

PROJECT: 17BP.9.H.1

CONTRACT: C203177

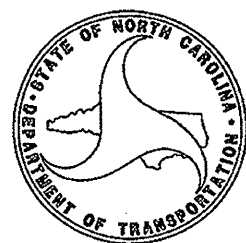
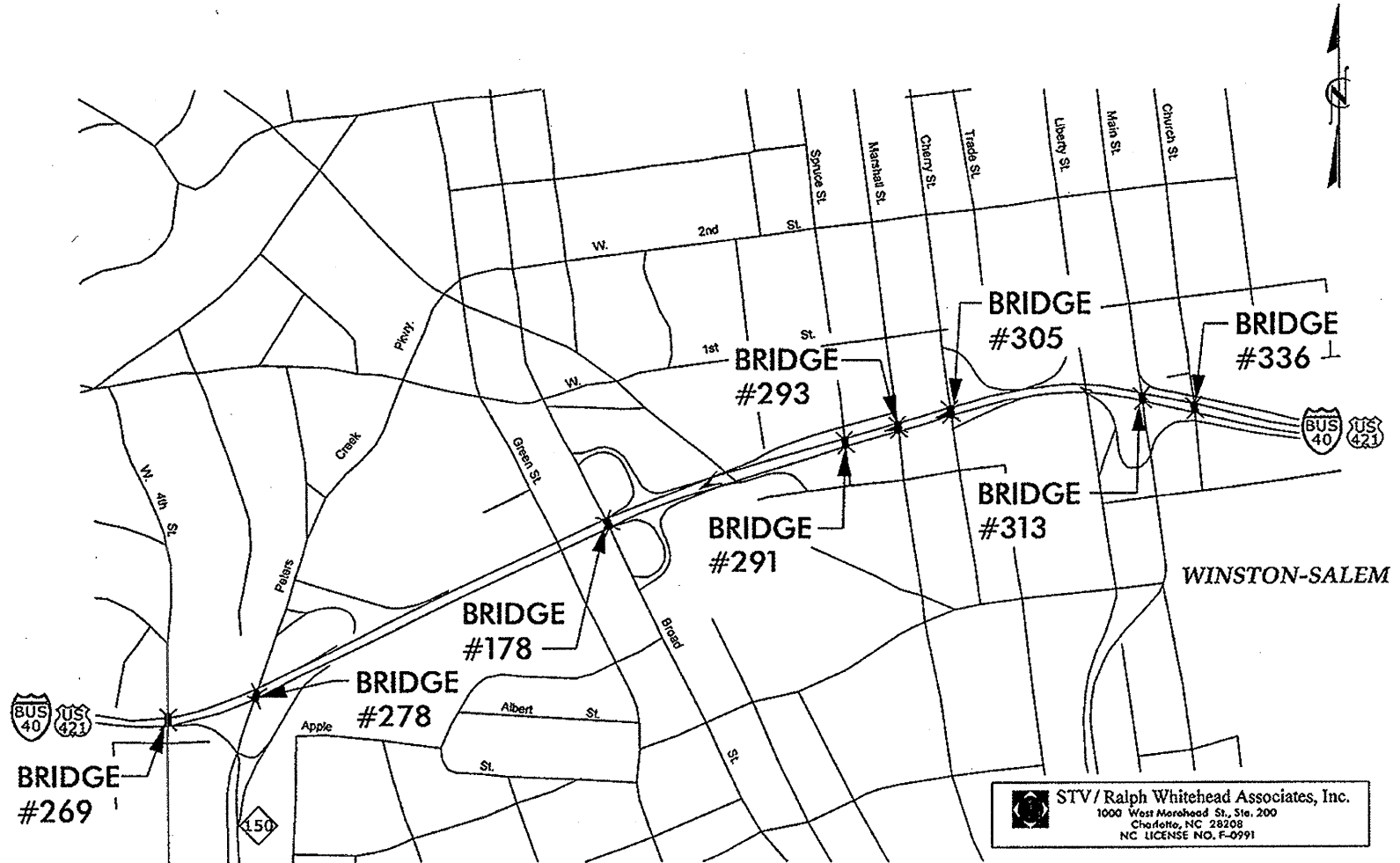
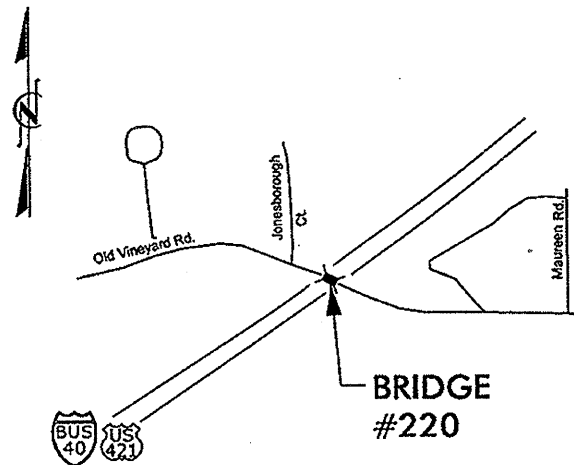
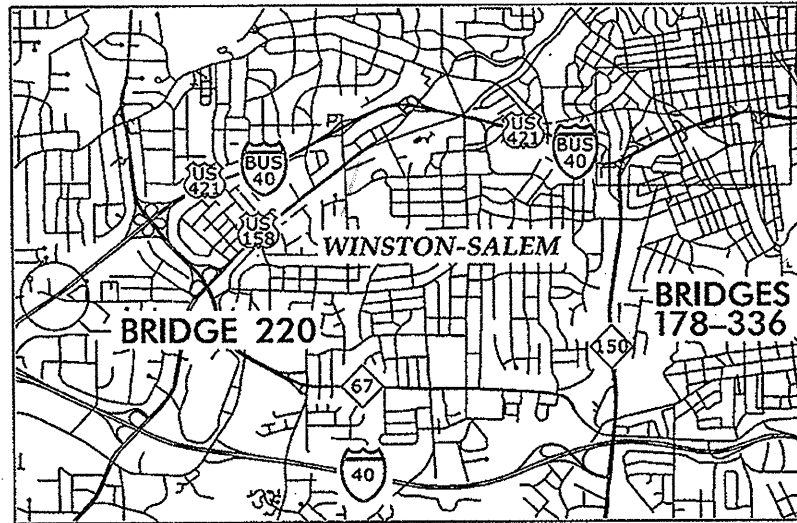
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: BRIDGE #178, 220, 269, 278, 291, 293, 305, 313, AND 336
OVER BUSINESS INTERSTATE 40 /US 421

TYPE OF
WORK: BRIDGE PRESERVATION: SUBSTRUCTURE REPAIRS,
SUPERSTRUCTURE REPAIRS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.H.1	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.9.H.1		PE	
17BP.9.H.1		CONSTR.	



PROJECT LENGTH

BRIDGE	LENGTH	STRUCTURE PROJECT
#178	.03 MILE	
#220	.05 MILE	
#269	.02 MILE	
#278	.04 MILE	
#291	.02 MILE	
#293	.02 MILE	
#305	.03 MILE	
#313	.02 MILE	
#336	.04 MILE	

Prepared in the office For:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

LETTING DATE:
NOVEMBER 20, 2012

RICK NELSON, P.E.
PROJECT ENGINEER



FARZIN ASEFNIA, P.E.
PROJECT DESIGN ENGINEER

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC LICENSE NO. F-0991

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: BRIDGE #178, 220, 269, 278, 291, 293, 305, 313, AND 336
OVER BUSINESS INTERSTATE 40 /US 421

TYPE OF WORK: BRIDGE PRESERVATION: SUBSTRUCTURE REPAIRS,
SUPERSTRUCTURE REPAIRS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.H.1	1A	88
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.9.H.1		PE	
17BP.9.H.1		CONSTR.	

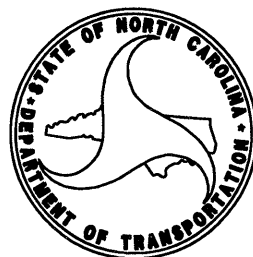
PROJECT: 17BP.9.H.1

CONTRACT: C203177

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
S1-S47	STRUCTURES
TMP-1 – TMP-2F	TRAFFIC MANAGEMENT PLANS
SD-1 – SD-2	SIGN DETAIL

SDATES
STINES
SFILES



Prepared For:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

ENGINEER

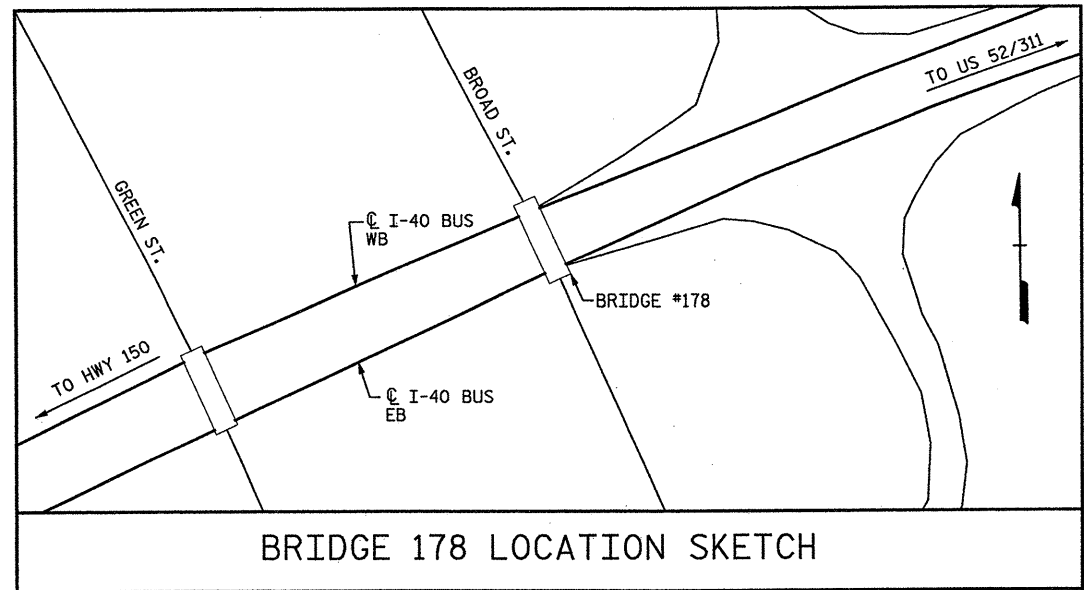
FARZIN ASEFNI, P.E.
PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

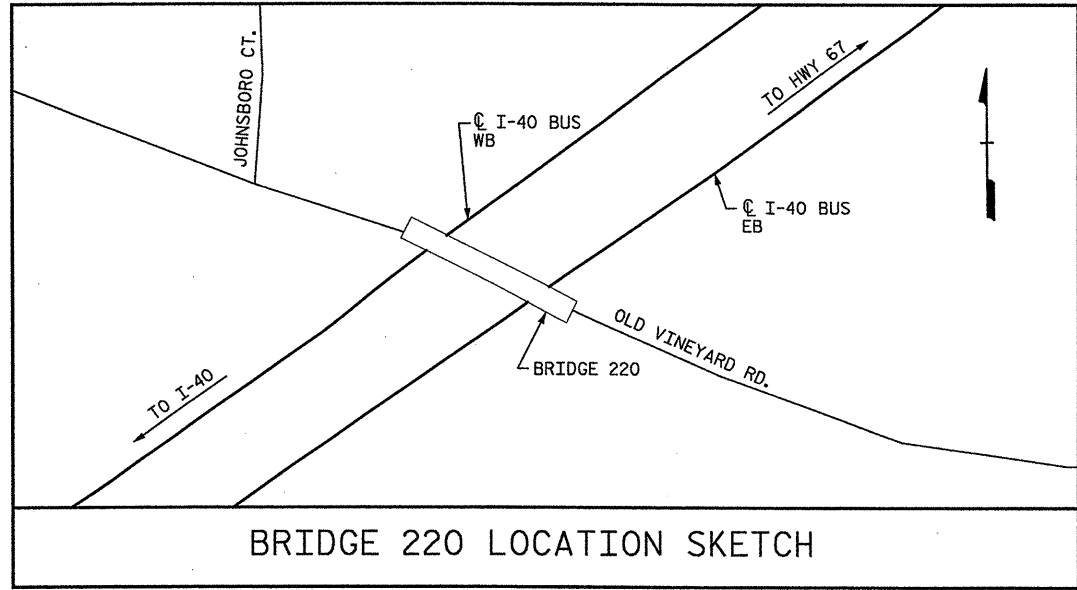
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203177

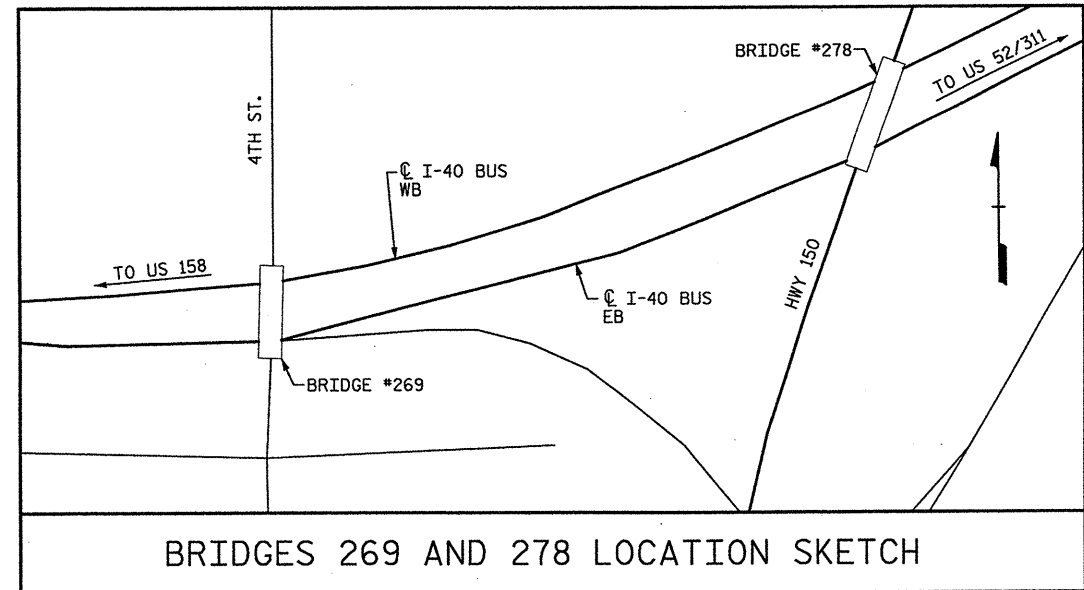
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1330000000-E	607	271	SY	INCIDENTAL MILLING	8881000000-E	SP	4.5	CY	GENERIC STRUCTURE ITEM DECK REPAIRS
1525000000-E	610	23	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	8892000000-E	SP	329	SF	GENERIC STRUCTURE ITEM CLASS II CONCRETE DECK REPAIR FOR EPOXY OVERLAY
1575000000-E	620	2	TON	ASPHALT BINDER FOR PLANT MIX	8892000000-E	SP	23	SF	GENERIC STRUCTURE ITEM CLASS III CONCRETE DECK REPAIR FOR EPOXY OVERLAY
4400000000-E	1110	550	SF	WORK ZONE SIGNS (STATIONARY)	8892000000-E	SP	4,583	SF	GENERIC STRUCTURE ITEM PLACEMENT OF EPOXY OVERLAY
4405000000-E	1110	250	SF	WORK ZONE SIGNS (PORTABLE)	8897000000-N	SP	15	EA	GENERIC STRUCTURE ITEM ANCHOR BOLT REPAIR
4410000000-E	1110	60	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)					
4415000000-N	1115	4	EA	FLASHING ARROW BOARD					
4420000000-N	1120	4	EA	PORTABLE CHANGEABLE MESSAGE SIGN					
4430000000-N	1130	65	EA	DRUMS					
4445000000-E	1145	32	LF	BARRICADES (TYPE III)					
4465000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS					
4480000000-N	1165	2	EA	TMA					
4485000000-E	1170	150	LF	PORTABLE CONCRETE BARRIER					
4500000000-E	1170	300	LF	RESET PORTABLE CONCRETE BARRIER					
4510000000-N	SP	24	HR	LAW ENFORCEMENT					
4847000000-E	1205	500	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)					
4847140000-E	1205	40	LF	POLYUREA PAVEMENT MARKING LINES (24", *****) (HIGHLY REFLECTIVE ELEMENTS)					
4900000000-N	1251	2	EA	PERMANENT RAISED PAVEMENT MARKERS					
8217000000-E	425	1,600	LB	REINFORCING STEEL (BRIDGE)					
8660000000-E	SP	171.5	CF	CONCRETE REPAIRS					
8664000000-E	SP	1,418	CF	SHOTCRETE REPAIRS					
8678000000-E	SP	75	LF	EPOXY RESIN INJECTION					
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING					



BRIDGE 178 LOCATION SKETCH



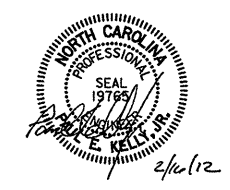
BRIDGE 220 LOCATION SKETCH



BRIDGES 269 AND 278 LOCATION SKETCH

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 178, 220, 269 & 278
 REHABILITATION OF FORSYTH CO. BRIDGES

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 LOCATION SKETCHES

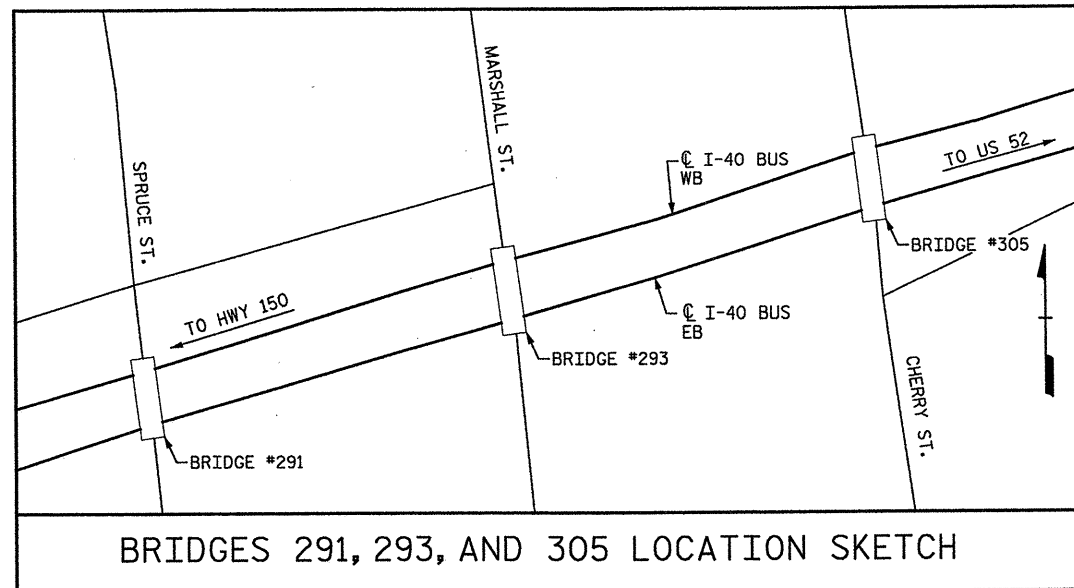


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 CHECKED BY : AJP DATE : 1-12

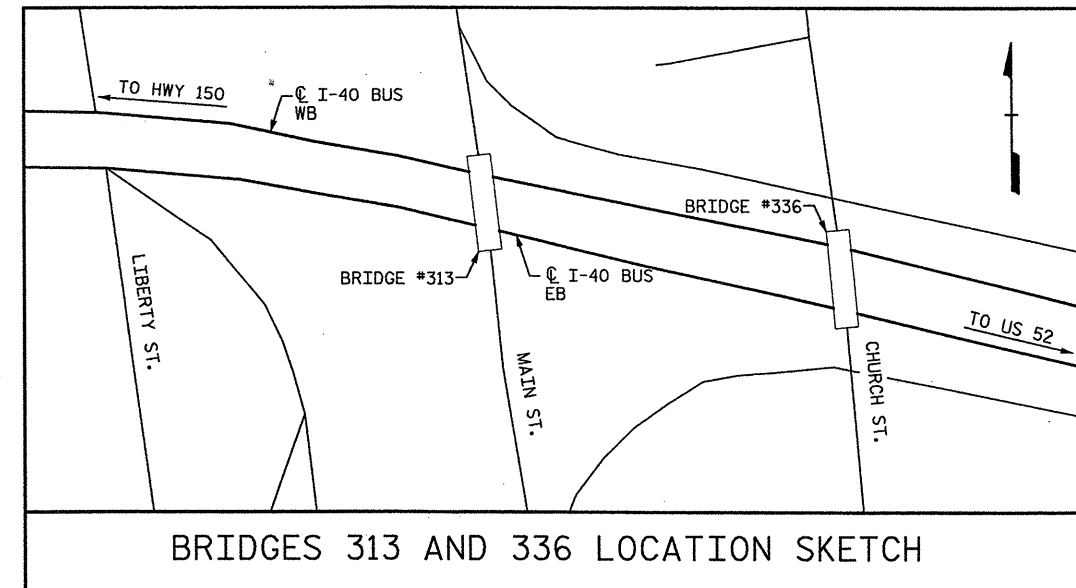
STV / Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No: F-0991

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

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 2/16/2012



BRIDGES 291, 293, AND 305 LOCATION SKETCH



BRIDGES 313 AND 336 LOCATION SKETCH

GENERAL NOTES (ALL BRIDGES)

EXISTING BRIDGE AND REPAIR DETAILS INDICATED ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE AND REPAIR DETAILS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO PREVENT DEBRIS AND MATERIALS FROM FALLING, ROLLING, OR BLOWING INTO TRAFFIC FROM THE WORK AREA. CONSIDERATION SHALL BE GIVEN TO THE USE OF SCREENS TO PROTECT TRAFFIC ADJACENT TO THE WORK AREA. FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS.

DIMENSIONS IN THESE PLANS ARE BASED ON ORIGINAL PLANS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

ALL VISUAL AND NON-DESTRUCTIVE TESTING WILL BE PERFORMED BY NCDOT.

CONTRACTOR SHALL BRING TO THE ATTENTION OF INSPECTION PERSONNEL HEAVY DETERIORATION OF EXISTING STEEL MEMBERS TO DETERMINE IF ANY SUBSTANTIAL SECTION LOSS HAS OCCURRED.

ALL STRUCTURAL STEEL FOR REPAIRS SHALL BE NEW AASHTO M270 GRADE 36, OR APPROVED EQUIVALENT.

ALL WELDING SHALL BE DONE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

REPAIR OF DAMAGED REINFORCING STEEL DUE TO THE CONTRACTORS OPERATIONS, SHALL BE COMPLETED BY THE CONTRACTOR AT NO EXPENSE TO THE DEPARTMENT.

DEBRIS SHALL BE REMOVED FROM EXISTING BENT CAPS. ALL COST ASSOCIATED WITH DEBRIS REMOVAL SHALL BE CONSIDERED INCIDENTAL TO SHOTCRETE REPAIR PAY ITEM.

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
 BRIDGE NO.: 291,293,305,313&336

REHABILITATION OF FORSYTH CO. BRIDGES

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

LOCATION SKETCHES
 AND GENERAL NOTES



2/16/12

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

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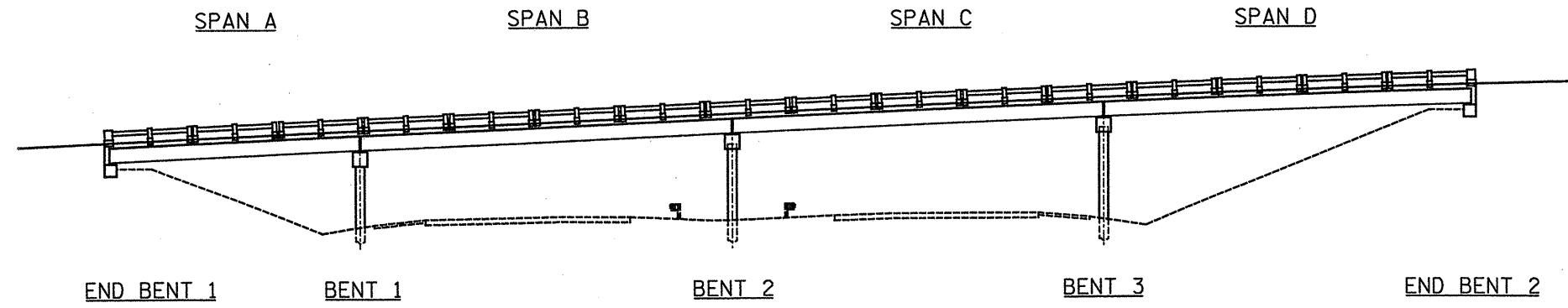
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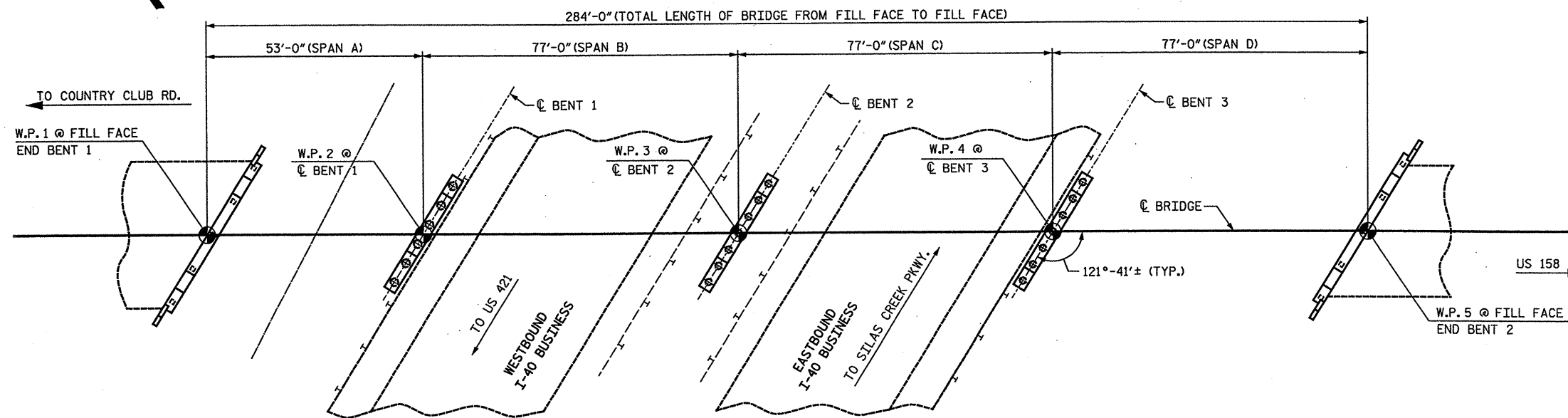
GENERAL NOTES:

FOR ADDITIONAL NOTES, SEE SHEET S-2.

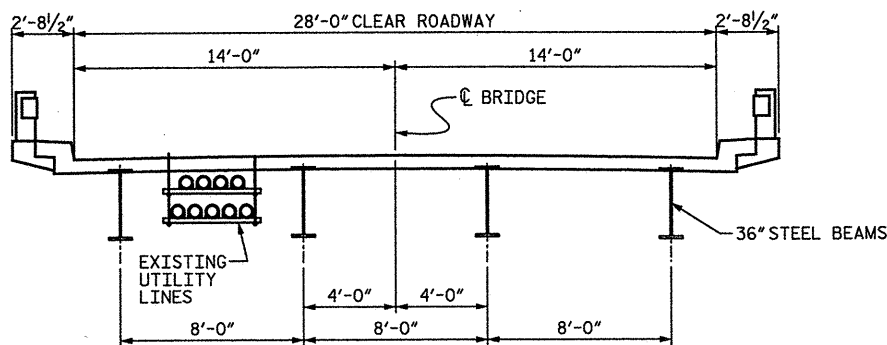
FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.



ELEVATION



PLAN



TYPICAL SECTION

BILL OF MATERIAL			
	* REINFORCING STEEL	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION
	LBS.	CU. FT.	LIN. FT.
SUPERSTRUCTURE		21	
END BENT 1			
BENT 1	50		20
BENT 2	50	12	
BENT 3			
END BENT 2			
TOTAL	100	33	20

* REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT.



PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY

BRIDGE NO.: 220

REHAB. OF BRIDGE NO. 220 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN AND ELEVATION

BRIDGE ON OLD VINEYARD RD.
 OVER I-40 BUSINESS

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-3

TOTAL SHEETS
S-47

DRAWN BY : PWP DATE : 11-11
 CHECKED BY : PEK DATE : 11-11

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 Charlotte, NC 28208
 NC License No. F-0991

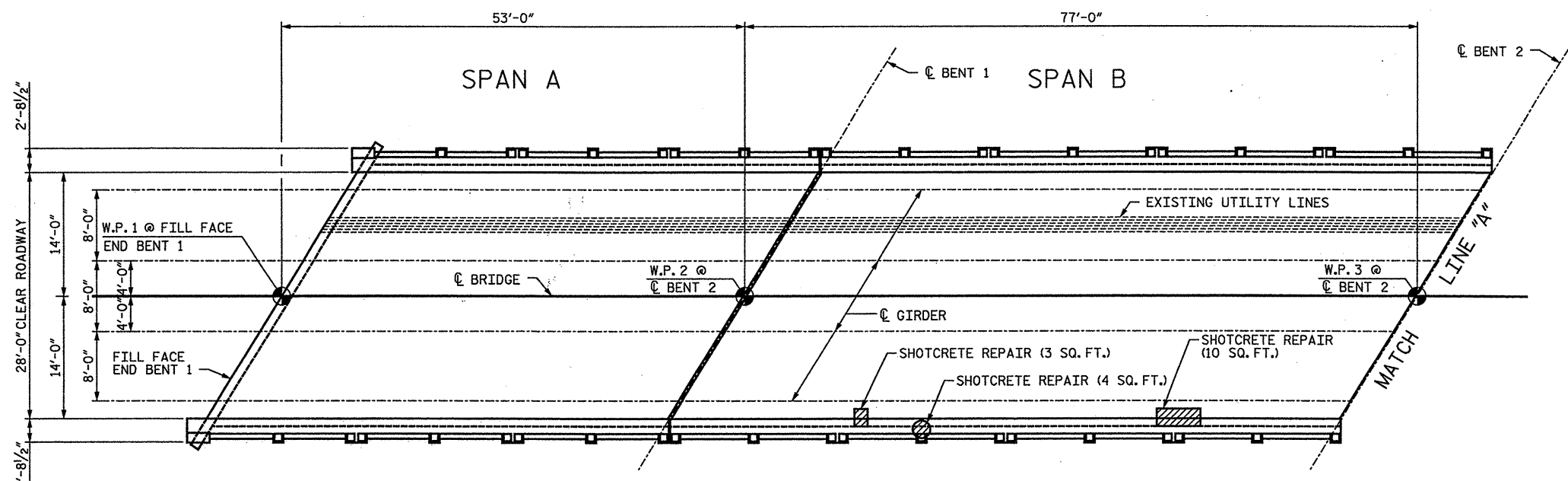
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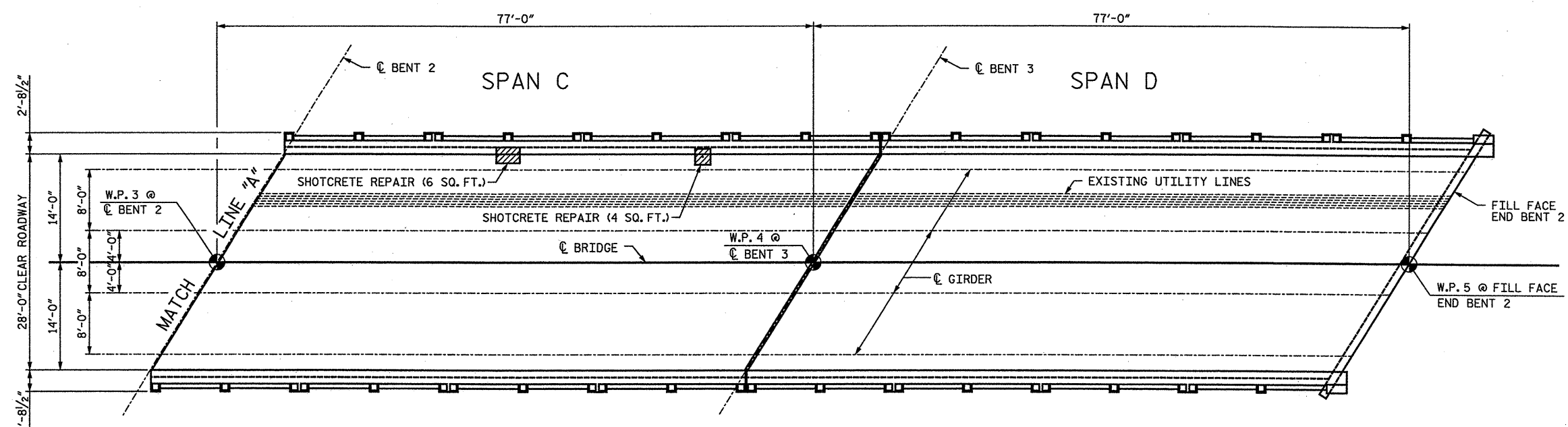
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1/12/2012

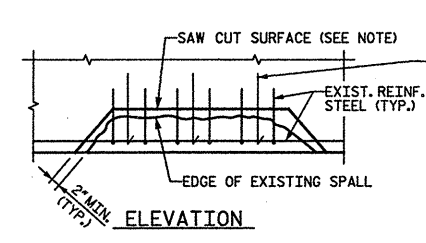
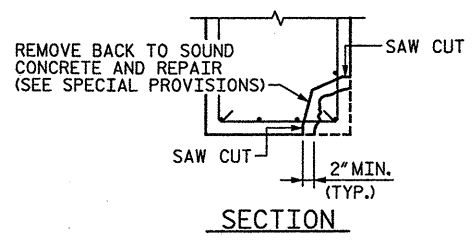
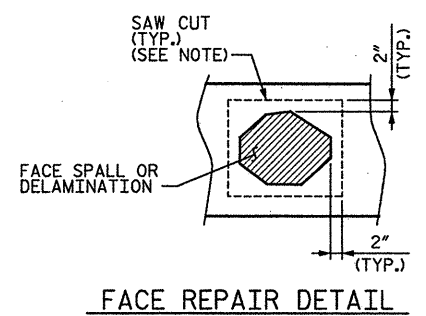


PLAN OF SPANS A & B
ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF THE DECK

- NOTES:**
1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
 2. FOR CRACKS DETAILED AS EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A SHOTCRETE REPAIR IS NECESSARY.
 3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
 4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTOR'S OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
 5. SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
 6. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
 7. OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF THREE BARS OF REINFORCING STEEL.
 8. SEE SHEET 1 OF 3 FOR ADDITIONAL NOTES.



PLAN OF SPANS C & D
ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF THE DECK



PROPOSED ADHESIVELY ANCHORED #5 DOWEL (TYP.) CENTERED BETWEEN EXISTING STIRRUPS WITH 9" MIN. EMBEDMENT TO BE USED FOR OVERHEAD APPLICATIONS OR WHERE EXISTING REINFORCING STEEL IS HEAVILY DETERIORATED.

NOTE:
CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
 BRIDGE NO.: 220
 REHAB. OF BRIDGE NO. 220

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 DECK REPAIRS**
 BRIDGE ON OLD VINEYARD RD.
 OVER I-40 BUSINESS



DRAWN BY : PWP DATE : 11-11
 CHECKED BY : PEK DATE : 11-11

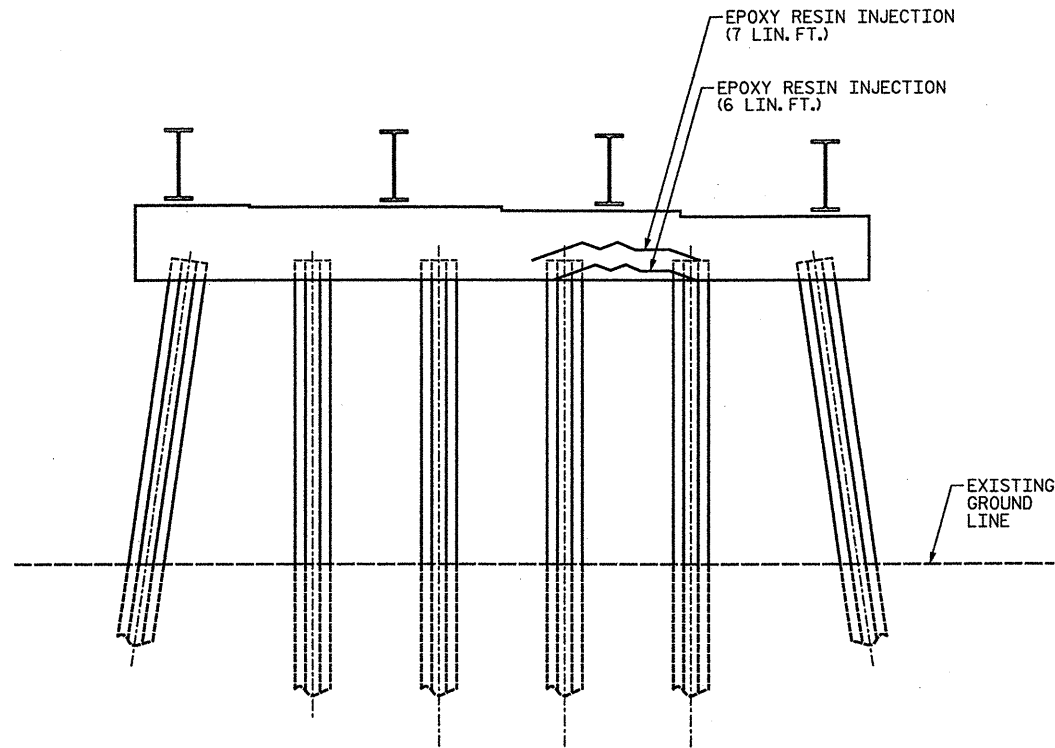
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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
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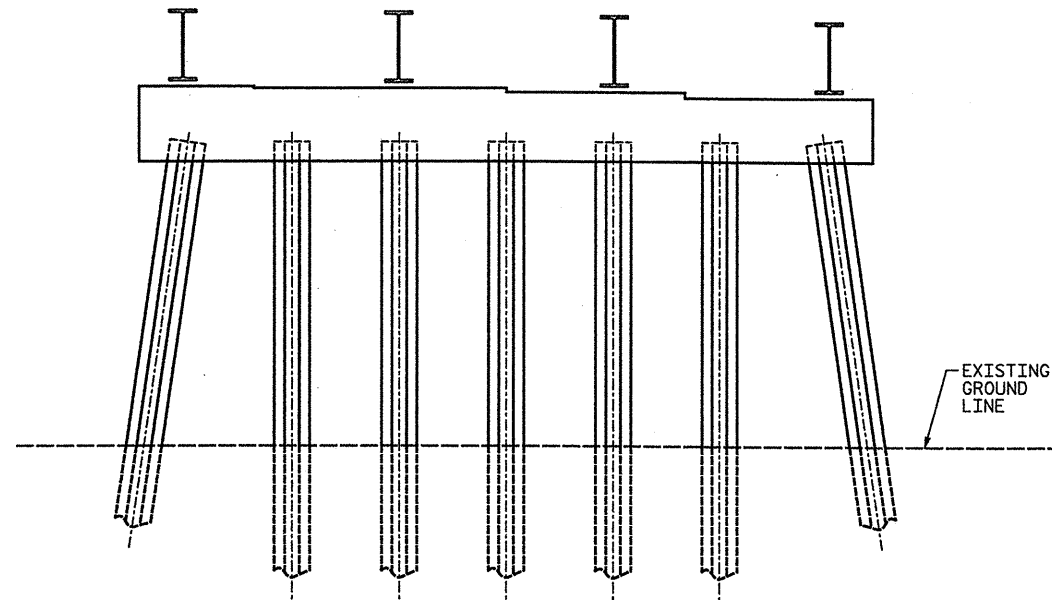
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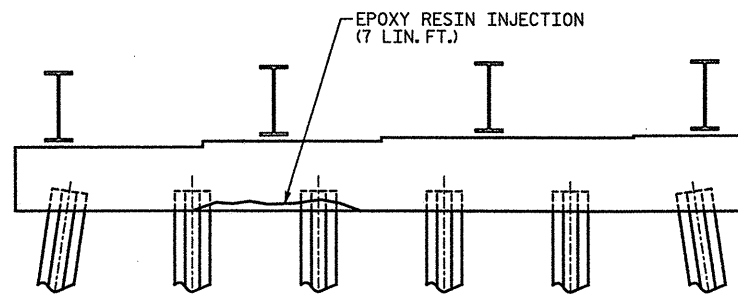
ELEVATION OF BENT 1 LOOKING SOUTH
NORTH FACE



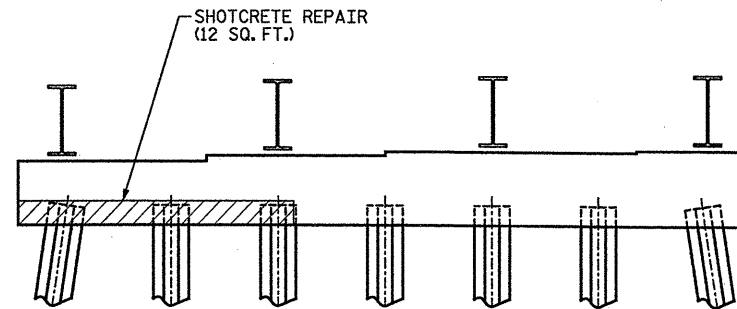
ELEVATION OF BENT 2 LOOKING SOUTH
NORTH FACE

NO REPAIRS NOTED
THIS FACE

NOTE : NO KNOWN REPAIRS TO BENT 3.



PARTIAL ELEVATION OF BENT 1 LOOKING NORTH
SOUTH FACE



PARTIAL ELEVATION OF BENT 2 LOOKING NORTH
SOUTH FACE

NOTES:

1. FOR TYPICAL SHOTCRETE REPAIR DETAILS SEE SHEET 2 OF 3.
2. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
3. FOR CRACKS DETAILED AS EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A SHOTCRETE REPAIR IS NECESSARY.
4. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
5. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTOR'S OPERATIONS. REPAIRS TO DAMAGED SUCH BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
6. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
7. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
8. SEE SHEET 1 OF 3 FOR ADDITIONAL NOTES.

