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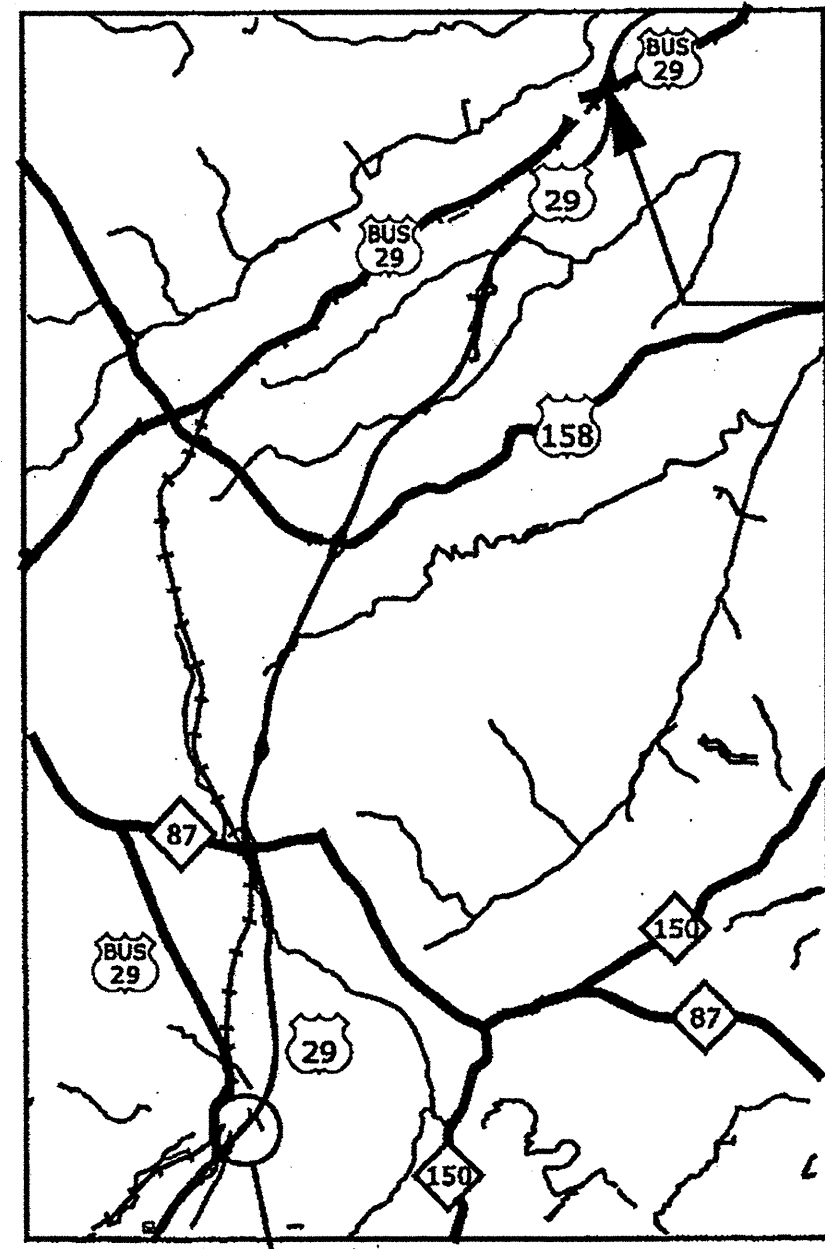
PROJECT: 17BP.7.P.3

CONTRACT: C202966

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.P.3	1	60
STATE PROJ. NO.	F.A.P. PROJ. NO.	DESCRIPTION	
17BP.7.P.3	NA	PE	
17BP.7.P.3	NA	CONSTR.	

**ROCKINGHAM COUNTY
CASWELL COUNTY**



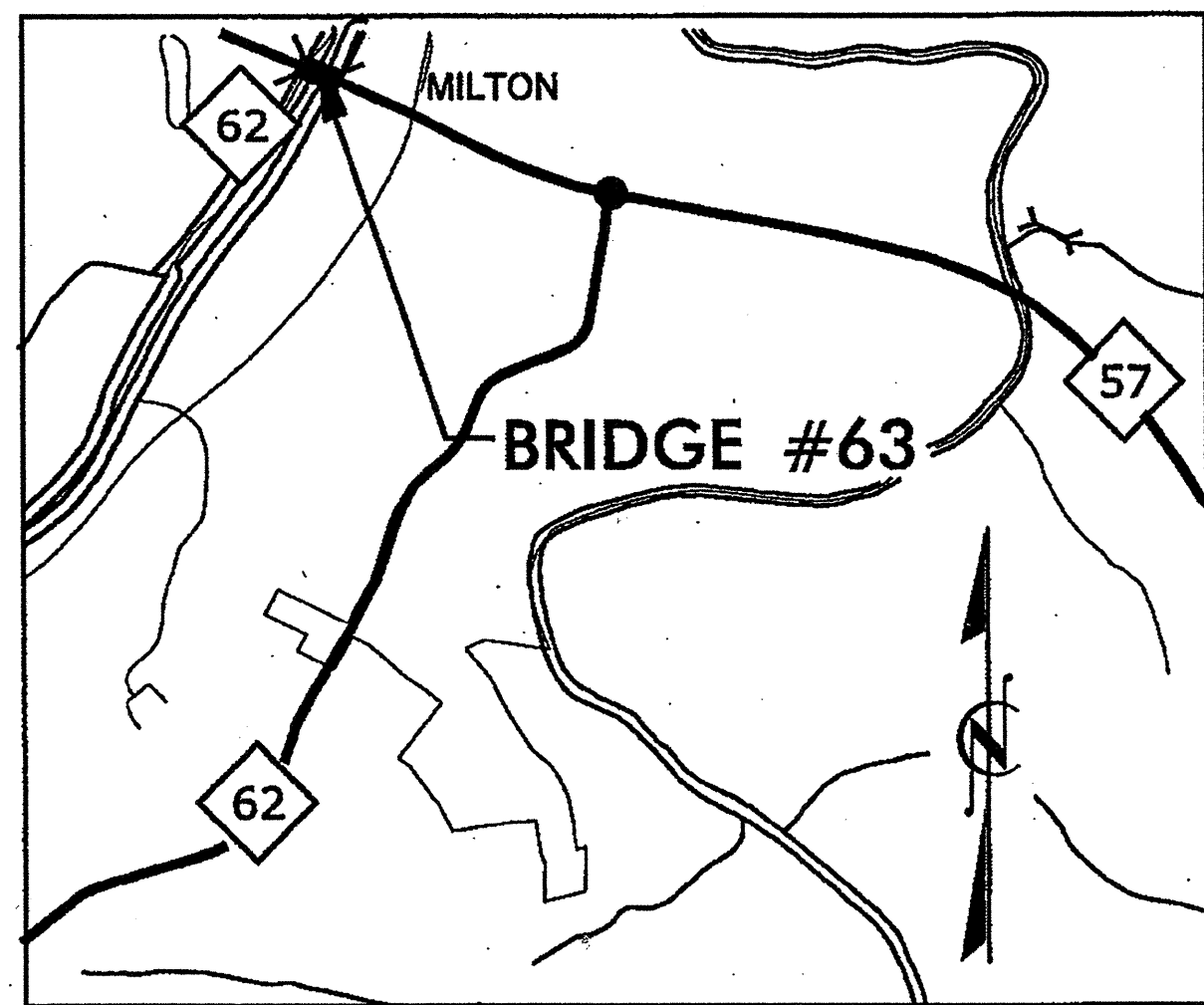
BRIDGE #152

LOCATION: BRIDGE #11 & #15 ON US 29 OVER HAW RIVER, ROCKINGHAM COUNTY
BRIDGES #59 & #61 ON US 29 OVER TROUBLESOME CREEK, ROCKINGHAM COUNTY
BRIDGE #152 ON US 29 BUS OVER US 29, ROCKINGHAM COUNTY
BRIDGE #63 ON NC 62 OVER DAN RIVER, CASWELL COUNTY

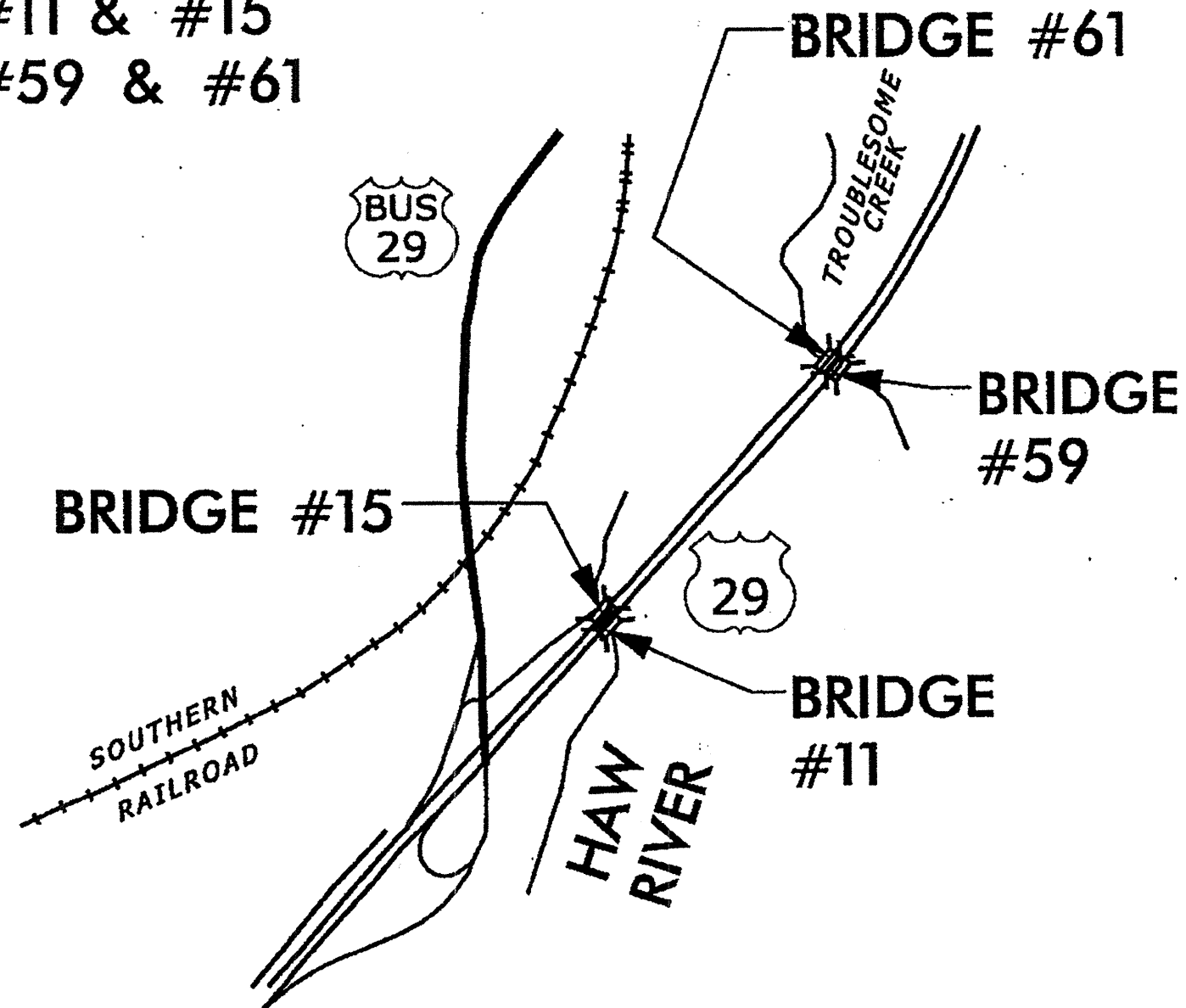
TYPE OF WORK: BRIDGE PRESERVATION: HYDRODEMOLITION, LMC OVERLAY
EPOXY OVERLAY AND SUBSTRUCTURE REPAIRS

VICINITY MAP
ROCKINGHAM COUNTY

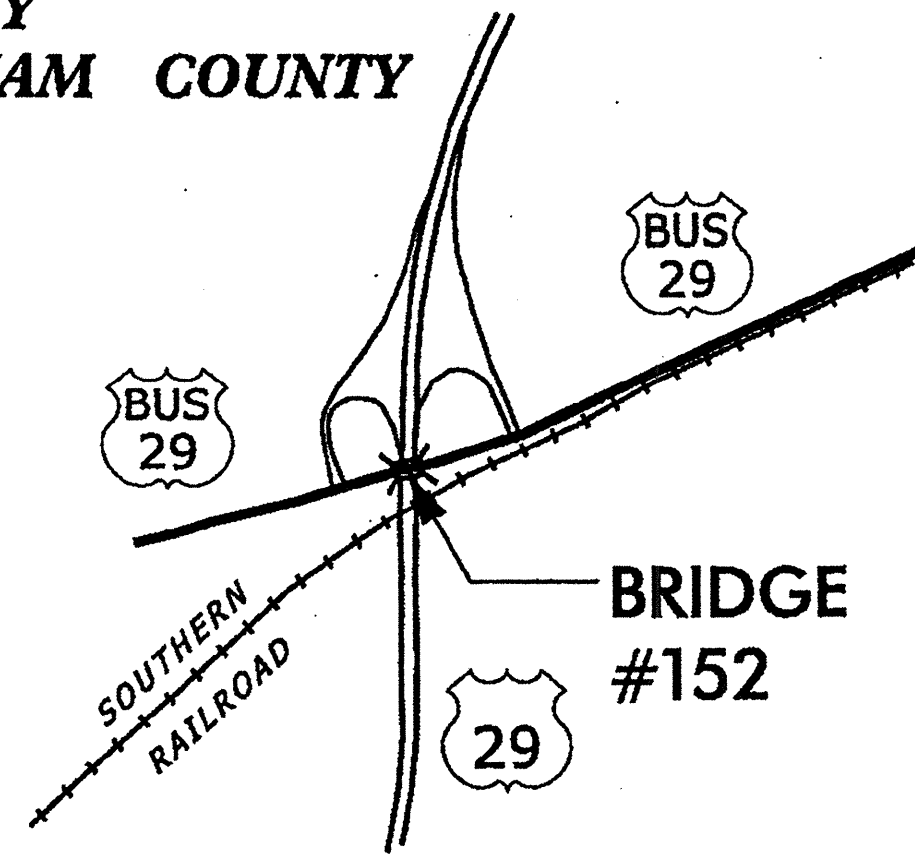
BRIDGES #11 & #15
BRIDGES #59 & #61



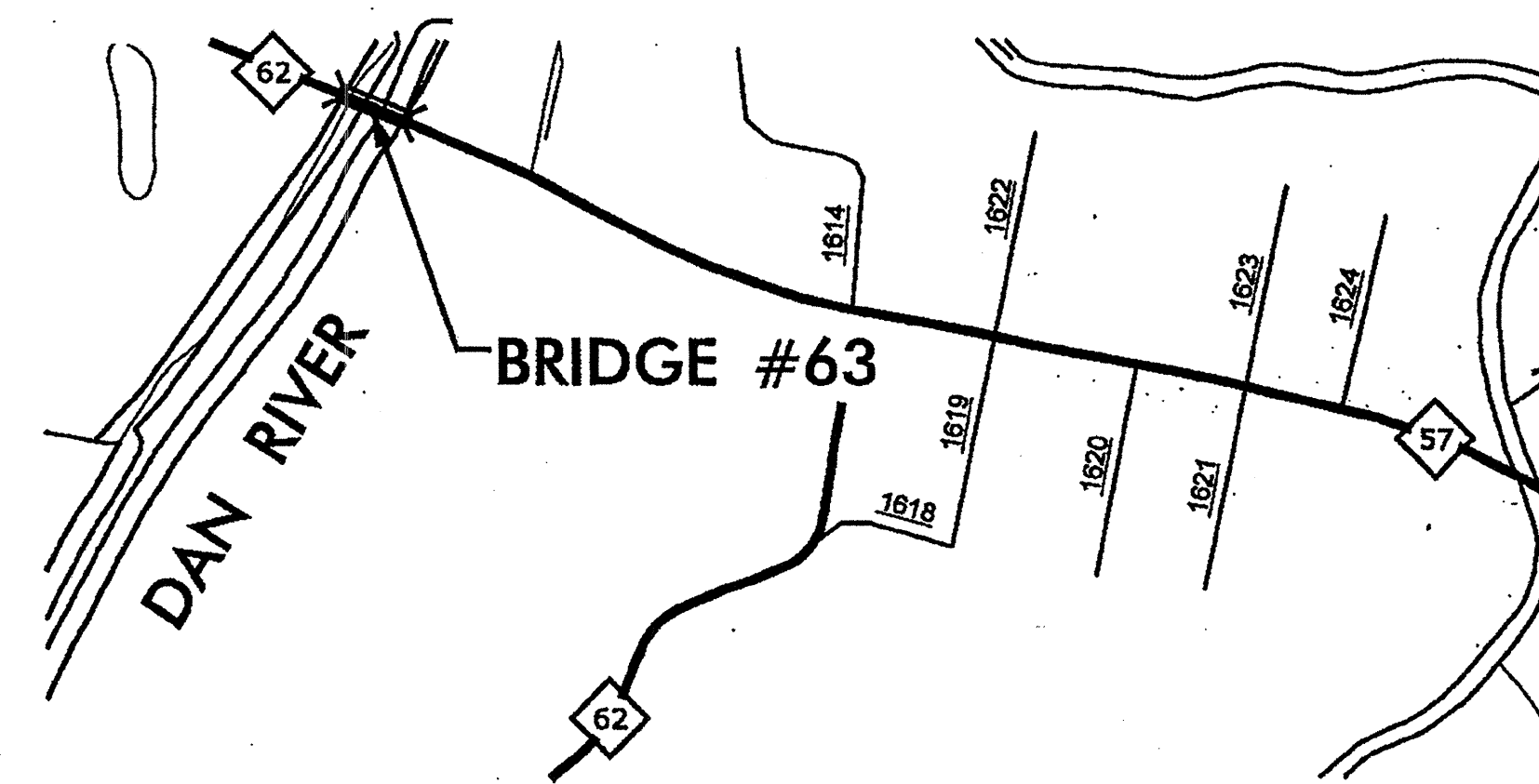
VICINITY MAP
CASWELL COUNTY



VICINITY MAP
BRIDGES #11, #15, #59 & #61
ROCKINGHAM COUNTY

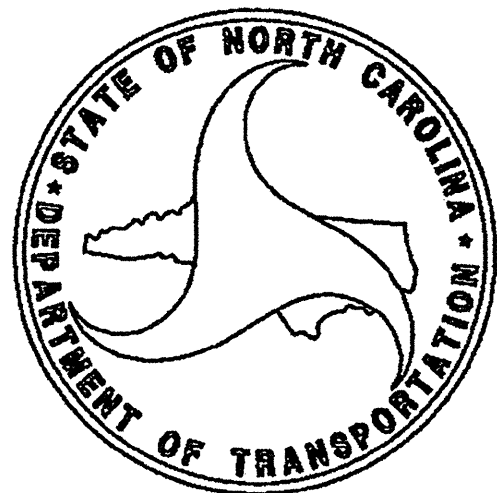


VICINITY MAP BRIDGE #152
ROCKINGHAM COUNTY



VICINITY MAP BRIDGE #63
CASWELL COUNTY

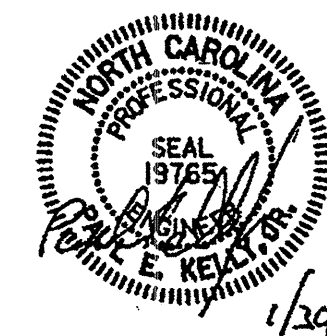
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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC LICENSE NO. F-0991



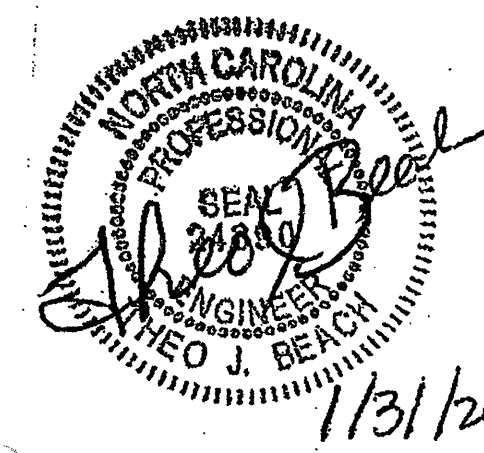
PROJECT LENGTH		
BRIDGE	LENGTH	STRUCTURE PROJECT
#11	.05	MILE
#15	.05	MILE
#59	.04	MILE
#61	.04	MILE
#152	.05	MILE
#63	.19	MILE

Prepared For:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
1000 BIRCH RIDGE DRIVE, RALEIGH, NC 27610

LETTING DATE:
MARCH 20, 2012



ENGINEER



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.P.3	1A	60
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.7.P.3	NA	PE	
17BP.7.P.3	NA	CONSTR.	

**ROCKINGHAM COUNTY
CASWELL COUNTY**

**LOCATION: BRIDGE #11 & #15 ON US 29 OVER HAW RIVER, ROCKINGHAM COUNTY
BRIDGES #59 & #61 ON US 29 OVER TROUBLESOME CREEK, ROCKINGHAM COUNTY
BRIDGE #152 ON US 29 BUS OVER US 29, ROCKINGHAM COUNTY
BRIDGE #63 ON NC 62 OVER DAN RIVER, CASWELL COUNTY**

**TYPE OF WORK: BRIDGE PRESERVATION: HYDRODEMOLITION, LMC OVERLAY
EPOXY OVERLAY AND SUBSTRUCTURE REPAIRS**

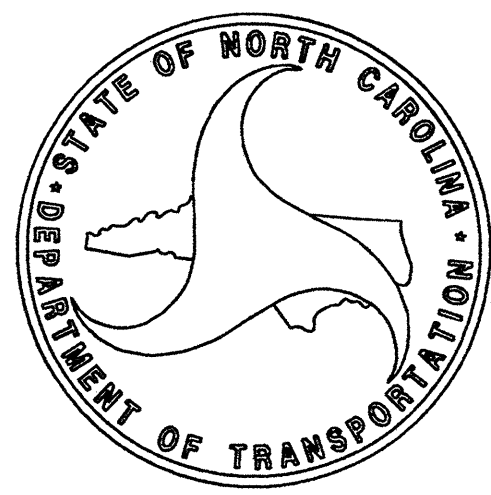
INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
S1-S50	STRUCTURES
TMP-1 - TMP-2C	TRAFFIC MANAGEMENT PLANS

PROJECT: 17BP.7.P.3

CONTRACT: C202966

\$DATES \$TIMES \$FILES



Prepared For:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
1000 BIRCH RIDGE DRIVE, RALEIGH, NC 27610

LETTING DATE:
MARCH 20, 2012

ENGINEER

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202966

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	8660000000-E	SP	239	CF	CONCRETE REPAIRS
1330000000-E	607	1,694	SY	INCIDENTAL MILLING	8664000000-E	SP	374	CF	SHOTCRETE REPAIRS
1525000000-E	610	93	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	8678000000-E	SP	2,900	LF	EPOXY RESIN INJECTION
1539000000-E	610	46	TON	ASPHALT CONC SURFACE COURSE, TYPE S12.5C	8692000000-N	SP	Lump Sum		FOAM JOINT SEALS
1575000000-E	620	9	TON	ASPHALT BINDER FOR PLANT MIX	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING
4400000000-E	1110	72	SF	WORK ZONE SIGNS (STATIONARY)	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING AND PAINTING EXISTING BEARING PLATES
4405000000-E	1110	192	SF	WORK ZONE SIGNS (PORTABLE)	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM REPLACE BEARINGS
4415000000-N	1115	3	EA	FLASHING ARROW BOARD	8881000000-E	SP	50	CY	GENERIC STRUCTURE ITEM LATEX MODIFIED CONCRETE OVERLAY VERY EARLY STRENGTH
4422000000-N	1120	1	DAY	PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	8892000000-E	SP	92	SF	GENERIC STRUCTURE ITEM CLASS II CONCRETE DECK REPAIRS FOR EPOXY OVERLAY
4430000000-N	1130	35	EA	DRUMS	8892000000-E	SP	41,967	SF	GENERIC STRUCTURE ITEM PLACEMENT OF EPOXY OVERLAY
4455000000-N	1150	280	DAY	FLAGGER	8893000000-E	SP	3,994	SY	GENERIC STRUCTURE ITEM HYDRO-DEMOLITION OF BRIDGE DECK
4465000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS	8893000000-E	SP	1,176	SY	GENERIC STRUCTURE ITEM PLACING & FINISHING OF LATEX MOD CONC OVERLAY VERY EARLY STRENGTH
4470000000-N	1160	7	EA	RESET TEMPORARY CRASH CUSHION	8893000000-E	SP	3,994	SY	GENERIC STRUCTURE ITEM SCARIFYING BRIDGE DECK
4480000000-N	1165	1	EA	TMA					
4485000000-E	1170	1,040	LF	PORTABLE CONCRETE BARRIER					
4500000000-E	1170	7,080	LF	RESET PORTABLE CONCRETE BARRIER					
4685000000-E	1205	1,400	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)					
4686000000-E	1205	313	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)					
4725000000-E	1205	1	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)					
4847000000-E	1205	6,526	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)					
4900000000-N	1251	38	EA	PERMANENT RAISED PAVEMENT MARKERS					
8161000000-E	420	32,054	SF	GROOVING BRIDGE FLOORS					
8296000000-N	442	Lump Sum		POLLUTION CONTROL					
8573000000-E	SP	238	CY	LATEX MODIFIED CONC OVERLAY					
8580000000-E	SP	2,818	SY	PLACING & FINISHING OF LATEX MODIFIED CONC OVERLAY					

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 AND REPAIR DETAILS SHOWN ON THE PLANS AND THE ACTUAL CONDITION 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 ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

IT IS THE CONTRACTOR'S 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.

CONTRACTOR SHALL COORDINATE WITH INSPECTION PERSONNEL TO CAREFULLY EXAMINE HEAVILY RUSTED AREAS, AFTER SURFACE PREPARATION, TO DETERMINE IF ANY SUBSTANTIAL SECTION LOSS HAS OCCURRED.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS, SEE SPECIAL PROVISIONS.

FOR POLLUTION CONTROL, SEE STANDARD SPECIFICATIONS, SECTION 442, "PAINTING STEEL STRUCTURES".

FOR INCIDENTAL ASPHALT MILLING, SEE STANDARD SPECIFICATIONS, SECTION 607, "MILLING ASPHALT PAVEMENT".

FOR ASPHALT CONCRETE SURFACE COURSE TYPES SF 9.5A AND S 12.5C, SEE STANDARD SPECIFICATIONS, SECTION 610, "ASPHALT CONCRETE PLANT MIX PAVEMENTS".

FOR CONCRETE DECK REPAIR FOR EPOXY OR ASPHALT OVERLAYS, SEE SPECIAL PROVISIONS.

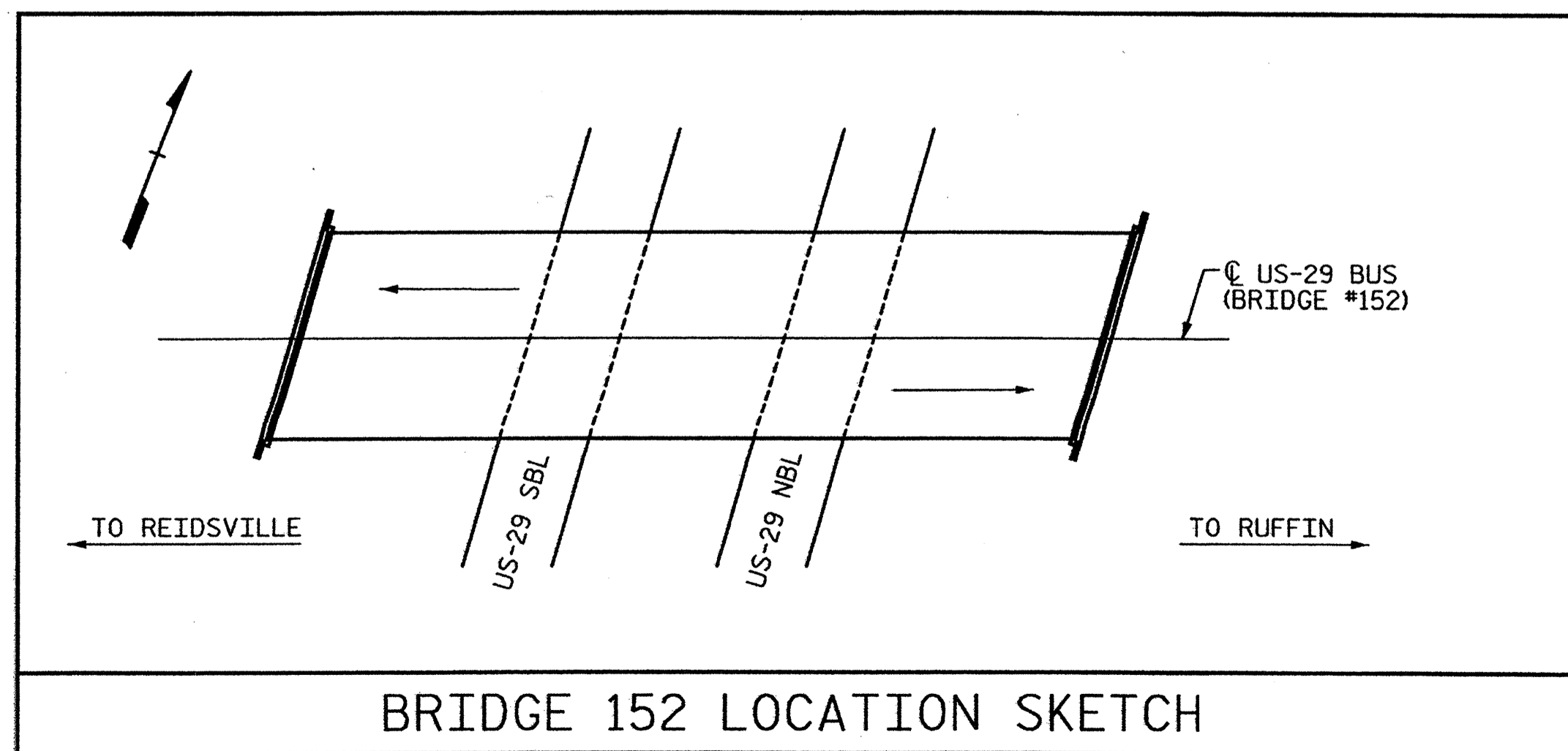
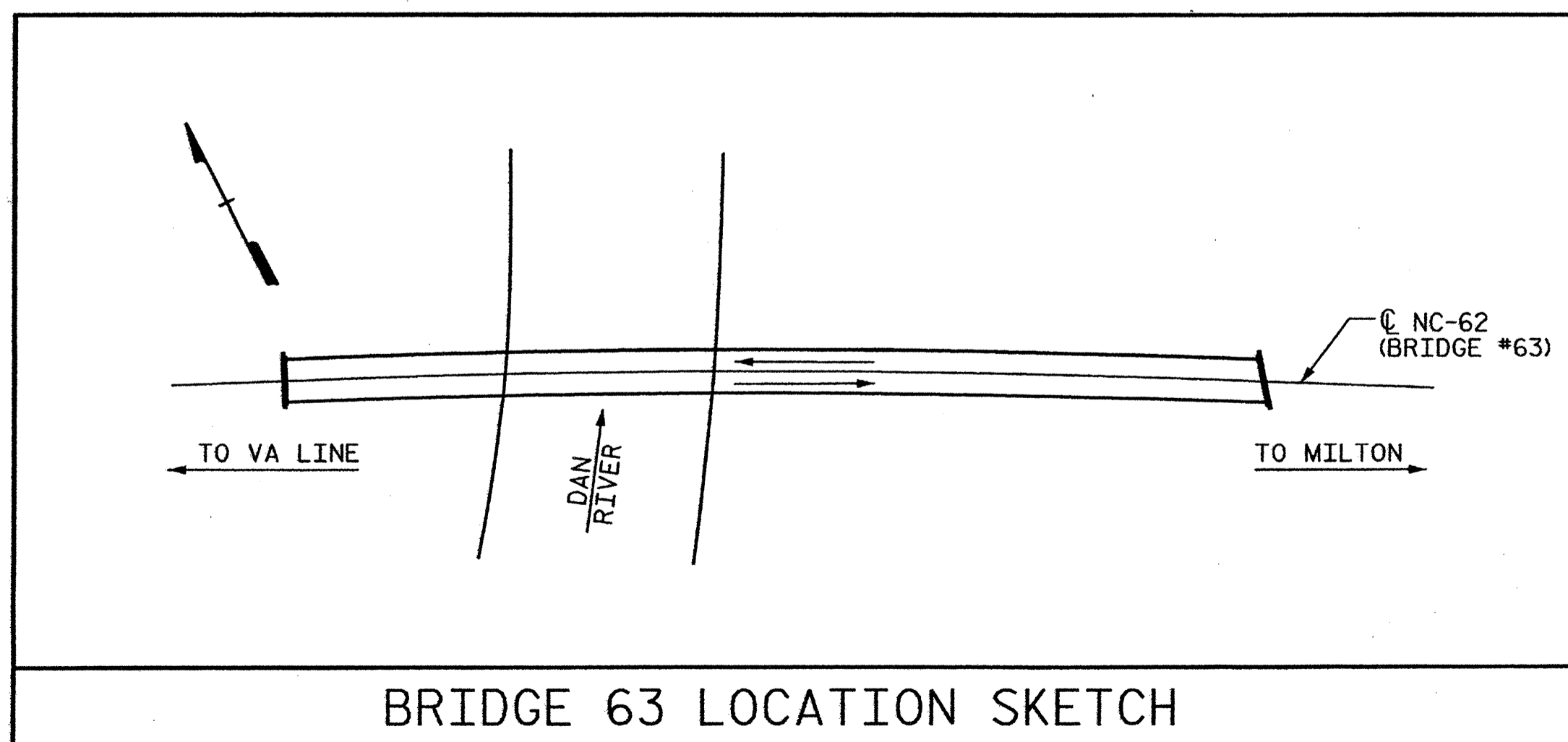
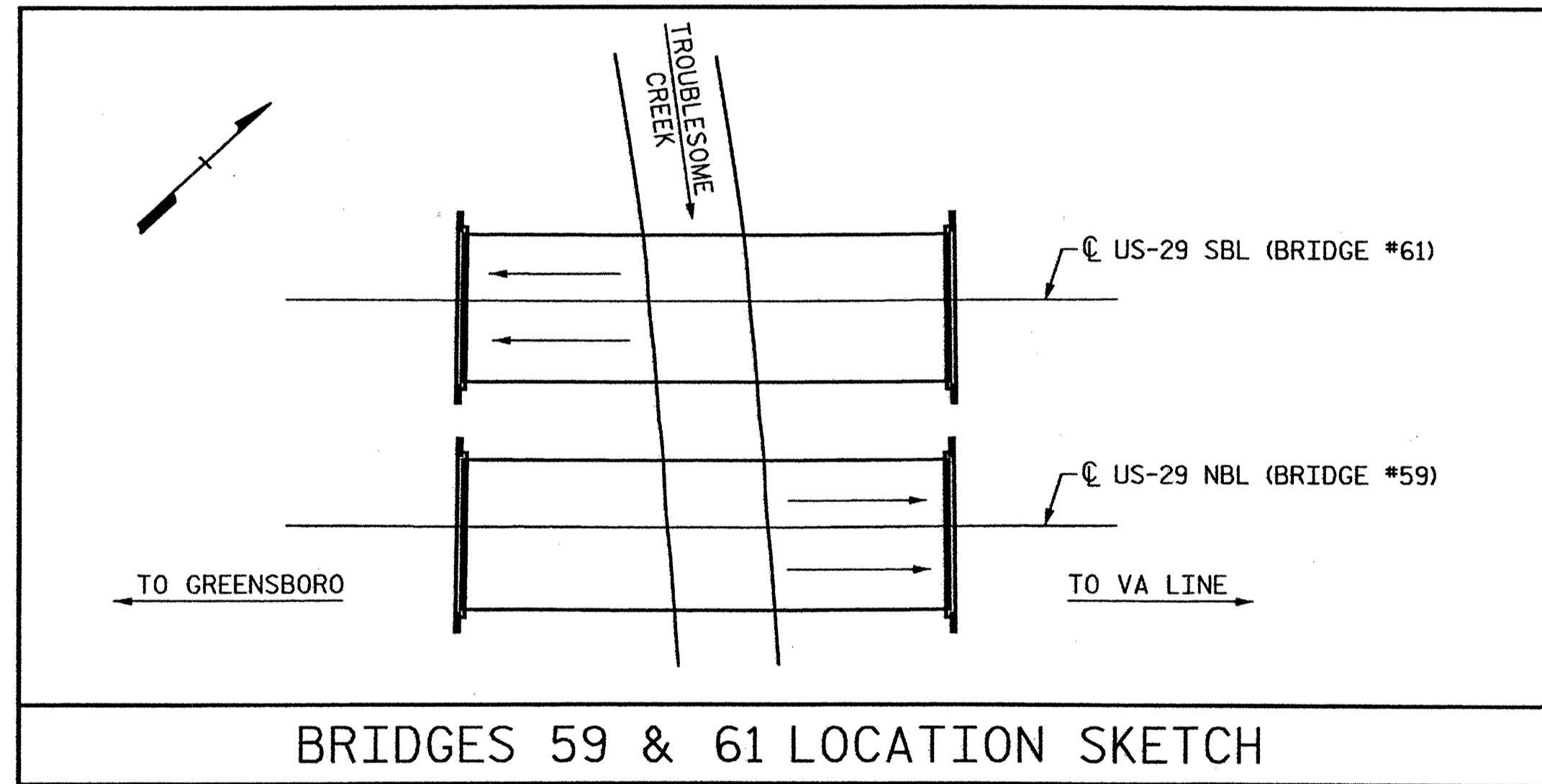
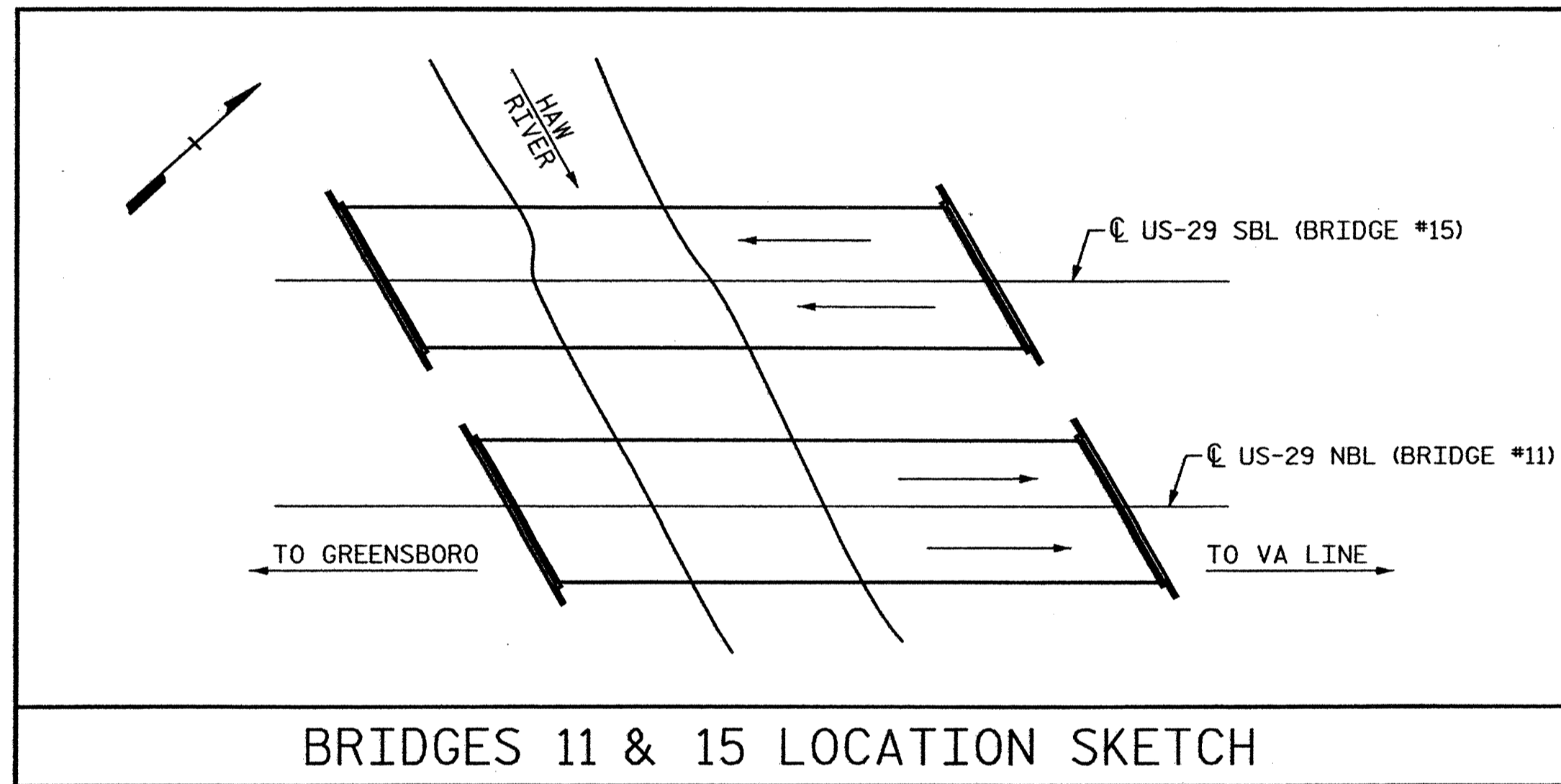
REPLACEMENT OF DAMAGED REINFORCING STEEL AND DOWELS USED IN CONCRETE REPAIR SHALL BE CONSIDERED INCIDENTAL TO CONCRETE REPAIRS. NO ADDITIONAL PAYMENT OR MEASUREMENT WILL BE MADE.

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.

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

MILLING ASPHALT PAVEMENT LENGTH AND QUANTITY IS APPROXIMATE. THE CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION AT EACH END OF BRIDGE OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO PREVENT DEBRIS, MATERIALS AND SHOTCRETE FROM FALLING, ROLLING OR BLOWING INTO TRAFFIC OR ONTO BEAMS, GIRDERS, BEARINGS OR ANY OTHER UNINTENDED SURFACE. CONSIDERATION SHALL BE GIVEN TO THE USE OF SCREENS TO PROTECT TRAFFIC ADJACENT TO THE WORK AREA AND OTHER PORTIONS OF THE BRIDGE.



PROJECT NO. 17BP.7.P.3
ROCKINGHAM/CASWELL COUNTY
 BRIDGE NO.: 11, 15, 59, 61, 63, 152
 REHAB. OF ROCKINGHAM & CASWELL CO. BRIDGES

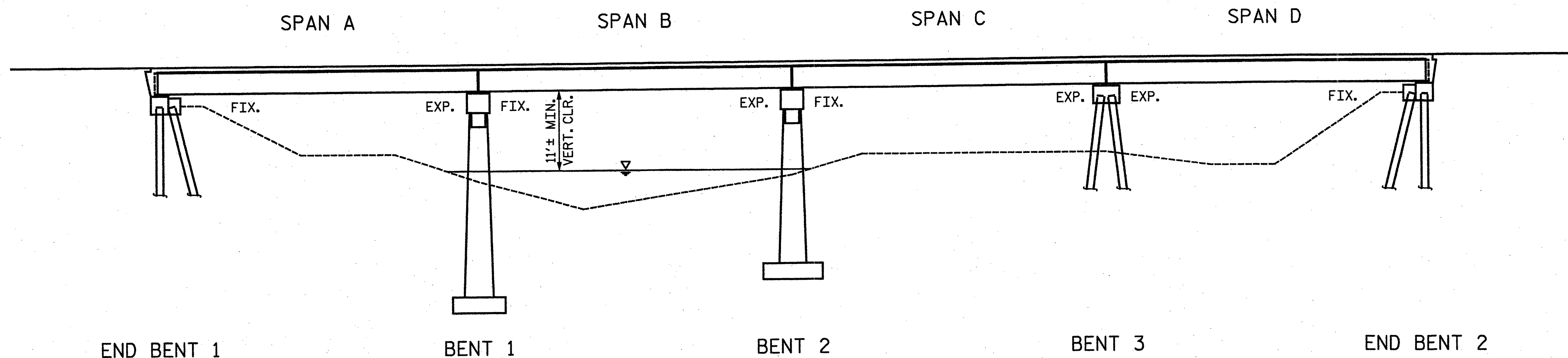
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL NOTES AND
 LOCATION SKETCHES**

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 CHECKED BY : AC DATE : 11-11

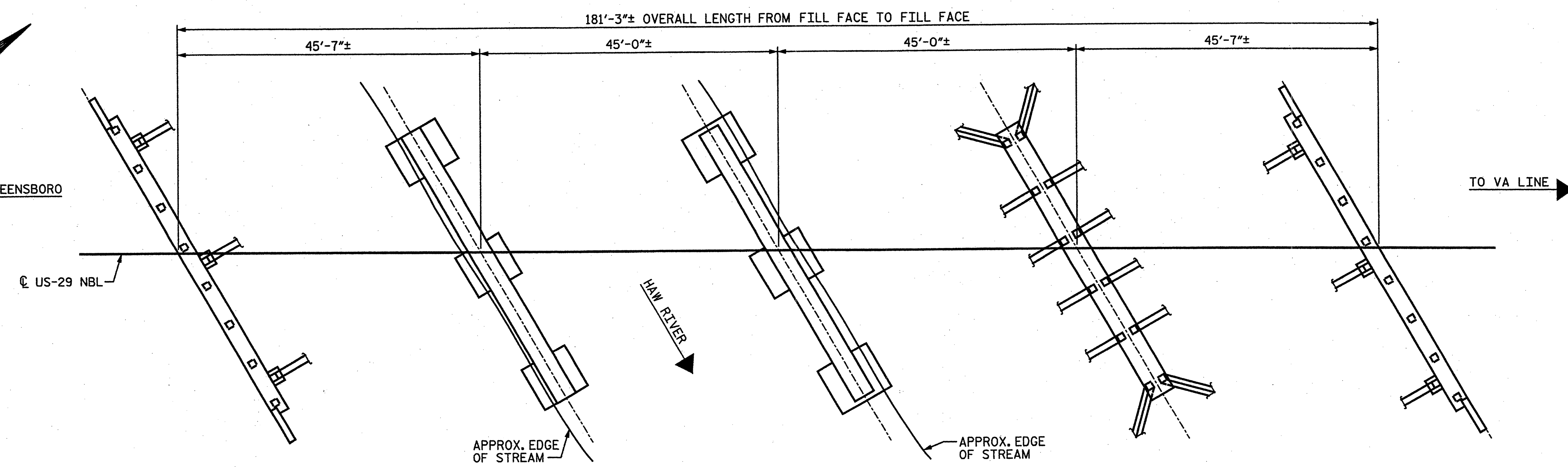
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			S-50



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

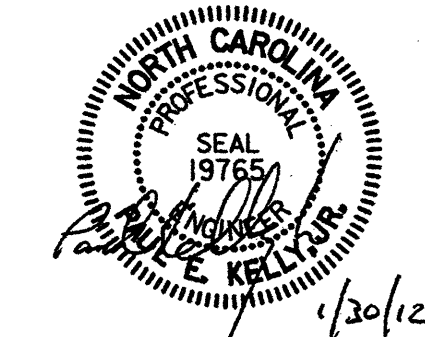
NOTES:
 SEE SHEET NO. S-1 OF S-50 FOR GENERAL NOTES.
 SEE BRIDGE NO. 11 SHEETS 3, 4, AND 5 OF 6
 FOR ADDITIONAL NOTES.



PLAN

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 11
 REHAB. OF BRIDGE NO. 11 SHEET 1 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL PLAN &
 ELEVATION**
 BRIDGE ON US 29 NBL
 OVER HAW RIVER



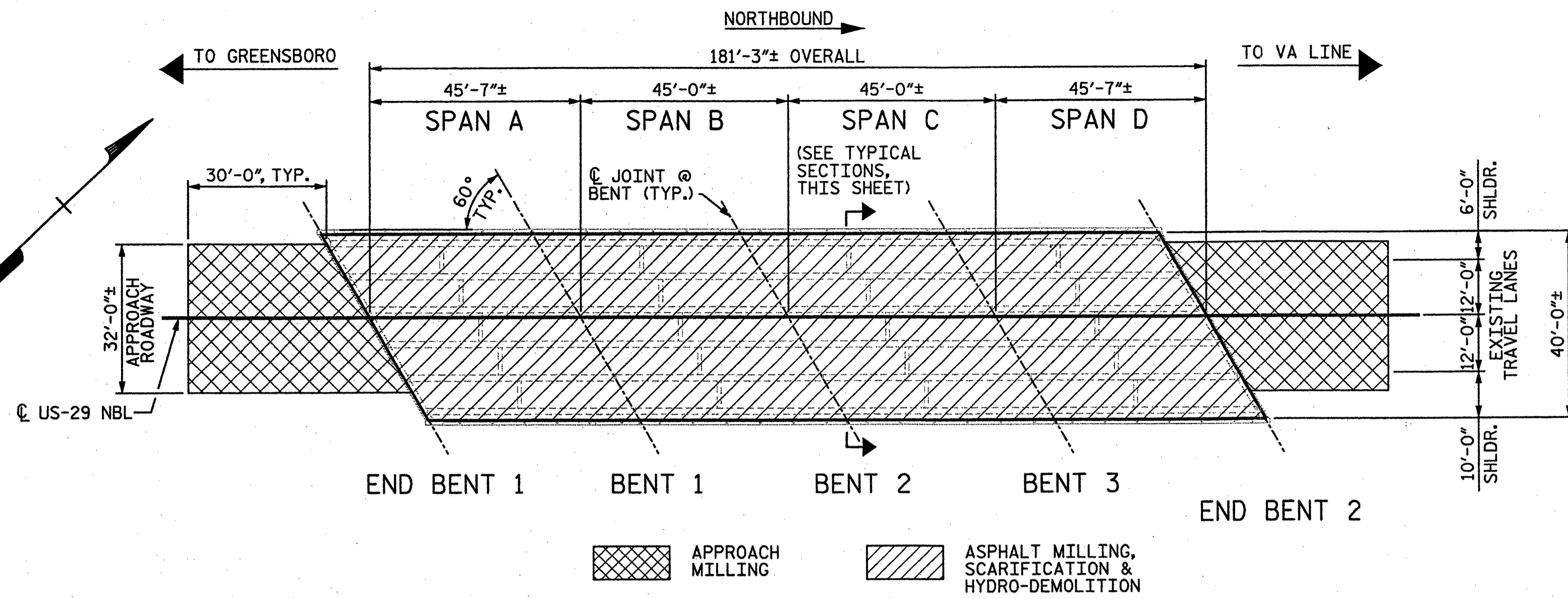
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

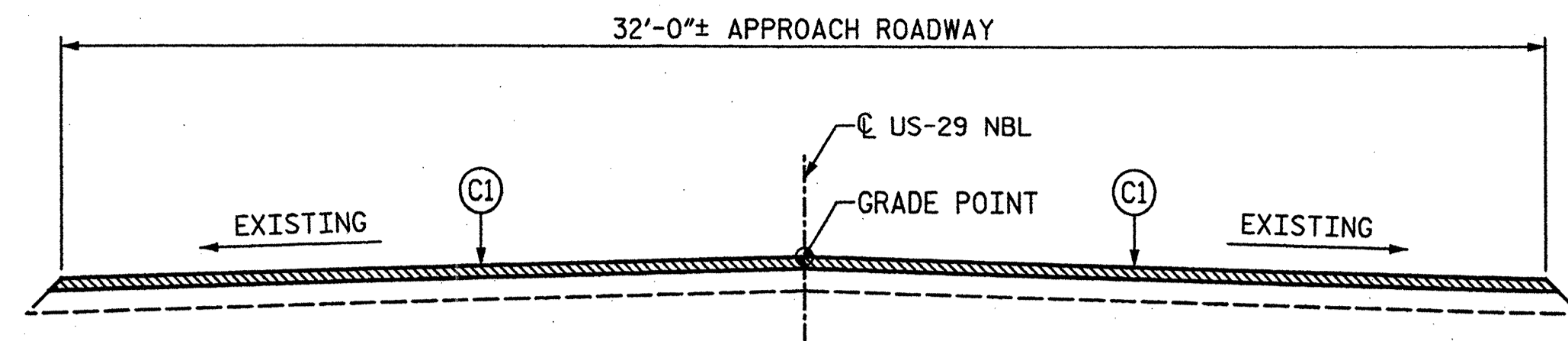
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DRAWN BY: AFM DATE: 11-11
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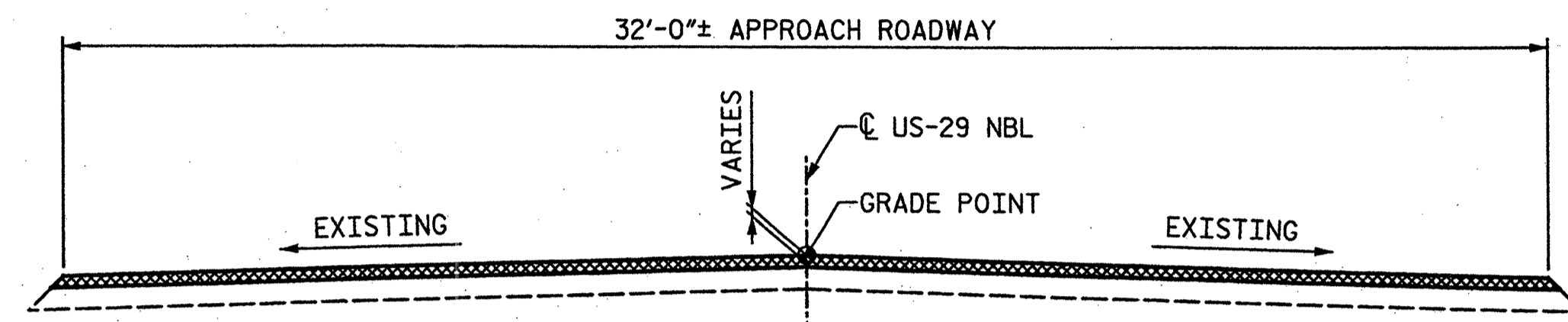
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 1/30/2012



PLAN OF SPANS - DECK SCARIFICATION & HYDRO-DEMOLITION
(CONCRETE BRIDGE FLOORS SHALL BE GROOVED IN ACCORDANCE WITH SECTION 420-14 OF THE STANDARD SPECIFICATIONS.)

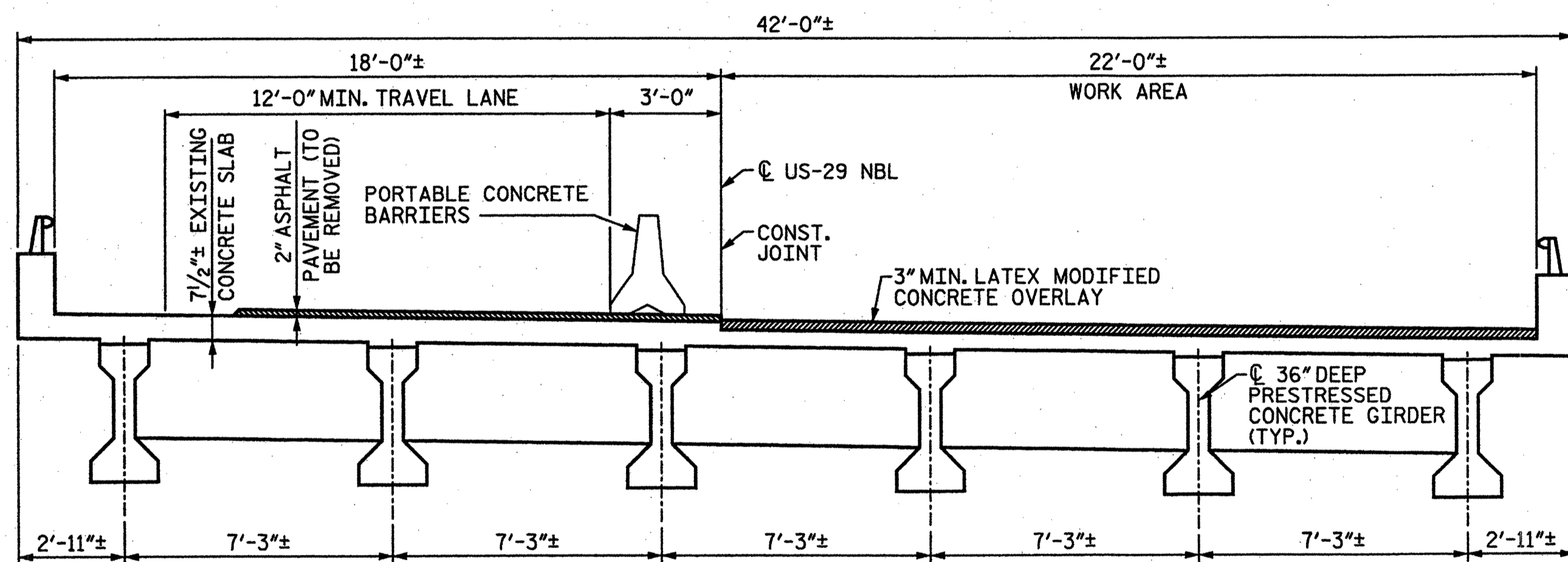


TYPICAL ROADWAY SECTION
(FINAL ROADWAY SURFACE TO MATCH EXISTING GRADE)

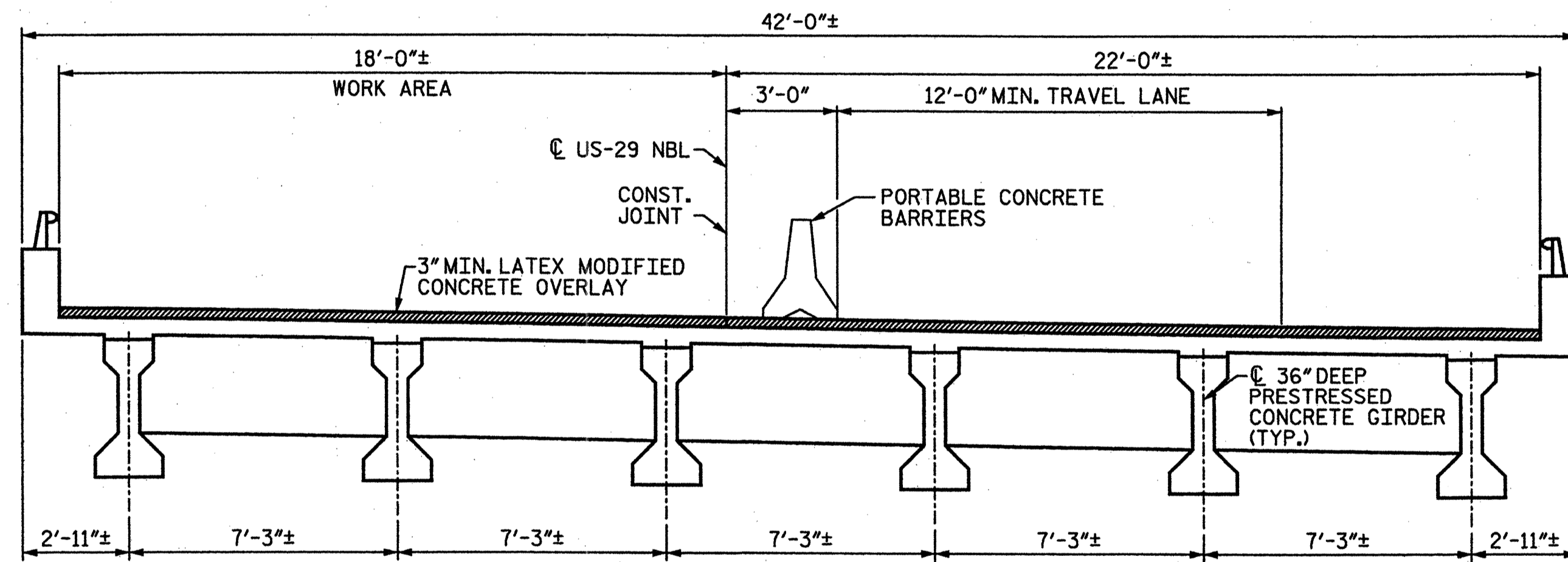


TYPICAL ROADWAY MILLING SECTION
(MILL TO 1/2" MIN. DEPTH)

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S 12.5C 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
(AT INTERMEDIATE DIAPHRAGMS)



TYPICAL SECTION - STAGE II
(AT INTERMEDIATE DIAPHRAGMS)

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	DECK SCARIFICATION	*CLASS I SURFACE PREPARATION	*CLASS II SURFACE PREPARATION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY	ASPHALT CONCRETE SURFACE COURSE TYPE S 12.5C	FOAM JOINT SEAL	GROOVING BRIDGE FLOORS	EPOXY RESIN INJECTION	CONCRETE REPAIRS (CLASS A)	CONCRETE REPAIRS	CLEANING & PAINTING BEARINGS	REPLACE BEARINGS	BRIDGE JACKING
SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	TONS	LUMP SUM	SQ. FT.	LIN. FT.	CU. FT.	CU. FT.	LUMP SUM	LUMP SUM	LUMP SUM
280	806	683	123	806	68	806	23	LUMP SUM	6,470	170	23	2	LUMP SUM	LUMP SUM	LUMP SUM

* QUANTITIES FOR INFORMATION ONLY.

NOTE:
FOR ADDITIONAL MILLING DETAIL, SEE SHEET 3 OF 6.
PER EXISTING PLANS, THE ESTIMATED AVERAGE REBAR COVER FOR THE EXISTING DECK IS 1/4".

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY

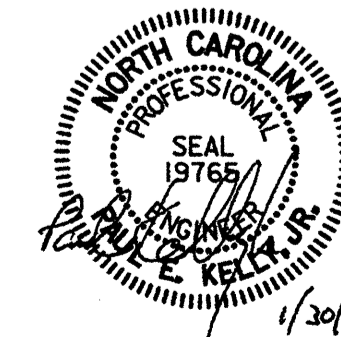
BRIDGE NO.: 11

REHAB. OF BRIDGE NO. 11 SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS & TYPICAL SECTION

BRIDGE ON US 29 NBL
OVER HAW RIVER



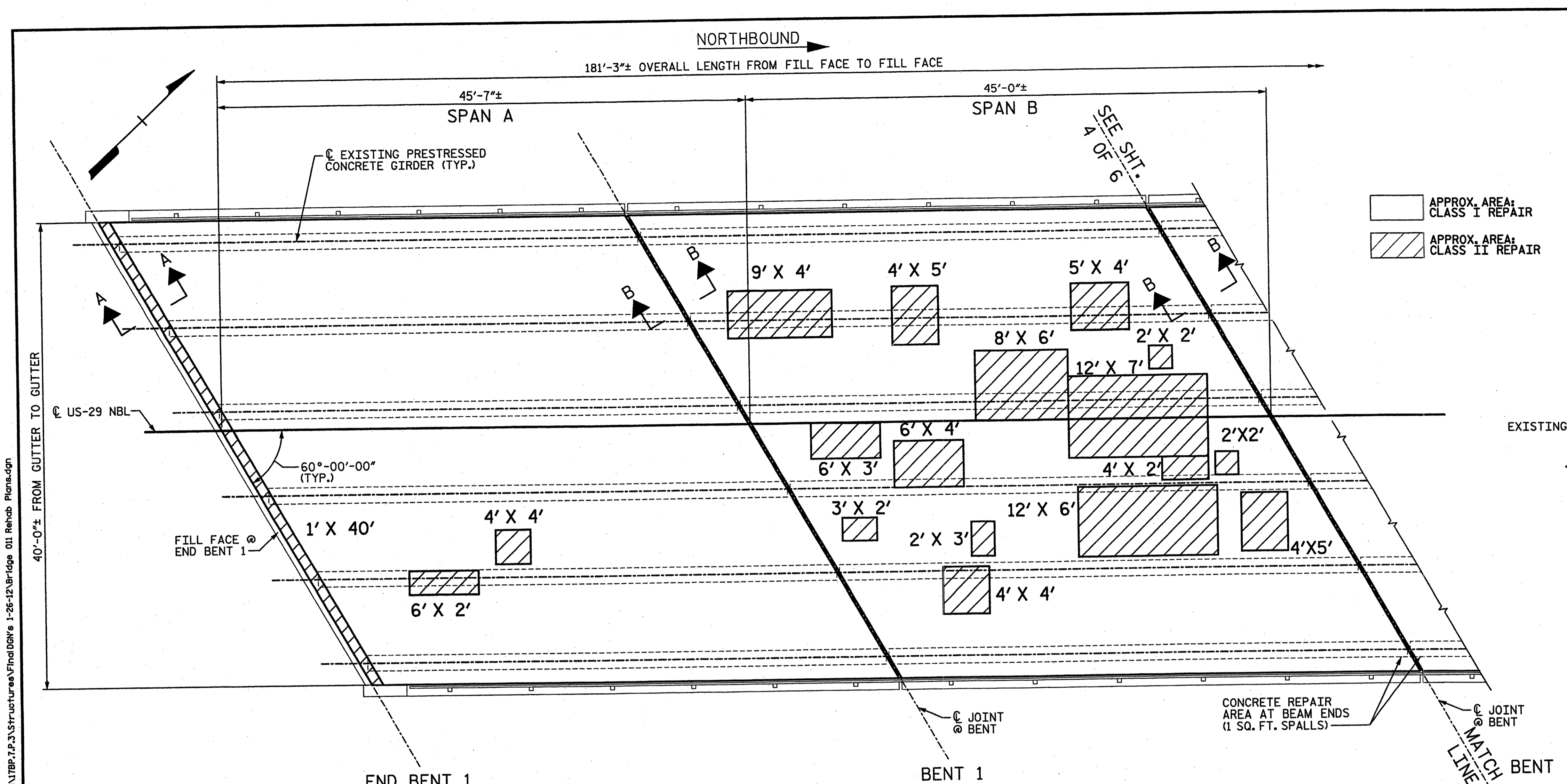
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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

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

DRAWN BY: AFM DATE: 11-11
CHECKED BY: AC DATE: 11-11

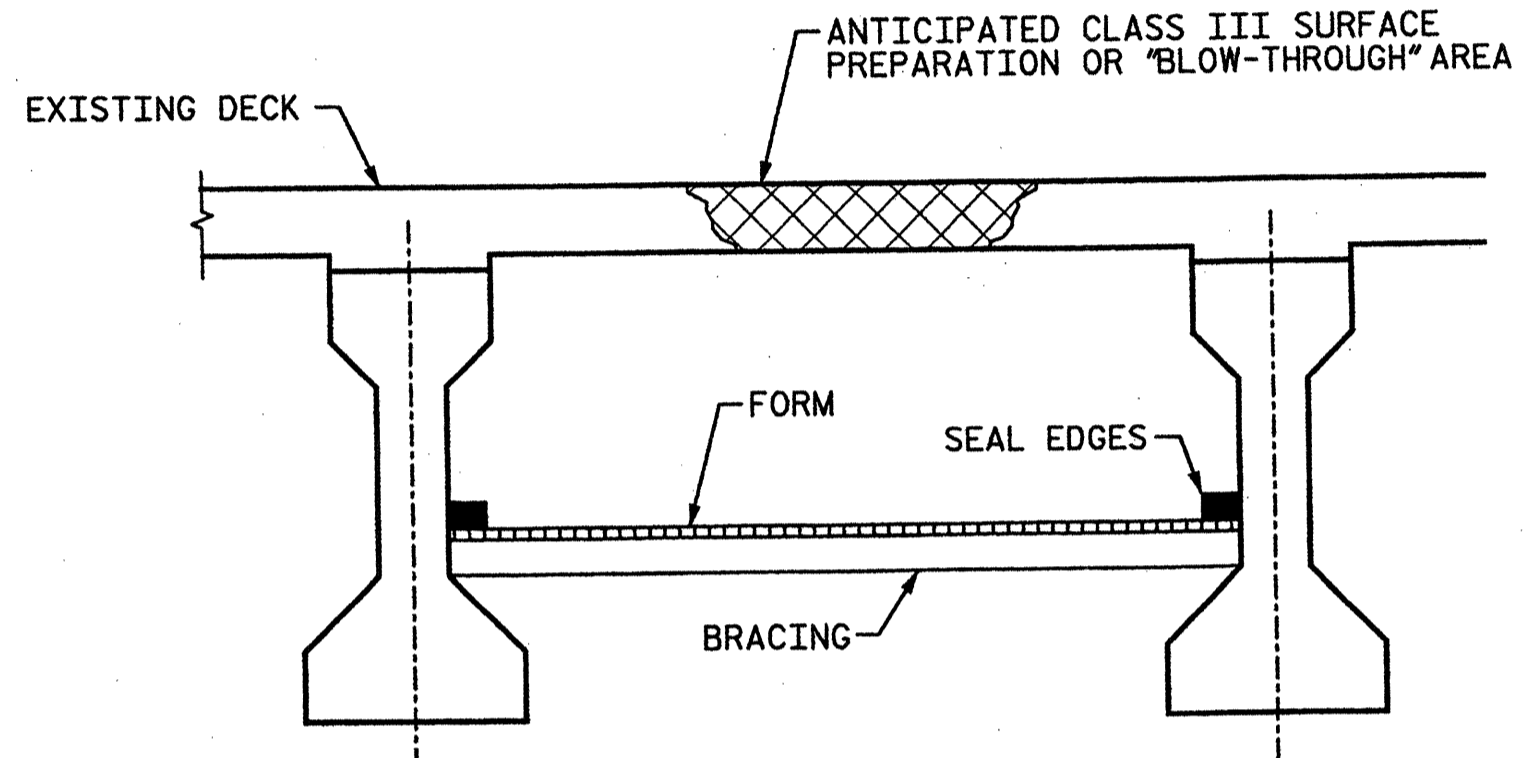
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1/30/2012



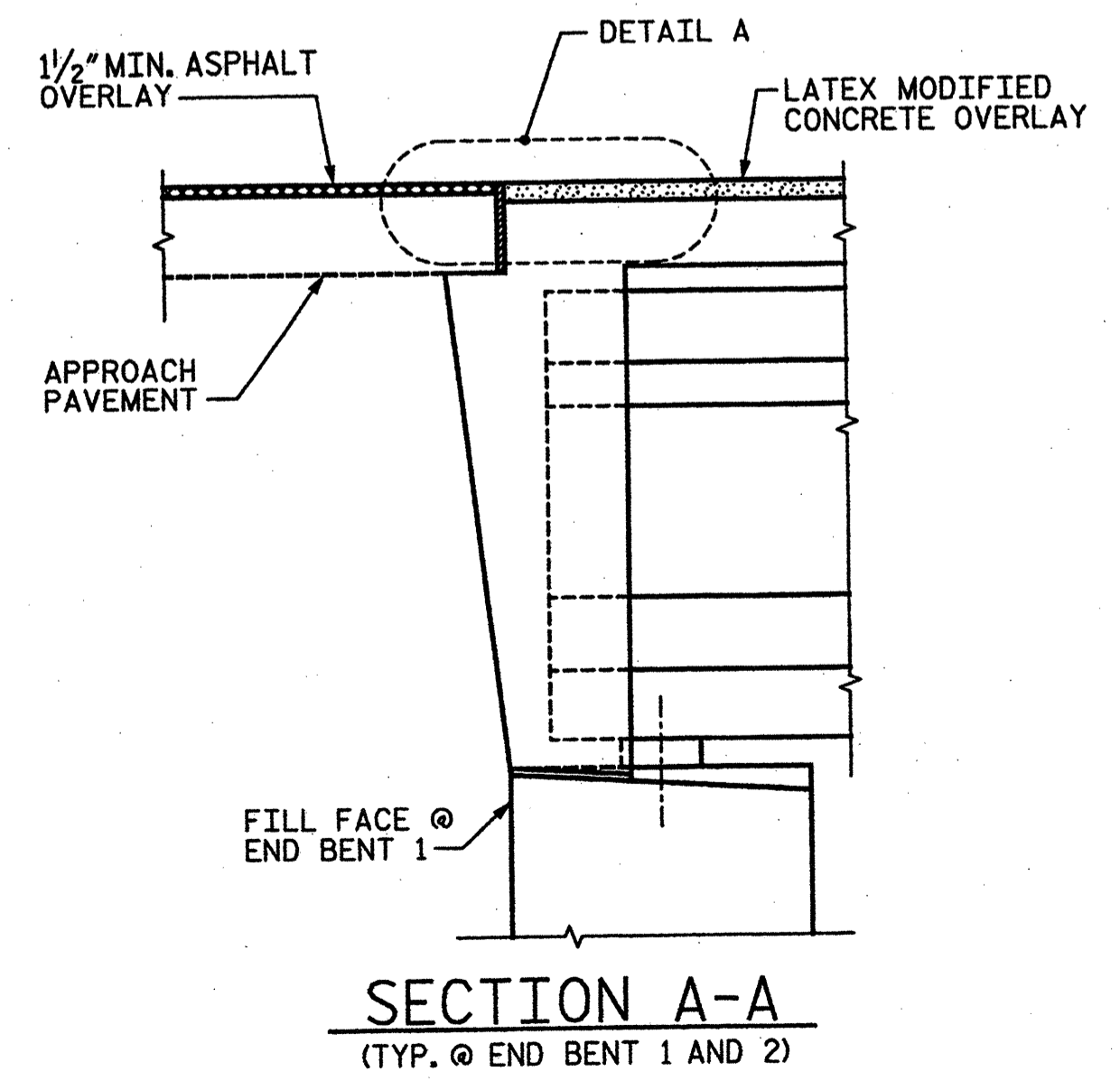
PARTIAL PLAN OF SPANS - DECK REPAIRS
(SEE SHEET 4 OF 6 FOR SECTION B-B)

NOTES:
 FOR LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.
 FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
 THE CONTRACTOR SHALL PROVIDE CONTAINMENT FOR UNEXPECTED BLOW-THROUGH OF THE DECK. SEE DETAIL ON THIS SHEET AND SPECIAL PROVISIONS.
 EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.

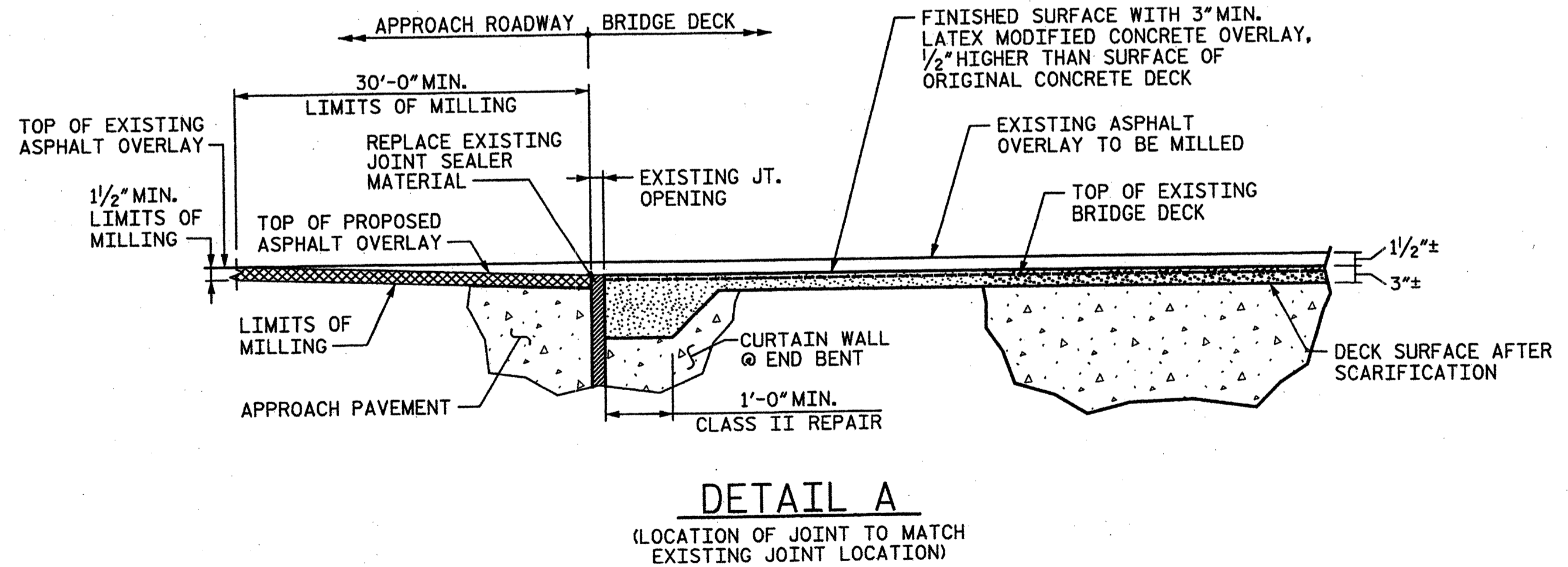


TYP. "BLOW-THROUGH" CONTAINMENT AND FORMWORK

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.

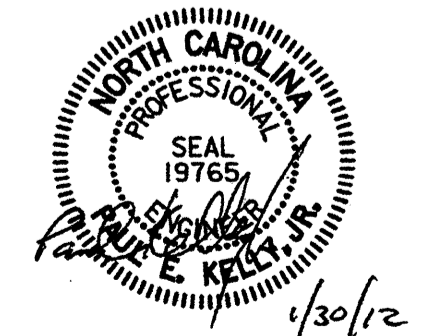


SECTION A-A
(TYP. @ END BENT 1 AND 2)



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

PROJECT NO. **17BP.7.P.3**
 ROCKINGHAM COUNTY
 BRIDGE NO.: **11**
 REHAB. OF BRIDGE NO. 11 SHEET 3 OF 6
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
PLAN OF SPANS A & B
DECK REPAIRS
 BRIDGE ON US 29 NBL
 OVER HAW RIVER

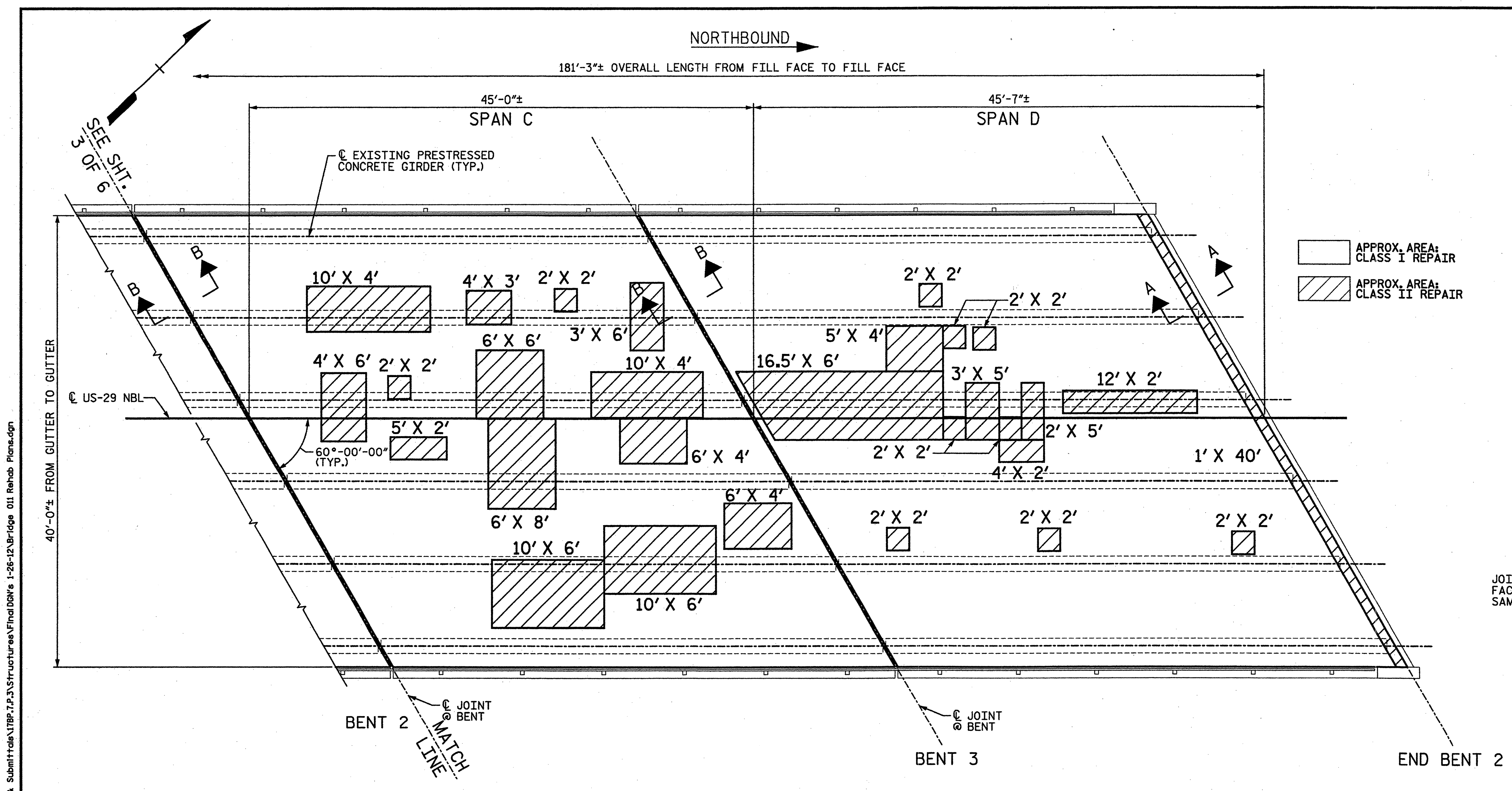


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4	
1			3			TOTAL	S-50
2			4				

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 Charlotte, NC 28208
 NC License No. F-0991

DRAWN BY: **AEM** DATE: **11-11**
 CHECKED BY: **AC** DATE: **11-11**

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NOTES:

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

THE ELASTOMERIC CONCRETE SHALL BE INCLUDED IN THE FOAM JOINT SEAL ITEM.

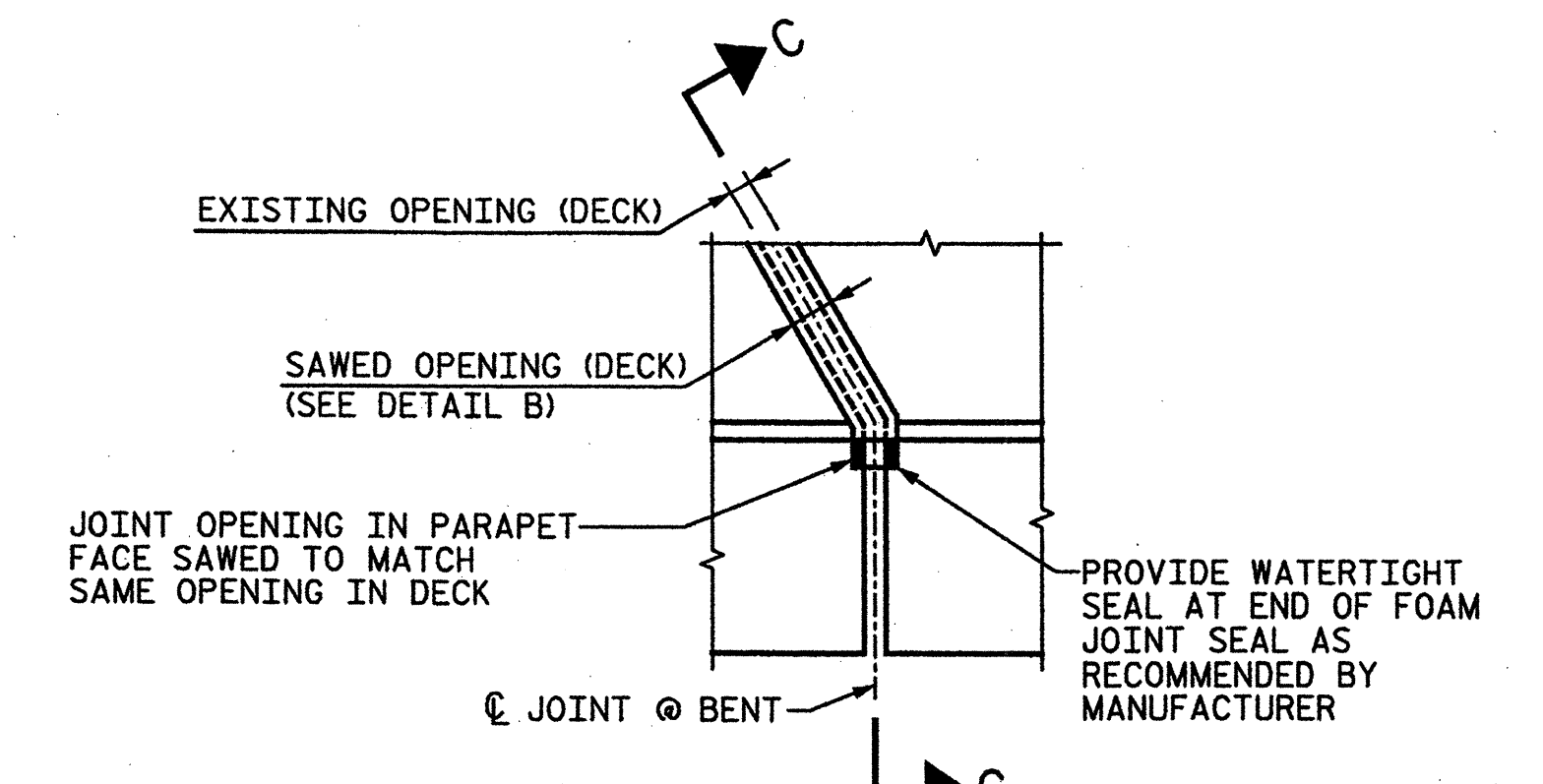
THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2".

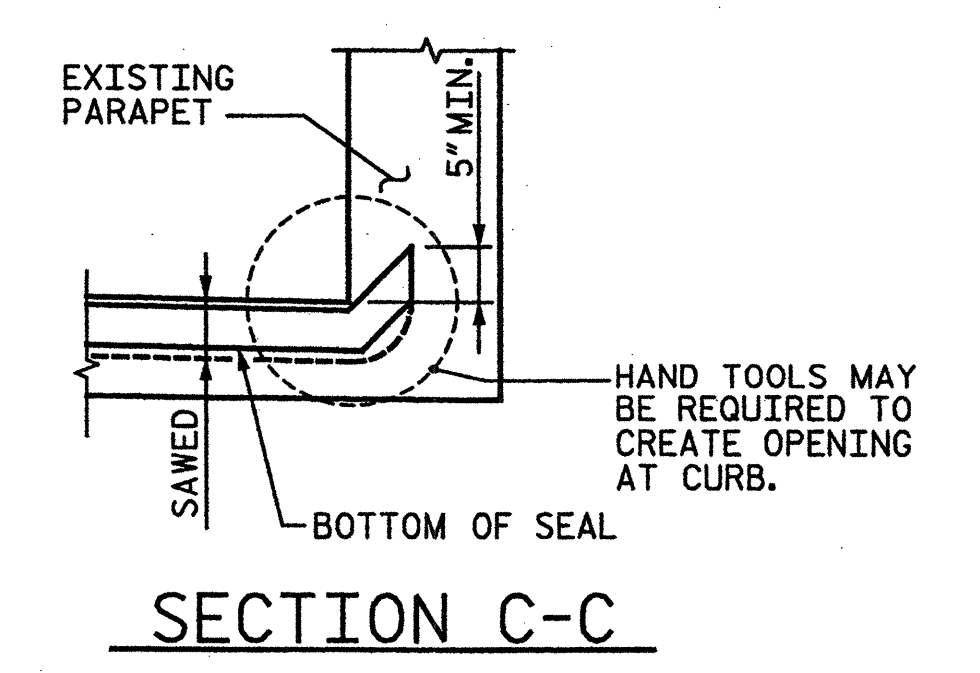
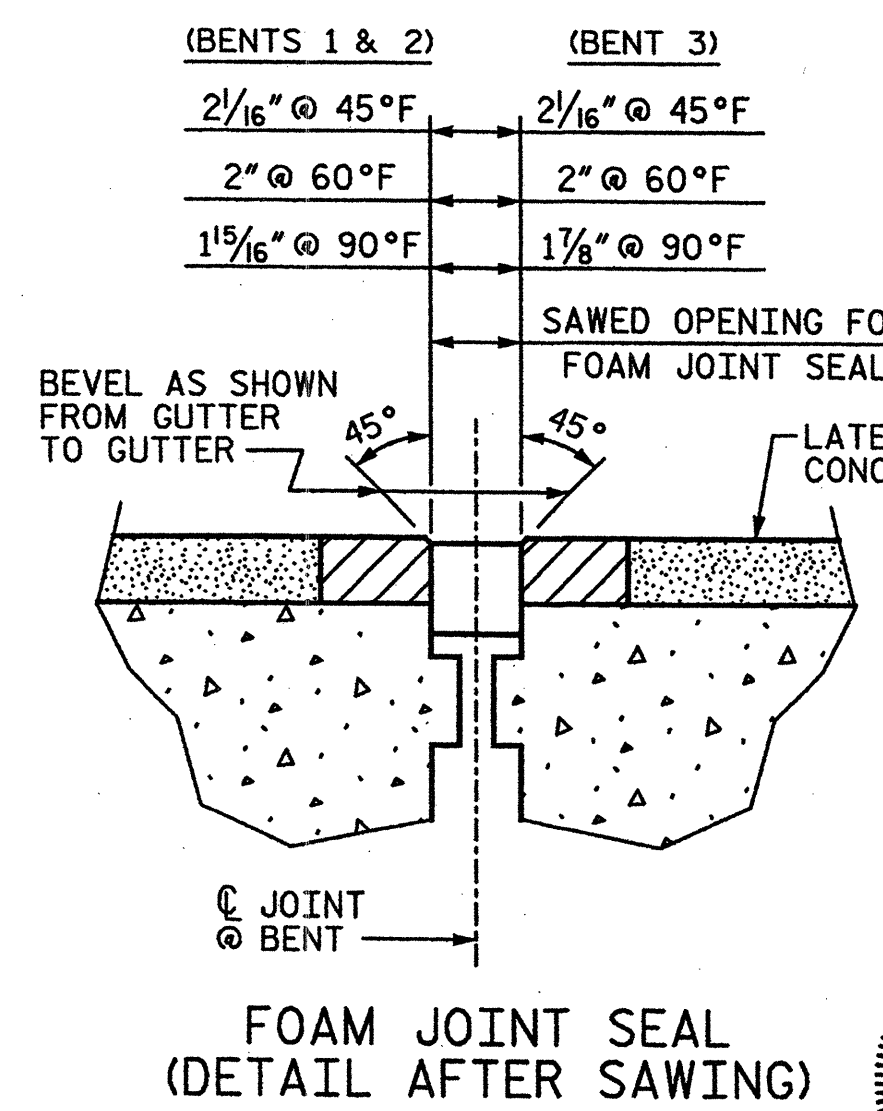
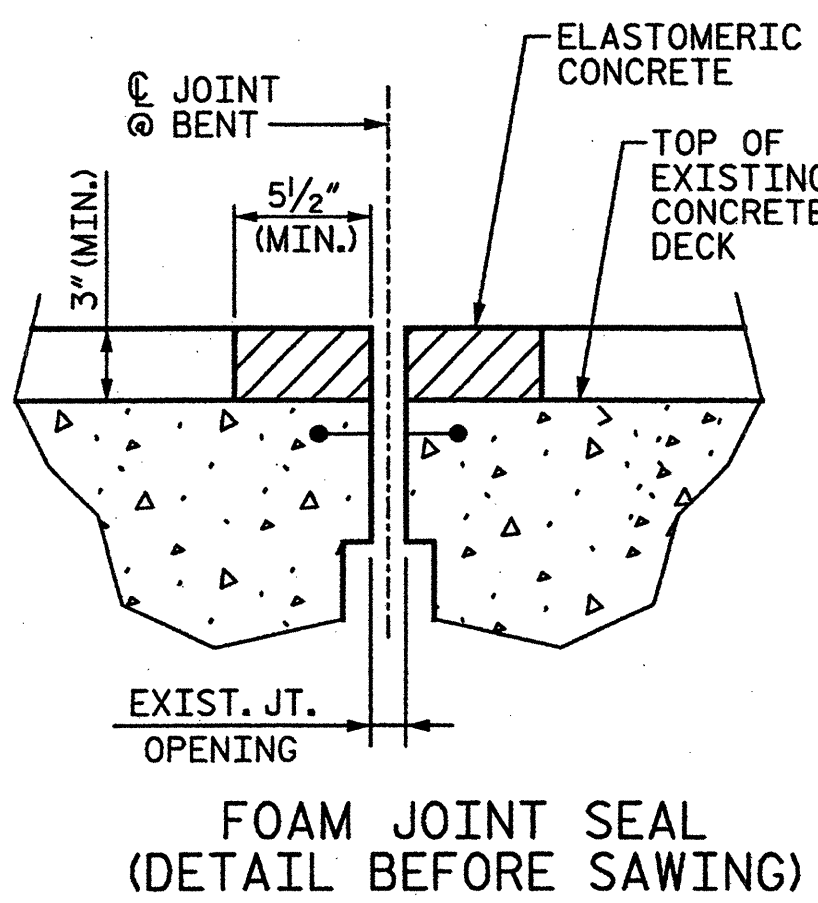
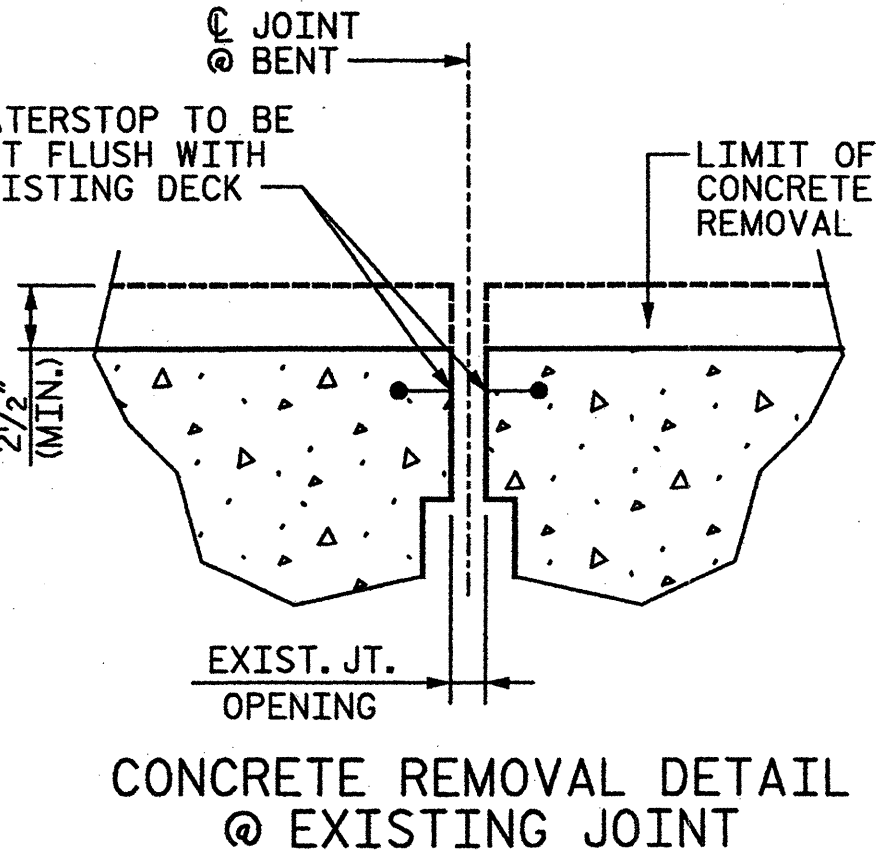
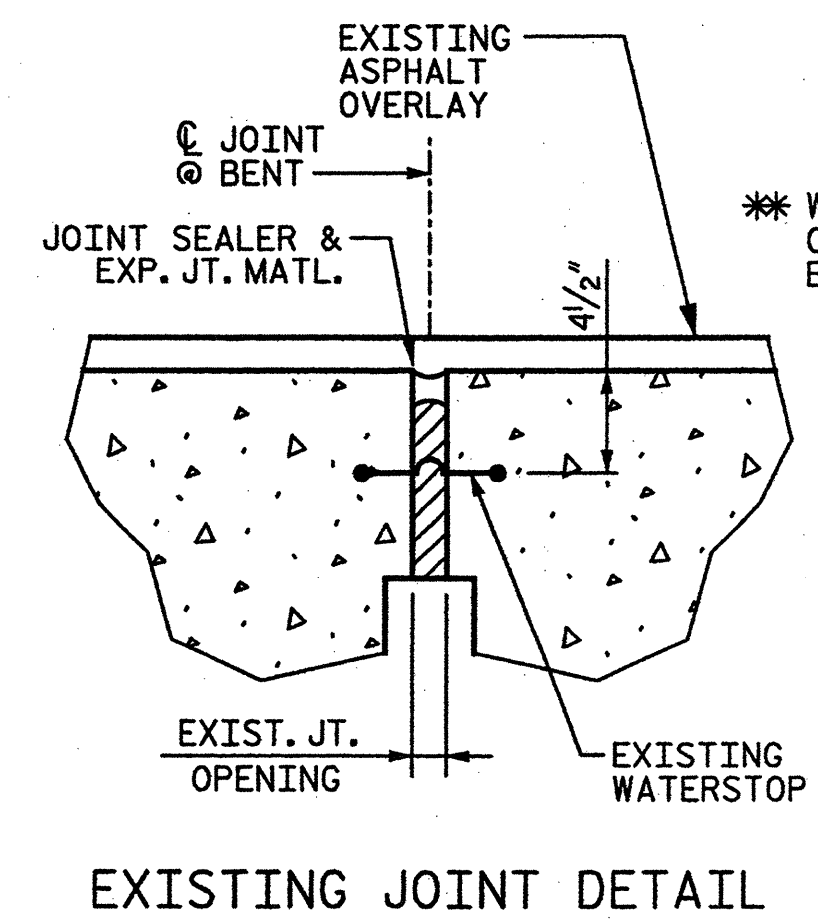
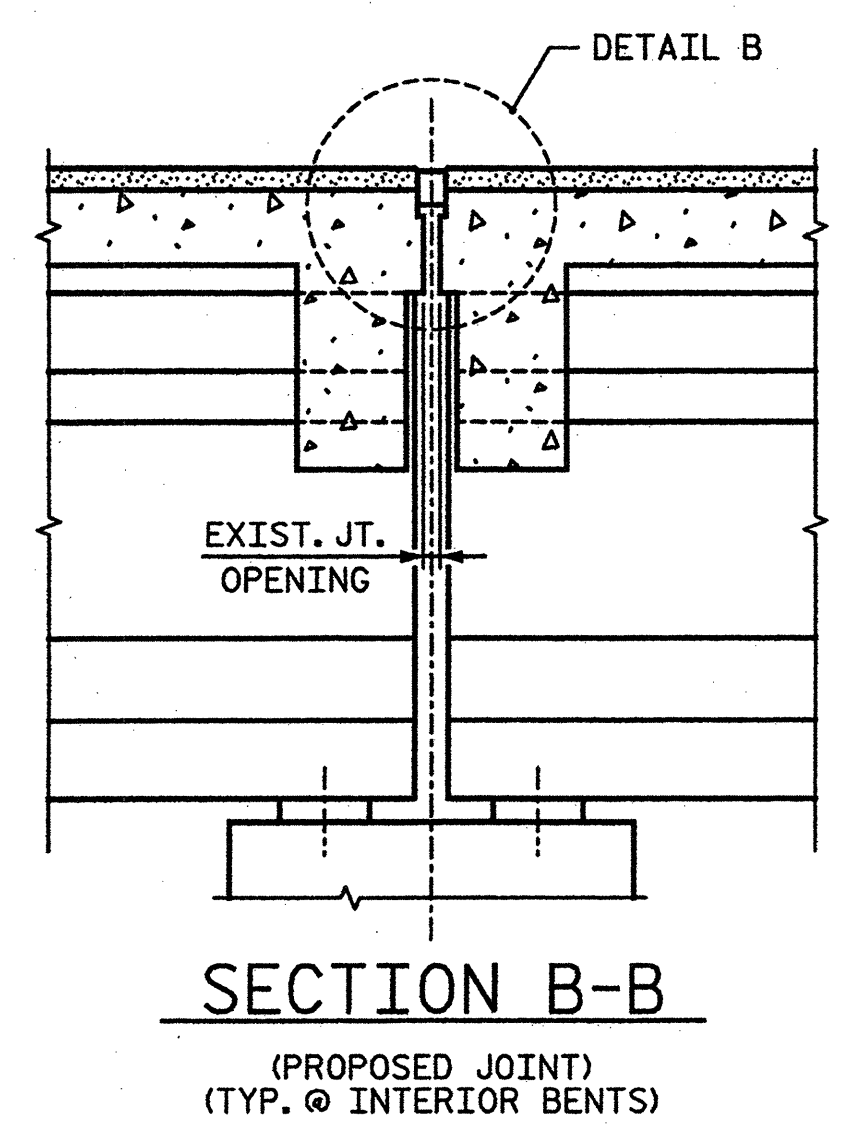
THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.

