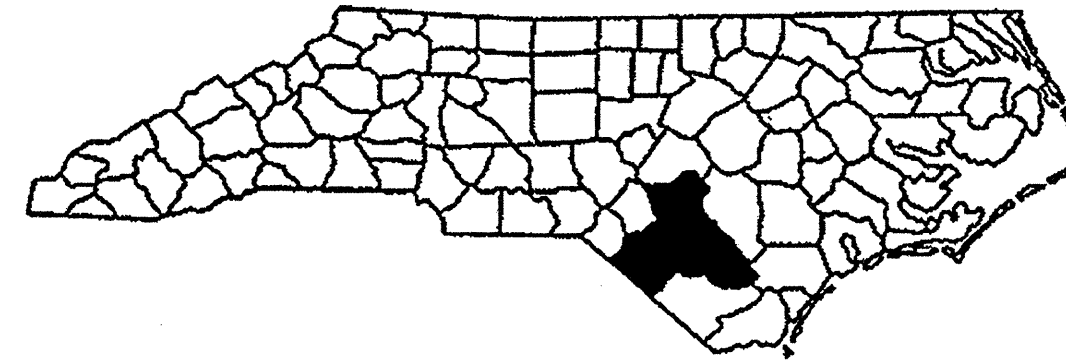


TIP PROJECT: 17BP.6.P.2

CONTRACT: C202976



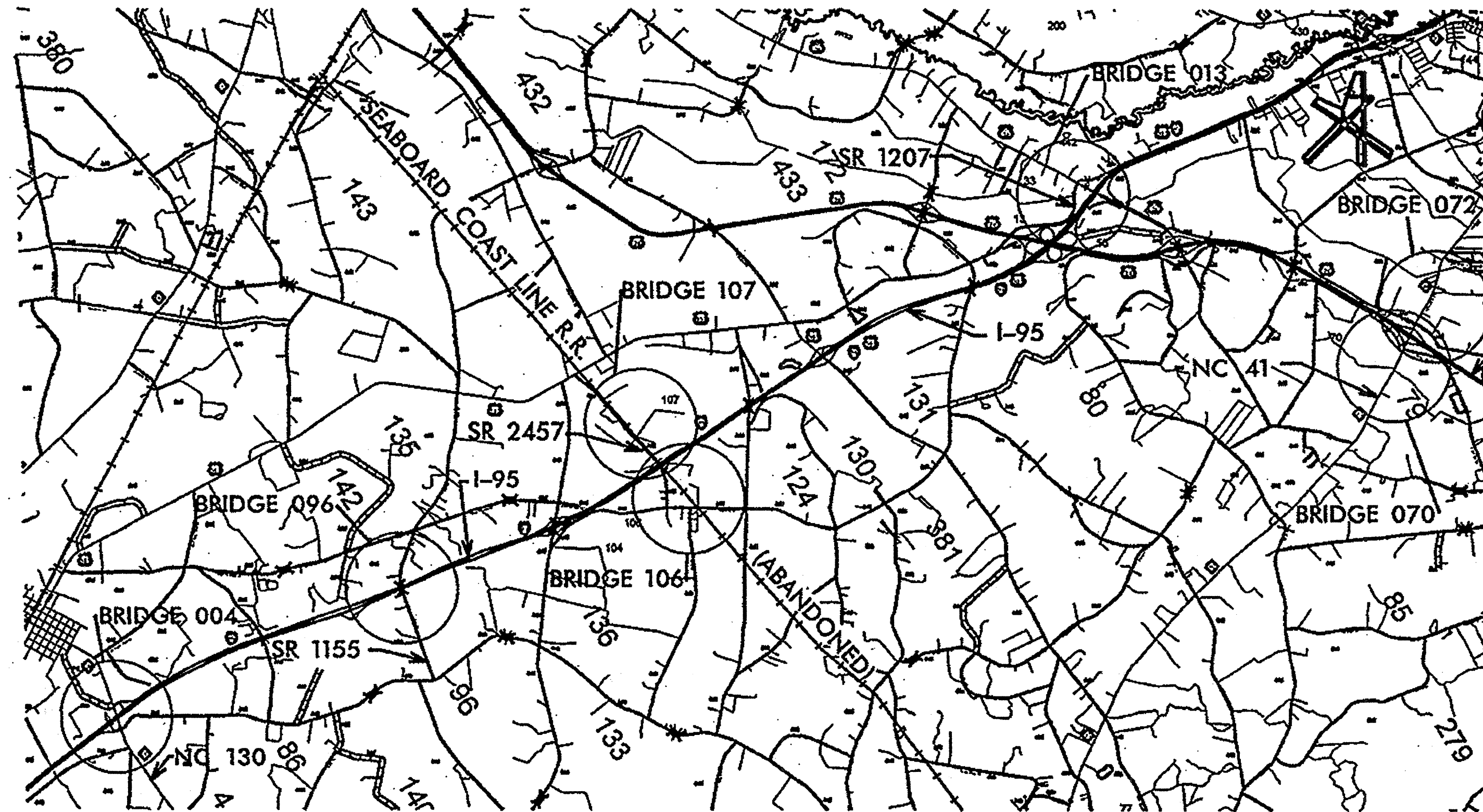
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**ROBESON, CUMBERLAND  
& BLADEN COUNTIES**

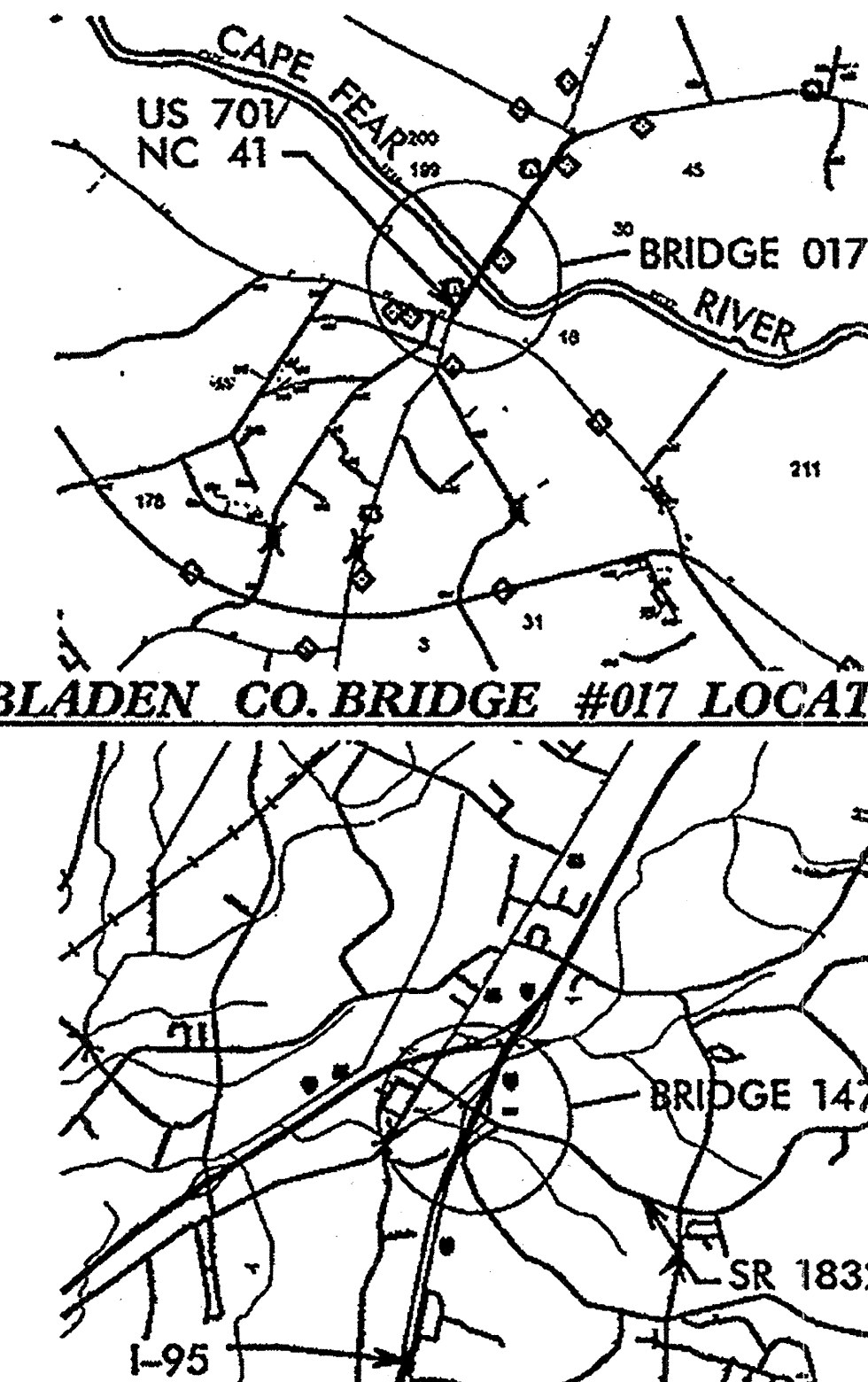
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS 17BP.6.P.2	1	
FIG. NO.	P.L. DRAWING	DESCRIPTION	
17BP.6.P.2		PE	
17BP.6.P.2		CONST.	

**LOCATION:** ROBESON CO. BRIDGE 004 ON NC 130 OVER I-95  
 ROBESON CO. BRIDGE 013 ON SR 1207 OVER BACK SWAMP CREEK  
 ROBESON CO. BRIDGE 070 ON US 74 EBL OVER NC 41  
 ROBESON CO. BRIDGE 072 ON US 74 WBL OVER NC 41  
 ROBESON CO. BRIDGE 096 ON SR 1155 OVER I-95  
 ROBESON CO. BRIDGE 106 I-95 NBL OVER SR 2457  
 ROBESON CO. BRIDGE 107 I-95 SBL OVER SR 2457  
 BLADEN CO. BRIDGE 017 US 701 SBL NC 41 OVER CAPE FEAR RIVER  
 CUMBERLAND CO. BRIDGE 147 ON SR 1832 OVER I-95

**TYPE OF WORK:** BRIDGE DECK PRESERVATION AND REHABILITATION



**ROBESON CO. BRIDGES #004, #013, #070, #072, #096, #106 & #107 LOCATIONS**



**BLADEN CO. BRIDGE #017 LOCATION**

**CUMBERLAND CO. BRIDGE #147 LOCATION**

PROJECT LENGTH



PREPARED IN THE OFFICE OF:  
 Starbuck Consulting Services Inc.  
 801 Jones Florida Road  
 Suite 207  
 Raleigh, NC 27608  
 Tel: (919) 851-0006  
 Fax: (919) 851-7034  
 www.starbuck.com  
 License No. F4627

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

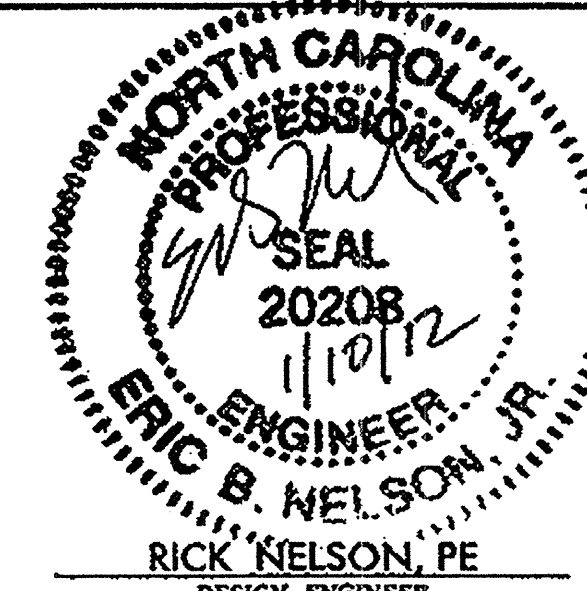
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
N.A.

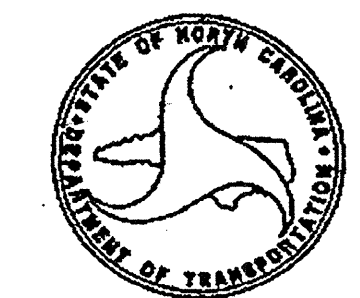
JOE KELVINGTON, PE  
PROJECT ENGINEER

LETTING DATE:  
MARCH 20, 2012

NCDOT CONTACT: ZAKI WAFI, PE  
BRIDGE MANAGEMENT PROJECT MANAGER

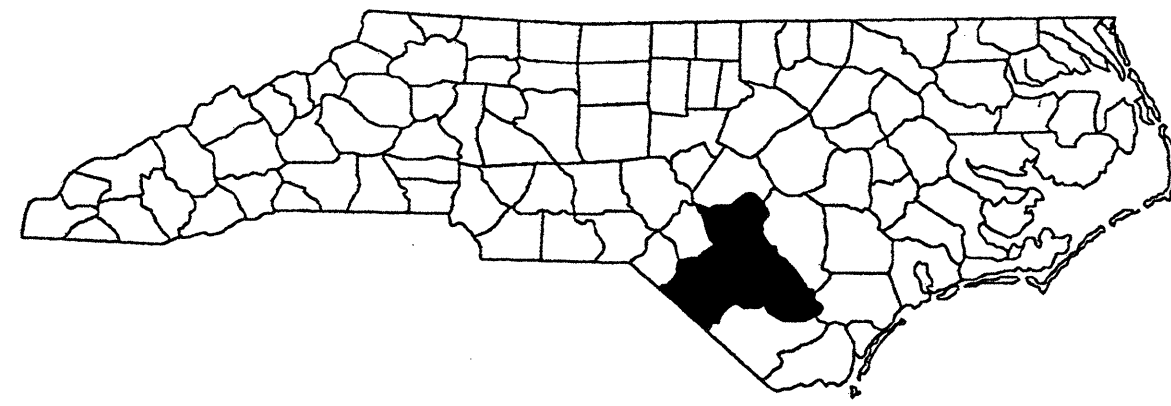


DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA



**TIP PROJECT: 17BP.6.P.2**

**CONTRACT: C202976**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**ROBESON, CUMBERLAND  
& BLADEN COUNTIES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS 17BP.6.P.2	1A	
WBS NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.6.P.2		PE	
17BP.6.P.2		CONST.	

**INDEX OF SHEETS**

DWG.	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEET
2	SUMMARY OF QUANTITIES
S-1 THRU S-3	STRUCTURE PLANS – ROBESON CO. 004
S-4 THRU S-6	STRUCTURE PLANS – ROBESON CO. 013
S-7 THRU S-14	STRUCTURE PLANS – ROBESON CO. 070
S-15 THRU S-26	STRUCTURE PLANS – ROBESON CO. 072
S-27 THRU S-34	STRUCTURE PLANS – ROBESON CO. 096
S-35 THRU S-39	STRUCTURE PLANS – ROBESON CO. 106
S-40 THRU S-44	STRUCTURE PLANS – ROBESON CO. 107
S-45 THRU S-67	STRUCTURE PLANS – BLADEN CO. 017
S-68 THRU S-75	STRUCTURE PLANS – CUMBERLAND CO. 147
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS

**ROADWAY STANDARD DRAWINGS**

2012 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH -N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C. DATED JANUARY 17, 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO	TITLE

**TIP PROJECT: 17BP.6.P.2**

**CONTRACT: C202976**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

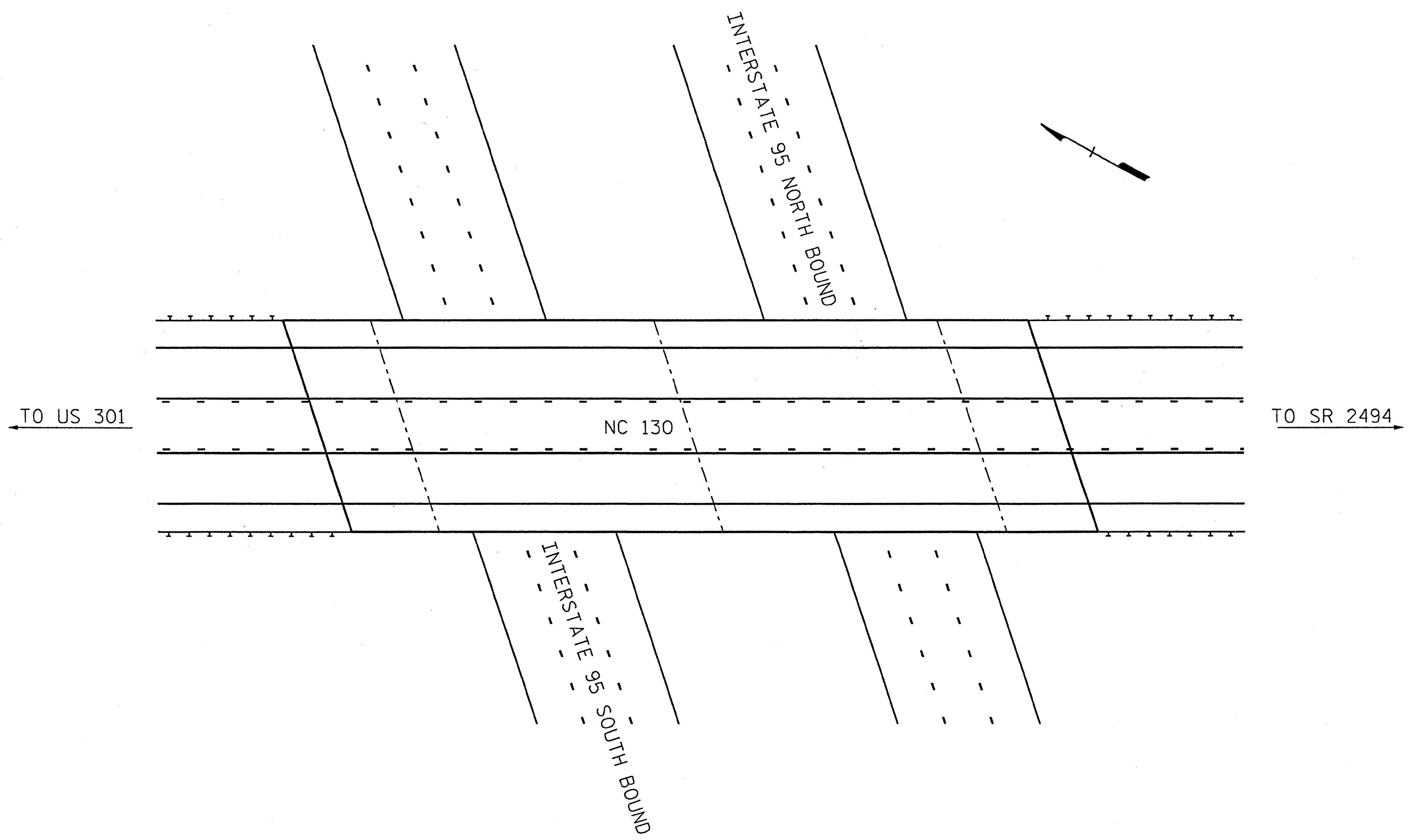
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS 17BP.6.P.2	2	

## SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202976

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	8692000000-N	SP	Lump Sum		FOAM JOINT SEALS
0106000000-E	230	1	CY	BORROW EXCAVATION	8881000000-E	SP	167.9	CY	GENERIC STRUCTURE ITEM LATEX MOD CONC OVERLAY
1245000000-E	SP	0.019	SMI	SHOULDER RECONSTRUCTION	8881000000-E	SP	83.1	CY	GENERIC STRUCTURE ITEM LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH
1519000000-E	610	60	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	8892000000-E	SP	2,370	SF	GENERIC STRUCTURE ITEM CLASS II CONC DECK REPAIR FOR EPOXY/ASPHALT OVERLAY
1523000000-E	610	179	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	8892000000-E	SP	63,487	SF	GENERIC STRUCTURE ITEM PLACEMENT OF EPOXY OVERLAY
1575000000-E	620	4	TON	ASPHALT BINDER FOR PLANT MIX	8893000000-E	SP	5,581.2	SY	GENERIC STRUCTURE ITEM HYDRO-DEMOLITION OF BRIDGE DECK
3345000000-E	864	100	LF	REMOVE & RESET EXISTING GUARD- RAIL	8893000000-E	SP	3,618.8	SY	GENERIC STRUCTURE ITEM PLACING & FINISHING LATEX MOD CONC OVERLAY
4400000000-E	1110	384	SF	WORK ZONE SIGNS (STATIONARY)	8893000000-E	SP	1,962.4	SY	GENERIC STRUCTURE ITEM PLACING & FINISHING LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH
4405000000-E	1110	580	SF	WORK ZONE SIGNS (PORTABLE)	8893000000-E	SP	8,247.3	SY	GENERIC STRUCTURE ITEM SCARIFYING BRIDGE DECK
4410000000-E	1110	167	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	8897000000-N	SP	16	EA	GENERIC STRUCTURE ITEM SPAN JACKING, BLADEN CO BRIDGE #17
4415000000-N	1115	4	EA	FLASHING ARROW BOARD	8897000000-N	SP	2	EA	GENERIC STRUCTURE ITEM SPAN JACKING, ROBESON CO BRIDGE#72
4420000000-N	1120	5	EA	PORTABLE CHANGEABLE MESSAGE SIGN	8897000000-N	SP	3	EA	GENERIC STRUCTURE ITEM SPAN JACKING, ROBESON CO BRIDGE#96
4430000000-N	1130	500	EA	DRUMS					
4445000000-E	1145	176	LF	BARRICADES (TYPE III)					
4450000000-N	1150	1,408	HR	FLAGGER					
4480000000-N	1165	2	EA	TMA					
4510000000-N	SP	192	HR	LAW ENFORCEMENT					
4847000000-E	1205	14,801	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (STANDARD GLASS BEADS)					
4847110000-E	1205	200	LF	POLYUREA PAVEMENT MARKING LINES (8", *****) (STANDARD GLASS BEADS)					
4900000000-N	1251	59	EA	PERMANENT RAISED PAVEMENT MARKERS					
8161000000-E	420	48,541	SF	GROOVING BRIDGE FLOORS					
8182000000-E	420	3.4	CY	CLASS A CONCRETE (BRIDGE)					
8217000000-E	425	221	LB	REINFORCING STEEL (BRIDGE)					
8660000000-E	SP	98	CF	CONCRETE REPAIRS					
8664000000-E	SP	774	CF	SHOTCRETE REPAIRS					

JUP 2011\WBS 17BP.6.P.2 Robeson Co\Robeson Bridge 004\Drawing\BP004\_LS\_BOM.dgn 12/20/2011 12:59:03 PM Jgelle



**BRIDGE 004 ON US NC 130**  
 LOCATION: BRIDGE 770004, NC 130 OVER I-95 0.23 MILES  
 WEST OF JUNCTION OF SR 2494

**TABLE OF CONTENTS**

DWG.	DESCRIPTION
S004-1	LOCATION SKETCH & TOTAL BILL OF MATERIAL
S004-2	OVERLAY DETAILS & TYPICAL SECTION
S004-3	JOINT DETAILS
TMP-1 THRU 5	TRANSPORTATION MANAGEMENT PLAN

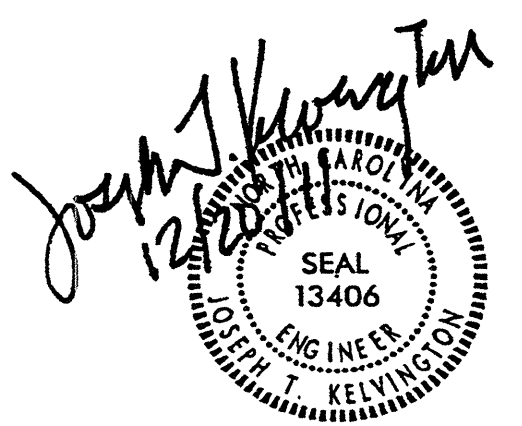
PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS  
 FOR BRIDGE #004**

**DECK REHAB. FOR BRIDGE NO. 4**

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



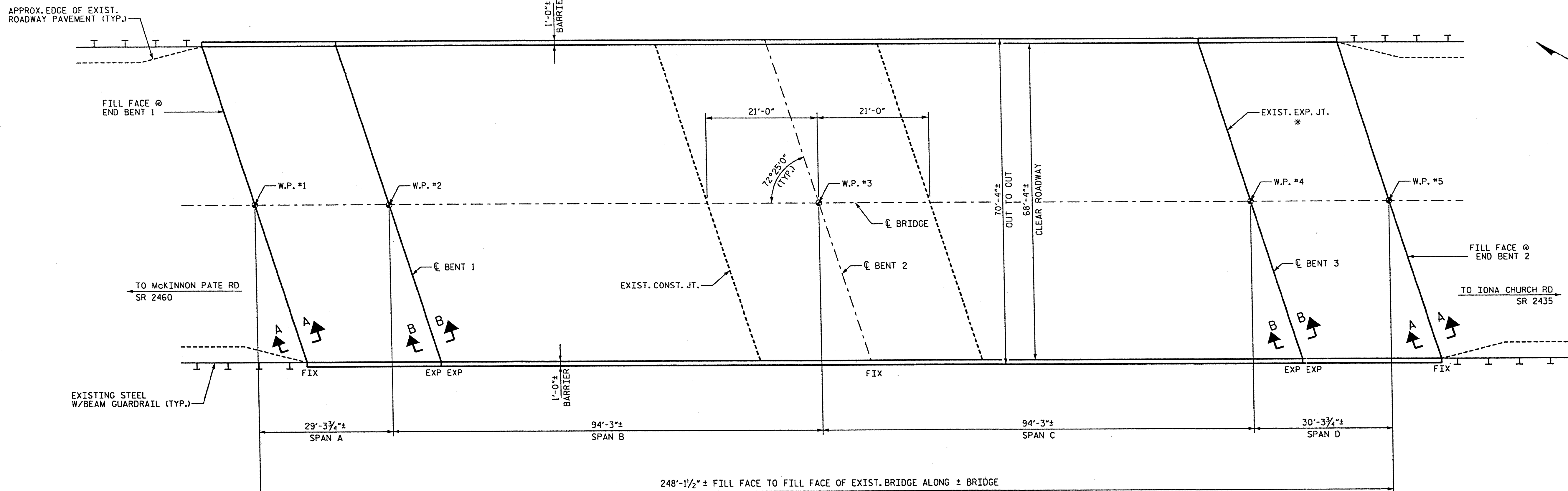
\* QUANTITIES ARE ESTIMATED AND  
 CAN BE EXPECTED TO VARY FROM  
 ACTUAL CONDITIONS ENCOUNTERED  
 AT THE PROJECT SITE

TOTAL BILL OF MATERIAL		
PLACEMENT OF EPOXY OVERLAY	CLASS II CONCRETE DECK REPAIR FOR EPOXY / ASPHALT OVERLAY *	FOAM JOINT SEALS
SO. FT.	SO. FT.	LUMP SUM
16,955	170	LUMP SUM

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 License No. F-0672

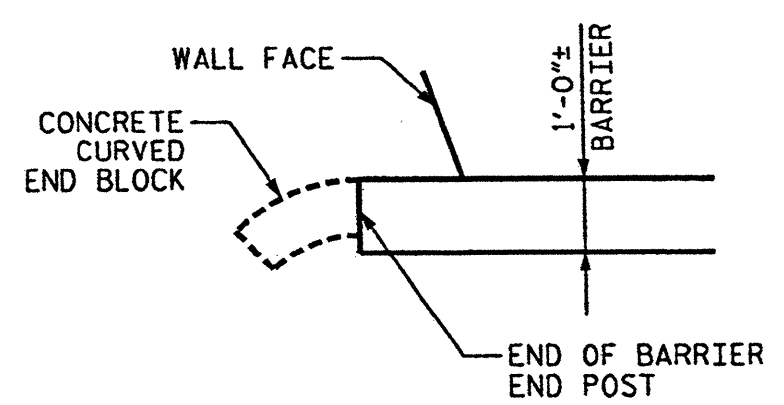
DRAWN BY : K. R. TYLER      DATE : 9/11  
 CHECKED BY : J. T. KELVINGTON      DATE : 9/11

12/19/2011 12:20:31 PM Joelle  
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 004\Drawings\Robeson Co\Robeson Bridge\17BP.6.P.2\17BP.6.P.2.PTS.dgn



**PLAN VIEW**

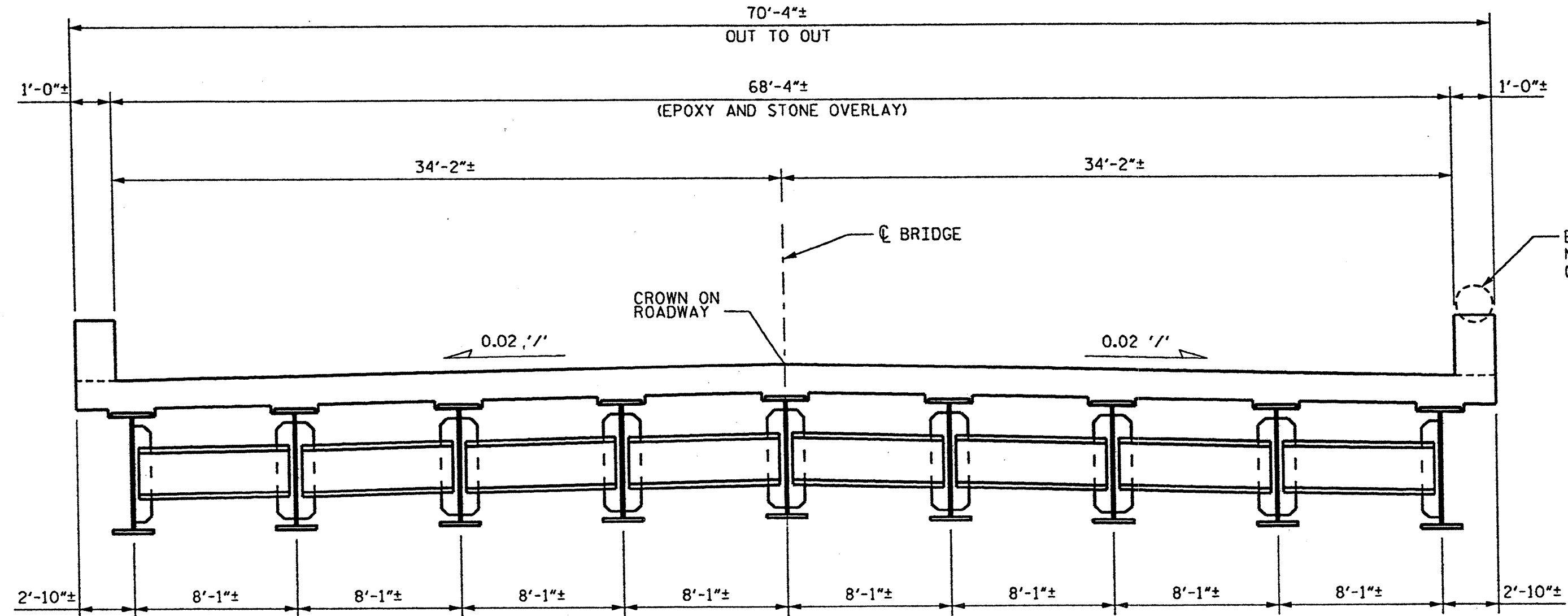
\* ALL EXIST. EXPANSION JOINTS ARE TO BE SEALED. SEE S-3 FOR DETAILS.



**TYPICAL @ FOUR CORNERS**

**NOTES**

- FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS ENTITLED "EPOXY OVERLAY SYSTEM".
- SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR SECTIONS A-A AND B-B SEE SHT. S-3.
- FOR TRAFFIC CONTROL AND TRAFFIC PHASING DETAILS, SEE TRANSPORTATION MANAGEMENT PLANS.
- ALL QUANTITIES SHOWN ARE APPROXIMATE.



**TYPICAL SECTION**

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

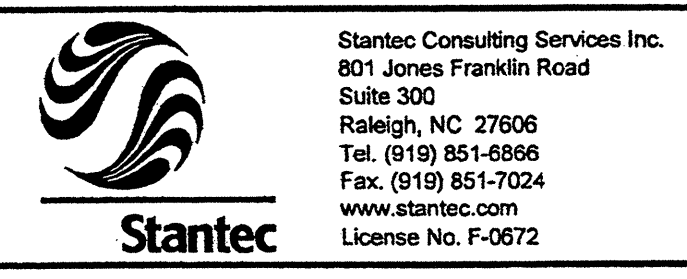
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**DECK REPAIR DETAILS FOR BRIDGE #004**

DECK REHAB. FOR BRIDGE NO. 4

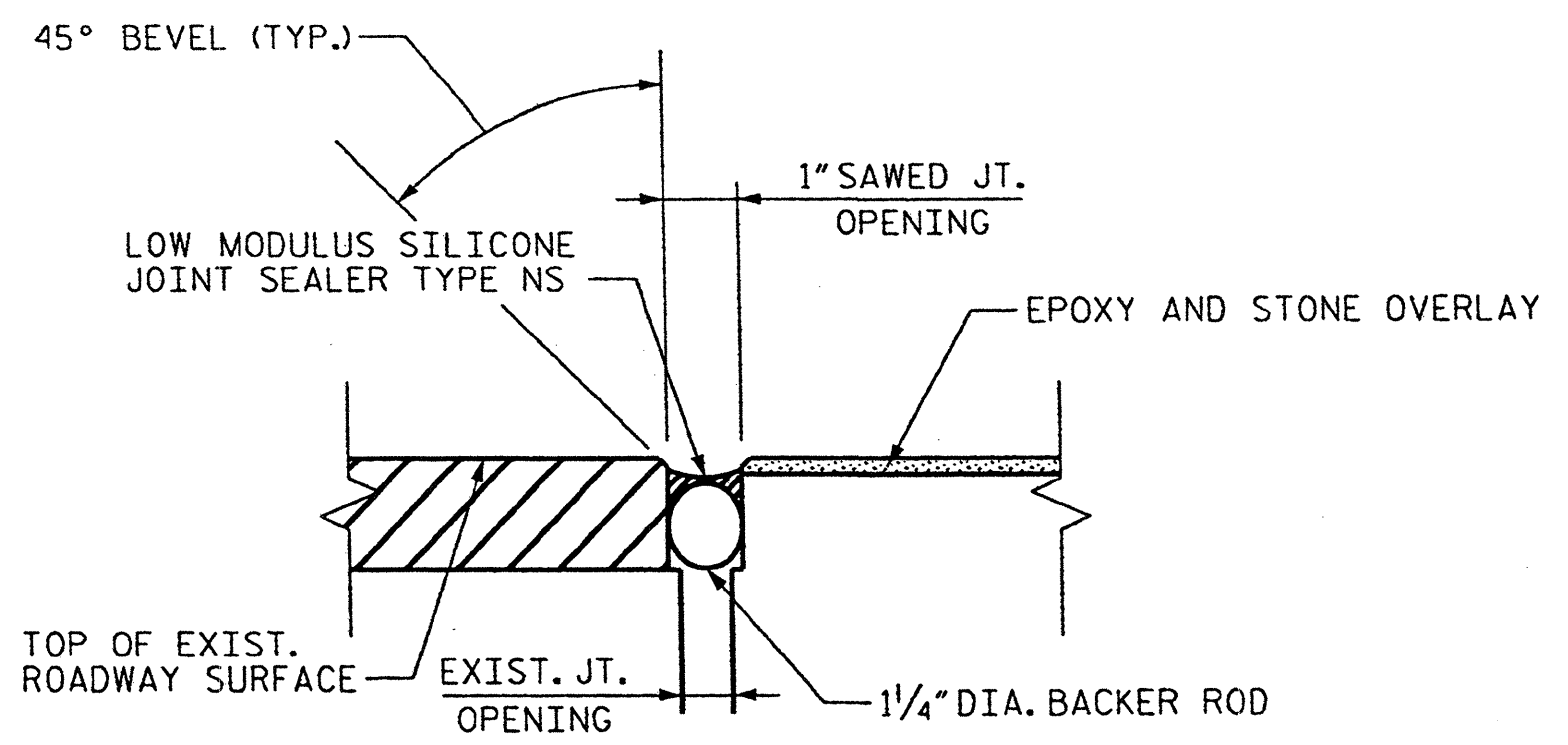
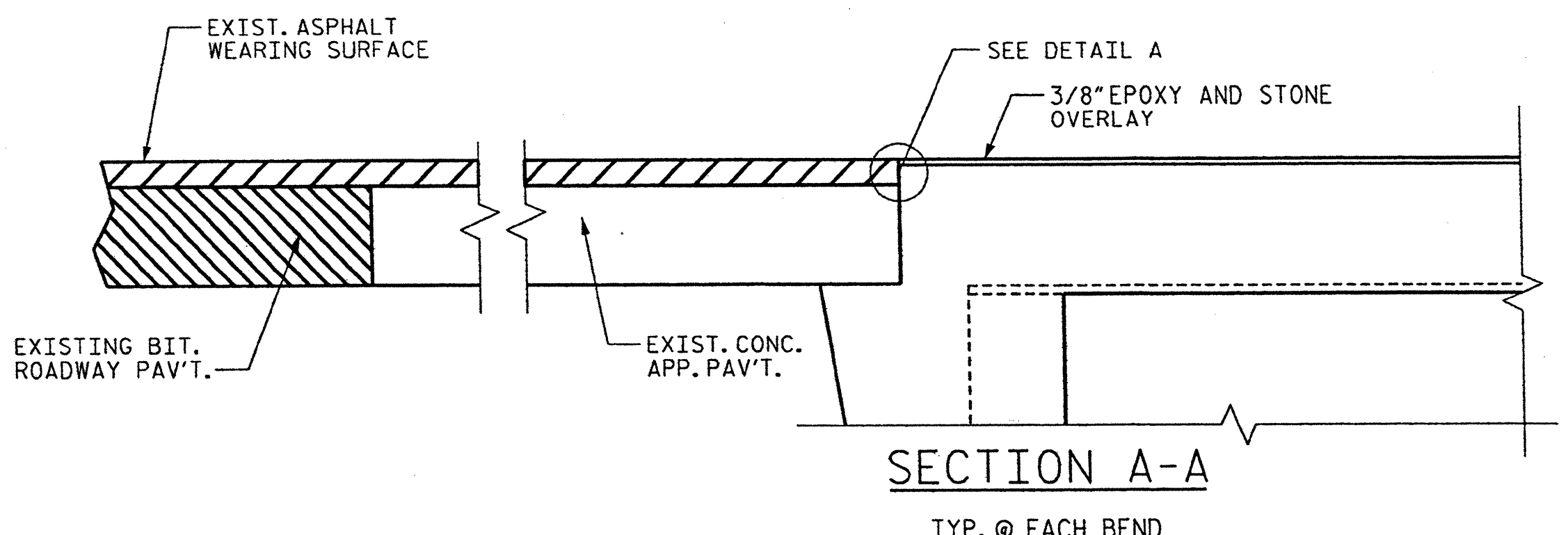
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1			3			TOTAL SHEETS	75
2			4				

*Joseph T. Kelvington*  
 13406  
 ENGINEER  
 JOSEPH T. KELVINGTON

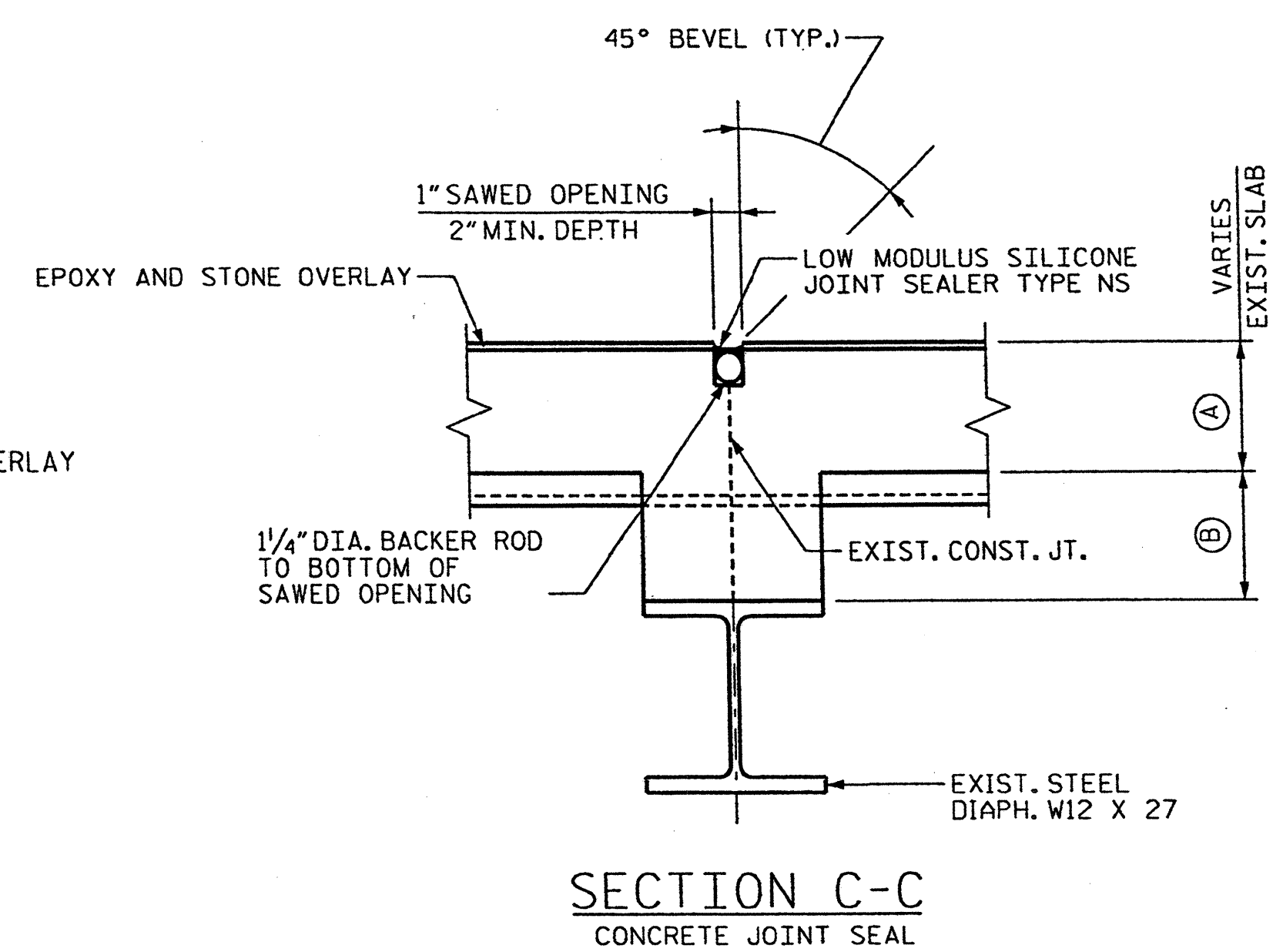
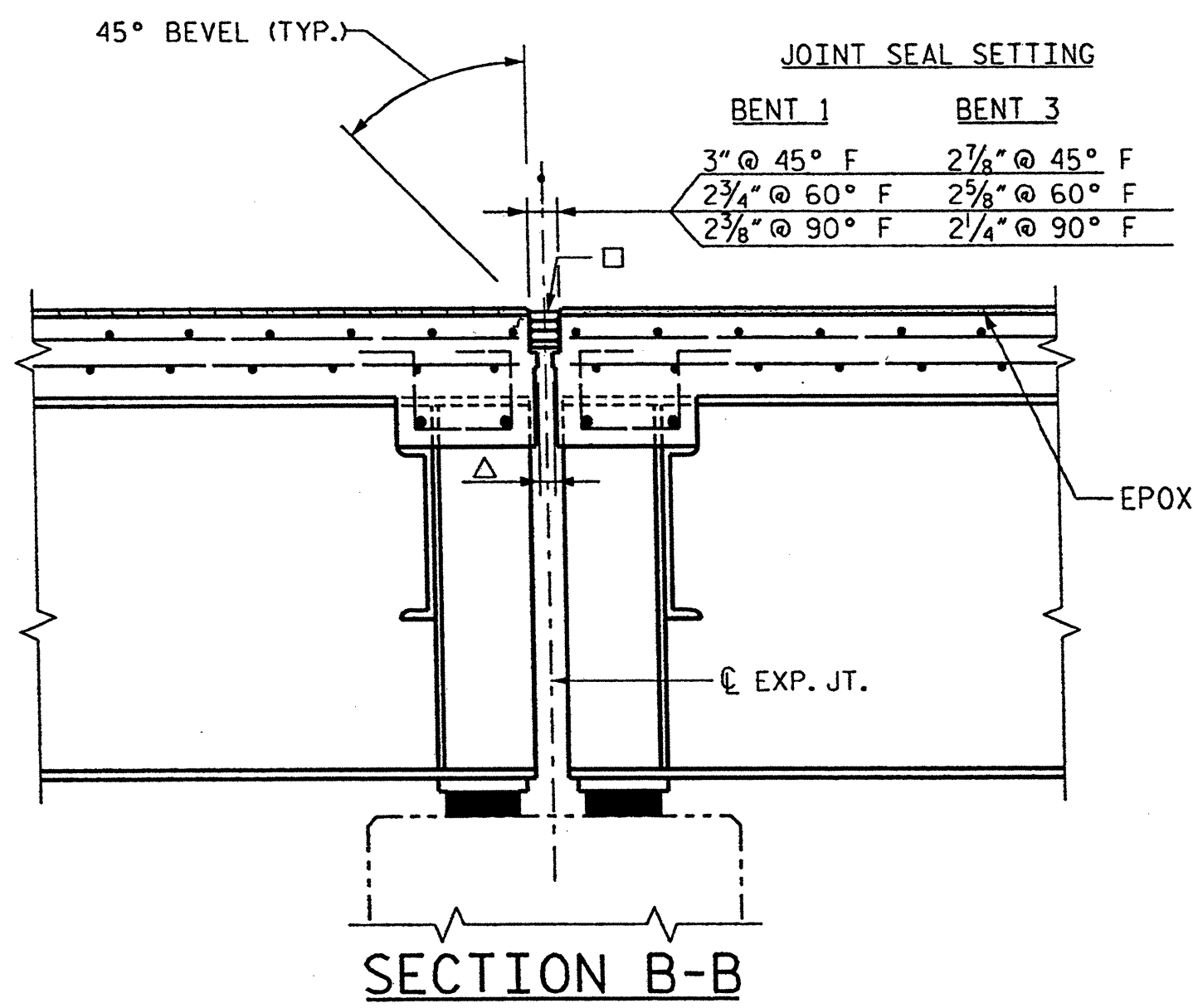


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 CHECKED BY : J T KELVINGTON DATE : 9/11

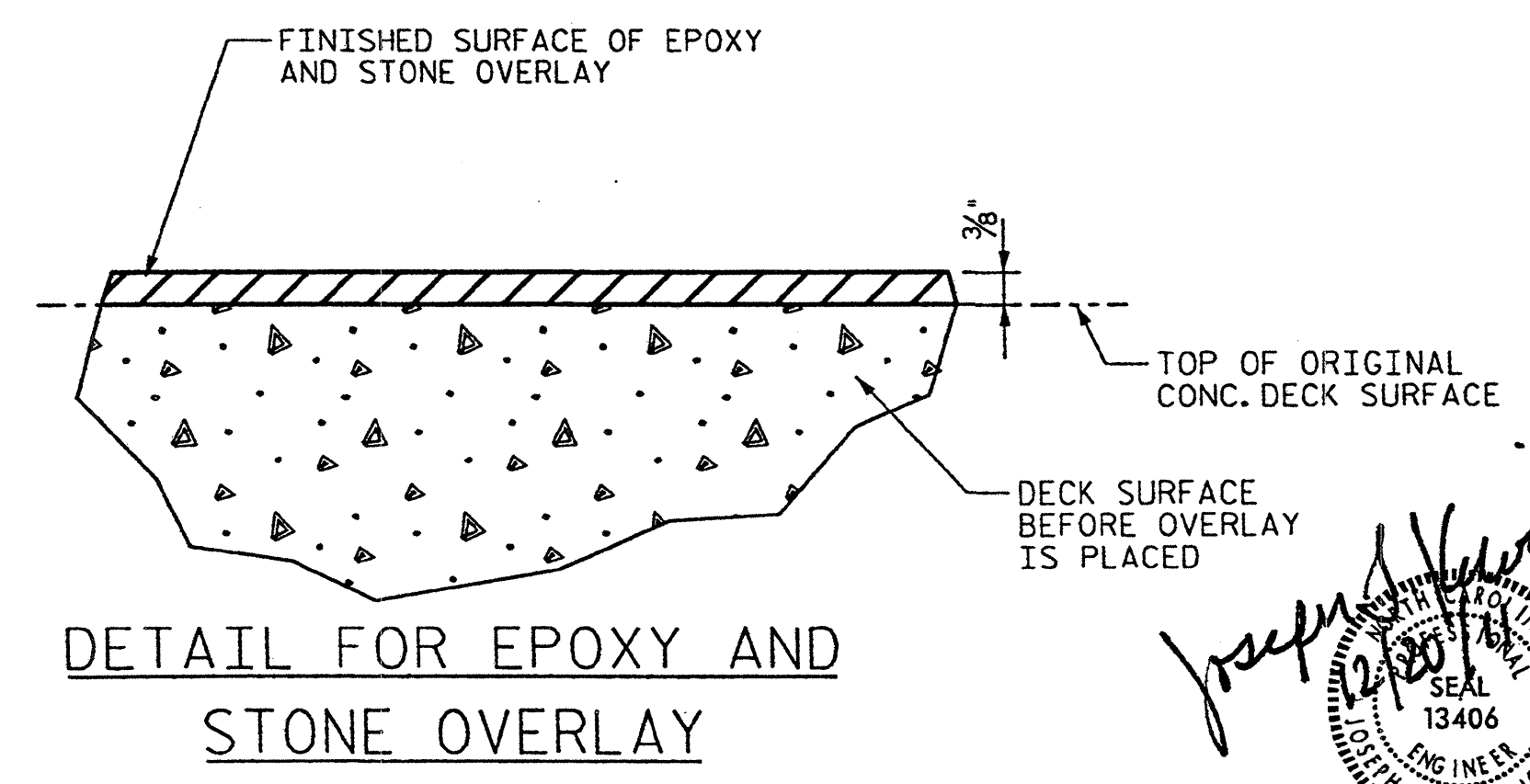
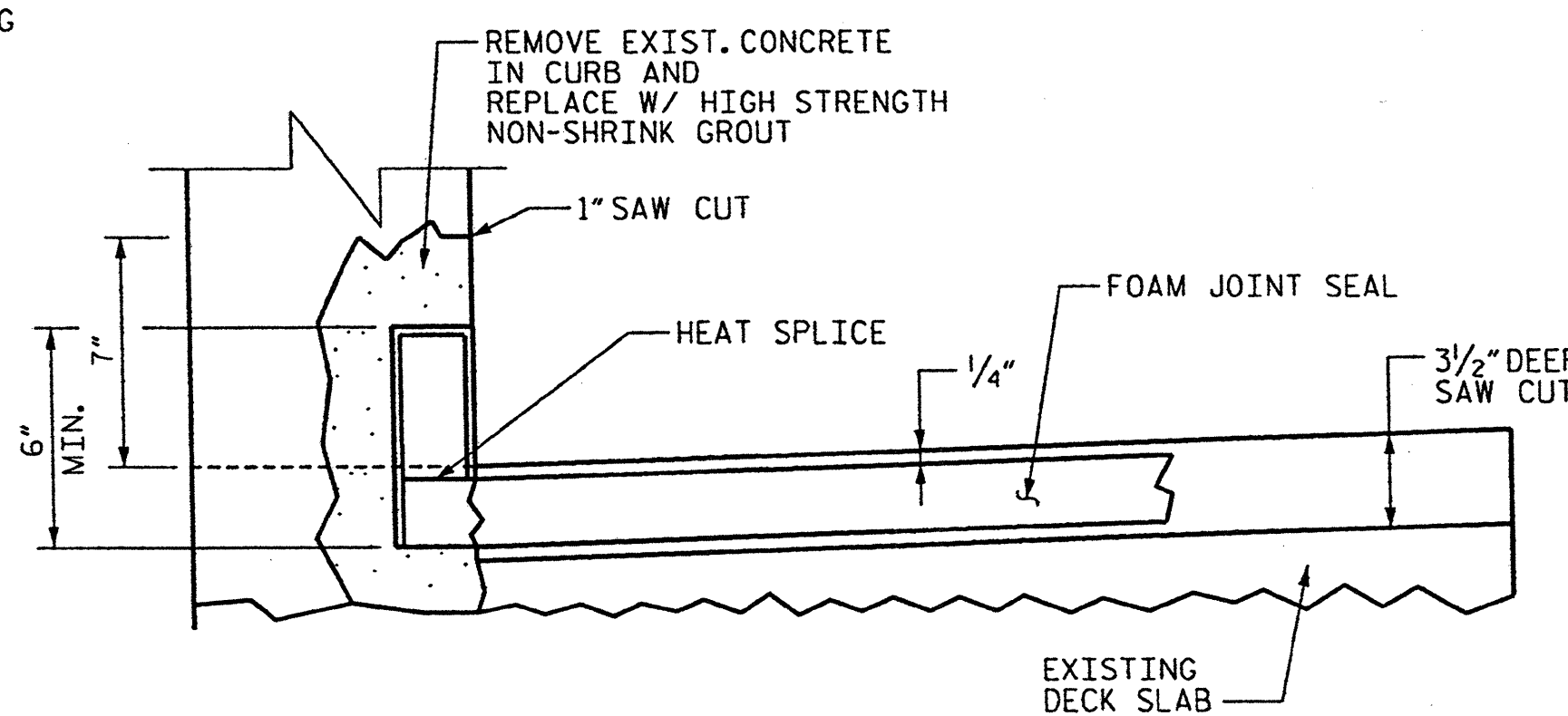
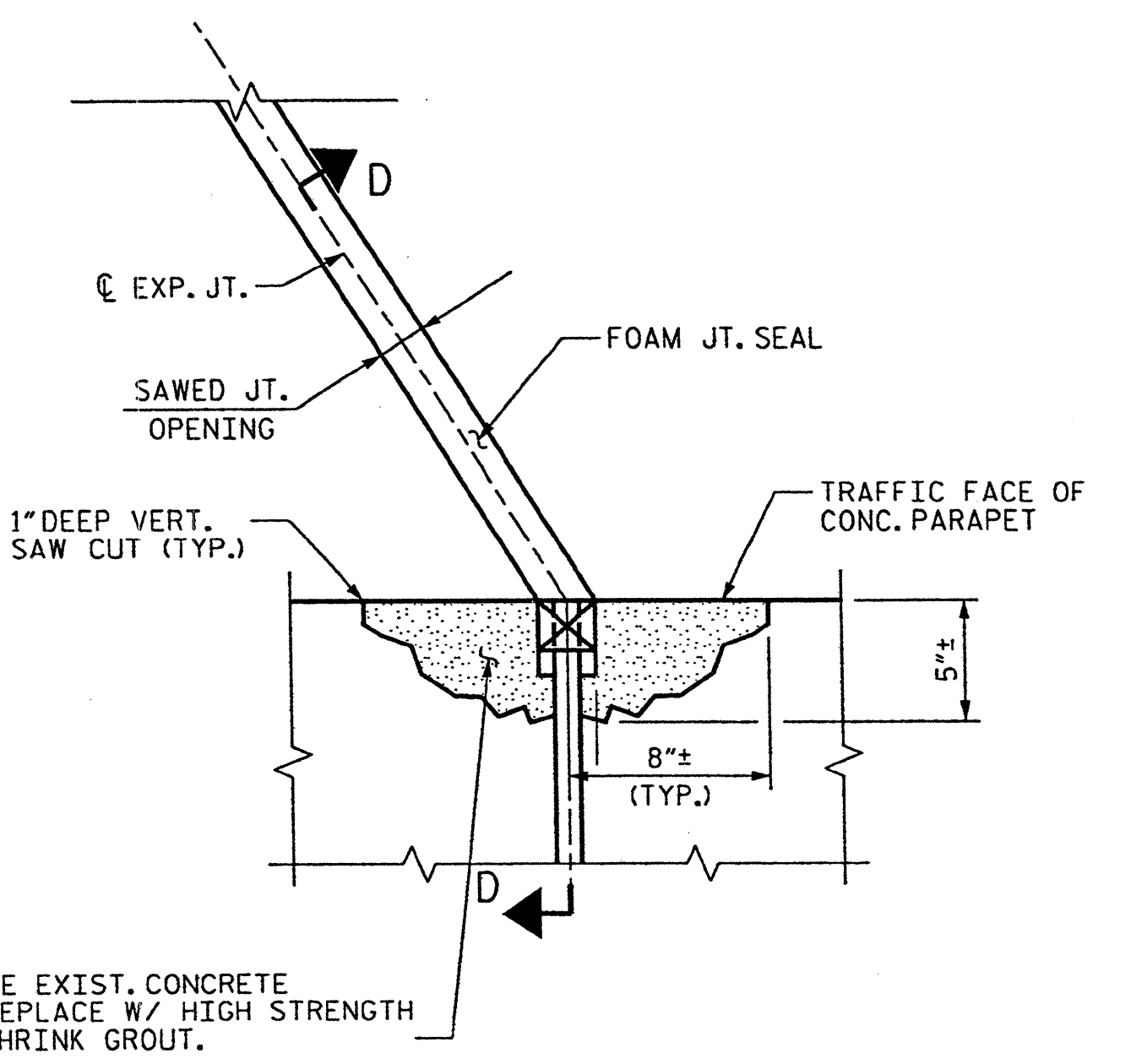
12/20/03 PM Jaelle  
 12/19/2011  
 004\Drawings\BP004\_DET.dgn  
 004\Drawings\BP004\_DET.dgn



1 1/4" DIA. BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. CONTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



- (A) 9 3/16" MIN. 9 1/2" MAX.
- (B) 7 1/4" MIN. 7 5/8" MAX.



PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

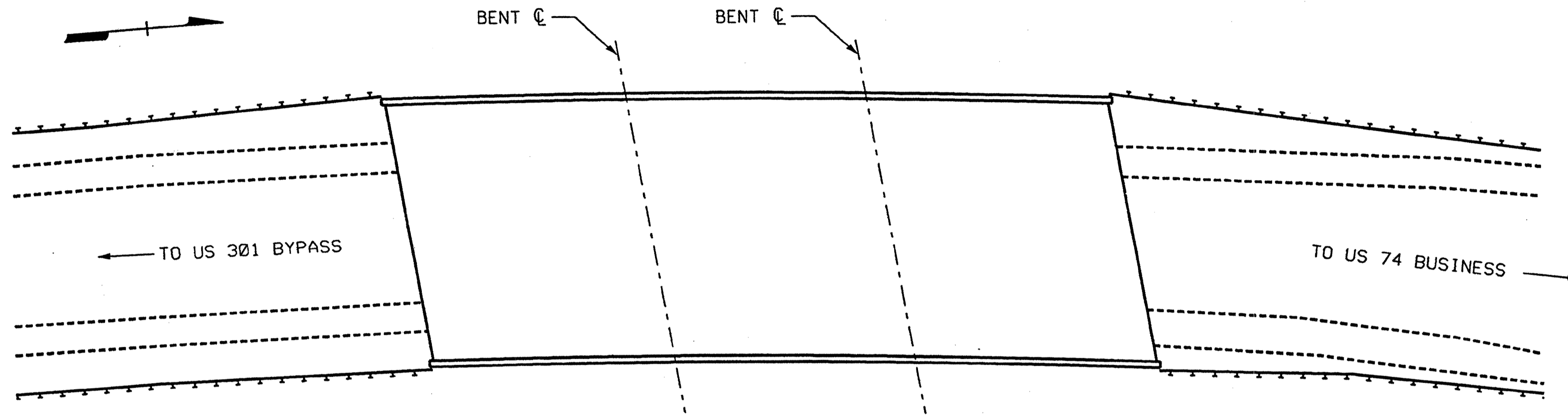
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
DECK REPAIR DETAILS FOR BRIDGE #004				
DECK REHAB. FOR BRIDGE NO. 4				
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
				S-3
				TOTAL SHEETS 75

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 www.stantec.com  
 License No. F-0672

DRAWN BY: K. R. TYLER DATE: 9/11  
 CHECKED BY: J. T. KELVINGTON DATE: 9/11

**SECTION D-D**  
 CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.  
 FOR HIGH STRENGTH GROUT, SEE SPECIAL PROVISIONS.  
 HIGH STRENGTH GROUT SHALL BE APPROVED BY THE ENGINEER.

*Joseph Kelvington*  
 12/20/11  
 REGISTERED PROFESSIONAL ENGINEER  
 NO. 13406  
 STATE OF NORTH CAROLINA



**BRIDGE 13 ON SR1207**

LOCATION: BRIDGE 770013, SR1207 0.3 MI SOUTH JCT US 74 ALTERNATE

**BRIDGE 13 ON SR1207**

**TOTAL BILL OF MATERIAL**

PLACEMENT OF EPOXY OVERLAY	CLASS II CONCRETE DECK REPAIR FOR EPOXY / ASPHALT OVERLAY *
SQ. FT.	SQ. FT.
5,472	100

\* QUANTITIES ARE ESTIMATED AND CAN BE EXPECTED TO VARY FROM ACTUAL CONDITIONS ENCOUNTERED AT THE PROJECT SITE

PROJECT NO. WBS 17BP.6.P.2

ROBESON COUNTY

STATION: \_\_\_\_\_



Stantec Consulting Services Inc.  
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DRAWN BY : C. T. MCCULLOUGH DATE : 11/11  
 CHECKED BY : J. T. KELVINGTON DATE : 11/11

*Joseph T. Kelvington*

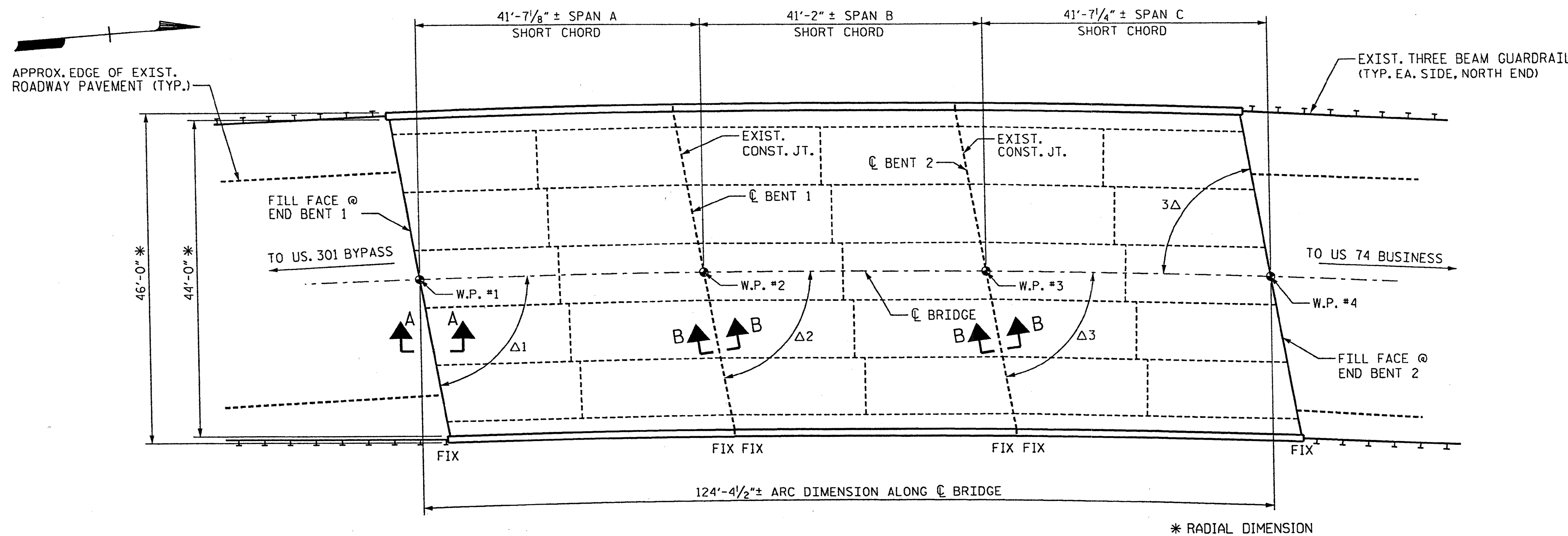
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

LOCATION SKETCH  
 AND TOTAL  
 BILL OF MATERIAL

DECK REHAB. FOR BRIDGE NO. 13

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

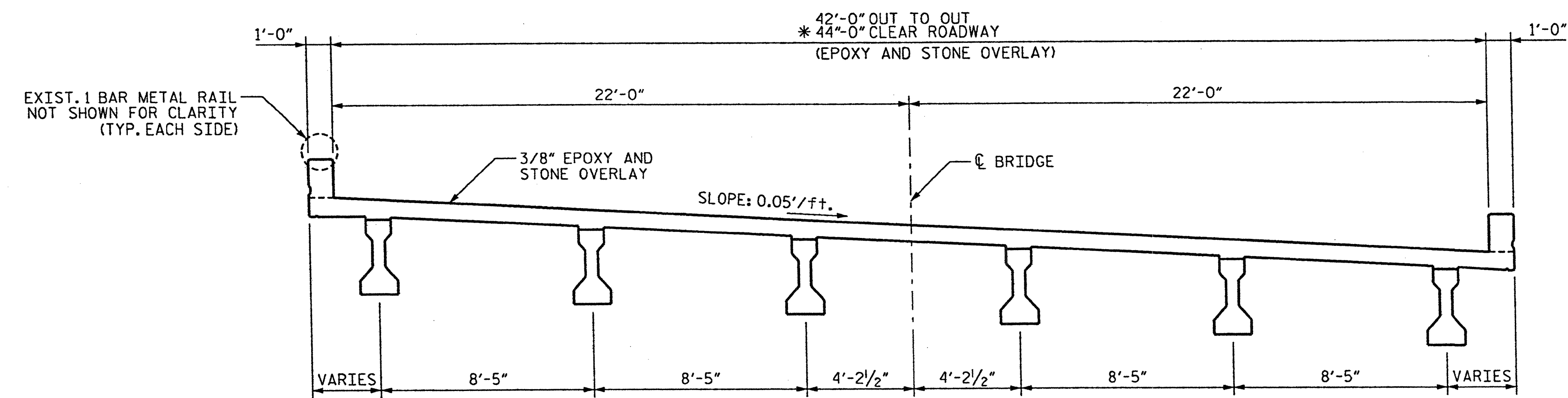
Group: 2011\WBS 17BP.6.P.2, Robeson Co.\Robeson Co.\Bridge 013\Drawing\BPI3.L.S..BOM.dgn 12/20/2011 12:38:16 PM Joelle



SHORT CHORD TO BENT ANGLES

Δ 1	81° 14' 25"
Δ 2	79° 59' 56"
Δ 3	78° 45' 00"

PLAN VIEW



TYPICAL SECTION

NOTE: ALL DIMENSIONS SHOWN ARE APPROXIMATE

NOTES

- FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS ENTITLED "EPOXY OVERLAY SYSTEM".
- SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.
- FOR SECTION A-A AND SECTION B-B SEE SHT. S-6.
- FOR TRAFFIC CONTROL AND TRAFFIC PHASING DETAILS, SEE TRANSPORTATION MANAGEMENT PLANS.
- ALL QUANTITIES SHOWN ARE APPROXIMATE.

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

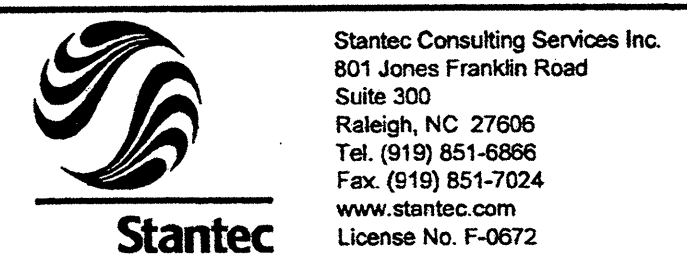
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

DECK REPAIR DETAILS  
 FOR BRIDGE #013

DECK REHAB. FOR BRIDGE NO. 13

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			75	

*Joseph J. Kelvington*  
 11/11  
 13406  
 ENGINEER  
 JOSEPH J. KELVINGTON

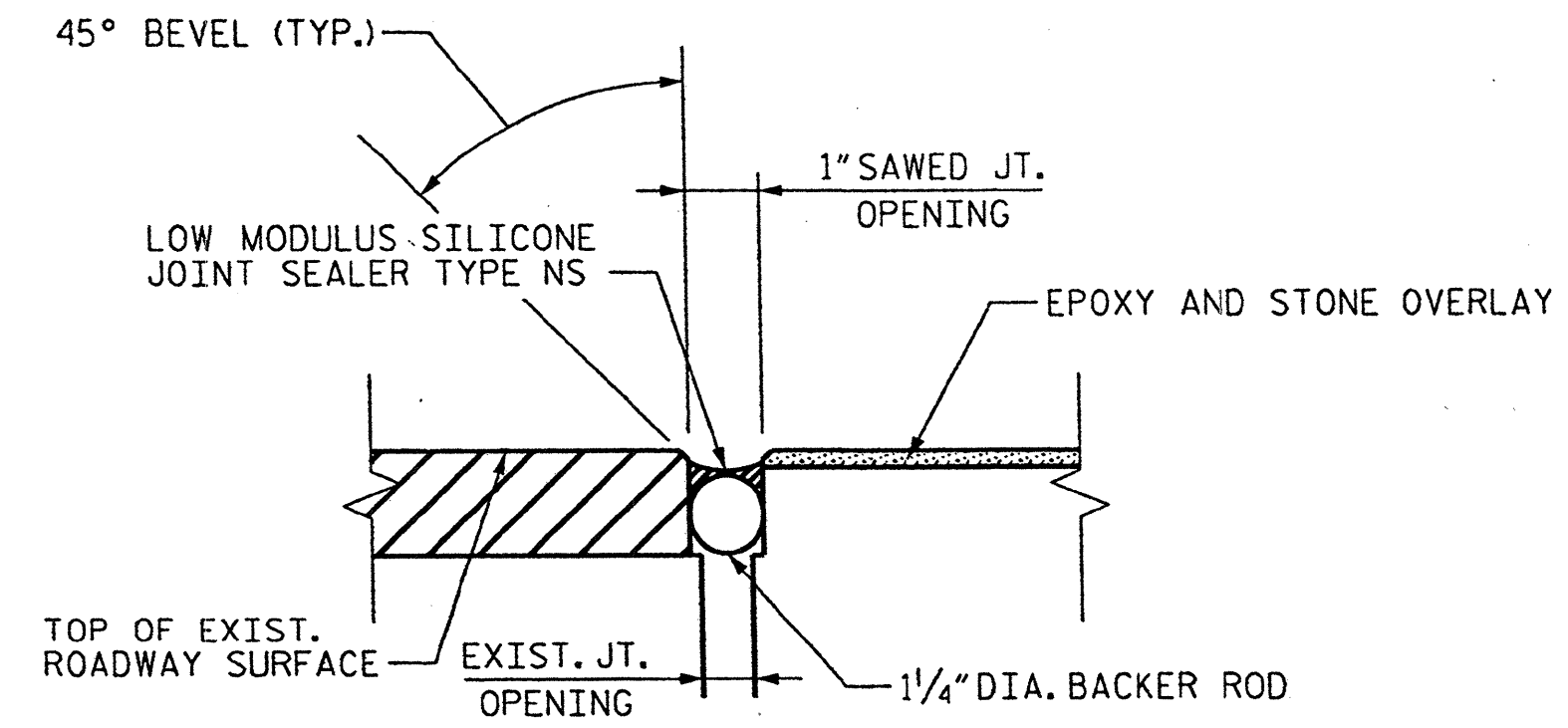
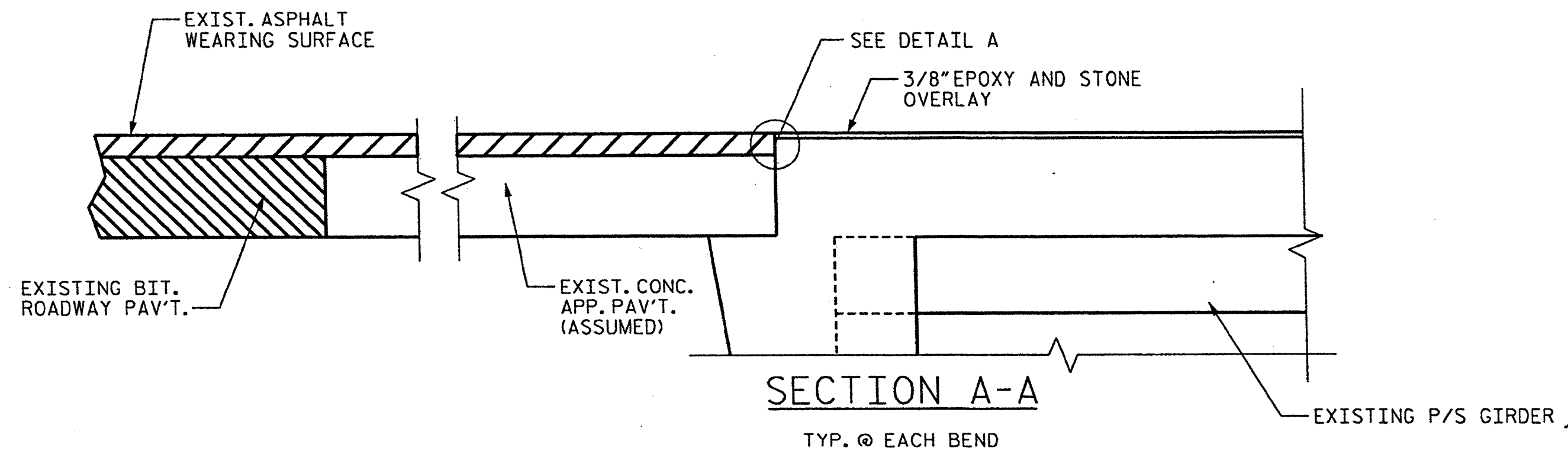


DRAWN BY : C T MCCULLOUGH DATE : 11/11  
 CHECKED BY : J T KELVINGTON DATE : 11/11

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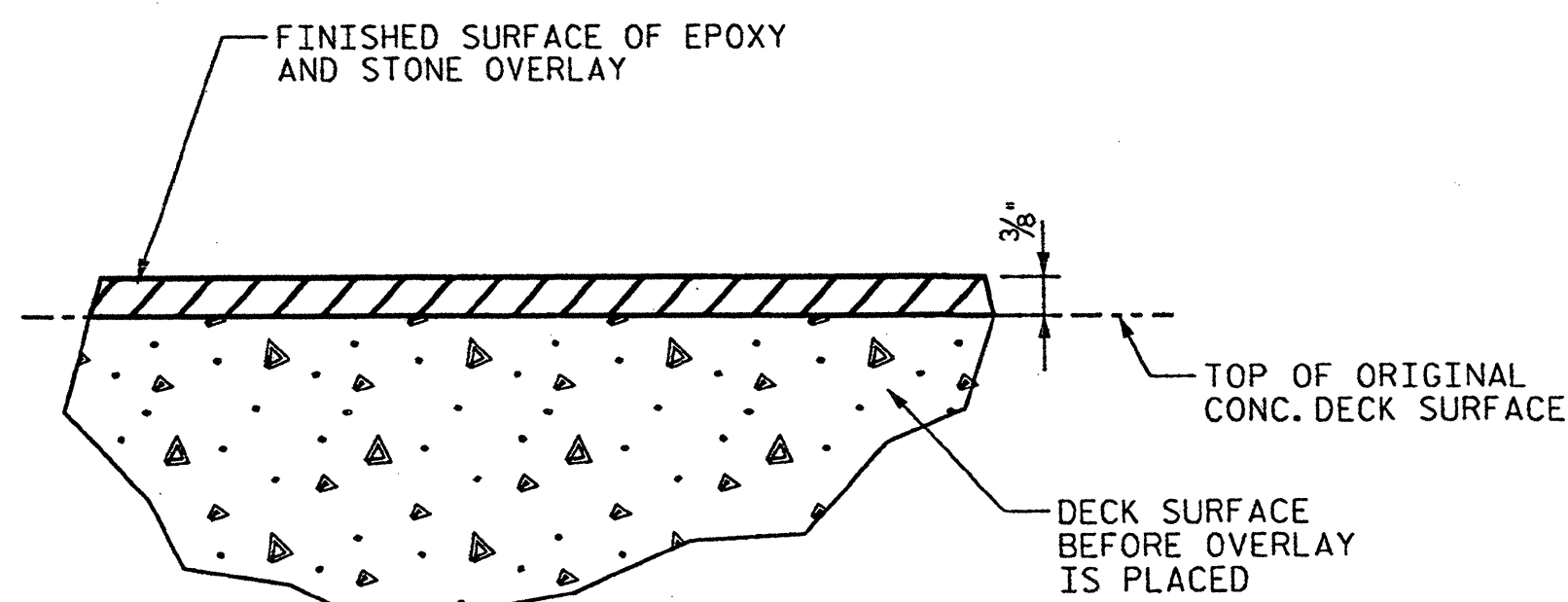


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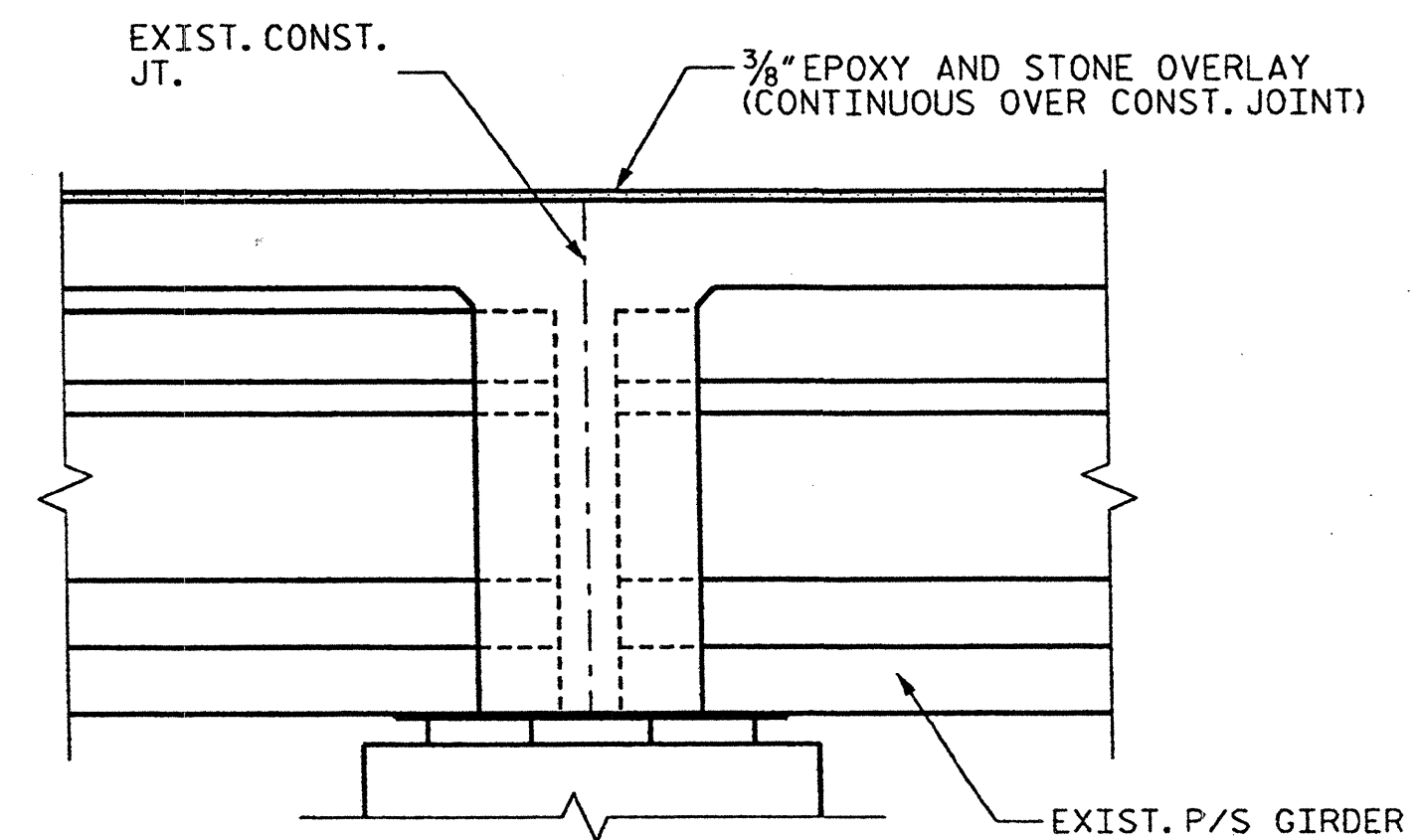


**DETAIL A**  
CONCRETE JOINT SEAL

1 1/4" DIA. BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD A MINIMUM OF 6" BEYOND THE LIMITS OF EXISTING APPROACH ROADWAY PAVEMENT. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. CONTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.




**DETAIL FOR EPOXY AND STONE OVERLAY**




**SECTION B-B**

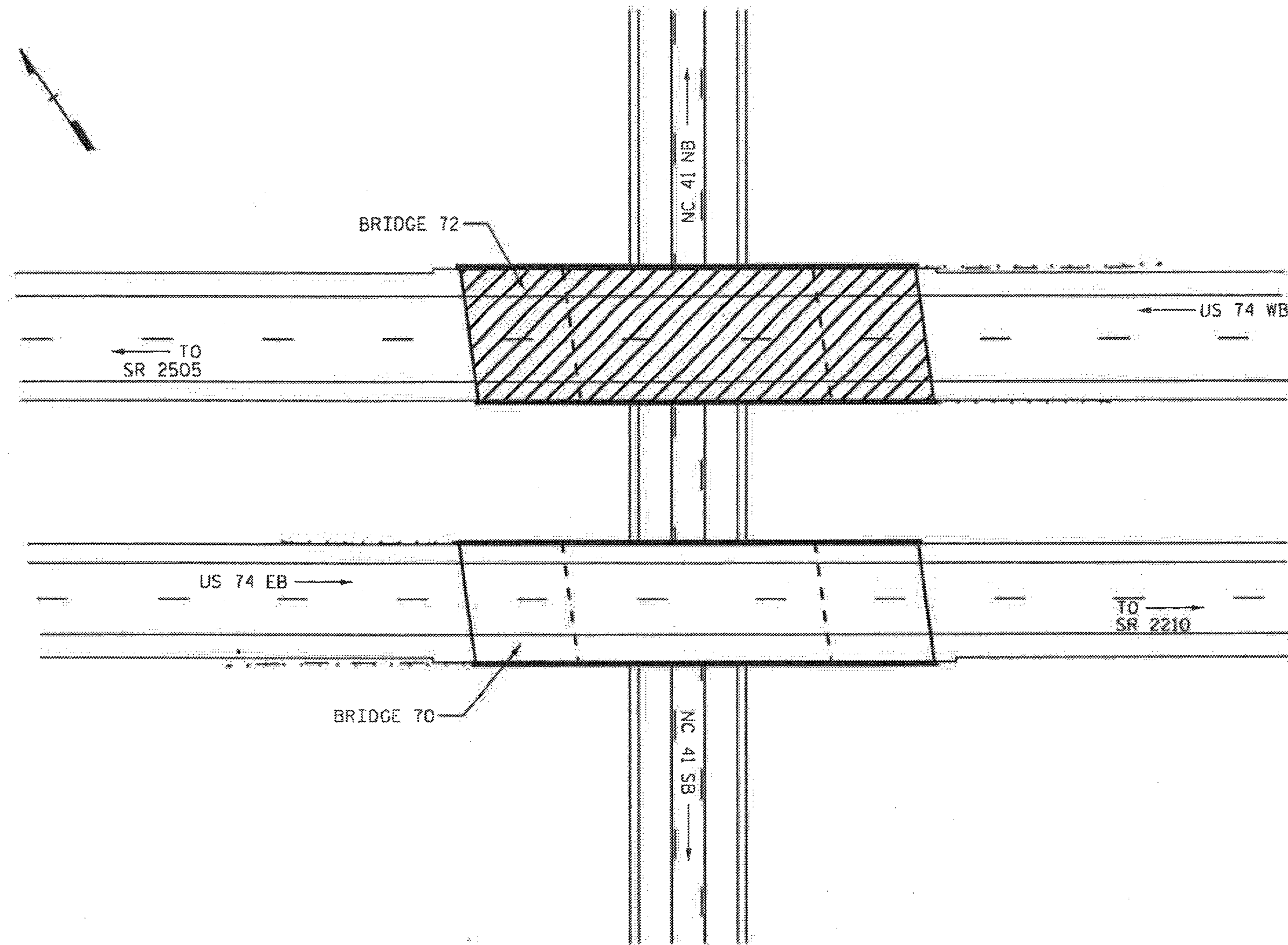
PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK REPAIR DETAILS FOR BRIDGE #013					
DECK REHAB. FOR BRIDGE NO. 13					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-6
					TOTAL SHEETS 75


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 www.stantec.com  
 License No. F-0672

DRAWN BY: C T MCCULLOUGH DATE: 11/11  
 CHECKED BY: J T KELVINGTON DATE: 11/11

  
*J. T. Kelvington*



**BRIDGE 70 ON US 74 EBL**

LOCATION: BRIDGE 7700702, US 74 EBL OVER NC 41  
1.1 MILES EAST OF JUNCTION SR 2505

BRIDGE 72, US 74 WB SEE DWGS. S-15 THRU S-26

**BRIDGE 70 ON US 74**

**TOTAL BILL OF MATERIAL**

SCARIFYING BRIDGE DECK **	CLASS I SURFACE PREPARATION *	CLASS II SURFACE PREPARATION *	CLASS III SURFACE PREPARATION *	HYDRO- DEMOLITION OF BRIDGE DECK	CLASS AA CONCRETE *	LATEX MODIFIED CONCRETE OVERLAY- VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH	FOAM JOINT SEALS	GROOVING BRIDGE FLOORS	ASPHALT CONG. SURFACE COURSE TYPE S9.5C
SG.YDS.	SG.YDS.	SG.YDS.	SG.YDS.	SG.YDS.	CU.YDS.	CU.YDS.	SG.YDS.	LUMP SUM	SG.FT.	TON
1146.3	0	4.2	0	677.8	0	28.2	677.8	LUMP SUM	5858	50

\* QUANTITIES ARE ESTIMATES FROM BEST AVAILABLE DATA, AND SHOULD BE CONSIDERED FOR INFORMATION PURPOSES ONLY. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "TYP. 'BLOW THRU' CONTAINMENT AND FORMWORK" DETAIL. NO SEPARATE MEASUREMENT AND PAYMENT SHALL BE MADE. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

\*\* INCLUDES MILLING OF ROADWAY PAVEMENT

PROJECT NO. WBS 17BP.6.P.2

ROBESON COUNTY

STATION: \_\_\_\_\_

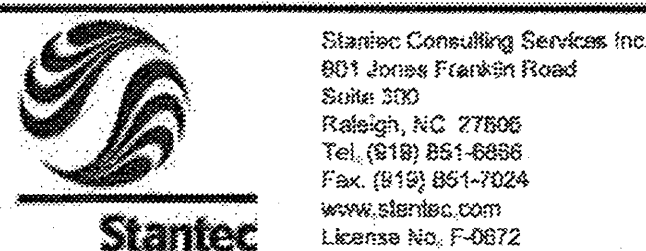
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

LOCATION SKETCH  
AND TOTAL  
BILL OF MATERIAL

DECK REHAB. FOR BRIDGE NO. 70

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			75

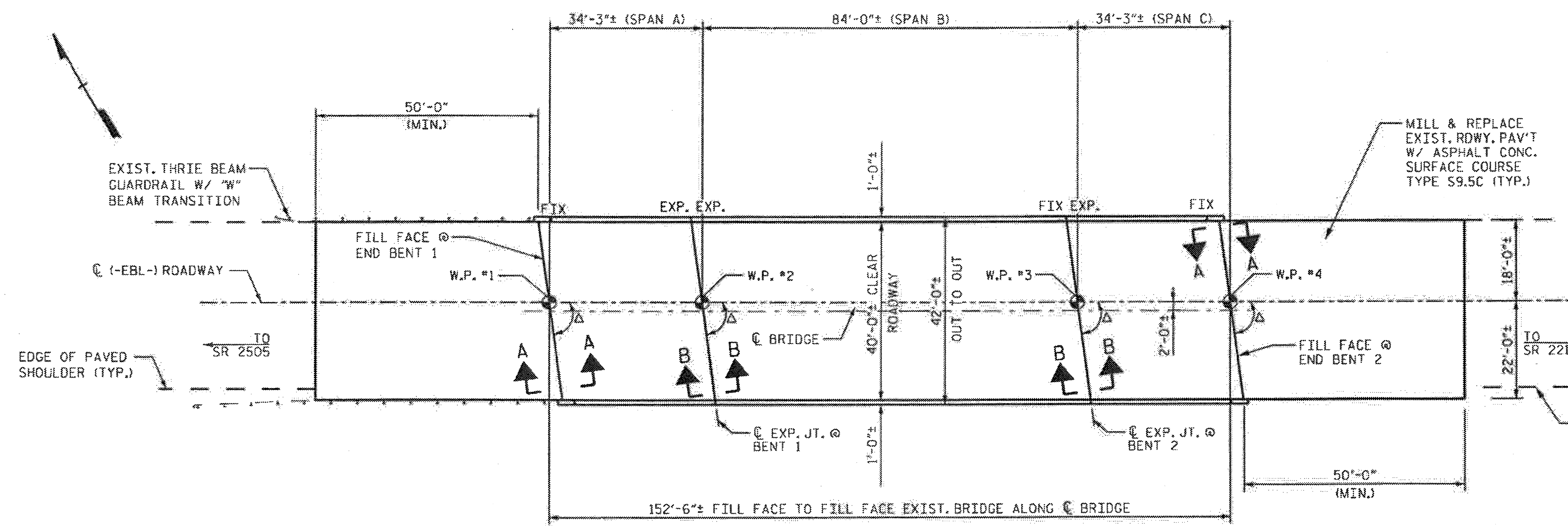
*Joseph Kelvington*  
2/19/11  
2012



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Tel. (919) 851-6896  
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License No. F-0672

DRAWN BY : P. Z. ARMATA DATE : 10/11  
CHECKED BY : J. T. KELVINGTON DATE : 10/11

2/29/2012 2:50:14 PM jkmrskas  
 2/29/2012 2:50:14 PM jkmrskas  
 2/29/2012 2:50:14 PM jkmrskas



**NOTES:**

DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.

FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.

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

THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK. SEE DETAIL, SH. NO. S-10.

LATEX MODIFIED CONCRETE SHALL BE LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH.

FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

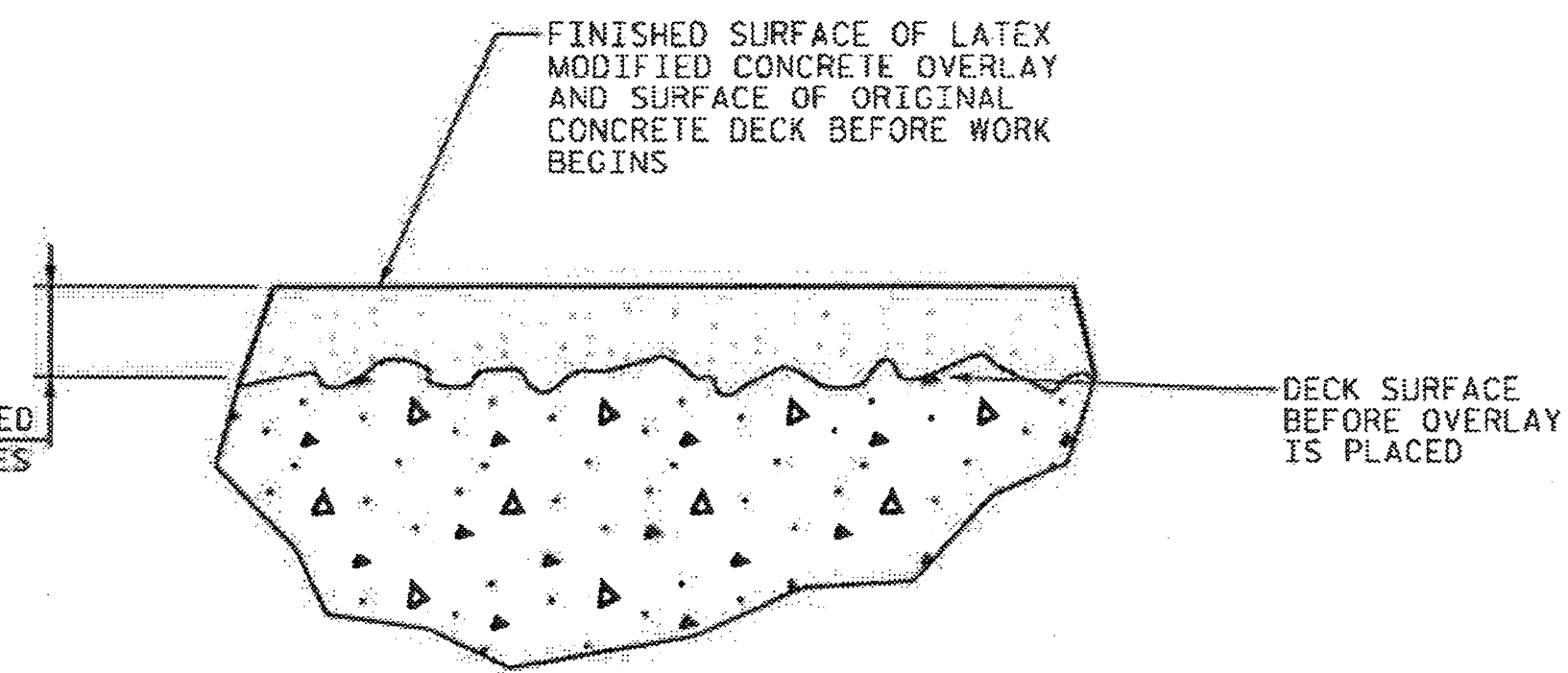
FOR SECTION B-B, SEE SHEET NO. S-13.

FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.

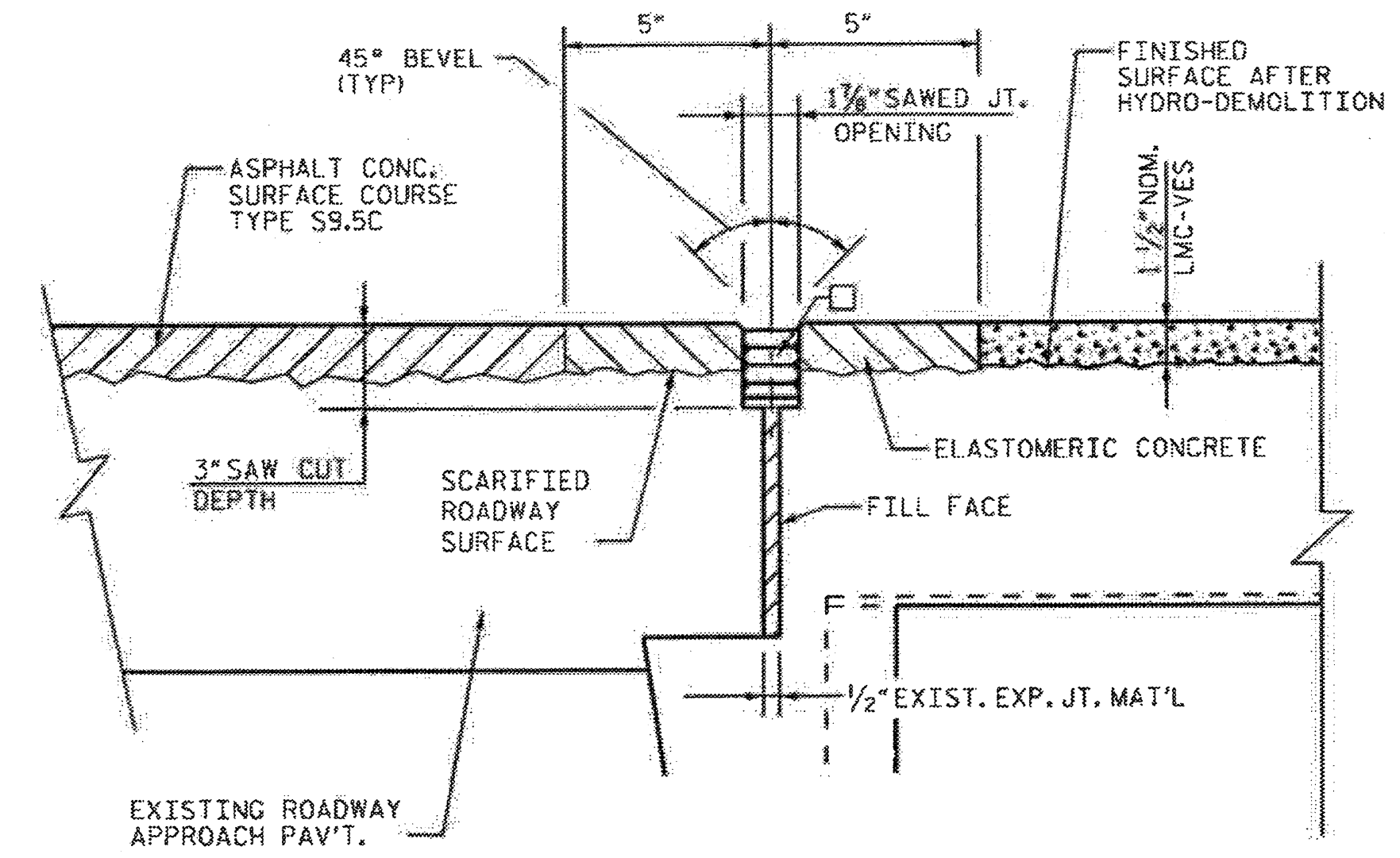
\*VES\* DENOTES VERY EARLY STRENGTH.

SKIEW ANGLES (APPROX.)  
 $\Delta = 82^{\circ}18'00''$  (TYP. EA. BENT)

PLAN OF SPANS

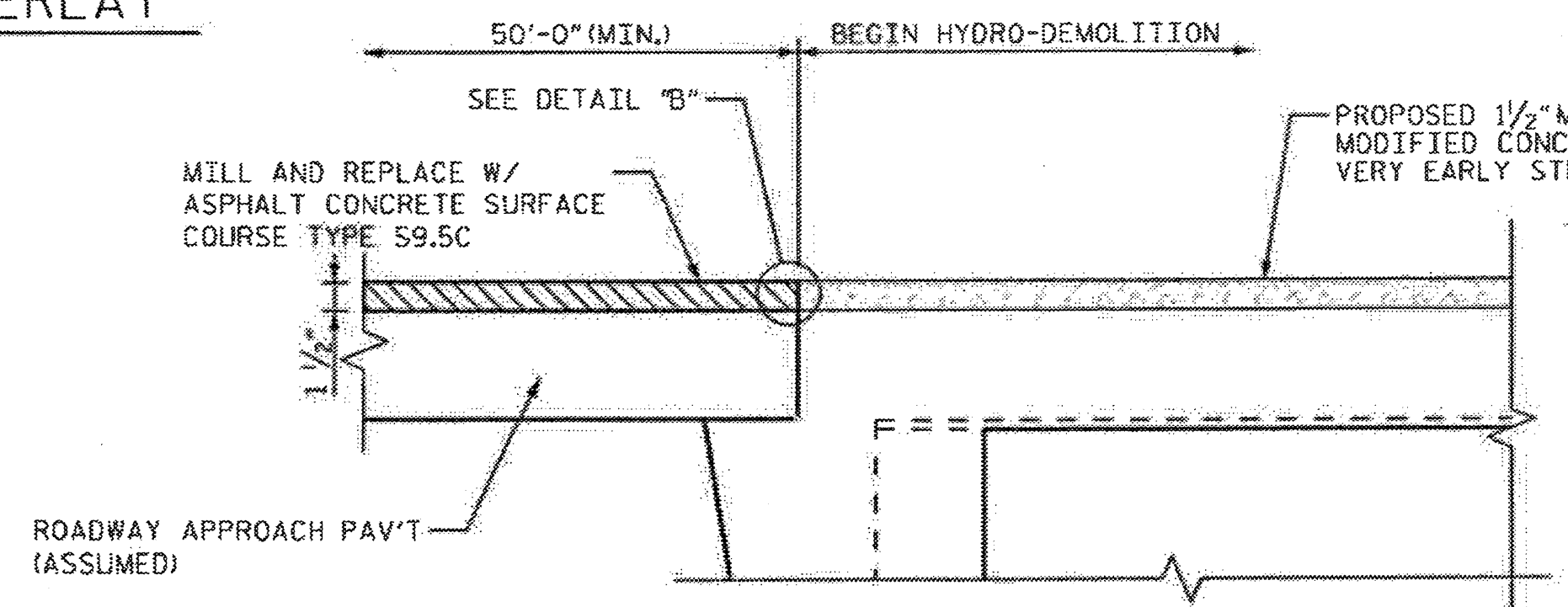


DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY



DETAIL B

□ - USE 2.8125" X 2.00" UNCOMPRESSED FOAM JOINT SEAL



SECTION A-A

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

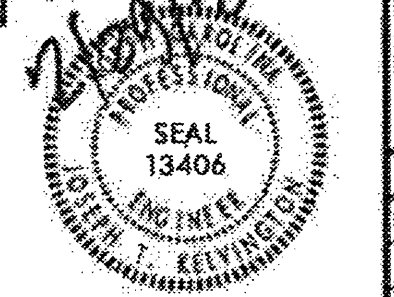
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPANS  
 FOR DECK REPAIR

DECK REHAB. FOR BRIDGE NO. 70

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-B
1			3			75
2			4			

*Joseph J. Kelvington*  
 2/29/2012

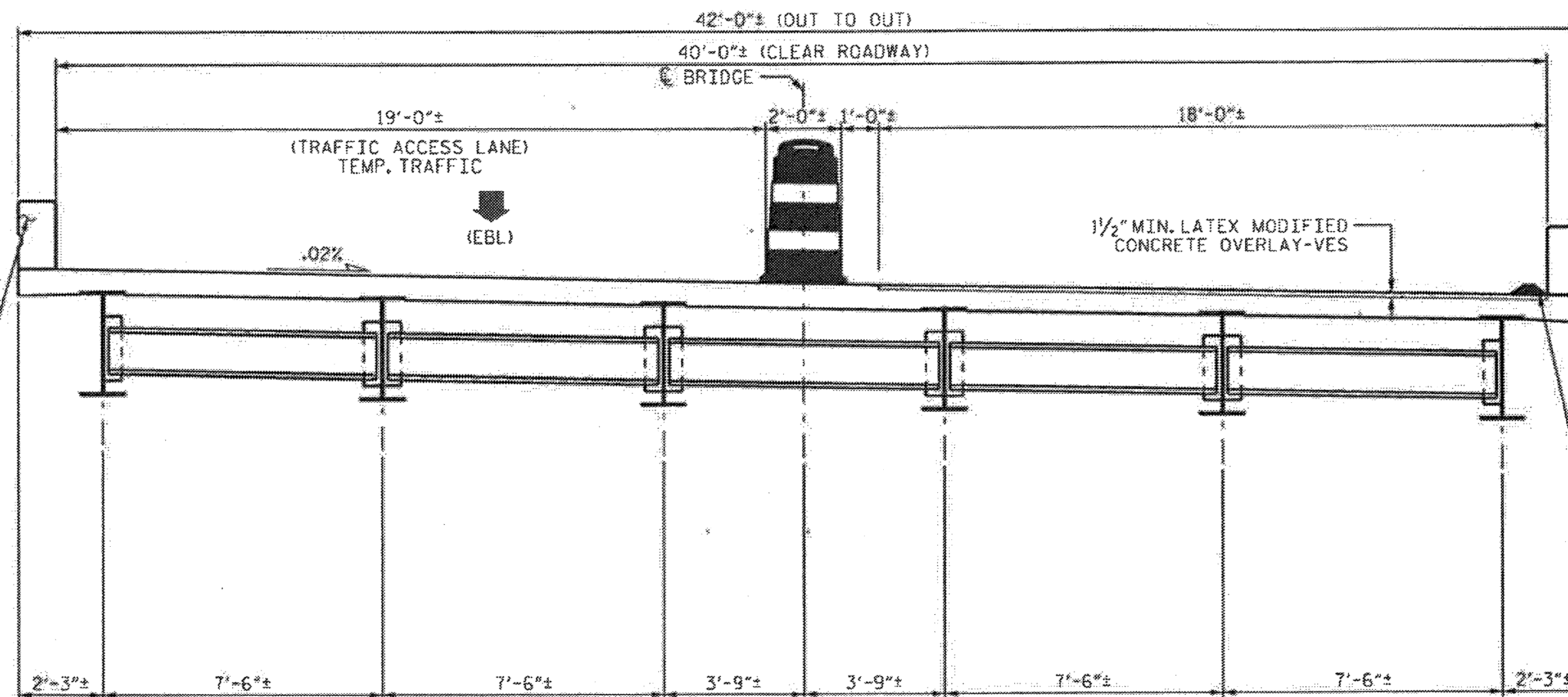


Group 2011 WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 070 Drawing 08-70\_DeckPlan.dgn 2/29/2012 3:46:40 PM jhennakas

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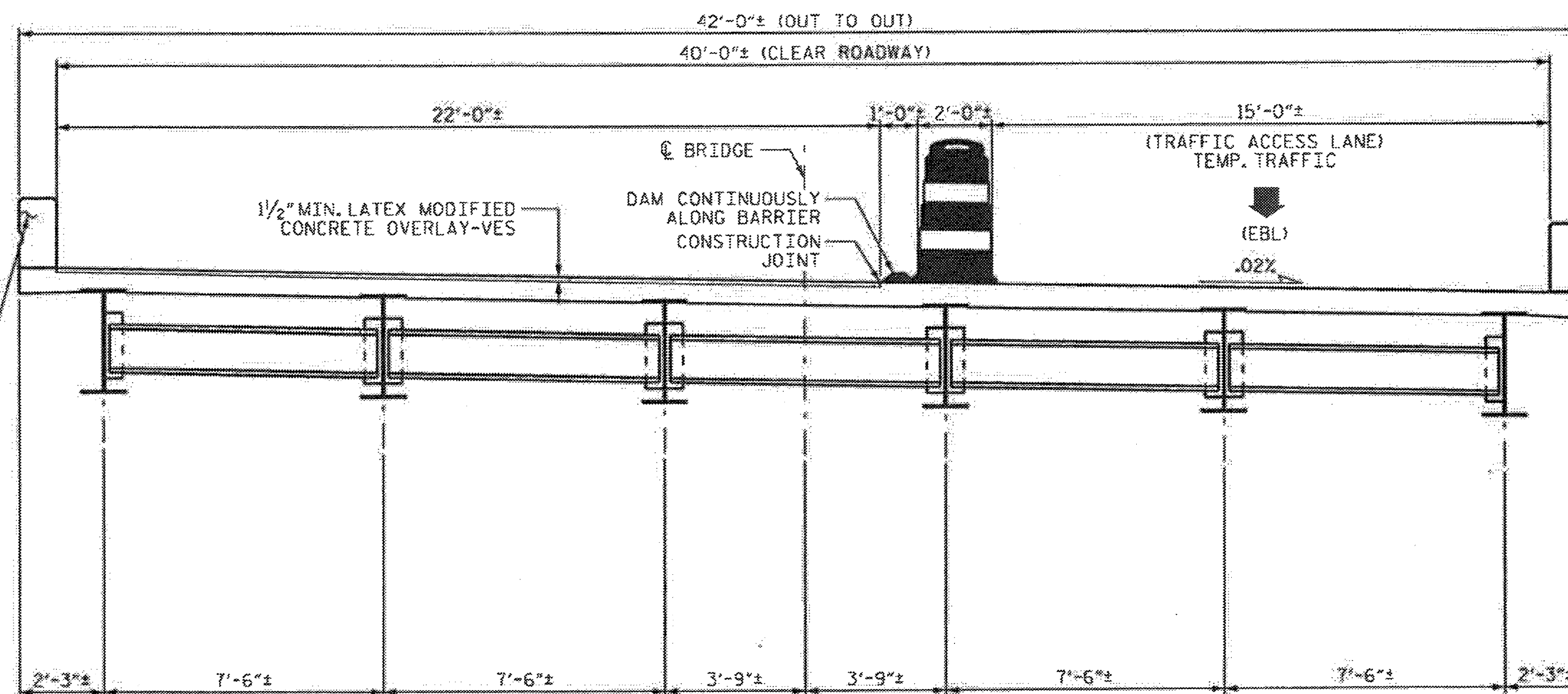
EXIST. PARAPET W/ 1 BAR METAL RAIL (RAIL NOT SHOWN FOR CLARITY) (TYP.)



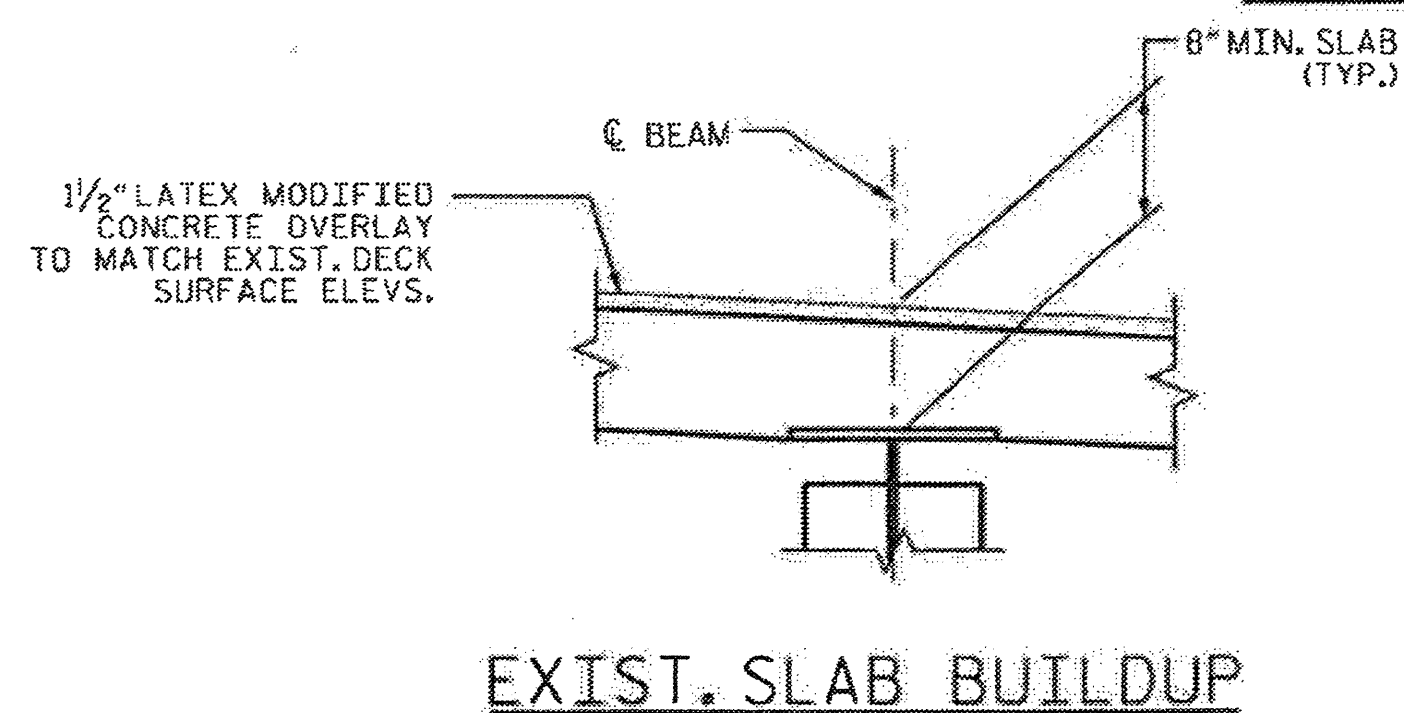
TEMP. BERM TO SEAL @ EXP. JTS.

TYP. SECTION - EBL  
SPAN B SHOWN - SPANS A&C SIMILAR

EXIST. PARAPET W/ 1 BAR METAL RAIL (RAIL NOT SHOWN FOR CLARITY) (TYP.)



TYP. SECTION - EBL  
SPAN B SHOWN - SPANS A&C SIMILAR



NOTES:

- \*VES\* DENOTES VERY EARLY STRENGTH.
- WATER & CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL THE WATER.
- ALL DIMENSIONS ARE APPROXIMATE.
- FOR TRAFFIC CONTROL AND PHASING DETAILS, SEE TRAFFIC MANAGEMENT PLANS.

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

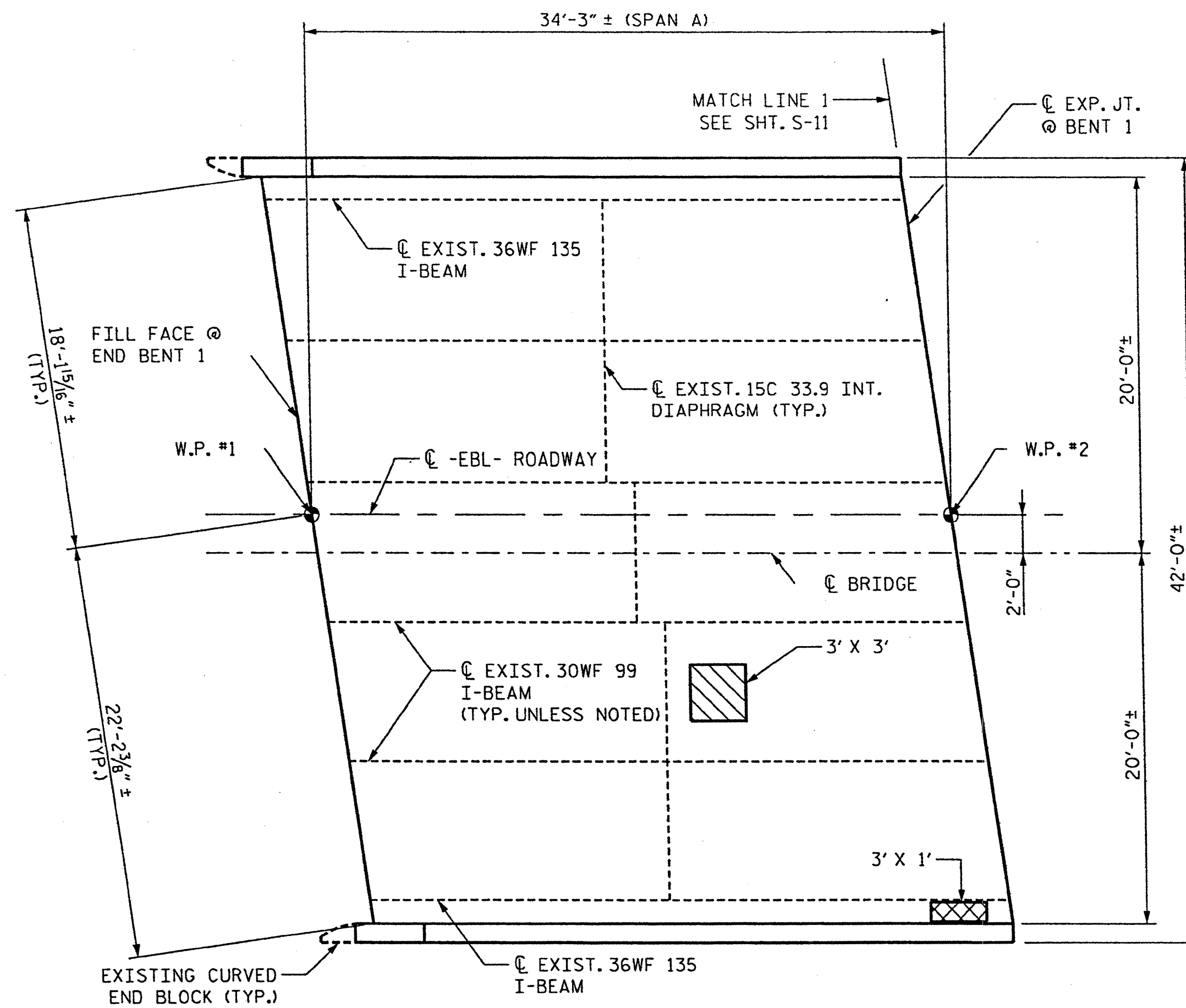
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TYPICAL SECTION					
DECK REHAB. FOR BRIDGE NO. 70					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S-9
					TOTAL SHEETS 75

*Joseph J. Kelvington*  
 2/29/2012  
 SEAL 13406  
 ENGINEER

2/29/2012 2:50:04 PM jmethekes  
 2011WBS 17BP.6.P.2 Robeson Co. Robeson Bridge.dwg  
 0701drawing\BP-70\_1typsect.dgn

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DRAWN BY: P. Z. ARMATA DATE: 10/11  
 CHECKED BY: J. T. KELVINGTON DATE: 10/11



PLAN OF SPAN A - DECK REPAIRS

NOTE:

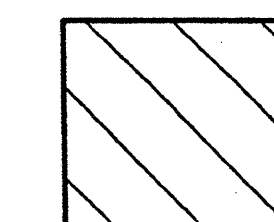
CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

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

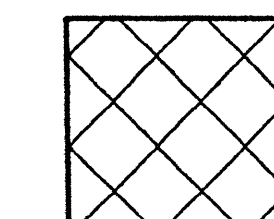
COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.

SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.



CLASS II SURFACE PREPARATION



CLASS III SURFACE PREPARATION

NOTES:

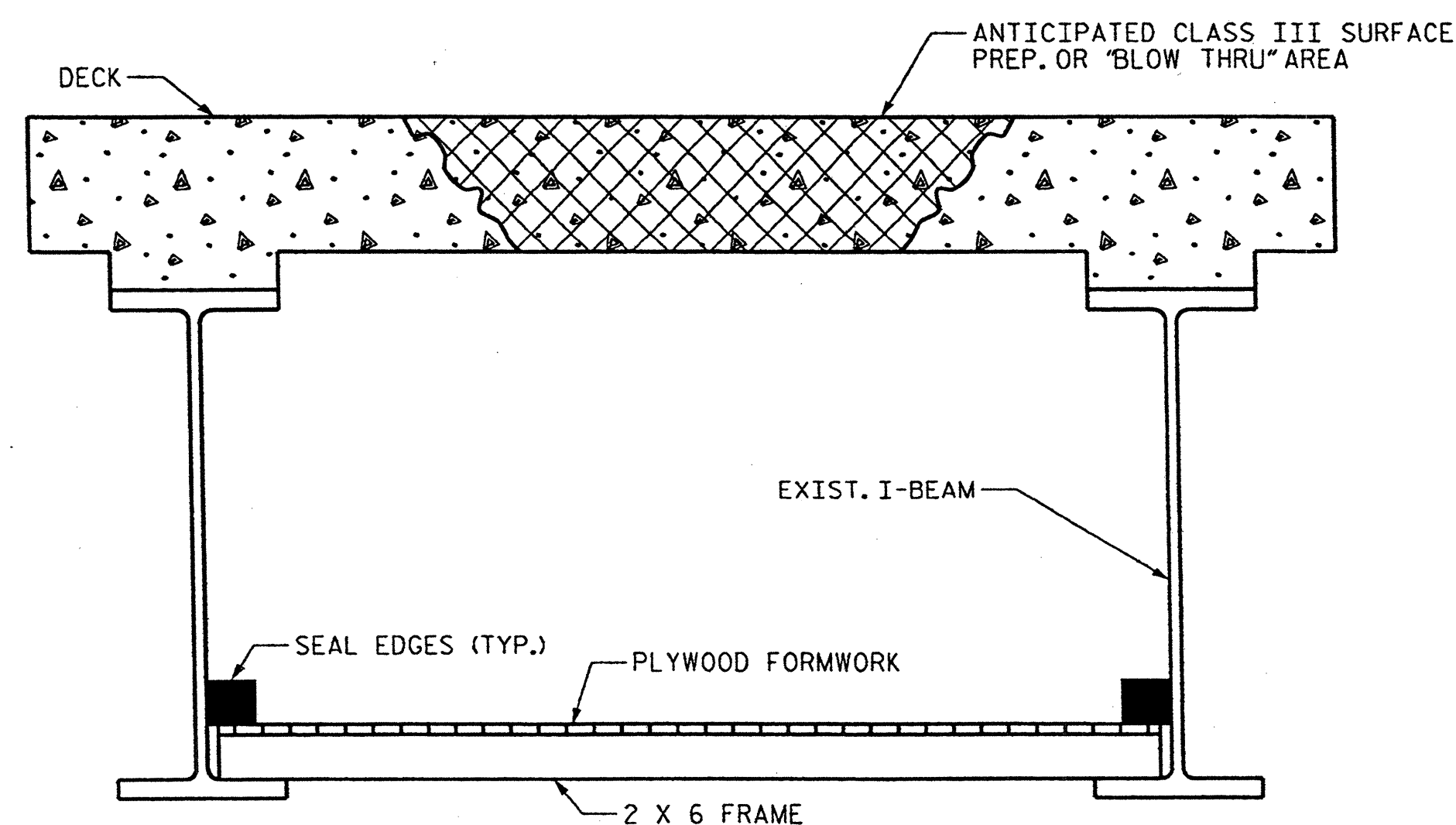
L' X W' = LENGTH OF AREA ALONG @ BRIDGE X WIDTH OF AREA NORMAL TO @ BRIDGE

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.

CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MONITOR HYDRO-DEMOLITION WORK AND CONTROL TRAFFIC UNDER THE BRIDGE IN LIEU OF BLOW THRU CONTAINMENT. SEE TRANSPORTATION MANAGEMENT PLANS.



TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

DECK REPAIR DETAILS  
 SPAN A

DECK REHAB. FOR BRIDGE NO. 70

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

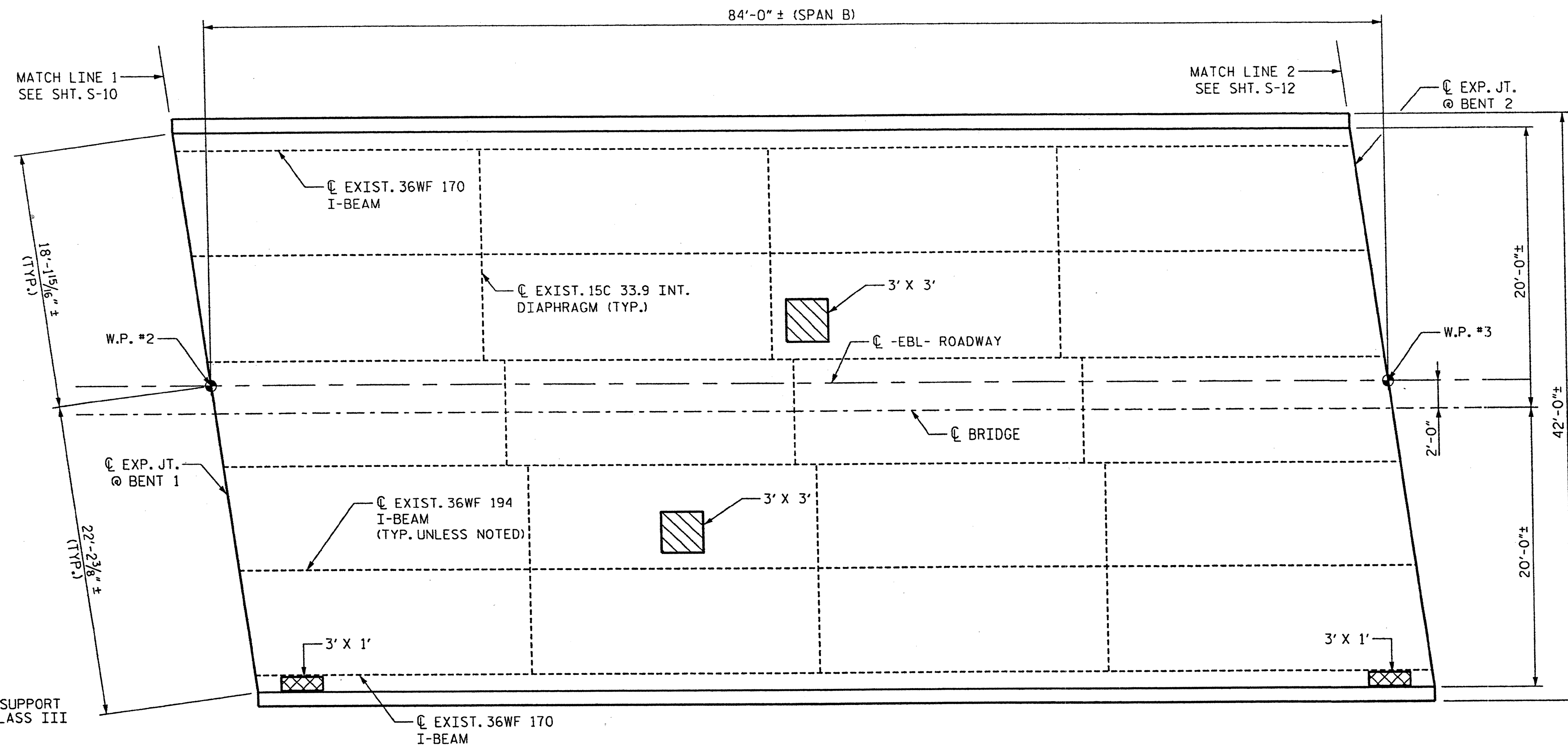
*Joseph T. Kelvington*  
 12/19/2011  
 PROFESSIONAL ENGINEER  
 NO. 13406  
 STATE OF NORTH CAROLINA



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 License No. F-0672

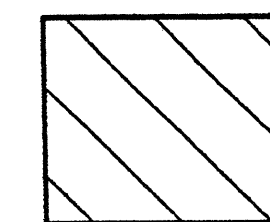
DRAWN BY: P. Z. ARMATA DATE: 10/11  
 CHECKED BY: J. T. KELVINGTON DATE: 10/11

12/20/09 PM Jgelle  
 12/19/2011  
 070\Drawing\BP-70\_Repair\Plan\ldgn

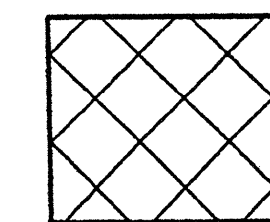


NOTE:  
 CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.  
 SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.  
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

PLAN OF SPAN B - DECK REPAIRS



CLASS II SURFACE PREPARATION



CLASS III SURFACE PREPARATION

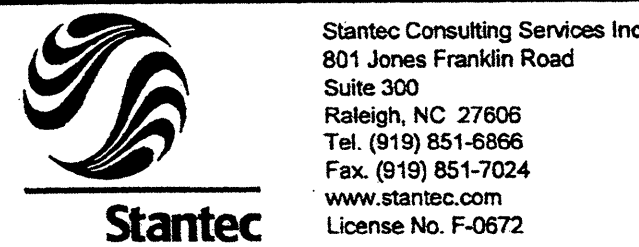
NOTES:

L' X W' = LENGTH OF AREA ALONG @ BRIDGE X WIDTH OF AREA NORMAL TO @ BRIDGE

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

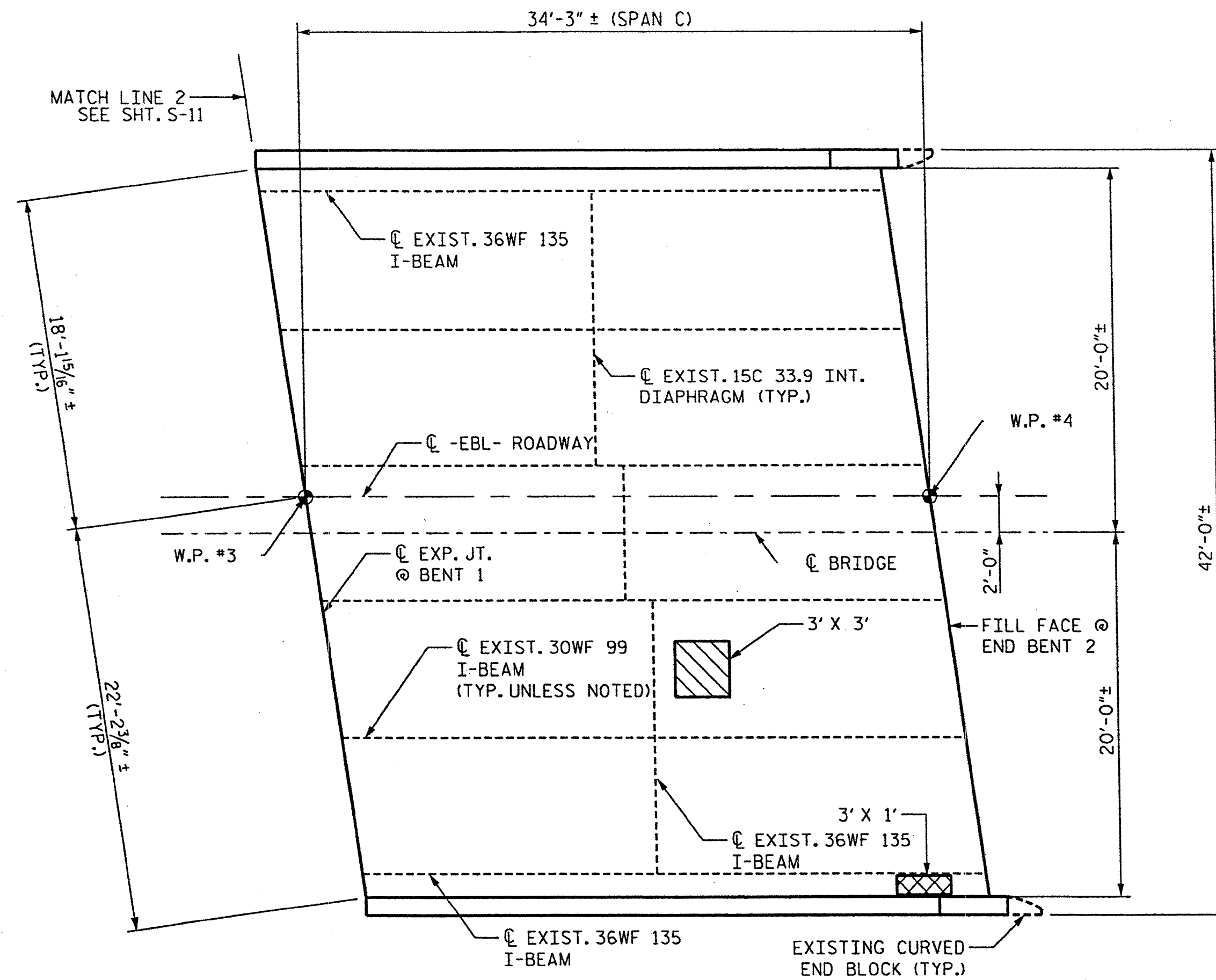
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
DECK REPAIR DETAILS					
SPAN B					
DECK REHAB. FOR BRIDGE NO. 70					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					75

*Joseph T. Kelvington*  
 10/20/11  
 PROFESSIONAL ENGINEER  
 13406  
 JOSEPH T. KELVINGTON



DRAWN BY : P. Z. ARMATA DATE : 10/11  
 CHECKED BY : J. T. KELVINGTON DATE : 10/11

12/20/12 PM jgelle  
 12/19/2011  
 I:\2011\WBS 17BP.6.P.2 Robeson Co\Robeson Bridge 070\Drawings\BP-70\_RepairPlan2.dgn



PLAN OF SPAN C - DECK REPAIRS

NOTE:

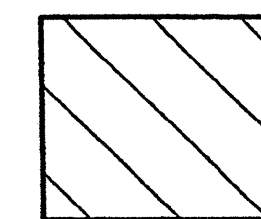
CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

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

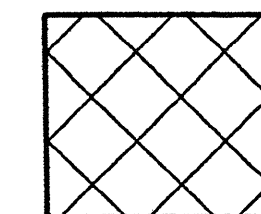
COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.

SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.