DRAWN BY : PWP DATE : 11-11
CHECKED BY : PEK DATE : 11-11

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NC License No. F-0991

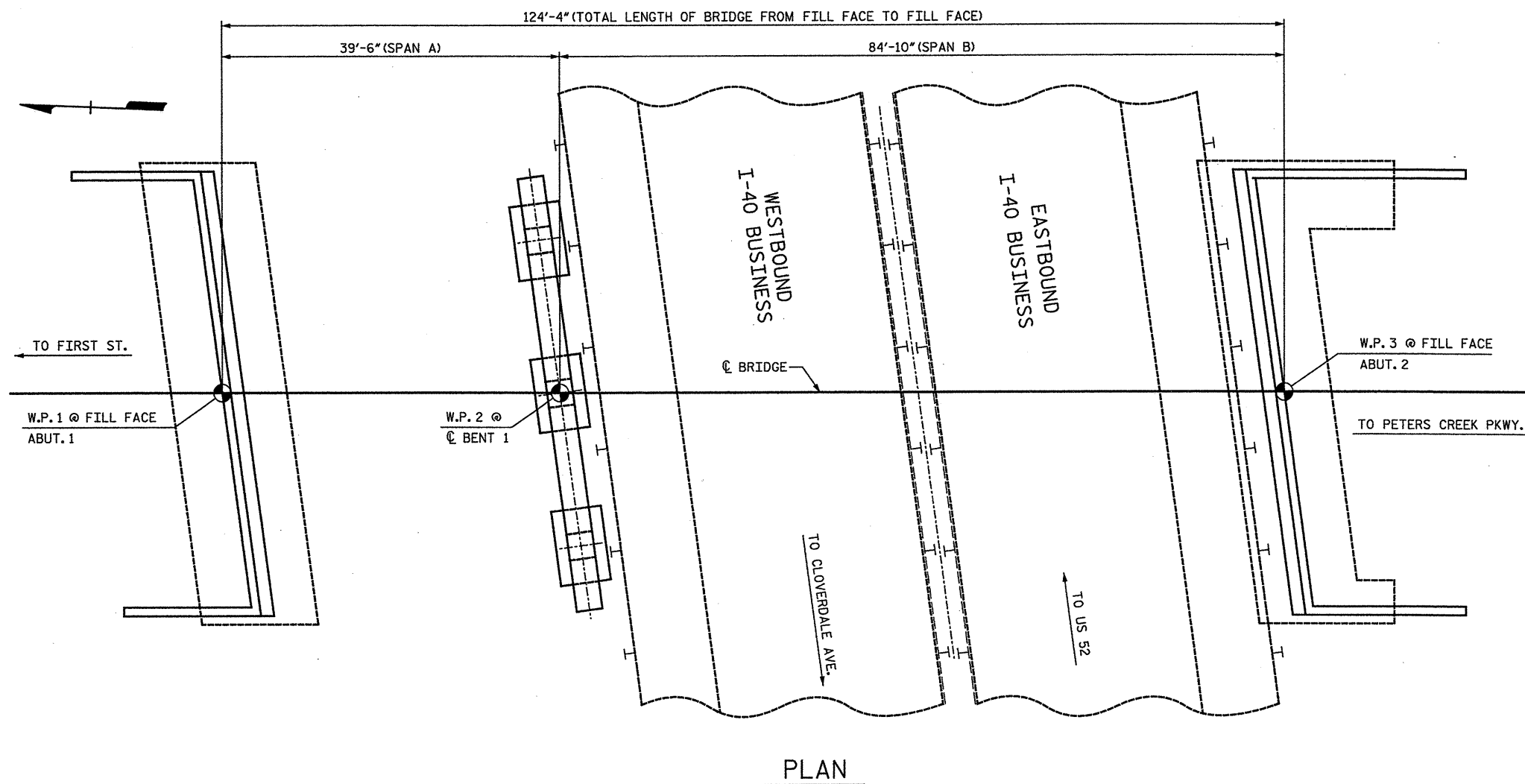
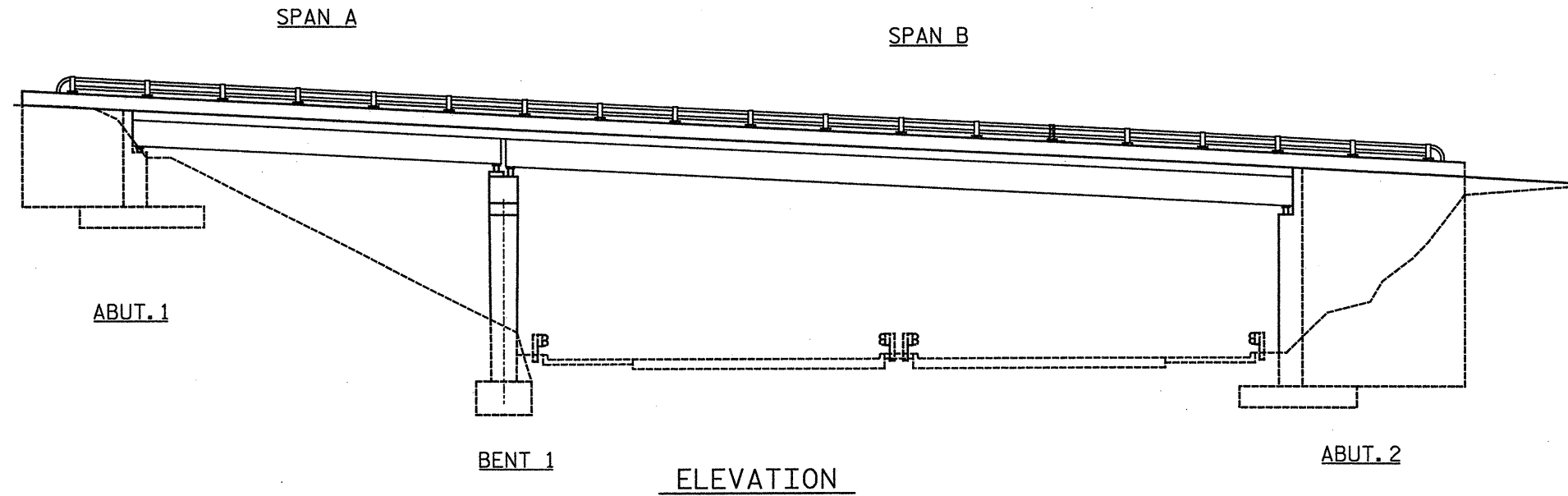


PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
BRIDGE NO.: 220
REHAB. OF BRIDGE NO. 220 SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1 & 2 REPAIRS					
BRIDGE ON OLD VINEYARD RD. OVER I-40 BUSINESS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-5
					TOTAL SHEETS S-47

GENERAL NOTES:

FOR ADDITIONAL NOTES, SEE SHEET S-2.
 FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
 FOR STIRRUP REPAIRS, SEE SPECIAL PROVISIONS.



BILL OF MATERIAL				
	* REINFORCING STEEL	SHOTCRETE REPAIRS	CONCRETE REPAIRS	EPOXY RESIN INJECTION
	LBS.	CU. FT.	CU. FT.	LIN. FT.
SUPERSTRUCTURE		9		
ABUTMENT 1				
BENT 1	50	50	1.5	
ABUTMENT 2	50	22		11
TOTAL	100	81	1.5	11

* REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 269

REHAB. OF BRIDGE NO. 269 SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN AND ELEVATION

BRIDGE ON FOURTH ST.
 OVER I-40 BUSINESS



DRAWN BY : PWP DATE : 11-11
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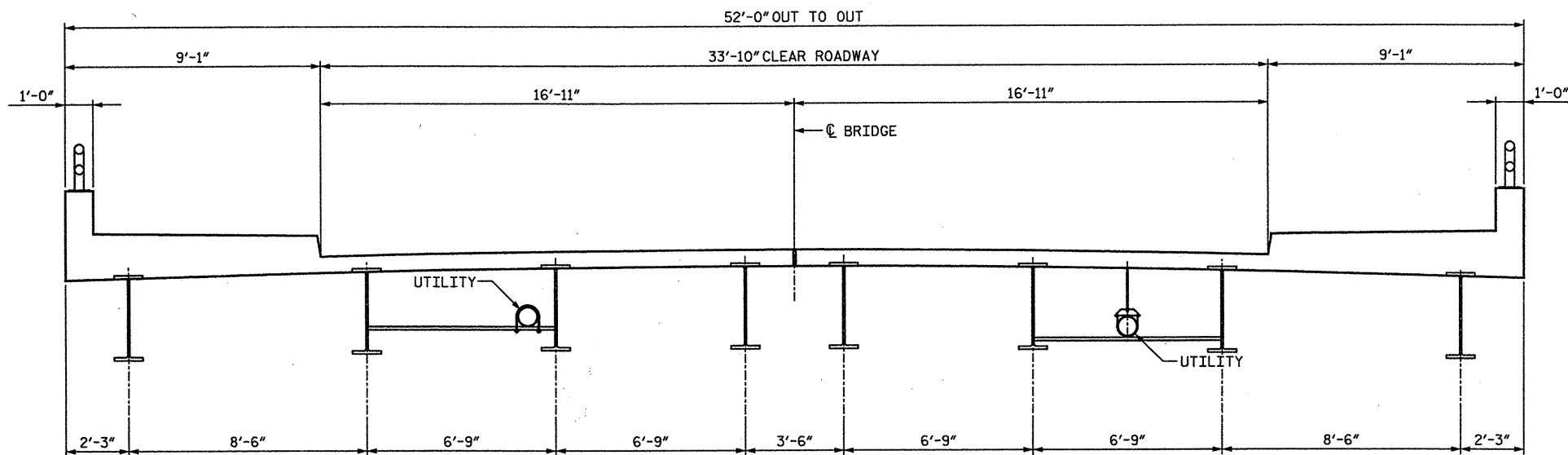
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			S-47

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1/11/2012

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TYP. SECTION THROUGH EXISTING SUPERSTRUCTURE

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 269

REHAB. OF BRIDGE NO. 269 SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 AND DETAILS

BRIDGE ON FOURTH ST.
 OVER I-40 BUSINESS

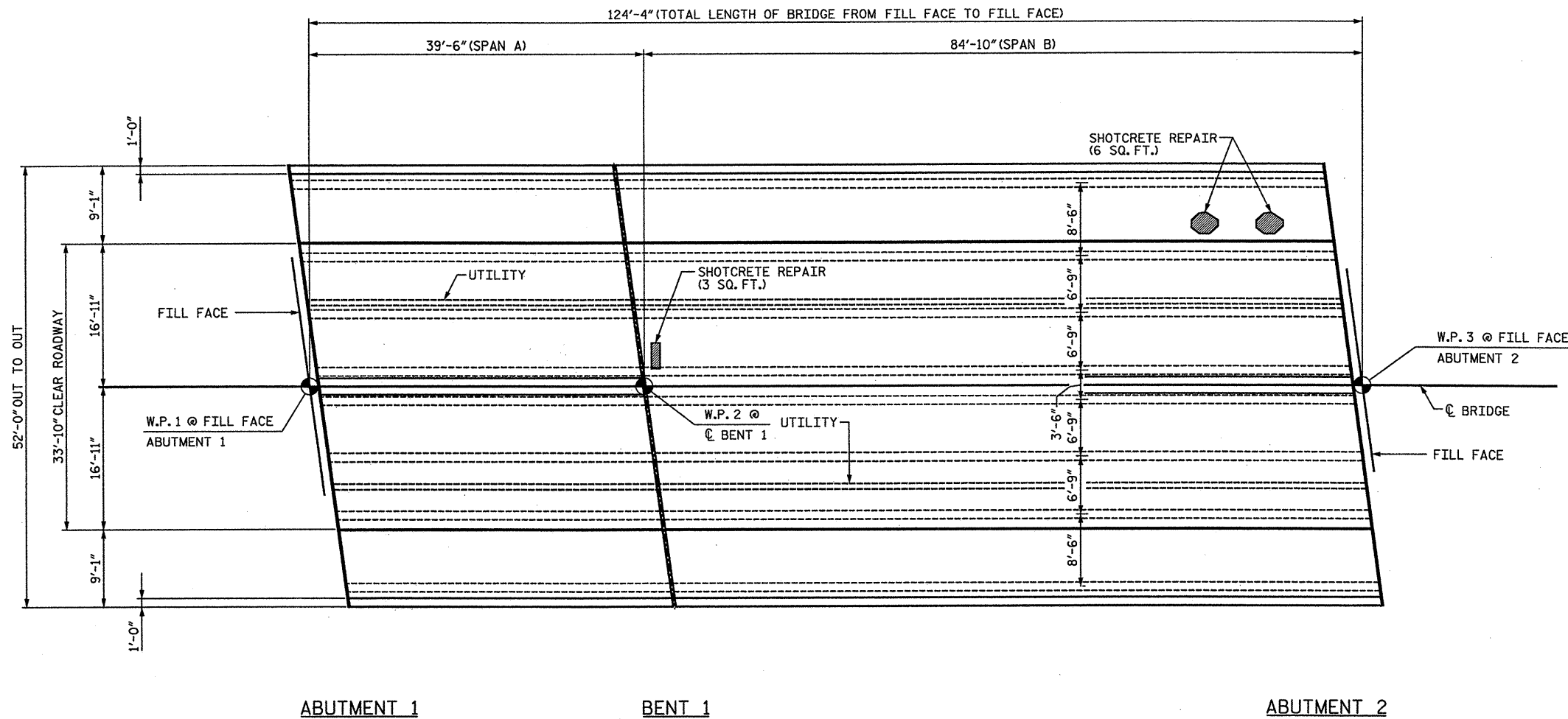


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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-7
1			3			TOTAL SHEETS
2			4			S-47

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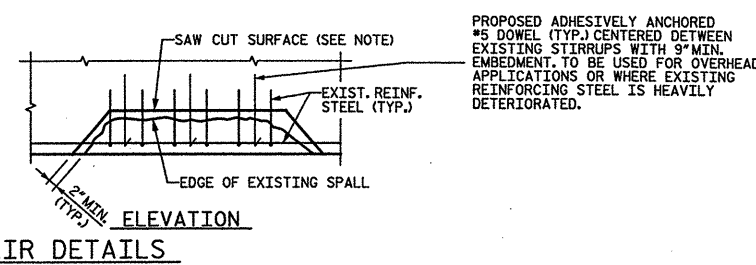
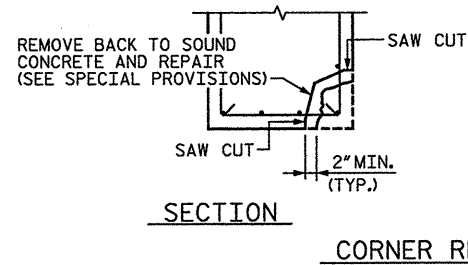
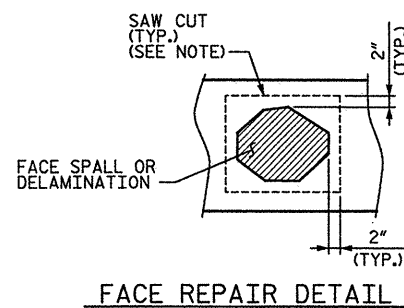


PLAN OF DECK

ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF THE DECK

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS DETAILED AS EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTOR'S OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
5. SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
6. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
7. OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF THREE BARS OF REINFORCING STEEL.
8. SEE SHEET 1 OF 5 FOR ADDITIONAL NOTES.



TYPICAL SHOTCRETE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

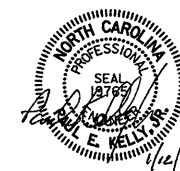
PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 269

REHAB. OF BRIDGE NO. 269 SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 DECK REPAIRS**

BRIDGE ON FOURTH ST.
 OVER I-40 BUSINESS

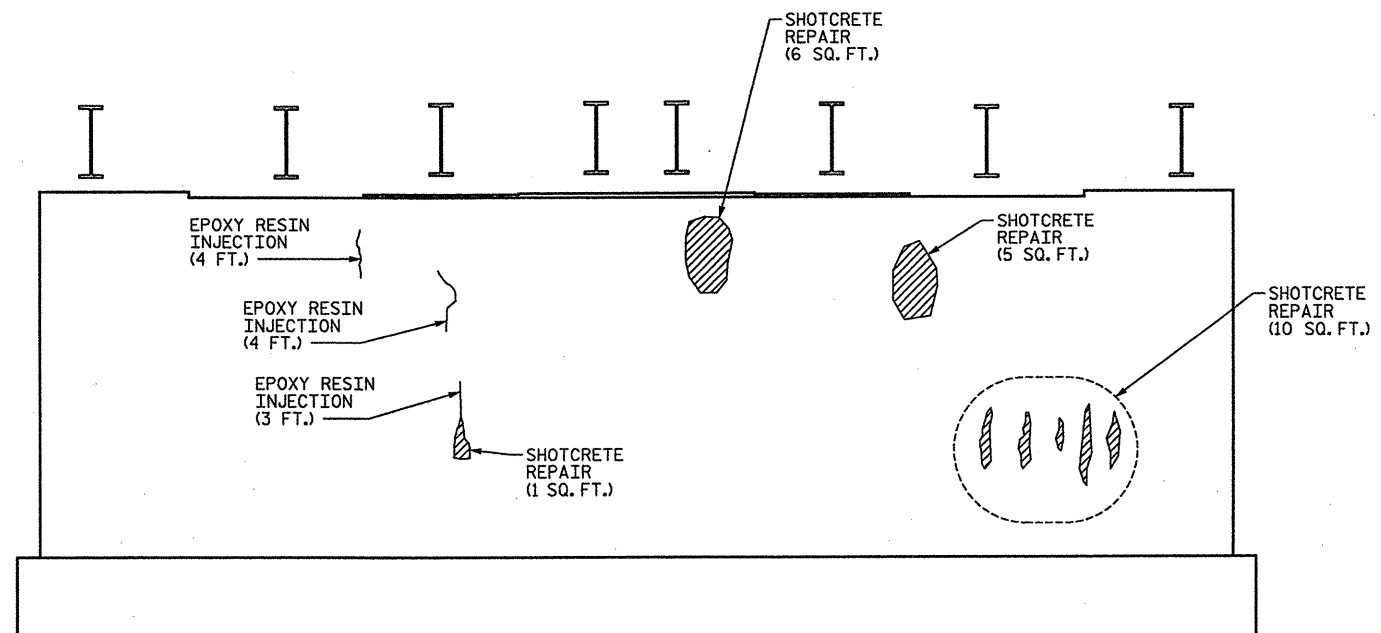


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			S-47

NOTE:
SEE SHEET 5 OF 5 FOR NOTES AND DETAILS



ELEVATION OF ABUTMENT 2 LOOKING SOUTH
NORTH FACE

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
BRIDGE NO.: 269
REHAB. OF BRIDGE NO. 269 SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
ABUTMENT 2 REPAIRS

BRIDGE ON FOURTH ST.
OVER I-40 BUSINESS



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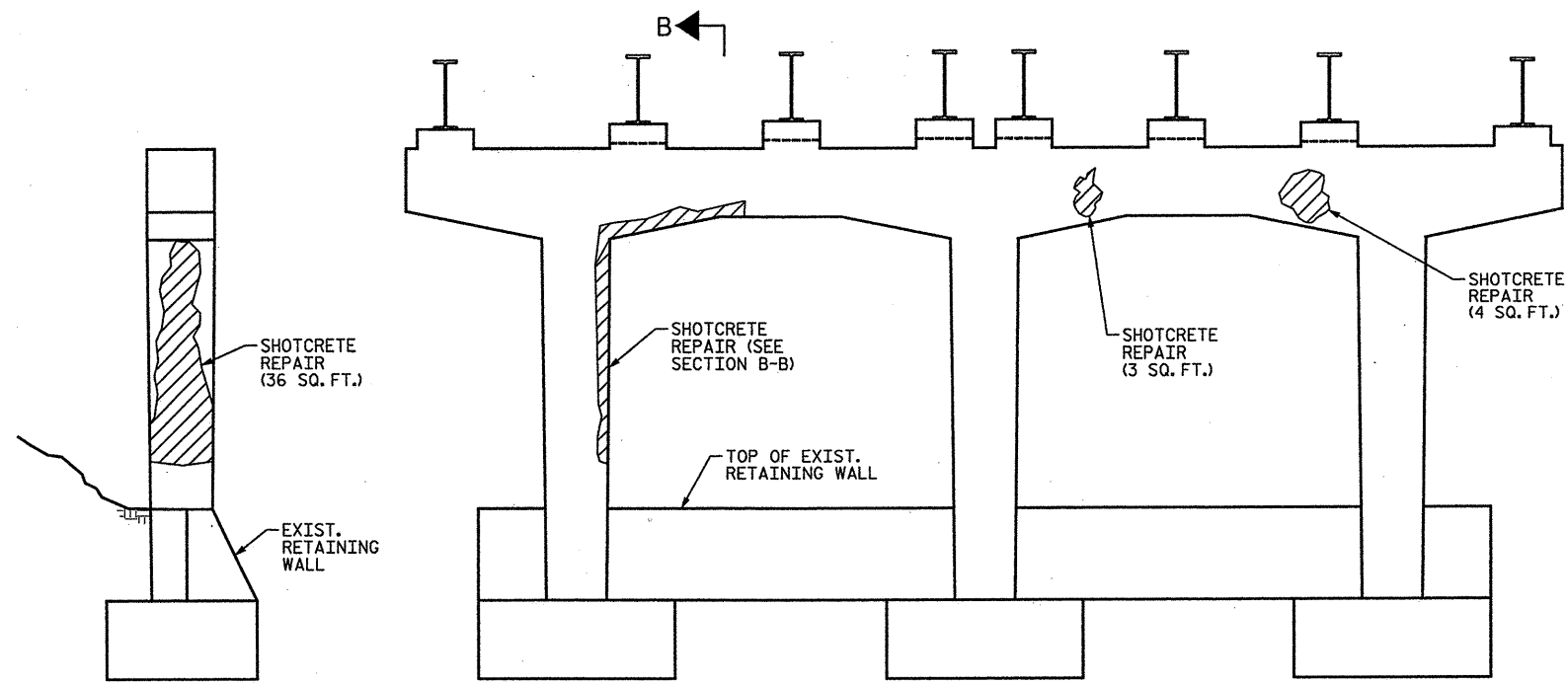
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1			3			TOTAL SHEETS
2			4			S-47

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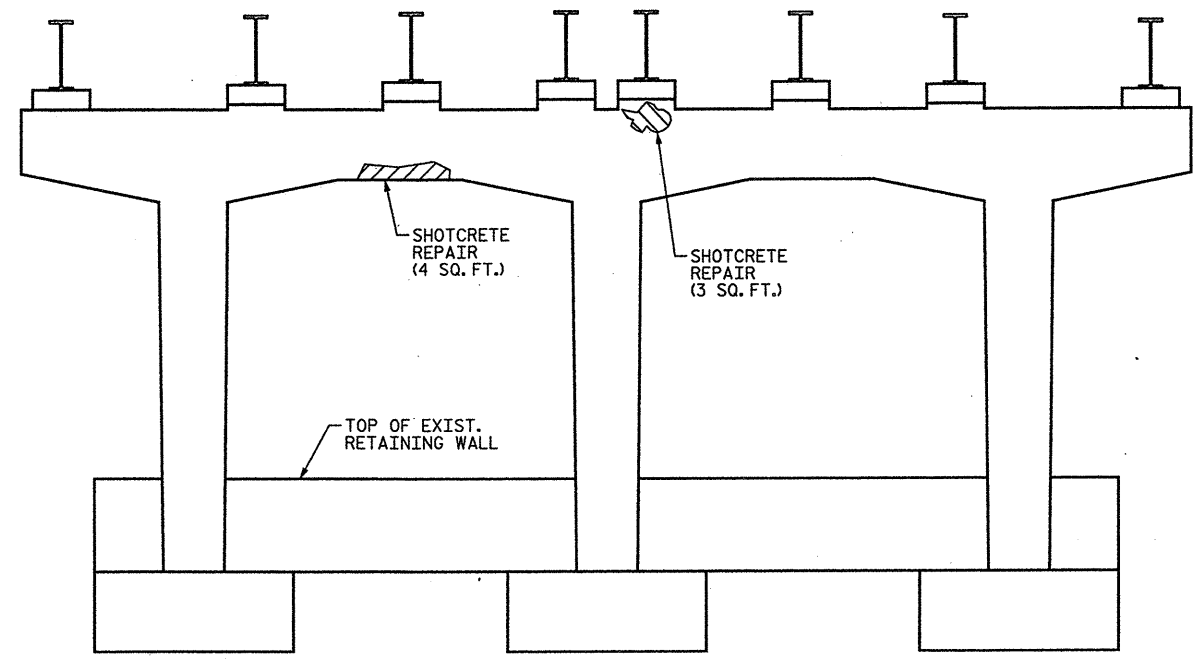
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SECTION B-B

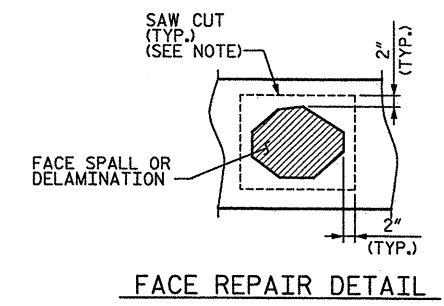
ELEVATION OF BENT 1 LOOKING SOUTH
NORTH FACE



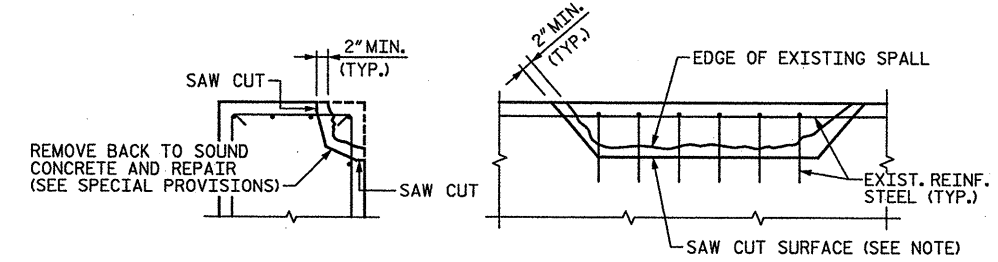
ELEVATION OF BENT 1 LOOKING NORTH
SOUTH FACE

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS DETAILED AS EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A SHOTCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTOR'S OPERATION. REPAIRS TO DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
5. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
6. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
7. SEE SHEET 1 OF 5 FOR ADDITIONAL NOTES.



FACE REPAIR DETAIL



SECTION ELEVATION
CORNER REPAIR DETAILS

TYPICAL SHOTCRETE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 269
 REHAB. OF BRIDGE NO. 269 SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1 REPAIRS
 BRIDGE ON FOURTH ST.
 OVER I-40 BUSINESS

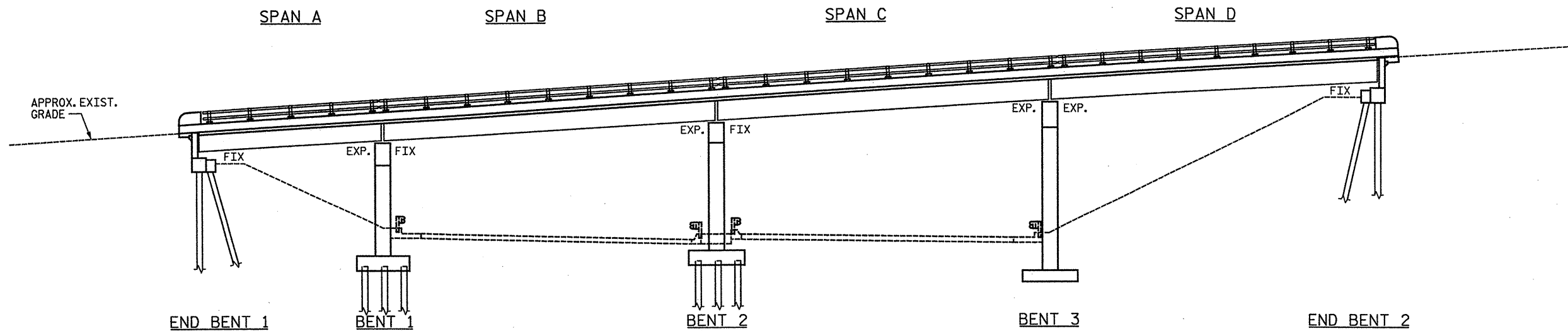


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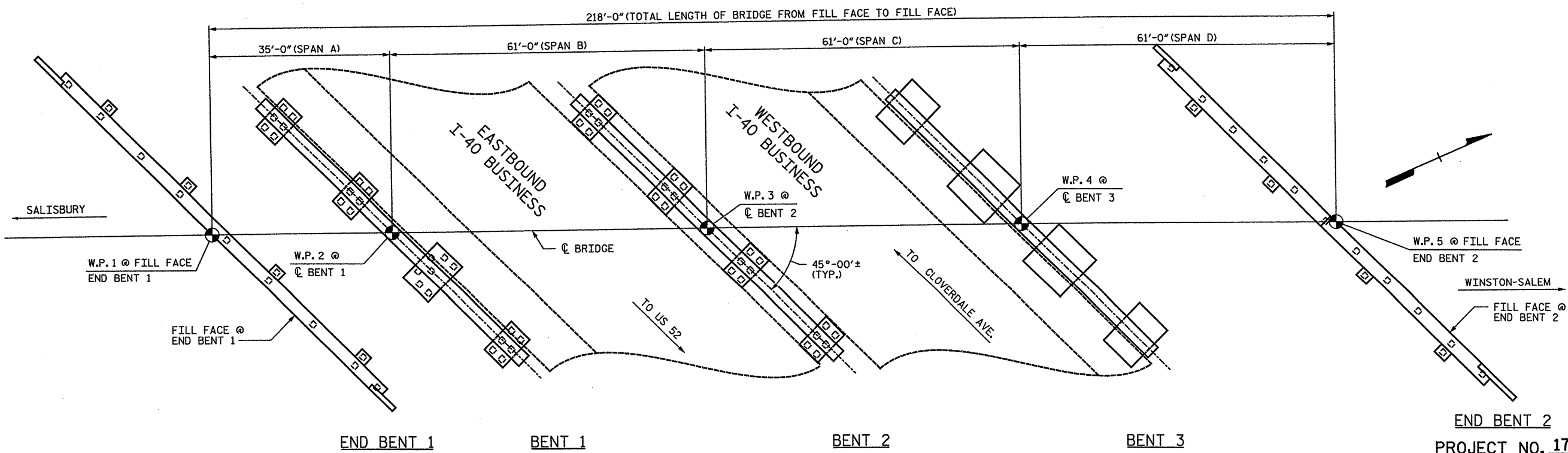
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
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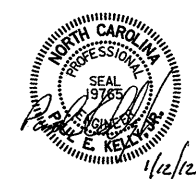
ELEVATION



PLAN

END BENT 2
 PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 278
 REHAB. OF BRIDGE NO. 278 SHEET 1 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN AND ELEVATION
 SUBSTRUCTURE REPAIR**
 PETERS CREEK PARKWAY OVER
 I-40 BUSINESS



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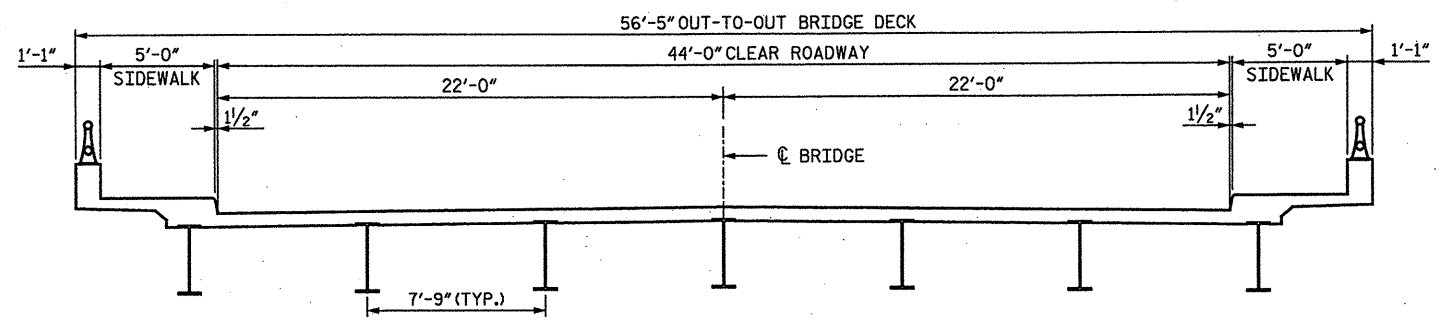
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 NC License No. F-0891

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
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GENERAL NOTES:

FOR ADDITIONAL NOTES, SEE SHEET S-2.
FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



TYPICAL SECTION
(ALL DIMENSIONS ARE APPROXIMATE - SEE NOTES)

BILL OF MATERIAL				
	* REINFORCING STEEL	SHOTCRETE REPAIRS	ANCHOR BOLT REPAIR	STIRRUP REPAIR
	LBS.	CU. FT.	EACH	LUMP SUM
SUPERSTRUCTURE		65		
BENT 1	50	62	5	
BENT 2	50	144	5	
BENT 3	50	98	5	
TOTAL	150	369	15	LUMP SUM

* REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT

ANCHOR BOLT REPAIR NOTES:

ANCHOR BOLT REPAIRS SHALL BE MADE AT THE DIRECTION OF THE ENGINEER.

STRUCTURAL STEEL (EXCEPT ANCHOR BOLTS) SHALL BE A36 IN GOOD CONDITION AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIAL PROVISION.

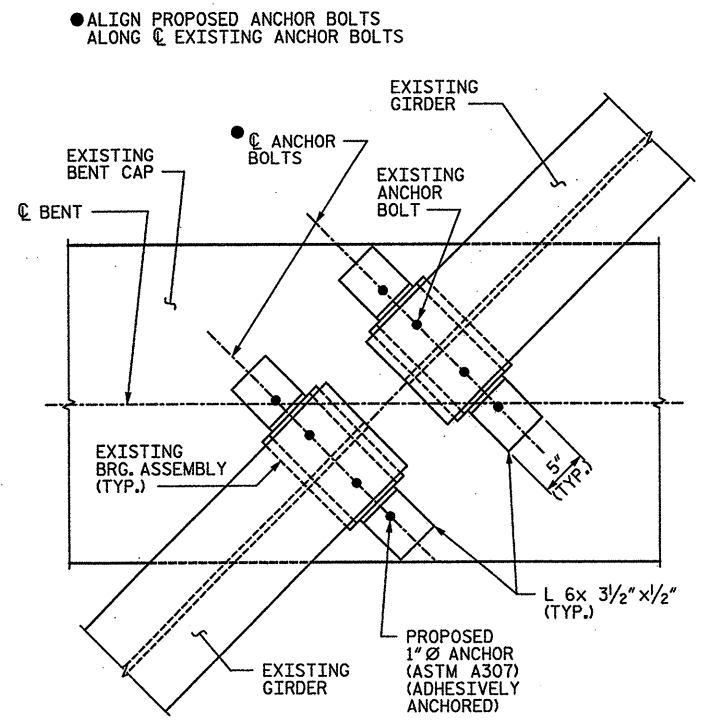
ANCHOR BOLTS SHALL BE A307 WITH A 12" MINIMUM EMBEDMENT INTO THE EXISTING CAP. ANCHOR BOLT SHALL HAVE 10,000 lbs. MIN TENSILE CAPACITY. SEE STANDARD SPECIFICATIONS FOR DETAILS. FIELD TESTING NOT REQUIRED.

ANCHOR REPAIR SHALL BE WELDED TO EXISTING SOLE PLATE AT FIXED BEARINGS ONLY. CONTRACTOR SHALL CLEAN EXISTING BEARING AS NECESSARY IN ORDER TO PROVIDE A SUITABLE SURFACE FOR WELDING. AFTER COMPLETION OF ANCHOR REPAIR, BEARING SHALL BE PAINTED WITH A MINIMUM OF 2 COATS OF ZINC RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

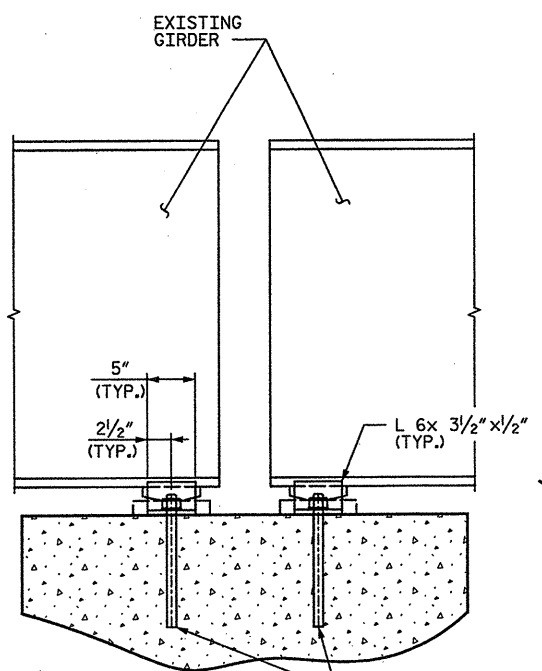
SEE SPECIAL PROVISIONS FOR ANCHOR BOLT REPAIRS.

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
BRIDGE NO.: 278
REHAB. OF BRIDGE NO. 278 SHEET 2 OF 6

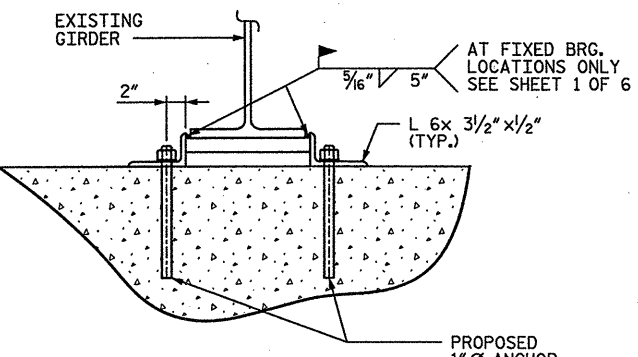
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**TYPICAL SECTION,
NOTES & DETAILS**
PETERS CREEK PARKWAY OVER
I-40 BUSINESS



PLAN VIEW



ELEVATION VIEW



END VIEW

ANCHOR BOLT REPAIR DETAIL

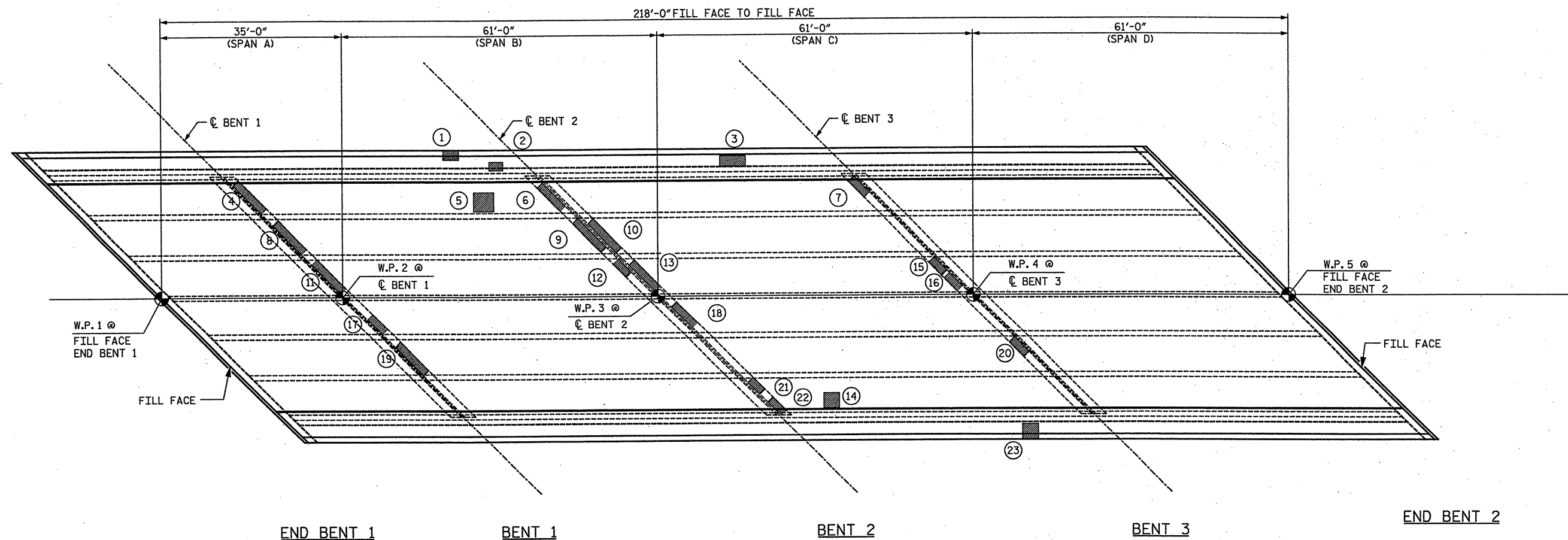
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1			3			TOTAL SHEETS
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PLAN OF DECK

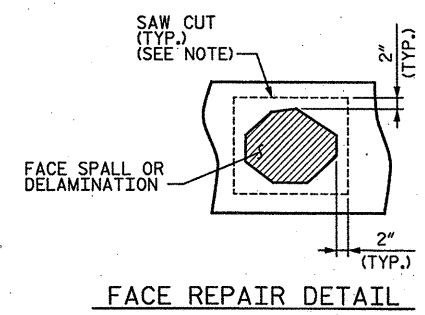
ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF THE DECK

SHOTCRETE REPAIR AREAS FOR SUPERSTRUCTURE

NO.	DESCRIPTION	QTY. (SQ. FT.)
1	UNDERSIDE OF DECK	3
2	UNDERSIDE OF DECK	2
3	UNDERSIDE OF DECK	10
4	BOTTOM OF DIAPHRAGM	9
5	UNDERSIDE OF DECK	3
6	BOTTOM OF DIAPHRAGM	9
7	BOTTOM OF DIAPHRAGM	4
8	BOTTOM OF DIAPHRAGM	9
9	BOTTOM OF DIAPHRAGM	7
10	BOTTOM OF DIAPHRAGM	9
11	BOTTOM OF DIAPHRAGM	9
12	BOTTOM OF DIAPHRAGM	5
13	BOTTOM OF DIAPHRAGM	9
14	UNDERSIDE OF DECK	3
15	BOTTOM OF DIAPHRAGM	3
16	BOTTOM OF DIAPHRAGM	3
17	BOTTOM OF DIAPHRAGM	4
18	BOTTOM OF DIAPHRAGM	5
19	BOTTOM OF DIAPHRAGM	8
20	BOTTOM OF DIAPHRAGM	3
21	BOTTOM OF DIAPHRAGM	5
22	BOTTOM OF DIAPHRAGM	5
23	UNDERSIDE OF DECK	2
TOTAL SHOTCRETE REPAIR AREA		129

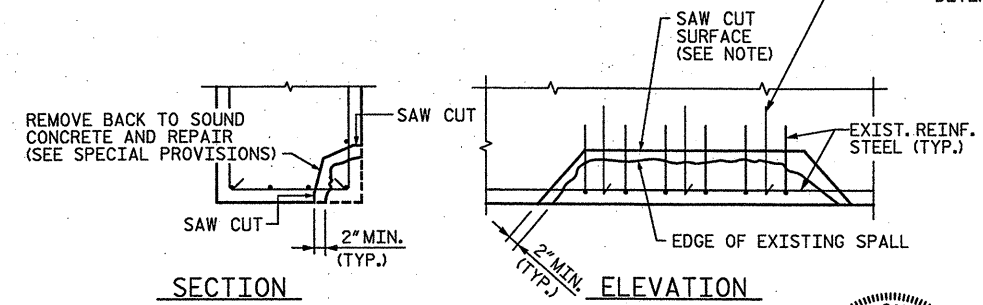
NOTES:

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- FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.
- SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
- THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COSTS.
- DOWEL LENGTH SHALL BE BASED ON A 9" EMBEDMENT INTO EXISTING CONCRETE AND MAY BE ADJUSTED BASED ON THE MINIMUM EMBEDMENT SPECIFIED BY THE MANUFACTURER OF THE EPOXY ADHESIVE BONDING SYSTEM.
- REINFORCING STEEL SHALL BE GRADE 60.
- SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
- OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF THREE BARS OF REINFORCING STEEL.
- CLEAN AND PAINT EXISTING BEARING PLATES AT ALL INTERIOR BENTS (42 BEARING ASSEMBLIES). SEE SPECIAL PROVISIONS FOR CLEANING AND PAINTING EXISTING BEARING PLATES.
- CLEAN AND PAINT GIRDER ENDS OF EACH GIRDER FOR A DISTANCE OF 2' MEASURED FROM THE GIRDER END AT BENTS 1, 2 AND 3. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE REHABILITATION OF BRIDGE 278. PAYMENT AT THE CONTRACT UNIT PRICES FOR THE VARIOUS PAY ITEMS SHALL BE CONSIDERED FULL COMPENSATION FOR CLEANING AND PAINTING GIRDER ENDS.



NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROPOSED ADHESIVELY ANCHORED #5 DOWEL (TYP.) CENTERED BETWEEN EXISTING STIRRUPS WITH 9" MIN. EMBEDMENT. TO BE USED FOR OVERHEAD APPLICATIONS OR WHERE EXISTING REINFORCING STEEL IS HEAVILY DETERIORATED.

