

PROJECT: 17BP.13.P.4

CONTRACT: C203245

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

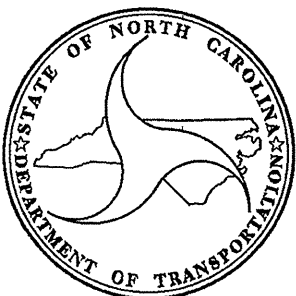
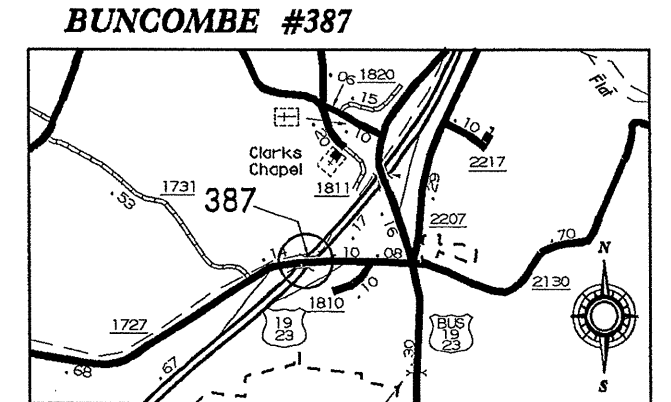
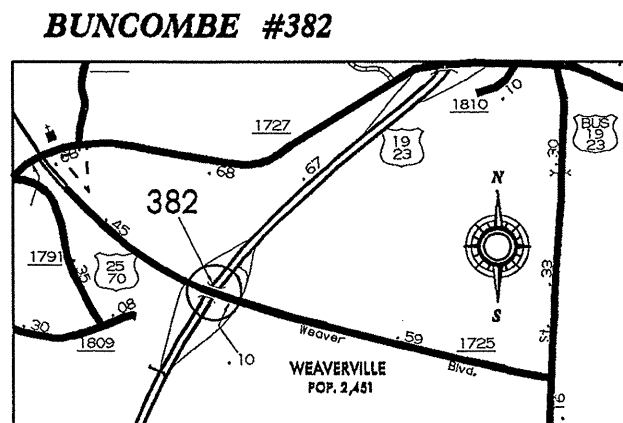
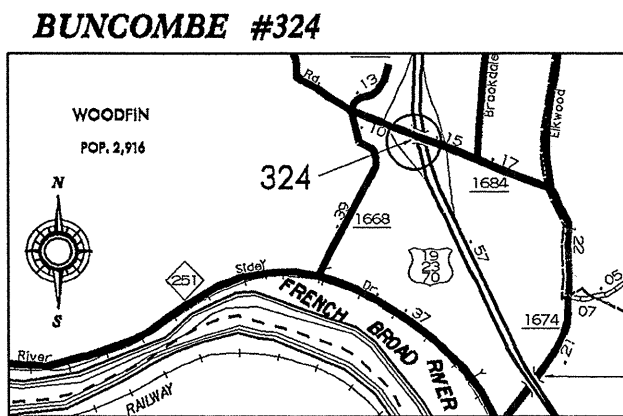
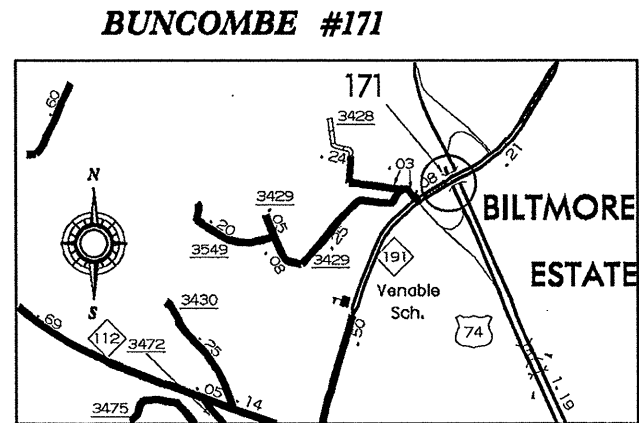
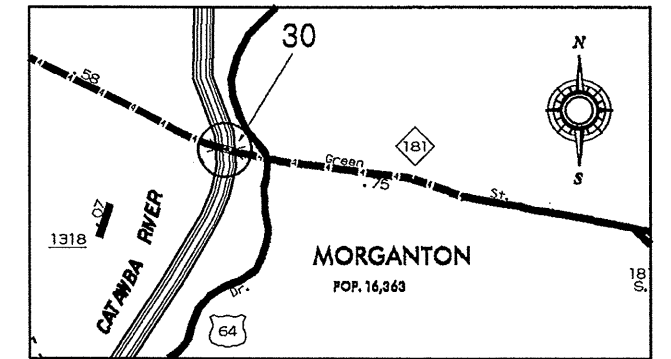
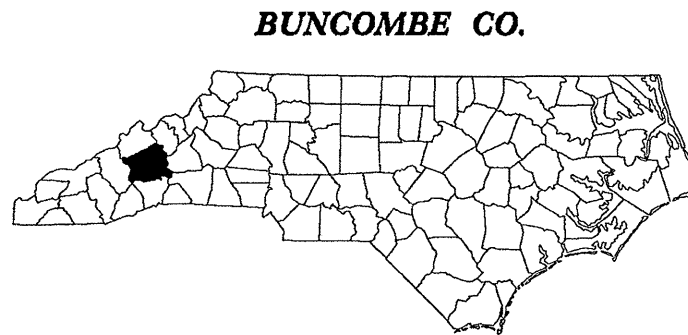
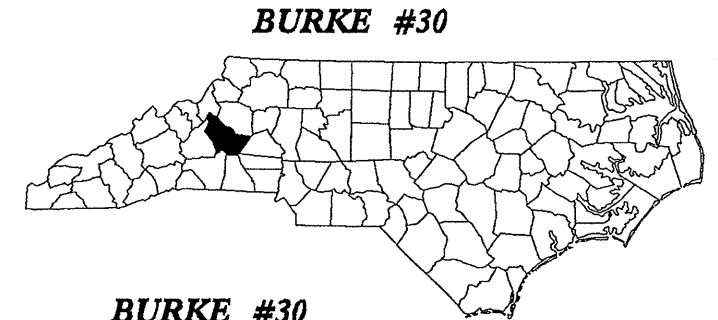
**BUNCOMBE AND BURKE
COUNTIES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.P.4	1	
STATE PROJECT NO.	P.A. PROJECT NO.	DESCRIPTION	
17BP.13.P.4		P.E.	
17BP.13.P.4		CONST.	

LOCATION: BRIDGE #171, BUNCOMBE CO., ON NC 191 OVER I-26
 BRIDGE #324, BUNCOMBE CO., ON SR 1684 OVER I-26/US 19/23/25/70
 BRIDGE #382, BUNCOMBE CO., ON US 2570 OVER I-26/US 19/23 BYPASS
 BRIDGE #387, BUNCOMBE CO., ON SR 1727 OVER I-26/US 19/23

BRIDGE #30, BURKE CO., ON NC 181 OVER CATAWBA RIVER

TYPE OF WORK: BRIDGE PRESERVATION - CLEANING AND PAINTING OF EXISTING STRUCTURES, REPAIR OF STRUCTURAL STEEL, REPLACEMENT OF BEARINGS.



DESIGN DATA

BUNCOMBE COUNTY	
#171 ADT 2010	= 14,000
#324 ADT 2004	= 8,700
#382 ADT 2005	= 15,500
#387 ADT 2009	= 4,100
BURKE	
#30 ADT 2010	= 21,000

PROJECT LENGTH

BRIDGE BUNCOMBE #171	= 0.04 MILE
BRIDGE BUNCOMBE #324	= 0.04 MILE
BRIDGE BUNCOMBE #382	= 0.04 MILE
BRIDGE BUNCOMBE #387	= 0.05 MILE
BRIDGE BURKE #30	= 0.07 MILE

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

ROY GIROLAMI, P.E.