FOAM JOINT OPENING WIDTHS SHALL BE CONFIRMED IN THE FIELD. CONTRACTOR SHALL MAKE ADJUSTMENTS TO FOAM JOINT SEALS, AS NECESSARY TO MEET EXISTING CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY COST ASSOCIATED WITH THESE ADJUSTMENTS IS CONSIDERED INCIDENTAL AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.

SEE SHEET 3 OF 6 FOR ADDITIONAL NOTES.



PARTIAL PLAN OF SPANS - DECK REPAIRS
(SEE SHEET 3 OF 6 FOR SECTION A-A)



PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
BRIDGE NO.: 11
REHAB. OF BRIDGE NO. 11

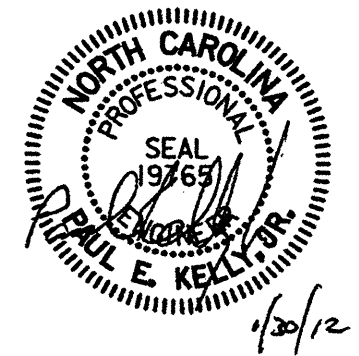
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**PLAN OF SPANS C & D
DECK REPAIRS**

BRIDGE ON US 29 NBL
OVER HAW RIVER

* ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL, THE ENTIRE WATERSTOP SHALL BE REMOVED.

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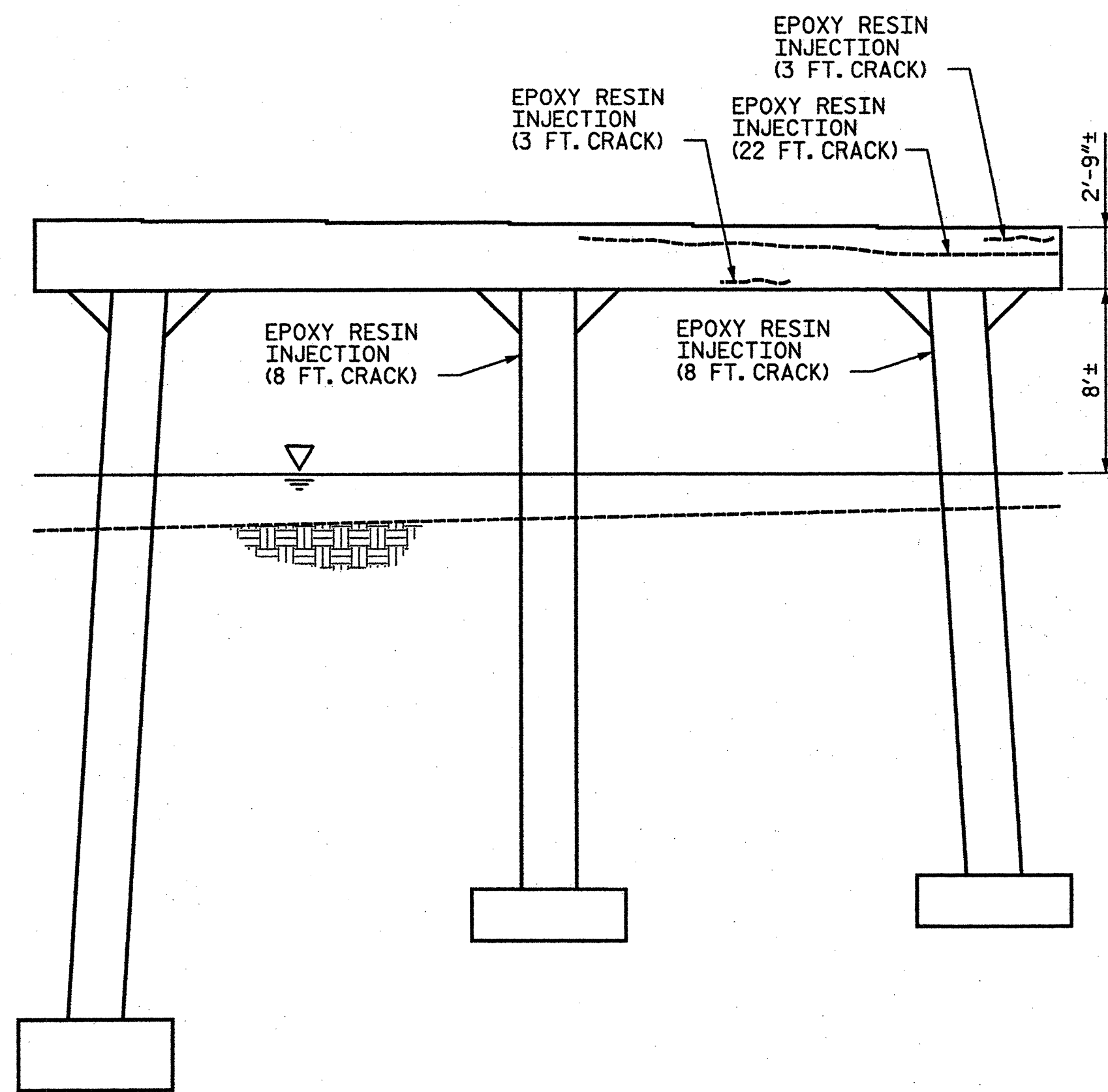


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS S-50	
2			4				

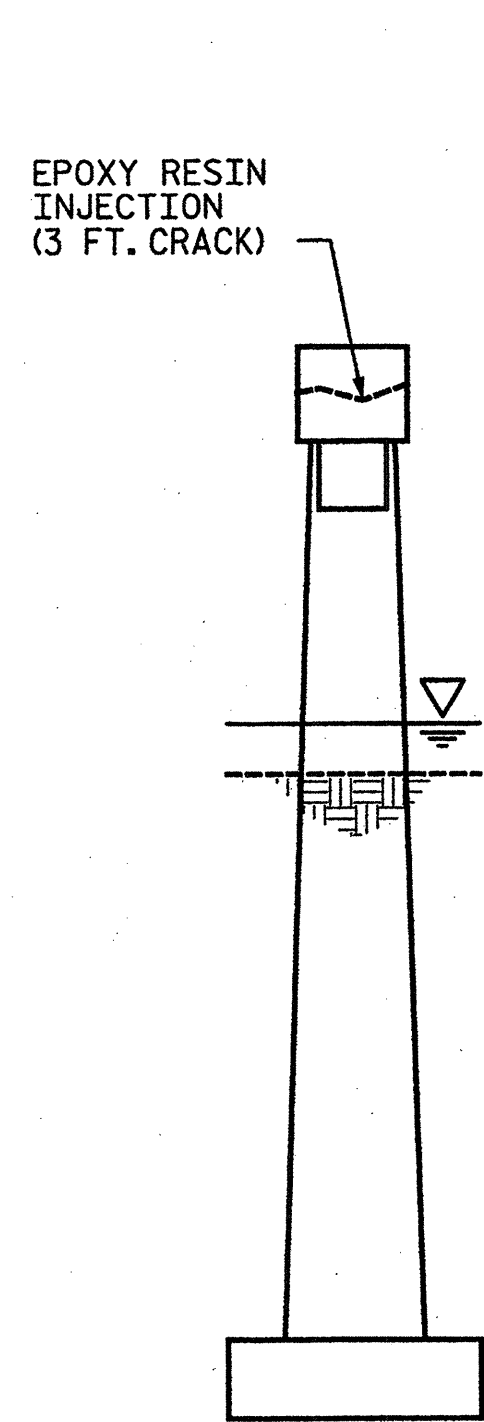
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DRAWN BY: AFM DATE: 11-11
CHECKED BY: AC DATE: 11-11

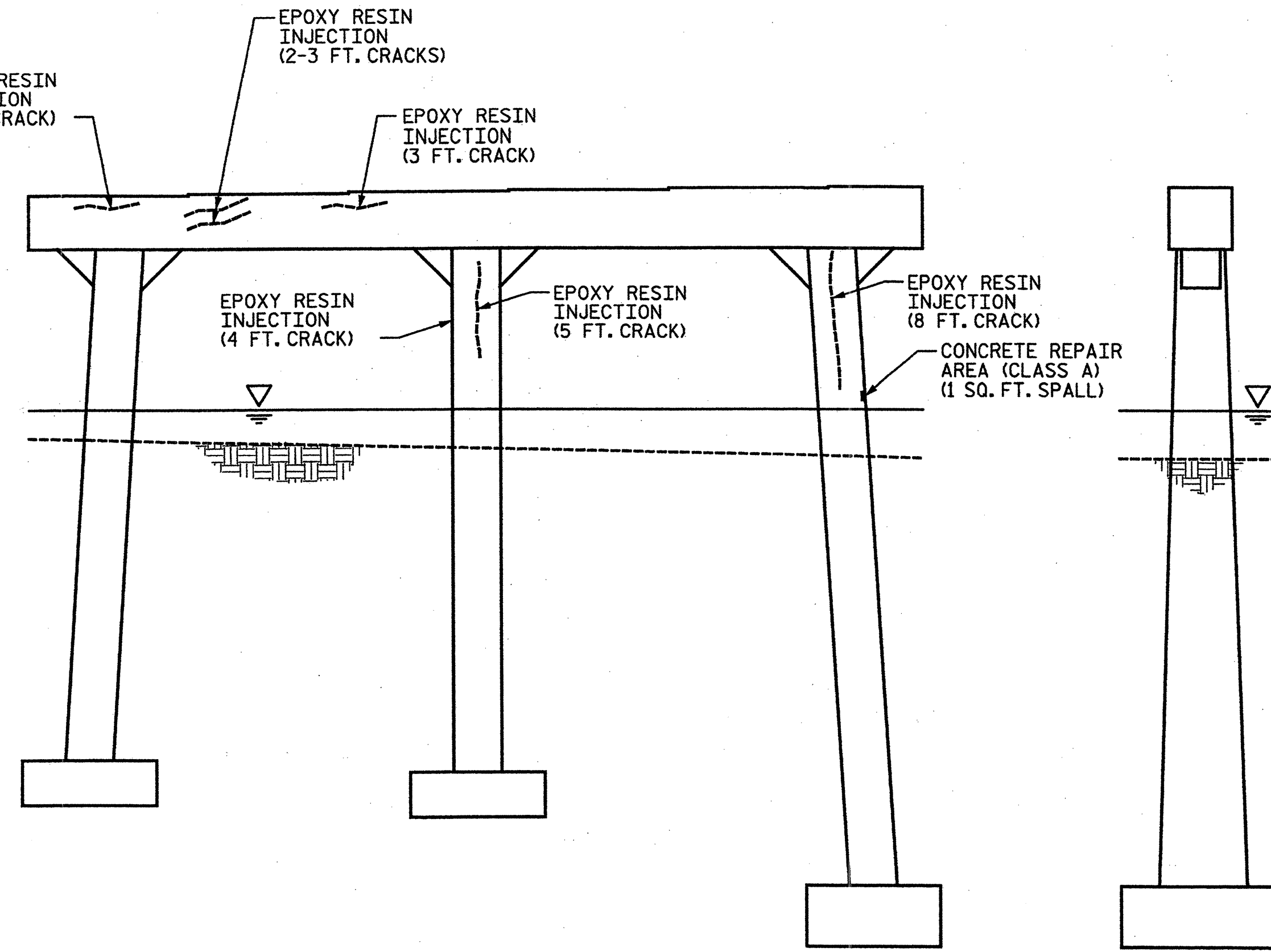
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ELEVATION OF BENT 1 - LOOKING NORTH*



END VIEW OF BENT 1 LOOKING WEST*



ELEVATION OF BENT 1 - LOOKING SOUTH*

END VIEW OF BENT 1 LOOKING EAST*

NOTES:

FOR CONCRETE REPAIR DETAILS, SEE SHEET 6 OF 6.

CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.

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 COST.

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.

BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.

BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES SEE SHEET NO. S-26 OF S-50.

SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.

EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP OF ALL BENT CAPS AND THE COST SHALL BE INCLUDED IN THE OTHER BENT REPAIRS.

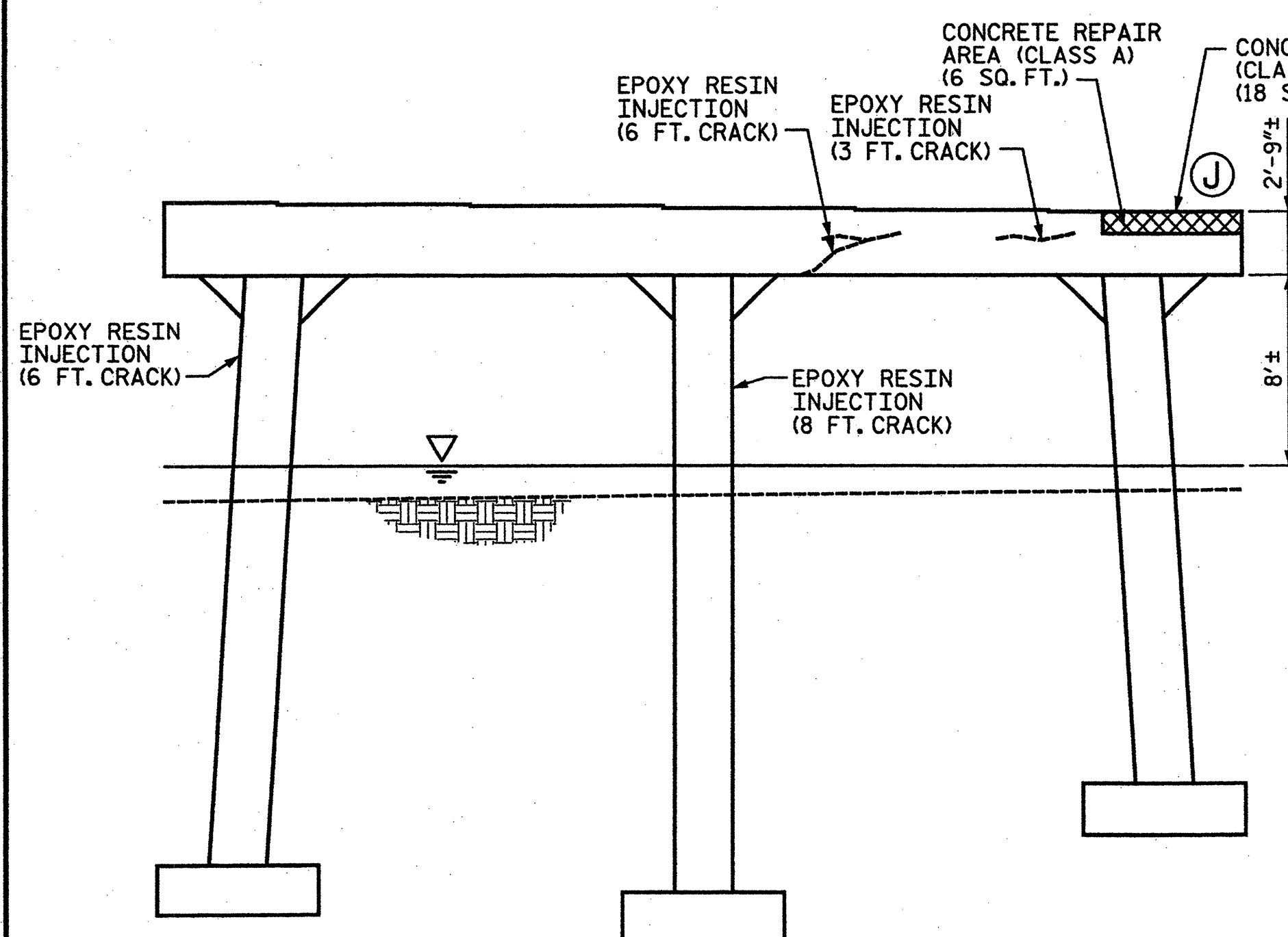
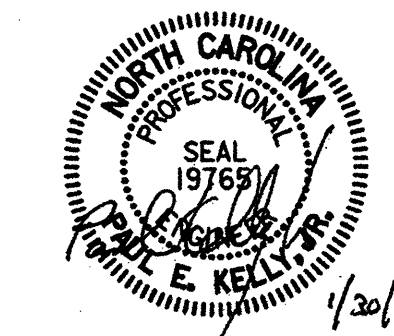
FOR CLEANING, PAINTING, AND REPLACEMENT OF BEARINGS SEE SHEET NO. S-27 OF S-50.

WATER ELEVATION BASED ON 2009 BRIDGE INSPECTION SOUNDINGS

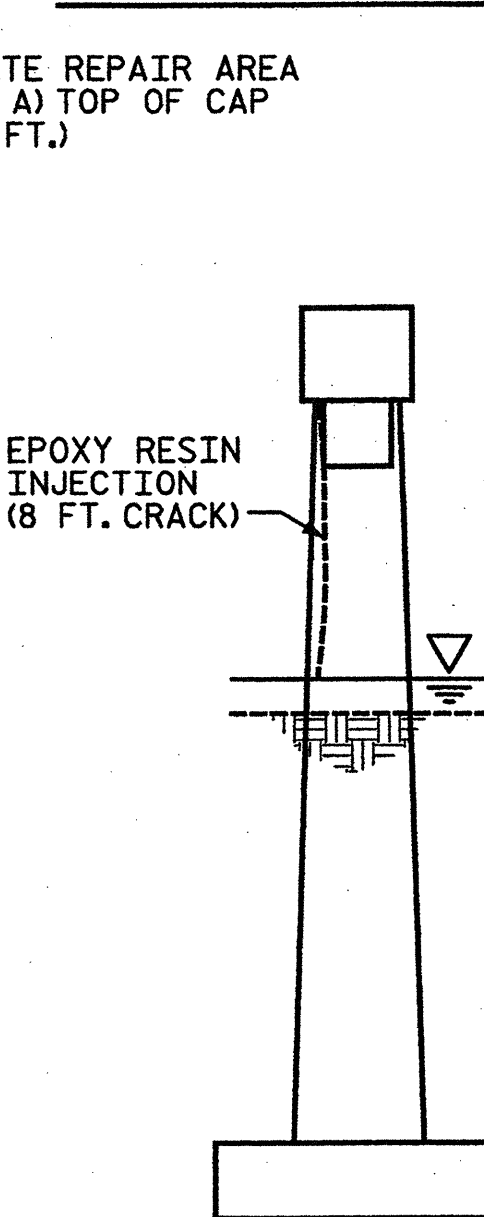
Ⓧ - JACKING REQUIRED

----- APPROX. LENGTH: EPOXY RESIN INJECTION

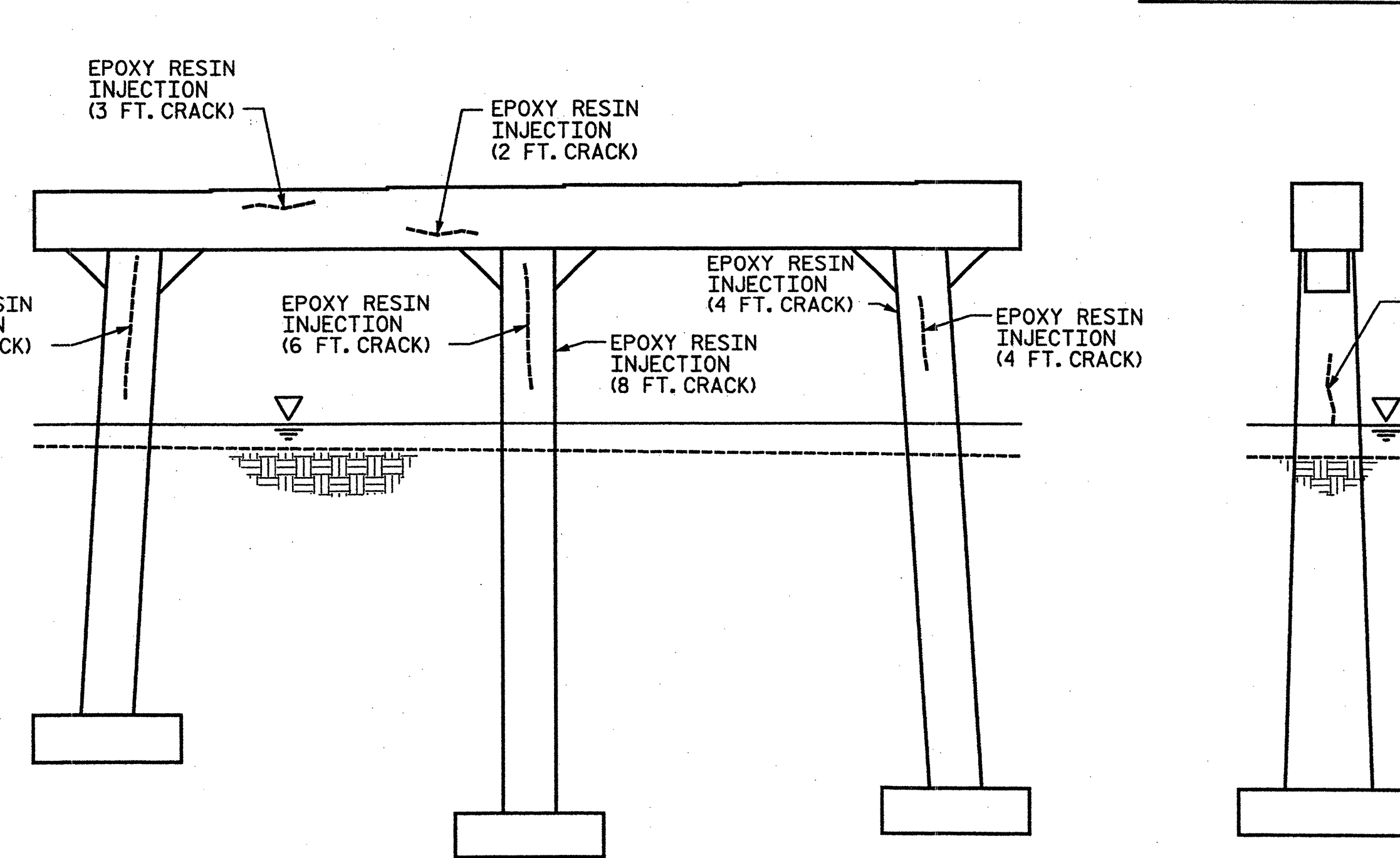
⊠ APPROX. AREA: CONCRETE REPAIRS (CLASS A)



ELEVATION OF BENT 2 - LOOKING NORTH*



END VIEW OF BENT 2 LOOKING WEST*



ELEVATION OF BENT 2 - LOOKING SOUTH*

END VIEW OF BENT 2 LOOKING EAST*

PROJECT NO. 17BP.7.P.3

ROCKINGHAM COUNTY

BRIDGE NO.: 11

REHAB. OF BRIDGE NO. 11 SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BENTS 1 & 2
SUBSTRUCTURE REPAIRS**

BRIDGE ON US 29 NBL
OVER HAW RIVER

DRAWN BY : AFM DATE : 11-11

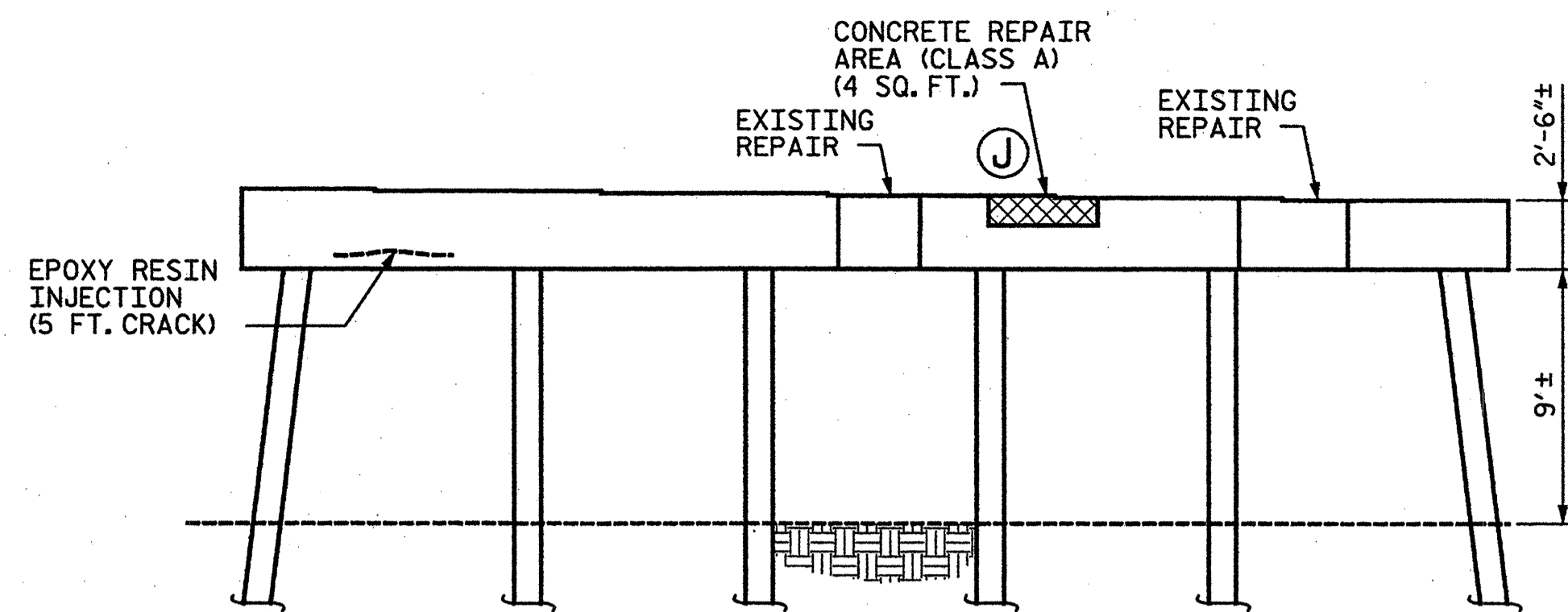
CHECKED BY : AC DATE : 11-11

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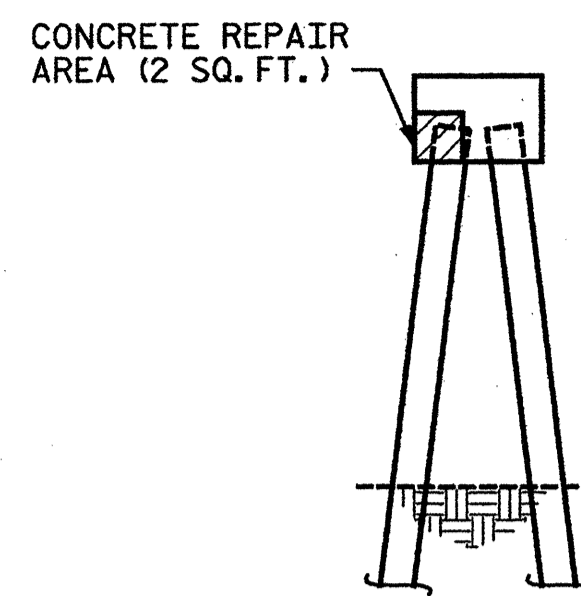
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			S-50

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

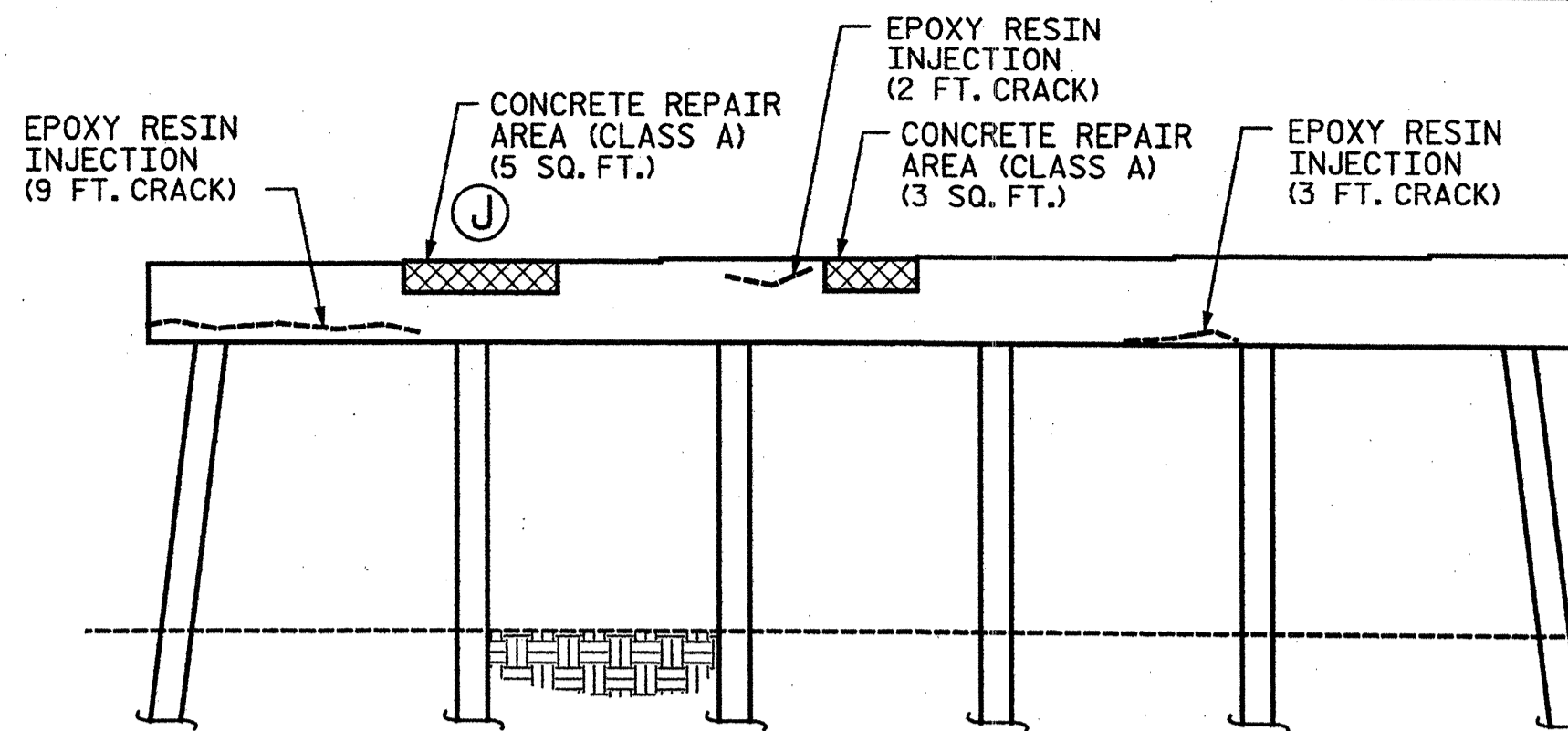
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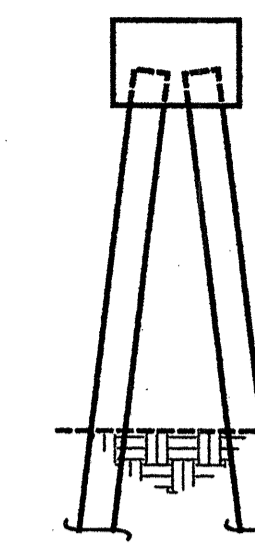
ELEVATION OF BENT 3 - LOOKING NORTH*



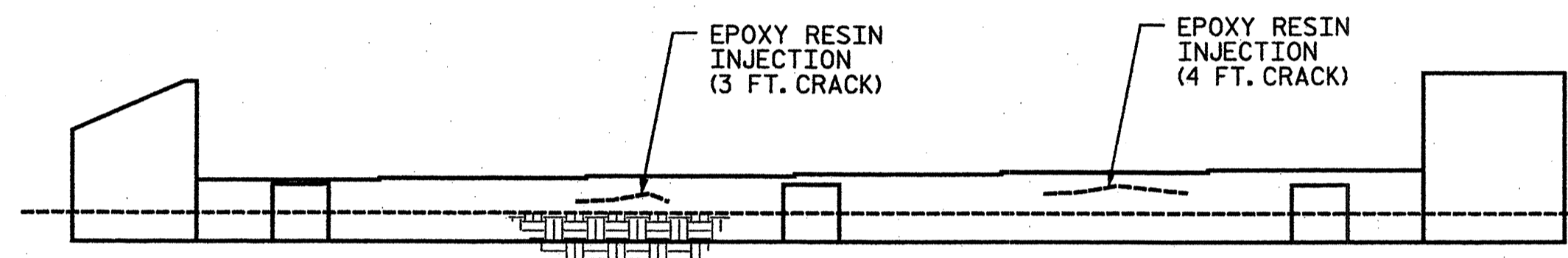
END VIEW OF BENT 3
LOOKING WEST*



ELEVATION OF BENT 3 - LOOKING SOUTH*



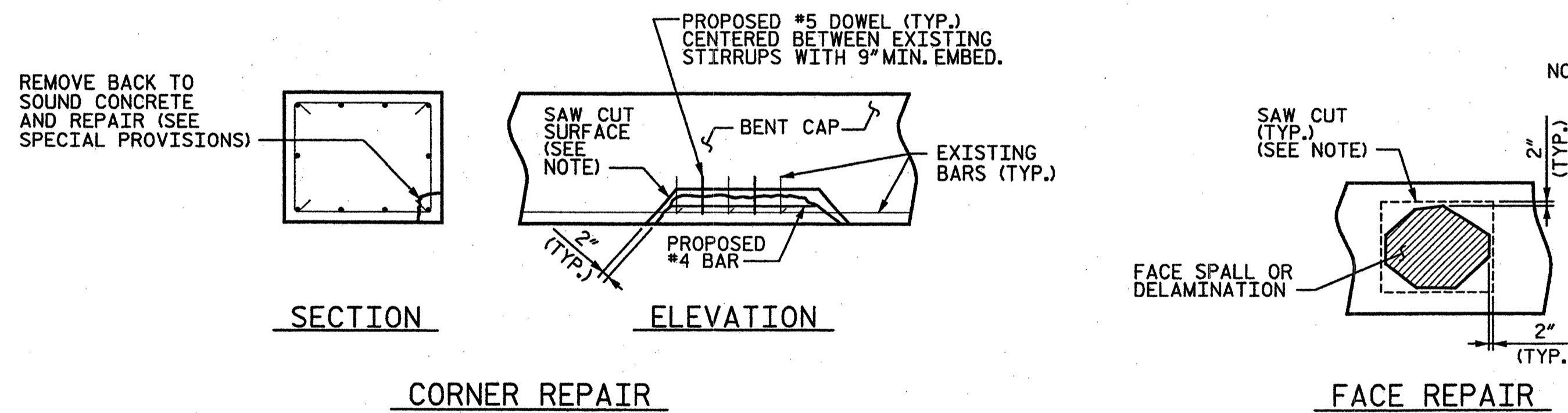
END VIEW OF BENT 3
LOOKING EAST*



ELEVATION OF END BENT 1 - LOOKING SOUTH*

- APPROX. LENGTH:
EPOXY RESIN INJECTION
- ▨ APPROX. AREA:
CONCRETE REPAIRS (CLASS A)
- ▧ APPROX. AREA:
CONCRETE REPAIRS (CLASS A)

NOTE:
SEE NOTES ON SHEET 5 OF 6.
Ⓝ - JACKING REQUIRED
* LOOKING DIRECTION CORRESPONDS WITH
DIRECTION OF TRAVEL ALONG HIGHWAY



TYPICAL SUBSTRUCTURE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO A MAXIMUM DEPTH OF 1/2\"/>

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 11
 REHAB. OF BRIDGE NO. 11 SHEET 6 OF 6



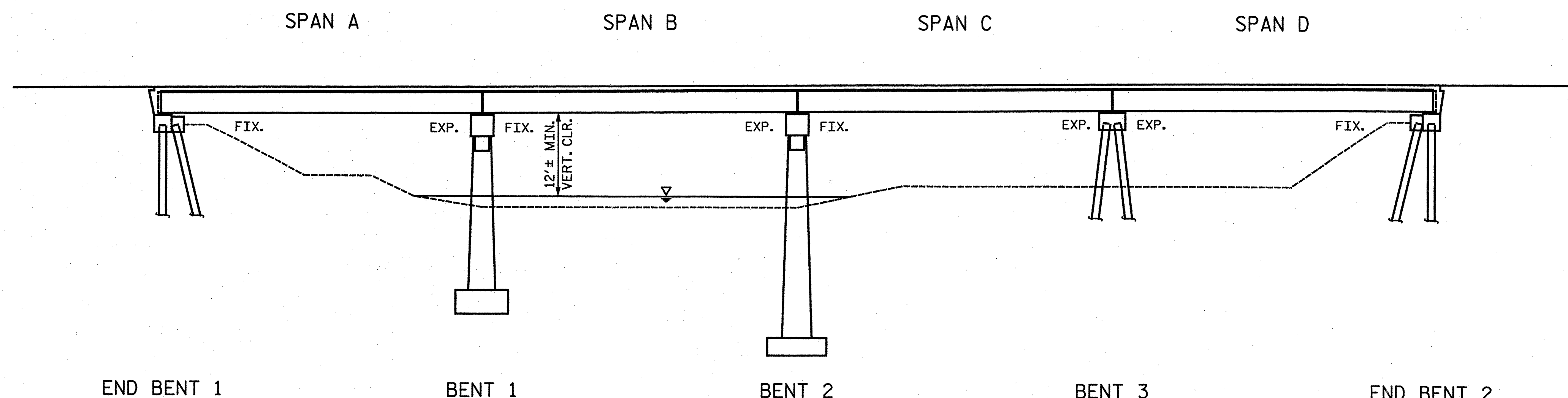
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BENT 3 & END BENTS
 SUBSTRUCTURE REPAIRS**
 BRIDGE ON US 29 NBL
 OVER HAW RIVER

DRAWN BY : AFM DATE : 11-11
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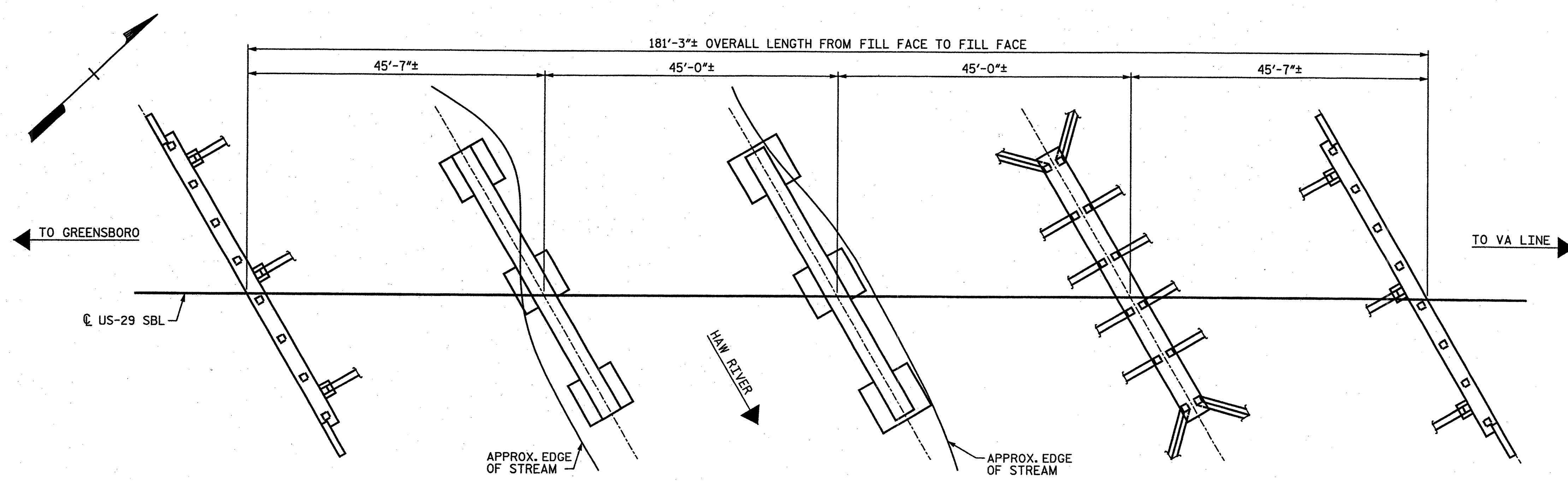
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			S-50

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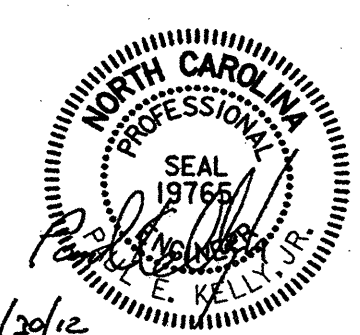
ELEVATION
 (SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)

NOTES:
 SEE SHEET NO. S-1 OF S-50 FOR GENERAL NOTES.
 SEE BRIDGE NO. 15 SHEETS 3, 4, AND 5 OF 6 FOR ADDITIONAL NOTES.



PLAN

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 15
 REHAB. OF BRIDGE NO. 15 SHEET 1 OF 6

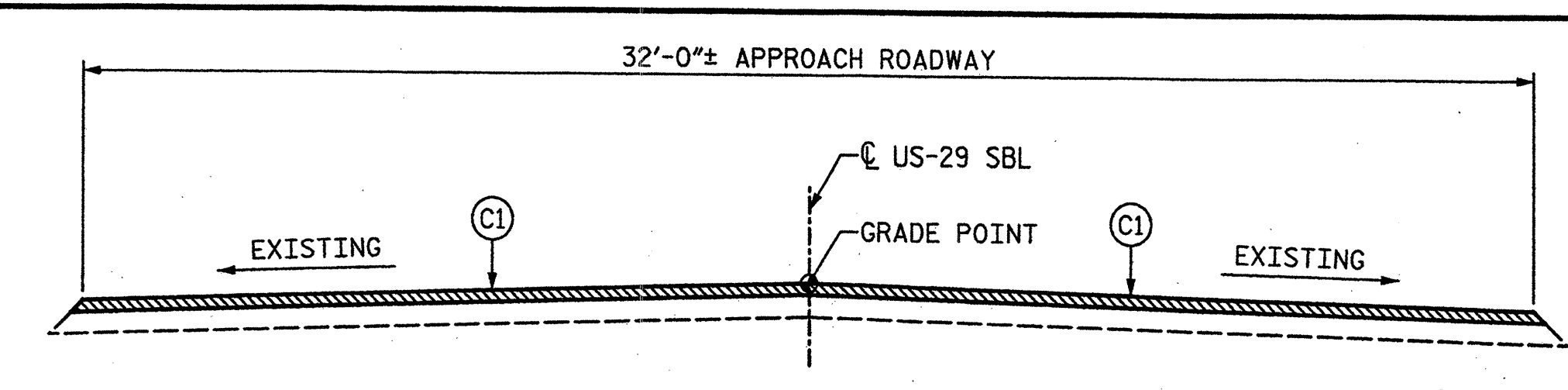
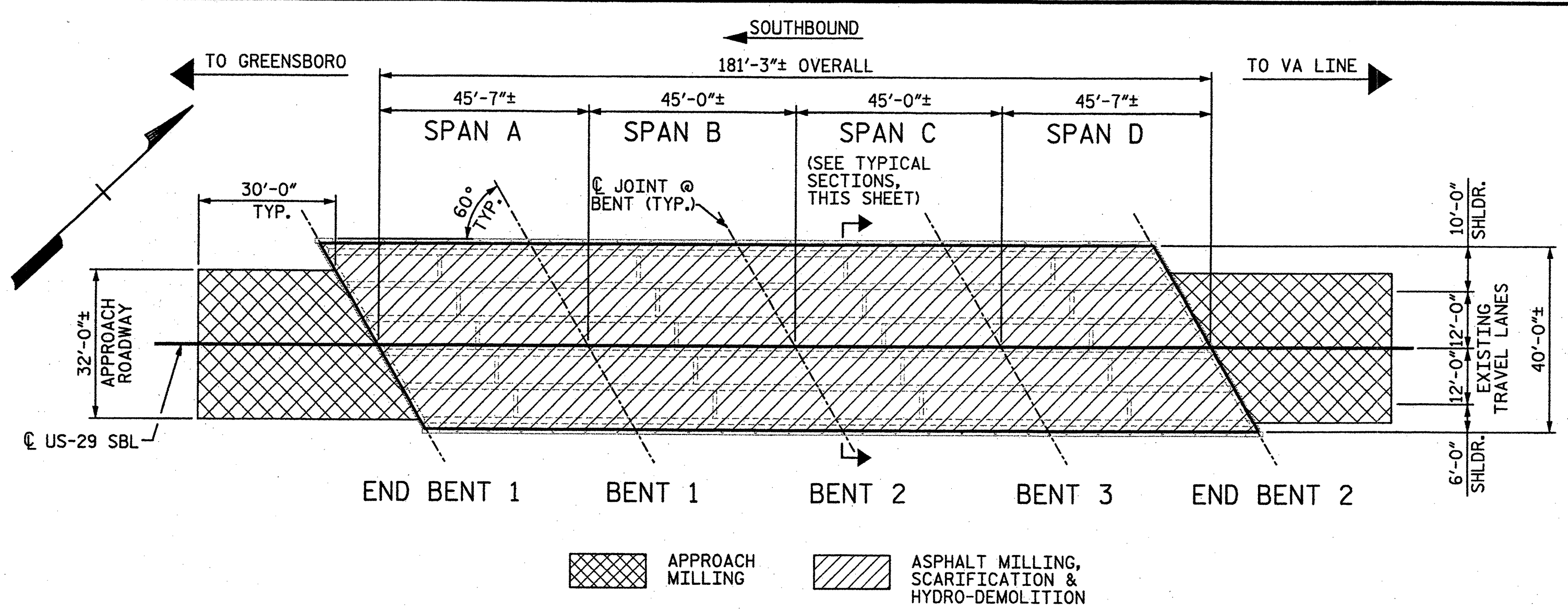


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL PLAN & ELEVATION
 BRIDGE ON US 29 SBL
 OVER HAW RIVER

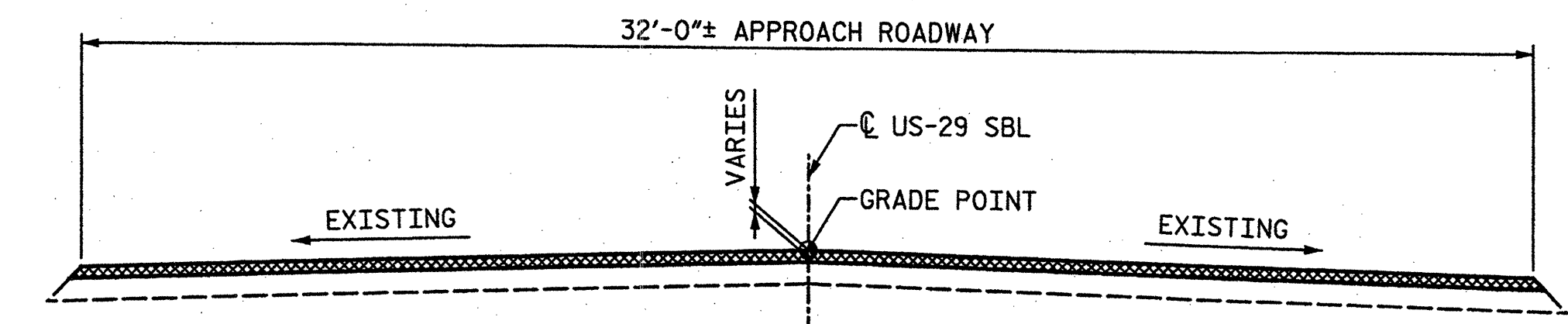
DRAWN BY : AFM DATE : 11-11
 CHECKED BY : AC DATE : 11-11

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			S-50

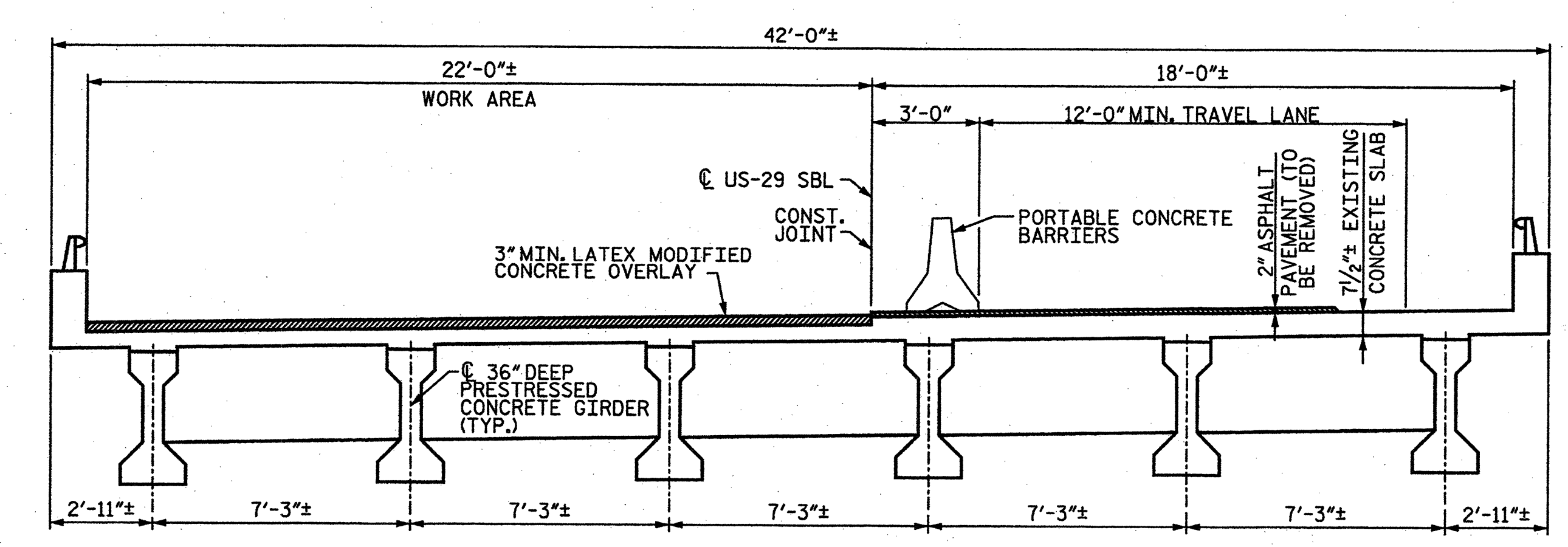


TYPICAL ROADWAY SECTION
(FINAL ROADWAY SURFACE TO MATCH EXISTING GRADE)

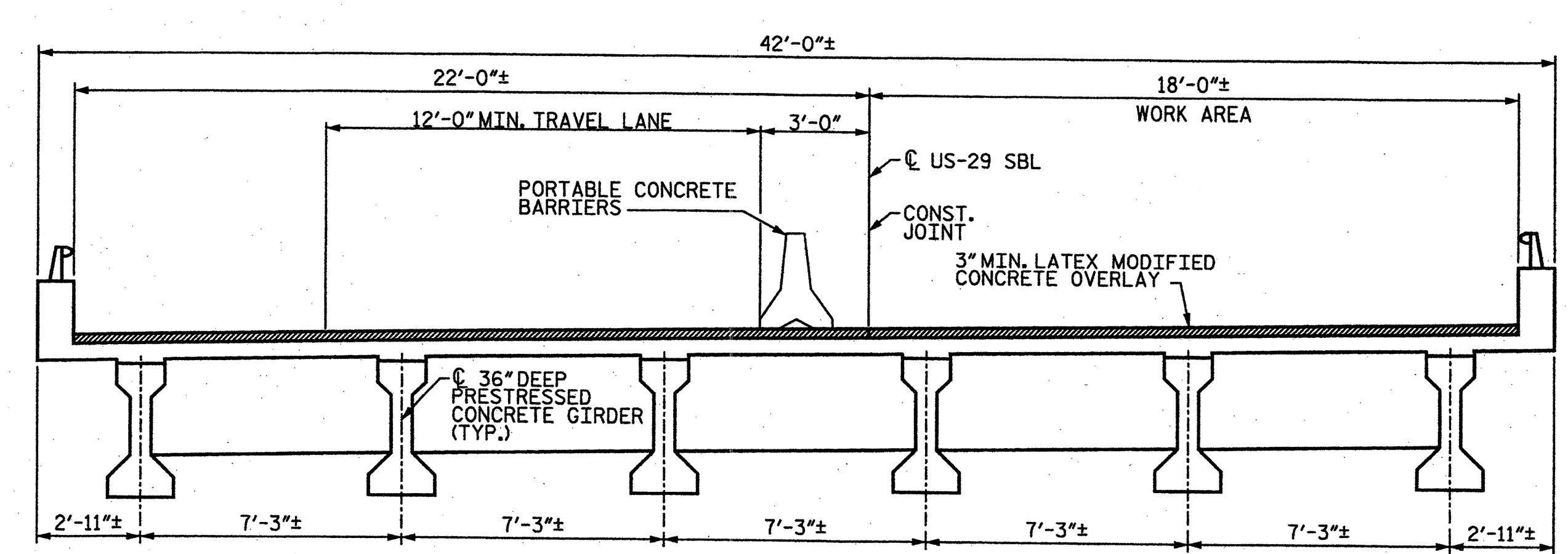


TYPICAL ROADWAY MILLING SECTION
(MILL TO 1 1/2" MIN. DEPTH)

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S 12.5C 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
(AT INTERMEDIATE DIAPHRAGMS)



TYPICAL SECTION - STAGE II
(AT INTERMEDIATE DIAPHRAGMS)

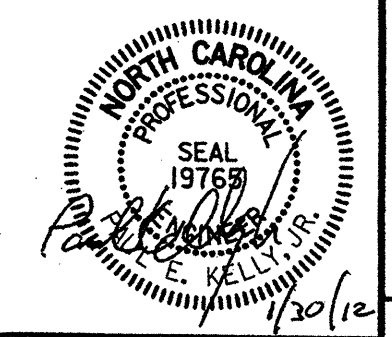
TOTAL BILL OF MATERIAL															
INCIDENTAL MILLING	DECK SCARIFICATION	*CLASS I SURFACE PREPARATION	*CLASS II SURFACE PREPARATION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY	ASPHALT CONCRETE SURFACE COURSE TYPE S 12.5C	FOAM JOINT SEAL	GROOVING BRIDGE FLOORS	EPOXY RESIN INJECTION	CONCRETE REPAIRS (CLASS A)	CONCRETE REPAIRS	CLEANING & PAINTING BEARINGS	REPLACE BEARINGS	BRIDGE JACKING
SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	TONS	LUMP SUM	SQ. FT.	LIN. FT.	CU. FT.	CU. FT.	LUMP SUM	LUMP SUM	LUMP SUM
280	806	775	31	806	67	806	23	LUMP SUM	6,470	202	22	2	LUMP SUM	LUMP SUM	LUMP SUM

* QUANTITIES FOR INFORMATION ONLY.

NOTE:
FOR ADDITIONAL MILLING DETAIL, SEE SHEET 3 OF 6.
PER EXISTING PLANS, THE ESTIMATED AVERAGE REBAR COVER FOR THE EXISTING DECK IS 1/4".

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
BRIDGE NO.: 15
REHAB. OF BRIDGE NO. 15 SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN OF SPANS & TYPICAL SECTION
BRIDGE ON US 29 SBL OVER HAW RIVER

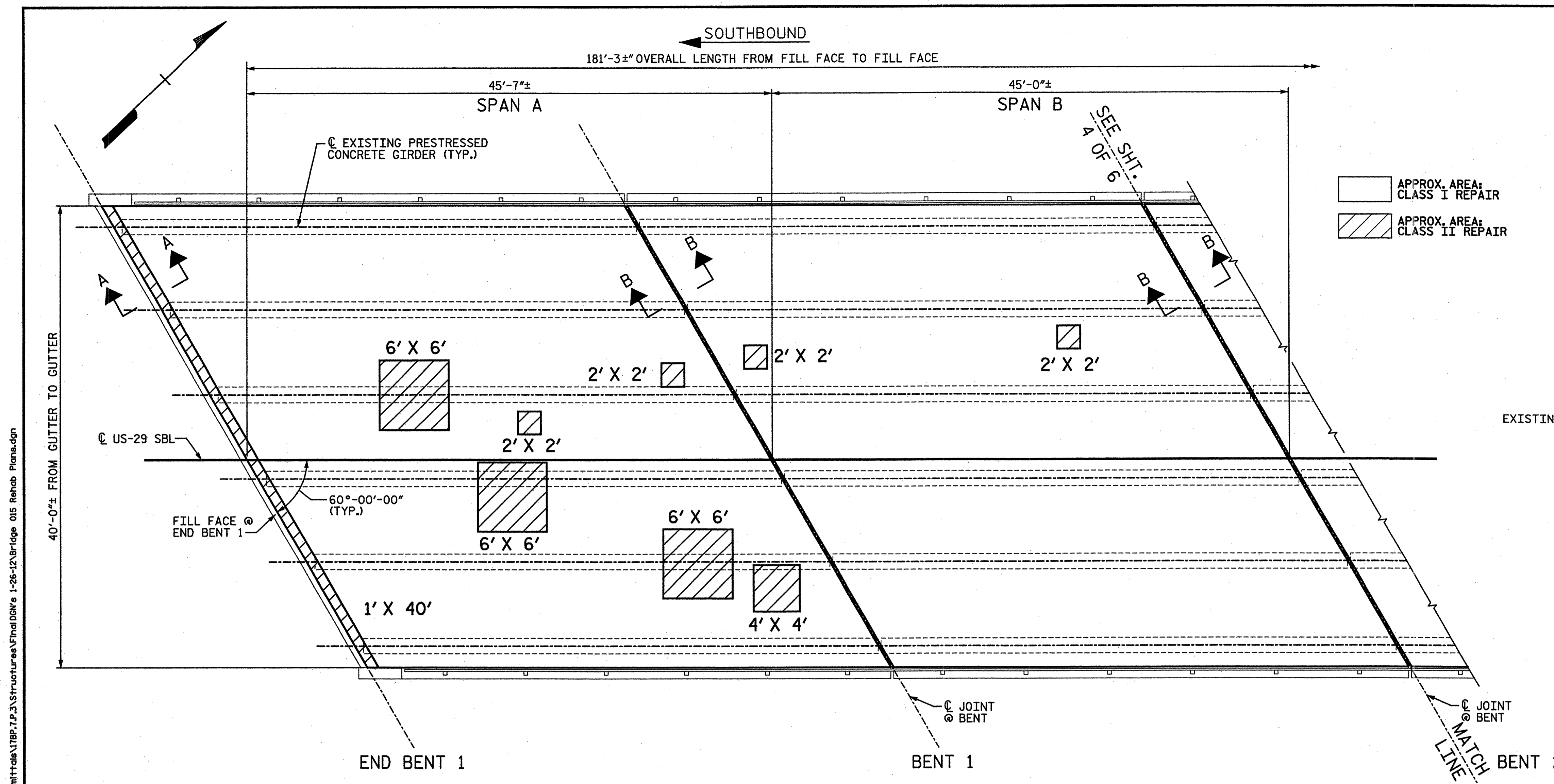


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			S-50

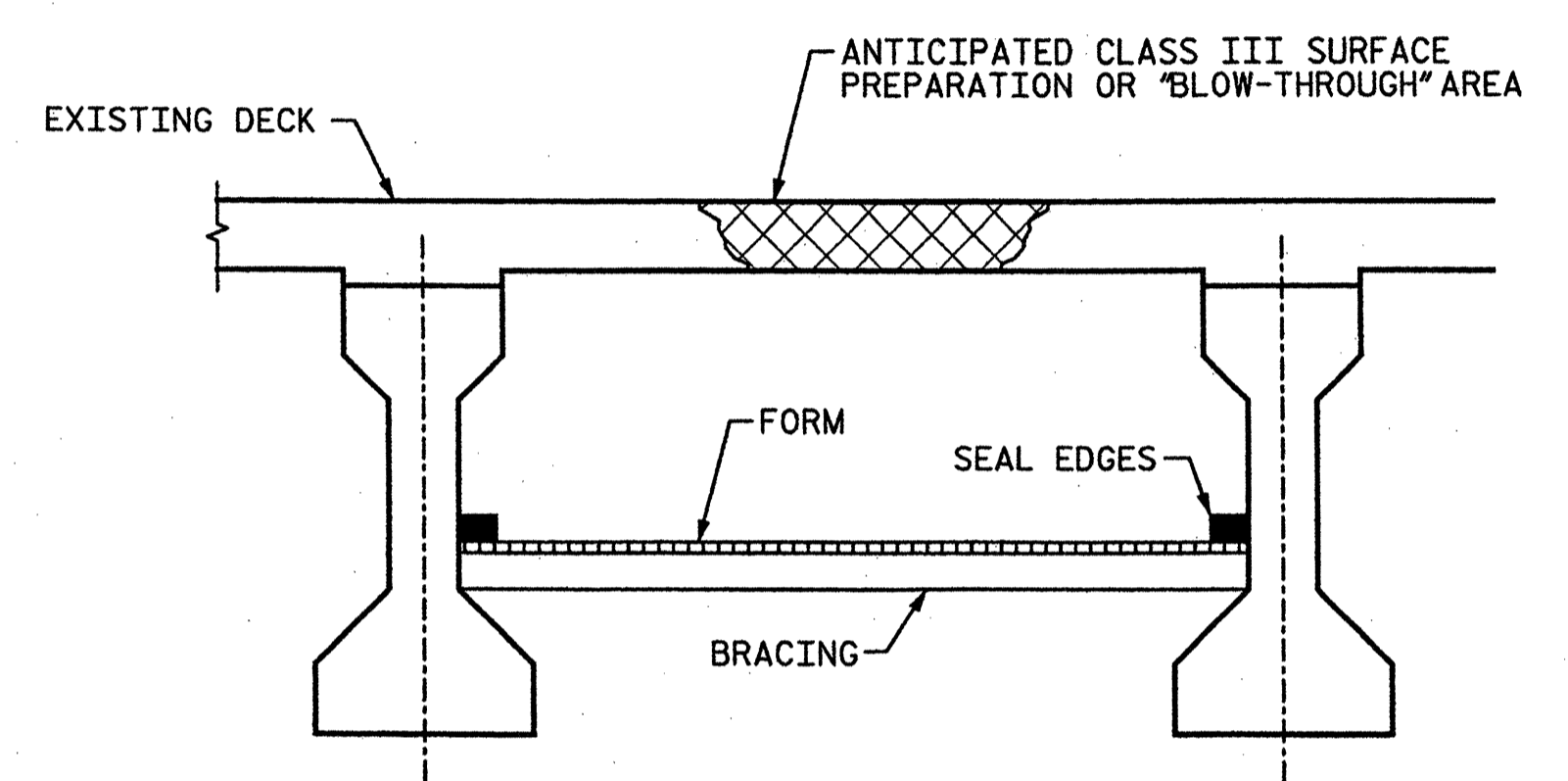
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DRAWN BY: AEM DATE: 11-11
CHECKED BY: AC DATE: 11-11



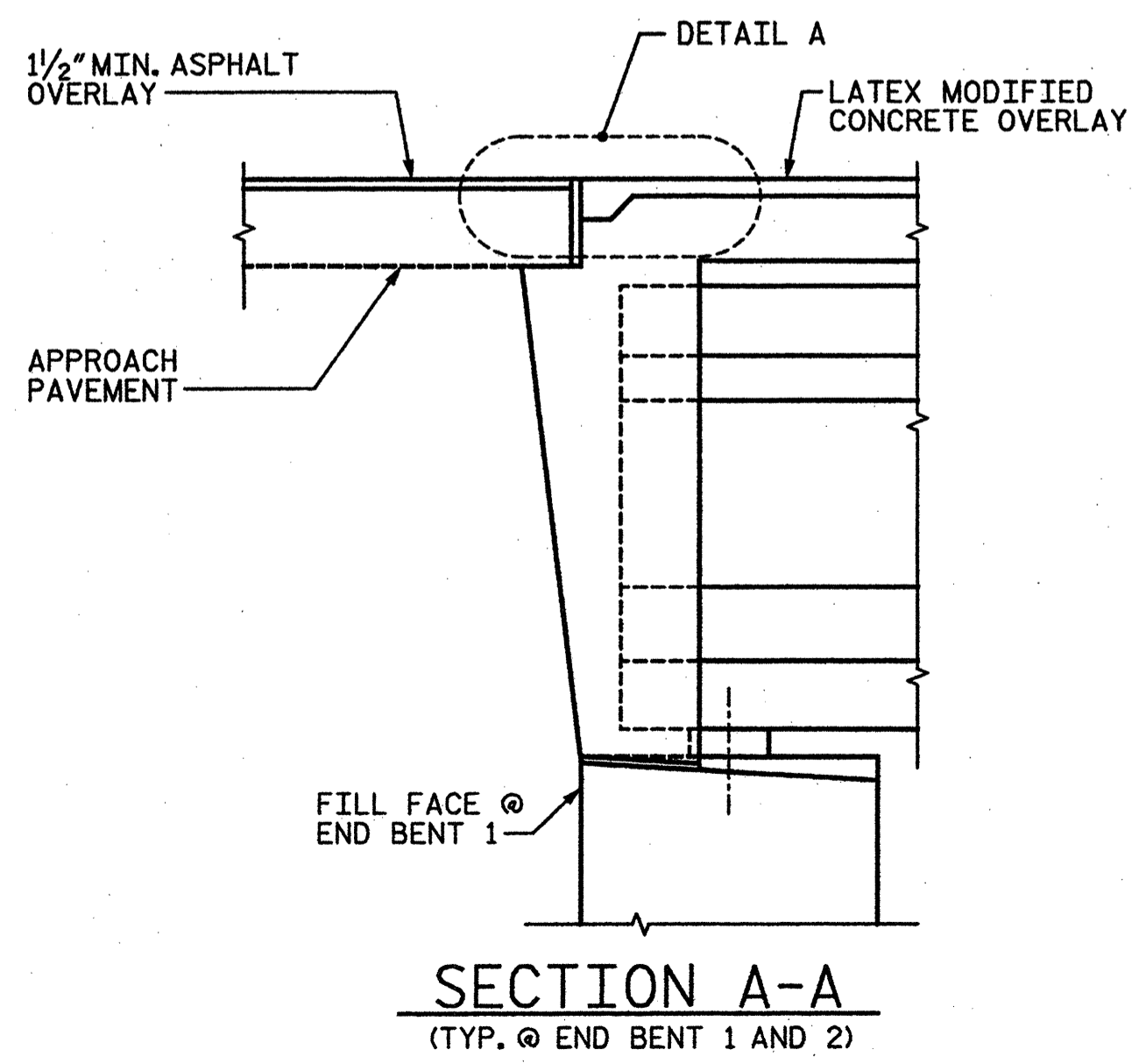
PARTIAL PLAN OF SPANS - DECK REPAIRS
(SEE SHEET 4 OF 6 FOR SECTION B-B)

NOTES:
 FOR LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.
 FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
 THE CONTRACTOR SHALL PROVIDE CONTAINMENT FOR UNEXPECTED BLOW-THROUGH OF THE DECK. SEE DETAIL ON THIS SHEET AND SPECIAL PROVISIONS.
 EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.

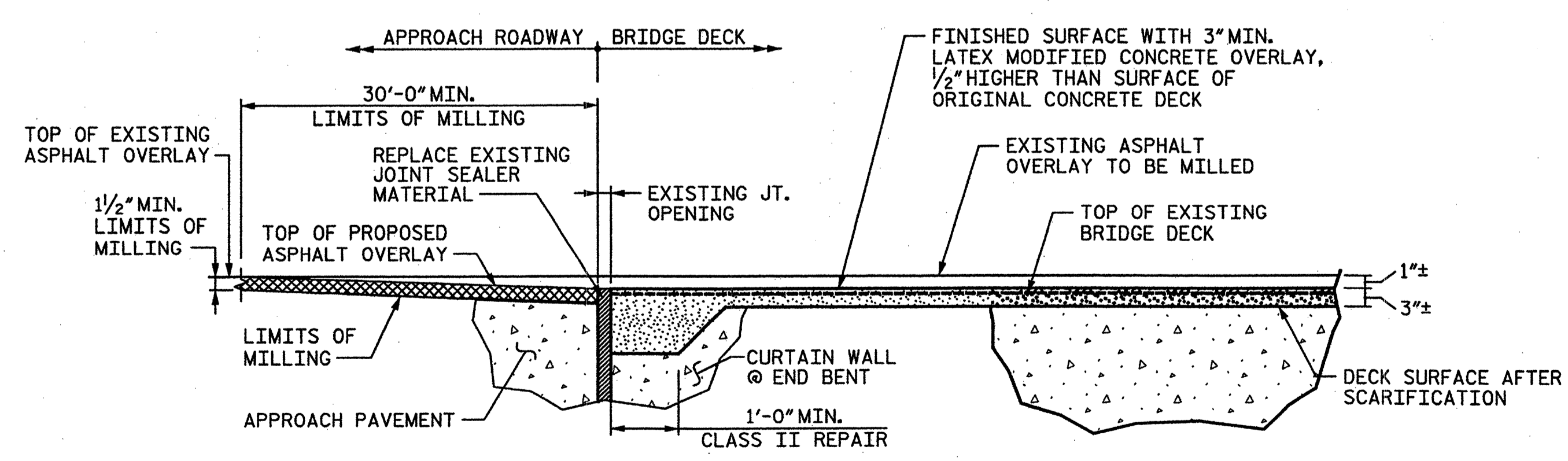


TYP. "BLOW-THROUGH" CONTAINMENT AND FORMWORK

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.



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

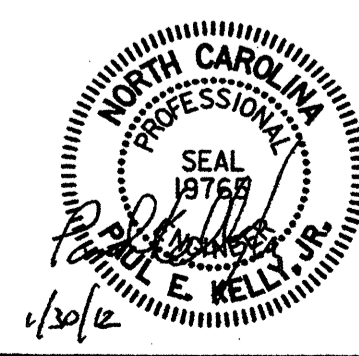


DETAIL A
(LOCATION OF JOINT TO MATCH EXISTING JOINT LOCATION)

PROJECT NO. **17BP.7.P.3**
ROCKINGHAM COUNTY
 BRIDGE NO.: **15**

REHAB. OF BRIDGE NO. 15 SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS A & B
 DECK REPAIRS**
 BRIDGE ON US 29 SBL
 OVER HAW RIVER

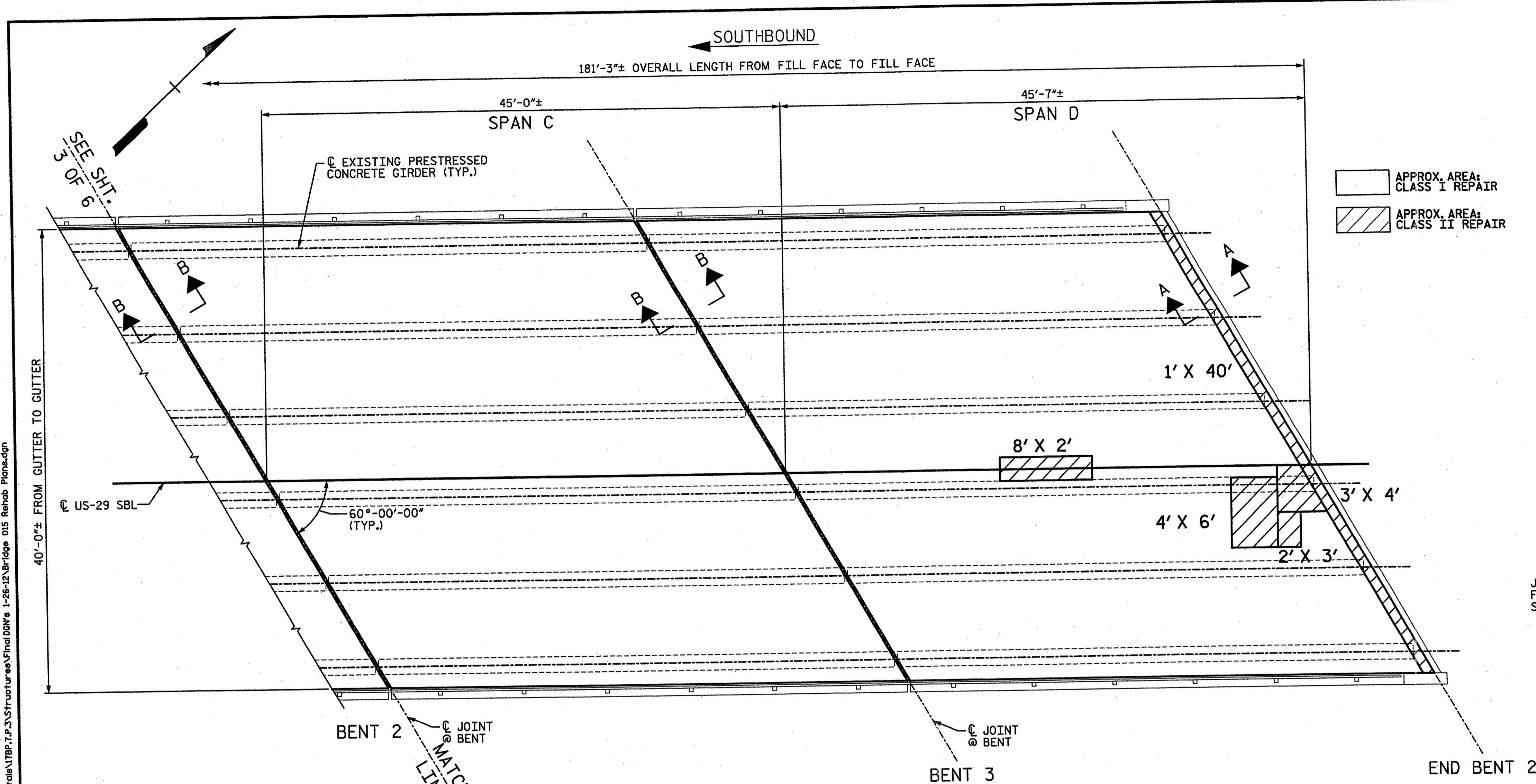


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-10
1			3			TOTAL SHEETS
2			4			5-50

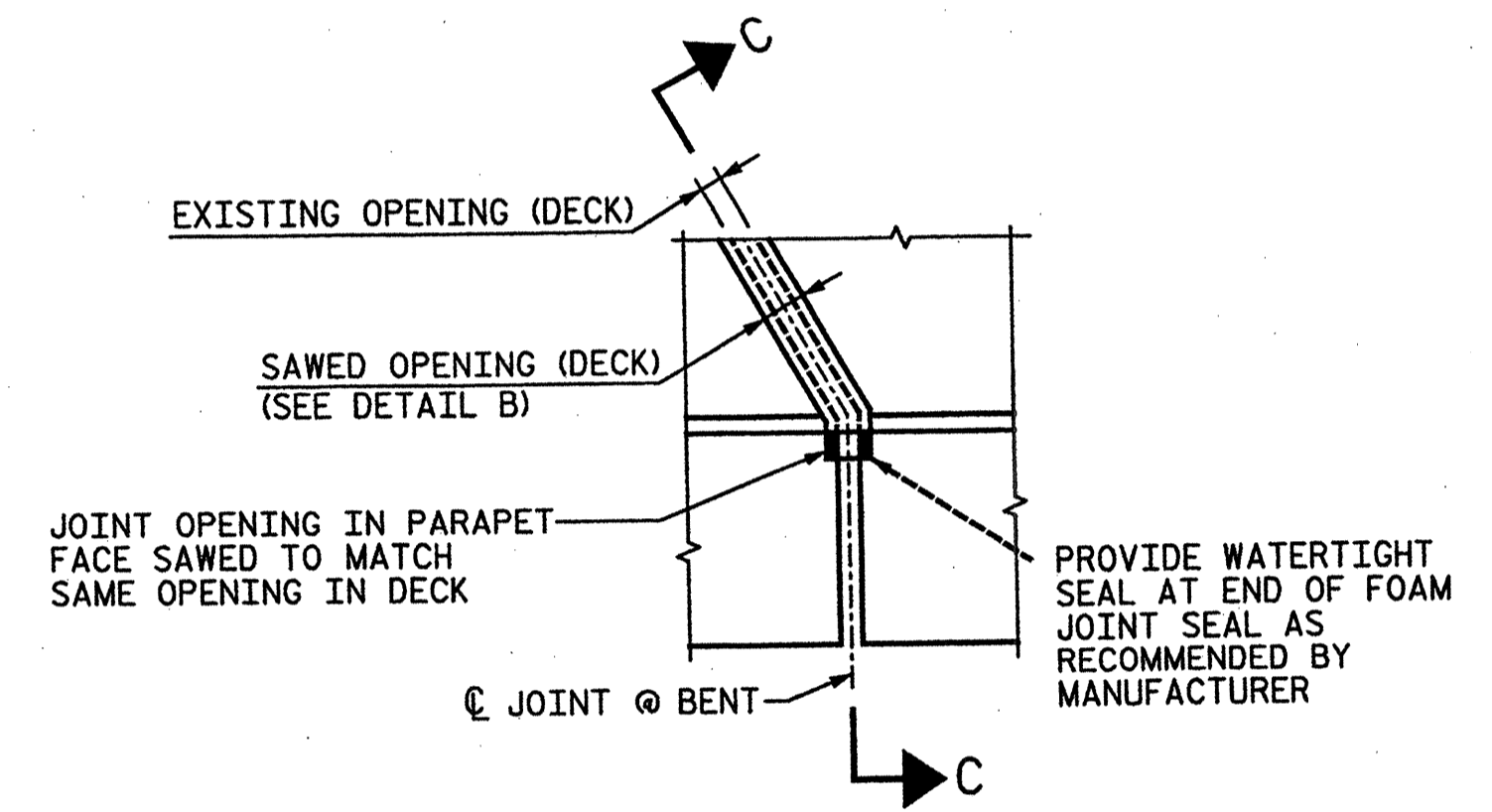
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1/30/2012



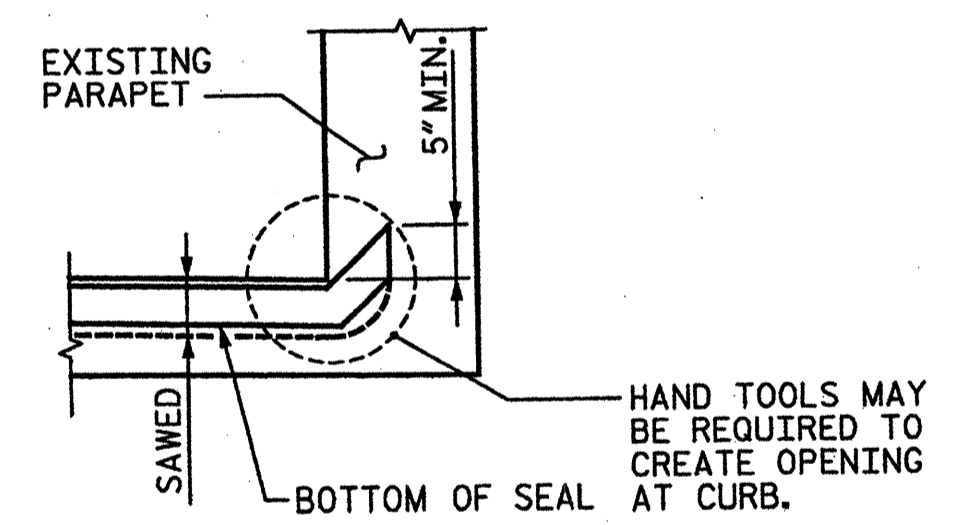
PARTIAL PLAN OF SPANS - DECK REPAIRS
(SEE SHEET 3 OF 6 FOR SECTION A-A)

NOTES:
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
 THE ELASTOMERIC CONCRETE SHALL BE INCLUDED IN THE FOAM JOINT SEAL PAY ITEM.
 THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.
 THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2".
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.
 FOAM JOINT OPENING WIDTHS SHALL BE CONFIRMED IN THE FIELD. CONTRACTOR SHALL MAKE ADJUSTMENTS TO FOAM JOINT SEALS, AS NECESSARY, TO MEET EXISTING CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY COST ASSOCIATED WITH THESE ADJUSTMENTS IS CONSIDERED INCIDENTAL AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.
 SEE SHEET 3 OF 6 FOR ADDITIONAL NOTES.

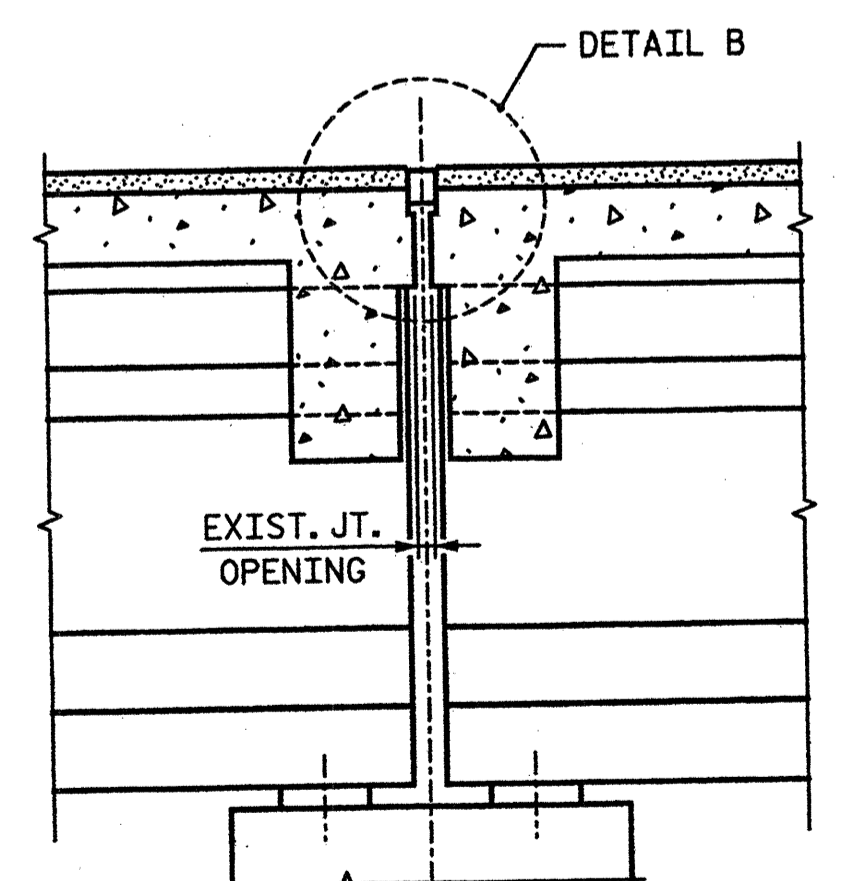
APPROX. AREA:
 CLASS I REPAIR
 APPROX. AREA:
 CLASS II REPAIR



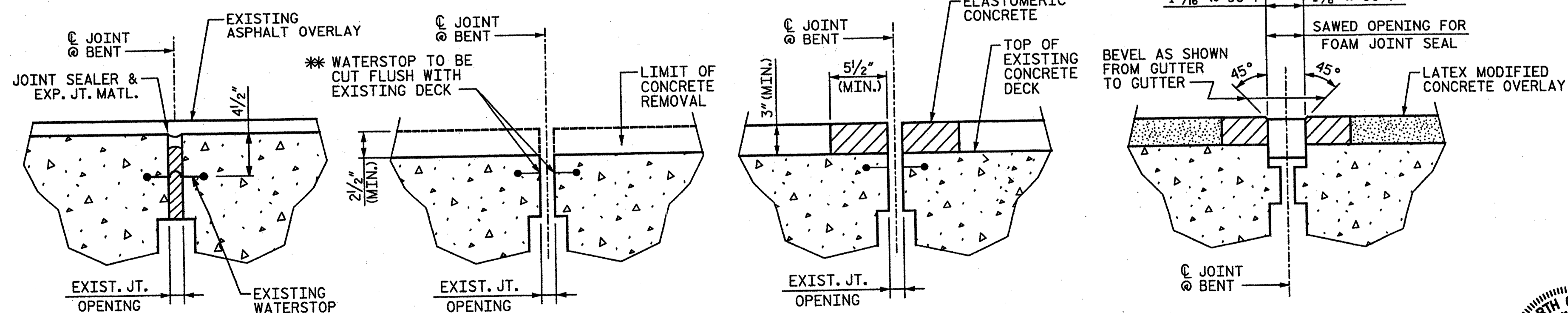
PLAN OF JOINT SEAL AT PARAPET



SECTION C-C



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



DETAIL B

* ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL, THE ENTIRE WATERSTOP SHALL BE REMOVED.