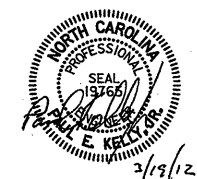


PROJECT NO. **17BP.9.H.1**
FORSYTH COUNTY
 BRIDGE NO.: **278**
 REHAB. OF BRIDGE NO. 278 SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 SHOTCRETE REPAIR**

PETERS CREEK PKWY OVER
 I-40 BUSINESS

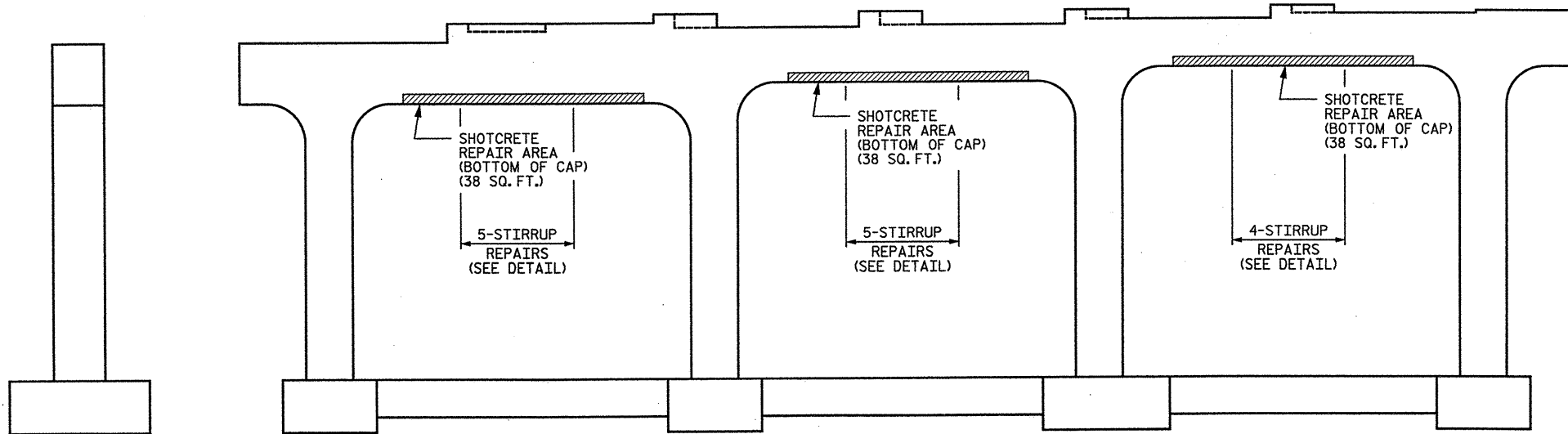


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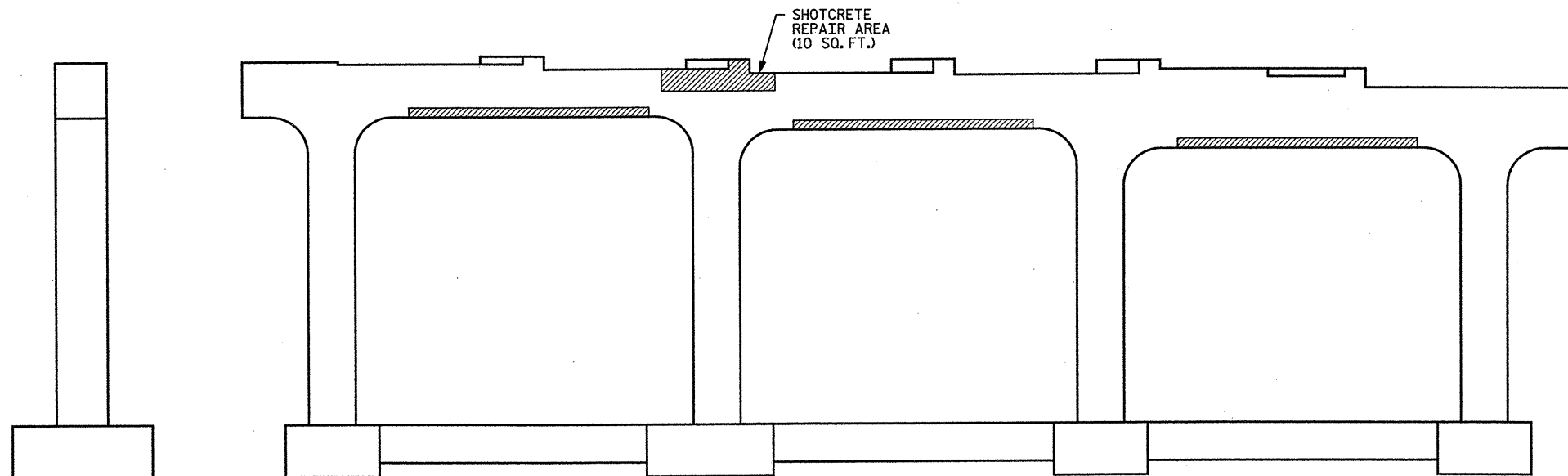
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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			S-47

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ELEVATION OF BENT 1 - LOOKING NORTH



ELEVATION OF BENT 1 - LOOKING SOUTH

END VIEW

END VIEW

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
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5. SEE SHEET 1 OF 6 FOR ADDITIONAL NOTES.
6. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
7. SEE SHEET 3 OF 6 FOR SHOTCRETE REPAIR DETAILS.
8. SEE SHEET 5 OF 6 FOR STIRRUP REPAIR DETAILS.

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

BRIDGE NO.: 278

REHAB. OF BRIDGE NO. 278 SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**INTERIOR BENT 1
SUBSTRUCTURE REPAIR**

PETERS CREEK PKWY OVER
I-40 BUSINESS

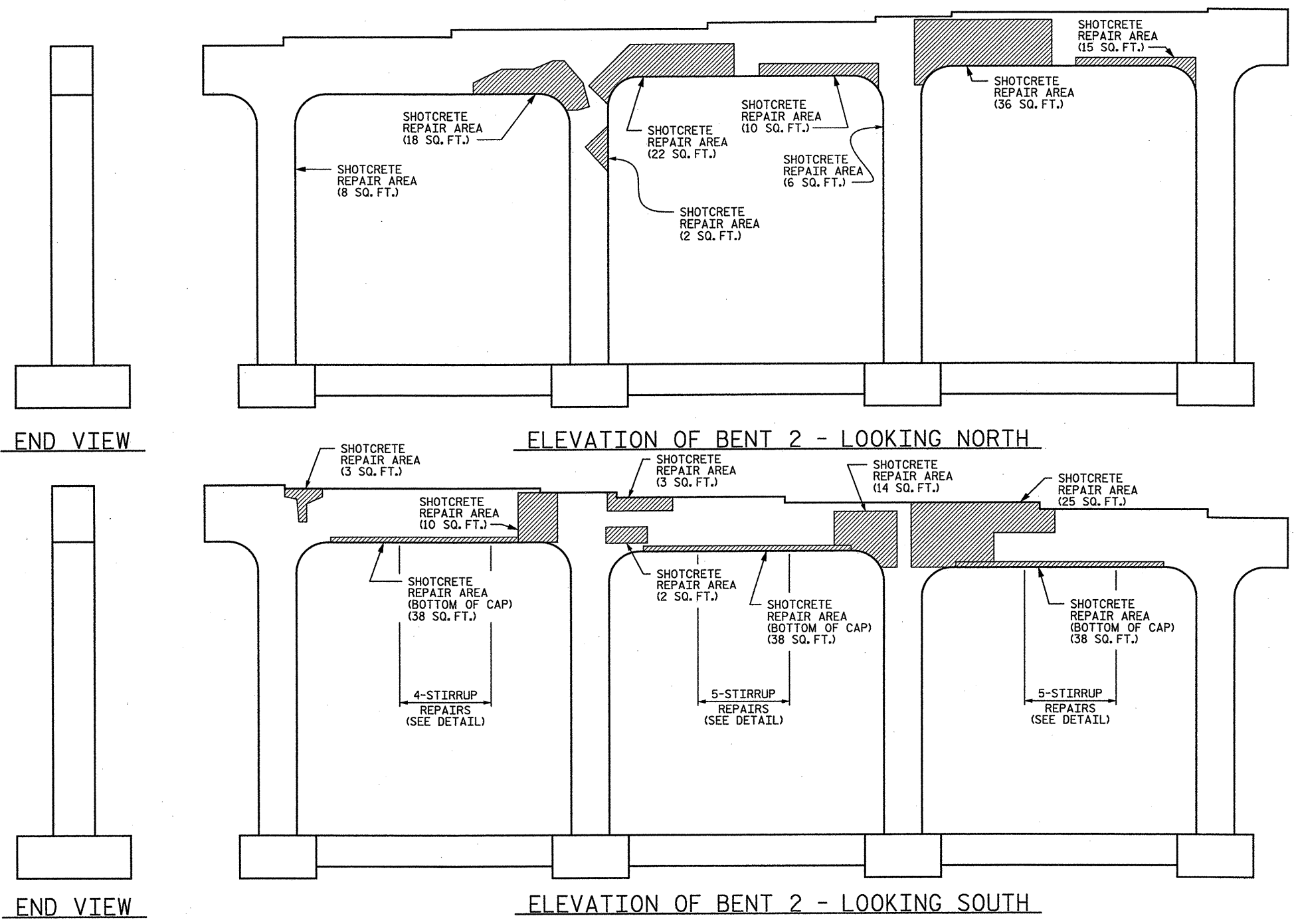


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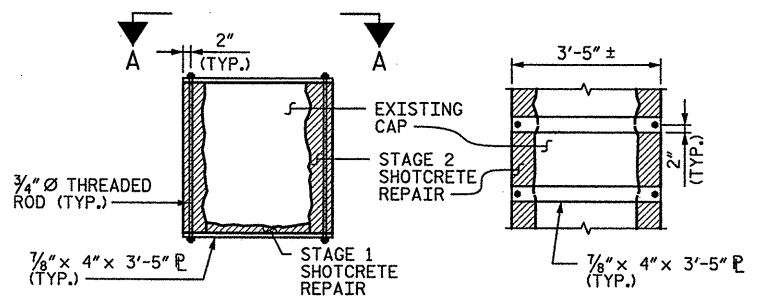
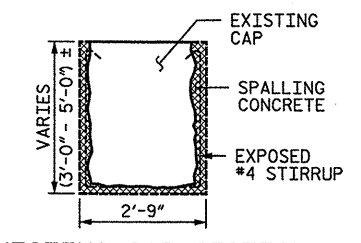
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NOTES:

- SEE SHEET 4 OF 6 FOR ADDITIONAL NOTES.
- ALL STRUCTURAL STEEL SHALL BE GRADE 36 IN GOOD CONDITION.
- ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



STIRRUP REPAIR DETAIL

STIRRUP REPAIR SEQUENCE:

- PLACE STAGE 1 SHOTCRETE ON BOTTOM OF CAP TO PROVIDE 2" CLEAR COVER FOR EXPOSED CAP REINFORCEMENT.
- AFTER SHOTCRETE REACHES A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI, INSTALL 3/4" Ø THREADED RODS AND 7/8" x 4" x 3'-5" P AS SHOWN. PRETENSION 3/4" Ø THREADED ROD TO 2 KIPS.
- PLACE STAGE 2 SHOTCRETE ON SIDES OF CAP TO PROVIDE 1/2" CLEAR COVER FOR 3/4" Ø THREADED ROD.

END VIEW

END VIEW

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 278
 REHAB. OF BRIDGE NO. 278 SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**INTERIOR BENT 2
 SUBSTRUCTURE REPAIR**
 PETERS CREEK PKWY OVER
 I-40 BUSINESS

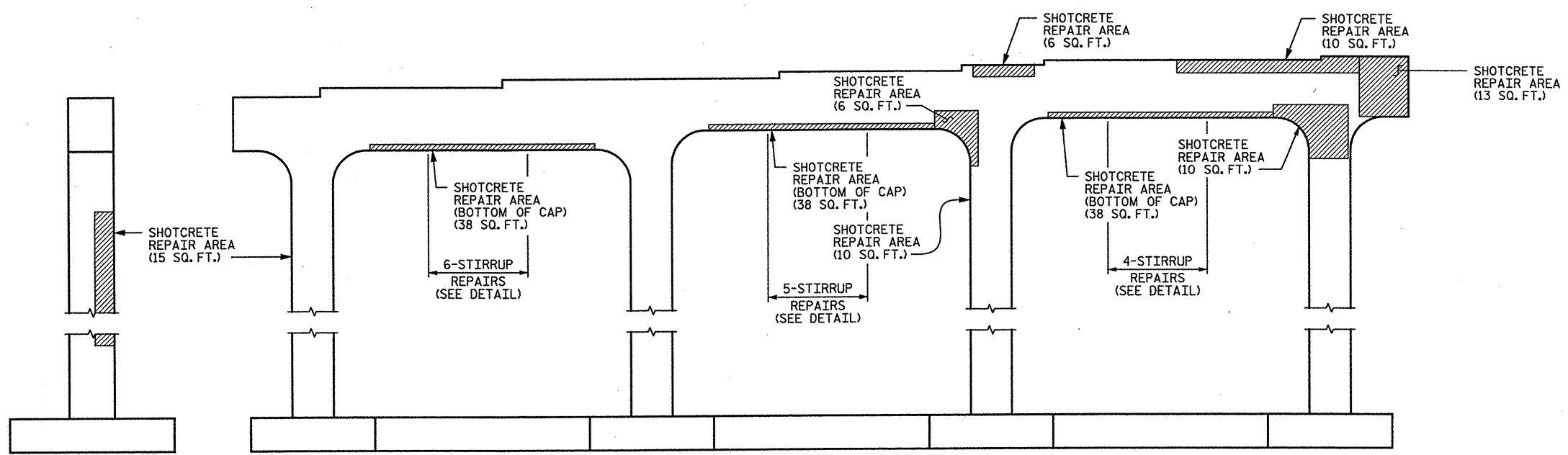


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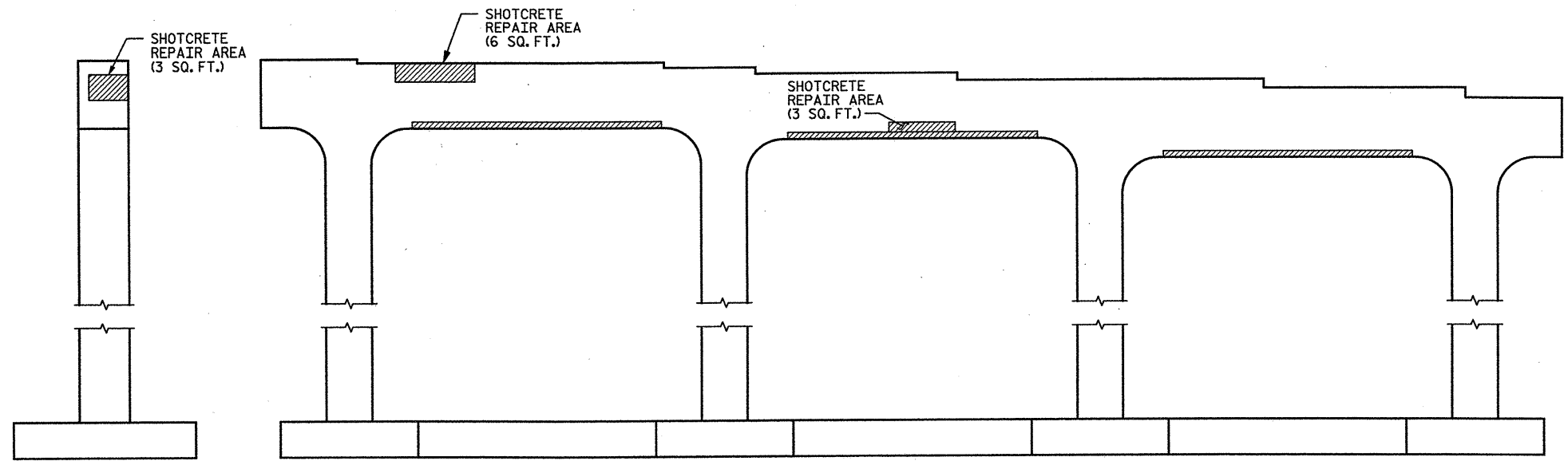
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3			S-15	
2			4			TOTAL SHEETS	S-47

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ELEVATION OF BENT 3 - LOOKING NORTH

END VIEW



ELEVATION OF BENT 3 - LOOKING SOUTH

END VIEW

NOTES:

1. SEE SHEET 4 OF 6 FOR ADDITIONAL NOTES.
2. SEE SHEET 3 OF 6 FOR SHOTCRETE REPAIR DETAILS.
3. SEE SHEET 5 OF 6 FOR STIRRUP REPAIR DETAILS.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 278
 REHAB. OF BRIDGE NO. 278 SHEET 6 OF 6

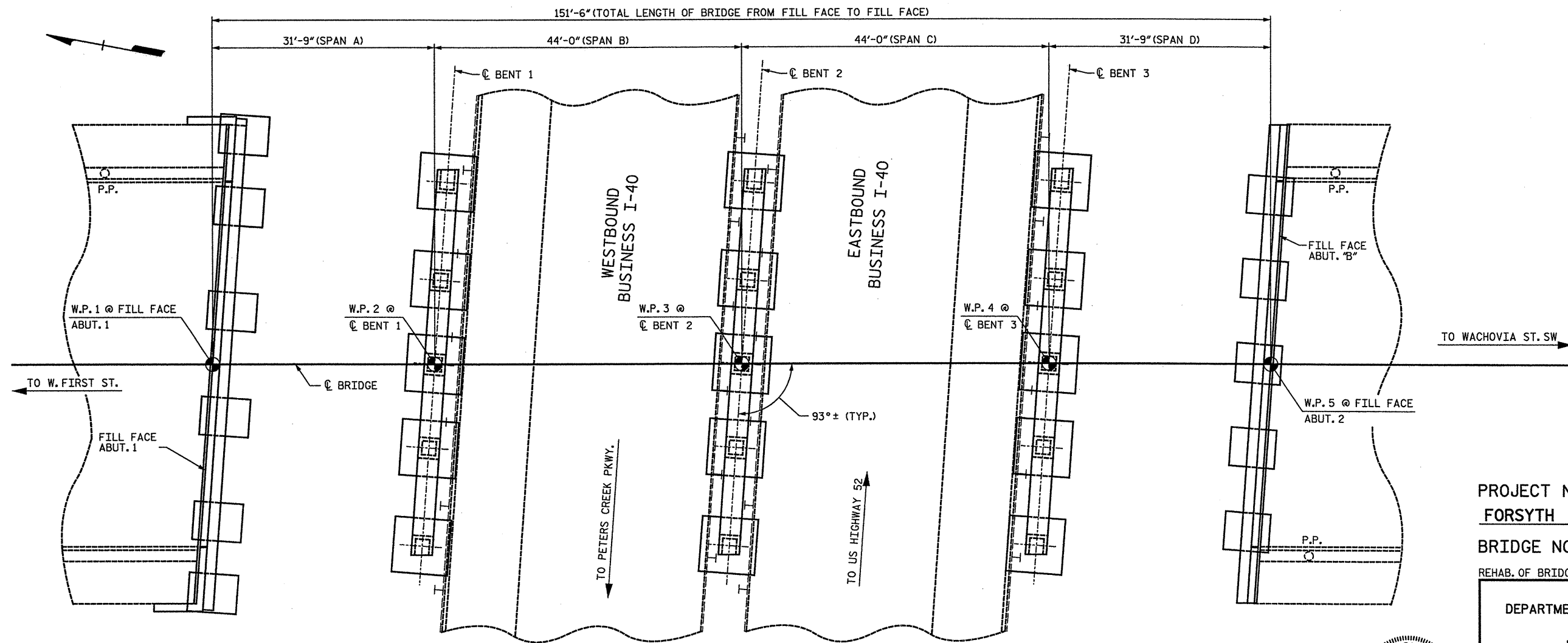
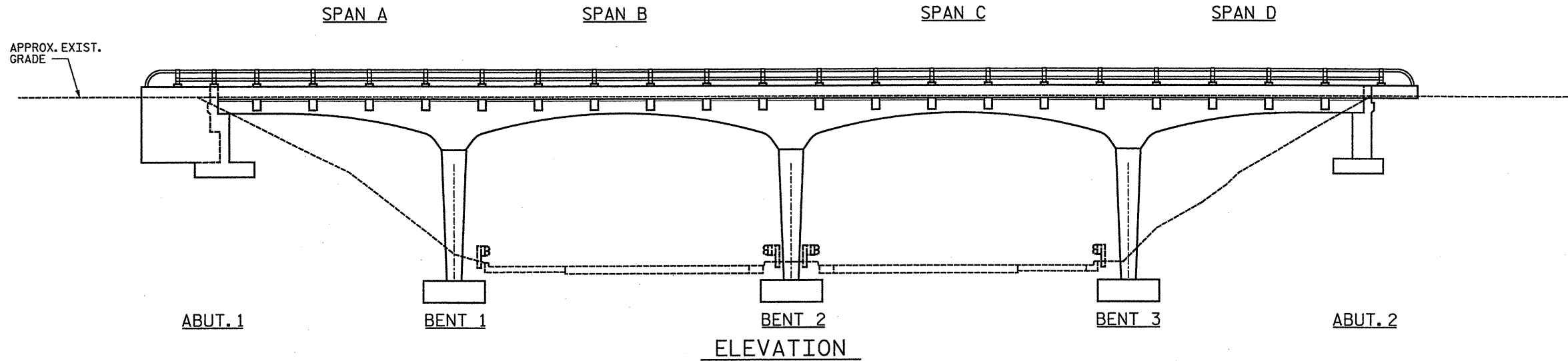
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**INTERIOR BENT 3
 SUBSTRUCTURE REPAIR**
 PETERS CREEK PKWY OVER
 I-40 BUSINESS



DRAWN BY : TRL DATE : 11-11
 CHECKED BY : PEK DATE : 12-11

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 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-16
2			4			5-47



PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 178
 REHAB. OF BRIDGE NO. 178 SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN AND
 ELEVATION

BRIDGE ON BROAD ST.
 OVER I-40 BUSINESS

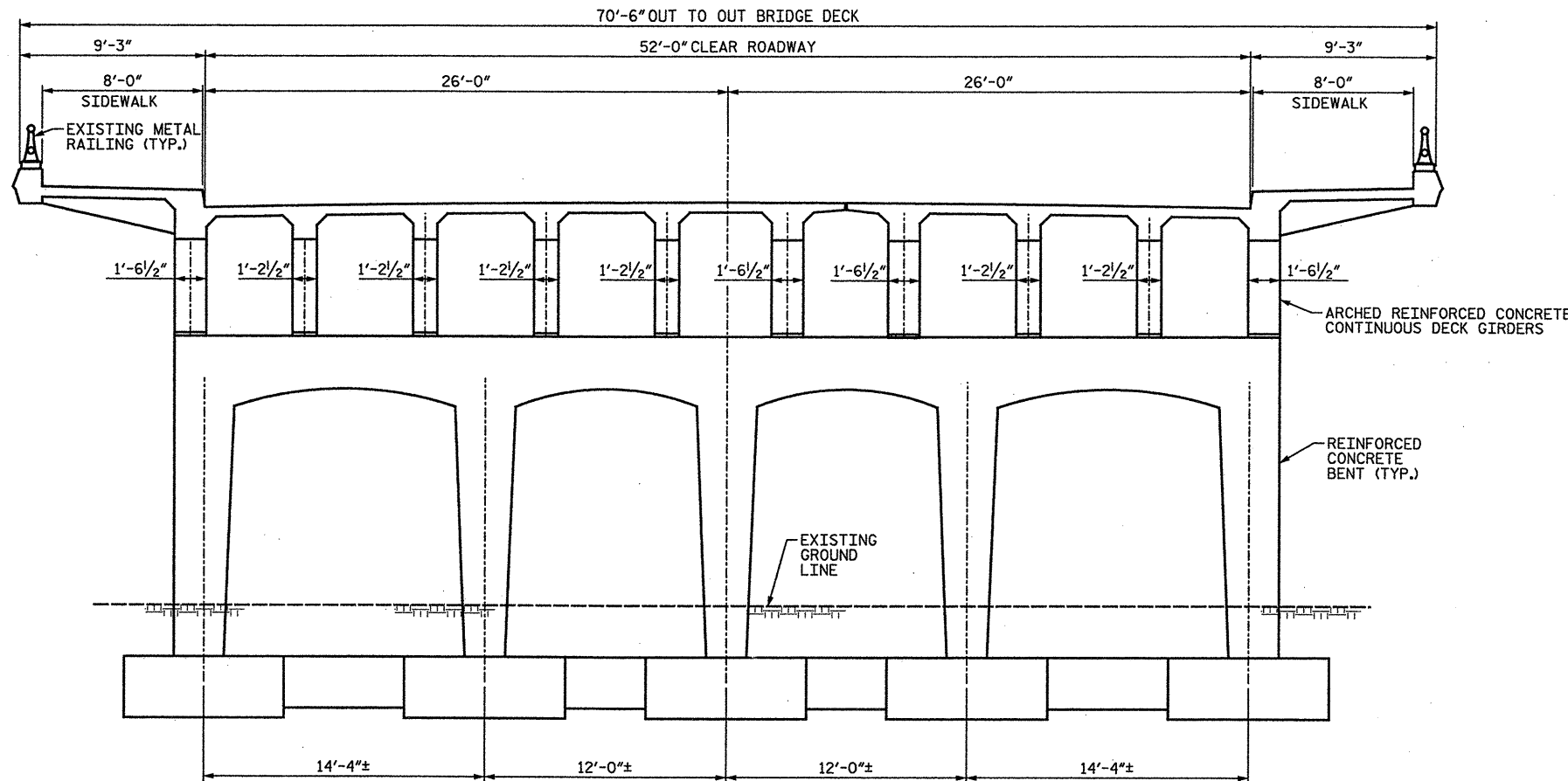


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL	S-47
2			4			SHEETS	

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DRAWN BY : PWP DATE : 11-11
 CHECKED BY : PEK DATE : 12-11

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 1/11/2012



TYPICAL SECTION THROUGH BRIDGE

(ALL DIMENSIONS ARE APPROXIMATE - SEE NOTES)

GENERAL NOTES:

FOR ADDITIONAL NOTES, SEE SHEET S-2.
FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

BILL OF MATERIAL		
	* REINFORCING STEEL	SHOTCRETE REPAIRS
	LBS.	CU. FT.
SUPERSTRUCTURE		57
ABUTMENT 1		
BENT 1	50	15
BENT 2	50	9
BENT 3	50	11
ABUTMENT 2		
TOTAL	150	92

* REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT

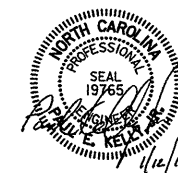
PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
 BRIDGE NO.: 178

REHAB. OF BRIDGE NO. 178 SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION,
 NOTES & DETAILS

BRIDGE ON BROAD ST.
 OVER I-40 BUSINESS



DRAWN BY : PWP DATE : 11-11
 CHECKED BY : PEK DATE : 12-11

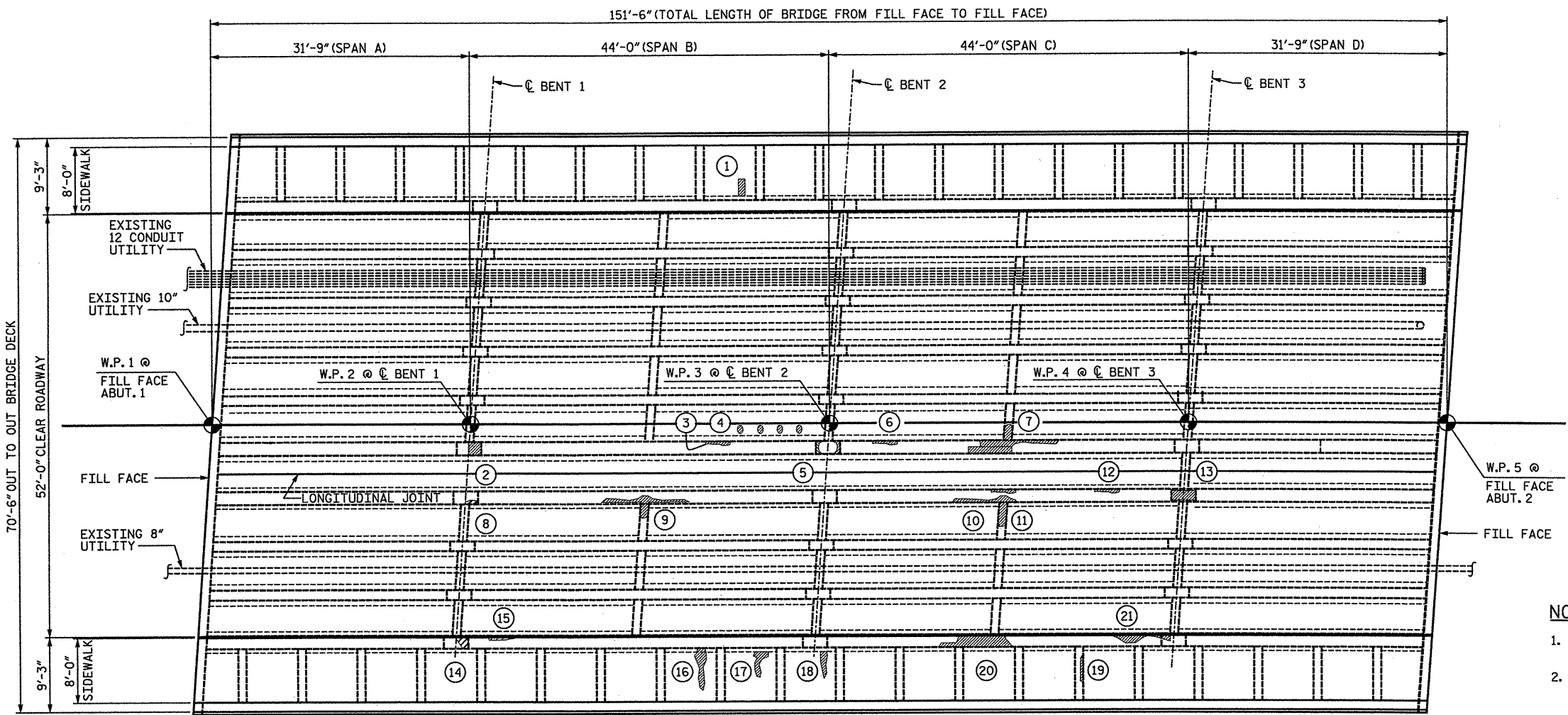
STV/Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			S-47

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1/11/2012

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1/12/2012 01:05:00



SHOTCRETE REPAIR AREAS FOR SUPERSTRUCTURE		
NO.	DESCRIPTION	QTY. (SQ. FT.)
1	UNDERSIDE OF DECK	1
2	GIRDER BEARING	2
3	SIDE OF GIRDER	8
4	UNDERSIDE OF DECK	2
5	GIRDER BEARING	3
6	BOT. OF GIRDER	2
7	BOT. OF GIRDER	2
8	GIRDER BEARING	1
9	BOT. OF GIRDER & INT. DIAPHRAGM	12
10	BOT. OF GIRDER & INT. DIAPHRAGM	6
11	CORNER OF GIRDER	3
12	SIDE OF GIRDER	3
13	GIRDER BEARING	3
14	GIRDER BEARING	4
15	SIDE OF GIRDER	5
16	UNDERSIDE OF DECK	3
17	UNDERSIDE OF DECK	2
18	UNDERSIDE OF DECK	2
19	SIDE OF SIDEWALK BRACE	2
20	BOT. OF GIRDER	16
21	BOT. & SIDE OF GIRDER @ BEARING	12
22	MISC. SPALLS ON UNDERSIDE OF DECK	20
TOTAL SHOTCRETE REPAIR AREA		114

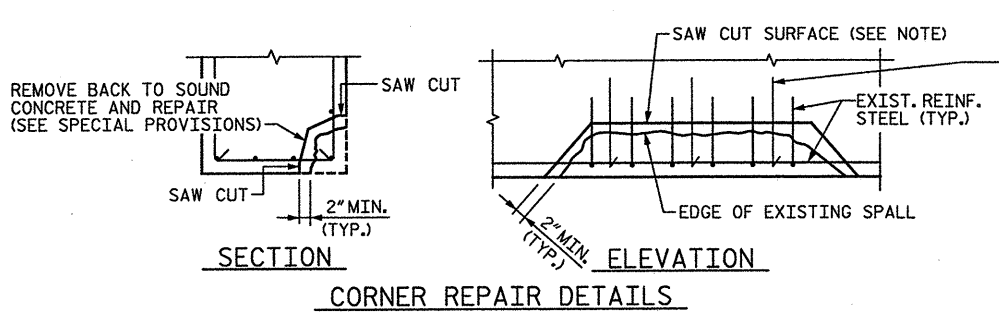
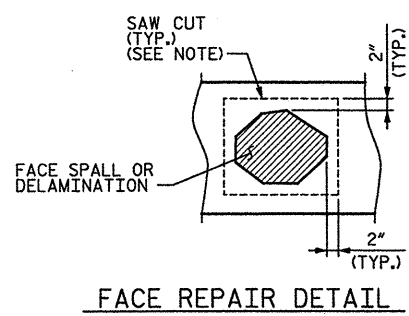
ABUTMENT 1 BENT 1 BENT 2 BENT 3 ABUTMENT 2

PLAN OF DECK

ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF THE DECK

NOTES:

- CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
- SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
- THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTOR'S OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
- SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE. BUILT OUT SECTIONS WILL NOT BE USED IF THEY INFRINGE UPON THE MINIMUM VERTICAL CLEARANCE OVER TRAVEL LANES.
- HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
- OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF THREE BARS OF REINFORCING STEEL.
- SEE SHEET 2 OF 5 FOR ADDITIONAL NOTES.



PROPOSED ADHESIVELY ANCHORED #5 DOWEL (TYP.) CENTERED BETWEEN EXISTING STIRRUPS WITH 9" MIN. EMBEDMENT. TO BE USED FOR OVERHEAD APPLICATIONS OR WHERE EXISTING REINFORCING STEEL IS HEAVILY DETERIORATED.

TYPICAL SHOTCRETE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 178
 REHAB. OF BRIDGE NO. 178 SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 SHOTCRETE REPAIRS**

BRIDGE ON BROAD ST.
 OVER I-40 BUSINESS

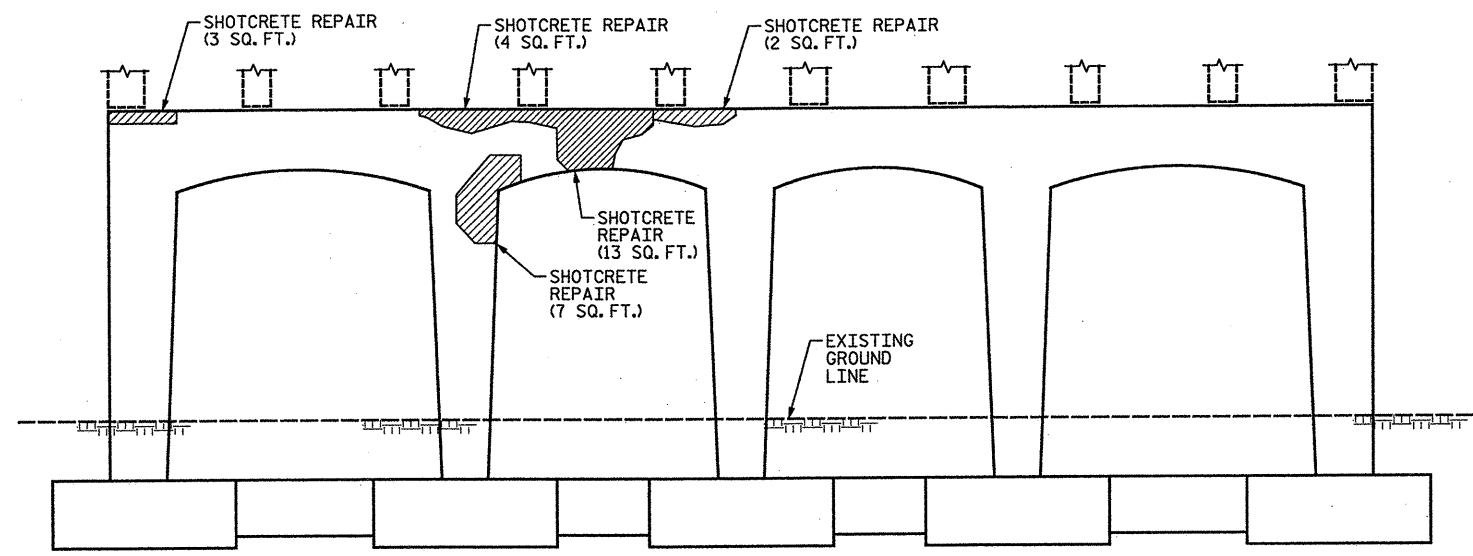


DRAWN BY : PWP DATE : 11-11
 CHECKED BY : PEK DATE : 12-11

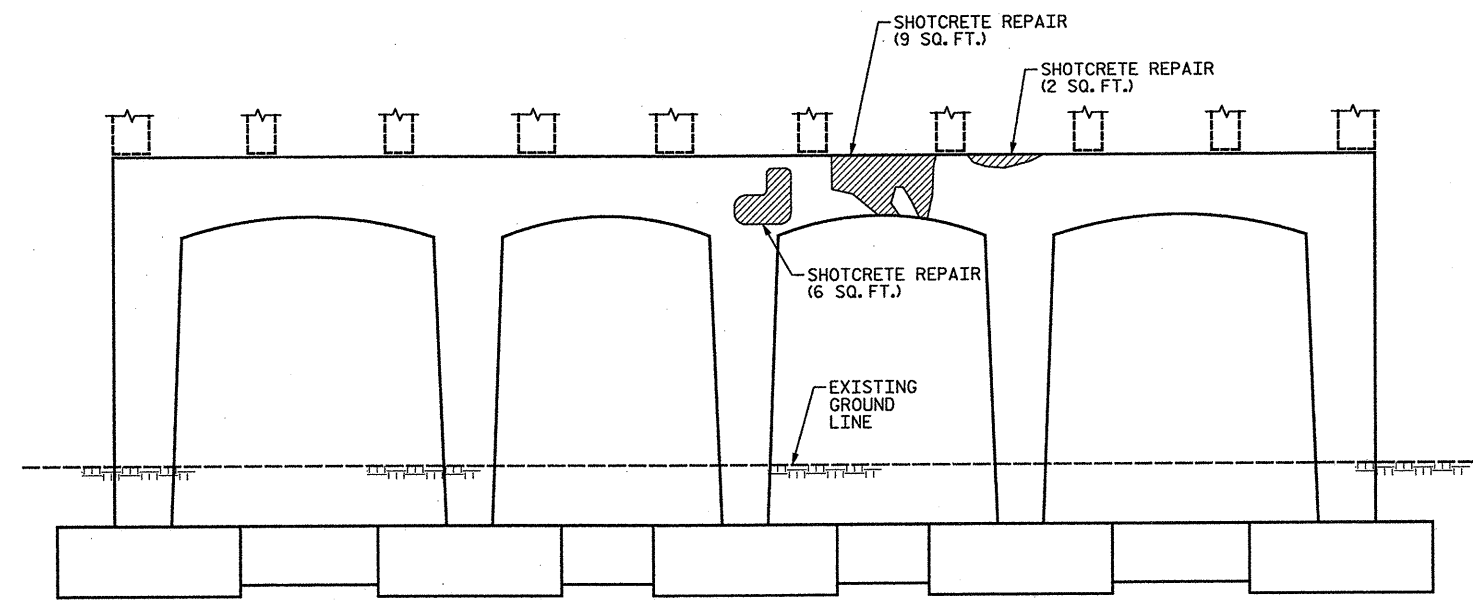
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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			S-47

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ELEVATION OF BENT 1 LOOKING NORTH
SOUTH FACE
(NOTE: NO REPAIRS ON NORTH FACE.)



ELEVATION OF BENT 2 LOOKING SOUTH
NORTH FACE
(NOTE: NO REPAIRS ON SOUTH FACE.)

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
3. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTOR'S OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
4. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
5. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
6. SEE SHEET 2 OF 5 FOR ADDITIONAL NOTES.
7. SEE SHEET 3 OF 5 FOR TYPICAL SHOTCRETE REPAIR DETAILS.

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
 BRIDGE NO.: 178
 REHAB. OF BRIDGE NO. 178 SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SHOTCRETE REPAIR
 DETAILS AT
 BENTS 1 & 2
 BRIDGE ON BROAD ST.
 OVER I-40 BUSINESS**

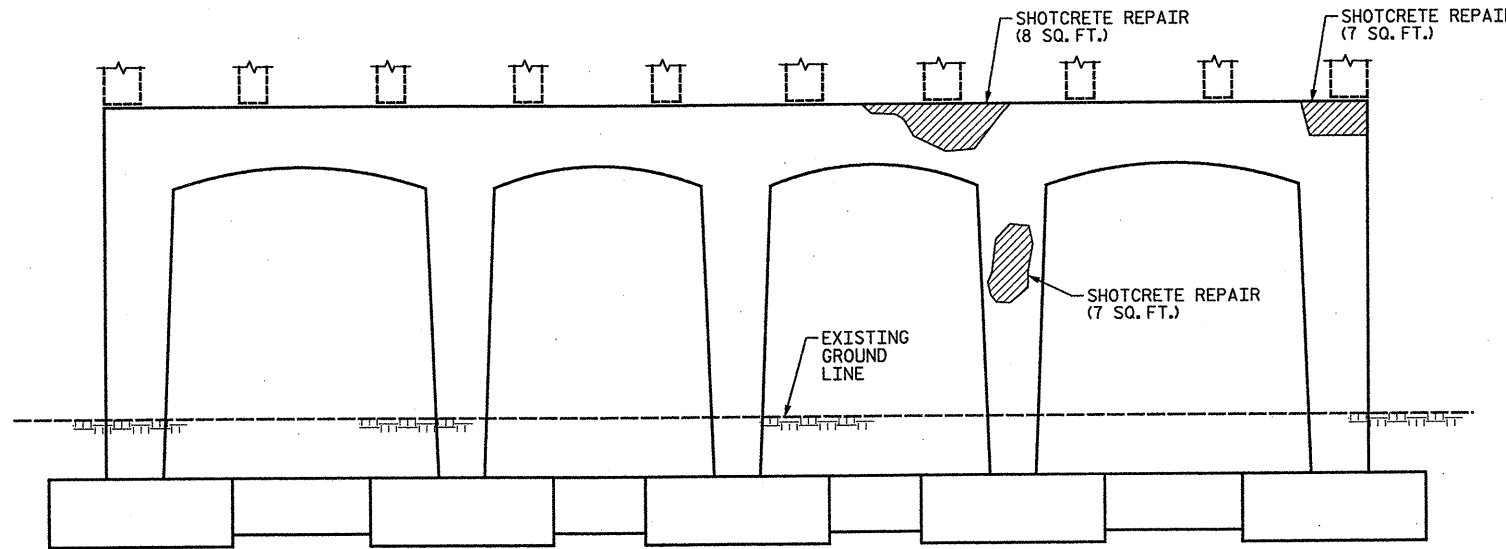


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			S-47

NOTE:
 SEE SHEET 2 OF 5 AND SHEET 3 OF 5 FOR ADDITIONAL NOTES
 AND DETAILS.
 SEE SHEET 3 OF 5 FOR TYPICAL SHOTCRETE REPAIR DETAILS.