CLASS II SURFACE PREPARATION



CLASS III SURFACE PREPARATION

NOTES:

L' X W' = LENGTH OF AREA ALONG C BRIDGE X WIDTH OF AREA NORMAL TO C BRIDGE

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

DECK REPAIR DETAILS  
 SPAN C

DECK REHAB. FOR BRIDGE NO. 70

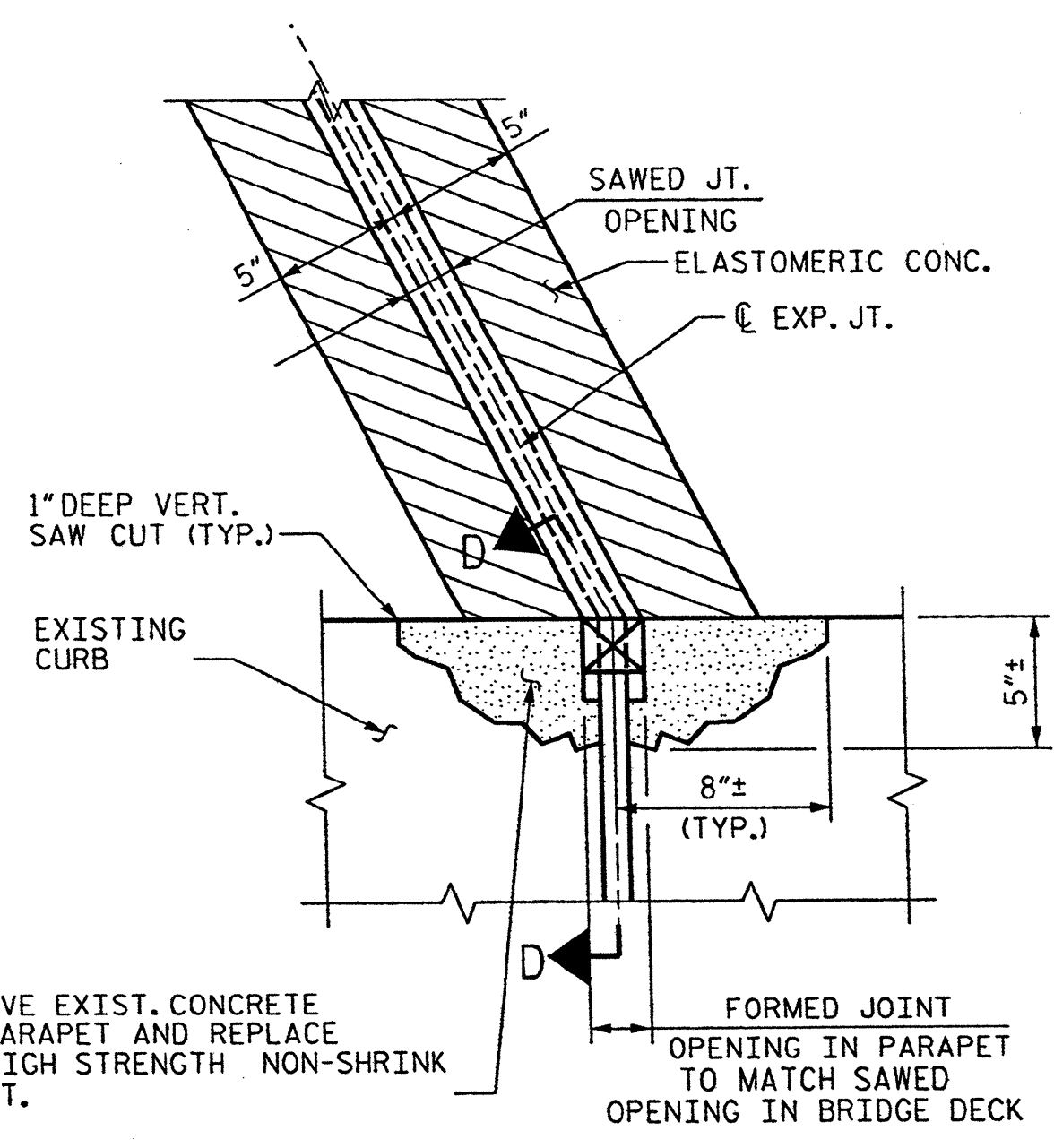
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					75

*Joseph J. Kelvington*  
 12/19/2011  
 13406  
 ENGINEER  
 JOSEPH J. KELVINGTON

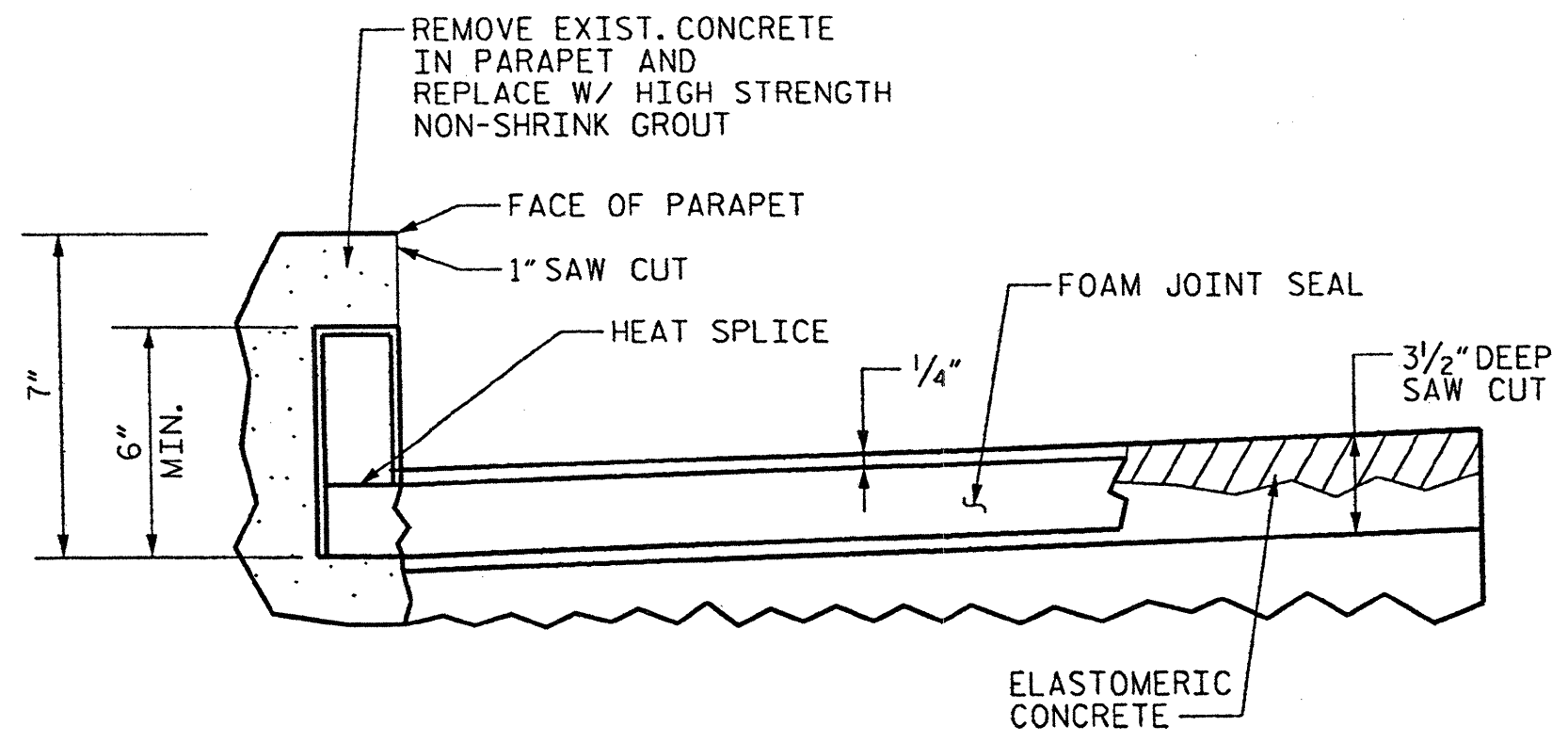
up 2011WBS 17BP.6.P.2 Robeson Co. Robeson Bridges 070\Drawing\BP-70.Repair\Plan3.dgn 12/19/2011 12:20:54 PM igelle

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 CHECKED BY : J T KELVINGTON DATE : 10/11



**PARTIAL PLAN @ JOINT**

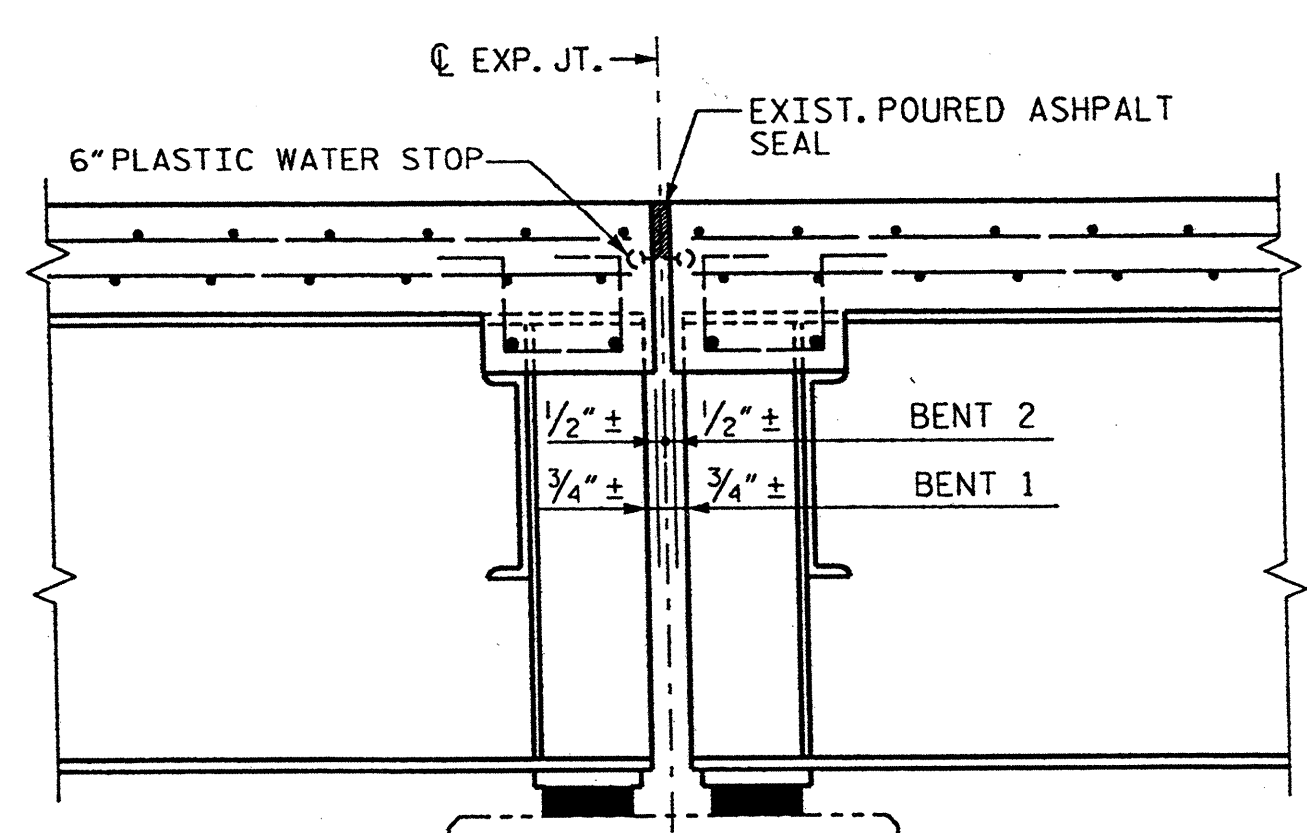


**SECTION D-D**

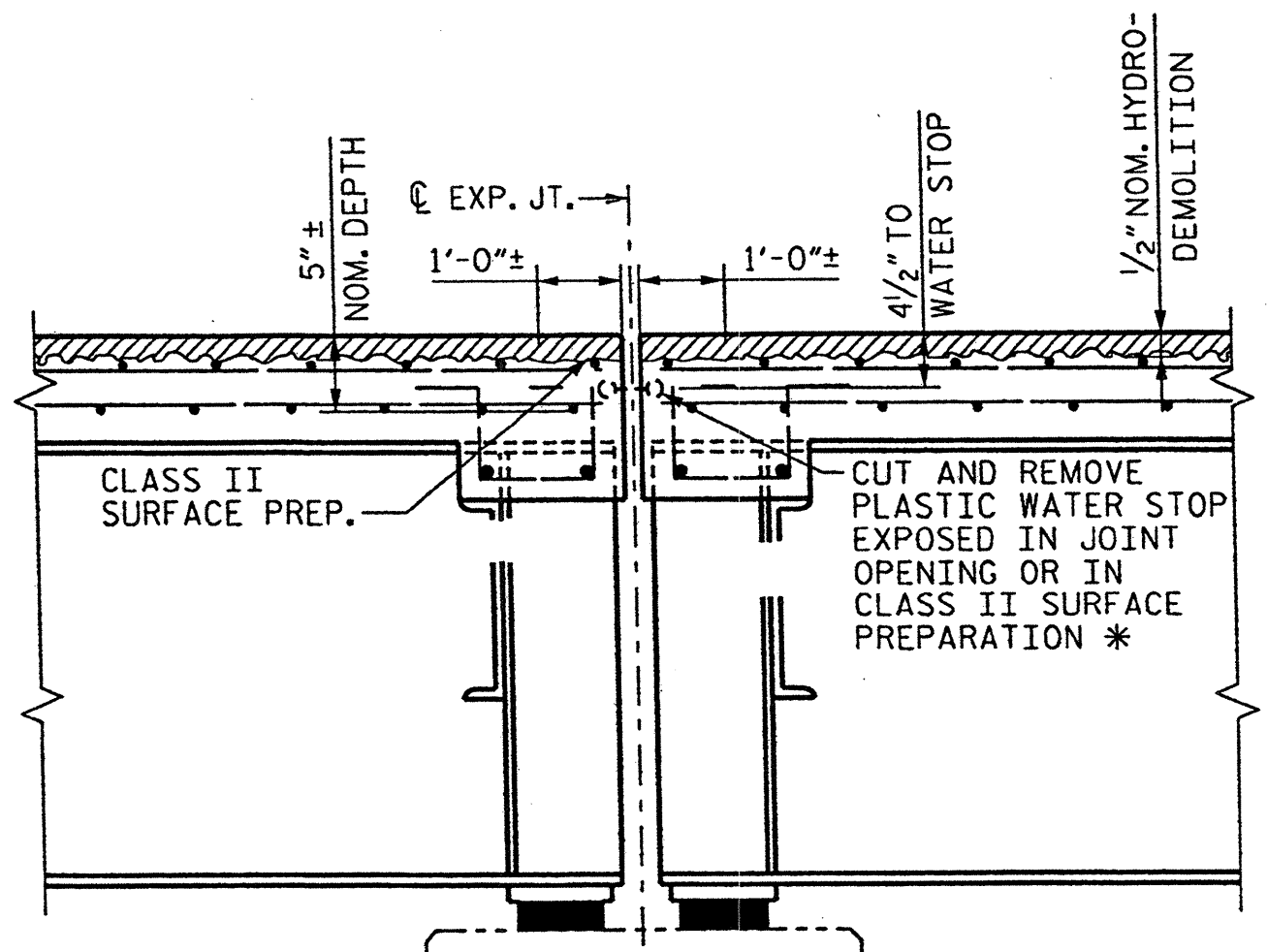
CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.  
 FOR HIGH STRENGTH GROUT, SEE SPECIAL PROVISIONS.  
 HIGH STRENGTH GROUT SHALL BE APPROVED BY THE ENGINEER.

ELASTOMERIC CONCRETE	
LOCATION	QTY
END BENT 1	3.58 C.F.
BENT 1	3.47 C.F.
BENT 2	3.68 C.F.
END BENT 2	3.58 C.F.

TOTAL ELASTOMERIC CONC. = 14.31 C.F.  
 TOTAL ELASTOMERIC CONC. = 0.53 C.Y.

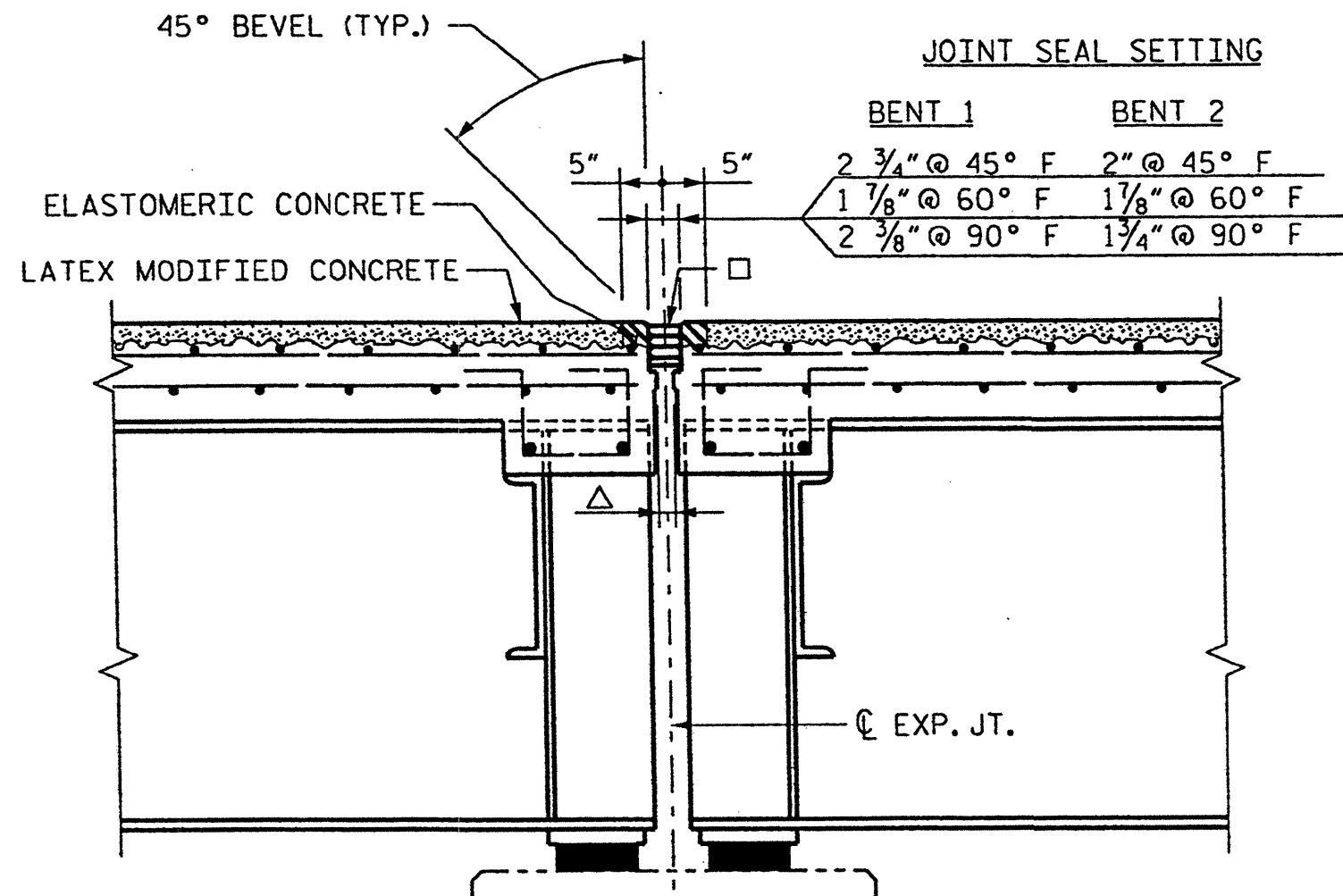


**SECTION B-B  
(EXISTING JOINT)**



**SECTION B-B  
(EST. MAX. EXISTING JOINT DEMOLITION)**

NOTE: RETAIN ALL EXIST. REINF. STEEL. CLEAN AND REPAIR AS REQ'D.  
 \* REMOVE EXIST. MATERIALS EXPOSED BY CLASS II SURFACE PREPARATION. OTHERWISE, LEAVE EXISTING MATERIALS IN PLACE



**SECTION B-B  
(JOINT SEAL DESIGN)**

- USE 3.4375" X 2.50" UNCOMPRESSED FOAM JT. SEAL MATERIAL @ BENT 1
- USE 2.8125" X 2.50" UNCOMPRESSED FOAM JT. SEAL MATERIAL @ BENT 2
- △ 1 3/4" FORMED OPENING @ BENT 1
- △ 1 1/4" FORMED OPENING @ BENT 2

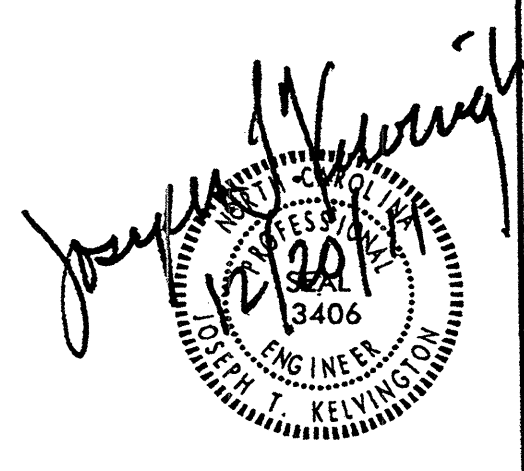
PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**EXPANSION JOINT DETAILS**

DECK REHAB. FOR BRIDGE NO. 70

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			75



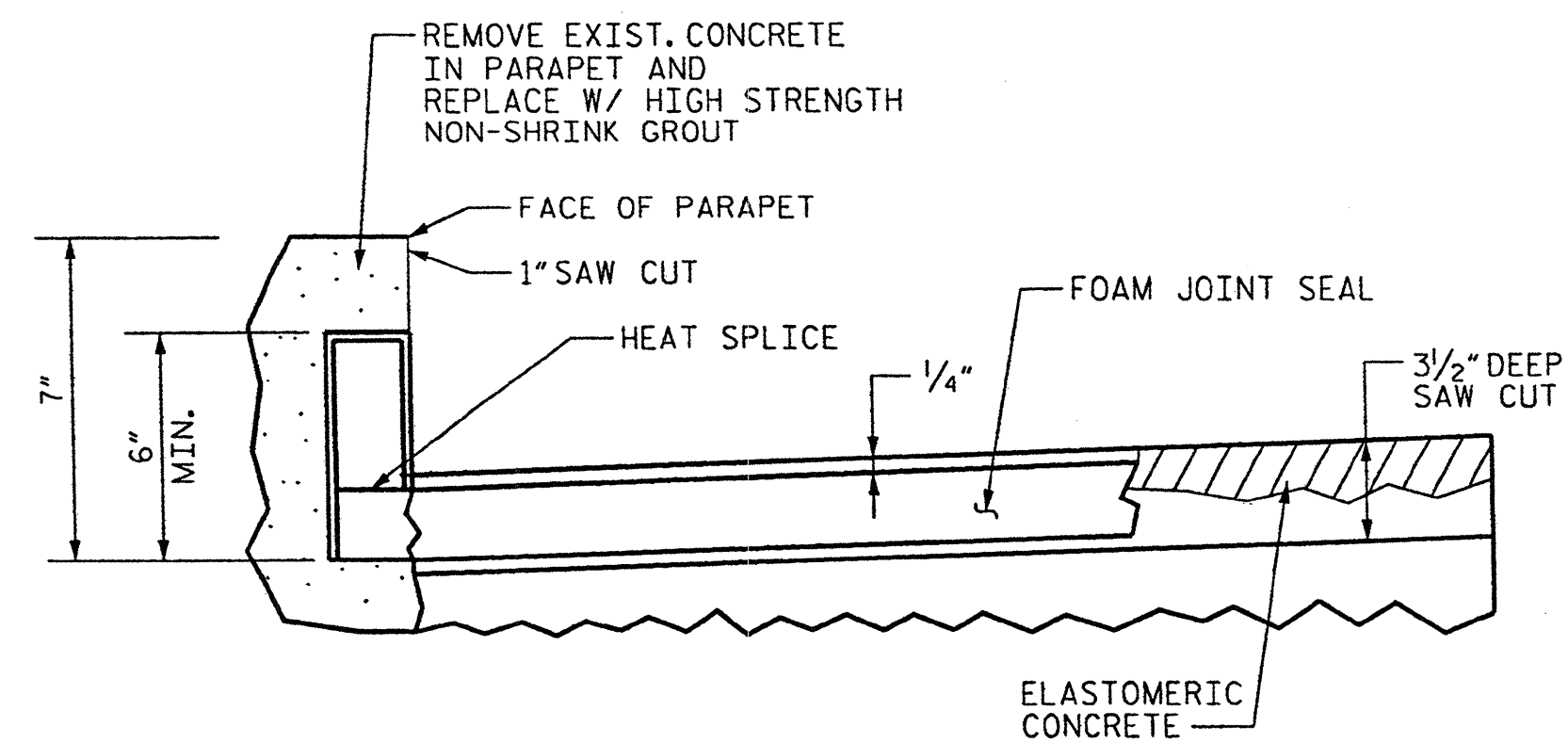
12/19/2011 12:20:56 PM Jgelie  
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 12/19/2011 12:20:56 PM Jgelie

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DRAWN BY: P. Z. ARMATA DATE: 10/11  
 CHECKED BY: J. T. KELVINGTON DATE: 10/11

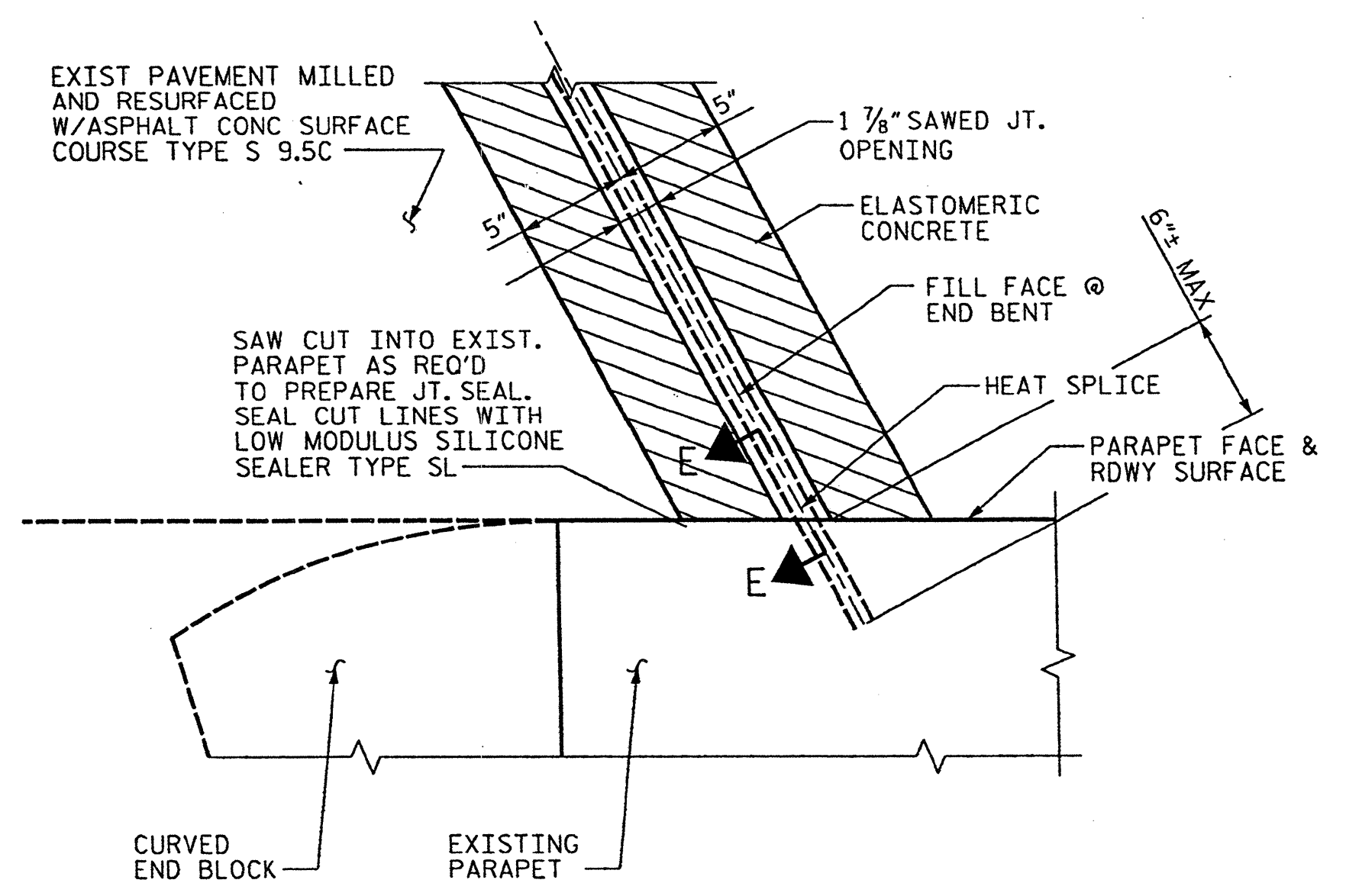


12/19/2011 12:21:14 PM Jpeelle  
 12/19/2011 12:21:14 PM Jpeelle  
 2011 WBS 17BP.6.P.2 Robeson Co\Robeson Bridge 070\Drawing\BP-70\_DET2\_BENT.dgn



**SECTION D-D**

CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.  
 FOR HIGH STRENGTH GROUT, SEE SPECIAL PROVISIONS.  
 HIGH STRENGTH GROUT SHALL BE APPROVED BY THE ENGINEER.



**PARTIAL PLAN @ JOINT**

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**END BENT JOINT SEAL DETAILS**

DECK REHAB. FOR BRIDGE NO. 70

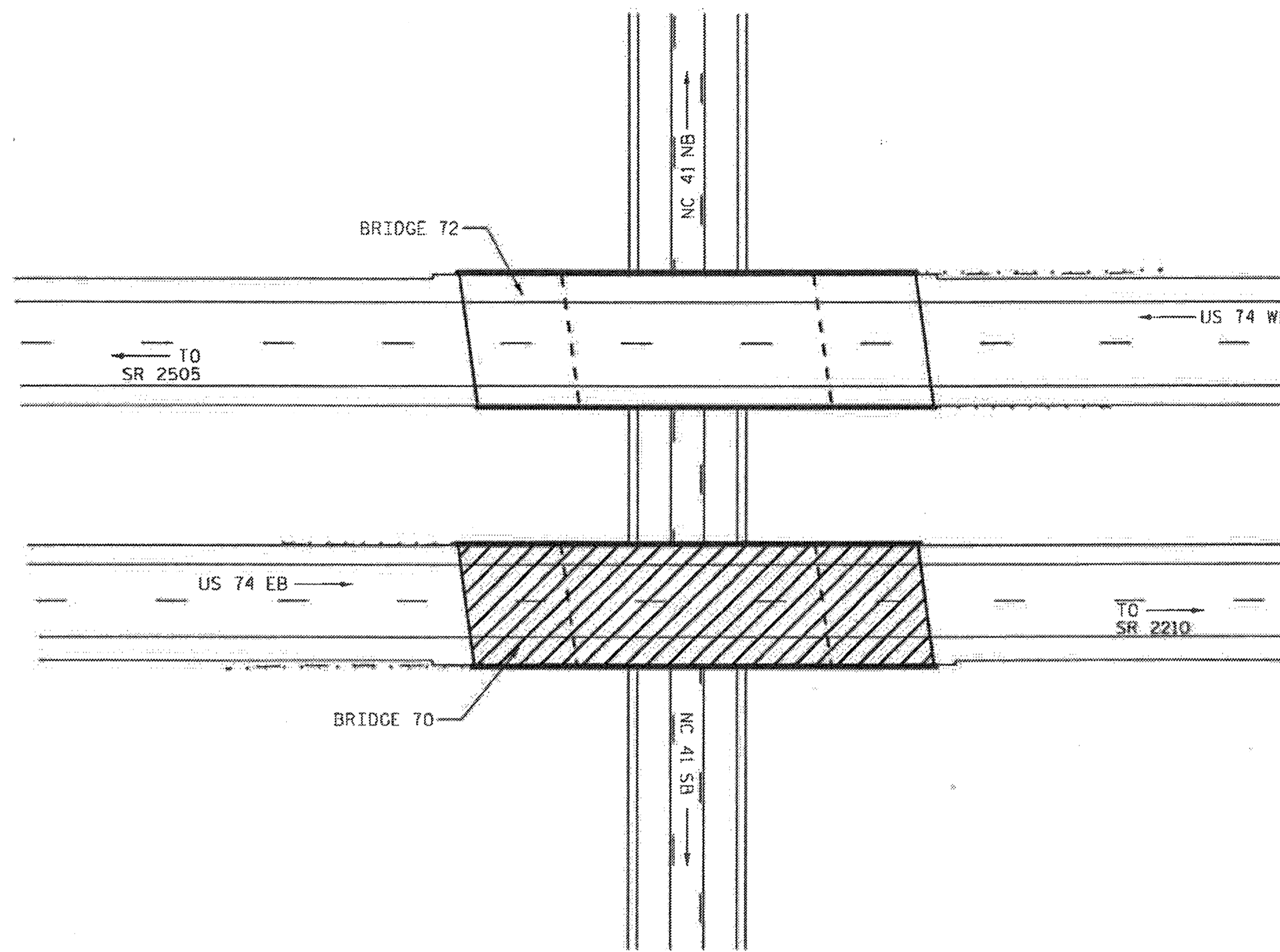
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	
2			4			75	

*Joseph T. Kelvington*  
 12/19/2011  
 14406  
 ENGINEER  
 JOSEPH T. KELVINGTON

**Stantec**

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 www.stantec.com  
 License No. F-0672

DRAWN BY : P Z ARMATA DATE : 10/11  
 CHECKED BY : J T KELVINGTON DATE : 10/11



**BRIDGE 72 ON US 74 WBL**

LOCATION: BRIDGE 770072, US 74 WBL OVER NC 41  
1.1 MILES EAST OF JUNCTION SR 2505

BRIDGE 70, US 74 EB SEE DWGS. S-7 THRU S-14

**BRIDGE 72 ON US 74**

**TOTAL BILL OF MATERIAL**

SCARIFYING** BRIDGE DECK	CLASS I* SURFACE PREPARATION	CLASS II* SURFACE PREPARATION	CLASS III* SURFACE PREPARATION	HYDRO- DEMOLITION OF BRIDGE DECK	CLASS AA CONCRETE	LATEX MODIFIED CONCRETE OVERLAY- VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH	FOAM JOINT SEALS	GROOVING BRIDGE FLOORS	ASPHALT CONC. SURFACE COURSE TYPE S9.5C	CONCRETE REPAIRS	SHOTCRETE REPAIRS	SPAN JACKING ROBESON COUNTY BRIDGE #072
SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	CU.YDS.	CU.YDS.	SQ.YDS.	LUMP SUM	SO.FT.	TON	CU.FT.	CU.FT.	EA.
1263.6	0	4.2	0	745.6	0	30.9	745.6	LUMP SUM	6444	55	86	158	2

\* QUANTITIES ARE ESTIMATES FROM BEST AVAILABLE DATA, AND SHOULD BE CONSIDERED FOR INFORMATION PURPOSES ONLY. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "TYP. BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL. NO SEPARATE MEASUREMENT AND PAYMENT SHALL BE MADE. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

\*\* INCLUDES MILLING OF ROADWAY PAVEMENT

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
STATION: \_\_\_\_\_



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Fax: (919) 851-7024  
www.stantec.com  
License No. F-2672

DRAWN BY : C. T. MCCULLOUGH DATE : 11/11  
CHECKED BY : J. T. KELVINGTON DATE : 11/11

*Joseph J. Kelvington*

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

LOCATION SKETCH  
AND TOTAL  
BILL OF MATERIAL

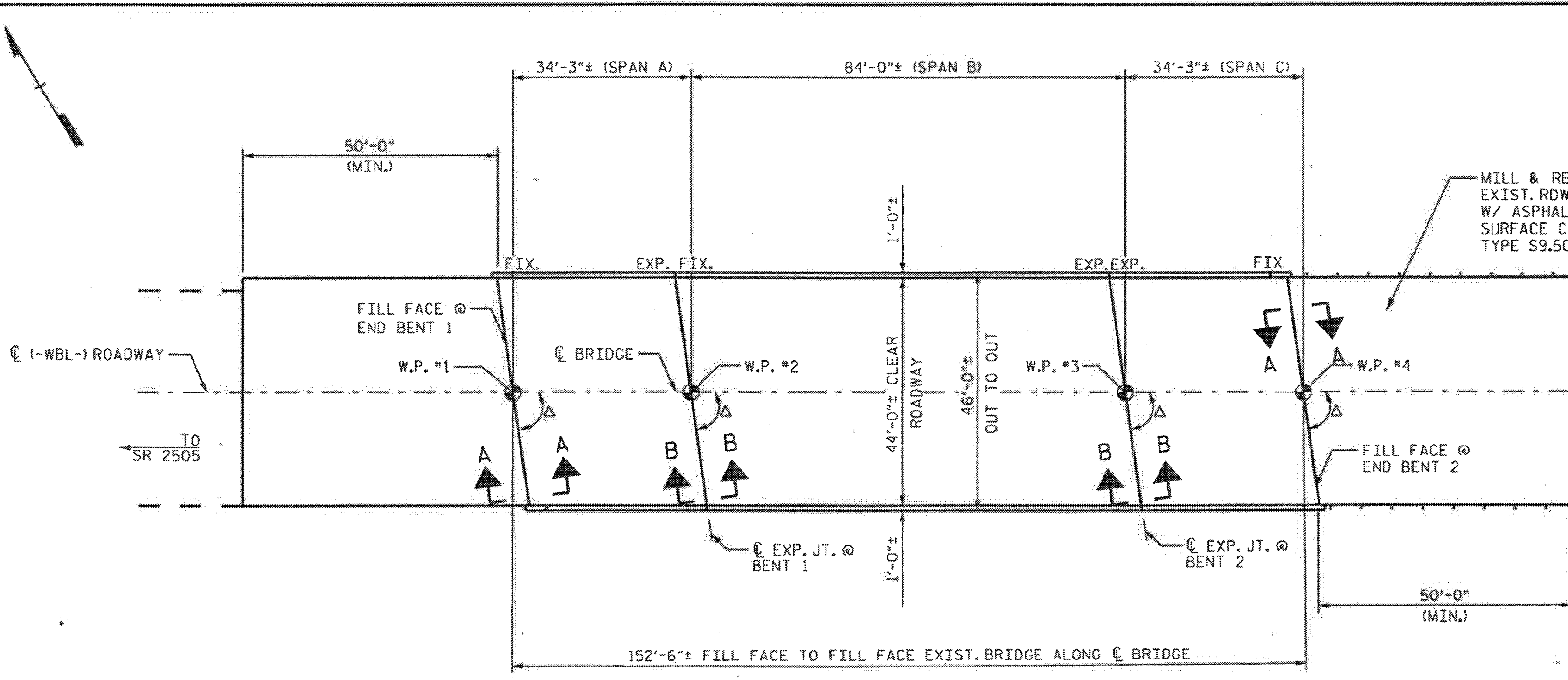
DECK REHAB. FOR BRIDGE NO. 72

REVISIONS						SHEET NO. S-15 TOTAL SHEETS 75
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

I:\p 2011\WBS 17BP.6.P.2 Robeson Co\Robeson Bridge 072\Drawings\BP-72\LocSke\_B01.dwg 2/23/2012 2:50:46 PM JMcM

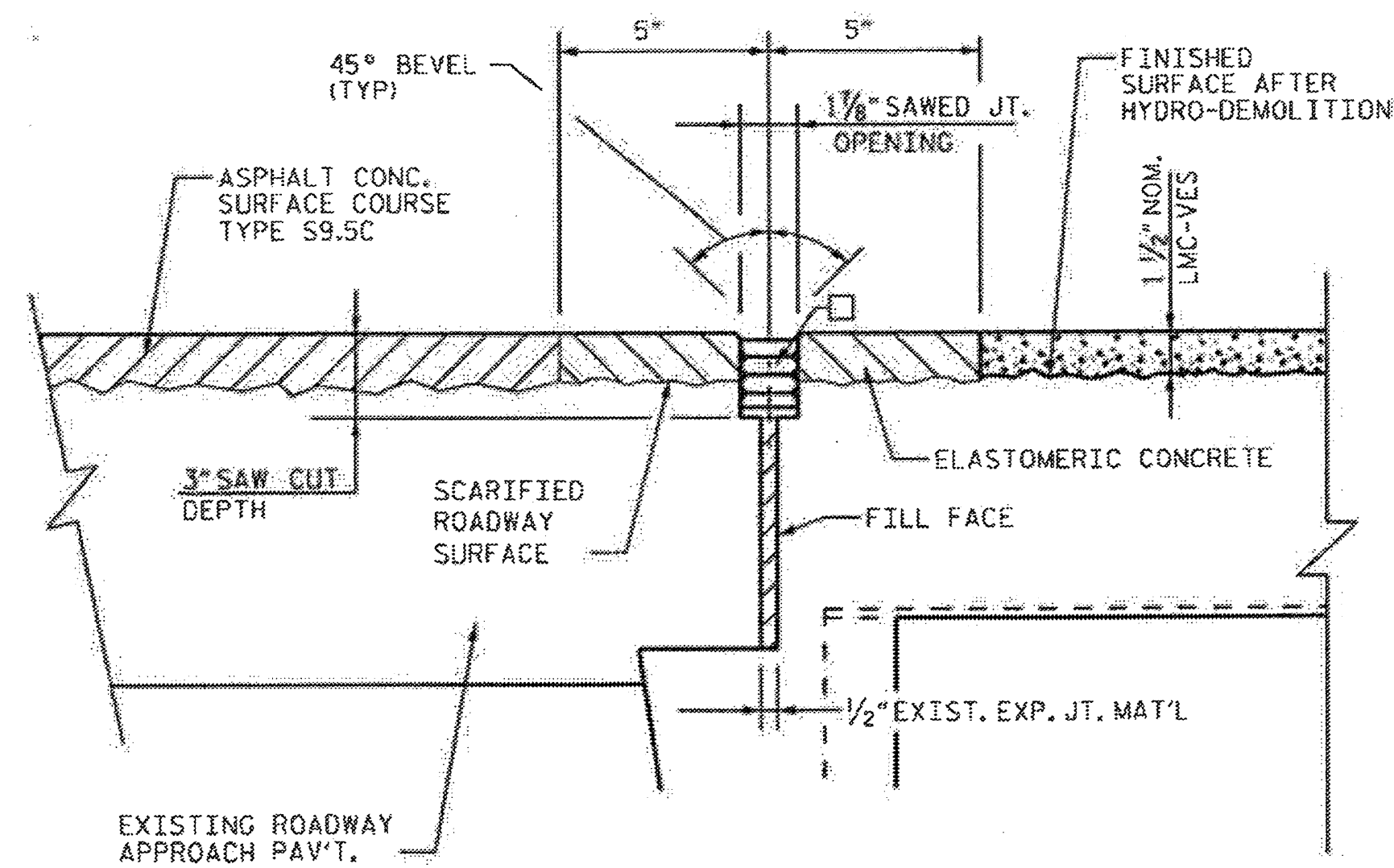
**NOTES:**

- DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
- FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
- THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK. SEE DETAIL, SEE SHT. S-18.
- LATEX MODIFIED CONCRETE SHALL BE LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH.
- FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR SECTION B-B, SEE SHEET NO. S-21.
- FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.
- "YES" DENOTES VERY EARLY STRENGTH.



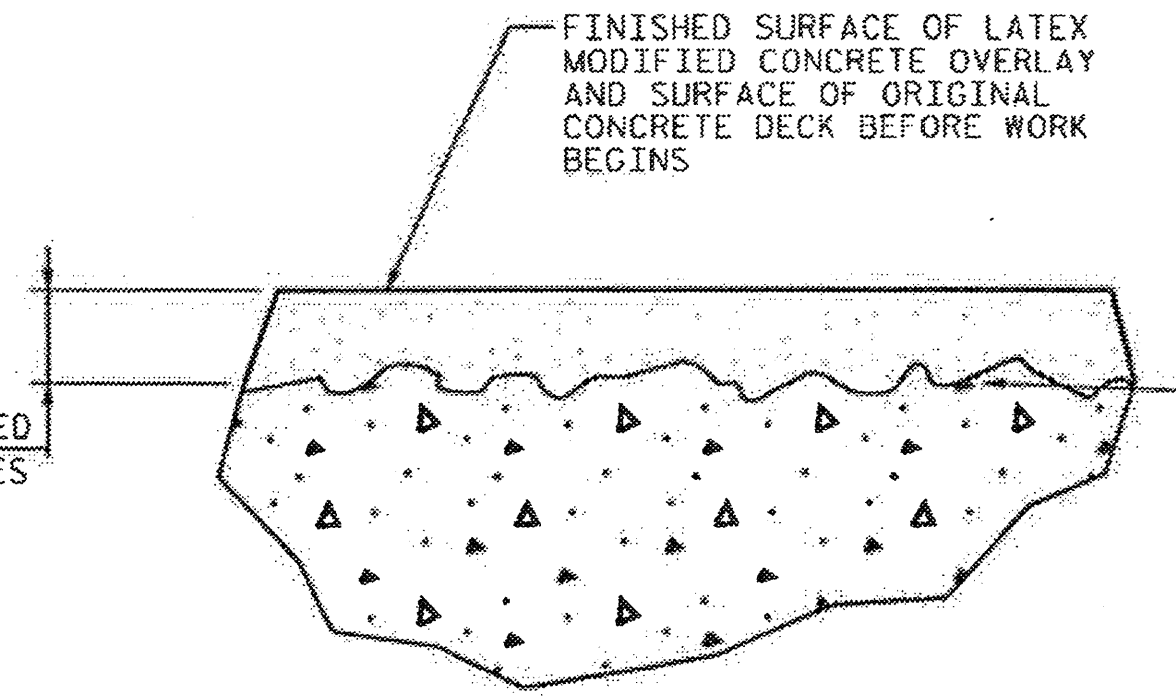
**PLAN OF SPANS**

SKEW ANGLES (APPROX.)  
 $\Delta = 82^{\circ}18'00''$  (TYP. EA. BENT)

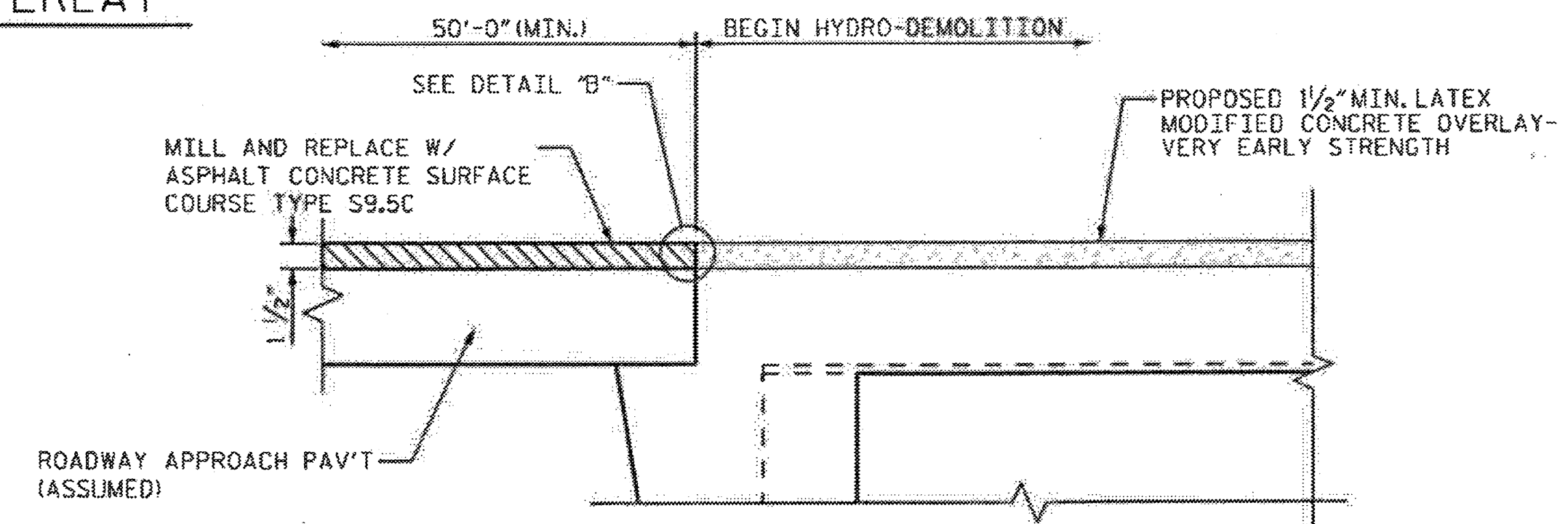


**DETAIL B**

□ - USE 2.8125" X 2.00" UNCOMPRESSED FOAM JOINT SEAL



**DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY**



**SECTION A-A**

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN OF SPANS FOR DECK REPAIR**

DECK REHAB. FOR BRIDGE NO. 72

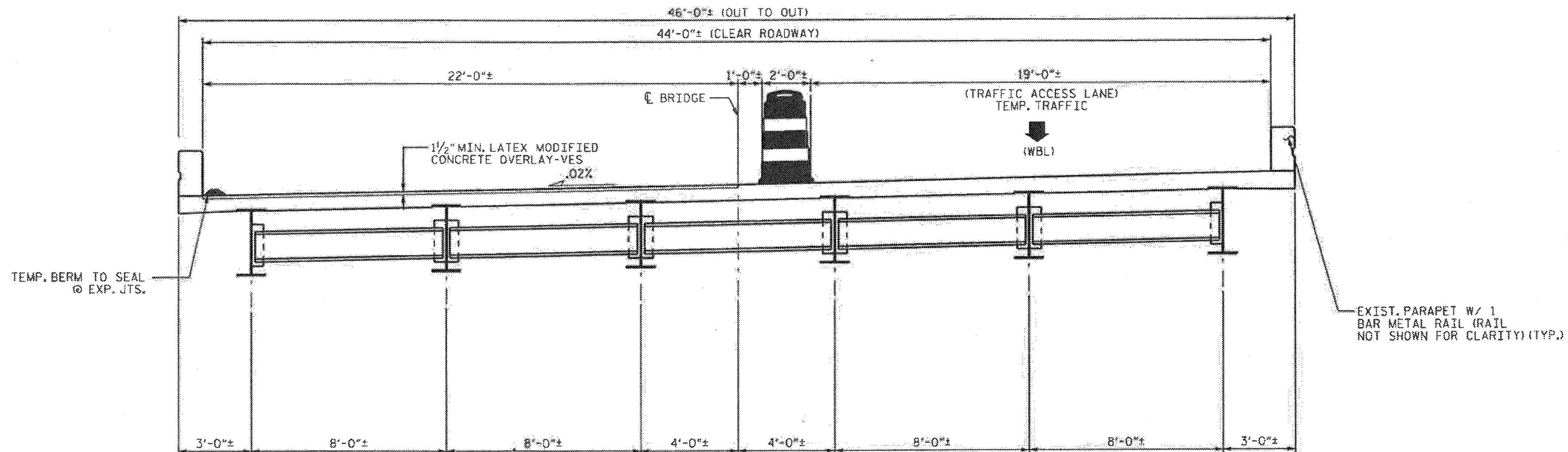
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS 75
2			4			

*Joseph J. Kelvington*  
 11/20/2012  
 SEAL 13406  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA

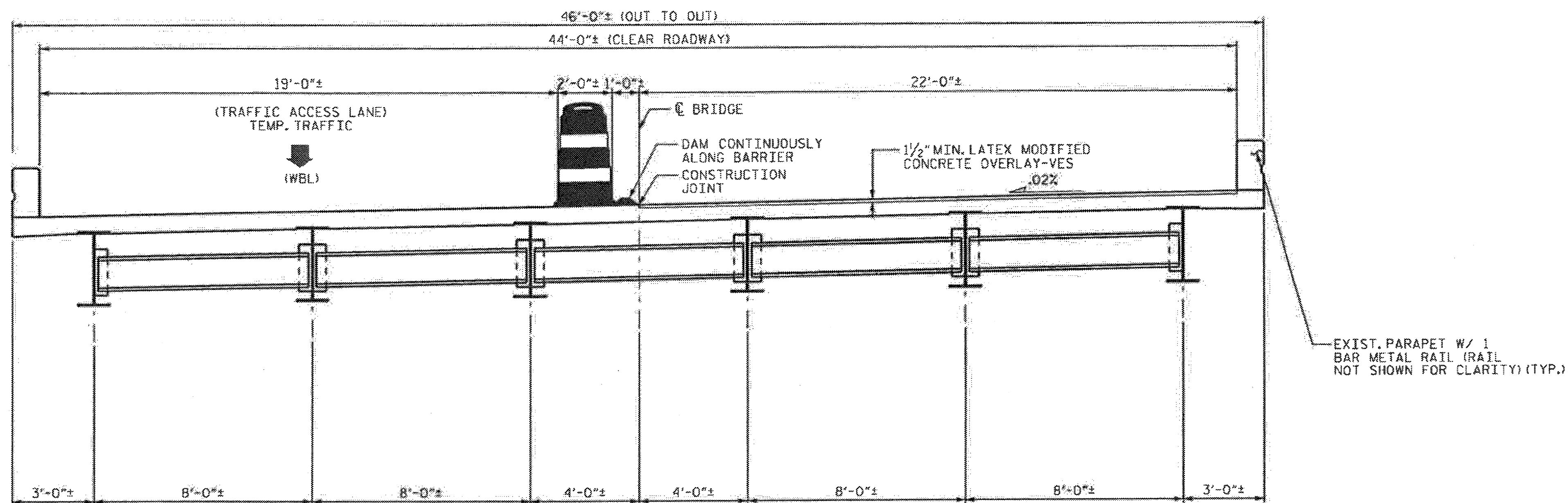
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 Fax. (919) 851-7024  
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DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

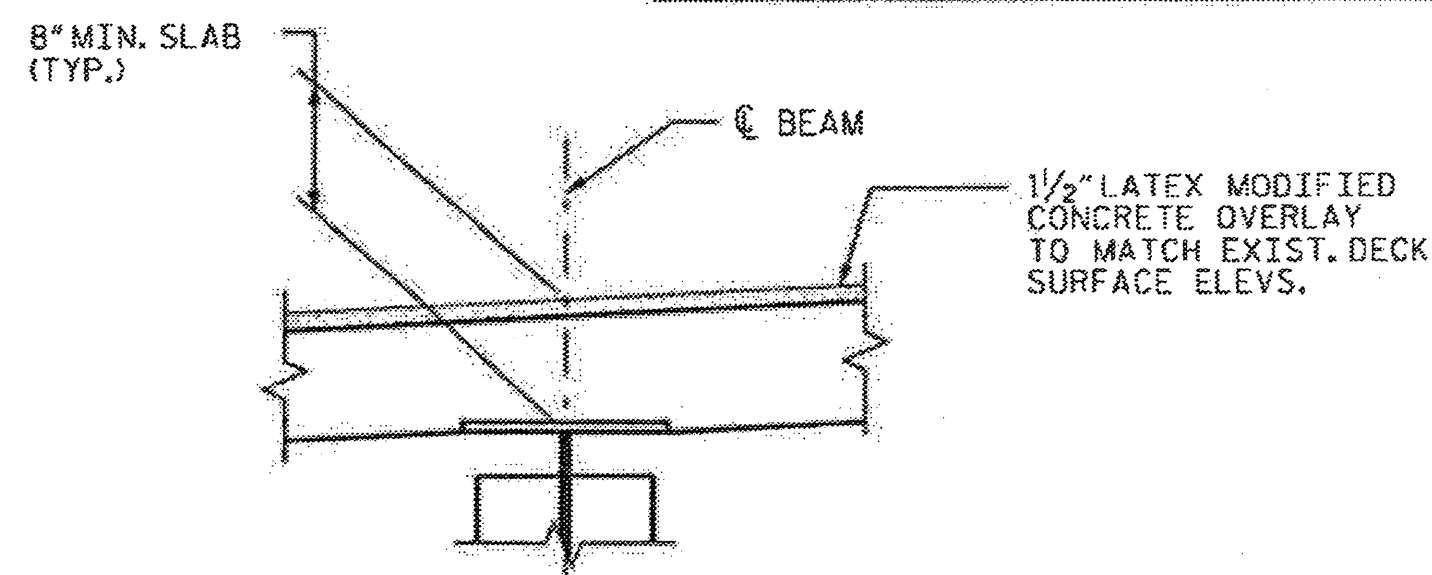
Group 2011 WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 0723 Drawn by: JTB-12 Deck Plan/1/11/12 2/22/2012 3:46:41 PM jmentene



TYP. SECTION - WBL  
SPAN B SHOWN - SPANS A & C SIMILAR



TYP. SECTION - WBL  
SPAN B SHOWN - SPANS A & C SIMILAR



EXIST. SLAB BUILDUP

NOTES:  
 \*YES\* DENOTES VERY EARLY STRENGTH.  
 WATER & CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL THE WATER.  
 ALL DIMENSIONS ARE APPROXIMATE.  
 FOR TRAFFIC CONTROL AND PHASING DETAILS, SEE TRAFFIC MANAGEMENT PLANS.

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

*James J. Kelvington*  
 11/11/2012  
 Professional Engineer Seal  
 STATE OF NORTH CAROLINA  
 ENGINEER  
 JAMES J. KELVINGTON  
 13406

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL SECTION

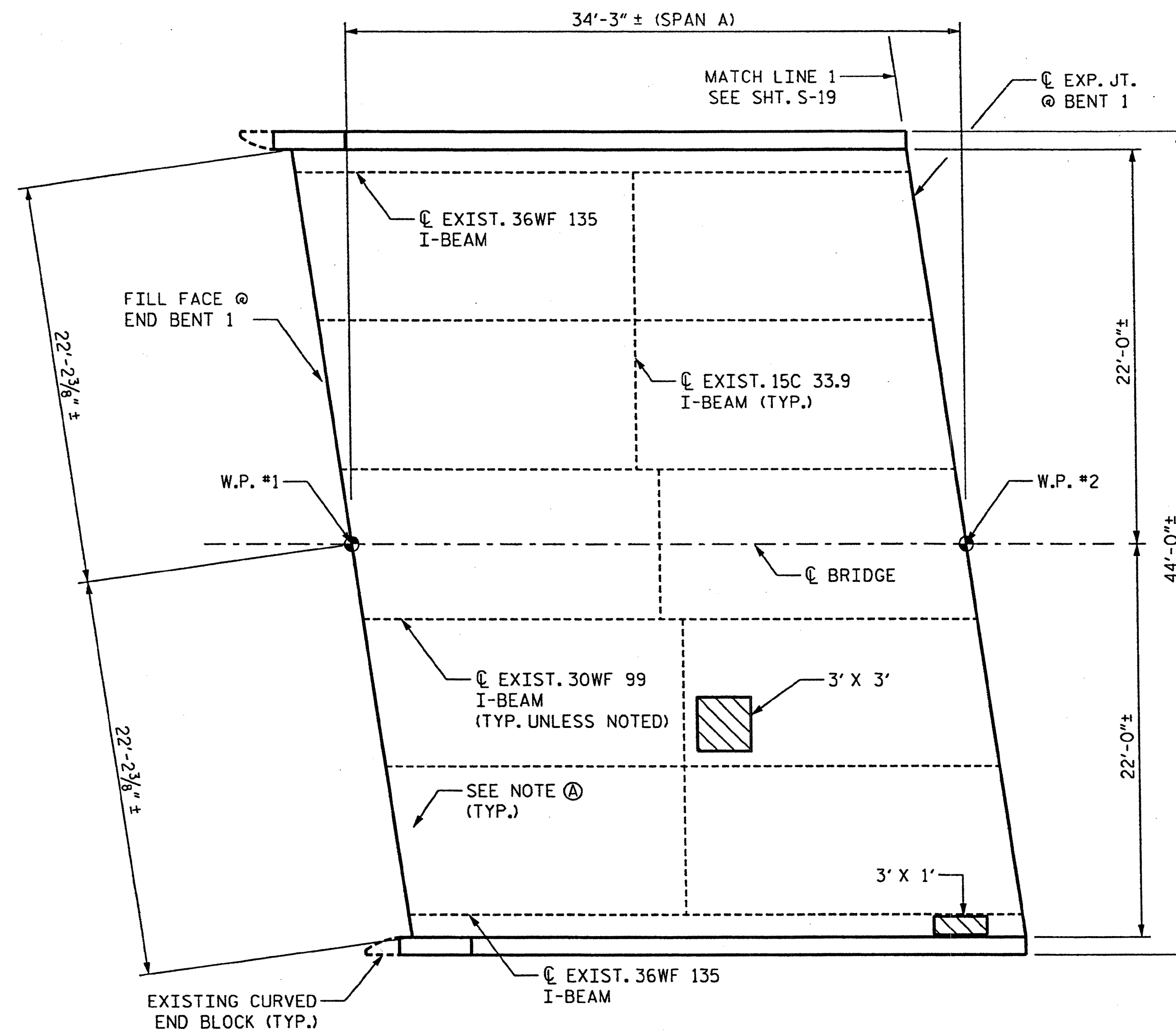
DECK REHAB. FOR BRIDGE NO. 72

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 75
2			4			

Group: 2011WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 072.dwg  
 Drawing: 12\_12\_11.dwg  
 Date: 11/11/2012  
 Time: 2:50:19 PM  
 User: jphomekes

Stantec Consulting Services Inc.  
 661 Jones Franklin Road  
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 License No. F-0572

DRAWN BY: C.T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J.T. KELVINGTON DATE: 11/11



PLAN OF SPAN A - DECK REPAIRS

NOTE:

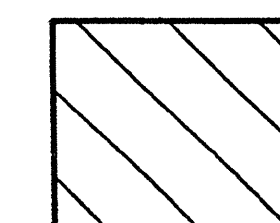
CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

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

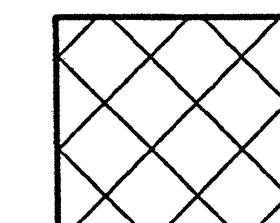
COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.

SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.

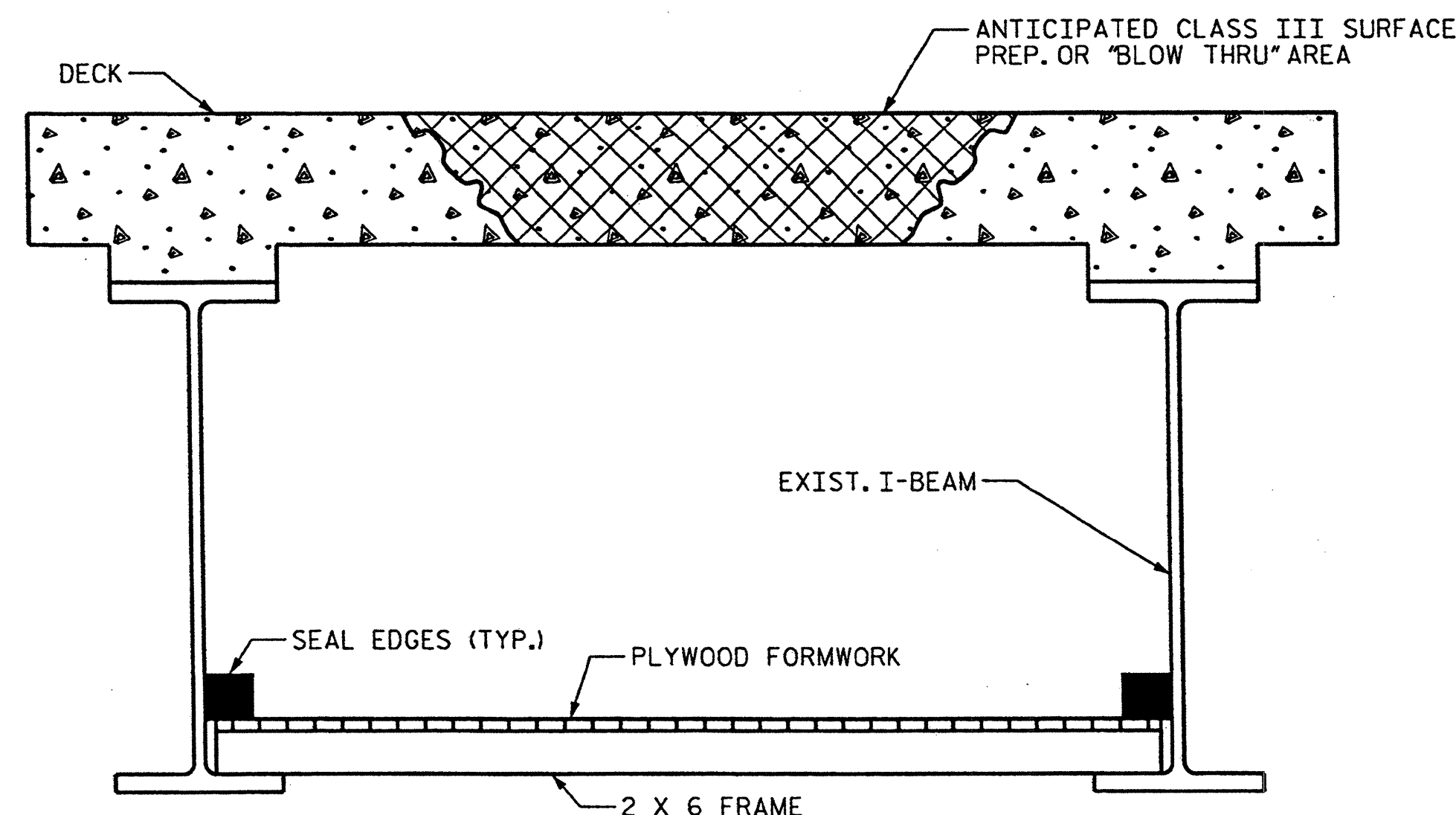
CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.



CLASS II SURFACE PREPARATION



CLASS III SURFACE PREPARATION



TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

NOTES:

L' X W' = LENGTH OF AREA ALONG C BRIDGE X WIDTH OF AREA NORMAL TO C BRIDGE

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.

CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MONITOR HYDRO-DEMOLITION WORK AND CONTROL TRAFFIC UNDER THE BRIDGE IN LIEU OF BLOW THRU CONTAINMENT. SEE TRANSPORTATION MANAGEMENT PLANS.

PROJECT NO. WBS 17BP.6.P.2

ROBESON COUNTY

STATION: \_\_\_\_\_



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DRAWN BY : C. T. MCCULLOUGH DATE : 11/11  
CHECKED BY : J. T. KELVINGTON DATE : 11/11

*Joseph J. Kelvington*  
12/20/2011  
SEAL  
13406  
ENGINEER  
STATE OF NORTH CAROLINA

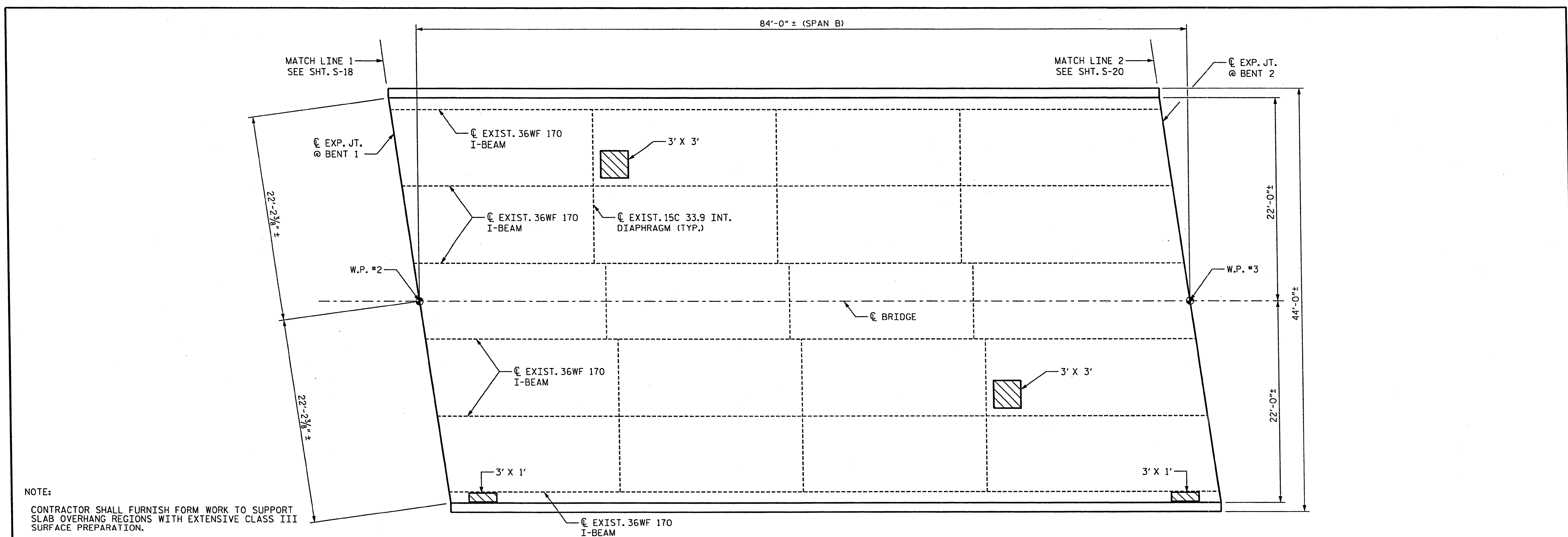
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DECK REPAIR DETAILS  
SPAN A

DECK REHAB. FOR BRIDGE NO. 72

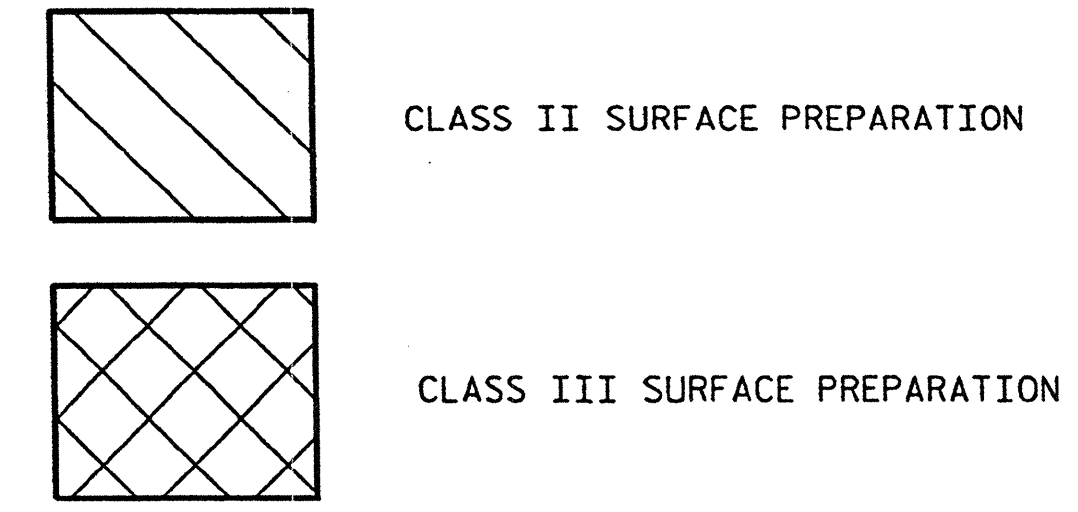
REVISIONS						SHEET NO S-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 75
2			4			

2011 WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 072.Driving BP-72\_Repair-Plan.dgn 12/20/2011 12:55:58 PM Jgelle



NOTE:  
 CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.  
 SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.  
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

PLAN OF SPAN B - DECK REPAIRS



NOTES:  
 L' X W' = LENGTH OF AREA ALONG C BRIDGE X  
 WIDTH OF AREA NORMAL TO C BRIDGE

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

2011WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 072 Drawing BP-72 Repair Plan 2.dgn 12/20/2011 12:26:27 PM jgelle

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DRAWN BY : C T MCCULLOUGH DATE : 11/11  
 CHECKED BY : J T KELVINGTON DATE : 11/11

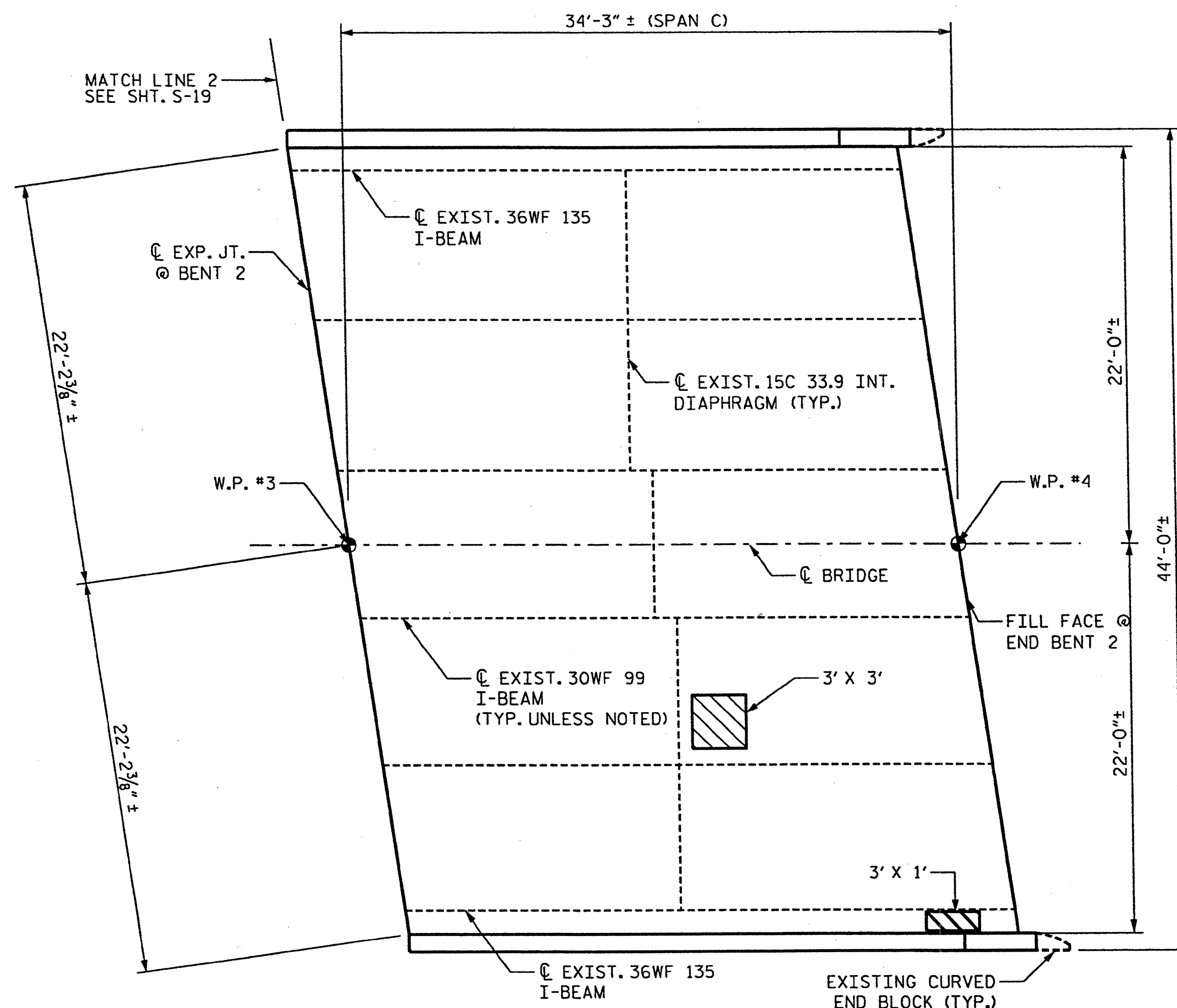
*Joseph P. Kelvington*  
 12/20/11  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA  
 SEAL  
 13406  
 JOSEPH T. KELVINGTON

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

DECK REPAIR DETAILS  
 SPAN B

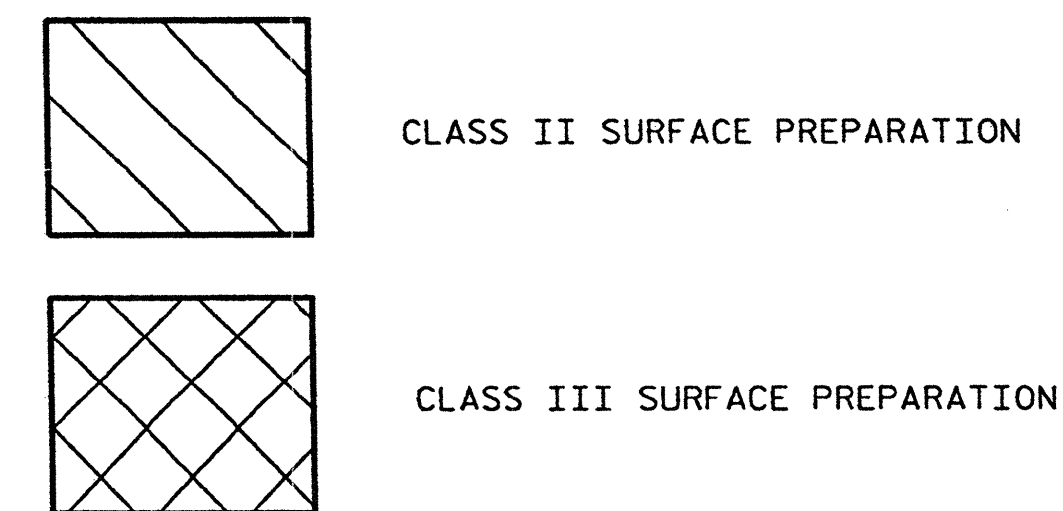
DECK REHAB. FOR BRIDGE NO. 72

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			75



PLAN OF SPAN C - DECK REPAIRS

NOTE:  
 CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.  
 SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.  
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.



NOTES:  
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X WIDTH OF AREA NORMAL TO @ BRIDGE

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

DECK REPAIR DETAILS  
 SPAN C

DECK REHAB. FOR BRIDGE NO. 72

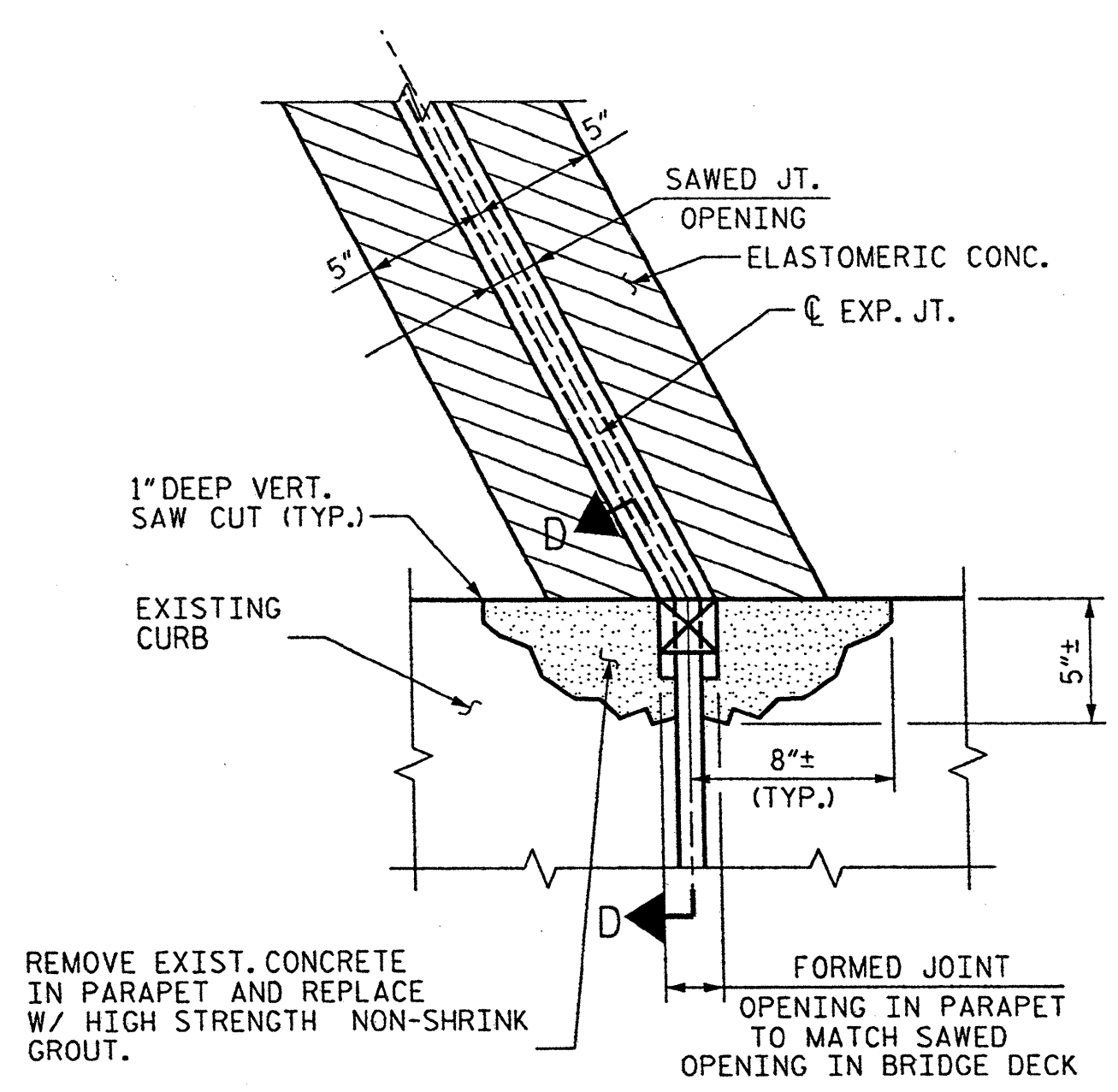
REVISIONS						SHEET NO
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			75

*Joseph Kelvington*  
 J. T. KELVINGTON  
 PROFESSIONAL ENGINEER  
 SEAL 13406

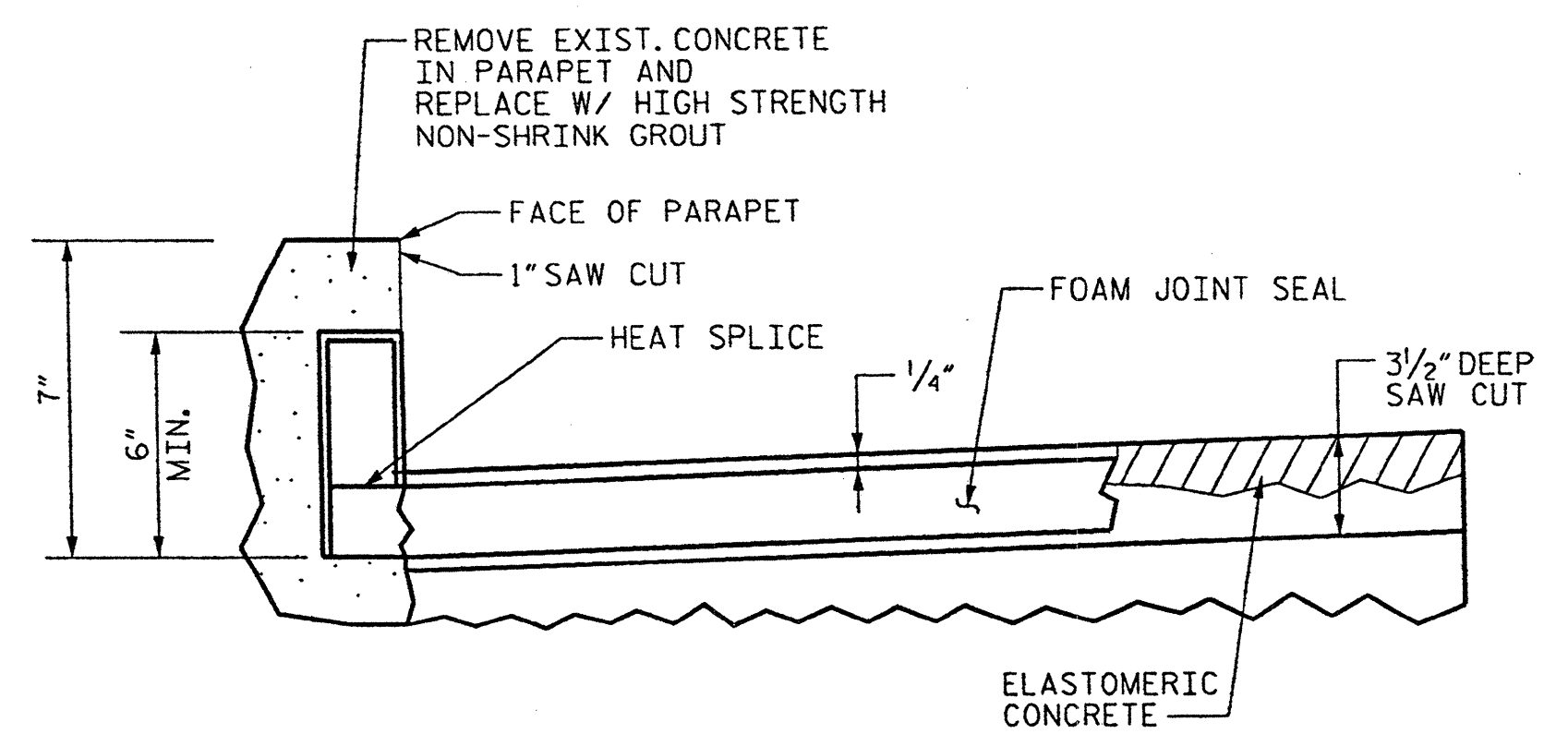
2011WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 0721 Drawing BP-72 Repair Plan3.dgn 12/20/2011 12:26:54 PM Jgelle

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DRAWN BY : C. T. MCCULLOUGH DATE : 11/11  
 CHECKED BY : J. T. KELVINGTON DATE : 11/11



**PARTIAL PLAN @ JOINT**

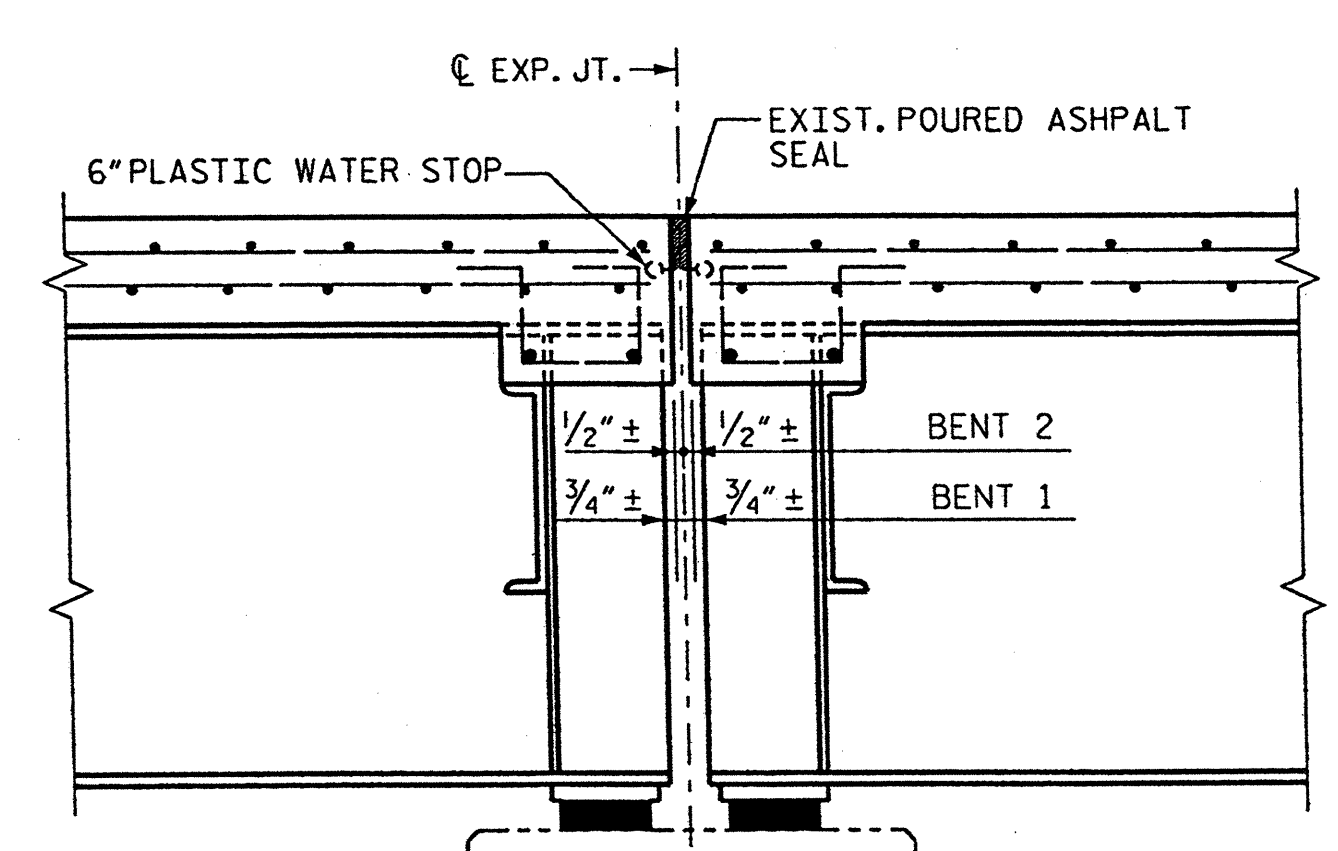


**SECTION D-D**

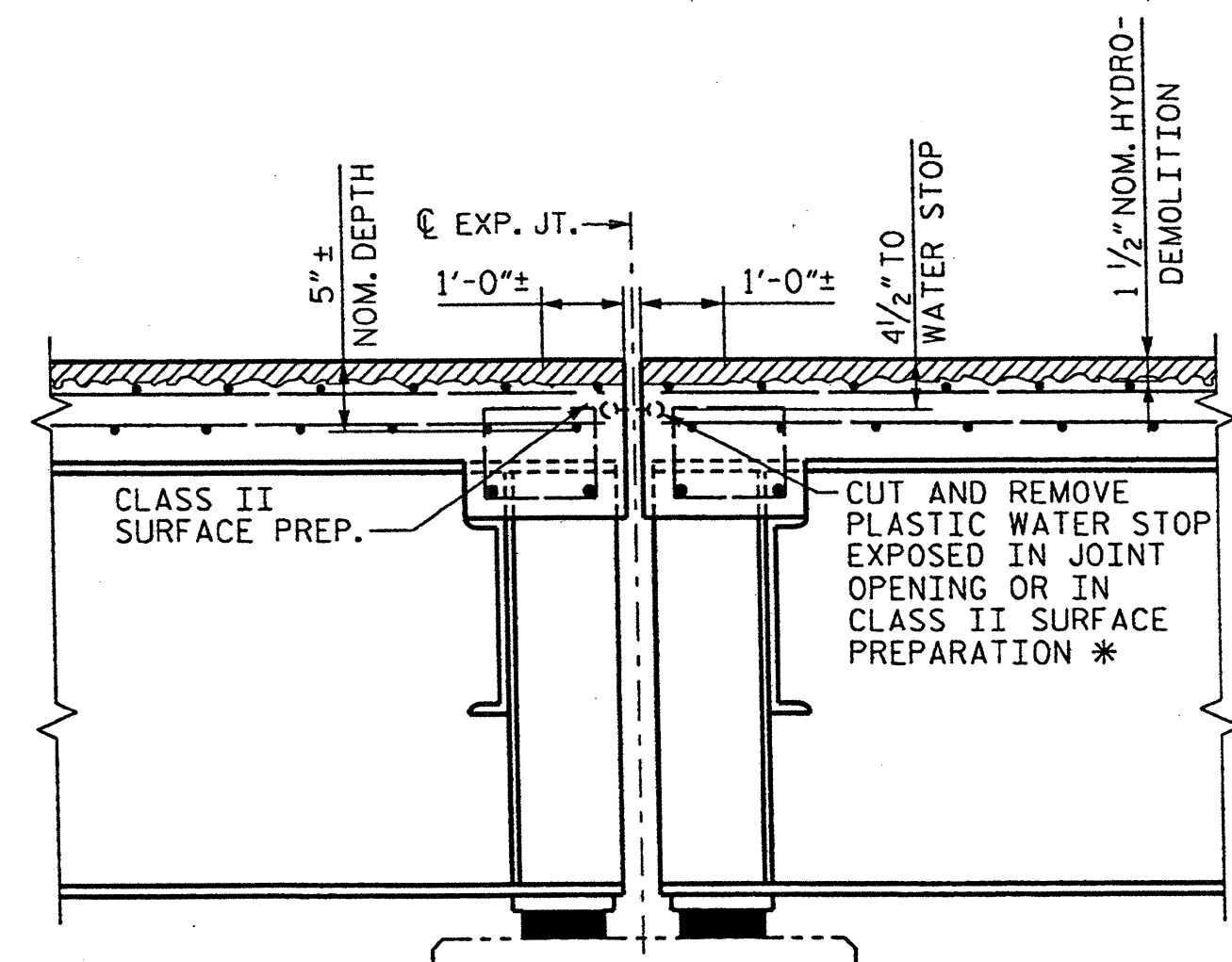
CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.  
FOR HIGH STRENGTH GROUT, SEE SPECIAL PROVISIONS.  
HIGH STRENGTH GROUT SHALL BE APPROVED BY THE ENGINEER.

ELASTOMERIC CONCRETE	
LOCATION	QTY
END BENT 1	3.93 C.F.
BENT 1	4.05 C.F.
BENT 2	3.82 C.F.
END BENT 2	3.93 C.F.

TOTAL ELASTOMERIC CONC. = 15.73 C.F.  
TOTAL ELASTOMERIC CONC. = 0.6 C.Y.

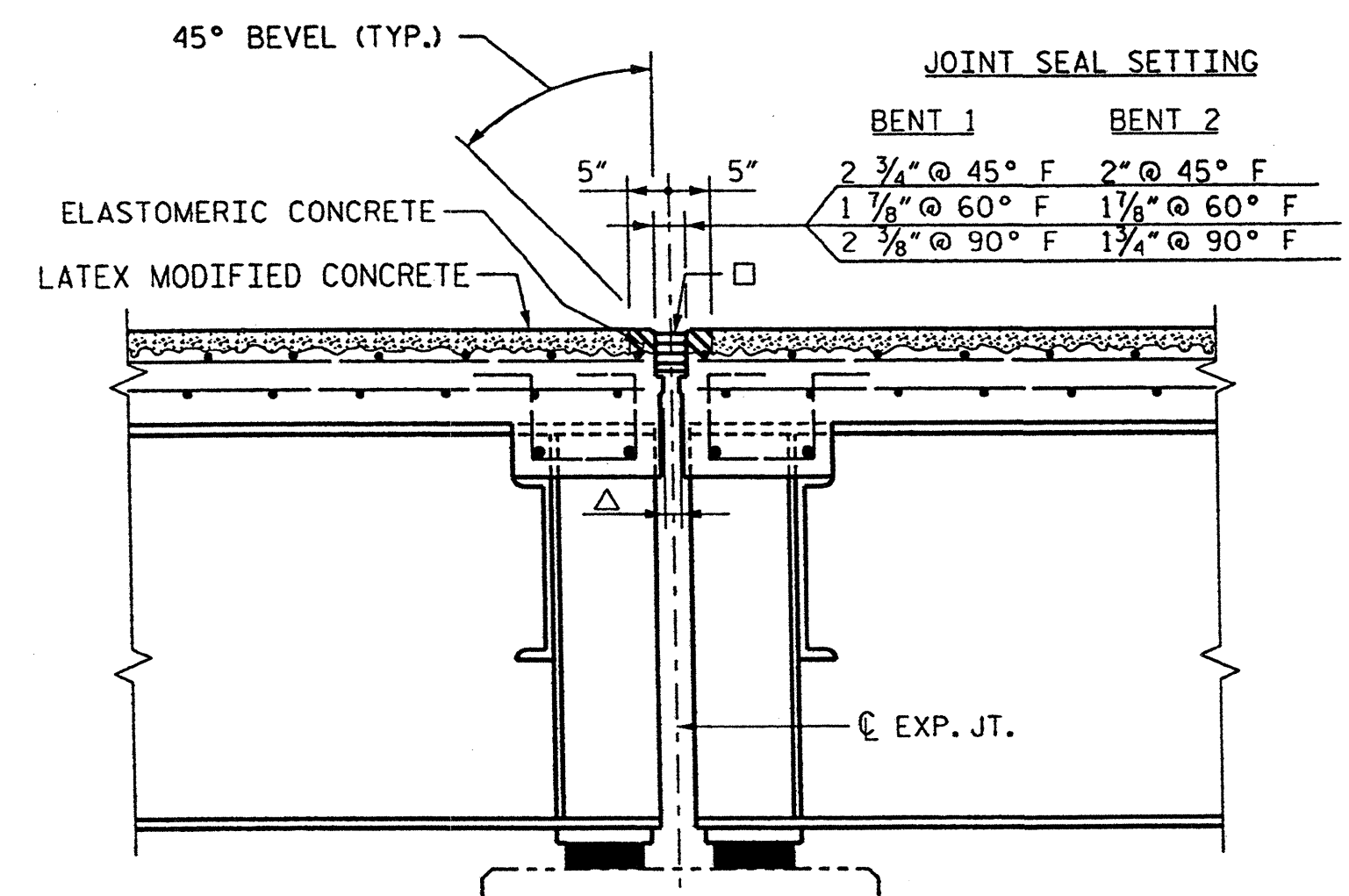


**SECTION B-B  
(EXISTING JOINT)**



**SECTION B-B  
(EST. MAX. EXISTING JOINT DEMOLITION)**

NOTE: RETAIN ALL EXIST. REINF. STEEL. CLEAN AND REPAIR AS REQ'D.  
\* REMOVE EXIST. MATERIALS EXPOSED BY CLASS II SURFACE PREPARATION, OTHERWISE, LEAVE EXISTING MATERIALS IN PLACE.



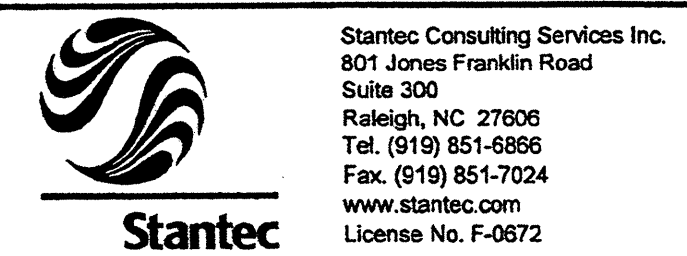
**SECTION B-B  
(JOINT SEAL DESIGN)**

- USE 3.4375" X 2.50" UNCOMPRESSED FOAM JT. SEAL MATERIAL @ BENT 1
- USE 2.8125" X 2.50" UNCOMPRESSED FOAM JT. SEAL MATERIAL @ BENT 2
- △ 1 3/4" FORMED OPENING @ BENT 1
- △ 1 1/4" FORMED OPENING @ BENT 2

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
<b>EXPANSION JOINT DETAILS</b>				
<b>DECK REHAB. FOR BRIDGE NO. 72</b>				
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
				S-21
				TOTAL SHEETS 75

*Joseph Kelvington*  
12/20/11  
Professional Engineer  
No. 18406  
State of North Carolina

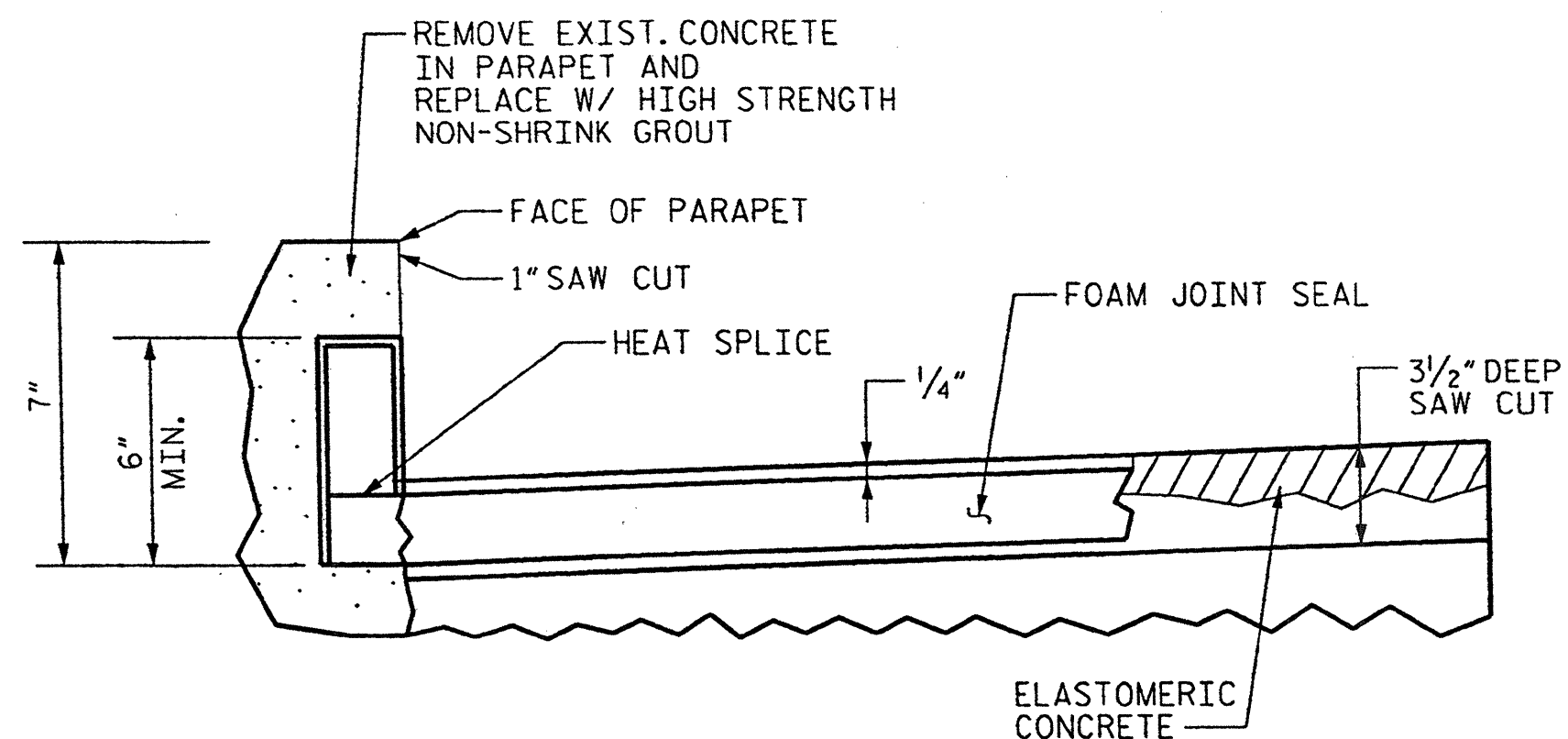


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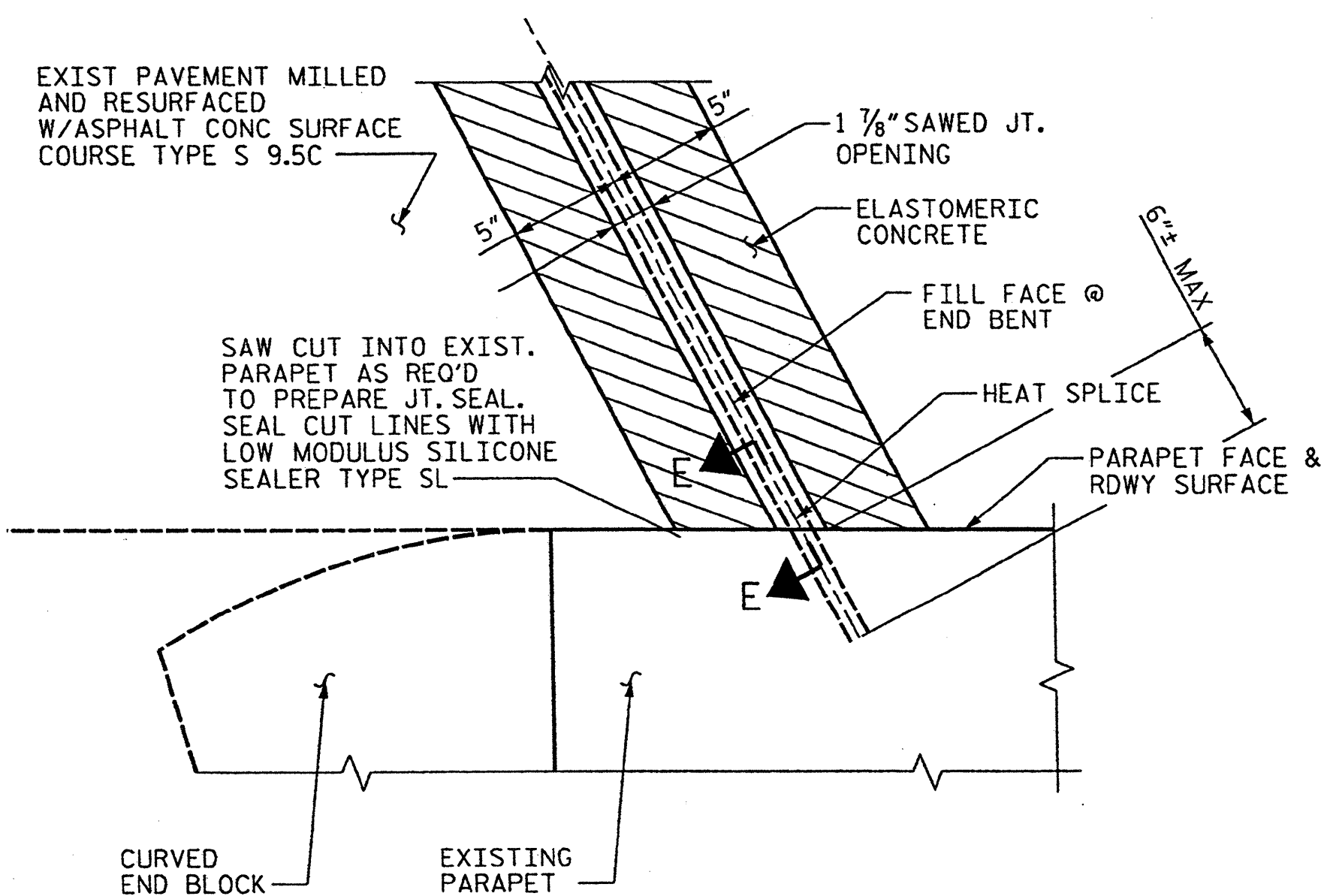
DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

JP 2011WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 072 Drawing WBS-72-DET-1-Exp.Joint.dgn 12/19/2011 12:24:22 PM jgelle





SECTION E-E



PARTIAL PLAN @ JOINT

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

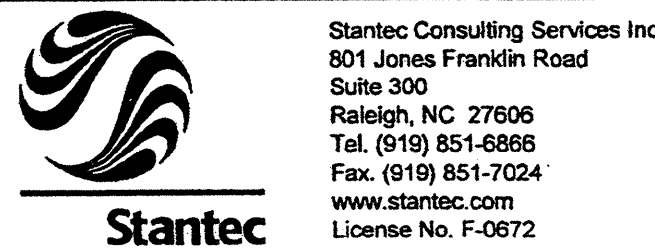
END BENT JOINT SEAL  
 DETAILS

DECK REHAB. FOR BRIDGE NO. 72

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

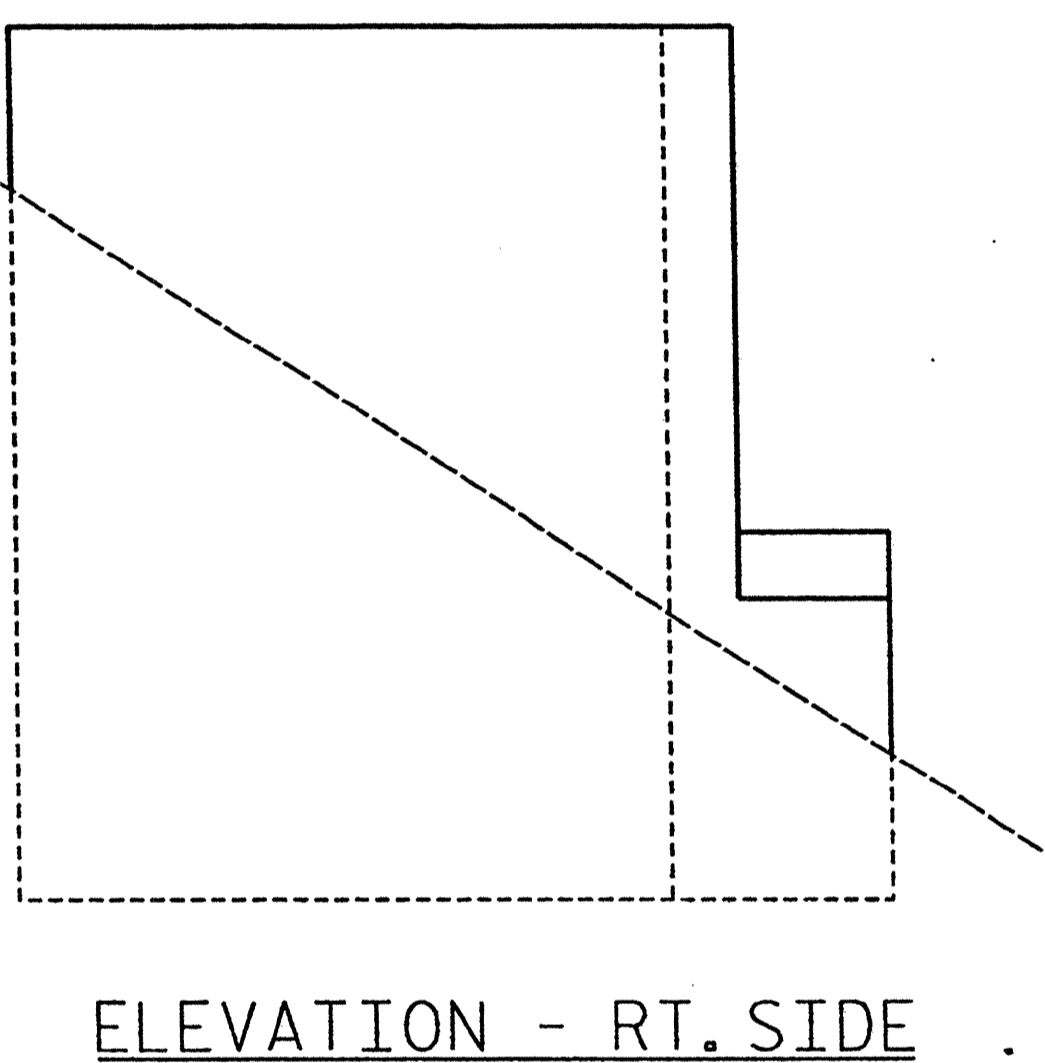
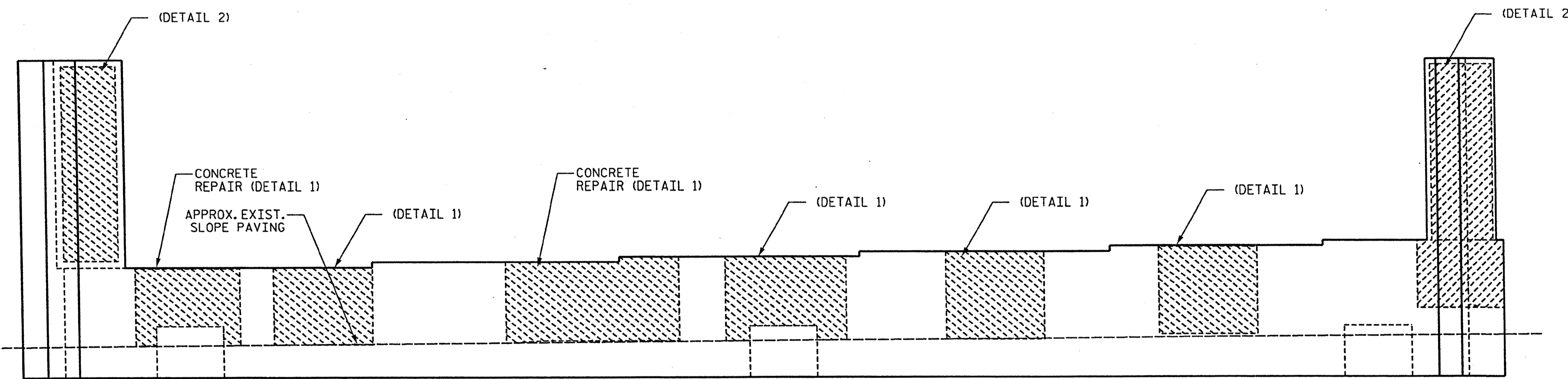
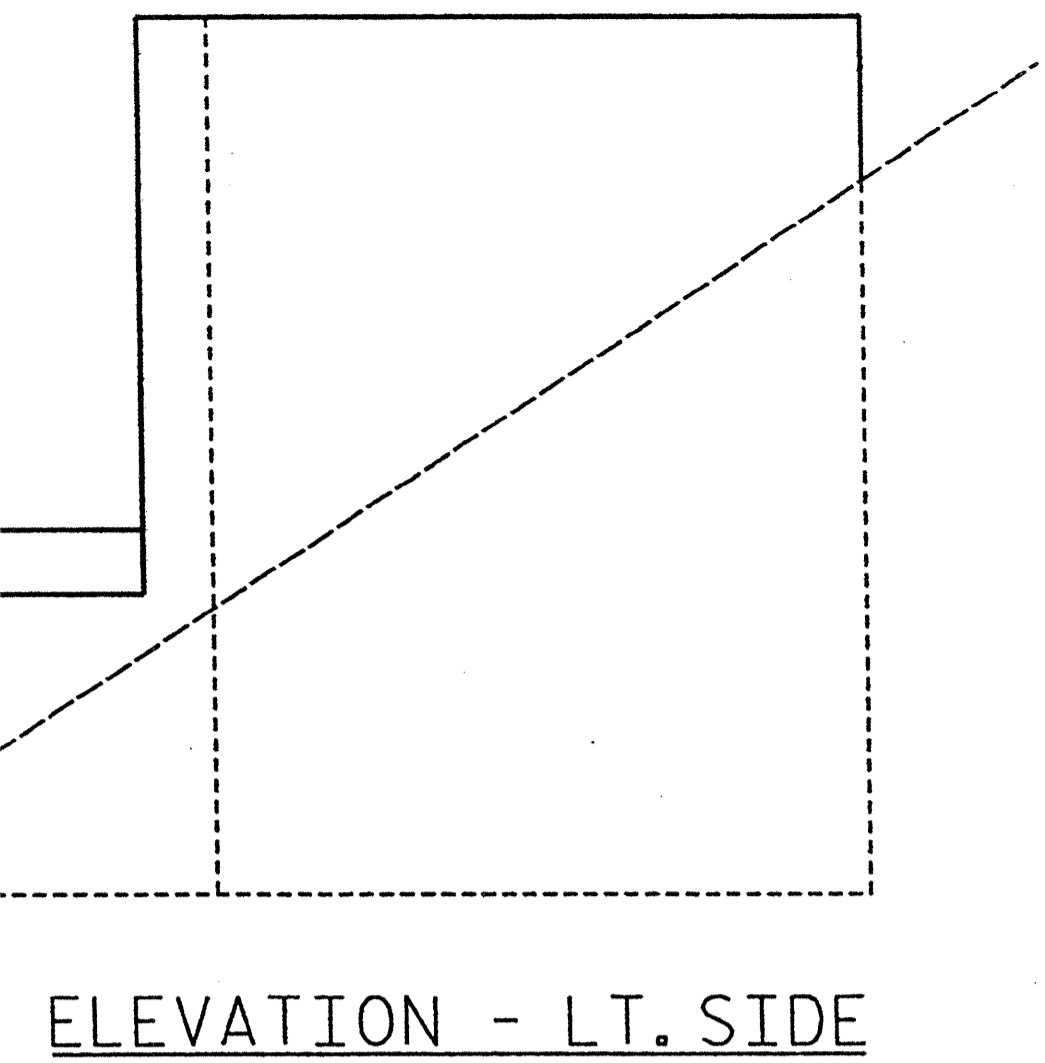
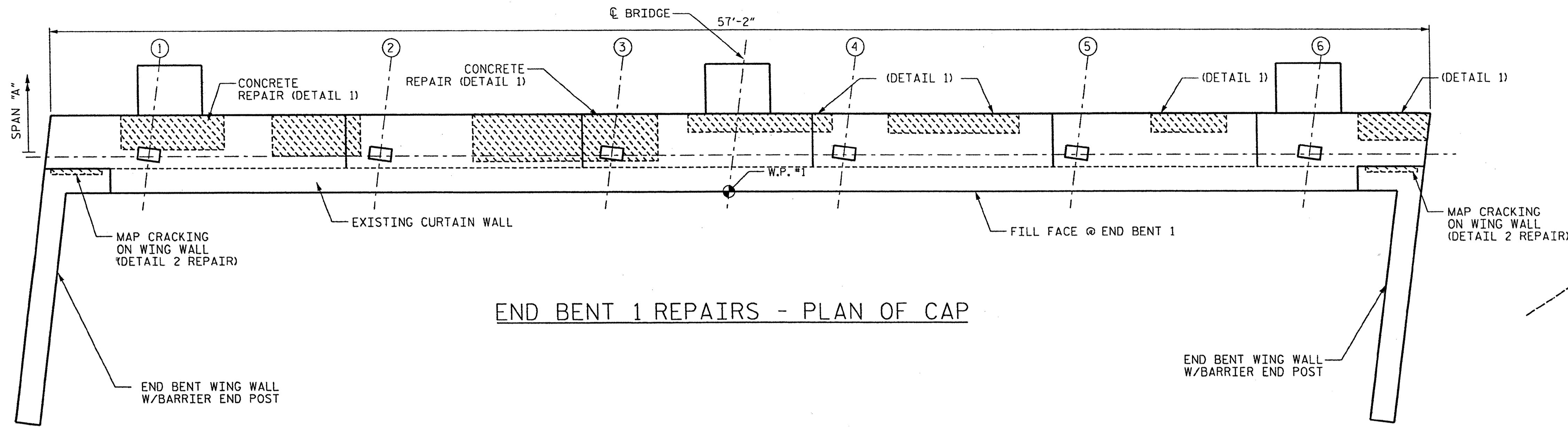
TOTAL SHEETS: 75

*Joseph J. Kelvington*  
 11/11/11  
 13406  
 ENGINEER  
 J. KELVINGTON



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DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. I. KELVINGTON DATE: 11/11



FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS. FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

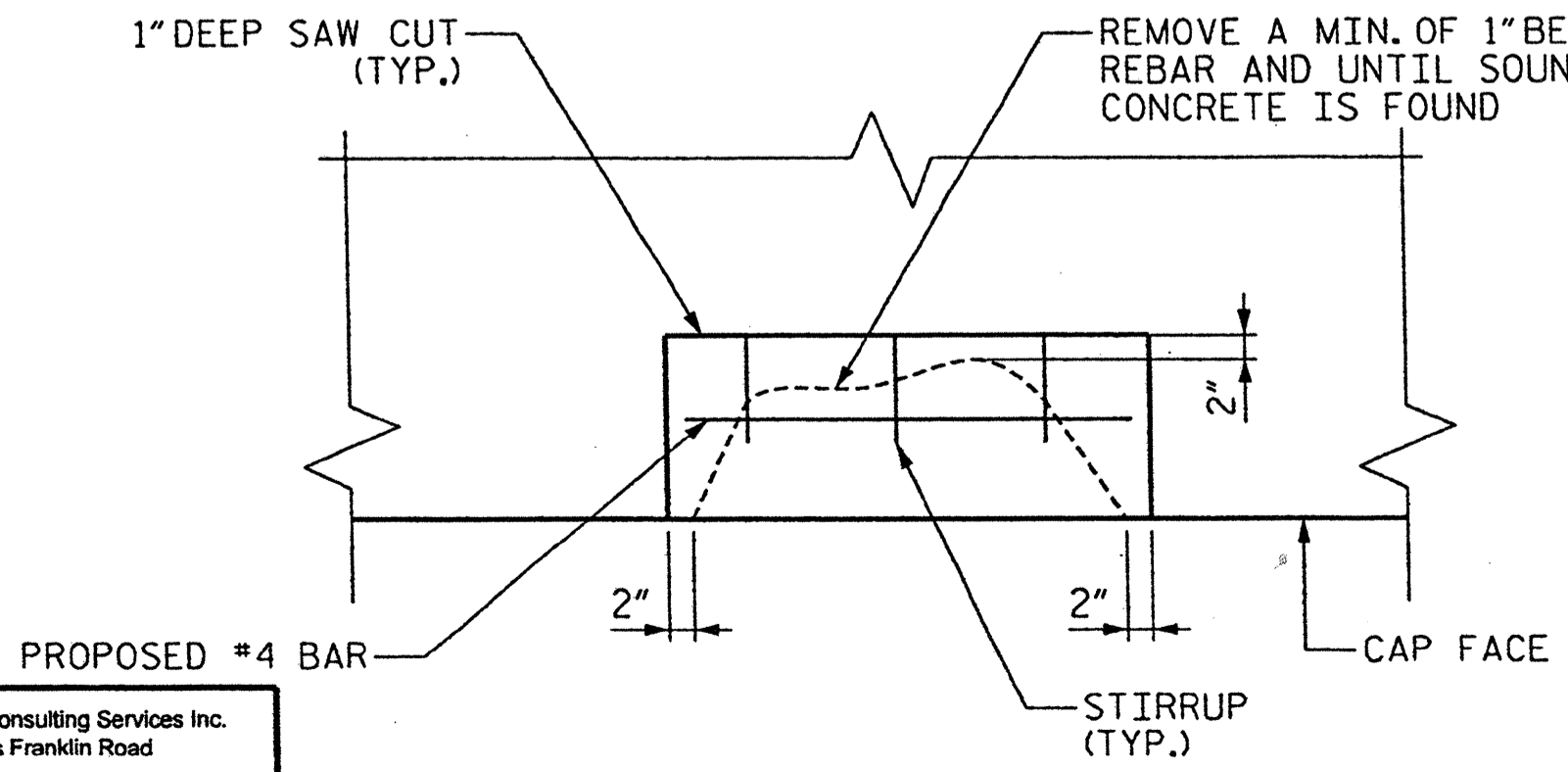
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONCRETE, OR POLYMER CONCRETE AT THE CONTRACTOR'S OPTION.

SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE. ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.

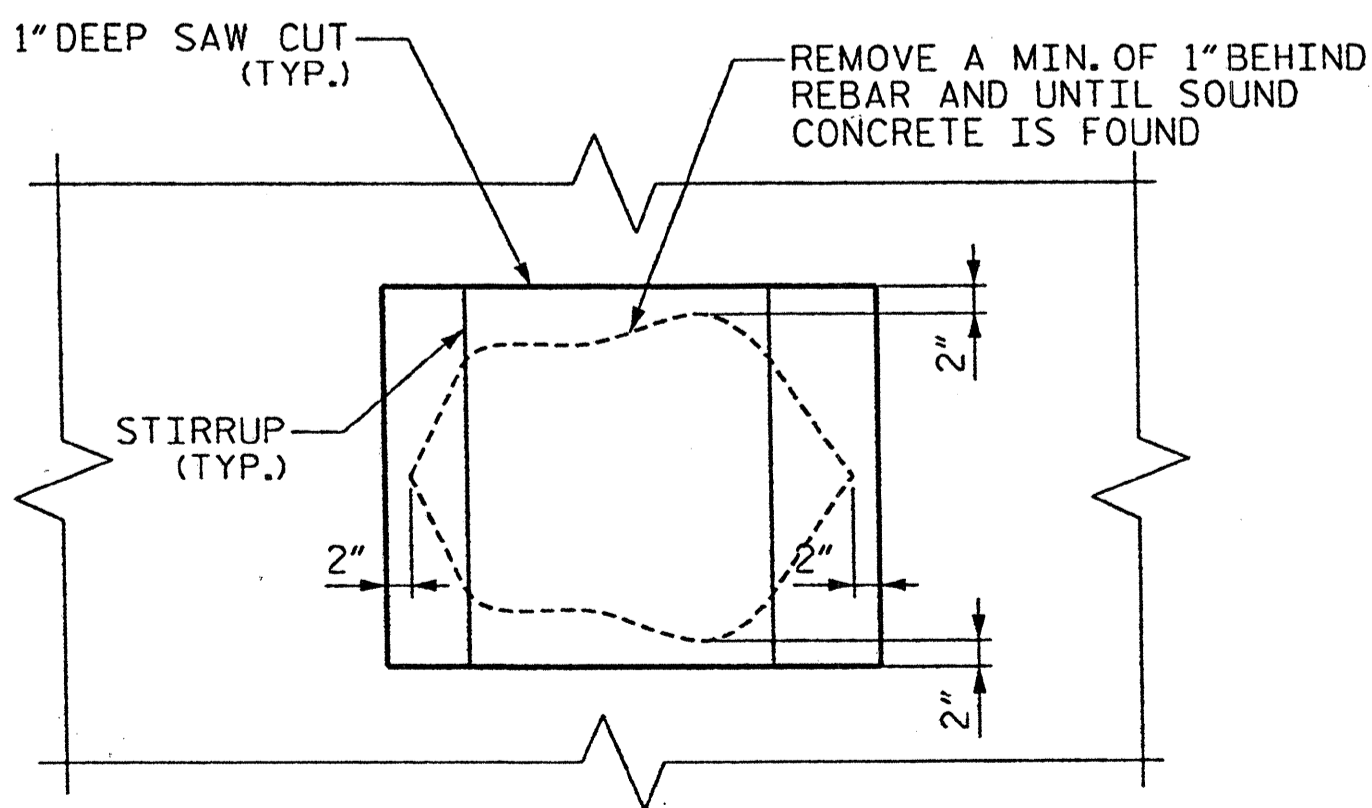
END BENT 1 REPAIRS - ELEVATION (SPAN A SIDE)

TOTAL ESTIMATE QUANTITIES  
 CONCRETE REPAIR 15 C.F.  
 SHOTCRETE REPAIR 65 C.F.

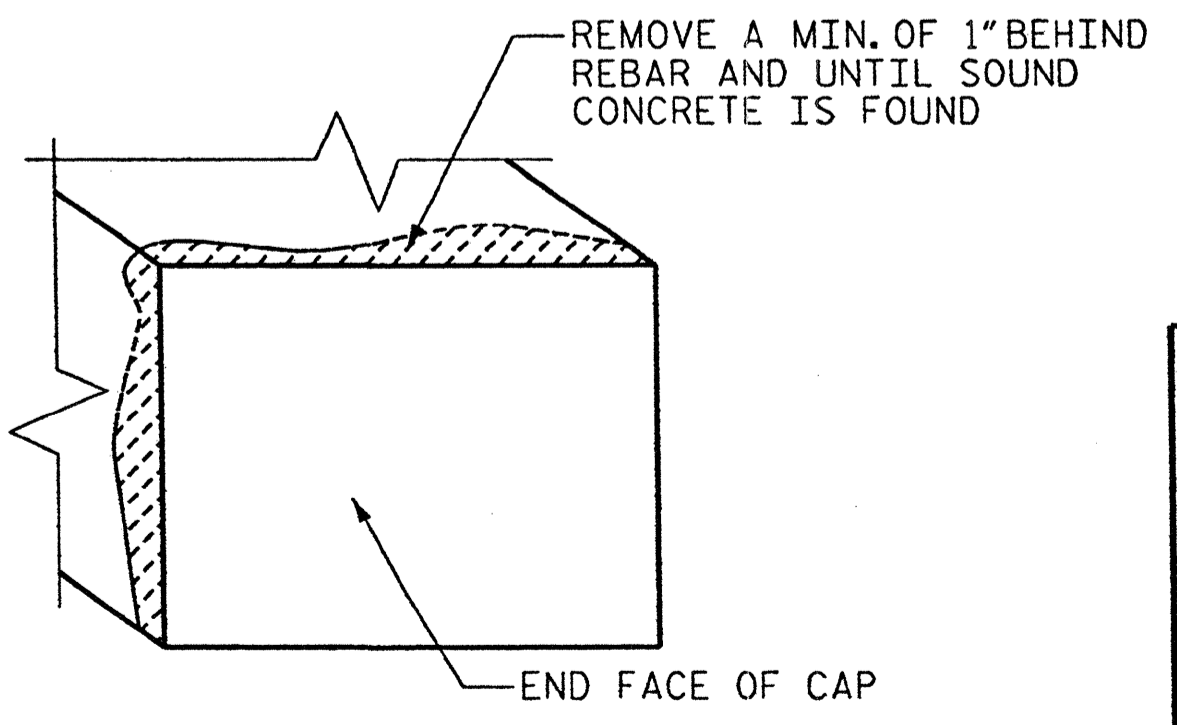
*Joseph T. Kelvington*  
 12/20/11  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA  
 SEAL  
 18406  
 KELVINGTON



TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

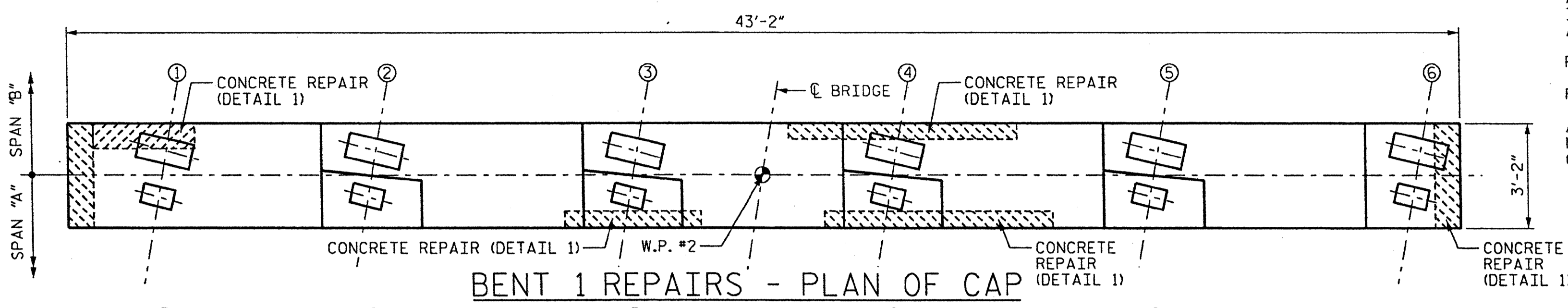
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				END BENT 1 REPAIRS	
DECK REHAB. FOR BRIDGE NO. 72					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-23
					TOTAL SHEETS 75

**Stantec**  
 Stantec Consulting Services Inc.  
 801 Jones Franklin Road  
 Suite 300  
 Raleigh, NC 27606  
 Tel. (919) 851-6866  
 Fax. (919) 851-7024  
 www.stantec.com  
 License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

12/19/2011 12:45:16 PM jgelle  
 12/19/2011 12:45:16 PM jgelle  
 12/19/2011 12:45:16 PM jgelle

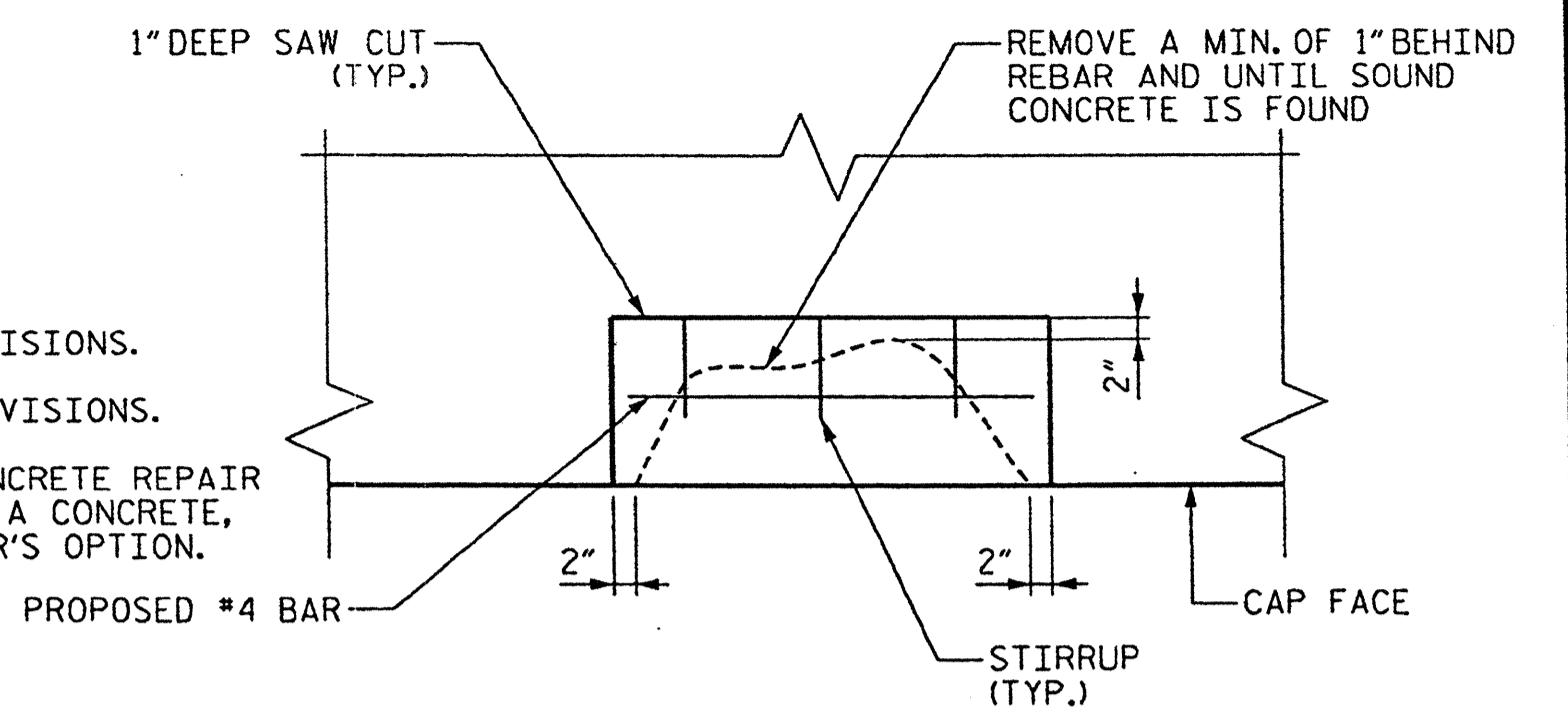
⊕ DENOTES BEAM C AND BEAM NO.



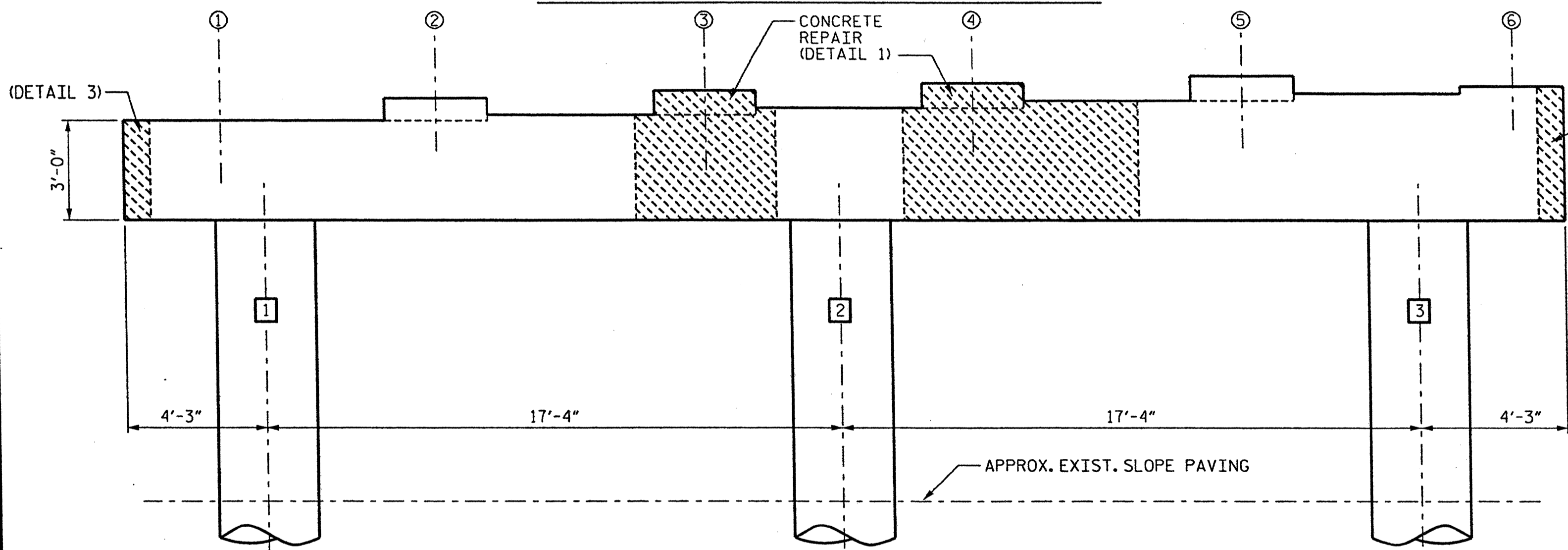
BENT 1 REPAIRS - PLAN OF CAP

SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE.  
 ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONCRETE, OR POLYMER CONCRETE AT THE CONTRACTOR'S OPTION.

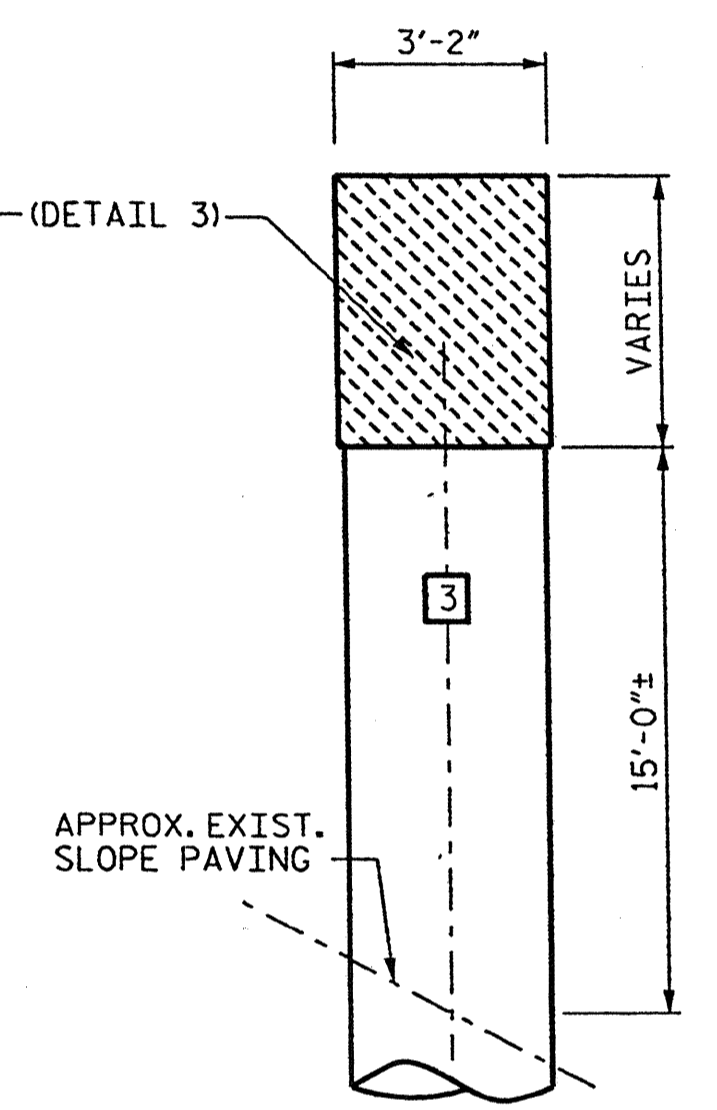
TOTAL ESTIMATED QTY'S.  
 CONCRETE REPAIR 55 C.F.  
 SHOTCRETE REPAIR 21 C.F.