(BENTS 1 & 2)	(BENT 3)
2 1/16" @ 45°F	2 1/16" @ 45°F
2" @ 60°F	2" @ 60°F
1 5/16" @ 90°F	1 7/8" @ 90°F

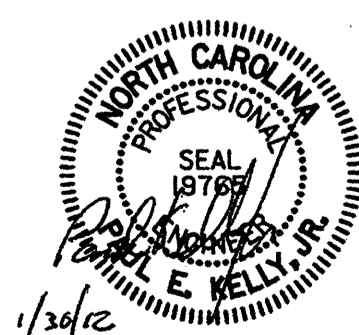
SAWED OPENING FOR FOAM JOINT SEAL

BEVEL AS SHOWN FROM GUTTER TO GUTTER 45°

LATEX MODIFIED CONCRETE OVERLAY

PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 15
 REHAB. OF BRIDGE NO. 15 SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS C & D
 DECK REPAIRS**
 BRIDGE ON US 29 SBL
 OVER HAW RIVER



DRAWN BY: AFM DATE: 11-11
 CHECKED BY: AC DATE: 11-11

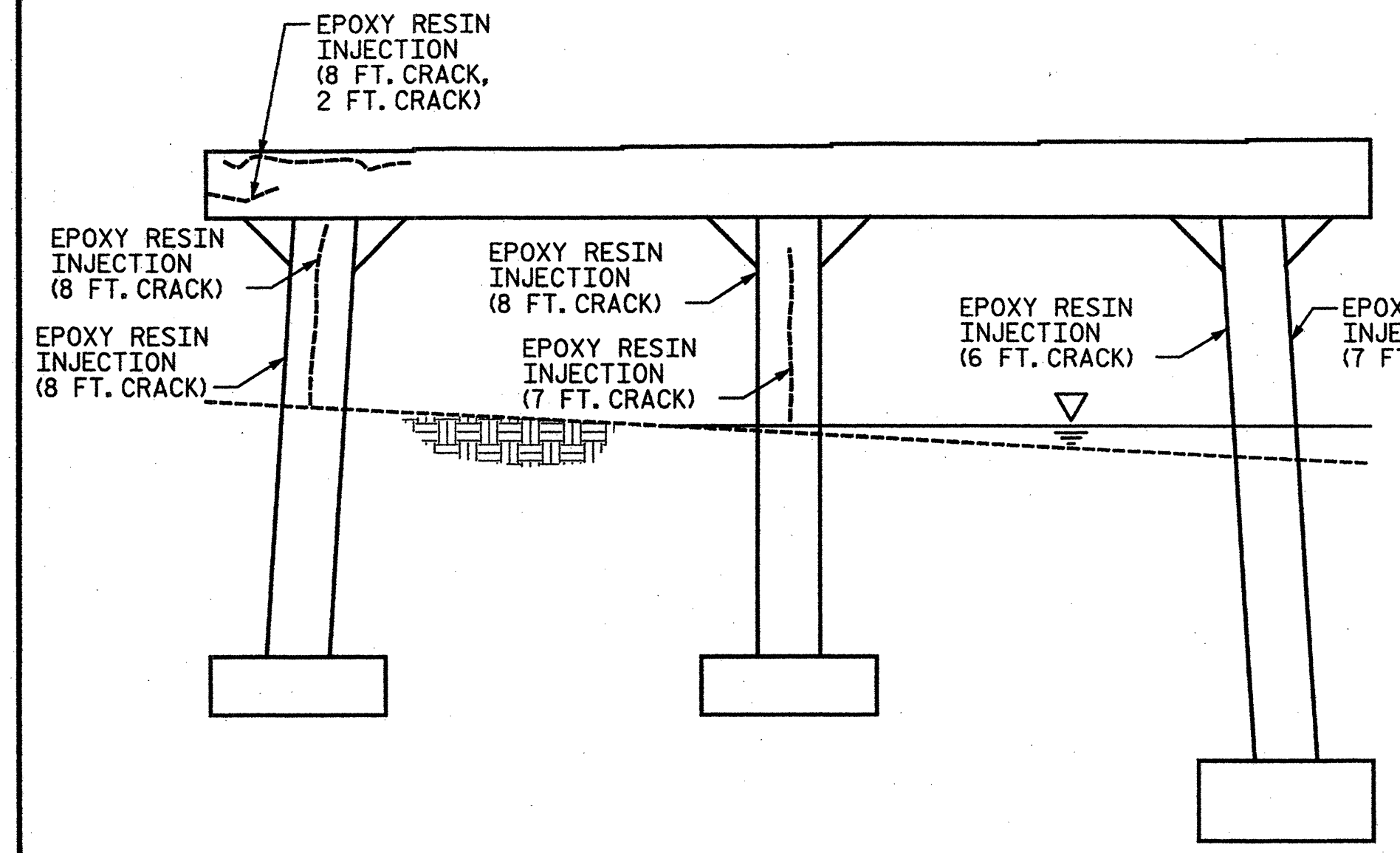
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 Charlotte, NC 28208
 NC License No. F-0991

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1			3			S-11	
2			4			S-50	

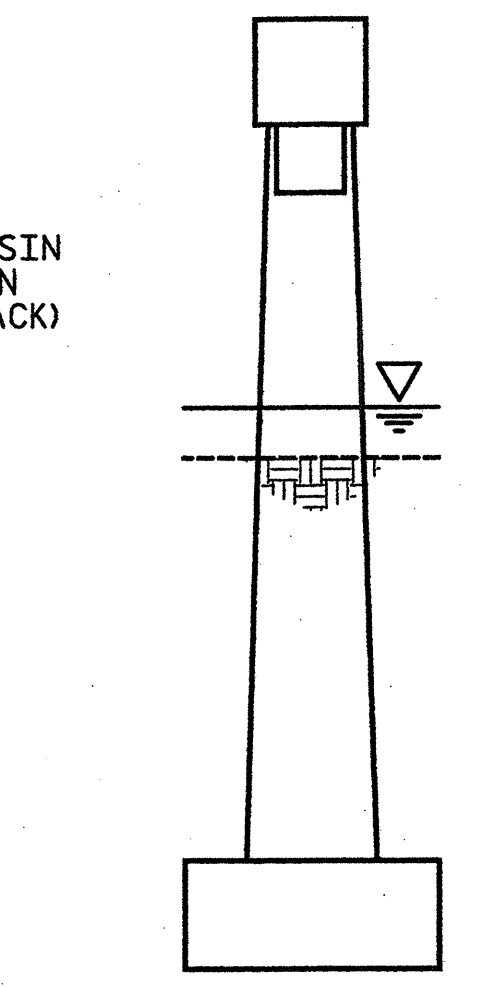
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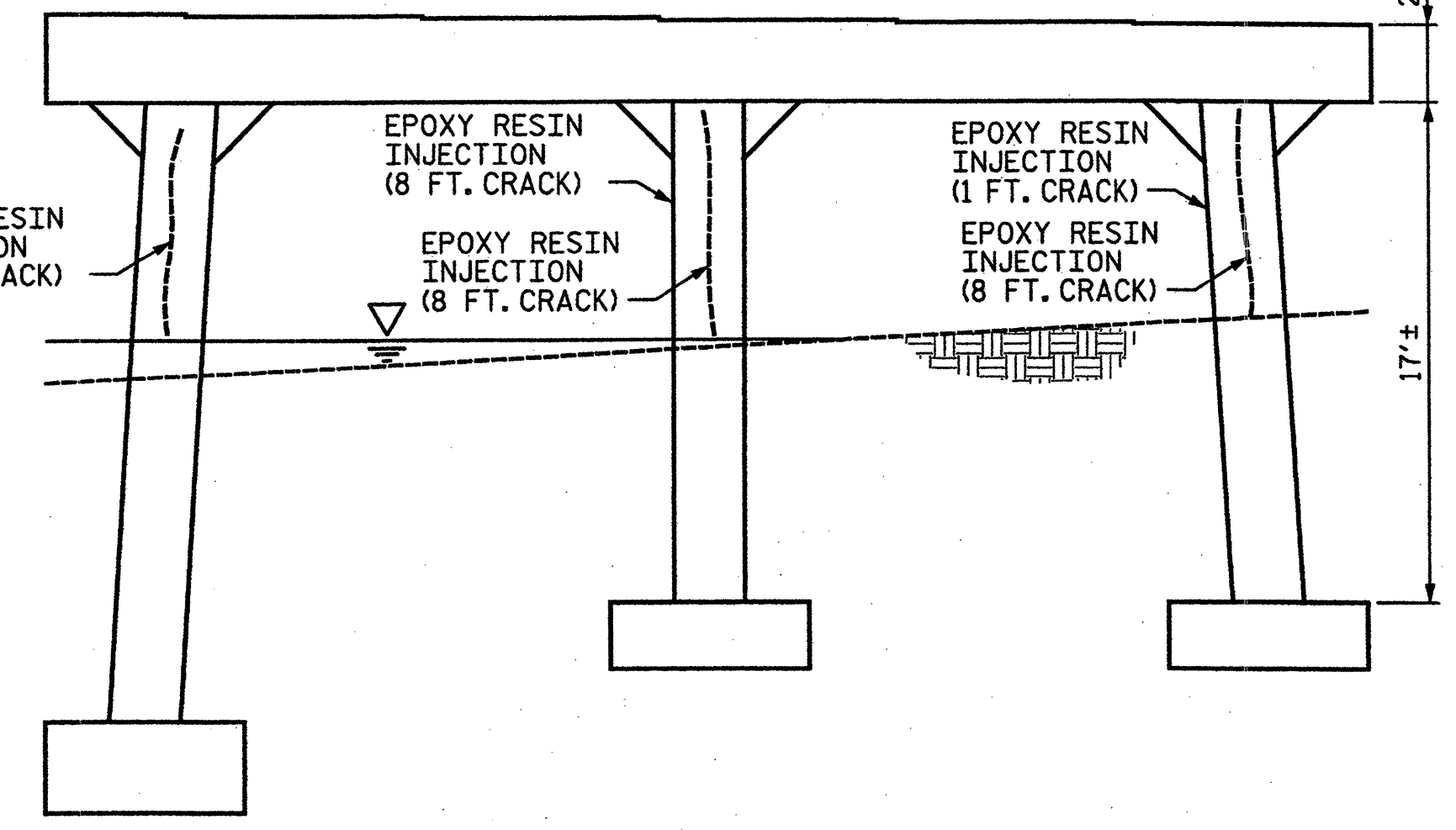
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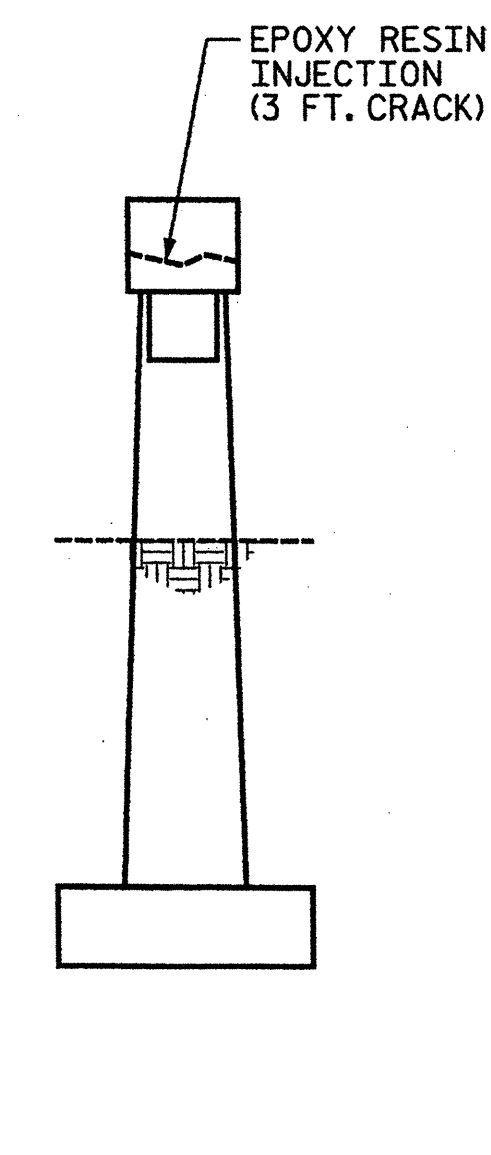
ELEVATION OF BENT 1 - LOOKING NORTH*



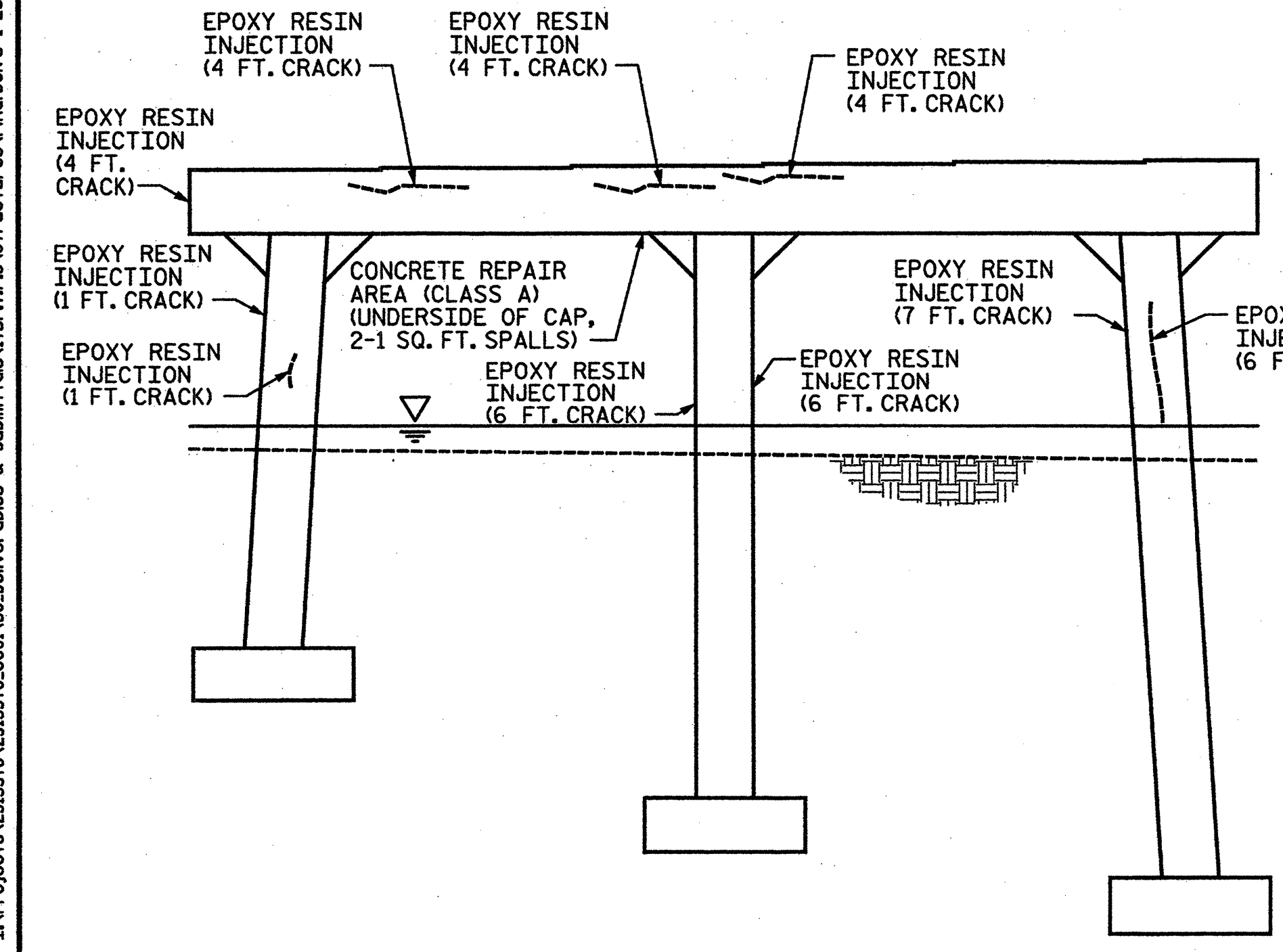
END VIEW OF BENT 1 LOOKING WEST*



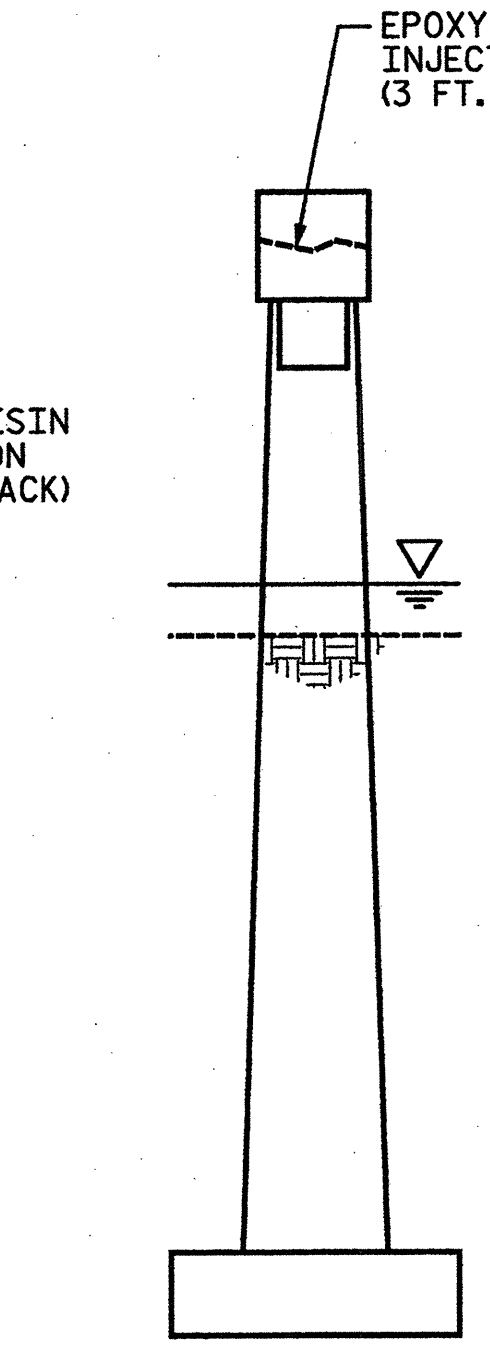
ELEVATION OF BENT 1 - LOOKING SOUTH*



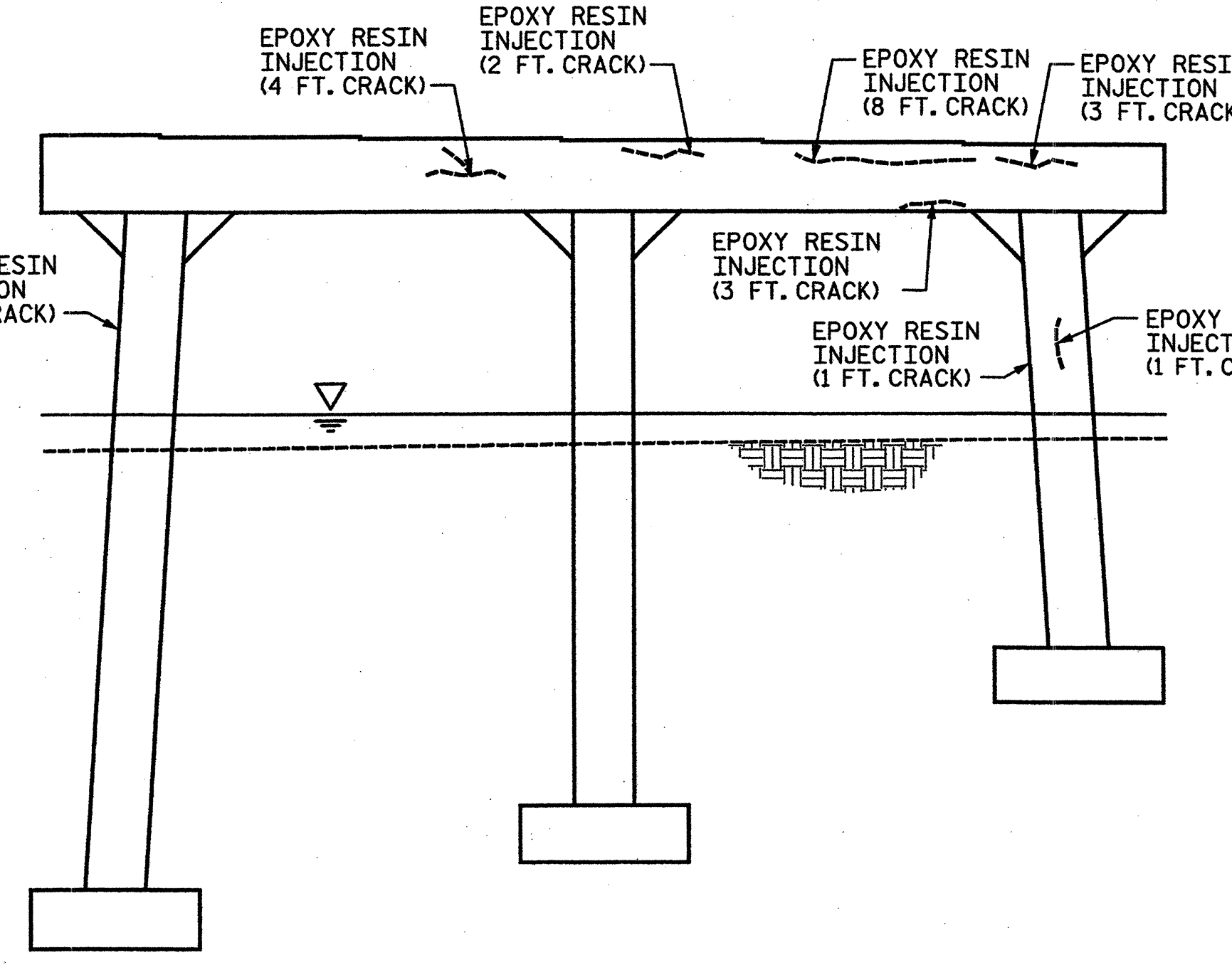
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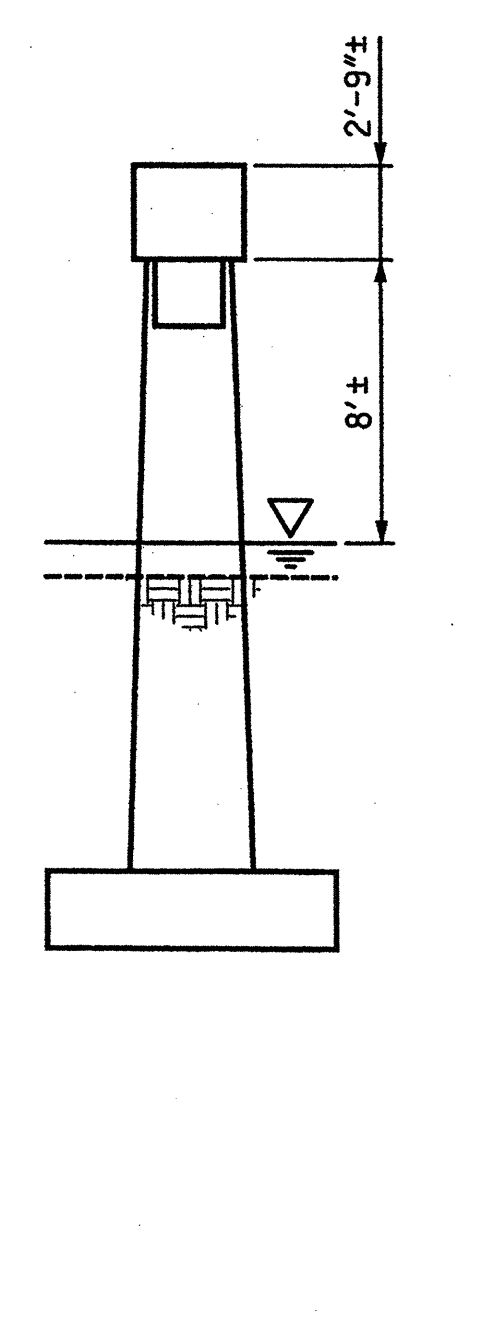
ELEVATION OF BENT 2 - LOOKING NORTH*



END VIEW OF BENT 2 LOOKING WEST*



ELEVATION OF BENT 2 - LOOKING SOUTH*



END VIEW OF BENT 2 LOOKING EAST*

NOTES:
 FOR CONCRETE REPAIR DETAILS, SEE SHEET 6 OF 6.
 CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
 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 COST.
 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.
 BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.
 BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES SEE SHEET NO. S-26 OF S-50.
 SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.
 EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP OF ALL BENT CAPS AND THE COST SHALL BE INCLUDED IN THE OTHER BENT REPAIRS.
 FOR CLEANING, PAINTING, AND REPLACEMENT OF BEARINGS SEE SHEET NO. S-27 OF S-50.
 WATER ELEVATION BASED ON 2009 BRIDGE INSPECTION SOUNDINGS

----- APPROX. LENGTH EPOXY RESIN INJECTION

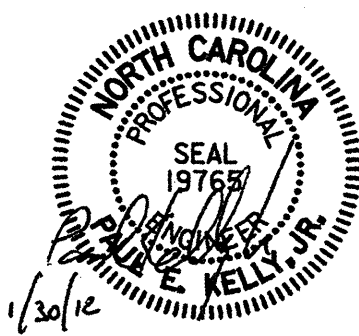
* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 15
 REHAB. OF BRIDGE NO. 15 SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENTS 1 & 2
 SUBSTRUCTURE REPAIRS**

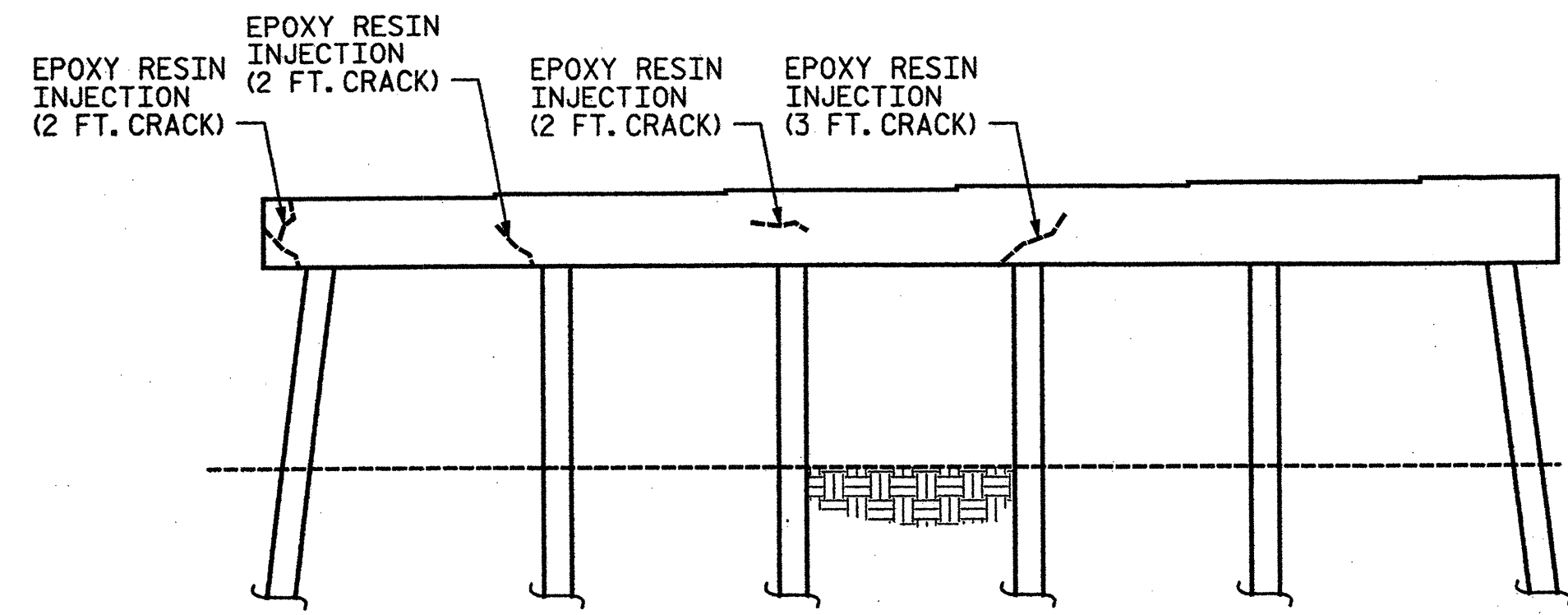
BRIDGE ON US 29 SBL
 OVER HAW RIVER



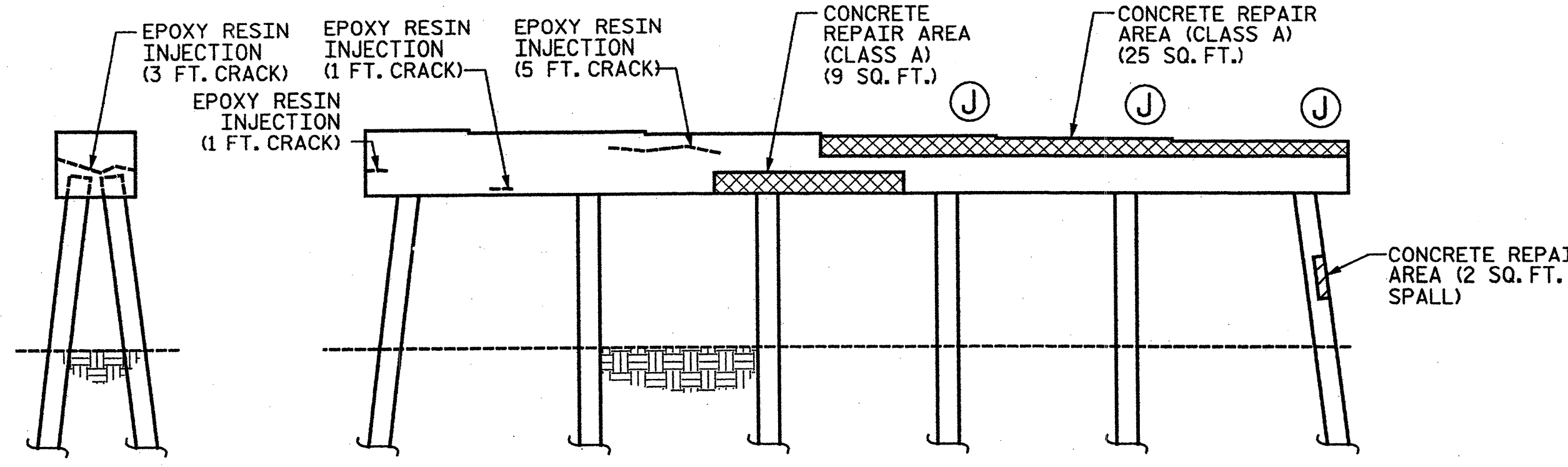
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			S-50

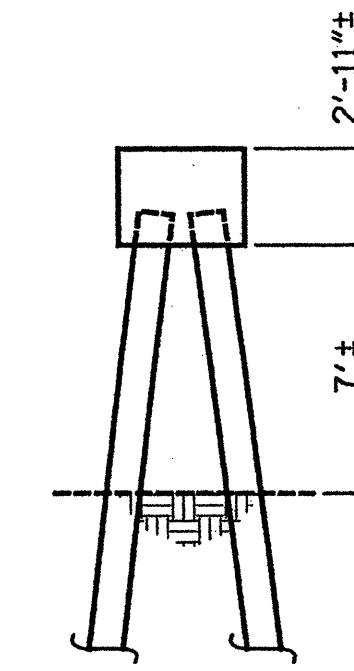
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ELEVATION OF BENT 3 - LOOKING NORTH*

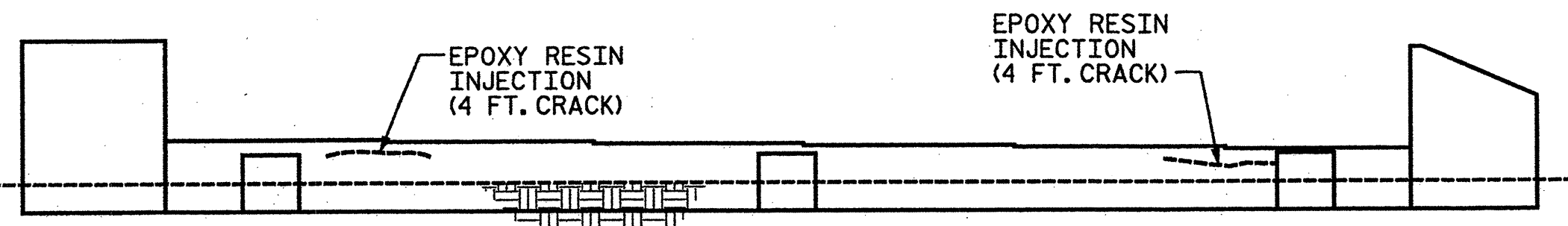


ELEVATION OF BENT 3 - LOOKING SOUTH*

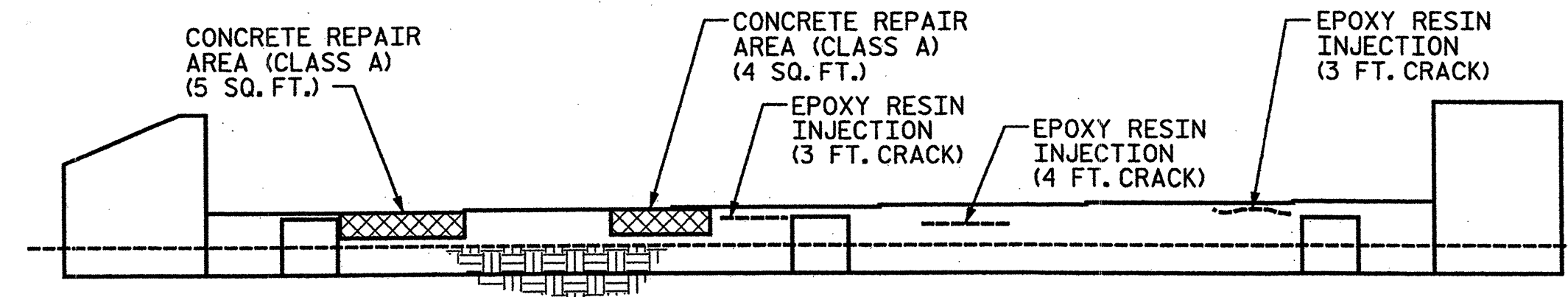


END VIEW OF BENT 3 LOOKING EAST*

END VIEW OF BENT 3 LOOKING WEST*



ELEVATION OF END BENT 1 - LOOKING SOUTH*



ELEVATION OF END BENT 2 - LOOKING NORTH*

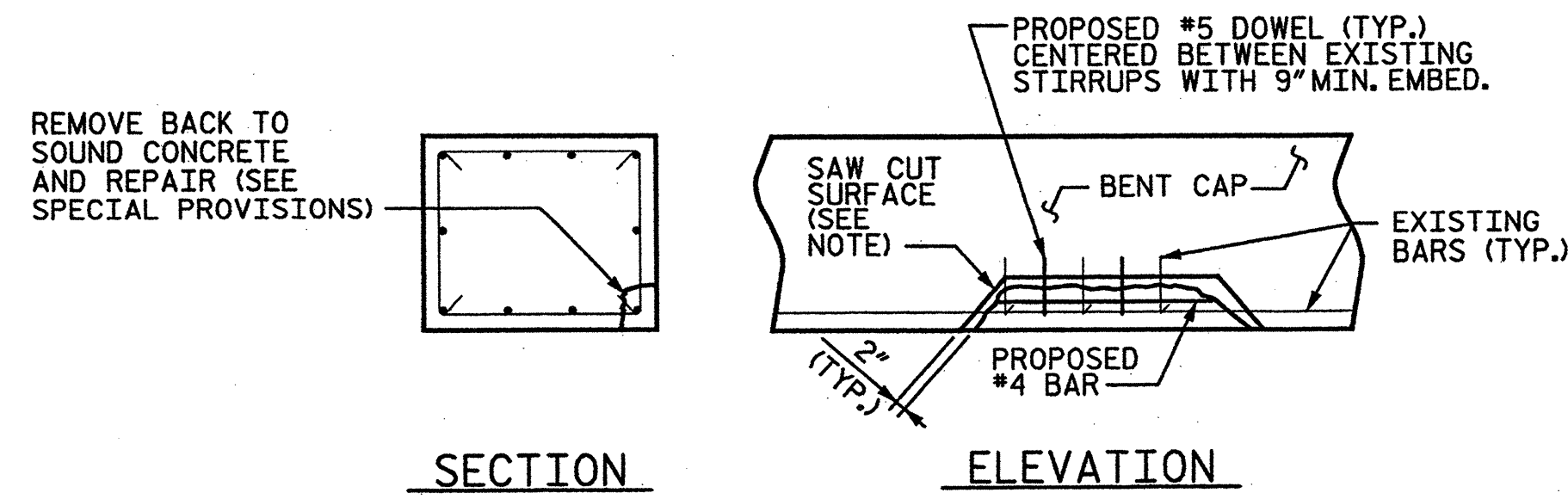
NOTE:

SEE NOTES ON SHEET 5 OF 6.

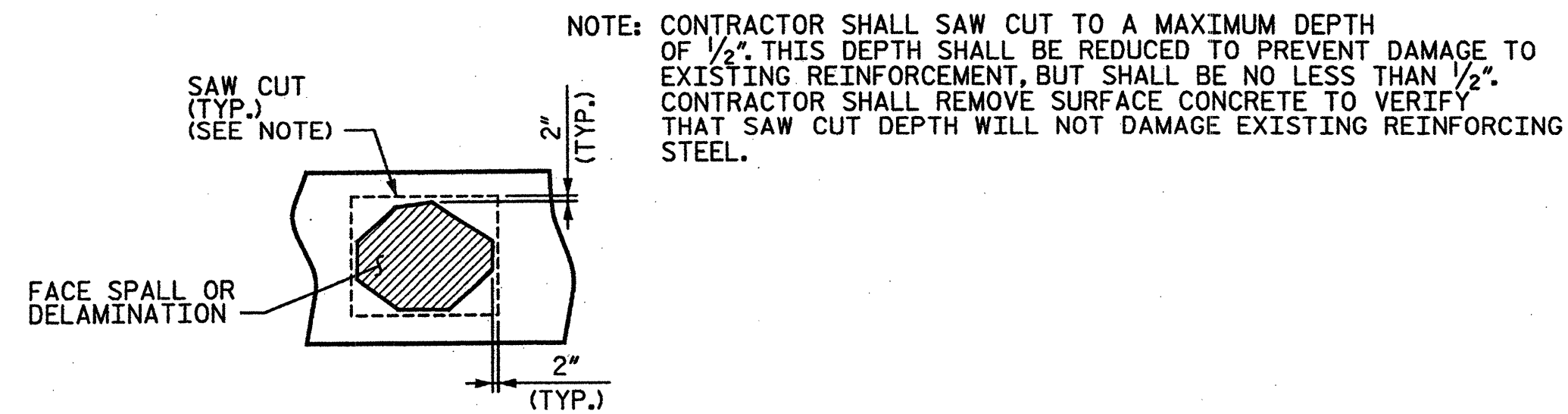
Ⓝ - JACKING REQUIRED

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

----- APPROX. LENGTHS EPOXY RESIN INJECTION
 [X] APPROX. AREA: CONCRETE REPAIRS (CLASS A)



CORNER REPAIR



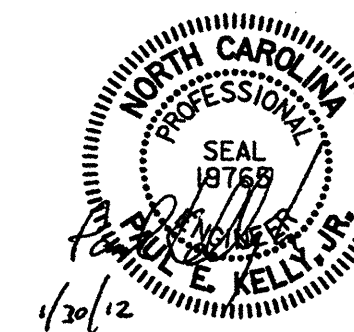
FACE REPAIR

NOTE: CONTRACTOR SHALL SAW CUT TO A MAXIMUM DEPTH OF 1/2". 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 SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

TYPICAL SUBSTRUCTURE REPAIR DETAILS

PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 15
 REHAB. OF BRIDGE NO. 15 SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BENT 3 & END BENTS
 SUBSTRUCTURE REPAIRS**
 BRIDGE ON US 29 SBL
 OVER HAW RIVER



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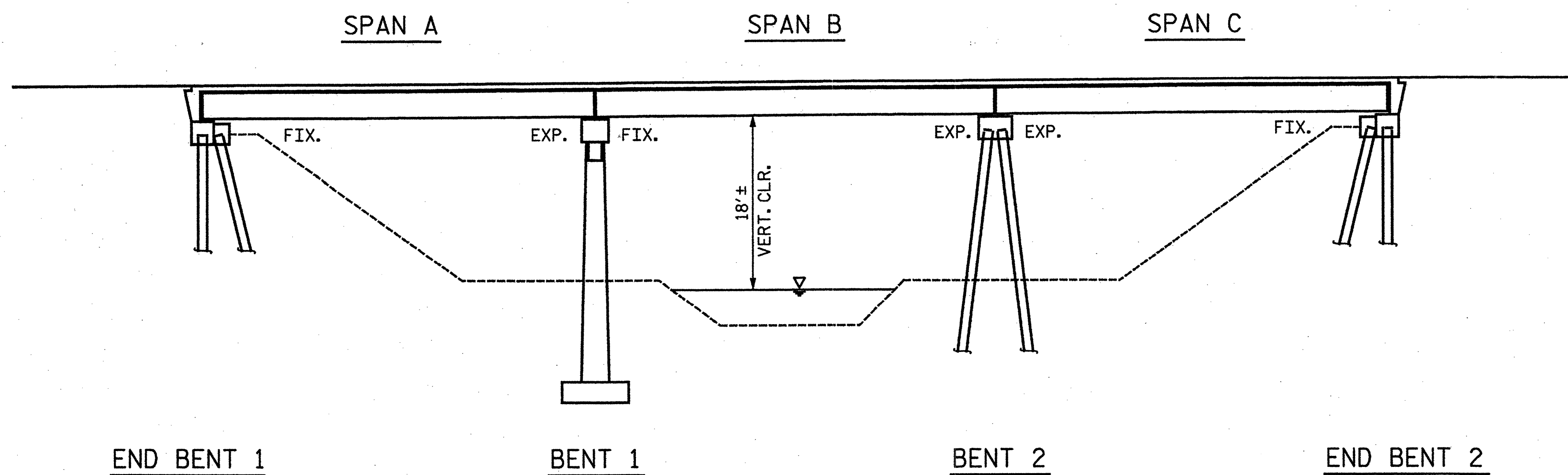
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			S-50

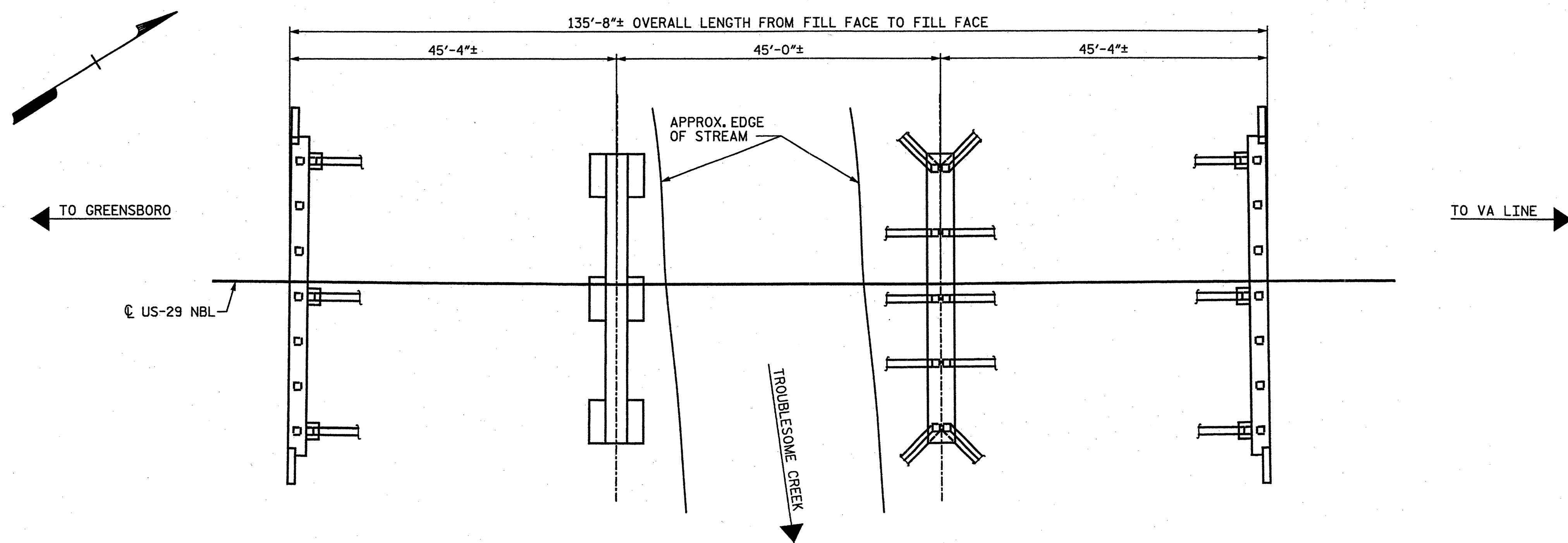
1/30/2012

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1/30/2012



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



PLAN

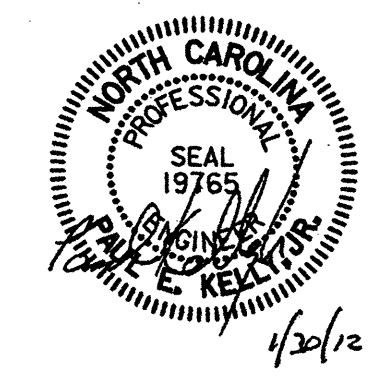
NOTE:
SEE SHEET NO. S-1 OF S-50 FOR GENERAL NOTES.
SEE BRIDGE NO. 59 SHEETS 3, 4, AND 5 OF 6 FOR ADDITIONAL NOTES.

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
BRIDGE NO.: 59
REHAB. OF BRIDGE NO. 59 SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**GENERAL PLAN &
ELEVATION**

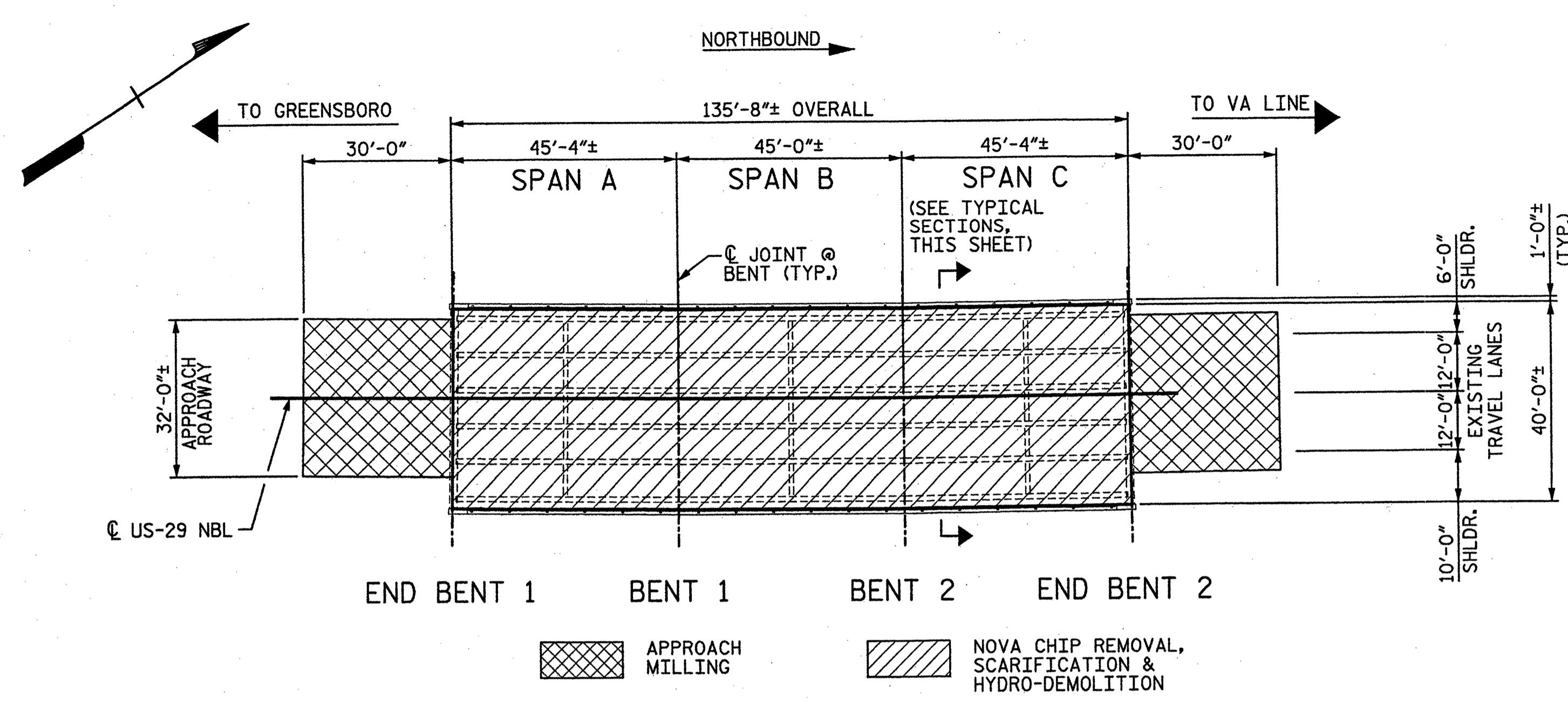
BRIDGE ON US 29 NBL
OVER TROUBLESOME CREEK



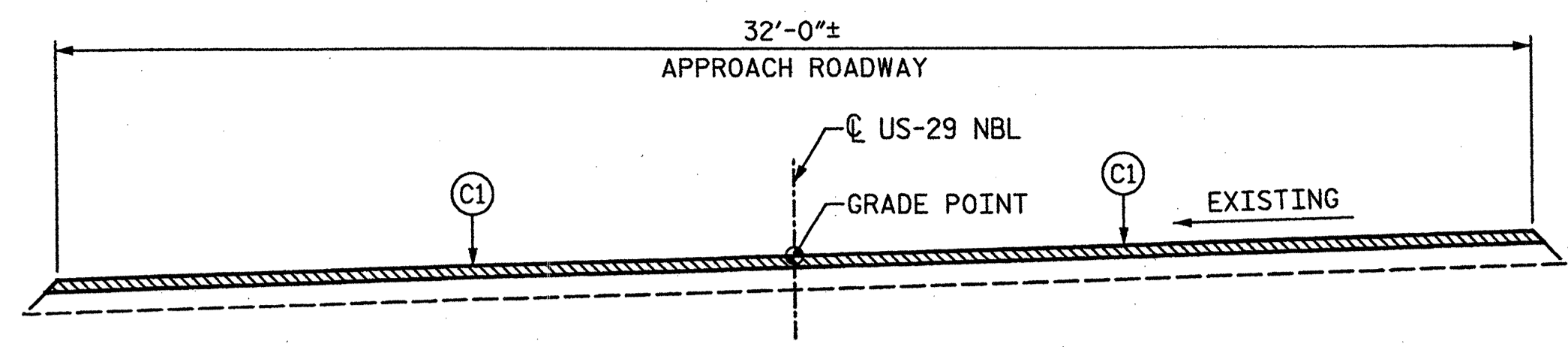
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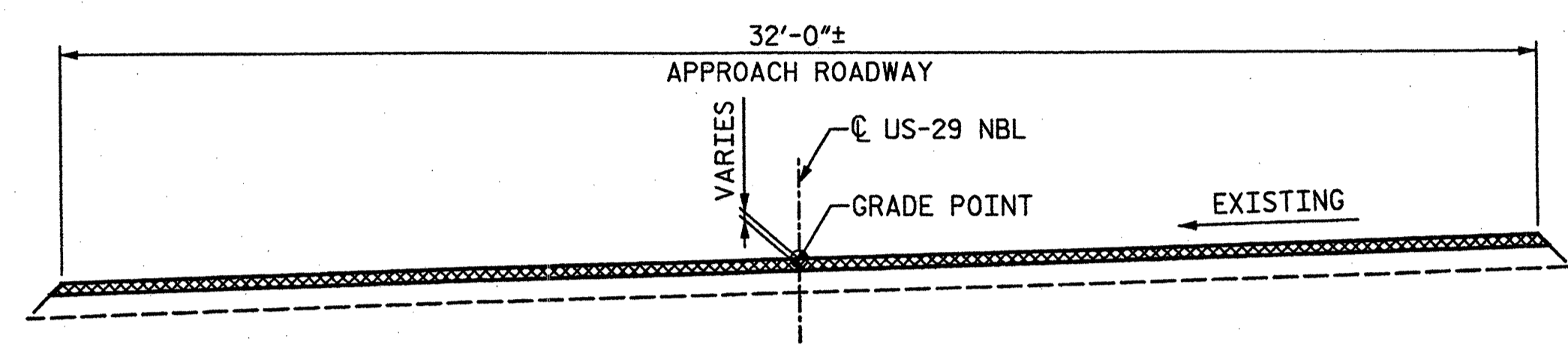
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			S-50



PLAN OF SPANS - DECK SCARIFICATION & HYDRO-DEMOLITION
 (CONCRETE BRIDGE FLOORS SHALL BE GROOVED IN ACCORDANCE WITH SECTION 420-14 OF THE STANDARD SPECIFICATION)

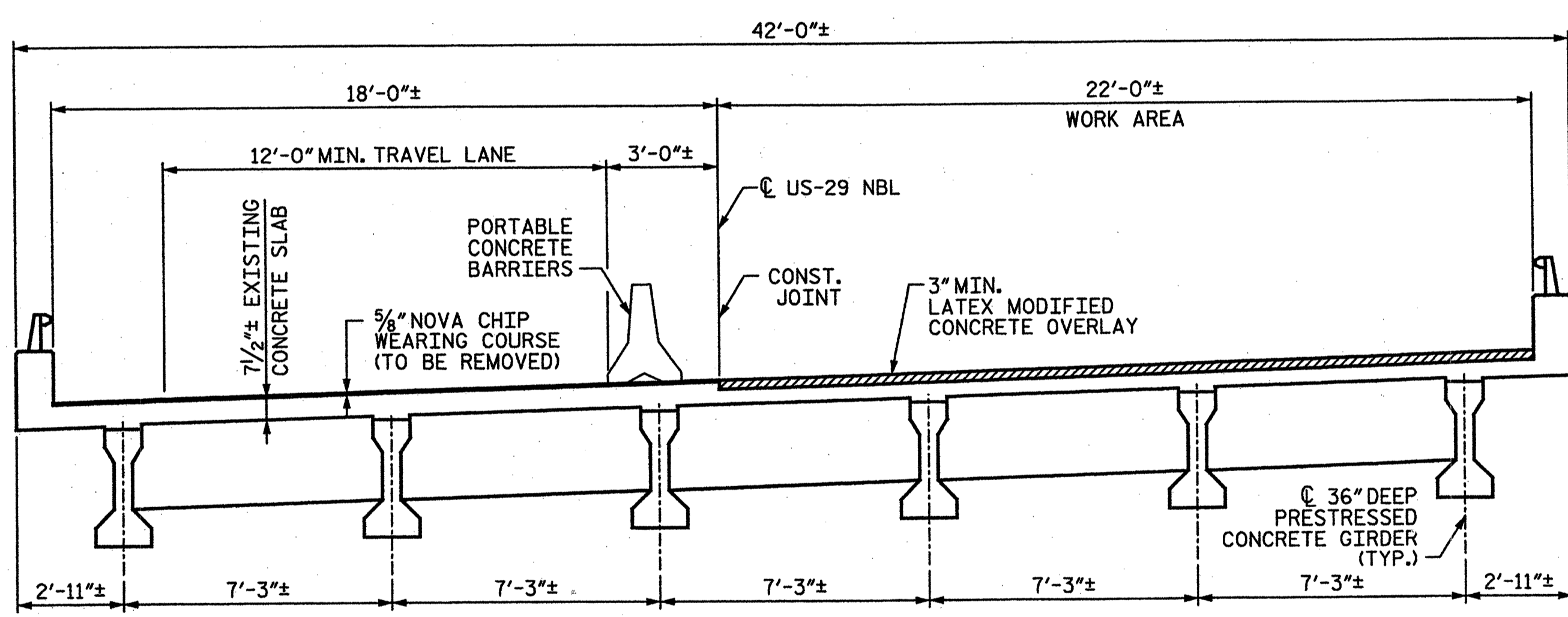


TYPICAL ROADWAY SECTION

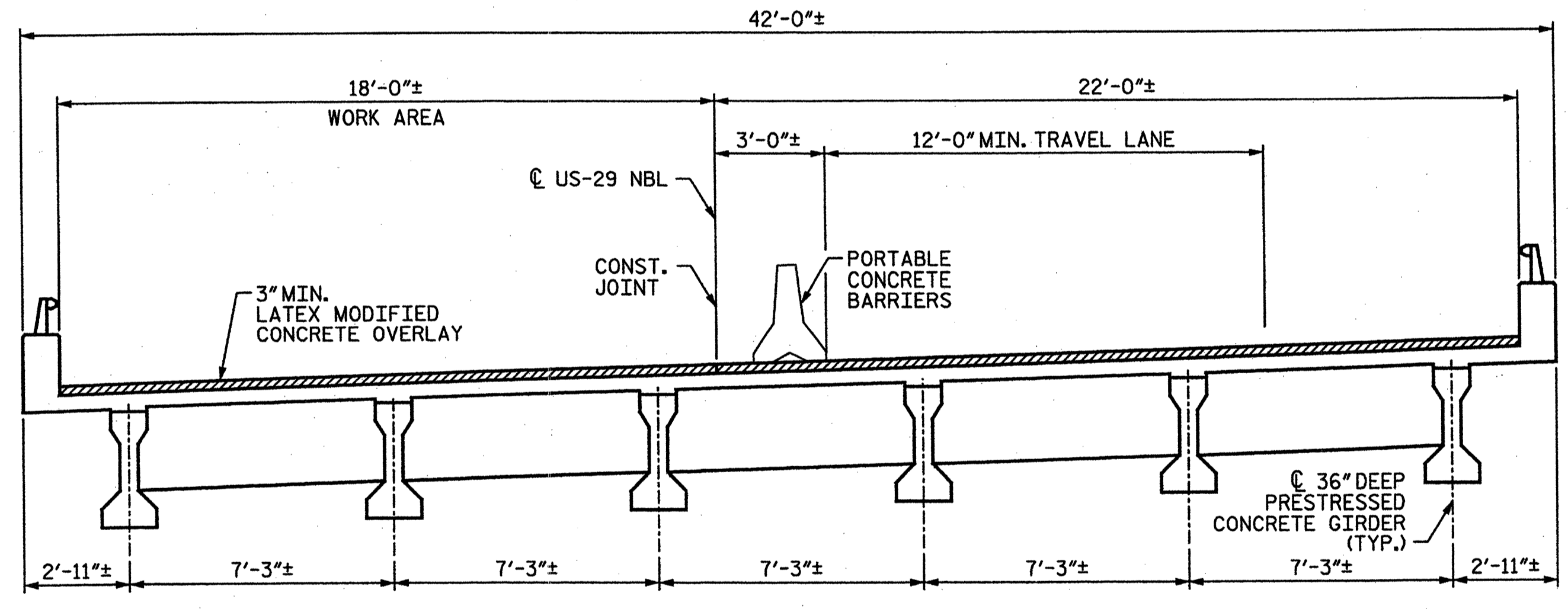


TYPICAL ROADWAY MILLING SECTION
 (MILL TO 1/2" MIN. DEPTH)

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
 (AT INTERMEDIATE DIAPHRAGMS)



TYPICAL SECTION - STAGE II
 (AT INTERMEDIATE DIAPHRAGMS)

PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 59
 REHAB. OF BRIDGE NO. 59 SHEET 2 OF 6

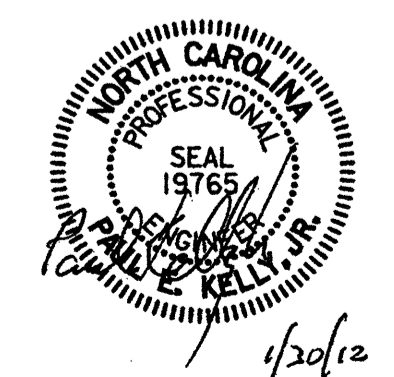
TOTAL BILL OF MATERIAL												
INCIDENTAL MILLING	DECK SCARIFICATION	*CLASS I SURFACE PREPARATION	*CLASS II SURFACE PREPARATION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	FOAM JOINT SEAL	GROOVING BRIDGE FLOORS	EPOXY RESIN INJECTION	CONCRETE REPAIRS (CLASS A)	BRIDGE JACKING
SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	TON	LUMP SUM	SQ. FT.	LIN. FT.	CU. FT.	LUMP SUM
213	603	592	11	603	51	603	18	LUMP SUM	4,907	179	31	LUMP SUM

* QUANTITIES FOR INFORMATION ONLY.

NOTES:
 FOR ADDITIONAL MILLING DETAIL, SEE SHEET 4 OF 6.
 PER EXISTING PLANS, THE ESTIMATED AVERAGE REBAR COVER FOR THE EXISTING DECK IS 1/4".

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 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS & TYPICAL SECTION

BRIDGE ON US 29 NBL
 OVER TROUBLESOME CREEK

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

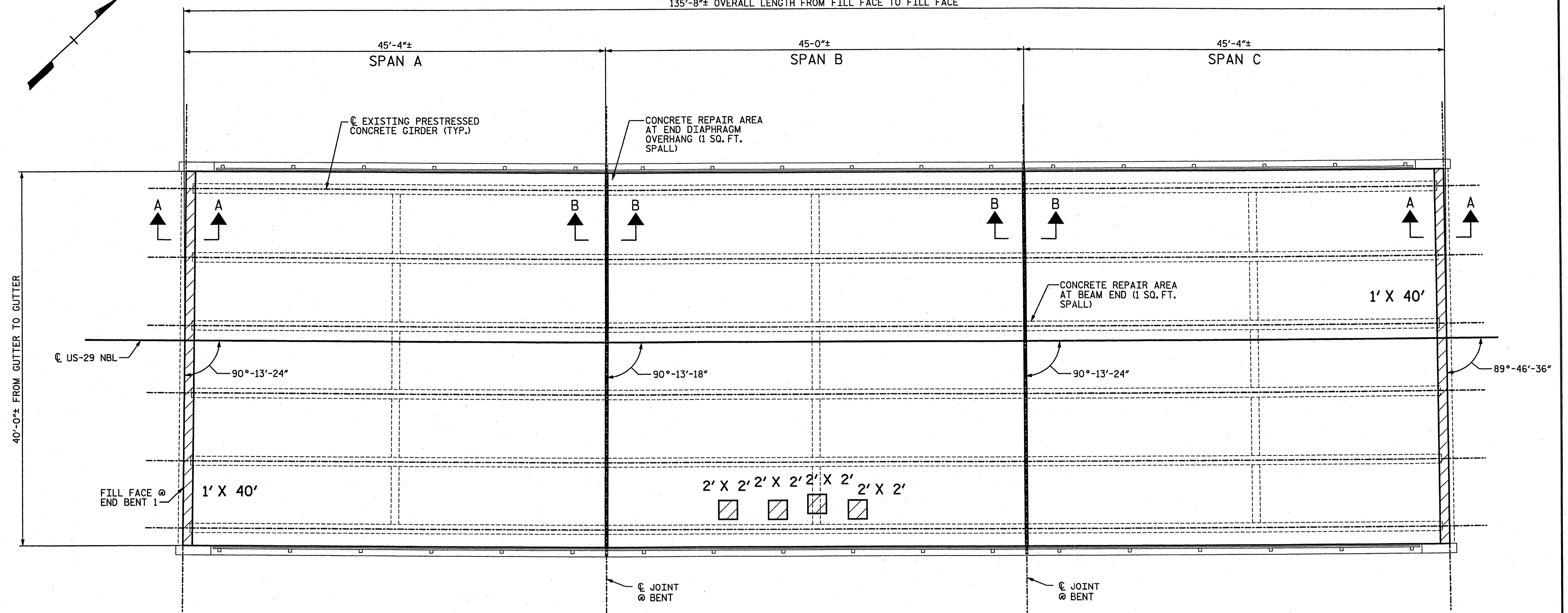
S-15
 TOTAL SHEETS
 S-50

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 1/30/2012

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NORTHBOUND

135'-8"± OVERALL LENGTH FROM FILL FACE TO FILL FACE

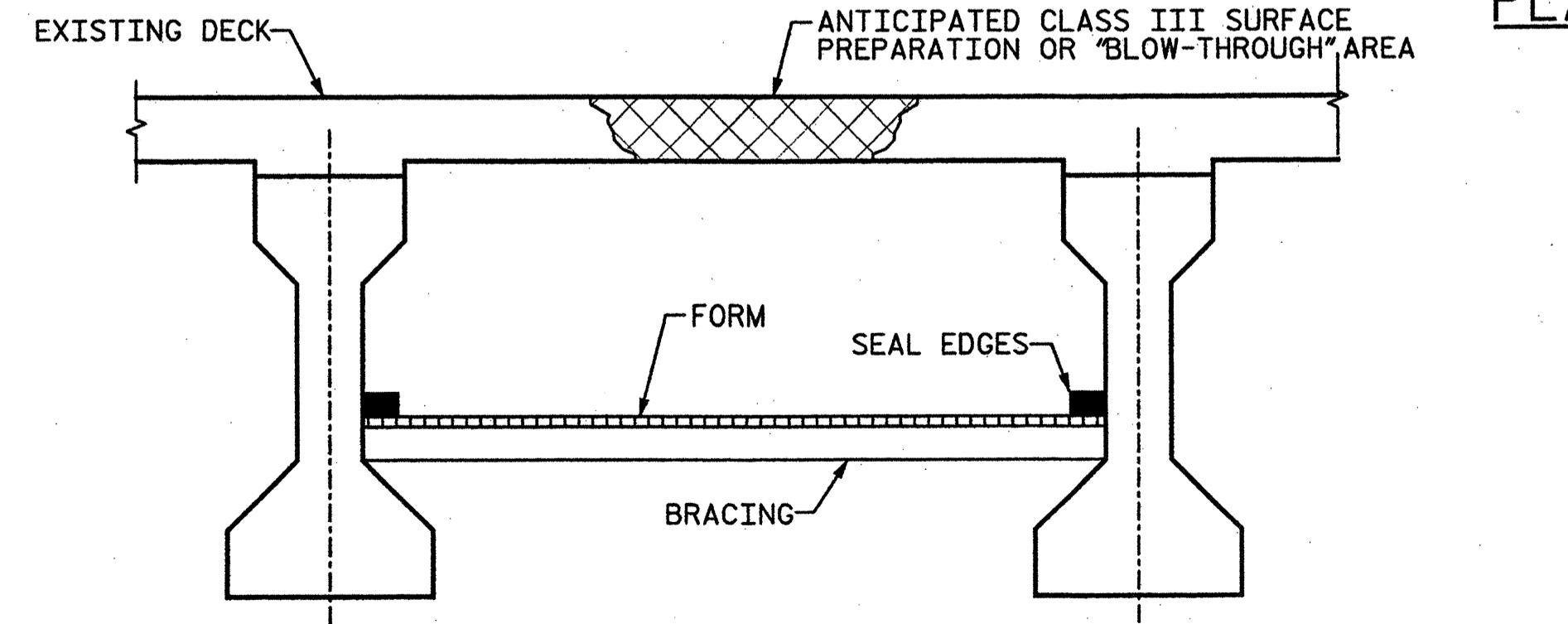


PLAN OF SPANS - DECK REPAIRS

(SEE SHEET 4 OF 6 FOR SECTIONS A-A AND B-B)

APPROX. AREA: CLASS I REPAIR

APPROX. AREA: CLASS II REPAIR



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.

NOTES:

FOR LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.

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

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

THE CONTRACTOR SHALL PROVIDE CONTAINMENT FOR UNEXPECTED BLOW-THROUGH OF THE DECK. SEE DETAIL ON THIS SHEET AND SPECIAL PROVISIONS.

EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.

PROJECT NO. **17BP.7.P.3**

ROCKINGHAM COUNTY

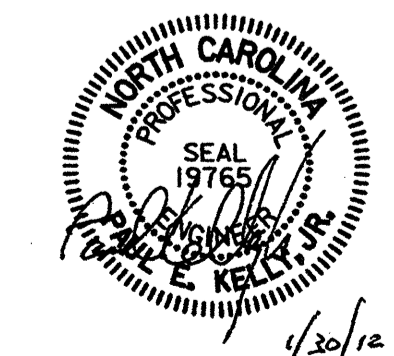
BRIDGE NO.: **59**

REHAB. OF BRIDGE NO. 59 SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**PLAN OF SPANS
DECK REPAIRS**

BRIDGE ON US 29 NBL
OVER TROUBLESOME CREEK



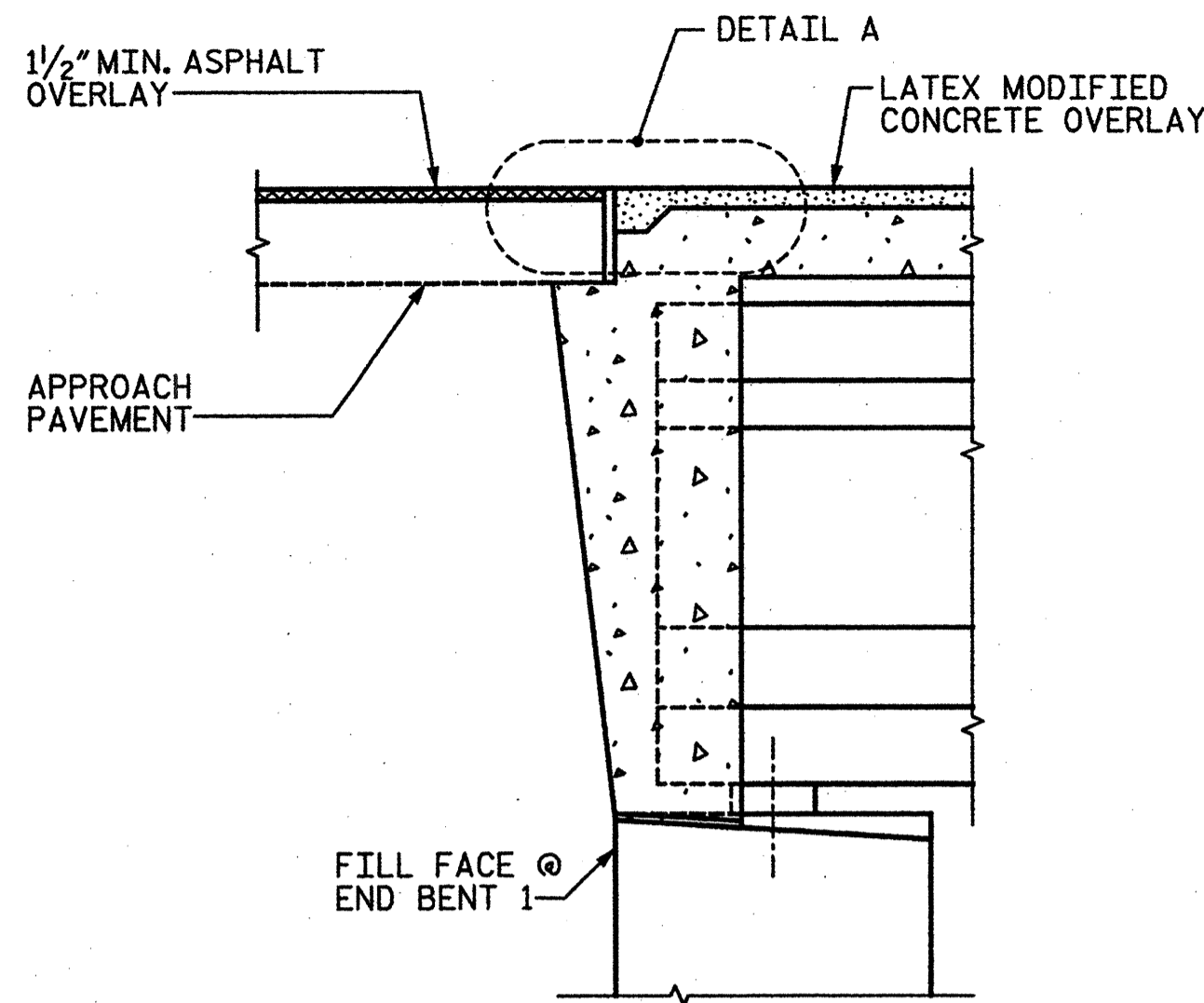
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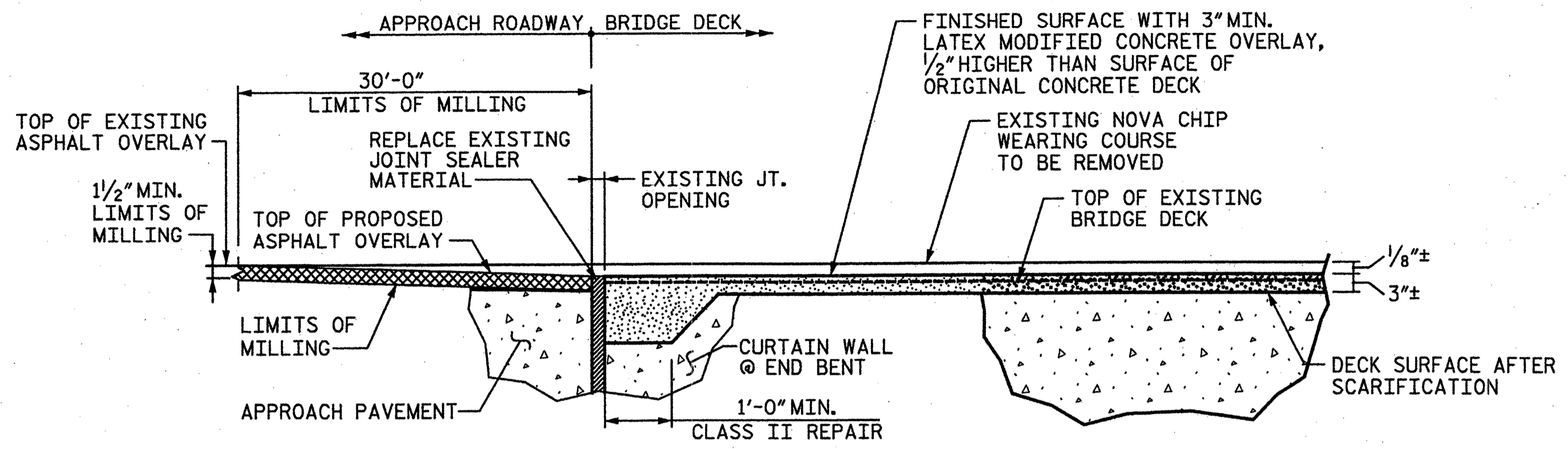
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			S-50

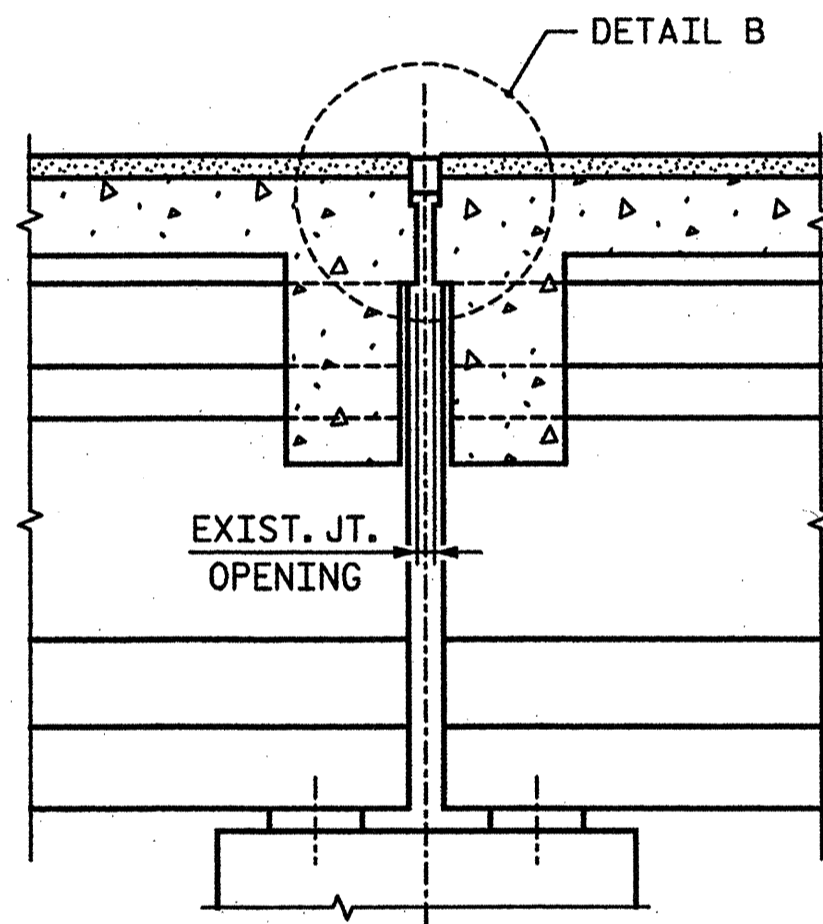
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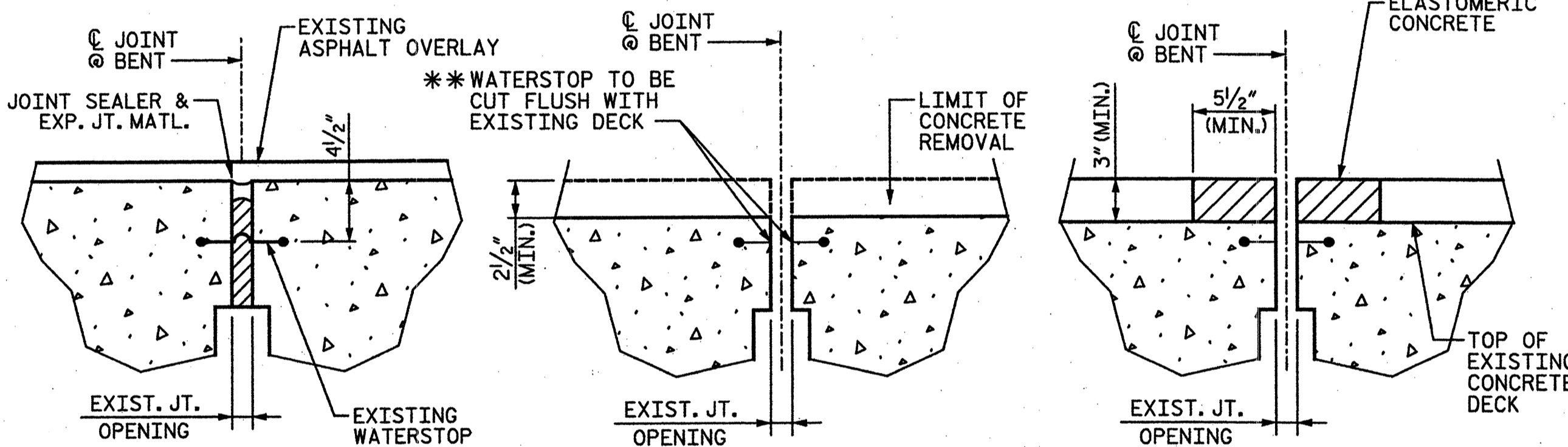
SECTION A-A
(TYP. @ END BENT 1 AND 2)



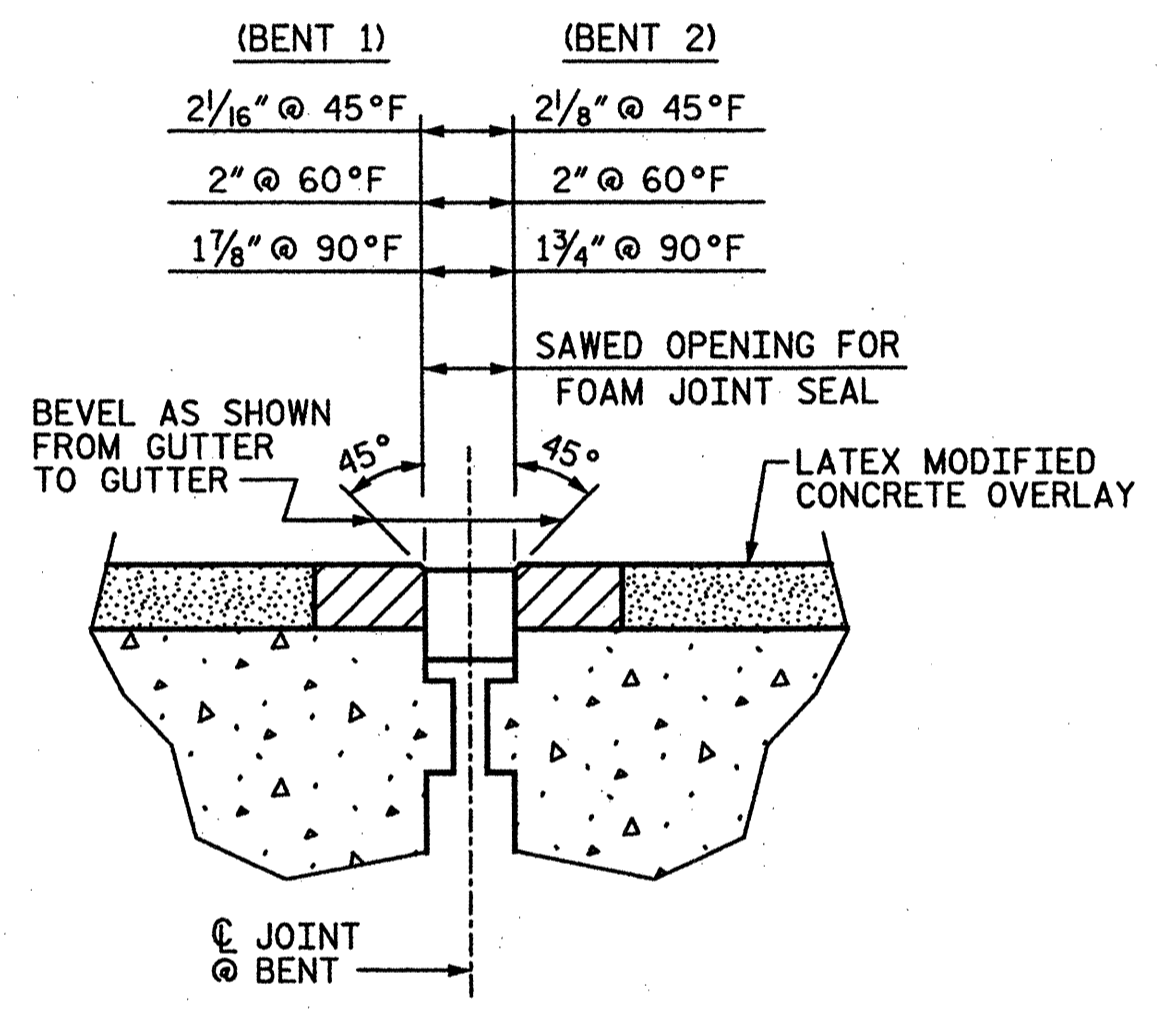
DETAIL A
(LOCATION OF JOINT TO MATCH EXISTING JOINT LOCATION)



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



** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL, THE ENTIRE WATERSTOP SHALL BE REMOVED.

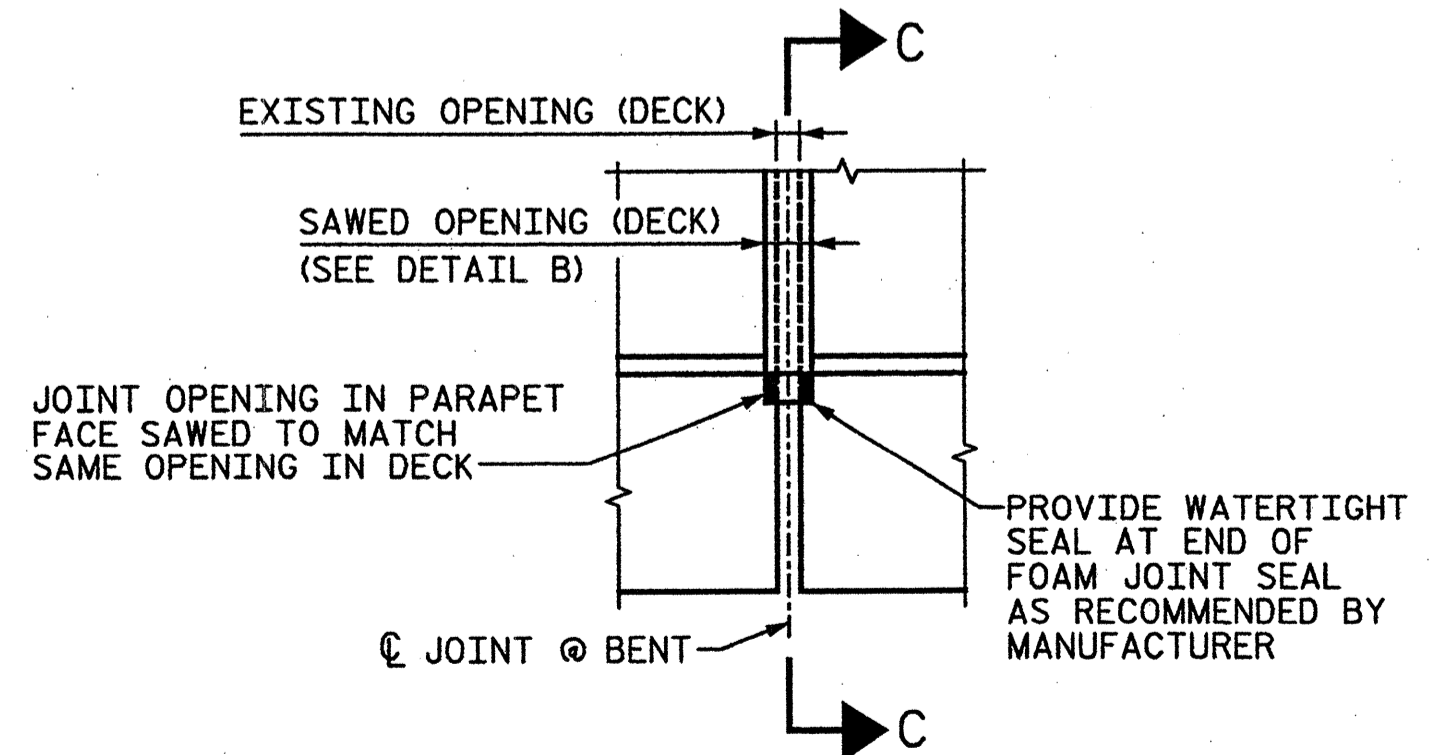


FOAM JOINT SEAL (DETAIL AFTER SAWING)

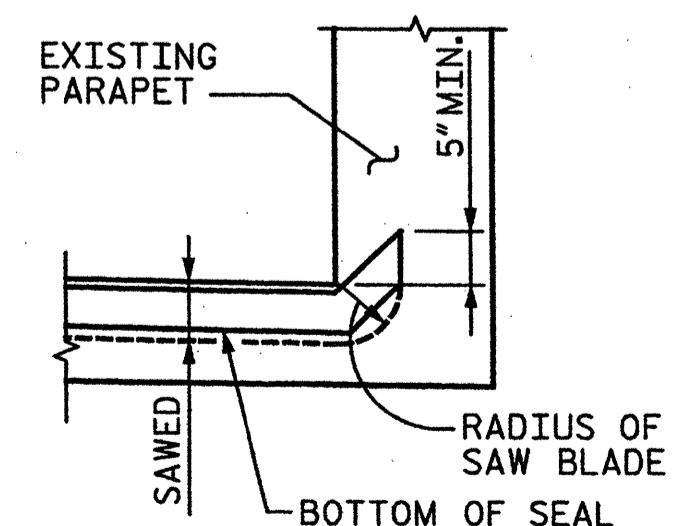
NOTES:

- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- THE ELASTOMERIC CONCRETE SHALL BE INCLUDED IN THE FOAM JOINT SEAL PAY ITEM.
- THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.
- THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2".
- THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.
- FOAM JOINT OPENING WIDTHS SHALL BE CONFIRMED IN THE FIELD. CONTRACTOR SHALL MAKE ADJUSTMENTS TO FOAM JOINT SEALS, AS NECESSARY, TO MEET EXISTING CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY COST ASSOCIATED WITH THESE ADJUSTMENTS IS CONSIDERED INCIDENTAL AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.

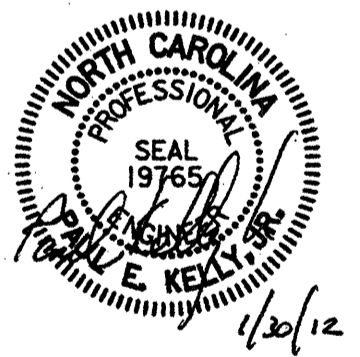
NOTE:
SEE NOTES ON SHEET 3 OF 6.



PLAN OF JOINT SEAL AT PARAPET



SECTION C-C



PROJECT NO. **17BP.7.P.3**
ROCKINGHAM COUNTY
 BRIDGE NO.: **59**

REHAB. OF BRIDGE NO. 59 SHEET 4 OF 6

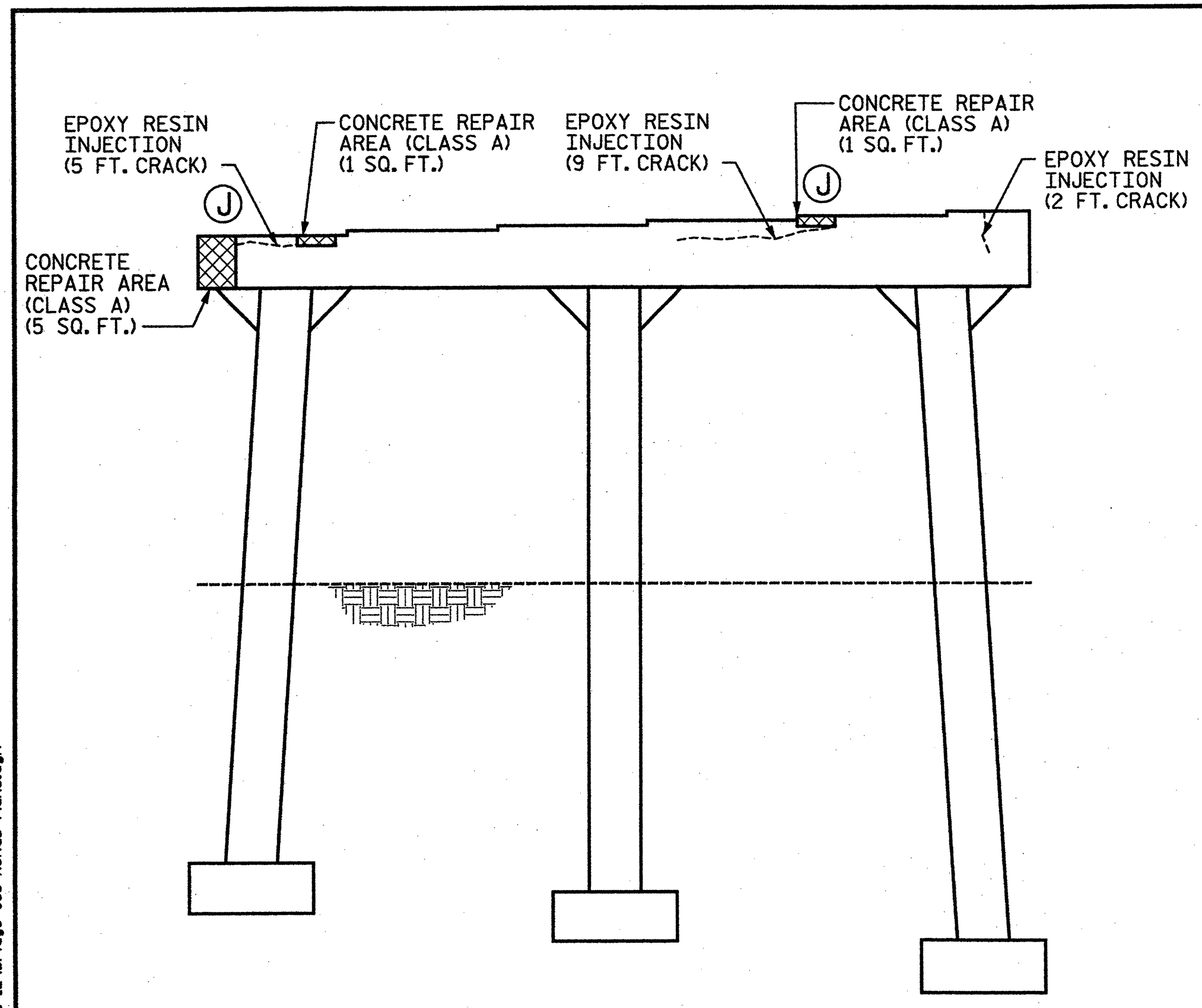
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DECK REPAIR DETAILS
 BRIDGE ON US 29 NBL
 OVER TROUBLESOME CREEK

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

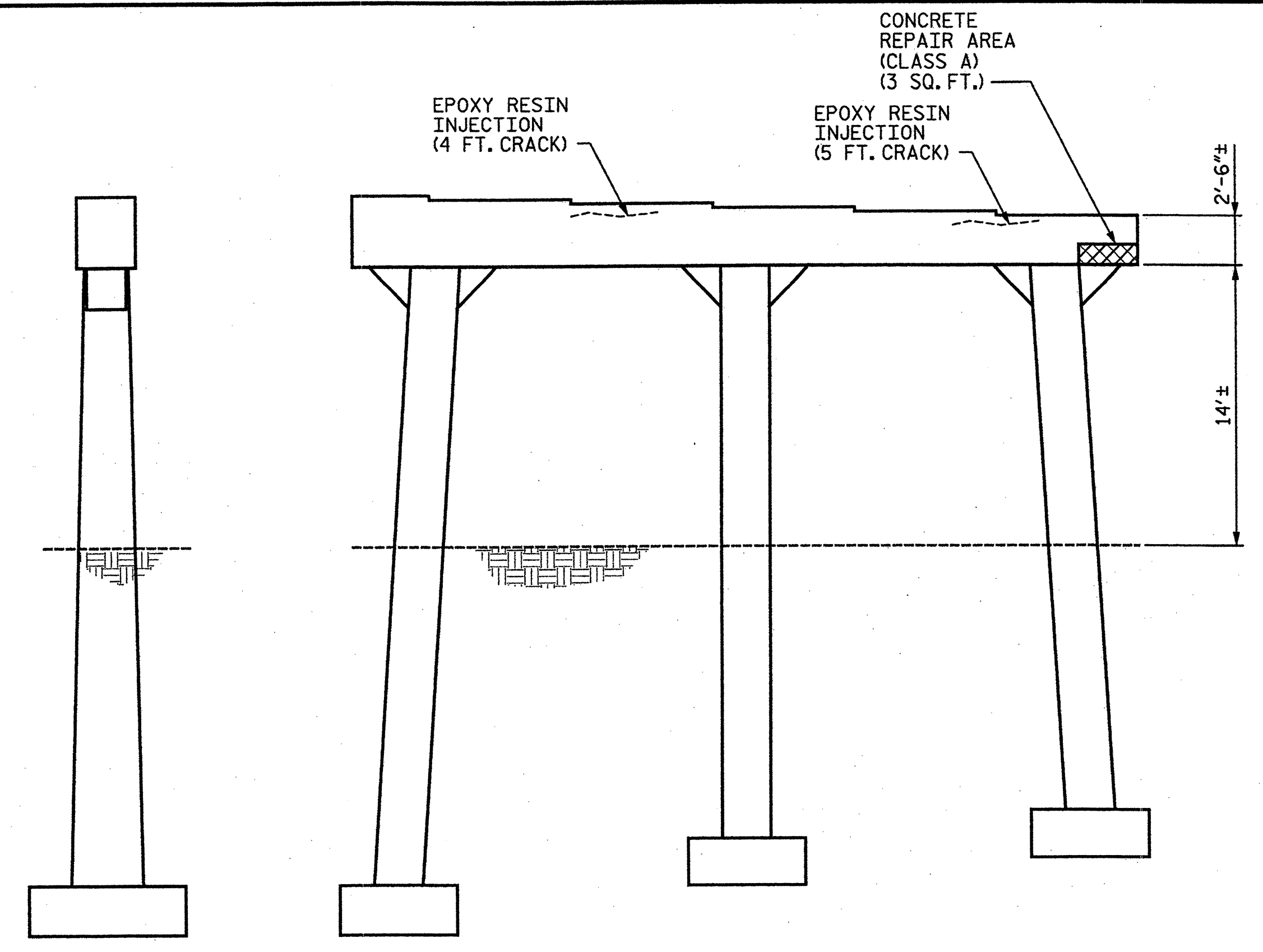
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1			3			TOTAL SHEETS
2			4			5-50

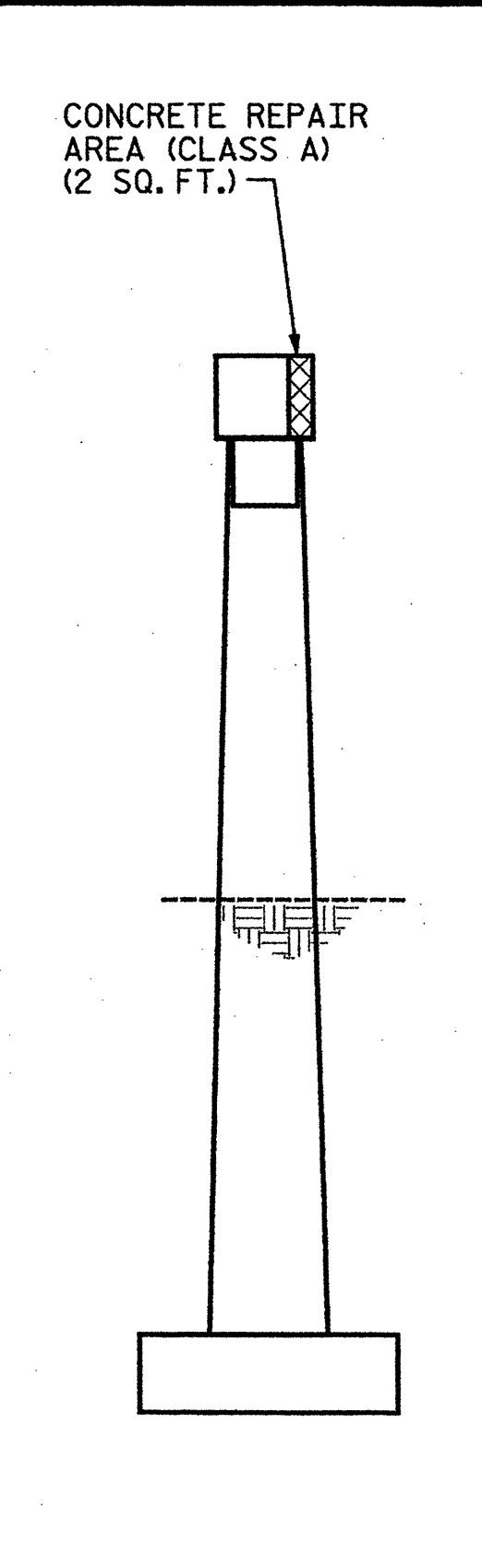
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1/30/2012



ELEVATION OF BENT 1 - LOOKING NORTH*



ELEVATION OF BENT 1 - LOOKING SOUTH*



END VIEW OF BENT 1 LOOKING EAST*

END VIEW OF BENT 1 LOOKING WEST*

NOTES:

FOR CONCRETE REPAIR DETAILS, SEE SHEET 6 OF 6.

CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.

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 COST.

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.

BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.

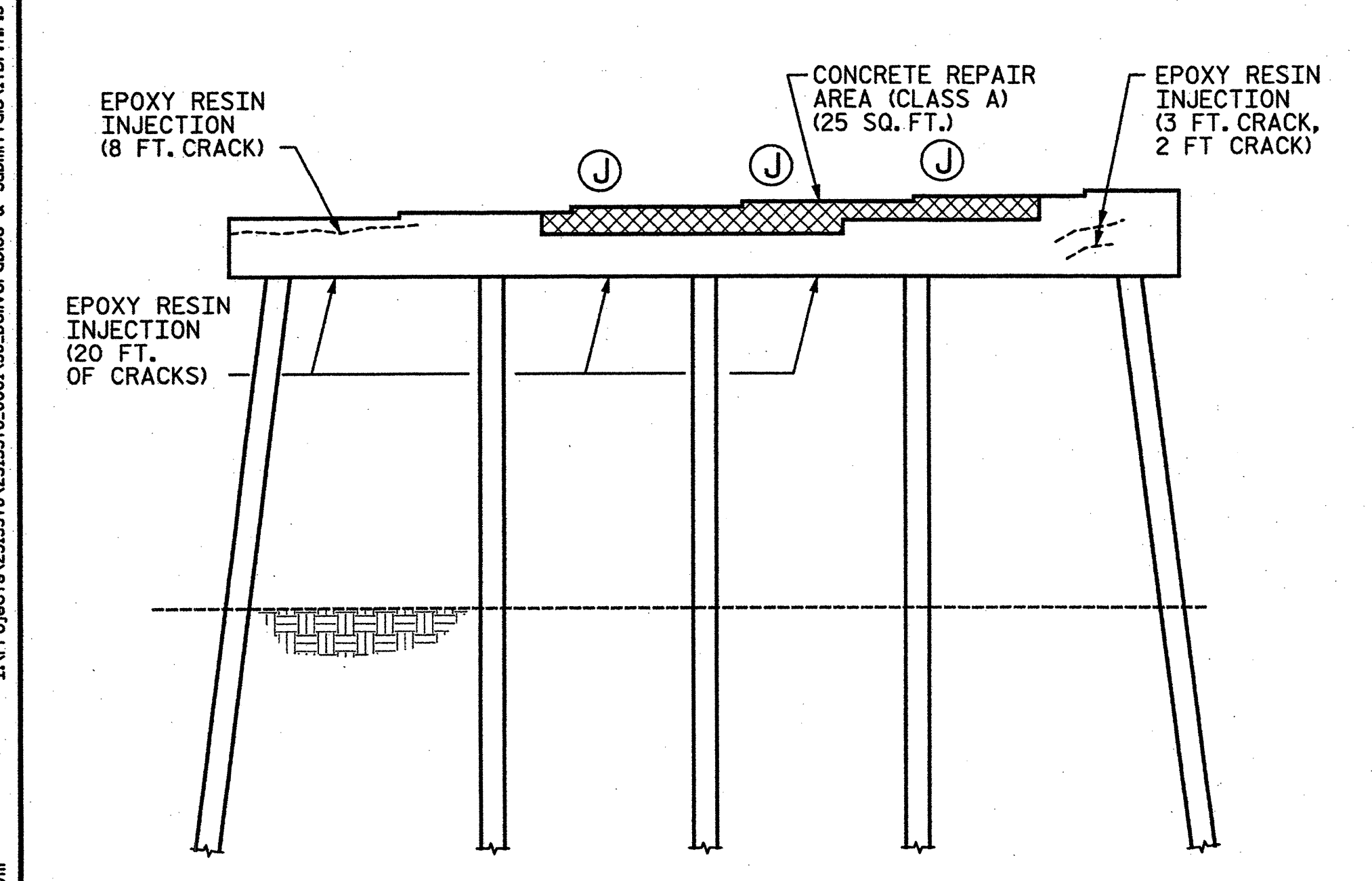
BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES SEE SHEET NO. S-26 OF S-50.

SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.

