN ENGINEER OF RECORD:	-	DATE :	-

23-APR-2013 09:38
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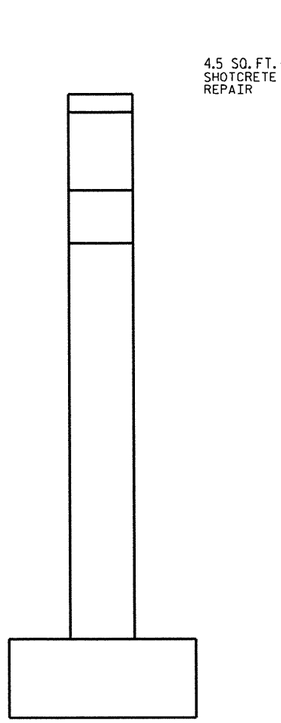
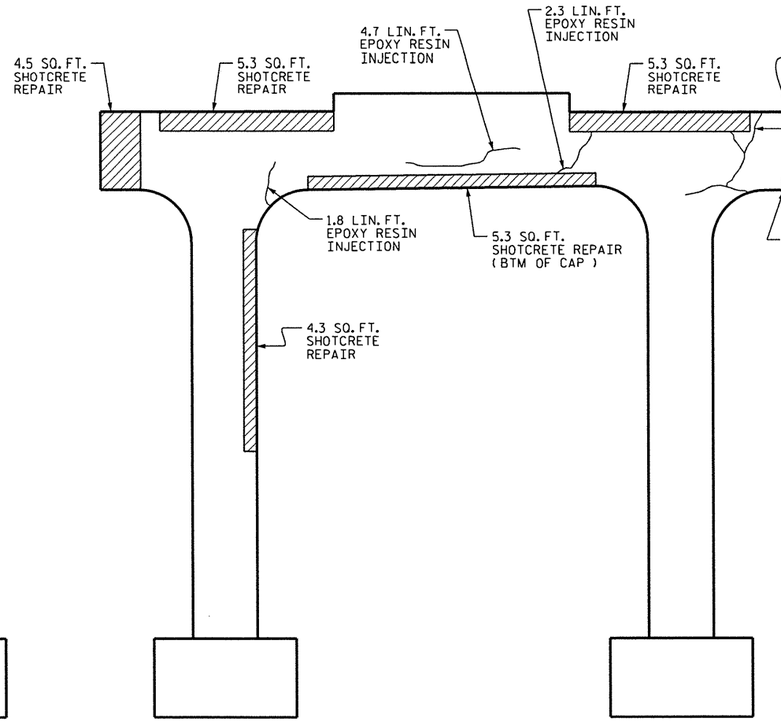
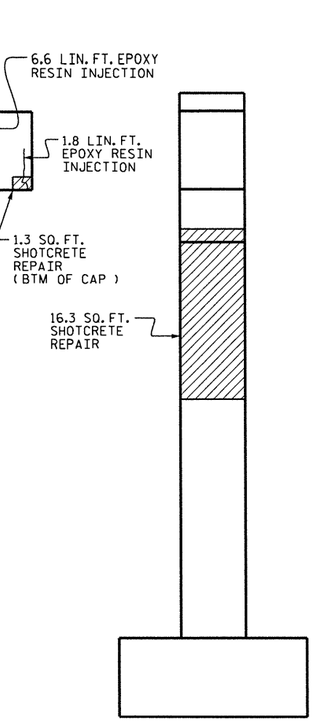
dsnoke



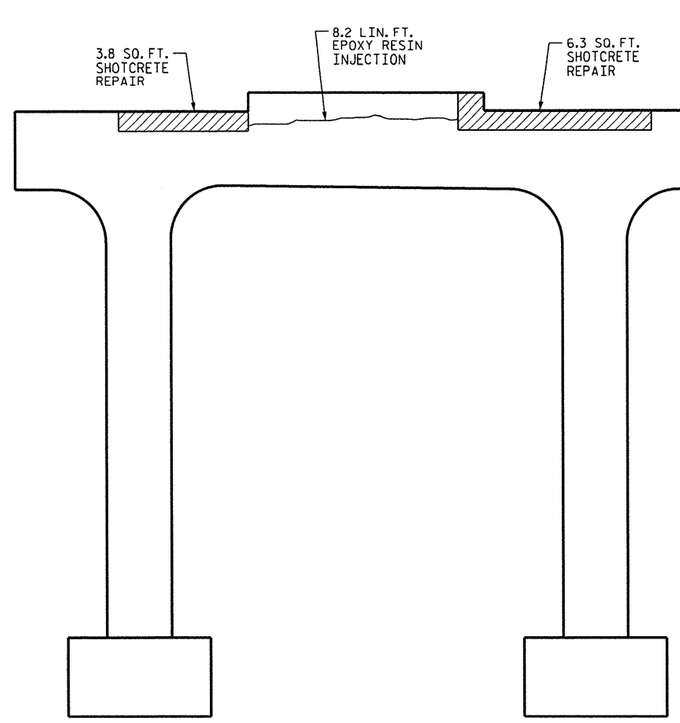
BENT 1 - EAST END



BENT 1 - SPAN A SIDE



BENT 1 - WEST END



BENT 1 - SPAN B SIDE

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	25.2	15.7			
CAP (HORIZONTAL, CORNER)	6.6	4.1			
COLUMN	20.6	15.5			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		25.4			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/8/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 52

SHEET 18 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 3/4/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:38
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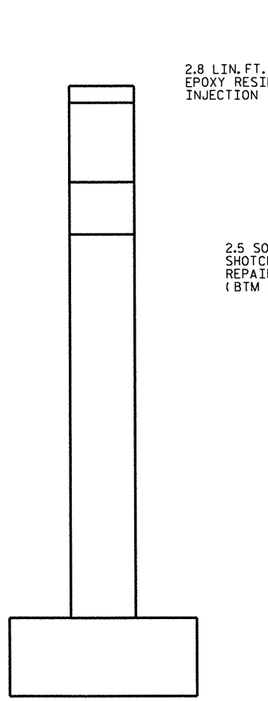

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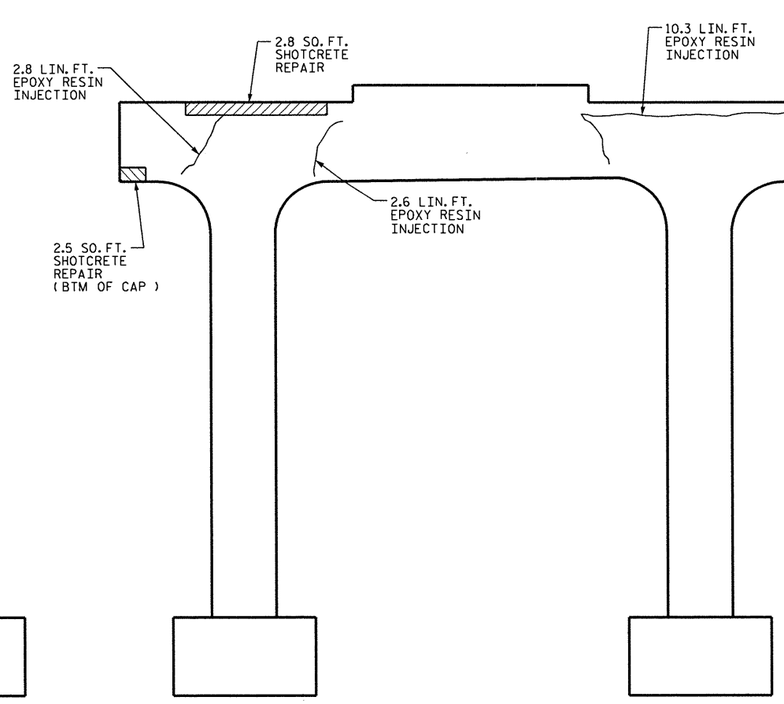
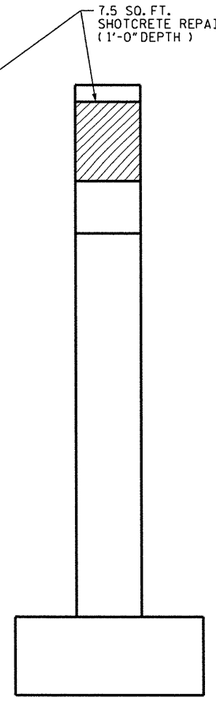
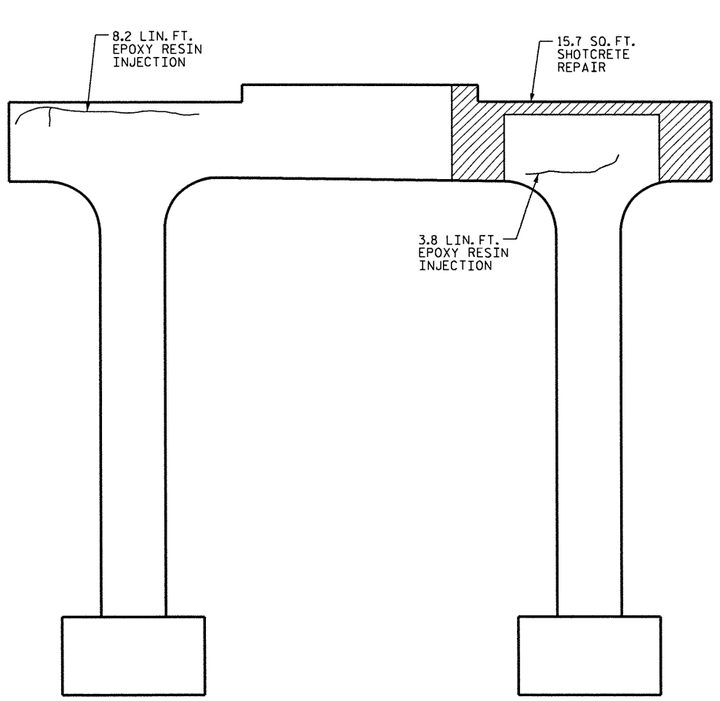


BENT 2 - SPAN B SIDE



BENT 2 - WEST END



BENT 2 - SPAN C SIDE

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	26.0	▲22.8			
CAP (HORIZONTAL, CORNER)	2.5	1.5			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		27.7			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

▲ NOTE THAT A DEPTH OF 1'-0" WAS USED TO CALCULATE THE VOLUME OF SHOTCRETE TO REPAIR THE WEST OF BENT 2 CAP.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/6/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 52

SHEET 19 OF 20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 3/4/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:38
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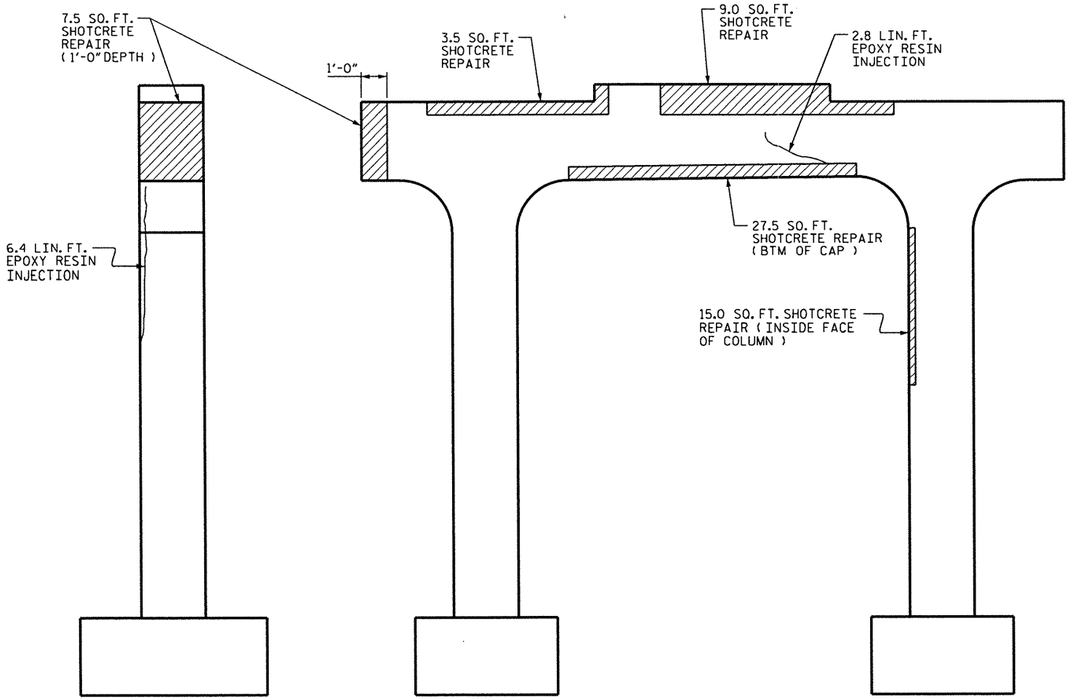
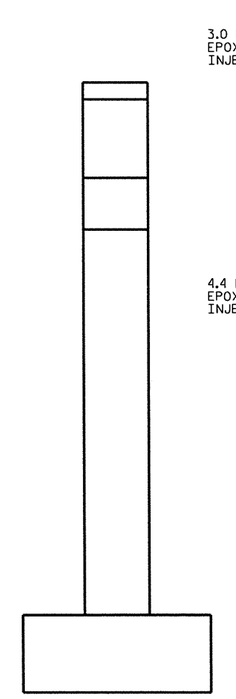
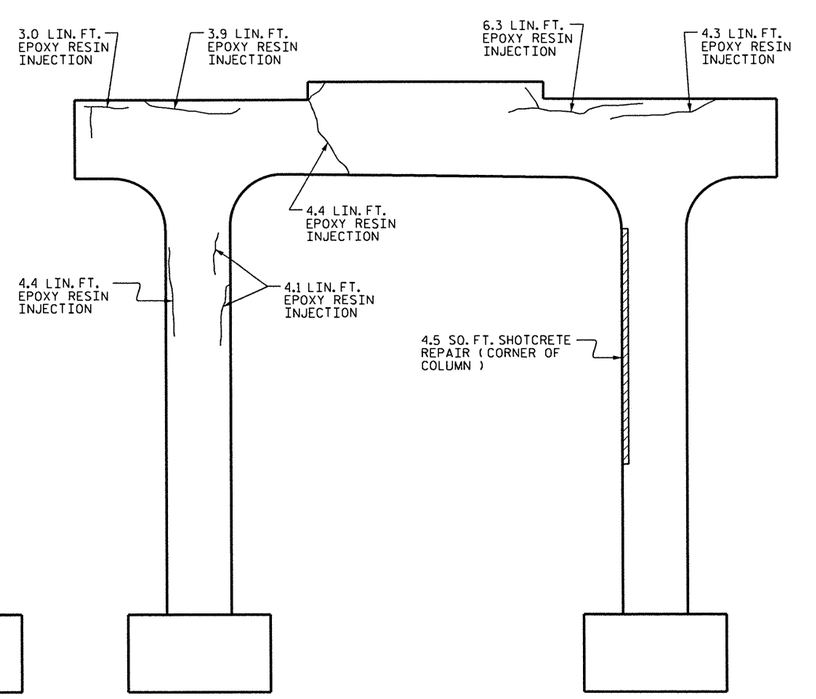


BENT 3 - EAST END

BENT 3 - SPAN C SIDE



BENT 3 - WEST END



BENT 3 - SPAN D SIDE

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	20.0	▲19.0			
CAP (HORIZONTAL, CORNER)	27.5	17.2			
COLUMN	19.5	14.6			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		24.7			
COLUMN		14.9			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

▲ NOTE THAT A DEPTH OF 1'-0" WAS USED TO CALCULATE THE VOLUME OF SHOTCRETE TO REPAIR THE EAST OF BENT 3 CAP.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/6/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 52

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 3/4/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
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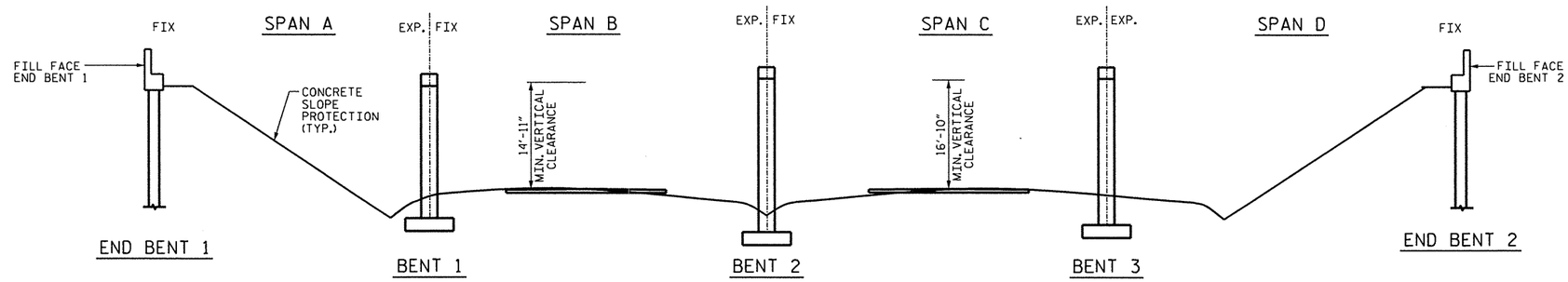
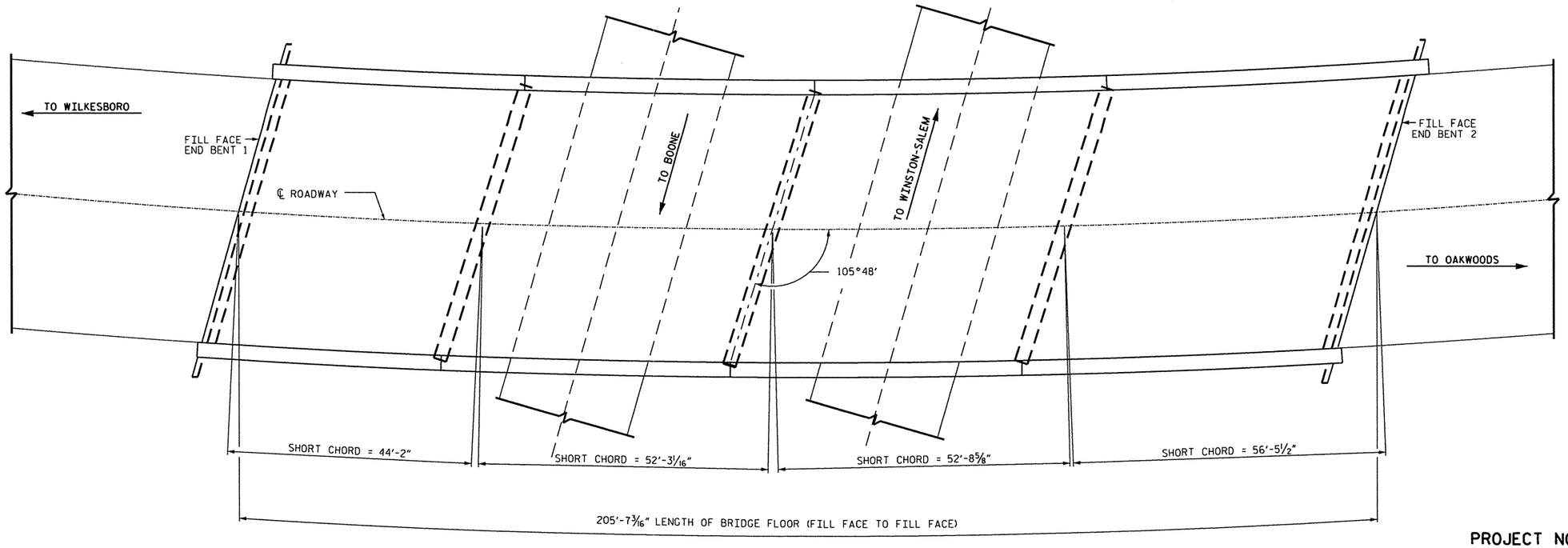


SECTION ALONG ℄ ROADWAY

* PROPOSED VERTICAL CLEARANCE TO BE A MINIMUM OF 15'-6".



PLAN VIEW

SCOPE OF WORK:

- SUBSTRUCTURE REPAIRS.
- BRIDGE JACKING, SPAN B.
- REMOVE AND REPLACE THREE EXISTING BEAMS.
- ADD STUB COLUMN AND BEARINGS.
- DECK OVERLAY
- REPLACE ISLAND

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	REMOVE EXISTING ISLAND	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	GROOVING BRIDGE FLOOR	APPROX. 31,800 LBS. STRUCTURAL STEEL	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE	ELASTOMERIC BEARINGS
SQ.YDS.	TONS	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. FT.	LUMP SUM	SQ.YDS.	SQ.YDS.	C.Y.	SQ.YDS.	LUMP SUM
877	73	226	92	134	9,104	LUMP SUM	208	6	76.2	1,097	LUMP SUM

SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	BRIDGE JACKING BRIDGE #84	PARTIAL REMOVAL OF EXISTING STRUCTURE #84	VOLUMETRIC MIXER	CONCRETE FOR DECK REPAIR	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK
CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	CU. FT.	SQ.YDS.	SQ.YDS.
6.5	53.0	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	27	1,097	1,097

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : S. T. SANDOR DATE : 2/2013
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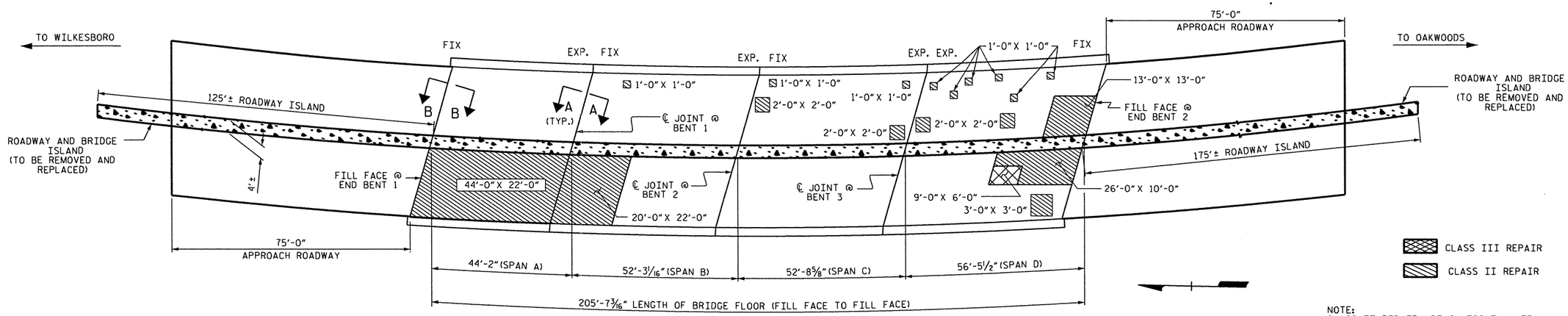
PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 84

SHEET 1 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

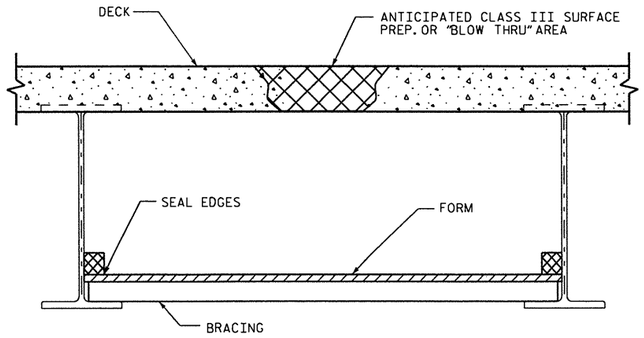
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			84



NOTE:
CLASS II REPAIR AREAS LESS THAN TEN SQUARE FEET INDICATE PATCHED AREAS. ACTUAL SIZE AND LOCATION MAY VARY.

PLAN VIEW

(SEE SHEET S-35 FOR SECTION A-A & B-B)

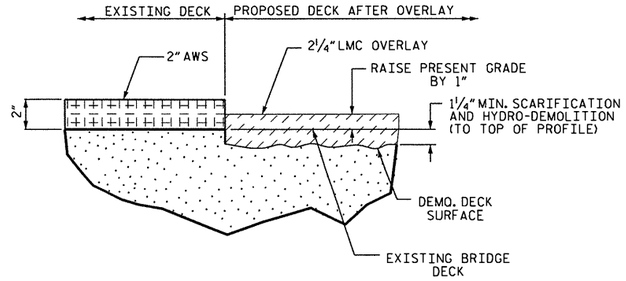


TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COST FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



DECK DEMO. AND OVERLAY DETAIL

NOTES

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

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.

ROADWAY MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF BRIDGE.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK, SEE "TYPICAL "BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRODEMOLITION PROCESS SEE, "MANAGING HYDRODEMOLITION WATER" SPECIAL PROVISION.

FOR "REMOVE AND REPLACE ISLAND", SEE SPECIAL PROVISIONS.

FOR "HYDRO-DEMOLITION OF BRIDGE DECK", SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE WITH "LATEX MODIFIED CONCRETE", SEE SPECIAL PROVISIONS.

FOR "FOAM JOINT SEALS", SEE SPECIAL PROVISIONS.

FOR "ELASTOMERIC CONCRETE", SEE SPECIAL PROVISIONS.

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

FOR "SCARIFYING BRIDGE DECK", SEE SPECIAL PROVISIONS.

FOR "FALSEWORK AND FORMWORK", SEE SPECIAL PROVISIONS.

FOR "CRANE SAFETY", SEE SPECIAL PROVISIONS.

FOR "GROUT FOR STRUCTURES", SEE SPECIAL PROVISIONS.

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

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : S. T. SANDOR DATE : 02/13
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PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 84

SHEET 2 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW

REVISIONS						SHEET NO.
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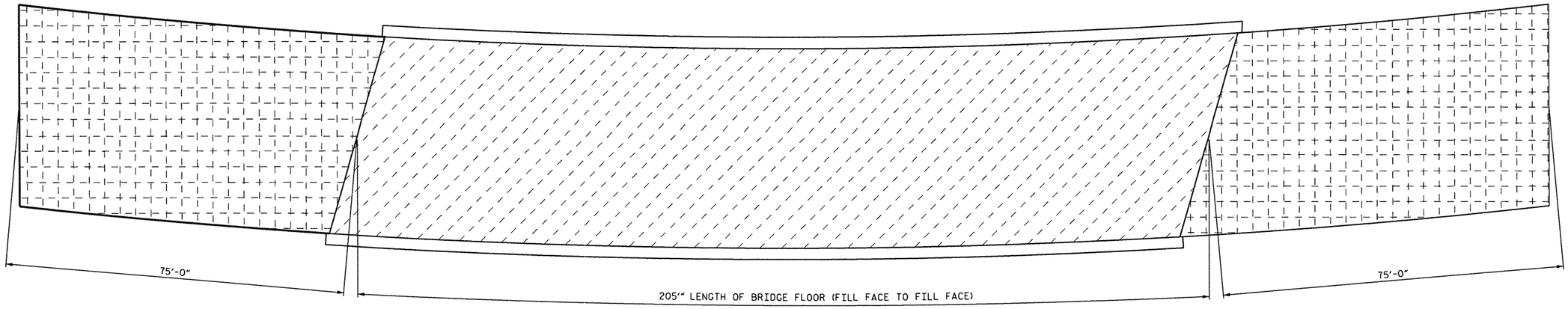
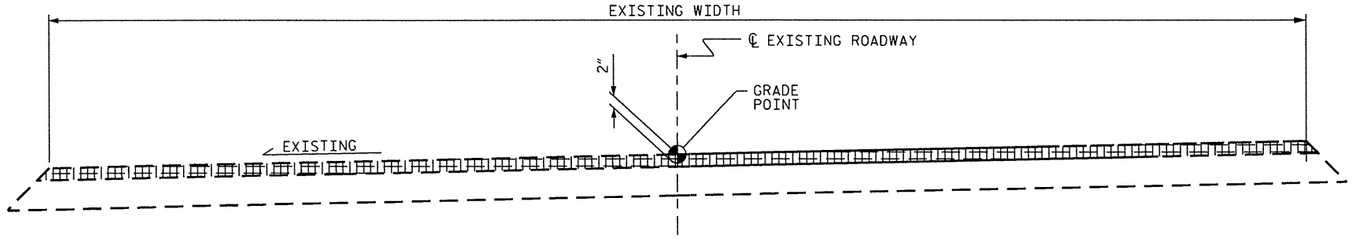
1			3			TOTAL SHEETS
2			4			84



SCARIFYING BRIDGE DECK

INCIDENTAL MILLING

PLAN



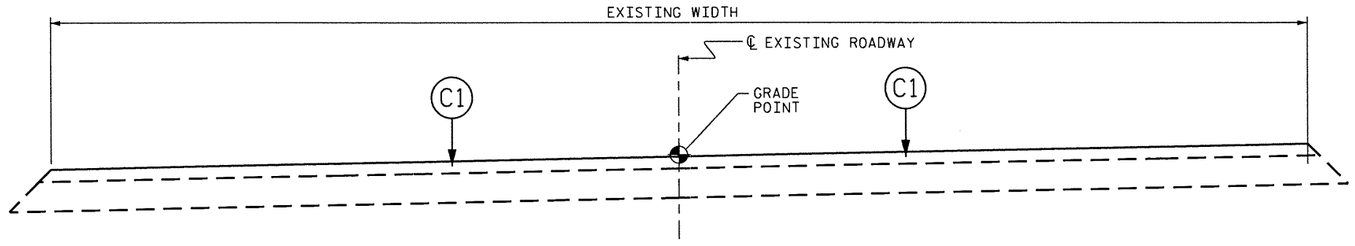
TYPICAL ROADWAY MILLING SECTION

(MILL TO 2" DEPTH - SEE NOTE)

NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY SLABS, AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.



NOT TO SCALE

TYPICAL PROPOSED ROADWAY SECTION

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 84

SHEET 3 OF 13

STATE OF NORTH CAROLINA
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RALEIGH

SCARIFYING AND MILLING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

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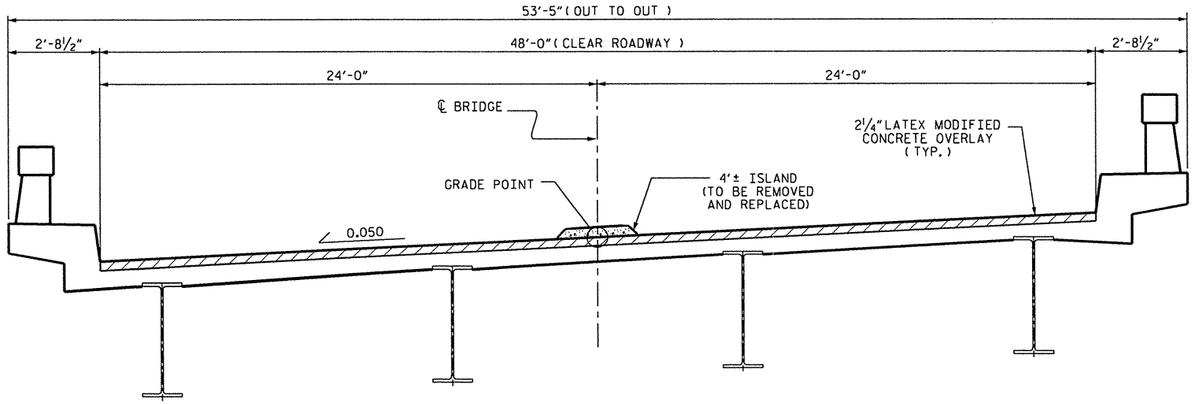
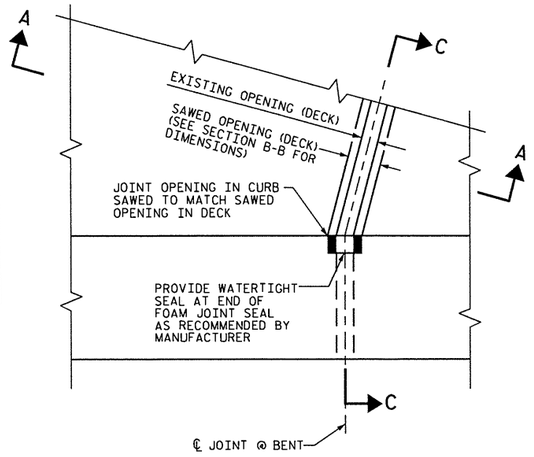
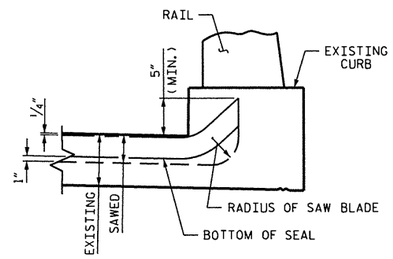


TYPICAL SECTION

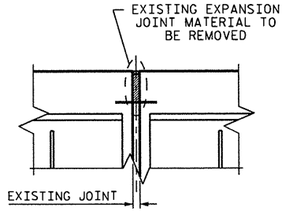


PLAN

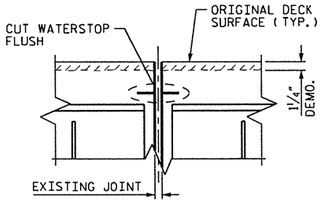


SECTION C-C

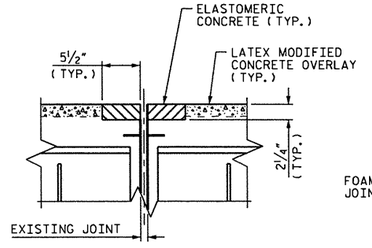
IF THE EMBEDDED PORTION OF THE EXISITNG PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, THE ENTIRE WATERSTOP SHALL BE REMOVED



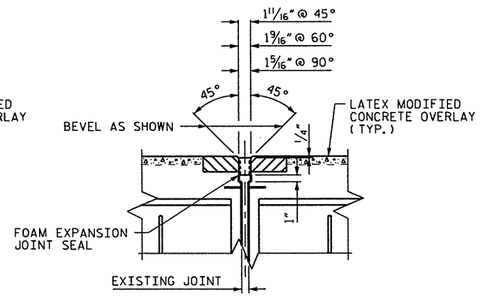
SECTION A-A
(EXISTING)



SECTION B-B
(MINIMUM EXISTING JOINT DEMOLITION)



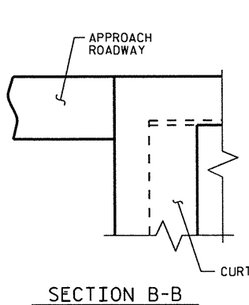
SECTION
(PROPOSED JOINT PRE-SAWED DIMENSIONS)



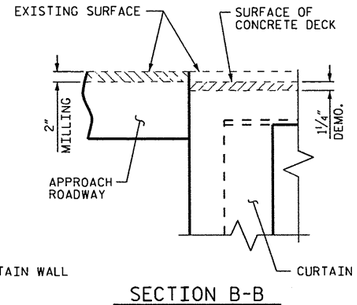
SECTION A-A
(PROPOSED FOAM JOINT SEAL)

ELASTOMERIC CONCRETE		
BENTS	28.7	(CU. FT.)
* TOTAL	28.7	(CU. FT.)

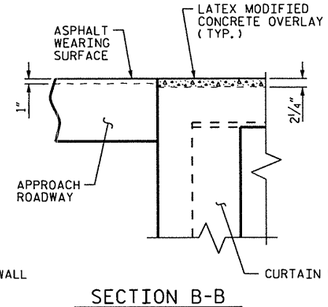
*BASED ON THE MINIMUM BLOCKOUT SHOWN.



SECTION B-B
(EXISTING)



SECTION B-B
(MINIMUM EXISTING DEMOLITION)



SECTION B-B
(PROPOSED)

NOTES:

FOR FOAM JOINT SEAL SEE SPECIAL PROVISIONS.

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".

PROJECT NO. 17BP.11.H.4

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TYPICAL SECTION & JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 2/2013
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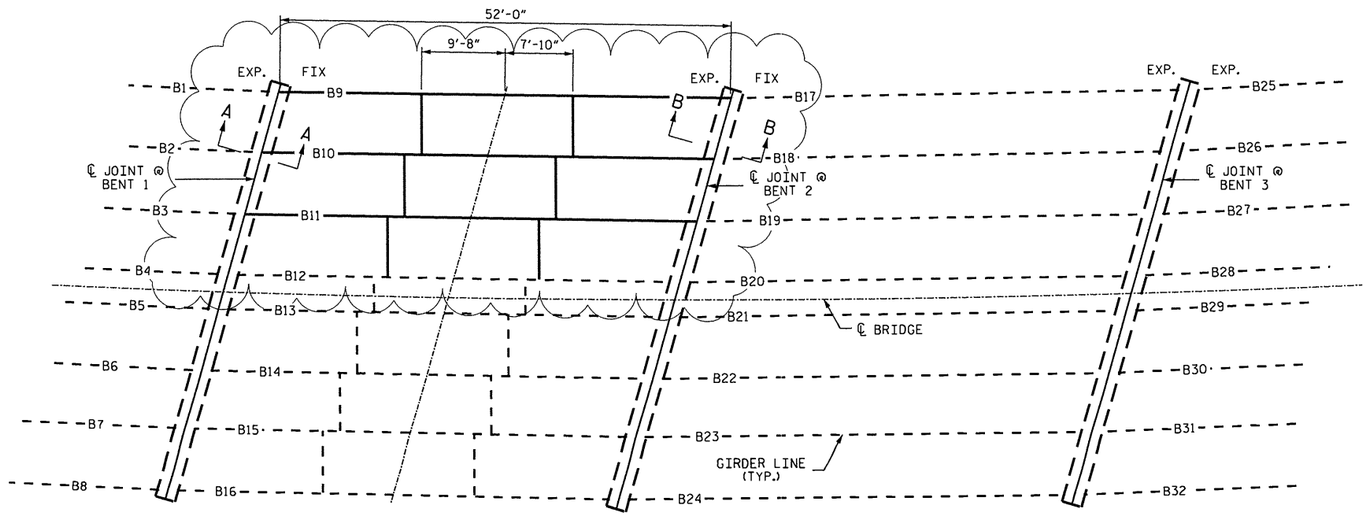
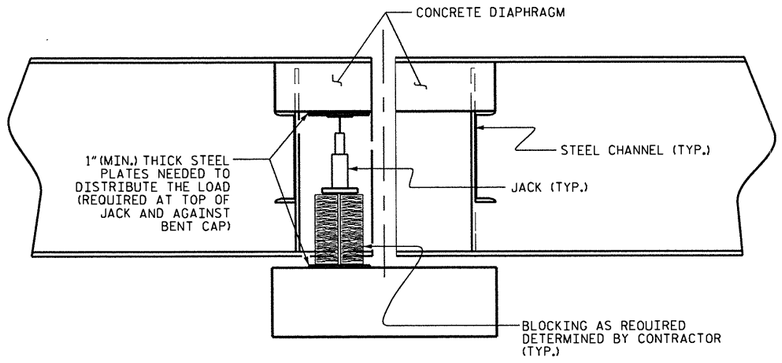
NOTE: EXIST. B9, B10, & B11 (W36X135) TO BE REPLACED WITH NEW ℄ GIRDERS IN SPAN B.



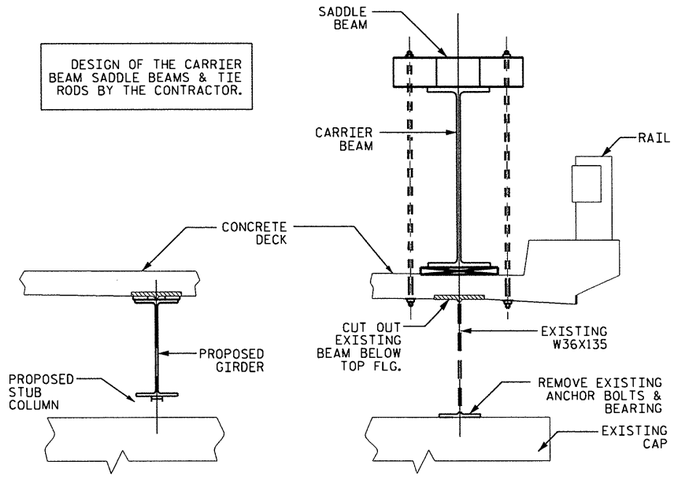
FRAMING PLAN



SECTION THRU DIAPHRAGM

DRAWING PROVIDED AS AN EXAMPLE OF A TYPICAL BRIDGE JACKING SET-UP AND IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL DESIGN AND SUBMIT APPROPRIATE SET-UP FOR SPECIFIC BRIDGE JACKING.

DESIGN OF THE CARRIER BEAM SADDLE BEAMS & TIE RODS BY THE CONTRACTOR.



COMPLETE REPAIR

DURING REPAIR

JACKING NOTES:

CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA FOR REVIEW AND APPROVAL.

THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLANS.

PRIOR TO BRIDGE JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED. THIS MAY INCLUDE BUT NOT LIMITED TO METAL RAILINGS AND UTILITIES.

THE CONTRACTOR MAY NEED TO REINFORCE EXISTING BRIDGE MEMBERS OR ADD MEMBERS TO WITHSTAND THE JACKING FORCES.

PROVISIONS SHALL BE MADE TO ACCOUNT FOR THERMAL MOVEMENTS OR LATERAL FORCES SUCH AS WIND LOADS DURING THE PERIOD THAT THE STRUCTURE IS RESTING ON THE TEMPORARY SUPPORTS.

ALL JACKS AND JACKING SUPPORTS SHALL BE PLUMB.

EACH HYDRAULIC JACK SHALL HAVE A RATED CAPACITY CLEARLY SHOWN, WITH MINIMUM RATED CAPACITY OF 1.3 TIMES THE CALCULATED LOAD REACTION ADJACENT TO THE POINT OF JACKING.

JACKS WITHOUT A MECHANICAL LOAD HOLDER (LOCK-OFF) SHALL BE SECURED BY BLOCKING IF THE JACKING OPERATION IN ANY ONE LOCATION LASTS LONGER THAN 30 MINUTES.

HYDRAULIC SYSTEM SHALL BE CONNECTED SUCH THAT ALL JACKS LIFT SIMULTANEOUSLY.

LIFTING FRAME SHALL EXTEND BEYOND THE LENGTH OF THE LIFTED SPAN AND PROVIDE BEARINGS AT THE SAME LOCATION AS THE ADJACENT GIRDER BEARINGS.

CONTRACTOR SHALL SHIM BRIDGE SPAN DURING JACKING SUCH THAT THE MAXIMUM UNSHIMMED LIFT IS 1".

CONTRACTOR SHALL PROVIDE SPAN LIFT POINTS AS CLOSE AS POSSIBLE TO THE FACE OF BENT CAP.

IF DURING THE JACKING PROCESS OR WHILE THE SPAN IS BEING SUPPORTED, THE BEAMS SHIFT FROM THEIR ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

ALL ADJACENT BEARINGS OF BEAMS NOT BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARING LOOSENED SHALL BE TIGHTENED BACK AFTER THE BEAMS ARE REPAIRED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

PRIOR TO INSTALLING BEARING PEDESTALS AND NEW BEARINGS, CONTRACTOR SHALL MAKE ANY REPAIRS TO BENTS AS REQUIRED IN THE CONTRACT DOCUMENTS.

TRAFFIC SHALL NOT BE ALLOWED ON THE STRUCTURE UNTIL THE WORK REQUIRED BY THE CONTRACT DOCUMENTS IS COMPLETE.

FOR ADDITIONAL INFORMATION ON "BRIDGE JACKING", SEE SPECIAL PROVISIONS.

FOR ADDITIONAL NOTES, SEE "REPLACEMENT BEAM AND DIAPHRAGMS" SHEET.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 84

SHEET 5 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EXISTING SUPERSTRUCTURE

FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R.PUTEK DATE : 12/12
CHECKED BY : D. N. SNOKE DATE : 03/13
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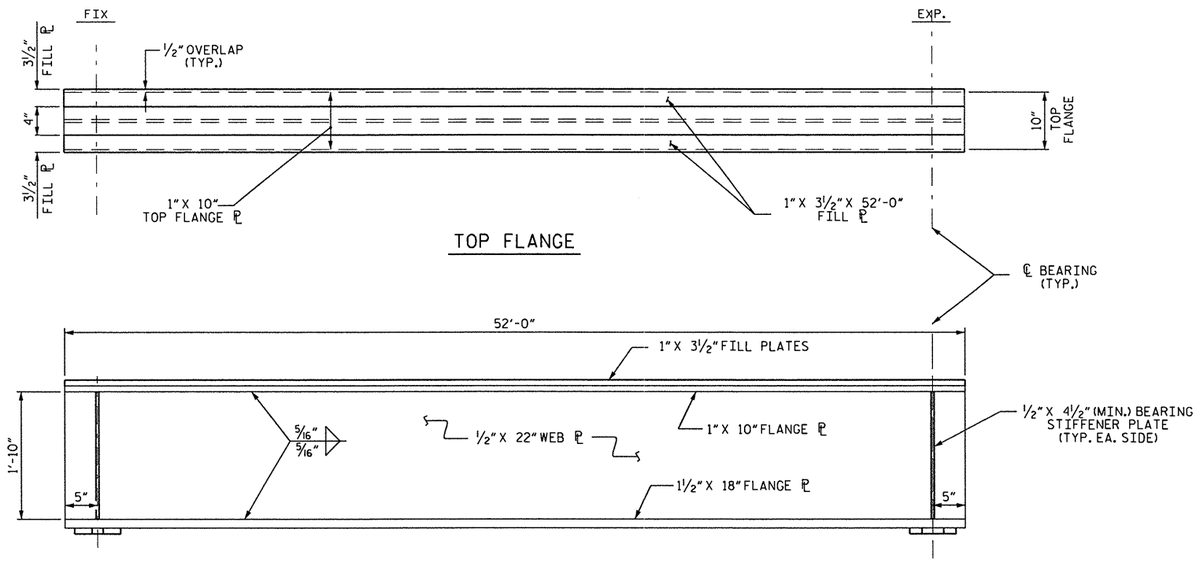
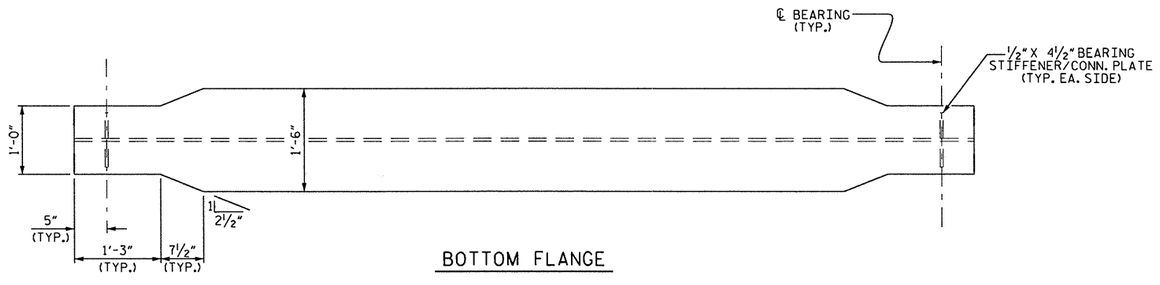


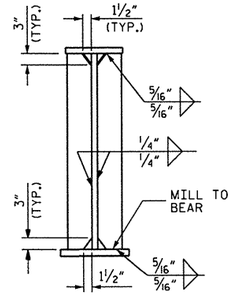
TOP FLANGE

ELEVATION

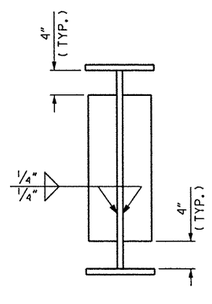
(CONNECTOR PLATES NOT SHOWN FOR CLARITY)



BOTTOM FLANGE

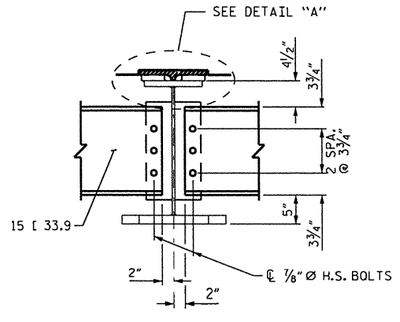


BEARING STIFFENER



INTERMEDIATE CONNECTOR ℄

ONLY ONE SIDE SHOWN FOR CLARITY



TYPICAL DIAPHRAGM CONNECTION DETAIL

NOTES:

THE CONTRACTOR MAY RETAIN AND CLEAN THE EXISTING INTERMEDIATE DIAPHRAGMS FOR RE-USE.

THE CONTRACTOR IS RESPONSIBLE TO EVALUATE THE STRUCTURAL CONDITION OF THE EXISTING INTERMEDIATE DIAPHRAGMS.

THE CONTRACTOR SHALL DRILL HOLES IN DIAPHRAGM OR CONNECTION PLATE AS NECESSARY TO ATTACH THE DIAPHRAGM TO THE BEAM.

IF EXISTING DIAPHRAGMS ARE NOT ACCEPTABLE FOR RE-USE, FABRICATE NEW DIAPHRAGMS TO MATCH EXISTING DIAPHRAGMS IN GOOD CONDITION.

ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

ALL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.

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.

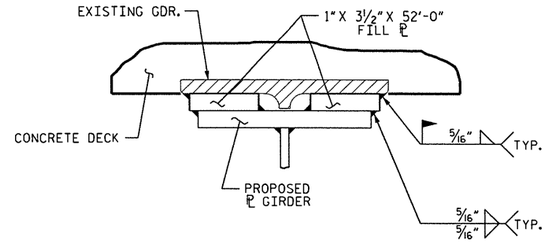
WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY TO MATCH EXISTING.

REMOVE PAINT OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS PRIOR TO WELDING.

AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE PAINT HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER ARTICLE 442-11 OF THE STANDARD SPECIFICATION.

THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.

TOTAL CAMBER SHALL BE 1¼" UPWARD



DETAIL "A"

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 84

SHEET 6 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REPLACEMENT BEAM AND DIAPHRAGMS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : R. PUTEK DATE : 12/12
CHECKED BY : D. N. SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: DATE :

23-APR-2013 09:38
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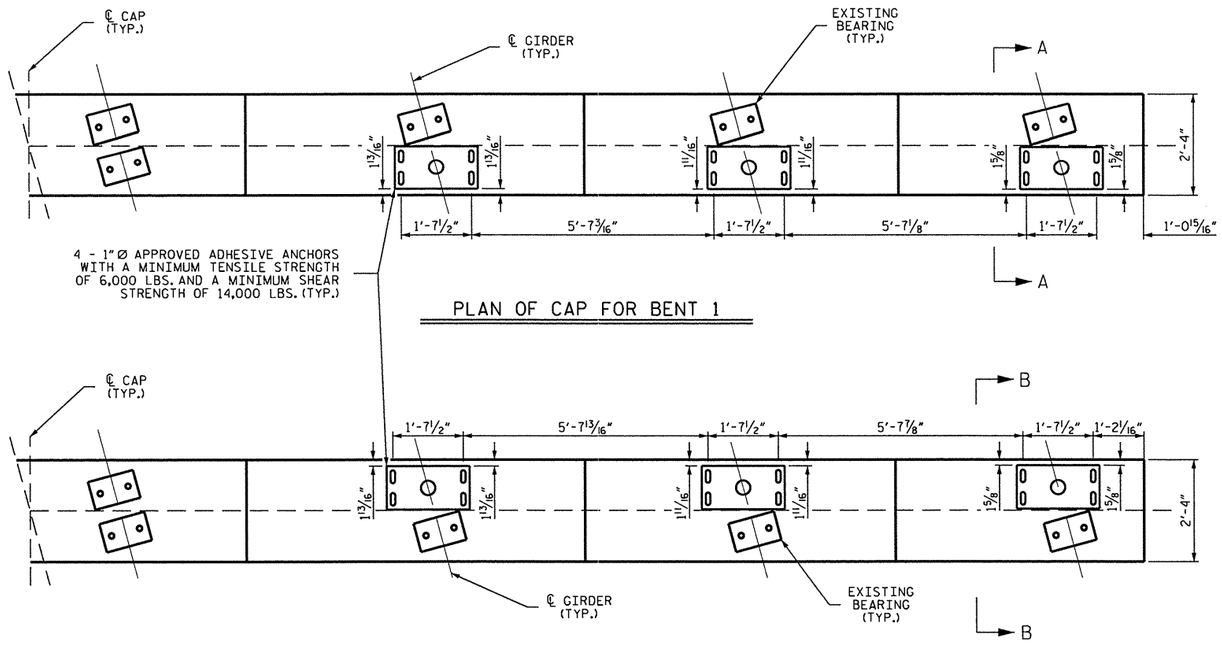
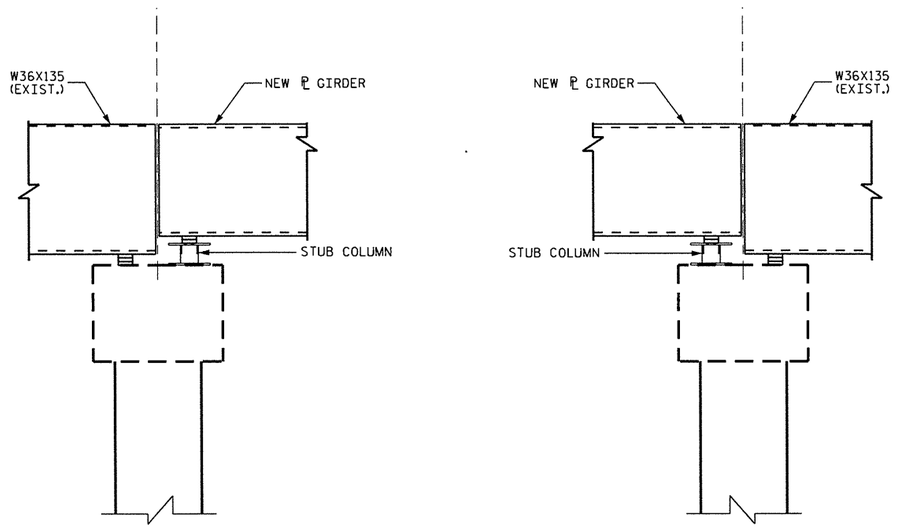




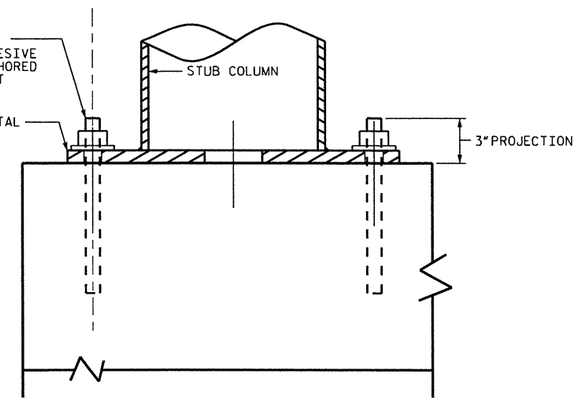
NOTES

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

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1"Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 9", OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER.

NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION
ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 18,000 LBS. TENSION.



PROPOSED ADHESIVE ANCHOR DETAIL

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 84

SHEET 7 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT
(INTERIOR BENTS)

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R. PUTEK DATE : 11/12
CHECKED BY : D. N. SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: DATE :

23-APR-2013 09:38
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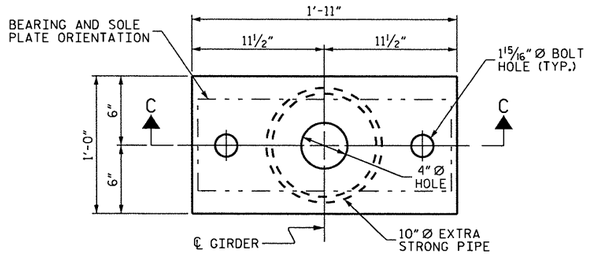
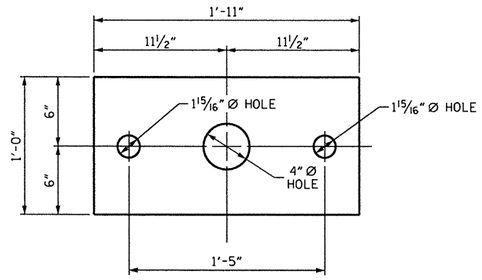
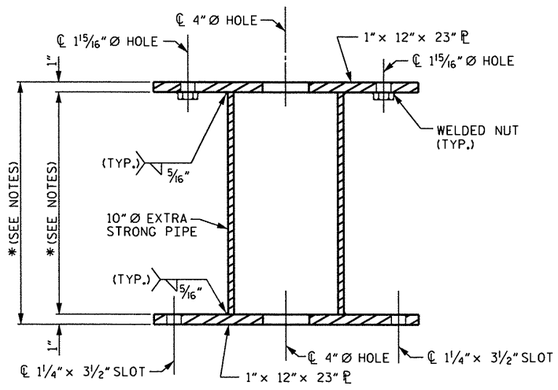


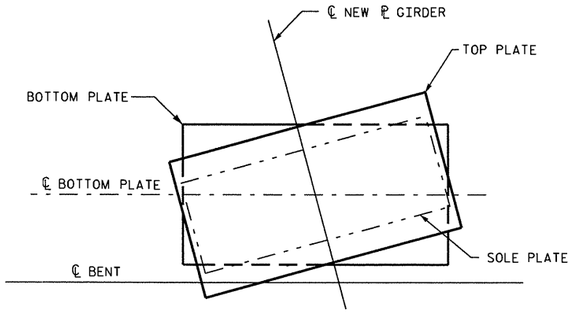
TOP PLATE PLAN



TOP PLATE

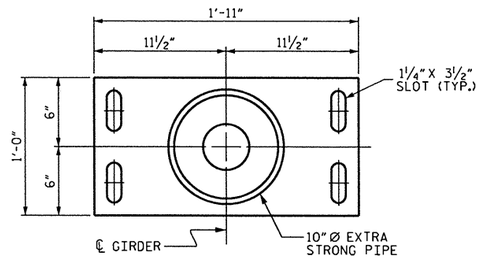


SECTION C-C

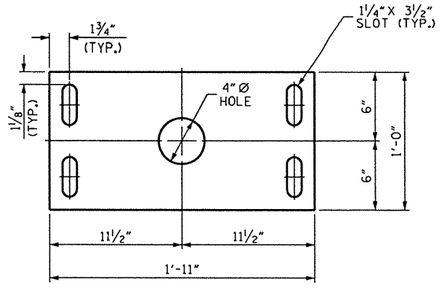


TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)

(HOLES & SLOTS HAVE BEEN OMITTED FOR CLARITY)



BOTTOM PLATE PLAN



BOTTOM PLATE

NOTES:

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 10" 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 SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.

ALL BOLTS, NUTS, AND WASHERS 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 PAINTED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE REPAINTED, AS OUTLINED IN ARTICLE 442-11 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 MINIMUM 7" TO THE VERTICAL CLEARANCE OF THE BRIDGE. THE CONTRACTOR SHALL FIELD VERIFY APPROPRIATE EXISTING ELEVATIONS. USING THIS ELEVATION INFORMATION WITH DIMENSIONS OF THE NEW GIRDER, BEARING, AND OTHER COMPONENTS, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE HEIGHT OF EACH PEDESTAL.

STUB COLUMN DETAILS

(STUB COLUMN - 6 REQUIRED)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 84

SHEET 8 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURAL STEEL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R. PUTEK DATE : 11/12
CHECKED BY : D. N. SNOKE DATE : 03/13
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23-APR-2013 09:38
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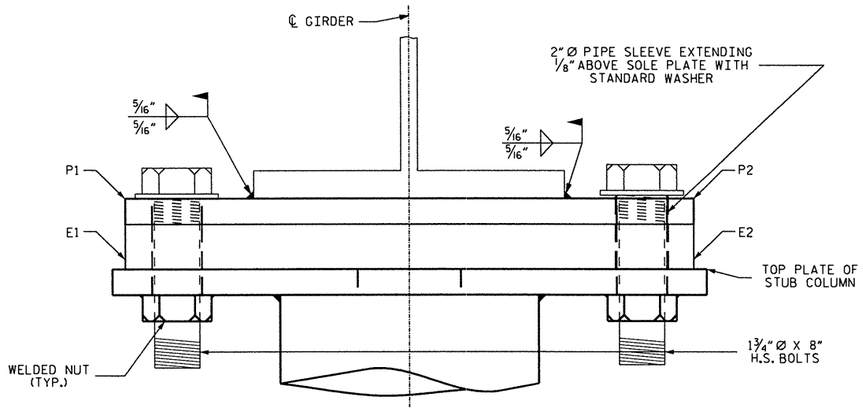
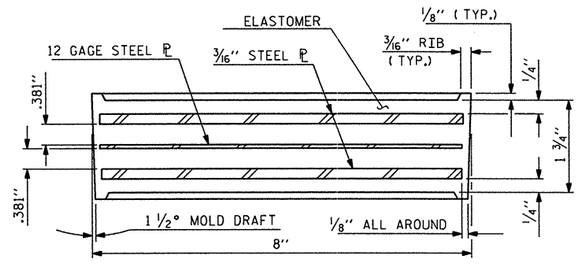
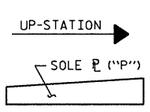


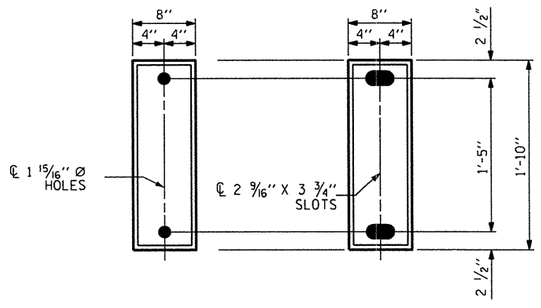
END VIEW @ BENTS



TYPICAL SECTION OF ELASTOMERIC BEARINGS



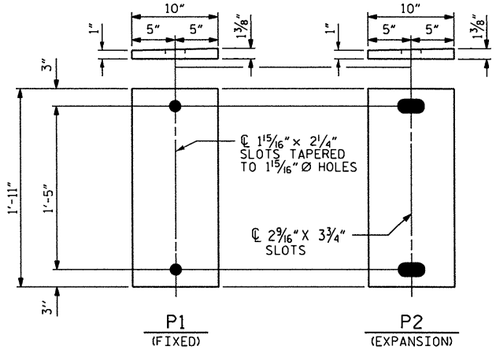
SOLE ℙ PLACEMENT DETAIL



E1 (3 REQ'D) E2 (3 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE I



P1 (3 REQ'D) P2 (3 REQ'D)

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 PREPARED AND SHALL RECEIVE TWO COATS OF ORGANIC ZINC REPAIR PAINT, AS OUTLINED IN ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR HIGH STRENGTH BOLTS, SEE STANDARD SPECIFICATIONS.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 ksi, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

LOAD RATINGS	
	MAX.D.L.+L.L.
TYPE I	140 K

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 84

SHEET 9 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R. PUTEK DATE : 11/12
CHECKED BY : D. N. SNOKE DATE : 03/13
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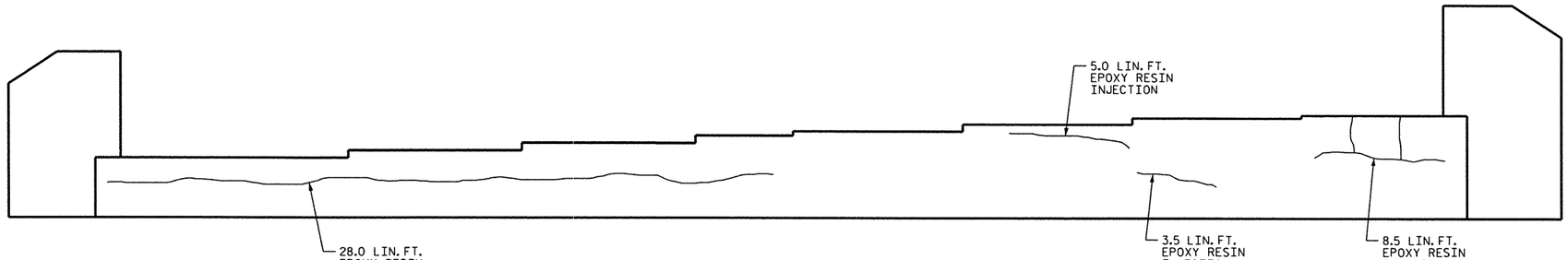
END BENT 1
(LOOKING NORTH)



END BENT 2
(LOOKING SOUTH)

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

BENT DIAPHRAGMS AND OTHER CONCRETE COMPONENTS MAY BE REPAIRED UNDER SHOTCRETE REPAIRS OR CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "BENT 1" SHEET.

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		6.5			

REPAIRS END BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		45.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
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STATE OF NORTH CAROLINA
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RALEIGH

END BENT 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 3/5/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
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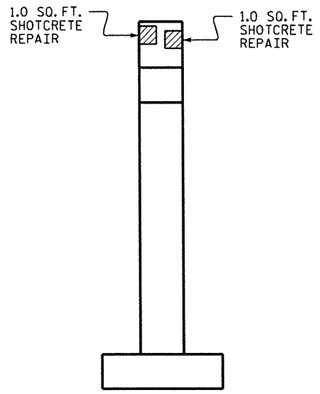
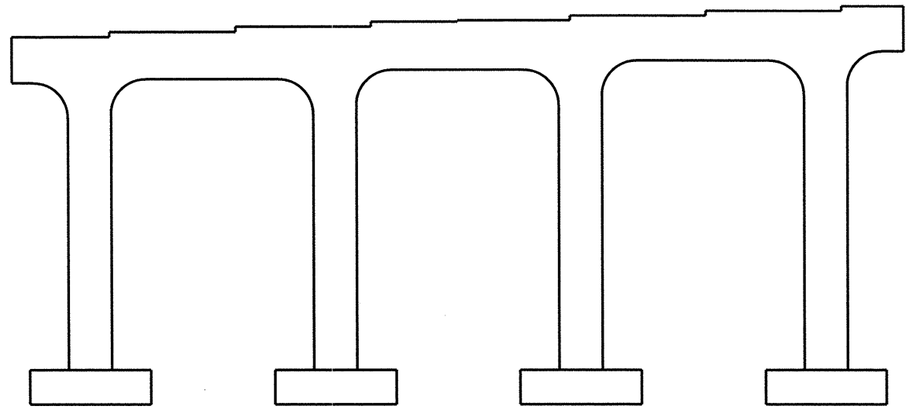


BENT 1 - EAST END



BENT 1 - SPAN A SIDE

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	2	1.2			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

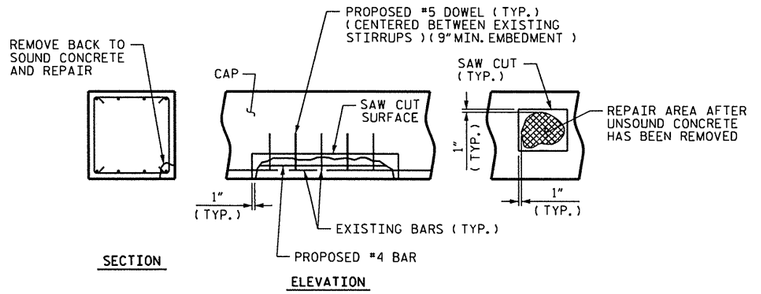
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

NO DAMAGE OBSERVED ON BENT 1-SPAN A OR B SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

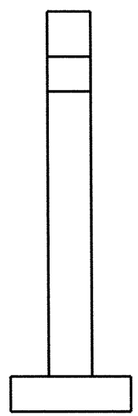
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES SEE "END BENT 1 & 2" SHEET.

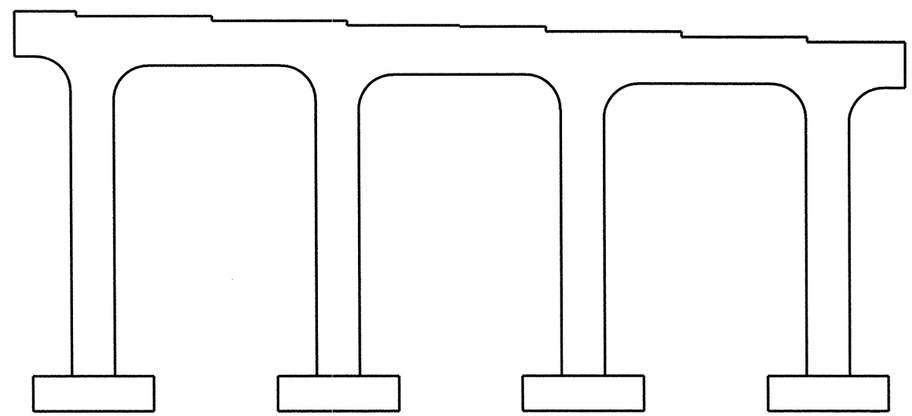


CORNER REPAIR FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAIL



BENT 1 - WEST END



BENT 1 - SPAN B SIDE

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 84

SHEET 11 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : P.C. BREWER DATE : 3/5/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
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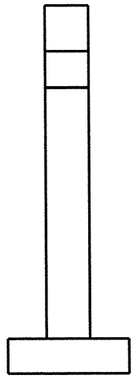

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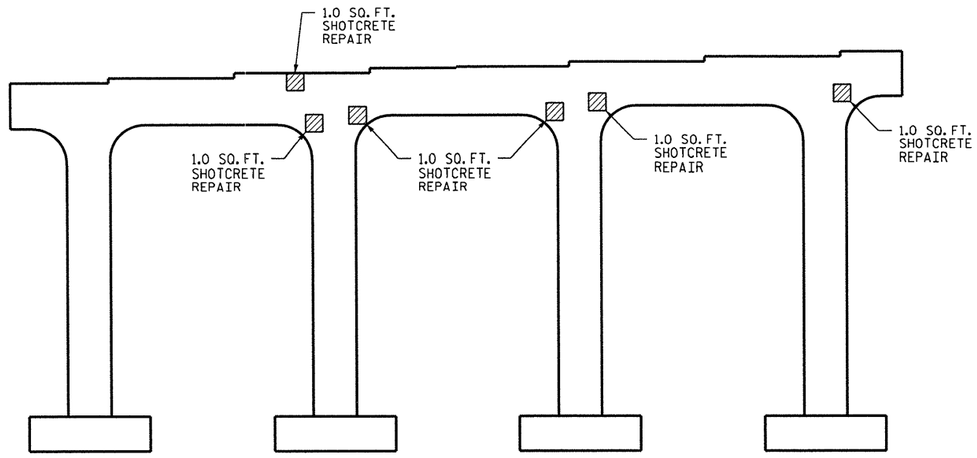
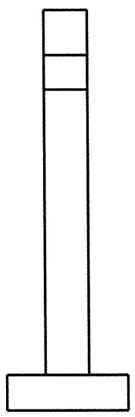


BENT 2 - SPAN B SIDE



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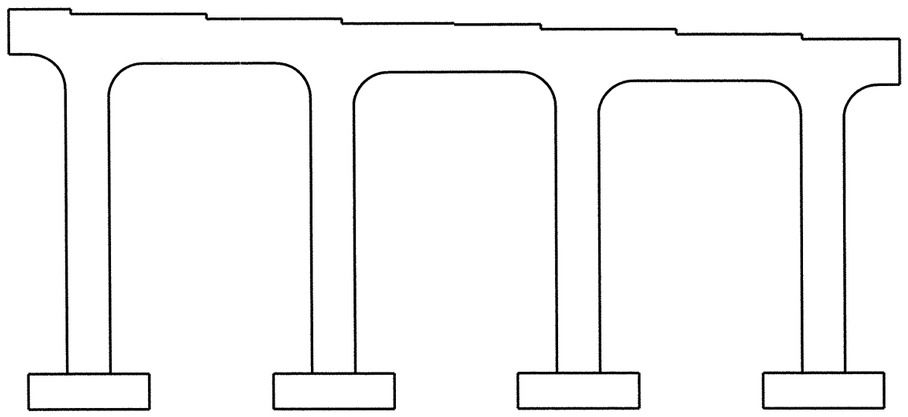

BENT 2 - SPAN C SIDE

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	6.0	3.8			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

NO DAMAGE OBSERVED ON BENT 2 - SPAN C SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "BENT 1" SHEET.

FOR ADDITIONAL NOTES, SEE "END BENT 1 & 2" SHEET.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 84
SHEET 12 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			84

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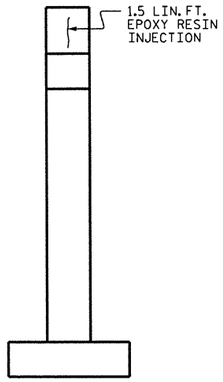

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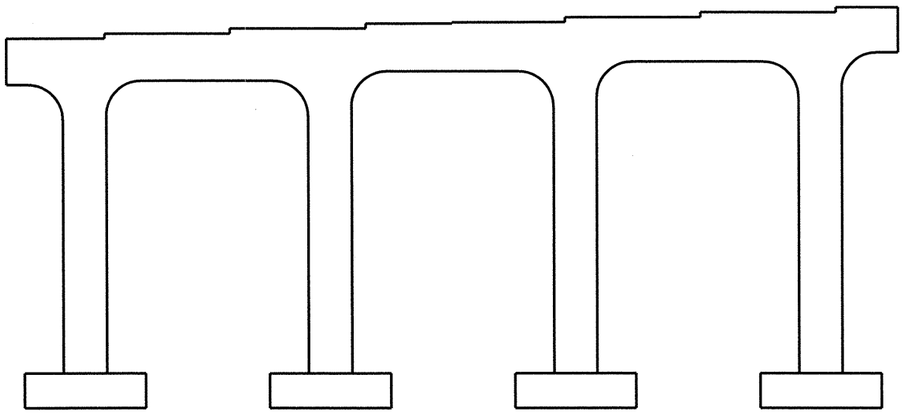


BENT 3 - SPAN C SIDE

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	2.3	1.5			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		1.5			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

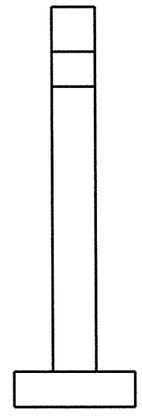
NOTES:

NO DAMAGE OBSERVED ON BENT 3 - SPAN C SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "BENT 1" SHEET.

FOR ADDITIONAL NOTES, SEE "END BENT 1 & 2" SHEET.



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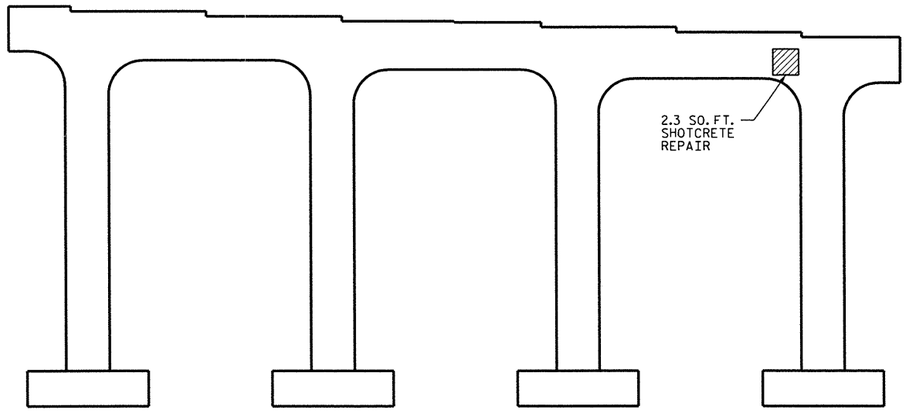

BENT 3 - SPAN D SIDE

3/11/13

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 84

SHEET 13 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			84

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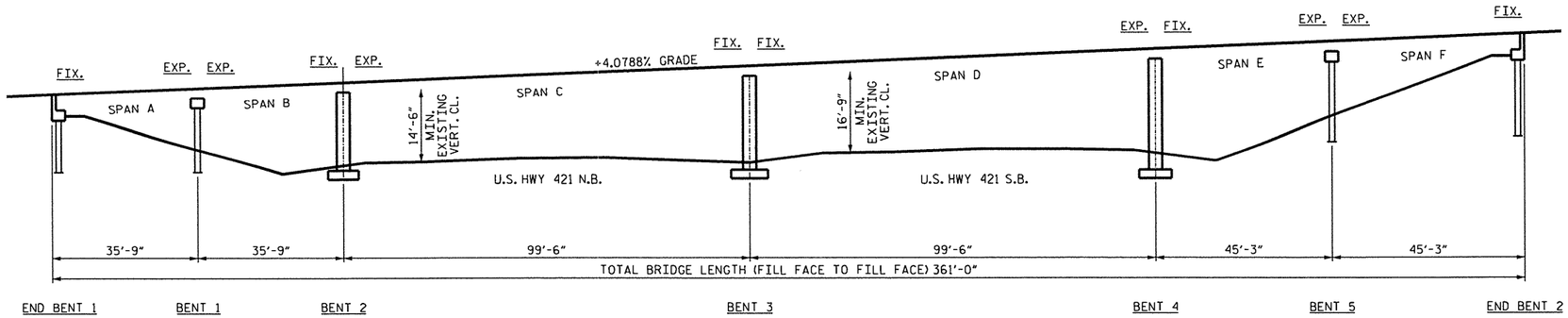
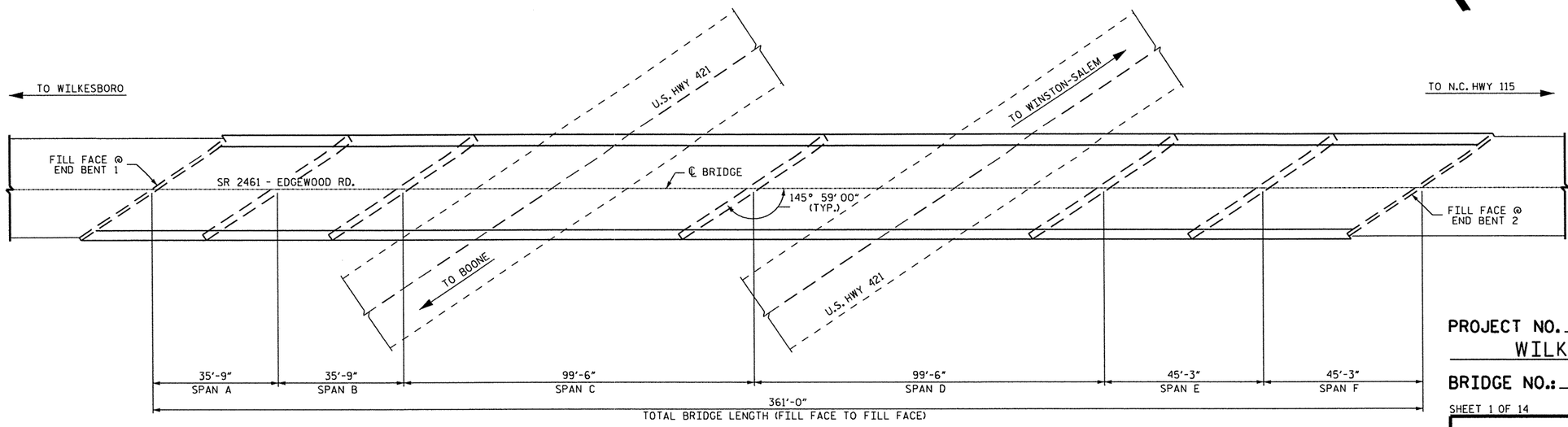
SCOPE OF WORK:

- BRIDGE JACKING, SPANS A, B, C, D, AND PART OF E.
- EB1 CURTAIN WALL WORK
- ADD STUB COLUMN AND BEARINGS.
- APPROACH WORK
- DECK OVERLAY



SECTION ALONG ℄ OF ROADWAY

* PROPOSED VERTICAL CLEARANCE TO BE A MINIMUM OF 15'-6".



PLAN VIEW

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

SHEET 1 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			84

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CHECKED BY :	D.SNOKE	DATE : 03/13
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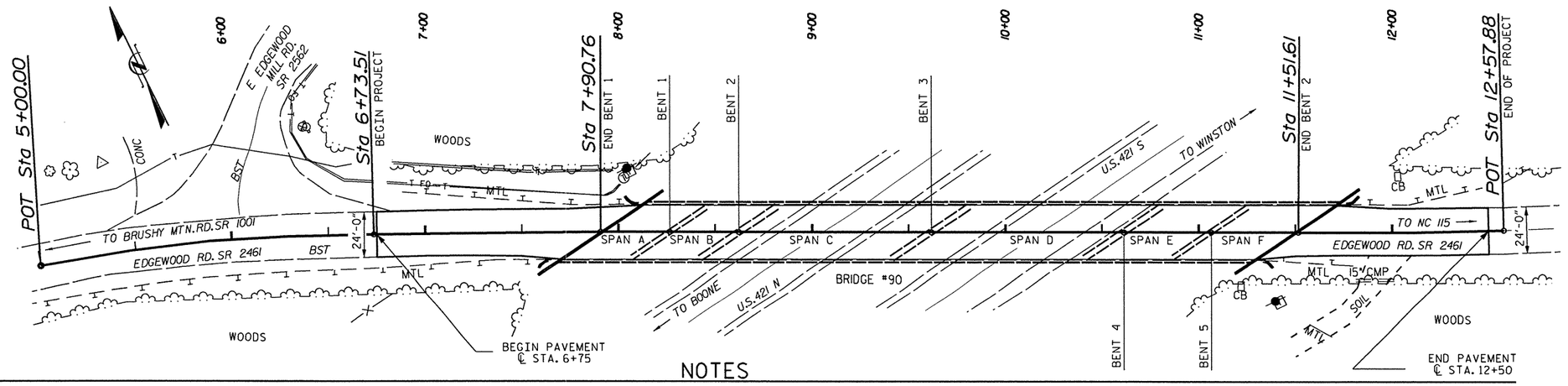

NOTES

CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA FOR
REVIEW AND APPROVAL.

THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLANS.

PRIOR TO BRIDGE JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED. THIS MAY INCLUDE BUT NOT LIMITED TO METAL RAILINGS AND UTILITIES.

THE CONTRACTOR MAY NEED TO REINFORCE EXISTING BRIDGE MEMBERS OR ADD MEMBERS TO WITHSTAND THE JACKING FORCES.

PROVISIONS SHALL BE MADE TO ACCOUNT FOR THERMAL MOVEMENTS OR LATERAL FORCES SUCH AS WIND LOADS DURING THE PERIOD THAT THE STRUCTURE IS RESTING ON THE TEMPORARY SUPPORTS.

ALL JACKS AND JACKING SUPPORTS SHALL BE PLUMB.

EACH HYDRAULIC JACK SHALL HAVE A RATED CAPACITY CLEARLY SHOWN, WITH MINIMUM RATED CAPACITY OF 1.3 TIMES THE CALCULATED LOAD REACTION ADJACENT TO THE POINT OF JACKING.

JACKS WITHOUT A MECHANICAL LOAD HOLDER (LOCK-OFF) SHALL BE SECURED BY BLOCKING IF THE JACKING OPERATION IN ANY ONE LOCATION LASTS LONGER THAN 30 MINUTES.

HYDRAULIC SYSTEM SHALL BE CONNECTED SUCH THAT ALL JACKS LIFT SIMULTANEOUSLY.

LIFTING FRAME SHALL EXTEND BEYOND THE LENGTH OF THE LIFTED SPAN AND PROVIDE BEARINGS AT THE SAME LOCATION AS THE ADJACENT GIRDER BEARINGS.

CONTRACTOR SHALL SHIM BRIDGE SPAN DURING JACKING SUCH THAT THE MAXIMUM UNSHIMMED LIFT IS 1".

CONTRACTOR SHALL PROVIDE SPAN LIFT POINTS AS CLOSE AS POSSIBLE TO THE FACE OF BENT CAP.

IF DURING THE JACKING PROCESS OR WHILE THE SPAN IS BEING SUPPORTED, THE BEAMS SHIFT FROM THEIR ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

WHEN ONE END OF A SPAN IS BEING JACKED TO AN UNEQUAL ELEVATION FROM THE OPPOSITE END, ALL BEARINGS IN THAT SPAN SHALL BE LOOSENED TO DECREASE
THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARING LOOSENED SHALL BE TIGHTENED BACK AFTER THE BEAMS ARE REPAIRED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

PRIOR TO INSTALLING BEARING PEDESTALS AND NEW BEARINGS, CONTRACTOR SHALL MAKE ANY REPAIRS TO BENTS AS REQUIRED IN THE CONTRACT DOCUMENTS.

TRAFFIC SHALL NOT BE ALLOWED ON THE STRUCTURE UNTIL THE WORK REQUIRED BY THE CONTRACT DOCUMENTS IS COMPLETE.

FOR ADDITIONAL INFORMATION ON "BRIDGE JACKING", SEE SPECIAL PROVISIONS.

FOR ADDITIONAL NOTES, SEE "REPLACEMENT BEAM AND DIAPHRAGMS" SHEET.

THE PROPOSED PEDESTALS ARE INTENDED TO ADD MIN 12" TO THE LOWEST VERTICAL CLEARANCE OF THE BRIDGE. THE CONTRACTOR SHALL FIELD VERIFY APPROPRIATE EXISTING ELEVATIONS. USING THE TABLE BELOW, AND MEASUREMENTS TAKEN IN THE FIELD, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE HEIGHT OF EACH PEDESTAL.

LOCATION	FINAL ELEVATION INCREASE (DUE TO JACKING)
END BENT 1	6"
BENT 1	9"
BENT 2	12"
BENT 3	13"
BENT 4	7"
BENT 5	0"
END BENT 2	0"

CONSTRUCTION SEQUENCE:
(VARIATIONS TO SPAN SEQUENCE ARE ALLOWED)

1. CONSTRUCT JACKING SUPPORT AT END BENT, CONTRACTOR SHALL MAKE SURE CURTAIN WALL IS FULLY DETACHED FROM END BENT CAP, WINGS, AND FILL.

2. CONSTRUCT THE LIFTING FRAME (FOR SPAN A) MAKING SURE SYSTEM IS LEVEL. INSTALL BLOCKING AS NECESSARY.

3. LIFT SPAN A TO REQUIRED ELEVATION AND INSTALL BEARING PEDESTALS AND NEW BEARINGS. PRIOR TO INSTALLING BEARING PEDESTALS AND NEW BEARINGS, CONTRACTOR SHALL MAKE ANY REPAIRS TO BENTS AS REQUIRED IN THE CONTRACT DOCUMENTS.

4. CONSTRUCT END BENT AND BENT MODIFICATIONS AS SHOWN IN THE CONTRACT DOCUMENTS. END BENT MODIFICATIONS NECESSARY TO ANCHOR THE SPAN SHALL BE COMPLETED PRIOR TO PROCEEDING.

5. SHIFT LIFT SYSTEM TO SPAN B AND REPEAT STEPS 2 THROUGH 4.

6. SHIFT LIFT SYSTEM TO SPAN C AND REPEAT STEPS 2 THROUGH 4.

7. SHIFT LIFT SYSTEM TO SPAN D AND REPEAT STEPS 2 THROUGH 4.

8. PREPARE DECK AND PLACE LATEX MODIFIED CONCRETE OVERLAY.

9. FINISH REMAINING REPAIRS AND MODIFICATIONS AS INDICATED IN CONTRACT DOCUMENTS. REMOVE TRAFFIC CONTROL MEASURES AND OPEN BRIDGE TO TRAFFIC.

TOTAL BILL OF MATERIAL

BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION 7+90.76	AGGREGATE BASE COURSE	INCIDENTAL MILLING	ASPHALT CONCRETE BASE COURSE TYPE B25.0B	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	REMOVE & RESET EXISTING GUARDRAIL	GROOVING BRIDGE FLOOR	APPROX. 9,500 LBS. STRUCTURAL STEEL
LUMP SUM	TONS	SQ. YDS.	TONS	TONS	LIN. FT.	SQ. FT.	LUMP SUM
LUMP SUM	13	494	24	55	220	8,595	LUMP SUM

LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	BRIDGE JACKING BRIDGE #90	CURTAIN WALL REHABILITATION	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK
C.Y.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	SQ. YDS.	SQ. YDS.
46.8	1,123.1	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	1,123.1	1,123.1

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING AND BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R.PUTEK DATE : 03/13
CHECKED BY : D.SNOKE DATE : 03/13
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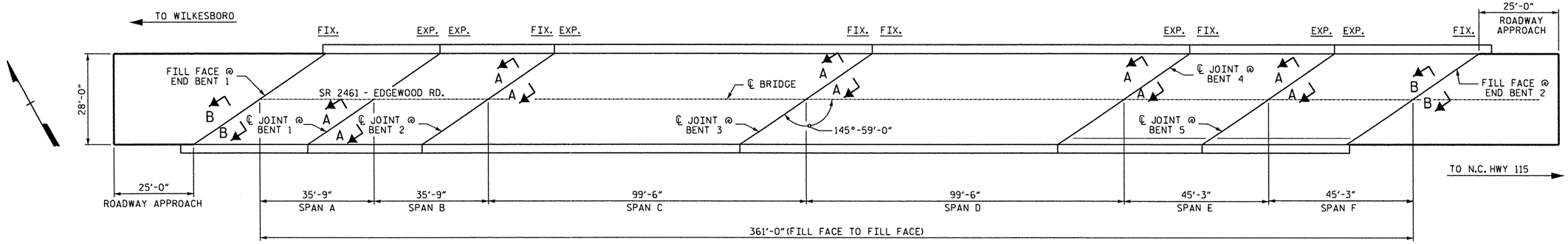


PLAN

(SEE SHEET S-49 FOR SECTION A-A & B-B)

NOTES

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

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.

ROADWAY MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF BRIDGE.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK, SEE "TYPICAL "BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRODEMOLITION PROCESS SEE, "MANAGING HYDRODEMOLITION WATER" SPECIAL PROVISION.

FOR "HYDRO-DEMOLITION OF BRIDGE DECK", SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE WITH "LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH", SEE SPECIAL PROVISIONS.

FOR "FOAM JOINT SEALS", SEE SPECIAL PROVISIONS.

FOR "ELASTOMERIC CONCRETE", SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".

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

FOR "SCARIFYING BRIDGE DECK", SEE SPECIAL PROVISIONS.

FOR "FALSEWORK AND FORMWORK", SEE SPECIAL PROVISIONS.

FOR "CRANE SAFETY", SEE SPECIAL PROVISIONS.

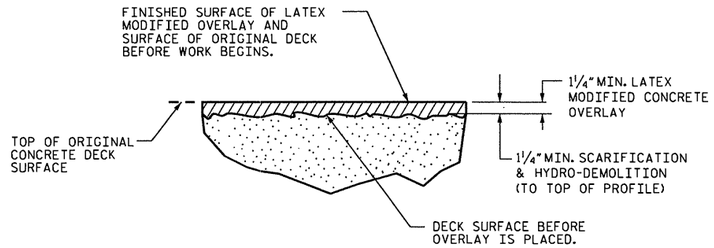
FOR "GROUT FOR STRUCTURES", SEE SPECIAL PROVISIONS.

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

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

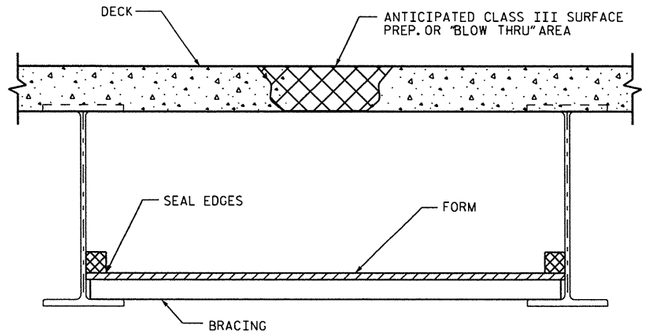
LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

(SPANS A, B, C, & D)

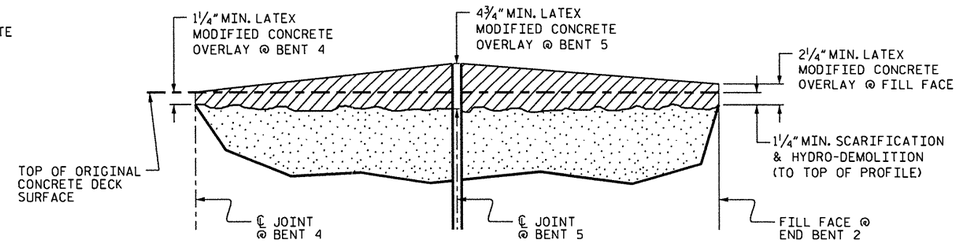


TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COST FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

(SPANS E & F)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

SHEET 3 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			84

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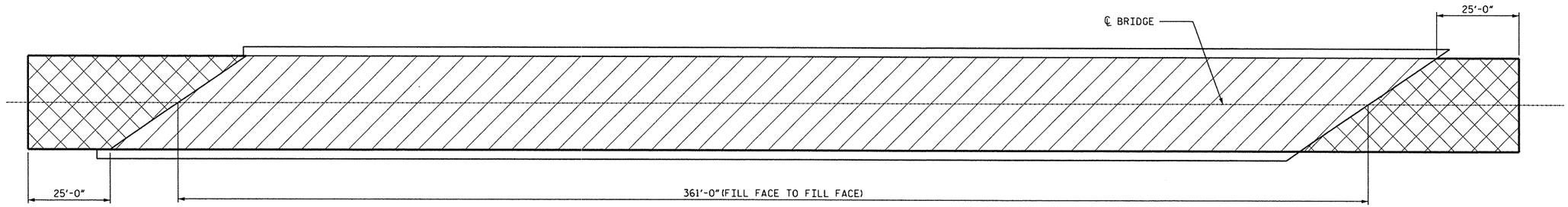
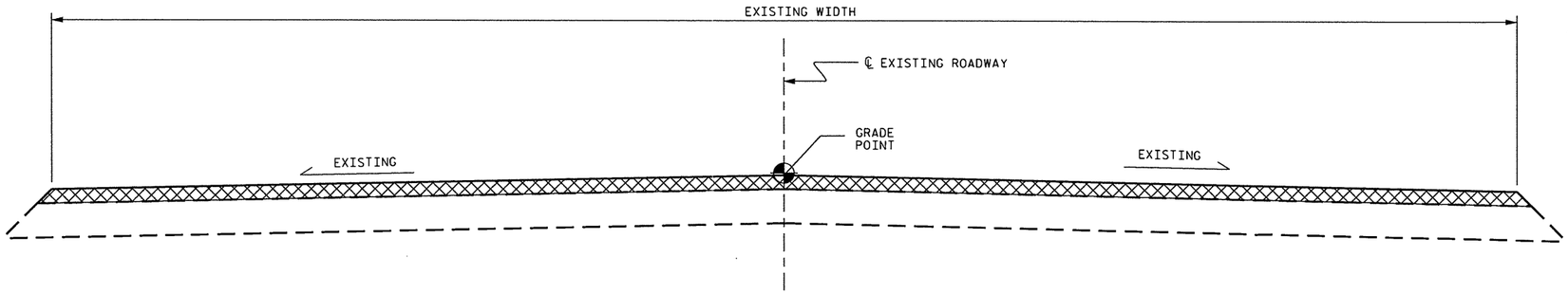


PLAN

INCIDENTAL MILLING

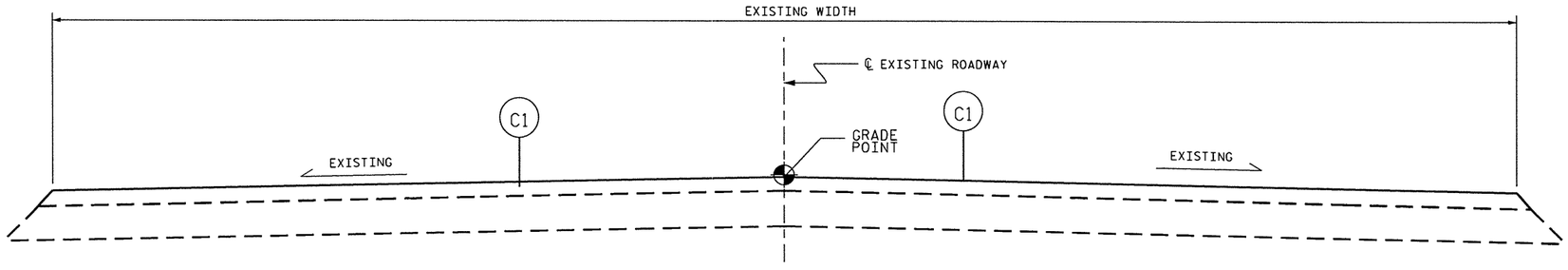
SCARIFYING BRIDGE DECK

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.



TYPICAL ROADWAY MILLING SECTION

(MILL TO 1½" DEPTH - SEE NOTE)



TYPICAL PROPOSED ROADWAY SECTION

NOTES

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY SLABS, AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

3/11/13

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

SHEET 4 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PRESERVATION AND MILLING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 02/2013
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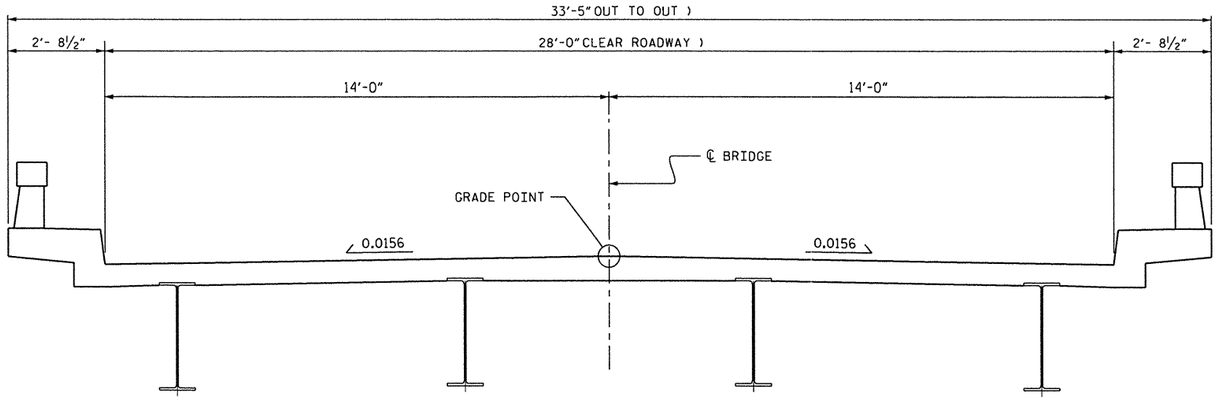
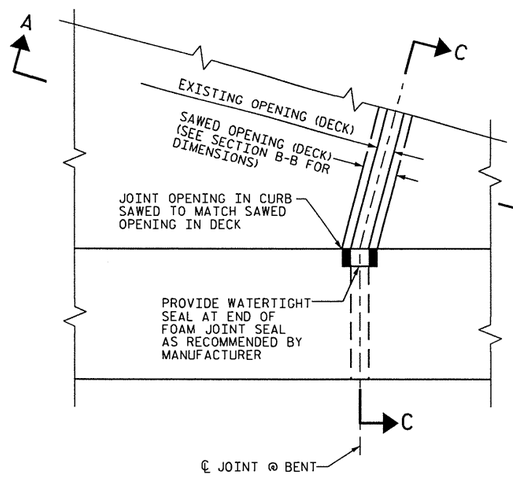
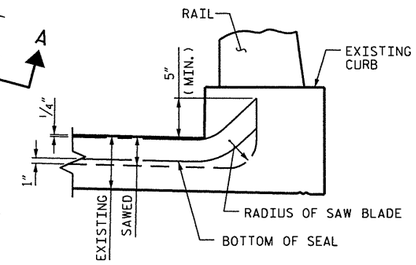


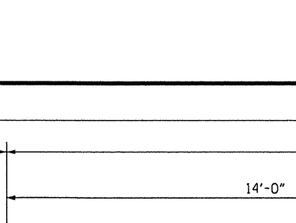
TYPICAL SECTION



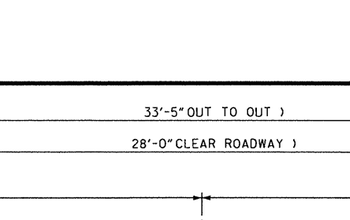
PLAN



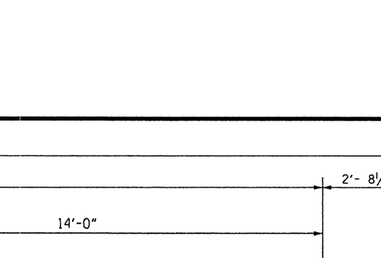
SECTION C-C



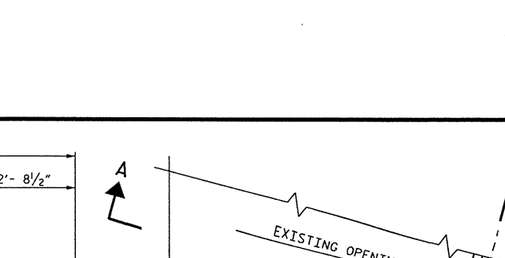
SECTION A-A
(EXISTING)



SECTION A-A
(MINIMUM EXISTING JOINT DEMOLITION)

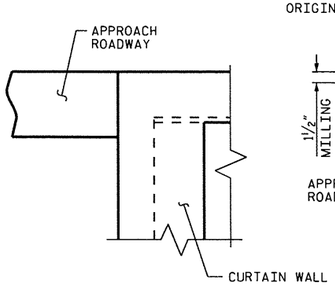


SECTION A-A
(PROPOSED JOINT PRE-SAWED DIMENSIONS)

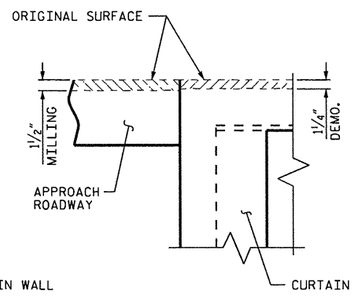


SECTION A-A
(PROPOSED FOAM EXPANSION JOINT SEAL)

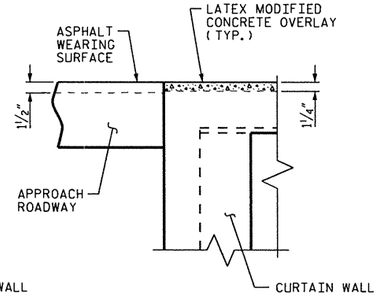
IF THE EMBEDDED PORTION OF THE EXISITNG PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, THE ENTIRE WATERSTOP SHALL BE REMOVED



SECTION B-B
(EXISTING)



SECTION B-B
(MINIMUM EXISTING DEMOLITION)



SECTION B-B
(PROPOSED)

NOTES:

FOR FOAM JOINT SEAL SEE SPECIAL PROVISIONS.

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE DETERMINED BY THE ENGINEER AS NEEDED.

THE FOAM JOINT SEAL SHALL ACCOMMODATE A MINIMUM 1" TOTAL MOVEMENT.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

ELASTOMERIC CONCRETE		
BENTS	43.0	(CU. FT.)
* TOTAL	43.0	(CU. FT.)