2012 STANDARD SPECIFICATIONS

LETTING DATE:
 JULY 16, 2013

04/01/13
TIMOTHY M. SHERRILL, P.E.
 PROJECT DESIGN ENGINEER

PROJECT: 17BP.13.P.4

CONTRACT: C203245

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

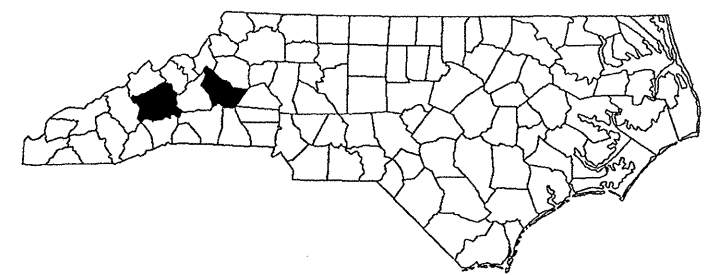
**BUNCOMBE AND BURKE
COUNTIES**

LOCATION: BRIDGE #171, BUNCOMBE CO., ON NC 191 OVER I-26
BRIDGE #324, BUNCOMBE CO., ON SR 1684 OVER US 19/23/25/70, I-26.
BRIDGE #382, BUNCOMBE CO., ON US 2570 OVER US 19/23 BYPASS
BRIDGE #387, BUNCOMBE CO., ON SR 1727 OVER US 19/23

BRIDGE #30, BURKE CO., ON NC 181 OVER CATAWBA RIVER

**TYPE OF WORK: BRIDGE PRESERVATION - CLEANING AND PAINTING OF EXISTING
STRUCTURES, REPAIR OF STRUCTURAL STEEL,
REPLACEMENT OF BEARINGS.**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.13.P.4	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.13.P.4		P.E.	
17BP.13.P.4		CONST.	



INDEX OF SHEETS

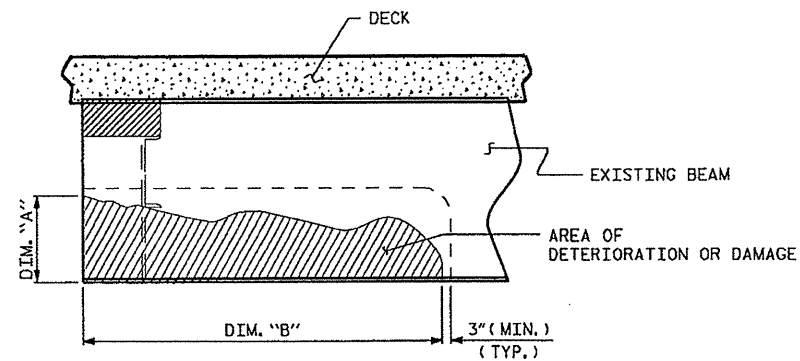
1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
S-1 THRU S-3	STRUCTURE PLANS
TMP-1 THRU TMP-7	TRAFFIC MANAGEMENT PLANS

SUMMARY OF QUANTITIES - 17BP.13.P.4

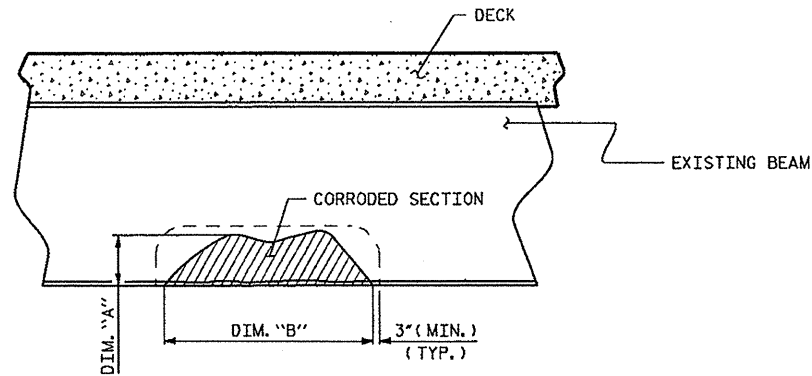
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203245

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
4400000000-E	1110	72	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	160	SF	WORK ZONE SIGNS (PORTABLE)
4415000000-N	1115	4	EA	FLASHING ARROW BOARD
4420000000-N	1120	2	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4430000000-N	1130	500	EA	DRUMS
4480000000-N	1165	1	EA	TMA
4510000000-N	SP	8	HR	LAW ENFORCEMENT
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #171
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #30
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #324
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #382
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING BRIDGE #387
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #171
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #324
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #382
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #387
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PAINTING EXISTING STRUCTURE BRIDGE #30
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #171
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #30
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #324

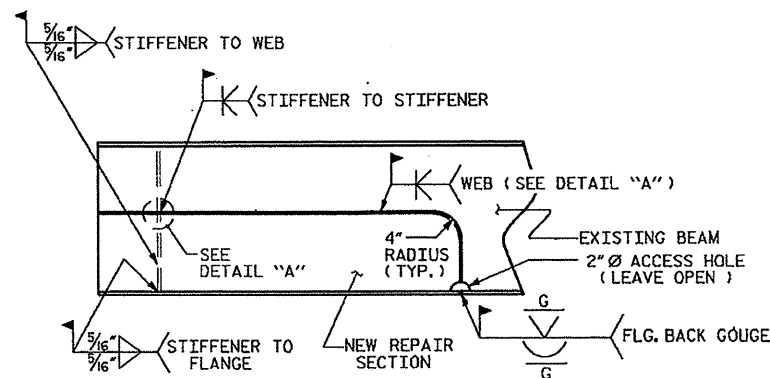
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8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL BRIDGE #387
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8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDERSTRUCTURE WORK PLATFORM BRIDGE #30
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDERSTRUCTURE WORK PLATFORM BRIDGE #324
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDERSTRUCTURE WORK PLATFORM BRIDGE #382
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDERSTRUCTURE WORK PLATFORM BRIDGE #387
8889000000-E	SP	1,432	LB	GENERIC STRUCTURE ITEM STRUCTURAL STEEL FOR GIRDER REPAIR
8897000000-N	SP	4	EA	GENERIC STRUCTURE ITEM REPLACE BEARINGS



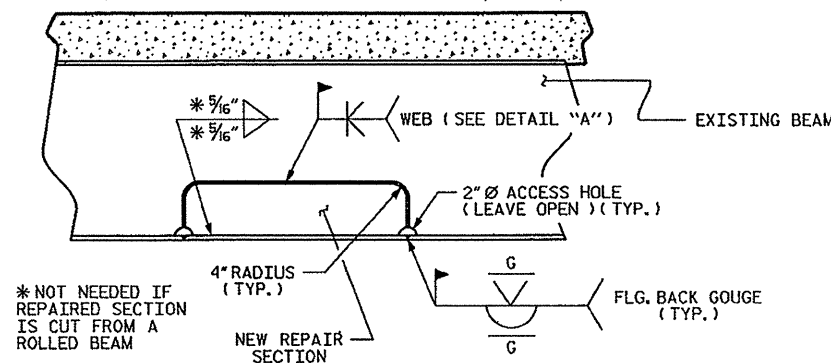
ELEVATION
EXISTING BEAM END AREA
OF DETERIORATION OR DAMAGE



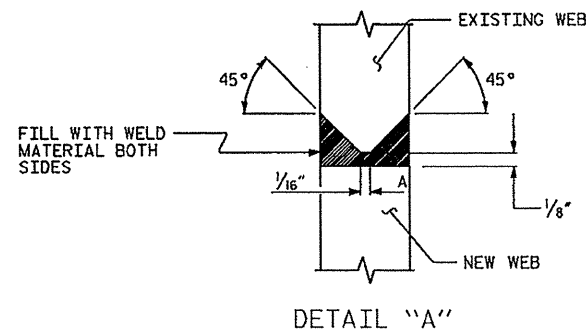
ELEVATION
EXISTING BEAM INTERMEDIATE
AREA OF DETERIORATION OR DAMAGE



ELEVATION
REPAIRED BEAM END AREA
OF DETERIORATION OR DAMAGE



ELEVATION
REPAIRED BEAM INTERMEDIATE
AREA OF DETERIORATION OR DAMAGE



DETAIL "A"

ANTICIPATED BEAM REPAIR LOCATIONS						
COUNTY	BRIDGE	SPAN	BEAM	LOCATION	DIM. "A"	DIM. "B"
BUNCOMBE	171	A	1	END BENT 1	1'-0"	5'-0"
		A	9	END BENT 1	1'-0"	5'-0"
		D	1	END BENT 2	1'-0"	5'-0"
		D	9	END BENT 2	1'-0"	5'-0"
		B	1	NEAR MIDSPAN	5"	4'-0"

TOTAL BILL OF MATERIAL		
BRIDGE JACKING	STRUCTURAL STEEL FOR GIRDER REPAIR	REPLACE BEARINGS
LUMP SUM	LBS.	EACH
LUMP SUM	1,432	4

BEAM REPAIR

AFTER THE STRUCTURAL STEEL HAS BEEN BLASTED AND PRIMED, THE STRUCTURAL STEEL AND BEARING SHALL BE INSPECTED FOR EXCESSIVE SECTION LOSS. AREAS THAT EXHIBIT AN EXCESS OF 35% SECTION LOSS SHALL BE REVIEWED BY THE ENGINEER TO DETERMINE IF AREA OF SECTION LOSS SHOULD BE REPAIRED.