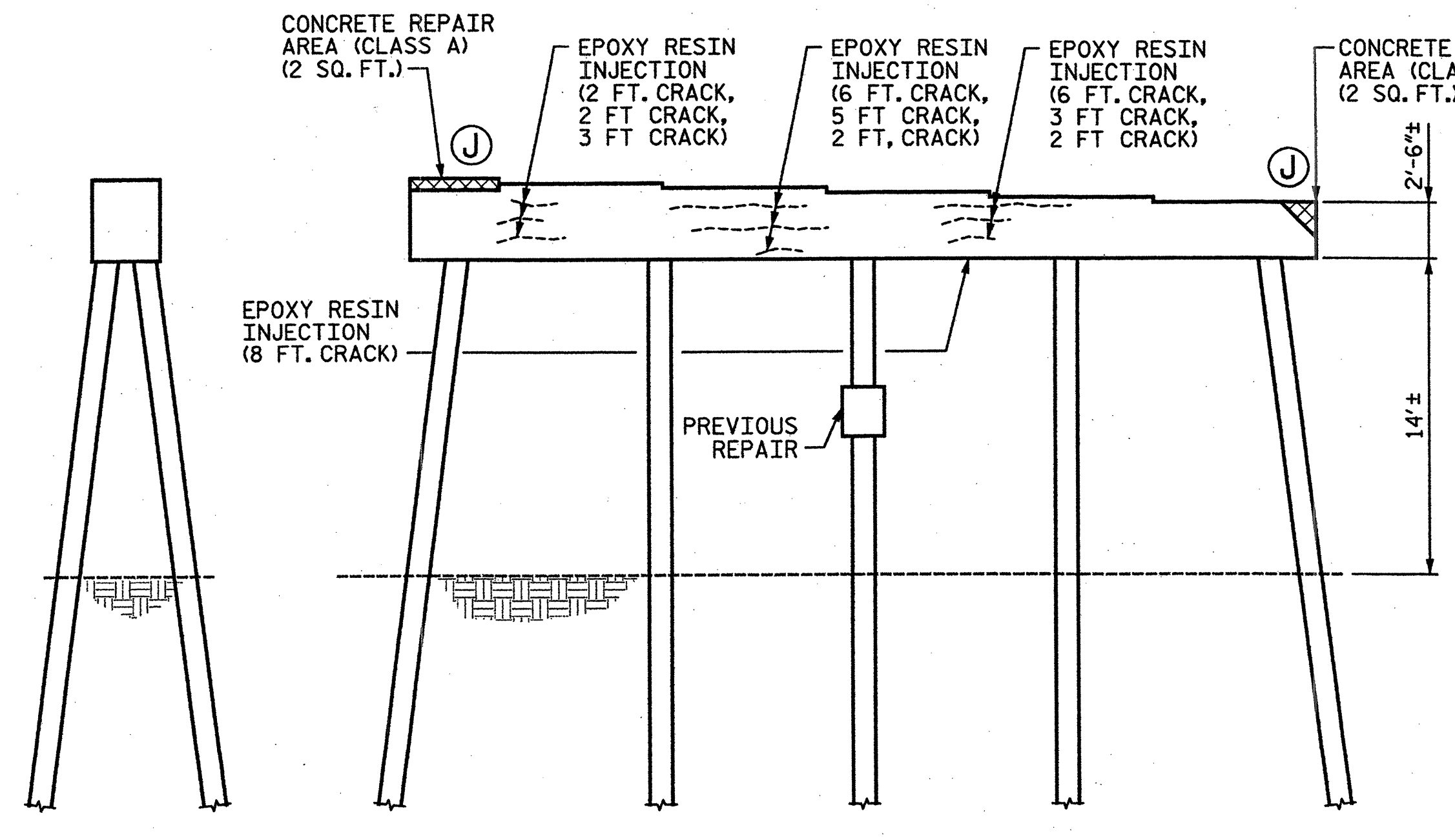
EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP OF ALL BENT CAPS AND THE COST SHALL BE INCLUDED IN THE OTHER BENT REPAIRS.

FOR CLEANING, PAINTING, AND REPLACEMENT OF BEARINGS SEE SHEET NO. S-28 OF S-50.

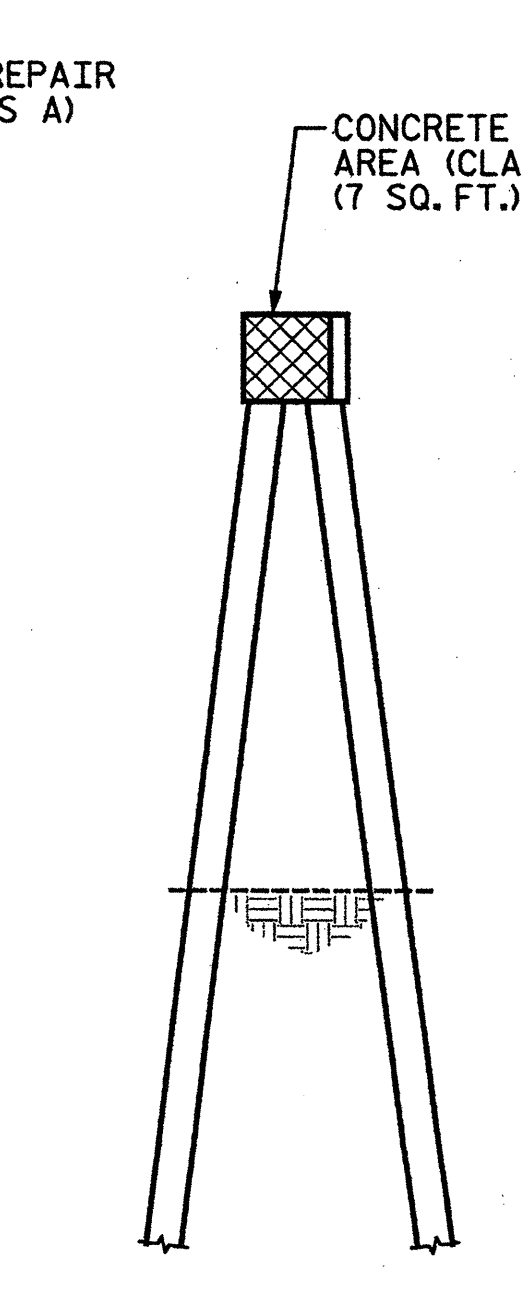
WATER ELEVATION BASED ON 2009 BRIDGE INSPECTION SOUNDINGS



ELEVATION OF BENT 2 - LOOKING NORTH*



ELEVATION OF BENT 2 - LOOKING SOUTH*



END VIEW OF BENT 2 LOOKING EAST*

END VIEW OF BENT 2 LOOKING WEST*

Ⓝ - JACKING REQUIRED

----- APPROX. LENGTH: EPOXY RESIN INJECTION

⊗ APPROX. AREA: CONCRETE REPAIRS (CLASS A)

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY



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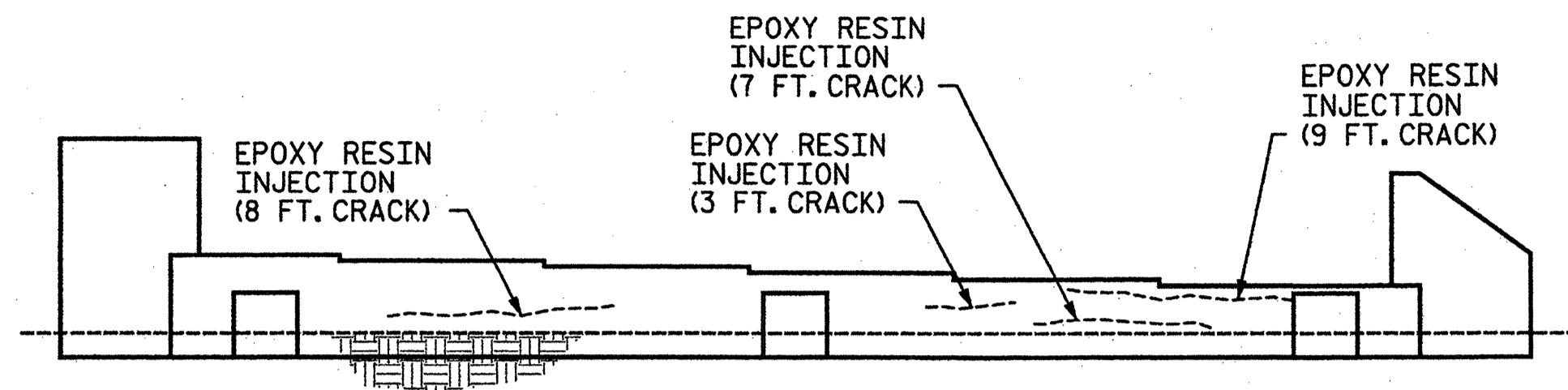
PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 59
 REHAB. OF BRIDGE NO. 59 SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

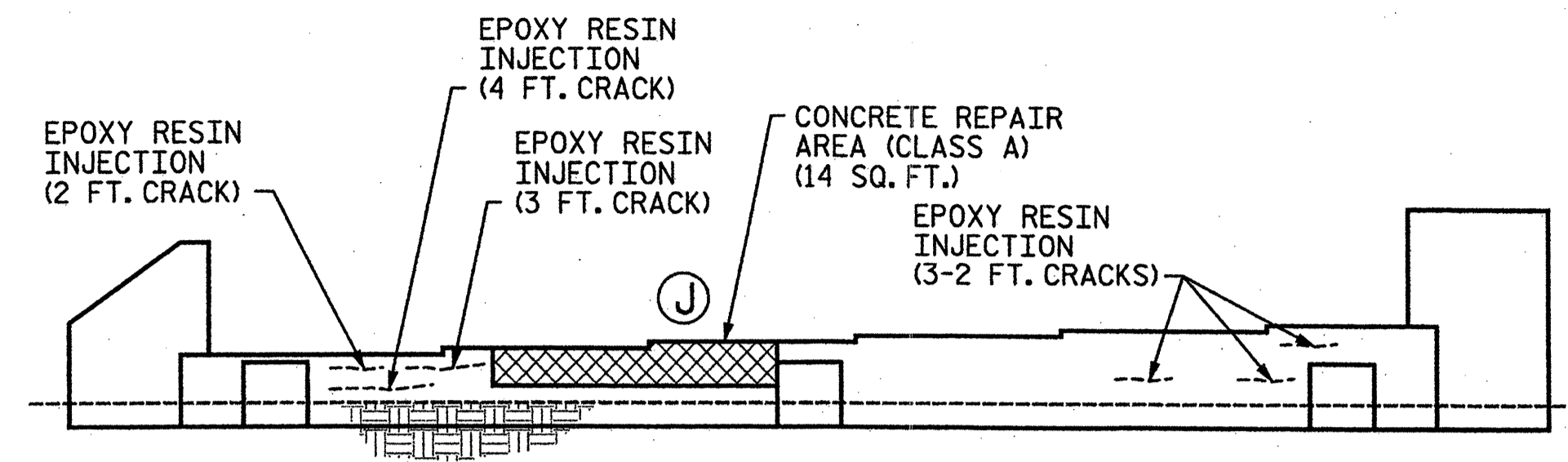
**BENTS 1 & 2
 SUBSTRUCTURE REPAIRS**

BRIDGE ON US 29 NBL
 OVER TROUBLESOME CREEK

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
1			3			TOTAL SHEETS	
2			4			S-50	



ELEVATION OF END BENT 1 - LOOKING SOUTH*

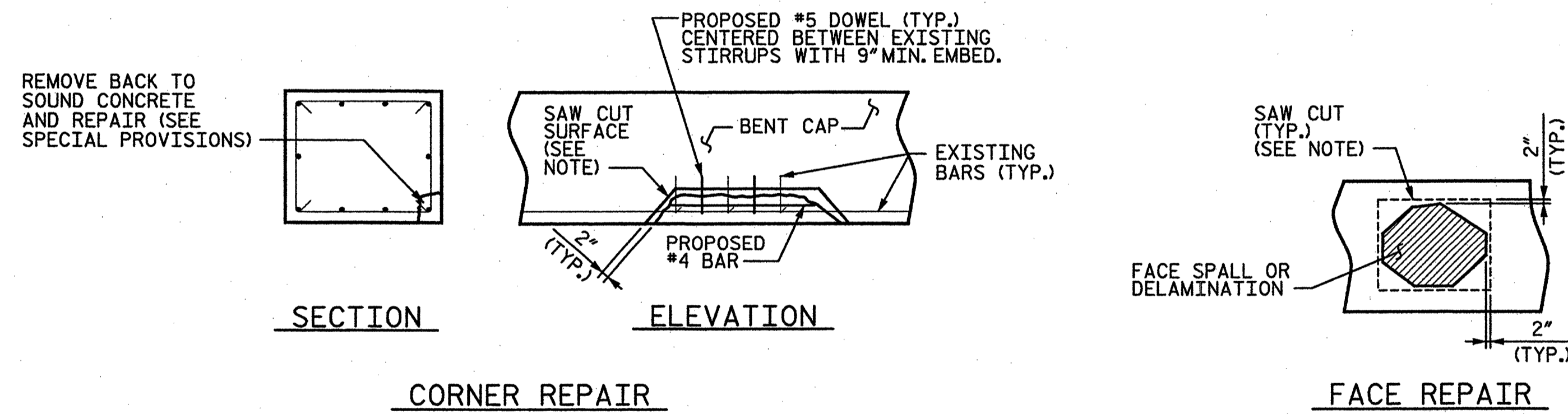


ELEVATION OF END BENT 2 - LOOKING NORTH*

--- APPROX. LENGTH: EPOXY RESIN INJECTION
 [X] APPROX. AREA: CONCRETE REPAIRS (CLASS A)

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

(J) - JACKING REQUIRED



TYPICAL SUBSTRUCTURE REPAIR DETAILS

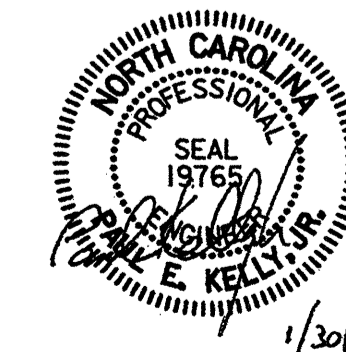
NOTE: CONTRACTOR SHALL SAW CUT TO A MAXIMUM DEPTH OF 1/2". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

NOTE:
SEE NOTES ON SHEET 4 OF 6.

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 59

REHAB. OF BRIDGE NO. 59 SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
END BENTS 1 & 2
SUBSTRUCTURE REPAIRS
 BRIDGE ON US 29 NBL
 OVER TROUBLESOME CREEK



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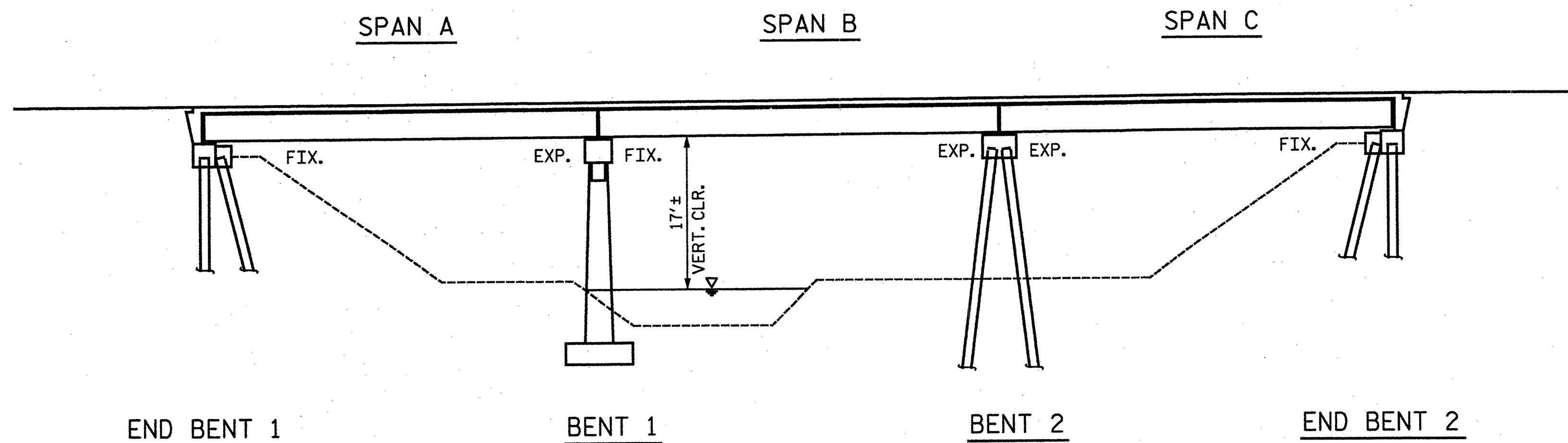
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	
2			4			S-50	

DRAWN BY : AR DATE : 10-11
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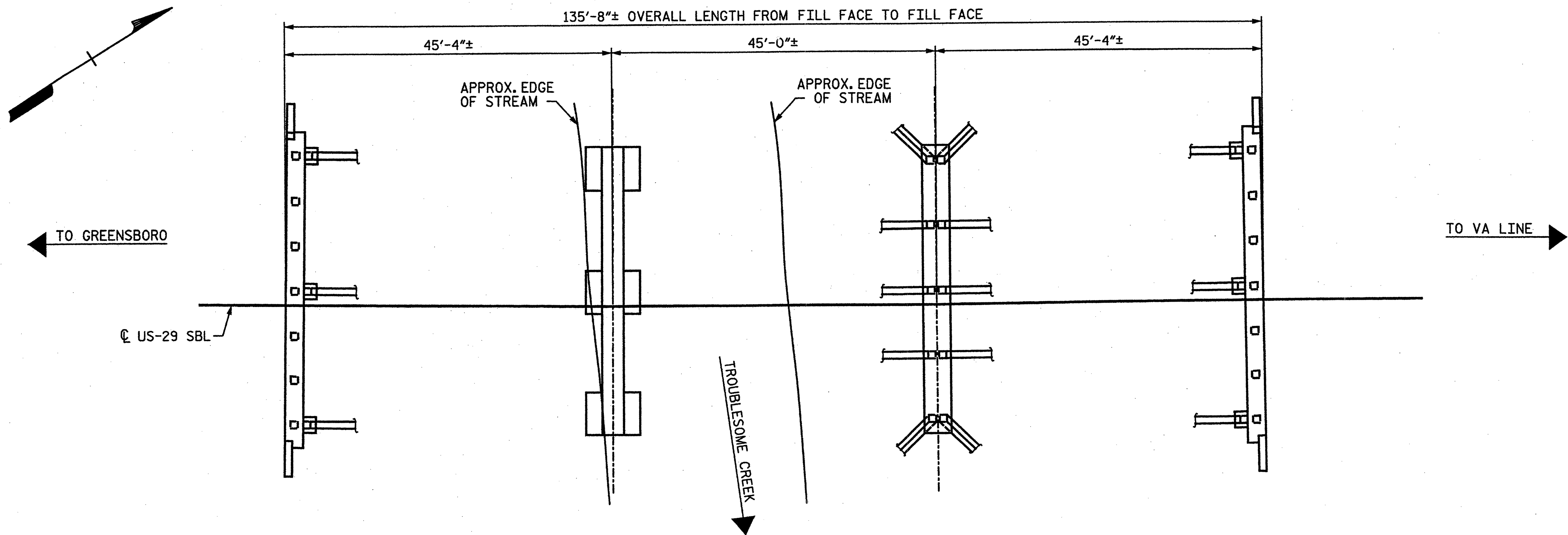
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wlvw

1/30/2012



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



PLAN

NOTE:
 SEE SHEET NO. S-1 OF S-50 FOR GENERAL NOTES.
 SEE BRIDGE NO. 61 SHEETS 3, 4, AND 5 OF 6 FOR ADDITIONAL NOTES.

PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 61
 REHAB. OF BRIDGE NO. 61 SHEET 1 OF 6

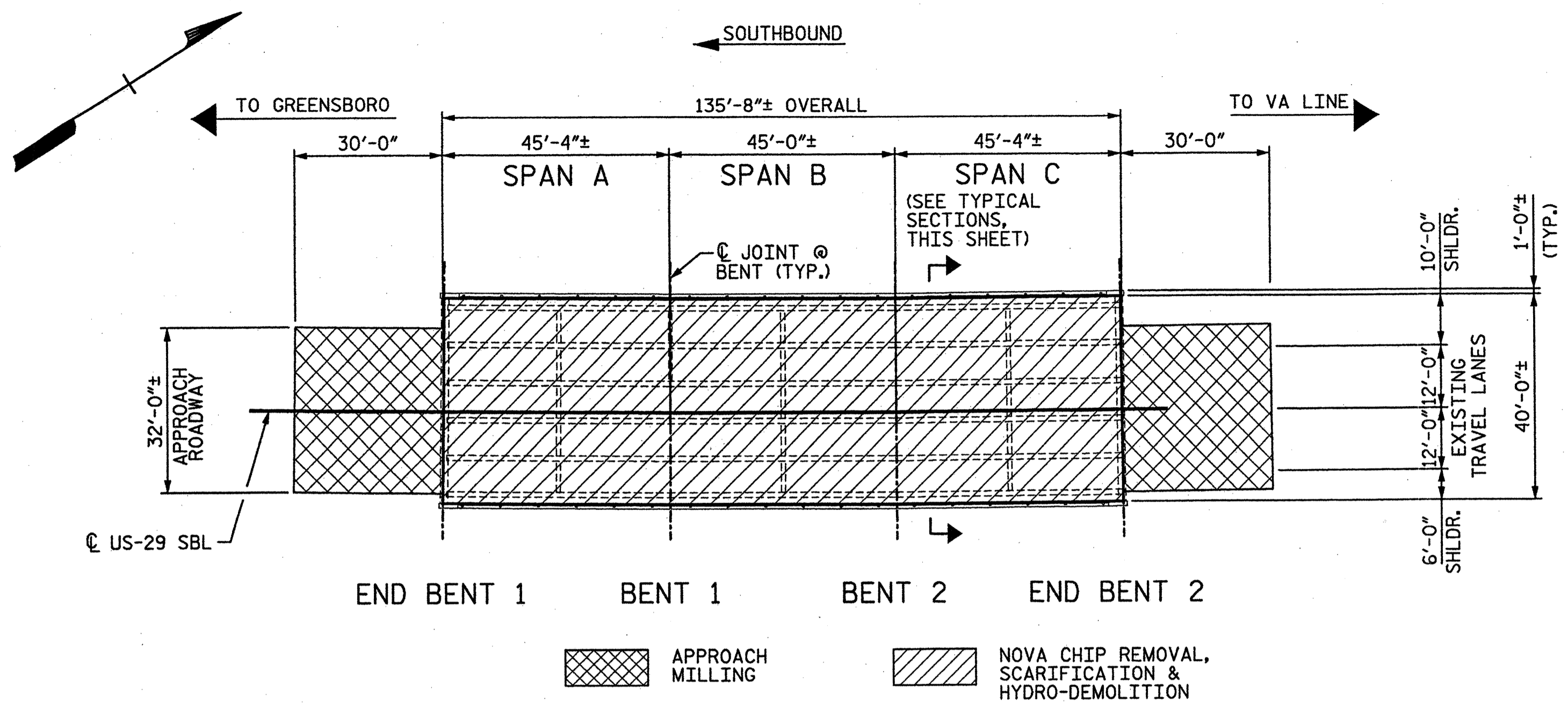
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL PLAN & ELEVATION
 BRIDGE ON US 29 SBL
 OVER TROUBLESOME CREEK



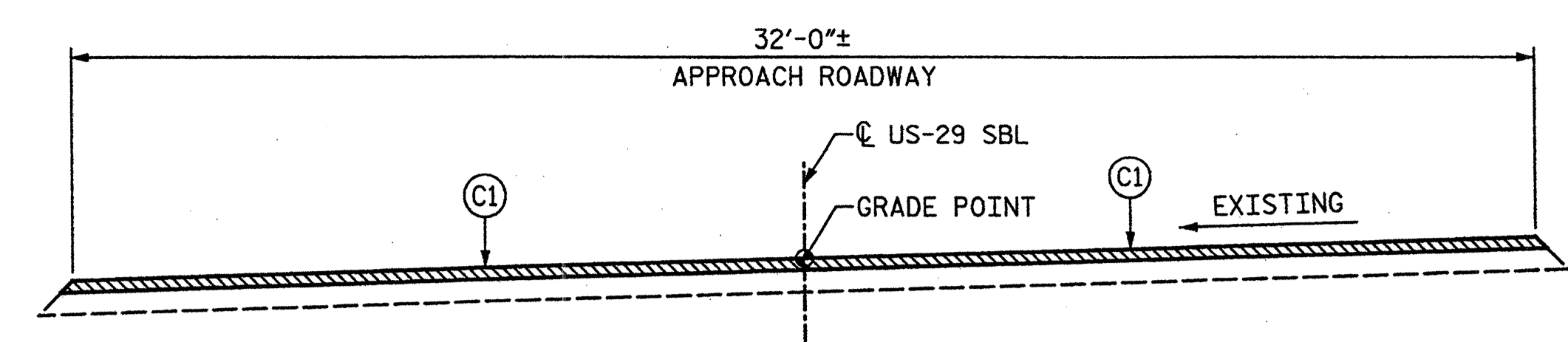
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 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-20
2			4			S-50

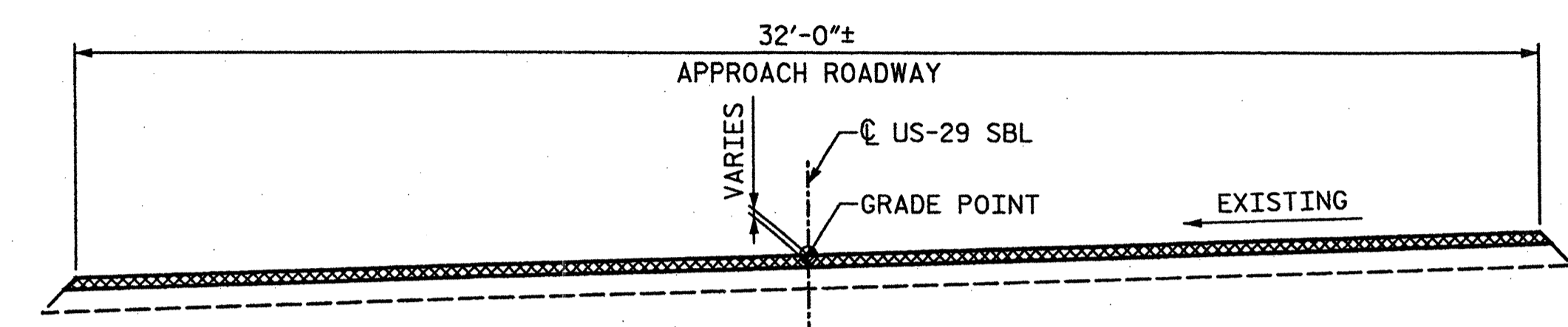
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PLAN OF SPANS - DECK SCARIFICATION & HYDRO-DEMOLITION
 (CONCRETE BRIDGE FLOORS SHALL BE GROOVED IN ACCORDANCE WITH SECTION 420-14 OF THE STANDARD SPECIFICATION)

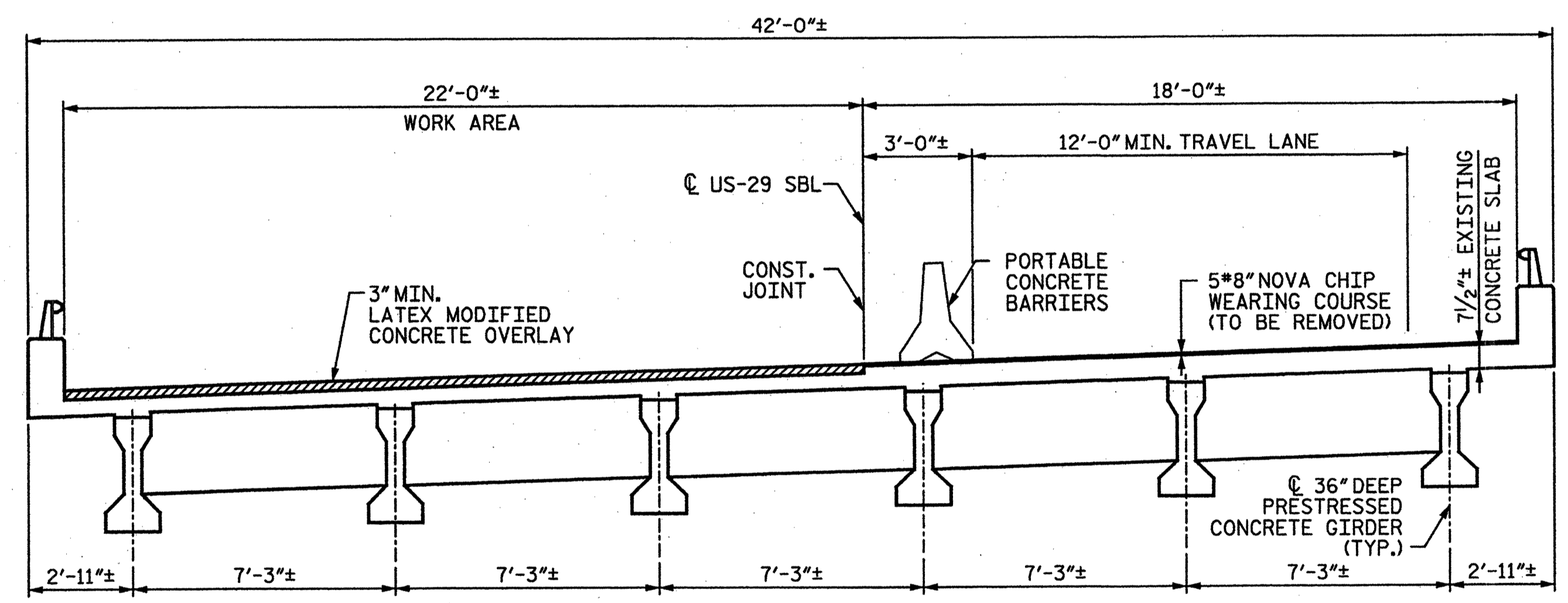


TYPICAL ROADWAY SECTION

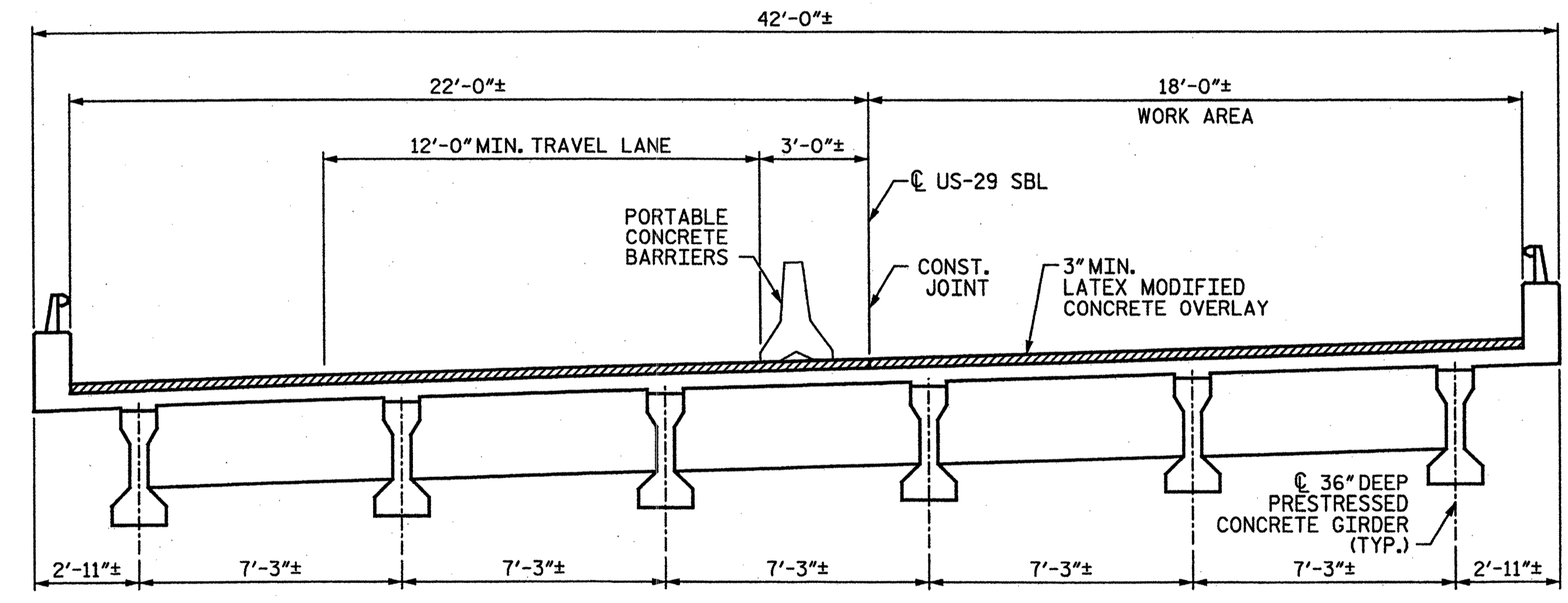


TYPICAL ROADWAY MILLING SECTION
 (MILL TO 1/2" MIN. DEPTH)

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
 (AT INTERMEDIATE DIAPHRAGMS)



TYPICAL SECTION - STAGE II
 (AT INTERMEDIATE DIAPHRAGMS)

PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 61
 REHAB. OF BRIDGE NO. 61 SHEET 2 OF 6

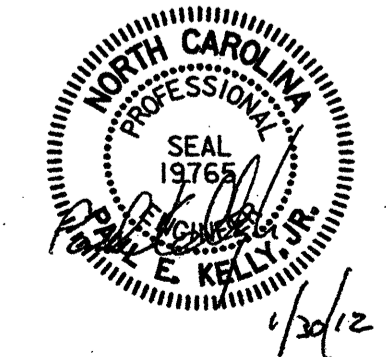
TOTAL BILL OF MATERIAL													
INCIDENTAL MILLING	DECK SCARIFICATION	*CLASS I SURFACE PREPARATION	*CLASS II SURFACE PREPARATION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	FOAM JOINT SEAL	GROOVING BRIDGE FLOORS	EPOXY RESIN INJECTION	CONCRETE REPAIRS (CLASS A)	REPLACE BEARINGS	BRIDGE JACKING
SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	TON	LUMP SUM	SQ. FT.	LIN. FT.	CU. FT.	LUMP SUM	LUMP SUM
213	603	520	83	603	52	603	18	LUMP SUM	4,907	116	1	LUMP SUM	LUMP SUM

* QUANTITIES FOR INFORMATION ONLY.

NOTES:
 FOR ADDITIONAL MILLING DETAIL, SEE SHEET 4 OF 6.
 PER EXISTING PLANS, THE ESTIMATED AVERAGE REBAR COVER FOR THE EXISTING DECK IS 1/4".

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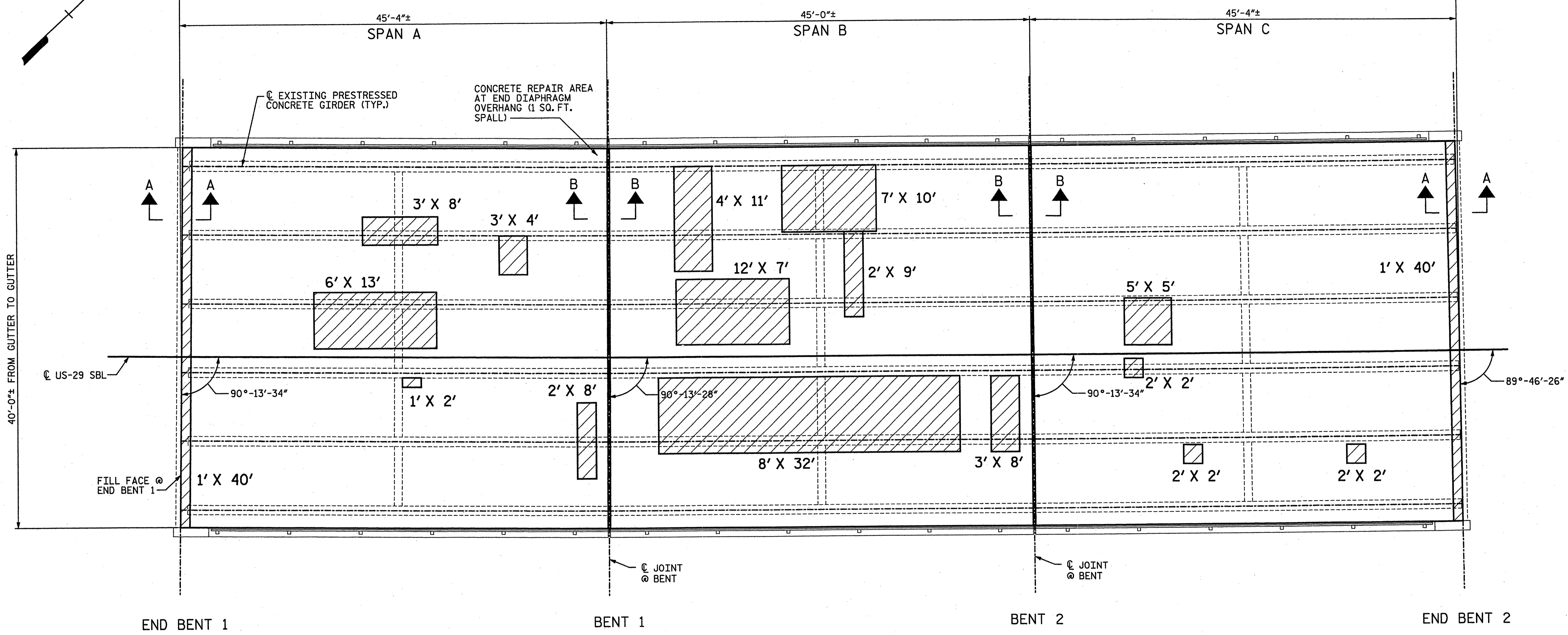


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			S-50

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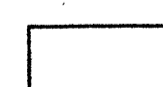
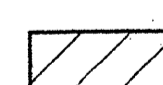
SOUTHBOUND

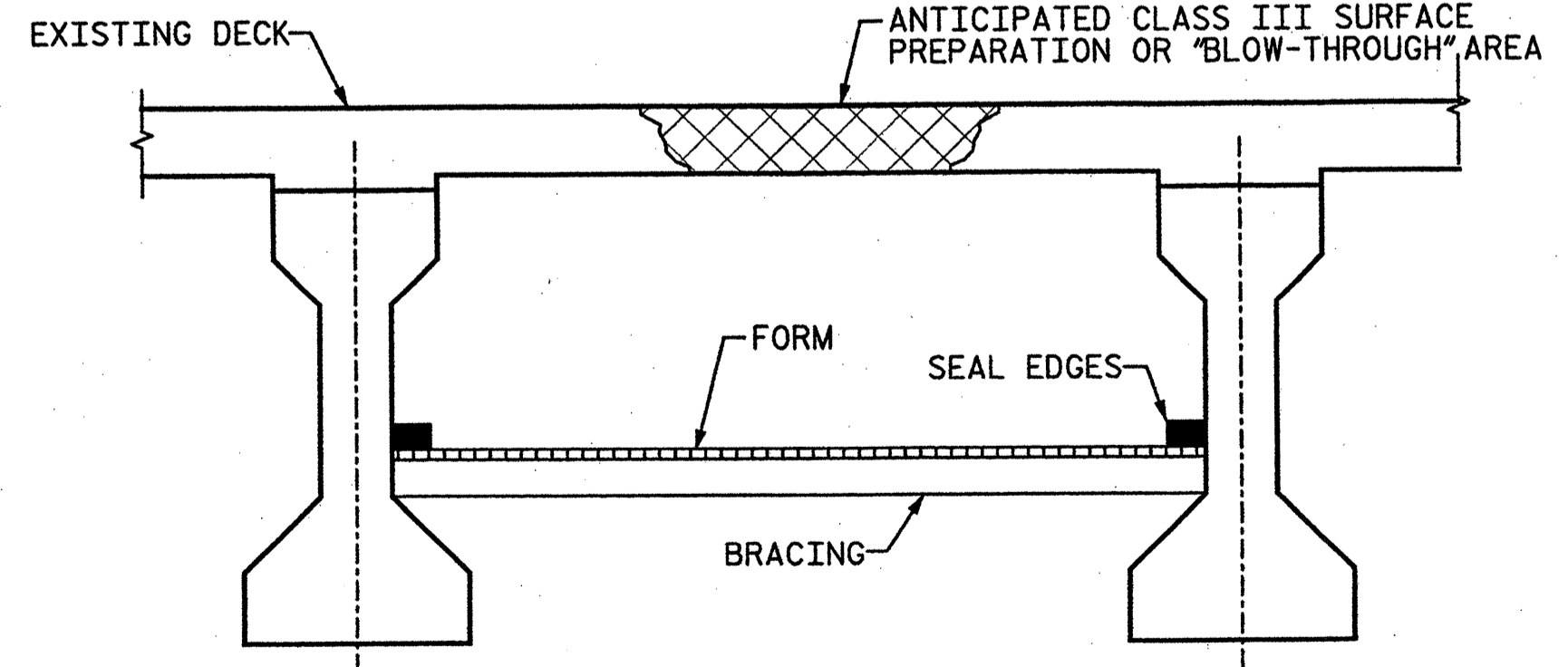
135'-8"± OVERALL LENGTH FROM FILL FACE TO FILL FACE



PLAN OF SPANS - DECK REPAIRS

(SEE SHEET 4 OF 6 FOR SECTIONS A-A AND B-B)

 APPROX. AREA: CLASS I REPAIR
 APPROX. AREA: CLASS II REPAIR



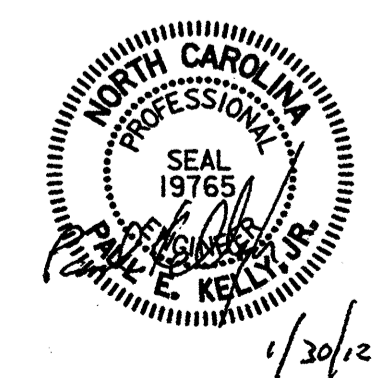
TYP. "BLOW-THROUGH" CONTAINMENT AND FORMWORK

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.

NOTES:
 FOR LATEX MODIFIED CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.
 FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
 THE CONTRACTOR SHALL PROVIDE CONTAINMENT FOR UNEXPECTED BLOW-THROUGH OF THE DECK. SEE DETAIL ON THIS SHEET AND SPECIAL PROVISIONS.
 EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.

PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 61
 REHAB. OF BRIDGE NO. 61 SHEET 3 OF 6

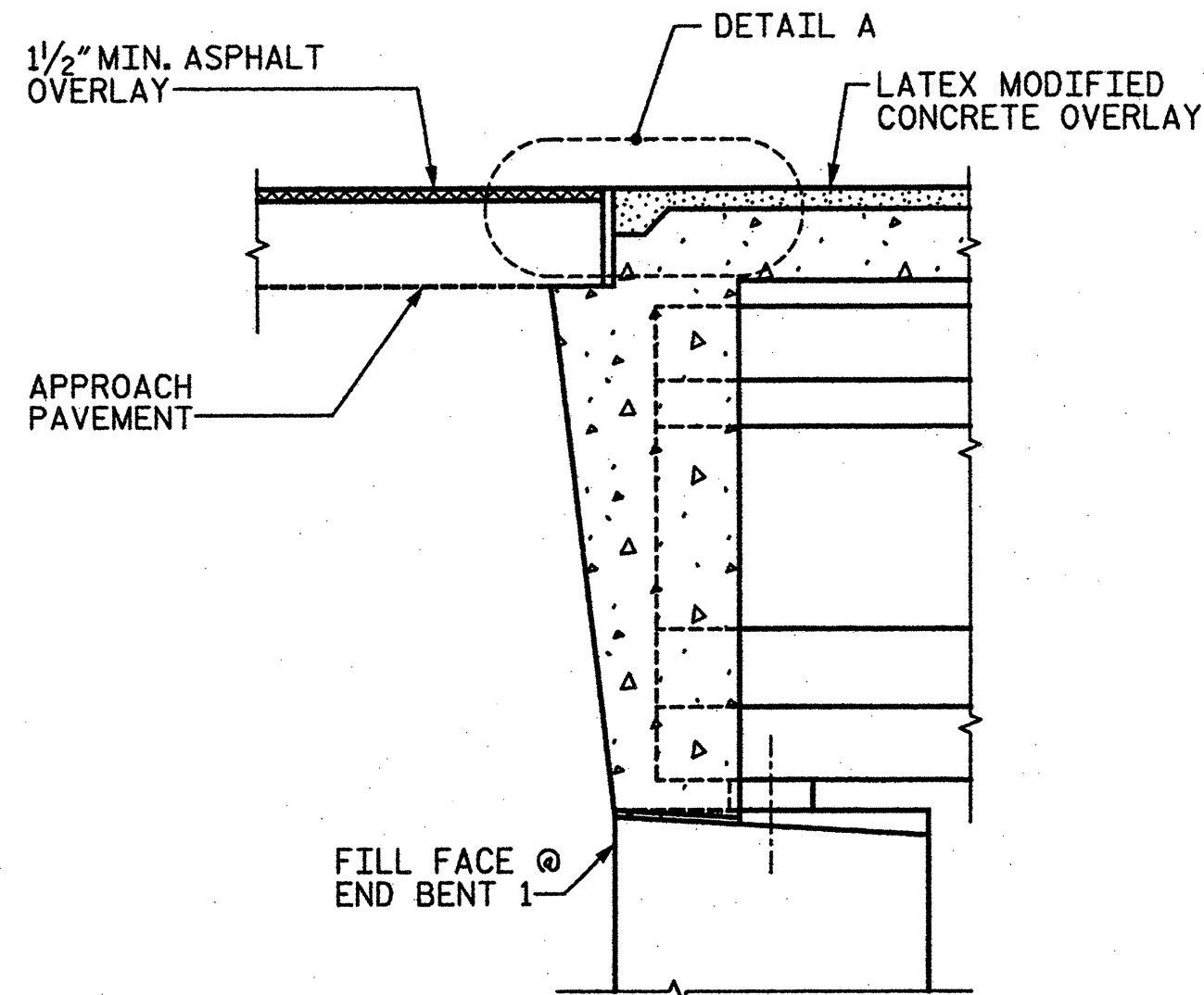
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS
 DECK REPAIRS**
 BRIDGE ON US 29 SBL
 OVER TROUBLESOME CREEK



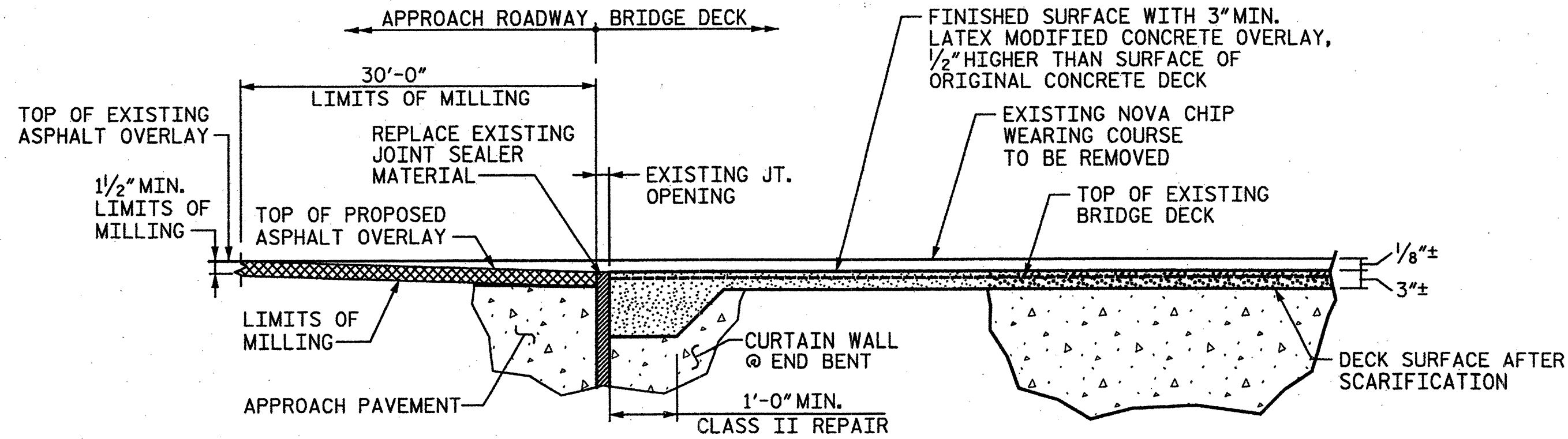
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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			S-50

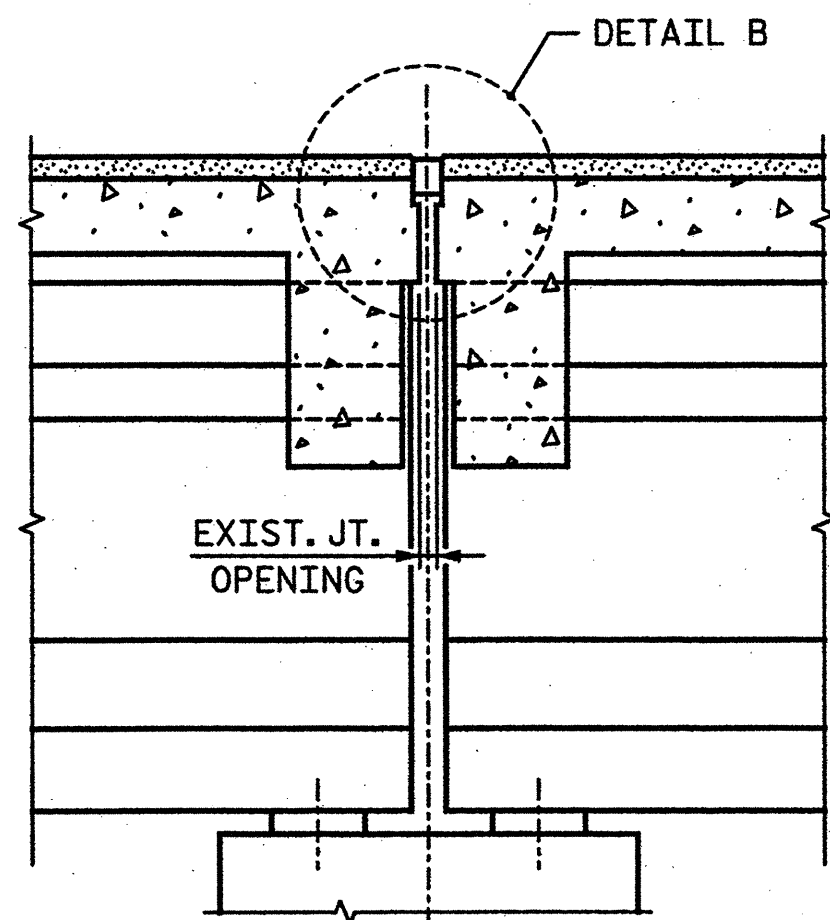
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 1/30/2012
 WJVM



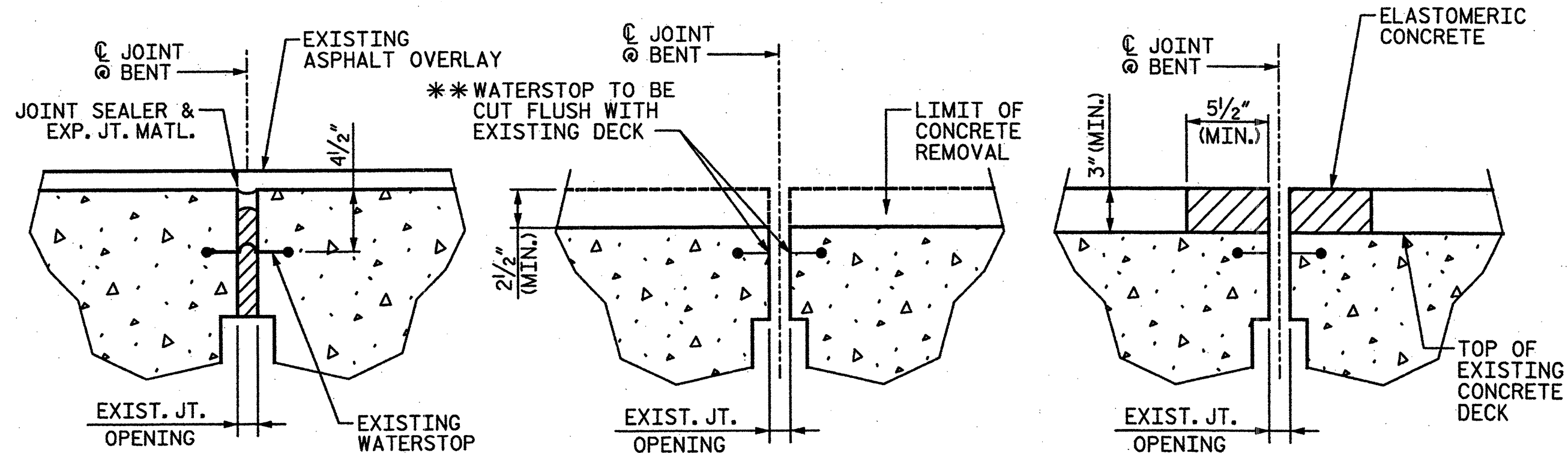
SECTION A-A
(TYP. @ END BENT 1 AND 2)



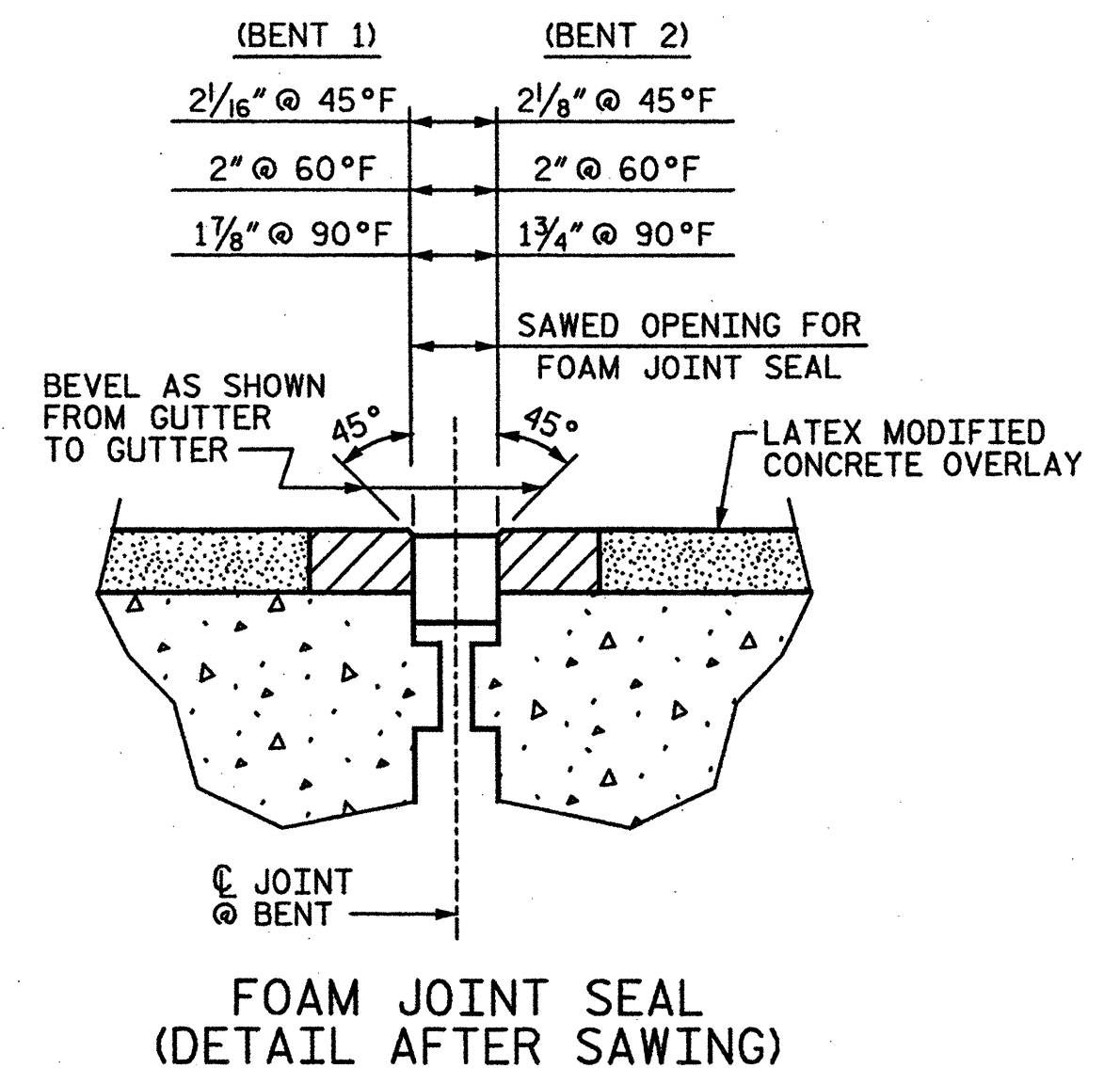
DETAIL A
(LOCATION OF JOINT TO MATCH EXISTING JOINT LOCATION)



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



** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL, THE ENTIRE WATERSTOP SHALL BE REMOVED.

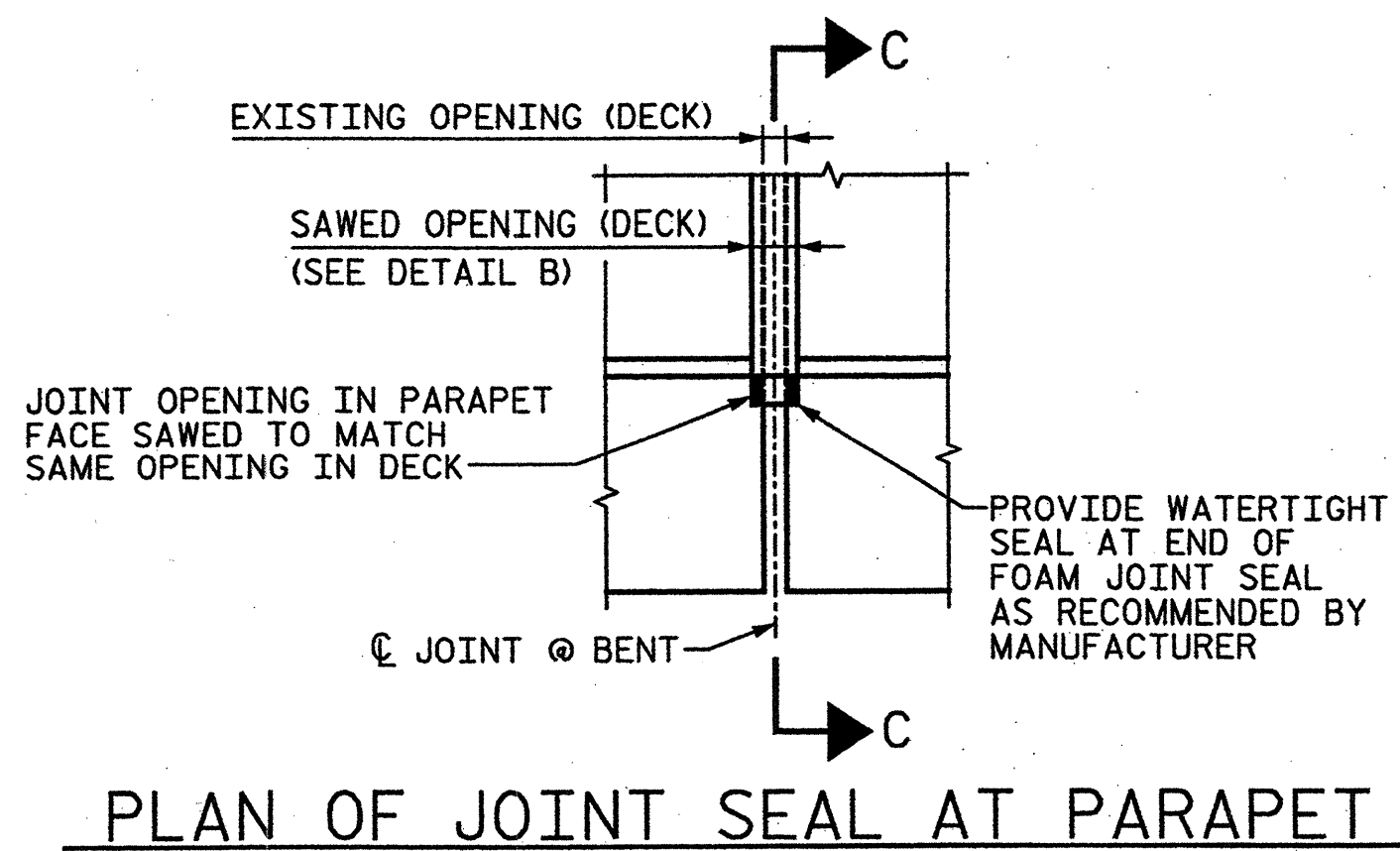


DETAIL B

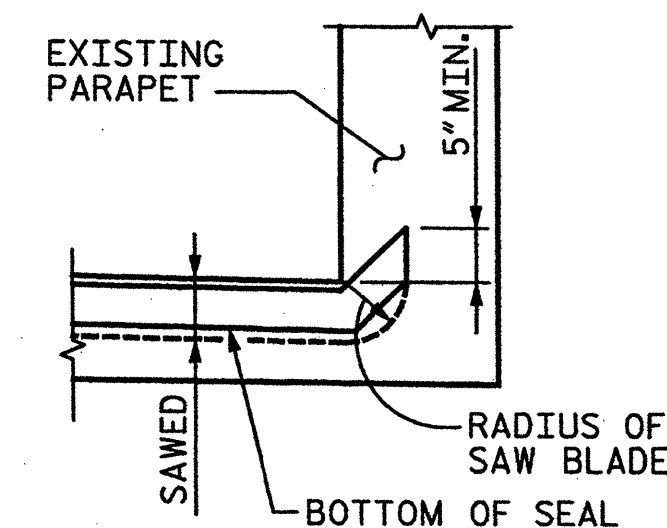
NOTES:

- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- THE ELASTOMERIC CONCRETE SHALL BE INCLUDED IN THE FOAM JOINT SEAL PAY ITEM.
- THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.
- THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2".
- THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.
- FOAM JOINT OPENING WIDTHS SHALL BE CONFIRMED IN THE FIELD. CONTRACTOR SHALL MAKE ADJUSTMENTS TO FOAM JOINT SEALS, AS NECESSARY, TO MEET EXISTING CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY COST ASSOCIATED WITH THESE ADJUSTMENTS IS CONSIDERED INCIDENTAL AND NO SEPERATE MEASUREMENT OR PAYMENT WILL BE MADE.

NOTE:
SEE NOTES ON SHEET 3 OF 6.



PLAN OF JOINT SEAL AT PARAPET



SECTION C-C



PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 61
 REHAB. OF BRIDGE NO. 61 SHEET 4 OF 6
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DECK REPAIR DETAILS
 BRIDGE ON US 29 SBL
 OVER TROUBLESOME CREEK

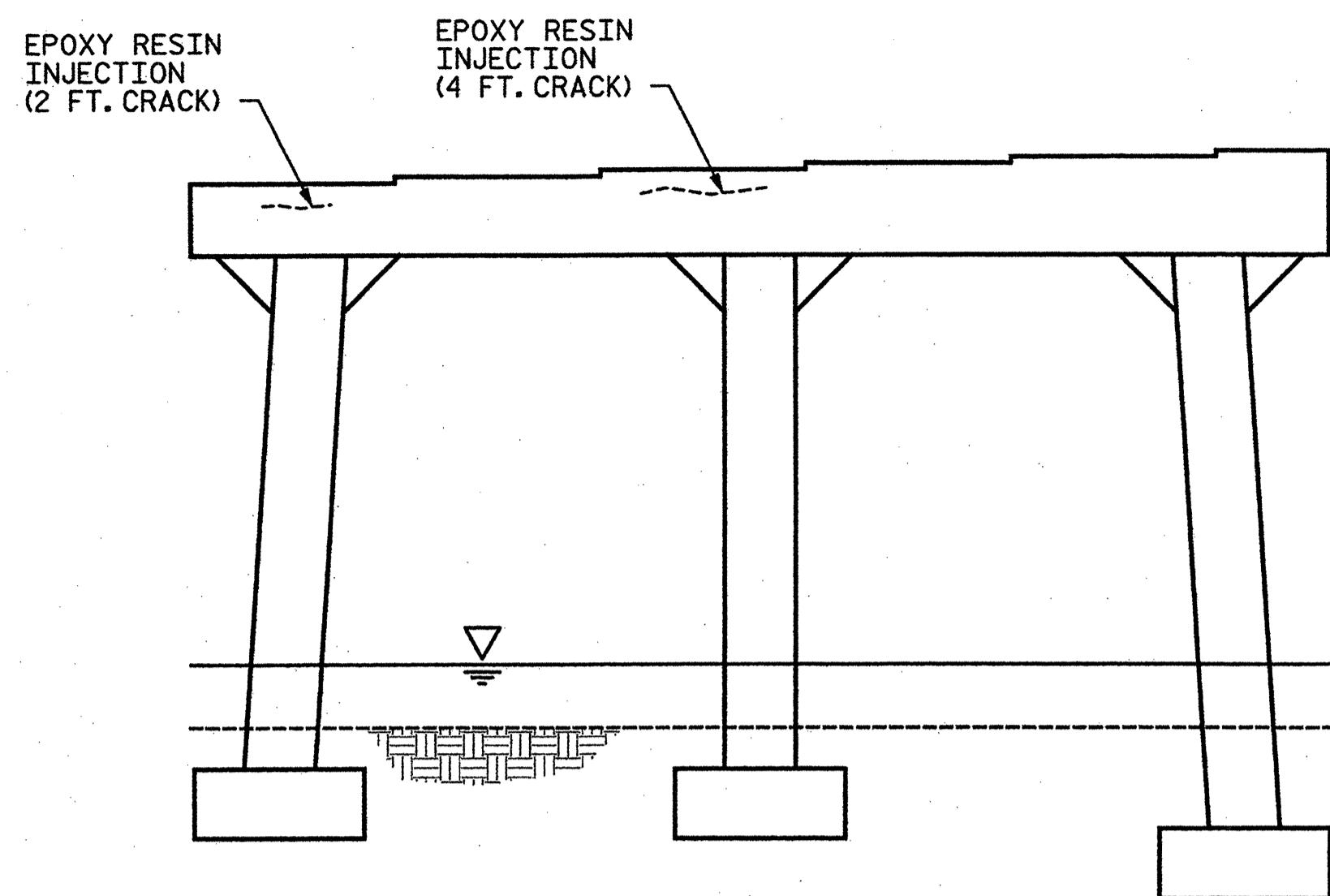
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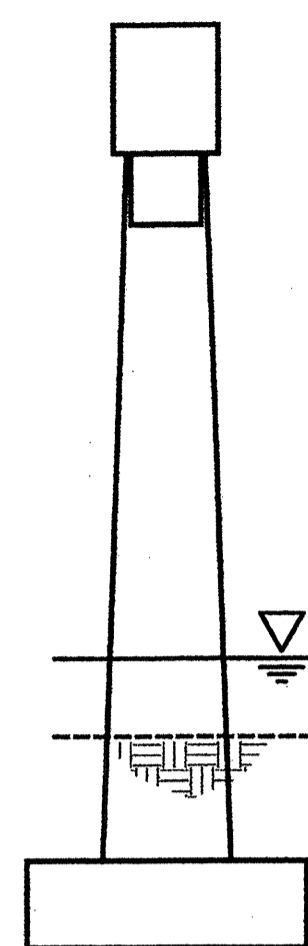
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-23
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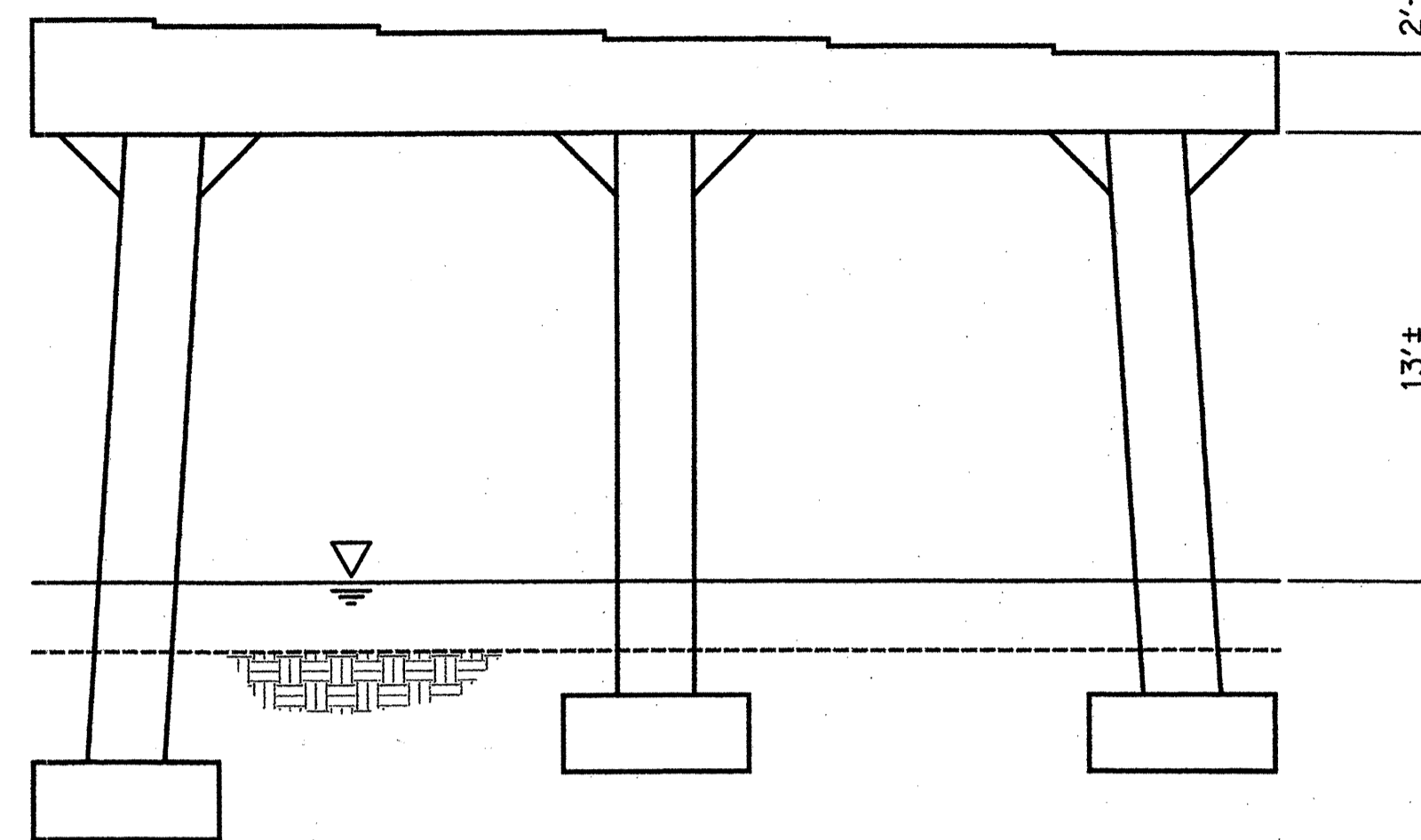
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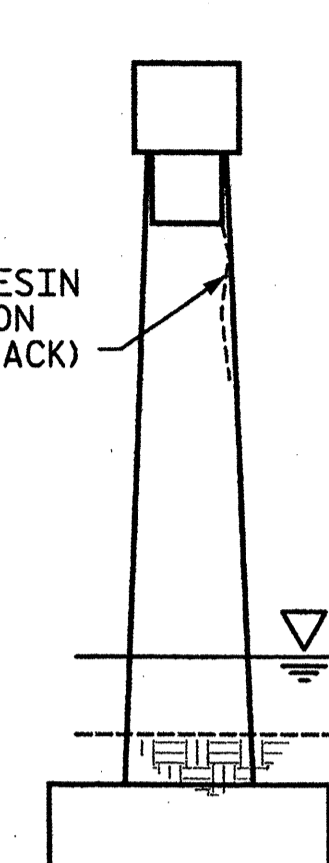
ELEVATION OF BENT 1 - LOOKING NORTH*



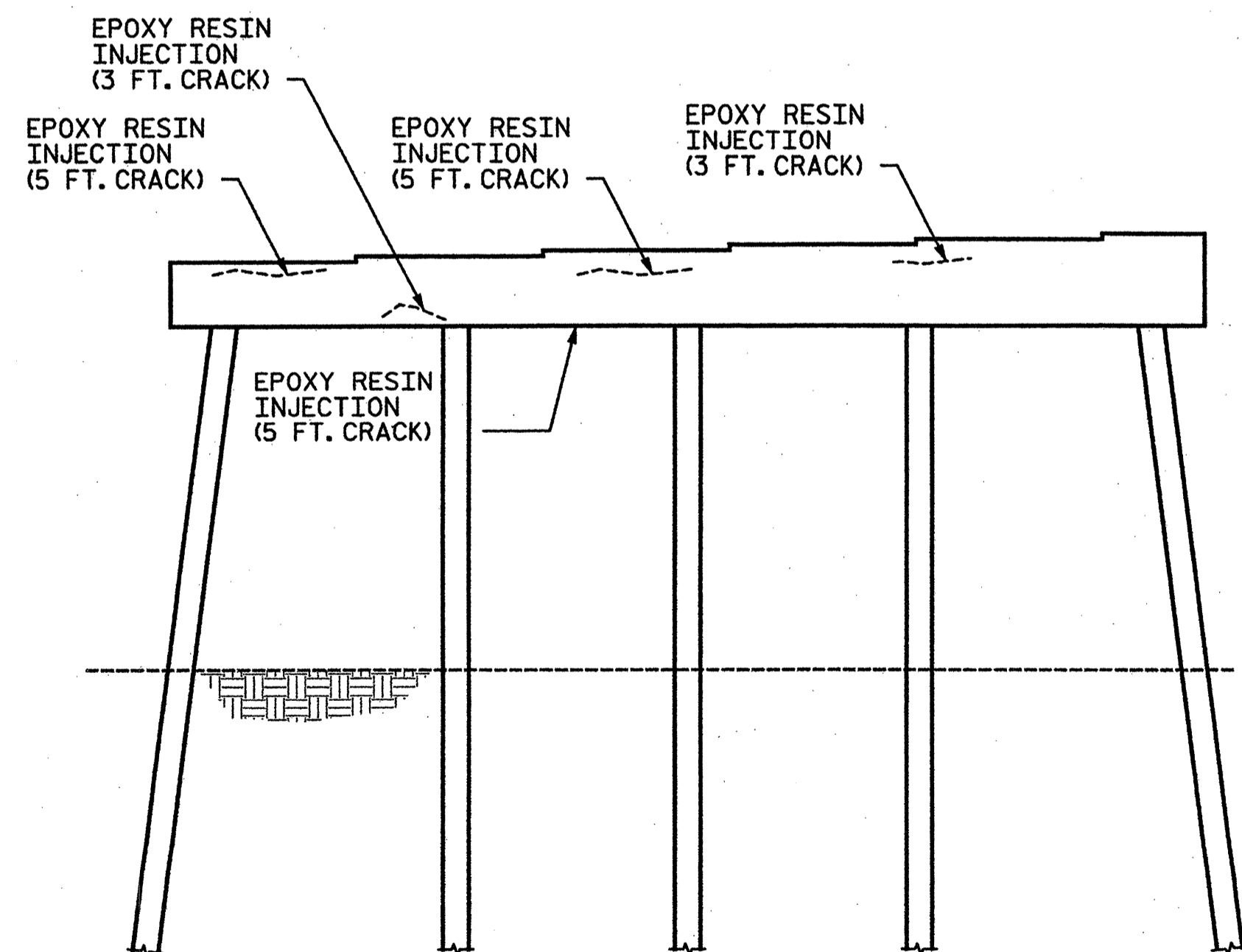
END VIEW OF BENT 1 LOOKING WEST*



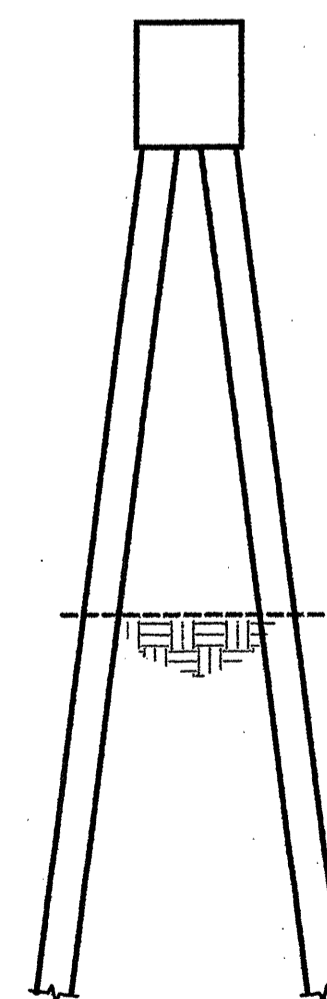
ELEVATION OF BENT 1 - LOOKING SOUTH*



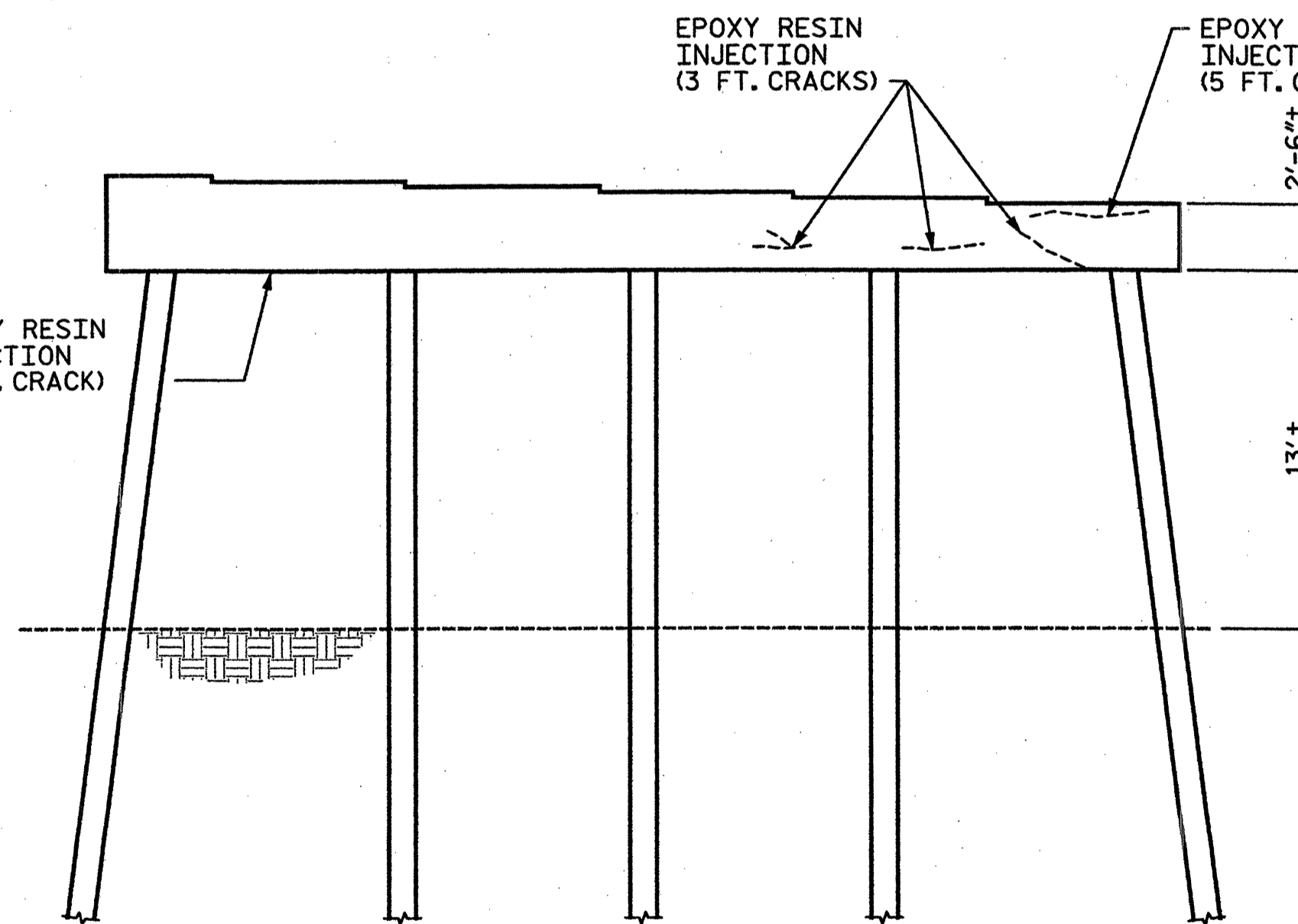
END VIEW OF BENT 1 LOOKING EAST*



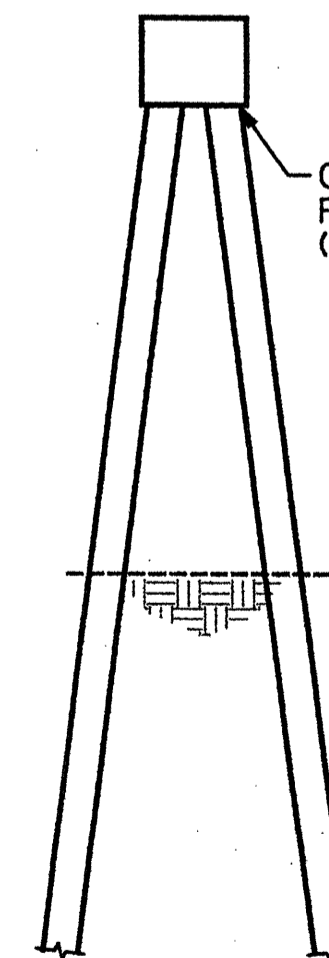
ELEVATION OF BENT 2 - LOOKING NORTH*



END VIEW OF BENT 2 LOOKING WEST*



ELEVATION OF BENT 2 - LOOKING SOUTH*



END VIEW OF BENT 2 LOOKING EAST*

NOTES:

FOR CONCRETE REPAIR DETAILS, SEE SHEET 6 OF 6.

CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.

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 COST.

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.

BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.

BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES SEE SHEET NO. S-26 OF S-50.

SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.

EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP OF ALL BENT CAPS AND THE COST SHALL BE INCLUDED IN THE OTHER BENT REPAIRS.

FOR CLEANING, PAINTING, AND REPLACEMENT OF BEARINGS SEE SHEET NO. S-28 OF S-50.

WATER ELEVATION BASED ON 2009 BRIDGE INSPECTION SOUNDINGS

----- APPROX. LENGTH EPOXY RESIN INJECTION



PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 61

REHAB. OF BRIDGE NO. 61 SHEET 5 OF 6

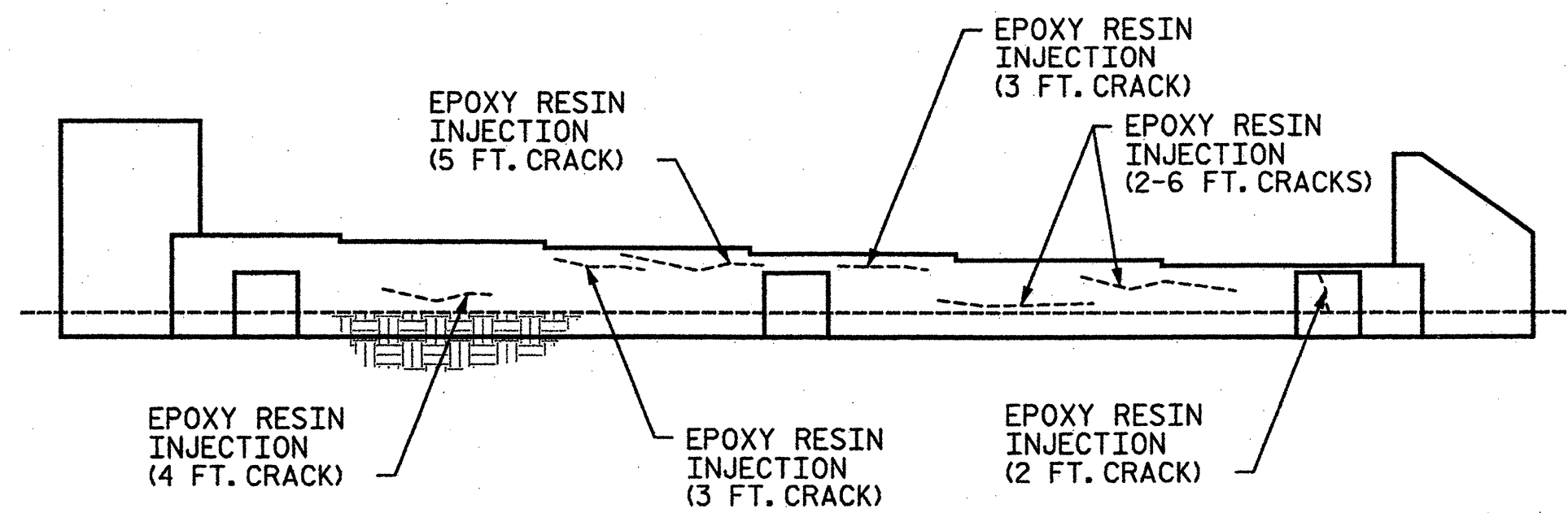
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BENTS 1 & 2
 SUBSTRUCTURE REPAIRS**
 BRIDGE ON US 29 SBL
 OVER TROUBLESOME CREEK

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

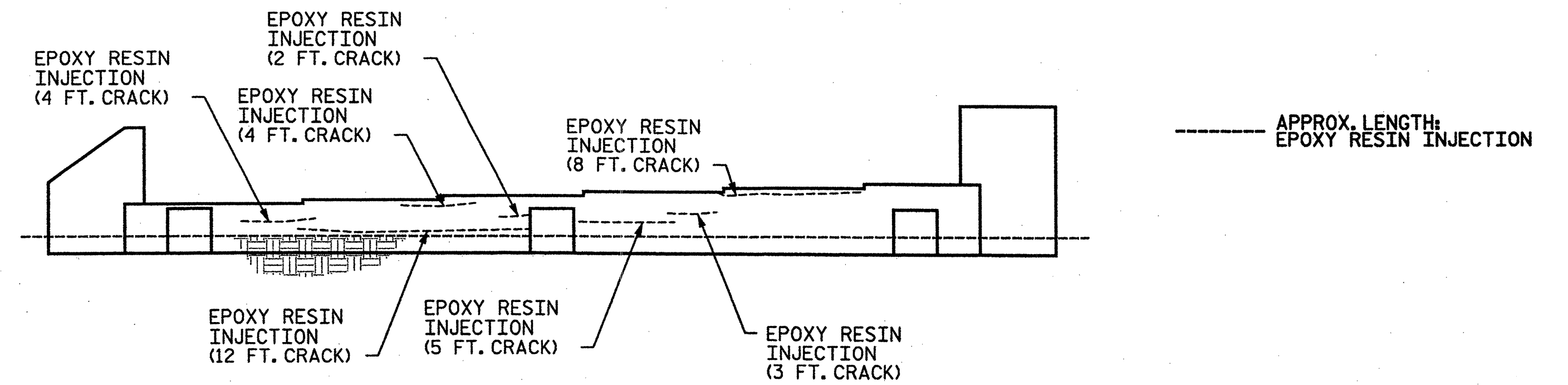
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 CHECKED BY : AC DATE : 10-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-24
2			4			S-50

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 NC License No. F-0991

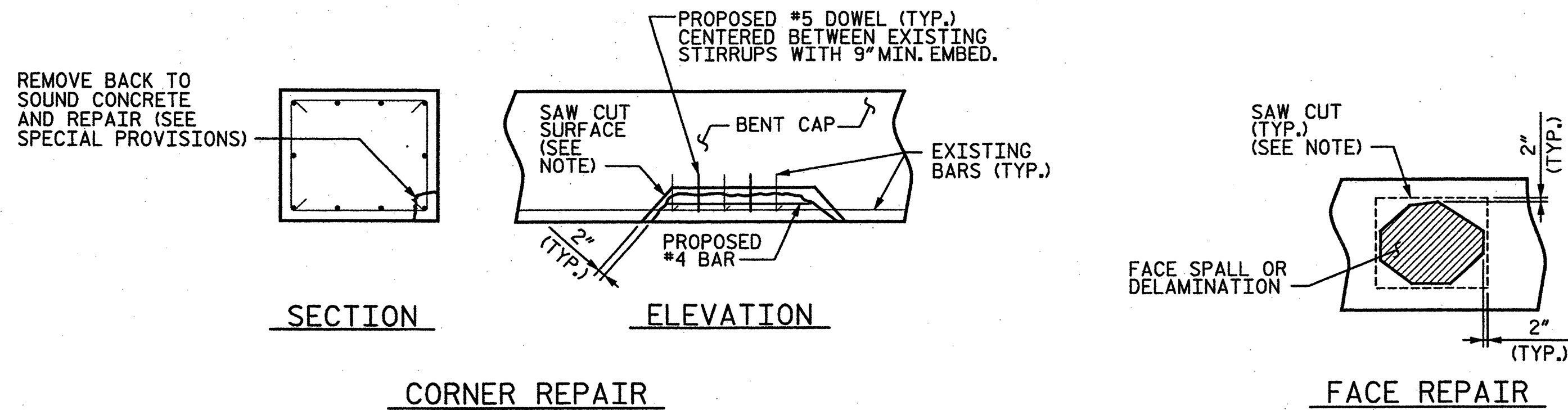


ELEVATION OF END BENT 1 - LOOKING SOUTH*



ELEVATION OF END BENT 2 - LOOKING NORTH*

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY



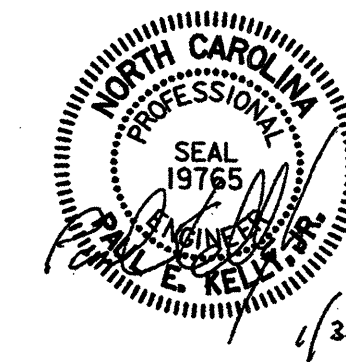
TYPICAL SUBSTRUCTURE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO A MAXIMUM DEPTH OF 1/2". 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 SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

NOTE:
SEE NOTES ON SHEET 4 OF 6.