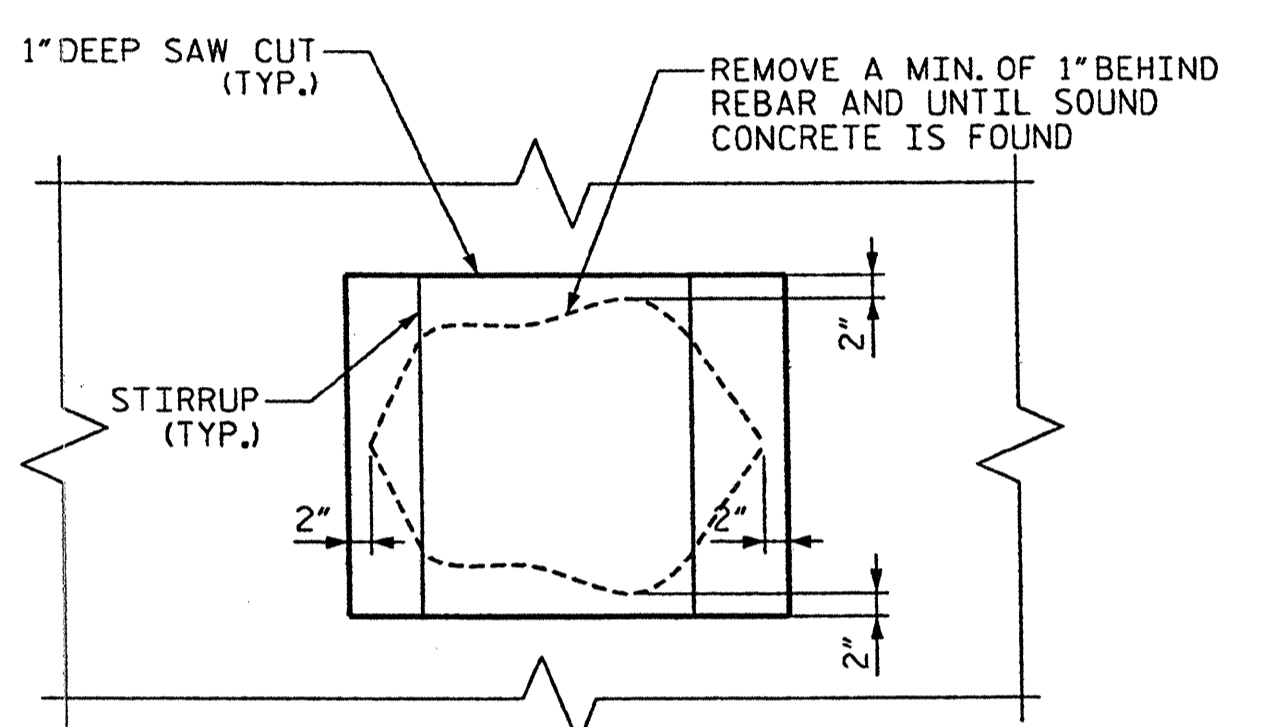
TYPICAL REPAIR DETAIL 1



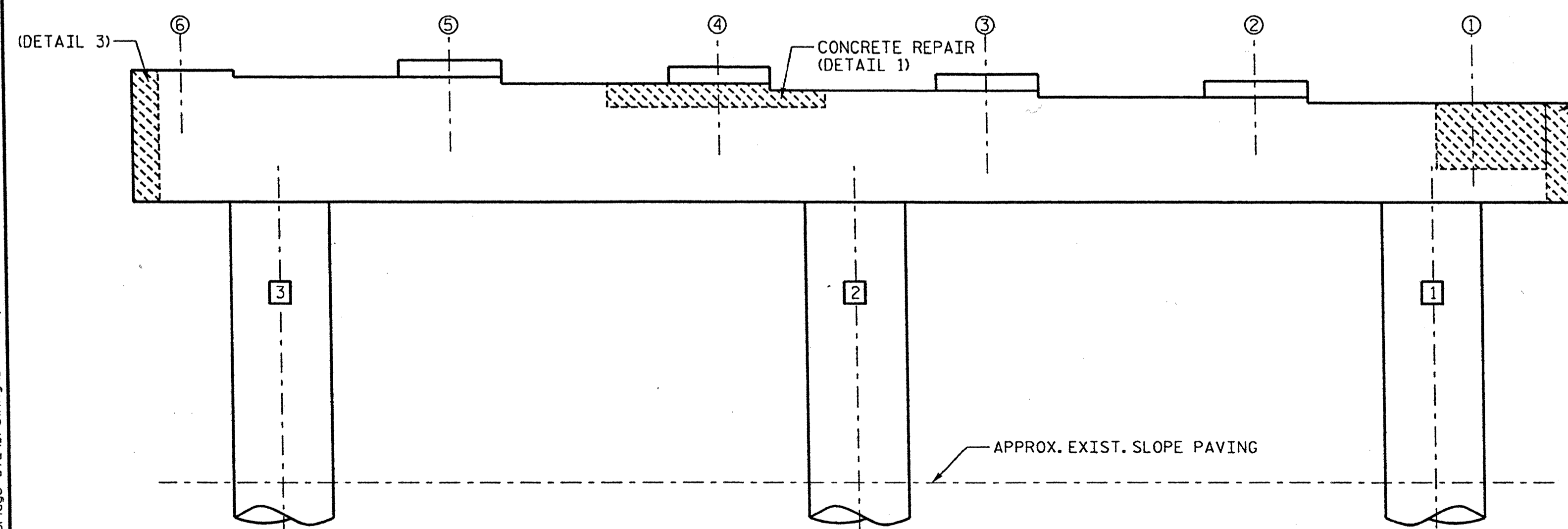
BENT 1 REPAIRS - ELEVATION (SPAN A SIDE)



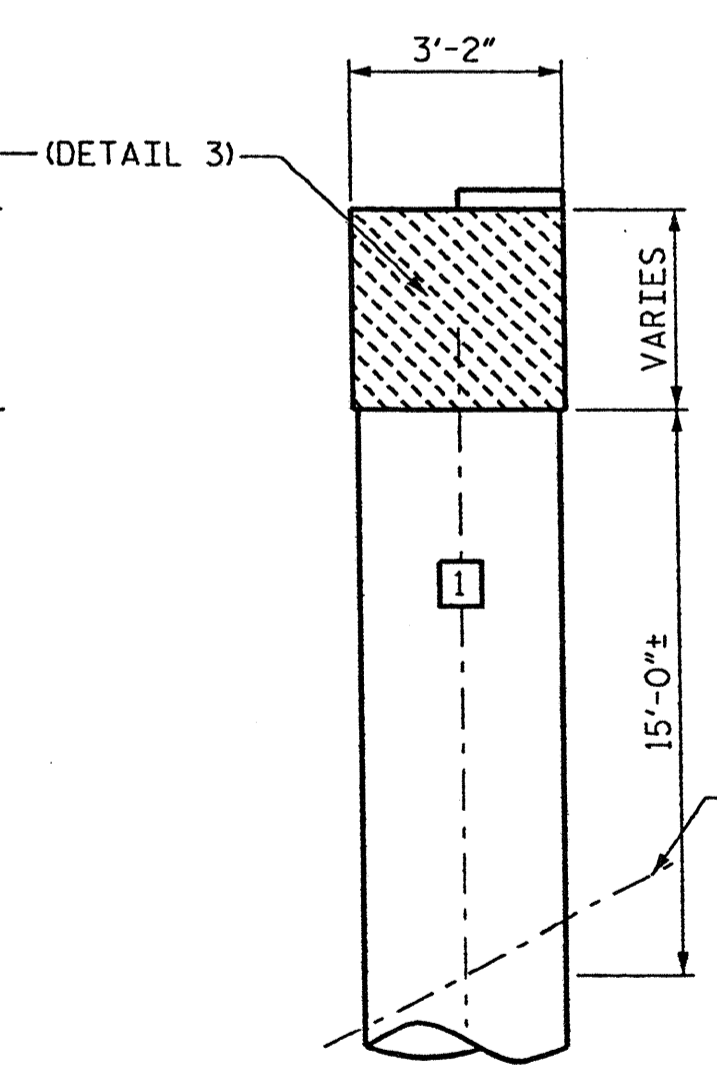
BENT 1 REPAIRS - END VIEW



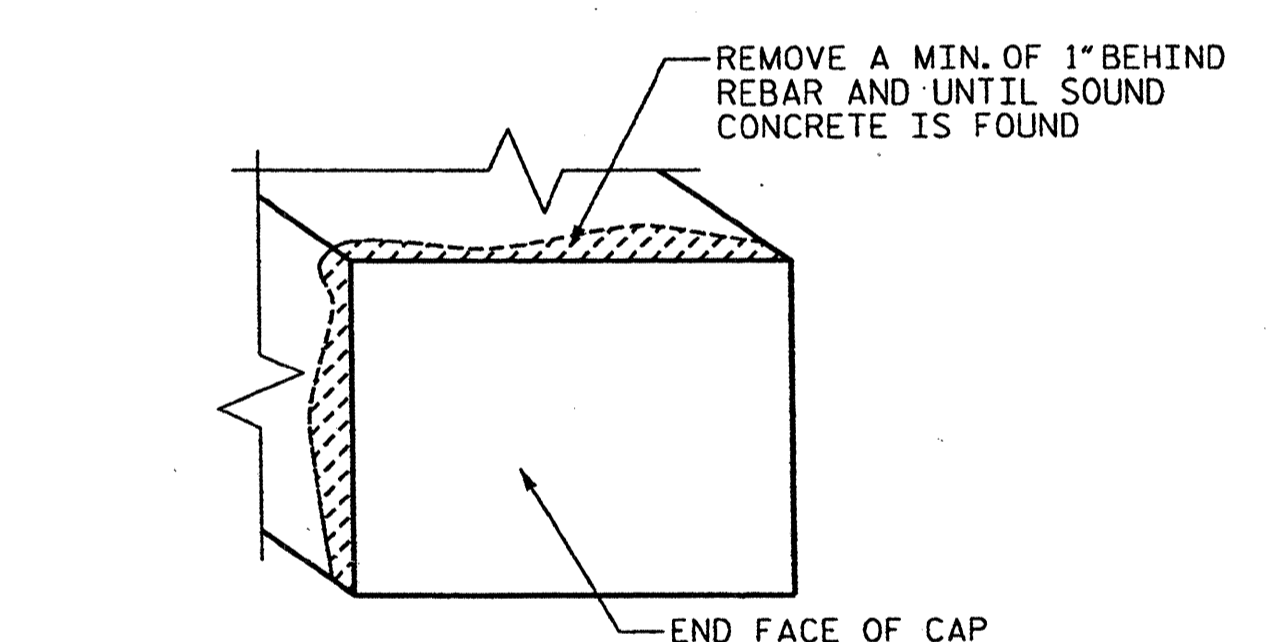
TYPICAL REPAIR DETAIL 2



BENT 1 REPAIRS - ELEVATION (SPAN B SIDE)



BENT 1 REPAIRS - END VIEW



TYPICAL REPAIR DETAIL 3

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

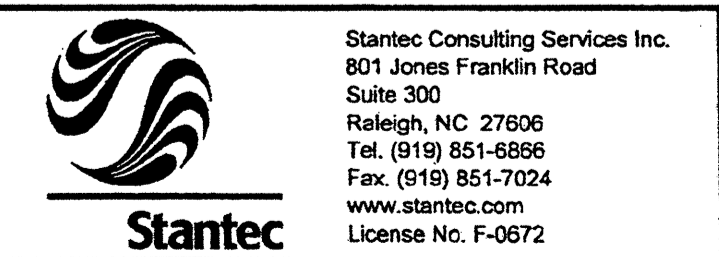
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 1 REPAIRS**

DECK REHAB. FOR BRIDGE NO. 72

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24	
1			3			TOTAL SHEETS 75	
2			4				

*Joseph Kelvington*  
 12/20/11  
 PROFESSIONAL ENGINEER  
 SEAL 13406  
 STATE OF NORTH CAROLINA



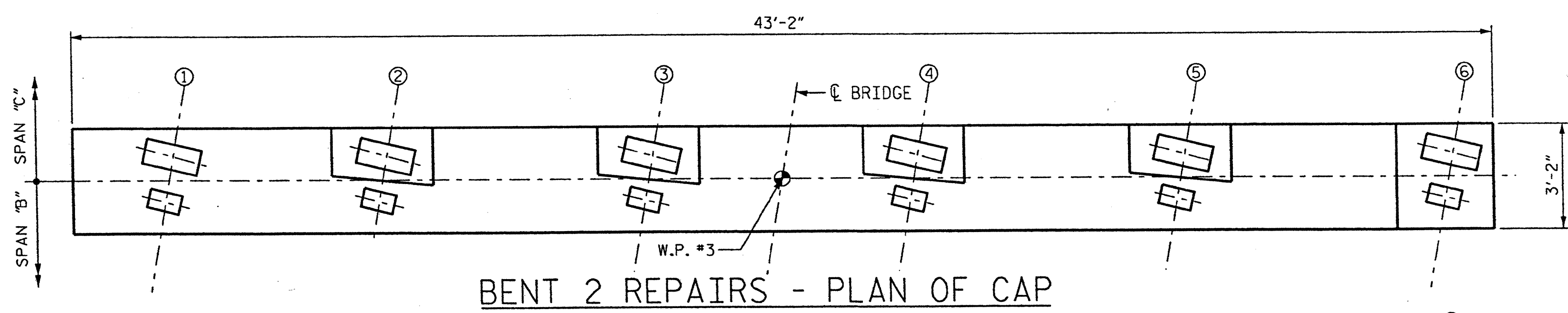
Stantec Consulting Services Inc.  
 801 Jones Franklin Road  
 Suite 300  
 Raleigh, NC 27606  
 Tel. (919) 851-8886  
 Fax. (919) 851-7024  
 www.stantec.com  
 License No. F-0672

⊕ DENOTES COLUMN NO.

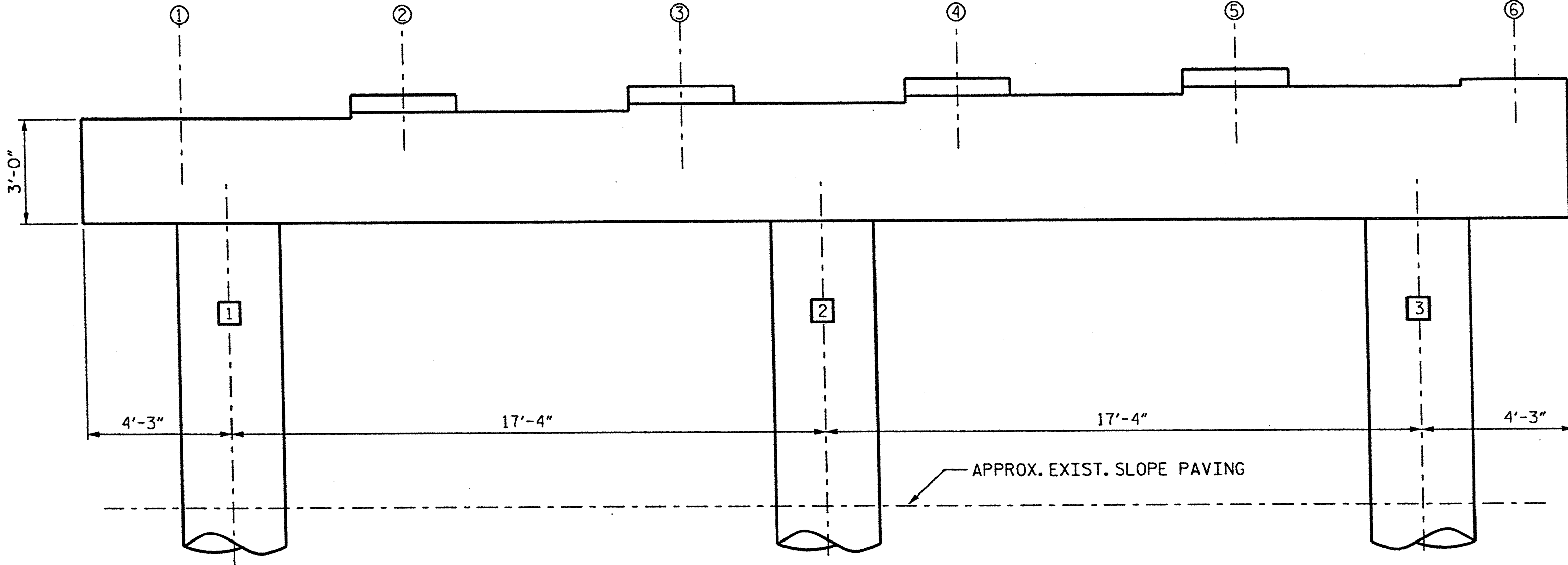
DRAWN BY: C.T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J.T. KELVINGTON DATE: 11/11

12/19/2011 12:28:19 PM Jgelle  
 2011\WBS\_17BP.6.P.2 Robeson Co\Robeson Bridge 072\Drawing\BP-72\_Repair-BENT1.dgn

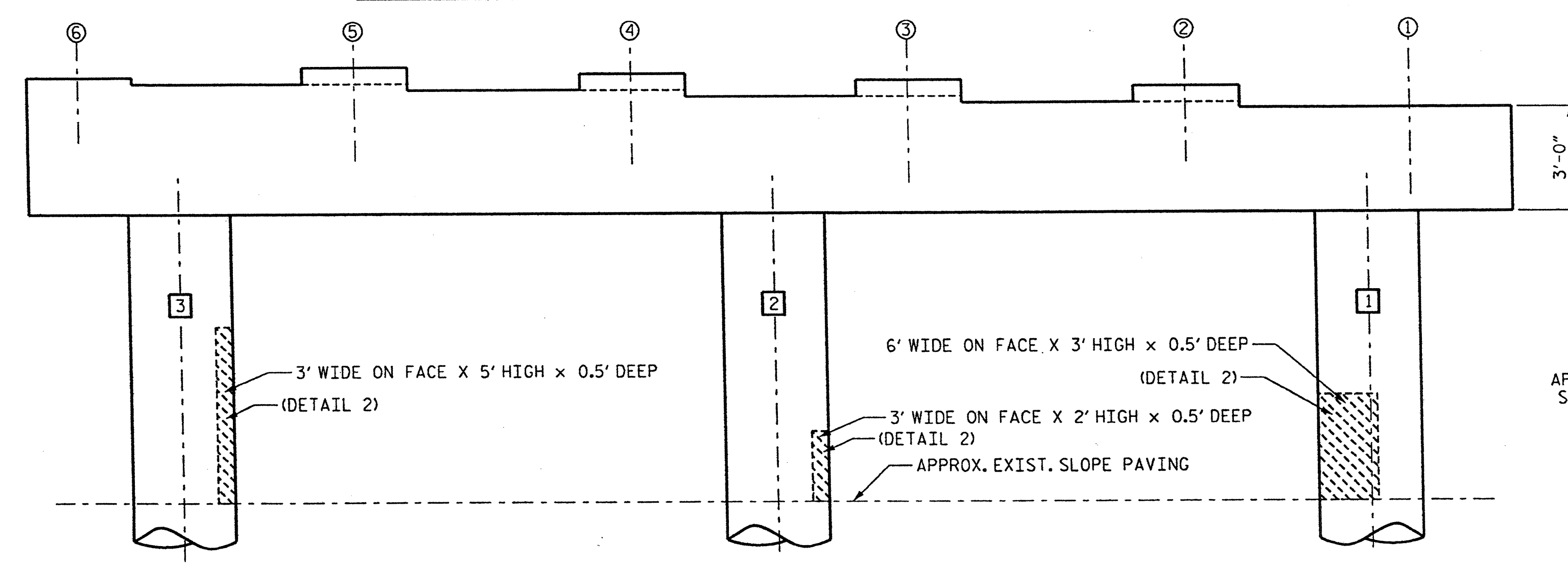
⊕ DENOTES BEAM C AND BEAM NO.



BENT 2 REPAIRS - PLAN OF CAP

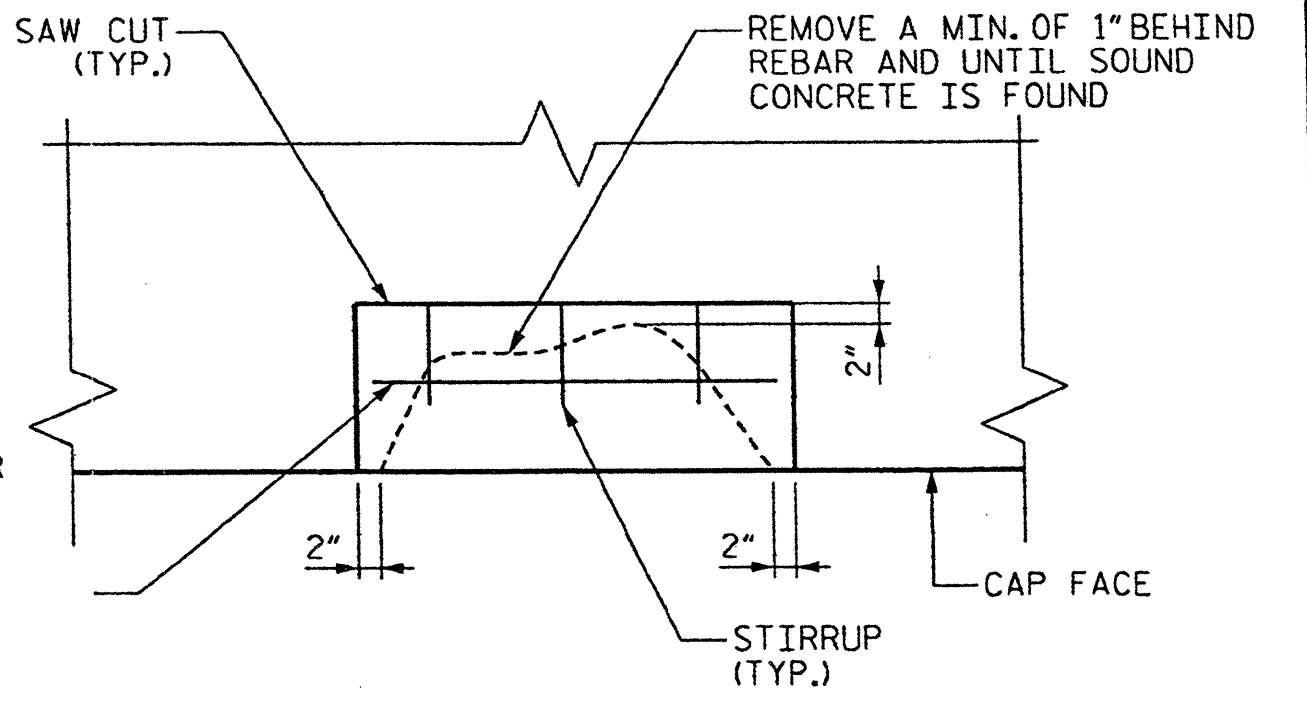


BENT 2 REPAIRS - ELEVATION (SPAN B SIDE)

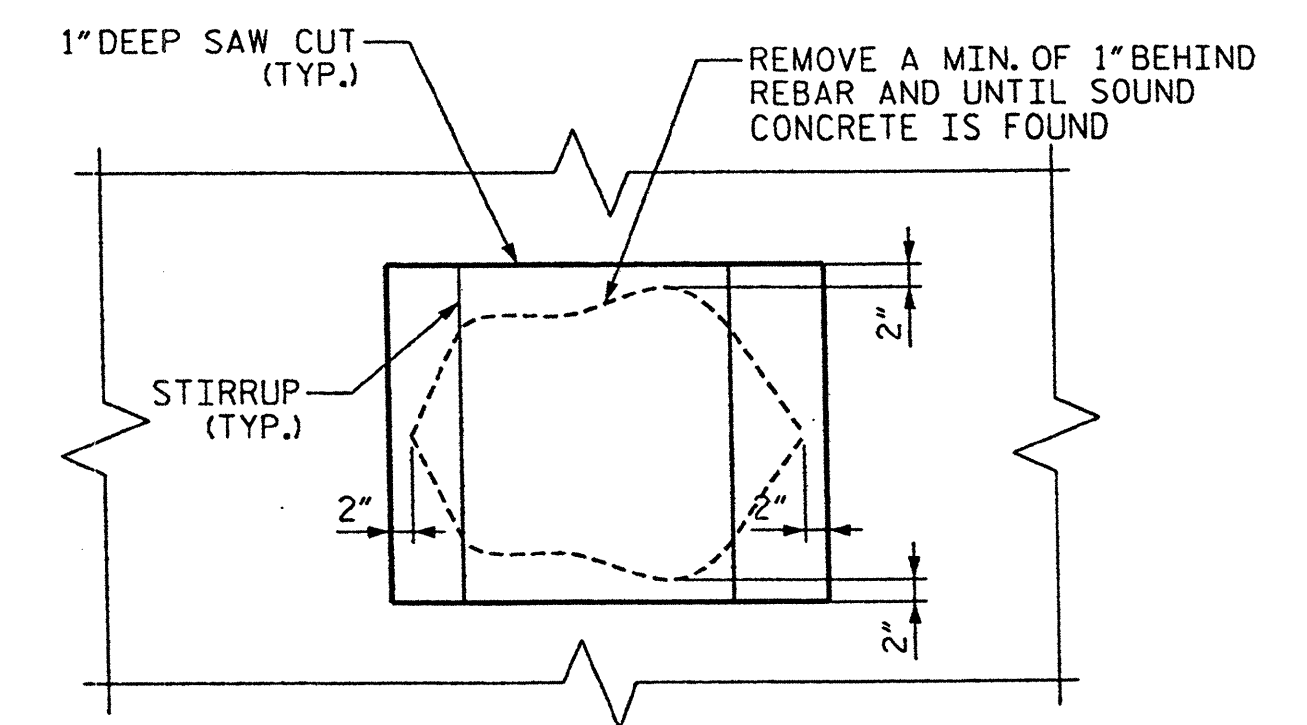


BENT 2 REPAIRS - ELEVATION (SPAN C SIDE)

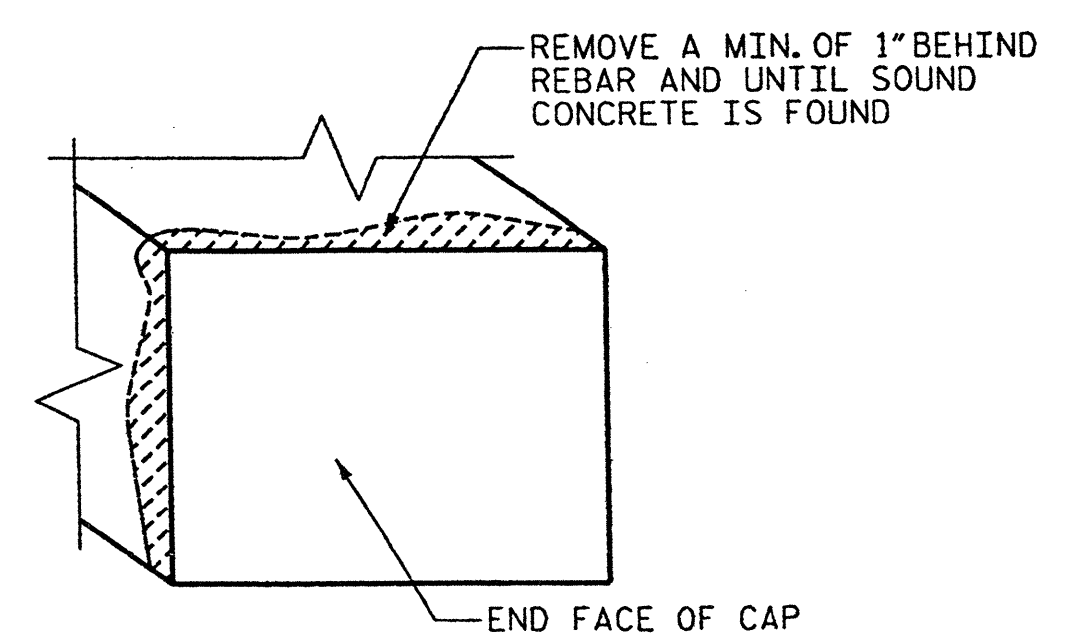
SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE. ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONCRETE, OR POLYMER CONCRETE AT THE CONTRACTOR'S OPTION.  
 TOTAL ESTIMATED QTY'S.  
 CONCRETE REPAIR 0 C.F.  
 SHOTCRETE REPAIR 20 C.F.



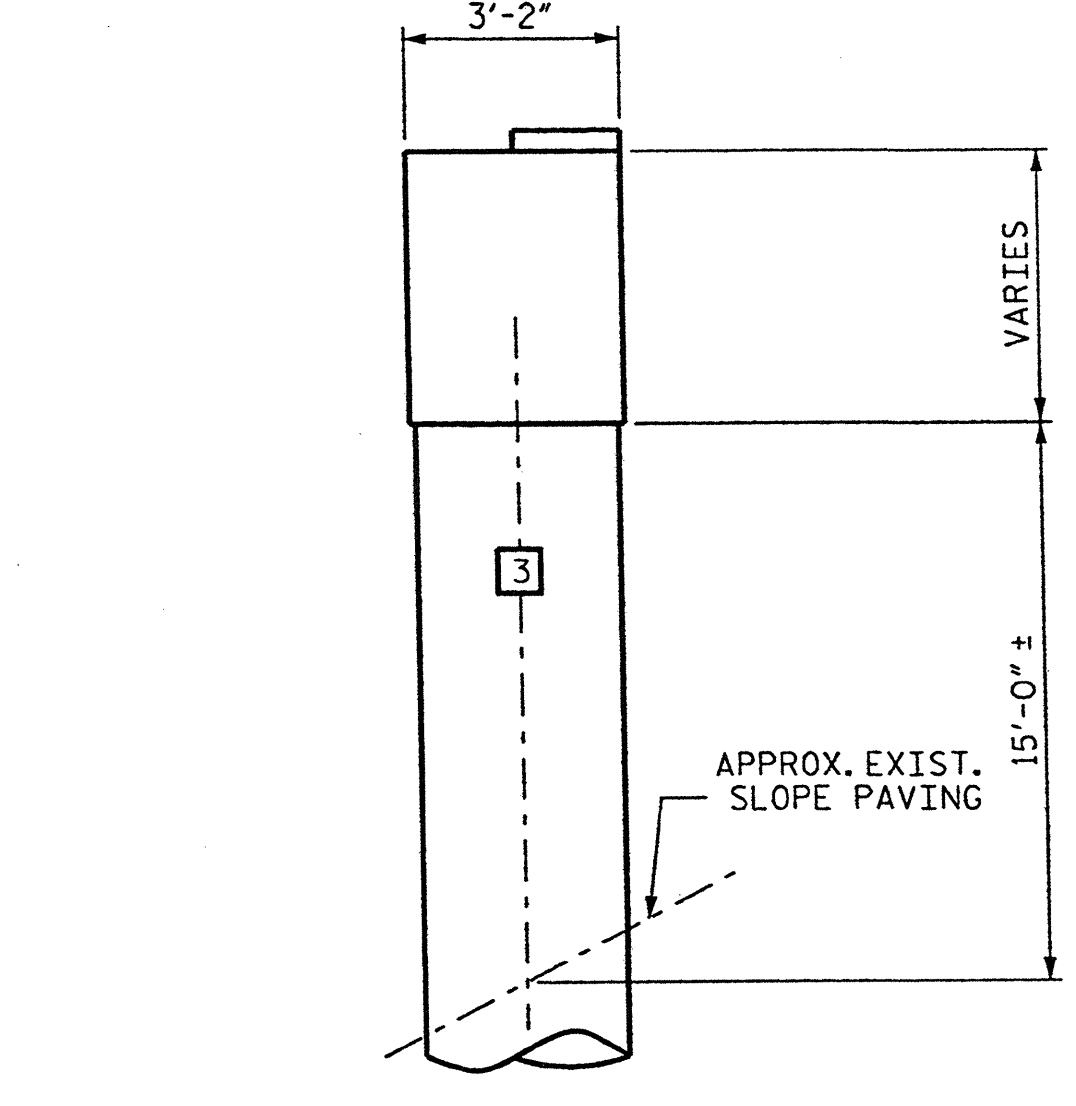
TYPICAL REPAIR DETAIL 1



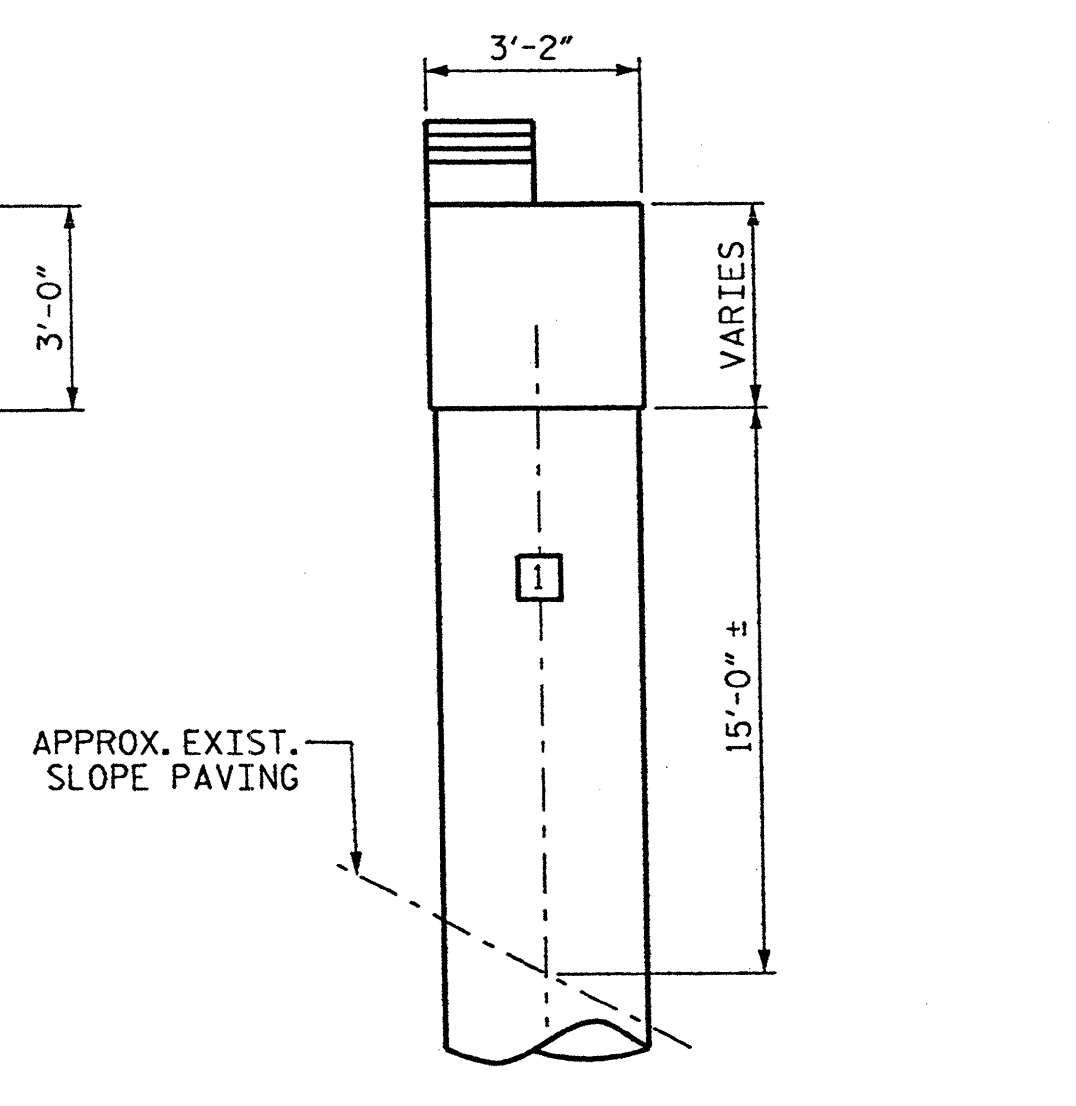
TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3



BENT 2 REPAIRS - END VIEW



BENT 2 REPAIRS - END VIEW

# DENOTES COLUMN NO.

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 2 REPAIRS**

DECK REHAB. FOR BRIDGE NO. 72

REVISIONS						SHEET NO. S-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 75
2			4			

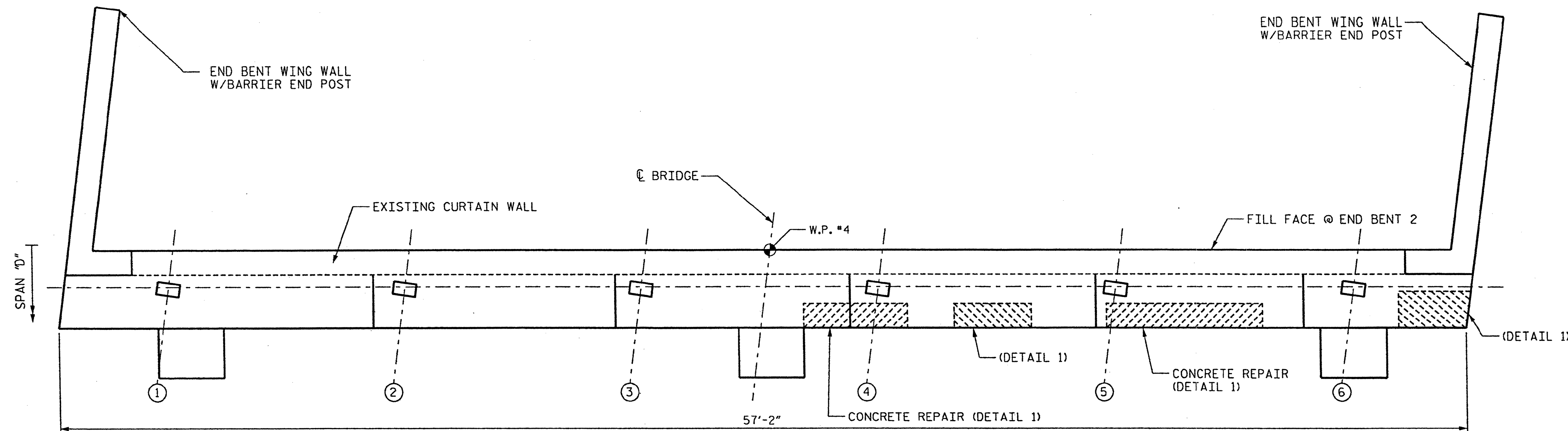
*Joseph J. Kelvington*  
 12/20/11  
 PROFESSIONAL ENGINEER  
 SEAL 13406  
 STATE OF NORTH CAROLINA



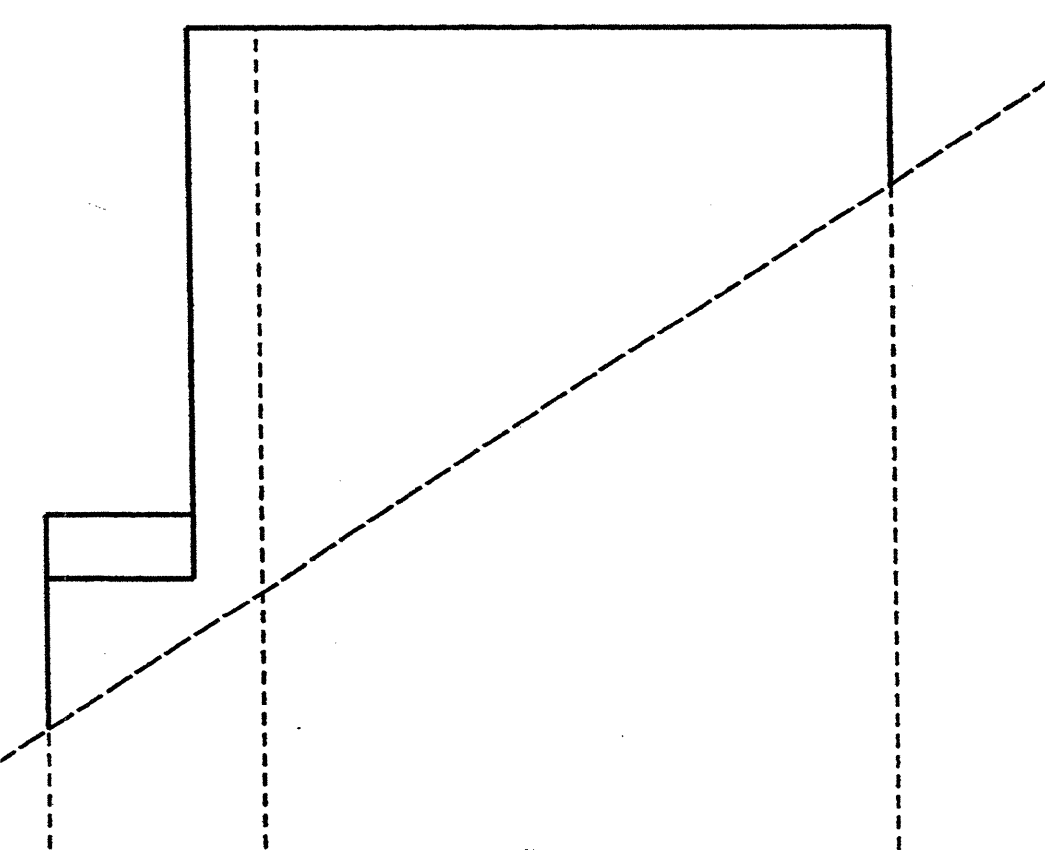
Stantec Consulting Services Inc.  
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 Tel. (919) 851-6866  
 Fax. (919) 851-7024  
 www.stantec.com  
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DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

p 2011 WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 072 Drawing BP-72\_Repair\_BENT2.dgn 12/19/2011 12:24:21 PM Joelle



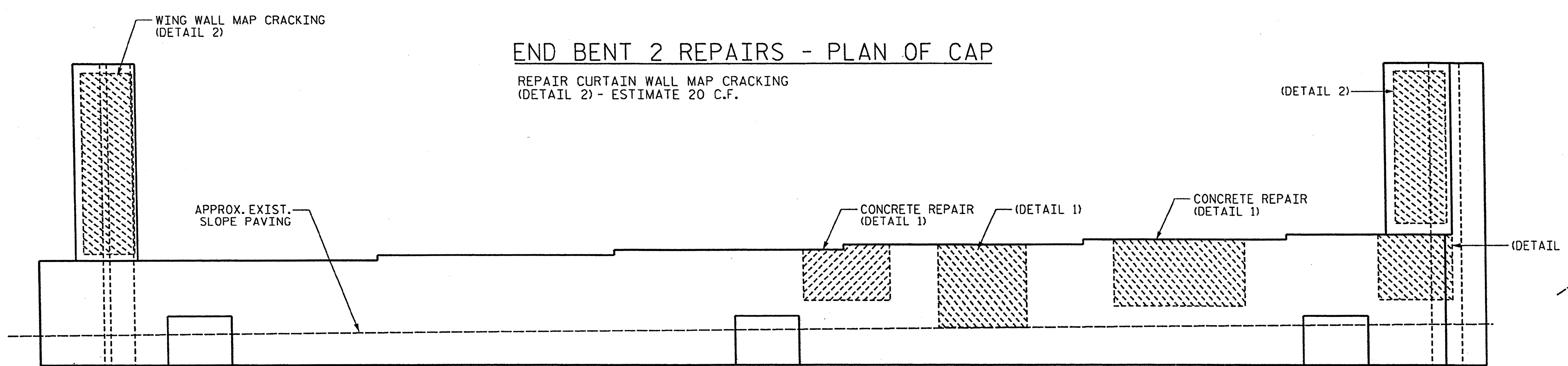
ELEVATION - LT. SIDE



ELEVATION - RT. SIDE

**END BENT 2 REPAIRS - PLAN OF CAP**

REPAIR CURTAIN WALL MAP CRACKING (DETAIL 2) - ESTIMATE 20 C.F.



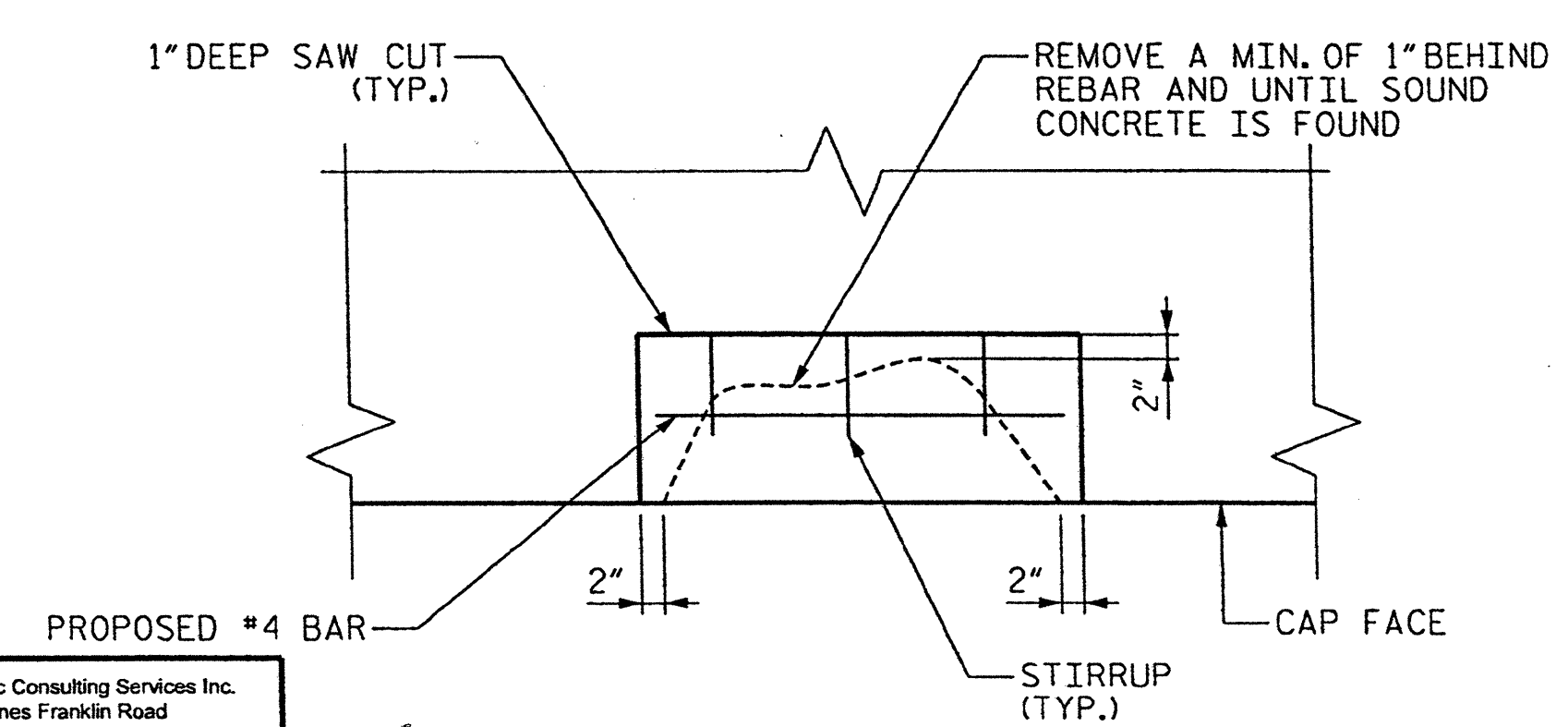
**END BENT 2 REPAIRS - ELEVATION (SPAN A SIDE)**

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS. FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

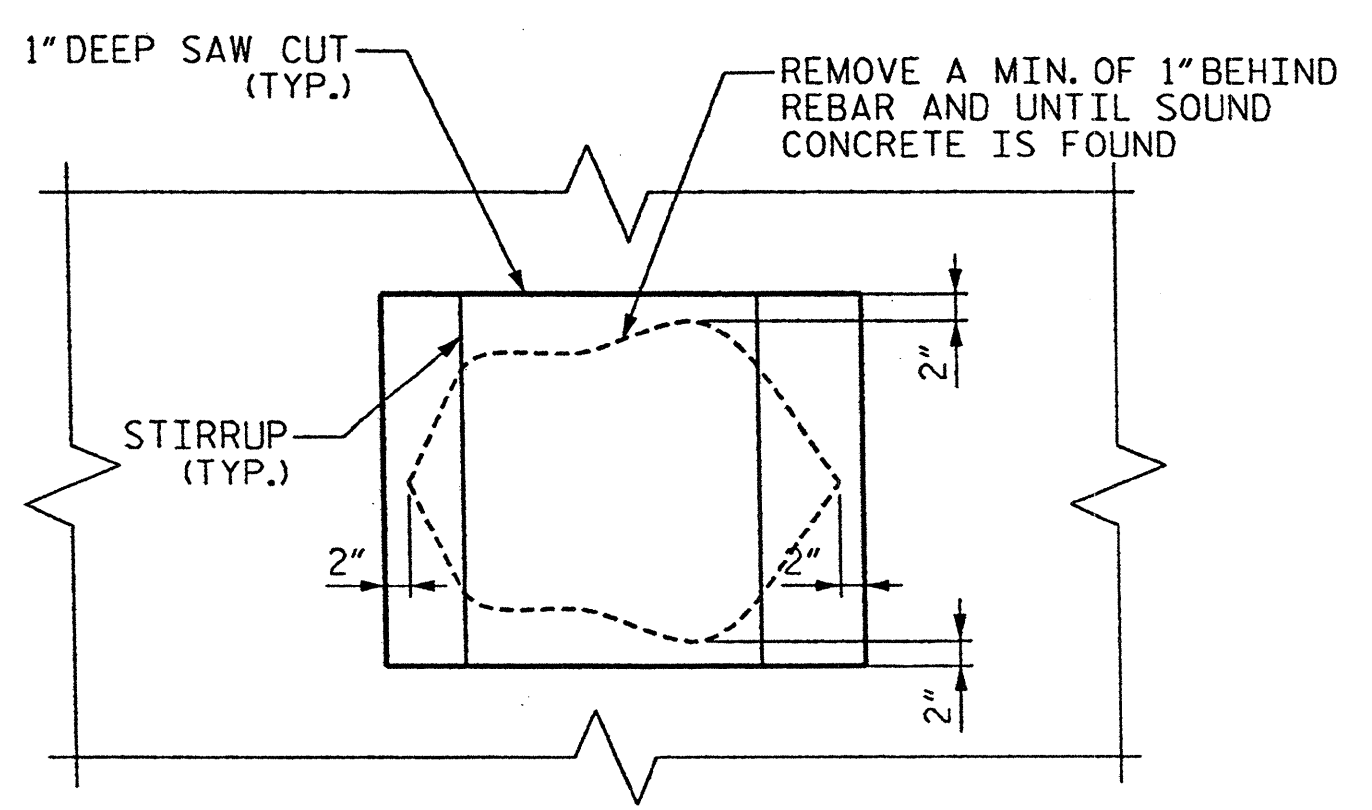
SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE. ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 16 C.F.  
SHOTCRETE REPAIR 52 C.F.

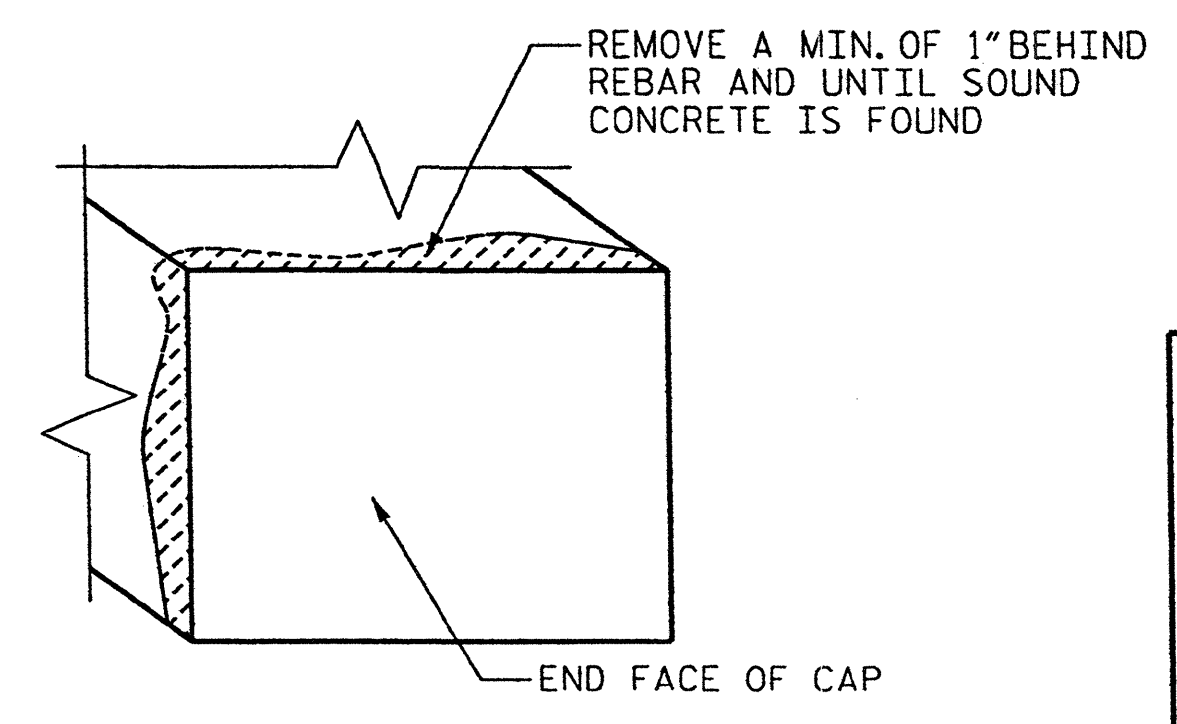
*Joseph T. Kelvington*  
12/20/11  
PROFESSIONAL SEAL  
03406  
ENGINEER  
NORTH CAROLINA



TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**END BENT 2 REPAIRS**

DECK REHAB. FOR BRIDGE NO. 72

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26	
1			3			TOTAL SHEETS	75
2			4				

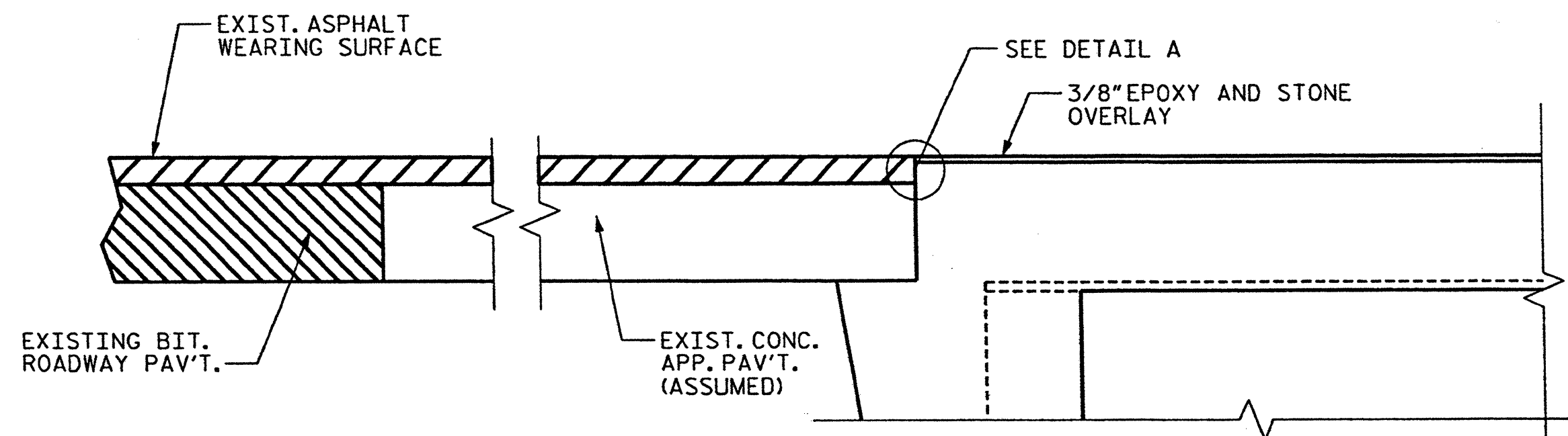
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6886  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

J:\WBS 17BP.6.P.2 Robeson Co\Robeson Bridge 072\Drawing\BP-72.Repair-END BENT2.dgn 12/19/2011 12:21:23 PM Jgelle

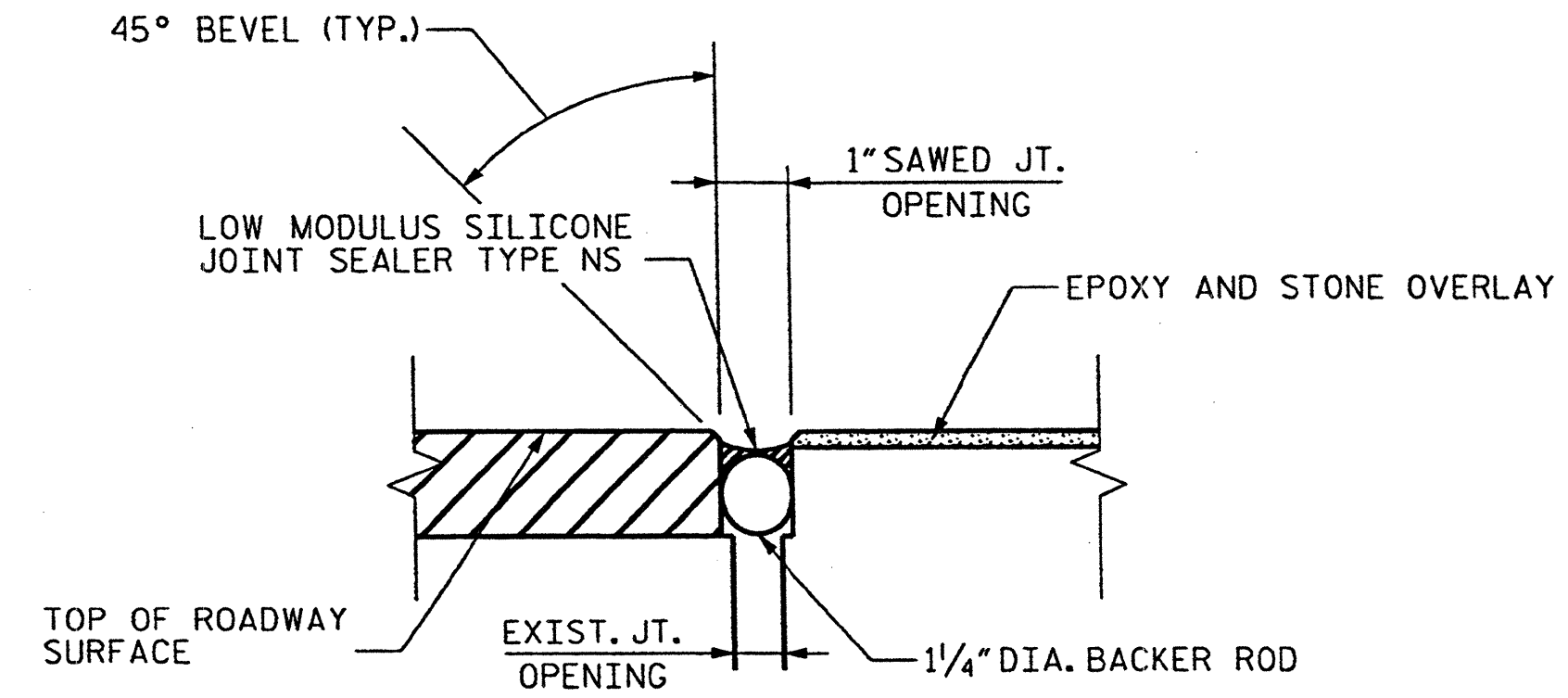






SECTION A-A

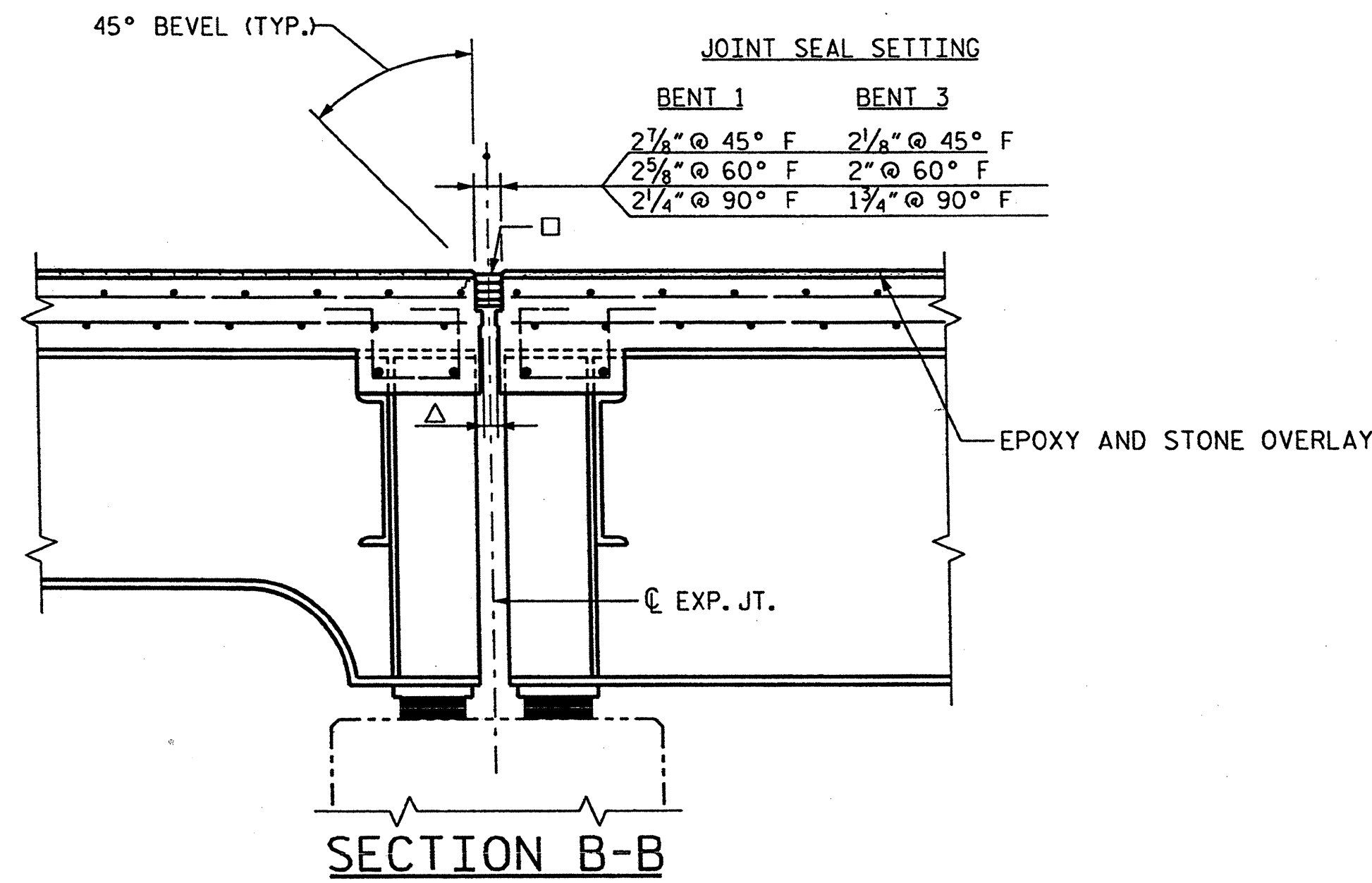
TYP. @ EACH BENT



DETAIL A

CONCRETE JOINT SEAL

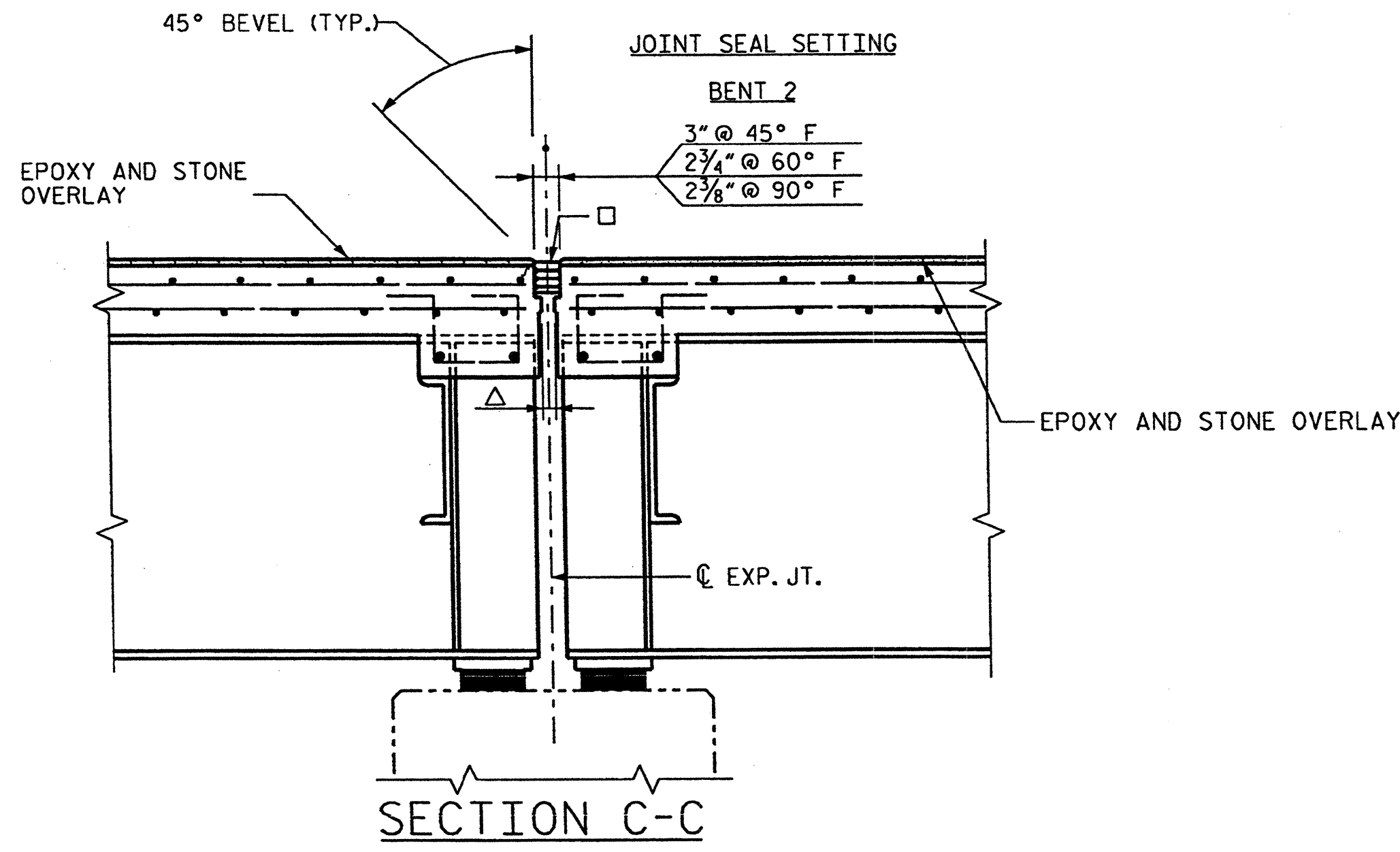
1 1/4" DIA. BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



SECTION B-B

□ USE 3.4375" X 2.5" UNCOMPRESSED FOAM JT. SEAL MATERIAL

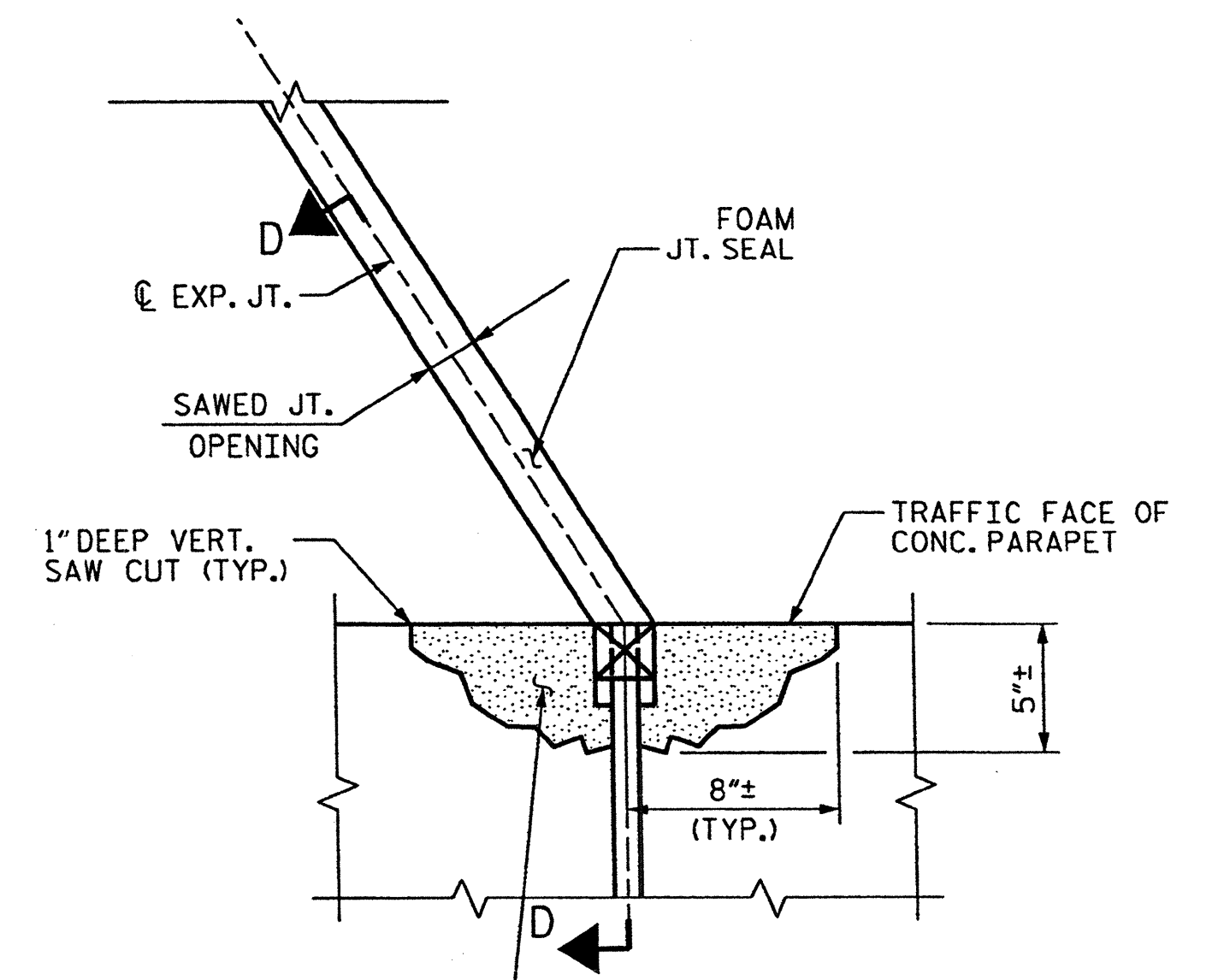
1/2" EXISTING FORMED OPENING



SECTION C-C

□ USE 2.8125" X 2.5" UNCOMPRESSED FOAM JT. SEAL MATERIAL

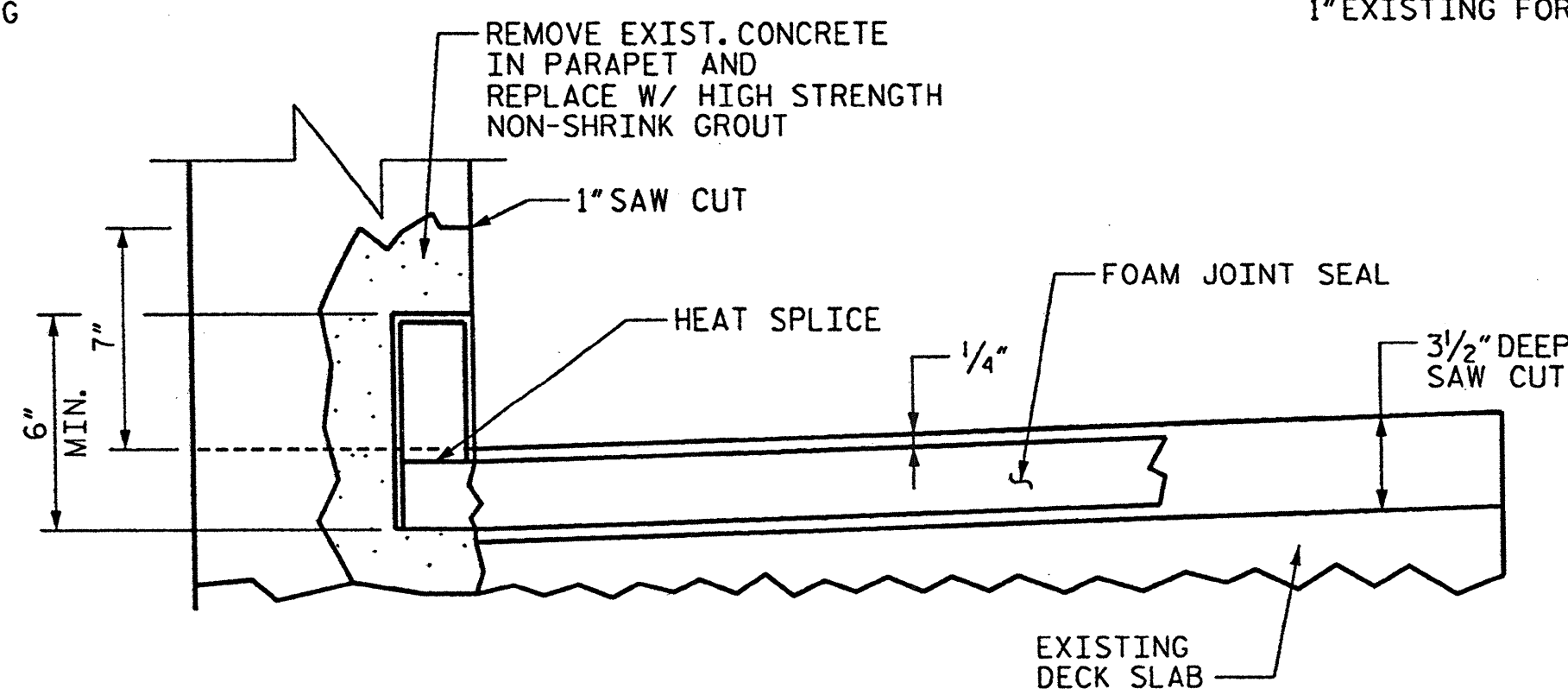
1" EXISTING FORMED OPENING



PARTIAL PLAN @ JOINT

(TYP. EA. INTERIOR BENT)

REMOVE EXIST. CONCRETE AND REPLACE W/ HIGH STRENGTH NON-SHRINK GROUT.



SECTION D-D

CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.

FOR HIGH STRENGTH GROUT, SEE SPECIAL PROVISION ENTITLED "GROUT FOR STRUCTURES".

HIGH STRENGTH GROUT SHALL BE APPROVED BY THE ENGINEER.

PROJECT NO. WBS 17BP.6.P.2

ROBESON COUNTY

STATION: \_\_\_\_\_

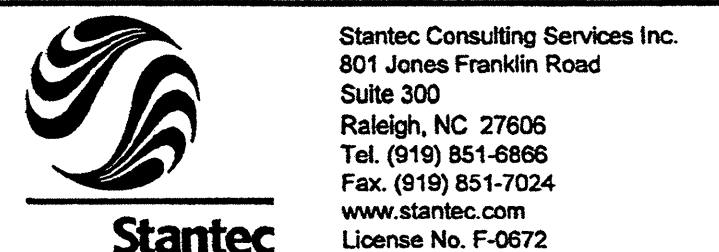
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DECK REPAIR DETAILS  
FOR BRIDGE #096

DECK REHAB. FOR BRIDGE NO. 96

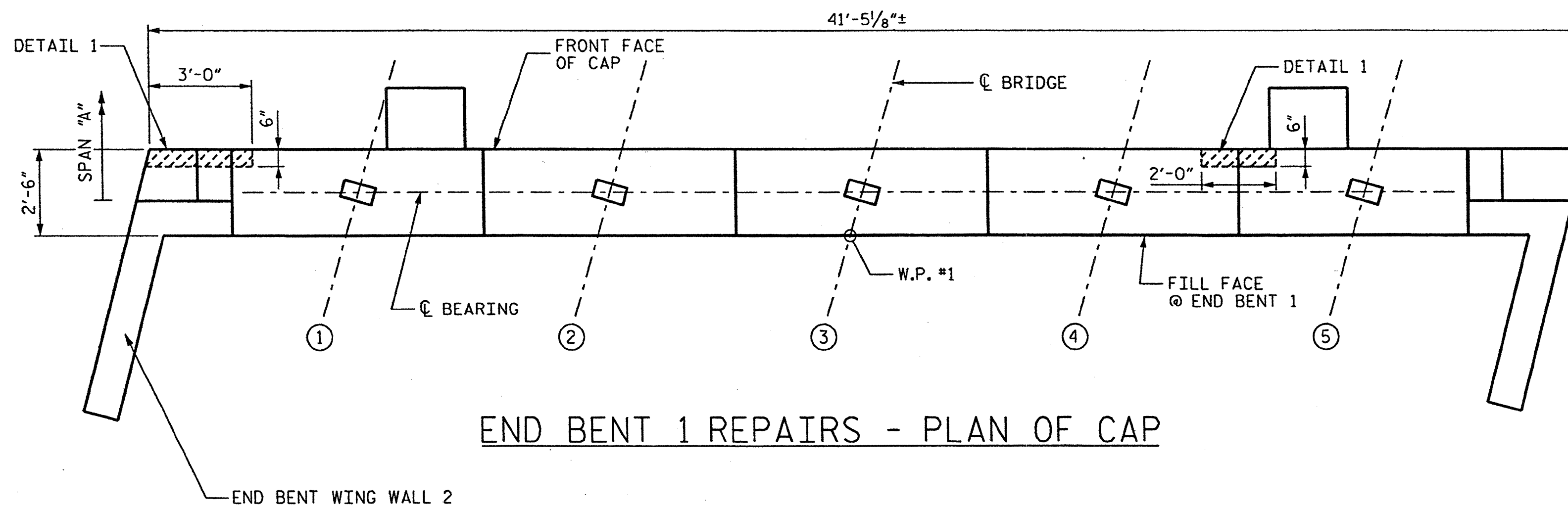
REVISIONS						SHEET NO. S-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 75
2			4			

*Joseph T. Kelvington*  
12/20/11  
Professional Engineer  
No. 18406  
State of North Carolina



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

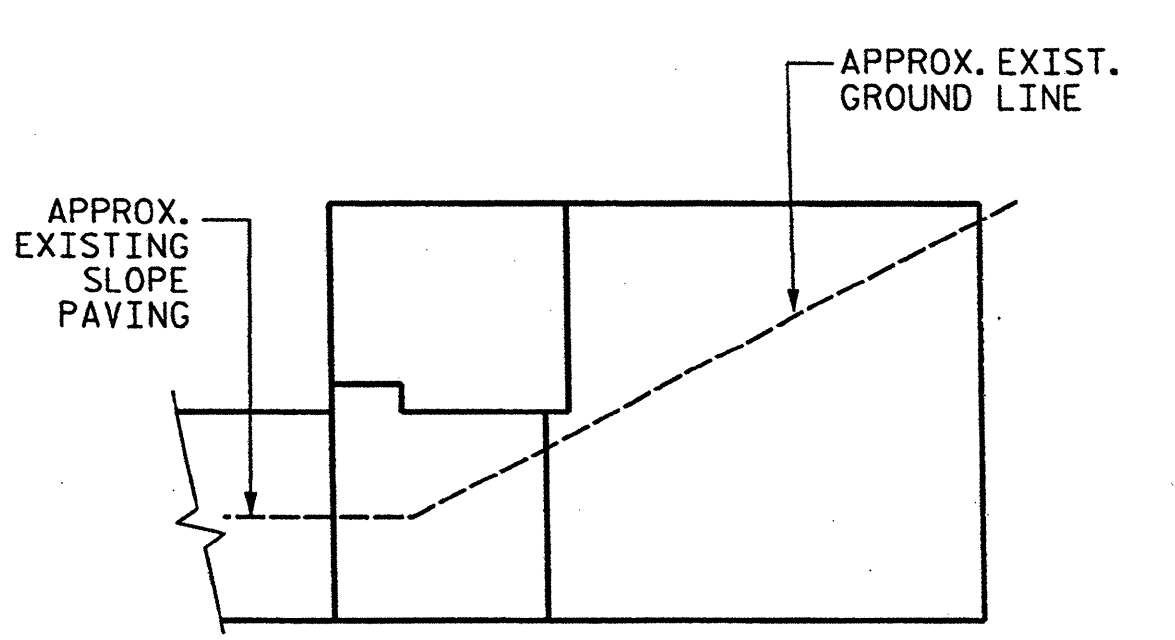




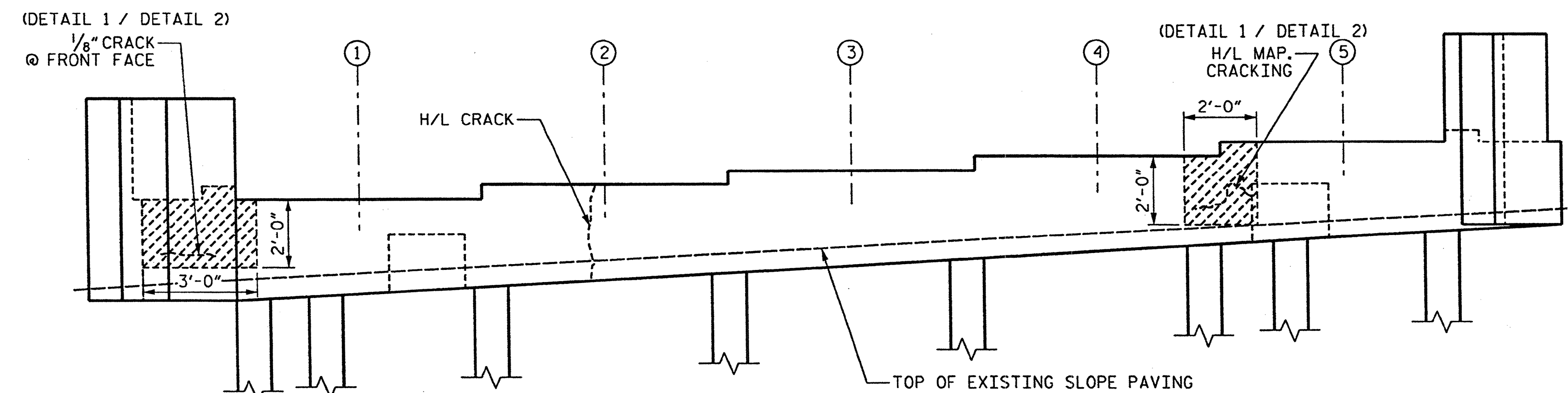
⊕ DENOTES Ⓢ EXISTING GIRDER NO.

END BENT 1 REPAIRS - PLAN OF CAP

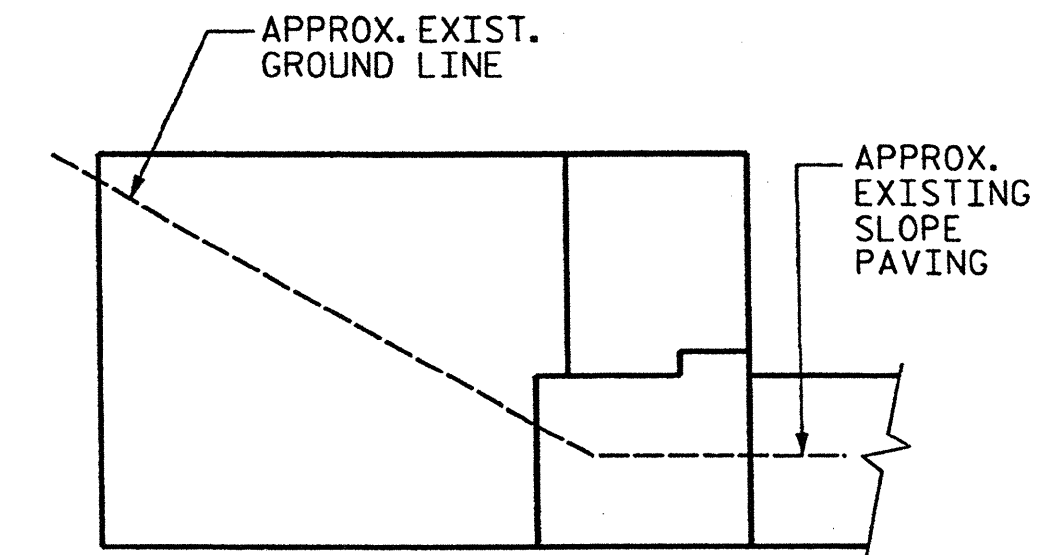
TOTAL ESTIMATED QUANTITIES:  
 SHOTCRETE REPAIR = 6 C.F.  
 CONCRETE REPAIR = 0 C.F.



END BENT 1 REPAIRS - SIDE DEVELOPED ELEVATION - WING 1



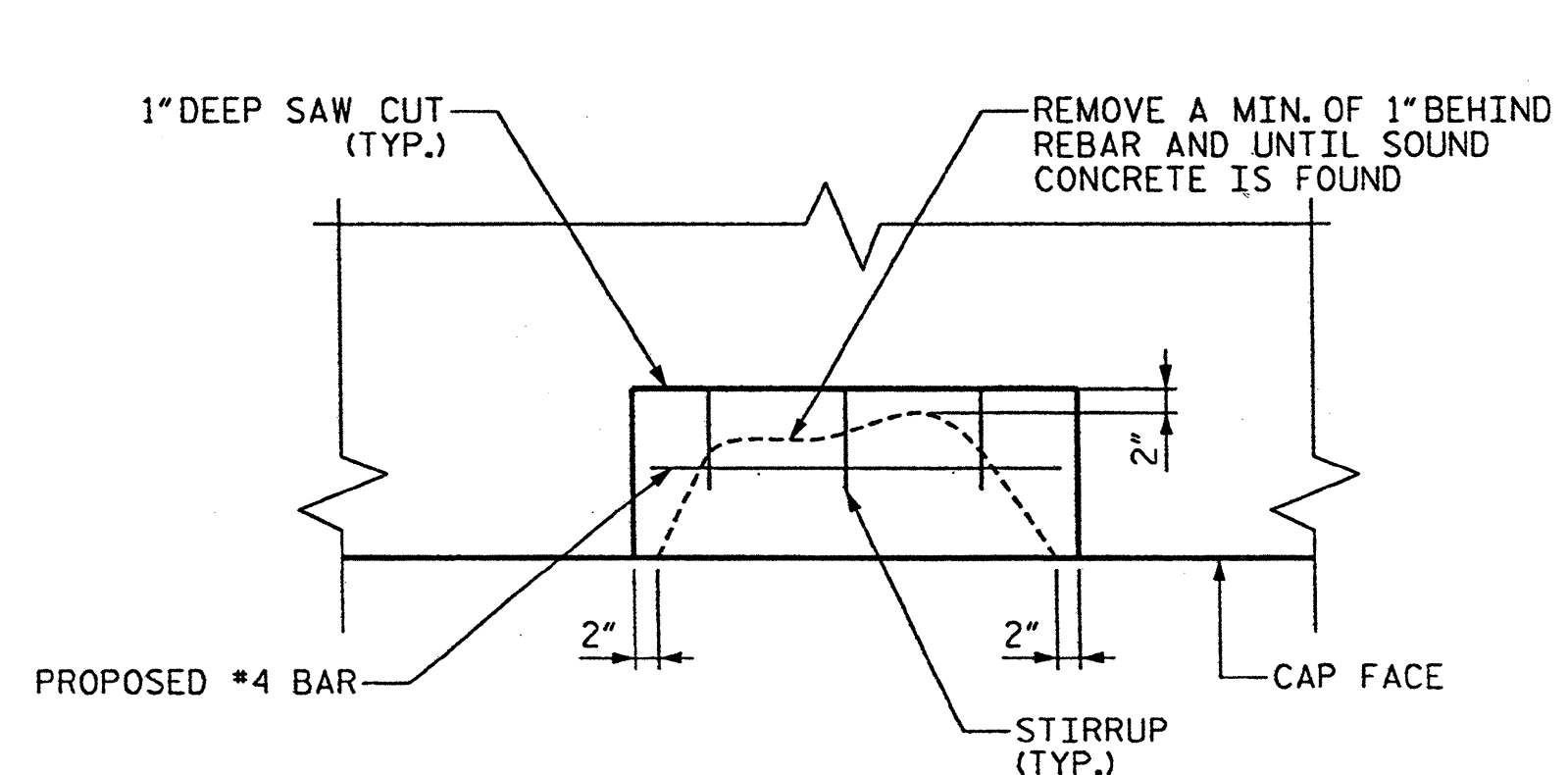
END BENT 1 REPAIRS - ELEVATION



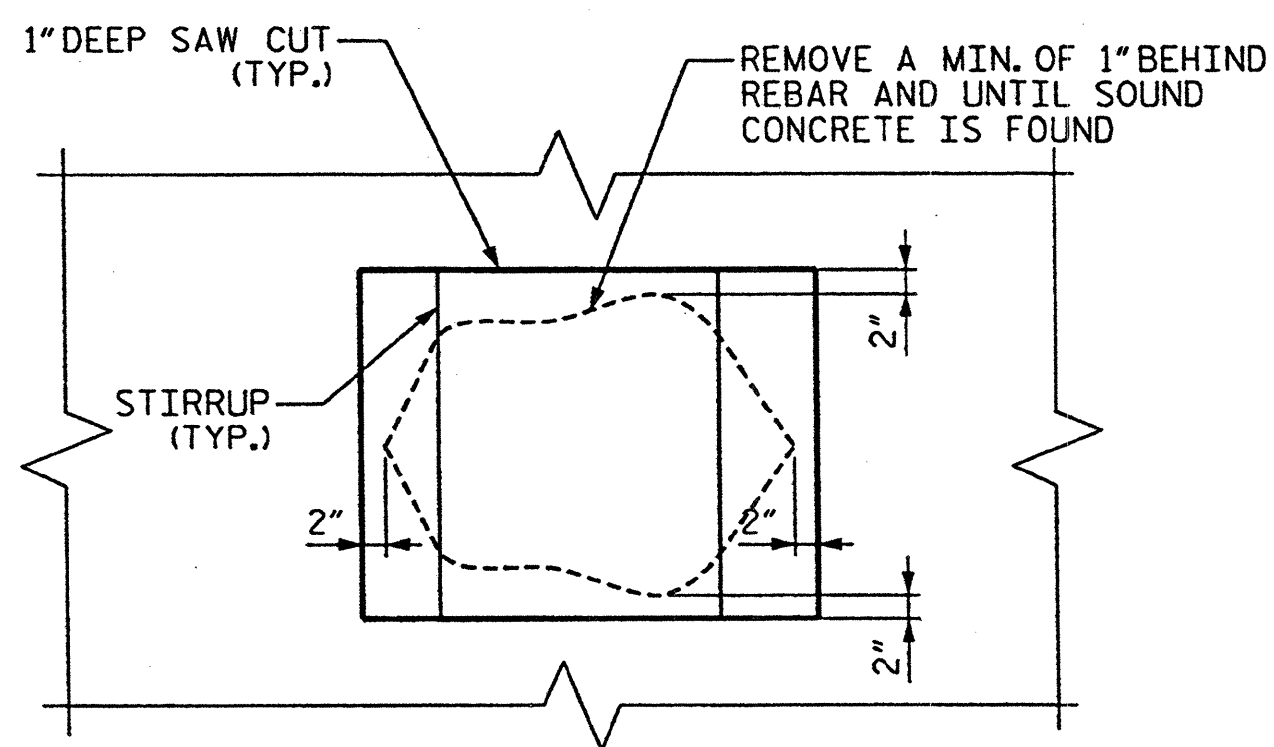
END BENT 1 REPAIRS - SIDE DEVELOPED ELEVATION - WING 2

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONCRETE, OR POLYMER CONCRETE AT THE CONTRACTOR'S OPTION.

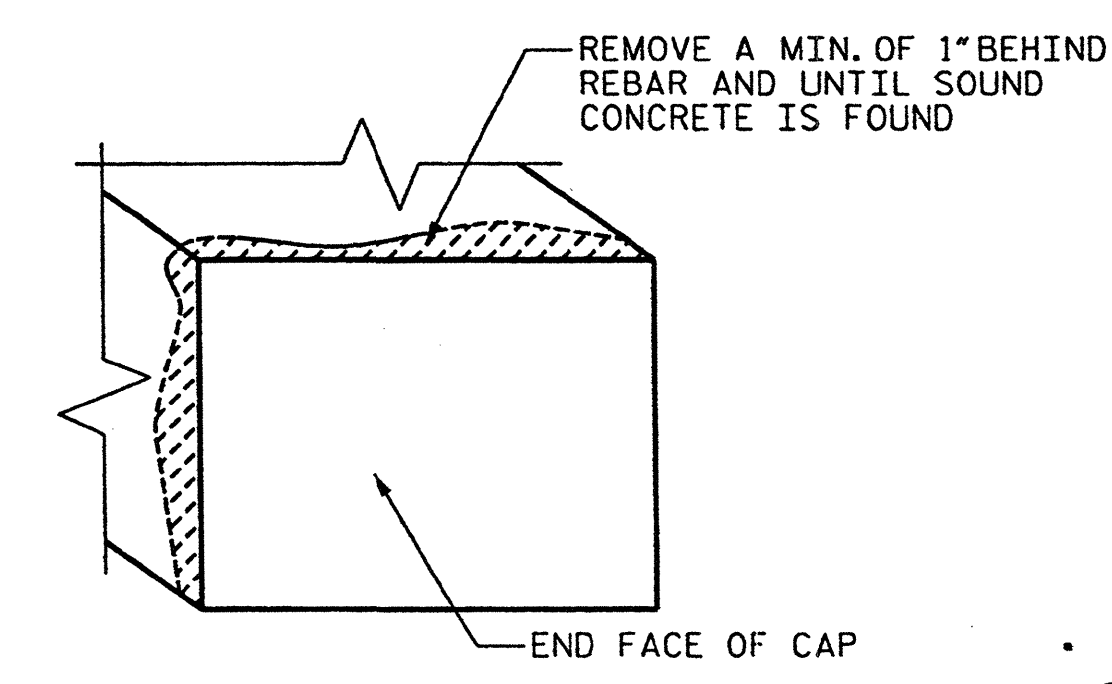
SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE.  
 ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.



TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

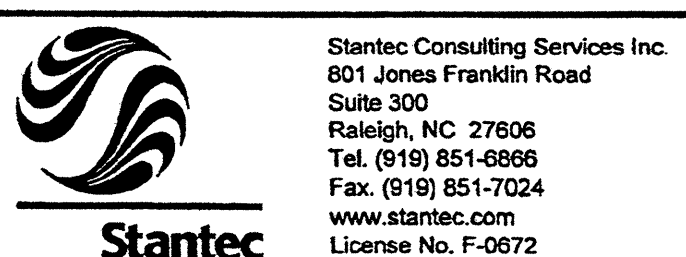
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT 1

DECK REHAB. FOR BRIDGE NO. 96

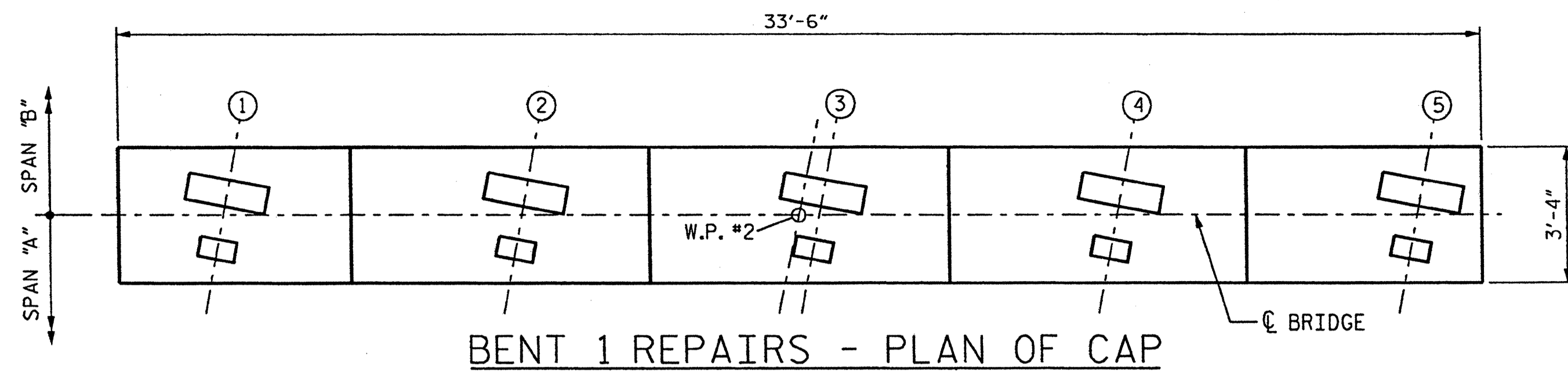
REVISIONS						SHEET NO S-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 75
2			4			

*Joseph T. Kelvington*  
 PROFESSIONAL ENGINEER  
 No. 34414  
 State of North Carolina  
 License No. F-0572

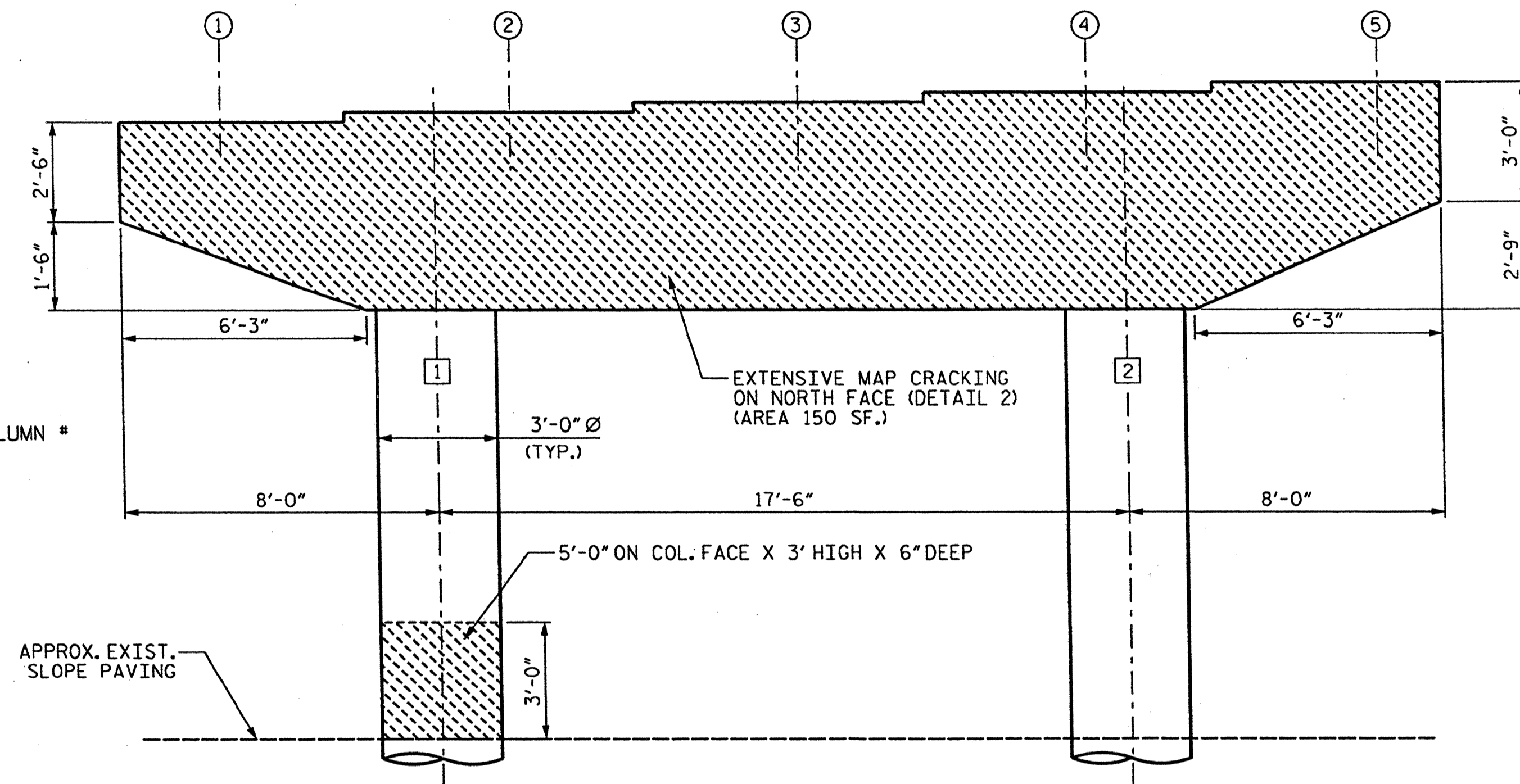


DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

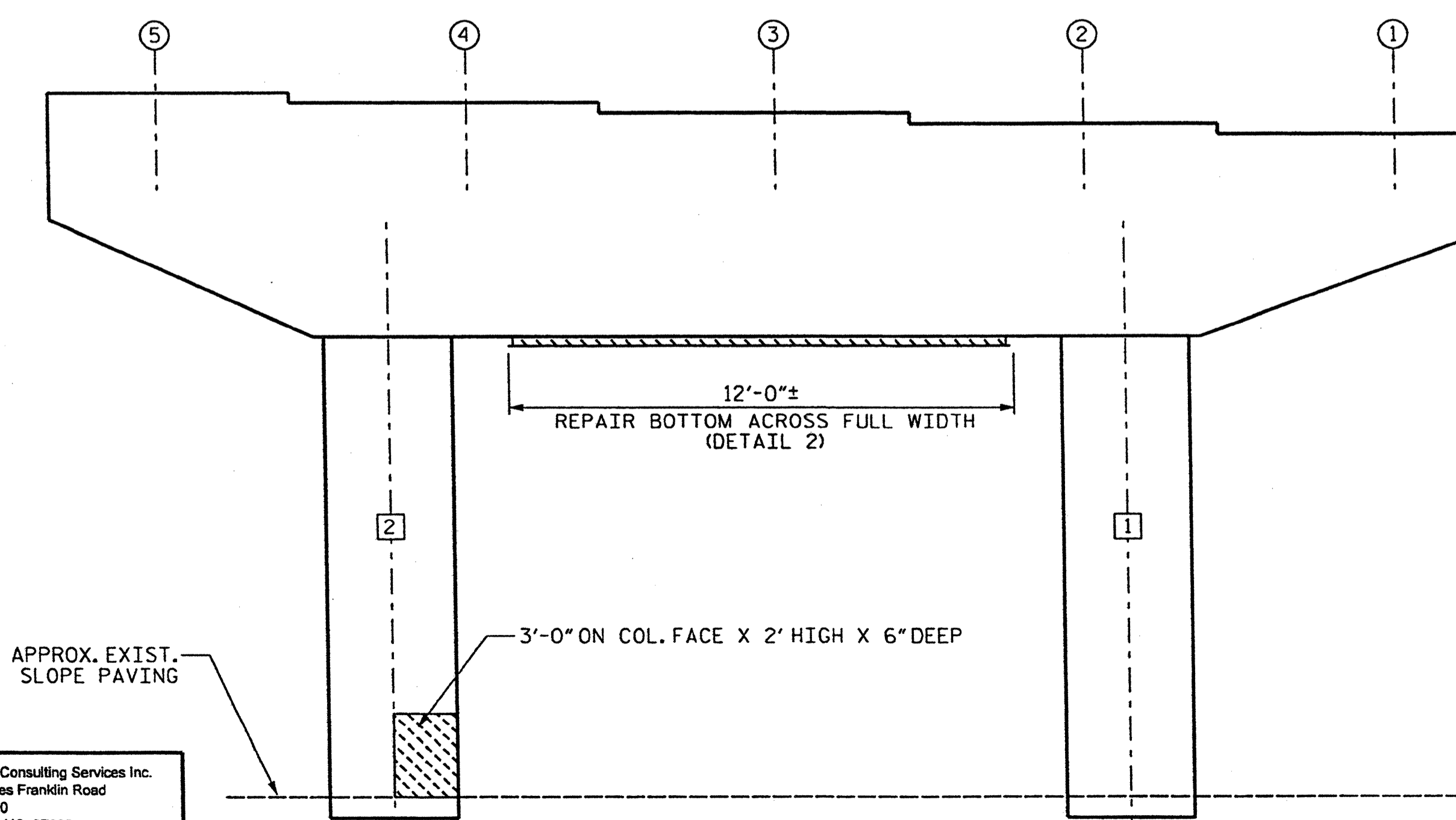
WBS 17BP.6.P.2 Robeson Co\Robeson Br\Bdge 096\Drawing\BP96\_Repair-END\_BENT1.dgn 12/20/2011 10:05:54 PM Jgeilie



BENT 1 REPAIRS - PLAN OF CAP



BENT 1 REPAIRS - ELEVATION (SPAN A SIDE)



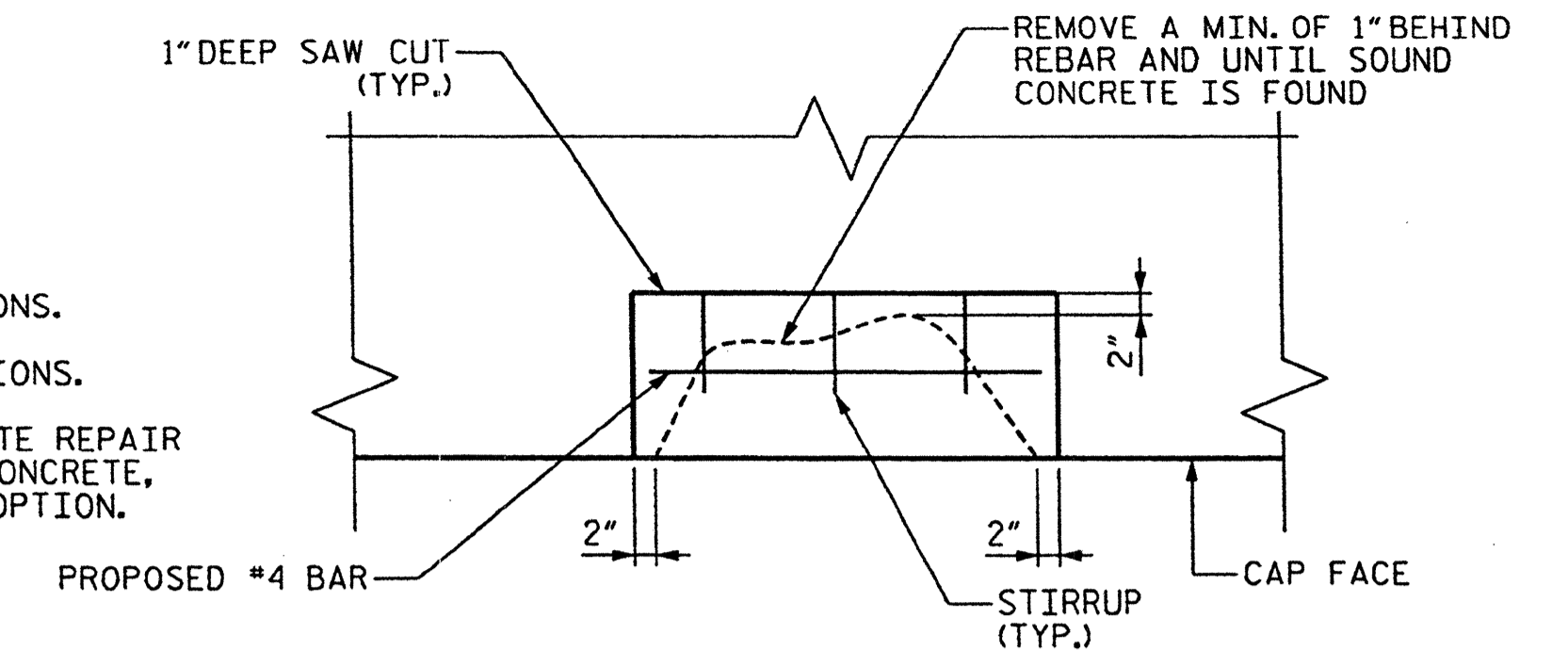
BENT 1 REPAIRS - ELEVATION (SPAN B SIDE)

SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE. ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.

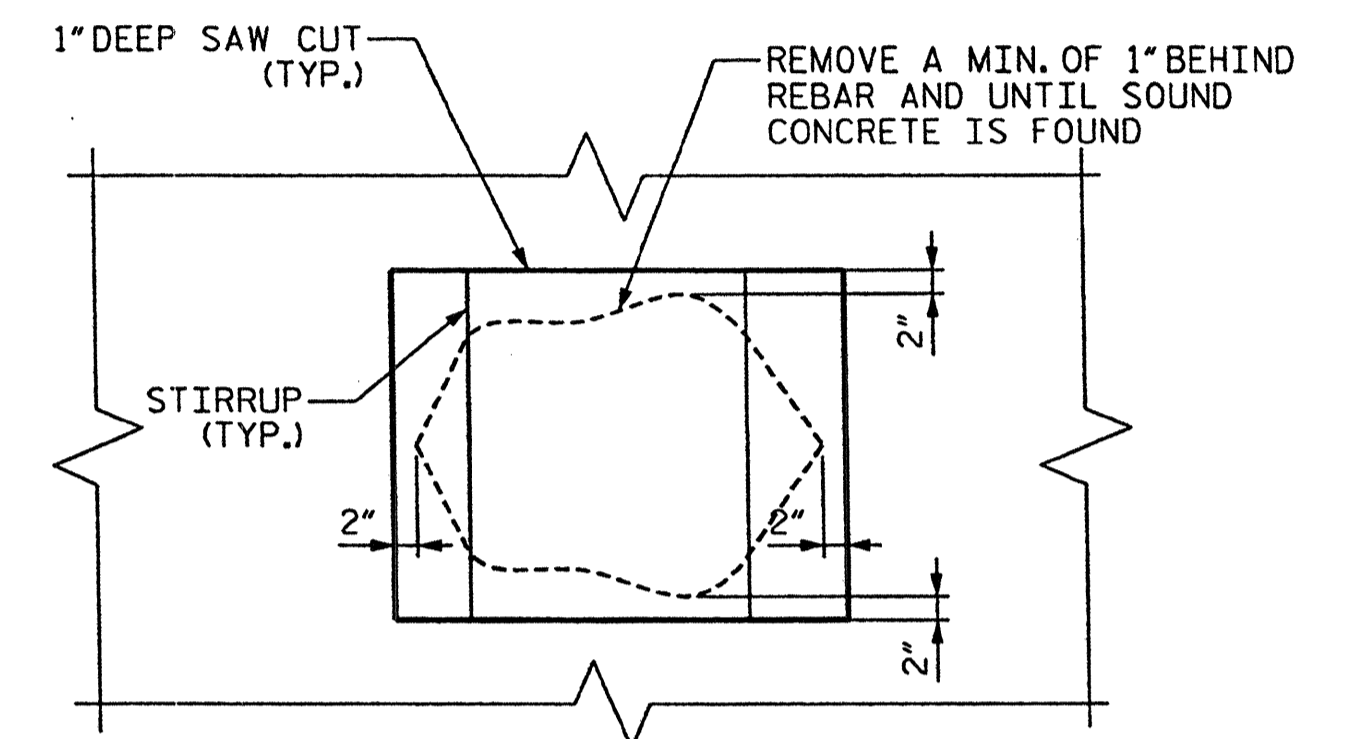
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

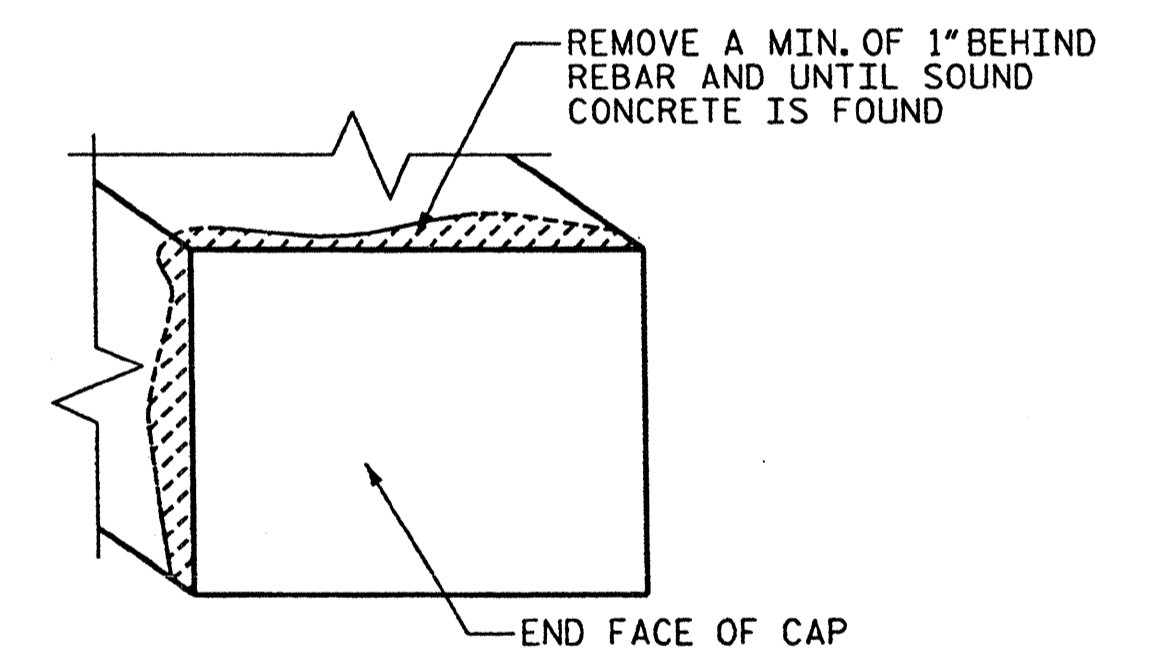
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONCRETE, OR POLYMER CONCRETE AT THE CONTRACTOR'S OPTION.



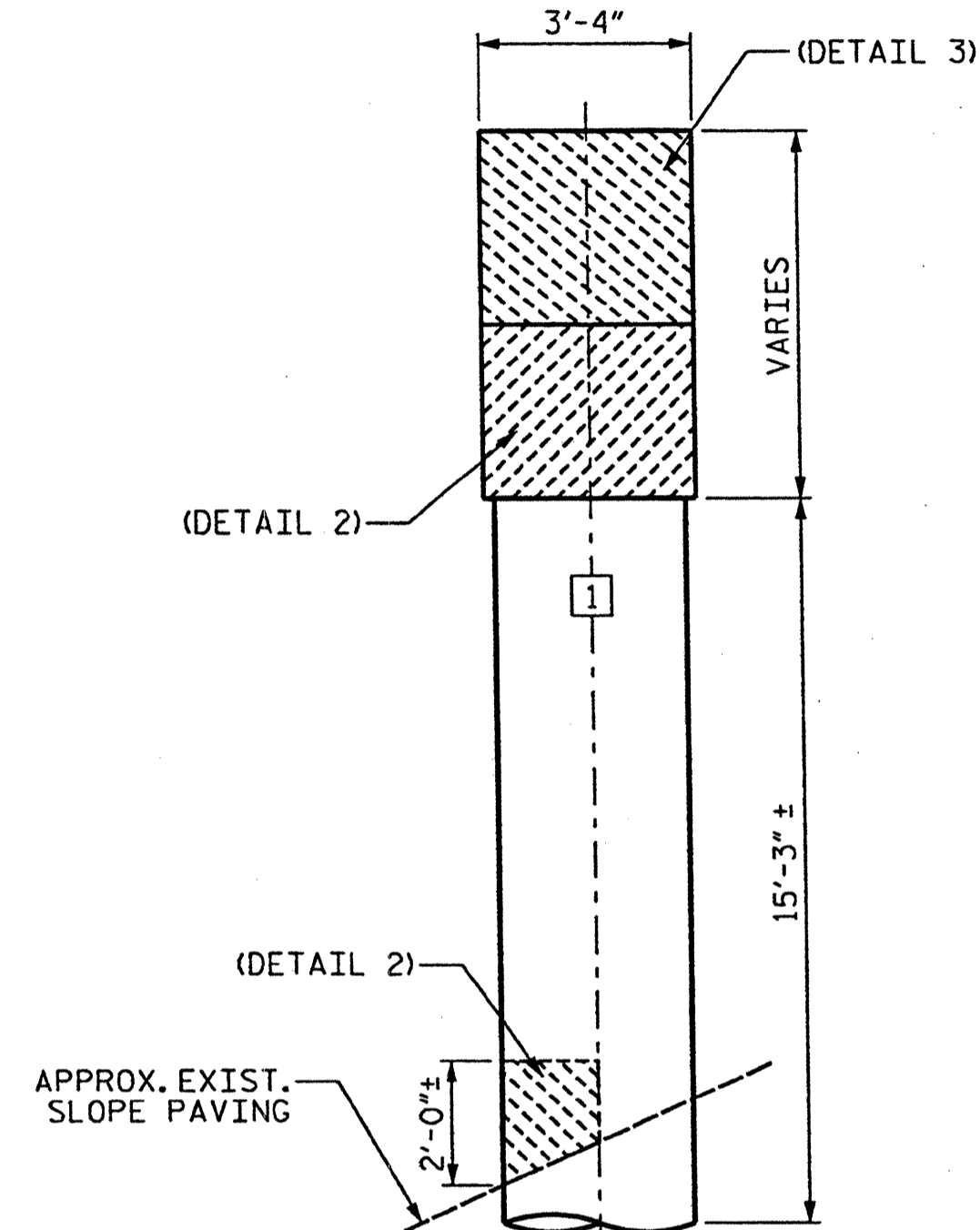
TYPICAL REPAIR DETAIL 1



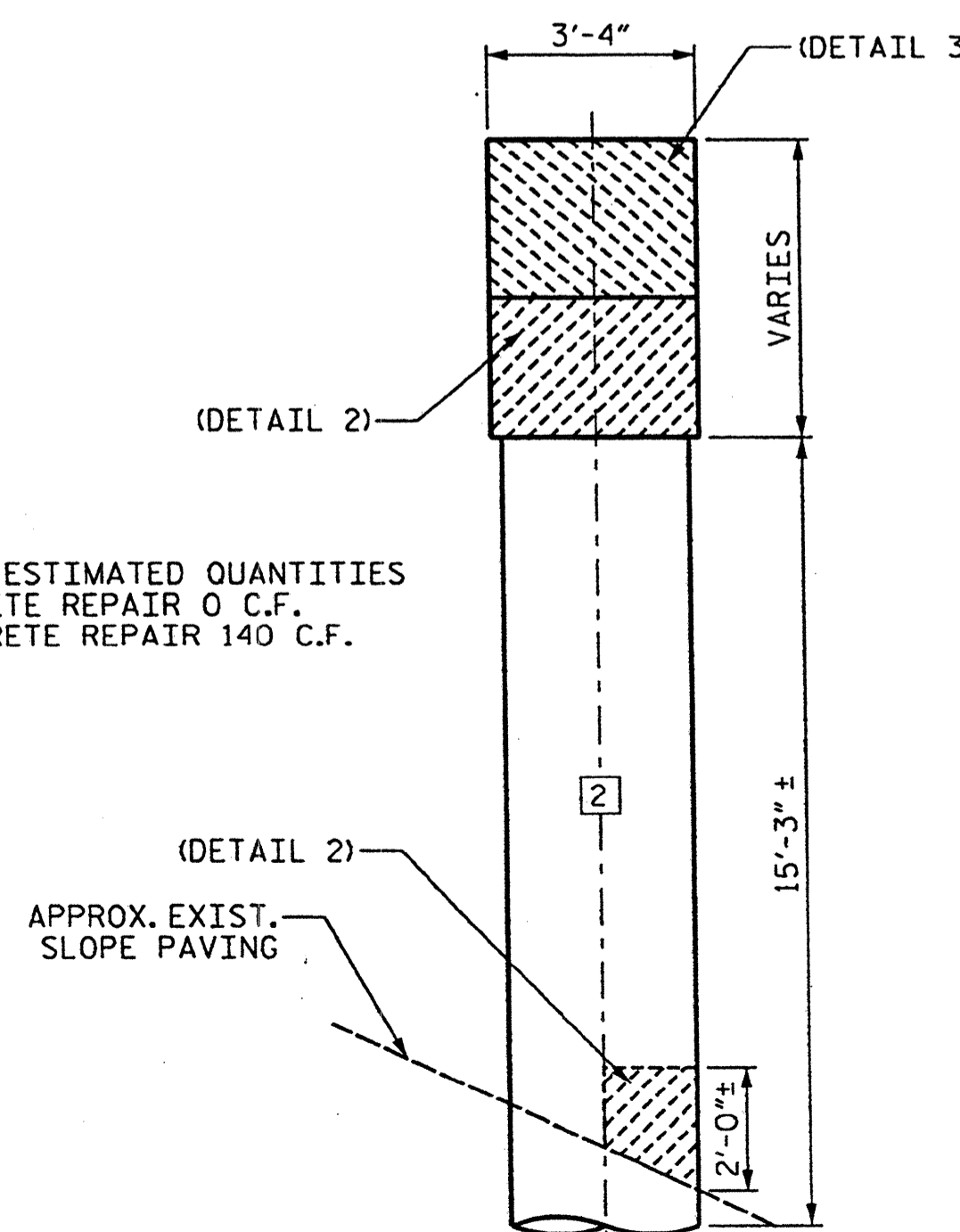
TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3



BENT 1 REPAIRS - END VIEW



BENT 1 REPAIRS - END VIEW

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR O.C.F.  
SHOTCRETE REPAIR 140 C.F.

PROJECT NO. WBS 17BP.6.P.2

ROBESON COUNTY

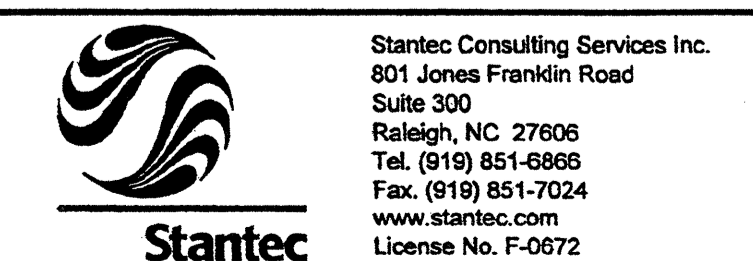
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 1

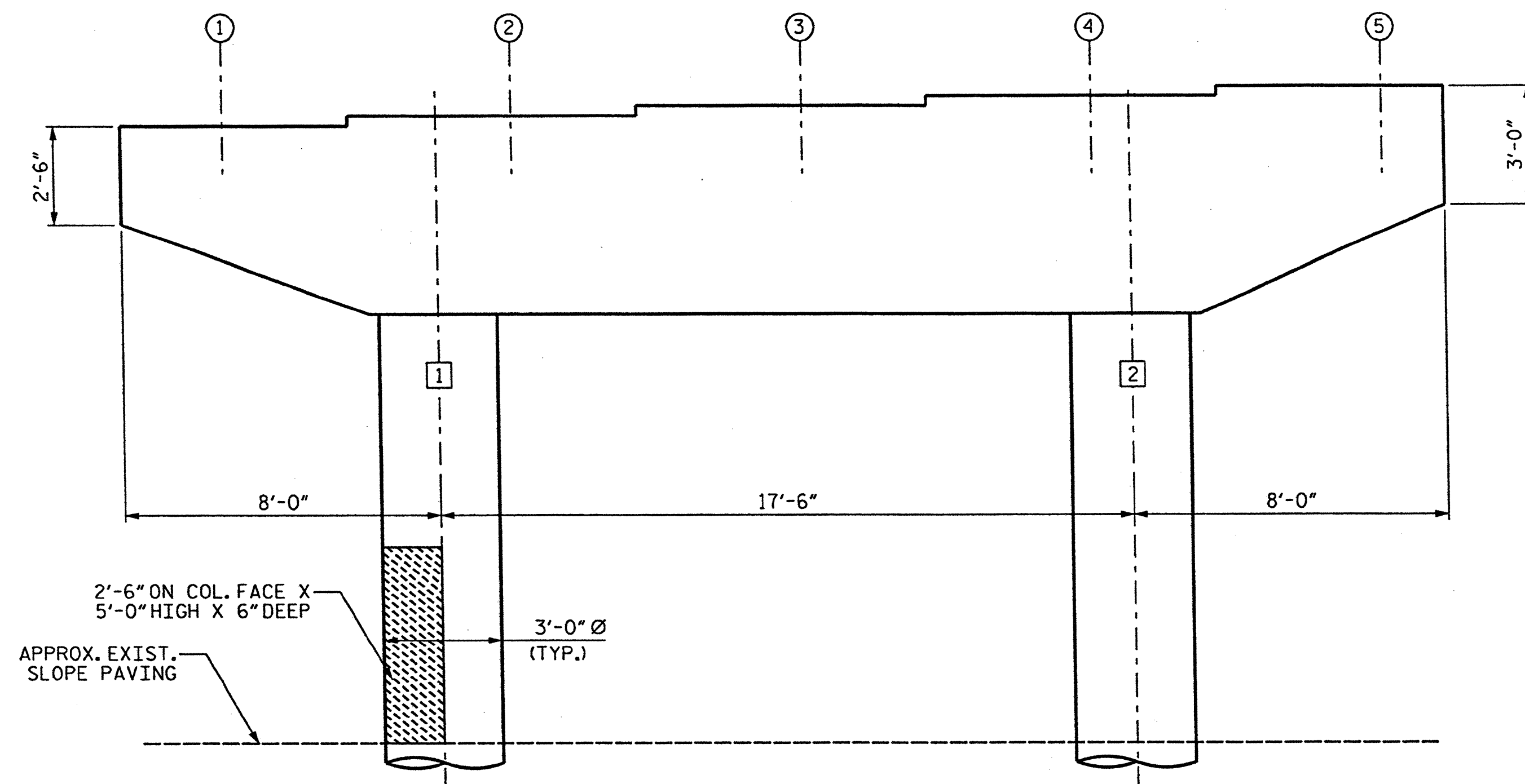
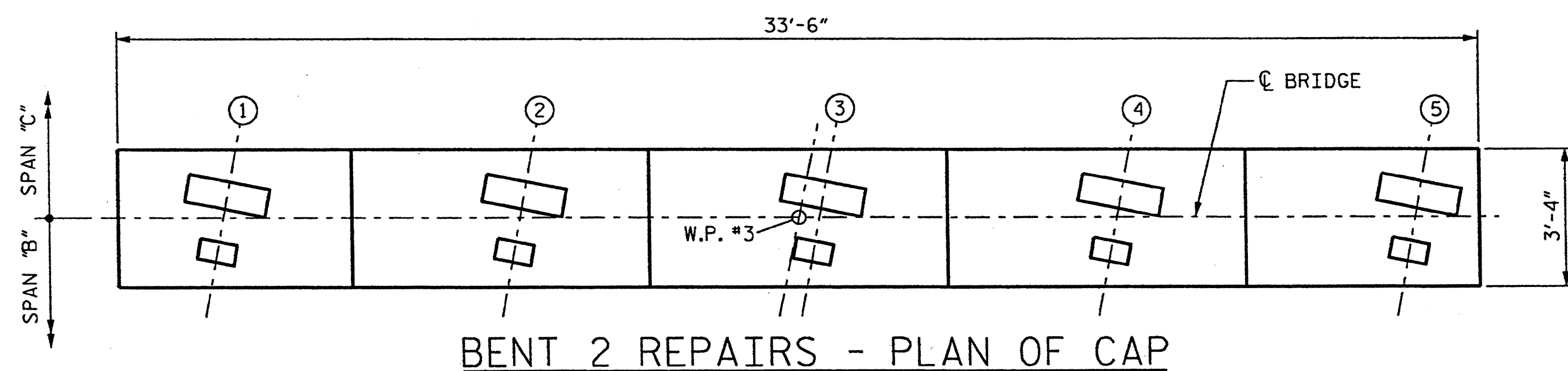
DECK REHAB. FOR BRIDGE NO. 96

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			75

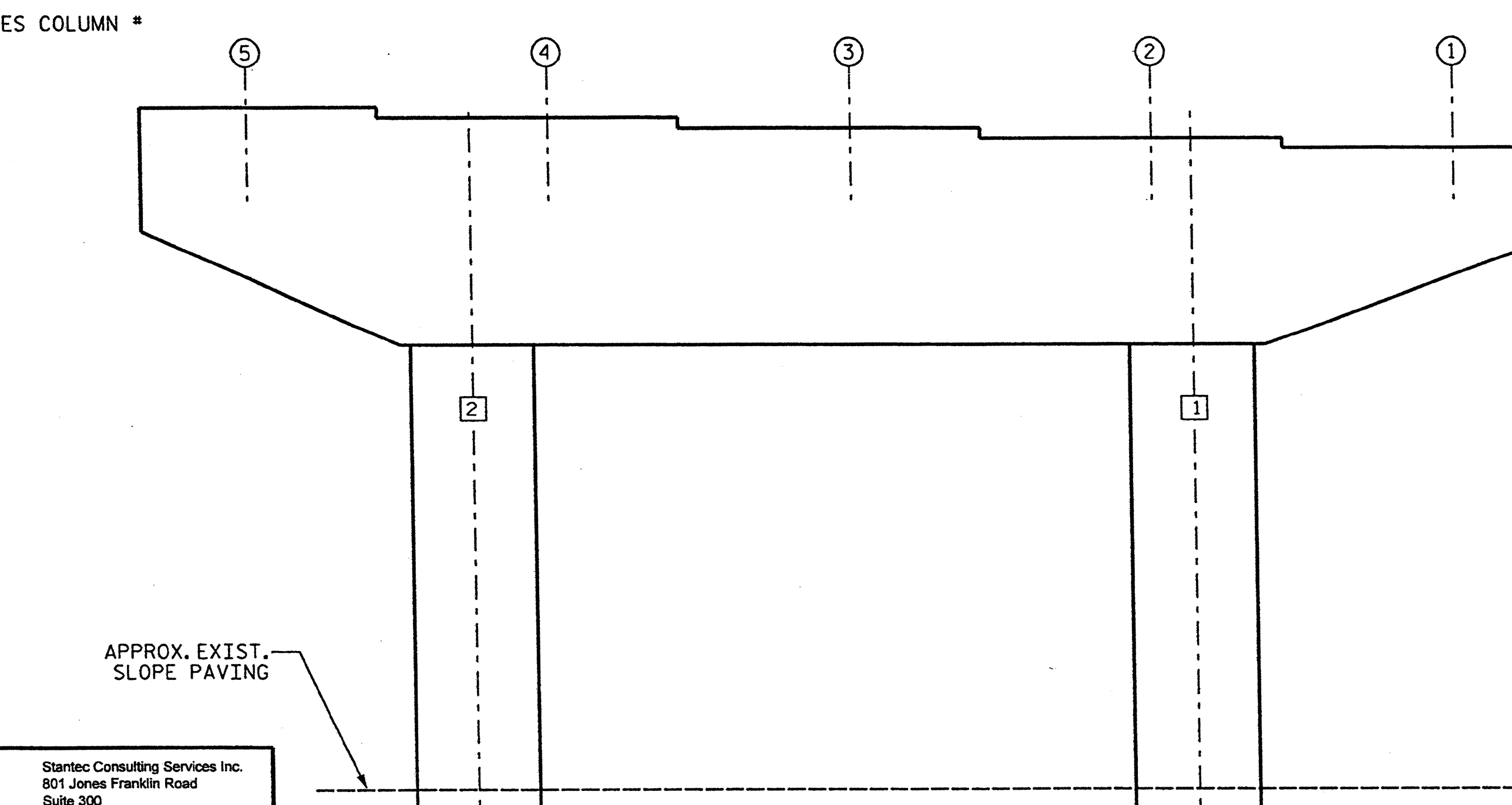


DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

2011 WBS 17BP.6.P.2 Robeson Co. Robeson Bridge 096 Ur-awing\BP96\_Repair\_BENT1.dgn 12/20/2011 10:26 PM joelle



BENT 2 REPAIRS - ELEVATION (SPAN B SIDE)

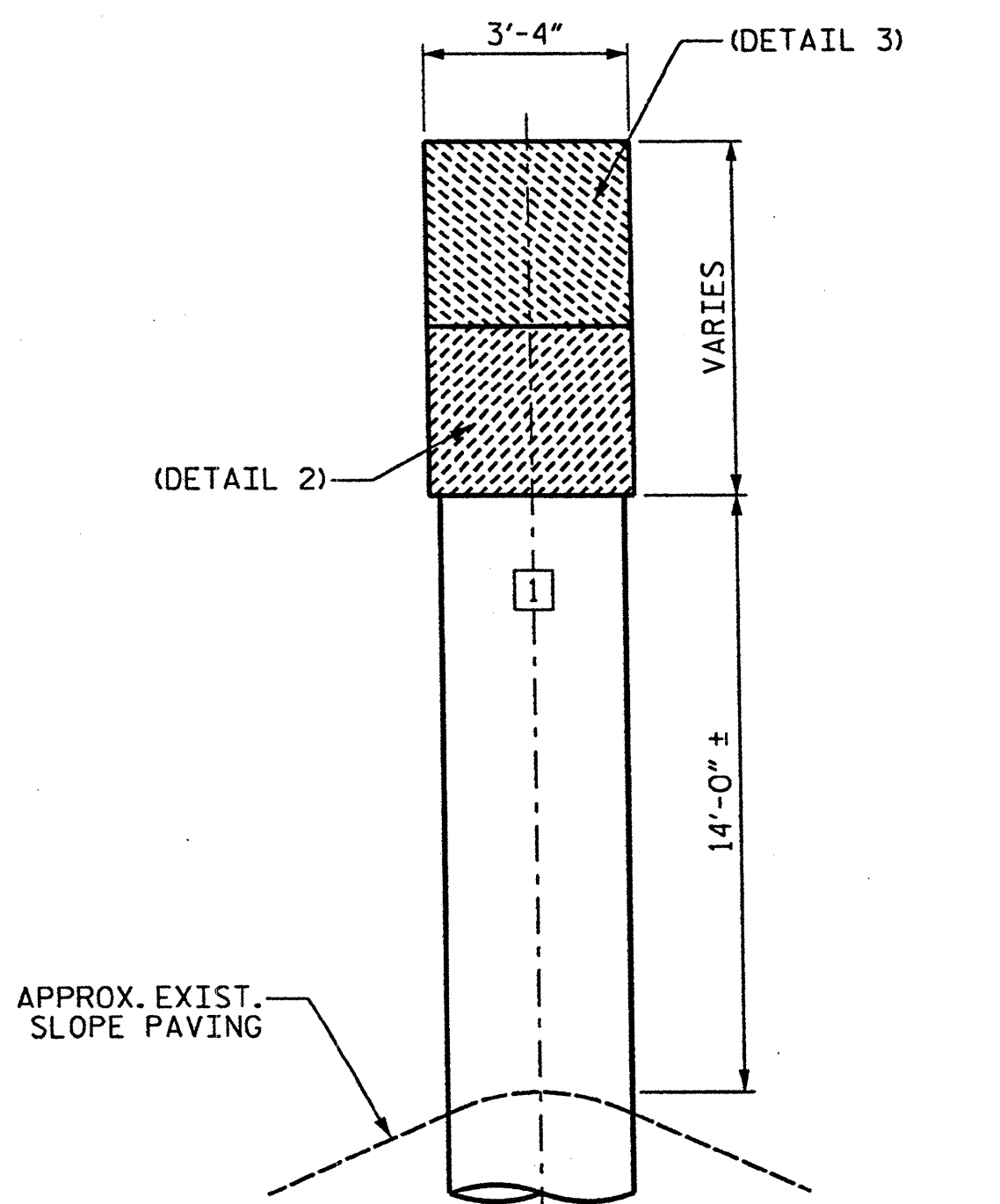


BENT 2 REPAIRS - ELEVATION (SPAN C SIDE)

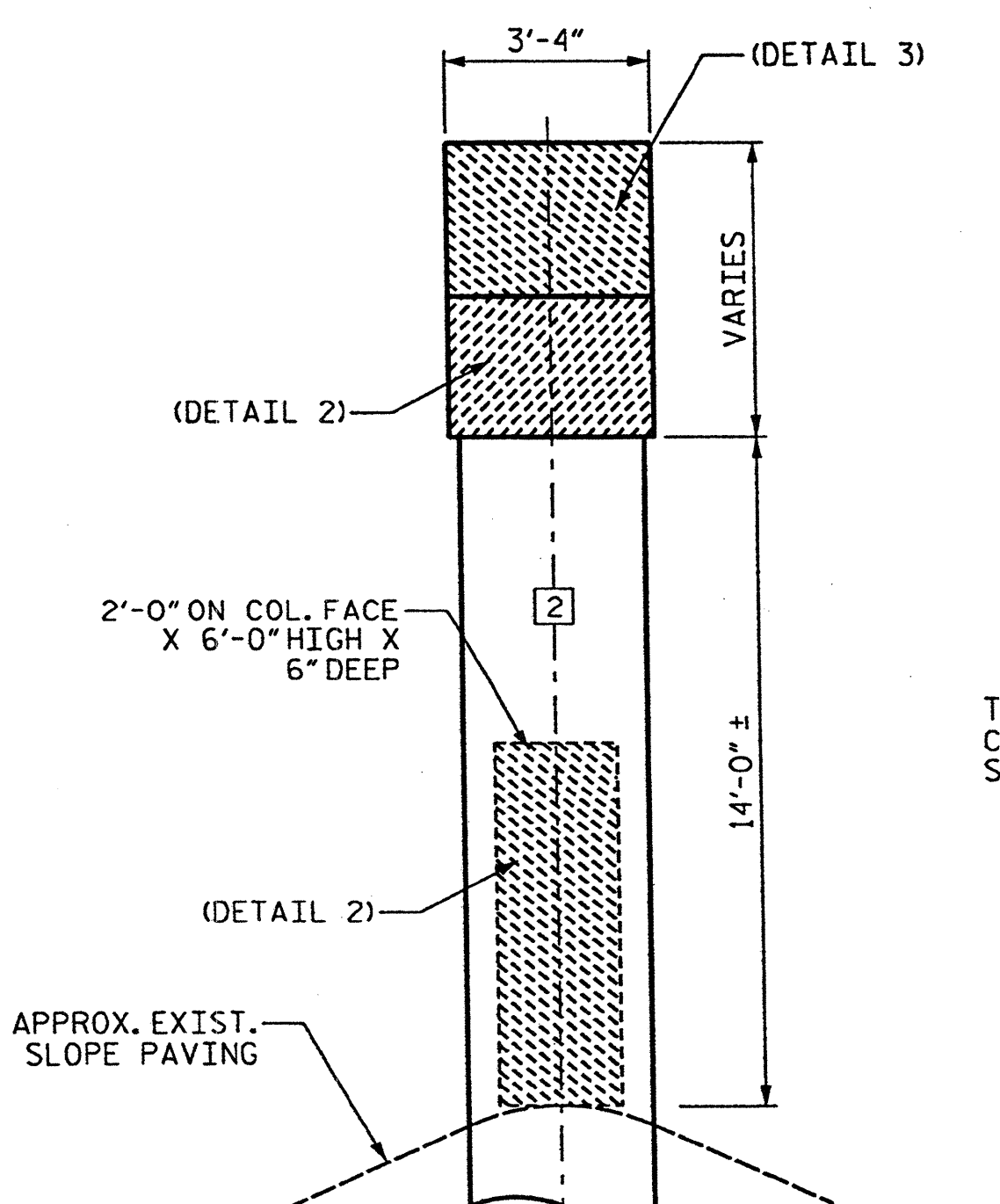
SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE. ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

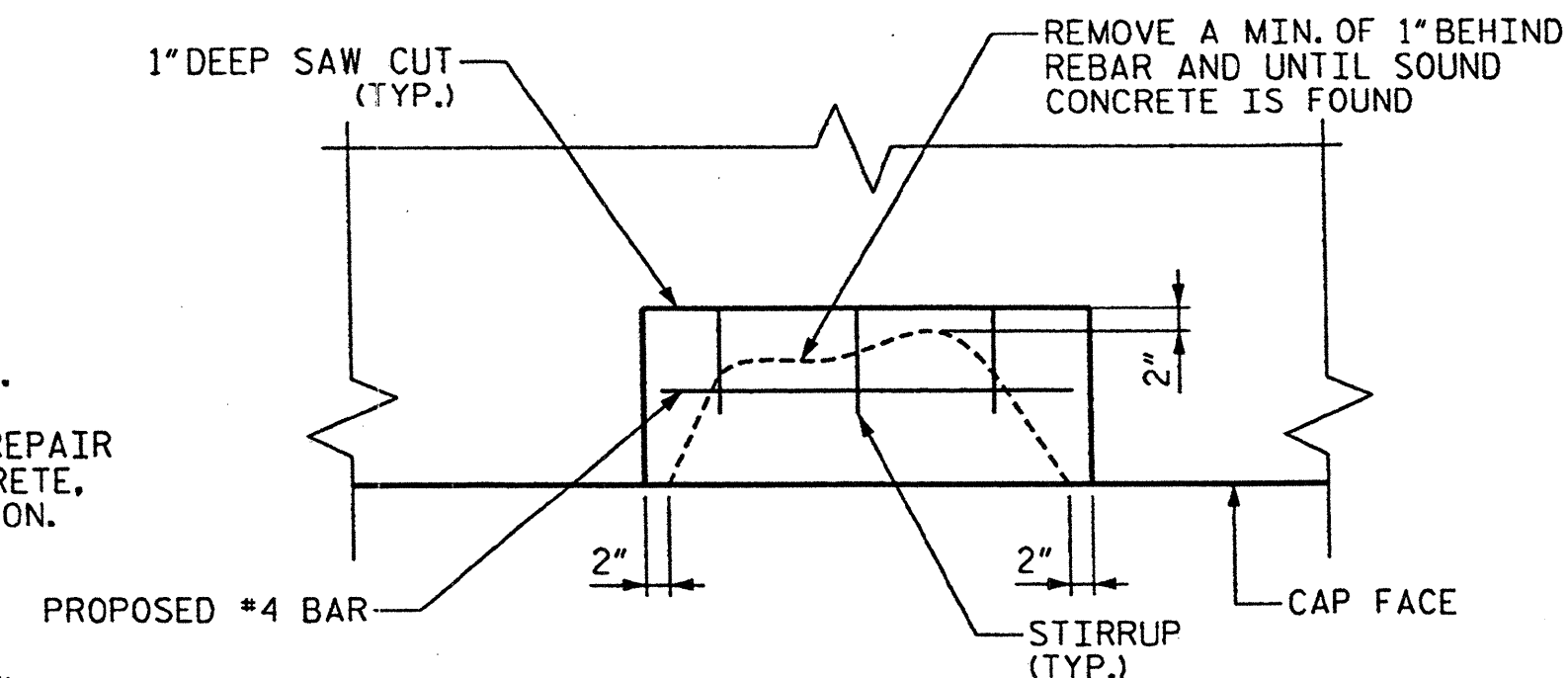
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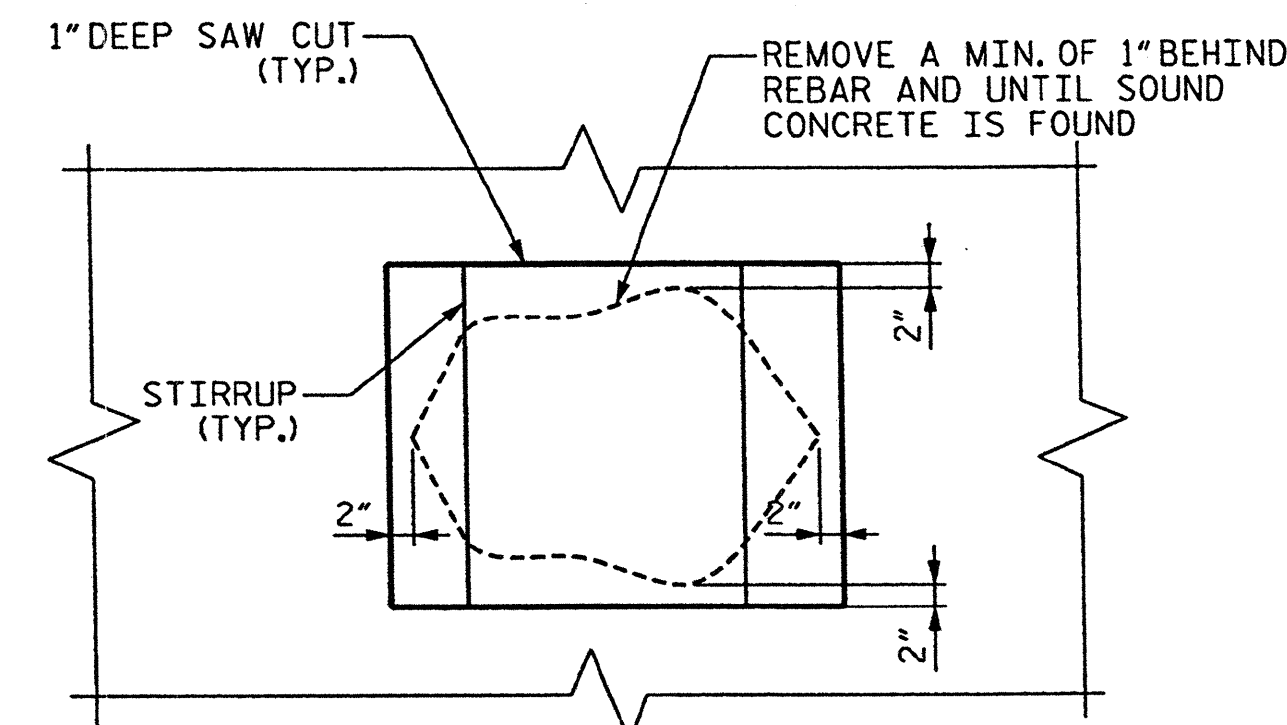
BENT 2 REPAIRS - END VIEW



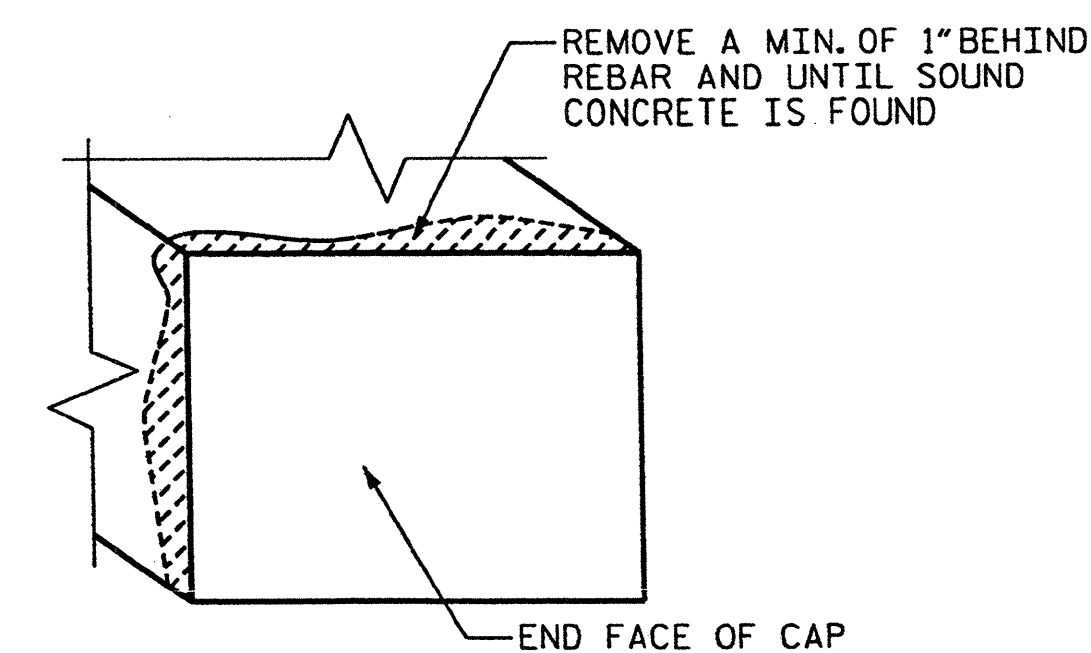
BENT 2 REPAIRS - END VIEW



TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 40 C.F.