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 90

SHEET 5 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION & JOINT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 2/13
CHECKED BY : D. N. SNOKE DATE : 3/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:38
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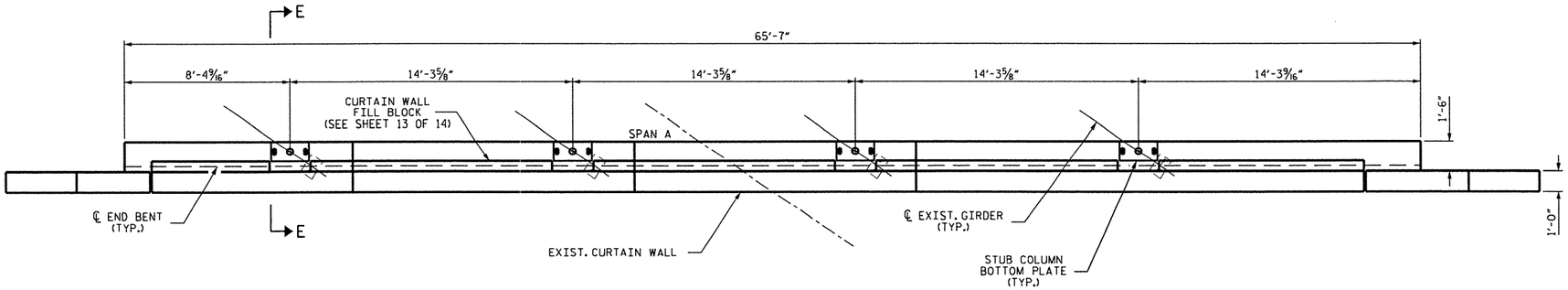
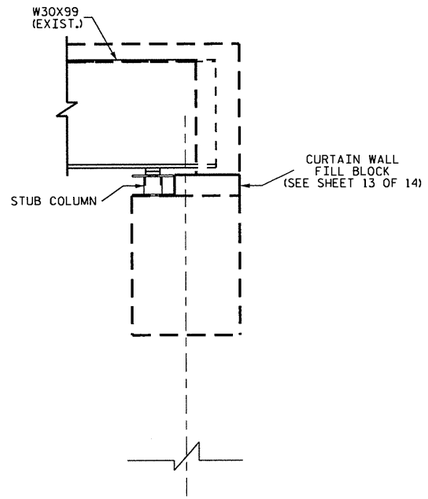
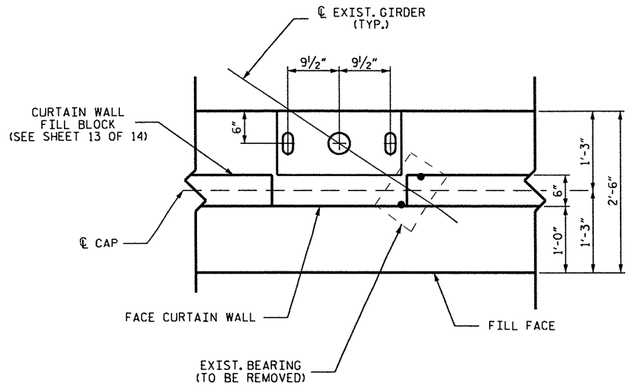
dsnoke



PLAN OF CAP FOR END BENT 1



SECTION E-E
(END BENT 1)



DETAIL OF BOTTOM PLATE ORIENTATION - END BENT 1

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

SHEET 6 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT
(END BENT 1)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY :	R.PUTEK	DATE : 02/13
CHECKED BY :	D.SNOKE	DATE : 03/13
DESIGN ENGINEER OF RECORD:		DATE :

23-APR-2013 09:39
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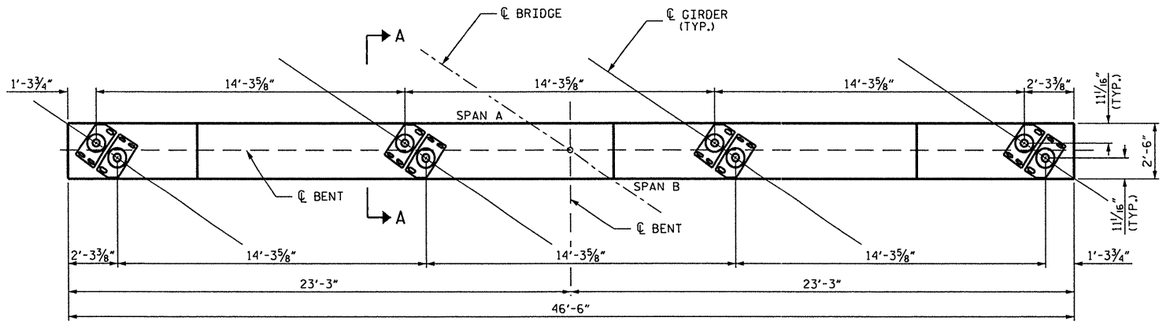
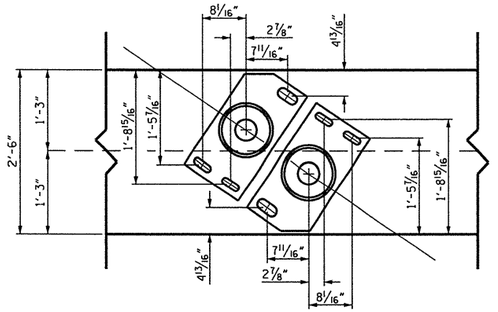
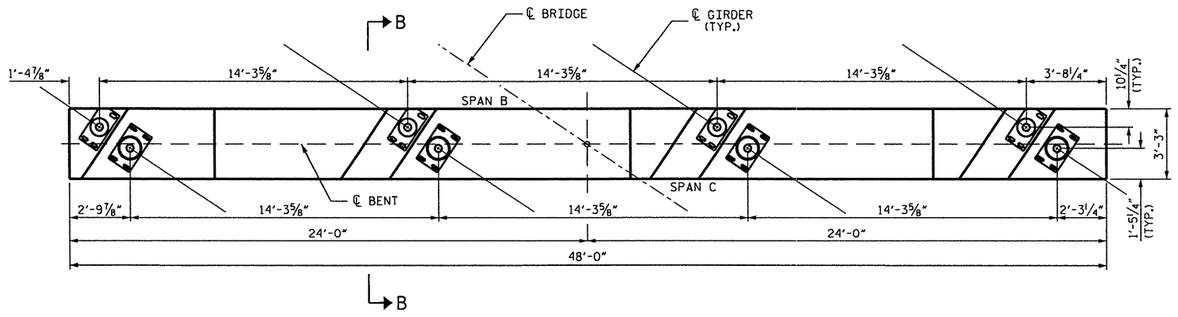
dsnoke



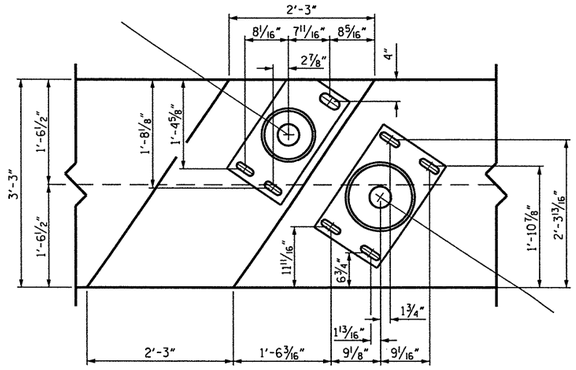
PLAN OF CAP FOR BENT 1



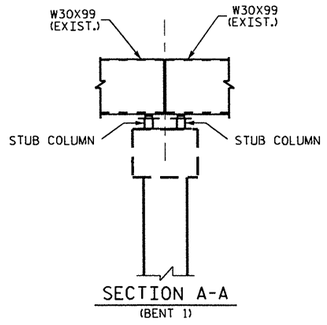
DETAIL OF BOTTOM PLATE ORIENTATION - BENT 1



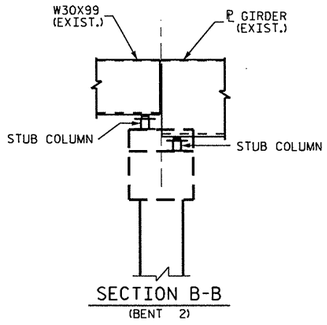
PLAN OF CAP FOR BENT 2



DETAIL OF BOTTOM PLATE ORIENTATION - BENT 2



SECTION A-A
(BENT 1)



SECTION B-B
(BENT 2)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

SHEET 7 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT
(BENTS 1 & 2)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-51
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY :	R.PUTEK	DATE : 02/13
CHECKED BY :	D.SNOKE	DATE : 03/13
DESIGN ENGINEER OF RECORD:		DATE :

23-APR-2013 09:39
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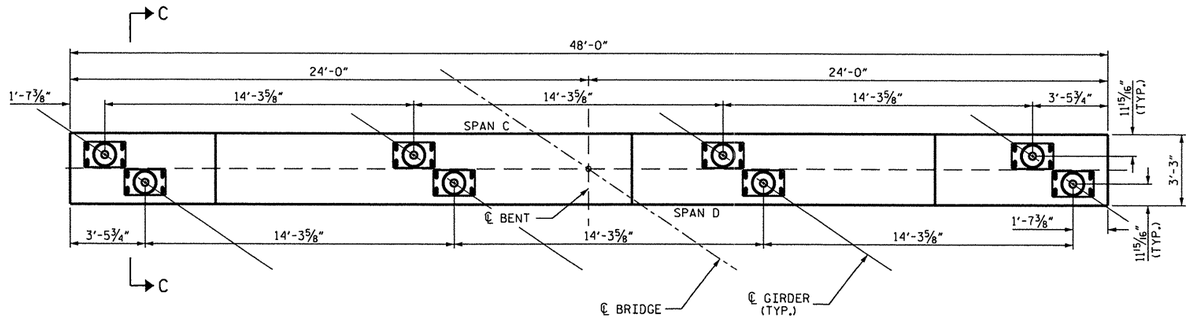
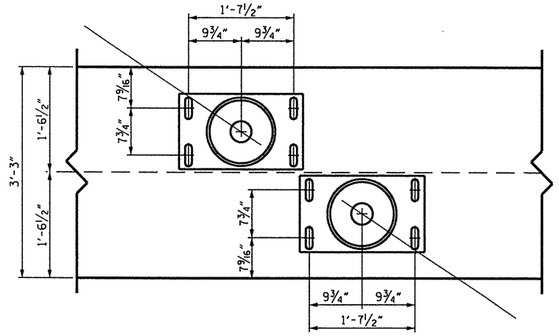
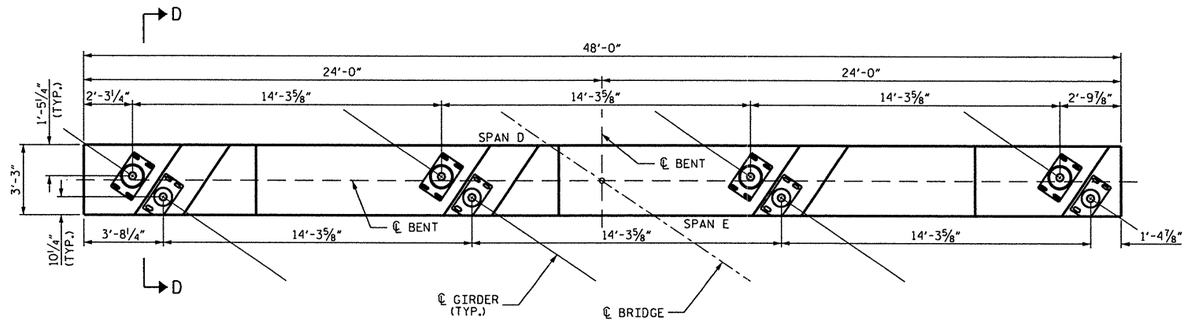


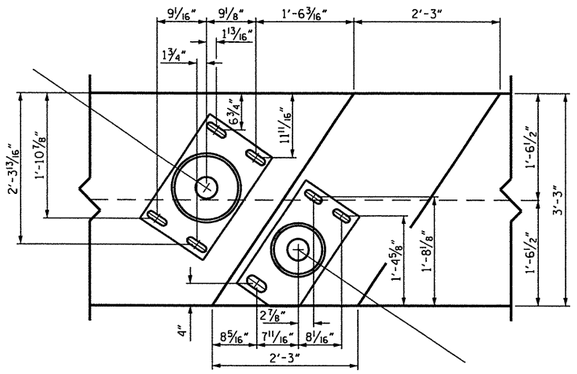
PLAN OF CAP FOR BENT 3



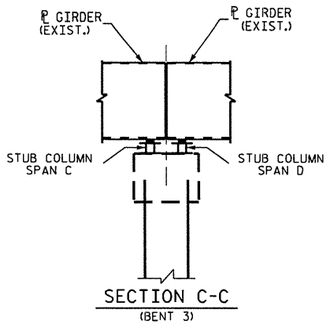
DETAIL OF BOTTOM PLATE ORIENTATION - BENT 3



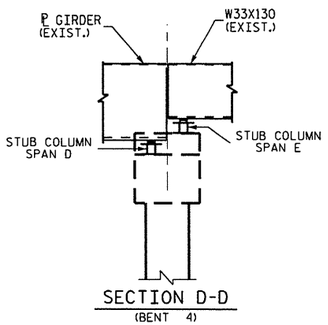
PLAN OF CAP FOR BENT 4



DETAIL OF BOTTOM PLATE ORIENTATION - BENT 4



SECTION C-C
(BENT 3)



SECTION D-D
(BENT 4)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT
(BENTS 3 & 4)

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R.PUTEK DATE : 02/13
CHECKED BY : D.SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: _____ DATE : _____

23-APR-2013 09:39
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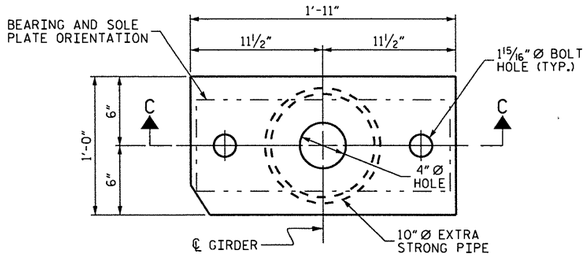
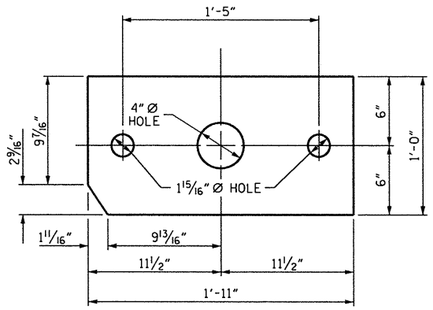
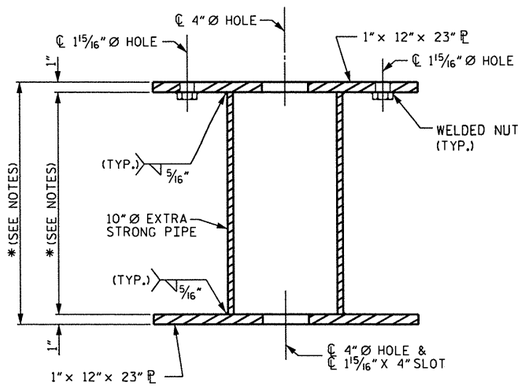


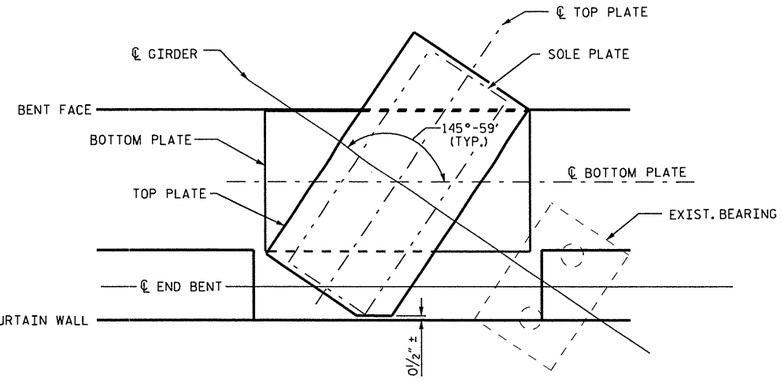
TOP PLATE PLAN



TOP PLATE

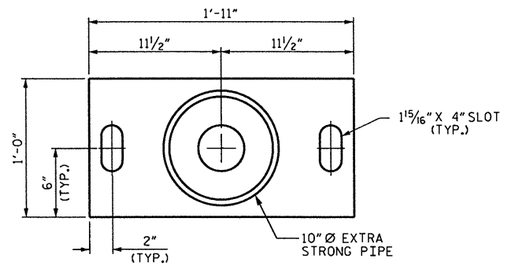


SECTION C-C

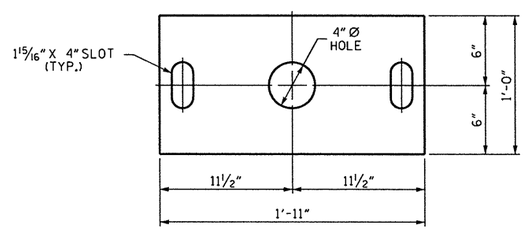


TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)

(HOLES & SLOTS HAVE BEEN OMITTED FOR CLARITY)



BOTTOM PLATE PLAN



BOTTOM PLATE

NOTES

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 10" 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 SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.

ALL BOLTS, NUTS, AND WASHERS 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 PAINTED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE REPAINTED, AS OUTLINED IN ARTICLE 442-11 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.

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

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1" Ø AND 1¾" Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 9", OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER.

NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 18,000 LBS. TENSION FOR 1" Ø BOLTS AND 30,000 LBS. TENSION FOR 1¾" Ø BOLTS.

SEE SHEET S-55 FOR ADHESIVE ANCHORING DETAILS.

NOTE: THIS STUB COLUMN IS TO BE USED AT END BENT 1

STUB COLUMN DETAILS

(STUB COLUMN - 4 REQUIRED)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

SHEET 9 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURAL STEEL DETAILS

(END BENT 1)

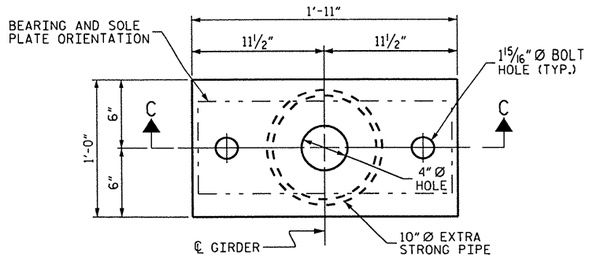
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

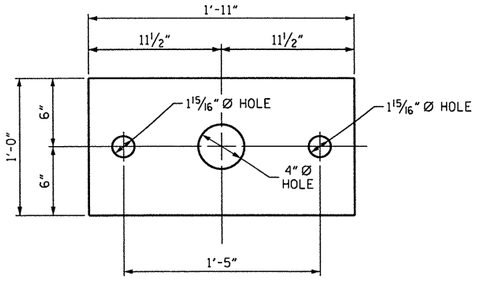
3/11/13

DRAWN BY : R.PUTEK DATE : 02/13
CHECKED BY : D.SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: _____ DATE : _____

23-APR-2013 09:39
S:\PRS\POC\Squad C\Preservation_Projects\17BP.11.H.4\Wilkes 90\Microstation\FINAL\17BP.11.H.4_WILKES_90_SD_S*.dgn
dsnoke



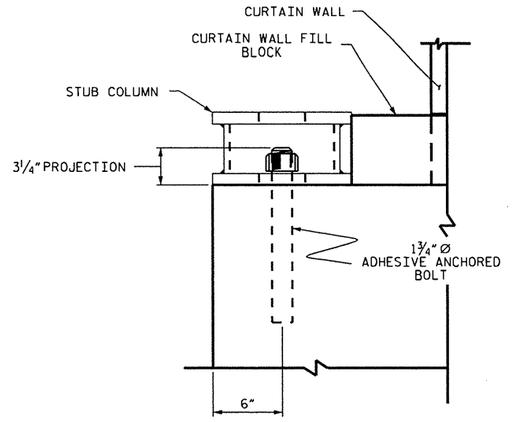
TOP PLATE PLAN



TOP PLATE

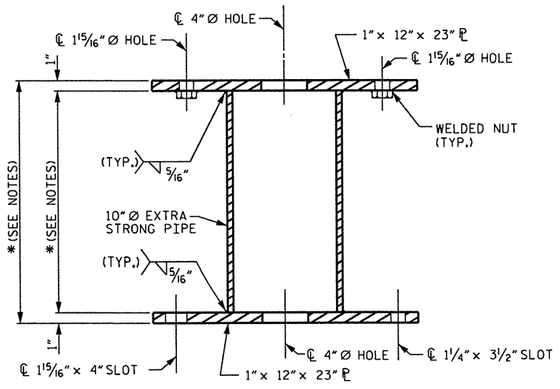
NOTE

SEE SHEET S-54 FOR NOTES.

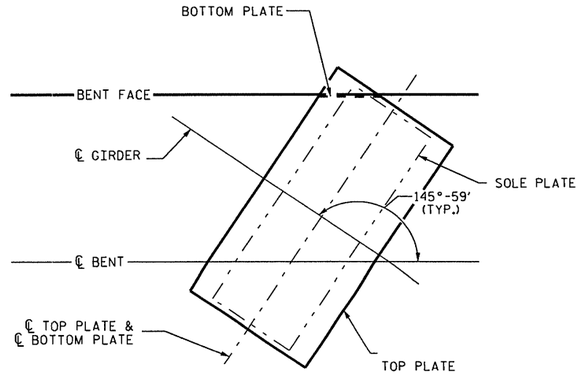


PROPOSED 1¾" Ø
ADHESIVE ANCHORED BOLT DETAIL

(USED WITH 1 15/16" X 4" SLOT)

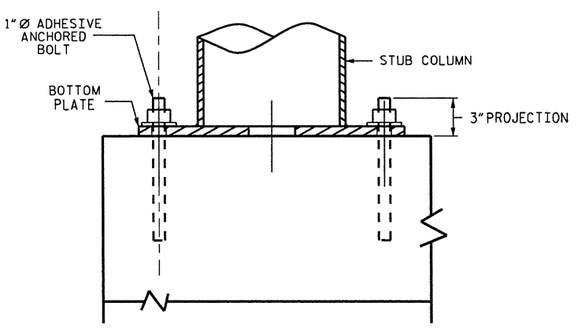


SECTION C-C



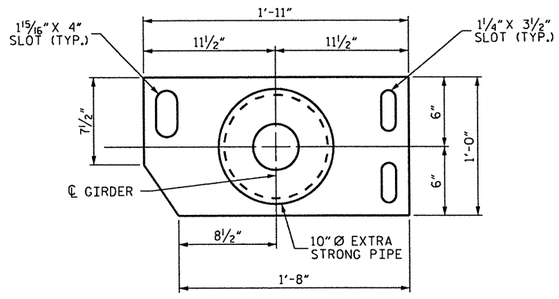
TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)

(HOLES & SLOTS HAVE BEEN OMITTED FOR CLARITY)

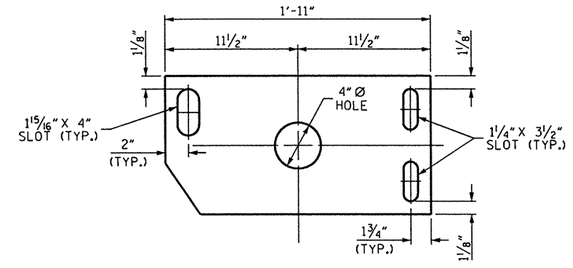


PROPOSED 1" Ø
ADHESIVE ANCHORED DETAIL

(USED WITH 1¼" X 4" SLOT)



BOTTOM PLATE PLAN



BOTTOM PLATE

NOTE: THIS STUB COLUMN IS TO BE USED AT: BENT 1, BENT 2 (SPAN B SIDE), BENT 4 (SPAN E SIDE)

NOTE: SEE SHEET 11 OF 14 FOR 1" Ø ADHESIVE ANCHORED BOLT DETAIL (USED WITH 1¼" SLOTS)

SEE SHEET 9 OF 14 FOR 1¾" Ø ADHESIVE ANCHORED BOLT DETAIL (USED WITH 1 15/16" SLOTS)

STUB COLUMN DETAILS

(STUB COLUMN - 16 REQUIRED)

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

3/11/13

DRAWN BY : R.PUTEK DATE : 02/13
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DESIGN ENGINEER OF RECORD: DATE :

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dsnoke

PROJECT NO. 17BP.11.H.4

WILKES **COUNTY**

BRIDGE NO.: 90

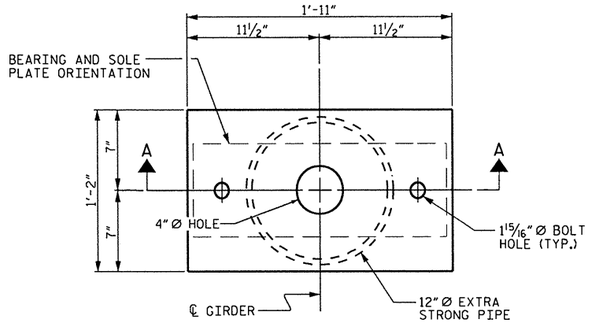
SHEET 10 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

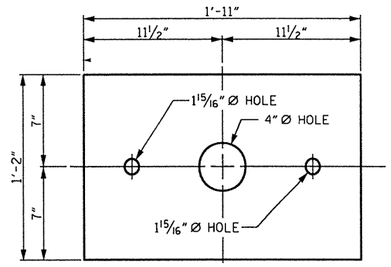
STRUCTURAL STEEL DETAILS

(BENTS 1, 2, & 4)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			84



TOP PLATE PLAN

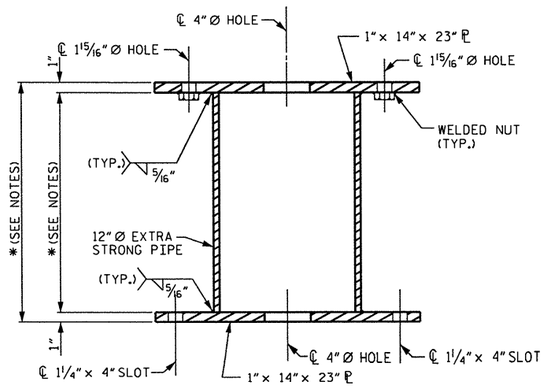


TOP PLATE

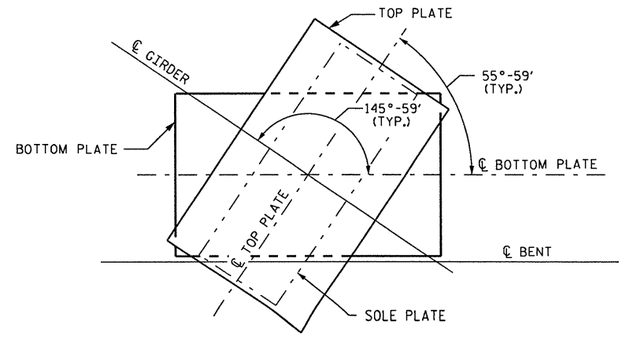
NOTE

SEE SHEET S-54 FOR NOTES.

SEE SHEET S-55 FOR ADHESIVE ANCHORING DETAILS.

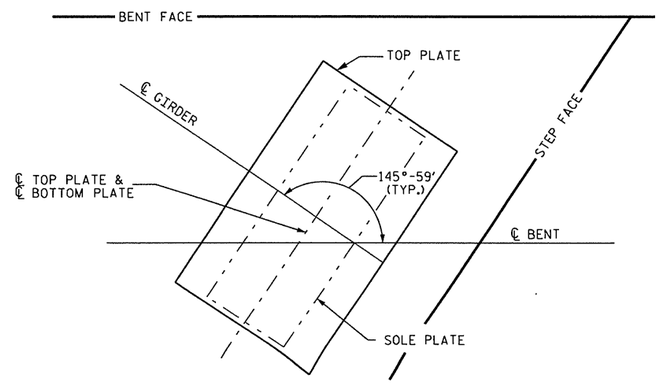


SECTION A-A



TOP PLATE TO BOTTOM PLATE ORIENTATION (BENT 3)

(HOLES, & SLOTS HAVE BEEN OMITTED FOR CLARITY)



TOP PLATE TO BOTTOM PLATE ORIENTATION (BENTS 2 & 4)

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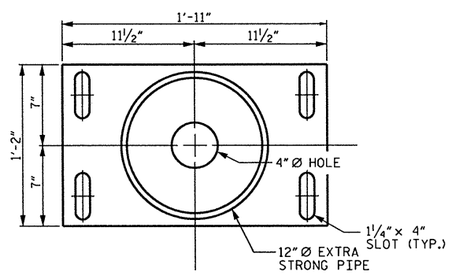
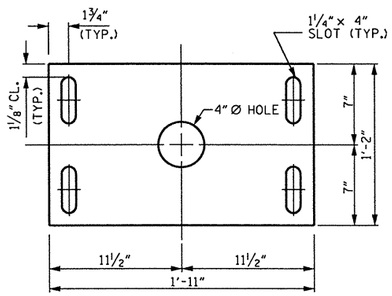


BOTTOM PLATE PLAN



BOTTOM PLATE

NOTE: THIS STUB COLUMN IS TO BE USED AT: BENT 1, BENT 2 (SPAN C SIDE), BENT 4 (SPAN D SIDE)

STUB COLUMN DETAILS

(STUB COLUMN - 8 REQUIRED)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 90

SHEET 11 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURAL STEEL DETAILS

(BENTS 2, 3, & 4)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

3/11/13

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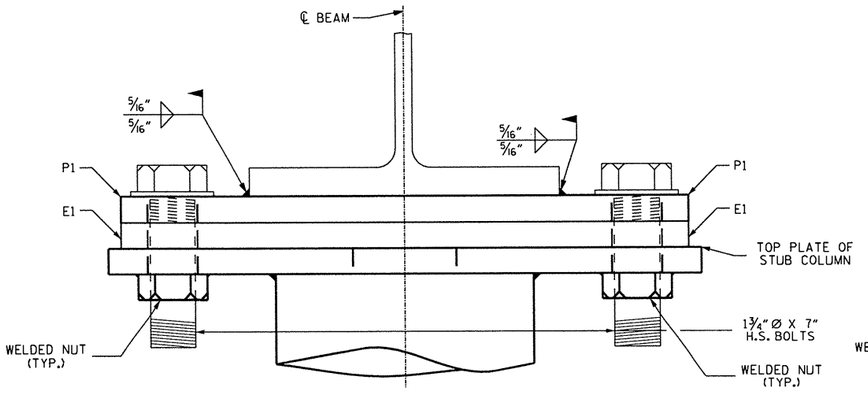
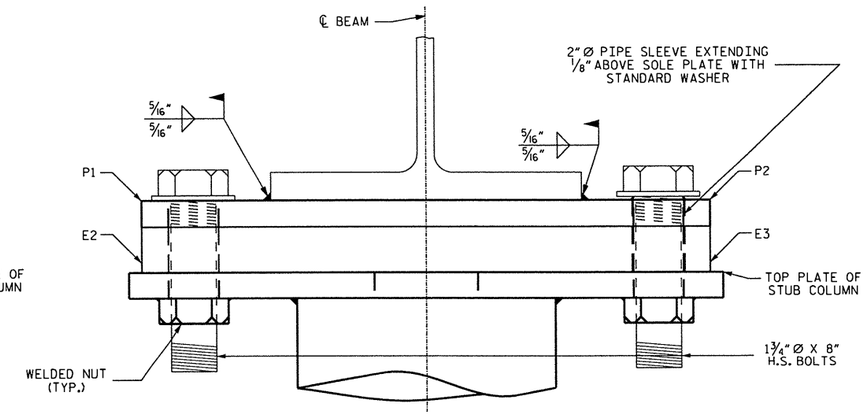


FIXED

END VIEW @ END BENT
(END BENT 1)



FIXED EXPANSION

END VIEW @ BENTS
(BENTS 1, 2, 3, & 4 AND END BENT 2)

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ 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.

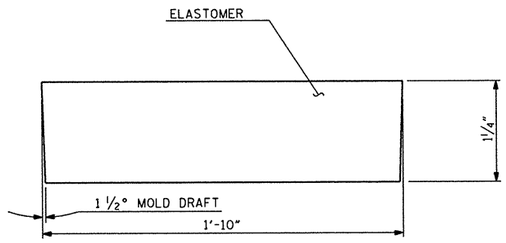
AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

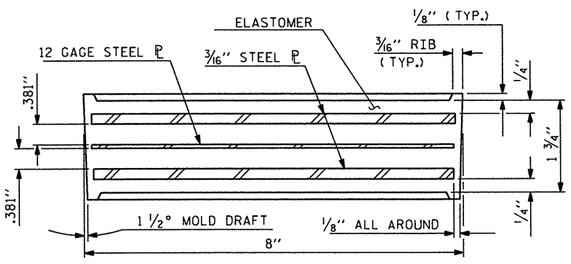
FOR HIGH STRENGTH BOLTS, SEE STANDARD SPECIFICATIONS.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 ksi, IN ACCORDANCE WITH AASHTO M251.

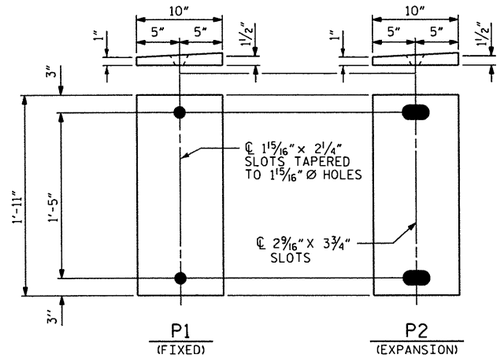
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.



TYPICAL SECTION OF ELASTOMERIC BEARINGS

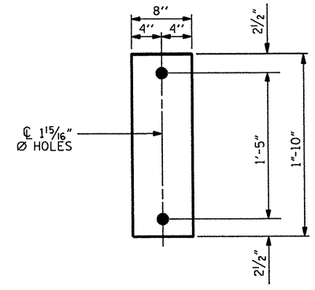


TYPICAL SECTION OF ELASTOMERIC BEARINGS



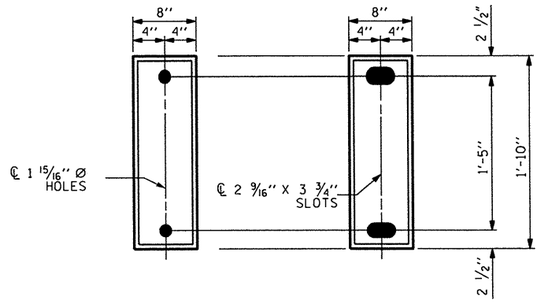
P1 (20 REQ'D) P2 (16 REQ'D)

SOLE PLATE DETAILS ("P")



E1 (4 REQ'D)

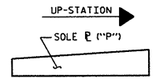
PLAN VIEW OF ELASTOMERIC BEARING



E2 (16 REQ'D) E3 (16 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE I



SOLE ℙ PLACEMENT DETAIL

LOAD RATINGS	MAX.D.L.+L.L.
TYPE I	140 K

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS
2			4			84

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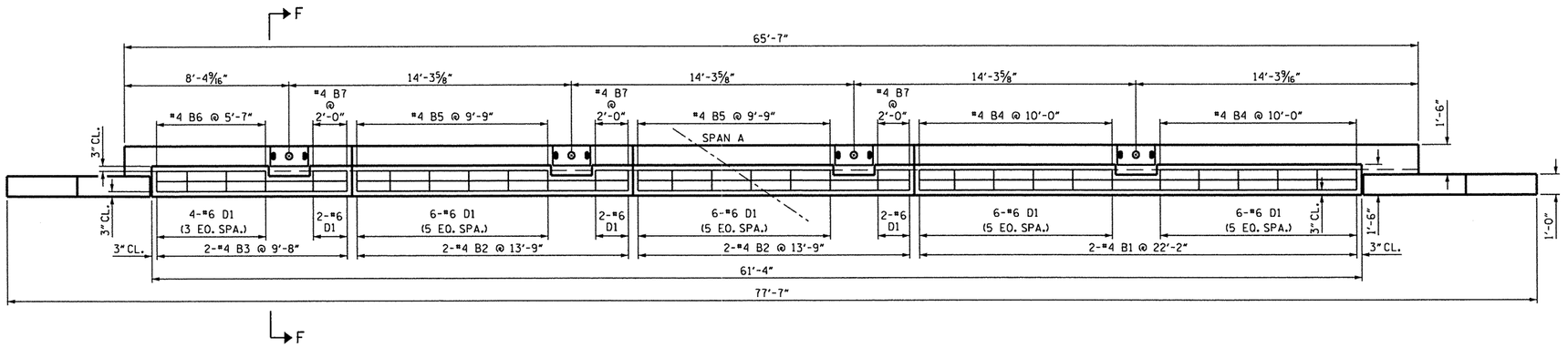
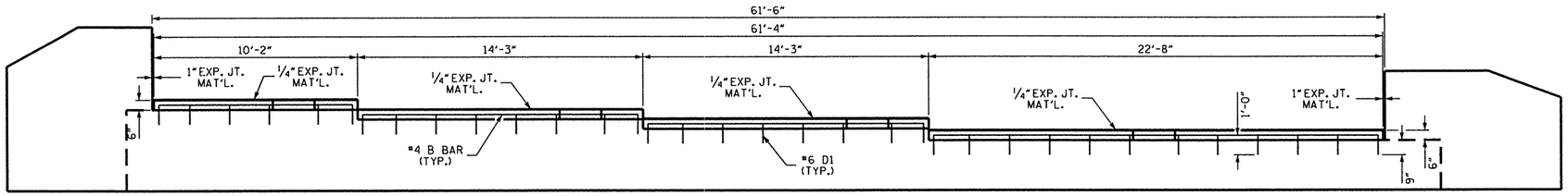


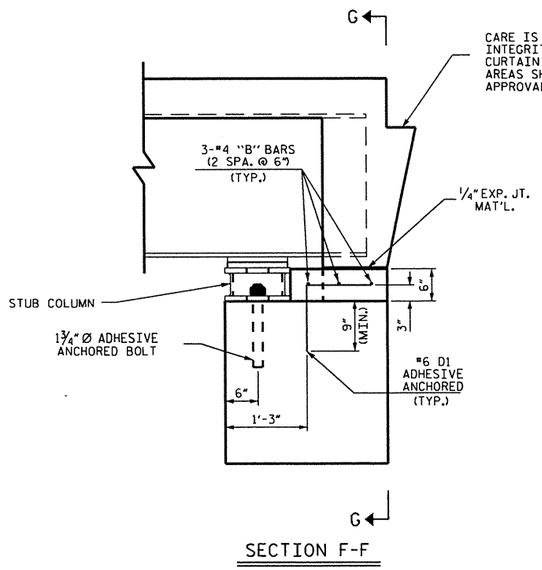
PLAN OF CAP FOR END BENT 1

(CURTAIN WALL REMOVED FOR CLARITY)

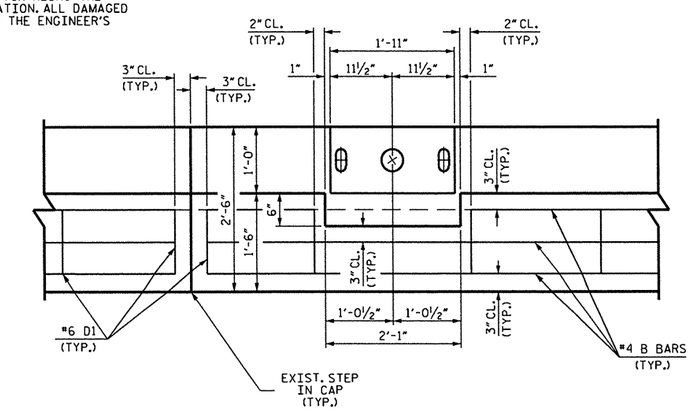


ELEVATION OF CAP FOR END BENT 1

(CURTAIN WALL REMOVED FOR CLARITY)



SECTION F-F



SECTION G-G

(CURTAIN WALL REMOVED FOR CLARITY)

BILL OF MATERIAL

REINFORCING STEEL END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	4	STR	22'-2"	30
B2	4	4	STR	13'-9"	37
B3	2	4	STR	9'-8"	13
B4	2	4	STR	10'-0"	13
B5	2	4	STR	9'-9"	13
B6	1	4	STR	5'-7"	4
B7	3	4	STR	2'-0"	4
D1	34	6	1	2'-0"	102

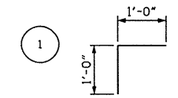
REINFORCING STEEL TOTAL = 216 LBS.

CLASS "A" CONCRETE

POUR #1 - CURTAIN WALL FILL BLOCK	1.7 C.Y.
CLASS "A" CONCRETE TOTAL =	1.7 C.Y.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



NOTES:

SECURE GIRDERS ON BEARINGS IN FINAL PLACEMENT PRIOR TO POURING CURTAIN WALL FILL BLOCK.

FOR "CURTAIN WALL REHABILITATION", SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL CORE INTO EXISTING END BENT CAP TO INSTALL #6 D1 DOWELS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST. FOR THE PROPOSED USE. NO TESTING REQUIRED AT THIS LOCATION.

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

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SHEET 13 OF 14

STATE OF NORTH CAROLINA
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RALEIGH

CURTAIN WALL FILL BLOCK

(END BENT 1)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-57
1			3			TOTAL SHEETS
2			4			84

3/11/13

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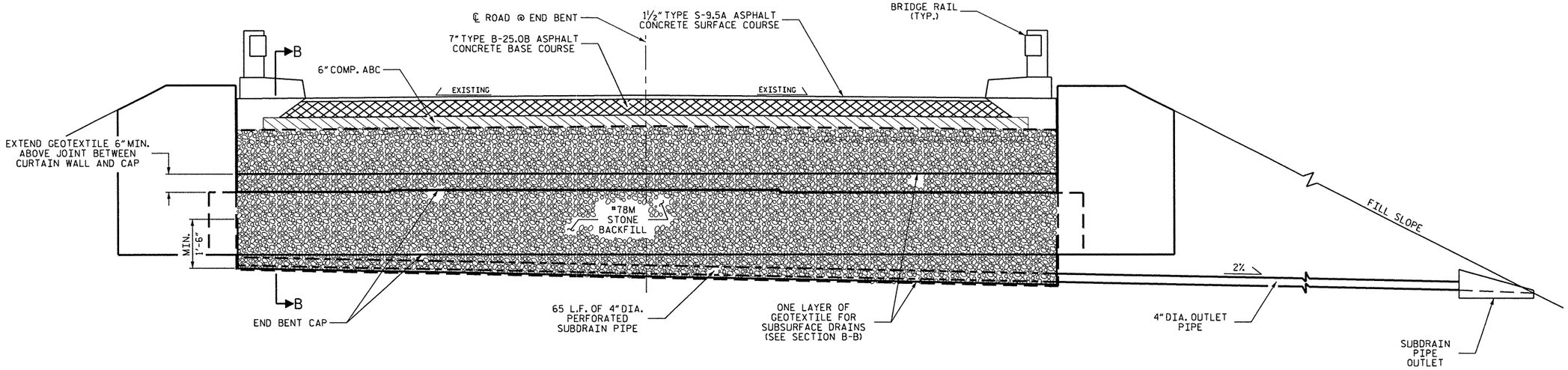
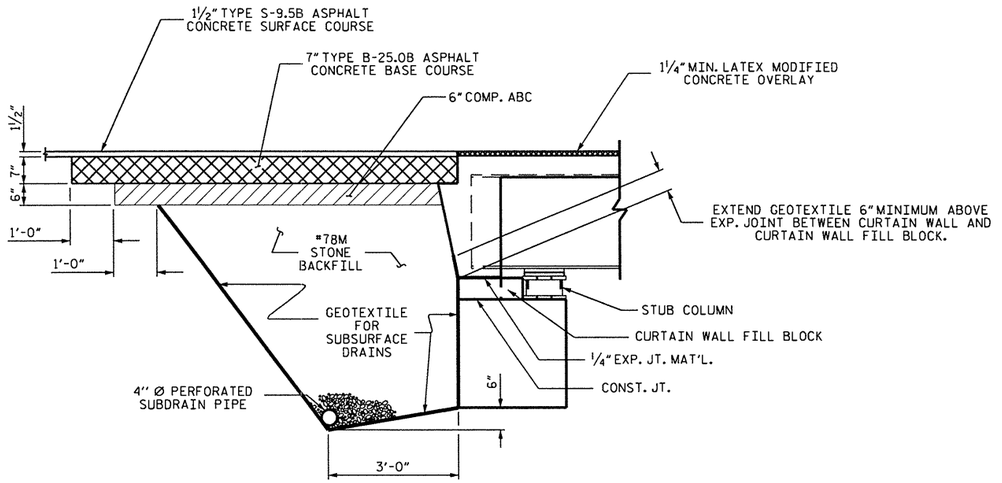


SECTION AT END BENT 1



SECTION B-B

NOTES:

SEE TABLE FOR ESTIMATED QUANTITIES.

FOR "BRIDGE APPROACH FILLS", SEE SPECIAL PROVISIONS.

BRIDGE APPROACH FILL ESTIMATES	
EXCAVATION	* 160 CU. YDS.
GEOTEXTILES	* 122 SQ.YDS.
#78M STONE	* 168 CU. YDS.
4" PERFORATED PIPE	* 62 LIN. FT.
OUTLET PIPE	* 1 EA.
4" OUTLET PIPE	* 40 LIN. FT.

* QUANTITIES IN THIS TABLE ARE FOR INFORMATION PURPOSES ONLY.

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 90

SHEET 14 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH FILL DETAIL

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-58
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R.PUTEK DATE : 03/13
CHECKED BY : D.SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: _____ DATE : _____

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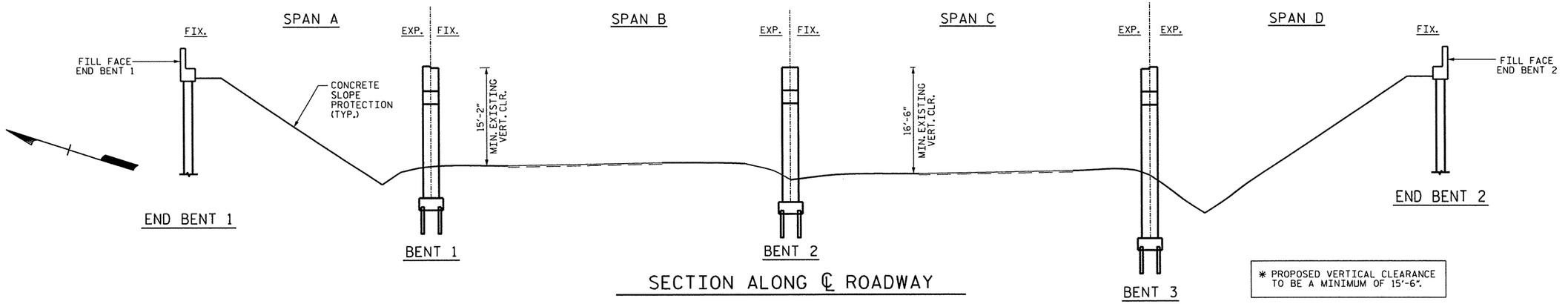
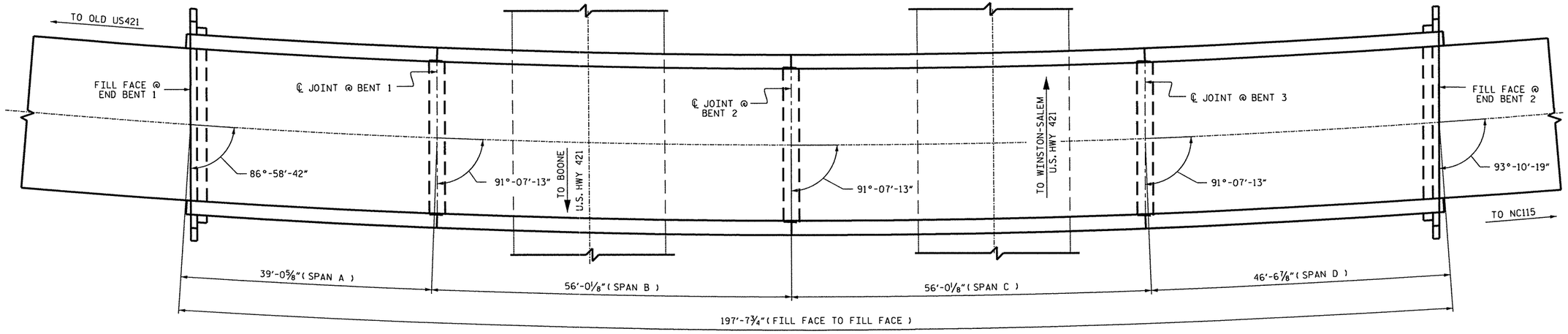


SECTION ALONG ℄ ROADWAY

* PROPOSED VERTICAL CLEARANCE TO BE A MINIMUM OF 15'-6".



PLAN

SCOPE OF WORK:

- SUBSTRUCTURE REPAIRS.
- BRIDGE JACKING, SPAN B.
- REMOVE AND REPLACE EXISTING NONCOMPOSITE EXTERIOR BEAM.
- ADD STUB COLUMN AND BEARINGS.
- DECK OVERLAY

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	GROOVING BRIDGE FLOOR	APPROX. 9,700 LBS. STRUCTURAL STEEL	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE	ELASTOMERIC BEARINGS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	BRIDGE JACKING BRIDGE #94	PARTIAL REMOVAL OF EXISTING STRUCTURE #94	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE
SQ.YDS.	TONS	SQ. FT.	LUMP SUM	C.Y.	SQ.YDS.	LUMP SUM	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SQ.YDS.	SQ.YDS.
138	12	4,086	LUMP SUM	22.0	527.1	LUMP SUM	6.8	54.1	LUMP SUM	LUMP SUM	LUMP SUM	527.1	527.1

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 94

SHEET 1 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-59
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 03 / 2013
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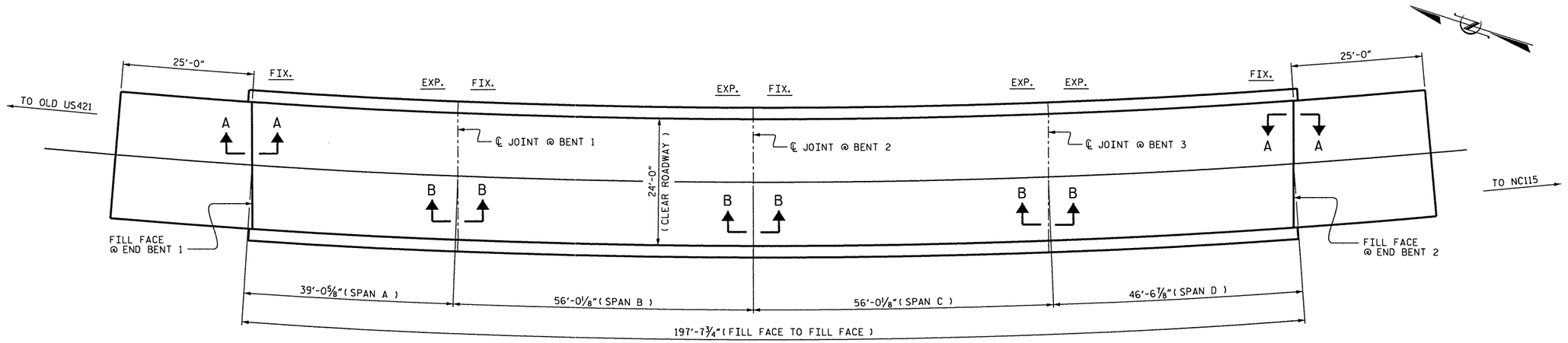
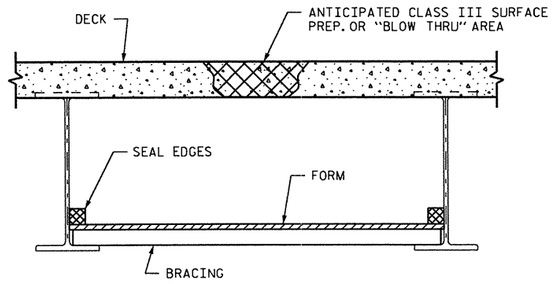


PLAN

(SEE SHEET S-62 FOR SECTION A-A & B-B)

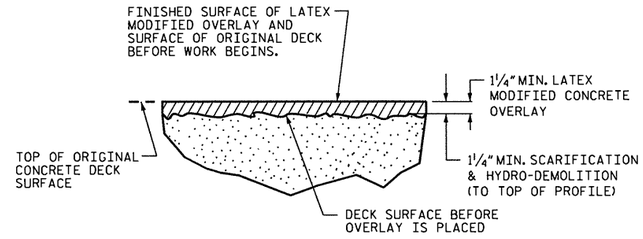


TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COST FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

NOTES:

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

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.

ROADWAY MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF BRIDGE.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK, SEE "TYPICAL "BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.

FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE MEMBRANE JOINT SEAL SHALL BE 2".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECK, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEET.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : P.C. BREWER DATE : 2/26/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
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dsnoke

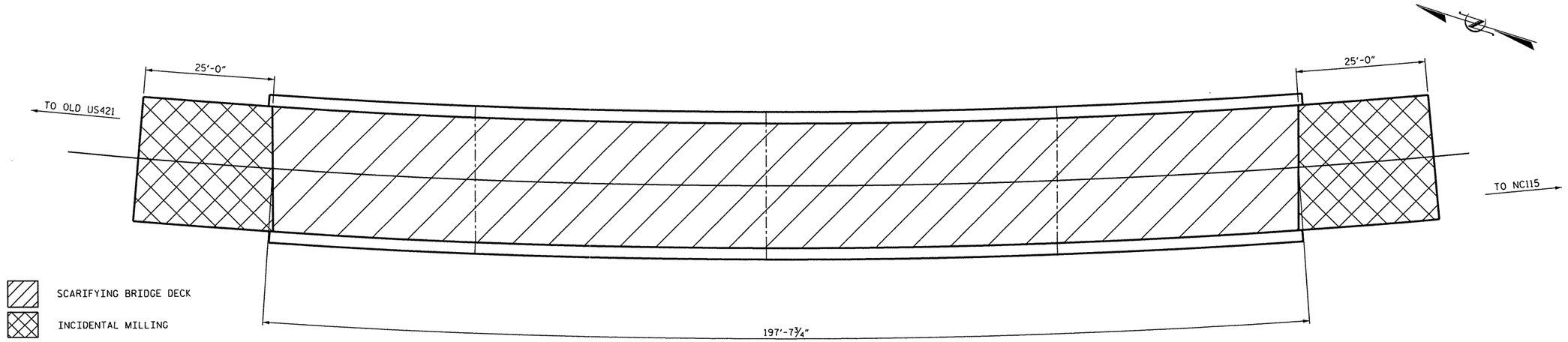
PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 94

SHEET 2 OF 13

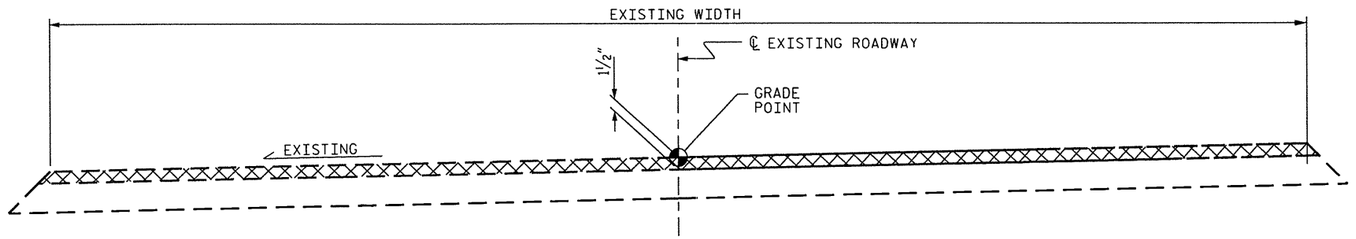
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-60
1			3			TOTAL SHEETS
2			4			84



PLAN



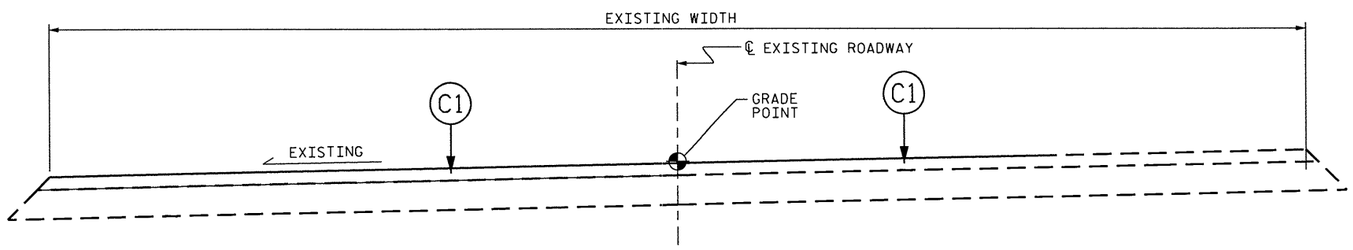
TYPICAL ROADWAY MILLING SECTION

(MILL TO 1½"DEPTH - SEE NOTE)

NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½"DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY SLABS, AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½"DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1"DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½"IN DEPTH OR GREATER THAN 2"IN DEPTH.