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
BRIDGE NO.: 61

REHAB. OF BRIDGE NO. 61 SHEET 6 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**END BENTS 1 & 2
SUBSTRUCTURE REPAIRS**
BRIDGE ON US 29 SBL
OVER TROUBLESOME CREEK

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

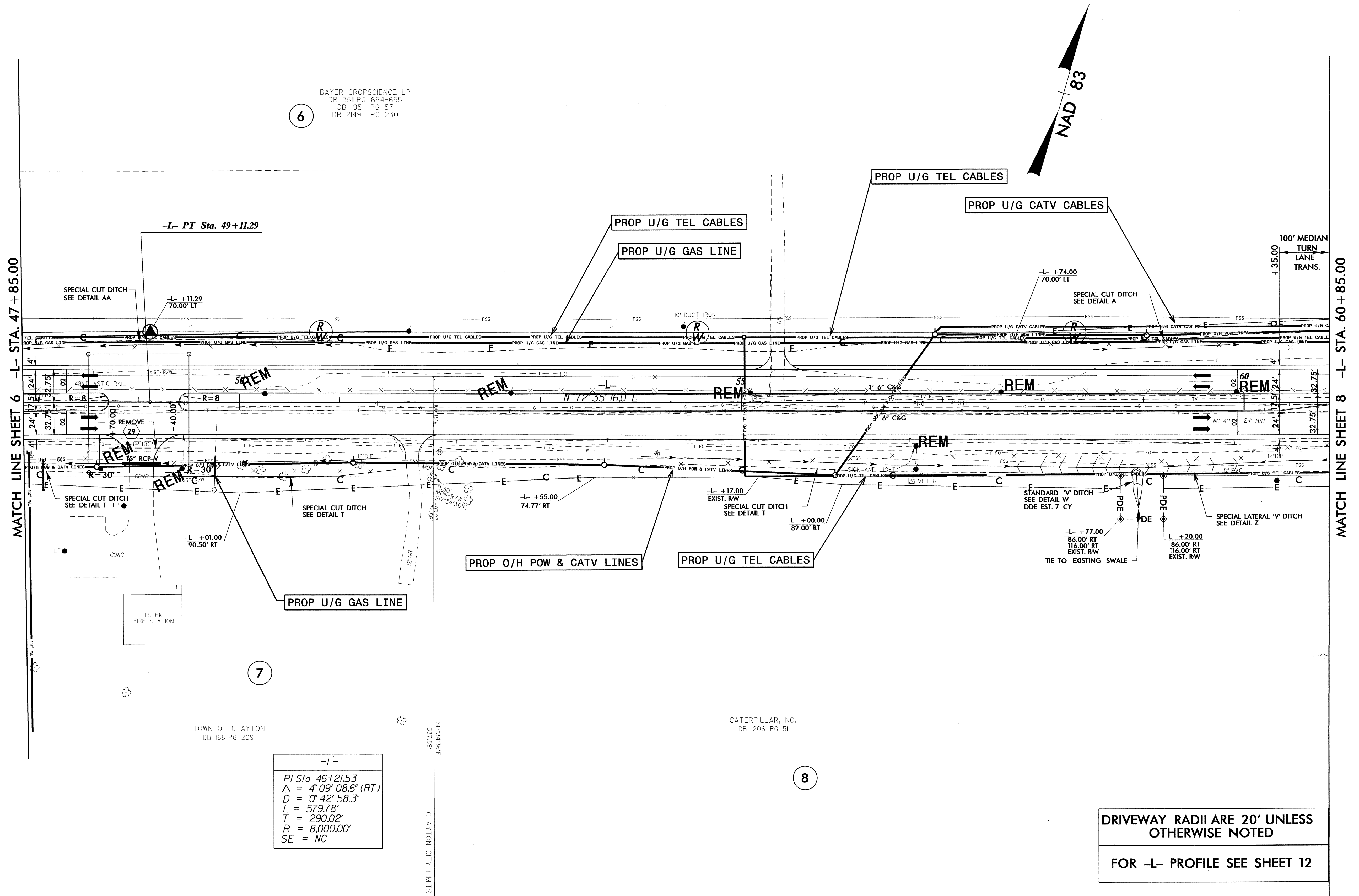
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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-25
2			4			S-50

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UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS



6
BAYER CROPSCIENCE LP
DB 3511 PG 654-655
DB 1951 PG 57
DB 2149 PG 230

7
TOWN OF CLAYTON
DB 1681 PG 209

8
CATERPILLAR, INC.
DB 1206 PG 51

-L-

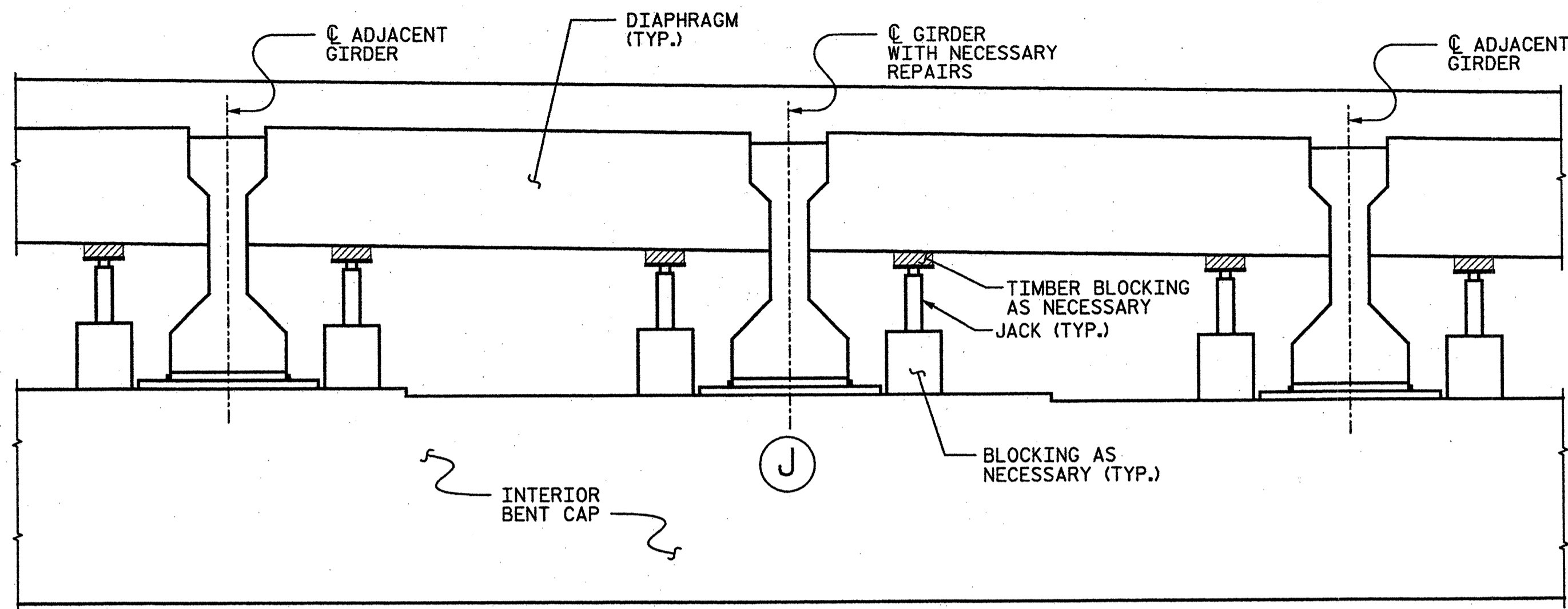
PI Sta	46+21.53
Δ	4° 09' 08.6" (RT)
D	0° 42' 58.3"
L	579.78'
T	290.02'
R	8,000.00'
SE	= NC

DRIVEWAY RADII ARE 20' UNLESS
OTHERWISE NOTED
FOR -L- PROFILE SEE SHEET 12

5/14/99
 13-FEB-2012 14:21 U:\UO5\3825a_rdy07_Ut_UO5.dgn
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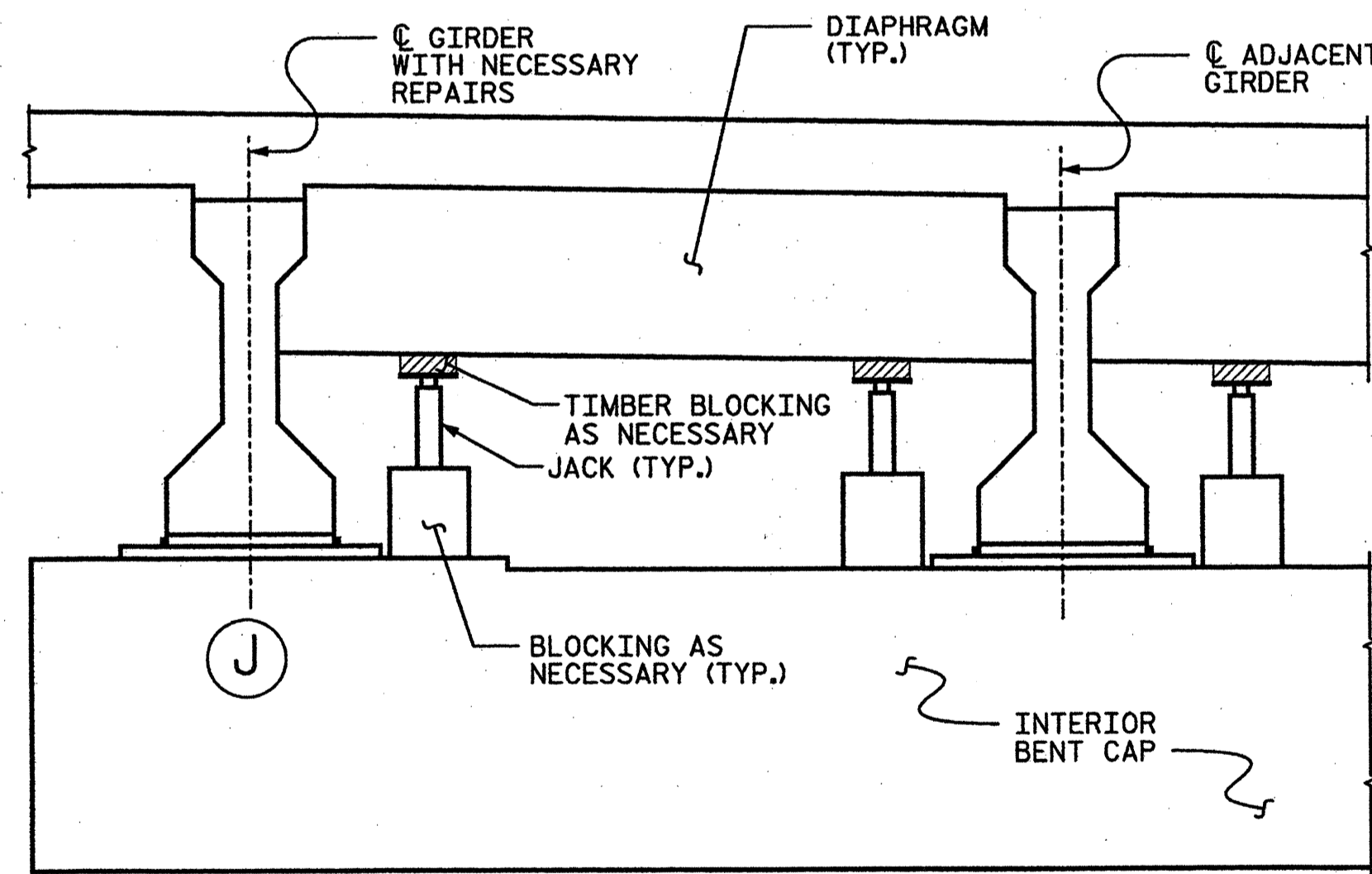
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1/30/2012

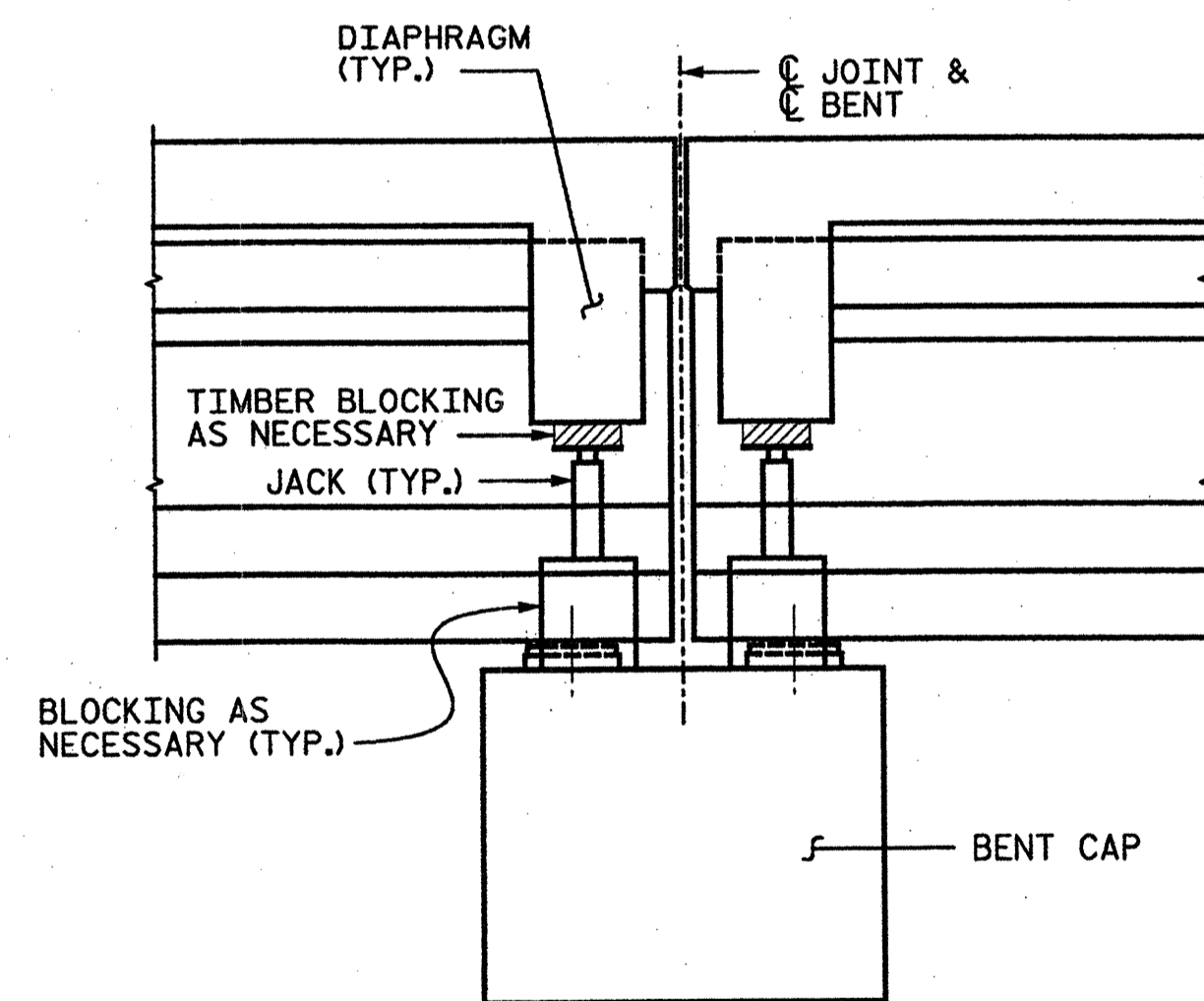


GIRDER JACKING DETAIL AT INTERIOR GIRDER

J JACKING FOR PROPOSED REPAIR LOCATION



GIRDER JACKING DETAIL AT EXTERIOR GIRDER



TYPICAL SECTION @ JACKING LOCATION

CONSTRUCTION SEQUENCE:

1. INSTALL JACKS AT LOCATIONS IDENTIFIED IN TABLE OR AT LOCATIONS REQUIRING CONCRETE REPAIRS UNDER BEARINGS.
2. REMOVE NECESSARY NUTS ON ANCHOR BOLTS.
3. JACK GIRDERS A MAXIMUM OF 1/8" IN ORDER TO TAKE LOAD OFF OF BEARINGS.
4. MECHANICALLY LOCK ALL JACKS AT BENT.
5. PERFORM BEARING REPLACEMENT AND/OR CONCRETE REPAIRS.
6. ONCE ALL REPAIRS ARE COMPLETE, LOWER BRIDGE. CONTRACTOR SHALL NOT LOWER BRIDGE UNTIL CONCRETE REPAIR MATERIAL HAS REACHED A COMPRESSIVE STRENGTH OF 3000 PSI.

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 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.
2. JACKING PLANS SHALL BE SIGNED AND SEALED BY LICENSED PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.
3. THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLAN.
4. THE CONTRACTOR SHALL JACK GIRDERS ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.
5. 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.
6. EACH JACK SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 75 TONS.
7. PRIOR TO JACKING THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED.
8. ONCE SPAN HAS BEEN JACKED, CONTRACTOR SHALL INSTALL A MECHANICAL LOCKING DEVICE TO ENSURE THAT GIRDER WILL NOT BE LOWERED DURING CURING OF CONCRETE.
9. CONTRACTOR TO TAKE APPROPRIATE MEANS TO REMOVE NUT ON ANCHOR BOLT WITHOUT DAMAGING THE ANCHOR BOLT. CONTRACTOR SHALL SUBMIT NUT REMOVAL METHOD TO INCLUDE PROCEDURES THAT WILL LOOSEN BOND BETWEEN INTERLOCKING THREADS TO ENGINEER FOR APPROVAL PRIOR TO REMOVING ANCHOR BOLT NUTS.
10. FOR BRIDGES 11 & 15 ADJACENT SPANS MUST BE JACKED SIMULTANEOUSLY.

PROJECT NO. **17BP.7.P.3**

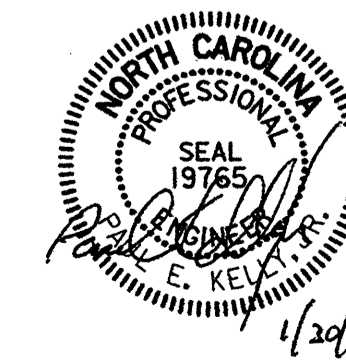
ROCKINGHAM COUNTY

BRIDGE NO.: **11, 15, 59 & 61**

REHAB. OF BRIDGE NO. 11, 15, 59, 61 SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JACKING DETAILS

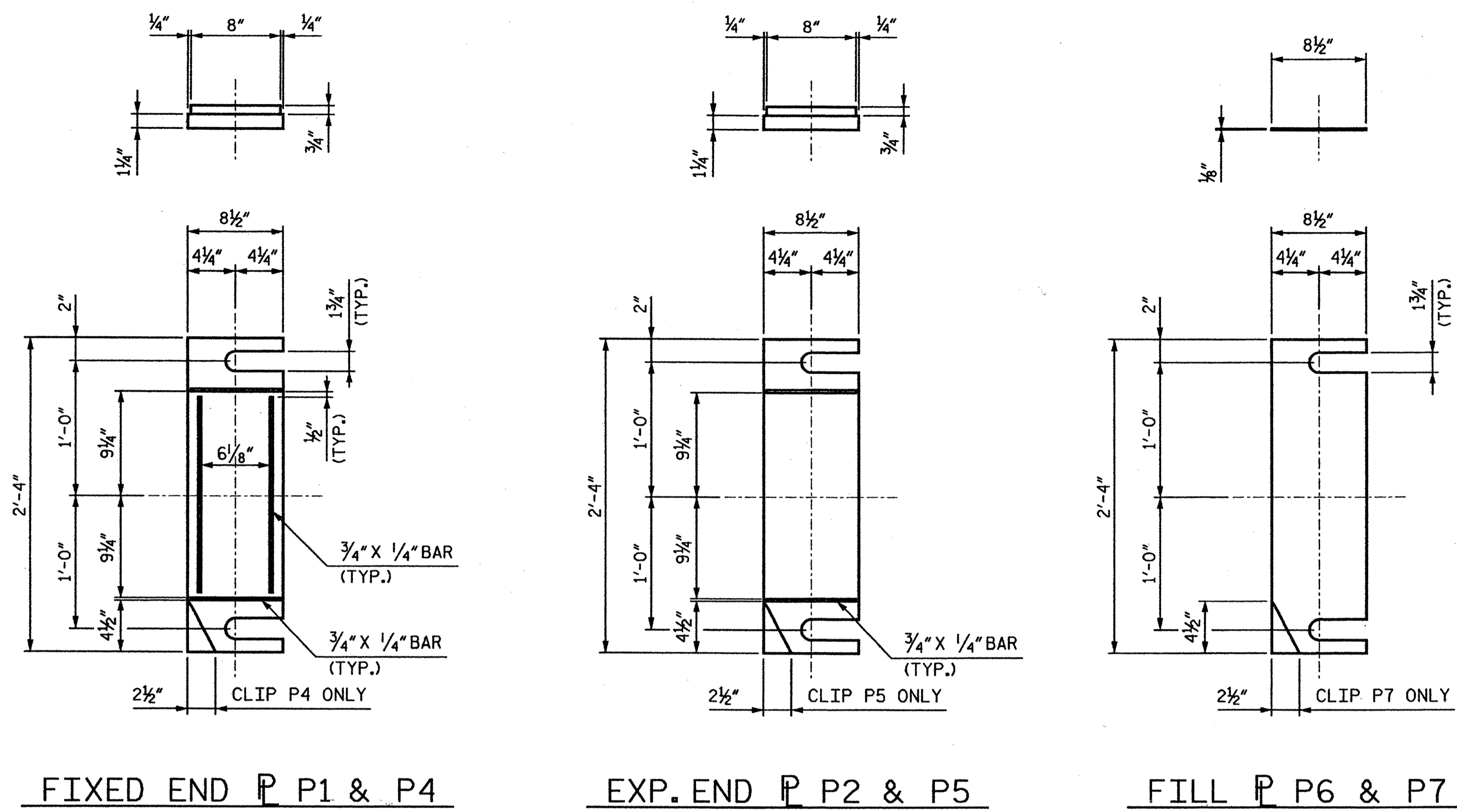


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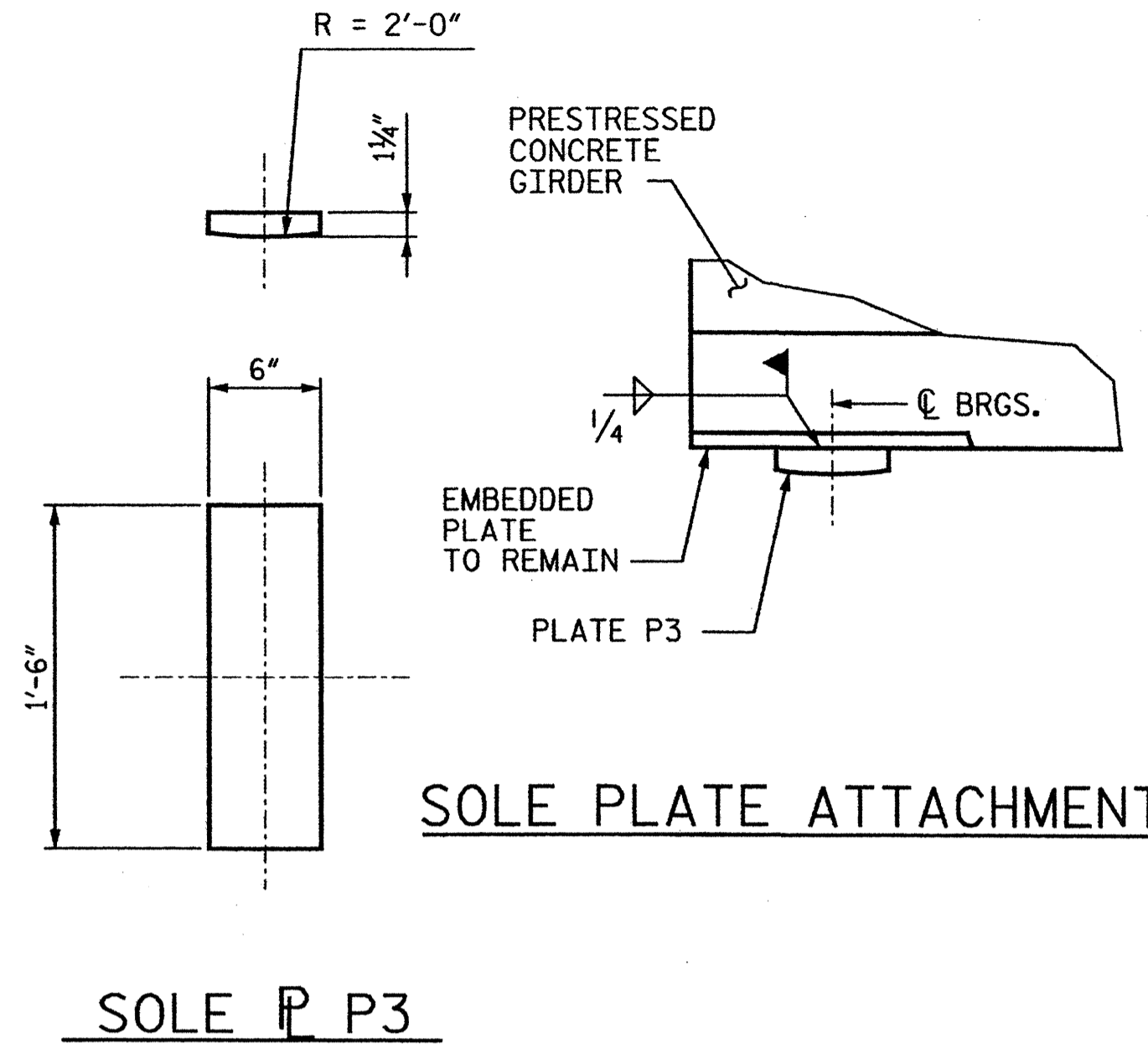
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-26
2			4			S-50

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pkelly 3/6/2012

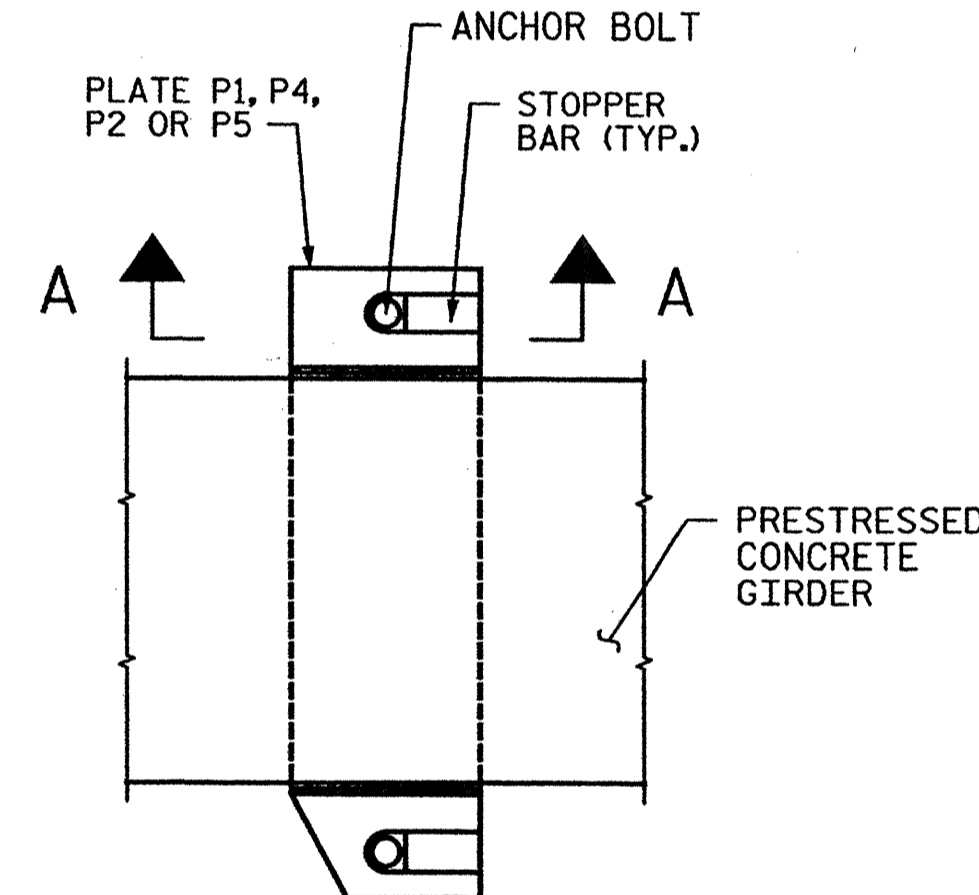


BEARING PLATE DETAILS

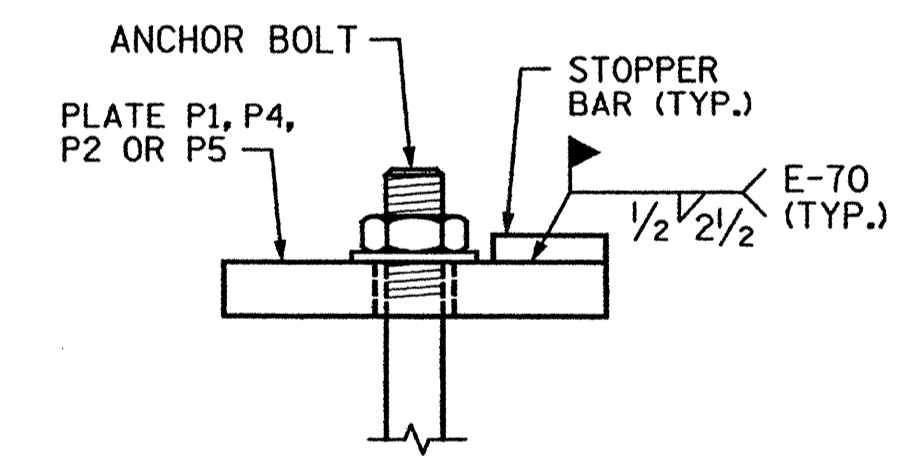
- EACH FIXED BEARING ASSEMBLY REQUIRES: 1 FIXED END PLATE P1 OR P4
1 SOLE PLATE P3
- EACH EXPANSION BEARING ASSEMBLY REQUIRES: 1 EXPANSION END PLATE P2 OR P5
1 SOLE PLATE P3



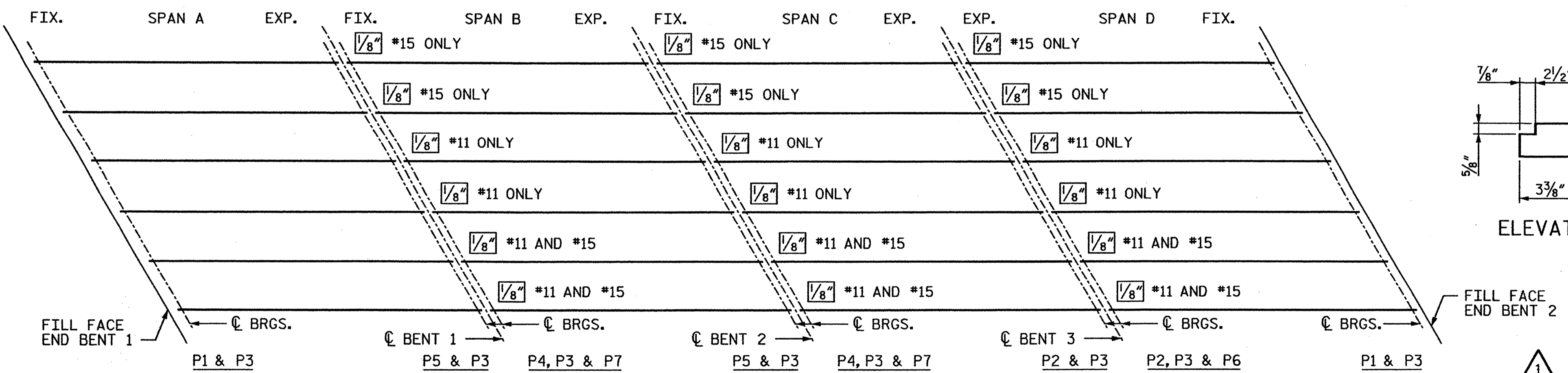
SOLE PLATE ATTACHMENT



STOPPER BAR DETAIL FOR BEARING PLATES



SECTION A-A



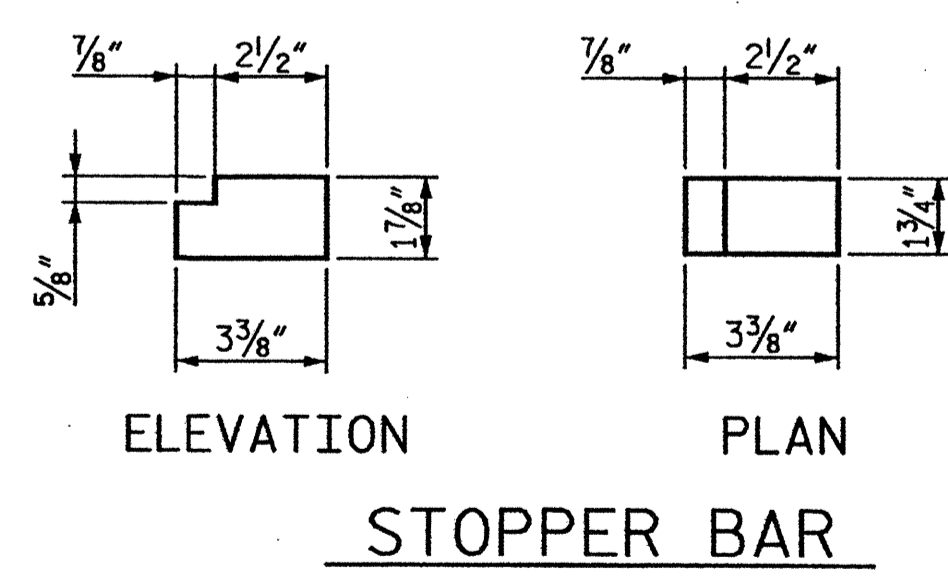
$\frac{1}{8}$ " - FILL PLATE THICKNESS AND LOCATION

BEARING ASSEMBLY LOCATIONS

DETAIL IS FOR INFORMATION ONLY. BEARING REPLACEMENT LOCATIONS ARE NOT TO BE ASSUMED FROM THIS DETAIL, THE ENGINEER SHALL DESIGNATE WHICH BEARINGS ARE TO BE REPLACED, SEE NOTES.

- BEARING REPAIR NOTES:**
- AFTER ALL BEARINGS ARE CLEANED, THE ENGINEER SHALL DESIGNATE THE BEARINGS TO BE REPLACED. ALL BEARINGS NOT REPLACED SHALL BE CLEANED AND PAINTED PER THE SPECIAL PROVISIONS.
 - THE BEARING REPLACEMENT LOCATIONS TABLE IS AN ESTIMATE, THE FINAL NUMBER OF REQUIRED BEARING REPLACEMENTS MAY VARY PER THE DISCRETION OF THE ENGINEER.
 - CONTRACTOR SHALL TAKE APPROPRIATE MEANS TO REMOVE EXISTING BEARING PLATE WITHOUT DAMAGING ANCHOR BOLTS SO THAT THE EXISTING ANCHOR BOLTS CAN BE REUSED.
 - THE CONTRACTOR MUST NOTIFY THE ENGINEER IF THE EXISTING ANCHOR BOLTS ARE DAMAGED OR HAVE ADVANCED SECTION LOSS REQUIRING REPLACEMENT.
 - AS PER AS-BUILT PLANS EXISTING ANCHOR BOLTS ARE 1/4" IN DIAMETER.
 - STEEL FOR BEARINGS SHALL BE AASHTO M270 GRADE 50W.
 - NEW ANCHOR RODS IF REQUIRED SHALL MEET THE REQUIREMENTS OF ASTM A449. NEW NUTS IF REQUIRED SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR RODS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.
 - FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
 - ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS. WELD MATERIAL SHALL BE E70XX.

BEARING REPLACEMENT LOCATIONS (ESTIMATED)	
BRIDGE #11	
END BENT 1:	3 BEARINGS
BENT 1:	6 BEARINGS
BENT 2:	6 BEARINGS
BENT 3:	6 BEARINGS
END BENT 2:	3 BEARINGS
BRIDGE #15	
END BENT 1:	3 BEARINGS
BENT 1:	6 BEARINGS
BENT 2:	6 BEARINGS
BENT 3:	6 BEARINGS
END BENT 2:	3 BEARINGS



STOPPER BAR

- REVISIED NOTE 1
ADDED NOTE 2
ADDED NOTE TO BEARING ASSEMBLY LOCATIONS DETAIL



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NC License No. F-0991

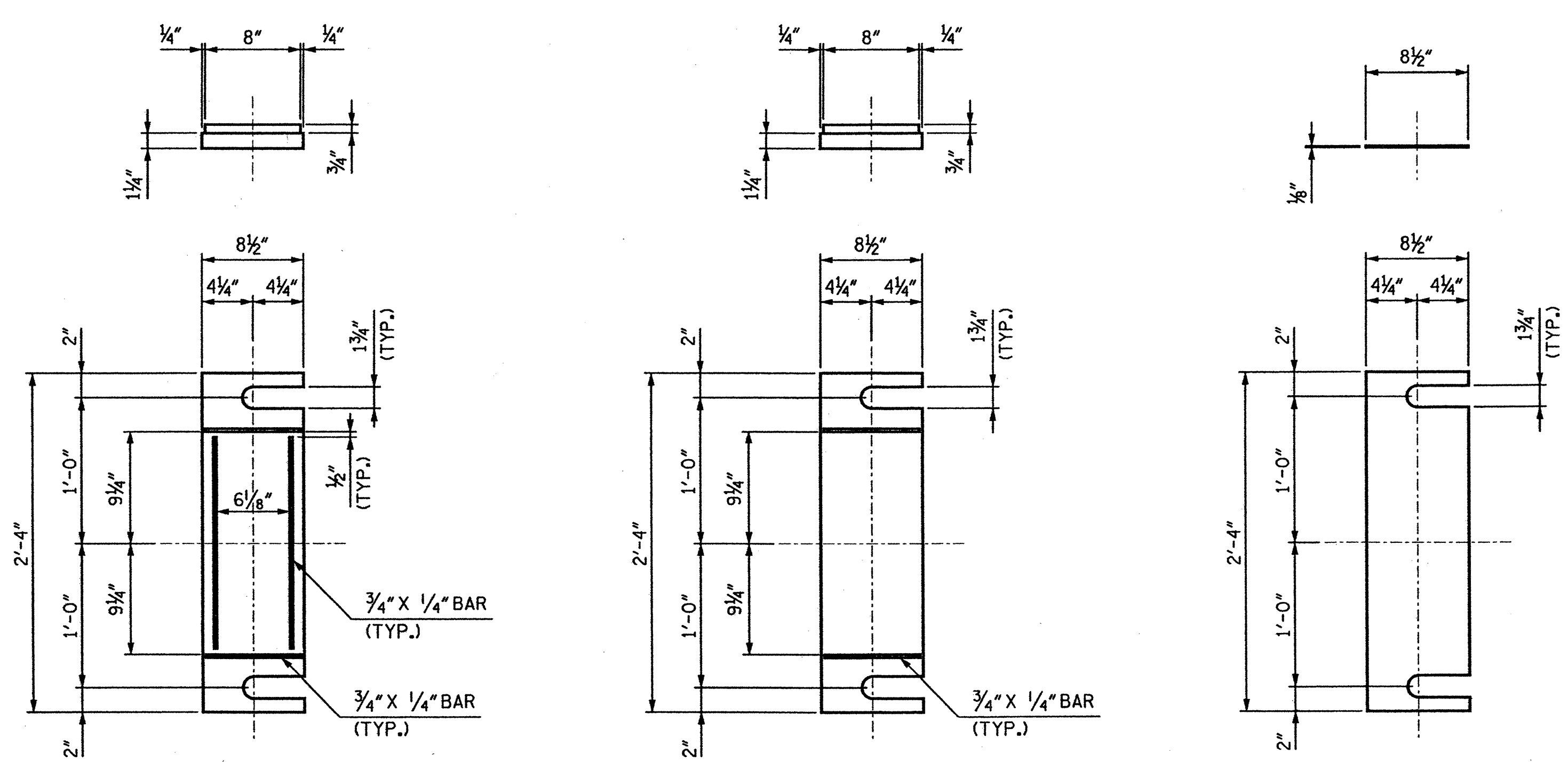
PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
BRIDGE NO.: 11 & 15
REHAB. OF BRIDGE NO. 11 & 15 SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BEARING DETAIL FOR BRIDGES 11 & 15					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	STV	03-12	3		
2			4		

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

SHEET NO. S-27
TOTAL SHEETS S-50

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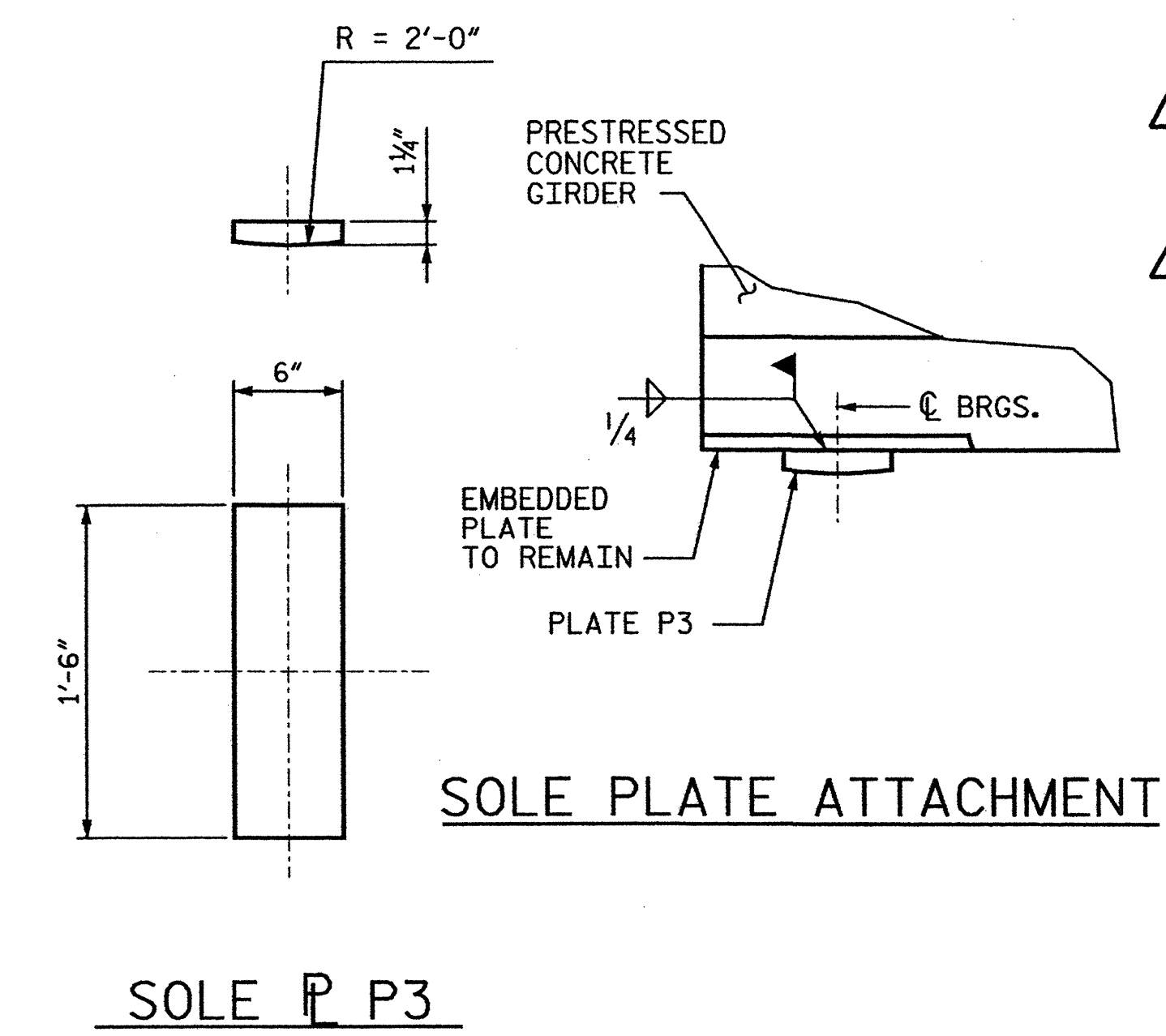
FIXED END P1

EXP. END P2

FILL P4

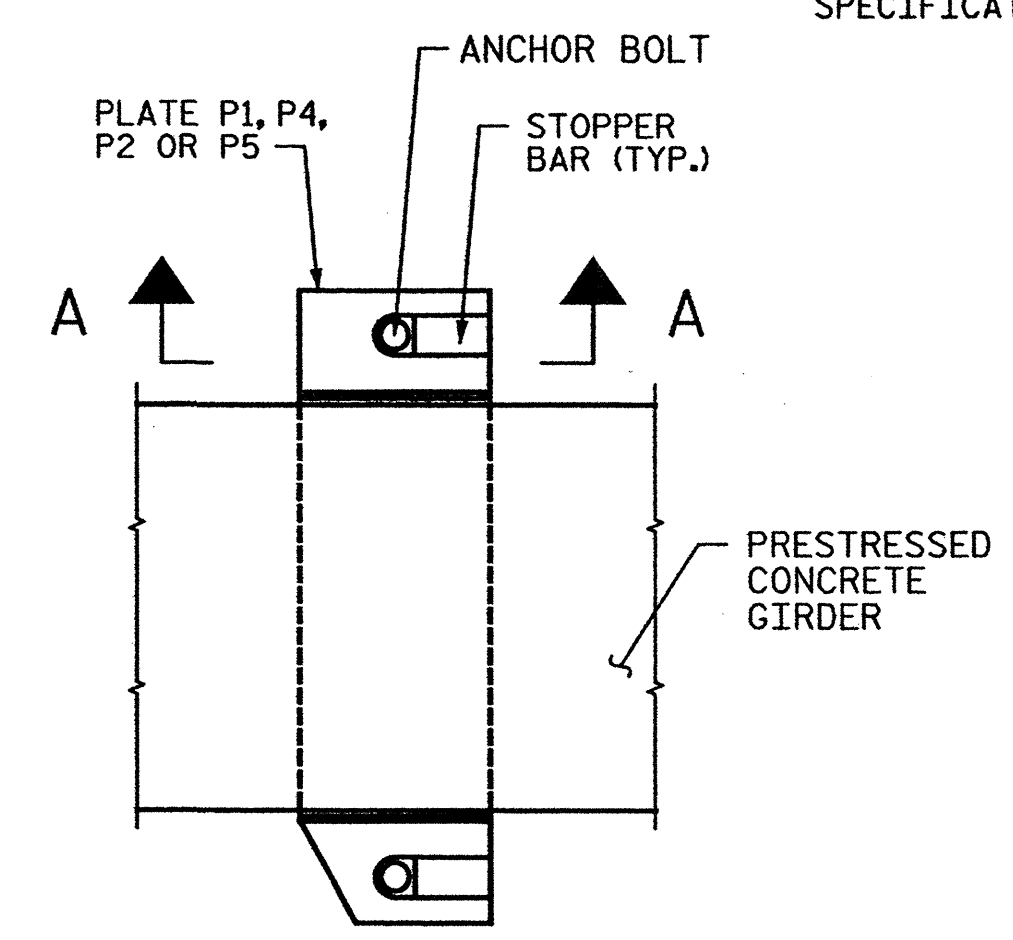
BEARING PLATE DETAILS

- EACH FIXED BEARING ASSEMBLY REQUIRES: 1 FIXED END PLATE P1
1 SOLE PLATE P3
- EACH EXPANSION BEARING ASSEMBLY REQUIRES: 1 EXPANSION END PLATE P2
1 SOLE PLATE P3

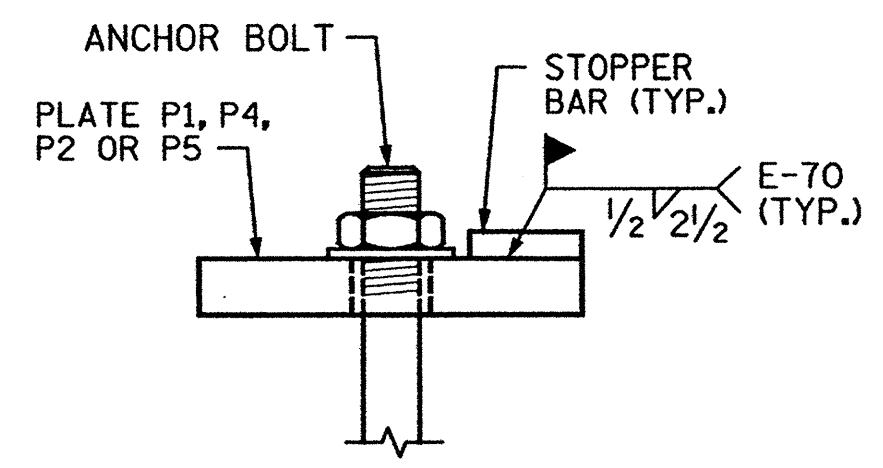


SOLE PLATE ATTACHMENT

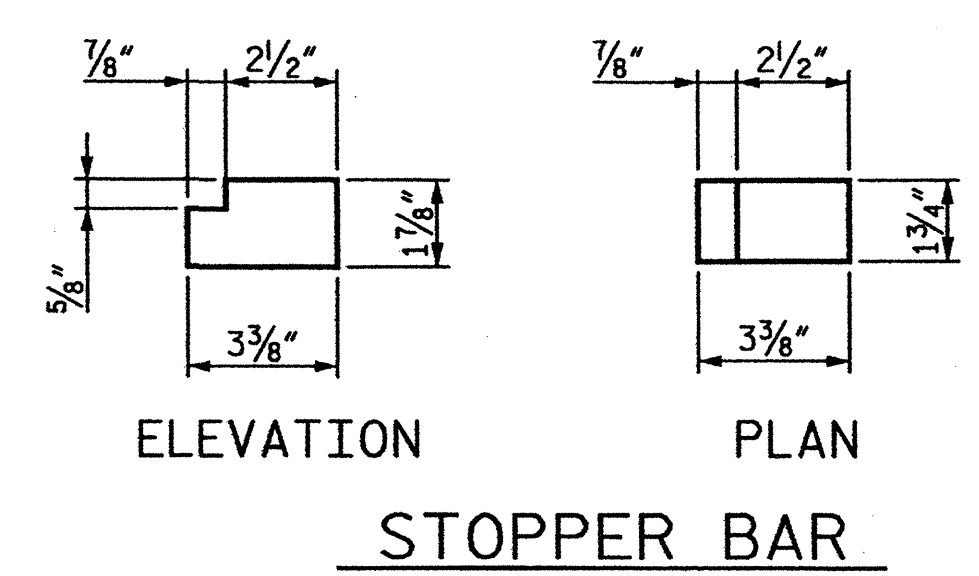
SOLE P P3



STOPPER BAR DETAIL FOR BEARING PLATES



SECTION A-A



STOPPER BAR

- BEARING REPAIR NOTES:**
1. AFTER ALL BEARINGS ARE CLEANED, THE ENGINEER SHALL DESIGNATE THE BEARINGS TO BE REPLACED. ALL BEARINGS NOT REPLACED SHALL BE CLEANED AND PAINTED PER THE SPECIAL PROVISIONS.
 2. THE BEARING REPLACEMENT LOCATIONS TABLE IS AN ESTIMATE, THE FINAL NUMBER OF REQUIRED BEARING REPLACEMENTS MAY VARY PER THE DISCRETION OF THE ENGINEER.
 3. CONTRACTOR SHALL TAKE APPROPRIATE MEANS TO REMOVE EXISTING BEARING PLATE WITHOUT DAMAGING ANCHOR BOLTS SO THAT THE EXISTING ANCHOR BOLTS CAN BE REUSED.
 4. THE CONTRACTOR MUST NOTIFY THE ENGINEER IF THE EXISTING ANCHOR BOLTS ARE DAMAGED OR HAVE ADVANCED SECTION LOSS REQUIRING REPLACEMENT.
 5. AS PER AS-BUILT PLANS EXISTING ANCHOR BOLTS ARE 1/4" IN DIAMETER.
 6. STEEL FOR BEARINGS SHALL BE AASHTO M270 GRADE 50W.
 7. NEW ANCHOR RODS IF REQUIRED SHALL MEET THE REQUIREMENTS OF ASTM A449. NEW NUTS IF REQUIRED SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR RODS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.
 8. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
 9. ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS. WELD MATERIAL SHALL BE ETOXX.

BEARING REPLACEMENT LOCATIONS (ESTIMATED)	
BRIDGE #59	
END BENT 1:	2 BEARINGS
BENT 1:	2 BEARINGS
BENT 2:	2 BEARINGS
END BENT 2:	2 BEARINGS
BRIDGE #61	
END BENT 1:	2 BEARINGS
BENT 1:	2 BEARINGS
BENT 2:	2 BEARINGS
END BENT 2:	2 BEARINGS

FIX.	SPAN A	EXP.	FIX.	SPAN B	EXP.	EXP.	SPAN C	FIX.
			$\frac{1}{8}$ " #59 AND #61			$\frac{1}{8}$ " #59 AND #61		
			$\frac{1}{8}$ " #59 AND #61			$\frac{1}{8}$ " #59 AND #61		
			$\frac{1}{8}$ " #59 AND #61			$\frac{1}{8}$ " #59 AND #61		
			$\frac{1}{8}$ " #59 AND #61			$\frac{1}{8}$ " #59 AND #61		
			$\frac{1}{8}$ " #59 AND #61			$\frac{1}{8}$ " #59 AND #61		
			$\frac{1}{8}$ " #59 AND #61			$\frac{1}{8}$ " #59 AND #61		
			$\frac{1}{8}$ " #59 AND #61			$\frac{1}{8}$ " #59 AND #61		
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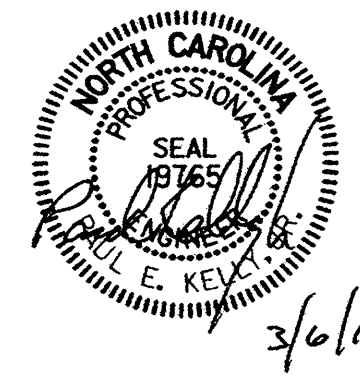
P1 & P3 C BENT 1 P2 & P3 P1, P3 & P4 C BENT 2 P2 & P3 P2, P3 & P4 C BENT 3 P1 & P3

$\frac{1}{8}$ " - FILL PLATE THICKNESS AND LOCATION

BEARING ASSEMBLY LOCATIONS

DETAIL IS FOR INFORMATION ONLY. BEARING REPLACEMENT LOCATIONS ARE NOT TO BE ASSUMED FROM THIS DETAIL, THE ENGINEER SHALL DESIGNATE WHICH BEARINGS ARE TO BE REPLACED, SEE NOTES.

- REVISOR 1
ADDED NOTE 2
ADDED NOTE TO BEARING ASSEMBLY LOCATIONS DETAIL
REVISED BEARING REPLACEMENT LOCATIONS TABLE



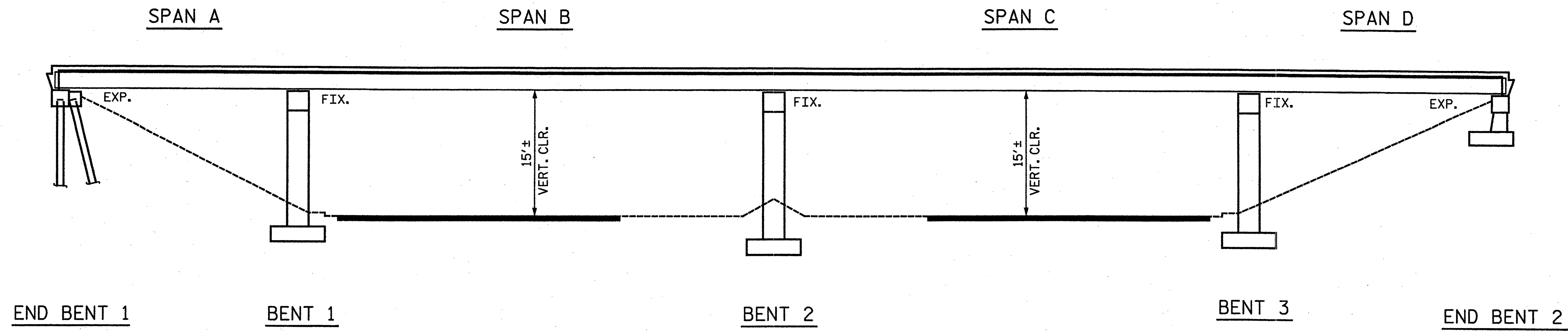
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NC License No. F-0991

PROJECT NO. **17BP.7.P.3**
ROCKINGHAM COUNTY
BRIDGE NO.: **59 & 61**
REHAB. OF BRIDGE NO. 59 & 61 SHEET 3 OF 3

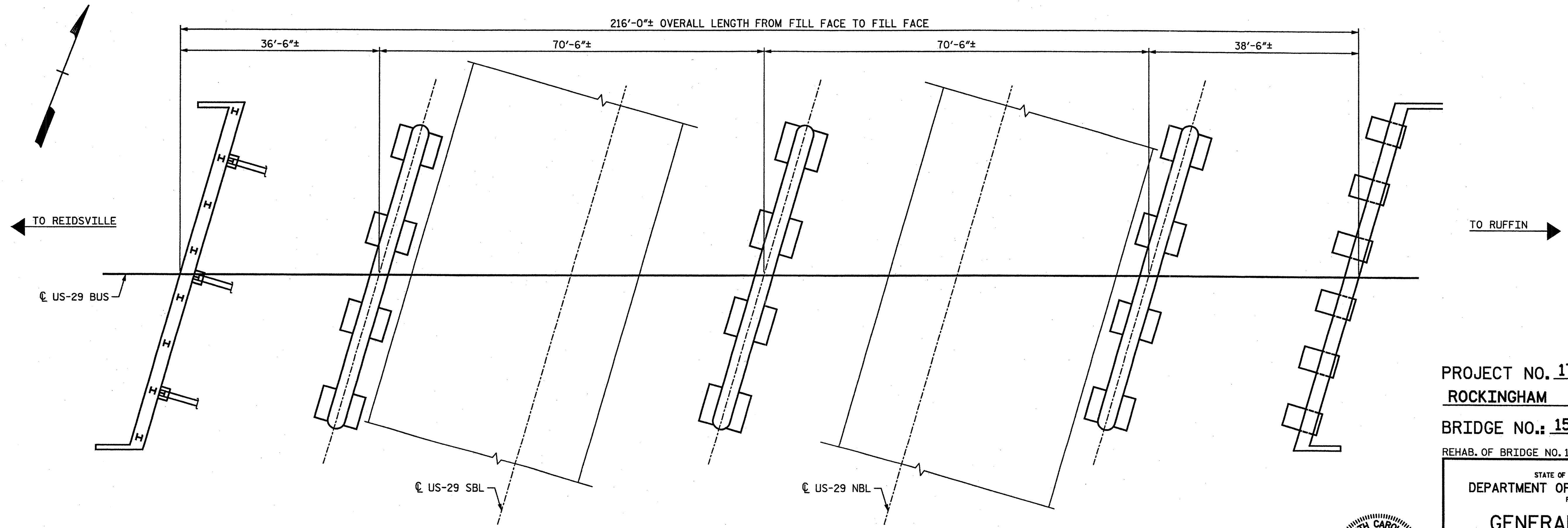
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BEARING DETAIL FOR BRIDGES 59 & 61					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	STV	03-12	3		
2			4		

SHEET NO. S-28
TOTAL SHEETS S-50

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



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

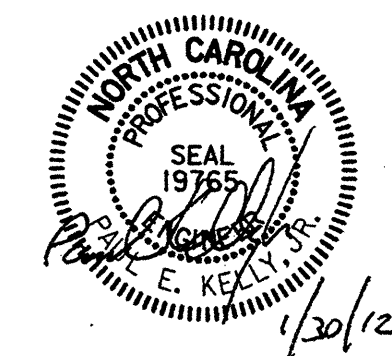


PLAN

NOTE:
 SEE SHEET NO. S-1 OF S-50 FOR GENERAL NOTES.
 SEE BRIDGE NO. 152 SHEET 5 OF 7 FOR ADDITIONAL NOTES.

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 152
 REHAB. OF BRIDGE NO. 152 SHEET 1 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL PLAN &
 ELEVATION**
 BRIDGE ON US 29 BUS
 OVER US 29



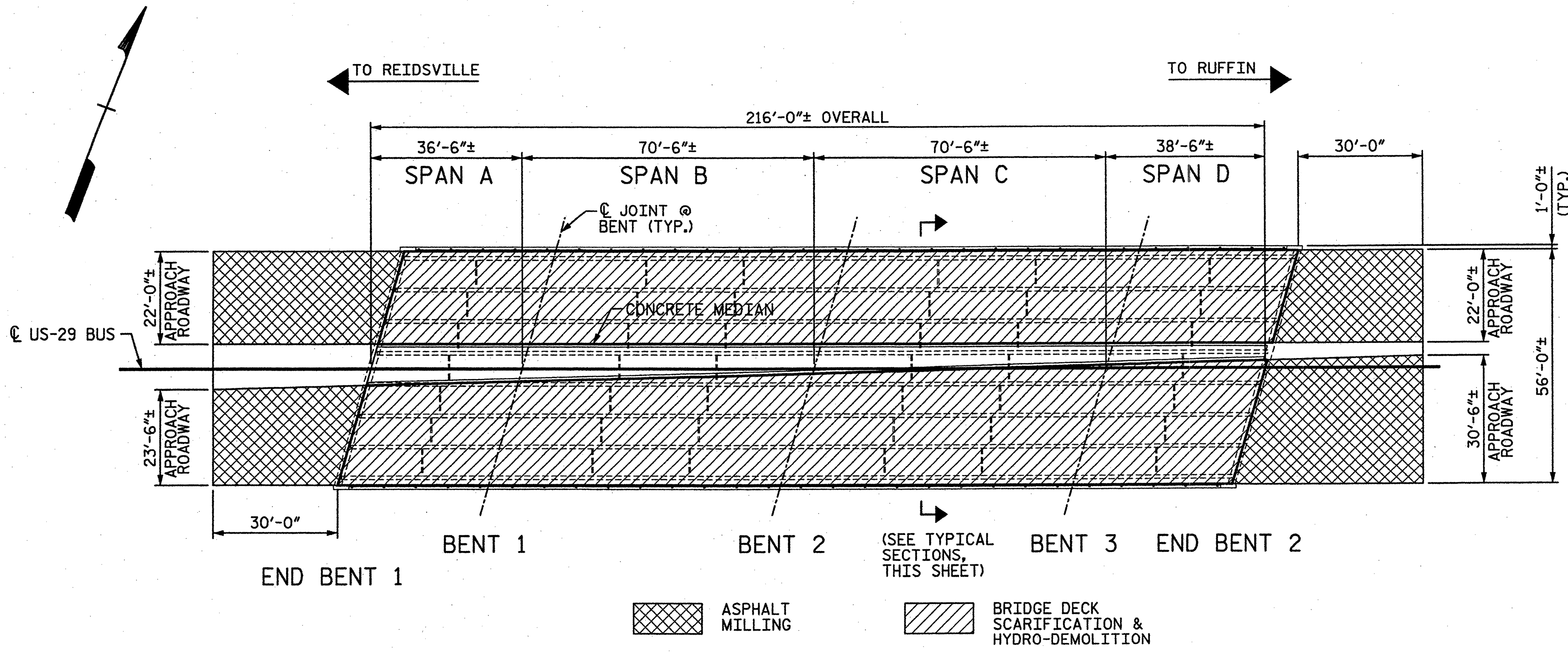
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			S-50

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 1/30/2012
 wlvvm

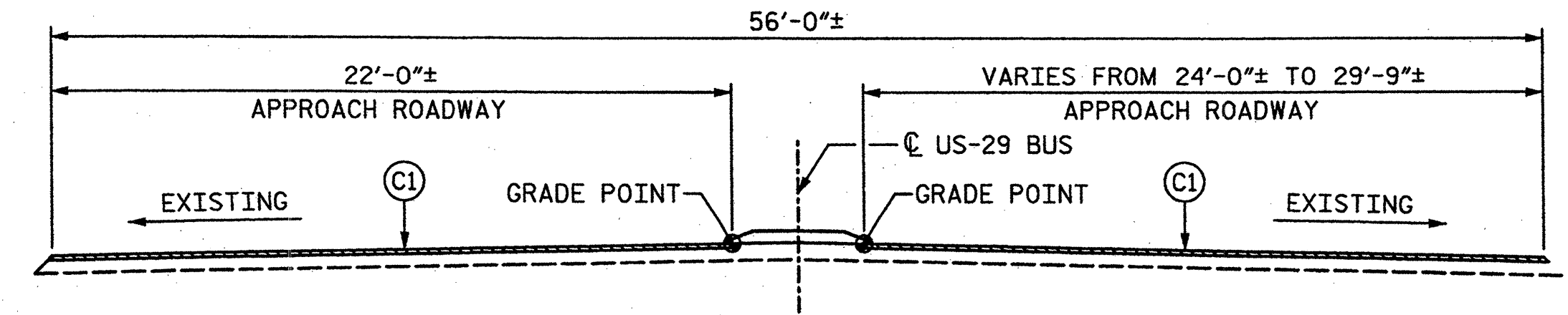
DRAWN BY : AR DATE : 10-11
 CHECKED BY : AC DATE : 10-11

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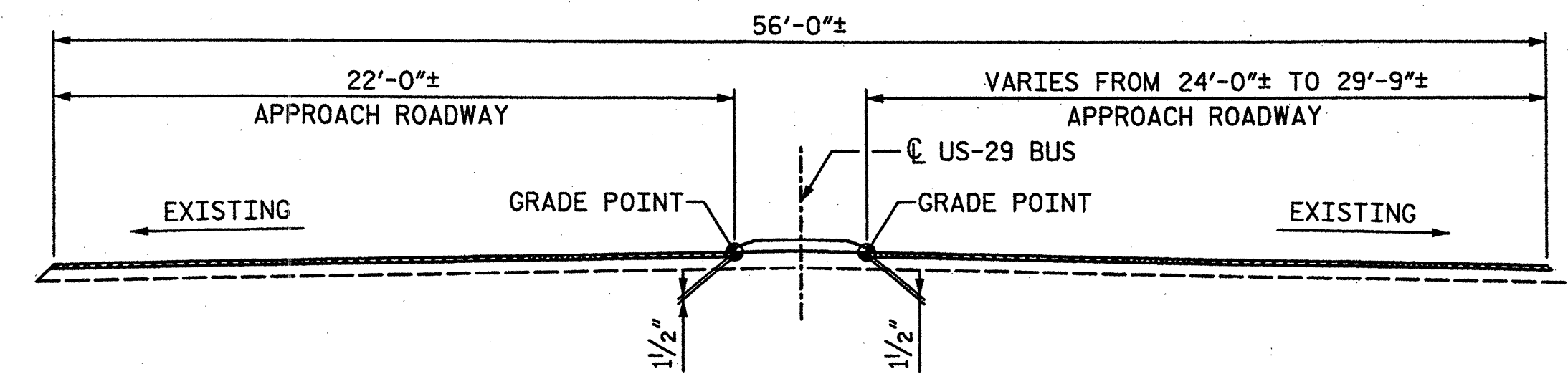


PLAN OF SPANS - DECK SCARIFICATION & HYDRO-DEMOLITION

(CONCRETE BRIDGE FLOORS SHALL BE GROOVED IN ACCORDANCE WITH SECTION 420-14 OF THE STANDARD SPECIFICATION)



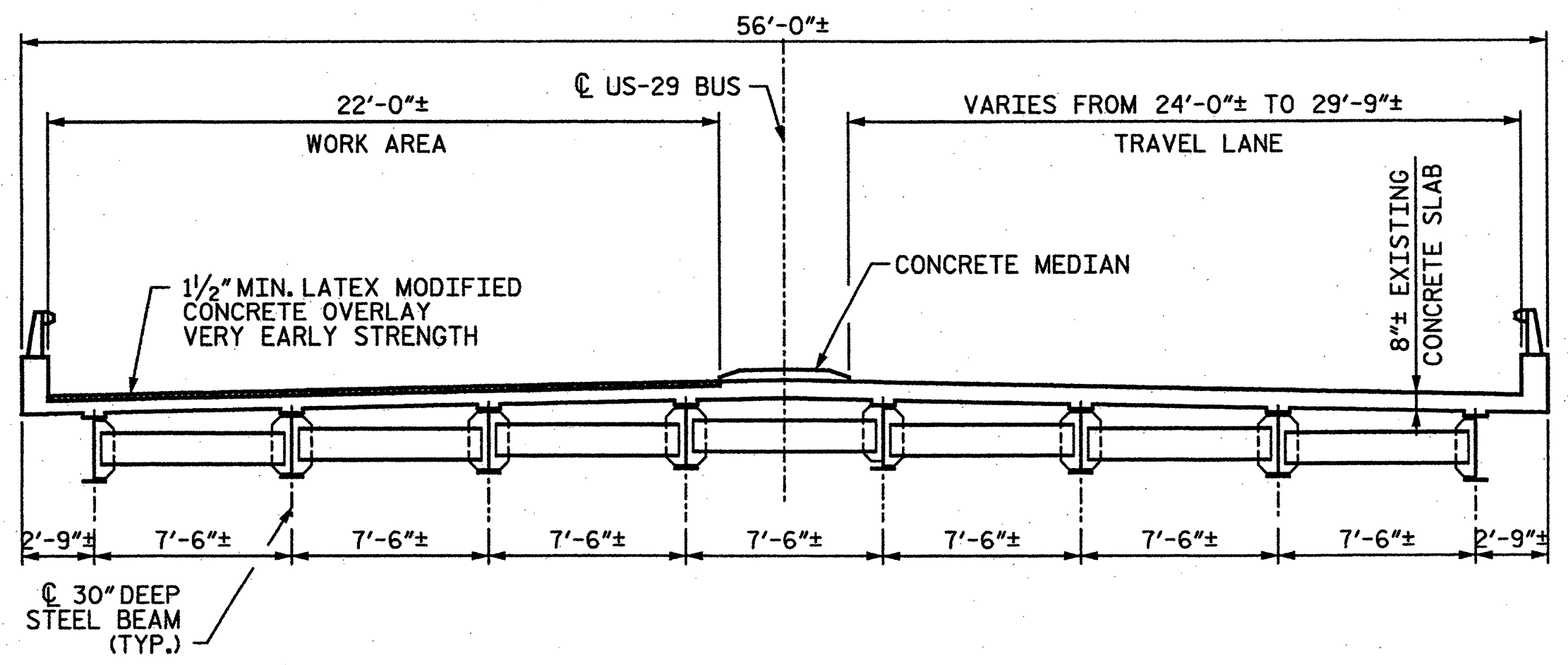
TYPICAL ROADWAY SECTION



TYPICAL ROADWAY MILLING SECTION

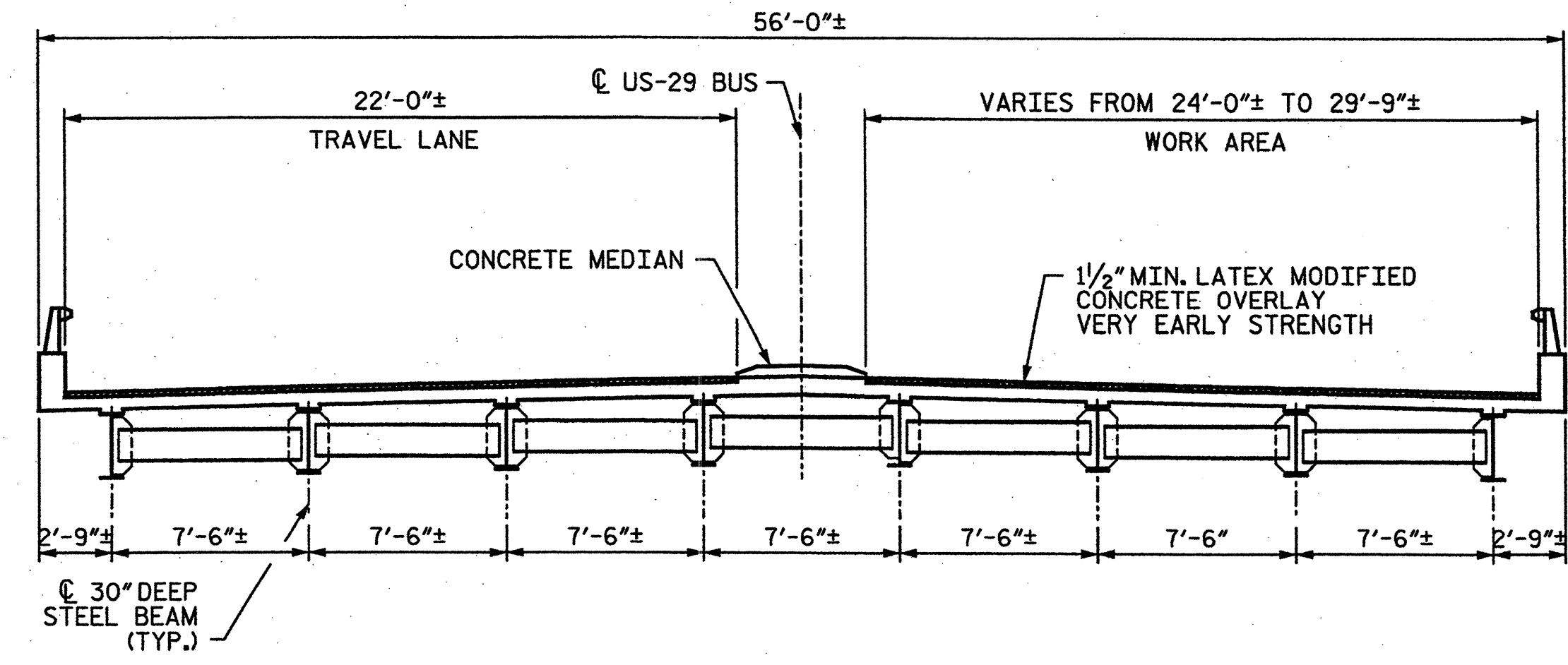
(MILL TO 1/2" MIN. DEPTH)

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

(AT INTERMEDIATE DIAPHRAGMS)



TYPICAL SECTION - STAGE II

(AT INTERMEDIATE DIAPHRAGMS)

TOTAL BILL OF MATERIAL									
INCIDENTAL MILLING	DECK SCARIFICATION	*CLASS II SURFACE PREPARATION	*CLASS AA CONCRETE (MEDIAN REPAIR)	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE OVERLAY VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONCRETE OVERLAY VERY EARLY STRENGTH	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	GROOVING BRIDGE FLOORS	EPOXY RESIN INJECTION
SQ. YDS.	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	TON	SQ. FT.	LIN. FT.
415	1,176	67	4	1,176	50	1,176	33	9,300	358

* QUANTITIES FOR INFORMATION ONLY.

NOTES:
 FOR ADDITIONAL MILLING DETAIL, SEE SHEET 5 OF 7.
 PER EXISTING PLANS, THE ESTIMATED AVERAGE REBAR COVER FOR THE EXISTING DECK IS 1/4".

PROJECT NO. 17BP.7.P.3
 ROCKINGHAM COUNTY
 BRIDGE NO.: 152

REHAB. OF BRIDGE NO. 152 SHEET 2 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
PLAN OF SPANS & TYPICAL SECTION
 BRIDGE ON US 29 BUS OVER US 29



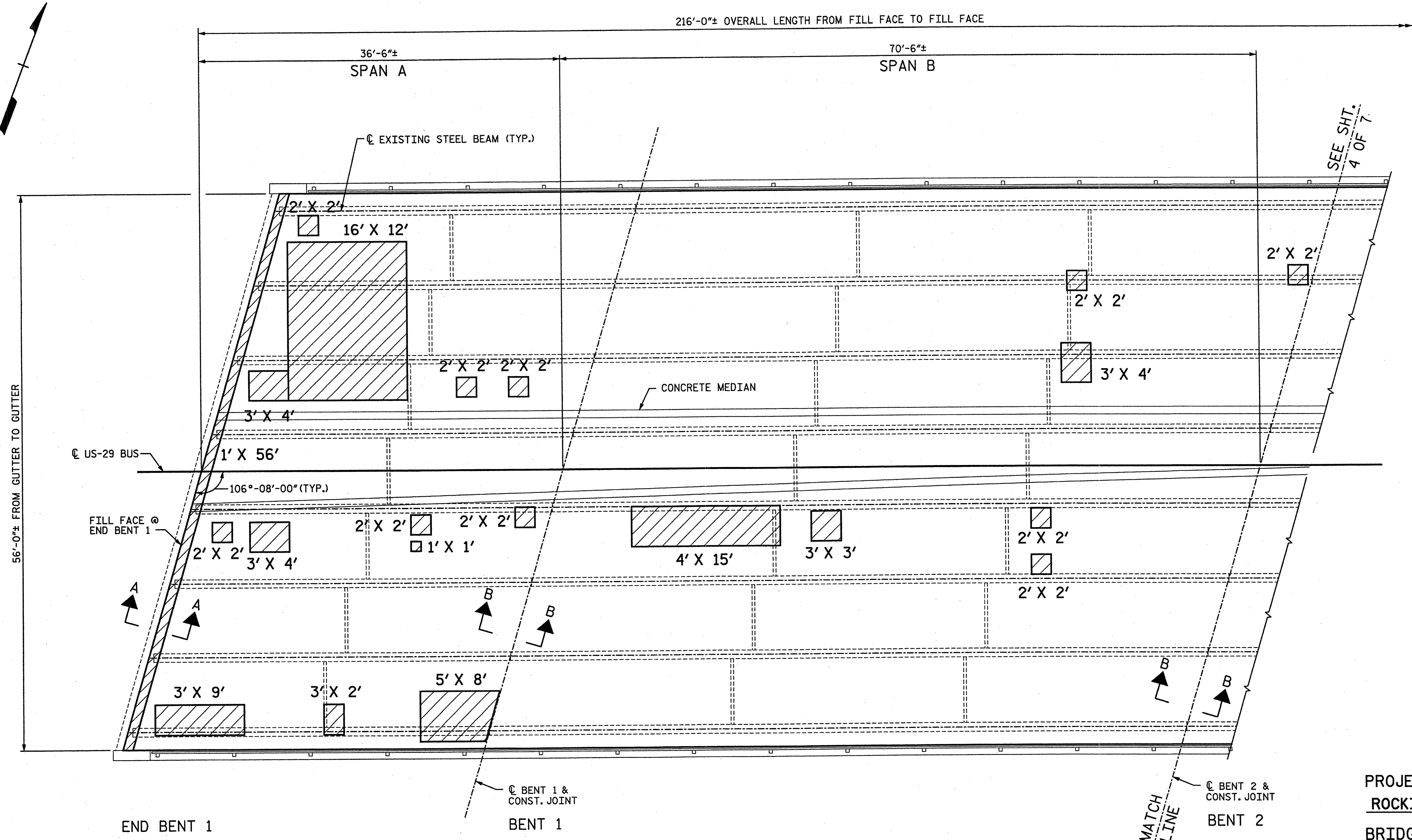
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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30	
1			3			TOTAL SHEETS	
2			4			S-50	

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

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1/30/2012 wlv/m



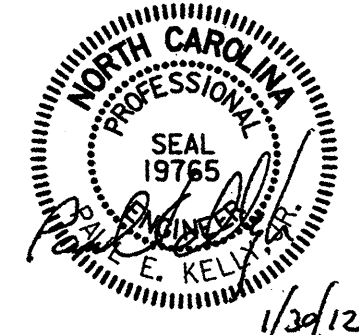
APPROX. AREA: CLASS II REPAIR

NOTE:
SEE NOTES ON SHEET 5 OF 7.

PARTIAL PLAN OF SPANS - DECK REPAIRS
(SEE SHEET 5 OF 7 FOR SECTIONS)

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 152
 REHAB. OF BRIDGE NO. 152 SHEET 3 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS A & B
 DECK REPAIRS**
 BRIDGE ON US 29 BUS
 OVER US 29



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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31	
1			3			TOTAL SHEETS	
2			4			S-50	

216'-0"± OVERALL LENGTH FROM FILL FACE TO FILL FACE

70'-6"±
SPAN C

38'-6"±
SPAN D

EXISTING STEEL BEAM (TYP.)

SEE SHT.
3 OF 7

5' X 6'

2' X 2'

2' X 2'

CONCRETE MEDIAN

40' MEDIAN REPAIR

56'-0"± FROM GUTTER TO GUTTER

US-29 BUS

106°-08'-00" (TYP.)

2' X 2'

3' X 3'

2' X 2'

4' X 2'

2' X 2'

4' X 2'

4' X 2'

1' X 56'

FILL FACE @
END BENT 2

MATCH LINE
BENT 2
BENT 2 &
CONST. JOINT

BENT 3
BENT 3 &
CONST. JOINT

END BENT 2

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
BRIDGE NO.: 152

REHAB. OF BRIDGE NO. 152 SHEET 4 OF 7

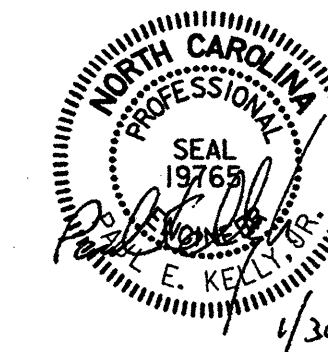
PARTIAL PLAN OF SPANS - DECK REPAIRS

(SEE SHEET 5 OF 7 FOR SECTIONS)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS C & D DECK REPAIRS

BRIDGE ON US 29 BUS
OVER US 29



APPROX. AREA:
CLASS II REPAIR

APPROX. AREA:
MEDIAN REPAIR
CLASS AA CONCRETE

NOTE:
SEE NOTES ON SHEET 5 OF 7.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-32
2			4			TOTAL SHEETS S-50

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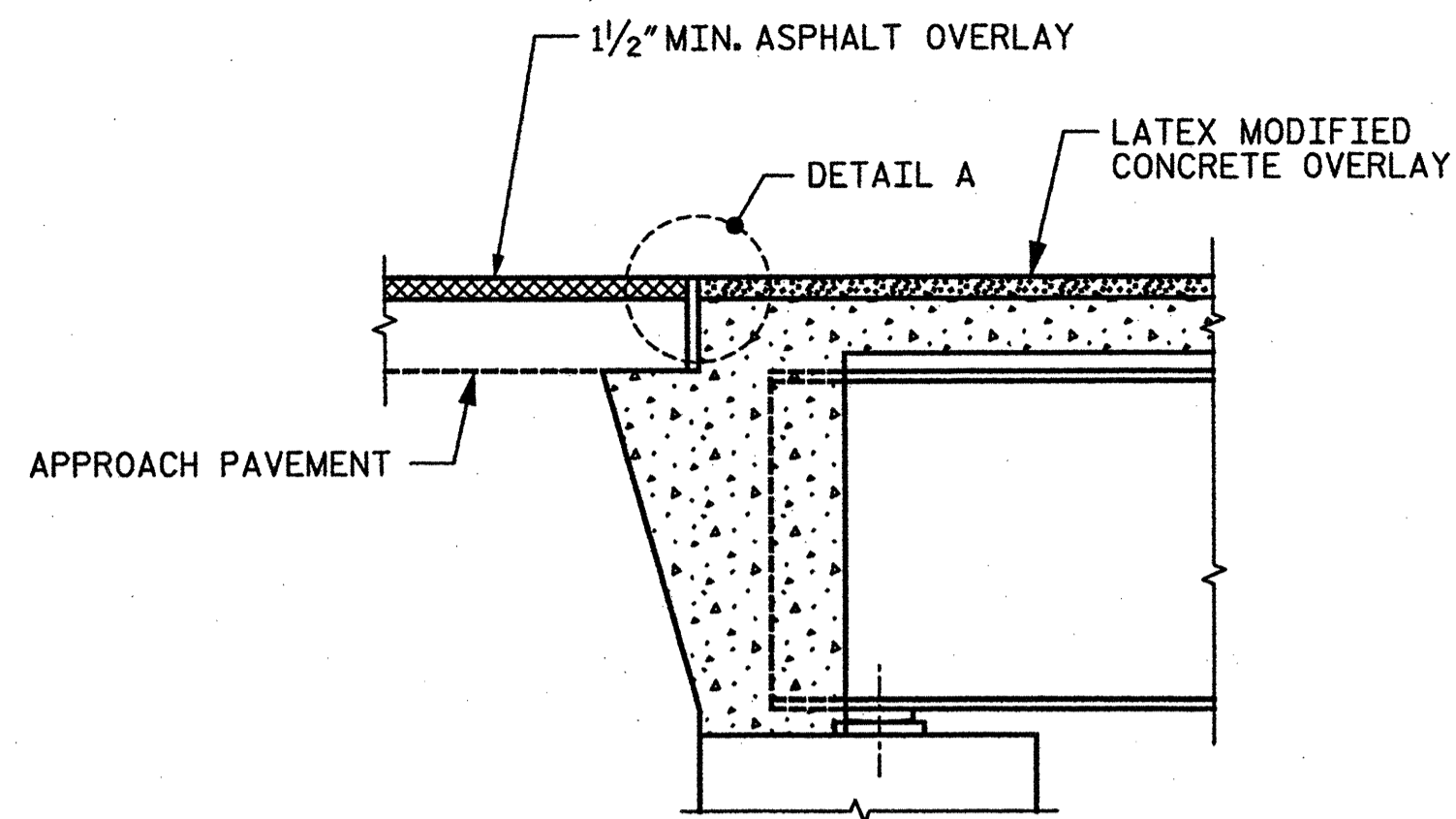
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wjwm

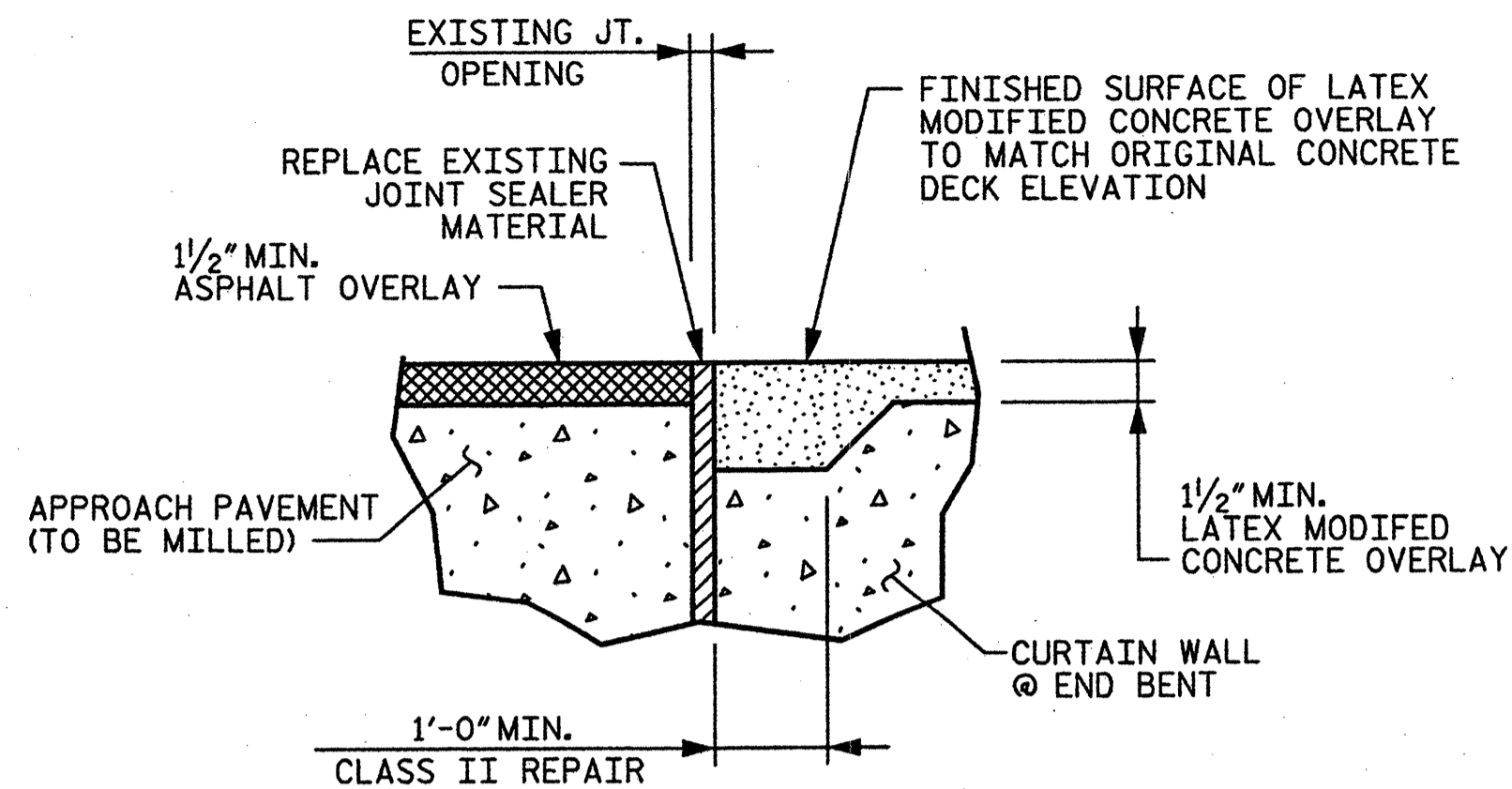
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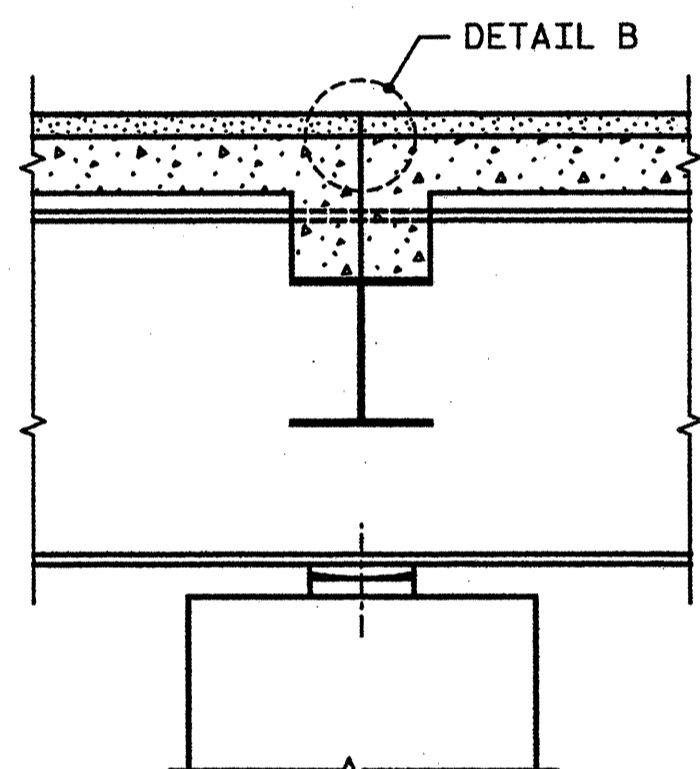
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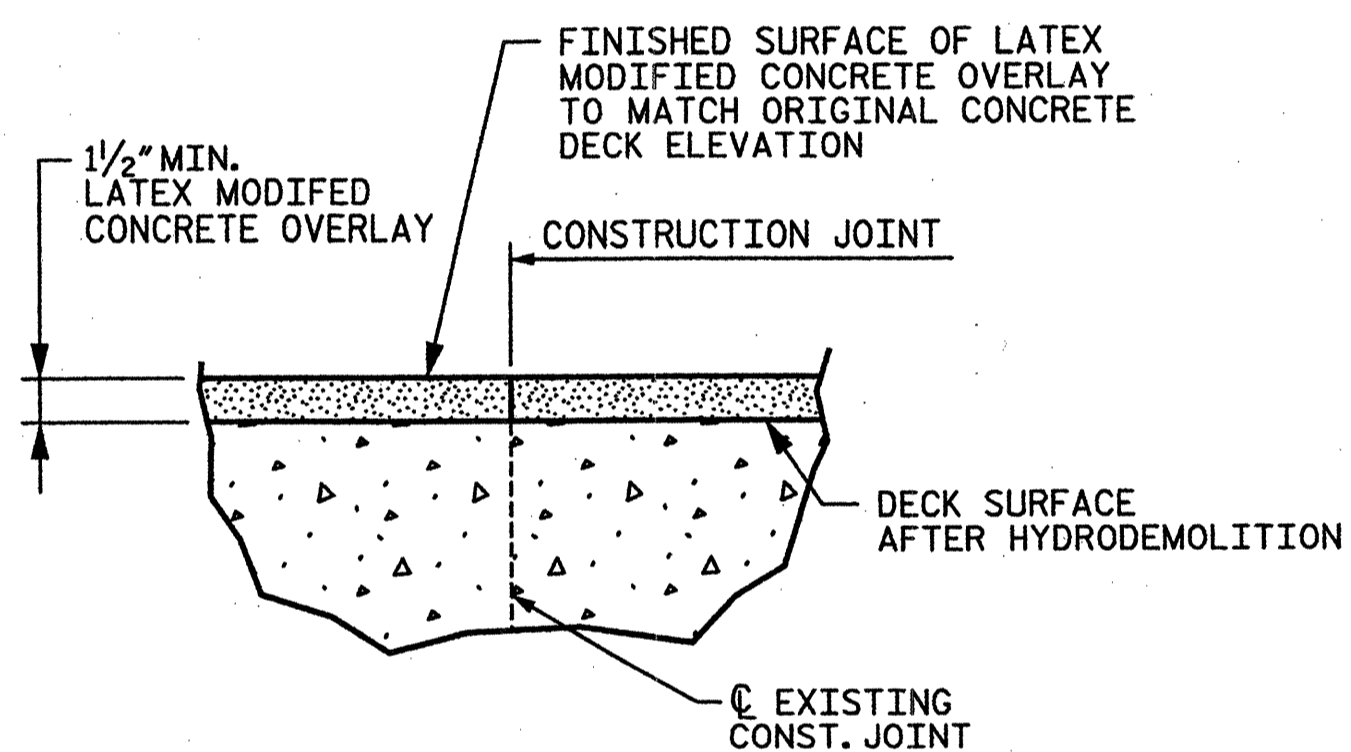
SECTION A-A
(PROPOSED JOINT @ END BENT 1 AND END BENT 2)



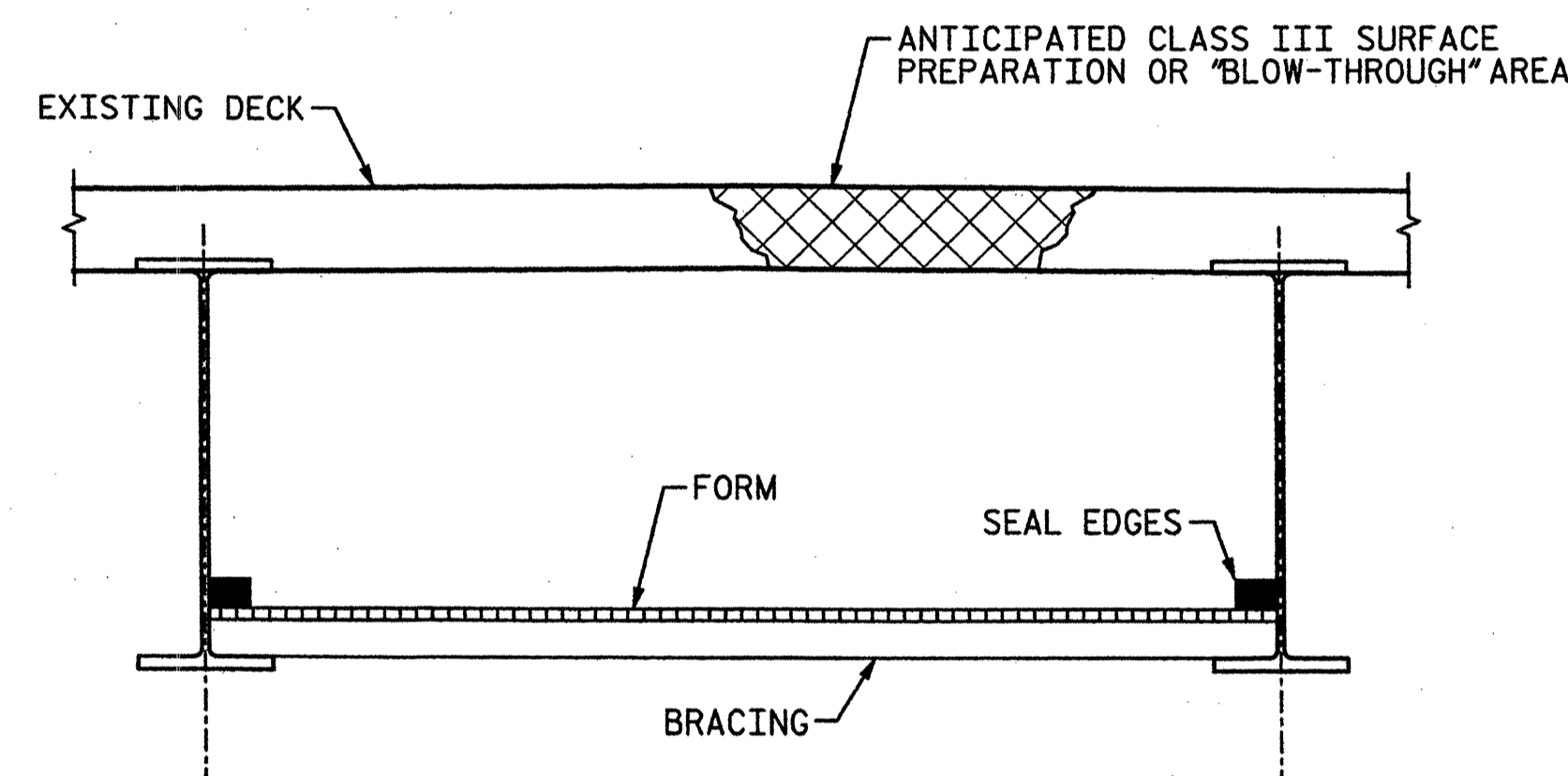
DETAIL A
(LOCATION OF JOINT TO MATCH EXISTING JOINT LOCATION)



SECTION B-B
(PROPOSED JOINT @ INTERIOR BENTS)

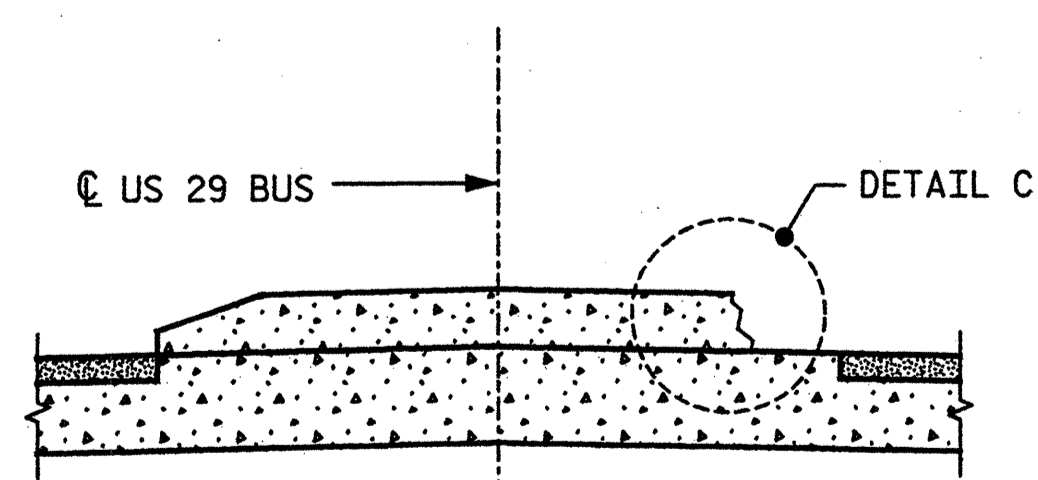


DETAIL B
(LOCATION OF JOINT TO MATCH EXISTING JOINT LOCATION)

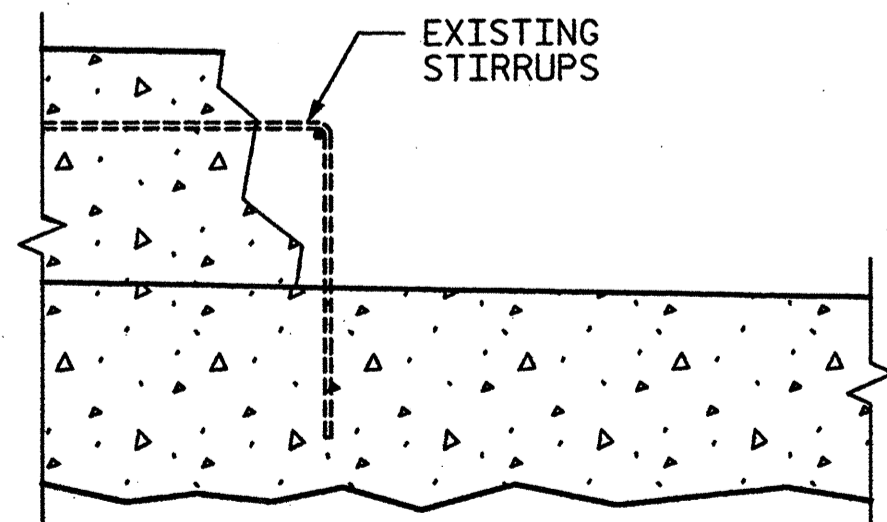


TYP. "BLOW-THROUGH" CONTAINMENT AND FORMWORK

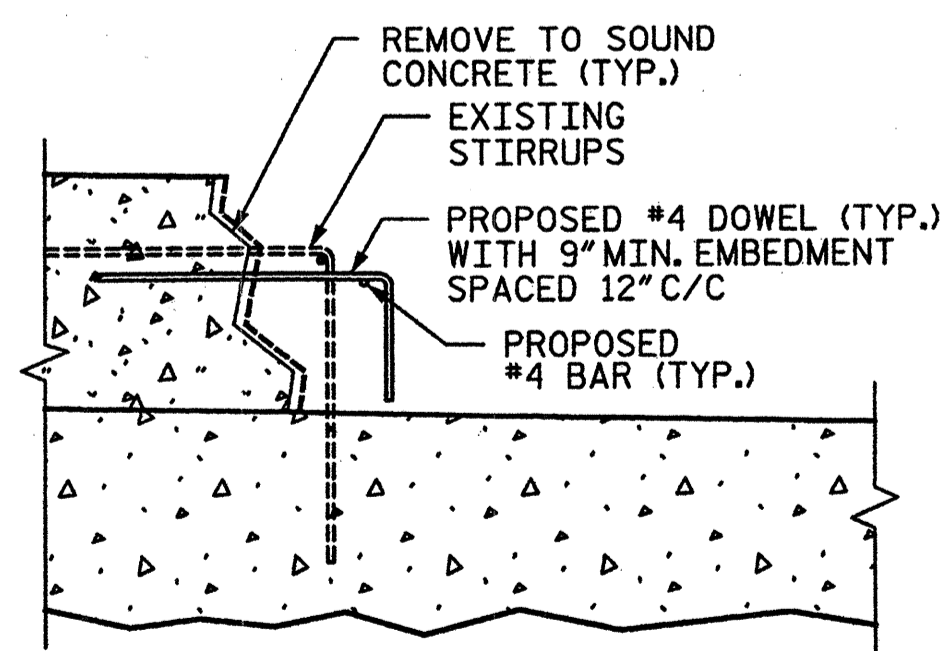
A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.
SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.
COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



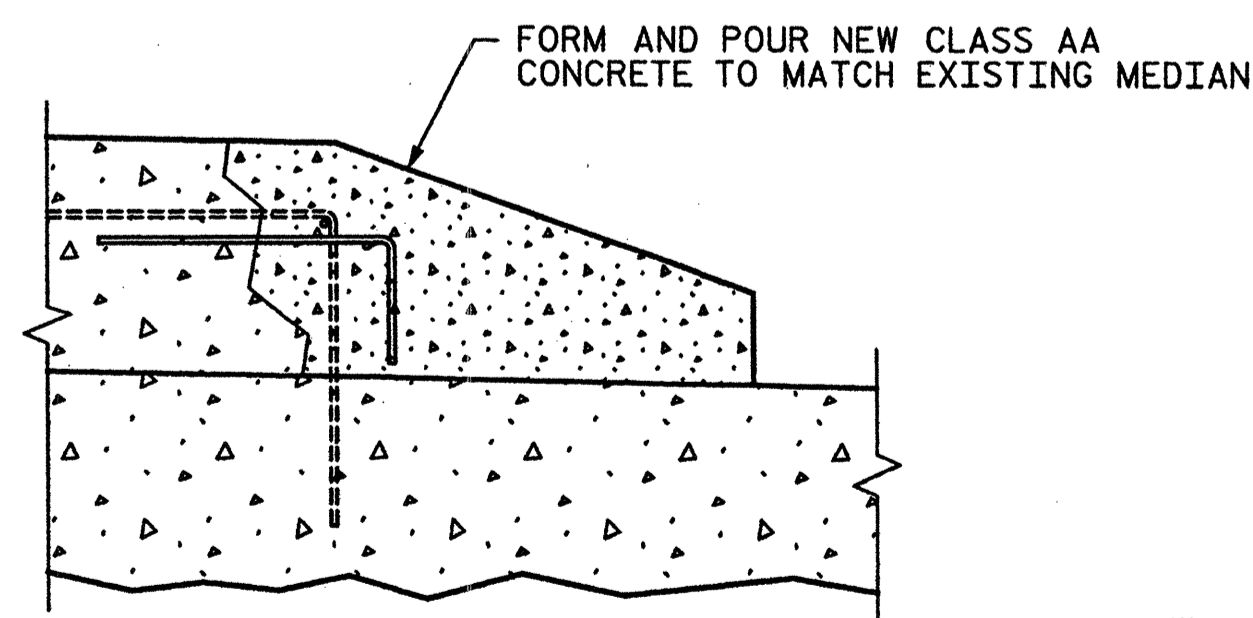
SECTION C-C
(MEDIAN REPAIR)



EXISTING CONDITION



REMOVE EXISTING CONCRETE



POUR NEW CONCRETE

DETAIL C

NOTES:

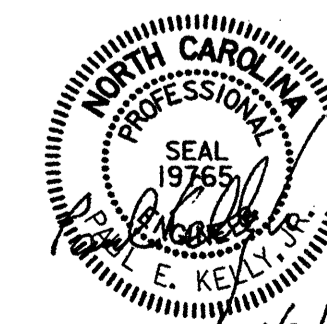
- LATEX MODIFIED CONCRETE OVERLAY SHALL BE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH. SEE SPECIAL PROVISIONS.
- FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE CONTAINMENT FOR UNEXPECTED BLOW-THROUGH OF THE DECK. SEE DETAIL ON THIS SHEET AND SPECIAL PROVISIONS.
- CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
- 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.
- MEDIAN REPAIRS SHALL USE CLASS AA CONCRETE WITH FORMWORK USED DURING POURING.
- EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.