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 2

DECK REHAB. FOR BRIDGE NO. 96

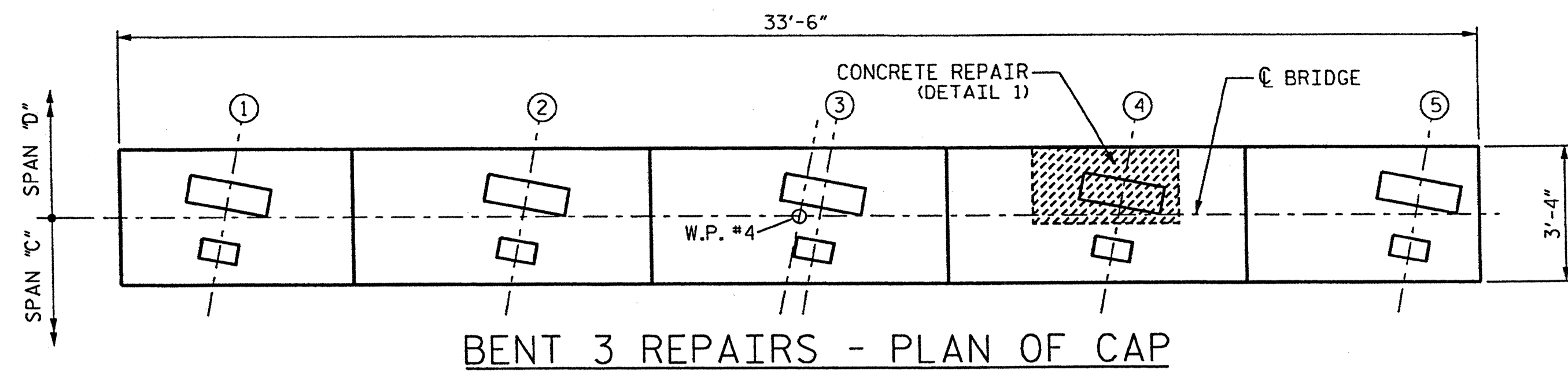
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					75

*Joseph J. Kelvington*  
Professional Engineer  
No. 13406  
State of North Carolina

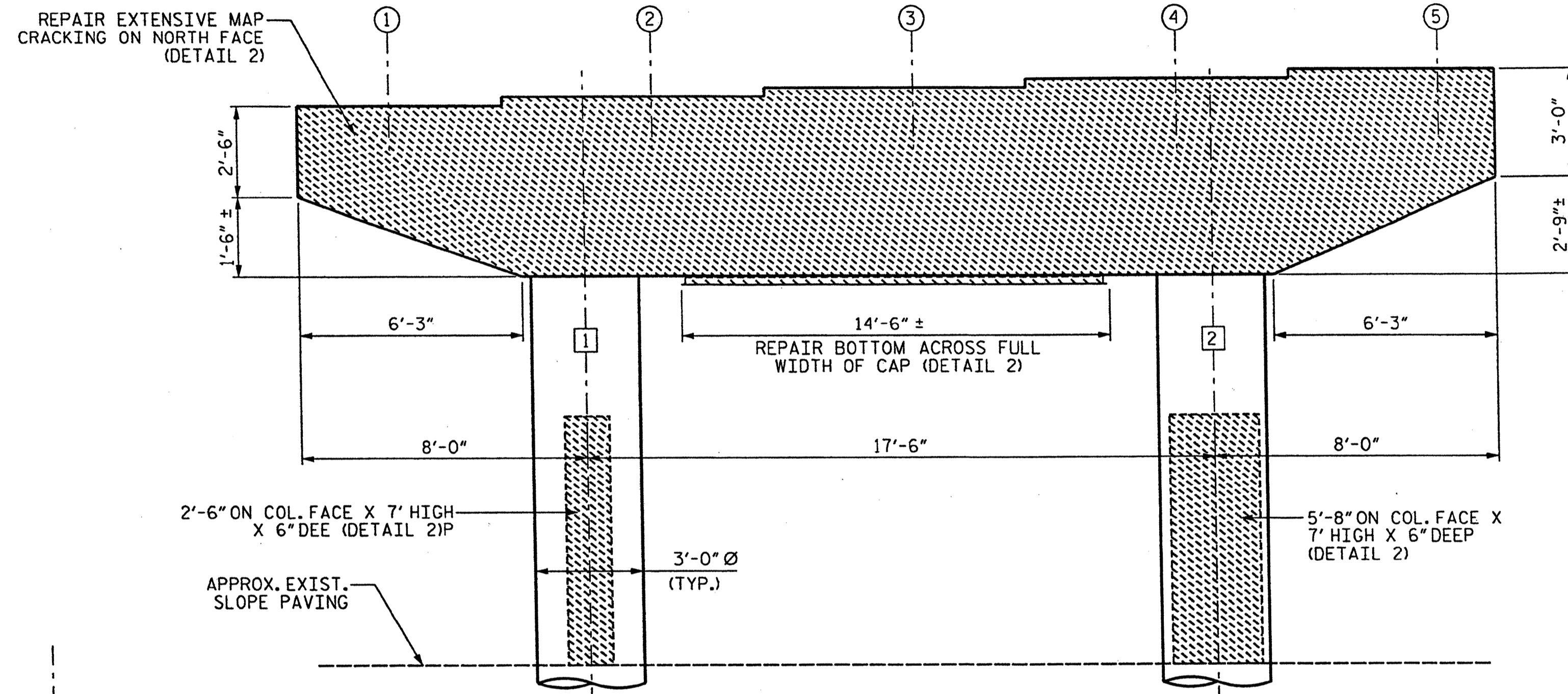
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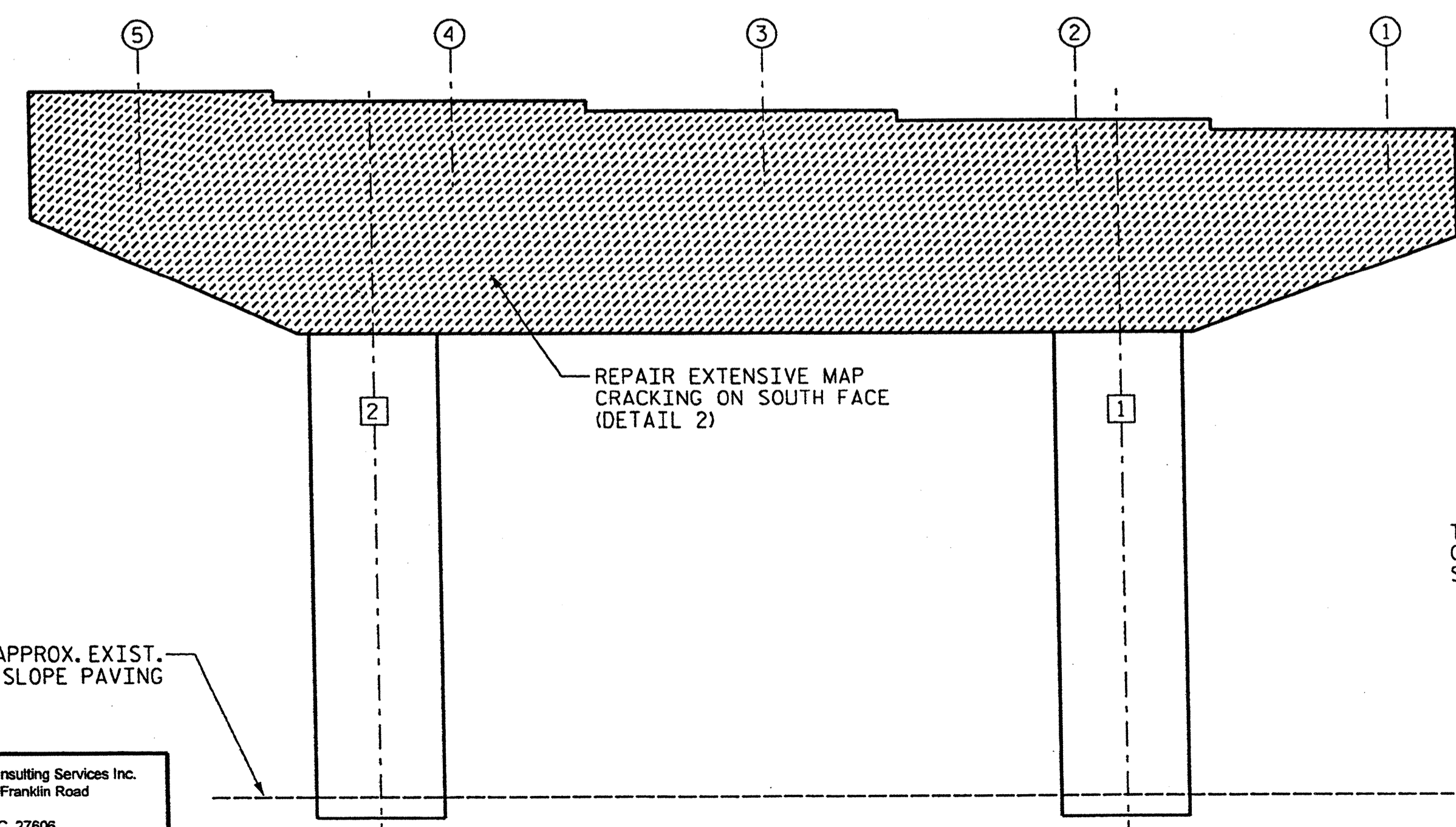
DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11



BENT 3 REPAIRS - PLAN OF CAP

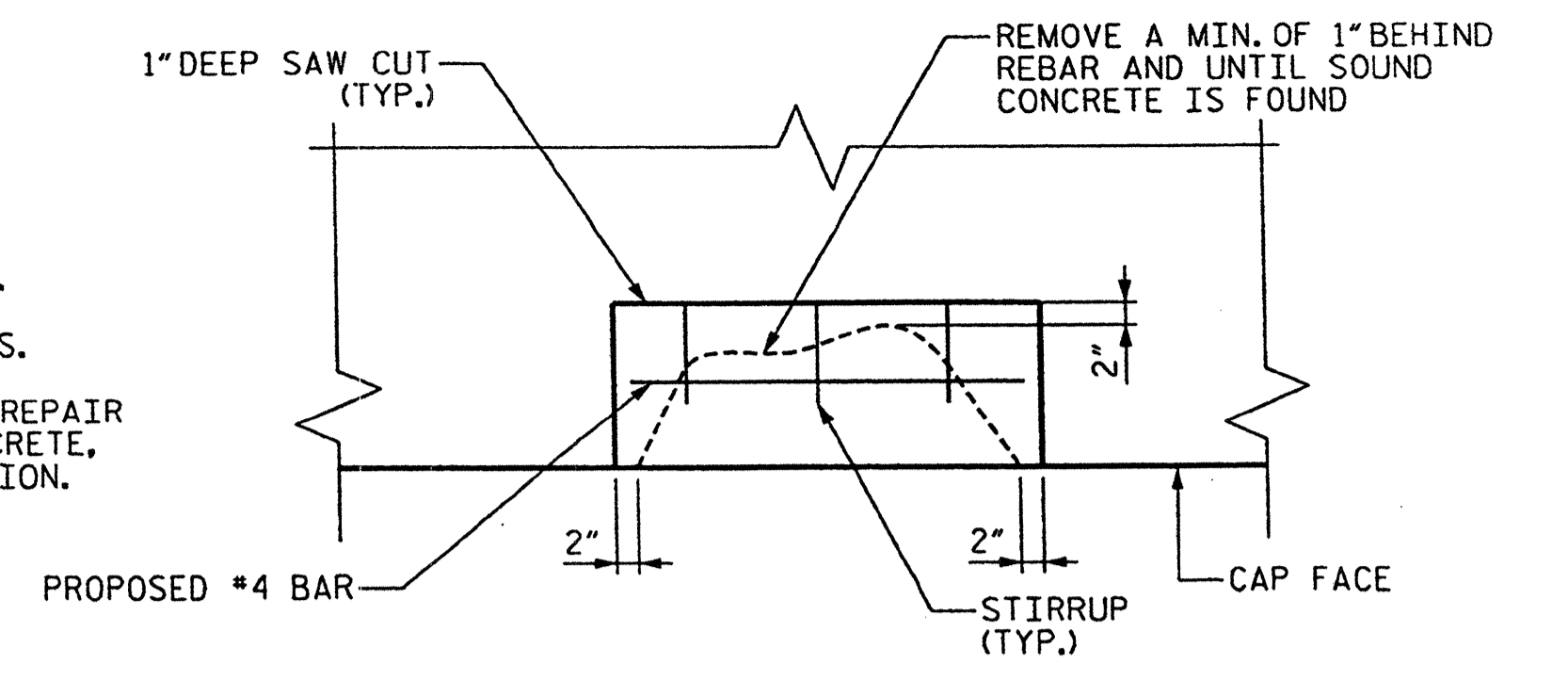


BENT 3 REPAIRS - ELEVATION (SPAN C SIDE)

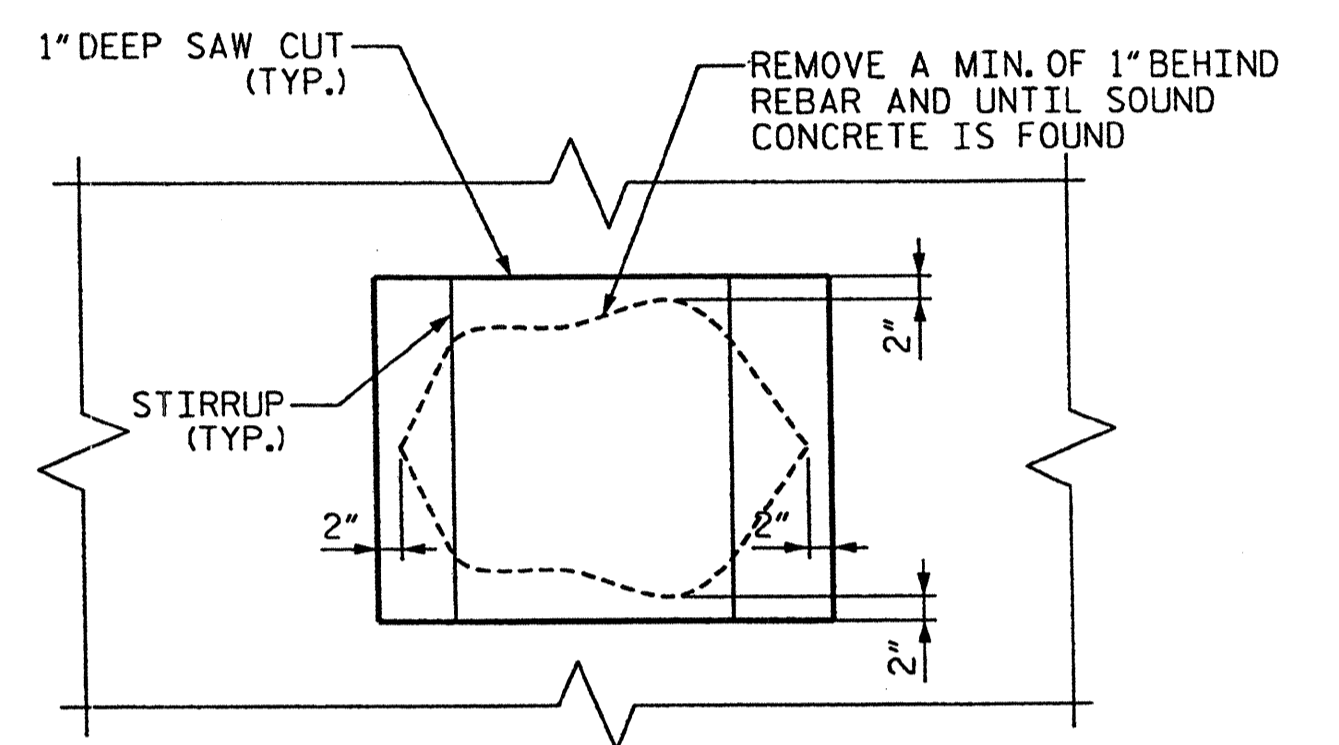


BENT 3 REPAIRS - ELEVATION (SPAN D SIDE)

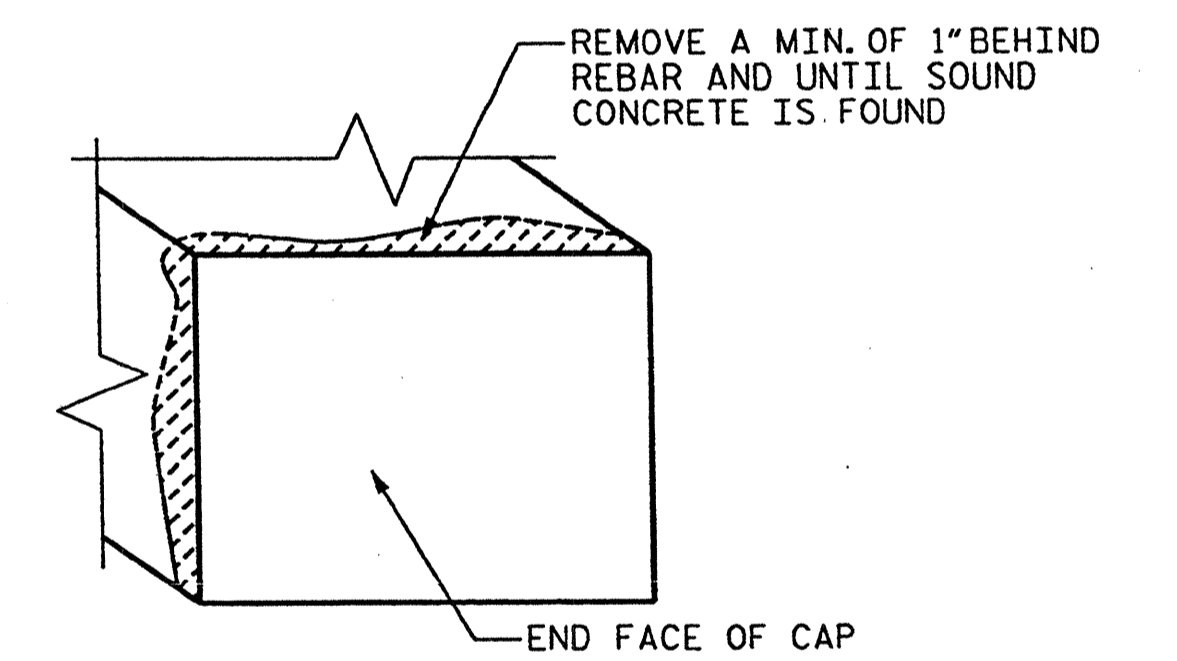
SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE. ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60. FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS. FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS. AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONCRETE, OR POLYMER CONCRETE AT THE CONTRACTOR'S OPTION.



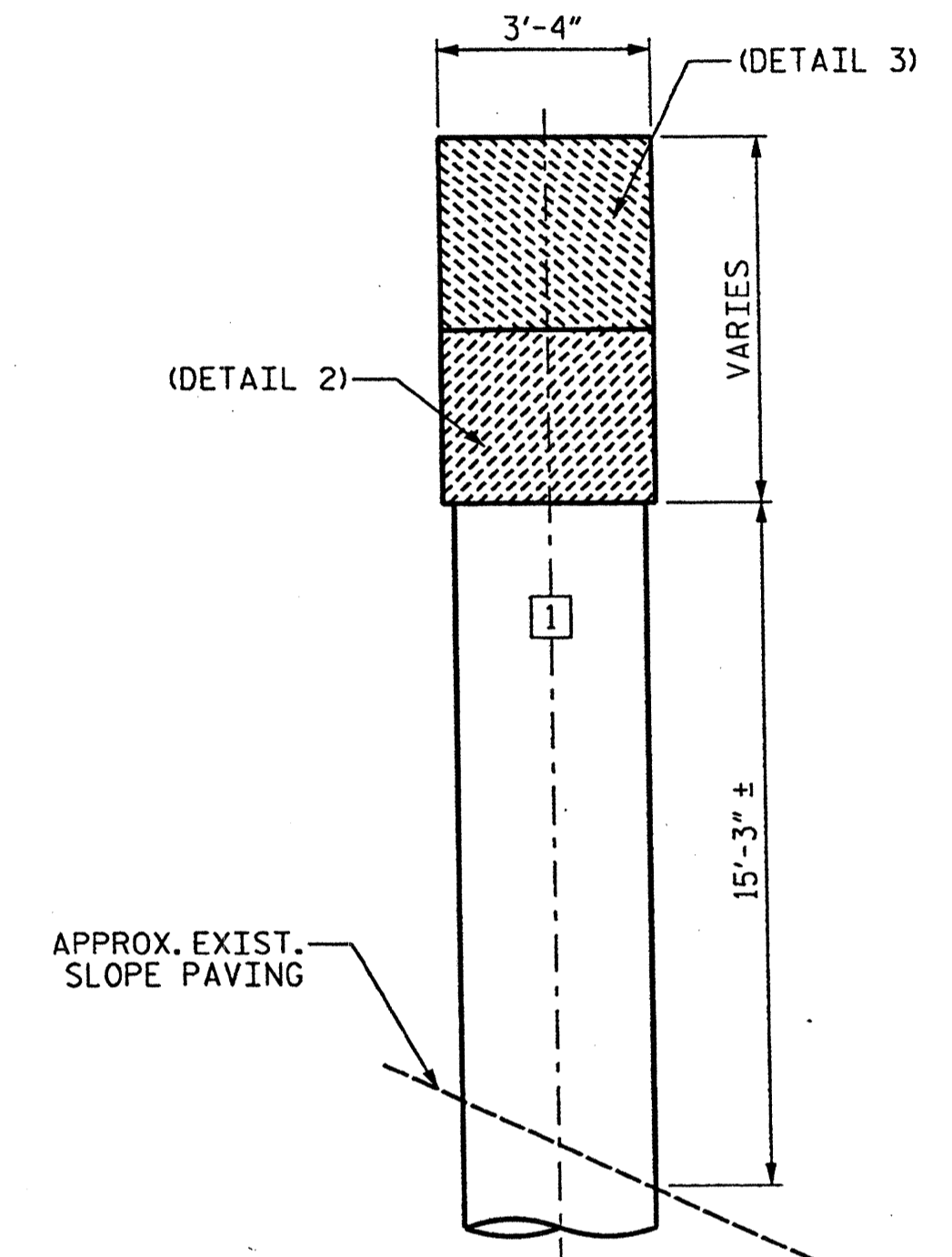
TYPICAL REPAIR DETAIL 1



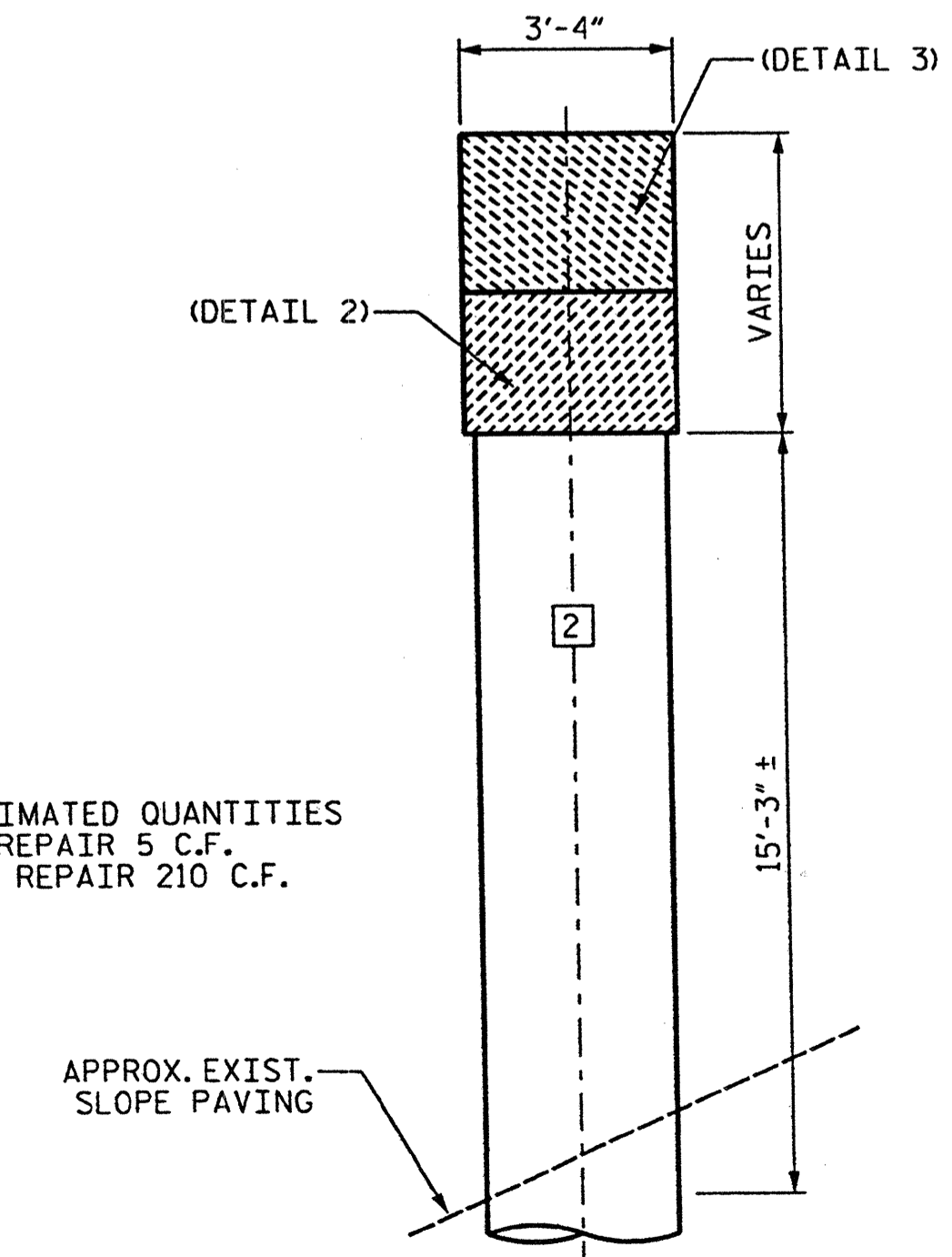
TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3



BENT 3 REPAIRS - END VIEW



BENT 3 REPAIRS - END VIEW

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 5 C.F.  
SHOTCRETE REPAIR 210 C.F.

*Joseph Kelvington*  
Professional Engineer  
No. 13406  
State of North Carolina

PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
BENT 3			
DECK REHAB. FOR BRIDGE NO. 96			
REVISIONS			
NO.	BY:	DATE:	NO.
1			3
2			4
SHEET NO.			S-33
TOTAL SHEETS			75

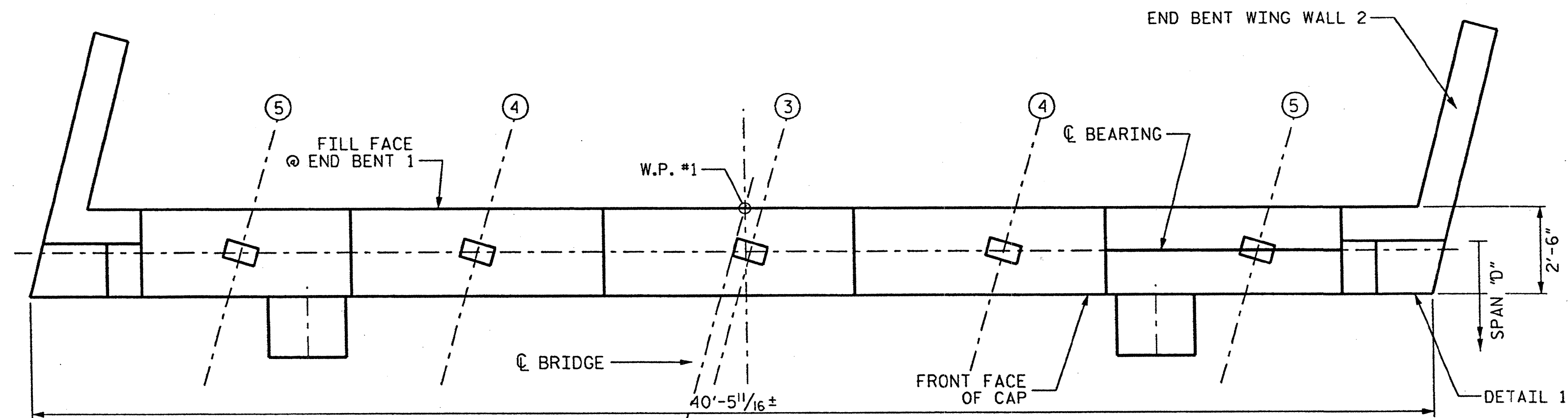
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CHECKED BY: J. T. KELVINGTON DATE: 11/11

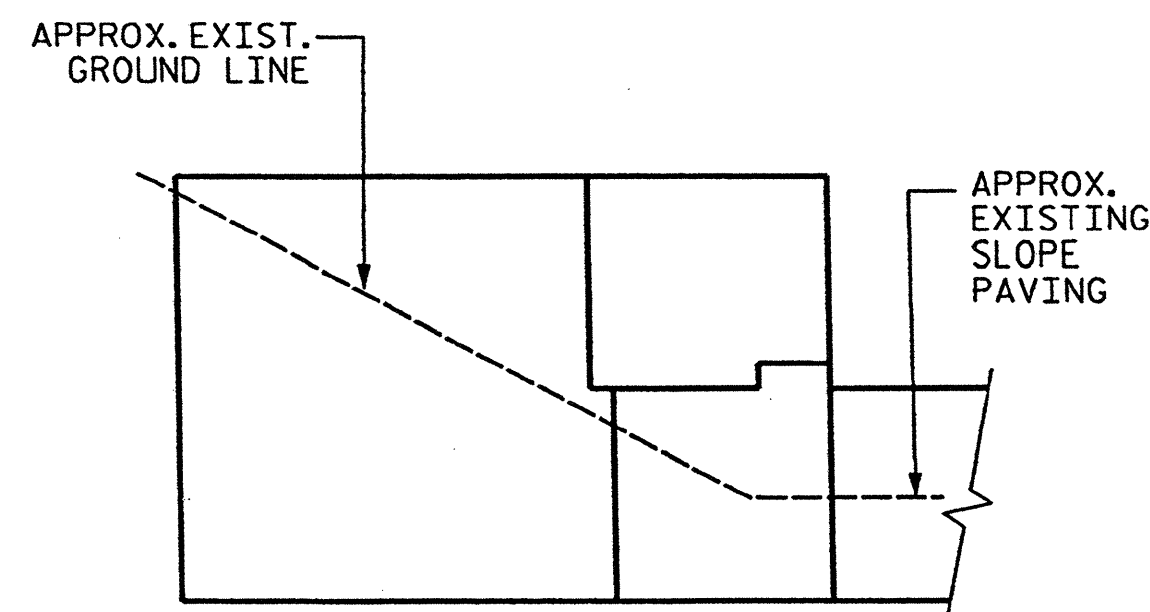
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 12/20/2011 10:53:34 PM jgelle

⊕ DENOTES Ⓞ EXISTING GIRDER NO.

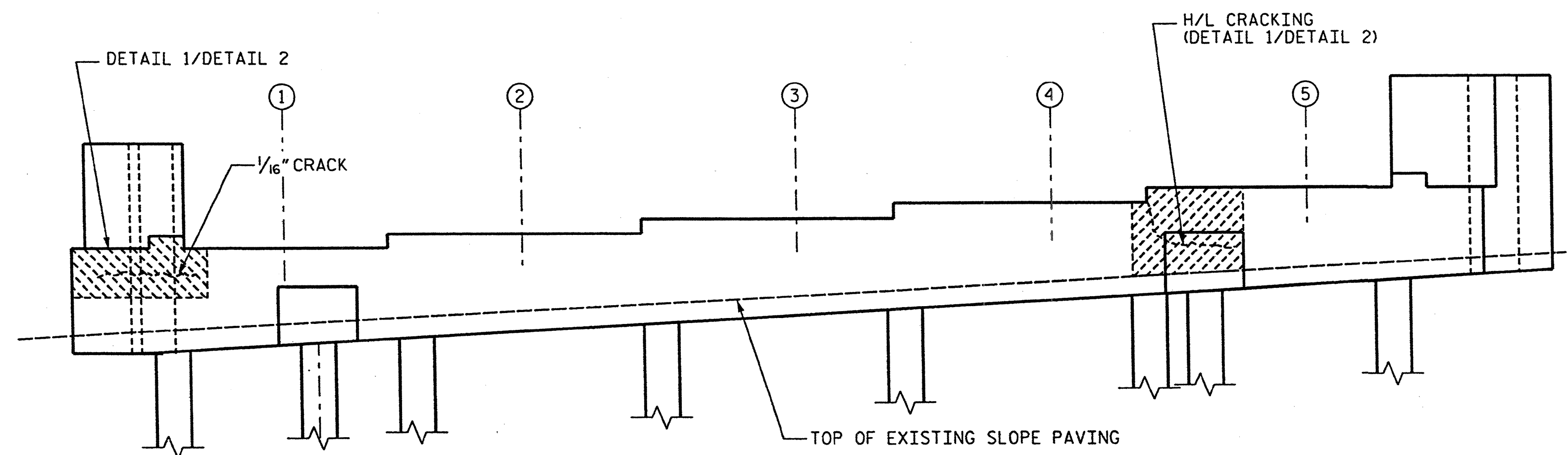


END BENT 2 REPAIRS - PLAN OF CAP

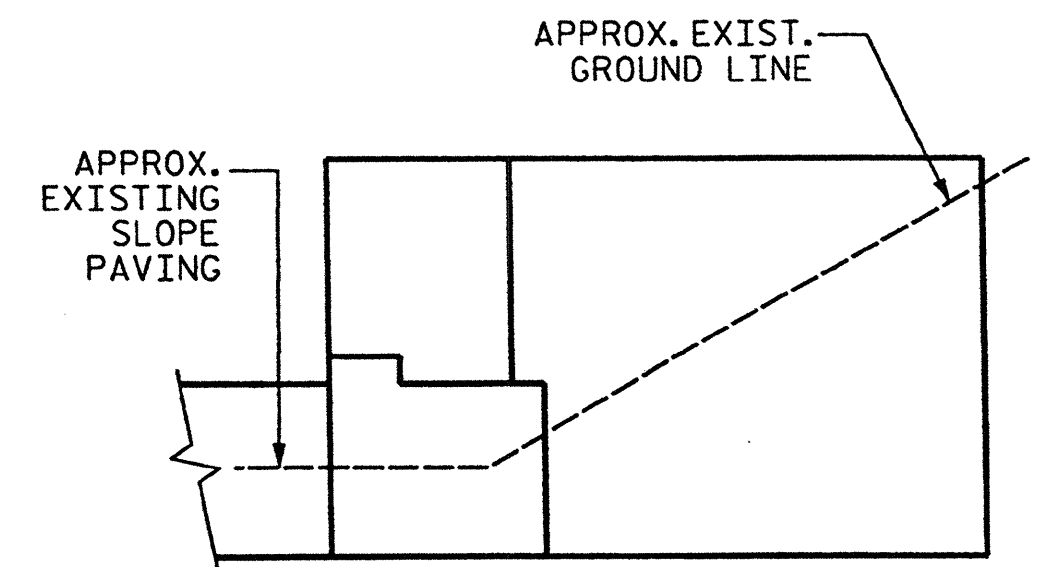
TOTAL ESTIMATED QUANTITIES.  
 SHOTCRETE REPAIR 6 C.F.  
 CONCRETE REPAIR 0 C.F.



END BENT 2 REPAIRS - SIDE DEVELOPED ELEVATION - WING 1



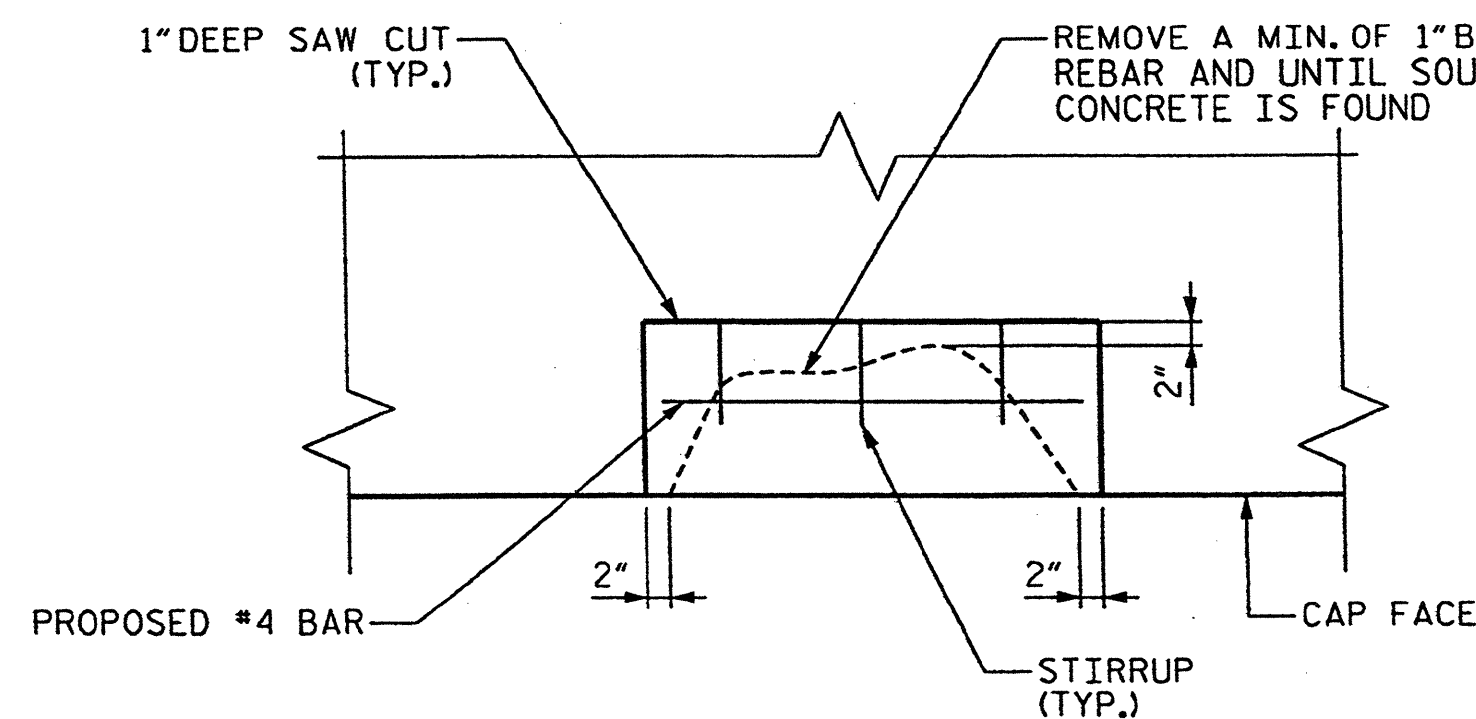
END BENT 2 REPAIRS - ELEVATION



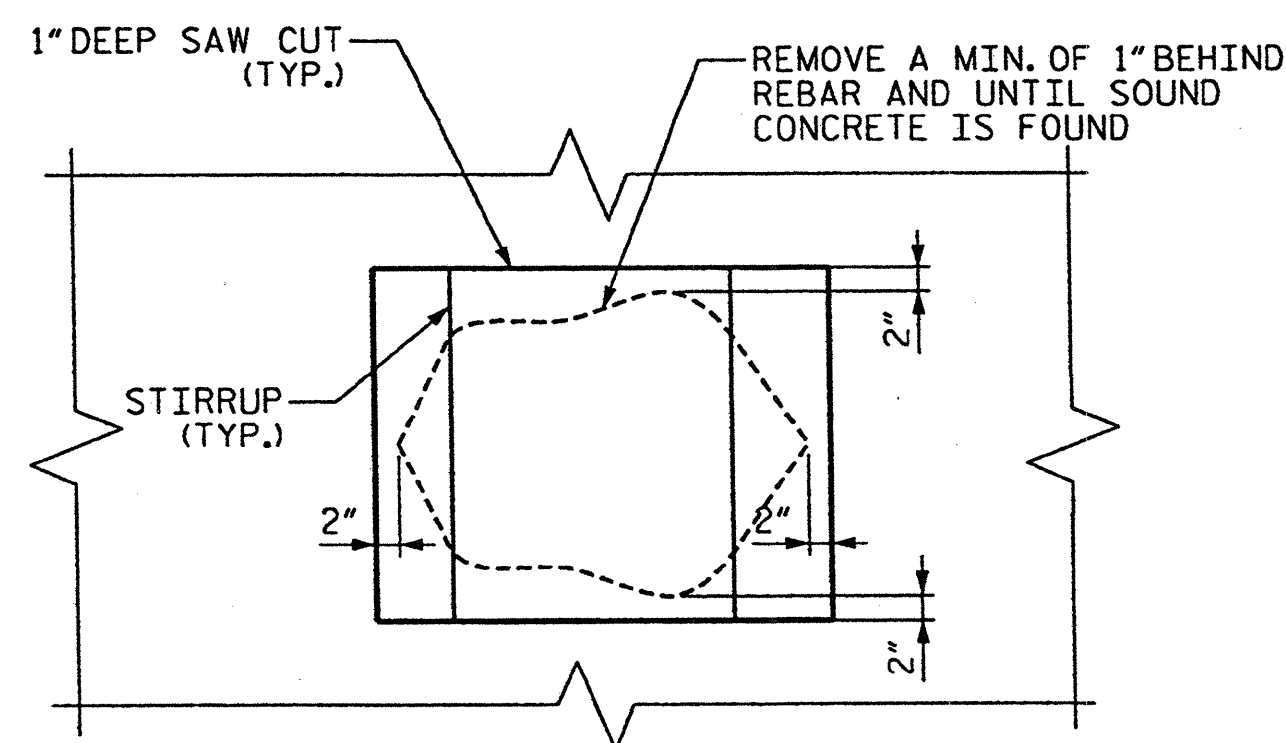
END BENT 2 REPAIRS - SIDE DEVELOPED ELEVATION - WING 2

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONCRETE, OR POLYMER CONCRETE AT THE CONTRACTOR'S OPTION.

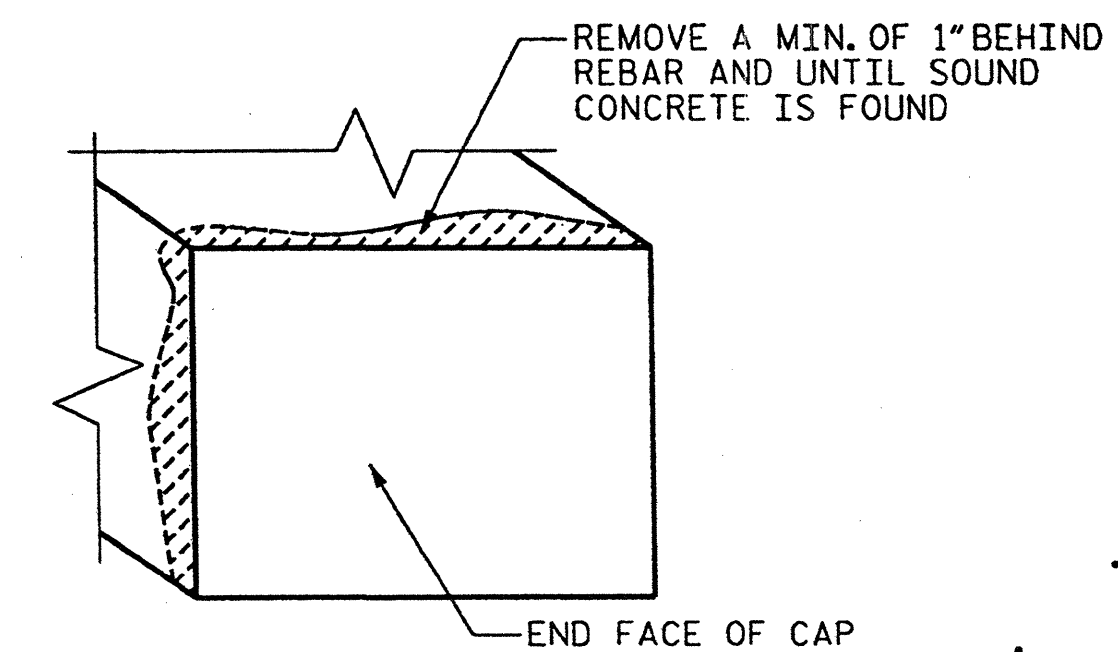
SPALL AND DELAMINATED AREA DIMENSIONS SHOWN ARE APPROXIMATE.  
 ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO SUBSTR. REPAIR AND SHALL BE GRADE 60.



TYPICAL REPAIR DETAIL 1



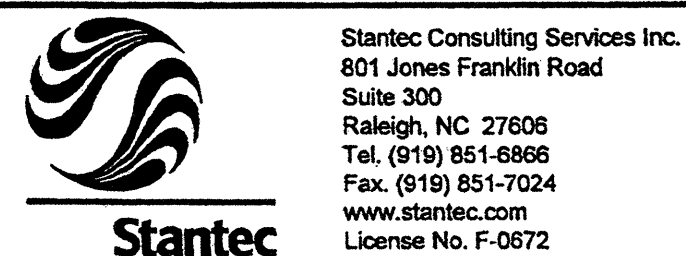
TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

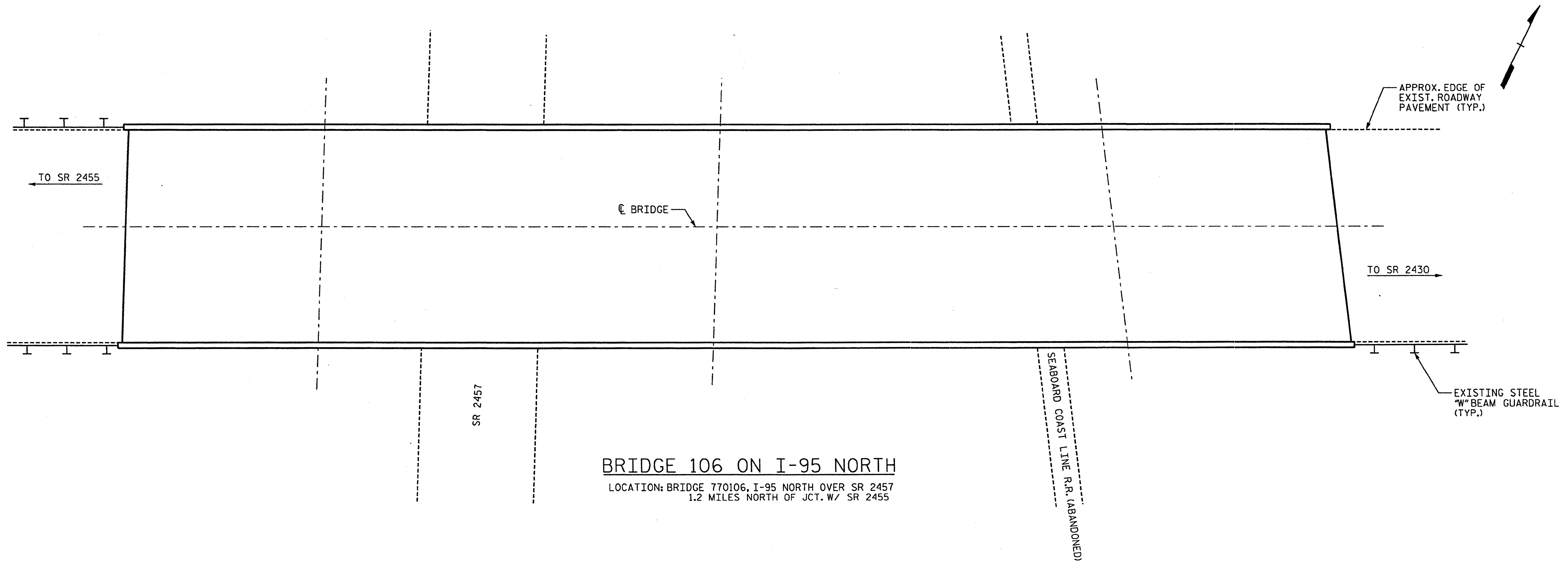
PROJECT NO. WBS 17BP.6.P.2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
END BENT 2					
DECK REHAB. FOR BRIDGE NO. 96					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NC S- 34 TOTAL SHEETS 75



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

*Handwritten signature and stamp*



**BRIDGE 106 ON I-95 NORTH**

LOCATION: BRIDGE 770106, I-95 NORTH OVER SR 2457  
1.2 MILES NORTH OF JCT. W/ SR 2455

**BRIDGE 106 ON I-95 NORTH**

**TOTAL BILL OF MATERIAL**

ASHPALT CONC. SURF. COURSE TYPE S9.5C	GROOVING BRIDGE FLOORS	FOAM JOINT SEALS	HYDRO-DEMOLITION OF BRIDGE DECK	CLASS I* SURFACE PREPARATION	CLASS II* SURFACE PREPARATION	CLASS III* SURFACE PREPARATION	CLASS AA CONCRETE	LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH	SCARIFYING BRIDGE DECK**
TON	SQ.FT.	LUMP SUM	SQ.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	CU.YDS.	CU.YDS.	SO.YDS.	SO.YDS.
37	8840	LUMP SUM	1017.8	0	15.9	0	0	43.3	1017.8	1483.2

\* QUANTITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "TYP. BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL. NO SEPERATE MEASUREMENT OR PAYMENT FOR THESE ITEMS SHALL BE MADE. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

\*\* INCLUDES MILLING OF ROADWAY PAVEMENT.

PROJECT NO. WBS 17BP.6.P2

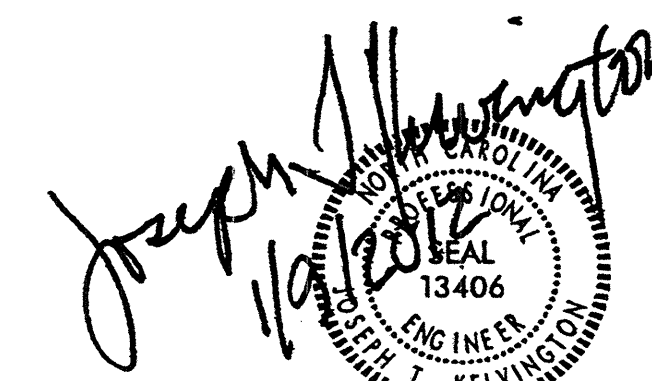
ROBESON COUNTY

STATION: \_\_\_\_\_



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DRAWN BY : K. R. TYLER DATE : 10/11  
CHECKED BY : J. T. KELVINGTON DATE : 10/11



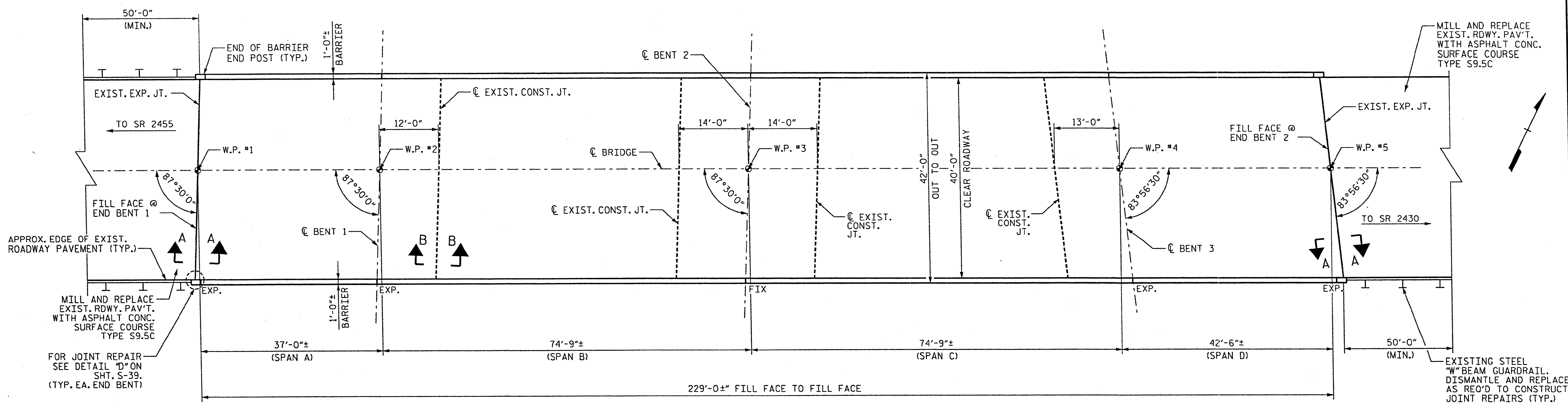
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

LOCATION SKETCH  
AND TOTAL  
BILL OF MATERIAL

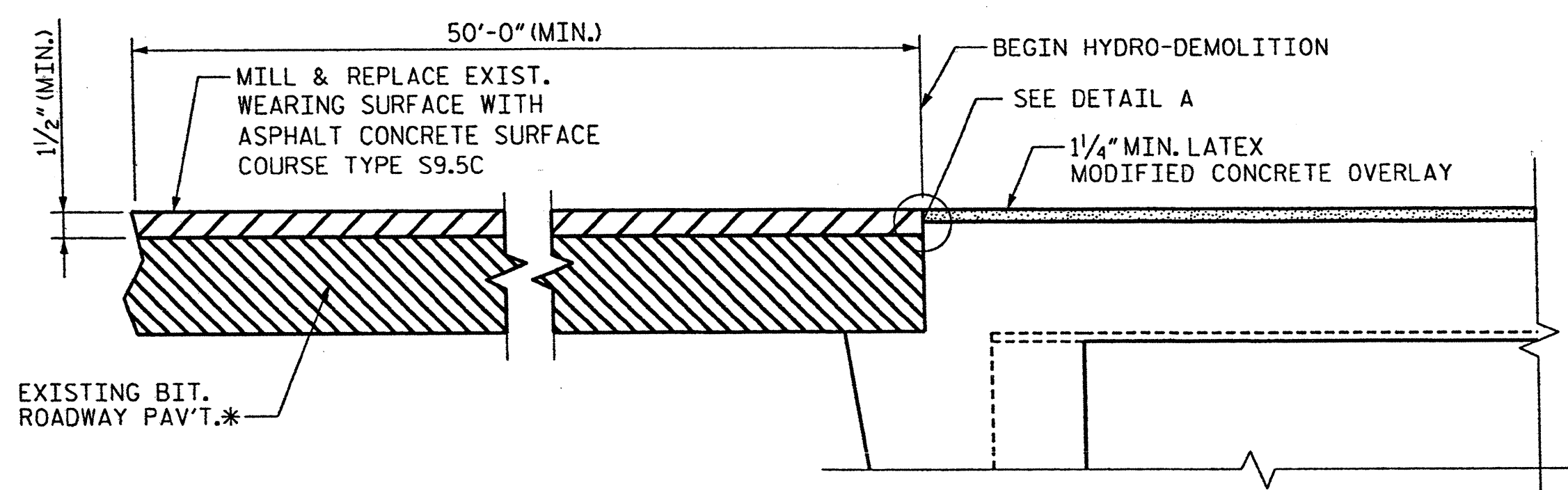
DECK REHAB. FOR BRIDGE NO. 106

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S- 35
1			3			TOTAL SHEETS
2			4			75

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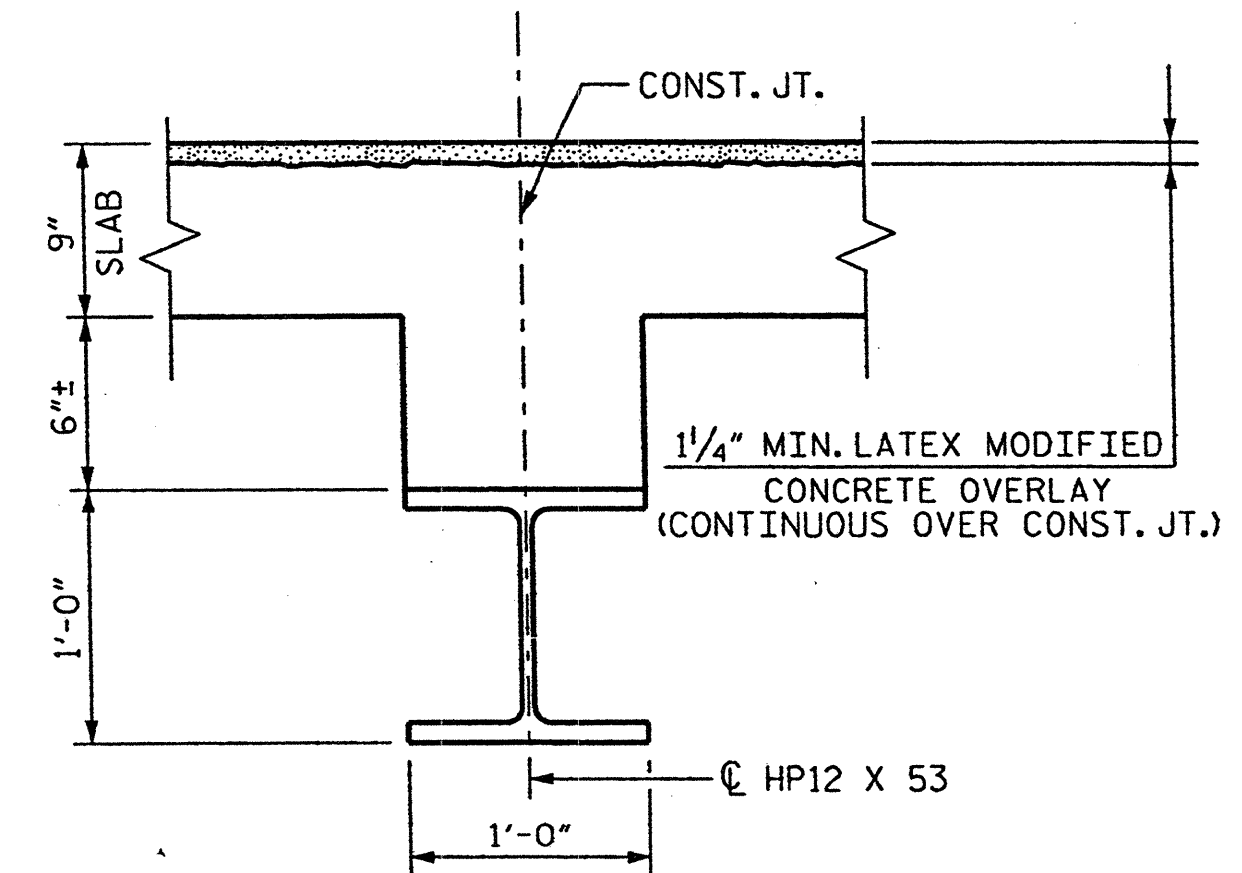


**PLAN VIEW**



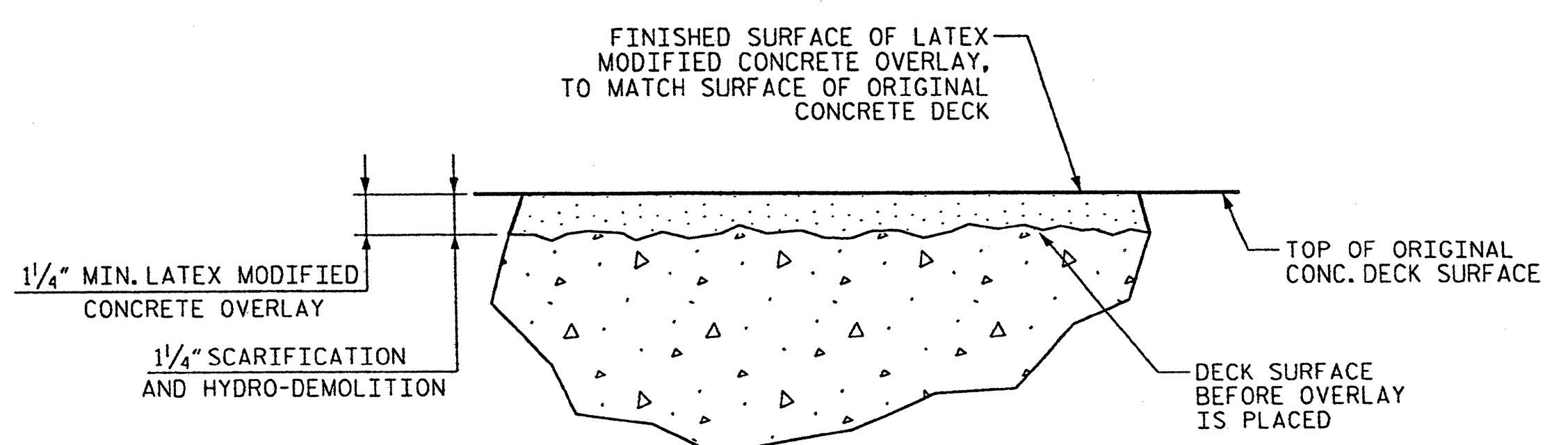
**SECTION A-A**

\*PAV'T IS ASSUMED. MILL EXISTING BRIDGE APPROACH PAV'T SURFACE AND OVERLAY W/ 1/2" MIN. ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C.



**SECTION B-B**  
(TYP. EA. CONST. JT.)

**NOTES:**  
 FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.  
 THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.  
 THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK. SEE DETAIL, SHT. NO. S-38.  
 LATEX MODIFIED CONCRETE SHALL BE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH.  
 FOR LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH SEE SPECIAL PROVISIONS.  
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.



**DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY**

PROJECT NO. WBS 17BP.6.P2  
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 STATION: \_\_\_\_\_

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 www.stantec.com  
 License No. F-0672

DRAWN BY: K R TYLER DATE: 10/11  
 CHECKED BY: J T KELVINGTON DATE: 10/11

*Joseph Kelvington*  
 12/20/11  
 PROFESSIONAL SEAL  
 18406  
 ENGINEER  
 KELVINGTON, NC

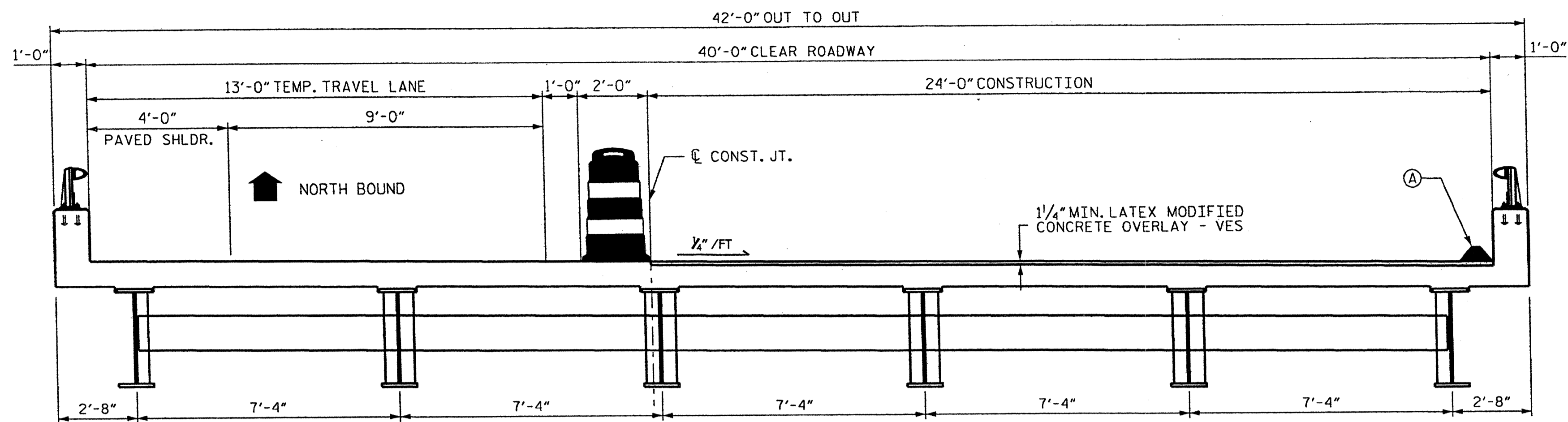
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN OF BRIDGE**

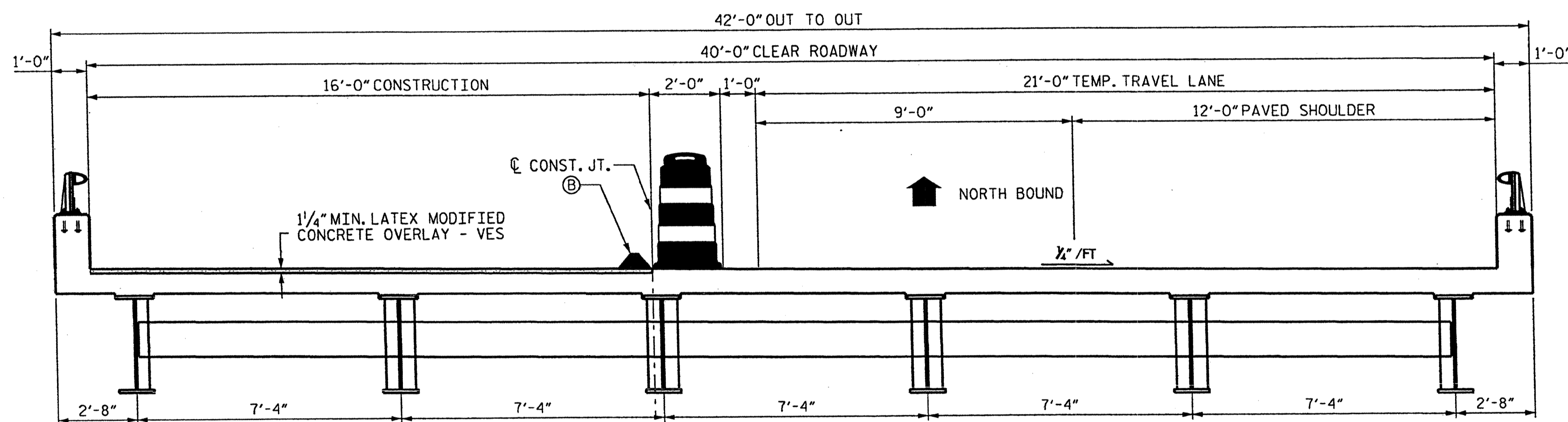
**DECK REHAB. FOR BRIDGE NO. 106**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
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2			4			75

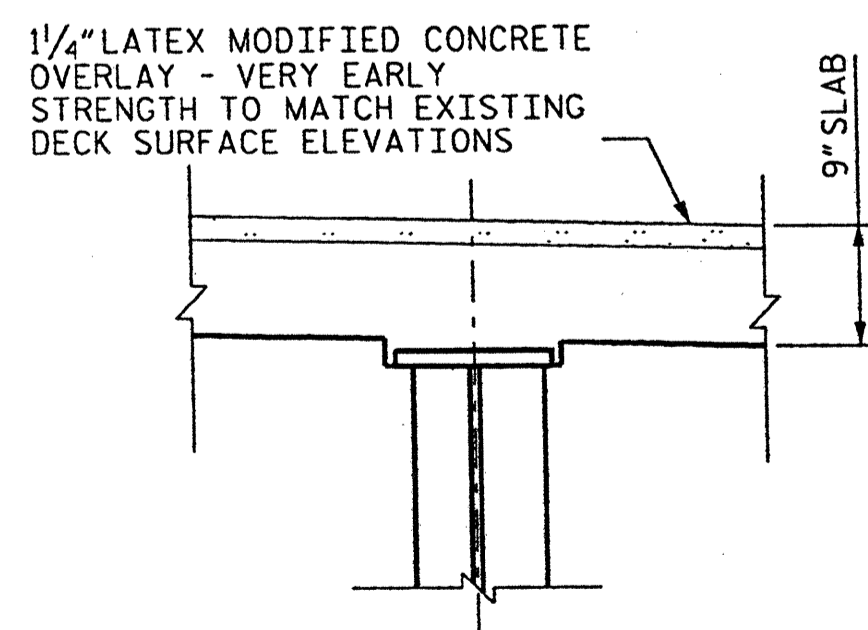
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NB CONSTRUCTION  
SECTION (SPANS A-D)



NB CONSTRUCTION  
SECTION (SPANS A-D)




SLAB BUILD-UP DETAIL

NOTES:

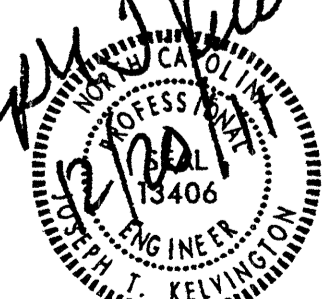
- "VES" DENOTES VERY EARLY STRENGTH.
- WATER & CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL THE WATER.
- FOR TRAFFIC CONTROL AND CONSTRUCTION PHASING, SEE TRANSPORTATION MANAGEMENT PLANS.
- Ⓐ DAM AS REQUIRED TO CAPTURE CONCRETE SLURRY @ DRAINS AND EXPANSION JOINTS.
- Ⓑ DAM CONTINUOUSLY THROUGH WORK ZONE TO CAPTURE RUN OFF.
- ALL DIMENSIONS SHOWN ARE APPROXIMATE.

PROJECT NO. WBS 17BP.6.P2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE TYPICAL SECTION					
DECK REHAB. FOR BRIDGE NO. 106					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 75

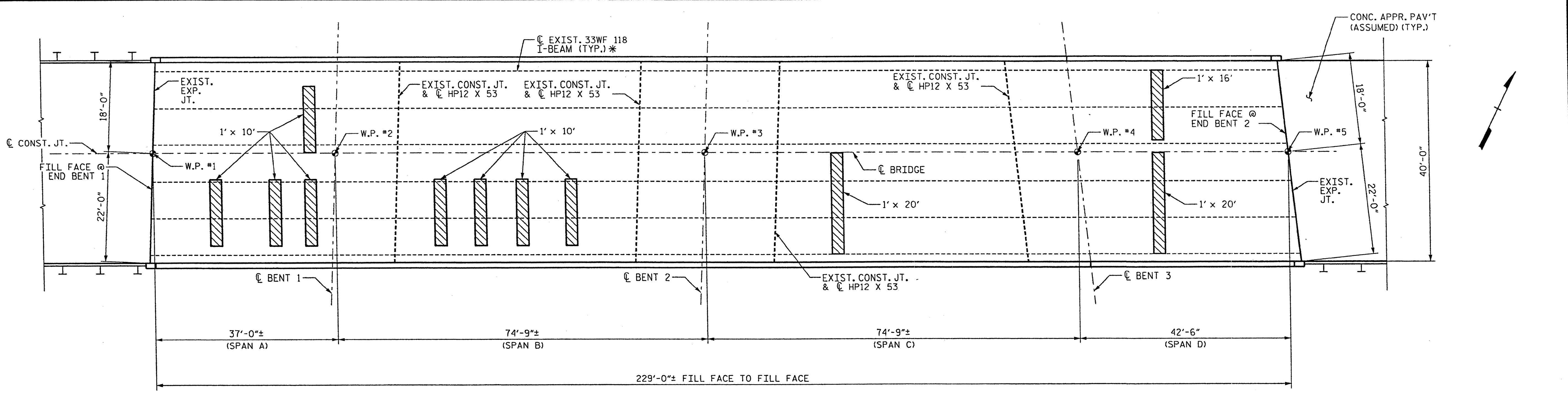

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 CHECKED BY : J T KELVINGTON DATE : 10/11

  
*Joseph J. Kelvington*

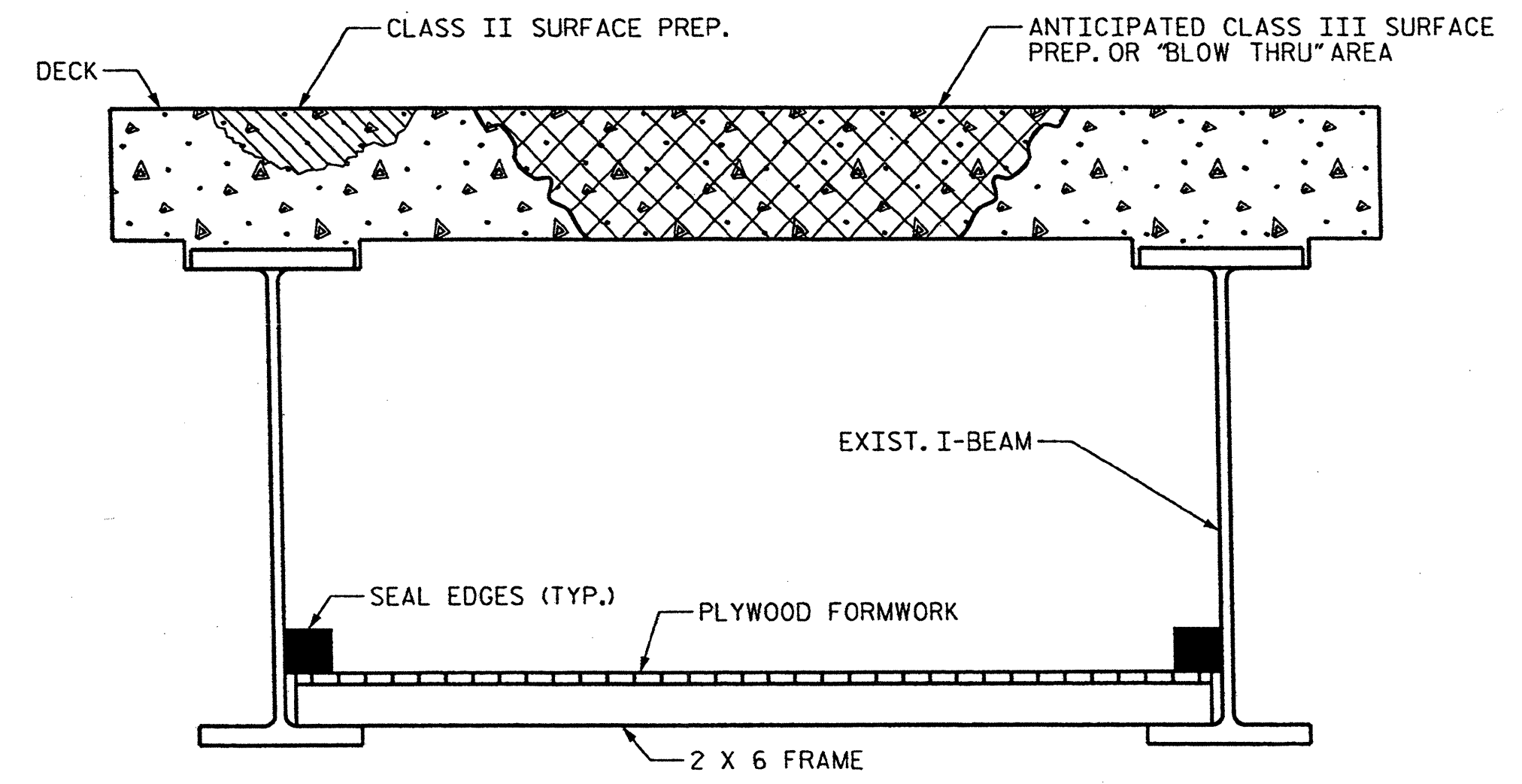


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**PLAN OF SPANS A THRU D - DECK REPAIRS**

\* EXISTING BEAMS ARE CONTINUOUS OVER 4 SPANS.



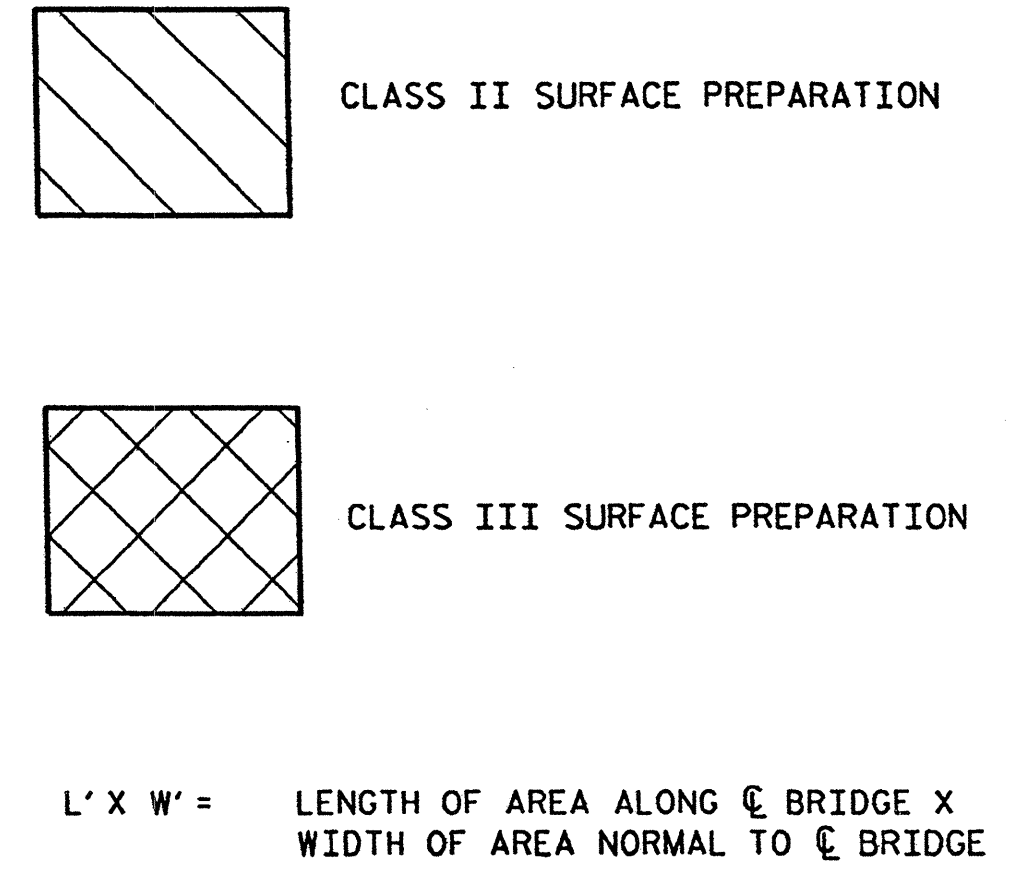
**TYP. "BLOW-THRU" CONTAINMENT AND FORMWORK**

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALL 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.

CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MONITOR HYDRO-DEMOLITION WORK AND CONTROL TRAFFIC UNDER THE BRIDGE IN LIEU OF BLOW THRU CONTAINMENT. SEE TRAFFIC MANAGEMENT PLANS.



**NOTE:**

CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE 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 BID PER SQ. YD. OF HYDRODEMOLITION.

SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.

**NOTE:**

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

PROJECT NO. WBS 17BP.6.P2  
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DRAWN BY : K R TYLER DATE : 10/11  
 CHECKED BY : J T KELVINGTON DATE : 10/11

*Joseph J. Kelvington*  
 10/20/11  
 ENGINEER  
 13406  
 NORTH CAROLINA

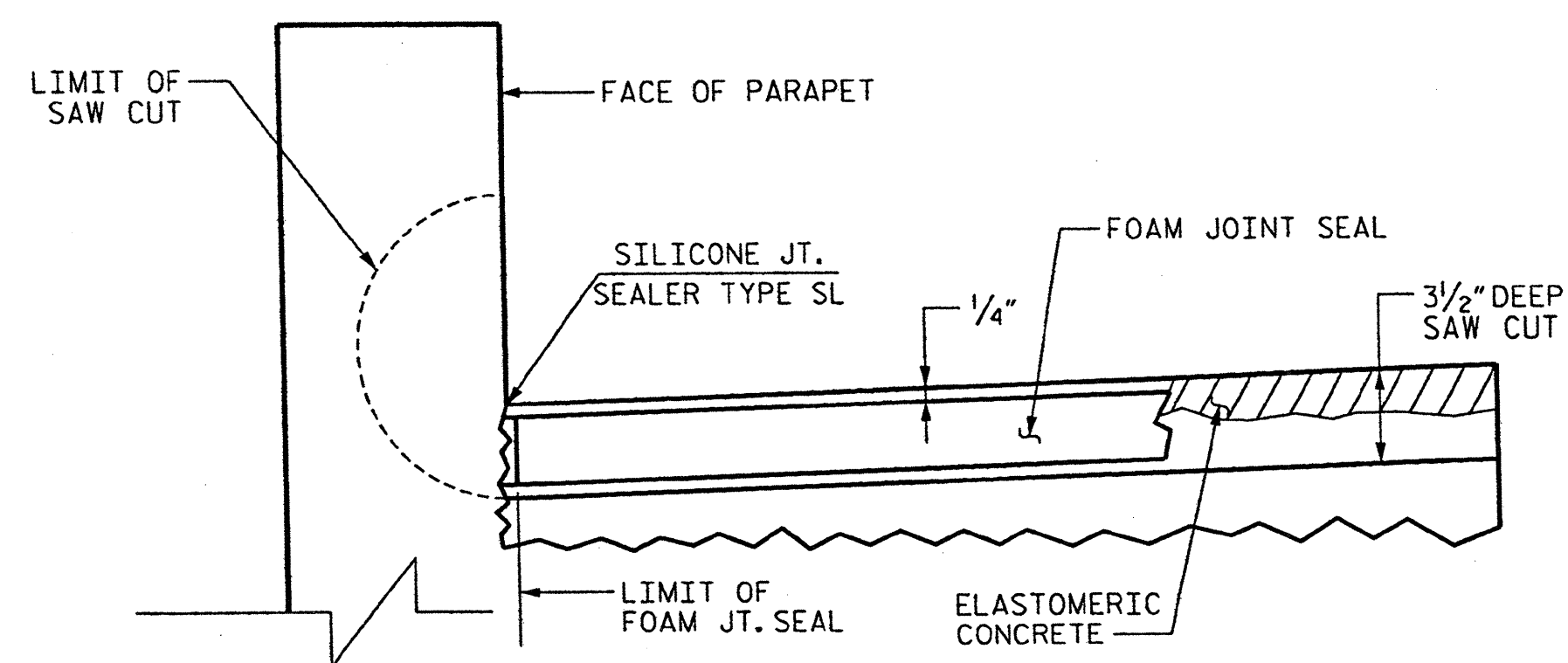
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS  
 SPANS A THRU D**

**DECK REHAB. FOR BRIDGE NO. 106**

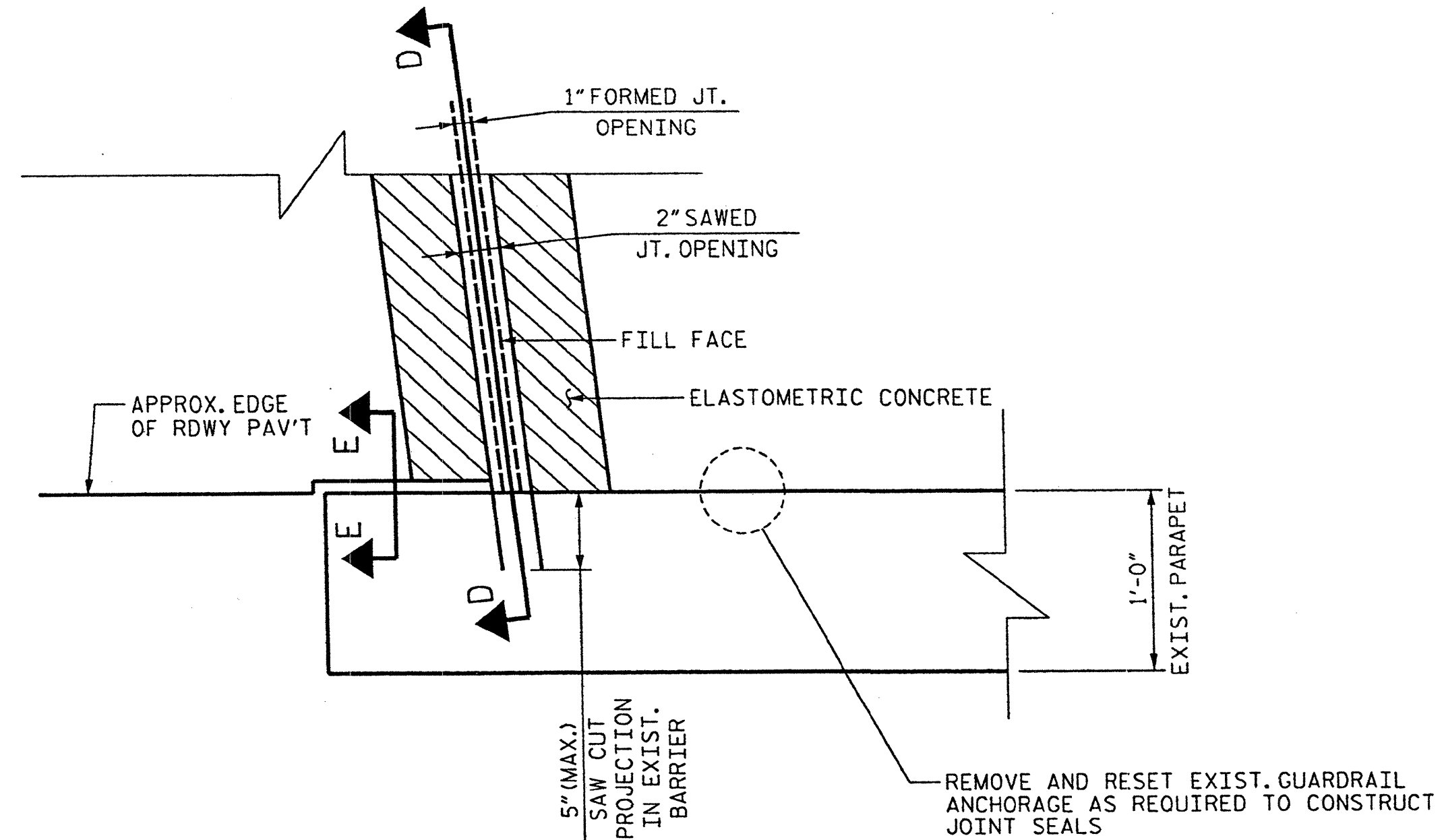
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S- 38	
1			3			TOTAL SHEETS	
2			4			75	

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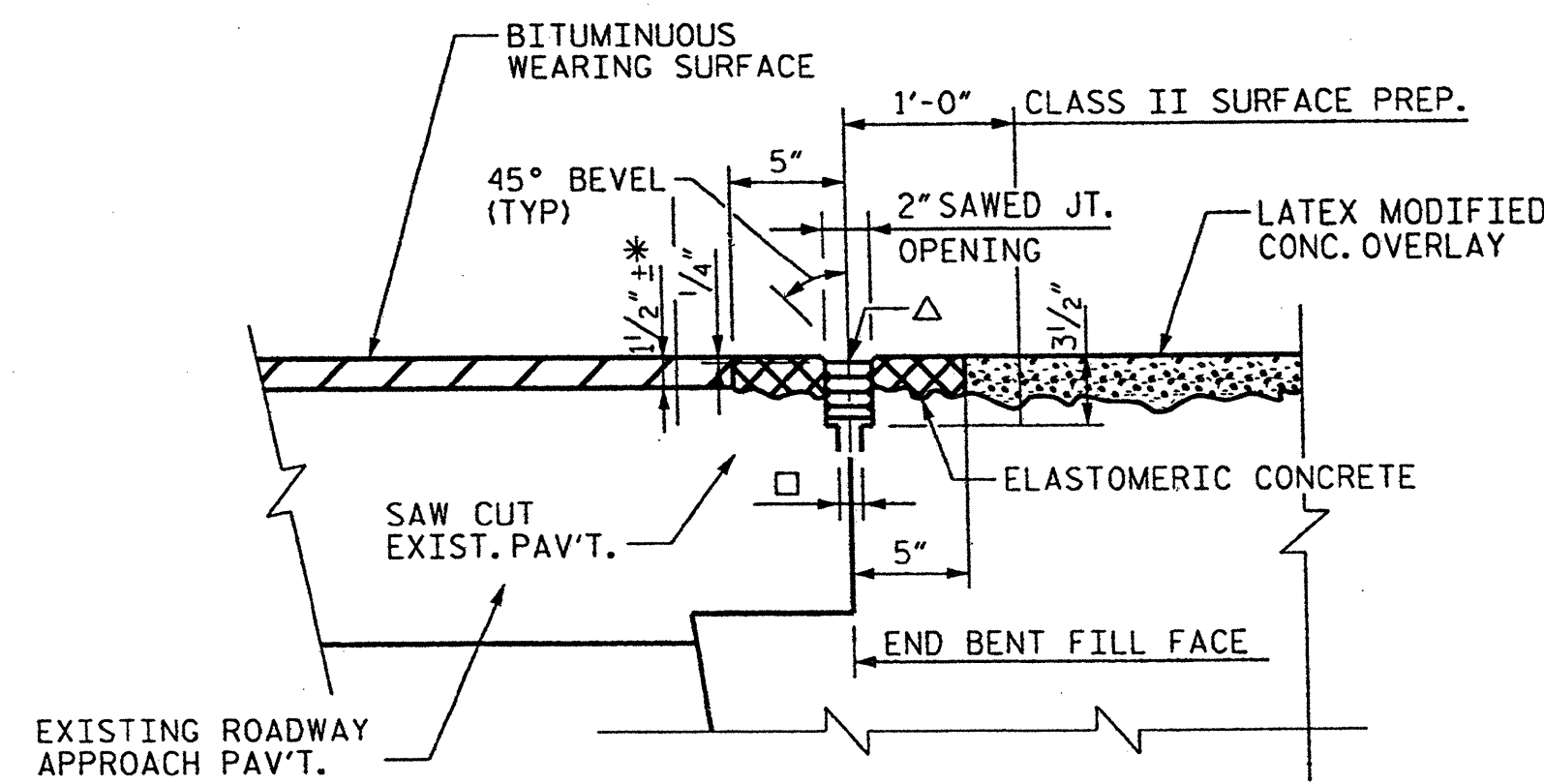


**SECTION D-D**

CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.

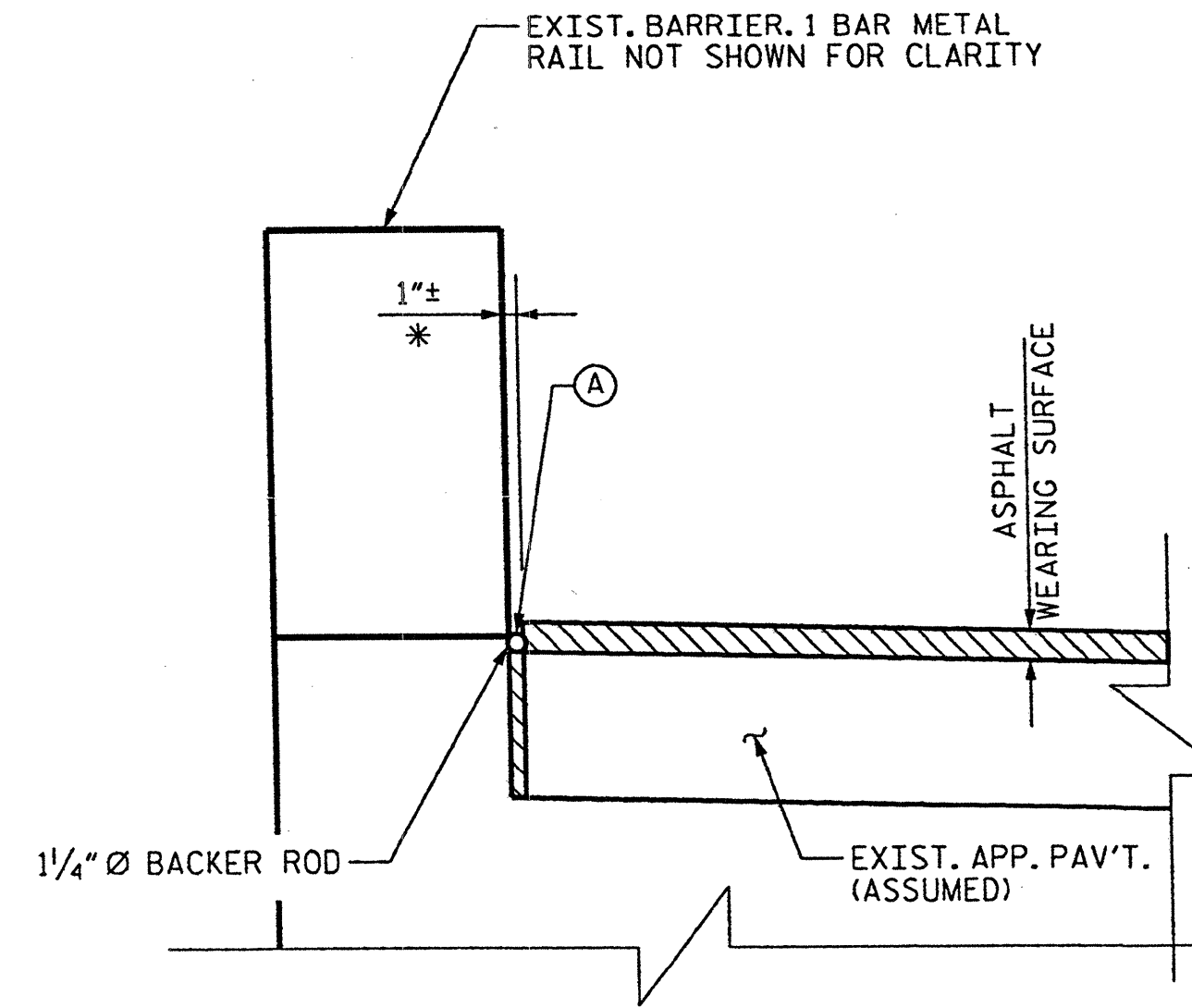


**DETAIL D  
PLAN**



**DETAIL "A"**

- △ USE 2.5" X 2.0" UNCOMPRESSED FOAM SEAL MATERIAL
- 1" FORMED OPENING CENTERED ABOUT FILL FACE
- \* NOMINAL DIMENSION. REMOVE ALL LOOSE, DETERIORATED MATERIAL, INCLUDING EXISTING SEAL DEVICES AND HARDWARE TO SOUND CONCRETE. PRESERVE AND RETAIN ALL EXPOSED REINFORCING STEEL. ADJUST SAW CUT DEPTH AS REQUIRED TO PREVENT CUTS INTO EXISTING REINFORCING STEEL.



**SECTION E-E**

\* EXISTING JOINT FILLED WITH BITUMINOUS JT. MATL. REMOVE EXP. JT. MATL. AS REQUIRED TO INSTALL BACKER ROD.

Ⓐ SEAL JOINTS W/ LOW MODULUS SILICONE JOINT SEALER TYPE SL W/ BACKER ROD IN ALL EXISTING GAPS BETWEEN SLABS, CURBS, AND BARRIERS.

1/4" DIA. BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

ELASTOMERIC CONCRETE	
LOCATION	QTY
END BENT 1	9.4 C.F.
END BENT 2	9.5 C.F.

TOTAL ELASTOMERIC CONC. = 18.9 C.F.  
 TOTAL ELASTOMERIC CONC. = 0.7 C.Y.

PROJECT NO. WBS 17BP.6.P2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**EXPANSION JOINT DETAILS**

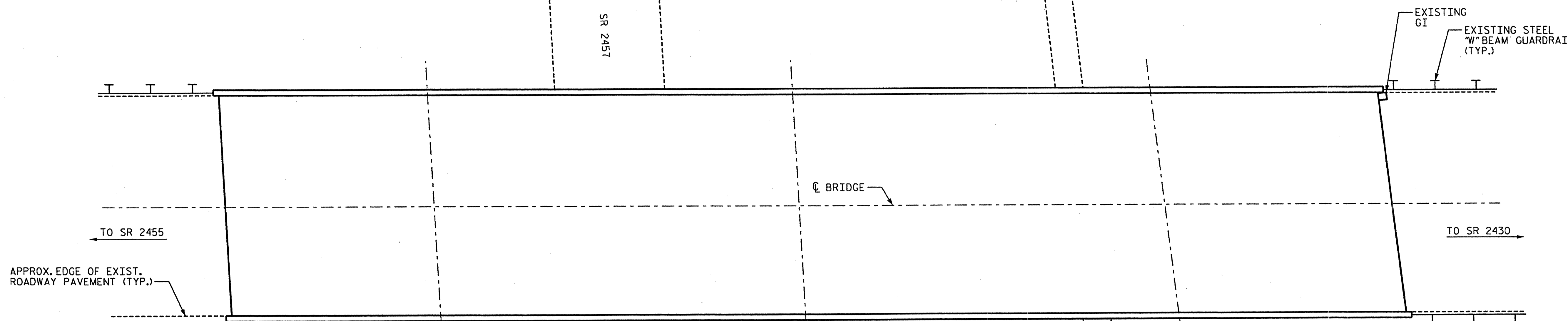
DECK REHAB. FOR BRIDGE NO. 106

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			75

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DRAWN BY: K R TYLER DATE: 10/11  
 CHECKED BY: J T KELVINGTON DATE: 10/11

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**BRIDGE 107 ON I-95 SOUTH**  
 LOCATION: BRIDGE 770107, I-95 SOUTH OVER SR 2457  
 1.2 MILES NORTH OF JCT. W/ SR 2455

**BRIDGE 107 ON I-95 SOUTH**

**TOTAL BILL OF MATERIAL**

ASPHALT CONC. SURF. COURSE TYPE S9.5C	GROOVING BRIDGE FLOORS	FOAM JOINT SEALS	HYDRO-DEMOLITION OF BRIDGE DECK	CLASS I* SURFACE PREPARATION	CLASS II* SURFACE PREPARATION	CLASS III* SURFACE PREPARATION	CLASS AA* CONCRETE	LATEX MODIFIED CONCRETE OVERLAY- VERY EARLY STRENGTH	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY- VERY EARLY STRENGTH	SCARIFYING BRIDGE DECK**
TON	SO.FT.	LUMP SUM	SO.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	CU.YDS.	CU.YDS.	SO.YDS.	SO.YDS.
37	8180	LUMP SUM	944.6	0	8.3	0	0	39.8	944.6	1403.3

\* QUANTITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "TYP. BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL. NO SEPARATE MEASUREMENT OR PAYMENT FOR THESE ITEMS SHALL BE MADE. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

\*\* INCLUDES MILLING OF ROADWAY PAVEMENT.

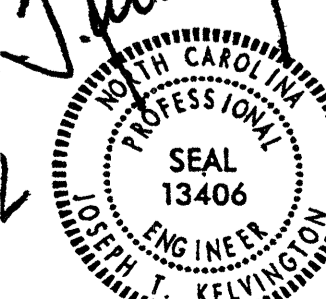
PROJECT NO. WBS 17BP.6.P2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_



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DRAWN BY : K R TYLER DATE : 10/11  
 CHECKED BY : J I KELVINGTON DATE : 10/11

*J Kelvington*  
 1/9/2012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

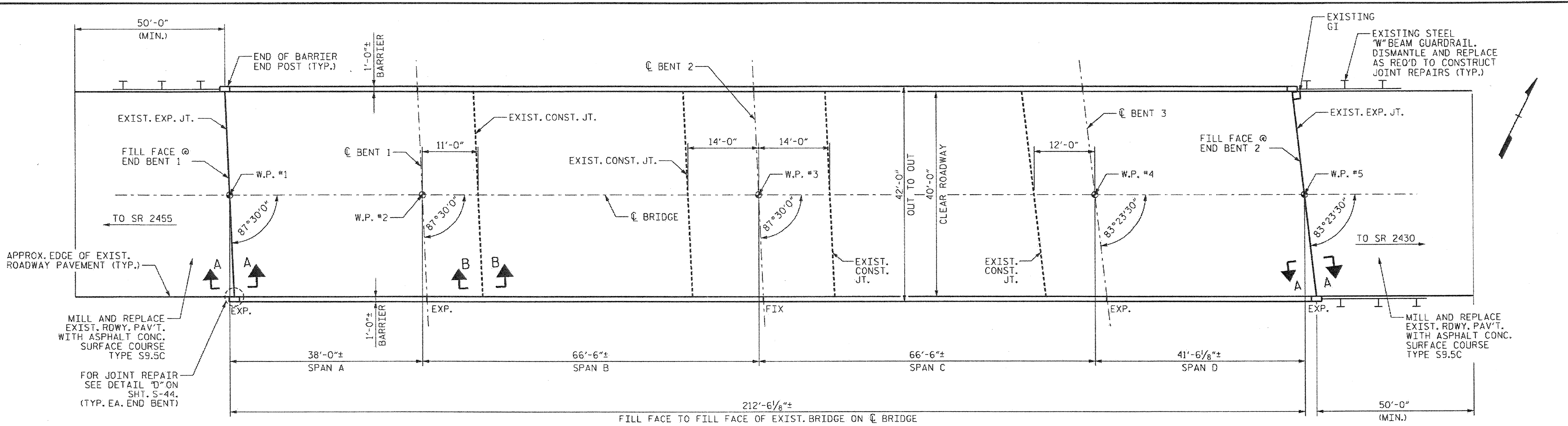
**LOCATION SKETCH AND TOTAL BILL OF MATERIAL**

**DECK REHAB. FOR BRIDGE NO. 107**

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

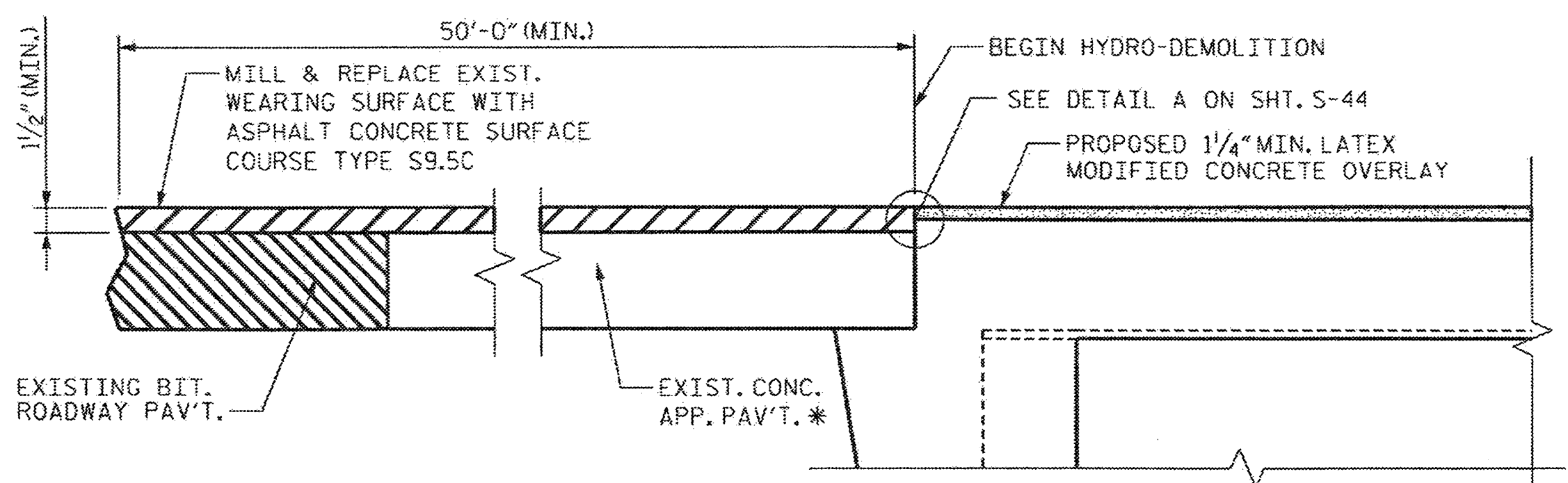
SHEET NO. S-40

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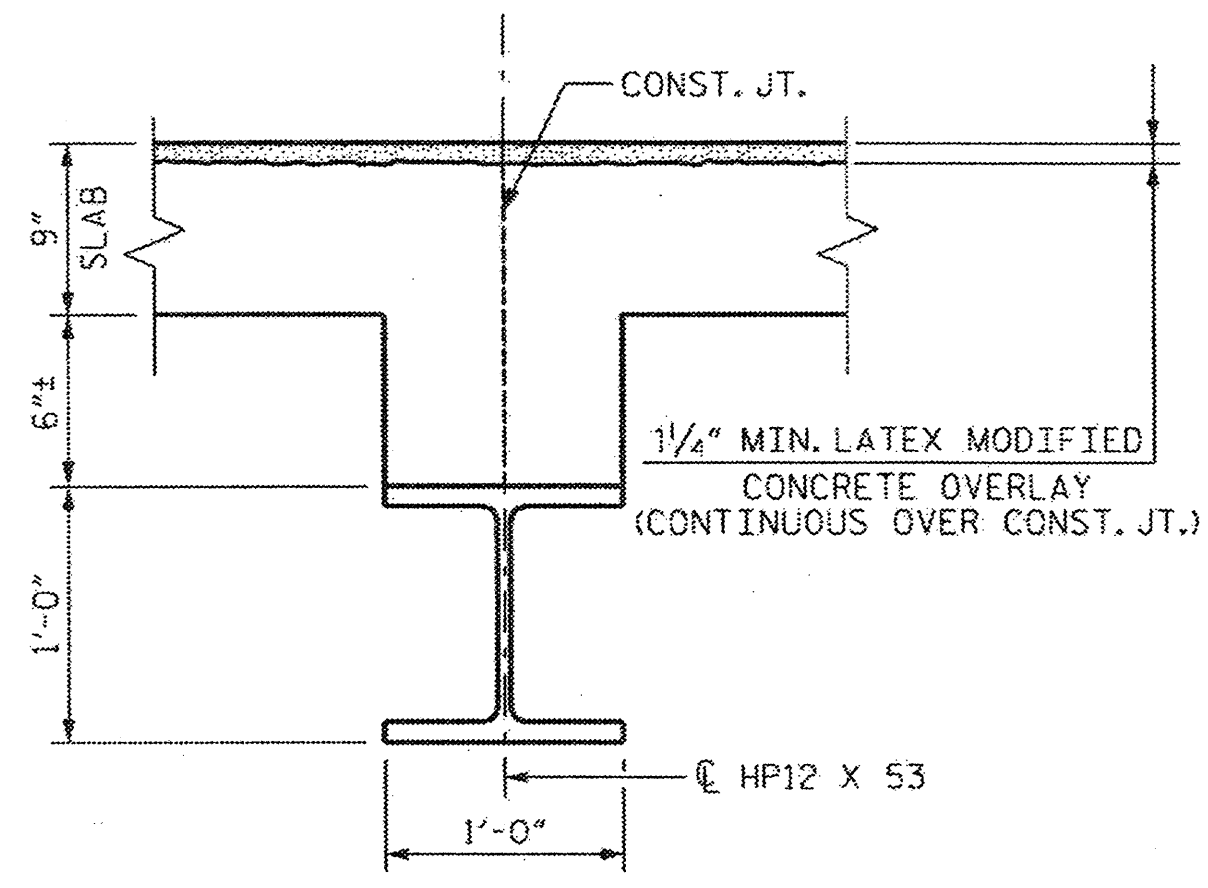
PLAN VIEW

**NOTES:**  
 FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.  
 THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.  
 THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK. SEE DETAIL, SHT. NO. S-43.  
 LATEX MODIFIED CONCRETE SHALL BE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH.  
 FOR LATEX MODIFIED CONCRETE, - VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.  
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.



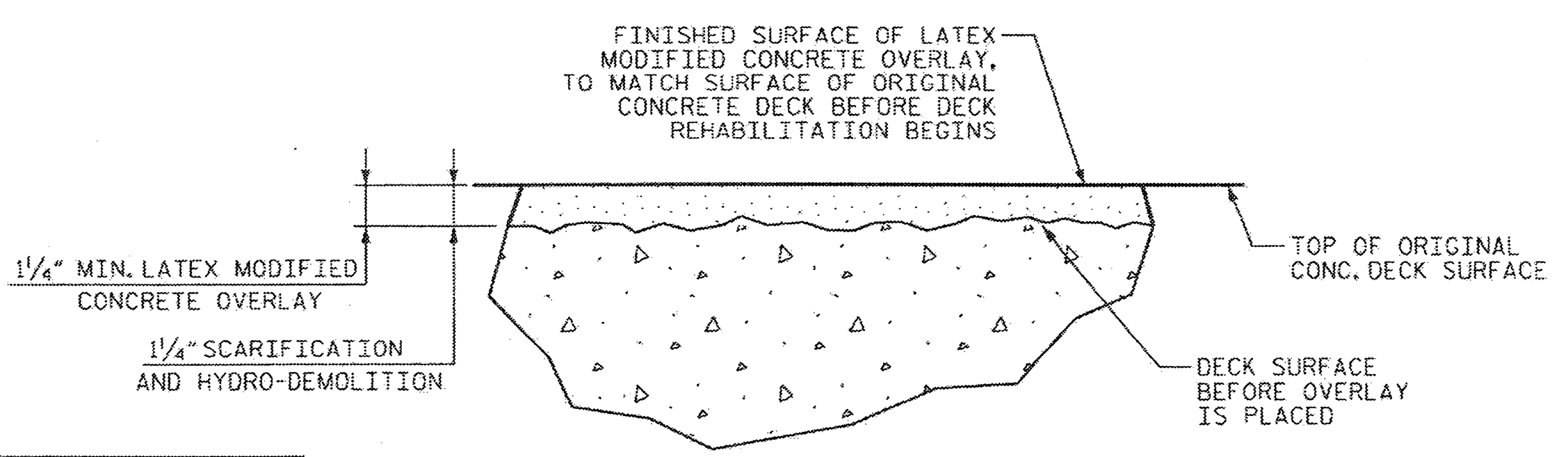
SECTION A-A

\* PAV'T IS ASSUMED. MILL EXISTING BRIDGE APPROACH PAV'T SURFACE AND OVERLAY W/ 1/2" MIN. ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C.



SECTION B-B

(TYP. EA. CONST. JT.)



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

PROJECT NO. WBS 17BP.6.P2  
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 License No. F-0572

DRAWN BY: K R TYLER DATE: 10/11  
 CHECKED BY: J I KELVINGTON DATE: 10/11

*Joseph Kelvington*  
 10/11/11  
 SEAL  
 13406  
 ENGINEER  
 STATE OF NORTH CAROLINA  
 ROBESON COUNTY

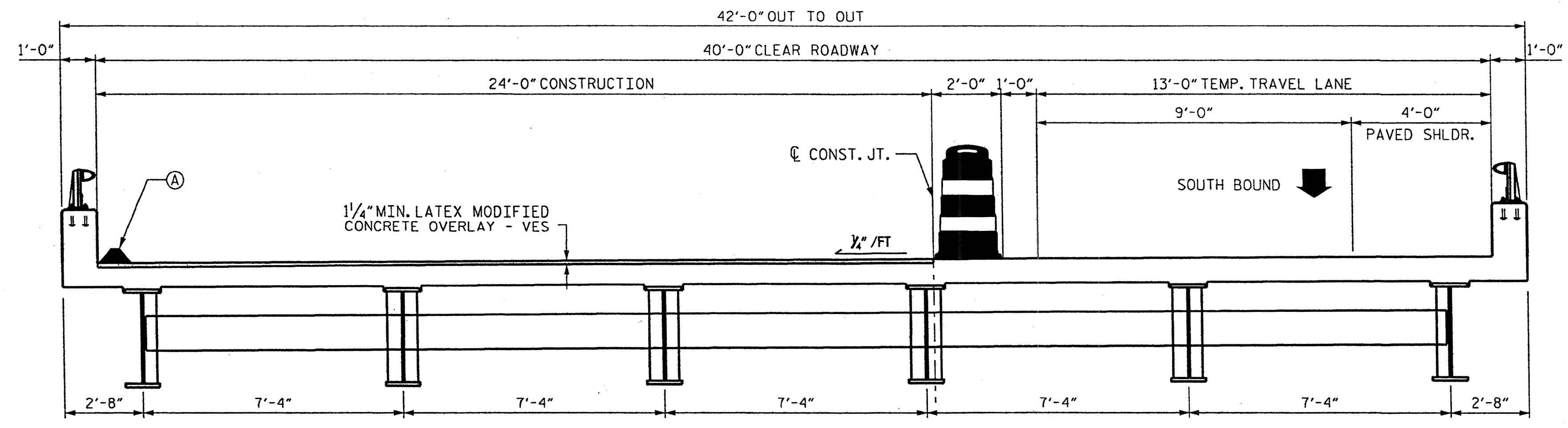
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF BRIDGE

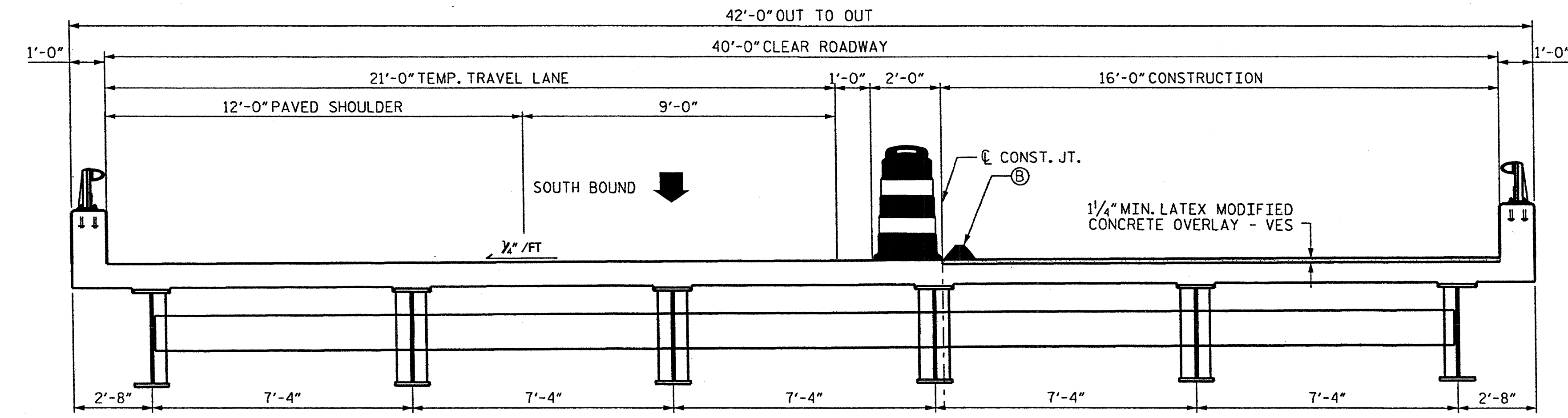
DECK REHAB. FOR BRIDGE NO. 107

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41	
1			3			TOTAL SHEETS	
2			4			75	

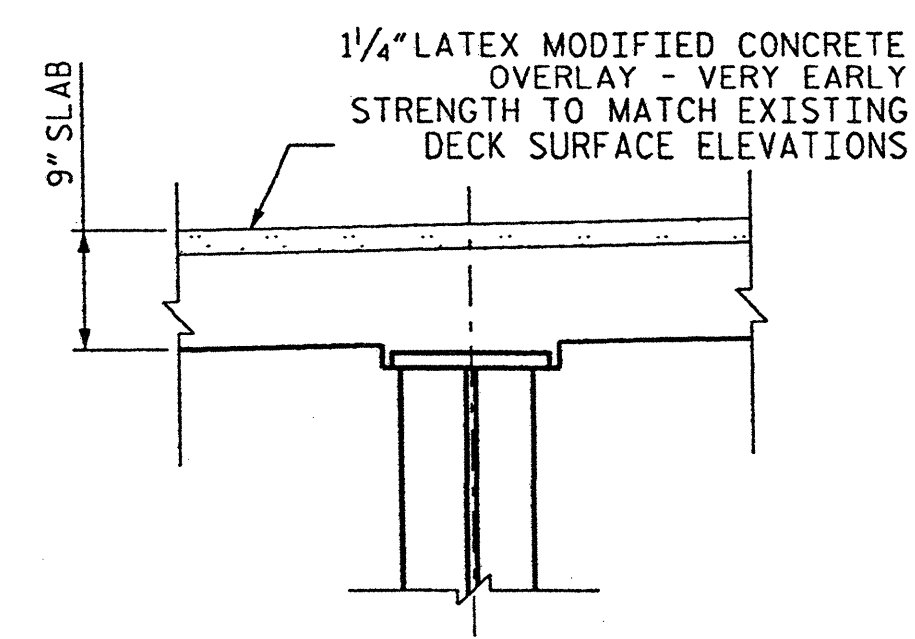
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SB CONSTRUCTION SECTION (SPANS A-D)



SB CONSTRUCTION SECTION (SPANS A-D)




SLAB BUILD-UP DETAIL

NOTES:  
 "VES" DENOTES VERY EARLY STRENGTH.  
 WATER & CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL THE WATER.  
 FOR TRAFFIC CONTROL AND CONSTRUCTION PHASING, SEE TRANSPORTATION MANAGEMENT PLANS.  
 (A) DAM AS REQUIRED TO CAPTURE CONCRETE SLURRY AT DRAINS AND EXPANSION JOINTS.  
 (B) DAM CONTINUOUSLY THROUGH WORK ZONE TO CAPTURE RUN OFF.  
 ALL DIMENSIONS SHOWN ARE APPROXIMATE.

PROJECT NO. WBS 17BP.6.P2  
ROBESON COUNTY  
 STATION: \_\_\_\_\_

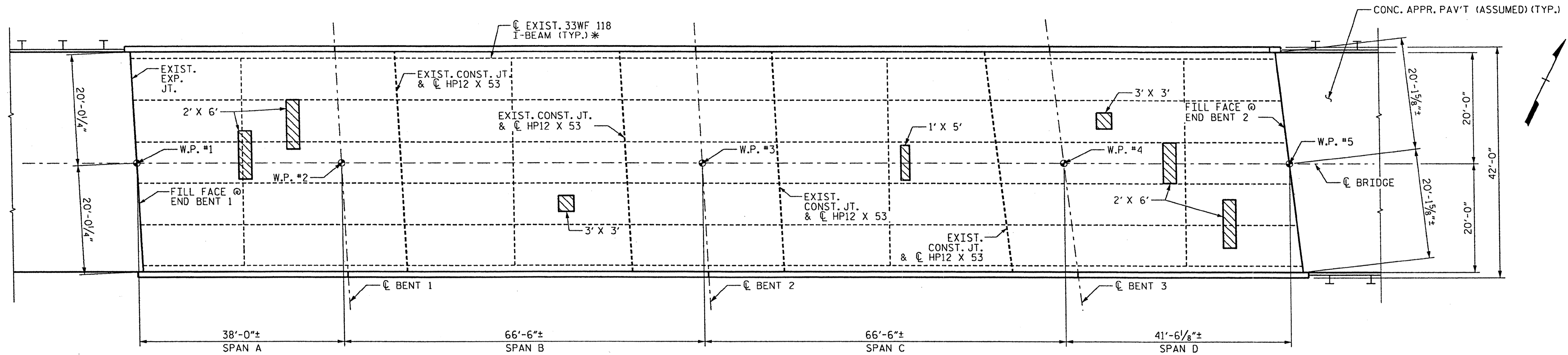
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE TYPICAL SECTION					
DECK REHAB. FOR BRIDGE NO. 107					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-42
TOTAL SHEETS					75


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 CHECKED BY: J.T. KELVINGTON DATE: 10/11

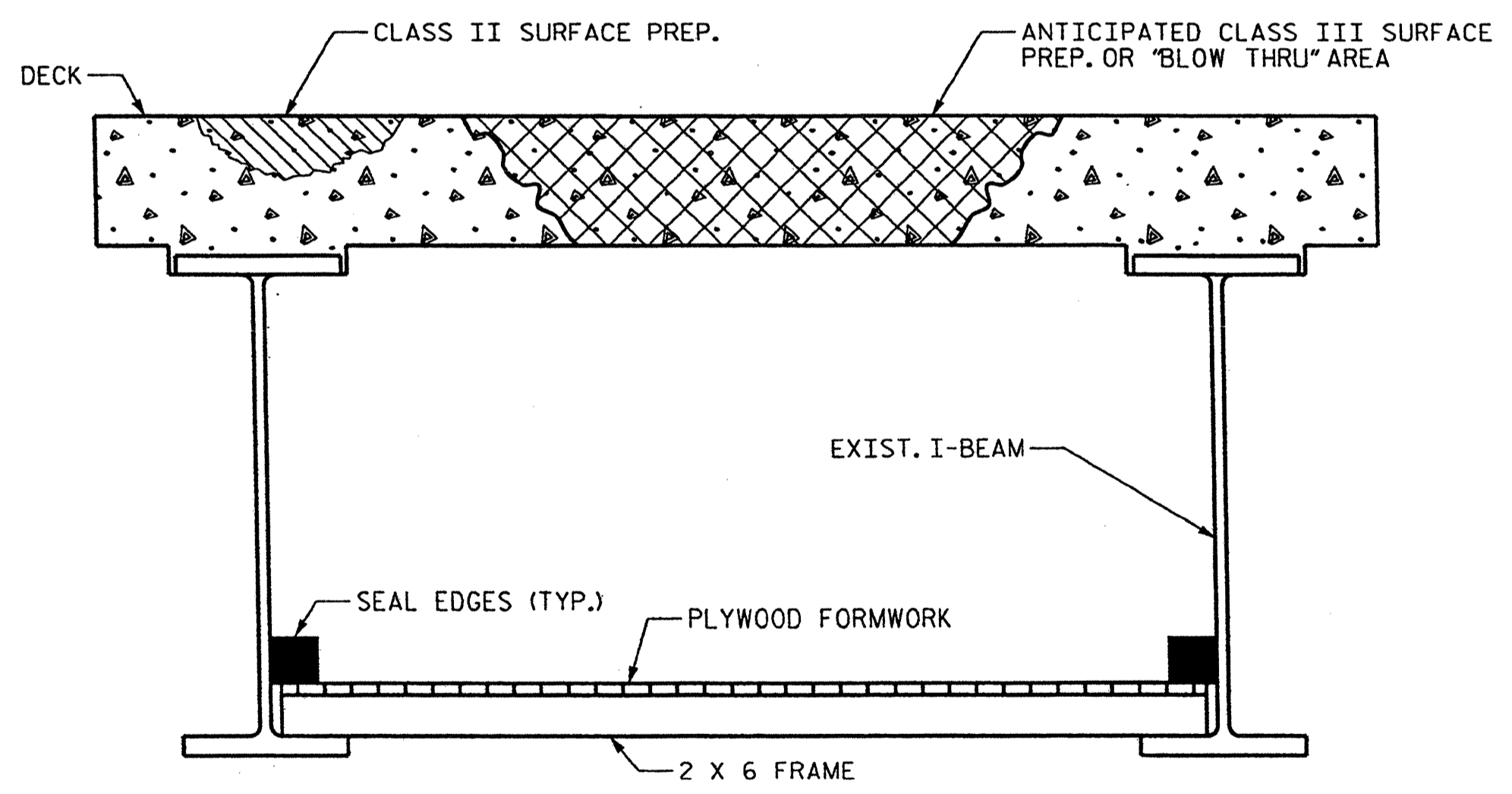
*Joseph H. Kelvington*  
 12/19/11  
 3406  
 ENGINEER  
 NORTH CAROLINA

12/22/03 PM Jgelle  
 12/19/2011  
 UNAStructures\Bridges Group 2011\WBS 17BP.6.P2 Robeson Co\Robeson Bridge 107\Drawing\BPI07\_RepairPlan1.dgn



**PLAN OF SPANS A THRU D - DECK REPAIRS**

\* EXISTING BEAMS ARE CONTINUOUS OVER 4 SPANS.



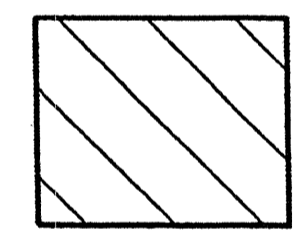
**TYP. "BLOW THRU" CONTAINMENT AND FORMWORK**

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

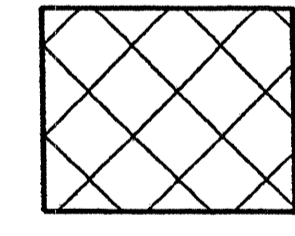
SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

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

CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MONITOR HYDRO-DEMOLITION WORK AND CONTROL TRAFFIC UNDER THE BRIDGE IN LIEU OF BLOW THRU CONTAINMENT. SEE TRAFFIC MANAGEMENT PLANS.



CLASS II SURFACE PREPARATION



CLASS III SURFACE PREPARATION

L' X W' = LENGTH OF AREA ALONG C BRIDGE X WIDTH OF AREA NORMAL TO C BRIDGE

**NOTE:**

CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE 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 BID PER SQ. YD. OF HYDRO-DEMOLITION.

SEE HYDRO-DEMOLITION SPECIAL PROVISIONS.

PROJECT NO. WBS 17BP.6.P2  
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DRAWN BY: K R TYLER DATE: 10/11  
 CHECKED BY: J I KELVINGTON DATE: 10/11

**NOTE:**

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE.