TYPICAL PROPOSED ROADWAY SECTION

NOT TO SCALE

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 94

SHEET 3 OF 13

STATE OF NORTH CAROLINA
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RALEIGH

SCARIFYING AND MILLING

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

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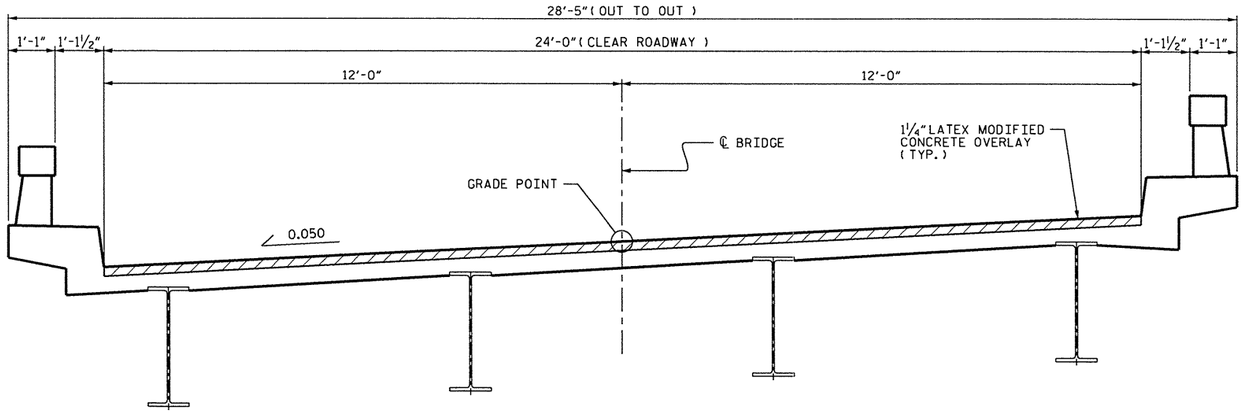
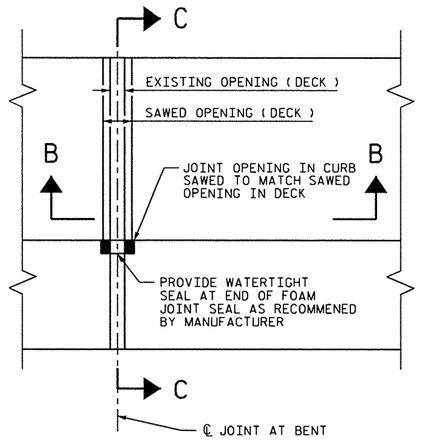
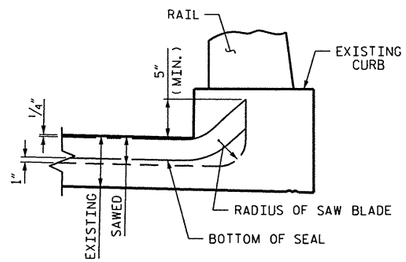


TYPICAL SECTION

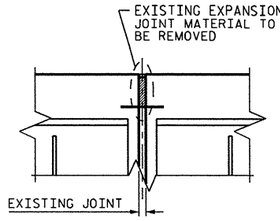


PLAN

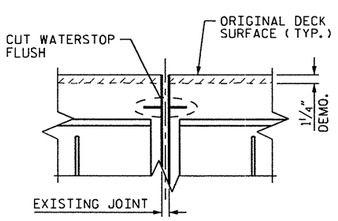


SECTION C-C

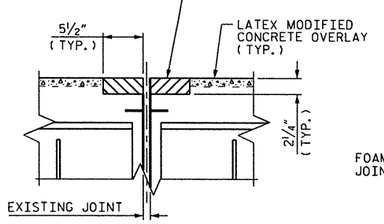
IF THE EMBEDDED PORTION OF THE EXISIITNG PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, THE ENTIRE WATERSTOP SHALL BE REMOVED



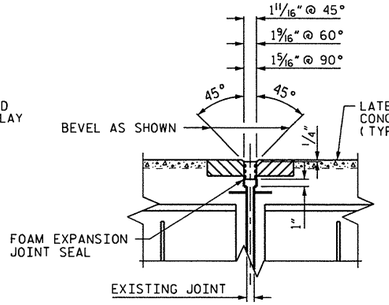
SECTION B-B
(EXISTING)



SECTION B-B
(MINIMUM EXISTING JOINT DEMOLITION)

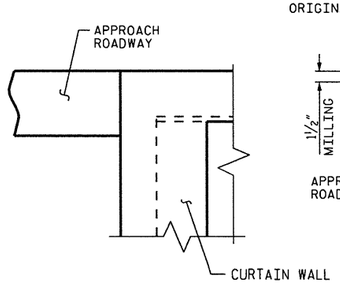


SECTION B-B
(PROPOSED JOINT PRE-SAWED DIMENSIONS)

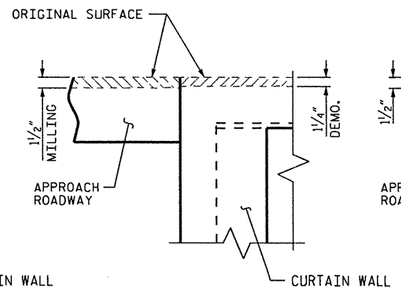


SECTION B-B
(PROPOSED FOAM EXPANSION JOINT SEAL)

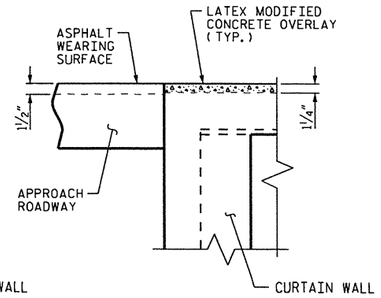
ELASTOMERIC CONCRETE	
	CU. FT.
BENT 1	4.1
BENT 2	4.1
BENT 3	4.1
TOTAL	12.3



SECTION A-A
(EXISTING)



SECTION A-A
(MINIMUM EXISTING DEMOLITION)



SECTION A-A
(PROPOSED)

NOTES:

FOR FOAM JOINT SEAL SEE SPECIAL PROVISIONS.

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 94

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STATE OF NORTH CAROLINA
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RALEIGH

TYPICAL SECTION & JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-62
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 2/26/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
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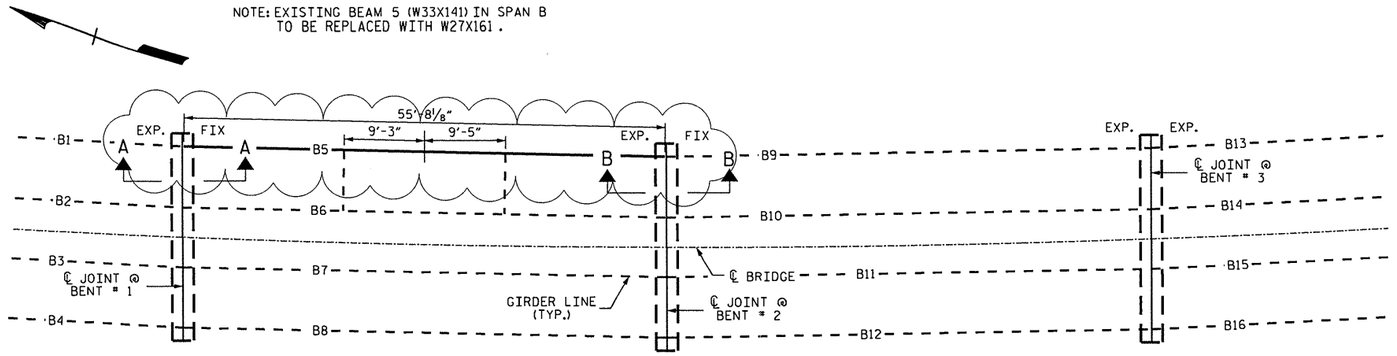
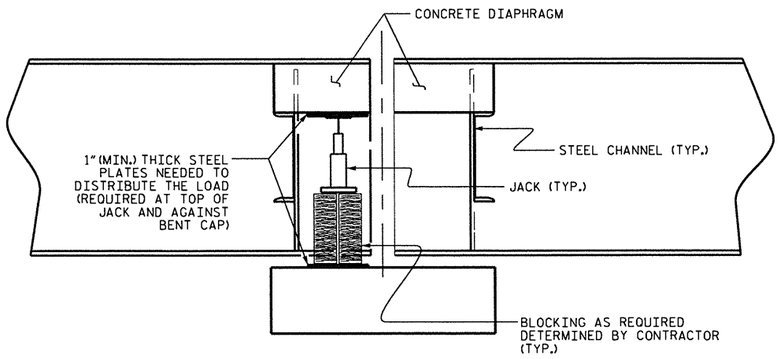


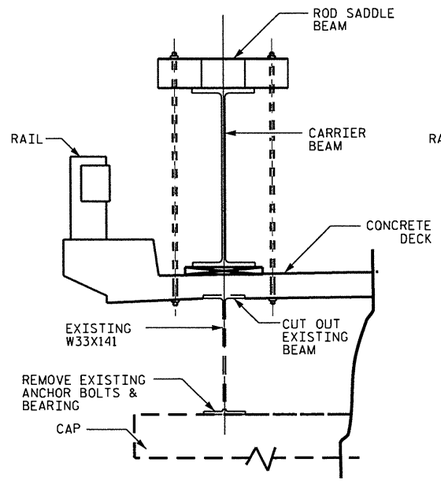
FRAMING PLAN

DESIGN OF THE CARRIER BEAM AND TIE RODS BY THE CONTRACTOR.

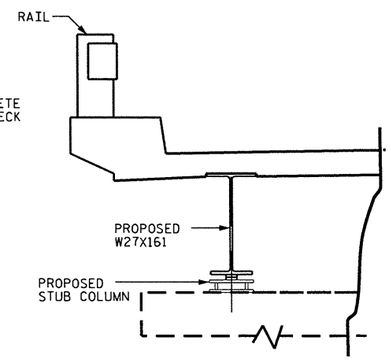


SECTION THRU DIAPHRAGM

DRAWING PROVIDED AS AN EXAMPLE OF A TYPICAL BRIDGE JACKING SET-UP AND IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL DESIGN AND SUBMIT APPROPRIATE SET-UP FOR SPECIFIC BRIDGE JACKING.



DURING REPAIR



COMPLETE REPAIR

NOTES:

CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA FOR REVIEW AND APPROVAL.

THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLANS.

PRIOR TO BRIDGE JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED. THIS MAY INCLUDE BUT NOT LIMITED TO METAL RAILINGS AND UTILITIES.

THE CONTRACTOR MAY NEED TO REINFORCE EXISTING BRIDGE MEMBERS OR ADD MEMBERS TO WITHSTAND THE JACKING FORCES.

PROVISIONS SHALL BE MADE TO ACCOUNT FOR THERMAL MOVEMENTS OR LATERAL FORCES SUCH AS WIND LOADS DURING THE PERIOD THAT THE STRUCTURE IS RESTING ON THE TEMPORARY SUPPORTS.

ALL JACKS AND JACKING SUPPORTS SHALL BE PLUMB.

EACH HYDRAULIC JACK SHALL HAVE A RATED CAPACITY CLEARLY SHOWN, WITH MINIMUM RATED CAPACITY OF 1.3 TIMES THE CALCULATED LOAD REACTION ADJACENT TO THE POINT OF JACKING.

JACKS WITHOUT A MECHANICAL LOAD HOLDER (LOCK-OFF) SHALL BE SECURED BY BLOCKING IF THE JACKING OPERATION IN ANY ONE LOCATION LASTS LONGER THAN 30 MINUTES.

HYDRAULIC SYSTEM SHALL BE CONNECTED SUCH THAT ALL JACKS LIFT SIMULTANEOUSLY.

LIFTING FRAME SHALL EXTEND BEYOND THE LENGTH OF THE LIFTED SPAN AND PROVIDE BEARINGS AT THE SAME LOCATION AS THE ADJACENT GIRDER BEARINGS.

CONTRACTOR SHALL SHIM BRIDGE SPAN DURING JACKING SUCH THAT THE MAXIMUM UNSHIMMED LIFT IS 1".

CONTRACTOR SHALL PROVIDE SPAN LIFT POINTS AS CLOSE AS POSSIBLE TO THE FACE OF BENT CAP.

IF DURING THE JACKING PROCESS OR WHILE THE SPAN IS BEING SUPPORTED, THE BEAMS SHIFT FROM THEIR ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

ALL ADJACENT BEARINGS OF BEAMS NOT BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARING LOOSENED SHALL BE TIGHTENED BACK AFTER THE BEAMS ARE REPAIRED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

PRIOR TO INSTALLING BEARING PEDESTALS AND NEW BEARINGS, CONTRACTOR SHALL MAKE ANY REPAIRS TO BENTS AS REQUIRED IN THE CONTRACT DOCUMENTS.

TRAFFIC SHALL NOT BE ALLOWED ON THE STRUCTURE UNTIL THE WORK REQUIRED BY THE CONTRACT DOCUMENTS IS COMPLETE.

FOR ADDITIONAL INFORMATION ON "BRIDGE JACKING", SEE SPECIAL PROVISIONS.

FOR ADDITIONAL NOTES, SEE "REPLACEMENT BEAM AND DIAPHRAGMS" SHEET.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 94

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EXISTING SUPERSTRUCTURE
FRAMING PLAN

REVISIONS						SHEET NO.
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DRAWN BY :	R. PUTEK	DATE : 12/12
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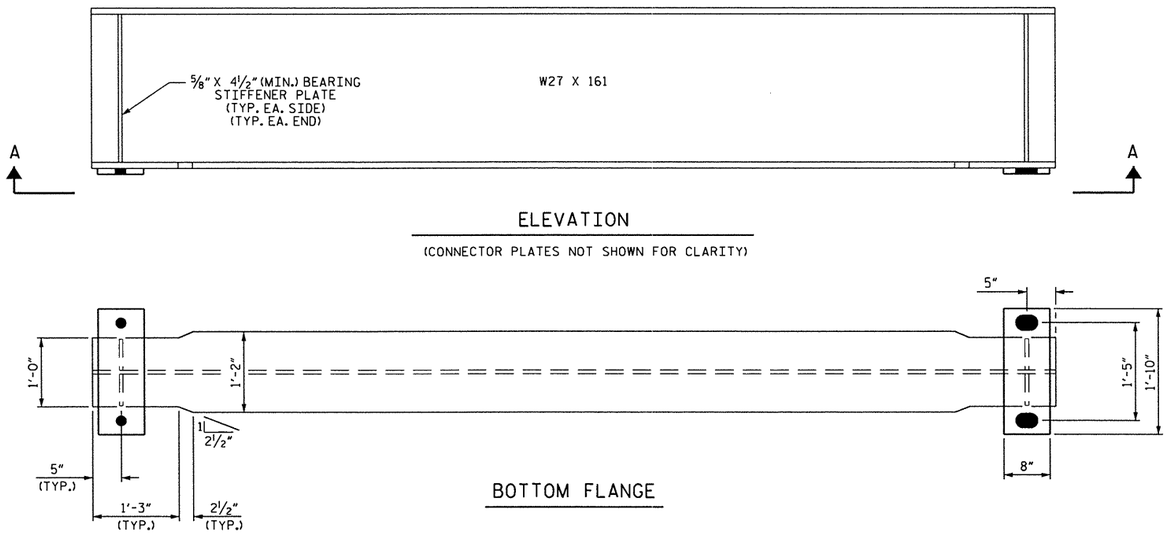


ELEVATION

(CONNECTOR PLATES NOT SHOWN FOR CLARITY)

BOTTOM FLANGE

NOTES:

THE CONTRACTOR MAY RETAIN AND CLEAN THE EXISTING INTERMEDIATE DIAPHRAGMS FOR RE-USE.

THE CONTRACTOR IS RESPONSIBLE TO EVALUATE THE STRUCTURAL CONDITION OF THE EXISTING INTERMEDIATE DIAPHRAGMS.

THE CONTRACTOR SHALL DRILL HOLES IN DIAPHRAGM OR CONNECTION PLATE AS NECESSARY TO ATTACH THE DIAPHRAGM TO THE BEAM.

IF EXISTING DIAPHRAGMS ARE NOT ACCEPTABLE FOR RE-USE, FABRICATE NEW DIAPHRAGMS TO MATCH EXISTING DIAPHRAGMS IN GOOD CONDITION.

ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

ALL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.

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.

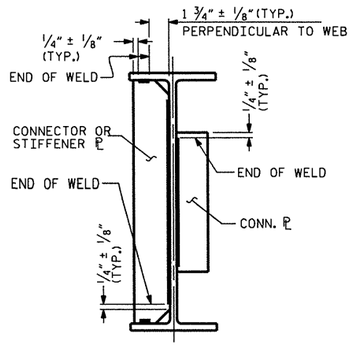
WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY TO MATCH EXISTING.

REMOVE PAINT OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS PRIOR TO WELDING.

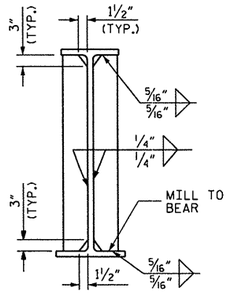
AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE PAINT HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER ARTICLE 442-11 OF THE STANDARD SPECIFICATION.

THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.

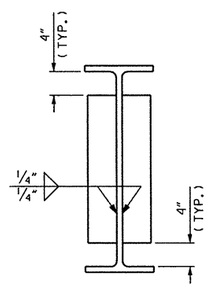
TOTAL CAMBER SHALL BE 1¼" UPWARD



WELD TERMINATION DETAILS

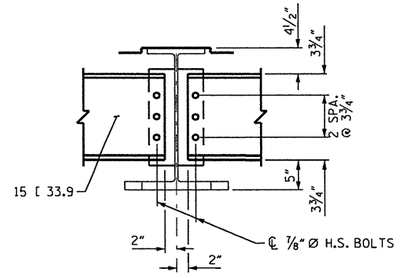


BEARING STIFFENER



INTERMEDIATE CONNECTOR PL

ONLY ONE SIDE SHOWN FOR CLARITY



TYPICAL DIAPHRAGM CONNECTION DETAIL

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 94

SHEET 6 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REPLACEMENT BEAM AND DIAPHRAGMS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
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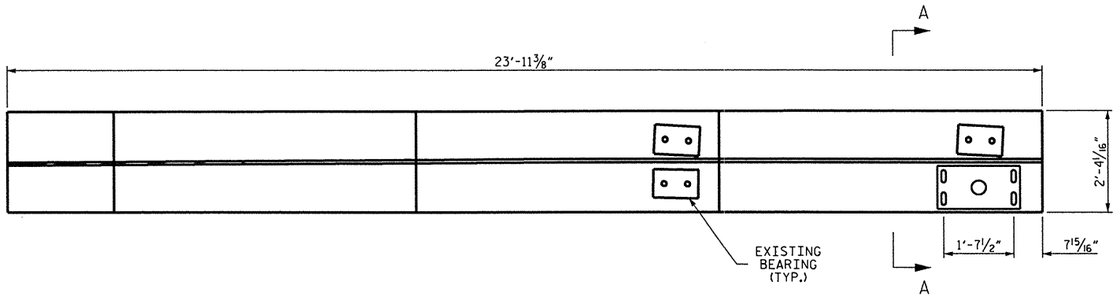
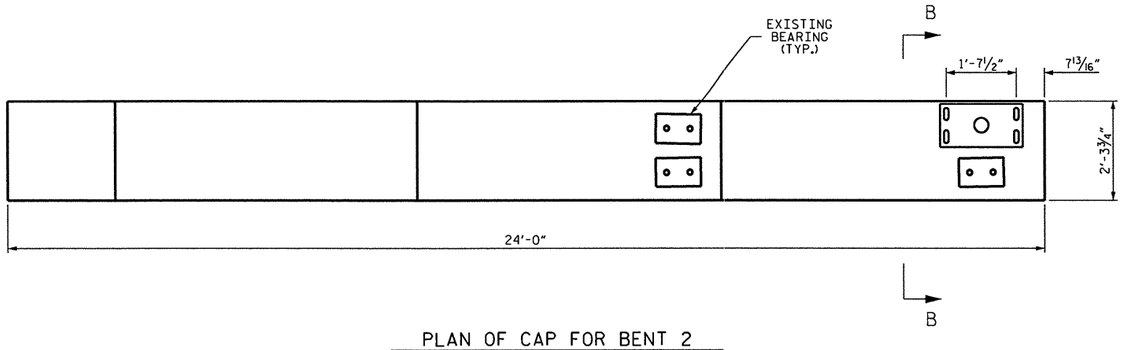
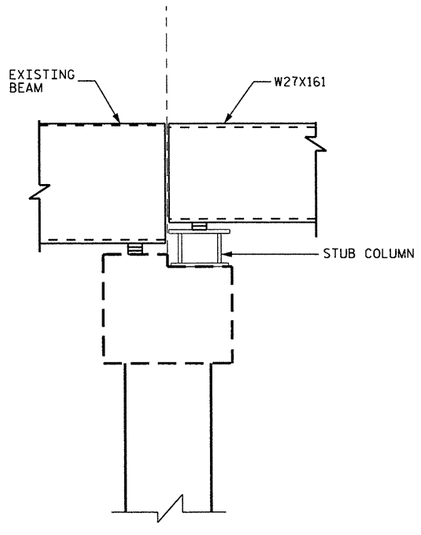


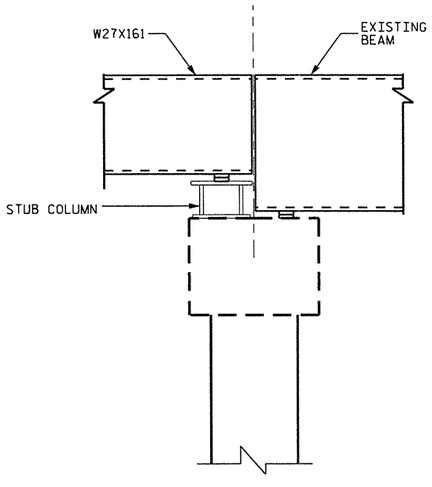
PLAN OF CAP FOR BENT 1



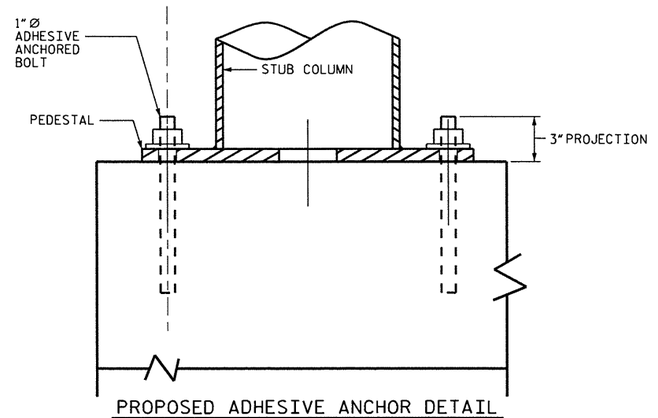
PLAN OF CAP FOR BENT 2



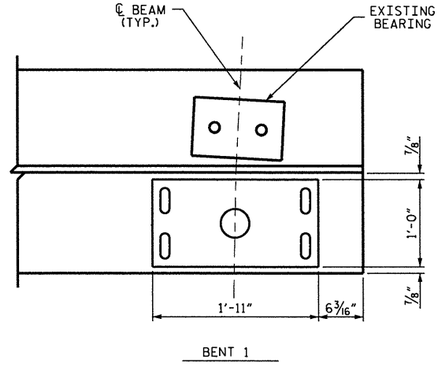
SECTION A-A
(BENT 1)



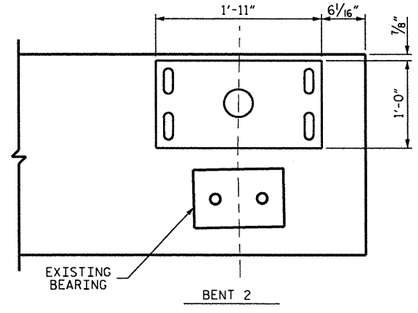
SECTION B-B
(BENT 2)



PROPOSED ADHESIVE ANCHOR DETAIL



BENT 1



BENT 2

DETAIL OF BOTTOM PLATE ORIENTATION
(BENTS 1 & 2)

NOTES

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

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1" Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 9", OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER.

NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 18,000 LBS. TENSION.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT

(BENTS 1 AND 2)

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			84

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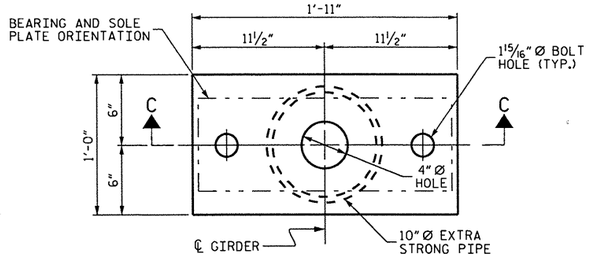
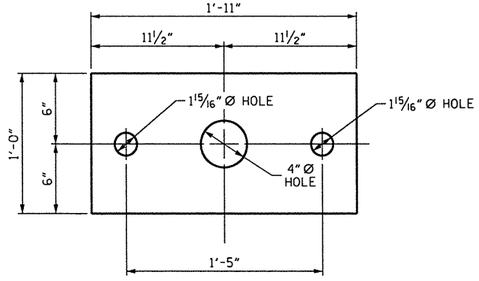


TOP PLATE PLAN



TOP PLATE

NOTES:

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 10" 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 SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 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.

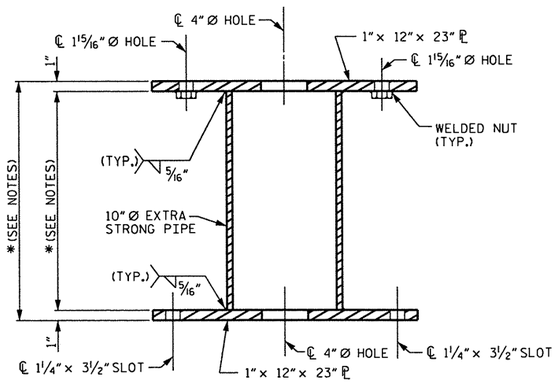
ALL PAINTED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE REPAINTED, AS OUTLINED IN ARTICLE 442-11 OF THE STANDARD SPECIFICATIONS.

THE TOP OF THE DECK ELEVATION SHALL REMAIN THE SAME DURING AND AFTER CONSTRUCTION.

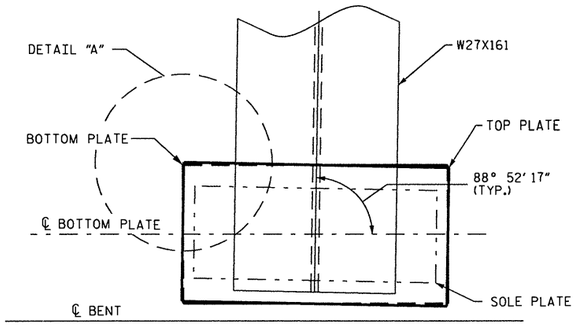
THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE BEAM PEDESTAL AND ALL OTHER STRUCTURAL STEEL PRIOR TO FABRICATION.

THE CONTRACTOR SHALL FIELD VERIFY THE STUB COLUMN ASSEMBLY HEIGHTS PRIOR TO FABRICATION.

* THE PROPOSED PEDESTALS ARE INTENDED TO ADD MINIMUM 4" TO THE VERTICAL CLEARANCE OF THE BRIDGE. THE CONTRACTOR SHALL FIELD VERIFY APPROPRIATE EXISTING ELEVATIONS. USING THIS ELEVATION INFORMATION WITH DIMENSIONS OF THE NEW GIRDER, BEARING, AND OTHER COMPONENTS, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE HEIGHT OF EACH PEDESTAL.

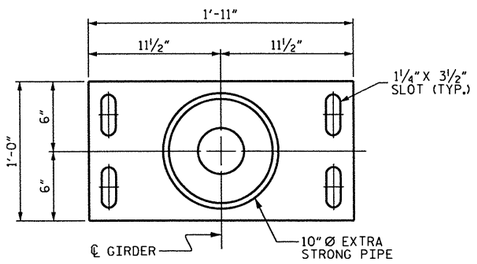


SECTION C-C

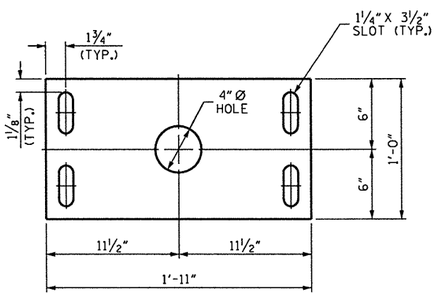


TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)

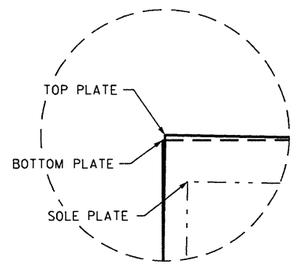
(HOLES & SLOTS HAVE BEEN OMITTED FOR CLARITY)



BOTTOM PLATE PLAN



BOTTOM PLATE



DETAIL "A"

STUB COLUMN DETAILS

(STUB COLUMN - 2 REQUIRED)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 94

SHEET 8 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURAL STEEL DETAILS

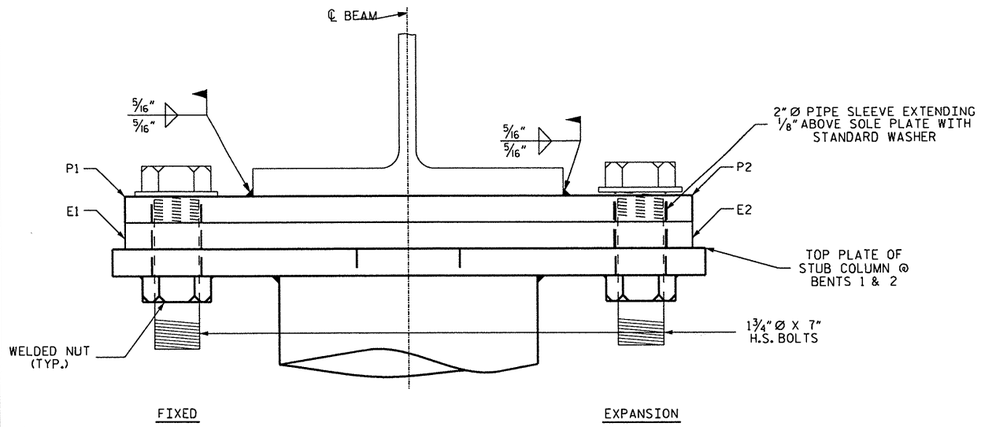
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-66
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE

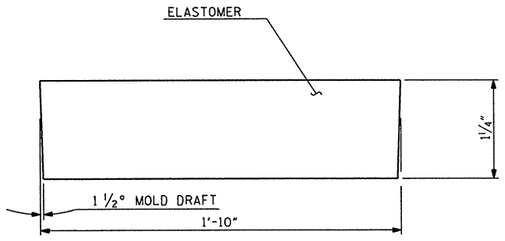
3/11/13

DRAWN BY : R. PUTEK DATE : 11/12
CHECKED BY : D. N. SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: DATE :

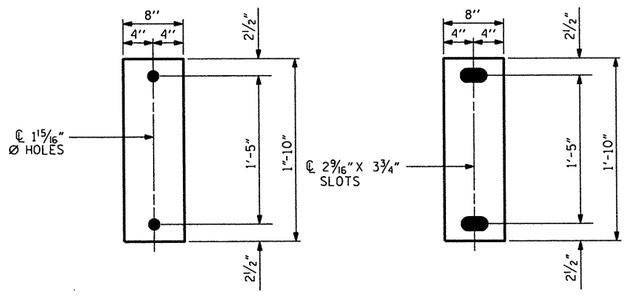
23-APR-2013 09:39
S:\PRS\POC\Squad C\Preservation_Projects\17BP.11.H.4\Wilkes 94\Microstation\FINAL\17BP.11.H.4_Wilkes_94_SD_8*.dgn
dsnoke



END VIEW @ BENTS

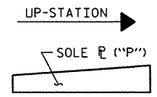


TYPICAL SECTION OF ELASTOMERIC BEARINGS

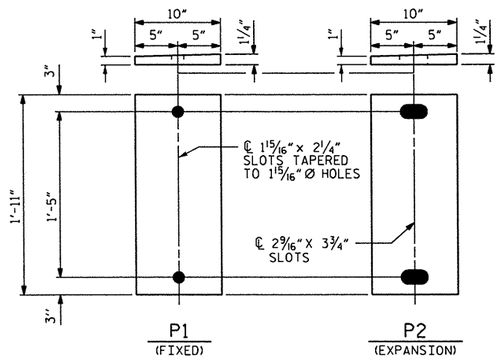


PLAN VIEW OF ELASTOMERIC BEARING

TYPE I



SOLE ℄ PLACEMENT DETAIL



P1 (1 REQ'D) P2 (1 REQ'D)

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 ½ 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.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 ksi, IN ACCORDANCE WITH AASHTO M251.

-LOAD RATINGS-	
	MAX.D.L.+L.L.
TYPE I	140 K

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 94

SHEET 9 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-67
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R. PUTEK DATE : 11/12
CHECKED BY : D. N. SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: DATE :

23-APR-2013 09:39
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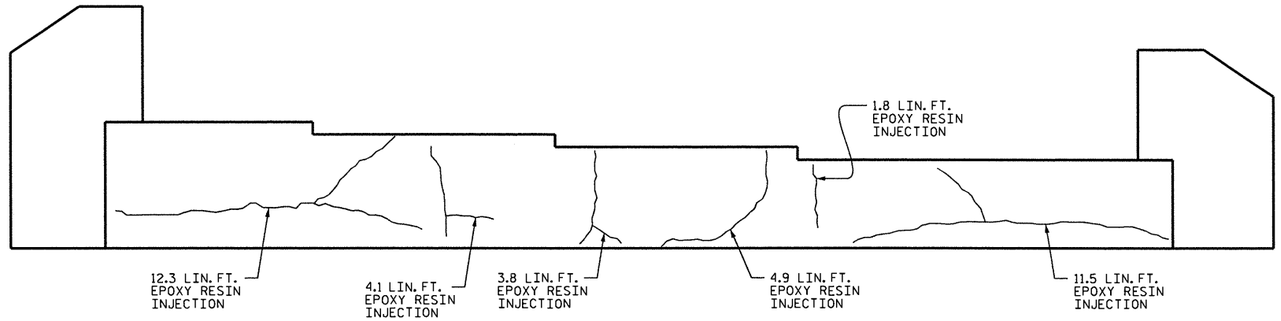
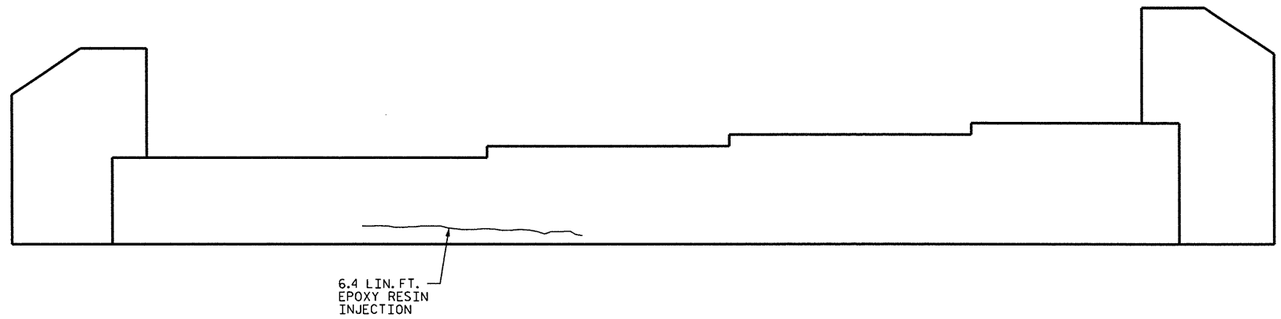


END BENT 1
(LOOKING NORTH)



END BENT 2
(LOOKING SOUTH)

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		38.4			

REPAIRS END BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		6.4			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

BENT DIAPHRAGMS AND OTHER CONCRETE COMPONENTS MAY BE REPAIRED UNDER SHOTCRETE REPAIRS OR CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

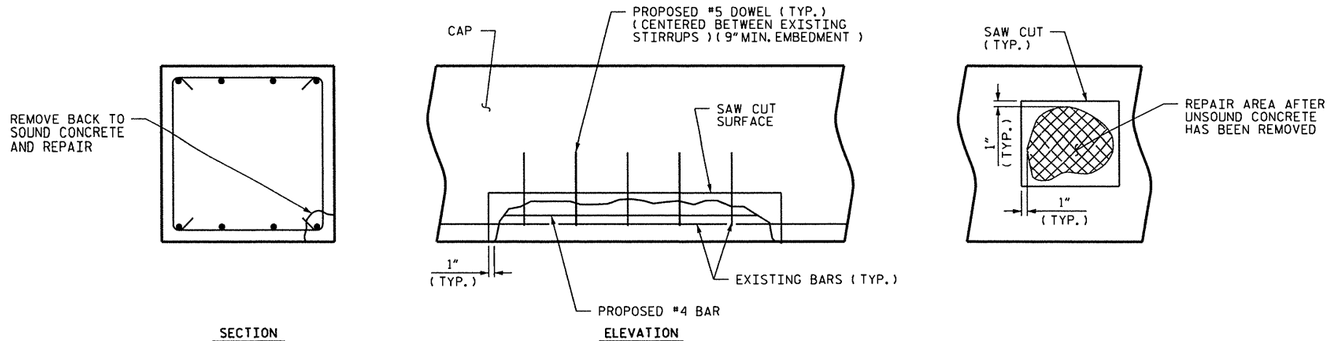
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



SECTION — ELEVATION

CORNER REPAIR — FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAIL

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 94

SHEET 10 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-68
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : P.C. BREWER DATE : 2/26/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: DATE :

23-APR-2013 09:39
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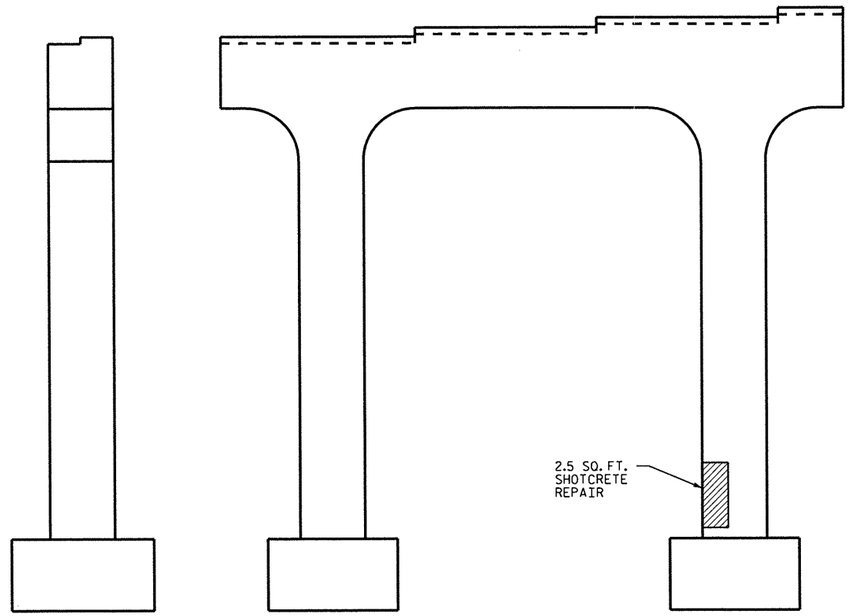
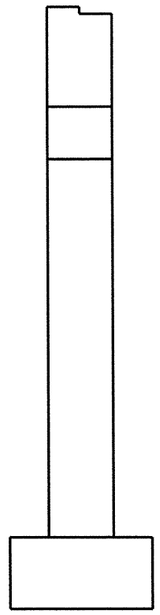
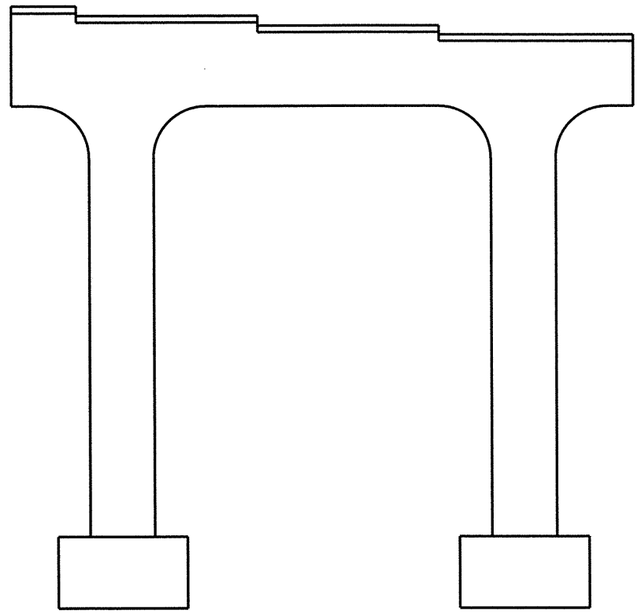


BENT 1 - EAST END

BENT 1 - SPAN A SIDE



BENT 1 - WEST END



BENT 1 - SPAN B SIDE

NOTES:

NO DAMAGE OBSERVED ON BENT 1 - SPAN B SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	2.5	2.0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 94

SHEET 11 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-69
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 2/26/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:39
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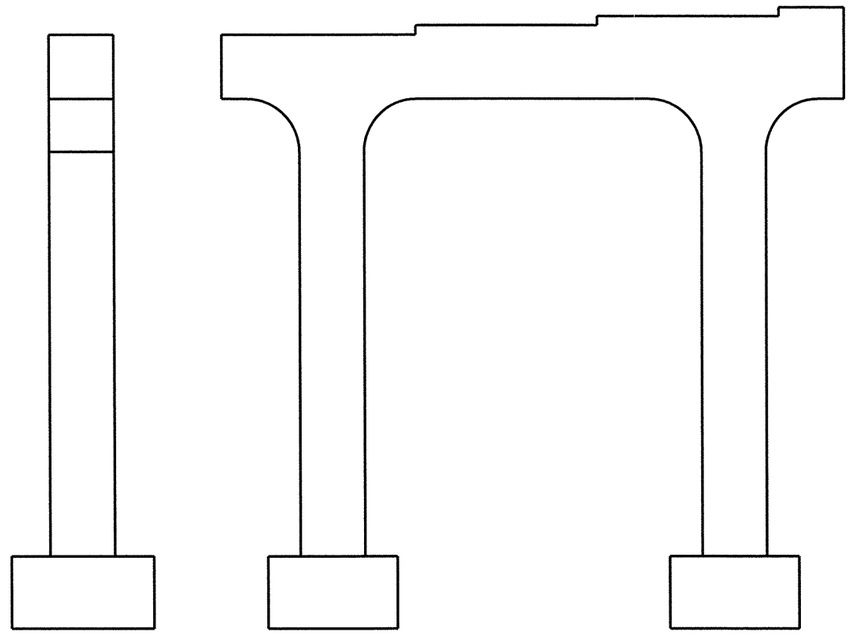
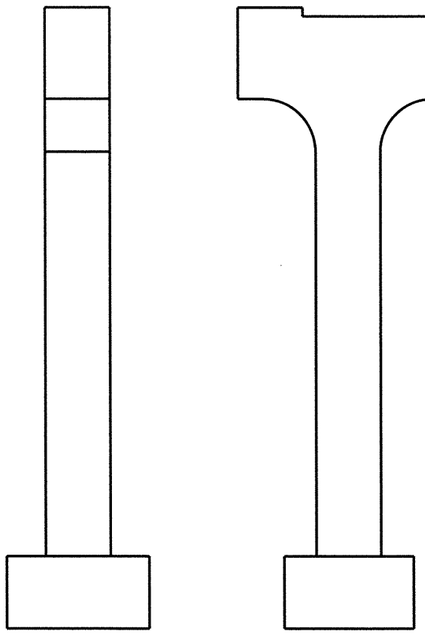


BENT 2 - EAST END

BENT 2 - SPAN B SIDE



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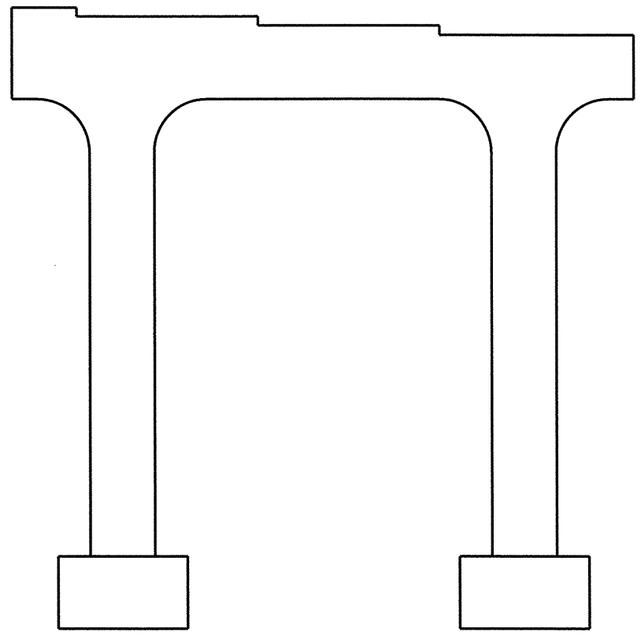

BENT 2 - SPAN C SIDE

NOTES:

NO DAMAGE OBSERVED ON BENT 2, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 94

SHEET 12 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-70
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 2/26/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:39
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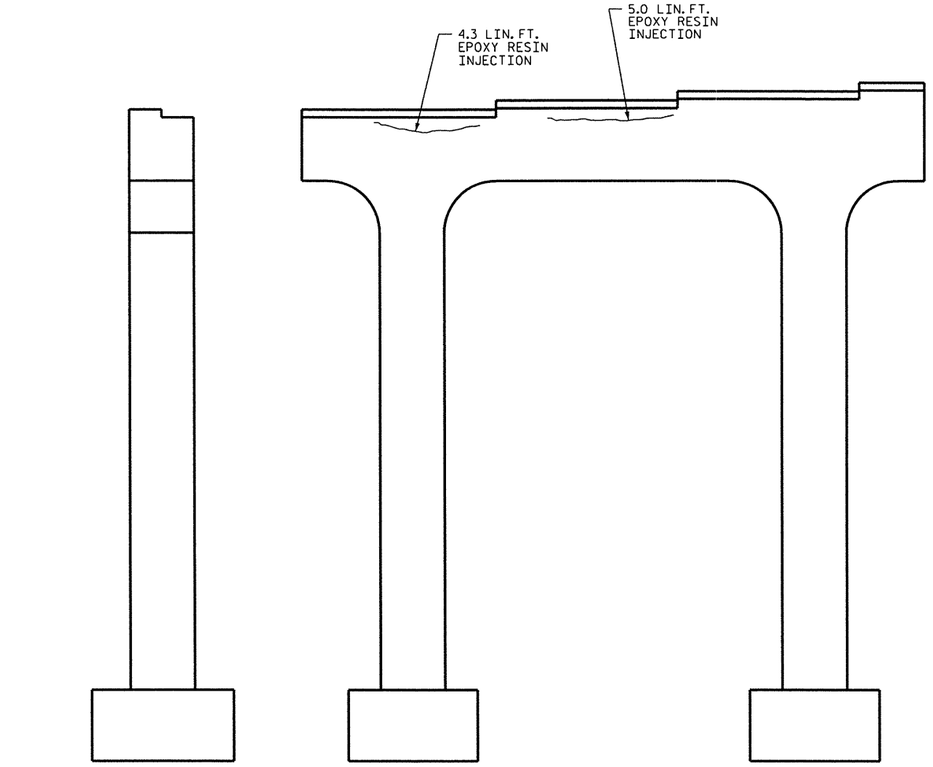
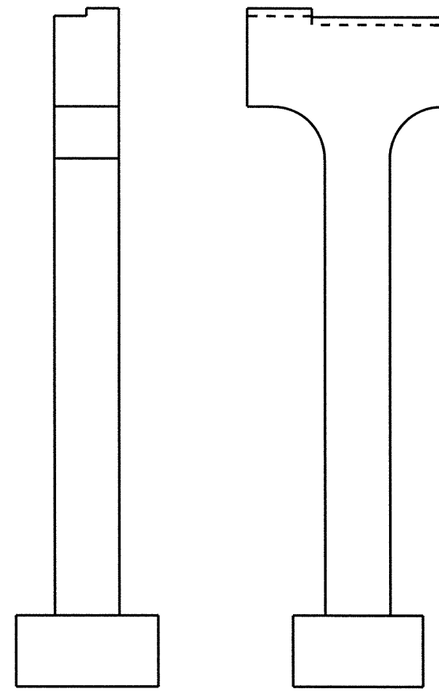


BENT 3 - EAST END

BENT 3 - SPAN C SIDE



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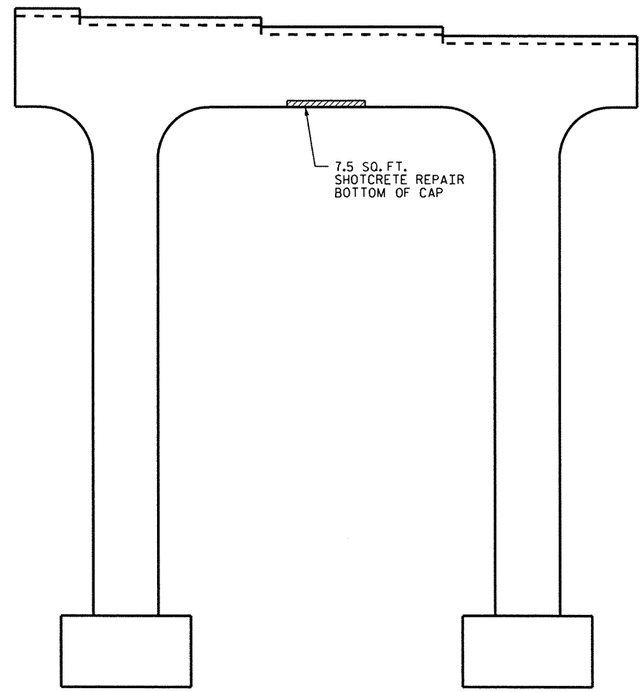

BENT 3 - SPAN D SIDE

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAIL, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	7.5	4.8			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		9.3			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 94
SHEET 13 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-71
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 2/26/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:39
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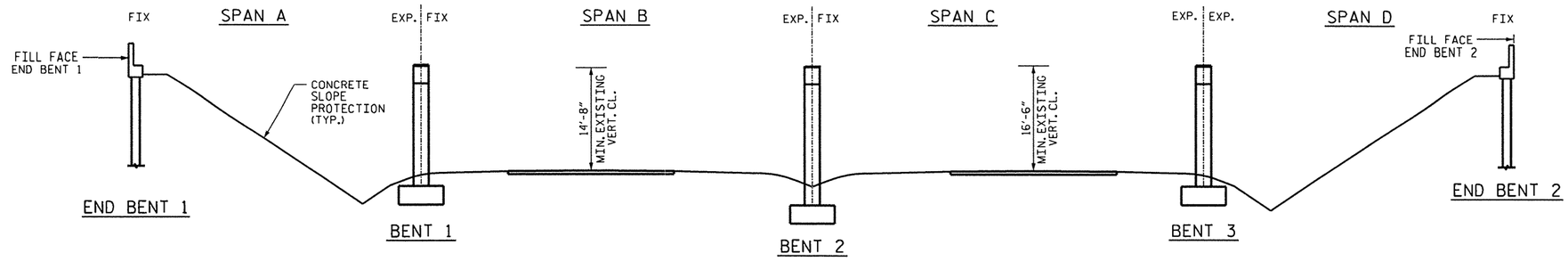
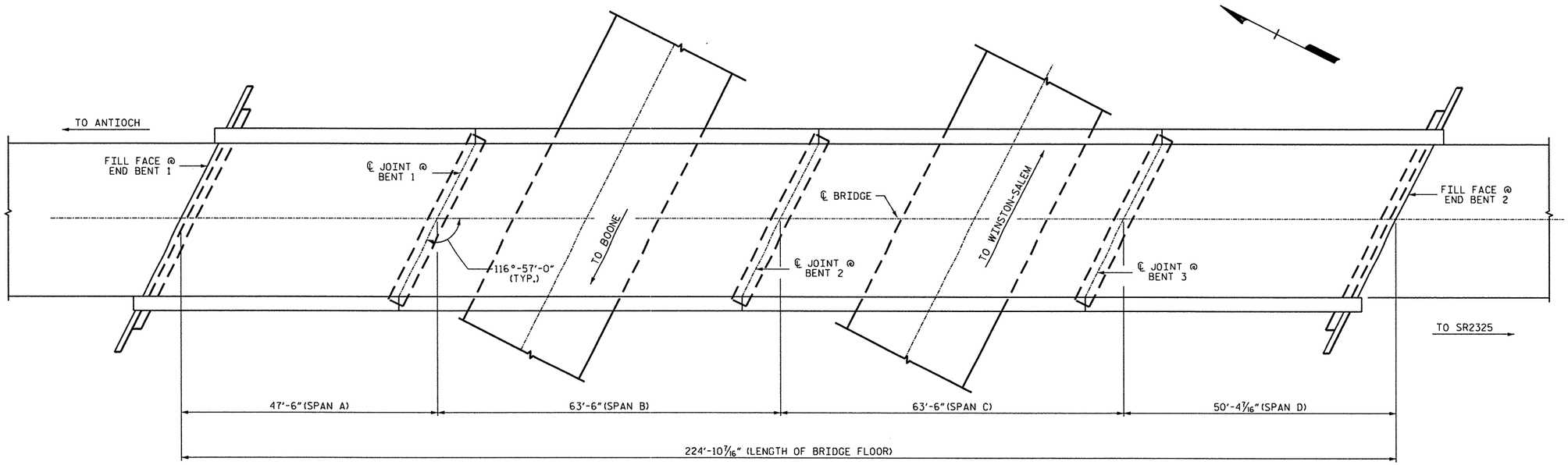


SECTION ALONG ℄ ROADWAY

* PROPOSED VERTICAL CLEARANCE TO BE A MINIMUM OF 15'-6".