AS DETERMINED BY THE ENGINEER, DETERIORATED OR DAMAGED AREAS, OR AREAS PREVIOUSLY REPAIRED, BUT NOT IN ACCORDANCE WITH THE DETAILS INDICATED ON THESE PLAN SHEETS, SHALL BE REMOVED AND THE BEAMS SHALL BE REPAIRED AS INDICATED ON THIS PLAN SHEET. CONTRACTOR AND ENGINEER TO DETERMINE ACTUAL DIMENSIONS OF AREA TO BE REMOVED AND REPLACED. REMOVE CONCRETE BENT DIAPHRAGMS AS NEEDED TO EVALUATE LIMITS OF REPAIR.

PAYMENT FOR THE SECTION REPAIR SHALL BE BASED ON THAT AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

GOUGES AND INDENTATIONS FROM IMPACT ON GIRDERS SHALL BE GROUND SMOOTH PRIOR TO BLASTING AND PAINTING OPERATION.

FOR PAINTING EXISTING STRUCTURE, SEE PROJECT SPECIAL PROVISIONS.

REPAIR SEQUENCE:

IN ACCORDANCE WITH THE TRAFFIC MANAGEMENT PLANS OR AS APPROVED BY THE ENGINEER, REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

REMOVE DEAD LOAD FROM BEAM BY JACKING AND BLOCKING.

STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE. CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEAM AREA AND/OR BEARING STIFFENER.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

INSTALL THE CUT-TO-FIT SECTION, FULLY WELD ALONG TOP AND SIDES OF PLATE USING FULL PENETRATION WELDS.

ALL WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS.

PLACE NEW BEARINGS, IF REQUIRED.

LOWER SPAN TO BEAR; CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

PERFORM CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

AFTER GIRDERS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL, AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "STRUCTURAL STEEL FOR GIRDER REPAIR."

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 17BP.13.P.4
BUNCOMBE/BURKE COUNTY

DRAWN BY : P.C. BREWER DATE : 12/12
CHECKED BY : T. SHERRILL DATE : 12/12

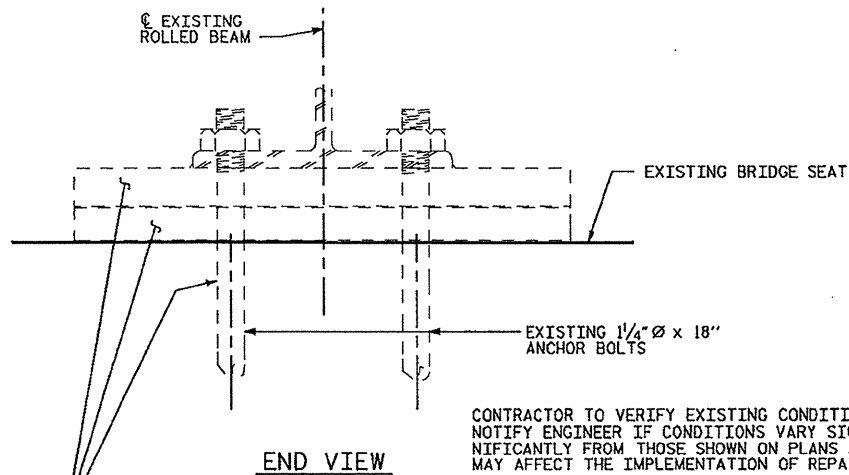


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

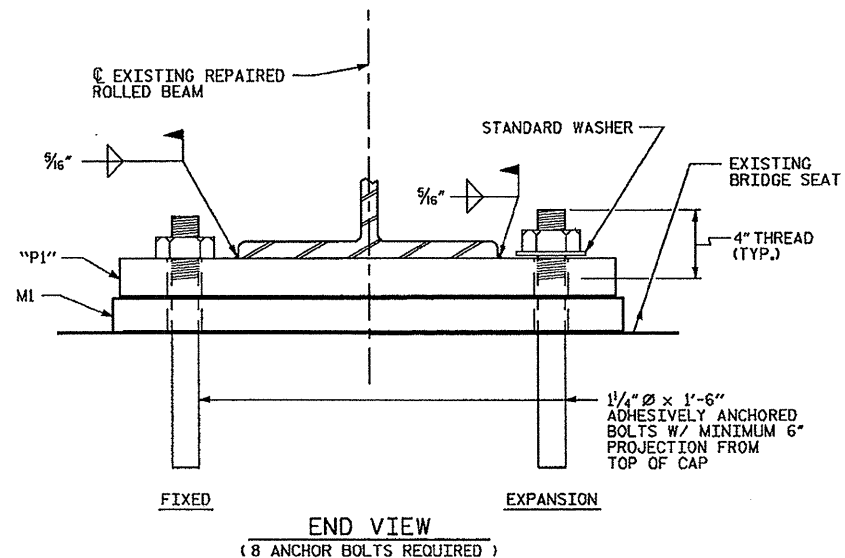
BEAM END AND INTERMEDIATE REPAIR DETAILS

REVISIONS				SHEET NO.
NO.	BY	DATE	NO.	DATE
1			3	
2			4	

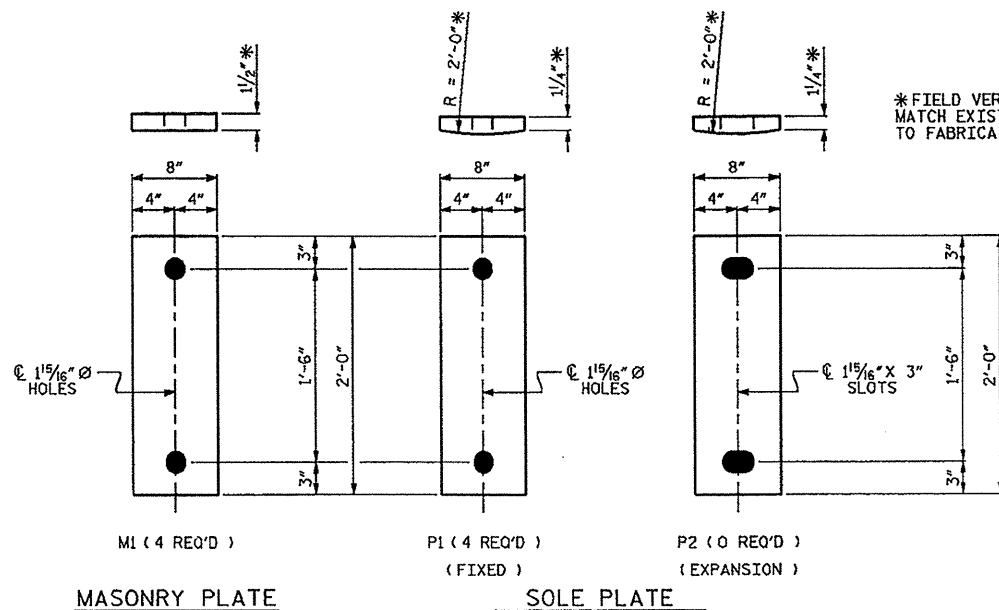
TOTAL SHEETS: 3



EXISTING SOLE PLATE AND MASONRY PLATE TO BE REMOVED (TYP.). EXISTING ANCHOR BOLTS TO BE CUT OFF FLUSH WITH THE TOP OF EXISTING BENT CAP.