PROJECT NO. **17BP.7.P.3**
ROCKINGHAM COUNTY
BRIDGE NO.: **152**

REHAB. OF BRIDGE NO. 152 SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
DECK REPAIR DETAILS

BRIDGE ON US 29 BUS
OVER US 29



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CHECKED BY: **AC** DATE: **10-11**

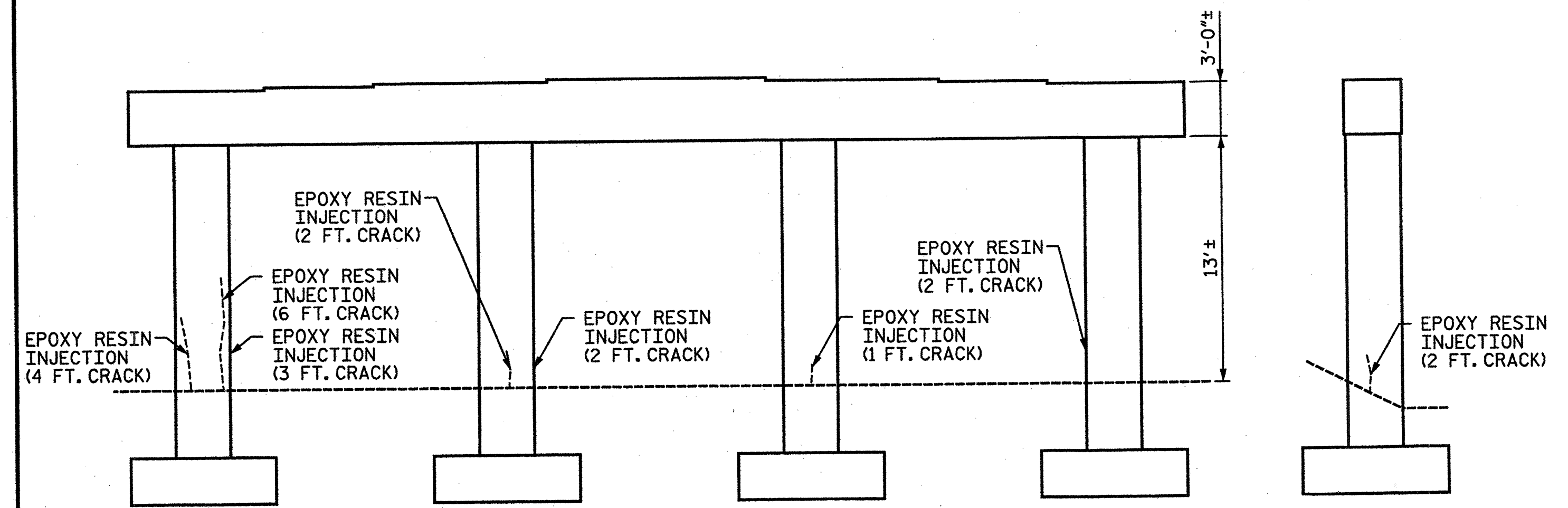
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-33
2			4			TOTAL SHEETS S-50

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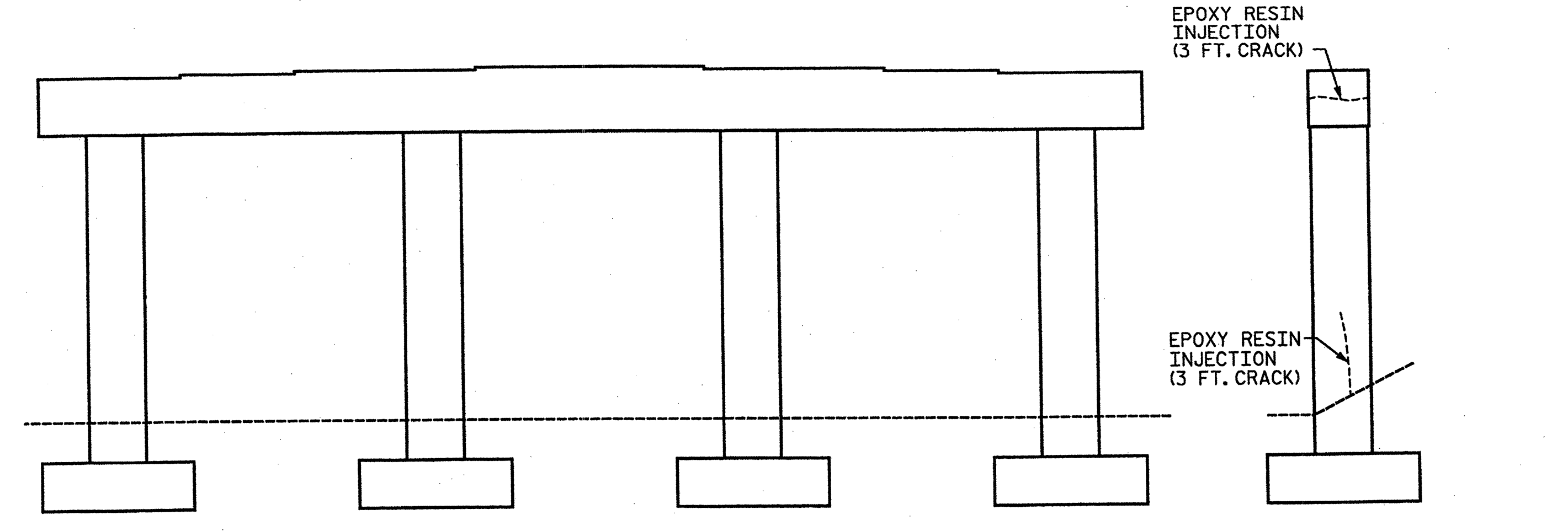
1/30/2012

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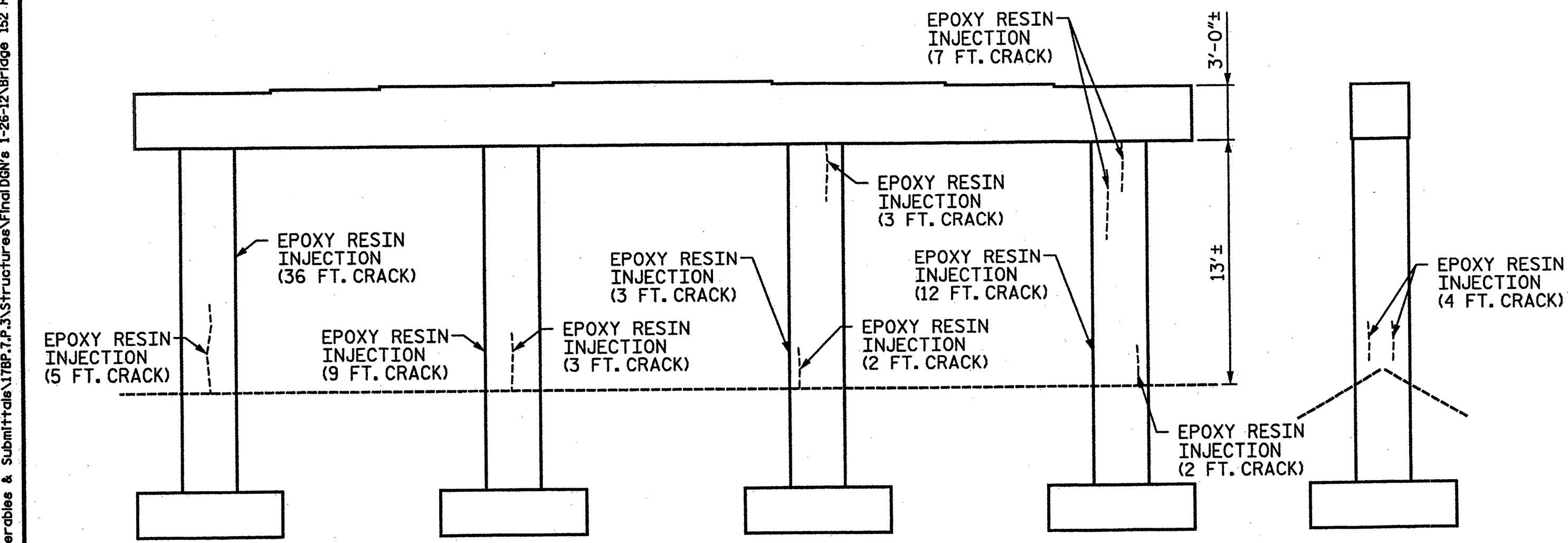
ELEVATION OF BENT 1 - LOOKING EAST *

END VIEW OF BENT 1 LOOKING NORTH *



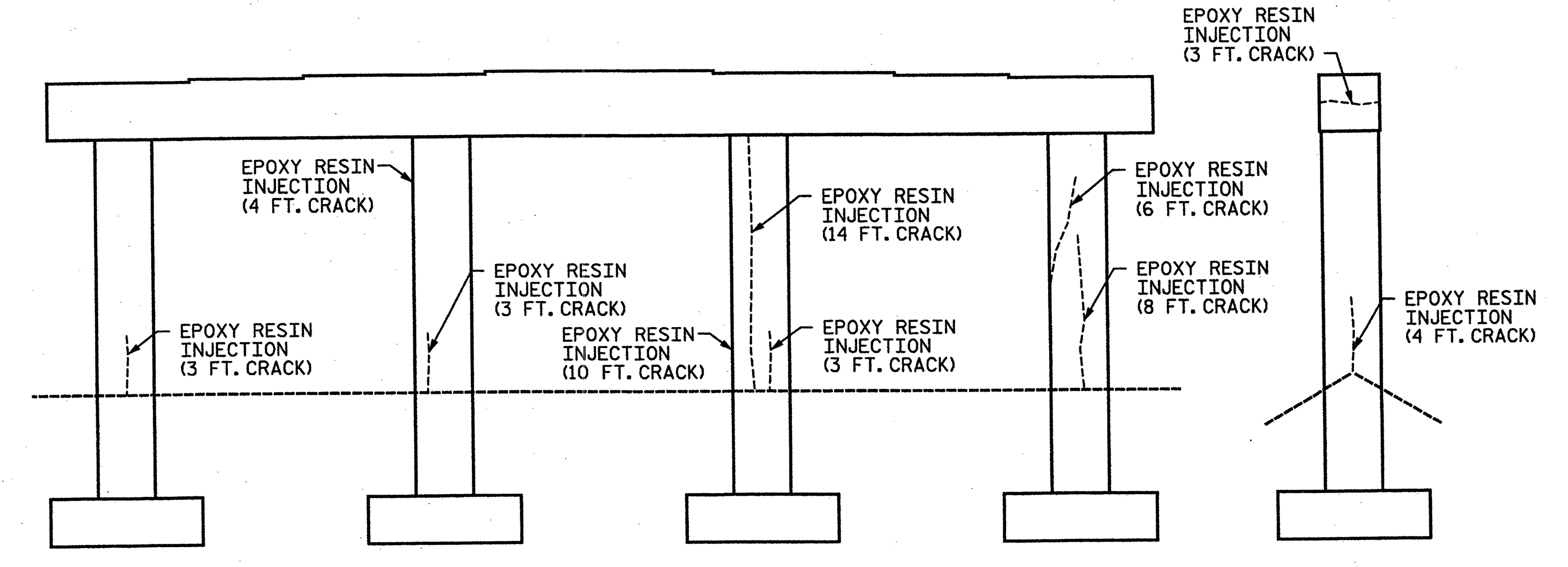
ELEVATION OF BENT 1 - LOOKING WEST *

END VIEW OF BENT 1 LOOKING SOUTH *



ELEVATION OF BENT 2 - LOOKING EAST *

END VIEW OF BENT 2 LOOKING NORTH *

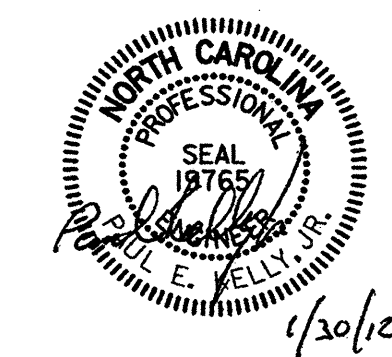


ELEVATION OF BENT 2 - LOOKING WEST *

END VIEW OF BENT 2 LOOKING SOUTH *

----- APPROX. LENGTH: EPOXY RESIN INJECTION

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 152
 REHAB. OF BRIDGE NO. 152 SHEET 6 OF 7



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STATE OF NORTH CAROLINA
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 RALEIGH

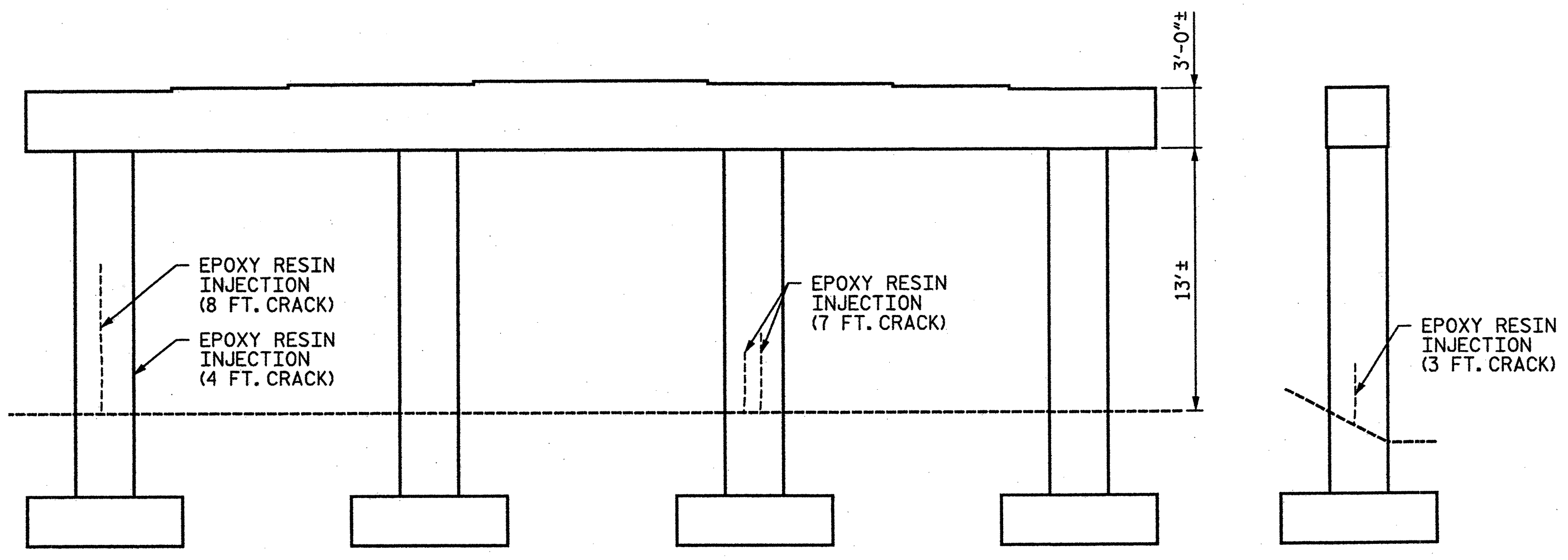
**BENTS 1 & 2
 SUBSTRUCTURE REPAIRS**

BRIDGE ON US 29 BUS
 OVER US 29

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

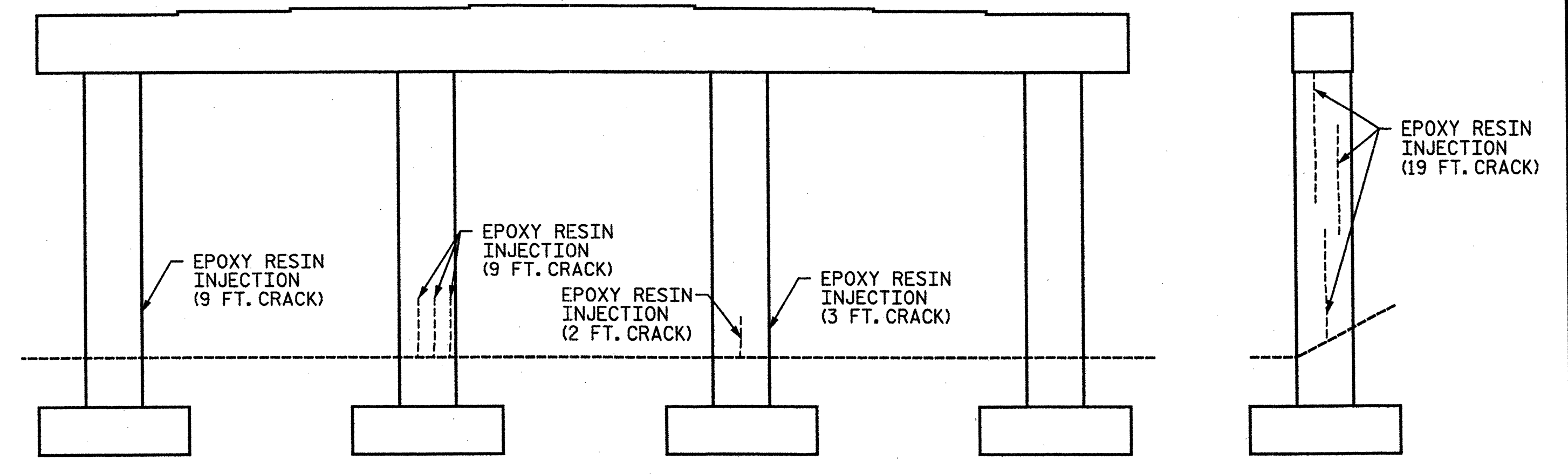
SHEET NO.	S-34
TOTAL SHEETS	S-50

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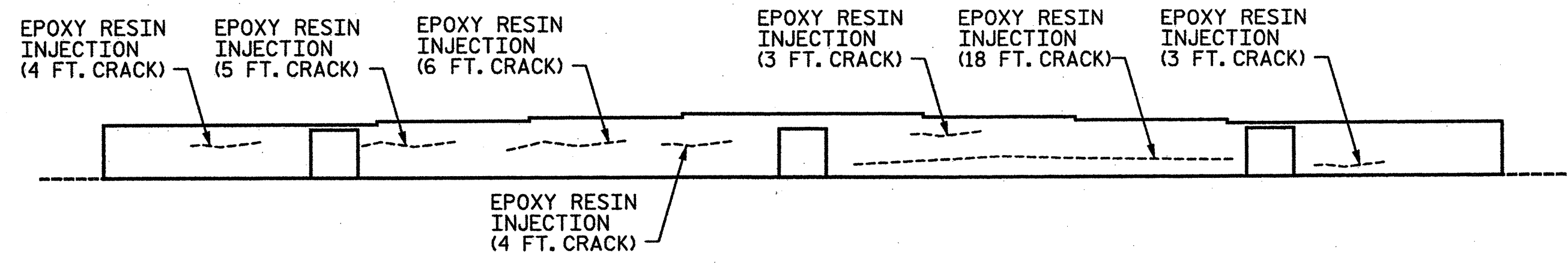
ELEVATION OF BENT 3 - LOOKING EAST*

END VIEW OF BENT 3 LOOKING NORTH *



ELEVATION OF BENT 3 - LOOKING WEST*

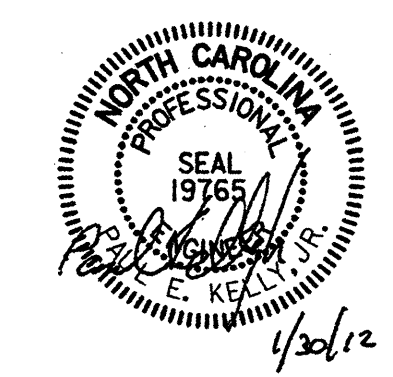
END VIEW OF BENT 3 LOOKING SOUTH *



ELEVATION OF END BENT 1 - LOOKING WEST *

-----APPROX. LENGTH: EPOXY RESIN INJECTION

PROJECT NO. 17BP.7.P.3
ROCKINGHAM COUNTY
 BRIDGE NO.: 152
 REHAB. OF BRIDGE NO. 152 SHEET 7 OF 7

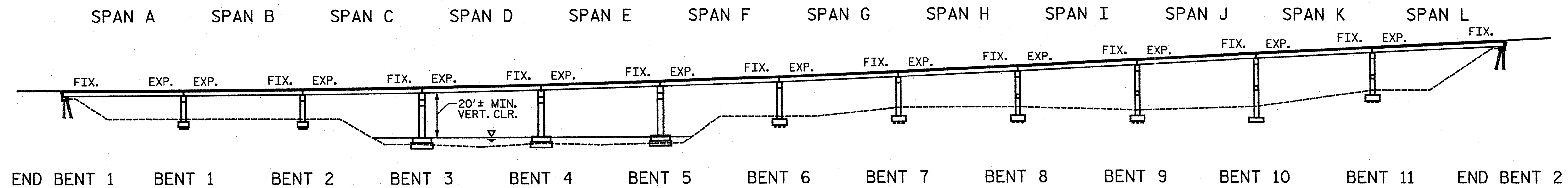


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BENT 3 AND END BENTS
 SUBSTRUCTURE REPAIRS**
 BRIDGE ON US 29 BUS
 OVER US 29

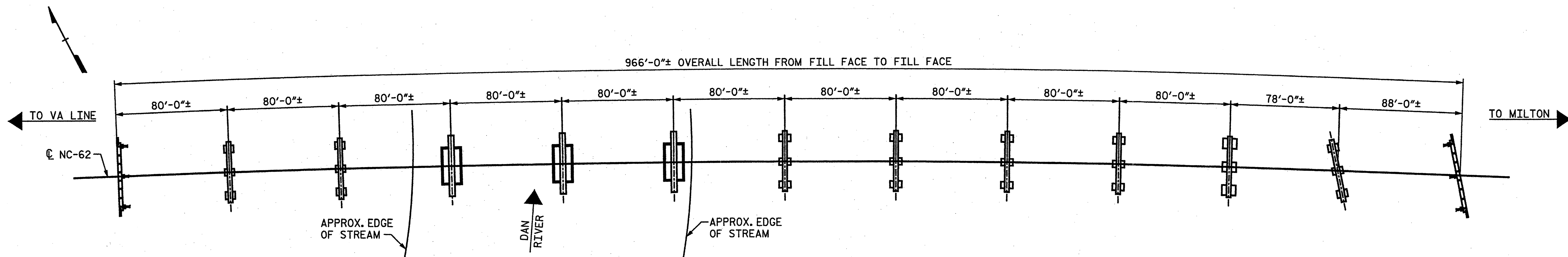
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			S-50



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



PLAN

NOTES:
SEE SHEET NO. S-1 OF S-50 FOR GENERAL NOTES.
SEE BRIDGE NO. 63 SHEETS 2, 4, AND 14 OF 14 FOR ADDITIONAL NOTES.

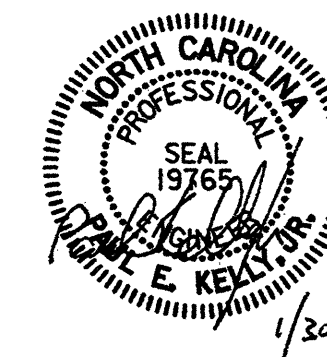
PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
BRIDGE NO.: 63

REHAB. OF BRIDGE NO. 63 SHEET 1 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL PLAN & ELEVATION

BRIDGE ON NC 62
OVER DAN RIVER



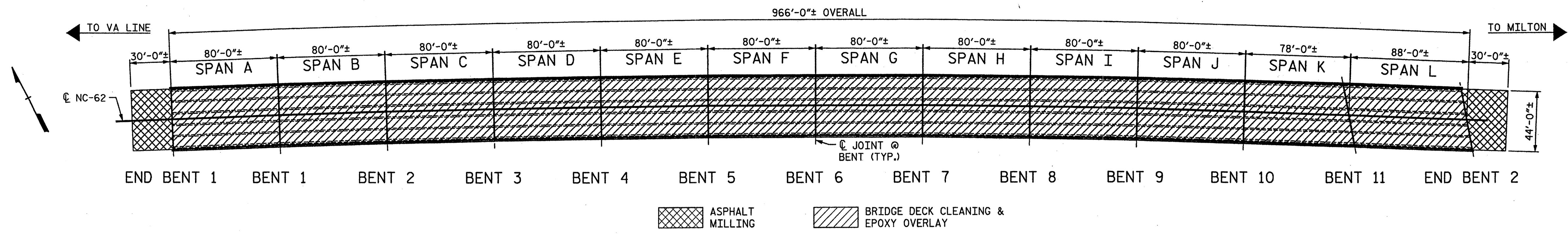
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36	
1			3			TOTAL SHEETS	
2			4			S-50	

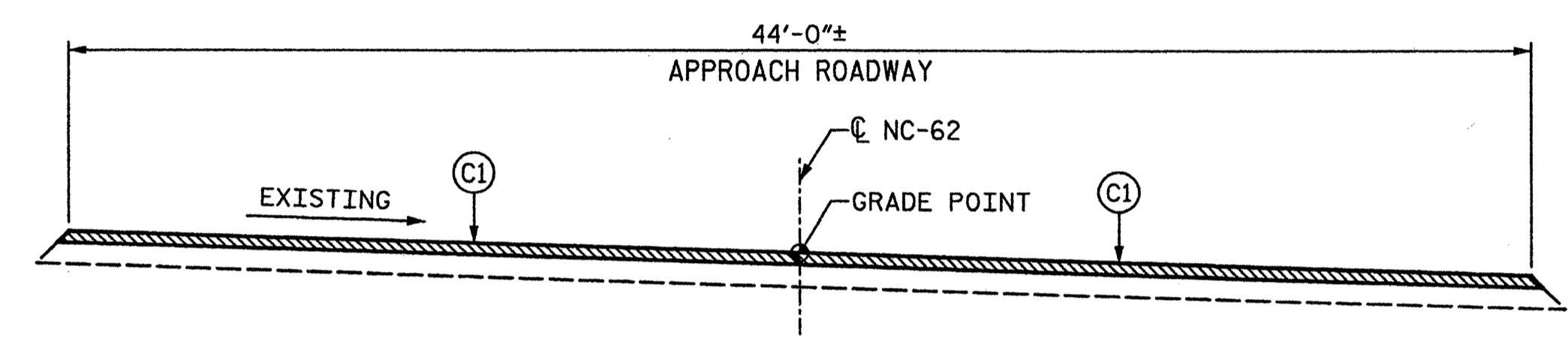
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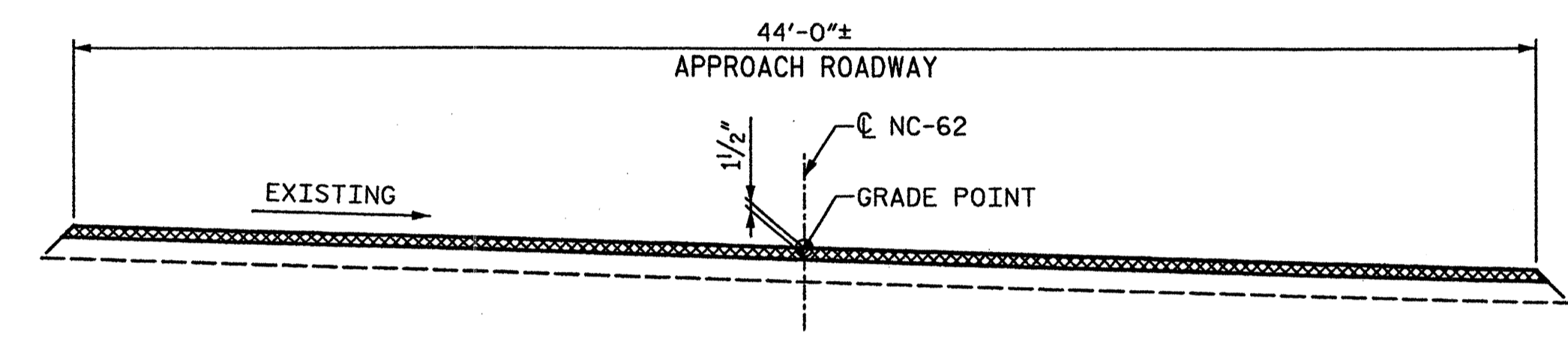
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PLAN OF SPANS - PLACEMENT OF EPOXY OVERLAY

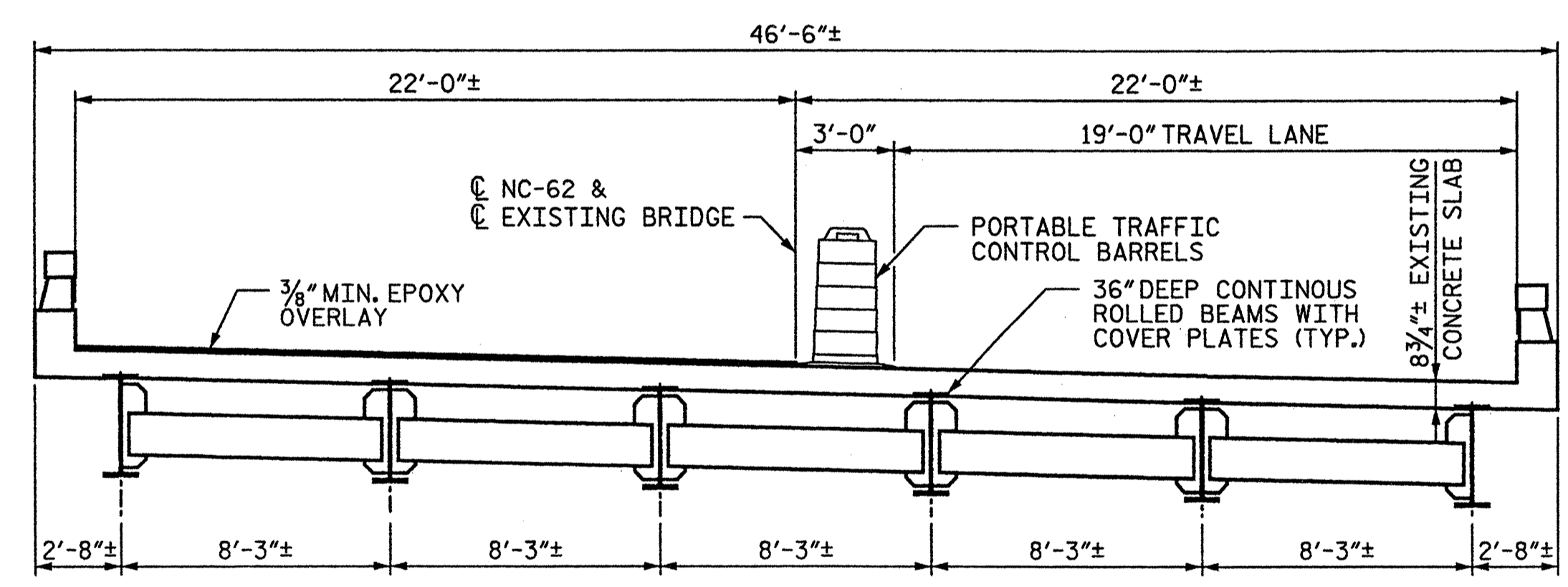


TYPICAL ROADWAY SECTION

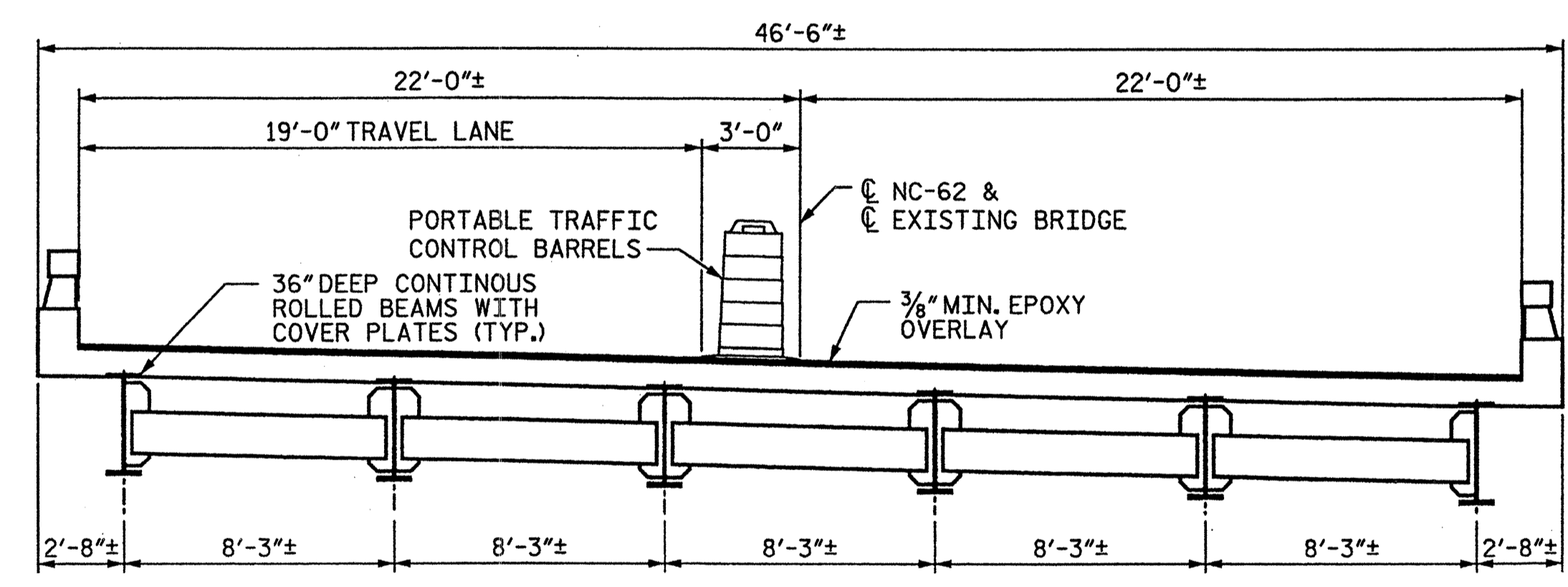


TYPICAL ROADWAY MILLING SECTION

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 1/2" DEPTH



TYPICAL SECTION - STAGE I
(AT INTERMEDIATE DIAPHRAGMS)



TYPICAL SECTION - STAGE II
(AT INTERMEDIATE DIAPHRAGMS)

TOTAL BILL OF MATERIAL								
INCIDENTAL MILLING	CLASS II CONCRETE DECK REPAIRS FOR EPOXY OVERLAY	PLACEMENT OF EPOXY OVERLAY	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	FOAM JOINT SEAL	EPOXY RESIN INJECTION	CONCRETE REPAIRS (CLASS A)	SHOTCRETE REPAIRS	BRIDGE JACKING
SQ. YD.	SQ. FT.	SQ. FT.	TONS	LUMP SUM	LIN. FT.	CU. FT.	CU. FT.	LUMP SUM
293	92	41,967	24	LUMP SUM	1,875	158	374	LUMP SUM

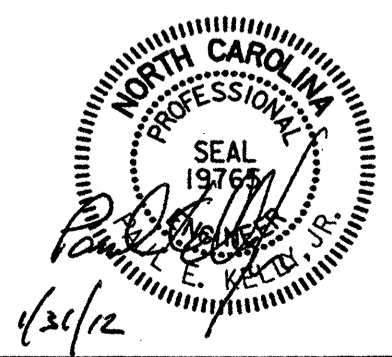
* QUANTITIES FOR INFORMATION ONLY.

NOTES:

- FOR REPAIR OF BRIDGE DECK USING EPOXY OVERLAY, SEE SPECIAL PROVISIONS.
- FOR CONCRETE DECK REPAIRS FOR EPOXY OVERLAYS, SEE SPECIAL PROVISIONS.
- THE BOUNDARY AREAS IDENTIFIED FOR CLASS II CONCRETE DECK REPAIRS ARE APPROXIMATE.
- THE CONTRACTOR SHALL PROVIDE CONTAINMENT FOR UNEXPECTED BLOW-THROUGH OF THE DECK. SEE DETAIL ON SHEET 3 OF 14 AND SPECIAL PROVISIONS.
- EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.
- PER EXISTING PLANS, THE ESTIMATED AVERAGE REBAR COVER FOR THE EXISTING DECK IS 1 1/4".
- SEE ADDITIONAL NOTES ON SHEETS 4 & 14 OF 14.

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
BRIDGE NO.: 63
REHAB. OF BRIDGE NO. 63 SHEET 2 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN OF SPANS & TYPICAL SECTION
BRIDGE ON NC 62
OVER DAN RIVER

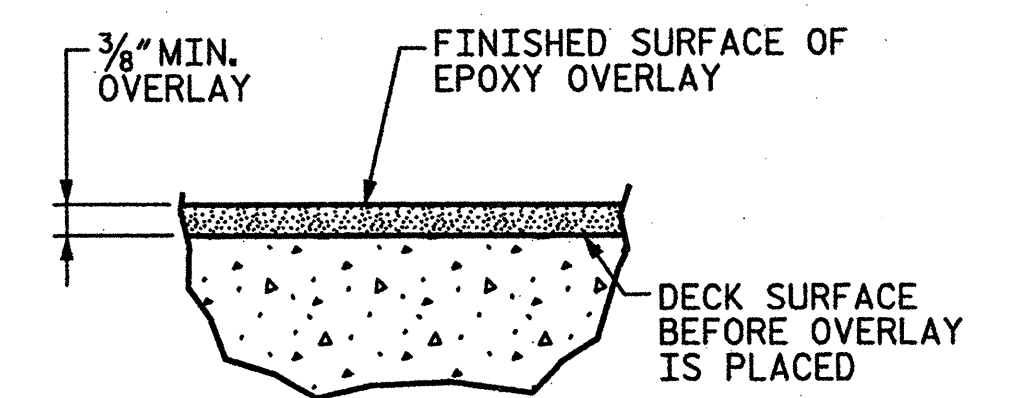
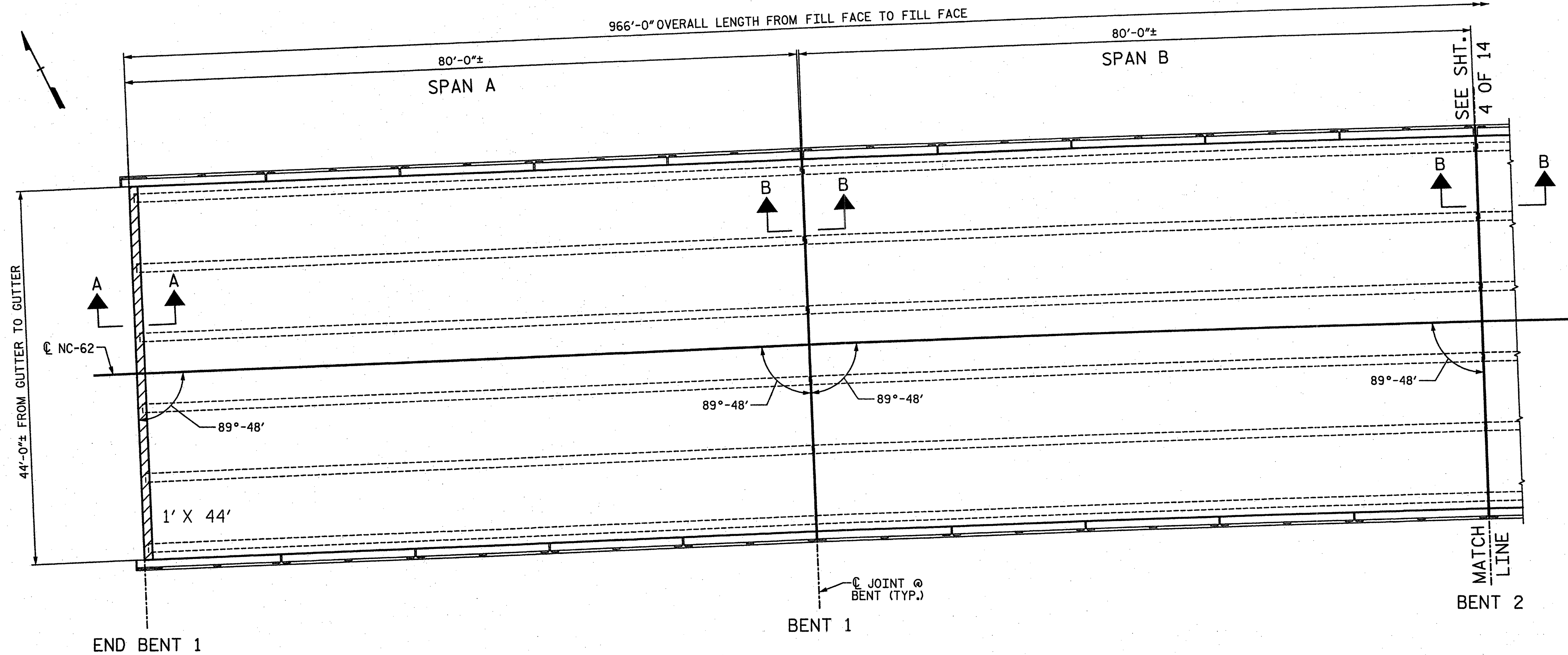


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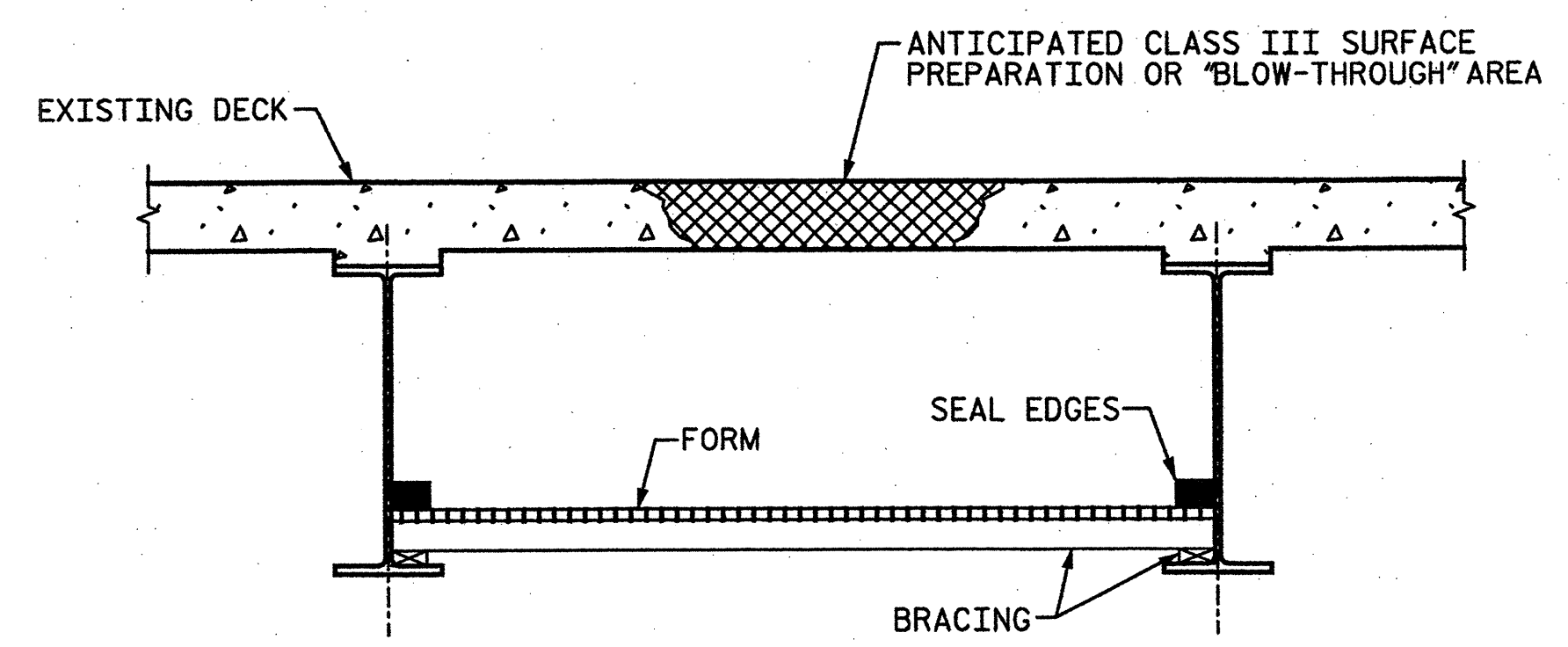
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-37
1			3		TOTAL SHEETS
2			4		S-50

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PARTIAL PLAN OF SPANS - DECK REPAIRS

(SEE SHEET 4 OF 14 FOR SECTION B-B)
(SEE SHEET 5 OF 14 FOR SECTION C-C)

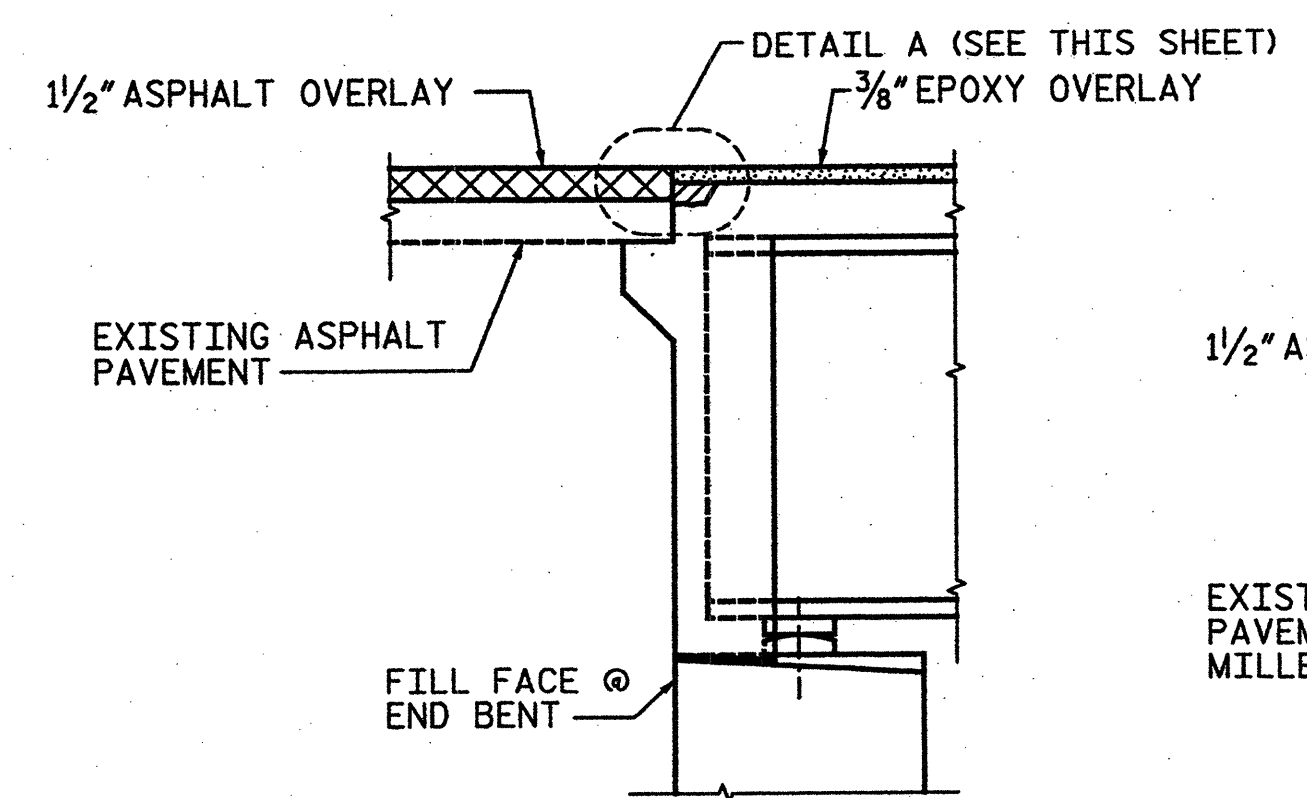


TYP. "BLOW-THROUGH" CONTAINMENT AND FORMWORK

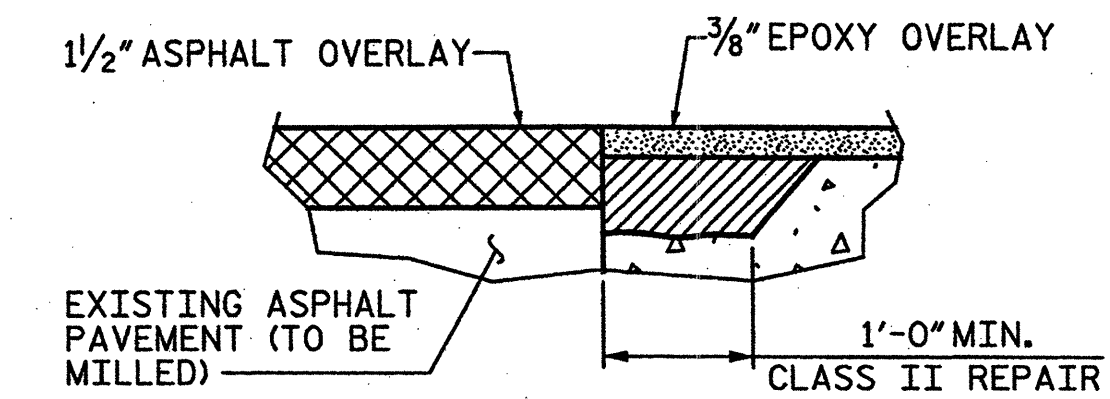
A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

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.



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



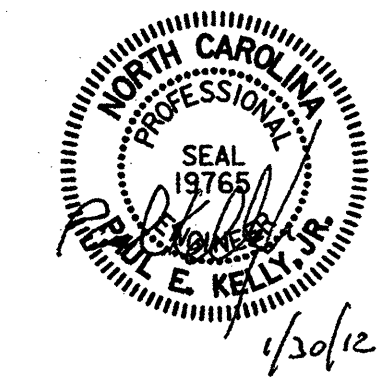
DETAIL A
(LOCATION OF JOINT TO MATCH EXISTING JOINT LOCATION)

DETAIL FOR EPOXY AND STONE OVERLAY

PROJECT NO. **17BP.7.P.3**
CASWELL COUNTY
BRIDGE NO.: **63**

REHAB. OF BRIDGE NO. 63 SHEET 3 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**PLAN OF SPANS A & B
DECK REPAIRS**
BRIDGE ON NC 62
OVER DAN RIVER

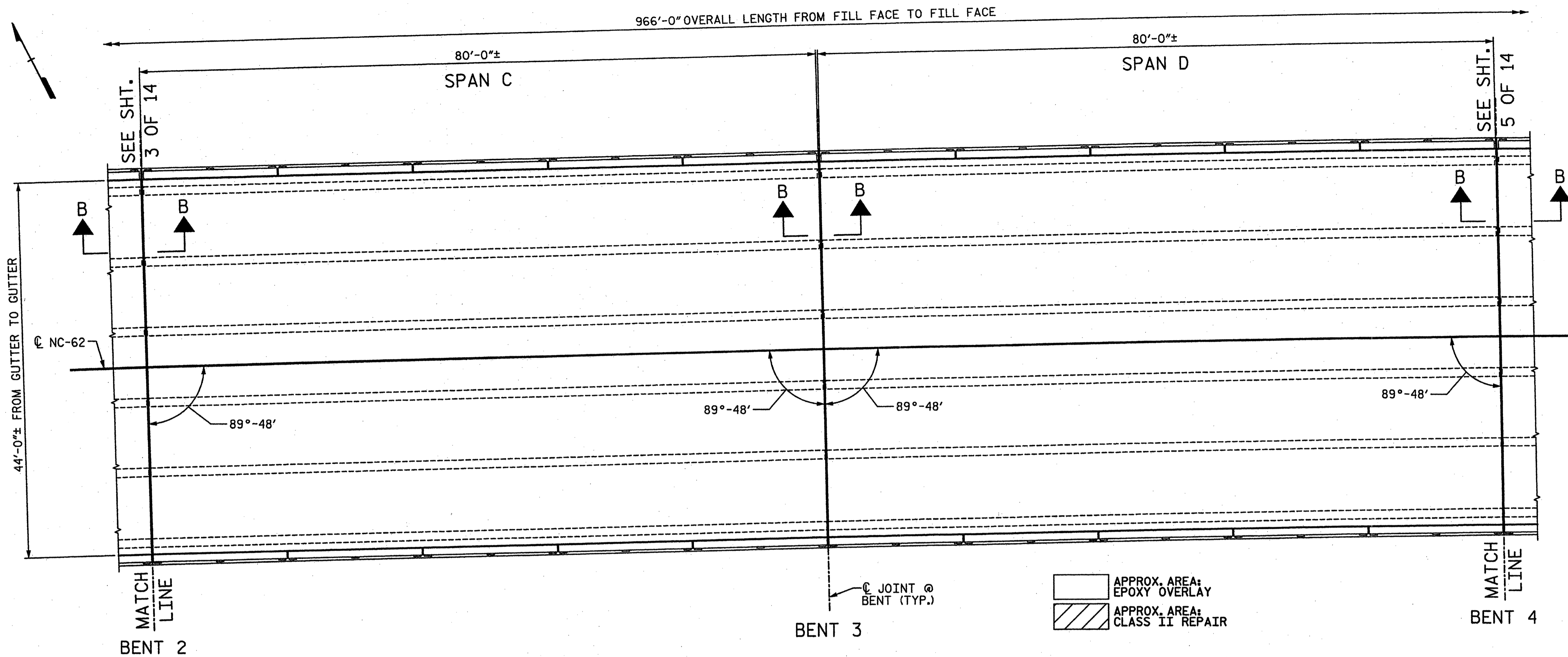


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			5-50

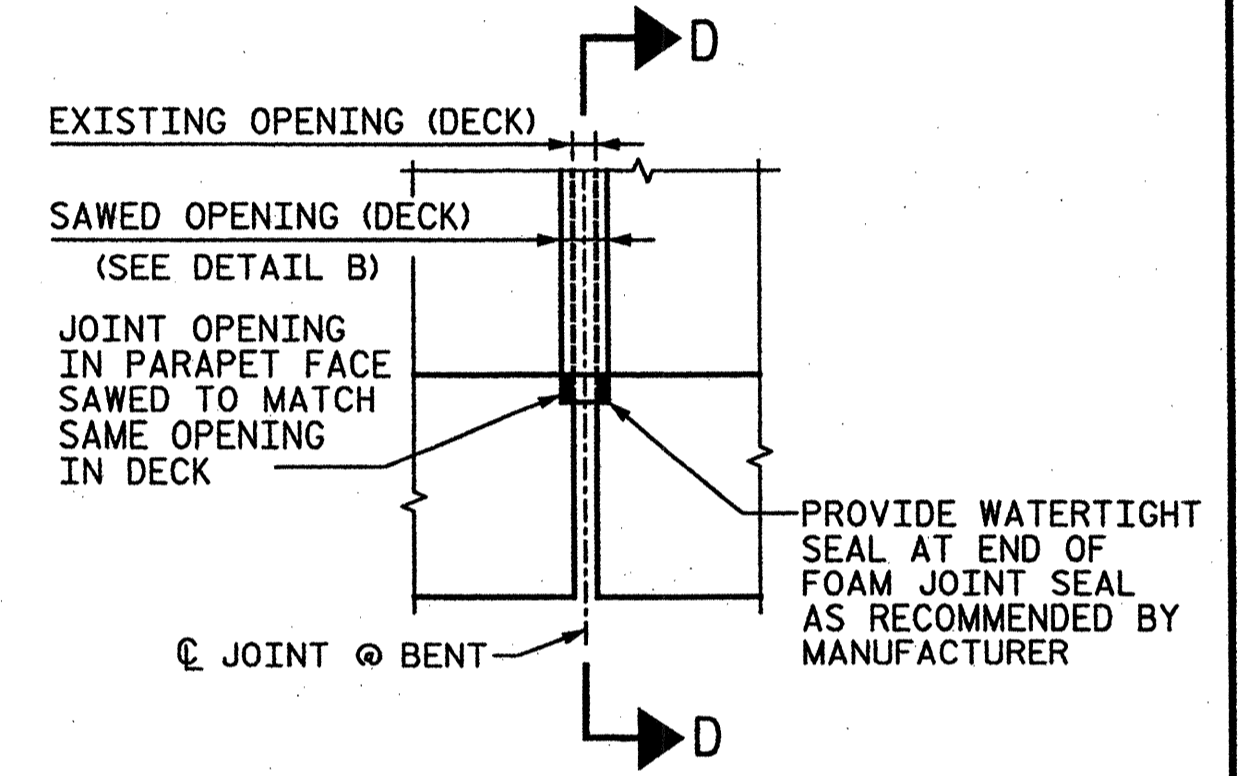
DRAWN BY: AFM DATE: 12-11
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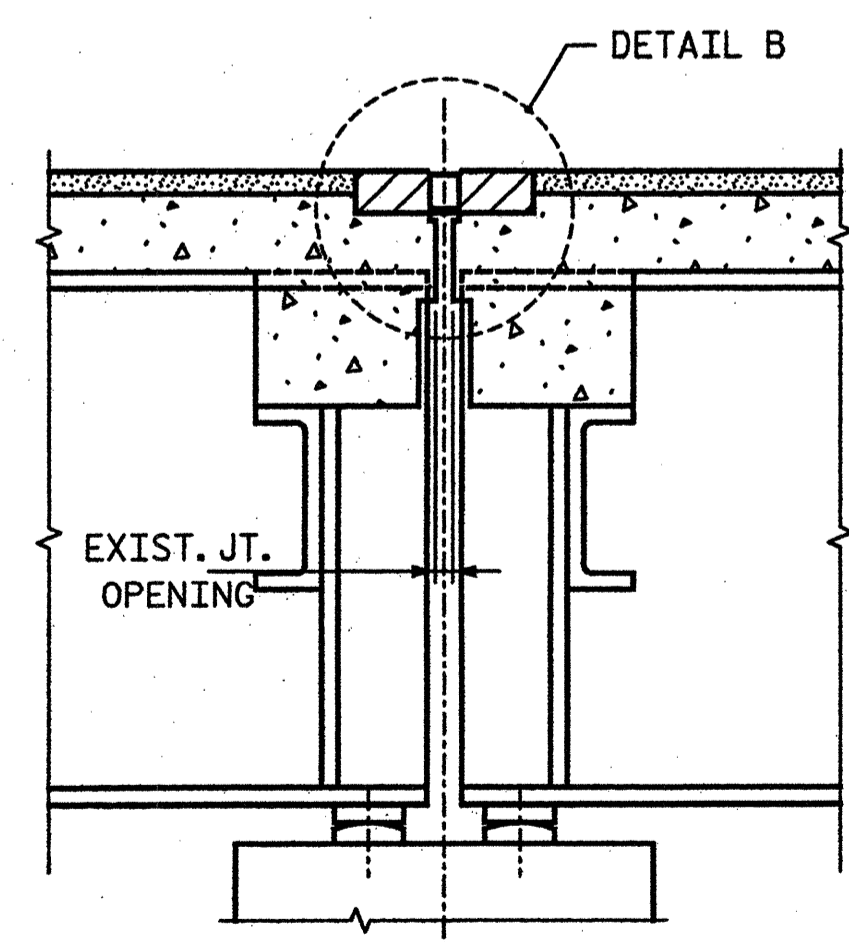


PARTIAL PLAN OF SPANS - DECK REPAIRS
(SEE SHEET 5 OF 14 FOR SECTION C-C)

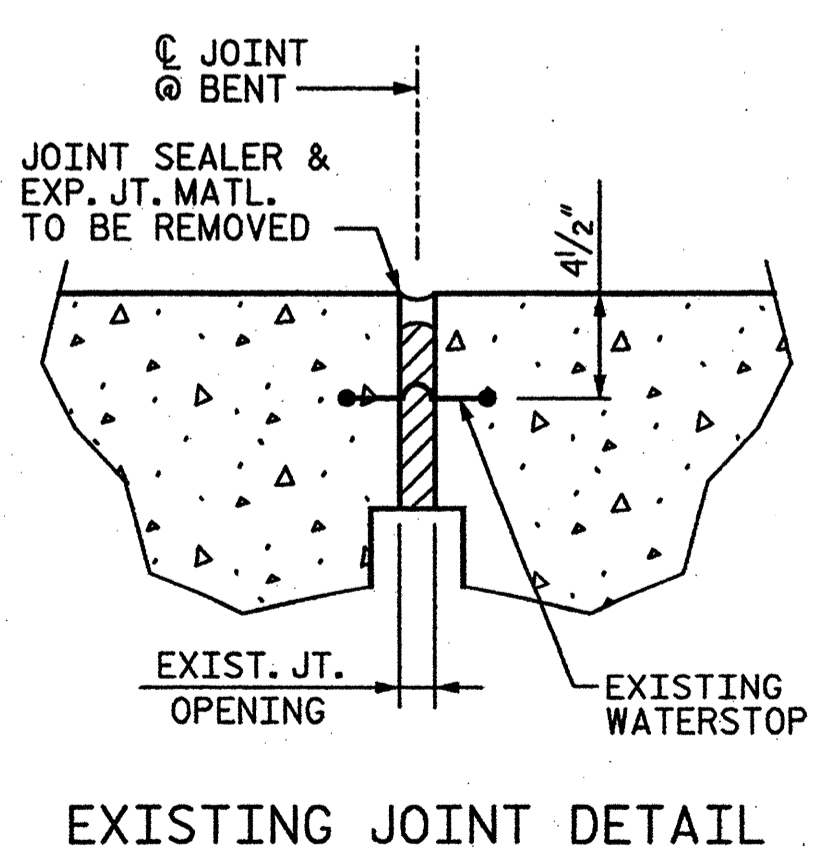
NOTES:
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
 THE ELASTOMERIC CONCRETE SHALL BE INCLUDED IN THE FOAM JOINT SEAL PAY ITEM.
 CONTRACTOR SHALL COVER AND PROTECT THE JOINT CONSTRUCTION TO PREVENT DAMAGE DURING CONCRETE CURING AND AS NEEDED TO MAINTAIN TRAFFIC, AS DIRECTED BY THE ENGINEER.
 THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.
 THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 3/8" AT BENT 1 AND 2 1/2" AT BENTS 2 THROUGH 11.
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.
 FOAM JOINT OPENING WIDTHS SHALL BE CONFIRMED IN THE FIELD. CONTRACTOR SHALL MAKE ADJUSTMENTS TO FOAM JOINT SEALS, AS NECESSARY, TO MEET EXISTING CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY COST ASSOCIATED WITH THESE ADJUSTMENTS IS CONSIDERED INCIDENTAL AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.



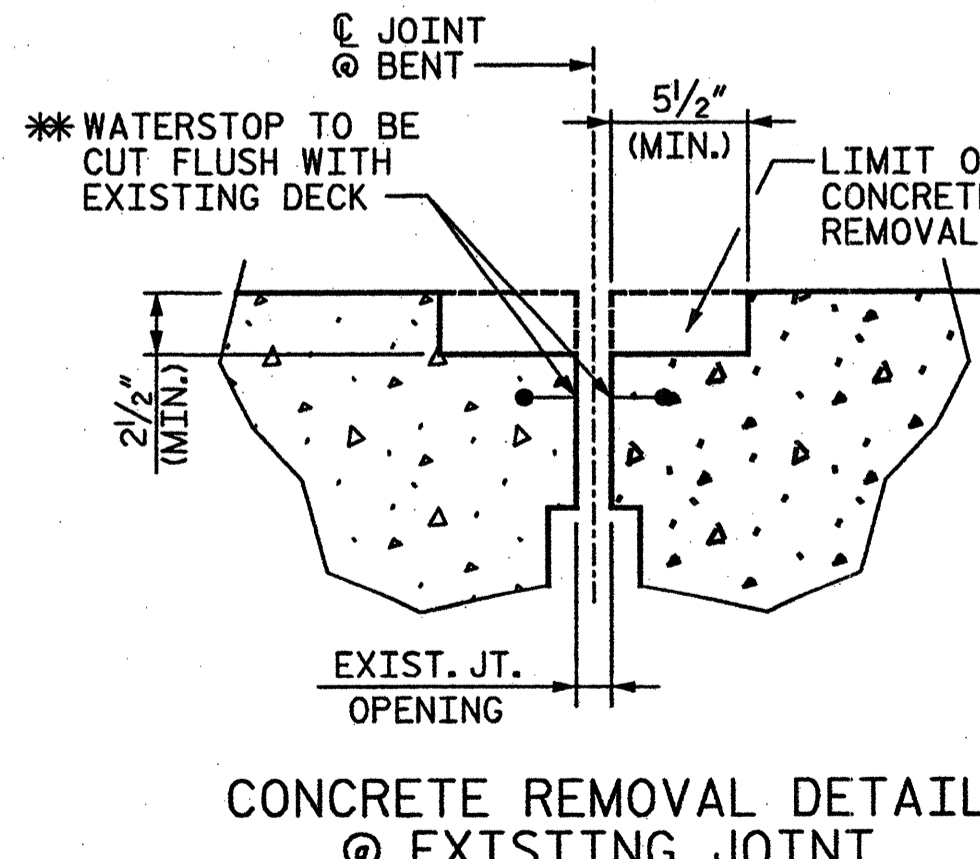
PLAN OF JOINT SEAL AT PARAPET



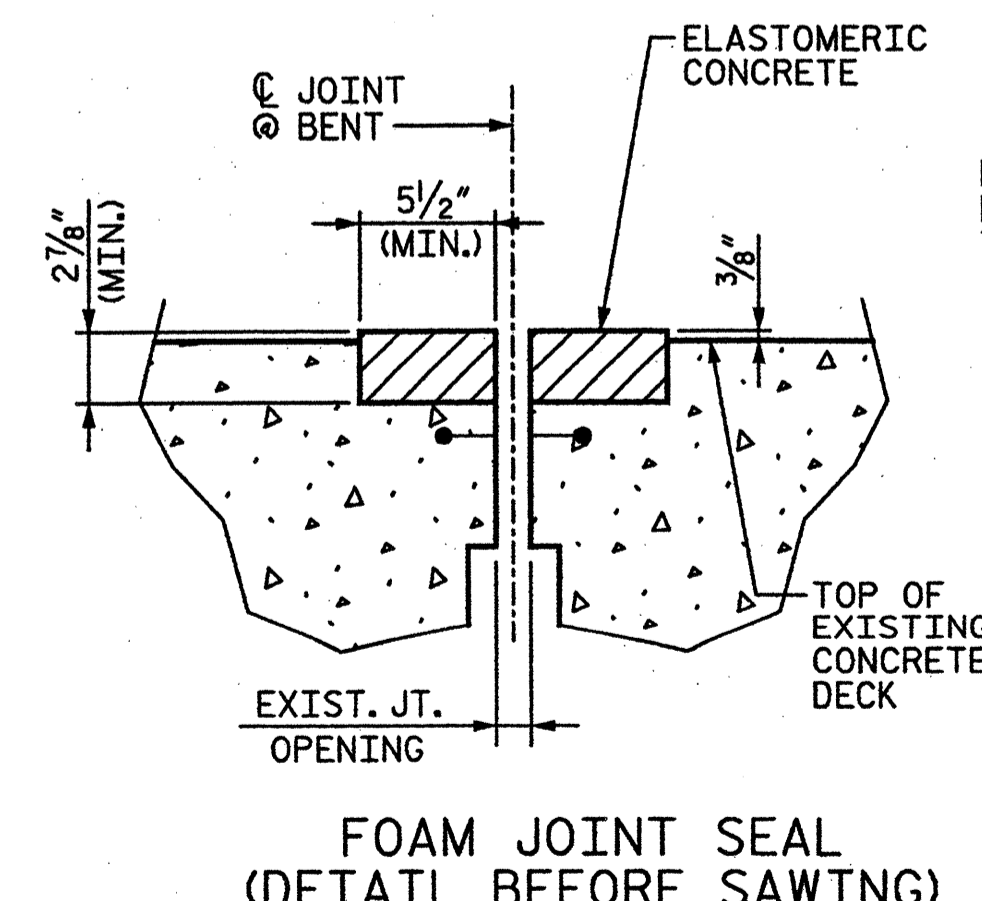
SECTION B-B
(PROPOSED JOINT)
(TYP. @ INTERIOR BENTS)



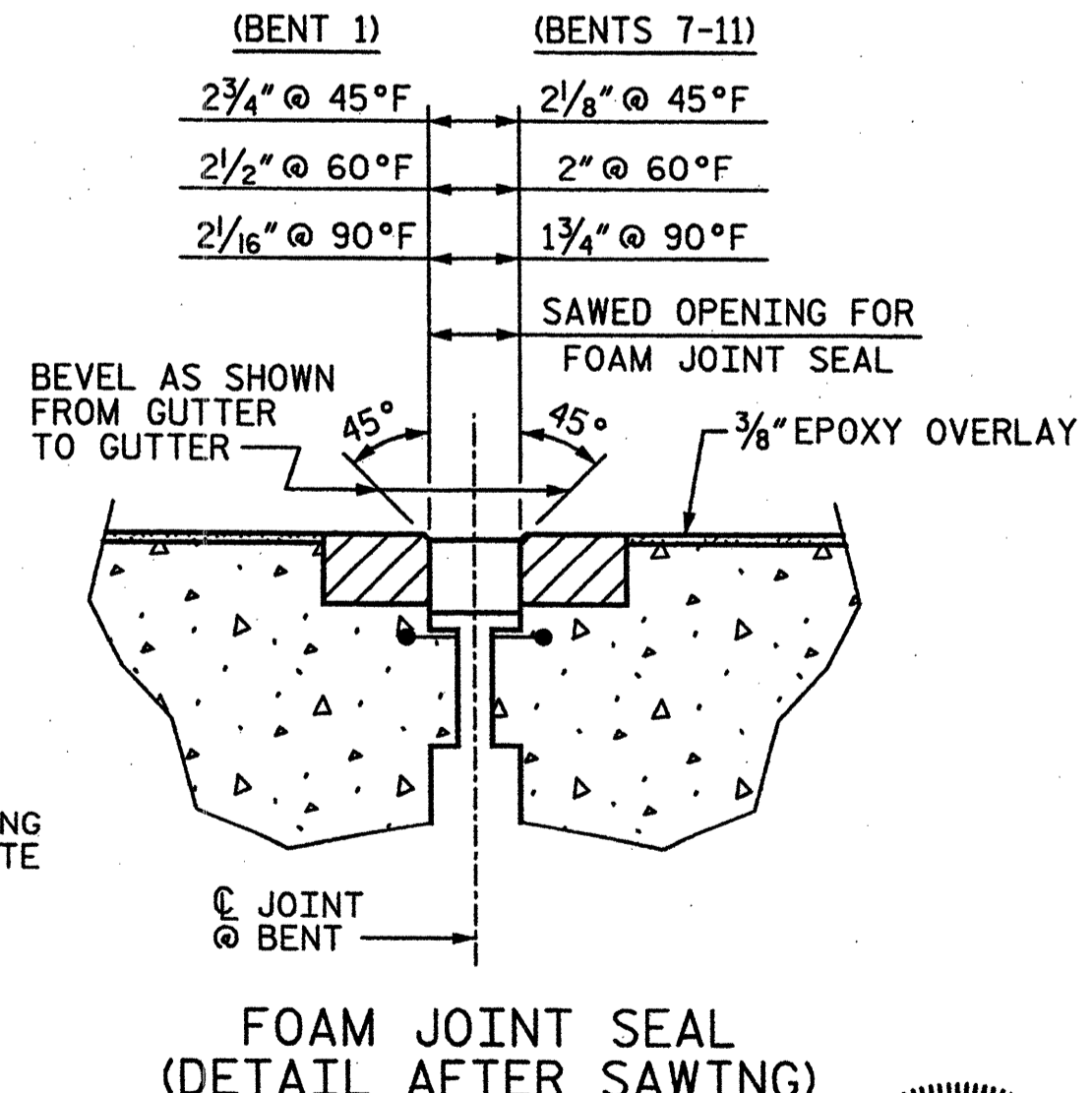
EXISTING JOINT DETAIL



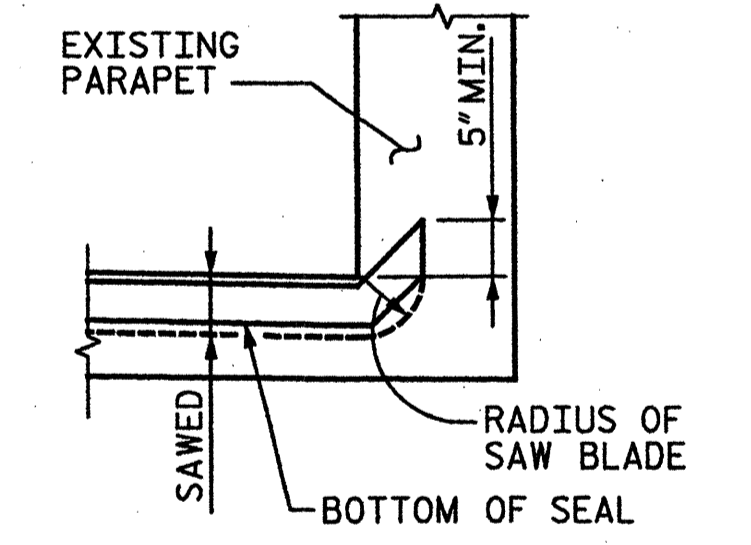
CONCRETE REMOVAL DETAIL @ EXISTING JOINT



FOAM JOINT SEAL (DETAIL BEFORE SAWING)



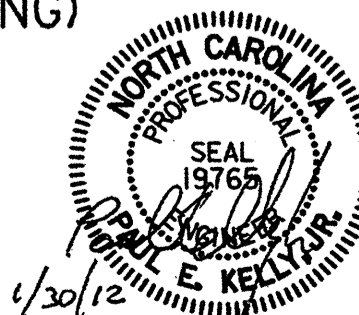
FOAM JOINT SEAL (DETAIL AFTER SAWING)



SECTION D-D

PROJECT NO. **17BP.7.P.3**
CASWELL COUNTY
 BRIDGE NO.: **63**
 REHAB. OF BRIDGE NO. 63 SHEET 4 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS C & D
 DECK REPAIRS**
 BRIDGE ON NC 62
 OVER DAN RIVER



*ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL, THE ENTIRE WATERSTOP SHALL BE REMOVED.

DRAWN BY : AEM DATE : 12-11
 CHECKED BY : AC DATE : 12-11

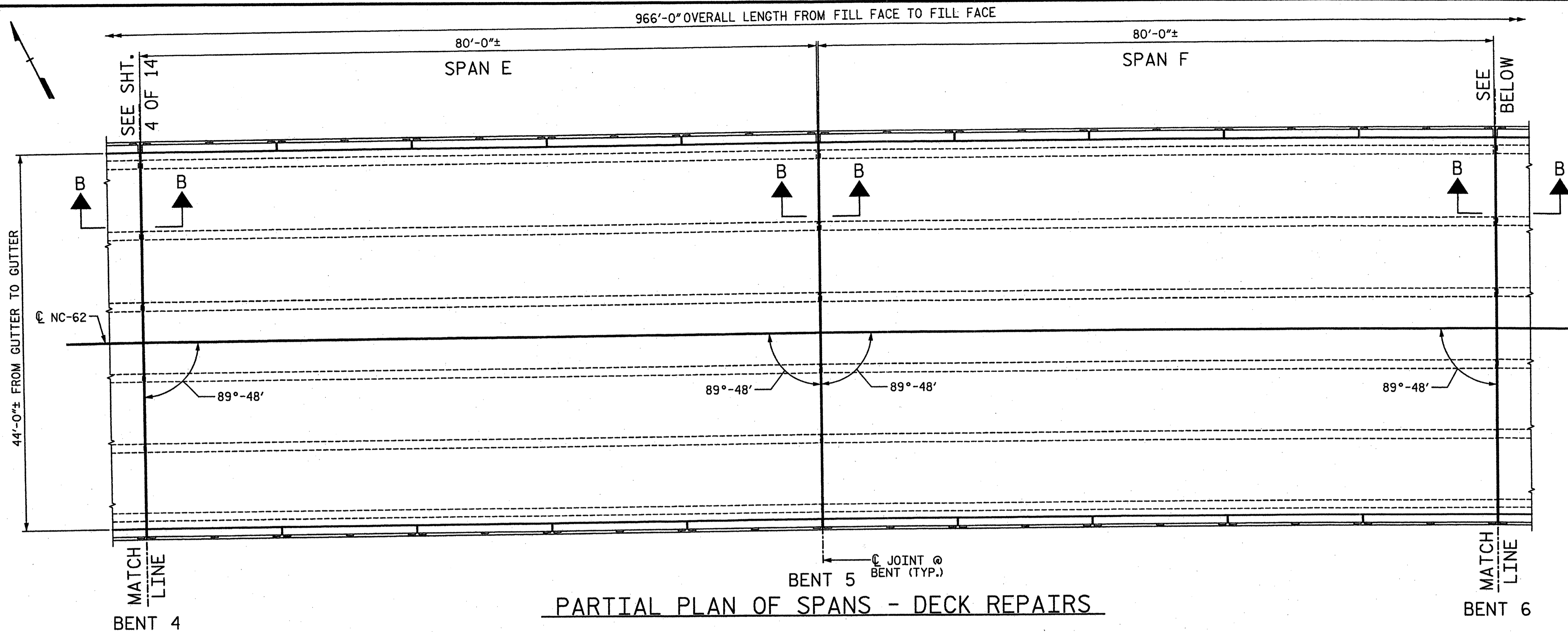
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 Charlotte, NC 28208
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			S-50

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1/30/2012

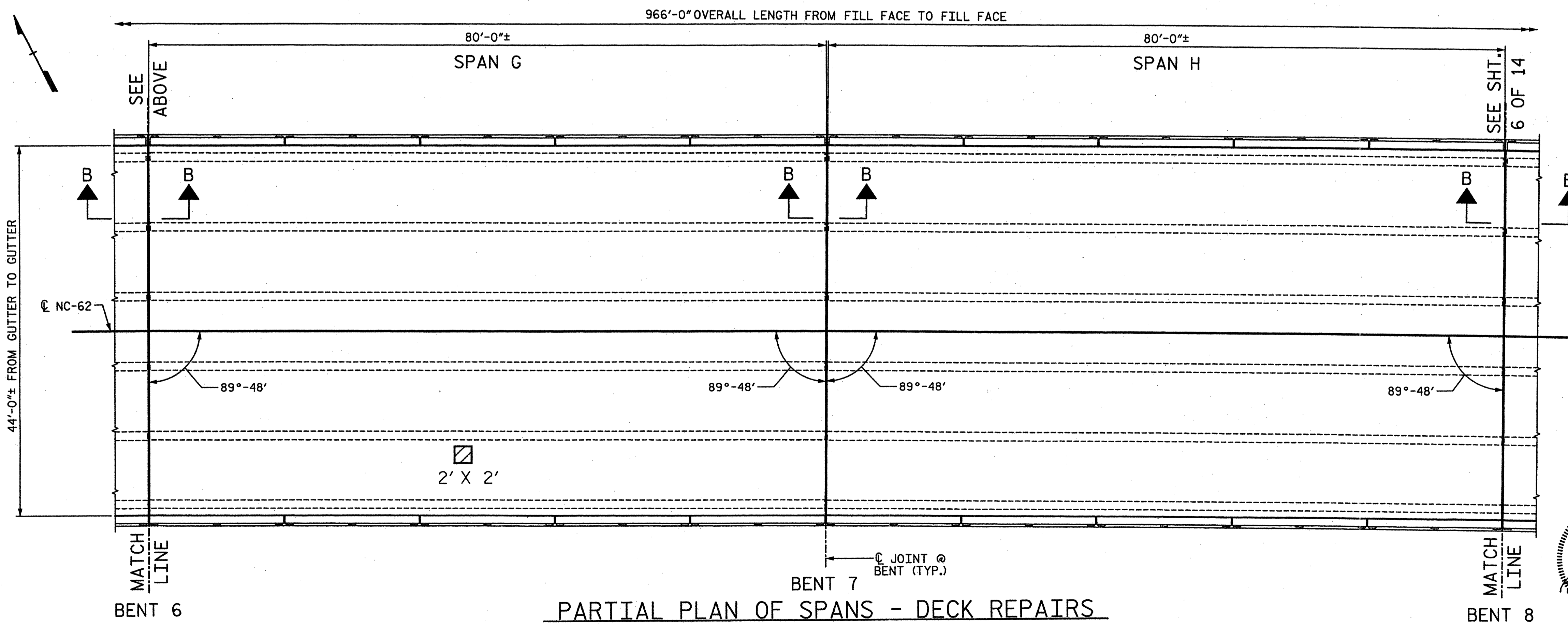
WJM



PARTIAL PLAN OF SPANS - DECK REPAIRS

APPROX. AREA: EPOXY OVERLAY

 APPROX. AREA: CLASS II REPAIR



PARTIAL PLAN OF SPANS - DECK REPAIRS

(SEE SHEET 4 OF 14 FOR SECTION B-B)
(SEE SHEET 5 OF 14 FOR SECTION C-C)

PROJECT NO. 17BP.7.P.3
 CASWELL COUNTY
 BRIDGE NO.: 63
 REHAB. OF BRIDGE NO. 63 SHEET 5 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS E,F,G&H
 DECK REPAIRS**
 BRIDGE ON NC 62
 OVER DAN RIVER



DRAWN BY : AEM DATE : 12-11
 CHECKED BY : AC DATE : 12-11

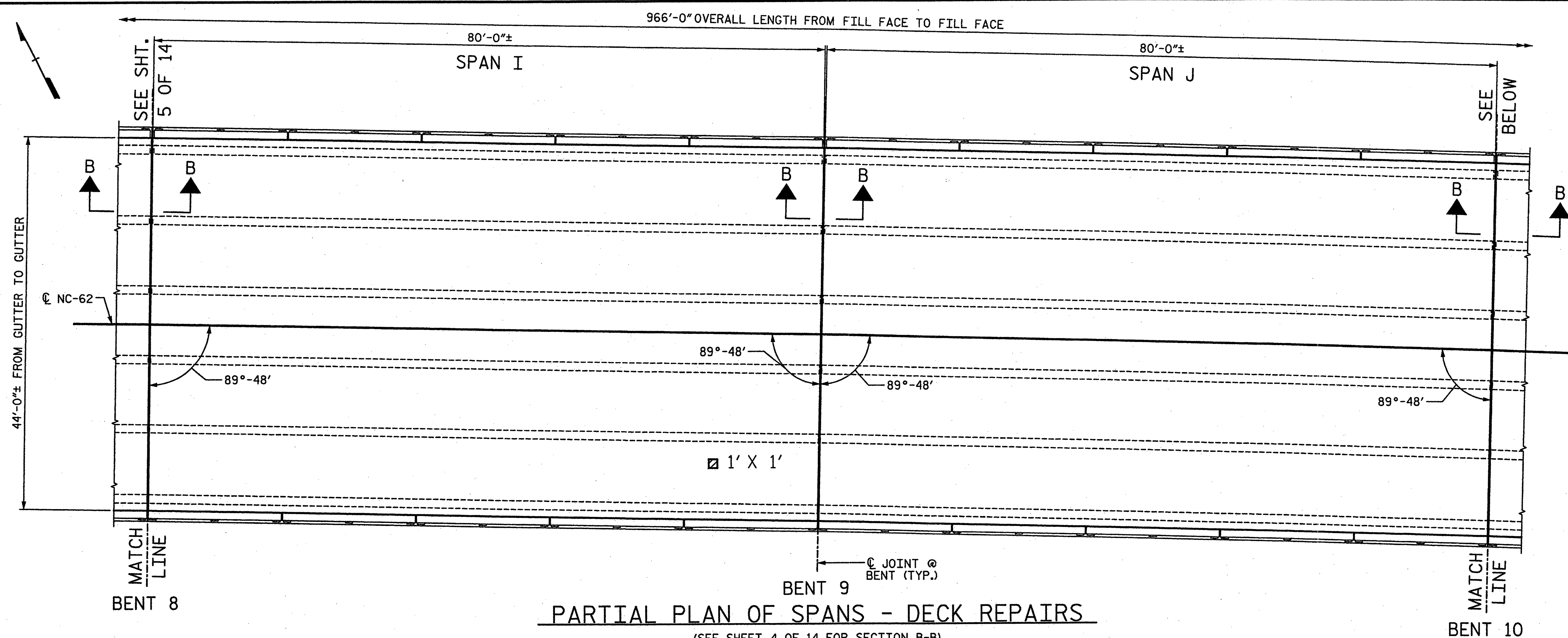
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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40	
1			3			TOTAL SHEETS	S-50
2			4				

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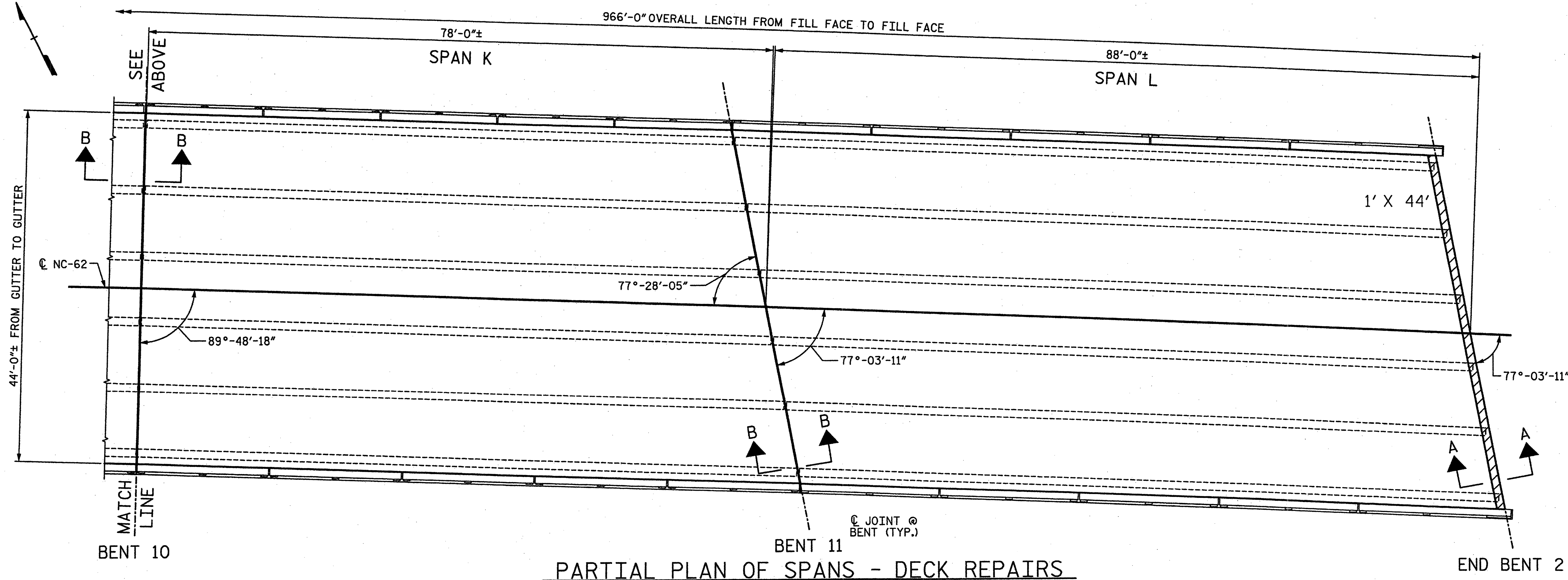
1/30/2012

DRAWN BY : AFM DATE : 12-11
 CHECKED BY : AC DATE : 12-11

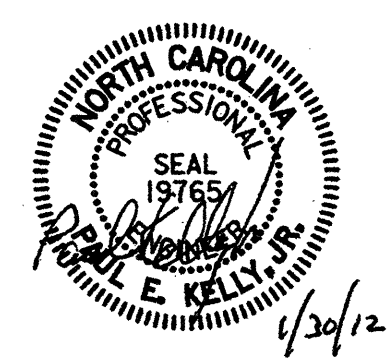


PARTIAL PLAN OF SPANS - DECK REPAIRS
 (SEE SHEET 4 OF 14 FOR SECTION B-B)

APPROX. AREA: EPOXY OVERLAY
 APPROX. AREA: CLASS II REPAIR



PARTIAL PLAN OF SPANS - DECK REPAIRS
 (SEE SHEET 3 OF 14 FOR SECTION A-A)
 (SEE SHEET 4 OF 14 FOR SECTION B-B)

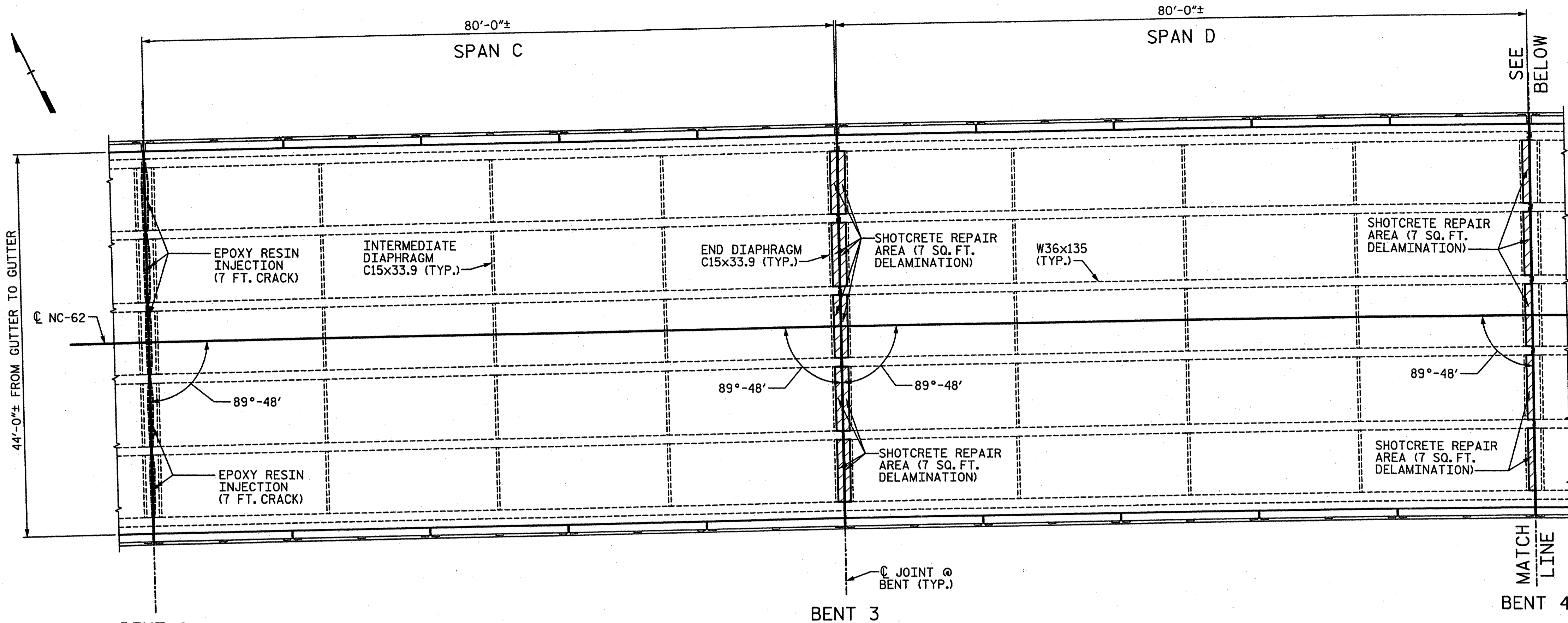


PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
 BRIDGE NO.: 63
 REHAB. OF BRIDGE NO. 63 SHEET 6 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS I,J,K&L
 DECK REPAIRS**
 BRIDGE ON NC 62
 OVER DAN RIVER

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			S-50



PARTIAL PLAN OF SPANS - UNDERSIDE OF DECK

NOTES:

CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.