ELEVATION OF BENT 3 LOOKING SOUTH
 NORTH FACE
 (NOTE: NO REPAIRS TO SOUTH FACE)

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 1/11/2012

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 178
 REHAB. OF BRIDGE NO. 178 SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SHOTCRETE REPAIR
 DETAILS AT BENT 3

BRIDGE ON BROAD ST.
 OVER I-40 BUSINESS



DRAWN BY : PWP DATE : 11-11
 CHECKED BY : PEK DATE : 12-11

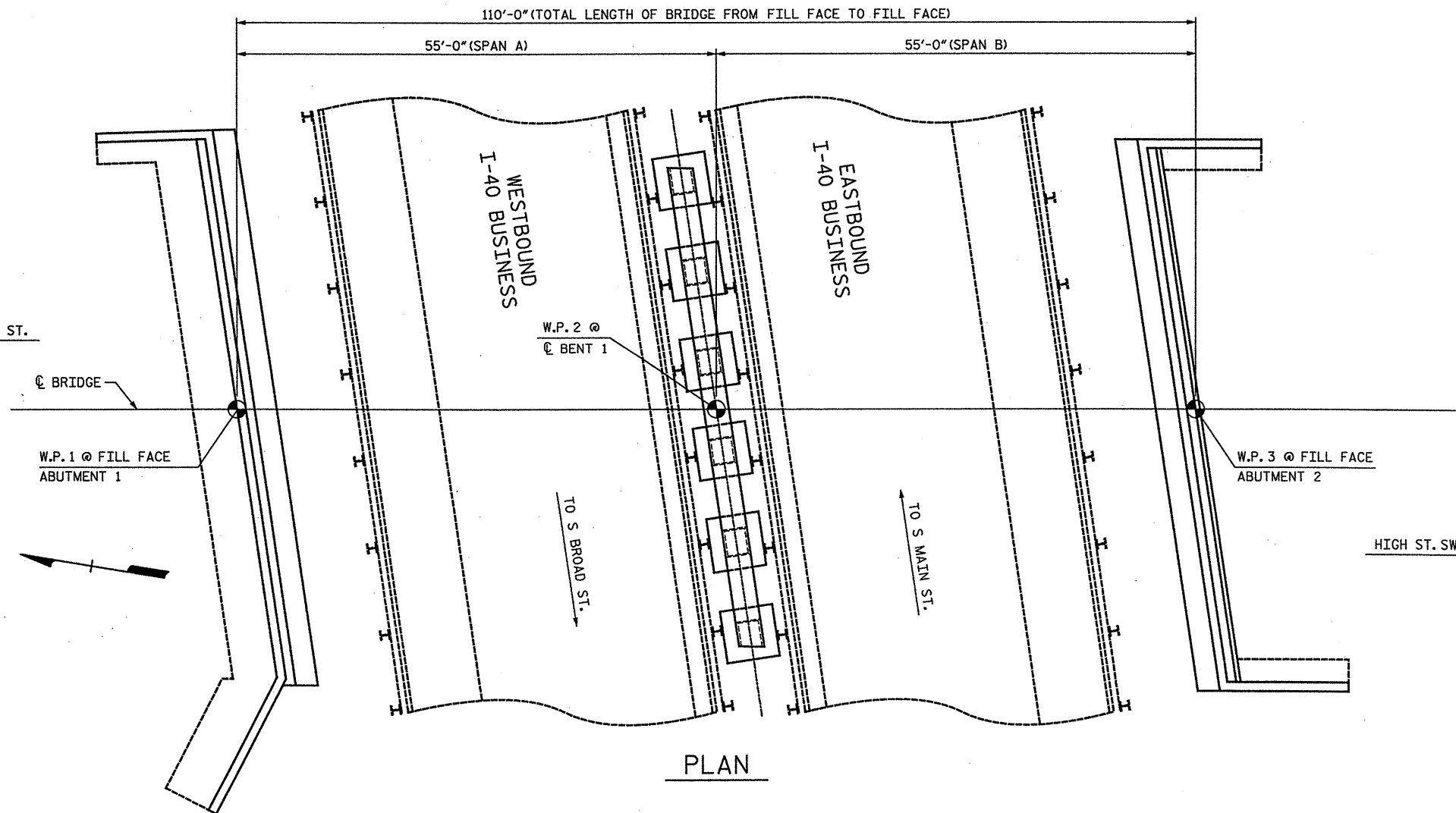
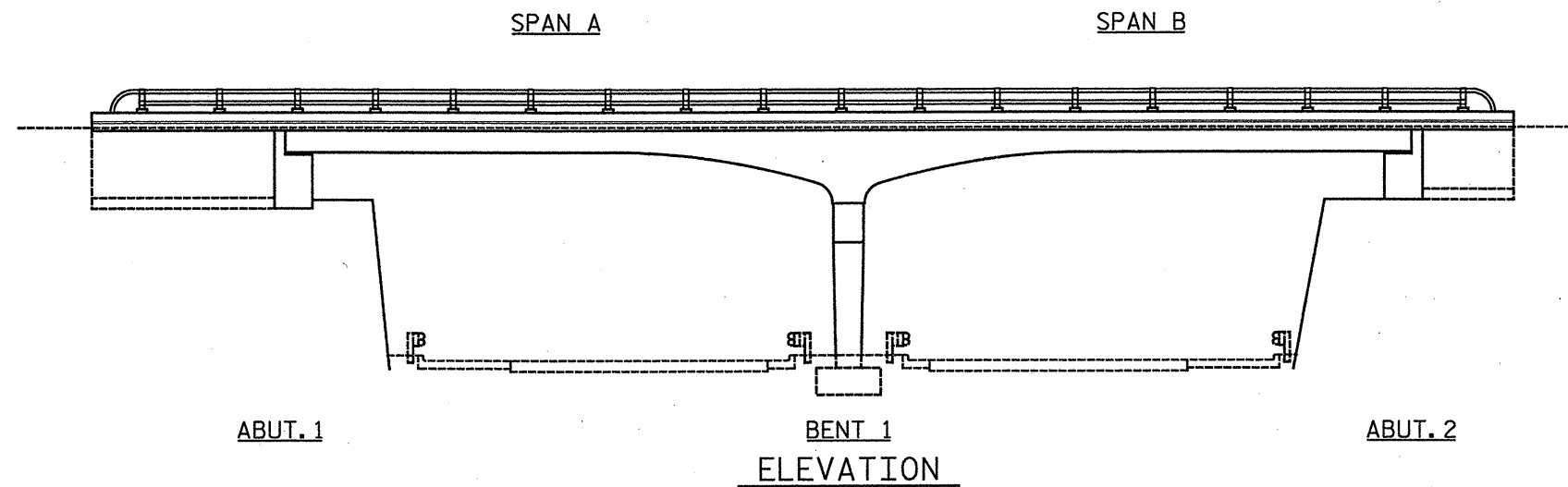
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 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS S-47
2			4			

GENERAL NOTES:

FOR ADDITIONAL NOTES, SEE SHEET S-2.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.



BILL OF MATERIAL		
	* REINFORCING STEEL	SHOTCRETE REPAIRS
	LBS.	CU. FT.
SUPERSTRUCTURE	50	143
TOTAL	50	143

* REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT.

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

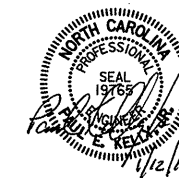
BRIDGE NO.: 291

REHAB. OF BRIDGE NO. 291 SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN AND ELEVATION

SPRUCE STREET OVER
I-40 BUSINESS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			S-47

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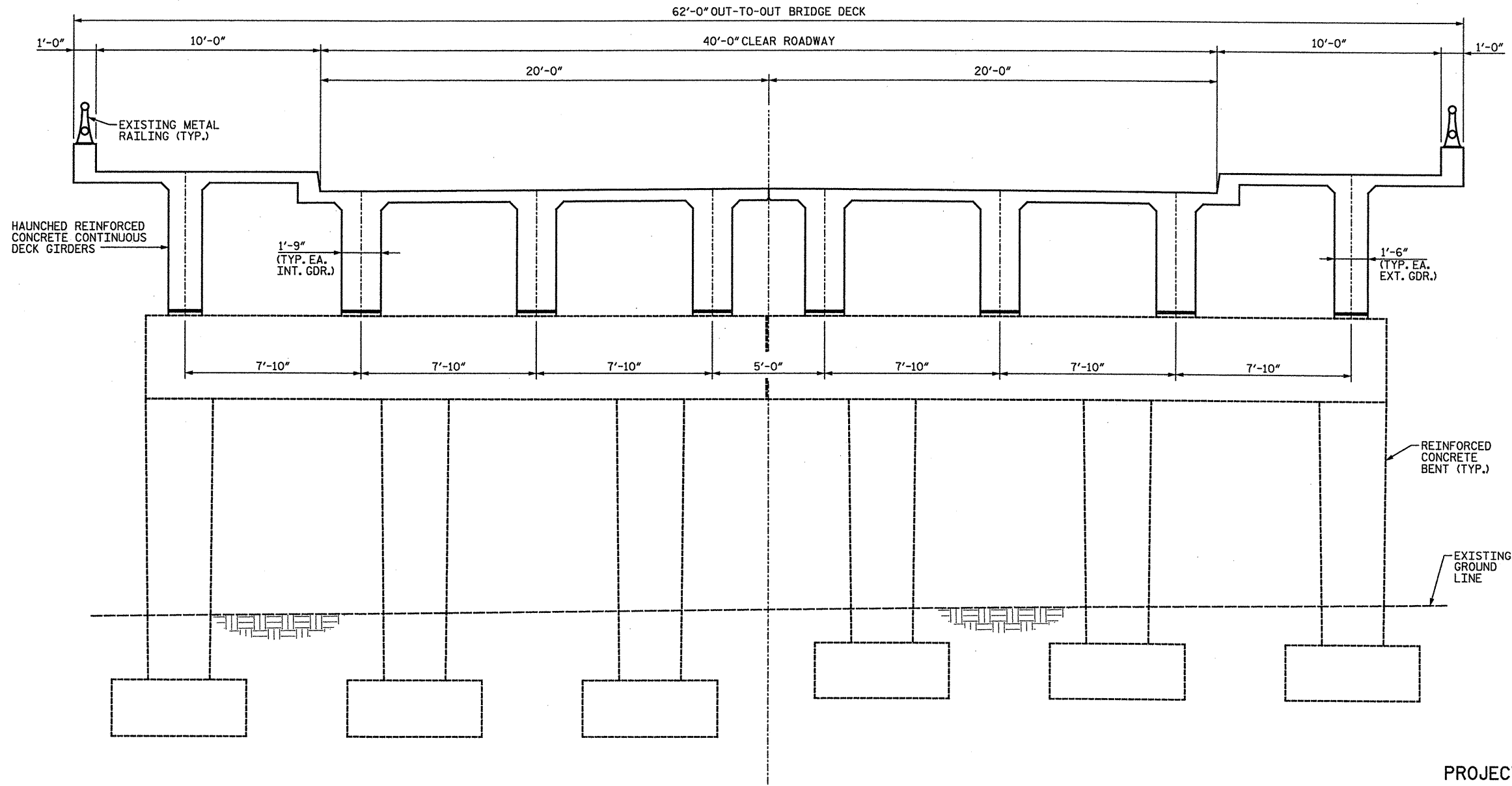
DRAWN BY : JDE DATE : 10-11
CHECKED BY : RMC DATE : 12-11

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1/11/2012



TYPICAL SECTION THROUGH BRIDGE

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 291
 REHAB. OF BRIDGE NO. 291 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 SPRUCE STREET OVER
 I-40 BUSINESS



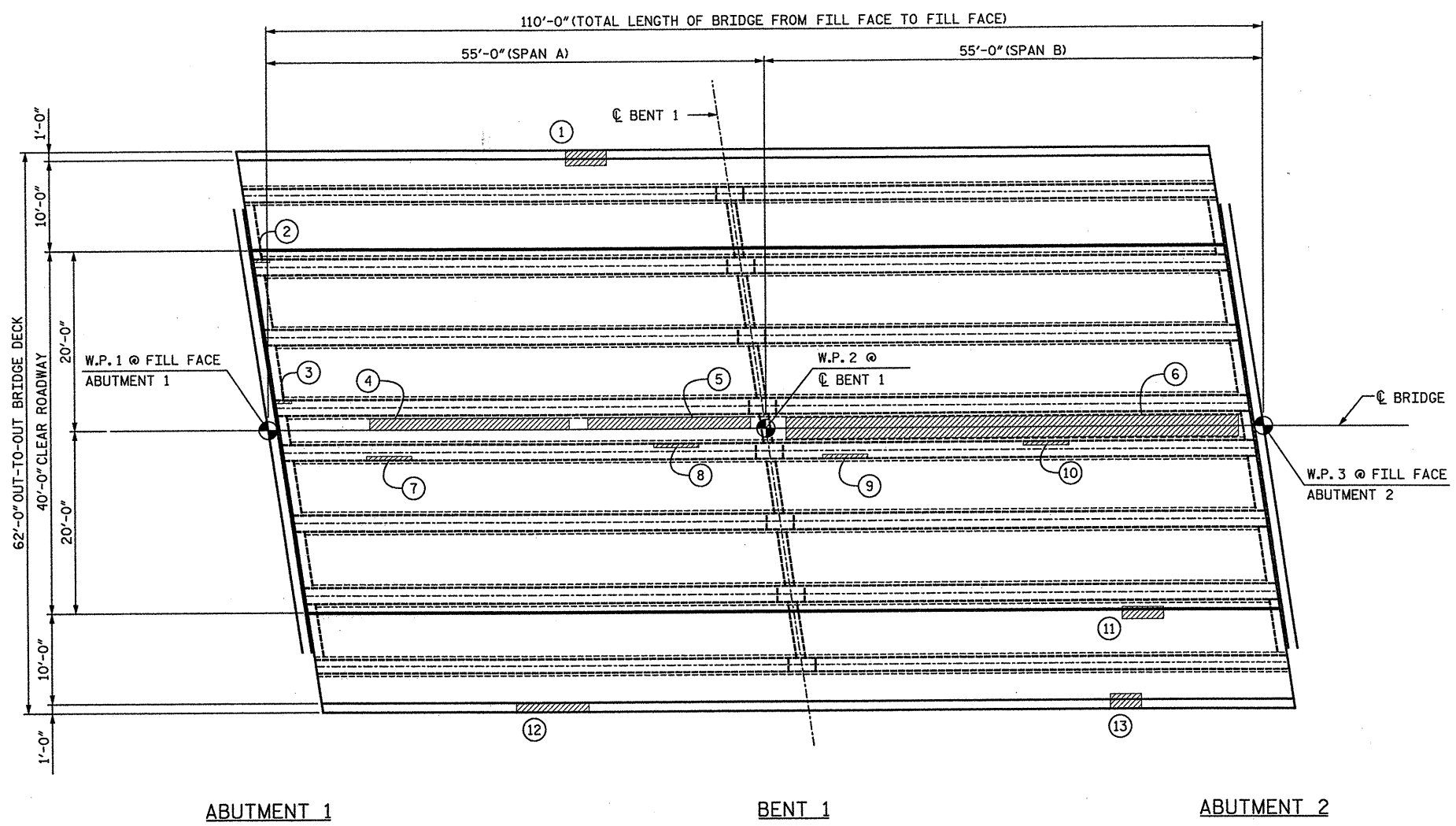
DRAWN BY : TRL DATE : 11-11
 CHECKED BY : RMC DATE : 12-11

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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			S-47

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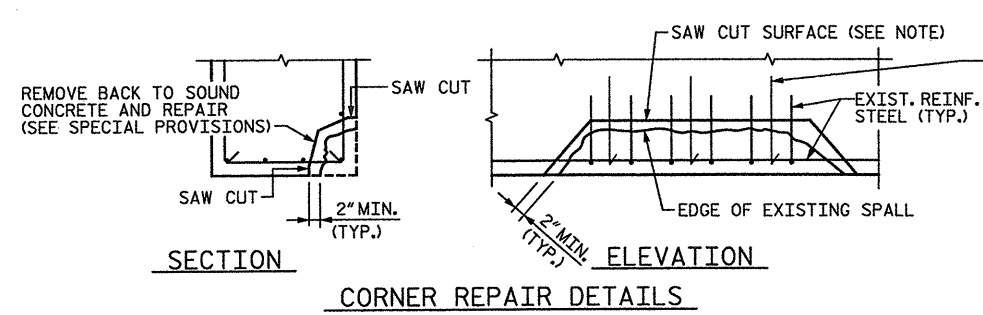
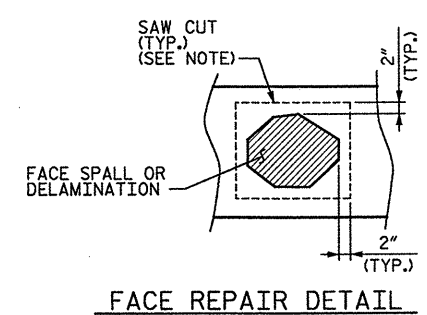
SHOTCRETE REPAIR AREAS FOR SUPERSTRUCTURE		
NO.	DESCRIPTION	QTY. (SQ. FT.)
1	UNDERSIDE OF DECK	3
2	BOT. & SIDE OF GDR AT BRG.	3
3	BOT. & SIDE OF GDR AT BRG.	3
4	UNDERSIDE OF DECK	55
5	UNDERSIDE OF DECK	50
6	UNDERSIDE OF DECK	130
7	BOT. & SIDE OF GIRDER	8
8	SIDE OF GIRDER	5
9	BOT. & SIDE OF GIRDER	5
10	SIDE OF GIRDER	10
11	UNDERSIDE OF DECK	2
12	UNDERSIDE OF DECK	8
13	UNDERSIDE OF DECK	4
TOTAL SHOTCRETE REPAIR AREA		286



NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS DETAILED AS EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A SHOTCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTORS OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
5. SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
6. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
7. OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF 3 BARS OF REINFORCING STEEL.
8. SEE SHEET 1 OF 3 FOR ADDITIONAL NOTES.

PLAN OF DECK
ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF THE DECK



PROPOSED ADHESIVELY ANCHORED #5 DOWEL (TYP.) CENTERED BETWEEN EXISTING STIRRUPS WITH 9" MIN. EMBEDMENT. TO BE USED FOR OVERHEAD APPLICATIONS OR WHERE EXISTING REINFORCING STEEL IS HEAVILY DETERIORATED.

TYPICAL SHOTCRETE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 291
 REHAB. OF BRIDGE NO. 291 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 DECK REPAIRS**
 SPRUCE STREET OVER
 I-40 BUSINESS



DRAWN BY: JDE DATE: 10-11
 CHECKED BY: RMC DATE: 12-11

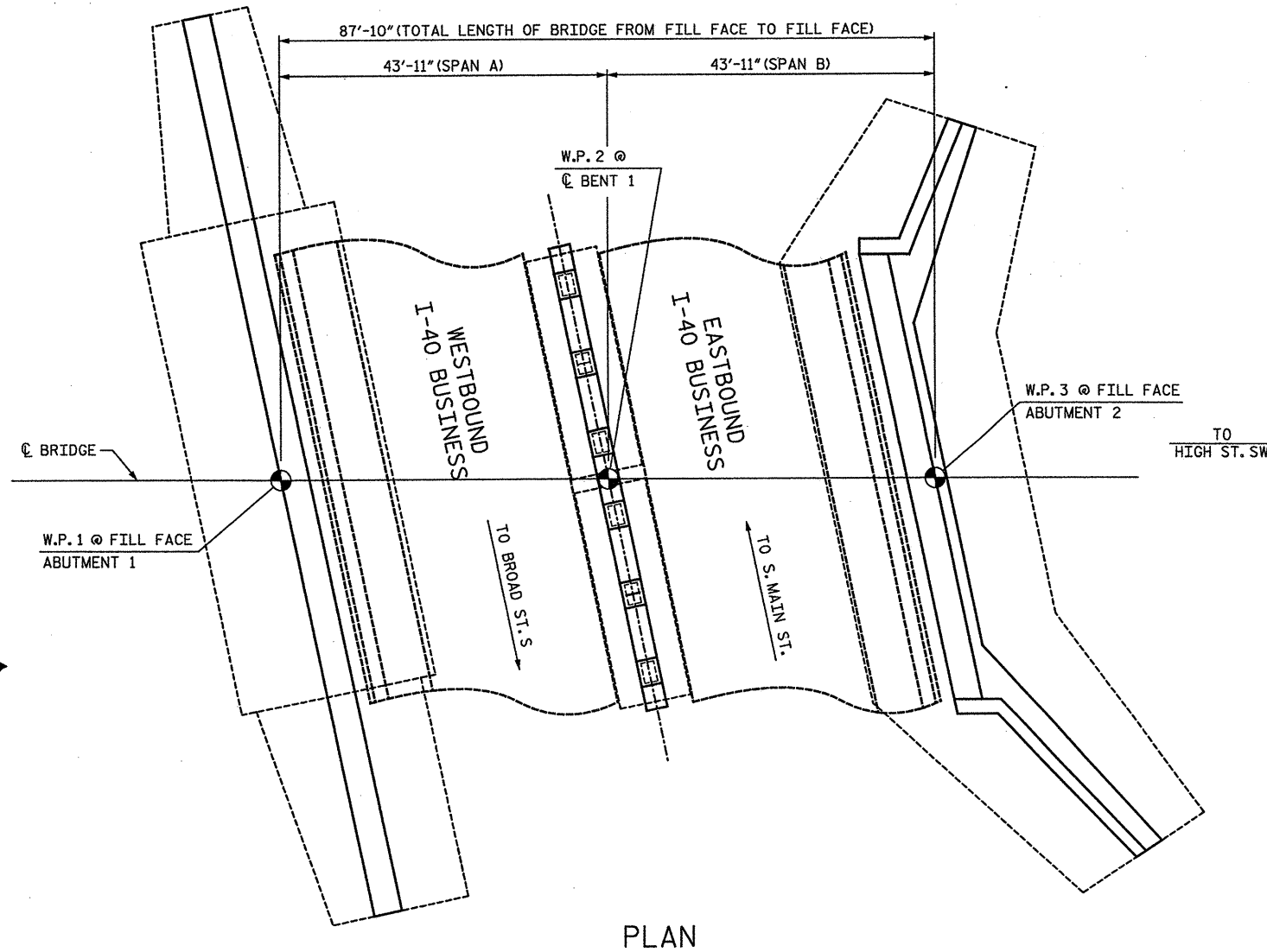
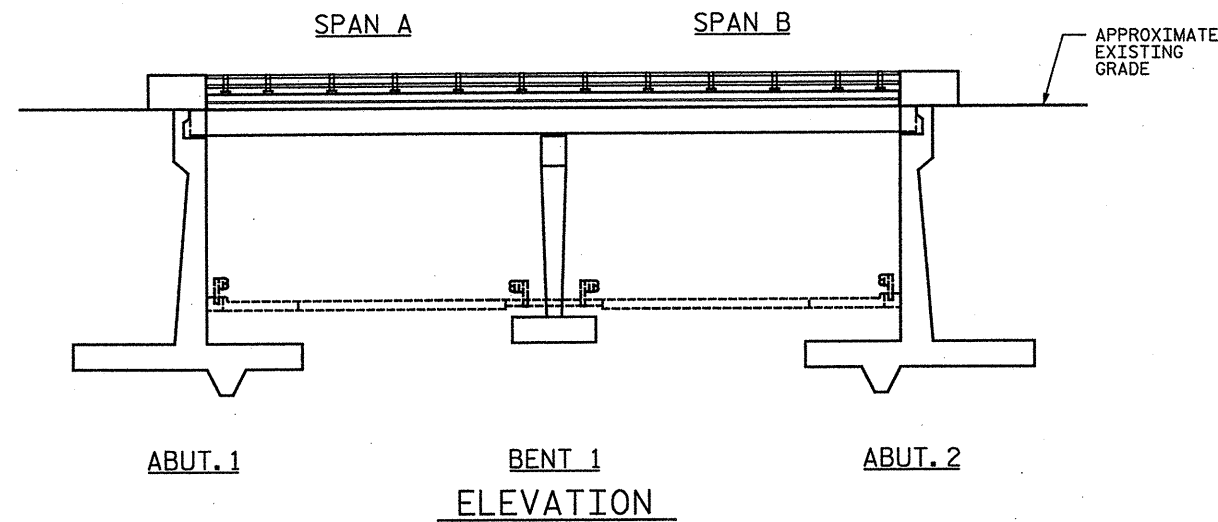
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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-24
2			4			TOTAL SHEETS S-47

GENERAL NOTES:

FOR ADDITIONAL NOTES, SEE SHEET S-2.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.



BILL OF MATERIAL			
	* REINFORCING STEEL	SHOTCRETE REPAIRS	DECK REPAIRS
	LBS.	CU. FT.	CU. YDS.
SUPERSTRUCTURE		20	4.5
ABUTMENT 1	50	7	
BENT 1	50	5	
ABUTMENT 2			
TOTAL	100	32	4.5

*REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT.

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

BRIDGE NO.: 293

REHAB. OF BRIDGE NO. 293 SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN AND ELEVATION

MARSHALL STREET OVER
I-40 BUSINESS



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Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			S-47

DRAWN BY : TRL DATE : 11-11
CHECKED BY : JAS DATE : 12-11

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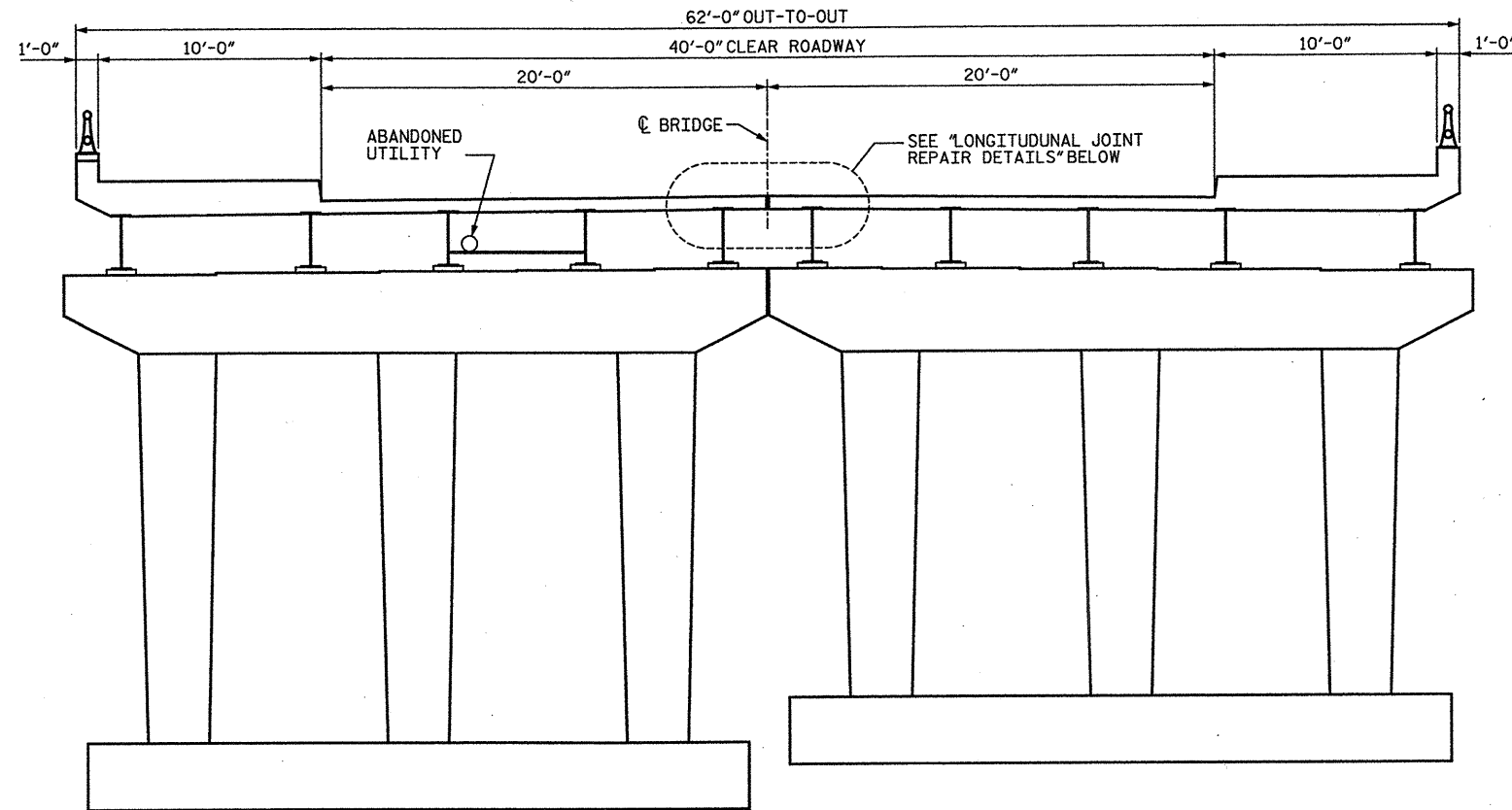
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1/11/2012

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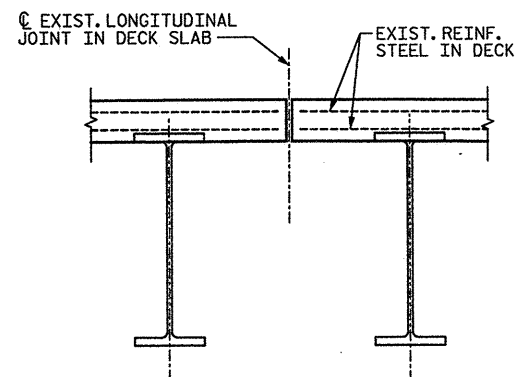
2/16/2012



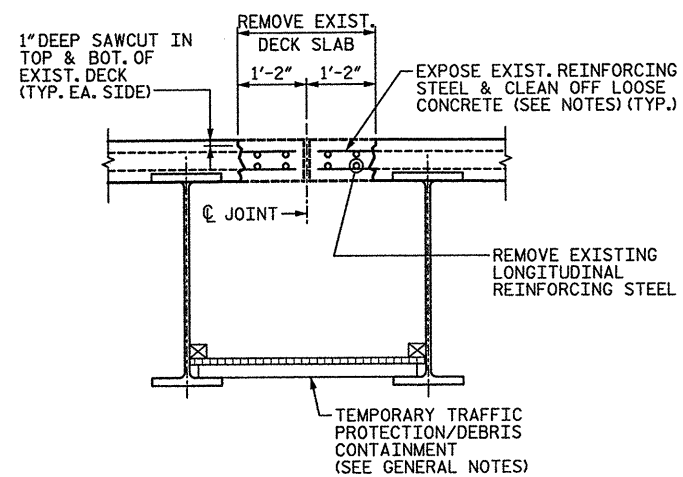
TYPICAL SECTION

LONGITUDINAL JOINT REPAIR BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A	200	#5	STR.	2'-0"	417
B	16	#4	STR.	42'-5"	453
TOTAL REINFORCING STEEL (LBS.)					870
CLASS AA CONCRETE (C.Y.)					4.5

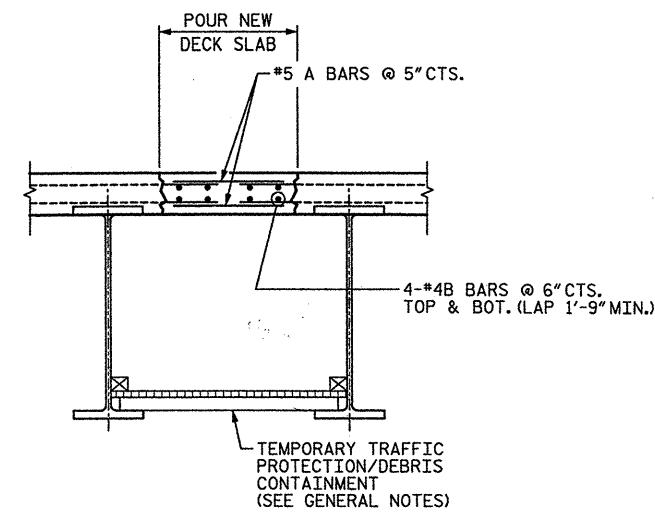
NOTE: LONGITUDINAL JOINT REPAIR TO BE PAID FOR AS CU. YDS. OF DECK REPAIR (CLASS AA CONCRETE). REINFORCING STEEL QUANTITY FOR INFORMATION ONLY.



EXISTING CONDITION



DECK SLAB REMOVAL



PROPOSED CLOSURE POUR DETAIL

LONGITUDINAL JOINT REPAIR DETAILS

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 293
 REHAB. OF BRIDGE NO. 293 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 AND DETAILS

MARSHALL STREET OVER
 I-40 BUSINESS

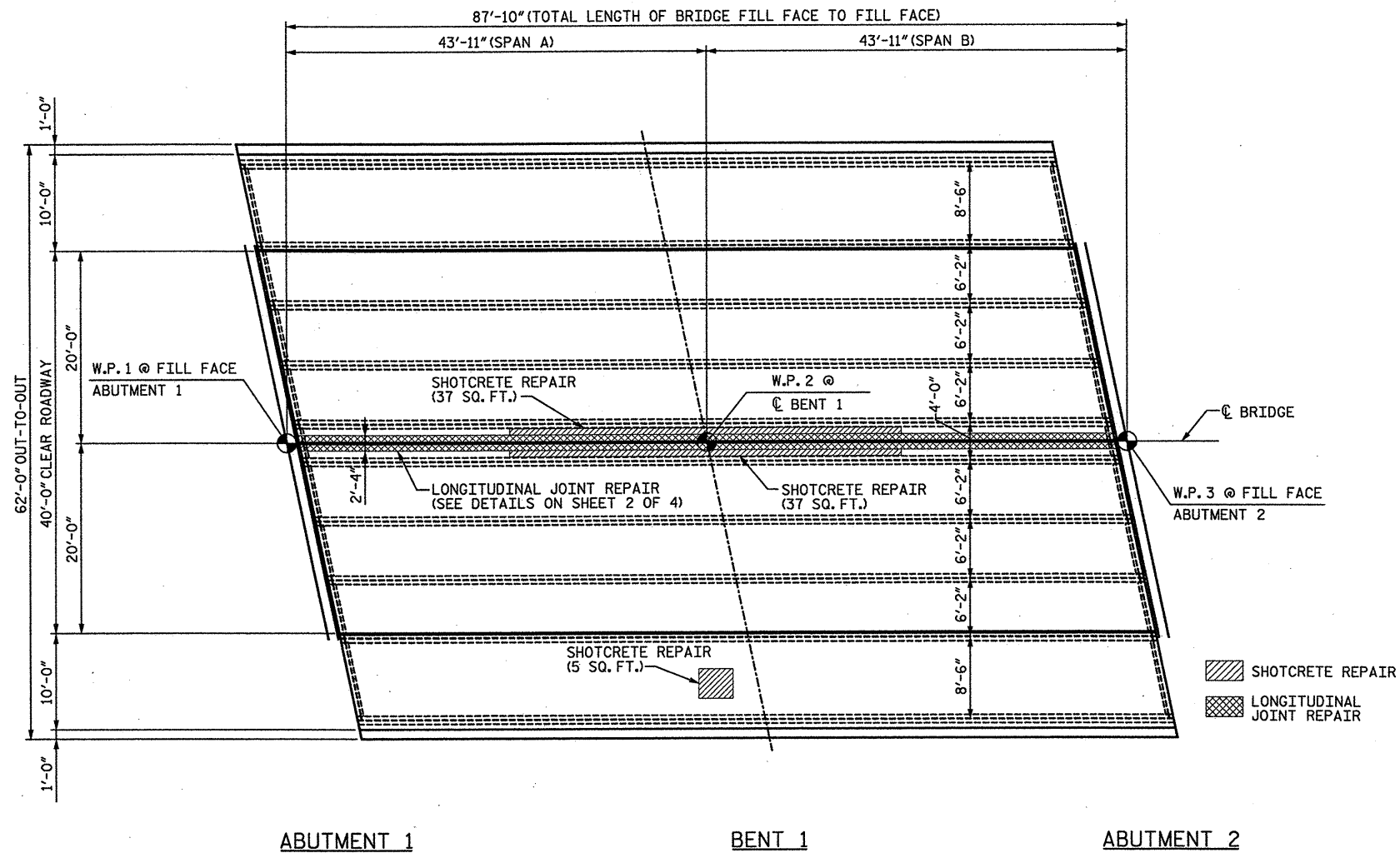


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 CHECKED BY : JAS DATE : 12-11

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 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			S-47

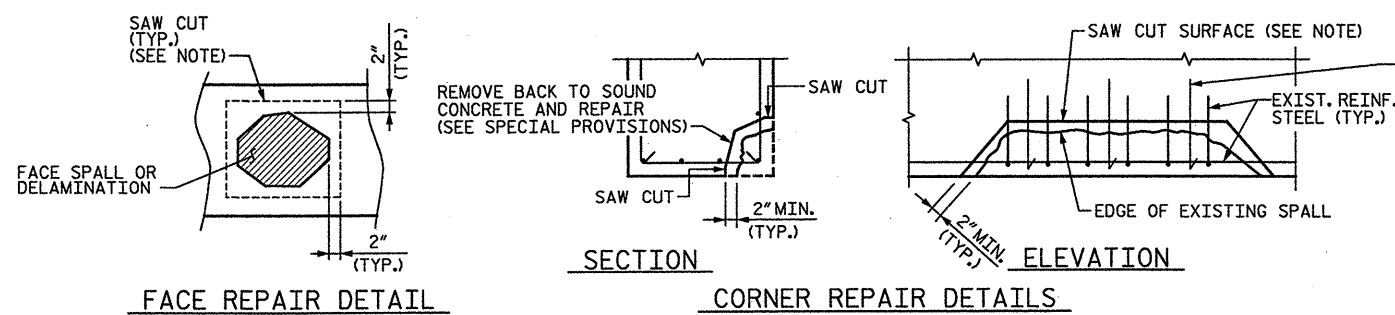
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1/12/2012



PLAN OF DECK
ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF DECK

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
3. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTORS OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
4. SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
5. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
6. OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF THREE BARS OF REINFORCING STEEL.
7. SEE SHEET 1 OF 4 FOR ADDITIONAL NOTES.



TYPICAL SHOTCRETE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. **17BP.9.H.1**
FORSYTH COUNTY
 BRIDGE NO.: **293**
 REHAB. OF BRIDGE NO. 293 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 DECK REPAIRS**

MARSHALL STREET OVER
 I-40 BUSINESS



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 CHECKED BY: **JAS** DATE: **12-11**

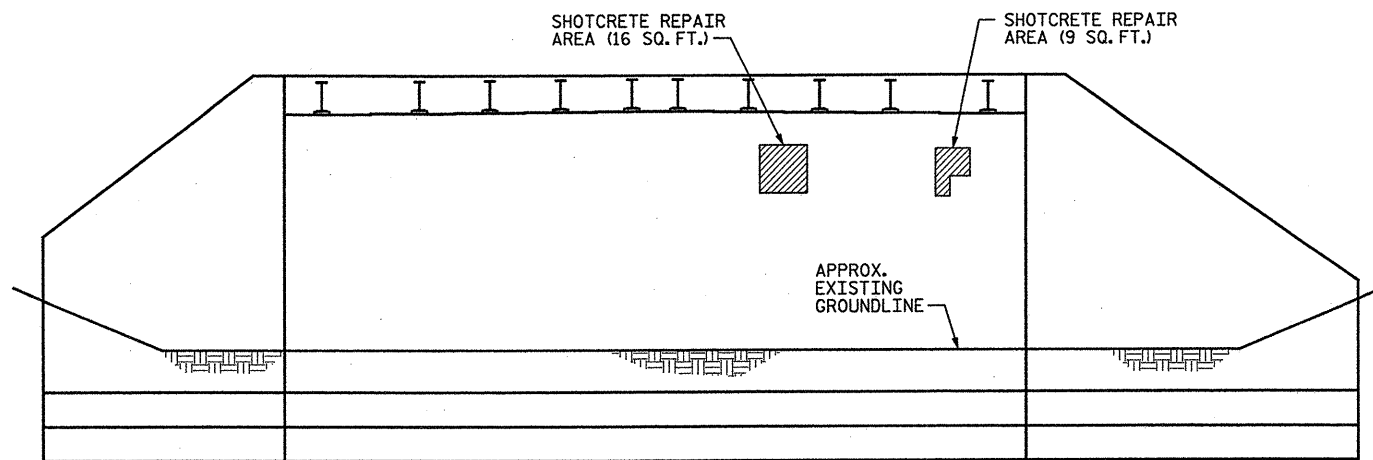
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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
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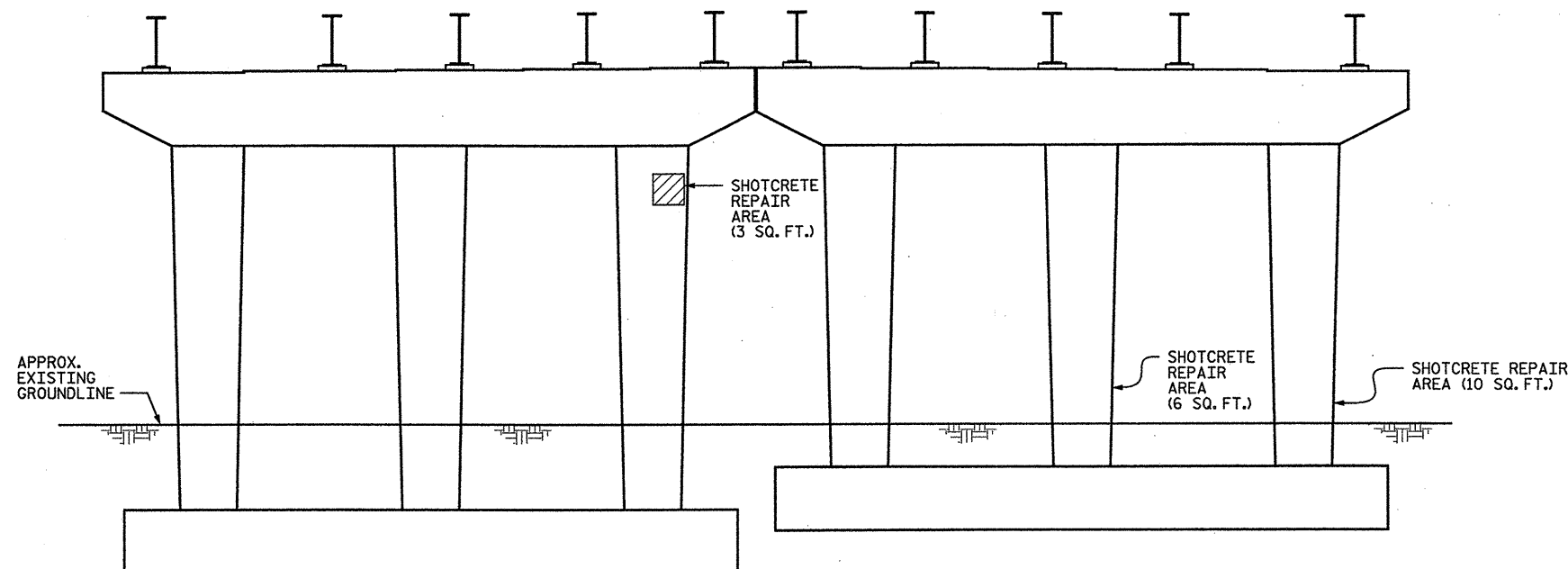
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 SHEET NO.: **S-27**
 TOTAL SHEETS: **S-47**

NOTES:

1. FOR SHOTCRETE REPAIR NOTES AND DETAILS, SEE SHEET 3 OF 4.
2. SEE SHEET 1 OF 4 FOR ADDITIONAL NOTES.



ELEVATION OF ABUTMENT 1



ELEVATION OF BENT 1 - LOOKING SOUTH
NORTH FACE

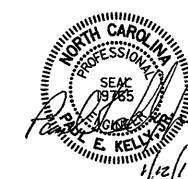
PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 293

REHAB. OF BRIDGE NO. 293 SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIRS**

MARSHALL STREET OVER
 I-40 BUSINESS



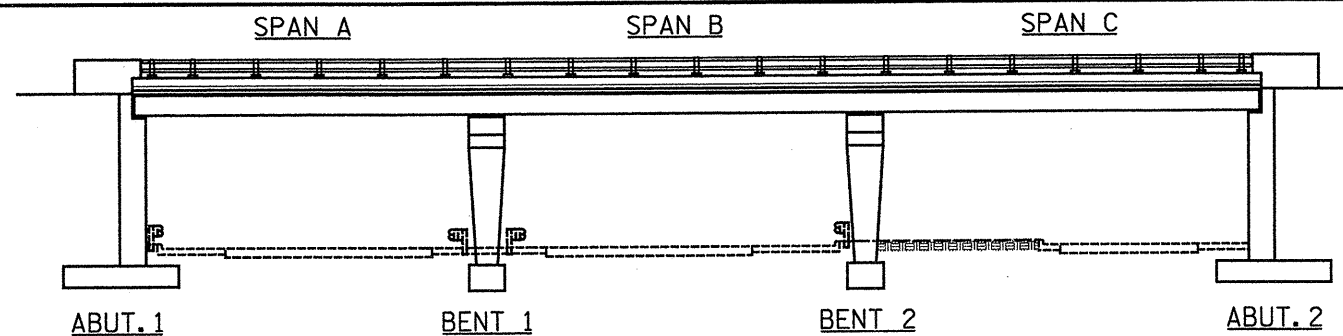
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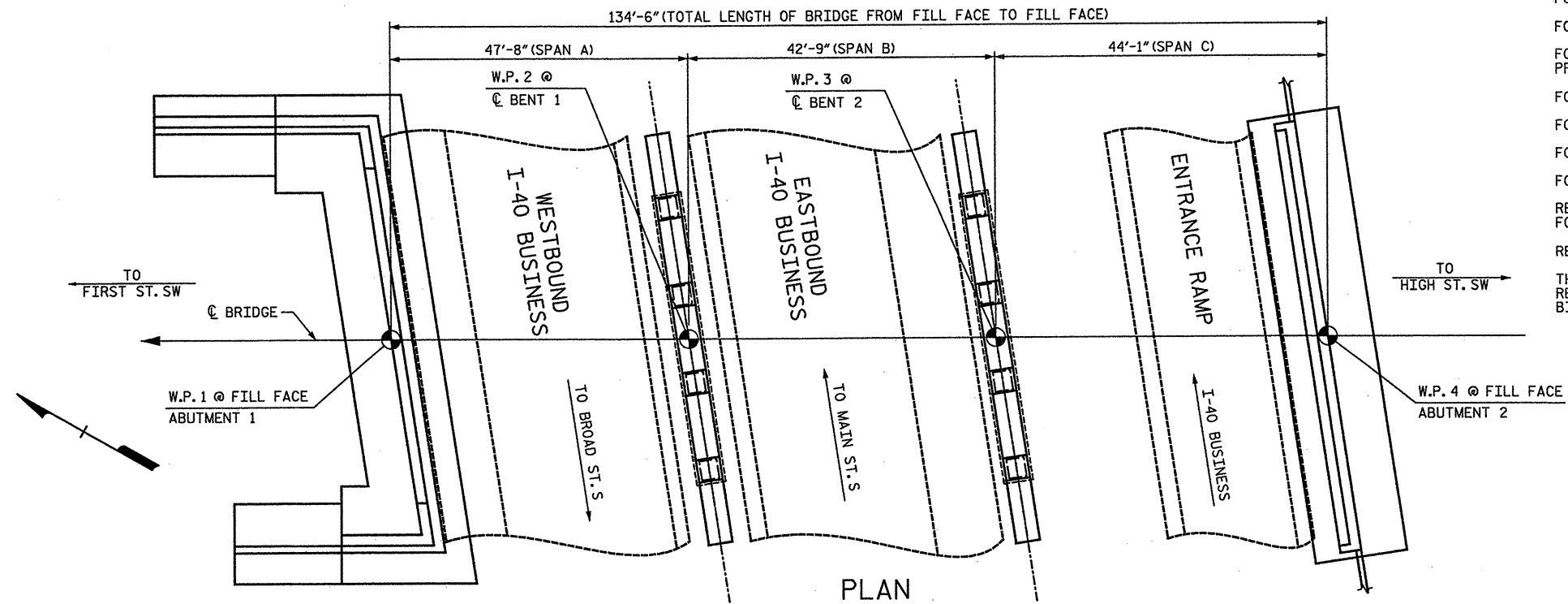
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TOTAL SHEETS: 5-47

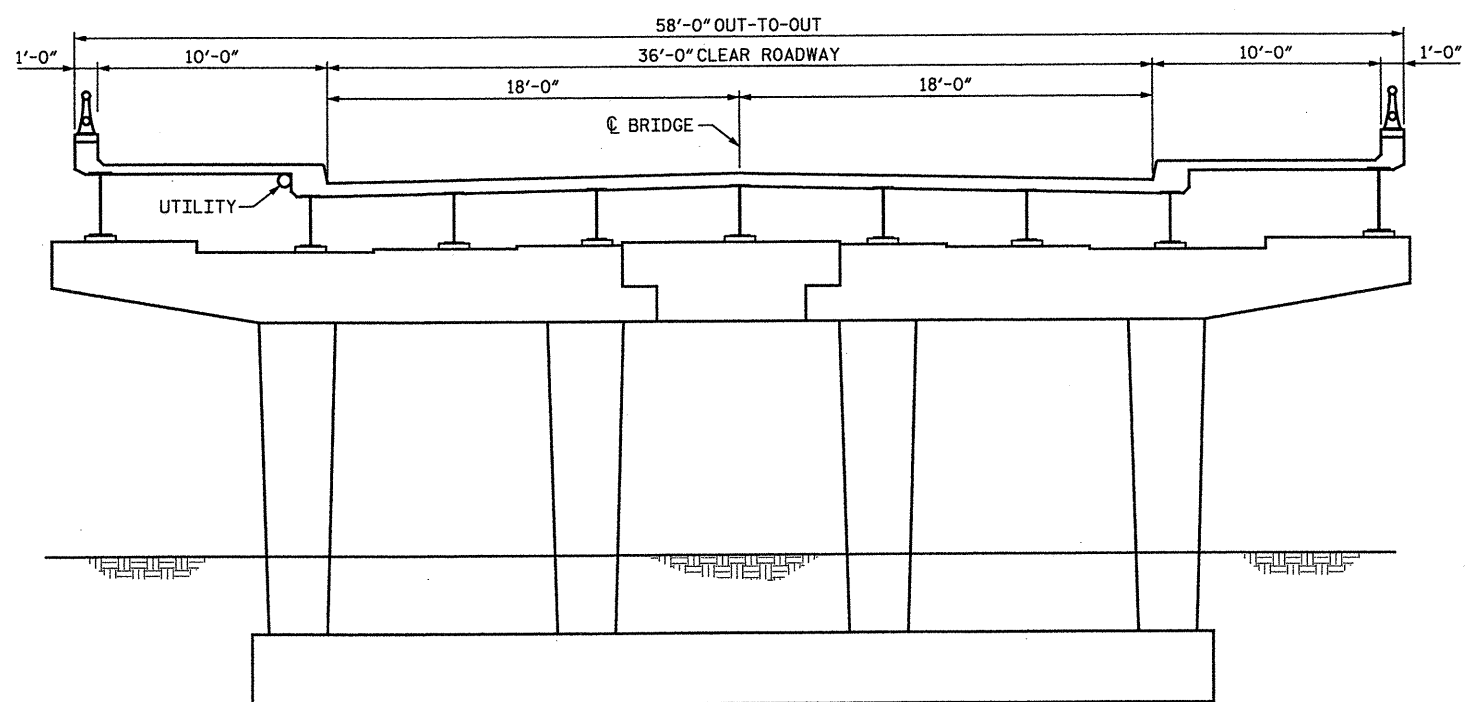
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ELEVATION



PLAN



TYPICAL SECTION

GENERAL NOTES:

EXISTING BRIDGE AND REPAIR DETAILS INDICATED ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE, REPAIR DETAILS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

WORK ON BRIDGES SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION ACCESS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS.