ANTICIPATED BEARING REPLACEMENT LOCATIONS				
COUNTY	BRIDGE	SPAN	BEAM	LOCATION
BUNCOMBE	171	A	1	END BENT 1
		A	9	END BENT 1
		D	1	END BENT 2
		D	9	END BENT 2



*FIELD VERIFY THAT THESE DIMENSIONS MATCH EXISTING DIMENSIONS, PRIOR TO FABRICATING NEW PLATES.

BEARING REPAIR SEQUENCE

THE EXISTING BEARINGS DETERMINED FOR REPLACEMENT SHALL BE REMOVED AND REPLACED WITH BEARINGS AS SHOWN.

AT ALL 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.

SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS, AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1/4" 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.

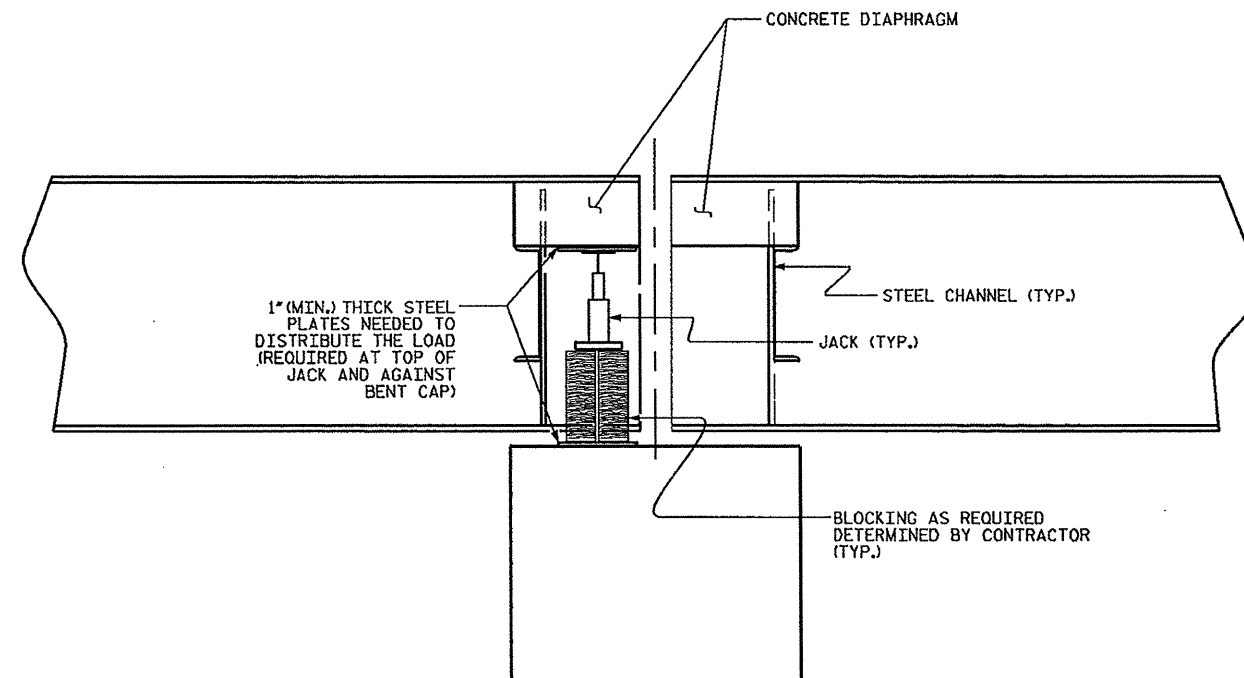
NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 20,000 LBS. TENSION.



PROJECT NO. 17BP.13.P.4
BUNCOMBE/BURKE COUNTY

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO. S-2
BEARING REPAIR DETAILS					TOTAL SHEETS 3
REVISIONS					NO.
NO.	BY:	DATE:	NO.	DATE:	
1			3		
2			4		

ASSEMBLED BY : P.C. BREWER DATE : 12/12
CHECKED BY : T. SHERRILL DATE : 12/12



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.

JACKING NOTES:

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS FOR REVIEW AND APPROVAL, PRIOR TO MATERIAL PURCHASE OR FABRICATION OF THE JACKING SYSTEM.

THE CONTRACTOR SHALL JACK ALL GIRDERS IN A SPAN ON AN INDIVIDUAL BENT SIMULTANEOUSLY, BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.

THE SPAN SHALL BE LIFTED ENOUGH THAT THE BEAMS CLEAR THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE A METHOD TO SUPPORT THE SPAN FOR DEAD AND LIVE LOADS AND SHALL REMOVE THE JACKS DURING BEAM REPAIR, OR, IF JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THE JACKS SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

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

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED.

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

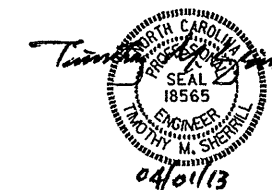
PAYMENT OF JACKING WILL BE MADE AT THE LUMP SUM PRICE BID FOR BRIDGE JACKING. SUCH LUMP SUM PRICE WILL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

PROJECT NO. 17BP.13.P.4
BUNCOMBE/BURKE COUNTY

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEAM END REPAIR AND
 BEARING REPLACEMENT

JACKING DETAILS



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

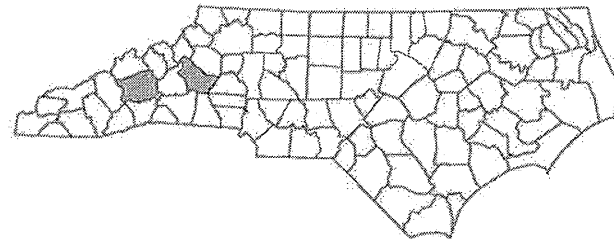
DRAWN BY : P.C. BREWER DATE : 12/12
 CHECKED BY : T. SHERRILL DATE : 12/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BUNCOMBE & BURKE COUNTIES

DIVISION 13



BRIDGE PAINTING

BUNCOMBE COUNTY

- BRIDGE #171 – NC 191 (Brevard Rd) over I-26/US 74**
- BRIDGE #324 – SR 1684 (Elk Mountain Rd) over I-26/US 19/23/70**
- BRIDGE #382 – US 25/70 (Weaver Blvd) over I-26/US 19/23**
- BRIDGE #387 – SR 1727 (Monticello Rd) over I-26/US 19/23**

BURKE COUNTY

- BRIDGE #30 – NC 181 over Catawba River**

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES
TMP-3	VICINITY MAPS & PHASING
TMP-4	BUNCOMBE BRIDGE #171 I-26 LEFT, RIGHT, AND RAMP LANE WORK AREAS
TMP-5	BUNCOMBE BRIDGE #382 I-26/US 19/US 23 BYPASS LEFT AND RIGHT LANE WORK AREAS
TMP-6	BUNCOMBE BRIDGE #387 I-26/US 19/US 23 BYPASS LEFT AND RIGHT LANE WORK AREAS
TMP-7	BURKE BRIDGE #30 NC 181 RIGHT LANE WORK AREAS

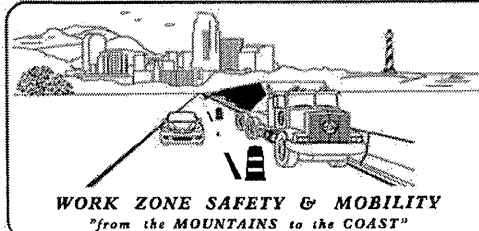
SHEET NO.
TMP-1

WBS 17BP.13.P.4

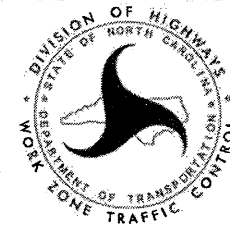
TRAFFIC MANAGEMENT STRATEGY

BRIDGE PAINTING WILL BE ACCOMPLISHED USING TIME RESTRICTED LANE CLOSURES. REFER TO SHEET TMP-3 FOR PHASING.