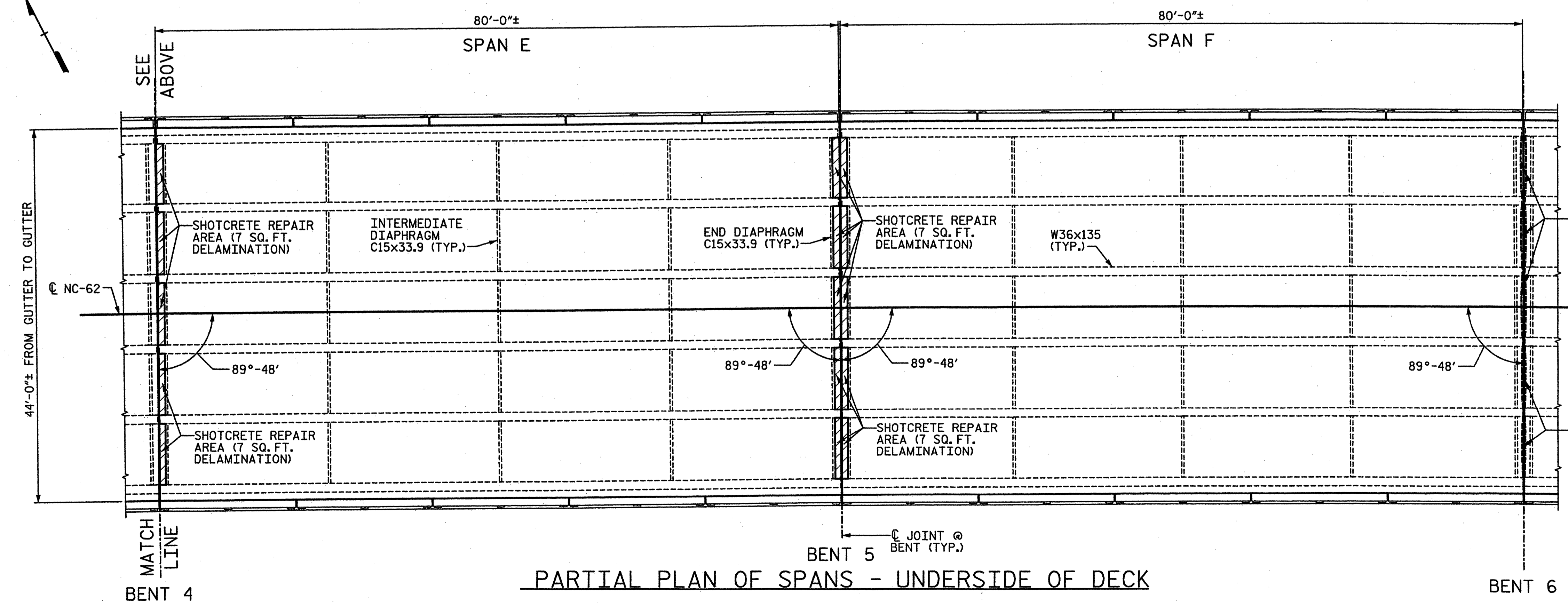
FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.

SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.

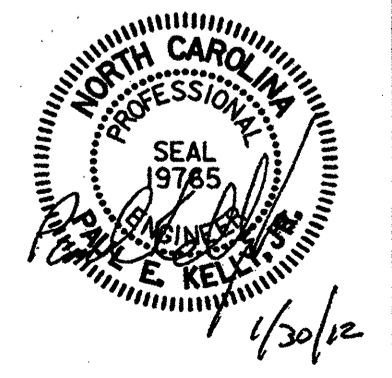
THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST.

SEE ADDITIONAL NOTES AND TYPICAL REPAIR DETAILS ON SHEET 14 OF 14.

--- APPROX. LENGTH: EPOXY RESIN INJECTION
 // APPROX. AREA: SHOTCRETE REPAIRS



PARTIAL PLAN OF SPANS - UNDERSIDE OF DECK



PROJECT NO. 17BP.7.P.3
 CASWELL COUNTY
 BRIDGE NO.: 63
 REHAB. OF BRIDGE NO. 63 SHEET 7 OF 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**PLAN OF SPANS C,D,E&F
 END DIAPHRAGM REPAIR**
 BRIDGE ON NC 62
 OVER DAN RIVER

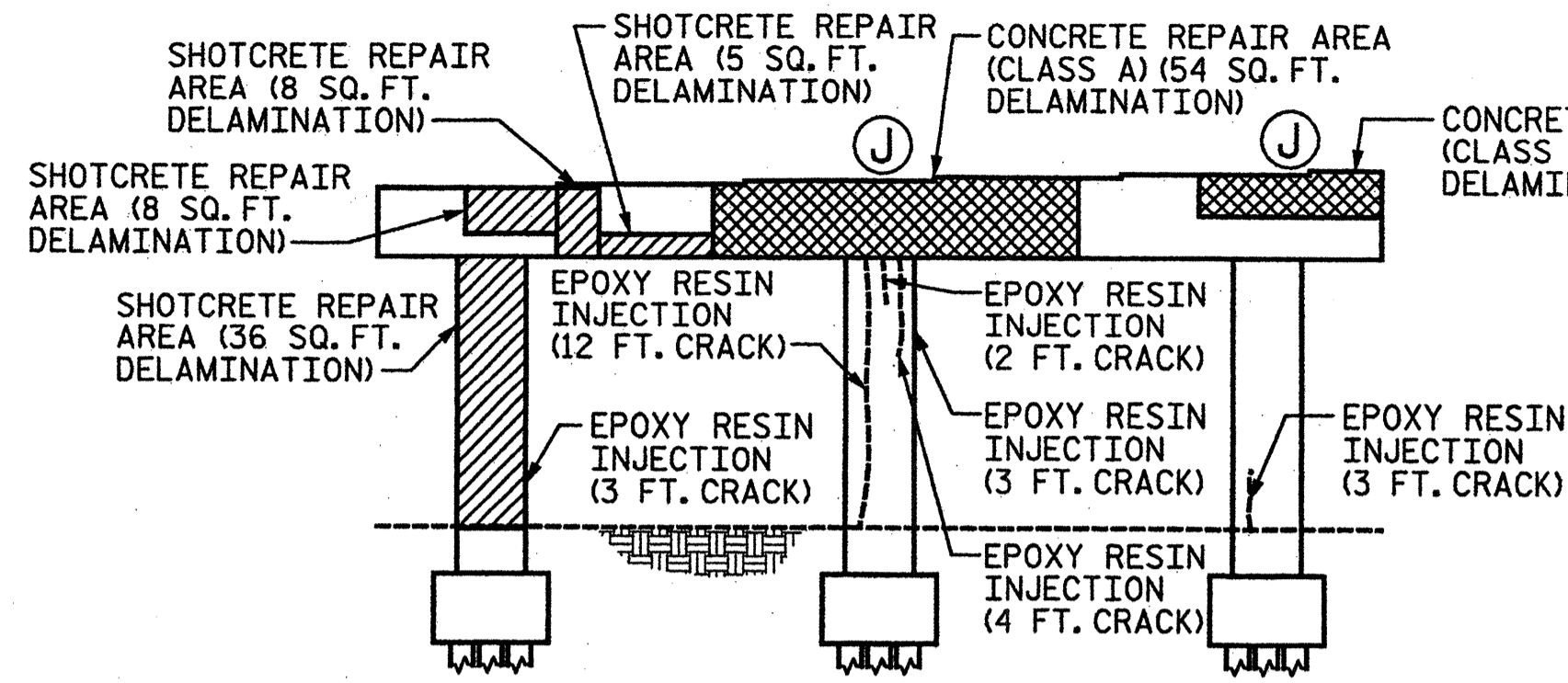
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 CHECKED BY: AC DATE: 12-11

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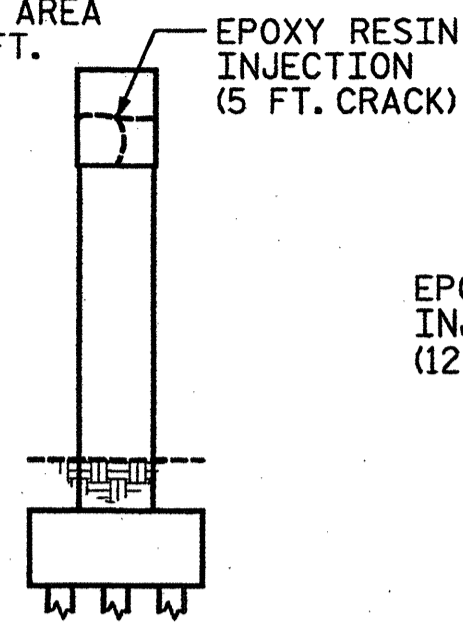
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			S-50

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 1/30/2012

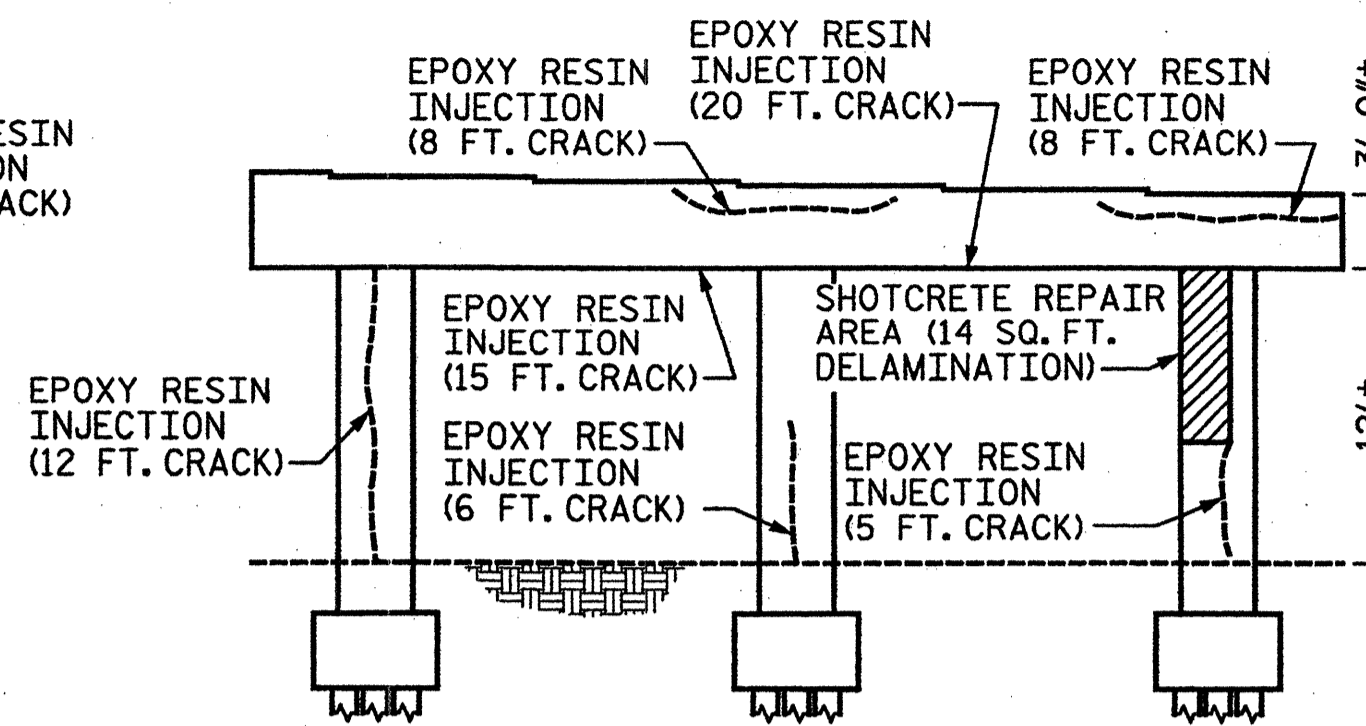
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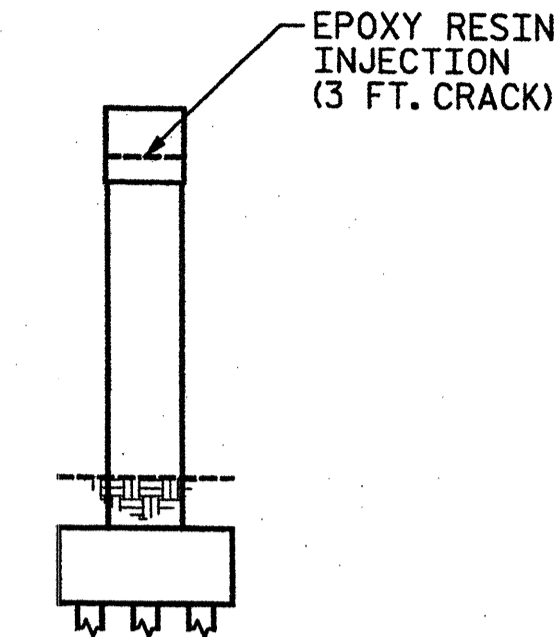
ELEVATION OF BENT 1
LOOKING NORTH*



END VIEW OF BENT 1
LOOKING WEST*



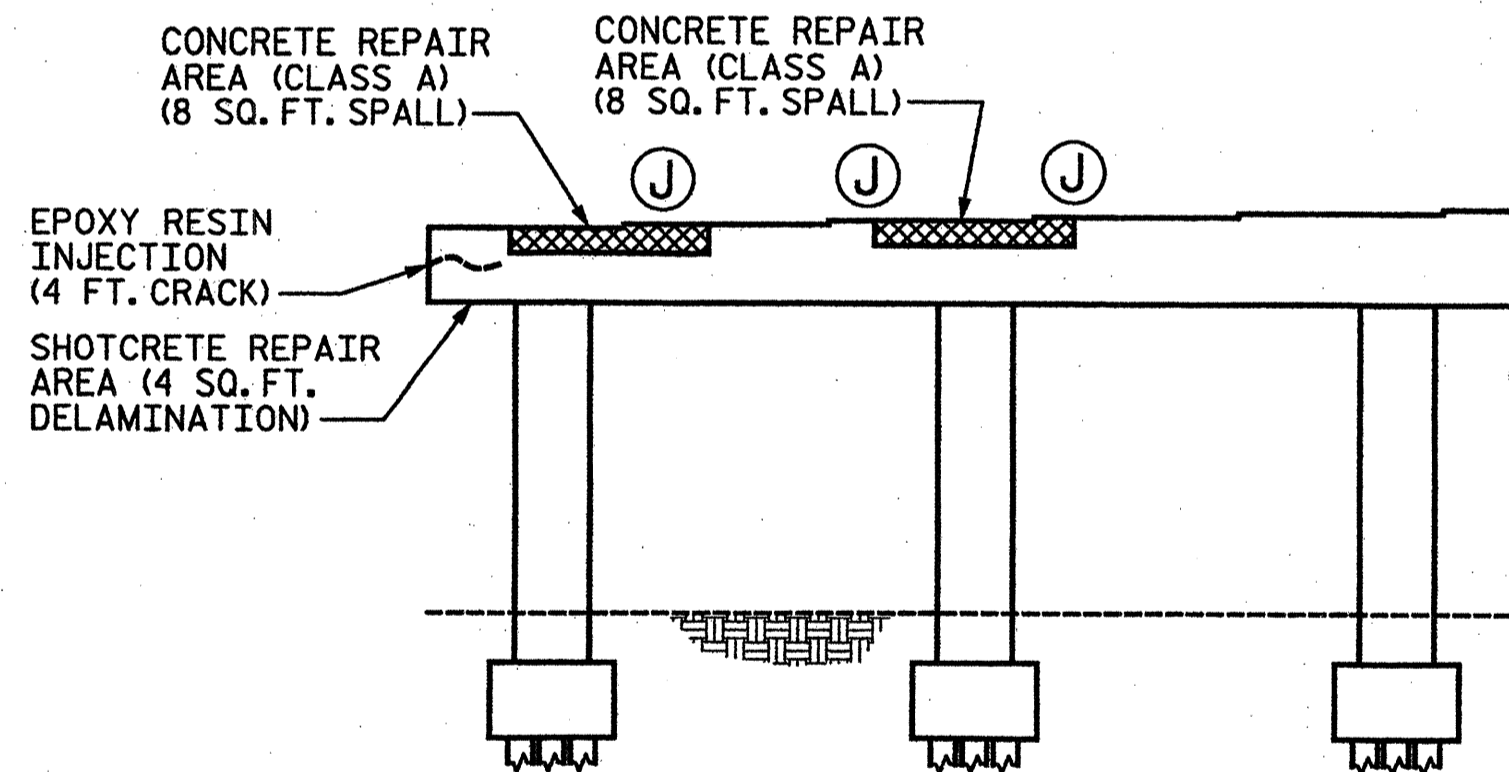
ELEVATION OF BENT 1
LOOKING SOUTH*



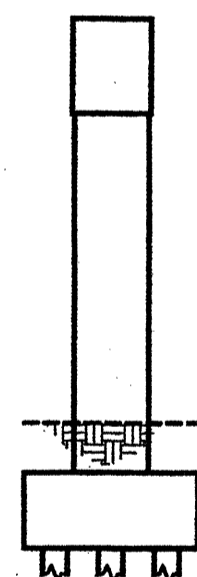
END VIEW OF BENT 1
LOOKING EAST*

NOTE:
SEE NOTES AND TYPICAL REPAIR
DETAILS, SHEET 14 OF 14.
Ⓝ - JACKING REQUIRED
* LOOKING DIRECTION CORRESPONDS WITH
DIRECTION OF TRAVEL ALONG HIGHWAY

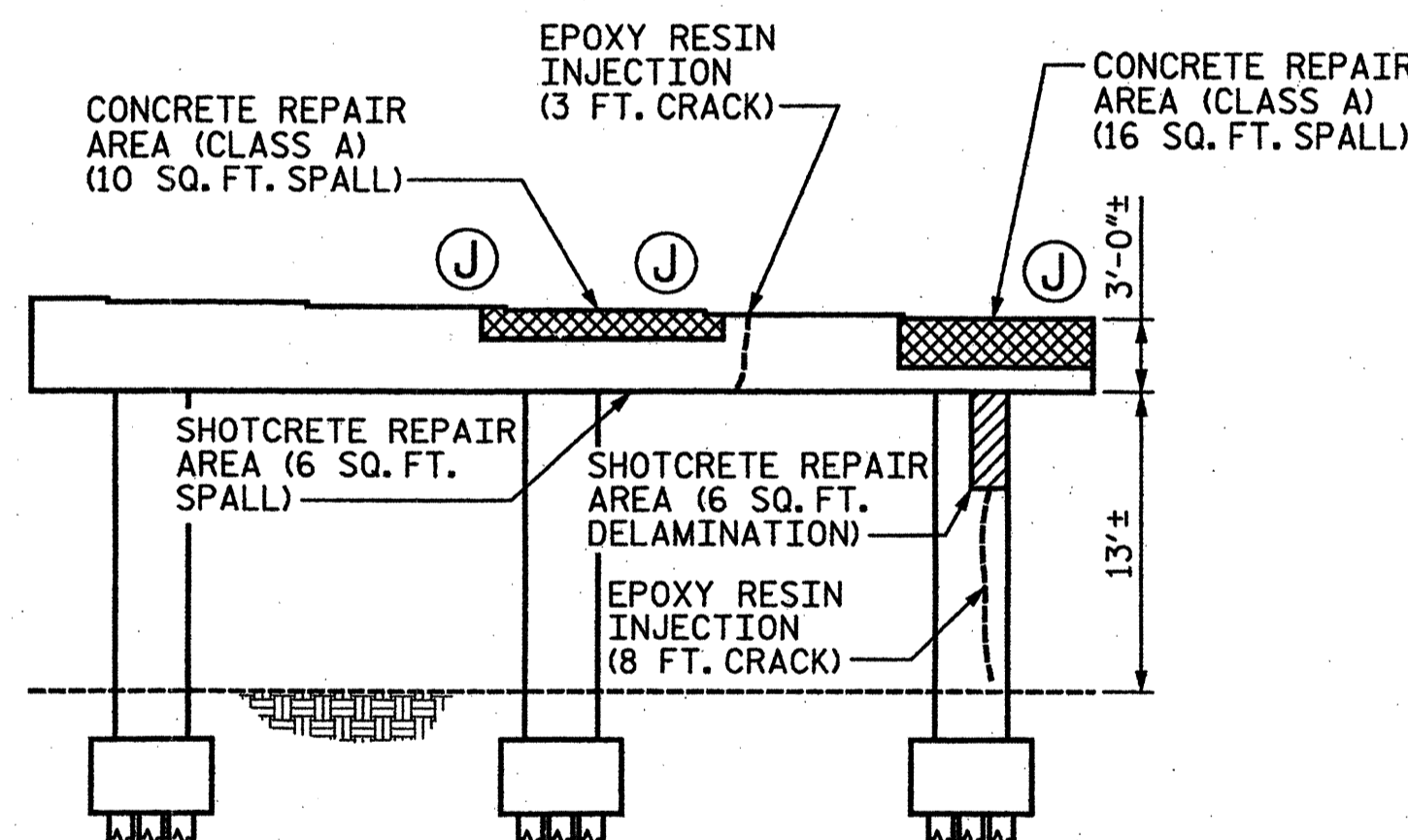
----- APPROX. LENGTH:
EPOXY RESIN INJECTION
[Hatched Box] APPROX. AREA:
SHOTCRETE REPAIRS
[Cross-hatched Box] APPROX. AREA:
CONCRETE REPAIRS (CLASS A)



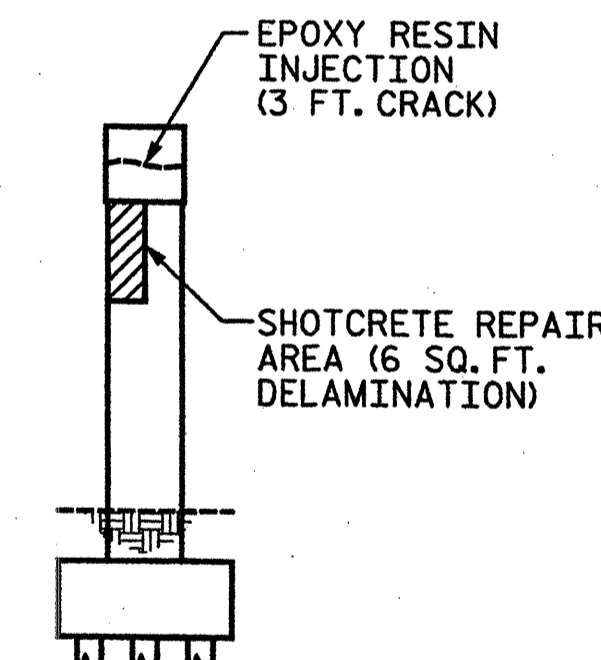
ELEVATION OF BENT 2
LOOKING NORTH*



END VIEW OF BENT 2
LOOKING WEST*

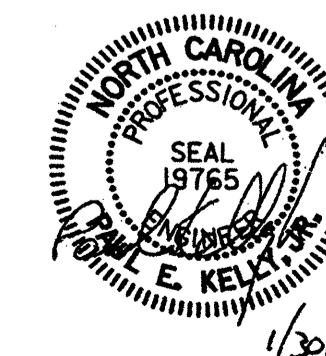


ELEVATION OF BENT 2
LOOKING SOUTH*



END VIEW OF BENT 2
LOOKING EAST*

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
BRIDGE NO.: 63
REHAB. OF BRIDGE NO. 63 SHEET 8 OF 14



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**BENTS 1 & 2
SUBSTRUCTURE REPAIRS**
BRIDGE ON NC 62
OVER DAN RIVER

DRAWN BY : AEM DATE : 12-11
CHECKED BY : AC DATE : 12-11

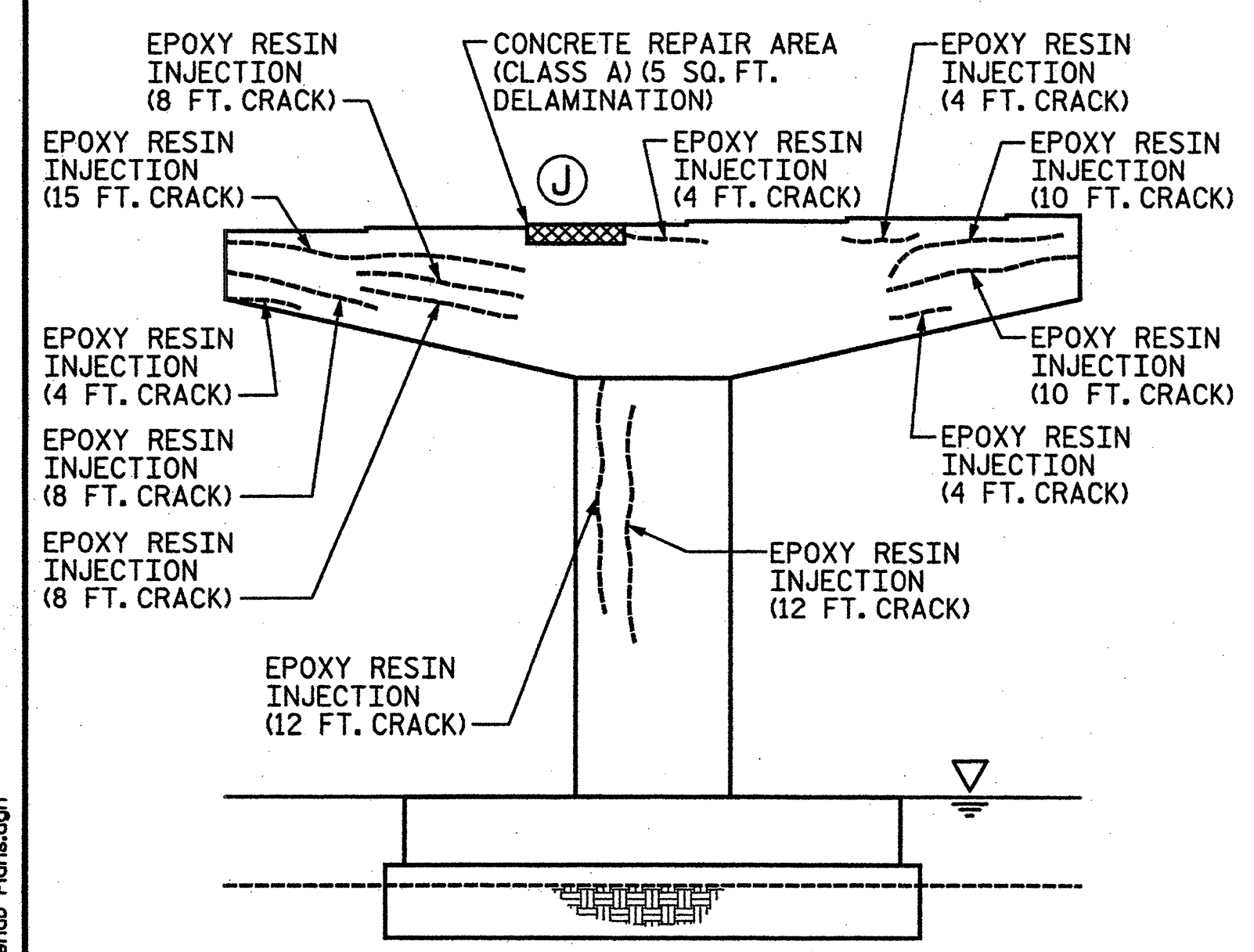
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Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			S-50

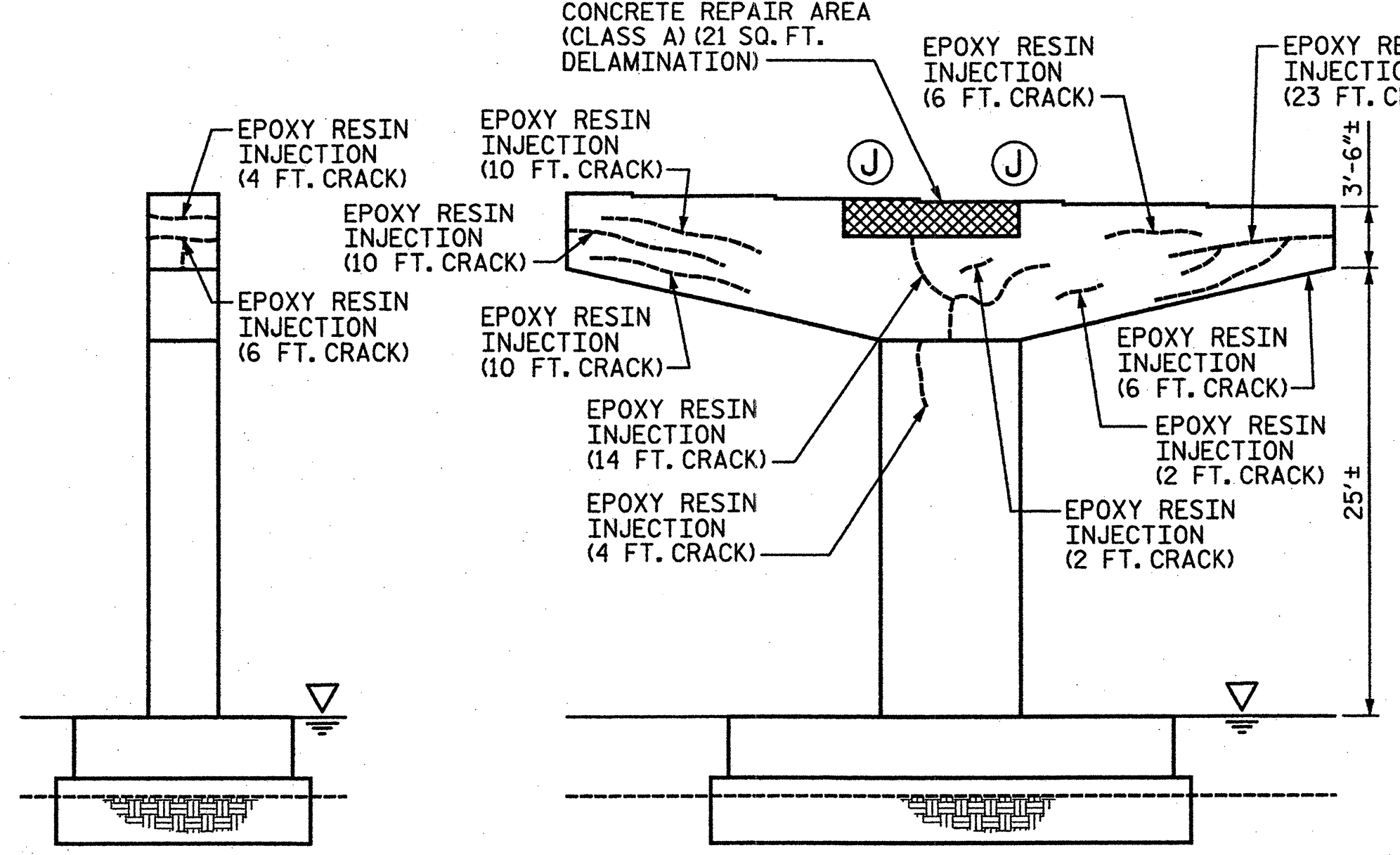
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1/30/2012

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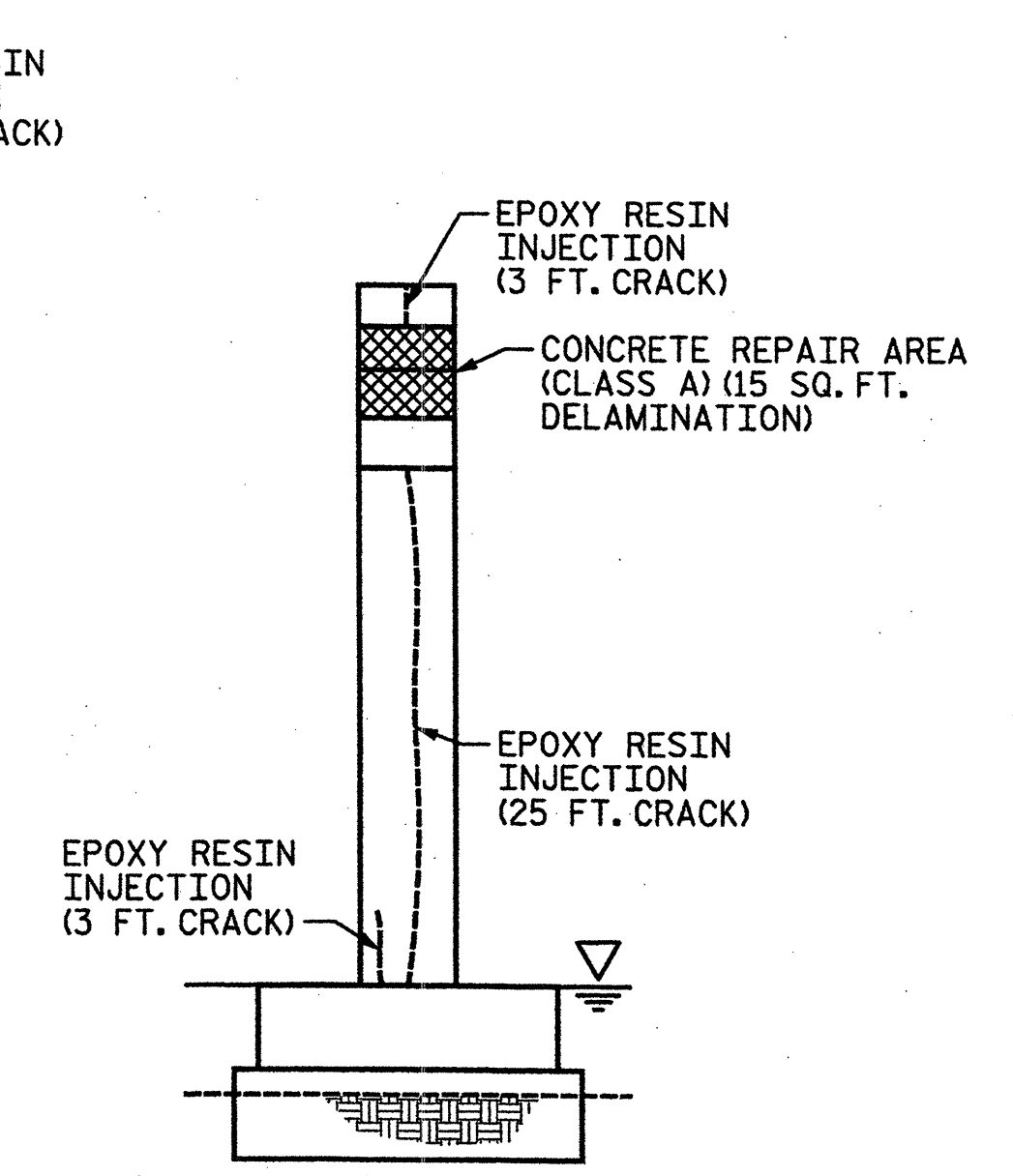


ELEVATION OF BENT 3
LOOKING NORTH*



END VIEW OF BENT 3
LOOKING WEST*

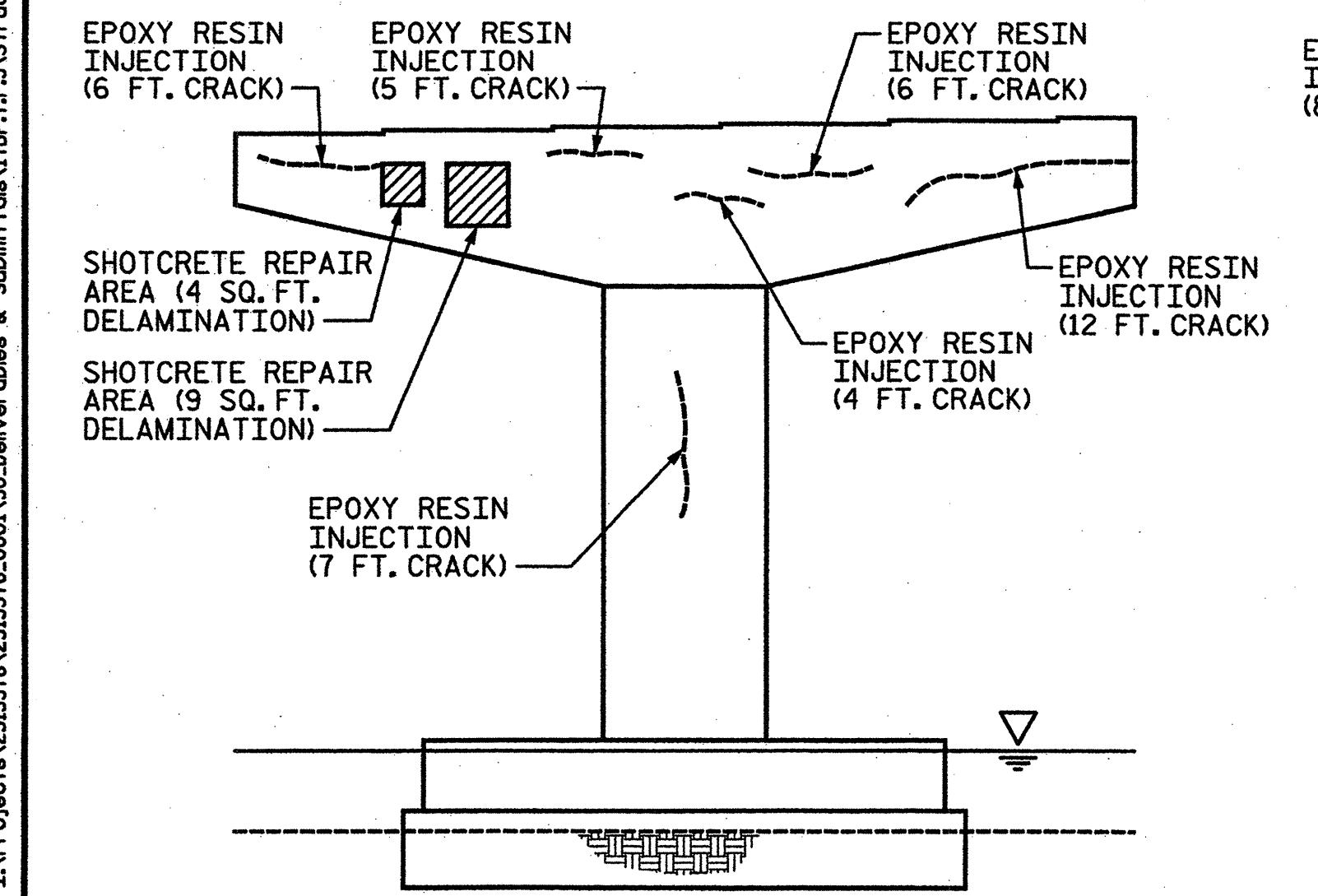
ELEVATION OF BENT 3
LOOKING SOUTH*



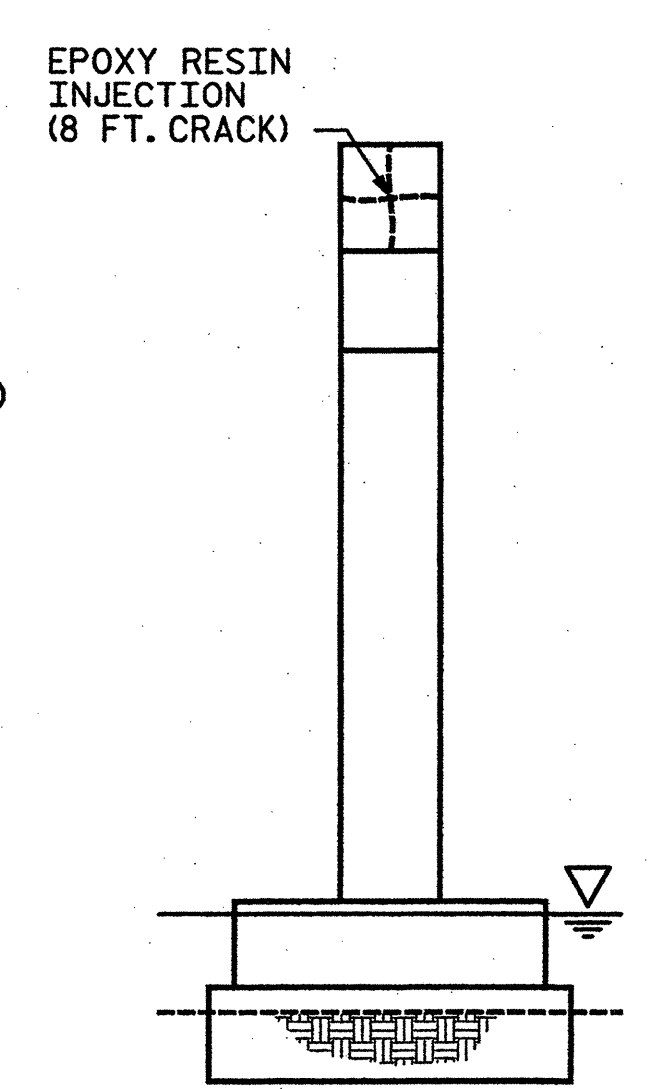
END VIEW OF BENT 3
LOOKING EAST*

NOTE:
 SEE NOTES AND TYPICAL REPAIR DETAILS, SHEET 14 OF 14.
 (J) - JACKING REQUIRED
 * LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

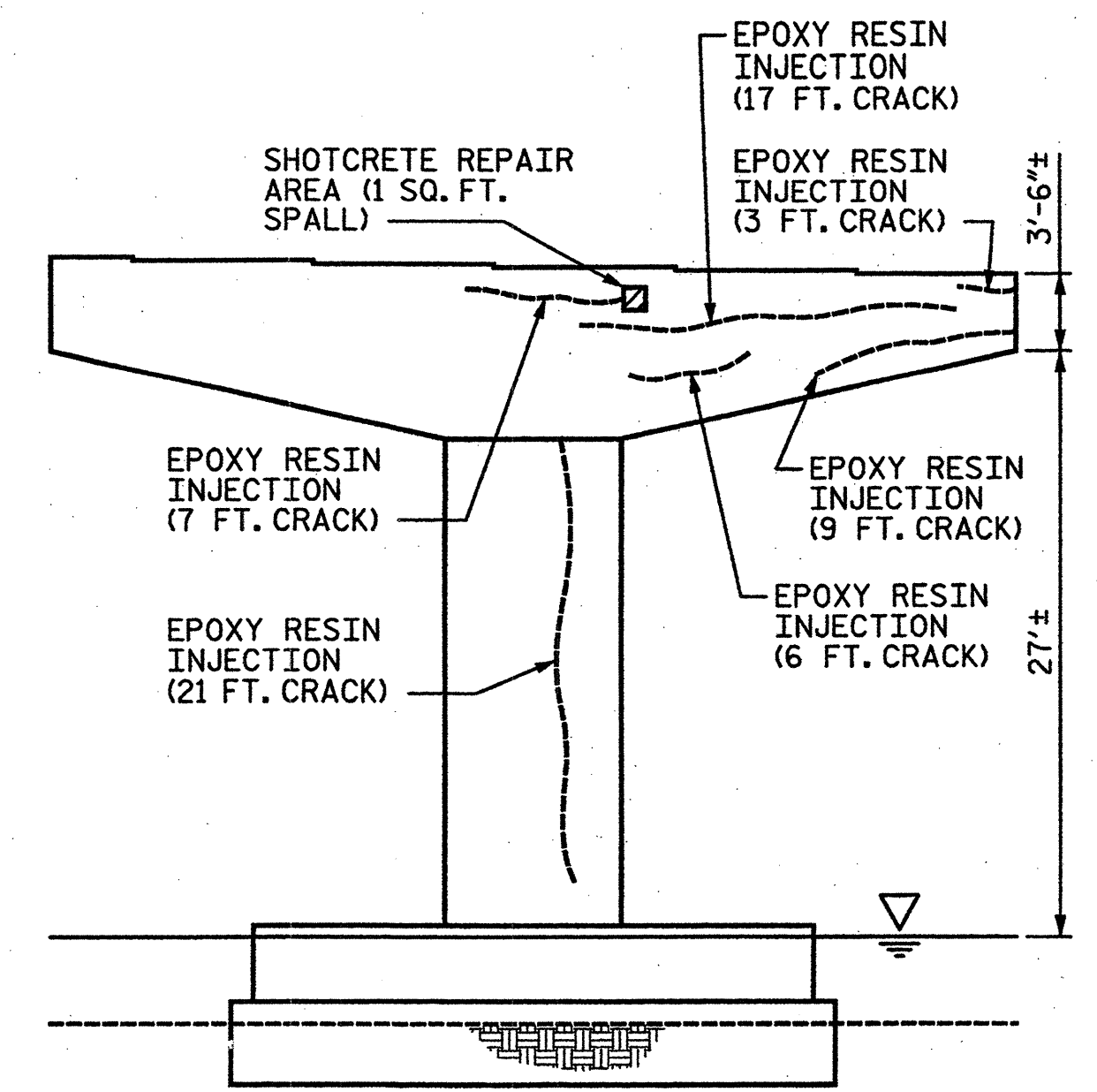
----- APPROX. LENGTH: EPOXY RESIN INJECTION
 APPROX. AREA: SHOTCRETE REPAIRS
 APPROX. AREA: CONCRETE REPAIRS (CLASS A)



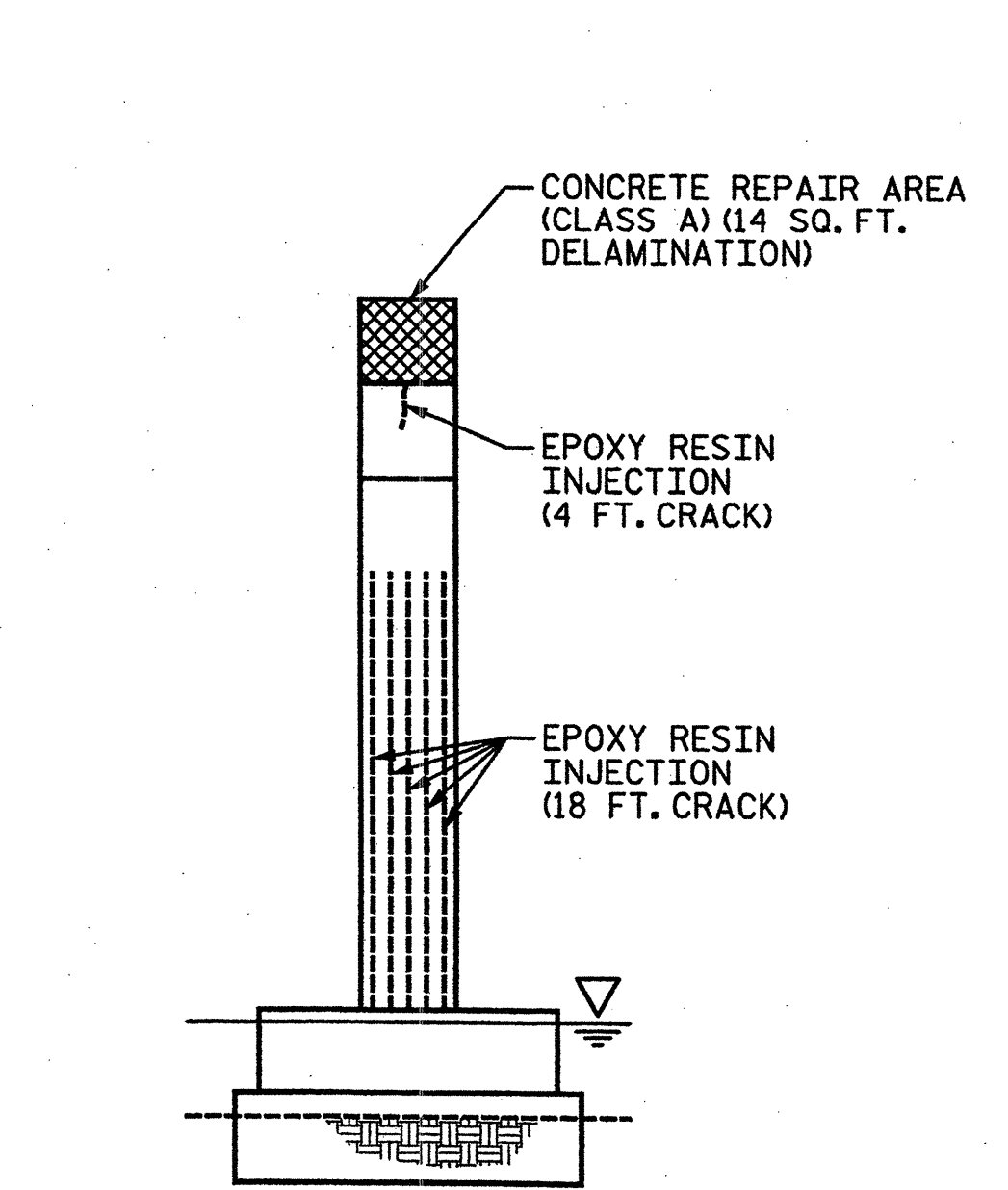
ELEVATION OF BENT 4
LOOKING NORTH*



END VIEW OF BENT 4
LOOKING WEST*



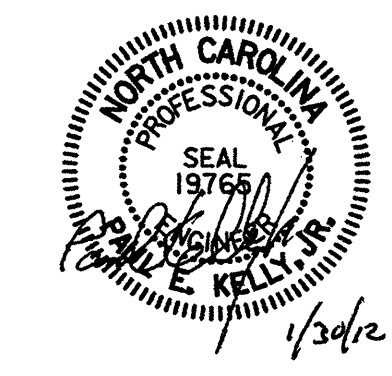
ELEVATION OF BENT 4
LOOKING SOUTH*



END VIEW OF BENT 4
LOOKING EAST*

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
 BRIDGE NO.: 63
 REHAB. OF BRIDGE NO. 63 SHEET 9 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
BENTS 3 & 4
SUBSTRUCTURE REPAIRS
 BRIDGE ON NC 62
 OVER DAN RIVER

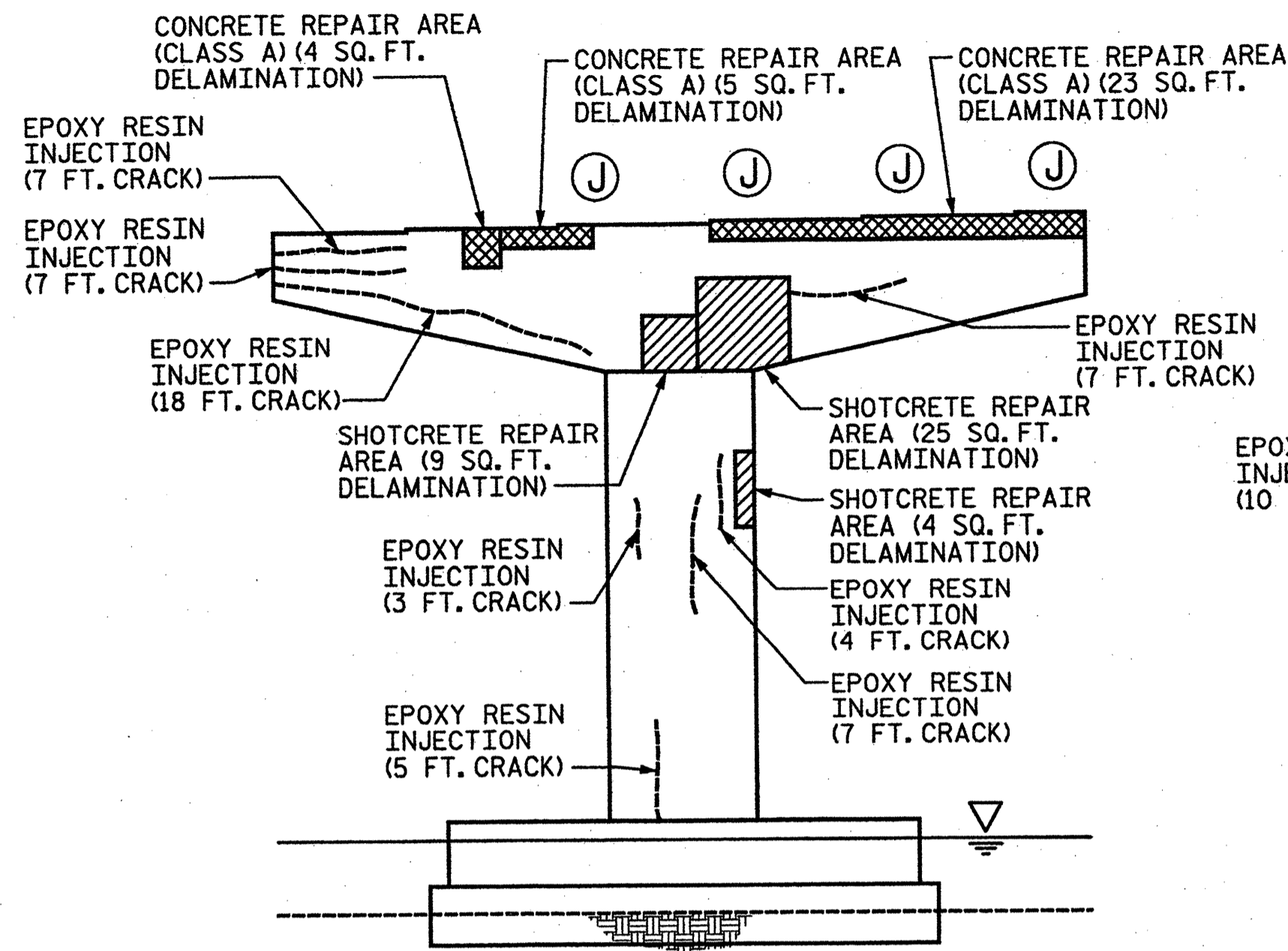
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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			S-50

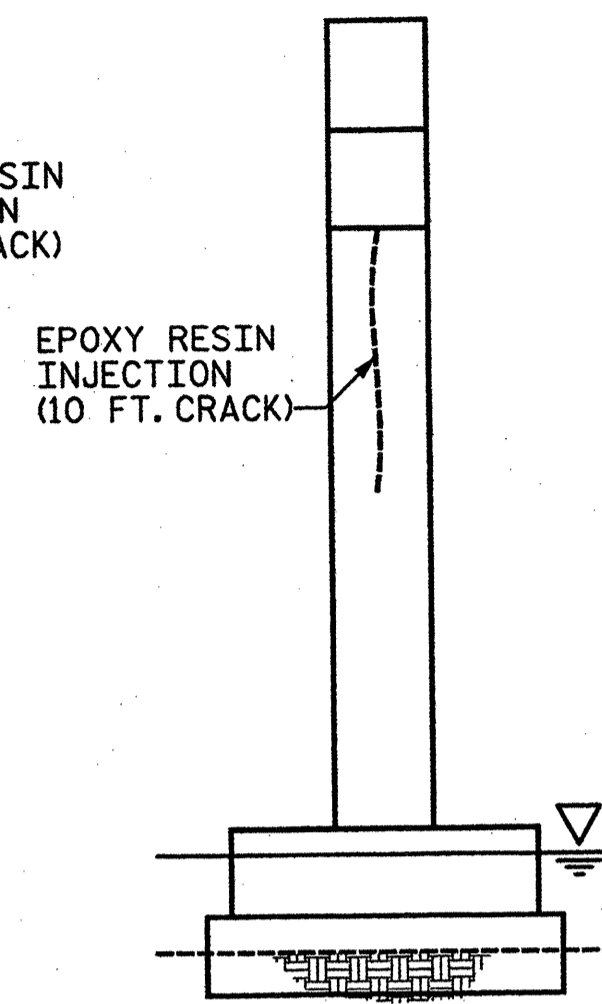
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WJM

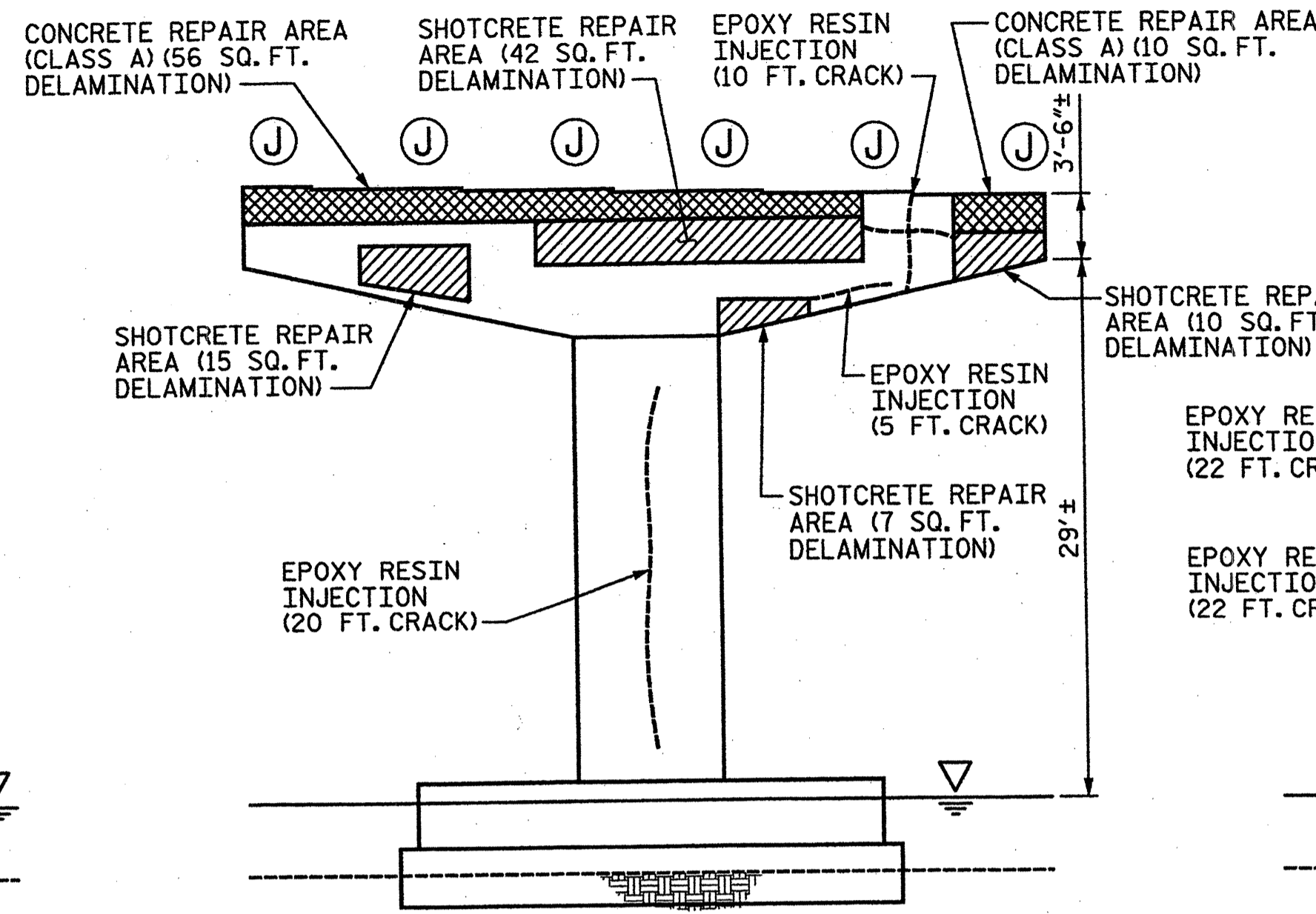
1/30/2012



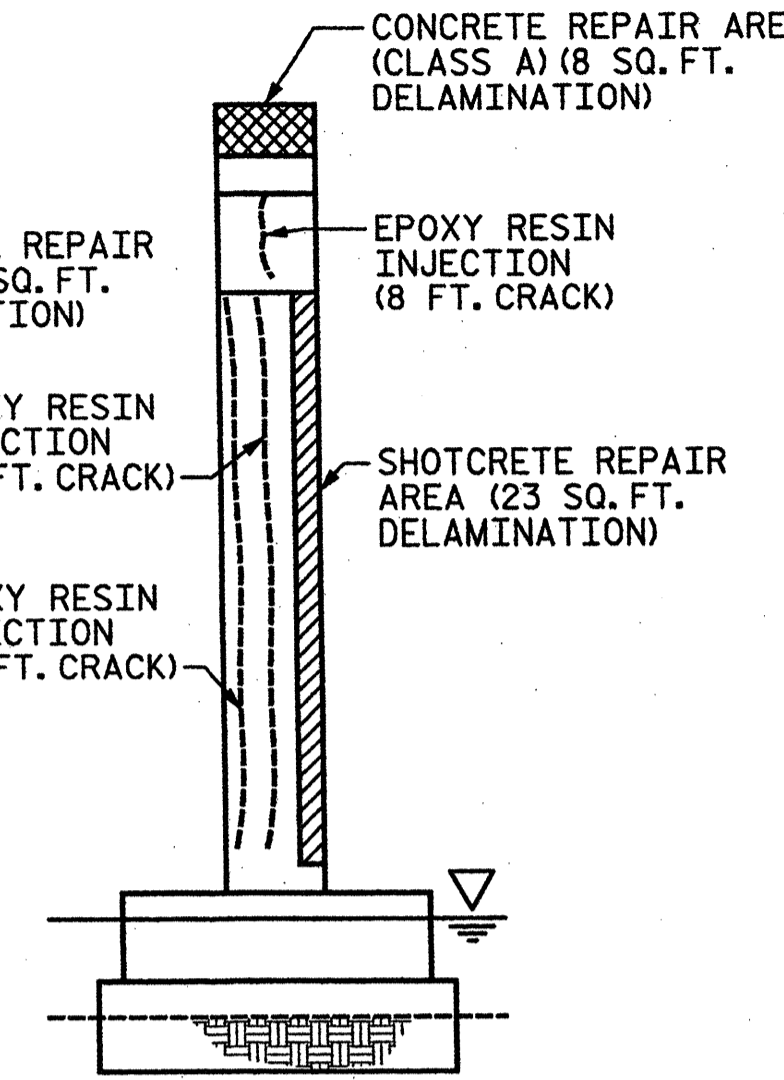
ELEVATION OF BENT 5
LOOKING NORTH*



END VIEW OF BENT 5
LOOKING WEST*



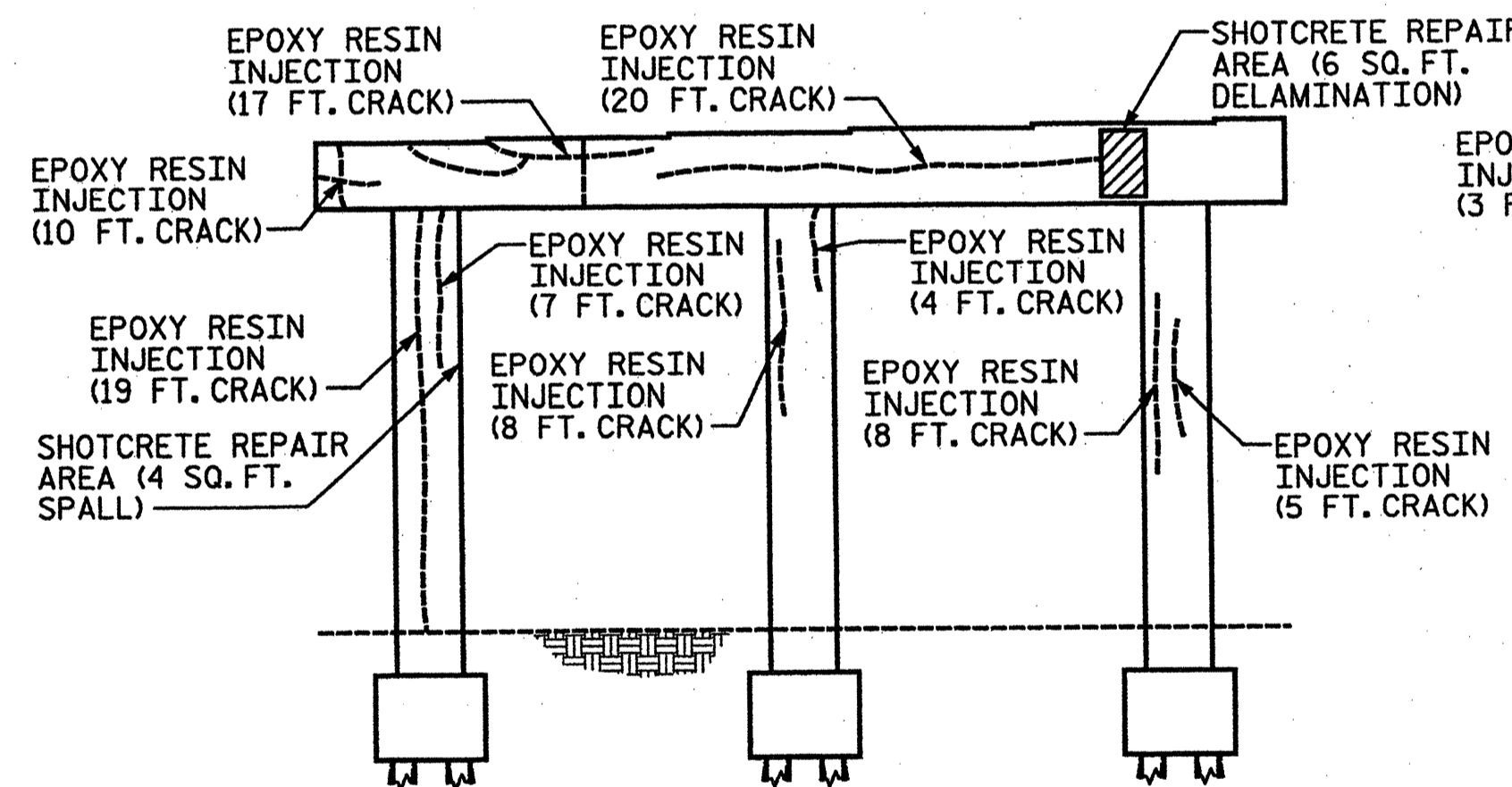
ELEVATION OF BENT 5
LOOKING SOUTH*



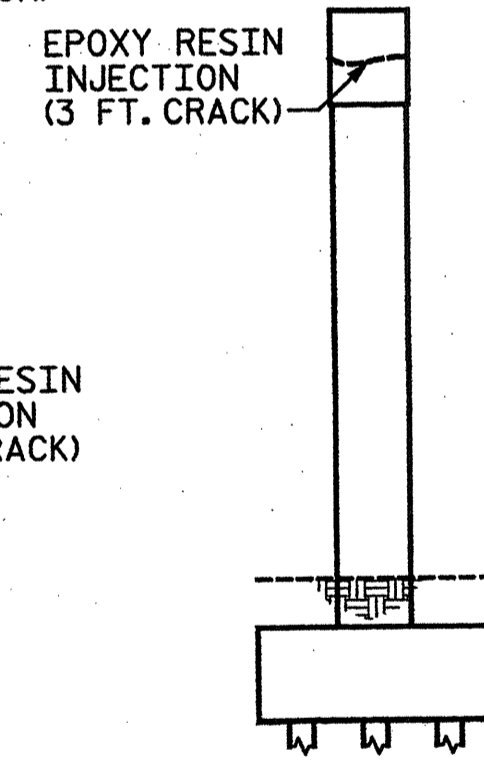
END VIEW OF BENT 5
LOOKING EAST*

NOTE:
SEE NOTES AND TYPICAL REPAIR DETAILS, SHEET 14 OF 14.
Ⓝ - JACKING REQUIRED
* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

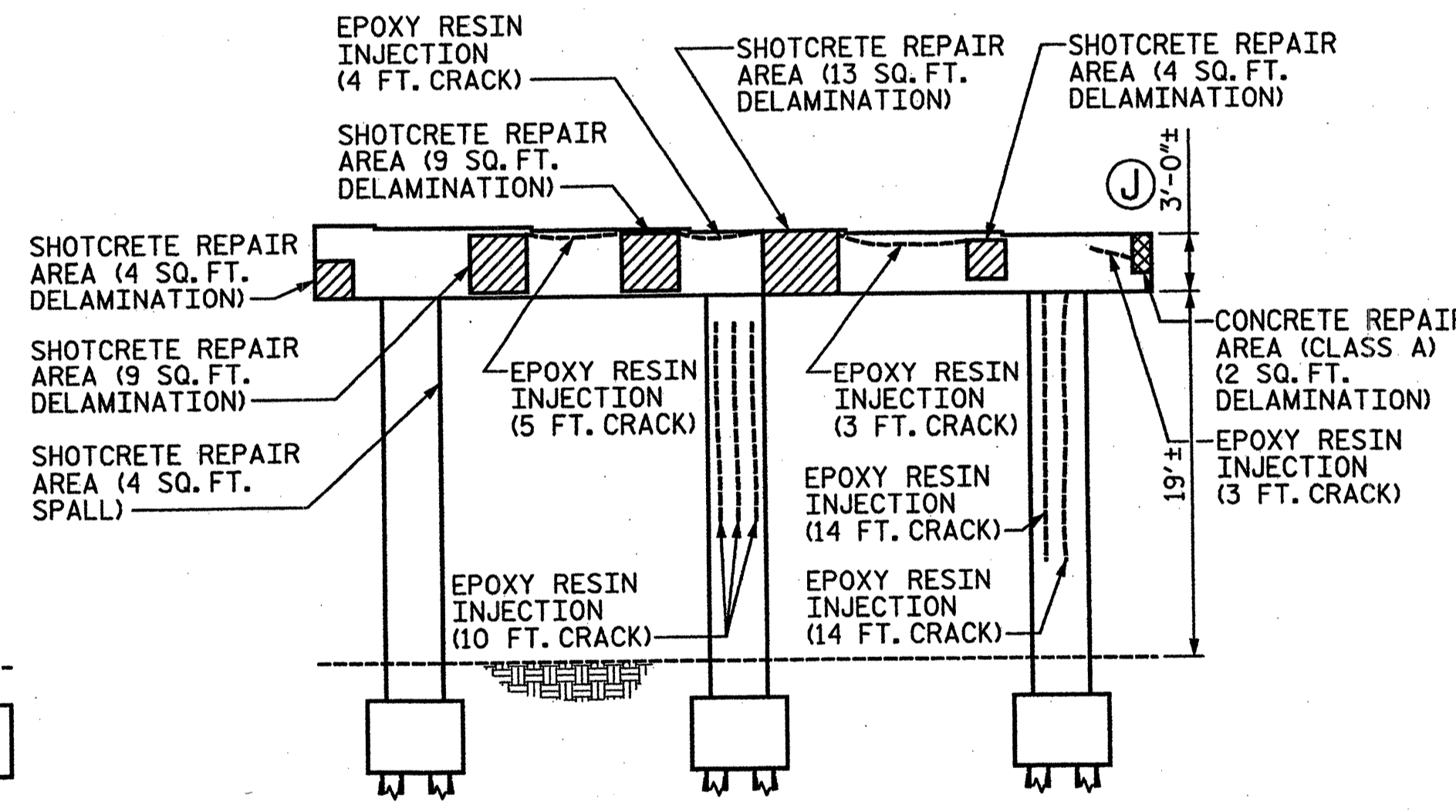
APPROX. LENGTH: EPOXY RESIN INJECTION
APPROX. AREA: SHOTCRETE REPAIRS
APPROX. AREA: CONCRETE REPAIRS (CLASS A)



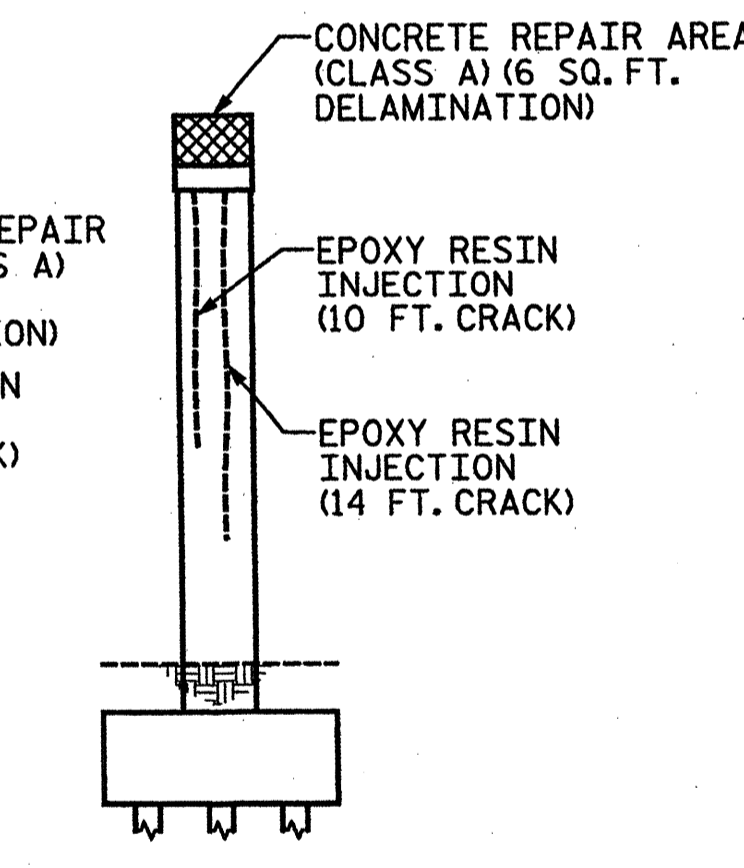
ELEVATION OF BENT 6
LOOKING NORTH*



END VIEW OF BENT 6
LOOKING WEST*



ELEVATION OF BENT 6
LOOKING SOUTH*



END VIEW OF BENT 6
LOOKING EAST*

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY

BRIDGE NO.: 63

REHAB. OF BRIDGE NO. 63 SHEET 10 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENTS 5 & 6
SUBSTRUCTURE REPAIRS

BRIDGE ON NC 62
OVER DAN RIVER



DRAWN BY: AEM DATE: 12-11
CHECKED BY: AC DATE: 12-11

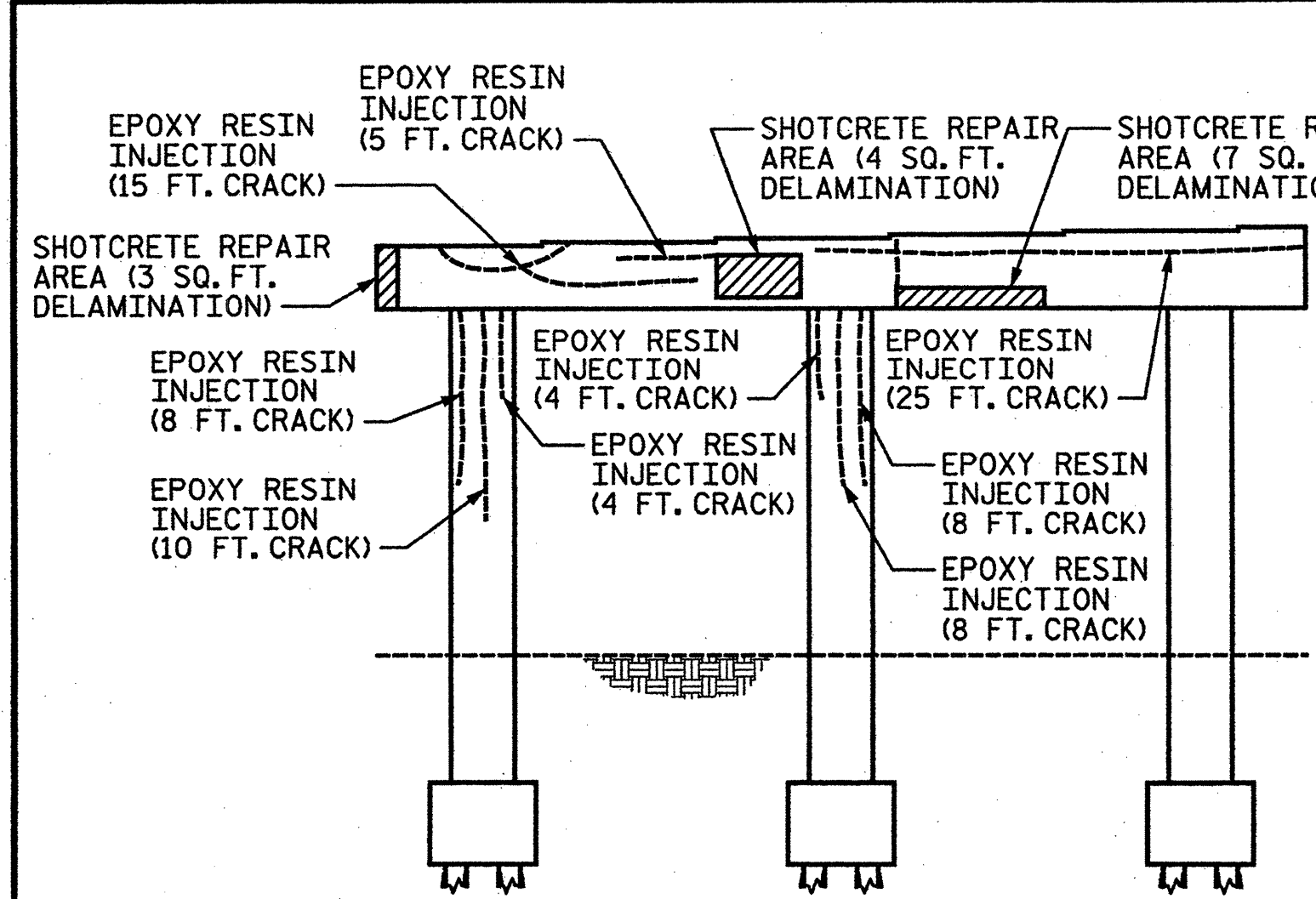
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REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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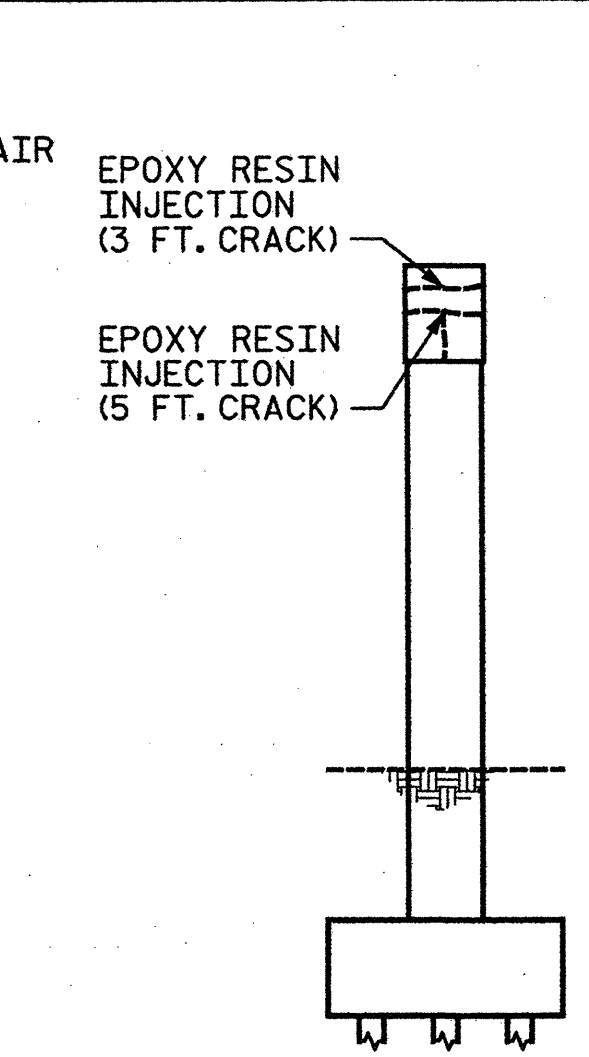
TOTAL SHEETS	S-45
TOTAL SHEETS	S-50

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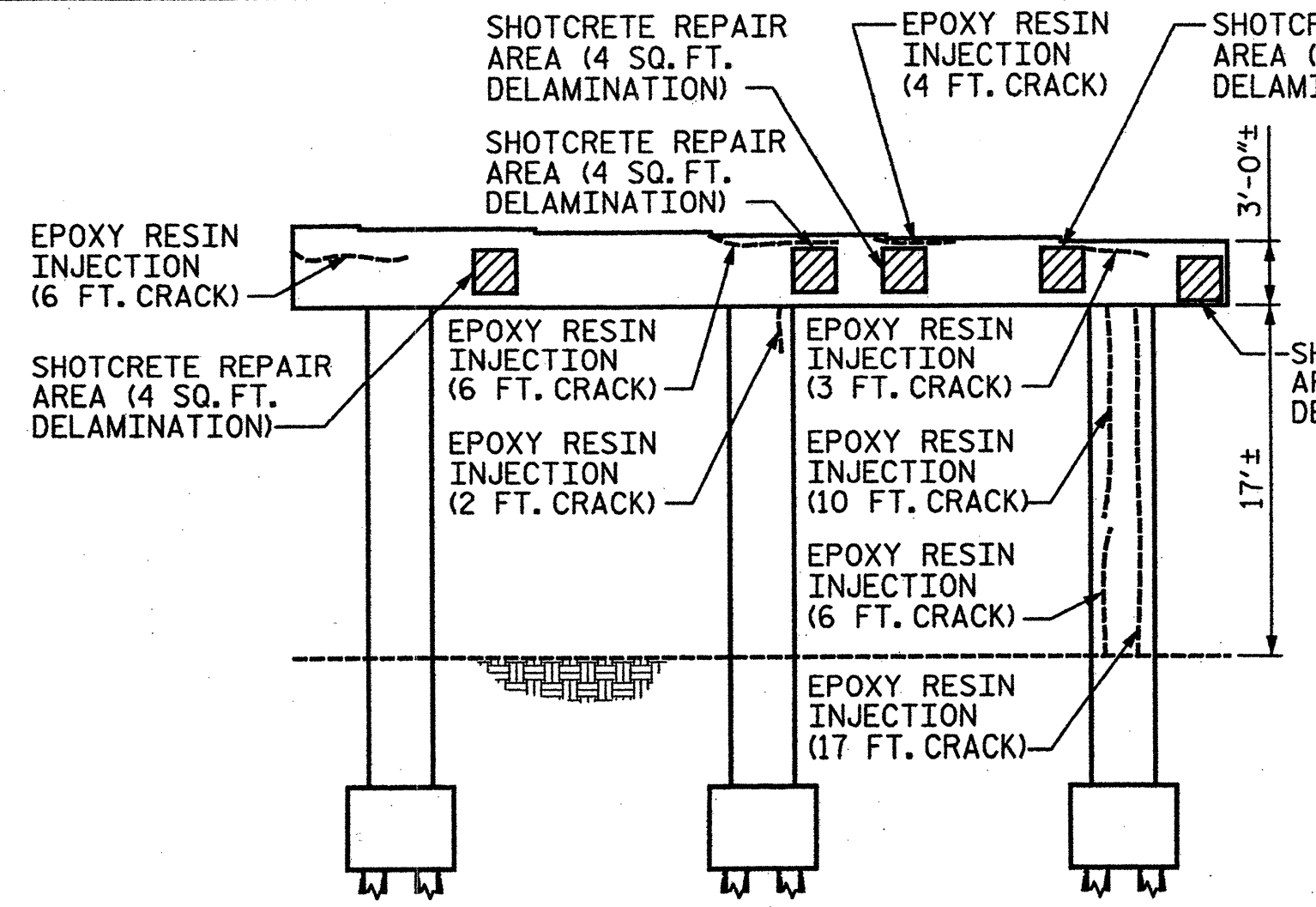
1/30/2012



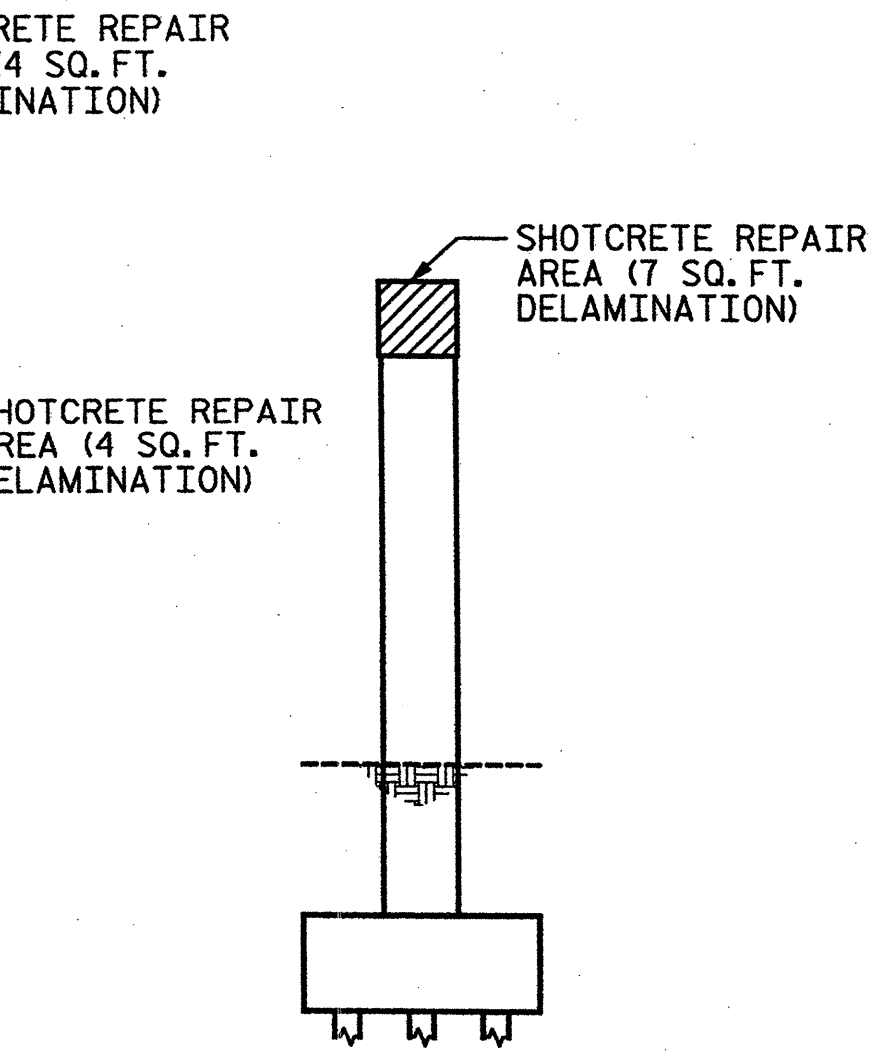
ELEVATION OF BENT 7
LOOKING NORTH*



END VIEW OF BENT 7
LOOKING WEST*



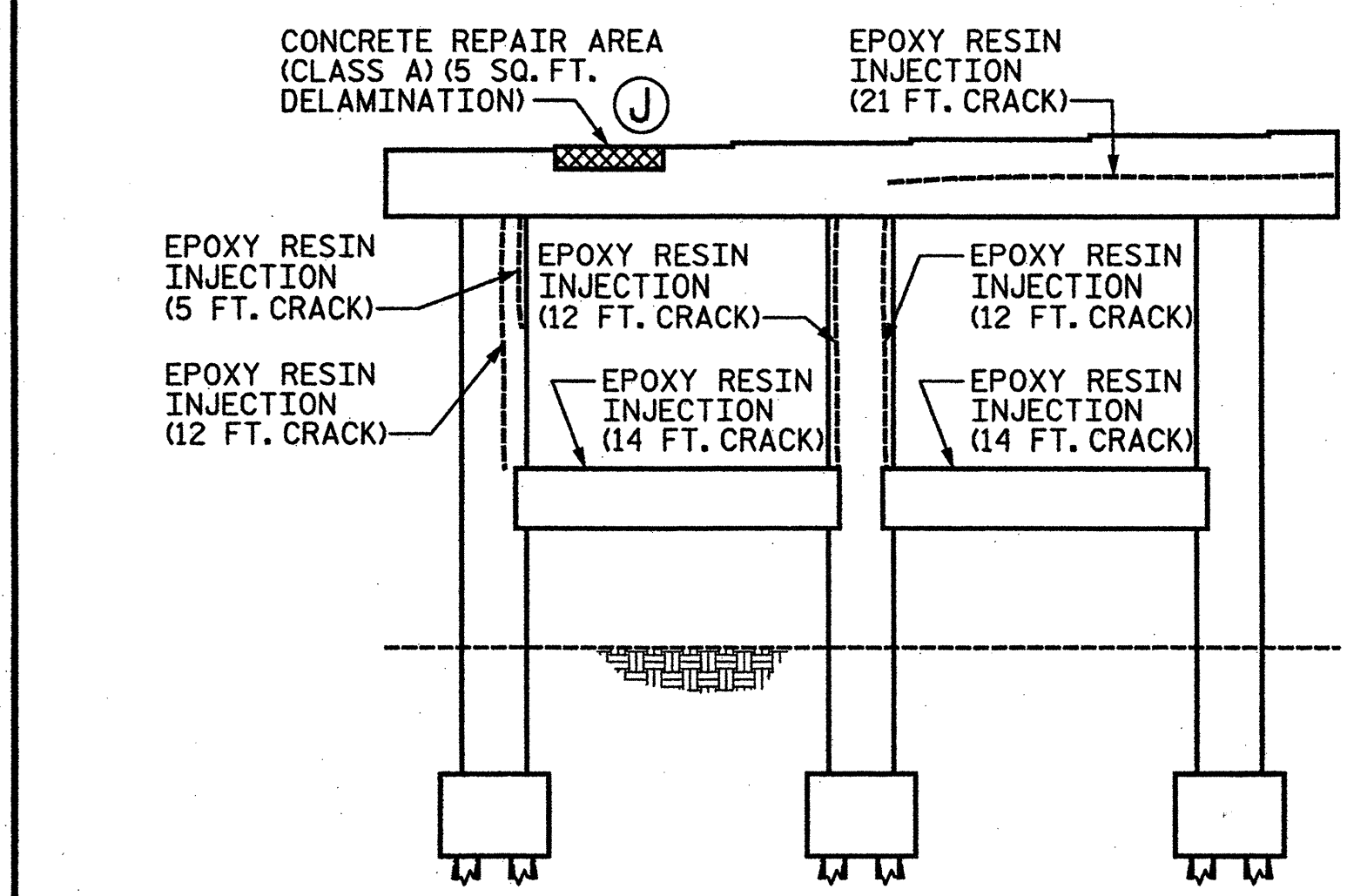
ELEVATION OF BENT 7
LOOKING SOUTH*



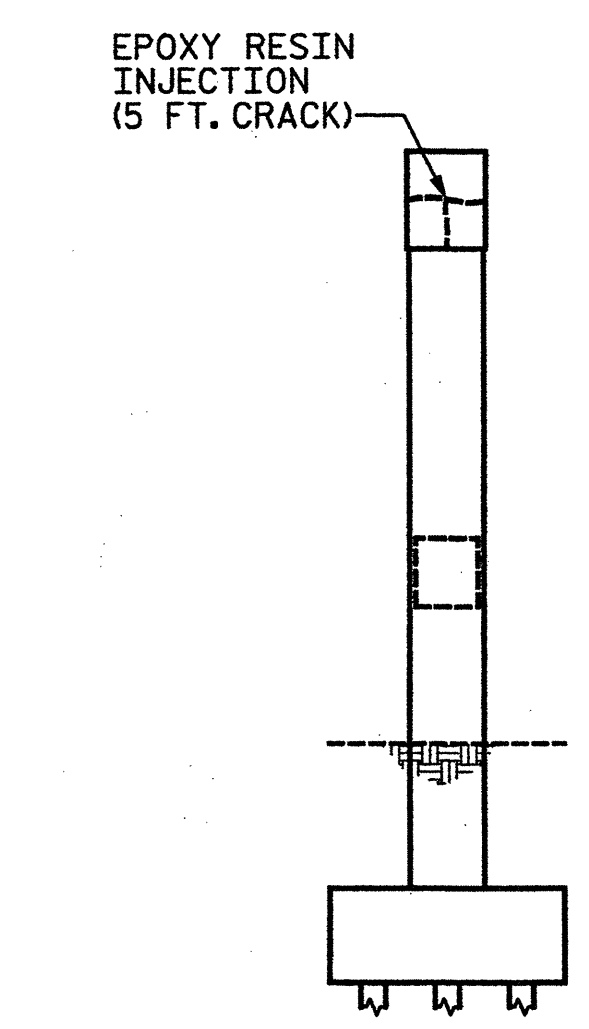
END VIEW OF BENT 7
LOOKING EAST*

NOTE:
SEE NOTES AND TYPICAL REPAIR
DETAILS, SHEET 14 OF 14.
* LOOKING DIRECTION CORRESPONDS WITH
DIRECTION OF TRAVEL ALONG HIGHWAY

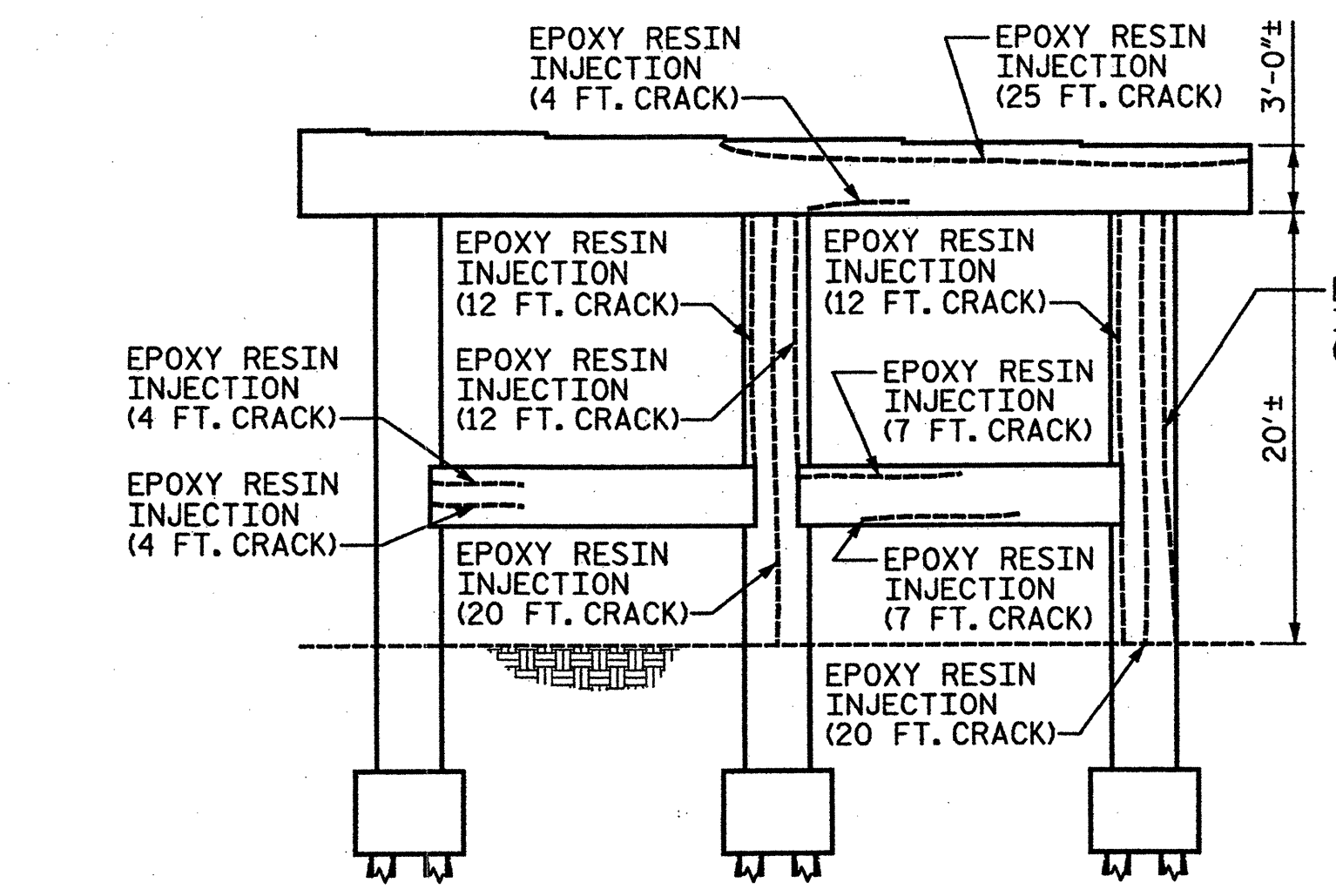
--- APPROX. LENGTH:
EPOXY RESIN INJECTION
[Hatched Box] APPROX. AREA:
SHOTCRETE REPAIRS
[Cross-hatched Box] APPROX. AREA:
CONCRETE REPAIRS (CLASS A)