PLAN

SCOPE OF WORK:

- SUBSTRUCTURE REPAIRS.
- BRIDGE JACKING, SPAN C.
- REMOVE AND REPLACE FOUR EXISTING BEAMS.
- ADD STUB COLUMN AND BEARINGS.
- DECK OVERLAY

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	GROOVING BRIDGE FLOOR	APPROX. 44,300 LBS. STRUCTURAL STEEL	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE	ELASTOMERIC BEARINGS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	BRIDGE JACKING BRIDGE #96	PARTIAL REMOVAL OF EXISTING STRUCTURE #96	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK
SQ.YDS.	TONS	SQ. FT.	LUMP SUM	C.Y.	SQ.YDS.	LUMP SUM	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SQ.YDS.	SQ.YDS.
112	10	5,524	LUMP SUM	29.1	699.6	LUMP SUM	0.6	22.5	LUMP SUM	LUMP SUM	LUMP SUM	699.6	699.6

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO. 96

SHEET 1 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-72
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : S. T. SANDOR DATE : 02/2013
CHECKED BY : D. SNOKE DATE : 03/2013
DESIGN ENGINEER OF RECORD: _____ DATE : _____

23-APR-2013 09:39
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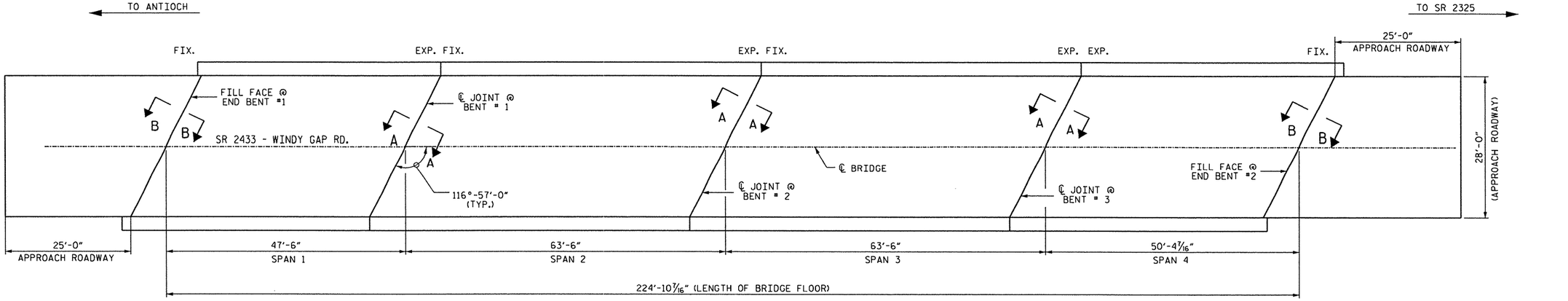
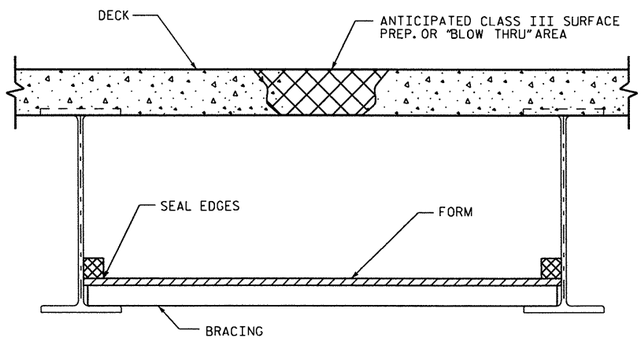
dsnoke



PLAN

(SEE SHEET S-75 FOR SECTION A-A & B-B)

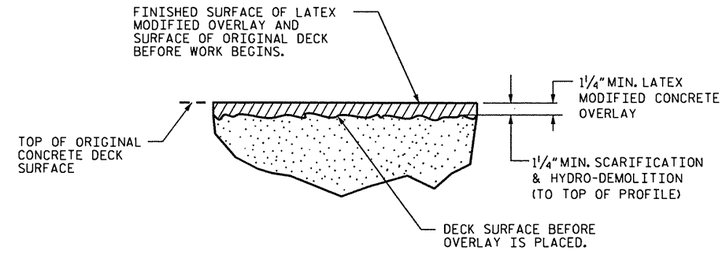


TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COST FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

NOTES

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

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.

ROADWAY MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF BRIDGE.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK, SEE "TYPICAL "BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRODEMOLITION PROCESS SEE, "MANAGING HYDRODEMOLITION WATER" SPECIAL PROVISION.

FOR "HYDRO-DEMOLITION OF BRIDGE DECK", SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE WITH "LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH", SEE SPECIAL PROVISIONS.

FOR "FOAM JOINT SEALS", SEE SPECIAL PROVISIONS.

FOR "ELASTOMERIC CONCRETE", SEE SPECIAL PROVISIONS.

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

FOR "SCARIFYING BRIDGE DECK", SEE SPECIAL PROVISIONS.

FOR "FALSEWORK AND FORMWORK", SEE SPECIAL PROVISIONS.

FOR "CRANE SAFETY", SEE SPECIAL PROVISIONS.

FOR "GROUT FOR STRUCTURES", SEE SPECIAL PROVISIONS.

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

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : S. T. SANDOR DATE : 02/2013
CHECKED BY : D. SNOKE DATE : 03/2013
DESIGN ENGINEER OF RECORD: _____ DATE : -

23-APR-2013 09:39
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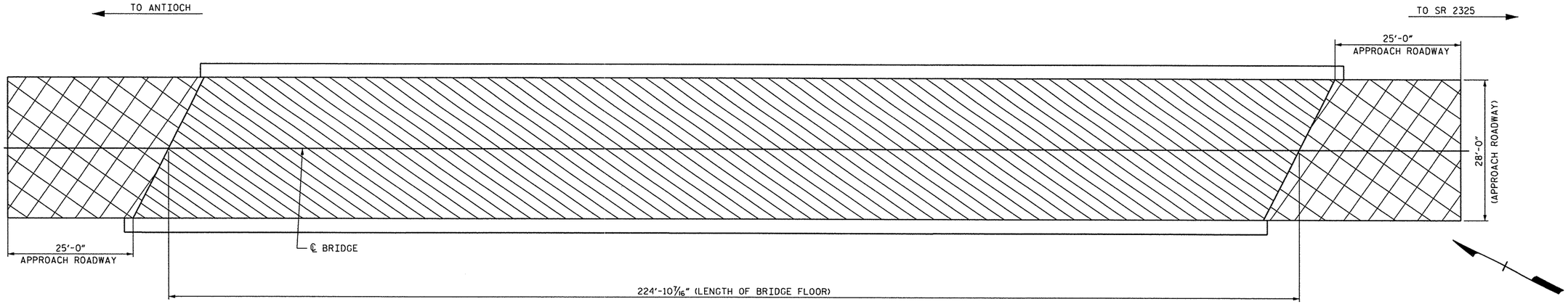
PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 96

SHEET 2 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-73
1			3			TOTAL SHEETS
2			4			84

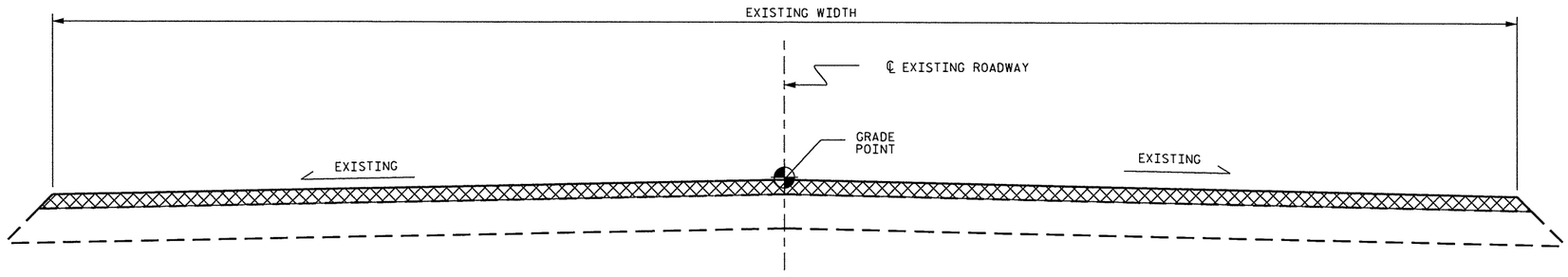


SCARIFYING BRIDGE DECK

INCIDENTAL MILLING

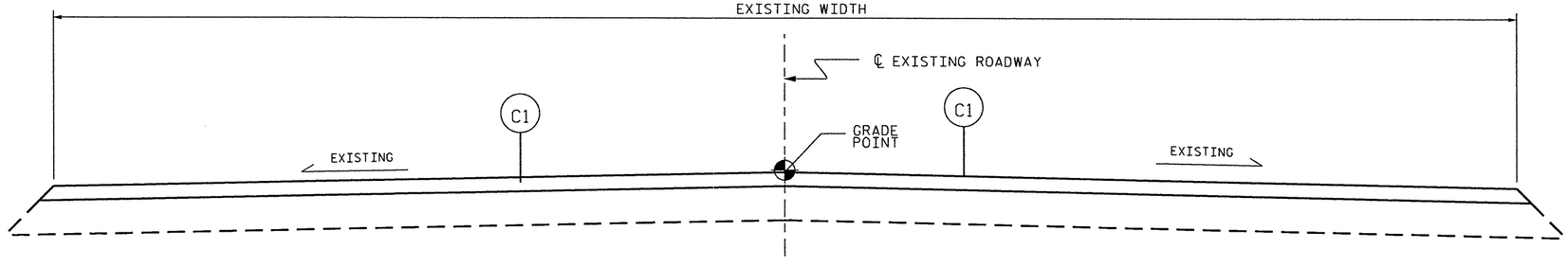
C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.

PLAN



TYPICAL ROADWAY MILLING SECTION

(MILL TO 1½" DEPTH - SEE NOTE)



TYPICAL PROPOSED ROADWAY SECTION

NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY SLABS, AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 96
SHEET 3 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SCARIFYING AND MILLING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-74
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 02/2013
CHECKED BY : D. SNOKE DATE : 03/2013
DESIGN ENGINEER OF RECORD: _____ DATE : -

23-APR-2013 09:39
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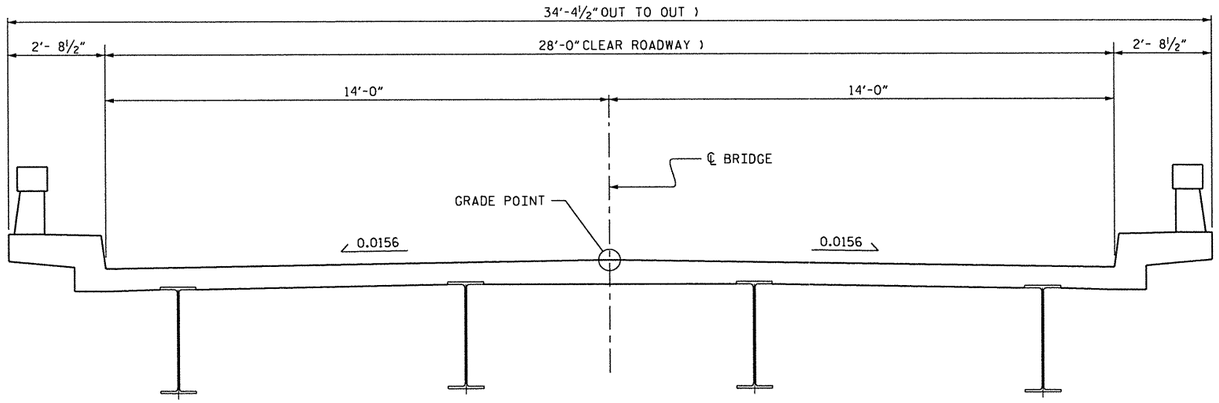
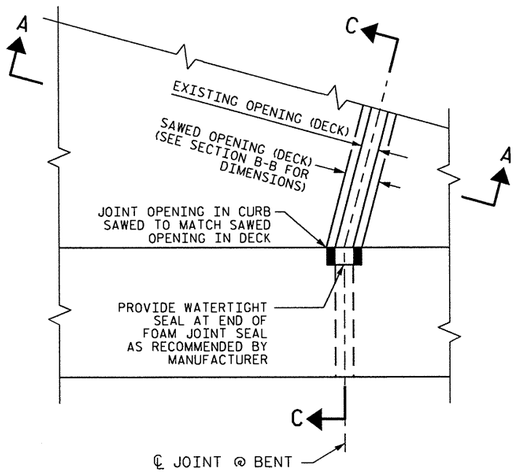
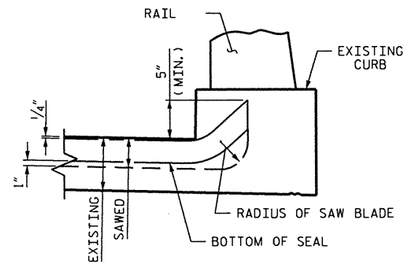


TYPICAL SECTION

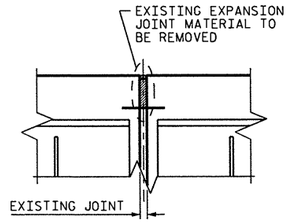


PLAN

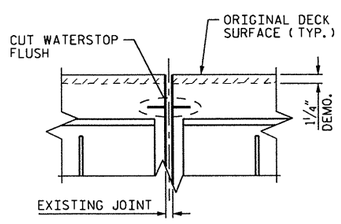


SECTION C-C

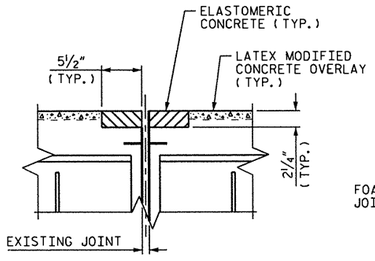
IF THE EMBEDDED PORTION OF THE EXISITNG PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, THE ENTIRE WATERSTOP SHALL BE REMOVED



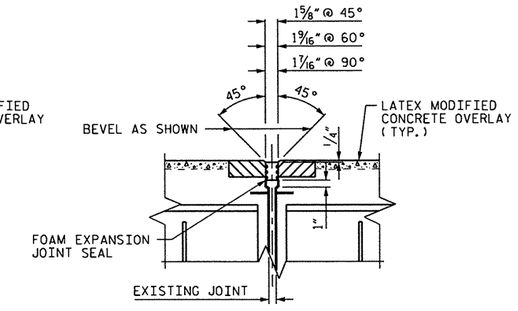
SECTION A-A
(EXISTING)



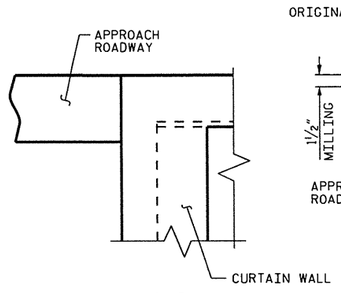
SECTION A-A
(MINIMUM EXISTING JOINT DEMOLITION)



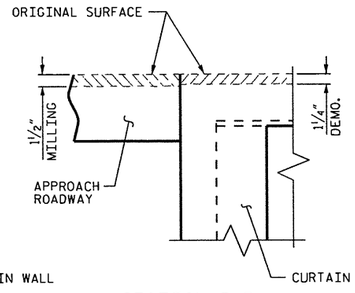
SECTION A-A
(PROPOSED JOINT PRE-SAWED DIMENSIONS)



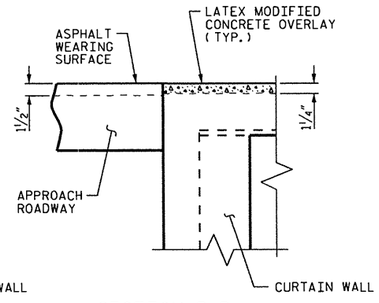
SECTION A-A
(PROPOSED FOAM EXPANSION JOINT SEAL)



SECTION B-B
(EXISTING)



SECTION B-B
(MINIMUM EXISTING DEMOLITION)



SECTION B-B
(PROPOSED)

NOTES:

FOR FOAM JOINT SEAL SEE SPECIAL PROVISIONS.

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

ELASTOMERIC CONCRETE		
BENTS	24.0	(CU. FT.)
* TOTAL	24.0	(CU. FT.)

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
2/25/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 96

SHEET 4 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION & JOINT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-75
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : S. T. SANDOR DATE : 2/13
CHECKED BY : D. N. SNOKE DATE : 3/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:39
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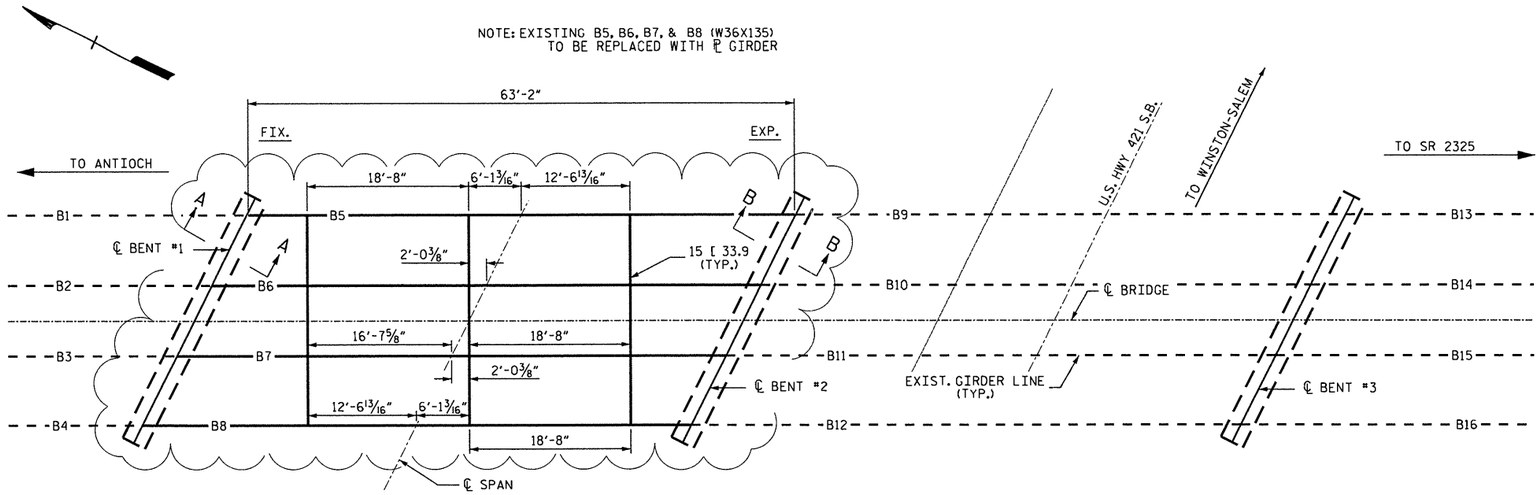


FRAMING PLAN

JACKING NOTES:

CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA FOR REVIEW AND APPROVAL.

THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLANS.

PRIOR TO BRIDGE JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED. THIS MAY INCLUDE BUT NOT LIMITED TO METAL RAILINGS AND UTILITIES.

THE CONTRACTOR MAY NEED TO REINFORCE EXISTING BRIDGE MEMBERS OR ADD MEMBERS TO WITHSTAND THE JACKING FORCES.

PROVISIONS SHALL BE MADE TO ACCOUNT FOR THERMAL MOVEMENTS OR LATERAL FORCES SUCH AS WIND LOADS DURING THE PERIOD THAT THE STRUCTURE IS RESTING ON THE TEMPORARY SUPPORTS.

ALL JACKS AND JACKING SUPPORTS SHALL BE PLUMB.

EACH HYDRAULIC JACK SHALL HAVE A RATED CAPACITY CLEARLY SHOWN, WITH MINIMUM RATED CAPACITY OF 1.3 TIMES THE CALCULATED LOAD REACTION ADJACENT TO THE POINT OF JACKING.

JACKS WITHOUT A MECHANICAL LOAD HOLDER (LOCK-OFF) SHALL BE SECURED BY BLOCKING IF THE JACKING OPERATION IN ANY ONE LOCATION LASTS LONGER THAN 30 MINUTES.

HYDRAULIC SYSTEM SHALL BE CONNECTED SUCH THAT ALL JACKS LIFT SIMULTANEOUSLY.

LIFTING FRAME SHALL EXTEND BEYOND THE LENGTH OF THE LIFTED SPAN AND PROVIDE BEARINGS AT THE SAME LOCATION AS THE ADJACENT GIRDER BEARINGS.

CONTRACTOR SHALL SHIM BRIDGE SPAN DURING JACKING SUCH THAT THE MAXIMUM UNSHIMMED LIFT IS 1".

CONTRACTOR SHALL PROVIDE SPAN LIFT POINTS AS CLOSE AS POSSIBLE TO THE FACE OF BENT CAP.

IF DURING THE JACKING PROCESS OR WHILE THE SPAN IS BEING SUPPORTED, THE BEAMS SHIFT FROM THEIR ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

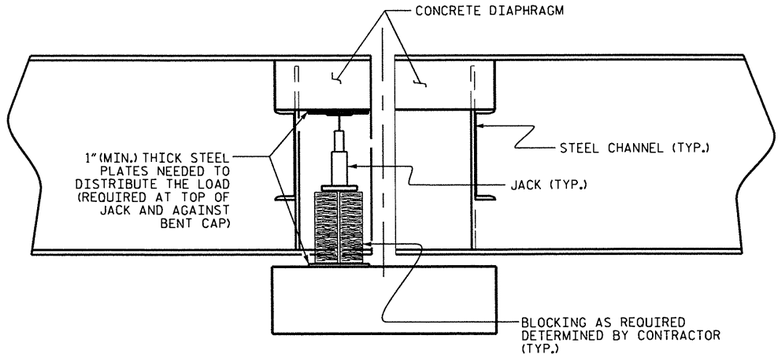
ALL ADJACENT BEARINGS OF BEAMS NOT BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARING LOOSENED SHALL BE TIGHTENED BACK AFTER THE BEAMS ARE REPAIRED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

PRIOR TO INSTALLING BEARING PEDESTALS AND NEW BEARINGS, CONTRACTOR SHALL MAKE ANY REPAIRS TO BENTS AS REQUIRED IN THE CONTRACT DOCUMENTS.

TRAFFIC SHALL NOT BE ALLOWED ON THE STRUCTURE UNTIL THE WORK REQUIRED BY THE CONTRACT DOCUMENTS IS COMPLETE.

FOR ADDITIONAL INFORMATION ON "BRIDGE JACKING", SEE SPECIAL PROVISIONS.

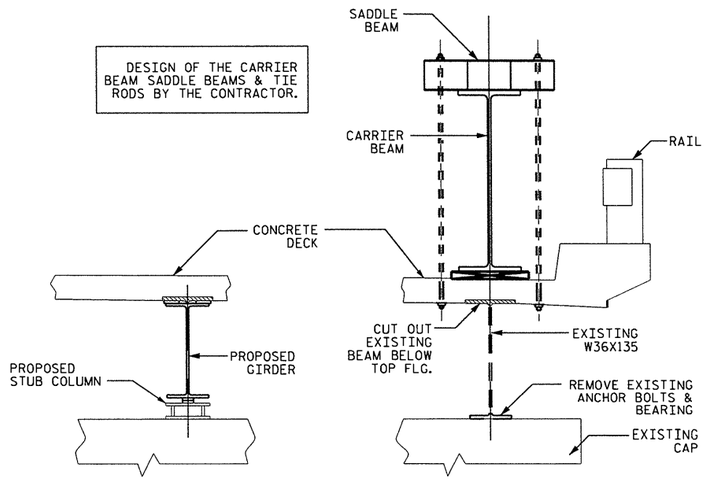
FOR ADDITIONAL NOTES, SEE "REPLACEMENT BEAM AND DIAPHRAGMS" SHEET.



SECTION THRU DIAPHRAGM

DRAWING PROVIDED AS AN EXAMPLE OF A TYPICAL BRIDGE JACKING SET-UP AND IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL DESIGN AND SUBMIT APPROPRIATE SET-UP FOR SPECIFIC BRIDGE JACKING.

DESIGN OF THE CARRIER BEAM SADDLE BEAMS & TIE RODS BY THE CONTRACTOR.



COMPLETE REPAIR

DURING REPAIR

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 96

SHEET 5 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EXISTING SUPERSTRUCTURE
FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-76
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY : R. L. PUTEK DATE : 12/12
CHECKED BY : D. N. SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:39
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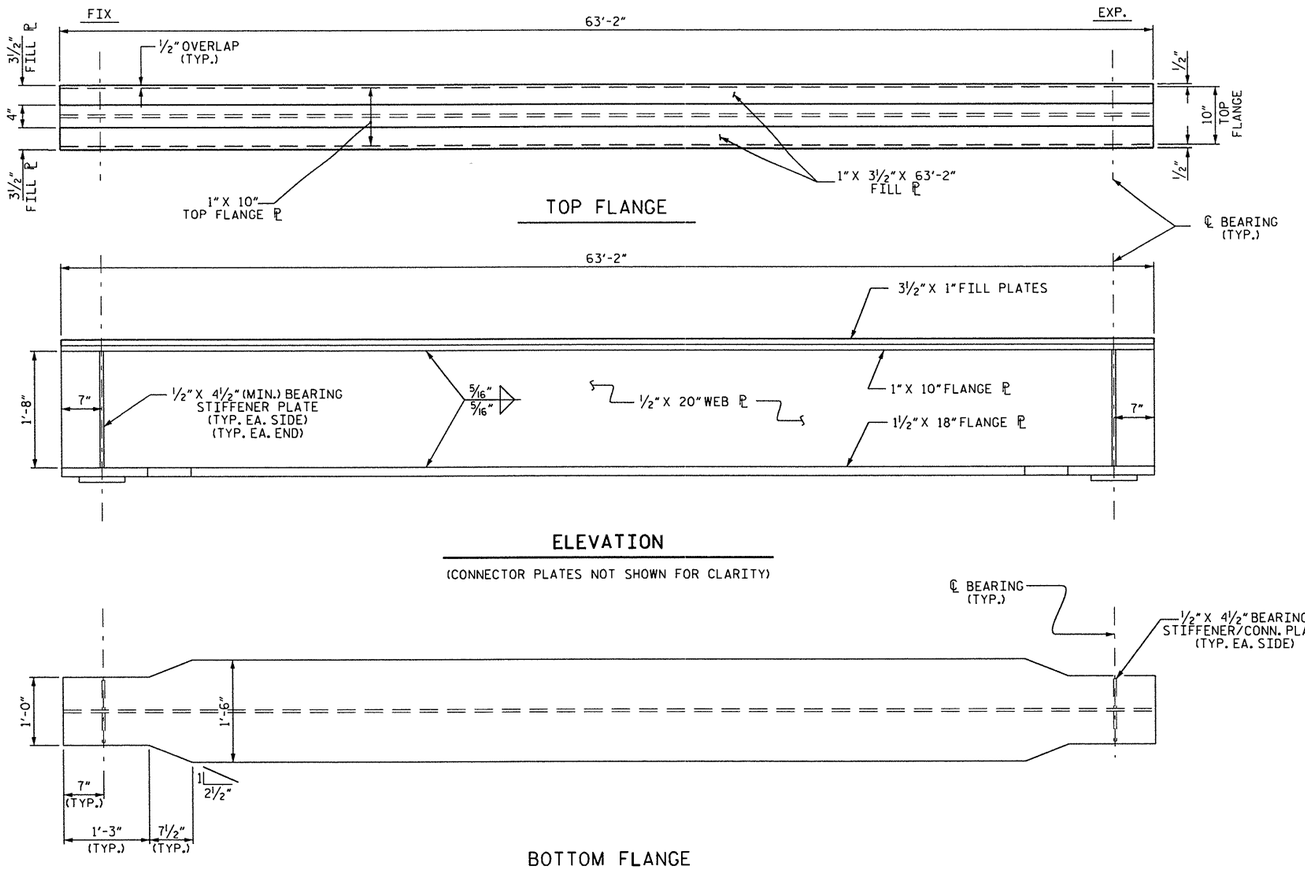
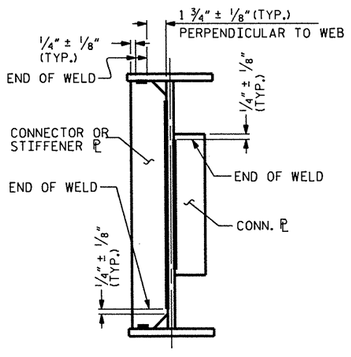


TOP FLANGE

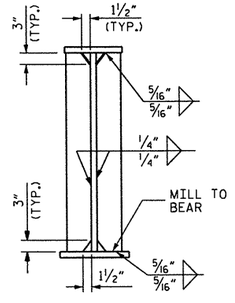
ELEVATION

(CONNECTOR PLATES NOT SHOWN FOR CLARITY)

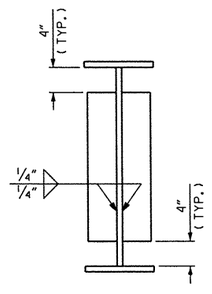
BOTTOM FLANGE



WELD TERMINATION DETAILS

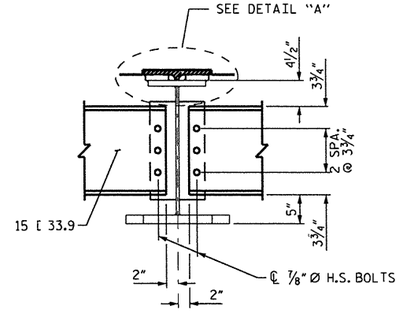


BEARING STIFFENER



INTERMEDIATE CONNECTOR ℄

ONLY ONE SIDE SHOWN FOR CLARITY



TYPICAL DIAPHRAGM CONNECTION DETAIL

NOTES:

THE CONTRACTOR MAY RETAIN AND CLEAN THE EXISTING INTERMEDIATE DIAPHRAGMS FOR RE-USE.

THE CONTRACTOR IS RESPONSIBLE TO EVALUATE THE STRUCTURAL CONDITION OF THE EXISTING INTERMEDIATE DIAPHRAGMS.

THE CONTRACTOR SHALL DRILL HOLES IN DIAPHRAGM OR CONNECTION PLATE AS NECESSARY TO ATTACH THE DIAPHRAGM TO THE BEAM.

IF EXISTING DIAPHRAGMS ARE NOT ACCEPTABLE FOR RE-USE, FABRICATE NEW DIAPHRAGMS TO MATCH EXISTING DIAPHRAGMS IN GOOD CONDITION.

ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

ALL STEEL IS TO BE SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 OF THE STANDARD SPECIFICATIONS.

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.

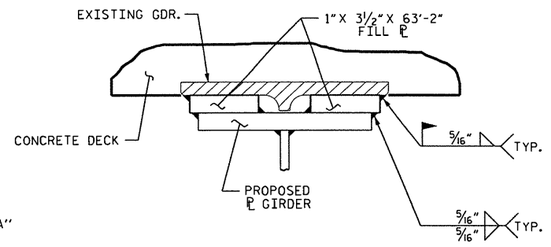
WEB STIFFENERS AND CONNECTOR PLATES AS NECESSARY TO MATCH EXISTING.

REMOVE PAINT OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS PRIOR TO WELDING.

AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE PAINT HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER ARTICLE 442-11 OF THE STANDARD SPECIFICATION.

THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.

TOTAL CAMBER SHALL BE 3" UPWARD



DETAIL "A"

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 96

SHEET 6 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REPLACEMENT BEAM AND DIAPHRAGMS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-77
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : R. L. PUTEK DATE : 12/12
CHECKED BY : D. N. SNOKE DATE : 03/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:39
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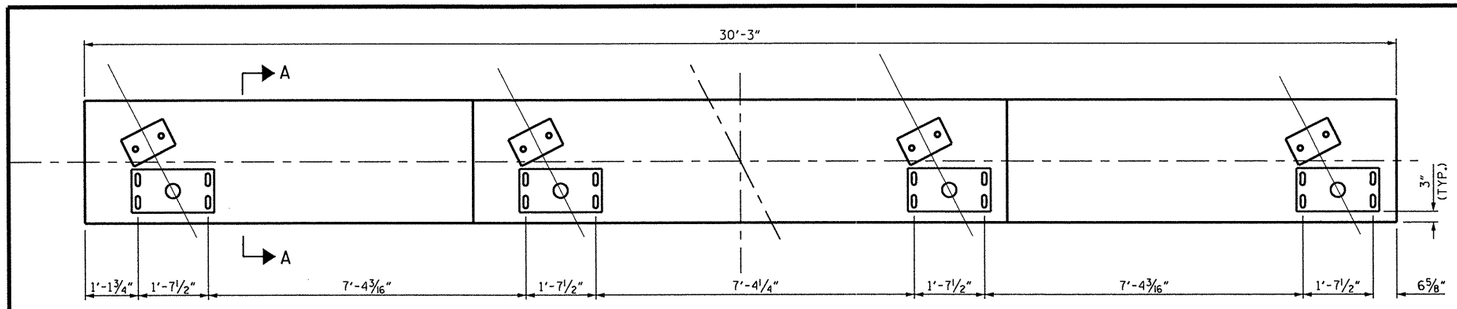
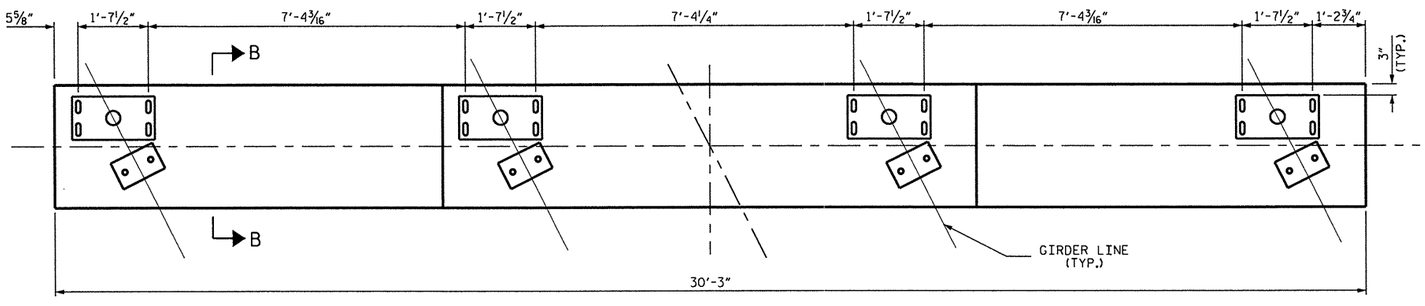
dsnoke



PLAN OF CAP FOR BENT 1



PLAN OF CAP FOR BENT 2

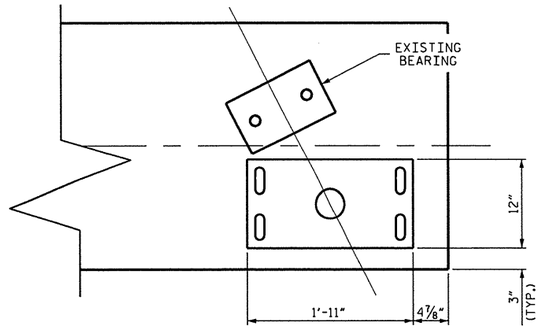
NOTES

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

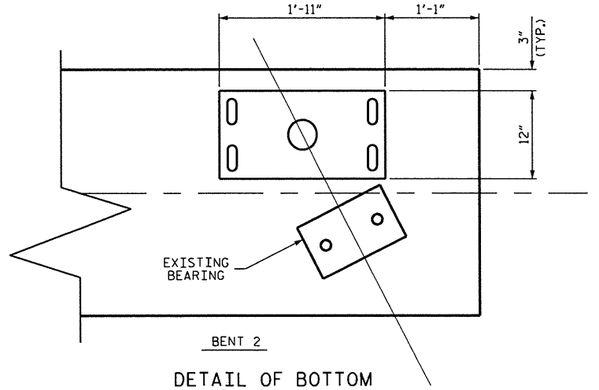
THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1"Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 9", OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER.

NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 18,000 LBS. TENSION.

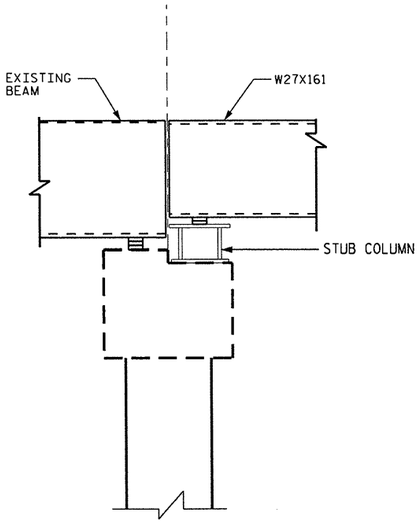


BENT 1

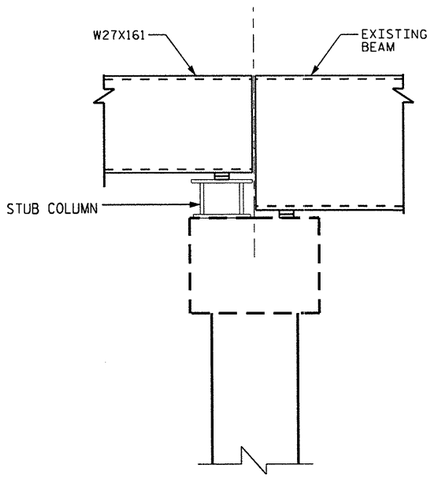


BENT 2

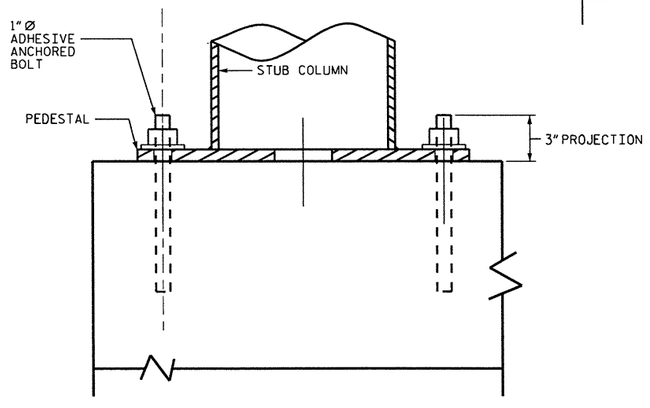
DETAIL OF BOTTOM PLATE ORIENTATION
(BENTS 1 & 2)



SECTION A-A
(BENT 1)



SECTION B-B
(BENT 2)



PROPOSED ADHESIVE ANCHOR DETAIL

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO.: 96

SHEET 7 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STUB COLUMN LAYOUT
(INTERIOR BENTS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-78
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY :	R. L. PUTEK	DATE :	11/12
CHECKED BY :	D. N. SNOKE	DATE :	03/13
DESIGN ENGINEER OF RECORD:	-	DATE :	-

23-APR-2013 09:39
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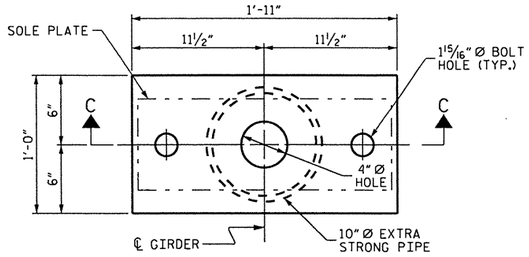
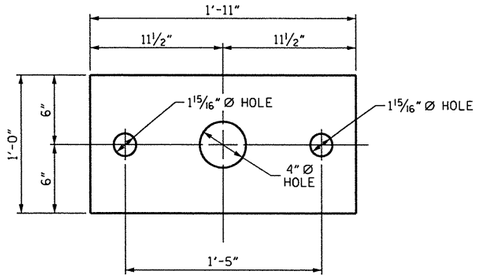
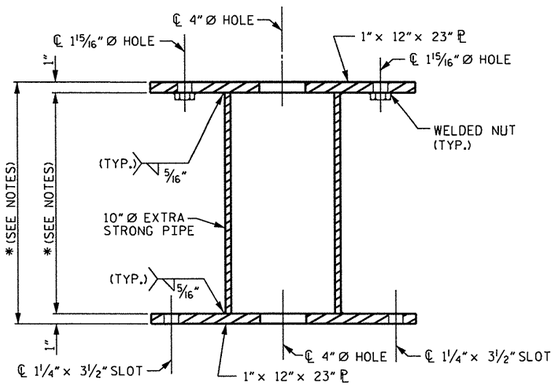


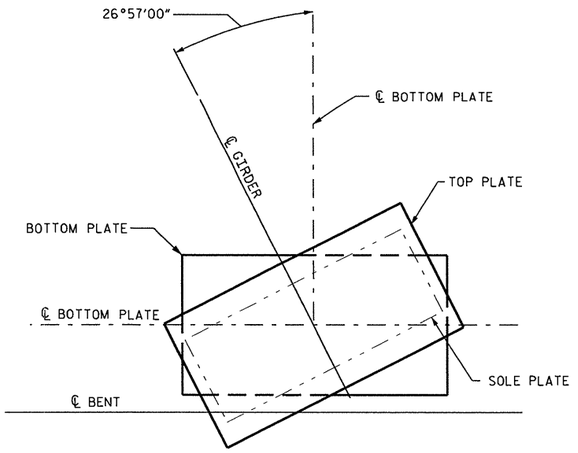
TOP PLATE PLAN



TOP PLATE

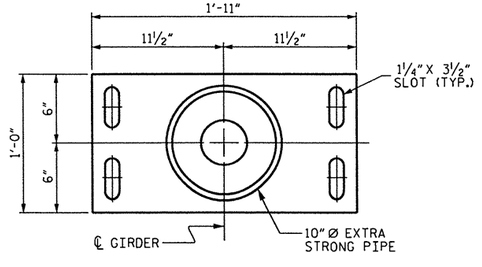


SECTION C-C

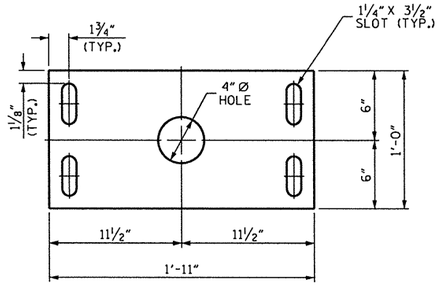


TOP PLATE TO BOTTOM PLATE ORIENTATION (TYP.)

(BEAM, HOLES & SLOTS HAVE BEEN OMITTED FOR CLARITY)



BOTTOM PLATE PLAN



BOTTOM PLATE

NOTES:

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL 10" 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 SHOP CLEANED AND SHOP PAINTED ACCORDING TO PAINT SYSTEM #1 OF SECTION 442 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 PAINTED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE REPAINTED, AS OUTLINED IN ARTICLE 442-11 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 MINIMUM 11" TO THE VERTICAL CLEARANCE OF THE BRIDGE. THE CONTRACTOR SHALL FIELD VERIFY APPROPRIATE EXISTING ELEVATIONS. USING THIS ELEVATION INFORMATION WITH DIMENSIONS OF THE NEW GIRDER, BEARING, AND OTHER COMPONENTS, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE HEIGHT OF EACH PEDESTAL.

STUB COLUMN DETAILS

(STUB COLUMN - 8 REQUIRED)

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 96

SHEET 8 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRUCTURAL STEEL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-79
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

DRAWN BY :	R. L. PUTEK	DATE : 11/12
CHECKED BY :	D. N. SNOKE	DATE : 03/13
DESIGN ENGINEER OF RECORD:	-	DATE : -

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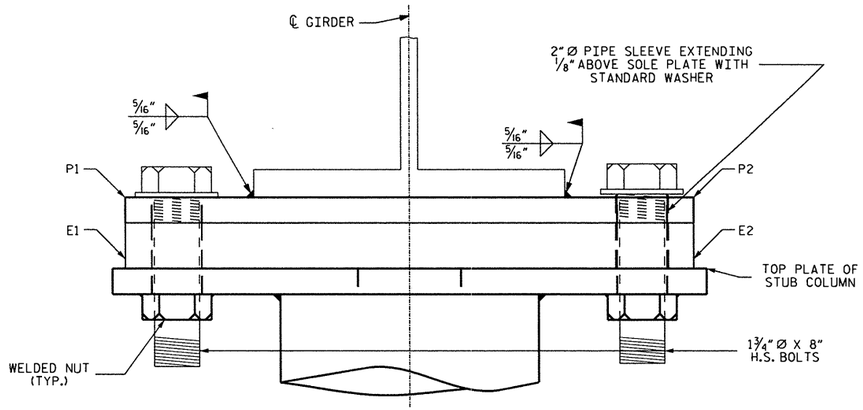
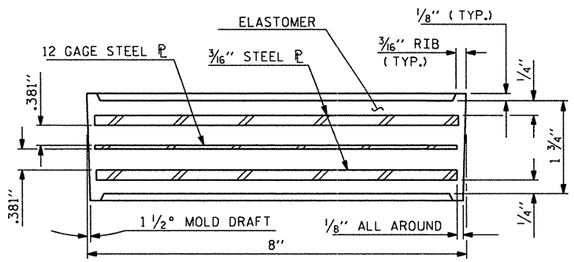
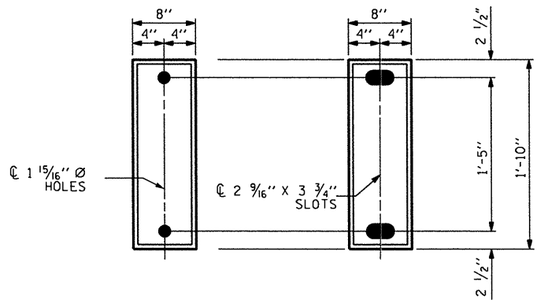


END VIEW @ BENTS



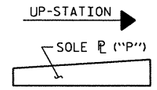
TYPICAL SECTION OF ELASTOMERIC BEARINGS



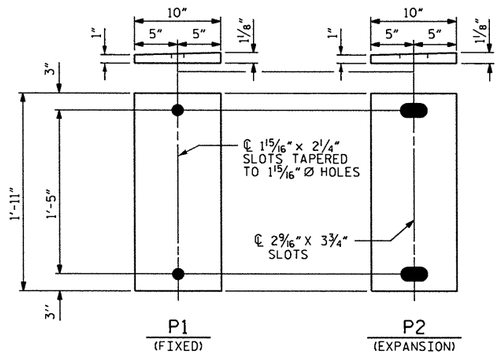
E1 (4 REQ'D) E2 (4 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE I



SOLE ℙ PLACEMENT DETAIL



P1 (4 REQ'D) P2 (4 REQ'D)

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.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 ksi, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

LOAD RATINGS	
	MAX.D.L.+L.L.
TYPE I	140 K

PROJECT NO. 17BP.11.H.4

WILKES COUNTY

BRIDGE NO.: 96

SHEET 9 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/11/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-80
1			3			TOTAL SHEETS
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CHECKED BY : D. N. SNOKE DATE : 03/13
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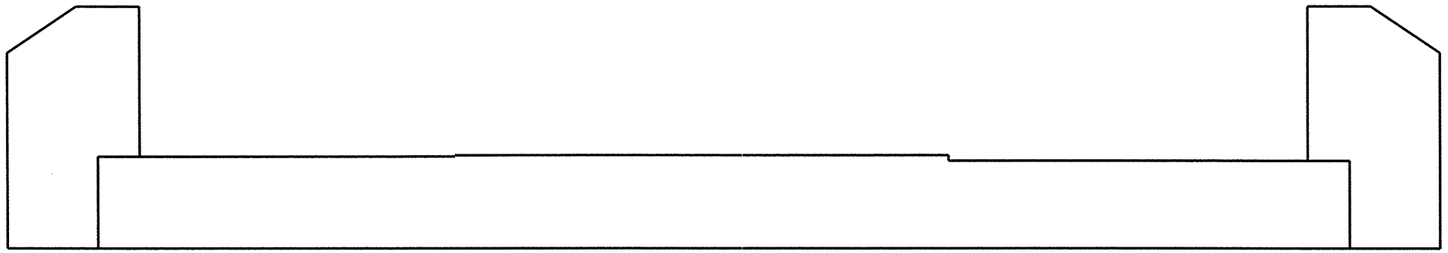
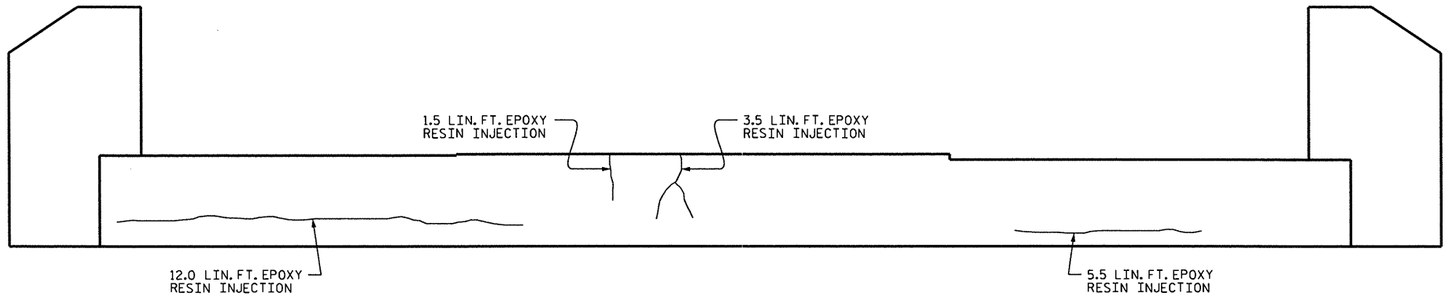
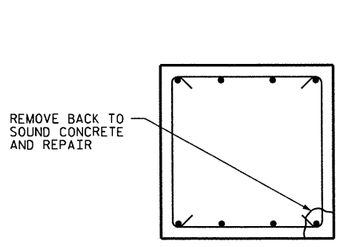


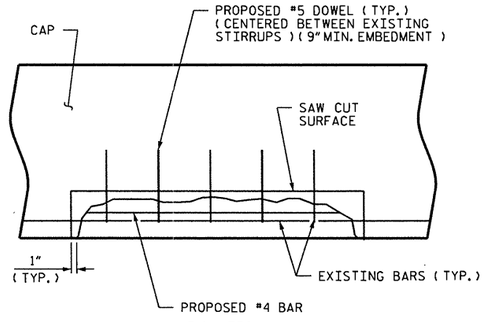
END BENT 1
(LOOKING NORTH)



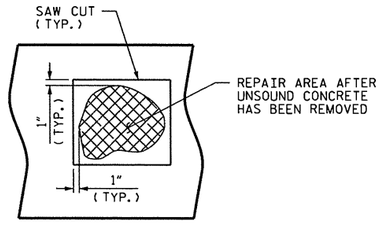
END BENT 2
(LOOKING SOUTH)



SECTION



ELEVATION



CORNER REPAIR

FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAILS

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			

REPAIRS END BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		22.5			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

NO DAMAGE OBSERVED ON END BENT 1, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

BENT DIAPHRAGMS AND OTHER CONCRETE COMPONENTS MAY BE REPAIRED UNDER SHOTCRETE REPAIRS OR CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 96

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-81
1			3			TOTAL SHEETS
2			4			84

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/6/13

DRAWN BY :	P.C. BREWER	DATE : 3/5/13
CHECKED BY :	D.N. SNOKE	DATE : 3/6/13
DESIGN ENGINEER OF RECORD:	-	DATE : -

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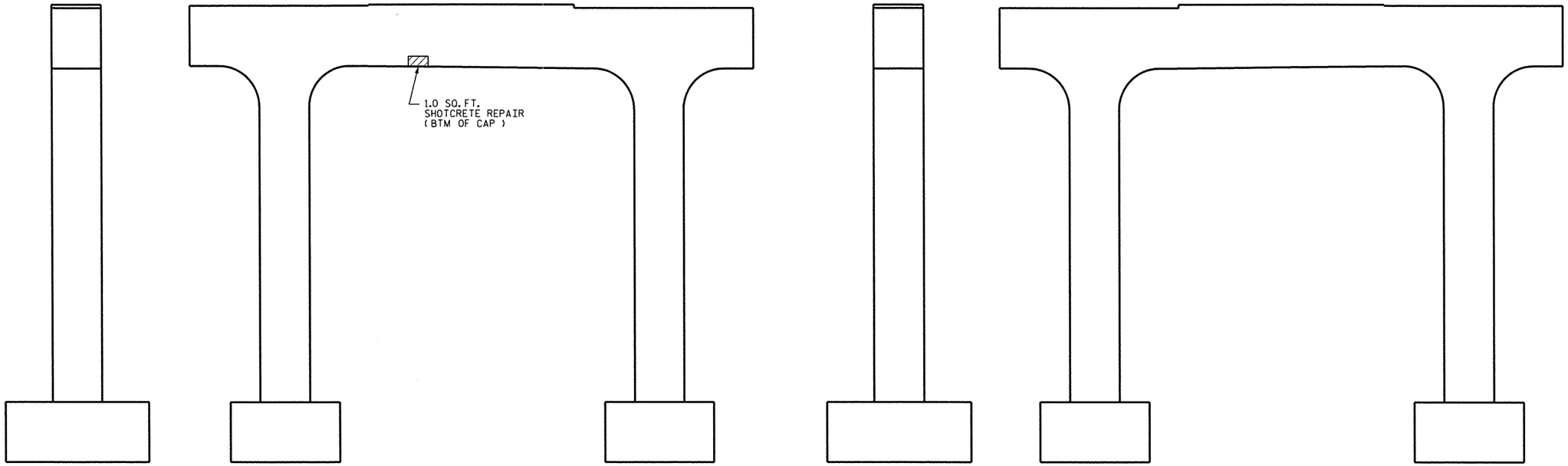

BENT 1 - EAST END

BENT 1 - SPAN A SIDE

BENT 1 - WEST END

BENT 1 - SPAN B SIDE

NOTES:

NO DAMAGE OBSERVED ON BENT 1 - SPAN B SIDE, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	1	0.6			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/8/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 96

SHEET 11 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-82
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 3/5/13
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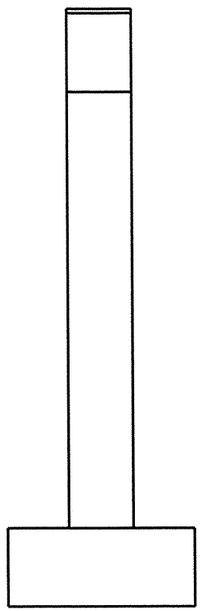

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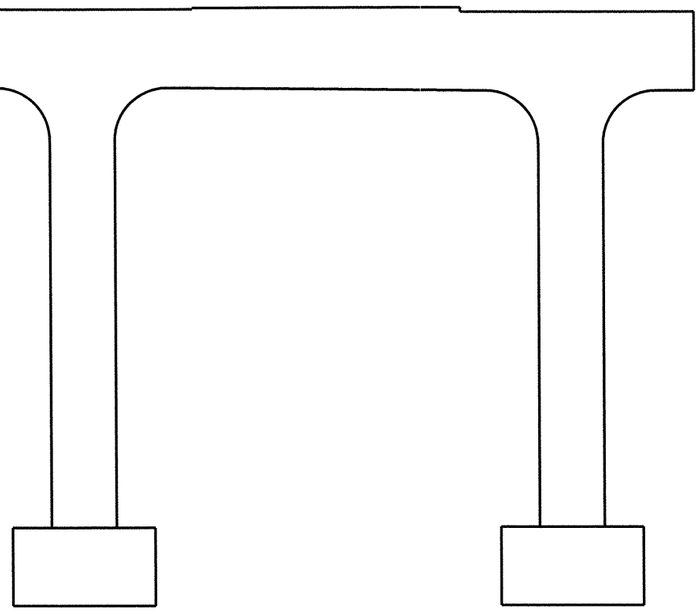
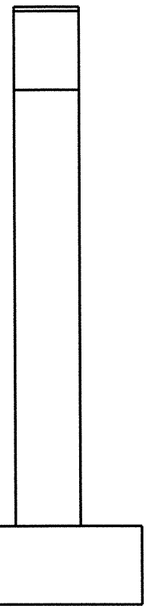
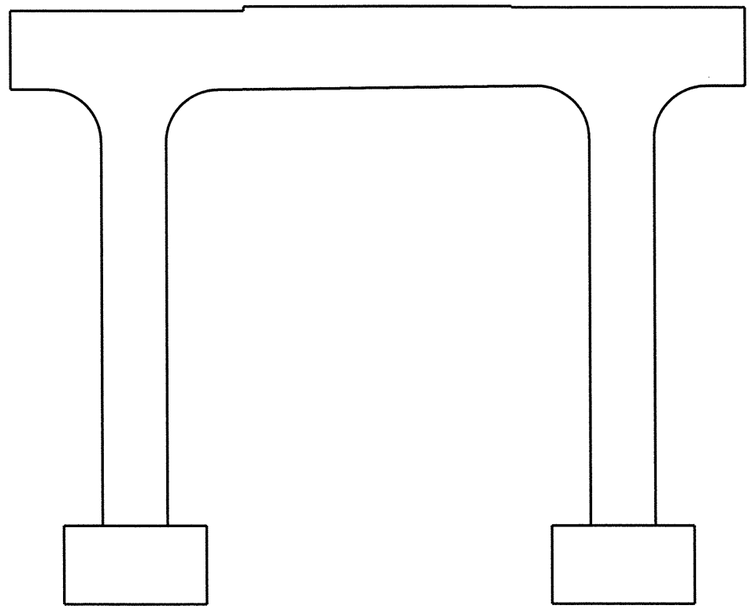


BENT 2 - SPAN B SIDE



BENT 2 - WEST END



BENT 2 - SPAN C SIDE

NOTES:

NO DAMAGE OBSERVED ON BENT 2, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/6/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 96
SHEET 12 OF 13

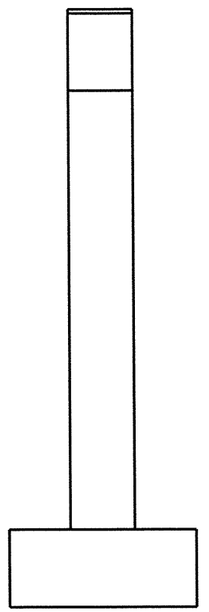
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2

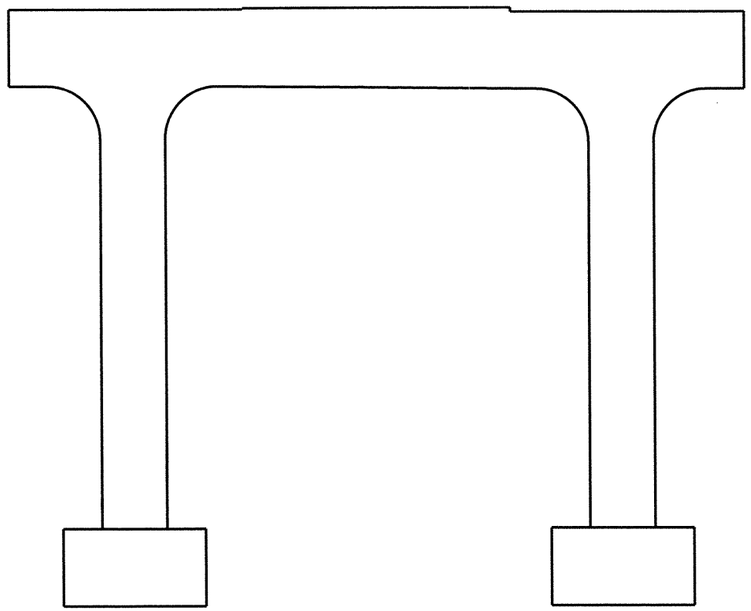
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-83
1			3			TOTAL SHEETS
2			4			84

DRAWN BY : P.C. BREWER DATE : 3/5/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

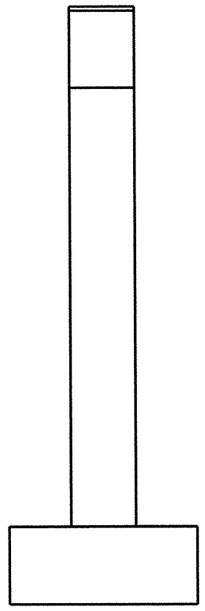
23-APR-2013 09:40
S:\PRS\POC\Squad C\Preservation_Projects\17BP.11.H.4\Wilkes 96\Microstation\FINAL\17BP.11.H.4_96_SD_BT.dgn
dsnoke



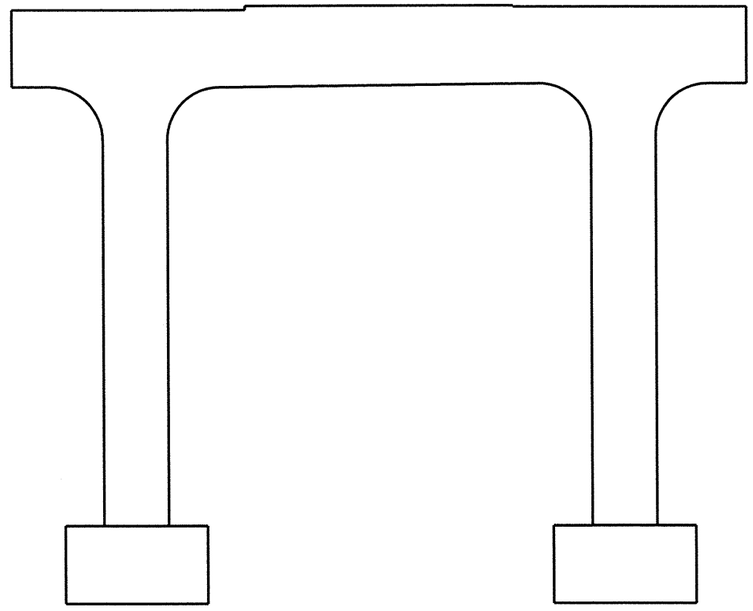
BENT 3 - EAST END



BENT 3 - SPAN C SIDE



BENT 3 - WEST END



BENT 3 - SPAN D SIDE

NOTES:

NO DAMAGE OBSERVED ON BENT 3, HOWEVER IF DAMAGE IS FOUND BY THE ENGINEER SEE NOTE ON THIS SHEET CONCERNING ADDITIONAL REPAIRS.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR ADDITIONAL NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS, SEE "END BENT 1 & 2" SHEET.