I:\19\2012\TrafficControl\WBS 17BP.13.P.4 Buncombe Burke Painting\TCP\Plan Sheets\17BP.13.P.4.TC.TMP_D1.TITLE.dgn



PLAN PREPARED FOR NCDOT STRUCTURES MANAGEMENT UNIT
RALEIGH, NC



PLAN PREPARED BY:
Stantec Consulting Services Inc.
801 Jones Franklin Road-Suite 300
Raleigh, NC 27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

BETSY L. WATSON, P.E.
GEORGE KARAGEORGE























TRAFFIC ENGINEER
SR. TRANSPORTATION DESIGNER

APPROVED: *Betsy L. Watson*
DATE: 12/14/12

SEAL







LEGEND

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  WORK AREA
-  PAVEMENT REMOVAL
-  NORTH ARROW
-  TYPE III BARRICADE
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  CHANGEABLE MESSAGE SIGN (CMS)
-  FLAGGER
-  AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)
-  FLASHING ARROW BOARD (TYPE C)
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  PORTABLE CONCRETE BARRIER (PCB)
-  TEMPORARY CRASH CUSHION
-  TEMPORARY SHORING
-  WORK ZONE SIGN-PORTABLE
-  WORK ZONE SIGN-STATIONARY
-  WORK ZONE SIGN-STATIONARY OR PORTABLE




SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY




PAVEMENT MARKINGS

-  EXISTING PAVEMENT MARKING (GRAY)
-  SKIP LINES
-  MINI-SKIP LINES
-  SOLID LINES

PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS
-  EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)
-  ONLY PAVEMENT MARKING ALPHANUMERIC CHARACTERS

PAVEMENT MARKERS

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

ROADWAY STANDARD DRAWINGS

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:

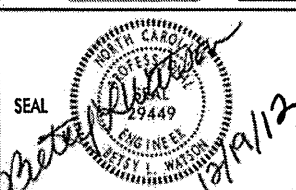
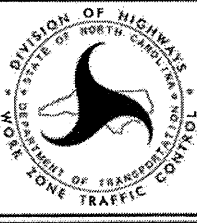
<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION

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APPROVED: _____ DATE: _____

**LEGEND
&
ROADWAY STANDARD DRAWINGS**

GENERAL NOTES

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

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.

LANE CLOSURE TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW A LANE OF TRAFFIC DURING THE FOLLOWING TIME RESTRICTIONS:

ROAD NAME	COUNTY	BRIDGE NUMBER
I-26	BUNCOMBE	171,324,382,387
US 19	BUNCOMBE	324,382,387
US 23	BUNCOMBE	324,382,387
US 25	BUNCOMBE	324
US 70	BUNCOMBE	324

DAY AND TIME RESTRICTIONS

6:00 A.M.-8:00 P.M. MONDAY THRU THURSDAY
6:00 A.M. FRIDAY - 8:00 P.M. SUNDAY

ROAD NAME	COUNTY	BRIDGE NUMBER
NC 181	BURKE	30

DAY AND TIME RESTRICTIONS

6:00 A.M.-7:00 P.M. MONDAY THRU SUNDAY (EVERY DAY)

ROAD NAME	COUNTY	BRIDGE NUMBER
NC 191	BUNCOMBE	171
SR 1684	BUNCOMBE	324
SR 1727	BUNCOMBE	387

DAY AND TIME RESTRICTIONS

6:00 A.M.-9:00 A.M. MONDAY THRU FRIDAY
4:00 P.M.-7:00 P.M. MONDAY THRU FRIDAY

HOLIDAY, HOLIDAY WEEKEND AND SPECIAL EVENT
LANE CLOSURE AND ROAD CLOSURE TIME RESTRICTIONS

B) DO NOT CLOSE A ROADWAY, DO NOT CLOSE OR NARROW A LANE OF TRAFFIC, DETAIN AND/OR ALTER THE TRAFFIC FLOW ON OR DURING HOLIDAYS, HOLIDAY WEEKENDS, OR ANY OTHER TIME WHEN TRAFFIC IS UNUSUALLY HEAVY, INCLUDING THE FOLLOWING SCHEDULES:

ROAD NAME

ALL ROADS

- 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 8:00 P.M. JANUARY 2nd. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00 P.M. THE FOLLOWING TUESDAY.
- 3) FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 8:00 P.M. MONDAY.
- 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 8:00 P.M. TUESDAY.
- 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 8:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 8:00 P.M. TUESDAY.
- 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 8:00 P.M. MONDAY.
- 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- 9) FOR THE BELE CHERE FESTIVAL, BETWEEN THE HOURS OF 8:00 P.M. THE WEDNESDAY BEFORE THE FESTIVAL AND 6:00 A.M. THE WEDNESDAY AFTER THE FESTIVAL.
- 10) FOR THE NORTH CAROLINA MOUNTAIN STATE FAIR, BETWEEN THE HOURS OF 8:00 P.M. THE WEDNESDAY BEFORE THE FAIR AND 6:00 A.M. THE WEDNESDAY AFTER THE FAIR.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) LANE CLOSURES ARE REQUIRED WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN ANY PORTION OF A TRAVEL LANE. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- D) INSTALL ALL LANE CLOSURES ACCORDING TO THE PLANS, ROADWAY STANDARD DRAWINGS (1101.02), OR AS DIRECTED BY THE ENGINEER.
- E) 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. COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARDS AND MESSAGE SIGNS.
- F) INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
- G) 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.
- H) 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 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- I) 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 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- J) UNLESS OTHERWISE SHOWN IN THE PLANS, PLACE ARROW BOARDS ON THE ROADWAY SHOULDER. IF SHOULDERS DO NOT EXIST, PLACE ARROW BOARDS WITHIN THE MERGE TAPER BEHIND THE CHANNELIZING DEVICES OF THE LANE CLOSURE. IF NEEDED, EXTEND LANE CLOSURES TO PROVIDE STOPPING SIGHT DISTANCE TO THE ARROW BOARD (REFER TO ROADWAY STANDARD DRAWING 1101.11 SHEET 2).
- K) PLACE LANE CLOSURE DRUMS IN TAPERS AT A MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT (MPH). ALONG BUFFER SPACES AND WORK AREAS SPACE DRUMS AT A MAXIMUM SPACING EQUAL IN FEET TO TWICE THE POSTED SPEED LIMIT (MPH). IN ALL CASES, CHANNELIZING DEVICES ARE TO BE SPACED IN SUCH A MANNER AS TO POSITIVELY ACHIEVE THE INTENDED VISUAL CHANNELIZATION. CHANNELIZING DEVICES SHOULD BE LATERALLY OFFSET 3 FT INSIDE THE CLOSED LANE AS ROOM PERMITS.
- L) WHENEVER TAPERS ARE TO BE USED IN CLOSE PROXIMITY TO AN INTERCHANGE RAMP, CROSSROADS, CURVES, OR OTHER INFLUENCING FACTORS, THE LENGTH OF STANDARD TAPERS MAY BE ADJUSTED.


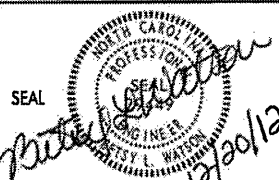

ROAD CLOSURES

- M) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY ROAD CLOSURE.
- N) PROVIDE SIGNING AND DEVICES FOR ROAD CLOSURES ACCORDING TO THE TRAFFIC MANAGEMENT PLAN. COVER OR REMOVE ALL SIGNS AND DEVICES FOR ROAD CLOSURES WHEN NOT IN EFFECT.
- O) PROVIDE DETOUR ROUTE SIGNING AS SHOWN IN THE TRAFFIC MANAGEMENT PLAN. COVER OR REMOVE DETOUR SIGNING WHEN THE DETOUR IS NOT IN OPERATION. ALL DETOUR ROUTES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTING.
- P) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- Q) WHEN CLOSING A ROADWAY OR DRIVEWAY PLACE TYPE III BARRICADES COMPLETELY ACROSS THE ROADWAY OR FROM CURB TO CURB. ATTACH BARRICADE MOUNTED "ROAD CLOSED" SIGN R11-2 AT ALL CLOSURE LOCATIONS. IF LOCAL TRAFFIC IS TO BE MAINTAINED STAGGER THE BARRICADES TO ALLOW ACCESS.
- R) INSTALL SIGNS BEFORE BARRICADES WHEN CLOSING A ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING A ROADWAY TO TRAFFIC. INSTALL/REMOVE ROAD CLOSURE SIGNS AND BARRICADES IN A CONTINUOUS OPERATION AND WITHIN THE SAME CALENDAR DAY.