*Joseph Kelvington*  
 13406  
 ENGINEER  
 KELVINGTON

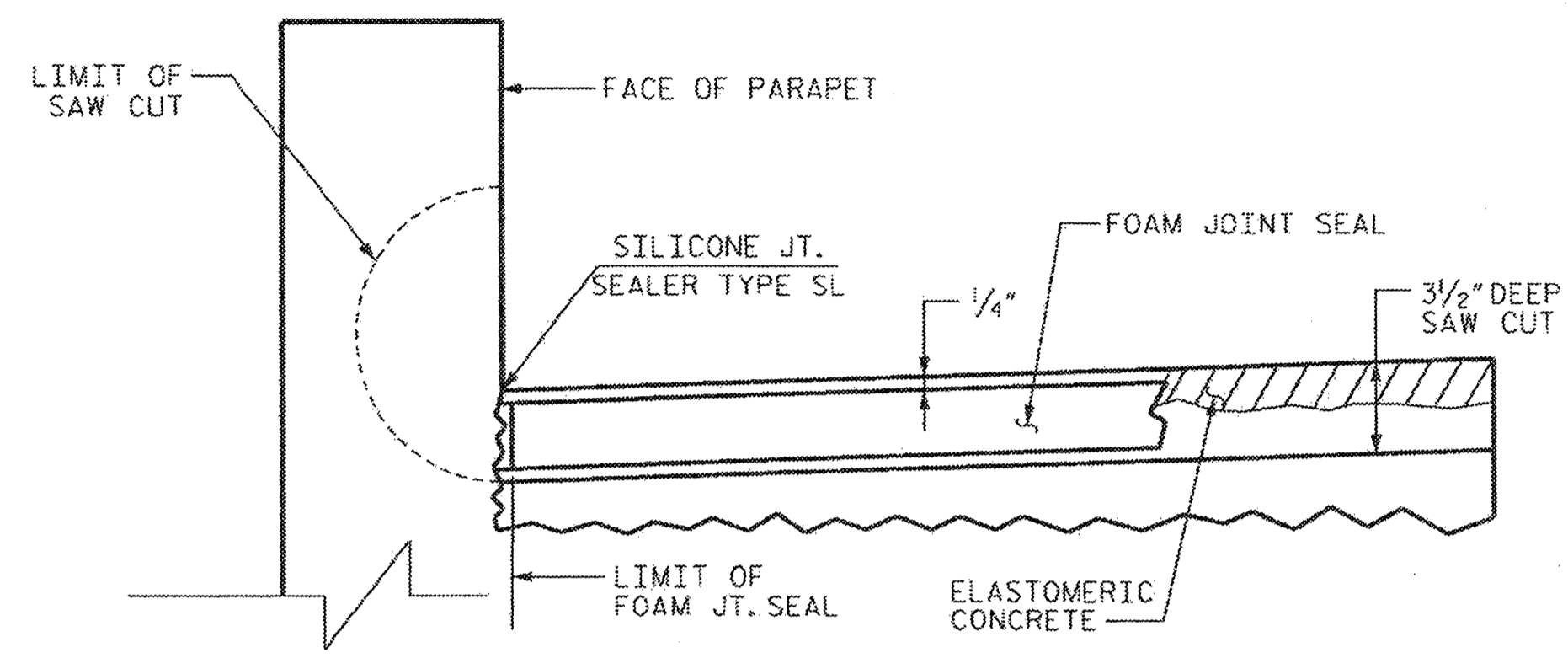
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS  
 SPANS A THRU D**

**DECK REHAB. FOR BRIDGE NO. 107**

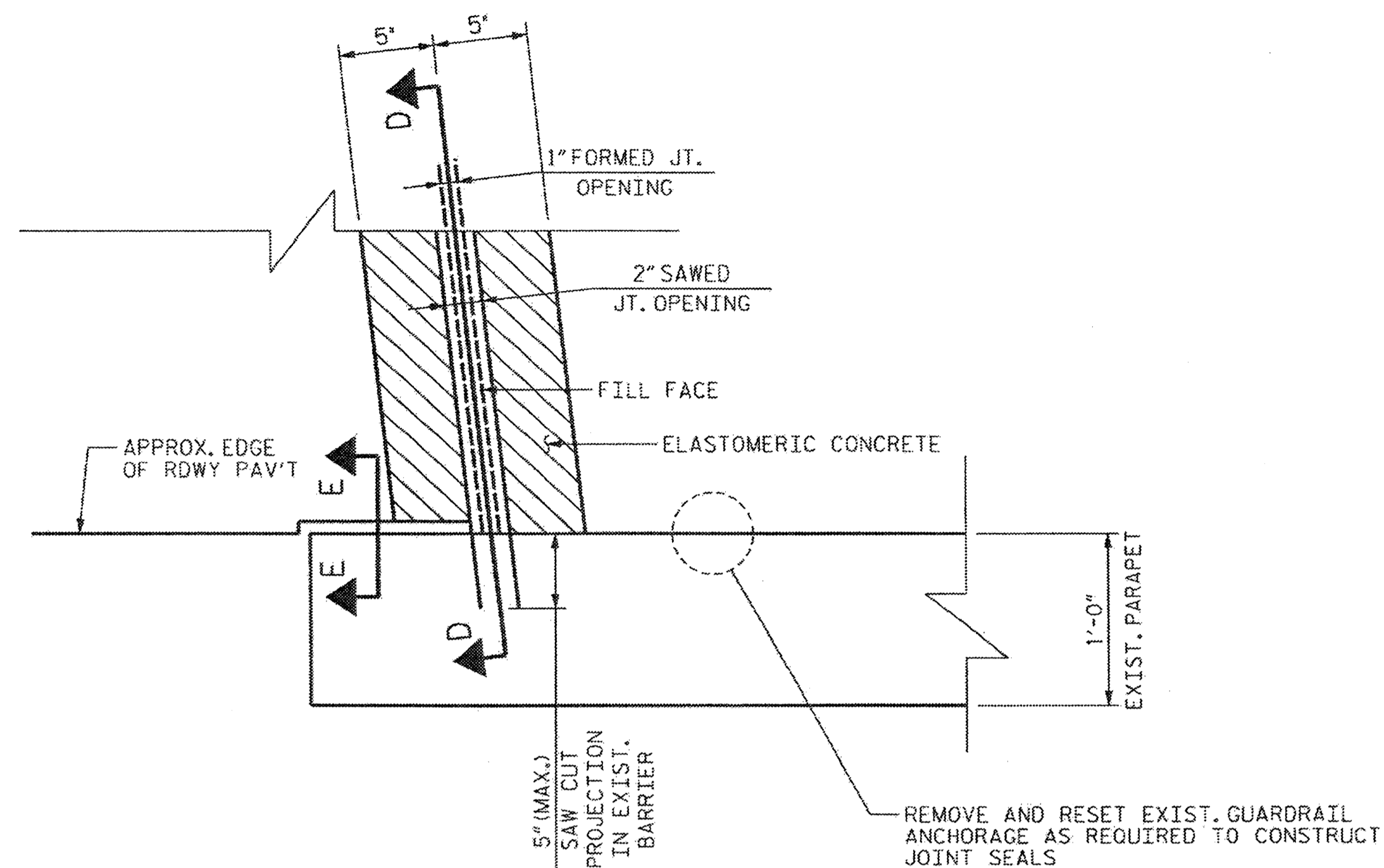
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS 75
2			4			

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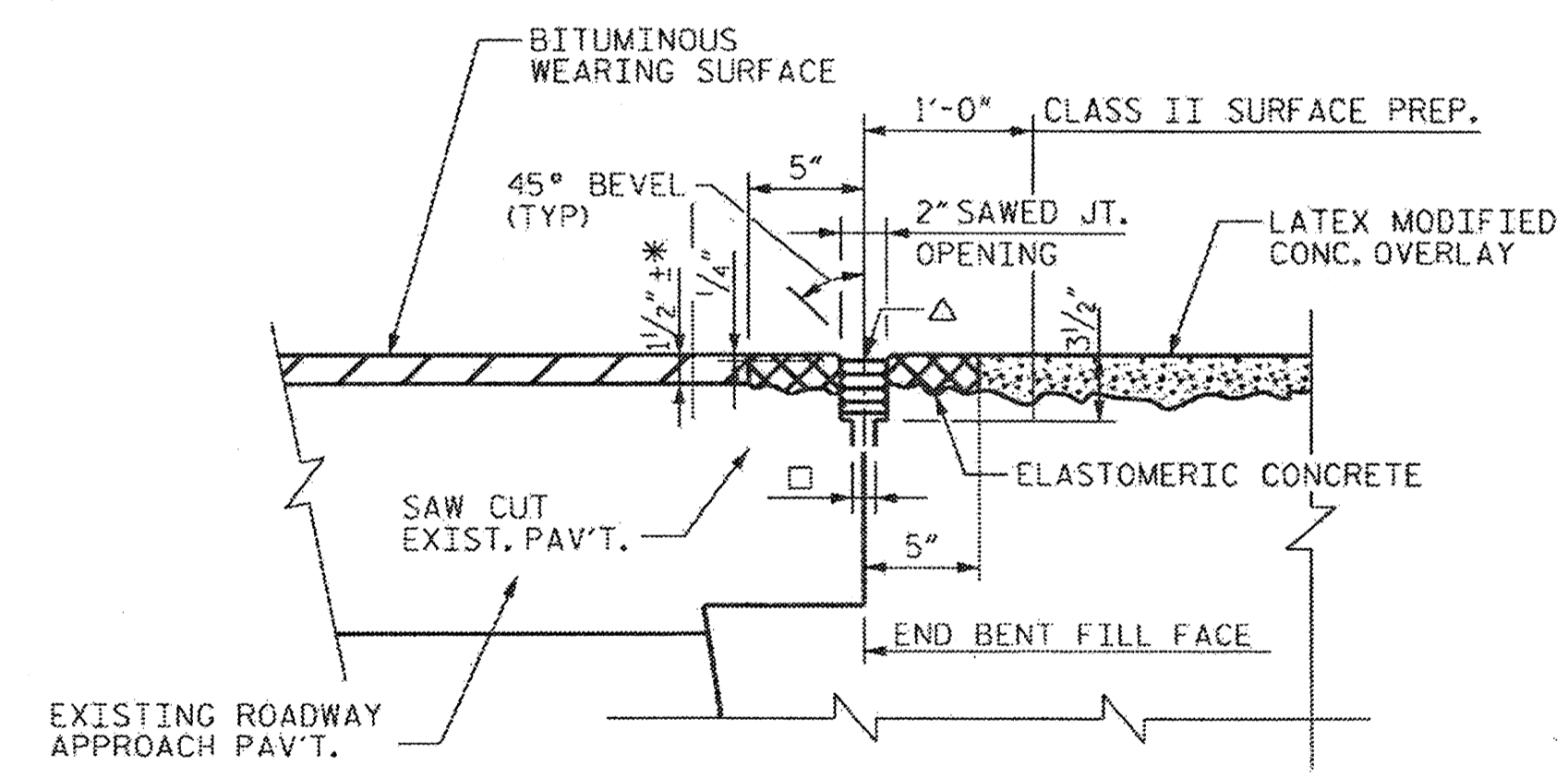


**SECTION D-D**

CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.

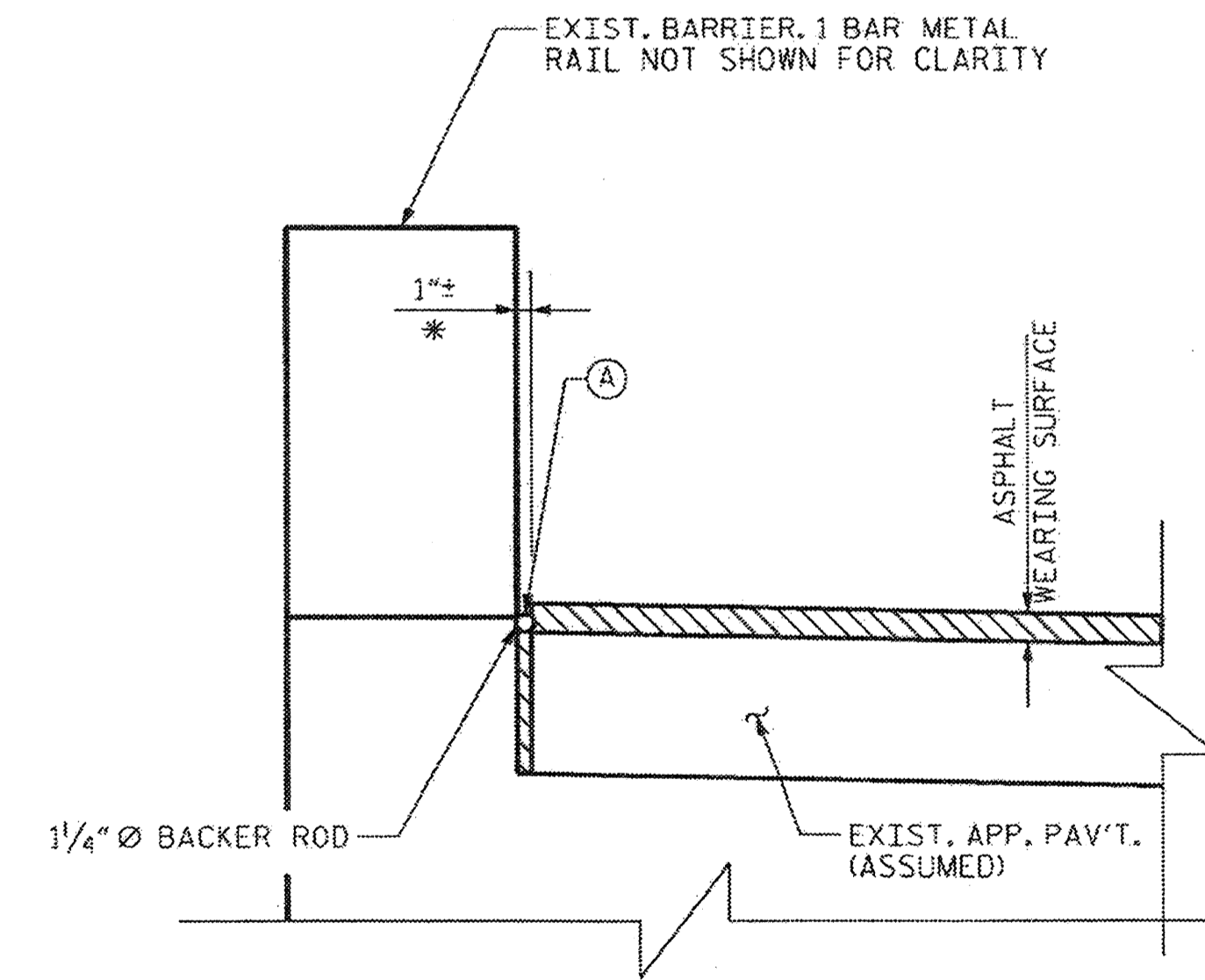


**DETAIL D PLAN**



**DETAIL "A"**

- △ USE 2.5" X 2.0" UNCOMPRESSED FOAM SEAL MATERIAL
- 1" FORMED OPENING CENTERED ABOUT FILL FACE
- \* NOMINAL DIMENSION. REMOVE ALL LOOSE, DETERIORATED MATERIAL, INCLUDING EXISTING SEAL DEVICES AND HARDWARE TO SOUND CONCRETE. PRESERVE AND RETAIN ALL EXPOSED REINFORCING STEEL. ADJUST SAW CUT DEPTH AS REQUIRED TO PREVENT CUTS INTO EXISTING REINFORCING STEEL.



**SECTION E-E**

\* EXISTING JOINT FILLED WITH BITUMINOUS JT. MATL. REMOVE EXP. JT. MATL. AS REQUIRED TO INSTALL BACKER ROD.

Ⓐ SEAL JOINTS W/ LOW MODULUS SILICONE JOINT SEALER TYPE SL W/ BACKER ROD IN ALL EXISTING GAPS BETWEEN SLABS, CURBS, AND BARRIERS.

1/4" DIA. BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

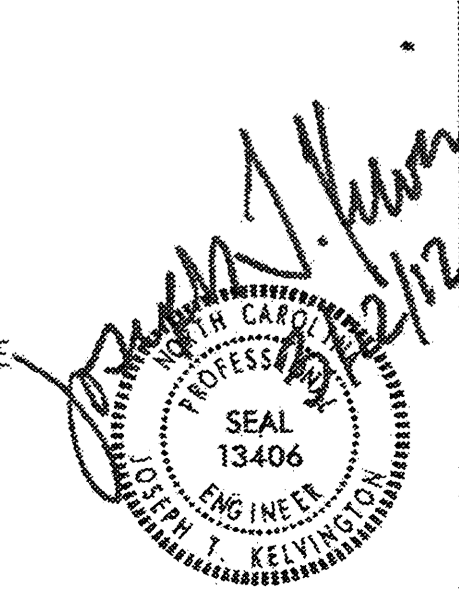
ELASTOMERIC CONCRETE	
LOCATION	QTY
END BENT 1	3.1 C.F.
END BENT 2	3.2 C.F.

TOTAL ELASTOMERIC CONC. = 6.3 C.F.  
TOTAL ELASTOMERIC CONC. = 0.2 C.Y.

PROJECT NO. WBS 17BP.6.P2  
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 CHECKED BY: J T KELMINGTON DATE: 10/11

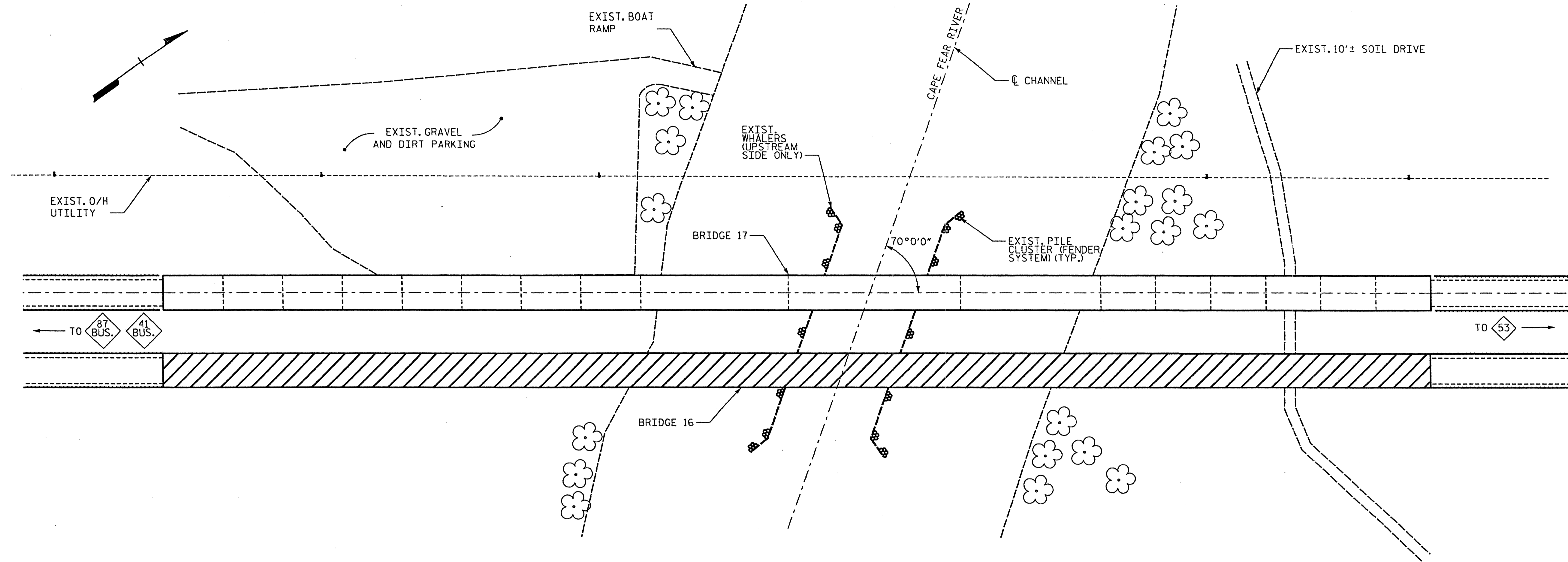


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RALEIGH

**EXPANSION JOINT DETAILS**

DECK REHAB. FOR BRIDGE NO. 107

REVISIONS						SHEET NO. 5-44
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 75
2			4			



**BRIDGE 17 ON US 701 SOUTH BOUND LANE/NC41**  
 LOCATION: BRIDGE 080017, US701/NC41 0.2 MI NORTH JCT NC87 BUSINESS

**BRIDGE 17**

**TOTAL BILL OF MATERIAL**

PLACEMENT OF EPOXY OVERLAY	CLASS II CONCRETE DECK REPAIR FOR * EPOXY ASPHALT OVERLAY	FOAM JOINT SEALS	CONCRETE * REPAIRS	SHOTCRETE * REPAIRS	SPAN JACKING BLADEN COUNTY BRIDGE #017
SQ. FT.	SQ. FT.	LUMP SUM	CU. FT.	CU. FT.	EA.
32,790	2,000	LUMP SUM	7	220	16

\* QUANTITIES ARE ESTIMATED AND CAN BE EXPECTED TO VARY FROM ACTUAL CONDITIONS ENCOUNTERED AT THE PROJECT SITE.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

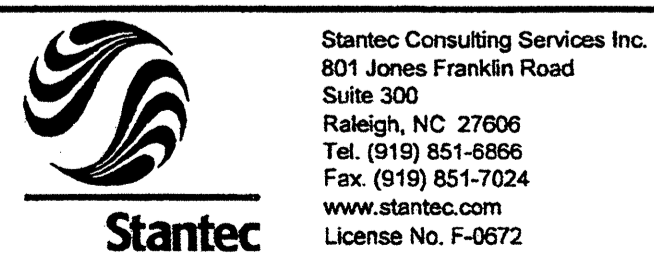
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
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LOCATION SKETCH AND TOTAL BILL OF MATERIAL

DECK REHAB. FOR BRIDGE NO. 17

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S- 45
1			3			TOTAL SHEETS
2			4			75

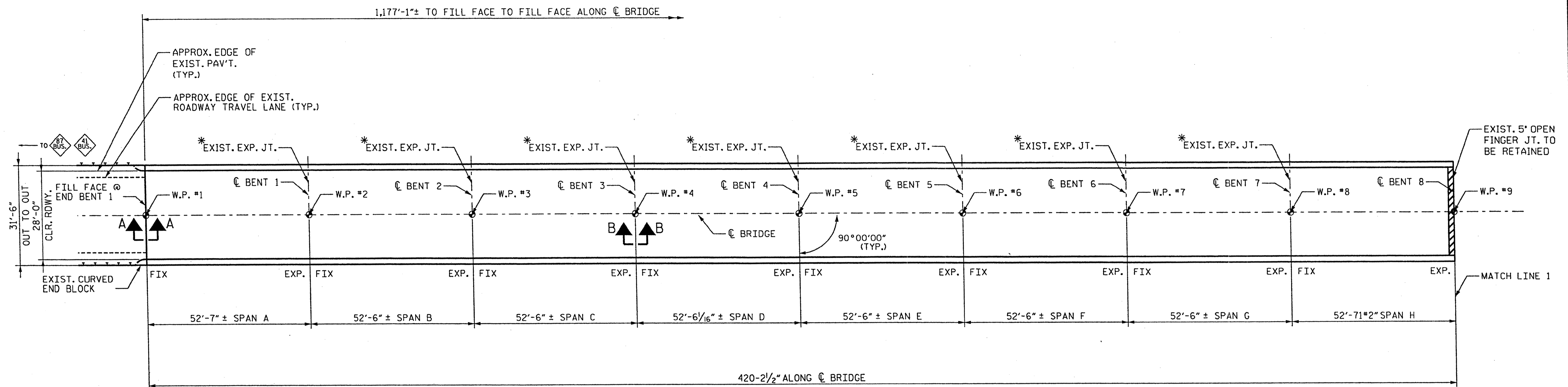
*Joseph Kelvington*  
 13406  
 ENGINEER  
 J. T. KELVINGTON



DRAWN BY : C. T. MCCULLOUGH DATE : 11/11  
 CHECKED BY : J. T. KELVINGTON DATE : 11/11

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 12/19/2011  
 2011\WBS 17BP.6.P.2 Robeson Co\Bladen Bridge 017\Drawing\BPT.LS.BOM.dgn

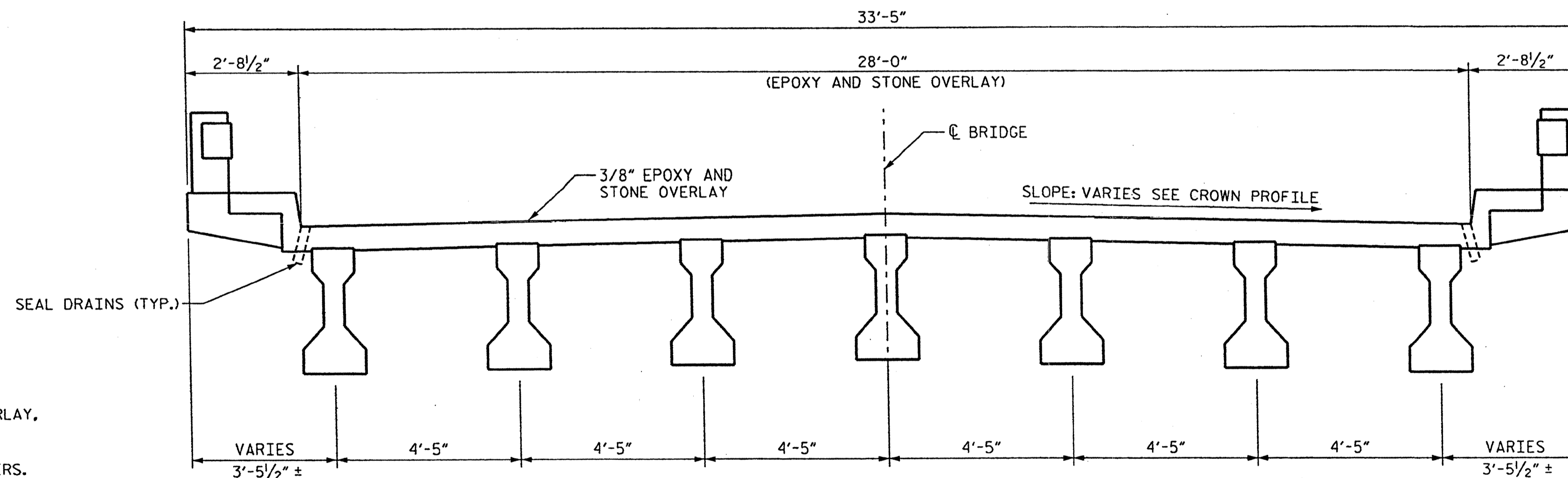




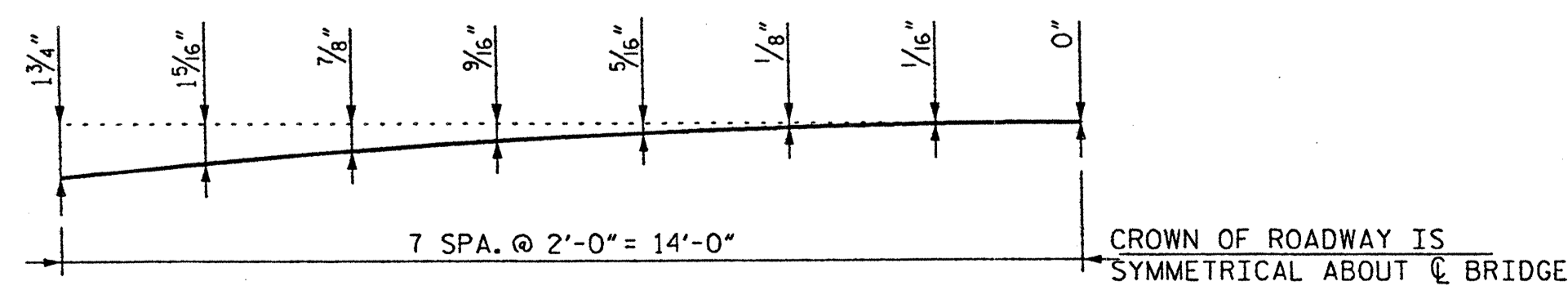
**PLAN VIEW-SPANS A-H**

NOTE: BARRIER RAILING, POSTS AND BRACKET DETAILS NOT SHOWN FOR CLARITY  
SECTION B-B IS TYPICAL @ BENTS 1-7

\* ALL EXIST. EXPANSION JOINTS ARE TO BE SEALED. SEE SHT. S-49 FOR DETAILS.



**TYPICAL SECTION**



**EXISTING CROWN PROFILE**

**NOTES**

- FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.
- SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR SECTIONS A-A AND B-B SEE SHT. S-49
- FOR TRAFFIC CONTROL AND TRAFFIC PHASING DETAILS, SEE TRANSPORTATION MANAGEMENT PLANS.
- ALL DIMENSIONS AND QUANTITIES SHOWN ARE APPROXIMATE.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

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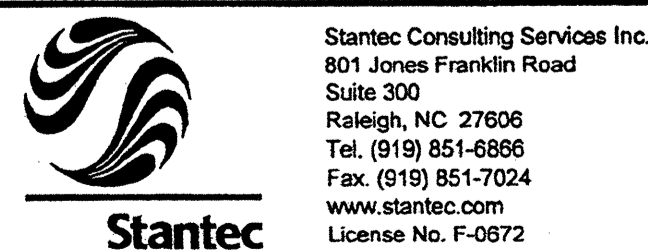
DECK REPAIR DETAILS FOR BRIDGE #17

DECK REHAB. FOR BRIDGE NO. 17

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
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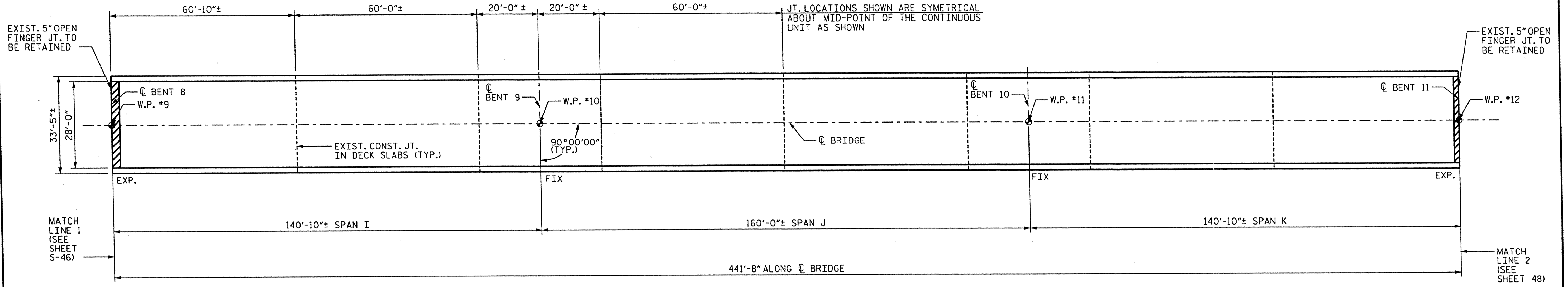
*Joseph Kelvington*

Professional Engineer Seal: T. KELVINGTON, No. 13406



DRAWN BY: C T MCCULLOUGH DATE: 11/11  
CHECKED BY: J T KELVINGTON DATE: 11/11

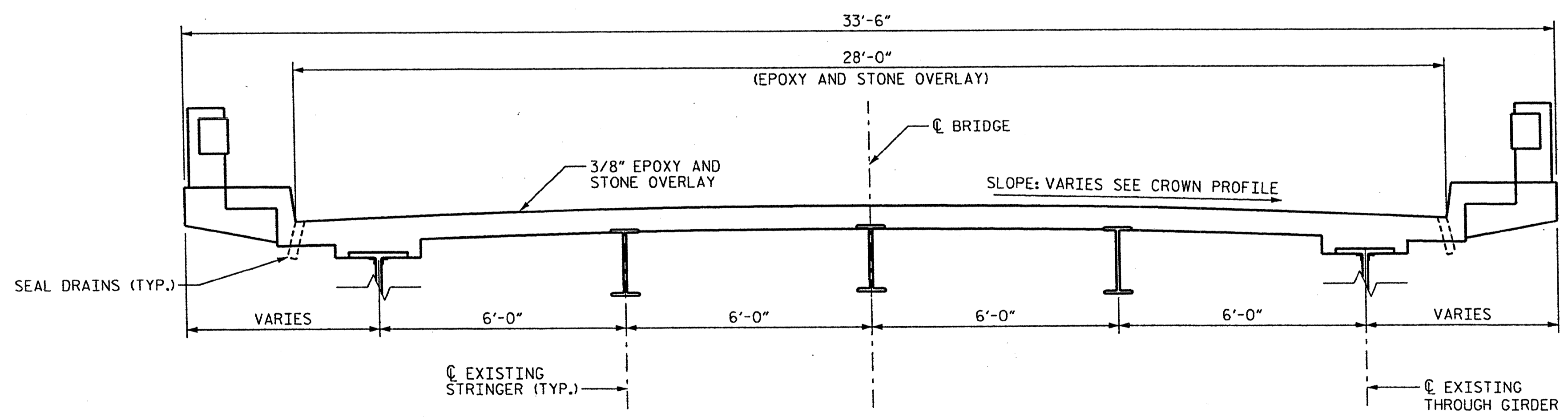
Group 2011 WBS 17BP.6.P.2 Roberson Co\Bladen Bridge.dwg 12/19/2011 12:48:12 PM Jgelle



**PLAN VIEW - CONTINUOUS UNIT (SPANS I-K)**

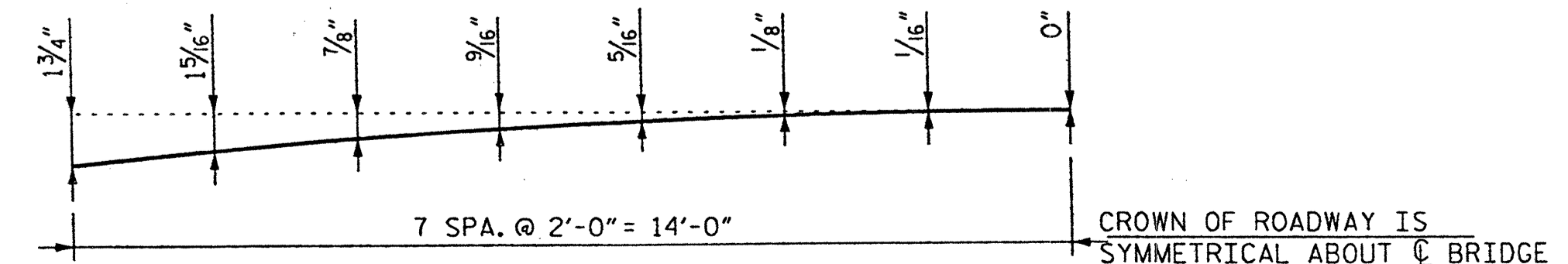
NOTE: BARRIER RAILING, POSTS, AND BRACKET DETAILS NOT SHOWN FOR CLAIRITY.

\* ALL EXIST. EXPANSION JOINTS ARE TO BE SEALED, SEE SHT. S-49 FOR DETAILS.



**TYPICAL SECTION**

FLOOR BEAM AND BRACING SYSTEM DETAIL NOT SHOWN FOR CLAIRITY.



**EXISTING CROWN PROFILE**

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK REPAIR DETAILS FOR BRIDGE #17					
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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SHEET NO.					S-47
TOTAL SHEETS					75

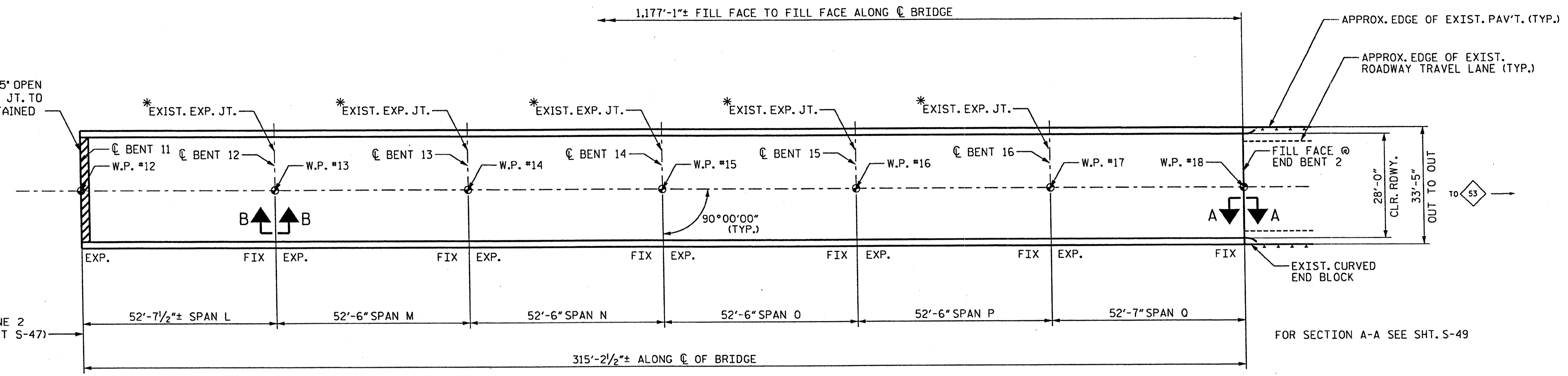
*Joseph Kelvington*  
 12/11/11  
 SEAL  
 113406  
 ENGINEER  
 J. KELVINGTON



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

EXIST. 5' OPEN FINGER JT. TO BE RETAINED

MATCH LINE 2 (SEE SHEET S-47)

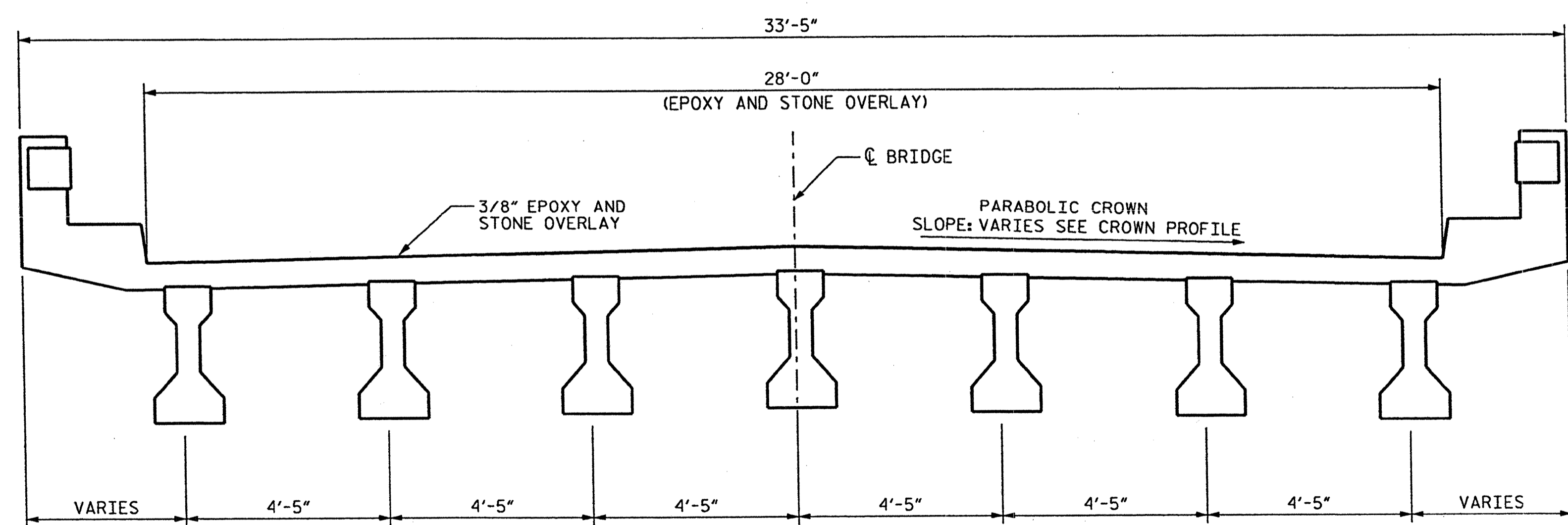


**PLAN VIEW - SPANS L-Q**

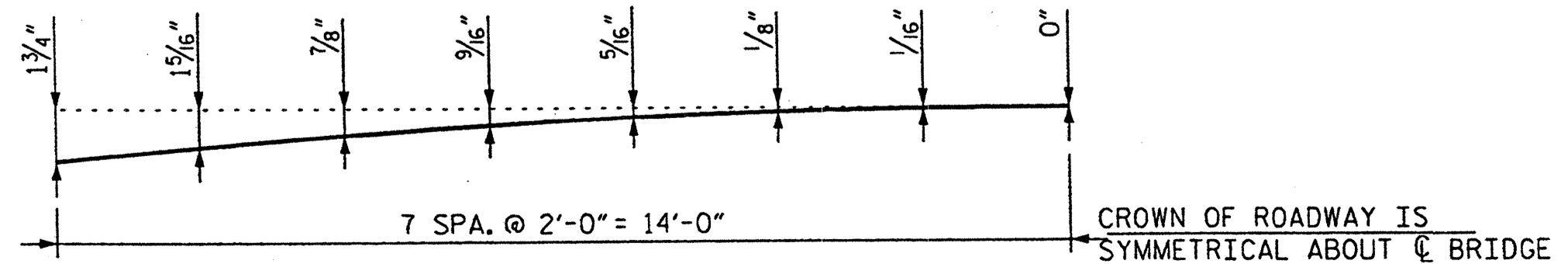
NOTE: BARRIER RAILING, POSTS AND BRACKET DETAILS NOT SHOWN FOR CLARITY

\* ALL EXIST. EXPANSION JOINTS ARE TO BE SEALED. SEE SHT. S-49 FOR DETAILS.

SECTION B-B IS TYPICAL @ BENTS 12-16. FOR SECTION B-B, SEE SHT. S-49.



**TYPICAL SECTION**



**EXISTING CROWN PROFILE**

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS FOR BRIDGE #17**

**DECK REHAB. FOR BRIDGE NO. 17**

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

SHEET NO. S-48  
 TOTAL SHEETS 75

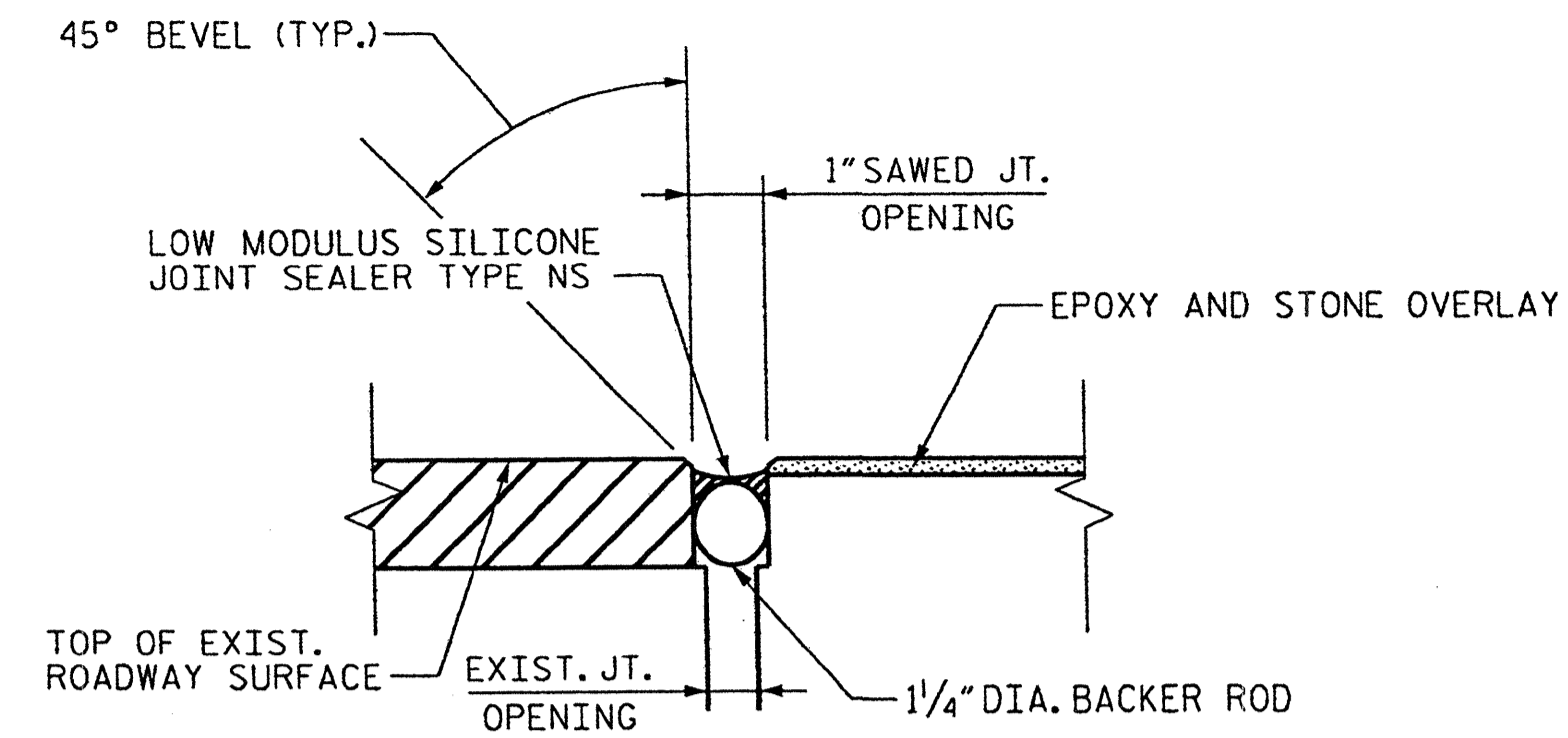
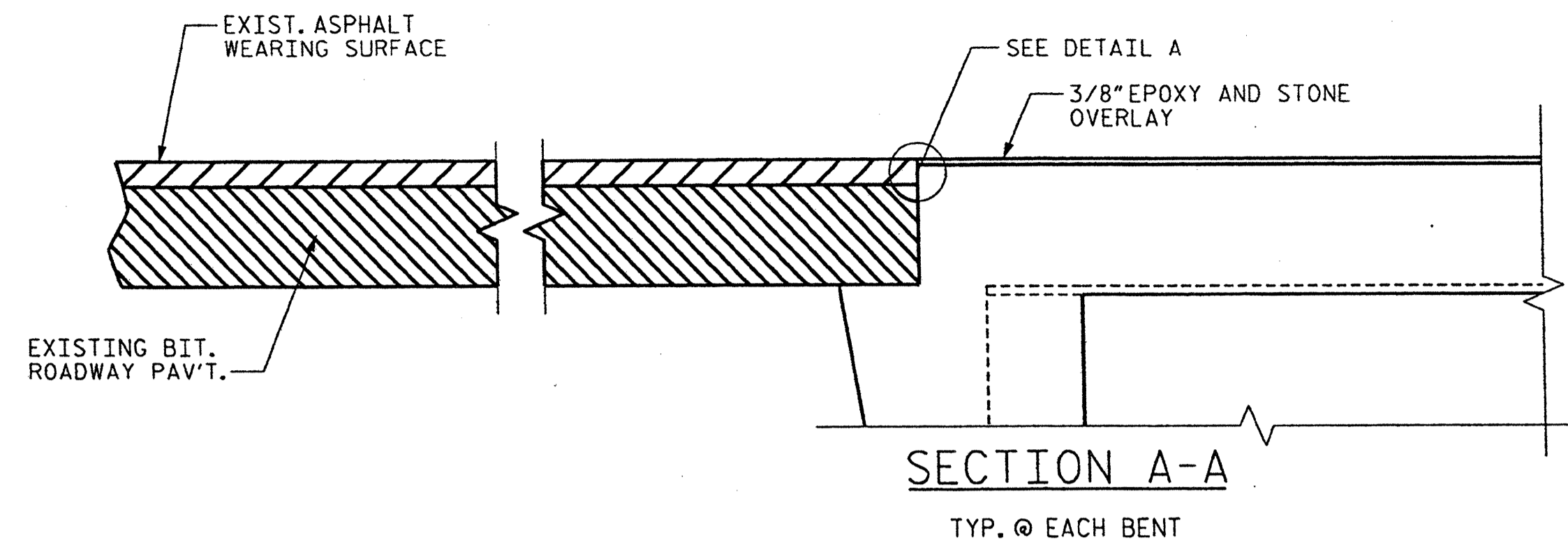
*Joseph J. Kelvington*  
 12/11/11  
 PROFESSIONAL ENGINEER  
 REAL 13406  
 NORTH CAROLINA  
 KELVINGTON

**Stantec**

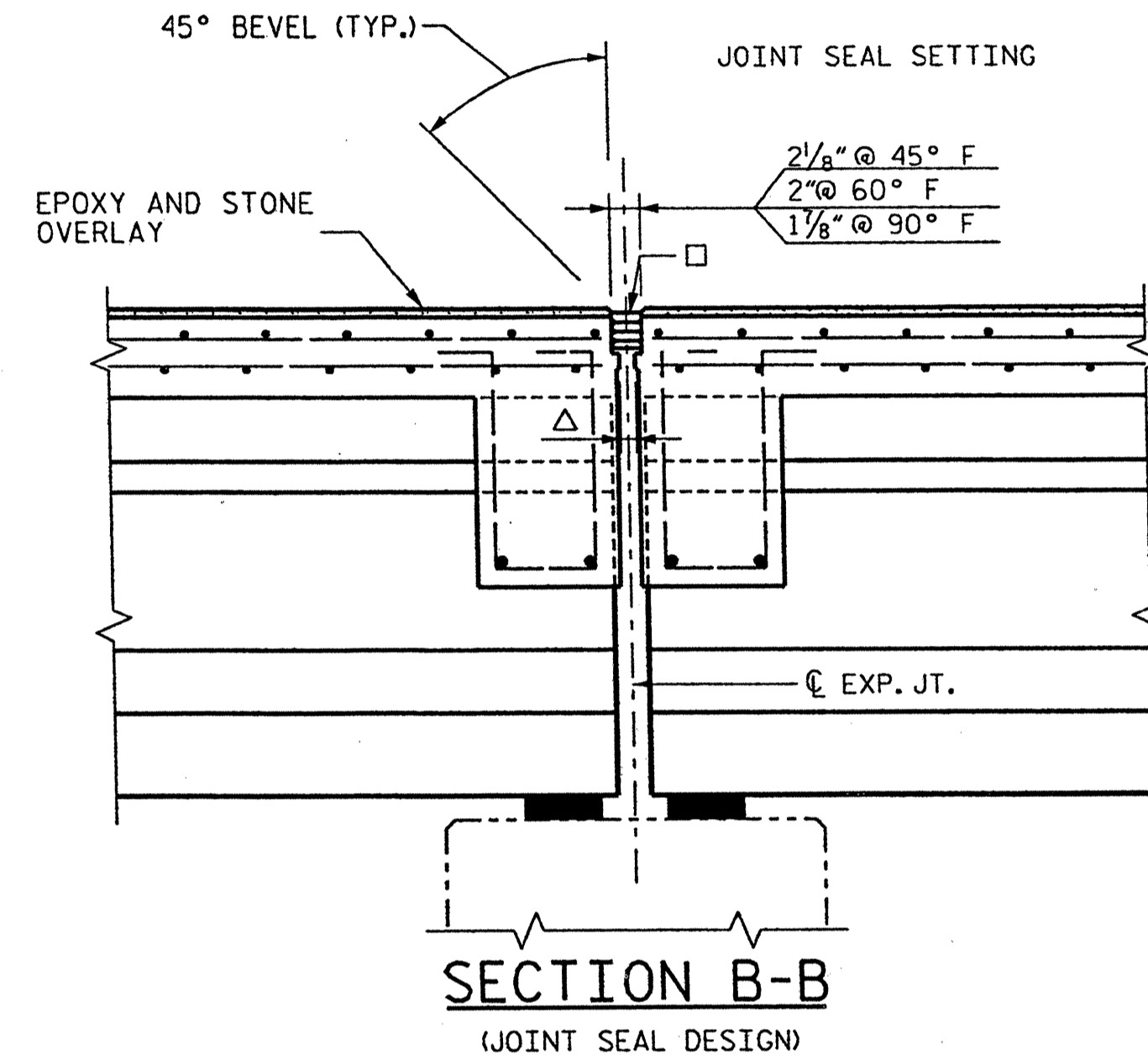
Stantec Consulting Services Inc.  
 801 Jones Franklin Road  
 Suite 300  
 Raleigh, NC 27606  
 Tel. (919) 851-6866  
 Fax. (919) 851-7024  
 www.stantec.com  
 License No. F-0672

9 Cr-rup 2011\WBS 17BP.6.P.2 Roberson Co\Bladen Bridge 017\Drawing\BPT-P1S -3.dgn 12/20/2011 12:02 PM Jgelle

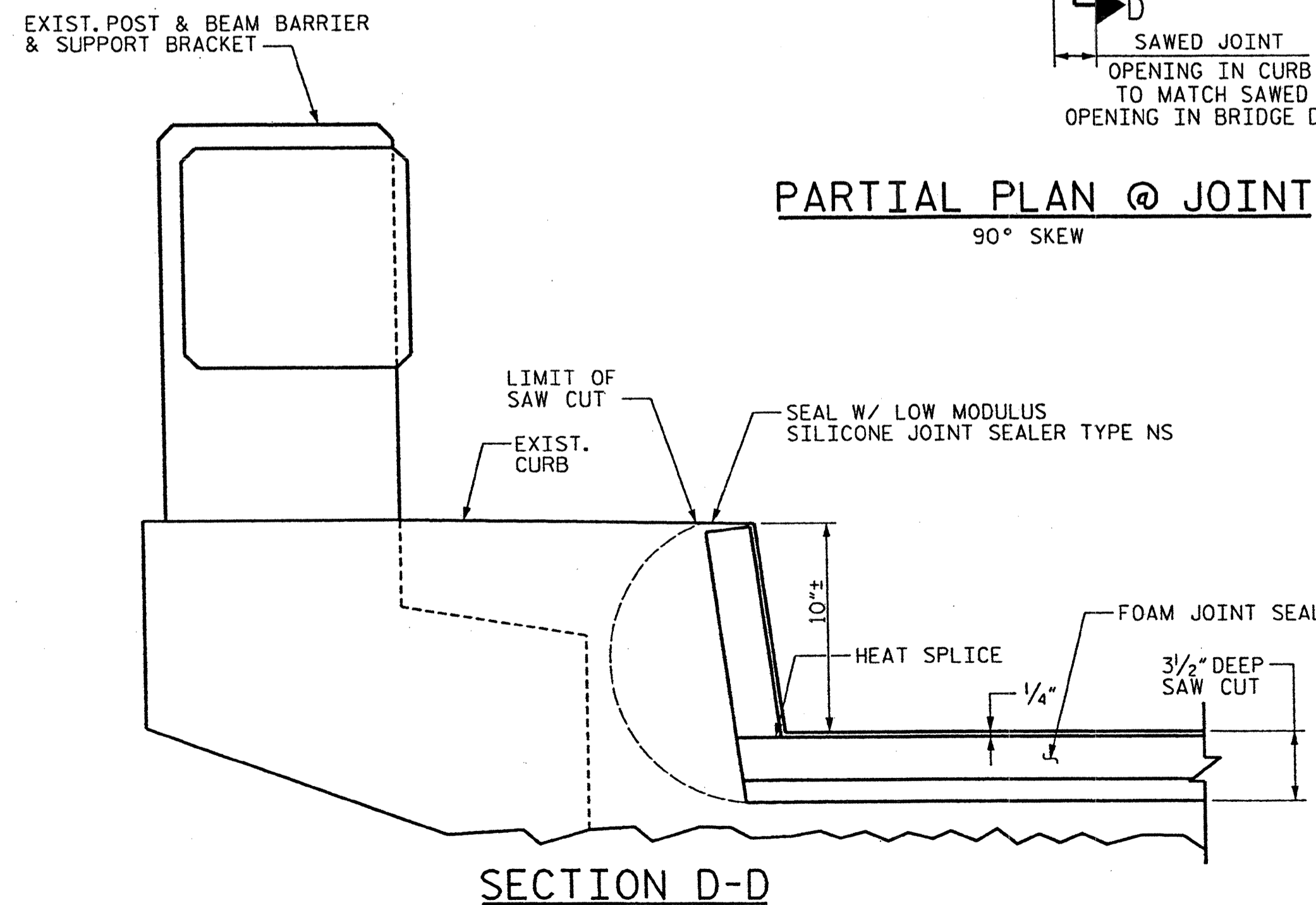
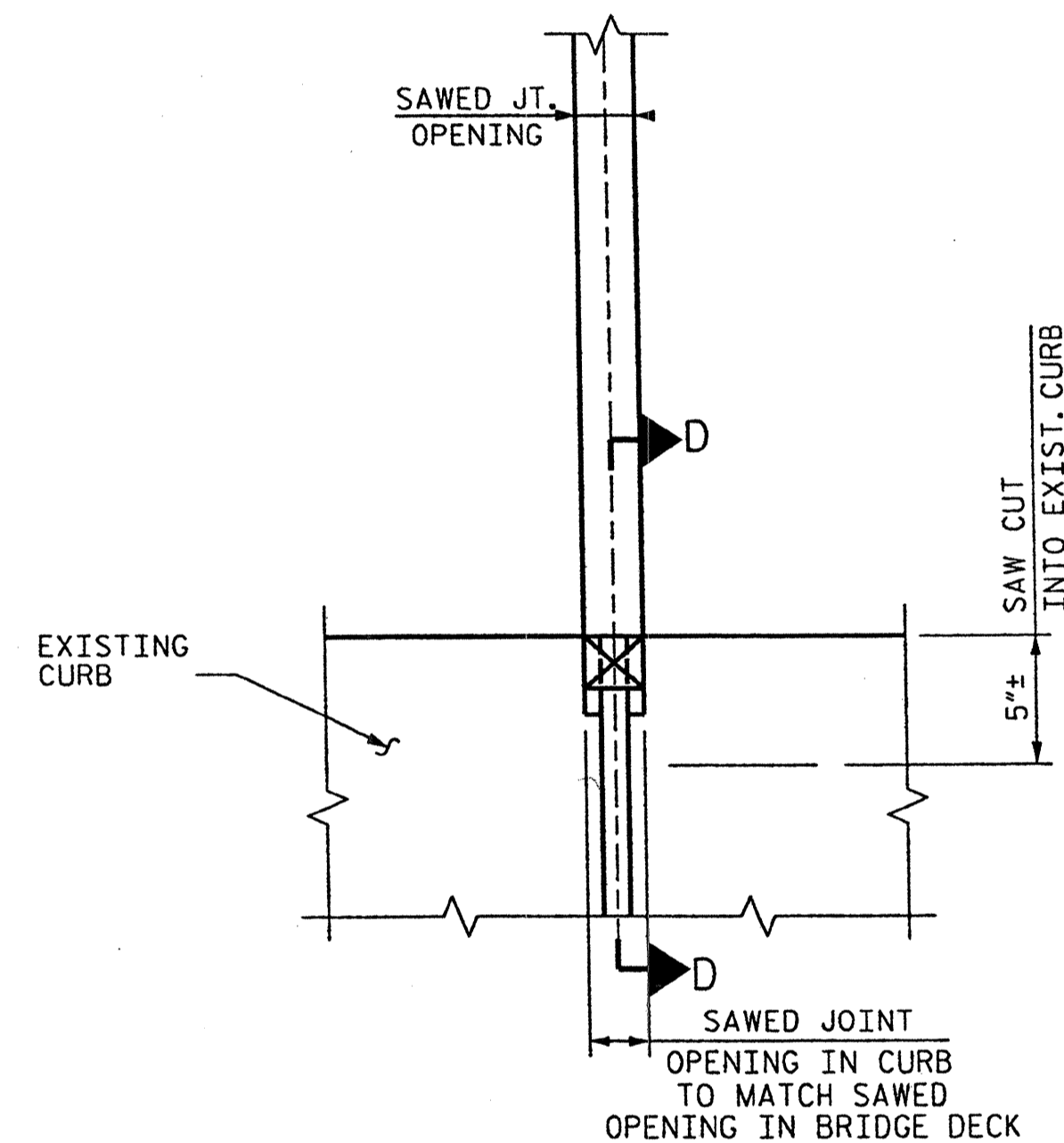
DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11



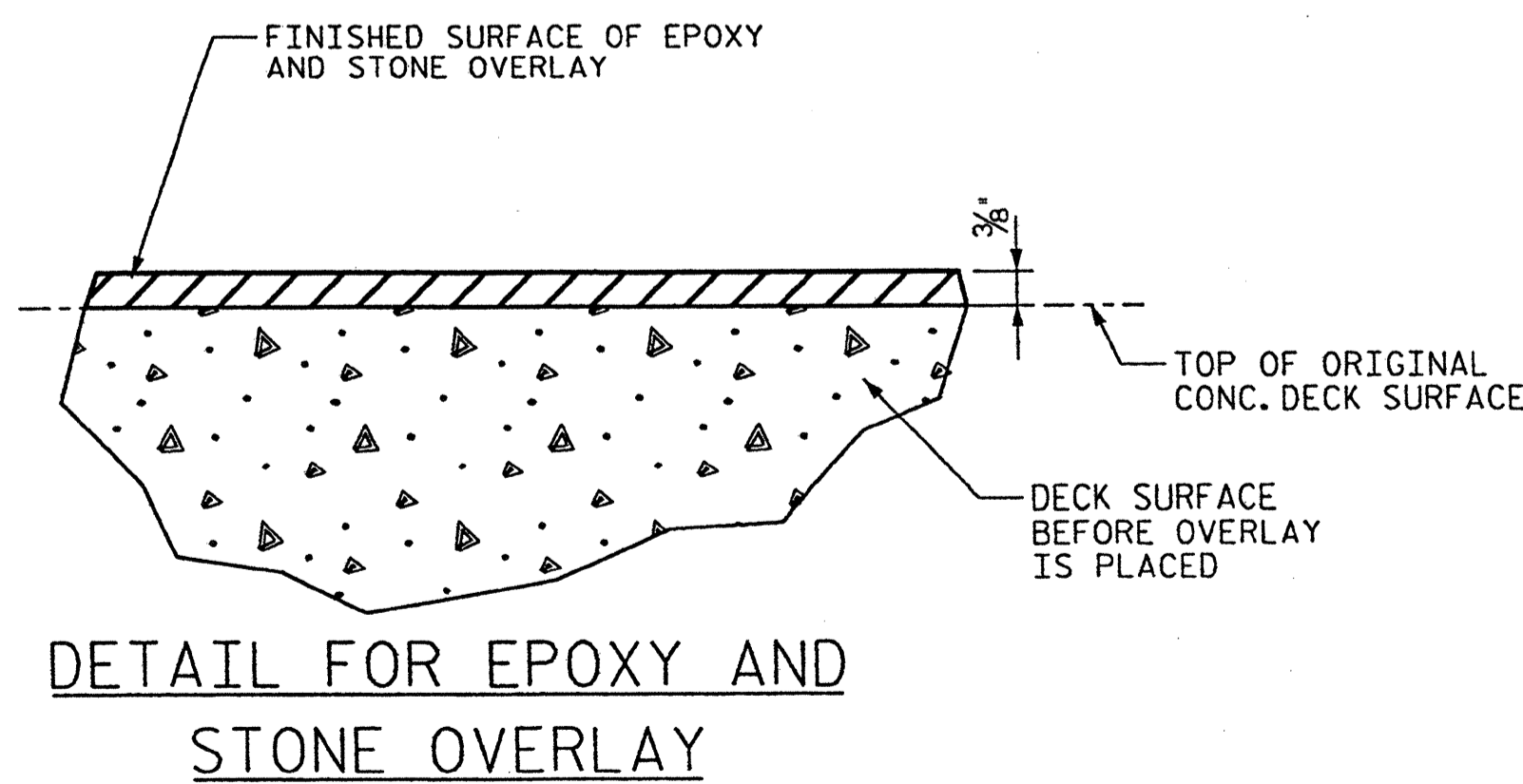
1 1/4" DIA. BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPERATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. CONTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



- USE 2.8125" X 2.5" UNCOMPRESSED FOAM JT. SEAL MATERIAL
  - △ 1" FORMED OPENING
- JOINT SEAL SETTINGS SHOWN ARE APPLICABLE FOR SEALS AT BENT 1-BENT 7 AND BENT 12-BENT 16



CONTRACTOR SHALL EXERCISE CARE TO AVOID CUTTING OR DAMAGING EXISTING REINF. STEEL.



PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

DECK REPAIR DETAILS  
 FOR BRIDGE #096

DECK REHAB. FOR BRIDGE NO. 17

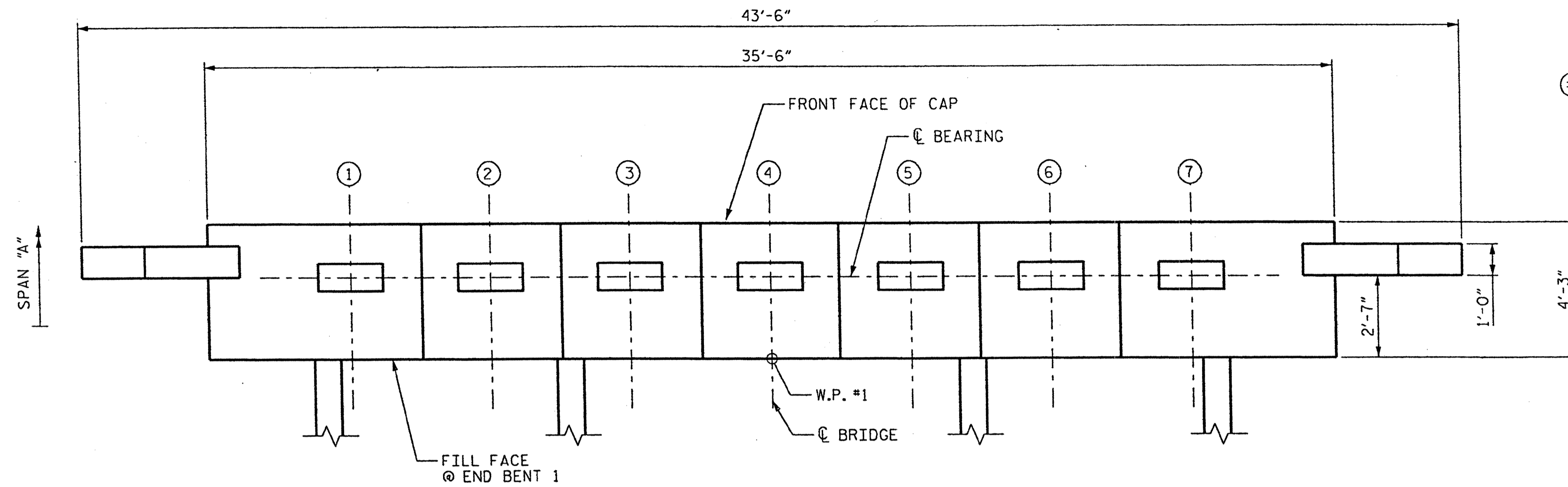
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			75

*Joseph J. Kelvington*  
 12/11/2011  
 ENGINEER

12/22/11 PM Jgelle 12/19/2011 12:22:47 PM Jgelle 12/19/2011 12:22:47 PM Jgelle

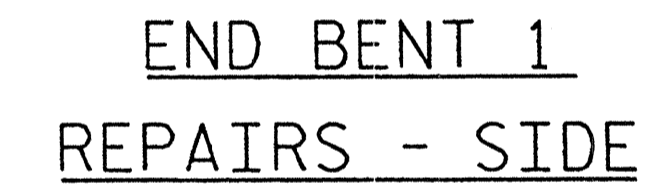
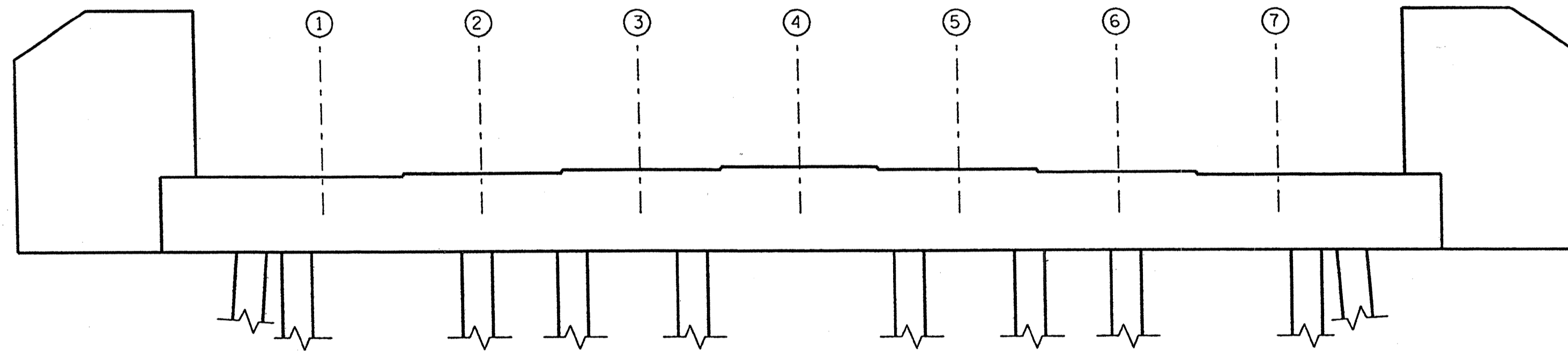
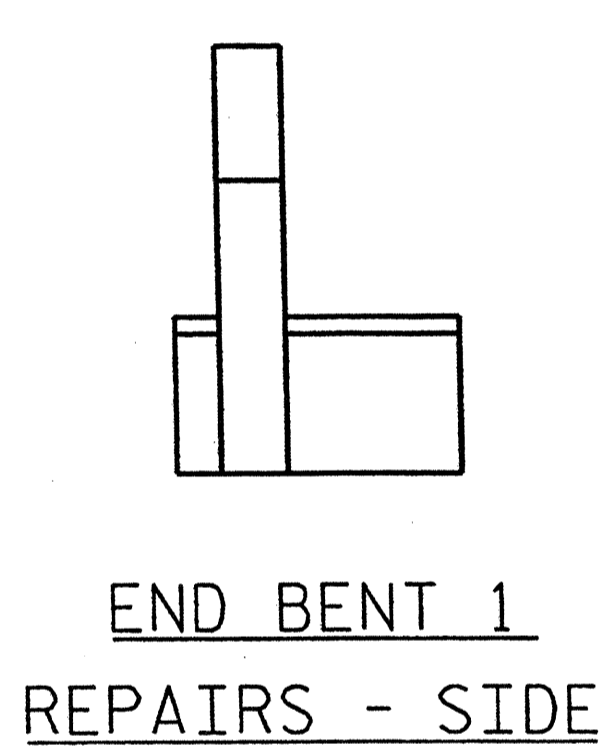
Stantec Consulting Services Inc.  
 801 Jones Franklin Road  
 Suite 300  
 Raleigh, NC 27606  
 Tel. (919) 851-6856  
 Fax. (919) 851-7024  
 www.stantec.com  
 License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

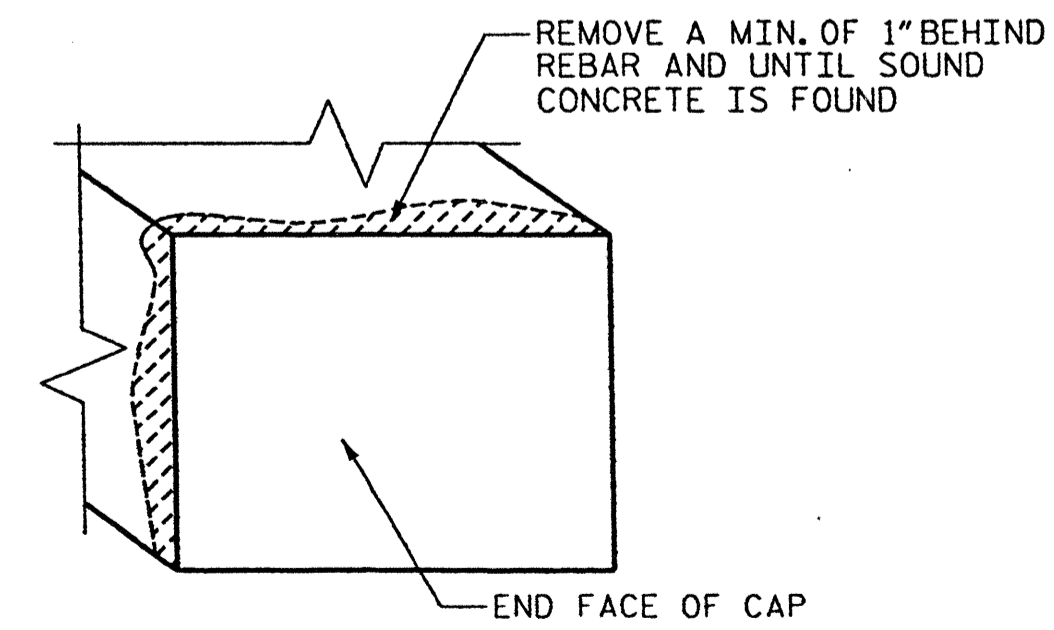
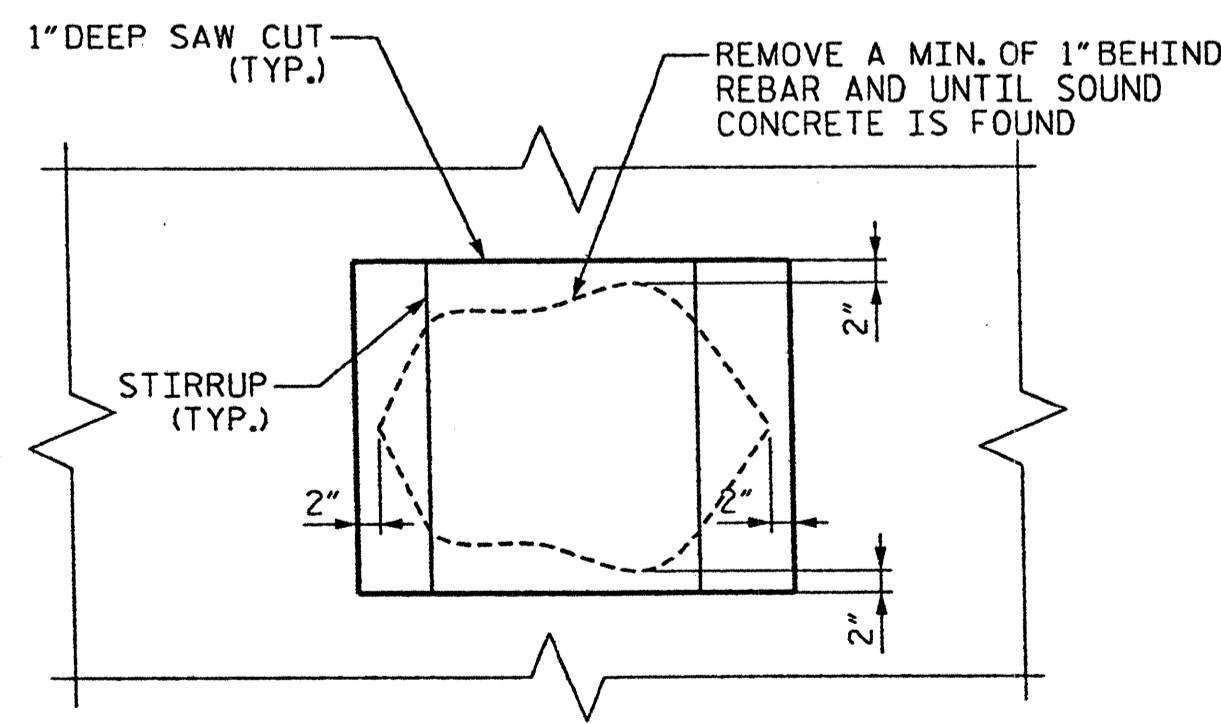
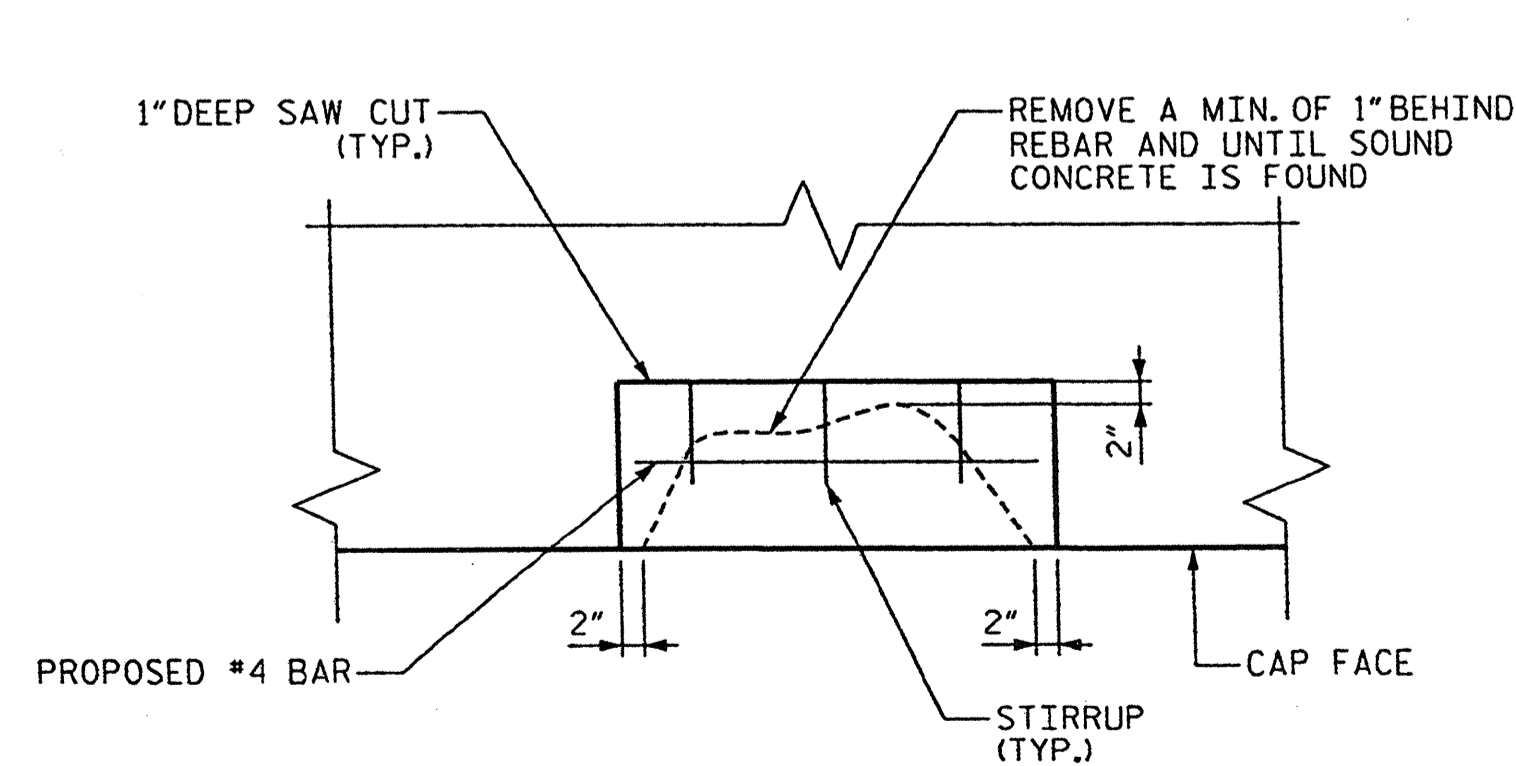


END BENT 1 REPAIRS - PLAN OF CAP

TOTAL ESTIMATED QUANTITIES  
 CONCRETE REPAIR 0 C.F.  
 SHOTCRETE REPAIR 0 C.F.



NOTES:  
 REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.  
 ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.  
 AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

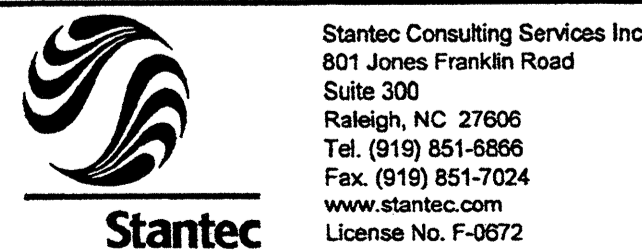
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT 1

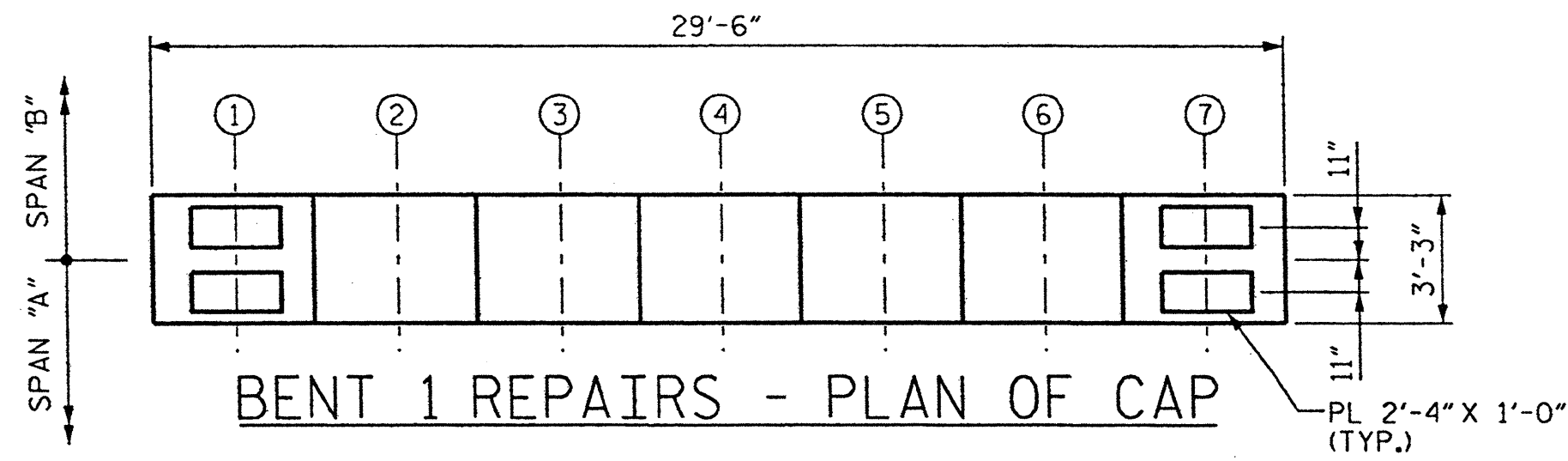
DECK REHAB. FOR BRIDGE NO. 17

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			75

*Joseph J. Kelvington*  
 12/11  
 PROFESSIONAL ENGINEER  
 No. 133406  
 STATE OF NORTH CAROLINA



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

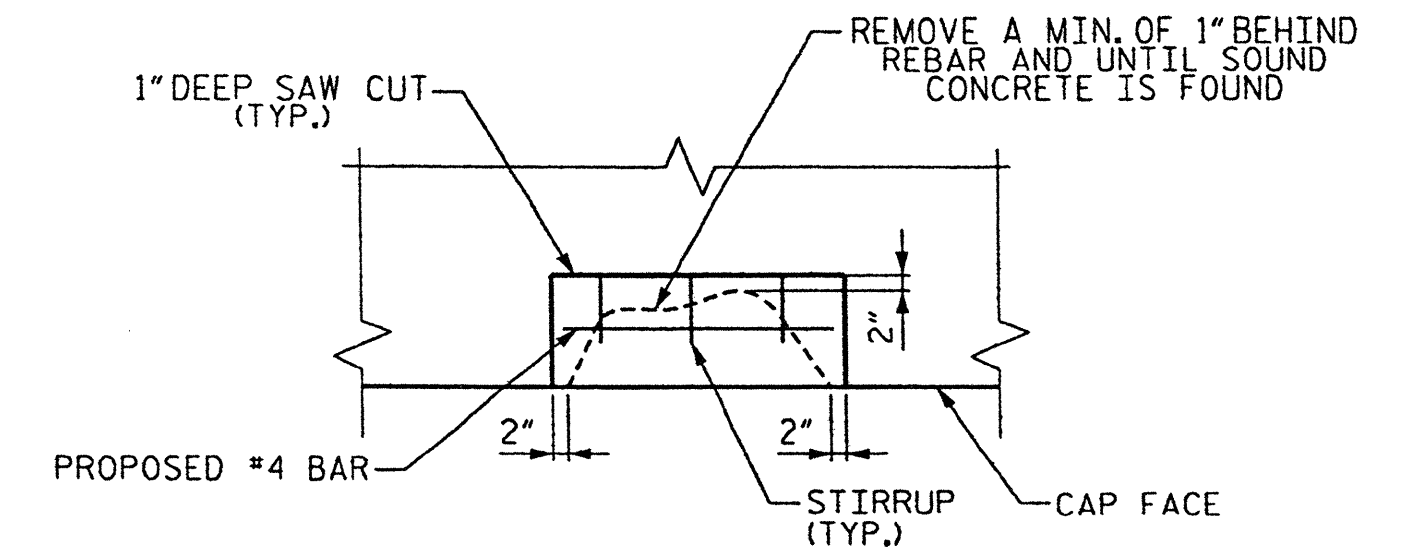


NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

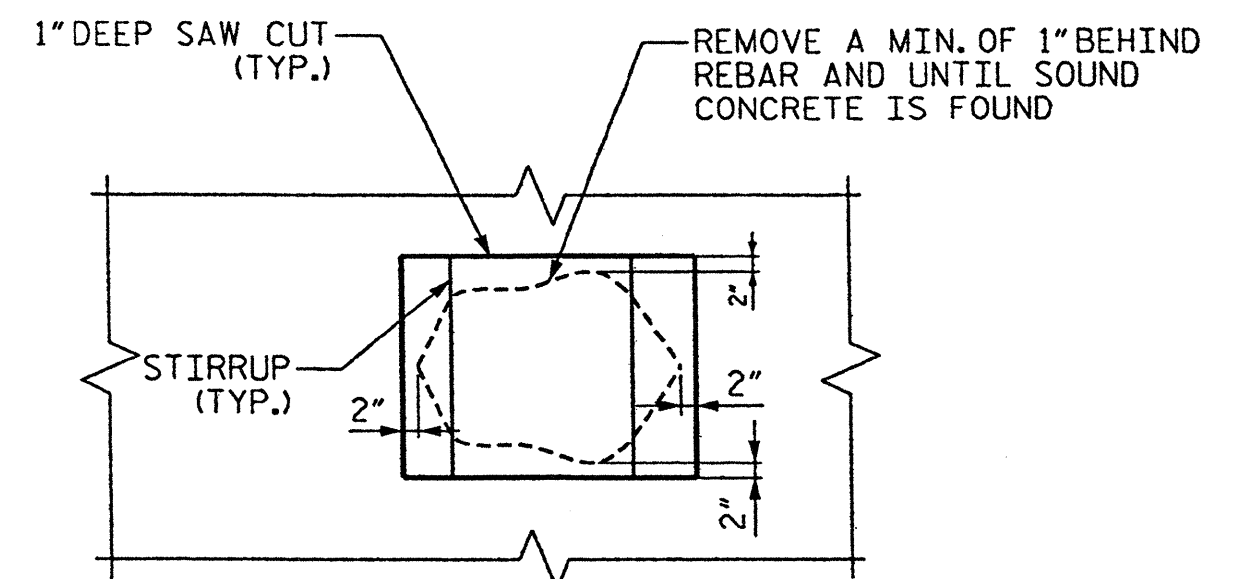
NOTES:  
REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.

ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.

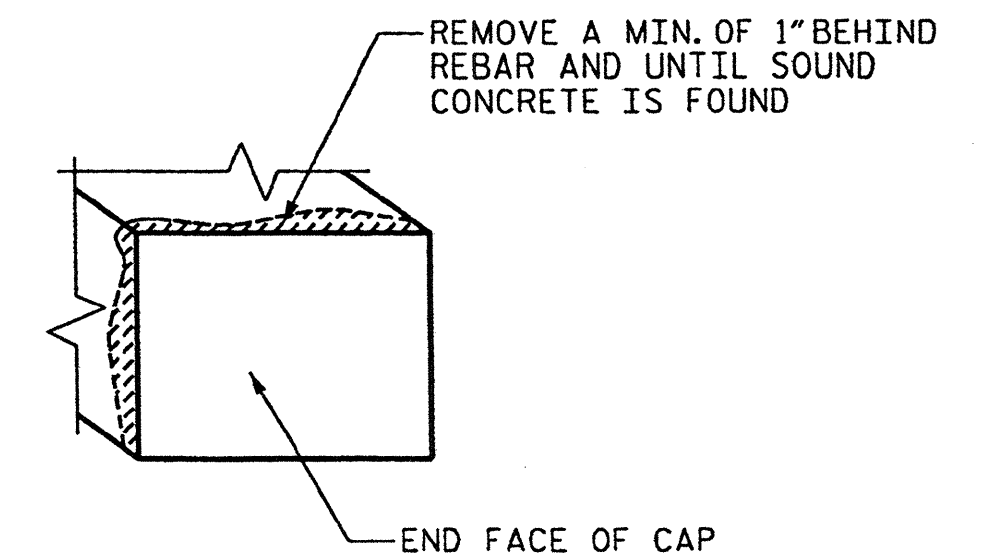
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



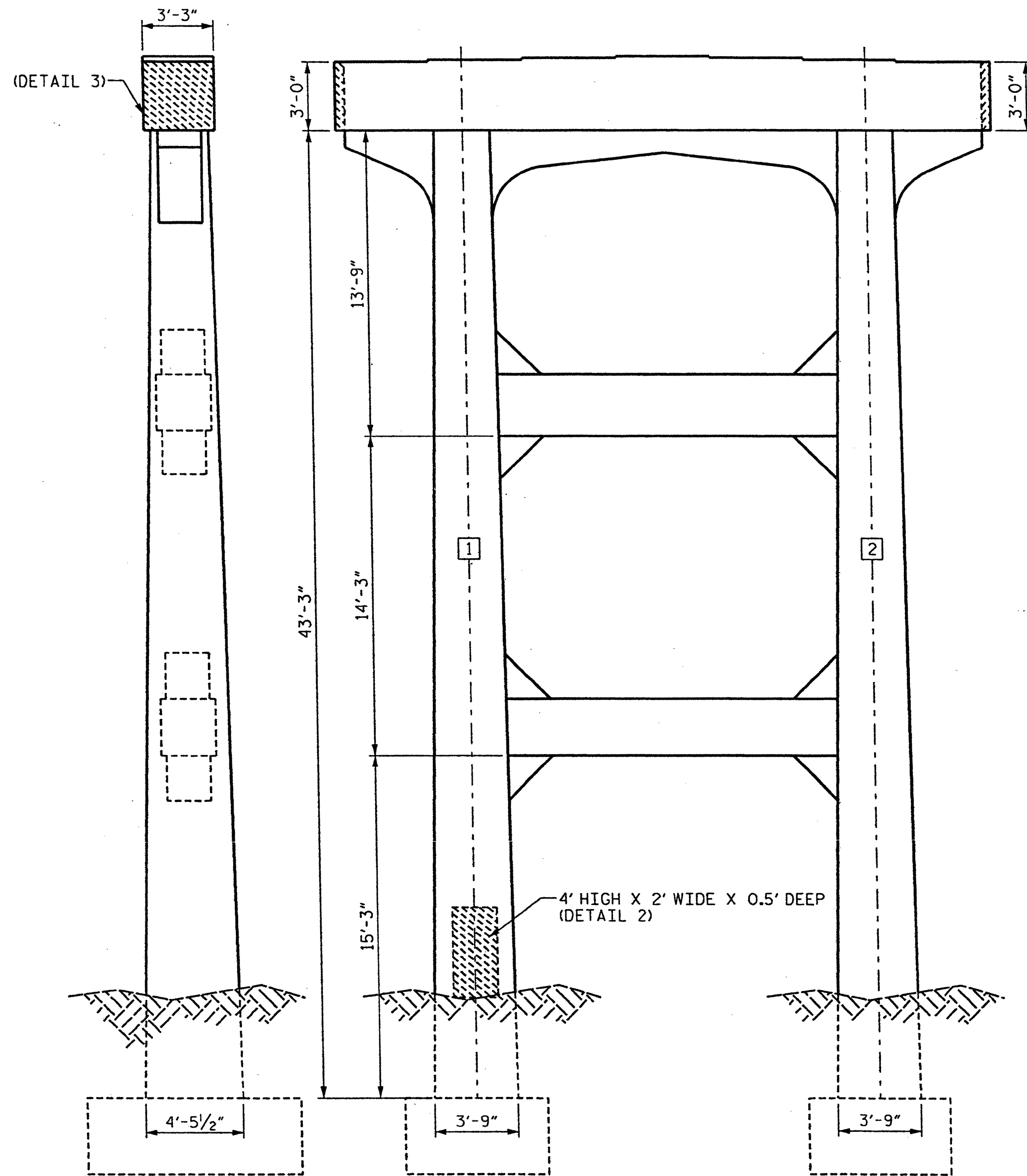
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

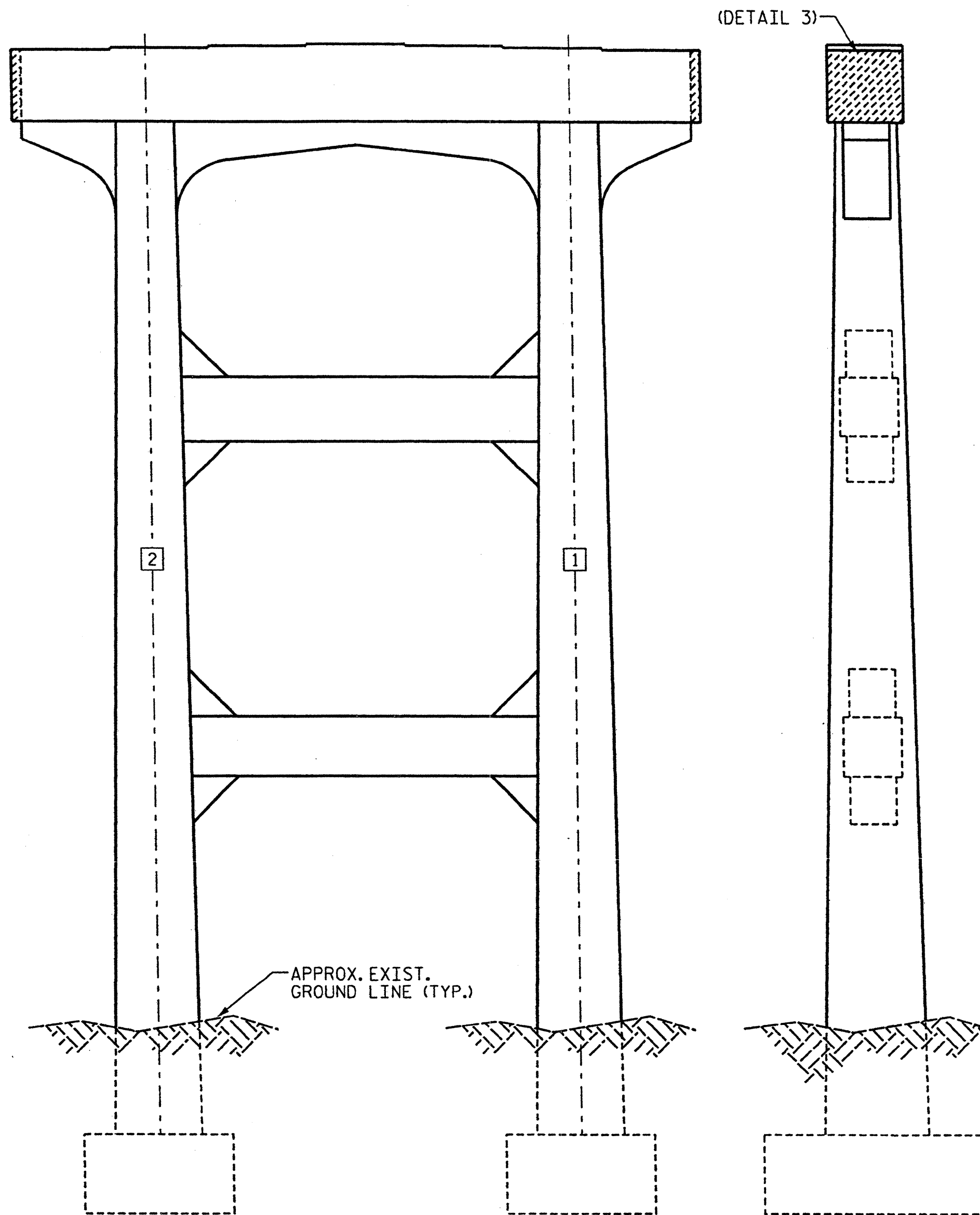


TYPICAL REPAIR DETAIL 3



BENT 1 REPAIRS  
END VIEW - COL. 1

BENT 1 REPAIRS  
ELEVATION (SPAN A SIDE)



BENT 1 REPAIRS  
ELEVATION (SPAN B SIDE)

BENT 1 REPAIRS  
END VIEW - COL. 2

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH		BENT 1	
DECK REHAB. FOR BRIDGE NO. 17			
REVISIONS			
NO.	BY:	DATE:	NO.
1			3
2			4
SHEET NO. S-51			TOTAL SHEETS 75

C:\pup\_2011\WBS\_17BP.6.P.2\_Roberson Co\Bladen Bridge 017\_Drawing\BP17\_Repair\_Bent1.dgn 12/19/2011 12:22:21 PM Jjelle

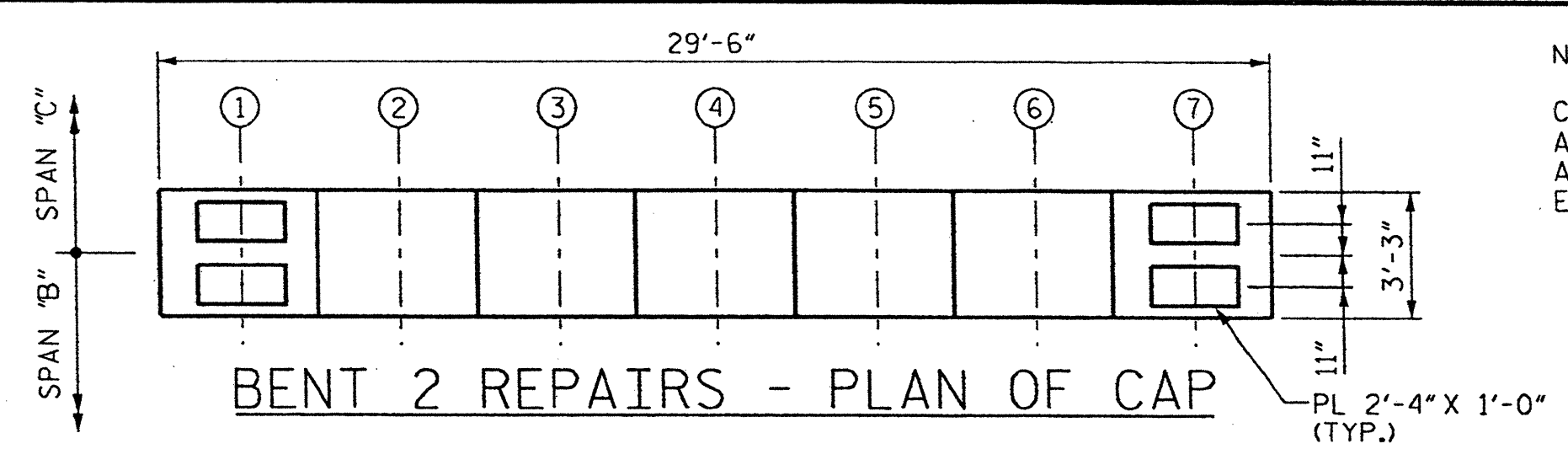
**Stantec**  
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6886  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: C.T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J.T. KELVINGTON DATE: 11/11

■ DENOTES COLUMN NO.

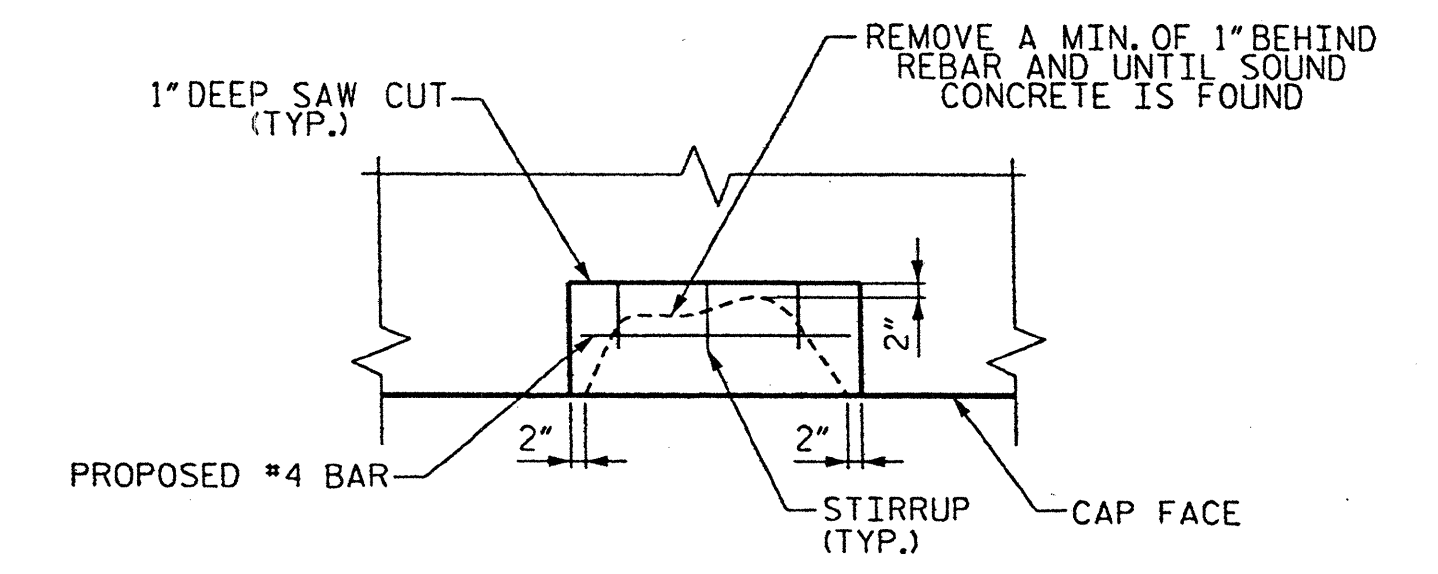
TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 15 C.F.

*Joseph Kelvington*  
Professional Engineer  
No. 406  
State of North Carolina

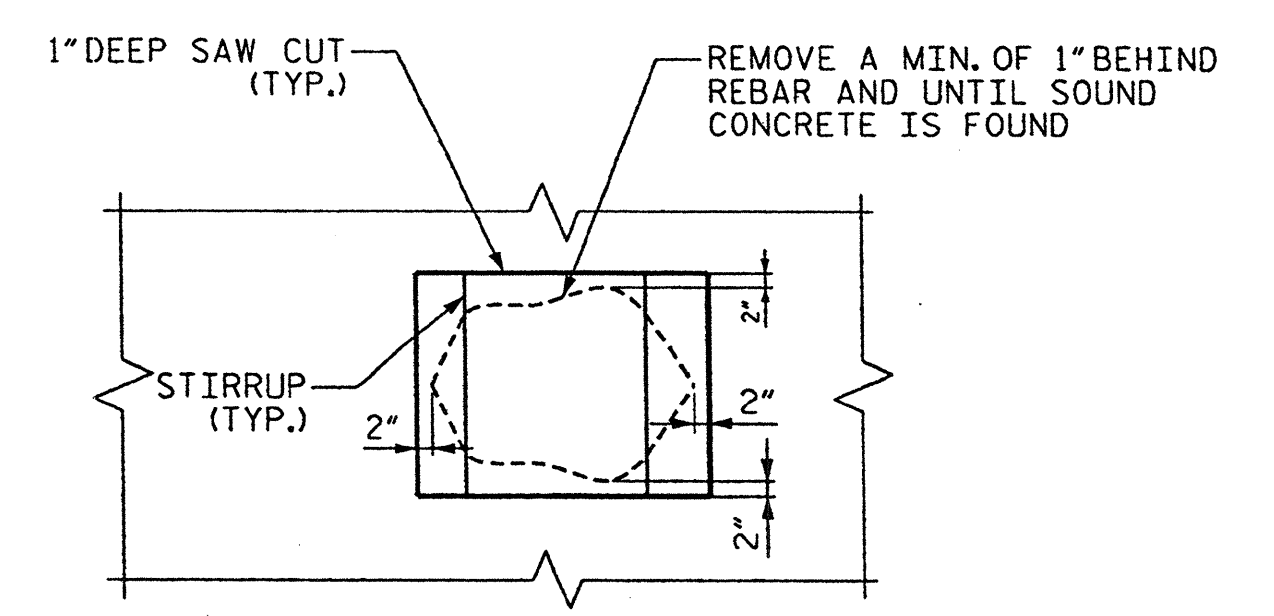


NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

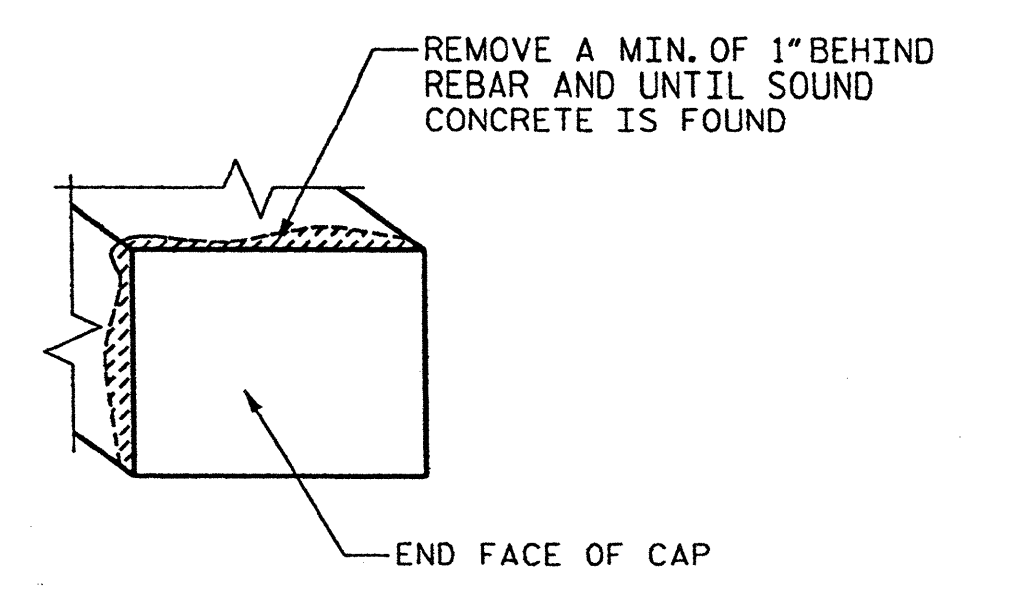
NOTES:  
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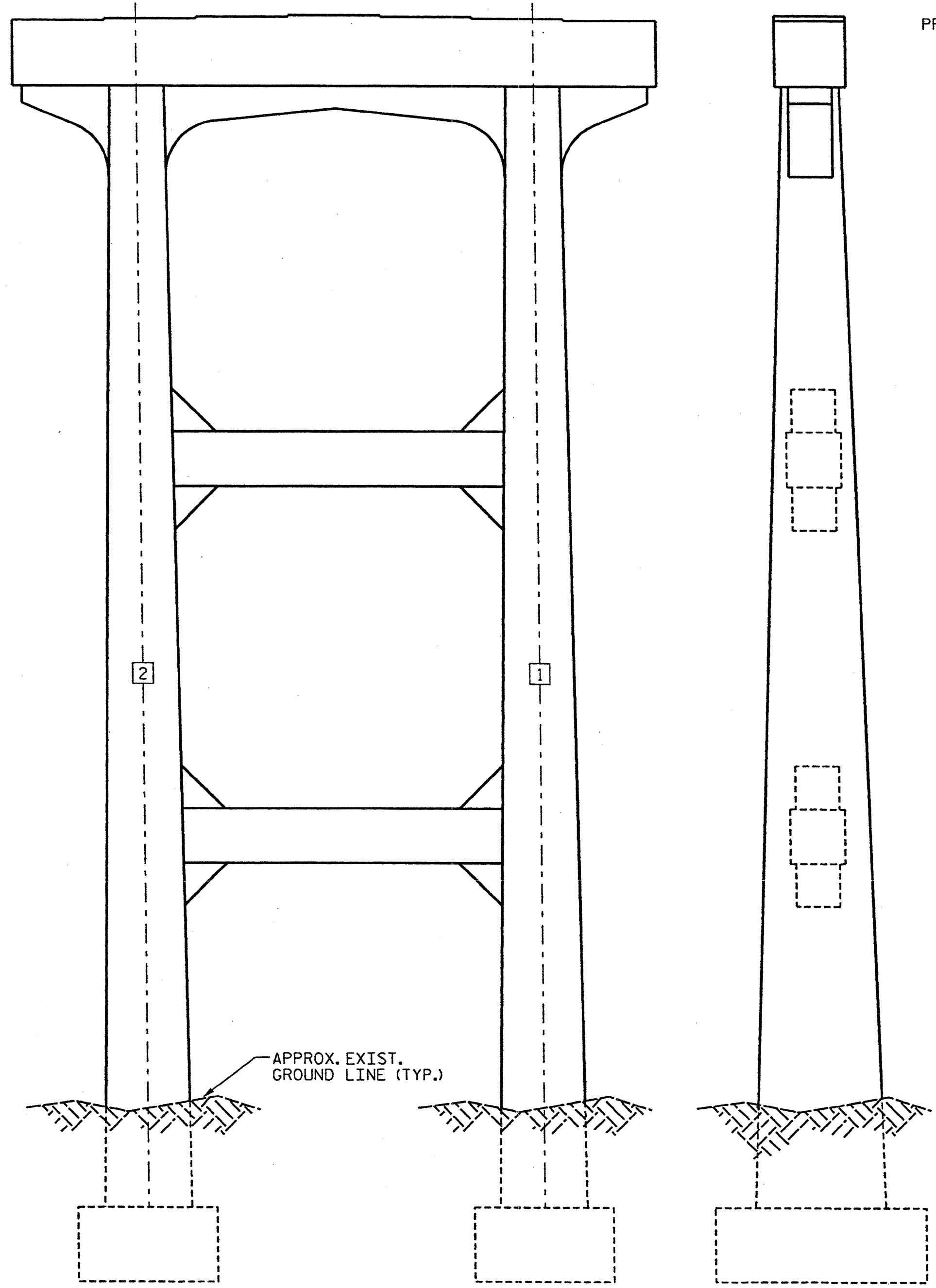
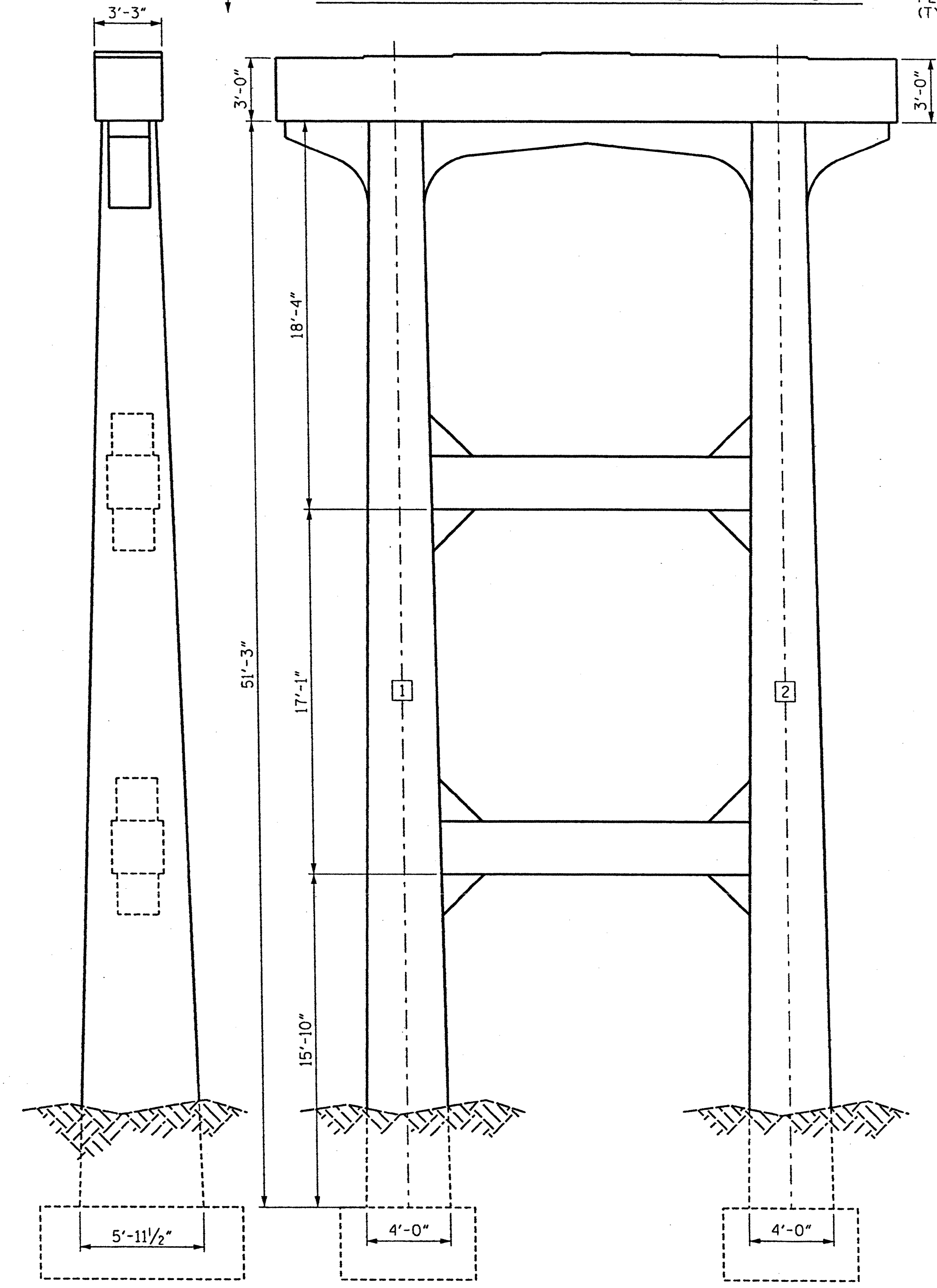
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3



BENT 2 REPAIRS END VIEW - COL 1

BENT 2 REPAIRS ELEVATION (SPAN B SIDE)

BENT 2 REPAIRS ELEVATION (SPAN C SIDE)

BENT 2 REPAIRS END VIEW - COL 2

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				BENT 2	
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					5-52
TOTAL SHEETS					75

*Joseph J. Kelvington*  
12/11/11  
PROFESSIONAL ENGINEER  
STATE OF NORTH CAROLINA  
LICENSE NO. 3406

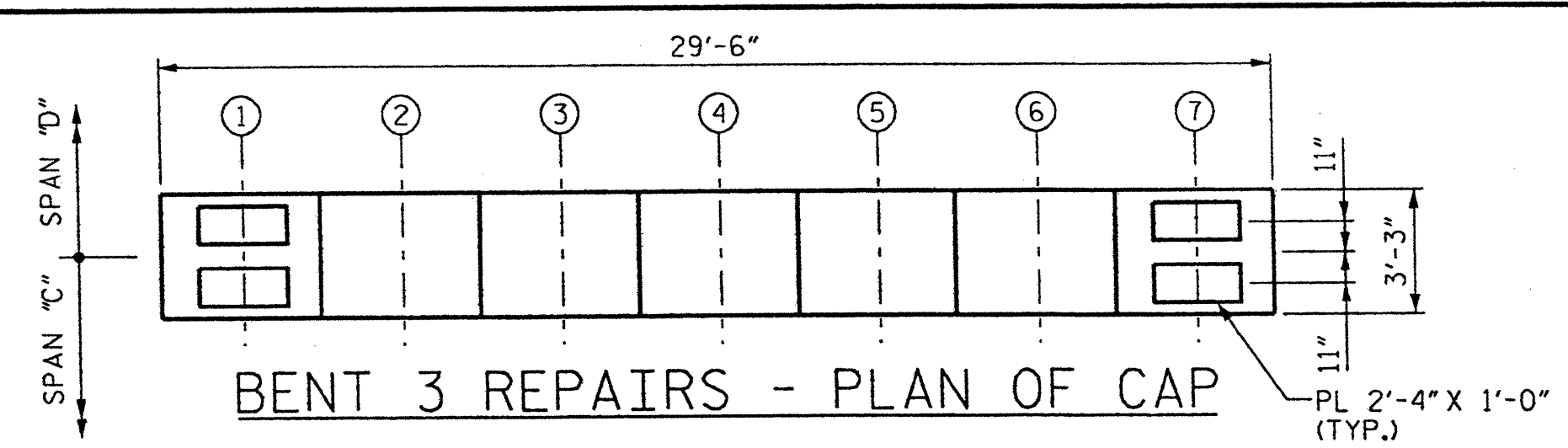
TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 0 C.F.

□ DENOTES COLUMN NO.



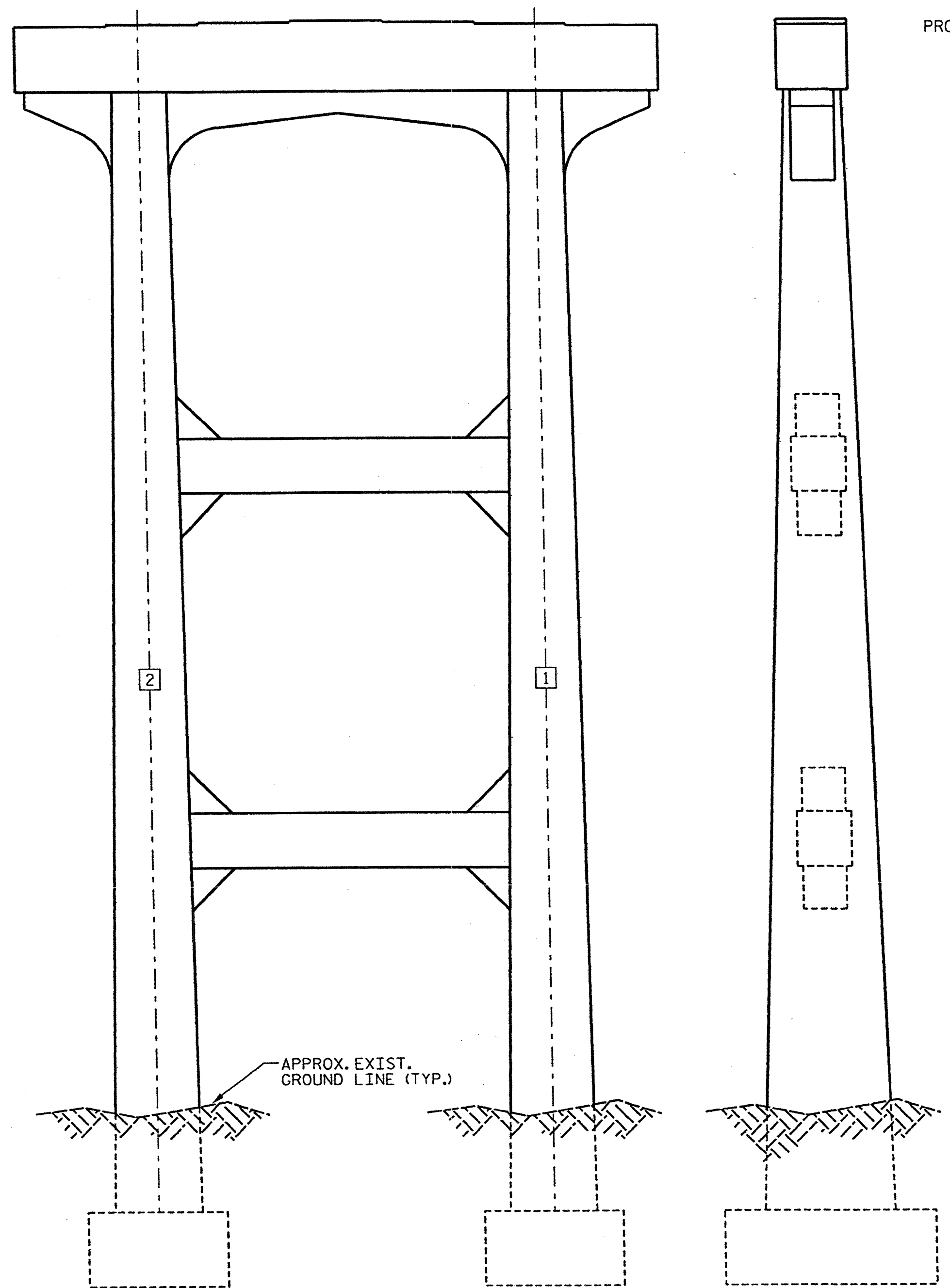
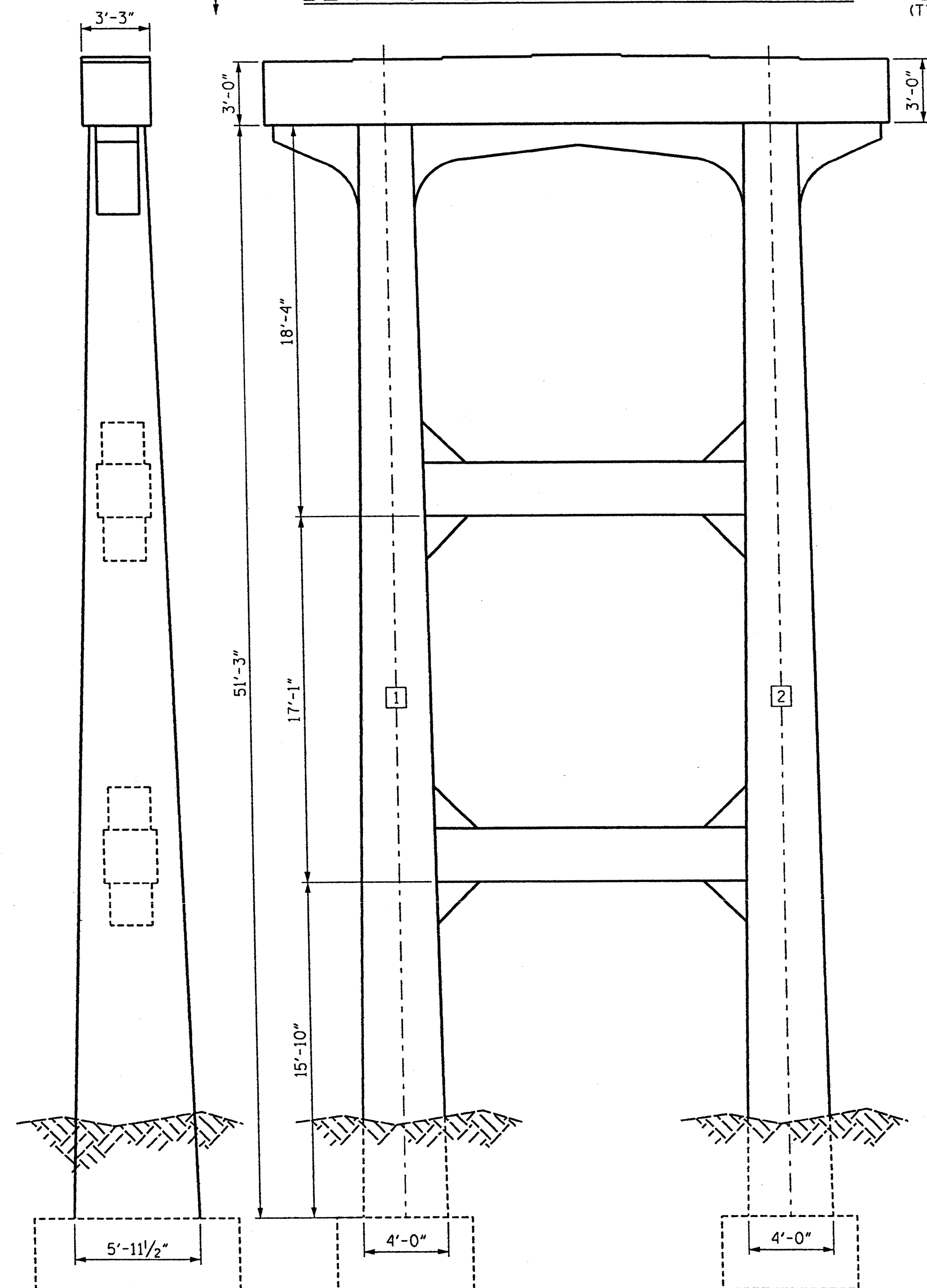
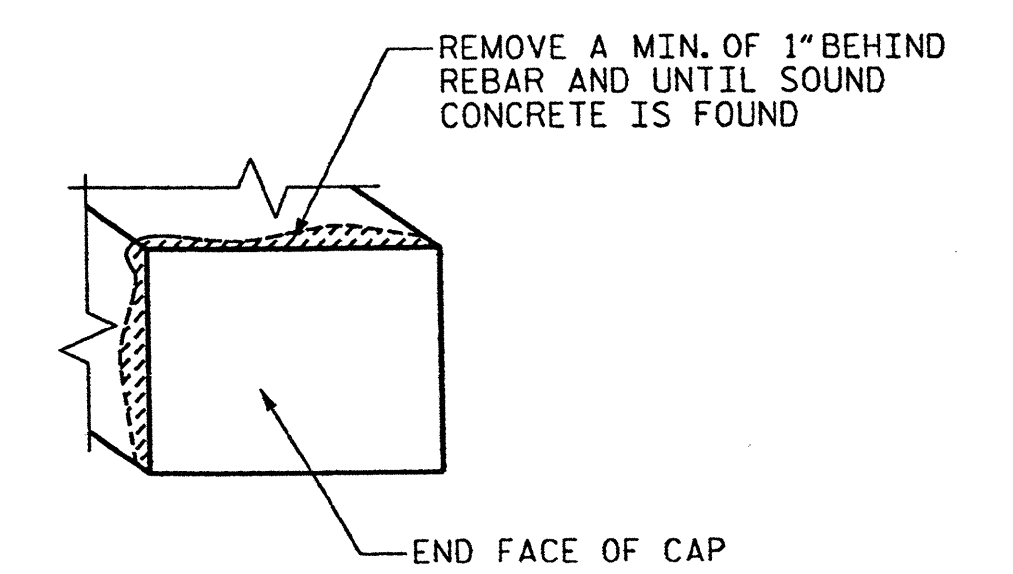
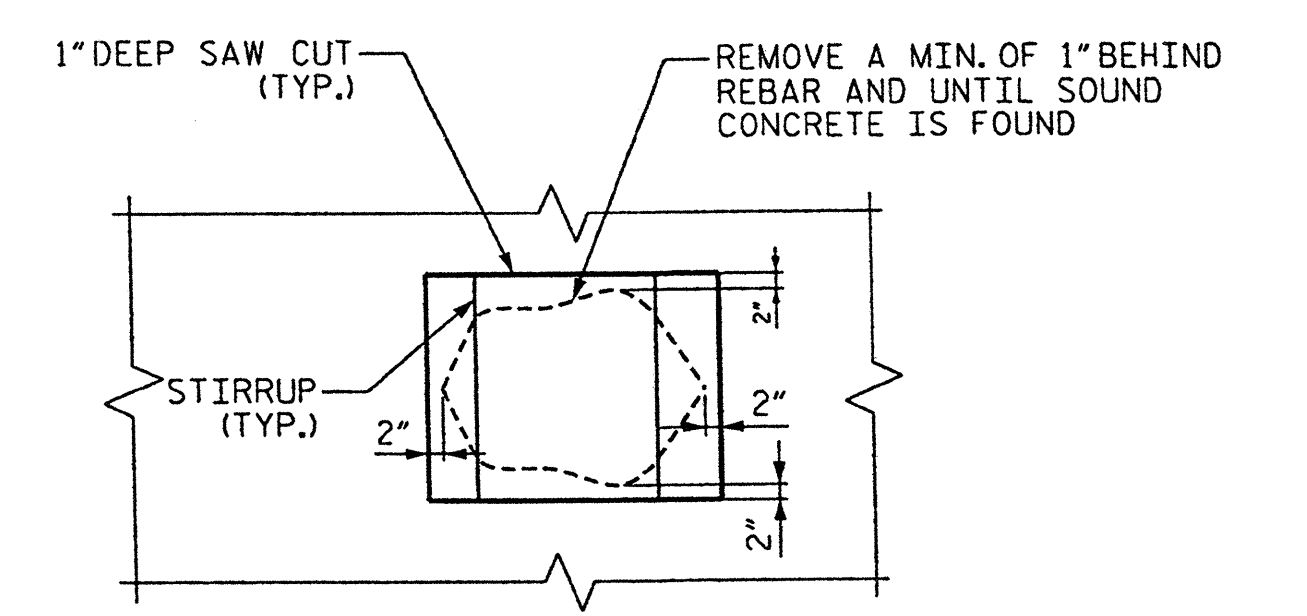
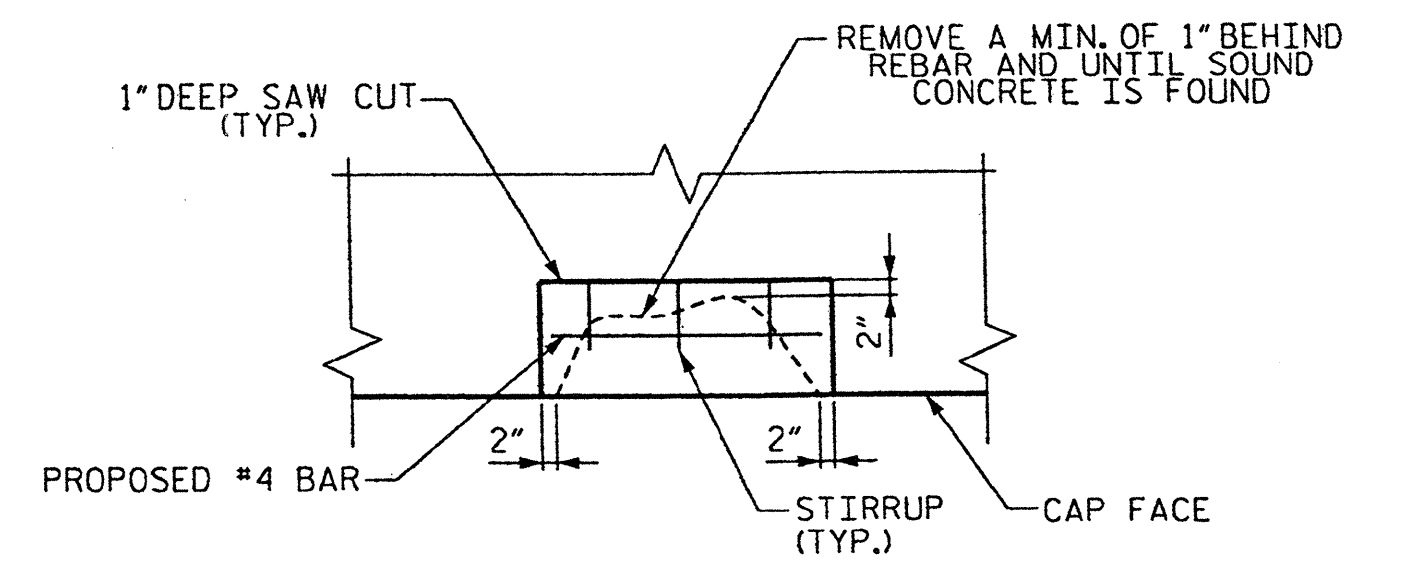
Group 2011WBS 17BP.6.P.2 Robeson Co. Bladen Bridge 017.Draining\BPT\_Repair-BENT2.dgn 12/19/2011 12:22:23 PM Jgelle

DRAWN BY: C.T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J.T. KELVINGTON DATE: 11/11



NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

NOTES:  
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BENT 3 REPAIRS  
END VIEW - COL 1

BENT 3 REPAIRS  
ELEVATION (SPAN C SIDE)

BENT 3 REPAIRS  
ELEVATION (SPAN D SIDE)

BENT 3 REPAIRS  
END VIEW - COL 2

# DENOTES COLUMN NO.

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 0 C.F.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

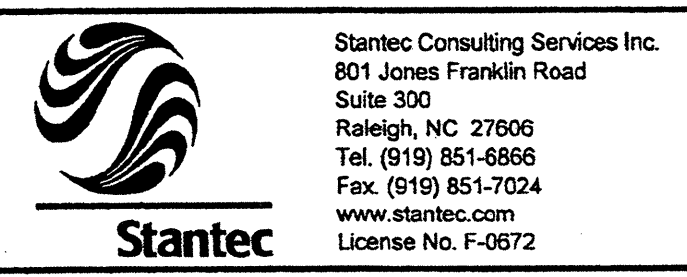
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 3

DECK REHAB. FOR BRIDGE NO. 17

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53	
1			3			TOTAL SHEETS	75
2			4				

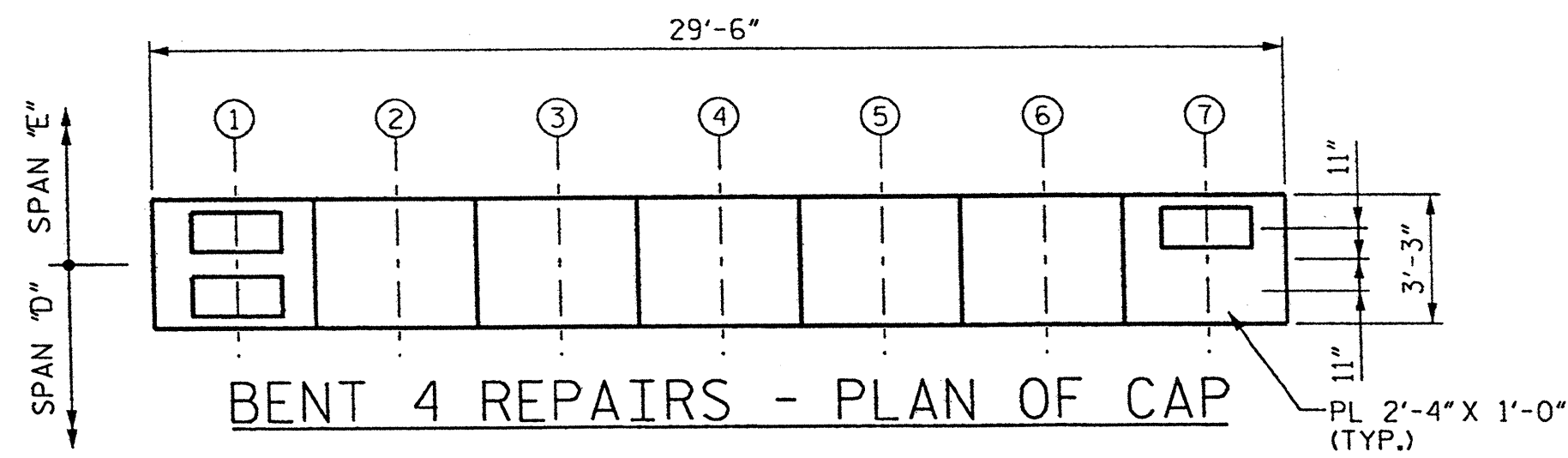
*Joseph J. Kelvington*  
Professional Engineer  
No. 12047408  
T. KELVINGTON



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

3-Group 2010 WBS 17BP.6.P.2 Roberson Co. Bladen Bridge 017 Drawing\BPT7.Repair\_BENT3.dgn 12/19/2011 12:22:25 PM Jgelle

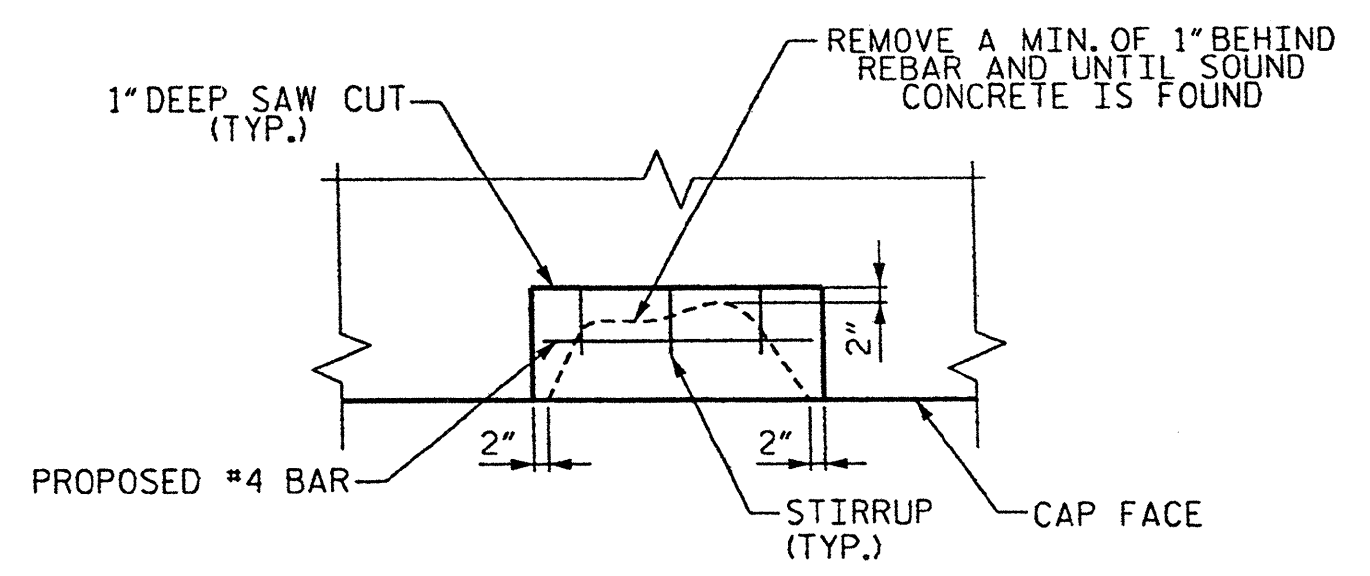




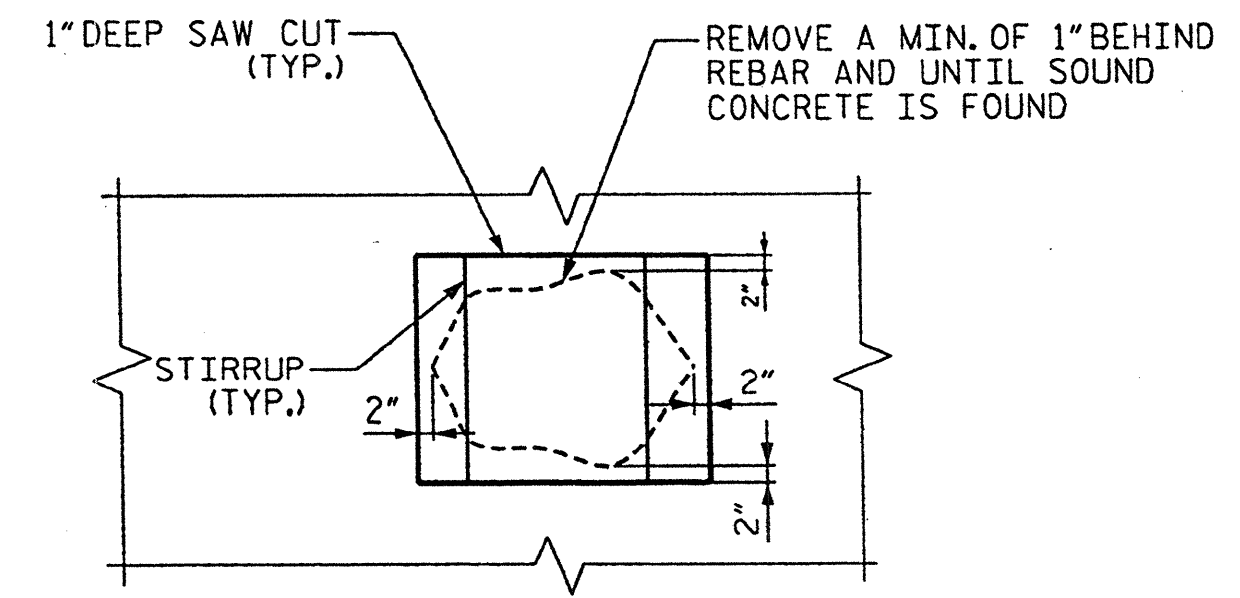
BENT 4 REPAIRS - PLAN OF CAP

NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

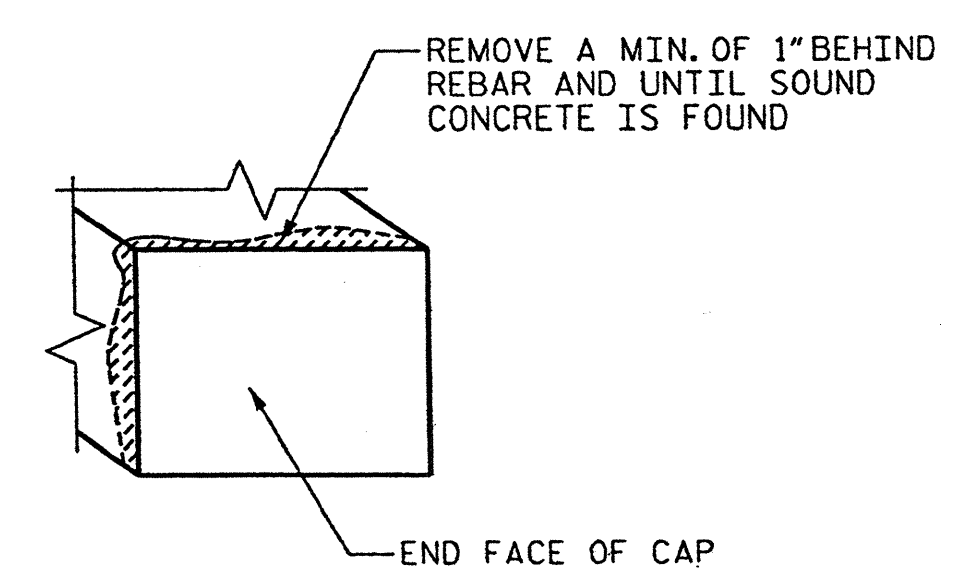
NOTES:  
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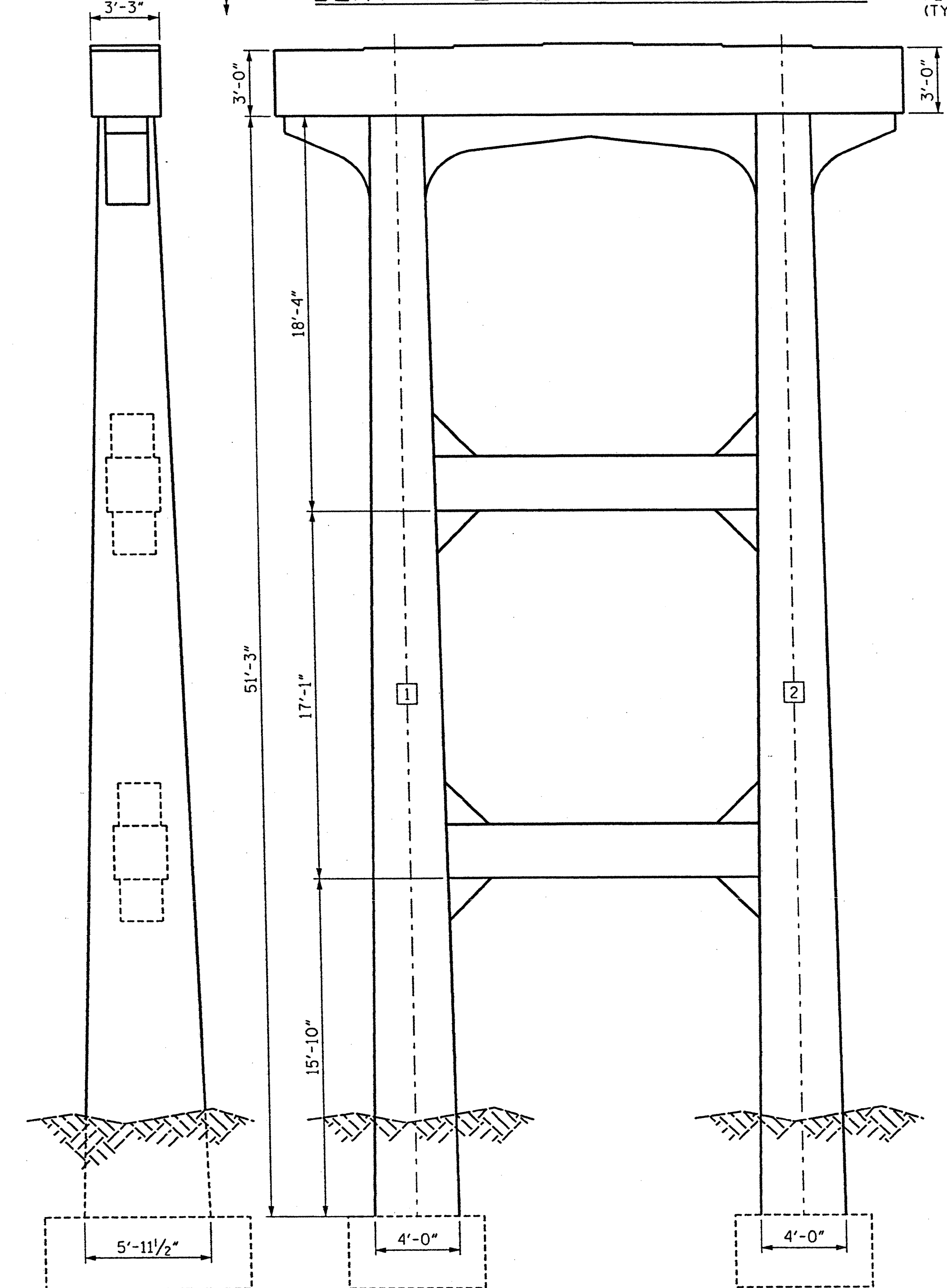
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

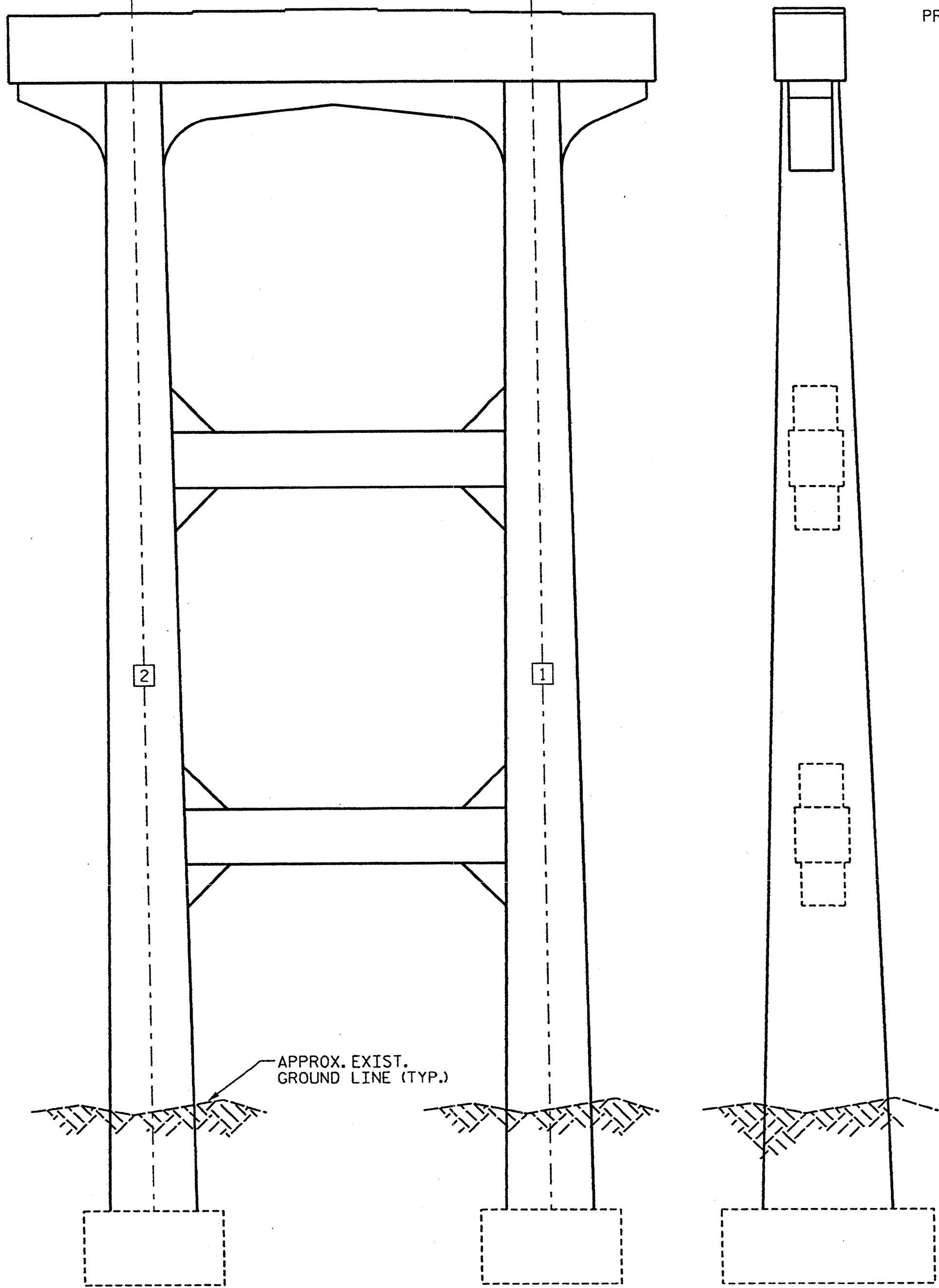


TYPICAL REPAIR DETAIL 3



BENT 4 REPAIRS  
END VIEW - COL 1

BENT 4 REPAIRS  
ELEVATION (SPAN D SIDE)



BENT 4 REPAIRS  
ELEVATION (SPAN E SIDE)

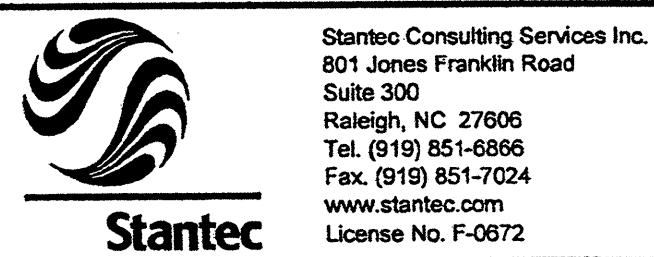
BENT 4 REPAIRS  
END VIEW - COL 2

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 0 C.F.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				BENT 4	
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-54
					TOTAL SHEETS 75

*James Kelvington*  
11/20/11  
SEAL  
18406  
ENGINEER  
J. KELVINGTON



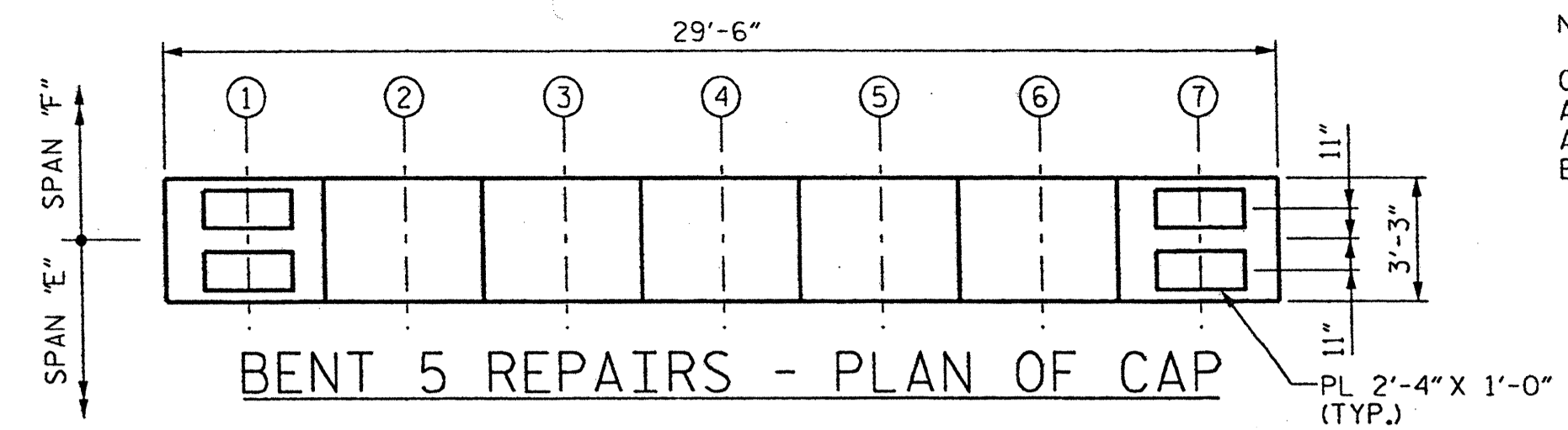
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

■ DENOTES COLUMN NO.