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		L.N. FT			L.N. FT
CAP		0			
COLUMN		0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NORTH CAROLINA PROFESSIONAL SEAL 035635 ENGINEER DAVID N. SNOKE
3/6/13

PROJECT NO. 17BP.11.H.4
WILKES COUNTY
BRIDGE NO. 96
SHEET 13 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-84
1			3			TOTAL SHEETS
2			4			84

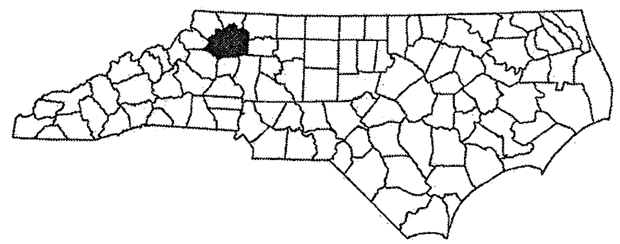
DRAWN BY : P.C. BREWER DATE : 3/5/13
CHECKED BY : D.N. SNOKE DATE : 3/6/13
DESIGN ENGINEER OF RECORD: - DATE : -

23-APR-2013 09:40
S:\PRS\POC\Squad C\Preservation_Projects\17BP.11.H.4\Wilkes 96\Microstation\FINAL\17BP.11.H.4_96_SD_BT.dgn
dsnoke

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

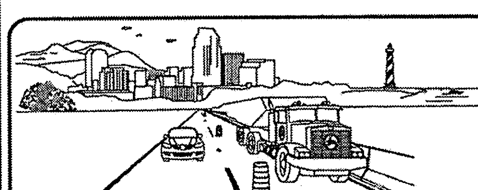
TRANSPORTATION MANAGEMENT PLAN

WILKES COUNTY



WILKES COUNTY
VICINITY MAP

INDEX OF SHEETS



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. — STATE TRAFFIC MANAGEMENT ENGINEER
G. L. GETTIER, P.E. — TRAFFIC CONTROL PROJECT ENGINEER
J. W. GILSTRAP — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. N. GREEN — TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

APPROVED:
DATE:
SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18973 G. L. GETTIER
28 FEB 13

TIP PROJECT: 17BP.11.H.4

28-FEB-2013 08:52
\\DOT\DFSROOT01\GROUPS-WZTCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-1.dgn
sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRACH CUSHION - REFLECTIVE END TREATMENT
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION - PORTABLE CONCRETE BARRIER
1180.01	SKINNY - DRUM
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL

SIGNALS

- TEMP — TEMPORARY/PORTABLE

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

TEMPORARY/FINAL PAVEMENT MARKINGS

NONE

APPROVED: _____ DATE: 2/16/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER I. GETTICH

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS, LEGEND & PAVEMENT MARKING SCHEDULE

21-FEB-2013 10:42
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sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-1B

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

1. US-421

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 9:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 P.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 9:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 9:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 9:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

B) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US-421	MONDAY THRU SUNDAY 6:00 A.M. TO 11:00 P.M.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US-421	ANYTIME

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

I) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

K) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

L) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

M) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

N) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

O) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

P) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45-50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

Q) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

R) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

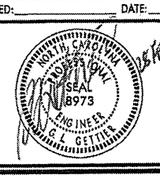
S) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

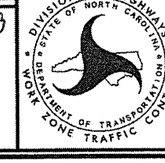
MISCELLANEOUS

T) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER

APPROVED:_____ DATE:_____

SEAL





GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-2

SIGN NUMBER: SP13046
TYPE: STATIONARY
QUANTITY: SEE PLANS
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

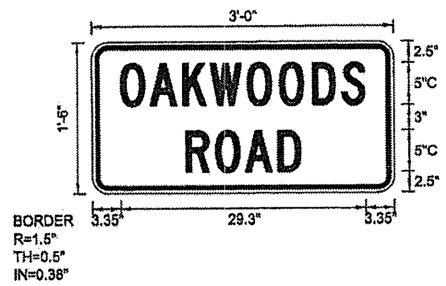
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
WIDTH: 0.5"
RADII: 1.5"

MAT'L: 0.080" (2.0 mm) ALUMINUM

NO. Z BARS:
LENGTH:

DESIGN BY: DHS
PROJECT ID: 17BP.11.H.4
CHECKED BY: KLJ
DIV: 11
DATE: Feb 11, 2013



USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

										Series/Size Text Length
	O	A	K	W	O	O	D	S		C 2000
3.4	3.5	3.9	3.2	4.4	3.9	3.9	3.6	2.6	3.4	29.3
	R	O	A	D						C 2000
11.1	3.6	3.5	3.9	2.6	11.1					13.6

FILENAME: SPEEDWAY-TC-Signs
NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SP13047
TYPE: STATIONARY
QUANTITY: SEE PLANS
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

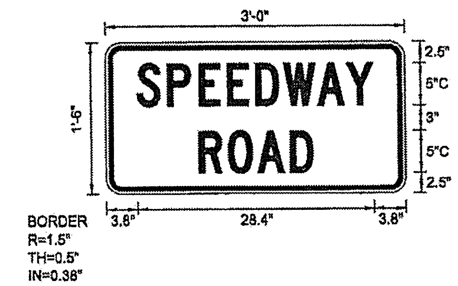
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
WIDTH: 0.5"
RADII: 1.5"

MAT'L: 0.080" (2.0 mm) ALUMINUM

NO. Z BARS:
LENGTH:

DESIGN BY: DHS
PROJECT ID: 17BP.11.H.4
CHECKED BY: KLJ
DIV: 11
DATE: Feb 11, 2013



USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

										Series/Size Text Length
	S	P	E	E	D	W	A	Y		C 2000
3.8	3.7	3.8	3.4	3.4	3.4	4.1	3.5	3.2	3.8	28.5
	R	O	A	D						C 2000
11.1	3.6	3.8	3.9	2.8	11.1					13.8

FILENAME: SPEEDWAY-TC-Signs
NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SP13048
TYPE: STATIONARY
QUANTITY: SEE PLANS
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

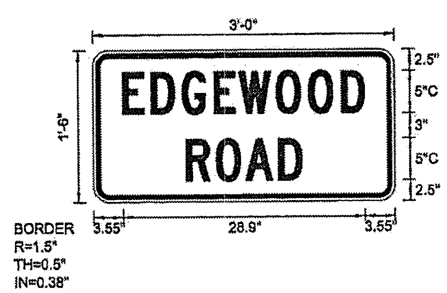
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
WIDTH: 0.5"
RADII: 1.5"

MAT'L: 0.080" (2.0 mm) ALUMINUM

NO. Z BARS:
LENGTH:

DESIGN BY: DHS
PROJECT ID: 17BP.11.H.4
CHECKED BY: KLJ
DIV: 11
DATE: Feb 11, 2013



USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

										Series/Size Text Length
	E	D	G	E	W	O	O	D		C 2000
3.8	3.4	3.7	3.8	3	4.4	3.9	3.9	2.8	3.8	28.9
	R	O	A	D						C 2000
11.1	3.6	3.8	3.9	2.8	11.1					13.8

FILENAME: SPEEDWAY-TC-Signs
NORTH CAROLINA D.O.T. SIGN DETAIL

THE SPECIAL SIGN DESIGNS SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM SIGNING AND DELINEATION. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON 02-11-2013 AND SEALED BY A PROFESSIONAL ENGINEER, RONALD W. KING, LICENSE # 022959.

APPROVED:_______ DATE:_______

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER

28 FEB 13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

SPECIAL SIGN DESIGN

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-2A

SIGN NUMBER: SP13043 | BACKG COLOR: Fluorescent Orange
TYPE: STATIONARY | COPY COLOR: Black
QUANTITY: SEE PLANS

SYMBOL	X	Y	WID	HT

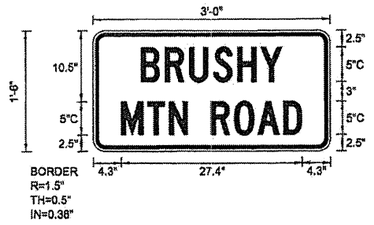
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
WIDTH: 0.5"
RADII: 1.5"

NO. Z BARS:
LENGTH:

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: DHB | CHECKED BY: KLJ | DATE: Feb 11, 2013
PROJECT ID: 17BP.11.H.4 | DIV: 11



BORDER
R=1.5"
TH=0.5"
IN=0.38"

Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

LETTER POSITIONS

Letter spacings are to start of next letter

																																Series/Size Text Length
		B	R	U	S	H	V																									C 2000
	7.4	3.7	3.7	3.7	3.6	3.6	3.2	7.4																								21.3
		N	T	N		R	O	A	D																								C 2000
	4.3	4	3.2	2.8	3.5	3.6	3.6	3.9	2.8	4.3																						27.3

FILENAME: SPEEDWAY-TC-Signs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SP13044 | BACKG COLOR: Fluorescent Orange
TYPE: STATIONARY | COPY COLOR: Black
QUANTITY: SEE PLANS

SYMBOL	X	Y	WID	HT

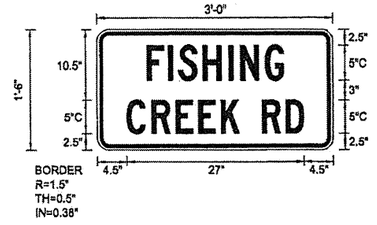
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
WIDTH: 0.5"
RADII: 1.5"

NO. Z BARS:
LENGTH:

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: DHB | CHECKED BY: KLJ | DATE: Feb 11, 2013
PROJECT ID: 17BP.11.H.4 | DIV: 11



BORDER
R=1.5"
TH=0.5"
IN=0.38"

Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

LETTER POSITIONS

Letter spacings are to start of next letter

																																Series/Size Text Length
		F	I	S	H	I	N	G																								C 2000
	7.6	3.3	1.6	3.7	3.9	1.8	3.6	2.8	7.6																							20.8
		C	R	E	E	K		R	D																							C 2000
	4.8	3.8	3.7	3.4	3.4	2.8	3.5	3.6	2.8	4.8																						27

FILENAME: SPEEDWAY-TC-Signs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: SP13045 | BACKG COLOR: Fluorescent Orange
TYPE: STATIONARY | COPY COLOR: Black
QUANTITY: SEE PLANS

SYMBOL	X	Y	WID	HT

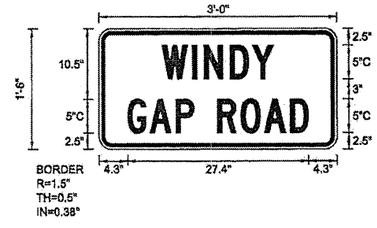
SIGN WIDTH: 3'-0"
HEIGHT: 1'-6"
TOTAL AREA: 4.5 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
WIDTH: 0.5"
RADII: 1.5"

NO. Z BARS:
LENGTH:

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: DHB | CHECKED BY: KLJ | DATE: Feb 11, 2013
PROJECT ID: 17BP.11.H.4 | DIV: 11



BORDER
R=1.5"
TH=0.5"
IN=0.38"

Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

LETTER POSITIONS

Letter spacings are to start of next letter

																																Series/Size Text Length
		W	I	N	D	Y																										C 2000
	9.6	4.5	1.6	3.9	3.4	3.2	9.6																									16.8
		G	A	P		R	O	A	D																								C 2000
	4.3	3.4	3.8	2.8	3.6	3.6	3.5	3.9	2.8	4.3																						27.4

FILENAME: SPEEDWAY-TC-Signs

NORTH CAROLINA D.O.T. SIGN DETAIL

THE SPECIAL SIGN DESIGNS SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM SIGNING AND DELINEATION. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON 02-11-2013 AND SEALED BY A PROFESSIONAL ENGINEER, RONALD W. KING, LICENSE # 022959.

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER GL GETTIER

2/16/13

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

SPECIAL SIGN DESIGN

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-3

THIS SHEET INTENTIONALLY LEFT BLANK

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTER

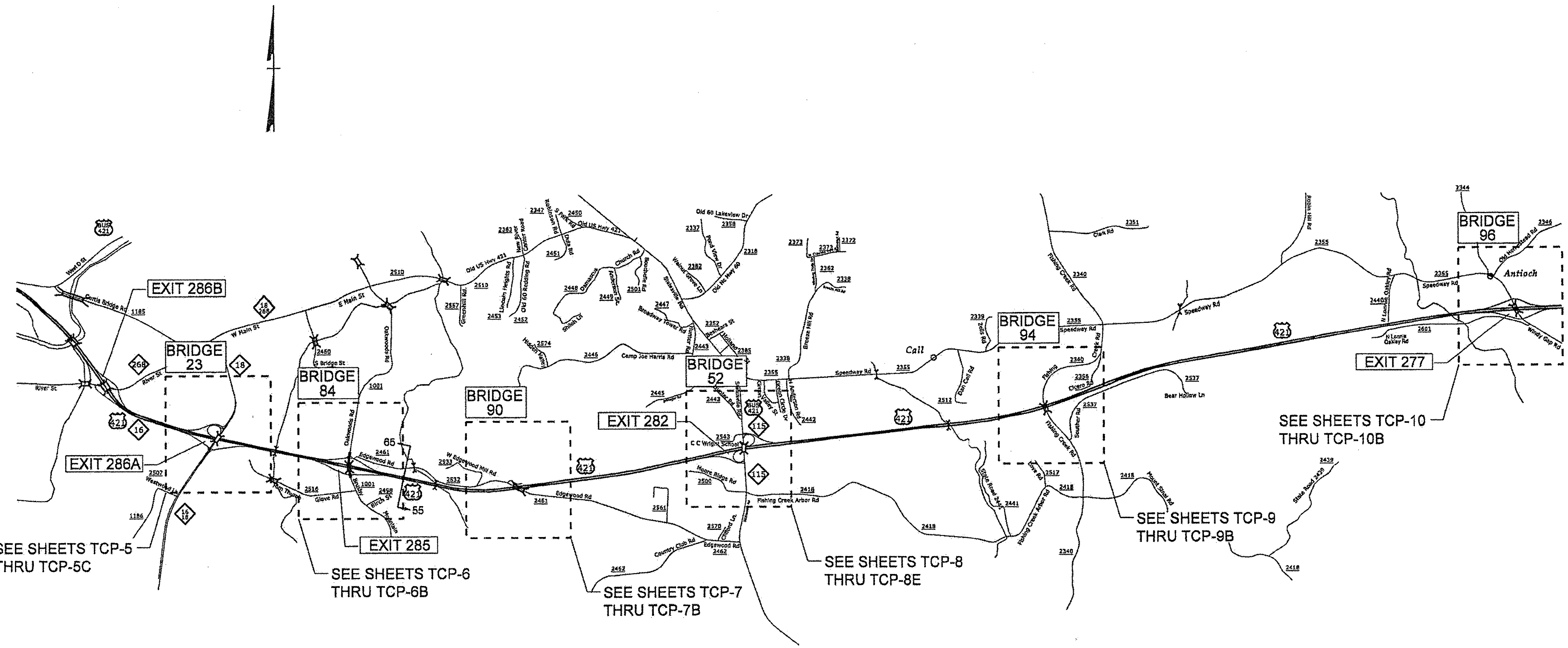
2/19/13

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

BLANK SHEET

21-FEB-2013 11:05
\\DOT\DFS200\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-3.dgn
smgreen AT TE285817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-4



APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8973 G.L. GETTIER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

WILKES COUNTY
OVERVIEW

20-FEB-2013 14:12
\\DOT\DFSROOT01\GROUPS-WZTCC\TMU WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-4.dgn
sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-5

PHASING

CONSTRUCTION OF BRIDGE #23 IN WILKES COUNTY

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR MAY CONSTRUCT BRIDGE #23 & #94 OR #96 IN WILKES COUNTY SIMULTANEOUSLY.

THE CONTRACTOR SHALL ONLY BE ALLOWED TO CLOSE EITHER OR BOTH DIRECTIONS OF US 421 AT ONE BRIDGE LOCATION IN WILKES COUNTY AT A TIME.

CONTRACTOR SHALL ENSURE THAT OFF-SITE DETOURS IN WILKES COUNTY DO NOT CONFLICT DURING CONSTRUCTION.

PHASE I

STEP 1: - THE CONTRACTOR SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS ALONG US 421 AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01, SHEETS 1 OR 2 OF 3.

- IF REQUIRED FOR CONSTRUCTION, THE CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 3 OR 4 OF 15 AND SHEET TMP-12, INSTALL PORTABLE CONCRETE BARRIER (PCB) ON THE MEDIAN SHOULDER OF US 421 AS SHOWN ON SHEET TMP-11.

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE & REPLACE THE EXISTING MEDIAN GUARDRAIL/CABLE GUIDERAIL, AS REQUIRED FOR CONSTRUCTION.

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK ON BRIDGE #23 IN PHASE II, STEP 1 THRU STEP 3 IN 36 CONSECUTIVE DAYS (SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS).

PHASE II

STEP 1: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9 & SHEET TMP-5A, TO CLOSE BRIDGE #23 LOCATION AND DETOUR TRAFFIC.

STEP 2: - CONTRACTOR SHALL CONDUCT PROPOSED BRIDGE CONSTRUCTION, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE THE FINAL PAVEMENT MARKING/MARKERS (SEE CONSTRUCTION PLANS, STRUCTURE PLANS AND FINAL PAVEMENT MARKING PLANS).

NOTE: FOR LANE CLOSURES ON US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.02, SHEETS 3 OR 4 & 10 OF 15, SHEET TMP-12 (RAMP/LOOP DETAIL) AND SHEET TMP-5C FOR LOOP CLOSURE.

FOR CLOSURE OF NORTHBOUND AND/OR SOUTHBOUND US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.03, SHEET 7 OF 9 AND OFF-SITE DETOUR AS SHOWN ON SHEET TMP-5B.

STEP 3: - REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN BRIDGE #23 LOCATION TO TRAFFIC.

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 18973 ENGINEER G. L. GETTIER

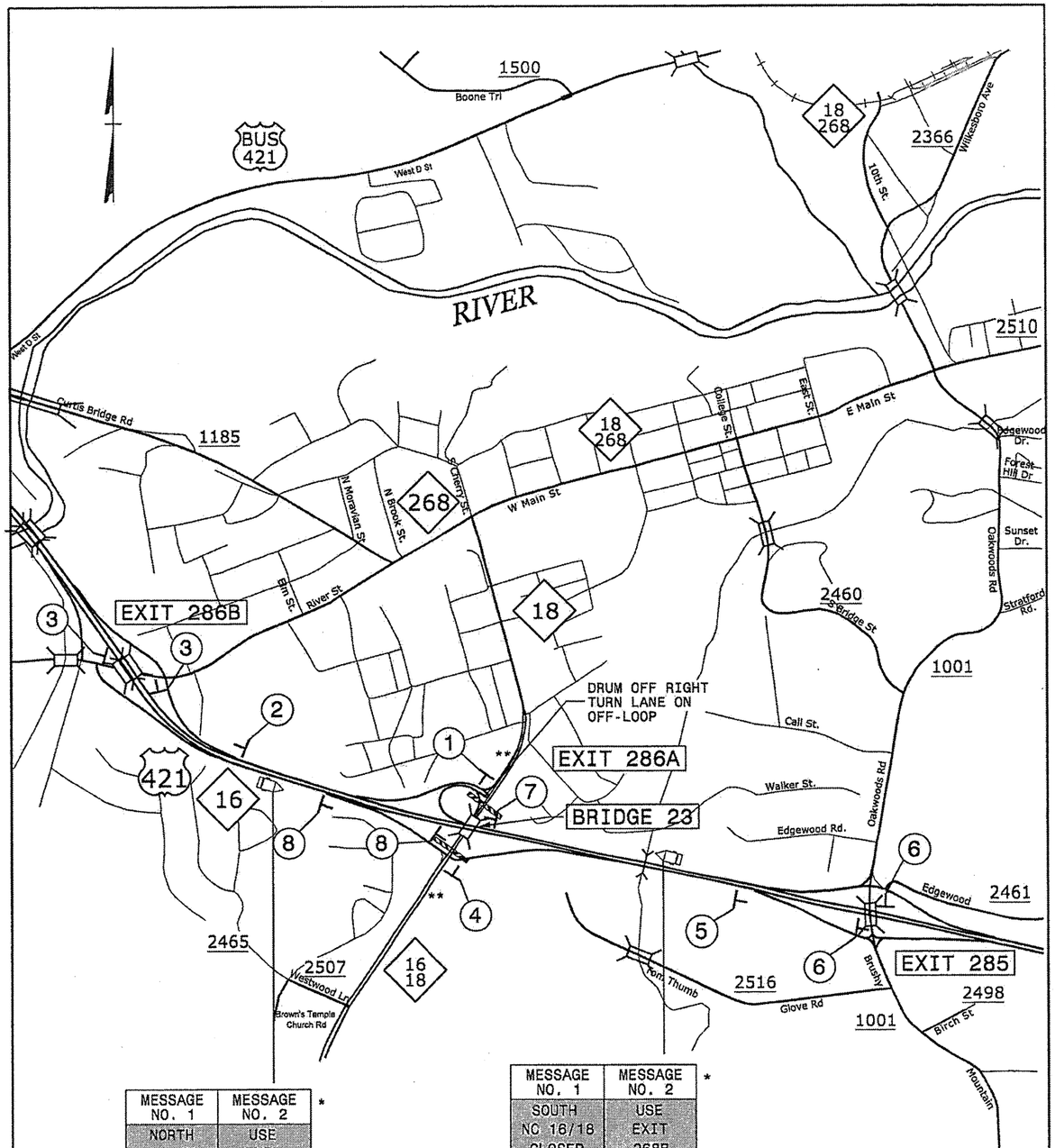
2/8/2013

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

BRIDGE #23
PHASING

20-FEB-2013 14:23
\\DOT\DFS\GROUPS\TMU\WZTCC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-5.dgn
sngreen AT TE2658B7

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-5A



MESSAGE NO. 1	MESSAGE NO. 2
NORTH NC 18 CLOSED	USE EXIT 285

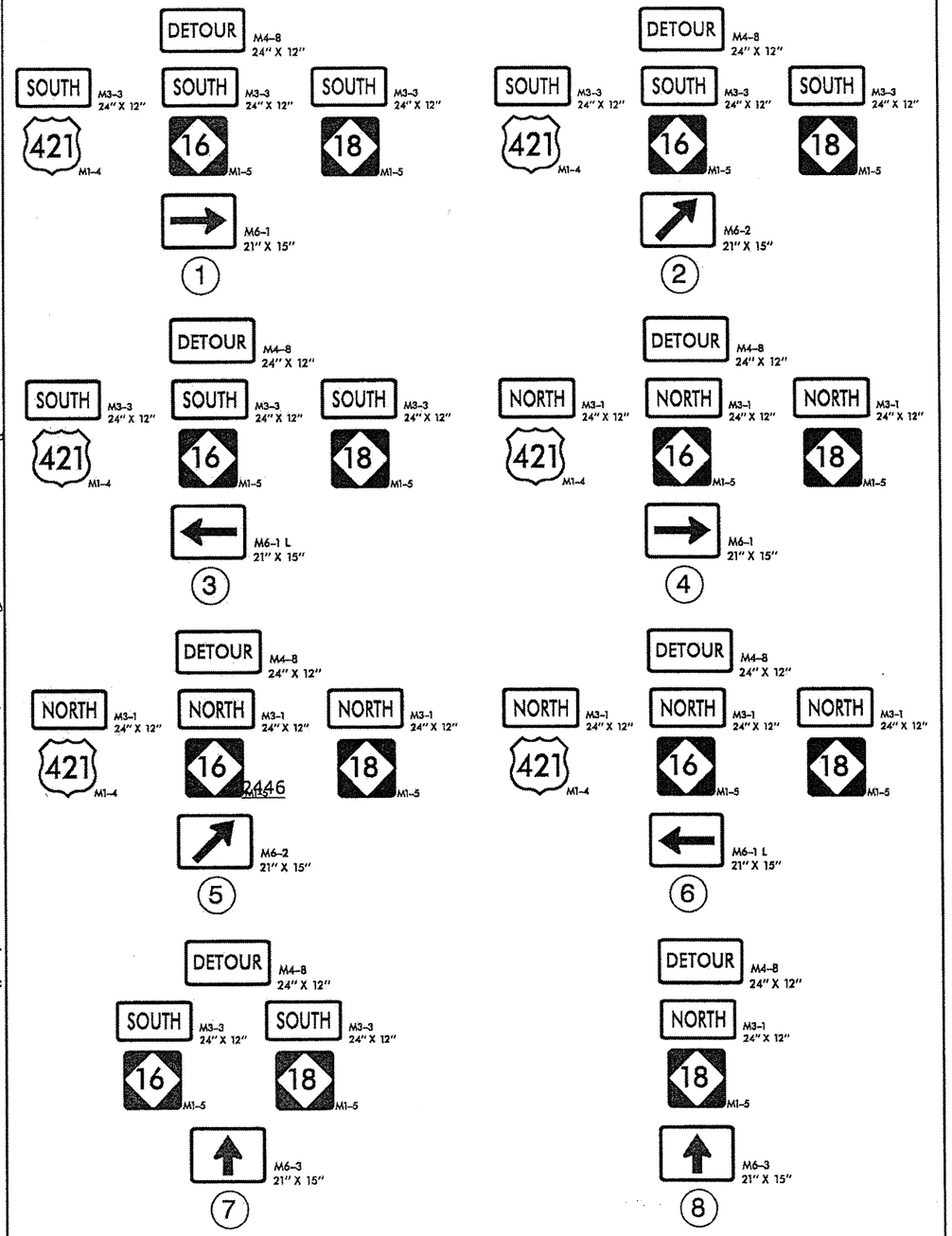
CHANGEABLE MESSAGE SIGN *

MESSAGE NO. 1	MESSAGE NO. 2
SOUTH NC 16/18 CLOSED	USE EXIT 288B

CHANGEABLE MESSAGE SIGN *

* PLACE CMS 1/2 MILE PRIOR TO EXIT OR AS DIRECTED BY THE ENGINEER.

** CLOSE ROADWAY AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9, EXCEPT DELETE "STOP" SIGN (R1-1) AND "STOP AHEAD" SIGN (W3-1).



APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16973 ENGINEER G L GETTIES

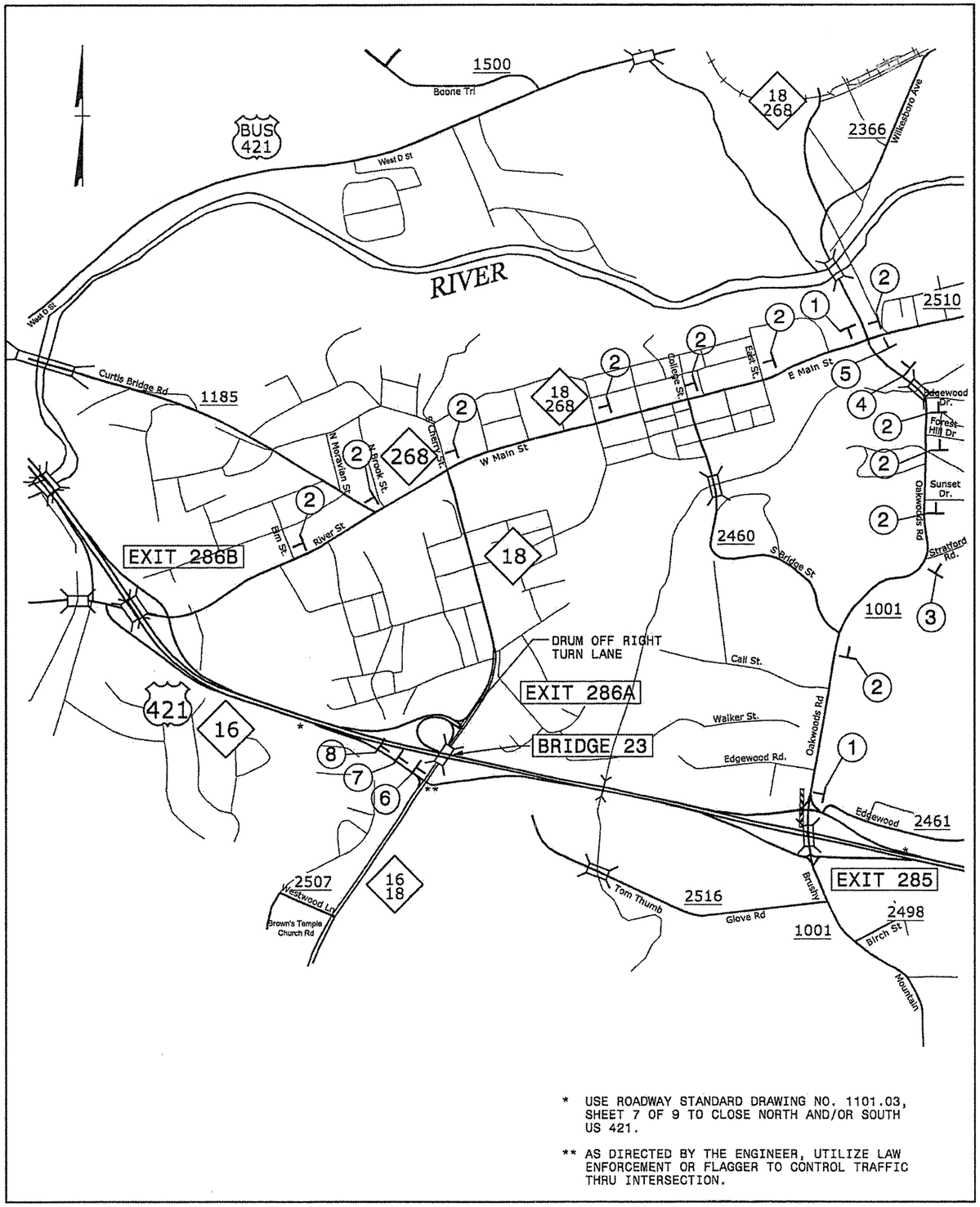
2/15/2013

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

BRIDGE #23
OFF-SITE
DETOUR

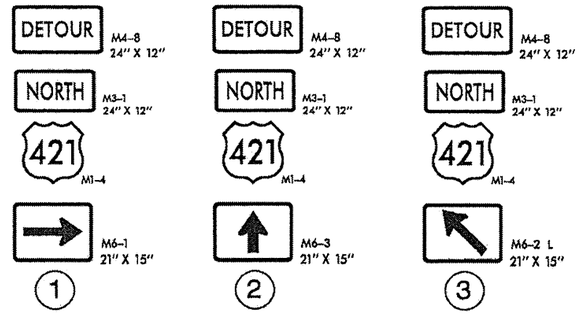
28-FEB-2013 07:24
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\Special Projects\17BP.11.H.4\TMP-5A.dgn
snagreen AT TE265817

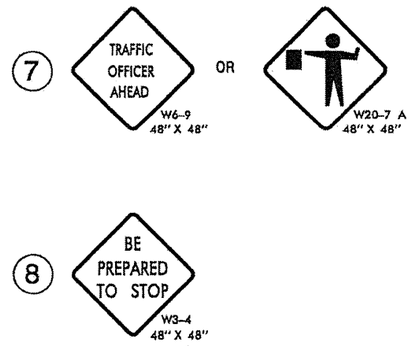
PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-5B



* USE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 7 OF 9 TO CLOSE NORTH AND/OR SOUTH US 421.

** AS DIRECTED BY THE ENGINEER, UTILIZE LAW ENFORCEMENT OR FLAGGER TO CONTROL TRAFFIC THRU INTERSECTION.





APPROVED: _____ DATE: _____

SEAL

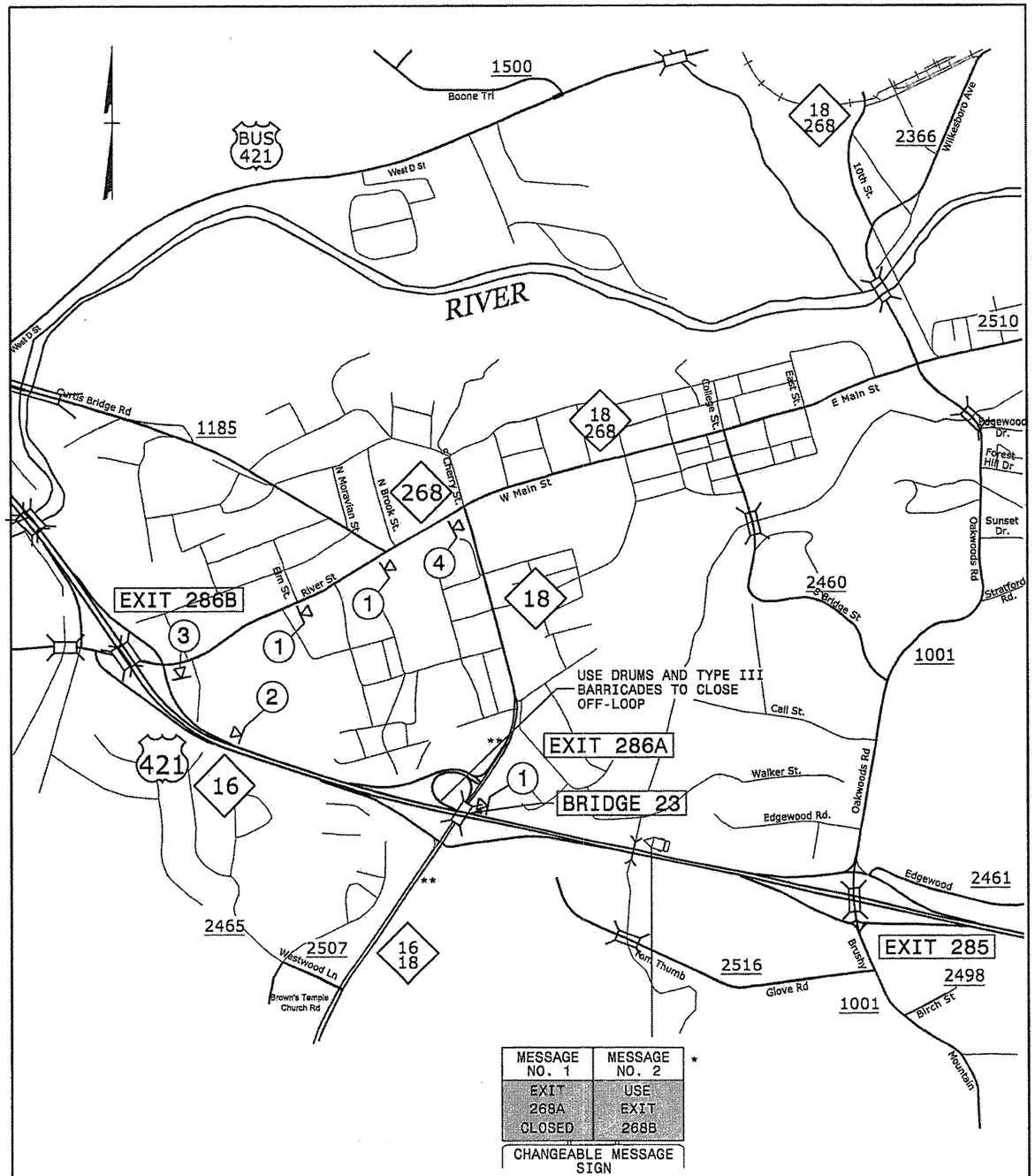
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G L GETTIER — 25 FEB 13

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

BRIDGE #23
US 421 CLOSED
OFF-SITE DETOUR

20-FEB-2013 14:27
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\Special Projects\17BP.11.H.4\TMP-5B.dgn
sngreen AT TE26581?

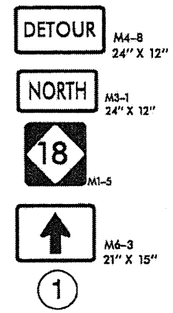
PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-5C

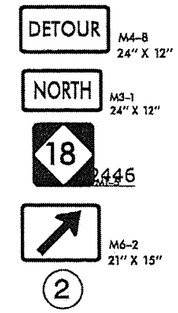


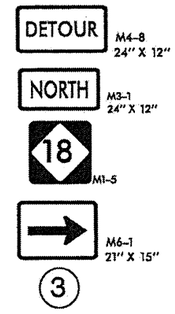
MESSAGE NO. 1	MESSAGE NO. 2 *
EXIT 268A CLOSED	USE EXIT 268B

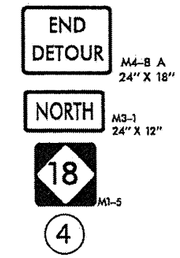
CHANGEABLE MESSAGE SIGN

* PLACE CMS 1/2 MILE PRIOR TO EXIT OR AS DIRECTED BY THE ENGINEER.









APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G L GETTIER

25 FEB 13

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

BRIDGE #23
OFF-LOOP TO
NORTH NC 18
CLOSED
OFF-SITE DETOUR

28-FEB-2013 08:17
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-5C.dgn
sngreen AT TE26581I7

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-6

PHASING

CONSTRUCTION OF BRIDGE #84 IN WILKES COUNTY

PHASE I

STEP 1: - THE CONTRACTOR SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS ALONG US 421 AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01, SHEETS 1 OR 2 OF 3.

- IF REQUIRED FOR CONSTRUCTION, THE CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 3 OR 4 OF 15 AND SHEET TMP-12, INSTALL PORTABLE CONCRETE BARRIER (PCB) ON THE MEDIAN SHOULDER OF US 421 AS SHOWN ON SHEET TMP-11.

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE & REPLACE THE EXISTING MEDIAN GUARDRAIL/CABLE GUIDERAIL, AS REQUIRED FOR CONSTRUCTION.

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK ON BRIDGE #84 IN PHASE II, STEP 1 THRU STEP 3 IN 60 CONSECUTIVE DAYS (SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS).

PHASE II

STEP 1: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9 & SHEET TMP-6A, TO CLOSE BRIDGE #84 LOCATION AND DETOUR TRAFFIC.

STEP 2: - CONTRACTOR SHALL CONDUCT PROPOSED BRIDGE CONSTRUCTION, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE THE FINAL PAVEMENT MARKING/MARKERS (SEE CONSTRUCTION PLANS, STRUCTURE PLANS AND FINAL PAVEMENT MARKING PLANS).

NOTE: FOR LANE CLOSURES ON US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.02, SHEETS 3 OR 4 & 10 OF 15 AND SHEET TMP-12 (RAMP/LOOP DETAIL).

FOR CLOSURE OF NORTHBOUND AND/OR SOUTHBOUND US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.03, SHEET 7 OF 9 AND OFF-SITE DETOUR AS SHOWN ON SHEET TMP-6B.

STEP 3: - REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN BRIDGE #84 LOCATION TO TRAFFIC.

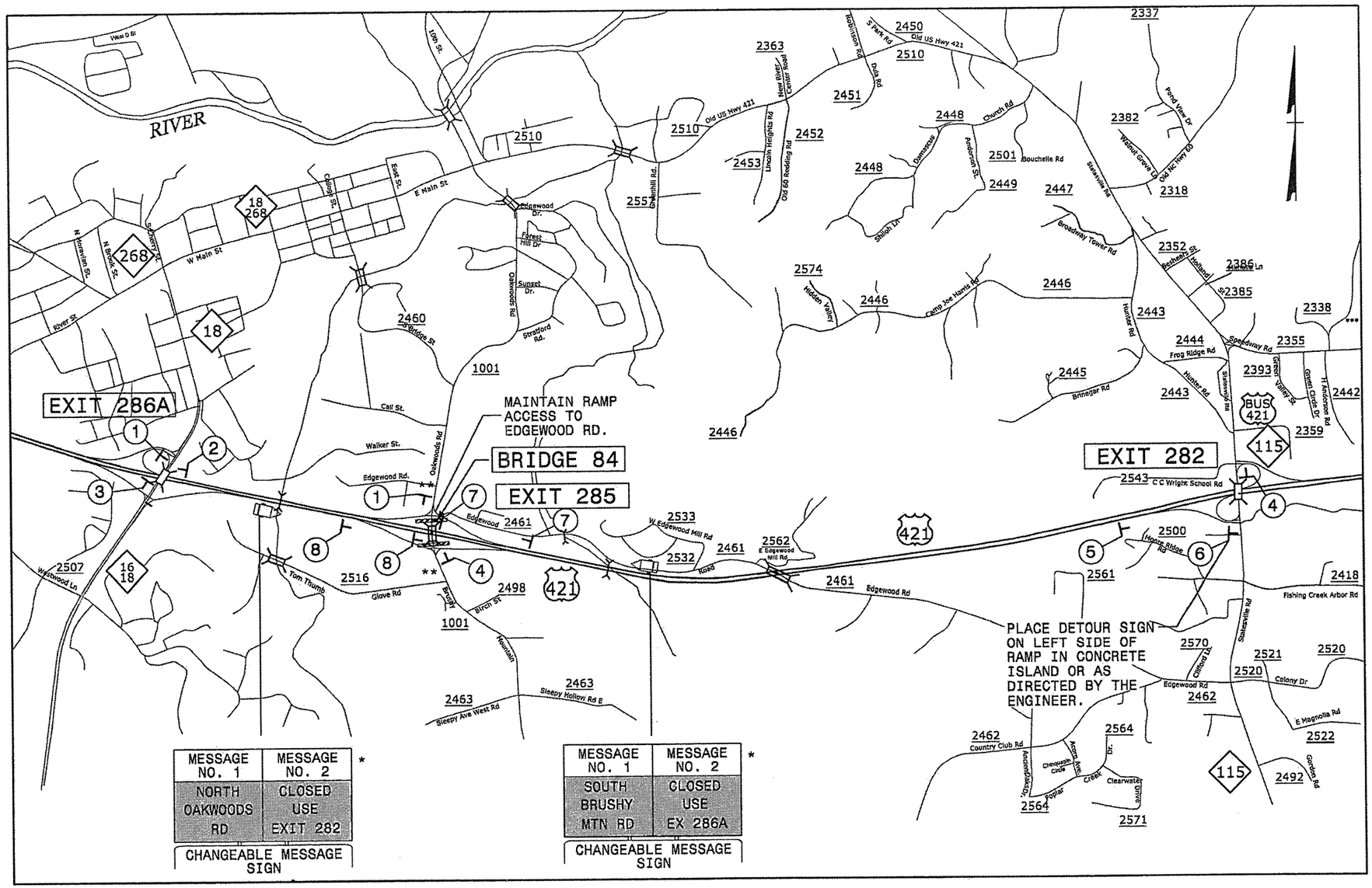
20-FEB-2013 15:54
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-6.dgn
sngreen AT TE26581?

APPROVED: DATE: 25 FEB 13

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER

DIVISION OF HIGHWAYS — STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION — WORK ZONE TRAFFIC CONTROL

BRIDGE #84
PHASING



PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-6A

MESSAGE NO. 1	MESSAGE NO. 2
NORTH OAKWOODS RD	CLOSED USE EXIT 282

CHANGEABLE MESSAGE SIGN *

MESSAGE NO. 1	MESSAGE NO. 2
SOUTH BRUSHY MTN RD	CLOSED USE EX 286A

CHANGEABLE MESSAGE SIGN *

* PLACE CMS 1/2 MILE PRIOR TO EXIT OR AS DIRECTED BY THE ENGINEER.

** CLOSE ROADWAY AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9, EXCEPT DELETE "STOP" SIGN (R1-1) AND "STOP AHEAD" SIGN (W3-1).

*** SEE SHEET TMP-2 FOR SPECIAL SIGN DESIGN.

APPROVED:__________ DATE:______

SEAL

SEAL 8973 G. L. GETTIER

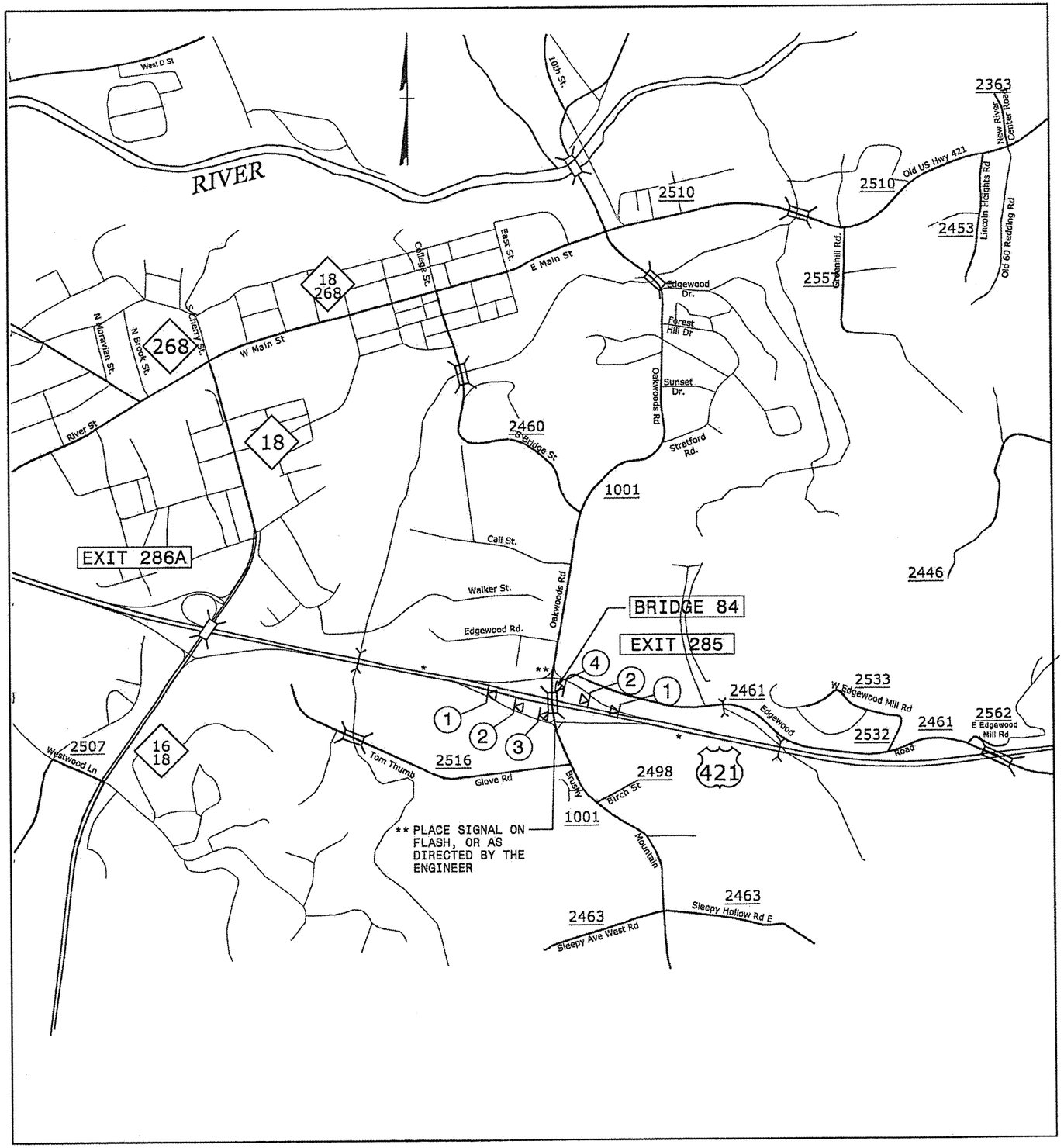
28 Feb 13

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

BRIDGE #84
OFF-SITE
DETOUR

28-FEB-2013 07:44
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-6A.dgn
sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-6B



1 BE PREPARED TO STOP
W3-4
48" X 48"

2 TRAFFIC OFFICER AHEAD
W6-9
48" X 48"

OR

W20-7 A
48" X 48"

DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
421 M1-4
3 M6-3 21" X 15"

DETOUR M4-8 24" X 12"
NORTH M3-1 24" X 12"
421 M1-4
4 M6-3 21" X 15"

* USE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 7 OF 9 TO CLOSE NORTH AND/OR SOUTH US 421.