MISCELLANEOUS

- S) USE LAW ENFORCEMENT TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER. LOCATIONS SHOWN IN THE PLANS ARE APPROXIMATE AND MAY BE REVISED AS THE OFFICER OR THE ENGINEER DEEM NECESSARY.
- T) ALL DIMENSIONS AND STATIONS IN THE TRAFFIC MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- U) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.
- V) CHANGEABLE MESSAGE SIGN MESSAGES SHOWN ARE EXAMPLES. OTHER MESSAGES MAY BE USED AS CONDITIONS WARRANT. ALL MESSAGES AND LOCATIONS MUST BE APPROVED BY THE ENGINEER PRIOR TO INCORPORATING.
- W) DO NOT PERFORM WORK FROM THE ROADWAY ON TOP OF ANY BRIDGE, EXCEPT FOR BURKE BRIDGE #30, UNLESS SPECIFICALLY ALLOWED IN THE PLAN OR BY THE ENGINEER.

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PHASING

BUNCOMBE COUNTY

BRIDGE #171 - NC 191 (BREVARD RD) OVER I-26/US 74
 USE LEFT LANE CLOSURE WITH SWITCH ON I-26 PER ROADWAY STANDARD DRAWING 1101.02 SHEET 6. FOR EXIT RAMP DETAIL ON I-26 SEE SHEET TMP-4.

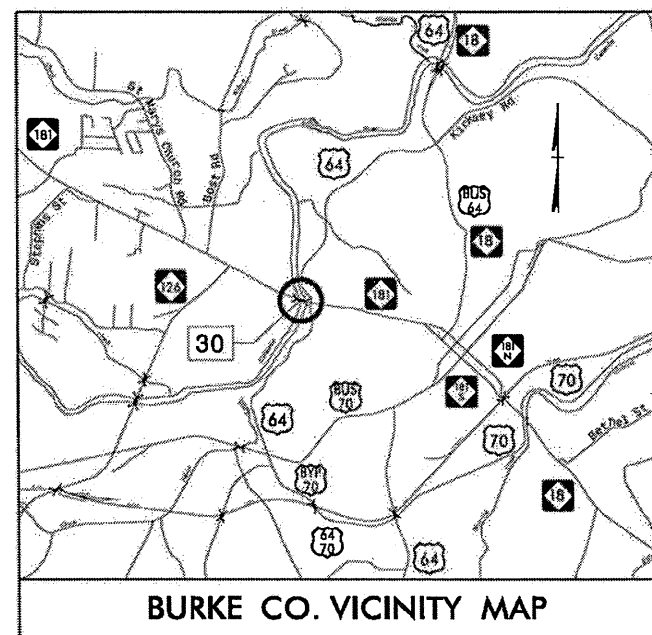
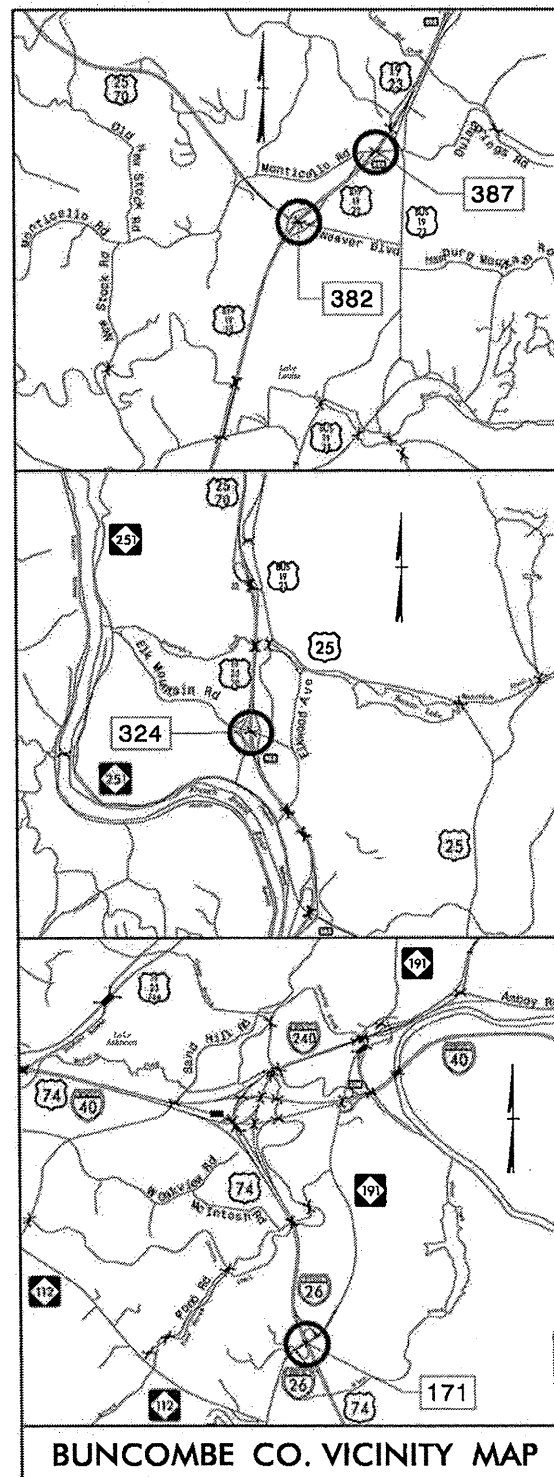
BRIDGE #324 - SR 1684 (ELK MOUNTAIN RD) OVER I-26/US 19/23/70
 USE LEFT LANE CLOSURE WITH SWITCH ON I-26/US 19/23/70 PER ROADWAY STANDARD DRAWING 1101.02 SHEET 6.

BRIDGE #382 - US 25/70 (WEAVER BLVD) OVER I-26/US 19/23
 USE LANE CLOSURES ON I-26/US 19/23 BYPASS PER SHEET TMP-5.


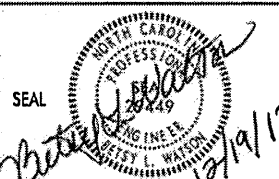

BRIDGE #387 - SR 1727 (MONTICELLO RD) OVER I-26/US 19/23
 USE LANE CLOSURES ON I-26/US 19/23 BYPASS PER SHEET TMP-6.