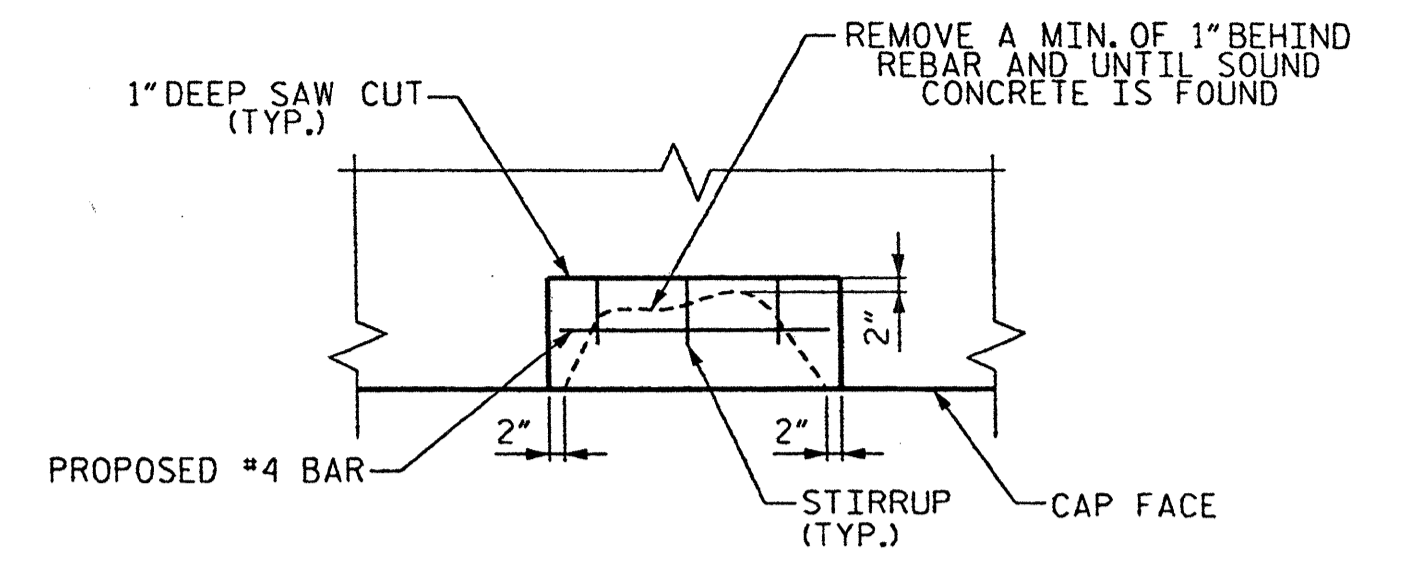
Group 2011WBS 17BP.6.P.2 Robeson Co. Bladen Bridge DTVDrawing\BP17\_Repair\_BENT4.dgn 12/19/2011 12:22:28 PM Jgelle

Group 2011WBS 17BP.6.P.2 Robeson Co. Bladen Bridge 017Drawing\BP17.Repair\_BENT5.dgn 12/19/2011 12:22:30 PM Jjelle

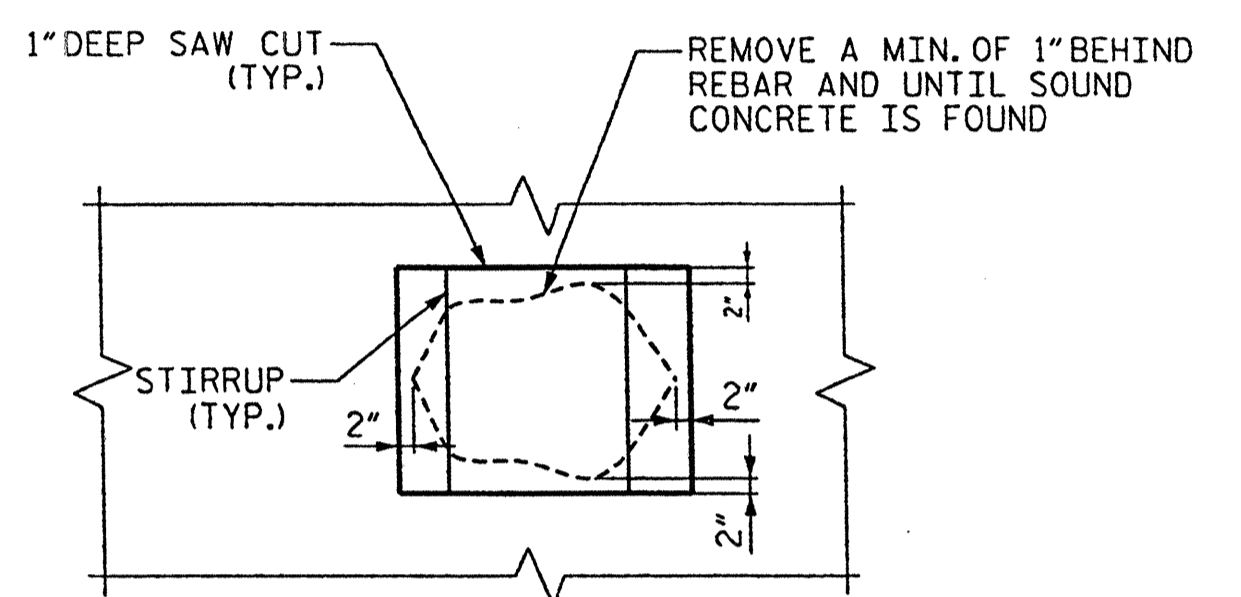


NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

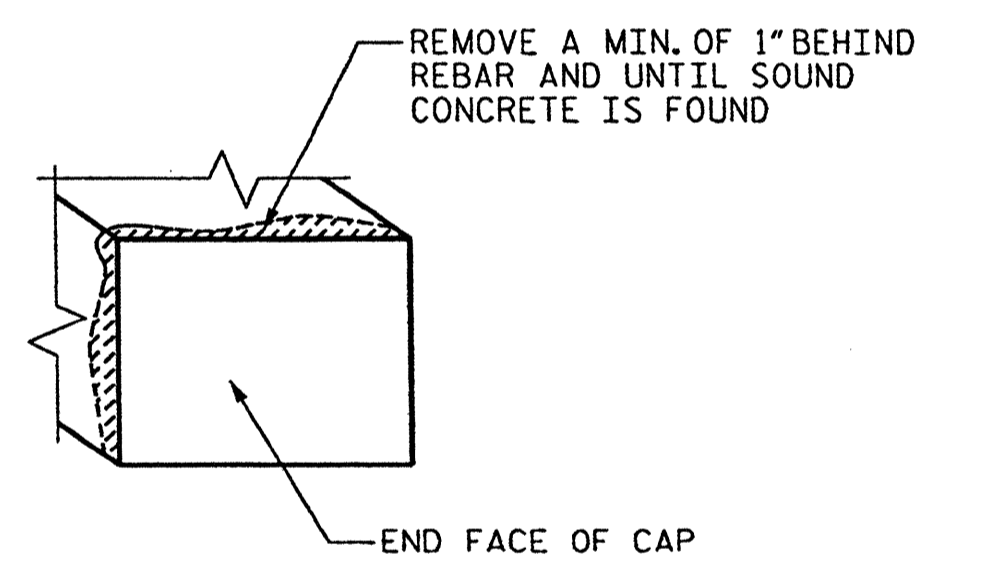
NOTES:  
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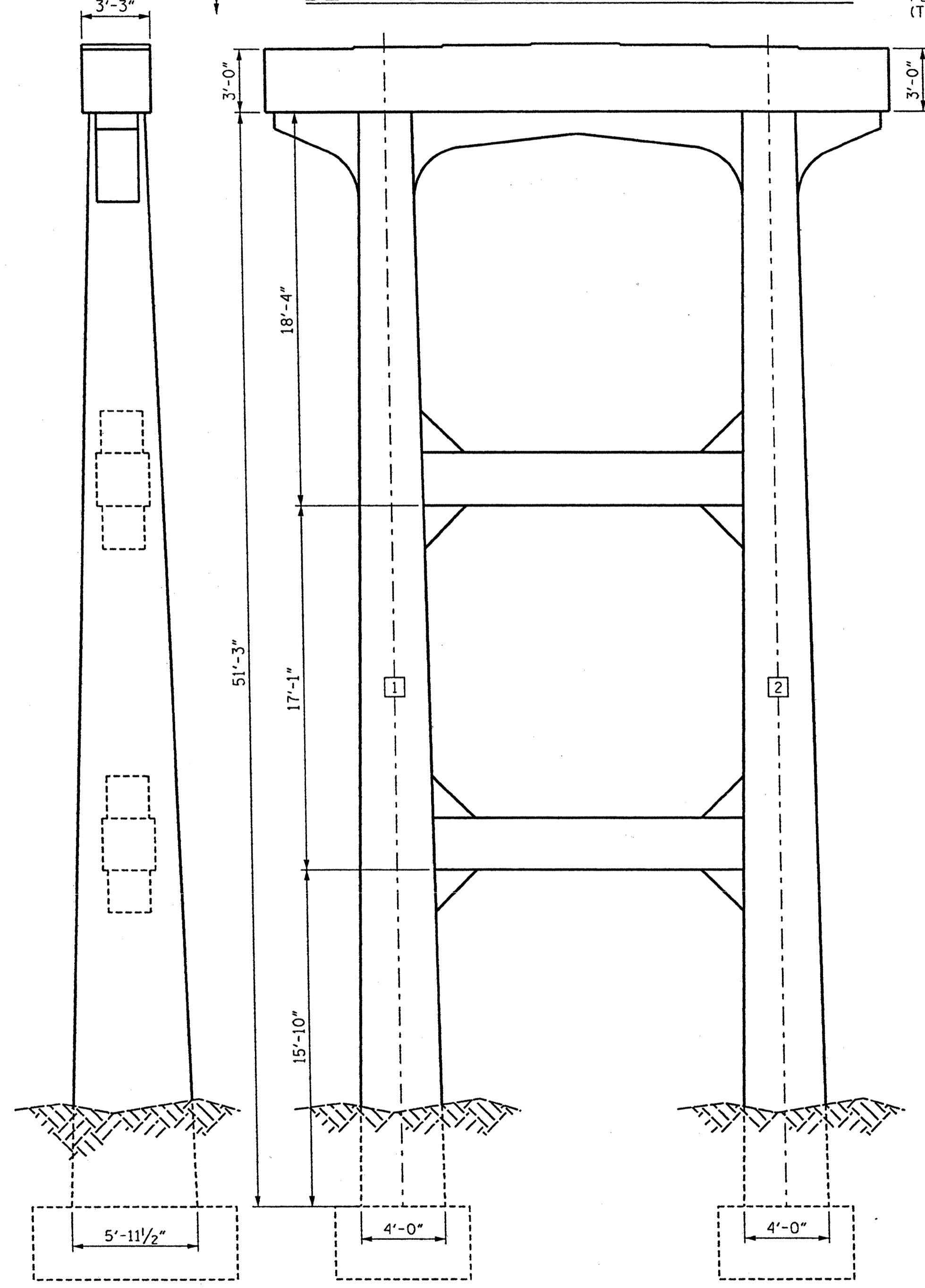
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

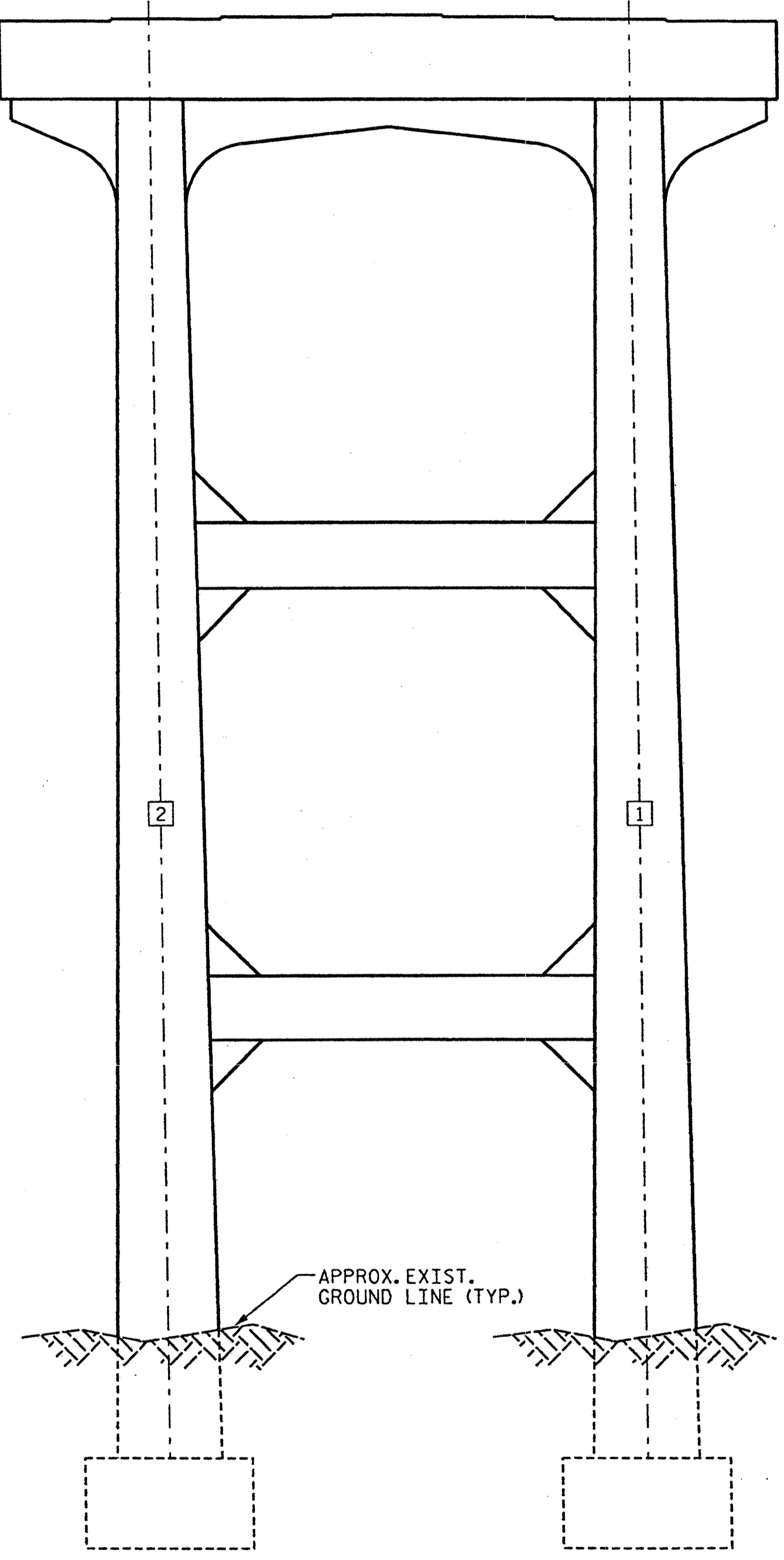


TYPICAL REPAIR DETAIL 3

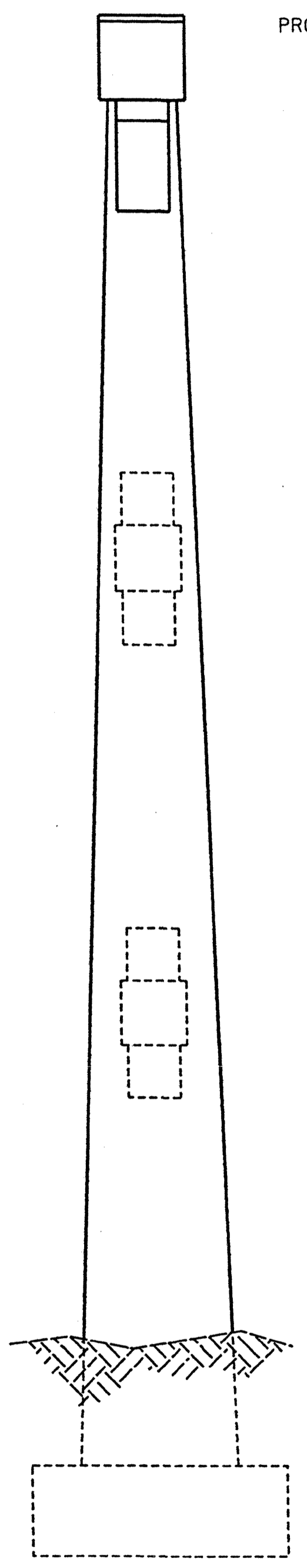


BENT 5 REPAIRS  
END VIEW - COL 1

BENT 5 REPAIRS  
ELEVATION (SPAN E SIDE)



BENT 5 REPAIRS  
ELEVATION (SPAN F SIDE)



BENT 5 REPAIRS  
END VIEW - COL 2

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 5					
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-55
					TOTAL SHEETS 75

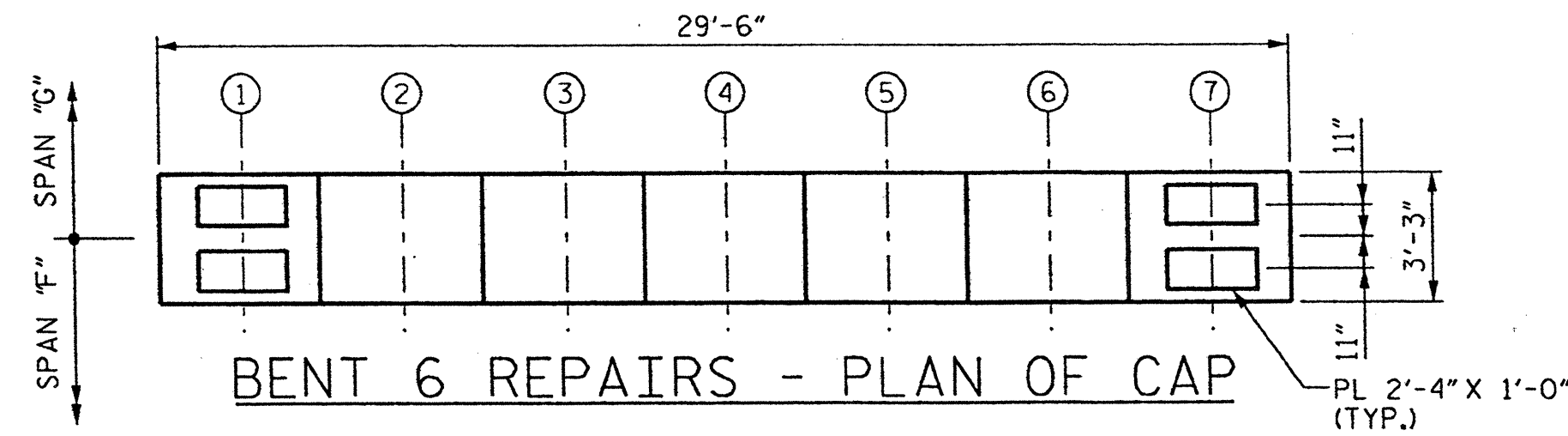
*Jasper Kelvington*  
12/20/11  
Professional Engineer Seal 13406

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 0 C.F.

\* DENOTES COLUMN NO.

Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-8866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

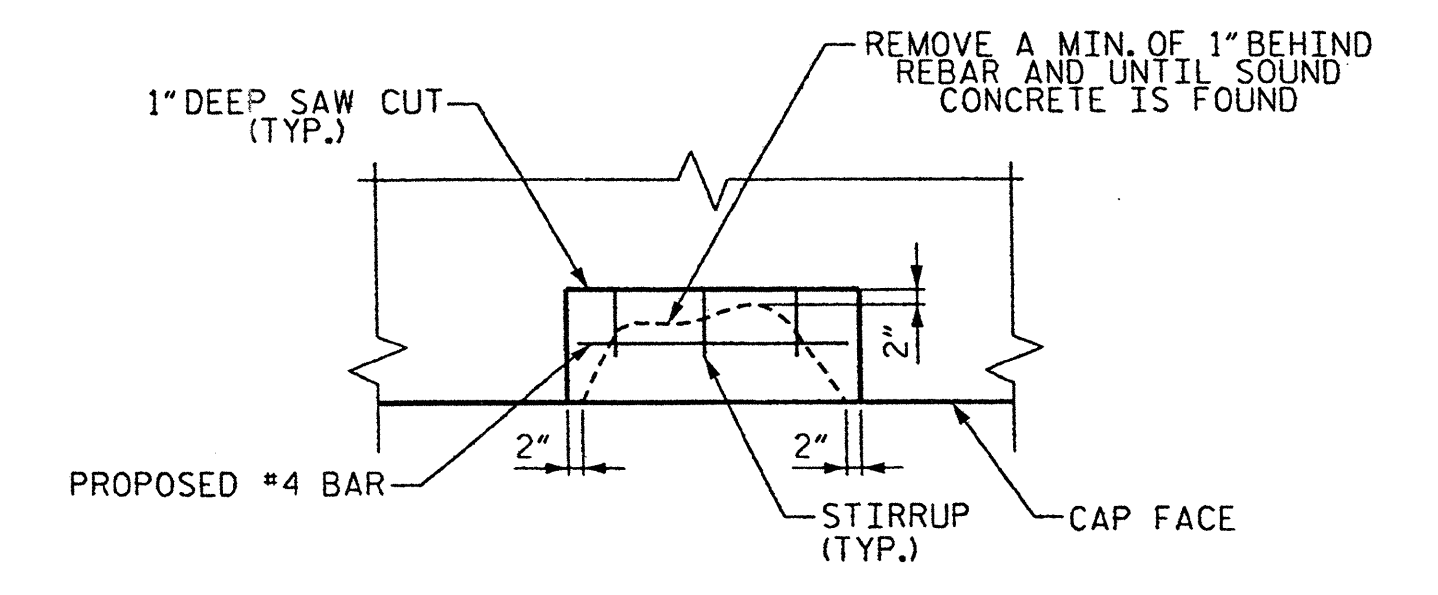
DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. I. KELVINGTON DATE: 11/11



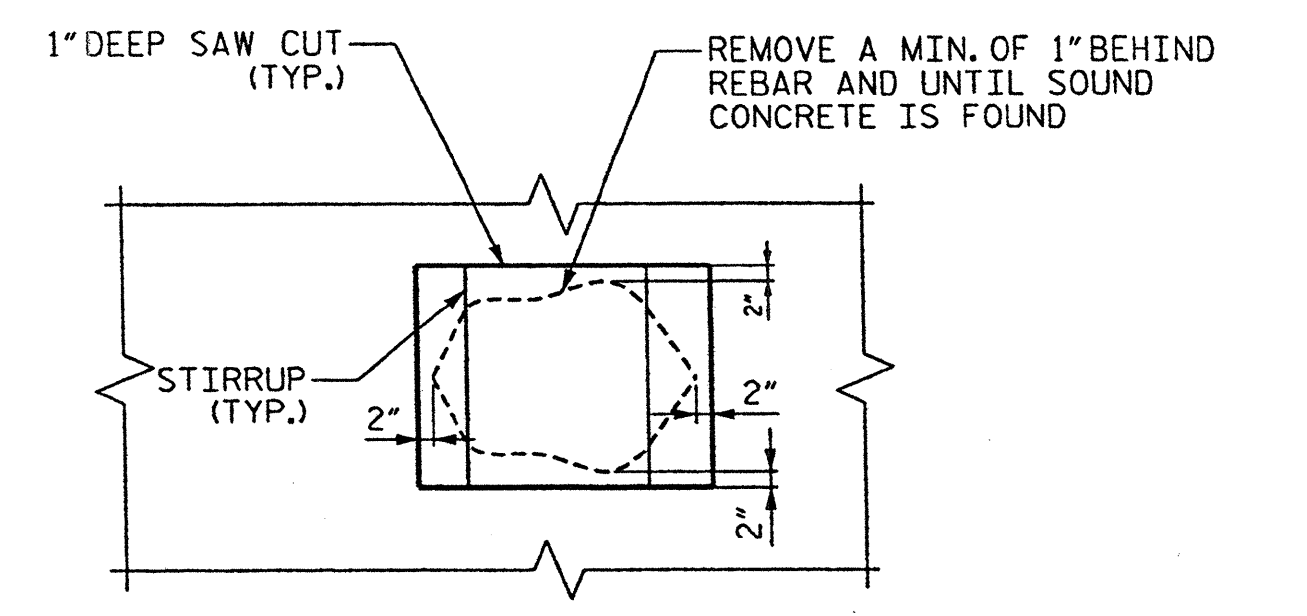
NOTE:  
 CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

NOTES:  
 REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.  
 ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.

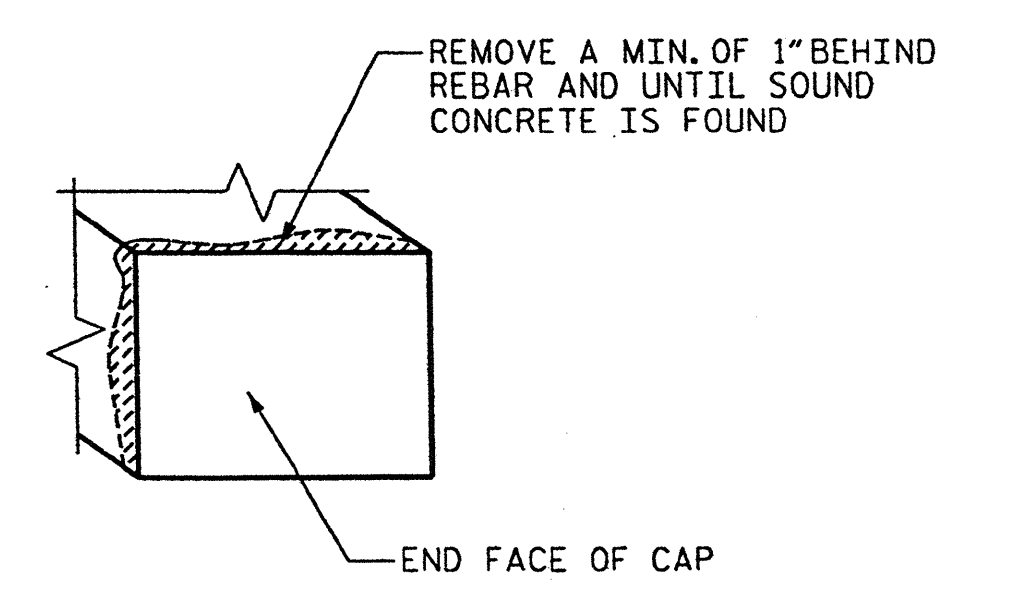
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



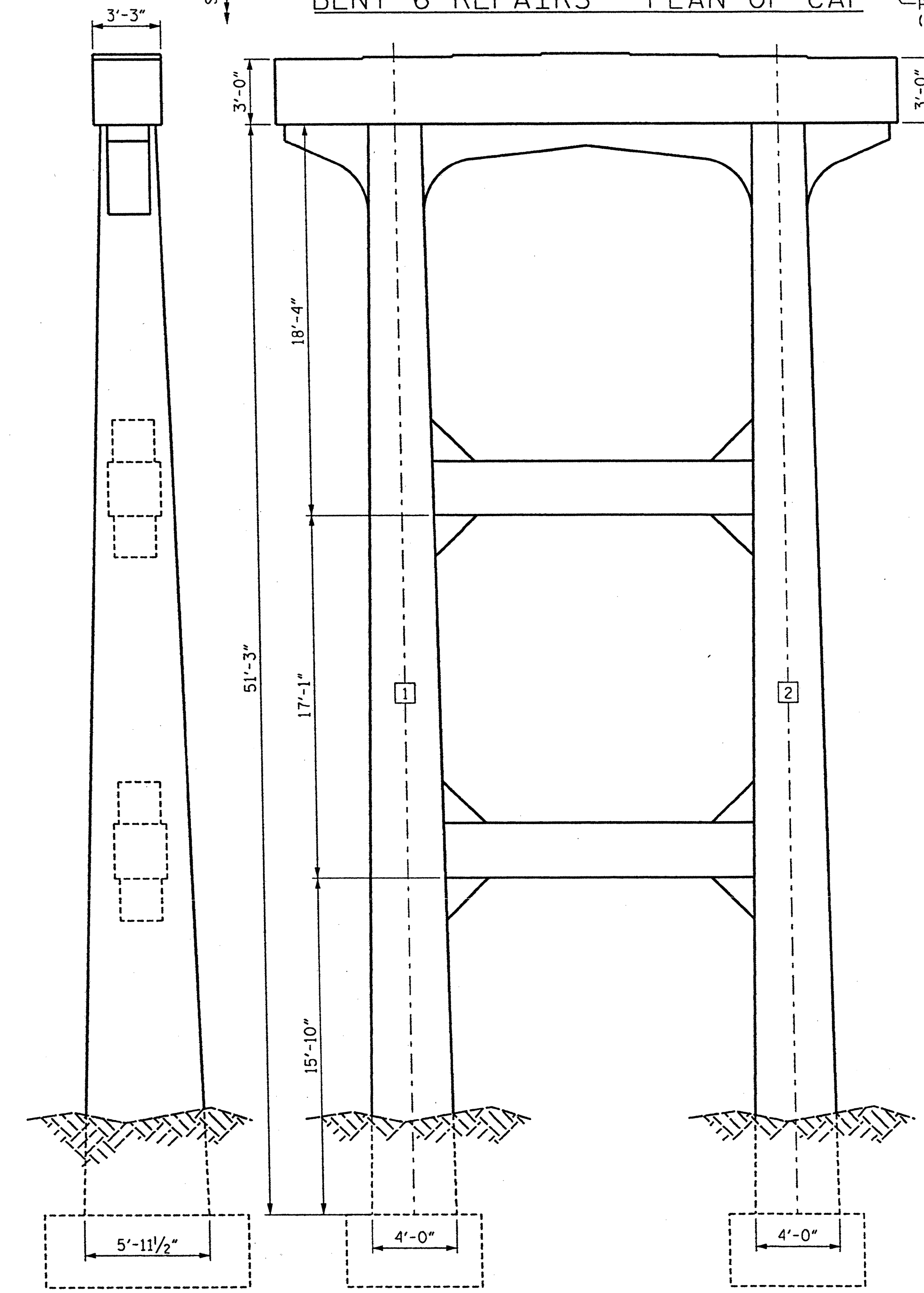
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3

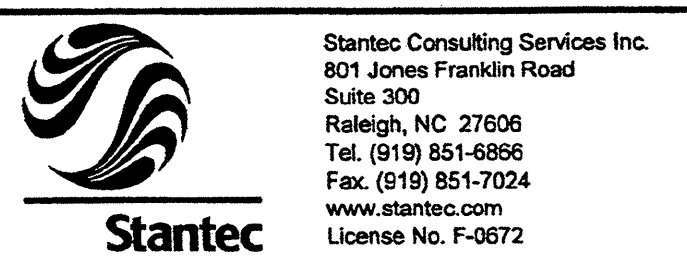
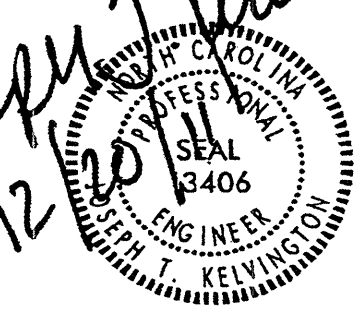


TOTAL ESTIMATED QUANTITIES  
 CONCRETE REPAIR 0 C.F.  
 SHOTCRETE REPAIR 0 C.F.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 6					
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-56
					TOTAL SHEETS 75

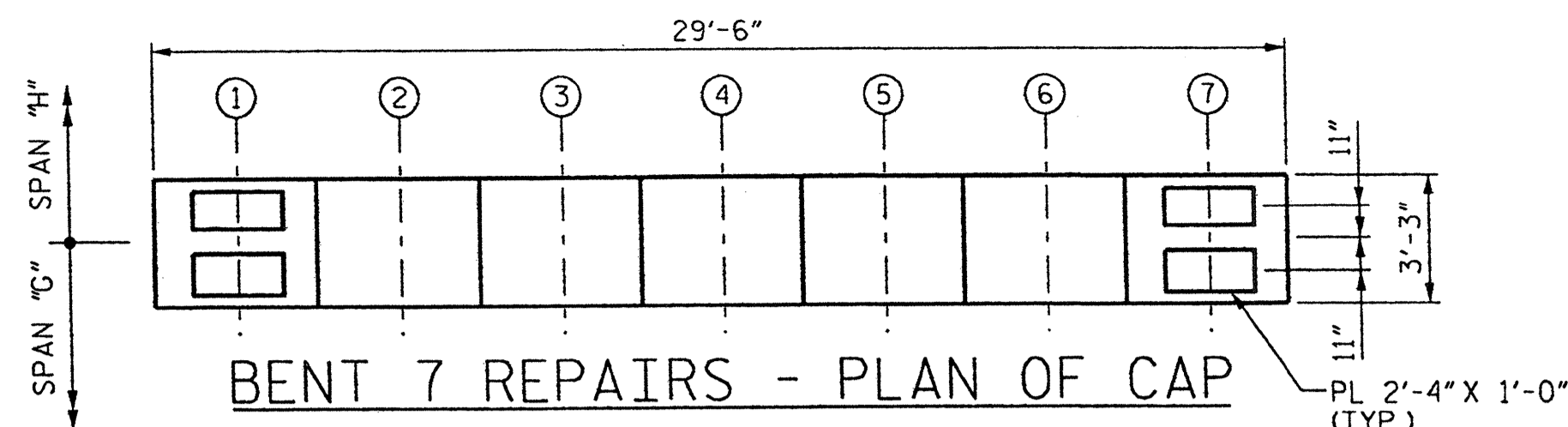
*Joseph J. Kelvington*  
 12/20/11



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

☐ DENOTES COLUMN NO.

3:00pm 2011WBS\_17BP.6.P.2\_Robeson Co\Bladen Bridge 01\NDrawing\BPTL\_Repair\_BENT6.dgn 12/19/2011 12:22:32 PM Jgelle



NOTE:

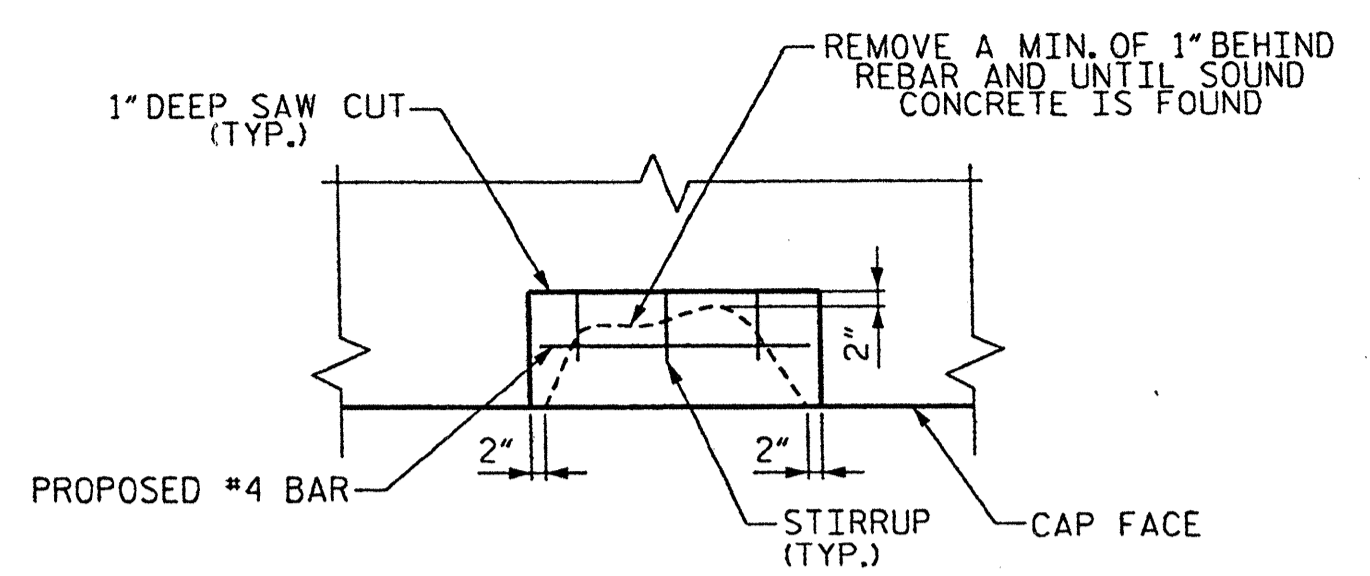
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

NOTES:

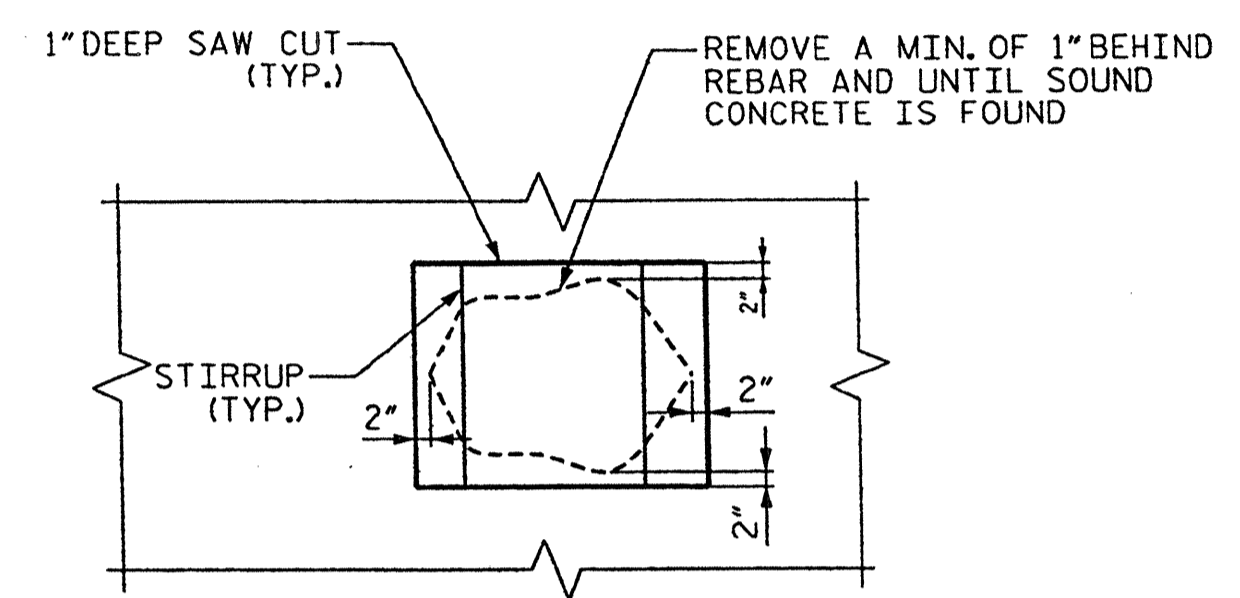
REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.

ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.

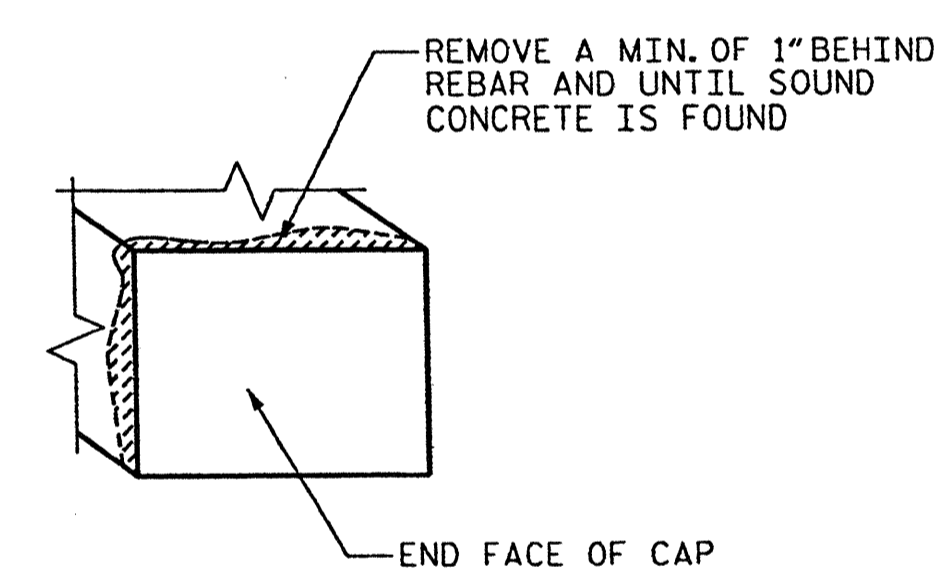
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



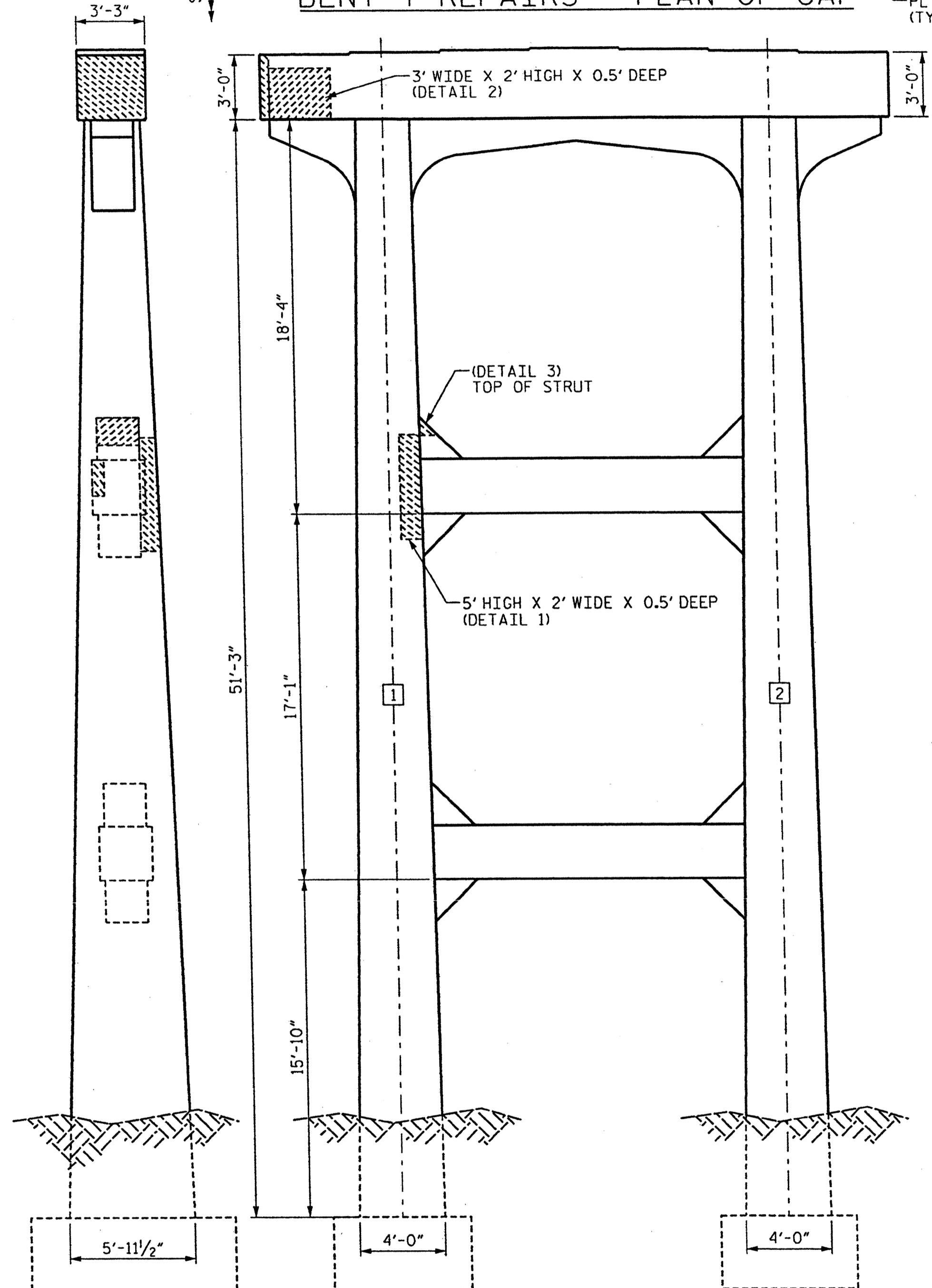
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

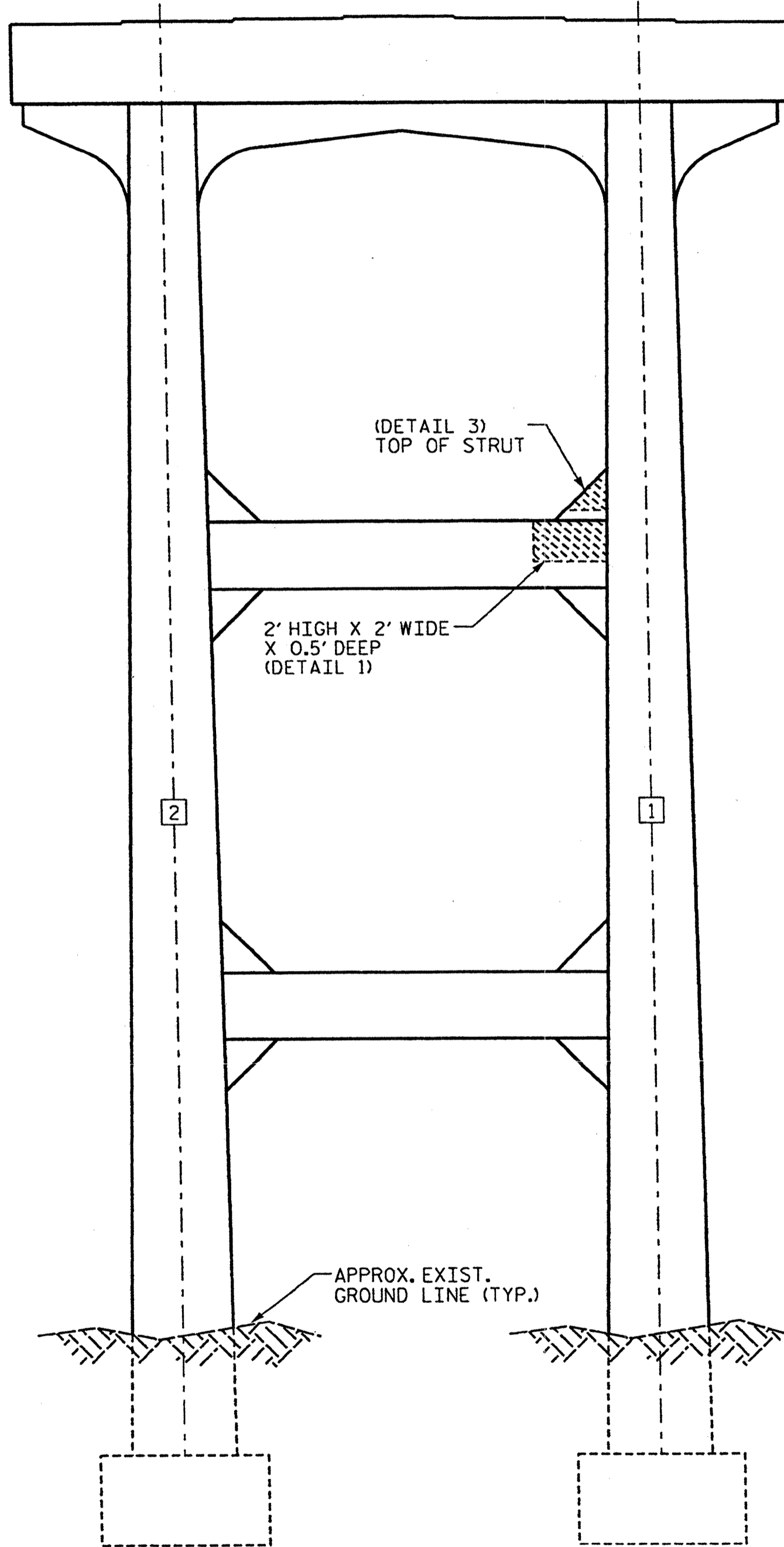


TYPICAL REPAIR DETAIL 3

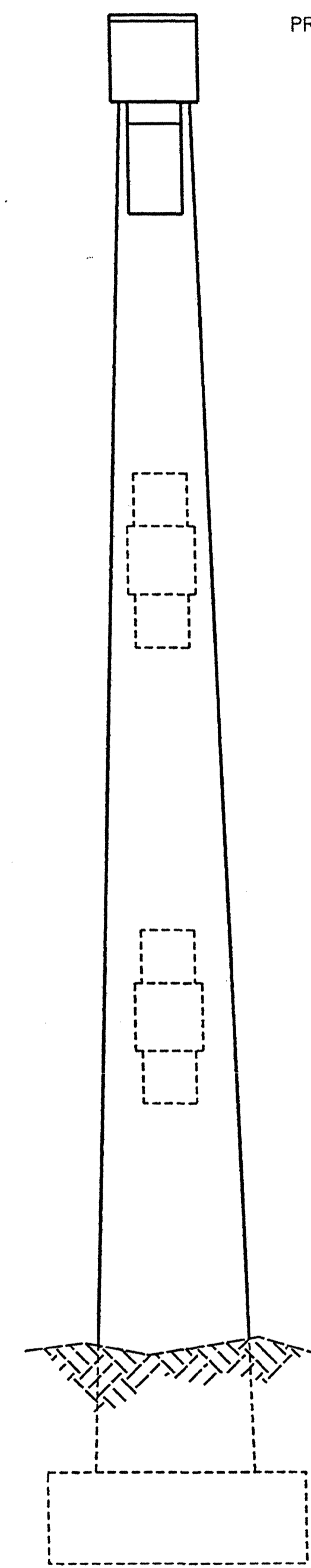


BENT 7 REPAIRS  
END VIEW - COL 1

BENT 7 REPAIRS  
ELEVATION (SPAN G SIDE)



BENT 7 REPAIRS  
ELEVATION (SPAN H SIDE)



BENT 7 REPAIRS  
END VIEW - COL 2

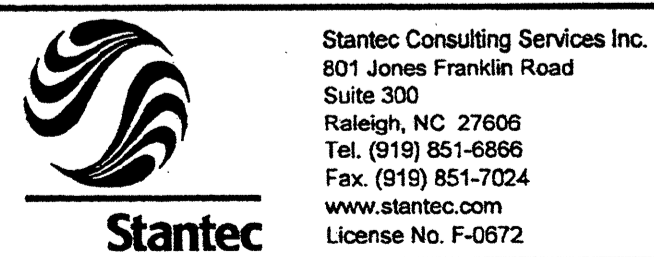
PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
BENT 7			
DECK REHAB. FOR BRIDGE NO. 17			
REVISIONS			
NO.	BY:	DATE:	NO.
1			3
2			4
SHEET NO.			S-57
TOTAL SHEETS			75

*Joseph Kelvington*  
12/11/11  
SEAL  
13406  
ENGINEER  
T. KELVINGTON

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 30 C.F.

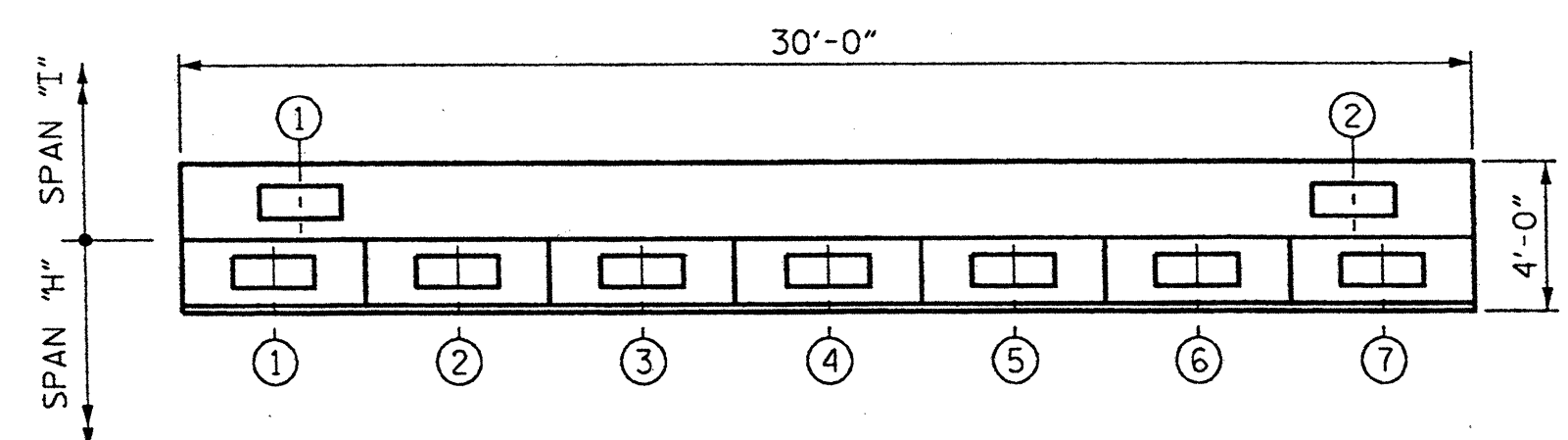
☐ DENOTES COLUMN NO.



Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0572

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

Group 2018.WBS.ITBP.6.P.2.Robeson Co.Bladen Bridge 017\Drawing\BPT\_Repair\_BENT7.dgn 12/22/11 12:22:34 PM Jgelle



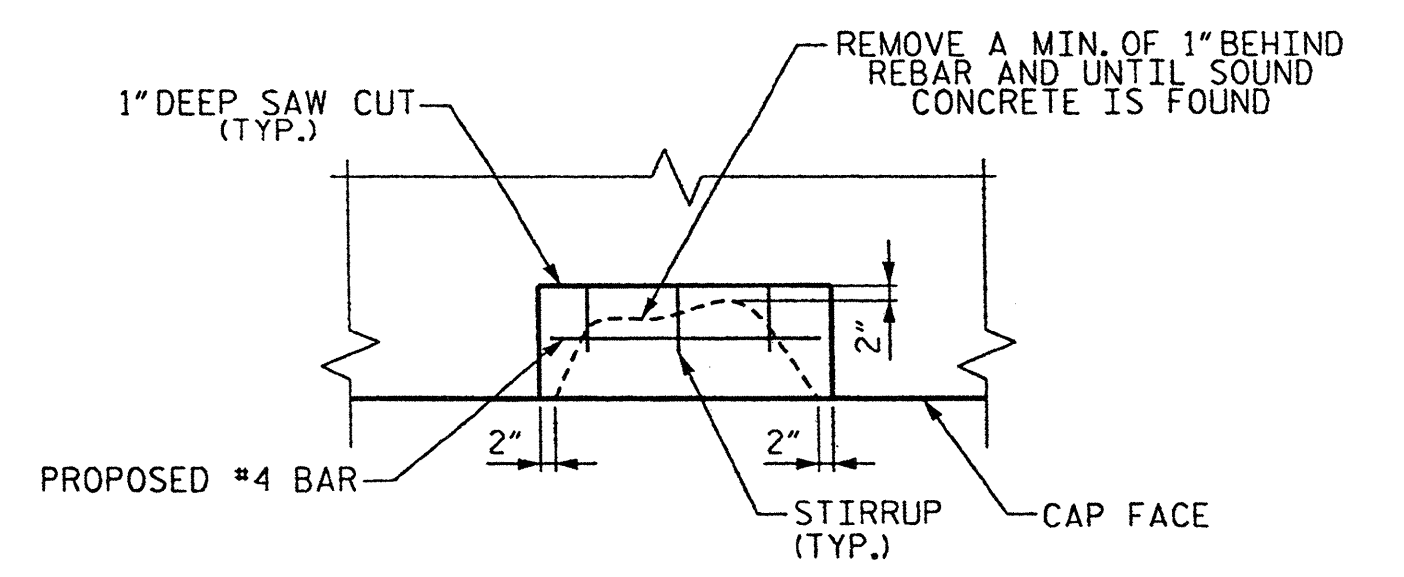
BENT 8 REPAIRS - PLAN OF CAP

NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

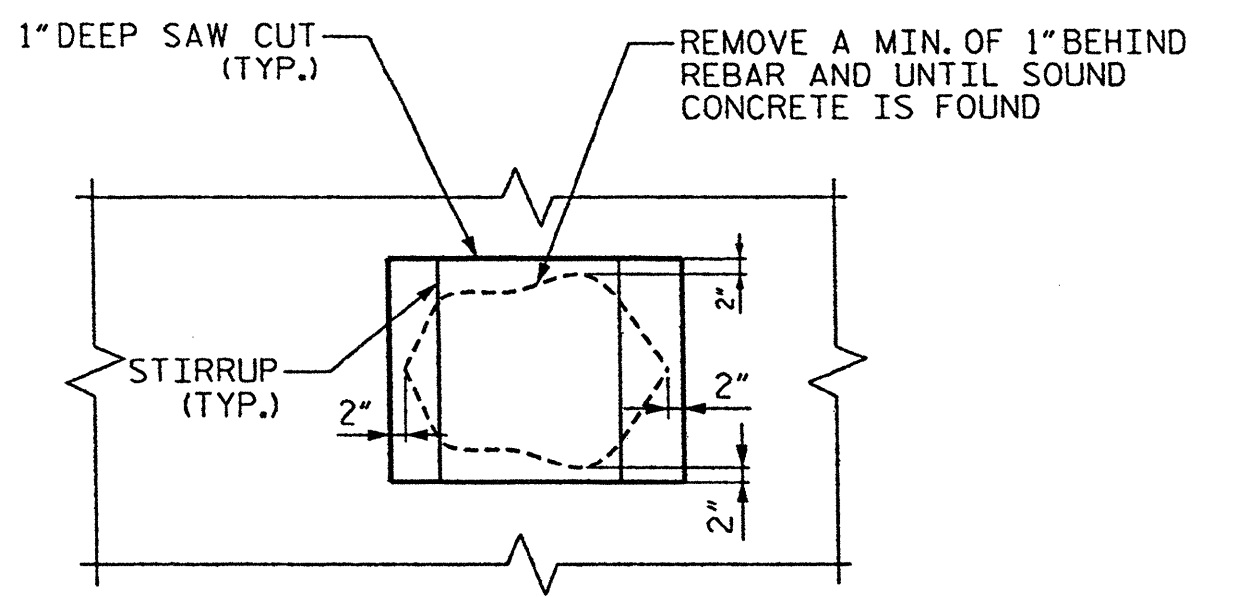
NOTES:  
REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.

ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.

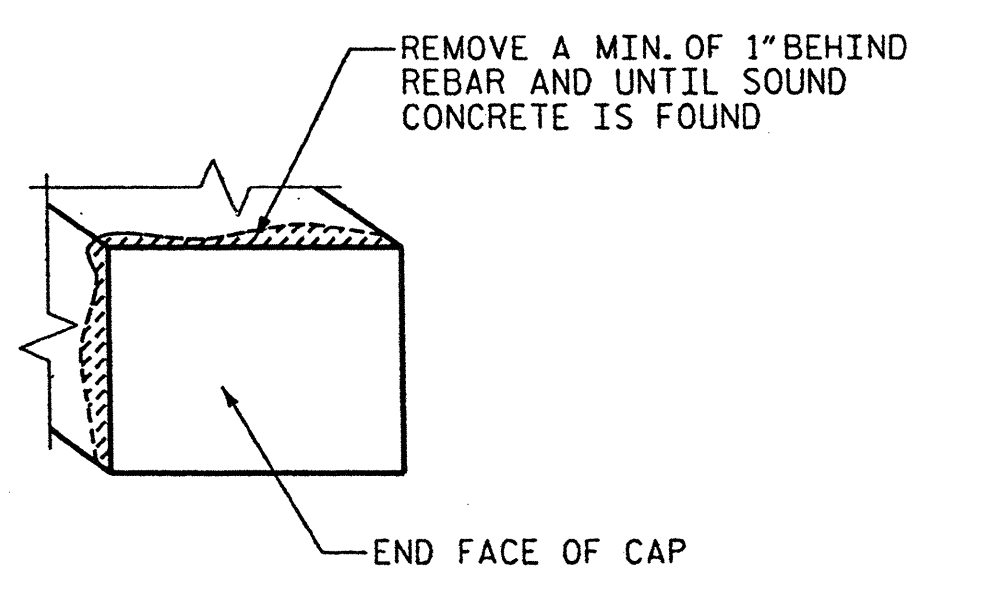
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



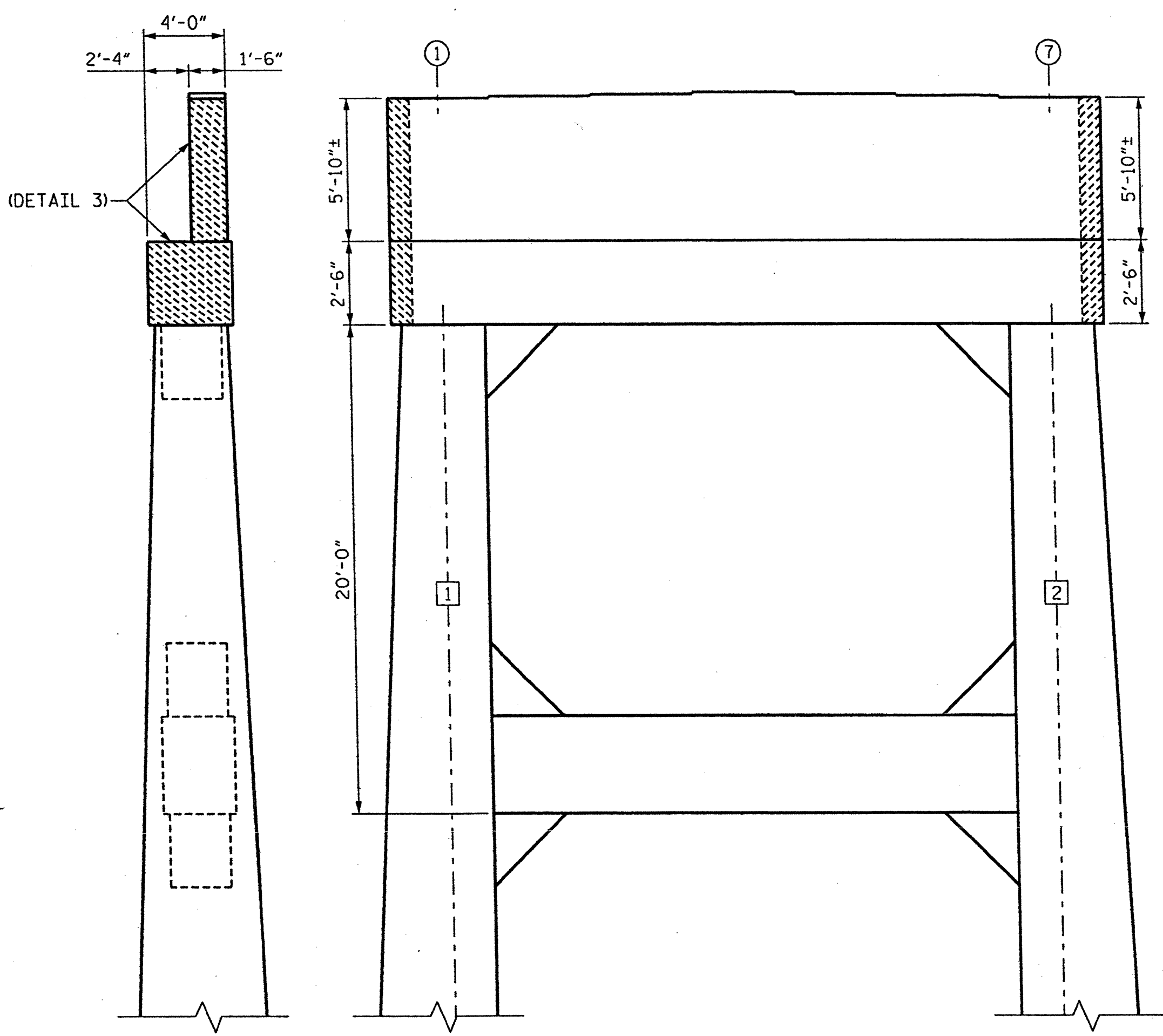
TYPICAL REPAIR DETAIL 1



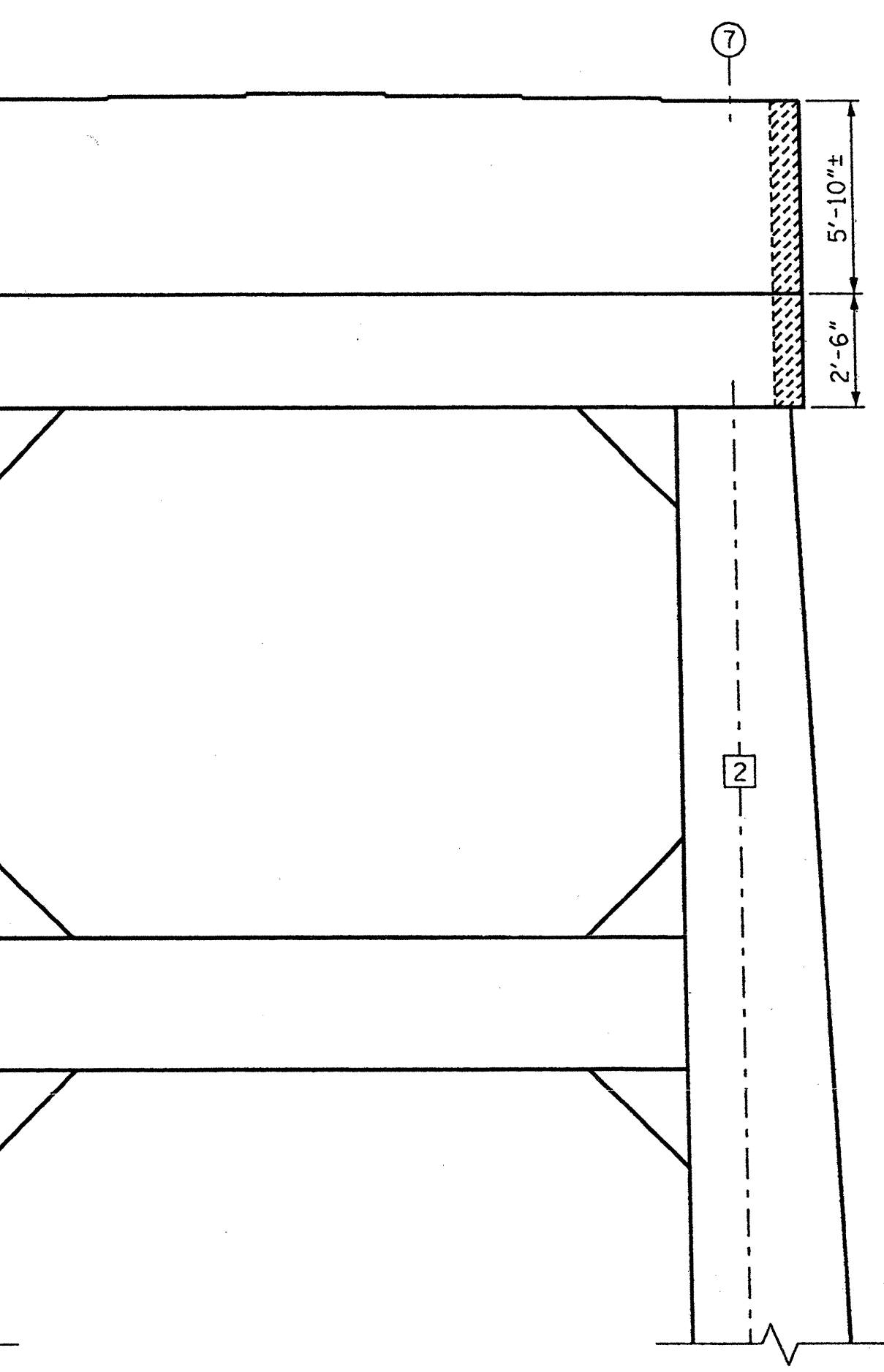
TYPICAL REPAIR DETAIL 2



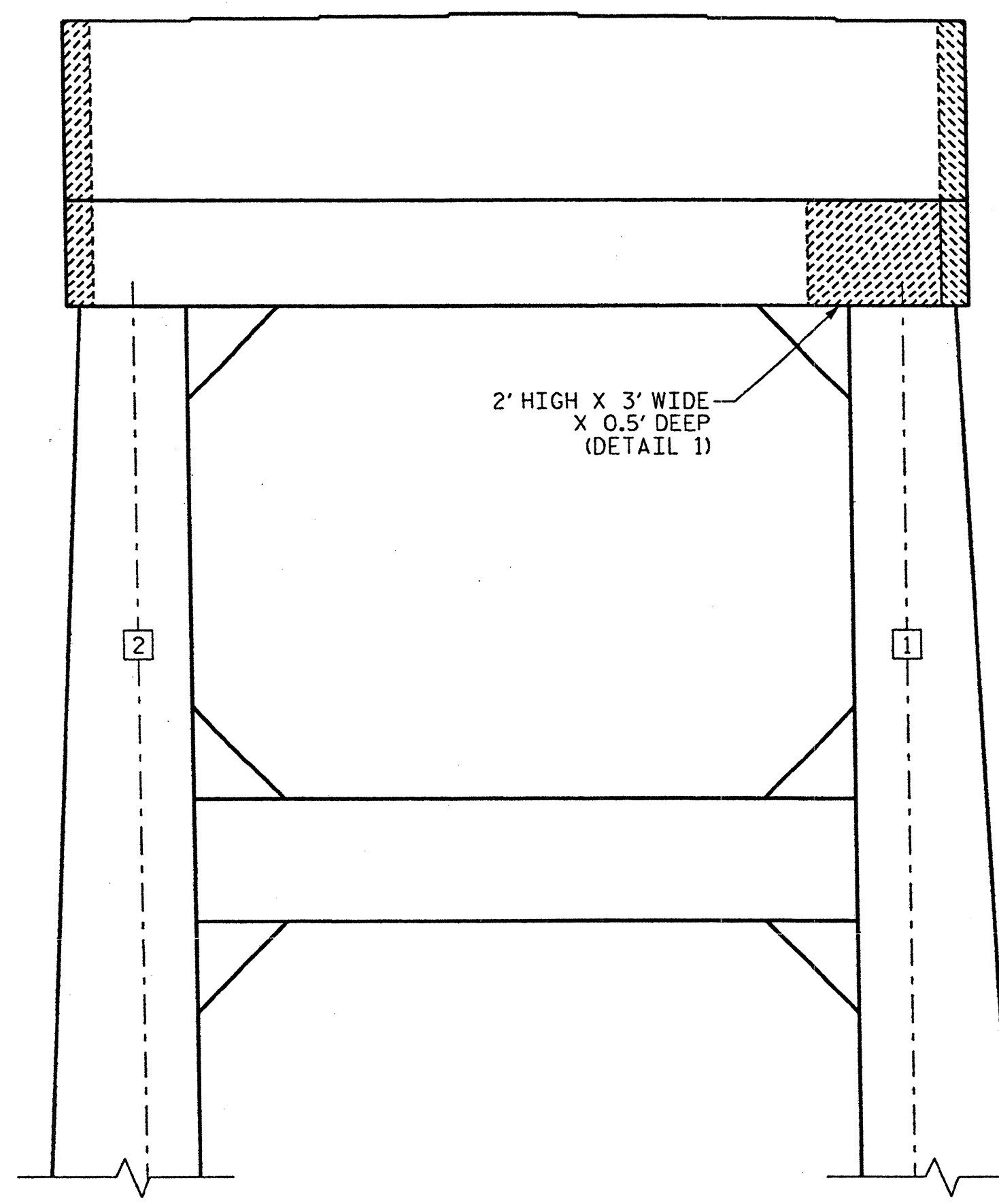
TYPICAL REPAIR DETAIL 3



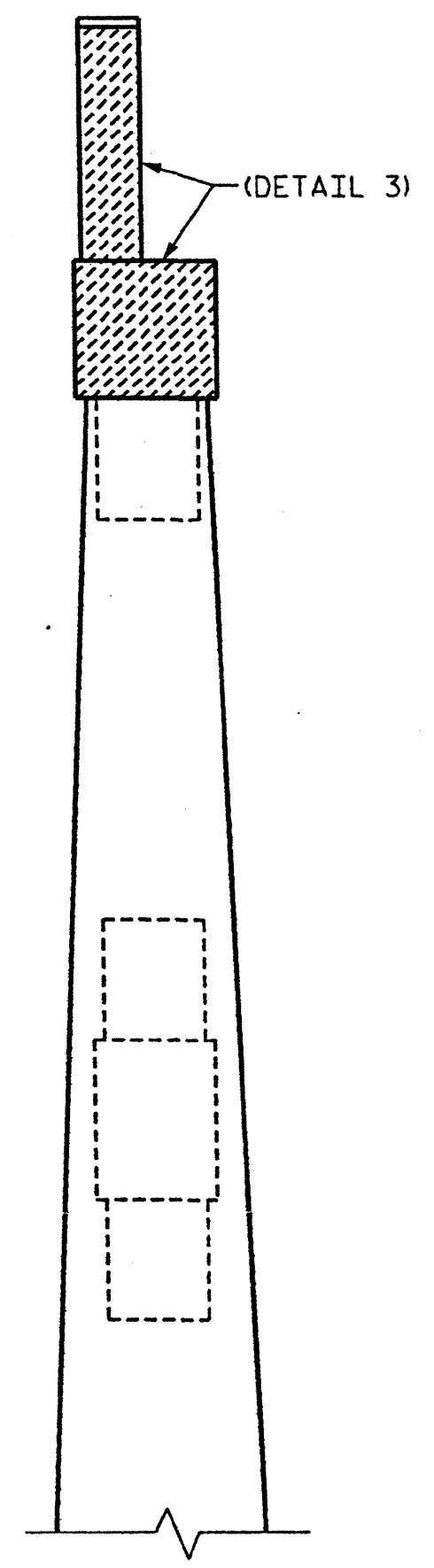
BENT 8 REPAIRS  
END VIEW - COL 1



BENT 8 REPAIRS  
ELEVATION (SPAN H SIDE)



BENT 8 REPAIRS  
ELEVATION (SPAN I SIDE)



BENT 8 REPAIRS  
END VIEW - COL 2

\* DENOTES COLUMN NO.

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 22 C.F.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

**Stantec**  
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6886  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

*Joseph J. Kelvington*  
12/21/11  
Professional Engineer Seal  
13406  
STATE OF NORTH CAROLINA

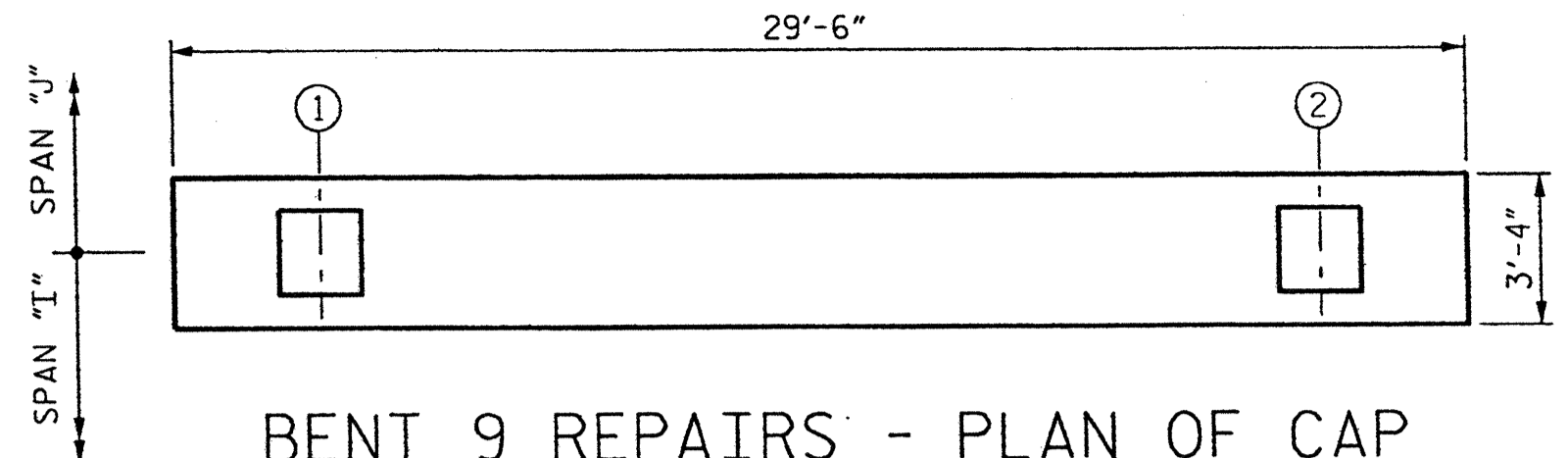
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**BENT 8**

DECK REHAB. FOR BRIDGE NO. 17

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S- 58	
1			3			TOTAL	75
2			4			SHEETS	

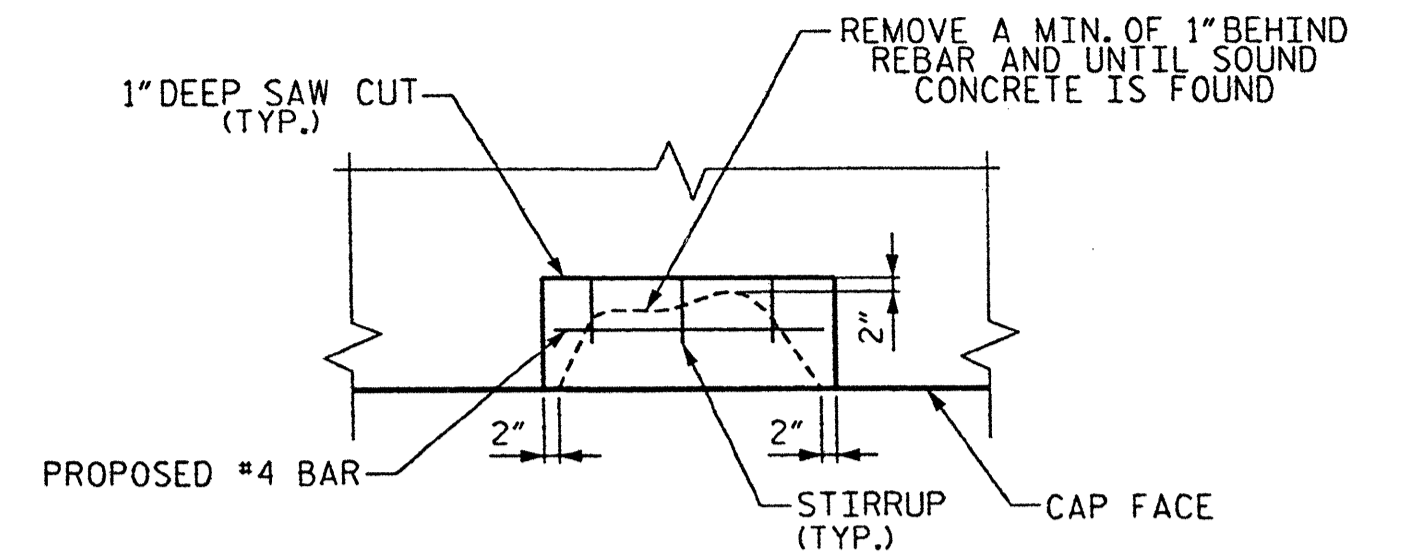
Group 2011 WBS 17BP.6.P.2 Robeson Co. Bladen Bridge 017 Drawing BPT7 Repair - BENT8.dgn 12/19/2011 12:22:55 PM Jgelle



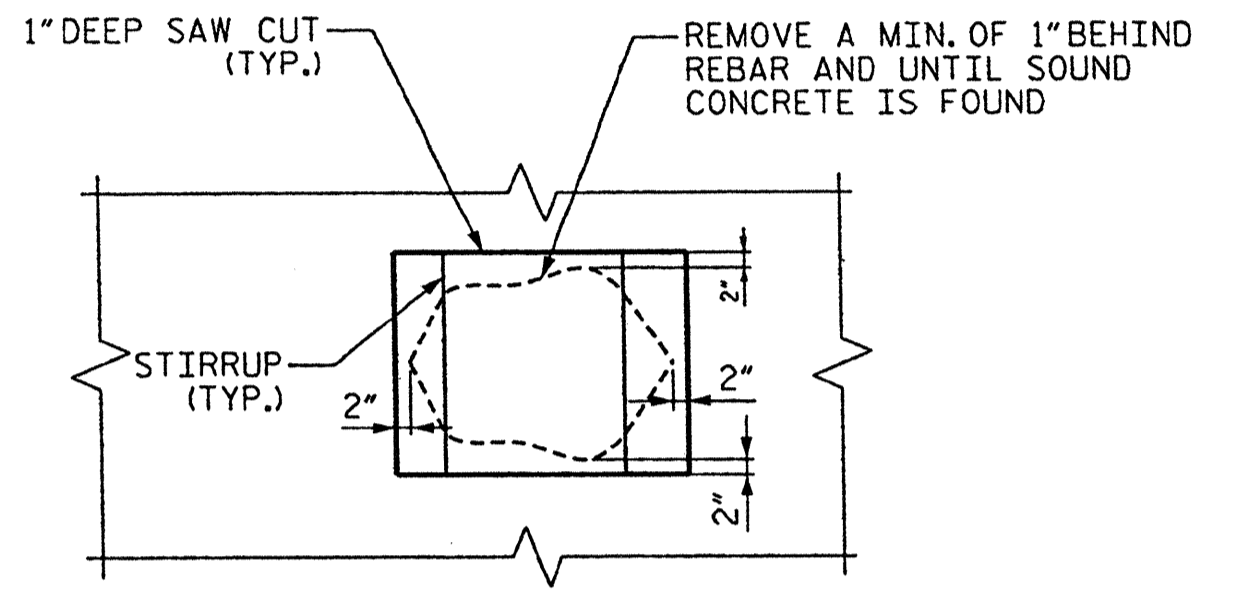
BENT 9 REPAIRS - PLAN OF CAP

NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

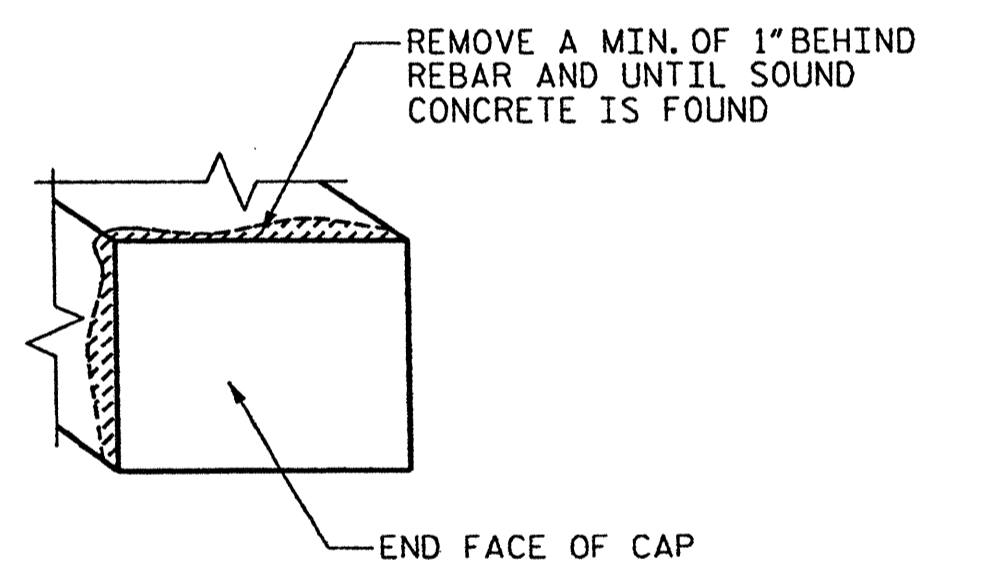
NOTES:  
REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.  
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AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



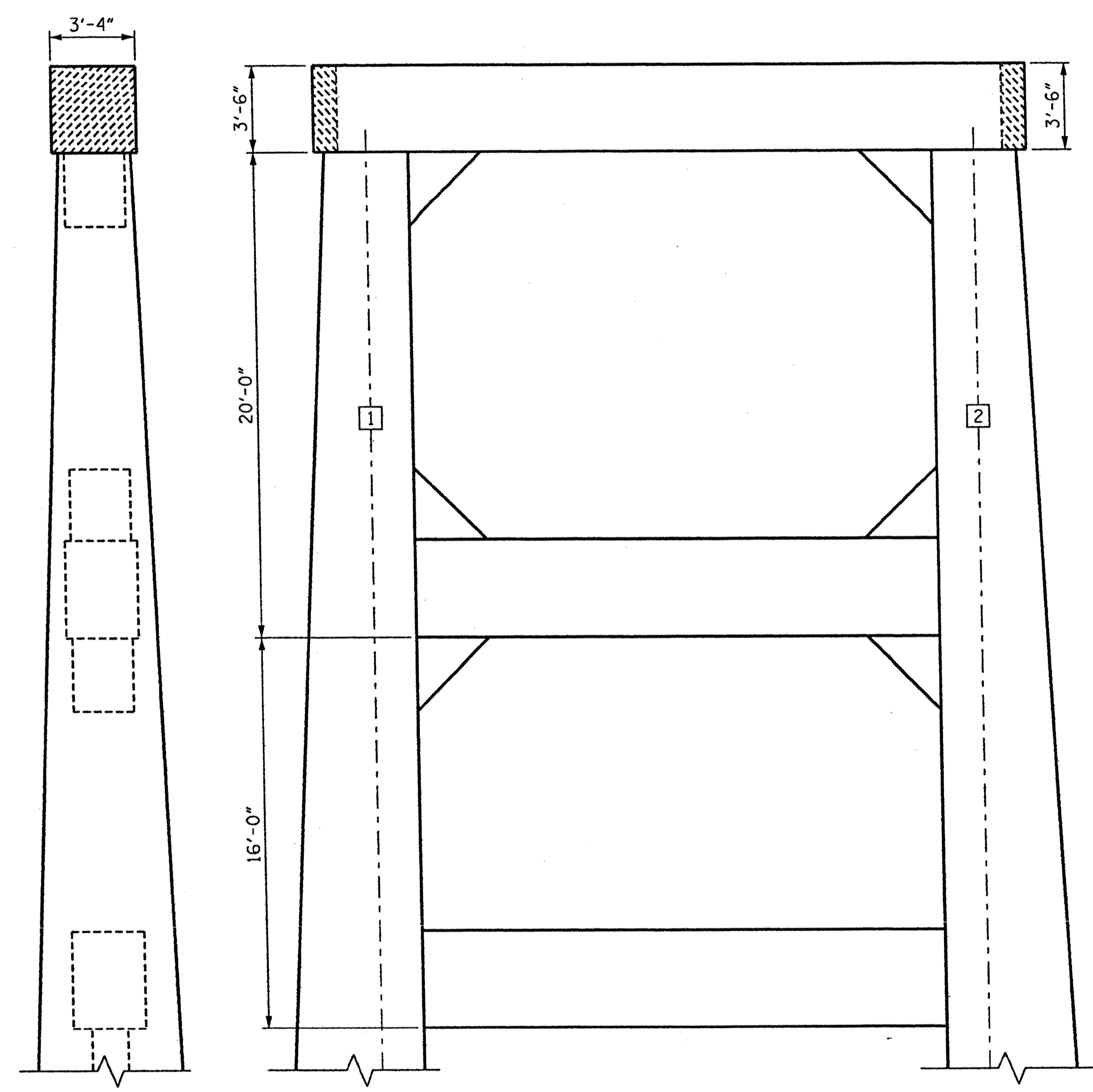
TYPICAL REPAIR DETAIL 1



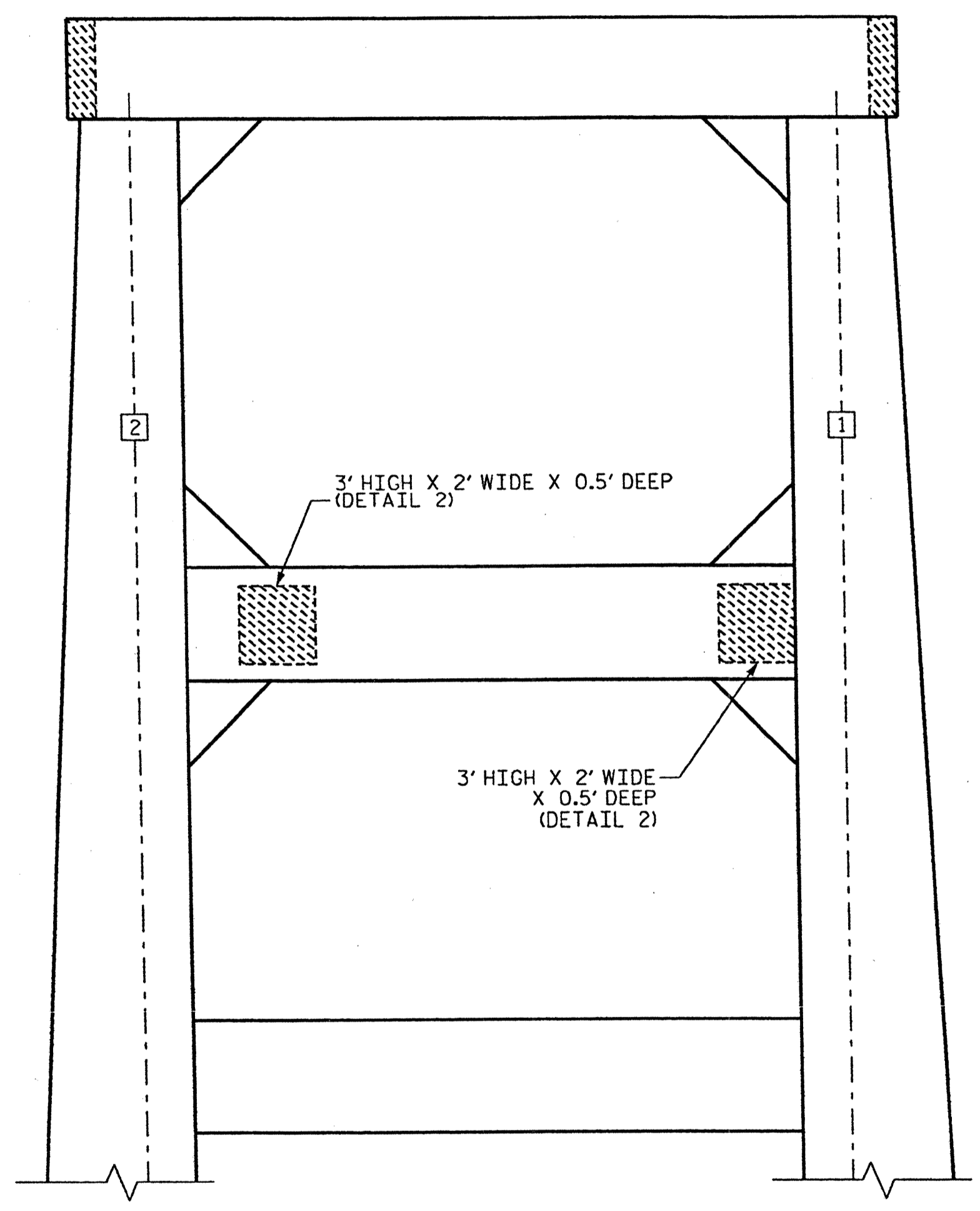
TYPICAL REPAIR DETAIL 2



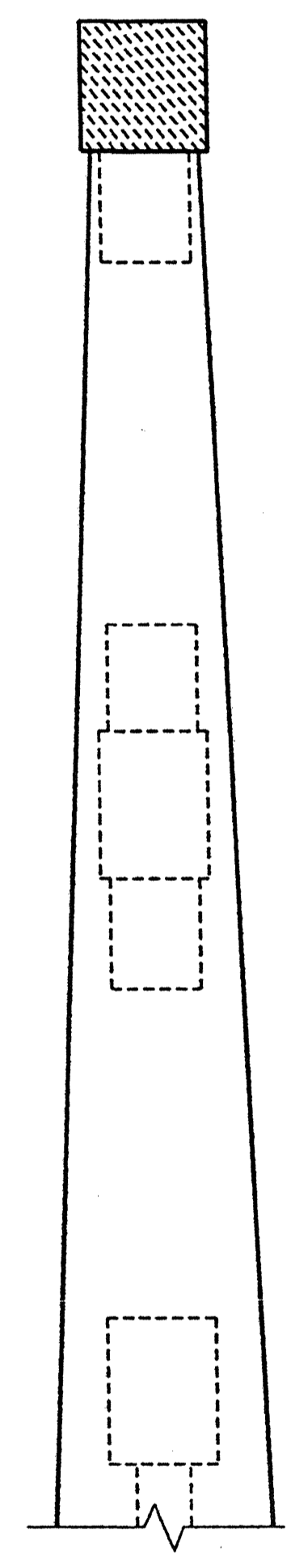
TYPICAL REPAIR DETAIL 3



BENT 9 REPAIRS ELEVATION (SPAN I SIDE)



BENT 9 REPAIRS ELEVATION (SPAN J SIDE)



BENT 9 REPAIRS END VIEW - COL 2

BENT 9 REPAIRS END VIEW - COL 2

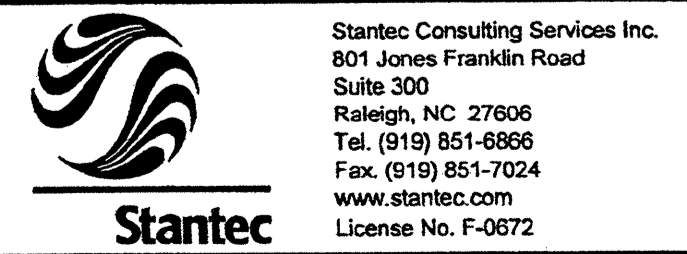
PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 9					
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-59
					TOTAL SHEETS 75

*Joseph J. Kelvington*  
12/20/11  
SEAL  
13406  
ENGINEER  
NORTH CAROLINA

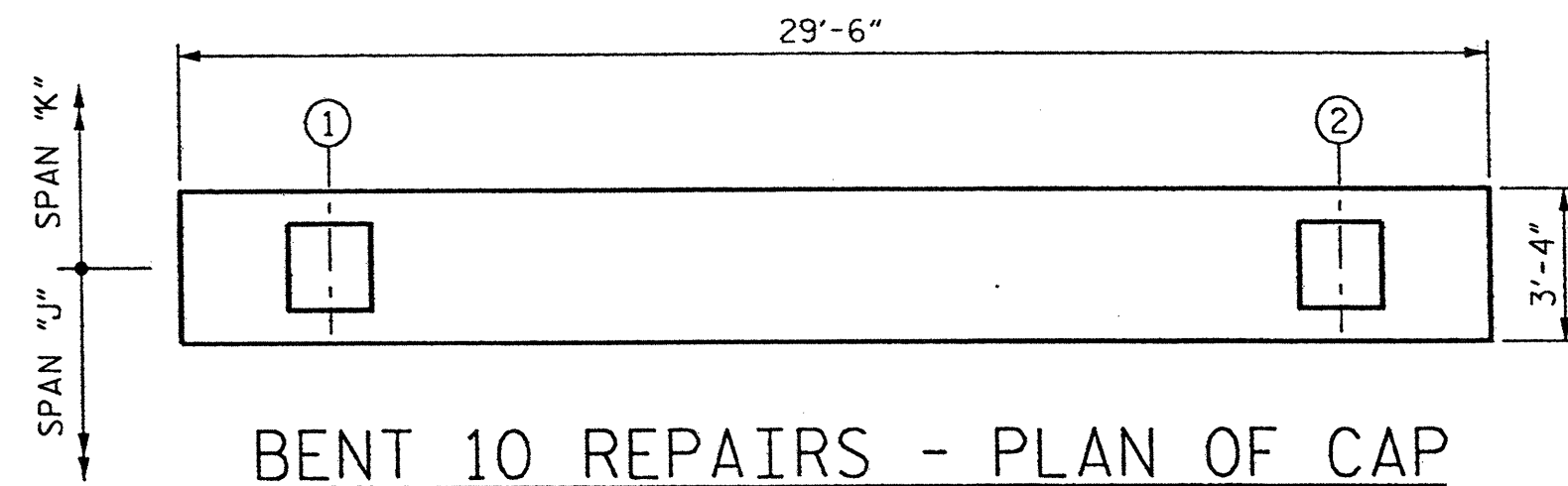
TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 20 C.F.

☐ DENOTES COLUMN NO.



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

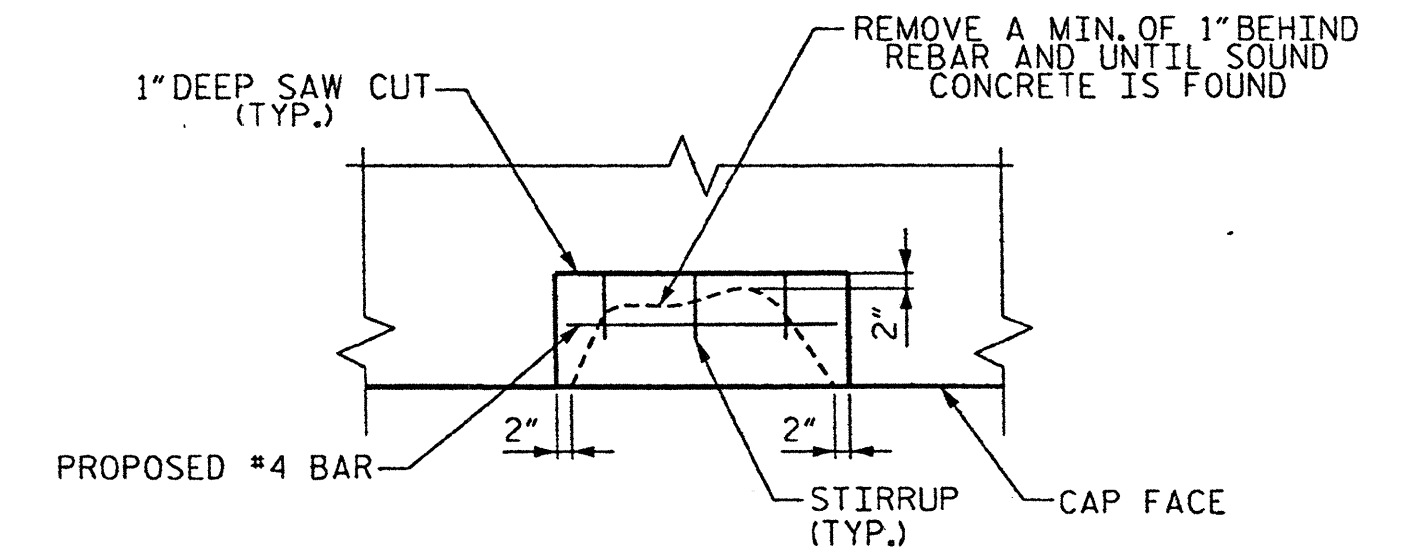
Group 2011WBS 17BP.6.P.2 Robeson Co\Bladen Bridge 01\Drawing\BPT7\_Repair\_BENT9.dgn 12/19/2011 12:22:38 PM Jjelle



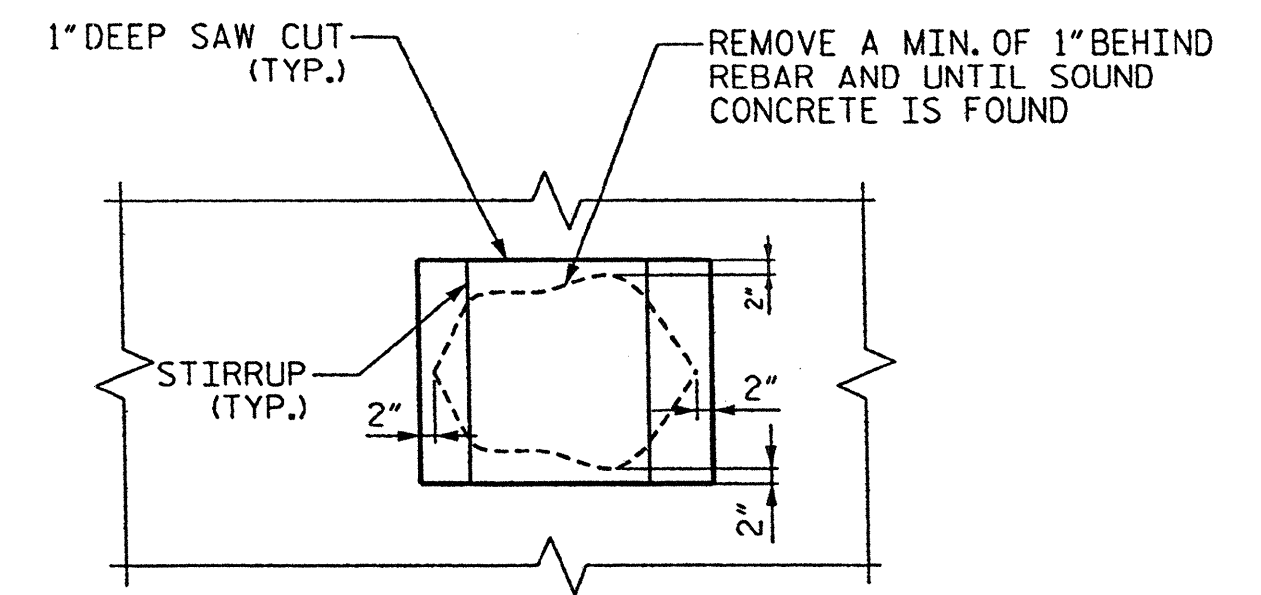
BENT 10 REPAIRS - PLAN OF CAP

NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

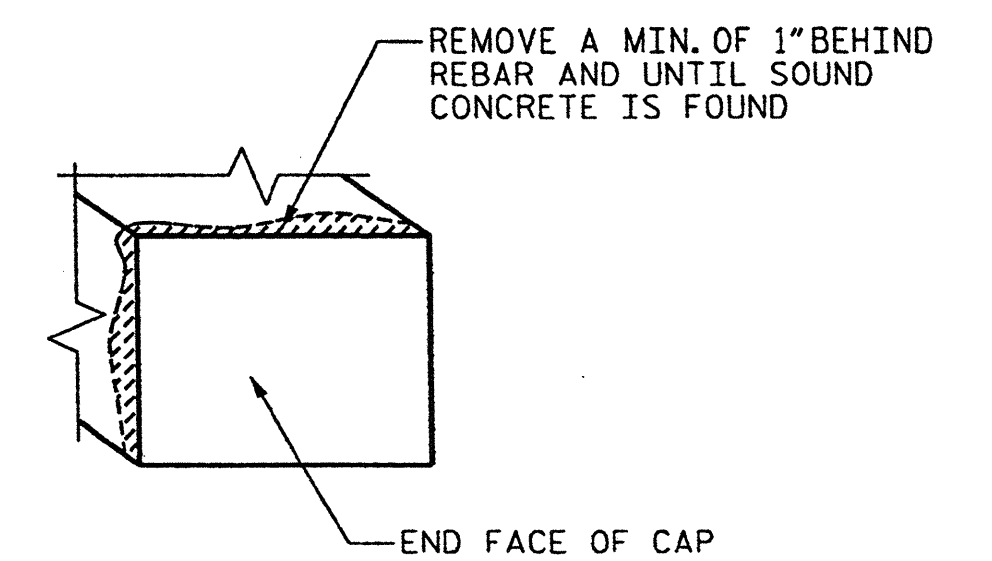
NOTES:  
REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.  
ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.  
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



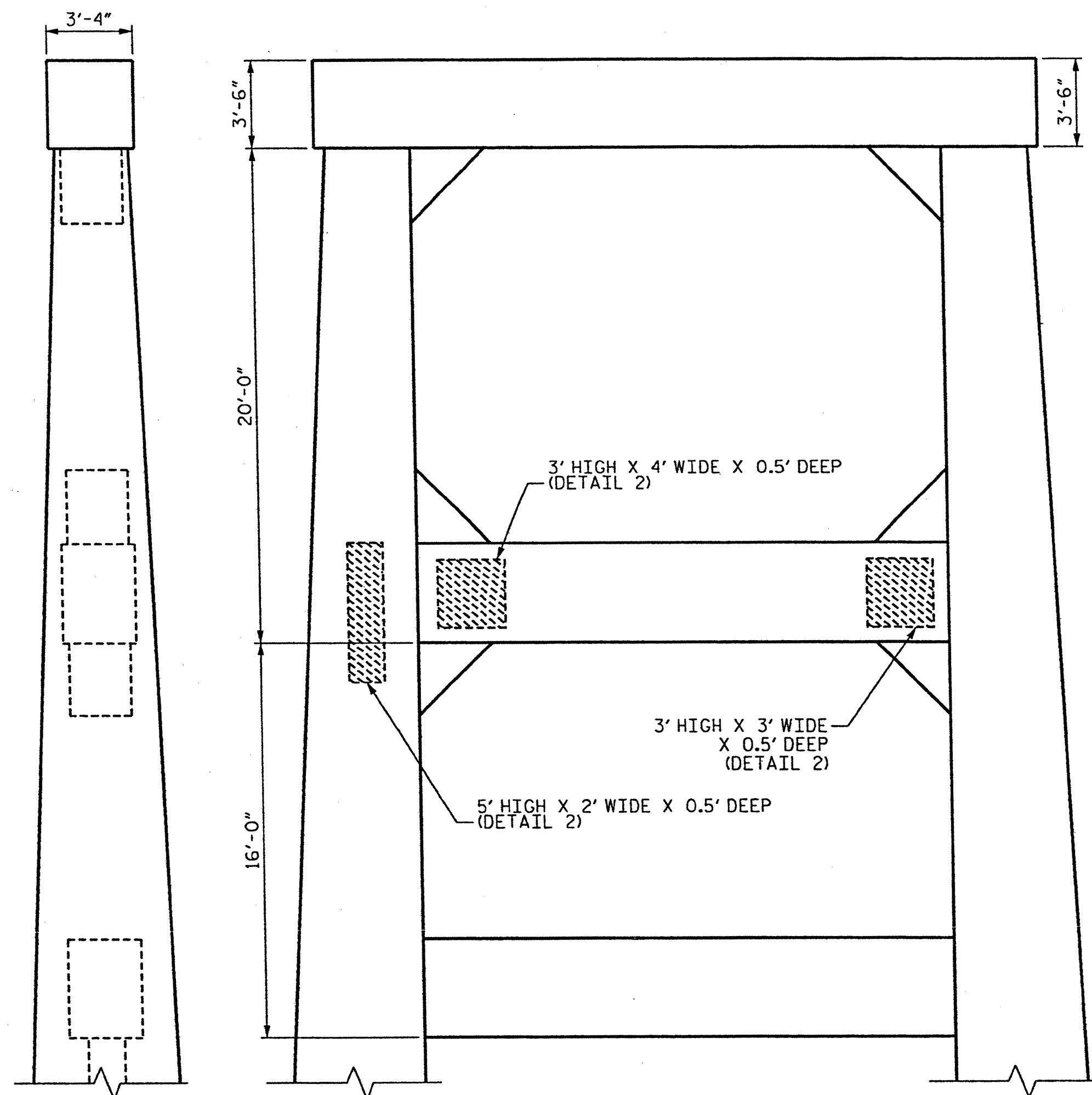
TYPICAL REPAIR DETAIL 1



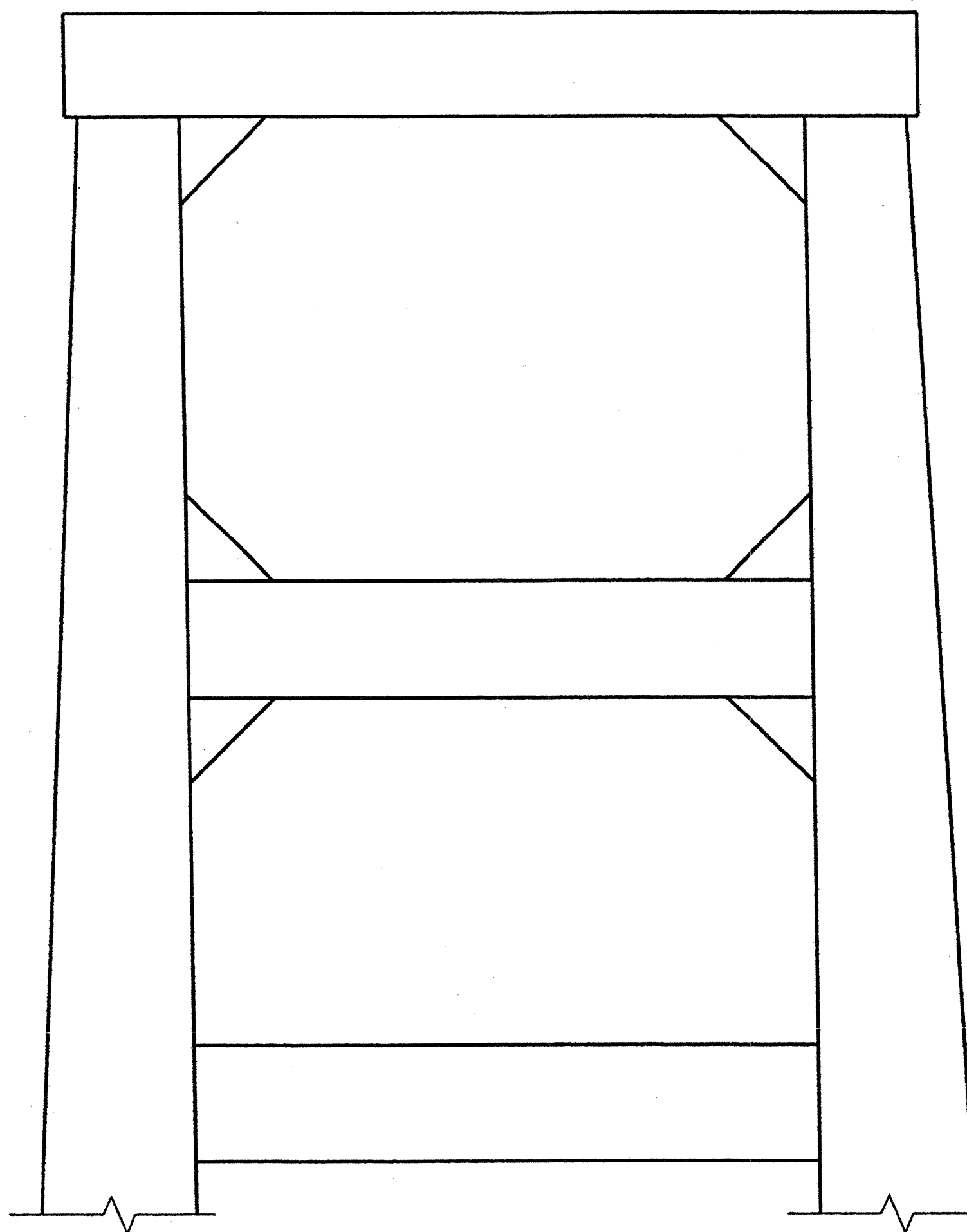
TYPICAL REPAIR DETAIL 2



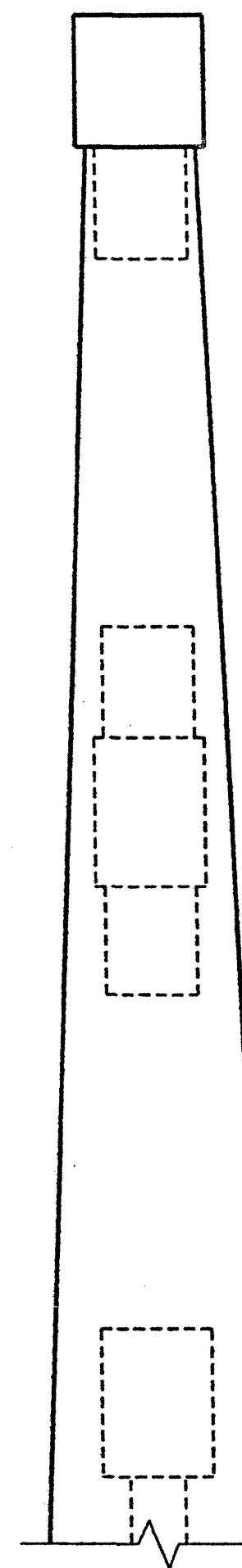
TYPICAL REPAIR DETAIL 3



BENT 10 REPAIRS ELEVATION (SPAN J SIDE)



BENT 10 REPAIRS ELEVATION (SPAN K SIDE)



BENT 10 REPAIRS END VIEW - COL 1

BENT 10 REPAIRS END VIEW - COL 2

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 10

DECK REHAB. FOR BRIDGE NO. 17

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S- 60	
1			3			TOTAL SHEETS	
2			4			75	

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 20 C.F.

*Joseph H. Kelvington*  
Professional Engineer Seal  
No. 13406  
State of North Carolina

□ DENOTES COLUMN NO.

Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0572

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

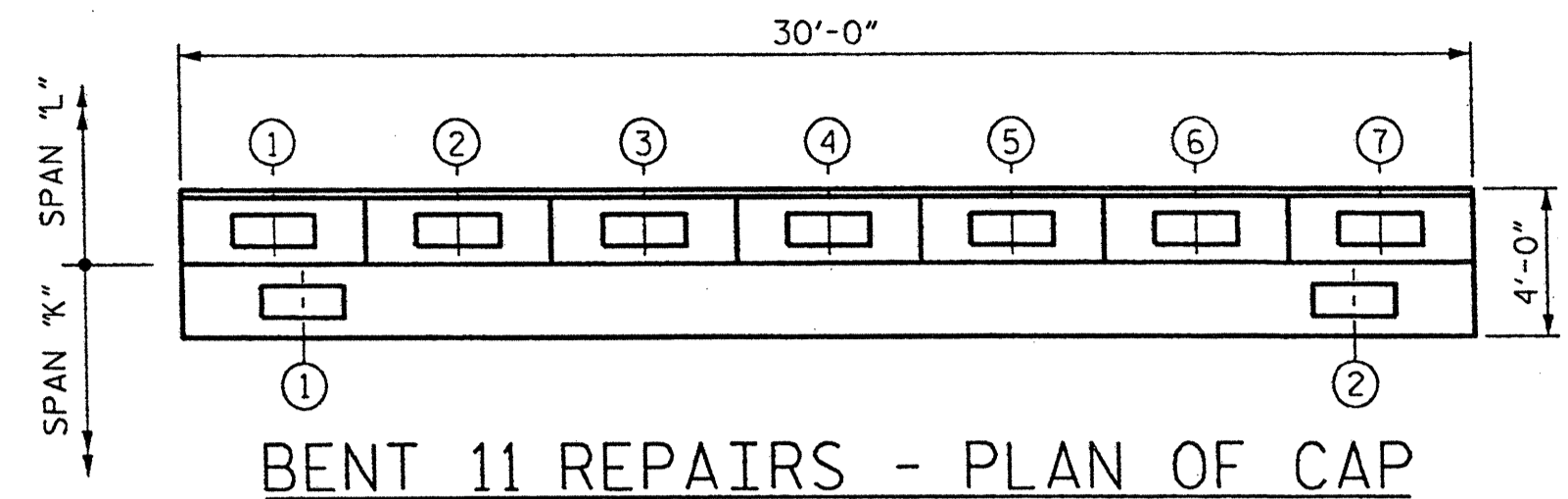
2011WBS 17BP.6.P.2 Robeson Co. Bladen Co. Bladen Br. Idge 017.Drawing\B717.Repair-BENT10.dgn 12/19/2011 12:22:41 PM Jgelle

NOTE:  
 CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

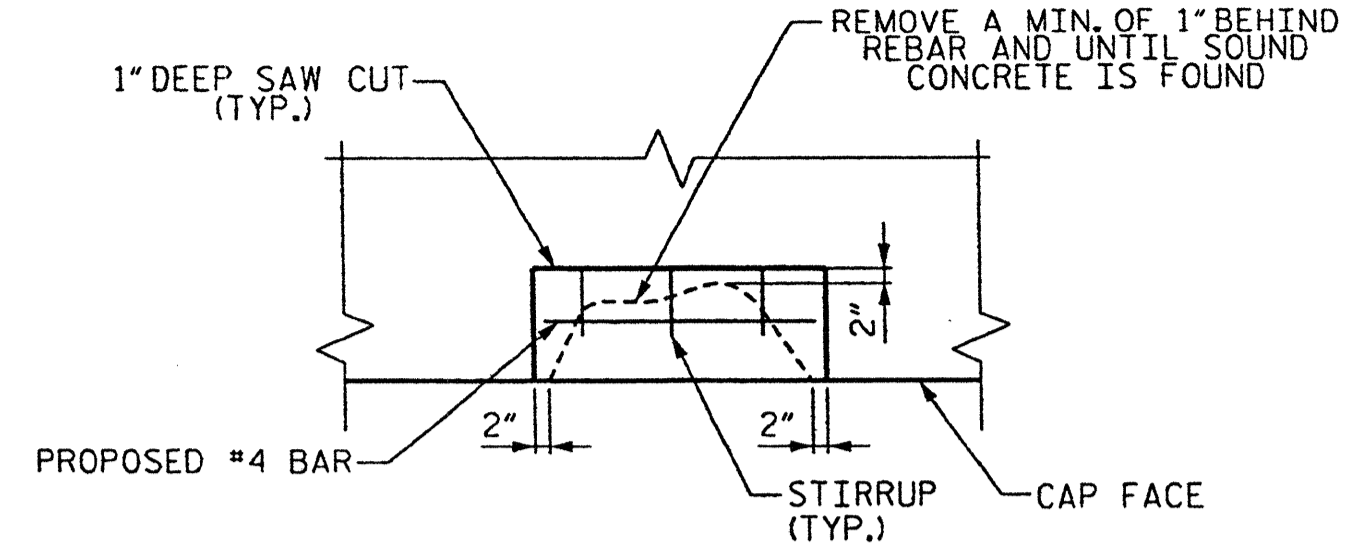
NOTES:  
 REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.

ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.