** AS DIRECTED BY THE ENGINEER, UTILIZE LAW ENFORCEMENT OR FLAGGER TO CONTROL TRAFFIC THRU INTERSECTION.

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER C. L. GETTIES

05/08/2013

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

BRIDGE #84
US 421 CLOSED
OFF-SITE DETOUR

20-FEB-2013 16:08
\\DOT\DFSROOT1\GROUPS-WZTCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-6B.dgn
sngreen AT TE2653617

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-7

PHASING

CONSTRUCTION OF BRIDGE #90 IN WILKES COUNTY

PHASE I

STEP 1: - THE CONTRACTOR SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS ALONG US 421 AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01, SHEETS 1 OR 2 OF 3.

- IF REQUIRED FOR CONSTRUCTION, THE CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 3 OR 4 OF 15 AND SHEET TMP-12, INSTALL PORTABLE CONCRETE BARRIER (PCB) ON THE MEDIAN SHOULDER OF US 421 AS SHOWN ON SHEET TMP-11.

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE & REPLACE THE EXISTING MEDIAN GUARDRAIL/CABLE GUIDERAIL, AS REQUIRED FOR CONSTRUCTION.

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK ON BRIDGE #90 IN PHASE II, STEP 1 THRU STEP 3 IN 91 CONSECUTIVE DAYS (SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS).

PHASE II

STEP 1: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 & SHEET TMP-7A, TO CLOSE BRIDGE #90 LOCATION AND DETOUR TRAFFIC.

STEP 2: - CONTRACTOR SHALL CONDUCT PROPOSED BRIDGE CONSTRUCTION, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE THE FINAL PAVEMENT MARKING/MARKERS (SEE CONSTRUCTION PLANS, STRUCTURE PLANS AND FINAL PAVEMENT MARKING PLANS).

NOTE: FOR LANE CLOSURES ON US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.02, SHEETS 3 OR 4 & 10 OF 15 AND SHEET TMP-12 (RAMP/LOOP DETAIL).

FOR CLOSURE OF NORTHBOUND AND/OR SOUTHBOUND US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.03, SHEET 7 OF 9 AND OFF-SITE DETOUR AS SHOWN ON SHEET TMP-7B.

STEP 3: - REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN BRIDGE #90 LOCATION TO TRAFFIC.

APPROVED: _____ DATE: _____

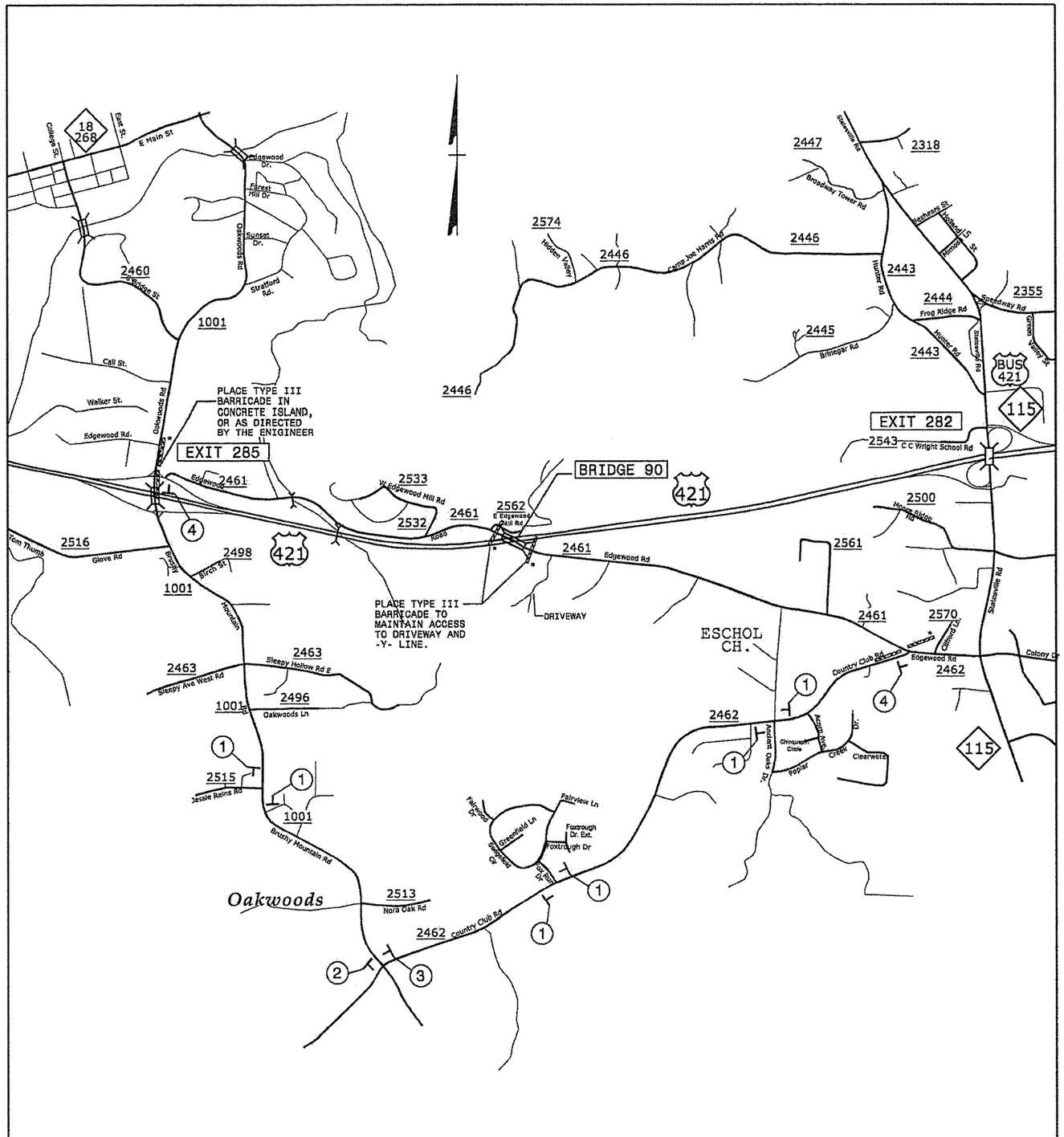
SEAL

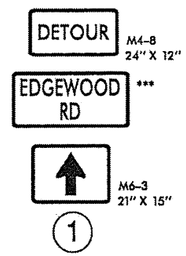
NORTH CAROLINA PROFESSIONAL SEAL 18973 ENGINEER G L GETTIER

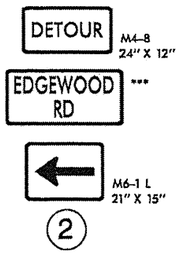
DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

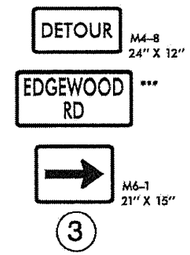
BRIDGE #90
PHASING

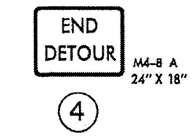
PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-7A











* CLOSE ROADWAY AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9.

** SEE SHEET TMP-2 FOR SPECIAL SIGN DESIGN.

APPROVED: _____ DATE: _____

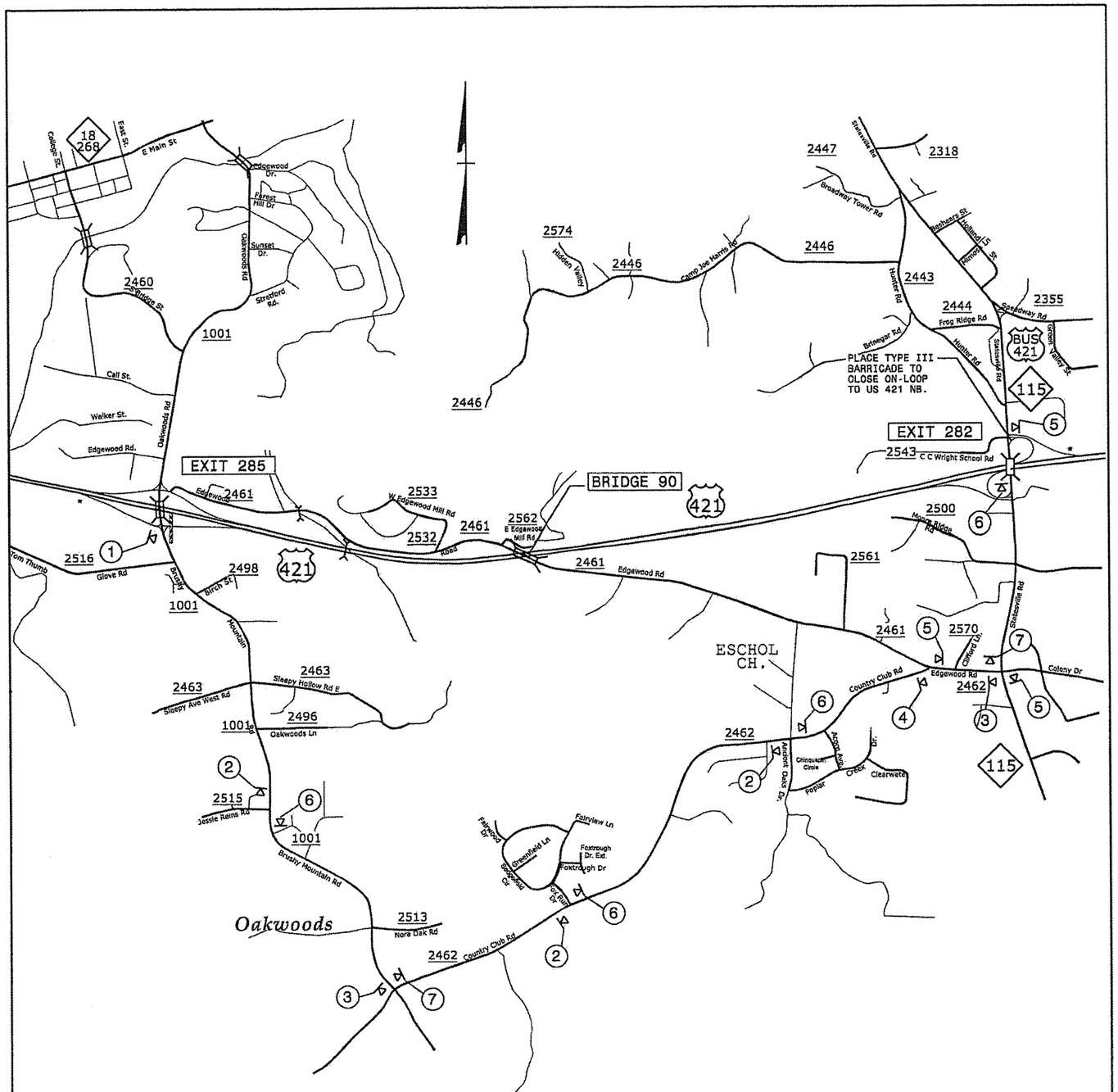
SEAL

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

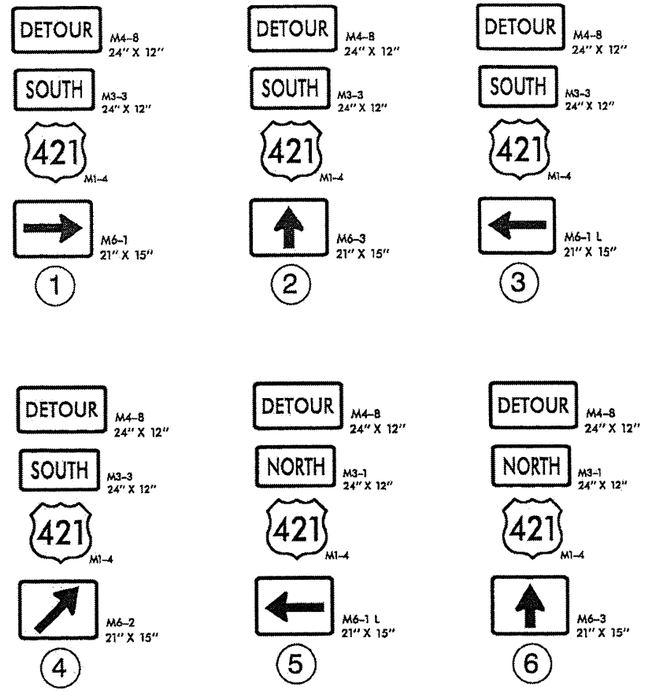
BRIDGE #90
OFF-SITE
DETOUR

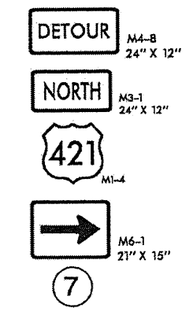
20-FEB-2013 16:14
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\Special Projects\17BP.11.H.4\TMP-7A.dgn
sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-7B



* USE STANDARD DRAWING NO. 1101.03, SHEET 7 OF 9, TO CLOSE NORTH AND/OR SOUTH US 421.





APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19973 ENGINEER G. T. GETTIS

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

BRIDGE #90
US 421 CLOSED
OFF-SITE DETOUR

20-FEB-2013 16:18
\\DOT-SHARE01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-7B.dgn
engrdean AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-8

PHASING

CONSTRUCTION OF BRIDGE #52 IN WILKES COUNTY

PHASE I

STEP 1: - THE CONTRACTOR SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS ALONG US 421 AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01, SHEETS 1 OR 2 OF 3.

- IF REQUIRED FOR CONSTRUCTION, THE CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 3 OR 4 OF 15 AND SHEET TMP-12, INSTALL PORTABLE CONCRETE BARRIER (PCB) ON THE MEDIAN SHOULDER OF US 421 AS SHOWN ON SHEET TMP-11.

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE & REPLACE THE EXISTING MEDIAN GUARDRAIL/CABLE GUIDERAIL, AS REQUIRED FOR CONSTRUCTION.

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK ON BRIDGE #52 IN PHASE II, STEP 1 THRU STEP 3 IN 116 CONSECUTIVE DAYS (SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS).

PHASE II

STEP 1: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9 & SHEET TMP-8A, TO CLOSE BRIDGE #52 LOCATION AND DETOUR TRAFFIC.

STEP 2: - CONTRACTOR SHALL CONDUCT PROPOSED BRIDGE CONSTRUCTION, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE THE FINAL PAVEMENT MARKING/MARKERS (SEE CONSTRUCTION PLANS, STRUCTURE PLANS AND FINAL PAVEMENT MARKING PLANS).

NOTE: FOR LANE CLOSURES ON US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.02, SHEETS 3 OR 4 & 10 OF 15, SHEET TMP-12 (RAMP/LOOP DETAIL) AND SHEETS TMP-8D & TMP-8E FOR LOOP CLOSURE.

FOR CLOSURE OF NORTHBOUND AND/OR SOUTHBOUND US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.03, SHEET 7 OF 9 AND OFF-SITE DETOUR AS SHOWN ON SHEETS TMP-8B & TMP-8C.

STEP 3: - REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN BRIDGE #52 LOCATION TO TRAFFIC.

APPROVED:_____ DATE:_____

SEAL

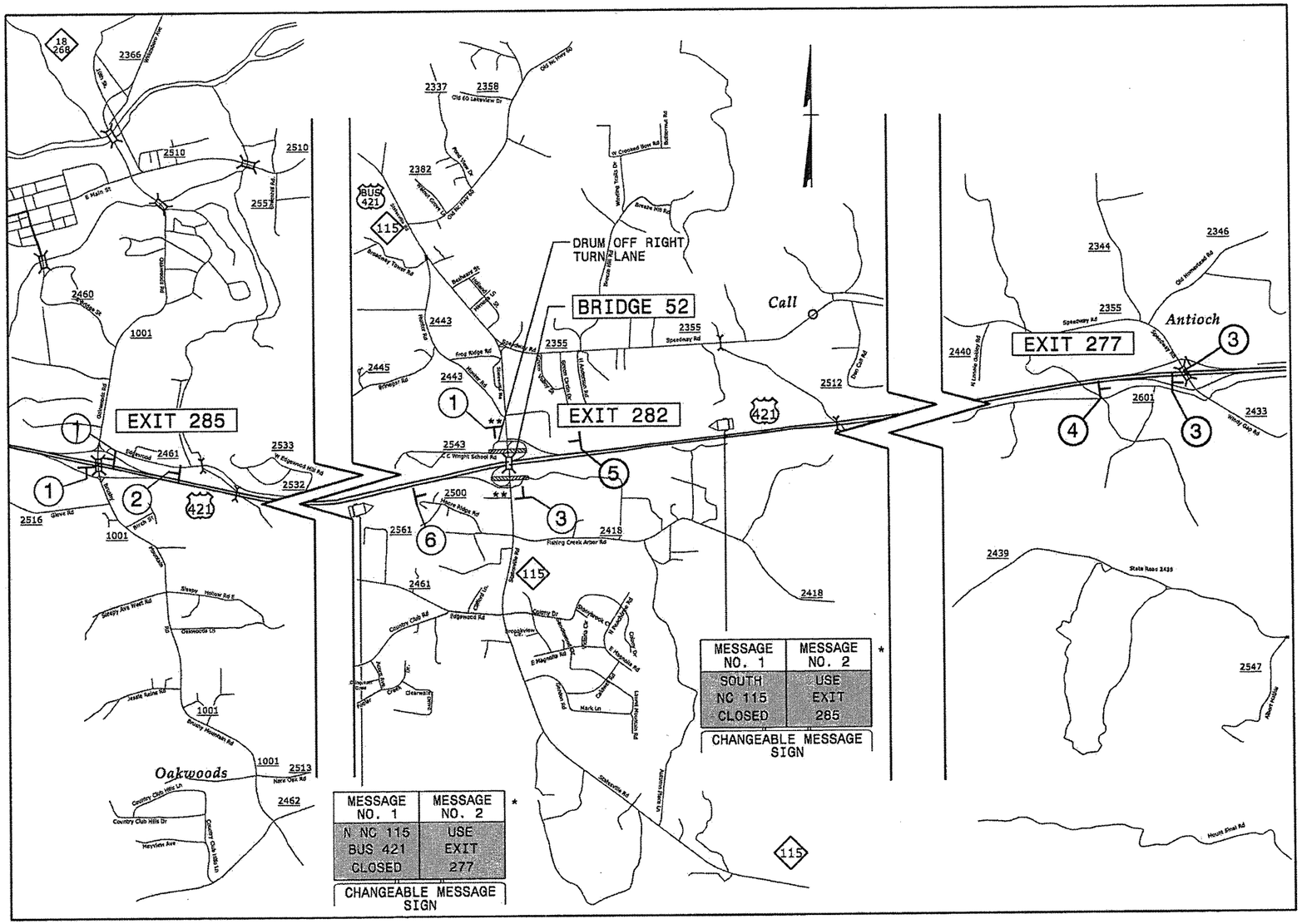
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G L GETTIES

2/15/13

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

BRIDGE #52
PHASING

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-8A



DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
115 M1-5
M6-1 L 21" X 15"
1

DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
115 M1-5
M6-2 21" X 15"
2

DETOUR M4-8 24" X 12"
BUSINESS M4-3 24" X 12"
421 M1-4
NORTH M3-1 24" X 12"
115 M1-5
M6-1 L 21" X 15"
M6-1 L 21" X 15"
3

DETOUR M4-8 24" X 12"
BUSINESS M4-3 24" X 12"
421 M3-4
NORTH M3-1 24" X 12"
115 M1-5
M6-2 21" X 15"
M6-2 21" X 15"
4

DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
115 M1-5
M6-3 21" X 15"
5

DETOUR M4-8 24" X 12"
BUSINESS M4-3 24" X 12"
421 M1-4
NORTH M3-1 24" X 12"
115 M1-5
M6-3 21" X 15"
M6-3 21" X 15"
6

* PLACE CMS 1/2 MILE PRIOR TO EXIT OR AS DIRECTED BY THE ENGINEER.

** CLOSE ROADWAY AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9, EXCEPT DELETE "STOP" SIGN (R1-1) AND "STOP AHEAD" SIGN (W3-1).

APPROVED: _____ DATE: _____

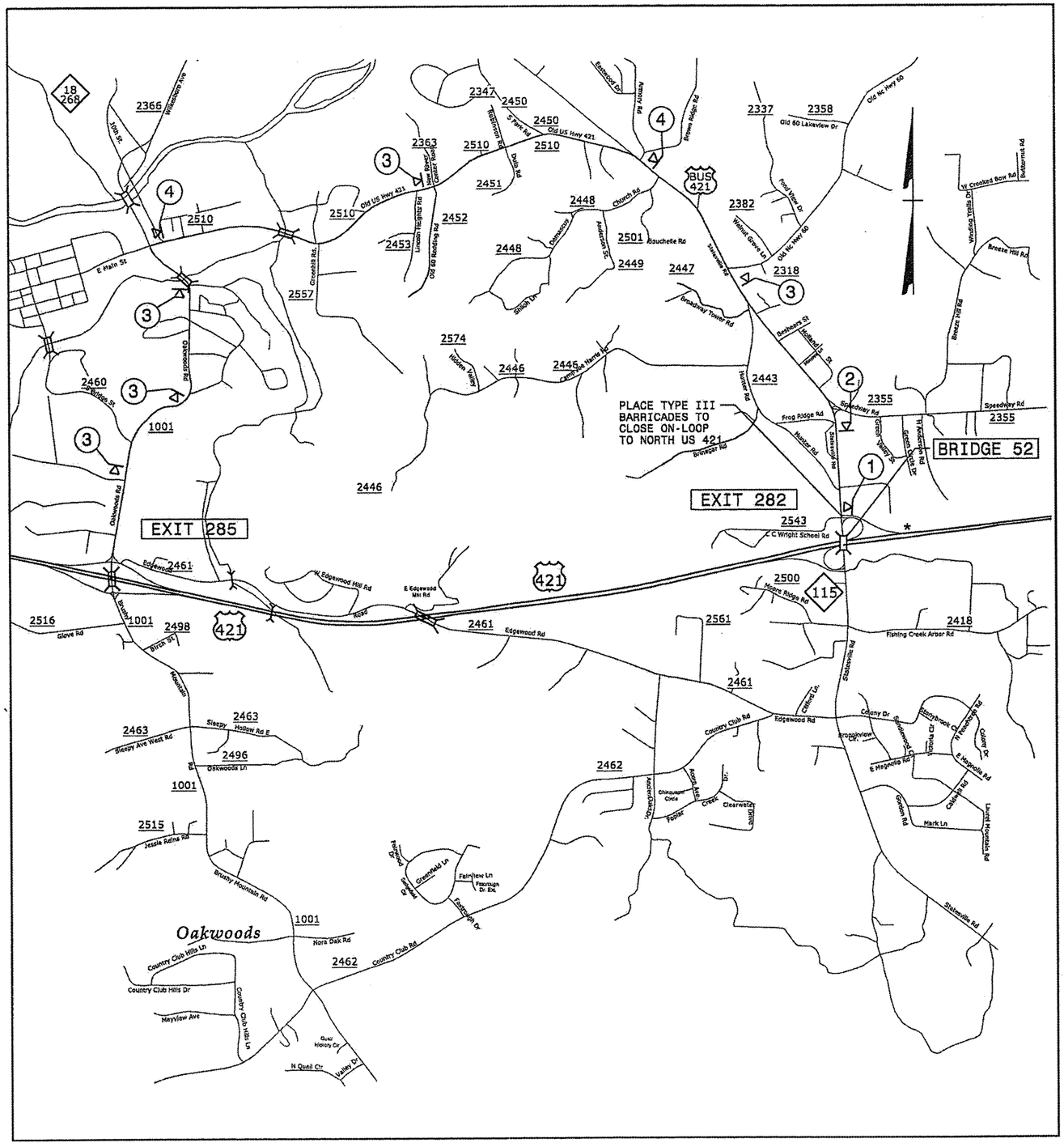
SEAL

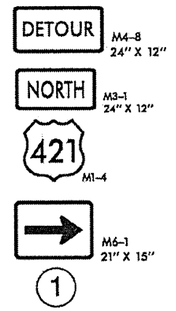
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G L GETTYS

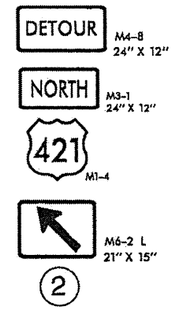
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

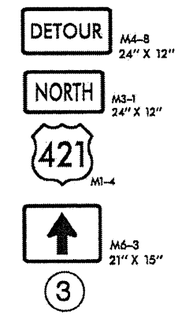
BRIDGE #52
OFF-SITE
DETOUR

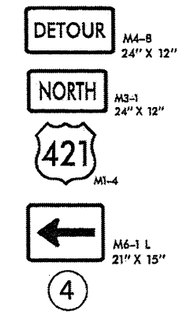
PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-88











* USE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 7 OF 9 TO CLOSE NORTH US 421.

APPROVED: _____ DATE: _____

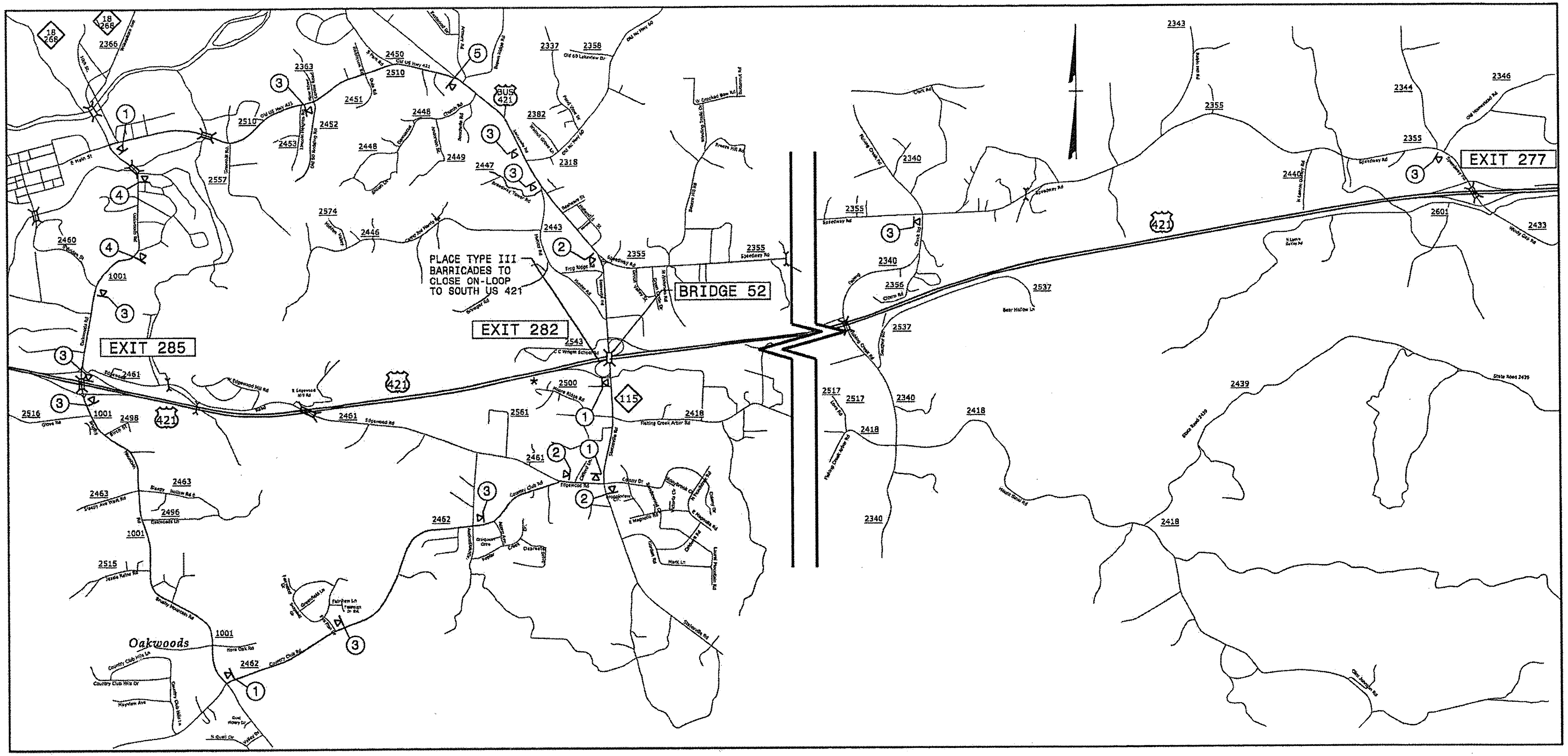
SEAL

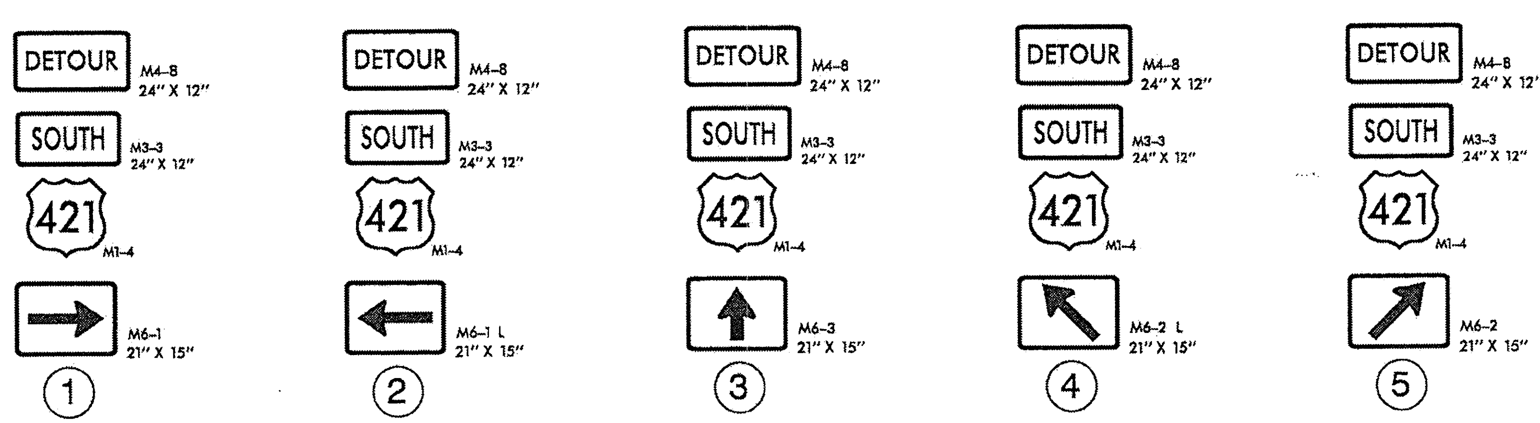
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. GETTIES

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

BRIDGE #52
NORTH US 421
CLOSED
OFF-SITE DETOUR

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-8C





* USE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 7 OF 9, TO CLOSE SOUTH US 421.

APPROVED: DATE:

SEAL

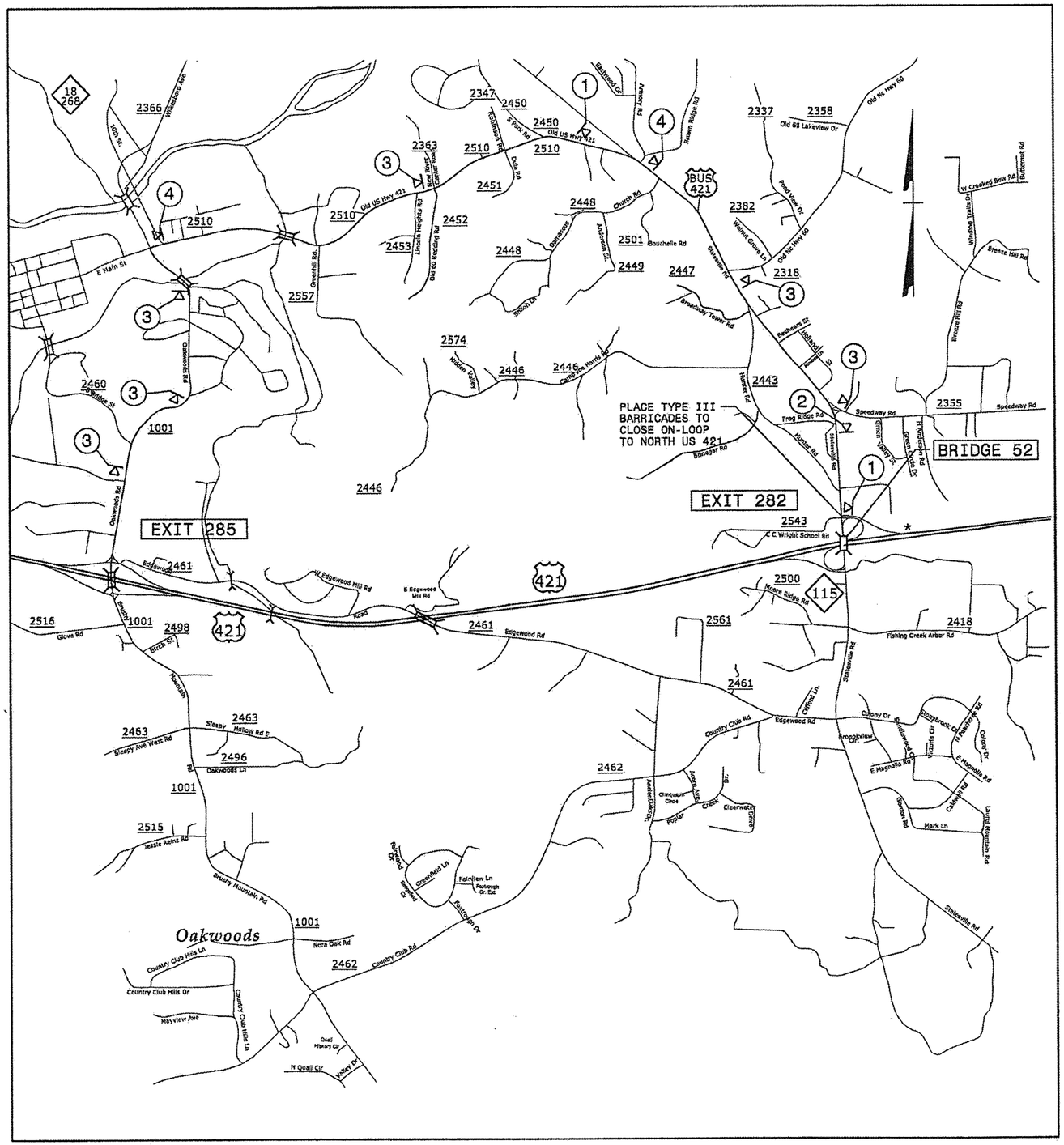
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER

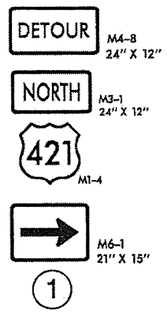
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

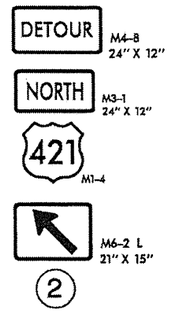
BRIDGE #52
SOUTH US 421
CLOSED
OFF-SITE DETOUR

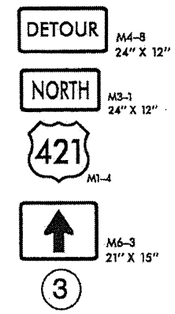
20-FEB-2013 16:37
\\DOT\DFSROOT01\GROUPS-WZTC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-8C.dgn
sngreen AT TE265817

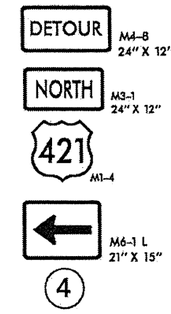
PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-8D











* USE ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 4 OF 15 TO CLOSE NORTH US 421 OUTSIDE LANE.

APPROVED: _____ DATE: _____

SEAL

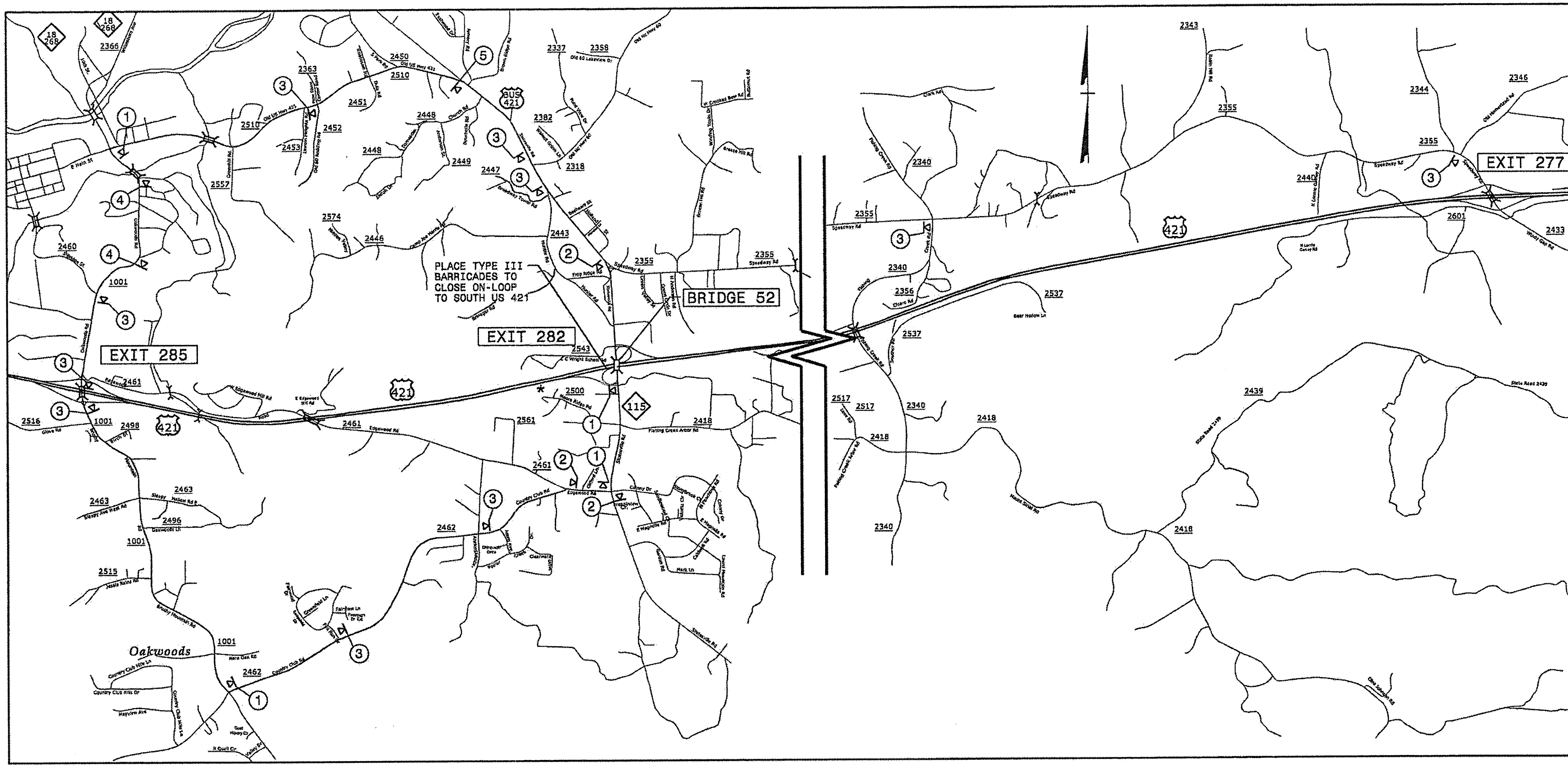
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER

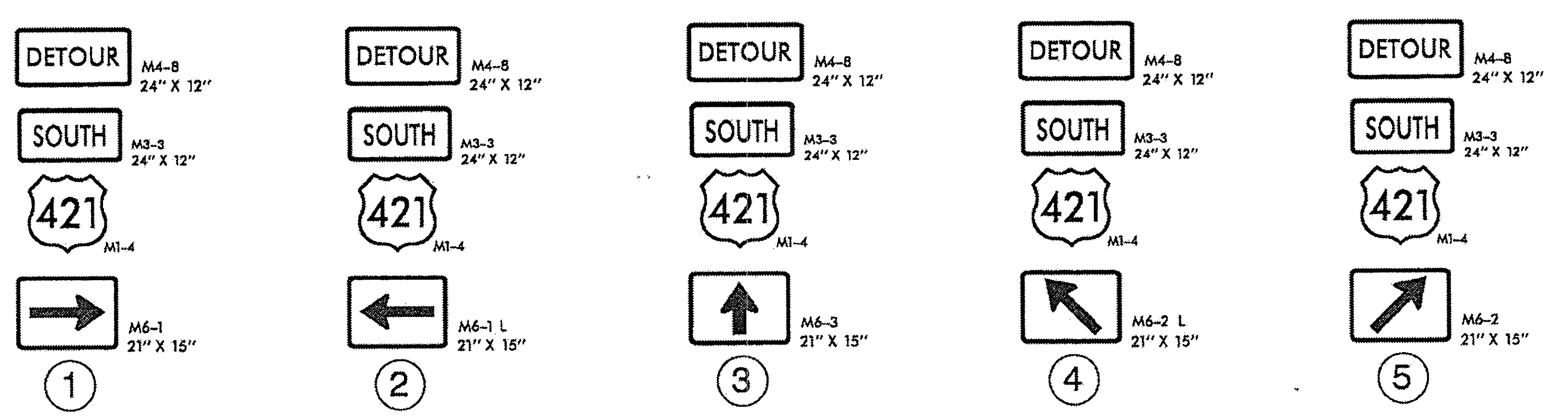
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

BRIDGE #52 ON-LOOP TO NORTH US 421 CLOSED OFF-SITE DETOUR

21-FEB-2013 08:16
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-8D.dgn
sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-8E





* USE ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 4 OF 15, TO CLOSE SOUTH US 421 OUTSIDE LANE.

APPROVED:________ DATE:________

SEAL

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

BRIDGE #52
ON-LOOP TO
SOUTH US 421
CLOSED
OFF-SITE DETOUR

21-FEB-2013 08:20
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sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-9

PHASING

CONSTRUCTION OF BRIDGE #94 IN WILKES COUNTY

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR MAY CONSTRUCT BRIDGE #94 & #23 IN WILKES COUNTY SIMULTANEOUSLY.

THE CONTRACTOR SHALL ONLY BE ALLOWED TO CLOSE EITHER OR BOTH DIRECTIONS OF US 421 AT ONE BRIDGE LOCATION IN WILKES COUNTY AT A TIME.

CONTRACTOR SHALL ENSURE THAT OFF-SITE DETOURS IN WILKES COUNTY DO NOT CONFLICT DURING CONSTRUCTION.

PHASE I

STEP 1: - THE CONTRACTOR SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS ALONG US 421 AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01, SHEETS 1 OR 2 OF 3.

- IF REQUIRED FOR CONSTRUCTION, THE CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 3 OR 4 OF 15 AND SHEET TMP-12, INSTALL PORTABLE CONCRETE BARRIER (PCB) ON THE MEDIAN SHOULDER OF US 421 AS SHOWN ON SHEET TMP-11.

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE & REPLACE THE EXISTING MEDIAN GUARDRAIL/CABLE GUIDERAIL, AS REQUIRED FOR CONSTRUCTION.

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK ON BRIDGE #94 IN PHASE II, STEP 1 THRU STEP 3 IN 34 CONSECUTIVE DAYS (SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS).

PHASE II

STEP 1: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 & SHEET TMP-9A, TO CLOSE BRIDGE #94 LOCATION AND DETOUR TRAFFIC.

STEP 2: - CONTRACTOR SHALL CONDUCT PROPOSED BRIDGE CONSTRUCTION, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE THE FINAL PAVEMENT MARKING/MARKERS (SEE CONSTRUCTION PLANS, STRUCTURE PLANS AND FINAL PAVEMENT MARKING PLANS).

NOTE: FOR LANE CLOSURES ON US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.02, SHEETS 3 OR 4 & 10 OF 15 AND SHEET TMP-12 (RAMP/LOOP DETAIL).

FOR CLOSURE OF NORTHBOUND AND/OR SOUTHBOUND US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.03, SHEET 7 OF 9 AND OFF-SITE DETOUR AS SHOWN ON SHEET TMP-9B.

STEP 3: - REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN BRIDGE #94 LOCATION TO TRAFFIC.

APPROVED:_____ DATE:_____

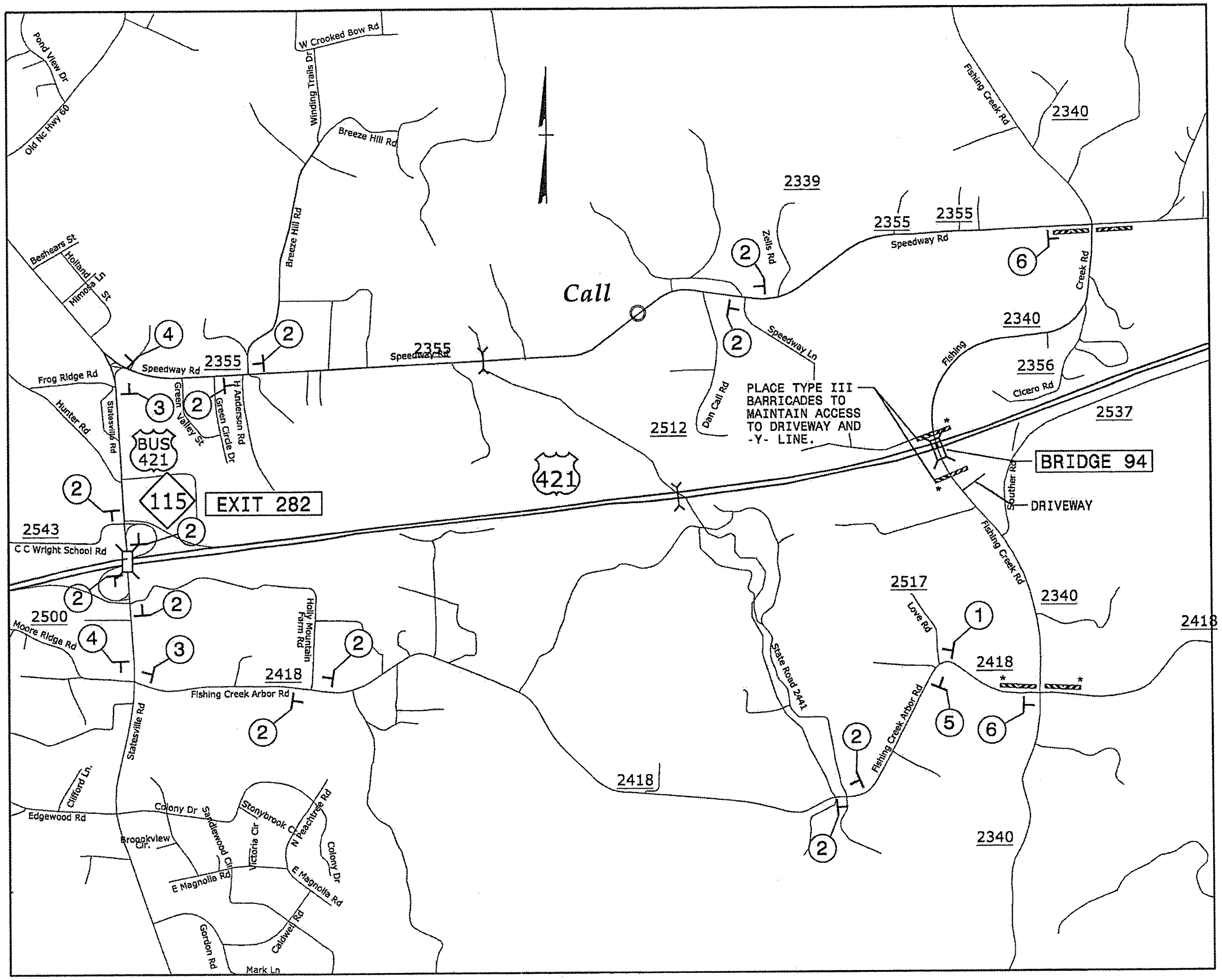
SEAL

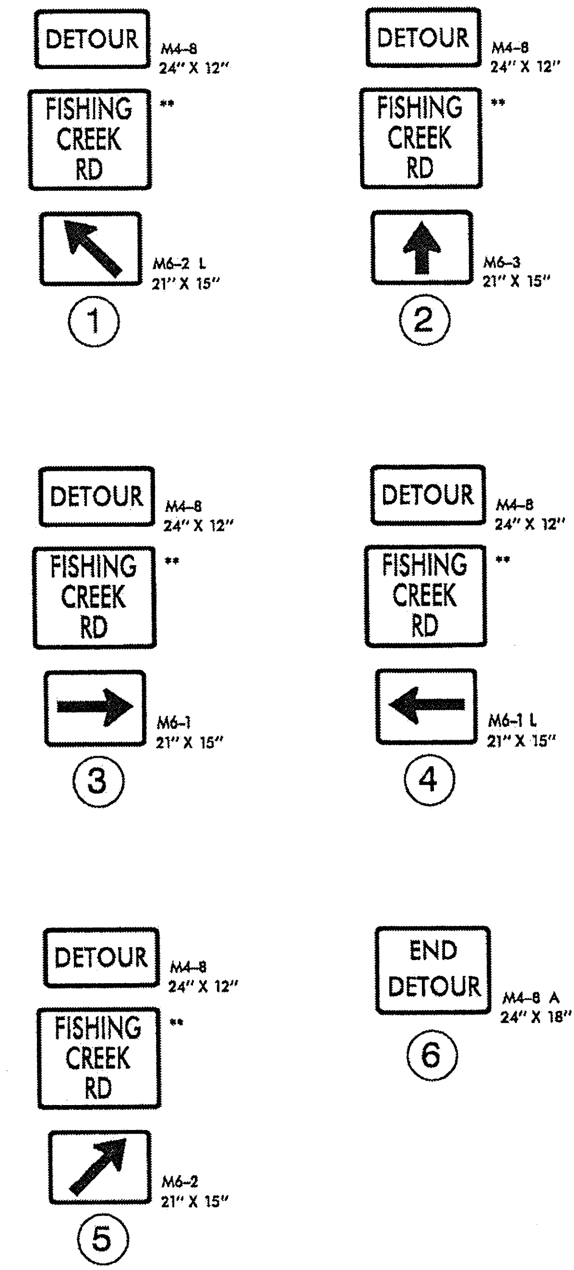
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. I. GETTIS

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

BRIDGE #94
PHASING

21-FEB-2013 08:20
V:\ROADWAY\DESIGNGROUPS-WZTCC\TMU\WZTC\DesignGroup3\Squad3B\Special Projects\17BP.11.H.4\TMP-9.dgn
snorden AT TE26581





* CLOSE ROADWAY AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9.

** SEE SHEET TMP-2 FOR SPECIAL SIGN DESIGN.

APPROVED: DATE:

SEAL

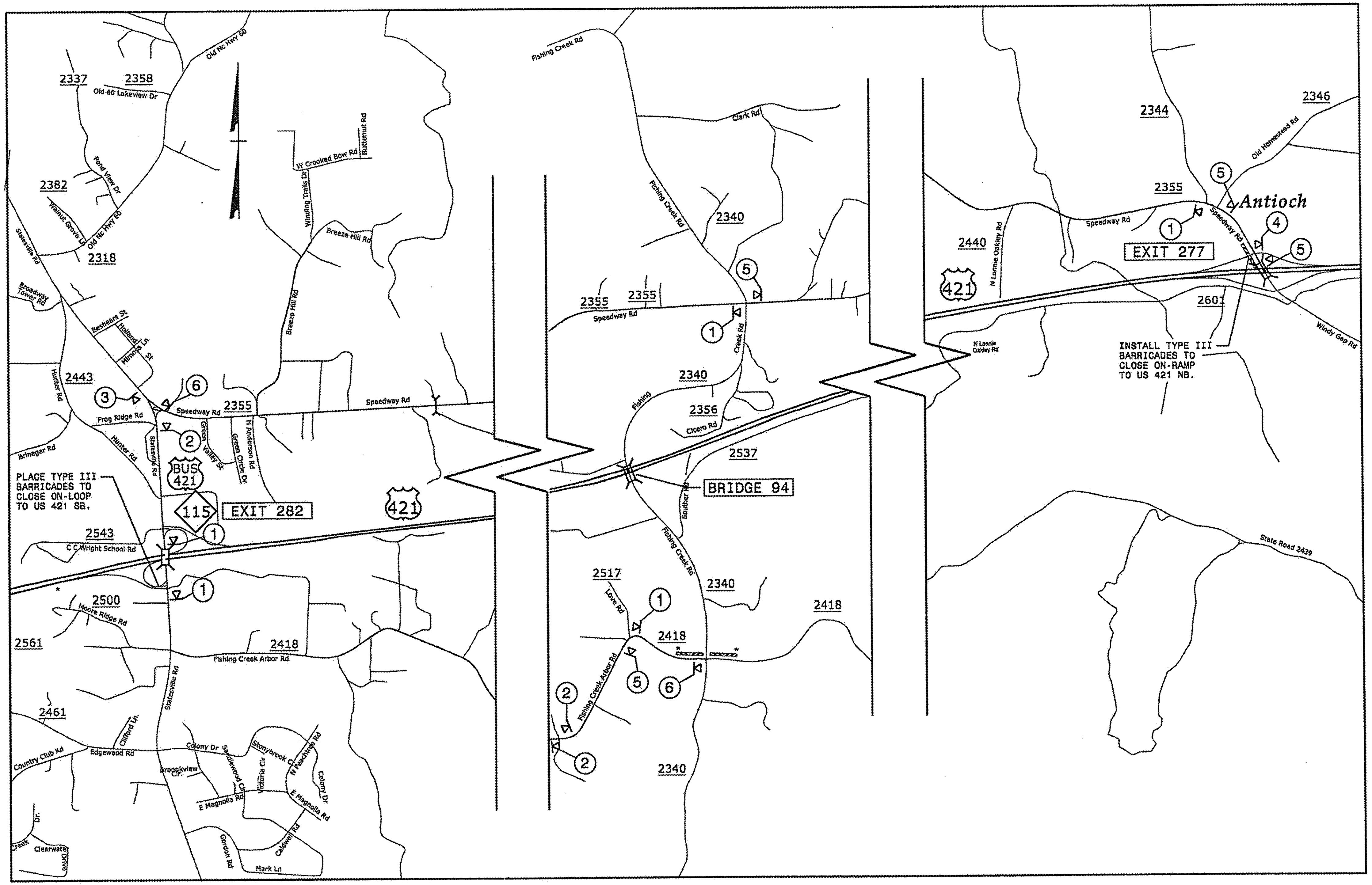
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

BRIDGE #94
OFF-SITE
DETOUR

21-FEB-2013 08:27
\\DOT.DFSROOT01\GROUPS-WZTCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.II.H.4\TMP-9A.dgn
sngreen AT TE26581?