DIMENSIONS IN THESE PLANS ARE BASED ON ORIGINAL PLANS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

ALL VISUAL AND NON-DESTRUCTIVE TESTING WILL BE PERFORMED BY NCDOT.

FOR UNDER STRUCTURE WORK PLATFORM, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

REPAIR OF DAMAGED REINFORCING STEEL DUE TO CONTRACTORS OPERATIONS SHALL BE PAID FOR BY THE CONTRACTOR AT NO EXPENSE TO THE DEPARTMENT.

REINFORCING STEEL SHALL BE GRADE 60.

THE COST OF LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY FOR REMOVAL AND DISPOSAL OF EXISTING STRUCTURE COMPONENTS SHALL BE INCLUDED IN THE BID PRICE FOR THE VARIOUS CONTRACT PAY ITEMS.

BILL OF MATERIAL				
	*REINFORCING STEEL	SHOTCRETE REPAIRS	CONCRETE REPAIRS	EPOXY RESIN INJECTION
	LBS.	CU. FT.	CU. FT.	LIN. FT.
SUPERSTRUCTURE	50	155		
ABUTMENT 1	50	18		
BENT 1	50	37	32	13
BENT 2	50	10	18	
ABUTMENT 2	50	7		
TOTAL	250	227	50	13

*REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 305
 REHAB. OF BRIDGE NO. 305 SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN, ELEVATION AND
 TYPICAL SECTION
 CHERRY STREET OVER
 I-40 BUSINESS



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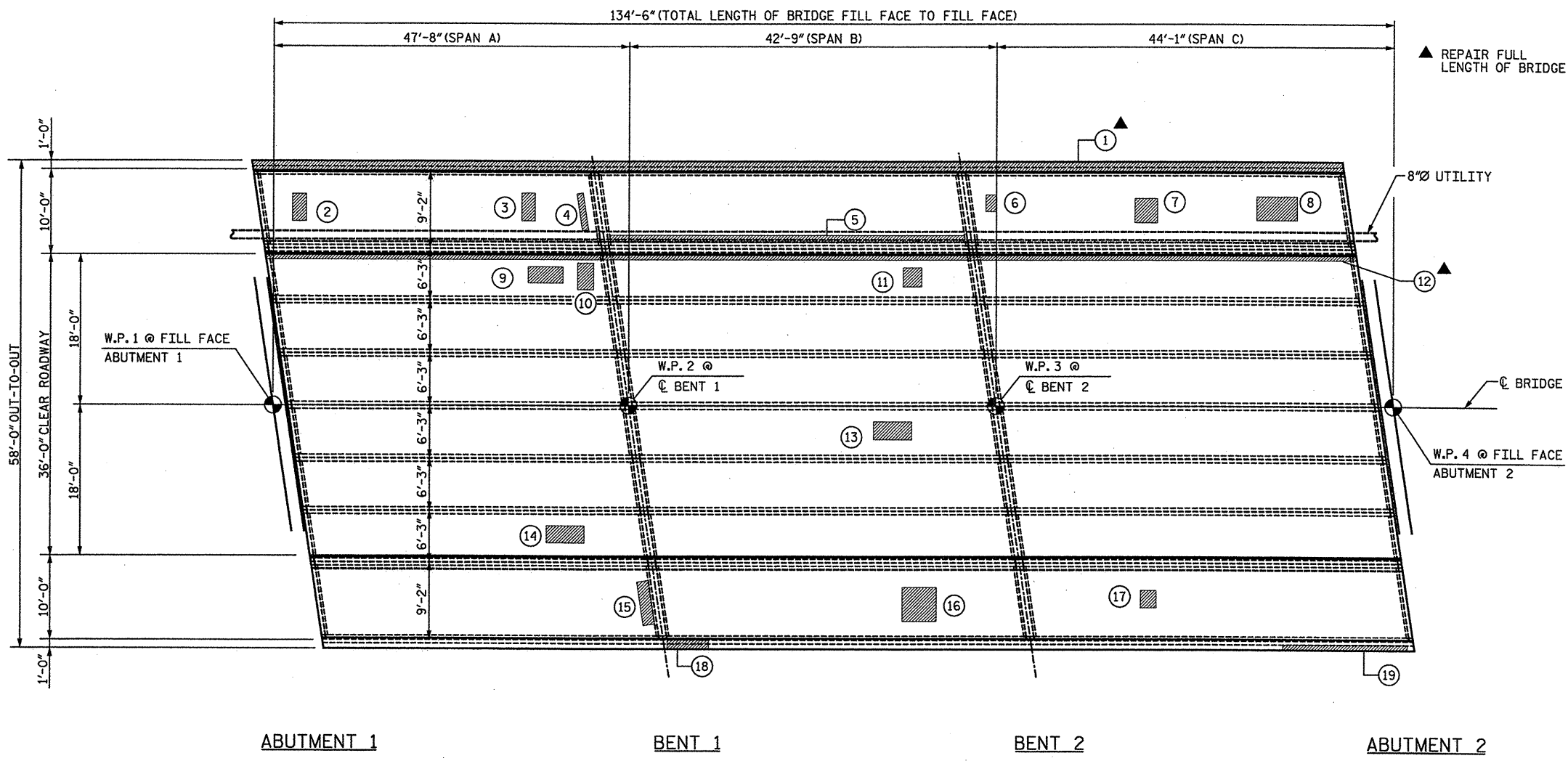
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			S-47

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 CHECKED BY : JAS DATE : 12-11

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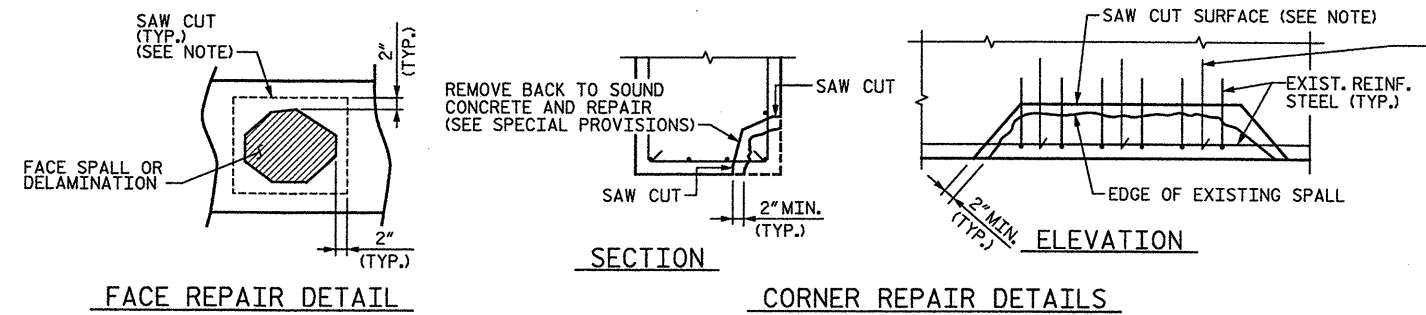
PLAN OF DECK

ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF DECK

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS DETAILED AS EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A SHOTCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTORS OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
5. SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
6. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
7. OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF 3 BARS OF REINFORCING STEEL.
8. SEE SHEET 1 OF 4 FOR ADDITIONAL NOTES.

SHOTCRETE REPAIR AREAS FOR SUPERSTRUCTURE		
NO.	DESCRIPTION	QTY. (SQ. FT.)
1	UNDERSIDE OF DECK (IN OVERHANG)	70
2	UNDERSIDE OF DECK	3
3	UNDERSIDE OF DECK	4
4	UNDERSIDE OF DECK	5
5	SIDE OF BUILD-UP	36
6	UNDERSIDE OF DECK	3
7	UNDERSIDE OF DECK	8
8	UNDERSIDE OF DECK	30
9	UNDERSIDE OF DECK	6
10	UNDERSIDE OF DECK	5
11	UNDERSIDE OF DECK	4
12	SIDE OF BUILD-UP (FULL LENGTH)	100
13	UNDERSIDE OF DECK	6
14	UNDERSIDE OF DECK	6
15	UNDERSIDE OF DECK	3
16	UNDERSIDE OF DECK	4
17	UNDERSIDE OF DECK	3
18	UNDERSIDE OF DECK	3
19	UNDERSIDE OF DECK	10
TOTAL SHOTCRETE REPAIR AREA		309



TYPICAL SHOTCRETE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 305
 REHAB. OF BRIDGE NO. 305 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE DECK REPAIRS

CHERRY STREET OVER I-40 BUSINESS



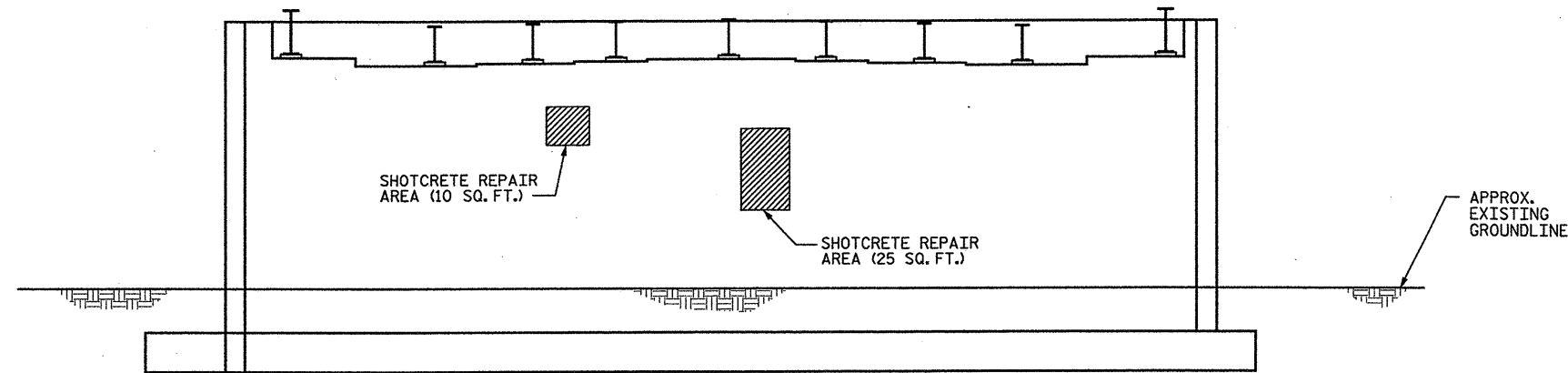
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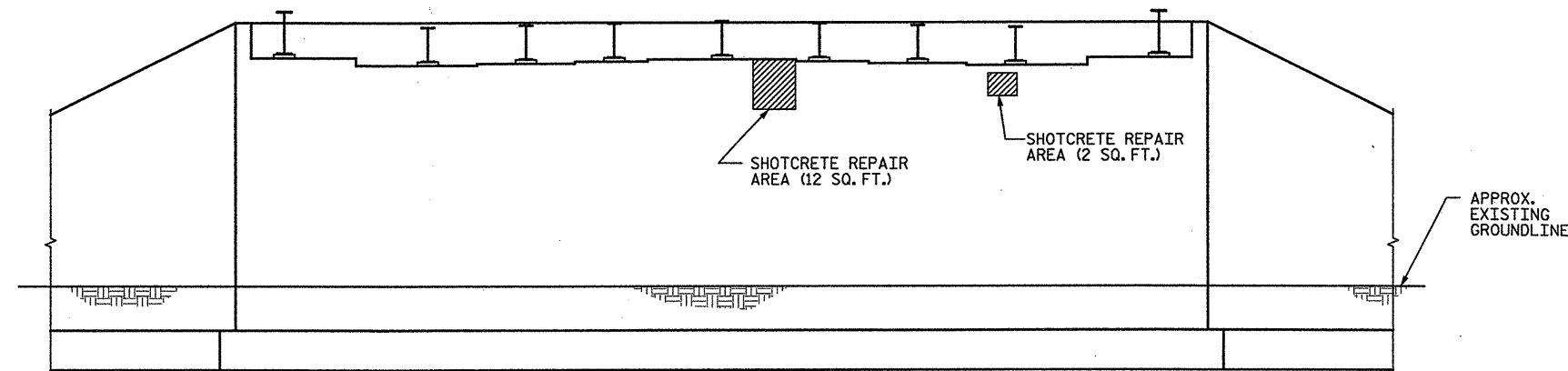
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-30
2			4			S-47

NOTES:

1. FOR SHOTCRETE REPAIR NOTES AND DETAILS, SEE SHEET 2 OF 4.
2. SEE SHEET 1 OF 4 FOR ADDITIONAL NOTES.



ELEVATION OF ABUTMENT 1



ELEVATION OF ABUTMENT 2

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 305

REHAB. OF BRIDGE NO. 305 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 ABUTMENT 1 AND 2
 REPAIRS**
 CHERRY STREET OVER
 I-40 BUSINESS



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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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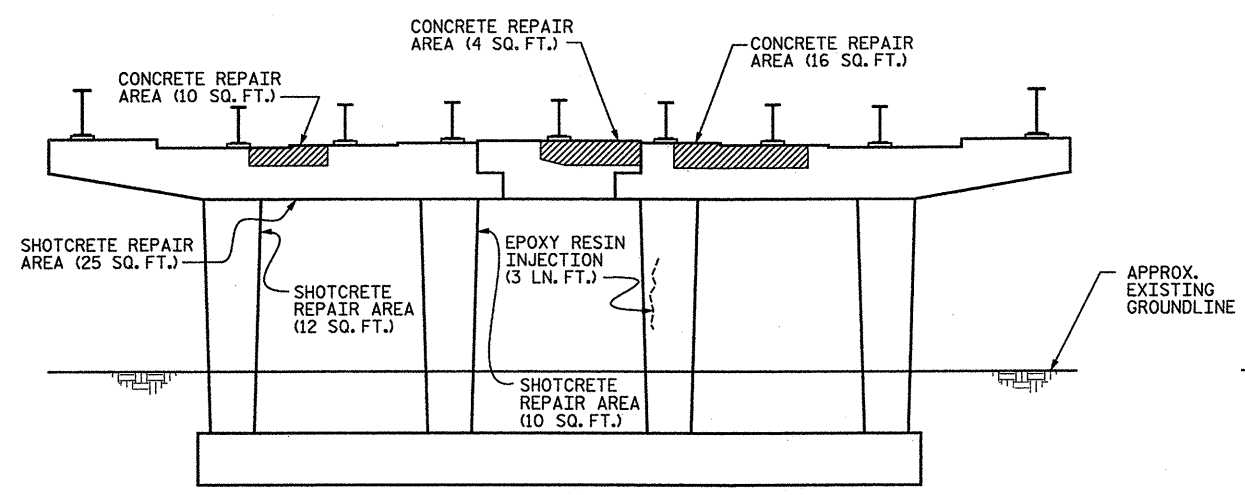
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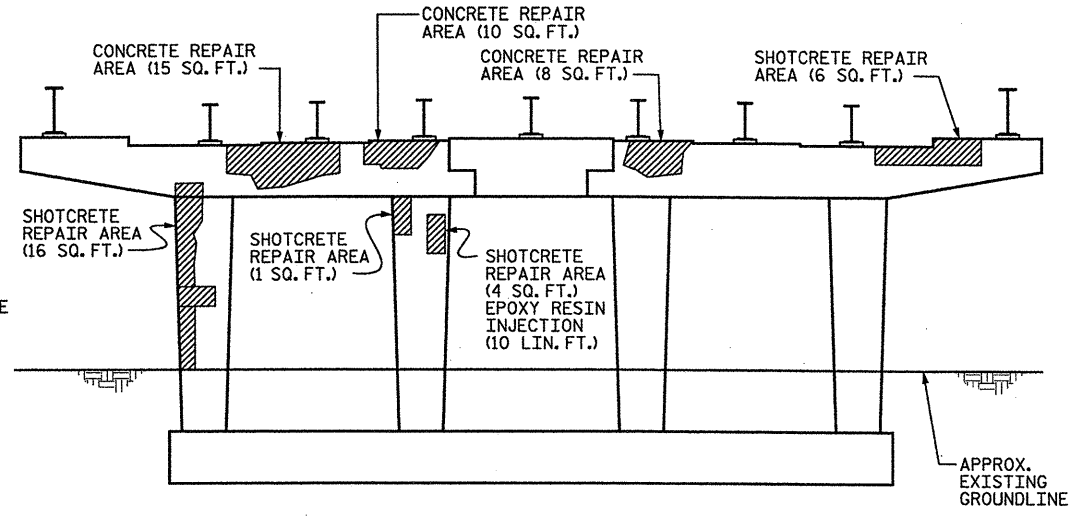
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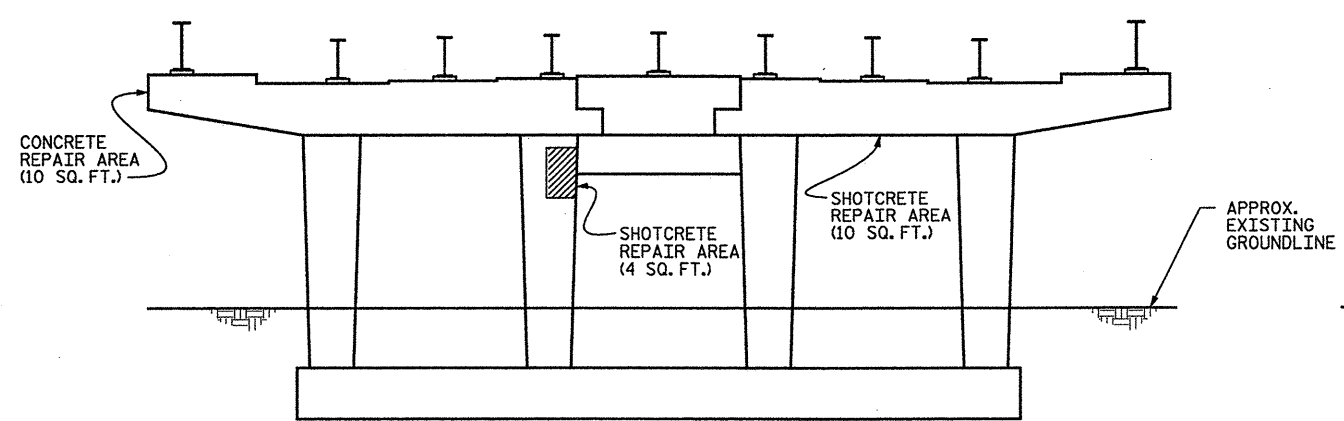
NOTE:
SEE SHEET 3 OF 4 FOR NOTES AND DETAILS.



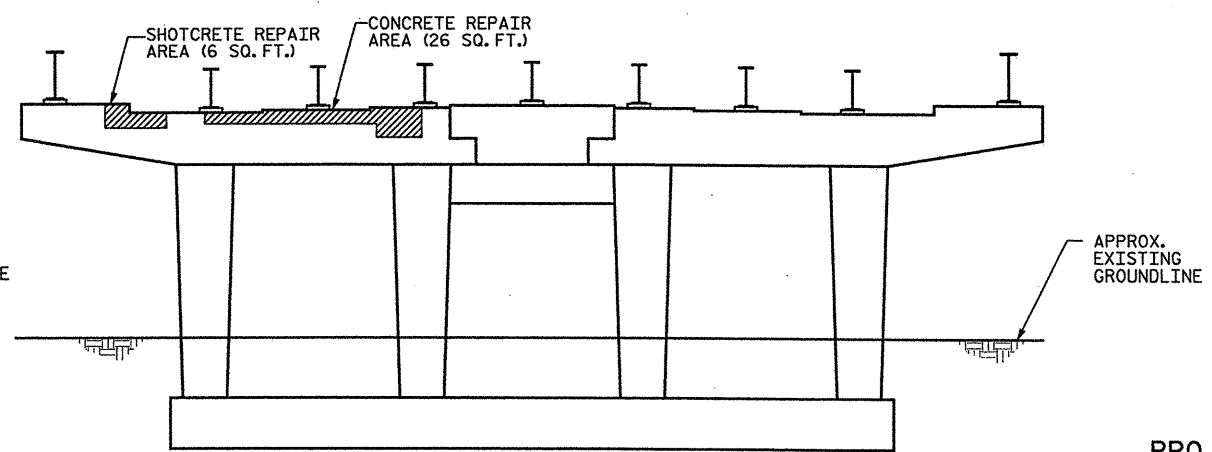
ELEVATION OF BENT 1 - LOOKING SOUTH
NORTH FACE



ELEVATION OF BENT 1 - LOOKING NORTH
SOUTH FACE



ELEVATION OF BENT 2 - LOOKING SOUTH
NORTH FACE



ELEVATION OF BENT 2 - LOOKING NORTH
SOUTH FACE

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
 BRIDGE NO.: 305
 REHAB. OF BRIDGE NO. 305 SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT 1 AND 2
 REPAIRS**

CHERRY STREET OVER
 I-40 BUSINESS

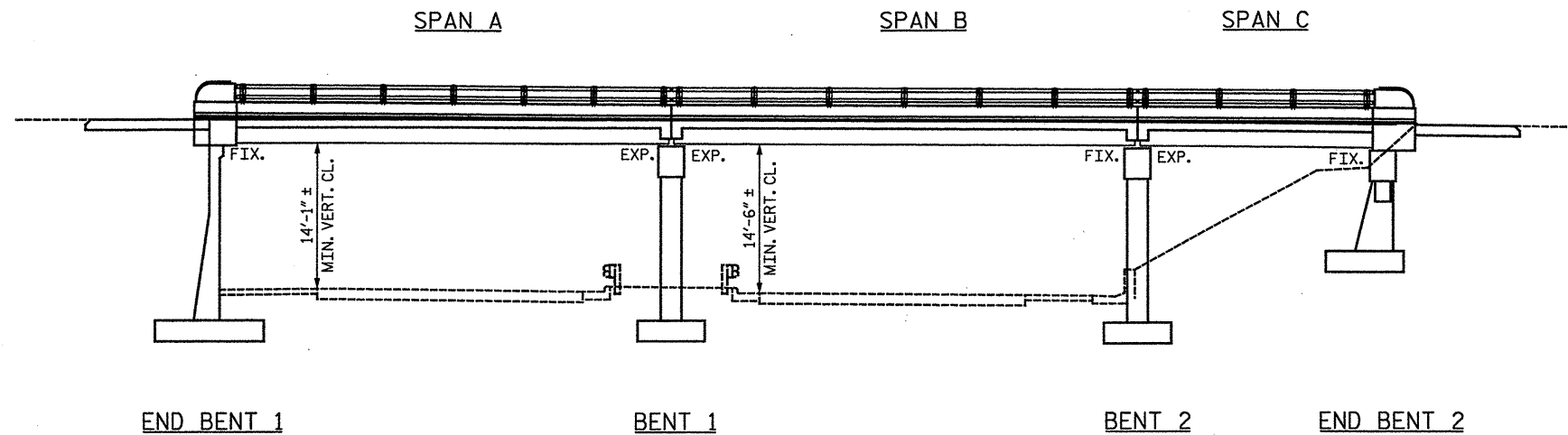
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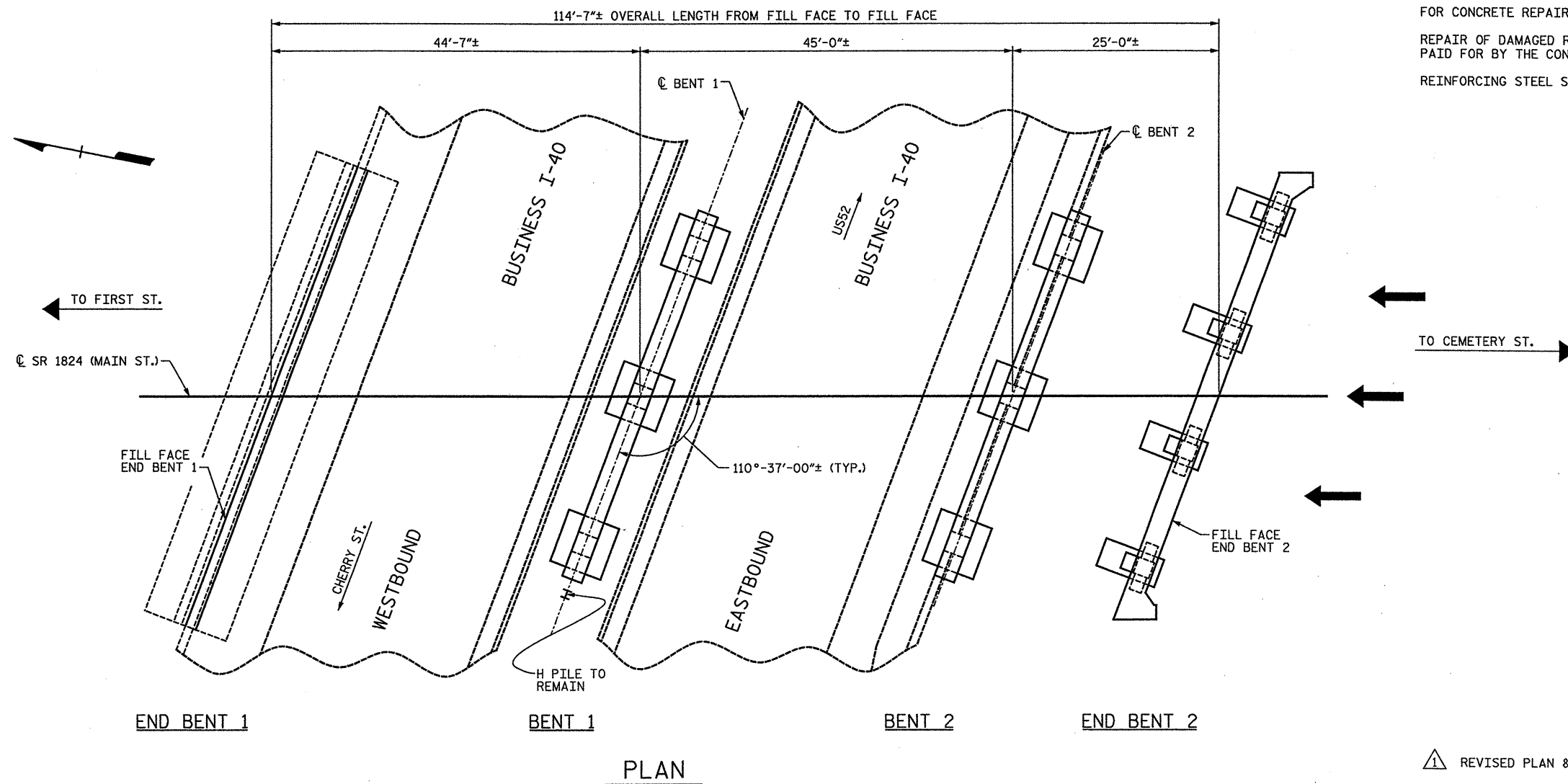
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 NC License No. F-0991

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DRAWN BY : TRL DATE : 11-11
 CHECKED BY : JAS DATE : 12-11



ELEVATION
(SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



PLAN

GENERAL NOTES:

- EXISTING BRIDGE AND REPAIR DETAILS INDICATED ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE, REPAIR DETAILS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- WORK ON BRIDGES SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION ACCESS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.
- IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS.
- DIMENSIONS IN THESE PLANS ARE BASED ON ORIGINAL PLANS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
- ALL VISUAL AND NON-DESTRUCTIVE TESTING WILL BE PERFORMED BY NCDOT.
- FOR UNDER STRUCTURE WORK PLATFORM, SEE SPECIAL PROVISIONS.
- FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- REPAIR OF DAMAGED REINFORCING STEEL DUE TO CONTRACTORS OPERATIONS SHALL BE PAID FOR BY THE CONTRACTOR AT NO EXPENSE TO THE DEPARTMENT.
- REINFORCING STEEL SHALL BE GRADE 60.

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PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
 BRIDGE NO.: 313
 REHAB. OF BRIDGE NO. 313 SHEET 1 OF 8



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL PLAN & ELEVATION
 BRIDGE ON SR 1824 (MAIN ST.) OVER I-40 BUSINESS

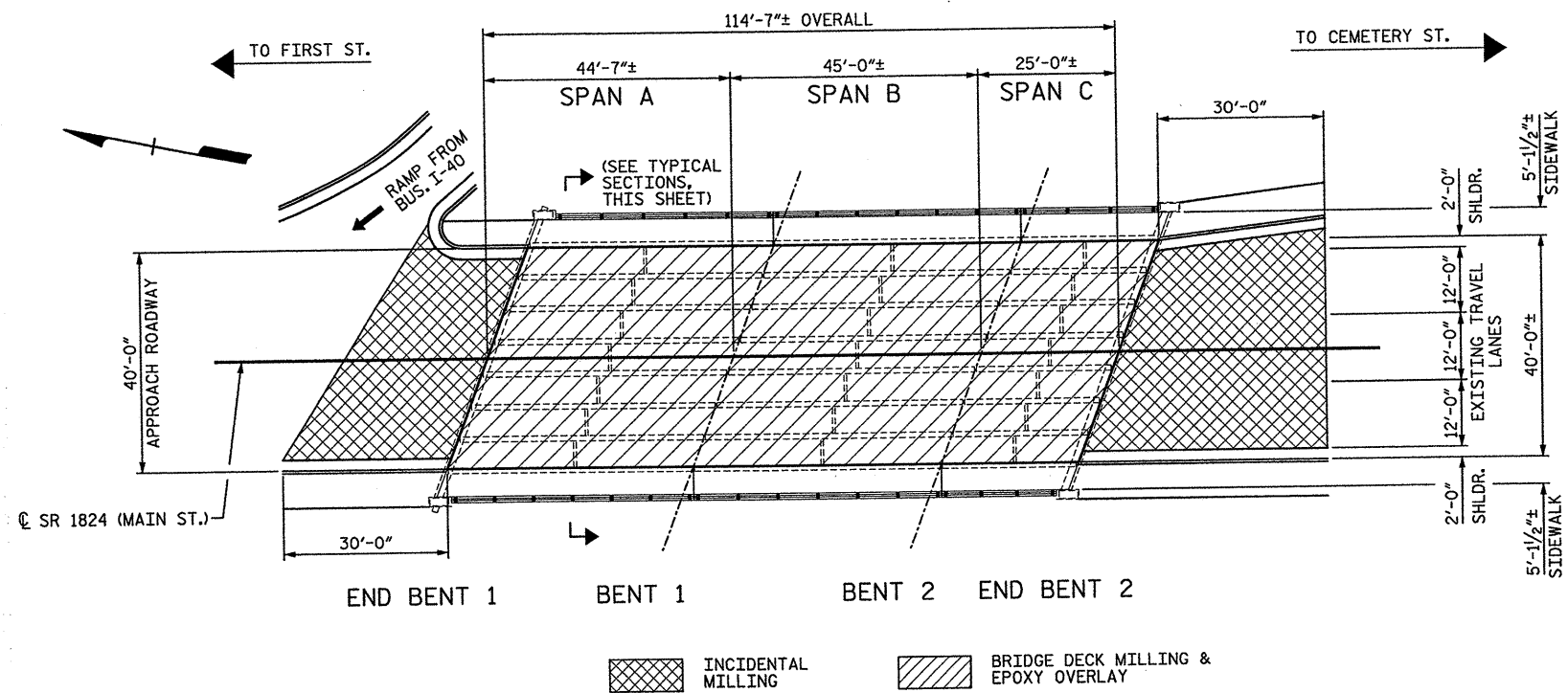
⚠️ REVISED PLAN & ADDED NOTES

DRAWN BY: AR DATE: 10-11
 CHECKED BY: AC DATE: 10-11

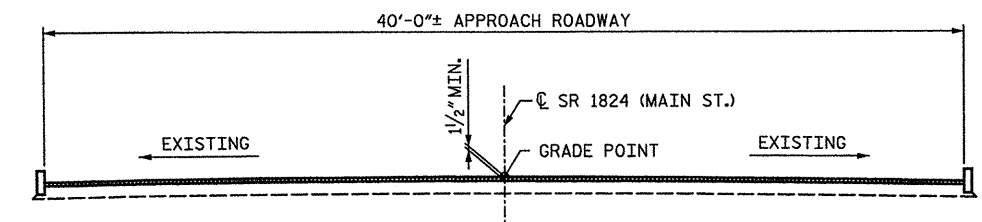
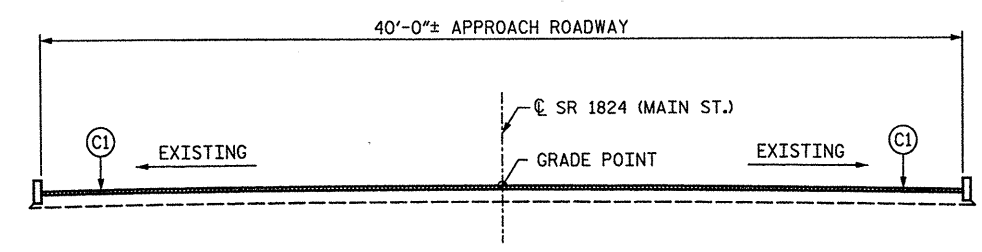
STV / Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-33
1	STV	8/12	3			TOTAL SHEETS
2			4			S-47

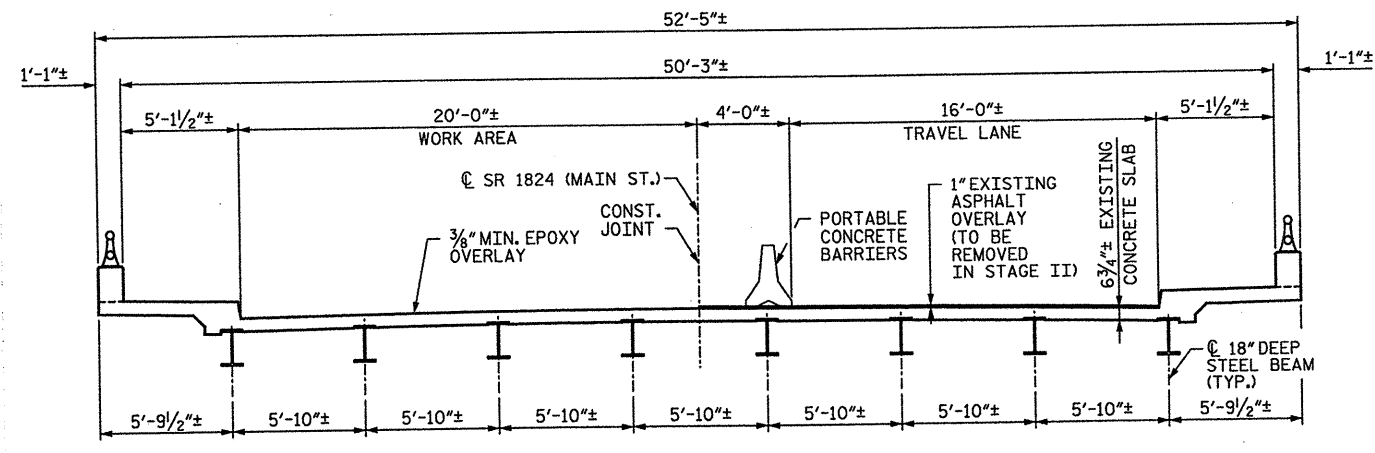
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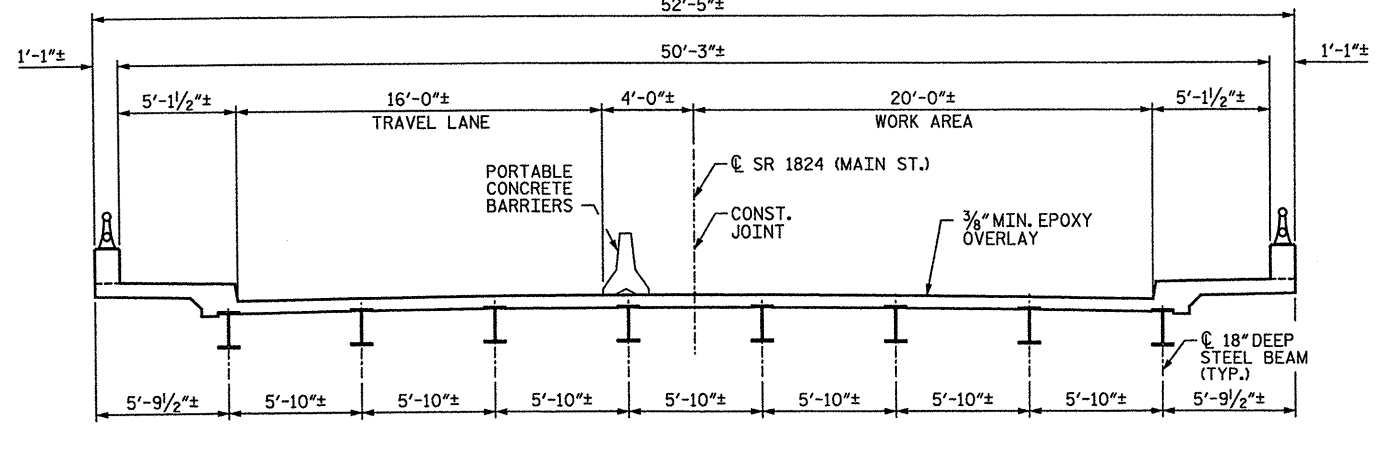
INCIDENTAL MILLING BRIDGE DECK MILLING & EPOXY OVERLAY
PLAN OF SPANS - DECK MILLING



C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1/2" DEPTH



TYPICAL SECTION - STAGE I

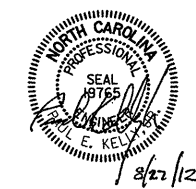


TYPICAL SECTION - STAGE II

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 313
 REHAB. OF BRIDGE NO. 313 SHEET 2 OF 8

TOTAL BILL OF MATERIAL									
INCIDENTAL MILLING	CLASS II CONCRETE DECK REPAIR FOR EPOXY/ASPHALT OVERLAY	CLASS III CONCRETE DECK REPAIR FOR EPOXY/ASPHALT OVERLAY	PLACEMENT OF EPOXY OVERLAY	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	EPOXY RESIN INJECTION	CONCRETE REPAIRS (CLASS A)	SHOTCRETE REPAIRS	*REINFORCING STEEL	BRIDGE JACKING
SQ. YDS.	SQ. FT.	SQ. FT.	SQ. FT.	TON	LIN. FT.	CU. FT.	CU. FT.	LBS.	LUMP SUM
271	329	23	4583	23	31	29	174	500	LUMP SUM

* REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT.



REPLACED SHEET

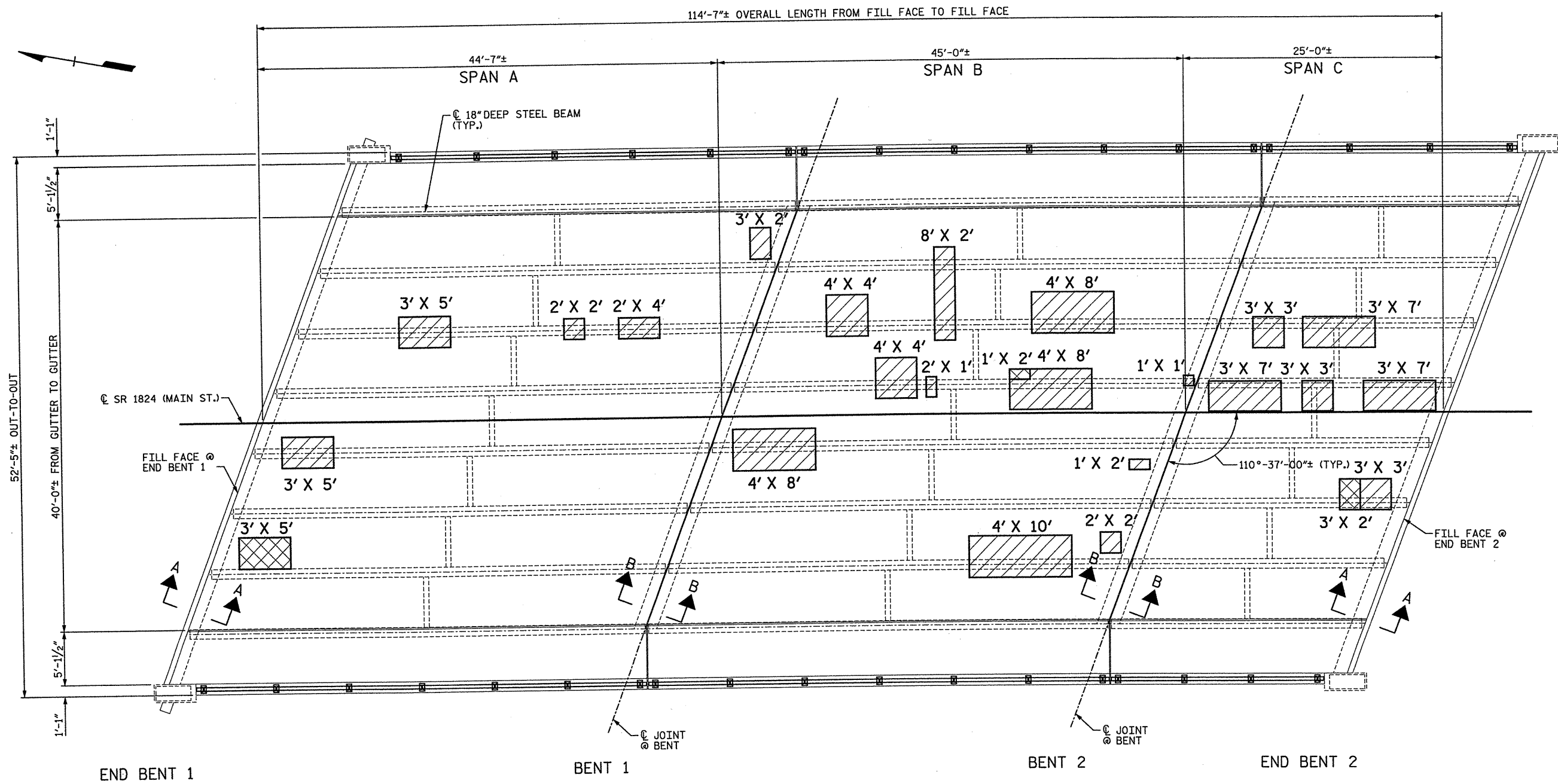
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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	S-34
1	STV	8/12	3			5	S-47
2			4				

DRAWN BY: AR DATE: 10-11
 CHECKED BY: AC DATE: 10-11

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8/10/2012



PLAN OF SPANS - DECK REPAIRS

(SEE SHEET 5 OF 8 FOR SECTIONS A-A AND B-B)

NOTES:

THE BOUNDARY AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE CONTAINMENT FOR UNEXPECTED BLOW-THROUGH OF THE DECK. SEE DETAIL ON SHEET 5 OF 8 AND SPECIAL PROVISIONS.

EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.

- APPROX. AREA: CLASS II REPAIR
- APPROX. AREA: CLASS III REPAIR

DRAWN BY : AR DATE : 10-11
 CHECKED BY : AC DATE : 10-11

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 313

REHAB. OF BRIDGE NO. 313 SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**PLAN OF SPANS
 DECK REPAIRS**

BRIDGE ON SR 1824 (MAIN ST.)
 OVER I-40 BUSINESS



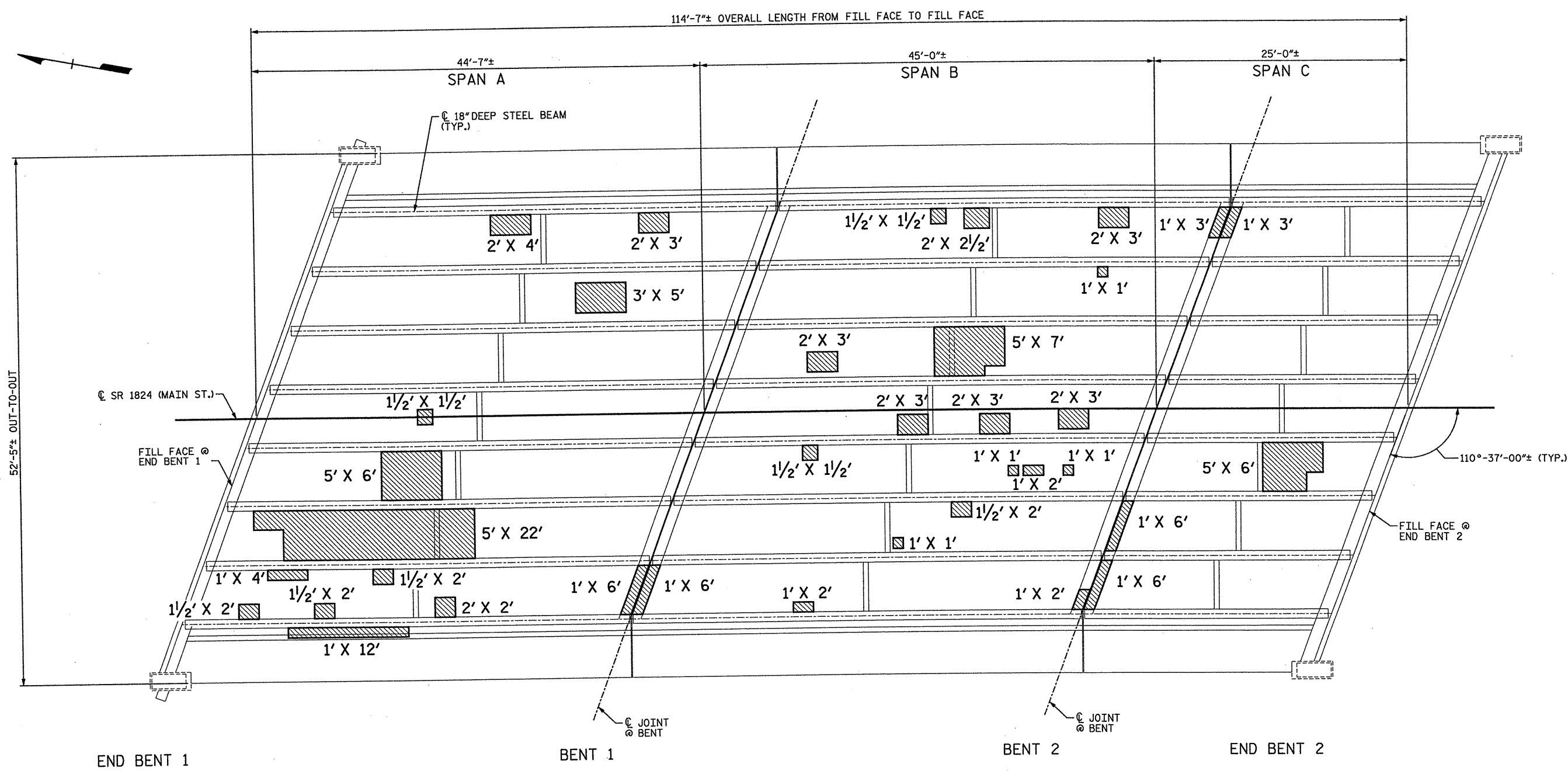
REPLACED SHEET

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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1	STV	8/12	3			TOTAL SHEETS
2			4			S-47

I:\Projects\2515377\2515377_0001\50.Deliverables & Submittals\17BP.9.H.1.Structure\Visitation\Forsyth Bridge 313\Final\Forsyth313 Rehabilitation.dgn

8/10/2012



PLAN OF SPANS - SOFFIT SHOTCRETE REPAIRS

(ALL REPAIRS SHOWN ARE ON THE UNDERSIDE OF THE DECK)

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
3. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTORS OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
4. SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
5. HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
6. OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF 3 BARS OF REINFORCING STEEL.
7. SEE SHEET 1 OF 4 FOR ADDITIONAL NOTES.
8. FOR TYPICAL CONCRETE REPAIR DETAILS SEE SHEET 7 OF 8

APPROX. AREA SHOTCRETE REPAIR

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 313

REHAB. OF BRIDGE NO. 313 SHEET 4 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**PLAN OF SPANS
 SOFFIT REPAIRS**

BRIDGE ON SR 1824 (MAIN ST.)
 OVER I-40 BUSINESS



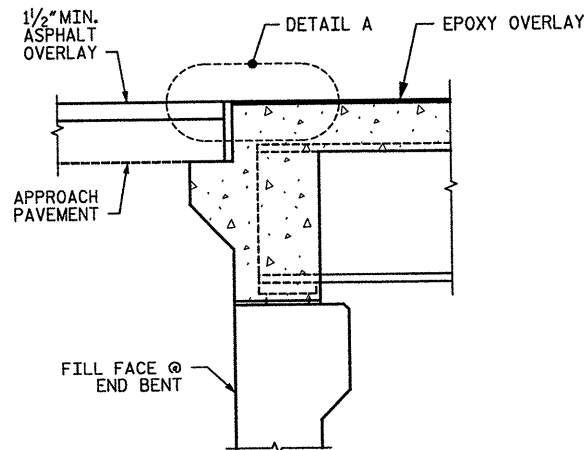
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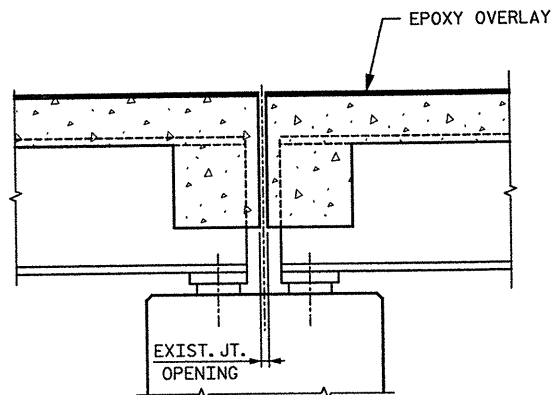
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2			4			

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 CHECKED BY : AC DATE : 10-11

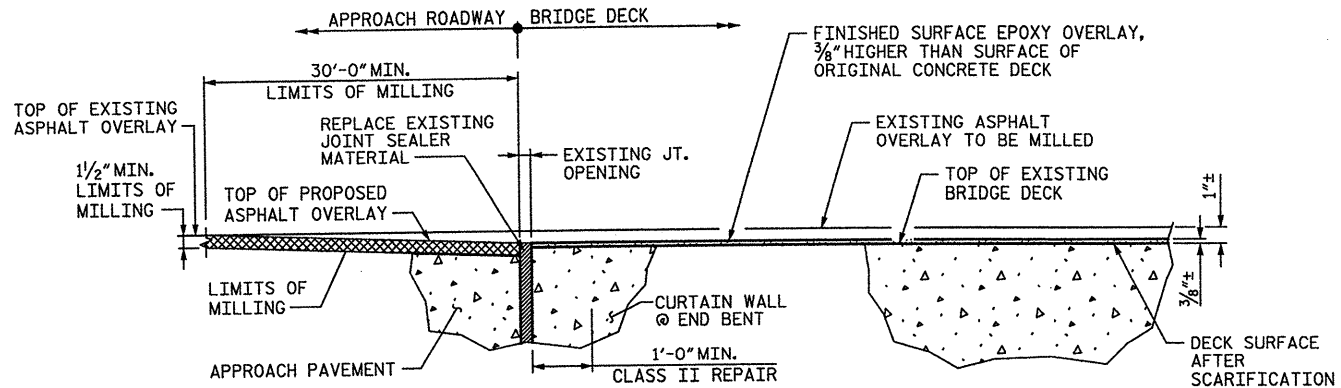
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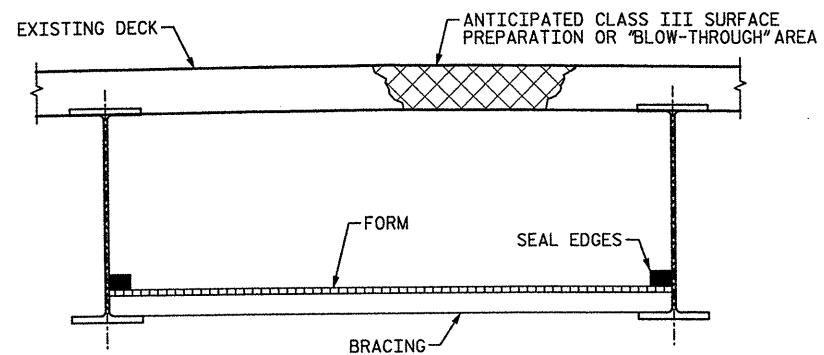
SECTION A-A
(TYP. @ END BENTS 1 AND 2)



SECTION B-B
(PROPOSED JOINT)
(TYP. @ INTERIOR BENTS)



DETAIL A
(LOCATION OF JOINT TO MATCH EXISTING JOINT LOCATION)



TYP. "BLOW-THROUGH" 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.
 COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.

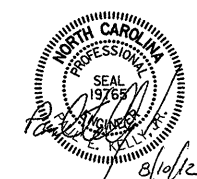
PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

BRIDGE NO.: 313

REHAB. OF BRIDGE NO. 313 SHEET 5 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DECK REPAIR DETAILS
 BRIDGE ON SR 1824 (MAIN ST.)
 OVER I-40 BUSINESS



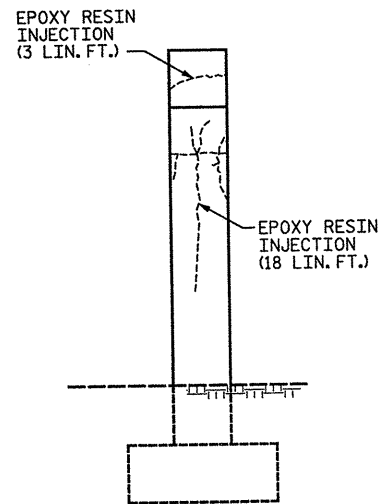
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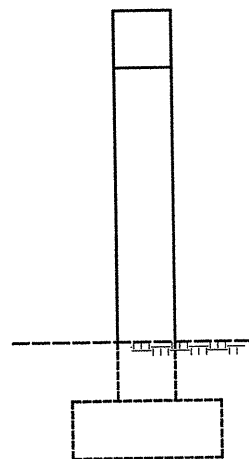
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-37	
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2			4				

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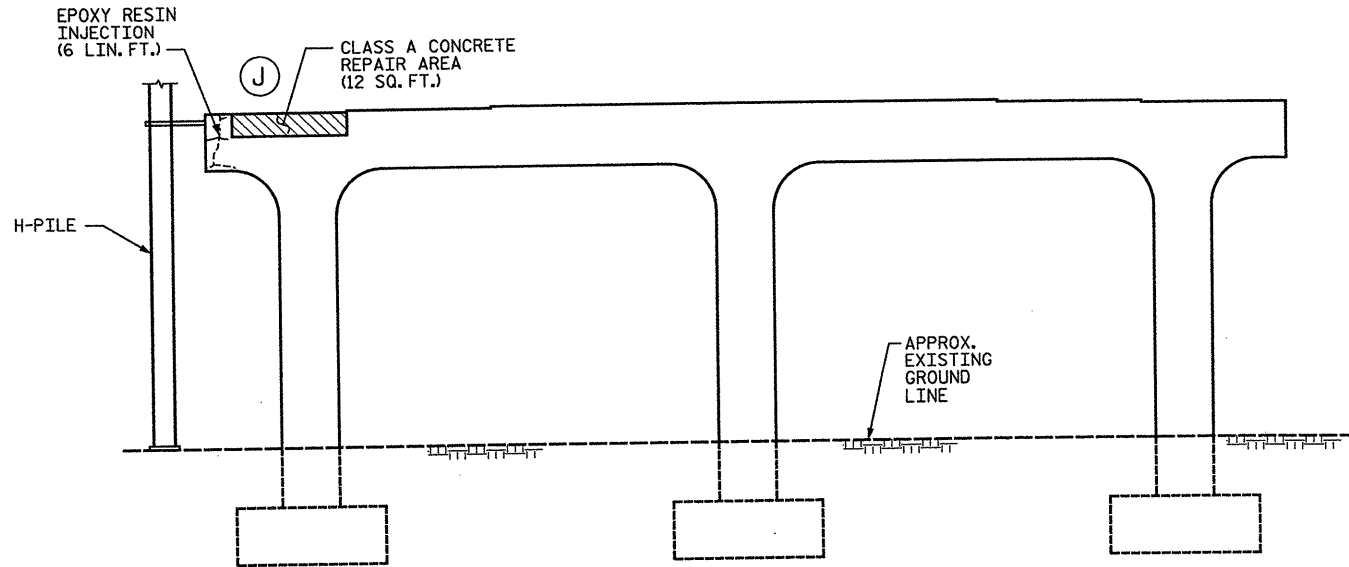
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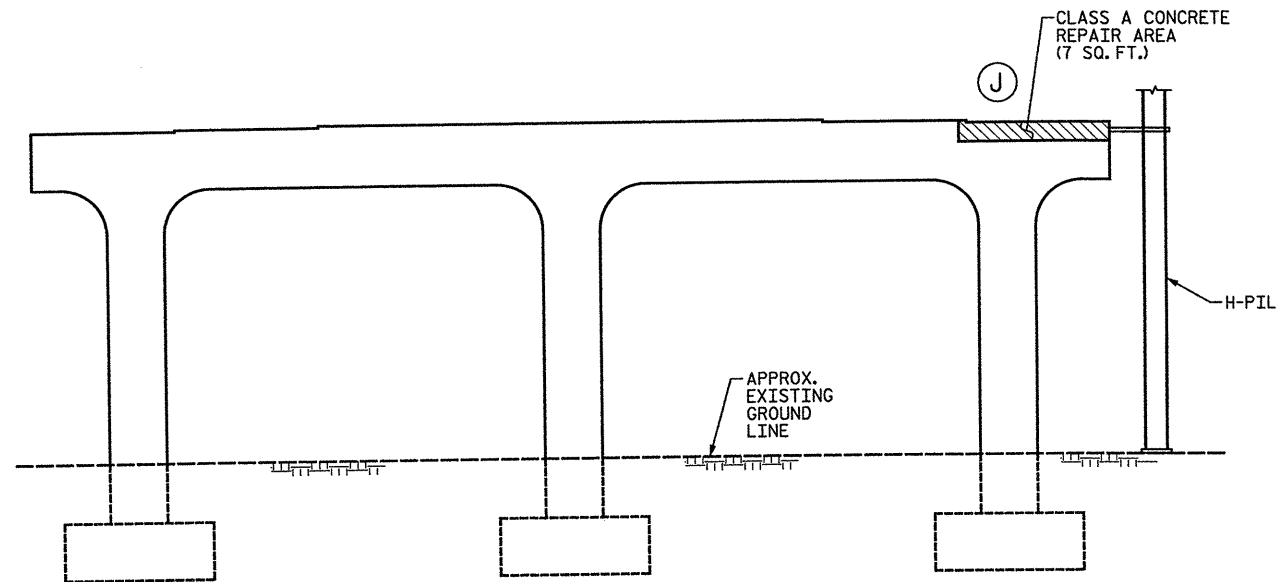
END VIEW-LOOKING EAST



END VIEW-LOOKING WEST



ELEVATION OF BENT 1-LOOKING NORTH



ELEVATION OF BENT 1-LOOKING SOUTH

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.
3. REPAIR DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL REPAIR DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COSTS.
5. DOWEL LENGTH SHALL BE BASED ON A 9" EMBEDMENT INTO EXISTING CONCRETE AND MAY BE ADJUSTED BASED ON THE MINIMUM EMBEDMENT SPECIFIED BY THE MANUFACTURER OF THE EPOXY ADHESIVE BONDING SYSTEM.
6. REINFORCING STEEL SHALL BE GRADE 60.
7. BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.
8. BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES SEE SHEET 8 OF 8.
9. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.

- (J) - JACKING REQUIRED
- - - - - APPROXIMATE LENGTH: EPOXY RESIN INJECTION
- ▨ - APPROXIMATE AREA: CONCRETE REPAIRS

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

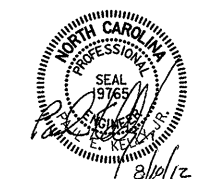
BRIDGE NO.: 313

REHAB. OF BRIDGE NO. 313 SHEET 6 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUBSTRUCTURE REPAIRS
BENT 1**

BRIDGE ON SR 1824 (MAIN ST.)
OVER I-40 BUSINESS



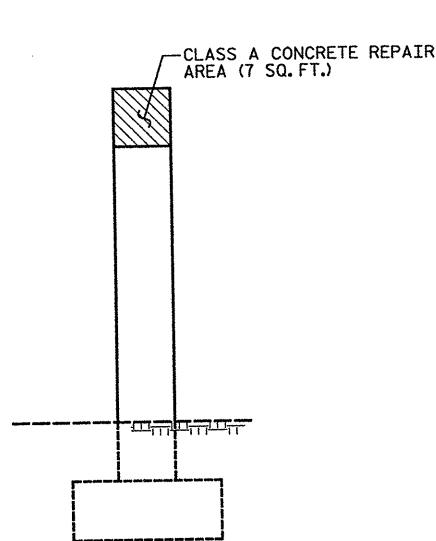
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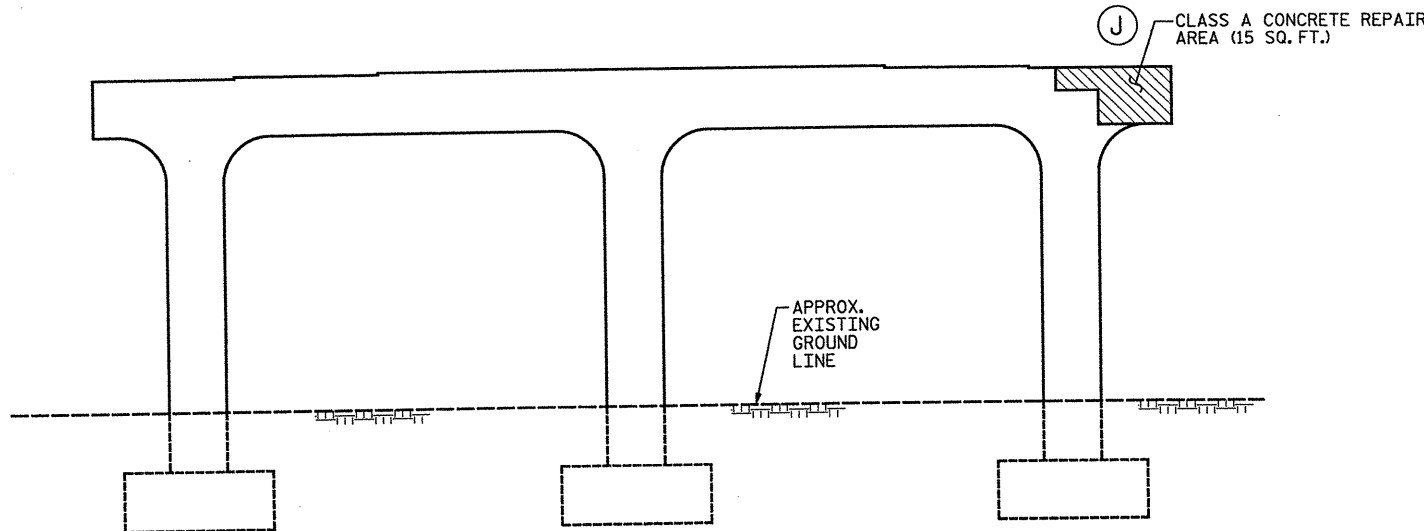
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			S-47

DRAWN BY : AR DATE : 10-11
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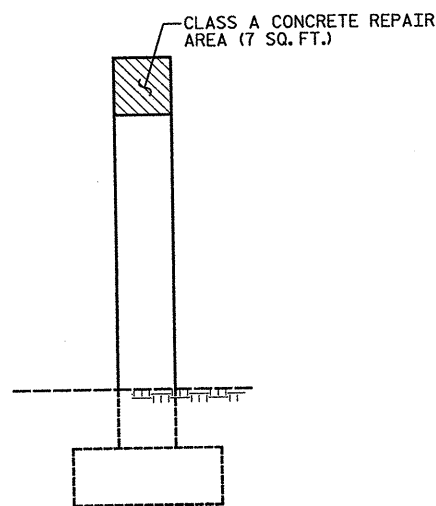
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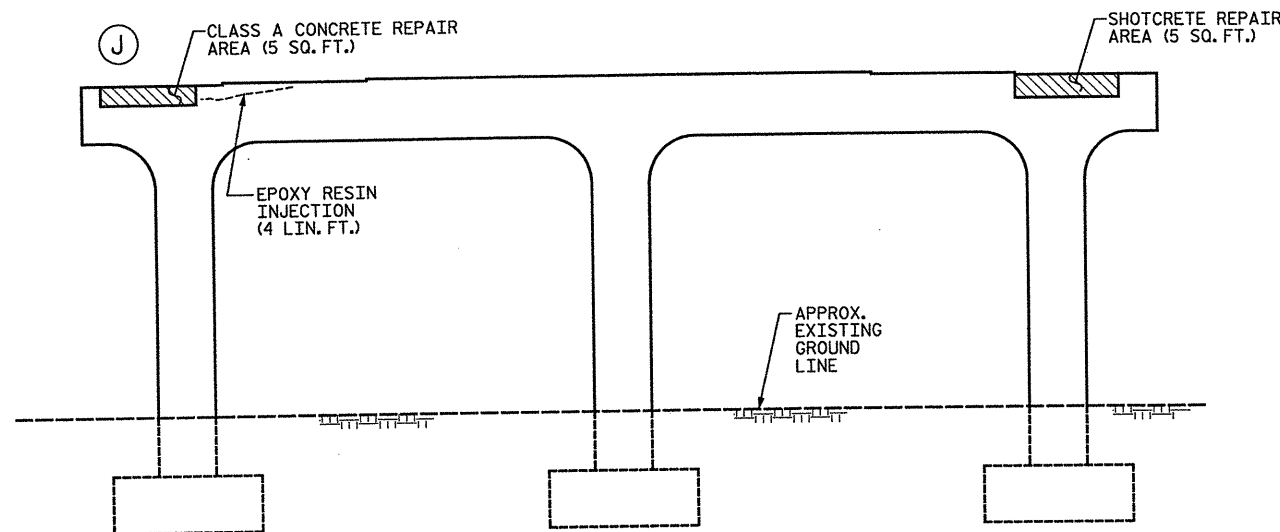
END VIEW-LOOKING EAST



ELEVATION OF BENT 2-LOOKING NORTH



END VIEW-LOOKING WEST



ELEVATION OF BENT 2-LOOKING SOUTH

SEE SHEET 6 OF 8 FOR ADDITIONAL NOTES.

- (J) - JACKING REQUIRED
- - - - - APPROXIMATE LENGTH: EPOXY RESIN INJECTION
- ▨ - APPROXIMATE AREA: CONCRETE REPAIRS

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

BRIDGE NO.: 313

REHAB. OF BRIDGE NO. 313 SHEET 7 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

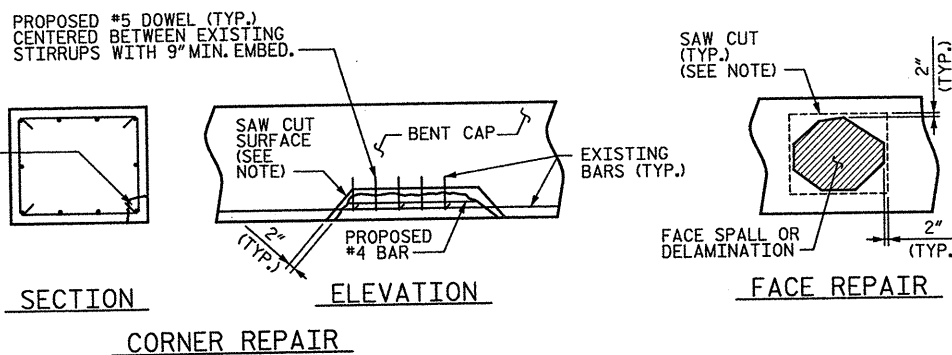
**SUBSTRUCTURE REPAIRS
BENT 2**

BRIDGE ON SR 1824 (MAIN ST.)
OVER I-40 BUSINESS



REPLACED SHEET

NOTE:
CONTRACTOR SHALL SAW CUT TO A MAXIMUM DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.



TYPICAL CONCRETE REPAIR DETAILS

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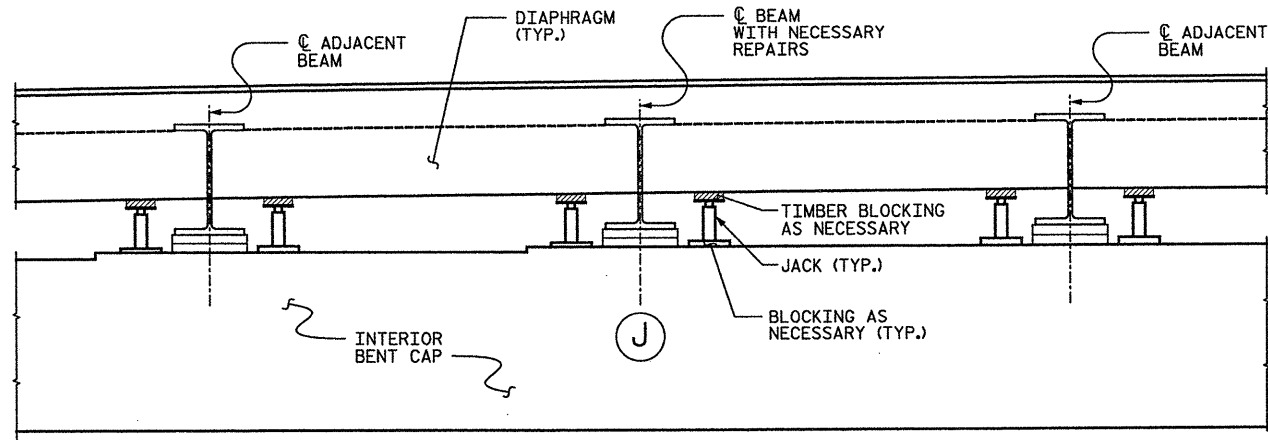
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39	
1	STV	8/12	3			TOTAL	S-47
2			4				

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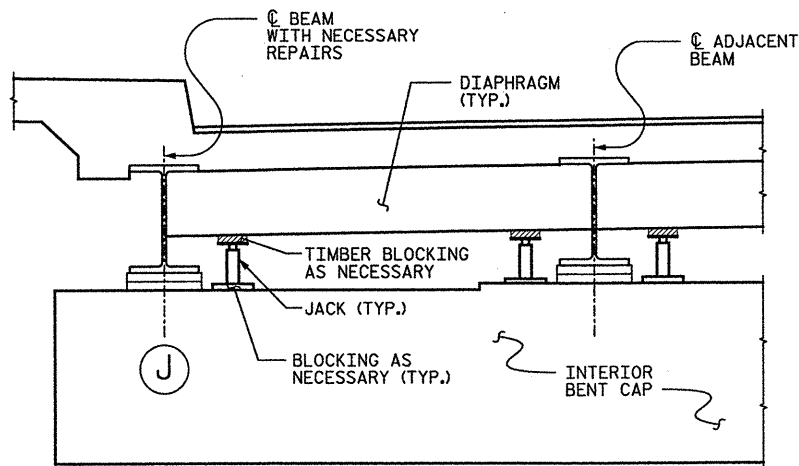
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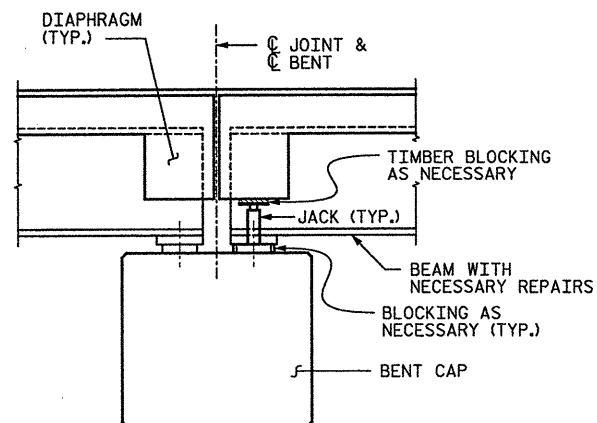


BEAM JACKING DETAIL AT INTERIOR BEAM

(J) JACKING FOR PROPOSED REPAIR LOCATION



BEAM JACKING DETAIL AT EXTERIOR BEAM



TYPICAL SECTION @ JACKING LOCATION

CONSTRUCTION SEQUENCE:

1. REPAIR DIAPHRAGMS, PIER CAPS AND BEAM SEATS OUTSIDE OF BEARINGS AT LOCATIONS SHOWN ON SHEET 4, 6 AND 7 OF 8.
2. INSTALL JACKS AT LOCATIONS IDENTIFIED REQUIRING CONCRETE REPAIRS UNDER BEARINGS.
3. REMOVE NECESSARY NUTS ON ANCHOR BOLTS.
4. JACK GIRDERS A MAXIMUM OF 1/8" IN ORDER TO RELIEVE LOAD ON BENT CAP UNDER BEARINGS.
5. MECHANICALLY LOCK ALL JACKS AT BENT.
6. PERFORM CONCRETE REPAIRS UNDER BEARINGS.
7. ONCE ALL REPAIRS ARE COMPLETE, LOWER JACKED GIRDERS. CONTRACTOR SHALL NOT LOWER GIRDERS UNTIL CONCRETE REPAIR MATERIAL HAS REACHED A COMPRESSIVE STRENGTH OF 3000 PSI.
8. PERFORM ANY ADDITIONAL CONCRETE REPAIRS UNDER AREA(S) OF JACKS.

NOTE: THE CONTRACTOR HAS THE OPTION TO PROPOSE AN ALTERNATE CONSTRUCTION SEQUENCE PER THE APPROVAL OF THE ENGINEER.

NOTES:

1. JACKING DETAILS SHOWN ARE CONCEPTUAL AND CONSIDERED A MINIMUM. THE STRENGTH AND CONDITION OF THE STRUCTURE MAY WARRANT USE OF ADDITIONAL COMPONENTS OR MODIFICATIONS TO THE STRUCTURE TO PERFORM JACKING.
2. THE CONTRACTOR SHALL PROVIDE JACKING PLANS FOR ALL GIRDERS LIFTED FOR APPROVAL BY THE ENGINEER PRIOR TO ANY JACKING OPERATIONS. THE CAPACITY OF END DIAPHRAGMS MUST BE VERIFIED FOR JACKING OPERATION. JACKING SHALL BE PERFORMED SUCH THAT BRIDGE CAN REMAIN OPEN TO TRAFFIC DURING JACKING OPERATIONS.
3. JACKING PLANS SHALL BE SIGNED AND SEALED BY LICENSED PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.
4. THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLAN.
5. THE CONTRACTOR SHALL JACK GIRDERS ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.
6. THE CONTRACTOR SHALL MONITOR THE PLAN LOCATION OF THE GIRDERS FROM INITIAL JACKING UNTIL GIRDERS ARE SECURED ON THEIR PERMANENT BEARINGS. IF THE PLAN LOCATION OF THESE GIRDERS SHIFT FROM ITS ORIGINAL POSITION, THE CONTRACTOR SHALL SECURE FROM ADDITIONAL MOVEMENT IMMEDIATELY. NOTIFY ENGINEER PRIOR TO PROCEEDING WORK OPERATIONS.
7. EACH JACK SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 75 TONS.
8. PRIOR TO JACKING THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED.
9. ONCE GIRDERS HAVE BEEN JACKED, CONTRACTOR SHALL INSTALL A MECHANICAL LOCKING DEVICE TO ENSURE THAT GIRDER WILL NOT BE LOWERED DURING CURING OF CONCRETE.

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

BRIDGE NO.: 313

REHAB. OF BRIDGE NO. 313 SHEET 8 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JACKING DETAILS

BRIDGE ON SR 1824 (MAIN ST.)
OVER I-40 BUSINESS



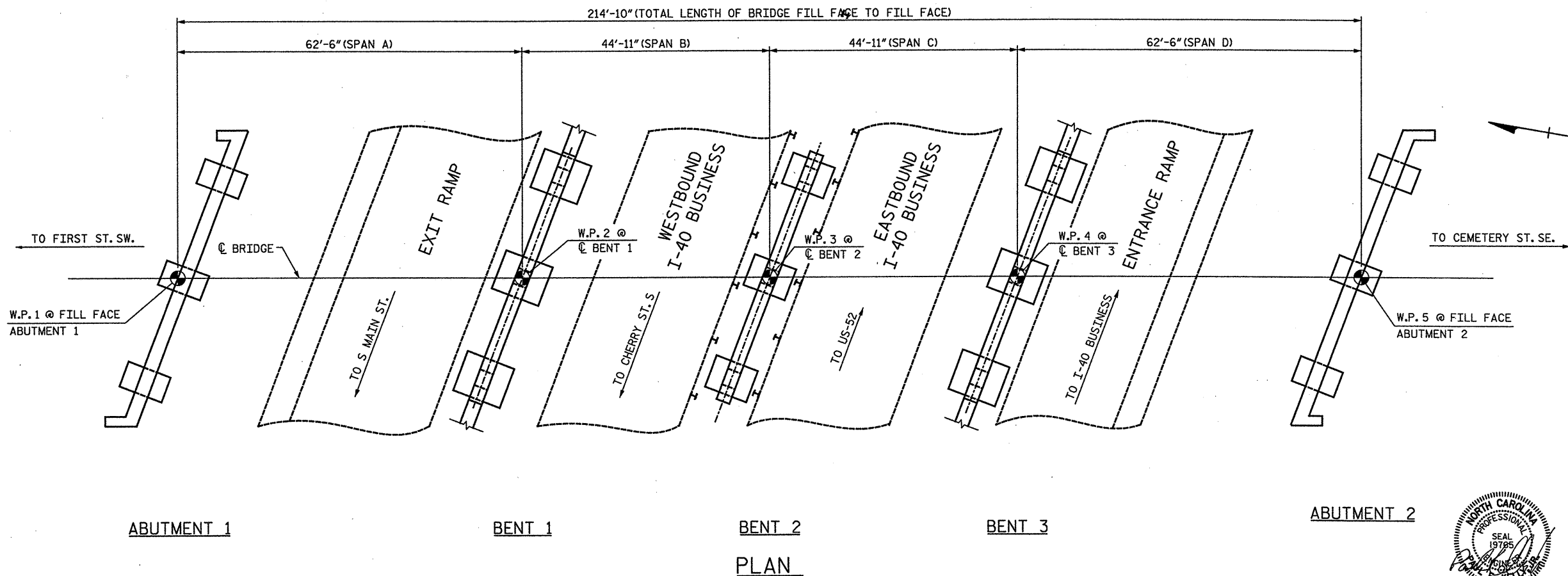
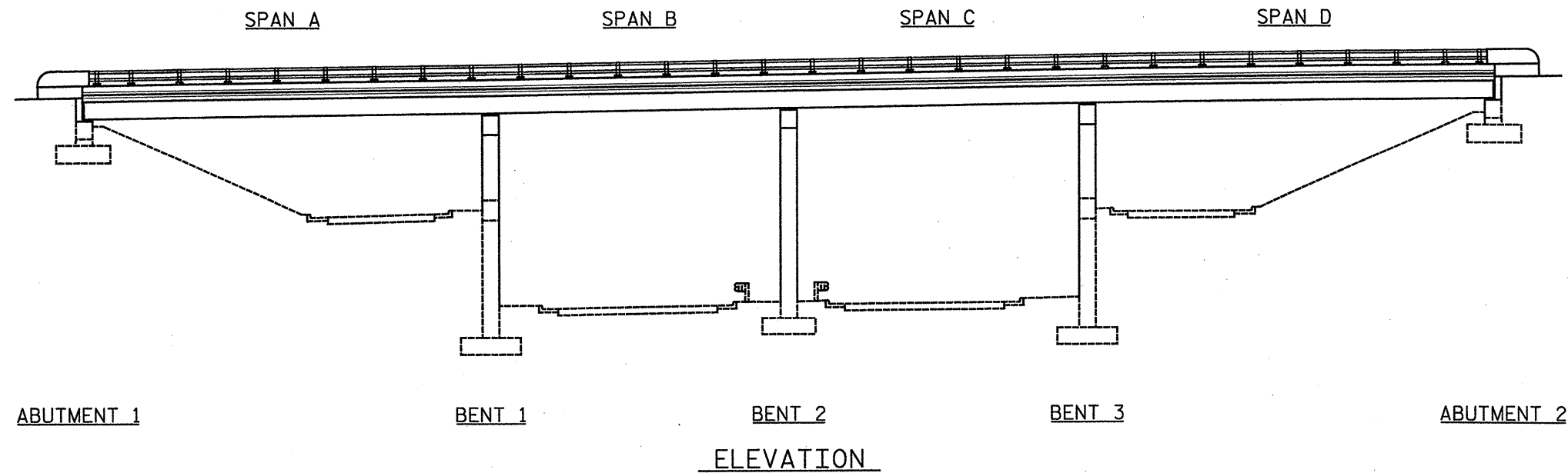
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REVISIONS				SHEET NO.
NO.	BY	DATE	NO.	DATE
1			3	
2			4	

TOTAL SHEETS: S-47

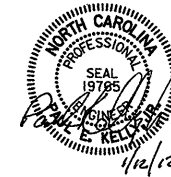


PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 336
 REHAB. OF BRIDGE NO. 336 SHEET 1 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN AND ELEVATION

CHURCH STREET SOUTH OVER
 I-40 BUSINESS

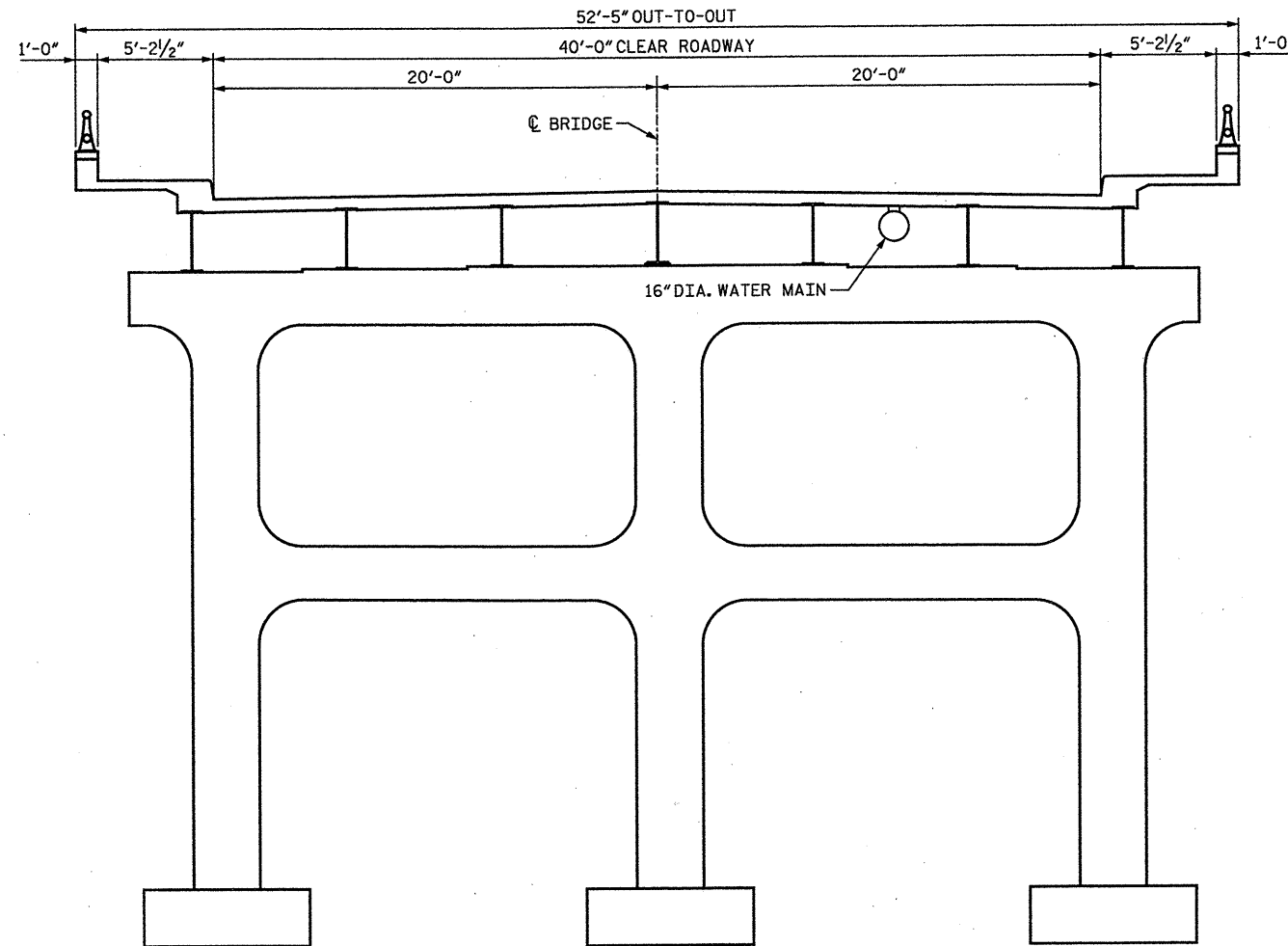


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 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			S-47

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 CHECKED BY : JAS DATE : 12-11

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 1/11/2012
 WJVM



TYPICAL SECTION

GENERAL NOTES:

FOR ADDITIONAL NOTES, SEE SHEET S-2.