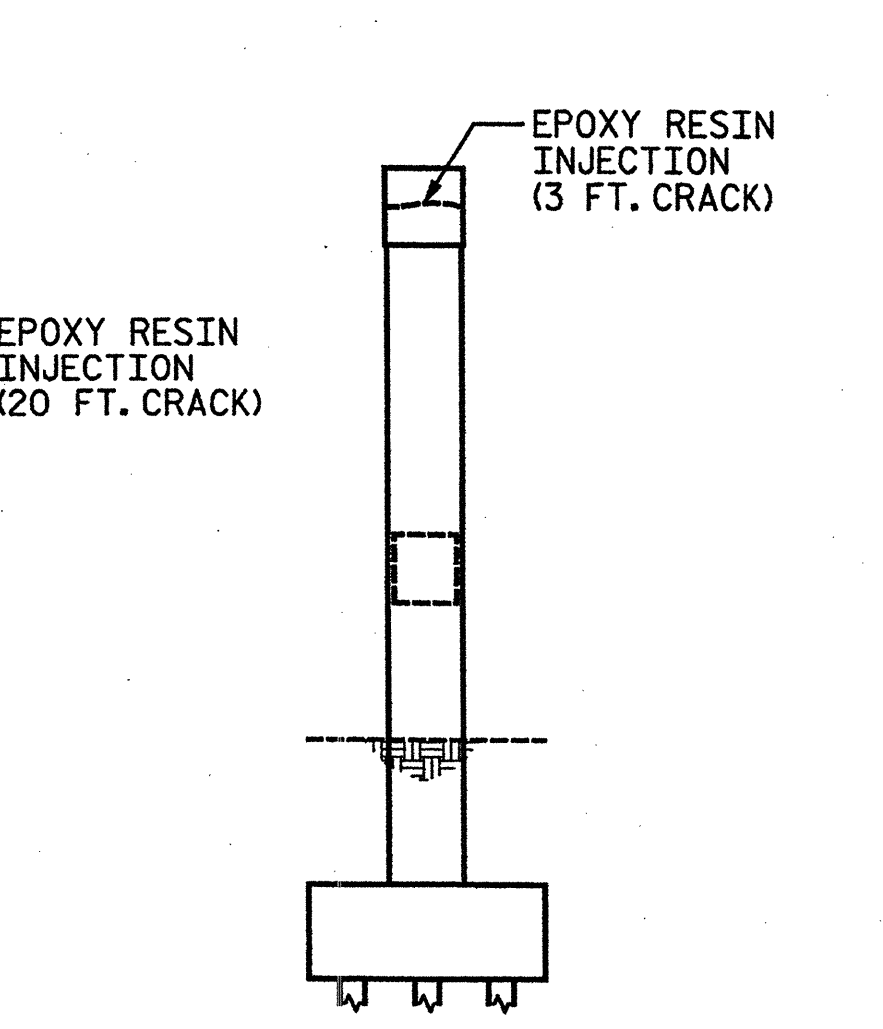
ELEVATION OF BENT 8
LOOKING NORTH*



END VIEW OF BENT 8
LOOKING WEST*



ELEVATION OF BENT 8
LOOKING SOUTH*

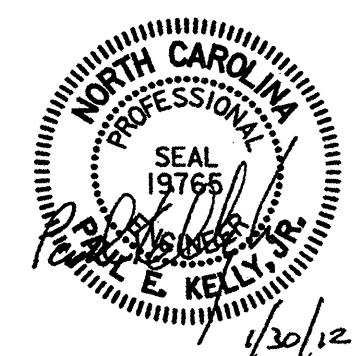


END VIEW OF BENT 8
LOOKING EAST*

* LOOKING DIRECTION CORRESPONDS WITH
DIRECTION OF TRAVEL ALONG HIGHWAY

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
BRIDGE NO.: 63
REHAB. OF BRIDGE NO. 63 SHEET 11 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**BENTS 7 & 8
SUBSTRUCTURE REPAIRS**
BRIDGE ON NC 62
OVER DAN RIVER



DRAWN BY : AFM DATE : J2-11
CHECKED BY : AC DATE : J2-11

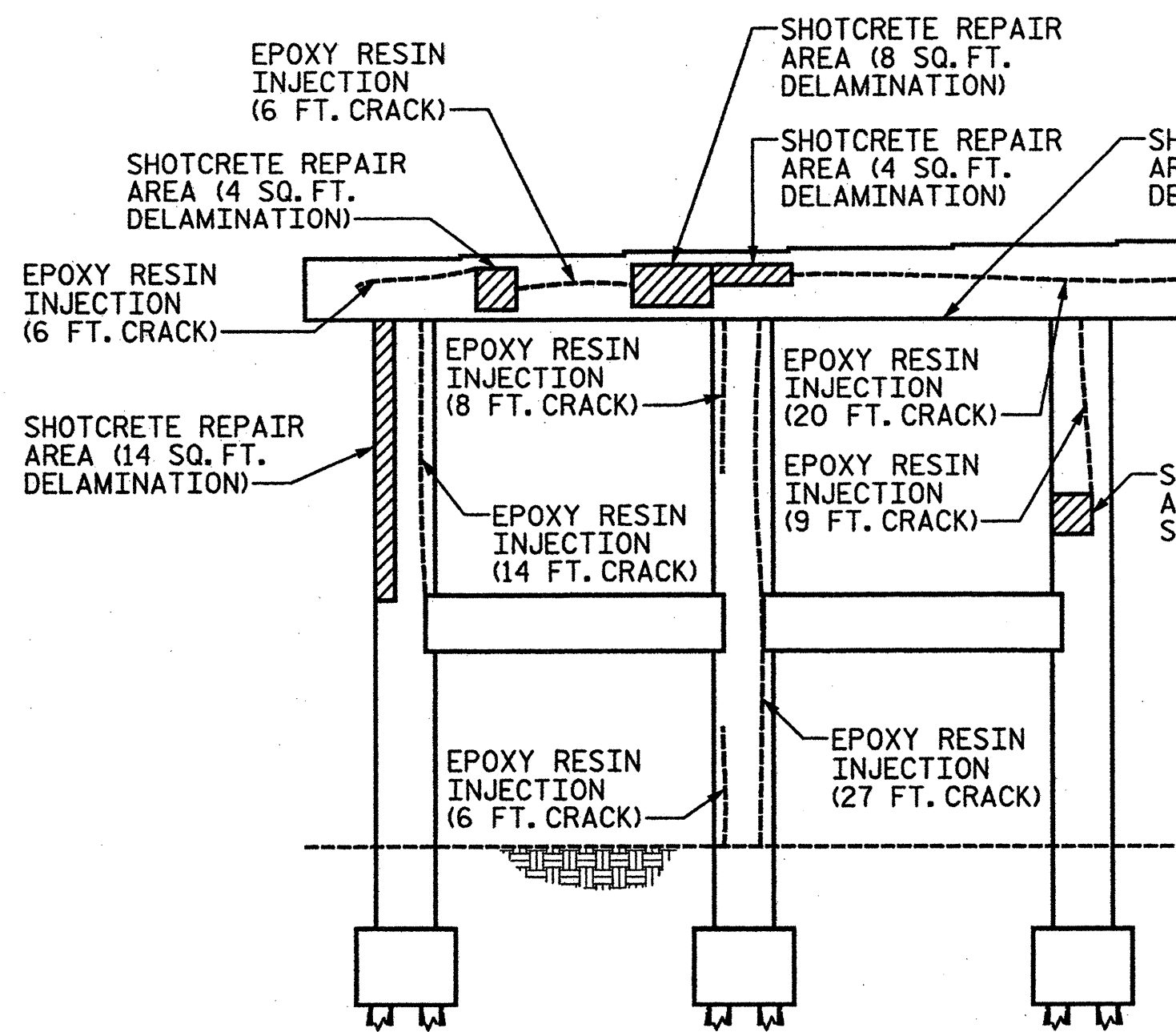
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Charlotte, NC 28208
NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
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2			4			S-50

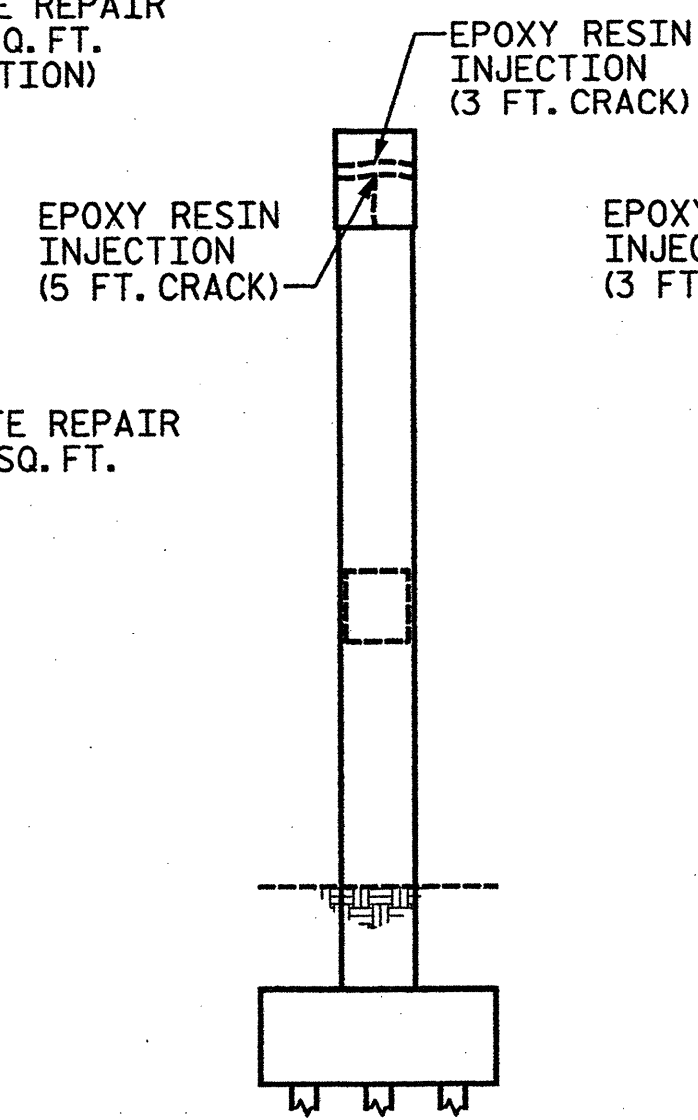
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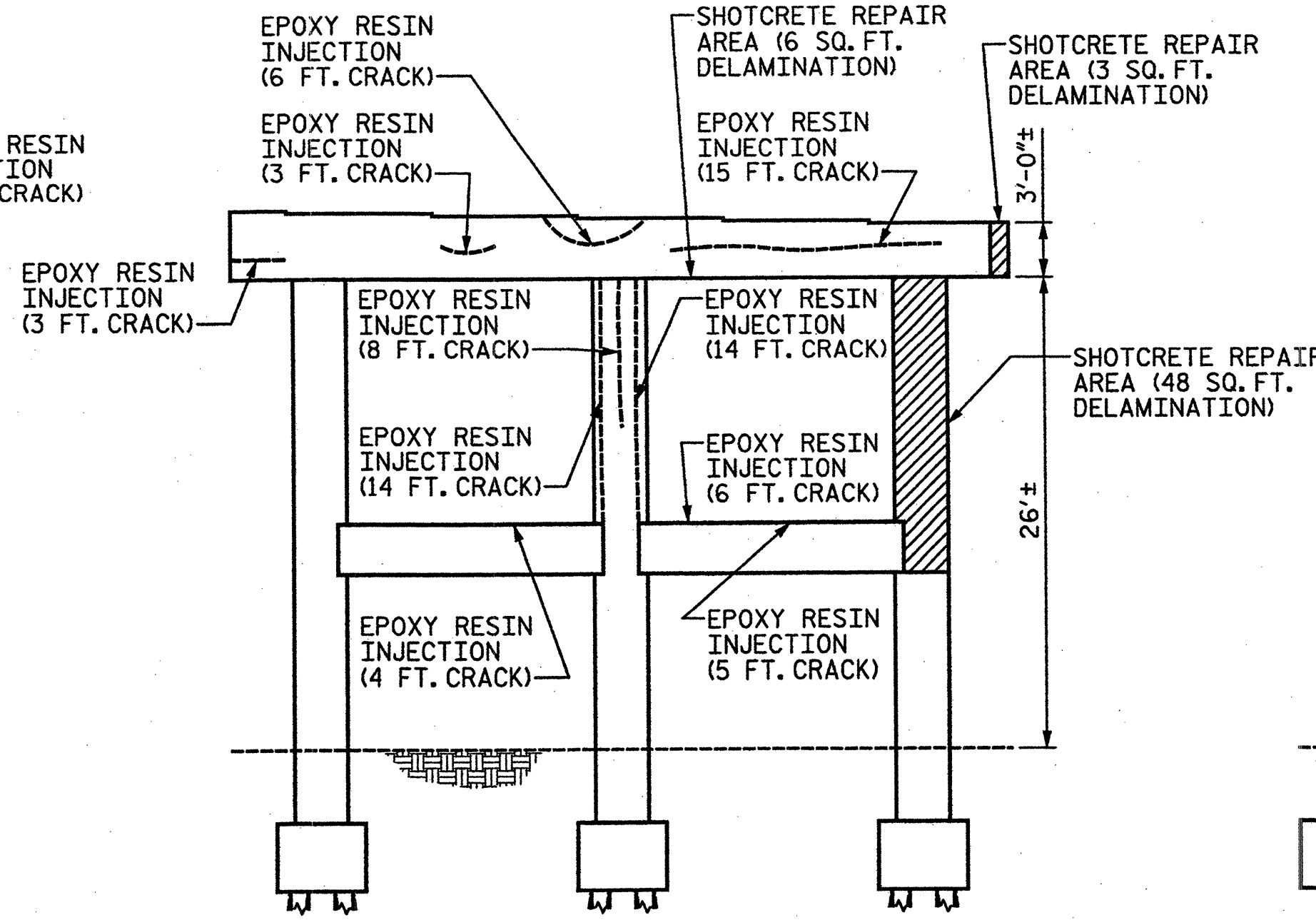
1/30/2012



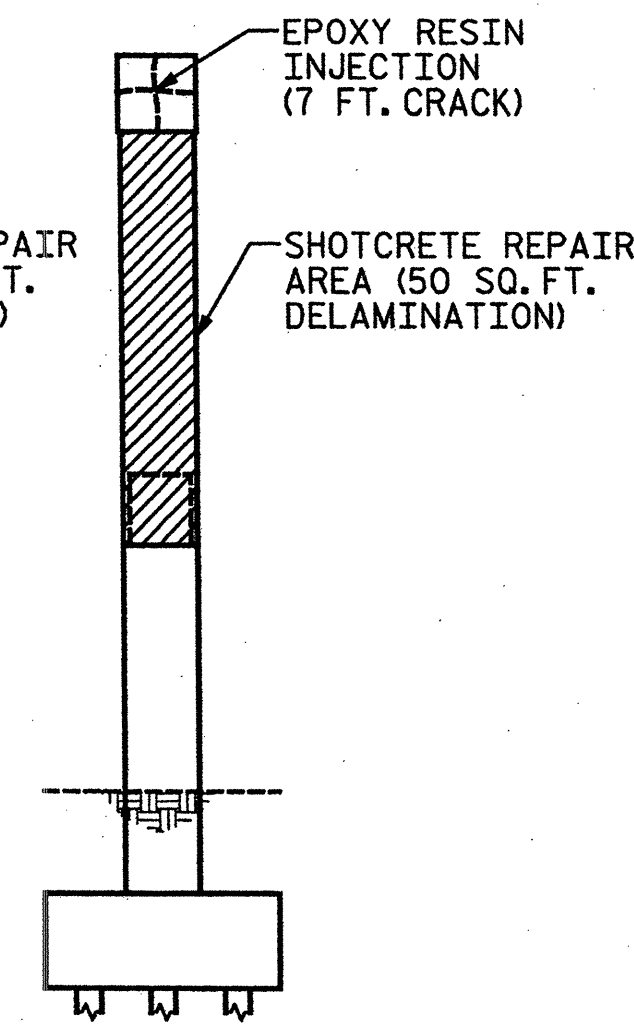
ELEVATION OF BENT 9
LOOKING NORTH*



END VIEW OF BENT 9
LOOKING WEST*



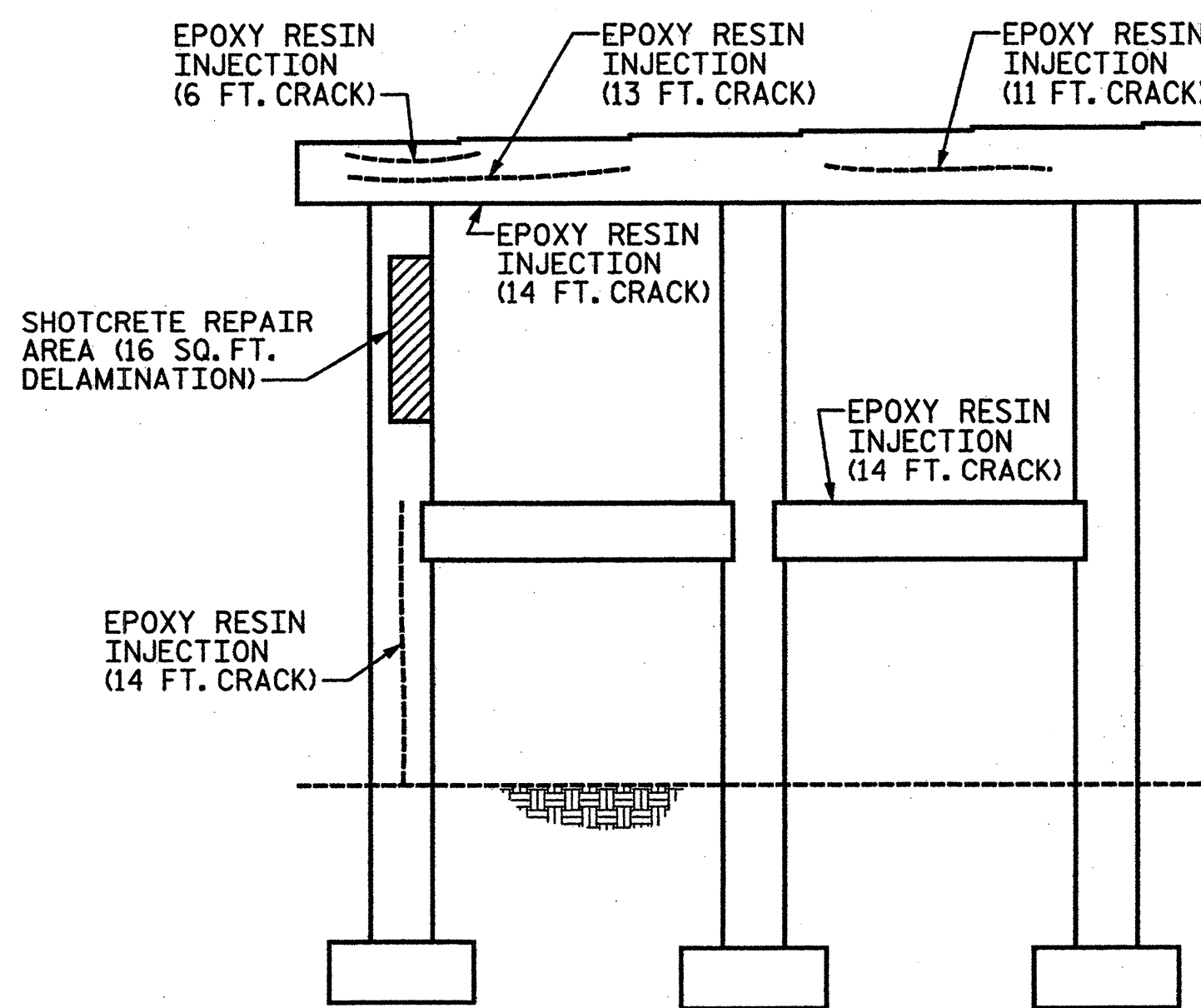
ELEVATION OF BENT 9
LOOKING SOUTH*



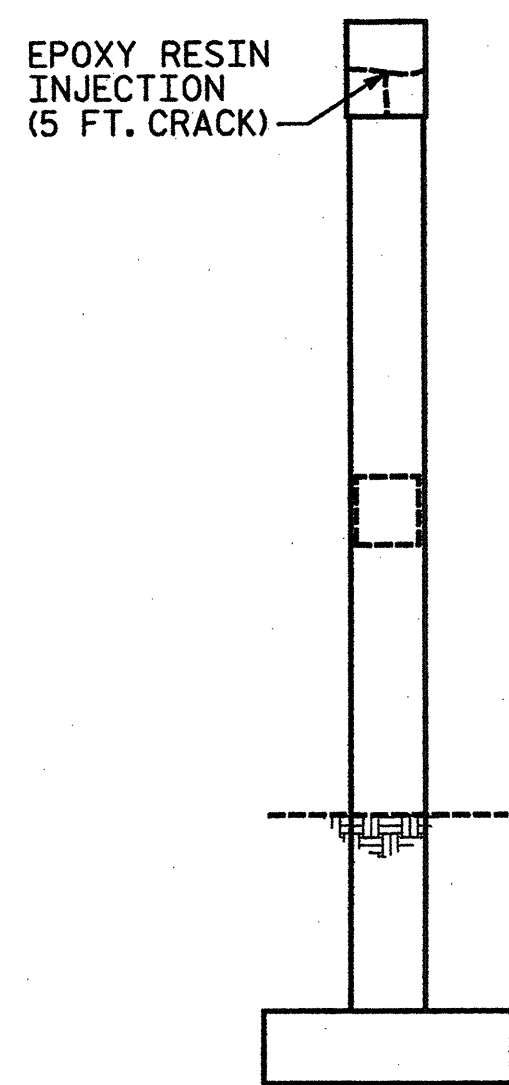
END VIEW OF BENT 9
LOOKING EAST*

NOTE:
SEE NOTES AND TYPICAL REPAIR
DETAILS, SHEET 14 OF 14.
Ⓝ - JACKING REQUIRED
* LOOKING DIRECTION CORRESPONDS WITH
DIRECTION OF TRAVEL ALONG HIGHWAY

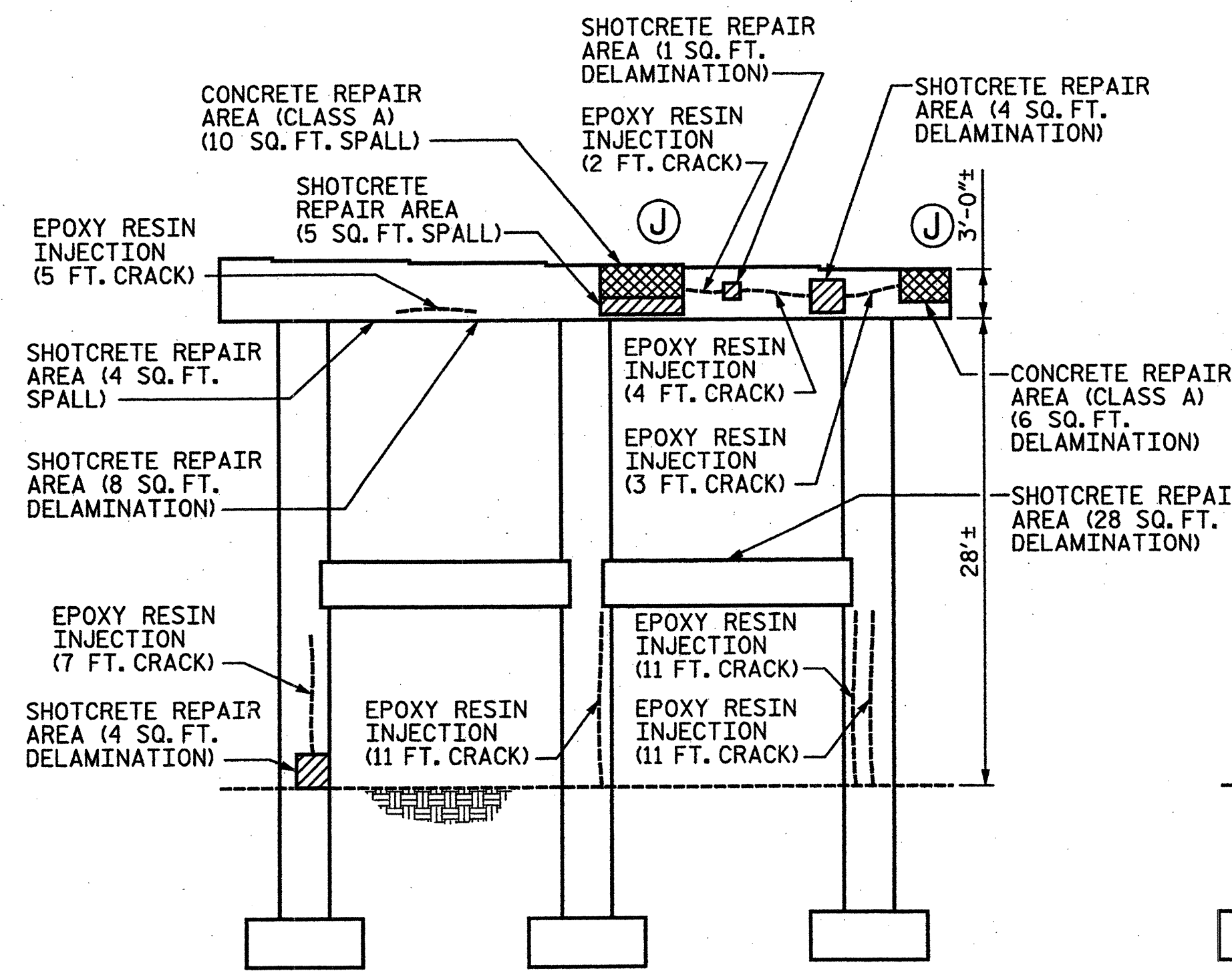
--- APPROX. LENGTH:
EPOXY RESIN INJECTION
▨ APPROX. AREA:
SHOTCRETE REPAIRS
▩ APPROX. AREA:
CONCRETE REPAIRS (CLASS A)



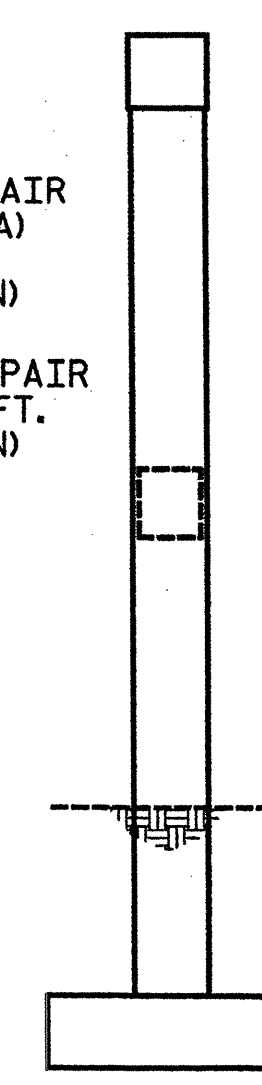
ELEVATION OF BENT 10
LOOKING NORTH*



END VIEW OF BENT 10
LOOKING WEST*



ELEVATION OF BENT 10
LOOKING SOUTH*

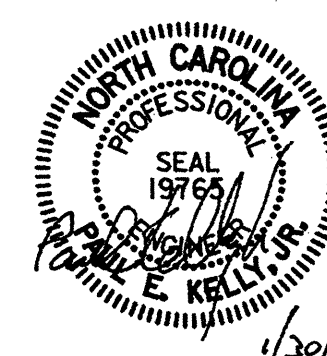


END VIEW OF BENT 10
LOOKING EAST*

* LOOKING DIRECTION CORRESPONDS WITH
DIRECTION OF TRAVEL ALONG HIGHWAY

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
BRIDGE NO.: 63
REHAB. OF BRIDGE NO. 63 SHEET 12 OF 14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**BENTS 9 & 10
SUBSTRUCTURE REPAIRS**
BRIDGE ON NC 62
OVER DAN RIVER

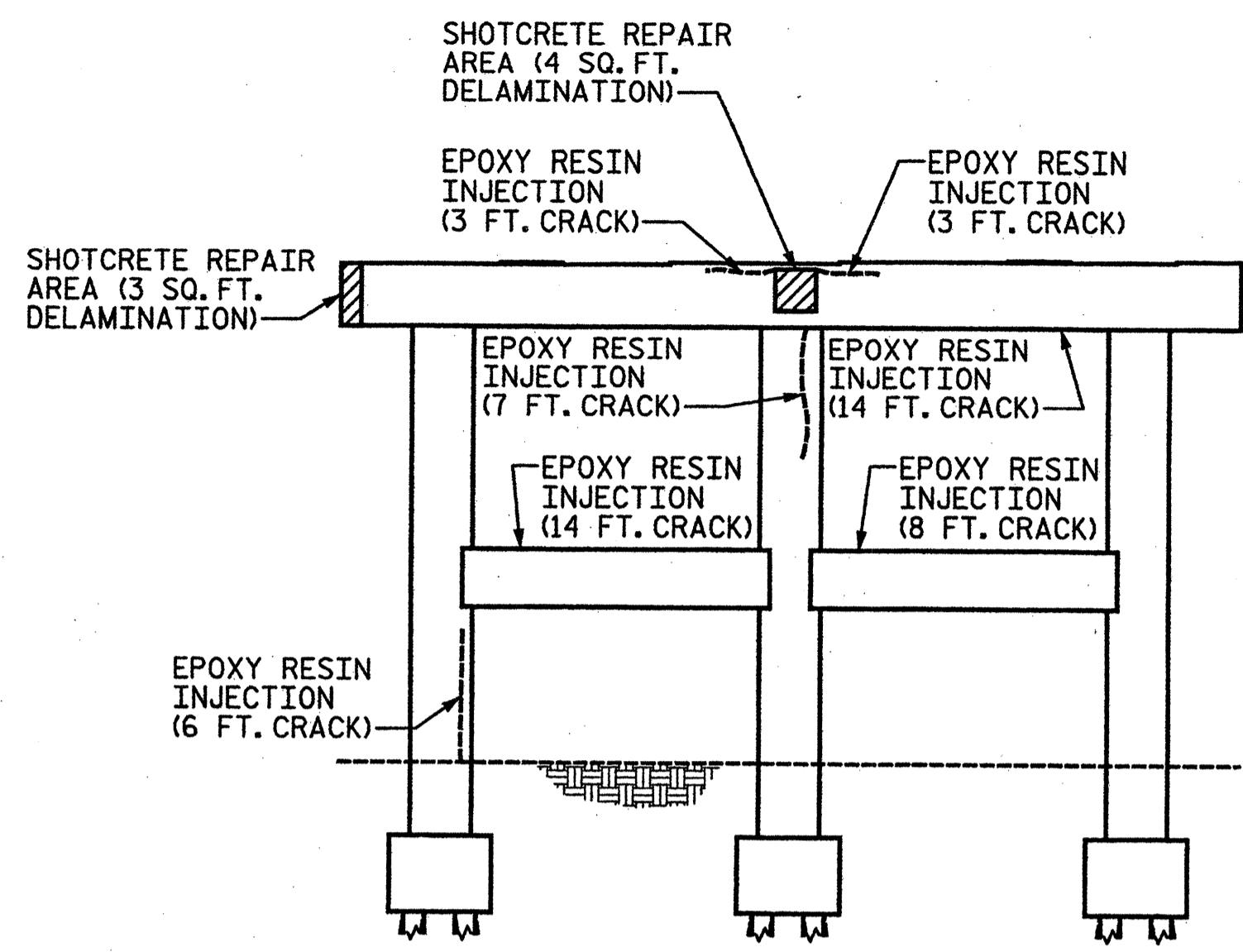


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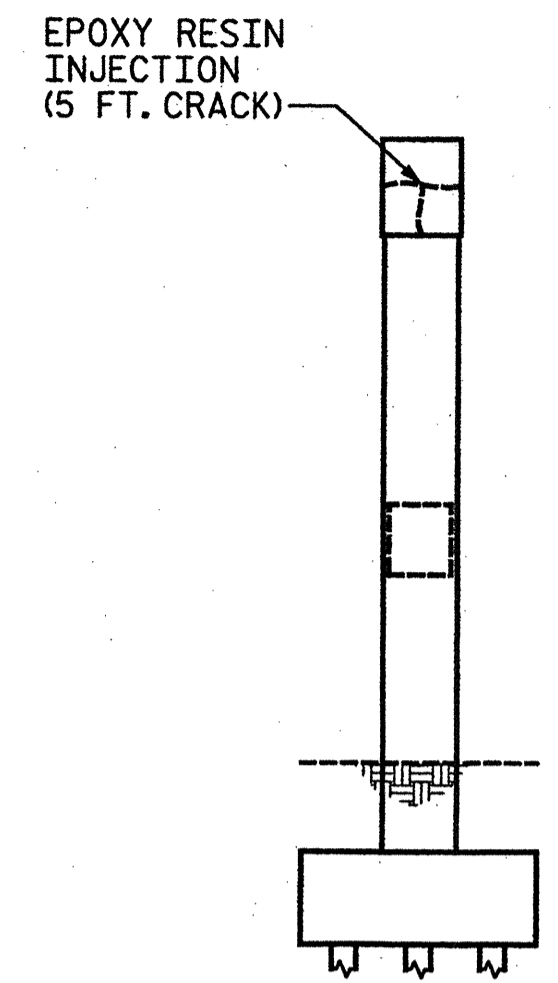
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NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
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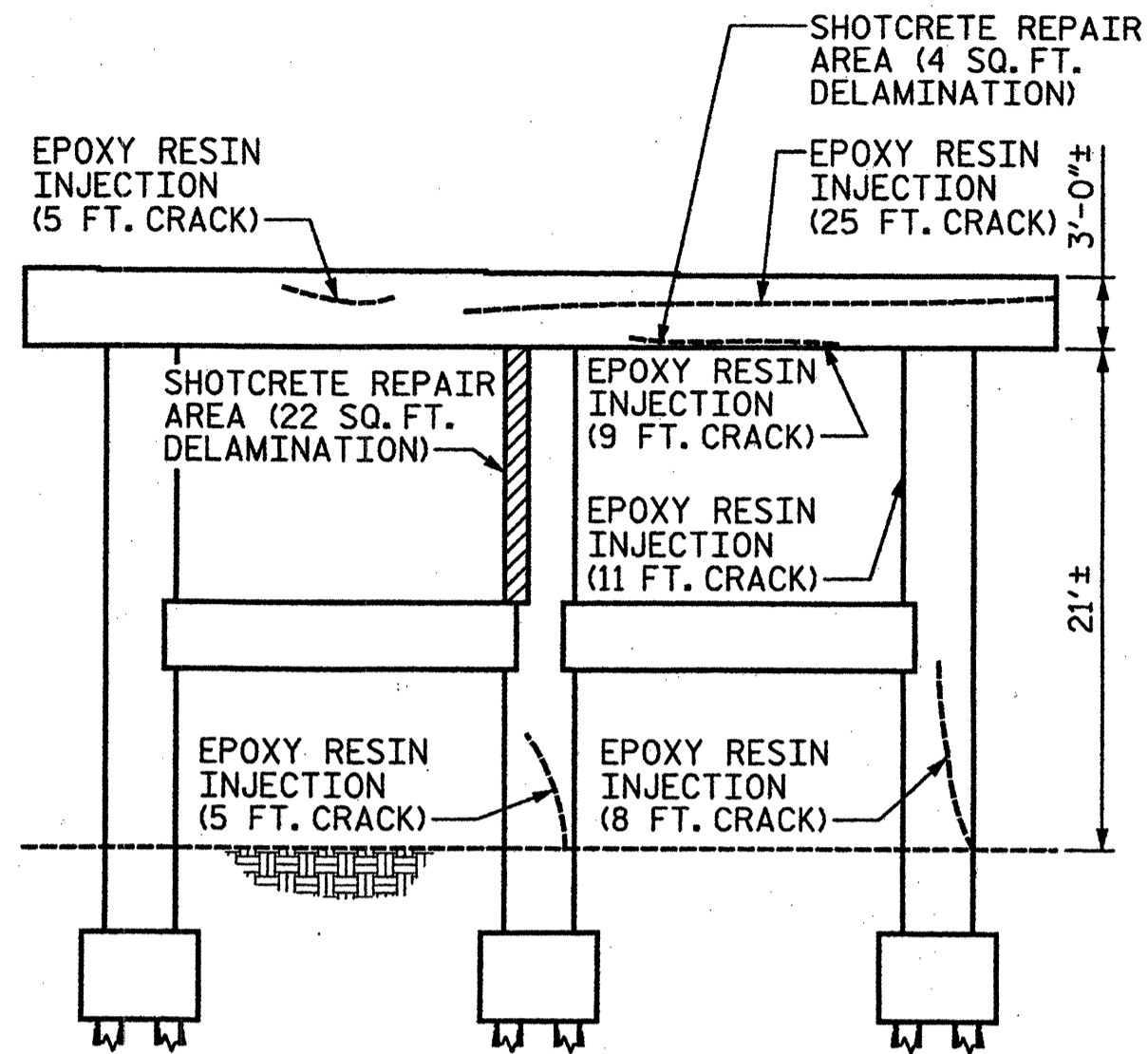
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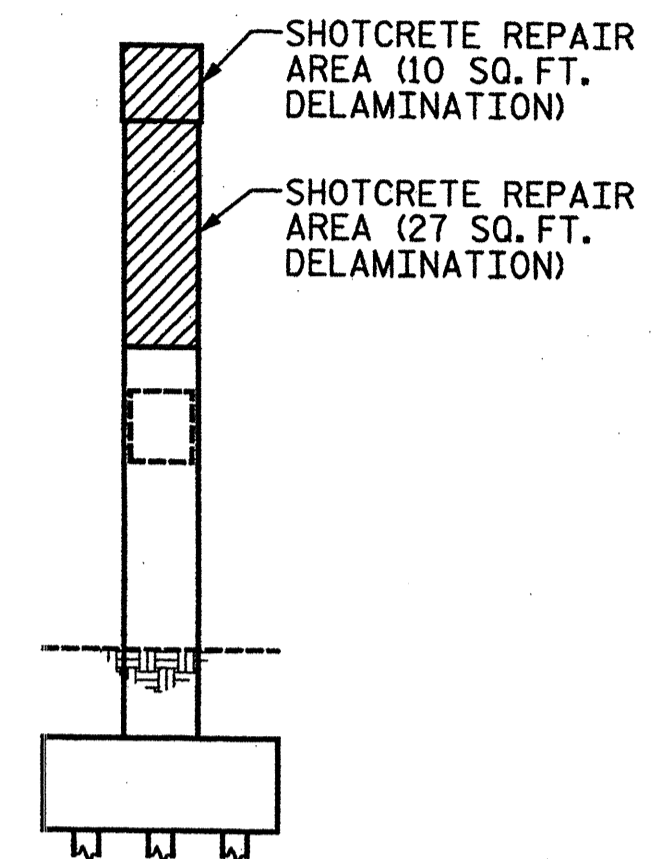
ELEVATION OF BENT 11
LOOKING NORTH*



END VIEW OF BENT 11
LOOKING WEST*



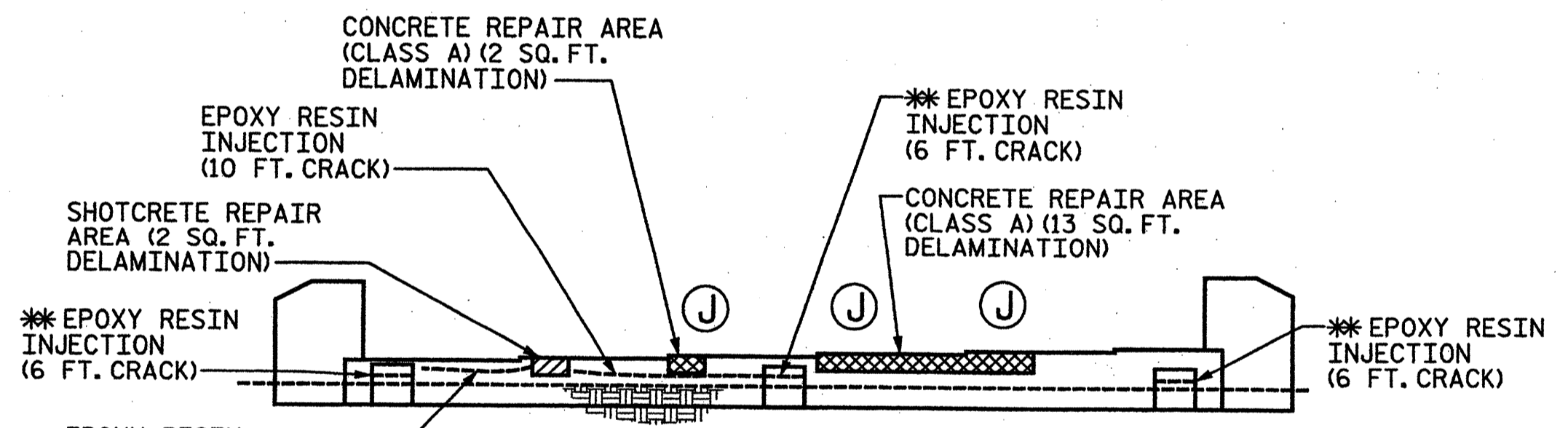
ELEVATION OF BENT 11
LOOKING SOUTH*



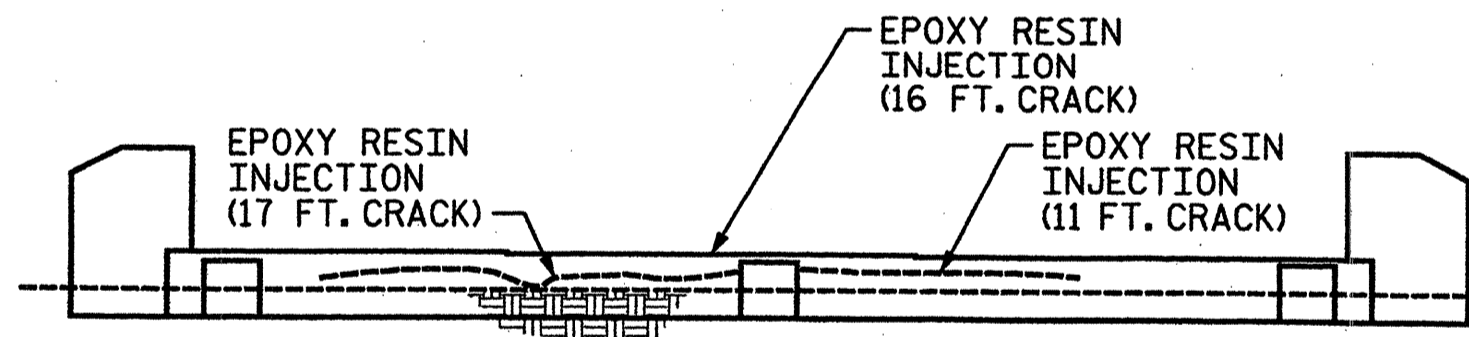
END VIEW OF BENT 11
LOOKING EAST*

NOTE:
SEE NOTES AND TYPICAL REPAIR DETAILS, SHEET 14 OF 14.
Ⓧ - JACKING REQUIRED
* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

--- APPROX. LENGTH: EPOXY RESIN INJECTION
 APPROX. AREA: SHOTCRETE REPAIRS
 APPROX. AREA: CONCRETE REPAIRS (CLASS A)



ELEVATION OF END BENT 1
LOOKING NORTH*

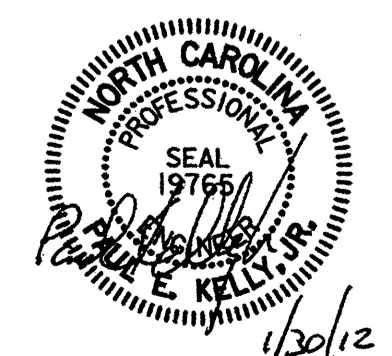


ELEVATION OF END BENT 2
LOOKING SOUTH*

** THE CONTRACTOR SHALL EXPOSE AND SEAL THE BOTTOM OF THE BRACE PILE CAPS BEFORE BEGINNING EPOXY RESIN INJECTION AT THESE LOCATIONS. ONLY ONE BRACE PILE CAP SHALL BE EXPOSED AT A TIME BY EXCAVATING NO MORE THAN 18" BELOW THE BOTTOM OF THE BRACE PILE CAP.
 UPON COMPLETION OF REPAIRS AT EACH BRACE PILE CAP, THE CONTRACTOR SHALL REPLACE ANY DISTURBED RIPRAP AND BACKFILL THE EXCAVATION WITH CLASS II SELECT MATERIAL AS SPECIFIED IN THE STANDARD SPECIFICATIONS, SECTION 1016, "SELECT MATERIALS".

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
 BRIDGE NO.: 63
 REHAB. OF BRIDGE NO. 63 SHEET 13 OF 14

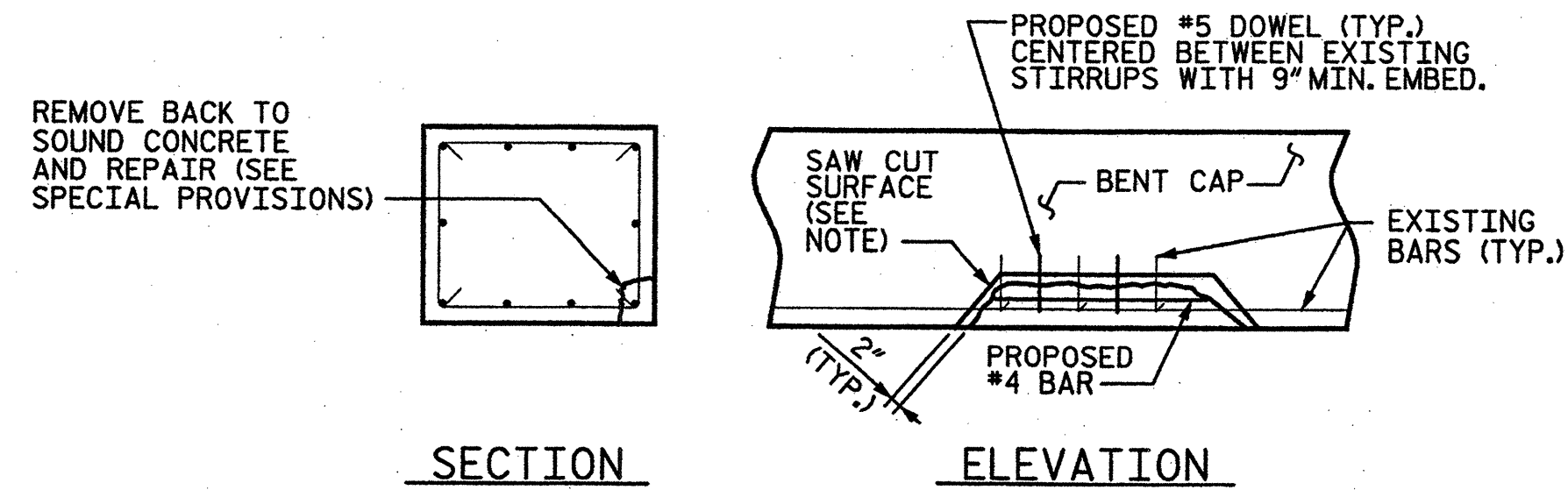
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BENT 11 & END BENTS
 SUBSTRUCTURE REPAIRS**
 BRIDGE ON NC 62
 OVER DAN RIVER



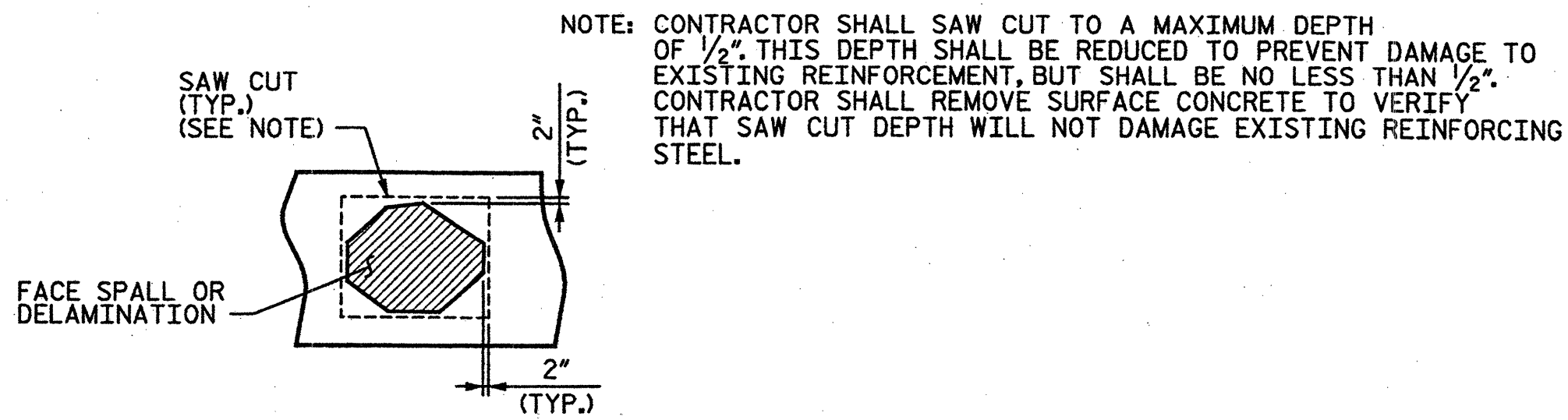
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 CHECKED BY: AC DATE: 12-11

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			S-50



CORNER REPAIR



FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAILS

NOTES:

CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.

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.

FOR BENTS WITH EXPOSED FOOTINGS ABOVE THE WATERLINE AT THE TIME OF THE WORK, THE CONTRACTOR SHALL REPAIR ALL CRACKS IN THE EXPOSED PORTIONS OF THE FOOTINGS USING EPOXY RESIN INJECTION.

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 COST.

DOWEL LENGTH SHALL BE BASED ON A 9\"/>

REINFORCING STEEL SHALL BE GRADE 60.

BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.

BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES SEE SHEET NO. S-50 OF S-50.

SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2\"/>

EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP OF ALL BENT CAPS AND THE COST SHALL BE INCLUDED IN THE OTHER BENT REPAIRS.

CONTRACTOR SHALL CLEAN AND REPAINT ALL STEEL BEARINGS AT ALL INTERIOR AND END BENTS.

FOR CLEANING AND PAINTING EXISTING BEARINGS, SEE SPECIAL PROVISIONS.

WATER ELEVATION BASED ON 2009 BRIDGE INSPECTION SOUNDINGS

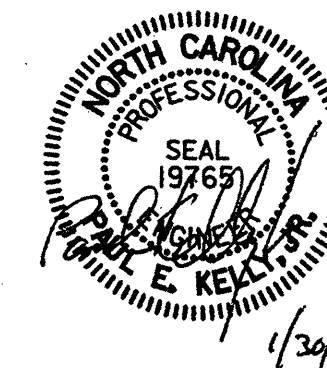
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1/30/2012

DRAWN BY : AFM DATE : 12-11
 CHECKED BY : AC DATE : 12-11

PROJECT NO. 17BP.7.P.3
 CASWELL COUNTY
 BRIDGE NO.: 63
 REHAB. OF BRIDGE NO. 63 SHEET 14 OF 14



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIR DETAILS

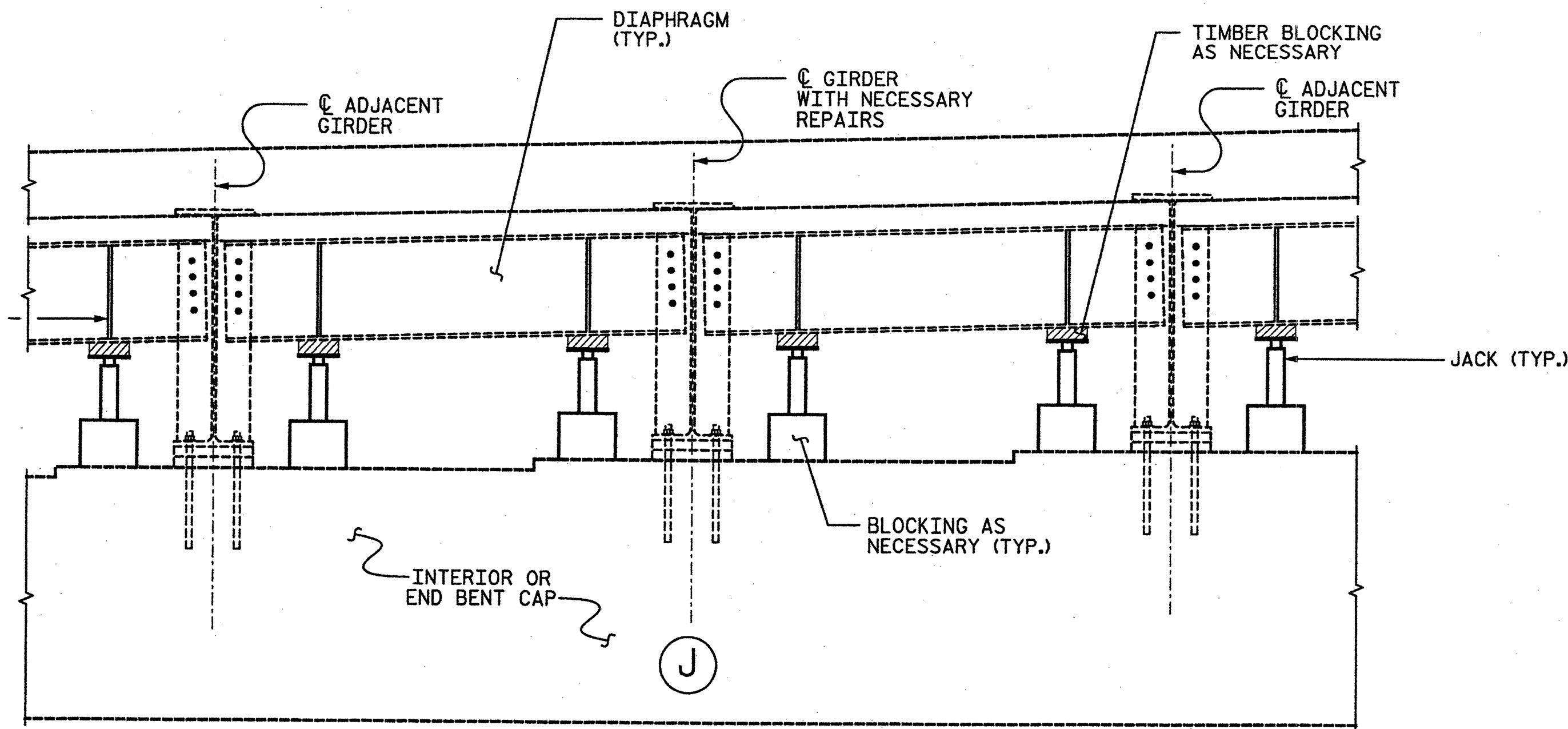
BRIDGE ON NC 62
 OVER DAN RIVER

REVISIONS						SHEET NO. S-49
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			S-50

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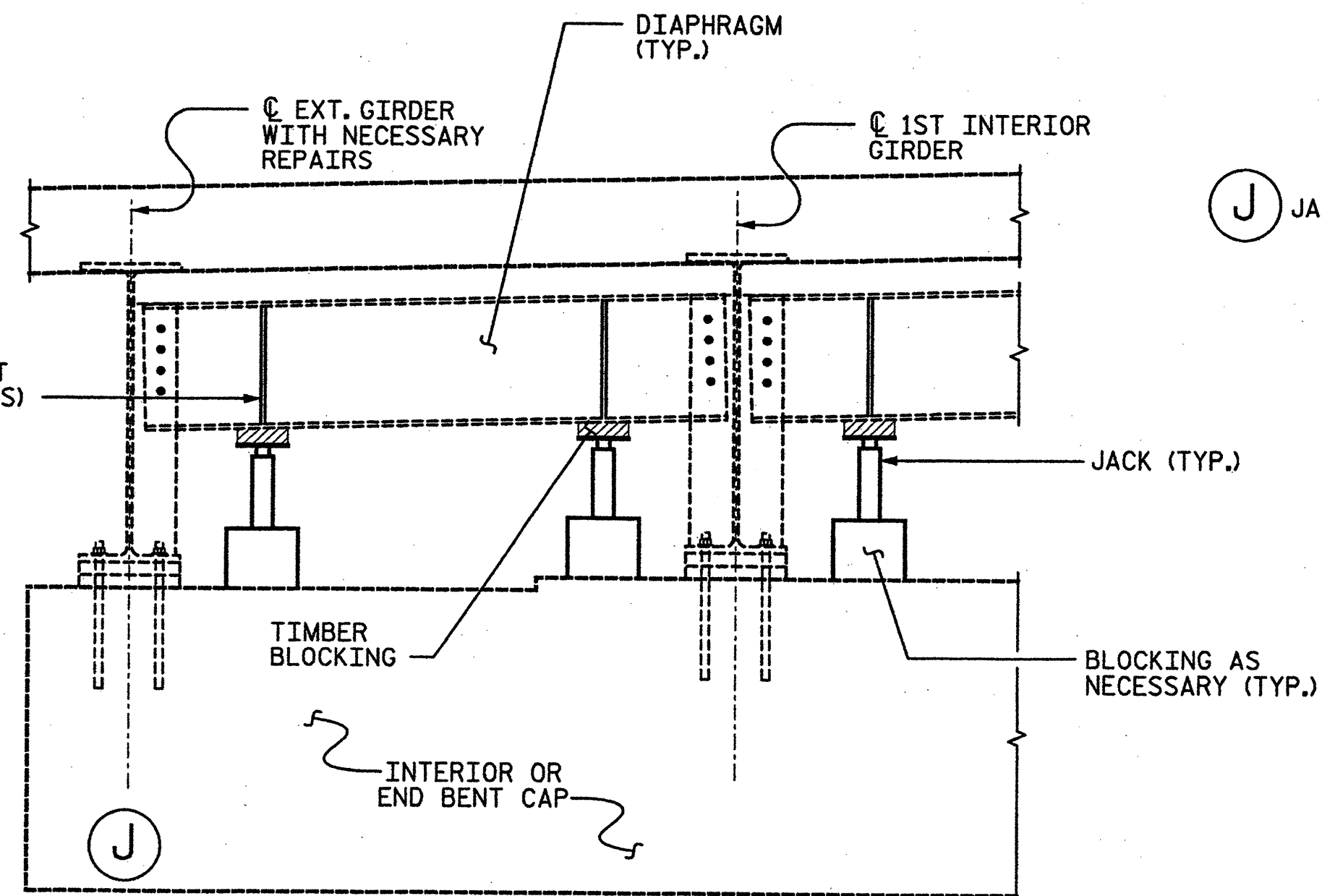
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1/2" MIN. JACKING STIFFENER (TYP. AT JACKING LOCATIONS)



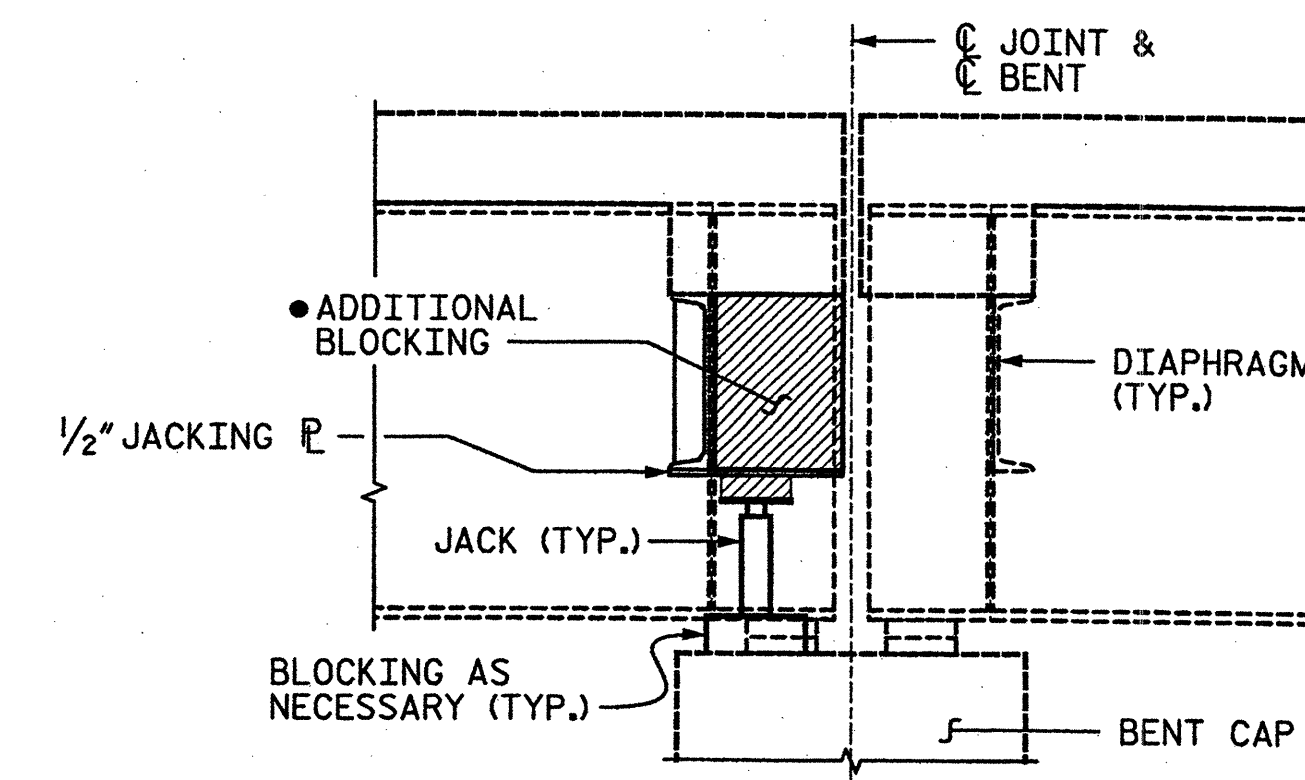
GIRDER JACKING DETAIL AT INTERIOR GIRDER

1/2" MIN. JACKING STIFFENER (TYP. AT JACKING LOCATIONS)



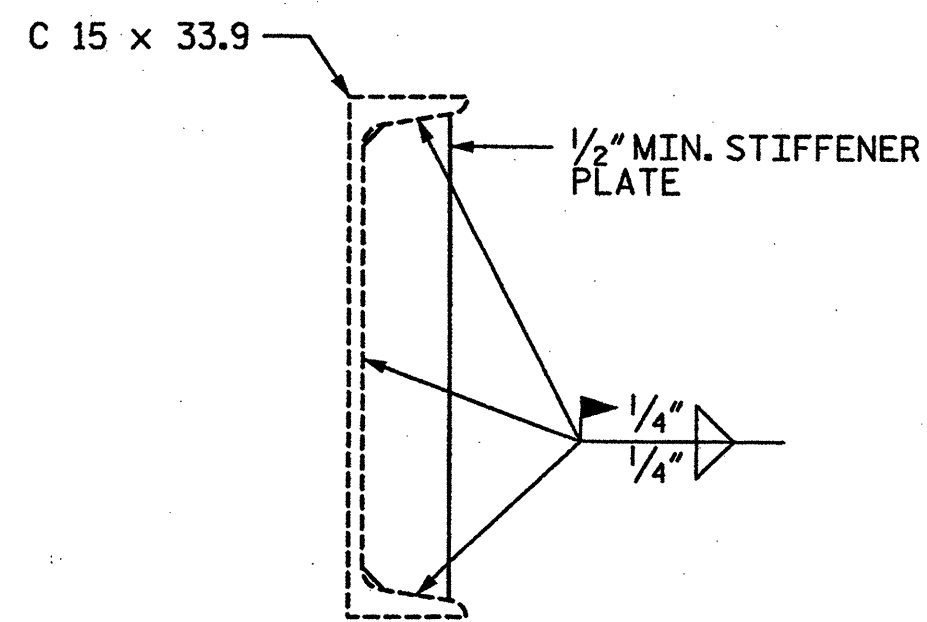
GIRDER JACKING DETAIL AT EXTERIOR GIRDER

ⓐ JACKING FOR PROPOSED REPAIR LOCATION



TYPICAL SECTION @ JACKING LOCATION

• BLOCKING SHALL BE FULL WIDTH FROM BACK OF DIAPHRAGM CHANNEL TO THE END OF THE DECK TURN DOWN. BLOCKING SHALL BE INSTALLED THE FULL DEPTH OF THE DIAPHRAGM SUCH THAT THE BLOCKING WILL BE LIFTED SIMULTANEOUSLY WITH THE EXISTING DIAPHRAGM.



JACKING STIFFENER DETAIL

CONSTRUCTION SEQUENCE:

1. REPAIR DIAPHRAGMS AT LOCATIONS SHOWN ON SHEET 7 OF 14. DIAPHRAGM REPAIRS MUST BE COMPLETED BEFORE THE CONTRACTOR CAN PROCEED TO JACKING.
2. INSTALL JACKS AND BLOCKING AT LOCATIONS SHOWN ON PLAN.
3. REMOVE NECESSARY NUTS ON ANCHOR BOLTS.
4. JACK GIRDERS A MAXIMUM OF 1/8" IN ORDER TO RELIEVE LOAD ON BENT CAP UNDER BEARING.
5. MECHANICALLY LOCK ALL JACKS AT BENT.
6. PERFORM CONCRETE REPAIRS AT SPECIFIED LOCATIONS.
7. ONCE ALL REPAIRS ARE COMPLETE, LOWER BRIDGE. CONTRACTOR SHALL NOT LOWER BRIDGE UNTIL CONCRETE REPAIR MATERIAL HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 PSI.

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

NOTES:

JACKING DETAILS SHOWN ARE CONCEPTUAL AND CONSIDERED A MINIMUM. THE CONTRACTOR SHALL PROVIDE JACKING PLANS FOR ALL GIRDERS LIFTED FOR APPROVAL BY THE ENGINEER PRIOR TO ANY JACKING OPERATIONS. JACKING SHALL BE PERFORMED SUCH THAT BRIDGE CAN REMAIN OPEN TO TRAFFIC DURING JACKING OPERATIONS.

JACKING PLANS SHALL BE SIGNED AND SEALED BY LICENSED PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.

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

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

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.

EACH JACK SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 70 TONS.

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

ONCE SPAN HAS BEEN JACKED, CONTRACTOR SHALL INSTALL A MECHANICAL LOCKING DEVICE TO ENSURE THAT GIRDER WILL NOT BE LOWERED DURING CURING OF CONCRETE.

CONTRACTOR TO TAKE APPROPRIATE MEANS TO REMOVE NUT ON ANCHOR BOLT WITHOUT DAMAGING THE ANCHOR BOLT. CONTRACTOR SHALL SUBMIT NUT REMOVAL METHOD TO INCLUDE PROCEDURES THAT WILL LOOSEN BOND BETWEEN INTERLOCKING THREADS TO ENGINEER FOR APPROVAL PRIOR TO REMOVING ANCHOR BOLT NUTS.

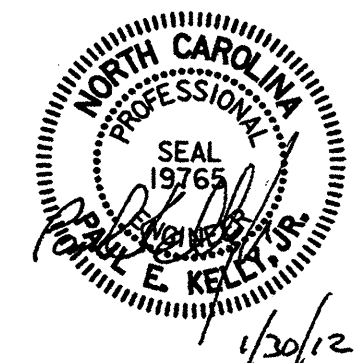
IN NO CIRCUMSTANCES SHOULD THE JACKING BE SOLELY SUPPORTED BY THE DIAPHRAGM. JACKS SHOULD BE CENTERED UNDER DIAPHRAGM AND ADDITIONAL BLOCKING.

PROJECT NO. 17BP.7.P.3
CASWELL COUNTY
 BRIDGE NO.: 63

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

JACKING DETAILS

BRIDGE ON NC 62
 OVER DAN RIVER



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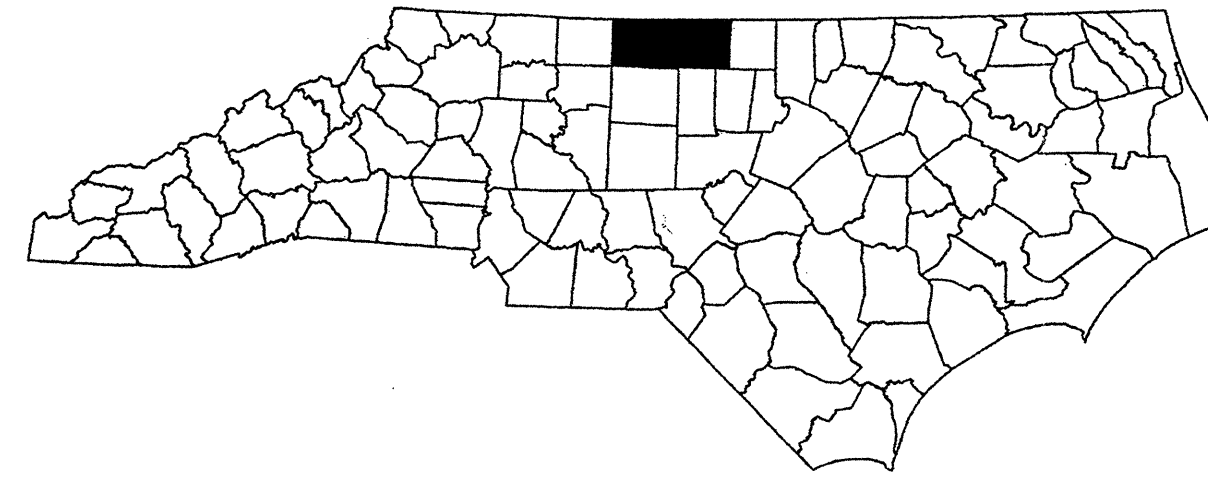
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			S-50

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

**ROCKINGHAM
AND CASWELL COUNTIES**

DIVISION 7



**LOCATION 1: ROCKINGHAM COUNTY BRIDGE #59 US 29 NB OVER TROUBLESOME CREEK
TYPE OF WORK: OVERLAY, REPAIR BEARINGS**

**LOCATION 2: ROCKINGHAM COUNTY BRIDGE #61 US 29 SB OVER TROUBLESOME CREEK
TYPE OF WORK: OVERLAY, REPAIR BEARINGS**

**LOCATION 3: ROCKINGHAM COUNTY BRIDGE #11 US 29 NB OVER HAW RIVER
TYPE OF WORK: OVERLAY, REPAIR BEARINGS, CONSTRUCT SUBSTRUCTURE REPAIRS**

**LOCATION 4: ROCKINGHAM COUNTY BRIDGE #15 US 29 SB OVER HAW RIVER
TYPE OF WORK: OVERLAY, REPAIR BEARINGS, CONSTRUCT SUBSTRUCTURE REPAIRS**

**LOCATION 5: ROCKINGHAM COUNTY BRIDGE #152 US 29 BUS. OVER US 29
TYPE OF WORK: OVERLAY**

**LOCATION 6: CASWELL COUNTY BRIDGE #63 BROAD STREET (NC 62) OVER DAN RIVER
TYPE OF WORK: OVERLAY, CONSTRUCT SUBSTRUCTURE REPAIRS, REPAIR JOINTS**

SEE SHEET 1 FOR VICINITY MAPS

INDEX OF SHEETS

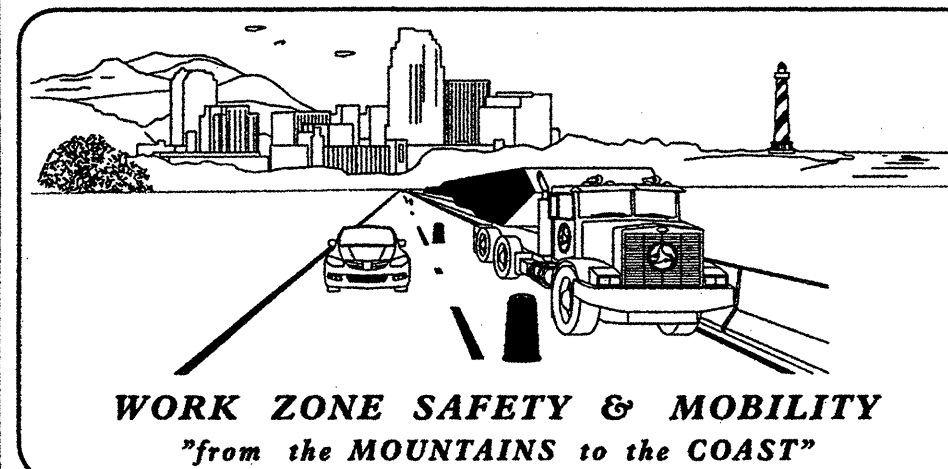
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TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	GENERAL NOTES
TMP-1C	PHASING NOTES
TMP-2A	FLAGGER DETAIL A
TMP-2B	FLAGGER DETAIL B
TMP-2C	TYPICAL SECTIONS

SHEET NO.

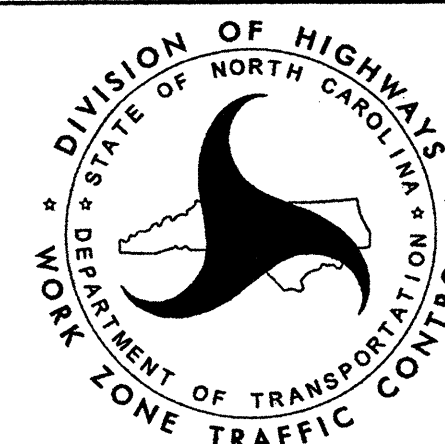
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PROJECT: 17BP.7.P.3

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PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT
RALEIGH, NC

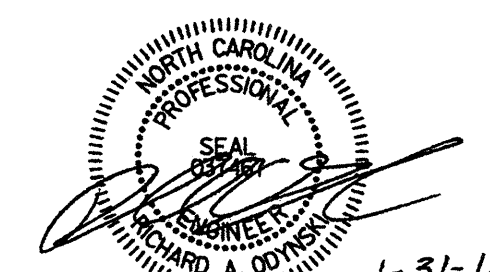


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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT ENGINEER **JOHN JOHNSON, PE**
DESIGN ENGINEER **RICHARD ODYNSKI, PE**

APPROVED: _____
DATE: _____

SEAL



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
1101.05	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
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGER DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION - 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)

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PROJ. REFERENCE NO.	SHEET NO.
17BP.7.P.3	TMP-1A

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
- PORTABLE CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- 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

APPROVED:	DATE: 1-31-12		ROADWAY STANDARD DRAWINGS & LEGEND

PHASING

 STV/Ralph Whitehead Associates, Inc. <small>1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991</small>	PROJ. REFERENCE NO. 17BP.7.P.3	SHEET NO. TMP-1C
--	--	----------------------------

USE NCDOT STD. 1101.01 SHEETS 1, 2, AND 3 OF 3 TO INSTALL WORK ZONE ADVANCE WARNING SIGNS.

DO NOT PERFORM WORK ON MULTIPLE BRIDGE LOCATIONS SIMULTANEOUSLY AND DO NOT WORK ON BOTH SIDES OF ROADWAY AT THE SAME LOCATION SIMULTANEOUSLY, UNLESS APPROVED BY THE ENGINEER.

PHASE 1 (ROCKINGHAM 59):

STEP 1: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND INSIDE LANE OF BRIDGE 59. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 3: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

STEP 4: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND OUTSIDE LANE OF BRIDGE 59. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 5: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 6: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

PHASE 2 (ROCKINGHAM 61):

STEP 1: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND INSIDE LANE OF BRIDGE 61. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 3: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

STEP 4: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND OUTSIDE LANE OF BRIDGE 61. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 5: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 6: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

PHASE 3 (ROCKINGHAM 11):

STEP 1: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND INSIDE LANE OF BRIDGE 11. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 3: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

STEP 4: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND OUTSIDE LANE OF BRIDGE 11. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 5: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 6: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

PHASE 4 (ROCKINGHAM 15):

STEP 1: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND INSIDE LANE OF BRIDGE 15. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 2: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 3: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.


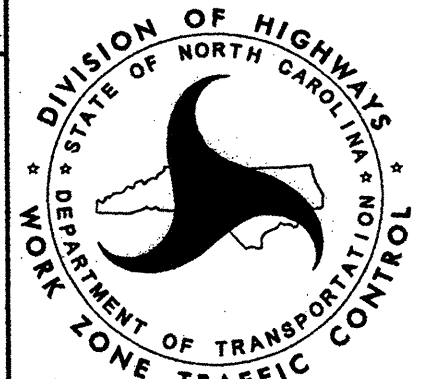
STEP 4: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE NORTHBOUND OUTSIDE LANE OF BRIDGE 15. USE PORTABLE CONCRETE BARRIER TO PROTECT THE WORK AREA AS NEEDED.

STEP 5: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:


PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.

STEP 6: WHEN WORK IS COMPLETE, REMOVE ALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

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PHASING (CONT.)

 STV/Ralph Whitehead Associates, Inc. <small>1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: 8px;">PROJ. REFERENCE NO.</td> <td style="font-size: 8px;">SHEET NO.</td> </tr> <tr> <td style="text-align: center;">17BP.7.P.3</td> <td style="text-align: center;">TMP-1D</td> </tr> </table>	PROJ. REFERENCE NO.	SHEET NO.	17BP.7.P.3	TMP-1D
PROJ. REFERENCE NO.	SHEET NO.				
17BP.7.P.3	TMP-1D				

PHASE 5 (ROCKINGHAM 152)

- STEP 1:** USING TMP-2A, INSTALL FLAGGER SIGNS AND DEVICES TO CLOSE THE WESTBOUND LANES OF BRIDGE 152.
- STEP 2:** AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.
- STEP 3:** COVER ALL FLAGGER SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD.
- STEP 4:** WHEN WORK IS COMPLETE, REMOVE ALL FLAGGER SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 5:** USING TMP-2B, INSTALL FLAGGER SIGNS AND DEVICES TO CLOSE THE EASTBOUND LANES OF BRIDGE 152.
- STEP 6:** AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.
- STEP 7:** COVER ALL FLAGGER SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD.
- STEP 8:** WHEN WORK IS COMPLETE, REMOVE ALL FLAGGER SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

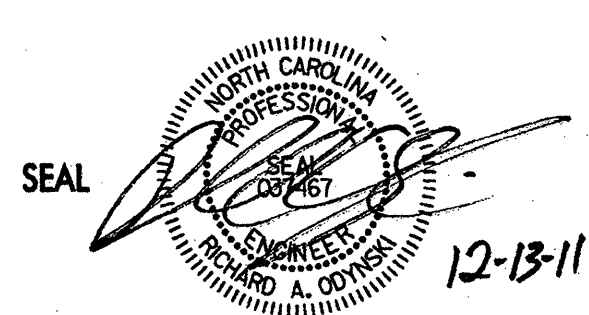
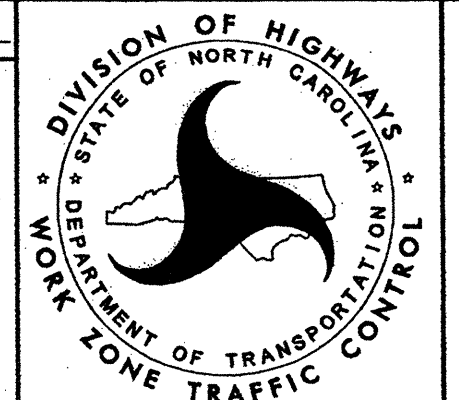
PHASE 6 (CASWELL 63):

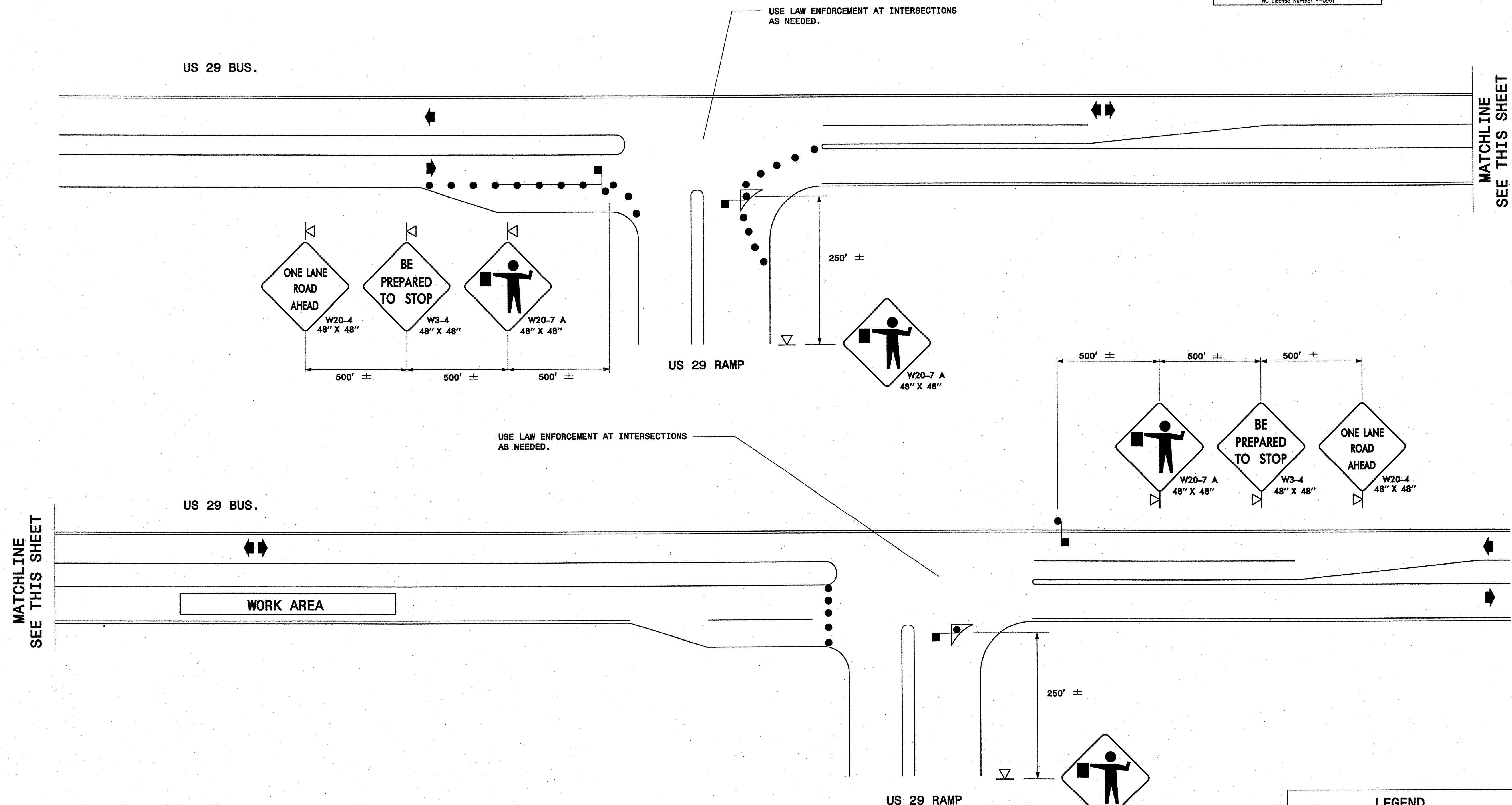
- STEP 1:** USING NCDOT RSD. 1101.02 SHEET 1 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE EASTBOUND LANE OF BRIDGE 63.
- STEP 2:** AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.
- STEP 3:** COVER ALL FLAGGER SIGNS, AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD. COVER JOINT WORK WITH STEEL PLATES AS NEEDED TO MAINTAIN TRAFFIC AFTER EACH WORK PERIOD AS DIRECTED BY THE ENGINEER.
- STEP 4:** WHEN WORK IS COMPLETE, REMOVE ALL FLAGGER SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.
- STEP 5:** USING NCDOT RSD. 1101.02 SHEET 1 OF 15, INSTALL LANE CLOSURE SIGNS AND DEVICES TO CLOSE THE WESTBOUND LANE OF BRIDGE 63.
- STEP 6:** AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

PERFORM BRIDGE PRESERVATION WORK AS REQUIRED, SEE STRUCTURE PLANS.
- STEP 7:** COVER ALL FLAGGER SIGNS, AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD. COVER JOINT WORK WITH STEEL PLATES AS NEEDED TO MAINTAIN TRAFFIC AFTER EACH WORK PERIOD AS DIRECTED BY THE ENGINEER.
- STEP 8:** WHEN WORK IS COMPLETE, REMOVE ALL FLAGGER SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

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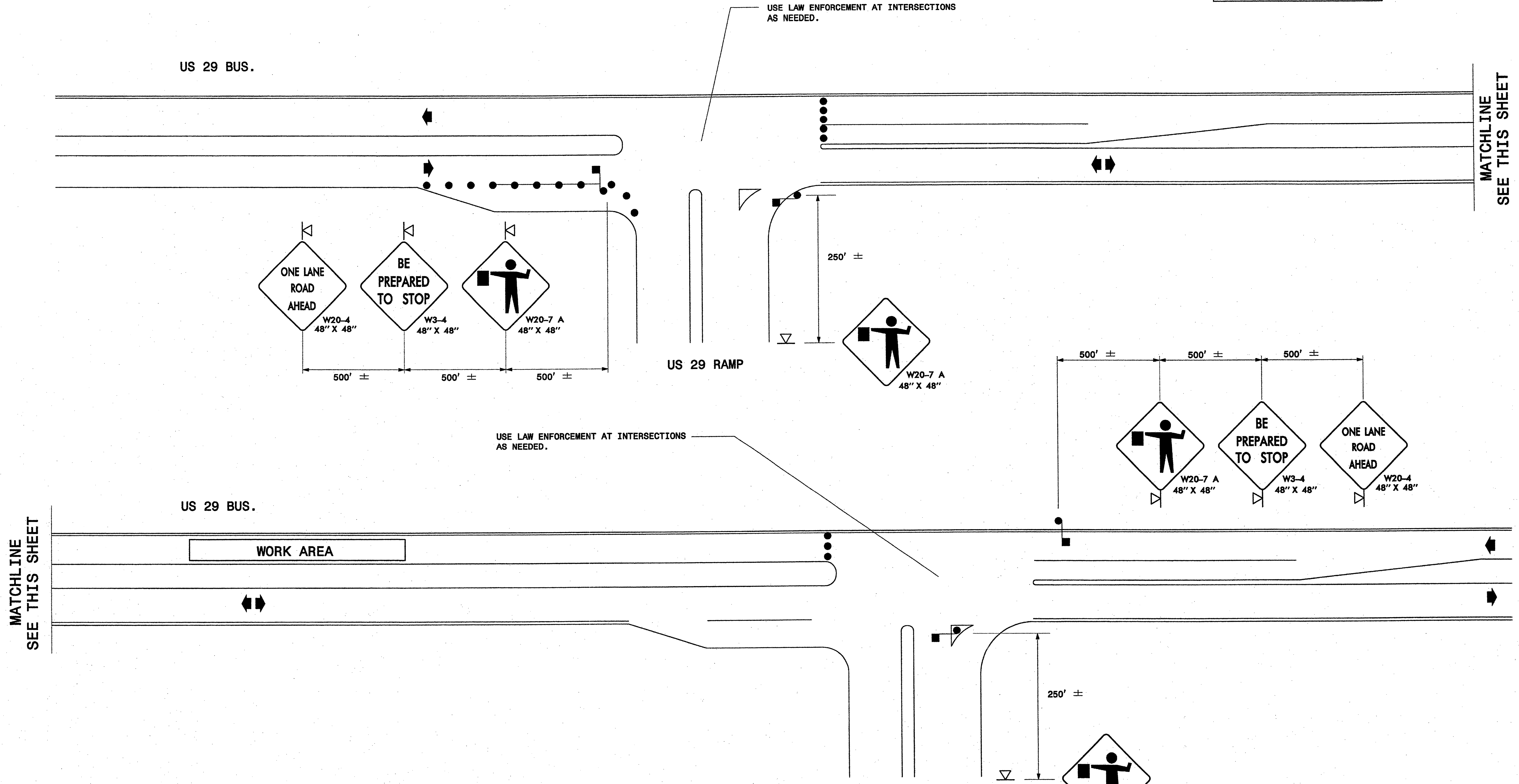
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- GENERAL NOTES**
 (SEE RSD. 1101.02 FOR MORE DETAILS)
1. INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.
 2. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
 3. PLACE DRUMS THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
 4. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO NCDOT STD. 1101.11 SHEET 2).
 5. DO NOT STOP IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.
 6. USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FEET IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND RECOMMEND THE USE OF LAW ENFORCEMENT.
 7. REFER TO 2009 MUTCD, CHAPTER 6, FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.
 8. DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

APPROVED:	DATE:		FLAGGER DETAIL A ROCKINGHAM 152
	1-31-12		

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GENERAL NOTES
(SEE RSD. 1101.02 FOR MORE DETAILS)

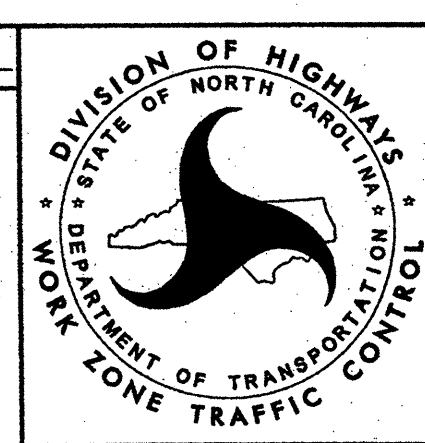
1. INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.
2. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
3. PLACE DRUMS THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
4. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO NCDOT STD. 1101.11 SHEET 2).
5. DO NOT STOP IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.
6. USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FEET IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND RECOMMEND THE USE OF LAW ENFORCEMENT.
7. REFER TO 2009 MUTCD, CHAPTER 6, FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.
8. DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

LEGEND	
	FLAGGER
	DRUM
	PORTABLE SIGN
	DIRECTION OF TRAFFIC FLOW

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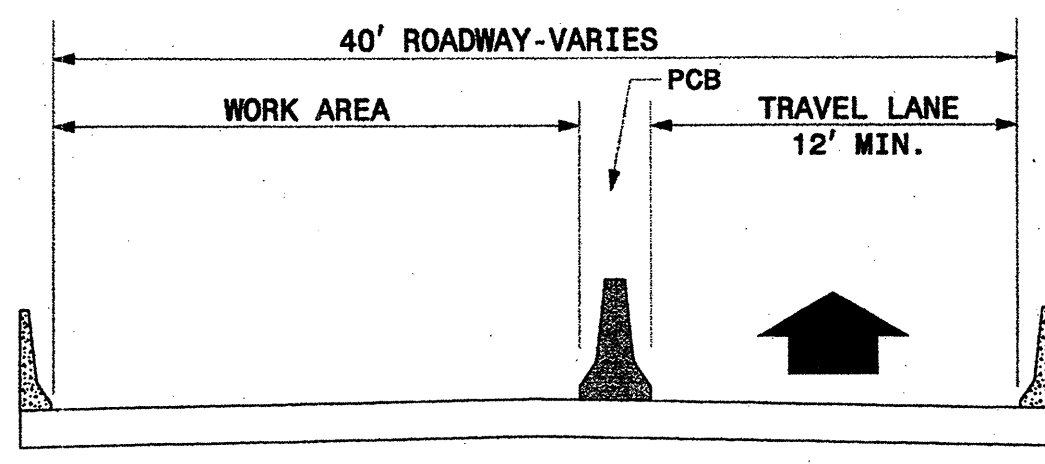
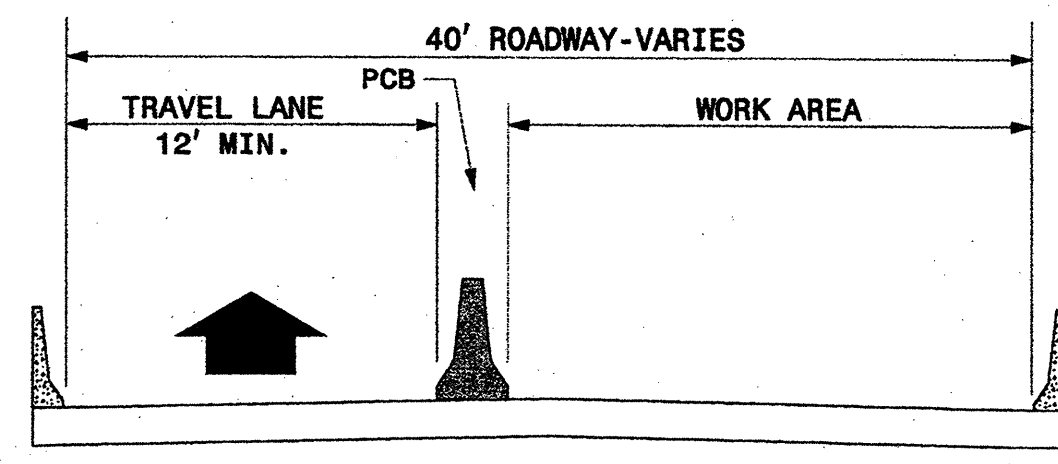
FLAGGER DETAIL B
ROCKINGHAM 152

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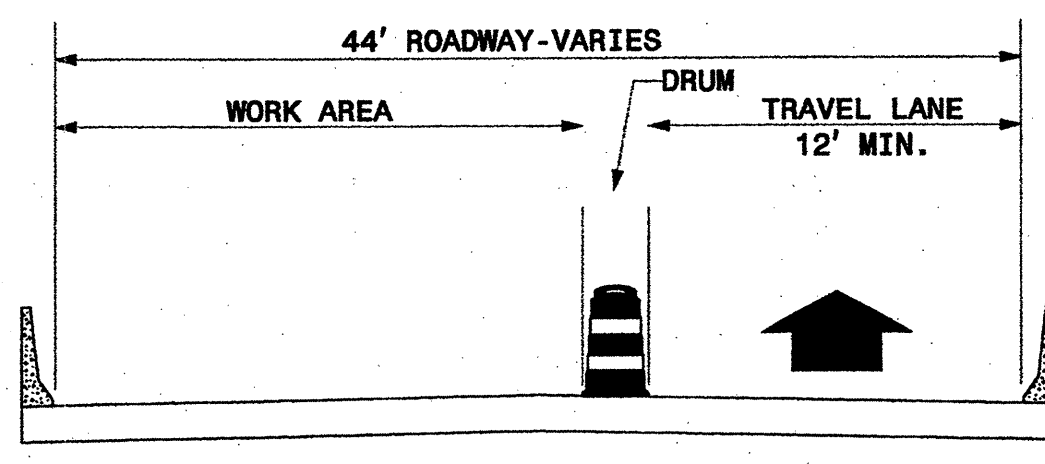
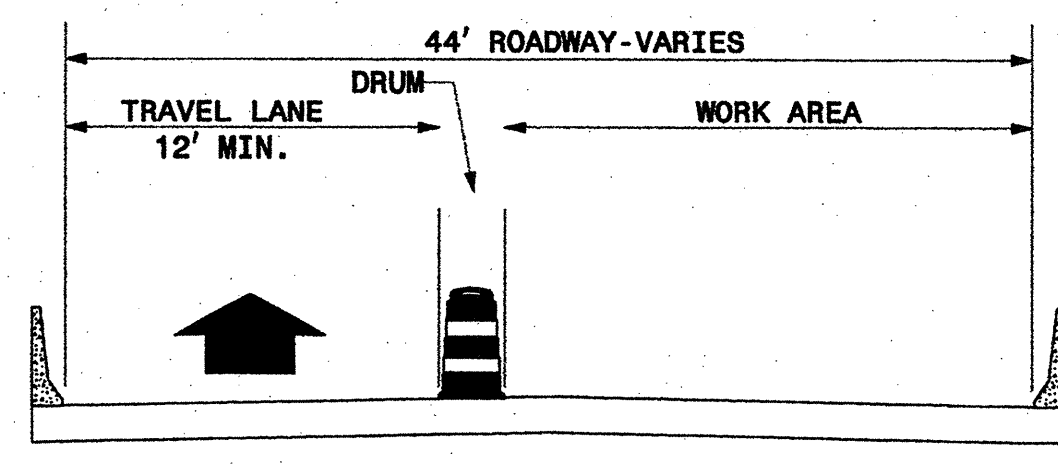


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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
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PROJ. REFERENCE NO.	SHEET NO.
17BP.7.P.3	TMP-2C



TYPICAL SECTIONS ON BRIDGES 59, 61, 11, AND 15



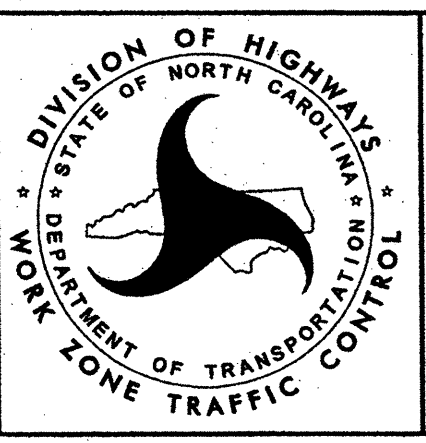
TYPICAL SECTIONS ON BRIDGE 63

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TYPICAL SECTIONS