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-9B



(1) DETOUR M4-8 24" X 12"; SOUTH M3-3 24" X 12"; 421 M1-4; ↑ M6-3 21" X 15"

(2) DETOUR M4-8 24" X 12"; SOUTH M3-3 24" X 12"; 421 M1-4; ↗ M6-2 21" X 15"

(3) DETOUR M4-8 24" X 12"; SOUTH M3-3 24" X 12"; 421 M1-4; ← M6-1 L 21" X 15"

(4) DETOUR M4-8 24" X 12"; NORTH M3-1 24" X 12"; 421 M1-4; → M6-1 21" X 15"

(5) DETOUR M4-8 24" X 12"; NORTH M3-1 24" X 12"; 421 M1-4; ↑ M6-3 21" X 15"

(6) DETOUR M4-8 24" X 12"; NORTH M3-1 24" X 12"; 421 M1-4; ← M6-1 L 21" X 15"

* USE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 7 OF 9, TO CLOSE NORTH AND/OR SOUTH US 421.

APPROVED: ______ DATE: ______

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER 25 FEB 13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

BRIDGE #94
US 421 CLOSED
OFF-SITE DETOUR

21-FEB-2013 13:15
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-9B.dgn
sngreen AT TE265817

PHASING

CONSTRUCTION OF BRIDGE #96 IN WILKES COUNTY

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR MAY CONSTRUCT BRIDGE #96 & #23 IN WILKES COUNTY SIMULTANEOUSLY.

THE CONTRACTOR SHALL ONLY BE ALLOWED TO CLOSE EITHER OR BOTH DIRECTIONS OF US 421 AT ONE BRIDGE LOCATION IN WILKES COUNTY AT A TIME.

CONTRACTOR SHALL ENSURE THAT OFF-SITE DETOURS IN WILKES COUNTY DO NOT CONFLICT DURING CONSTRUCTION.

PHASE I

STEP 1: - THE CONTRACTOR SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS ALONG US 421 AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.01, SHEETS 1 OR 2 OF 3.

- IF REQUIRED FOR CONSTRUCTION, THE CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 3 OR 4 OF 15 AND SHEET TMP-12, INSTALL PORTABLE CONCRETE BARRIER (PCB) ON THE MEDIAN SHOULDER OF US 421 AS SHOWN ON SHEET TMP-11.

NOTE: AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE & REPLACE THE EXISTING MEDIAN GUARDRAIL/CABLE GUIDERAIL, AS REQUIRED FOR CONSTRUCTION.

CONTRACTOR SHALL WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK ON BRIDGE #96 IN PHASE II, STEP 1 THRU STEP 3 IN 53 CONSECUTIVE DAYS (SEE INTERMEDIATE CONTRACT TIME AND SPECIAL PROVISIONS).

PHASE II

STEP 1: - CONTRACTOR SHALL, USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9 & SHEET TMP-10A, TO CLOSE BRIDGE #96 LOCATION AND DETOUR TRAFFIC.

STEP 2: - CONTRACTOR SHALL CONDUCT PROPOSED BRIDGE CONSTRUCTION, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE THE FINAL PAVEMENT MARKING/MARKERS (SEE CONSTRUCTION PLANS, STRUCTURE PLANS AND FINAL PAVEMENT MARKING PLANS).

NOTE: FOR LANE CLOSURES ON US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.02, SHEETS 3 OR 4 & 10 OF 15 AND SHEET TMP-12 (RAMP/LOOP DETAIL).

FOR CLOSURE OF NORTHBOUND AND/OR SOUTHBOUND US 421 THE CONTRACTOR SHALL USE ROADWAY STANDARD DRAWING NO.1101.03, SHEET 7 OF 9 AND OFF-SITE DETOUR AS SHOWN ON SHEET TMP-10B.

STEP 3: - REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN BRIDGE #96 LOCATION TO TRAFFIC.

APPROVED: DATE:

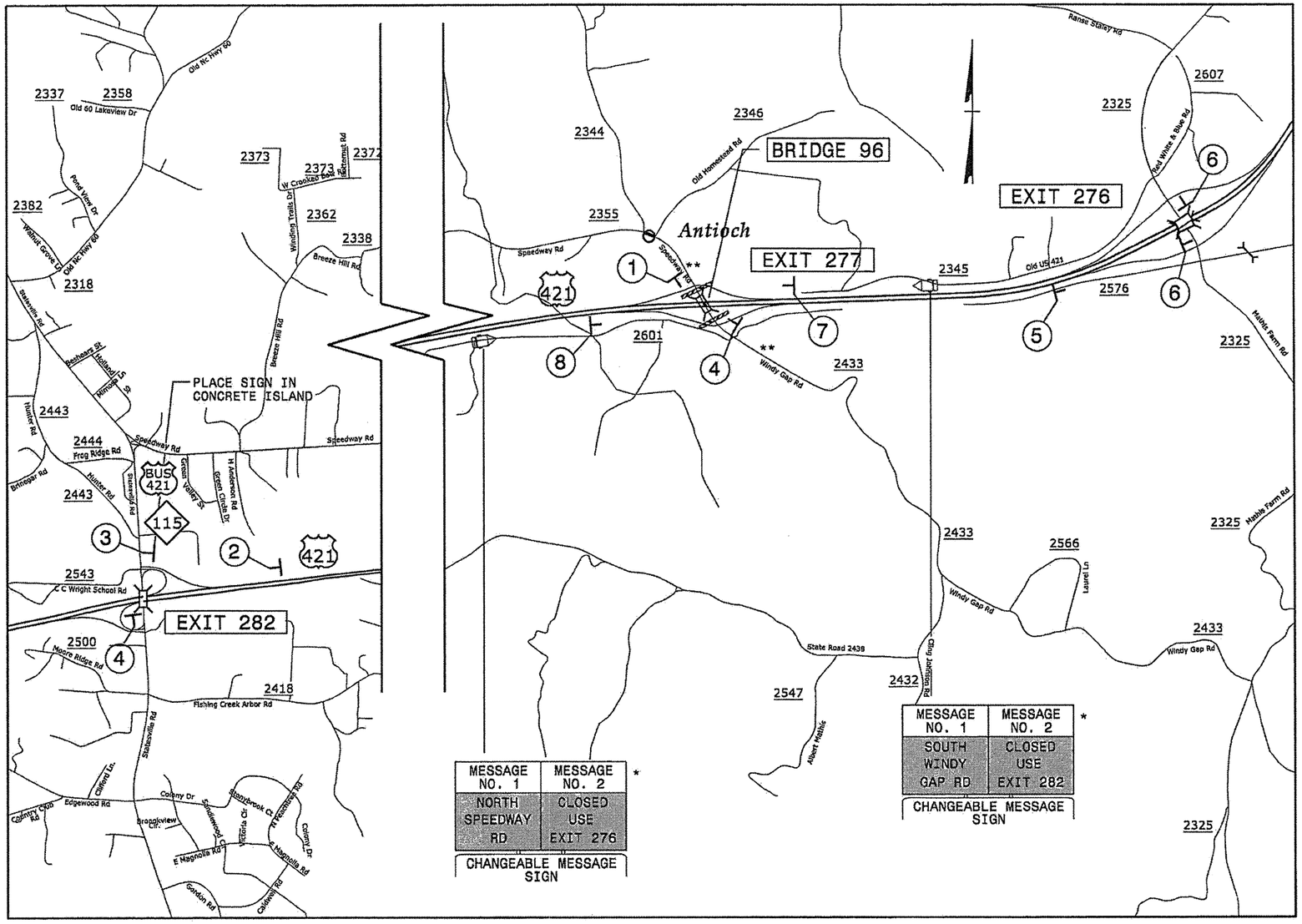
SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER 28973 G. L. GETTIER 25 FEB 13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

BRIDGE #96
PHASING

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-10A



MESSAGE NO. 1	MESSAGE NO. 2
NORTH SPEEDWAY RD	CLOSED USE EXIT 276

CHANGEABLE MESSAGE SIGN *

MESSAGE NO. 1	MESSAGE NO. 2
SOUTH WINDY GAP RD	CLOSED USE EXIT 282

CHANGEABLE MESSAGE SIGN *

DETOUR M4-8 24" X 12"
WINDY GAP RD ***
M6-1 21" X 15" (1)

DETOUR M4-8 24" X 12"
WINDY GAP RD ***
M6-2 21" X 15" (2)

DETOUR M4-8 24" X 12"
WINDY GAP RD ***
M6-1 L 21" X 15" (3)

DETOUR M4-8 24" X 12"
SPEEDWAY RD ***
M6-1 21" X 15" (4)

DETOUR M4-8 24" X 12"
SPEEDWAY RD ***
M6-2 21" X 15" (5)

DETOUR M4-8 24" X 12"
SPEEDWAY RD ***
M6-1 L 21" X 15" (6)

DETOUR M4-8 24" X 12"
WINDY GAP RD ***
M6-3 21" X 15" (7)

DETOUR M4-8 24" X 12"
SPEEDWAY RD ***
M6-3 21" X 15" (8)

* PLACE CMS 1/2 MILE PRIOR TO EXIT OR AS DIRECTED BY THE ENGINEER.

** CLOSE ROADWAY AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 2 OF 9, EXCEPT DELETE "STOP" SIGN (R1-1) AND "STOP AHEAD" SIGN (W3-1).

*** SEE SHEET TMP-2 FOR SPECIAL SIGN DESIGN.

APPROVED:_____ DATE:_____

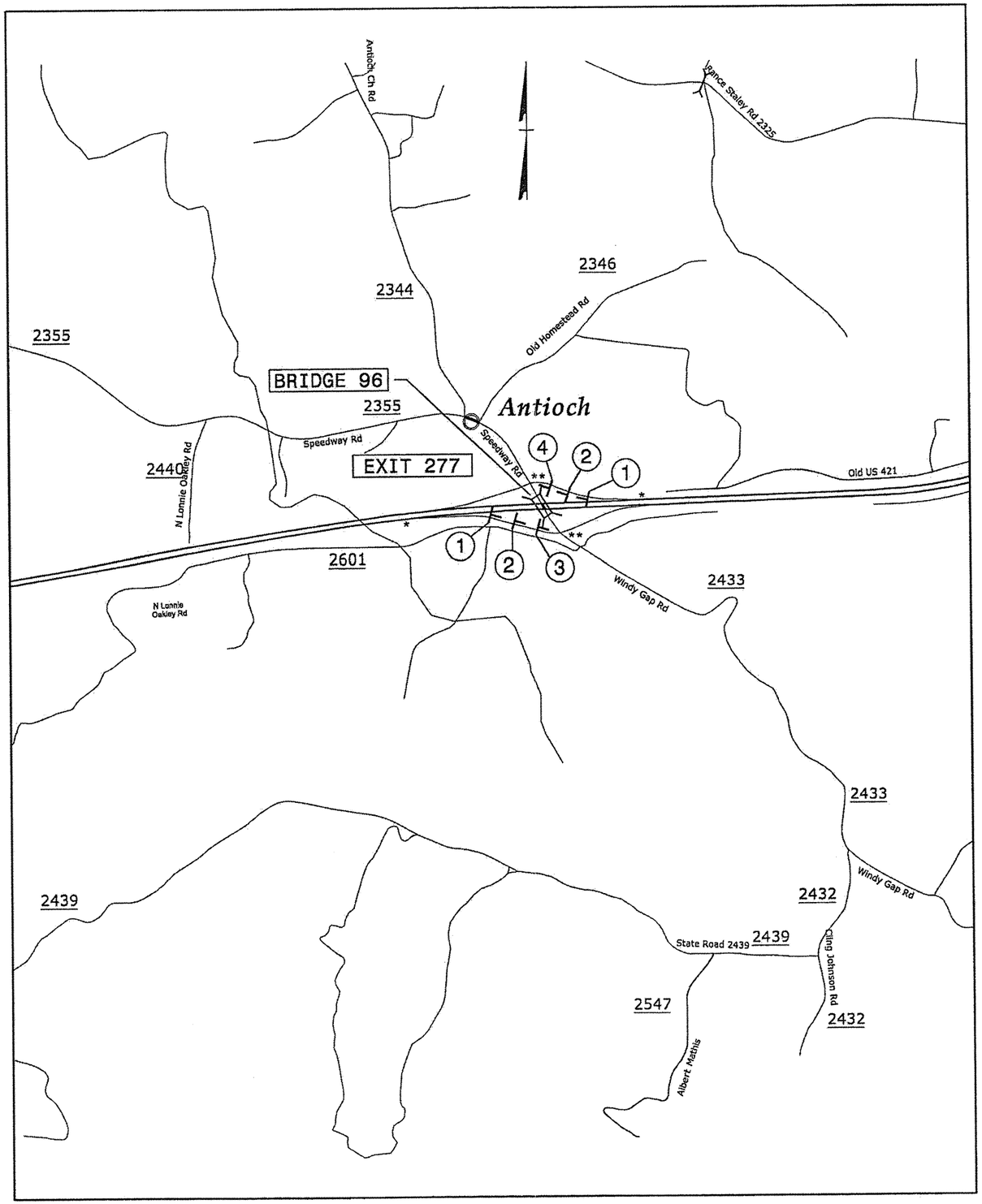
SEAL — NORTH CAROLINA PROFESSIONAL SEAL 16973 ENGINEER G. L. GETTIER — 2-STEP 12

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

BRIDGE #96
OFF-SITE
DETOUR

28-FEB-2013 07:46
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\Special Projects\17BP.11.H.4\TMP-10A.dgn
sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-10B



1. BE PREPARED TO STOP — W3-4, 48" X 48"

2. TRAFFIC OFFICER AHEAD — W6-9, 48" X 48" OR W20-7 A, 48" X 48"

3.
- DETOUR — M4-8, 24" X 12"
- SOUTH — M3-3, 24" X 12"
- 421 — M1-4
- M6-3, 21" X 15"

4.
- DETOUR — M4-8, 24" X 12"
- NORTH — M3-1, 24" X 12"
- 421 — M1-4
- M6-3, 21" X 15"

* USE ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 7 OF 9 TO CLOSE NORTH AND/OR SOUTH US 421.

** AS DIRECTED BY THE ENGINEER, UTILIZE DRUMS AND LAW ENFORCEMENT OR FLAGGER TO CONTROL TRAFFIC AROUND CONCRETE ISLANDS AND THRU INTERSECTION.

APPROVED: _____ DATE: _____

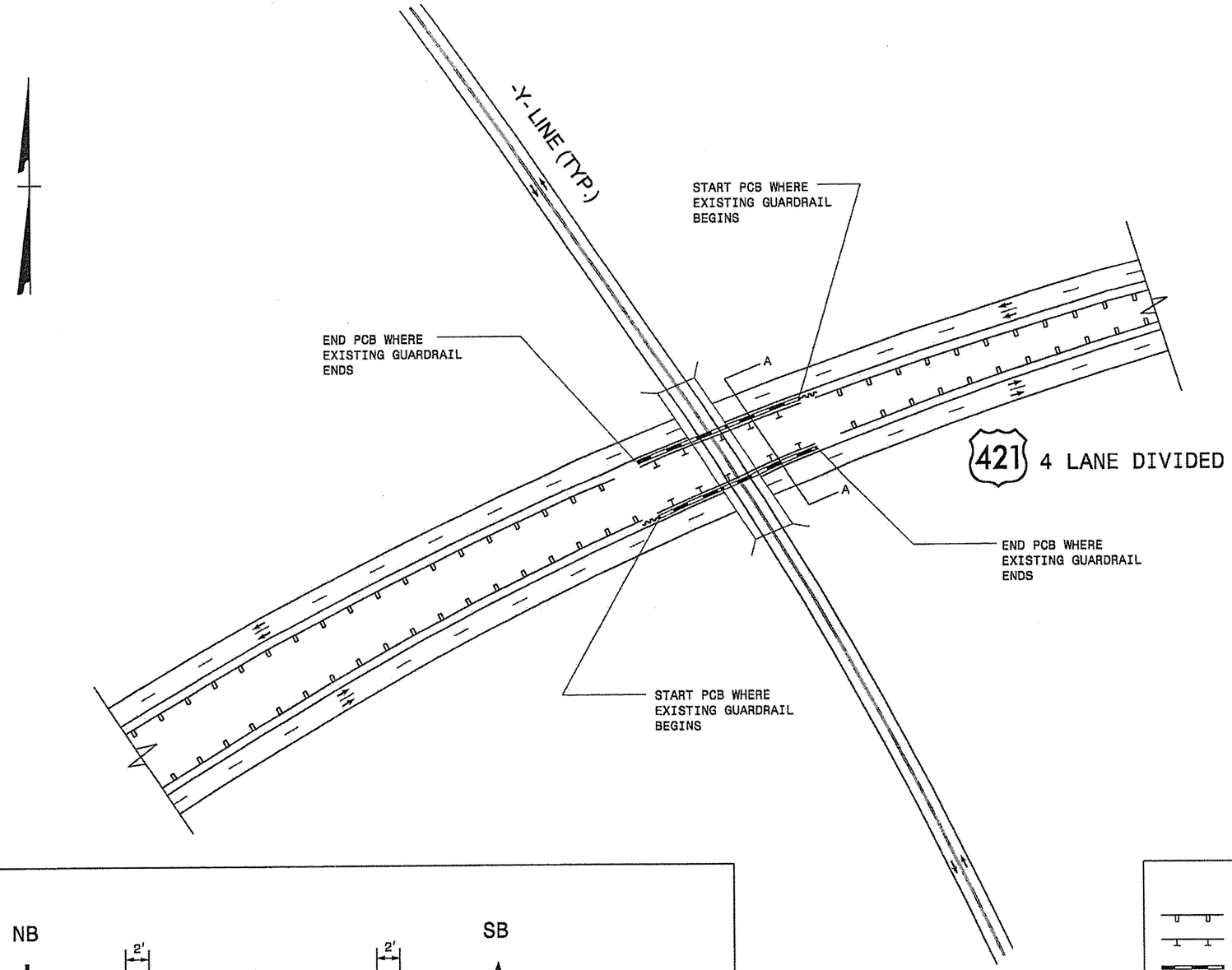
SEAL — NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIS — 2/7/2013

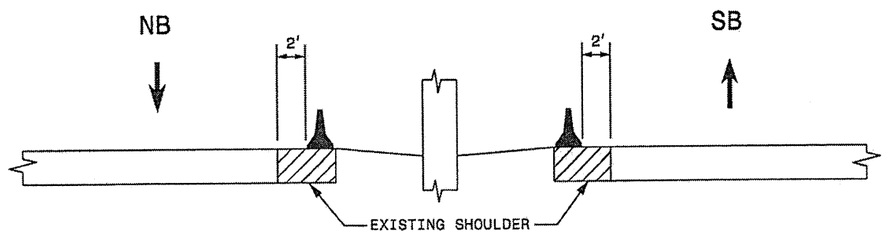
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

BRIDGE #96
US 421 CLOSED
OFF-SITE DETOUR

21-FEB-2013 08:42
V:\Projects\DOT\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad38\SpecialProjects\17BP.11.H.4\TMP-10B.dgn
sngreen AT TE26581

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-11





TYPICAL A-A

LEGEND

- EXISTING GABLE GUARDRAIL
- EXISTING GUARDRAIL
- PORTABLE CONCRETE BARRIER (PCB)
- TEMPORARY CRASH CUSHION (TCC)

APPROVED: _____ DATE: 28 FEB 13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 18973 ENGINEER G. I. GETTYS

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

PORTABLE CONCRETE BARRIER (PCB) PLACEMENT ON US 421

28-FEB-2013 08:17
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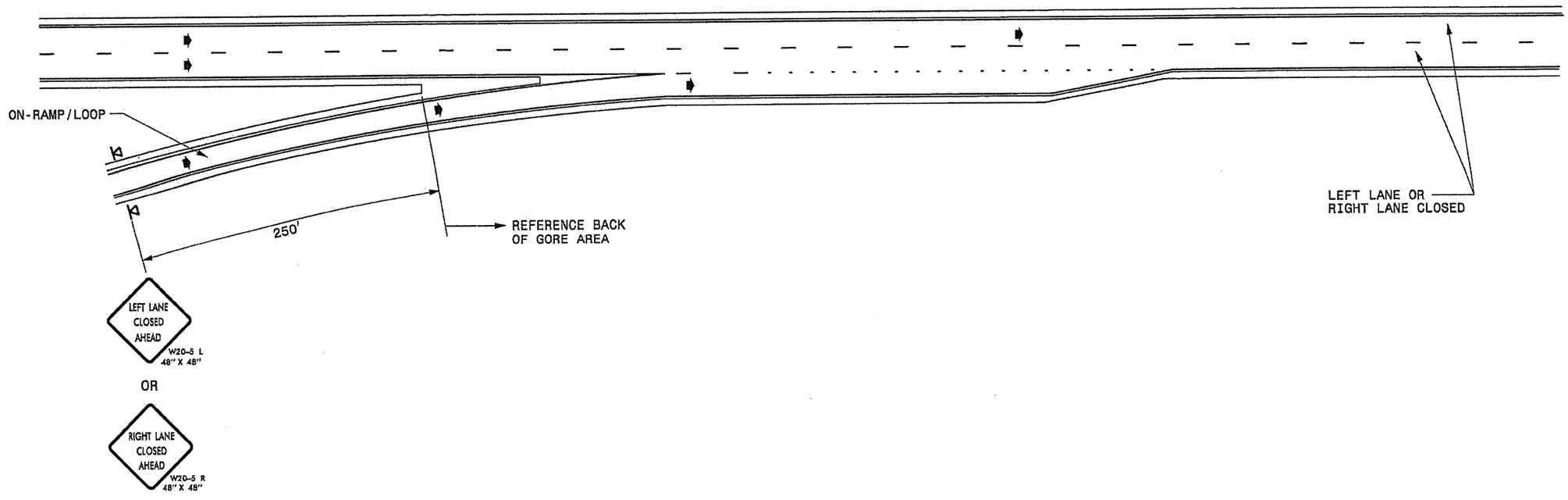
sngreen AT TE265817

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.H.4	TMP-12

US 421



APPROVED: _____ DATE: 2/5/2013

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 30973 ENGINEER G. L. GETTIER

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

ON-RAMP/LOOP
DETAIL

28-FEB-2013 08:18
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\DesignGroup3\Squad3B\SpecialProjects\17BP.11.H.4\TMP-12.dgn
sngreen AT TE26381

T.I.P.: 17BP.11.H.4

TIP NO.	SHEET NO.
17BP.11.H.4	PMP-1

APPROVED: ______

DATE: 3/5/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
WILKES COUNTY

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	SNOWPLOWABLE
ALL BRIDGES	COLD APPLIED PLASTIC II	PERM. RAISED

D) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

E) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

H) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING COLD APPLIED PLASTIC (TYPE II) PAVEMENT MARKING MATERIAL.

I) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

K) TYPE III COLD APPLIED PLASTIC MAY BE USED IN LIEU OF TYPE II COLD APPLIED PLASTIC. IF TYPE III COLD APPLIED PLASTIC IS USED, IT SHALL BE PAID FOR USING THE TYPE II COLD APPLIED PLASTIC PAY ITEM.

PAVEMENT MARKING SCHEDULE

SYMB	DESCRIPTION
	FINAL PAVEMENT MARKINGS
	THERMOPLASTIC (24", 120 MILS)
T2	WHITE STOPBAR
	COLD APPLIED PLASTIC (4") Type2 Permanent High Performance
CA	WHITE EDGELINE
CB	YELLOW EDGELINE
CC	10 FT. WHITE SKIP
CD	3 FT. - 9 FT./SP WHITE MINISKIP
CE	WHITE SOLID LANE LINE
CI	YELLOW DOUBLE CENTER
	THERMOPLASTIC (4", 120 MILS)
TC	10 FT. WHITE SKIP
TD	3 FT. - 9 FT./SP WHITE MINISKIP
TE	WHITE SOLID LANE LINE
TI	YELLOW DOUBLE CENTER
	THERMOPLASTIC (4", 90 MILS)
TA	WHITE EDGELINE
TB	YELLOW EDGELINE
	THERMOPLASTIC (8", 90 MILS)
TN	WHITE GORELINE
TP	YELLOW DIAGONAL
	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
UI	ALPHANUMERIC CHAR.
	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)
UA	LEFT TURN ARROW
	MARKERS
	PERMANENT RAISED PAVEMENT MARKERS
MA	YELLOW & YELLOW
MB	CRYSTAL & RED
	SNOWPLOWABLE RAISED PAVEMENT MARKERS
ME	YELLOW & YELLOW
MF	CRYSTAL & RED

INDEX

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

KELVIN L. JORDAN — SIGNING & DELINEATION REGIONAL ENGINEER

DERRICK H. BEARD — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

05-MAR-2013 10:59
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dhbeard AT TE285832

TIP NO.	SHEET NO.
17BP.11.H.4	PMP-2

APPROVED: [signature]

DATE: 3/5/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

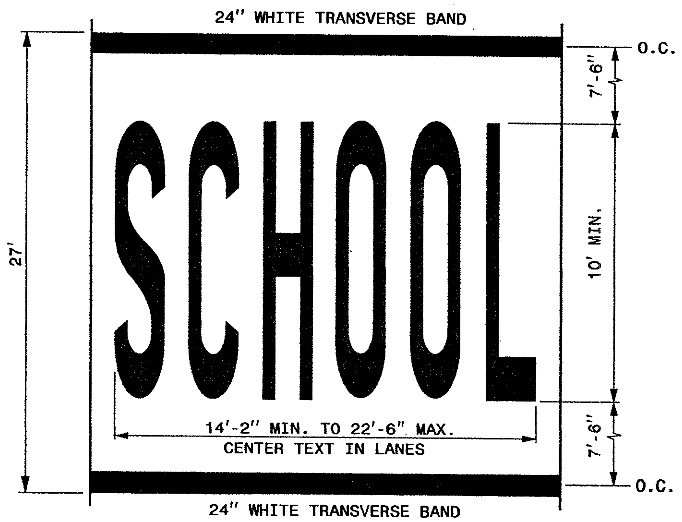
1-12

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
SYMBOLS AND WORD MESSAGES

SHEET 3 OF 8

1205D08

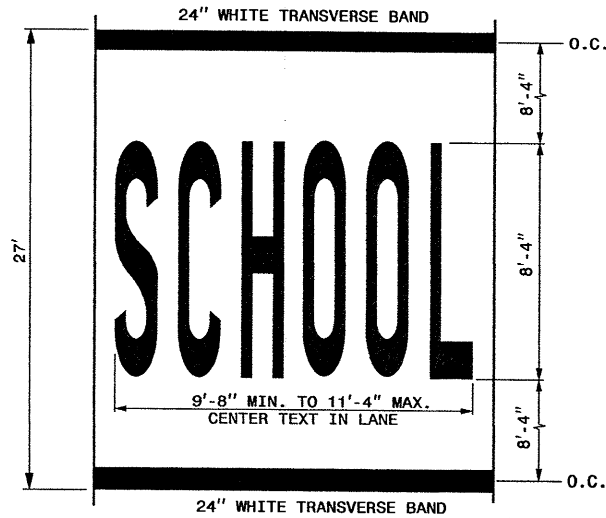
MULTI-LANE WIDTH "SCHOOL"



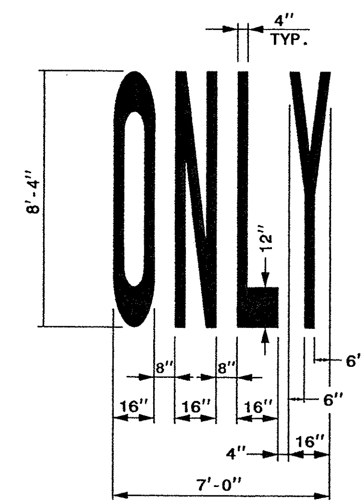
LETTER HEIGHT = 10' MIN.
LETTER WIDTH = 20"
SPACING = 10" MIN./30" MAX. (USE EQUAL SPACING BETWEEN LETTERS)

NOTE: THE TWO-LANE PAVEMENT MARKING DIMENSIONS OF "SCHOOL" SHOWN IN PART 7 OF THE MUTCD MAY ALSO BE USED.

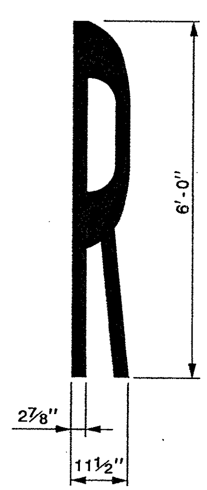
SINGLE LANE WIDTH "SCHOOL"

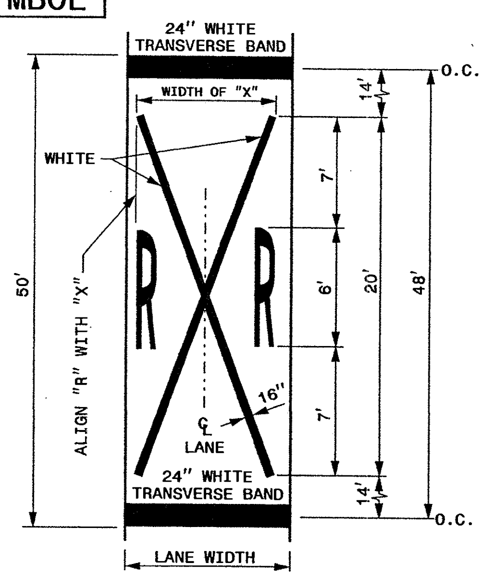


LETTER HEIGHT = 8'-4"
LETTER WIDTH = 16"
SPACING = 4" MIN./8" MAX. (USE EQUAL SPACING BETWEEN LETTERS)



RAILROAD RXR SYMBOL





LANE WIDTH (FEET)	WIDTH OF "X" (FEET)
8'≤W≤9'	7'
9'<W≤12'	8'
W>12'	10'

GENERAL NOTES:

1- THE SCHOOL PAVEMENT MARKING CONSISTS OF SIX (6) CHARACTERS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.10 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

2- PAVEMENT MARKING IN ADVANCE OF A HIGHWAY-RAIL CROSSING SHALL CONSIST OF TWO (2) CHARACTERS AND TWO (2) 16" LINES (FORMING AN X) WHICH ARE PAID FOR UNDER TWO SEPARATE PAY ITEMS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.11 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
SYMBOLS AND WORD MESSAGES

SHEET 3 OF 8

1205D08

04-MAR-2013 14:33
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dhbeard AT TE265832

REVISED PAVEMENT MARKING
ROADWAY STANDARD DRAWING

TIP NO.	SHEET NO.
17BP.11.H.4	PMP-3

APPROVED: _____

DATE: 3/5/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

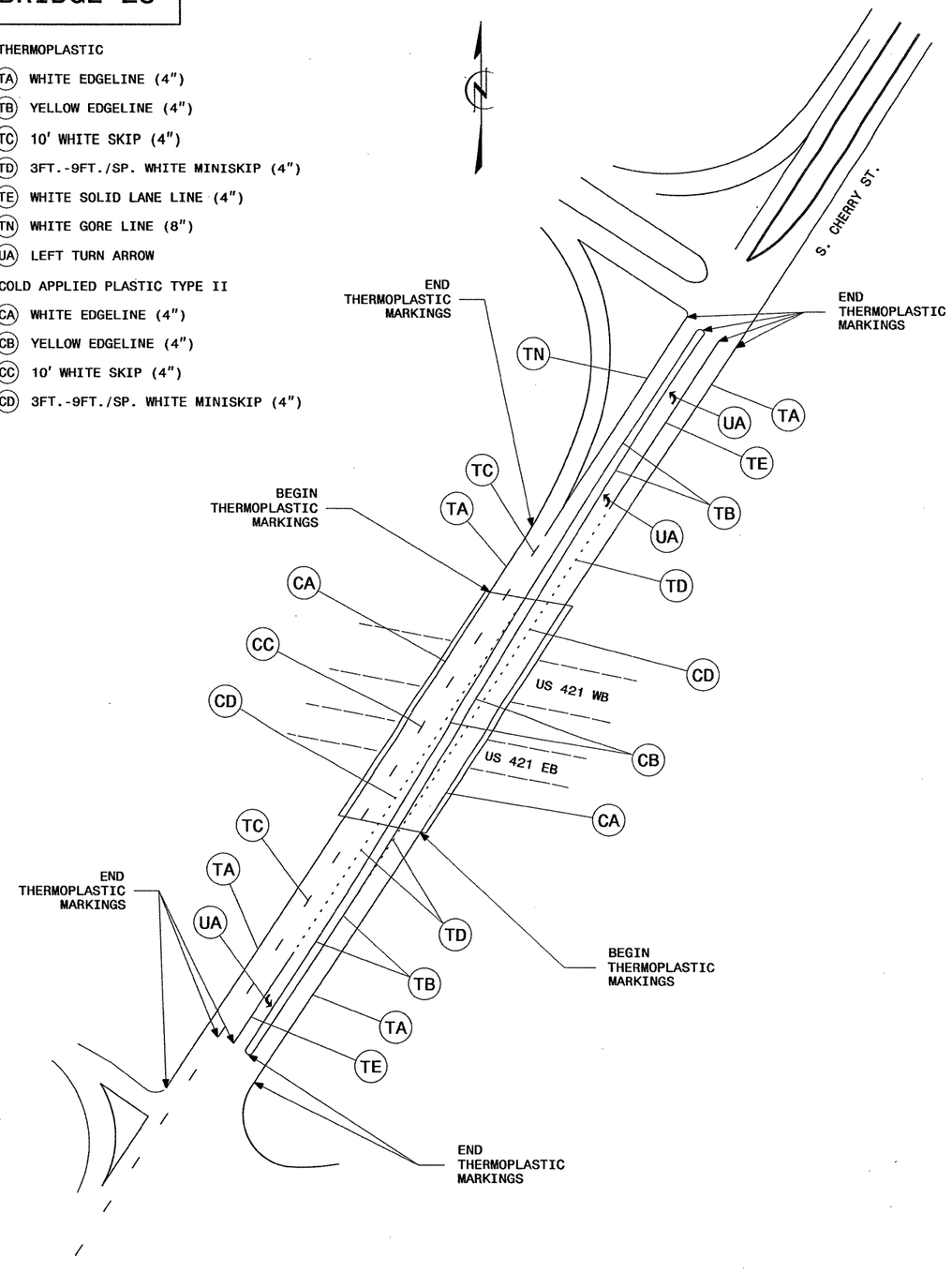
BRIDGE 23

THERMOPLASTIC

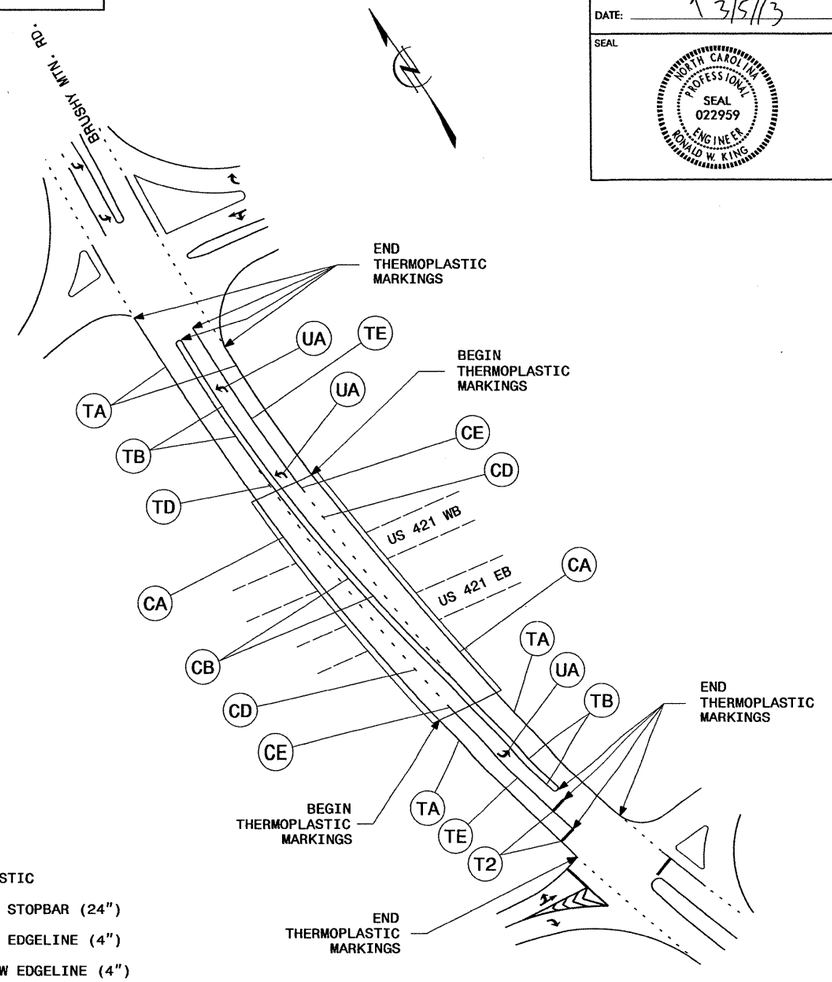
- (TA) WHITE EDGELINE (4")
- (TB) YELLOW EDGELINE (4")
- (TC) 10' WHITE SKIP (4")
- (TD) 3FT.-9FT./SP. WHITE MINISKIP (4")
- (TE) WHITE SOLID LANE LINE (4")
- (TN) WHITE GORE LINE (8")
- (UA) LEFT TURN ARROW

COLD APPLIED PLASTIC TYPE II

- (CA) WHITE EDGELINE (4")
- (CB) YELLOW EDGELINE (4")
- (CC) 10' WHITE SKIP (4")
- (CD) 3FT.-9FT./SP. WHITE MINISKIP (4")



BRIDGE 84



THERMOPLASTIC

- (T2) WHITE STOPBAR (24")
- (TA) WHITE EDGELINE (4")
- (TB) YELLOW EDGELINE (4")
- (TD) 3FT.-9FT./SP. WHITE MINISKIP (4")
- (TE) WHITE SOLID LANE LINE (4")
- (UA) LEFT TURN ARROW

COLD APPLIED PLASTIC TYPE II

- (CA) WHITE EDGELINE (4")
- (CB) YELLOW EDGELINE (4")
- (CD) 3FT.-9FT./SP. WHITE MINISKIP (4")
- (CE) WHITE SOLID LANE LINE (4")

PAVEMENT MARKING DETAIL

04-MAR-2013 14:37
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dnbeard AT TE265832

TIP NO.	SHEET NO.
17BP.11.H.4	PMP-4

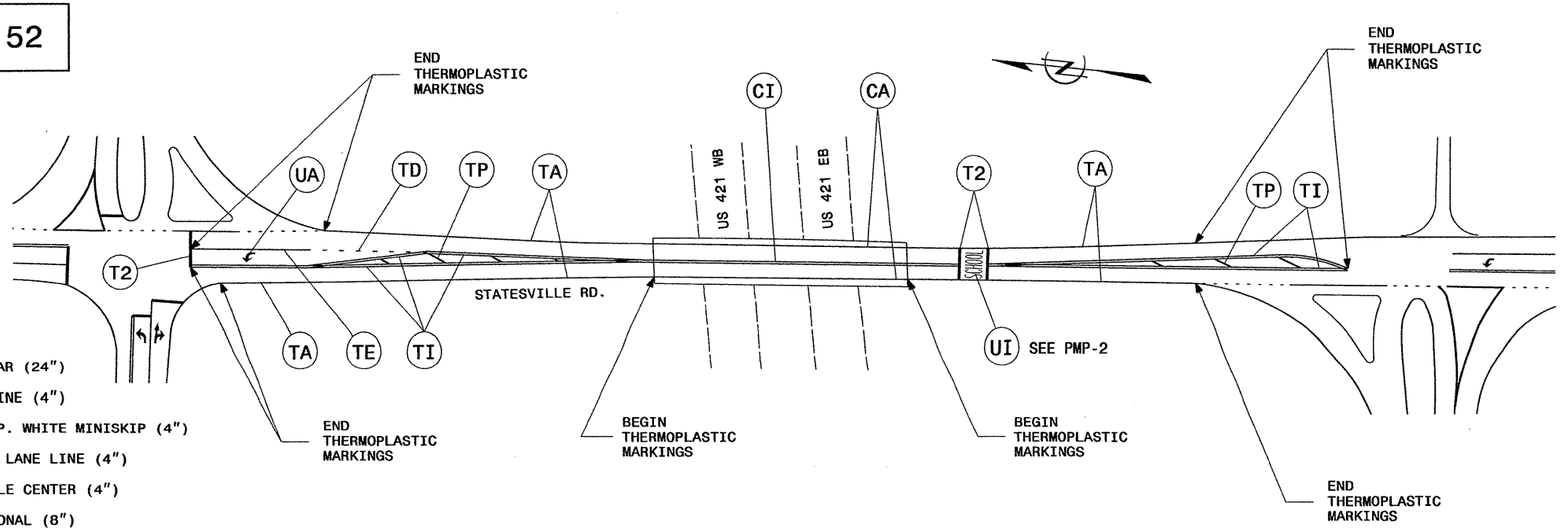
APPROVED: _____

DATE: 3/5/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

BRIDGE 52



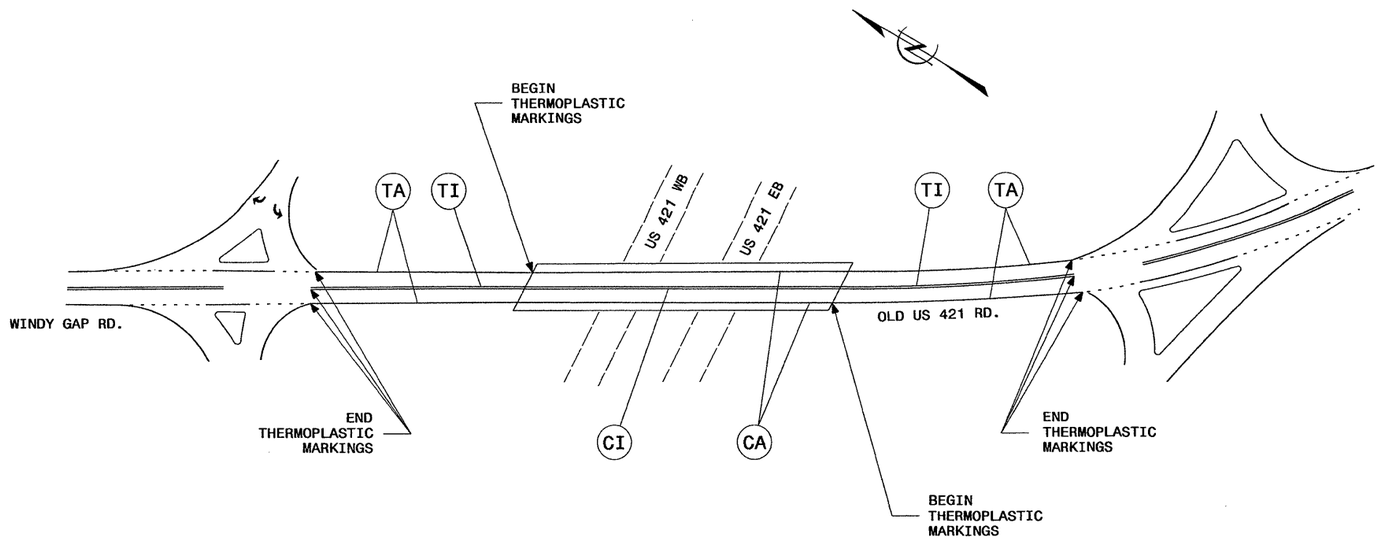
THERMOPLASTIC

- (T2) WHITE STOPBAR (24")
- (TA) WHITE EDGELINE (4")
- (TD) 3FT.-9FT./SP. WHITE MINISKIP (4")
- (TE) WHITE SOLID LANE LINE (4")
- (TI) YELLOW DOUBLE CENTER (4")
- (TP) YELLOW DIAGONAL (8")
- (UA) LEFT TURN ARROW
- (UI) ALPHANUMERIC CHARACTER

COLD APPLIED PLASTIC TYPE II

- (CA) WHITE EDGELINE (4")
- (CI) YELLOW DOUBLE CENTER (4")

BRIDGE 96



THERMOPLASTIC

- (TA) WHITE EDGELINE (4")
- (TI) YELLOW DOUBLE CENTER (4")

COLD APPLIED PLASTIC TYPE II

- (CA) WHITE EDGELINE (4")
- (CI) YELLOW DOUBLE CENTER (4")

PAVEMENT MARKING DETAIL

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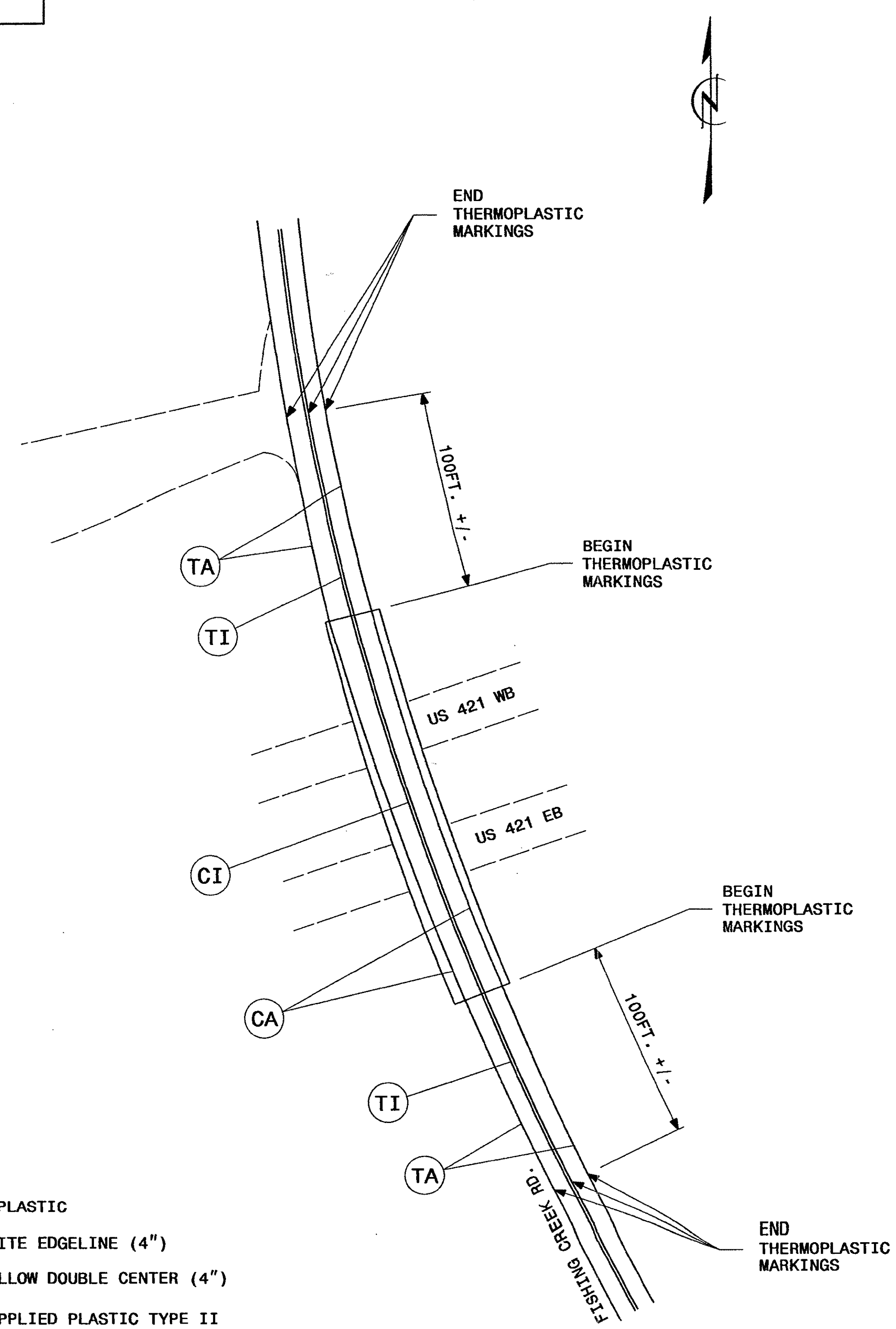
TIP NO.	SHEET NO.
17BP.11.H.4	PMP-5

APPROVED: [signature]

DATE: 3/5/13

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022959 RONALD W. KING

BRIDGE 94



THERMOPLASTIC

(TA) WHITE EDGELINE (4")

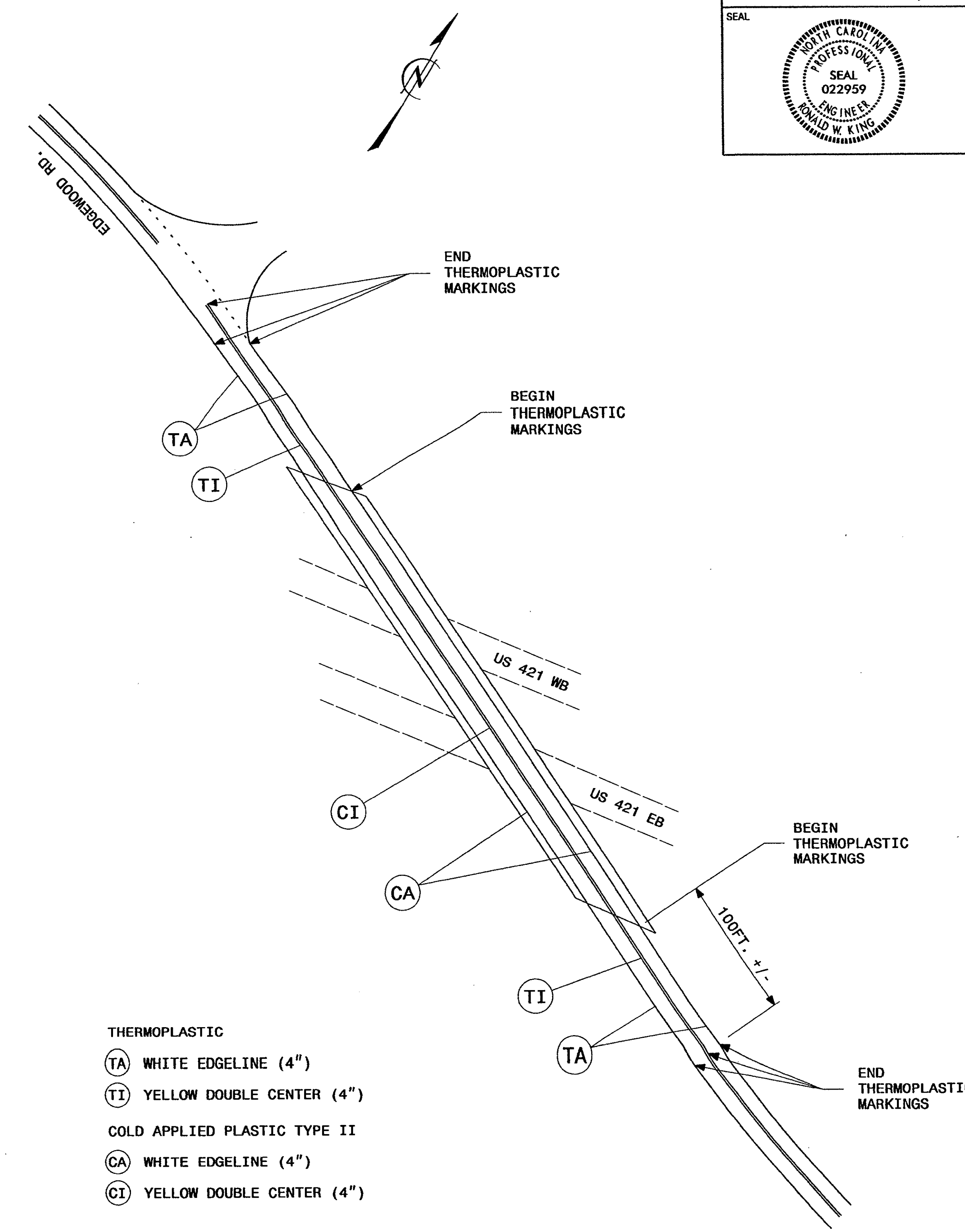
(TI) YELLOW DOUBLE CENTER (4")

COLD APPLIED PLASTIC TYPE II

(CA) WHITE EDGELINE (4")

(CI) YELLOW DOUBLE CENTER (4")

BRIDGE 90



THERMOPLASTIC

(TA) WHITE EDGELINE (4")

(TI) YELLOW DOUBLE CENTER (4")

COLD APPLIED PLASTIC TYPE II

(CA) WHITE EDGELINE (4")

(CI) YELLOW DOUBLE CENTER (4")

PAVEMENT MARKING DETAIL

04-MAR-2013 14:46
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dhbeard AT TE26583Z

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 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. FINS 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

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STD. NO. SN

REV. 6-16-95 EEM @ RGW REV. 5-7-03 RWW @ JTE REV. 10-1-11 MAA @ GM
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