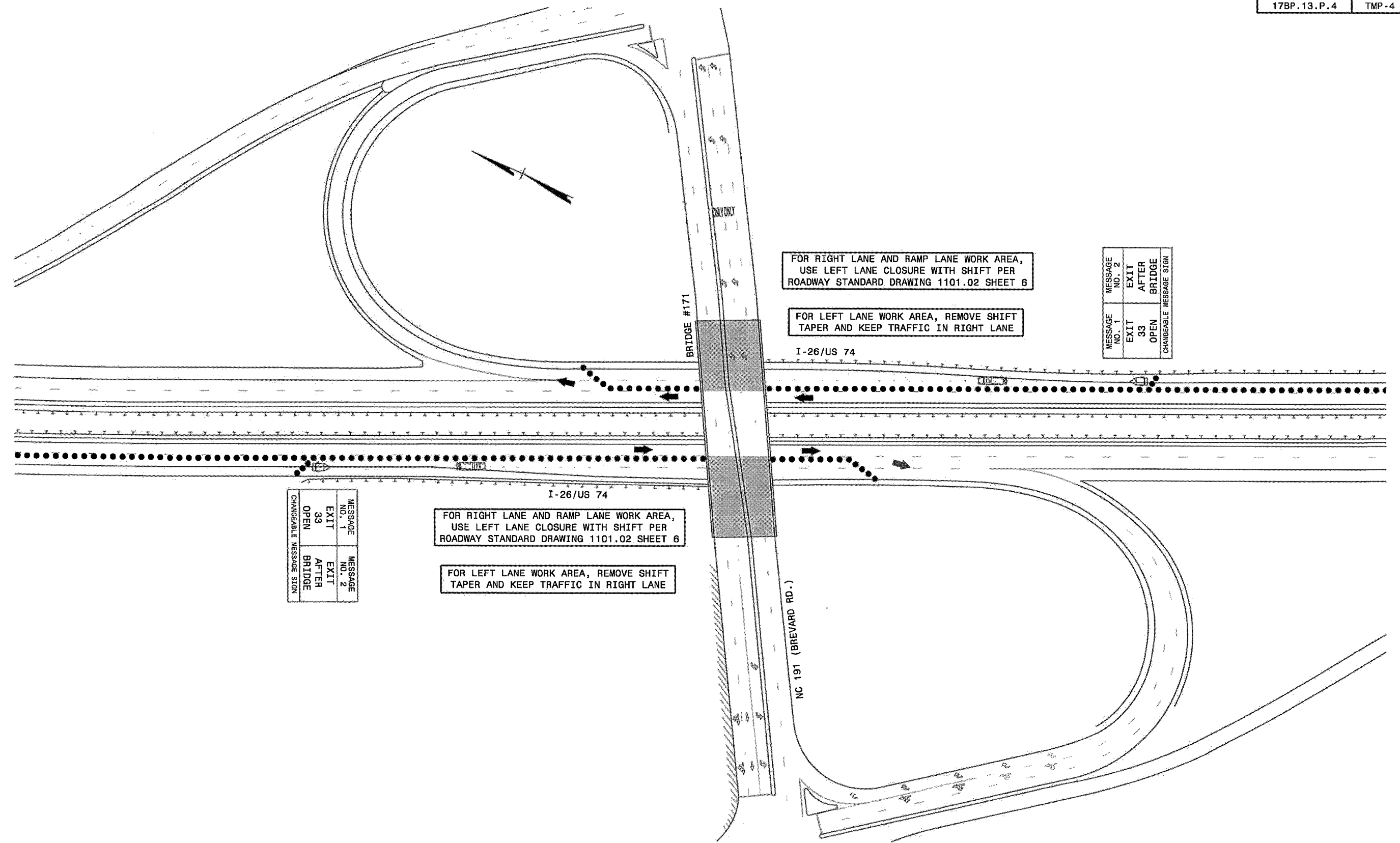
BURKE COUNTY

BRIDGE #30 - NC 181 OVER CATAWBA RIVER
 IF LANE CLOSURES ARE NEEDED FOR STAGING ON TOP OF BRIDGE, USE LANE CLOSURES PER SHEET TMP-7.



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FOR RIGHT LANE AND RAMP LANE WORK AREA,
USE LEFT LANE CLOSURE WITH SHIFT PER
ROADWAY STANDARD DRAWING 1101.02 SHEET 6

FOR LEFT LANE WORK AREA, REMOVE SHIFT
TAPER AND KEEP TRAFFIC IN RIGHT LANE

MESSAGE NO. 1	MESSAGE NO. 2
EXIT 33 OPEN	EXIT AFTER BRIDGE
CHANGEABLE MESSAGE SIGN	

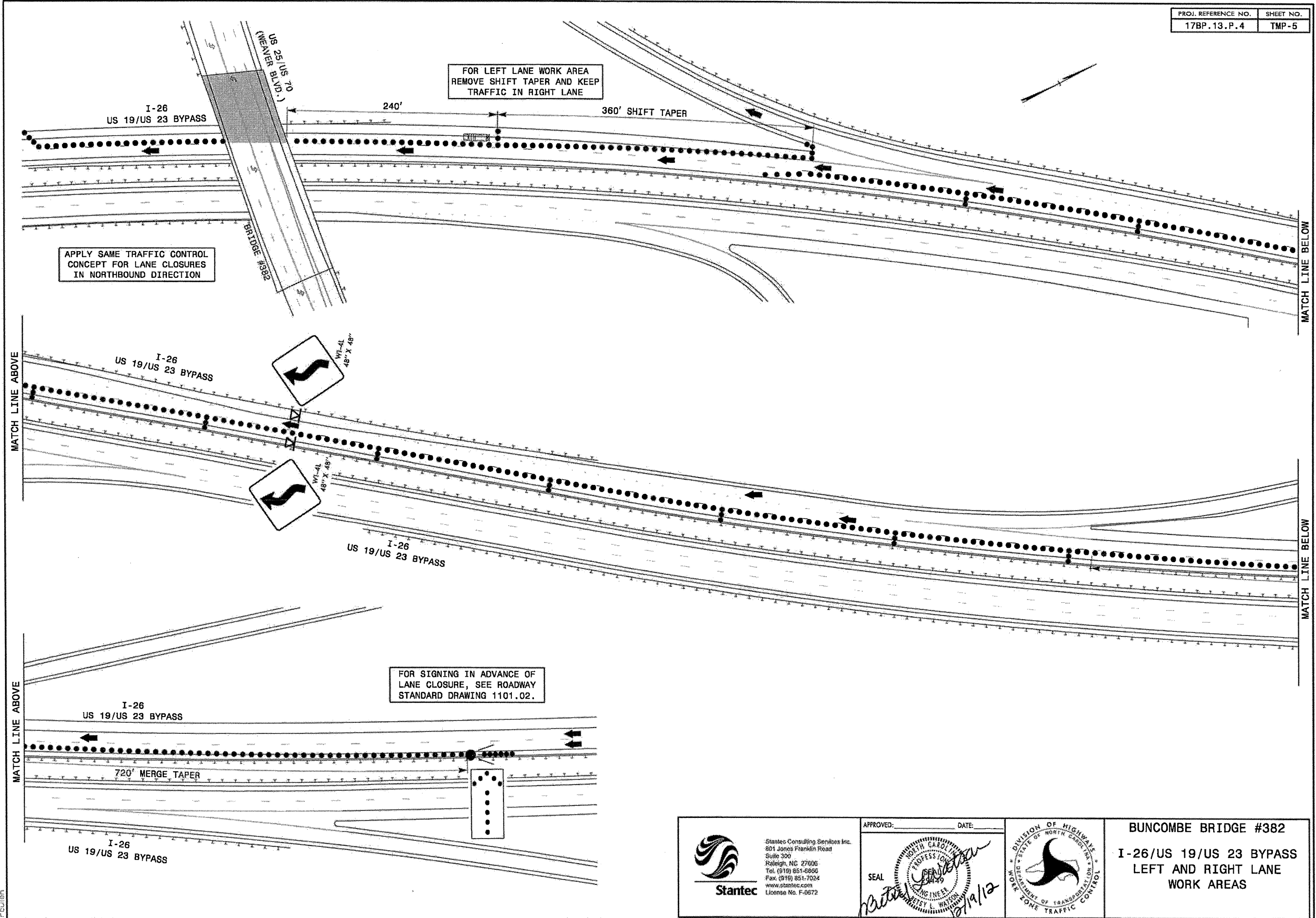
MESSAGE NO. 1	MESSAGE NO. 2
EXIT 33 OPEN	EXIT AFTER BRIDGE
CHANGEABLE MESSAGE SIGN	