THE COST OF LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY FOR GIRDER REPAIR SHOWN ON PLANS SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT PAY ITEMS AND NO ADDITIONAL PAYMENT WILL BE MADE.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

BILL OF MATERIAL			
	* REINFORCING STEEL	SHOTCRETE REPAIRS	CONCRETE REPAIRS
	LBS.	CU. FT.	CU. FT.
SUPERSTRUCTURE	50	149	-
BENT 1	50	65	34
BENT 2	50	19	31
BENT 3	50	34	26
TOTAL	200	267	91

*REINFORCING STEEL FOR REPLACEMENT OF REBAR DAMAGED PRIOR TO ONSET OF PROJECT.

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

BRIDGE NO.: 336

REHAB. OF BRIDGE NO. 336 SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
& NOTES

CHURCH STREET SOUTH OVER
I-40 BUSINESS



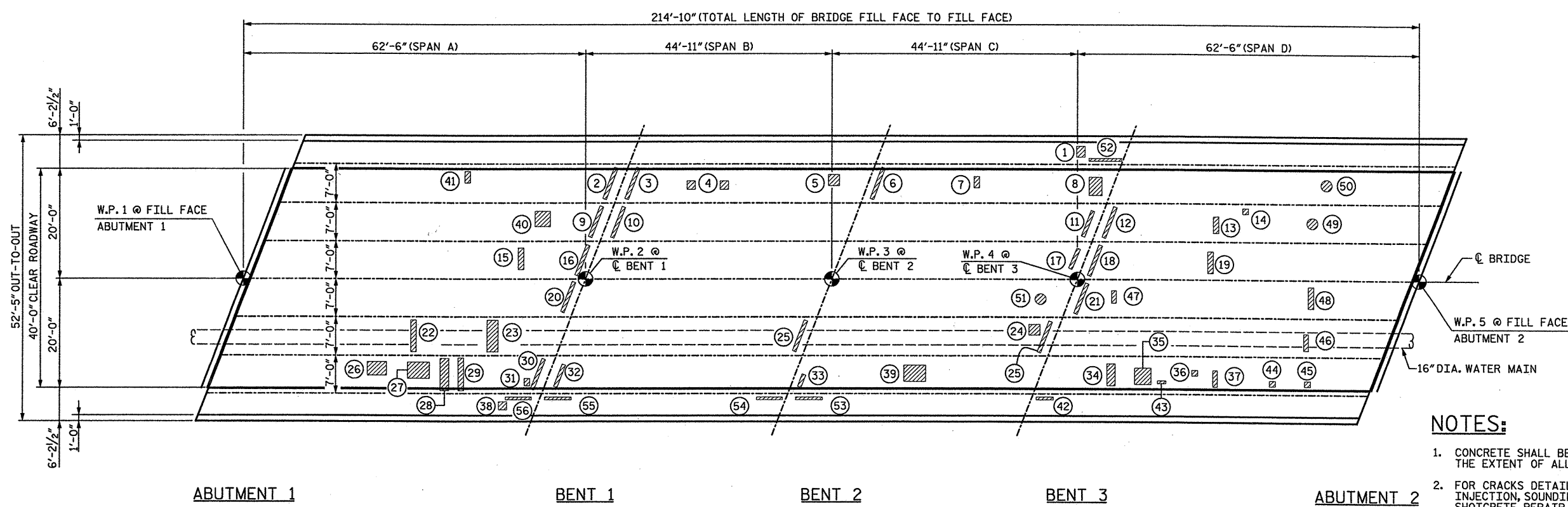
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
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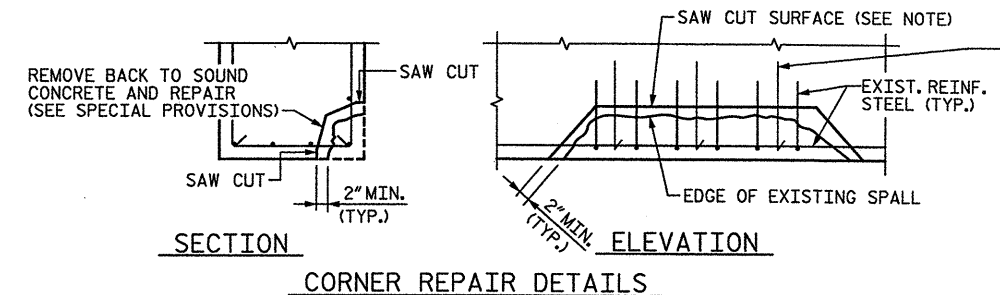
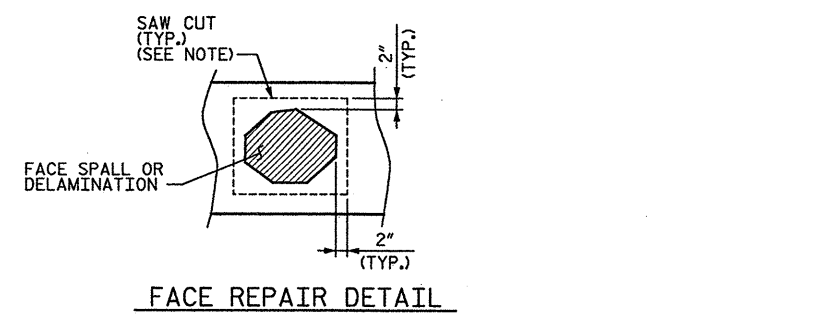


PLAN OF DECK
ALL REPAIRS AS SHOWN ARE ON THE UNDERSIDE OF THE DECK OR END DIAPHRAGMS

- NOTES:**
- CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
 - FOR CRACKS DETAILED AS EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A SHOTCRETE REPAIR IS NECESSARY.
 - SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
 - THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS DUE TO THE CONTRACTORS OPERATIONS. REPAIRS TO SUCH DAMAGED BARS SHALL BE AS DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST TO THE DEPARTMENT.
 - SUPERSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
 - HEAVILY DETERIORATED OR DAMAGED REINFORCING STEEL SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
 - OVERHEAD SHOTCRETE INSTALLATIONS SHALL ENGAGE THE FULL DIAMETER OF A MINIMUM OF 3 BARS OF REINFORCING STEEL.
 - SEE SHEET 2 OF 7 FOR ADDITIONAL NOTES.

SHOTCRETE REPAIR AREAS FOR SUPERSTRUCTURE

NO.	DESCRIPTION	QTY. (SQ. FT.)	NO.	DESCRIPTION	QTY. (SQ. FT.)
1	UNDERSIDE OF DECK	5	33	BOTTOM OF DIAPHRAGM	2
2	BOTTOM OF DIAPHRAGM	10	34	UNDERSIDE OF DECK	6
3	BOTTOM OF DIAPHRAGM	7	35	UNDERSIDE OF DECK	8
4	UNDERSIDE OF DECK	6	36	UNDERSIDE OF DECK	3
5	UNDERSIDE OF DECK	5	37	UNDERSIDE OF DECK	3
6	BOTTOM OF DIAPHRAGM	7	38	UNDERSIDE OF DECK	2
7	UNDERSIDE OF DECK	2	39	UNDERSIDE OF DECK	4
8	UNDERSIDE OF DECK	8	40	UNDERSIDE OF DECK	8
9	BOTTOM OF DIAPHRAGM	7	41	UNDERSIDE OF DECK	2
10	BOTTOM OF DIAPHRAGM	7	42	BUILDUP	2
11	BOTTOM OF DIAPHRAGM	5	43	UNDERSIDE OF DECK	2
12	BOTTOM OF DIAPHRAGM	5	44	UNDERSIDE OF DECK	2
13	UNDERSIDE OF DECK	5	45	UNDERSIDE OF DECK	2
14	UNDERSIDE OF DECK	2	46	UNDERSIDE OF DECK	3
15	UNDERSIDE OF DECK	6	47	UNDERSIDE OF DECK	2
16	BOTTOM OF DIAPHRAGM	9	48	UNDERSIDE OF DECK	6
17	BOTTOM OF DIAPHRAGM	4	49	UNDERSIDE OF DECK	2
18	BOTTOM OF DIAPHRAGM	5	50	UNDERSIDE OF DECK	2
19	UNDERSIDE OF DECK	4	51	UNDERSIDE OF DECK	2
20	BOTTOM OF DIAPHRAGM	5	52	BUILDUP	5
21	BOTTOM OF DIAPHRAGM	7	53	BUILDUP	3
22	UNDERSIDE OF DECK	12	54	BUILDUP	3
23	UNDERSIDE OF DECK	15	55	BUILDUP	3
24	UNDERSIDE OF DECK	2	56	BUILDUP	3
25	BOTTOM OF DIAPHRAGM	7	57	BOTTOM OF DIAPHRAGM	6
26	UNDERSIDE OF DECK	10	TOTAL SHOTCRETE REPAIR AREA		
27	UNDERSIDE OF DECK	12			
28	UNDERSIDE OF DECK	10			
29	UNDERSIDE OF DECK	8			
30	BOTTOM OF DIAPHRAGM	7			
31	UNDERSIDE OF DECK	2			
32	BOTTOM OF DIAPHRAGM	5			



TYPICAL SHOTCRETE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROPOSED ADHESIVELY ANCHORED #5 DOWEL (TYP.) CENTERED BETWEEN EXISTING STIRRUPS WITH 9" MIN. EMBEDMENT. TO BE USED FOR OVERHEAD APPLICATIONS OR WHERE EXISTING REINFORCING STEEL IS HEAVILY DETERIORATED.

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY
BRIDGE NO.: 336
REHAB. OF BRIDGE NO. 336 SHEET 3 OF 7



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUPERSTRUCTURE
DECK REPAIRS**
CHURCH STREET SOUTH OVER
I-40 BUSINESS

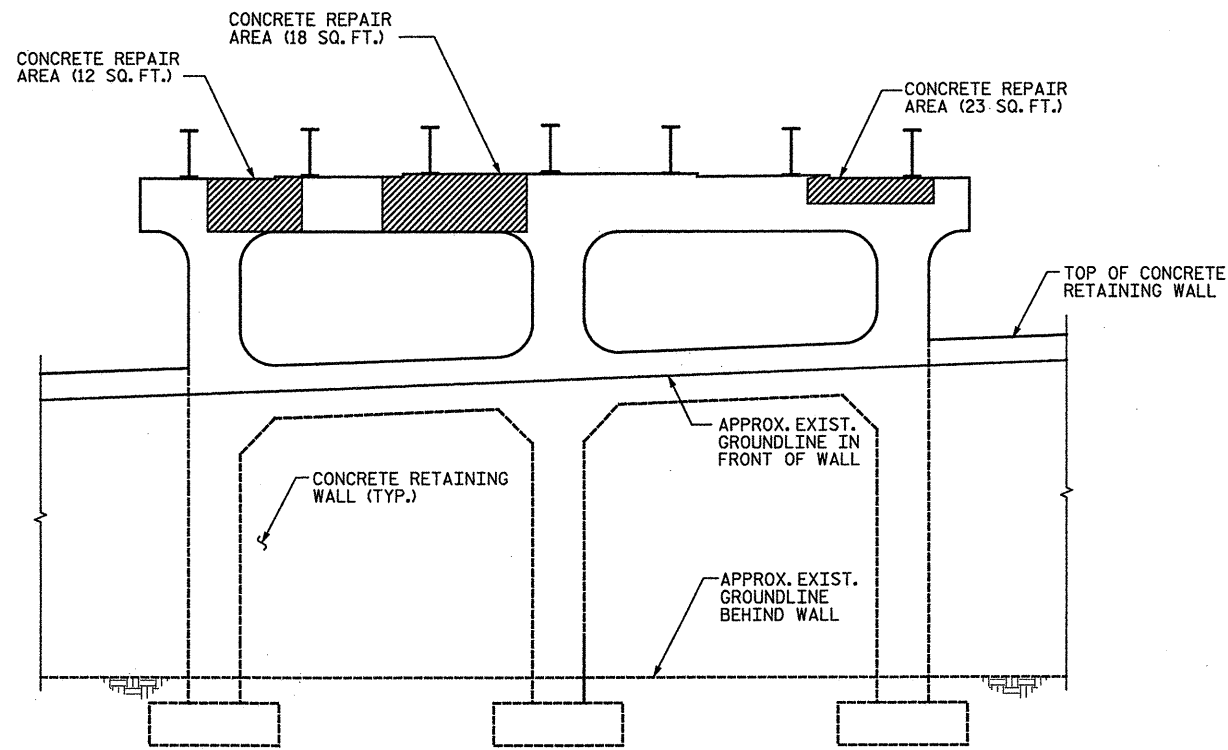
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CHECKED BY : JAS DATE : 12-11

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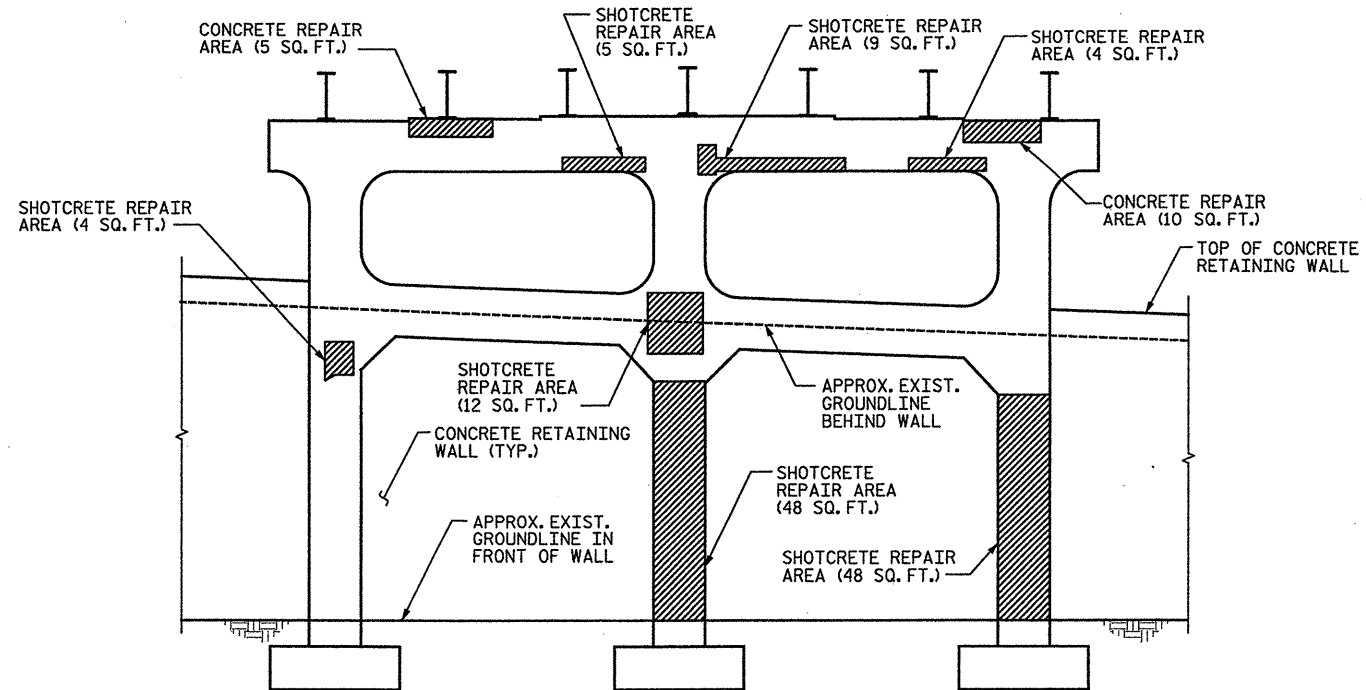
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S-43
TOTAL SHEETS
S-47

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1/11/2012



ELEVATION OF BENT 1 - LOOKING SOUTH
NORTH FACE



ELEVATION OF BENT 1 - LOOKING NORTH
SOUTH FACE

NOTES:

1. FOR SHOTCRETE REPAIR NOTES AND DETAILS, SEE SHEET 3 OF 7.
2. BENT CAP REPAIRS IN BEARING AREAS SHALL BE CONCRETE REPAIR PERFORMED WITH CLASS A CONCRETE.
3. SEE SHEET 2 OF 7 FOR ADDITIONAL NOTES.

PROJECT NO. 17BP.9.H.1
FORSYTH COUNTY

BRIDGE NO.: 336

REHAB. OF BRIDGE NO. 336 SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUBSTRUCTURE
BENT 1 REPAIRS**
CHURCH STREET SOUTH OVER
I-40 BUSINESS

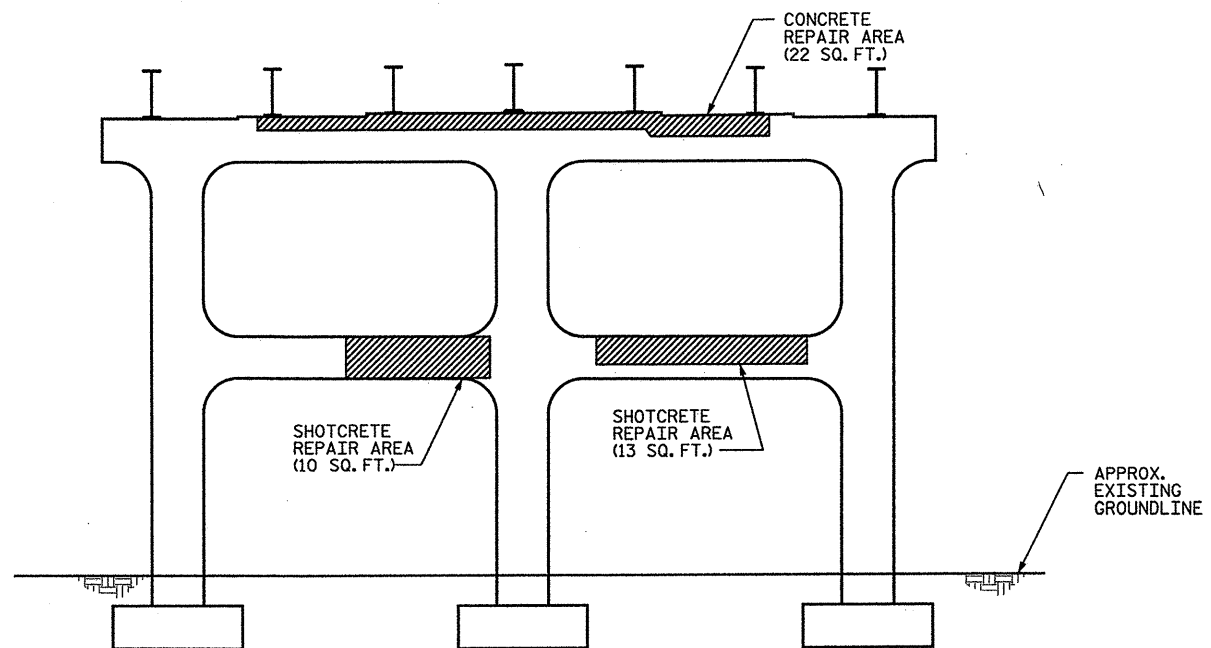


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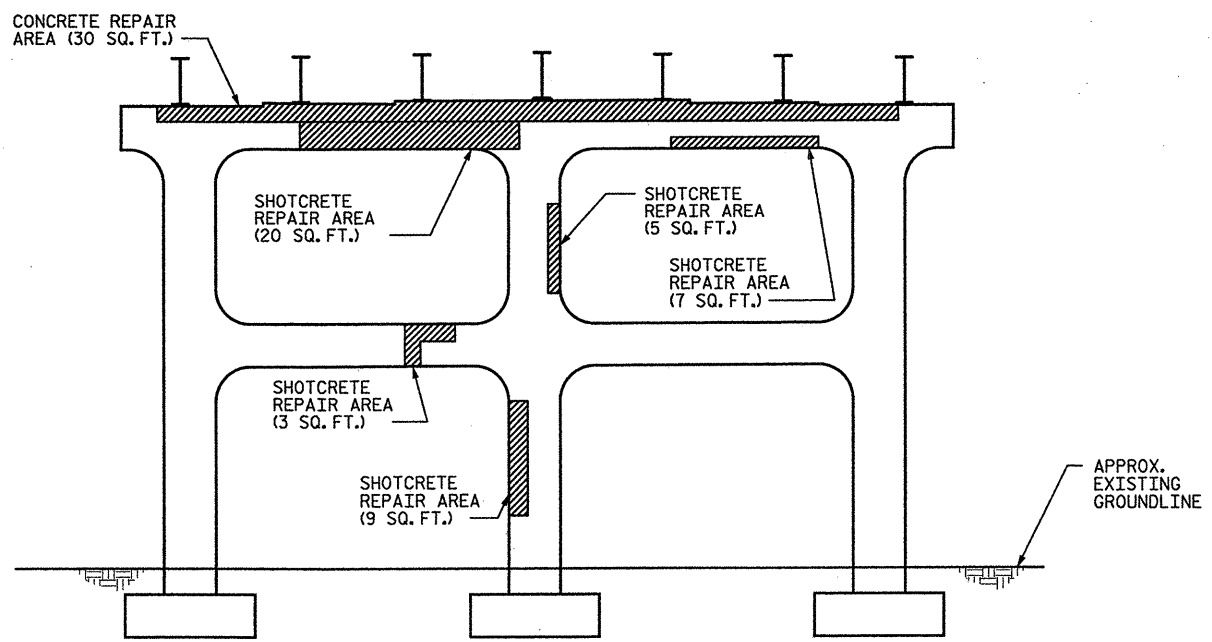
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
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ELEVATION OF BENT 2 - LOOKING SOUTH
NORTH FACE



ELEVATION OF BENT 2 - LOOKING NORTH
SOUTH FACE

NOTES:

1. FOR SHOTCRETE REPAIR NOTES AND DETAILS, SEE SHEET 3 OF 7.
2. BENT CAP REPAIRS IN BEARING AREAS SHALL BE CONCRETE REPAIR PERFORMED WITH CLASS A CONCRETE.
3. SEE SHEET 2 OF 7 FOR ADDITIONAL NOTES.

PROJECT NO. 17BP.9.H.1
 FORSYTH COUNTY
 BRIDGE NO.: 336
 REHAB. OF BRIDGE NO. 336 SHEET 5 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUBSTRUCTURE
 BENT 2 REPAIRS**
 CHURCH STREET SOUTH OVER
 I-40 BUSINESS



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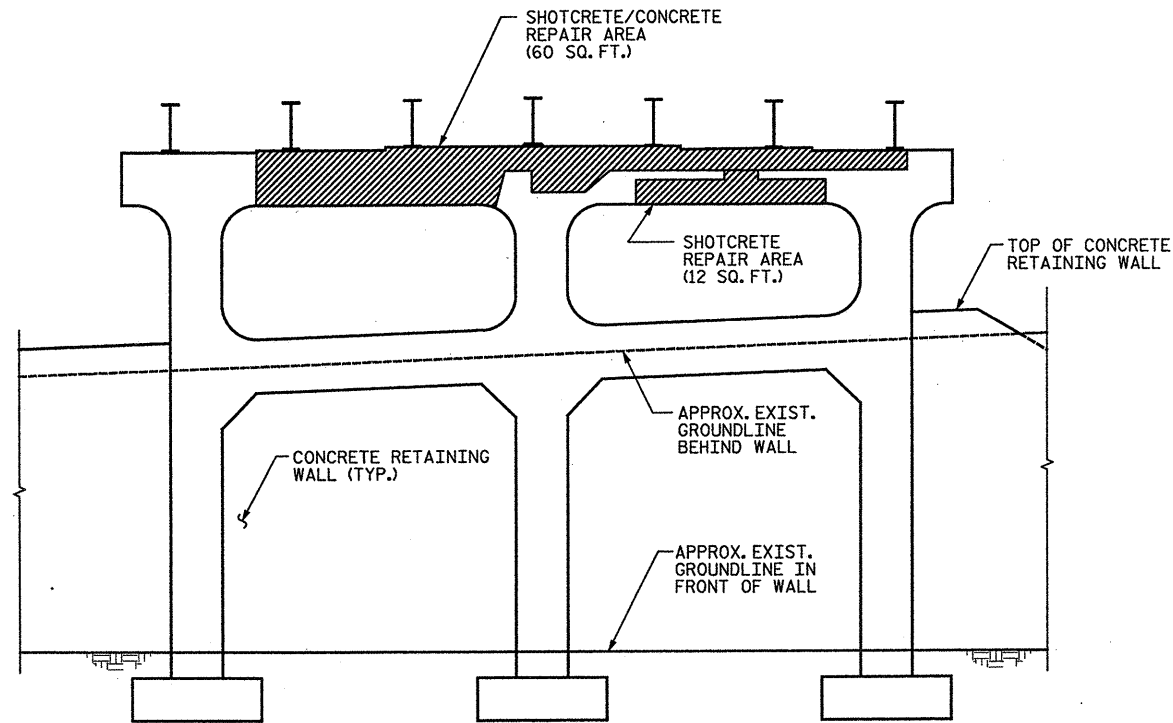
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 NC License No. F-0991

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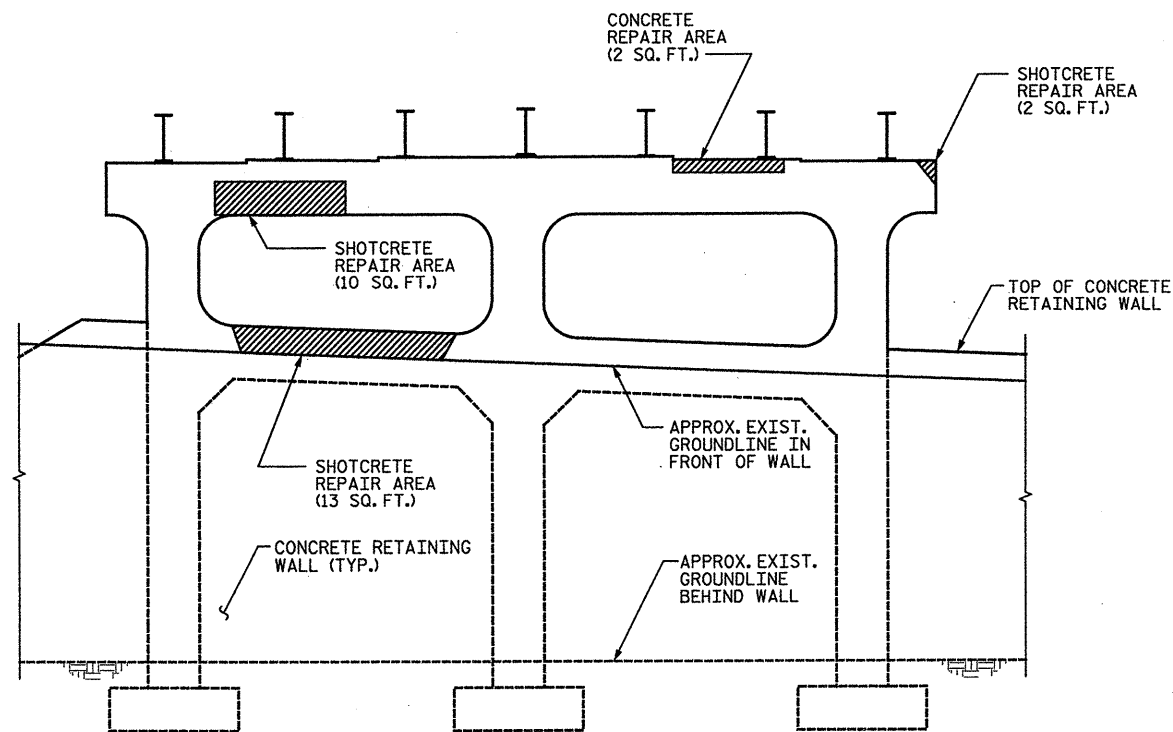
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1/11/2012



ELEVATION OF BENT 3 - LOOKING SOUTH
NORTH FACE



ELEVATION OF BENT 3 - LOOKING NORTH
SOUTH FACE

NOTES:

1. FOR SHOTCRETE REPAIR NOTES AND DETAILS, SEE SHEET 3 OF 7.
2. BENT CAP REPAIRS IN BEARING AREAS SHALL BE CONCRETE REPAIR PERFORMED WITH CLASS A CONCRETE.
3. SEE SHEET 2 OF 7 FOR ADDITIONAL NOTES.

PROJECT NO. 17BP.9.H.1

FORSYTH COUNTY

BRIDGE NO.: 336

REHAB. OF BRIDGE NO. 336 SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUBSTRUCTURE
BENT 3 REPAIRS**
CHURCH STREET SOUTH OVER
I-40 BUSINESS



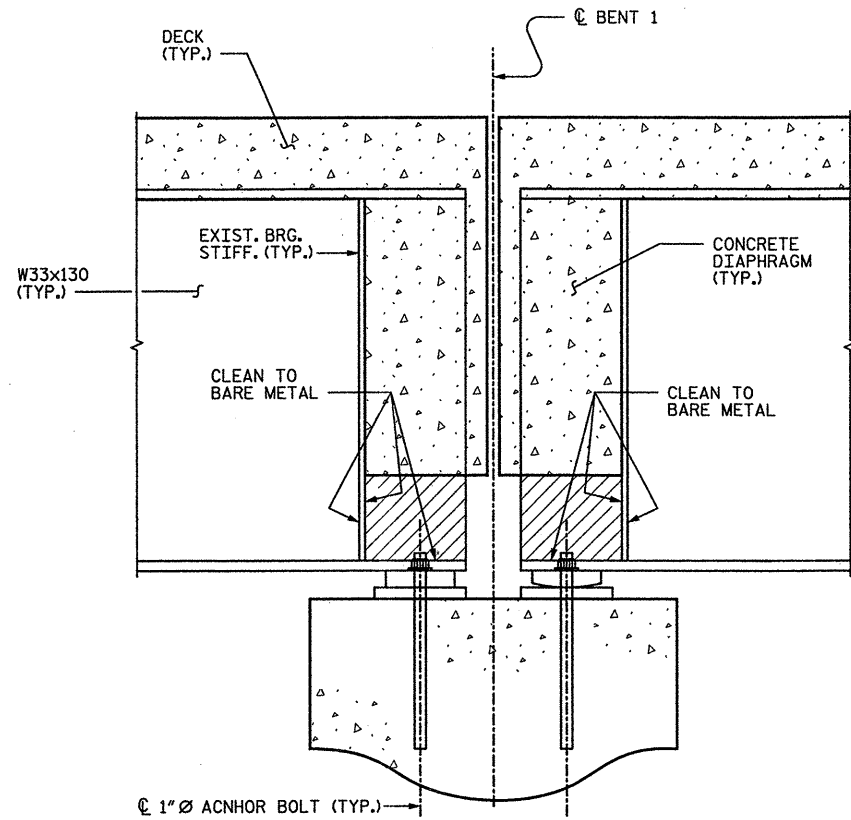
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CHECKED BY : JAS DATE : 12-11

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NC License No. F-0991

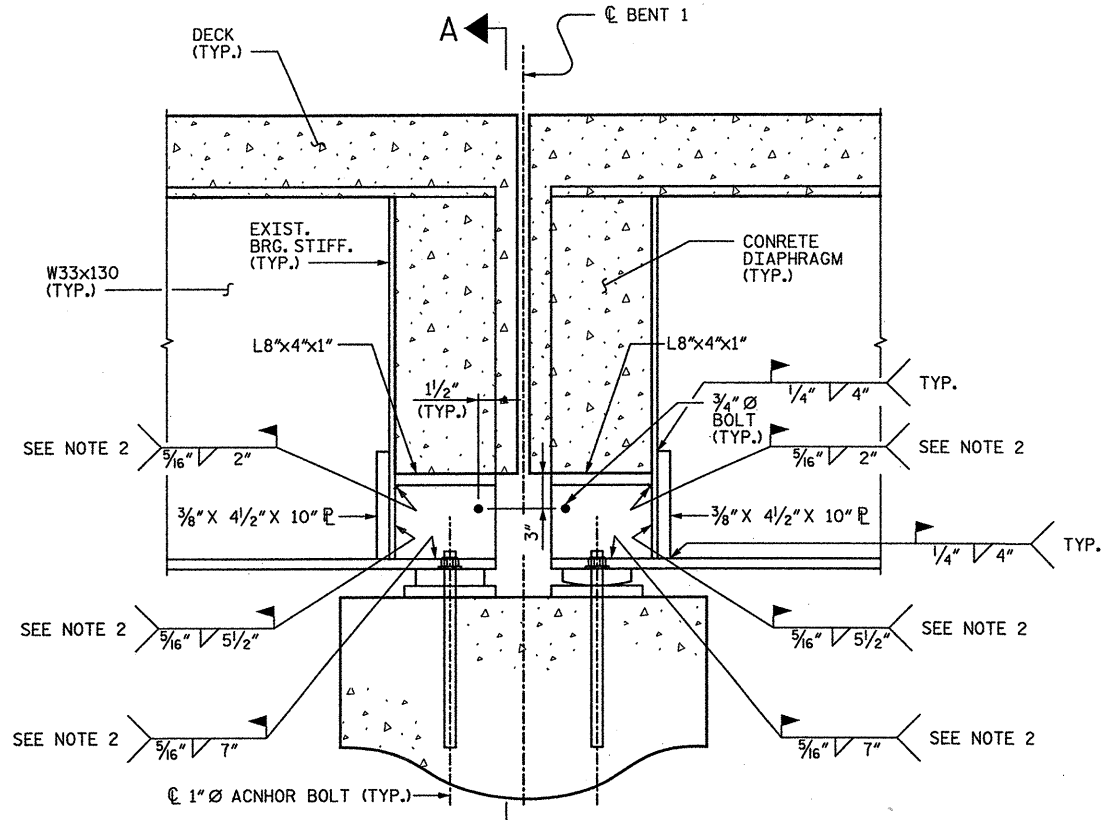
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1			3			TOTAL SHEETS
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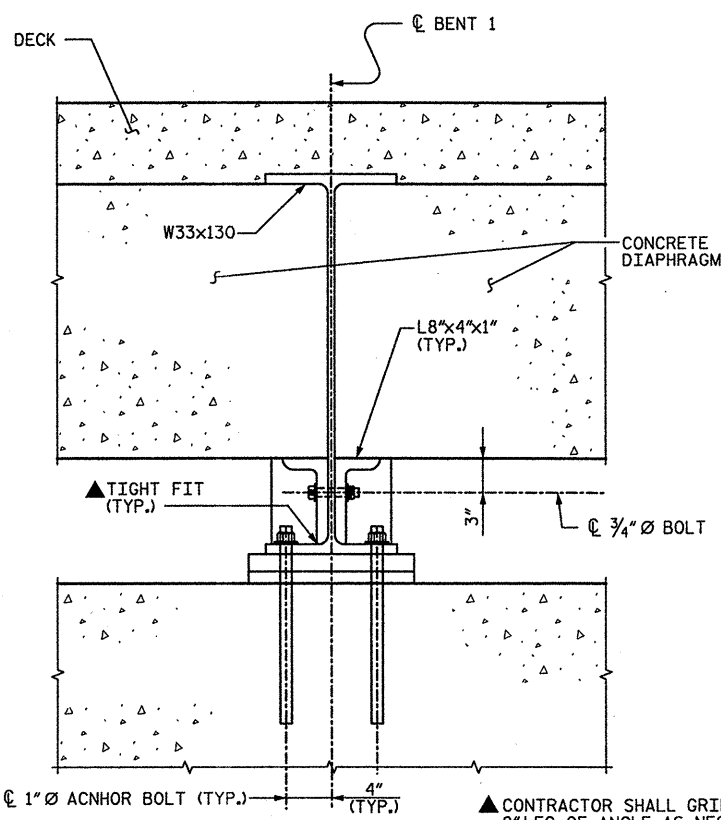
2/16/2012



STAGE 1

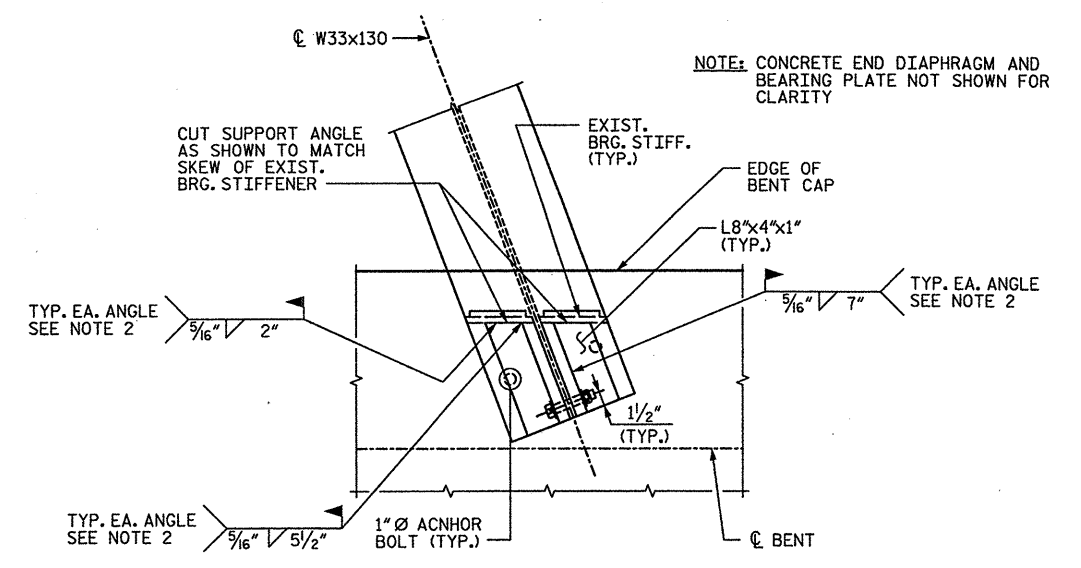


STAGE 2



SECTION A-A

▲ CONTRACTOR SHALL GRIND TO FIT 8" LEG OF ANGLE AS NECESSARY IN ORDER FOR ANGLE TO FIT WHILE MAINTAINING A TIGHT FIT. TORCH CUT NOT PERMITTED.



PLAN VIEW OF SINGLE GIRDER

NOTE: CONCRETE END DIAPHRAGM AND BEARING PLATE NOT SHOWN FOR CLARITY

CUT SUPPORT ANGLE AS SHOWN TO MATCH SKEW OF EXIST. BRG. STIFFENER

NOTES:

1. SEE SHEET 2 OF 7 FOR ADDITIONAL NOTES.
2. IF EXISTING BASE MATERIAL IS NOT ADEQUATE FOR WELDING, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
3. ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 36 OR APPROVED EQUIVALENT.
4. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
5. ALL WELDING SHALL BE PERFORMED WITHIN CURRENT AWS GUIDELINES. ANY DAMAGE TO GALVANIZATION SHALL BE REPAIRED IN ACCORDANCE WITH ASTM A780.
6. CONTRACTOR SHALL NOT WELD TO WEB OF EXISTING GIRDER.
7. CONTRACTOR SHALL CLEAN THE BOTTOM FLANGE AND BEARING STIFFENER TO BASE METAL USING HAND TOOLS. DUE TO THE EXTENSIVE CORROSION OF THE WEB, THERE SHALL BE NO CLEANING OF THE WEB.
8. BOLTS FOR ANGLE CONNECTION SHALL BE HIGH STRENGTH AND TIGHTENED TO SNUG FIT.
9. PERFORM WEB REPAIRS AT THE FOLLOWING
BENT 1: SPAN 1 - BEAM 5 & 6
BENT 1: SPAN 2 - BEAMS 2,3,5, & 6

PROJECT NO. **17BP.9.H.1**
FORSYTH COUNTY
 BRIDGE NO.: **336**
 REHAB. OF BRIDGE NO. 336 SHEET 7 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GIRDER REPAIR
 CHURCH STREET SOUTH OVER
 I-40 BUSINESS



DRAWN BY: TRL DATE: 12-11
 CHECKED BY: JAS DATE: 12-11

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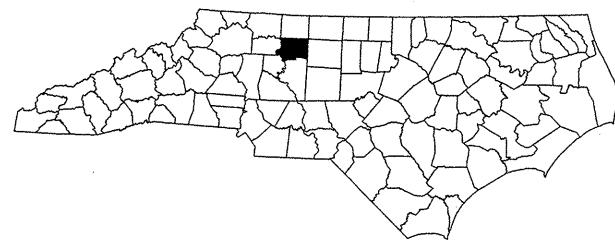
REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			S-47

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

FORSYTH COUNTY

DIVISION 9



LOCATION 1: FORSYTH COUNTY BRIDGE #278 PETERS CREEK PARKWAY (NC 150) OVER I-40 BUS /US 421/US 158
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS

LOCATION 2: FORSYTH COUNTY BRIDGE #178 SOUTH BROAD STREET OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS

LOCATION 3: FORSYTH COUNTY BRIDGE #220 OLD VINEYARD ROAD OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS

LOCATION 4: FORSYTH COUNTY BRIDGE #269 WEST 4TH STREET OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS

LOCATION 5: FORSYTH COUNTY BRIDGE #291 SOUTH SPRUCE STREET OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS

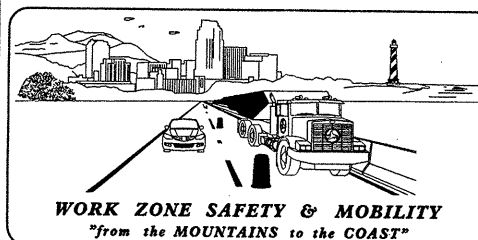
LOCATION 6: FORSYTH COUNTY BRIDGE #293 MARSHALL STREET (SR 1770) OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS, LONGITUDINAL JOINT REPAIR

LOCATION 7: FORSYTH COUNTY BRIDGE #305 SOUTH CHERRY STREET (SR 1735) OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS

LOCATION 8: FORSYTH COUNTY BRIDGE #313 SOUTH MAIN STREET (SR 1735) OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS, DECK REPAIRS

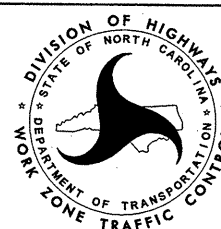
LOCATION 9: FORSYTH COUNTY BRIDGE #336 SOUTH CHURCH STREET OVER I-40 BUS /US 421/US 158 /NC 150
TYPE OF WORK: CONSTRUCT SUBSTRUCTURE REPAIRS

SEE SHEET 1 FOR VICINITY MAPS



PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT

RALEIGH, NC



STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT ENGINEER JOHN JOHNSON, PE
DESIGN ENGINEER RICHARD ODYSKI, PE

APPROVED: _____
DATE: _____

SEAL



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	GENERAL NOTES
TMP-1C-1G	PHASING NOTES
TMP-2A	OFFSITE DETOUR A
TMP-2B	OFFSITE DETOUR B
TMP-2C	OFFSITE DETOUR C
TMP-2D	OFFSITE DETOUR D
TMP-2E	OFFSITE DETOUR E
TMP-2F	OFFSITE DETOUR F
SD-1,2	SPECIAL SIGN DETAILS

PROJECT: 17BP.9.H.1

SHEET NO.

TMP-1


ROADWAY STANDARD DRAWINGS

REV. SEPTEMBER 2011

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:

STD.NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESS
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
1145.01	BARRICADES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS- INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS- (PERMANENT AND TEMPORARY)












PROJ. REFERENCE NO. 17BP.9.H.1	SHEET NO. TMP-1A
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LEGEND




GENERAL

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

TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW PANEL (TYPE C)
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN




SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES



PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

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APPROVED:	DATE:	
 SEAL 7-31-12	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	ROADWAY STANDARD DRAWINGS & LEGEND

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 UNDESIRE 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 AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
I-40 BUS, RAMPS, AND US 421	6:00 A.M. TO 8:00 P.M. MONDAY TO FRIDAY

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

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	
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 8:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 A.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 6:00 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 ANY BASEBALL GAMES OR ANY EVENT AT THE WINSTON-SALEM DASH BB&T BALLPARK THREE HOURS BEFORE THE GAME UNTIL THREE HOURS AFTER THE GAME.	
10. FOR ANY WAKE FOREST OR WINSTON-SALEM STATE FOOTBALL GAMES FROM TWO HOURS BEFORE THE GAME TO TWO HOURS AFTER THE GAME.	

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
I-40 BUS.	5:30 A.M. TO 9:00 P.M. EVERYDAY

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.
- E) 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 IS PROTECTED BY BARRIER OR GUARDRAIL.
- F) 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.
- G) 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.

TRAFFIC PATTERN ALTERATIONS

- H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- I) 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.
- J) 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.
- K) 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.
- L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

- M) INSTALL TEMPORARY BARRIER ACCORDING TO 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.

PROJ. REFERENCE NO.	SHEET NO.
17BP.9.H.1	TMP-1B
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INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINING 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 PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- N) 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:


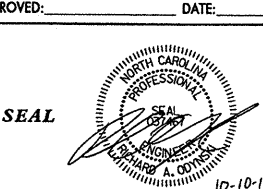
POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45-50	20 FT
55	25 FT
60 MPH OR HIGHER	30 FT

TRAFFIC CONTROL DEVICES

- O) 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.
- P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.
- R) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- T) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS, REPLACE PAVEMENT MARKINGS WITH POLYUREA AND RAISED PAVEMENT MARKERS ON THE FINAL SURFACE AS DIRECTED BY THE ENGINEER.