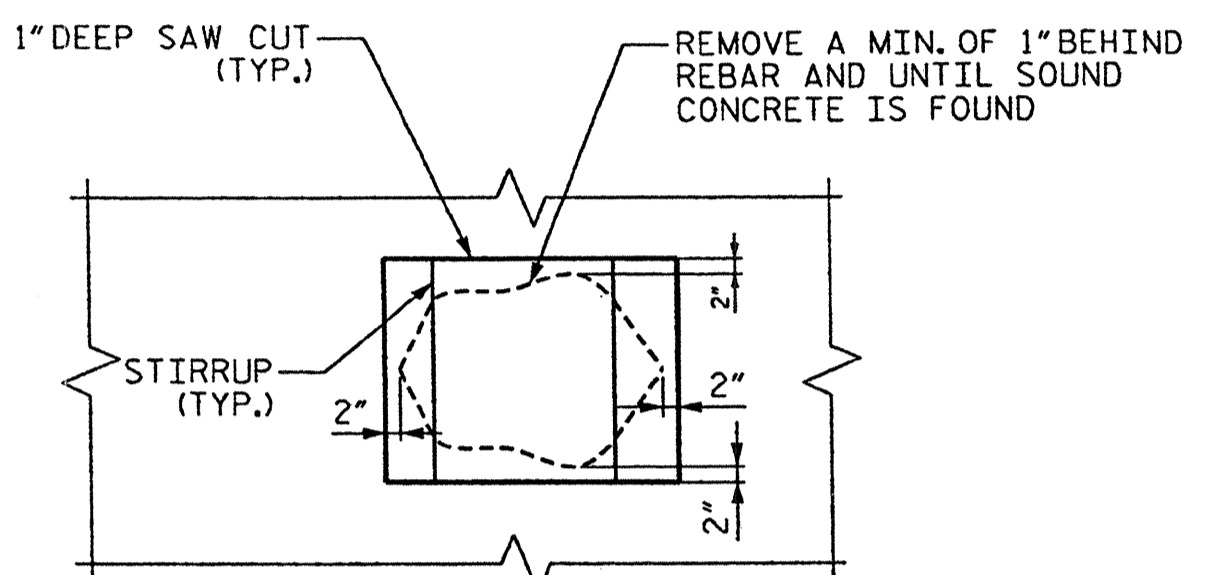
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



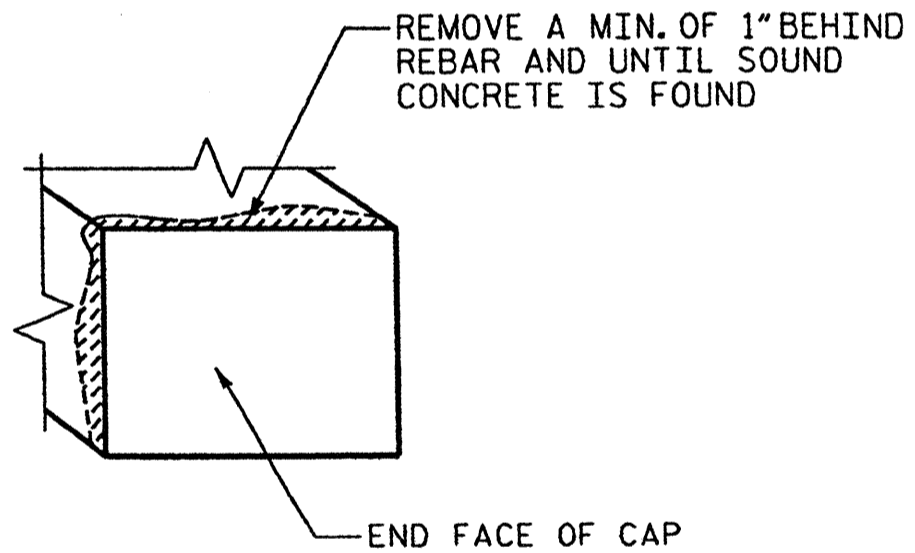
BENT 11 REPAIRS - PLAN OF CAP



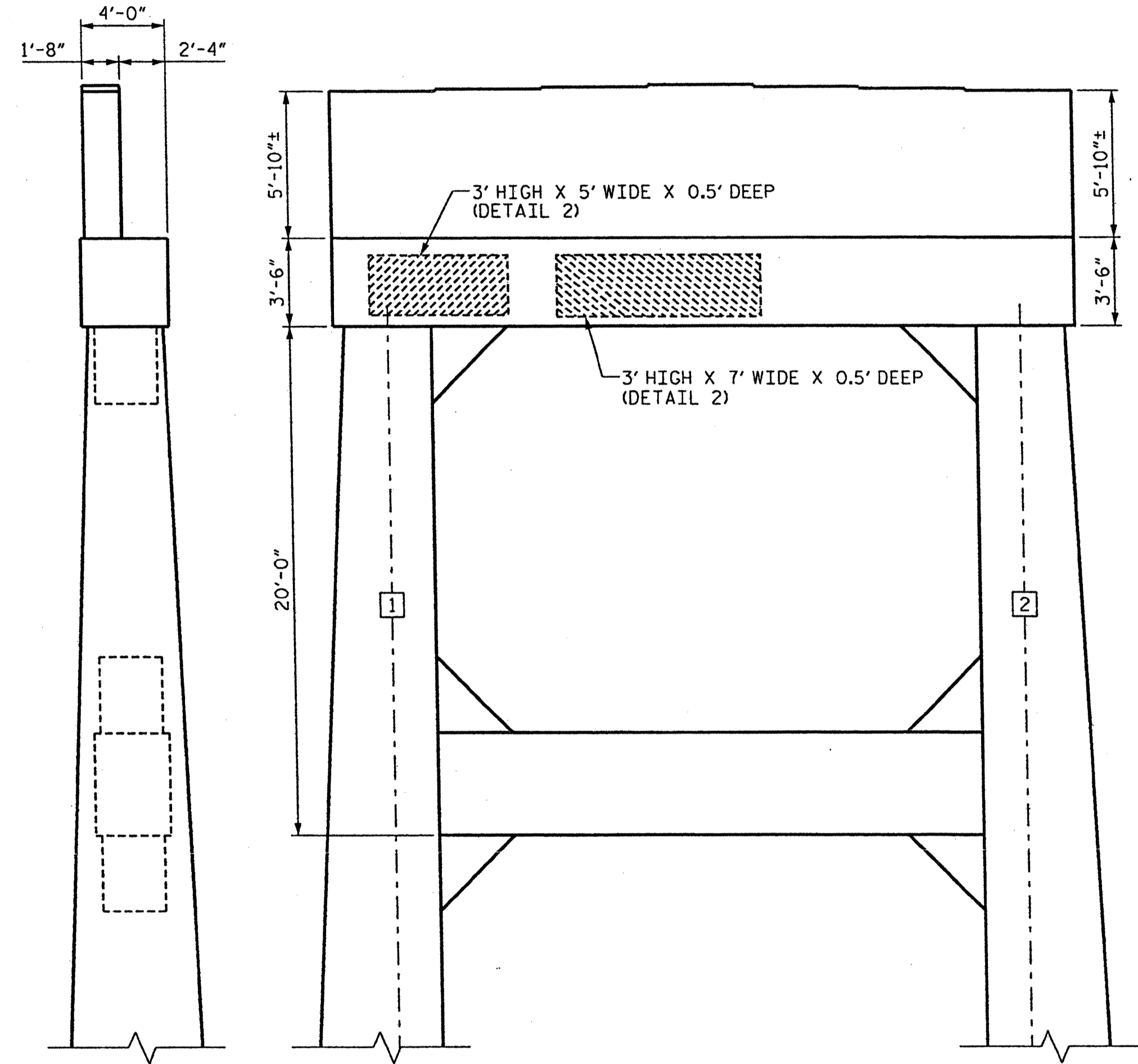
TYPICAL REPAIR DETAIL 1



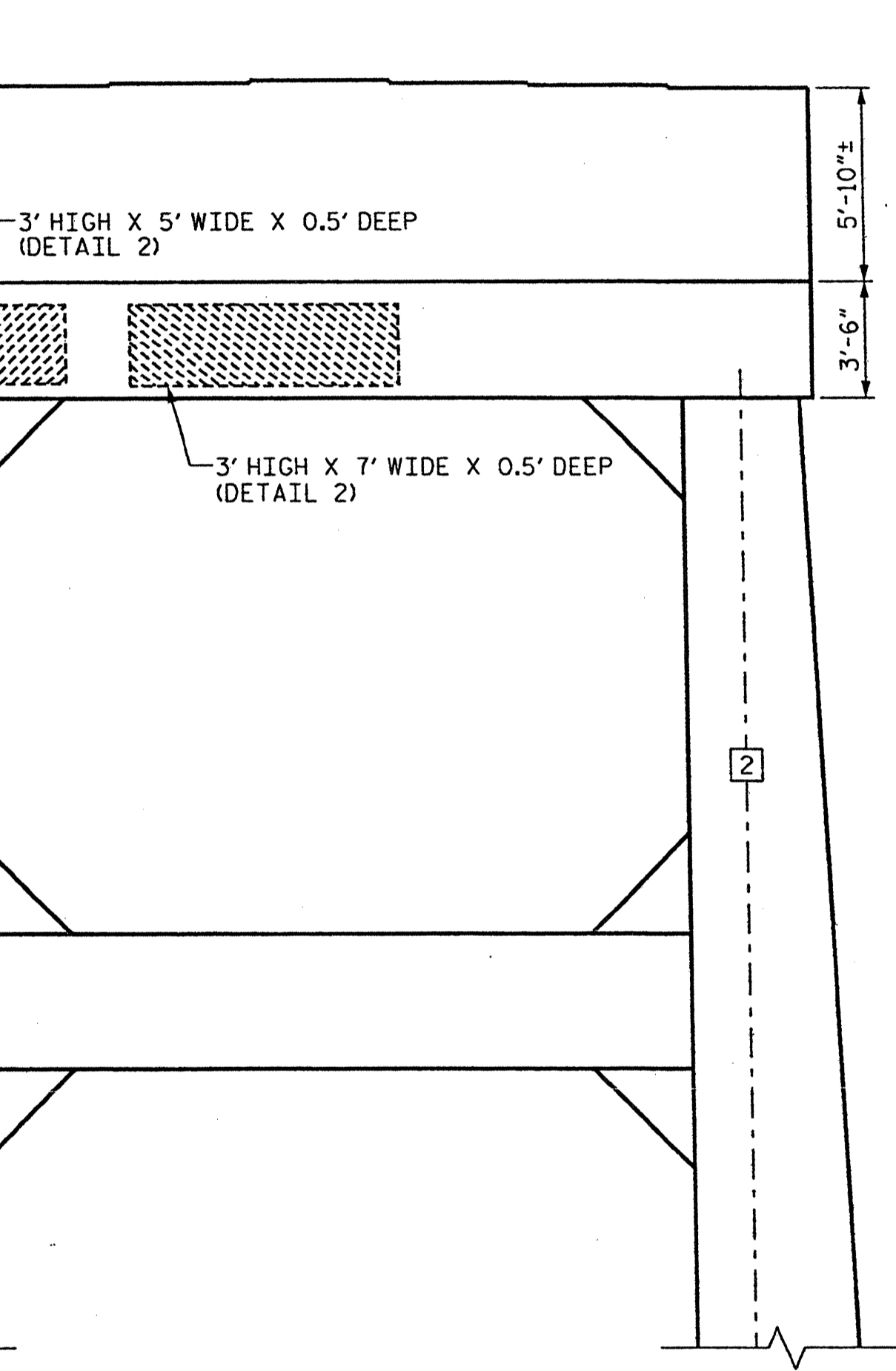
TYPICAL REPAIR DETAIL 2



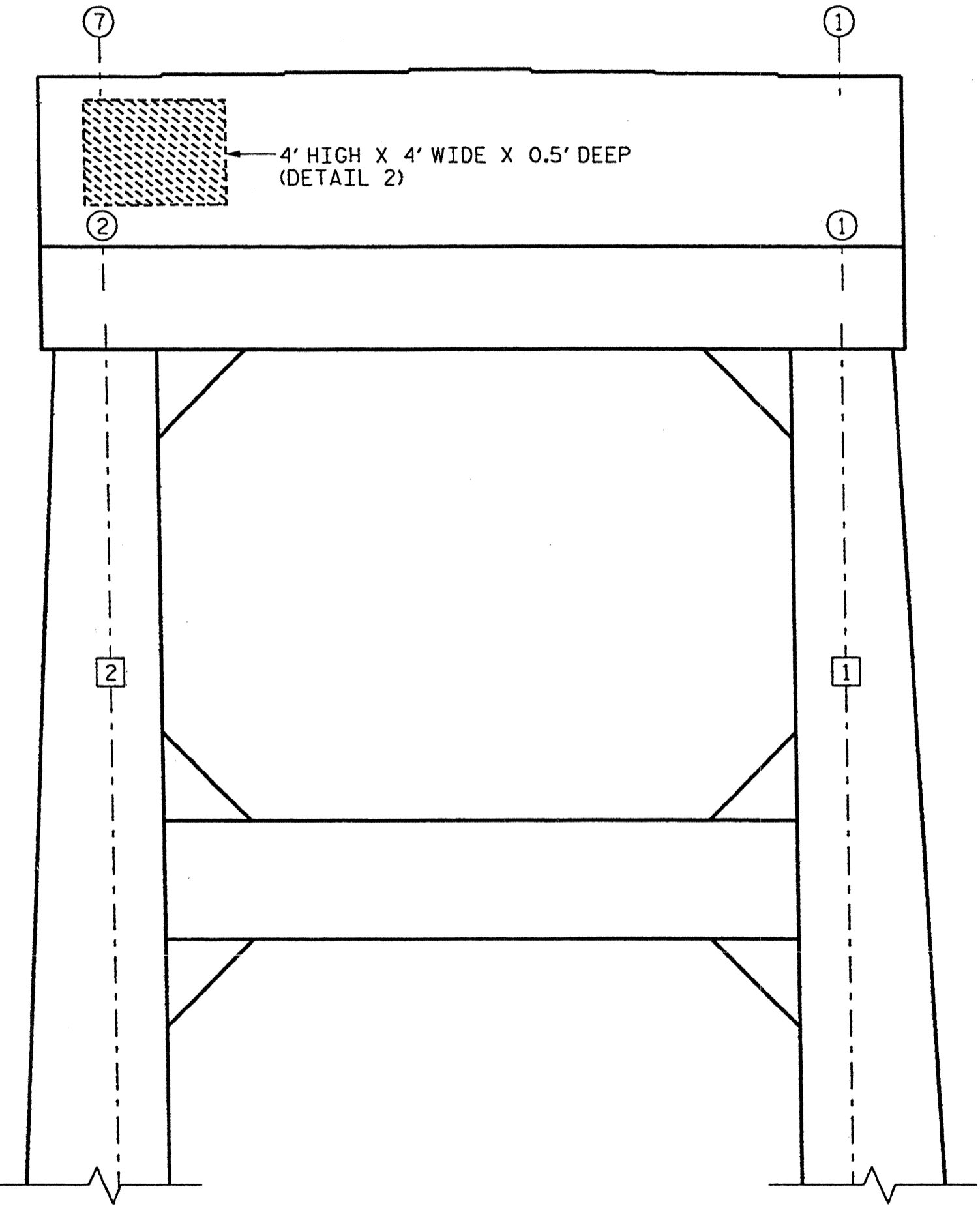
TYPICAL REPAIR DETAIL 3



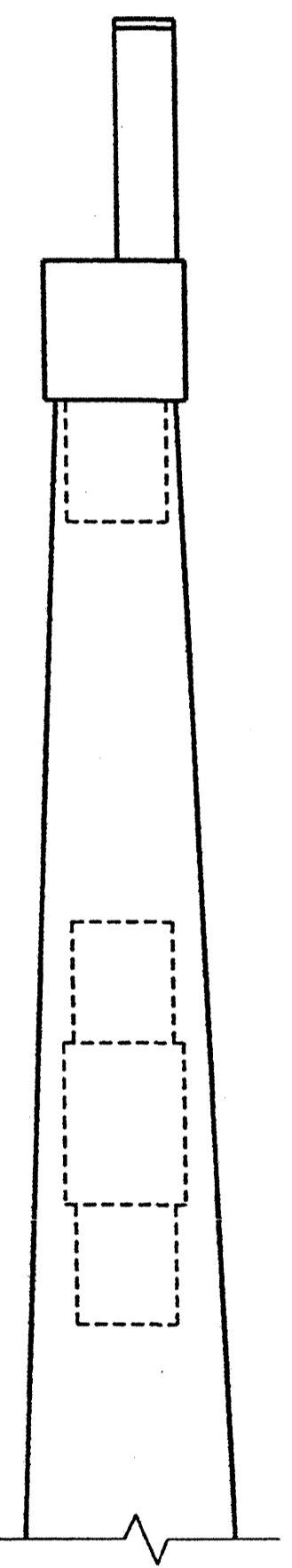
BENT 11 REPAIRS  
 END VIEW - COL 1



BENT 11 REPAIRS  
 ELEVATION (SPAN K SIDE)



BENT 11 REPAIRS  
 ELEVATION (SPAN L SIDE)



BENT 11 REPAIRS  
 END VIEW - COL 2

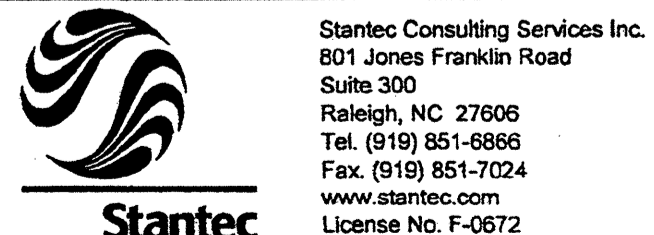
□ DENOTES COLUMN NO.

TOTAL ESTIMATED QUANTITIES  
 CONCRETE REPAIR 0 C.F.  
 SHOTCRETE REPAIR 50 C.F.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

*Joseph Kelvington*  
 11/20/11  
 PROFESSIONAL ENGINEER  
 SEAL 13406  
 STATE OF NORTH CAROLINA  
 KELVINGTON

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 11					
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-61
					TOTAL SHEETS 75



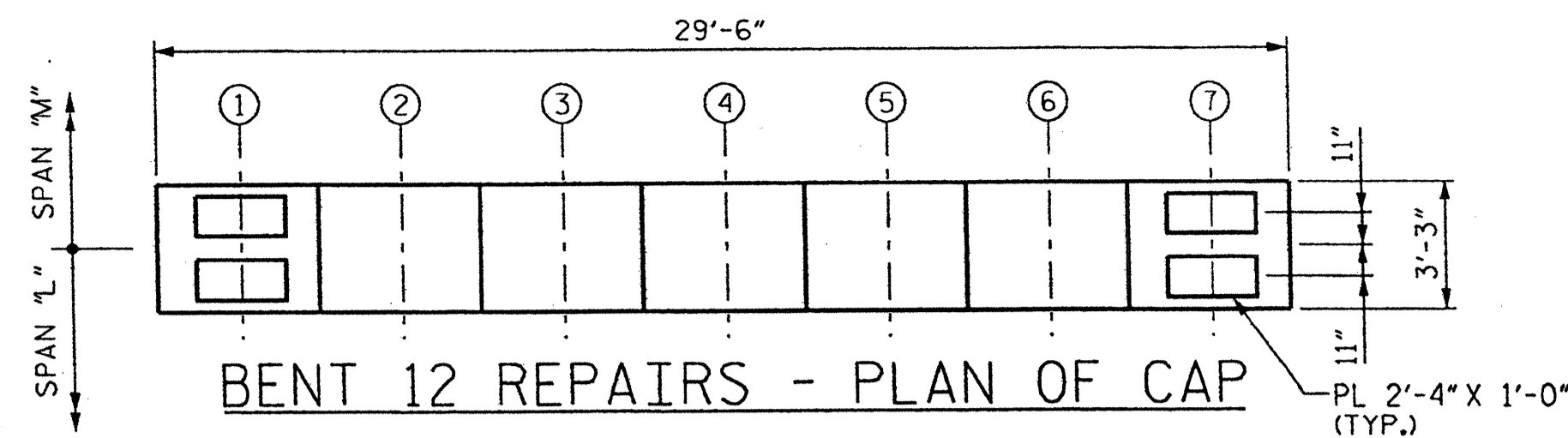
Stantec Consulting Services Inc.  
 801 Jones Franklin Road  
 Suite 300  
 Raleigh, NC 27606  
 Tel. (919) 851-6886  
 Fax. (919) 851-7024  
 www.stantec.com  
 License No. F-0672

DRAWN BY: C T MCCULLOUGH DATE: 11/11  
 CHECKED BY: J T KELVINGTON DATE: 11/11

Group 2011 WBS 17BP.6.P.2 Robeson Co. Bladen Bridge DT\Drawing\BPT\_Repair\_BENT11.dgn 12/19/2011 12:22:43 PM Jjelle



Group 2011 WBS 17BP.6.P.2, Robeson Co. Bladen Bridge DTADrawing\BPT\_Repair\_BENT12.dgn 12/19/2011 12:22:45 PM Jjelle



NOTE:

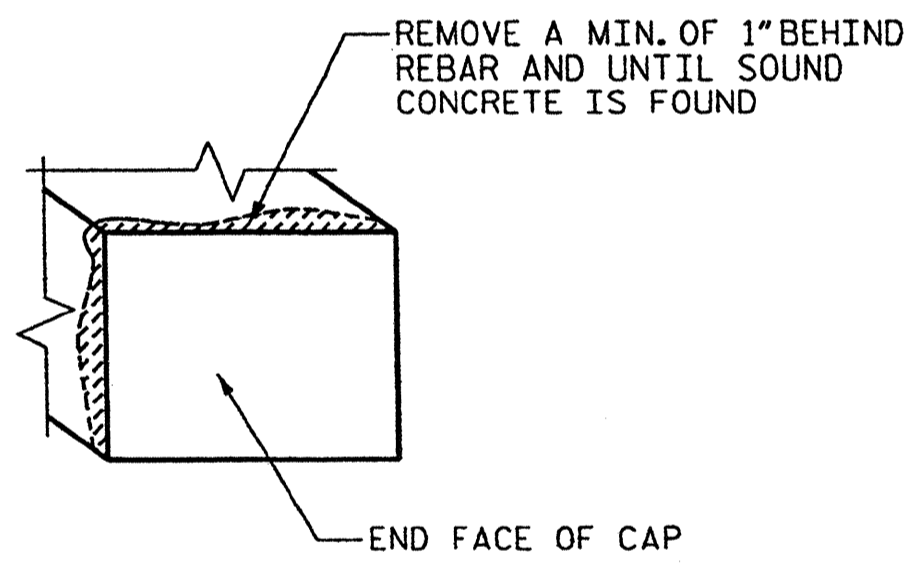
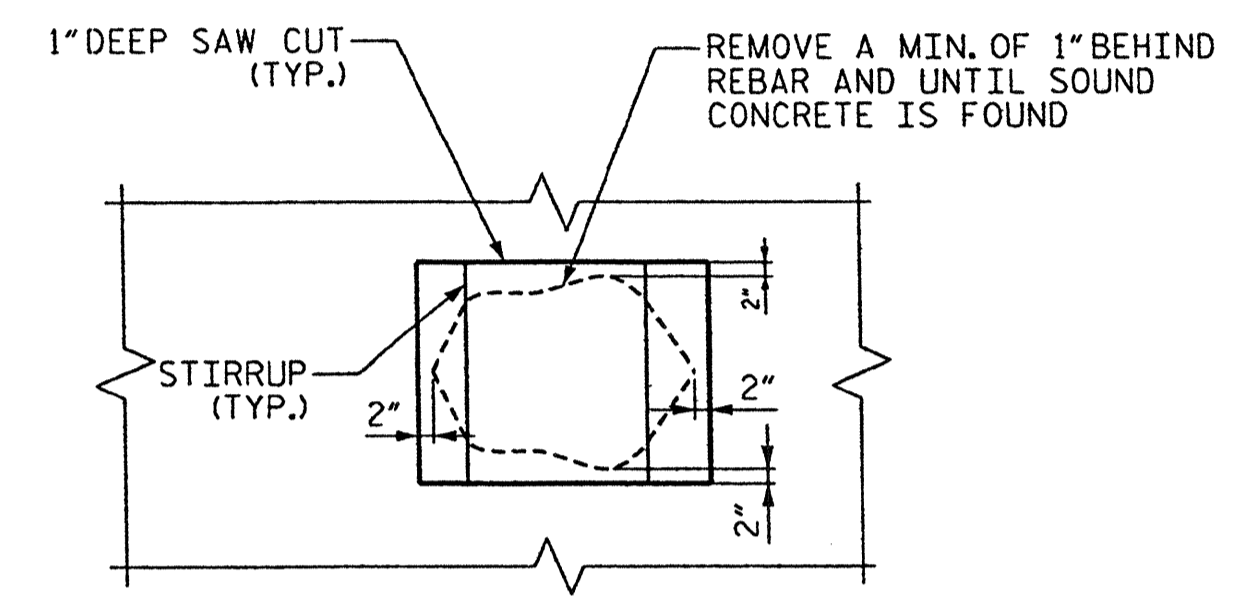
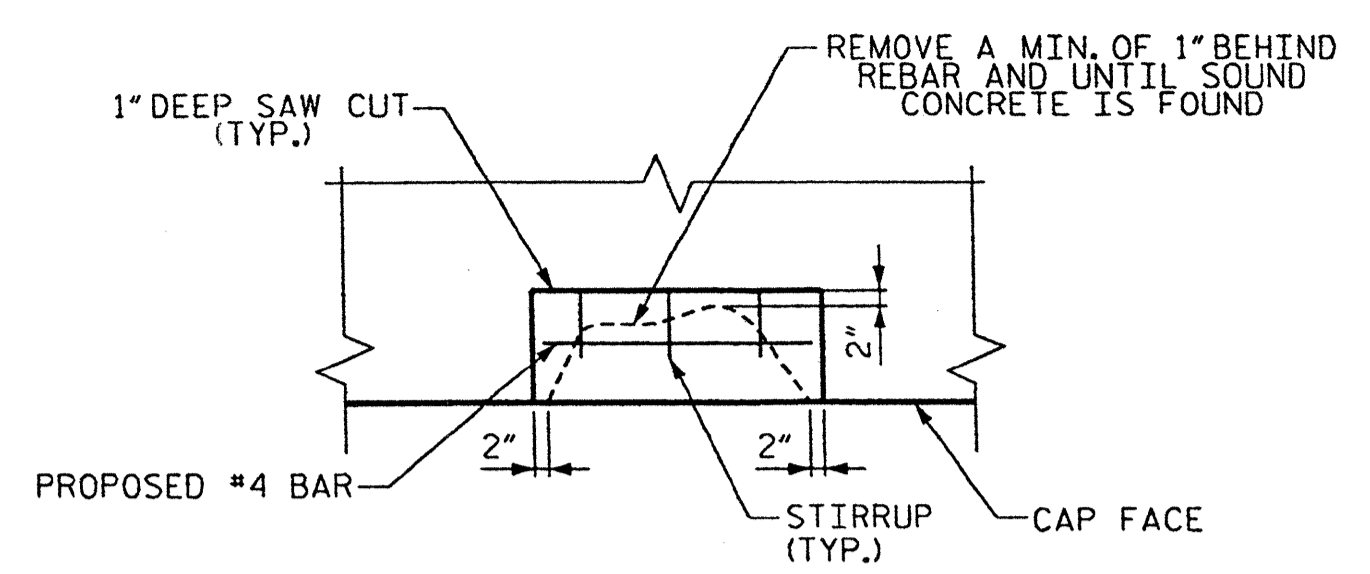
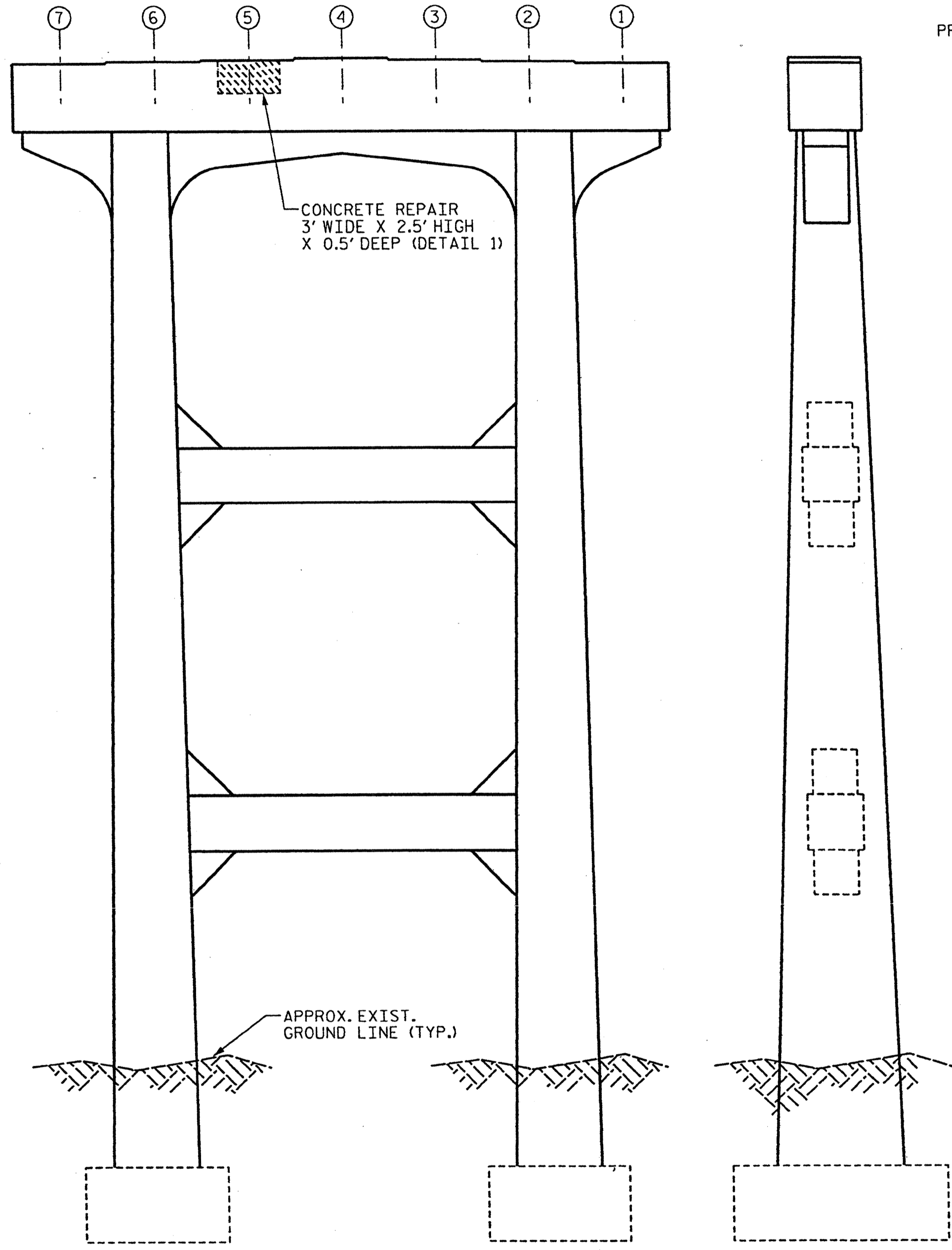
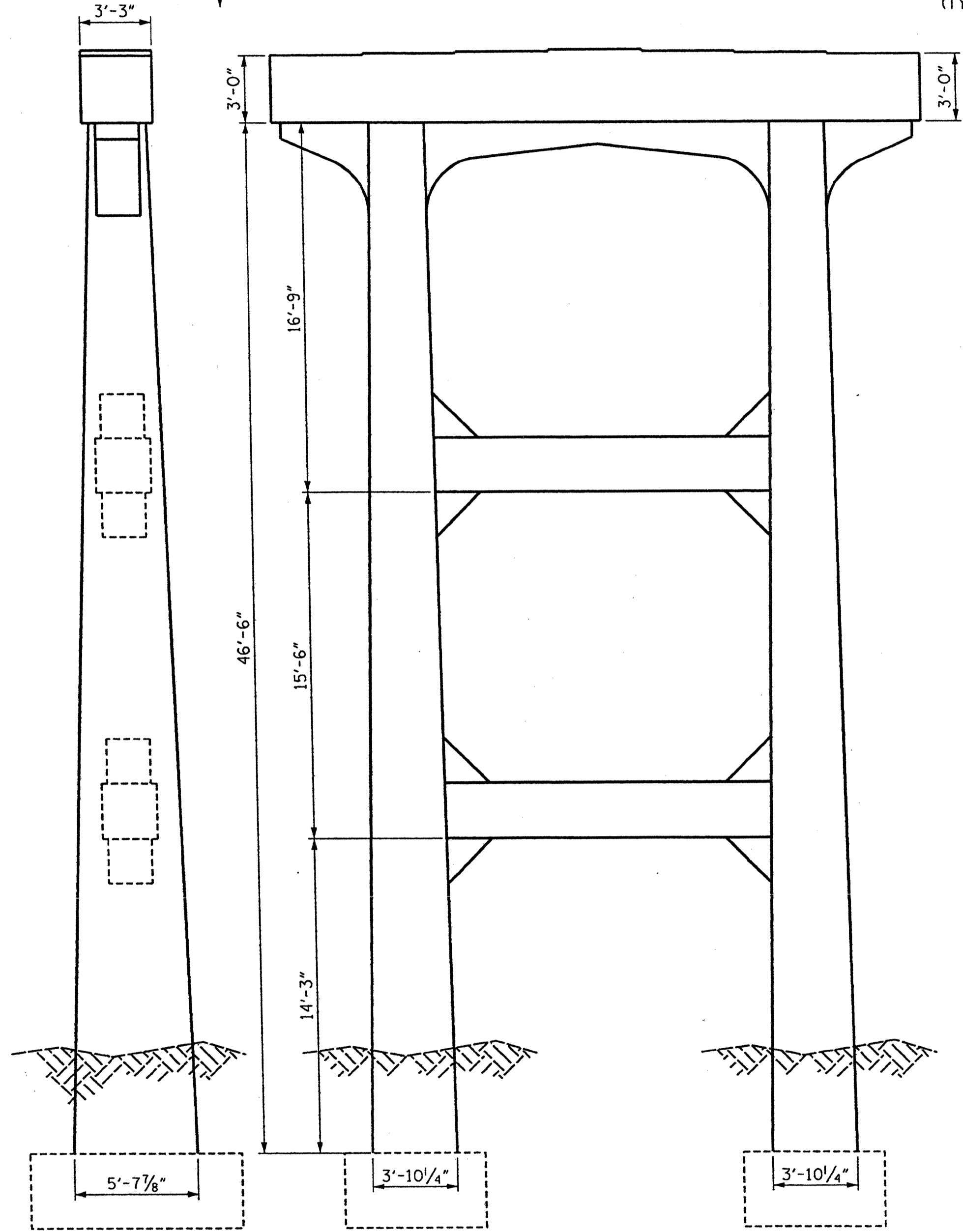
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

NOTES:

REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.

ALL REINFORCEMENT TO BE PROVIDED IS INCIDENTAL TO THE SUBSTR. REPAIR AND SHALL BE GRADE 60.

AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



**BENT 12 REPAIRS  
END VIEW - COL 1**

**BENT 12 REPAIRS  
ELEVATION (SPAN L SIDE)**

**BENT 12 REPAIRS  
ELEVATION (SPAN M SIDE)**

**BENT 12 REPAIRS  
END VIEW - COL 2**

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BENT 12**

DECK REHAB. FOR BRIDGE NO. 17

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

TOTAL SHEETS: 75

Stantec Consulting Services Inc.  
 801 Jones Franklin Road  
 Suite 300  
 Raleigh, NC 27606  
 Tel. (919) 851-6866  
 Fax. (919) 851-7024  
 www.stantec.com  
 License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

■ DENOTES COLUMN NO.

TOTAL ESTIMATED QUANTITIES  
 CONCRETE REPAIR 4 C.F.  
 SHOTCRETE REPAIR 10 C.F.

*Joseph Kelvington*  
 11/11/11  
 13406  
 ENGINEER  
 NORTH CAROLINA

NOTE:

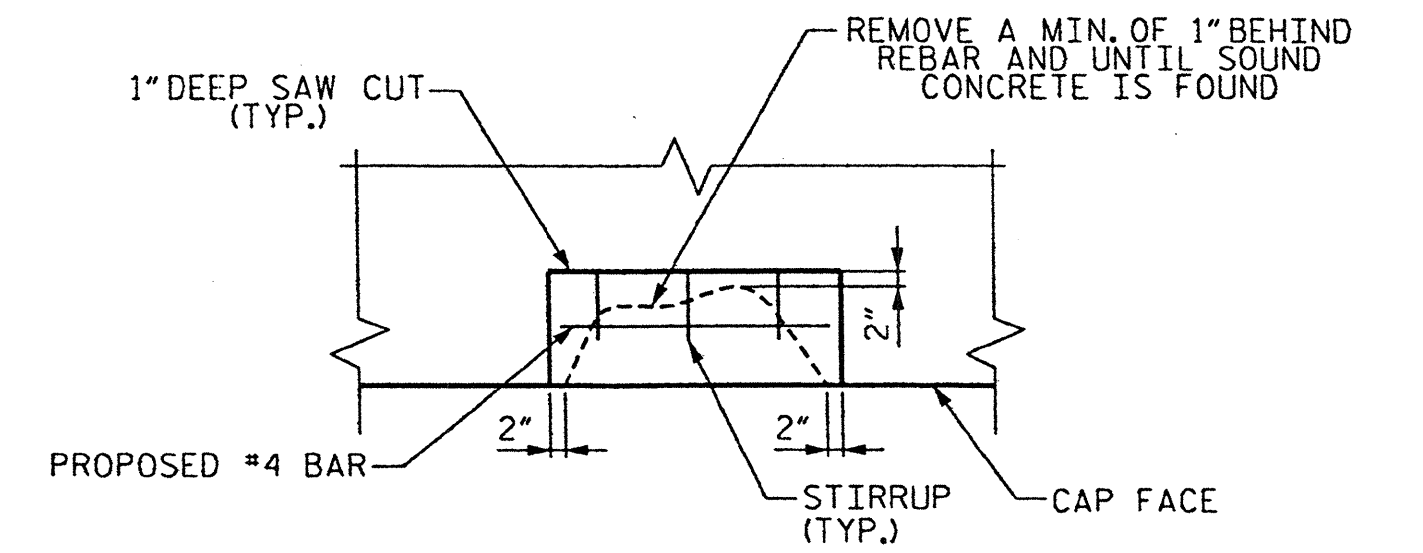
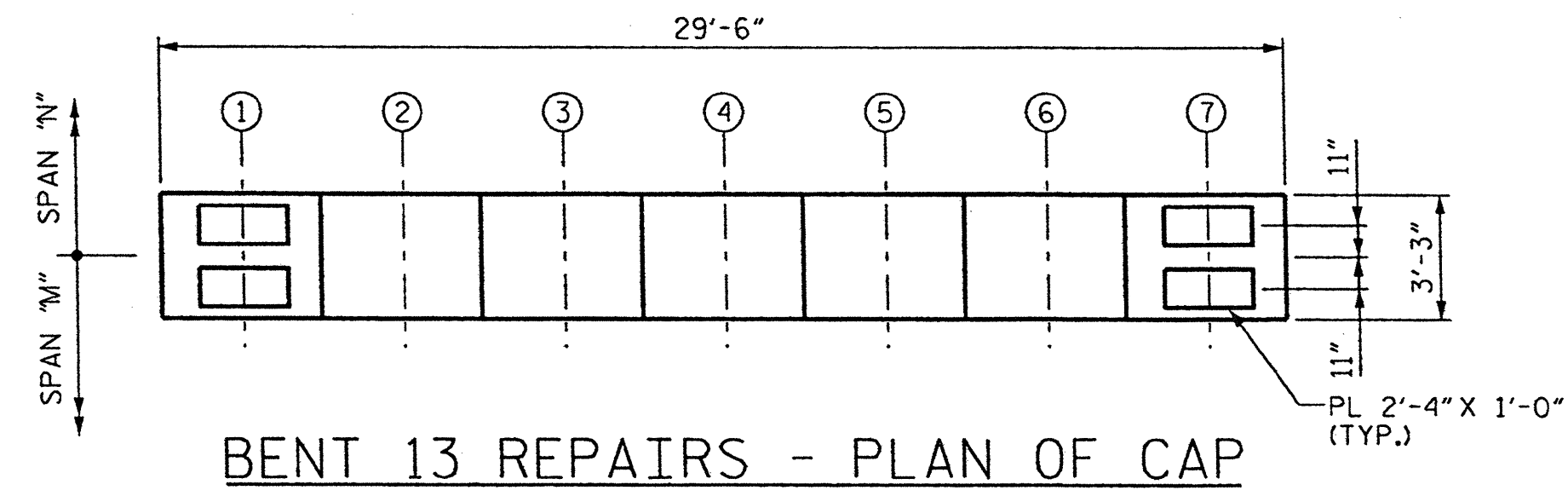
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

NOTES:

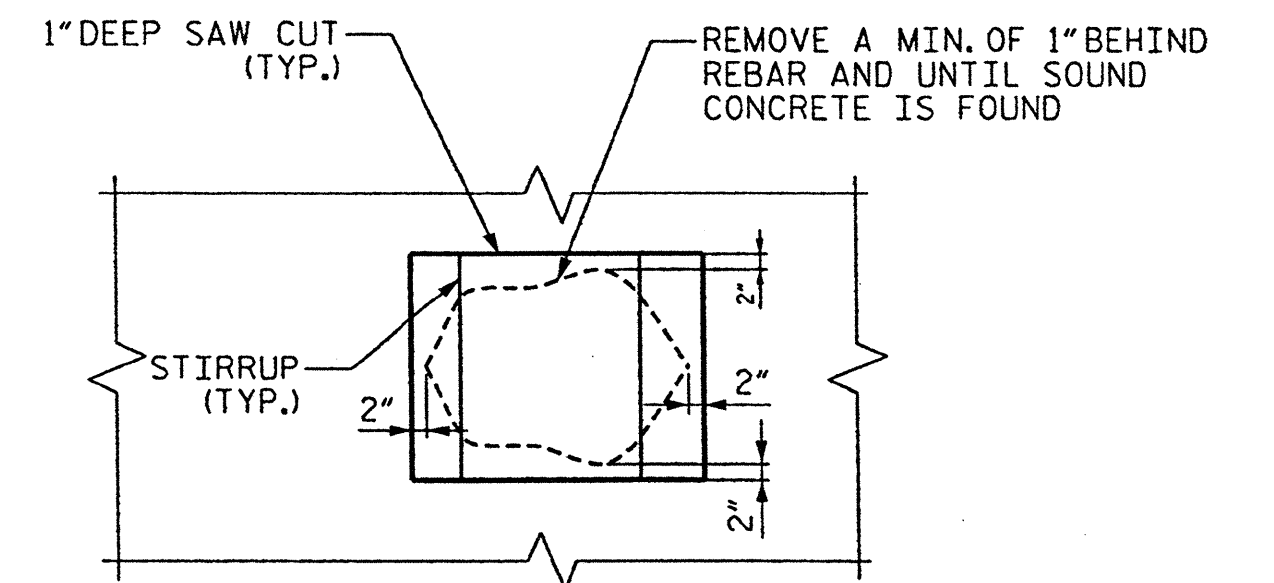
REPAIR AREA DIMENSIONS SHOWN ARE APPROXIMATE BASED ON BEST AVAILABLE INFORMATION.

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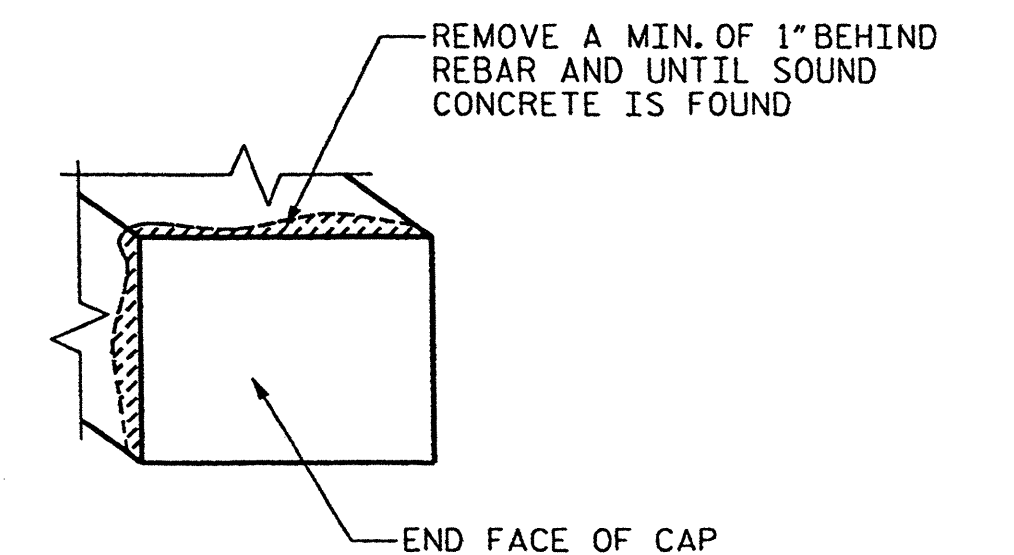
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



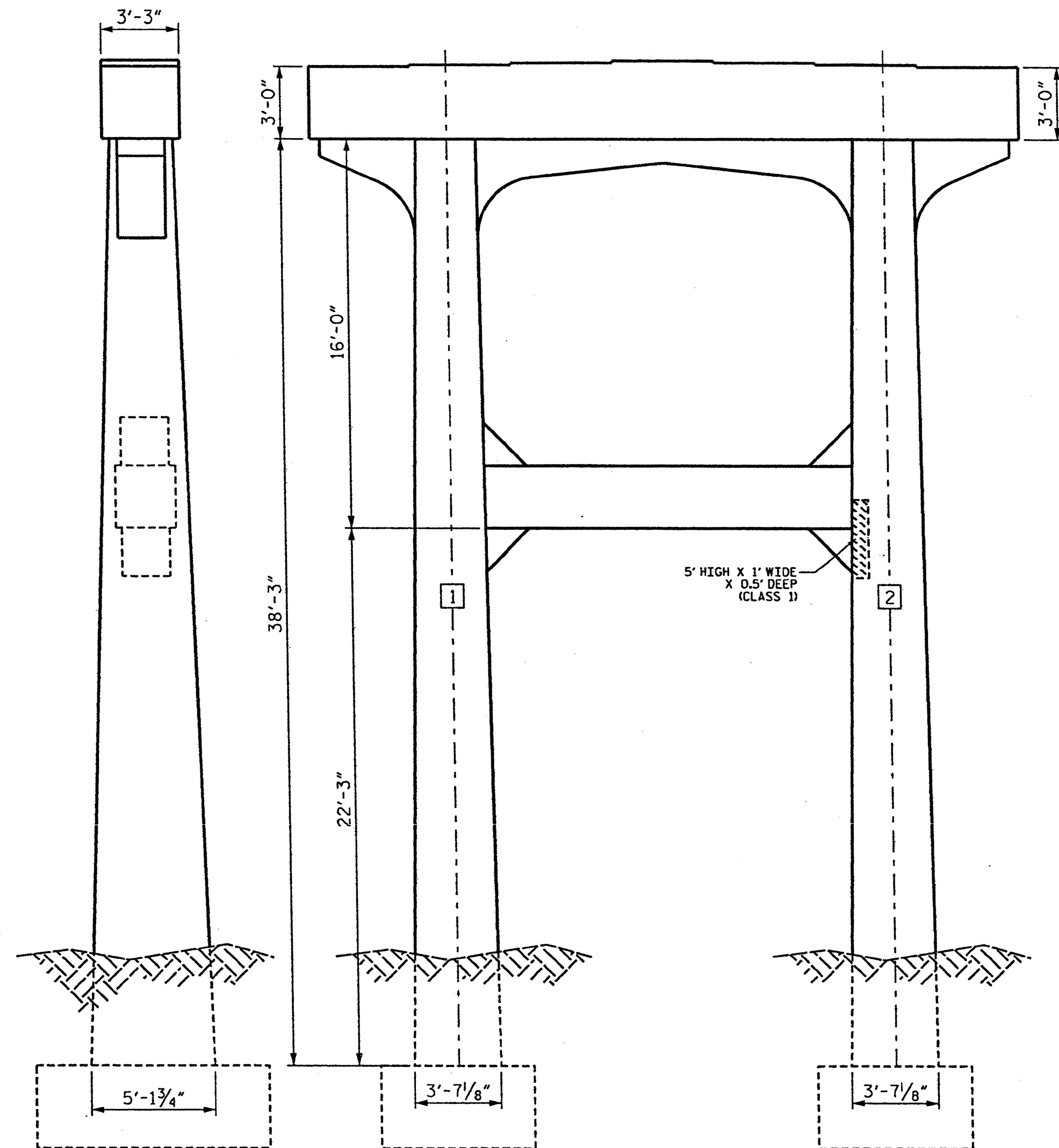
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

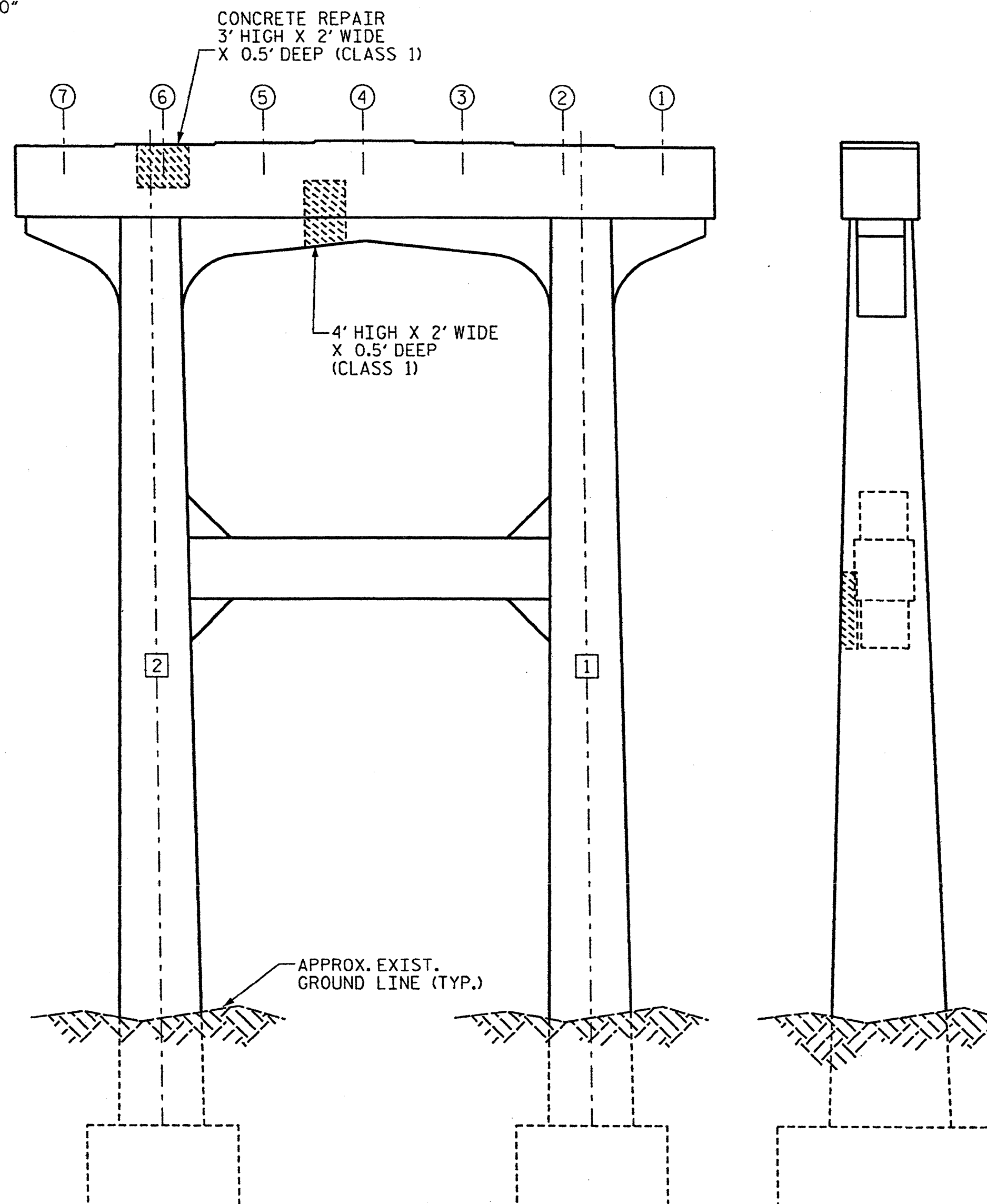


TYPICAL REPAIR DETAIL 3



BENT 13 REPAIRS  
END VIEW - COL 1

BENT 13 REPAIRS  
ELEVATION (SPAN M SIDE)



BENT 13 REPAIRS  
ELEVATION (SPAN N SIDE)

BENT 13 REPAIRS  
END VIEW - COL 2

TOTAL ESTIMATED QUANTITIES

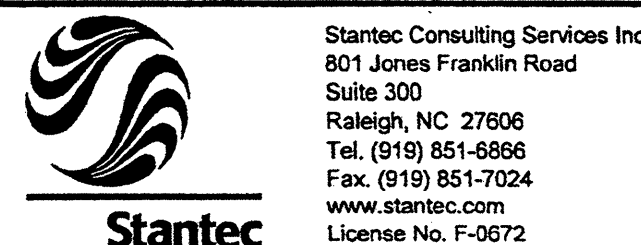
CONCRETE REPAIR 3 C.F.  
SHOTCRETE REPAIR 17 C.F.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
BENT 13				
DECK REHAB. FOR BRIDGE NO. 17				
REVISIONS				
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
				SHEET NO. S-63
				TOTAL SHEETS 75

*Joseph Kelvington*  
Professional Engineer Seal  
13406  
North Carolina  
Engineering

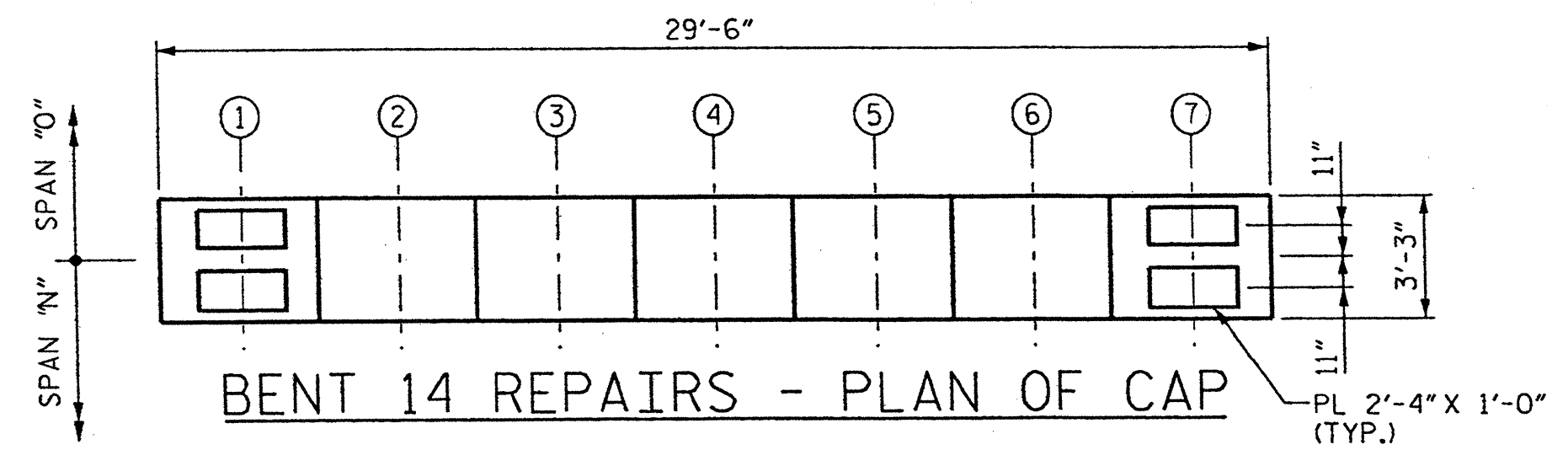
□ DENOTES COLUMN NO.



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801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
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Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: C T MCCULLOUGH DATE: 11/11  
CHECKED BY: J T KELVINGTON DATE: 11/11

I:\22252 PM Igelle 12/19/2011 12:22:52 PM Igelle 12/19/2011 12:22:52 PM Igelle 12/19/2011 12:22:52 PM Igelle

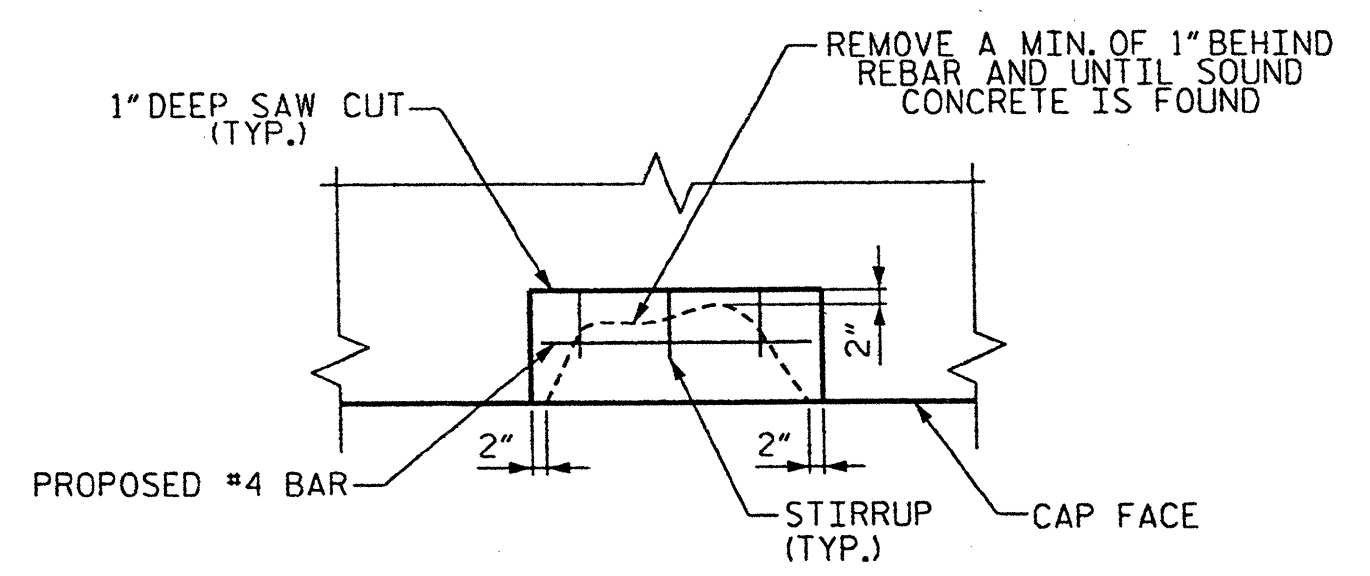


NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

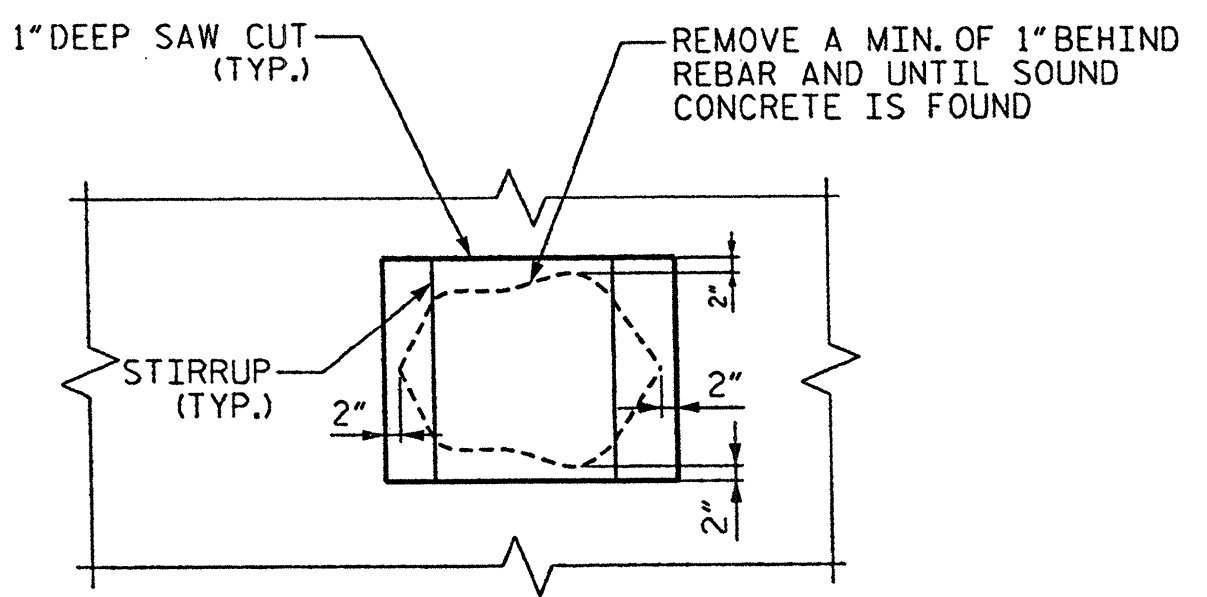
NOTES:  
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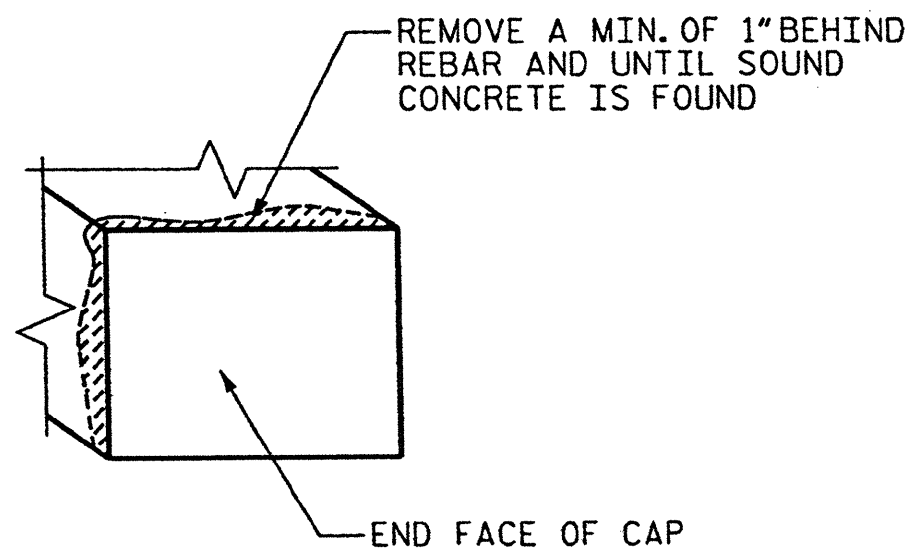
AREAS NOT OTHERWISE SPECIFIED FOR CONCRETE REPAIR MAY BE REPAIRED WITH SHOTCRETE, CLASS A CONC. OR POLYMER CONC. AT THE CONTRACTOR'S OPTION.



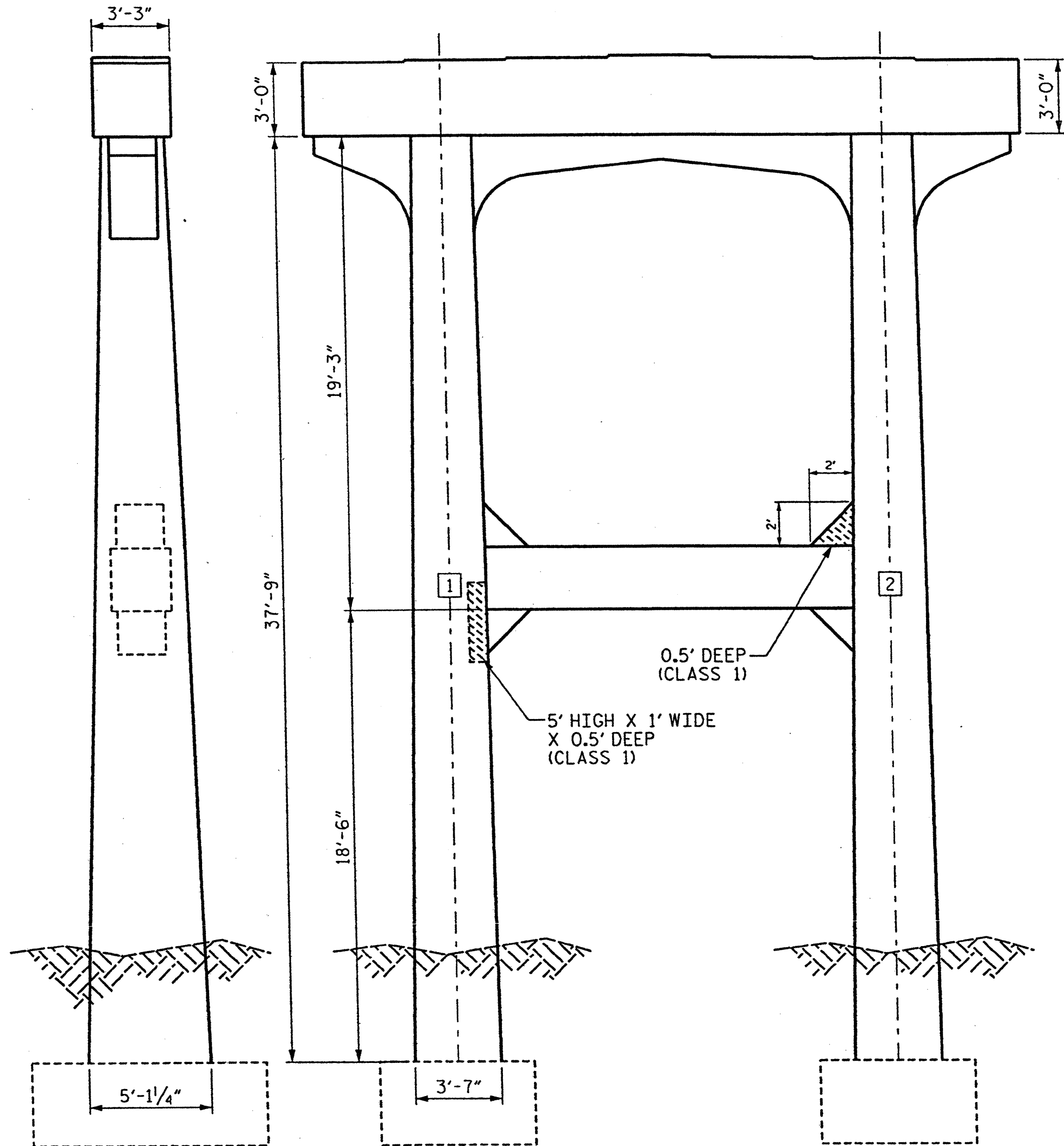
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

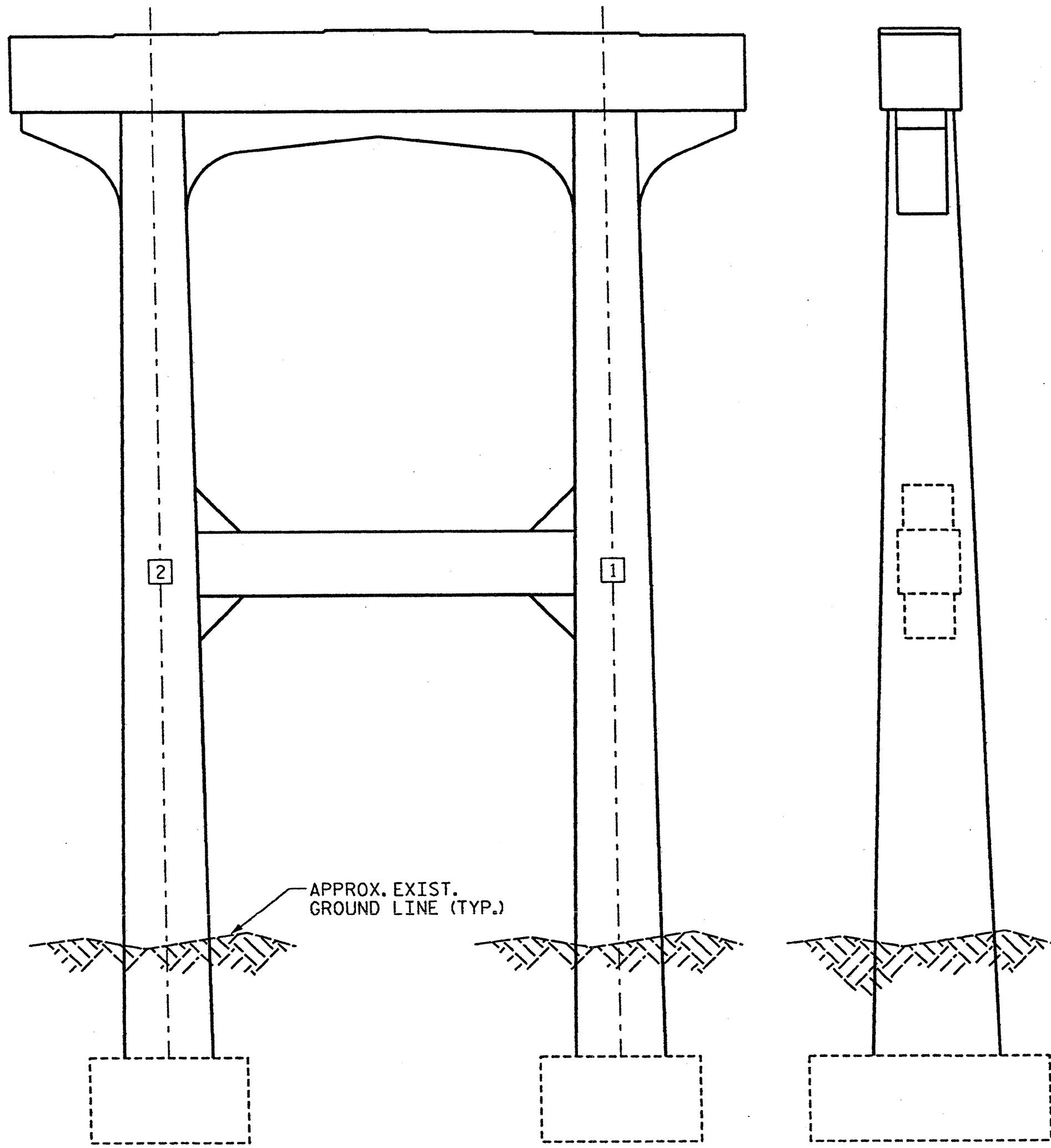


TYPICAL REPAIR DETAIL 3



BENT 14 REPAIRS  
END VIEW - COL 1

BENT 14 REPAIRS  
ELEVATION (SPAN N SIDE)



BENT 14 REPAIRS  
ELEVATION (SPAN O SIDE)

BENT 14 REPAIRS  
END VIEW - COL 2

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**BENT 14**

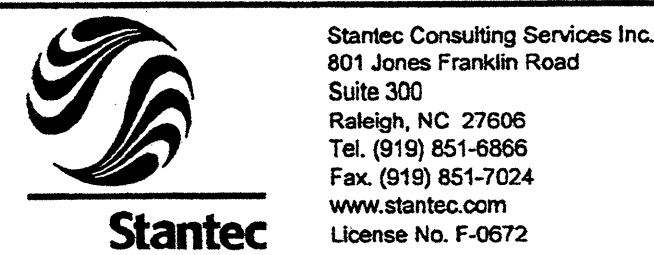
DECK REHAB. FOR BRIDGE NO. 17

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-64	
1			3			TOTAL SHEETS	
2			4			75	

TOTAL ESTIMATED QUANTITIES  
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SHOTCRETE REPAIR 14 C.F.

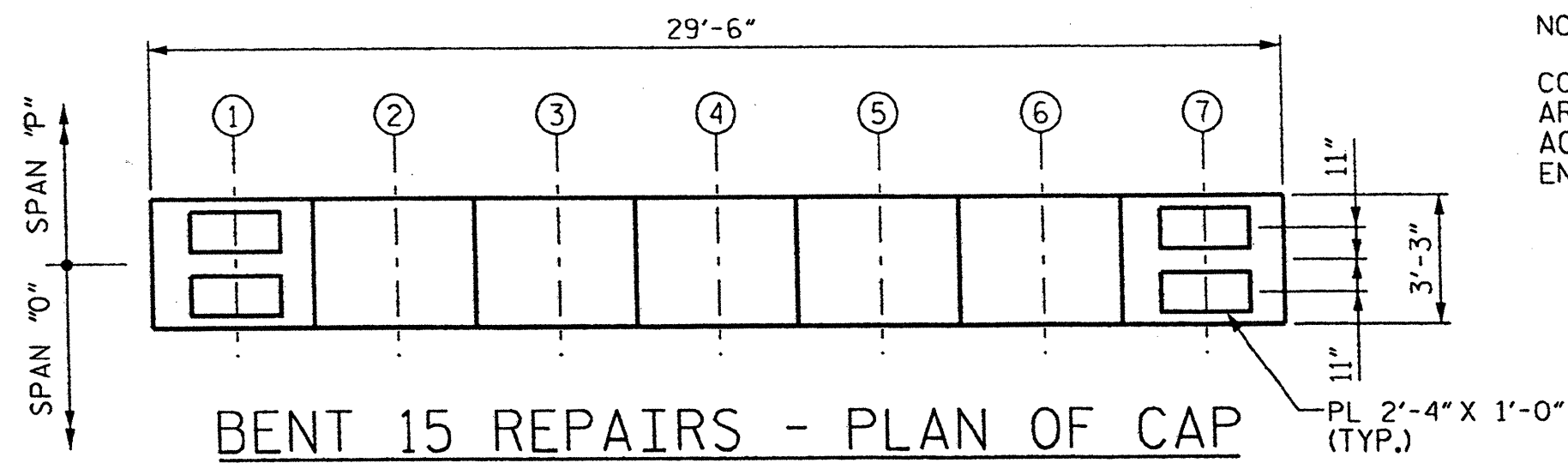
□ DENOTES COLUMN NO.

*Joseph Kelvington*  
Professional Engineer Seal 13406  
STATE OF NORTH CAROLINA  
J. T. KELVINGTON



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

12/19/2011 12:22:55 PM Jpelle  
 2011WBS 17BP.6.P.2 Robeson Co. Bladen Bridge.dwg 017\Drawings\BP17\_Repair\_BENT14.dgn

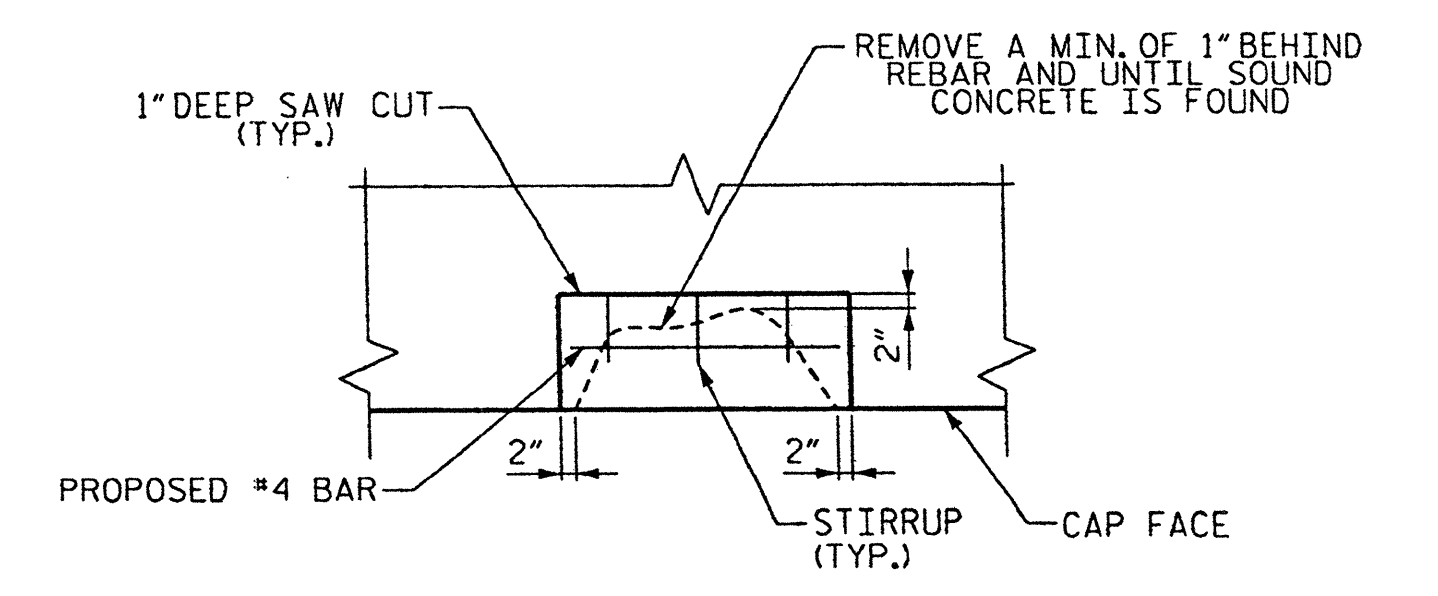


NOTE:  
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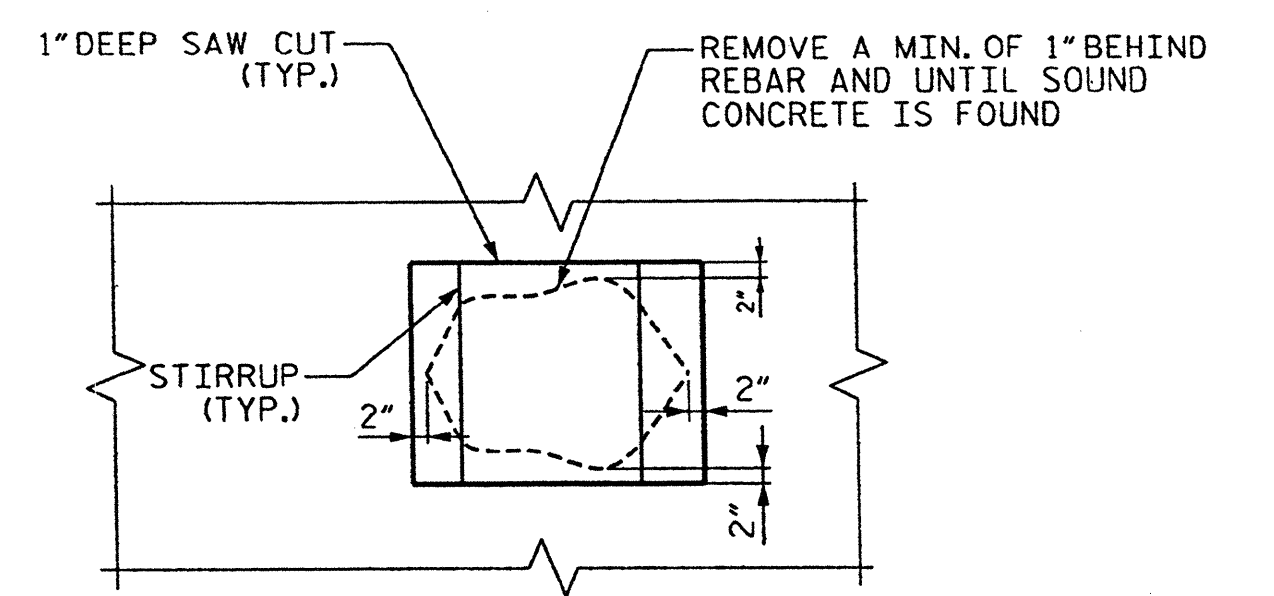
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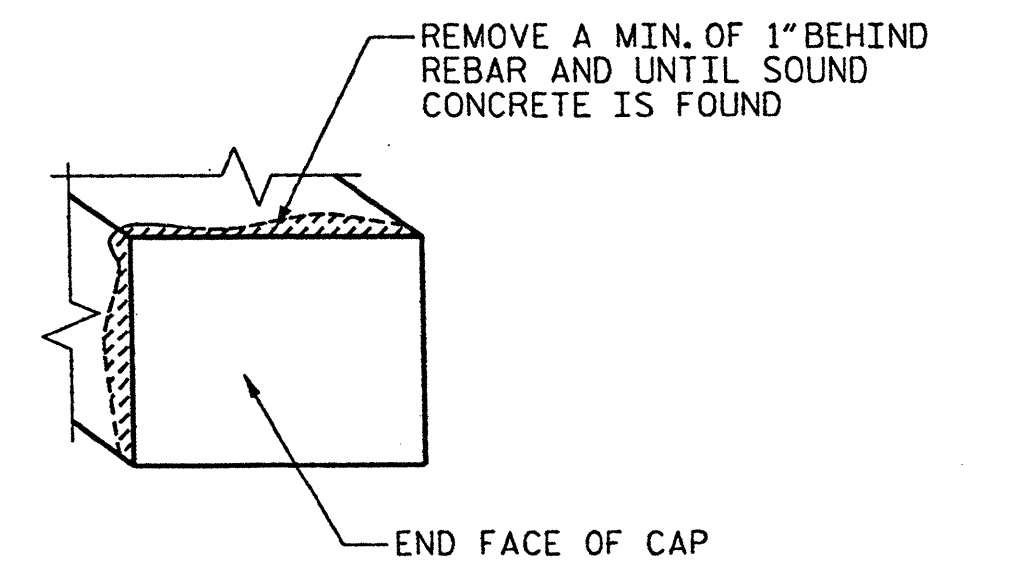
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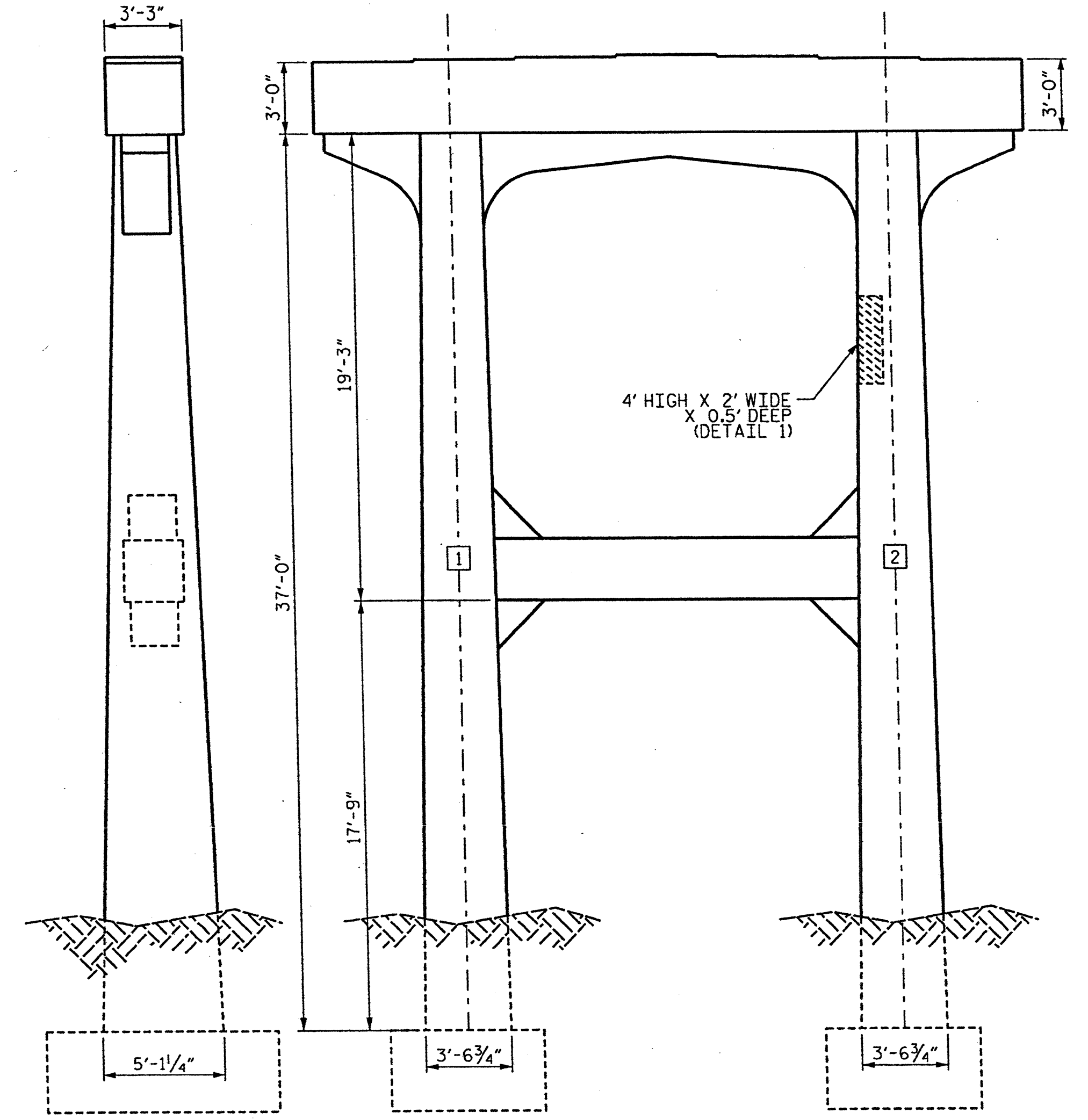
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

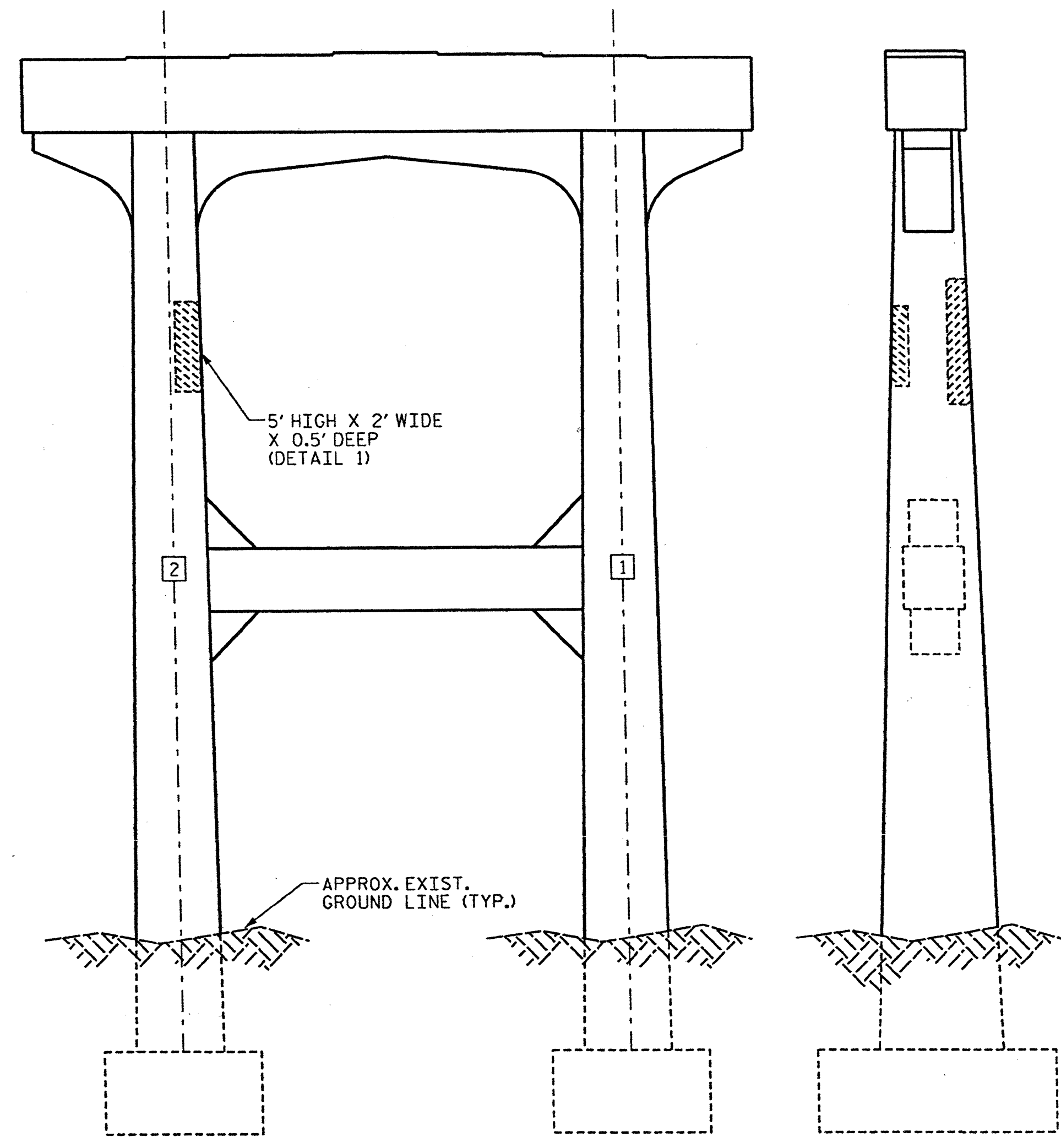


TYPICAL REPAIR DETAIL 3



BENT 15 REPAIRS  
END VIEW - COL 1

BENT 15 REPAIRS  
ELEVATION (SPAN 0 SIDE)



BENT 15 REPAIRS  
ELEVATION (SPAN P SIDE)

BENT 15 REPAIRS  
END VIEW - COL 2

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 15					
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S- 65
					TOTAL SHEETS 75

TOTAL ESTIMATED QUANTITIES  
CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 19 C.F.

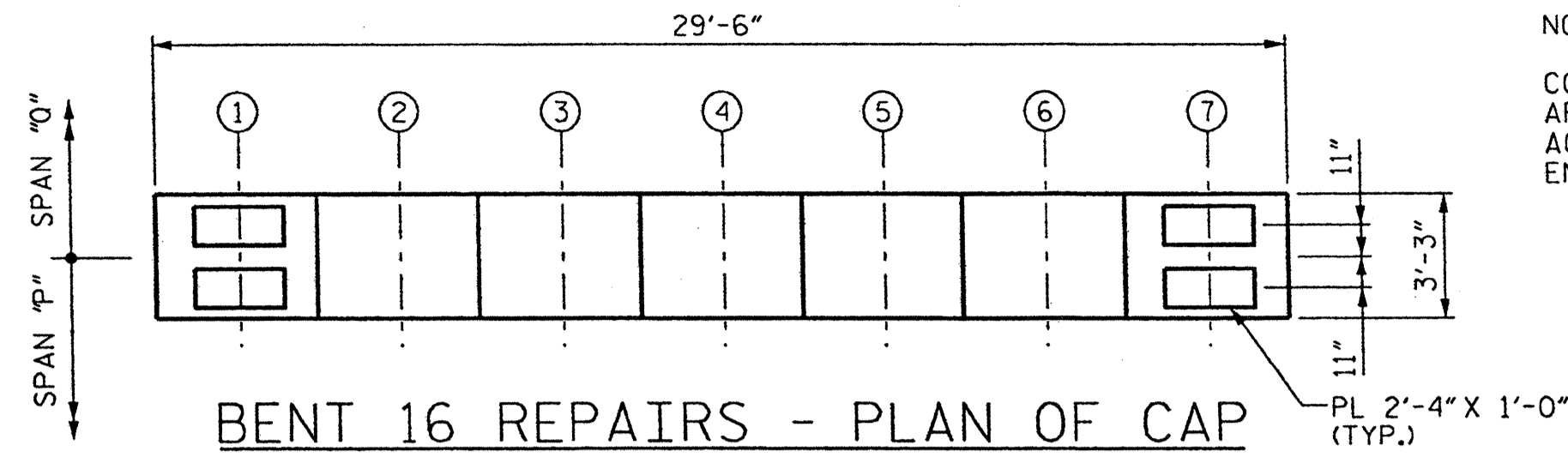
*Joseph Kelvington*  
Professional Engineer  
No. 18406  
State of North Carolina

I:\cadd\2011\WBS 17BP.6.P.2 Robeson Co\Bladen Bridge 017.Dr\dwg\BPT.Repair\_BENT15.dgn 12/19/2011 12:22:57 PM Jpegelle

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www.stantec.com  
License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11

\* DENOTES COLUMN NO.

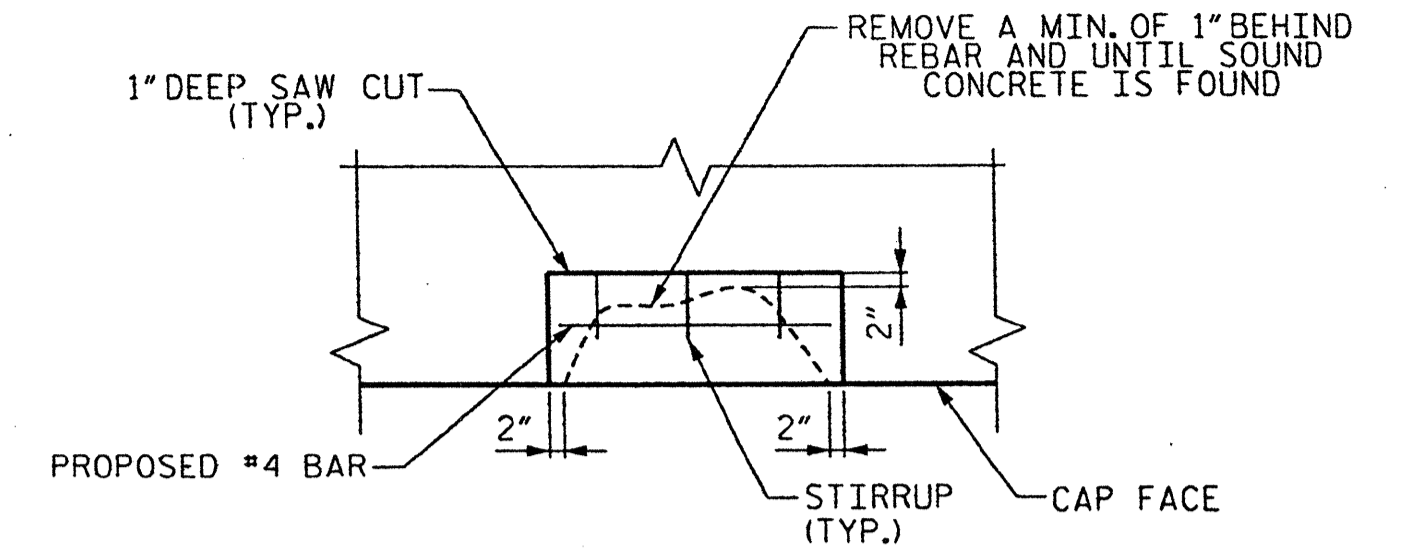


NOTE:  
CONCRETE AND SHOTCRETE REPAIRS SHOWN ARE REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE

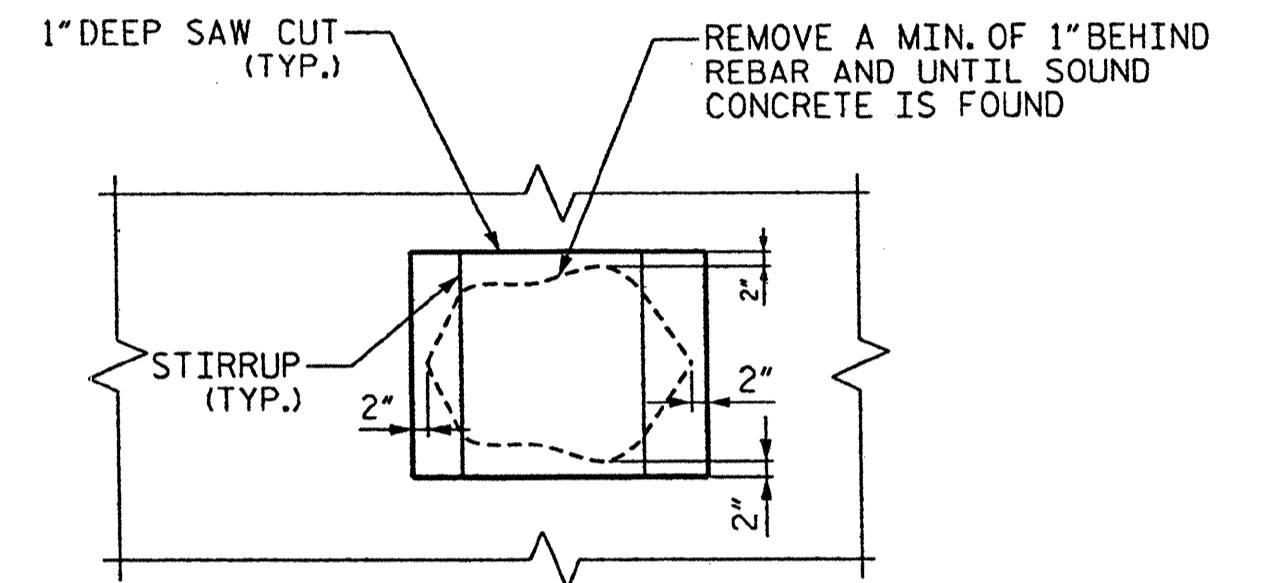
NOTES:  
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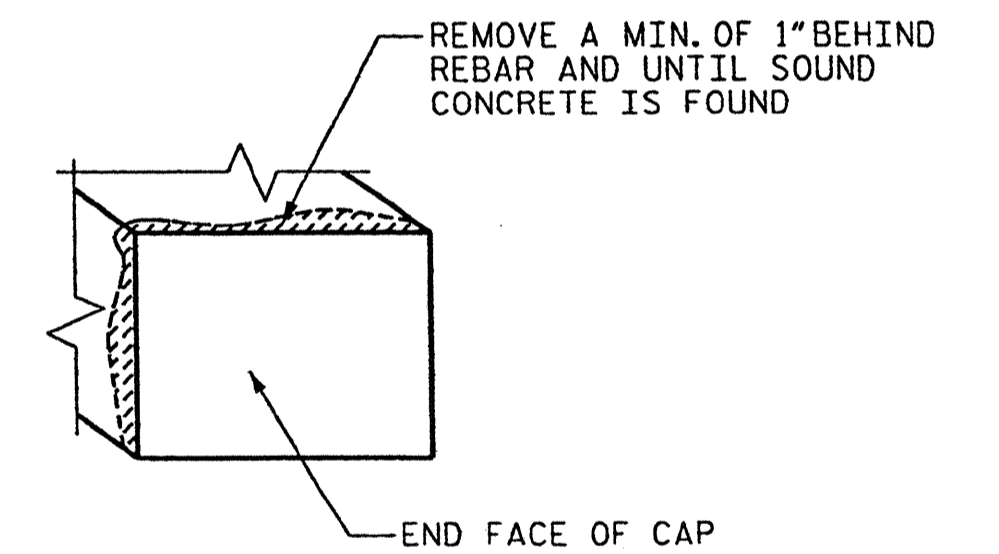
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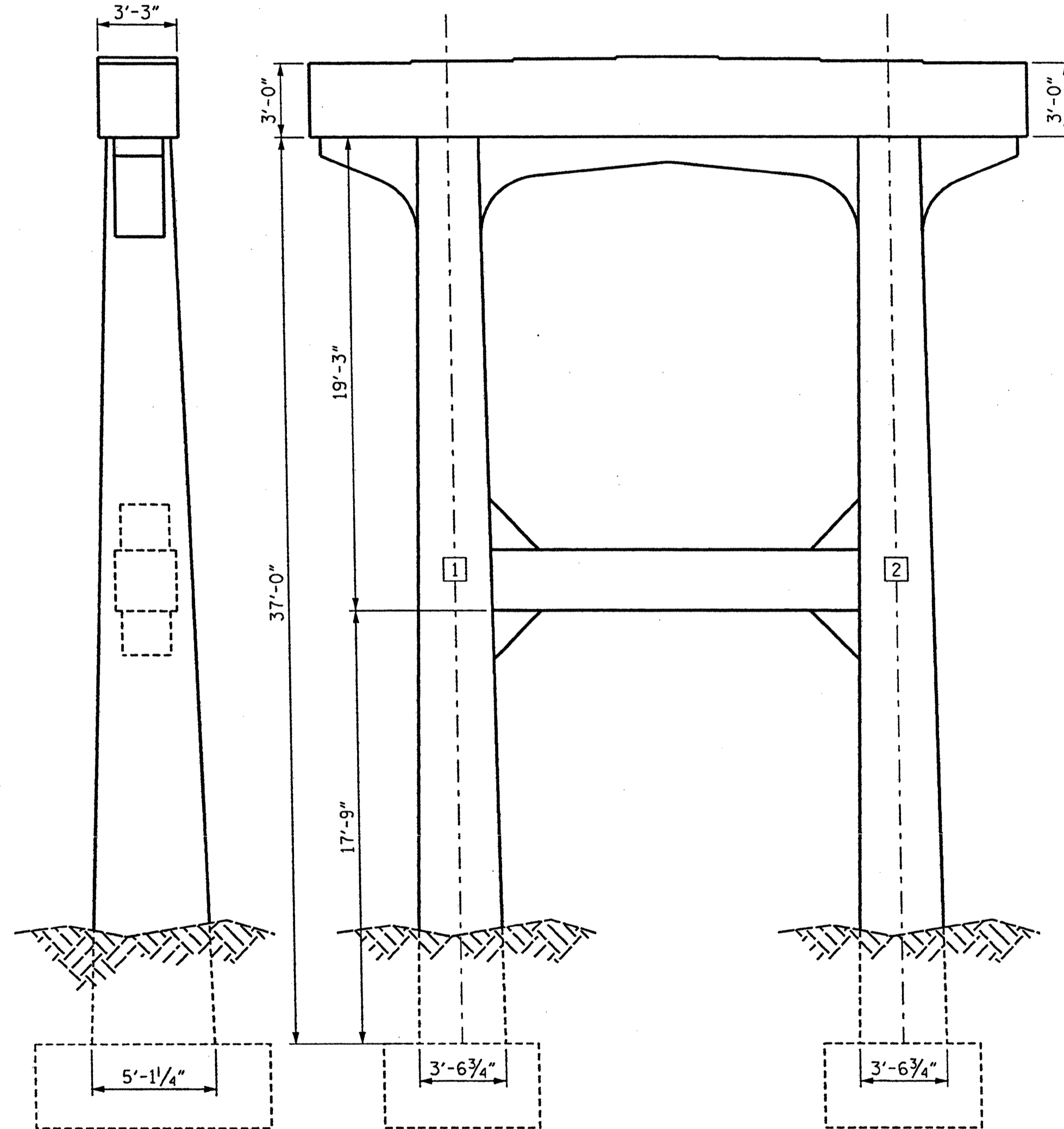
TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2



TYPICAL REPAIR DETAIL 3



BENT 16 REPAIRS  
END VIEW - COL 1

BENT 16 REPAIRS  
ELEVATION (SPAN P SIDE)

BENT 16 REPAIRS  
ELEVATION (SPAN Q SIDE)

BENT 16 REPAIRS  
END VIEW - COL 2

TOTAL ESTIMATED QUANTITIES

CONCRETE REPAIR 0 C.F.  
SHOTCRETE REPAIR 0 C.F.

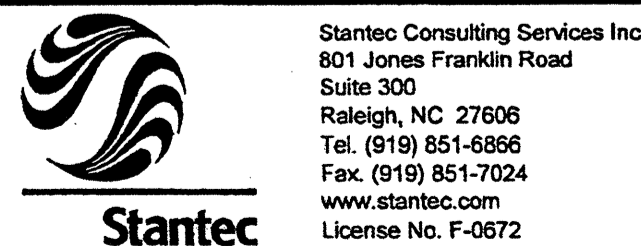
\* DENOTES COLUMN NO.

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**BENT 16**  
DECK REHAB. FOR BRIDGE NO. 17

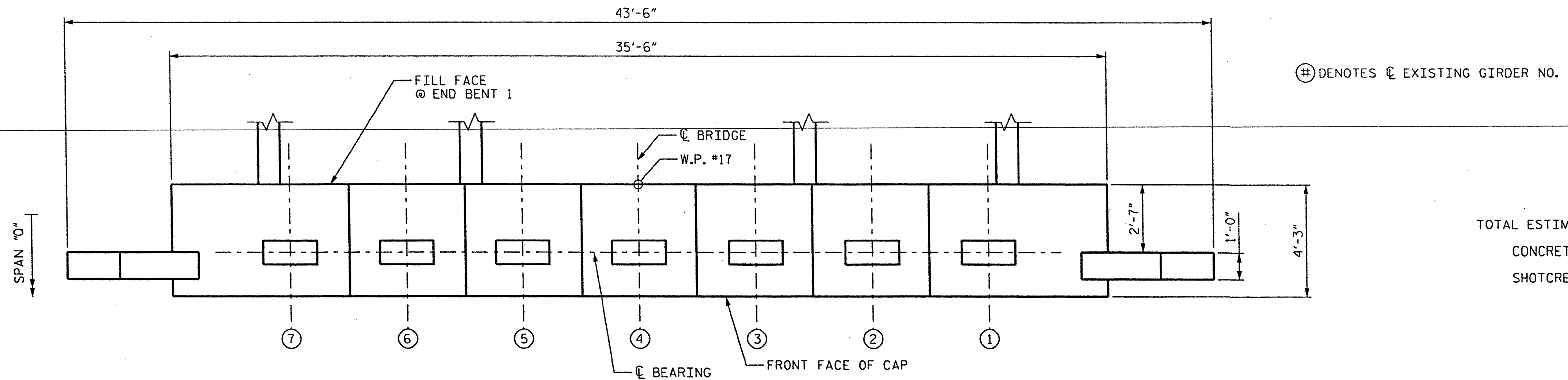
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					75

*Joseph H. Kelvington*  
Professional Engineer  
No. 13406  
State of North Carolina



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801 Jones Franklin Road  
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Raleigh, NC 27606  
Tel. (919) 851-6886  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
CHECKED BY: J. T. KELVINGTON DATE: 11/11



TOTAL ESTIMATED QUANTITIES  
 CONCRETE REPAIR 0 C.F.  
 SHOTCRETE REPAIR 3 C.F.

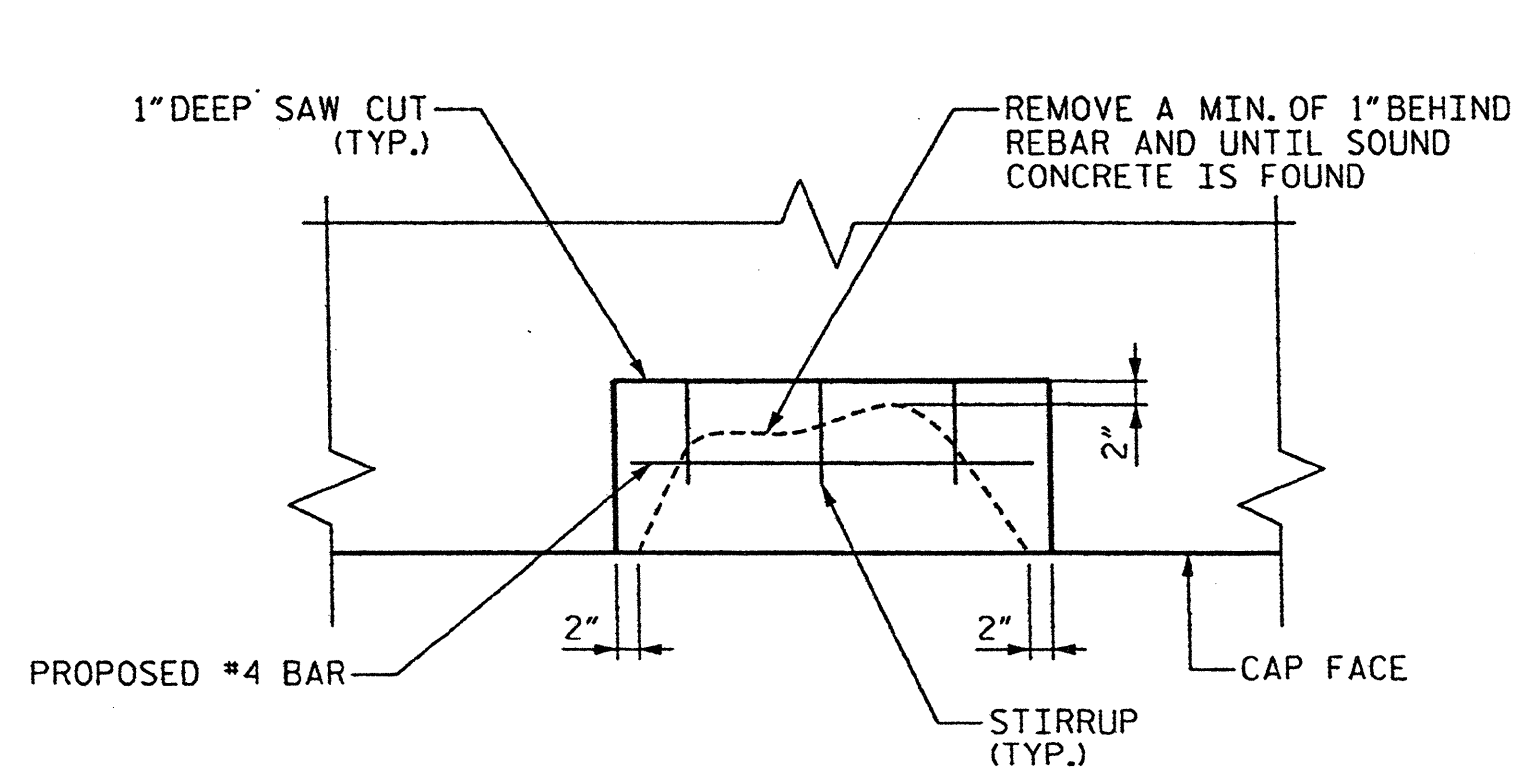
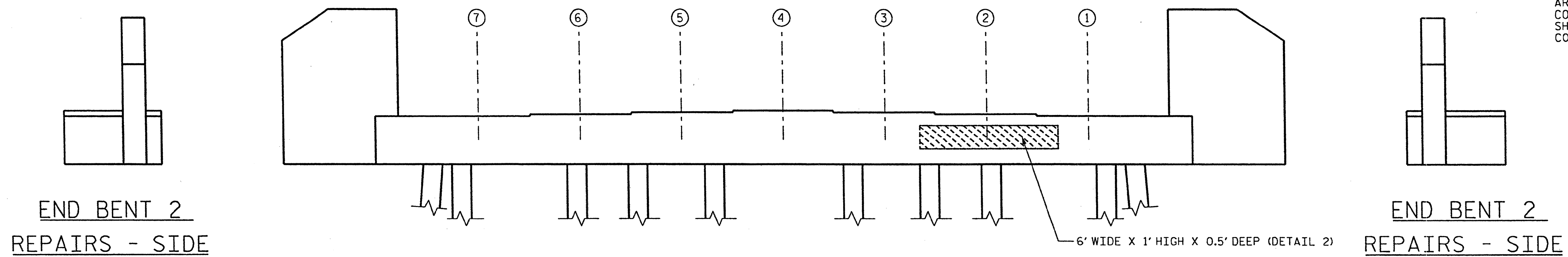
NOTES:

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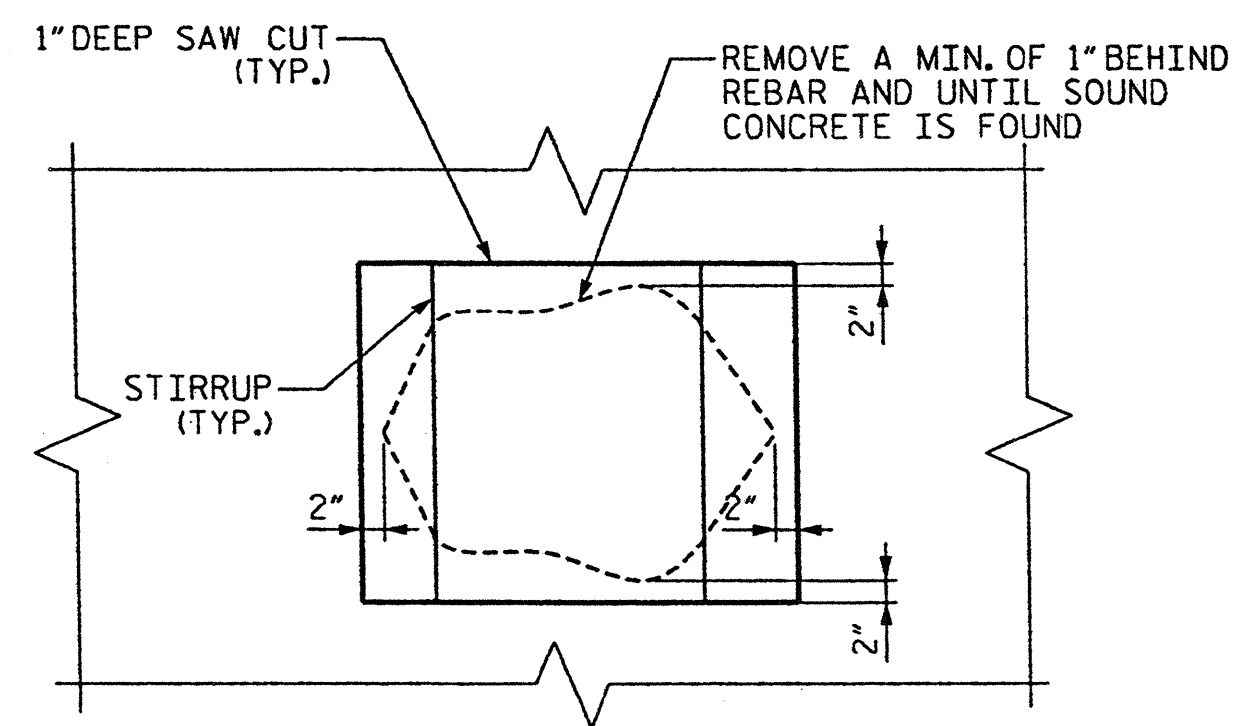
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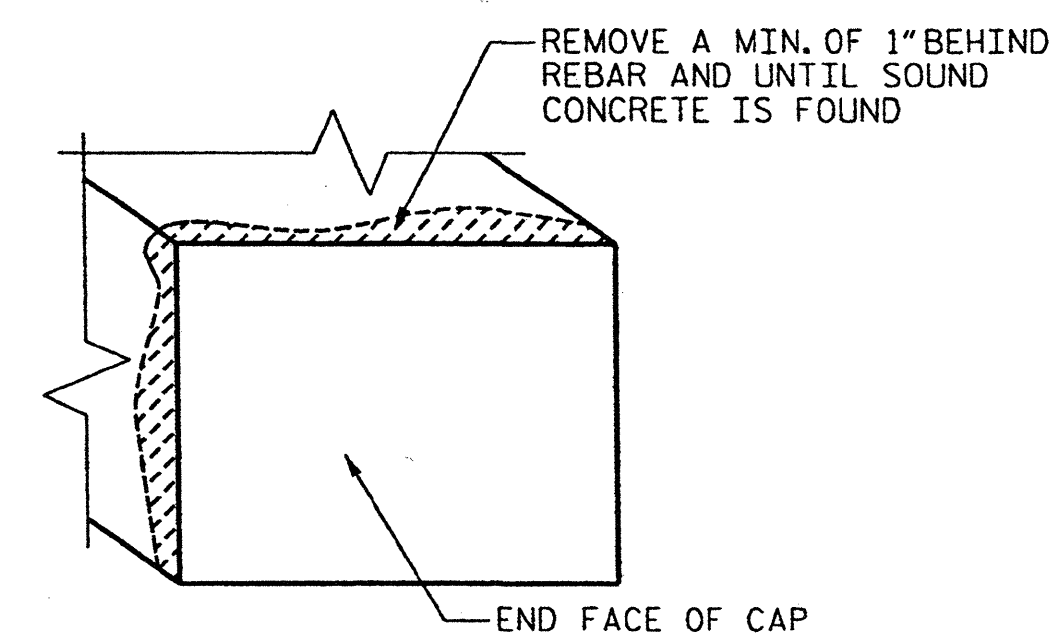
END BENT 2 REPAIRS - PLAN OF CAP



TYPICAL REPAIR DETAIL 1



TYPICAL REPAIR DETAIL 2

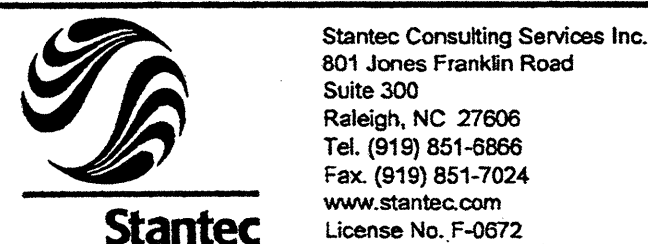


TYPICAL REPAIR DETAIL 3

PROJECT NO. WBS 17BP.6.P.2  
BLADEN COUNTY  
 STATION: \_\_\_\_\_

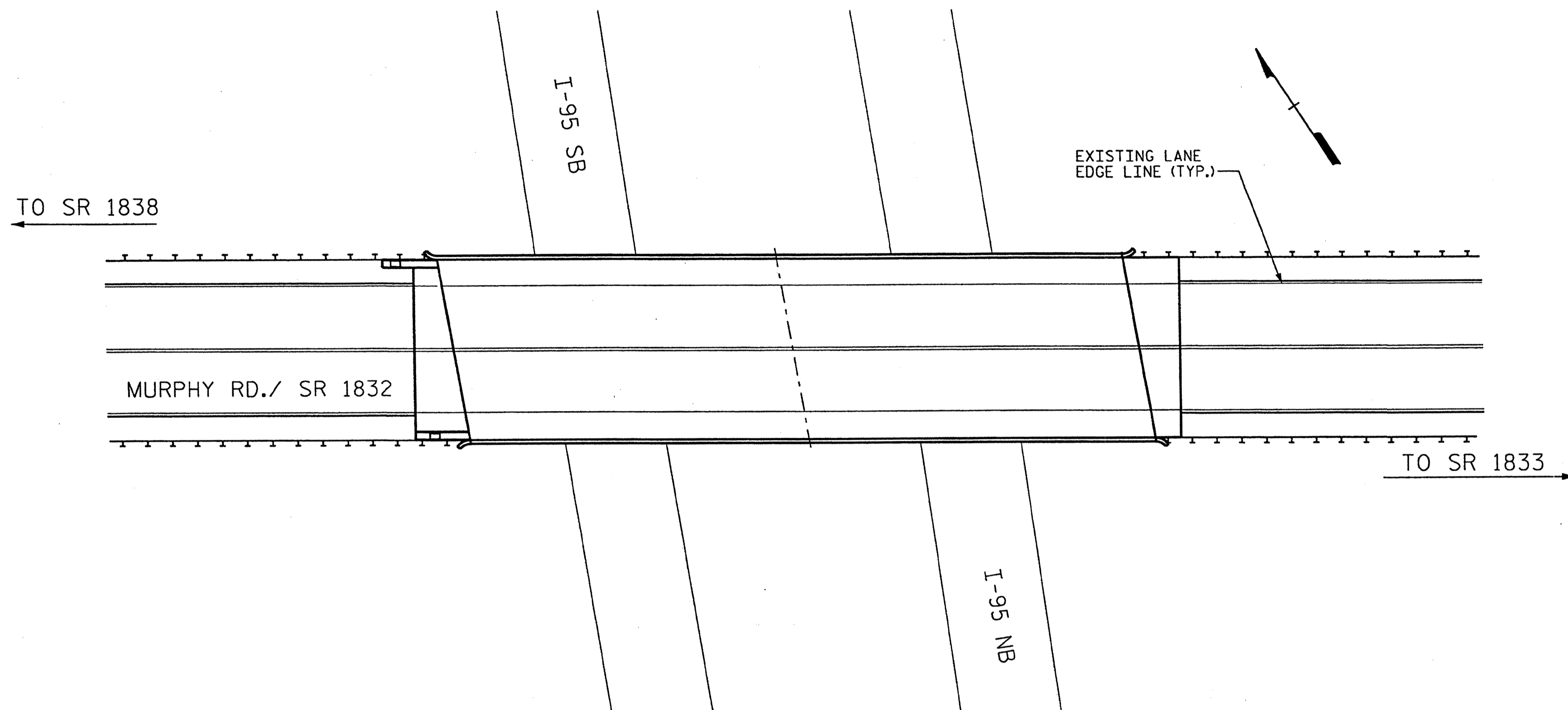
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
END BENT 2					
DECK REHAB. FOR BRIDGE NO. 17					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S- 67
					TOTAL SHEETS 75

*Joseph Kelvington*  
 PROFESSIONAL ENGINEER  
 NO. 17800  
 STATE OF NORTH CAROLINA



DRAWN BY: C. T. MCCULLOUGH DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

12/23/01 PM jgelle  
 12/19/2011  
 2011\WBS\_17BP.6.P.2\_Robeson Co\Bladen Bridge 017.Dwg\BPT\_Repair-END\_BENT2.dgn



**BRIDGE 147 ON SR 1832**

LOCATION: BRIDGE 250147, SR 1832 OVER I-95 0.4 MILES EAST OF JUNCTION WITH SR 1838

**TOTAL BILL OF MATERIAL**

SHOULDER RECONSTRUCTION	REMOVE AND RESET EXIST. GUARDRAIL	SCARIFYING BRIDGE DECK **	CLASS I * SURFACE PREPARATION	CLASS II * SURFACE PREPARATION	CLASS III * SURFACE PREPARATION	HYDRO-DEMOLITION OF BRIDGE DECK	CLASS AA * CONCRETE	CLASS A CONCRETE (BRIDGE)	REINFORCING STEEL (BRIDGE)	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING LATEX MODIFIED CONCRETE	FOAM JOINT SEALS	GROOVING BRIDGE FLOORS	ASPHALT CONC. SURF. COURSE TYPE S9.5B
SHLDR. MI.	LIN.FT.	SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	CU.YDS.	CU.YDS.	LBS.	CU.YDS.	SQ.YDS.	LUMP SUM	SQ.FT.	TON
0.019	100	2950.9	0.0	20.5	0.0	2195.4	0.0	3.4	221	108.8	2195.4	LUMP SUM	19219	60

PROJECT NO. WBS 17BP.6.P.2

CUMBERLAND COUNTY

STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

LOCATION SKETCH AND TOTAL BILL OF MATERIAL

DECK REHAB FOR BRIDGE NO. 147

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-68
1			3			TOTAL SHEETS 75
2			4			

*James I. Kelvington*  
Professional Engineer  
13406

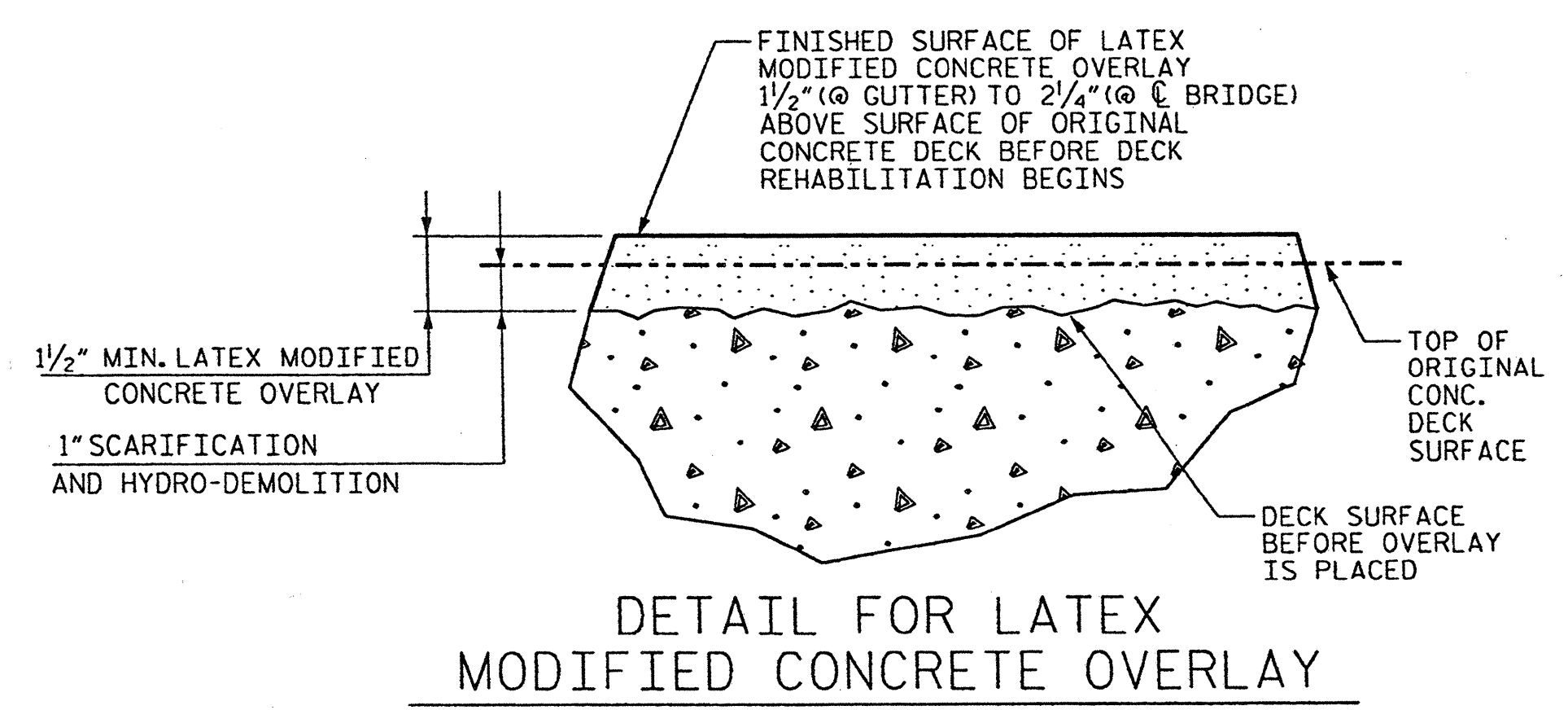
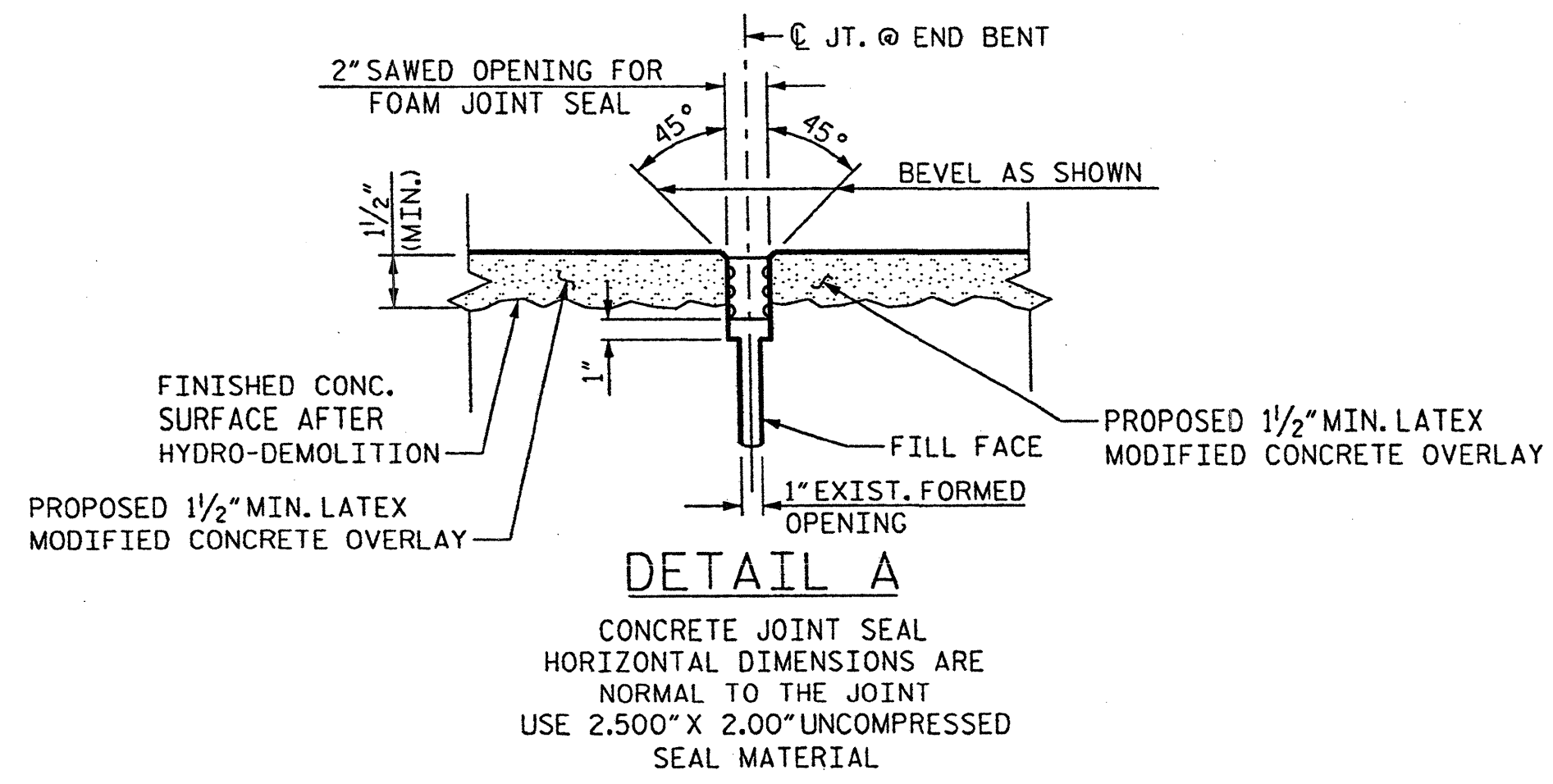
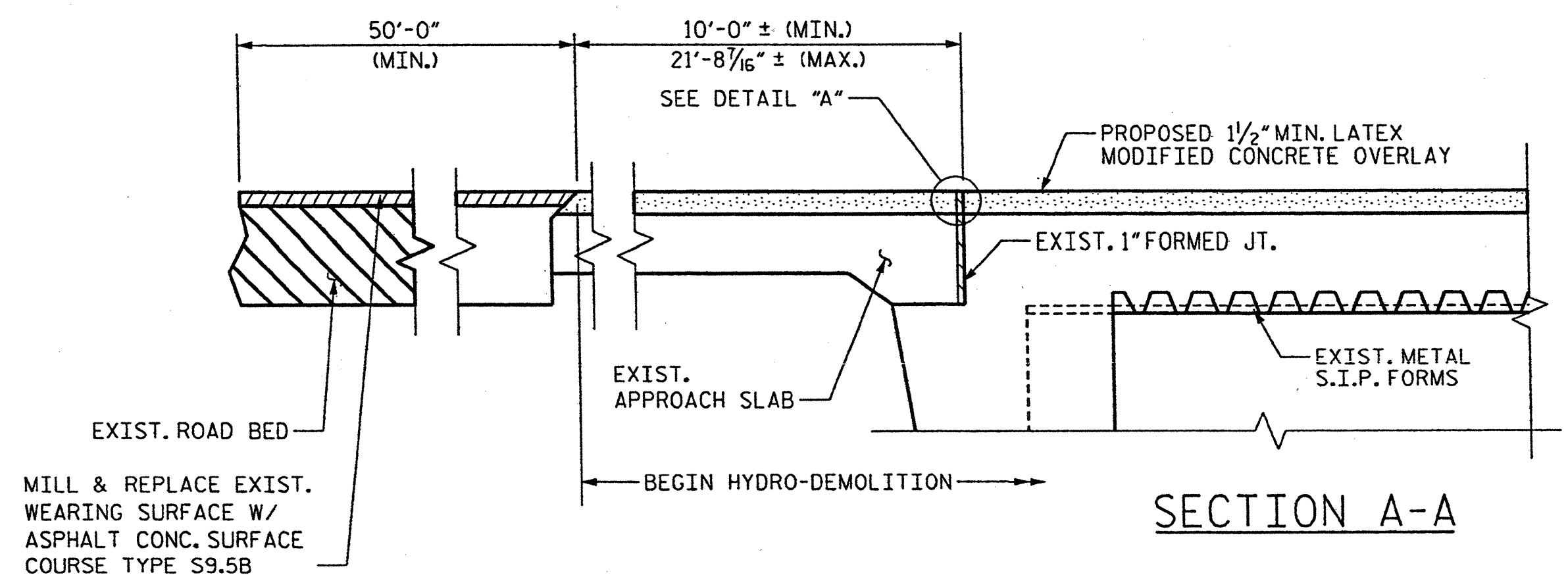
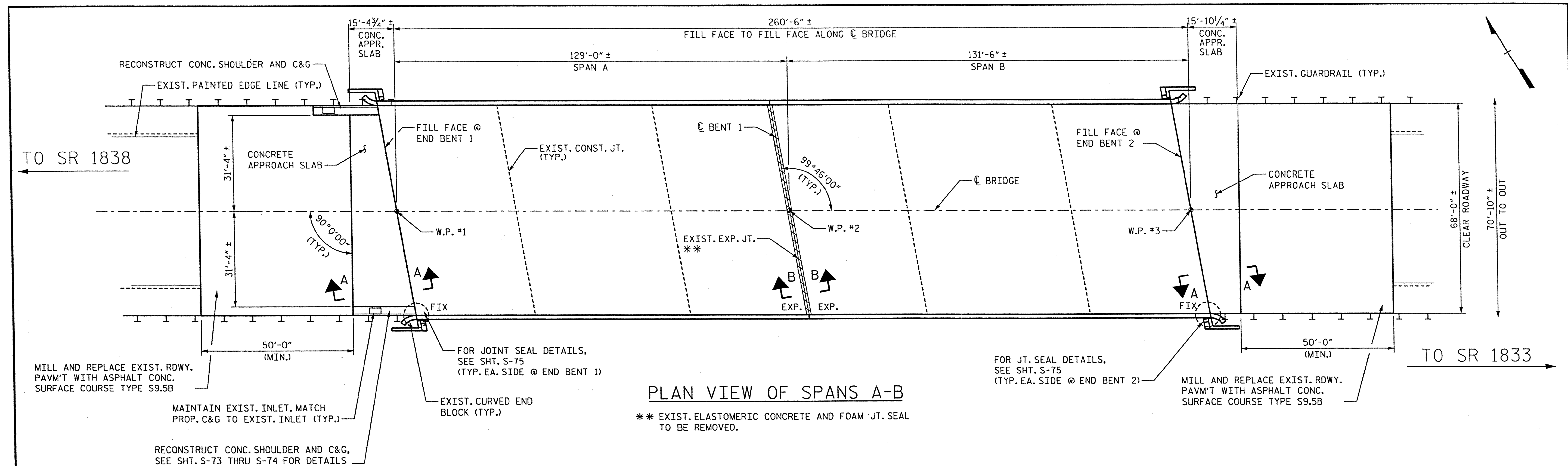
\* QUANTITIES ARE ESTIMATES FROM BEST AVAILABLE DATA, AND SHOULD BE CONSIDERED FOR INFORMATION PURPOSES ONLY. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE TYP. "BLOW THRU" CONTAINMENT AND FORMWORK DETAIL. NO SEPARATE MEASUREMENT OR PAYMENT FOR THESE ITEMS WILL BE MADE. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

\* INCLUDES MILLING OF ROADWAY PAVEMENT.

Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
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Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0872

DRAWN BY : B C MACYOWSKY DATE : 11/11  
CHECKED BY : J I KELVINGTON DATE : 11/11

2011WBS 17BP.6.P.2 Robeson Co\Cumberland Bridge 147.Dwg BRP250147.LS\_BDM.dgn 12/20/2011 12:14 PM Jpelle



**NOTES:**

- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
- FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
- THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK. SEE DETAIL, SHT. NO. S-71.
- FOR LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR SECTION B-B, SEE SHT. NO. S-75.

PROJECT NO. WBS 17BP.6.P.2  
CUMBERLAND COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN OF BRIDGE**

**DECK REHAB FOR BRIDGE NO. 147**

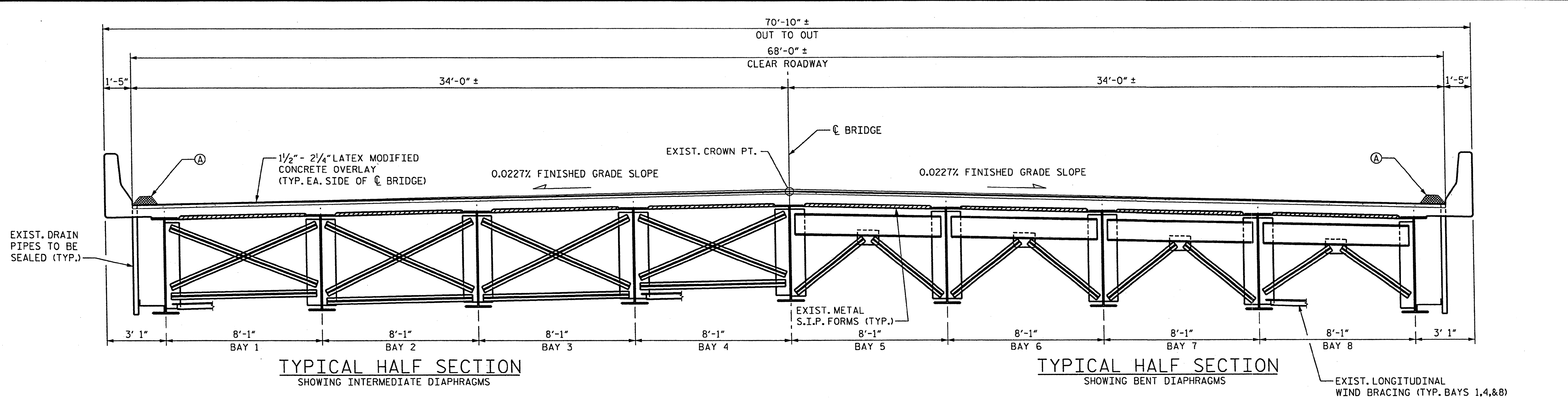
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-69	
1			3			TOTAL SHEETS 75	
2			4				

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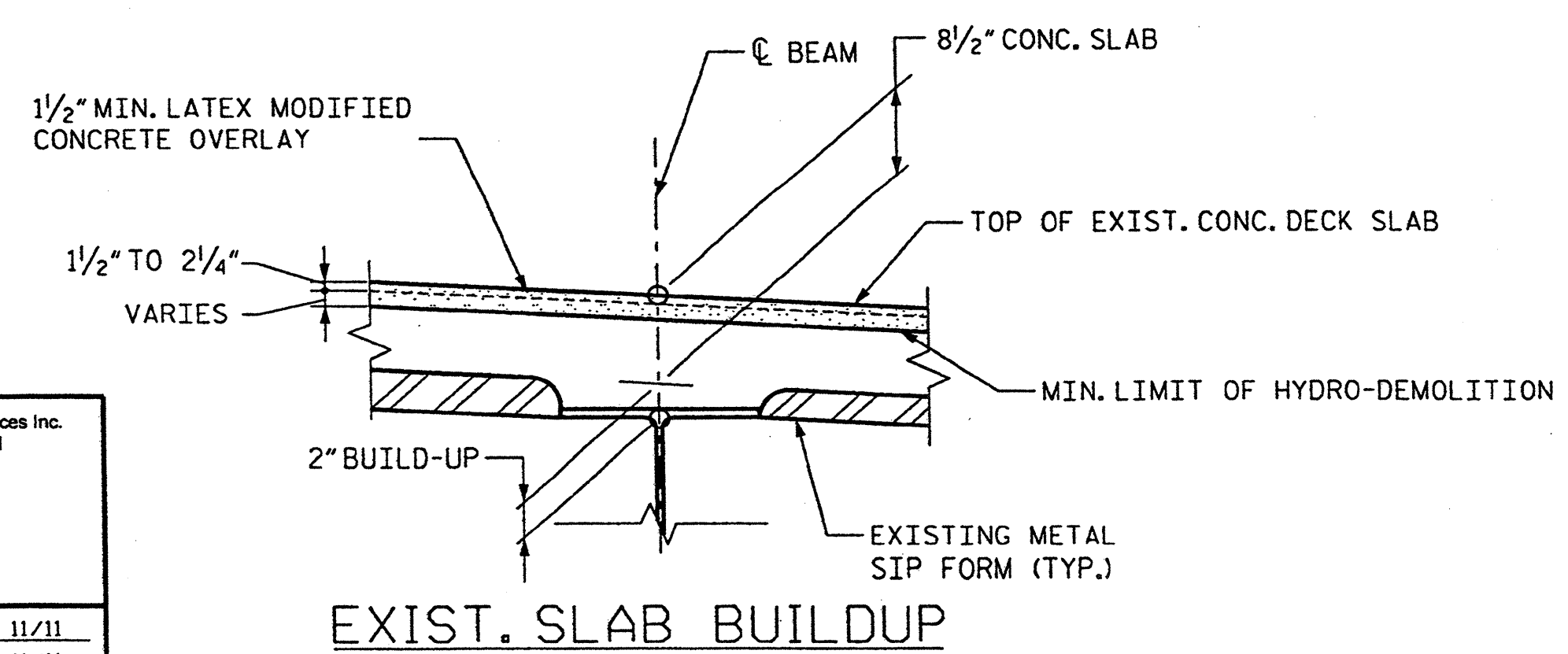
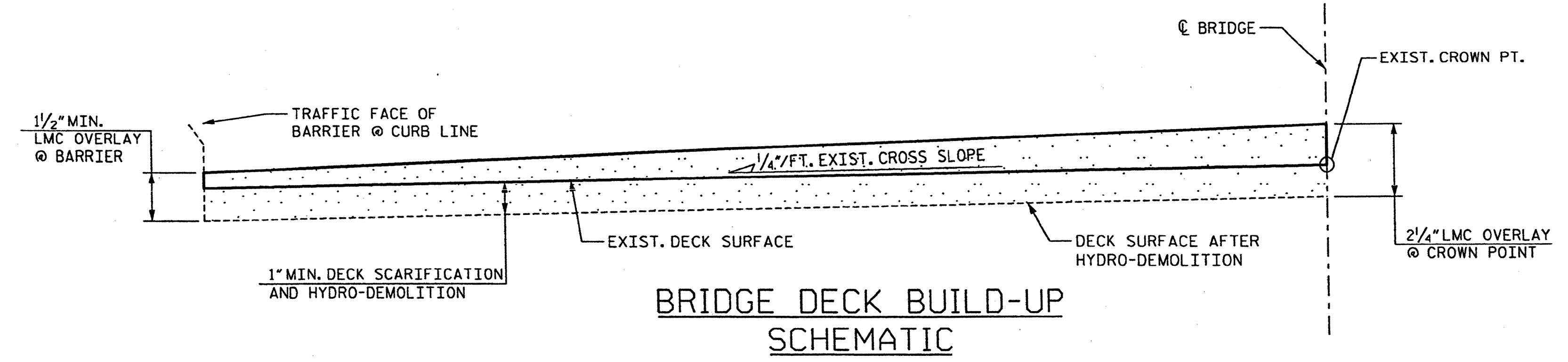
DRAWN BY : B. C. MACYOWSKY DATE : 11/11  
 CHECKED BY : J. T. KELVINGTON DATE : 11/11

2011WBS 17BP.6.P.2, Roberson, Co \Cumberland Br1Ldge 147\Drawing\BP250147\_DeckPlan1.dgn 12/19/2011 12:23:06 PM Ijelle





DETAILS SHOWN ARE SYMMETRICAL ABOUT C BRIDGE



**NOTES:**

WATER & CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL THE WATER.