FOR RIGHT LANE AND RAMP LANE WORK AREA,
USE LEFT LANE CLOSURE WITH SHIFT PER
ROADWAY STANDARD DRAWING 1101.02 SHEET 6

FOR LEFT LANE WORK AREA, REMOVE SHIFT
TAPER AND KEEP TRAFFIC IN RIGHT LANE

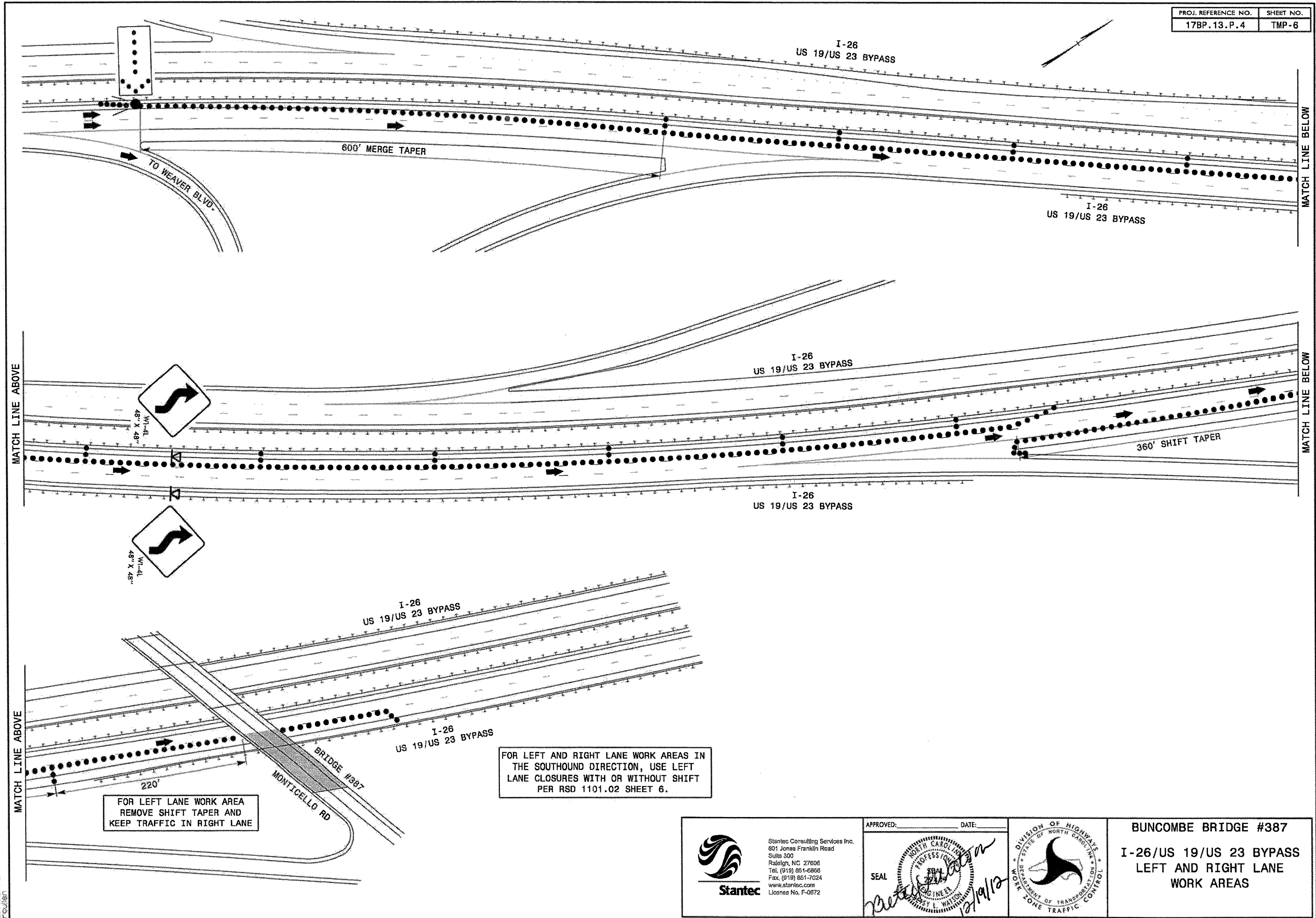
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	SEAL <i>12/19/12</i>		



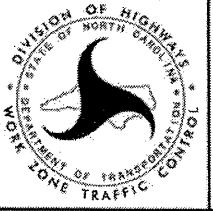
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FOR LEFT LANE WORK AREA
 REMOVE SHIFT TAPER AND
 KEEP TRAFFIC IN RIGHT LANE

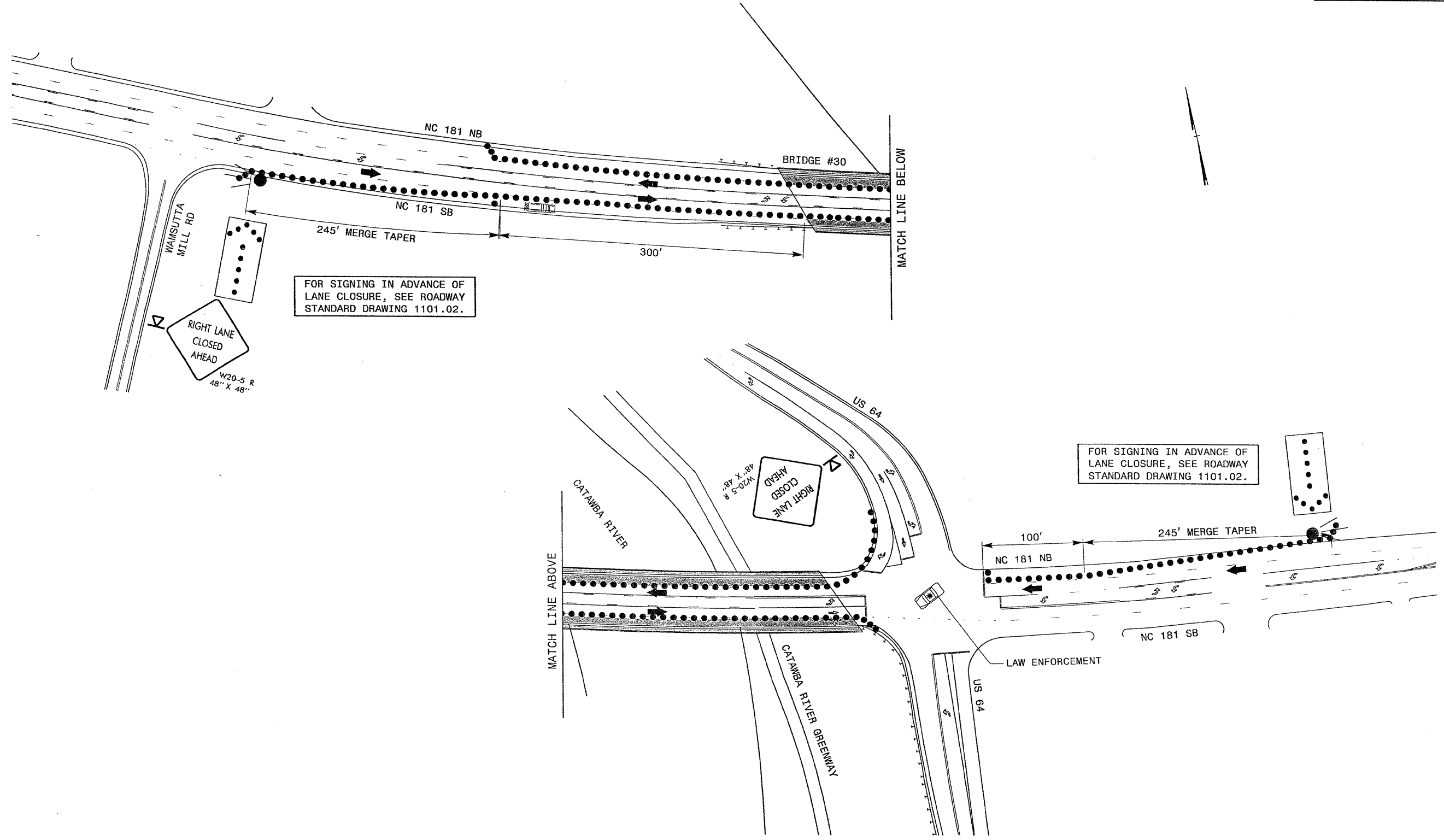
FOR LEFT AND RIGHT LANE WORK AREAS IN
 THE SOUTHBOUND DIRECTION, USE LEFT
 LANE CLOSURES WITH OR WITHOUT SHIFT
 PER RSD 1101.02 SHEET 6.

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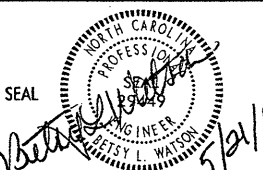

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BUNCOMBE BRIDGE #387
 I-26/US 19/US 23 BYPASS
 LEFT AND RIGHT LANE
 WORK AREAS



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	SEAL <i>Patsy L. Watson</i> 5/21/13		