MISCELLANEOUS

- U) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

APPROVED: _____ DATE: _____	 DIVISION OF HIGHWAYS NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	GENERAL NOTES
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PHASING

PROJ. REFERENCE NO. 17BP.9.H.1	SHEET NO. TMP-1C
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USE NCDOT STD. 1101.01 SHEETS 1 AND 2 OF 3 TO INSTALL WORK ZONE ADVANCE WARNING SIGNS.

DO NOT PERFORM WORK ON MULTIPLE BRIDGE LOCATIONS SIMULTANEOUSLY. DO NOT WORK ON BOTH SIDES OF ROADWAY AT THE SAME LOCATION SIMULTANEOUSLY.

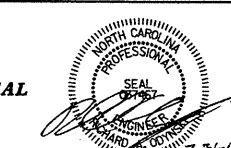

PHASE 1 (FORSYTH 278):

- STEP 1: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 3: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 4: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 5: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 6: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 7: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 8: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 9: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 10: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 11: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 12: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 13: USING TMP-2A, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE WESTBOUND ENTRANCE RAMP FROM PETERS CREEK PARKWAY TO I-40 BUS DURING NIGHT OPERATIONS.
- STEP 14: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 15: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 16: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 17: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.


PHASE 2 (FORSYTH 178):

- STEP 1: USING TMP-2B, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE EASTBOUND I-40 BUS EXIT RAMP TO BROAD STREET DURING NIGHT OPERATIONS.
- STEP 2: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 3: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 4: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 5: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 6: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 7: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 8: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 9: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 10: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 11: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 12: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 13: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 14: USING TMP-2B, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE WESTBOUND ENTRANCE RAMP TO I-40 BUS DURING NIGHT OPERATIONS.
- STEP 15: USE DRUMS TO CLOSE THE WESTBOUND AUXILLIARY LANE OF I-40 BUS FROM THE ENTRANCE RAMP GORE FROM NC 150 TO A POINT NOT LESS THAN 200 FEET WEST OF BRIDGE 278 DURING NIGHT OPERATIONS.
- STEP 16: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 17: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 18: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

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PHASING (CONT.)

PROJ. REFERENCE NO. 17BP.9.H.1	SHEET NO. TMP-1D
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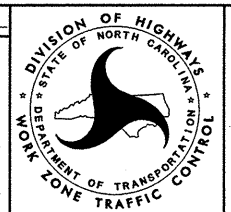
PHASE 3 (FORSYTH 220):

- STEP 1: USING NCDOT STD. 1101.02 SHEET 9 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 3: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 4: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 5: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 6: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 7: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 8: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 9: USING NCDOT STD. 1101.02 SHEETS 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 10: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 11: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 12: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 13: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 14: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 15: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 16: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.


PHASE 4 (FORSYTH 269):

- STEP 1: USING TMP-2C, INSTALL RAMP CLOSURE AND DETOUR SIGNS AND DEVICES TO CLOSE I-40 BUS EXIT RAMP TO PETERS CREEK PARKWAY DURING NIGHT OPERATIONS.
- STEP 2: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 3: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 4: COVER ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 5: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE, RAMP CLOSURE AND DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 6: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 7: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 8: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 9: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 10: USING NCDOT STD. 1101.02 SHEETS 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 11: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 12: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 13: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 14: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 15: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 16: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 17: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

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PHASING (CONT.)

PROJ. REFERENCE NO.	SHEET NO.
17BP.9.H.1	TMP-1E
	
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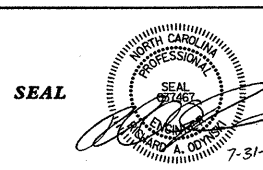

PHASE 5 (FORSYTH 291)

- STEP 1: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 3: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 4: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 5: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 6: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 7: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 8: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 9: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 10: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 11: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 12: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 13: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 14: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 15: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 16: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

PHASE 6 (FORSYTH 293)

- STEP 1: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 3: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 4: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

- STEP 5: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 6: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 7: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 8: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 9: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 10: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 11: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 12: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 13: USING TMP-2D, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE WESTBOUND ENTRANCE RAMP FROM SOUTH LIBERTY STREET TO I-40 BUS DURING NIGHT OPERATIONS.
- STEP 14: USING NCDOT STD. 1101.02 SHEETS 9 AND 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 15: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 16: COVER ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 17: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE, RAMP CLOSURE AND DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 18: USING TMP-2E, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE EASTBOUND ENTRANCE RAMP FROM SOUTH MARSHALL STREET TO I-40 BUS.
- STEP 19: USING NCDOT STD. 1101.02 SHEET 8 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES INCLUDING PORTABLE CONCRETE BARRIER AS NEEDED, TO CLOSE THE TWO SOUTHBOUND LEFT LANES OF BRIDGE 293.
- STEP 20: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT LONGITUDINAL JOINT REPAIR ON BRIDGE 293, SEE STRUCTURE PLANS.
- STEP 21: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

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PHASING (CONT.)


PHASE 7 (FORSYTH 305)

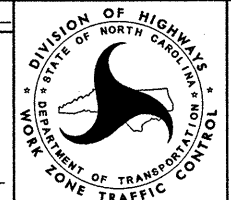
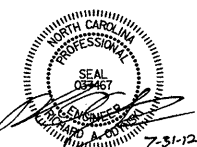
- STEP 1: USING TMP-2E, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE EASTBOUND ENTRANCE RAMP FROM SOUTH MARSHALL STREET TO I-40 BUS.
- STEP 2: USING NCDOT STD. 1101.02 SHEET 9 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 3: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 4: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 5: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 6: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 7: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 8: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 9: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 10: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 11: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 12: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 13: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 14: USING TMP-2D, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE WESTBOUND ENTRANCE RAMP FROM SOUTH LIBERTY STREET TO I-40 BUS DURING NIGHT OPERATIONS.
- STEP 15: USING NCDOT STD. 1101.02 SHEETS 9 AND 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 16: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 17: COVER ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 18: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE, RAMP CLOSURE AND DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

PHASE 8 (FORSYTH 313)

- STEP 1: USING TMP-2E, INSTALL RAMP CLOSURE SIGNS AND DEVICES TO CLOSE AND DETOUR THE EASTBOUND ENTRANCE RAMP FROM SOUTH MARSHALL STREET TO I-40 BUS DURING NIGHT OPERATIONS.
- STEP 2: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 3: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 4: COVER ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 5: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE, RAMP CLOSURE AND DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 6: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 7: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 8: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.

- STEP 9: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 10: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 11: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 12: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 13: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 14: USING NCDOT STD. 1101.02 SHEETS 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 15: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 16: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 17: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE AND DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 18: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES, INCLUDING PORTABLE CONCRETE BARRIER AS NEEDED TO PROTECT WORK AREA, CLOSE THE WEST HALF OF SOUTH MAIN STREET.
- STEP 19: PERFORM DECK REPAIRS TO WEST SIDE OF SOUTH MAIN STREET AS REQUIRED, SEE STRUCTURE PLANS.
- STEP 20: WHEN REPAIRS ARE COMPLETE REMOVE SIGNS AND DEVICES AND RETURN SOUTH MAIN STREET TO ITS ORIGINAL TRAFFIC PATTERN.
- STEP 21: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES, INCLUDING PORTABLE CONCRETE BARRIER AS NEEDED TO PROTECT WORK AREA, CLOSE THE EAST HALF OF SOUTH MAIN STREET.
- STEP 22: PERFORM DECK REPAIRS TO EAST SIDE OF SOUTH MAIN STREET AS REQUIRED, SEE STRUCTURE PLANS.
- STEP 23: WHEN WORK IS COMPLETE, REMOVE ALL SIGNS AND DEVICES FROM SOUTH MAIN STREET AND RETURN TRAFFIC TO ITS NORMAL PATTERN.



PROJ. REFERENCE NO.	SHEET NO.
17BP.9.H.1	TMP-1F
 STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28205 NC License Number F-0991	

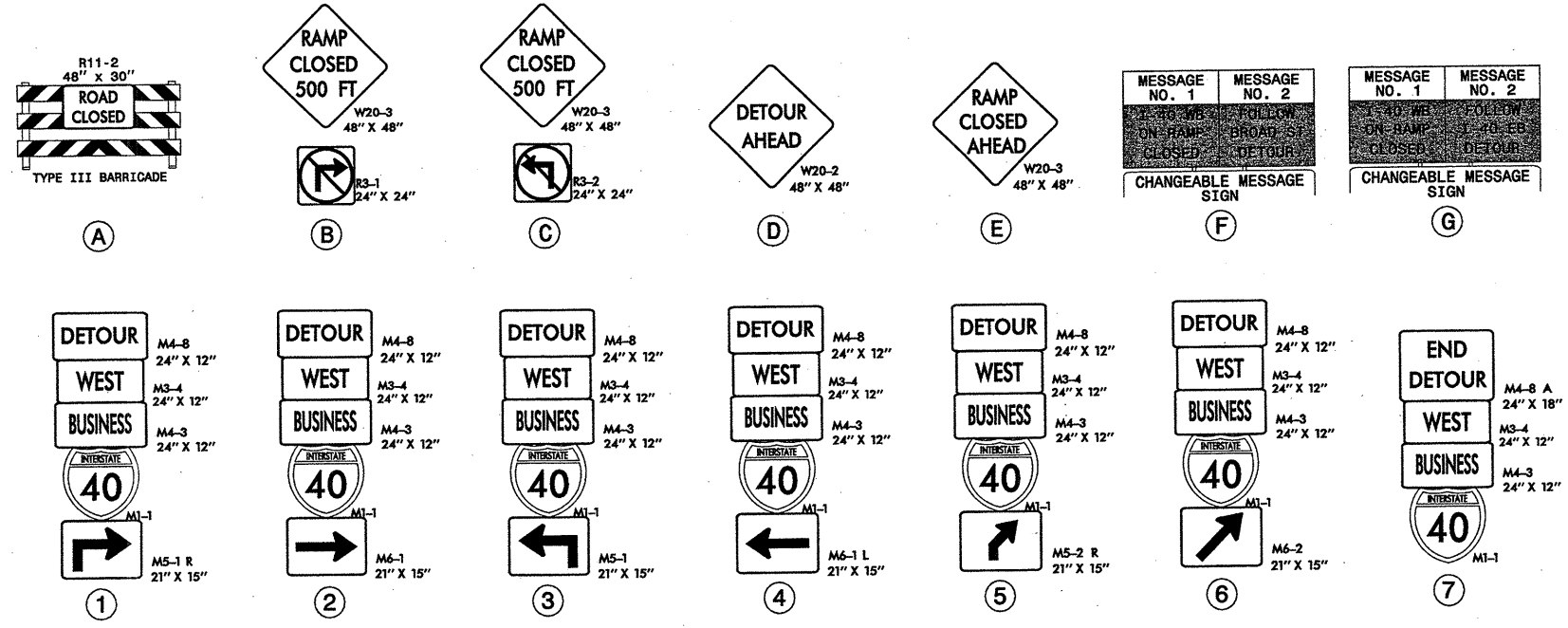
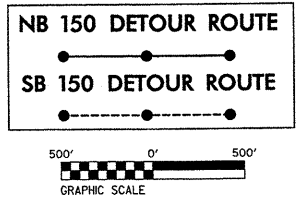
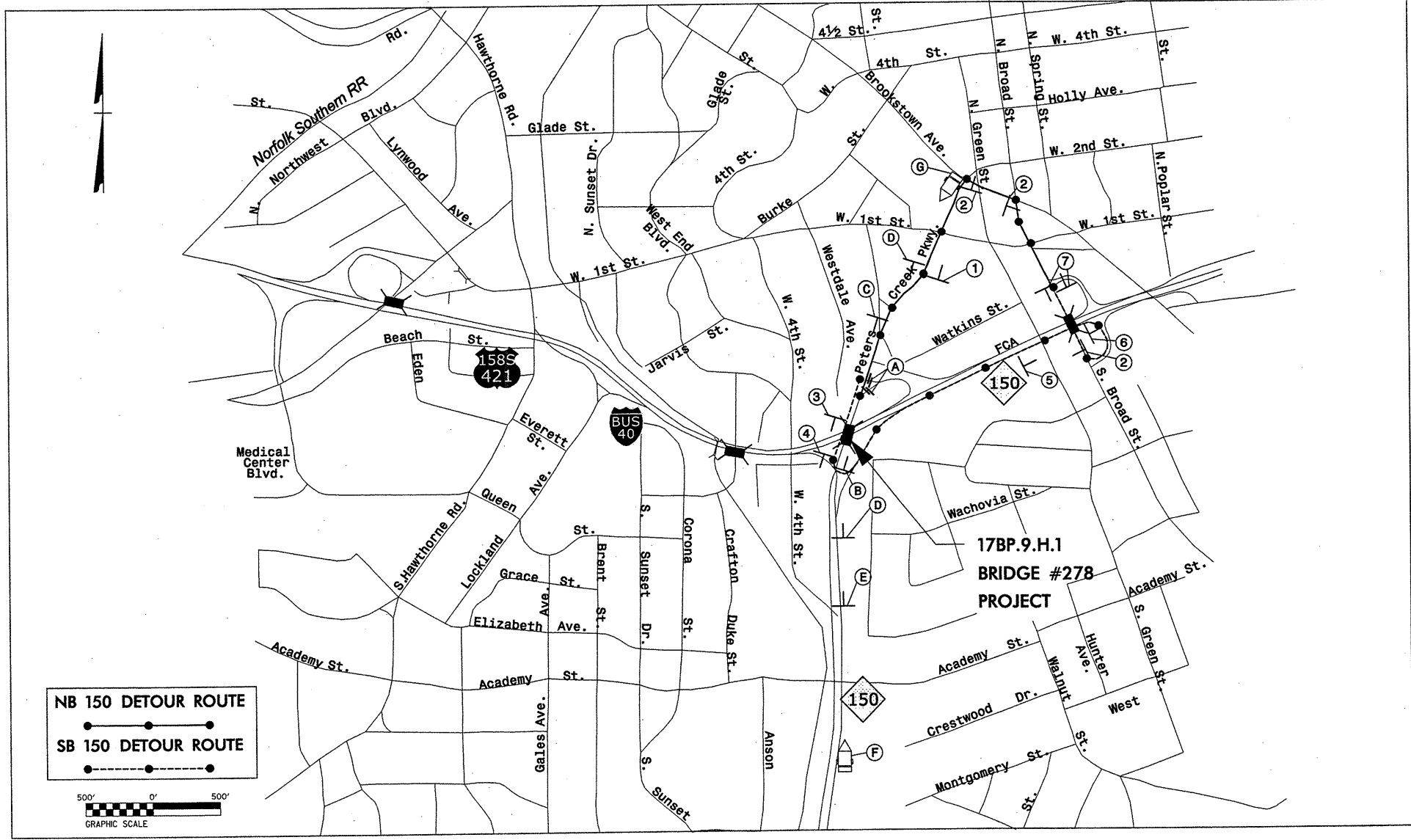
APPROVED: _____	DATE: _____		PHASING NOTES
SEAL			

PHASING (CONT.)

PHASE 9 (FORSYTH 336)

- STEP 1: USING TMP-2F, INSTALL RAMP CLOSURE AND DETOUR SIGNS AND DEVICES TO CLOSE EASTBOUND I-40 BUS ENTRANCE RAMP FROM MAIN STREET DURING NIGHT OPERATIONS.
- STEP 2: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE AND RAMP CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND OUTSIDE LANE OF I-40 BUS AND EASTBOUND ENTRANCE RAMP FROM MAIN STREET DURING NIGHT OPERATIONS.
- STEP 3: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 4: COVER ALL LANE CLOSURE AND RAMP CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 5: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE, RAMP CLOSURE AND DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 6: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 7: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE EASTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 8: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 9: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 10: USING NCDOT STD. 1101.02 SHEET 3 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND INSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 11: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND INSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 12: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 13: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 14: USING NCDOT STD. 1101.02 SHEET 10 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND OUTSIDE LANE OF I-40 BUS DURING NIGHT OPERATIONS.
- STEP 15: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:
CONSTRUCT SUBSTRUCTURE REPAIRS OVER THE WESTBOUND OUTSIDE LANE OF I-40 BUS, SEE STRUCTURE PLANS.
- STEP 16: COVER ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH NIGHT OPERATION.
- STEP 17: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE AND DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

APPROVED: _____ <div style="text-align: center;">  SEAL 7-31-12 </div>	DATE: _____	<div style="text-align: center;">  DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL </div>	<h3>PHASING NOTES</h3>
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NOTES:
 TRAFFIC CONTROL DEVICES (A) THRU (G) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.
 TRAFFIC CONTROL DEVICES (1) THRU (7) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.

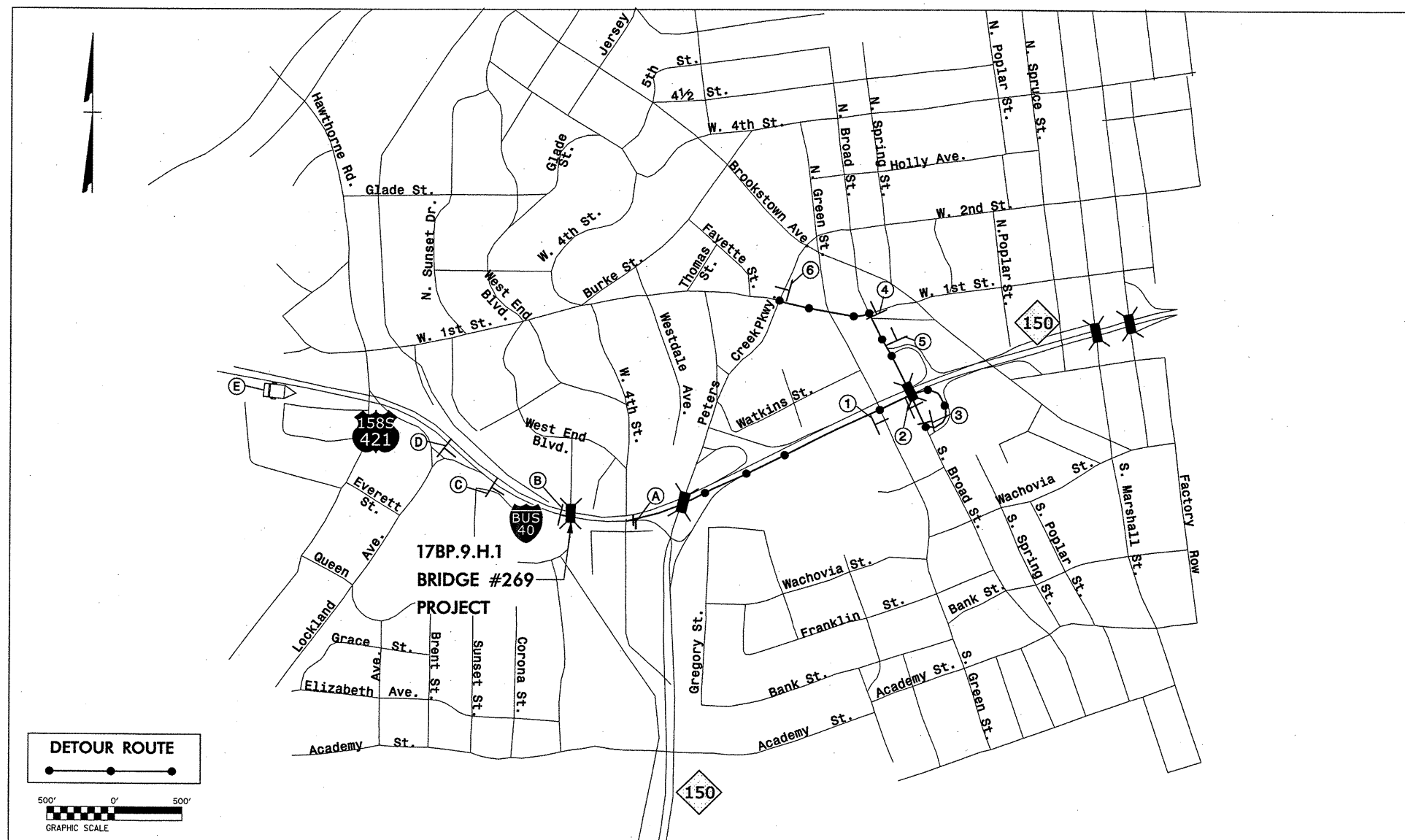
APPROVED: _____ DATE: _____

SEAL

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

OFFSITE DETOUR A
 SIGNING AND ROAD
 CLOSURE SIGNING

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(A)



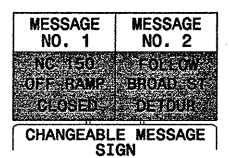
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(C)

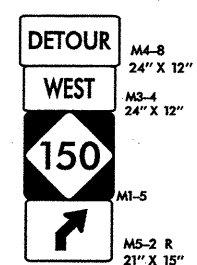


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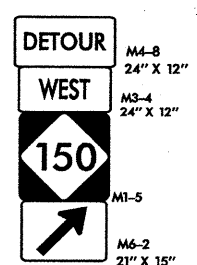


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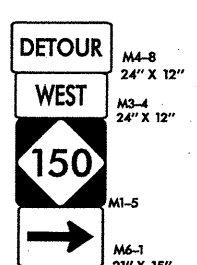
NOTES:
 TRAFFIC CONTROL DEVICES (A) THRU (E) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.
 TRAFFIC CONTROL DEVICES (1) THRU (6) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.



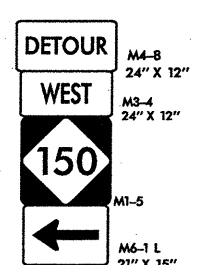
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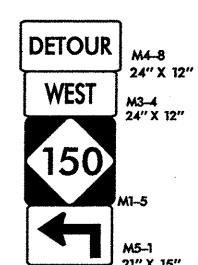
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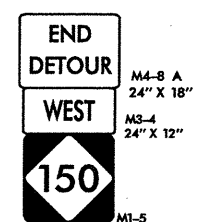
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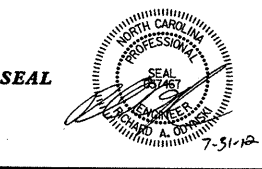
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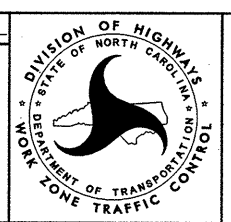


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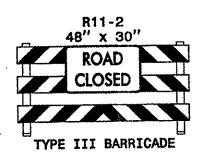
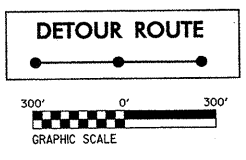
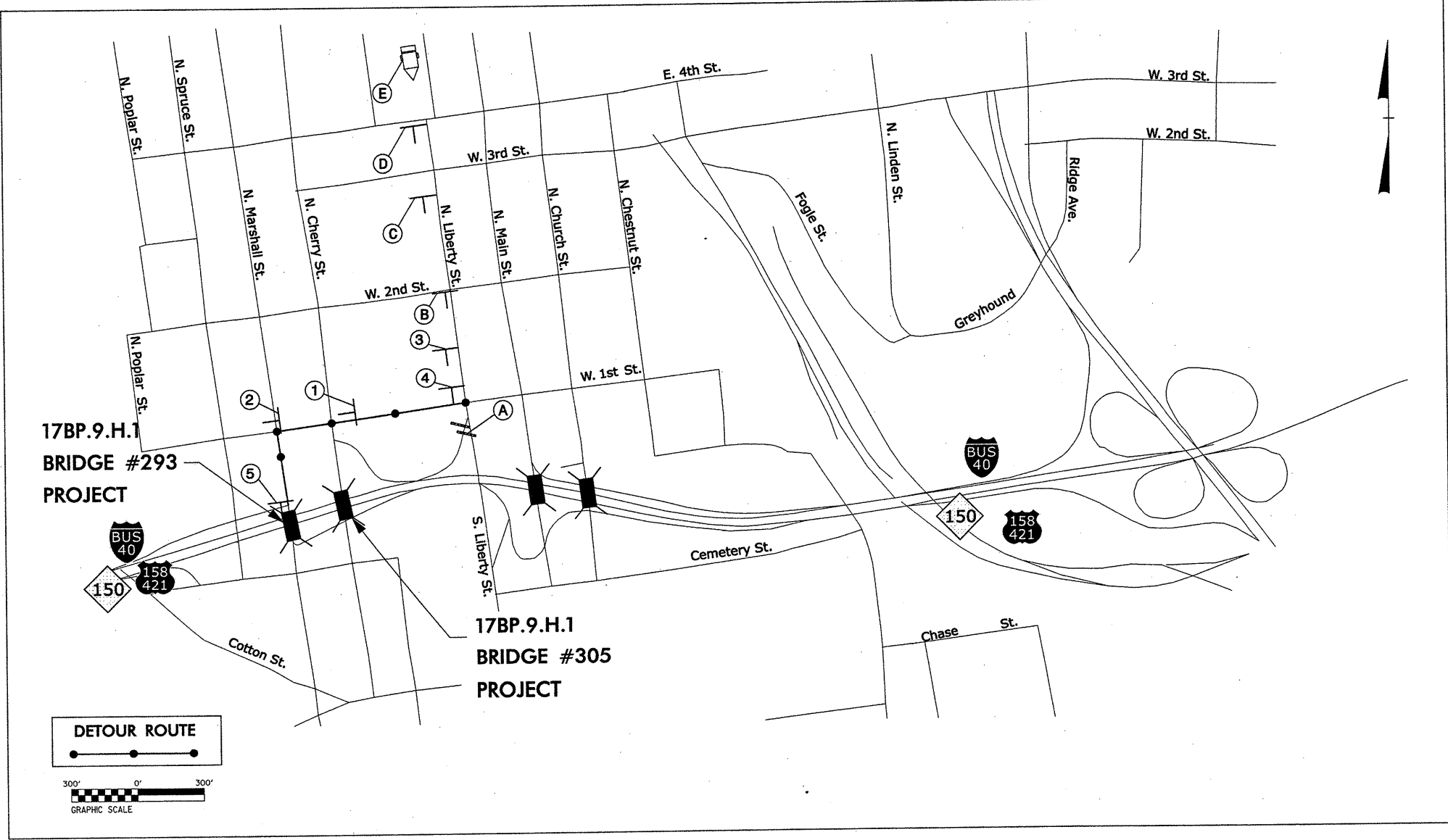


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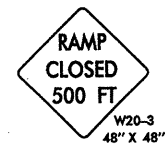
APPROVED: _____ DATE: _____




OFFSITE DETOUR C
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 CLOSURE SIGNING



A



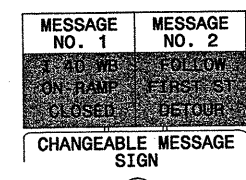
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C

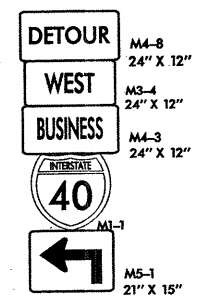


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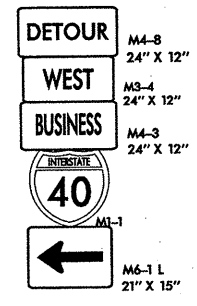


E

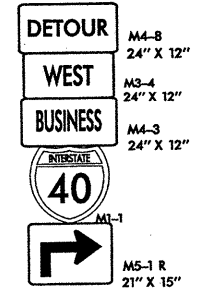
NOTES:
 TRAFFIC CONTROL DEVICES A THRU E SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.
 TRAFFIC CONTROL DEVICES 1 THRU 5 SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.



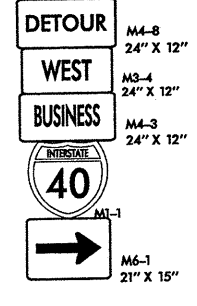
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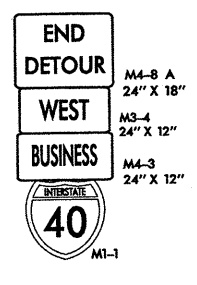
2




3

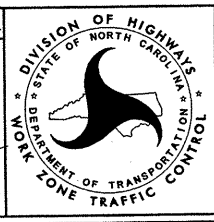


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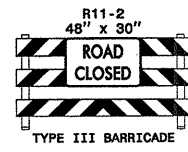
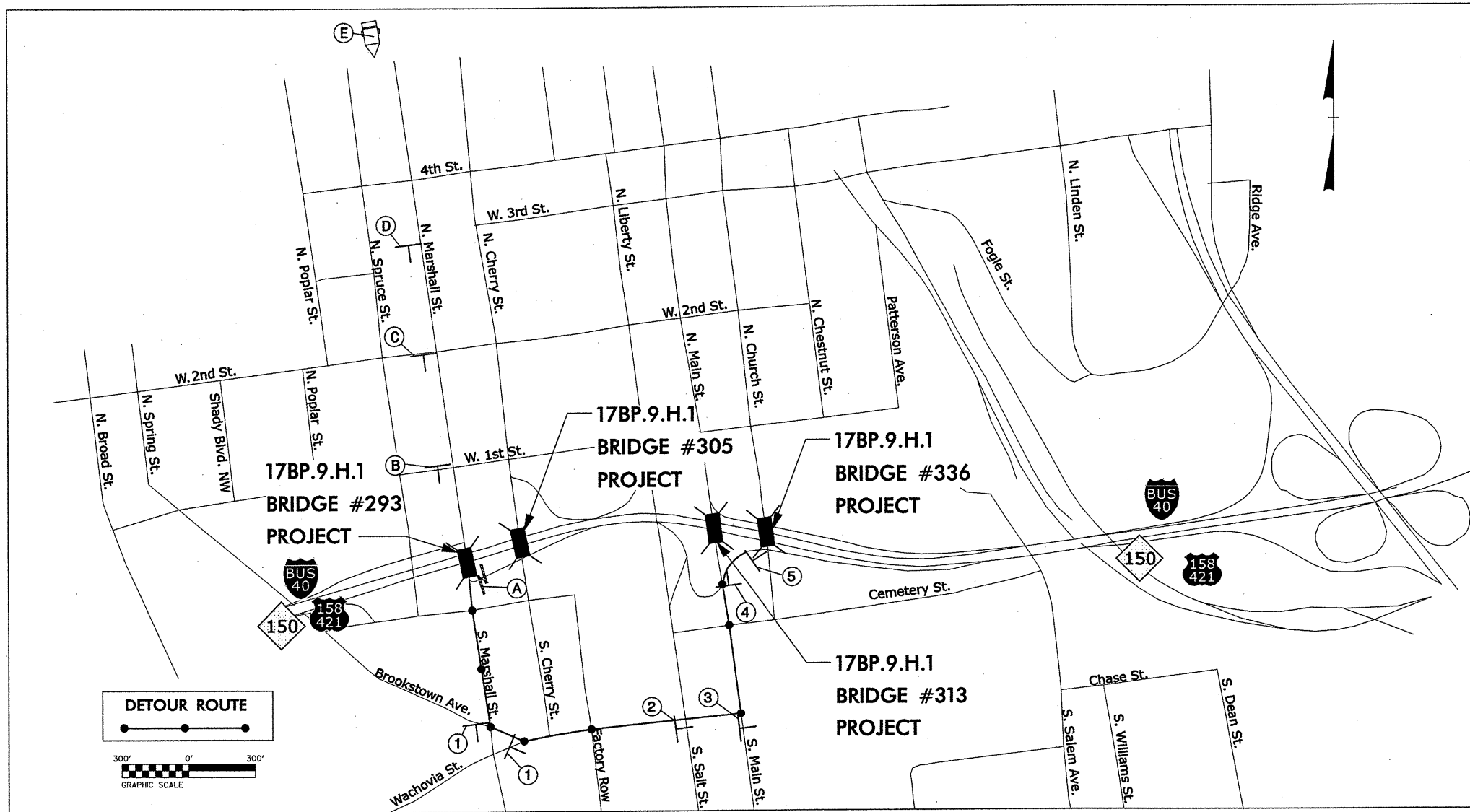


5

APPROVED: _____ DATE: _____




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(A)



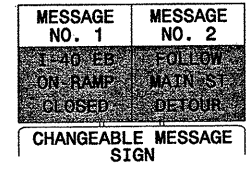
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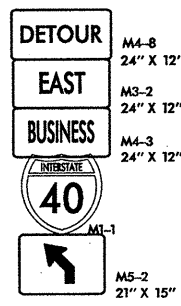
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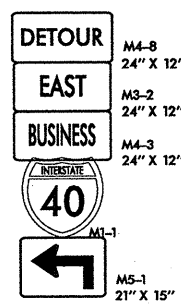
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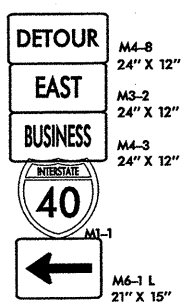
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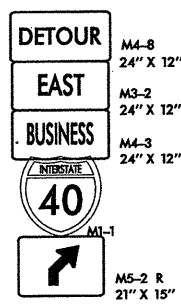
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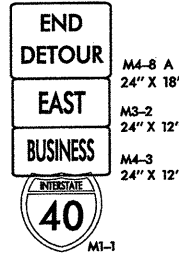
②



③



④



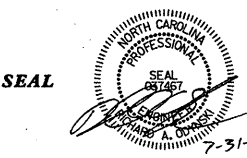
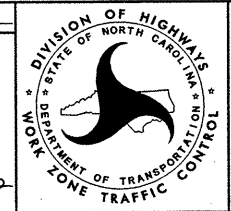
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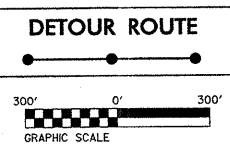
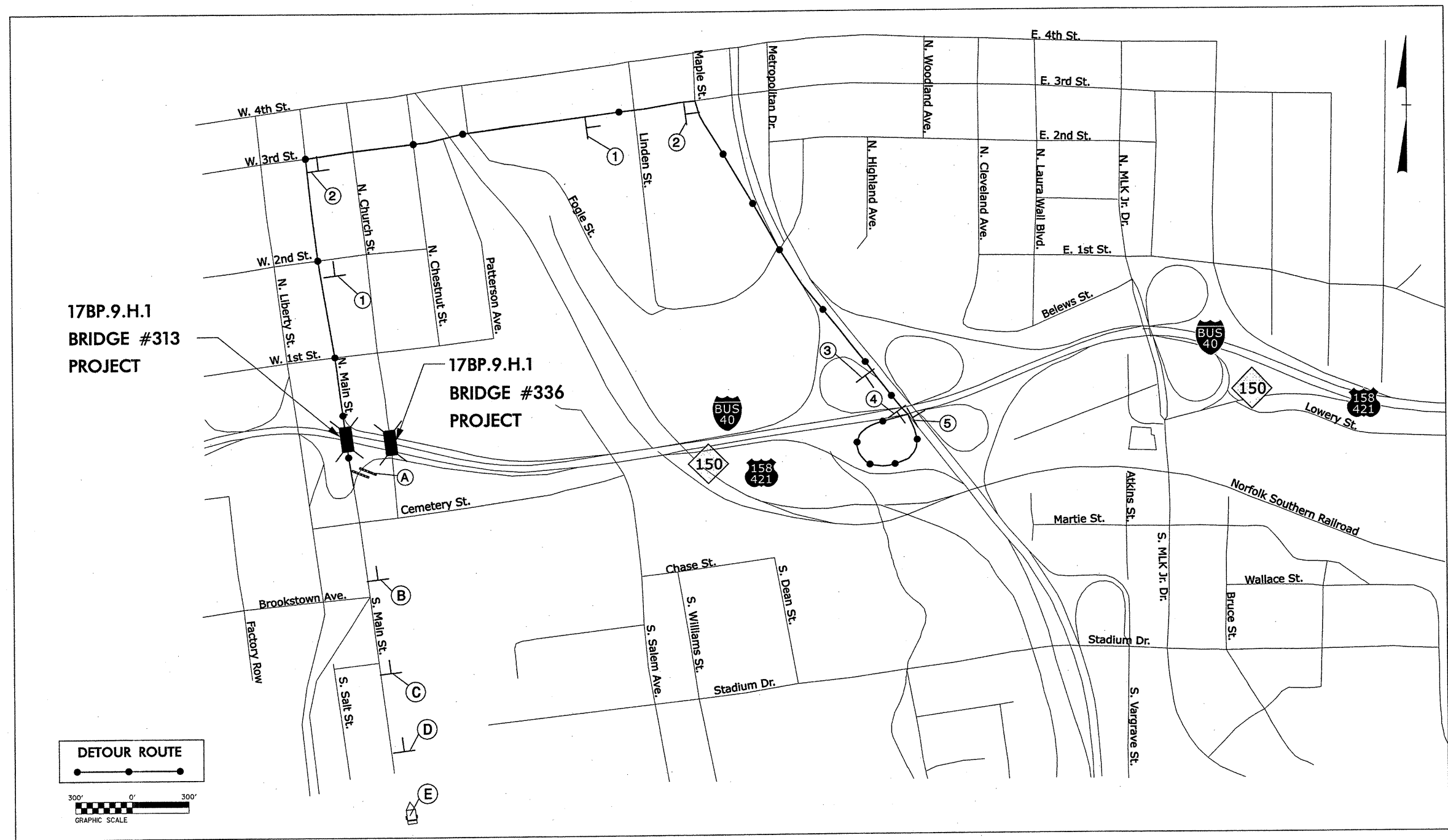
TRAFFIC CONTROL DEVICES (A) THRU (E) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.

TRAFFIC CONTROL DEVICES ① THRU ⑤ SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.

APPROVED: _____ DATE: _____

OFFSITE DETOUR E
SIGNING AND ROAD
CLOSURE SIGNING



(A)



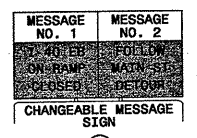
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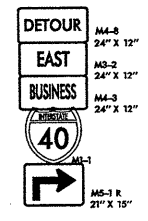
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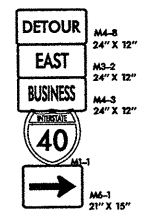
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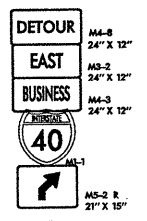
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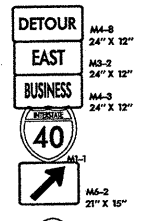
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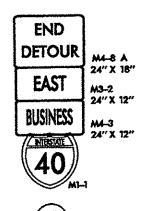
(2)



(3)



(4)




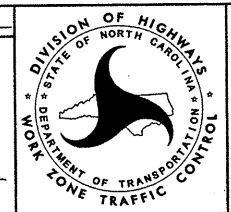
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NOTES:

TRAFFIC CONTROL DEVICES (A) THRU (E) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.
 TRAFFIC CONTROL DEVICES (1) THRU (5) SHALL BE INSTALLED AS PER ENGINEER'S INSTRUCTION.

APPROVED: _____ DATE: _____

SEAL

**OFFSITE DETOUR F
SIGNING AND ROAD
CLOSURE SIGNING**

7/31/2010 r:\trafficcontrol\top\microstation files\9HL_TMP_2F.dgn odymskr

DESIGN BY: JRG CHECKED BY: RAO STD #:
 PROJECT ID: 17BP.9.H.1 DIV: 9 DATE: Dec 1, 2011

SIGN NUMBER:
 TYPE: STATIONARY BACKG COLOR: Fluorescent Orange
 QUANTITY: SEE PLANS COPY COLOR: Black

 SIGN WIDTH: 3'-6"
 HEIGHT: 1'-0"
 TOTAL AREA: 3.5 Sq.Ft.

 BORDER TYPE: INSET
 RECESS: 0.5"
 WIDTH: 0.5"
 RADII: 3"

 NO. Z BARS:
 LENGTH:

MAJ. COPY SERIES:

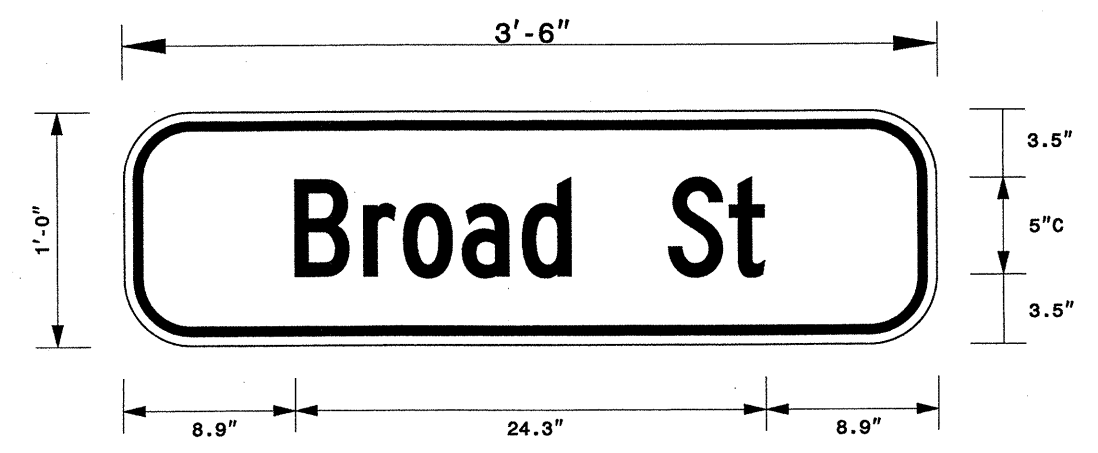
 ROUTE MARKERS:

 ARROW TYPES:

 MAT'L:
 0.080" (2.0 mm) Aluminum
 0.079" (2.0 mm) Composite

LETTER POSITIONS

B	r	o	a	d	S	t				
8.9	3.5	2.1	3	3.1	2.5	5	3.2	1.8	8.9	24.3


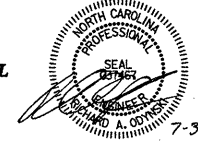


BORDER
 R=3"
 TH=0.5"
 IN=0.5"

Panel Style: Street Name TC 12in.ssi
 M.U.T.C.D.: 2003 Edition

USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting.

APPROVED:	DATE:	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	SPECIAL SIGN DETAIL - 1
 SEAL EDWARD A. GONNER 7-31-12			

DESIGN BY: JRG CHECKED BY: RAO STD #:
 PROJECT ID: 17BP.9.H.1 DIV: 9 DATE: Dec 1, 2011

SIGN NUMBER:
 TYPE: STATIONARY BACKG COLOR: Flourescent Orange
 QUANTITY: SEE PLANS COPY COLOR: Black

SIGN WIDTH: 3'-0"
 HEIGHT: 1'-0"
 TOTAL AREA: 3.0 Sq.Ft.

BORDER TYPE: INSET
 RECESS: 0.5"
 WIDTH: 0.5"
 RADII: 3"

NO. Z BARS:
 LENGTH:

MAJ. COPY SERIES:
 ROUTE MARKERS:
 ARROW TYPES:
 MAT'L:
 0.080" (2.0 mm) Aluminum
 0.079" (2.0 mm) Composite

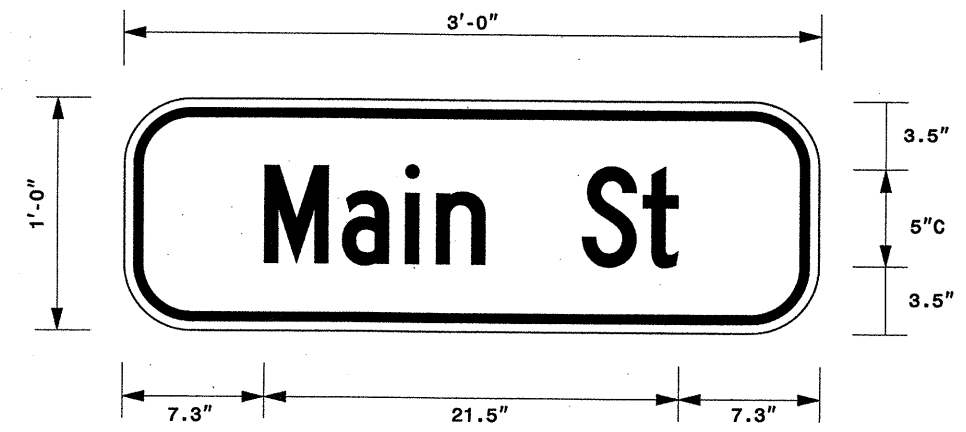
LETTER POSITIONS

M	a	i	n	S	t				
7.3	4.1	3.3	1.6	2.6	5	3.2	1.9	7.3	21.5

Letter positions are to the lower left corners

USE NOTES: 1,2

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APPROVED:	DATE:		<p>SPECIAL SIGN DETAIL - 2</p>

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. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990