FOR TRAFFIC CONTROL AND CONSTRUCTION PHASING, SEE TRANSPORTATION MANAGEMENT PLANS.

(A) DAM @ EXP. JOINTS AS REQUIRED TO SEAL JOINTS.

*Joseph J. Kelvington*

Professional Engineer Seal  
13406  
STATE OF NORTH CAROLINA

PROJECT NO. WBS 17BP.6.P.2  
CUMBERLAND COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BRIDGE TYPICAL SECTION

DECK REHAB FOR BRIDGE NO. 147

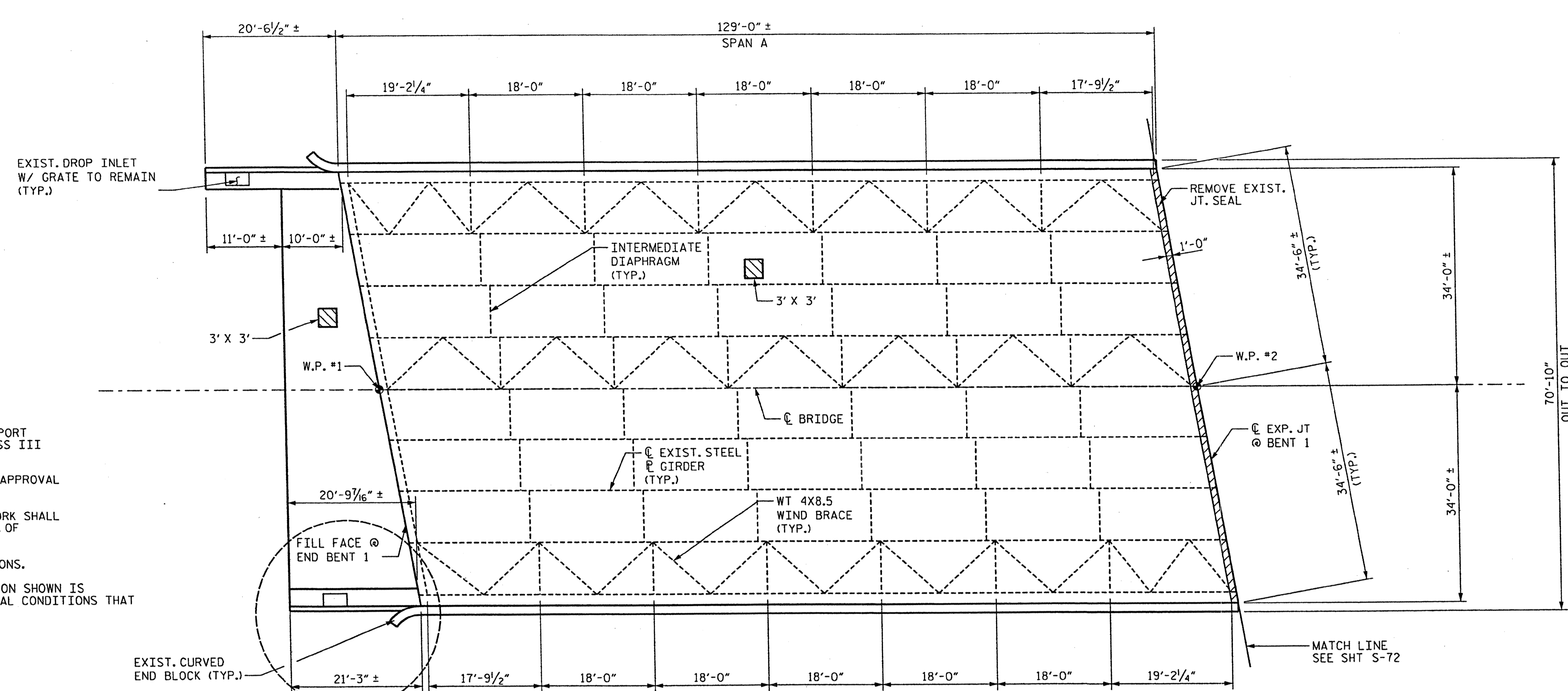
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-70
1			3			TOTAL SHEETS
2			4			75

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CHECKED BY: J.T. KELVINGTON DATE: 11/11

2011 WBS 17BP.6.P.2 - Robeson, Co. Cumberland Bridge 147 Drawing: 17BP250147\_Repair-Plan.dgn 12/19/2011 12:23:11 PM Jgelle



**NOTES:**

CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

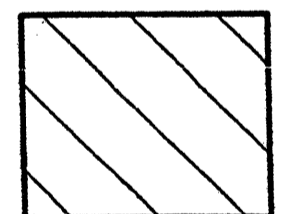
SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.

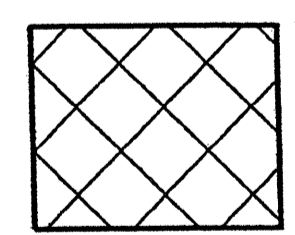
FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

FOR CONC. CURB & GUTTER DETAILS SEE SHTS. S-73 THRU S-74



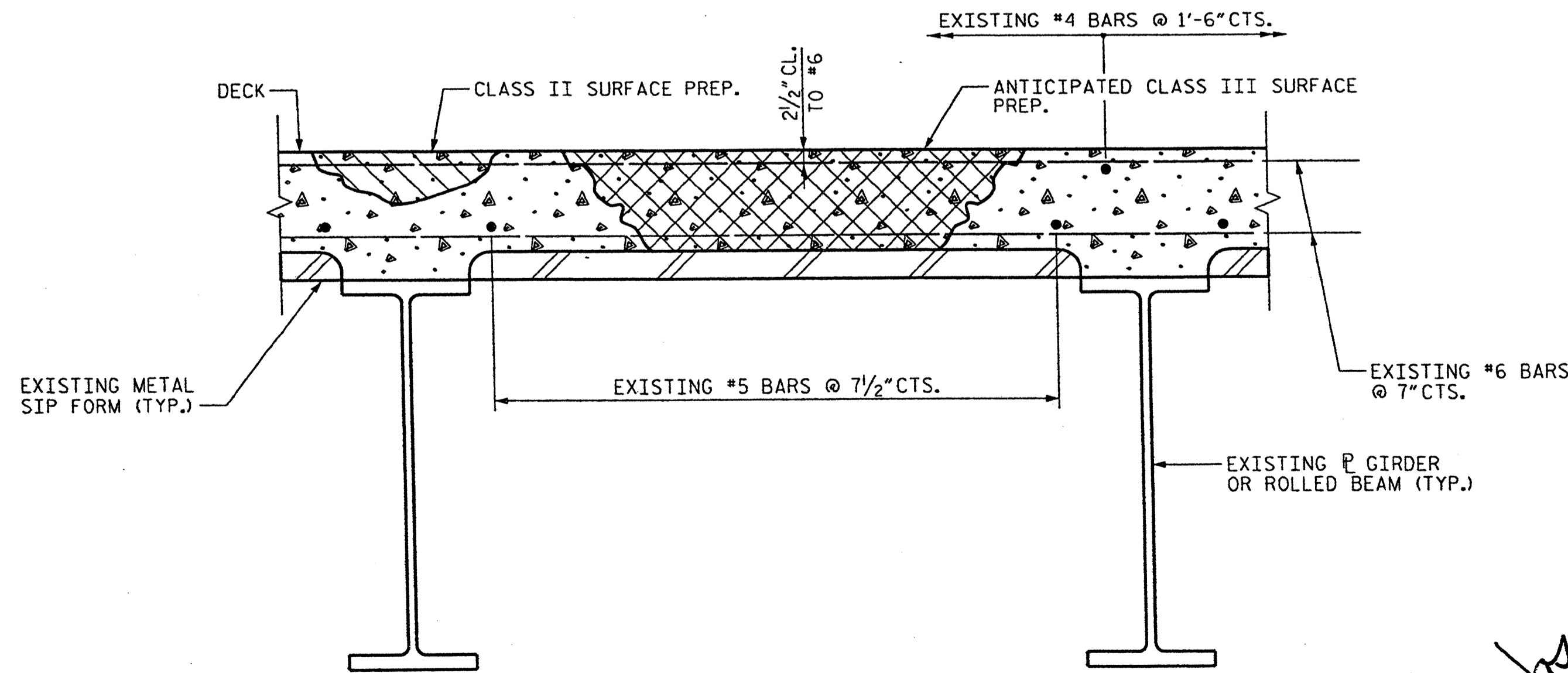
CLASS II SURFACE PREPARATION



CLASS III SURFACE PREPARATION

L' X W' = LENGTH OF AREA ALONG C BRIDGE X WIDTH OF AREA NORMAL TO C BRIDGE

**PLAN OF SPAN A - DECK REPAIR**



**TYPICAL INTERIOR BAY**

PROJECT NO. WBS 17BP.6.P.2  
CUMBERLAND COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**DECK REPAIR DETAILS**  
 DECK REHAB FOR BRIDGE NO. 147

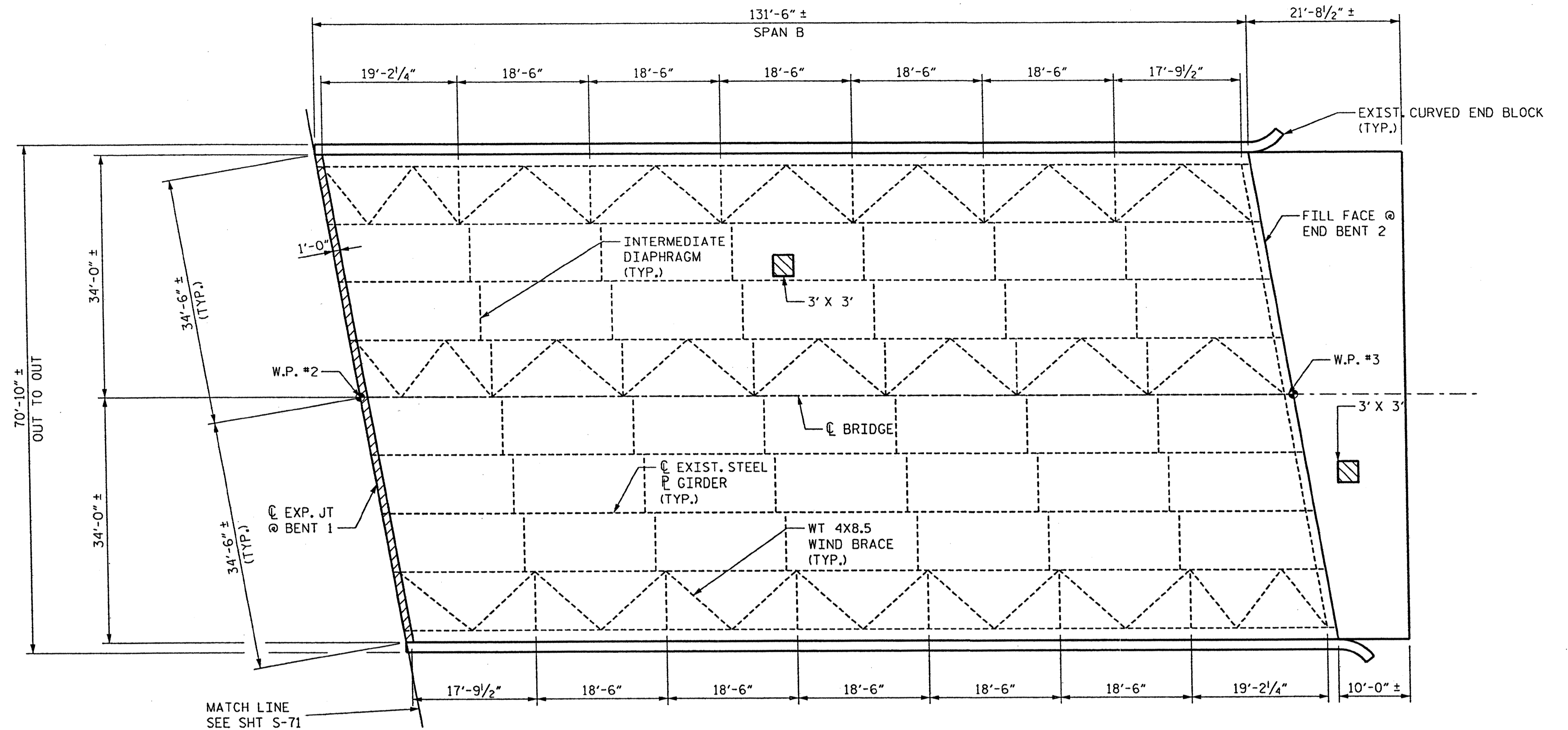


REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS 75
2			4			



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**NOTE:**

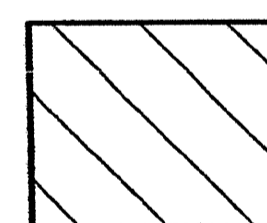
CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

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

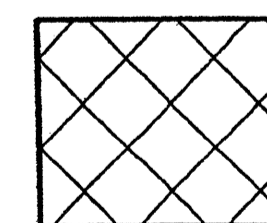
COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.

FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.



CLASS II SURFACE PREPARATION



CLASS III SURFACE PREPARATION

L' X W' = LENGTH OF AREA ALONG CL BRIDGE X WIDTH OF AREA NORMAL TO CL BRIDGE

**PLAN OF SPAN B - DECK REPAIR**

PROJECT NO. WBS 17BP.6.P.2  
CUMBERLAND COUNTY  
STATION: \_\_\_\_\_

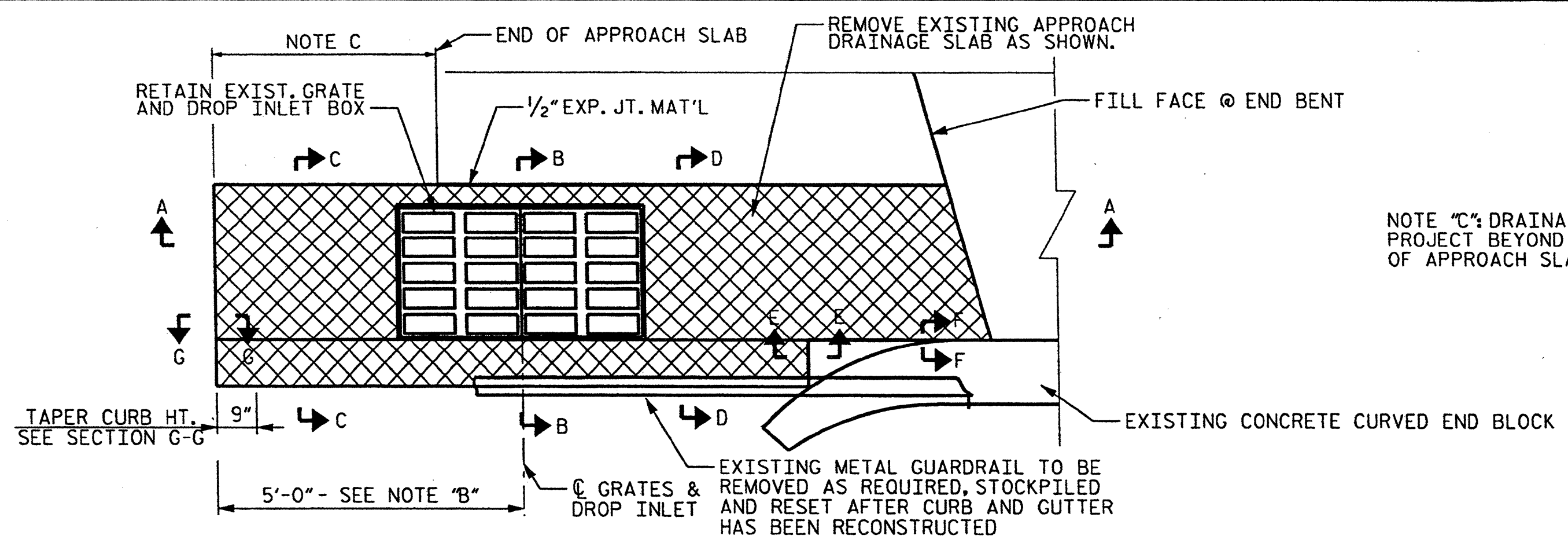
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK REPAIR DETAILS					
DECK REHAB FOR BRIDGE NO. 147					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-72
					TOTAL SHEETS 75

*Joseph H. Kelvington*  
Professional Engineer  
13406

I:\Projects\17BP.6.P.2\_Roberson Co\Cumberland Br\Bridg 147\Drawing\BP250147\_RepairPlan2.dgn 12/19/2011 12:23:13 PM Jdelle

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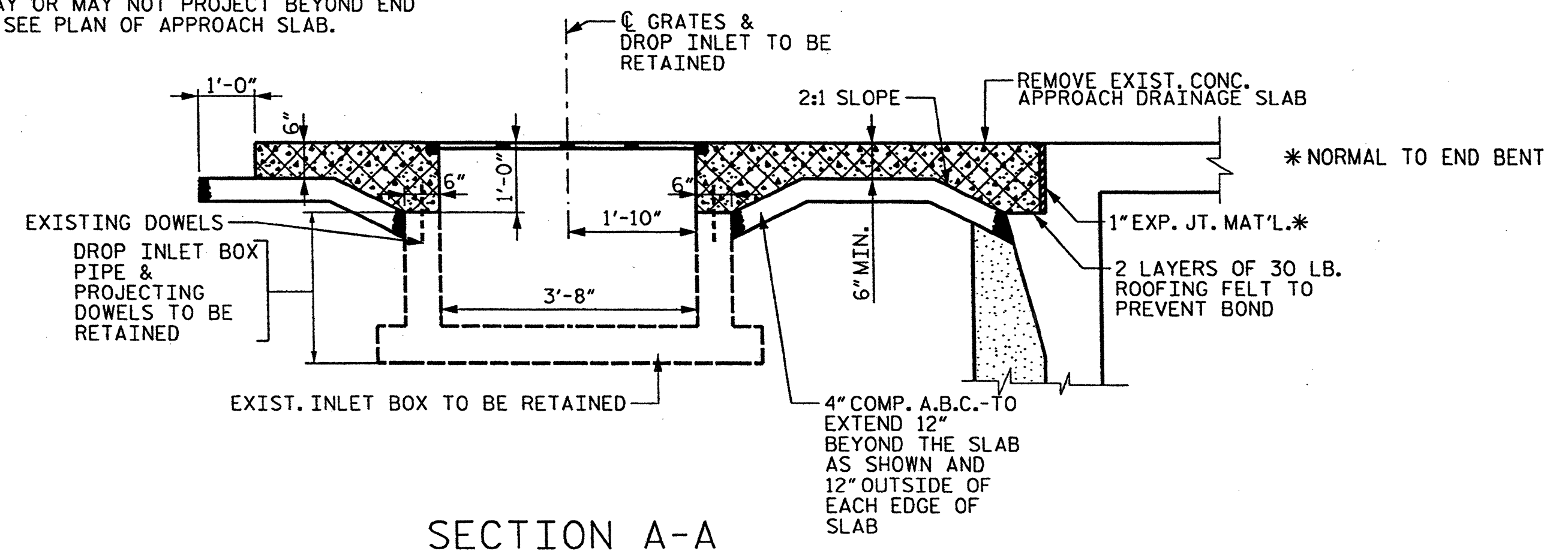


TYPICAL PART PLAN

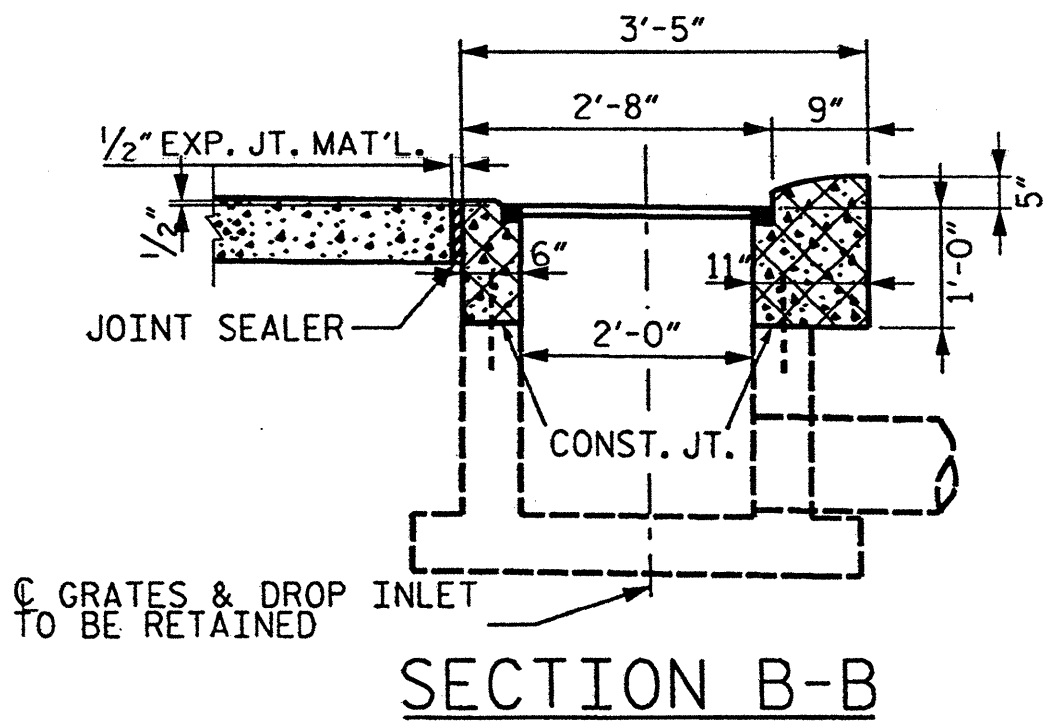
NOTE "C": DRAINAGE DETAILS MAY OR MAY NOT PROJECT BEYOND END OF APPROACH SLAB. SEE PLAN OF APPROACH SLAB.

NOTES:  
 REMOVE AND DISPOSE OF ALL EXISTING CONCRETE IN THE CROSS HATCHED AREA. CONTRACTOR SHALL EXERCISE CARE TO ENSURE EXISTING CRATE AND DROP INLET BOX ARE NOT DAMAGED DURING CONCRETE REMOVAL. ALL DAMAGED STRUCTURES THAT ARE TO BE RETAINED SHALL BE REPAIRED AT THE ENGINEER'S DIRECTION AT THE CONTRACTOR'S EXPENSE.  
 NO SEPARATE PAYMENT FOR REMOVAL OF EXISTING APPROACH DRAINAGE SLAB SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.  
 COSTS FOR REMOVAL AND RESETTING GUARDRAIL IN ADDITION TO INSTALLATION OF NEW GUARDRAIL POSTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "REMOVE AND RESET EXISTING GUARDRAIL."  
 REPLACE EXISTING TIMBER GUARDRAIL POSTS WITHIN GUARDRAIL SECTIONS THAT ARE REMOVED AND RESET.  
 DETAILS SHOWN ARE FROM BEST AVAILABLE INFORMATION. ACTUAL CONDITIONS SHOULD BE EXPECTED TO VARY. THE CONTRACTOR SHALL HAVE NO CLAIM AGAINST THE DEPARTMENT DUE TO DIFFERENCES BETWEEN THE PLANS AND ACTUAL SITE CONDITIONS.

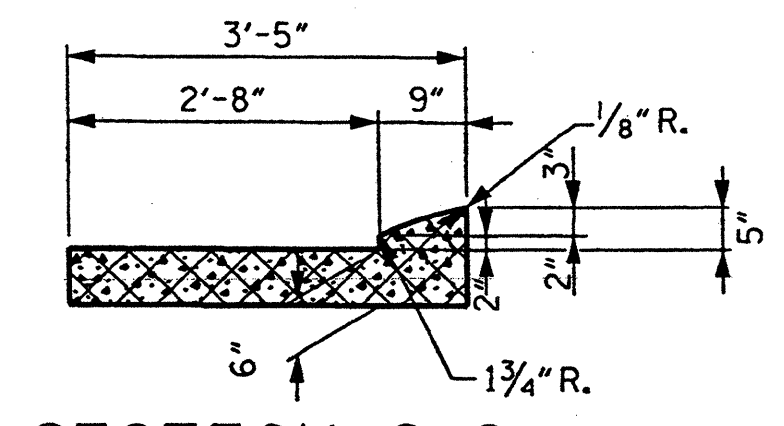
NOTE "B": SLAB MAY OR MAY NOT PROJECT BEYOND END OF RAISED CURB. SEE PLAN OF APPROACH SLAB.



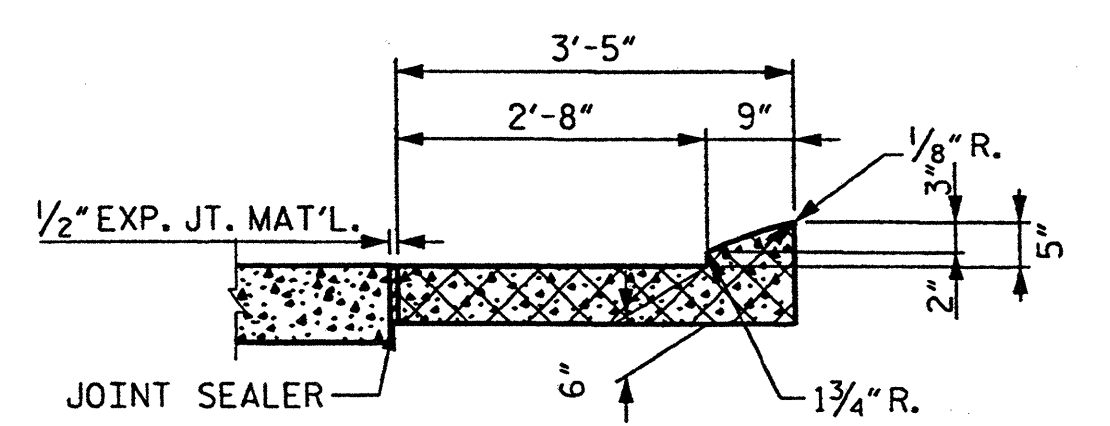
SECTION A-A



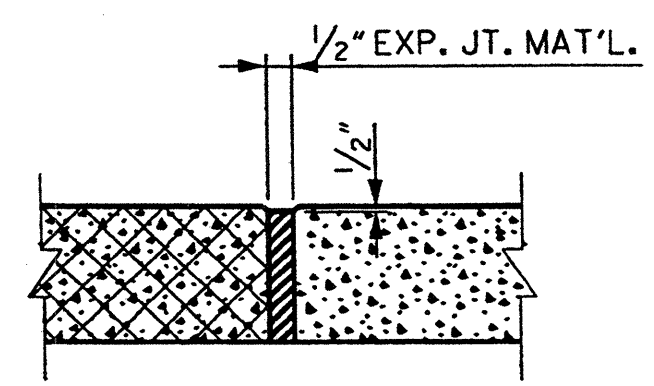
SECTION B-B



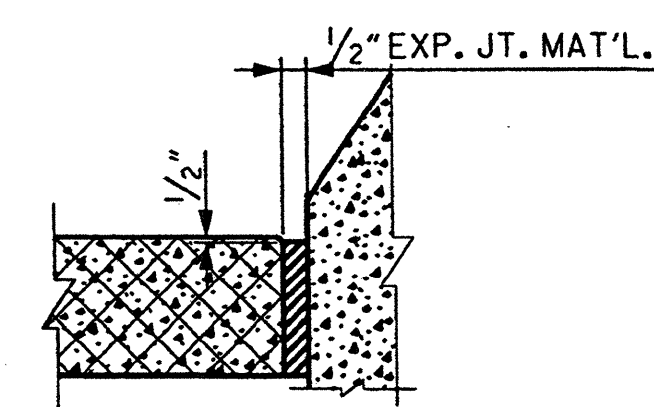
SECTION C-C



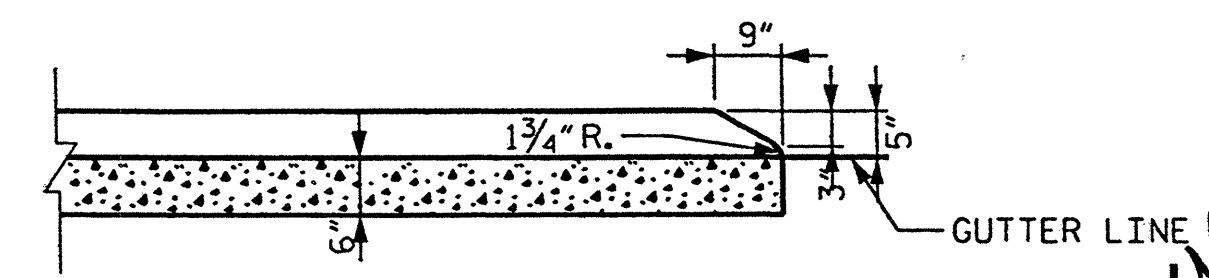
SECTION D-D



SECTION E-E



SECTION F-F



SECTION G-G

BILL OF MATERIAL

SHOULDER RECONSTRUCTION	0.019 SHLD. MI.
REMOVE AND RESET EXISTING GUARDRAIL	100 L.F.
BORROW EXCAVATION	1 C.Y.

PROJECT NO. WBS 17BP.6.P.2  
CUMBERLAND COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

EXISTING APPROACH DRAINAGE SLAB DETAILS

DECK REHAB FOR BRIDGE NO. 147

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-73	
1			3			TOTAL SHEETS	
2			4			75	

*Joseph Kelvington*  
 SEAL 13406  
 ENGINEER  
 KELVINGTON

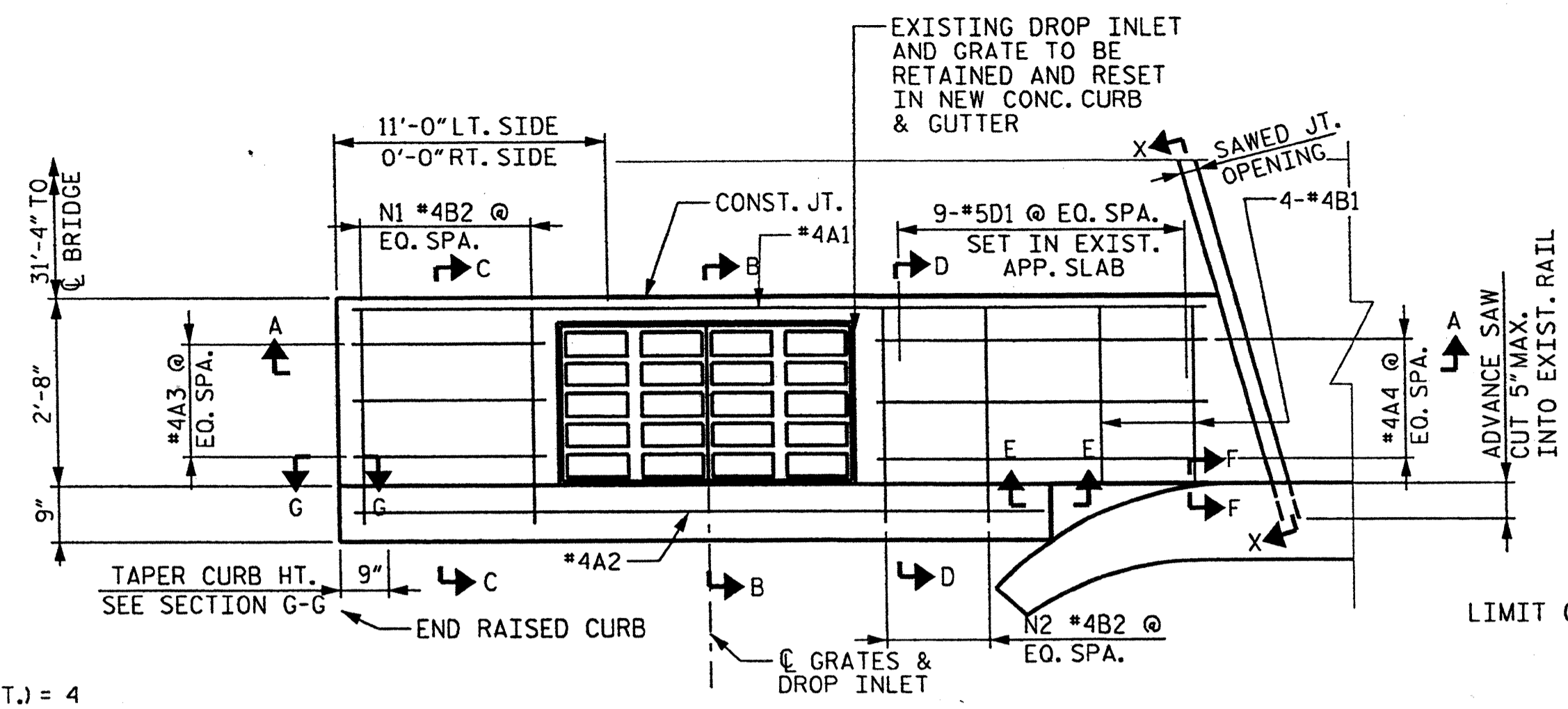
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 CHECKED BY : J T KELVINGTON DATE : 11/11

1/9/2012 2:49:29 PM jgelie  
 6.P.2 Robeson Co\ Cumberland Bridge 147\ Drawing\ BP25047\_C&G\_Detail\ Existing.dgn

LT. SIDE APP. DRAINAGE SLAB						RT. SIDE APP. DRAINAGE SLAB							
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT			
A1	1	4	STR	20'-3"	14	A1	1	4	STR	20'-6"	14		
A2	1	4	STR	16'-9"	11	A2	1	4	STR	16'-0"	11		
A3	3	4	STR	5'-5"	11	A3	3	4	STR	2'-8"	5		
A4	3	4	STR	11'-2"	22	A4	3	4	STR	13'-8"	27		
B1	4	4	STR	2'-4"	6	B1	4	4	STR	2'-4"	6		
B2	17	4	STR	2'-11"	33	B2	17	4	STR	2'-11"	33		
D1	9	5	STR	2'-0"	19	D1	9	5	STR	2'-0"	19		
REINFORCING STEEL					LBS.	116	REINFORCING STEEL					LBS.	105
CLASS A CONCRETE					C. Y.	1.7	CLASS A CONCRETE					C. Y.	1.7

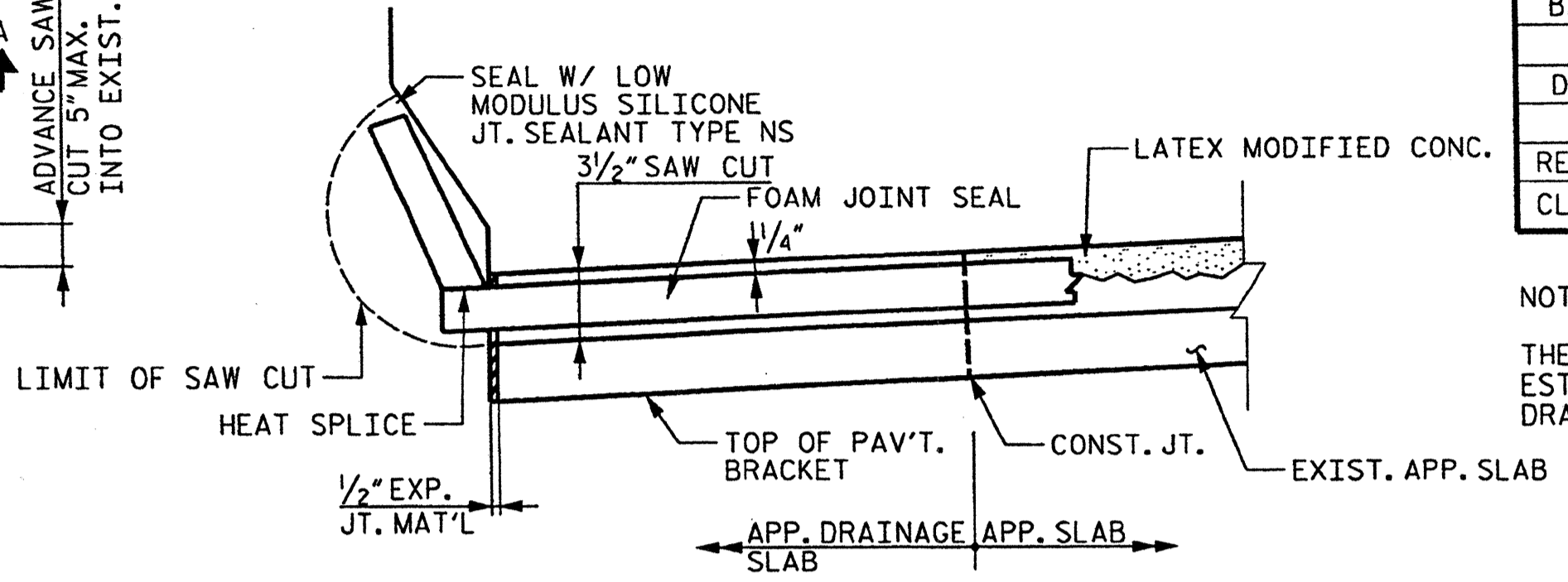
NOTES:  
THE ENGINEER WILL BE RESPONSIBLE FOR ESTABLISHING THE ELEVATIONS FOR THE APPROACH DRAINAGE SLAB.



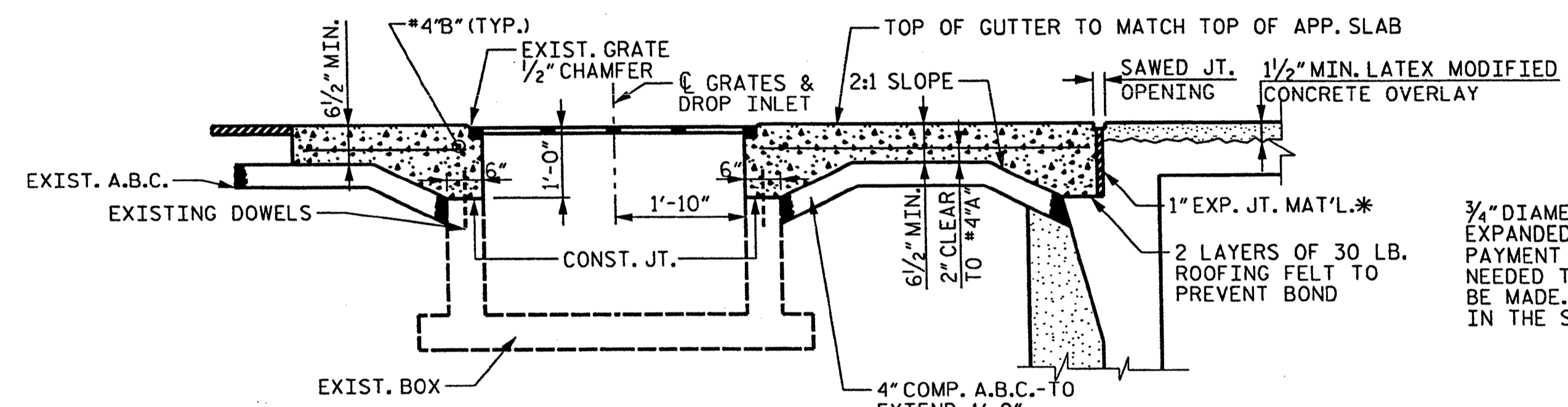
N1 (LT.) = 4  
N1 (RT.) = 7  
N2 (LT.) = 13  
N2 (RT.) = 10

TYPICAL PART PLAN

\*5 D1 BARS SHALL BE SECURED IN EXISTING APPROACH SLAB WITH EPOXY ADHESIVE ANCHORS. FOR EPOXY ADHESIVE ANCHORS, SEE SPECIAL PROVISIONS. TESTING \*5D1 BARS IS NOT REQUIRED

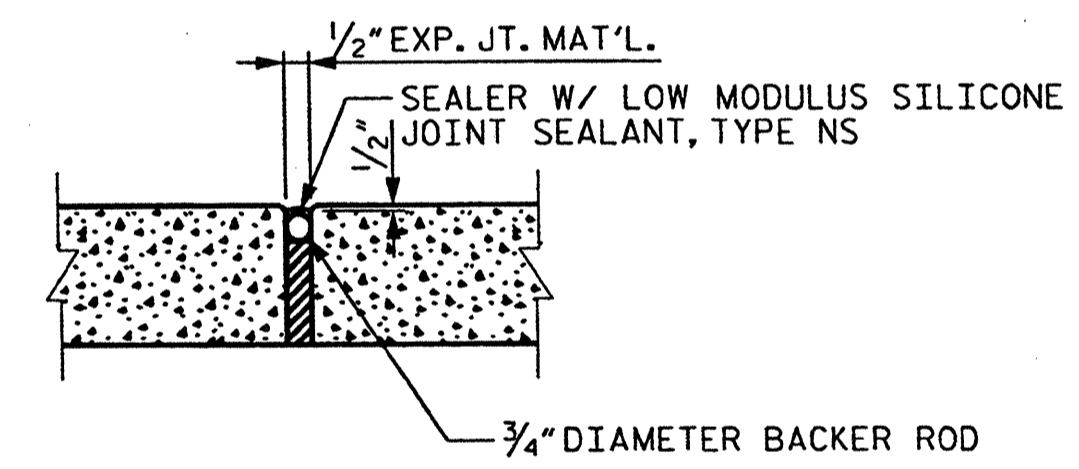


SECTION X-X



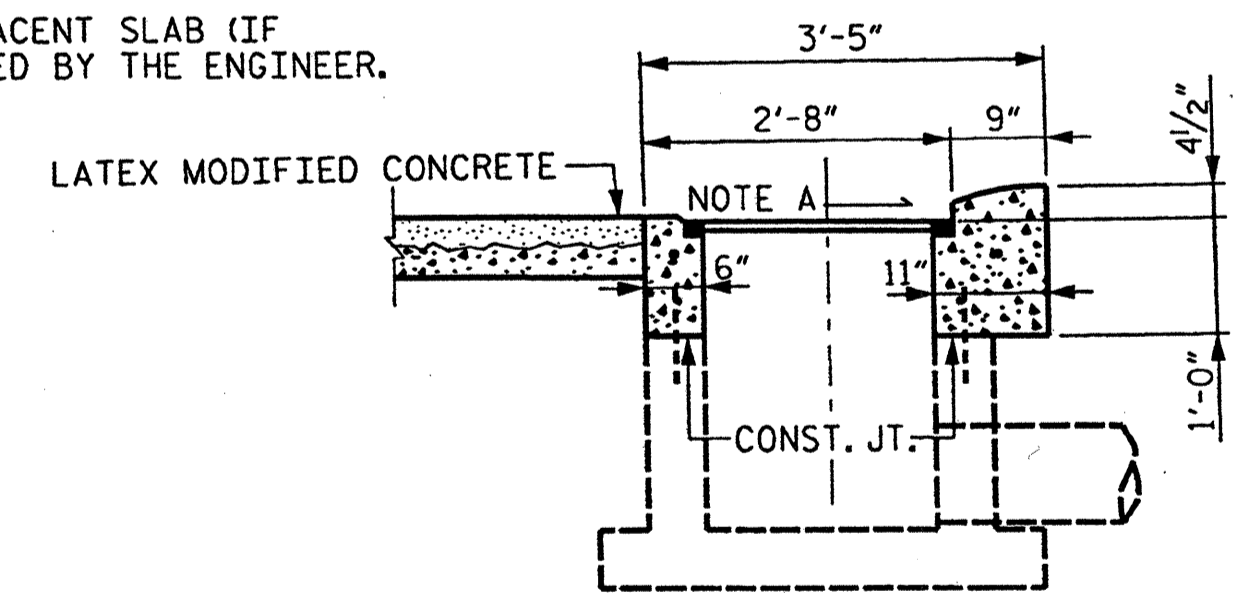
SECTION A-A

3/4" DIAMETER BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

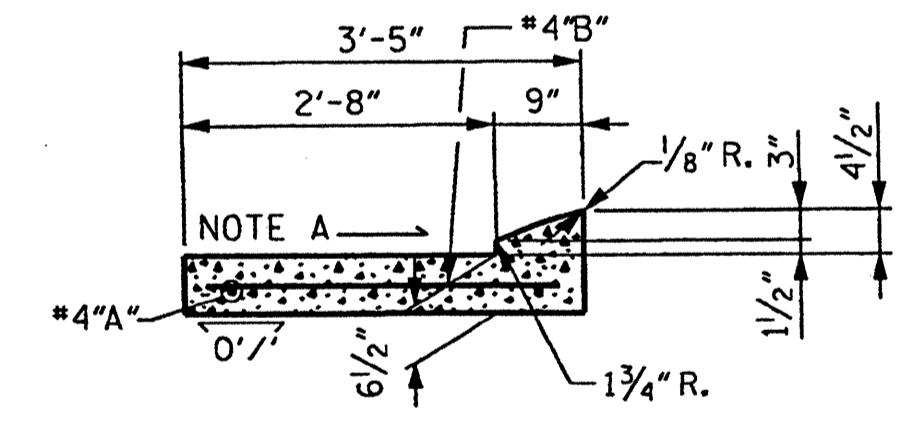


SECTION E-E

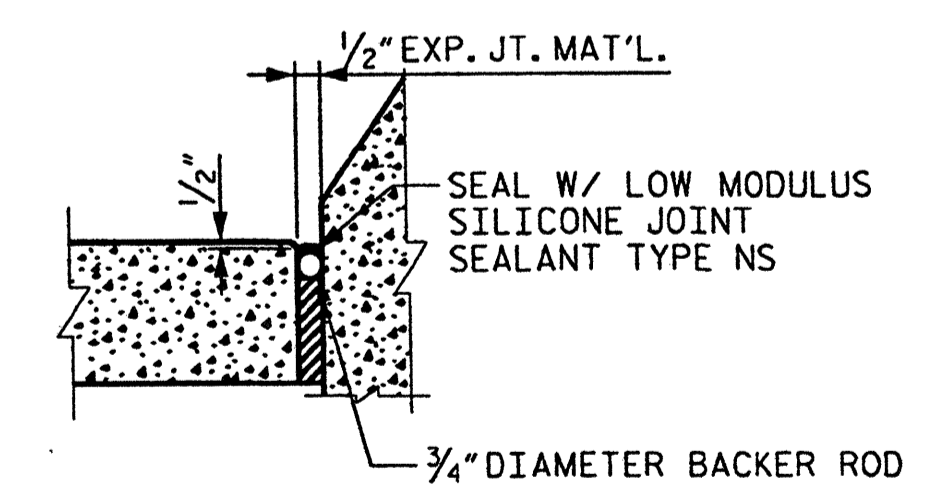
NOTE "A": MATCH SLOPE OF ADJACENT SLAB (IF PRESENT) OR SLOPE AS DIRECTED BY THE ENGINEER.



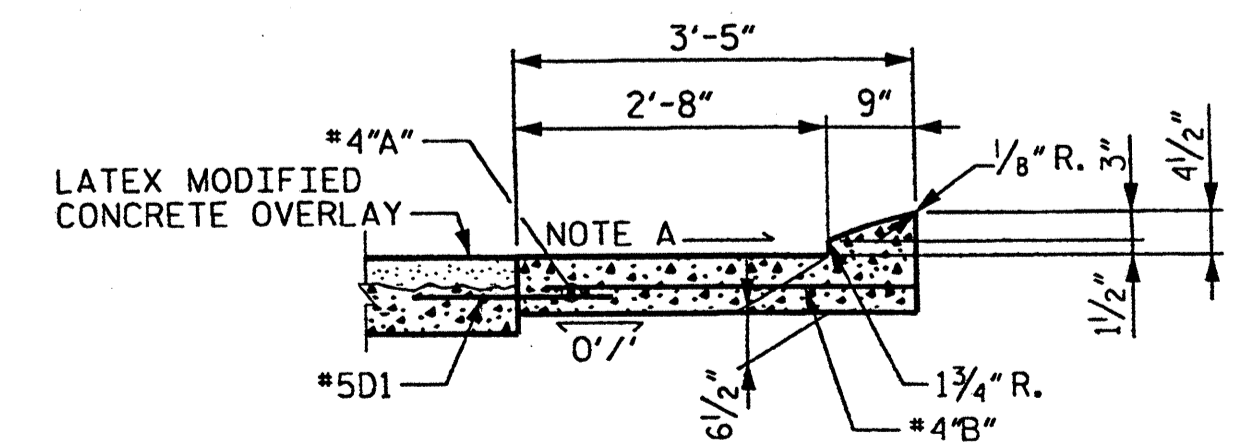
SECTION B-B



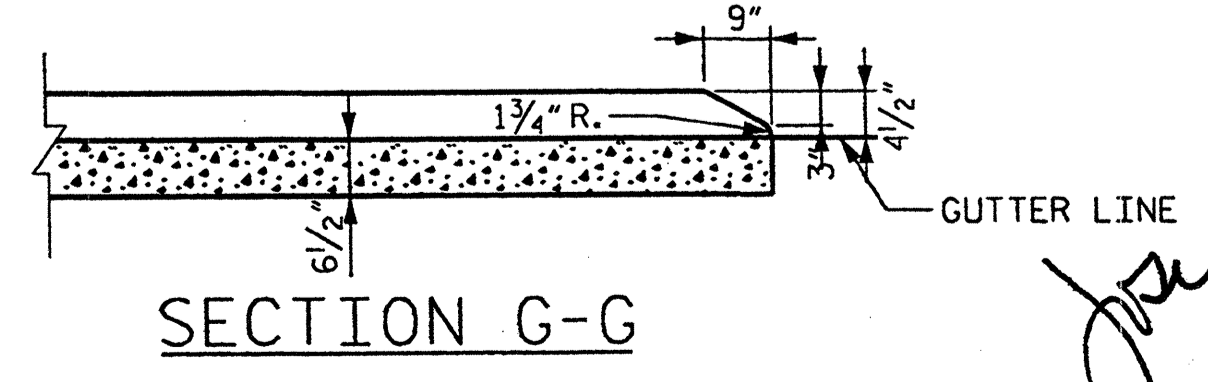
SECTION C-C



SECTION F-F



SECTION D-D



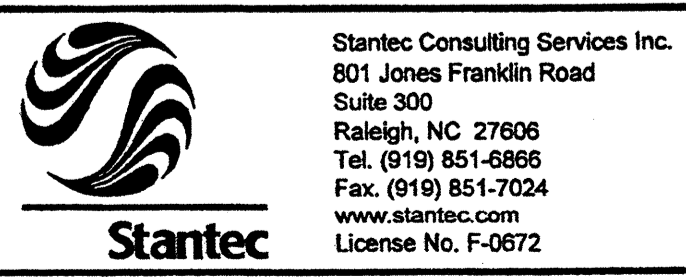
SECTION G-G

PROJECT NO. WBS 17BP.6.P.2  
CUMBERLAND COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PROPOSED APPROACH DRAINAGE SLAB DETAILS					
DECK REHAB FOR BRIDGE NO. 147					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-74  
TOTAL SHEETS 75

*Joseph Kelvington*  
11/10/11  
13406  
ENGINEER  
STATE OF NORTH CAROLINA

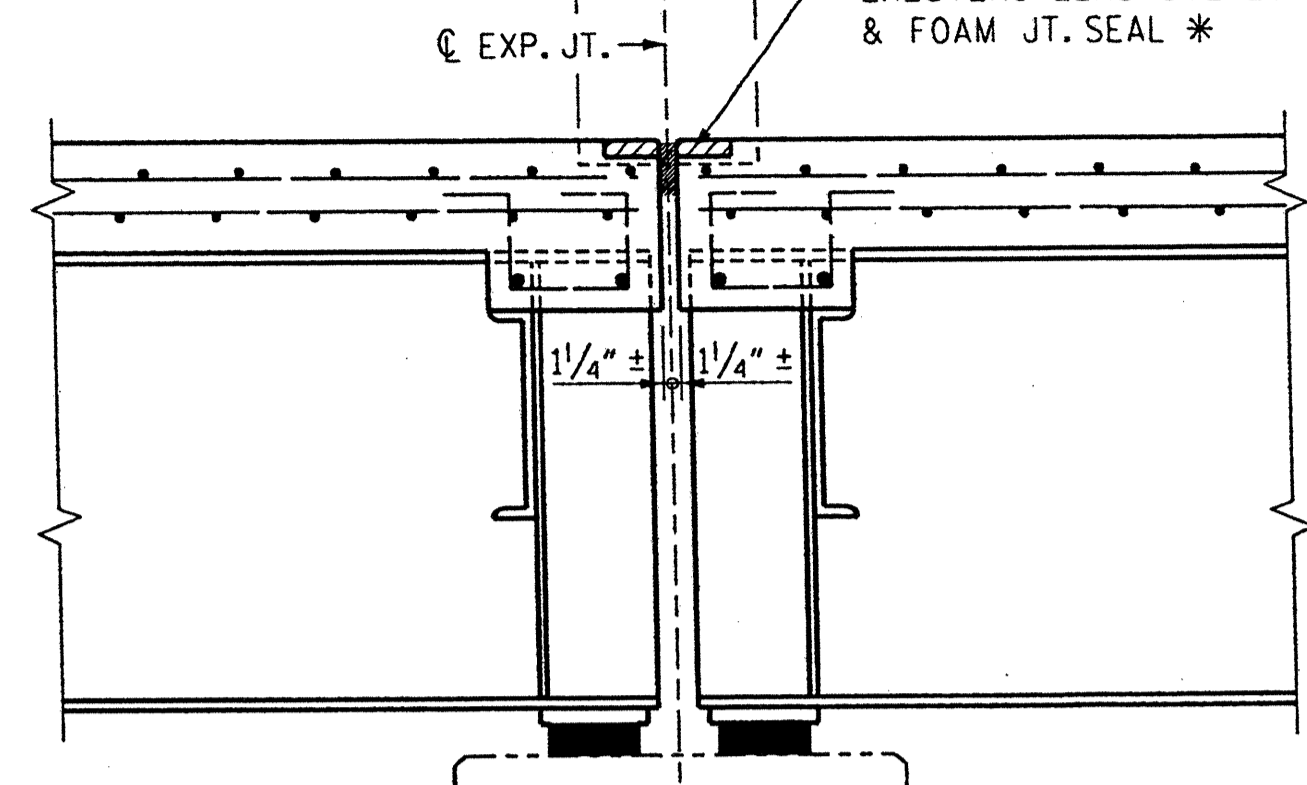


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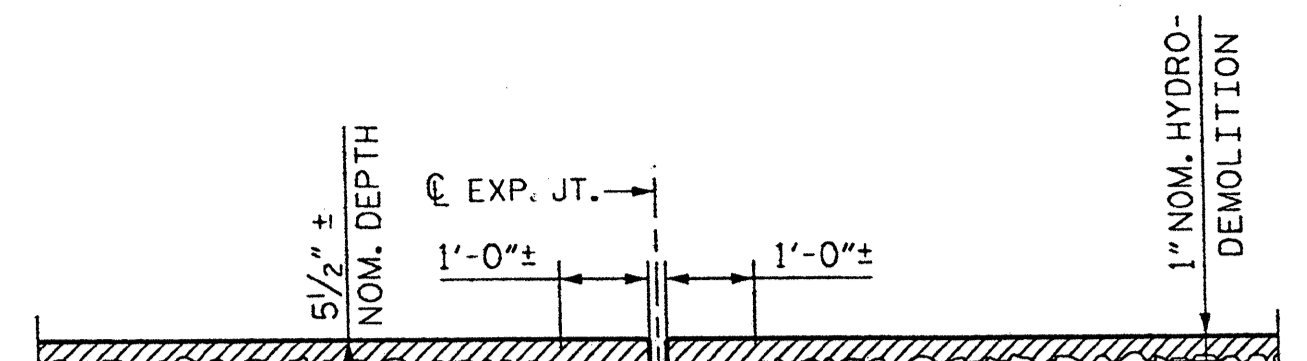
P.2 Robeson Co.\Cumberland Bridge I47 Drawing BP250147.C&G-Detail-Proposed.dgn 1/10/2012 2:46:43 PM jbellie

EXISTING CONCRETE BLOCKOUT FOR MODULAR EXP. JT. SEAL



**SECTION B-B**  
(EXISTING JOINT)

NOTE: EXISTING JOINT DETAILS ARE FROM BEST AVAILABLE INFORMATION

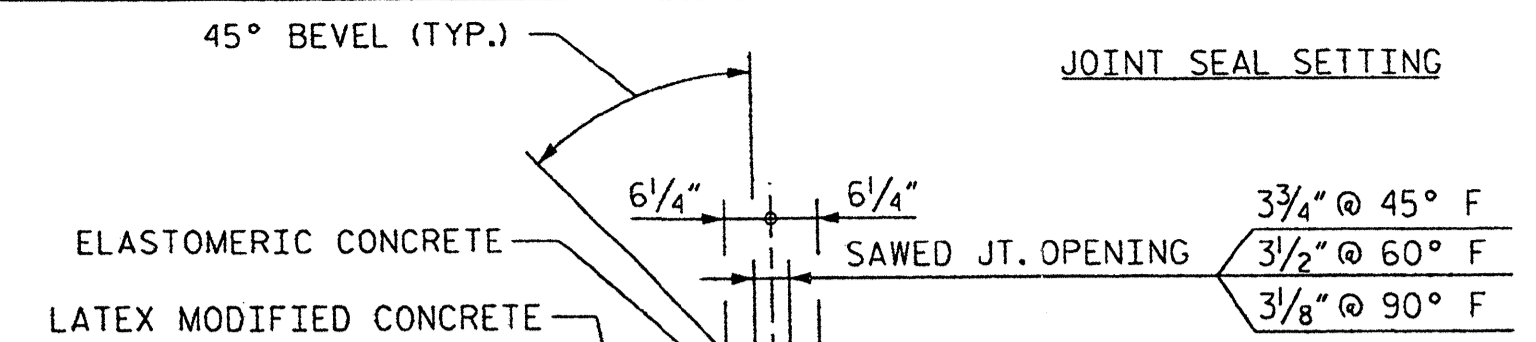


**SECTION B-B**  
(MINIMUM EXISTING JOINT DEMOLITION)

NOTE: RETAIN ALL EXIST. REINF. STEEL. CLEAN AND REPAIR AS REQ'D

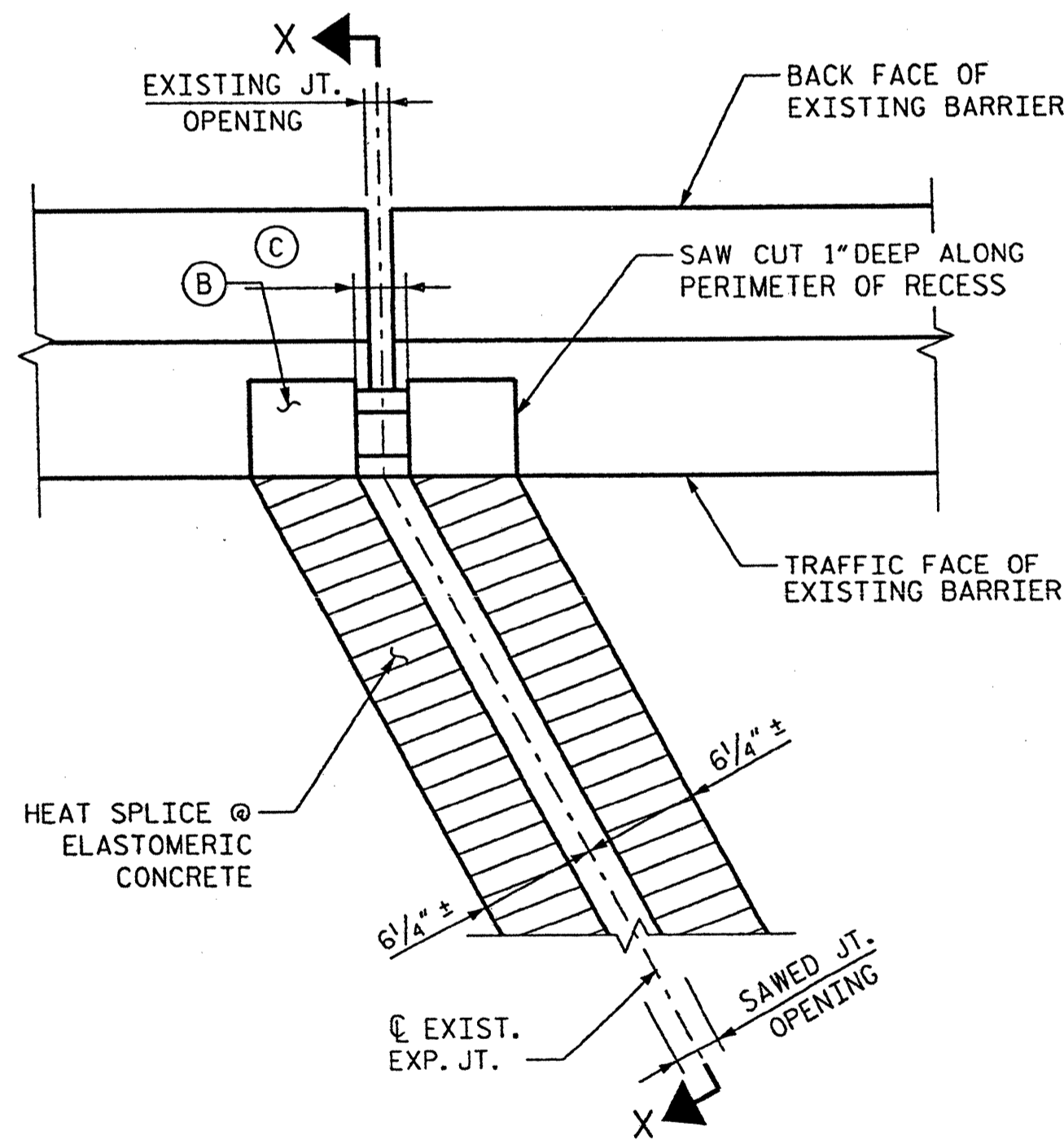
\* ALL EXISTING JOINT SEAL MATERIALS ARE TO BE COMPLETELY REMOVED

(A) CLASS II SURFACE PREPARATION AS REQUIRED TO REMOVE EXISTING JOINT SEAL AND PREPARE SURFACE FOR NEW ELASTOMERIC CONCRETE.



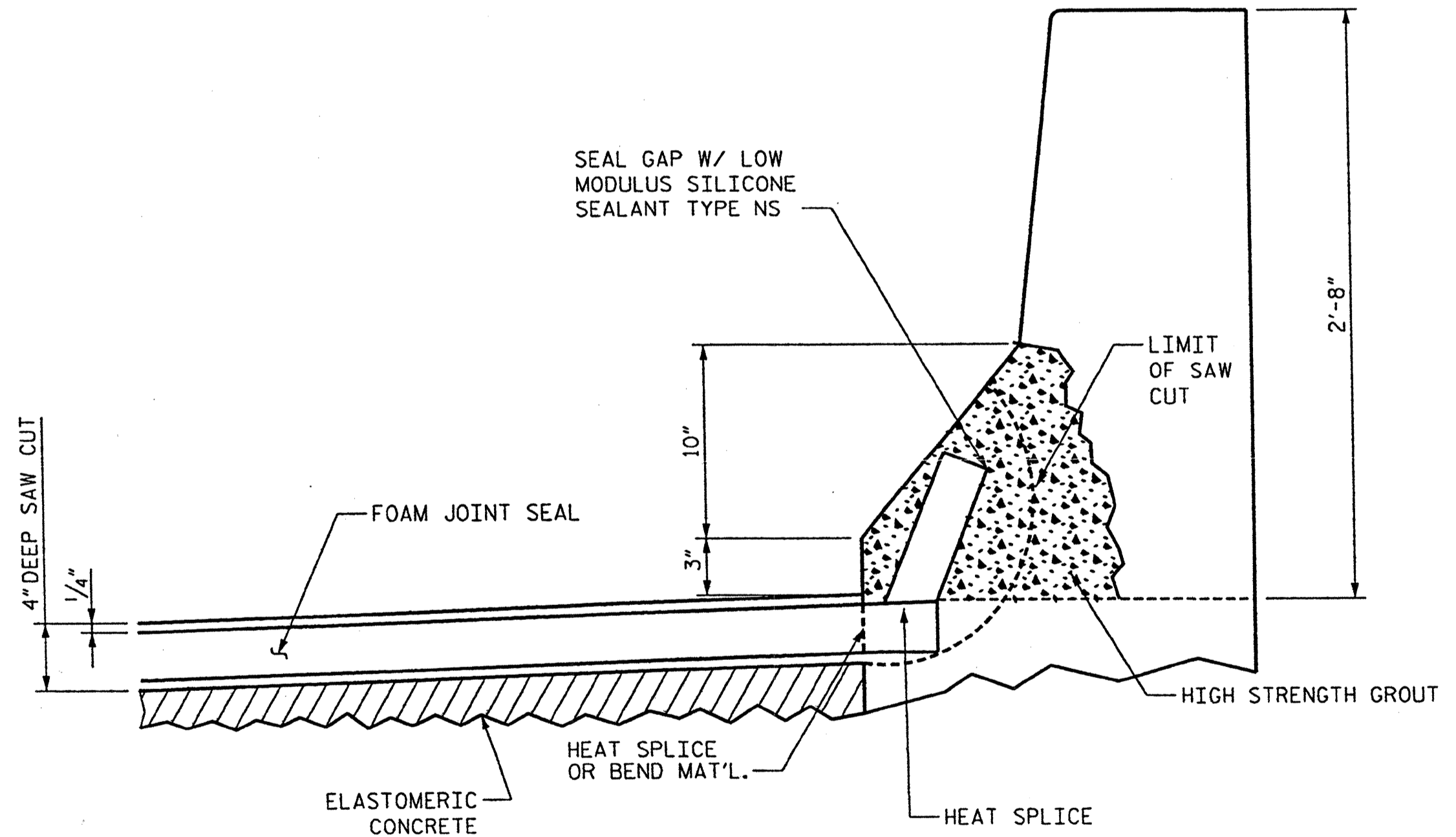
**SECTION B-B**  
(JOINT SEAL DESIGN)

USE 4.375" X 3" UNCOMPRESSED SEAL WIDTH. FORMED JT. OPENING IN ELASTOMERIC CONCRETE SHALL MATCH EXISTING FORMED JOINT OPENING



**PARTIAL PLAN @ JOINT @ BARRIER**  
(TYP. @ INTERIOR BENTS)

- (B) REMOVE EXISTING CONCRETE TO MATCH THE MAXIMUM OF THE JOINT WIDTH SHOWN OR THE WIDTH OF THE EXISTING JOINT SEAL BLOCKOUT AND TO AT LEAST 1" BEYOND EXISTING REINFORCING STEEL. FILL W/ NON METALLIC, NON SHRINK HIGH STRENGTH GROUT. FINISHED SURFACE OF GROUT SHALL MATCH EXISTING SURFACES OF BARRIER RAIL. HIGH STRENGTH GROUT SHALL BE APPROVED BY THE ENGINEER. SEE SPECIAL PROVISIONS.
- (C) FORMED JT. IN BARRIER RAIL SHALL MATCH SAWED JOINT WIDTH IN BRIDGE DECK.



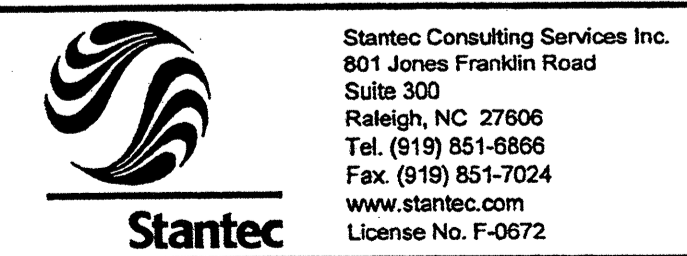
**SECTION X-X**

PROJECT NO. WBS 17BP.6.P.2  
CUMBERLAND COUNTY  
STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

EXPANSION JOINT DETAILS

DECK REHAB FOR BRIDGE NO. 147



DRAWN BY: B C MACYOWSKY DATE: 11/11  
CHECKED BY: J T KELVINGTON DATE: 11/11

*J T Kelvington*  
Professional Engineer Seal  
13406  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

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

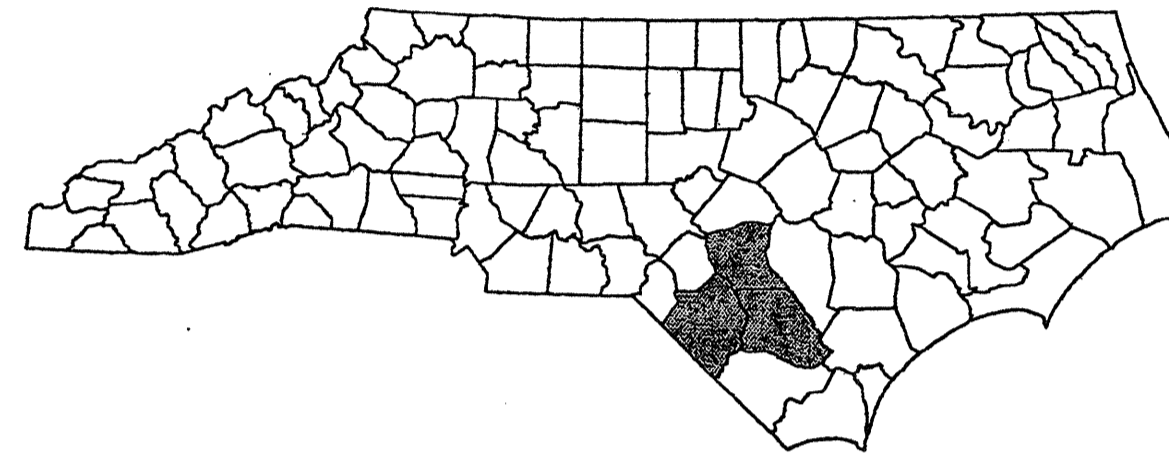
Group 2011 WBS 17BP.6.P.2 Roberson Co. Cumberland Bridge 147\Drawings\BP25047\_DE1.dgn 12/19/2011 12:23:22 PM Jgelle

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**BLADEN, CUMBERLAND, & ROBESON COUNTIES**

**DIVISION 6**



**BRIDGE DECK PRESERVATION**

**BLADEN BRIDGE #17 - US 70/NC 41 SB OVER CAPE FEAR RIVER**

**CUMBERLAND BRIDGE #147 - SR 1832 OVER I-95**

**ROBESON BRIDGE #4 - NC 130 OVER I-95**

**ROBESON BRIDGE #13 - SR 1207 OVER BACK SWAMP CREEK**

**ROBESON BRIDGE #70 - US 74 EB OVER NC 41**

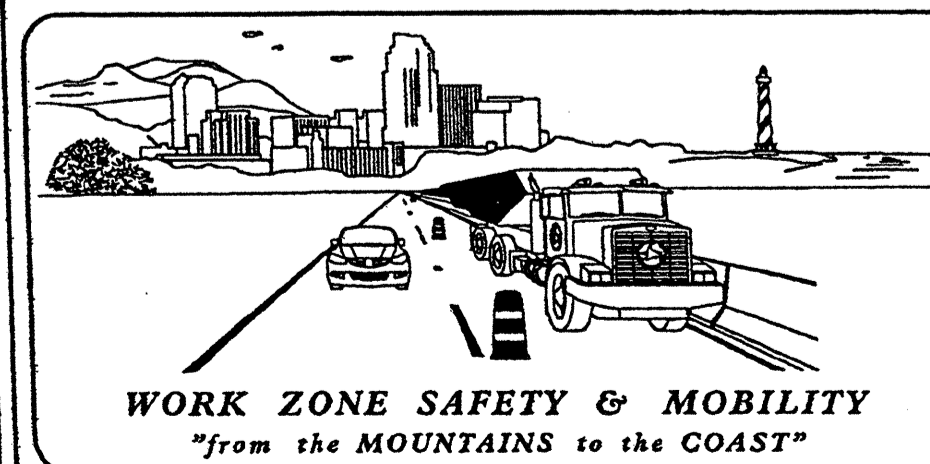
**ROBESON BRIDGE #72 - US 74 WB OVER NC 41**

**ROBESON BRIDGE #96 - SR 1155 OVER I-95**

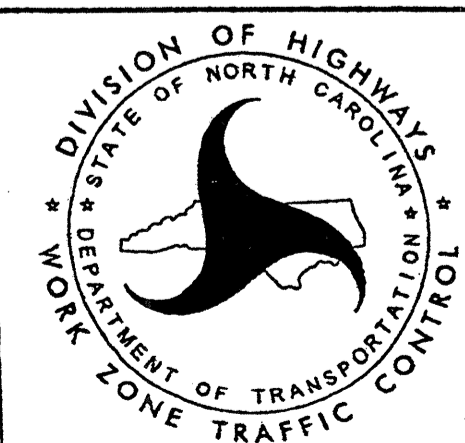
**ROBESON BRIDGE #106 - I-95 NB OVER SR 2457**

**ROBESON BRIDGE #107 - I-95 SB OVER SR 2457**

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PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT  
RALEIGH, NC



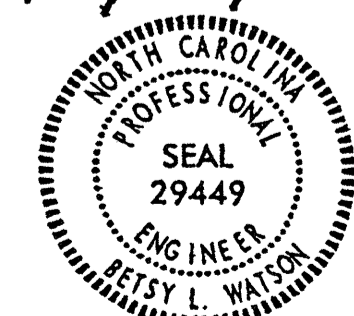
PLAN PREPARED BY:  
Stantec Consulting Services Inc.  
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BETSY L. WATSON, P.E.

GEORGE KARAGEORGE  
SR. TRANSPORTATION DESIGNER

APPROVED: *Betsy L. Watson*  
DATE: 12/15/11

SEAL



**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, INDEX OF SHEETS, & TRAFFIC MGMT. STRATEGY
TMP-1A	LEGEND & LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES
TMP-3	PHASING
TMP-4	CUMBERLAND CO. BRIDGE #147 FLAGGER CONTROLLED LANE CLOSURE EASTBOUND WORK AREA
TMP-4A	CUMBERLAND CO. BRIDGE #147 FLAGGER CONTROLLED LANE CLOSURE WESTBOUND WORK AREA
TMP-5, 5A, 5B, 5C	CUMBERLAND CO. BRIDGE #147 ROAD CLOSURE
TMP-6	CUMBERLAND CO. BRIDGE #147 DETOUR ROUTE

**TRAFFIC MANAGEMENT STRATEGY**

PROPOSED BRIDGE WORK WILL BE PERFORMED USING LANE CLOSURES.  
REFER TO SHEET TMP-2 FOR TIME RESTRICTIONS AND TMP-3 FOR PHASING.

**WBS 17BP.6.P.2**

SHEET NO.  
TMP-1

## LEGEND

- ← DIRECTION OF TRAFFIC FLOW
- WORK AREA
- ↑ NORTH ARROW
- TYPE III BARRICADE
- ▲ CONE
- DRUM    ◎ SKINNY DRUM    ⊙ TUBULAR MARKER
- CHANGEABLE MESSAGE SIGN (CMS)
- ⚡ FLAGGER
- FLASHING ARROW BOARD (TYPE C)
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE BARRIER (PCB)
- TEMPORARY CRASH CUSHION
- TEMPORARY SHORING
- WORK ZONE SIGN-PORTABLE
- WORK ZONE SIGN-STATIONARY
- WORK ZONE SIGN-STATIONARY OR PORTABLE

- SIGNALS**
- EXISTING    PROPOSED    TEMPORARY

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

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

- PAVEMENT MARKERS**
- CRYSTAL/CRYSTAL
  - CRYSTAL/RED
  - YELLOW/YELLOW

## ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY-DRUM
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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 Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0572	APPROVED: _____ DATE: _____  SEAL M. J. WATSON PROFESSIONAL ENGINEER No. 7449 12/15/11	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	<b>LEGEND &amp; ROADWAY STANDARD DRAWINGS</b>
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## GENERAL NOTES

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

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

### LANE CLOSURE TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 701, NC 41,	6:00 A.M.-9:00 A.M. MONDAY THRU FRIDAY
US 74	4:00 P.M.-7:00 P.M. MONDAY THRU FRIDAY
I-95	6:00 A.M.-7:00 P.M. MONDAY THRU THURSDAY 6:00 A.M. FRIDAY - 7:00 P.M. SUNDAY

### HOLIDAY & HOLIDAY WEEKEND LANE CLOSURE TIME RESTRICTIONS

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND HOLIDAY WEEKENDS AS FOLLOWS:

#### ROAD NAME ALL ROADS

- 1) FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2) FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2nd. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
- 3) FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
- 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
- 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
- 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
- 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) LANE CLOSURES ARE REQUIRED WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN ANY PORTION OF A TRAVEL LANE. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- D) INSTALL ALL LANE CLOSURES ACCORDING TO THE PLANS, ROADWAY STANDARD DRAWINGS (1101.02), OR AS DIRECTED BY THE ENGINEER.
- E) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER. COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARDS AND MESSAGE BOARDS.
- F) INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- I) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

### FLAGGER OPERATIONS

- J) DURING FLAGGER OPERATIONS DO NOT STOP TRAFFIC FOR MORE THAN 5 MINUTES AT A TIME.
- K) FLAGGER STATIONS SHALL BE LOCATED SUCH THAT APPROACHING TRAFFIC WILL HAVE SUFFICIENT DISTANCE TO STOP AT THE INTENDED STOPPING POINT. IF NEEDED, EXTEND THE LANE CLOSURE SUCH THAT THE FLAGGER STATION IS POSITIONED BEFORE A HORIZONTAL OR CREST VERTICAL CURVE WHERE ADEQUATE STOPPING SIGHT DISTANCE TO THE FLAGGER IS PROVIDED. REFER TO ROADWAY STANDARD DRAWING 1101.11 SHEET 2.
- L) FLAGGERS SHALL NOT STAND IN THE ROADWAY.
- M) USE FLAGGERS TO CONTROL VEHICLES AT INTERSECTIONS OR RAILROAD GRADE CROSSINGS AFFECTED BY THE LANE CLOSURE. USE FLAGGER SIGN W20-7A IN ADVANCE OF ALL FLAGGER STATIONS. WHEN AN INTERSECTION IS SIGNALIZED HAVE AUTHORIZED PERSONNEL PLACE THE SIGNAL IN FLASH MODE WHEN DIRECTED BY THE ENGINEER.
- N) FLAGGER STATIONS SHALL BE ILLUMINATED AT NIGHT.
- O) PLACE CHANNELIZING DEVICES FOR FLAGGER OPERATION LANE CLOSURES AT A MAXIMUM SPACING OF 20 FEET IN TAPERS AND AT A MAXIMUM SPACING OF 80 FEET ALONG THE BUFFER SPACE AND WORK AREA.
- P) USE PILOT VEHICLES IN CONJUNCTION WITH FLAGGERS WHEN SHOWN IN THE PLAN OR WHEN DIRECTED BY THE ENGINEER. MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A VISIBLE LOCATION ON THE REAR OF PILOT VEHICLES.
- Q) ADVISE RESIDENTS AND BUSINESSES AFFECTED BY THE LANE CLOSURE ABOUT METHODS OF SAFE INGRESS AND EGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

### ROAD CLOSURES

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

### PAVEMENT MARKINGS AND MARKERS

- X) RECORD ALL LOCATIONS AND TYPES OF EXISTING PAVEMENT MARKINGS AS THEY WILL BE REPLACED IN THE SAME LOCATION ON THE NEW SURFACE.
- Y) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:


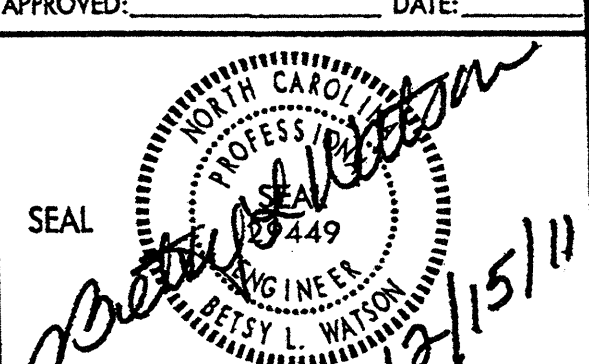
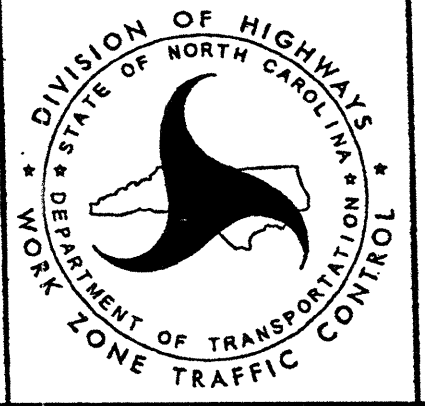
ROAD NAME	MARKING	PAVEMENT MARKER
ALL ROADS	POLYUREA	PERMANENT RAISED

- Z) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- AA) REPLACE PAVEMENT MARKINGS BEFORE OPENING LANES OR A ROADWAY TO TRAFFIC. A THIN LAYER OF PAINT MAY BE USED INITIALLY UNTIL FINAL MARKINGS ARE PLACED.

### MISCELLANEOUS

- BB) ALL DIMENSIONS AND STATIONS IN THE TRAFFIC MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- CC) PLACE ALL CHANGEABLE MESSAGE SIGNS AS NEEDED IN THE LOCATIONS AND WITH THE WORD MESSAGES AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER TO PROVIDE ADVANCE WARNING TO THE PUBLIC DURING CONSTRUCTION.
- DD) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

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GENERAL NOTES			

PROJ. REFERENCE NO.	SHEET NO.
17BP.6.P.2	TMP-3

## PHASING

### BLADEN CO. BRIDGE #17

PERFORM BRIDGE WORK USING LEFT AND RIGHT LANE CLOSURES, PER ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 15, OR ROADWAY STANDARD DRAWING 1101.02 SHEET 6 OF 15.

### CUMBERLAND CO. BRIDGE #147

(REFER TO INTERMEDIATE CONTRACT TIMES WITH LIQUIDATED DAMAGES)

CLOSE SR 1832 (MURPHY RD.) FOR A MAXIMUM TIME PERIOD OF 21 CONSECUTIVE CALENDAR DAYS TO PERFORM BRIDGE OVERLAY WORK. REFER TO SHEETS TMP-5,5A,6.

FOR FLAGGER OPERATIONS ON MURPHY RD. REFER TO SHEETS TMP-4,4A.

### ROBESON CO. BRIDGE #4, #13

PERFORM BRIDGE WORK USING FLAGGER CONTROLLED LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 15.

### ROBESON CO. BRIDGE #70, #72

PERFORM BRIDGE WORK USING LEFT AND RIGHT LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02 SHEET 4 OF 15 OR ROADWAY STANDARD DRAWING 1101.02 SHEET 6 OF 15.

### ROBESON CO. BRIDGE #106, #107

PERFORM BRIDGE WORK USING LEFT AND RIGHT LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02 SHEET 4 OF 15 OR ROADWAY STANDARD DRAWING 1101.02 SHEET 6 OF 15.

NOTE: FOR BRIDGES #106/#107; IN ADDITION TO THE DEVICES SHOWN ON THE STANDARD DRAWING ADD ONE MORE CHANGEABLE MESSAGE SIGN (CMS) AND PROVIDE LAW ENFORCEMENT. LOCATE THE CMS BETWEEN THE SECOND AND THIRD LANE CLOSURE PORTABLE WARNING SIGNS.


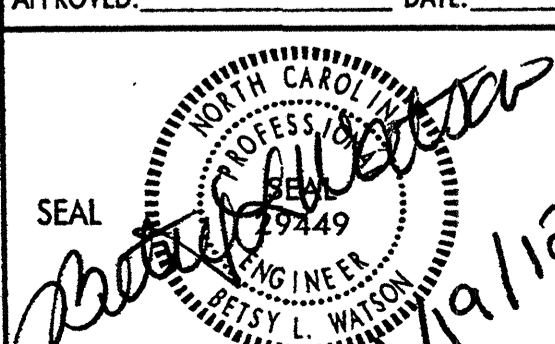
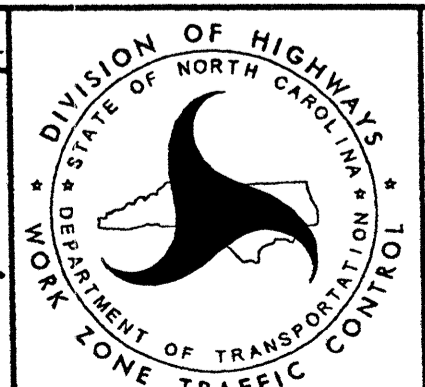
### ROBESON CO. BRIDGE #96

PERFORM BRIDGE WORK USING FLAGGER CONTROLLED LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 15.

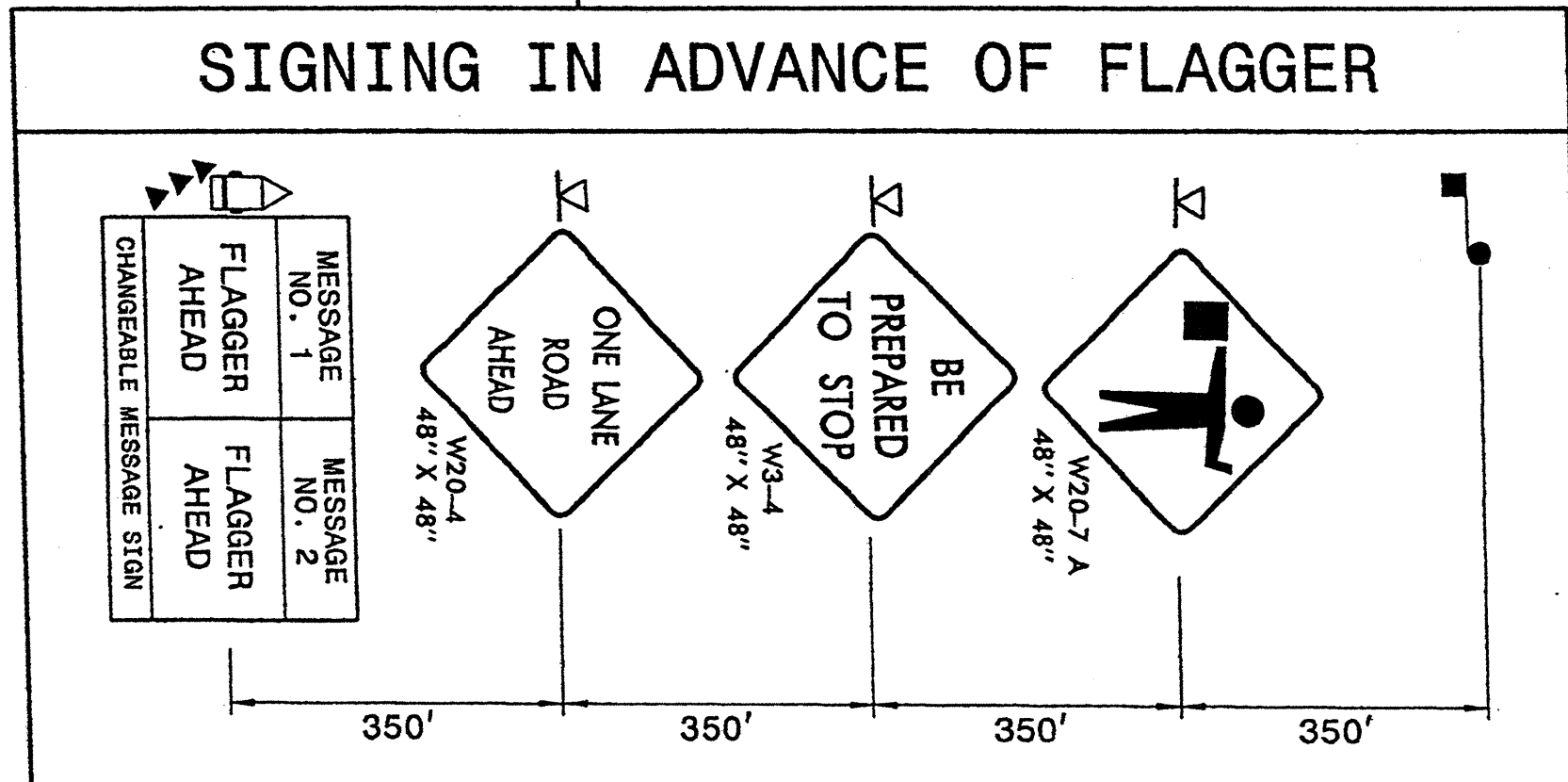
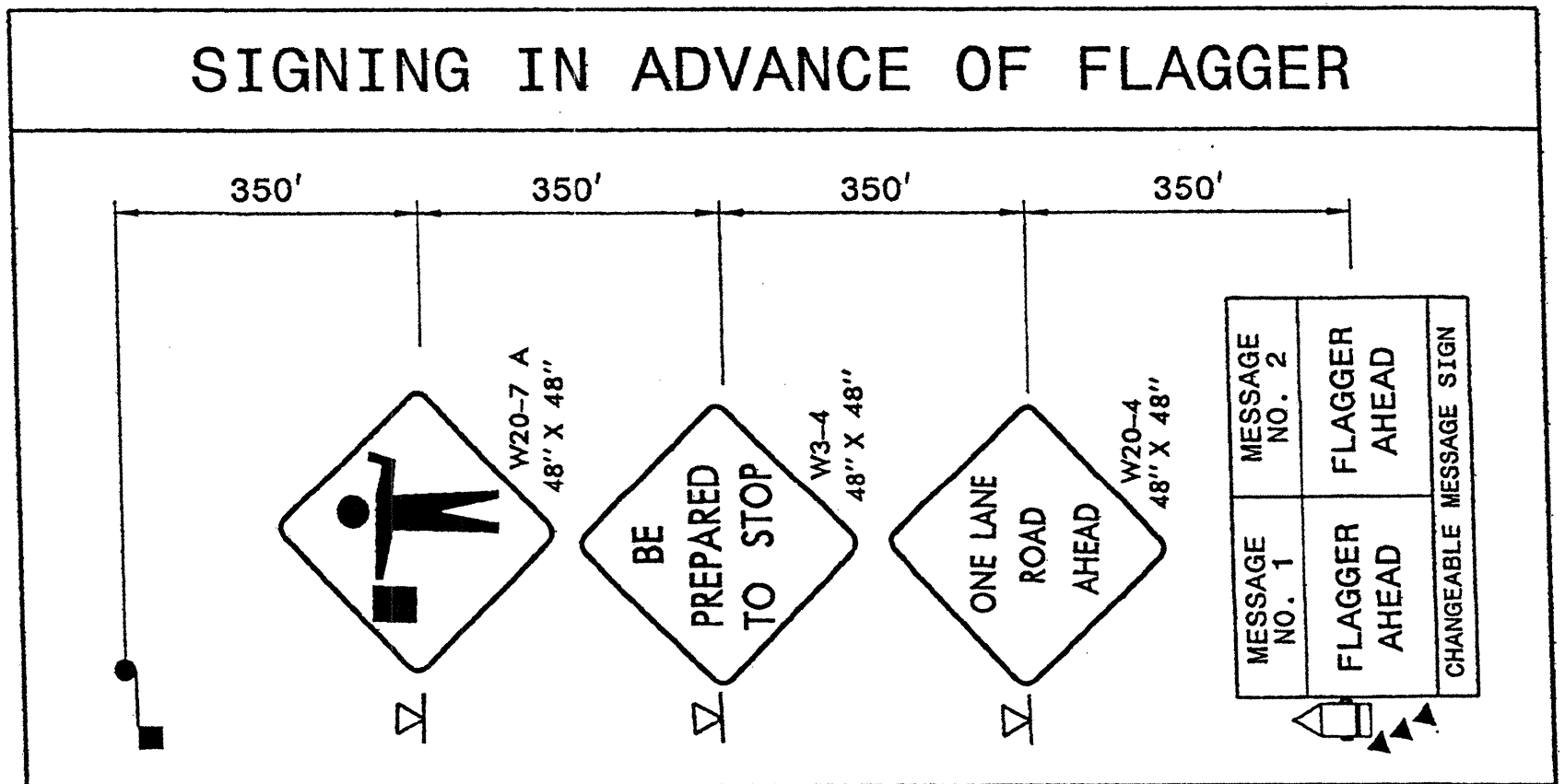
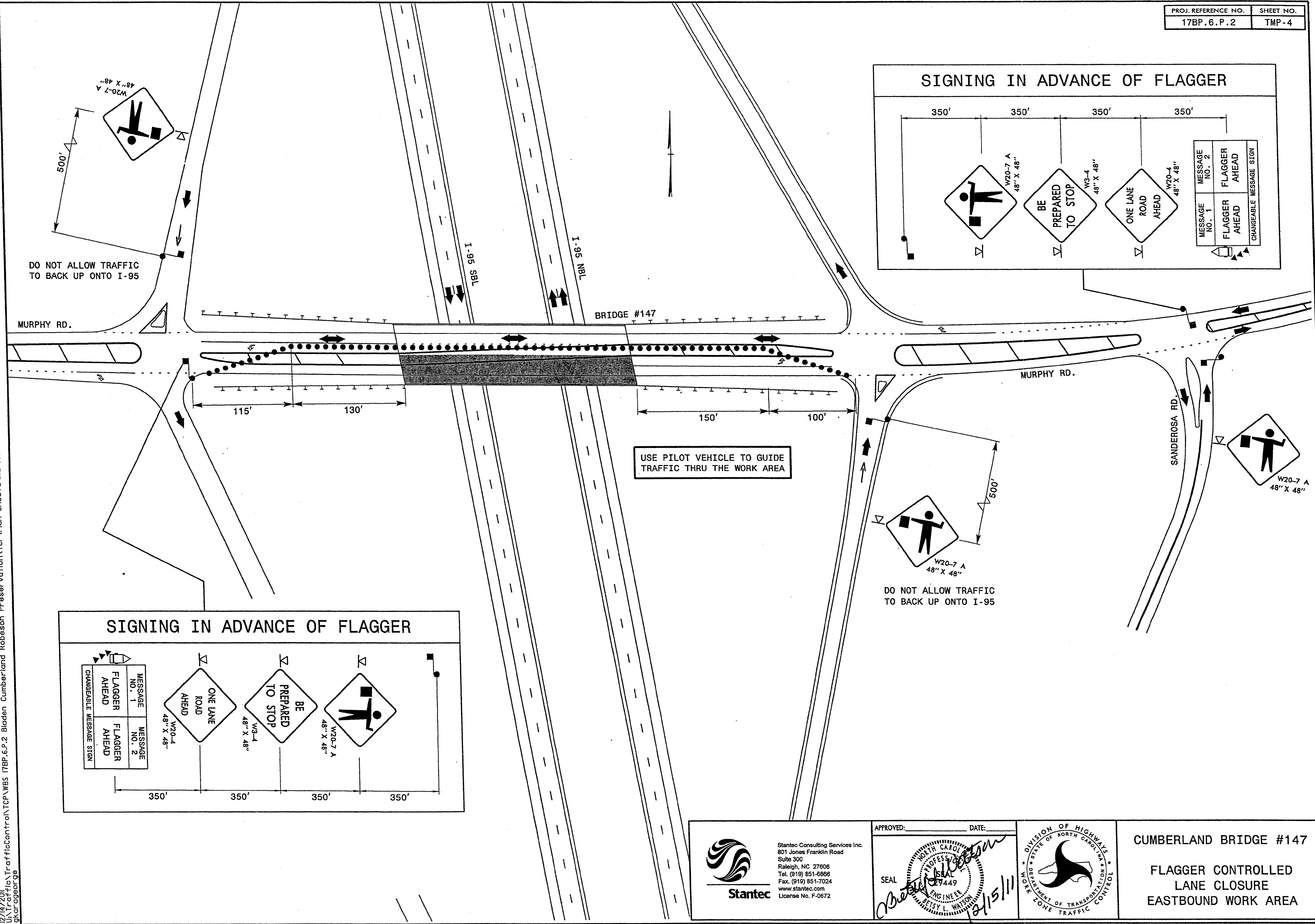
FOR SUBSTRUCTURE REPAIRS USE LEFT AND RIGHT LANE CLOSURES ON I-95 PER ROADWAY STANDARD DRAWING 1101.02 SHEET 4 OF 15 OR ROADWAY STANDARD DRAWING SHEET 6 OF 15.

**ICT**

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dkaragorge

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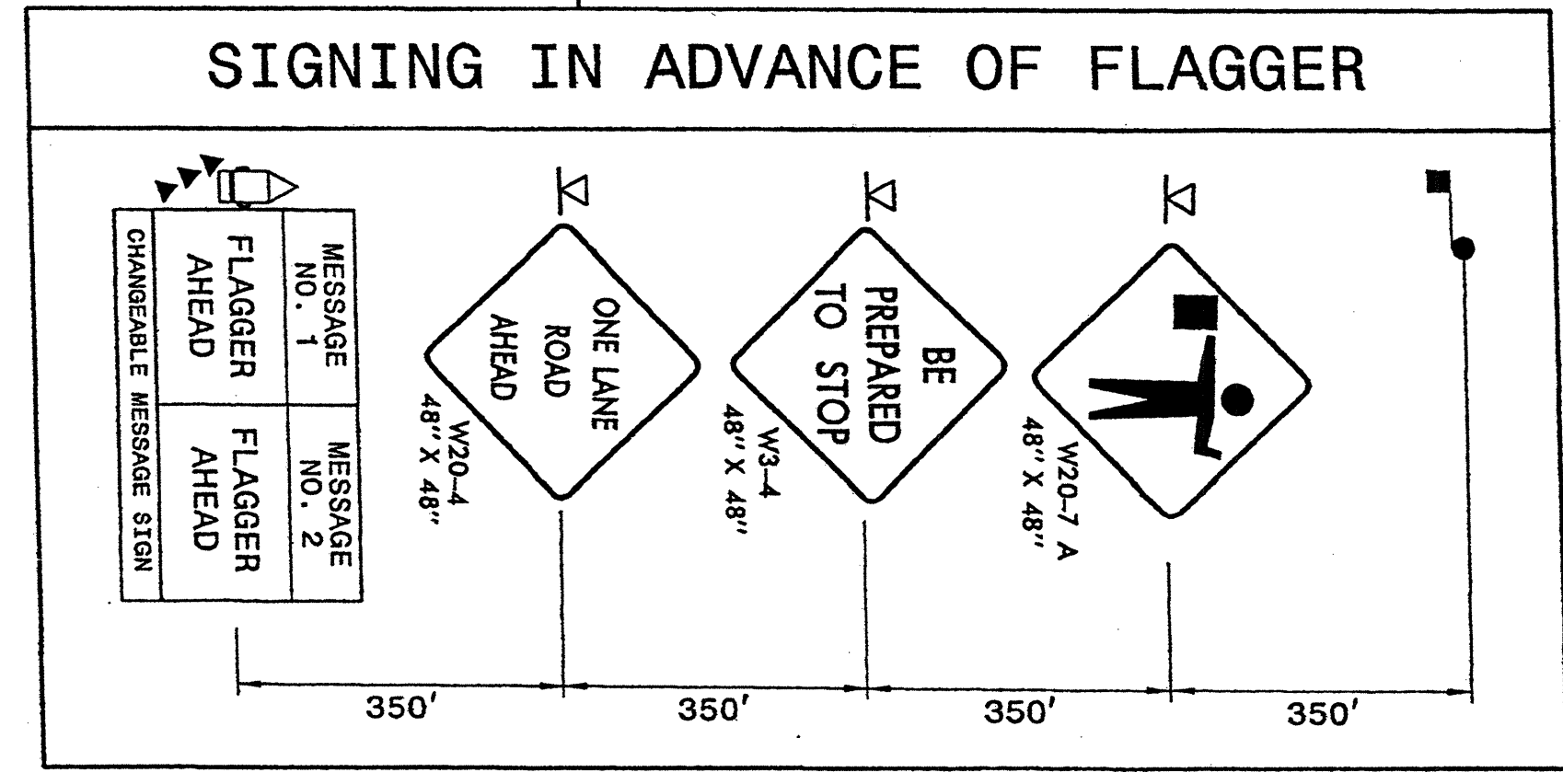
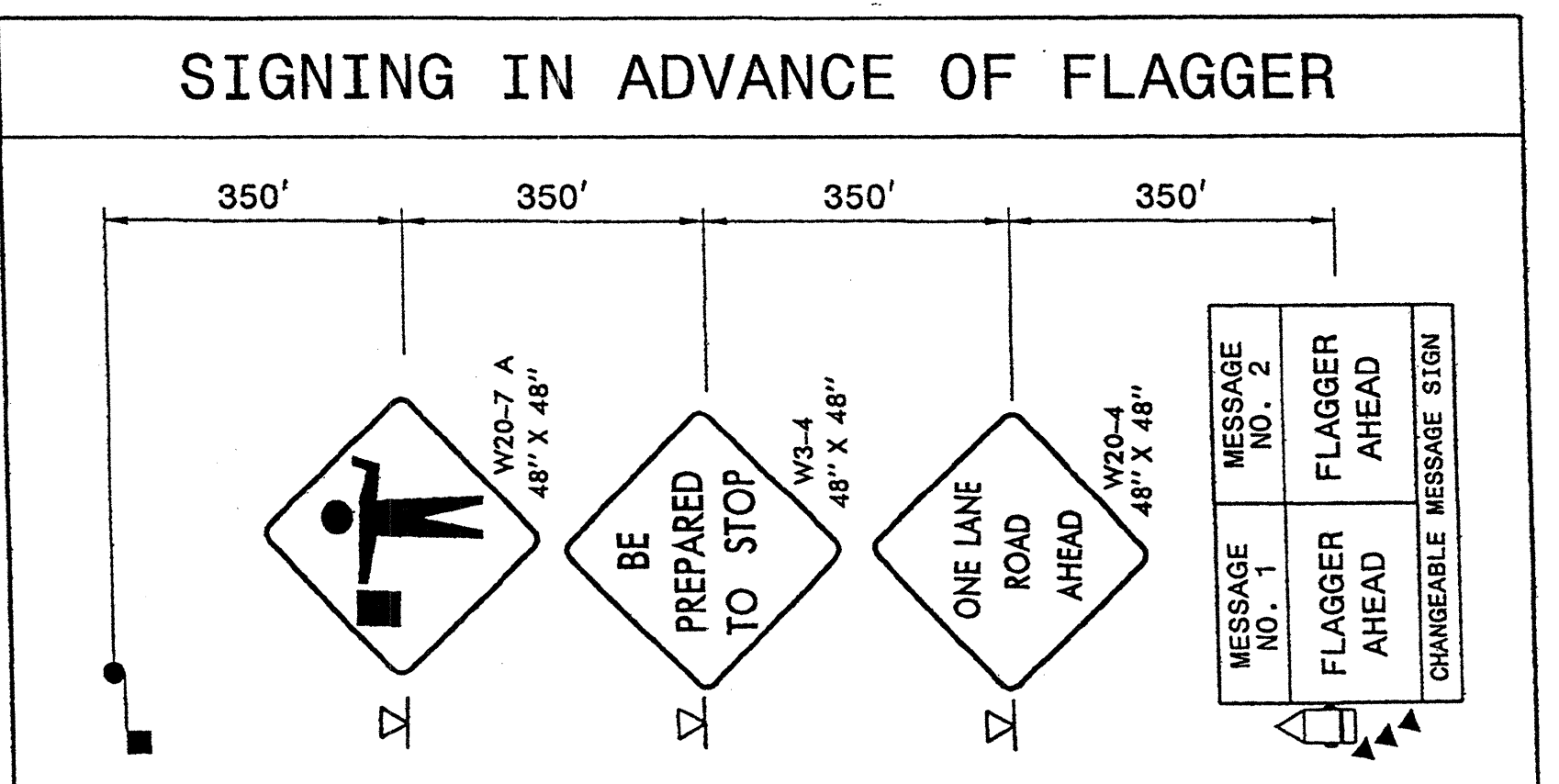
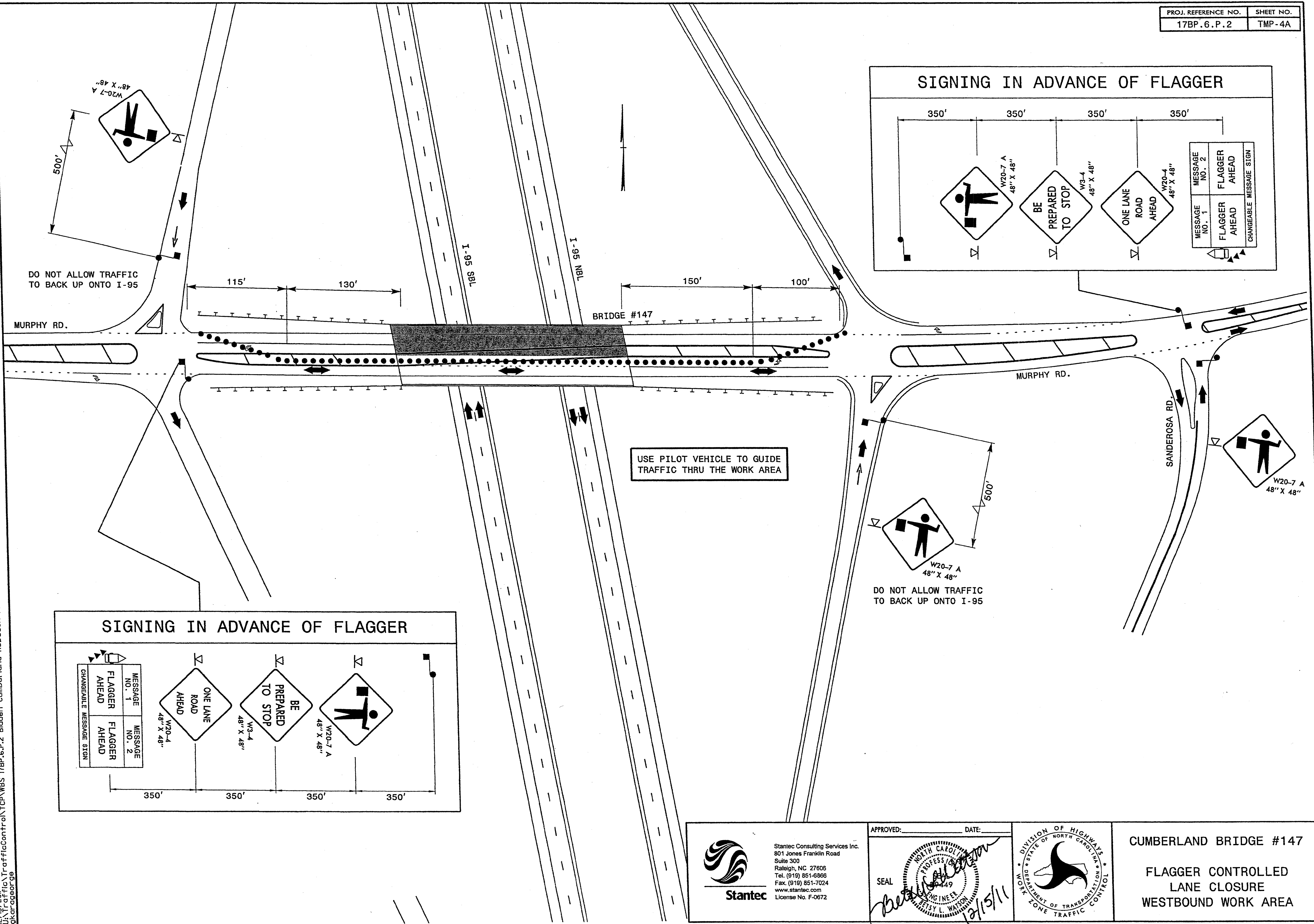
USE PILOT VEHICLE TO GUIDE TRAFFIC THRU THE WORK AREA

DO NOT ALLOW TRAFFIC TO BACK UP ONTO I-95

DO NOT ALLOW TRAFFIC TO BACK UP ONTO I-95

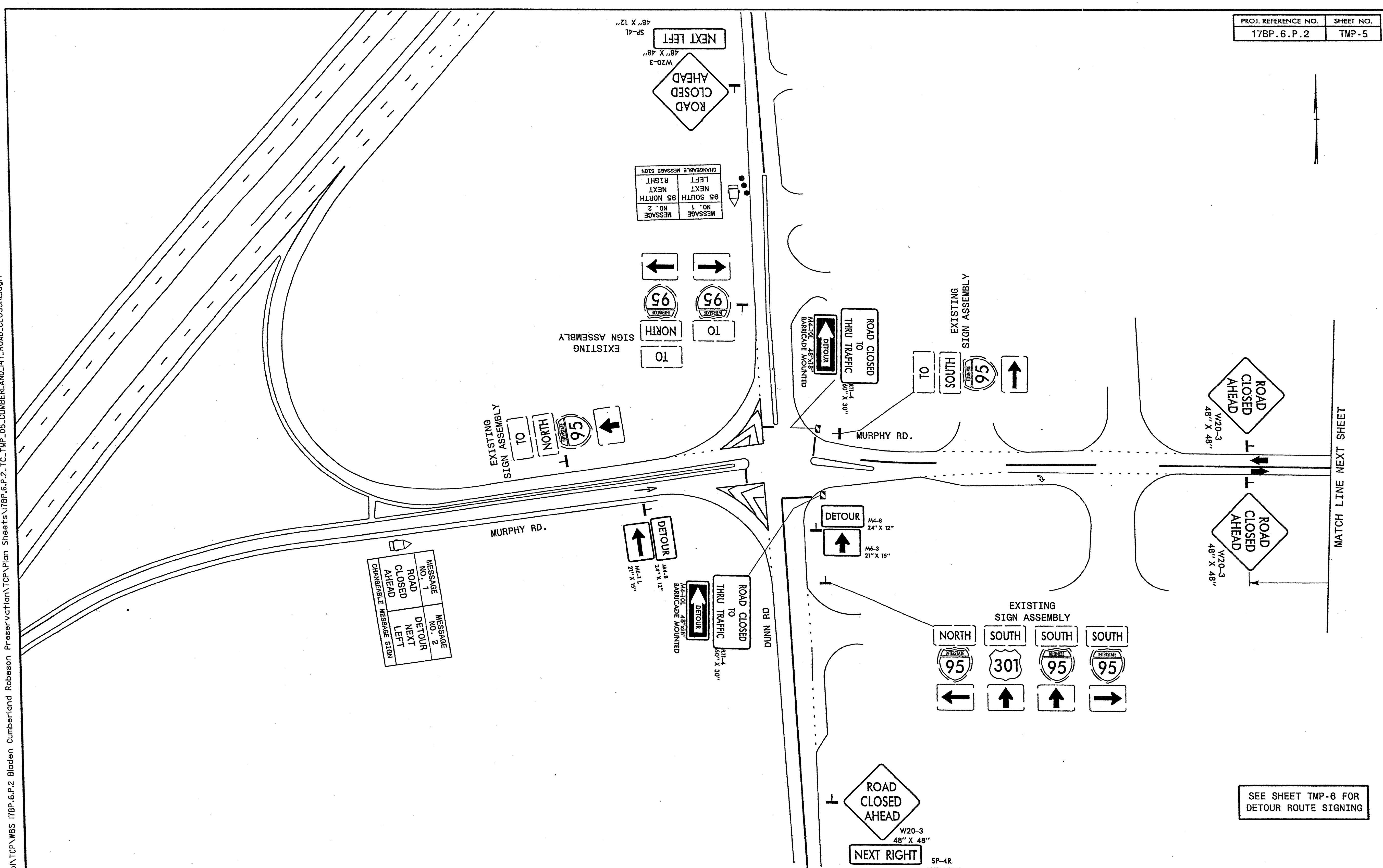
<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	<p>APPROVED: _____ DATE: _____</p> <p><i>Betsy L. Watson</i> 12/15/11</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p><b>CUMBERLAND BRIDGE #147</b></p> <p><b>FLAGGER CONTROLLED LANE CLOSURE EASTBOUND WORK AREA</b></p>
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 Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ 		<b>CUMBERLAND BRIDGE #147</b>  <b>FLAGGER CONTROLLED</b> <b>LANE CLOSURE</b> <b>WESTBOUND WORK AREA</b>
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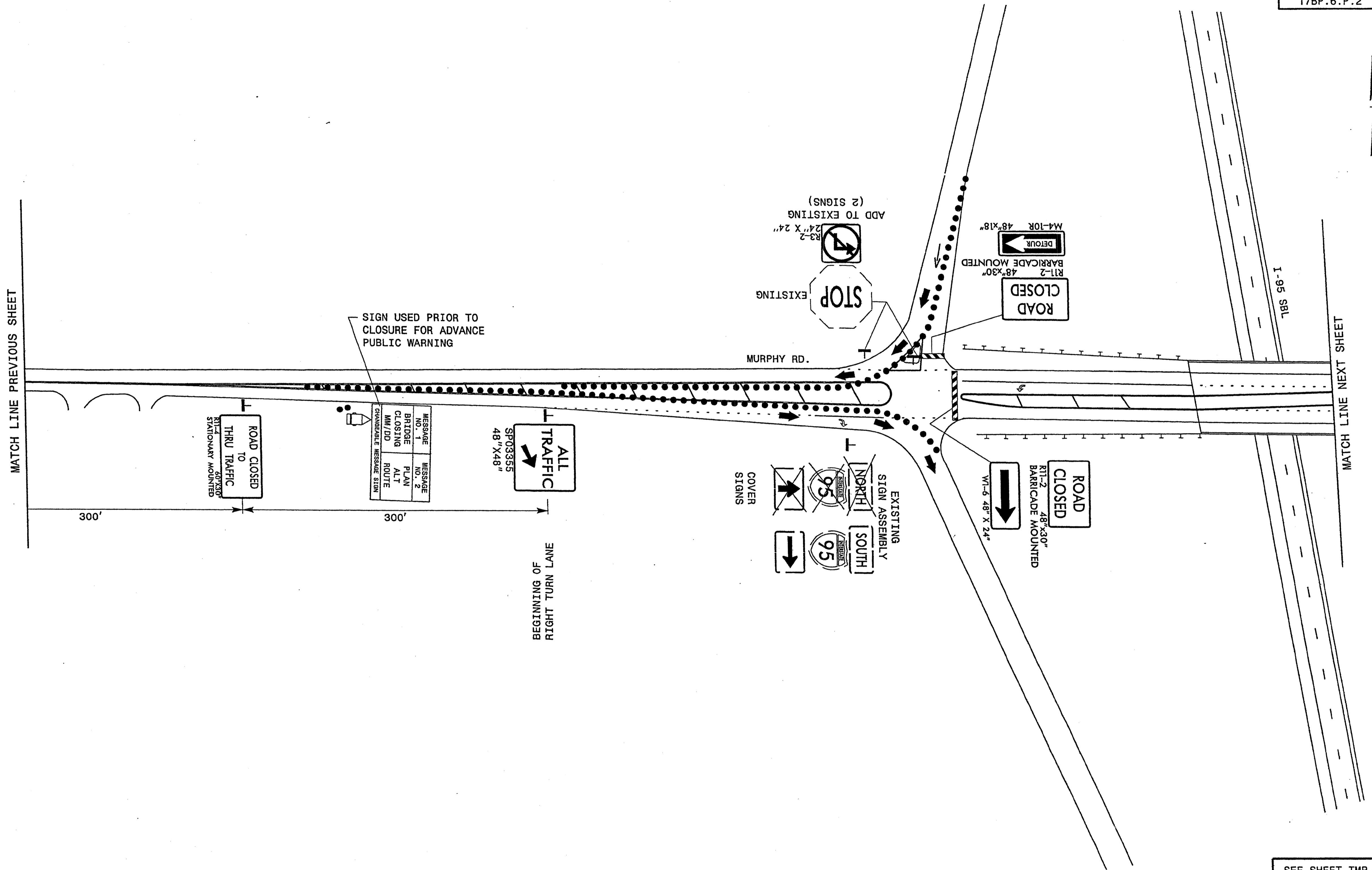
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MESSAGE NO. 2	DETOUR NEXT LEFT	CHANGEABLE MESSAGE SIGN

MESSAGE NO. 1	95 SOUTH	NEXT LEFT
MESSAGE NO. 2	95 NORTH	NEXT RIGHT

SEE SHEET TMP-6 FOR  
DETOUR ROUTE SIGNING

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	SEAL: _____ 12/15/11		

12/14/2011  
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 gkorogorog

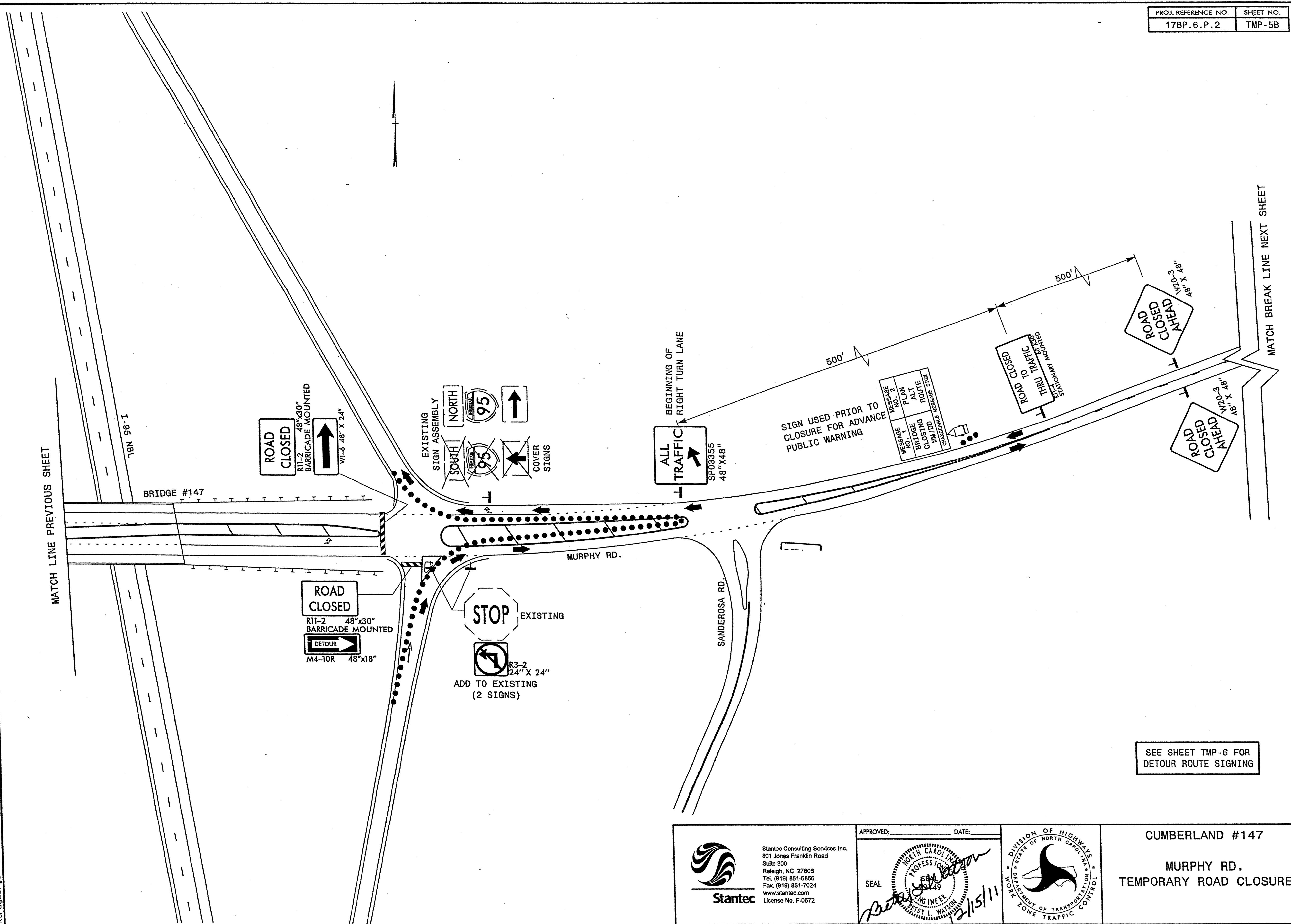


CHANGEABLE MESSAGE SIGN	
MESSAGE NO. 1	MESSAGE NO. 2
BRIDGE CLOSING	PLAN ALT ROUTE
MM/DD	MM/DD

SEE SHEET TMP-6 FOR  
DETOUR ROUTE SIGNING

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 gkar@stantec.com

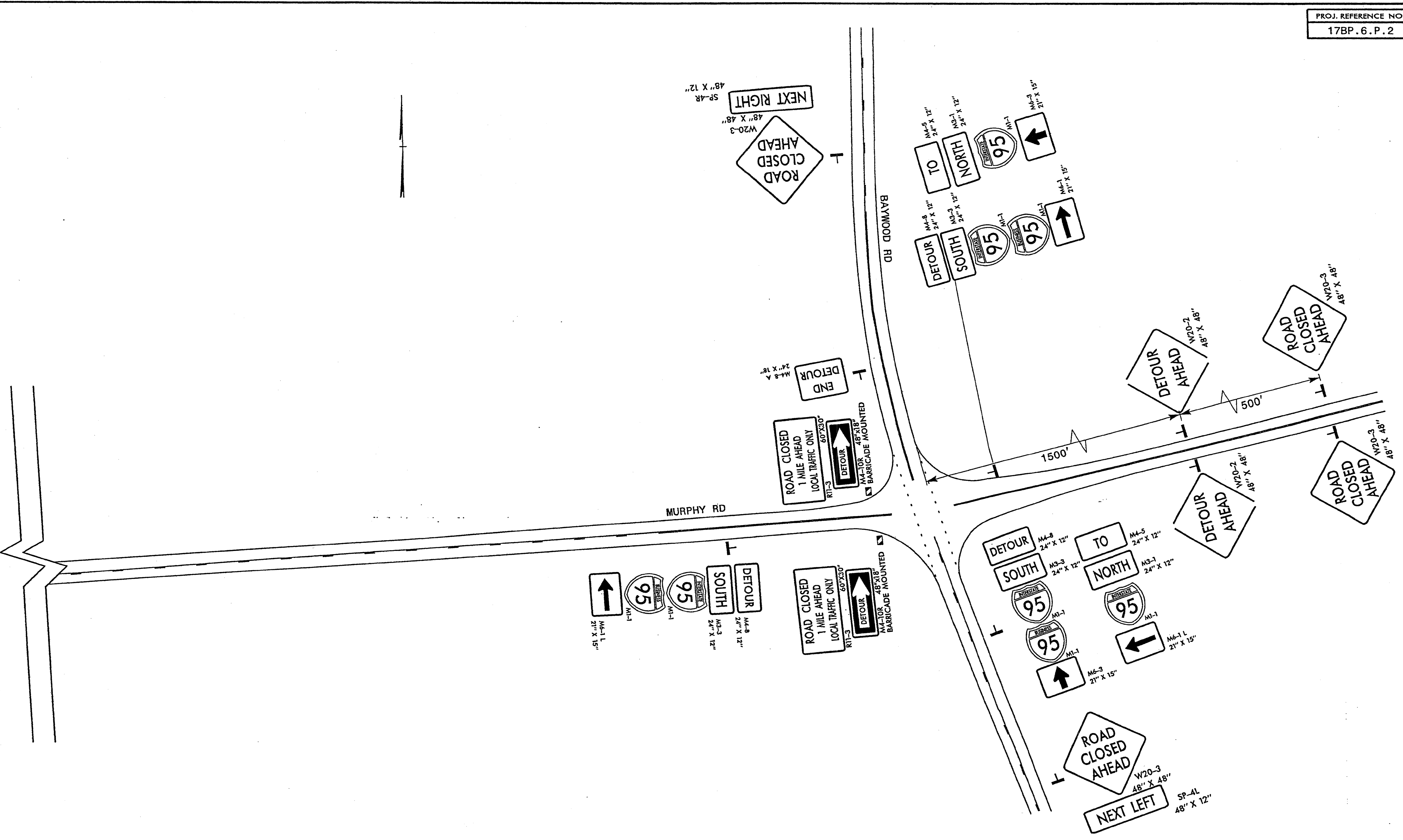


SEE SHEET TMP-6 FOR  
DETOUR ROUTE SIGNING


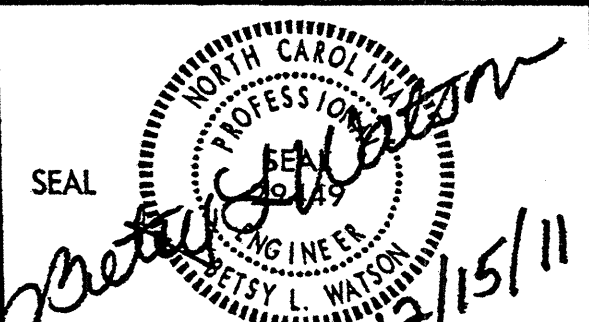
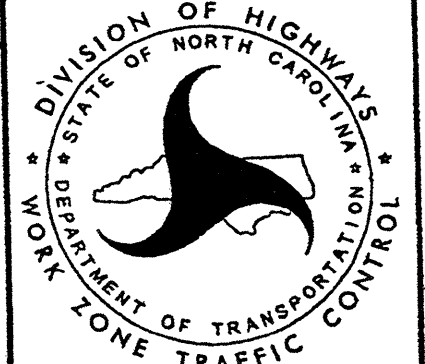
<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		<p>CUMBERLAND #147</p> <p>MURPHY RD. TEMPORARY ROAD CLOSURE</p>
	SEAL Betsy L. Watson 11/15/11		

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MATCH BREAK LINE PREVIOUS SHEET

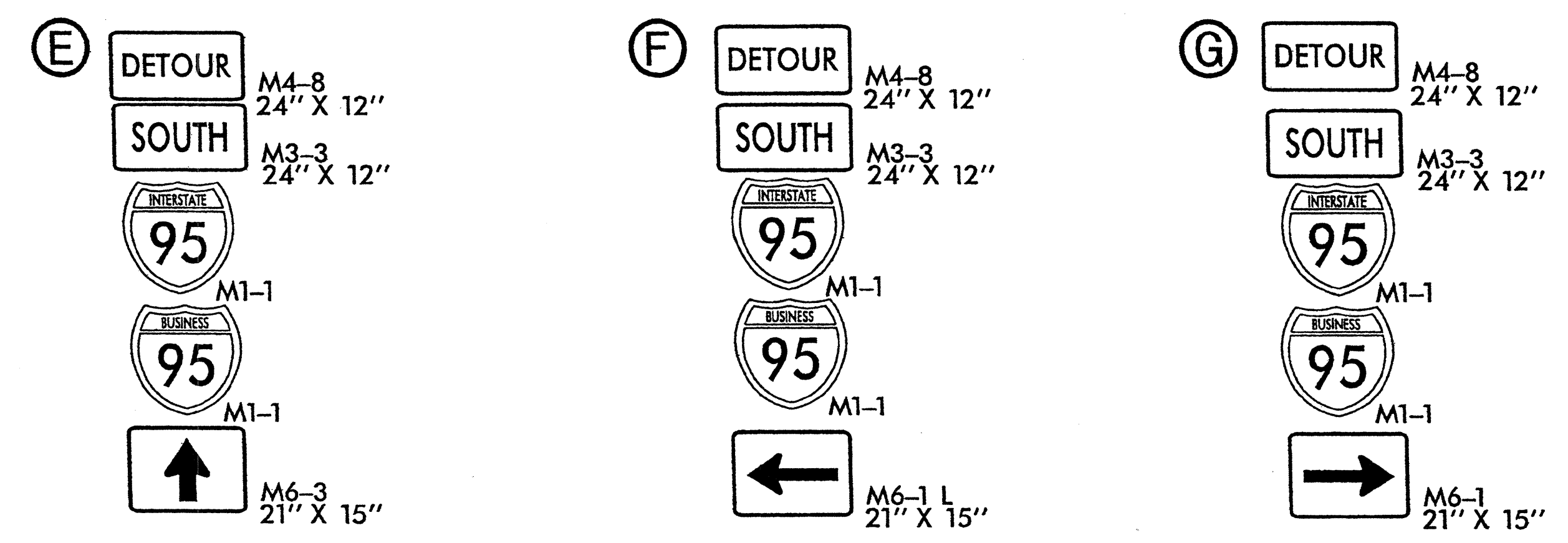
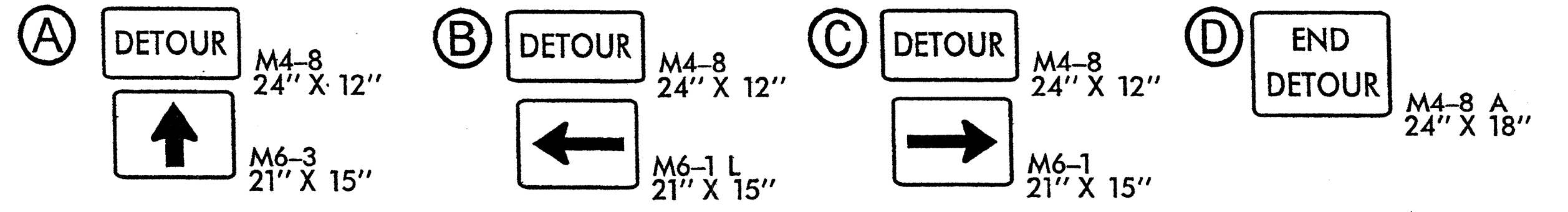
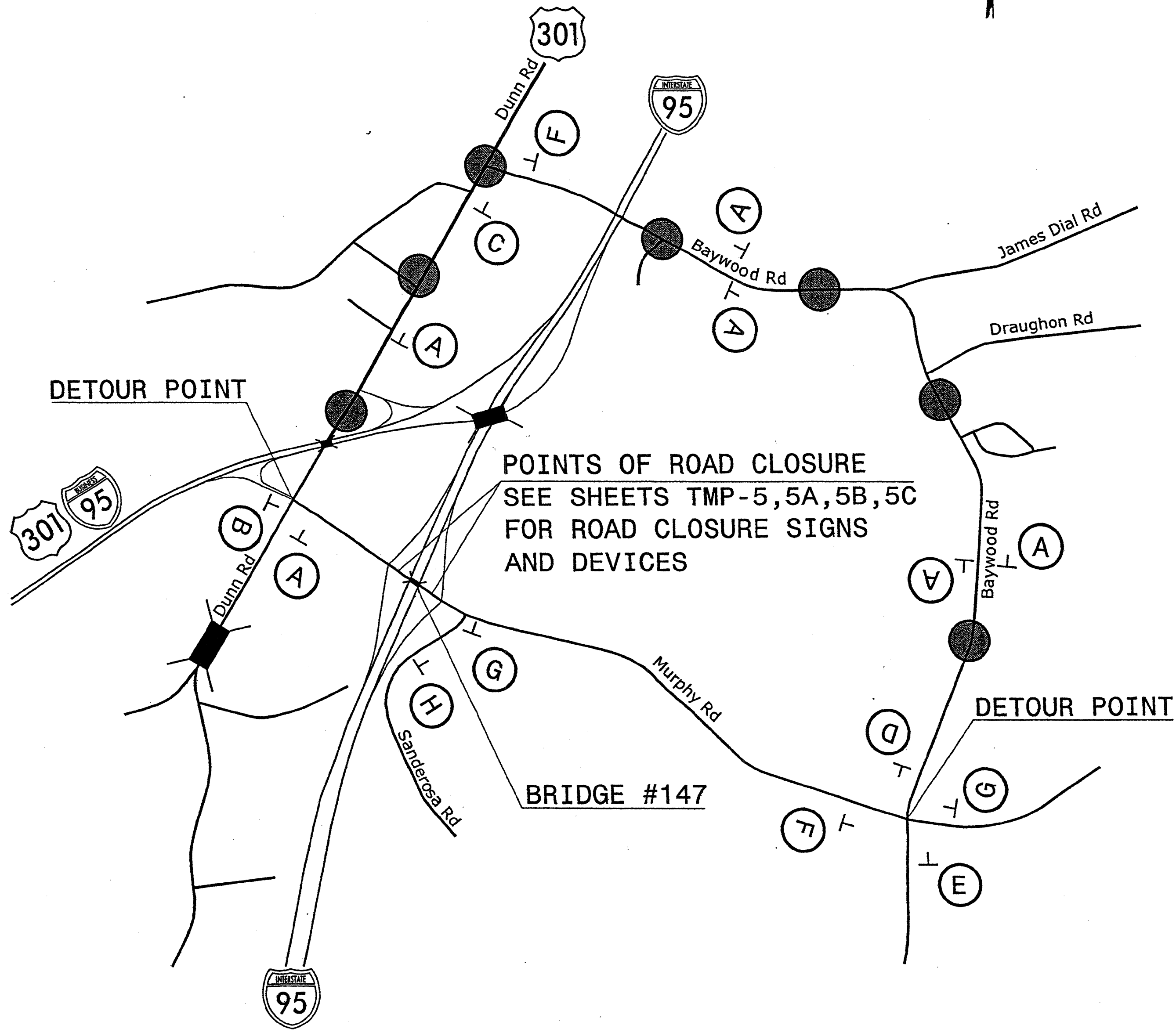


SEE SHEET TMP-6 FOR  
DETOUR ROUTE SIGNING

 Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ 		CUMBERLAND #147  MURPHY RD. TEMPORARY ROAD CLOSURE
	SEAL: _____ 12/15/11		



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<p>         Stantec Consulting Services Inc.          801 Jones Franklin Road          Suite 300          Raleigh, NC 27606          Tel. (919) 851-6866          Fax. (919) 851-7024          www.stantec.com          License No. F-0672       </p>	APPROVED: _____ DATE: _____ 		<b>CUMBERLAND CO. BRIDGE #147</b>  <b>MURPHY RD.</b> <b>DETOUR ROUTE SIGNING</b>
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## STANDARD NOTES

### DESIGN DATA:

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

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

### CONCRETE:

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

### CONCRETE CHAMFERS:

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

### DOWELS:

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

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

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

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

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

### REINFORCING STEEL:

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

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

### STRUCTURAL STEEL:

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

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

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

### HANDRAILS AND POSTS:

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

### SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN