





# MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

## SUMMARY OF QUANTITIES

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
1/8/2014

ROUTE STATE  
VAR. MO  
DISTRICT SHEET NO.  
KC 3

COUNTY  
VARIOUS

JOB NO.  
J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
VARIES

SHEET NO.	ROUTE	TEMPORARY PAVEMENT MARKING LOCATION	4" S.W.	4" S.Y.	4" S.W.	4" S.Y.	TURN ARROW	TURN ARROW	DESCRIPTION
			(LF)	(LF)	REMOVAL (LF)	REMOVAL (LF)	(LEFT) (EA)	(LEFT) REMOVAL (EA)	
19-21	NW WARD RD	NW WARD RD TO NW BLUE PKWY SIGNAL	442	438	442	438			PHASE 1
19-21	NW BLUE PKWY	NW BLUE PKWY LEG TO NW WARD RD SIGNAL	152	245	152	245			PHASE 1
19-21	NW BLUE PKWY	NW WARD/BLEU PKWY SIGNAL TO FIRST NW BLUE PKWY RAMP SIGNAL		505		505			PHASE 1
19-21	NW BLUE PKWY	FIRST NW BLUE PRKY RAMP SIGNAL TO SECOND NW BLUE PKWY RAMP SIGNAL	390	1053	390	1053	1	1	PHASE 1
19-21	NW BLUE PKWY	SECOND NW BLUE PKWY SIGNAL TO NORTH END	338	88	338	88			PHASE 1
19-21	NW BLUE PKWY	EB RAMP TO NW BLUE PKWY		535		535			PHASE 1
19-21	NW BLUE PKWY	WB RAMP TO NW BLUE PKWY	77	766	77	766			PHASE 1
		SUBTOTALS:	1399	3630	1399	3630			
		USE:	1399	3630		5029	1	1	

SHEET NO.	ROUTE	PERMANENT PAVEMENT MARKING LOCATION	6" S.W.	6" I.W.	6" S.Y.	TURN ARROW	6" S.W.	6" I.W.	6" S.Y.	TURN ARROW	DESCRIPTION
			(LF)	(LF)	(LF)	(LEFT) (EA)	REMOVAL (LF)	REMOVAL (LF)	REMOVAL (LF)	(LEFT) REMOVAL (EA)	
37-39	NW WARD RD	NW WARD RD TO NW BLUE PKWY SIGNAL	373	398			373	398			PHASE 1
37-39	NW BLUE PKWY	NW BLUE PKWY LEG TO NW WARD RD SIGNAL	190	151		1	190	151		1	PHASE 1
37-39	NW BLUE PKWY	NW WARD/BLEU PKWY SIGNAL TO FIRST NW BLUE PKWY RAMP SIGNAL		524			524				PHASE 1
37-39	NW BLUE PKWY	FIRST NW BLUE PRKY RAMP SIGNAL TO SECOND NW BLUE PKWY RAMP SIGNAL	835	1209		2	835	1209		2	PHASE 1
37-39	NW BLUE PKWY	SECOND NW BLUE PKWY SIGNAL TO NORTH END		180			180				PHASE 1
37-39	NW BLUE PKWY	EB RAMP TO NW BLUE PKWY	202				202				PHASE 1
37-39	NW BLUE PKWY	WB RAMP TO NW BLUE PKWY	433	140			433	140			PHASE 1
		SUBTOTALS:	2033	2602	0	3	2033	2602	0	3	
		USE:		2684	0	3		2684		3	

A25142

SHEET NO.	ROUTE	TEMPORARY PAVEMENT MARKING LOCATION	4" S.W.	4" S.Y.	4" S.W.	4" S.Y.	24" TEMP.	24" TEMP.	TURN ARROW	TURN ARROW	DESCRIPTION
			(LF)	(LF)	REMOVAL (LF)	REMOVAL (LF)	STOP BAR (LF)	STOP BAR REMOVAL (LF)	(LEFT) (EA)	(LEFT) REMOVAL (EA)	
17-18	NW BLUE PKWY	SOUTH END GOING NB TO FIRST SIGNAL	389		389						PHASE 1
17-18	NW BLUE PKWY	FIRST SIGNAL TO FIRST NB CROSSOVER	265	283	265	283					PHASE 1
17-18	NW BLUE PKWY	FIRST CROSSOVER	97	94	97	94					PHASE 1
17-18	NW BLUE PKWY	FIRST CROSSOVER TO SECOND SIGNAL	158	573	158	573	24	24	1	1	PHASE 1
17-18	NW BLUE PKWY	SECOND SIGNAL TO NORTH END		180		180					PHASE 1
17-18	NW BLUE PKWY	EB RAMP TO NW BLUE PKWY		519		519					PHASE 1
17-18	NW BLUE PKWY	WB RAMP TO NW BLUE PKWY		922		922					PHASE 1
		SUBTOTALS:	909	2571	909	2571					
		USE:	909	2571	3480						

SHEET NO.	ROUTE	PERMANENT PAVEMENT MARKING LOCATION	6" S.W.	6" I.W.	6" S.Y.	STOP BAR	TURN ARROW	6" S.W.	6" I.W.	6" S.Y.	STOP BAR	TURN ARROW	DESCRIPTION
			(LF)	(LF)	(LF)	BAR (LF)	(LEFT) (EA)	REMOVAL (LF)	REMOVAL (LF)	REMOVAL (LF)	REMOVAL (LF)	(LEFT) REMOVAL (EA)	
35-36	NW BLUE PKWY	SOUTH END GOING NB TO FIRST SIGNAL		304					304				PERMENANT
35-36	NW BLUE PKWY	FIRST SIGNAL TO SECOND NB SIGNAL	28	639	348		1	28	639	348		1	PERMENANT
35-36	NW BLUE PKWY	SECOND SIGNAL TO NORTH END		180					180				PERMENANT
35-36	NW BLUE PKWY	EB RAMP TO NW BLUE PKWY	202					202					PERMENANT
35-36	NW BLUE PKWY	WB RAMP TO NW BLUE PKWY	432	156				432	156				PERMENANT
		SUBTOTALS:	662	1279	348	0	1	662	1279	348		1	
		USE:		982	348	0	1		1330			1	

A25131

NOTE: I.W. QUANTITIES ARE NOT DIVIDED BY 4 IN THE TOTALS.  
I.W. QUANTITIES ARE DIVIDED BY 4 IN THE "USE" TOTALS.

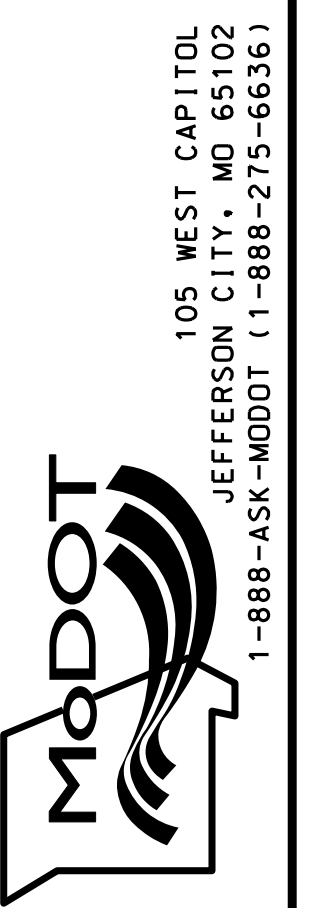
NOTE: FOR REFERENCE ONLY. USE GRAND TOTAL FOR PAY QUANTITY ON SHEET 3 OF 11

SUMMARY SHEET  
SHEET 1 OF 11

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REV.

# MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

## SUMMARY OF QUANTITIES

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
1/8/2014

ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	3

COUNTY  
VARIOUS  
JOB NO.  
J4P2191B  
CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
VARIES

TEMPORARY PAVEMENT MARKING									
SHEET NO.	ROUTE	LOCATION	4" S.W. (LF)	4" S.Y. (LF)	4" S.W. REMOVAL (LF)	4" S.Y. REMOVAL (LF)	24" TEMP. STOP BAR (LF)	24" TEMP STOP BAR REMOVAL (LF)	DESCRIPTION
22-23	F	A25482 BRIDGE PROJECT	328	967	328	967	22		PHASE 1
24-25	F	A25482 BRIDGE PROJECT	328		328	967		22	PHASE 2
SUBTOTALS:			656	967	656	967	22	22	
USE:			656	967	1623		22	22	

PERMANENT PAVEMENT MARKING							
SHEET NO.	ROUTE	LOCATION	6" S.Y. (LF)	6" I.Y. (LF)	6" S.Y. REMOVAL (LF)	6" I.Y. REMOVAL (LF)	DESCRIPTION
40-41	F	A25482 BRIDGE PROJECT	785	1744	785	1744	PERMANENT
SUBTOTALS:			785	1744	785	1744	
USE:			785	436	1221		

A25482

TEMPORARY PAVEMENT MARKING							
SHEET NO.	ROUTE	LOCATION	4" S.W. (LF)	4" S.Y. (LF)	4" S.W. REMOVAL (LF)	4" S.Y. REMOVAL (LF)	DESCRIPTION
26	W/Z	BRIDGE A41531	500		500		PHASE 1
27	W/Z	BRIDGE A41531	500		500		PHASE 2
SUBTOTALS:			1000	0	1000	0	
USE:			1000	0	1000		

PERMANENT PAVEMENT MARKING							
SHEET NO.	ROUTE	LOCATION	6" S.Y. (LF)	6" I.Y. (LF)	6" S.Y. REMOVAL (LF)	6" I.Y. REMOVAL (LF)	DESCRIPTION
42	W/Z	BRIDGE A41531	600		600		PERMANENT
SUBTOTALS:			600	0	600	0	
USE:			600		600		

A41531

TEMPORARY PAVEMENT MARKING							
SHEET NO.	ROUTE	LOCATION	4" S.W. (LF)	4" S.Y. (LF)	4" S.W. REMOVAL (LF)	4" S.Y. REMOVAL (LF)	DESCRIPTION
9-12	I-70 WB	BRIDGE A01672	2439	3281	2439	3281	PHASE 1
13-16	I-70 WB	BRIDGE A01672	2475	1632	2475	1632	PHASE 2
9-12	I-70 EB	BRIDGE L01463	2648	1917	2648	1917	PHASE 1
13-16	I-70 EB	BRIDGE L01463	2255	3602	2255	3602	PHASE 2
SUBTOTALS:			9817	10432	9817	10432	
USE:			9817	10432	20249		

PERMANENT PAVEMENT MARKING									
SHEET NO.	ROUTE	LOCATION	6" S.Y. (LF)	6" S.W. (LF)	6" I.W. (LF)	6" S.W. REMOVAL (LF)	6" I.W. REMOVAL (LF)	6" S.Y. REMOVAL (LF)	DESCRIPTION
32-34	I-70 WB	BRIDGE A01672	1644	2449	499	2449	499	1644	PERMANENT
32-34	I-70 EB	BRIDGE L01463	1631	2270	499	2270	499	1631	PERMANENT
SUBTOTALS:			3275	4719	499	4719	499	3275	
USE:			3275	4844		8119			

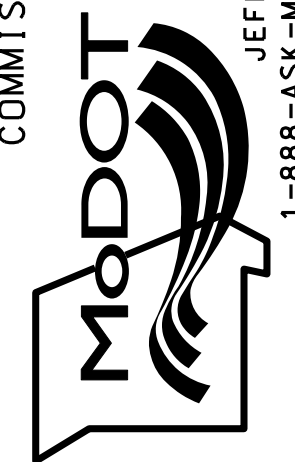
A01672/L01463

DESCRIPTION

DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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NOTE: I.W. QUANTITIES ARE NOT DIVIDED BY 4 IN THE TOTALS.  
I.W. QUANTITIES ARE DIVIDED BY 4 IN THE "USE" TOTALS.

NOTE: FOR REFERENCE ONLY. USE GRAND TOTAL FOR PAY QUANTITY ON SHEET 3 OF 11

SUMMARY SHEET  
SHEET 2 OF 11

REV.

# MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
1/8/2014

ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 3

COUNTY  
VARIOUS

JOB NO.  
J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
VARIES

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

TEMPORARY PAVEMENT MARKING SUMMARY									
SHEET NO.	ROUTE	4" S.W.	4" S.Y.	24" STOP BAR	4" TEMP PVMT MARKING REMOVAL	24" STOP BAR REMOVAL	TURN ARROW (LEFT) (EA)	TURN ARROW (LEFT) REMOVAL (EA)	DESCRIPTION
		(LF)	(LF)	(LF)	(LF)	(LF)	(EA)	(EA)	
17-18	NW BLUE PKWY OVER I-470	909	2571		3480		1	1	A25131
19-21	NW BLUE PKWY OVER I-470	1399	3630		5029		1	1	A25142
22-25	RT. F OVER SNI-A-BAR CREEK	656	967	22	1623	22			A25482
9-16	I-70WB/EB OVER SNI-A-BAR CREEK	9817	10432		20249				A01672/L01463
26-27	RT. F/Z OVER MO-7	1000			1000				A41531
28-29	MO-7 OVER BIG CREEK								L00232 (CLOSURE)
GRAND TOTALS:		13781	17600	22	31381	22			
USE:		13781	17600	22	31403 *		2	2 *	

PERMANENT PAVEMENT MARKING SUMMARY									
SHEET NO.	ROUTE	6" S.W.	6" I.W.	6" S.Y.	6" I.Y.	TURN ARROW (LEFT) (EA)	6" PERM. PVMT. MARKING REMOVAL (LF)	TURN ARROW (LEFT) REMOVAL (EA)	DESCRIPTION
		(LF)	(LF)	(LF)	(LF)	(EA)	(LF)	(EA)	
35-36	NW BLUE PKWY OVER I-470	662	1279	348		1	1330	1	A25131
37-39	NW BLUE PKWY OVER I-470	2033	2602			3	2684	3	A25142
40-41	RT. F OVER SNI-A-BAR CREEK			785	1744		1221		A25482
32-34	I-70WB/EB OVER SNI-A-BAR CREEK	4719	499	3275			8119		A01672/L01463
42	RT. F/Z OVER MO-7			600			600		A41531
28-29	MO-7 OVER BIG CREEK								L00232 (CLOSURE)
GRAND TOTALS:		7414	4380	5008	1744	4	13954	4	
USE:		8509		5444		4	45357 **	6 **	

\* THIS QUANTITY WILL BE COMBINED WITH THE PERMANENT PAVEMENT MARKING REMOVAL QUANTITY TO PRODUCE ONE PAY ITEM.  
 \*\* THIS QUANTITY INCLUDES THE PAVEMENT MARKING REMOVAL AND TURN ARROW REMOVAL QUANTITY FOR BOTH PERMANENT AND TEMPORARY PAVEMENT MARKING.

CONTRACTOR FURNISHED SURVEYING
LUMP SUM - 1

MOBILIZATION
LUMP SUM - 1

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.









Table with columns: SIGN, SIZE (IN.), AREA (SQ. FT.), QTY, TOTAL AREA, QTY RELOC, TOTAL RELOC AREA, DESCRIPTION. Includes sections for WARNING SIGNS, GUIDE SIGNS, REGULATORY SIGNS, and MISCELLANEOUS SIGNS.

Table with columns: SIGN, SIZE (IN.), AREA (SQ. FT.), QTY, TOTAL AREA, QTY RELOC, TOTAL RELOC AREA, DESCRIPTION. Includes sections for WARNING SIGNS, GUIDE SIGNS, REGULATORY SIGNS, and MISCELLANEOUS SIGNS.

NOTE: QUANTITIES ON THIS SHEET ARE NOT PAY ITEM VALUES AND ARE FOR REFERENCE ONLY
NOTE: SEE "PAY TOTAL" QUANTITY SHEET FOR PAY ITEM VALUES

Table with columns: ITEM NUMBER, TOTAL QTY, DESCRIPTION. Lists various traffic signs and their quantities, including impact attenuators, channelizers, and regulatory signs.

Administrative information including: DATE PREPARED (12/16/2013), ROUTE (VAR.), STATE (MO), DISTRICT (KC), SHEET NO. (3), COUNTY (VARIOUS), JOB NO. (J4P2191B), CONTRACT ID., PROJECT NO., BRIDGE NO. (A25142), MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION logo, and address (105 WEST CAPITOL JEFFERSON CITY, MO 65102).

A25142 SUBTOTALS SUMMARY SHEET SHEET 7 OF 11

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION	SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
<b>WARNING SIGNS</b>								<b>GUIDE SIGNS</b>							
WO1-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)	WO20-5a	48X48	16.00					2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO1-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)	WO20-6a	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED
WO1-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)	WO20-7a	48X48	16.00					FLAGGER (SYMBOL) WITH FLAGS
WO1-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)	WO21-2	36X36	9.00					FRESH OIL
WO1-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)	WO21-5b	48X48	16.00					SHOULDER WORK AHEAD
WO1-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)	WO22-1	48X48	16.00					BLASTING ZONE AHEAD
WO1-4L	48X48	16.00					REVERSE CURVE (SYMBOL LEFT ARROW)	WO22-2	42X36	10.50					TURN OFF 2-WAY RADIO AND PHONE
WO1-4R	48X48	16.00	1	16			REVERSE CURVE (SYMBOL RIGHT ARROW)	WO22-3	42X36	10.50					END BLASTING ZONE
WO1-4BL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)	WO22-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)
WO1-4br	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)	<b>REGULATORY SIGNS</b>							
WO1-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)	SPECIAL	36X36	9.00					FRESH OIL/LOOSE GRAVEL
WO1-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)	E05-1	36X48	12.00					GORE EXIT
WO1-6	60X30	12.50					HORIZONTAL ARROW (SYMBOL)	E05-2	48X36	12.00					EXIT OPEN
WO1-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)	E05-2a	48X36	12.00					EXIT CLOSED
WO1-7	60X30	12.50					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)	G020-1	60X24	10.00					ROAD WORK NEXT XX MILES
WO1-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)	G020-2	48X24	8.00	2	16			END ROAD WORK
WO1-8	18X24	3.00					CHEVRON (SYMBOL)	G020-4	36X18	4.50					PILOT CAR FOLLOW ME
WO1-8a	30X36	7.50					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)	SPECIAL	42X30	8.75					PLEASE WAIT FOR PILOT CAR
WO3-1	48X48	16.00					STOP AHEAD (SYMBOL)	G020-5aP	36X24	6.00	2	12			WORK ZONE (PLAQUE)
WO3-2	48X48	16.00					YIELD AHEAD (SYMBOL)	MO4-8a	24X18	3.00					END DETOUR
WO3-3	48X48	16.00	2	32			SIGNAL AHEAD (SYMBOL)	MO4-9L	48X36	12.00					DETOUR (LEFT ARROW)
WO3-4	48X48	16.00					BE PREPARED TO STOP	MO4-9R	48X36	12.00					DETOUR (RIGHT ARROW)
WO3-5	48X48	16.00	2	32			SPEED LIMIT AHEAD	MO4-10L	48X18	6.00					DETOUR (ARROW LEFT)
WO4-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)	MO4-10R	48X18	6.00					DETOUR (ARROW RIGHT)
WO4-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)	<b>MISCELLANEOUS SIGNS</b>							
WO5-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS	R1-1	48X48	13.25					STOP
WO5-3	48X48	16.00					ONE LANE BRIDGE	R1-2	48 TRI.	6.93					YIELD
WO5-5	48X48	16.00					NARROW LANES	R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)
WO6-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)	R1-3	20X9	1.25					X-WAY (PLAQUE)
WO6-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)	R2-1	36X48	12.00	4	48			SPEED LIMIT XX
WO6-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)	R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)
WO7-3a	30X24	5.00					NEXT XX MILES (PLAQUE)	R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)
WO8-1	48X48	16.00					BUMP	R3-3	36X36	9.00					NO TURNS
WO8-2	48X48	16.00					DIP	R3-4	48X48	16.00					NO U-TURN (SYMBOL)
WO8-3	48X48	16.00					PAVEMENT ENDS	R3-7L	30X30	6.25					LEFT LANE MUST TURN LEFT
WO8-4	48X48	16.00					SOFT SHOULDER	R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT
WO8-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)	R4-1	36X48	12.00					DO NOT PASS
WO8-6	48X48	16.00					TRUCK CROSSING WITH FLAGS	R4-2	36X48	12.00					PASS WITH CARE
WO8-6c	48X48	16.00					TRUCK ENTRANCE	R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)
WO8-7	36X36	9.00					LOOSE GRAVEL	R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)
WO8-9	48X48	16.00					LOW SHOULDER	R5-1	30X30	6.25					DO NOT ENTER
WO8-11	48X48	16.00					UNEVEN LANES	R5-1a	36X24	6.00					WRONG WAY
WO8-12	48X48	16.00					NO CENTER LINE	R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)
WO10-1	42 RND.	9.62					RAILROAD CROSSING	R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)
WO12-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)	R6-2L	24X30	5.00					ONE WAY (LEFT)
WO12-2	48X48	16.00					LOW CLEARANCE (SYMBOL)	R6-2R	24X30	5.00					ONE WAY (RIGHT)
WO12-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)	R10-6	24X36	6.00	2	12			STOP HERE ON RED (45° ARROW)
WO12-2a	84X24	14.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)	R11-2	48X30	10.00					ROAD CLOSED
WO8-15	48X48	16.00					GROOVED PAVEMENT	R11-3a	60X30	12.50					ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
WO8-15p	30X24	5.00					MOTORCYCLE (PLAQUE)	R11-4	60X30	12.50					ROAD CLOSED TO THRU TRAFFIC
WO8-17	48X48	16.00					SHOULDER DROP-OFF (SYMBOL)	S4-4	36X15	3.75					WHEN FLASHING
WO8-17p	30X24	5.00					SHOULDER DROP-OFF (PLAQUE)	CONST-3A	60X48	20.00					FINE SIGN
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD	CONST-3X	56X12	4.67					SPEEDING/PASSING (PLATE)
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD	<b>MISCELLANEOUS SIGNS</b>							
WO13-1	30X30	6.25					ADVISORY SPEED (PLAQUE)	SPECIAL	36X48	12.00					POINT OF PRESENCE
WO16-2	30X24	5.00					XXX FEET (PLAQUE)	SPECIAL	96X48	32.00					POINT OF PRESENCE
WO16-3	30X24	5.00					X MILE (PLAQUE)	CONST-7-48	48X24	8.00					RATE OUR WORK ZONE
WO20-1	48X48	16.00	2	32			ROAD/BRIDGE/RAMP WORK AHEAD	CONST-7-72	72X36	18.00					RATE OUR WORK ZONE
WO20-2	48X48	16.00					DETOUR AHEAD	<b>CONSTRUCTION SIGNS TOTAL</b>							
WO20-3	48X48	16.00					ROAD CLOSED AHEAD	616-10.05							
WO20-4	48X48	16.00	2	32			ONE LANE ROAD AHEAD	616-10.10							
WO20-5	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED AHEAD	<b>RELOCATED SIGNS TOTAL</b>							

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NOTE: SEE "PAY TOTAL" QUANTITY SHEET FOR PAY ITEM VALUES

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR (8 SAND BARRELS)
6122009		IMPACT ATTENUATOR (9 SAND BARRELS)
6122010		IMPACT ATTENUATOR (10 SAND BARRELS)
6122012	2	IMPACT ATTENUATOR (12 SAND BARRELS)
6122014		IMPACT ATTENUATOR (14 SAND BARRELS)
6122017		IMPACT ATTENUATOR (17 SAND BARRELS)
6122019		IMPACT ATTENUATOR (19 SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030	2	IMPACT ATTENUATOR ARRAY (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161007		SPEED LIMIT AND STROBE LIGHT ASSEMBLY
6161008		ADVANCED WARNING RAIL SYSTEM
6161009	10	FLAG ASSEMBLY
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONES)
6161024		CHANNELIZER (TRIM LINE) WITH LIGHT
6161025	10	CHANNELIZER (TRIM LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161027		CHANNELIZER (VERTICAL PANEL) WITH LIGHT
6161028		CHANNELIZER
6161030		TYPE III MOVEABLE BARRICADE
6161031		TYPE III MOVEABLE BARRICADE WITH LIGHT
6161033		DIRECTION INDICATOR BARRICADE
6161034		DIRECTION INDICATOR BARRICADE, WITH LIGHT
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161051		WARNING LIGHT, TYPE A
6161052		WARNING LIGHT, TYPE B
6161053		WARNING LIGHT, TYPE C
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/RETAINED
6161100		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/COMMISSION RETAINED
6173600D	225	CONTRACTOR FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6173602B		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY TRAFFIC BARRIER
6174000A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
6175010A	225	RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
9019400		TEMPORARY LIGHTING
9029400		TEMPORARY TRAFFIC SIGNALS
6162000	2	WORK ZONE TRAFFIC SIGNALS

THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

DATE PREPARED: 2/13/2014

ROUTE: VAR. MO  
DISTRICT: KC SHEET NO. 3

COUNTY: VARIOUS  
JOB NO.: J4P2191B  
CONTRACT ID.

PROJECT NO.

BRIDGE NO.: A25482

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-278-6636)



REVISIED

A25482 SUBTOTALS  
SUMMARY SHEET  
SHEET 8 OF 11

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
<b>WARNING SIGNS</b>							
WO1-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00					REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00					REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4BL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4br	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-6	60X30	12.50					HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-8	18X24	3.00					CHEVRON (SYMBOL)
WO1-8a	30X36	7.50					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00					STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00					YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00	2	32			SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00					BE PREPARED TO STOP
WO3-5	48X48	16.00	2	32			SPEED LIMIT AHEAD
WO4-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)
WO5-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00					ONE LANE BRIDGE
WO5-5	48X48	16.00					NARROW LANES
WO6-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00					NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00					BUMP
WO8-2	48X48	16.00					DIP
WO8-3	48X48	16.00					PAVEMENT ENDS
WO8-4	48X48	16.00					SOFT SHOULDER
WO8-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00					TRUCK CROSSING WITH FLAGS
WO8-6c	48X48	16.00					TRUCK ENTRANCE
WO8-7	36X36	9.00					LOOSE GRAVEL
WO8-9	48X48	16.00					LOW SHOULDER
WO8-11	48X48	16.00					UNEVEN LANES
WO8-12	48X48	16.00					NO CENTER LINE
WO10-1	42 RND.	9.62					RAILROAD CROSSING
WO12-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00					LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO8-15	48X48	16.00					GROOVED PAVEMENT
WO8-15p	30X24	5.00					MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00					SHOULDER DROP-OFF (SYMBOL)
WO8-17p	30X24	5.00					SHOULDER DROP-OFF (PLAQUE)
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25					ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00					XXX FEET (PLAQUE)
WO16-3	30X24	5.00					X MILE (PLAQUE)
WO20-1	48X48	16.00	2	32			ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00					DETOUR AHEAD
WO20-3	48X48	16.00					ROAD CLOSED AHEAD
WO20-4	48X48	16.00	2	32			ONE LANE ROAD AHEAD
WO20-5	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED AHEAD

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
WO20-5a	48X48	16.00					2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00					FLAGGER (SYMBOL) WITH FLAGS
WO21-2	36X36	9.00					FRESH OIL
WO21-5b	48X48	16.00					SHOULDER WORK AHEAD
WO22-1	48X48	16.00					BLASTING ZONE AHEAD
WO22-2	42X36	10.50					TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50					END BLASTING ZONE
WO22-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)
<b>GUIDE SIGNS</b>							
SPECIAL	36X36	9.00					FRESH OIL/LOOSE GRAVEL
E05-1	36X48	12.00					GORE EXIT
E05-2	48X36	12.00					EXIT OPEN
E05-2a	48X36	12.00					EXIT CLOSED
G020-1	60X24	10.00					ROAD WORK NEXT XX MILES
G020-2	48X24	8.00	2	16			END ROAD WORK
G020-4	36X18	4.50					PILOT CAR FOLLOW ME
SPECIAL	42X30	8.75					PLEASE WAIT FOR PILOT CAR
G020-5aP	36X24	6.00	2	12			WORK ZONE (PLAQUE)
M04-8a	24X18	3.00					END DETOUR
M04-9L	48X36	12.00					DETOUR (LEFT ARROW)
M04-9R	48X36	12.00					DETOUR (RIGHT ARROW)
M04-10L	48X18	6.00					DETOUR (ARROW LEFT)
M04-10R	48X18	6.00					DETOUR (ARROW RIGHT)
<b>REGULATORY SIGNS</b>							
R1-1	48X48	13.25					STOP
R1-2	48 TRI.	6.93					YIELD
R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)
R1-3	20X9	1.25					X-WAY (PLAQUE)
R2-1	36X48	12.00	4	48			SPEED LIMIT XX
R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00					NO TURNS
R3-4	48X48	16.00					NO U-TURN (SYMBOL)
R3-7L	30X30	6.25					LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00					DO NOT PASS
R4-2	36X48	12.00					PASS WITH CARE
R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25					DO NOT ENTER
R5-1a	36X24	6.00					WRONG WAY
R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)
R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00					ONE WAY (LEFT)
R6-2R	24X30	5.00					ONE WAY (RIGHT)
R10-6	24X36	6.00	2	12			STOP HERE ON RED (45° ARROW)
R11-2	48X30	10.00					ROAD CLOSED
R11-3a	60X30	12.50					ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50					ROAD CLOSED TO THRU TRAFFIC WHEN FLASHING
S4-4	36X15	3.75					FINE SIGN
CONST-3A	60X48	20.00					SPEEDING/PASSING (PLATE)
CONST-3X	56X12	4.67					
<b>MISCELLANEOUS SIGNS</b>							
SPECIAL	36X48	12.00					POINT OF PRESENCE
SPECIAL	96X48	32.00					POINT OF PRESENCE
CONST-7-48	48X24	8.00					RATE OUR WORK ZONE
CONST-7-72	72X36	18.00					RATE OUR WORK ZONE
616-10.05	CONSTRUCTION SIGNS TOTAL						
616-10.10	RELOCATED SIGNS TOTAL						

NOTE: QUANTITIES ON THIS SHEET ARE NOT PAY ITEM VALUES AND ARE FOR REFERENCE ONLY

NOTE: SEE "PAY TOTAL" QUANTITY SHEET FOR PAY ITEM VALUES

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008	1	IMPACT ATTENUATOR (8 SAND BARRELS)
6122009		IMPACT ATTENUATOR (9 SAND BARRELS)
6122010		IMPACT ATTENUATOR (10 SAND BARRELS)
6122012	1	IMPACT ATTENUATOR (12 SAND BARRELS)
6122014		IMPACT ATTENUATOR (14 SAND BARRELS)
6122017		IMPACT ATTENUATOR (17 SAND BARRELS)
6122019		IMPACT ATTENUATOR (19 SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030	2	IMPACT ATTENUATOR ARRAY (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161007		SPEED LIMIT AND STROBE LIGHT ASSEMBLY
6161008		ADVANCED WARNING RAIL SYSTEM
6161009	10	FLAG ASSEMBLY
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONES)
6161024		CHANNELIZER (TRIM LINE) WITH LIGHT
6161025	10	CHANNELIZER (TRIM LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161027		CHANNELIZER (VERTICAL PANEL) WITH LIGHT
6161028		CHANNELIZER
6161030		TYPE III MOVEABLE BARRICADE
6161031		TYPE III MOVEABLE BARRICADE WITH LIGHT
6161033		DIRECTION INDICATOR BARRICADE
6161034		DIRECTION INDICATOR BARRICADE, WITH LIGHT
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161051		WARNING LIGHT, TYPE A
6161052		WARNING LIGHT, TYPE B
6161053		WARNING LIGHT, TYPE C
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/RETAINED
6161100		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/COMMISSION RETAINED
6173600D	400	CONTRACTOR FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6173602B		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY TRAFFIC BARRIER
6174000A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
6175010A	400	RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
9019400		TEMPORARY LIGHTING
9029400		TEMPORARY TRAFFIC SIGNALS
6162000	2	WORK ZONE TRAFFIC SIGNALS

THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

DATE PREPARED: 2/13/2014

ROUTE VAR. MO DISTRICT KC SHEET NO. 3

COUNTY: VARIOUS

JOB NO.: J4P2191B

CONTRACT ID:

PROJECT NO.:

BRIDGE NO.: A41531

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-273-6636)



REVISED

A41531 SUBTOTALS SUMMARY SHEET SHEET 9 OF 11

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
<b>WARNING SIGNS</b>							
WO1-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00					REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00					REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4bR	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-6	60X30	12.50					HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-8	18X24	3.00					CHEVRON (SYMBOL)
WO1-8a	30X36	7.50					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00					STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00					YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00					SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00					BE PREPARED TO STOP
WO3-5	48X48	16.00					SPEED LIMIT AHEAD
WO4-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)
WO5-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00					ONE LANE BRIDGE
WO5-5	48X48	16.00					NARROW LANES
WO6-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00					NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00					BUMP
WO8-2	48X48	16.00					DIP
WO8-3	48X48	16.00					PAVEMENT ENDS
WO8-4	48X48	16.00					SOFT SHOULDER
WO8-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00					TRUCK CROSSING WITH FLAGS
WO8-6c	48X48	16.00					TRUCK ENTRANCE
WO8-7	36X36	9.00					LOOSE GRAVEL
WO8-9	48X48	16.00					LOW SHOULDER
WO8-11	48X48	16.00					UNEVEN LANES
WO8-12	48X48	16.00					NO CENTER LINE
W10-1	42 RND.	9.62					RAILROAD CROSSING
WO12-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00					LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO8-15	48X48	16.00					GROOVED PAVEMENT
WO8-15p	30X24	5.00					MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00					SHOULDER DROP-OFF (SYMBOL)
WO8-17p	30X24	5.00					SHOULDER DROP-OFF (PLAQUE)
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25					ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00					XXX FEET (PLAQUE)
WO16-3	30X24	5.00					X MILE (PLAQUE)
WO20-1	48X48	16.00					ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	12	192			DETOUR AHEAD
WO20-3	48X48	16.00	4	64			ROAD CLOSED AHEAD
WO20-3a	48X48	16.00	2	32			ONE LANE ROAD AHEAD
WO20-5	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED AHEAD

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION	
WO20-5a	48X48	16.00					2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD	
WO20-6a	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED	
WO20-7a	48X48	16.00					FLAGGER (SYMBOL) WITH FLAGS	
WO21-2	36X36	9.00					FRESH OIL	
WO21-5b	48X48	16.00					SHOULDER WORK AHEAD	
WO22-1	48X48	16.00					BLASTING ZONE AHEAD	
WO22-2	42X36	10.50					TURN OFF 2-WAY RADIO AND PHONE	
WO22-3	42X36	10.50					END BLASTING ZONE	
WO22-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)	
<b>GUIDE SIGNS</b>								
SPECIAL	36X36	9.00					FRESH OIL/LOOSE GRAVEL	
E05-1	36X48	12.00					GORE EXIT	
E05-2	48X36	12.00					EXIT OPEN	
E05-2a	48X36	12.00					EXIT CLOSED	
GO20-1	60X24	10.00					ROAD WORK NEXT XX MILES	
GO20-2	48X24	8.00					END ROAD WORK	
GO20-4	36X18	4.50					PILOT CAR FOLLOW ME	
SPECIAL	42X30	8.75					PLEASE WAIT FOR PILOT CAR	
GO20-5aP	36X24	6.00					WORK ZONE (PLAQUE)	
MO4-8a	24X18	3.00	2	6			END DETOUR	
MO4-9L	48X36	12.00					DETOUR (LEFT ARROW)	
MO4-9R	48X36	12.00					DETOUR (RIGHT ARROW)	
MO4-10L	48X18	6.00					DETOUR (ARROW LEFT)	
MO4-10R	48X18	6.00					DETOUR (ARROW RIGHT)	
<b>REGULATORY SIGNS</b>								
R1-1	48X48	13.25					STOP	
R1-2	48 TRI.	6.93					YIELD	
R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)	
R1-3	20X9	1.25					X-WAY (PLAQUE)	
R2-1	36X48	12.00					SPEED LIMIT XX	
R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)	
R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)	
R3-3	36X36	9.00					NO TURNS	
R3-4	48X48	16.00					NO U-TURN (SYMBOL)	
R3-7L	30X30	6.25					LEFT LANE MUST TURN LEFT	
R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT	
R4-1	36X48	12.00					DO NOT PASS	
R4-2	36X48	12.00					PASS WITH CARE	
R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)	
R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)	
R5-1	30X30	6.25					DO NOT ENTER	
R5-1a	36X24	6.00					WRONG WAY	
R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)	
R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)	
R6-2L	24X30	5.00					ONE WAY (LEFT)	
R6-2R	24X30	5.00					ONE WAY (RIGHT)	
R10-6	24X36	6.00					STOP HERE ON RED (45° ARROW)	
R11-2	48X30	10.00	2	20			ROAD CLOSED	
R11-3a	60X30	12.50					ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	
R11-4	60X30	12.50	2	25			ROAD CLOSED TO THRU TRAFFIC	
S4-4	36X15	3.75					WHEN FLASHING	
CONST-3A	60X48	20.00					FINE SIGN	
CONST-3X	56X12	4.67					SPEEDING/PASSING (PLATE)	
<b>MISCELLANEOUS SIGNS</b>								
SPECIAL	78X36	19.50	24	468			SPECIAL SIGN	
SPECIAL	84X36	21.00	25	525			SPECIAL SIGN	
CONST-7-48	48X24	8.00					RATE OUR WORK ZONE	
CONST-7-72	72X36	18.00					RATE OUR WORK ZONE	
616-10.05				X				CONSTRUCTION SIGNS TOTAL
616-10.10								RELOCATED SIGNS TOTAL

NOTE: QUANTITIES ON THIS SHEET ARE NOT PAY ITEM VALUES AND ARE FOR REFERENCE ONLY

NOTE: SEE "PAY TOTAL" QUANTITY SHEET FOR PAY ITEM VALUES

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR (8 SAND BARRELS)
6122009		IMPACT ATTENUATOR (9 SAND BARRELS)
6122010		IMPACT ATTENUATOR (10 SAND BARRELS)
6122012		IMPACT ATTENUATOR (12 SAND BARRELS)
6122014		IMPACT ATTENUATOR (14 SAND BARRELS)
6122017		IMPACT ATTENUATOR (17 SAND BARRELS)
6122019		IMPACT ATTENUATOR (19 SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR ARRAY (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161007		SPEED LIMIT AND STROBE LIGHT ASSEMBLY
6161008		ADVANCED WARNING RAIL SYSTEM
6161009	6	FLAG ASSEMBLY
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONES)
6161024		CHANNELIZER (TRIM LINE) WITH LIGHT
6161025	50	CHANNELIZER (TRIM LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161027		CHANNELIZER (VERTICAL PANEL) WITH LIGHT
6161028		CHANNELIZER
6161030		TYPE III MOVEABLE BARRICADE
6161031	10	TYPE III MOVEABLE BARRICADE WITH LIGHT
6161033		DIRECTION INDICATOR BARRICADE
6161034		DIRECTION INDICATOR BARRICADE, WITH LIGHT
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161051		WARNING LIGHT, TYPE A
6161052		WARNING LIGHT, TYPE B
6161053		WARNING LIGHT, TYPE C
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098	1	CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/RETAINED
6161100		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/COMMISSION RETAINED
6173600D	75	CONTRACTOR FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6173602B		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY TRAFFIC BARRIER
6174000A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
6175010A	75	RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
9019400		TEMPORARY LIGHTING
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

DATE PREPARED: 12/16/2013

ROUTE VAR. MO DISTRICT KC COUNTY VARIOUS JOB NO. J4P2191B CONTRACT ID. PROJECT NO. BRIDGE NO. L00232

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-278-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

L00232 SUBTOTALS  
SUMMARY SHEET  
SHEET 10 OF 11

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
<b>WARNING SIGNS</b>							
WO1-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)
WO1-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)
WO1-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)
WO1-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)
WO1-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)
WO1-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)
WO1-4L	48X48	16.00	7	112			REVERSE CURVE (SYMBOL LEFT ARROW)
WO1-4R	48X48	16.00	6	96			REVERSE CURVE (SYMBOL RIGHT ARROW)
WO1-4bL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4bR	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
WO1-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
WO1-6	60X30	12.50					HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-8	18X24	3.00					CHEVRON (SYMBOL)
WO1-8a	30X36	7.50					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00					STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00					YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00	4	64			SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00					BE PREPARED TO STOP
WO3-5	48X48	16.00	10	160			SPEED LIMIT AHEAD
WO4-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)
WO5-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00					ONE LANE BRIDGE
WO5-5	48X48	16.00					NARROW LANES
WO6-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00					NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00					BUMP
WO8-2	48X48	16.00					DIP
WO8-3	48X48	16.00					PAVEMENT ENDS
WO8-4	48X48	16.00					SOFT SHOULDER
WO8-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00					TRUCK CROSSING WITH FLAGS
WO8-6c	48X48	16.00					TRUCK ENTRANCE
WO8-7	36X36	9.00					LOOSE GRAVEL
WO8-9	48X48	16.00					LOW SHOULDER
WO8-11	48X48	16.00					UNEVEN LANES
WO8-12	48X48	16.00					NO CENTER LINE
WO10-1	42 RND.	9.62					RAILROAD CROSSING
WO12-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00					LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO8-15	48X48	16.00					GROOVED PAVEMENT
WO8-15p	30X24	5.00					MOTORCYCLE (PLAQUE)
WO8-17	48X48	16.00					SHOULDER DROP-OFF (SYMBOL)
WO8-17p	30X24	5.00					SHOULDER DROP-OFF (PLAQUE)
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25					ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00					XXX FEET (PLAQUE)
WO20-3a	48X48	16.00	2	32			X MILE (PLAQUE)
WO20-1	48X48	16.00	16	256			ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	12	192			DETOUR AHEAD
WO20-3	48X48	16.00	4	64			ROAD CLOSED AHEAD
WO20-4	48X48	16.00	4	64			ONE LANE ROAD AHEAD
WO20-5	48X48	16.00	11	176			RIGHT/CENTER/LEFT LANE CLOSED AHEAD

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
WO20-5a	48X48	16.00					2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00	10	160			RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00					FLAGGER (SYMBOL) WITH FLAGS
WO21-2	36X36	9.00					FRESH OIL
WO21-5b	48X48	16.00					SHOULDER WORK AHEAD
WO22-1	48X48	16.00					BLASTING ZONE AHEAD
WO22-2	42X36	10.50					TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50					END BLASTING ZONE
WO22-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)
<b>GUIDE SIGNS</b>							
SPECIAL	36X36	9.00					FRESH OIL/LOOSE GRAVEL
E05-1	36X48	12.00					GORE EXIT
E05-2	48X36	12.00					EXIT OPEN
E05-2a	48X36	12.00					EXIT CLOSED
G020-1	60X24	10.00					ROAD WORK NEXT XX MILES
G020-2	48X24	8.00	15	120			END ROAD WORK
G020-4	36X18	4.50					PILOT CAR FOLLOW ME
SPECIAL	42X30	8.75					PLEASE WAIT FOR PILOT CAR
G020-5aP	36X24	6.00	10	60			WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6			END DETOUR
MO4-9L	48X36	12.00					DETOUR (LEFT ARROW)
MO4-9R	48X36	12.00					DETOUR (RIGHT ARROW)
MO4-10L	48X18	6.00					DETOUR (ARROW LEFT)
MO4-10R	48X18	6.00					DETOUR (ARROW RIGHT)
<b>REGULATORY SIGNS</b>							
R1-1	48X48	13.25					STOP
R1-2	48 TRI.	6.93					YIELD
R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)
R1-3	20X9	1.25					X-WAY (PLAQUE)
R2-1	36X48	12.00	17	204			SPEED LIMIT XX
R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00					NO TURNS
R3-4	48X48	16.00					NO U-TURN (SYMBOL)
R3-7L	30X30	6.25	3	19			LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00					DO NOT PASS
R4-2	36X48	12.00					PASS WITH CARE
R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25					DO NOT ENTER
R5-1a	36X24	6.00					WRONG WAY
R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)
R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00					ONE WAY (LEFT)
R6-2R	24X30	5.00					ONE WAY (RIGHT)
R10-6	24X36	6.00	4	24			STOP HERE ON RED (45° ARROW)
R11-2	48X30	10.00	6	60			ROAD CLOSED
R11-3a	60X30	12.50					ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			ROAD CLOSED TO THRU TRAFFIC
S4-4	36X15	3.75					WHEN FLASHING
CONST-3A	60X48	20.00					FINE SIGN
CONST-3X	56X12	4.67					SPEEDING/PASSING (PLATE)
R9-9	24X12	2.00	2	4			
<b>MISCELLANEOUS SIGNS</b>							
SPECIAL	78X36	19.50	24	468			DETOUR SIGNS
SPECIAL	84X36	21.00	25	525			DETOUR SIGNS
CONST-7-48	36X12	3.0	2	6			TRUCK PLAQUE
CONST-7-72	72X36	18.00					RATE OUR WORK ZONE
616-10.05							CONSTRUCTION SIGNS TOTAL 2897
616-10.10							RELOCATED SIGNS TOTAL

NOTE: QUANTITIES BASED ON 3 BRIDGES BEING WORKED ON SIMULTANEOUSLY

NOTE: NO DIRECT PAY FOR RELOCATION OF: CHANNELIZERS, FLAG ASSEMBLIES, FLASHING ARROWS, BARRICADES, CHANGEABLE MESSAGE SIGNS, & TEMP. TRAFFIC SIGNALS

NOTE: TEMP. BARRIER RELOCATION PAY ITEM COVERS RELOCATION OF ALL BRIDGES

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008	1	IMPACT ATTENUATOR (8 SAND BARRELS)
6122009		IMPACT ATTENUATOR (9 SAND BARRELS)
6122010		IMPACT ATTENUATOR (10 SAND BARRELS)
6122012	3	IMPACT ATTENUATOR (12 SAND BARRELS)
6122014		IMPACT ATTENUATOR (14 SAND BARRELS)
6122017		IMPACT ATTENUATOR (17 SAND BARRELS)
6122019	2	IMPACT ATTENUATOR (19 SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030	6	IMPACT ATTENUATOR ARRAY (RELOCATION)
6123000A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
6161007		SPEED LIMIT AND STROBE LIGHT ASSEMBLY
6161008		ADVANCED WARNING RAIL SYSTEM
6161009	57	FLAG ASSEMBLY
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONES)
6161024	25	CHANNELIZER (TRIM LINE) WITH LIGHT
6161025	370	CHANNELIZER (ARROW LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161027		CHANNELIZER (VERTICAL PANEL) WITH LIGHT
6161028		CHANNELIZER
6161030		TYPE III MOVEABLE BARRICADE
6161031	18	TYPE III MOVEABLE BARRICADE WITH LIGHT
6161033		DIRECTION INDICATOR BARRICADE
6161034		DIRECTION INDICATOR BARRICADE, WITH LIGHT
6161040	6	FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161051		WARNING LIGHT, TYPE A
6161052		WARNING LIGHT, TYPE B
6161053		WARNING LIGHT, TYPE C
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098	3	CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/RETAINED
6161100		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/COMMISSION RETAINED
61736000	2125	CONTRACTOR FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6173602B		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY TRAFFIC BARRIER
6174000A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
6175010A	2125	RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
9019400		TEMPORARY LIGHTING
9029400		TEMPORARY TRAFFIC SIGNALS
6162000	2	WORK ZONE TRAFFIC SIGNALS

DATE PREPARED  
2/13/2014

ROUTE VAR. MO  
DISTRICT KC SHEET NO. 3

COUNTY VARIOUS  
JOB NO. J4P2191B  
CONTRACT ID.

PROJECT NO.

BRIDGE NO. VARIOUS

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT  
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

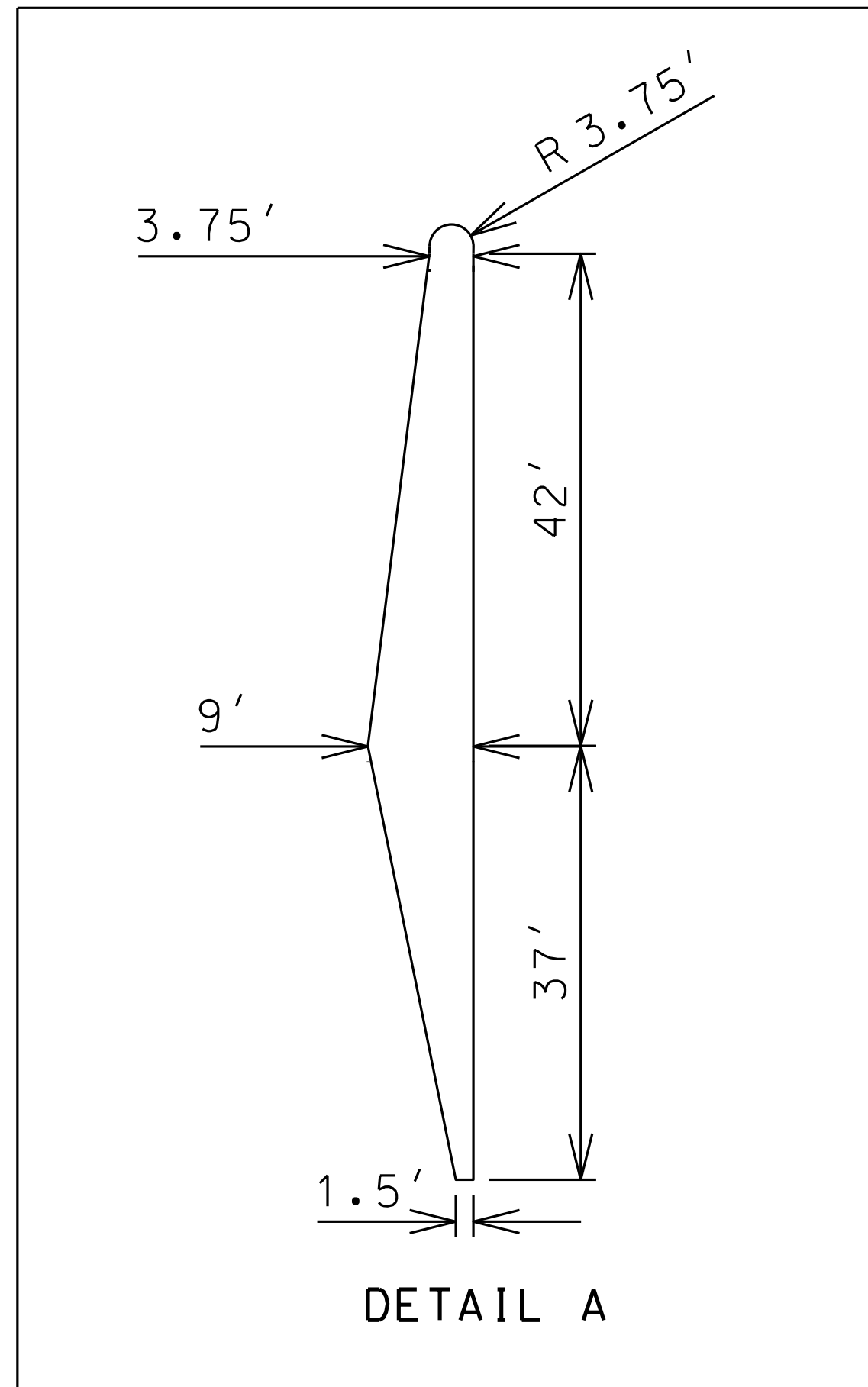


REVISED

PAY TOTALS  
SUMMARY SHEET  
SHEET 11 OF 11

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

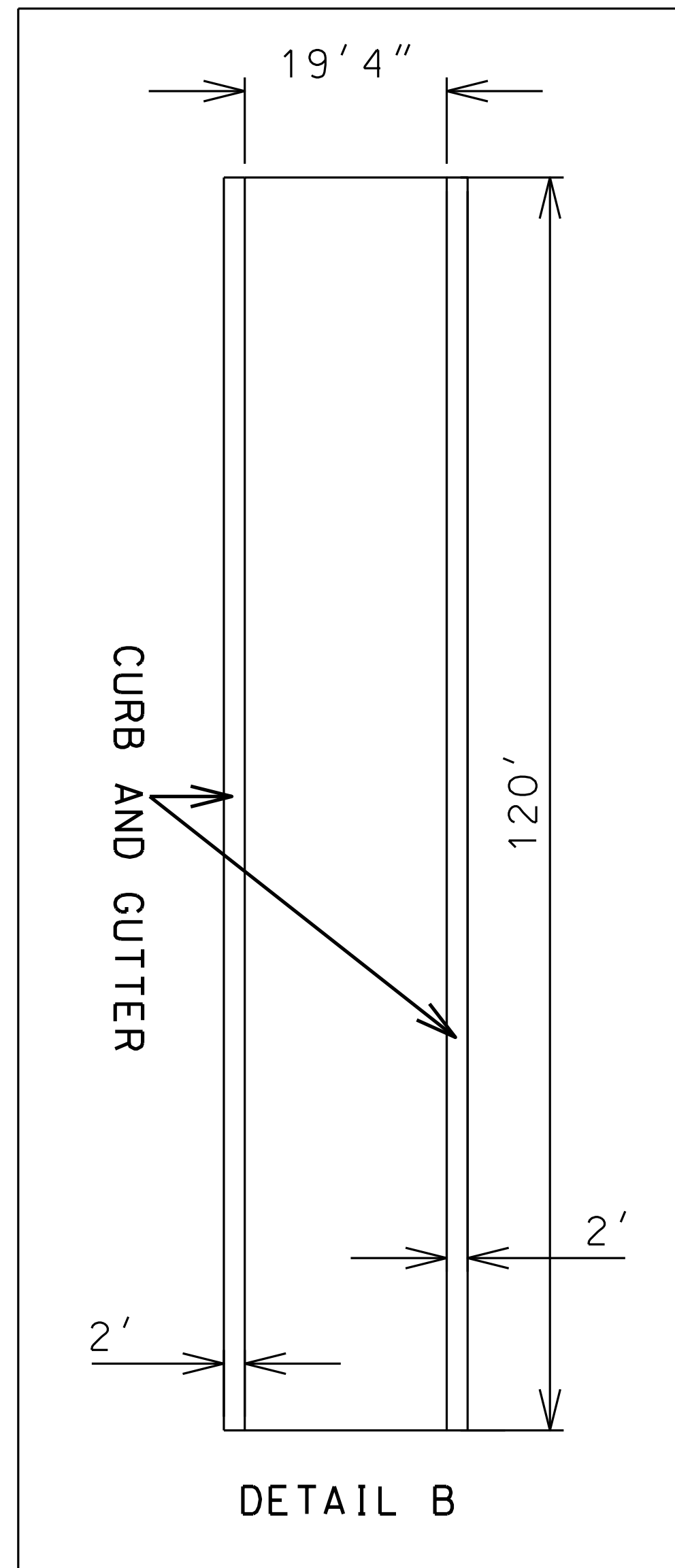
NOTE: REMOVE INDICATED MEDIAN AND CLEAR DEBRIS  
 NOTE: MILL A DEPTH OF 6" WHERE MEDIAN WAS REMOVED  
 NOTE: INSTALL 6" BP-1 IN MILLED OUT AREA TO MATCH EXISTING ROADWAY (FOR CROSSOVER)  
 NOTE: RUBBLIZE EXISTING CONCRETE SLOPE PROTECTION WHERE BROKEN



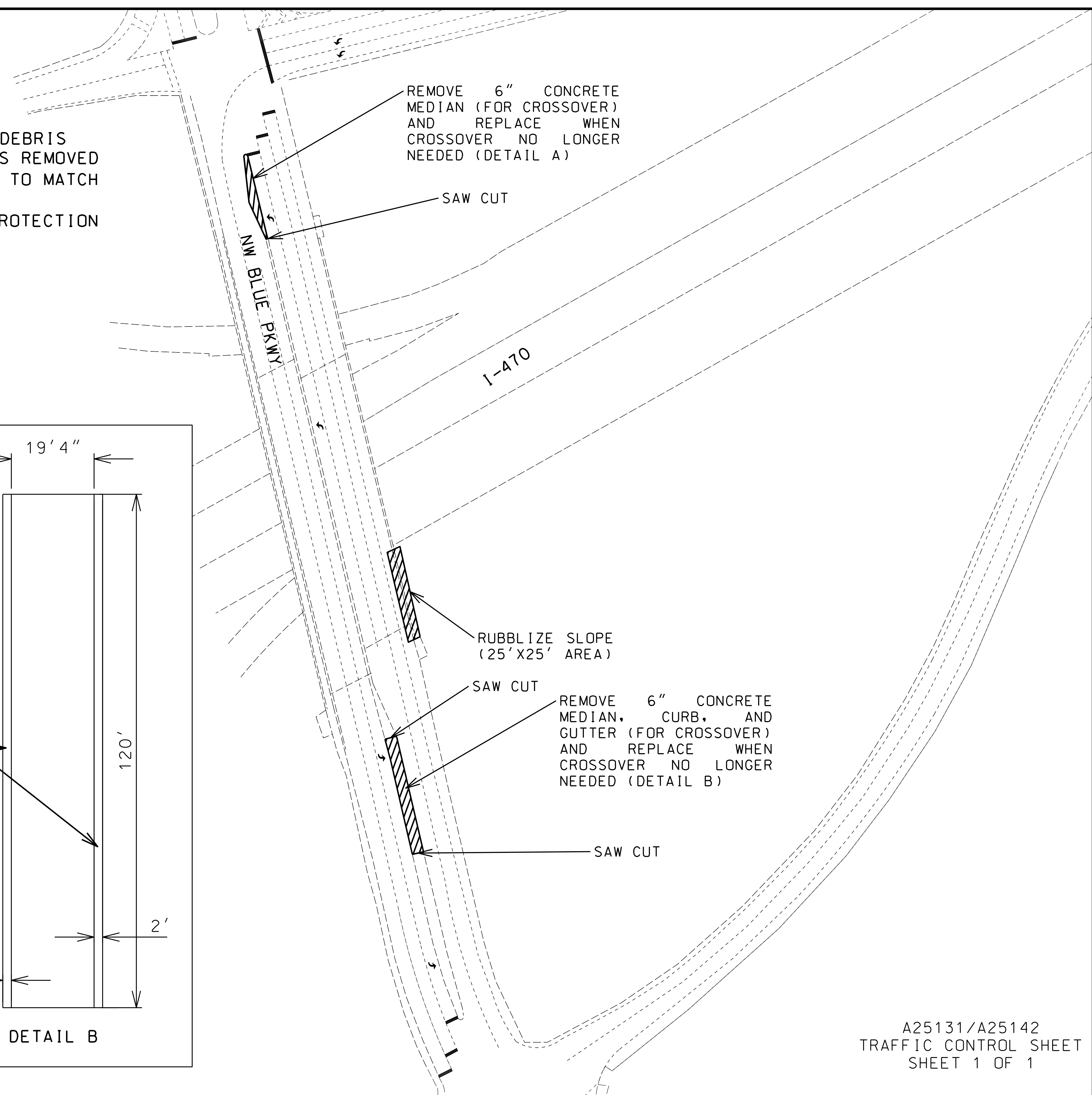
DETAIL A

NOTE: REPLACED CONCRETE MEDIAN AND CURB AND GUTTER SHALL BE CONSTRUCTED TO ITS ORIGINAL DIMENSIONS

NOT TO SCALE



DETAIL B



REMOVE 6" CONCRETE MEDIAN (FOR CROSSOVER) AND REPLACE WHEN CROSSOVER NO LONGER NEEDED (DETAIL A)

SAW CUT

NW BLUE PKWY

I-470

RUBBLIZE SLOPE (25' X 25' AREA)

SAW CUT

REMOVE 6" CONCRETE MEDIAN, CURB, AND GUTTER (FOR CROSSOVER) AND REPLACE WHEN CROSSOVER NO LONGER NEEDED (DETAIL B)

SAW CUT

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED		12/11/2013	
ROUTE	STATE	VAR.	MO
DISTRICT	SHEET NO.	KC	4
COUNTY			
VARIOUS			
JOB NO.			
J4P2191B			
CONTRACT ID.			
PROJECT NO.			
BRIDGE NO.			
A25131/A25142			

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-273-6636)

A25131/A25142  
 TRAFFIC CONTROL SHEET  
 SHEET 1 OF 1

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

# Sign Spacing, Device Spacing, Channelizing Taper Lengths And Recommended Maximum Speed Reductions

TAPER LENGTHS AND SPACING OF CHANNELIZING DEVICES						
SPEED (P) MPH	MINIMUM (T2) TAPER LENGTHS (L) FOR LANE WIDTHS (W)			MINIMUM TAPER SHOULDER (T1)	MAXIMUM CHANNELIZER SPACING	
	10 FT	11 FT	12 FT		THROUGH TAPER	THROUGH WORK AREA
0-35	205 FT	225 FT	245 FT	70	35 FT	50 FT
40-45	450 FT	495 FT	540 FT	150	40 FT	100 FT
50-55	550 FT	605 FT	660 FT	185	50 FT	100 FT
60-70	700 FT	770 FT	840 FT	235	60 FT	100 FT

TAPER LENGTH (L)

L = W X P FOR 40 MPH OR MORE  
 L =  $\frac{WP^2}{60}$  FOR 35 MPH OR LESS  
 L = TAPER LENGTH IN FEET  
 W = LATERAL SHIFT IN FEET  
 P = POSTED SPEED PRIOR TO ROAD WORK IN MPH

LONGITUDINAL BUFFER SPACE	
SPEED (P) MPH	BUFFER SPACE (FEET)
0-35	250
40-45	360
50-55	495
60-70	730

SIGN SPACING FOR ADVANCE SIGN SERIES (1) (2)		
SPEED (P) MPH	SIGN SPACING (S)	
	NON-DIVIDED HIGHWAYS (S)	DIVIDED HIGHWAYS (S)
0-35	200 FT	200 FT
40-45	350 FT	500 FT
50-55	500 FT	1000 FT
60-70	SA-1000 FT, SB-1500 FT, SC-2640 FT **	

\*\* THE SA DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN.  
 THE SB DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS.  
 THE SC DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS.  
 (THE "FIRST SIGN" IS THE SIGN IN A THREE-SIGN SERIES THAT IS CLOSEST TO THE TEMPORARY TRAFFIC CONTROL ZONE. THE "THIRD SIGN" IS THE SIGN THAT IS FURTHEST UPSTREAM FROM THE TEMPORARY TRAFFIC CONTROL ZONE)

**NOTES:**

DIMENSIONS IN FEET UNLESS OTHERWISE NOTED.

- (1) SPACING BETWEEN SIGNS AND SPACING BETWEEN LAST SIGN AND FLAGGER, BEGINNING OF TAPER, OR SIGNED CONDITION
- (2) SPACINGS MAY BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS
- (3) TAPER LENGTHS SHOWN INCLUDE LENGTH REQUIRED FOR LANE AND 10' SHOULDER.
- (4) CONCRETE BARRIER MAY BE INSTALLED AT AN 8:1 FLARE RATE FROM THE SHOULDER POINT TO THE LIMITS OF THE CLEAR ZONE WHERE THEY SIDE SLOPE IS 6:1 OR FLATTER.

EPG TABLE 616.29 RECOMMENDED MAXIMUM SPEED REDUCTIONS	
ACTIVITY (I.E. WORKERS, EQUIPMENT OR MATERIAL) LOCATION	RECOMMENDED WORK ZONE SPEED REDUCTION (WHEN APPLICABLE)
10 FT. BEYOND EDGE OF TRAVELWAY TO EDGE OF RIGHT OF WAY	NO SPEED REDUCTION
IN TRAFFIC LANE OR WITHIN 10FT. OF THE TRAFFIC LANE	10 MPH
HEAD-TO-HEAD ON MULTILANE	10 MPH
SPECIAL CIRCUMSTANCES WITHIN A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY WARRANT A LOWER SPEED LIMIT THAN RECOMMENDED ABOVE. ALL SPEED LIMIT REDUCTIONS GREATER THAN 10 MPH SHALL BE DOCUMENTED, SUBMITTED TO AND APPROVED BY THE DISTRICT WORK ZONE COORDINATOR.	

GENERAL NOTES:

1. SEE STANDARD PLAN 616.10 FOR DETAILS AND ITEMS NOT SHOWN
2. EXISTING SIGNS SHALL BE COVERED DURING WORKING HOURS ONLY IF IN CONFLICT WITH TRAFFIC CONTROL PLANS.
3. NO DIRECT PAYMENT WILL BE MADE FOR RELOCATING, COVERING, UNCOVERING OR REMOVING SIGNS.
4. CONES ALLOWABLE FOR DAYTIME OPERATIONS ONLY.
5. LOCATE FLASHING ARROW PANEL AT BEGINNING OF TAPER WHEN FEASIBLE. ARROW PANELS ARE ALWAYS LOCATED BEHIND CHANNELIZERS OR CONES.

TAPER LENGTHS AND END TREATMENTS FOR CONCRETE BARRIER				
SPEED (P) MPH	MINIMUM TAPER LENGTHS FOR LANE WIDTHS (3)			END TREATMENT (4)
	10 FT	11 FT	12 FT	
<40	160 FT	168 FT	176 FT	BARRIER HEIGHT TRANSITION
≥40	160 FT	168 FT	176 FT	APPROVED CRASH CUSHION

DEVICE  
SPACING  
TEMPORARY  
TRAFFIC CONTROL  
SHEET 1 OF 27

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 5

COUNTY  
VARIOUS

JOB NO.  
J4P2191P

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
VARIOUS

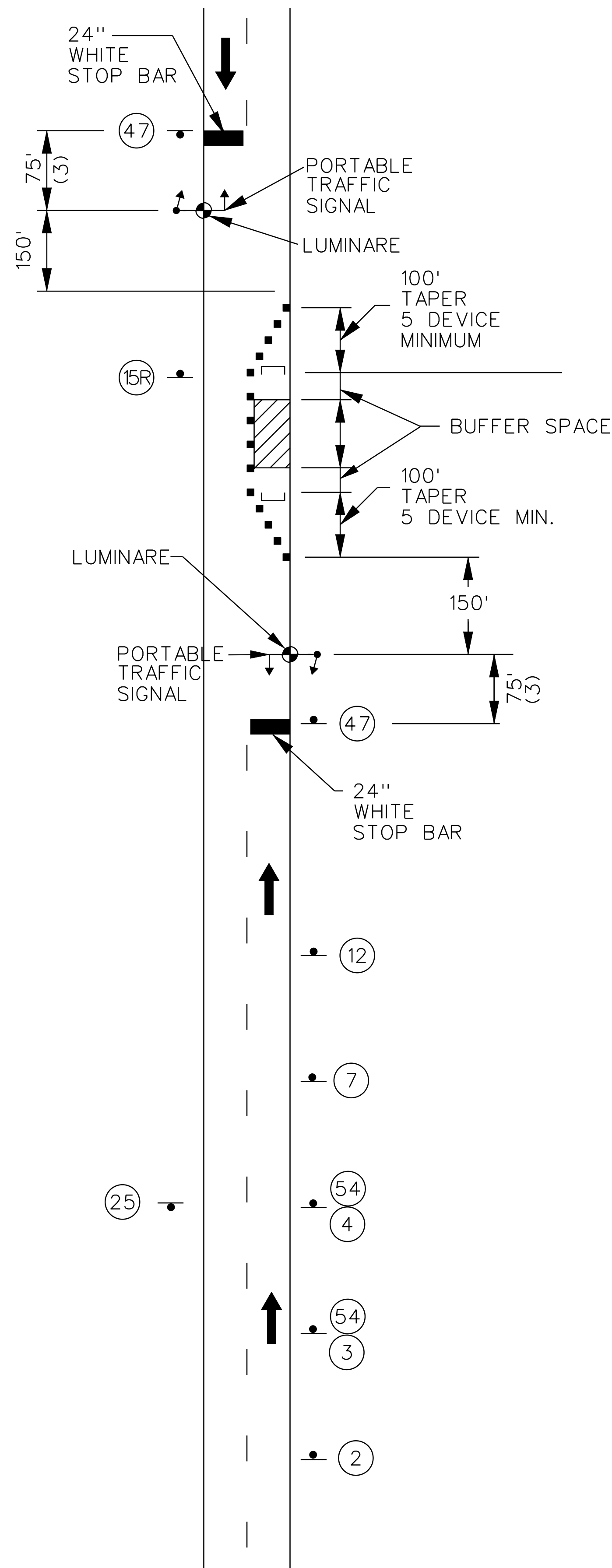
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

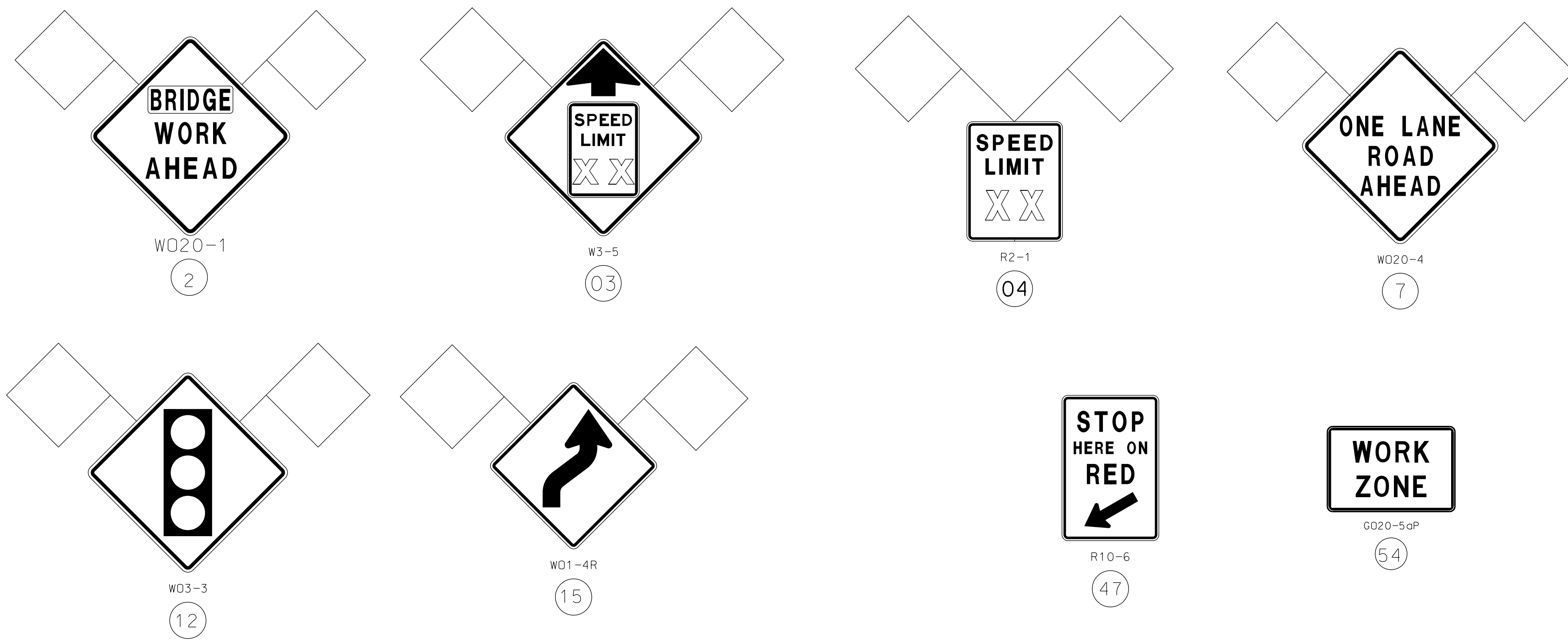
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)



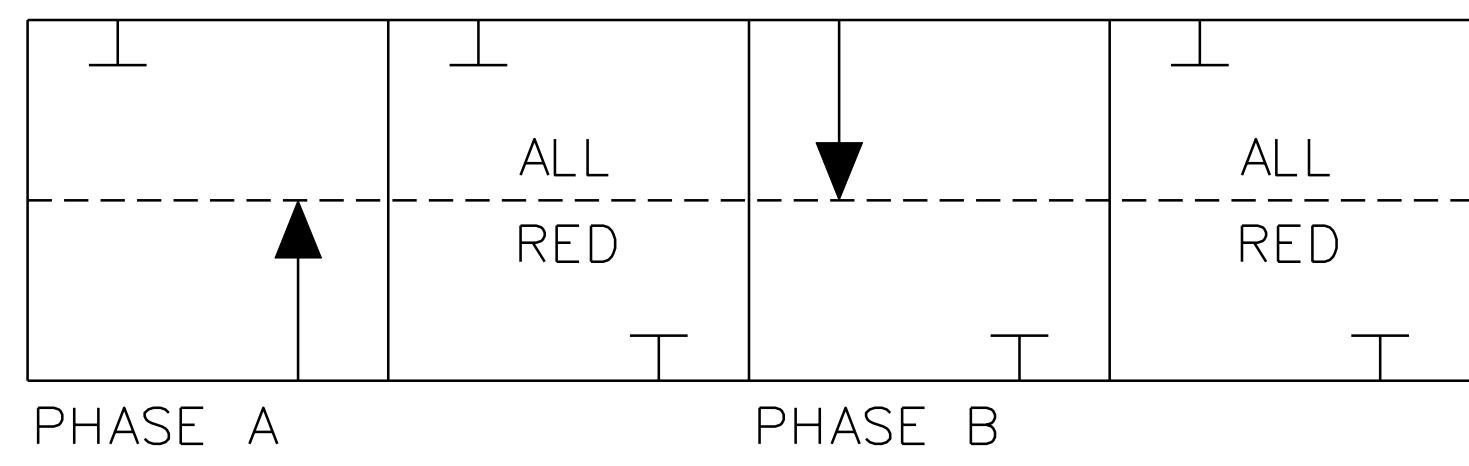




PORTABLE TRAFFIC SIGNALS (2)



SIGNAL CONTROL NOTES  
ONE-LANE TWO-WAY OPERATION



PHASE A AND PHASE B SHALL ALWAYS BE FOLLOWED BY AN ALL RED PHASE OR INTERVAL.

SIGNALS SHALL REST IN ALL RED WHEN THERE ARE NO VEHICLE CALLS

TYPICAL ACTUATED PHASING (5)

NOTES:

- (1). SEE TRAFFIC CONTROL SHEET 1 FOR SIGN SPACING, DEVICE SPACING AND CHANNELIZING TAPER LENGTHS.
- (2). SIGNING AND PAVEMENT MARKING IDENTICAL ON BOTH APPROACHES.
- (3). 75' RECOMMENDED SPACING. SPACING MAY BE BETWEEN 40' AND 150'.
- (4). NON-INTRUSIVE DETECTION IS PREFERRED. HOWEVER, IF OTHER VEHICLE INTERFERENCE IS PRESENT ( I.E. PARKING LOTS OR SIDE ROAD ACTIVITY), THEN OTHER DETECTION METHODS MAY BE USED.
- (5). IF SIDE ROADS OR DRIVEWAYS OCCUR WITHIN THE LIMITS OF THE STOP BARS, ADDITIONAL INDICATIONS AND PHASING ARE REQUIRED. FURTHERMORE, RIGHT TURNS SHALL BE PROHIBITED FROM THESE ACCESS POINTS DURING THE RED INTERVAL.

TO BE USED FOR  
BRIDGES A25482 AND A41531  
SIGNAL CONTROL  
LANE CLOSURE  
TEMPORARY  
TRAFFIC CONTROL  
SHEET 3 OF 27

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 12/11/2013	
ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 7
COUNTY VARIOUS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A25482/A41531	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 9

COUNTY  
VARIOUS

JOB NO.  
J4P2191P

CONTRACT ID.

PROJECT NO.

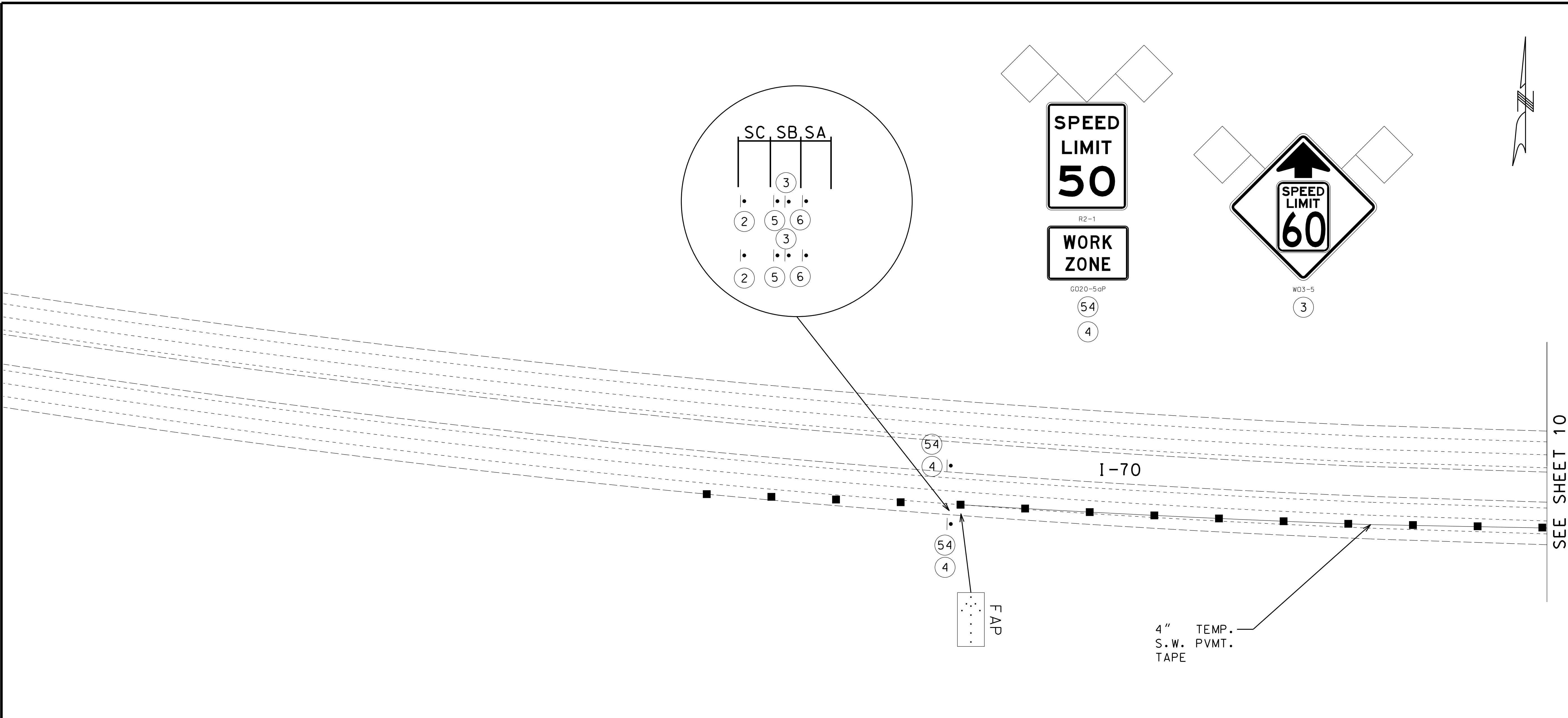
BRIDGE NO.  
A01672/L01463

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

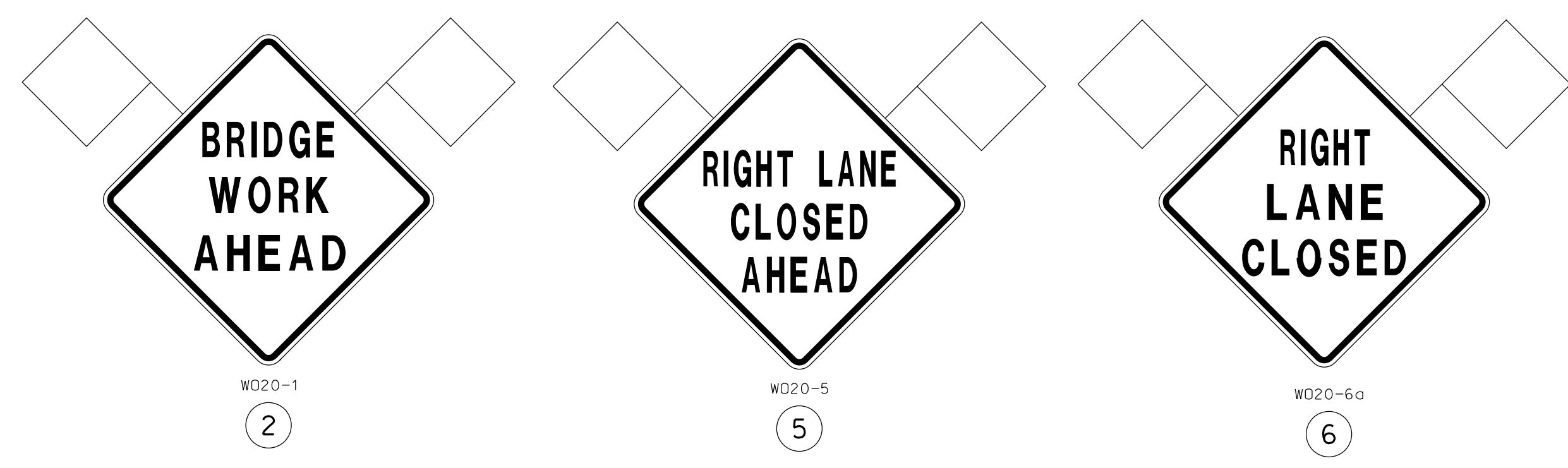


TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◐ SIGN (DOUBLE SIDED)
- ◡ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▩ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS  
REFER TO SHEET 1 OF 27 FOR SIGN SPACING



A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 1  
SHEET 5 OF 27

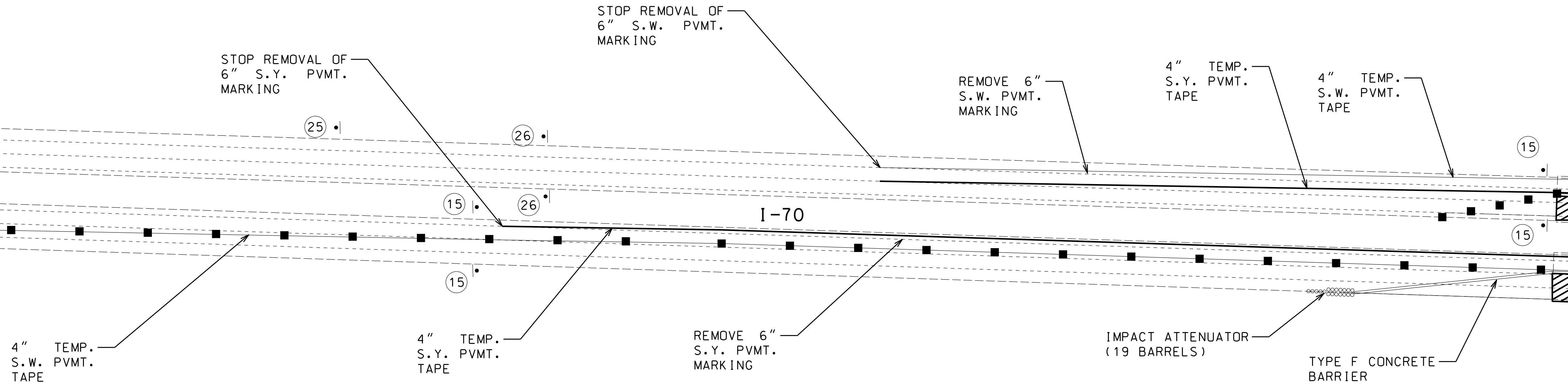
SEE SHEET 10

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED	
12/11/2013	
ROUTE	STATE
VAR.	MO
DISTRICT	SHEET NO.
KC	10
COUNTY	
VARIOUS	
JOB NO.	
J4P2191P	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A01672/L01463	

SEE SHEET 9

SEE SHEET 11

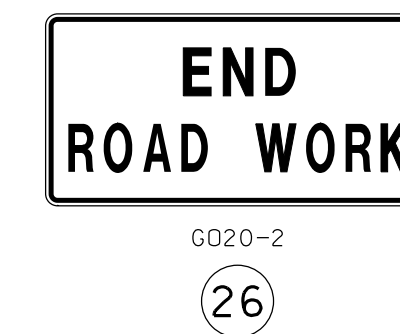
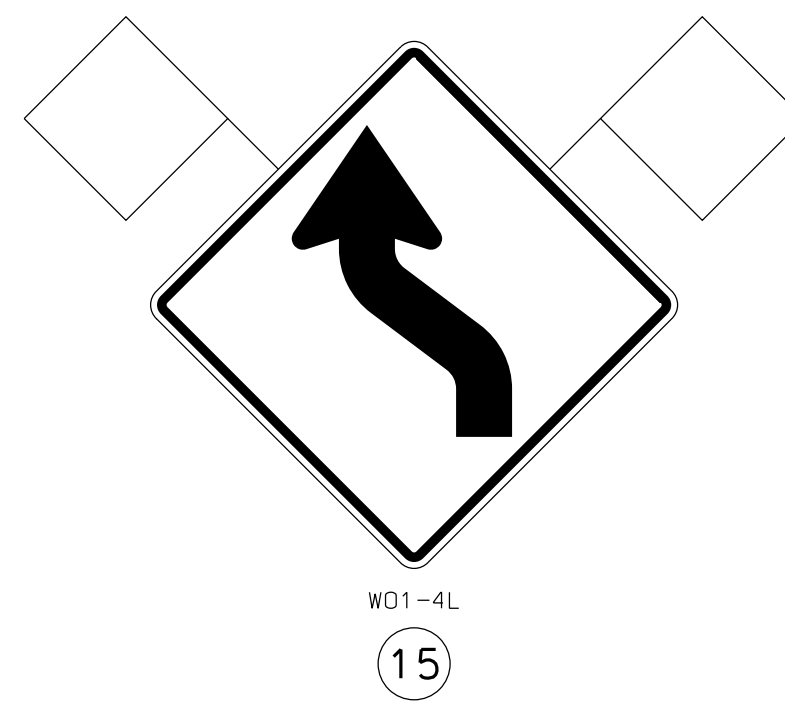


TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◼ SIGN (DOUBLE SIDED)
- ◁ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▧ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS



DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 1  
SHEET 6 OF 27

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 11

COUNTY  
VARIOUS

JOB NO.  
J4P2191P

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A01672/L01463

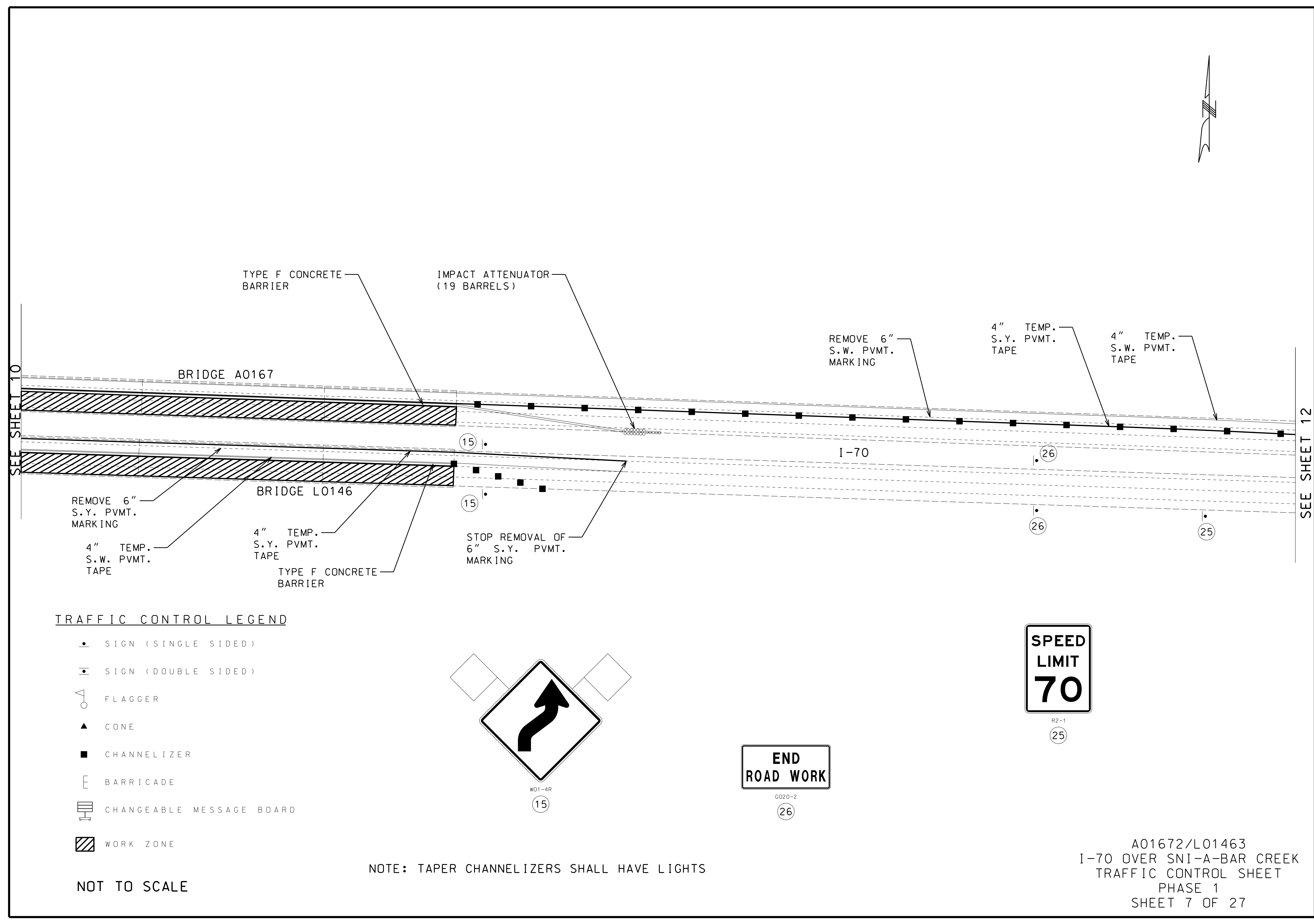
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

**MoDOT**

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 1  
SHEET 7 OF 27

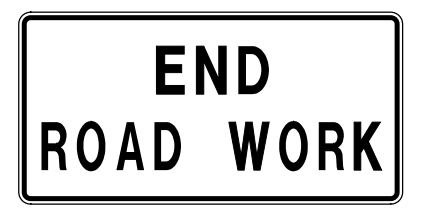
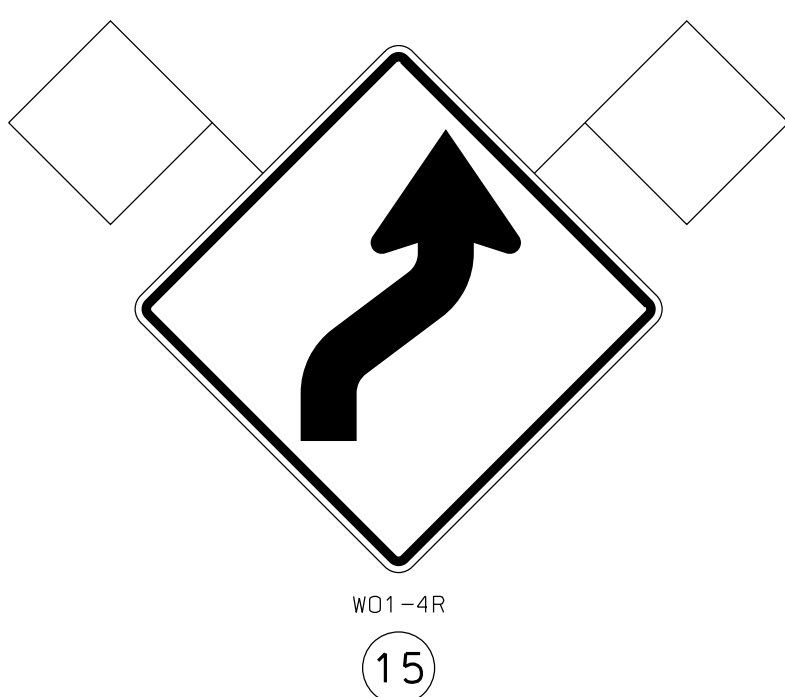


TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◻ SIGN (DOUBLE SIDED)
- ◁ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▨ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS



IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013


ROUTE VAR. MO  
DISTRICT SHEET NO. KC 12

COUNTY VARIOUS  
JOB NO. J4P2191P  
CONTRACT ID.

PROJECT NO.

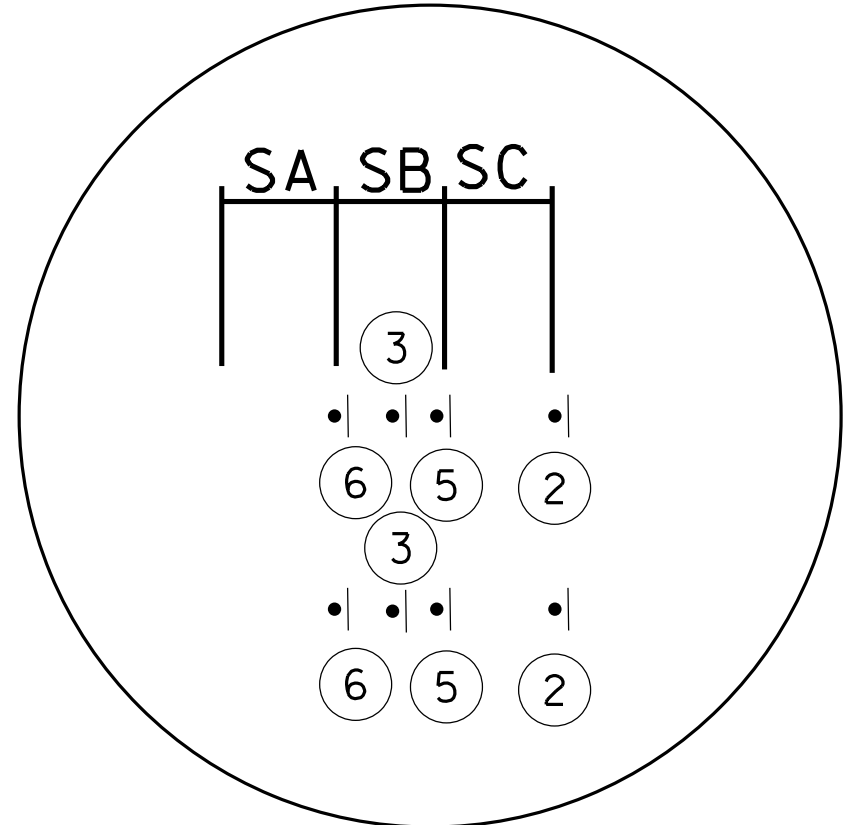
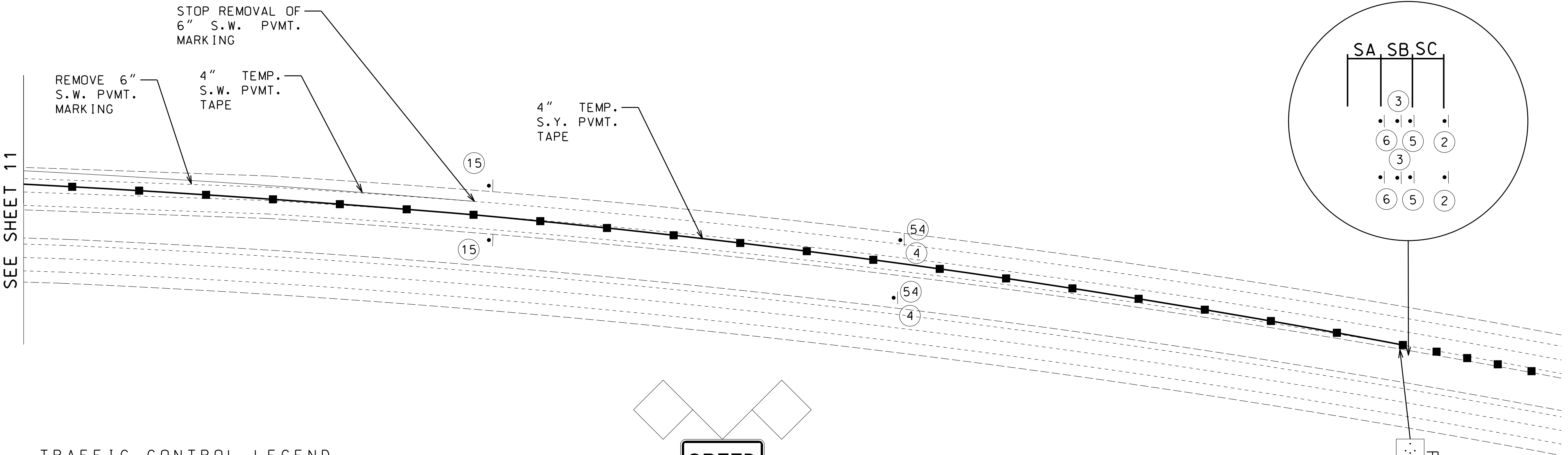
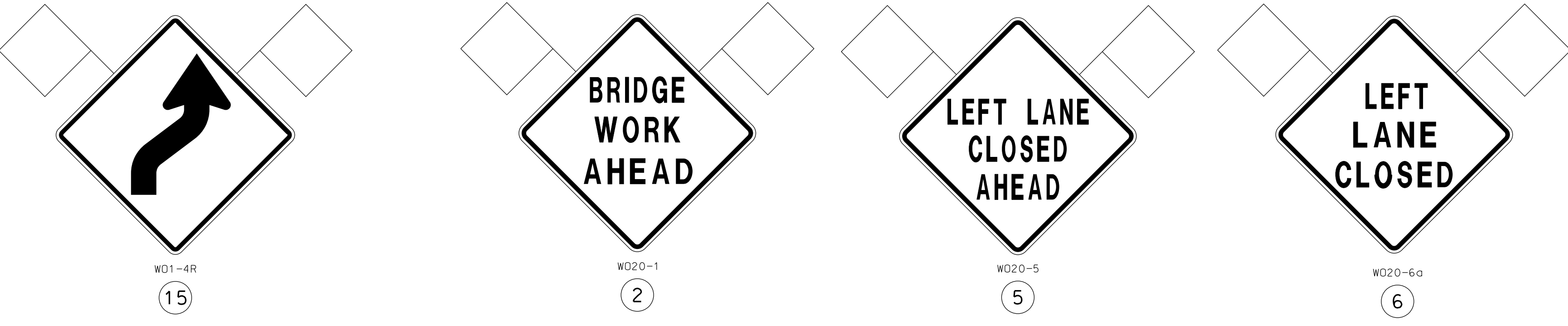
BRIDGE NO. A01672/L01463

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
  
 105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-273-6636)

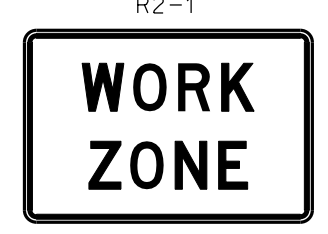
A01672/L01463  
 I-70 OVER SNI-A-BAR CREEK  
 TRAFFIC CONTROL SHEET  
 PHASE 1  
 SHEET 8 OF 27

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)
- ◐ SIGN (DOUBLE SIDED)
- ◁ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▨ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE



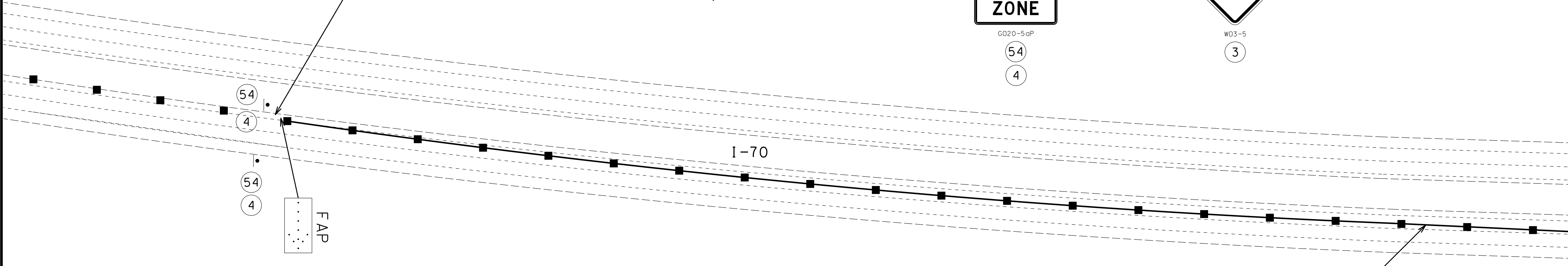
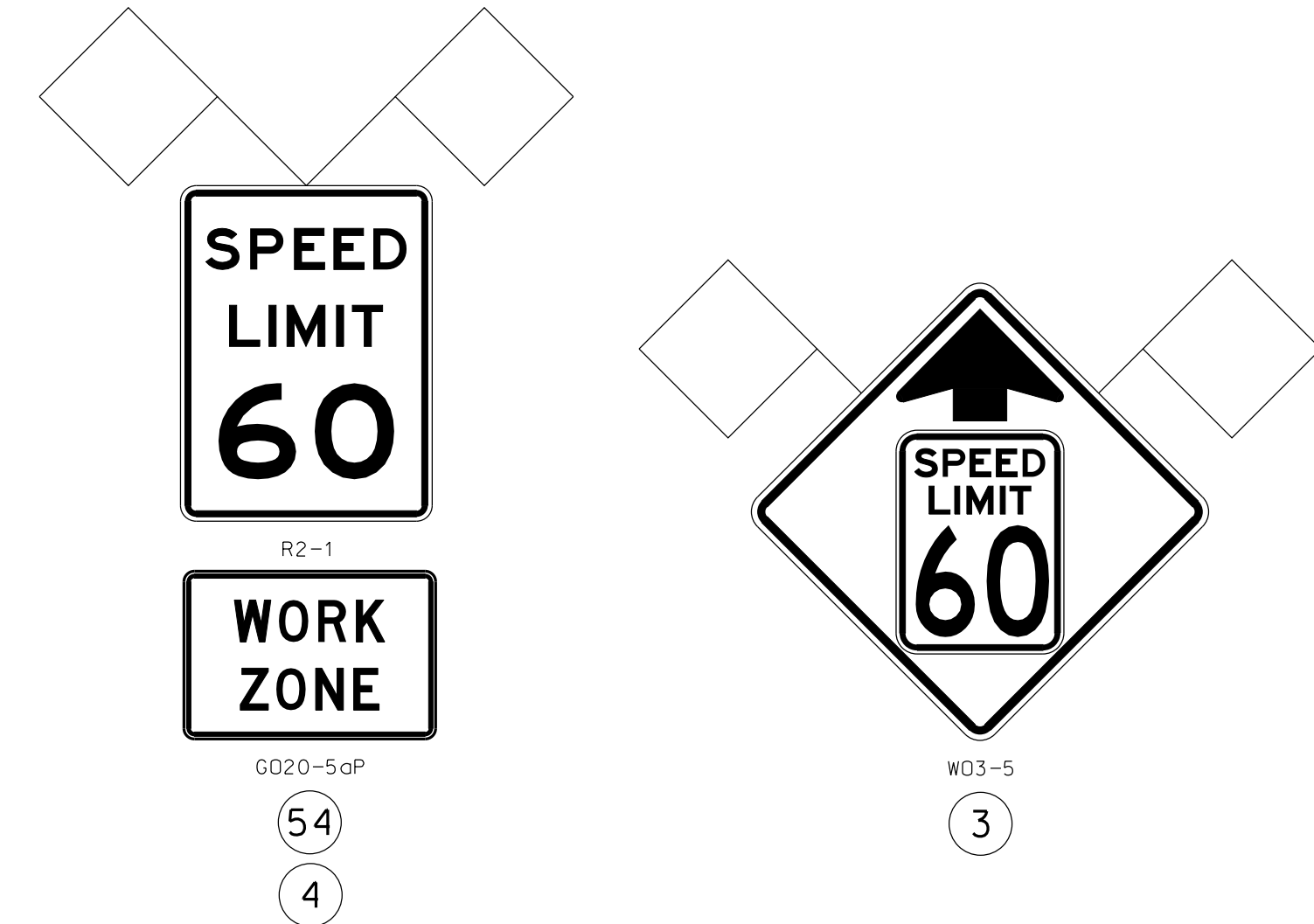
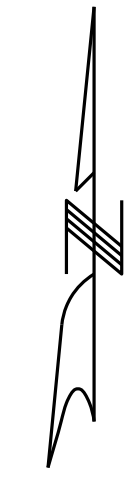
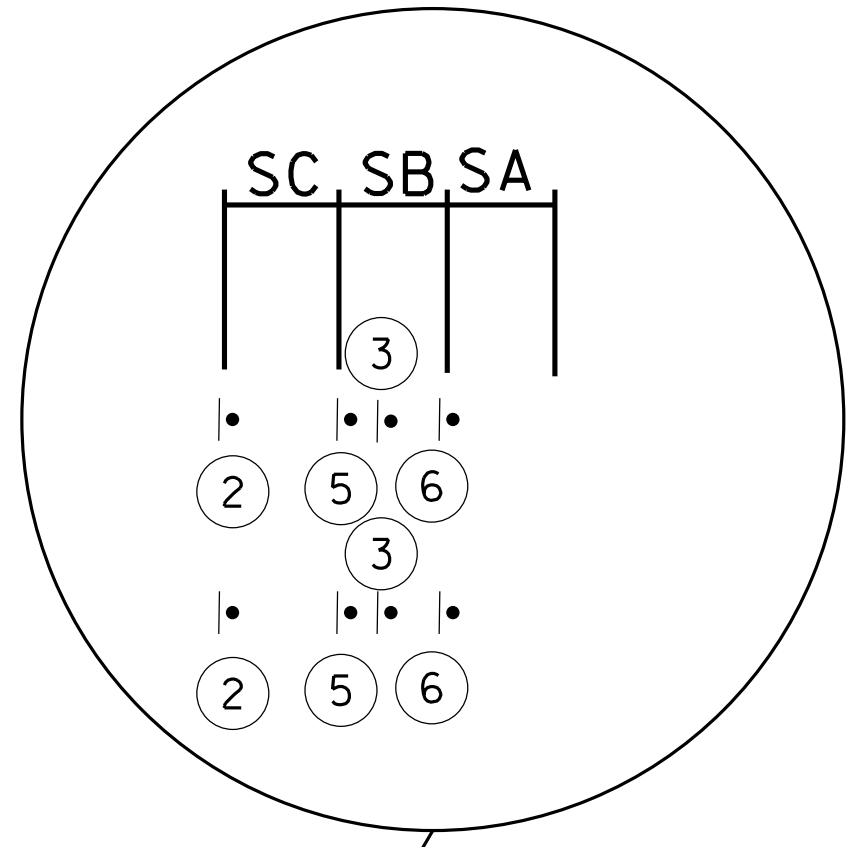
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3

NOT TO SCALE

NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS  
 REFER TO SHEET 1 OF 27 FOR SIGN SPACING



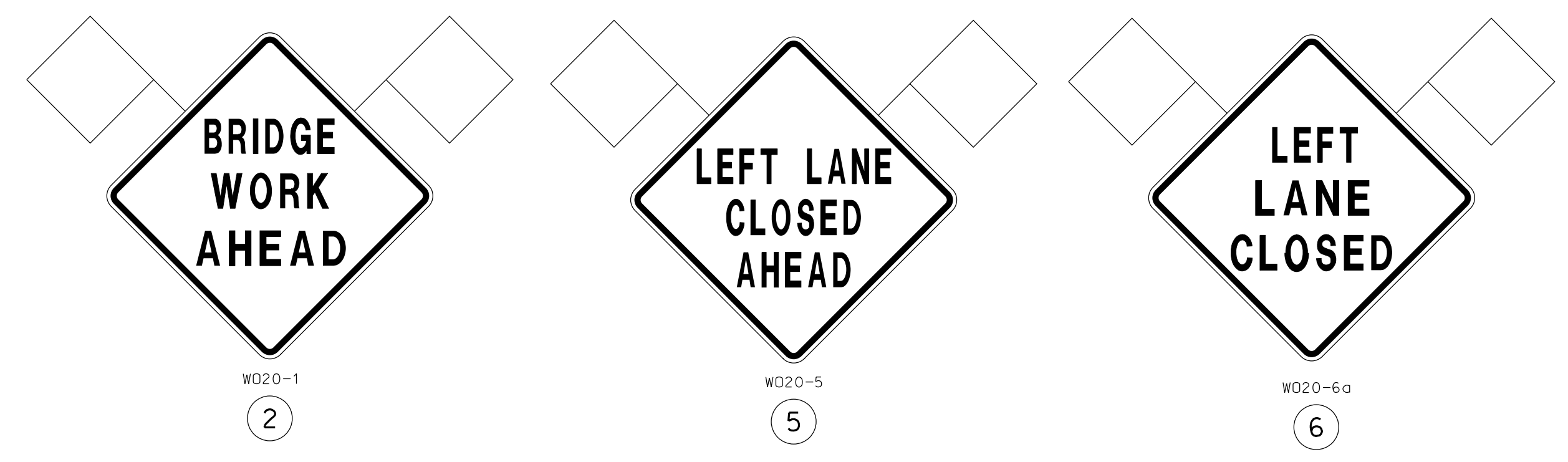
4" TEMP.  
S.Y. PVMT.  
TAPE

SEE SHEET 14

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◐ SIGN (DOUBLE SIDED)
- ◡ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▨ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE



NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS  
REFER TO TRAFFIC CONTROL SHEET 1 OF 27 FOR SIGN SPACING

A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 2  
SHEET 9 OF 27

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 13

COUNTY  
VARIOUS

JOB NO.  
J4P2191P

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A01672/L01463

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 14

COUNTY  
VARIOUS

JOB NO.  
J4P2191P

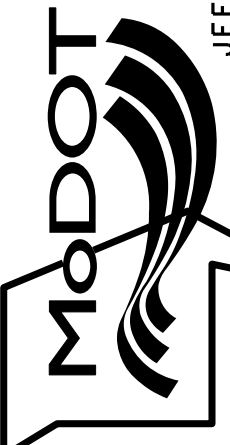
CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A01672/L01463

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

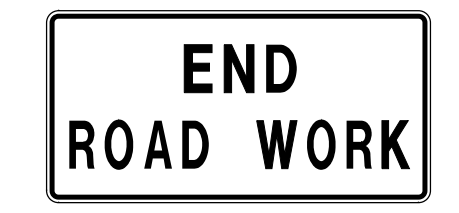


105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



R2-1  
(25)

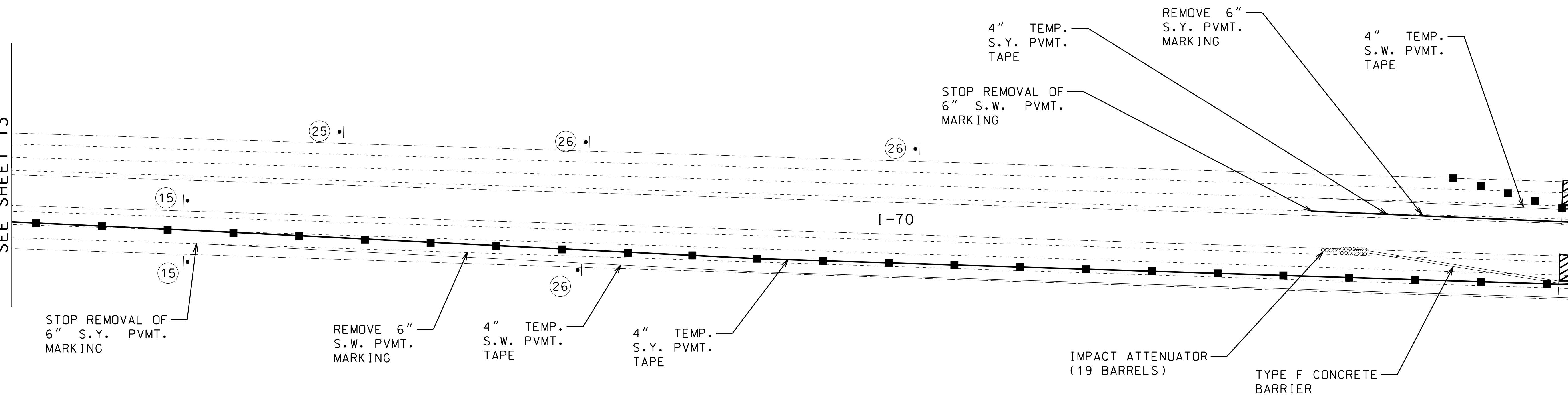


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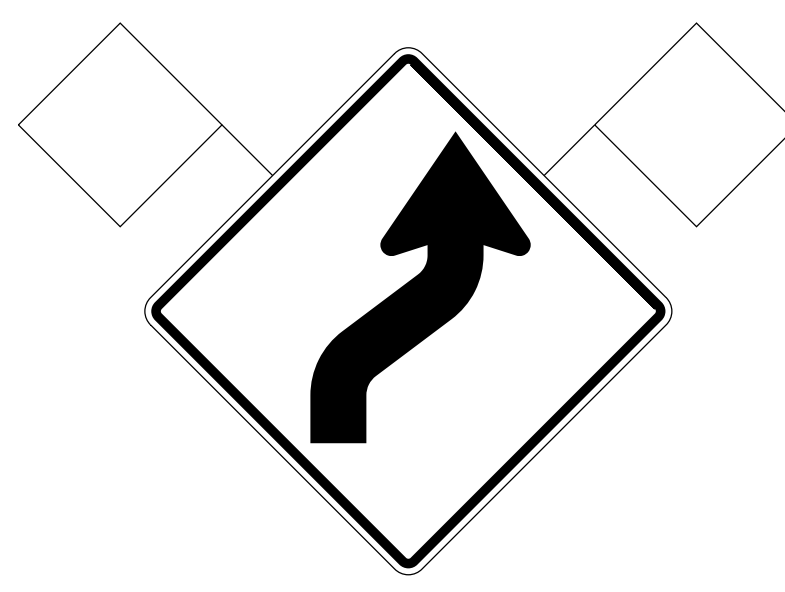
SEE SHEET 13

SEE SHEET 15



**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)
- ◌ SIGN (DOUBLE SIDED)
- ◊ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▧ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE



W01-4R  
(15)

NOT TO SCALE

NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS

A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 2  
SHEET 10 OF 27

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 15

COUNTY  
VARIOUS

JOB NO.  
J4P2191P

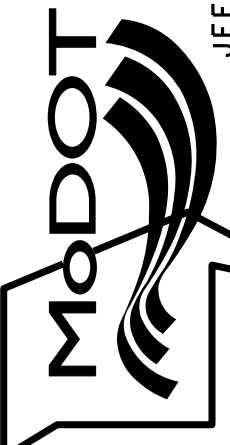
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PROJECT NO.

BRIDGE NO.  
A01672/L01463

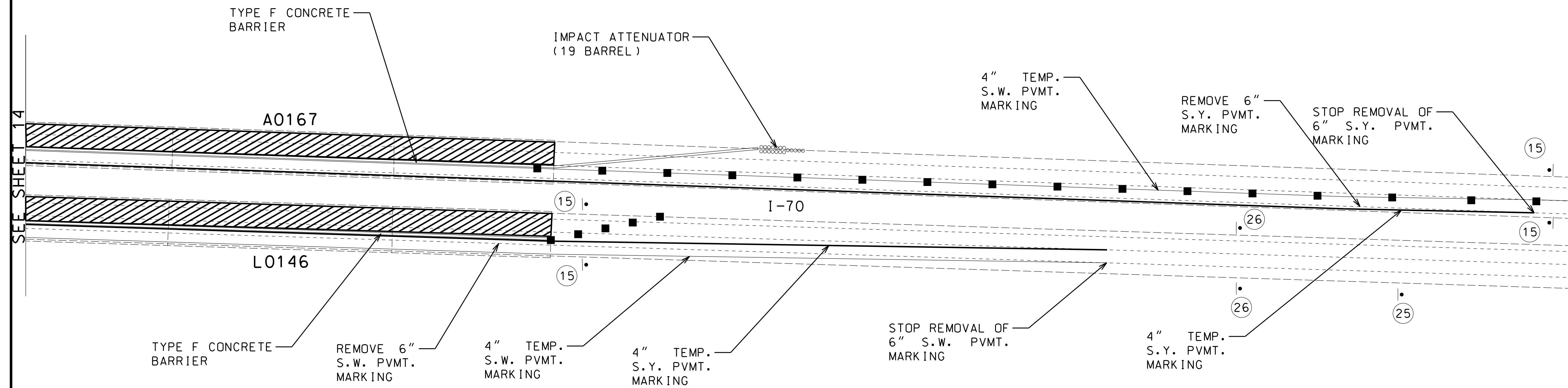
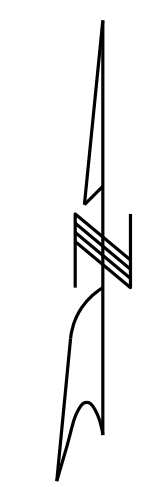
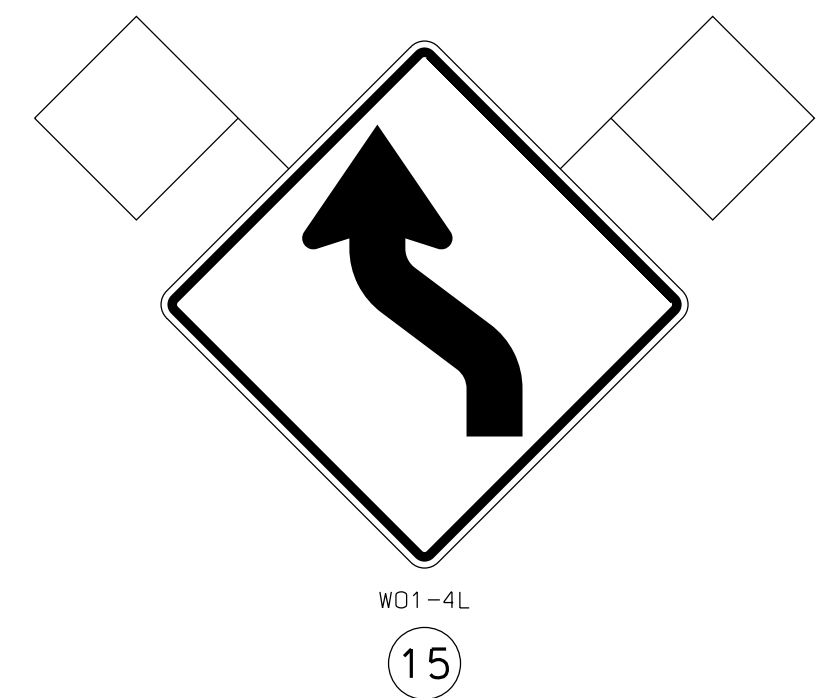
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

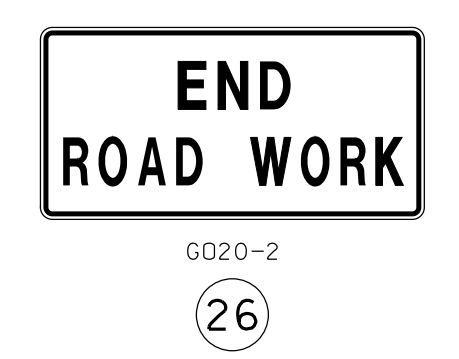


**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)
- ◐ SIGN (DOUBLE SIDED)
- ◡ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▩ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS



A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 2  
SHEET 11 OF 27

SEE SHEET 14

SEE SHEET 16



"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 16

COUNTY  
VARIOUS

JOB NO.  
J4P2191P

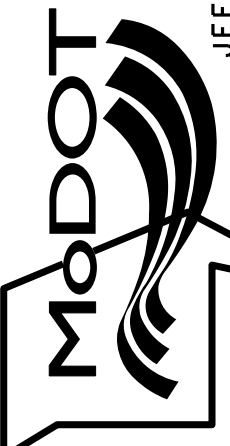
CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A01672/L01463

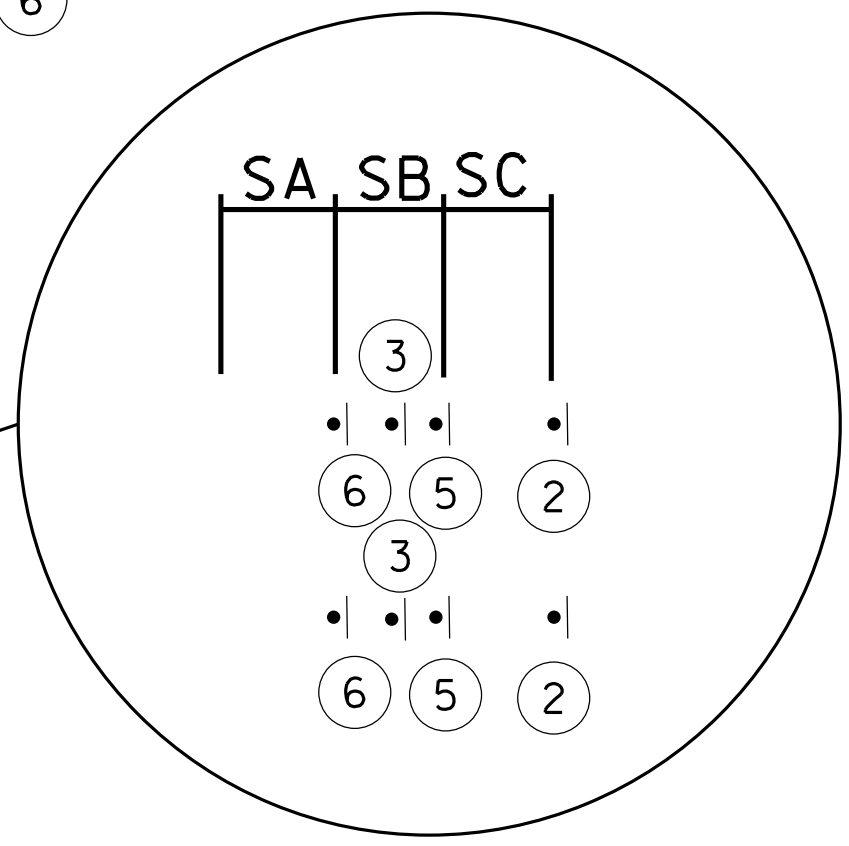
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



4" TEMP.  
S.W. PVMT.  
TAPE

FAP

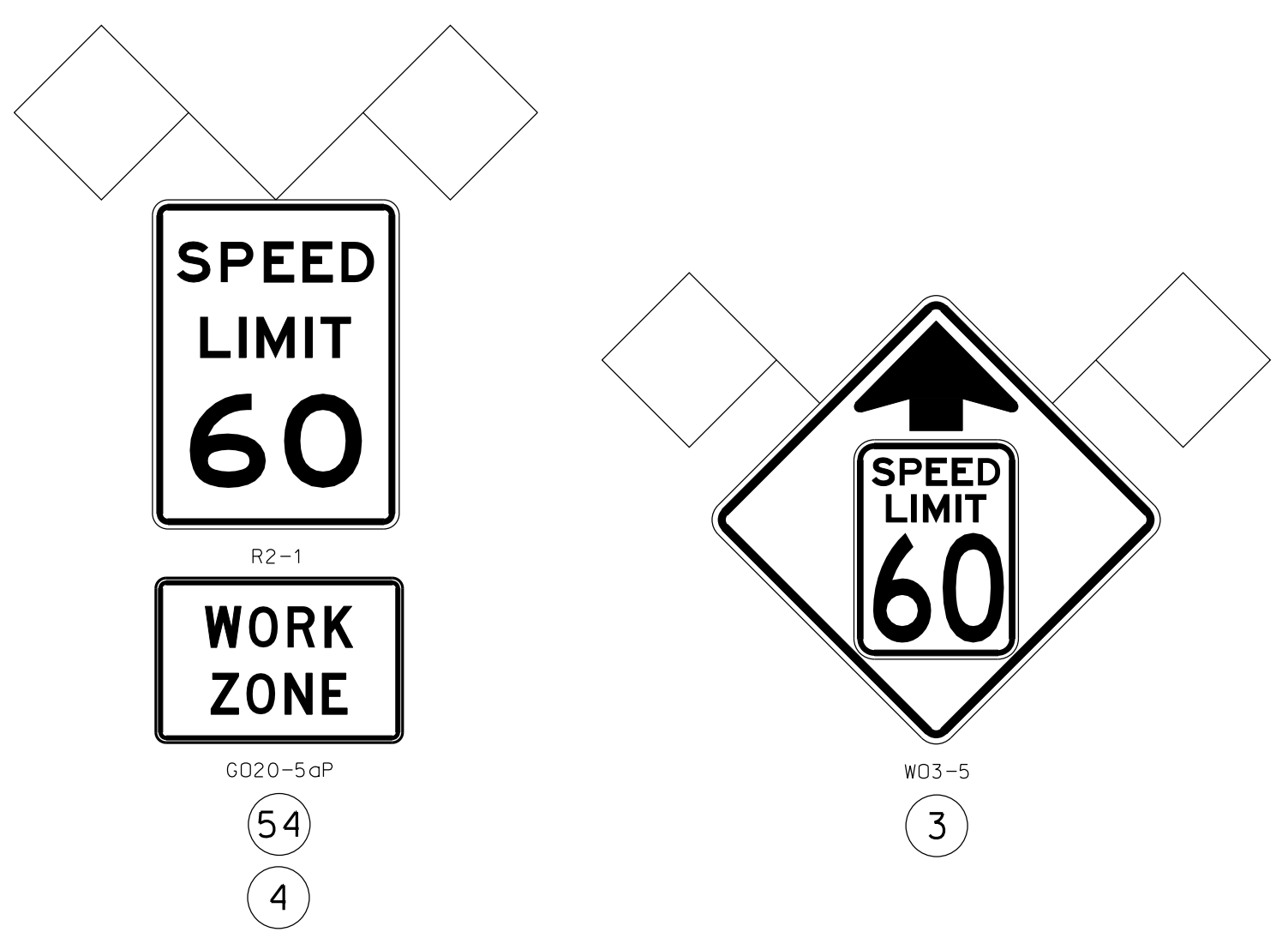
I-70

SEE SHEET 15

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◐ SIGN (DOUBLE SIDED)
- ◡ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▩ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE



NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS  
REFER TO TRAFFIC CONTROL SHEET 1 OF 27 FOR SIGN SPACING

A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 2  
SHEET 12 OF 27

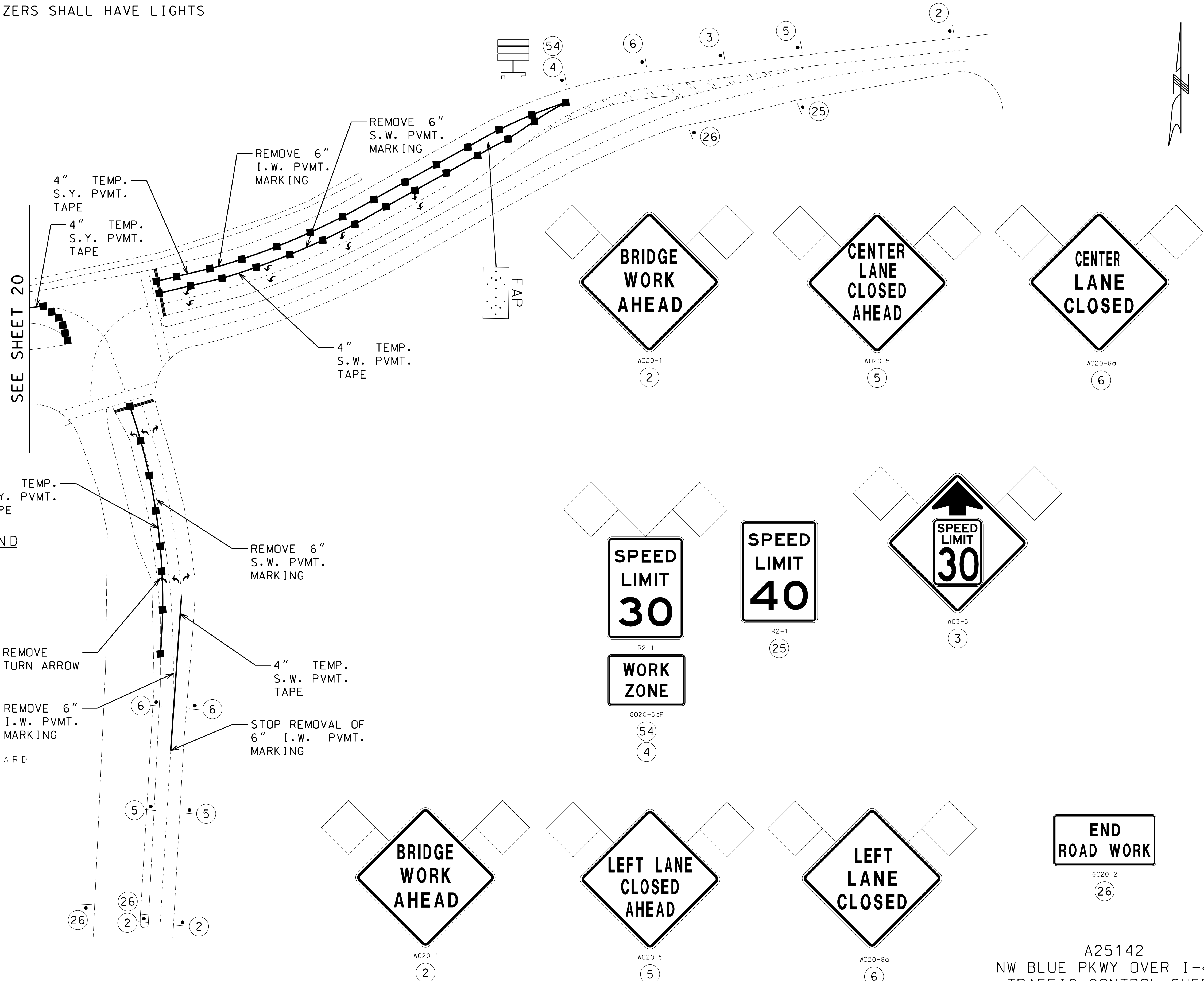








NOTE: TAPER CHANNELIZERS SHALL HAVE LIGHTS



TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◻ SIGN (DOUBLE SIDED)
- ◊ FLAGGER
- ▲ CONE
- CHANNELIZER
- ⌈ BARRICADE
- ⌊ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 12/11/2013	
ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 21
COUNTY VARIOUS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A25142	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

A25142  
NW BLUE PKWY OVER I-470  
TRAFFIC CONTROL SHEET  
PHASE 1  
SHEET 17 OF 27

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 22

COUNTY  
VARIOUS

JOB NO.  
J4P2191B


CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A25482

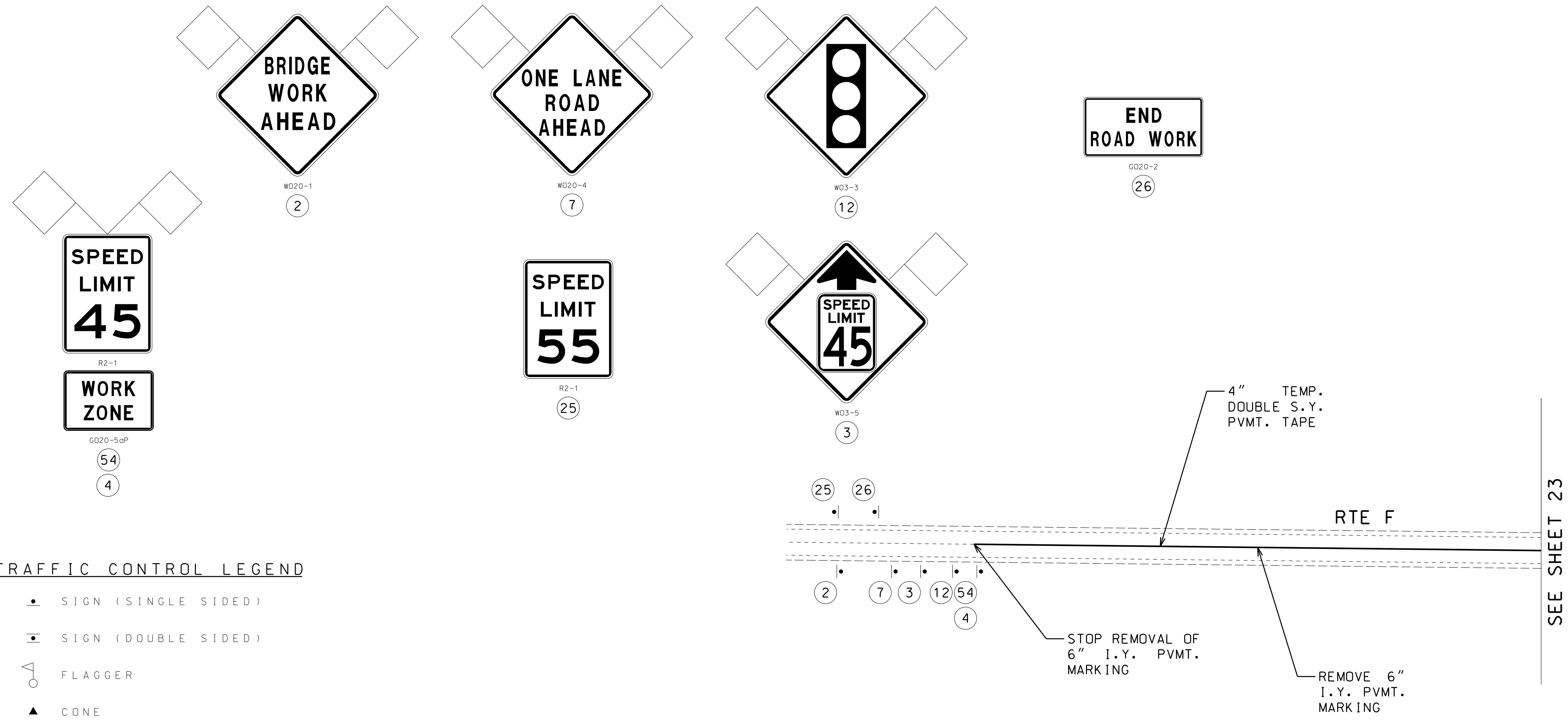
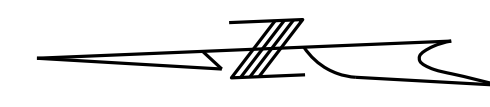
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)
- ▬ SIGN (DOUBLE SIDED)
- FLAGGER
- ▲ CONE
- CHANNELIZER
- ⚡ TEMP. SIGNAL
- ▭ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

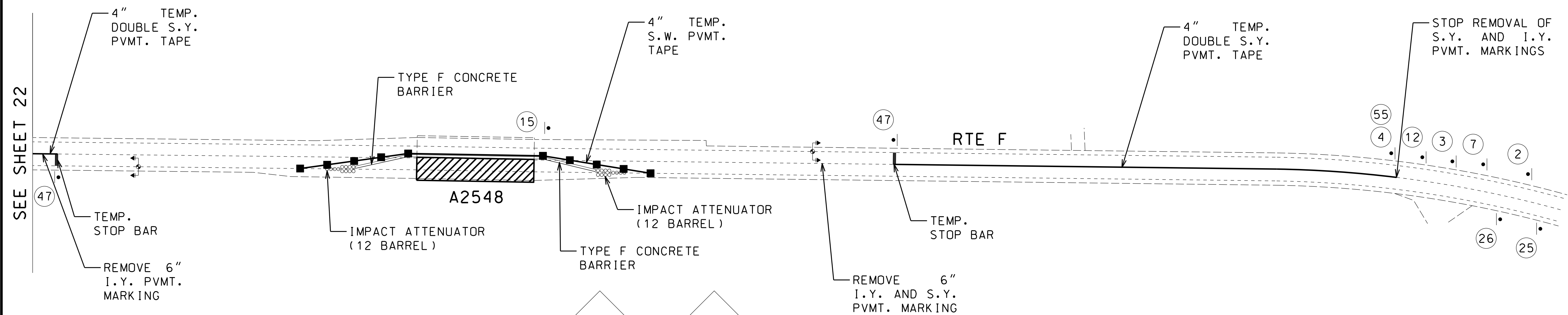
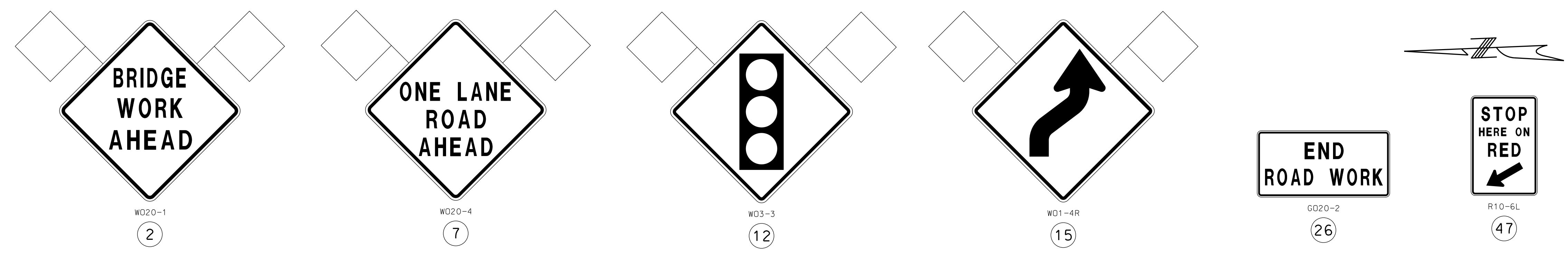
NOT TO SCALE

NOTE: REFER TO SHEET 1 OF 27 FOR SIGN SPACING

A25482  
RTE F OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 1  
SHEET 18 OF 27

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

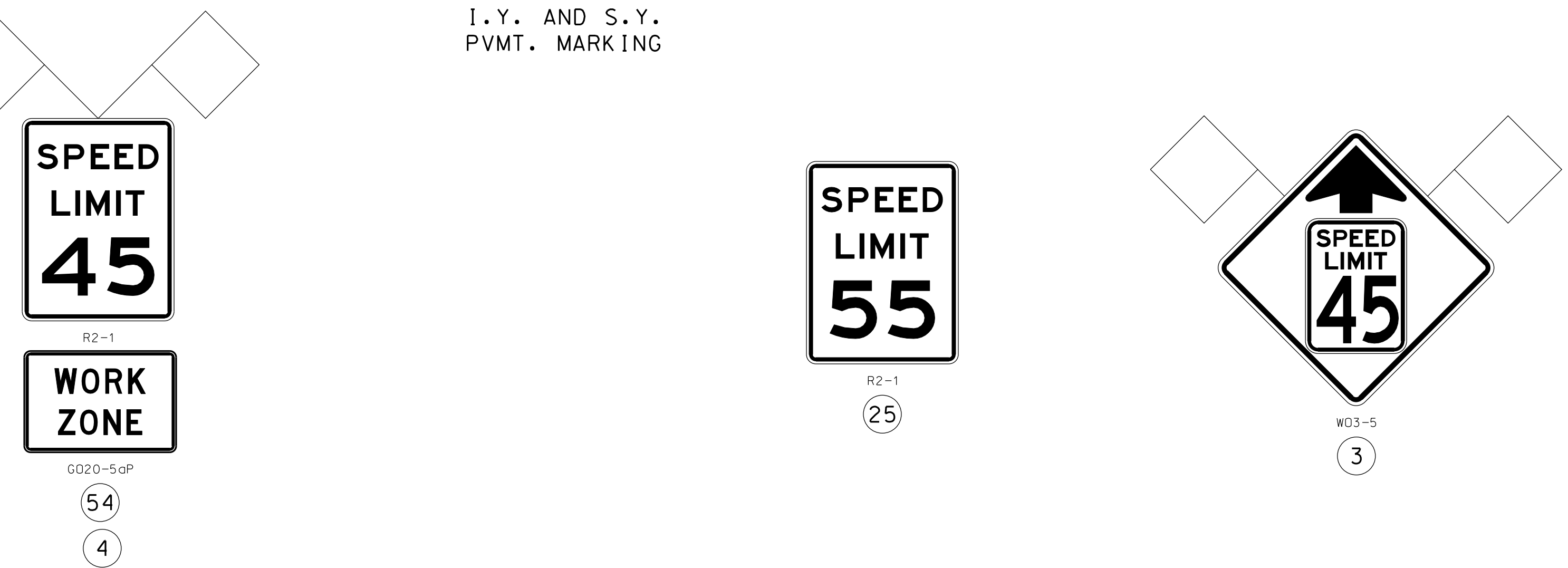
DATE PREPARED 12/11/2013	
ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 23
COUNTY VARIOUS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A25482	



- TRAFFIC CONTROL LEGEND**
- SIGN (SINGLE SIDED)
  - ◻ SIGN (DOUBLE SIDED)
  - FLAGGER
  - ▲ CONE
  - CHANNELIZER
  - ↔ TEMP. SIGNAL
  - ▭ CHANGEABLE MESSAGE BOARD
  - ▨ WORK ZONE

NOT TO SCALE

NOTE: REFER TO TRAFFIC CONTROL SHEET 1 OF 27 FOR SIGN SPACING



A25482  
RT F OVER SNI-A-BAR CREEK  
TRAFFIC CONTROL SHEET  
PHASE 1  
SHEET 19 OF 27

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013  
ROUTE  
VAR. MO  
DISTRICT SHEET NO.  
KC 24  
COUNTY  
VARIOUS  
JOB NO.  
J4P2191B  
CONTRACT ID.  
PROJECT NO.  
BRIDGE NO.  
A25482

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
  
 105 WEST CAPITOL JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-273-6636)

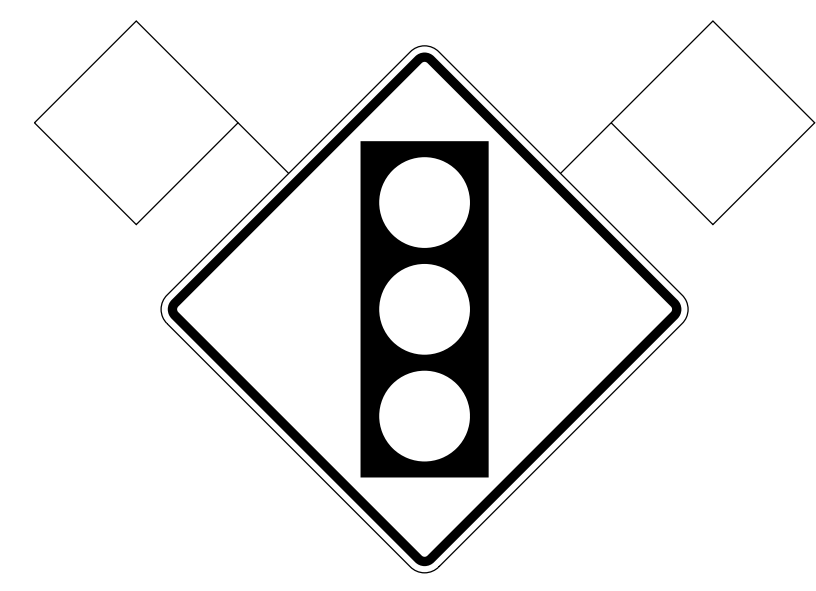
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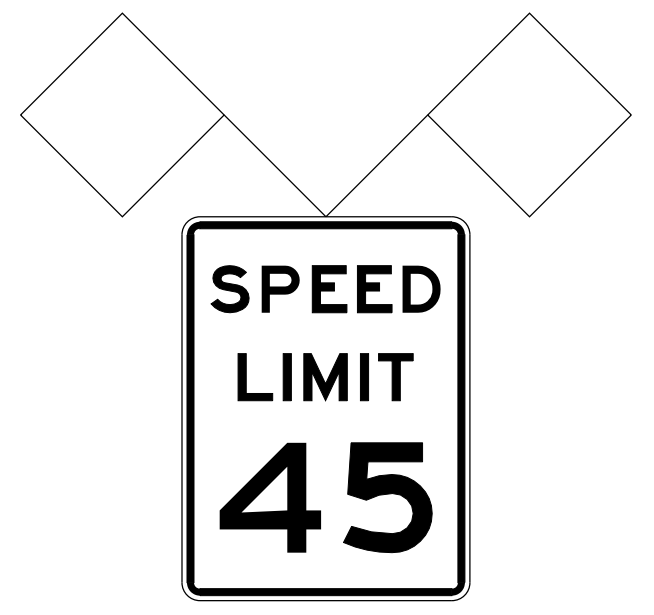
WO20-1  
2



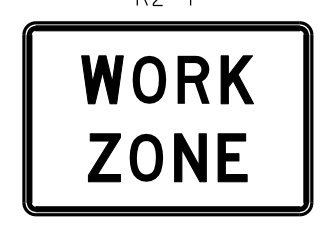
WO20-4  
7



WO3-3  
12



R2-1



G020-5aP

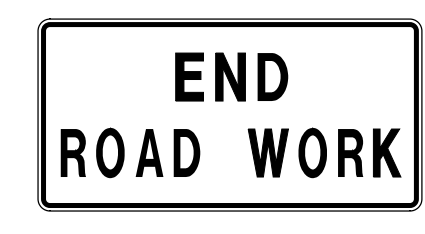
54  
4



R2-1  
25

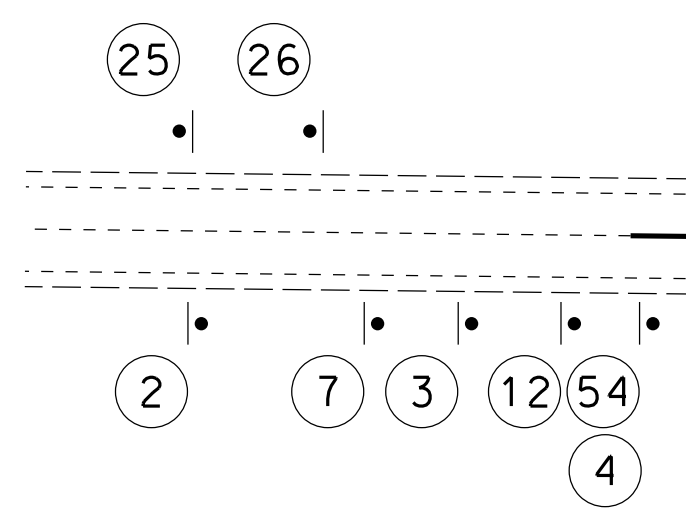


WO3-5  
3



G020-2  
26

4" TEMP. DOUBLE S.Y. PVMT. TAPE (FROM PHASE 1)



SEE SHEET 25

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◻ SIGN (DOUBLE SIDED)
- FLAGGER
- ▲ CONE
- CHANNELIZER
- ⚡ TEMP. SIGNAL
- ▭ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

A25482  
 RTE F OVER SNI-A-BAR CREEK  
 TRAFFIC CONTROL SHEET  
 PHASE 2  
 SHEET 20 OF 27





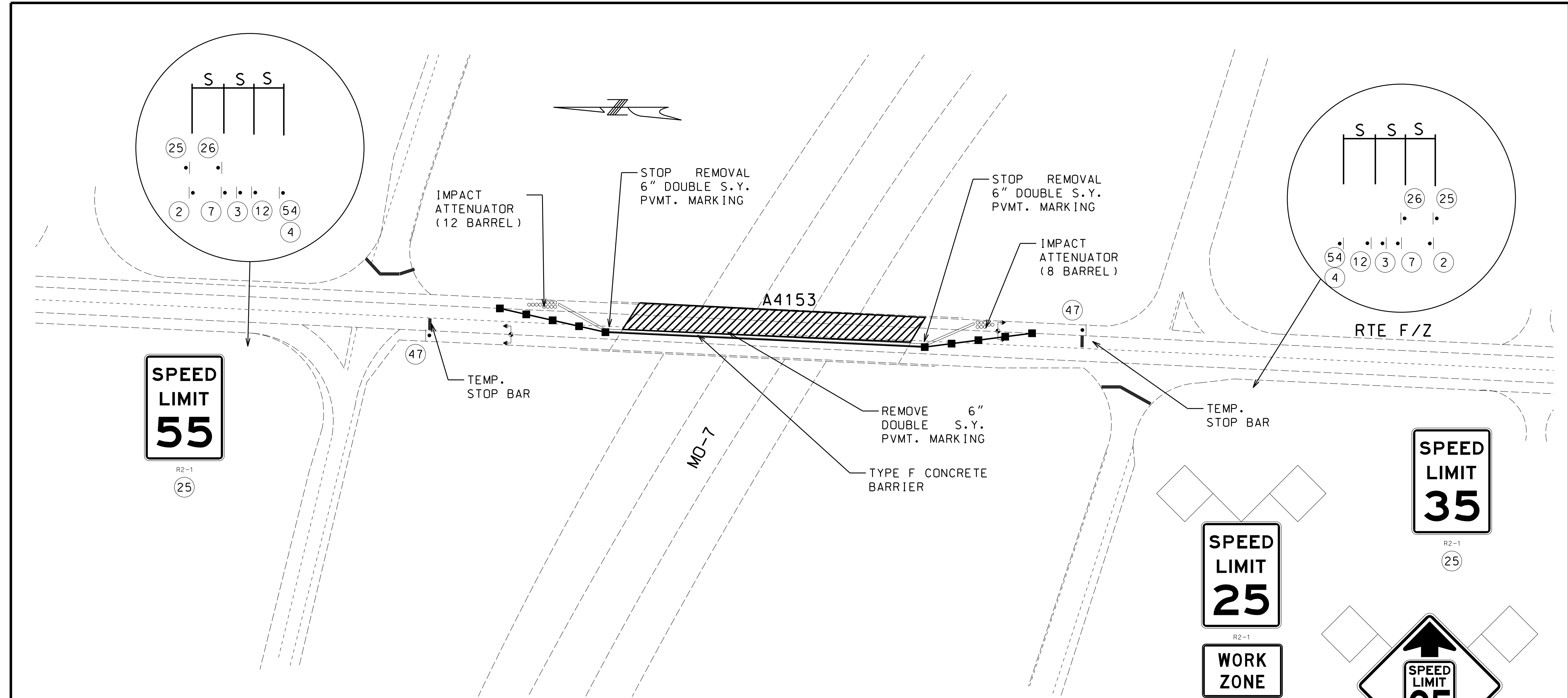
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 12/11/2013  
ROUTE VAR. MO  
DISTRICT KC SHEET NO. 27  
COUNTY VARIOUS  
JOB NO. J4P2191B  
CONTRACT ID.  
PROJECT NO.  
BRIDGE NO. A41531

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
MoDOT  
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

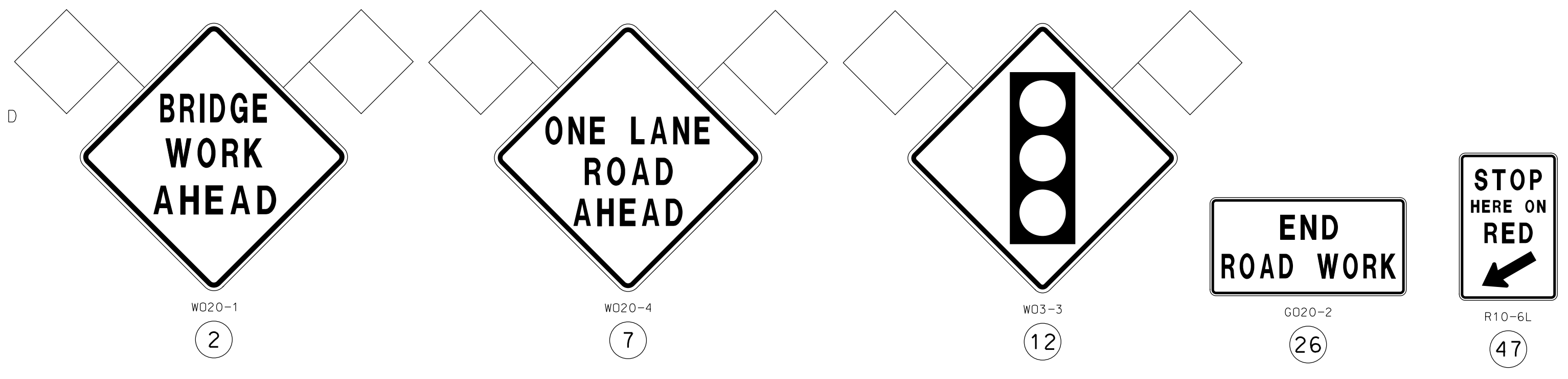


TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◻ SIGN (DOUBLE SIDED)
- FLAGGER
- ▲ CONE
- CHANNELIZER
- ↔ TEMP. SIGNAL
- ▭ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

NOTE: REFER TO TRAFFIC CONTROL SHEET 1 OF 27 FOR SIGN SPACING



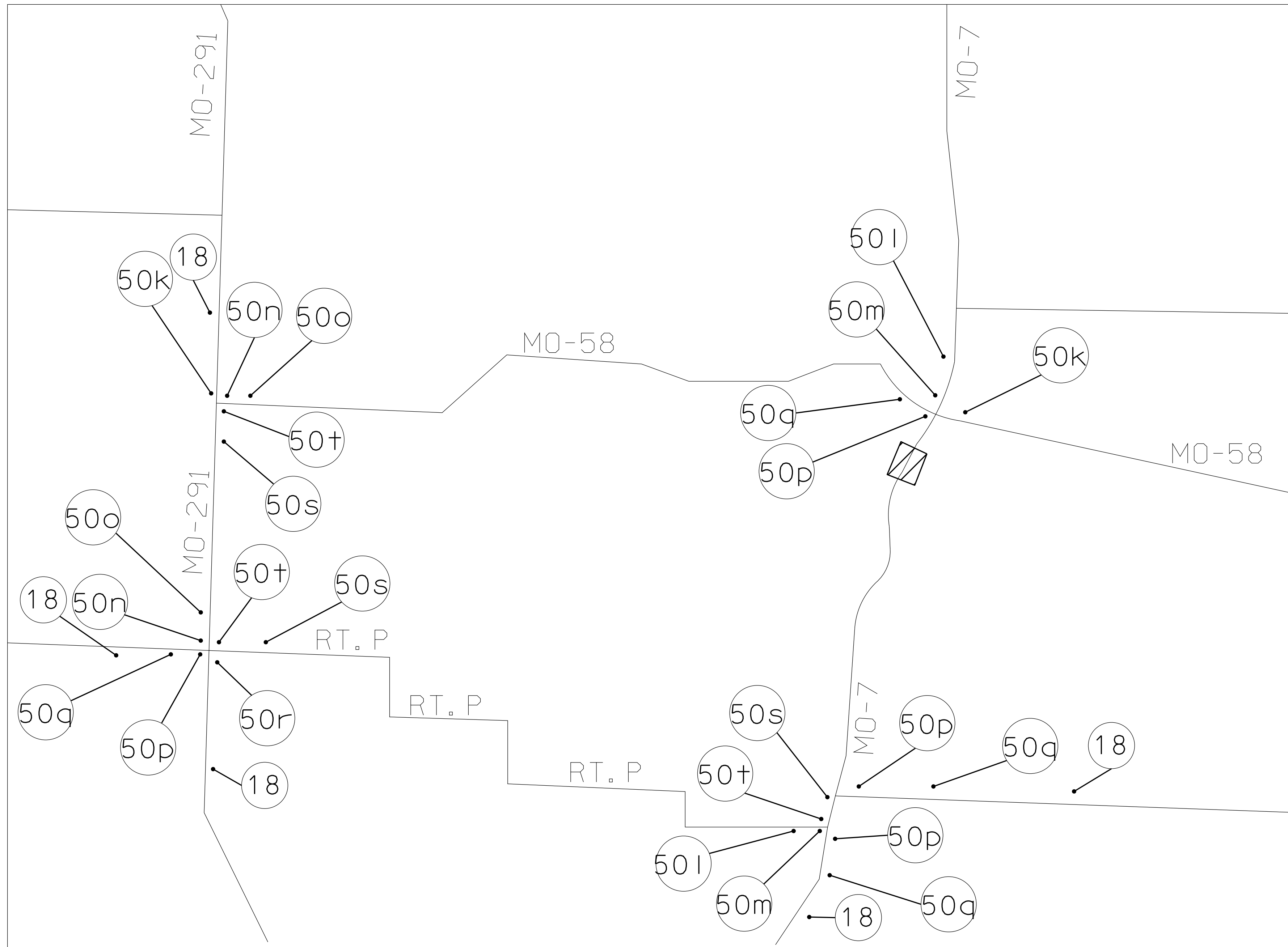
A41531  
RTE F/Z OVER MO-7  
TRAFFIC CONTROL SHEET  
PHASE 2  
SHEET 23 OF 27



# TRUCK DETOUR

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013  
ROUTE 7 STATE MO  
DISTRICT KC SHEET NO. 29  
COUNTY VARIOUS  
JOB NO. J4P2191B  
CONTRACT ID.  
PROJECT NO.  
BRIDGE NO. L00232

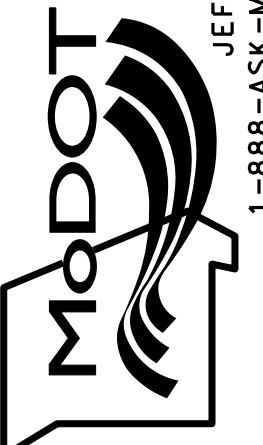


TRUCK DETOUR	TRUCK DETOUR	TRUCK DETOUR	TRUCK DETOUR	TRUCK DETOUR
SOUTH	SOUTH	SOUTH	SOUTH	SOUTH
M3-3	M3-3	M3-3	M3-3	M3-3
M1-5	M1-5	M1-5	M1-5	M1-5
M6-3	M5-1R	M6-1	M6-1	M5-1L
50k	50l	50m	50n	50o
TRUCK DETOUR	TRUCK DETOUR	TRUCK DETOUR	TRUCK DETOUR	TRUCK DETOUR
NORTH	NORTH	NORTH	NORTH	NORTH
M3-1	M3-1	M3-1	M3-1	M3-1
M1-5	M1-5	M1-5	M1-5	M1-5
M6-1	M5-1L	M6-3	M5-1R	M6-1
50p	50q	50r	50s	50t

DESCRIPTION

DATE

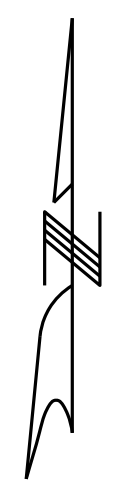
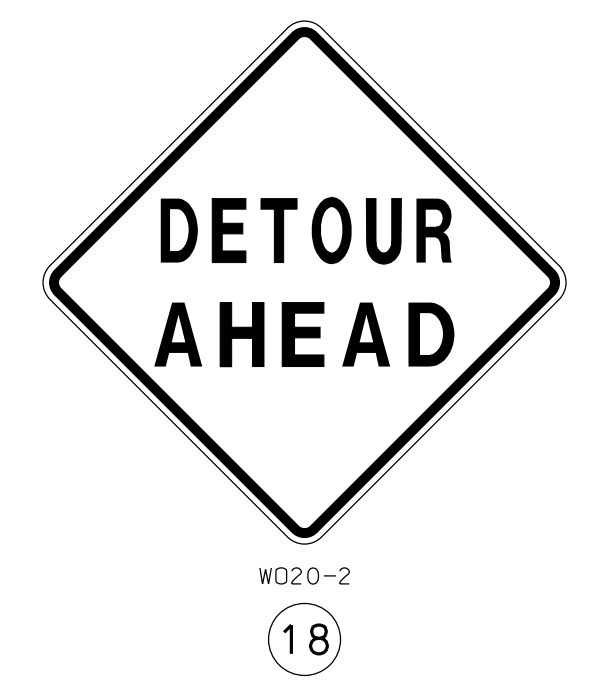
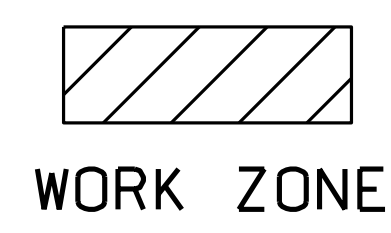
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

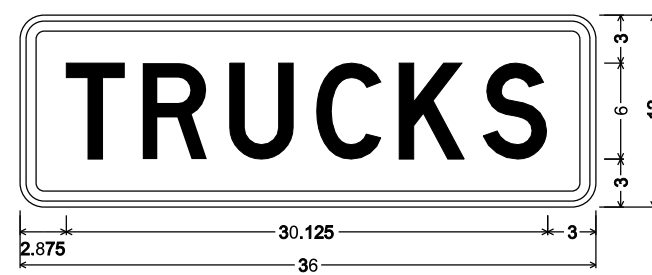
NOT TO SCALE



L00232  
MO-7 OVER BIG CREEK  
TRAFFIC CONTROL SHEET  
SHEET 25 OF 27

SIGN 77

SIGN NO.	77
STATION	VARIOUS
ROADWAY	VARIOUS



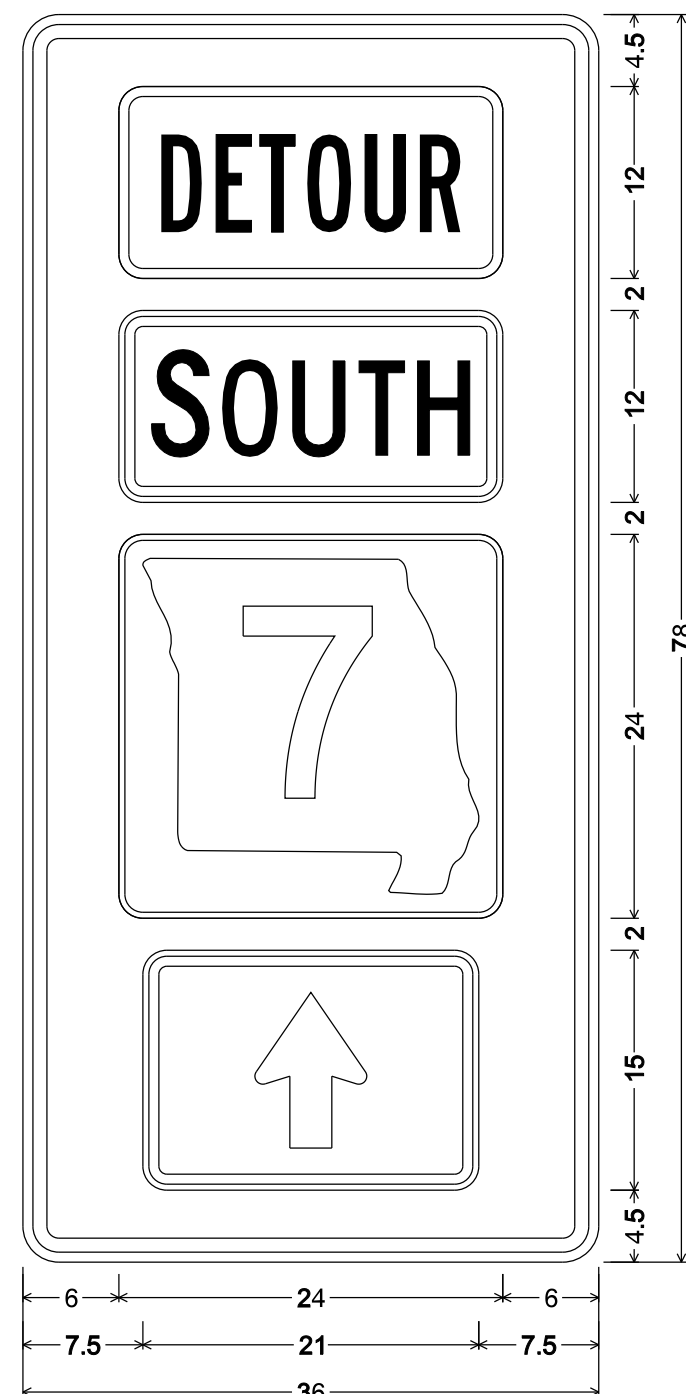
SPECIAL SHR4L1:  
1.500" Radius, 0.625" Border, 0.375" Indent, Black on White;  
[TRUCKS] D;  
Table of letter and object lefts.

T	R	U	C	K	S
2.875	7.625	13.125	18.500	23.750	29.000

A25142

SIGN 50a

SIGN NO.	50a
STATION	VARIOUS
ROADWAY	VARIOUS

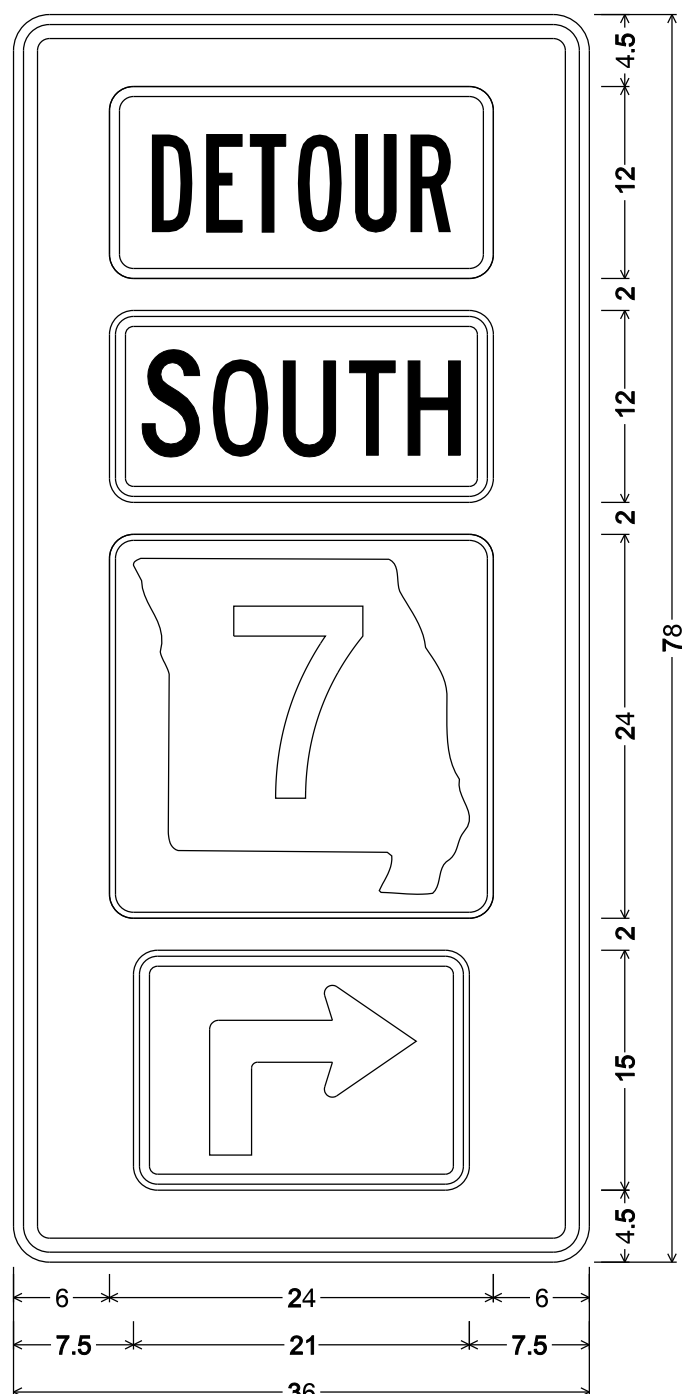


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50b

SIGN NO.	50b
STATION	VARIOUS
ROADWAY	VARIOUS

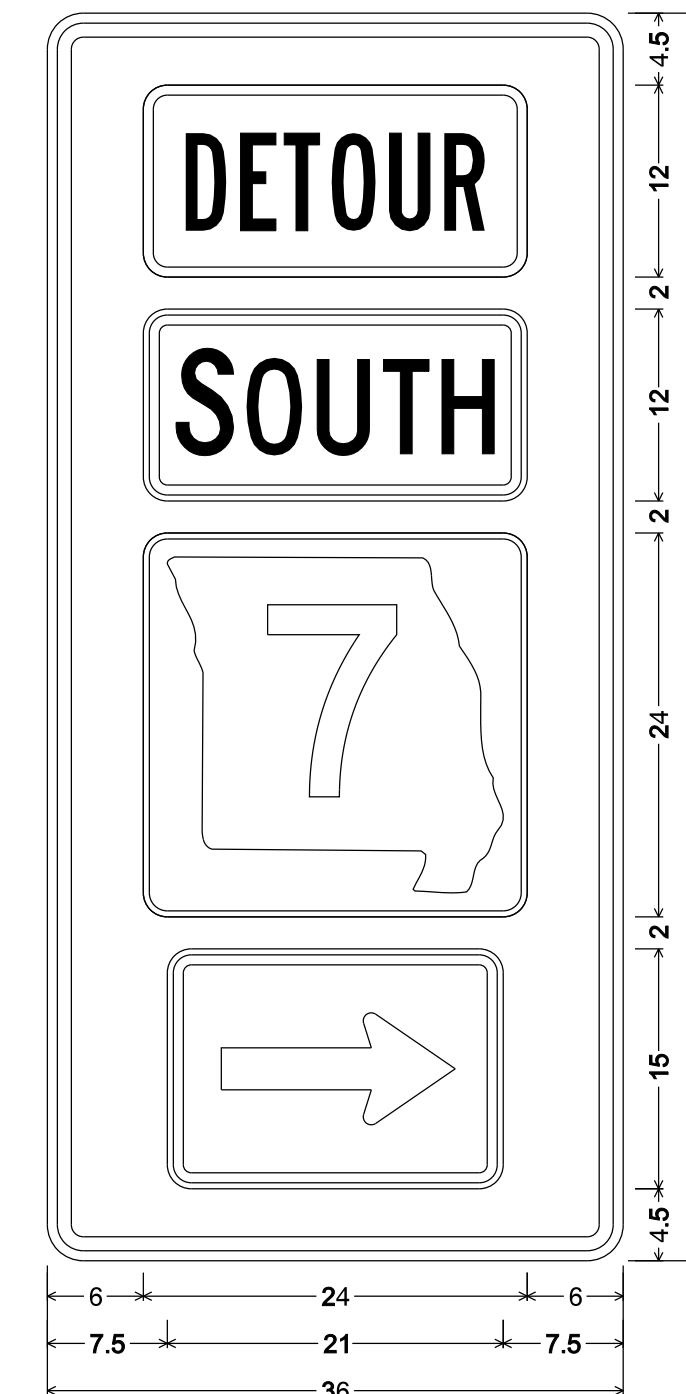


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50c

SIGN NO.	50c
STATION	VARIOUS
ROADWAY	VARIOUS

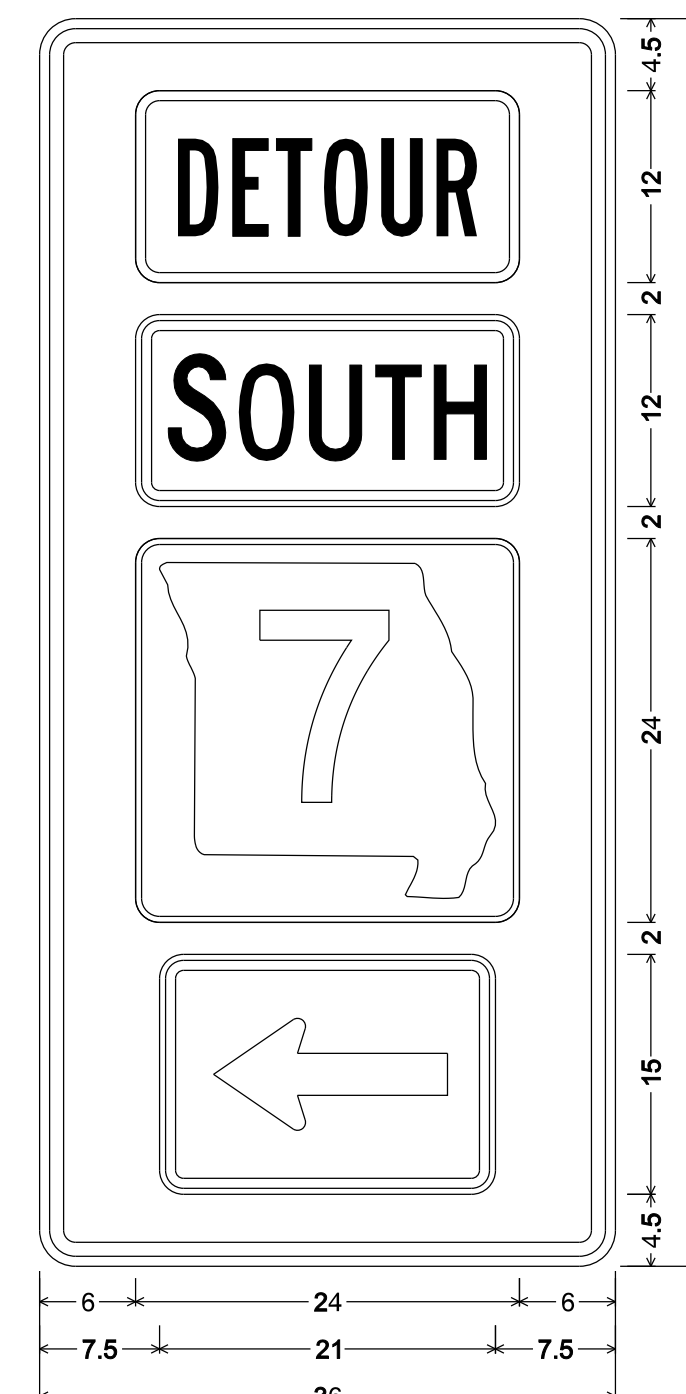


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50d

SIGN NO.	50d
STATION	VARIOUS
ROADWAY	VARIOUS

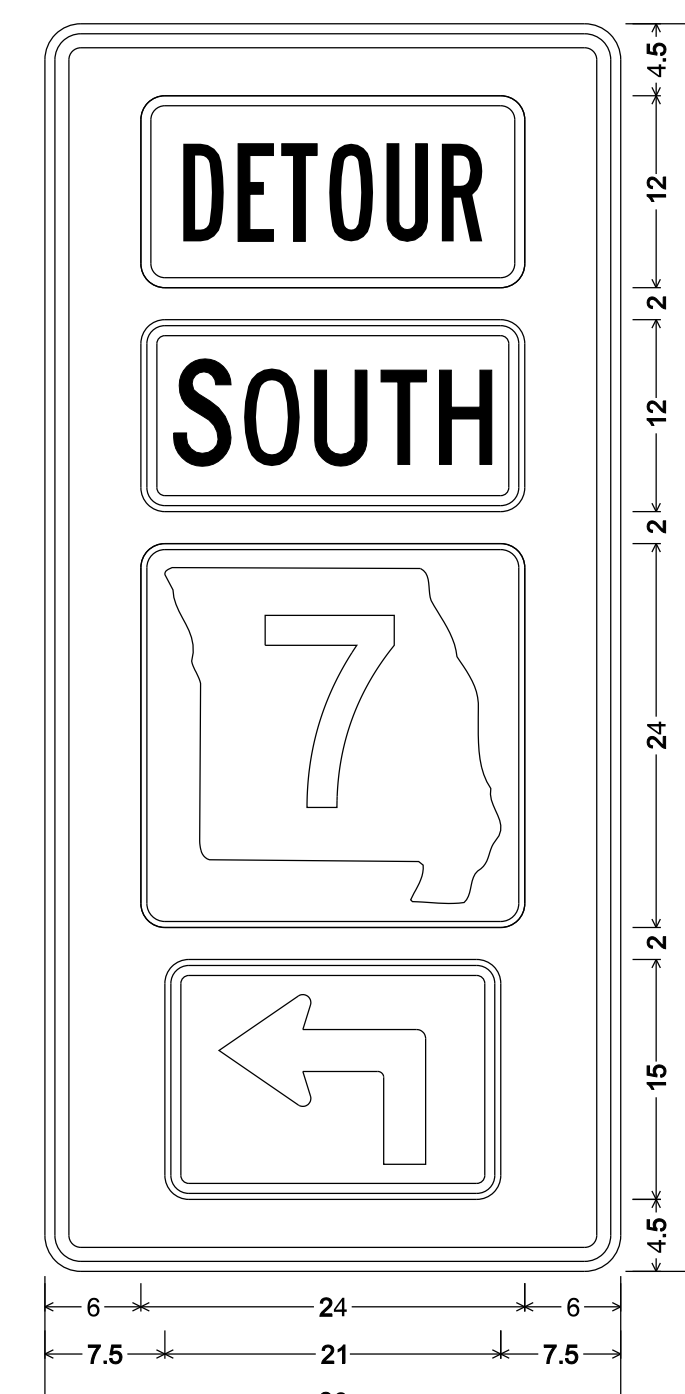


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50e

SIGN NO.	50e
STATION	VARIOUS
ROADWAY	VARIOUS

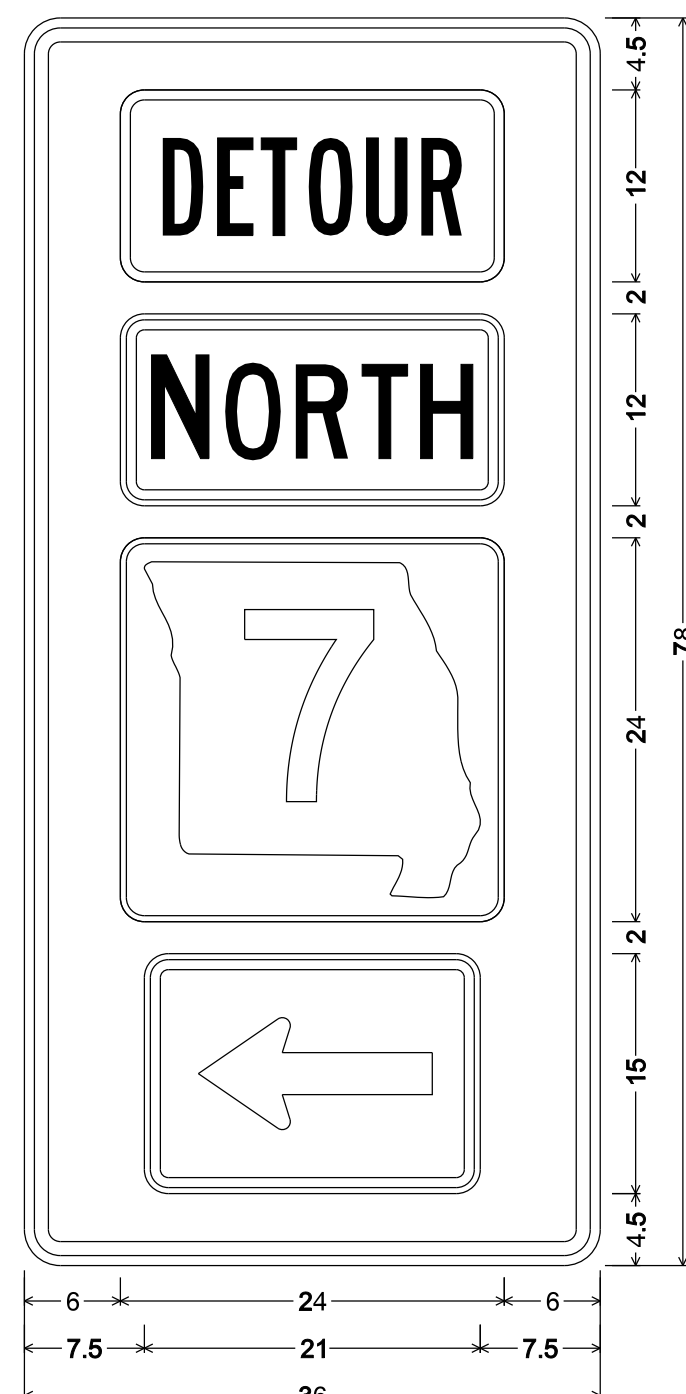


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50f

SIGN NO.	50f
STATION	VARIOUS
ROADWAY	VARIOUS

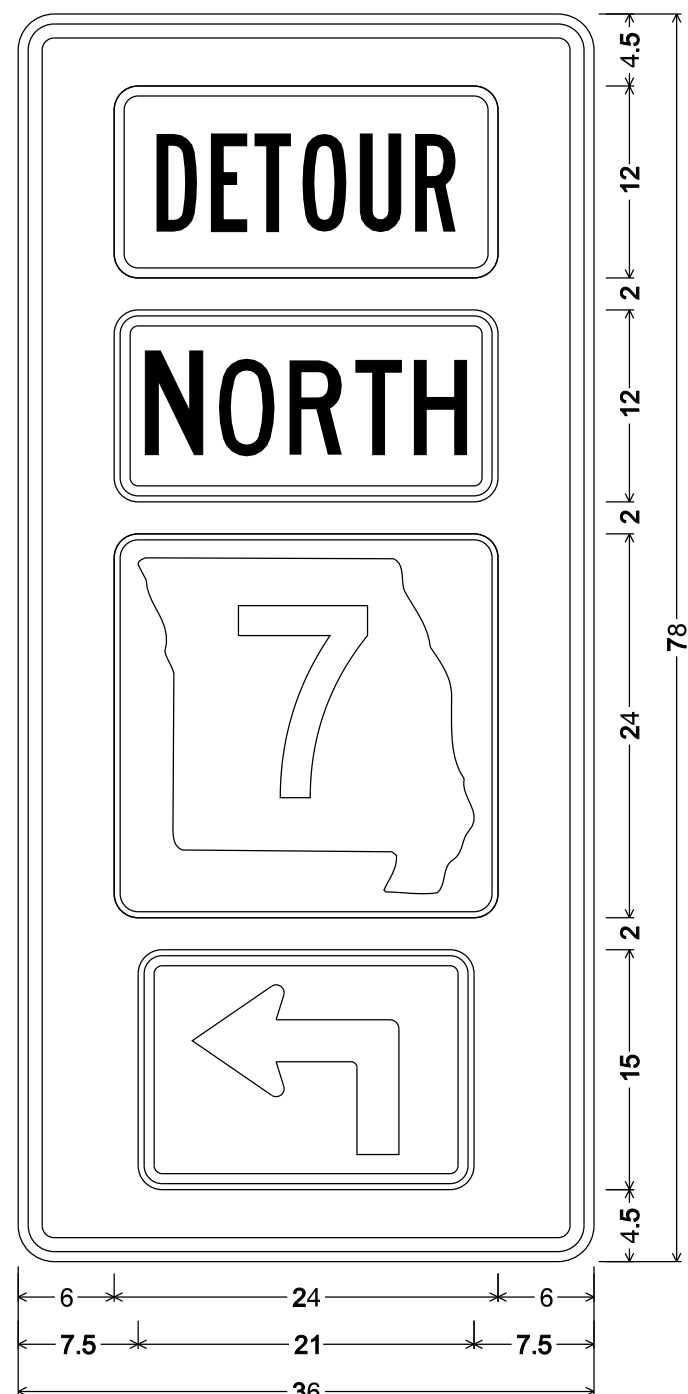


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50g

SIGN NO.	50g
STATION	VARIOUS
ROADWAY	VARIOUS

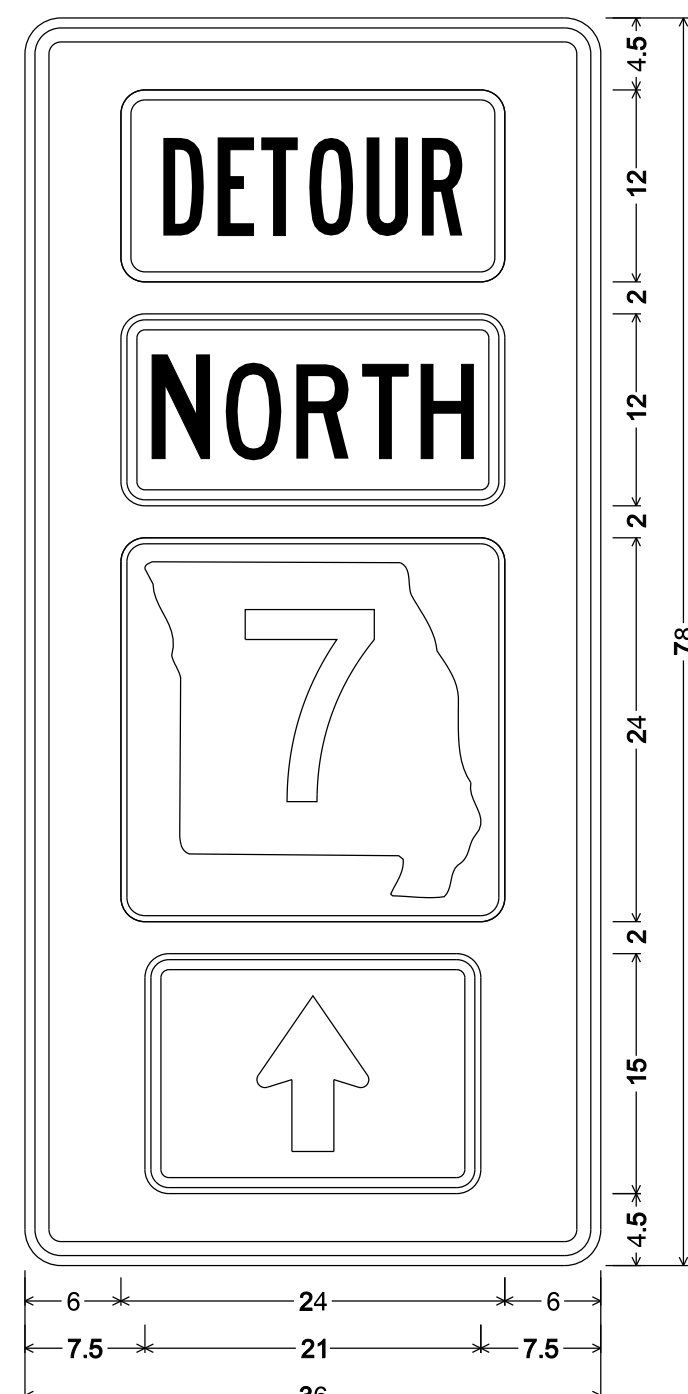


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50h

SIGN NO.	50h
STATION	VARIOUS
ROADWAY	VARIOUS

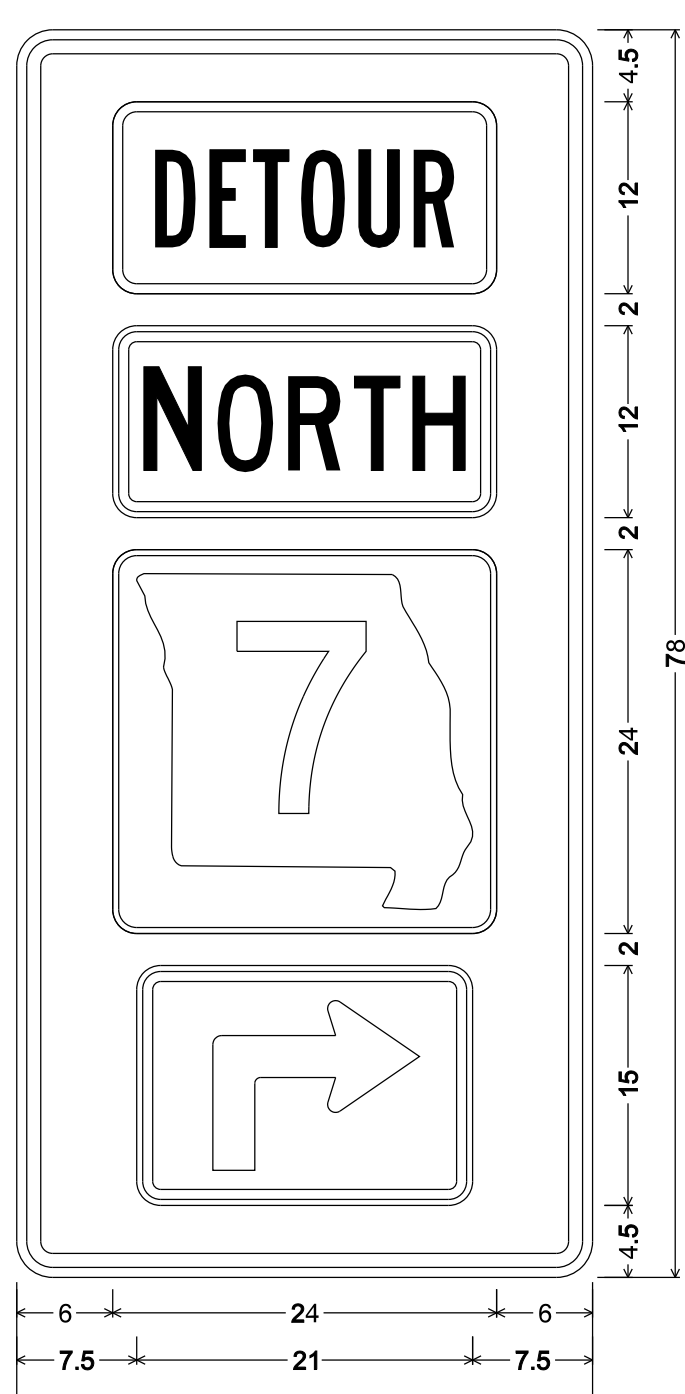


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50i

SIGN NO.	50i
STATION	VARIOUS
ROADWAY	VARIOUS

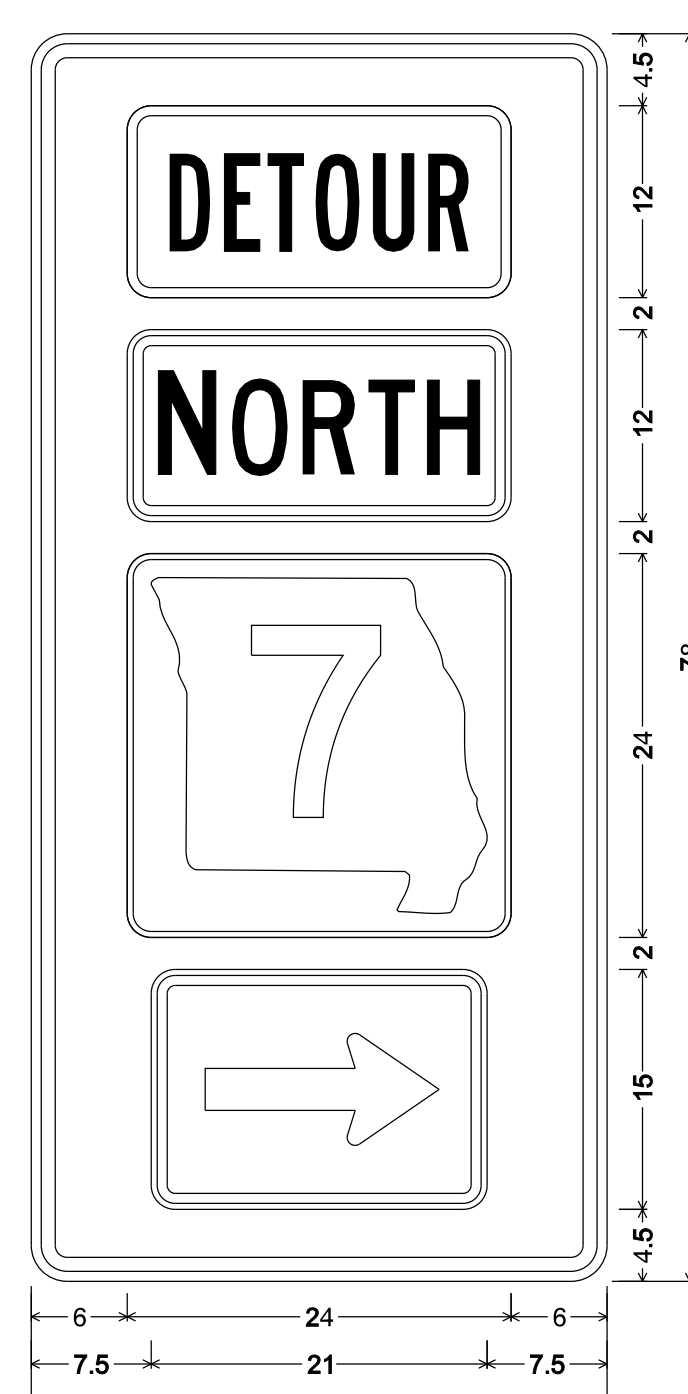


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

SIGN 50j

SIGN NO.	50j
STATION	VARIOUS
ROADWAY	VARIOUS



MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
7.500
6.000
6.000
7.500

L00232  
TRAFFIC CONTROL SHEET  
SHEET 26 OF 27

D-31

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE  
VAR.

STATE  
MO

DISTRICT  
KC

SHEET NO.  
30

COUNTY  
VARIOUS

JOB NO.  
J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
L00232

DESCRIPTION

DATE

DESCRIPTION

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DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

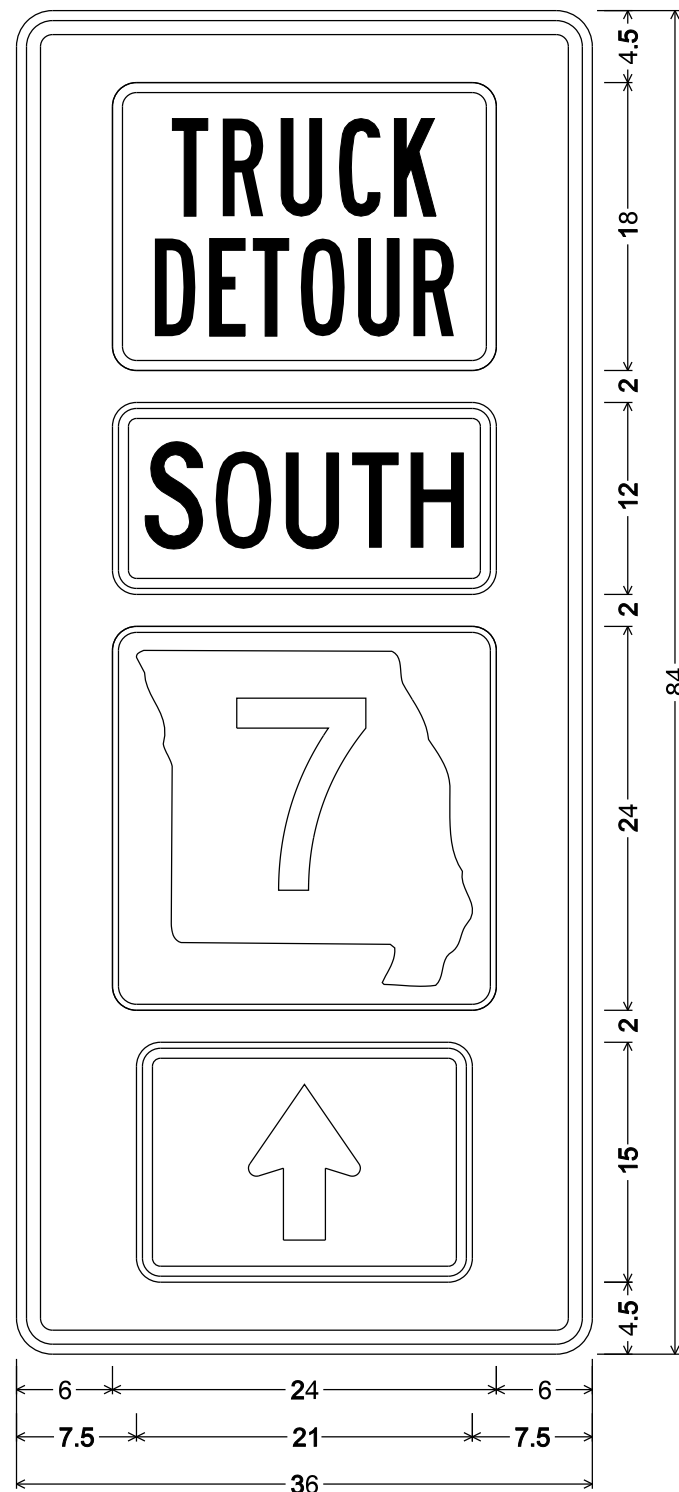
REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

SIGN 50k

SIGN NO.	50k
STATION	VARIOUS
ROADWAY	VARIOUS

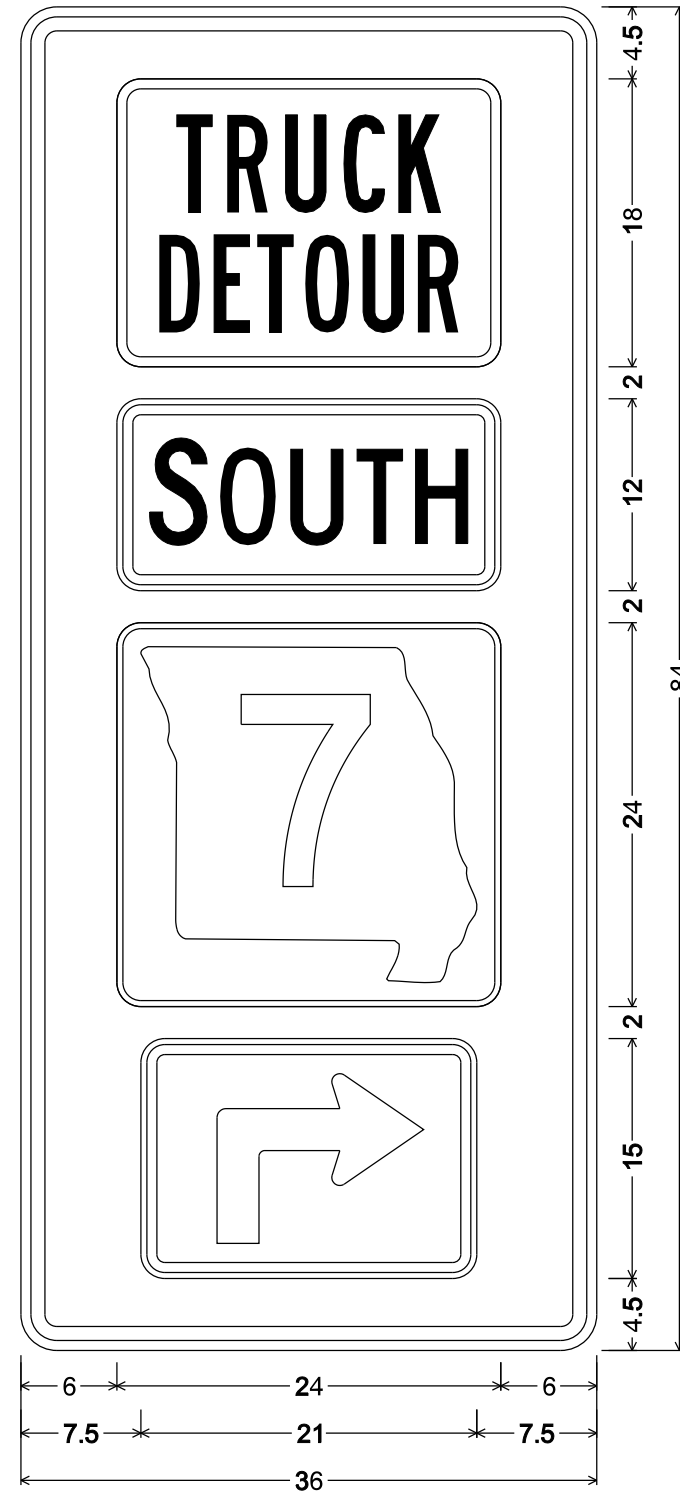


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
6.000
7.500

SIGN 50l

SIGN NO.	50l
STATION	VARIOUS
ROADWAY	VARIOUS

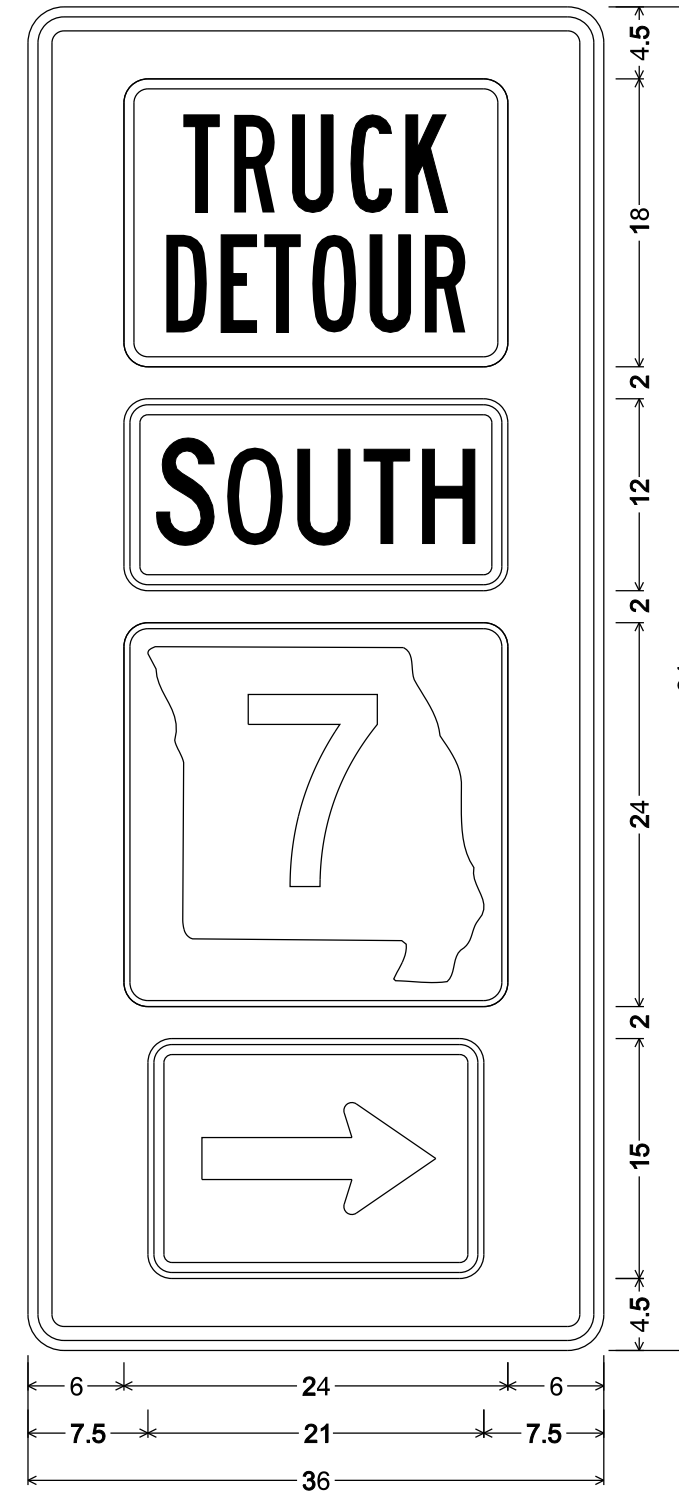


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
6.000
7.500

SIGN 50m

SIGN NO.	50m
STATION	VARIOUS
ROADWAY	VARIOUS

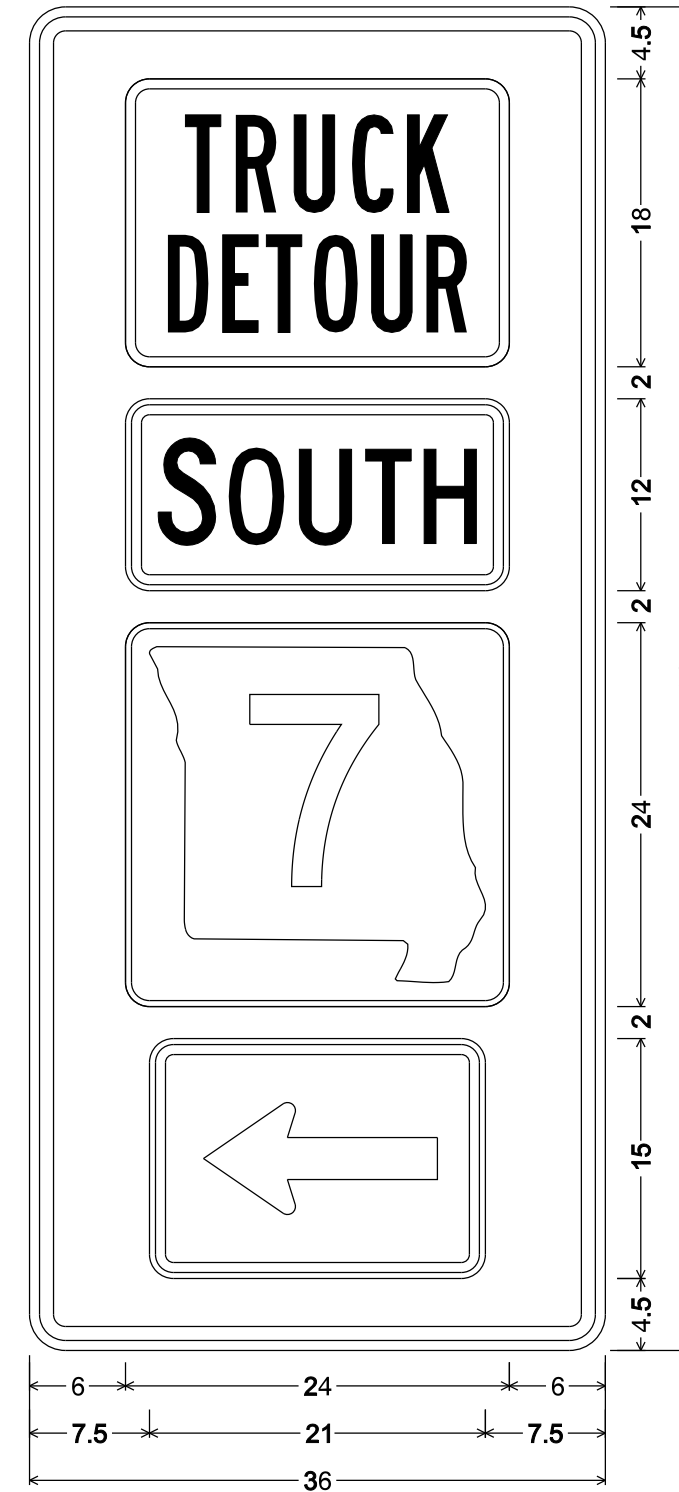


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
6.000
7.500

SIGN 50n

SIGN NO.	50n
STATION	VARIOUS
ROADWAY	VARIOUS

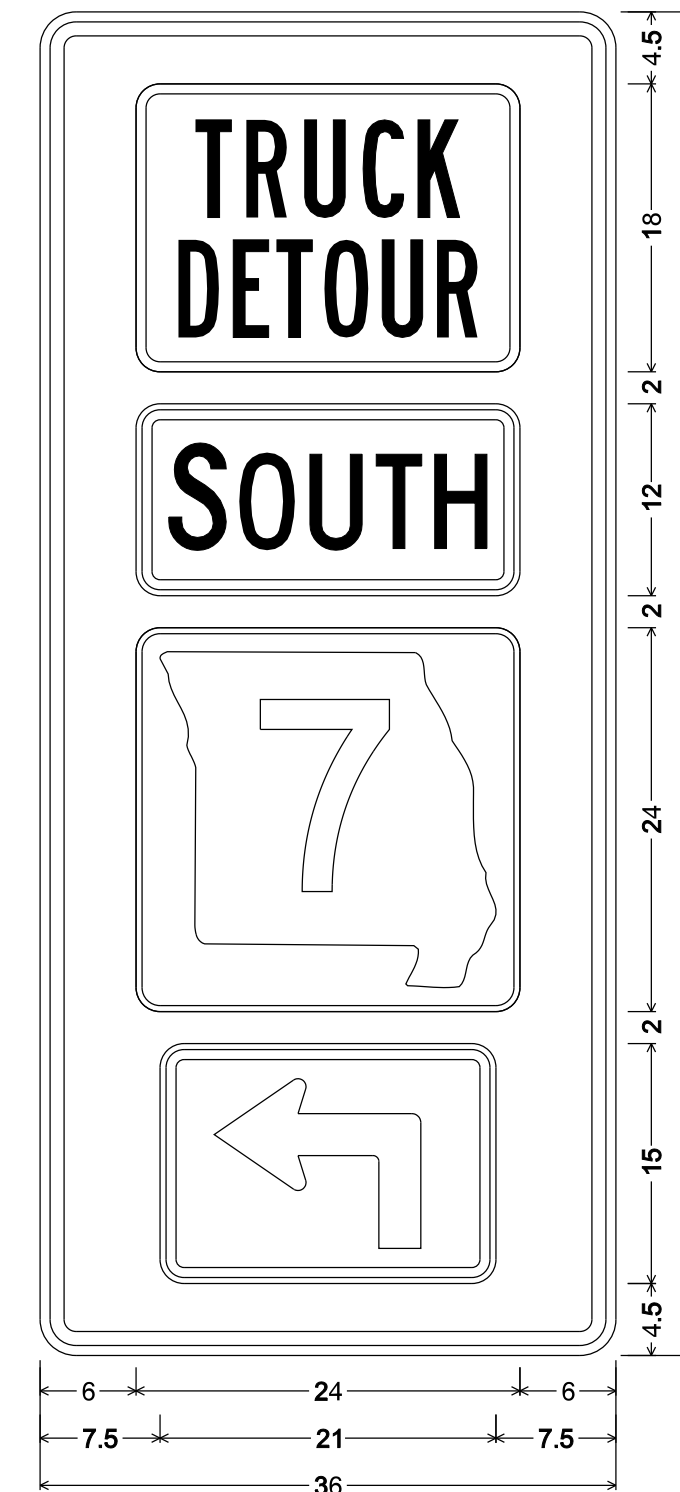


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
6.000
7.500

SIGN 50o

SIGN NO.	50o
STATION	VARIOUS
ROADWAY	VARIOUS

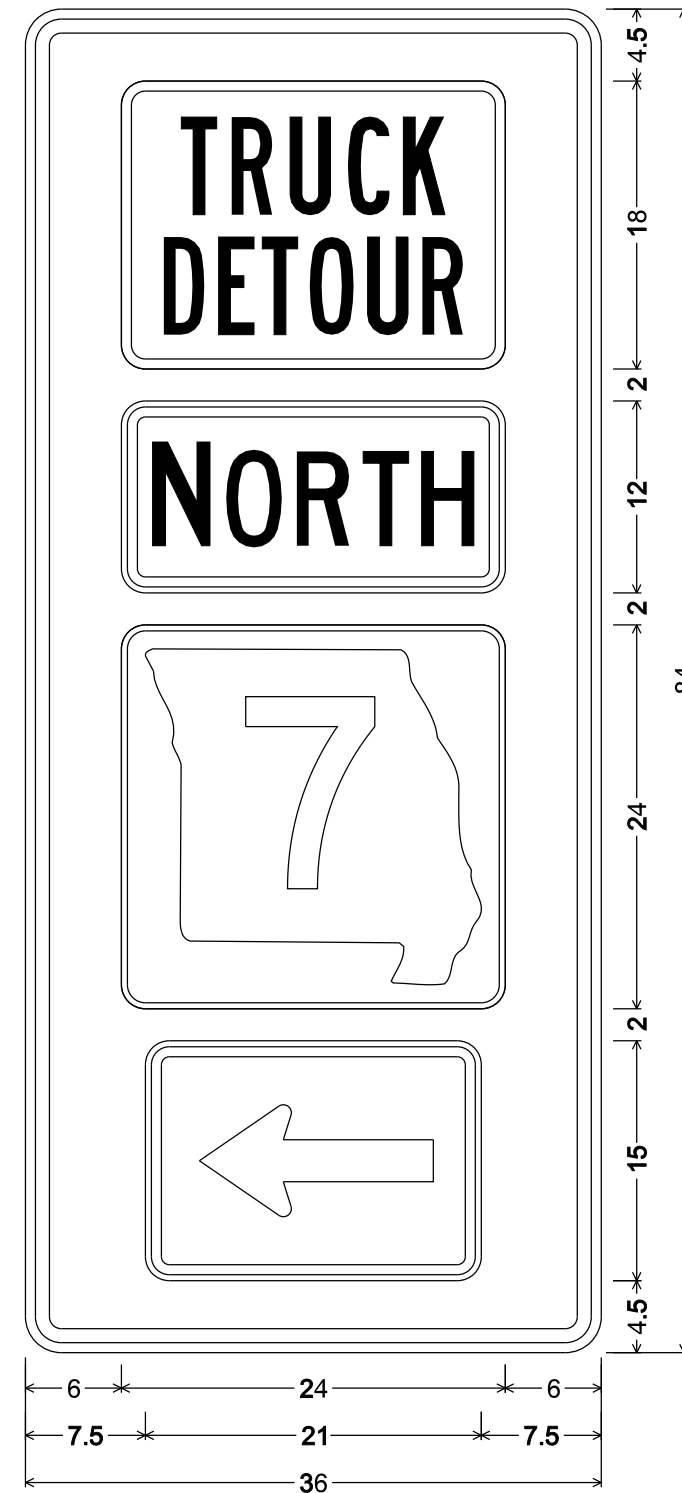


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000
6.000
6.000
7.500

SIGN 50p

SIGN NO.	50p
STATION	VARIOUS
ROADWAY	VARIOUS

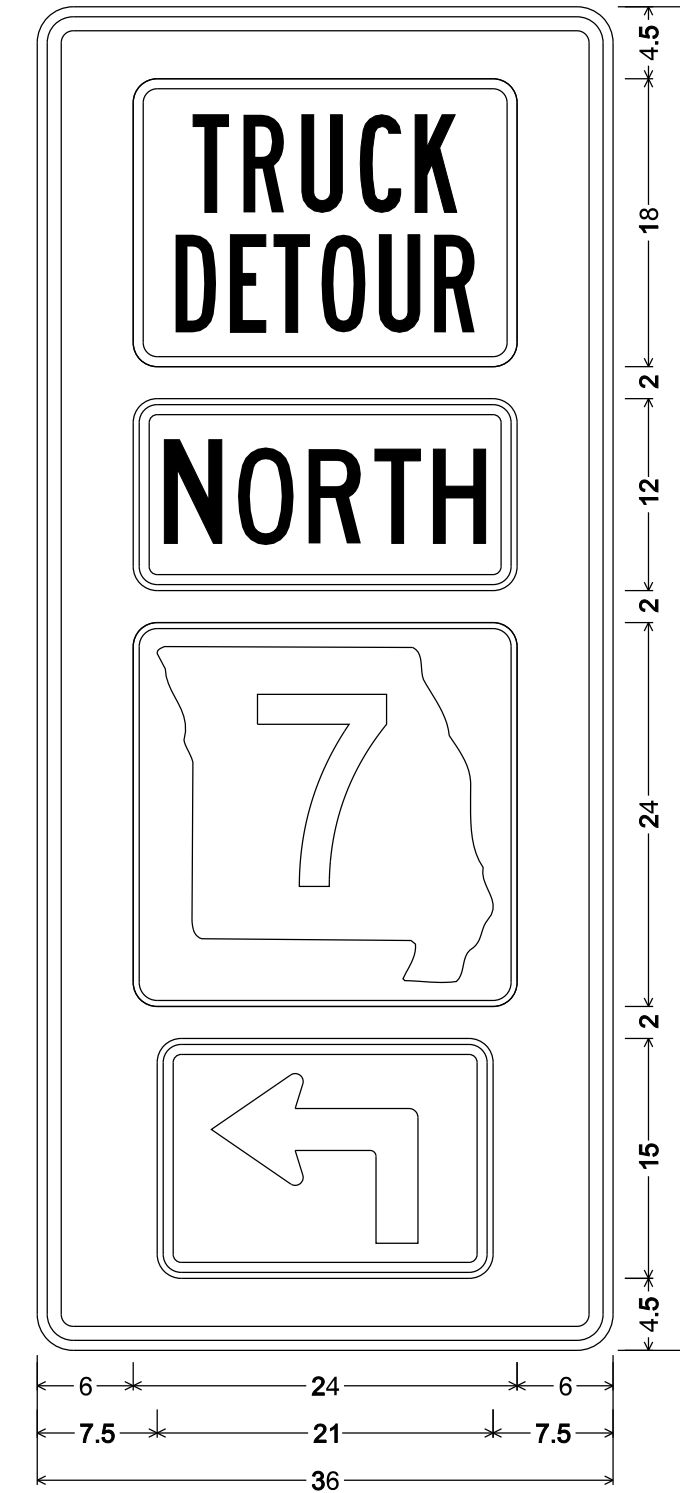


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000	6.000
6.000	7.500

SIGN 50q

SIGN NO.	50q
STATION	VARIOUS
ROADWAY	VARIOUS

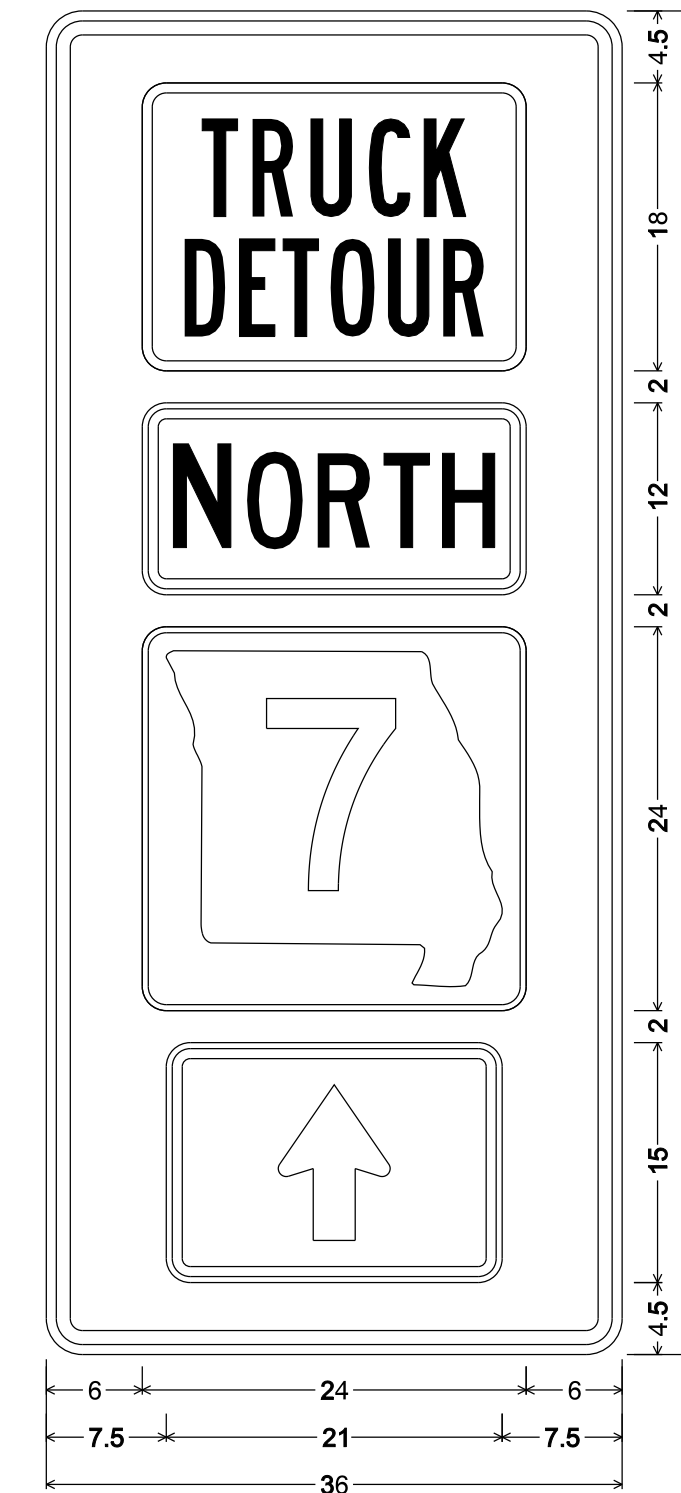


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000	6.000
6.000	7.500

SIGN 50r

SIGN NO.	50r
STATION	VARIOUS
ROADWAY	VARIOUS

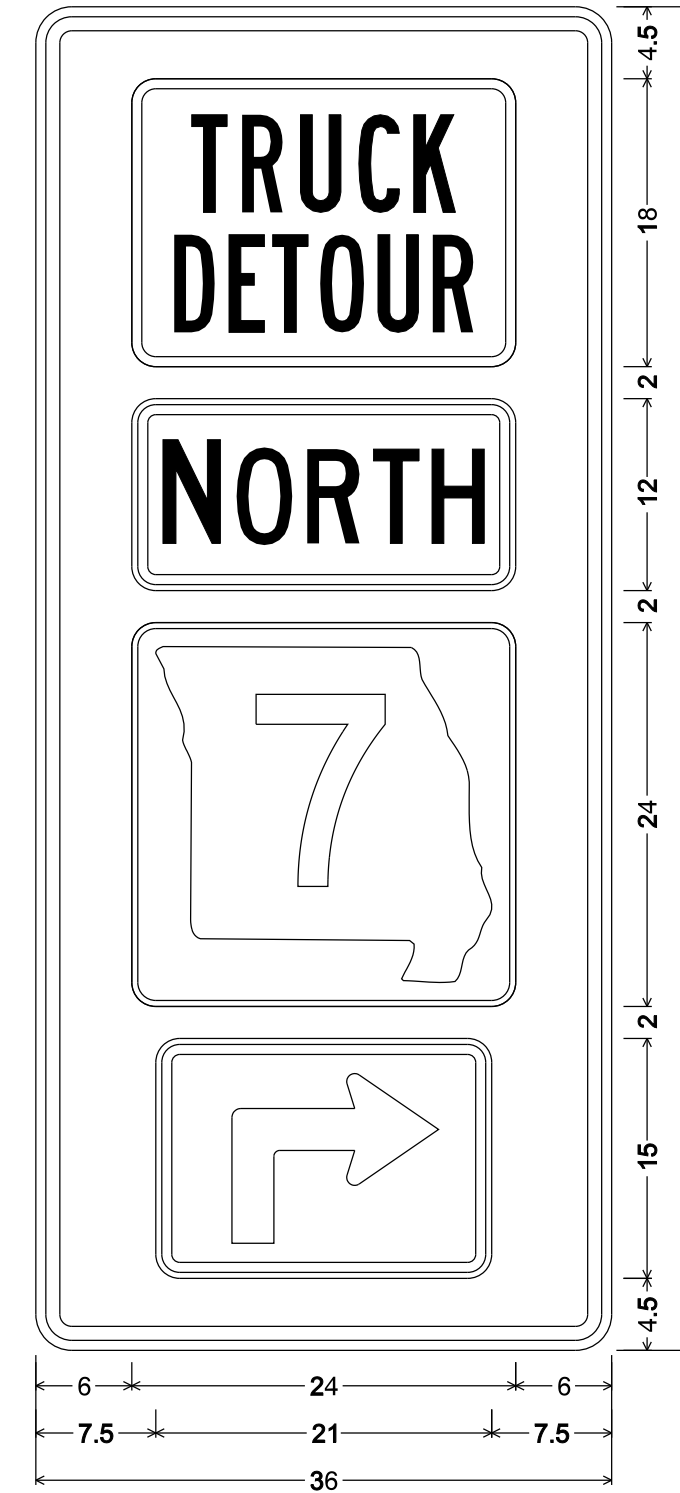


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000	6.000
6.000	7.500

SIGN 50s

SIGN NO.	50s
STATION	VARIOUS
ROADWAY	VARIOUS

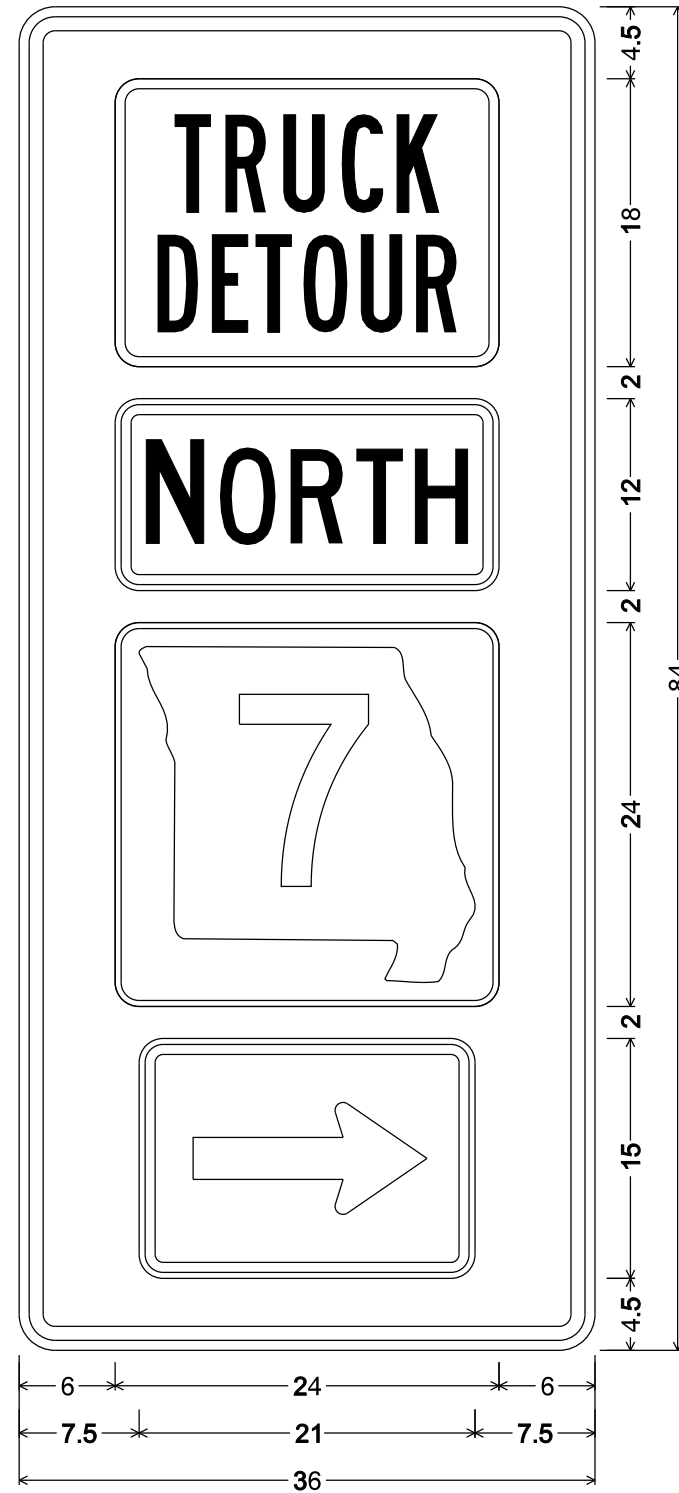


MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000	6.000
6.000	7.500

SIGN 50t

SIGN NO.	50t
STATION	VARIOUS
ROADWAY	VARIOUS



MO4-11-36 SHR4L1:  
2.250" Radius, 0.875" Border, 0.625" Indent, Black on Orange;  
Table of letter and object lefts.

6.000	6.000
6.000	7.500

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED

12/11/2013

ROUTE STATE

VAR. MO

DISTRICT SHEET NO.

KC 31

COUNTY

VARIOUS

JOB NO.

J4P2191B

CONTRACT ID.

PROJECT NO.

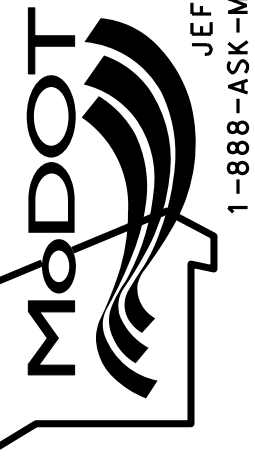
BRIDGE NO.

L00232

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

L00232  
TRAFFIC CONTROL SHEET  
SHEET 27 OF 27

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

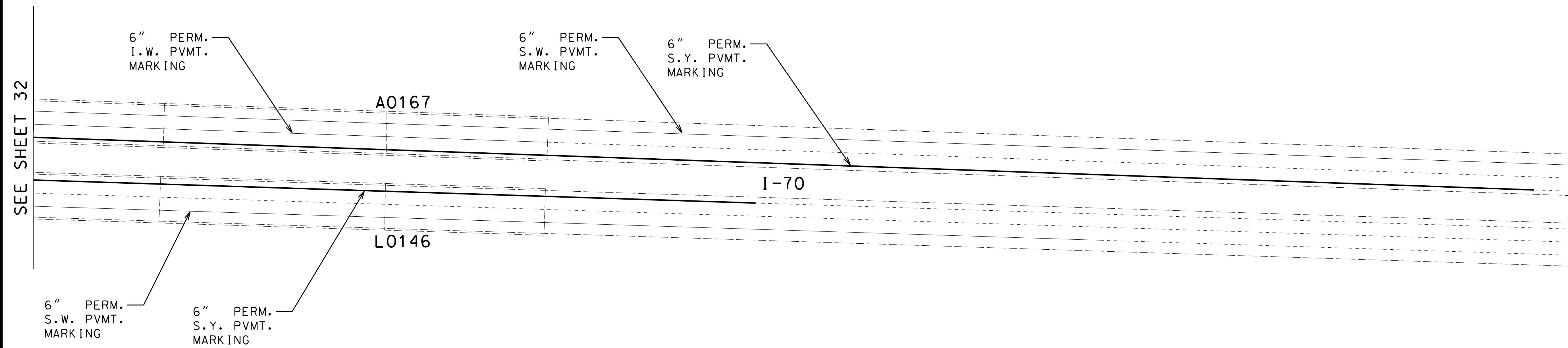
REV.





"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 12/11/2013	
ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 33
COUNTY VARIOUS	
JOB NO. J4P2191P	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A01672/L01463	



SEE SHEET 32

SEE SHEET 34

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◻ SIGN (DOUBLE SIDED)
- ◁ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▩ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
PAVEMENT MARKING SHEET  
PERMANENT STRIPING  
SHEET 2 OF 11

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 34

COUNTY  
VARIOUS

JOB NO.  
J4P2191P


CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A01672/L01463

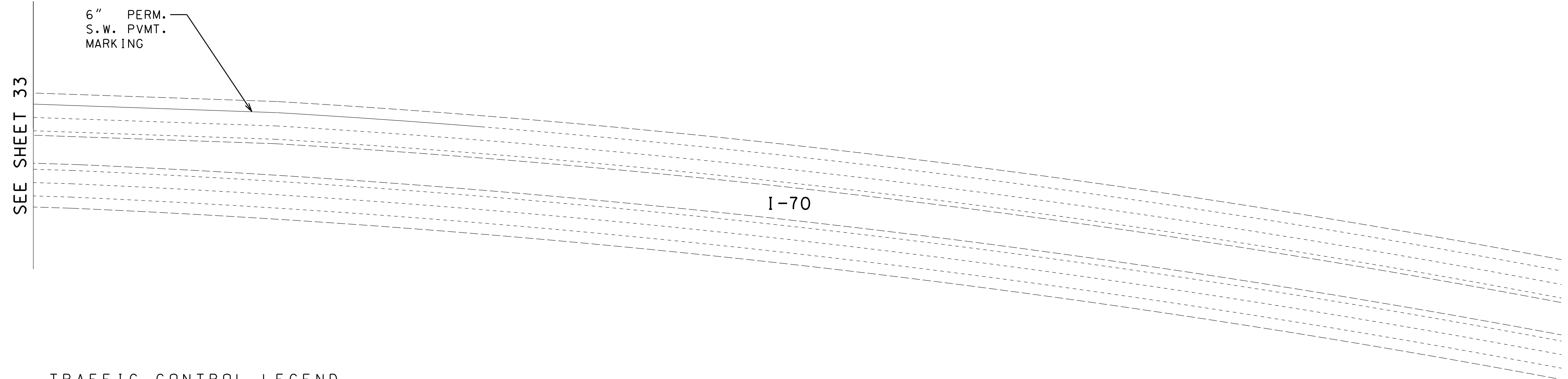
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- ◐ SIGN (DOUBLE SIDED)
- ◡ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▨ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

A01672/L01463  
I-70 OVER SNI-A-BAR CREEK  
PAVEMENT MARKING SHEET  
PERMANENT STRIPING  
SHEET 3 OF 11

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 35

COUNTY  
VARIOUS

JOB NO.  
J4P2191B

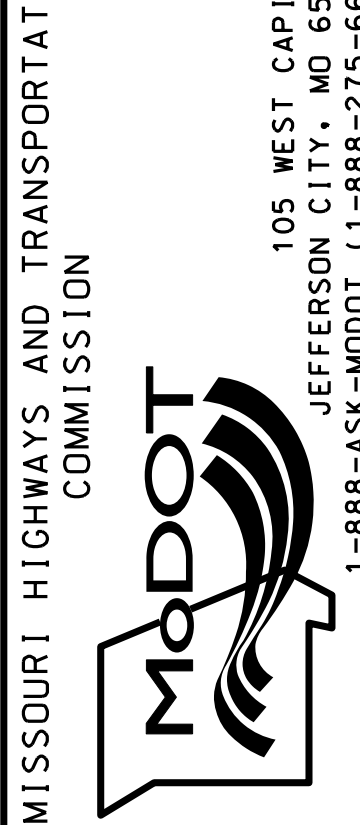
CONTRACT ID.

PROJECT NO.

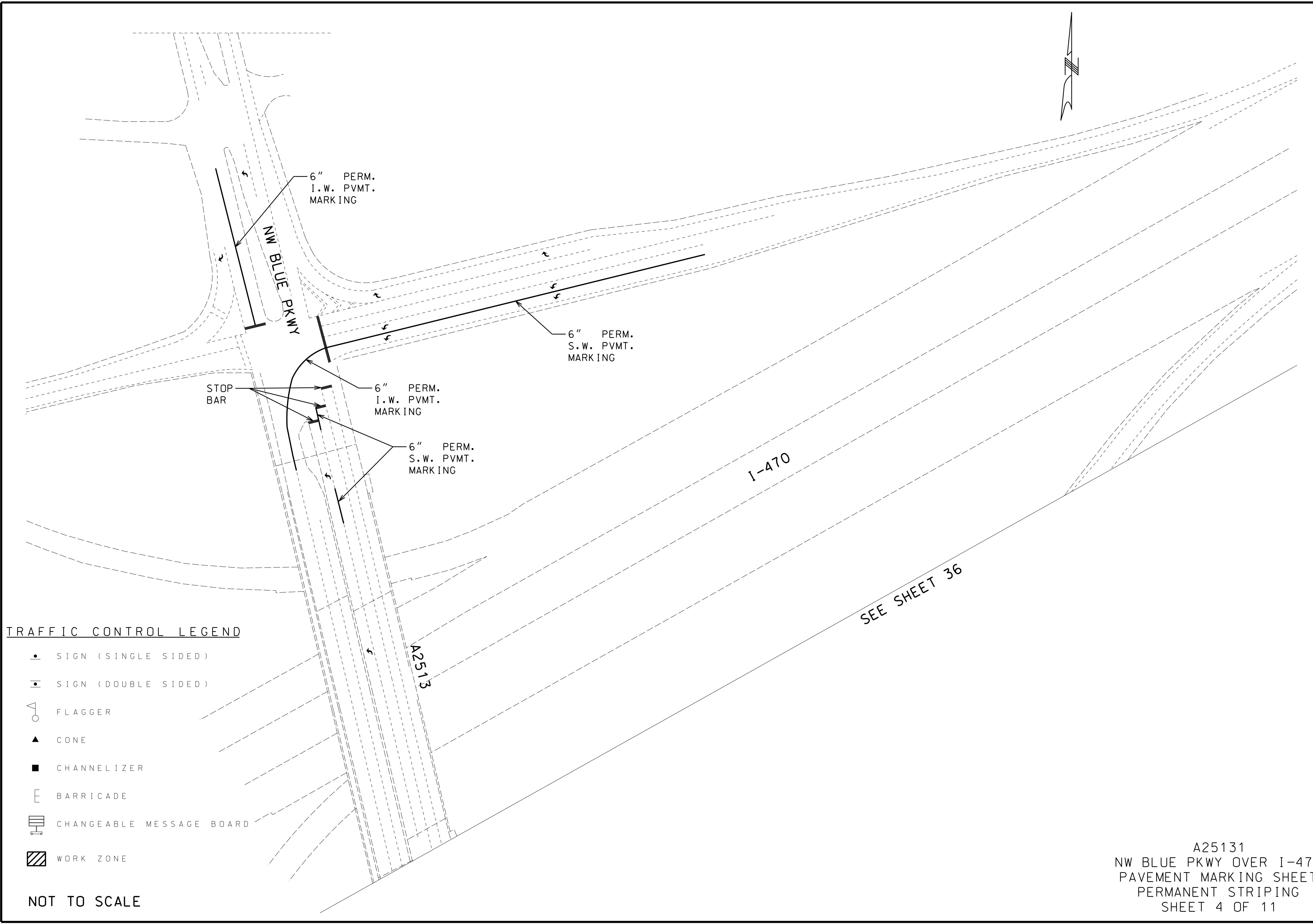
BRIDGE NO.  
A25131

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)
- ◐ SIGN (DOUBLE SIDED)
- ◡ FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▩ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

A25131  
NW BLUE PKWY OVER I-470  
PAVEMENT MARKING SHEET  
PERMANENT STRIPING  
SHEET 4 OF 11



"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
12/11/2013

ROUTE STATE  
VAR. MO

DISTRICT SHEET NO.  
KC 37

COUNTY  
VARIOUS

JOB NO.  
J4P2191B

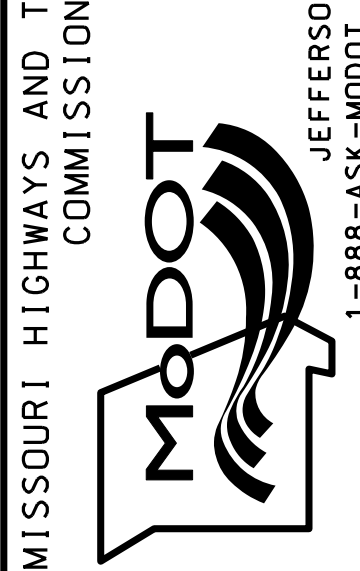
CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A25142

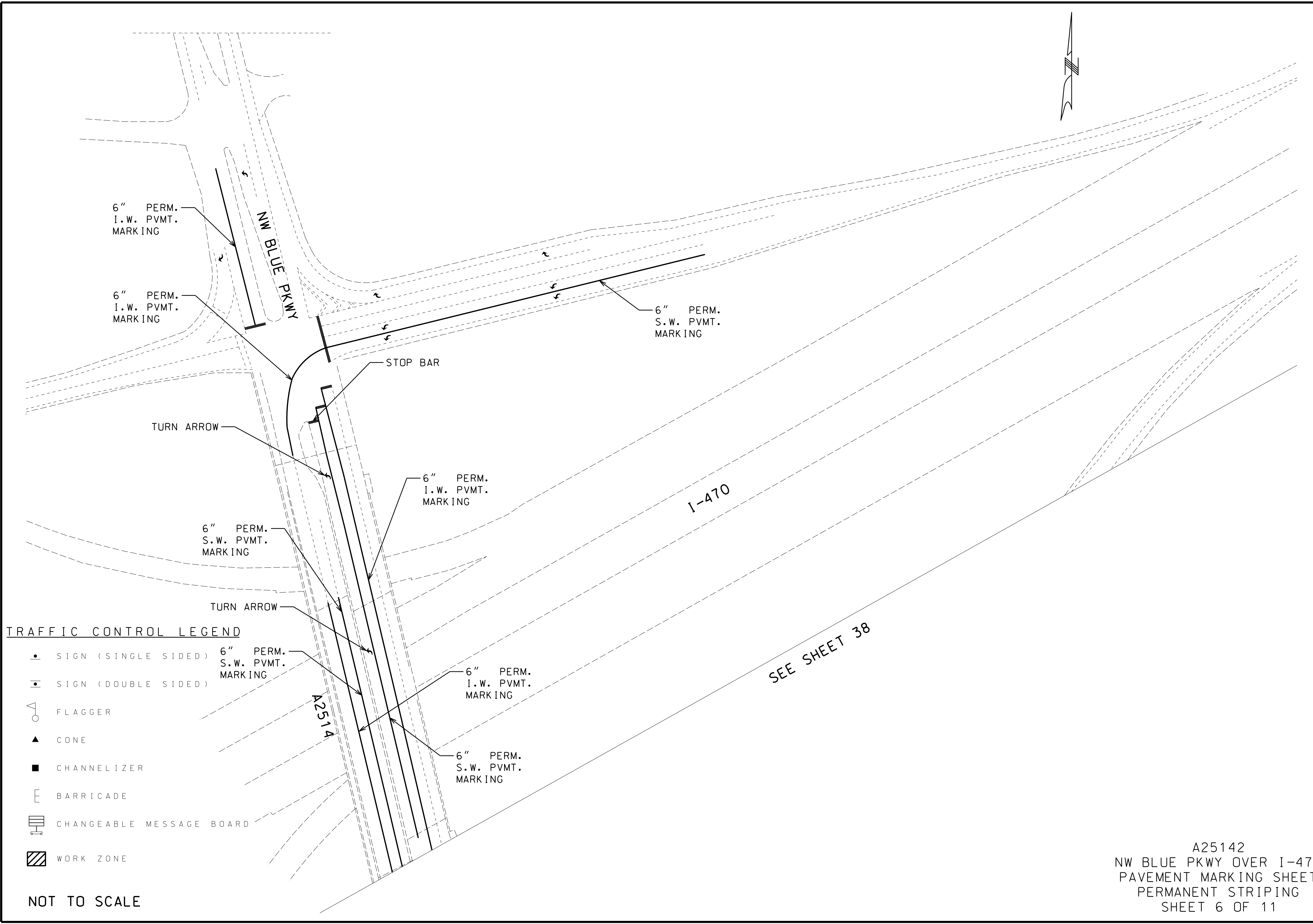
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)    6" PERM. S.W. PVMT. MARKING
- ◐ SIGN (DOUBLE SIDED)
- FLAGGER
- ▲ CONE
- CHANNELIZER
- E BARRICADE
- ▨ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

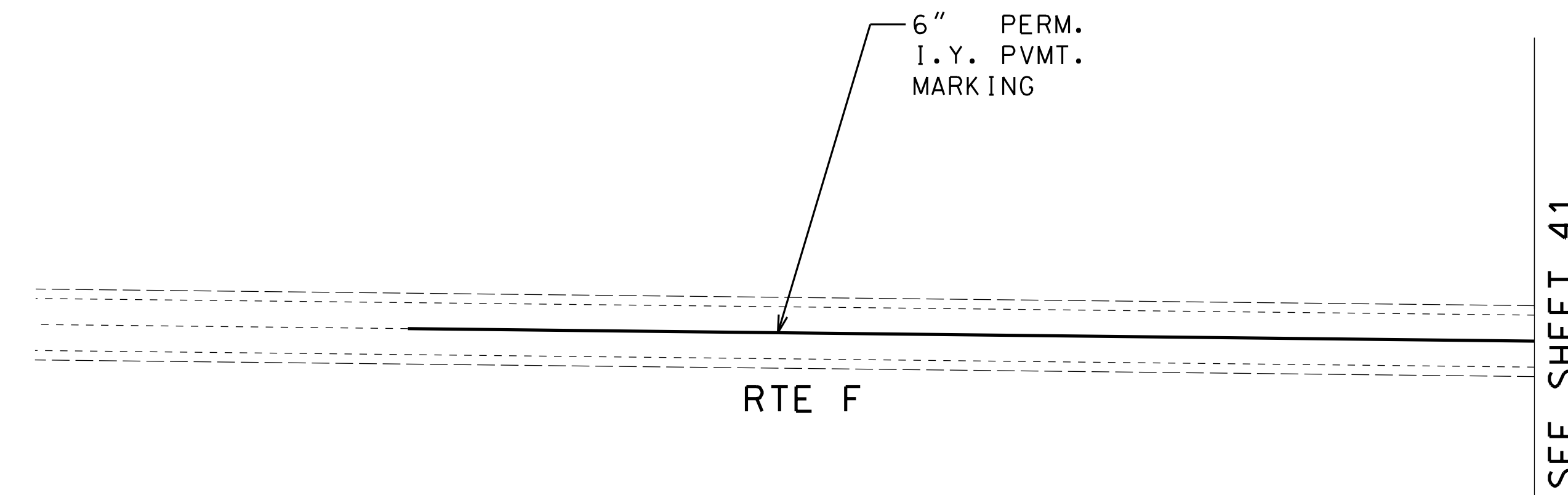
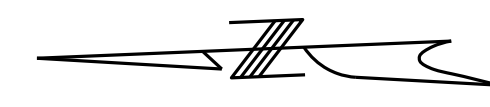
A25142  
NW BLUE PKWY OVER I-470  
PAVEMENT MARKING SHEET  
PERMANENT STRIPING  
SHEET 6 OF 11

SEE SHEET 38









SEE SHEET 41

NOT TO SCALE

A25482  
 RTE F OVER SNI-A-BAR CREEK  
 PAVEMENT MARKING SHEET  
 PERMANENT STRIPING  
 SHEET 9 OF 11

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DATE PREPARED 12/11/2013	
ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 40
COUNTY VARIOUS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A25482	

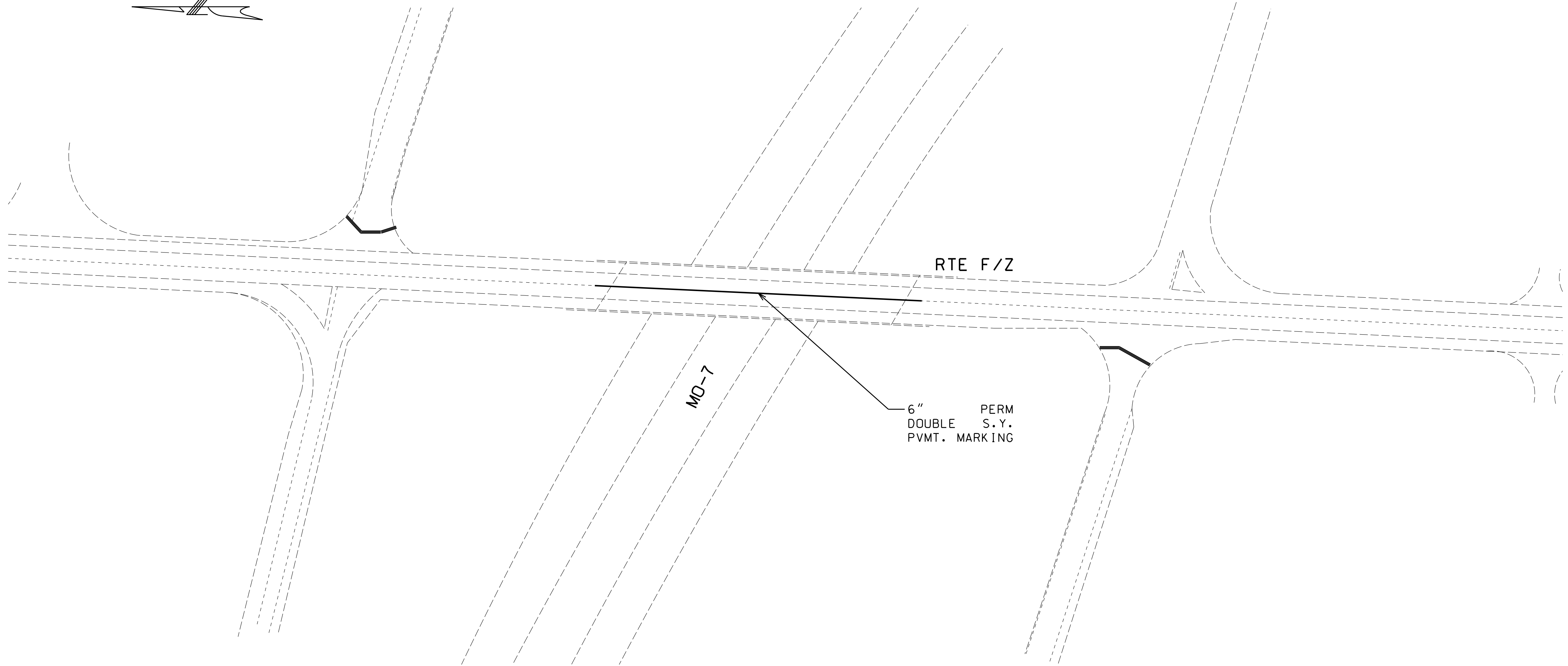
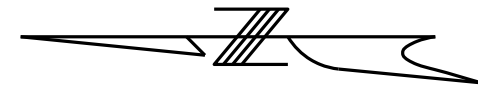
DATE	DESCRIPTION

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**TRAFFIC CONTROL LEGEND**

- SIGN (SINGLE SIDED)
- ◻ SIGN (DOUBLE SIDED)
- FLAGGER
- ▲ CONE
- CHANNELIZER
- ⋮ TEMP. SIGNAL
- ▮ CHANGEABLE MESSAGE BOARD
- ▨ WORK ZONE

NOT TO SCALE

A41531  
 RT F/Z OVER MO-7  
 PAVEMENT MARKING SHEET  
 PERMANENT STRIPING  
 SHEET 11 OF 11

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DATE PREPARED 12/11/2013	
ROUTE VAR.	STATE MO
DISTRICT KC	SHEET NO. 42
COUNTY VARIOUS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A41531	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

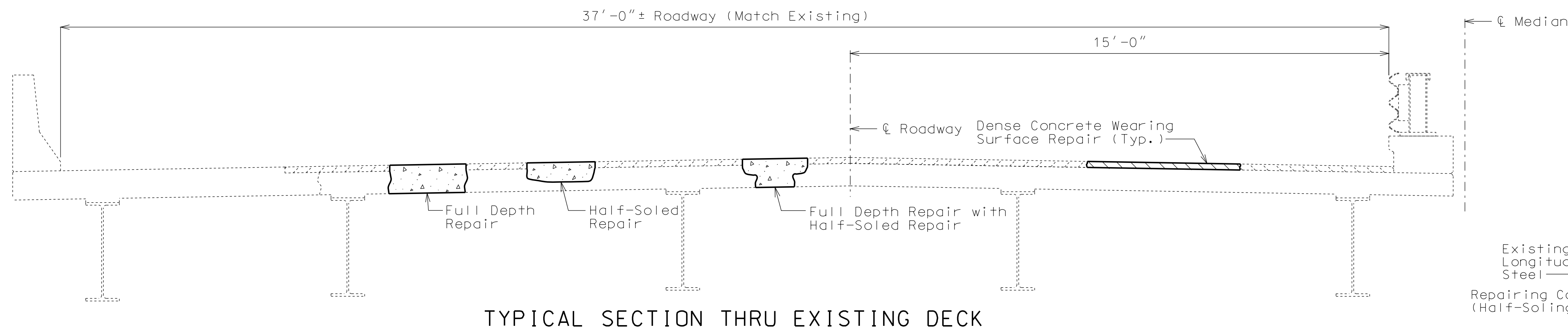
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JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

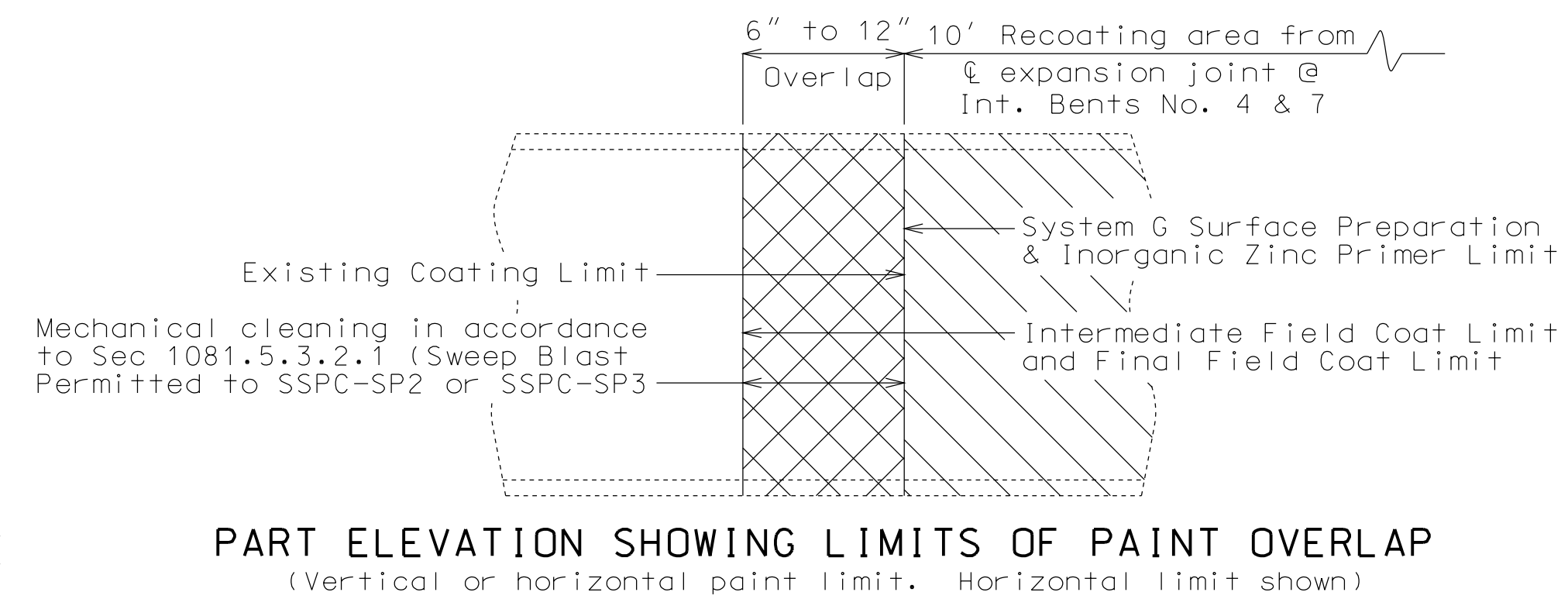
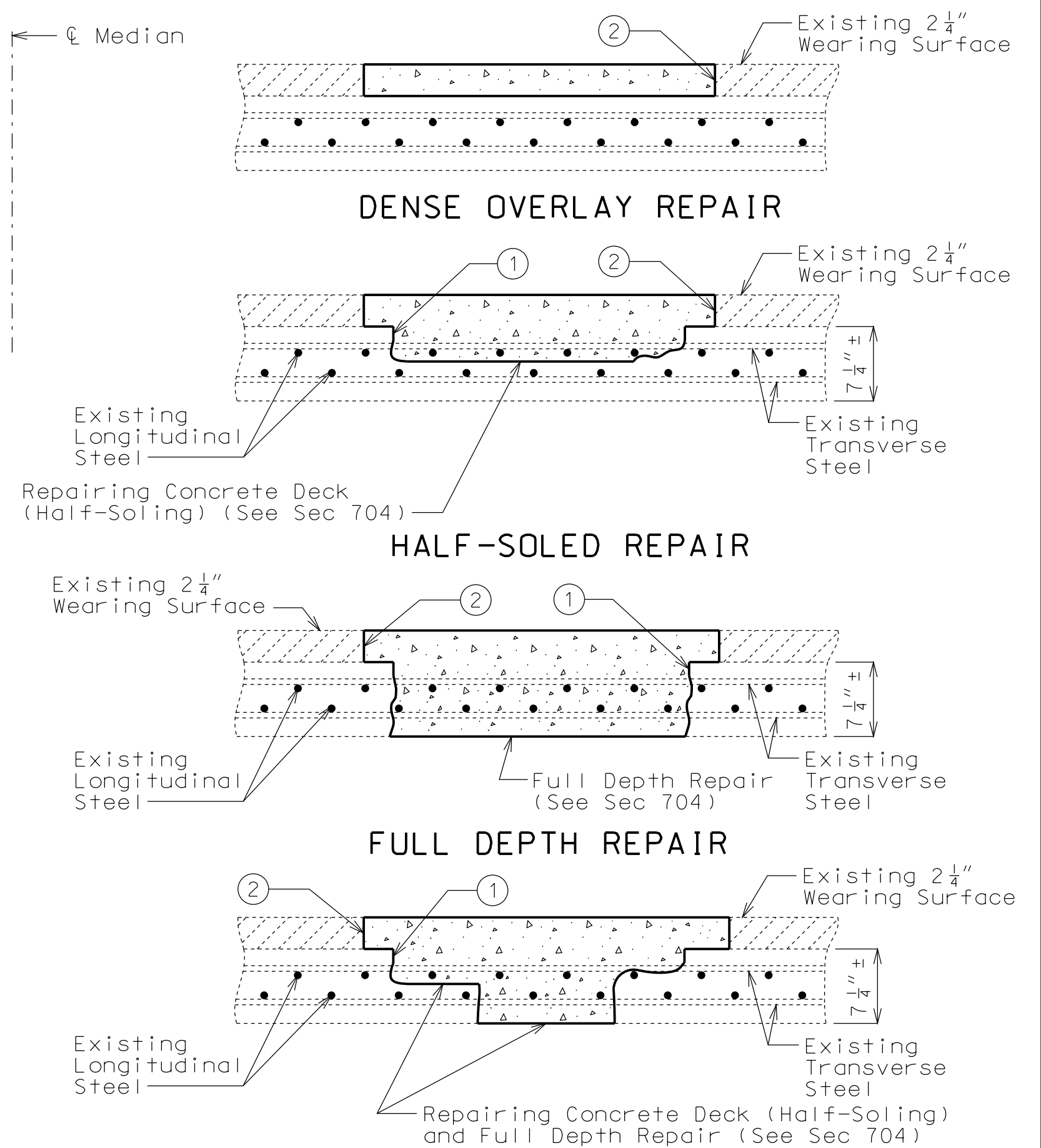
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
 U.I.P. & REHAB. EXISTING (52'-52'-49.5')(3.5'-67'-78'-67'-3.5')(49.5'-52'-52')  
 CONTINUOUS COMPOSITE WIDE FLANGE SPANS

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
 11/18/2013  
 ROUTE I-70 STATE MO  
 DISTRICT BR SHEET NO. 1  
 COUNTY JACKSON  
 JOB NO. J4P2191B  
 CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO. A01672



TYPICAL SECTION THRU EXISTING DECK



PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP  
 (Vertical or horizontal paint limit, Horizontal limit shown)

General Notes:

Design Specifications:  
 2002 AASHTO LFD (17th Ed.) Standard Specifications  
 Seismic Performance Category A  
 Bridge Deck Rating = 5

Design Loading:  
 HS20-44 & Military 24,000# Tandem Axle

Design Unit Stresses:  
 Class B-1 Concrete (Superstructure & Safety Barrier Curb)  $f'c = 4,000$  psi  
 Reinforcing Steel (Epoxy Coated)  $fy = 60,000$  psi

Reinforcing Steel:  
 Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Miscellaneous:  
 Protective coating for concrete bents and piers (Urethane) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Traffic Handling:  
 Traffic over structure to be maintained during construction, see Sheet No. 2 for staging.

Structural Steel Protective Coatings:  
 Coating Limits: All existing structural steel within 10 feet of  $\epsilon$  expansion joint near Intermediate Bents No. 4 & 7. Within these limits, items to be recoated shall include stringers, diaphragms, stiffeners, bearings and miscellaneous structural steel items.

Protective Coating: System G in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G, H or I)". The cost of surface preparation will be considered completely covered by the contract unit price for "Surface Preparation for Recoating Structural Steel".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for "Field Application of Inorganic Zinc Primer." Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coat: The color of the finish field coat shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract unit price per sq. foot for "Intermediate Field Coat (System G)". The cost of the finish field coat will be considered completely covered by the contract unit price per sq. foot for "Finish Field Coat (System G)".

Sec 1081.4.5 shall be modified such that the word "RECOATED" is replaced by the word "RECOATED - SYSTEM G - EXPANSION AREAS ONLY".

All exposed surfaces of the existing structural steel piles shall be coated with one 6-mil thickness of aluminum epoxy-mastic primer applied over a SSPC-SP3 surface preparation in accordance with Sec 1081. The bituminous coating shall be applied one foot above and one foot below the existing ground line and in accordance with Sec 702. These protective coatings will not be required below the normal low water line. The cost of surface preparation will be considered completely covered by the contract lump sum price for "Surface Preparation for Applying Epoxy-Mastic Primer". The cost of the aluminum gray epoxy-mastic primer and bituminous coating will be considered completely covered by the contract lump sum price for "Aluminum Epoxy-Mastic Primer".

- ① One inch vertical side shall be established outside the deteriorated area. See Sec 704.
- ② 1-1/2 inch vertical side shall be established outside the deteriorated area. See Job Special Provisions.

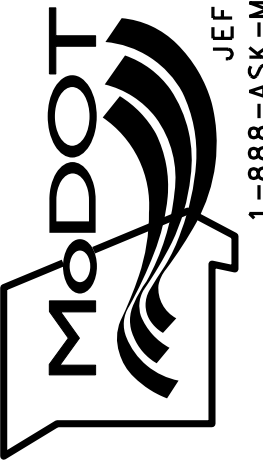
Estimated Quantities

Item	Unit	Total
Removal of Existing Expansion Joints and Adjacent Concrete	linear foot	74
Remove and Replace Curb, Reinstall Thrie Beam	linear foot	8
Remove and Replace Safety Barrier Curb	linear foot	8
Class B-1 Concrete	cu. yard	10.5
Repairing Concrete Deck (Half-Soling)	sq. foot	650
Full Depth Repair	sq. foot	300
Clean and Epoxy Seal	sq. foot	1,683
Dense Concrete Wearing Surface Repair	sq. foot	1,000
Reinforcing Steel (Epoxy Coated)	pound	1,420
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Surface Preparation for Recoating Structural Steel	sq. foot	1,700
Surface Preparation for Applying Epoxy-Mastic Primer	lump sum	1
Field Application of Inorganic Zinc Primer	sq. foot	1,700
Intermediate Field Coat (System G)	sq. foot	1,700
Finish Field Coat (System G)	sq. foot	1,700
Aluminum Epoxy-Mastic Primer	lump sum	1
Strip Seal Expansion Joint System	linear foot	74

REPAIRS TO BRIDGE: RTE. I-70 WB OVER SNI-A-BAR CREEK  
 STATE ROAD FROM RTE. F WEST TO RTE. 40  
 ABOUT 0.8 MILE EAST OF RTE. 40  
 STA. 1209+35.32± (Match Existing)

STD. 617.20  
 STD. 706.35

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
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DATE PREPARED  
11/18/2013

ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. 2

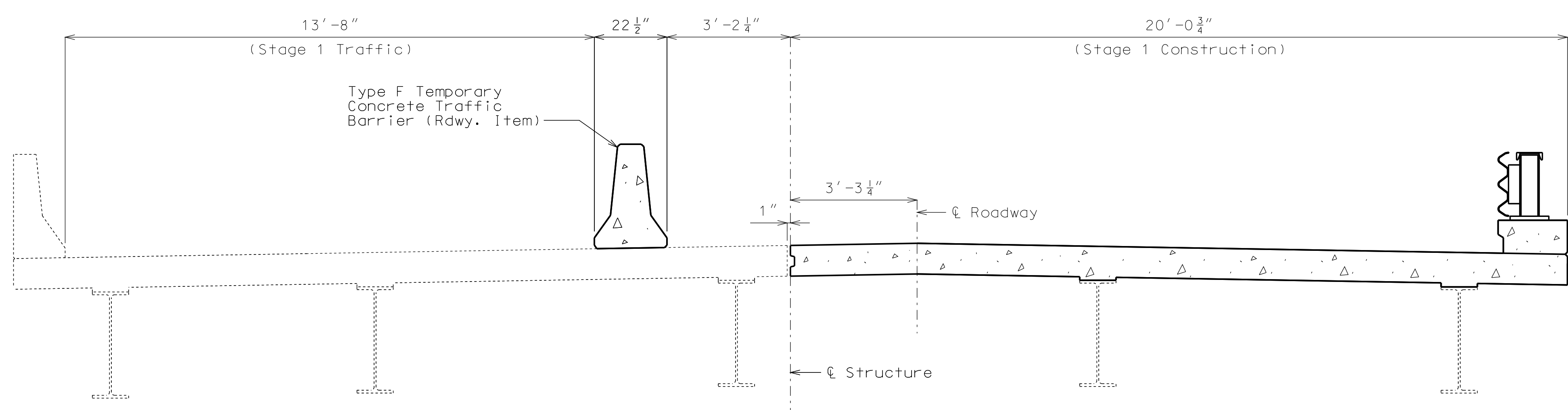
COUNTY  
JACKSON

JOB NO.  
J4P2191B

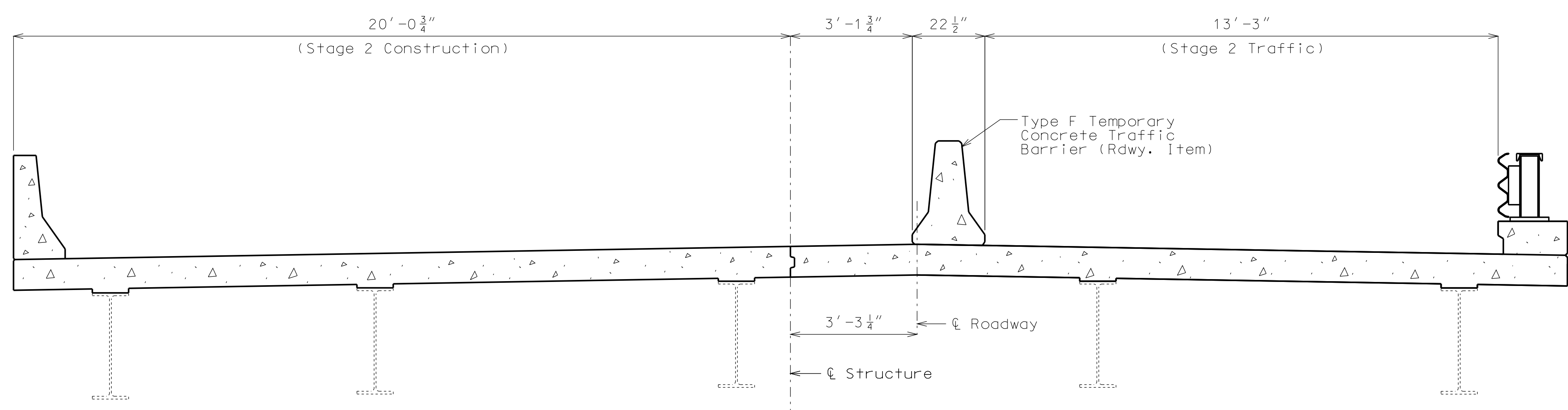
CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A01672



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

Note:  
Temporary Barrier shall not be attached to the bridge.

DETAILS OF STAGE CONSTRUCTION

(Expansion joint areas shown. Staging shall be the same along entire length of structure)

Detailed Sep. 2013  
Checked Sep. 2013

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 6

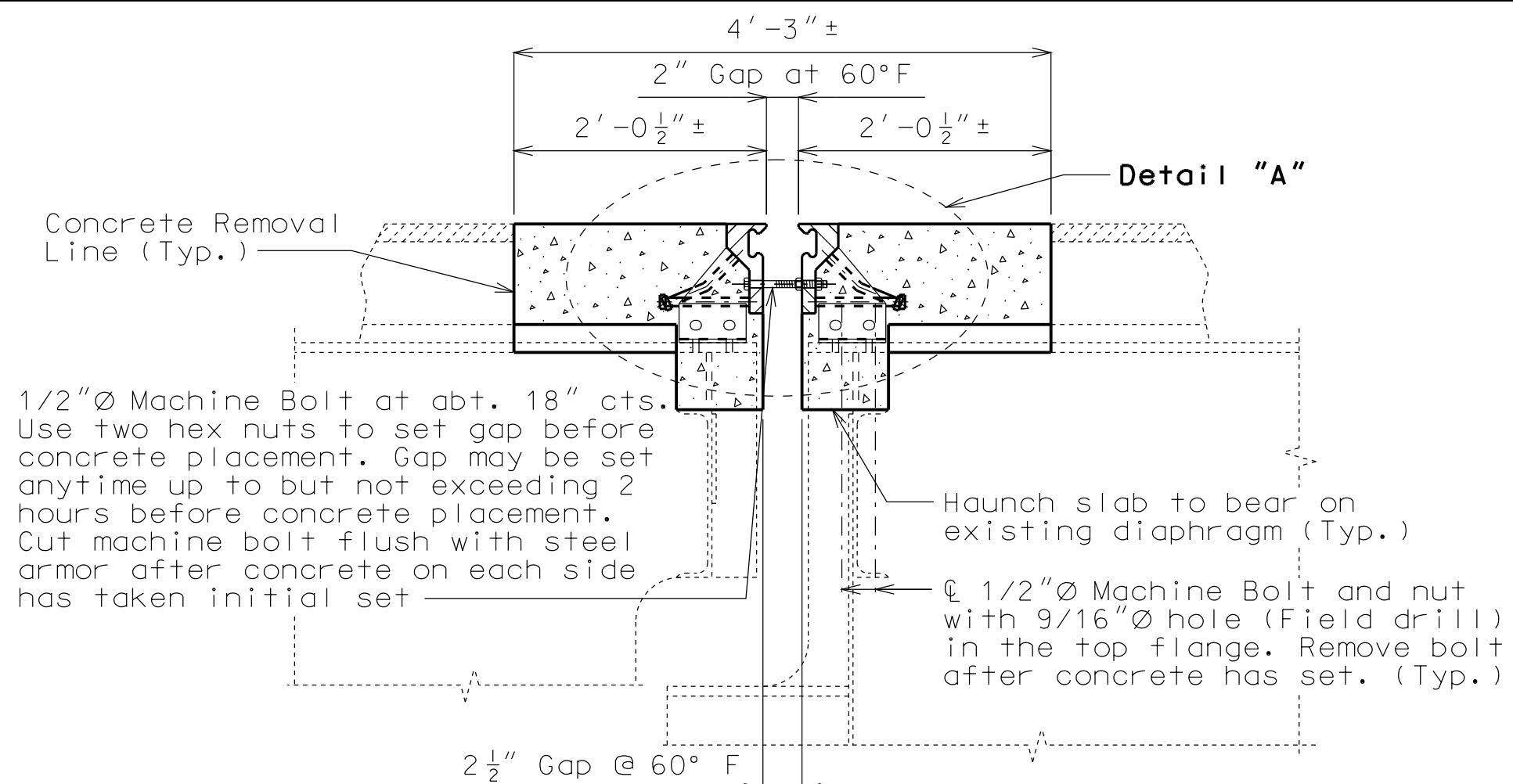
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION  
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

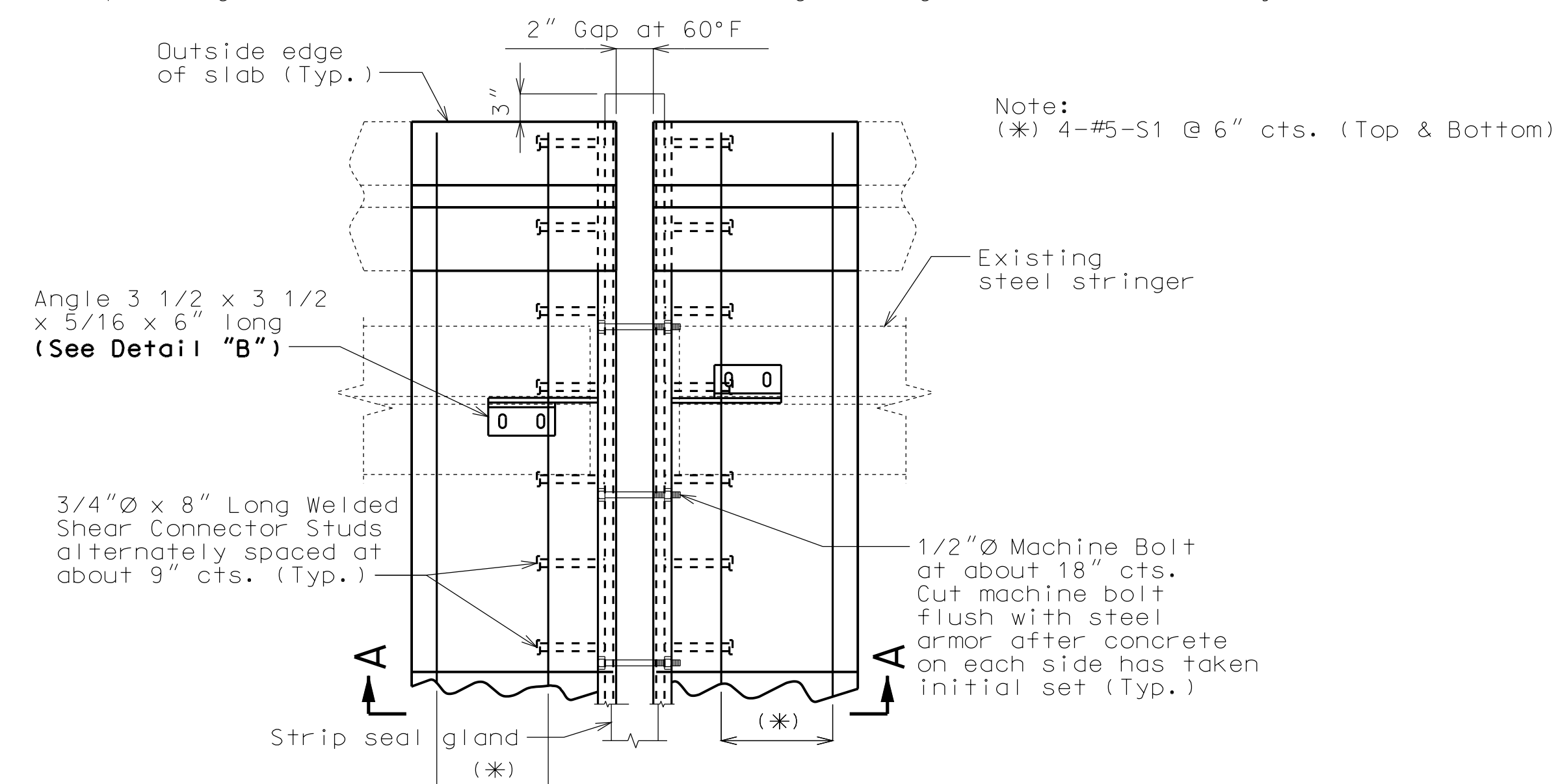
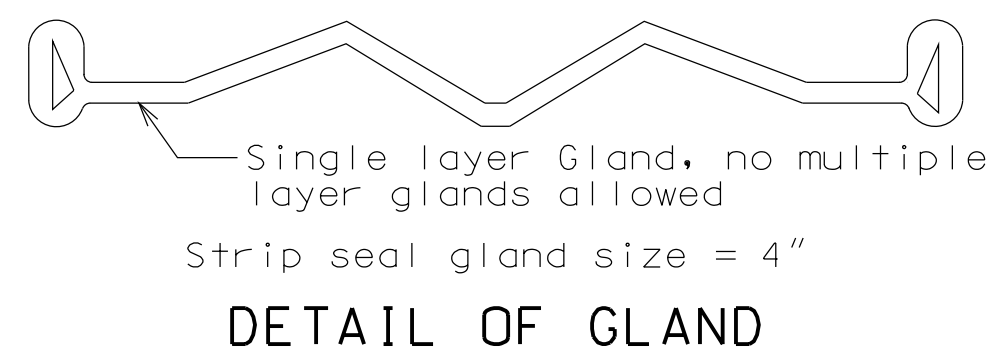
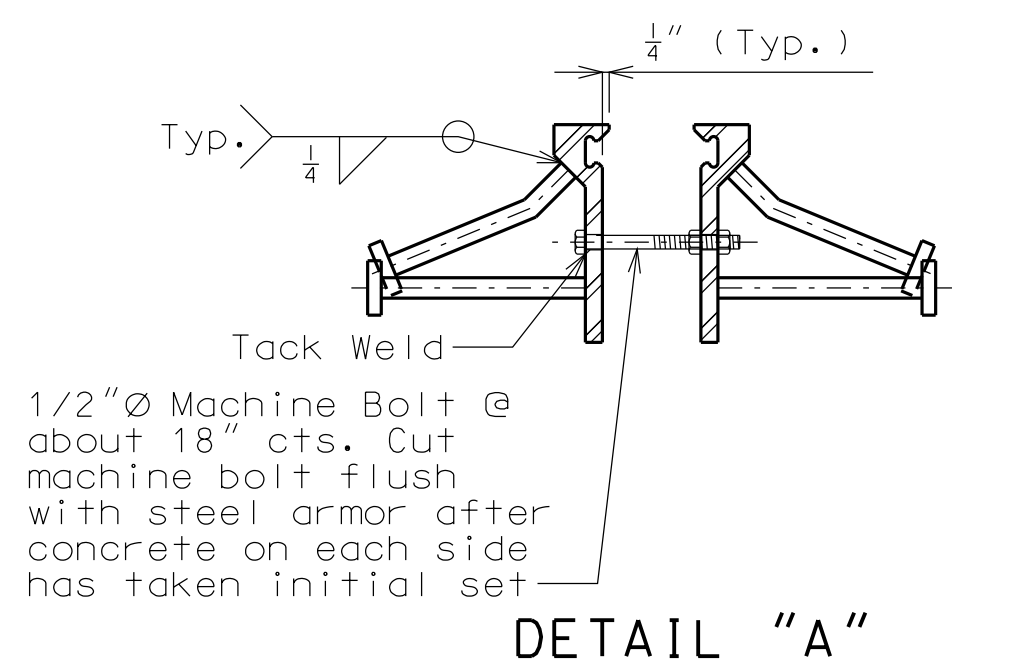
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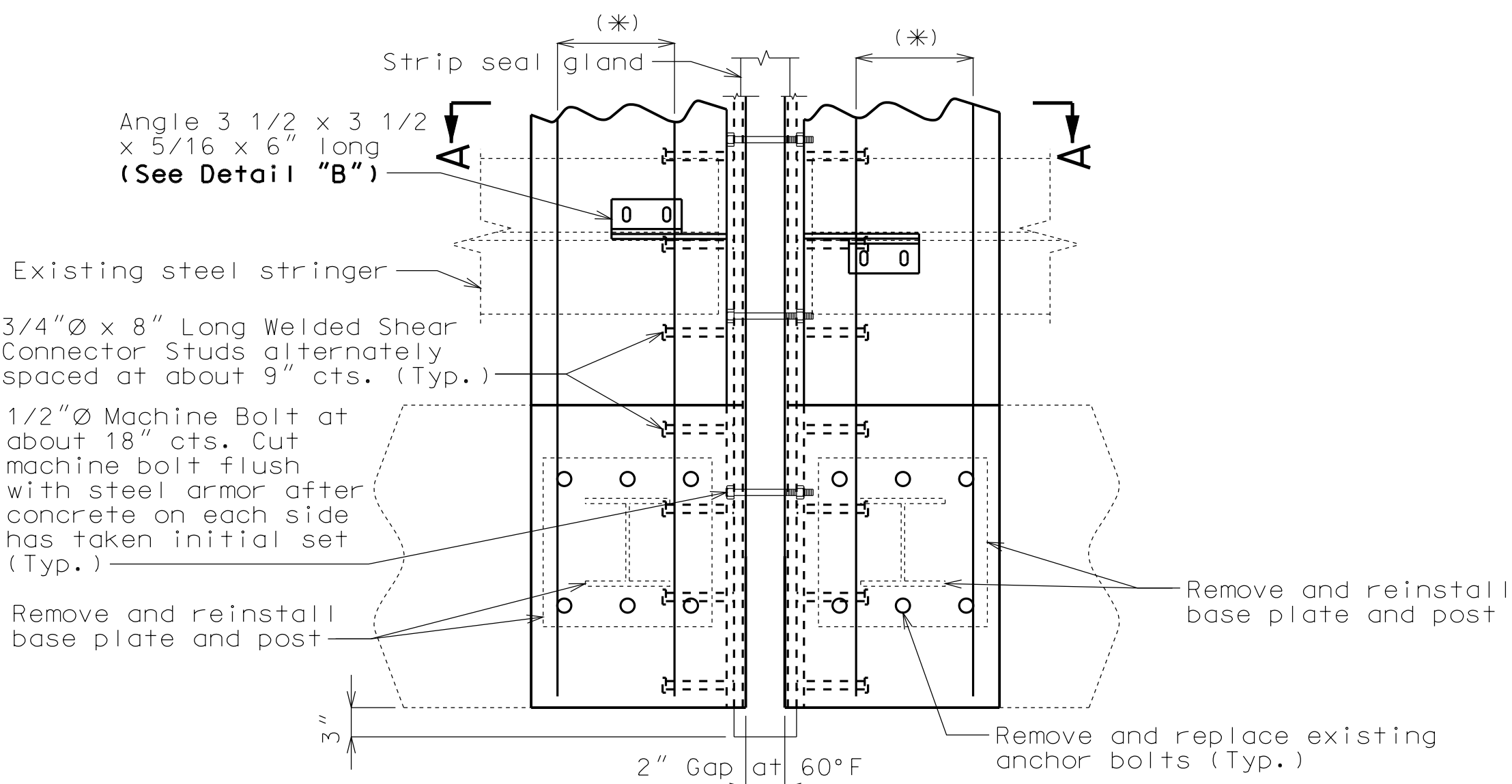
SECTION A-A

Note: Strip seal gland, slab reinforcement and existing bearing not shown for clarity.



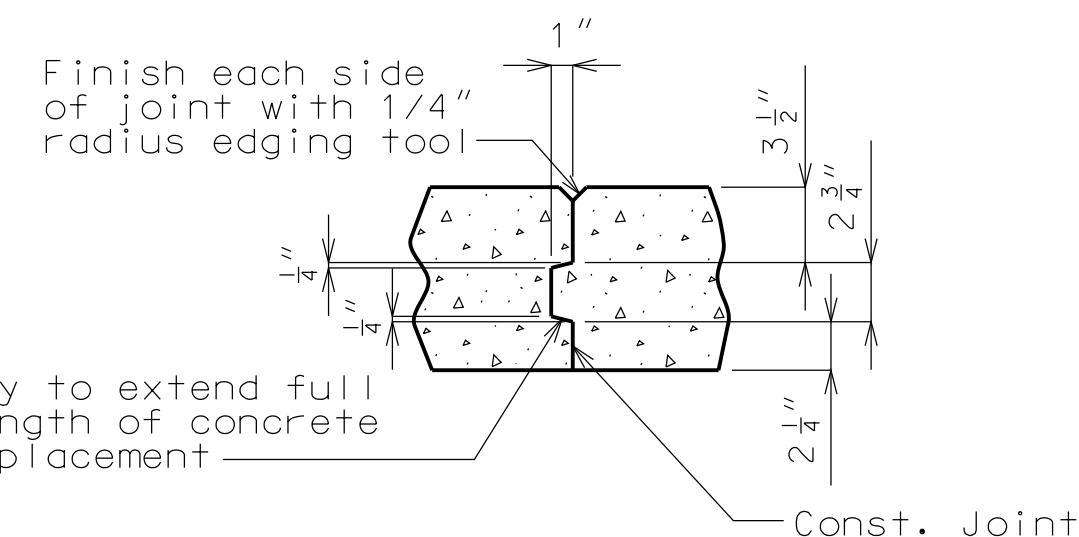
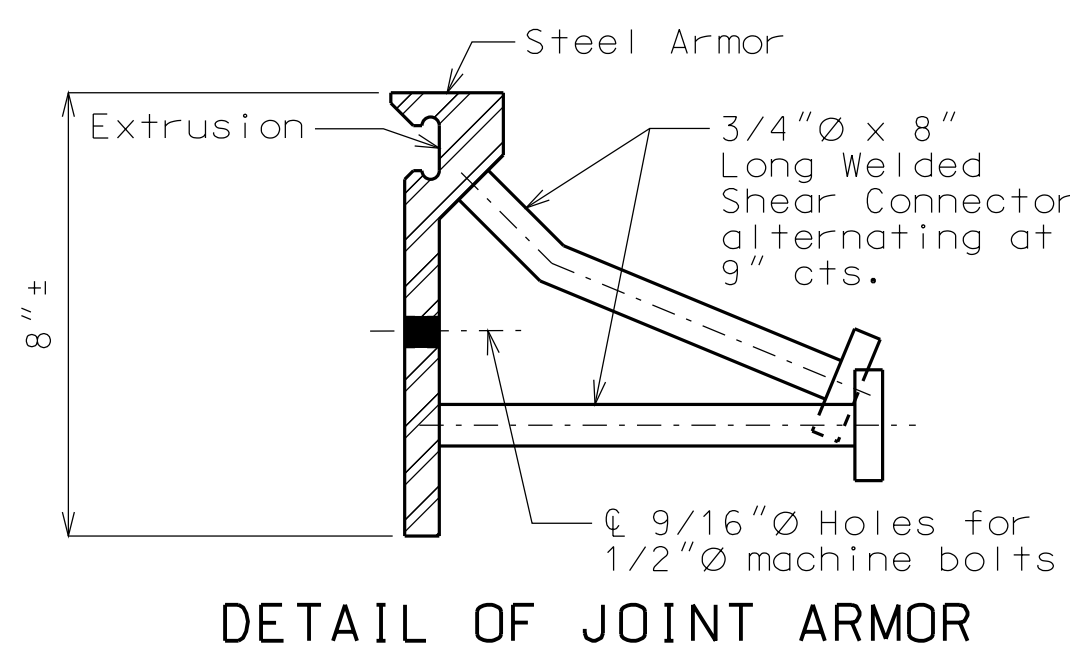
PART PLAN NEAR SAFETY BARRIER CURB

Note: Safety barrier curb reinforcement, Existing longitudinal slab reinforcement not shown for clarity.

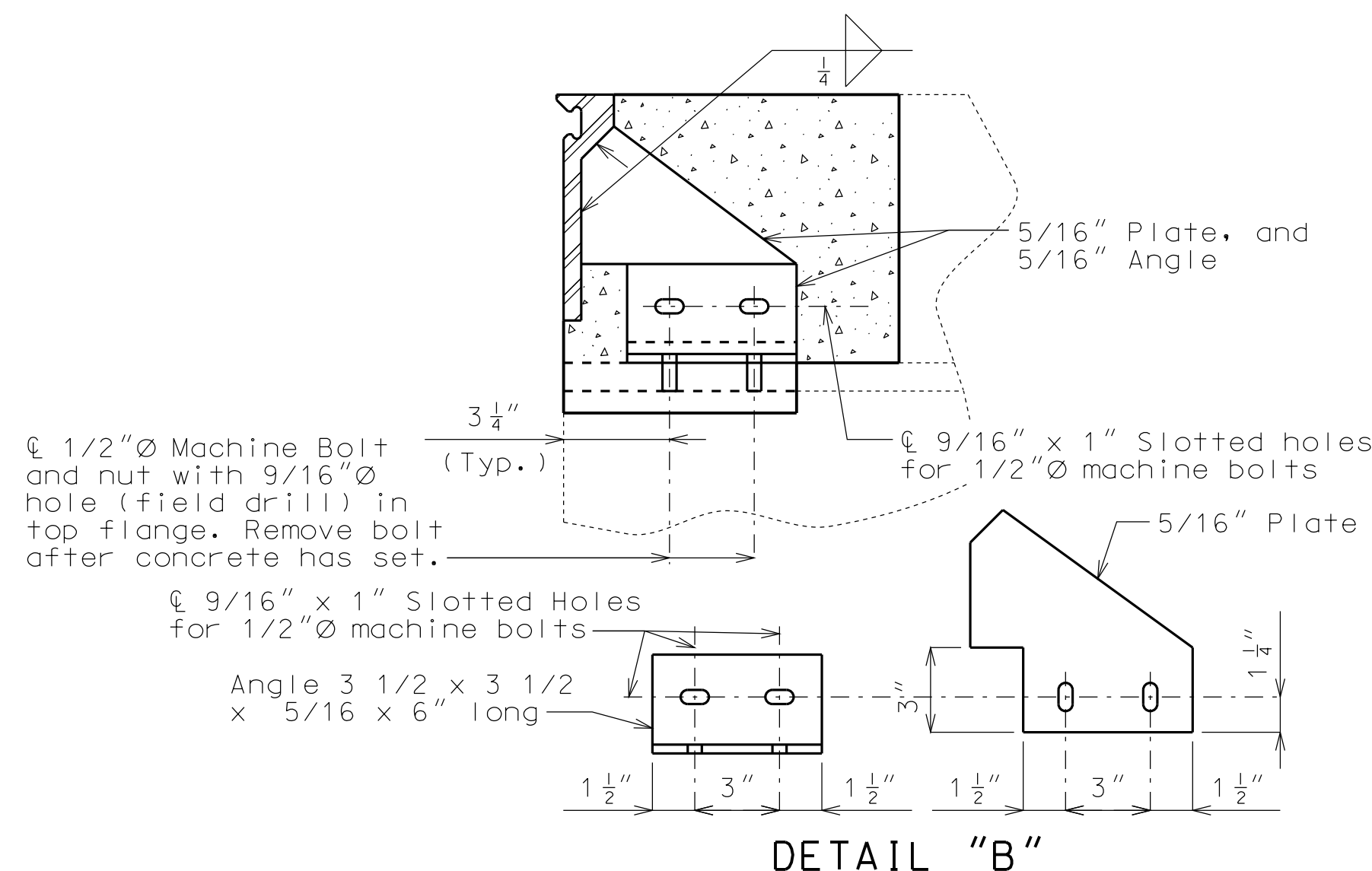


PART PLAN NEAR THRIE BEAM RAIL

Note: Curb reinforcement, thrie beam and Existing longitudinal slab reinforcement not shown for clarity.



SLAB CONSTRUCTION JOINT DETAILS



GENERAL NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

Existing longitudinal reinforcing steel shall be cut or bent so that ends shall not be more than ±1" from vertical leg of the steel armor at the expansion joint system.

Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

The contractor shall use a mechanical bar splice for #5-S1 bar at the location required for stage construction in accordance with the traffic control plans. The total bar lengths for bars indicated in the bill of reinforcing steel are determined based on bars being provided in one segment. Actual bar lengths shall be determined in the field and the bar lengths in the bar bill adjusted as required.

No additional payment will be made for any additional bar lengths required for the mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 706 except that no measurement will be made for mechanical bar splice and will be considered completely covered by the contract unit price for the reinforcing steel.

For details of replacement of safety barrier curb, curb and thrie beam rail, see Sheet No. 5.

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DATE PREPARED  
11/18/2013

ROUTE  
I-70

STATE  
MO

DISTRICT  
BR

SHEET NO.  
4

COUNTY  
JACKSON

JOB NO.  
J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO.  
A01672

DESCRIPTION

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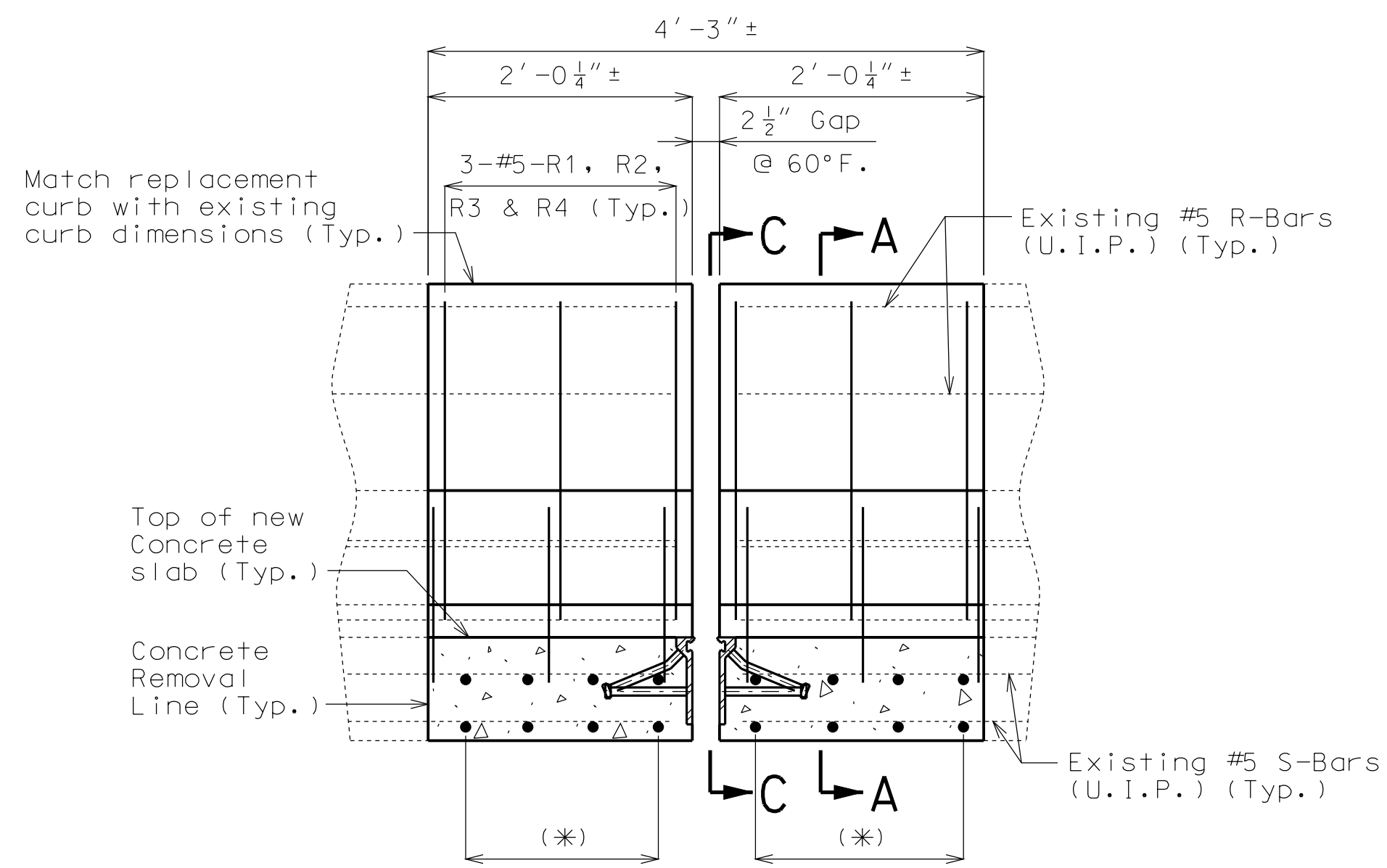
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DATE

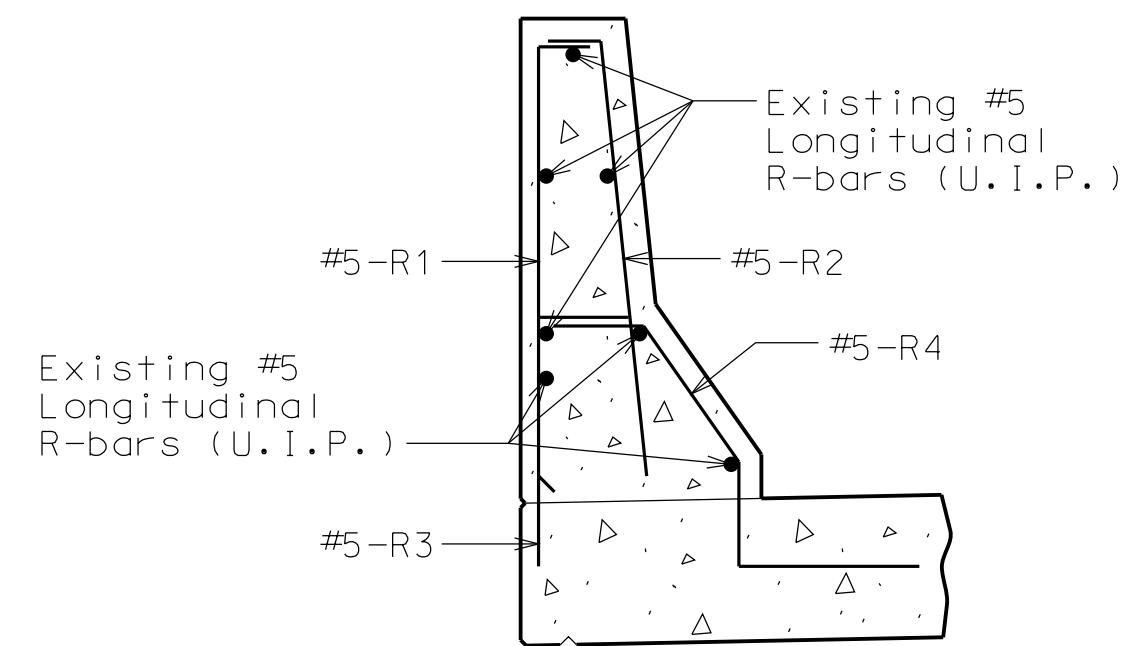
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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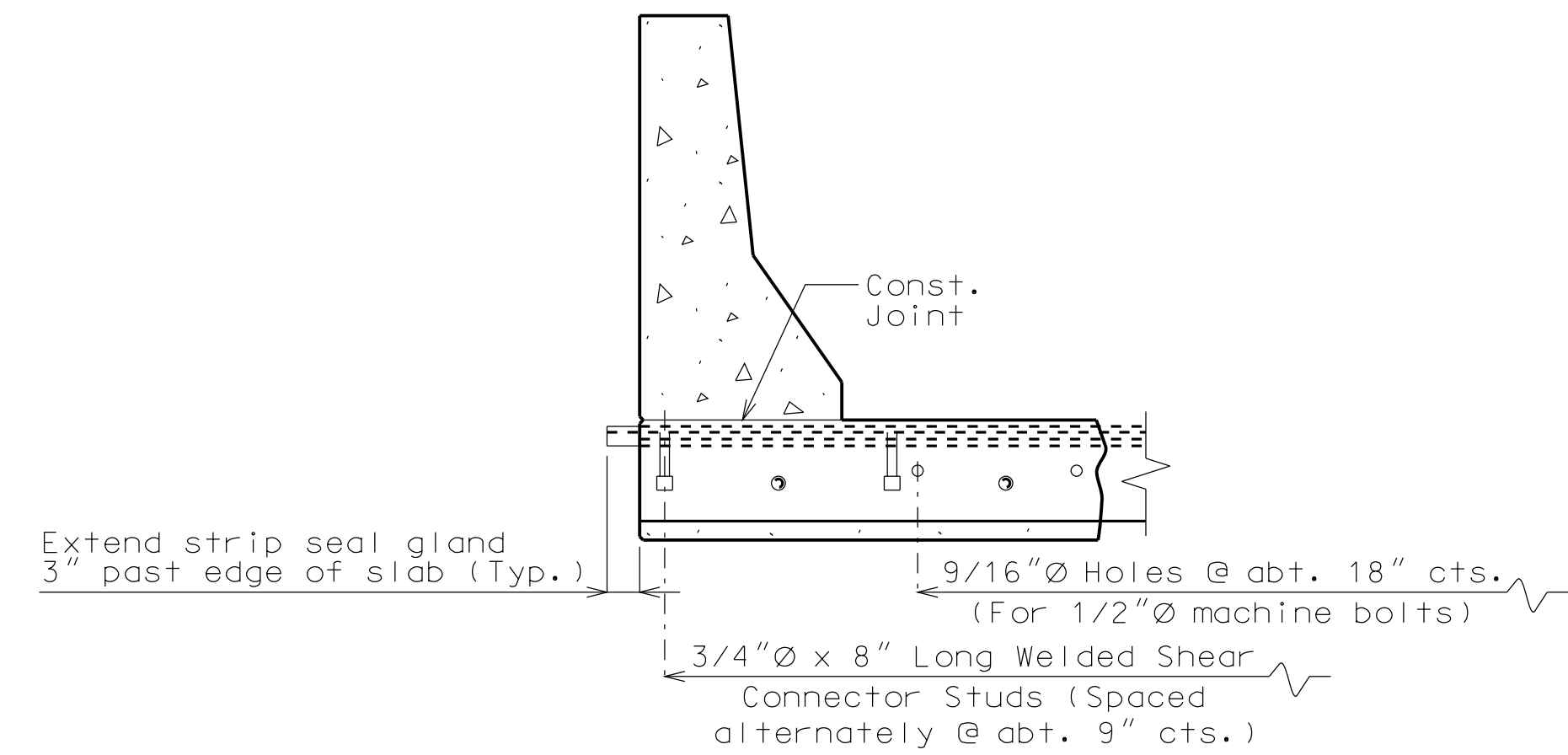
105 WEST CAPITOL  
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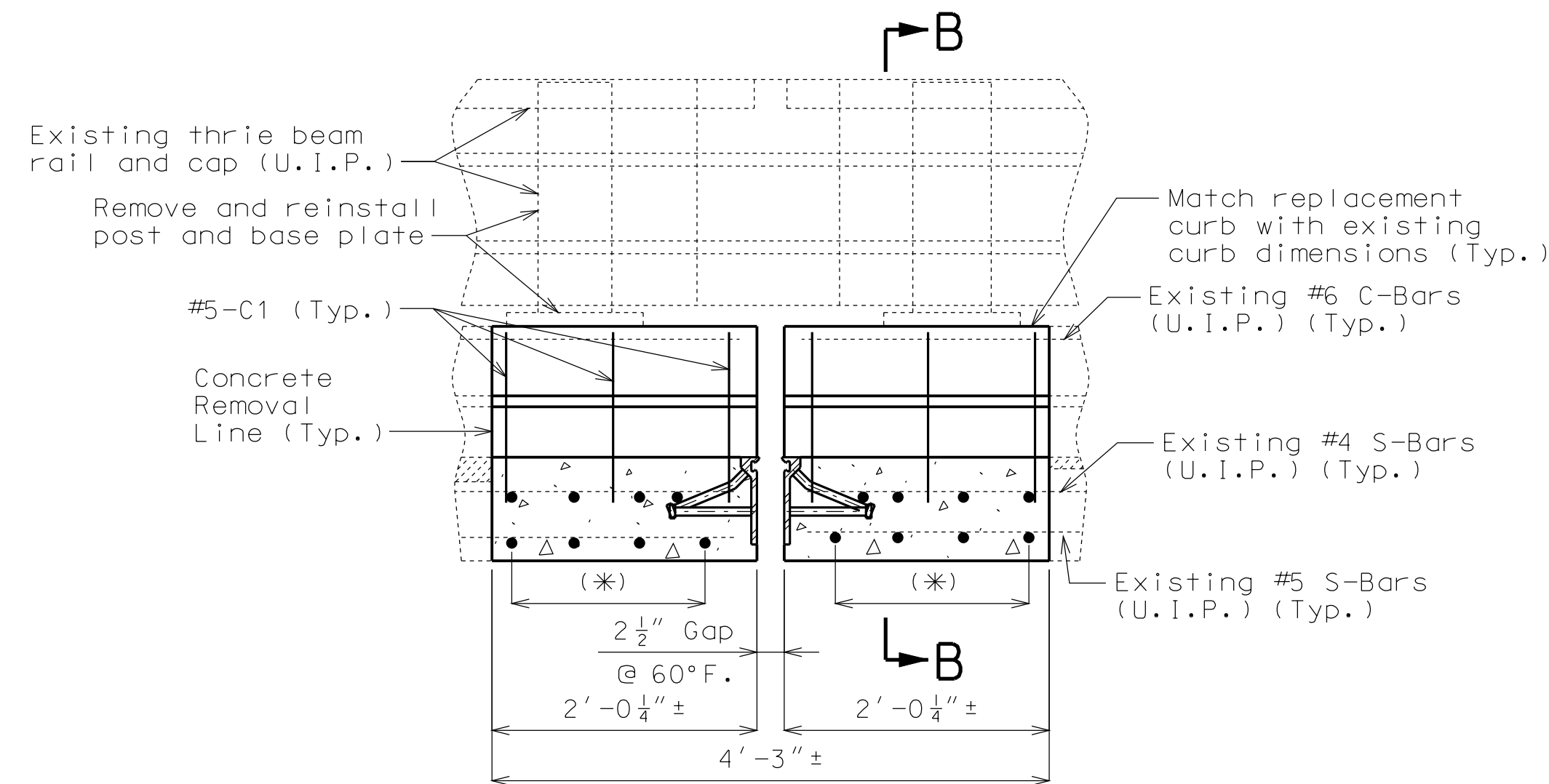
**PART ELEVATION OF BARRIER CURB**  
Note: Strip seal gland not shown for clarity.



**PART SECTION A-A**

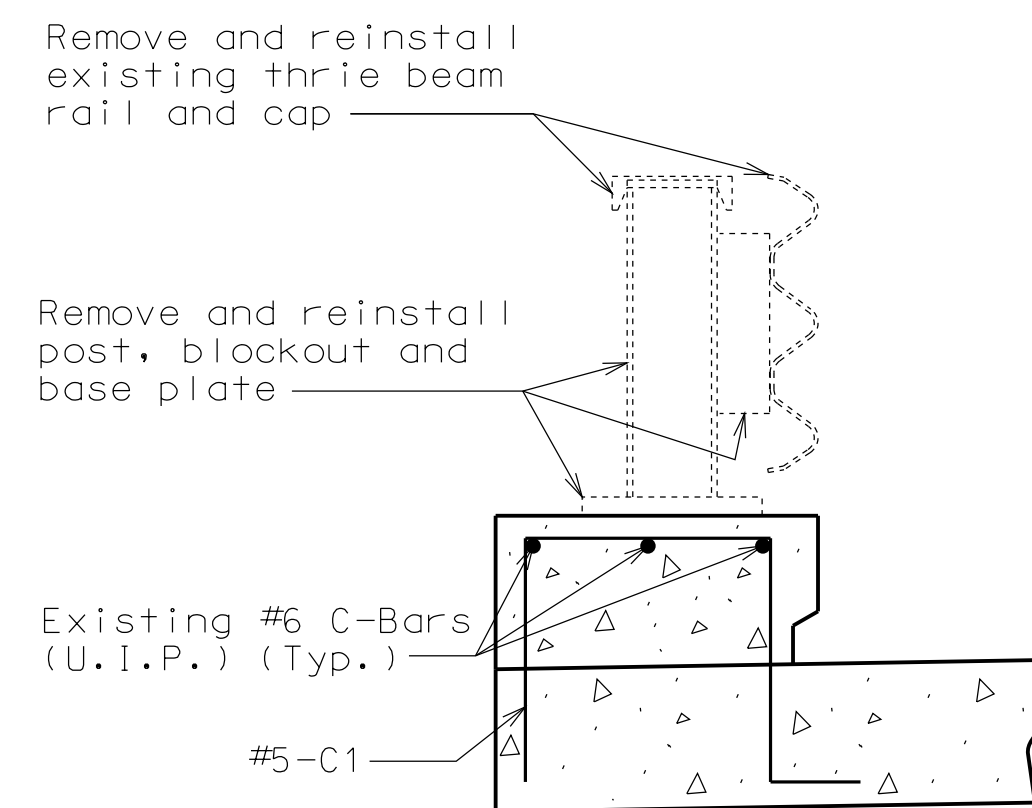


**PART SECTION C-C**  
Note: Section near thrie beam rail similar.

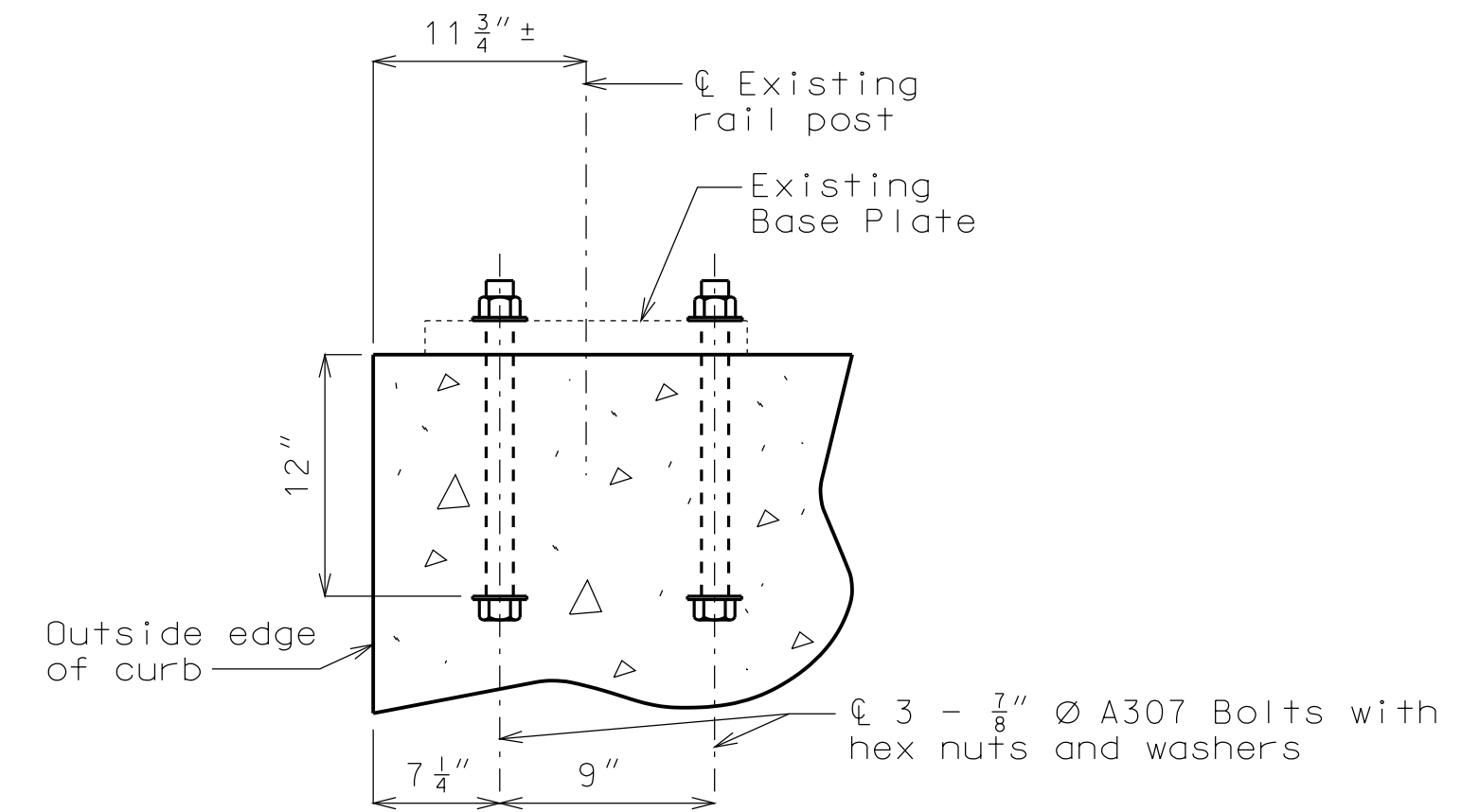


**PART ELEVATION OF THRIE BEAM RAIL**  
Note: Strip seal gland not shown for clarity.

Note:  
(\*) 4-#5-S1 @ 6" cts. (Top & Bottom)



**SECTION B-B**



**PART SECTION THRU CURB AT RAIL POST**  
(Rail post not shown for clarity)

Notes:  
All bolts, nuts and washers will be considered completely covered by the contract unit price for Remove and Replace Curb, Reinstall Thrie Beam.

Grade A321 threaded rods with 2 hex nuts and washers may be substituted for the A307 anchor bolts.

Adjust location of anchor bolts as necessary to maintain horizontal alignment of existing thrie beam rail.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

Existing thrie beam, rail posts, blockouts and base plates that are removed at expansion joint shall be reinstalled in the replacement curb. Payment for this work will be considered completely covered by the contract unit price for Remove and Replace Curb, Reinstall Thrie Beam.

Payment for all concrete and reinforcement for safety barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Safety Barrier Curb per linear foot.

Payment for all concrete and reinforcement for curb replacement, complete-in-place, will be considered completely covered by the contract unit price for Remove & Replace Curb, Reinstall Thrie Beam per linear foot.

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DATE PREPARED  
11/18/2013

ROUTE I-70 STATE MO  
DISTRICT BR SHEET NO. 5

COUNTY JACKSON

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A01672

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)





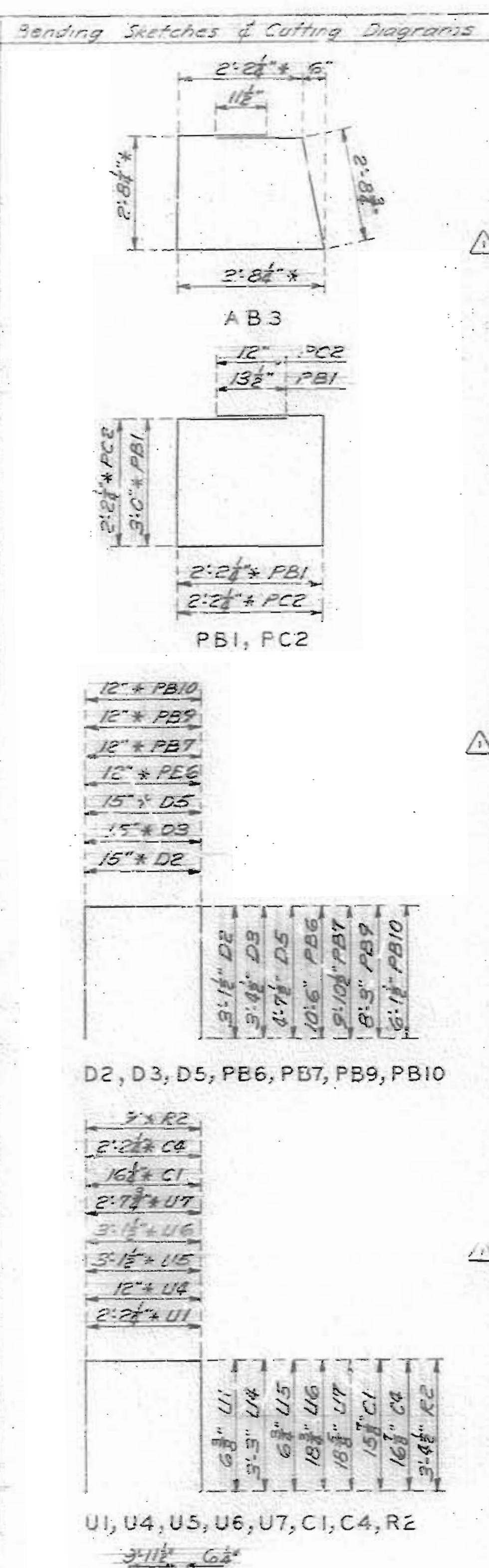


MISSOURI STATE HIGHWAY DEPARTMENT

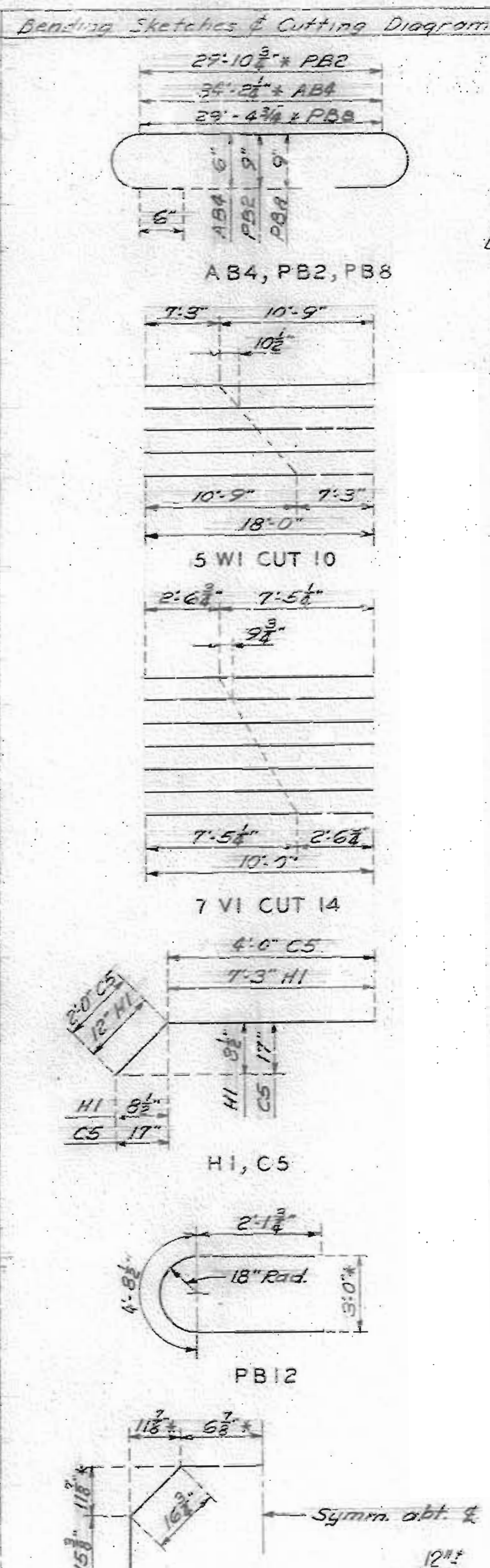
FED. ROAD DIST. NO.	ST. NO.	SP. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	100		19	37	

COMPLETE BILL OF REINFORCING STEEL

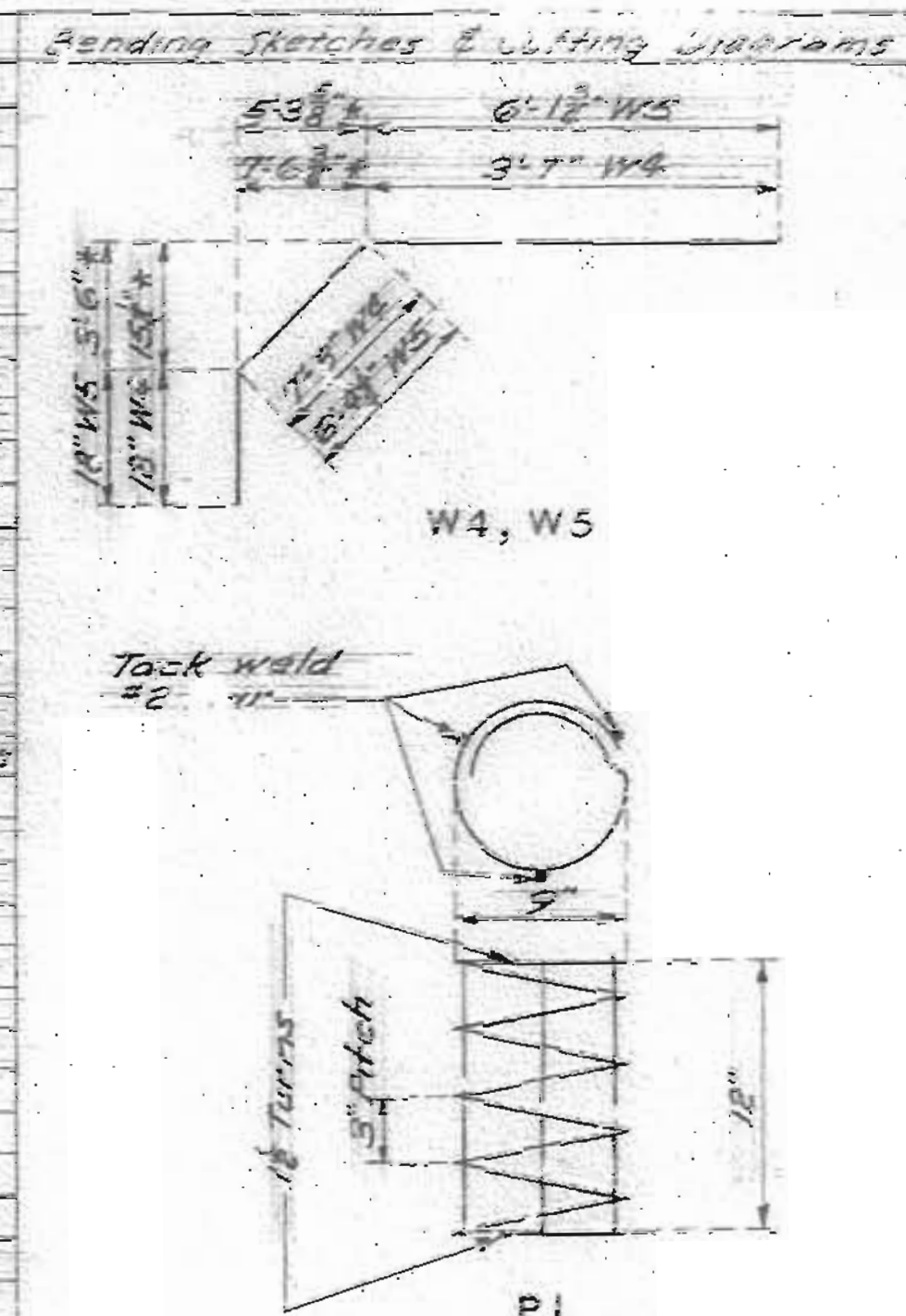
No.	Size	Length	Mark	Location
<b>END BENT NO. 1</b>				
32	#4	11'-3"	AB3	Beam
5	#6	36'-9"	AB4	"
9	#6	34'-9"	AB5	"
8	#4	3'-3"	U1	"
8	#2	19'-9"	PI	"
<b>Backwall</b>				
2	#6	31'-7"	AB1	"
4	#4	31'-9"	AB2	"
12	#4	7'-6"	V2	"
60	#4	5'-3"	V3	"
<b>Wingwall</b>				
7	#4	10'-0"	V1	"
5	#6	13'-0"	W1	"
8	#6	12'-3"	W2	"
2	#6	16'-0"	W3	"
4	#6	12'-9"	W4	"
4	#6	14'-0"	W5	"
<b>INT. BENT NO. 2</b>				
16	#7	4'-7"	D1	Footing
16	#6	7'-6"	D2	"
<b>Column</b>				
16	#7	16'-3"	PC1	"
26	#3	9'-9"	PC2	"
<b>Col. Haunches</b>				
16	#6	8'-3"	H1	"
<b>Beam</b>				
47	#5	11'-6"	PB1	"
7	#10	33'-3"	PB2	"
8	#11	30'-9"	PB3	"
2	#6	30'-9"	PB4	"
6	#4	3'-3"	U1	"
8	#2	19'-9"	PI	"
<b>INT. BENT NO. 3</b>				
16	#7	4'-7"	D1	Footing
16	#6	7'-6"	D2	"
<b>Column</b>				
26	#3	9'-9"	PC1	"
16	#7	16'-9"	PC2	"
16	#6	8'-3"	H1	Col. Haunches
<b>Beam</b>				
47	#5	11'-6"	PB1	"
7	#10	33'-3"	PB2	"
8	#11	30'-9"	PB3	"
2	#6	30'-9"	PB4	"
6	#4	3'-3"	U1	"
8	#2	19'-9"	PI	"
<b>INT. PIER NO. 4</b>				
16	#6	8'-0"	D3	Footing
24	#11	7'-3"	DA	"
24	#11	23'-3"	PCA	Shaft
<b>Web</b>				
4	#10	29'-6"	PB5	"
4	#11	32'-9"	PB8	"
32	#4	17'-6"	PB9	"
4	#4	28'-6"	PB14	Web & Haunch
6	#5	7'-6"	U4	"
27	#5	6'-6"	U3	Haunch



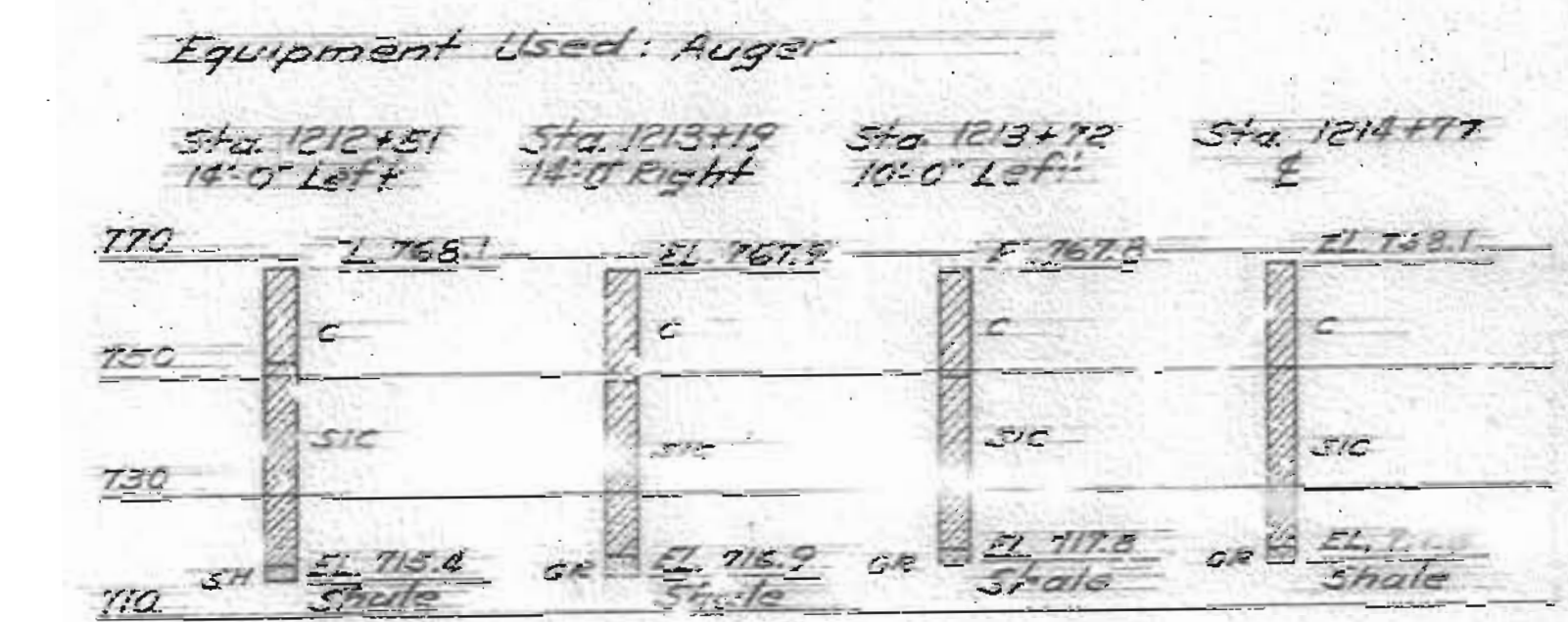
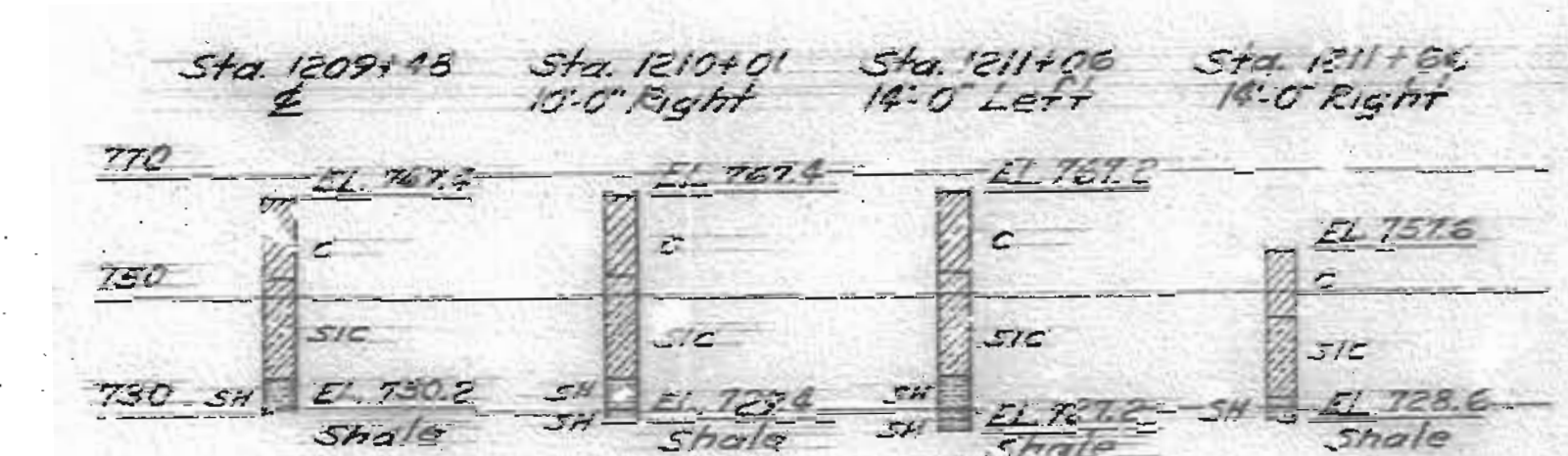
No.	Size	Length	Mark	Location
<b>INT. PIER NO. 4 CONT.</b>				
3	#7	28'-6"	PB11	Cap
4	#7	9'-0"	PB12	"
3	#6	30'-0"	PB13	"
8	#4	4'-3"	U5	"
29	#6	6'-3"	U6	"
2	#6	5'-9"	U7	"
8	#2	19'-9"	PI	"
12	#4	12'-0"	PC7	Shaft
5	#4	22'-0"	PC8	"
<b>INT. PIER NO. 5</b>				
12	#6	8'-0"	D3	Footing
16	#11	7'-3"	DA	"
8	#6	10'-6"	D5	"
16	#11	26'-6"	PCA	Shaft
<b>Web</b>				
4	#10	29'-6"	PB5	"
32	#4	22'-0"	PB9	"
4	#11	32'-9"	PB8	"
8	#4	28'-6"	PB14	Web & Haunch
6	#5	7'-6"	U4	"
27	#5	6'-6"	U3	Haunch
<b>Cap</b>				
4	#7	28'-6"	PB11	"
4	#7	9'-0"	PB12	"
3	#6	30'-0"	PB13	"
8	#4	4'-3"	U5	"
29	#6	6'-3"	U6	"
2	#6	5'-9"	U7	"
8	#2	19'-9"	PI	"
16	#4	12'-0"	PC7	Shaft
5	#4	22'-0"	PC8	"
<b>INT. PIER NO. 6</b>				
16	#6	8'-0"	D3	Footing
16	#11	7'-3"	DA	"
8	#6	10'-6"	D5	"
16	#11	26'-0"	PCA	Shaft
<b>Web</b>				
4	#10	27'-5"	PB5	"
32	#4	20'-9"	PB9	"
4	#11	32'-9"	PB8	"
8	#4	28'-6"	PB14	Web & Haunch
6	#5	7'-6"	U4	"
27	#5	6'-6"	U3	Haunch
<b>Cap</b>				
4	#7	28'-6"	PB11	"
4	#7	9'-0"	PB12	"
3	#6	30'-0"	PB13	"
8	#4	4'-3"	U5	"
29	#6	6'-3"	U6	"
2	#6	5'-9"	U7	"
8	#2	19'-9"	PI	"
16	#4	12'-0"	PC7	Shaft
5	#4	22'-0"	PC8	"
<b>INT. PIER NO. 7</b>				
16	#6	8'-0"	D3	Footing
24	#11	7'-3"	DA	"
24	#11	23'-3"	PCA	Shaft
<b>Web</b>				
4	#10	29'-6"	PB5	"
4	#11	32'-9"	PB8	"
32	#4	17'-6"	PB9	"
4	#4	28'-6"	PB14	Web & Haunch
6	#5	7'-6"	U4	"
27	#5	6'-6"	U3	Haunch



No.	Size	Length	Mark	Location
<b>INT. PIER NO. 7 CONT.</b>				
4	#7	28'-6"	PB11	Cap
4	#7	9'-0"	PB12	"
3	#6	30'-0"	PB13	"
8	#4	4'-3"	U5	"
29	#6	6'-3"	U6	"
2	#6	5'-9"	U7	"
8	#2	19'-9"	PI	"
12	#4	12'-0"	PC7	Shaft
5	#4	22'-0"	PC8	"
<b>INT. BENT NO. 8</b>				
16	#7	4'-7"	D1	Footing
16	#6	7'-6"	D2	"
<b>Column</b>				
16	#7	16'-9"	PC3	"
26	#3	9'-9"	PC2	"
16	#6	8'-3"	H1	Col. Haunches
<b>Beam</b>				
47	#5	11'-6"	PB1	"
7	#10	33'-3"	PB2	"
8	#11	30'-9"	PB3	"
2	#6	30'-9"	PB4	"
6	#4	3'-3"	U1	"
8	#2	19'-9"	PI	"
<b>INT. BENT NO. 9</b>				
16	#7	4'-7"	D1	Footing
16	#6	7'-6"	D2	"
<b>Column</b>				
16	#7	16'-9"	PC3	"
26	#3	9'-9"	PC2	"
16	#6	8'-3"	H1	Col. Haunches
<b>Beam</b>				
47	#5	11'-6"	PB1	"
7	#10	33'-3"	PB2	"
8	#11	30'-9"	PB3	"
2	#6	30'-9"	PB4	"
6	#4	3'-3"	U1	"
8	#2	19'-9"	PI	"
<b>END BENT NO. 10</b>				
32	#4	11'-3"	PB3	Beam
5	#6	36'-9"	AB4	"
9	#6	34'-9"	AB5	"
8	#4	3'-3"	U1	"
8	#2	19'-9"	PI	"
<b>Backwall</b>				
2	#6	31'-9"	AB1	"
4	#4	31'-9"	AB2	"
12	#4	7'-6"	V2	"
60	#4	5'-3"	V3	"
<b>Wingwall</b>				
7	#4	10'-0"	V1	"
5	#6	13'-0"	W1	"
8	#6	12'-3"	W2	"
2	#6	10'-0"	W3	"
4	#6	12'-9"	W4	"
4	#6	14'-0"	W5	"



No.	Size	Length	Mark	Location
<b>SUPERSTRUCTURE</b>				
340	#4	82'-0"	S1	Slab
198	#5	16'-0"	S2	"
368	#3	39'-3"	S3	"
2108	#6	33'-3"	S4	"
40	#5	2'-3"	S5	"
876	#5	37'-9"	S6	"
238	#4	92'-3"	S7	"
<b>Sub</b>				
614	#5	4'-0"	C1	"
48	#6	27'-0"	C2	"
14	#6	25'-9"	C3	"
20	#5	5'-0"	C4	"
4	#5	6'-0"	C5	"
12	#6	37'-9"	C6	"
24	#6	35'-3"	C7	"
<b>End Post</b>				
24	#5	3'-9"	R1	"
20	#5	7'-6"	R2	"



LOG OF SOUNDINGS

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE  
 ABOUT 1 MILE E. OF GRAIN VALLEY  
 PROJECT NO. I-70-1(25)(RT. 170) STA. 1209+35.32  
 JACKSON COUNTY

R.W. BOOKER & ASSOCIATES  
 CONSULTING ENGINEERS  
 215 NORTH ELEVENTH ST.  
 ST. LOUIS 1, MISSOURI  
 Drawn June 1961 by D.L.B.  
 Checked June 1961 by D.C.S.

Note: This drawing is not to scale. Follow dimensions.

Note: \* indicates critical dimensions.

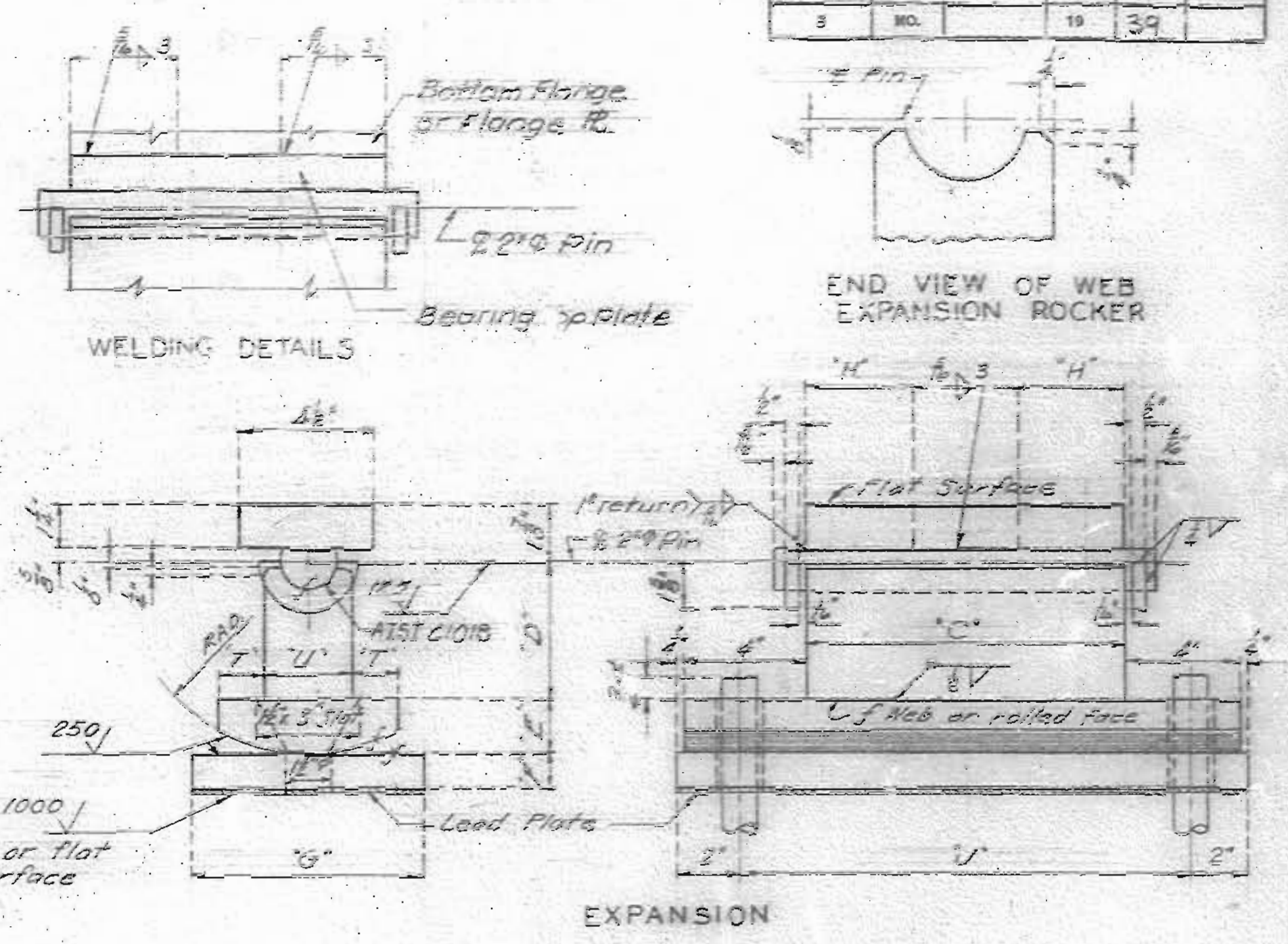
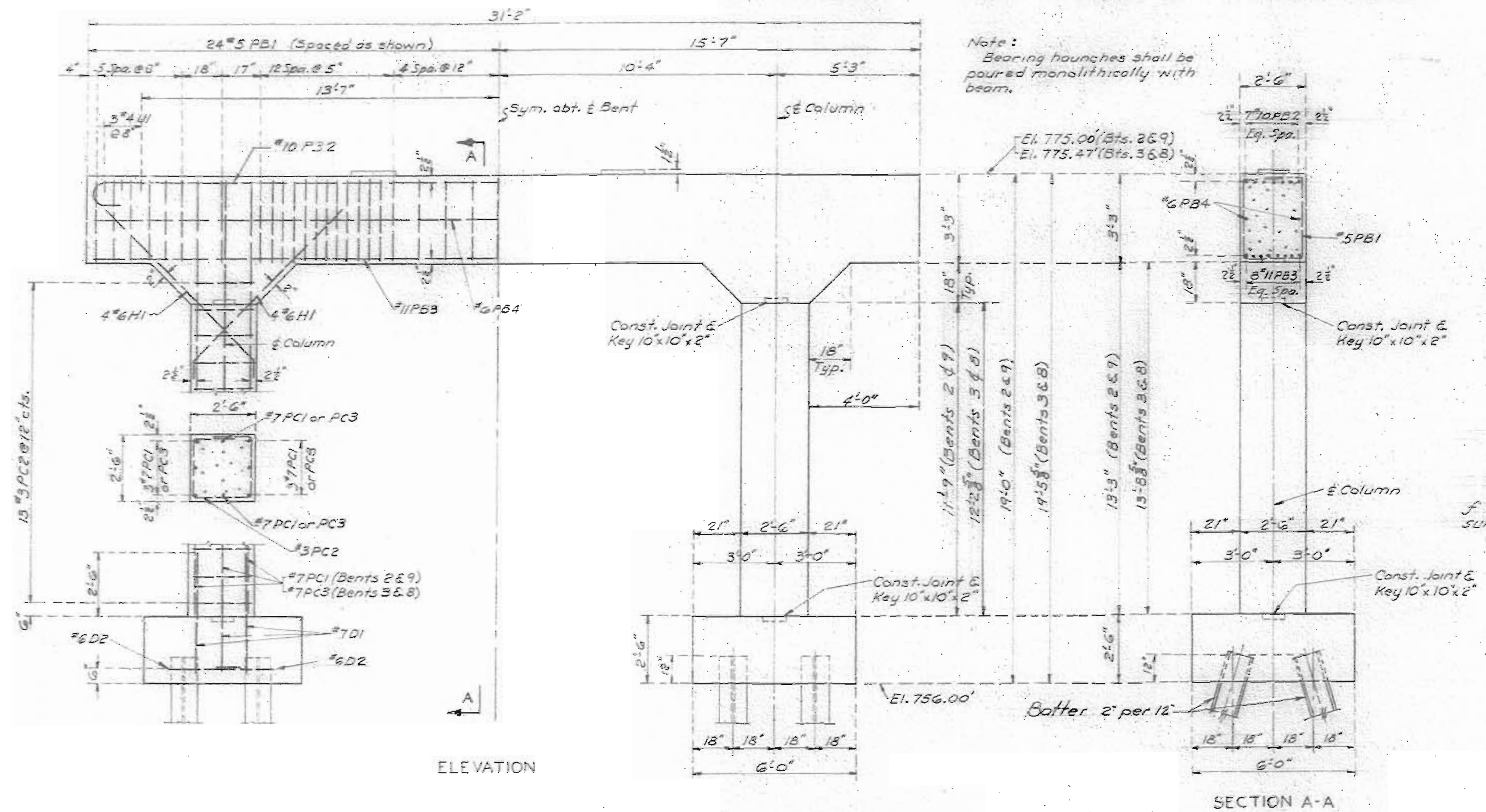
Sheet No. 2 of 10

NO CONSTRUCTION CHANGES

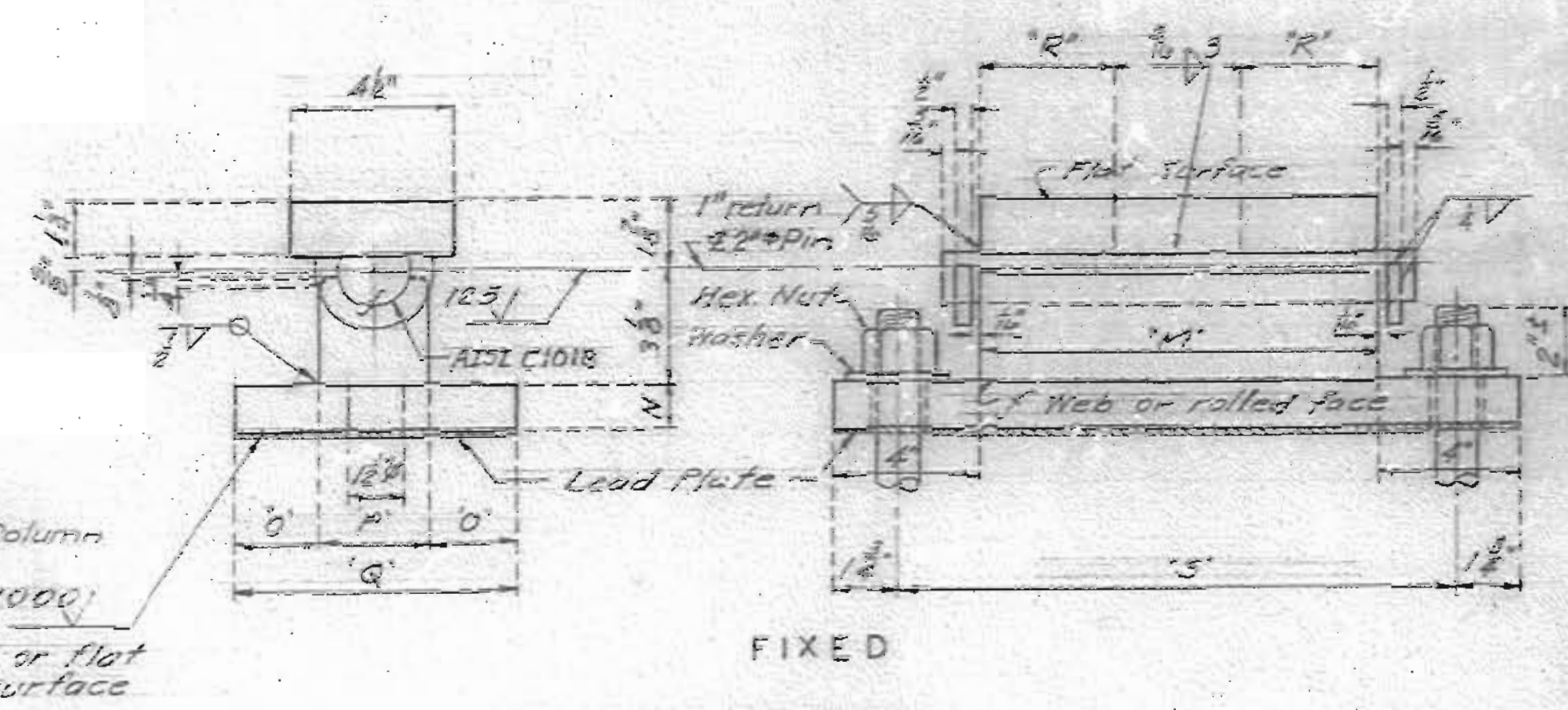
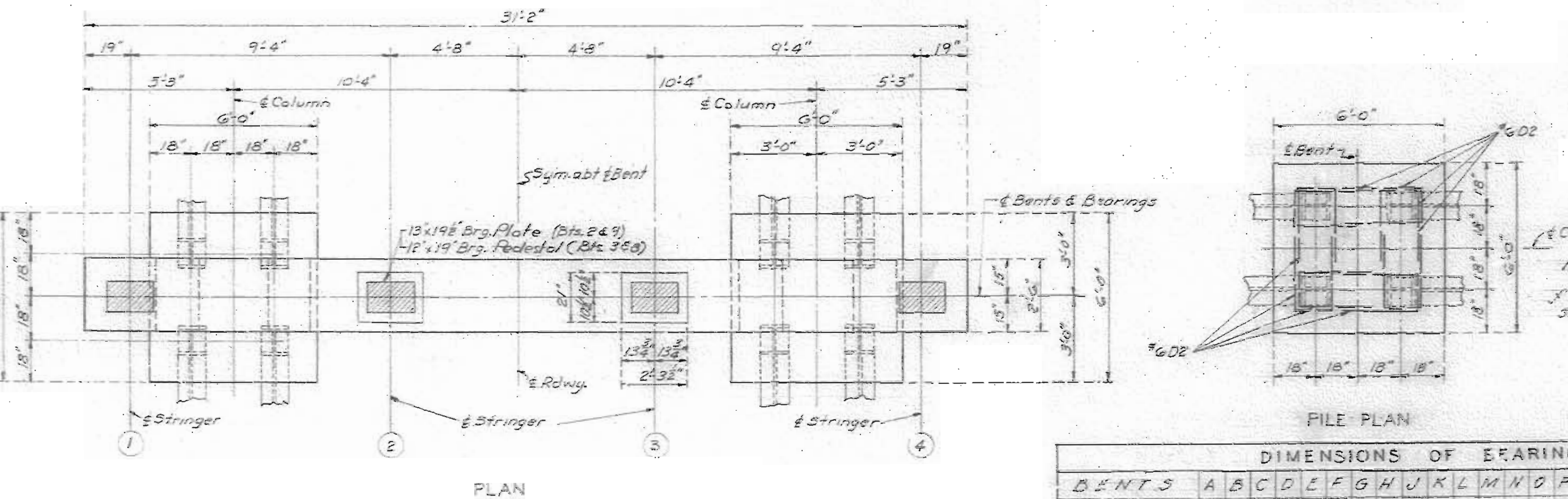


MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	39	



NOTES TYPE "D" BEARINGS  
 Lead plates under bearings shall be approximately 3/8" thickness and weigh 8#/sq. ft. Cost of lead plates shall be included in price bid for other items.  
 Estimated weight does not include weight of anchor bolts. Anchor bolts for Type "D" Bearings shall be 1 1/2" dia. swaged bolts and shall extend 12" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.



FIXED TYPE "D" BEARINGS  
 Estimated Weight (11,960#)

BENTS	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	RAD.	SET'S PER 100'	
1 & 10 (EXP.)	2 1/2	6	11	4 1/2	1 1/2	10	1	5 1/2												1 1/2	3	4 1/2	8
2 & 9 (EXP.)	2 1/2	6	11	4 1/2	1 1/2	13	1	5 1/2												1 1/2	3	4 1/2	8
4 (EXP.)	2 1/2	7 1/2	12	4 1/2	1 1/2	12	1	4 1/2												2	3	3 1/2	4
7 (EXP.)	2 1/2	7 1/2	12	4 1/2	1 1/2	14	1	4 1/2												2	3	3 1/2	4
8 (EXP.)	2 1/2	7 1/2	12	4 1/2	1 1/2	16	1	4 1/2												1 1/2	4	10 1/2	4
3 & 6 (FIXED)									2 1/2	6	11	2	4 1/2	3	12	4	15 1/2						8
5 (FIXED)									2 1/2	7 1/2	12	1 1/2	4 1/2	15	14	16 1/2							4

K.W. ROOKE & ASSOCIATES  
 CONSULTING ENGINEERS  
 215 NORTH ELEVENTH ST.  
 ST. LOUIS 1, MISSOURI

Drawn May 1961 by S.W.M. & H.O.W.  
 Checked June 1961 by R.H.B.

DETAIL INTERMEDIATE BENTS 2,3,8 & 9

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 10

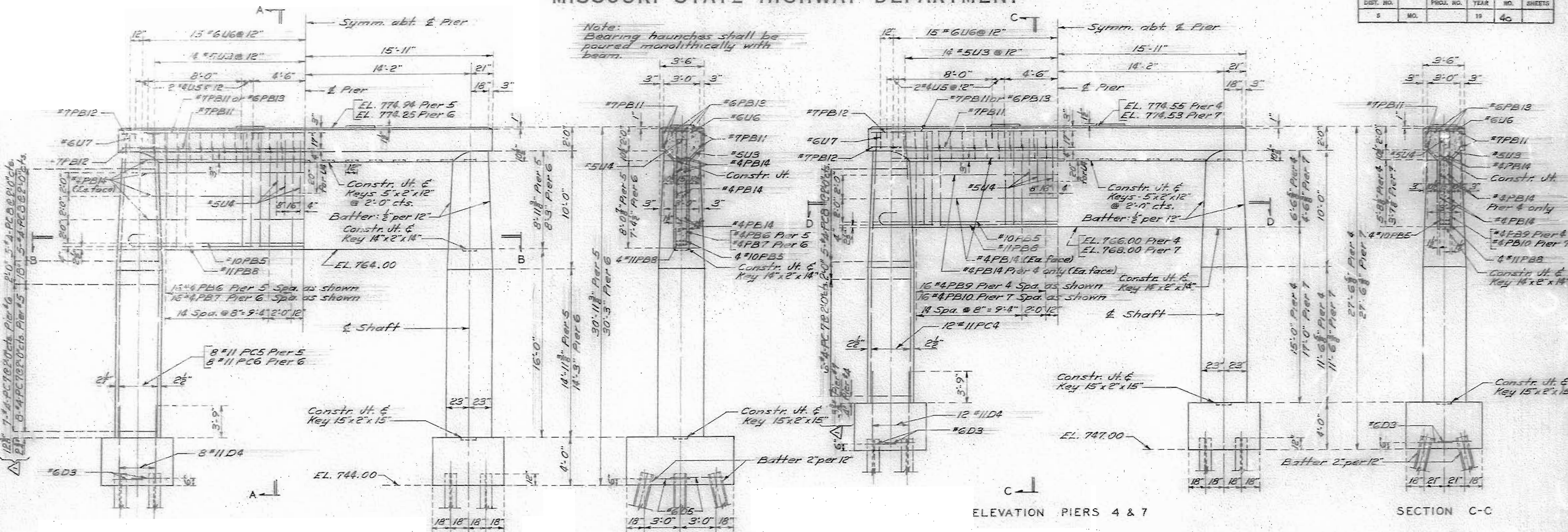
NO CONSTRUCTION CHANGES

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE  
 ABOUT 1 MILE E. OF GRAIN VALLEY  
 PROJECT NO. 1-70-(25)(RT. 170) STA. 1209 +35.32  
 JACKSON COUNTY

A-167

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	40	

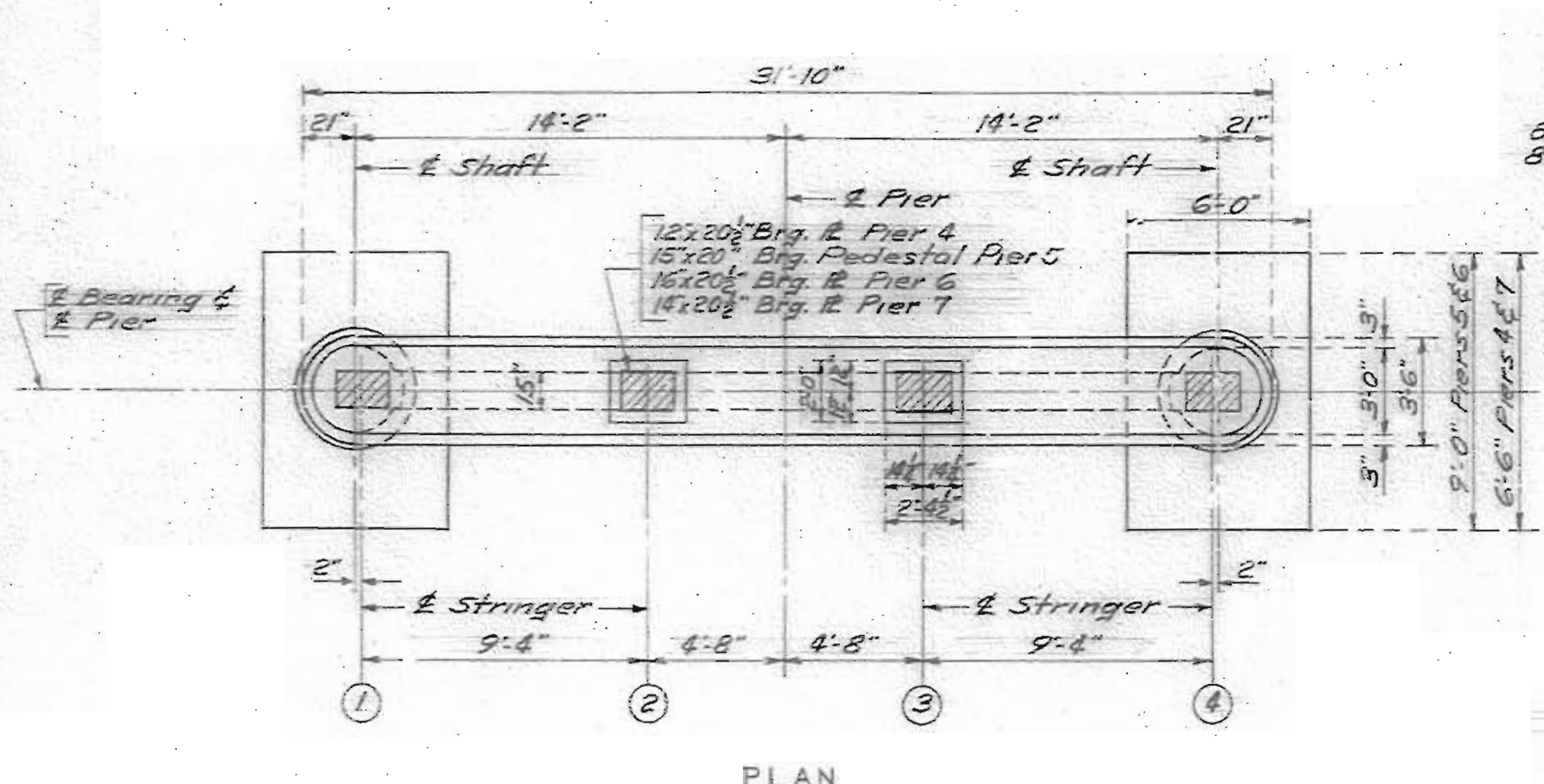


ELEVATION PIERS 5 & 6

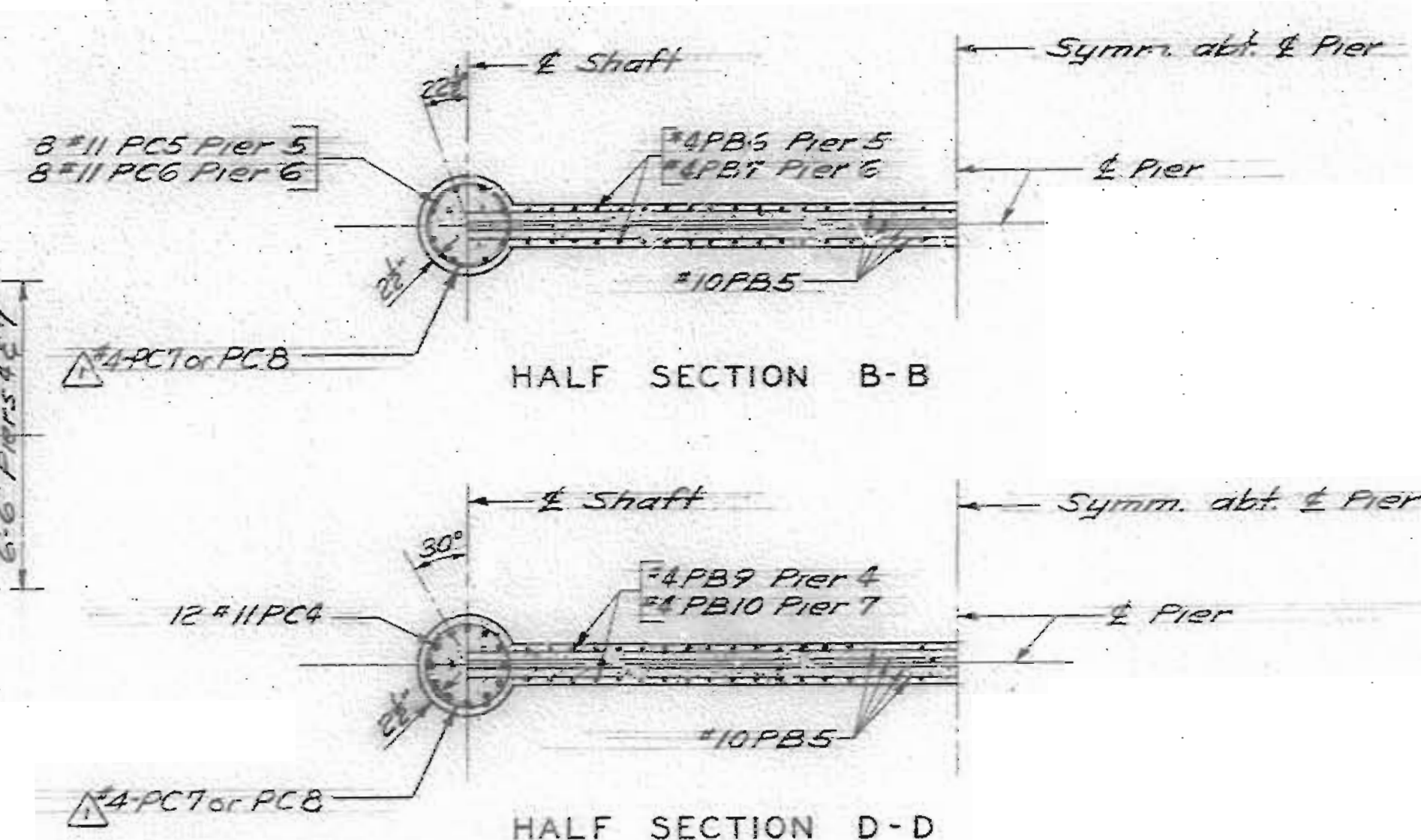
SECTION A-A

ELEVATION PIERS 4 & 7

SECTION C-C

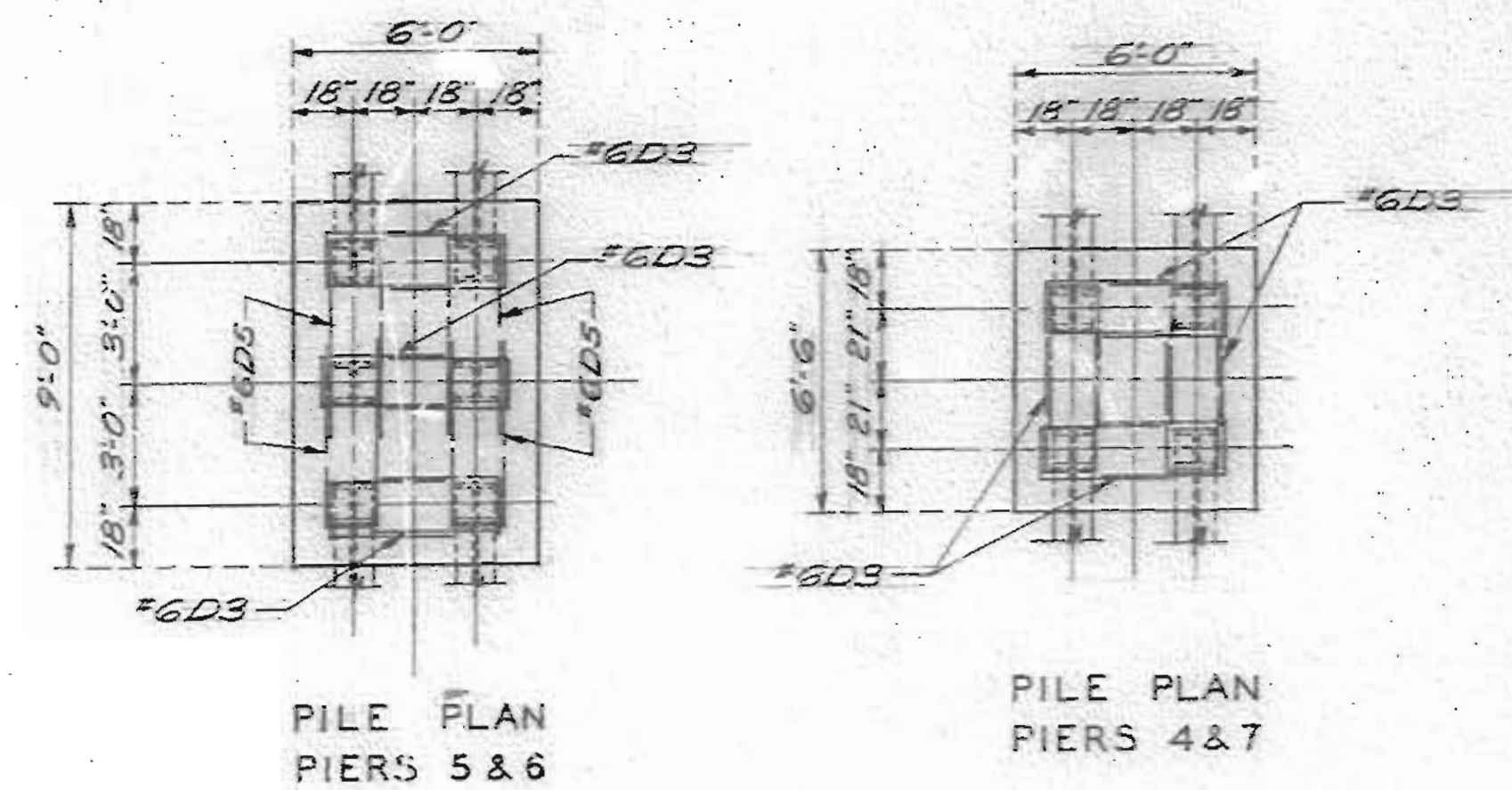


PLAN



HALF SECTION B-B

HALF SECTION D-D



PILE PLAN PIERS 5 & 6

PILE PLAN PIERS 4 & 7

DETAILS OF PIERS 4, 5, 6 & 7

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE  
 ABOUT 1 MILE E. OF GRAIN VALLEY  
 PROJECT NO. I-70-(125)(RT. I-70) STA. 1209 +35.32  
 JACKSON COUNTY

R.W. BOOKER & ASSOCIATES  
 CONSULTING ENGINEERS  
 215 NORTH ELEVENTH ST.  
 ST. LOUIS 1, MISSOURI  
 Drawn May 1961 by D.L.B.  
 Checked June 9 1961 by D.C.S., R.H.B.

Note: This drawing is not to scale. Follow dimensions.

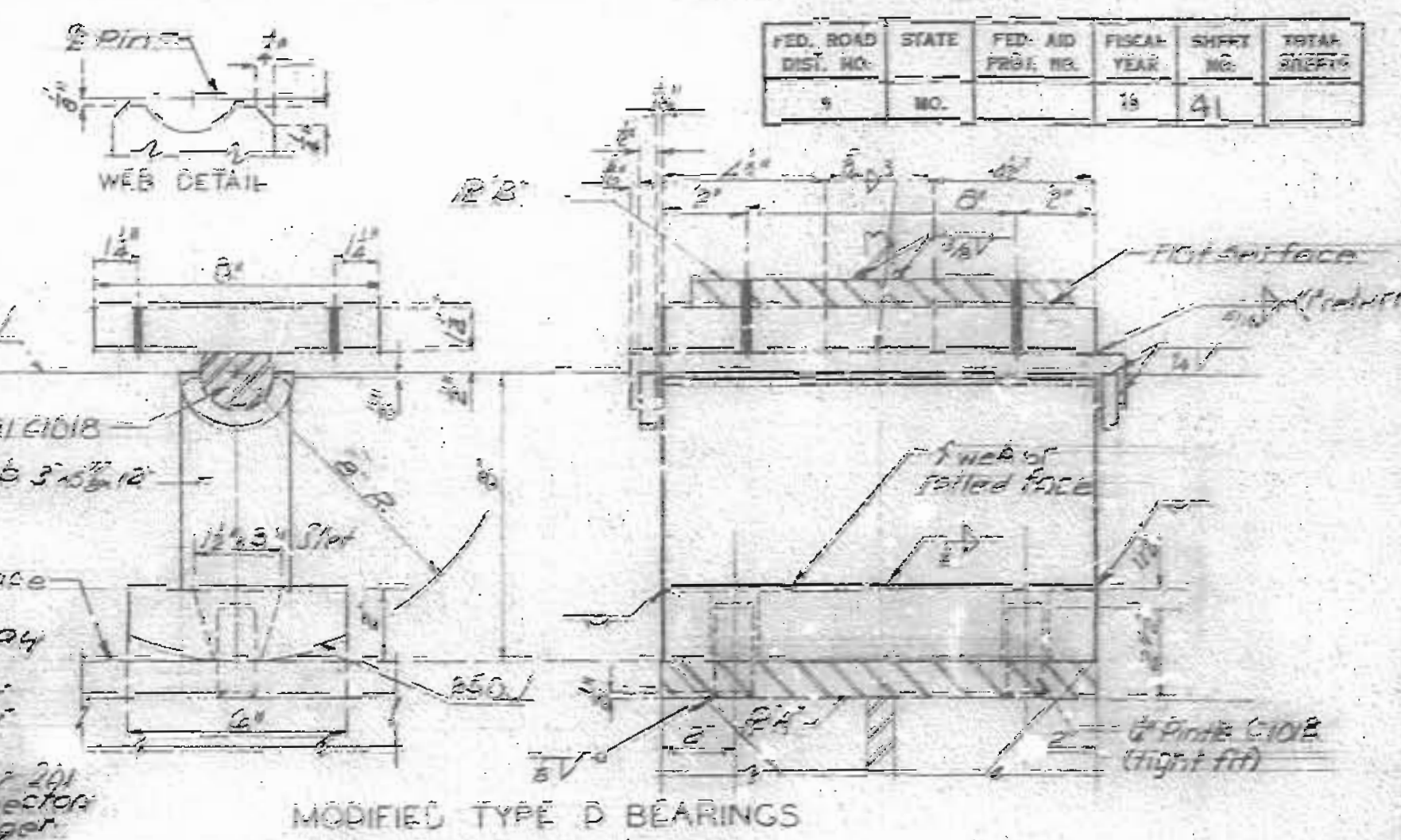
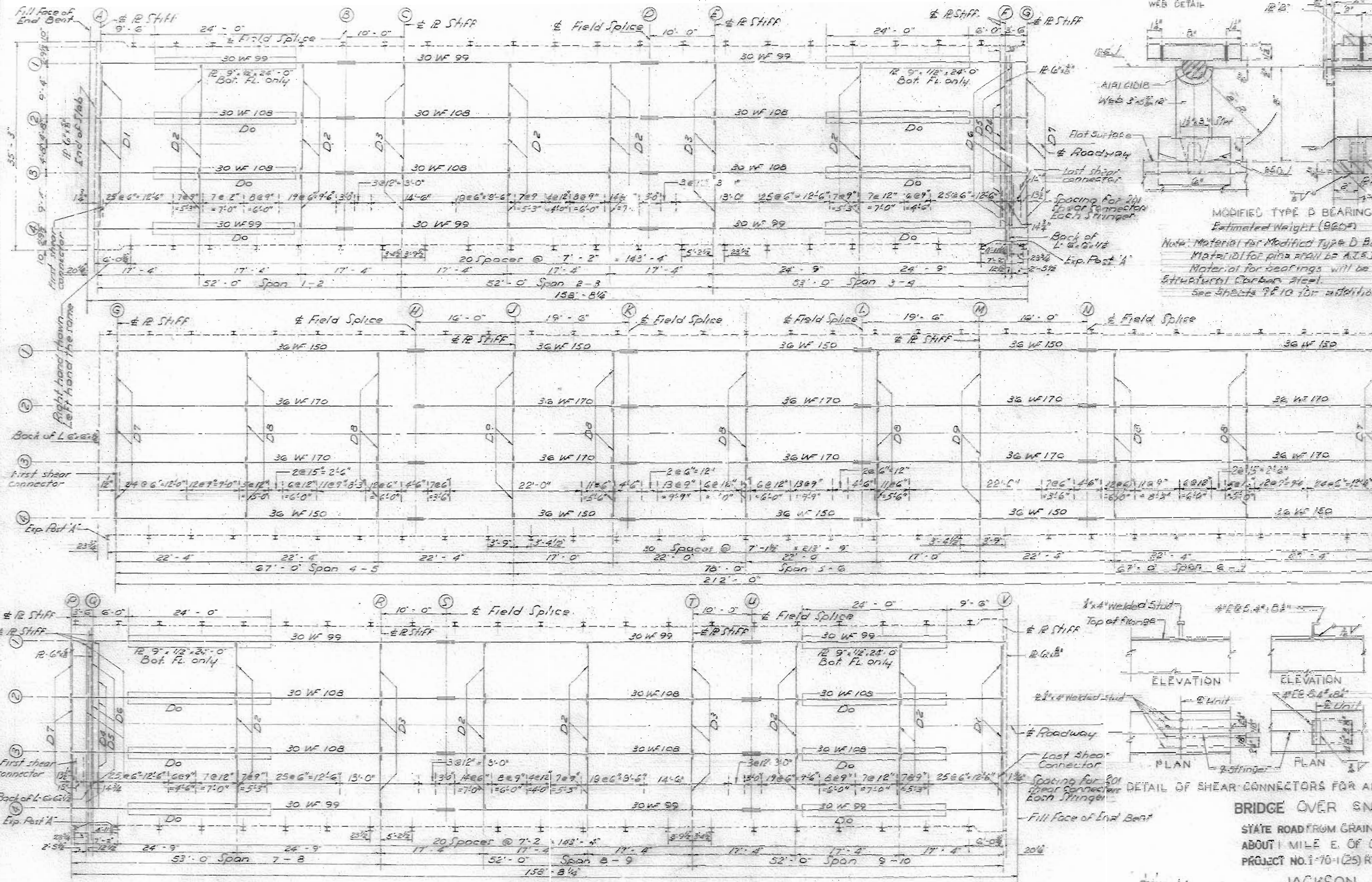
Sheet No. 5 of 10 Rev. 5-9-63

NO CONSTRUCTION CHANGES

A-167

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	41	



ELEVATIONS AT TOP OF STRINGER FLANGE

Span	Thru U	V
1	772.52	762.7
2	772.73	772.72
3	773.73	772.72
4	772.51	772.57

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO LINE  
 ABOUT 1 MILE E. OF GRAIN VALLEY  
 PROJECT NO. 1-70-(25) RT. 1-70 STA. 1209 + 35.32  
 JACKSON COUNTY

R.W. BOOKER & ASSOCIATES  
 CONSULTING ENGINEERS  
 218 NORTH ELEVENTH ST.  
 ST. LOUIS 1, MISSOURI

Drawn May 15 1961 by Killam  
 Checked May 19 1961 by RHB

Note: This drawing is not to scale. Follow dimensions.

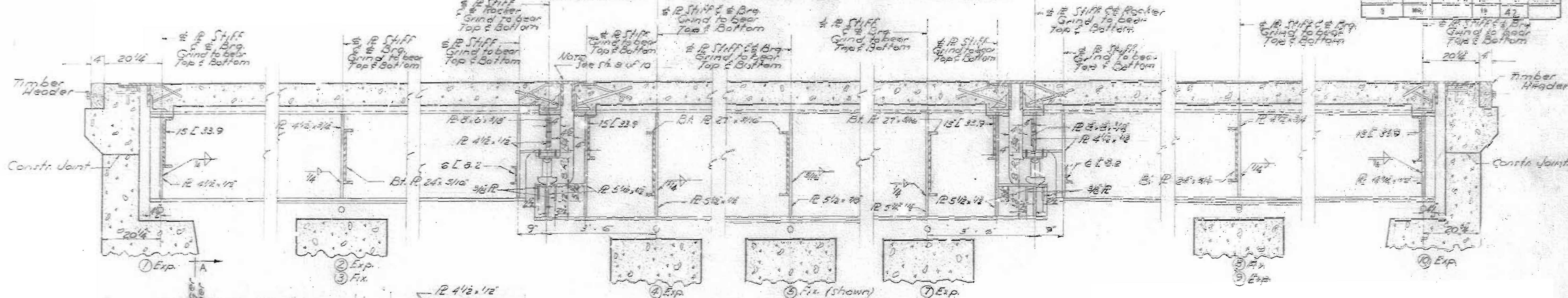
Sheet No. 6 of 10

NO CONSTRUCTION CHANGES

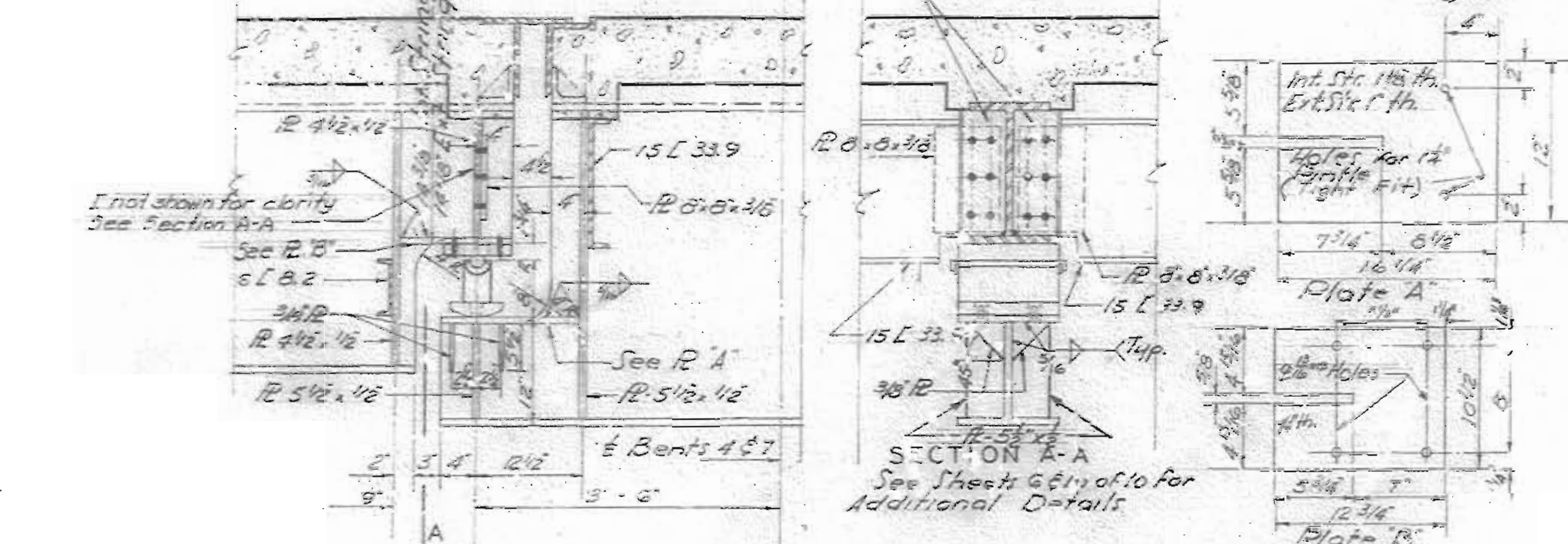
A-167

MISSOURI STATE HIGHWAY DEPARTMENT

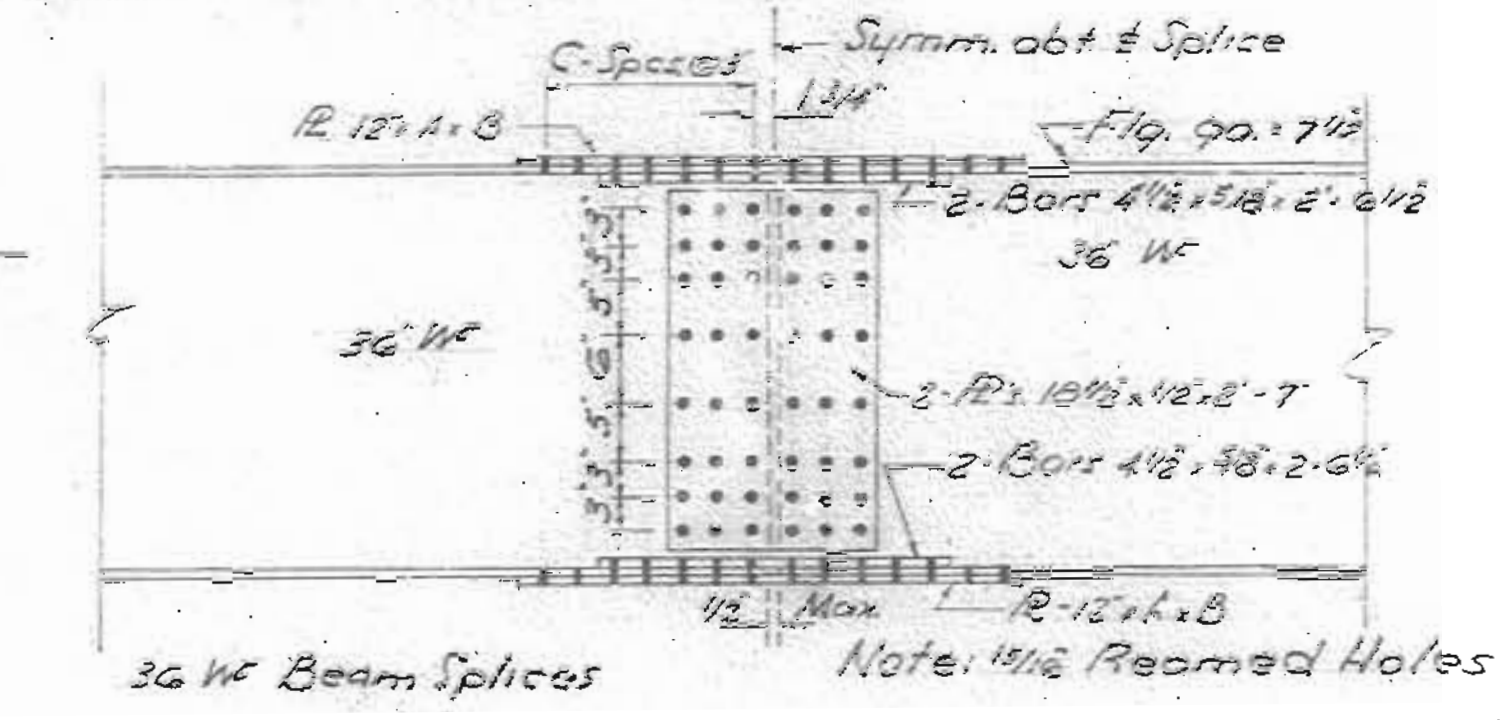
DES. NO.	STATE	DES. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
101672	MO.	101672	1961	47	100



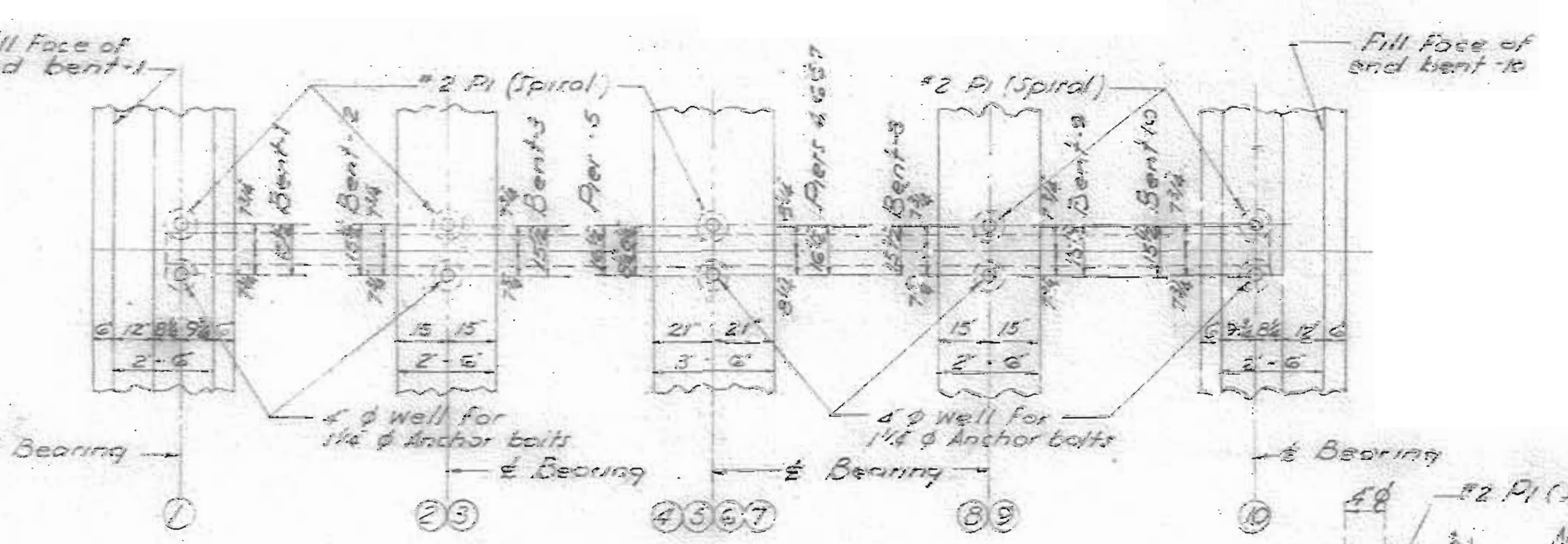
PART LONGITUDINAL SECTION



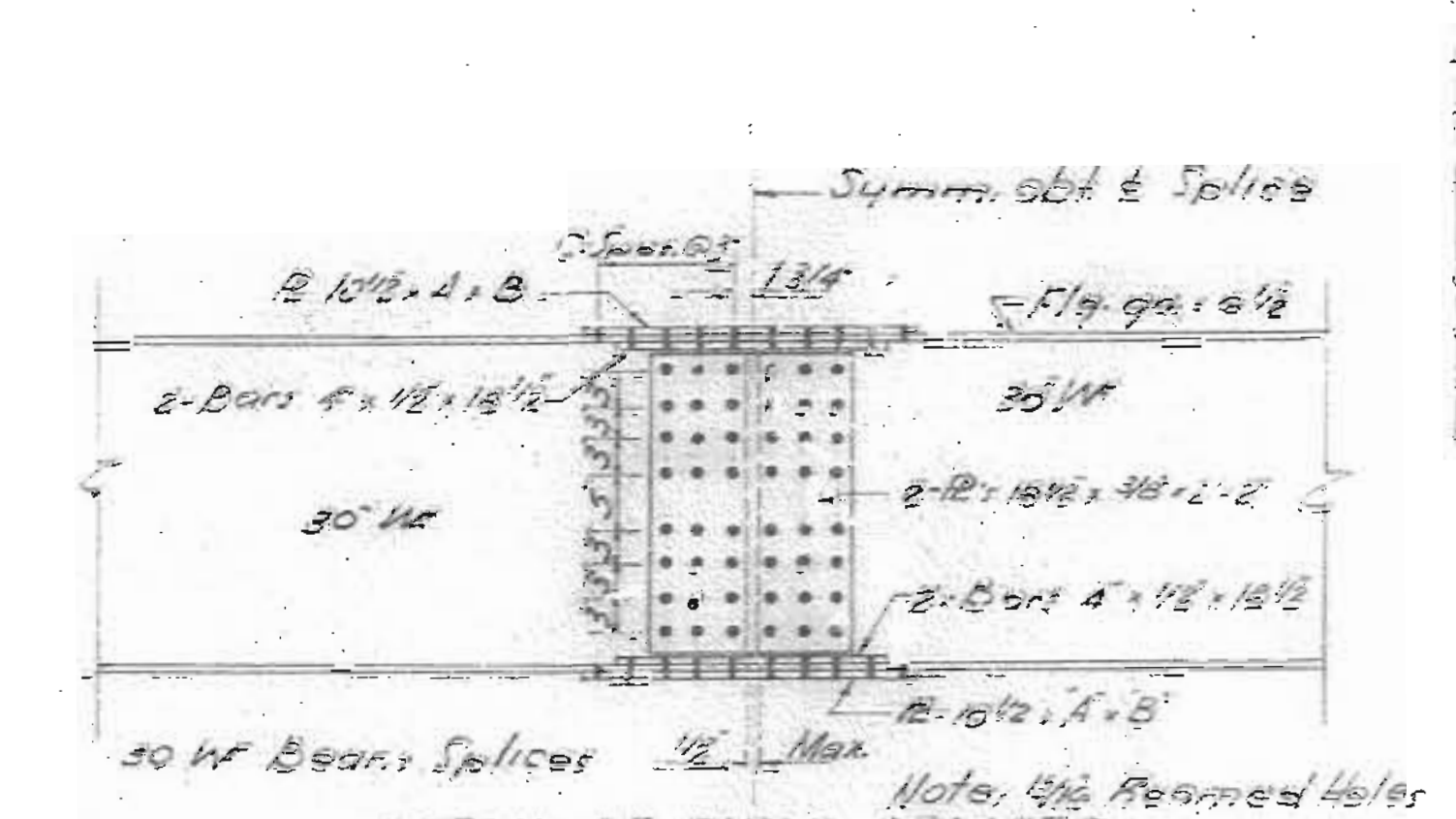
HINGED BEAM CONN. AND PLATE DETAILS



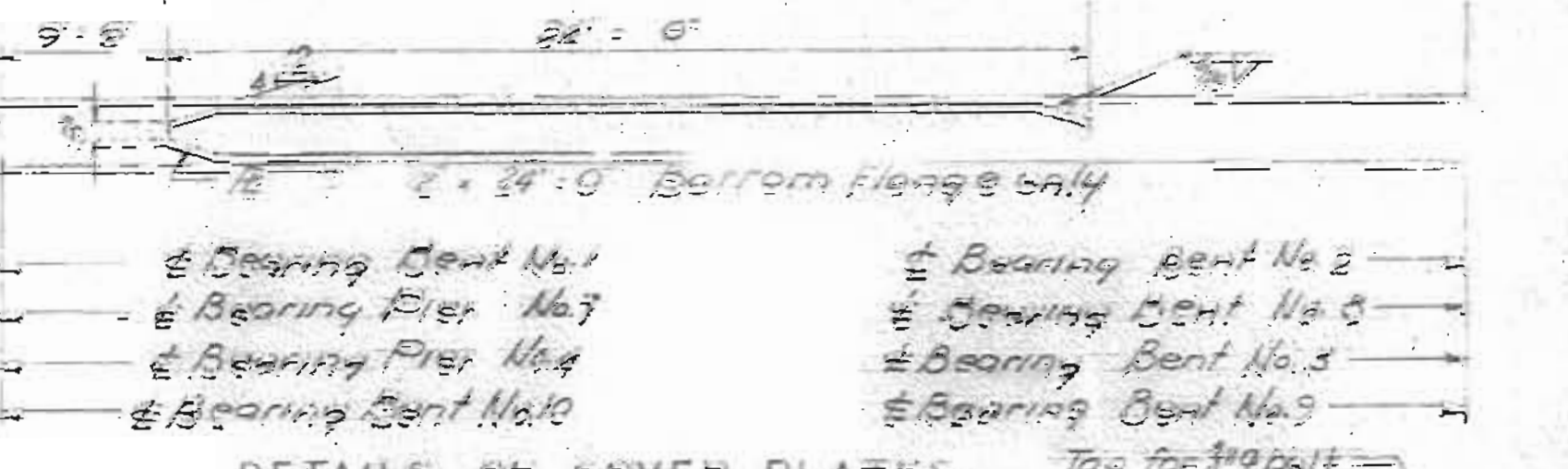
DETAILS OF FLANGE PLATES INT. BENTS NO. 2, 3, 5 & 9 & PIERS NO. 5 & 9



PART ANCHOR BOLT PLAN



DETAIL OF FIELD SPLICES



DETAILS OF COVER PLATES

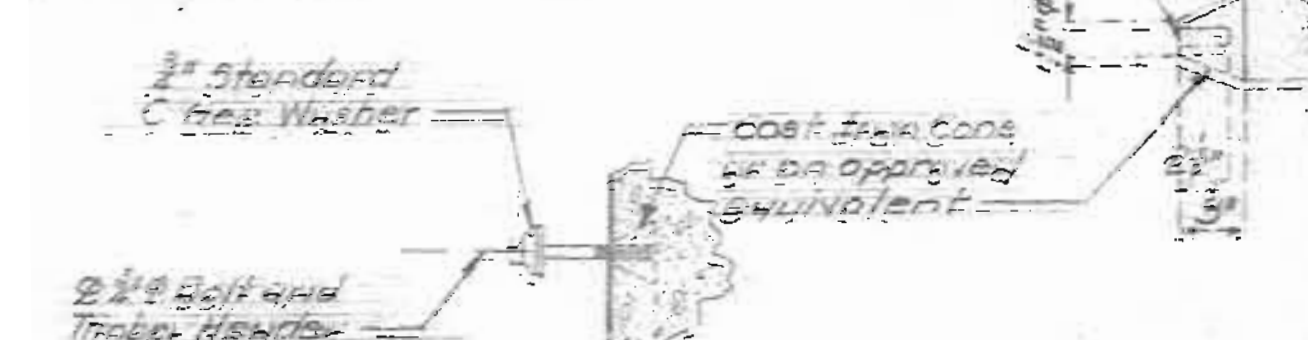
ELEVATION AT TOP OF STRINGER FLANGE			
Stringer	A thru U	V	
Int.	778.73	778.72	
Ext.	778.58	778.57	



DETAIL OF SPIRAL AROUND ANCHOR BOLT

	A	B	C
36 WF 150 to 155	3/8	3/8	5
36 WF 170 to 179	3/4	4-5/8	7
30 WF 99 to 99	1/2	2-5/8	3
30 WF 100 to 108	1/2	2-0/8	1

NOTE: Anchor bolts for Type 20 Bearing may be set in walls or shores or in holes drilled into concrete substructure.



DETAIL OF TIMBER HEADER BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE ABOUT 1 MILE E. OF GRAIN VALLEY PROJECT NO. 170-1125 (RT 1-10) STA. 1209+35.32

JACKSON COUNTY

R. W. BOOKER & ASSOCIATES CONSULTING ENGINEERS 215 NORTH ELEVANTH ST. ST. LOUIS 2, MISSOURI  
 Drawn 1961 by H.L.L.  
 Checked 1961 by R.H.B.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 10

NO CONSTRUCTION CHANGES

A167

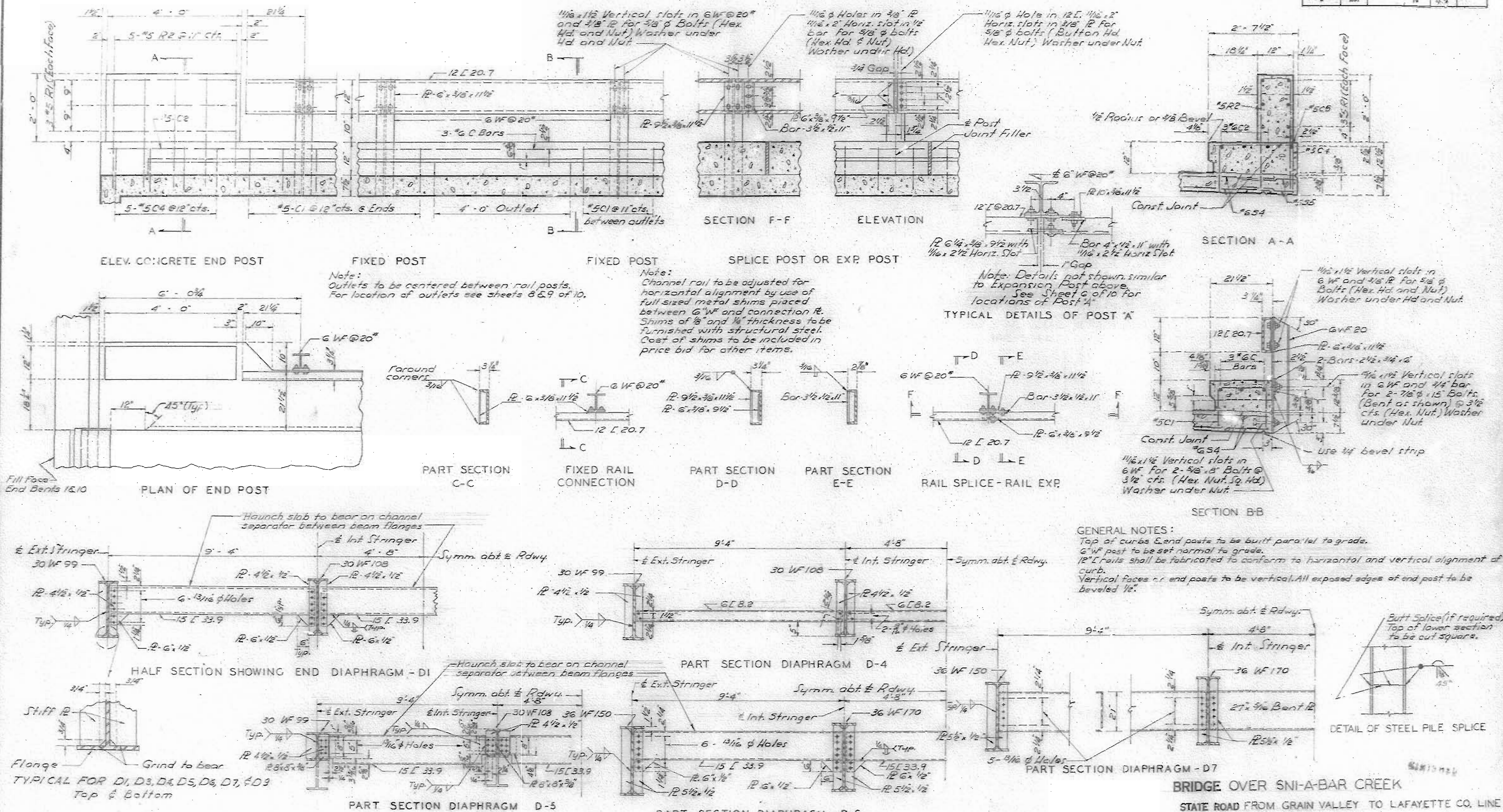






MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	45	



R. W. BOOKER & ASSOCIATES  
 CONSULTING ENGINEERS  
 214 N. 7TH ELEVATOR ST.  
 ST. LOUIS 1, MISSOURI

Drawn May 12, 1961 by E.H.S.  
 Checked June 9, 1961 by J.H.B.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 10

NO CONSTRUCTION CHANGES

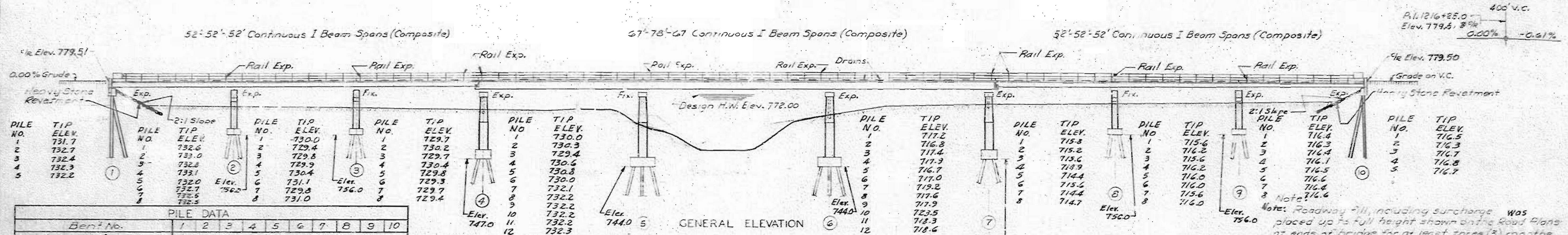
**BRIDGE OVER SNI-A-BAR CREEK**  
 STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE  
 ABOUT 1 MILE E. OF GRAIN VALLEY  
 PROJECT NO. I-70-1(25) (RT. I-70) STA. 1209+35.32  
 JACKSON COUNTY

A-167

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

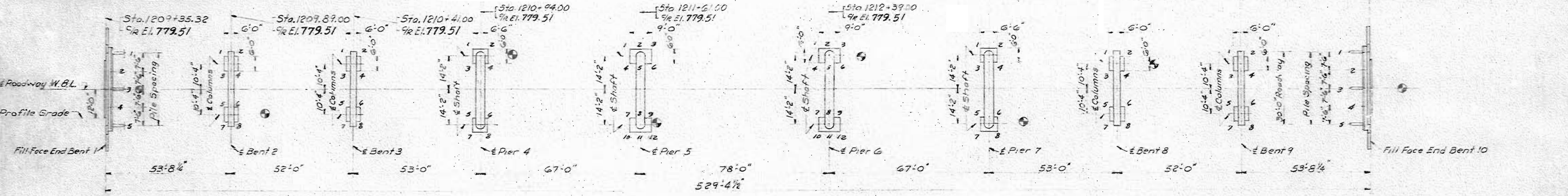
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	36	



Bent No.	1	2	3	4	5	6	7	8	9	10
Pile Type and Size	12 BP-33									
Number	5	8	8	8	12	12	8	8	8	5
Approximate Length Ft.	45	30	30	25	20	35	35	45	45	4
Plan Bearing Tons	46	46	46	46	46	46	46	46	46	46
Min. Required Bearing Tons	43	41	41	41	42	42	41	41	41	43
Hammer	Power									
See Standard Specification	52.2.6									

Note: All pile were driven to practical refusal or into solid rock or other point bearing material of not less than the Plan Bearing shown.

Note: Roadway fill, including surcharge was placed up to full height shown on the Road Plans at ends of bridge for at least three (3) months before steel piles was driven for end bents 1 and 10. See Special Provisions.



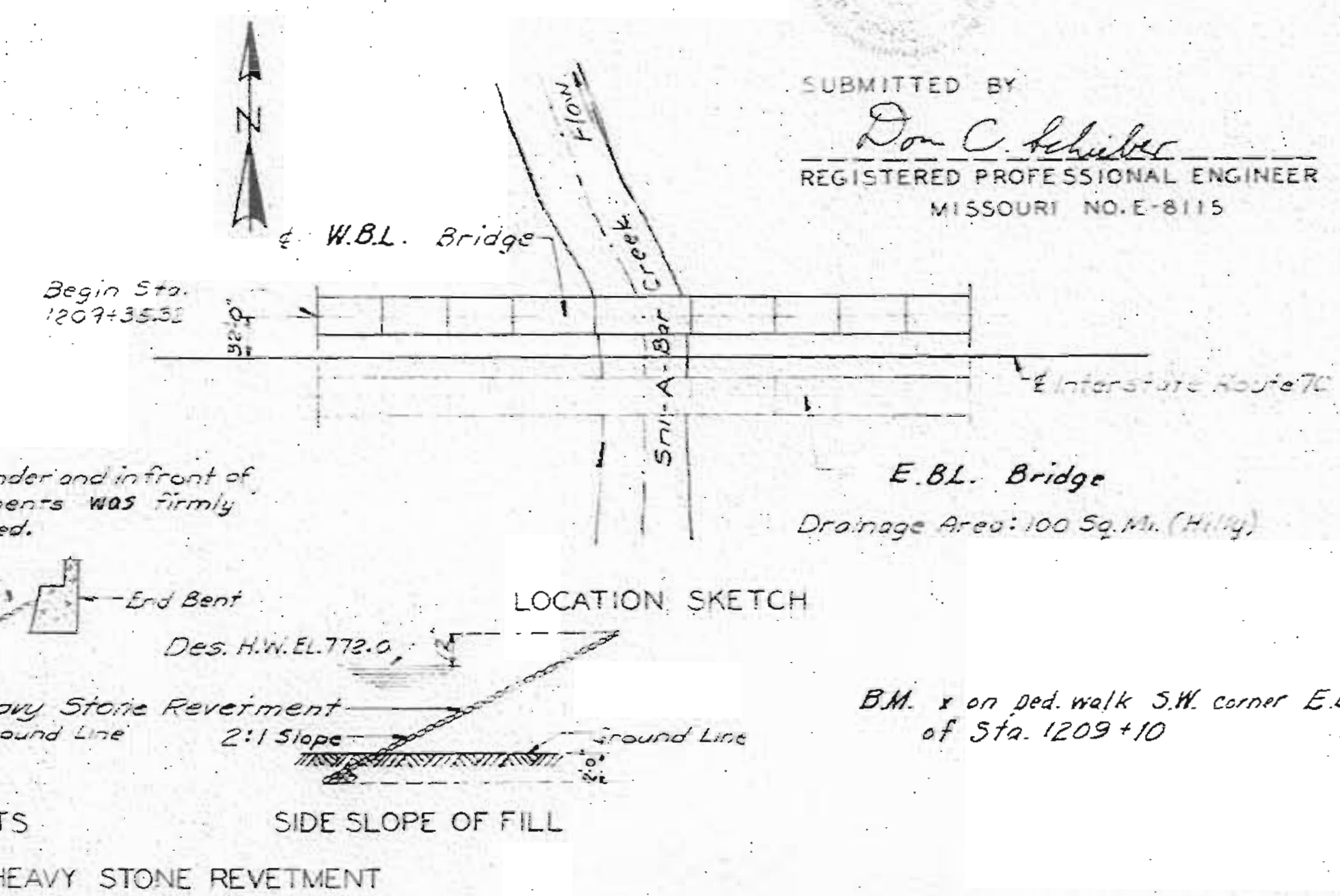
PLAN

GENERAL NOTES:

Design Specifications A.A.S.H.O. - 1961  
 Loading H20.516.44 (15' sq. ft. Future Wearing Surface)  
 (Modified 24,000\* Ton/cm Axle)  
 Structural Steel Stress (A.S.T.M. A36-G2T) 20,000 psi  
 Reinforcing Steel Stress 20,000 psi  
 Concrete, Class B Stress 1,200 psi  
 Concrete, Class B1 Stress 1,600 psi  
 Superstructure concrete was Class B1.  
 Substructure concrete was Class B or Class B1 except payment was on the basis of Class B.  
 Superstructure deck to be surface sealed. (See Special Provisions)  
 Fabricated structural steel was A.S.T.M. A36-G2T except as noted. Payment was made as Fabricated Structural Carbon Steel.  
 See Standard Specifications 55.3.13 for qualification of welding operators.  
 Field connections, High Strength Bolts 3/4", holes 1/2" except as otherwise noted.  
 Contact surfaces of bearings and beam flanges connected with high strength bolts did receive one coat of red lead.  
 Where joint filler is specified on the plans it did conform to Standard Specification 157.2.4.  
 Piles: Shop, non-slip. Field, by contractor in accordance with Standard Specification 55.4.10.  
 Note: Heavy Stone Revetment was placed on fills of ends of bridge as shown in sketches.  
 See Road Plans for Quantities.

Item	Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds.	622.5	622.5
Class 2 Excavation for Structures	Cu. Yds.	248.5	248.5
12" Steel Piles in Place	Lin. Ft.	2483	2483
12" Steel Pile Cut Offs	Lin. Ft.	376	376
Class B Concrete	Cu. Yds.	326.1	326.1
Class B1 Concrete	Cu. Yds.		481.2
Reinforcing Steel	Lbs.	46,750	154,720
Fabricated Structural Carbon Steel	Lbs.		392,360
Painting	Tons	193.1	193.1

Note: Excavation for Structures made above Elev 752.0 was paid for as Class 1. Excavation for Structures made below Elev 752.0 was paid for as Class 2. Class 1 and Class 2 Excavation for Structures was computed from the original ground line or from the lower limits of channel clearance excavation, whichever was lower regardless of the sequence of operations and the method of removal. No payment for excavation was allowed at End Bents No. 1 & 10. Weight of bolts (steel to steel) was included in weight of Fabricated Structural Steel on the basis of the following weight, per 100 bolts: 1/2" 40", 3/4" 46", 1" 95", 1 1/2" 135".



FRONT OF END BENTS SIDE SLOPE OF FILL

DETAIL OF HEAVY STONE REVETMENT

SUBMITTED BY  
 Don C. Schuler  
 REGISTERED PROFESSIONAL ENGINEER  
 MISSOURI NO. E-8115

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE  
 ABOUT 1 MILE E. OF GRAIN VALLEY  
 PROJECT NO. I-70-(25)(RT. I-70) STA. 1209+35.32

JACKSON COUNTY  
 SUBMITTED BY D.B. Jenkins DATE 2/5/63  
 APPROVED BY M.J. Dwyer DATE 2/5/63

Drawn May 1961 by S.W.M.  
 Checked June 8 1961 by R.H.B., D.C.S.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 17 of 1

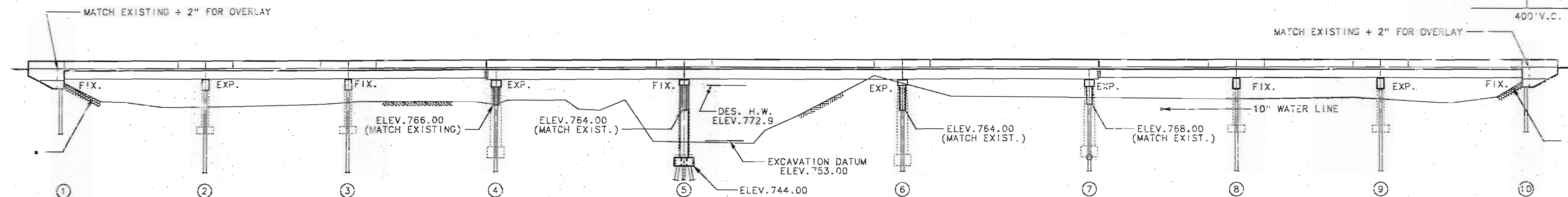
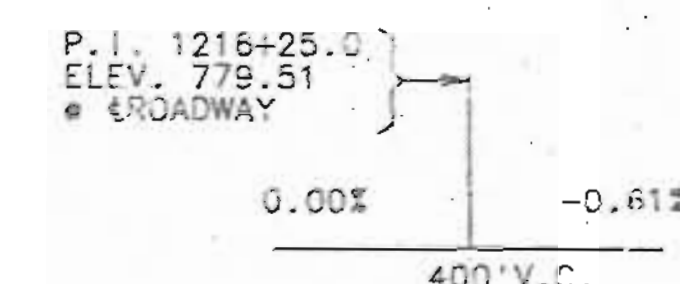
FINAL PLANS

STD. 54.00  
 A-167

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	F.A.I.-70-1(164)	69
SEC./SUR.	36 TWP. 49 RGE. 30	

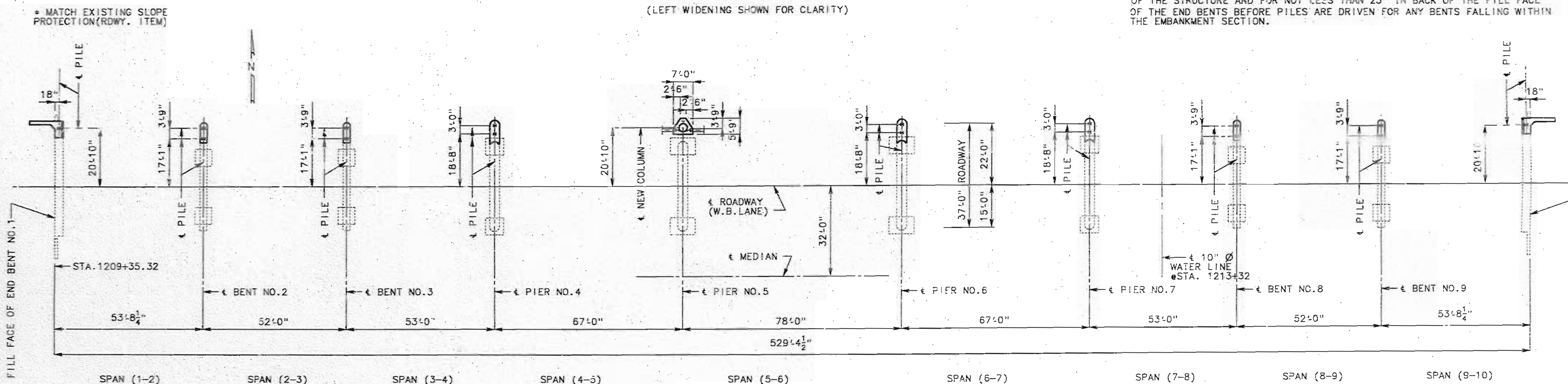
WIDEN ON LEFT & REHAB. EXIST. (3\*52')(67'-78'-67')(3\*52') CONT. COMP. I-BEAM SPANS



GENERAL ELEVATION

(LEFT WIDENING SHOWN FOR CLARITY)

ROADWAY FILL SHALL BE COMPLETED TO THE FINAL ROADWAY SECTION AND UP TO THE ELEVATION OF THE BOTTOM OF THE CONCRETE BEAM WITHIN THE LIMITS OF THE STRUCTURE AND FOR NOT LESS THAN 25' IN BACK OF THE FILL FACE OF THE END BENTS BEFORE PILES ARE DRIVEN FOR ANY BENTS FALLING WITHIN THE EMBANKMENT SECTION.



PLAN

NOTICE AND DISCLAIMER REGARDING BORING LOG DATA

THE LOCATIONS OF ALL SUBSURFACE BORINGS FOR THIS STRUCTURE ARE SHOWN ON SHEET 1 OF THE EXISTING BRIDGE PLANS. BORING DATA IS SHOWN ON SHEET NO. 2 OF EXISTING BRIDGE PLANS. THE BORING DATA FOR ALL LOCATIONS INDICATED, AS WELL AS ANY OTHER BORING LOGS OR OTHER FACTUAL RECORDS OF SUBSURFACE DATA AND INVESTIGATIONS PERFORMED BY THE DEPARTMENT FOR THE DESIGN OF THE PROJECT, IS AVAILABLE FROM THE DISTRICT MATERIALS ENGINEER UPON WRITTEN REQUEST AS OUTLINED IN THE PROJECT SPECIAL PROVISIONS. NO GREATER SIGNIFICANCE OR WEIGHT SHOULD BE GIVEN TO THE BORING DATA DEPICTED ON THE PLAN SHEETS THAN TO SUBSURFACE DATA AVAILABLE FROM THE DISTRICT OR ELSEWHERE.

THE COMMISSION DOES NOT REPRESENT OR WARRANT THAT ANY SUCH BORING DATA ACCURATELY DEPICTS THE CONDITIONS TO BE ENCOUNTERED IN CONSTRUCTING THIS PROJECT. A CONTRACTOR ASSUMES ALL RISKS IT MAY ENCOUNTER IN BASING ITS BID PRICES, TIME OR SCHEDULE OF PERFORMANCE ON THE BORING DATA DEPICTED HERE OR THOSE AVAILABLE FROM THE DISTRICT, OR ON ANY OTHER DOCUMENTATION NOT EXPRESSLY WARRANTED, WHICH THE CONTRACTOR MAY OBTAIN FROM THE COMMISSION.

HYDROLOGIC DATA	
DRAINAGE AREA	= 97 SQ. MILES
DESIGN DISCHARGE	= 19,000 CFS (FLOOD OF RECORD)
DESIGN HIGH WATER ELEV.	= 772.9 (FLOOD OF RECORD)
ESTIMATED BACKWATER	= 3.3 FT.

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE  
ABOUT 1 MILE E. OF GRAIN VALLEY

PROJECT NO. F.A.I.-70-1(164) STA. 1209+35.32  
JOB NO. J41 10148 RTE. 1-70 (WBL)

JACKSON COUNTY

STD. 606.00
STD. 706.35
A-167R

DESIGNED AUG. 1993  
DETAILED OCT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1 OF 34

SEE FINAL PLANS

DATE: 2/7/94

18787

REVISED MARCH 1994

STATE	PROJ. NO.	SHEET NO.
MO.		10

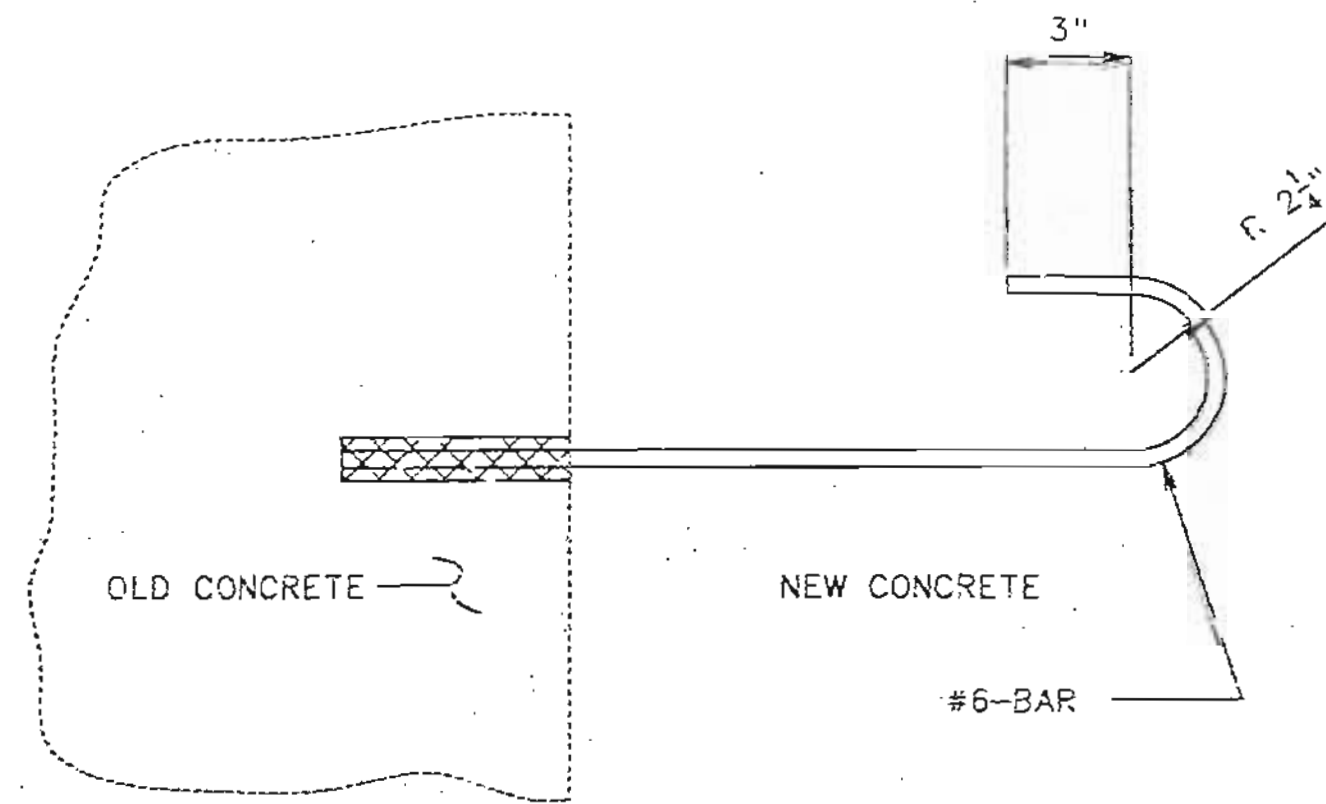
ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
SPECIAL WORK BRIDGES	LUMP SUM			1
REMOVAL AND STORAGE OF EXISTING BRIDGE RAIL	LIN. FT.		1042	1042
PARTIAL REMOVAL OF SUBSTRUCTURE CONCRETE	LUMP SUM	1		1
PARTIAL REMOVAL OF EXISTING BRIDGE DECK	SQ. FT.		1103	1103
CLASS 1 EXCAVATION FOR STRUCTURE	CU. YD.	45		45
CLASS 2 EXCAVATION FOR STRUCTURE	CU. YD.	27		27
STRUCTURAL STEEL PILES (12")	LIN. FT.	875		875
CLASS B CONCRETE (SUBSTR.)	CU. YD.	47.7		47.7
CLASS B2 CONCRETE (SUPSTR. ON STEEL)	CU. YD.		160.0	160.0
SUPERSTRUCTURE REPAIR (UNFORMED)	SQ. FT.		500	500
SAFETY BARRIER CURB *	LIN. FT.		548	548
REPAIRING CONC. DECK (HALF-SOLING)	SQ. FT.		310	310
FULL DEPTH REPAIR	SQ. FT.		155	155
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.		417	417
LOW SLUMP CONCRETE WEARING SURFACE	SQ. YD.		1809	1809
PLAIN NEOPRENE BEARING PADS (STEEL STRUCTURES)	EACH		2	2
LAMINATED NEOPRENE BEARING PADS (STEEL STRUCTURES)	EACH		10	10
STRIP SEAL EXPANSION DEVICE	LIN. FT.		77	77
REINFORCING STEEL (BRIDGES)	LB.	4330	3050	7380
REINFORCING STEEL (EPOXY COATED)	LB.		33080	33080
FABRICATED STRUCTURAL CARBON STEEL (I-BEAM)	LB.		88,100	88,100
EXISTING DIAPHRAGM CONNECTIONS TO FLANGE	LUMP SUM			1
SLAB DRAINS	EACH		46	46
PROTECT GUARD RAIL (TIE BEAM)	LIN. FT.		530	530
PAINTING EXISTING STEEL	SUM			1
PAINTING NEW STEEL, PRIME COAT	TON		43.5	43.5
PAINTING NEW STEEL, TOP COAT	TON		43.5	43.5
TRANSPORTING LEAD CONTAMINATED RESIDUE	LUMP SUM			1
DISPOSAL OF LEAD CONTAMINATED RESIDUE	TON			

\* SAFETY BARRIER CURB SHALL BE CAST-IN-PLACE OPTION OR SLIP-FORM OPTION.

NOTE: ALL CONCRETE ABOVE THE LOWER CONSTRUCTION JOINT IN THE END BENTS IS INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

ALL REINFORCEMENT IN THE END BENTS IS INCLUDED IN THE SUPERSTRUCTURE QUANTITIES. ALL CONCRETE IN THE END BENT ABOVE TOP OF BEAM AND BELOW TOP OF SLAB SHALL BE CLASS B2.

CONCRETE DIAPHRAGMS SHALL BE POURED PRIOR TO THE SLAB, ALLOWING SUFFICIENT TIME FOR THE SET OF THE CONCRETE IN THE DIAPHRAGMS.



DETAIL OF RESIN ANCHOR SYSTEM

NOTE: COST OF FURNISHING AND INSTALLING HOOK ANCHOR BOLT ASSEMBLIES SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR CONCRETE.  
 THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS.  
 THE RESIN ANCHOR SYSTEMS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS, EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND THAT AN EPOXY COATED #3 GRADE 60 REINFORCING BAR PROJECTING 15" INTO NEW CONCRETE SHALL BE USED. A 2-6" EPOXY COATED, STRAIGHT REINFORCING BAR MAY BE SUBSTITUTED FOR A #6 HOOKED BAR AS SHOWN ON PLANS.  
 THE 3/4" DIAMETER RESIN ANCHOR SYSTEMS SHALL HAVE A MINIMUM UTILITY PULLOUT STRENGTH OF 20,400 LB. IN CONCRETE WITH (C4,000 PSI). SEE SPECIAL PROVISIONS.

NOTE: THE QUANTITY FOR "DISPOSAL OF LEAD CONTAMINATED RESIDUE" WILL BE DETERMINED BY THE CONTRACTOR AND CONSIDERED AT THE UNIT PRICE INDICATED IN THE SPECIAL PROVISIONS ENTITLED "PAINTING NEW AND EXISTING STEEL - BRIDGE NOS. L-983R AND A-167R". SEE SPECIAL PROVISIONS.

GENERAL NOTES:

DESIGN SPECIFICATIONS:

A.A.S.H.T.O. - 1992  
 LOAD FACTOR DESIGN  
 SEISMIC PERFORMANCE CATEGORY A

DESIGN LOADINGS:

HS20-44 MODIFIED 24,000# TANDEM AXLE  
 EARTH 120#/CU. FT.  
 EQUIVALENT FLUID PRESSURE = 45#/CU. FT.  
 FATIGUE STRESS CASE 1  
 NO FUTURE WEARING SURFACE

DESIGN UNIT STRESSES:

CLASS B CONCRETE (SUBSTRUCTURE)  $f'_c = 3,000$  PSI.  
 CLASS B1 CONCRETE (SAFETY BARRIER CURB)  $f'_c = 4,000$  PSI.  
 CLASS B2 CONCRETE (SUPERSTRUCTURE EXCEPT SAFETY BARRIER CURB)  $f'_c = 4,000$  PSI.  
 REINFORCING STEEL (GRADE 60)  $f_y = 60,000$  PSI.  
 STEEL PILE  $f_b = 8,000$  PSI.  
 STRUCTURAL CARBON STEEL  $f_s = 20,000$  PSI.

FABRICATED STEEL:

FABRICATED STRUCTURAL GARRON STEEL SHALL BE A36 UNLESS OTHERWISE SHOWN.  
 FIELD CONNECTIONS FOR HIGH STRENGTH BOLTS 3/4" Ø SHALL HAVE HOLES 13/16" Ø, EXCEPT AS NOTED.

HIGH STRENGTH BOLTS, NUTS AND WASHERS WILL BE SAMPLED FOR QUALITY ASSURANCE AS SPECIFIED IN STD. SPEC. 108.

TRAFFIC OVER STRUCTURE TO BE MAINTAINED DURING CONSTRUCTION.

JOINT FILLER:

ALL JOINT FILLER SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION 1097.2.4, EXCEPT AS NOTED.

REINFORCING STEEL:

MINIMUM CLEARANCE TO THE REINFORCING STEEL SHALL BE 1-1/2" UNLESS OTHERWISE SHOWN.  
 ALL REINFORCING BARS IN TOPS OF THE SUBSTRUCTURE BEAMS OR CAPS SHALL BE SPACED TO CLEAR ANCHOR BOLTS FOR BEARINGS BY AT LEAST 1/2".

NEOPRENE BEARINGS:

BEARINGS SHALL BE 60 GROMMETER NEOPRENE PADS. THE NEOPRENE PAD SHALL BE BONDED TO THE BEARING SEAT WITH AN EPOXY ADHESIVE AS APPROVED BY THE BEARING MANUFACTURER FOR BONDING NEOPRENE TO CONCRETE.  
 THE COST OF FURNISHING, FABRICATING AND INSTALLING NEOPRENE BEARING PADS, COMPLETE IN-PLACE, WILL BE PAID FOR BY THE CONTRACTOR. PRICE FOR PLAIN OR LAMINATED NEOPRENE BEARING PADS PER EACH.

NOTE:

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING NEW STEEL.

BARS BONDED TO OLD CONCRETE NOT REMOVED SHALL BE CLEANLY STRIPPED AND EMBEDDED INTO NEW CONCRETE WHERE POSSIBLE. IF LENGTH IS AVAILABLE, OLD BARS SHALL EXTEND INTO NEW CONCRETE AT LEAST 40 DIAMETERS FOR SMOOTH BARS AND 30 DIAMETERS FOR DEFORMED BARS, UNLESS OTHERWISE NOTED.

THE AREA EXPOSED BY THE REMOVAL OF CONCRETE AND NOT COVERED WITH NEW CONCRETE SHALL BE COATED WITH AN APPROVED BITUMINOUS PAINT. (SEE SPECIAL PROVISIONS)

IN ORDER TO MAINTAIN GRADE AND A MINIMUM THICKNESS OF OVERLAY AS SHOWN ON PLANS IT MAY BE NECESSARY TO USE ADDITIONAL QUANTITIES OF OVERLAY AT VARIOUS LOCATIONS THROUGHOUT THE STRUCTURE. NO PAYMENT WILL BE ALLOWED FOR ADDITIONAL LABOR MATERIALS OR EQUIPMENT FOR VARIATIONS IN THICKNESS OF OVERLAY.

PAINT:

Paint by the contractor in accordance with Special Provisions.  
 Structural steel areas to be encased in end bent concrete shall be painted with one coat of inorganic zinc primer in accordance with Special Provisions. Scratched or damaged surfaces are to be touched up in the field before concrete is poured.  
 All exposed surfaces of structural steel piles shall be painted with a calcium sulfonate system in accordance with Special Provisions.

PILE DATA

BENT NO.	1	2	3	4	5	6	7	8	9	10
PILE TYPE AND SIZE	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53
NUMBER	1	2	2	2	3	2	2	2	2	1
APPROXIMATE LENGTH FT.	44	44	44	47	17	59	56	56	56	55
DESIGN BEARING TONS	44	32	32	34	44	44	34	32	32	44
HAMMER ENERGY REQUIRED FT.-LBS.	9900	7200	7200	7700	1500	9900	8900	8900	8900	9900

NOTE: MINIMUM ENERGY REQUIREMENT OF HAMMER IS BASED ON PLAN LENGTH AND DESIGN BEARING VALUE OF PILES. ALL PILES SHALL BE DRIVEN TO PRACTICAL REFUSAL.

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2 OF 34

JACKSON

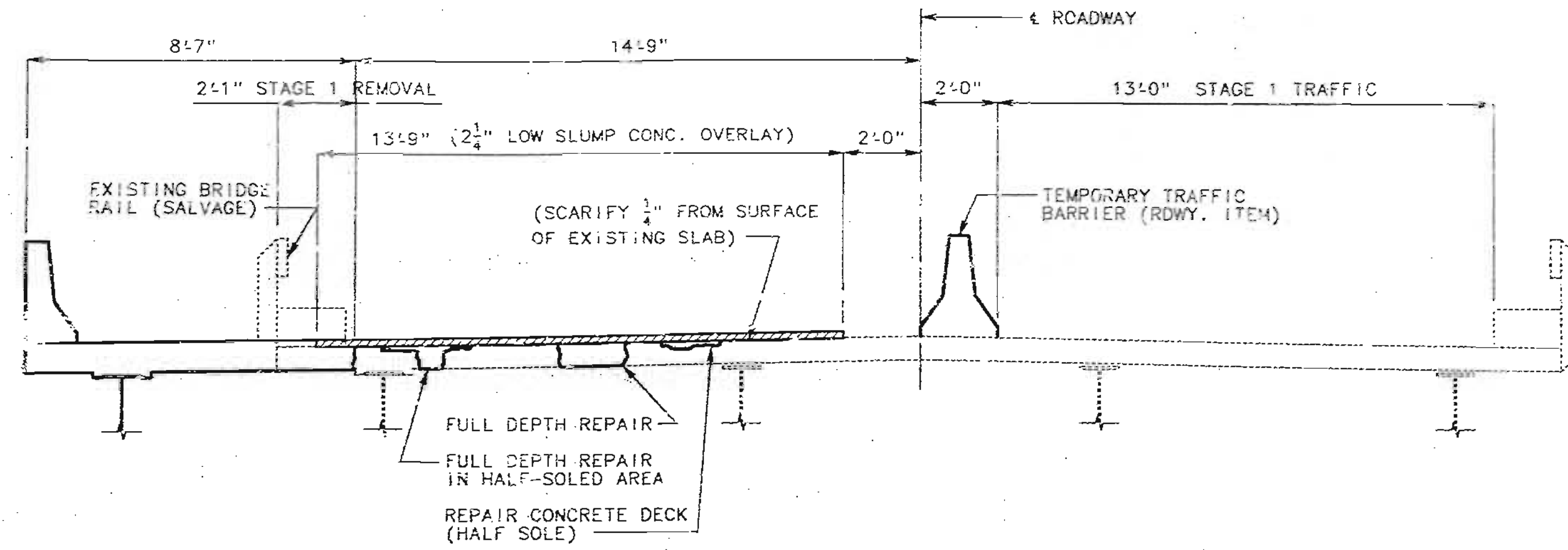
COUNTY

A-167R

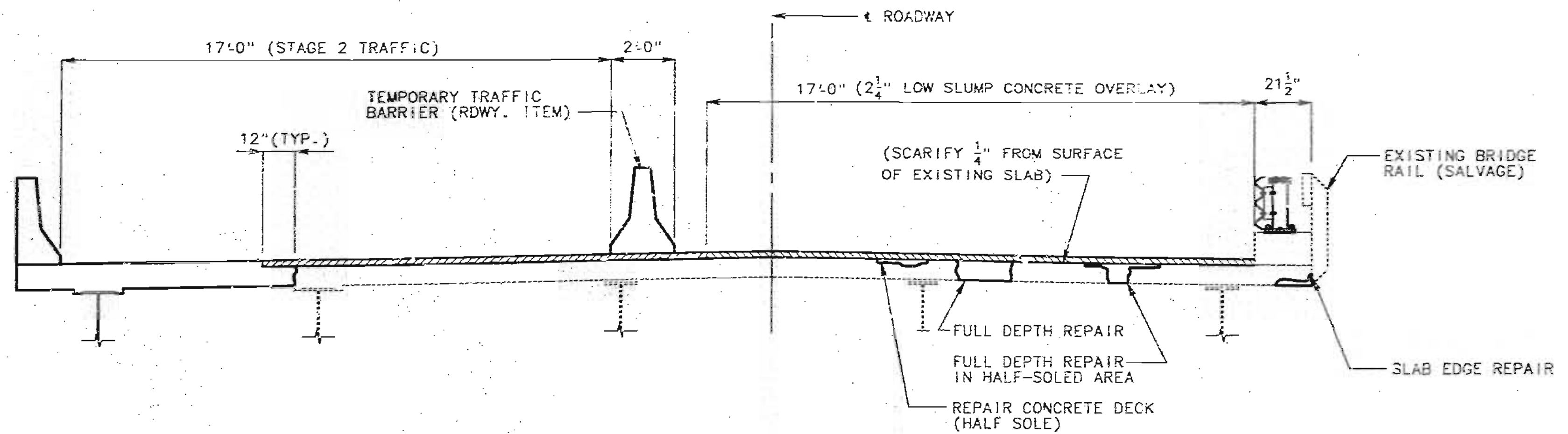
SEE FINAL PLANS

DETAILED OCT. 1993  
 CHECKED OCT. 1993

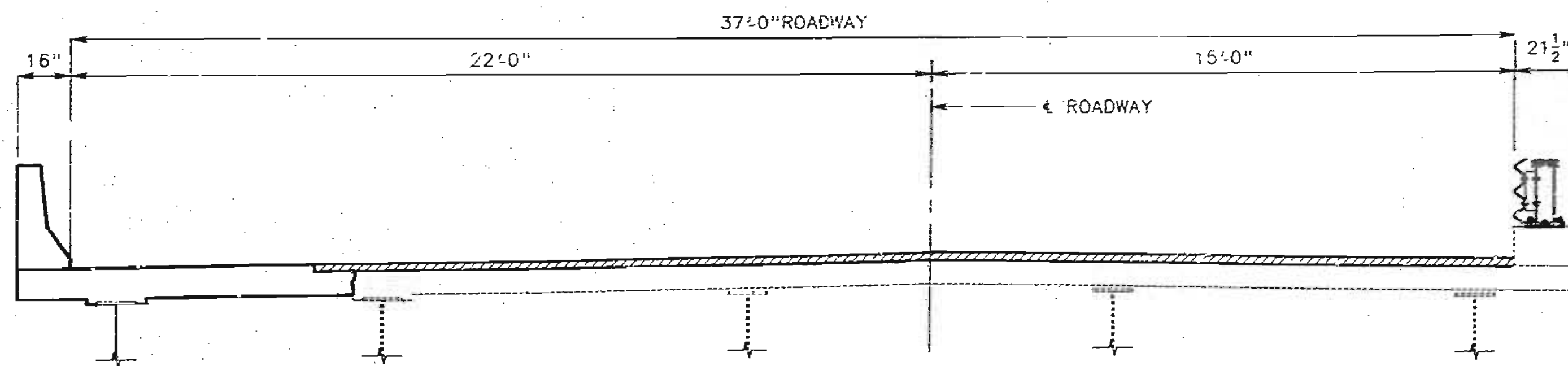
STATE	PROJ. NO.	SHEET NO.
MD.		71



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION



FINAL ROADWAY SECTION

NOTE: FOR DETAIL OF SLAB REPAIRS, SEE SHEET NO. 5

68 618

DETAILED AUG. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

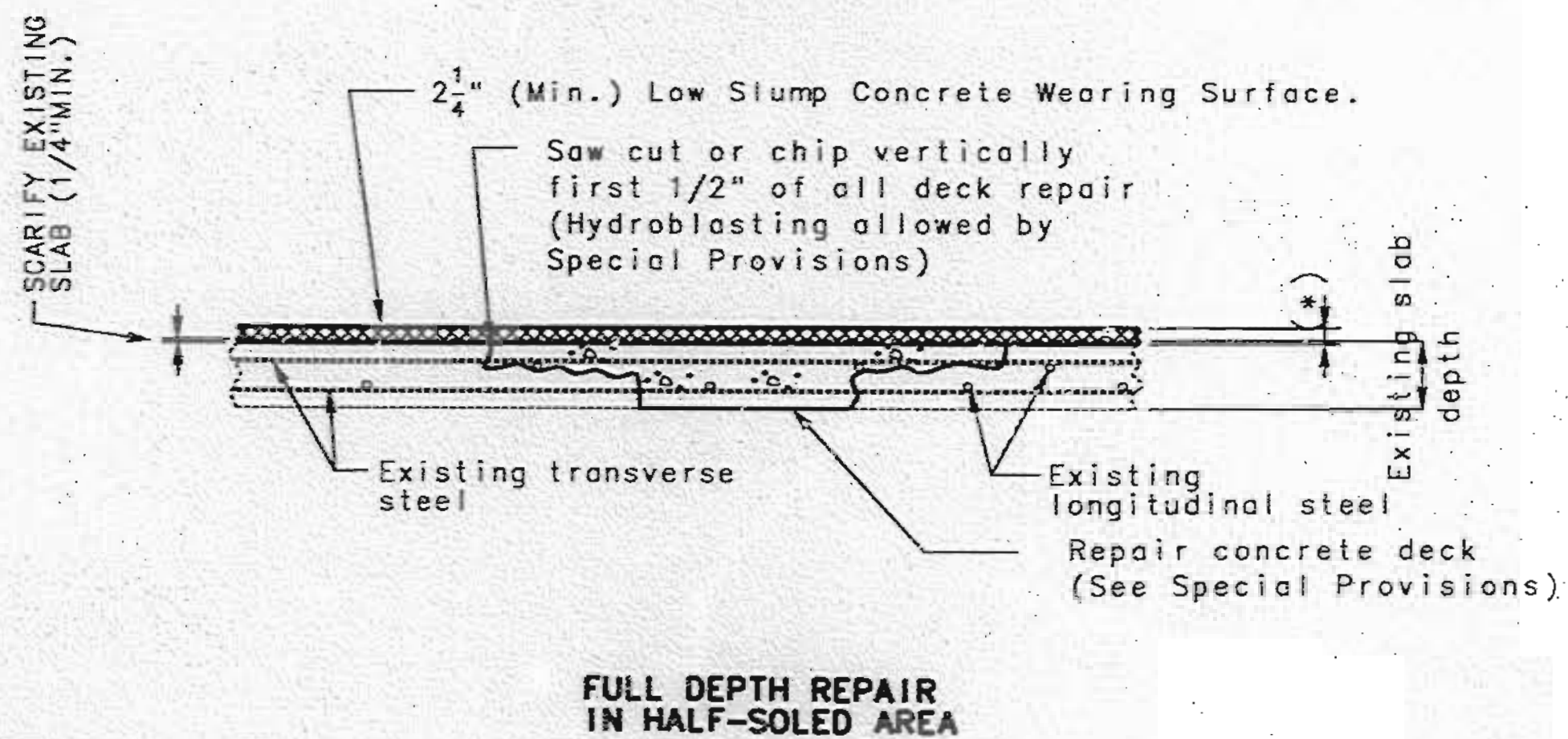
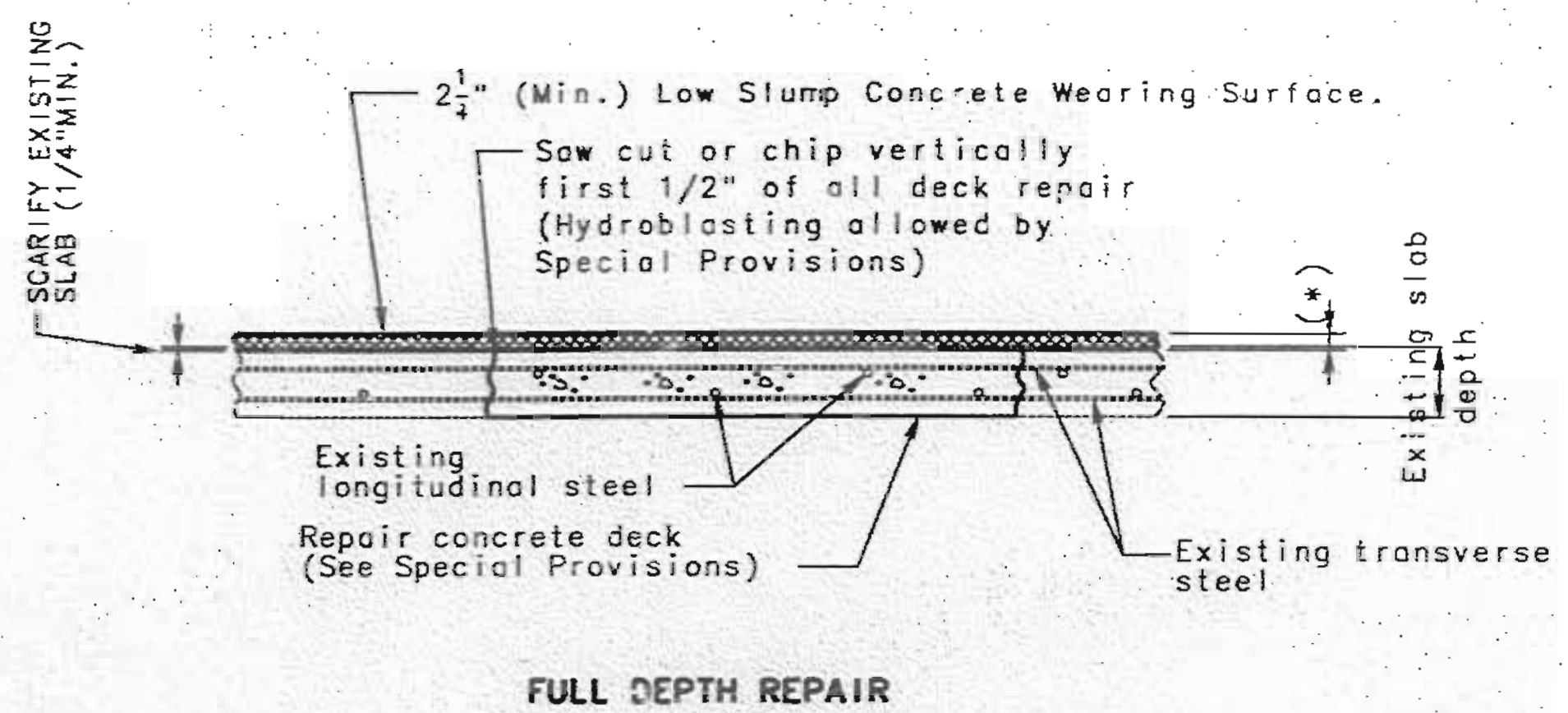
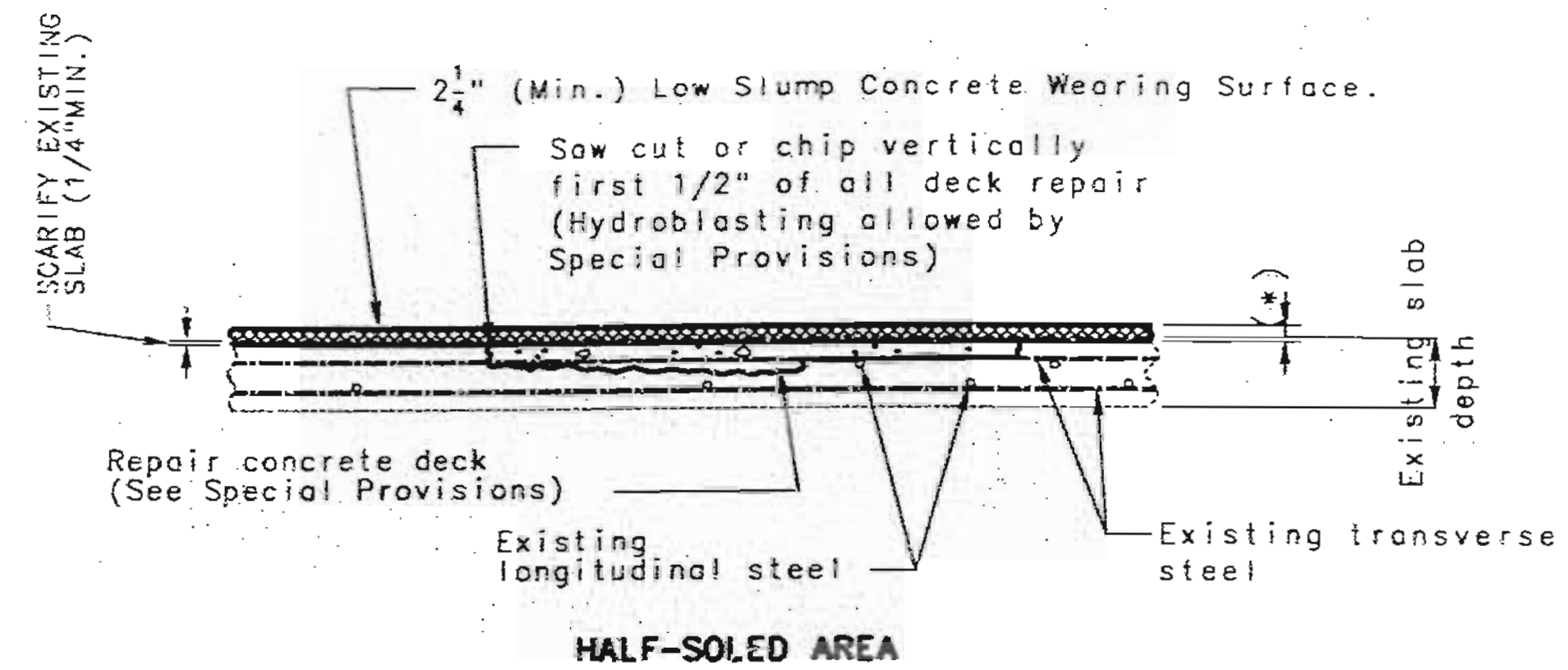
SHEET NO. 3 OF 34

JACKSON

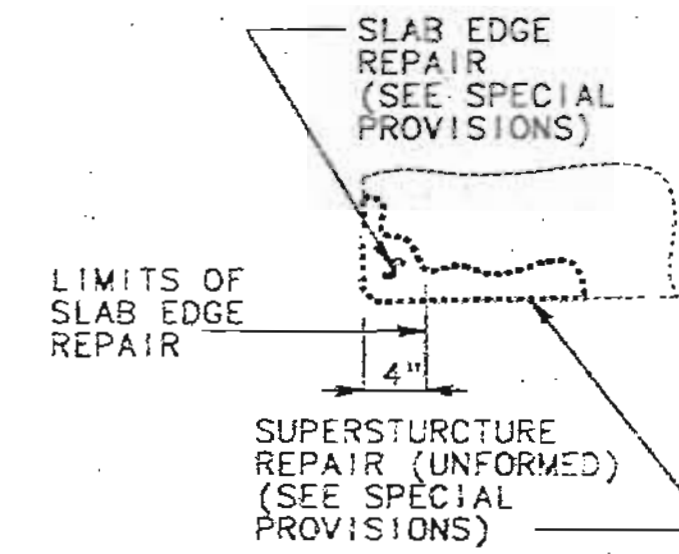
COUNTY

A-167R

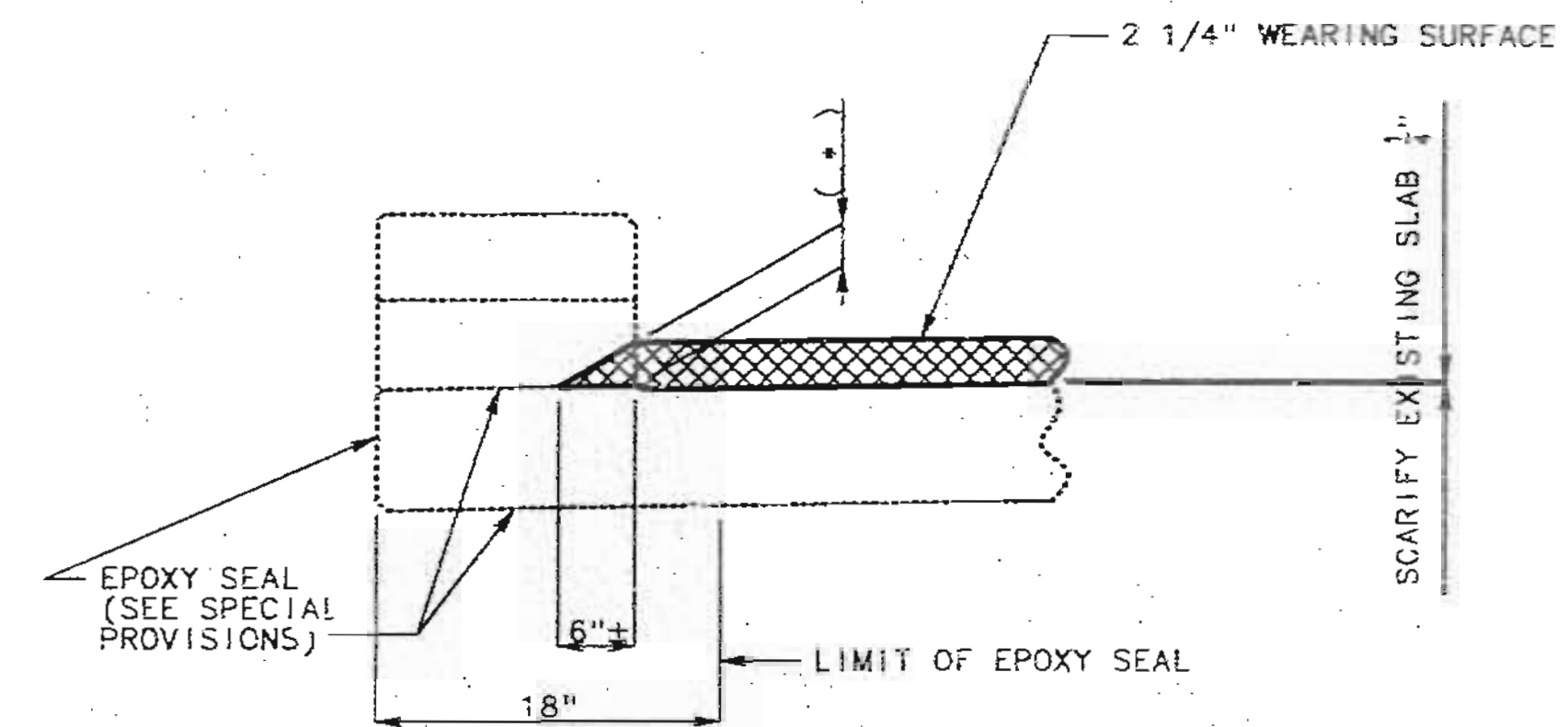
STATE	PROJ. NO.	SHEET NO.
MO.		72



NOTE: FOR LOCATION OF SLAB REPAIRS SEE SHEET NO. 3 .



CONCRETE EDGE REPAIR



(\*) 2" TO TOP OF EXISTING UNSCARIFIED SLAB .

TYPICAL SECTION OF EXISTING CURB SHOWING OUTLET

WID/REP, DECKREP, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z  
 DECK REPAIR  
 JUNE 1993  
 AUG. 1993

DETAILED OCT. 1993  
 CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 4 OF 34 .

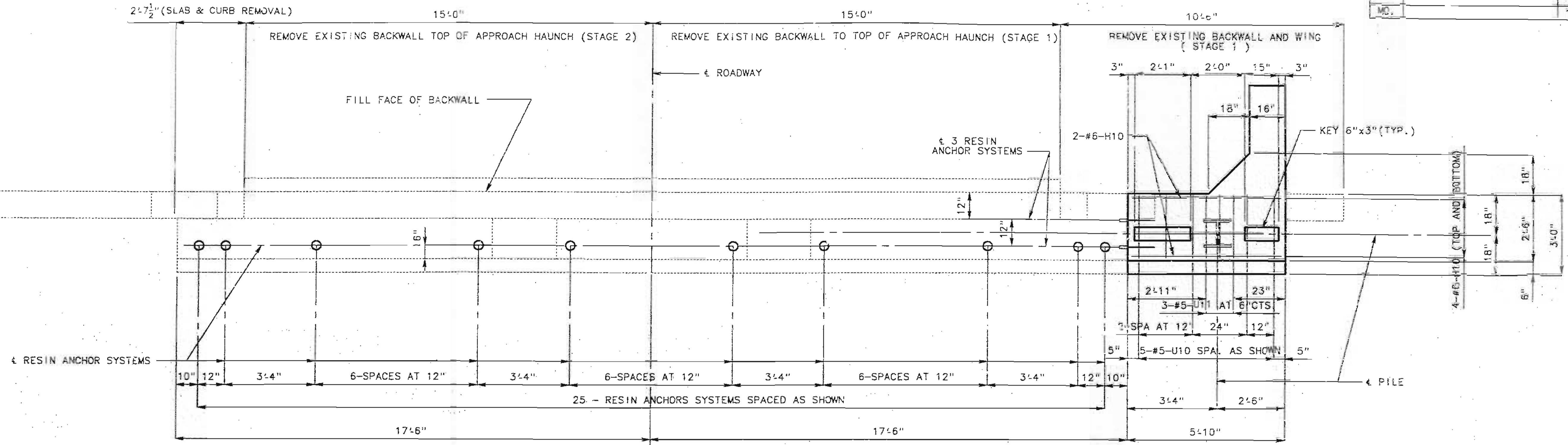
JACKSON

COUNTY

A-167R

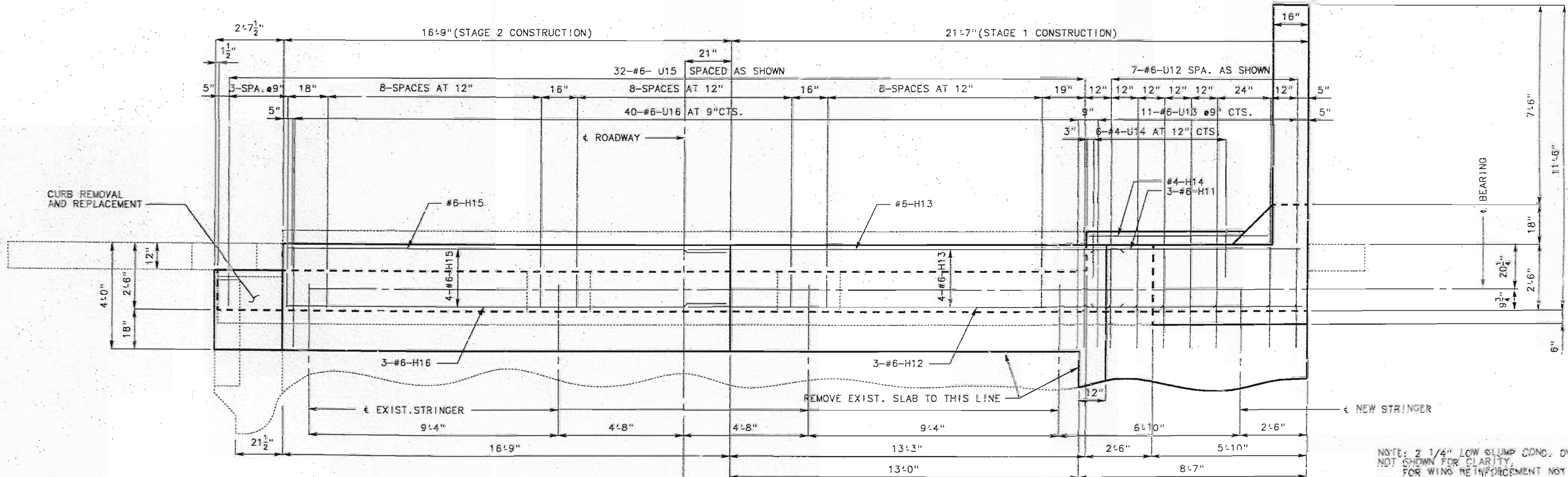


STATE	PROJ. NO.	SHEET NO.
MO.		73



PLAN OF BEAM

{ ELEV. 779.15 (BT.#1)  
ELEV. 779.11 (BT.#10)



PLAN

DETAILS OF END BENT NO.1 (END BENT NO.10 OPPOSITE)

NOTE: 2 1/4" LOW SLUMP CONC. OVERLAY NOT SHOWN FOR CLARITY. FOR WING REINFORCEMENT NOT SHOWN SEE SHEET NO. 7

9/8/87

DETAILED AUG. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

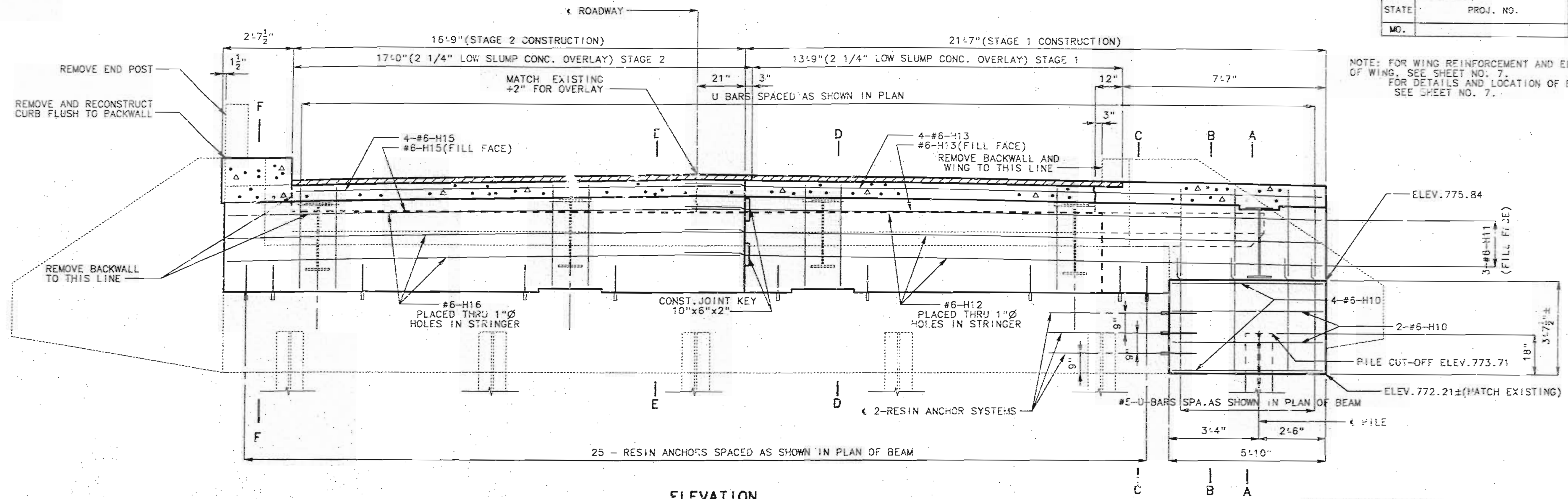
SHEET NO. 5 OF 34

JACKSON

COUNTY

A-167R

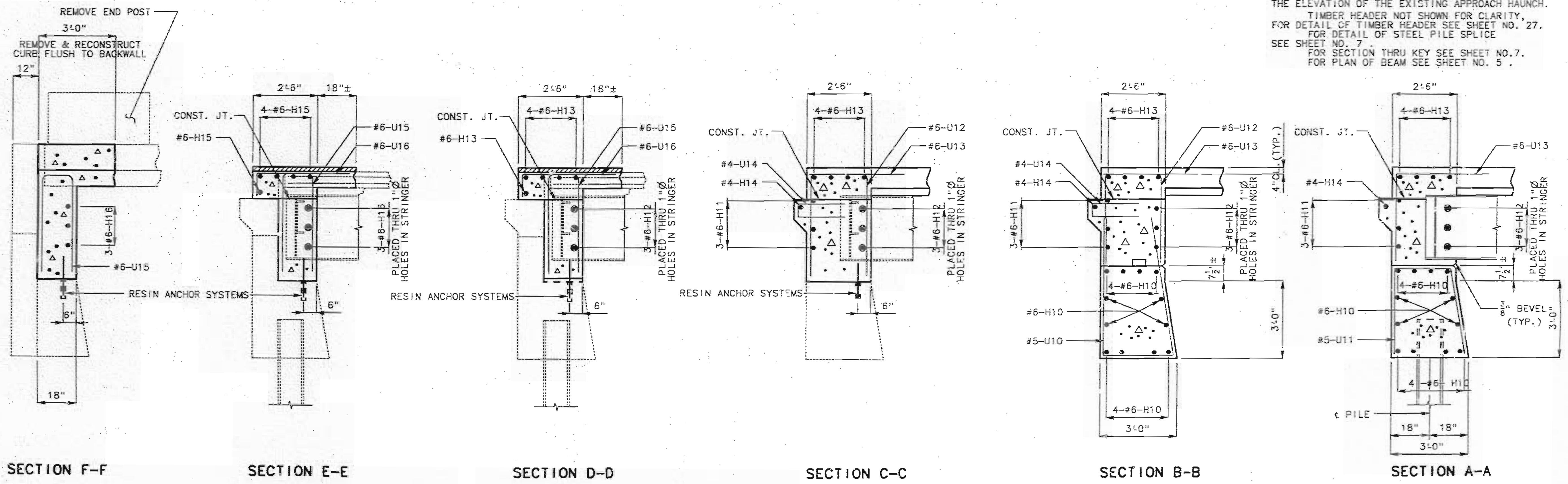
STATE	PROJ. NO.	SHEET NO.
MO.		74



NOTE: FOR WING REINFORCEMENT AND ELEVATION OF WING, SEE SHEET NO. 7. FOR DETAILS AND LOCATION OF BEARINGS SEE SHEET NO. 7.

ELEVATION

NOTE: THE TOP OF APPROACH HAUNCH SHALL MATCH THE ELEVATION OF THE EXISTING APPROACH HAUNCH. TIMBER HEADER NOT SHOWN FOR CLARITY. FOR DETAIL OF TIMBER HEADER SEE SHEET NO. 27. FOR DETAIL OF STEEL PILE SPLICE SEE SHEET NO. 7. FOR SECTION THRU KEY SEE SHEET NO. 7. FOR PLAN OF BEAM SEE SHEET NO. 5.



SECTION F-F

SECTION E-E

SECTION D-D

SECTION C-C

SECTION B-B

SECTION A-A

DETAILS OF END BENT NO.1 (END BENT NO.10 OPPOSITE)

DETAILED AUG. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 6 OF 34

JACKSON

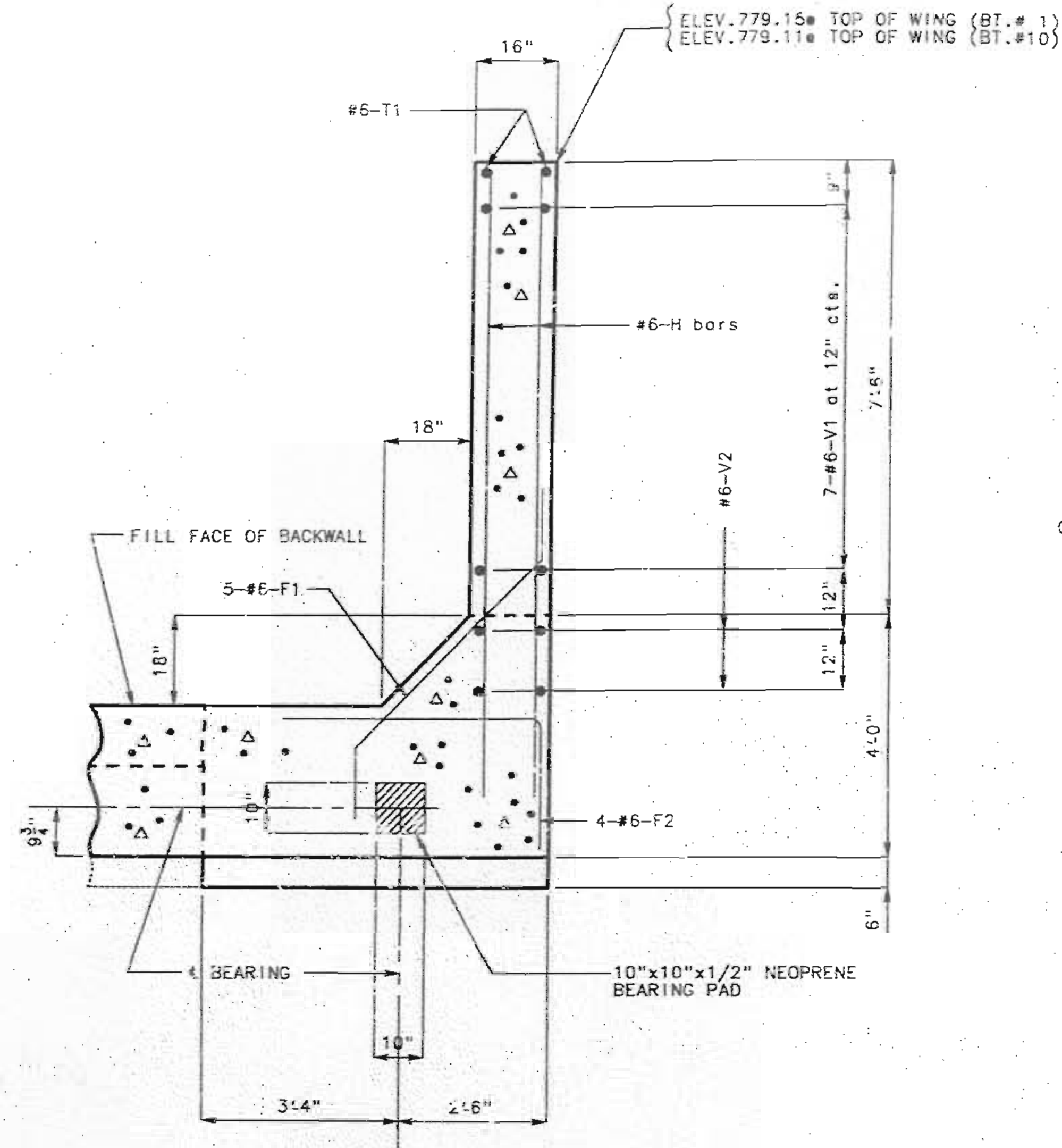
COUNTY

A-167R

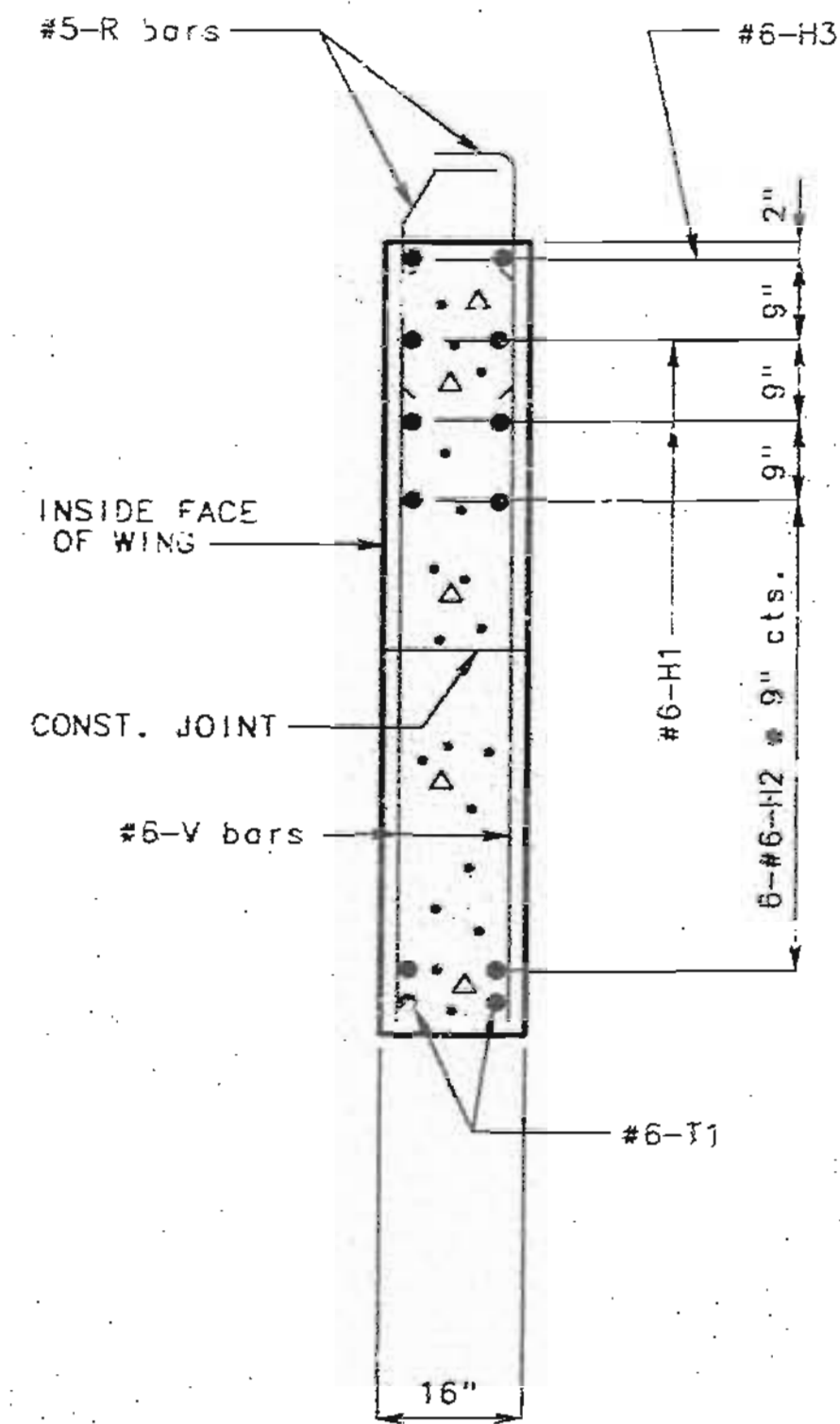
90

STATE	PROJ. NO.	SHEET NO.
MO.		75

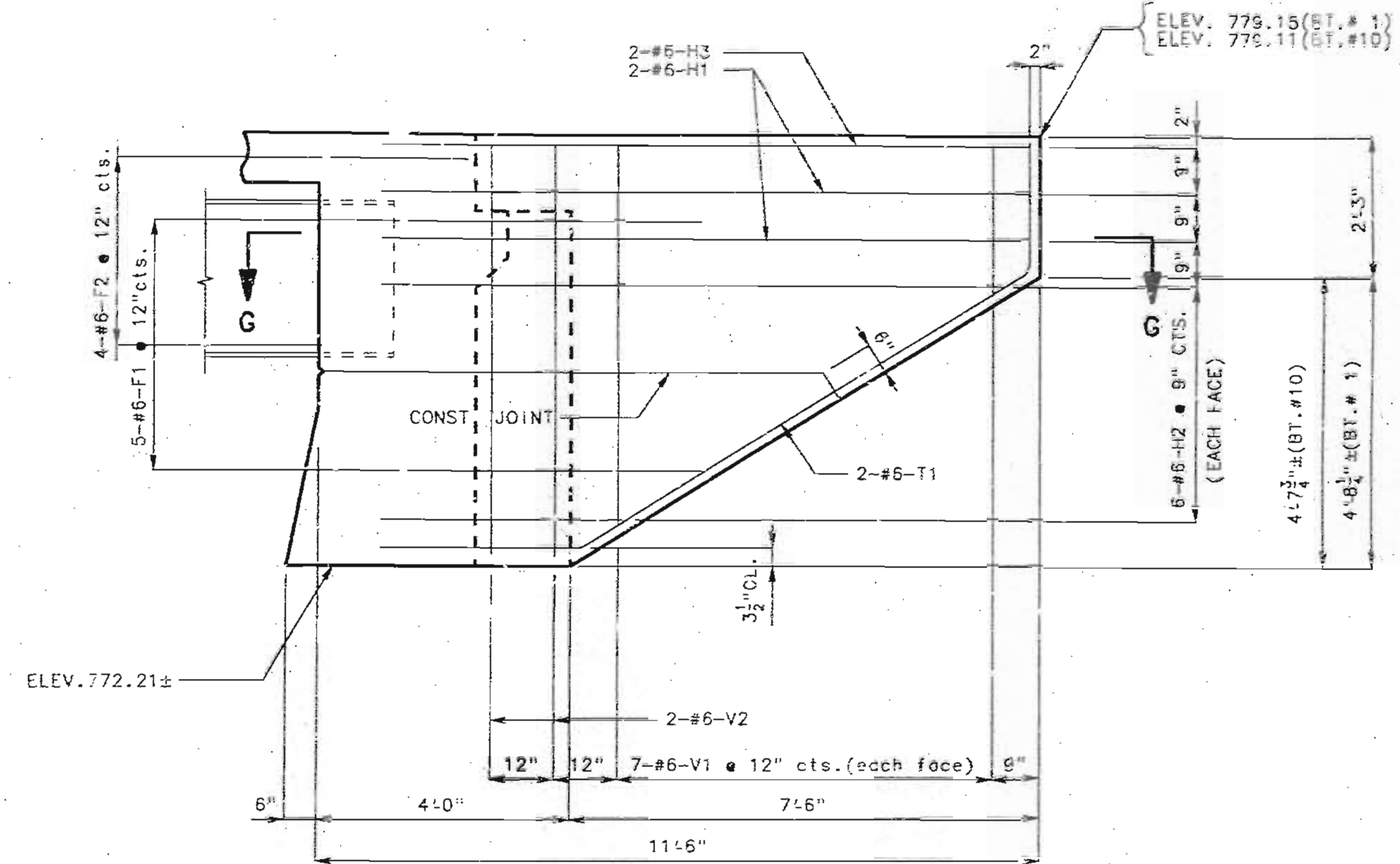
NOTE: FOR REINFORCEMENT OF BARRIER CURB NOT SHOWN SEE SHEET NO. 27.



SECTION G-G

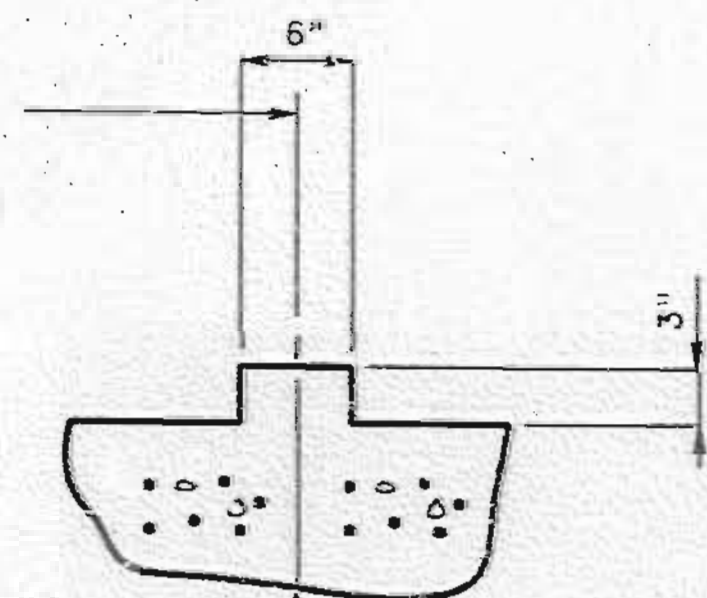


SECTION THRU WING

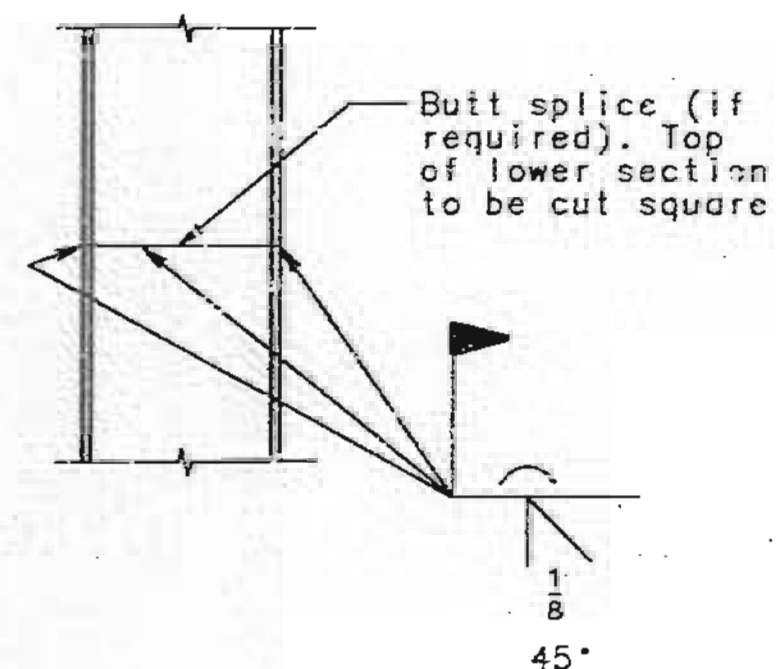


ELEVATION OF WING AT END BENT NO. 1  
(END BENT NO. 10 OPPOSITE)

€ BENT & € KEY



SECTION THRU KEY



DETAIL OF STEEL PILE SPLICE

SUBSTRUCTURE QUANTITY TABLE FOR END BENTS		END BT. NO. 1	END BT. NO. 10
ITEM		QUANTITY	QUANTITY
Class 1 Excavation	Cu. Yds.	15	10
Structural Steel Pile (12")	Lin. Ft.	44	56
Class B Concrete (Substructure)	Cu. Yds.	3.0	3.0

NOTE: THESE QUANTITIES ARE INCLUDED IN THE ESTIMATED QUANTITIES TABLE ON SHEET NO. 2.

93 888  
 DETAILED AUG. 1993  
 CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

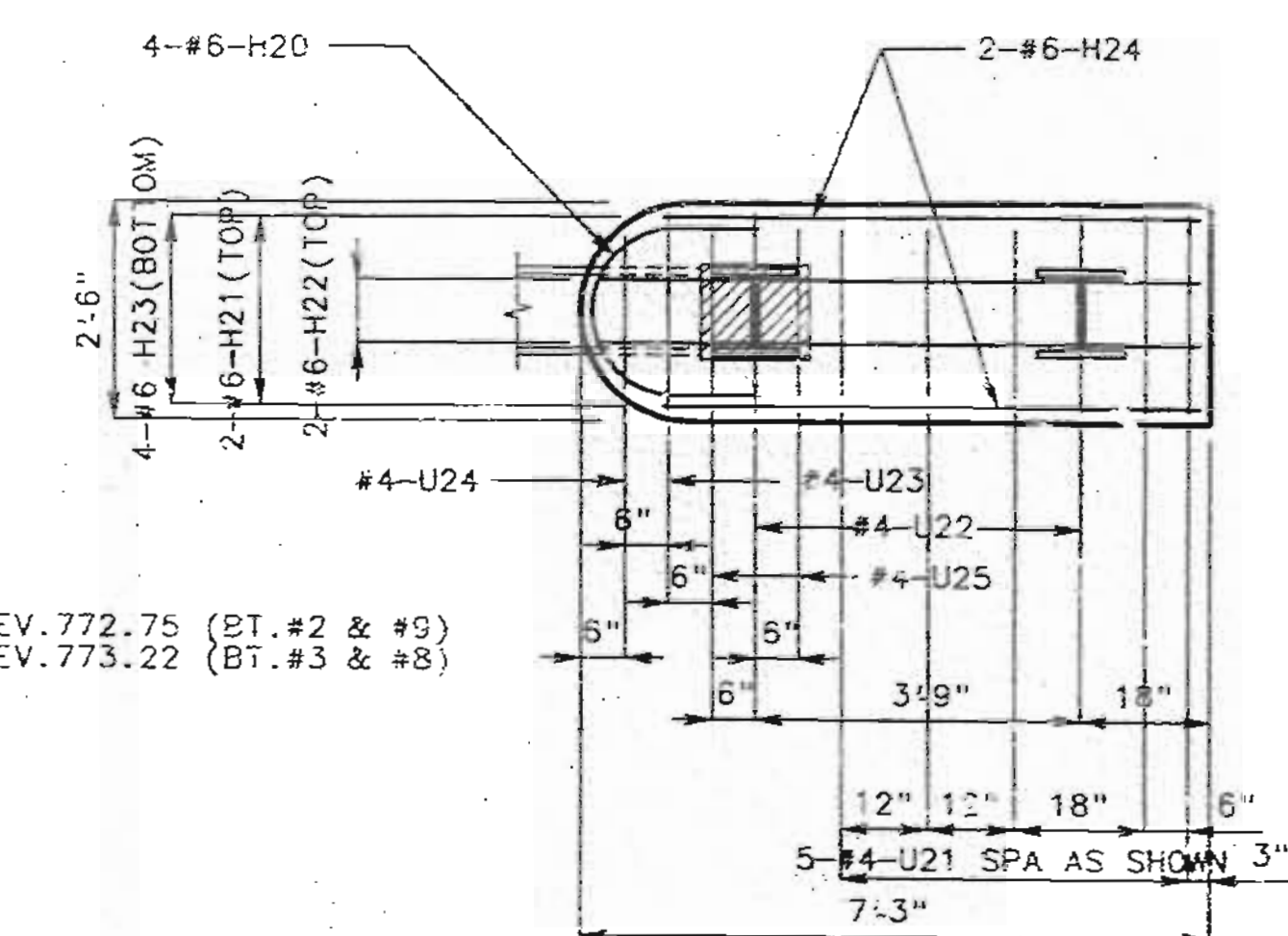
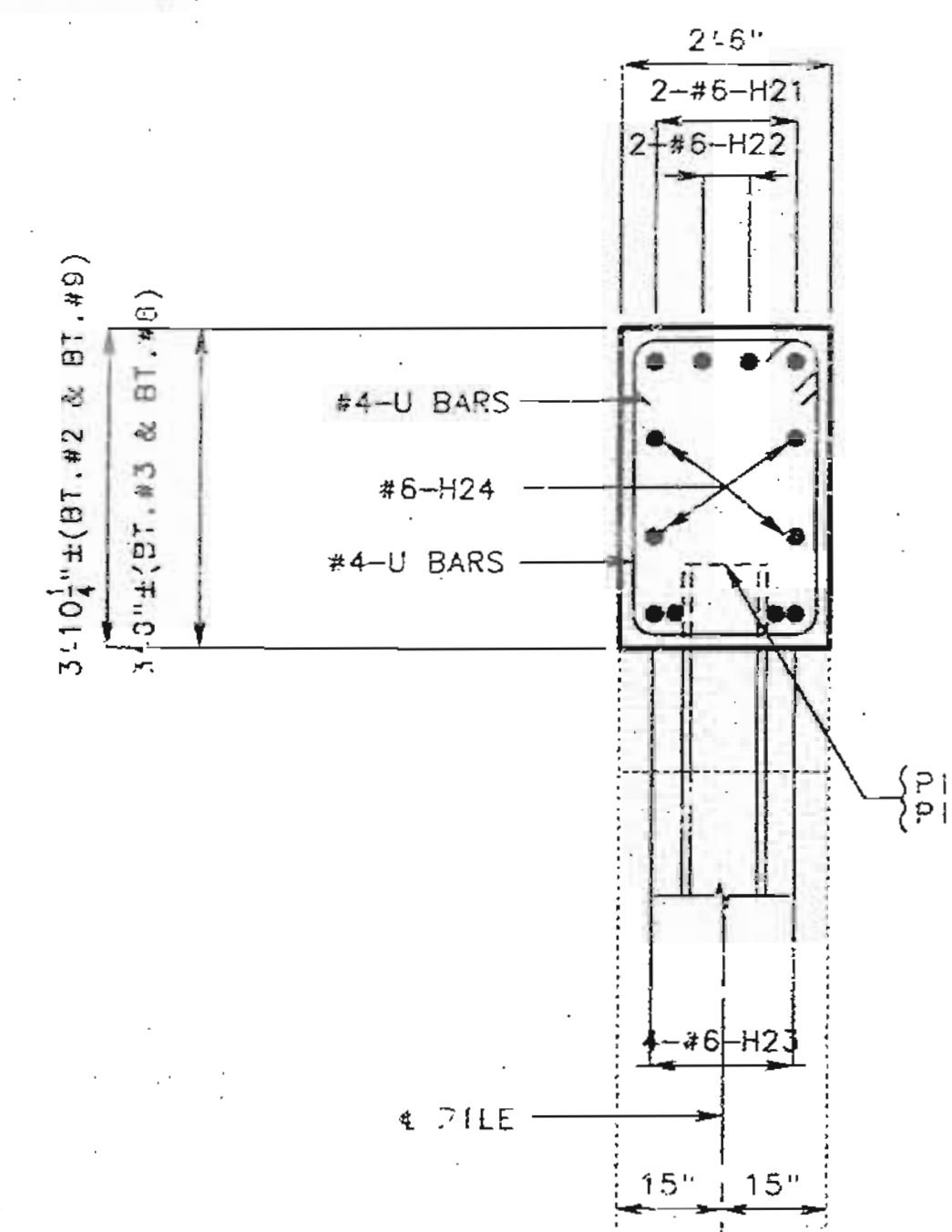
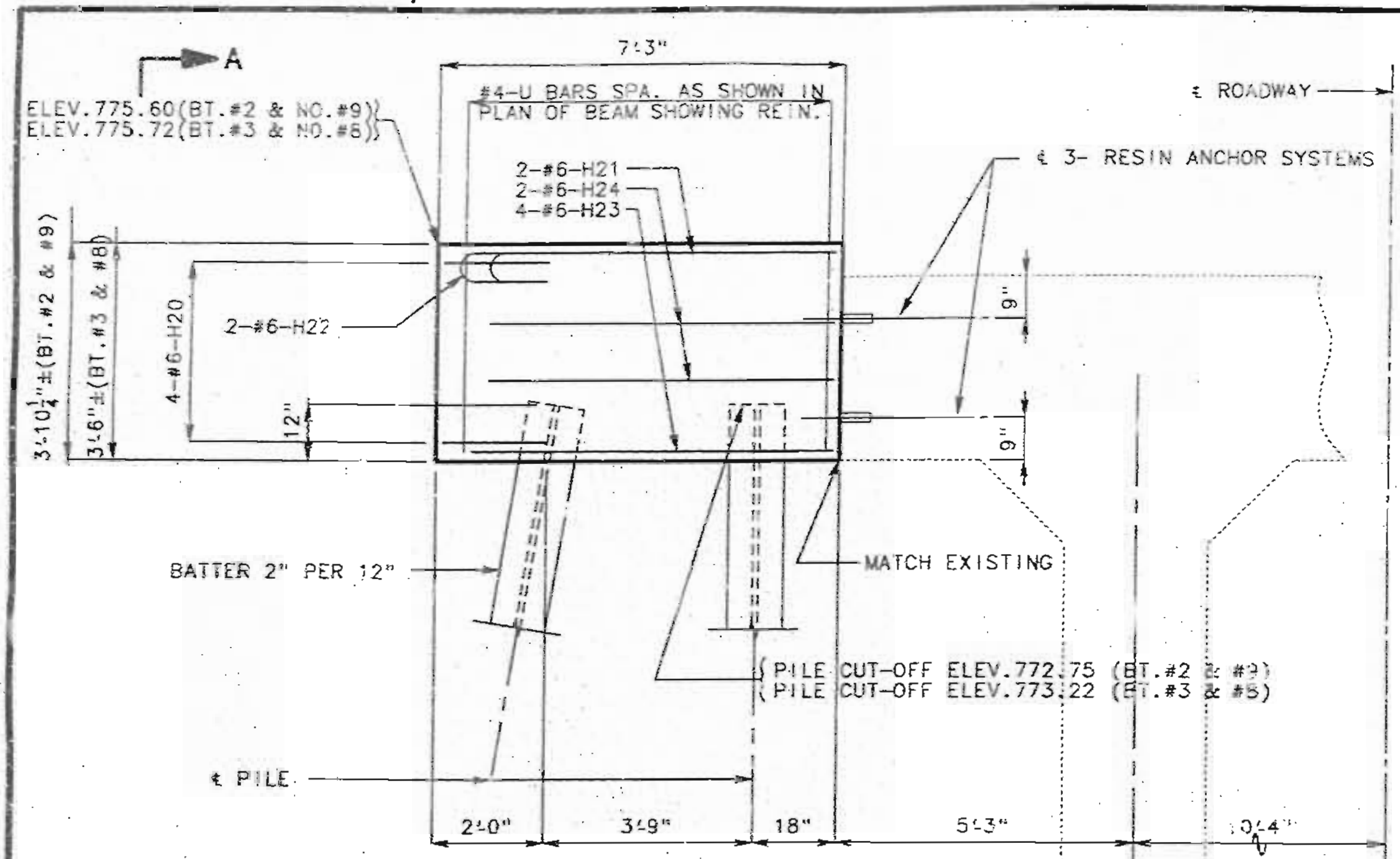
SHEET NO. 7 OF 34

JACKSON

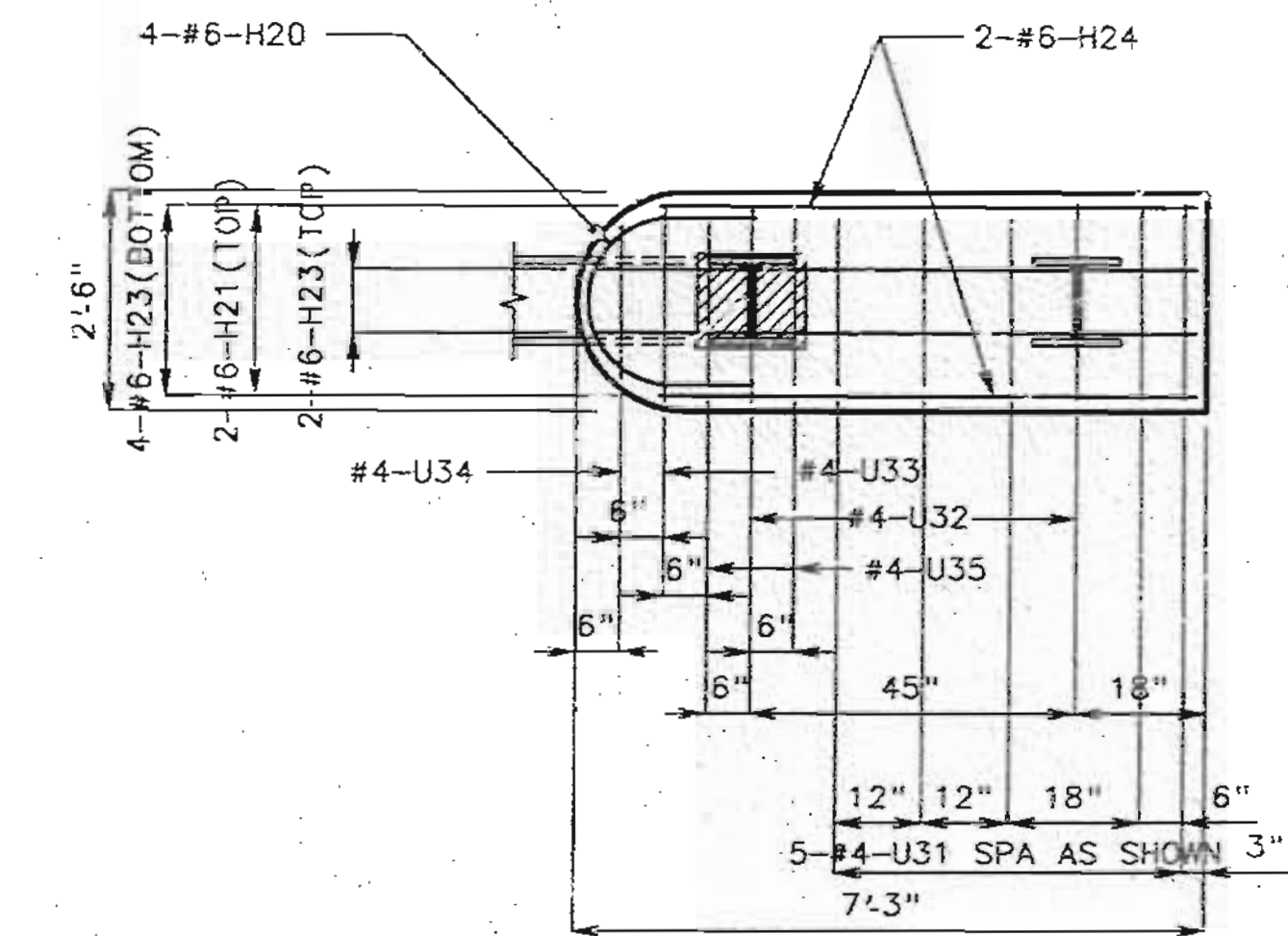
COUNTY

A-167R

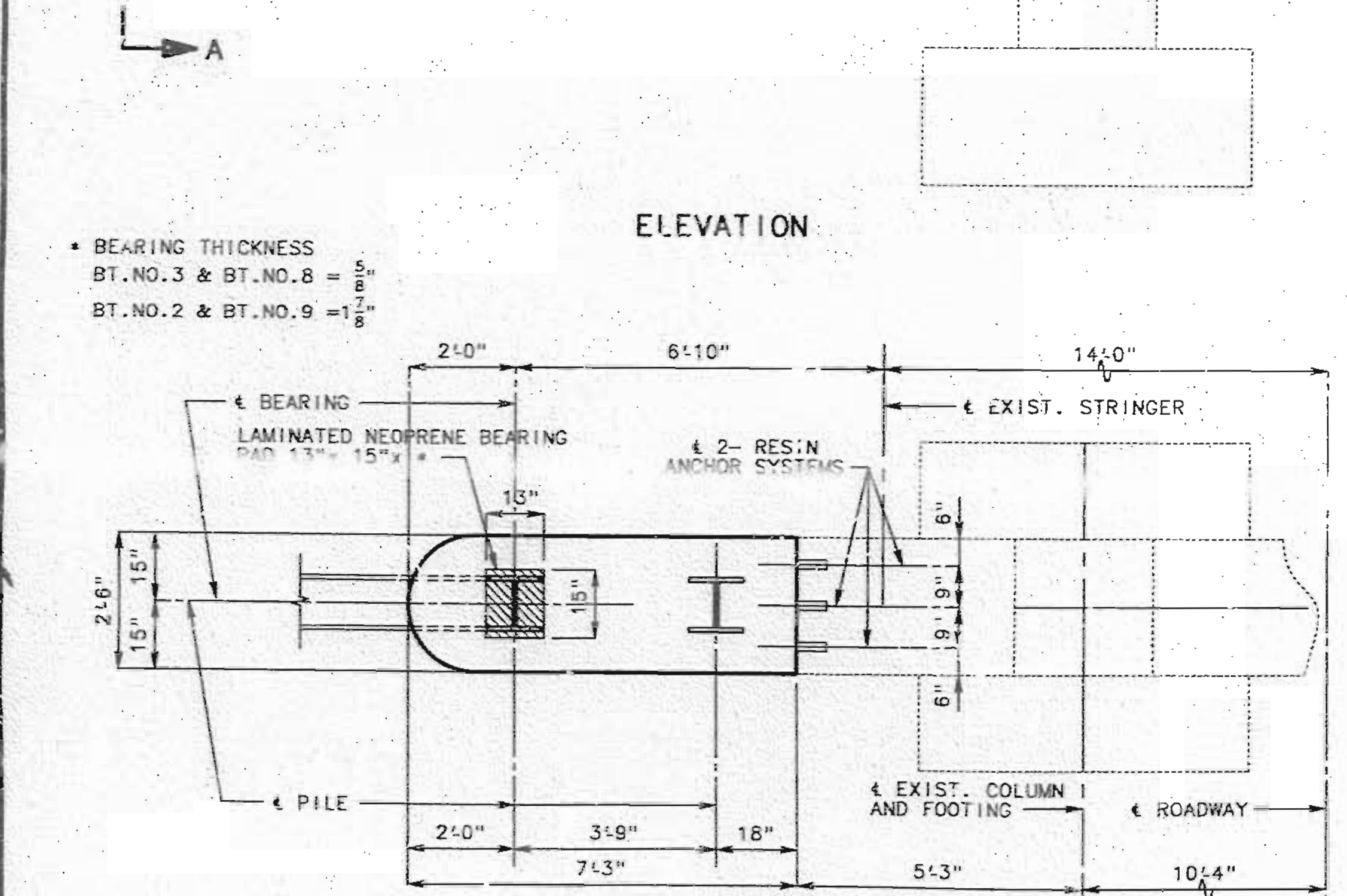
STATE	PROJ. NO.	SHEET NO.
MO.		76



PLAN OF BEAM SHOWING REINFORCEMENT (BENTS NO.2 & NO.9)



PLAN OF BEAM SHOWING REINFORCEMENT (BENTS NO.3 & NO.8)



ELEVATION A-A

NOTE: FOR DETAIL OF STEEL PILE SPLICE SEE SHEET NO. 7.  
 FOR DETAILS OF LAMINATED NEOPRENE BEARINGS SEE SHEET NO. 12.  
 FOR DETAILS & LOCATION OF ANCHOR BOLT WELLS SEE SHEET NO. 14.

SUBSTRUCTURE QUANTITY TABLE FOR INT. BENTS		BENT NO. 2	BENT NO. 3	BENT NO. 8	BENT NO. 9
ITEM	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
Structural Steel Pile (12")	Lin. Ft.	88	88	112	112
Class B Concrete (Substructure)	Cu. Yds.	2.5	2.3	2.3	2.5
Reinforcing Steel	Lbs.	240	240	240	240

NOTE: THESE QUANTITIES ARE INCLUDED IN THE ESTIMATED QUANTITIES TABLE ON SHEET NO. 2.

DETAILS OF INTERMEDIATE BENT NO. 2, NO. 3, NO. 8, & NO. 9

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

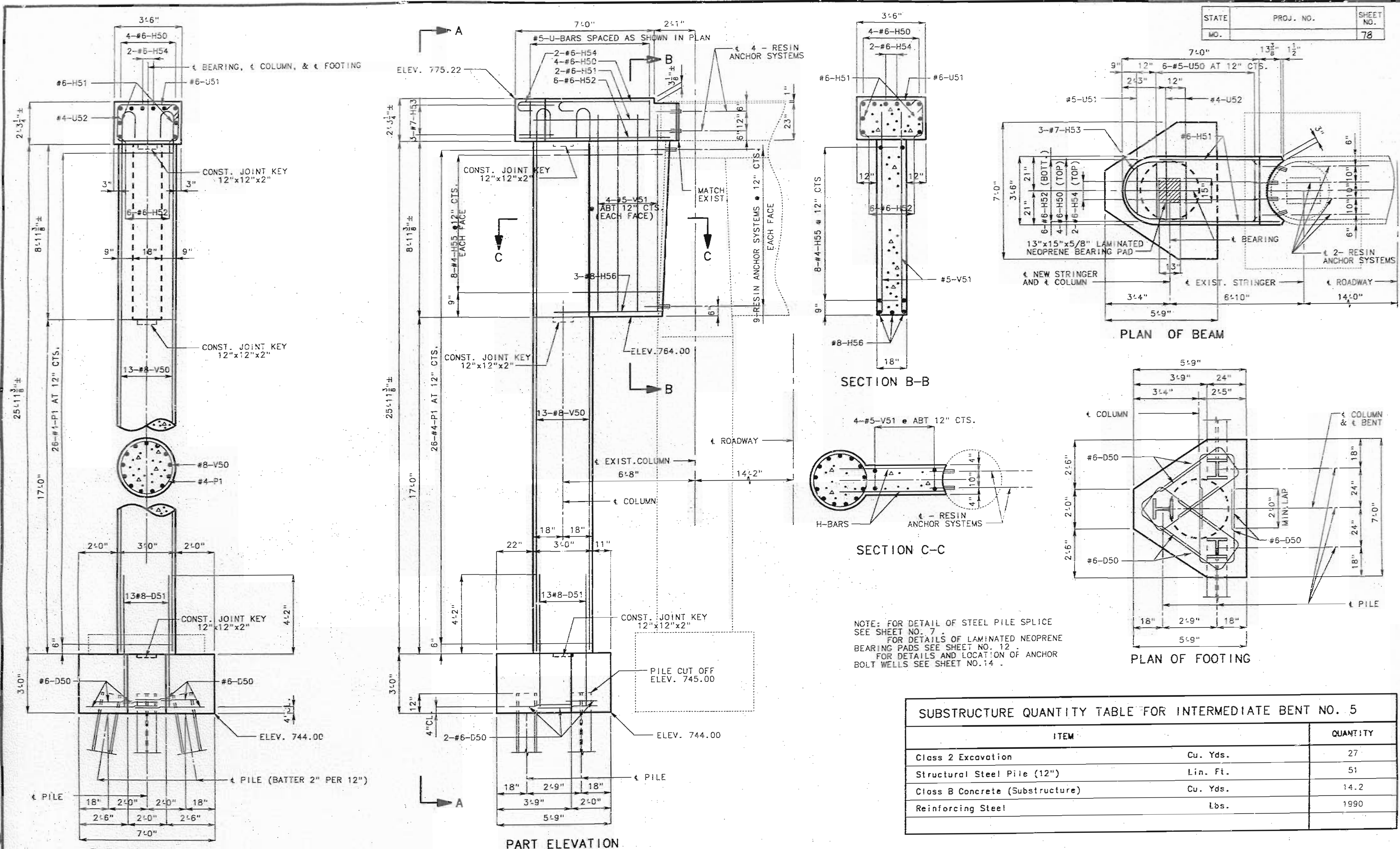
SHEET NO. 8 OF 34

94 7724

DETAILED SEPT. 1993  
 CHECKED OCT. 1993



STATE	PROJ. NO.	SHEET NO.
MO.		78



NOTE: FOR DETAIL OF STEEL PILE SPLICE SEE SHEET NO. 7  
 FOR DETAILS OF LAMINATED NEOPRENE BEARING PADS SEE SHEET NO. 12  
 FOR DETAILS AND LOCATION OF ANCHOR BOLT WELLS SEE SHEET NO. 14

ITEM	QUANTITY
Class 2 Excavation	Cu. Yds. 27
Structural Steel Pile (12")	Lin. Ft. 51
Class B Concrete (Substructure)	Cu. Yds. 14.2
Reinforcing Steel	Lbs. 1990

NOTE: THESE QUANTITIES ARE INCLUDED IN THE ESTIMATED QUANTITIES TABLE ON SHEET NO. 2

DETAILS OF INTERMEDIATE PIER NO.5

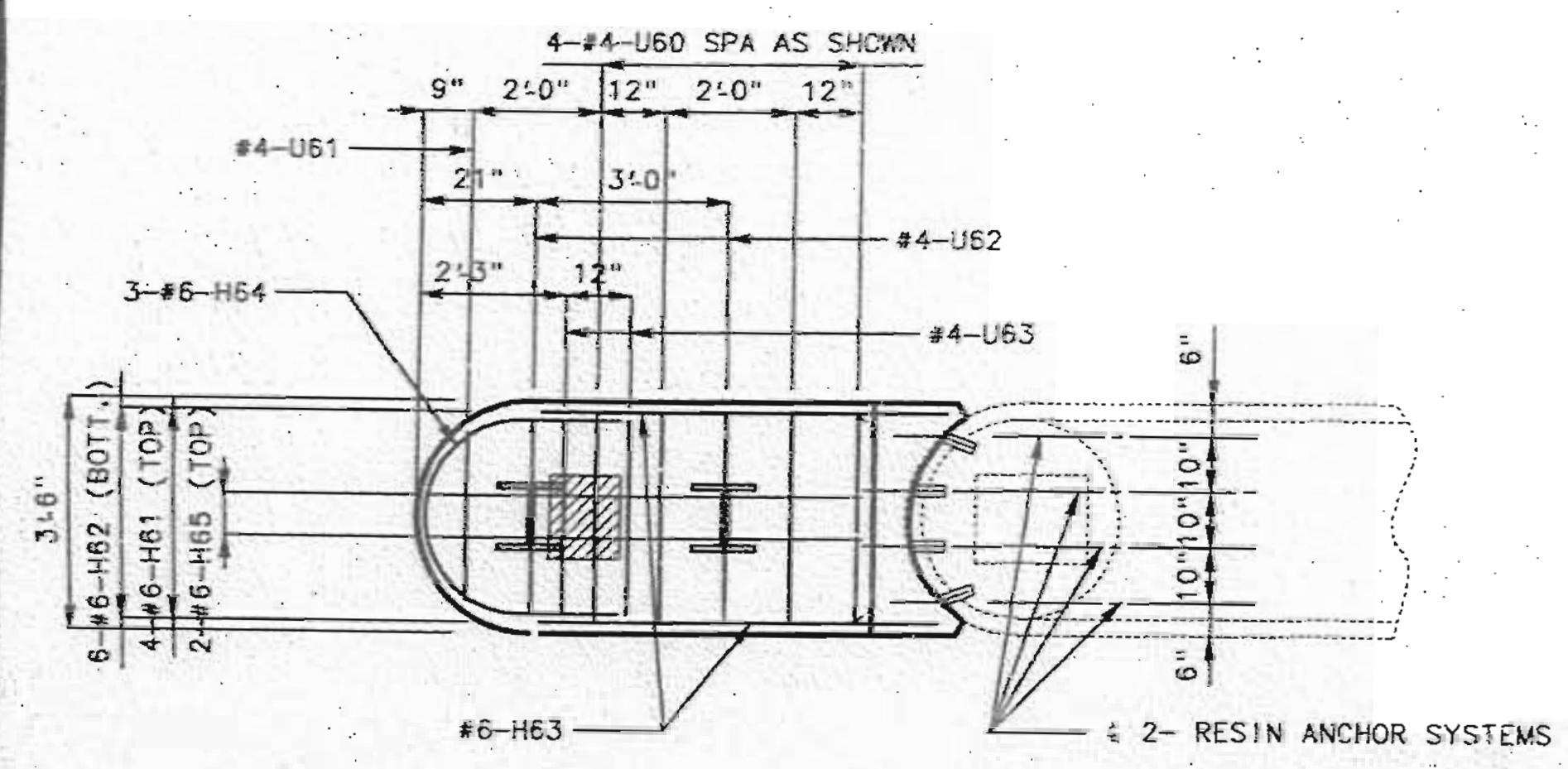
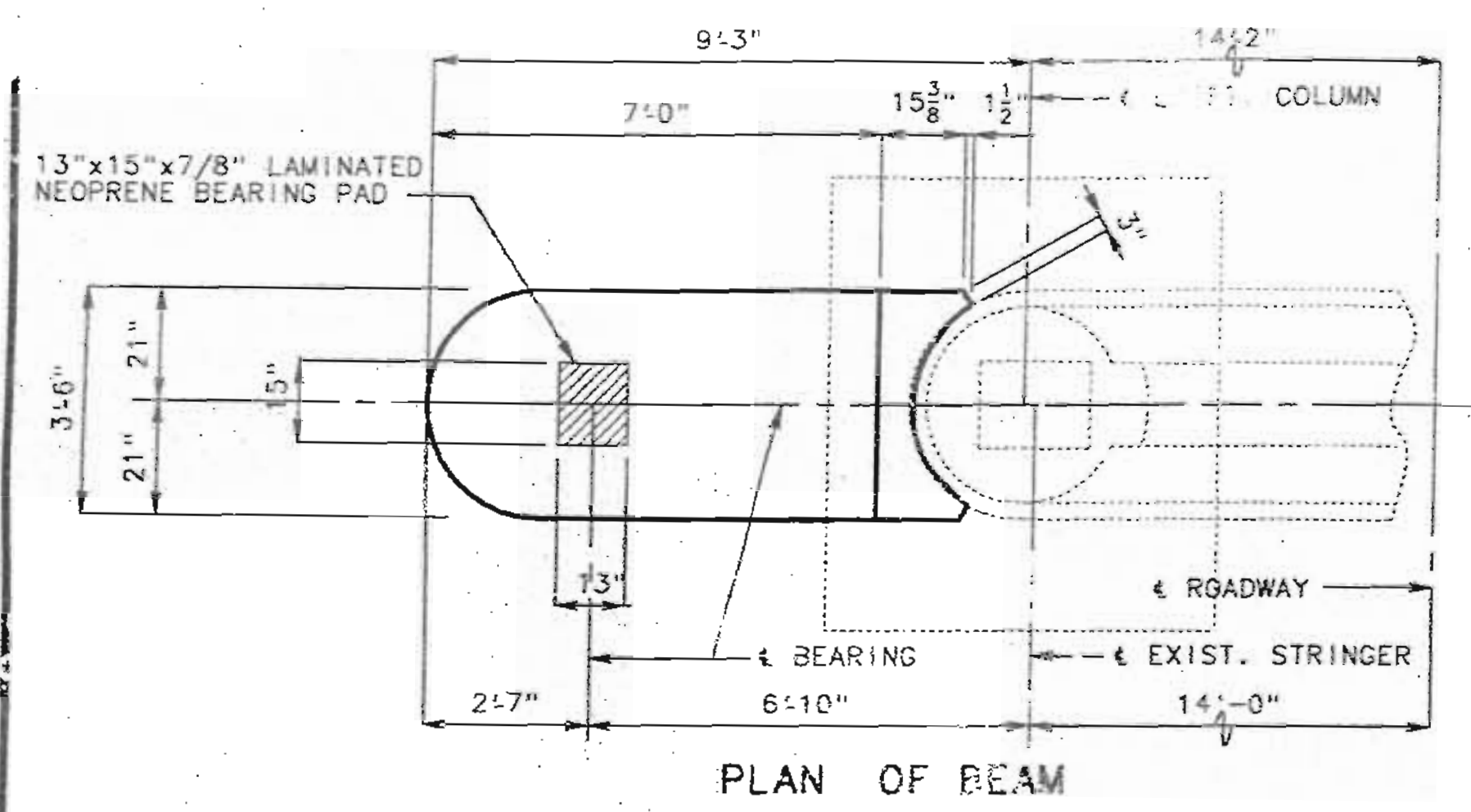
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SHEET NO. 10 OF 34.

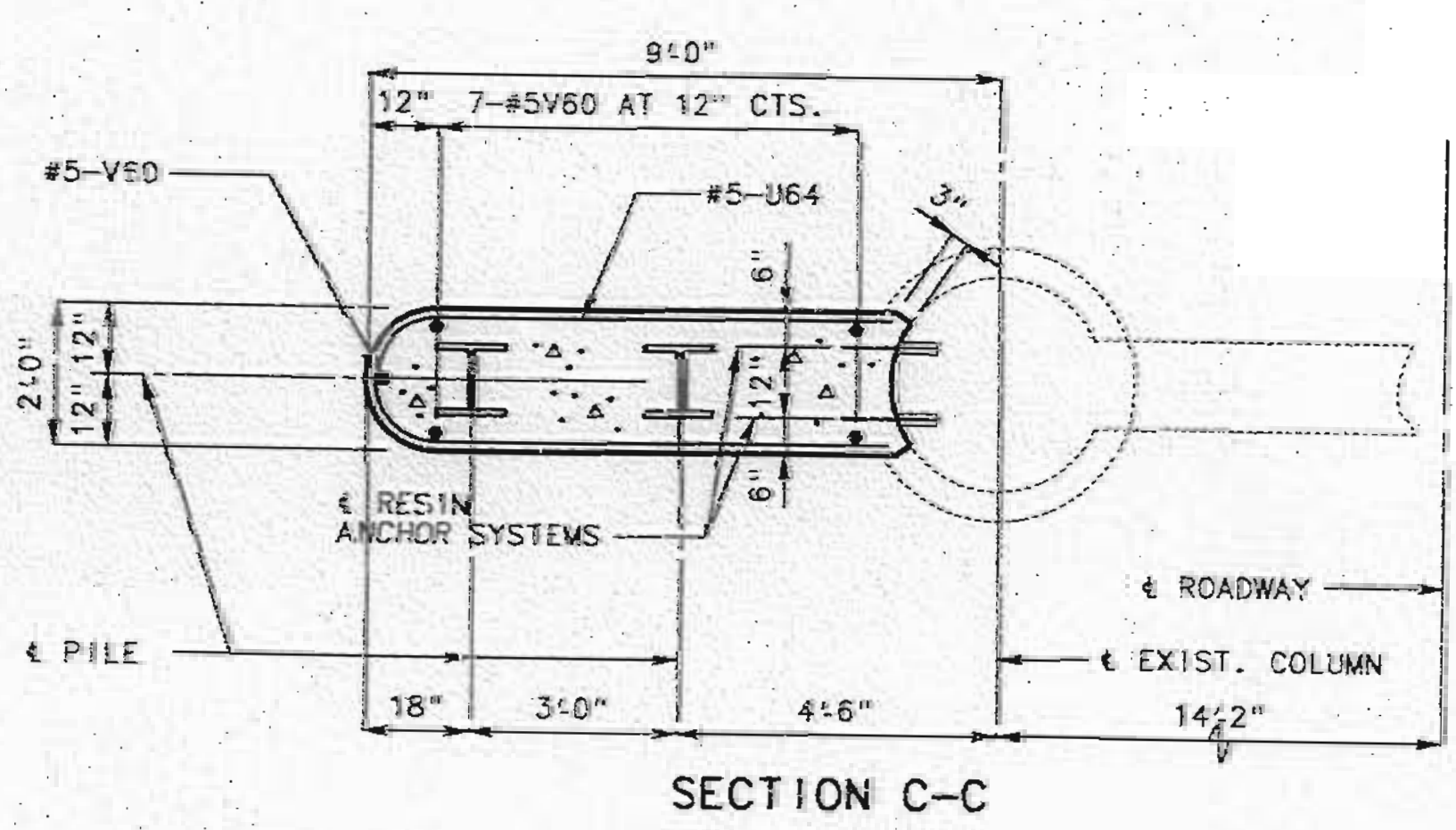
JACKSON COUNTY A-167R

96 8005  
 DETAILED SEPT. 1993  
 CHECKED OCT. 1993

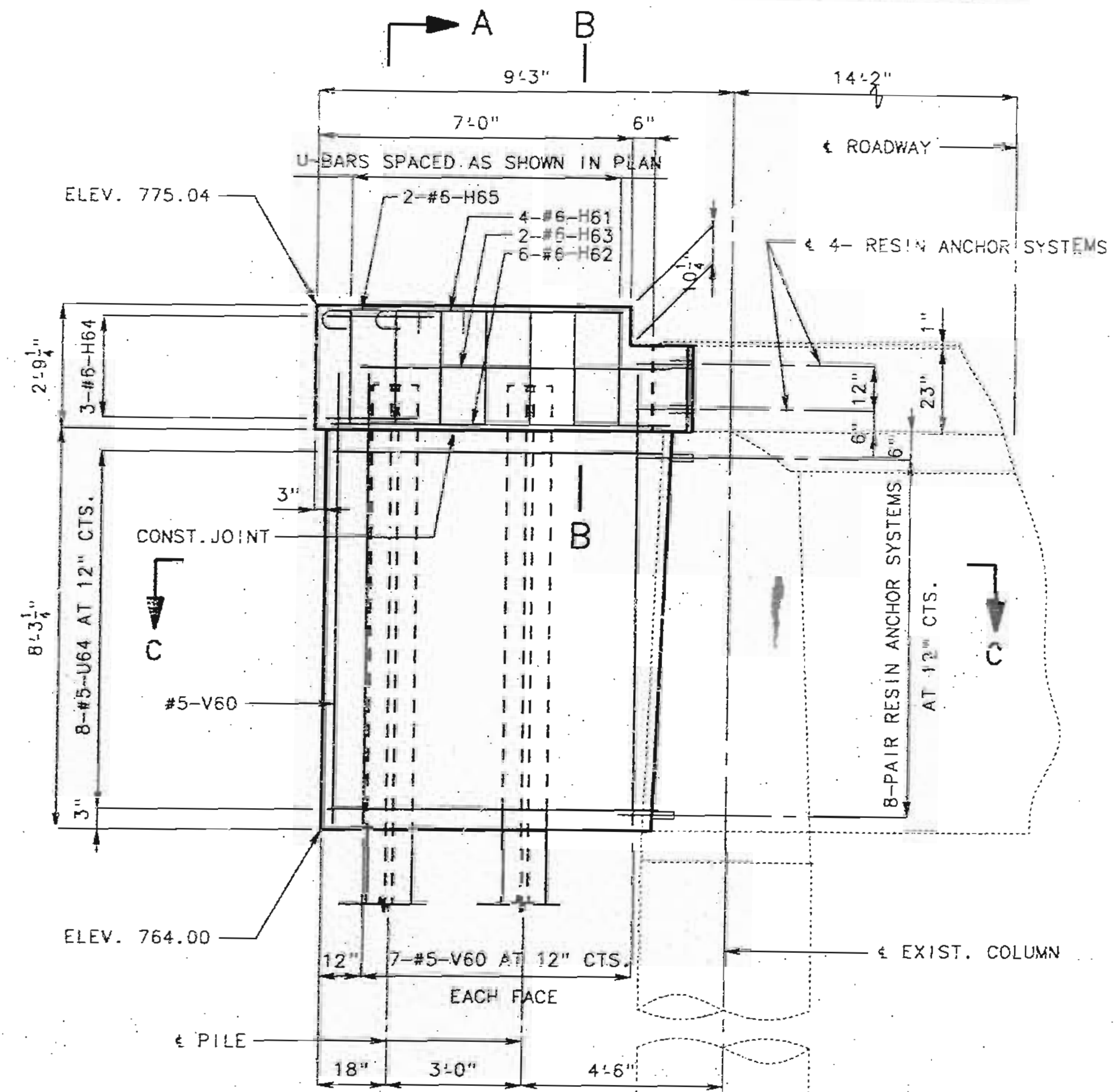
STATE	PROJ. NO.	SHEET NO.
MO.		79



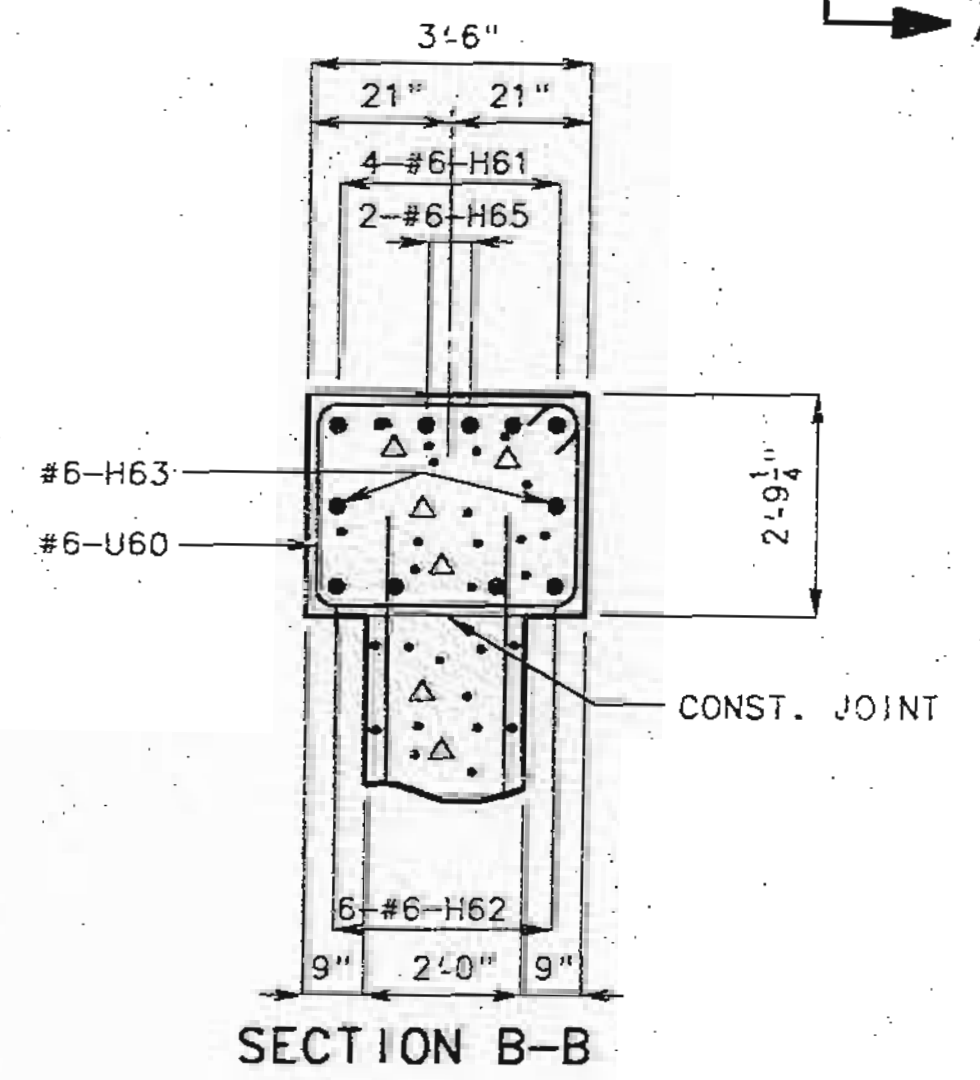
PLAN OF BEAM SHOWING REINFORCEMENT



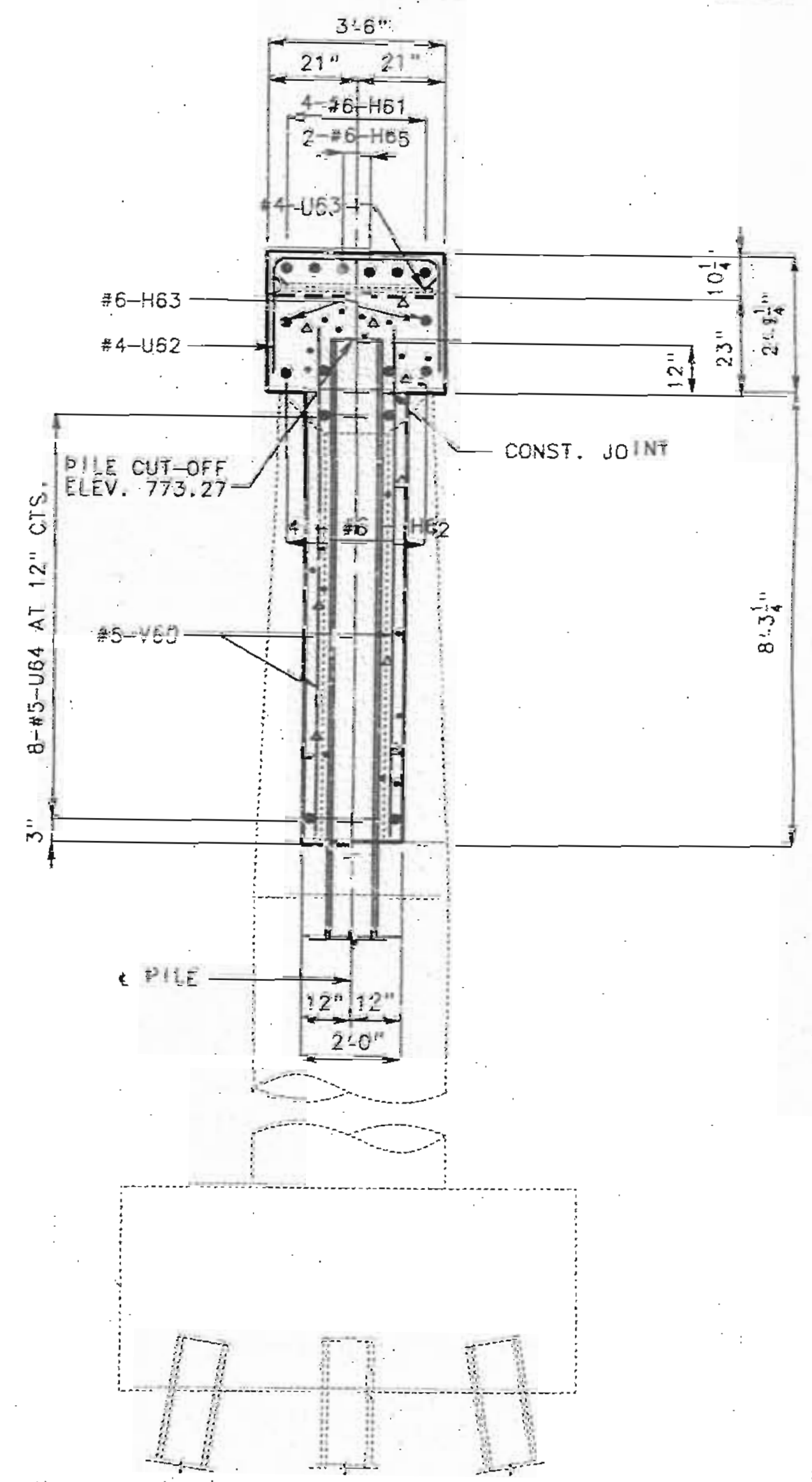
SECTION C-C



ELEVATION



SECTION B-B



SECTION A-A

NOTE: FOR DETAIL OF STEEL PILE SPLICE SEE SHEET NO. 7.  
 FOR DETAILS OF LAMINATED NEOPRENE BEARING PADS SEE SHEET NO. 16.  
 FOR DETAILS AND LOCATION OF ANCHOR BOLT WELLS SEE SHEET NO. 14.

ITEM	QUANTITY
Class 1 Excavation	Cu.Yds. 15
Structural Steel Pile (12")	Lin. Ft. 118
Class B Concrete (Substructure)	Cu. Yds. 7.2
Reinforcing Steel	Lbs. 510

NOTE: THESE QUANTITIES ARE INCLUDED IN THE ESTIMATED QUANTITIES TABLE ON SHEET NO. 2.

DETAILS OF INTERMEDIATE PIER NO. 6

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

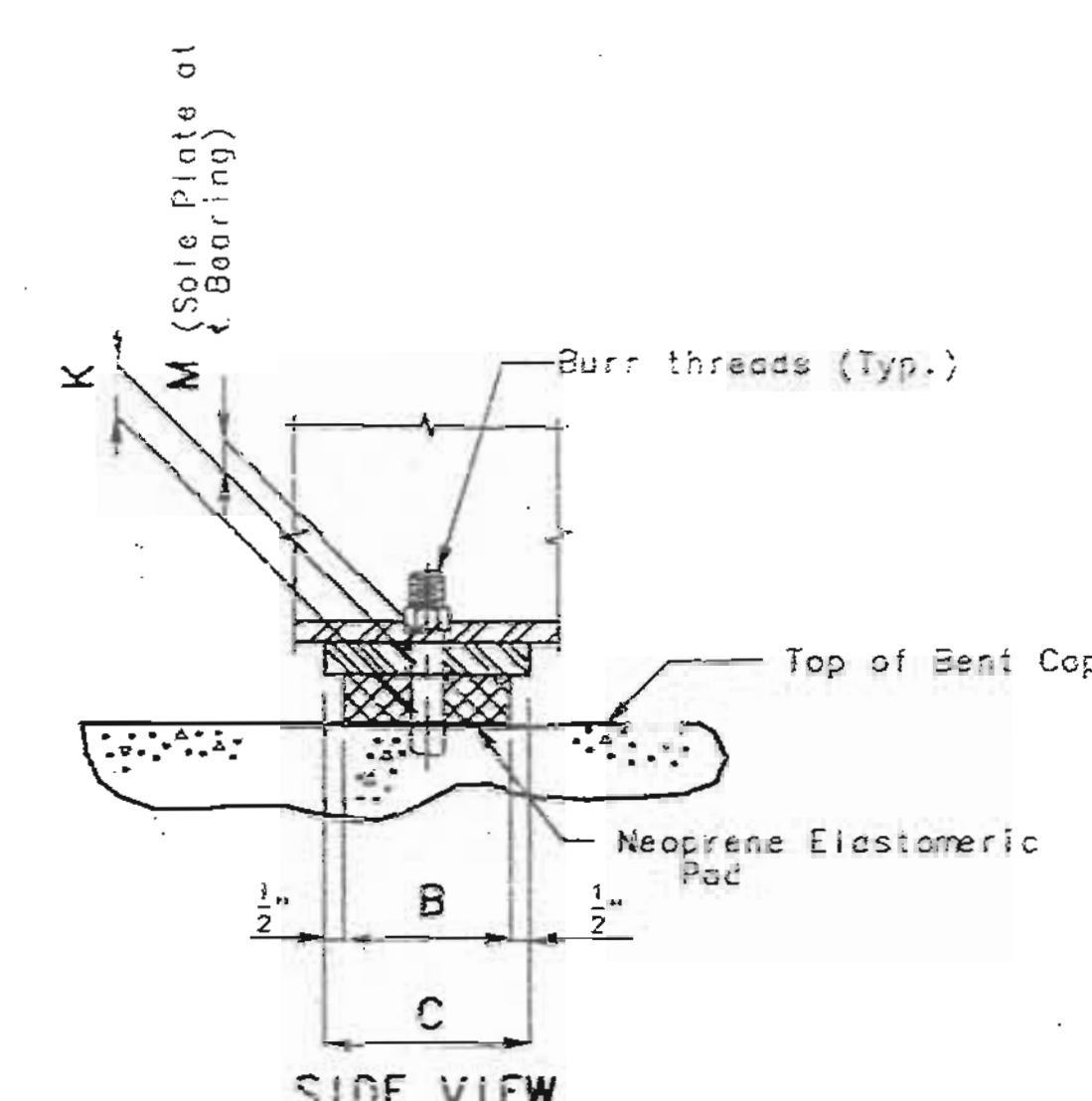
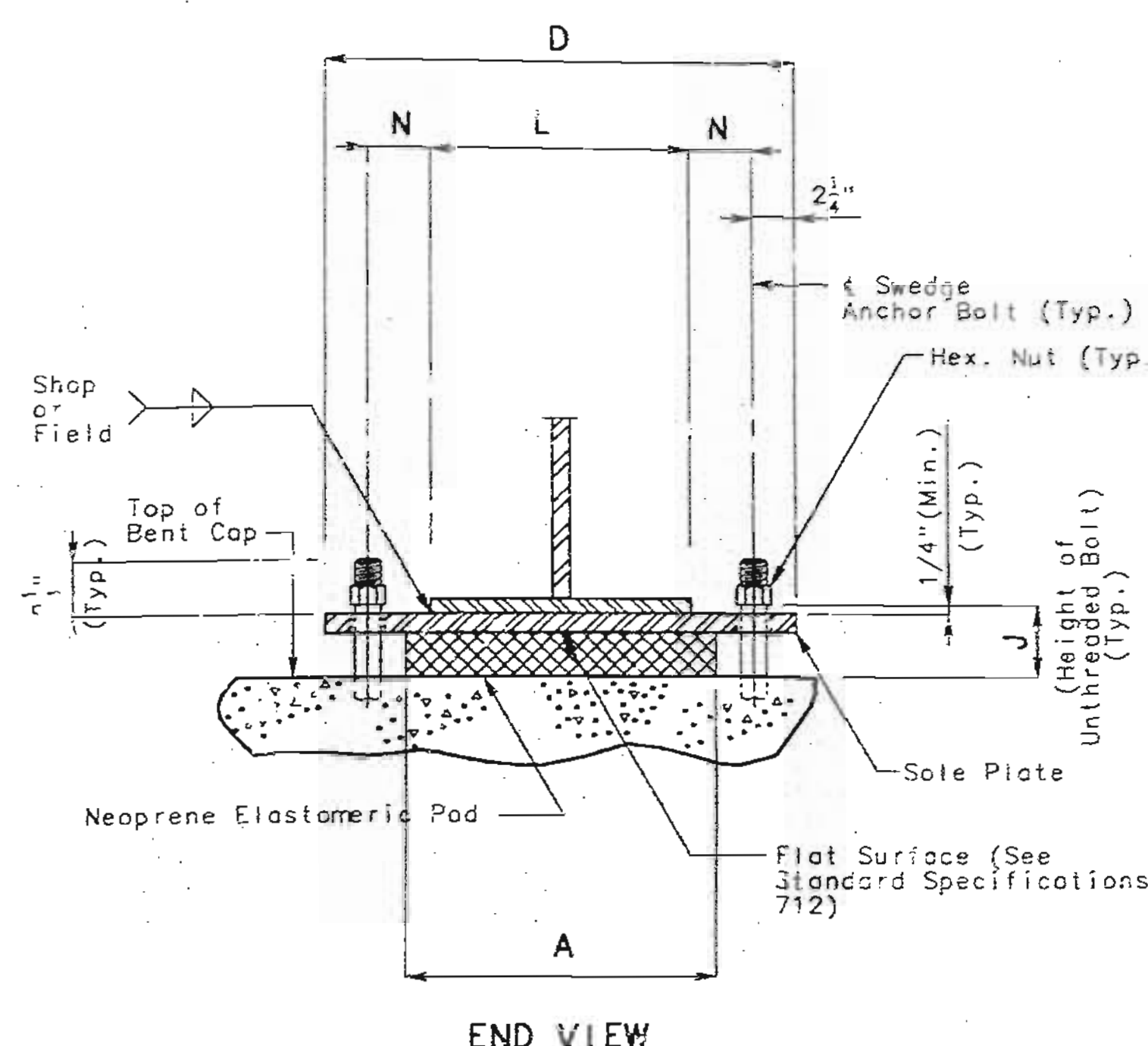
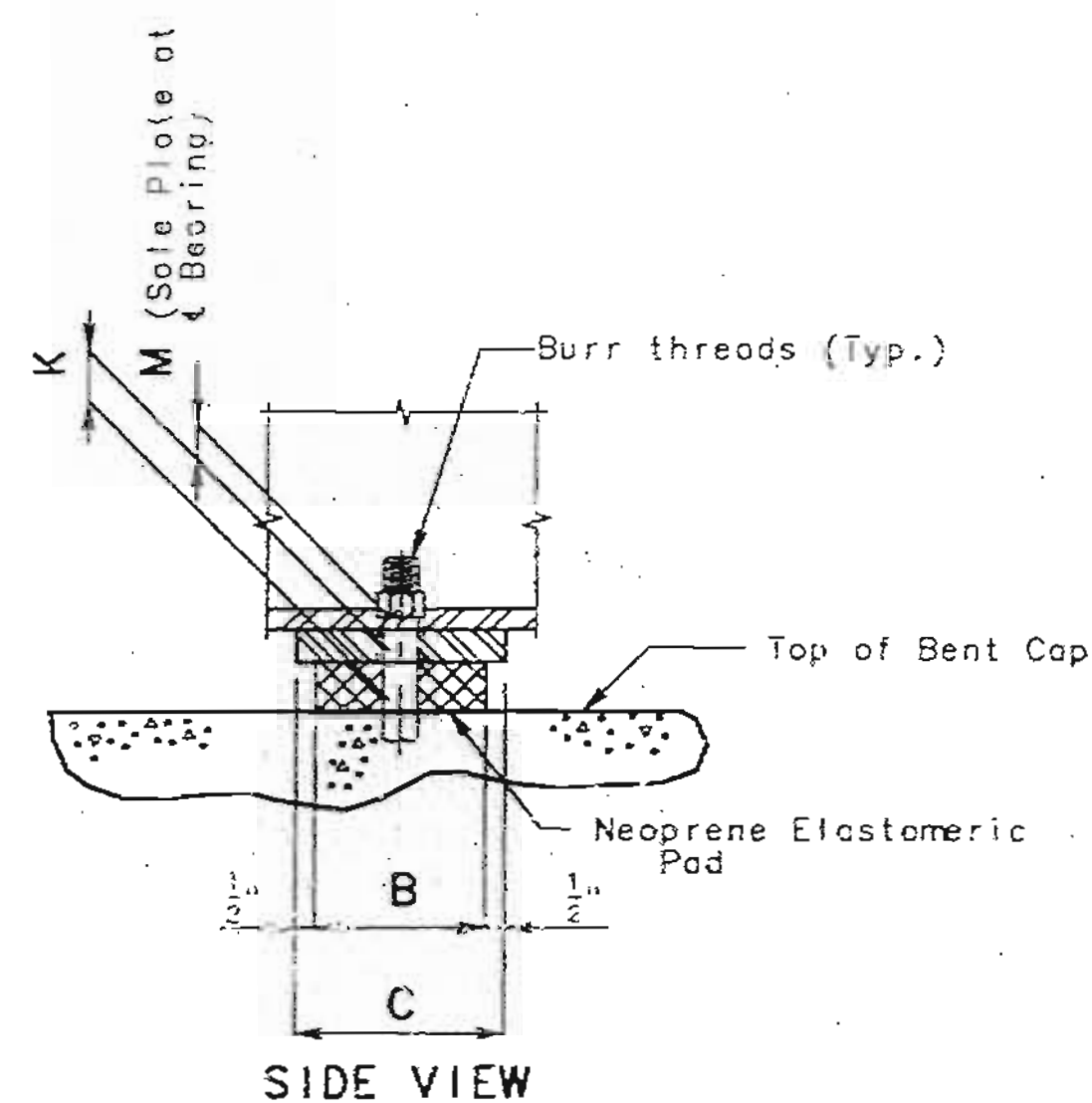
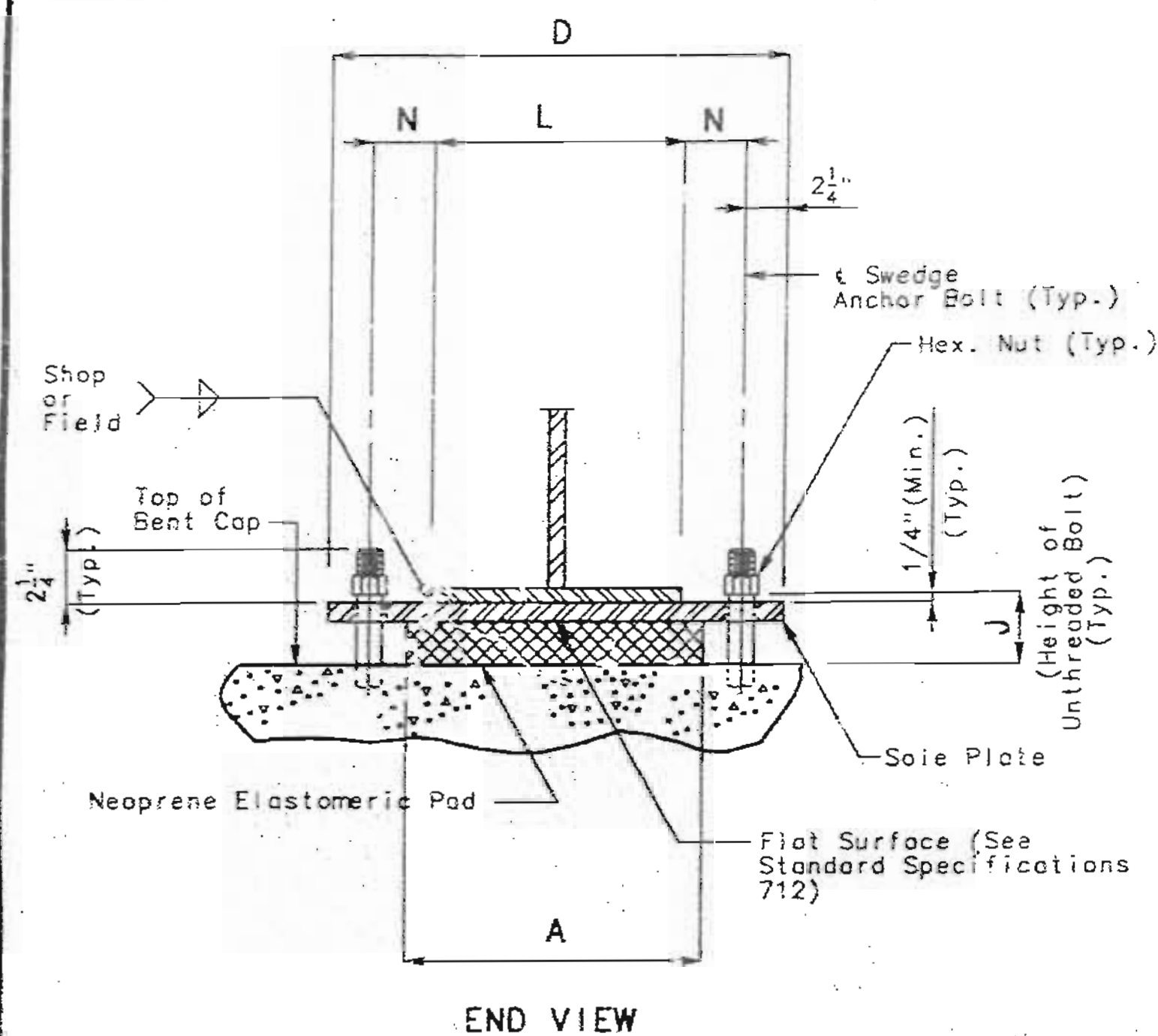
SHEET NO. 11 OF 34

JACKSON COUNTY A-167R

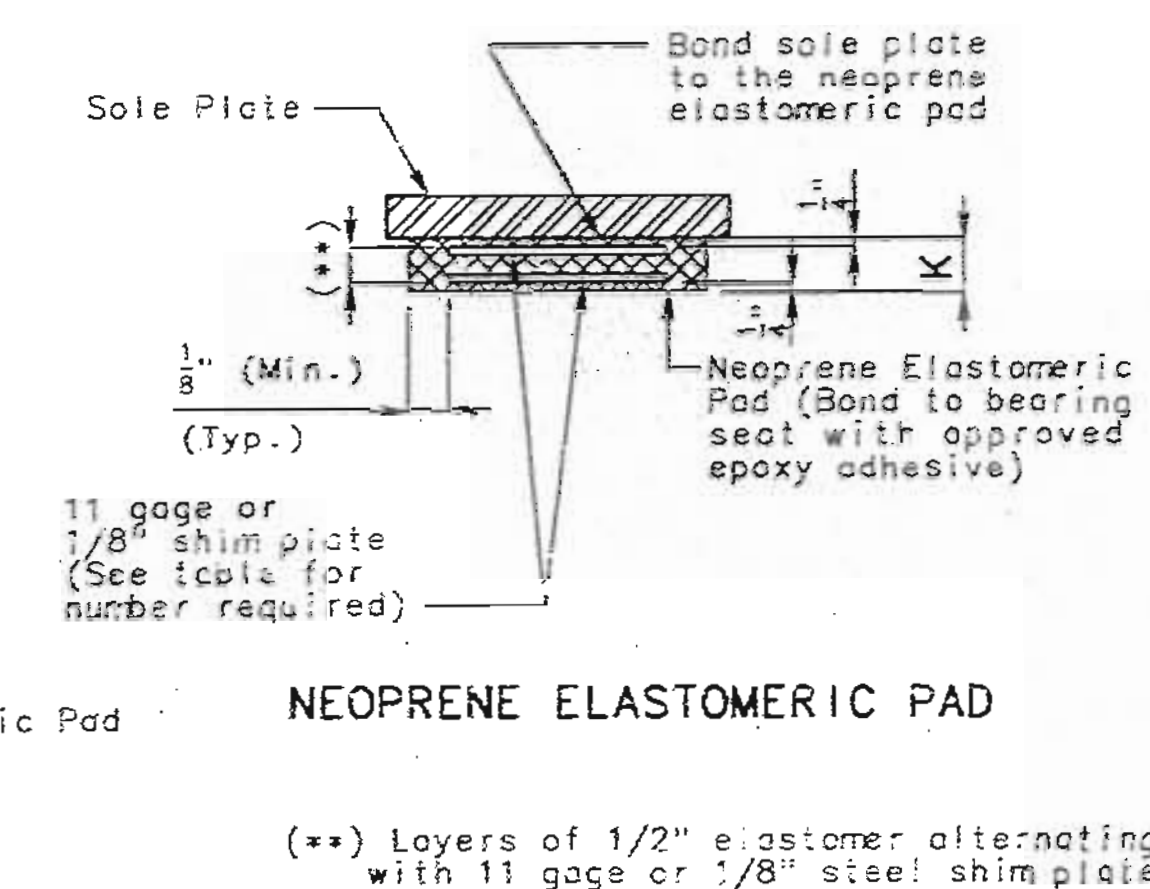
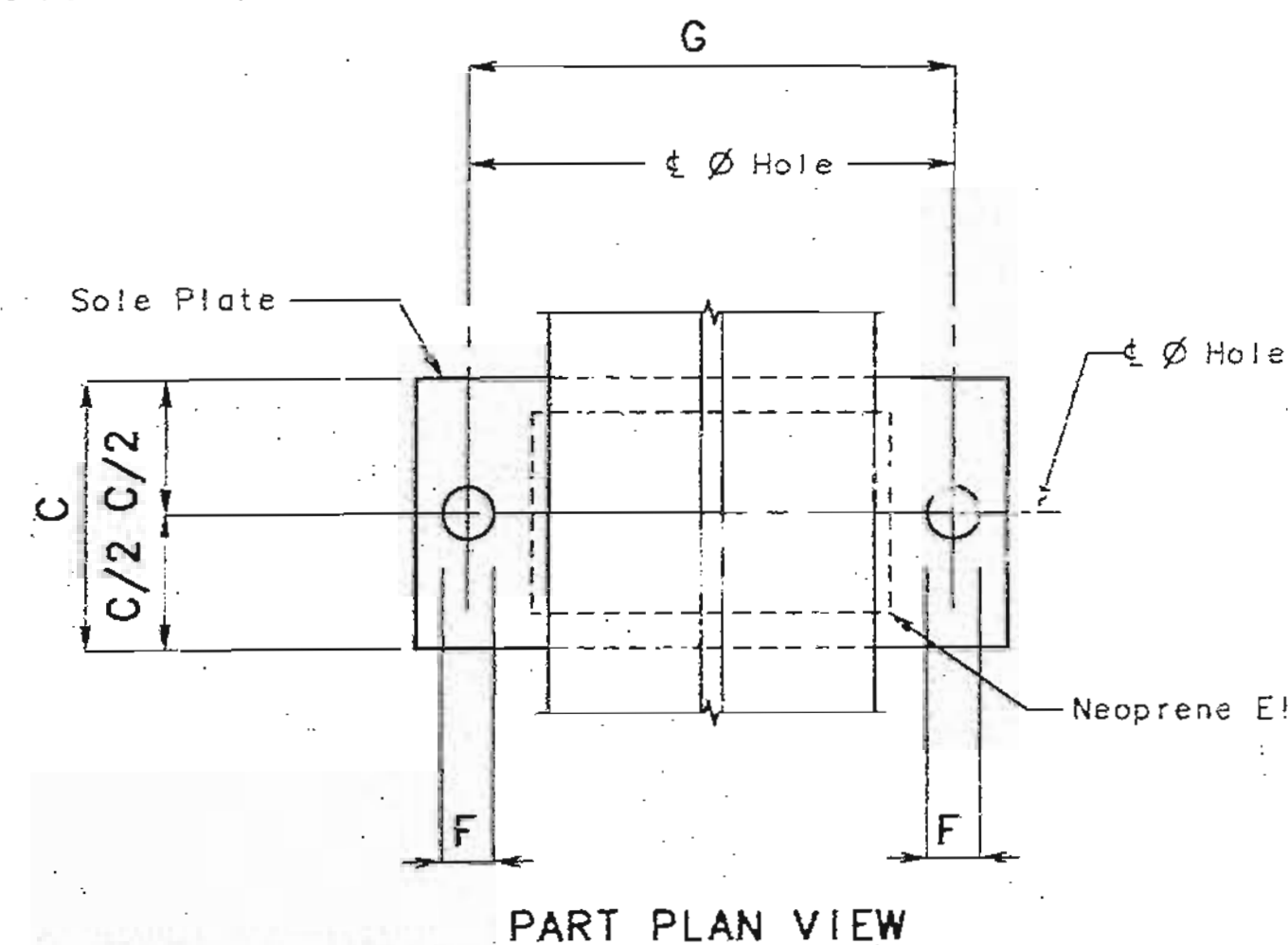
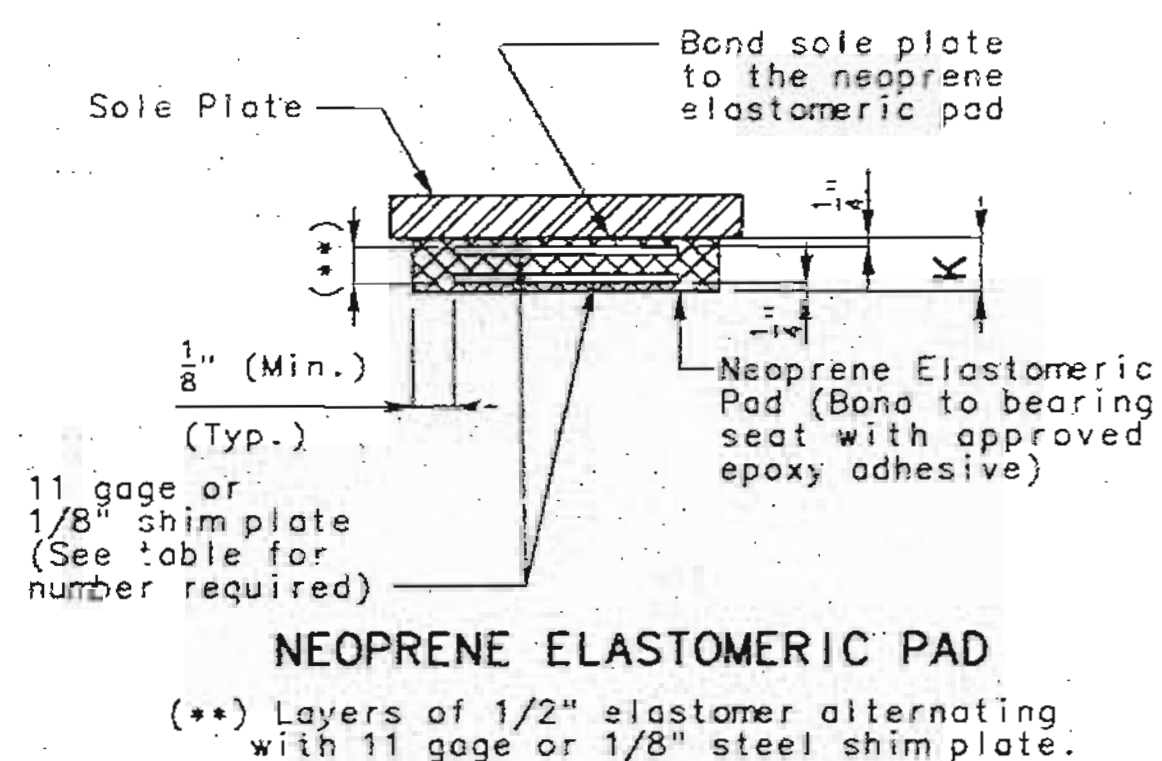
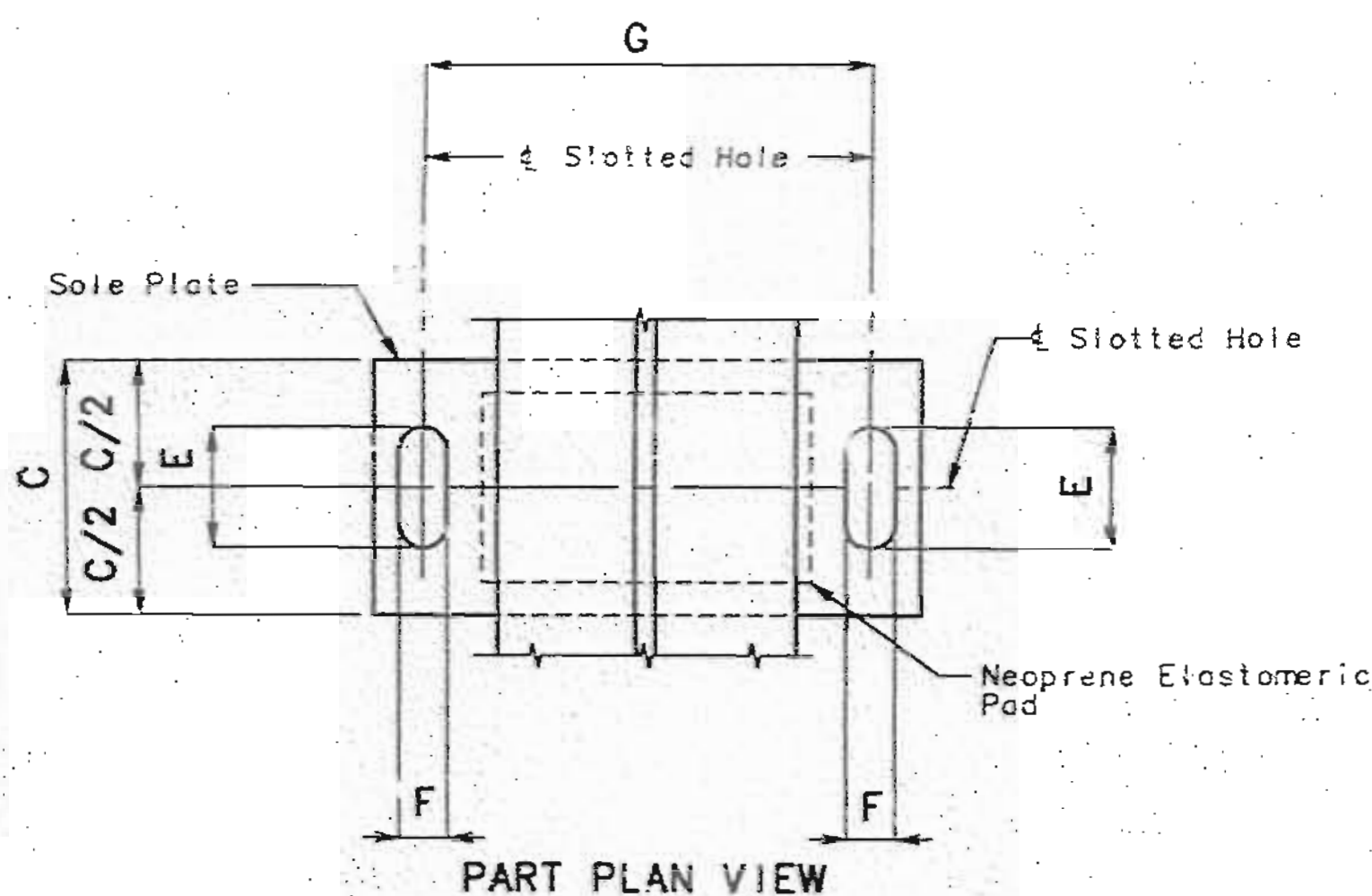
97 877

DETAILED SEPT, 1993  
 CHECKED OCT, 1993

STATE	PROJ. NO.	SHEET NO.
MO.		80



NOTE: For Details of Sledge Anchor Bolt see sheet no. 14.



GENERAL NOTES:

Anchor bolts shall be 1-1/2" A588 steel swaged bolts and shall extend 15" into the concrete with A194-2, 2H or A563-C, C3, D, DH, DH3 heavy hexagon nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. (swedging shall be 1" less than the extension into the concrete.)

All structural steel for the sole plate, anchor bolts and the heavy hexagon nuts shall be painted with 2 coats (5 mils min.) of inorganic zinc. Weld areas to be touched up after assembly.

The neoprene elastomeric pads shall be 60 durometer. The Neoprene Pad shall be bonded to the bearing seat with an Epoxy Adhesive as approved by the bearing manufacturer for bonding neoprene to concrete.

The Sole Plate shall be furnished with the bearing and field or shop welded to the stringers or girders.

Structural Steel for Sole Plate shall be A-36.

Payment for the sole plate, anchor bolts and heavy hexagon nuts shall be included in the cost of the bearing assembly. See Special Provisions.

The accepted quantity of the elastomeric bearing assemblies, complete-in-place, will be paid for at the contract unit price for laminated neoprene bearing pads (Steel Structures), each.

Note: The location of the anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60° F. the slotted holes should center on the anchor bolts.

BENT LOC.	EXPANSION BEARINGS											NUMBER OF SHIM PLATES(*)	NUMBER REQUIRED	
	A	B	C	D	E	F	G	J	K	L	M			N
2,9	13"	15"	16"	20 1/2"	3 1/2"	1 5/8"	16"	3 5/8"	1 7/8"	10 1/2"	1 1/2"	2 3/4"	3	2
4	13"	15"	16"	20 1/2"	3 1/2"	1 5/8"	16"	3 3/8"	1 7/8"	12"	1 1/2"	2"	3	1
6	13"	15"	16"	20 1/2"	3 3/8"	1 5/8"	16"	4 1/4"	2 1/2"	12"	1 1/2"	2"	4	1
7	13"	15"	16"	20 1/2"	4 1/4"	1 5/8"	16"	6 1/8"	4 3/8"	12"	1 1/2"	2"	7	1
													TOTAL BEARINGS	5

(\*) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

BENT LOC.	FIXED BEARINGS											NUMBER OF SHIM PLATES(*)	NUMBER REQUIRED
	A	B	C	D	F	G	J	K	L	M	N		
3,8	13"	15"	16"	20 1/2"	1 5/8"	16"	2 3/8"	5 3/8"	10 1/2"	1 1/2"	2 3/4"	1	2
5	13"	15"	16"	20 1/2"	1 5/8"	16"	2 3/8"	5 3/8"	12"	1 1/2"	2"	1	1
												TOTAL BEARINGS	3

(\*) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

DETAILS OF LAMINATED NEOPRENE BEARINGS (STEEL STRUCTURES)

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 12 OF 34

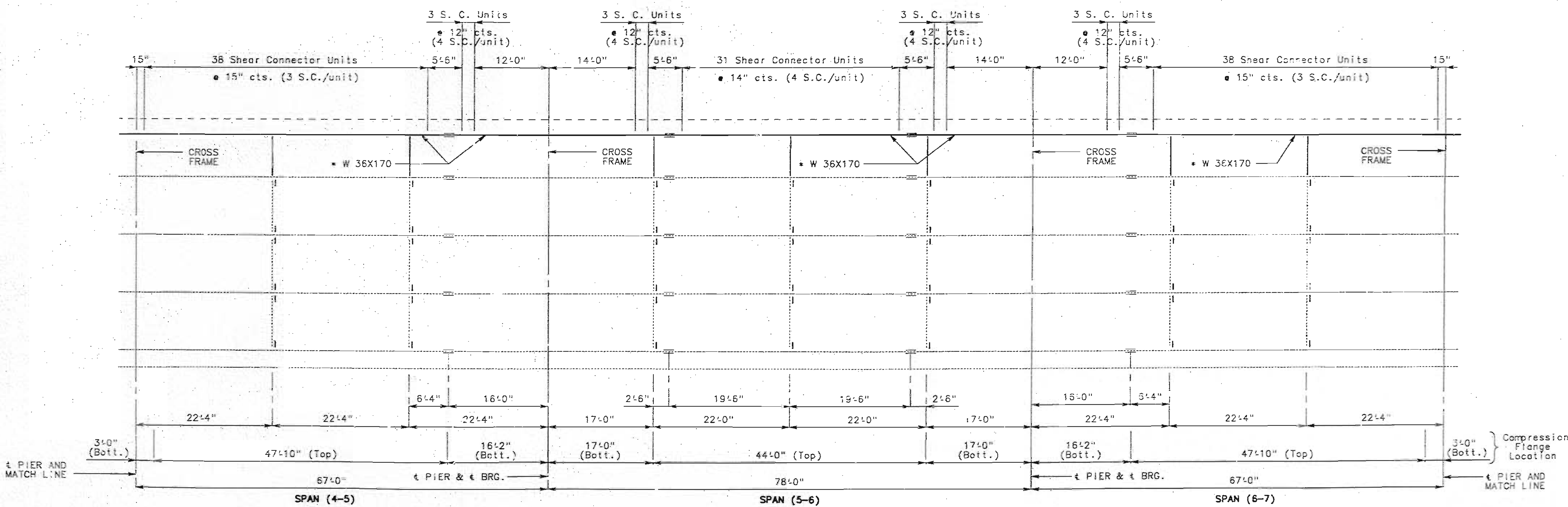
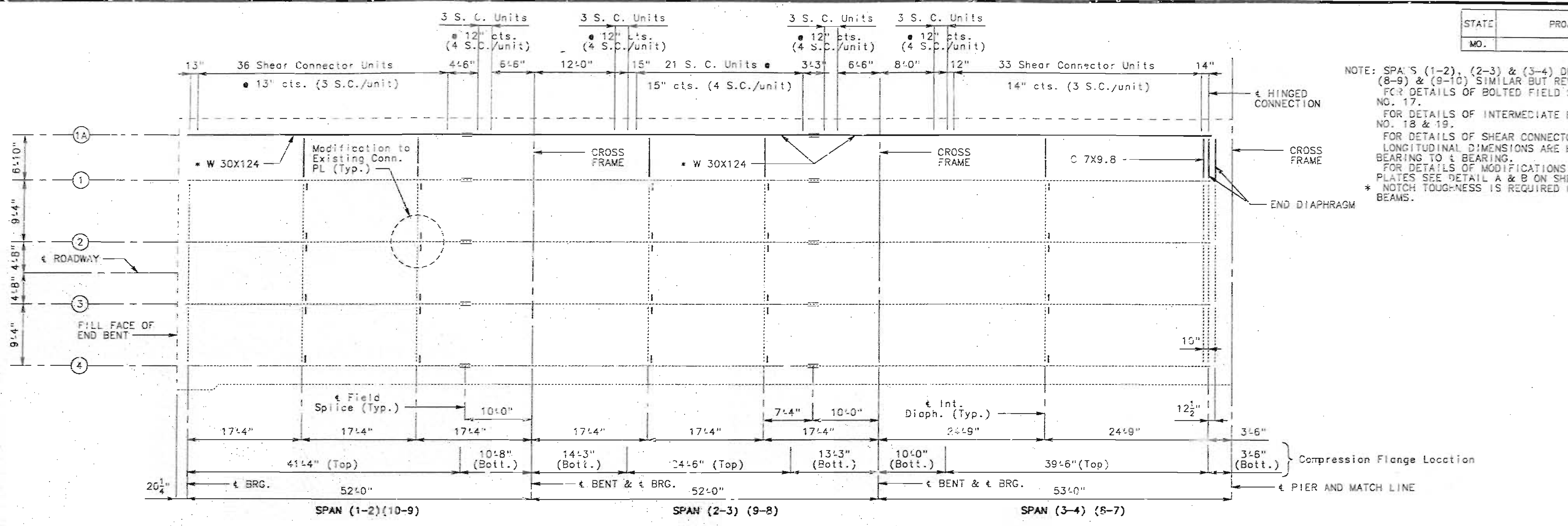
BRG LAM, BRG 37, A  
 LAMINATED BRG. REVISED  
 JAN. 1980 JUNE 1993

DETAILED SEPT. 1993  
 CHECKED OCT. 1993



STATE	PROJ. NO.	SHEET NO.
MO.		81

NOTE: SPAN'S (1-2), (2-3) & (3-4) DETAILED; SPAN'S (7-8), (8-9) & (9-10) SIMILAR BUT REVERSED AS NOTED.  
 FOR DETAILS OF BOLTED FIELD SPLICES SEE SHEET NO. 17.  
 FOR DETAILS OF INTERMEDIATE DIAPHRAGMS SEE SHEETS NO. 18 & 19.  
 FOR DETAILS OF SHEAR CONNECTORS SEE SHEET NO. 17.  
 LONGITUDINAL DIMENSIONS ARE HORIZONTAL FROM  $\epsilon$  BEARING TO  $\epsilon$  BEARING.  
 FOR DETAILS OF MODIFICATIONS TO EXISTING CONN. PLATES SEE DETAIL A & B ON SHEET NO. 18.  
 \* NOTCH TOUGHNESS IS REQUIRED FOR ALL WIDE FLANGE BEAMS.



99 0700 66

PLAN OF STRUCTURAL STEEL

DETAILED SEPT. 1993  
 CHECKED SEPT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

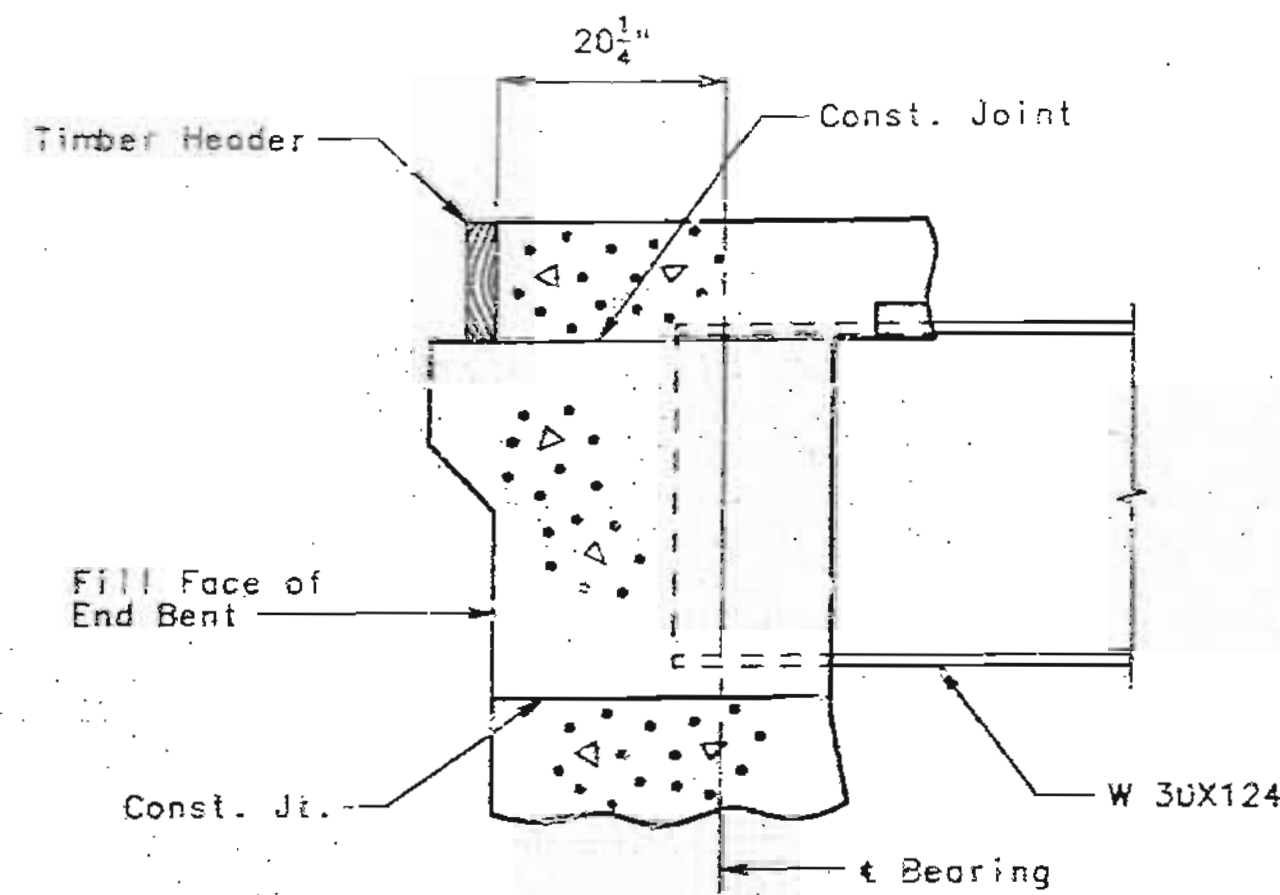
SHEET NO. 13 OF 34.

JACKSON

COUNTY

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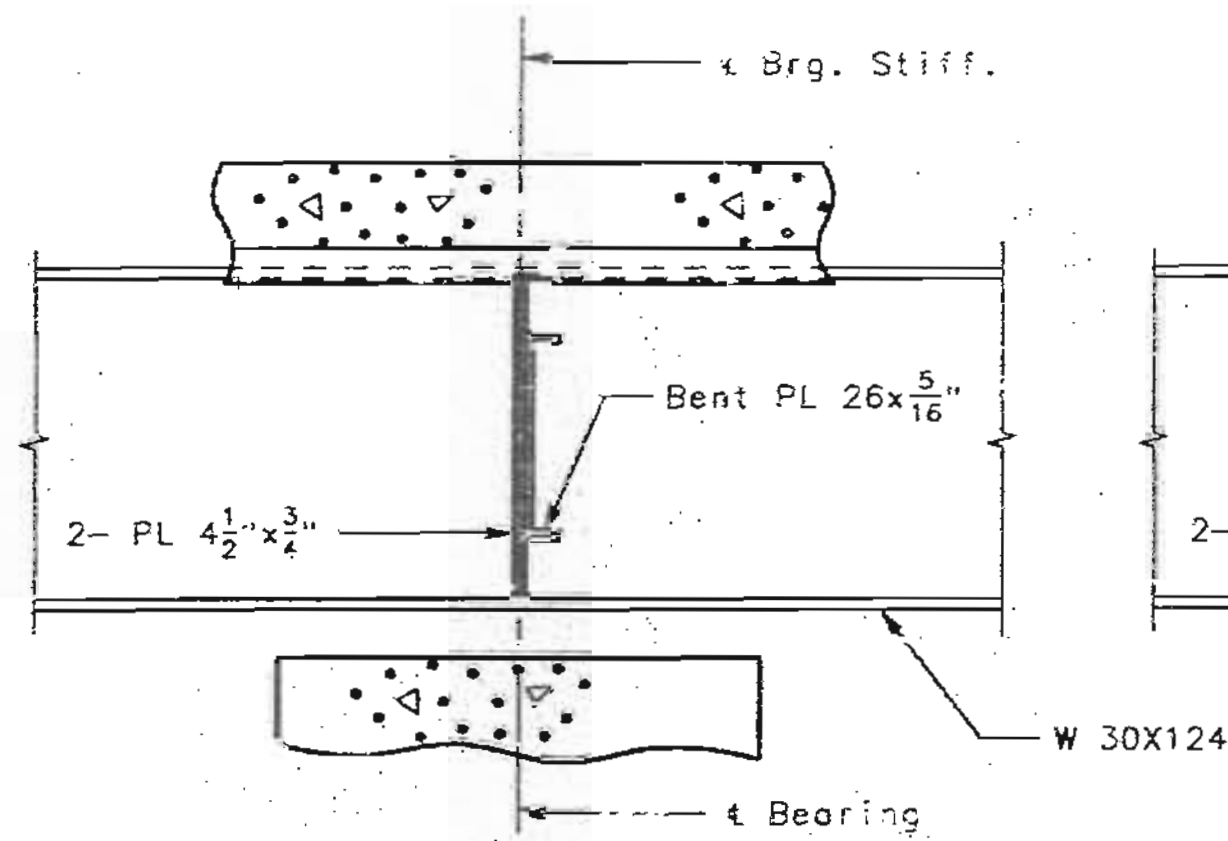
STATE	PROJ. NO.	SHEET NO.
MO.		52



① & ⑩

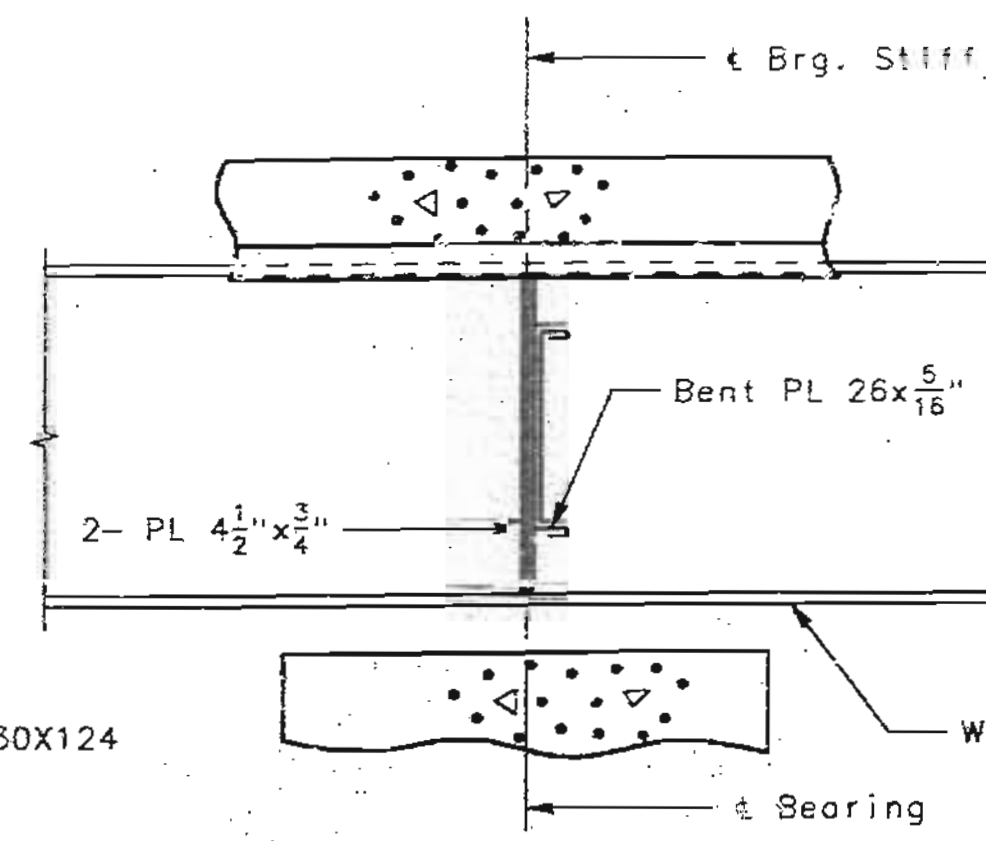
Fixed

NOTE: For Detail of Timber Header see sheet no. 27.



② & ⑨

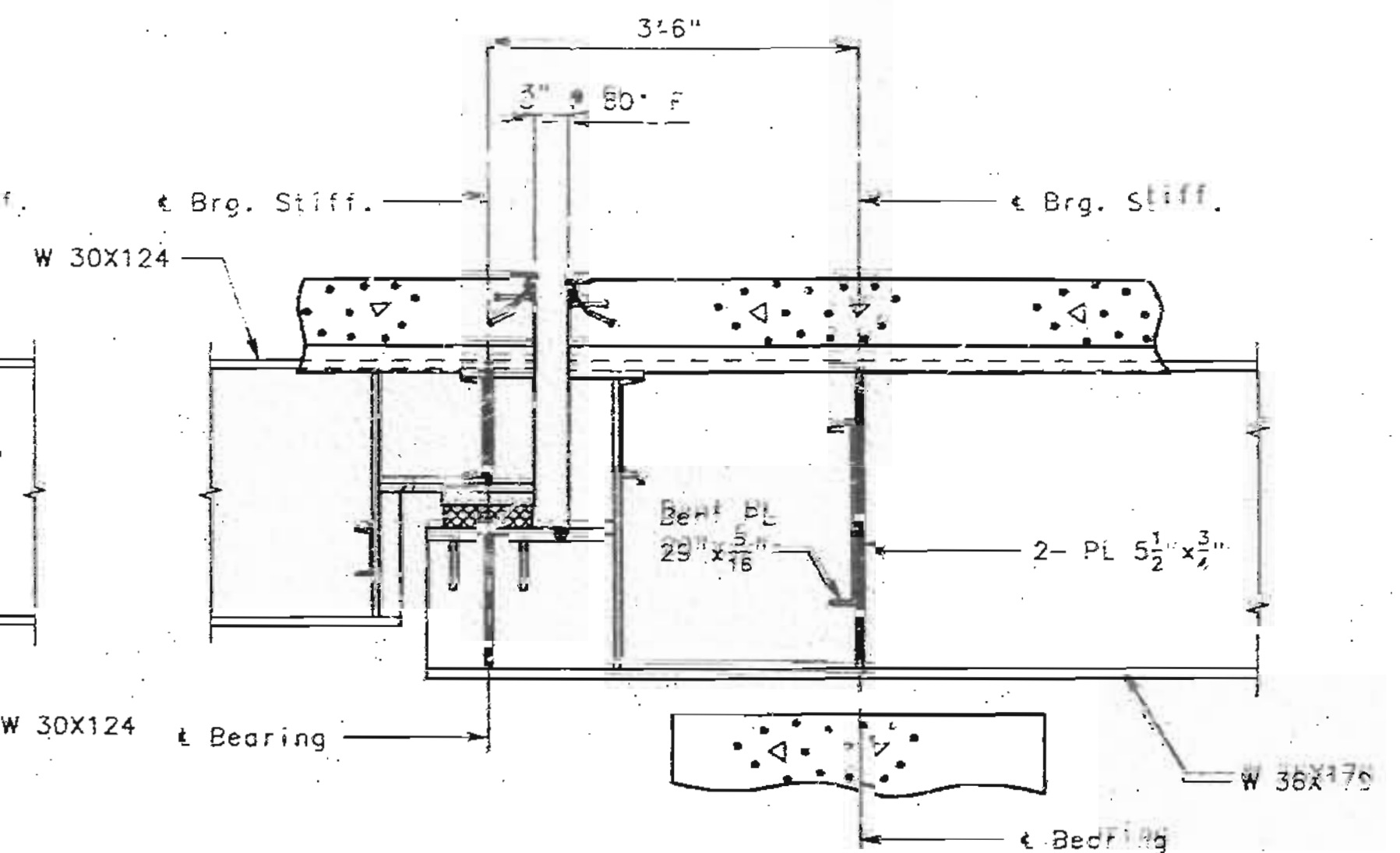
Exp.



③ & ⑧

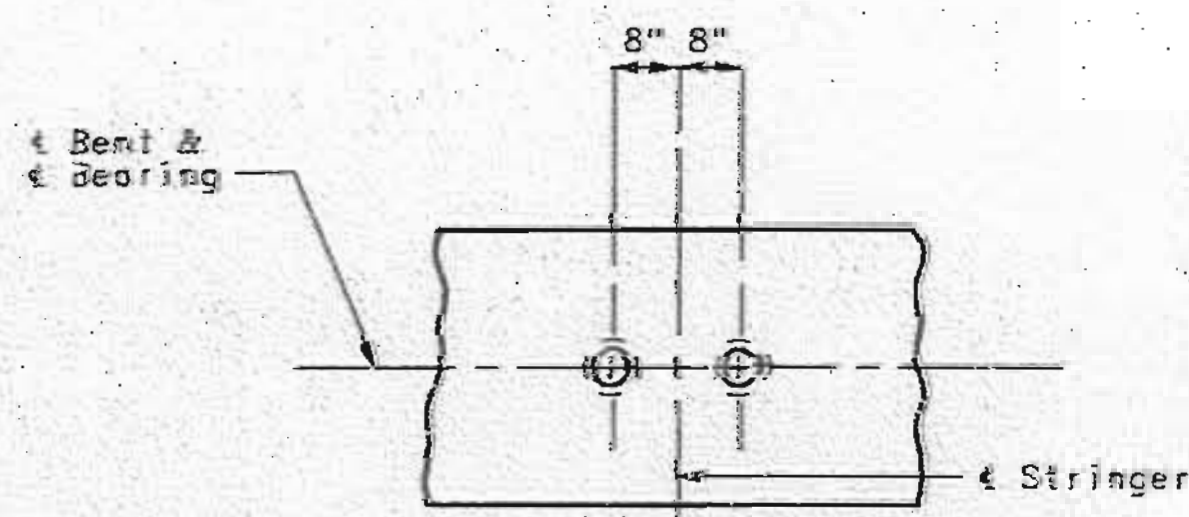
Fixed

NOTE: For Details of Hinged Connection at Piers No. 4 & 7 see sheet no. 15.  
For Details of Expansion joint at Piers No. 4 & 7 see sheets no. 21 & 22.

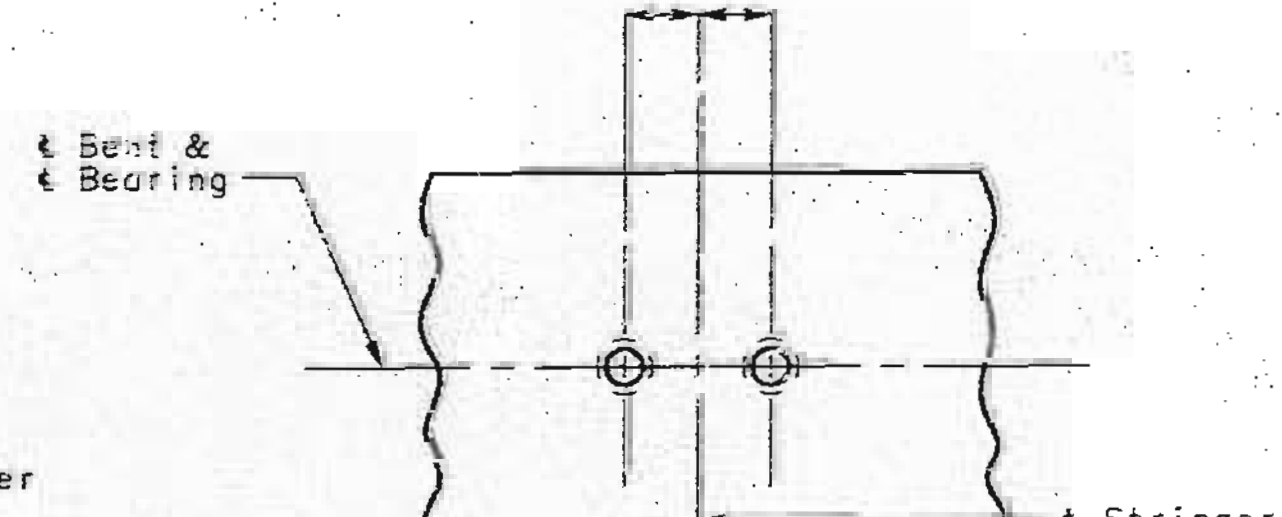


④ & ⑦

Exp.

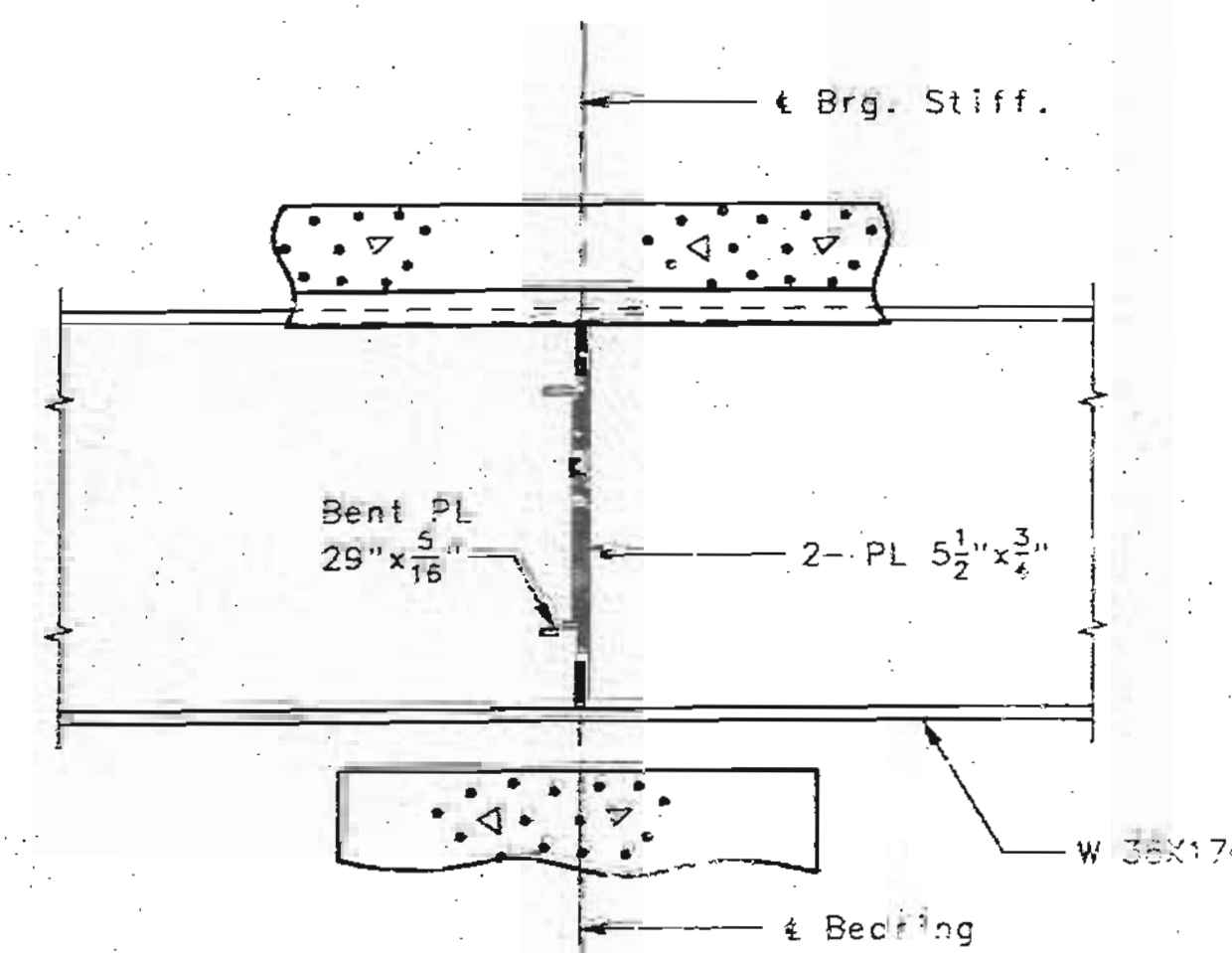


BENTS NO. 2, 3, 8 & 9



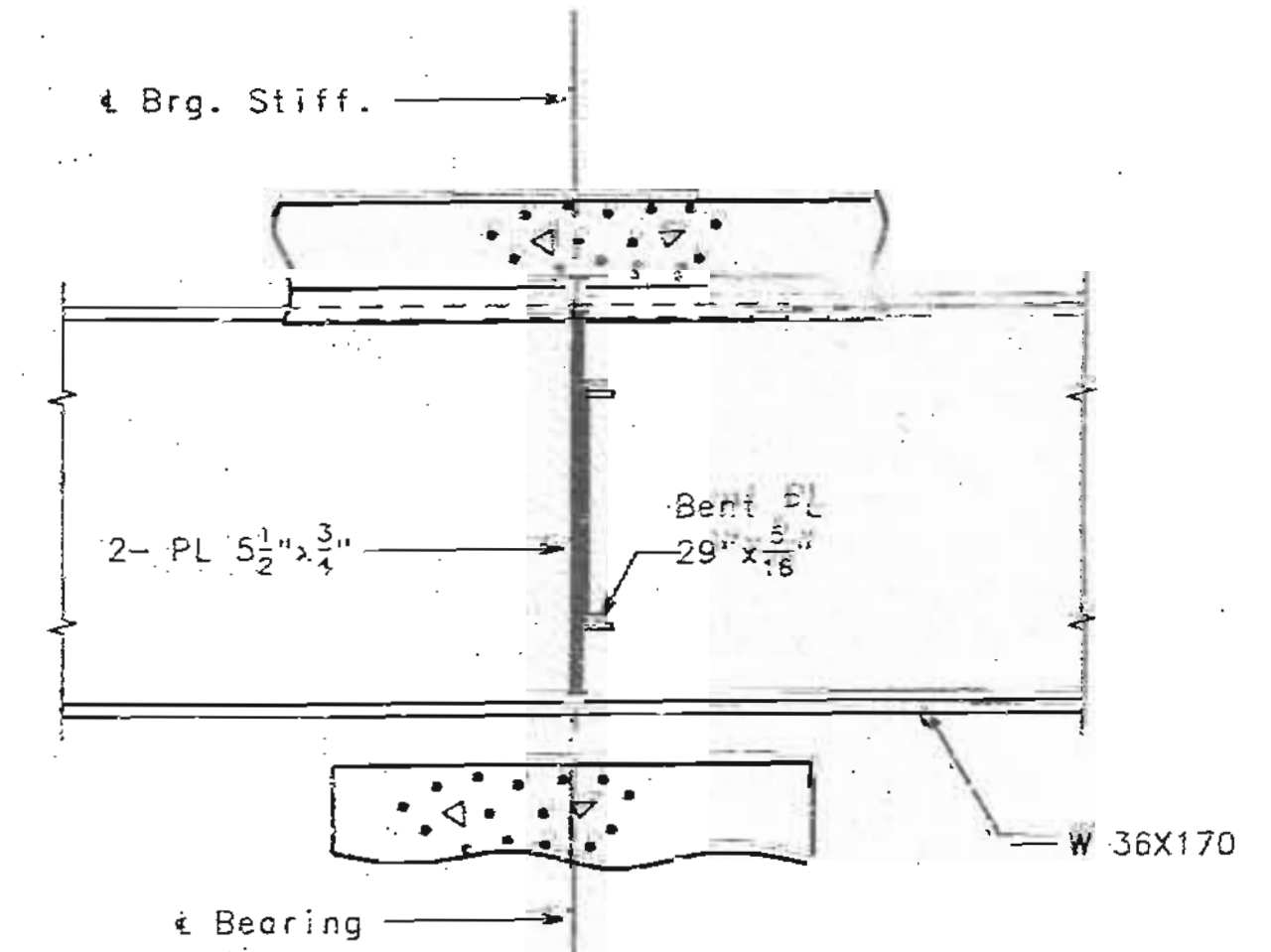
PIERS NO. 4, 5, 6 & 7

PLAN OF ANCHOR BOLT WELLS



⑤

Fixed

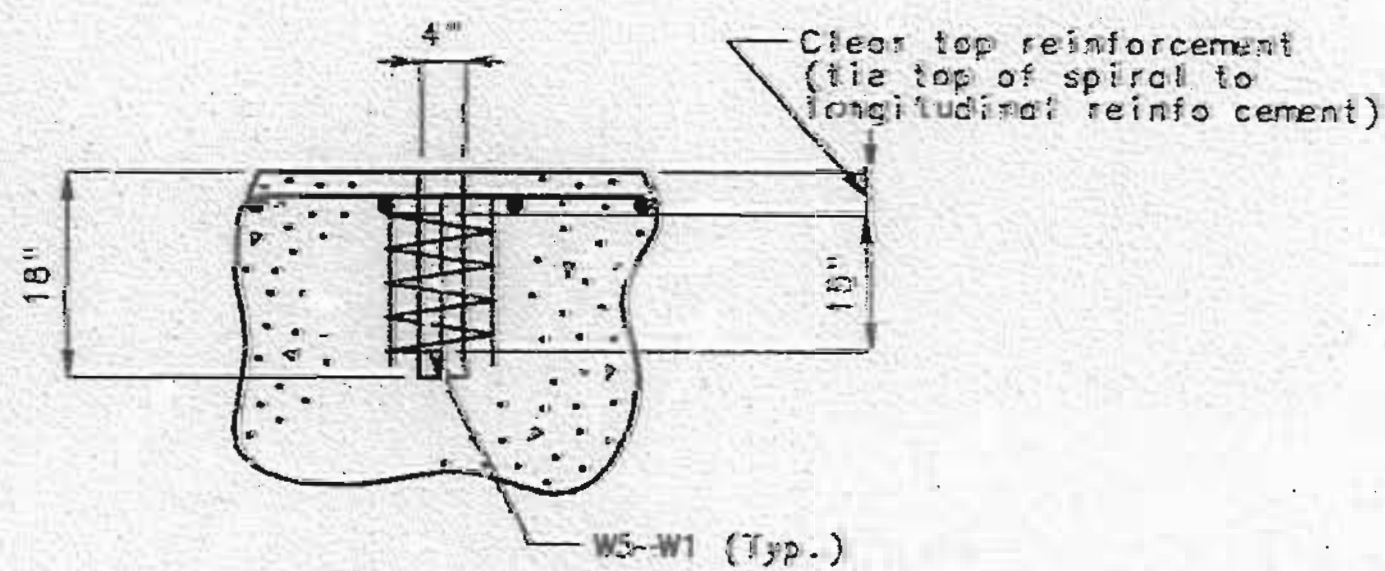


⑥

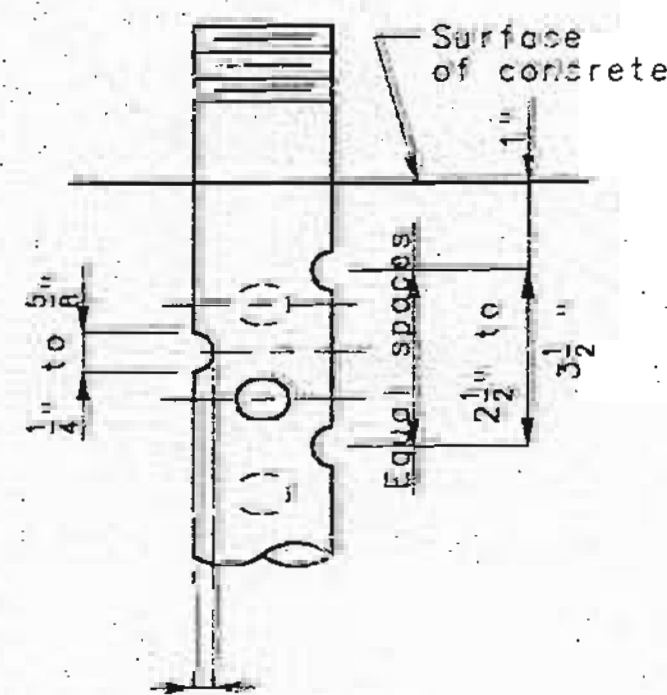
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PART LONGITUDINAL SECTION

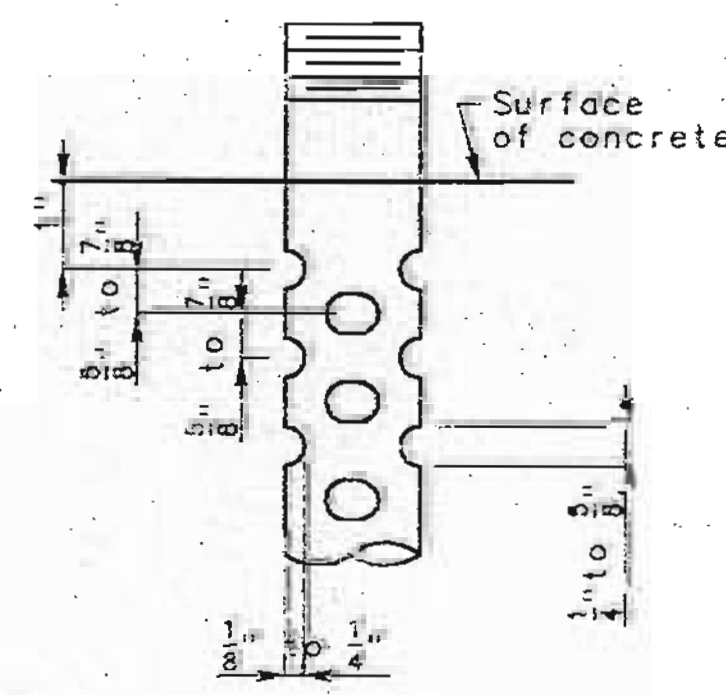
NOTE: Bents No. 1, 2 & 3 and Pier No. 4 as shown, Pier No. 7 and Bents No. 8, 9 & 10 opposite.



DETAIL OF ANCHOR BOLT WELLS



DETAIL FOR 3/4" Ø THRU 2 1/2" Ø ANCHOR BOLTS



OPTIONAL DETAIL FOR 1 3/8" Ø THRU 2 1/2" Ø ANCHOR BOLTS

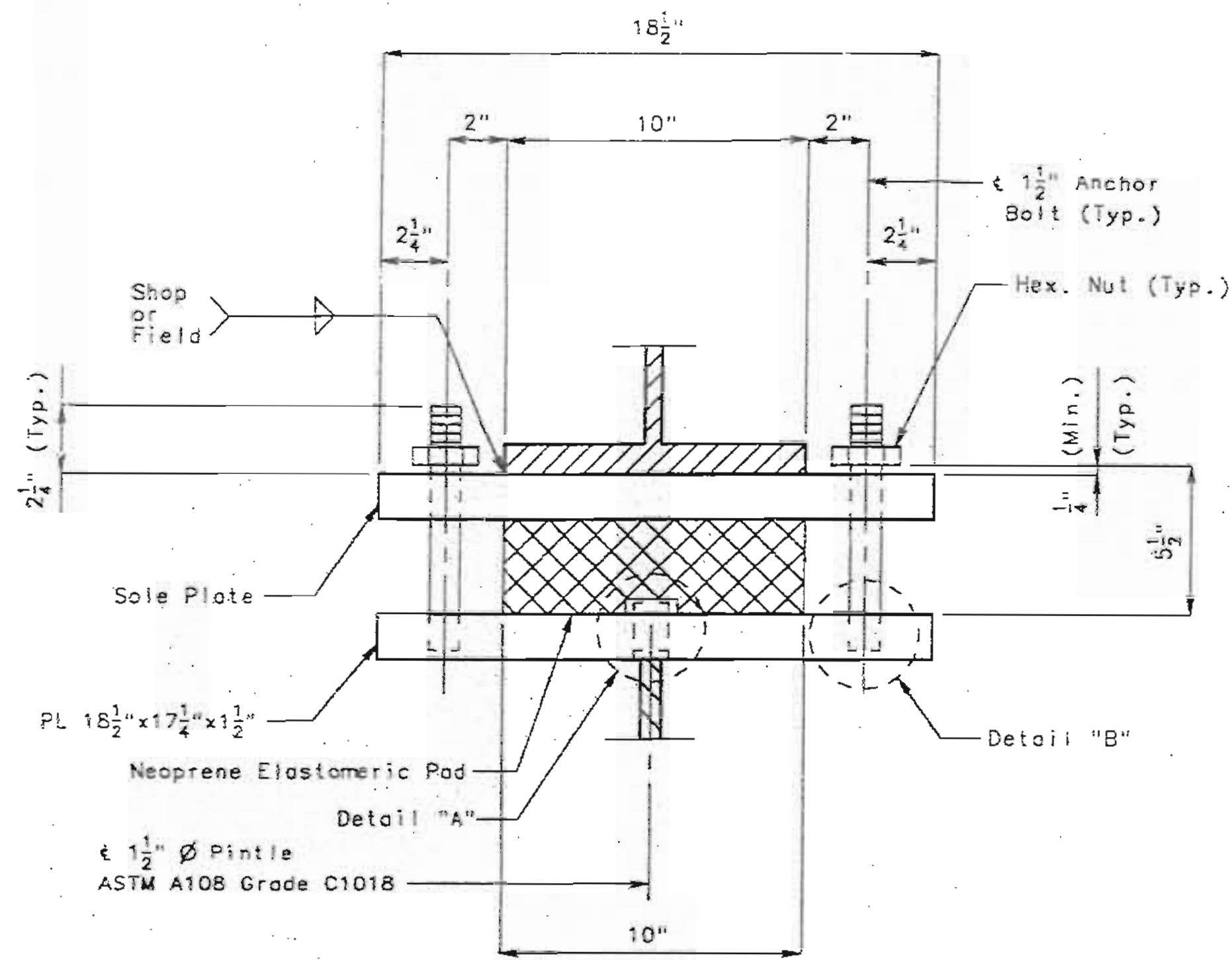
SWEDGE ANCHOR BOLT DETAILS

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

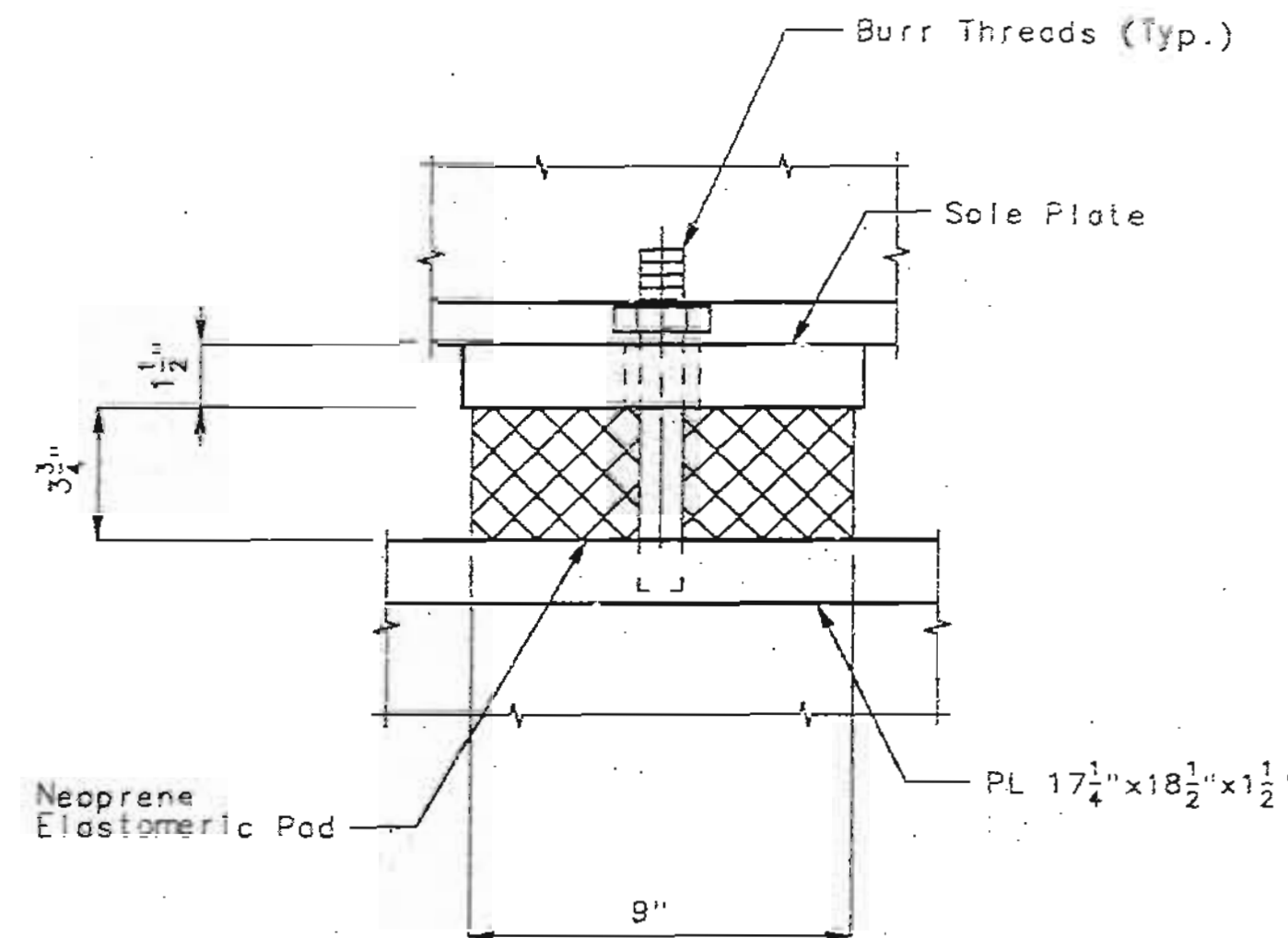
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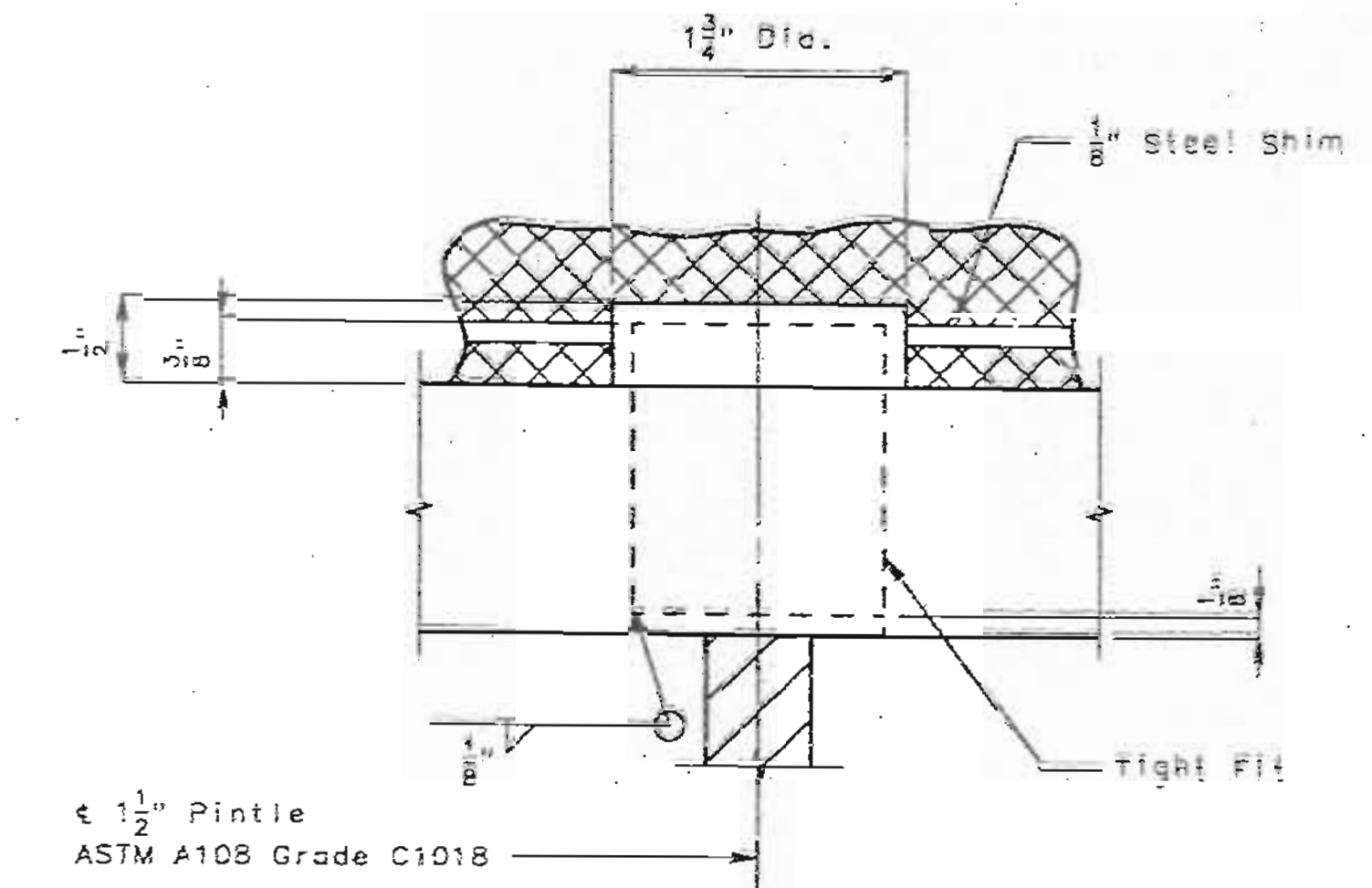
STATE	PROJ. NO.	SHEET NO.
MO.		34



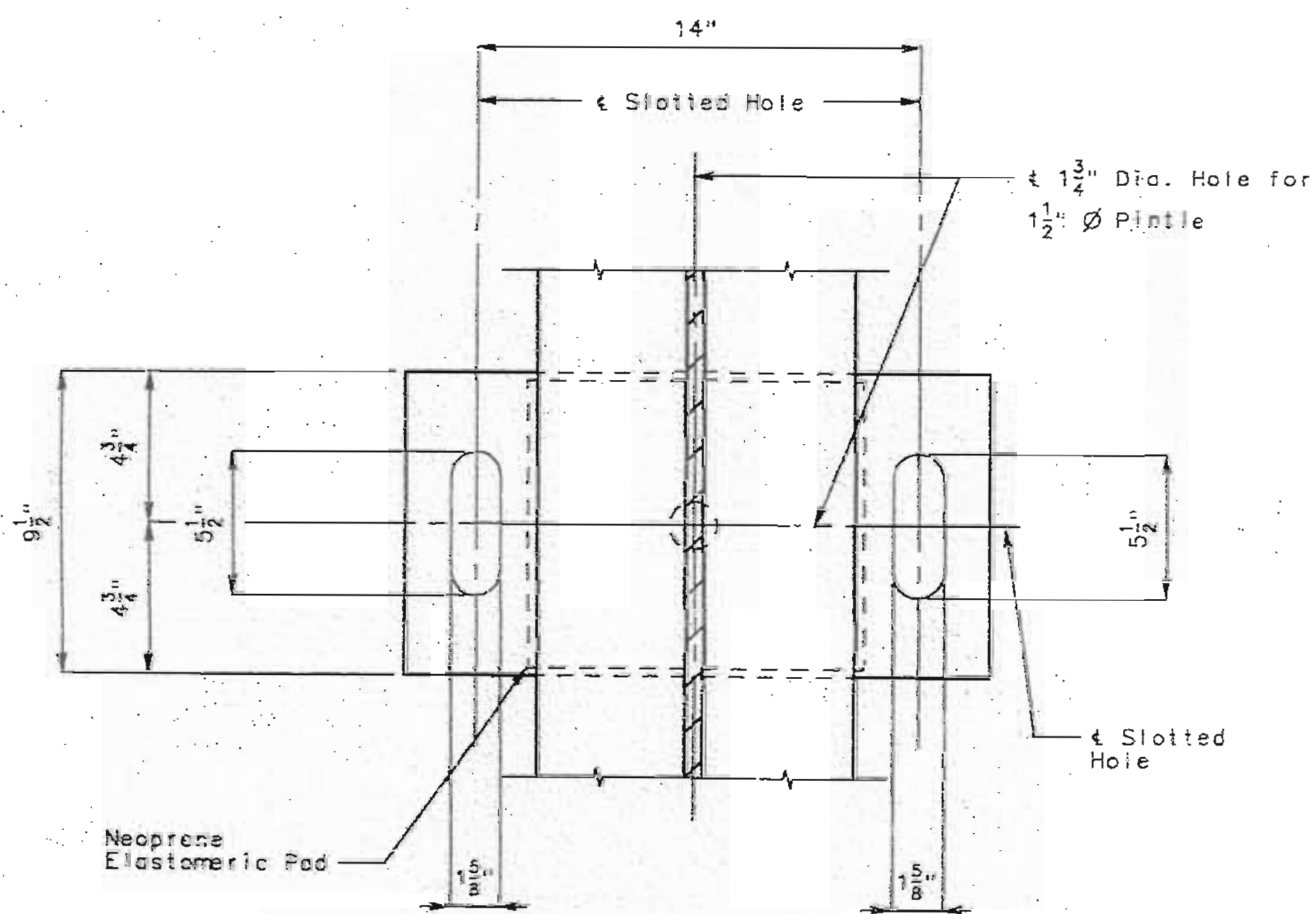
END VIEW



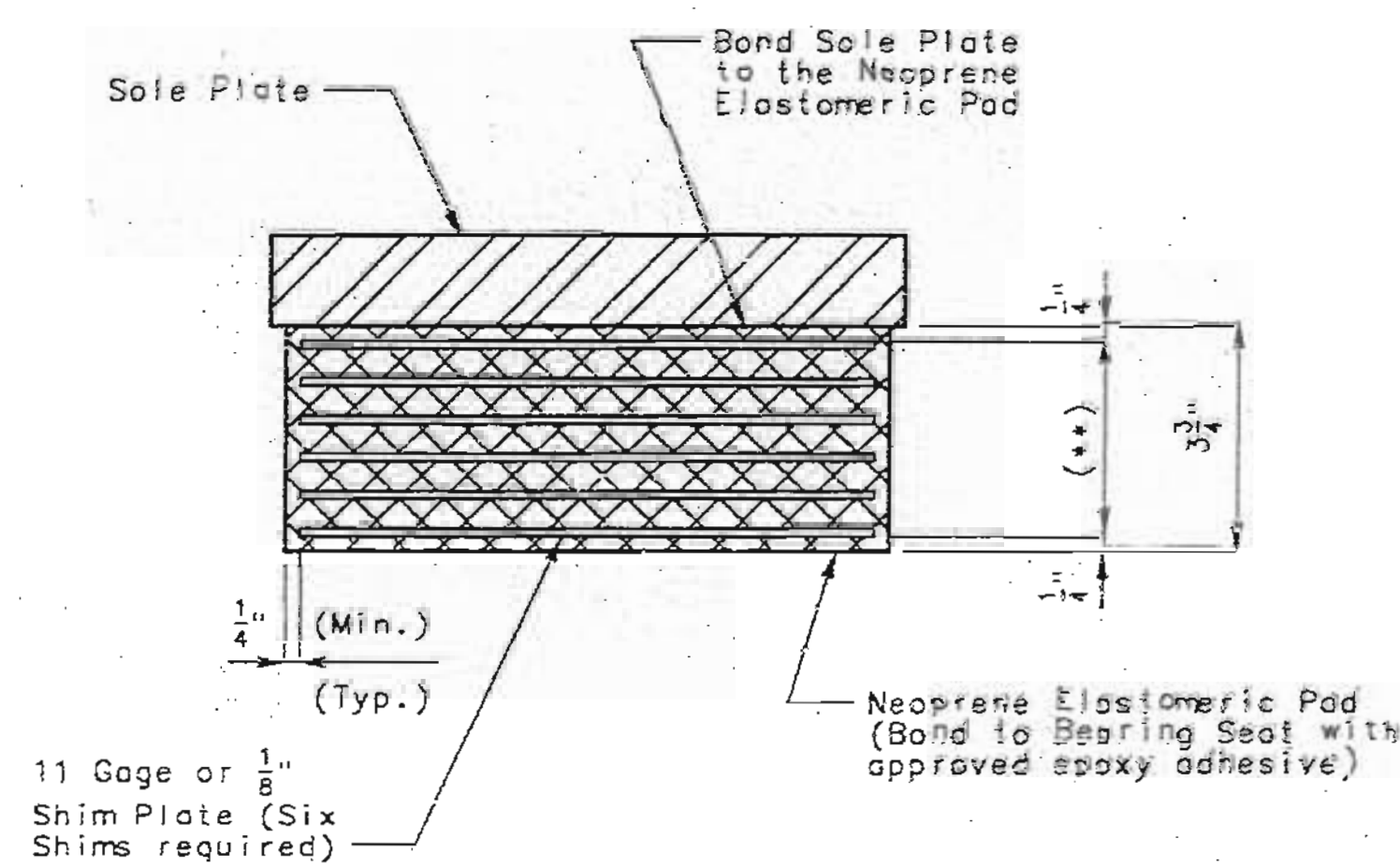
SIDE VIEW



DETAIL "A"

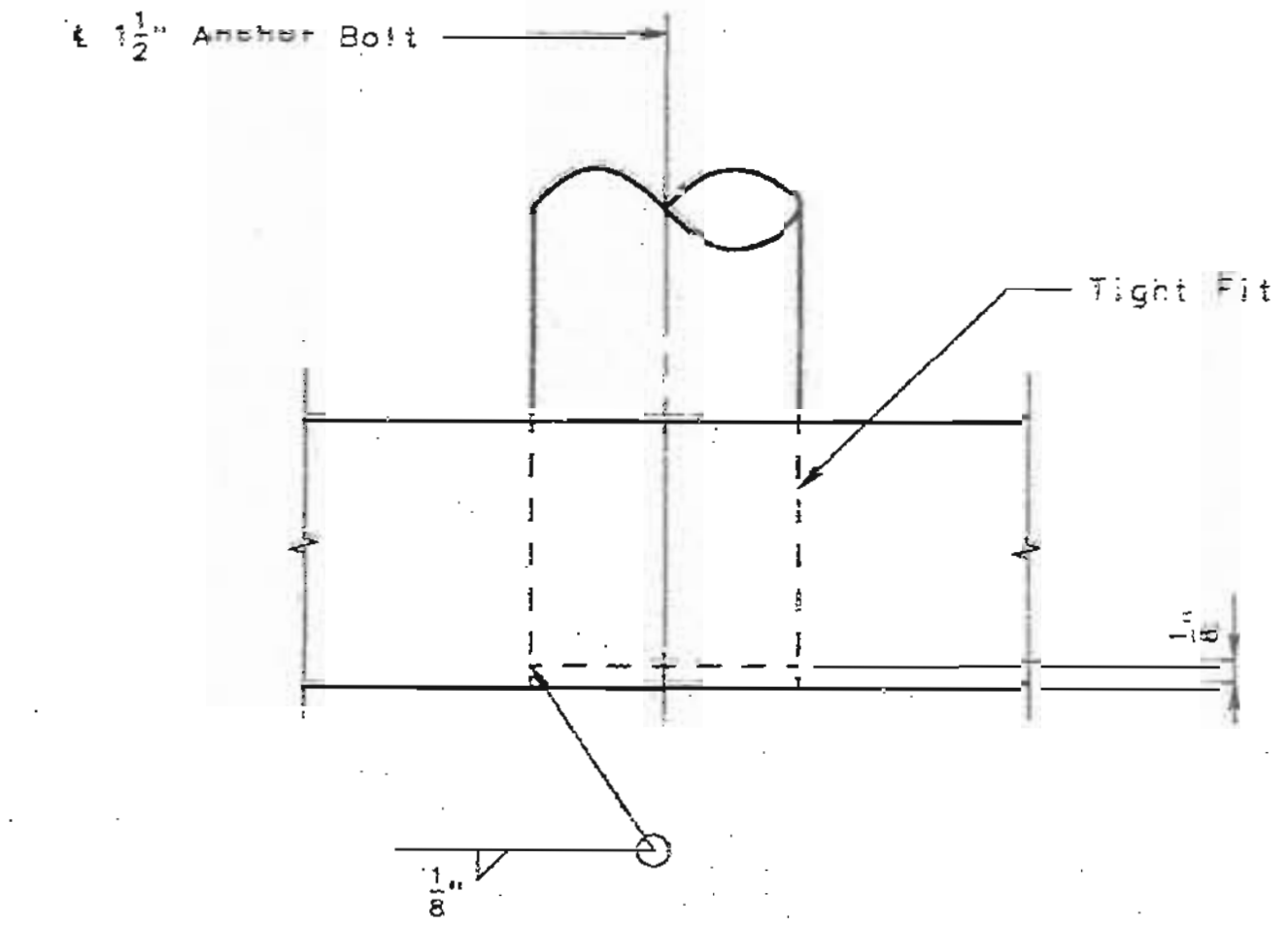


Part Plan View



NEOPRENE ELASTOMERIC PAD

(\*\*) Layers of 1/2" Elastomer alternating with 11 gage or 1/8" Steel Shim Plates.



DETAIL "B"

GENERAL NOTES:

Anchor bolts shall be 1-1/2" dia A588 steel swaged bolts and shall extend to within 1/8" of bottom of PL 17 1/4 x 18 1/2 x 1 1/2 (Tight Fit). A194-2, 2H or A563-C, C3, D, DH, DH3 Heavy Hexagon Nuts. Actual Manufacturer's Certified Mill Test Reports (Chemical and Mechanical) shall be provided.

All structural steel for the sole plate, anchor bolts and the heavy hexagon nuts shall be painted with 2 coats (5 mils min.) of inorganic zinc. Weld areas to be touched up after assembly.

The neoprene elastomeric pads shall be 60 diameter.

The sole plate shall be furnished with the bearing and field or shop welded to the girders.

Structural steel for the sole plate shall be A-36.

Payment for the sole plate, anchor bolts and heavy hexagon nuts shall be included in the cost of the bearing assembly. See Special Provisions.

The accepted quantity of the elastomeric bearing assemblies, complete-in-place, will be paid for at the contract unit price for Laminated Neoprene Bearing Pads (Steel Structures), each.

NOTE: The location of the Anchor Bolts in relation to the Slotted Holes in the Sole Plate shall correspond with the temperature at the time of erection. At 60° F. the Slotted Holes should center on the Anchor Bolts.

DETAILS OF BEARING AT HINGED BEAM CONNECTION NEAR PIER NO. 4 & 7

10/23/93  
 DETAILED SEPT. 1993  
 CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

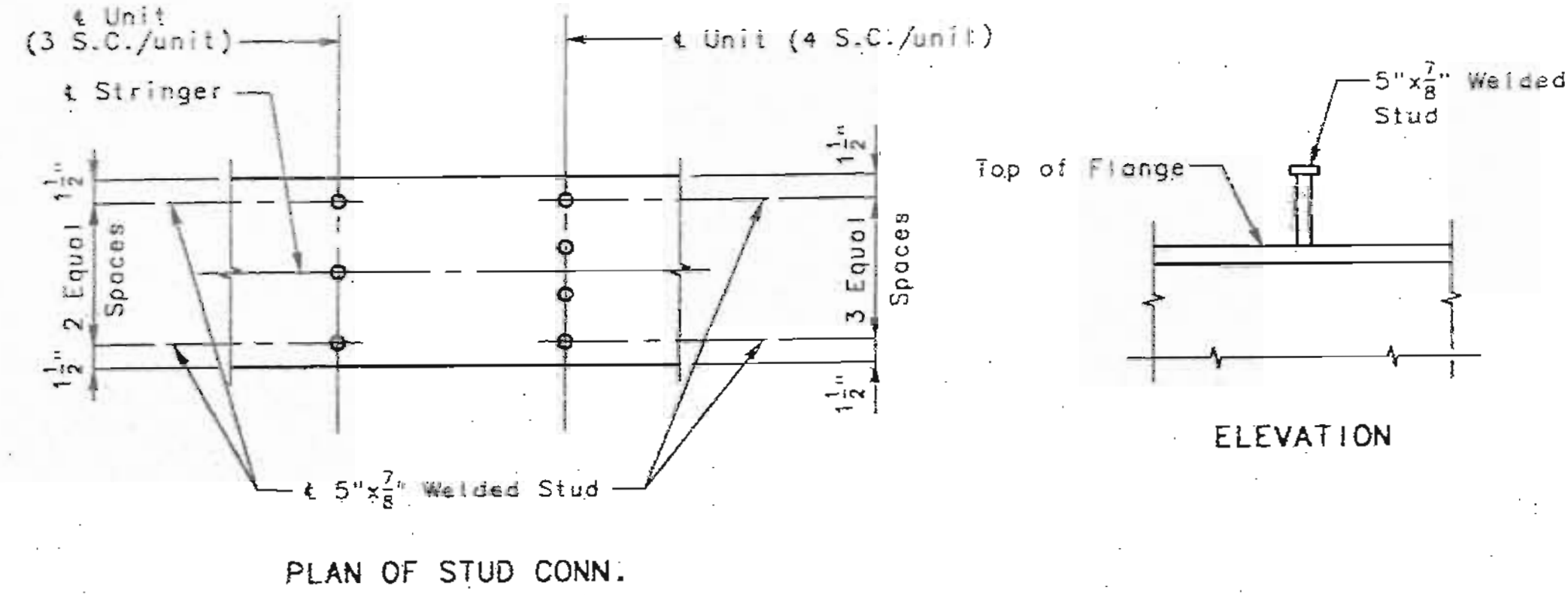
SHEET NO. 16 OF 34

JACKSON

COUNTY

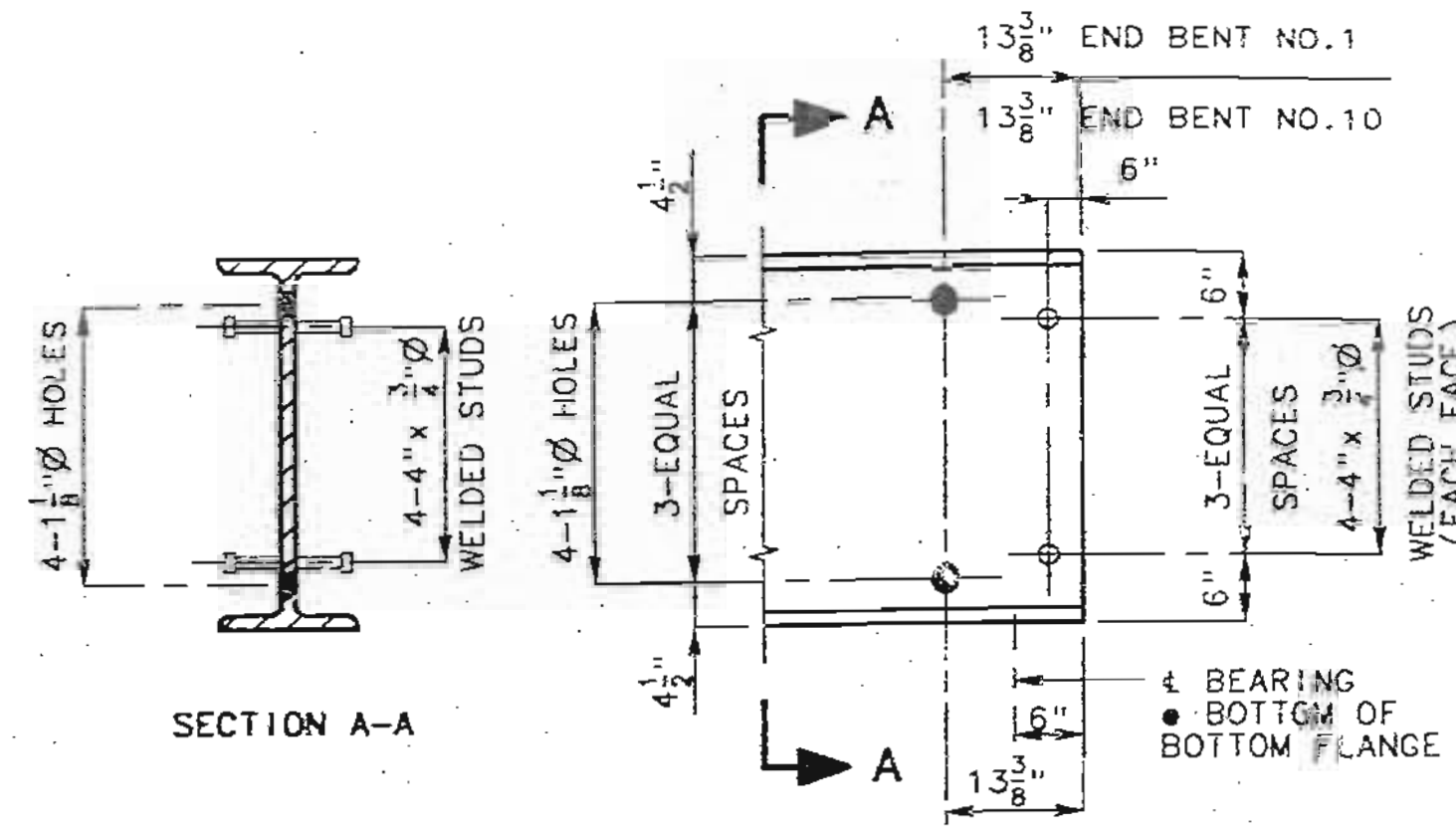
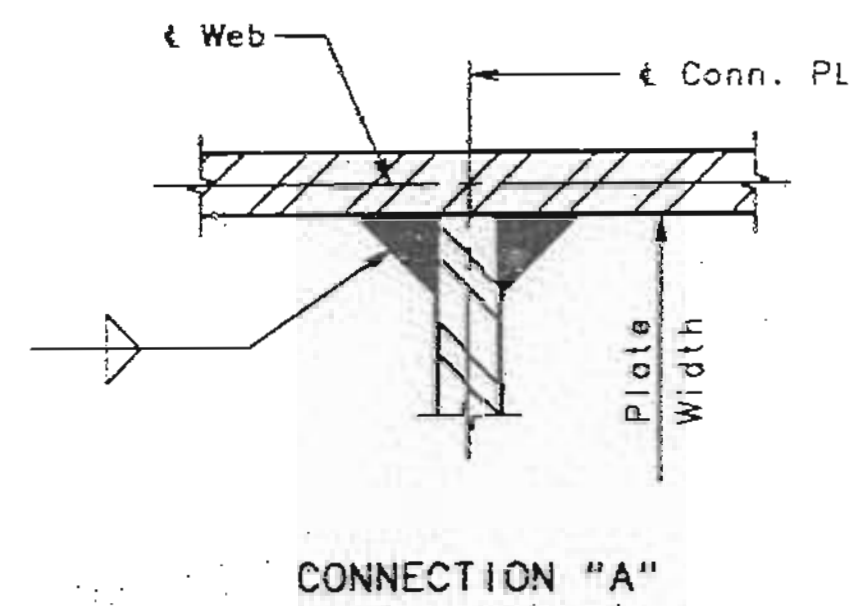
A-167R

STATE	PRGJ. NO.	SHEET NO.
MO.		35

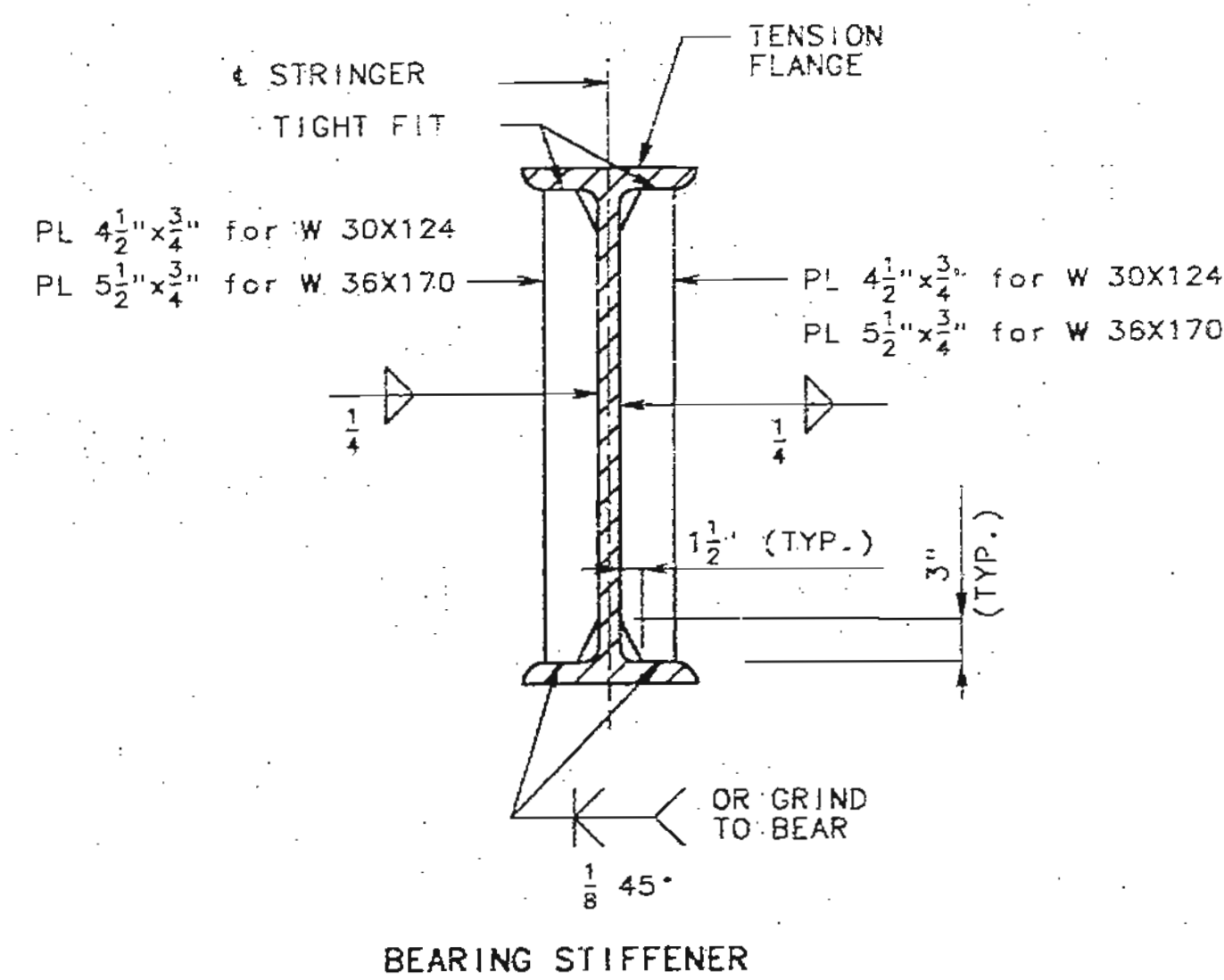
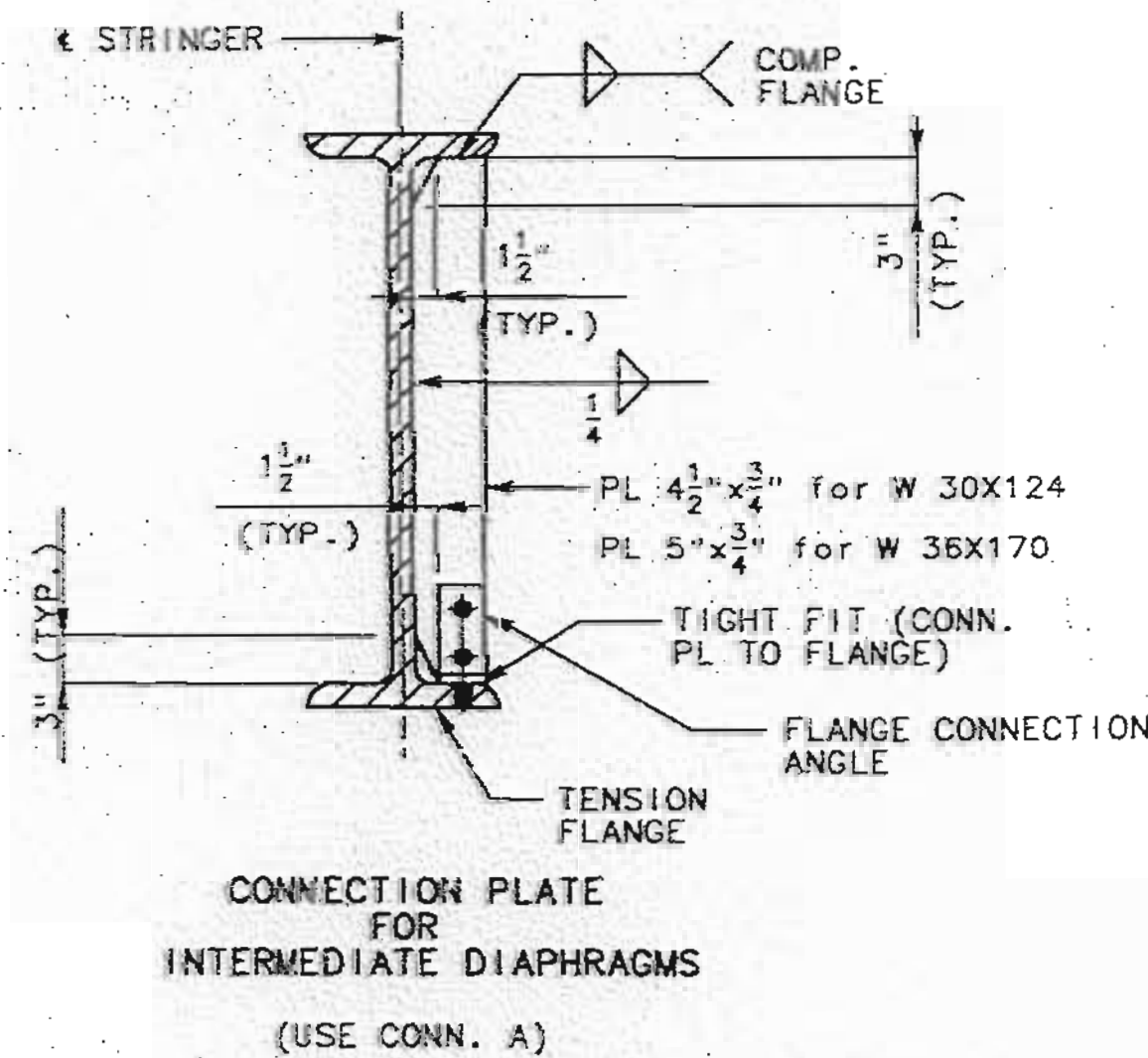
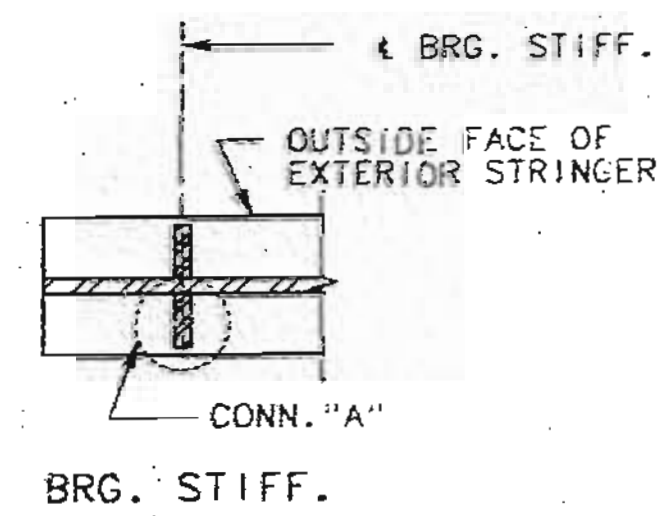


NOTE: Weight of 1056 lbs. of Shear Connectors is included in Weight of Fabricated Structural Carbon Steel. For location of Shear Connectors see sheet no. 13.

DETAIL OF SHEAR CONNECTORS

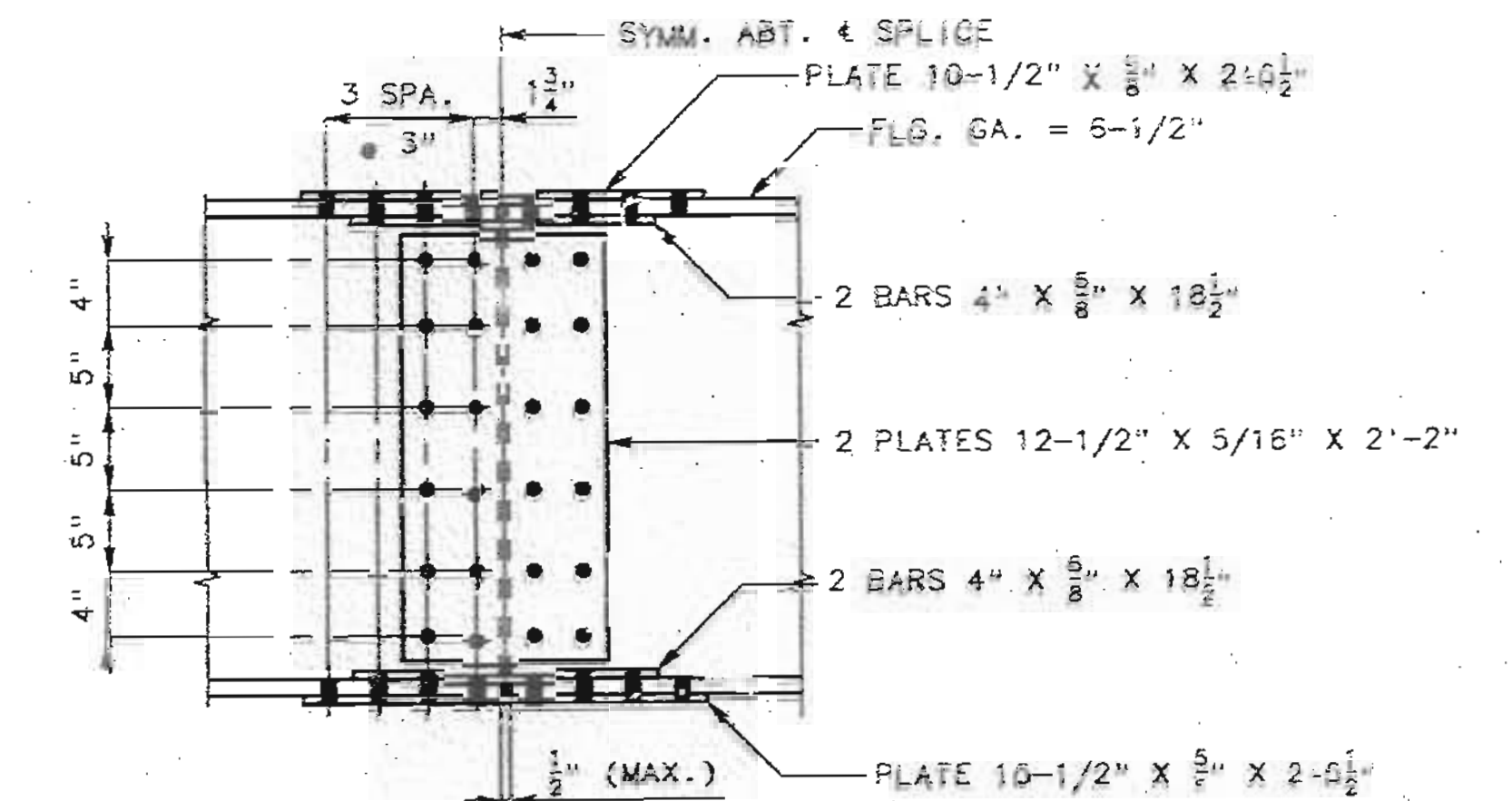


WELDED STUD AND WEB HOLE DETAILS AT END BENTS

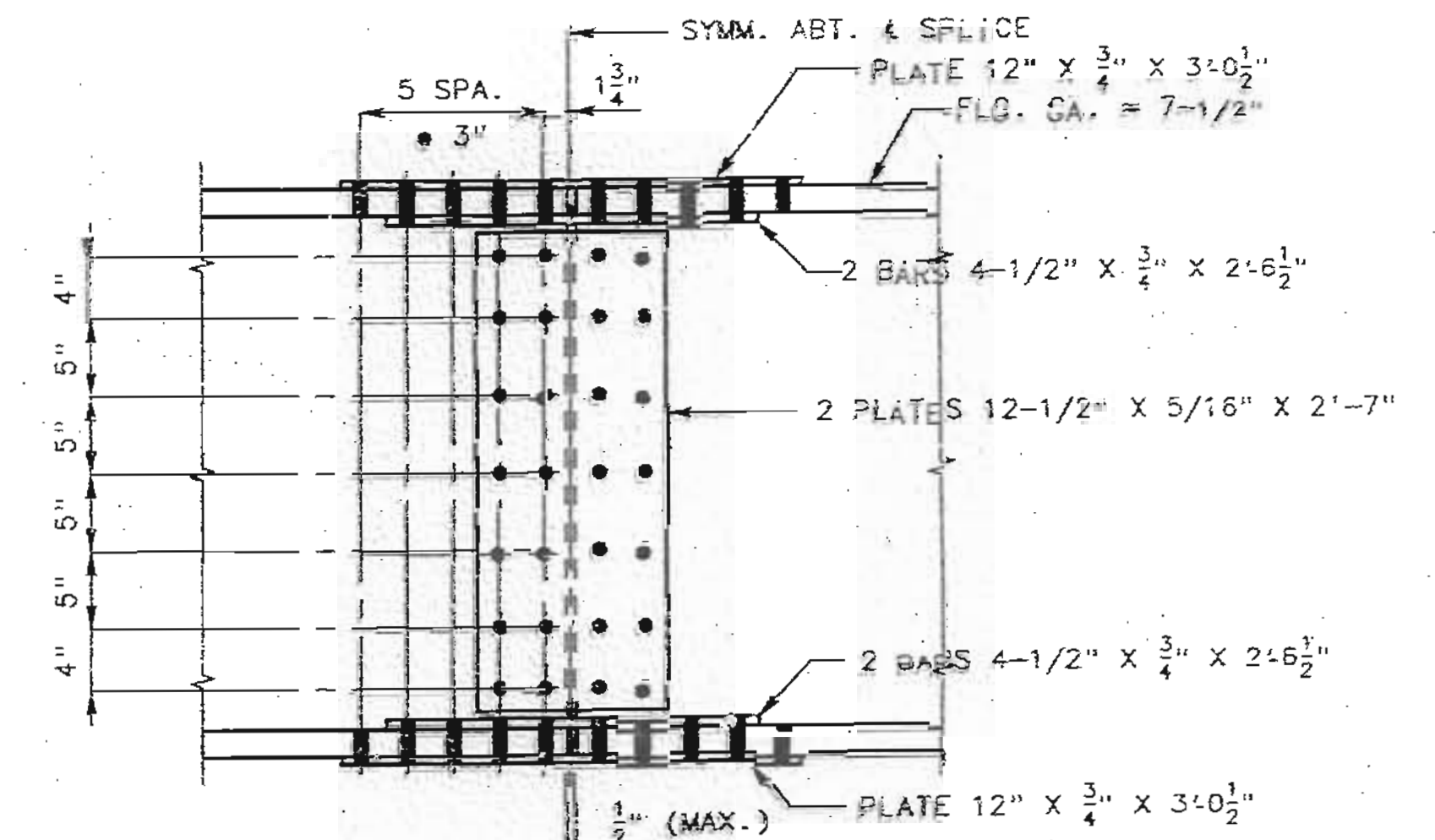


NOTE: For Details of Flange Connection Angle see sheet no. 19. For Section thru WF at intermediate Diaphragm see sheets no. 18 & 19.

WELDING DETAILS



DETAIL OF BOLTED FIELD SPLICE W30x124 TO W30x124



DETAIL OF BOLTED FIELD SPLICE W36x170 TO W36x170

NOTE: Use 15/16" diameter Holes and 7/8" diameter High Strength Bolts for all Bolted Field Splices.

103 233  
SPL. PL., WF 3.41, A36, 3.10  
SPLICE PL. (30") REVISED  
MARCH 1992

DETAILED SEPT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

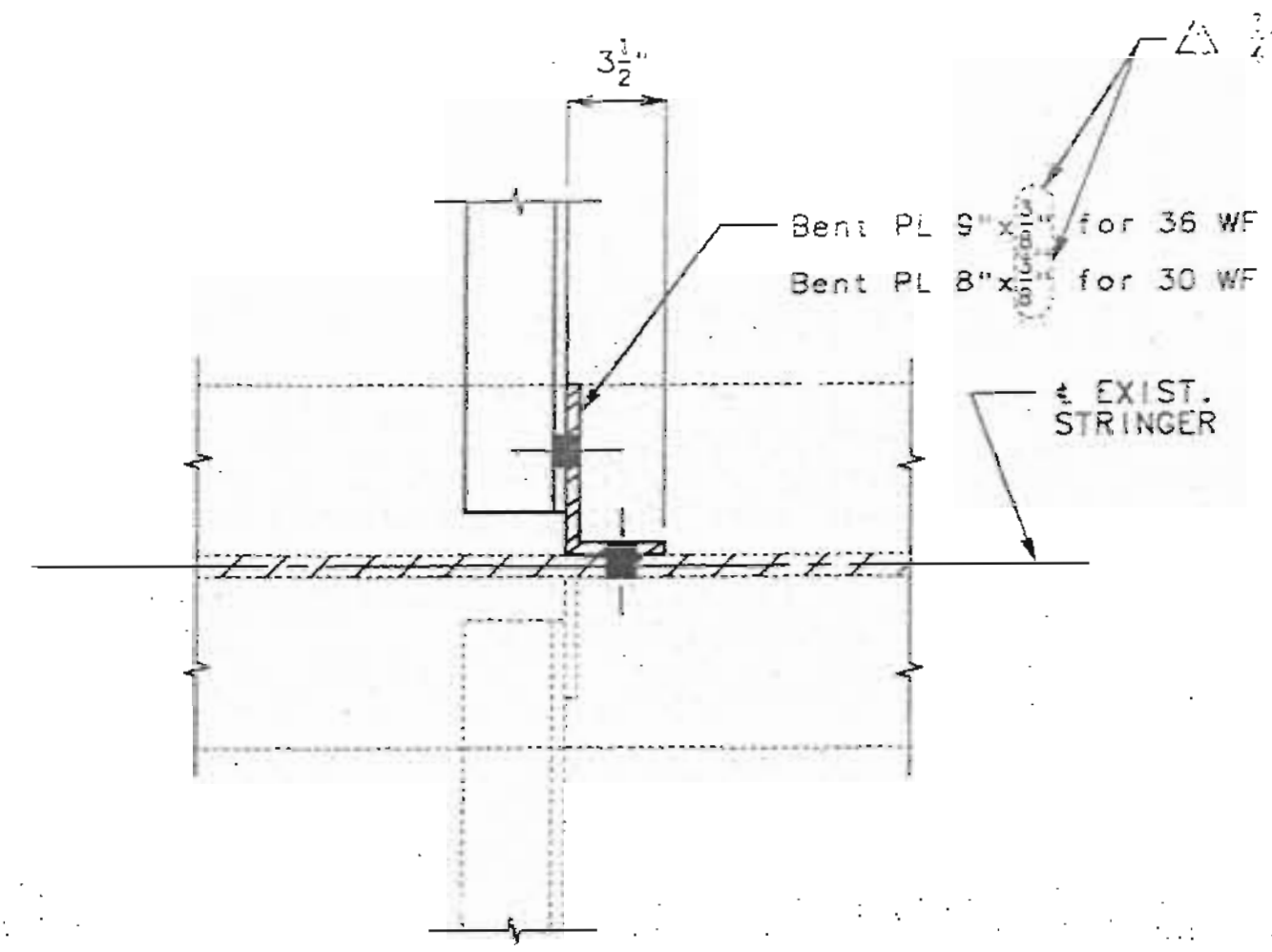
SHEET NO. 17 OF 34

JACKSON

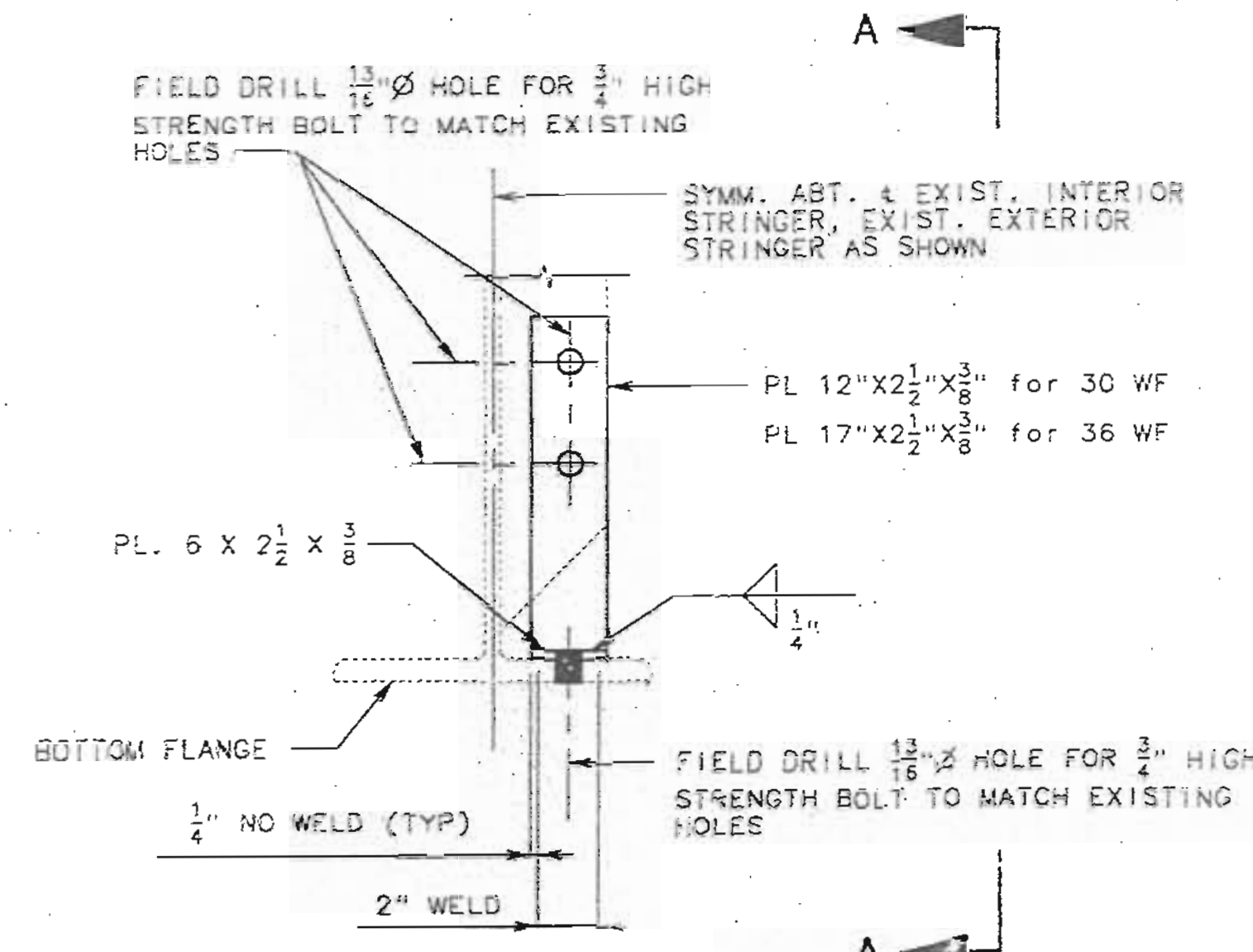
COUNTY

A-167R

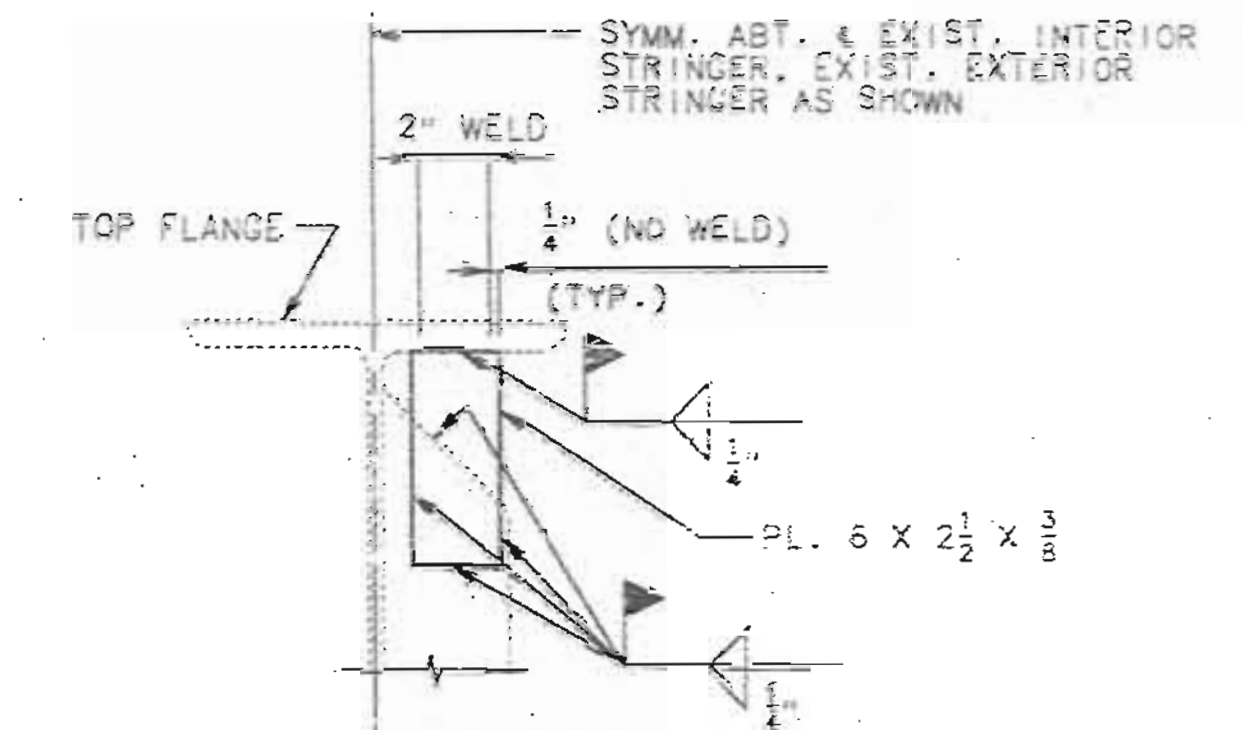
STATE	PROJ. NO.	SHEET NO.
MO.		



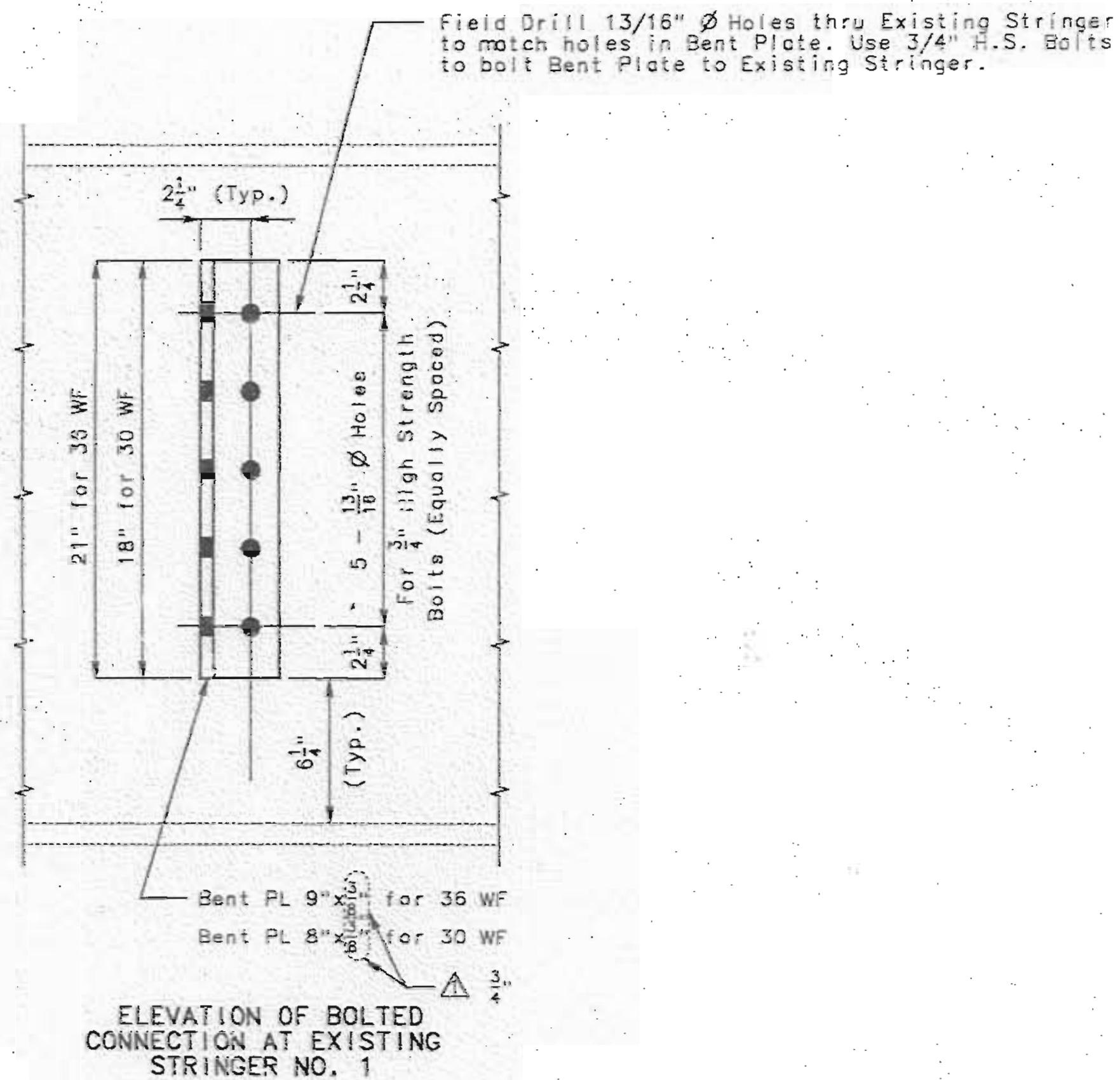
PLAN OF BOLTED CONNECTION AT EXISTING STRINGER NO. 1



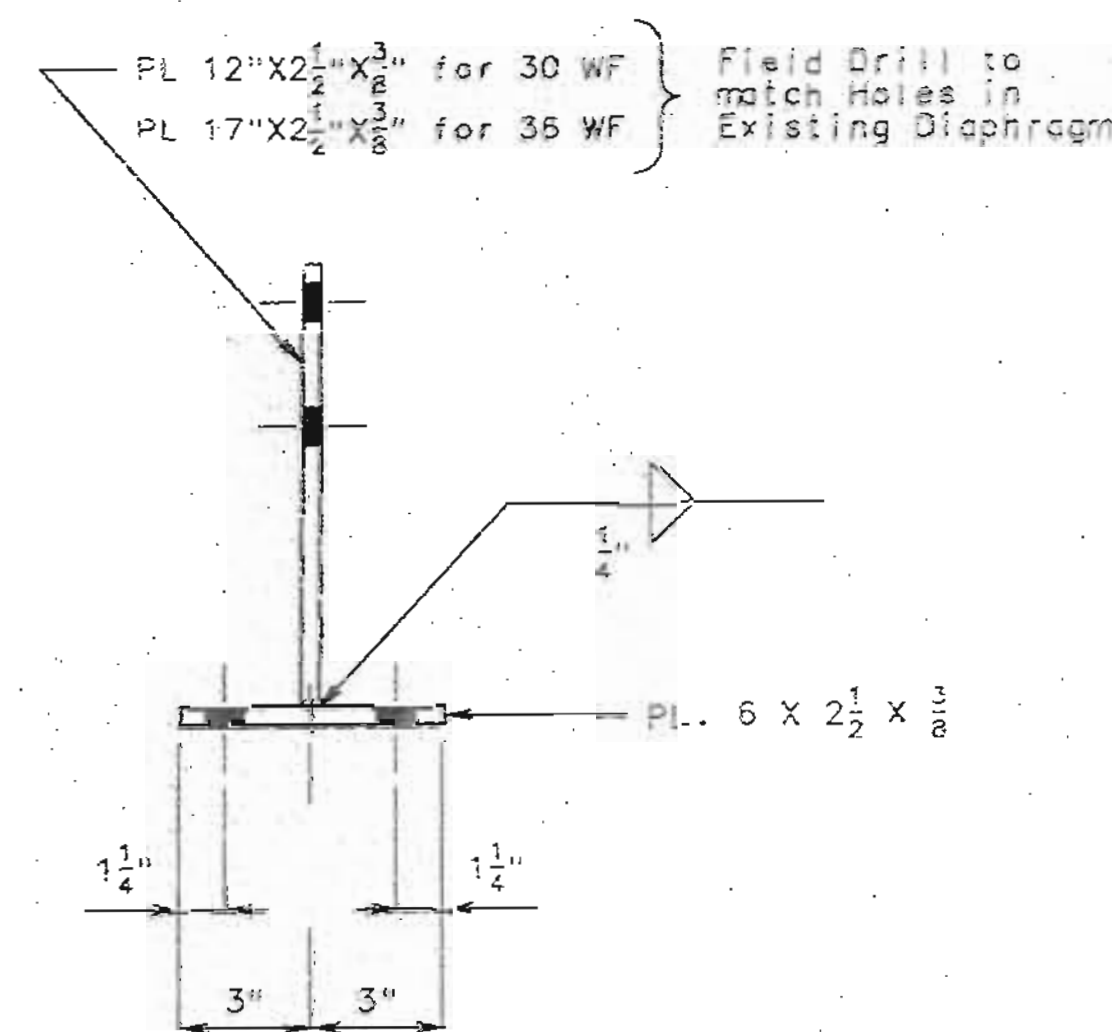
PART SECTION THRU EXISTING WF SHOWING CONN. AT BOT. FLANGE  
DETAIL "A"



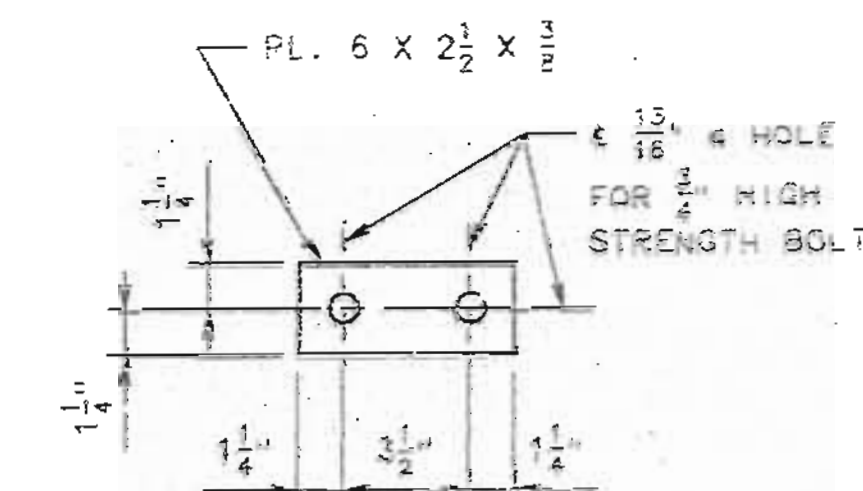
PART SECTION THRU EXISTING WF SHOWING CONN. AT TOP FLANGE  
DETAIL "B"



ELEVATION OF BOLTED CONNECTION AT EXISTING STRINGER NO. 1



PART SECTION A-A  
NOTE: Existing steel not shown for clarity.



PLAN OF 6 X 2 1/2 X 3/8 CONNECTION PLATE

NOTE: For location of existing stringers see sheet no. 13.

DETAILS OF CONNECTIONS AT EXISTING STRINGER

109834

DETAILED OCT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED: 5-19-94

SHEET NO. 18 OF 34

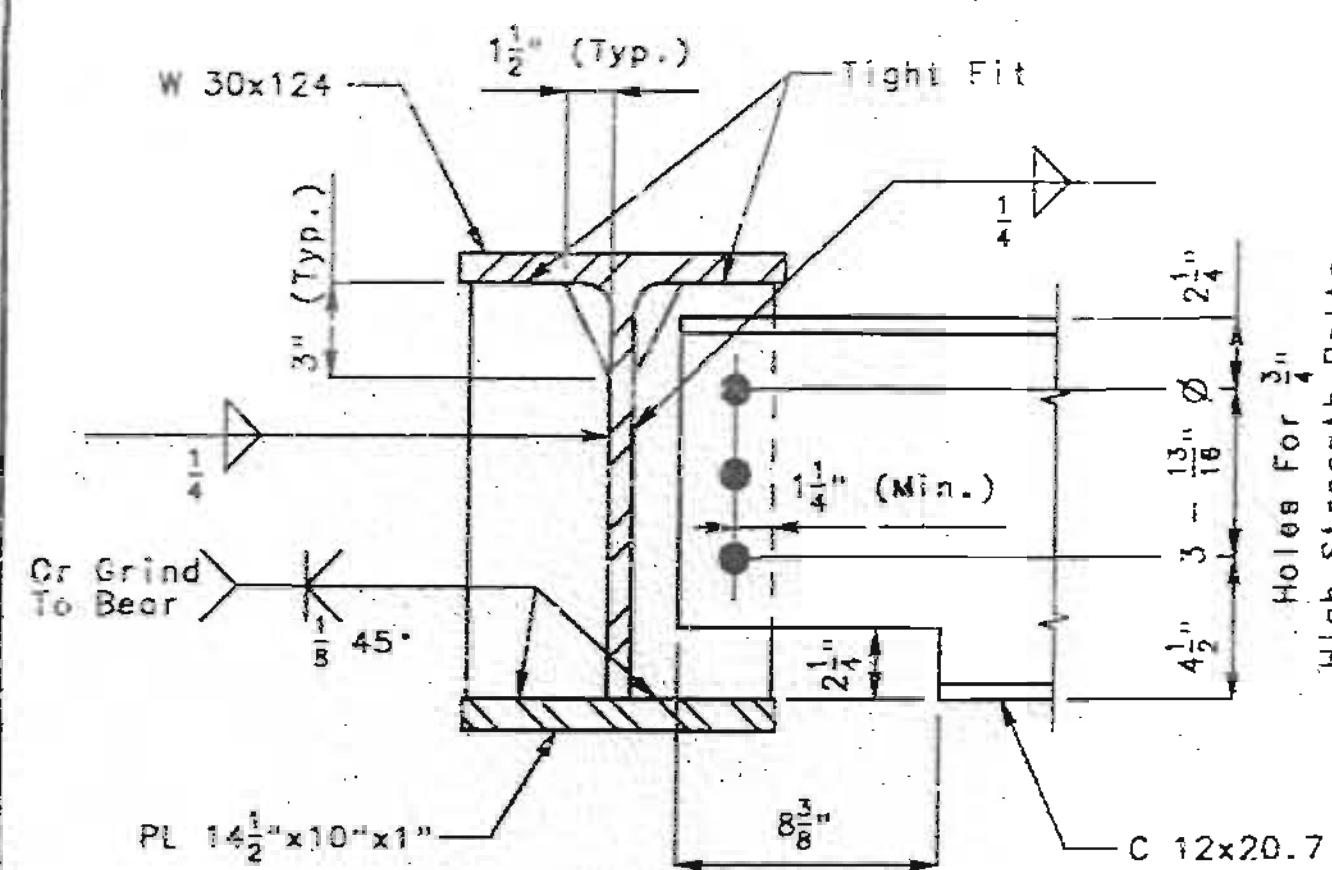
SEE FINAL PLANS

JACKSON

COUNTY

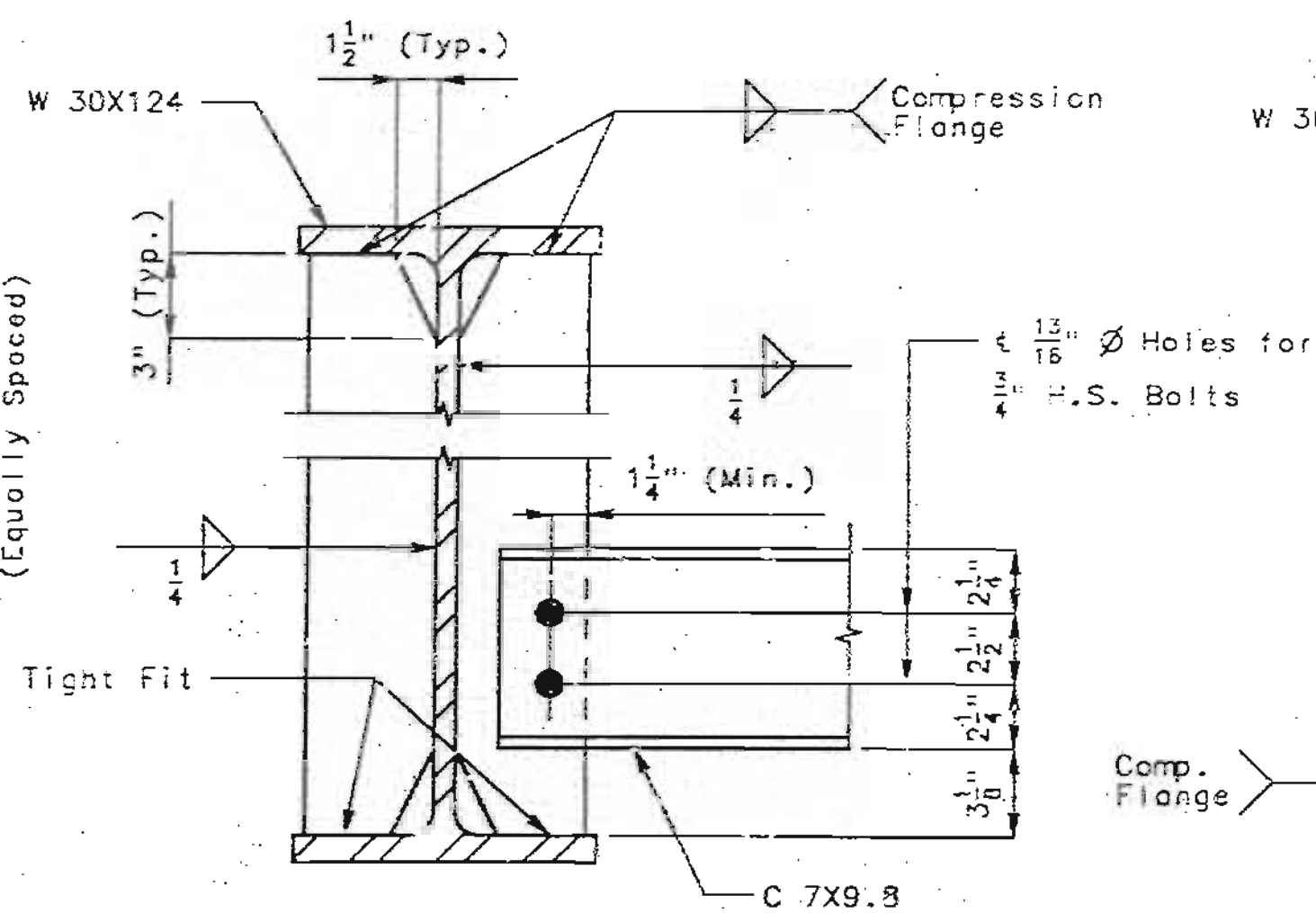
A-167R

STATE	PROJ. NO.	SHEET NO.
MO.		87

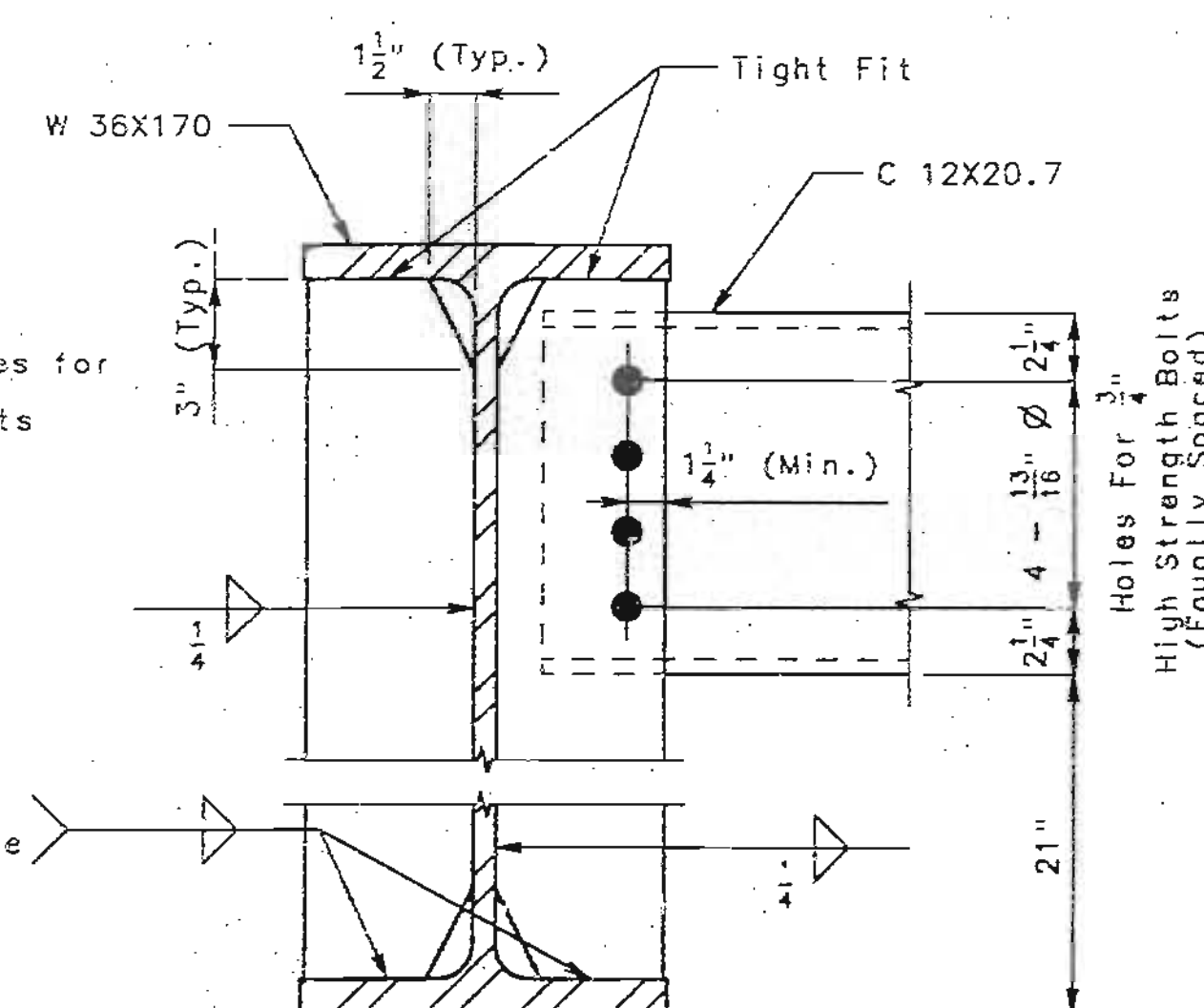


SECTION THRU W 30X124 AT HINGED CONNECTION

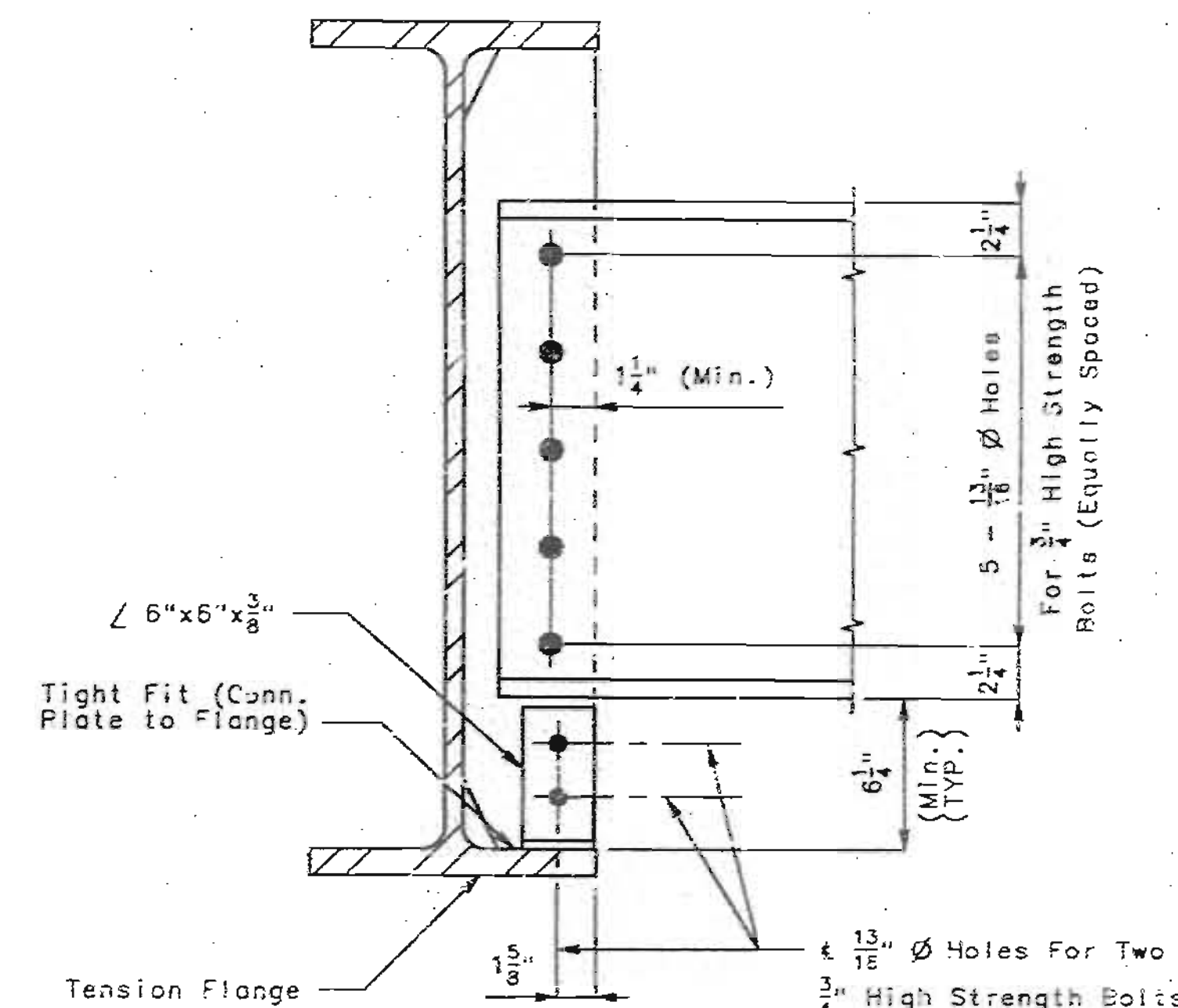
NOTE: For location of C 12X20.7 AND C 7X9.8 see sheet no. 15.



SECTION THRU W 30X124 NEAR HINGED CONNECTION

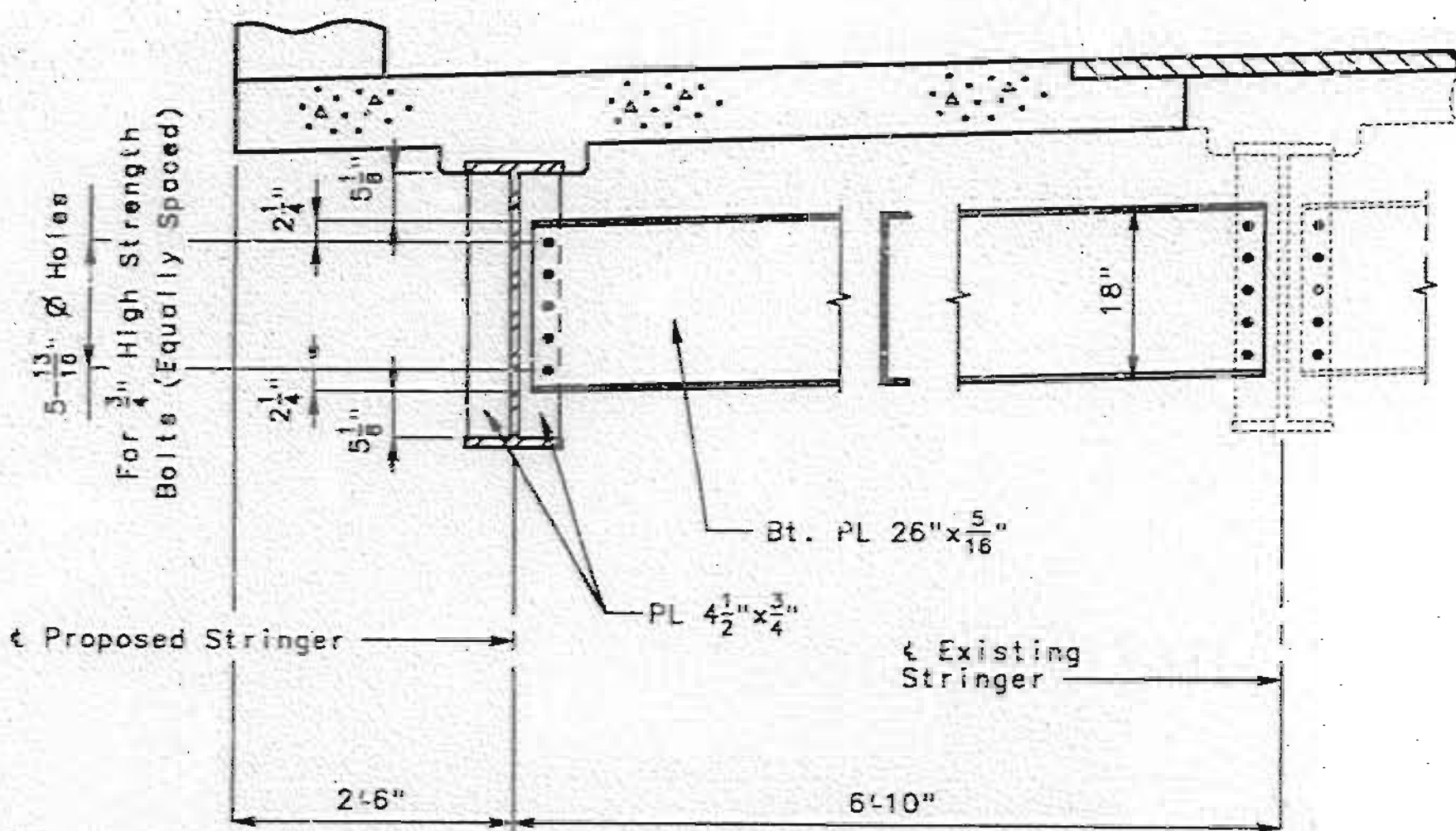


SECTION THRU W 36X170 NEAR HINGED CONNECTION

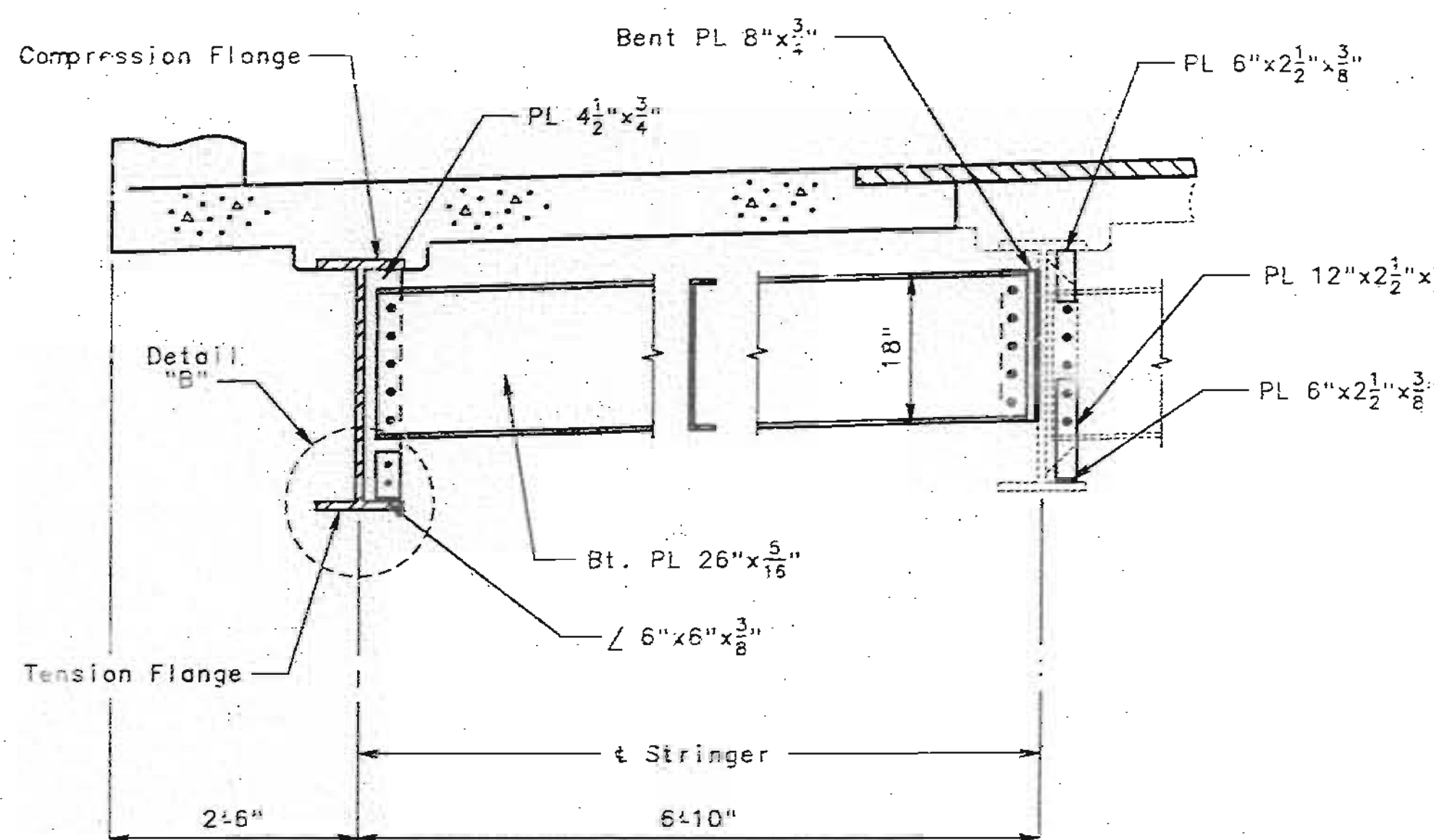


SECTION THRU WF AT NEW INTERMEDIATE DIAPHRAGM

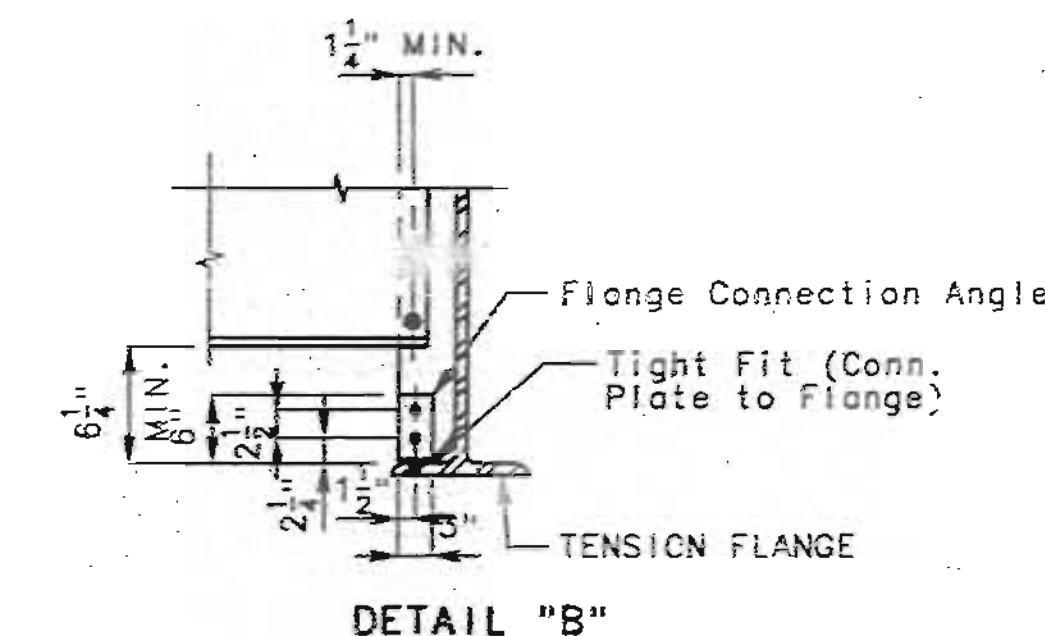
DETAILS OF C 12X20.7 & C 7X9.8 CONNECTIONS NEAR PIERS NO. 4 & 7



TYPICAL PART SECTION SHOWING CROSS FRAMES



TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS BOTTOM FLANGE IN TENSION



DETAIL "B"

NOTE: For Details of Flange Connection Angles see sheet no. 20.

NOTE: For location of diaphragms see sheet no. 13. For Welding Details and Details of Connections at Existing Stringer see sheets no. 17 & 18.

NOTE: At the contractors option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16\"/>

DETAILS OF CROSS FRAMES & INTERMEDIATE DIAPHRAGMS SPANS (1-2), (2-3), (3-4), (8-7), (9-8) & (10-9)

105 735

DETAILED SEPT. 1993  
CHECKED OCT. 1993

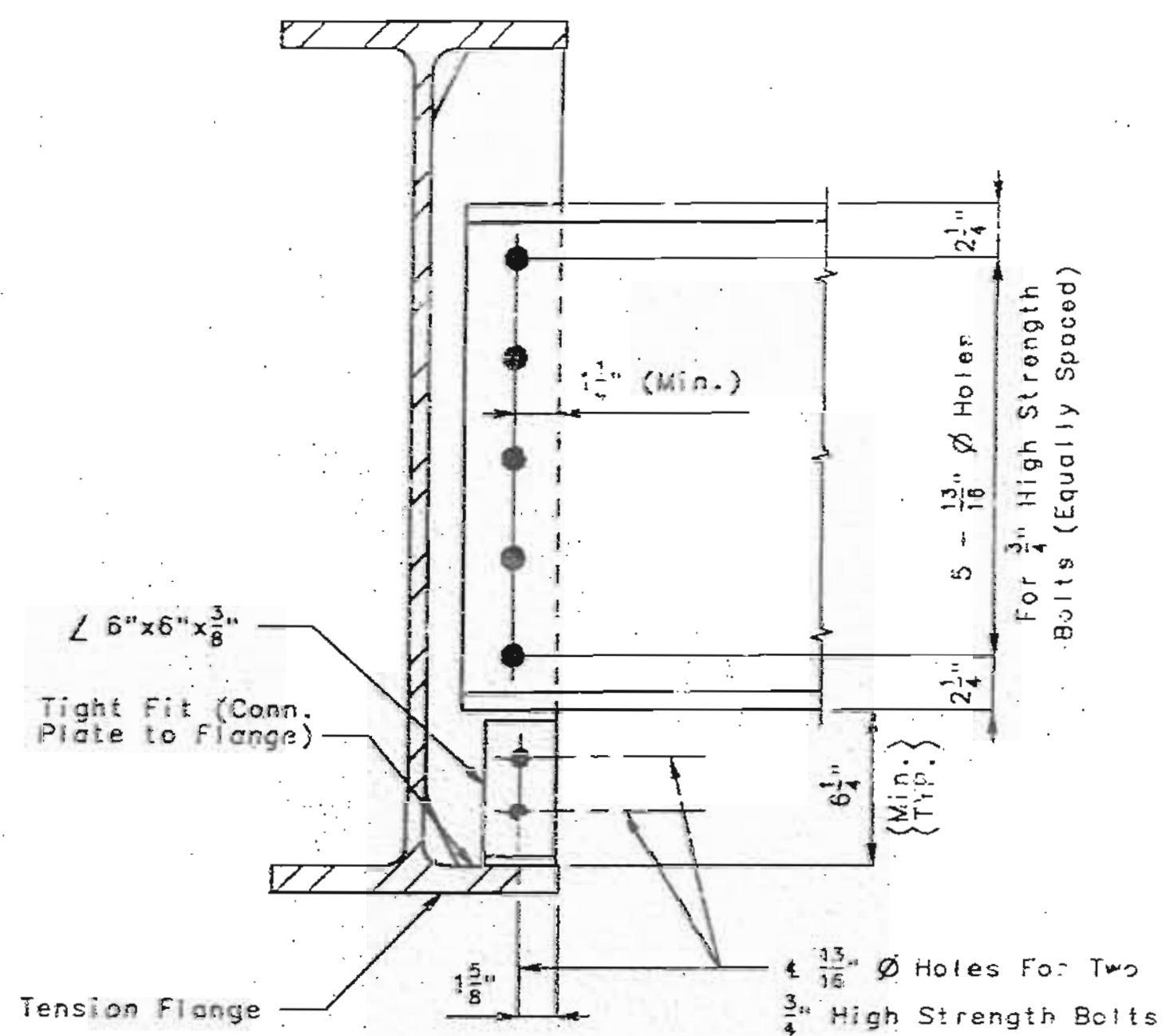
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 19 OF 34

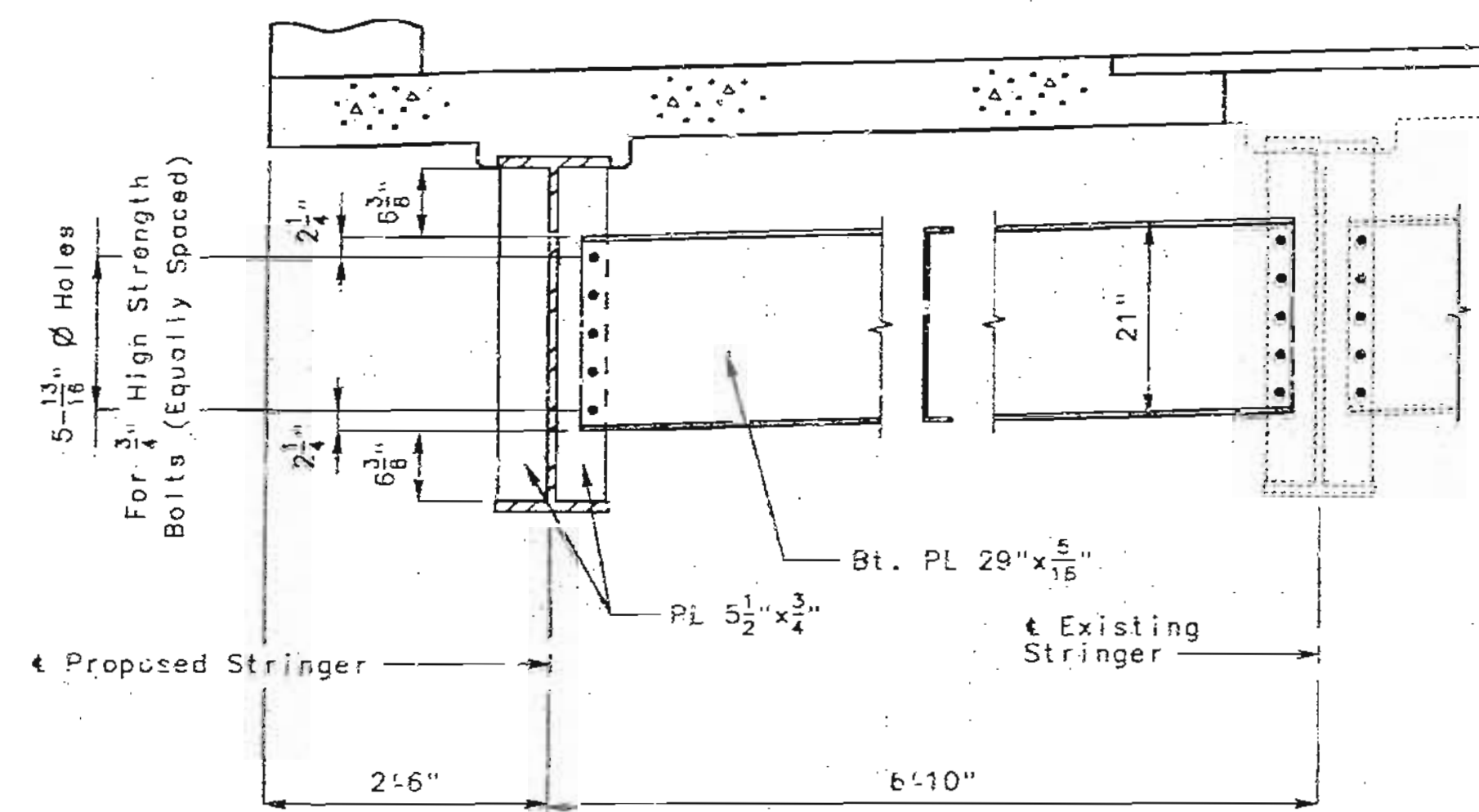
JACKSON COUNTY

A-167R

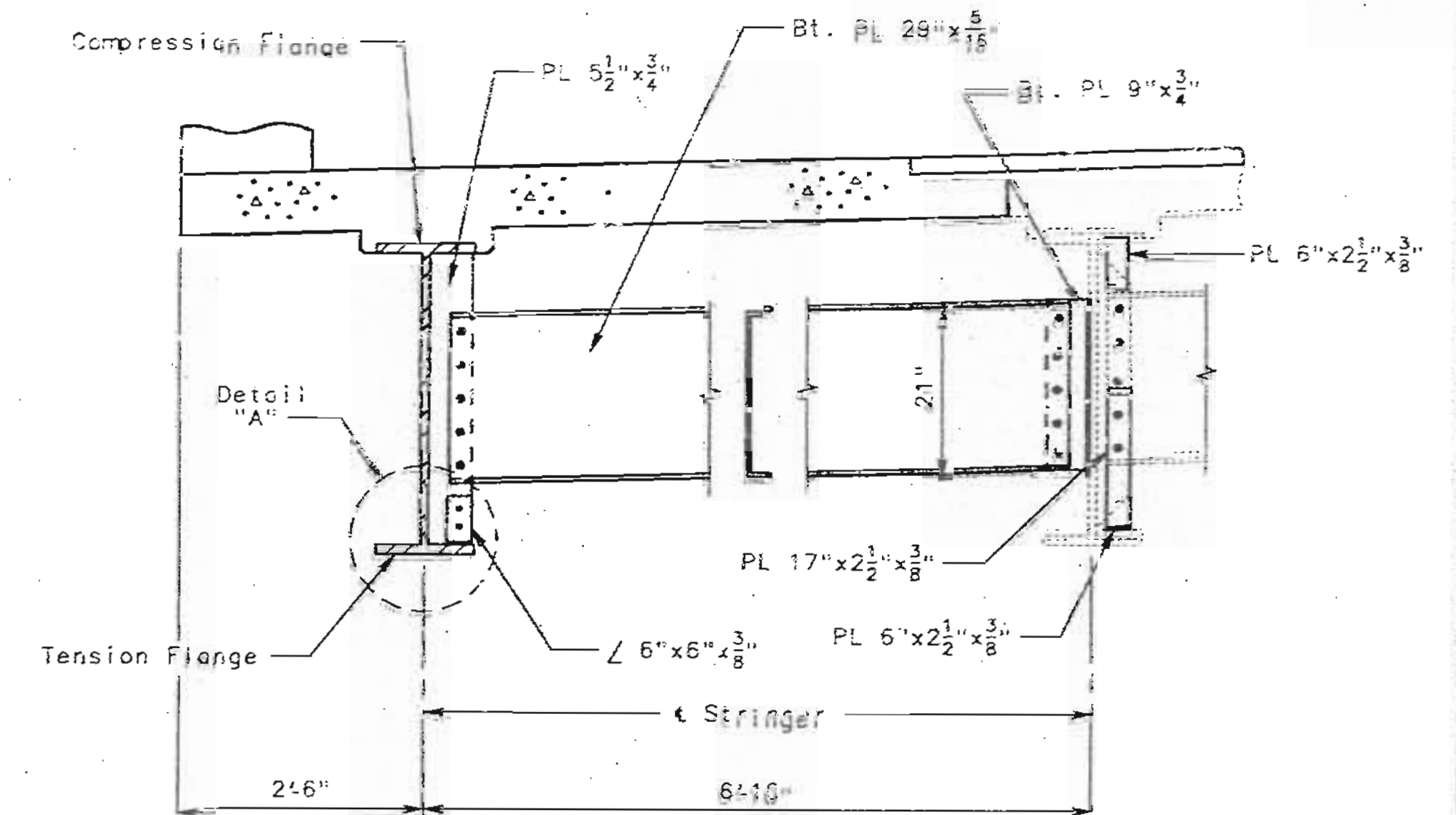
STATE	PROJ. NO.	SET NO.
MO.		08



SECTION THRU WF AT NEW INTERMEDIATE DIAPHRAGM

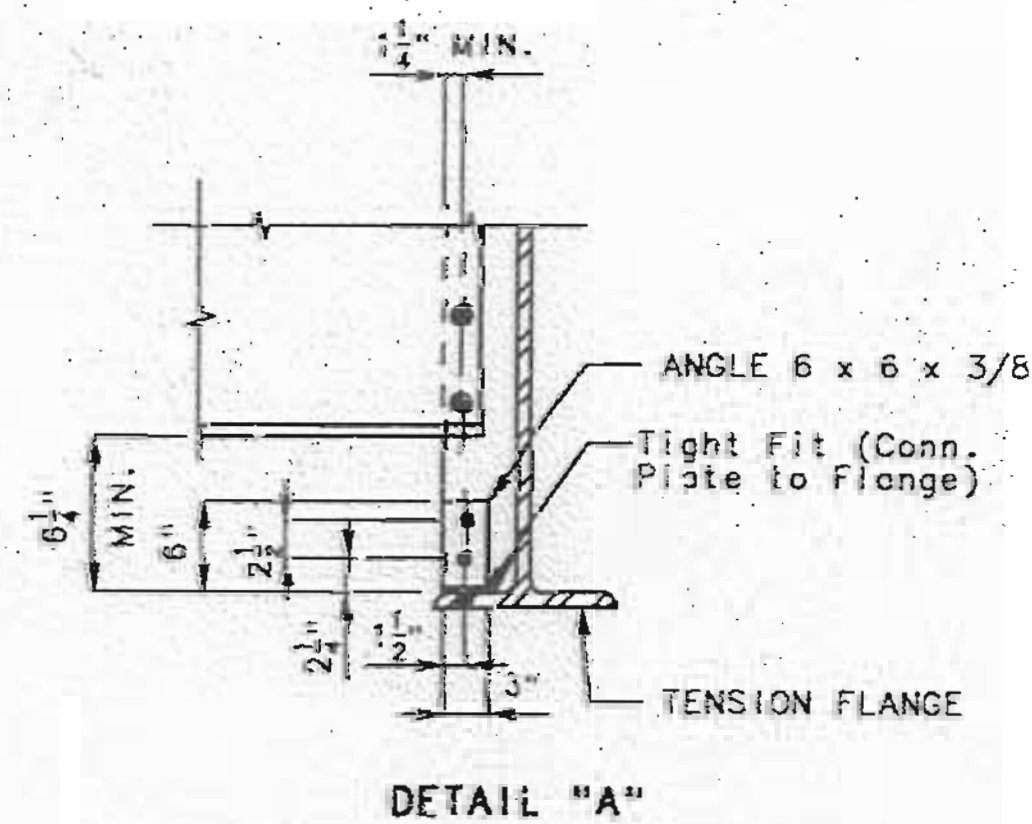


TYPICAL PART SECTION SHOWING CROSS FRAMES

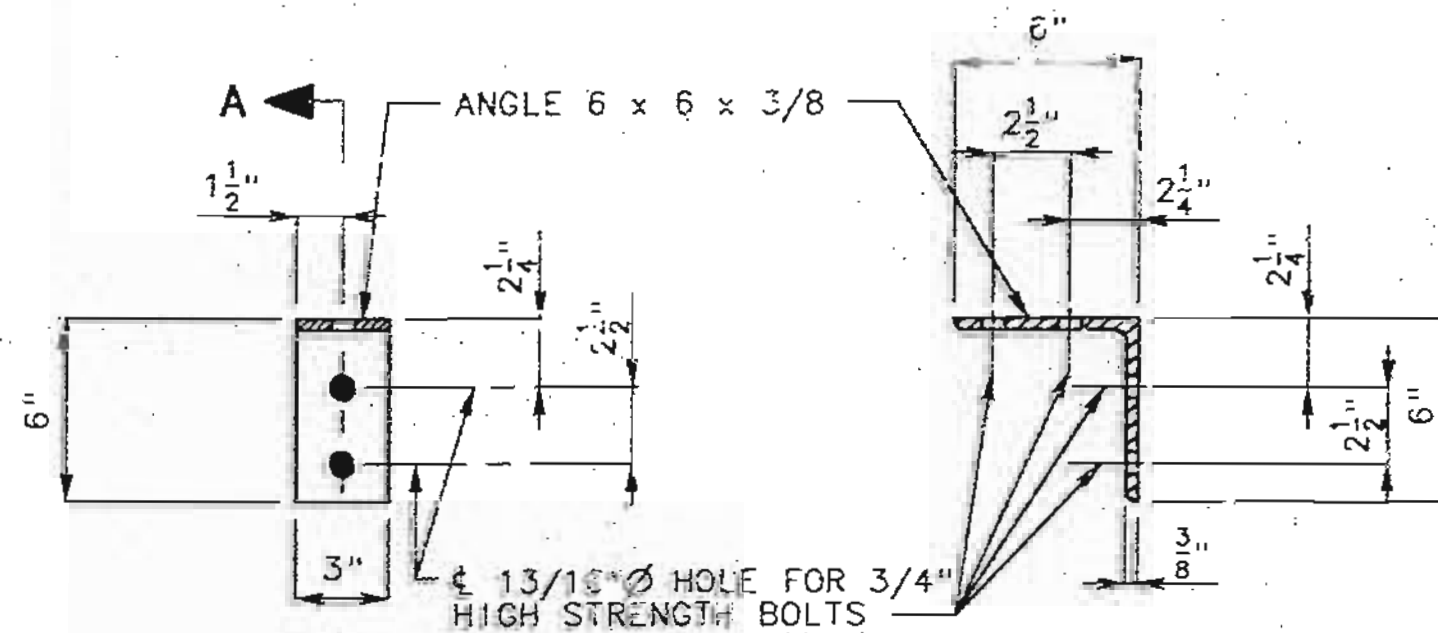


TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS BOTTOM FLANGE IN TENSION

NOTE: At the contractors option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard size.



DETAIL "A"



DETAIL OF FLANGE CONNECTION ANGLES

SECTION A-A

NOTE: THE TWO 3/4" H.S. BOLTS THAT CONNECT THE 6 X 6 X 3/8 ANGLE TO THE TOP FLANGE SHALL BE PLACED SO THE NUT IS ON THE INSIDE OF FLANGE TOWARD THE WEB.

NOTE: For location of diaphragms see sheet no. 13. For welding details and details of connections at Existing Stringer see sheets no. 17 & 18.

DETAILS OF CROSS FRAMES & INTERMEDIATE DIAPHRAGMS SPANS (4-5), (5-6) & (6-7)

106 7736

DETAILED SEPT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 20 OF 34

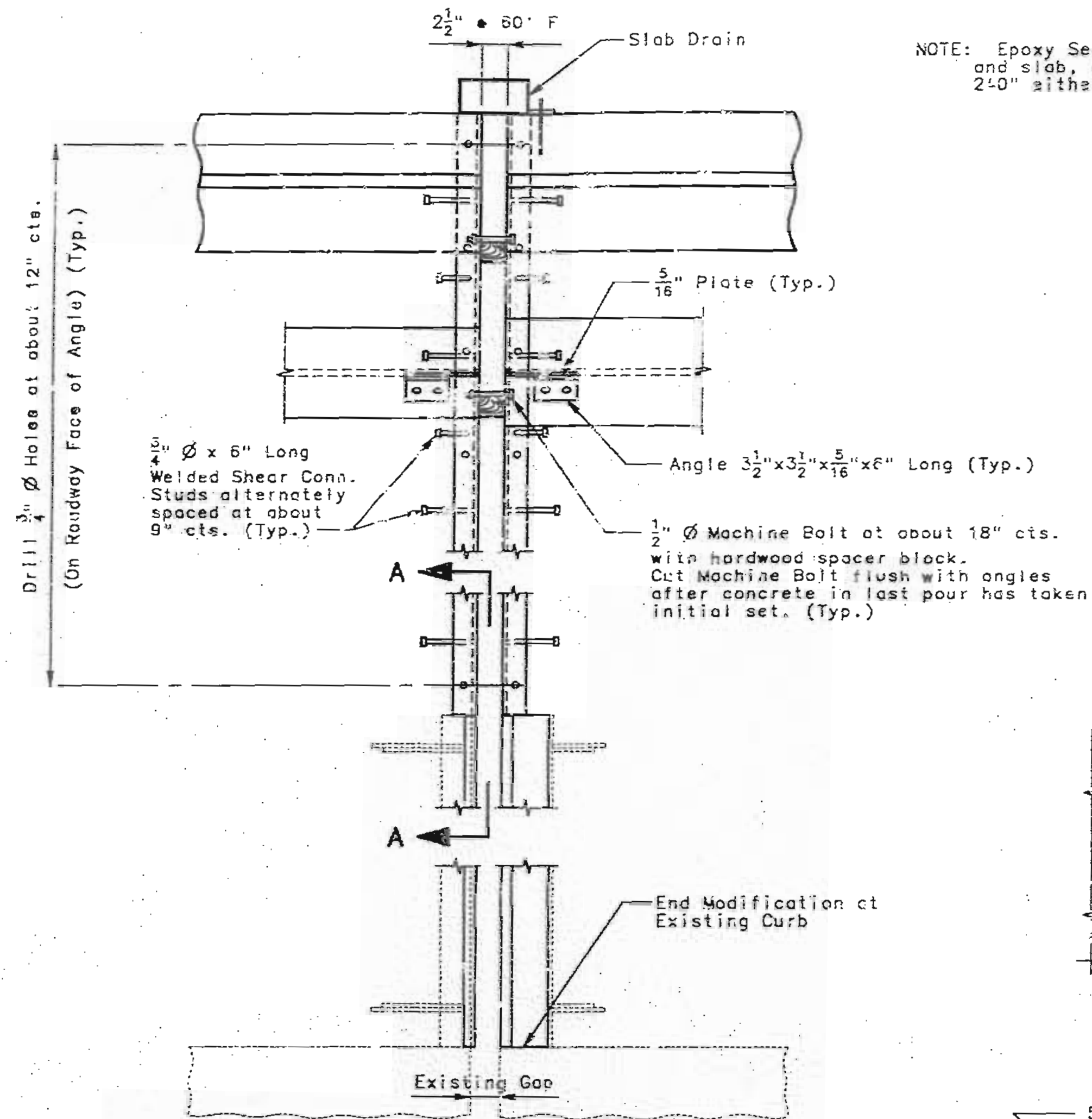
JACKSON

COUNTY

A-167R



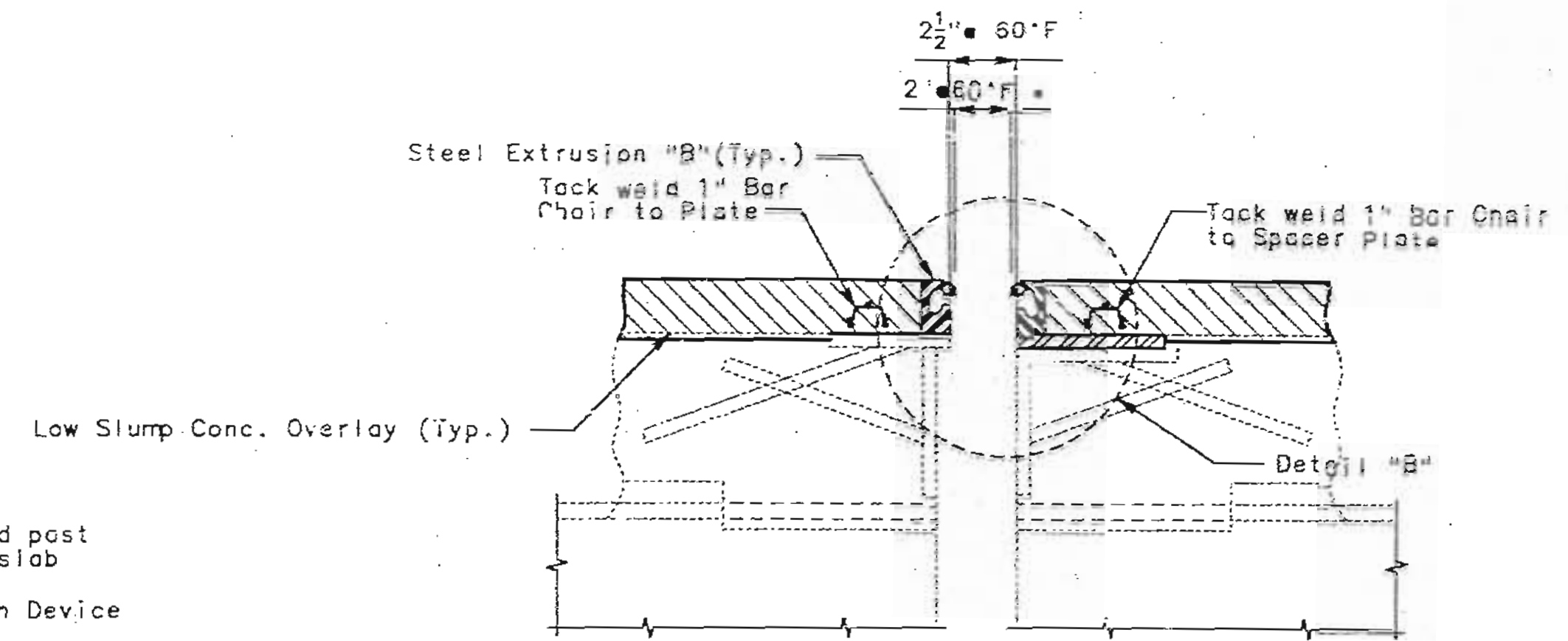
STATE	PROJ. NO.	SHEET NO.
MD.		



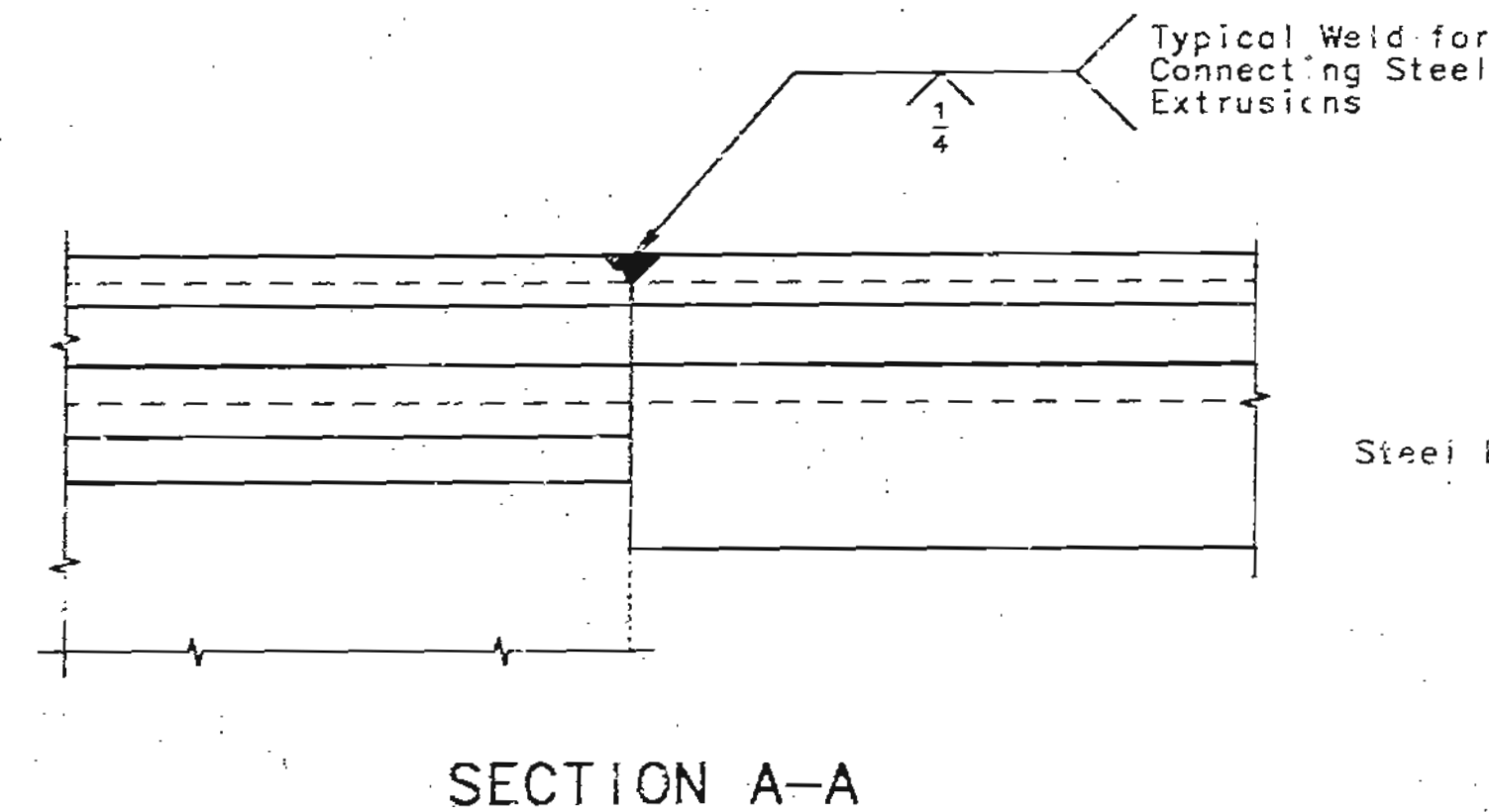
NOTE: Epoxy Seal open joint face of curb, outside edge of new curb and slab, and 12" back on the undersides of the new slab for 2'-0" either side of joint (See Special Provisions).



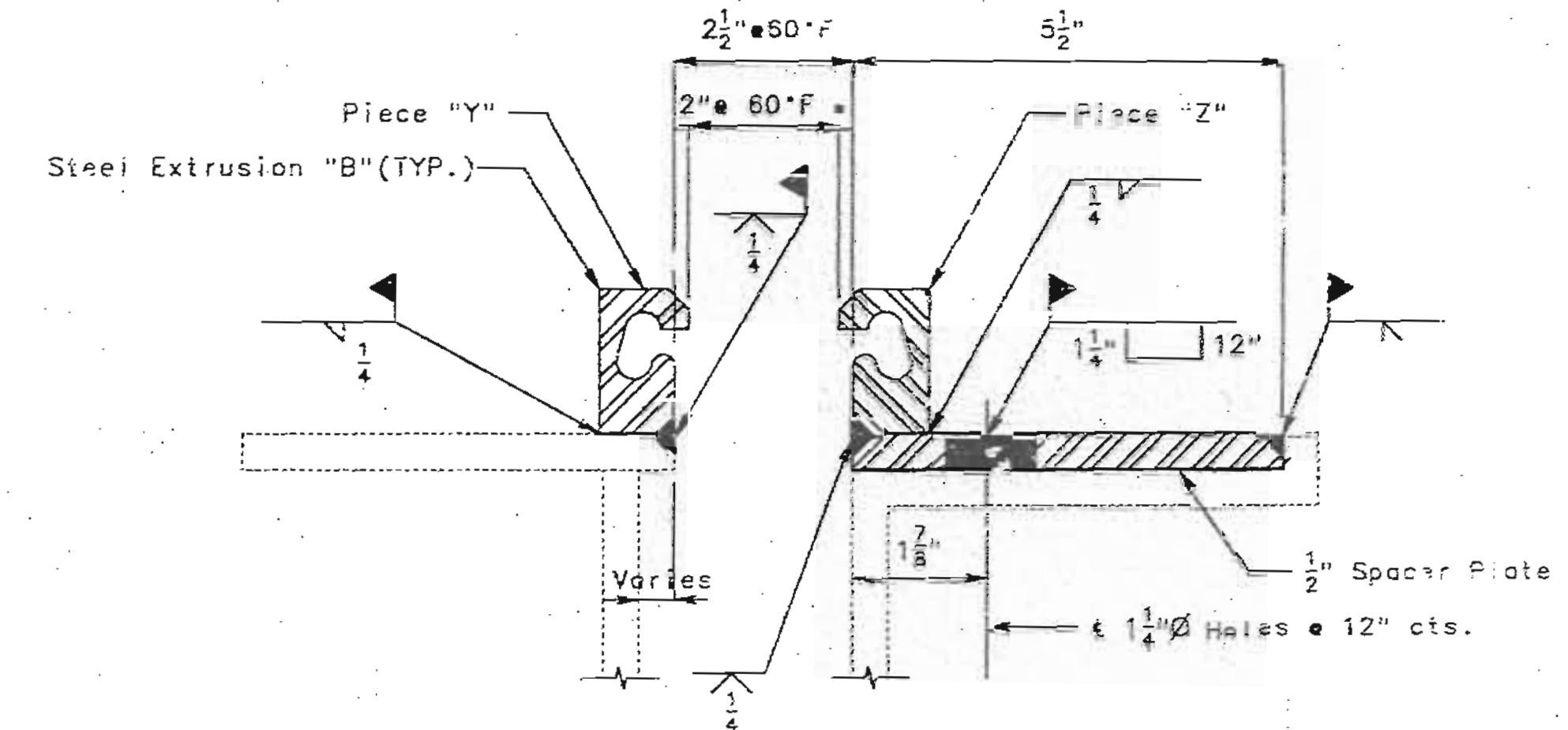
NOTE: The Strip Seal Gland shall extend past the edge of the slab and into the slab drain by 3/4".  
For Details of Drain at Expansion Device see sheet no. 26.



SPAN (3-4) SPAN (4-5)  
PART SECTION THRU MODIFICATION AT EXISTING EXPANSION DEVICE



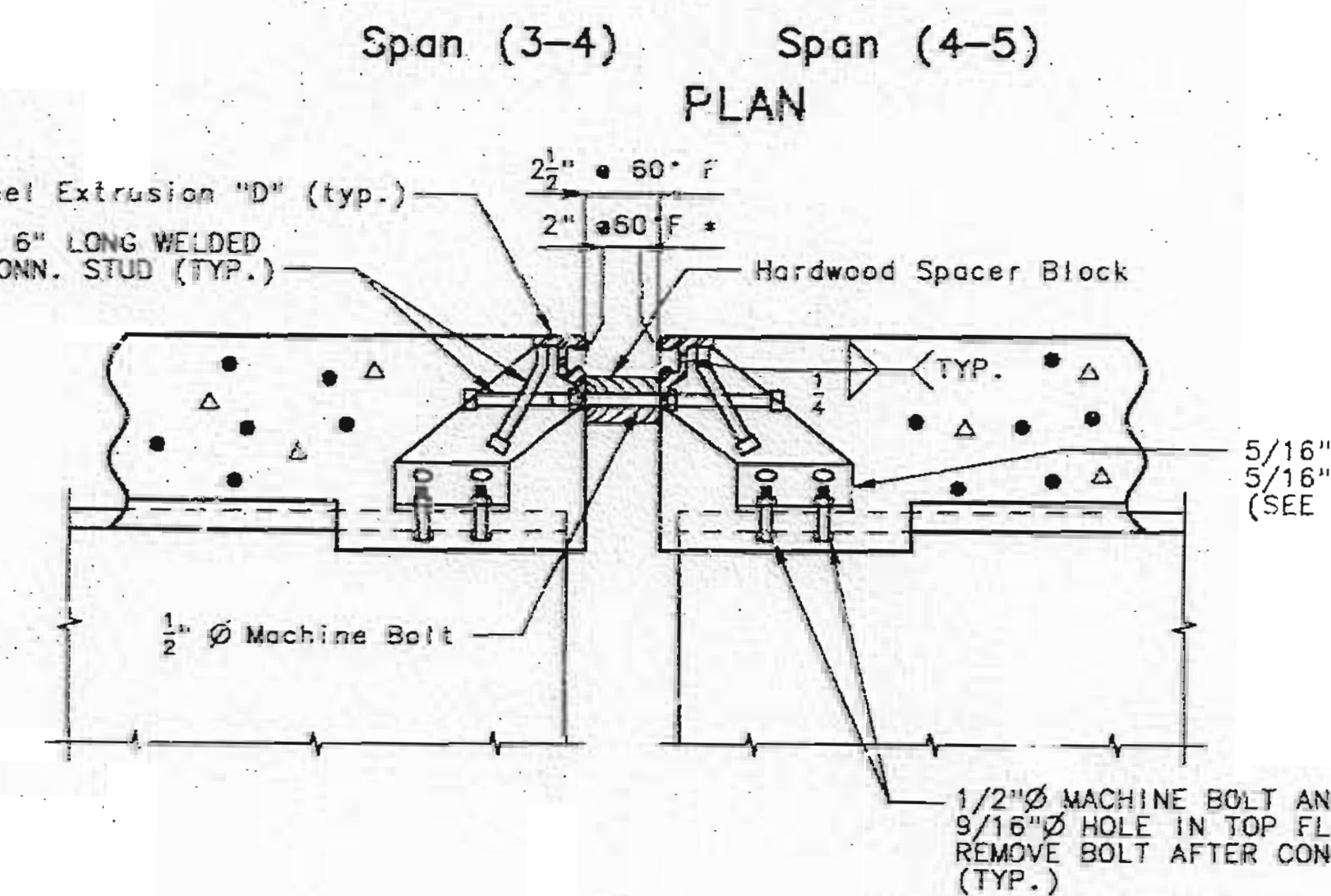
SECTION A-A



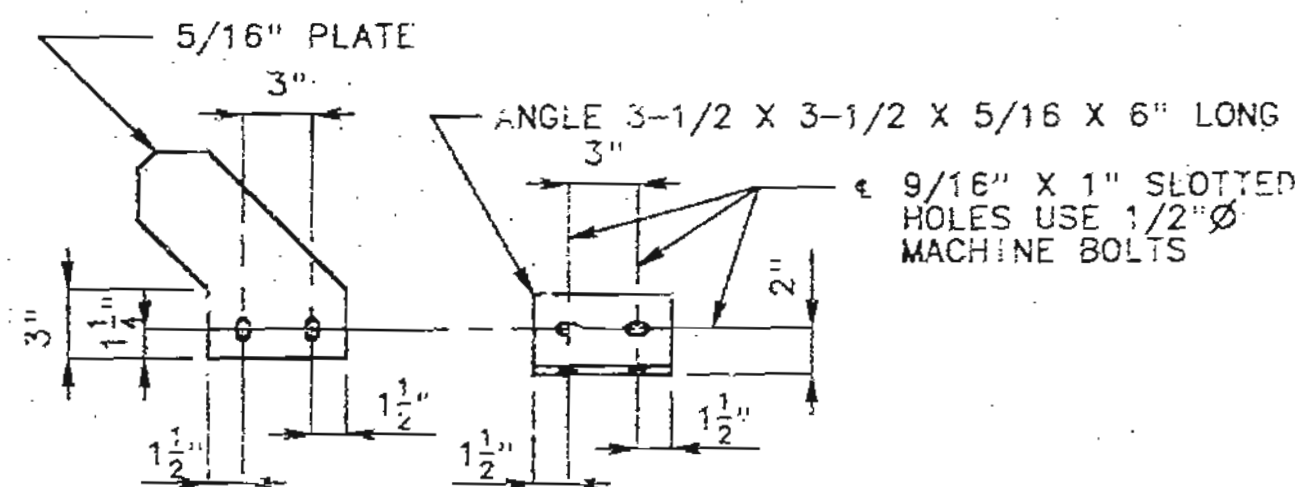
DETAIL "B"  
FIELD INSTALLATION SEQUENCE:  
1 - Weld Piece "Y" to existing steel.  
2 - Weld Piece "Z" to existing steel.



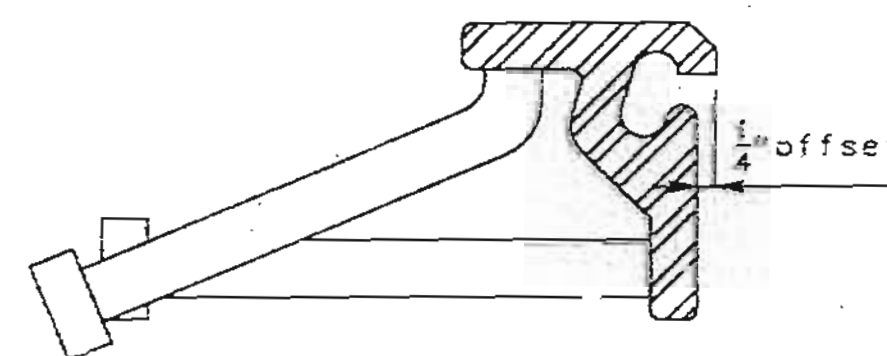
DETAIL OF EXTRUSION "B"



PART SECTION THRU EXPANSION DEVICE NEAR PROPOSED STRINGER



DETAIL "C"



DETAIL OF EXTRUSION "D"

NOTES FOR STRIP SEAL:

The Expansion Device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.  
The contractor must verify all dimensions prior to fabrication.  
All welds shall conform to Section 712 of the Standard Specifications.  
Splices of steel extrusion shall develop full strength.  
All steel shall be A-36, except steel extrusions shall be A.S.T.M. A-538 or A-36.  
Anchors for the extrusions shall be approved welded studs (C1010 thru C1020).  
Payment for steel extrusions shall be made under the contract unit price for "Strip Seal Expansion Device".  
Payment for furnishing, pointing and placing structural steel plates and angles shall be included in the contract unit price for "Strip Seal Expansion Device".

NOTE: If an Extrusion with offset dimension other than as shown in "DETAIL OF EXTRUSION" is utilized, dimension "a" shall be adjusted so as to maintain 2" clear expansion gap @ 60°F.  
NOTE: Gap dimension shall be increased 3/16" for each 10' fall in temperature and decreased 3/16" for each 10' rise in temperature.

DETAILS OF STRIP SEAL EXPANSION DEVICE NEAR PIERS NO. 4

107  
DETAILED OCT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

VOIDED SHEET. REPLACED BY SHEET NO. 2 OF 34.

SHEET NO. 21 OF 34

JACKSON

COUNTY

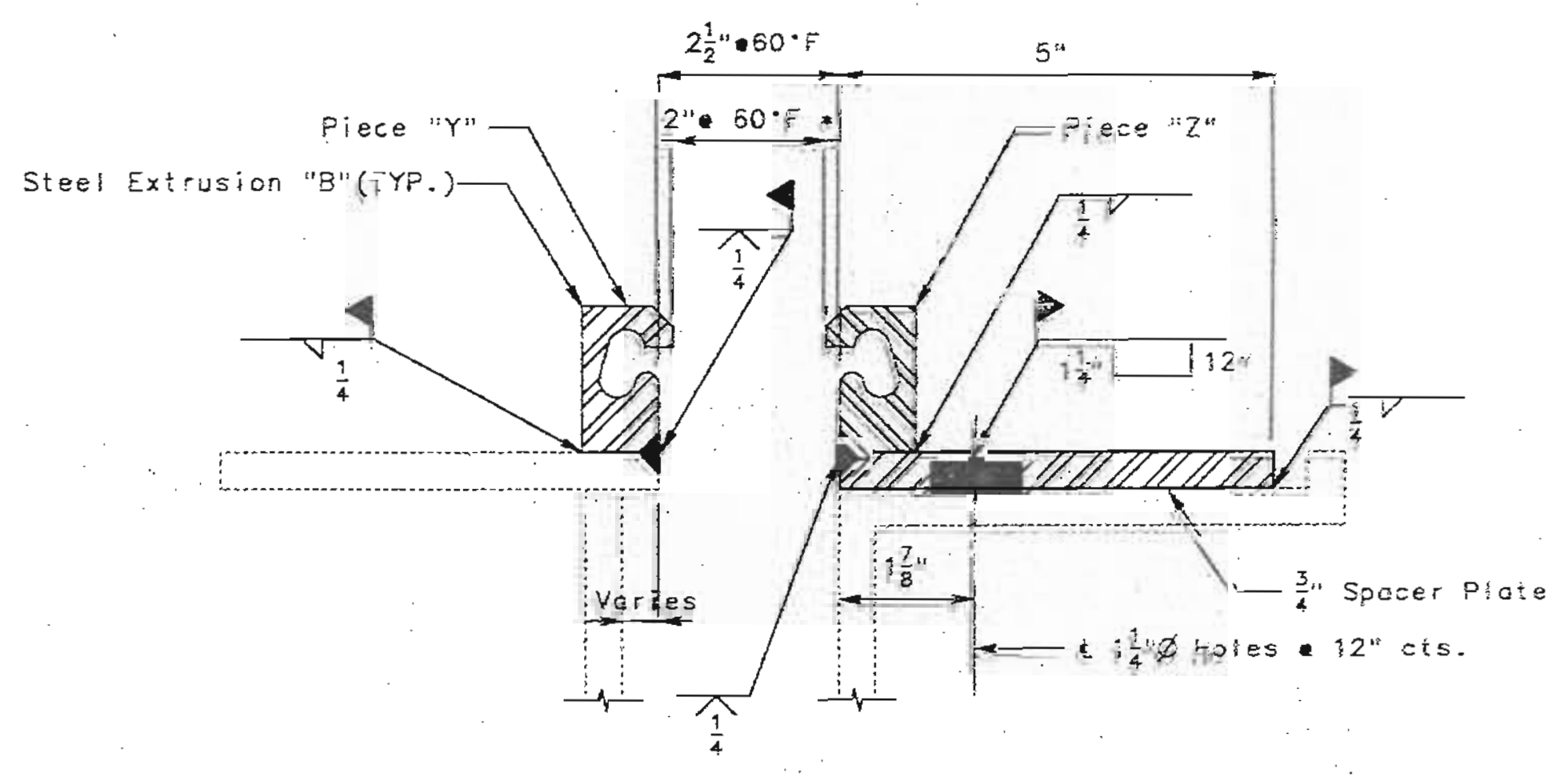
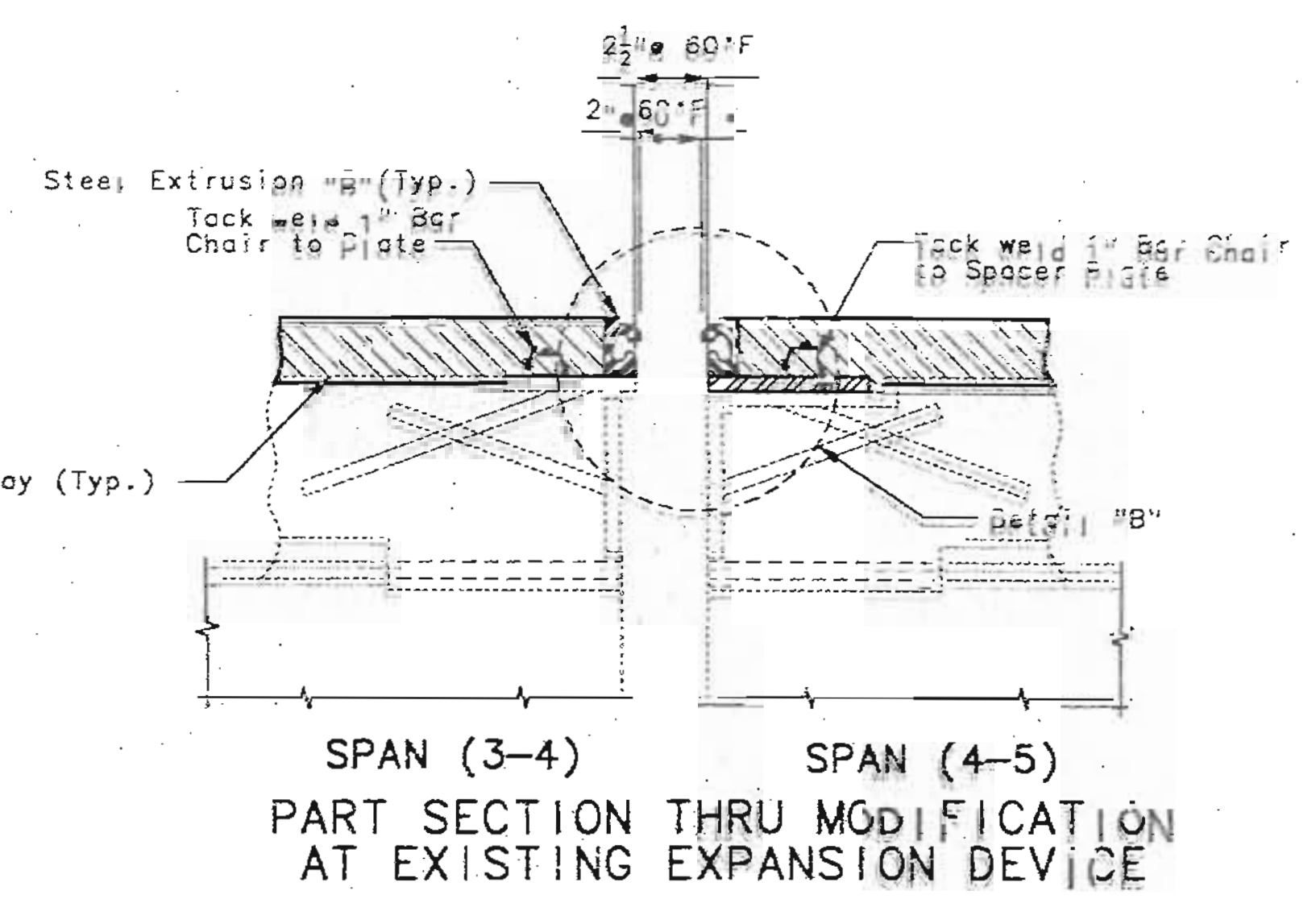
A-167R

STATE	Proj. No.	SHEET
MO.		NO.

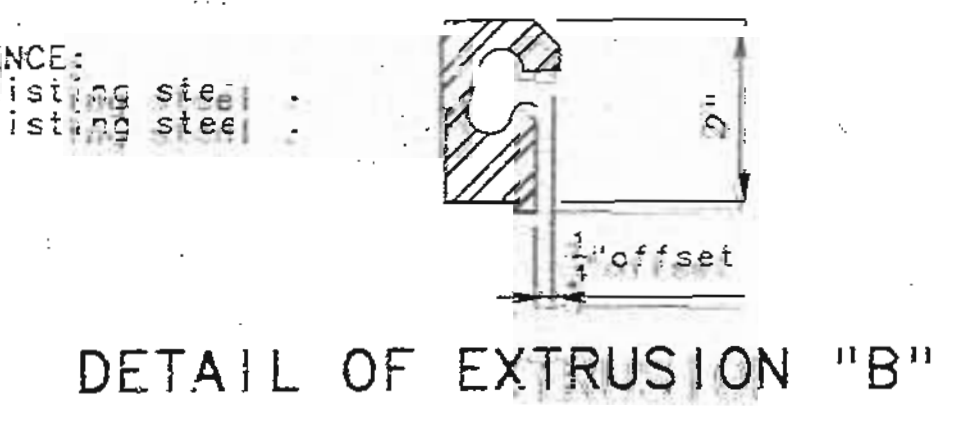
NOTE: Epoxy Seal open joint face of curb, outside edge of new curb and slab, and 18" back on the underside of the new slab for 2'-0" either side of joint (See Special Provisions).

STRIP SEAL GLAND  
MOVEMENT RATING 4"

NOTE: The Strip Seal Gland shall extend past the edge of the slab and into the slab drain by 3/4".  
For Details of Drain at Expansion Device see sheet no. 26.

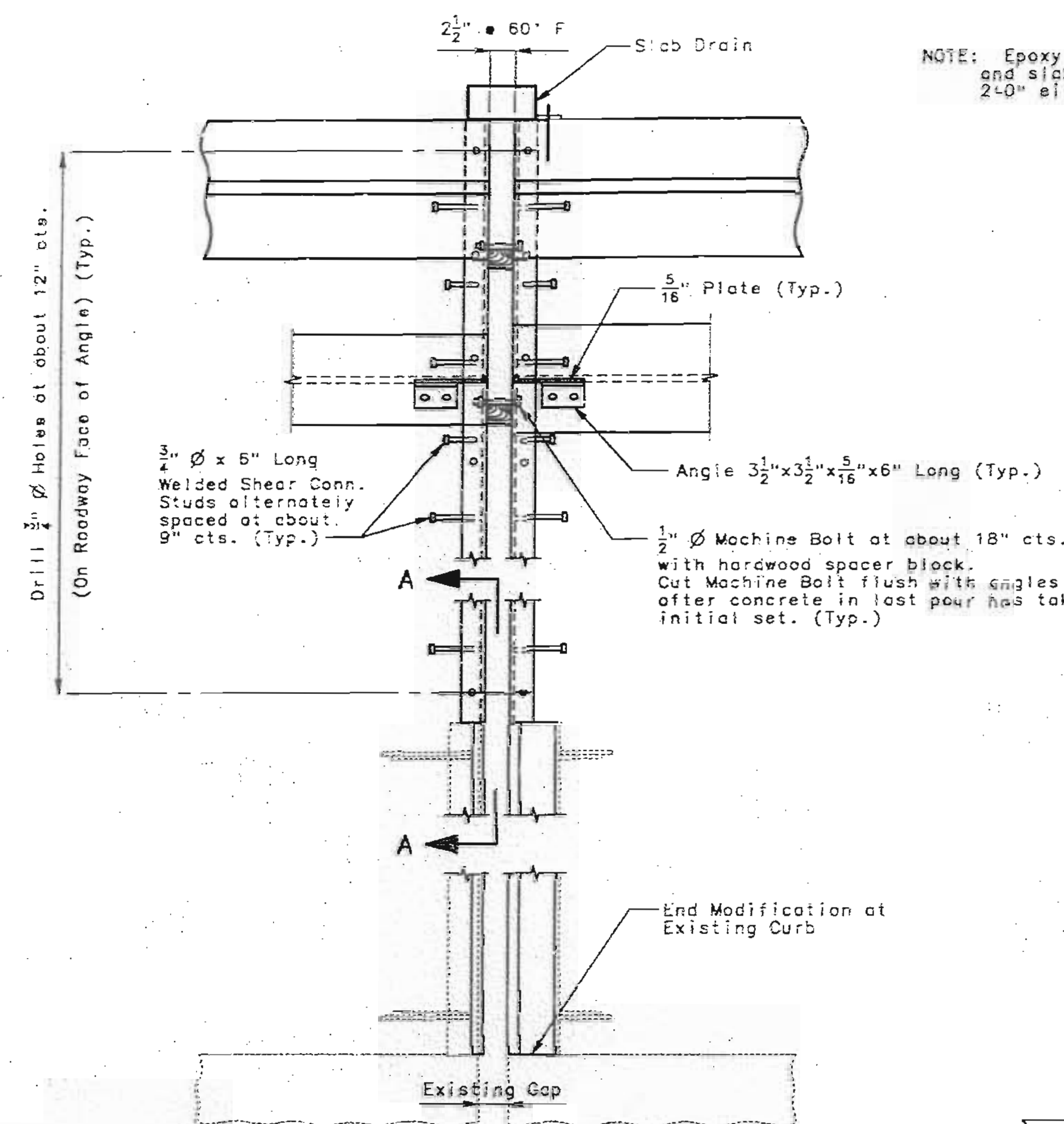


FIELD INSTALLATION SEQUENCE:  
1 - Weld Piece "Y" to existing steel.  
2 - Weld Piece "Z" to existing steel.

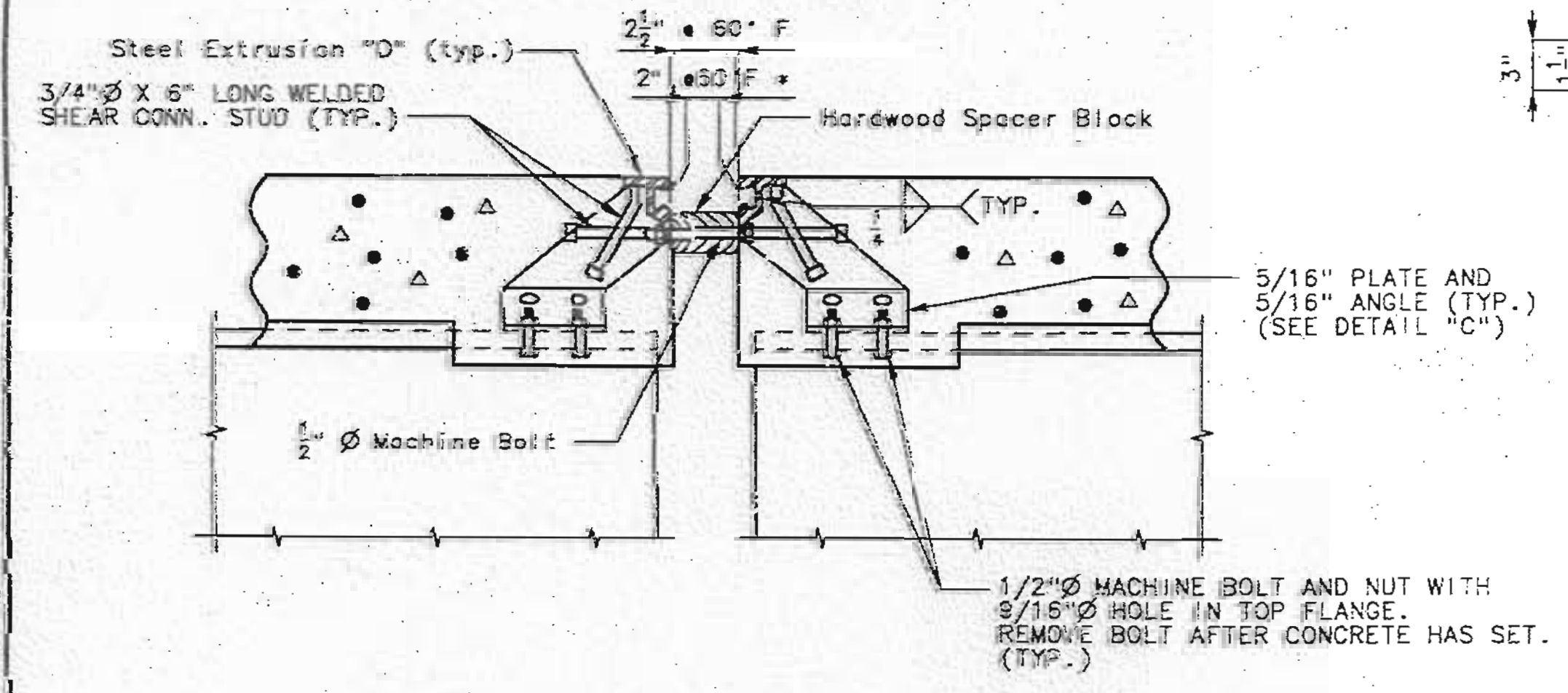


NOTES FOR STRIP SEAL:  
The Expansion Device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.  
The contractor must verify all dimensions prior to fabrication.  
All welds shall conform to Section 712 of the Standard Specifications.  
Splices of steel extrusion shall develop full strength.  
All steel shall be A-36, except steel extrusions shall be A.S.T.M. A-528 or A-36.  
Anchors for the extrusions shall be approved welded studs (min. 1/2\"/>

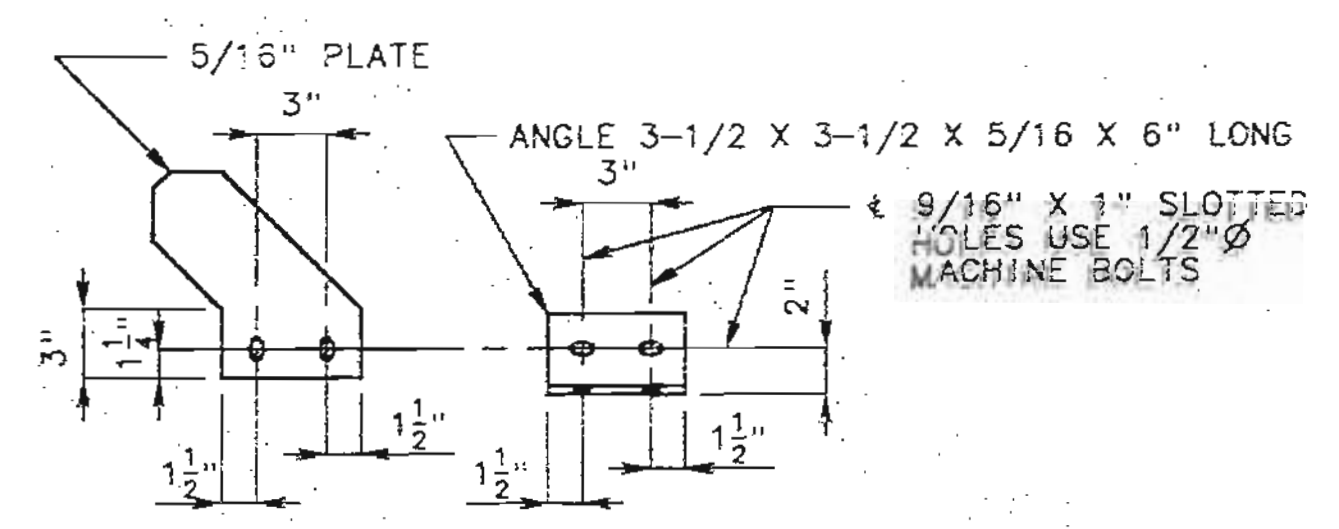
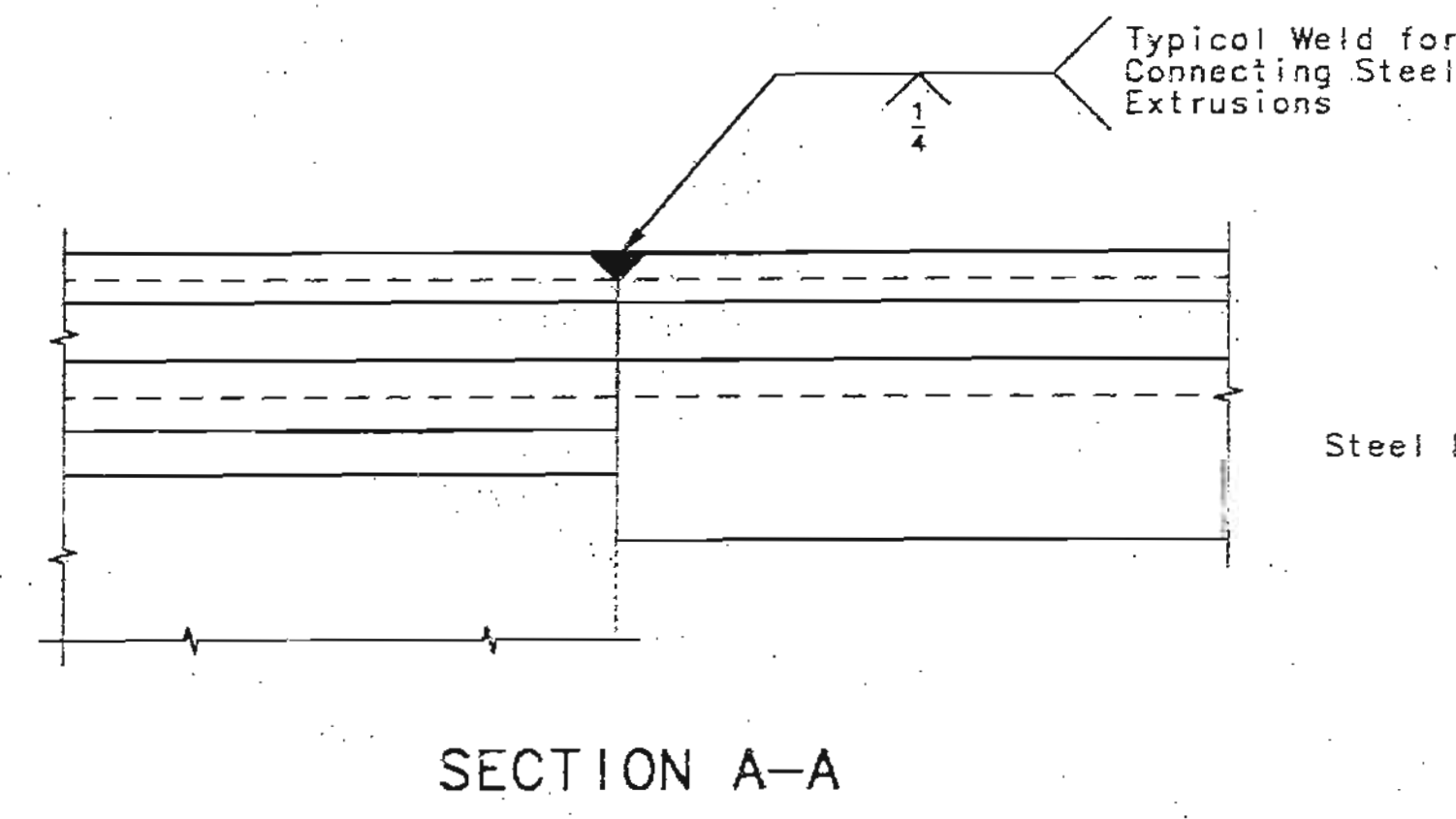
NOTE: If an Extrusion with offset dimension other than as shown in "DETAIL OF EXTRUSION 'B'" is utilized, expansion shall be adjusted so as to maintain 2" clear expansion gap @ 60°F.  
NOTE: Gap dimension shall be increased 3/16" for each 10° fall in temperature and decreased 3/16" for each 10° rise in temperature.



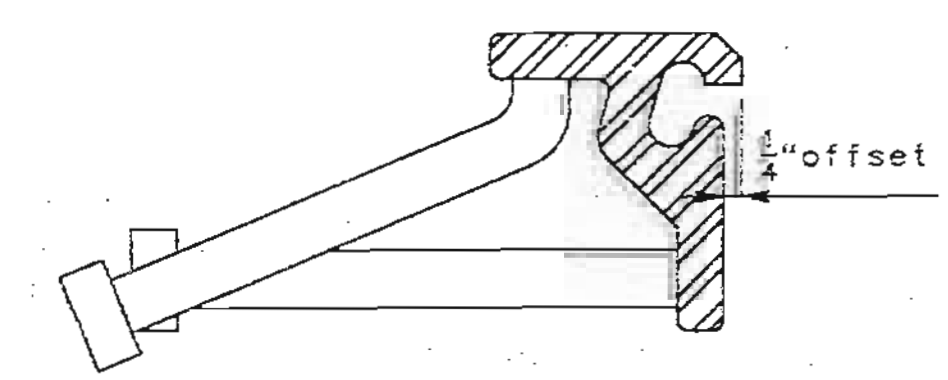
Span (3-4) Span (4-5)  
PLAN



PART SECTION THRU EXPANSION  
DEVICE NEAR PROPOSED STRINGER



DETAIL "C"



DETAIL OF EXTRUSION "D"

DETAILS OF STRIP SEAL EXPANSION DEVICE NEAR PIER NO. 4

108  
DETAILED OCT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

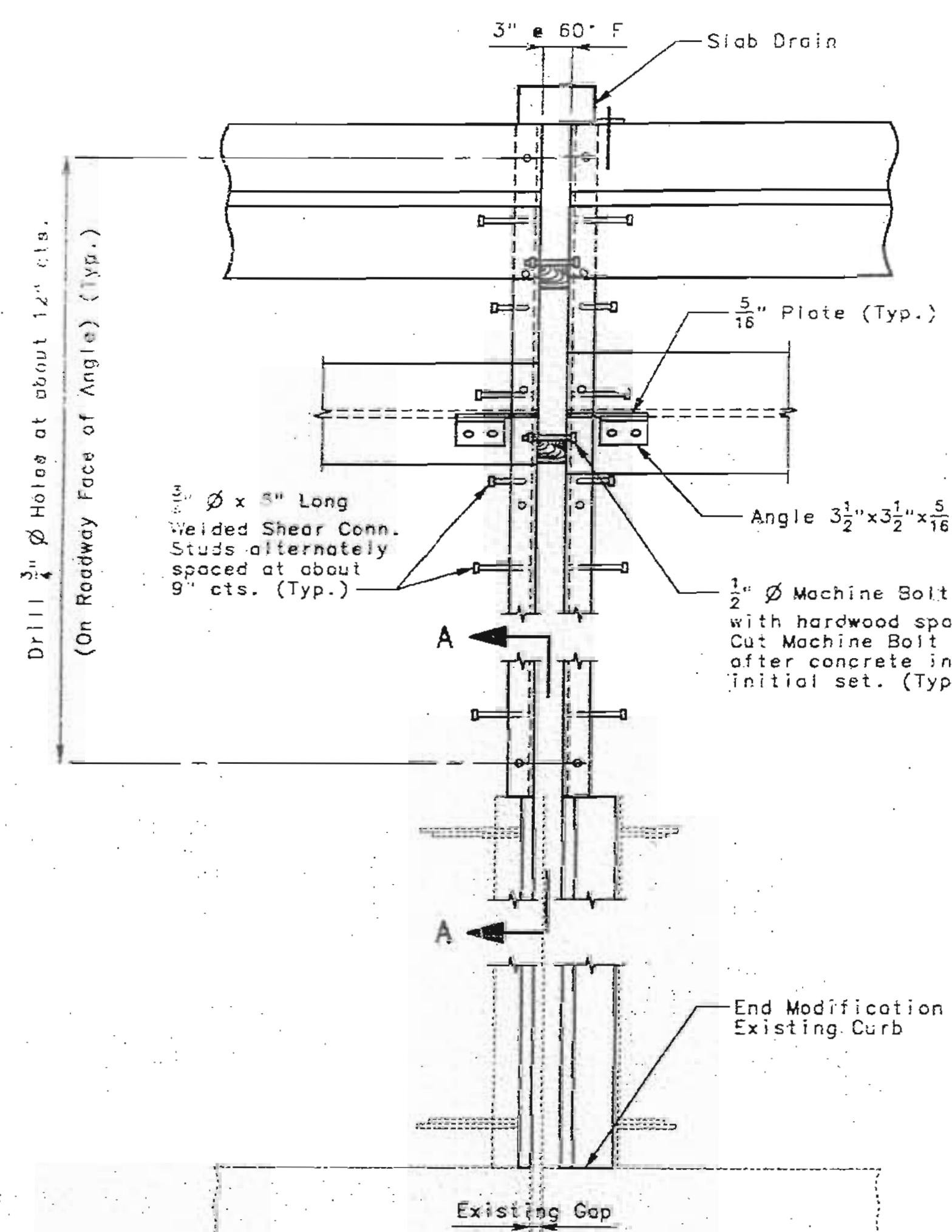
REVISED: AUG. 26, 1994  
REPLACES SHEET NO. 21 OF 35.

SHEET NO. 21 OF 34

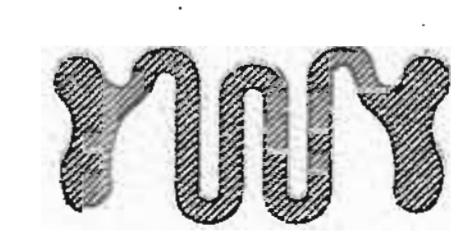
SEE FINAL PLAN

JACKSON COUNTY A-167R

STATE	PROJ. NO.	SHEET NO.
MO.		

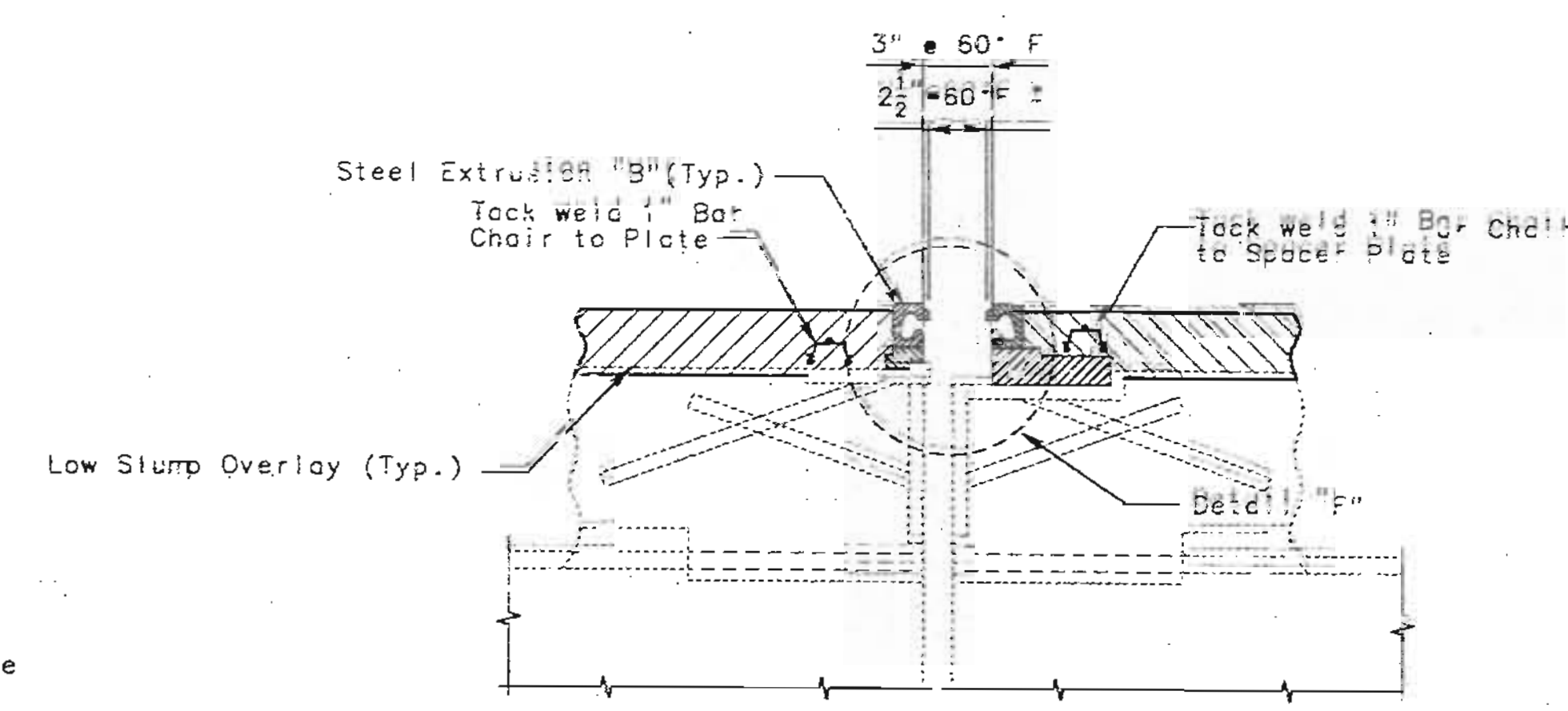


NOTE: Epoxy Seal open joint face of curb, outside edge of new curb and slab, and 18\"/>

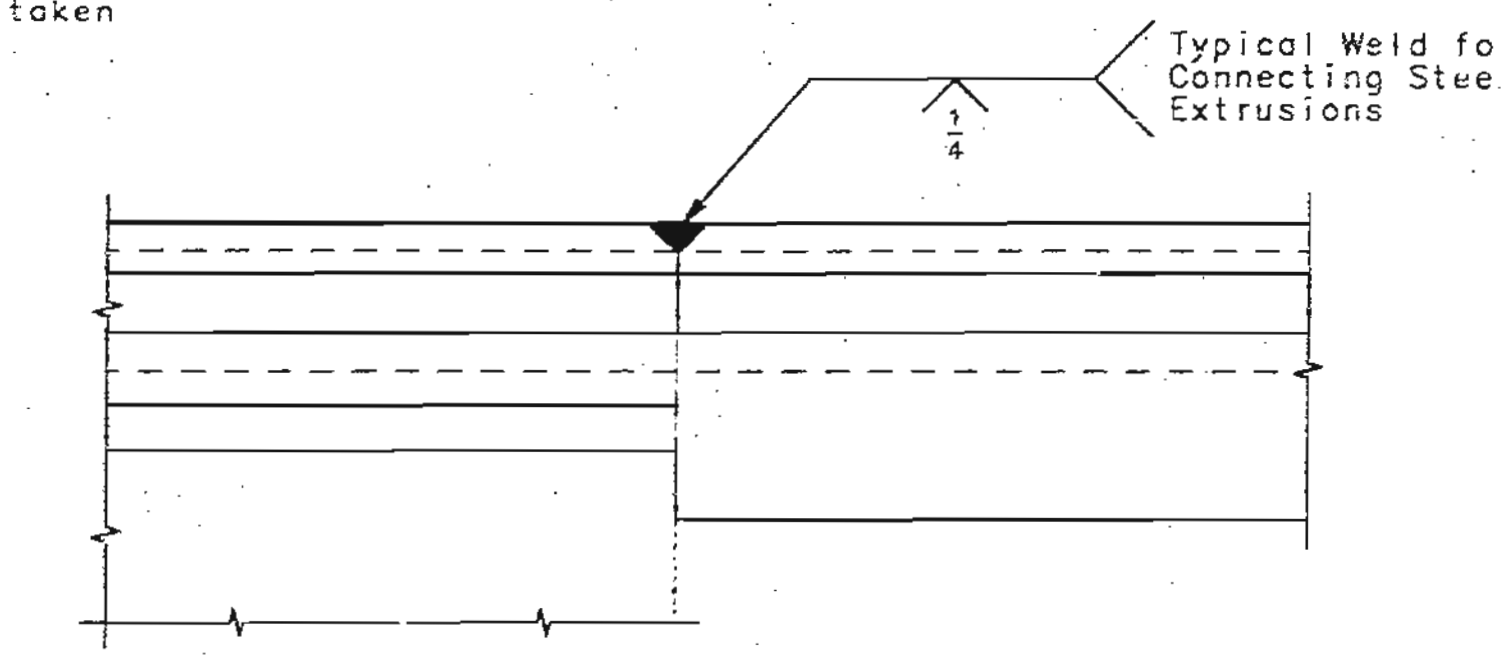


LOW PROFILE STRIP SEAL GLAND  
MOVEMENT RATING 4"

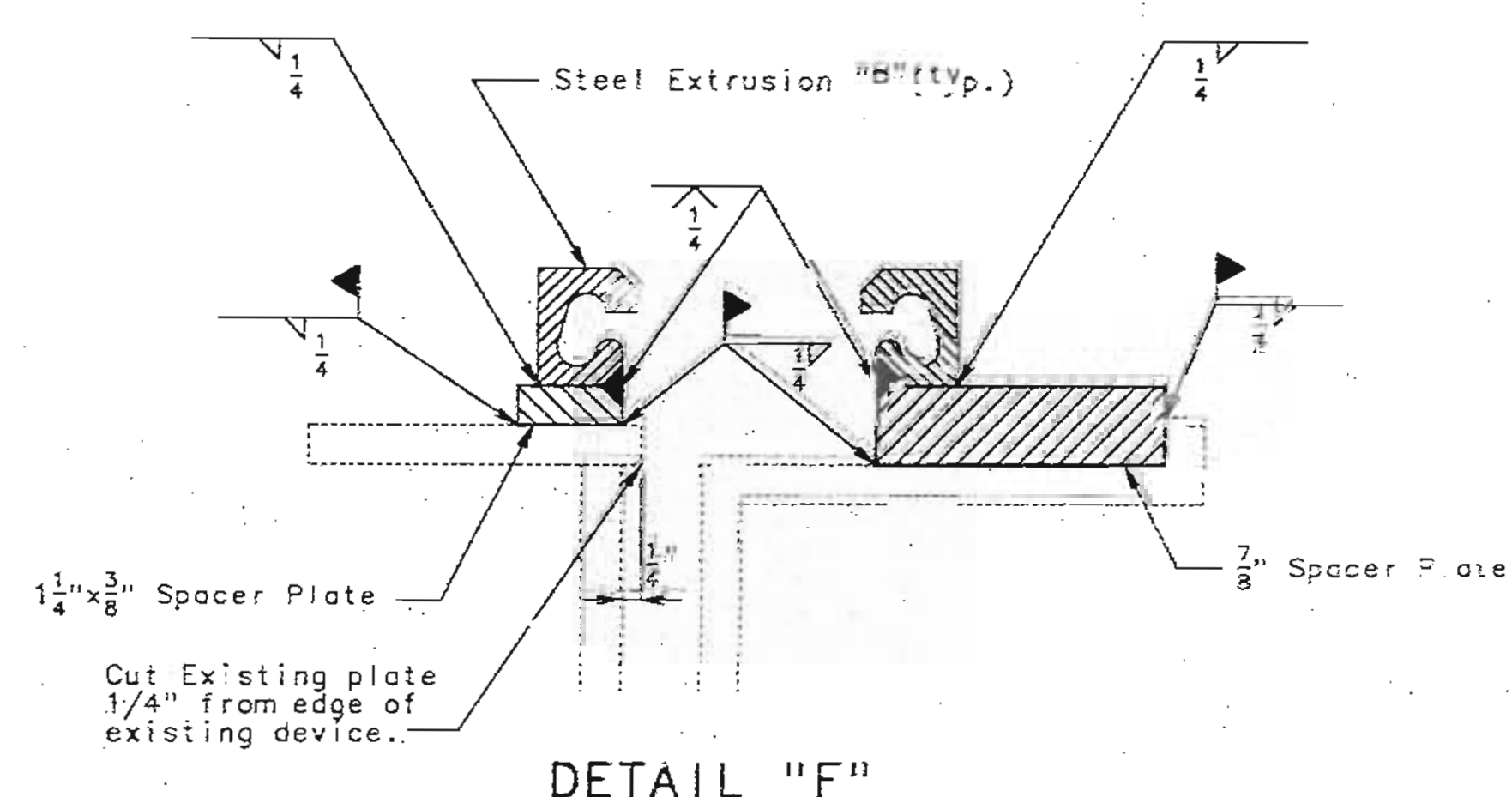
NOTE: The Strip Seal Gland shall extend past the edge of the slab and into the slab drain by 3/4\"/>



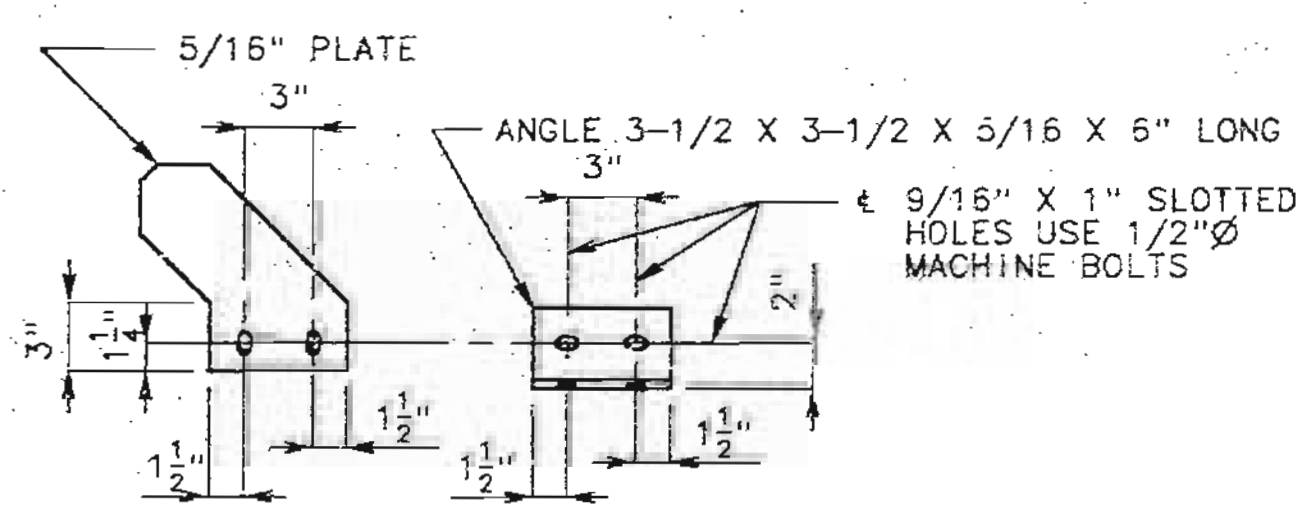
Span (8-7) Span (7-6)  
PART SECTION THRU MODIFICATION  
AT EXISTING EXPANSION DEVICE



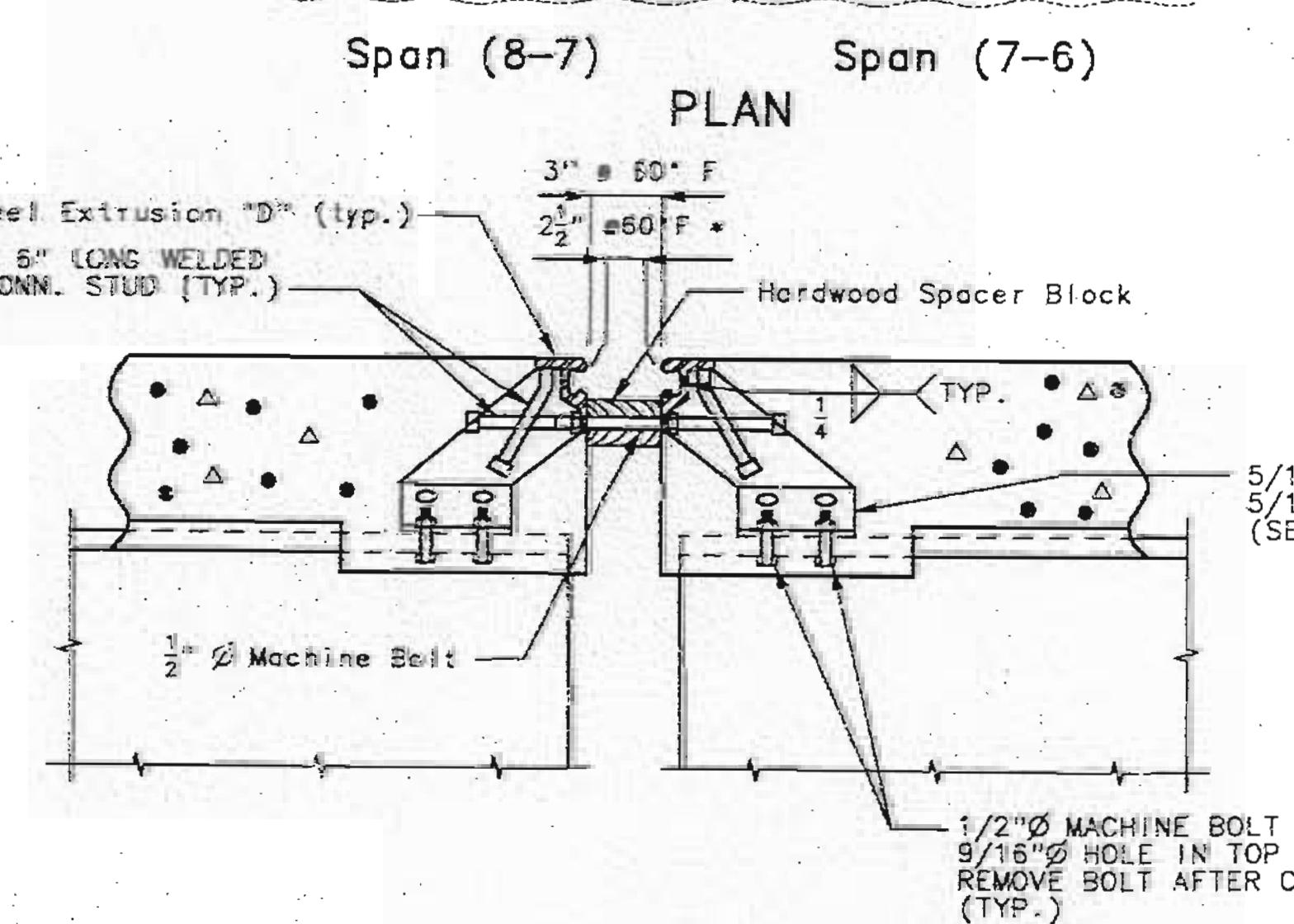
SECTION A-A



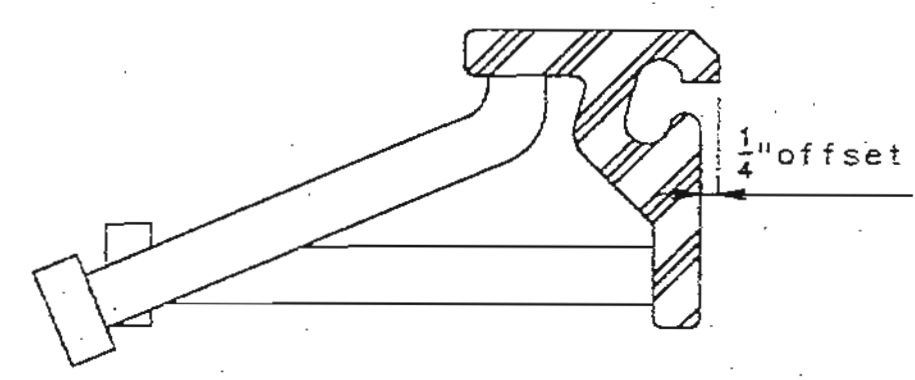
DETAIL "F"



DETAIL "C"



PART SECTION THRU EXPANSION  
DEVICE NEAR PROPOSED STRINGER



DETAIL OF EXTRUSION "D"



DETAIL OF EXTRUSION "B"

NOTES FOR STRIP SEAL:

The Expansion Device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.  
The contractor must verify all dimensions prior to fabrication.  
All welds shall conform to Section 7.2 of the Standard Specifications.  
Splices of steel extrusion shall develop full strength.  
All steel shall be A-36, except steel extrusions shall be A.S.T.M. A-588 or A-36.  
Anchors for the extrusions shall be approved welded studs (C1015 thru C1020).  
Payment for steel extrusions shall be made under the contract unit price for "Strip Seal Expansion Device".  
Payment for furnishing, painting and placing structural steel plates and angles shall be included in the contract unit price for "Strip Seal Expansion Device".

NOTE: Gap dimension shall be increased 1/4\"/>

DETAILS OF STRIP SEAL EXPANSION DEVICE NEAR PIER NO. 7

109

DATE: DEC. 1993  
CHECKED: DEC. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

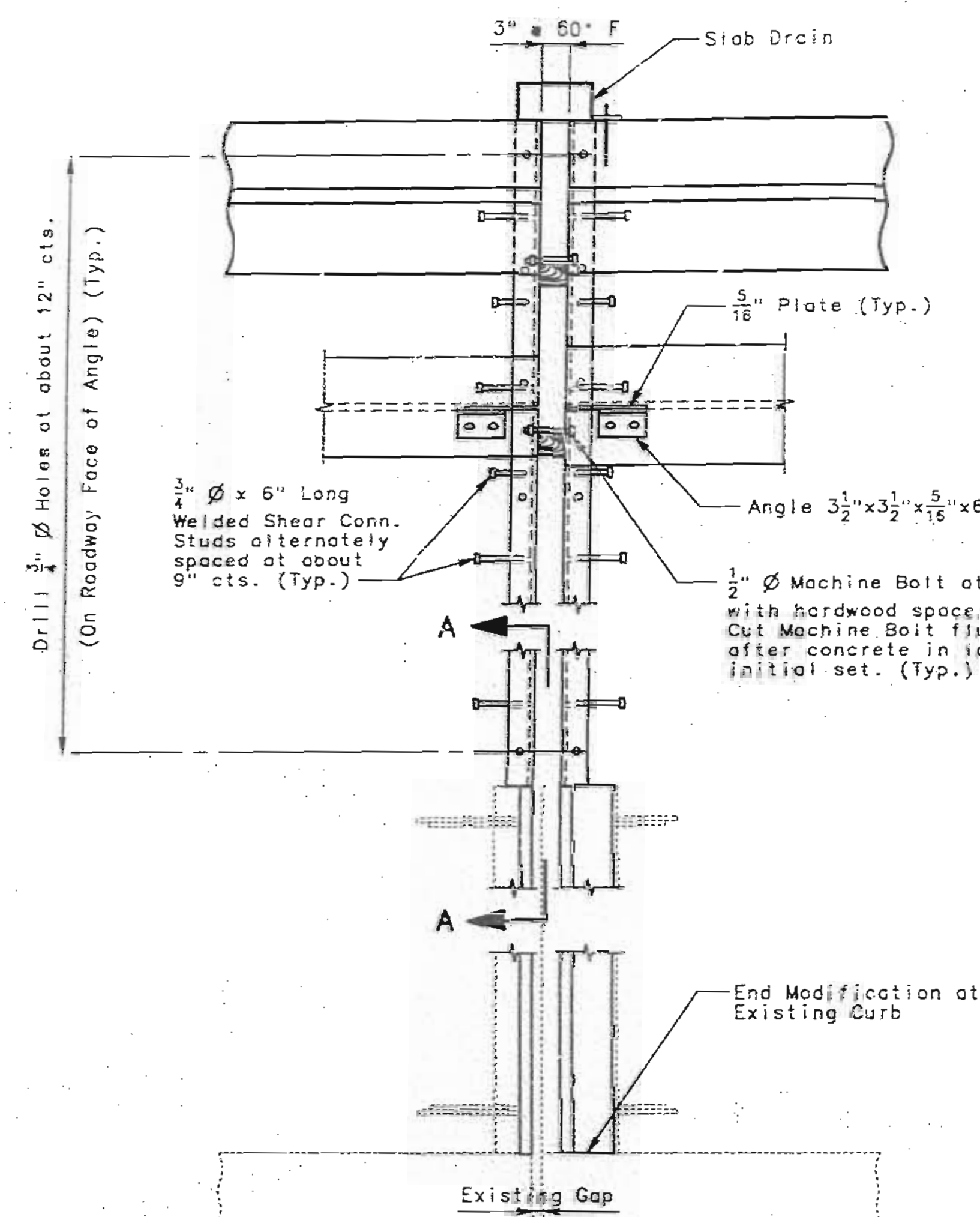
VOIDED SHEET, REPLACED BY SHEET NO. 22a OF 34.

SHEET NO. 22 OF 34

JACKSON COUNTY

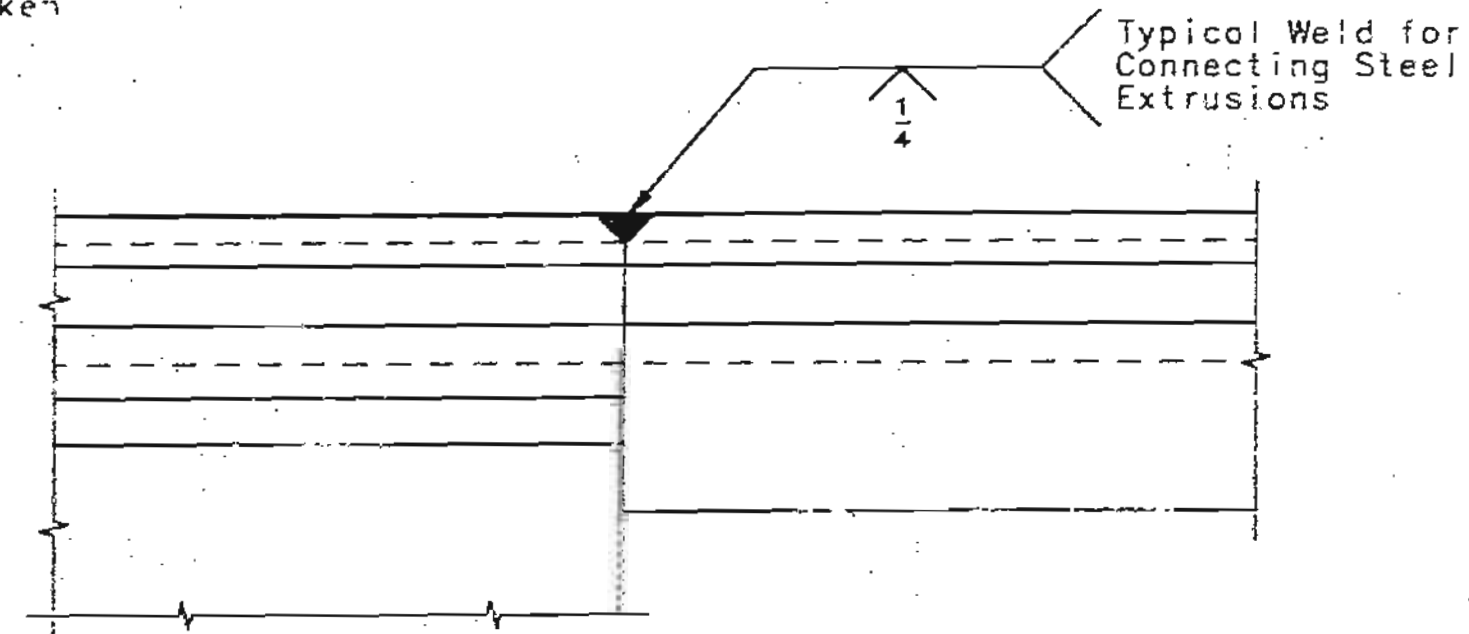
A-167R

STATE	PROJ. NO.	SHEET NO.
MO.		

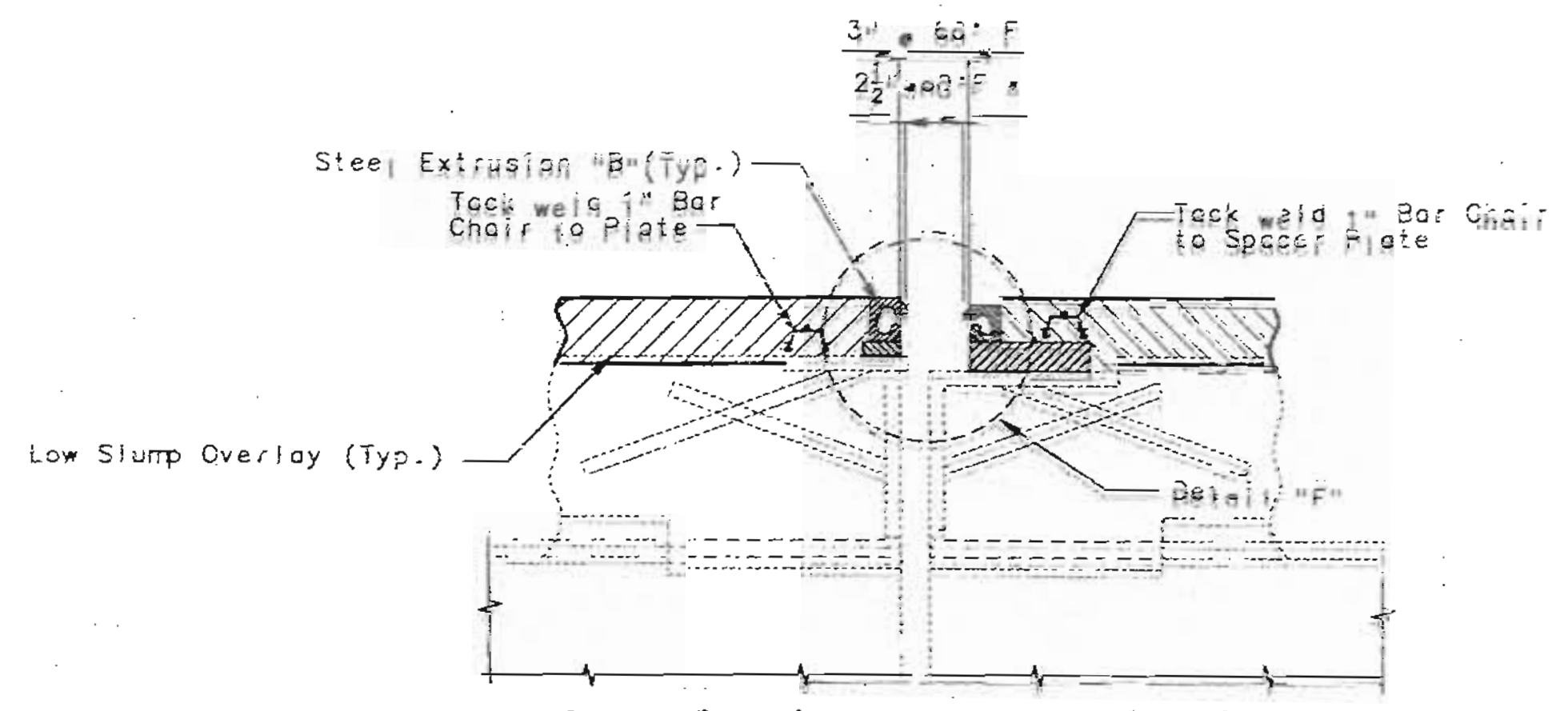


LOW PROFILE STRIP SEAL GLAND  
MOVEMENT RATING 4"

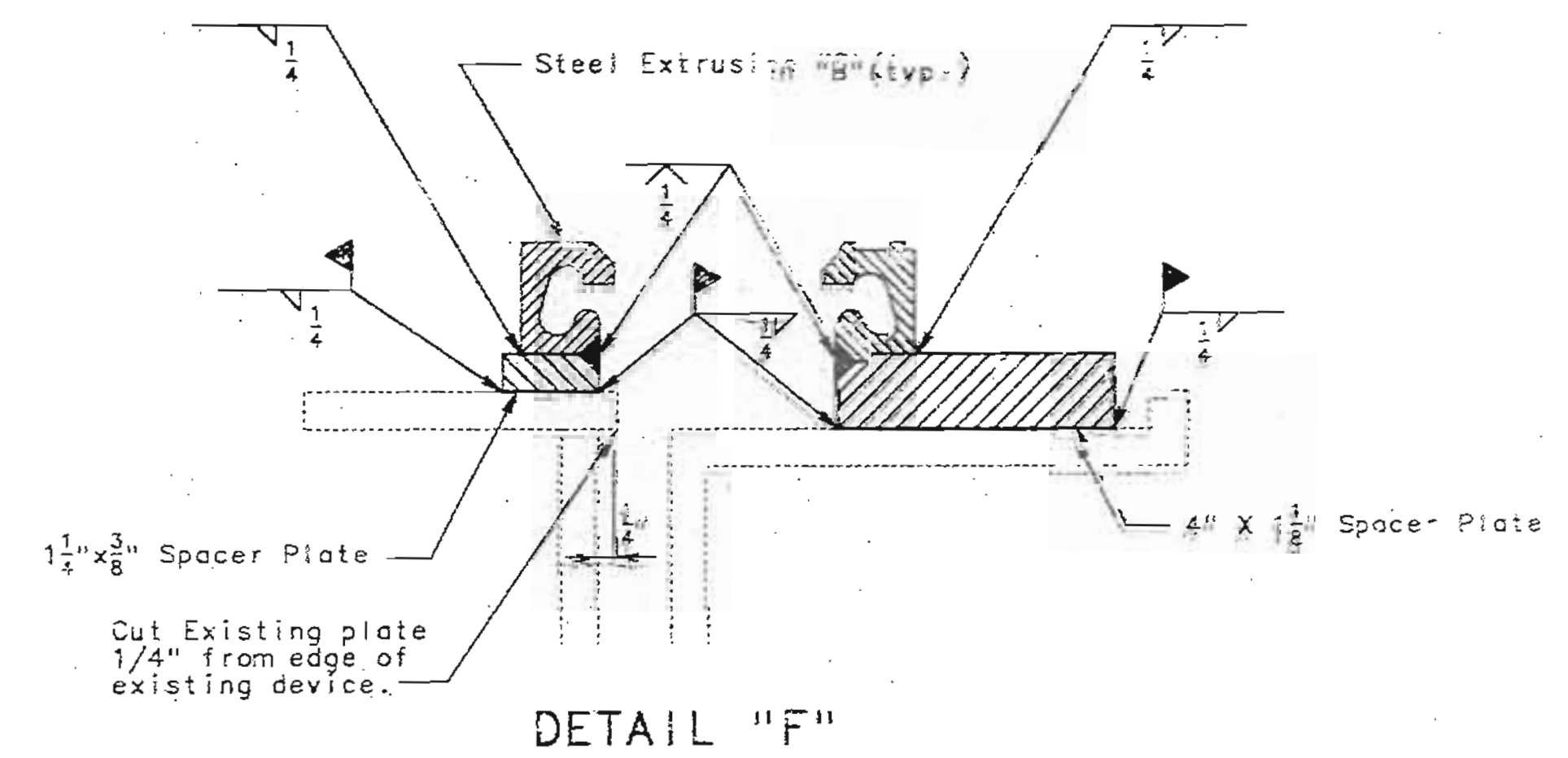
NOTE: The Strip Seal Gland shall extend past the edge of the slab and into the slab drain by 3/4".  
For Details of Drain at Expansion Device see sheet no. 26.



SECTION A-A



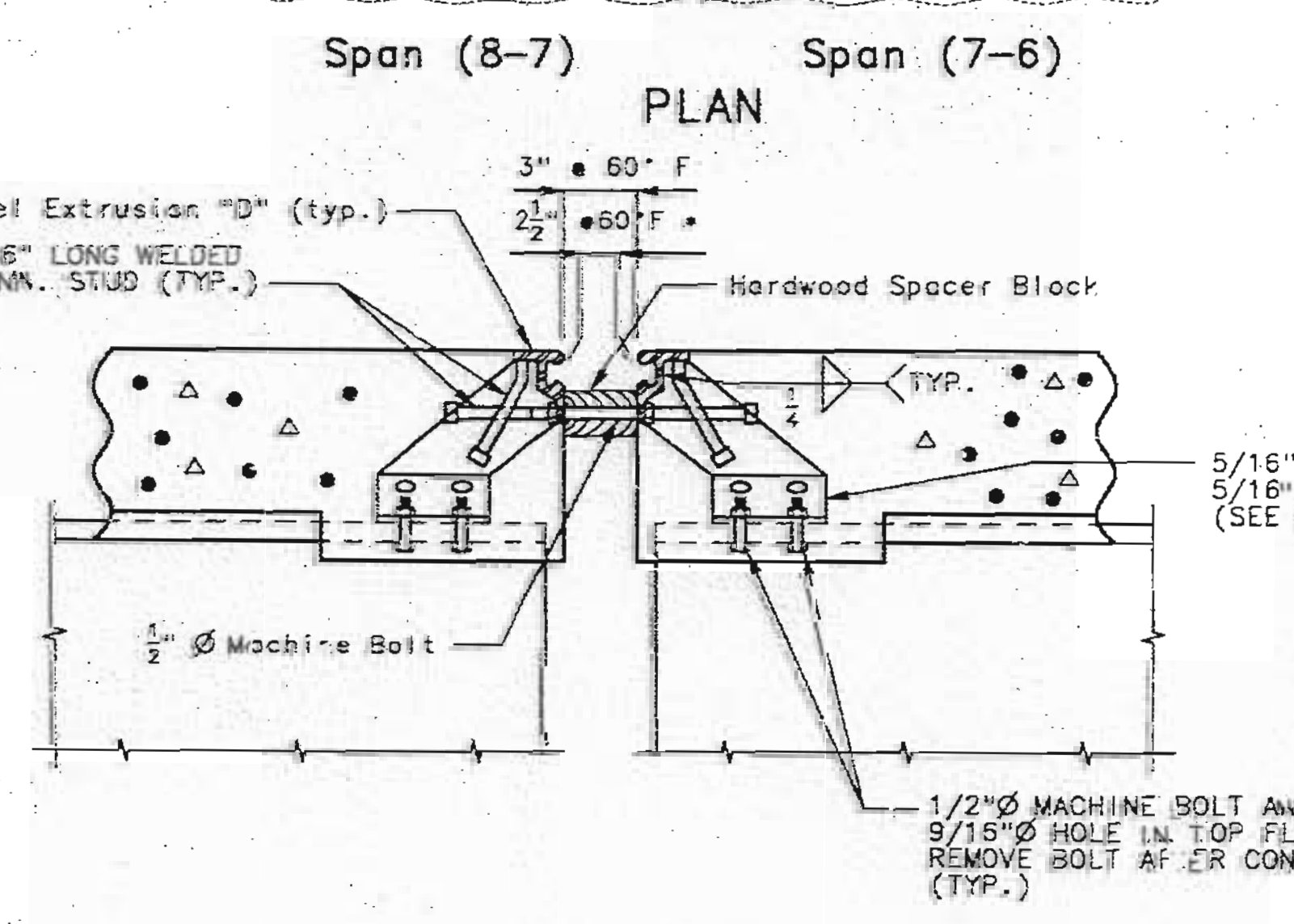
PART SECTION THRU MODIFICATION AT EXISTING EXPANSION DEVICE



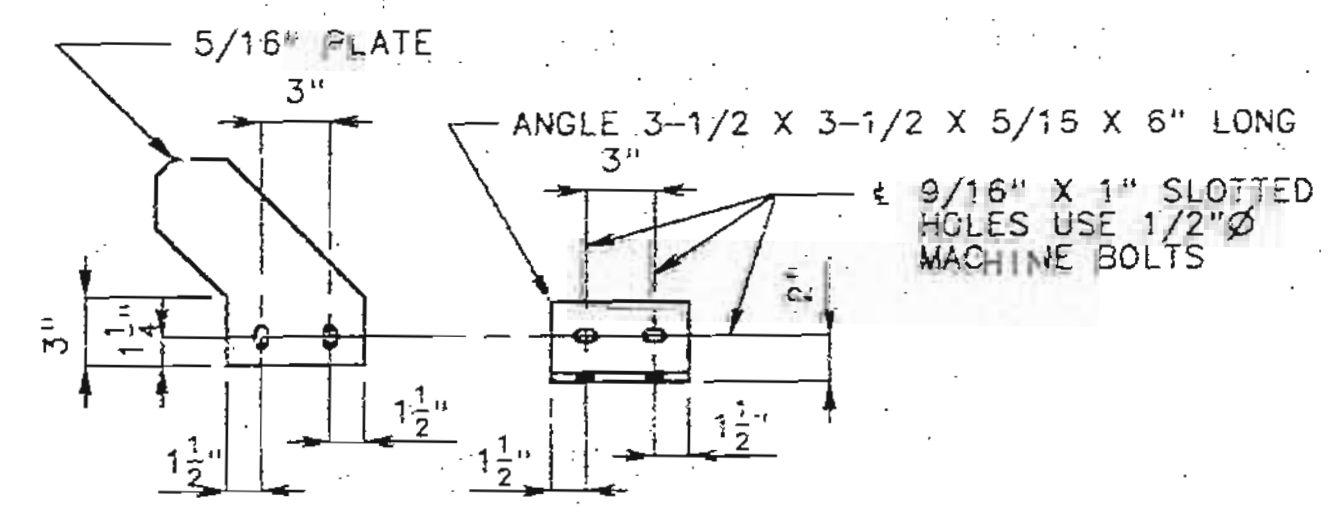
DETAIL "F"



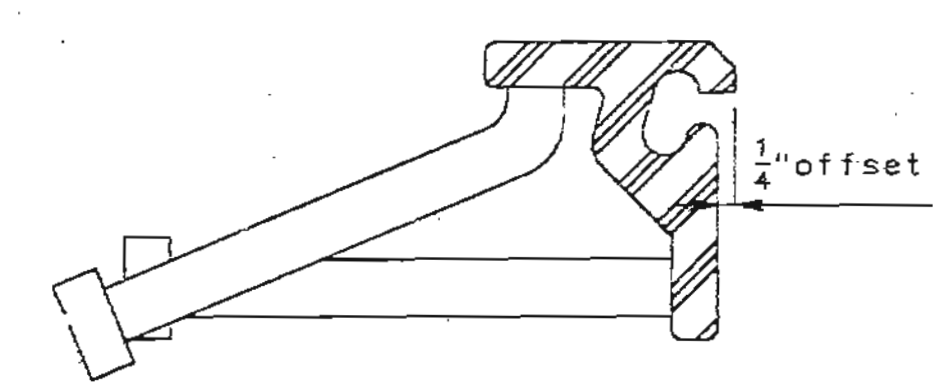
DETAIL OF EXTRUSION "B"



PART SECTION THRU EXPANSION DEVICE NEAR PROPOSED STRINGER



DETAIL "C"



DETAIL OF EXTRUSION "D"

NOTES FOR STRIP SEAL:  
The Expansion Device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.  
The contractor must verify all dimensions prior to fabrication.  
All welds shall conform to Section 712 of the Standard Specifications.  
Splices of steel extrusion shall develop full strength.  
All steel shall be A-36, except steel extrusions shall be A.S.T.M. A-588 or A-36.  
Anchors for the extrusions shall be approved welded studs (Detail thru C1022).  
Payment for steel extrusions shall be made under the contract unit price for "Strip Seal Expansion Device".  
Payment for furnishing, painting and placing structural steel plates and angles shall be included in the contract unit price for "Strip Seal Expansion Device".

NOTE: Gap dimension shall be increased 1/4" for each 10' fall in temperature and decreased 1/4" for each 10' rise in temperature.  
NOTE: If an Extrusion with offset dimension other than as shown in "DETAIL OF EXTRUSION" is utilized, dimension "x" shall be adjusted so as to maintain 2 1/2" clear expansion gap as shown.

DETAILS OF STRIP SEAL EXPANSION DEVICE NEAR PIER NO. 7

DETAILED DEC. 1993  
CHECKED DEC. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISOR: AUG. 26, 1994  
REPLACES SHEET NO. 22 OF 34.

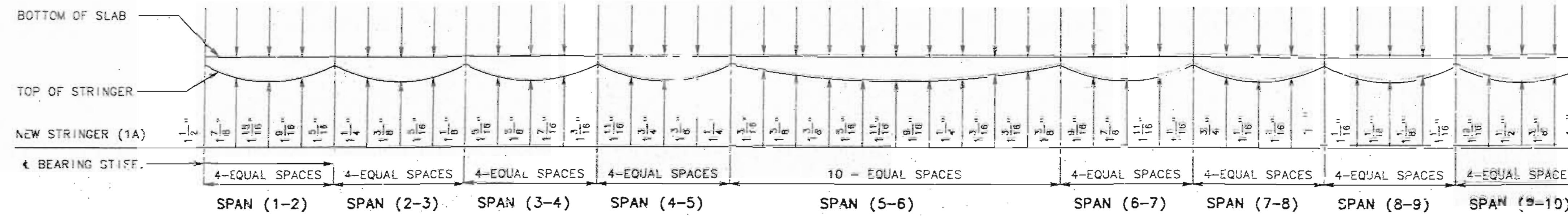
SHEET NO. 22 OF 34

REVISION PLANS

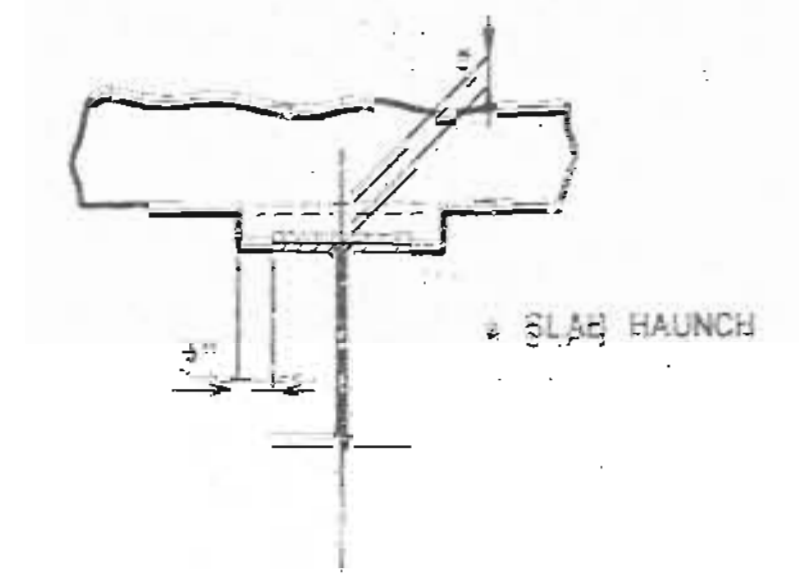
JACKSON COUNTY

A-167R

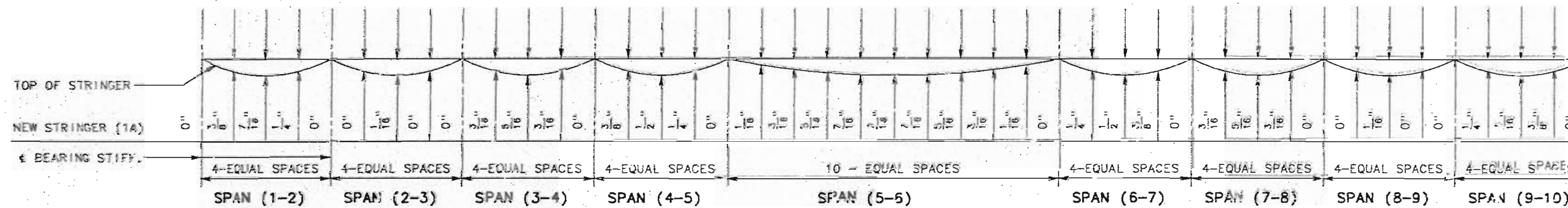
STATE	PROJ. NO.	SHEET NO.
Md.		91



SLAB HAUNCHING DIAGRAM

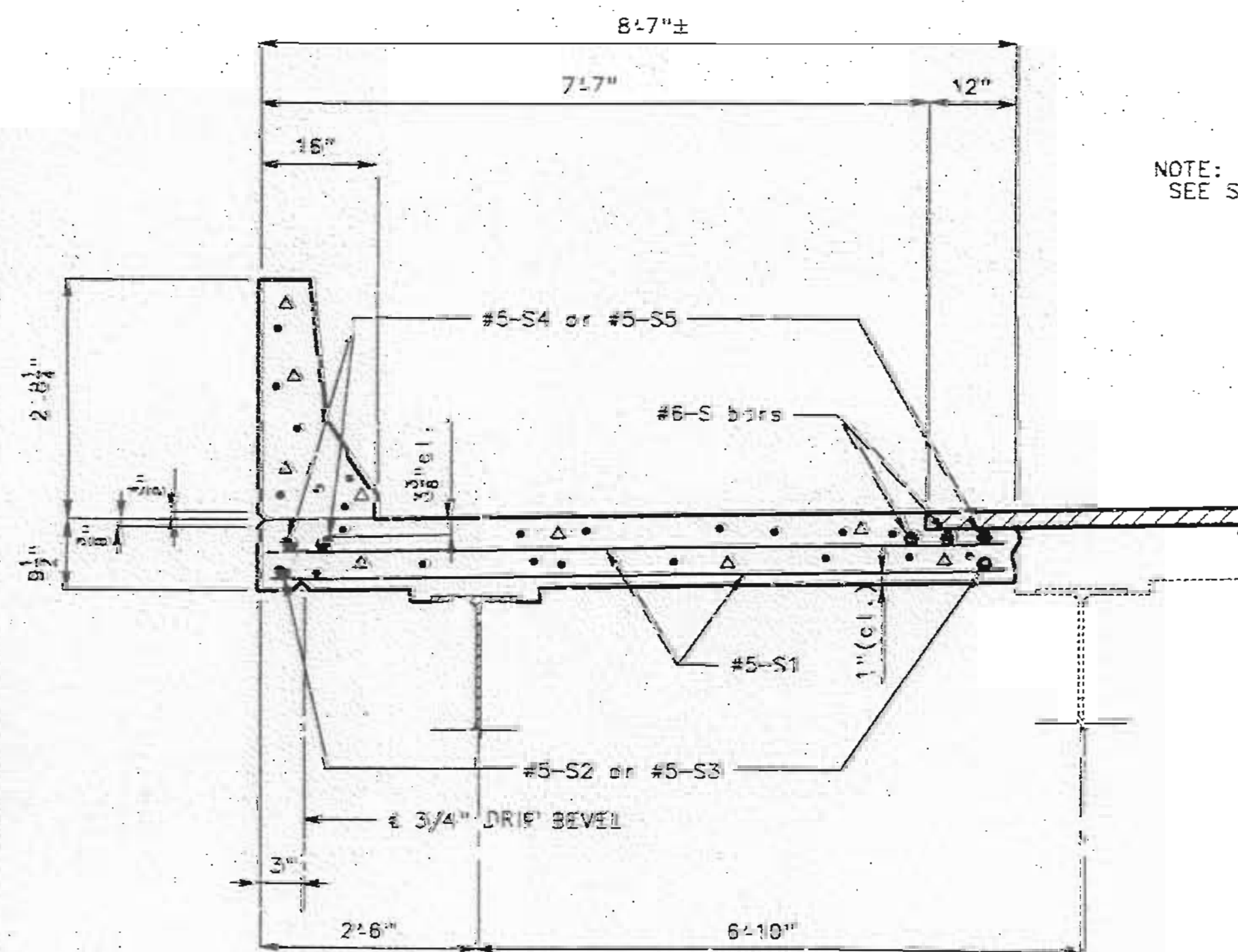


THEORETICAL SLAB HAUNCH



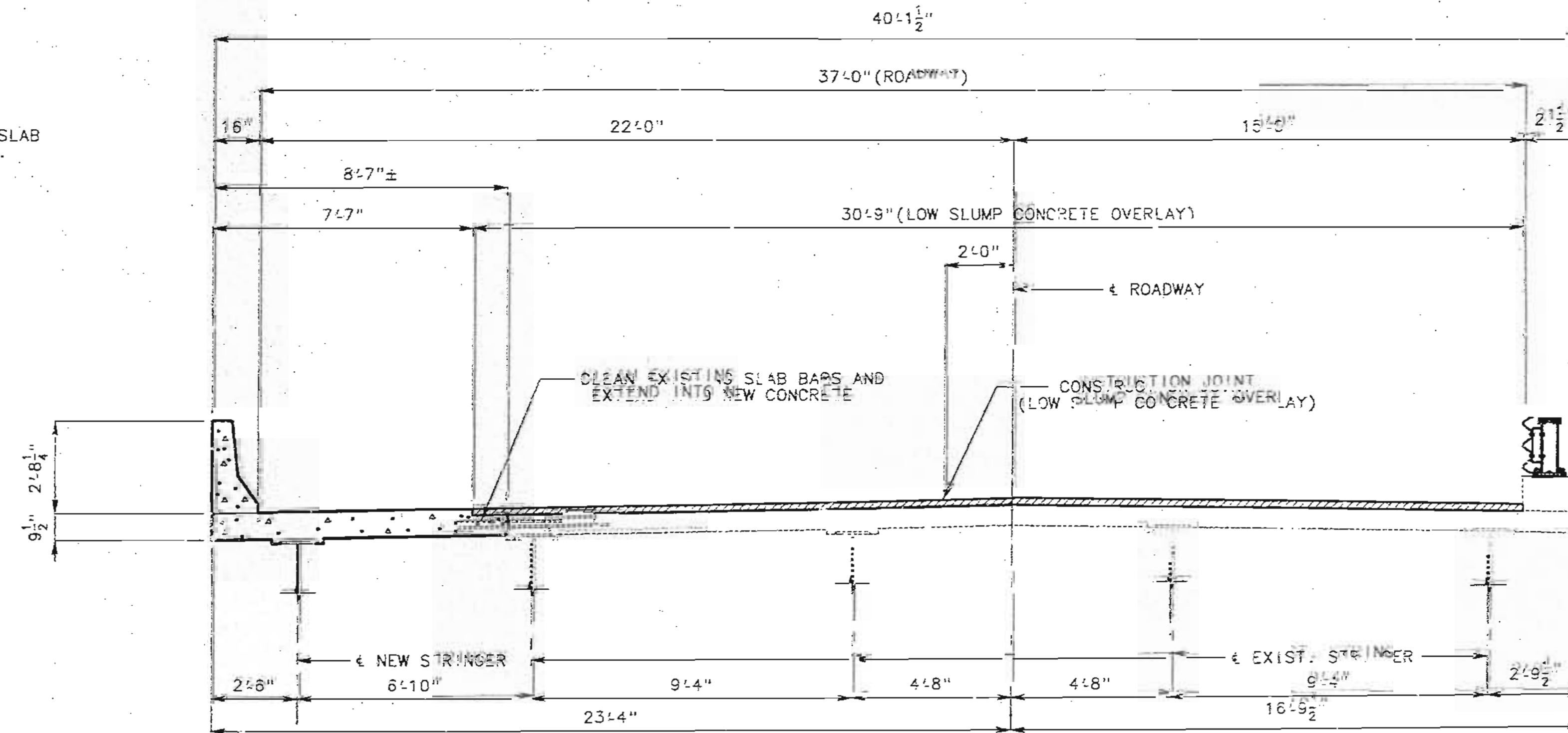
DEAD LOAD DEFLECTION

NOTE: 1/8" OF DEAD LOAD DEFLECTION FOR SPANS (1-2), (2-3), (3-4), (7-8), (8-9) & (9-10) DUE TO WEIGHT OF STRUCTURAL STEEL.  
1/8" OF DEAD LOAD DEFLECTION FOR SPANS (4-5) & (6-7) DUE TO WEIGHT OF STRUCTURAL STEEL.



NOTE: FOR PLAN OF SLAB SEE SHEET NO. 24

SECTION THRU SLAB WIDENING SHOWING REINFORCEMENT



SECTION THRU SLAB

NOTE: DIMENSIONS MAY VARY IF THE CHIRDER CAMBER AFTER ERECTION DIFFERS FROM PLAN CAMBER BY MORE OR LESS THAN THE 2% OF D.L. DEFLECTION DUE TO WEIGHT OF STRUCTURAL STEEL. NO PAYMENT WILL BE MADE FOR ANY ADJUSTMENT IN TERMINI OR ADDITIONAL CONCRETE REQUIRED FOR VARIATION IN HAUNCHING.

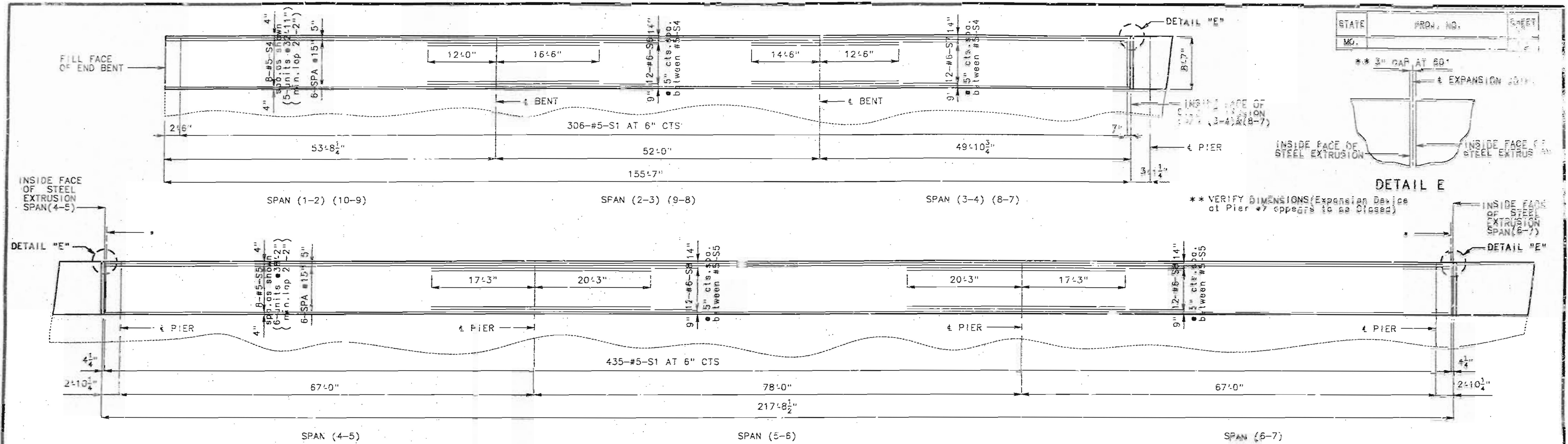
DETAILED BY: 1993  
CHECKED BY: 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

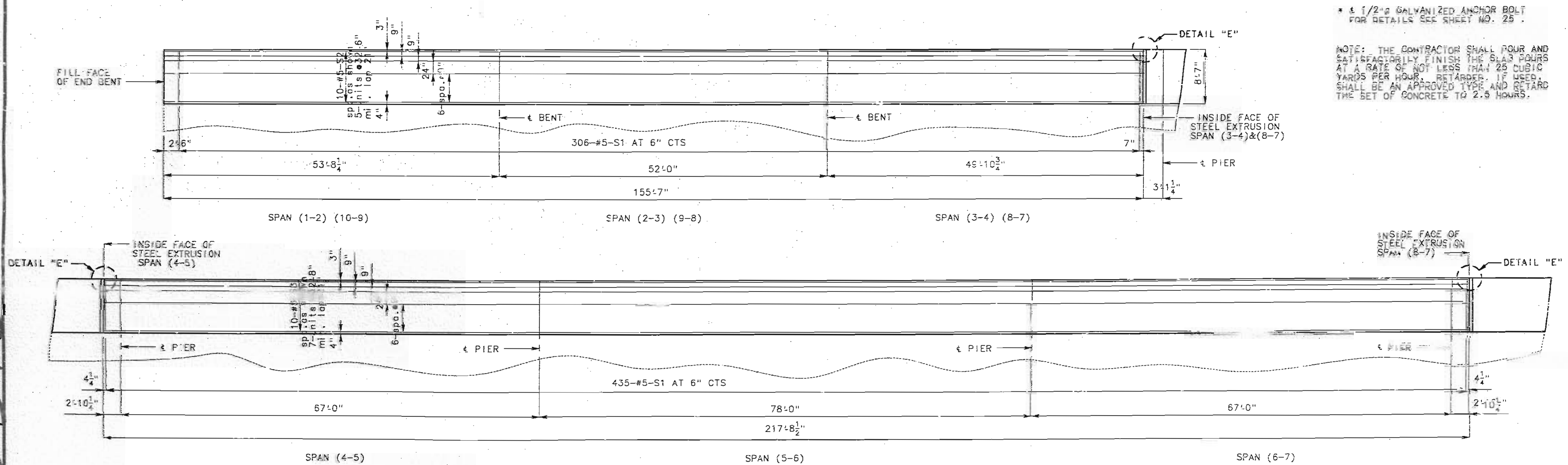
SHEET NO. 22 OF 24

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PART PLAN OF LEFT SLAB EXTENSION SHOWING TOP REINFORCEMENT



PART PLAN OF LEFT SLAB EXTENSION SHOWING BOTTOM REINFORCEMENT

1/2 2888  
 DETAILED AUG. 1993  
 CHECKED SEPT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 24 OF 54

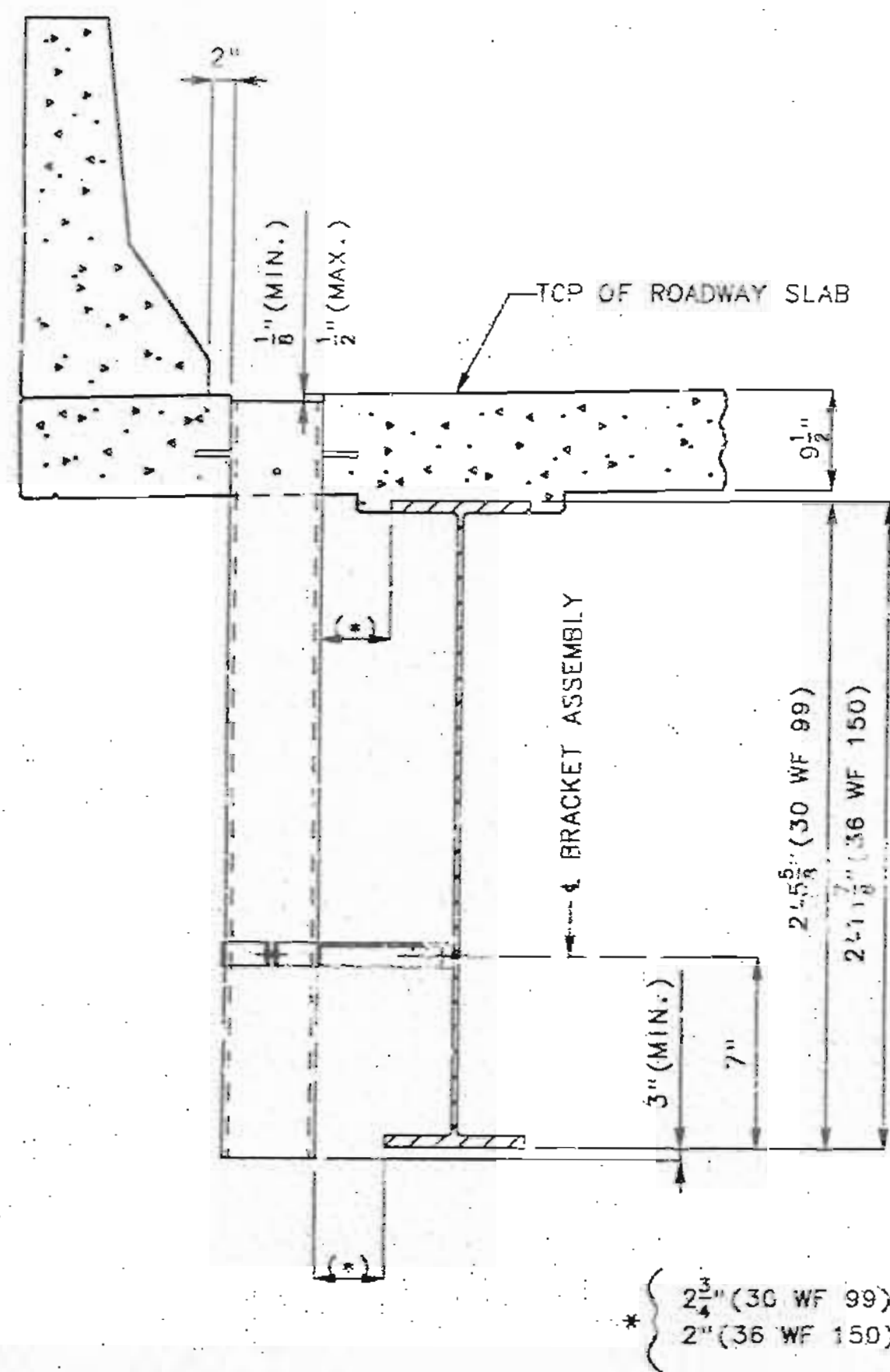
JACKSON

COUNTY

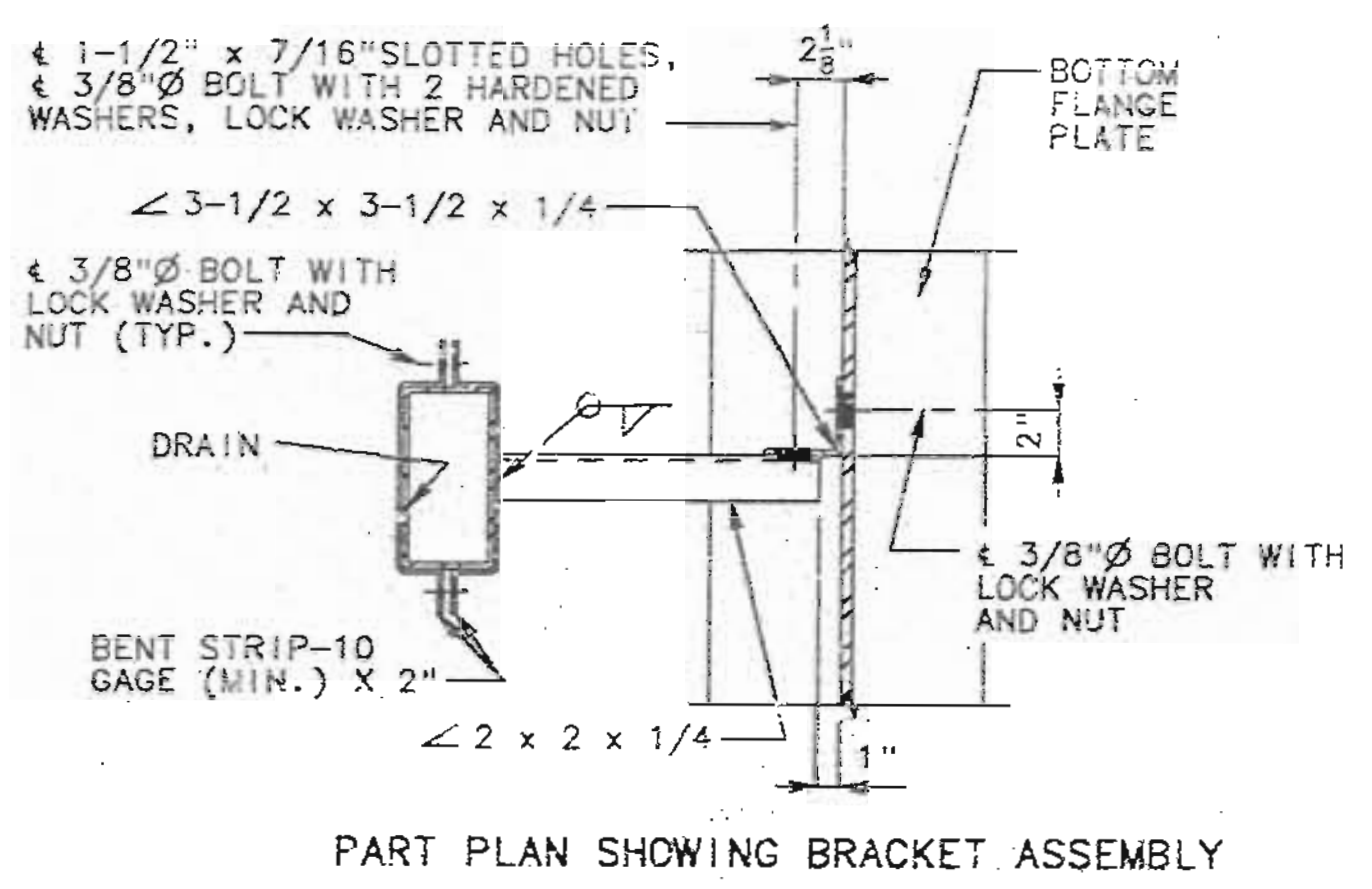
A-167R

STATE	PROJ. NO.	SHEET NO.
MO.		93

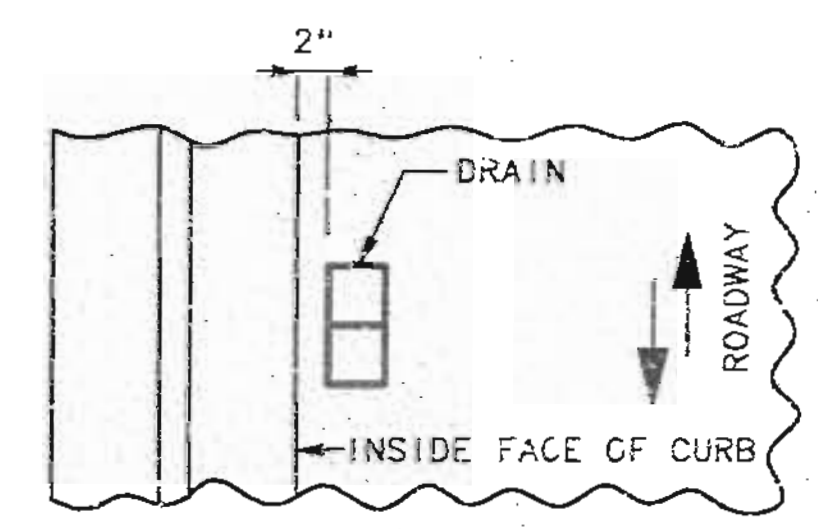
REVISED MAR 10 1994



PART ELEVATION OF SLAB AT DRAIN

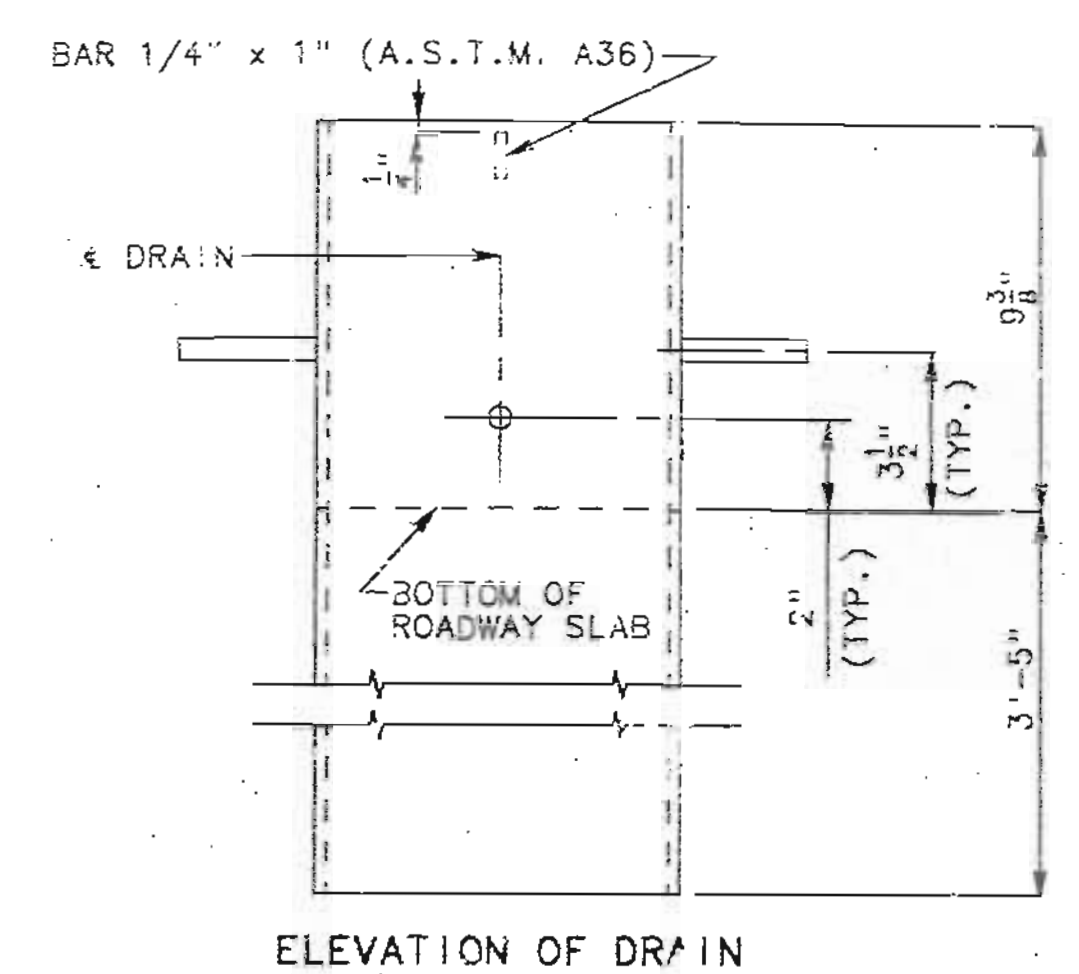


PART PLAN SHOWING BRACKET ASSEMBLY

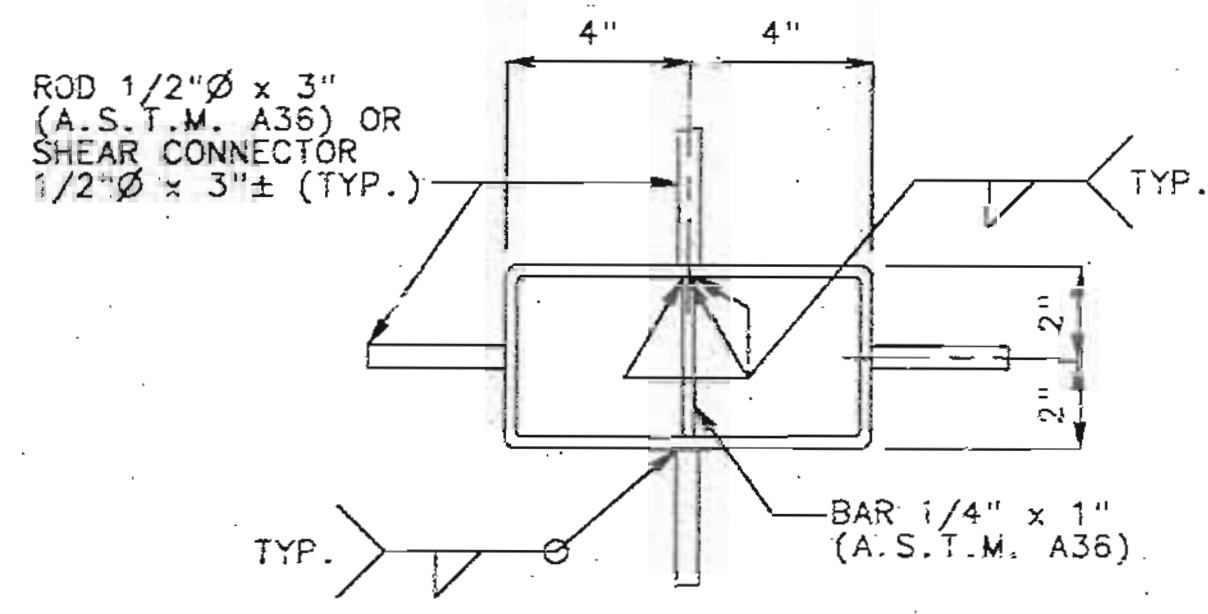


PART PLAN OF SLAB AT DRAIN

DETAILS OF DRAINS PARALLEL TO ROADWAY



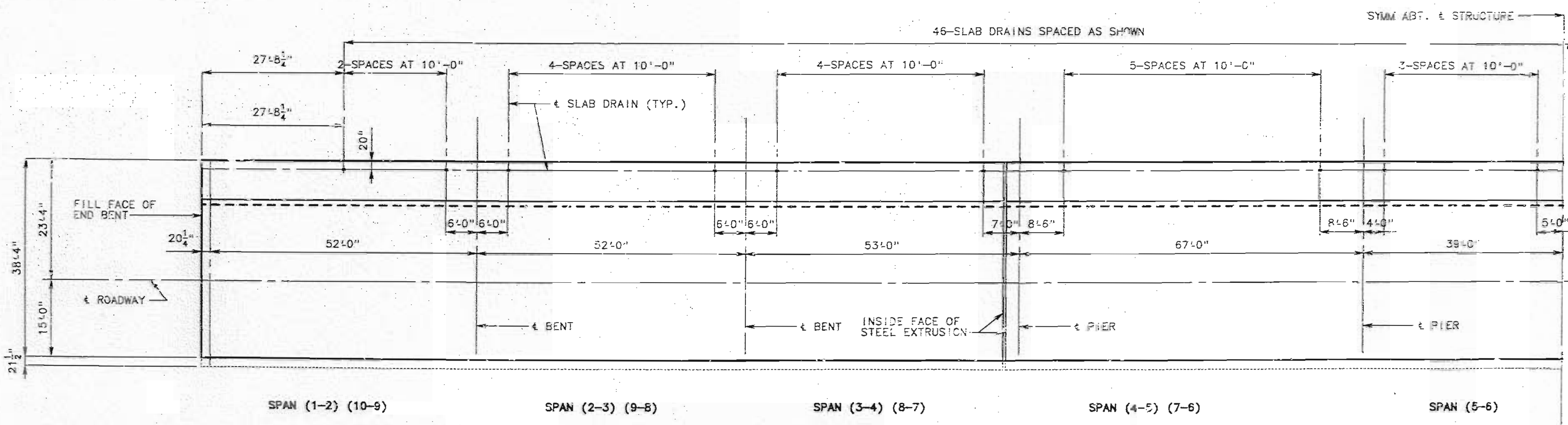
ELEVATION OF DRAIN



PLAN OF DRAIN

GENERAL NOTES:

- SLAB DRAINS MAY BE FABRICATED OF EITHER 1/2" WELDED SHEETS OF A.S.T.M. A36 STEEL OR FROM 1/4" STRUCTURAL STEEL TUBING A.S.T.M. A500 OR A501.
- OUTSIDE DIMENSIONS OF DRAINS ARE 8" x 4".
- LOCATE DRAINS IN THE SLAB BY DIMENSIONS SHOWN IN THE PART ELEVATION.
- SHIFT REINFORCING IN FIELD WHERE NECESSARY TO CLEAR DRAINS.
- THE DRAINS AND BRACKET ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.
- ALL BOLTS, HARDENED WASHERS, LOCK WASHERS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A153.
- THE BOLT HOLE FOR THE BRACKET ASSEMBLY ATTACHMENT SHALL BE LOCATED ON THE SHOP DRAWINGS.
- SHOP DRAWINGS WILL NOT BE REQUIRED FOR SLAB DRAINS AND THE BRACKET ASSEMBLY.
- FOR LOCATION OF EXPANSION JOINT DRAIN SEE SHEET NO. 26.



PLAN OF SLAB SHOWING SLAB DRAIN LOCATION

SLAB DRAIN DETAILS (LEFT CURB ONLY)

DRAIN 103 3.30 1, 1A  
 STEEL GDR DRAIN REVISED  
 FEB. 1975 OCT. 1988  
 244

DETAILED AUG. 1993  
 CHECKED OCT. 1993

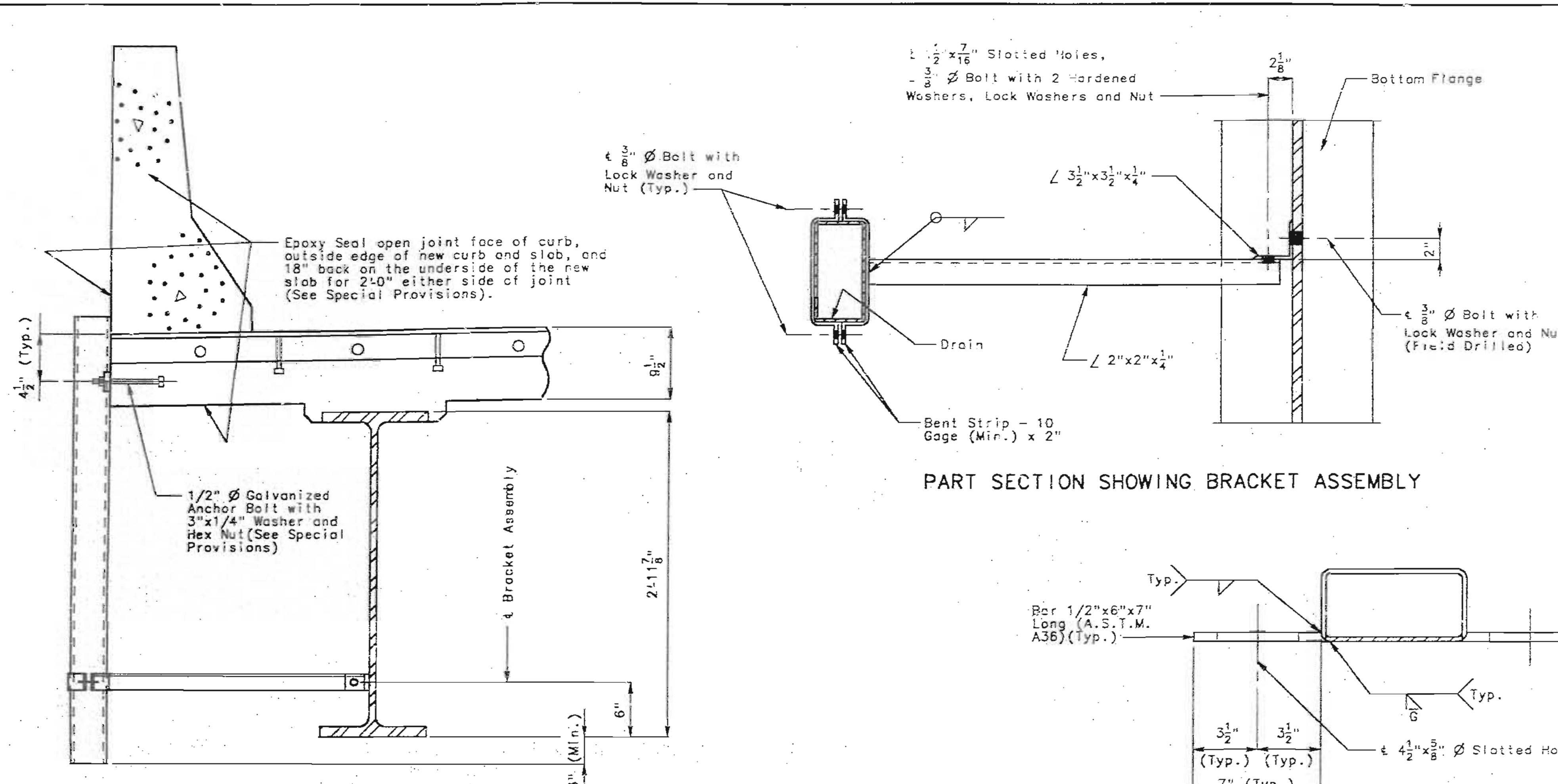
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 25 OF 34.

JACKSON COUNTY

A-167R

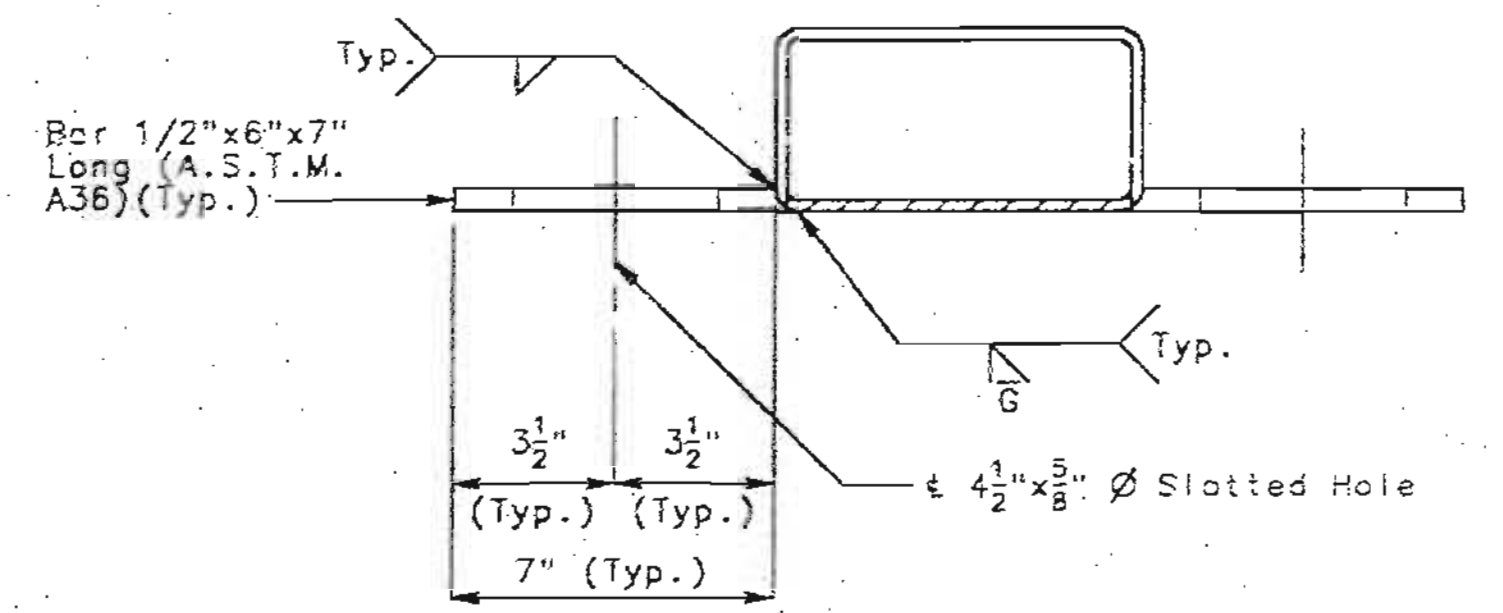
STATE	PROJ. NO.	SHEET NO.
MO.		94



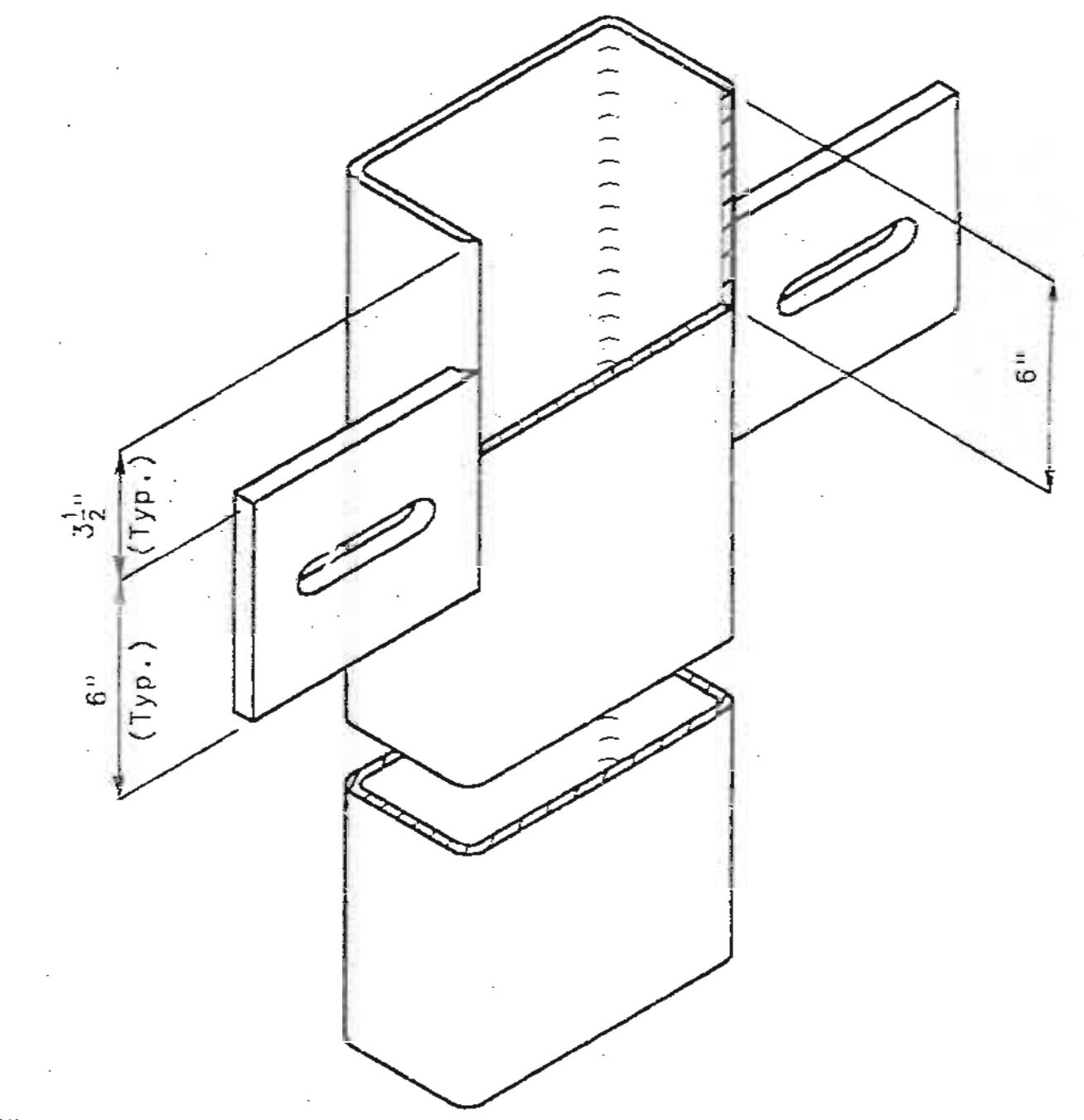
PART SECTION SHOWING BRACKET ASSEMBLY

NOTES FOR SLAB DRAIN:  
 Slab Drains may be fabricated of either 1/4" welded sheets of A.S.T.M. steel or from 1/4" structural steel tubing A.S.T.M. A500 or A501.  
 Outside dimensions of Drains are 8"x6".  
 The Drains and Bracket Assembly shall be galvanized in accordance with A.S.T.M. A123.  
 All Bolts, Washers, Hardened Washers, Lock Washers and Nuts shall be galvanized in accordance with A.S.T.M. A153.  
 At expansion side of drains, tighten nuts, back off one half turn and burr threads.  
 Shop Drawings will not be required for Slab Drains and the Bracket Assembly.  
 Payment for furnishing and installing Slab Drains shall be included in the contract unit price for "Strip Seal Expansion Device".

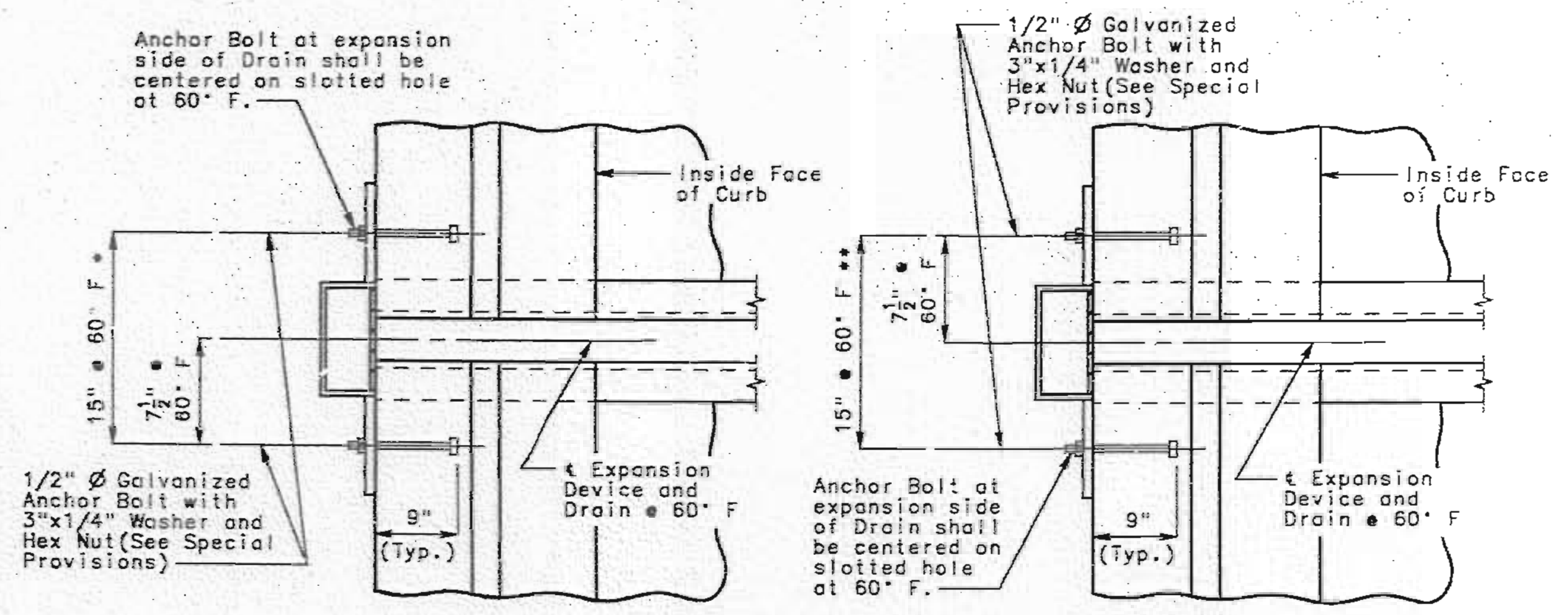
PART ELEVATION OF SLAB AT DRAIN



PLAN OF DRAIN



AUXILIARY VIEW OF DRAIN



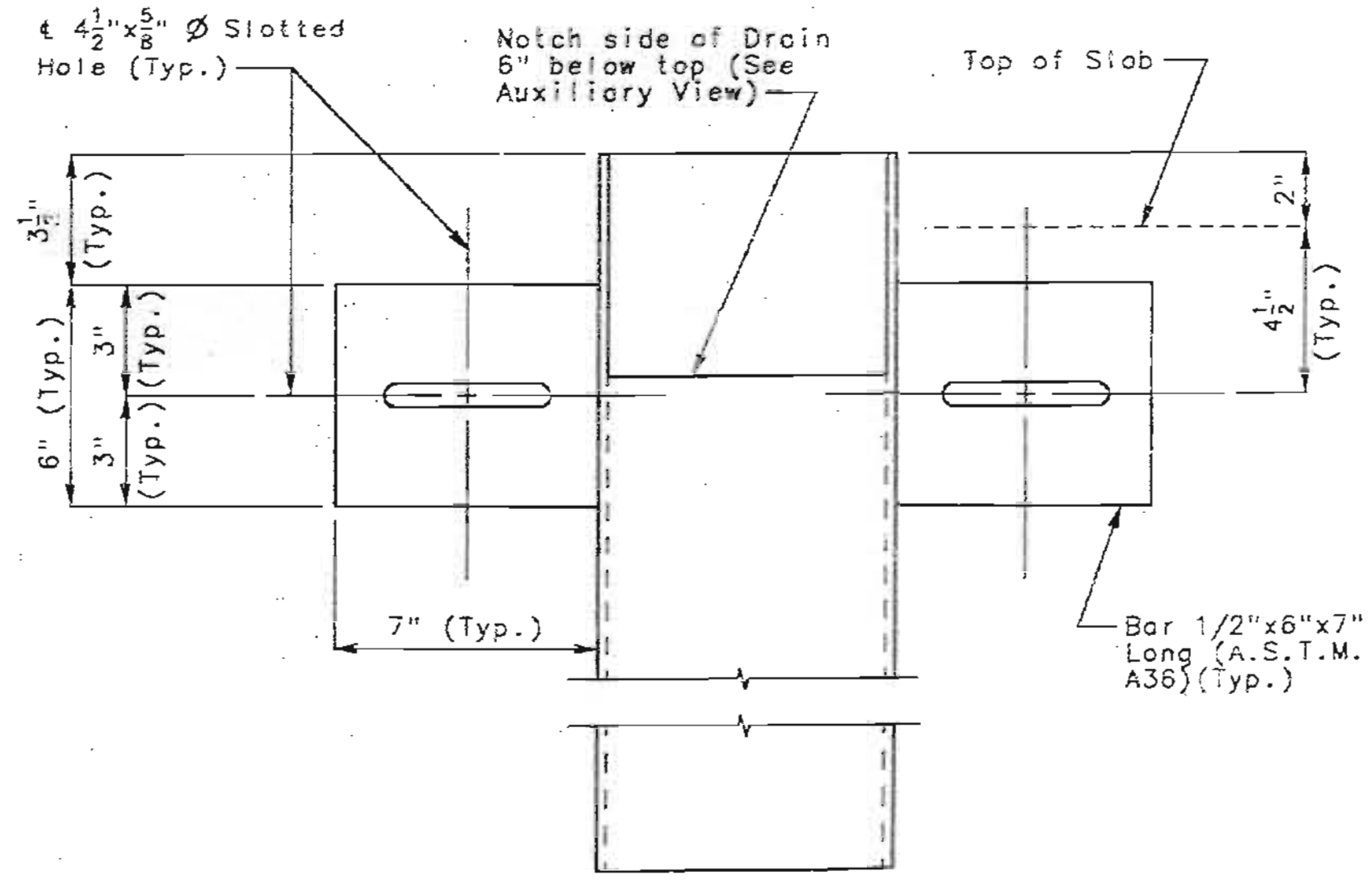
PART PLAN OF DRAIN ATTACHMENT NEAR PIER NO. 4

PART PLAN OF DRAIN ATTACHMENT NEAR PIER NO. 7

NOTE: Slab Drain shall be centered on Slab Joint @ 60° F.

- \* Dimension shall be increased 3/16" for each 10° fall in temperature and decreased 3/16" for each 10° rise in temperature.
- \*\* Dimension shall be increased 1/4" for each 10° fall in temperature and decreased 1/4" for each 10° rise in temperature.

DETAILS OF DRAIN AT EXPANSION DEVICE



ELEVATION OF DRAIN

NOTE: For location of Drains see sheets no. 21 & 22.

114 788

1 DETAILED OCT. 1993  
 CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

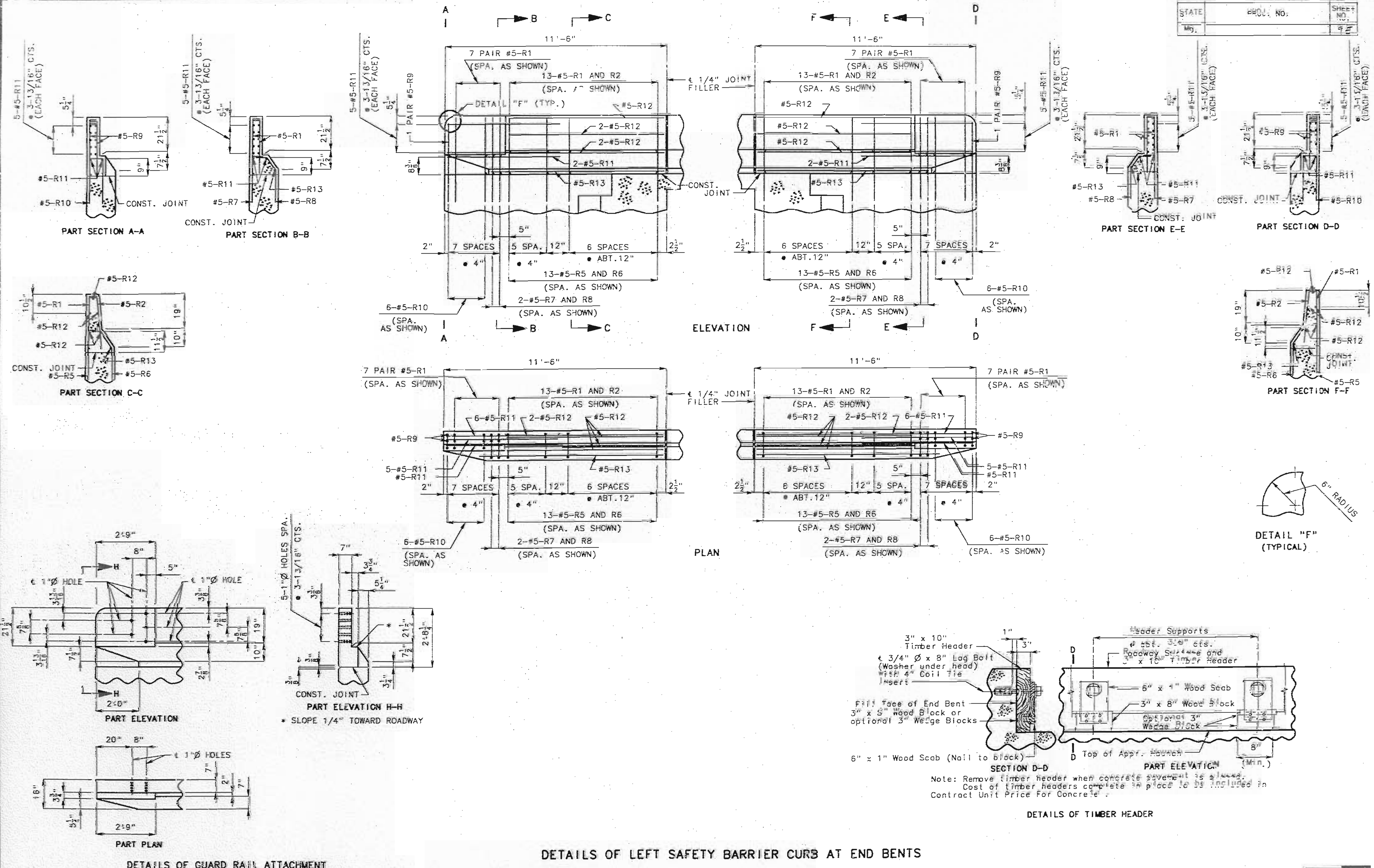
SHEET NO. 26 OF 34

JACKSON COUNTY

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STATE	PROJ. NO.	SHEET NO.
Mo.		46



B/C EPI6, OS 3.30, INT-  
 INT-END POST (11/10) REVISOR  
 AUG. 1978  
 AUG. 1993

DETAILED AUG. 1993  
 CHECKED OCT. 1993

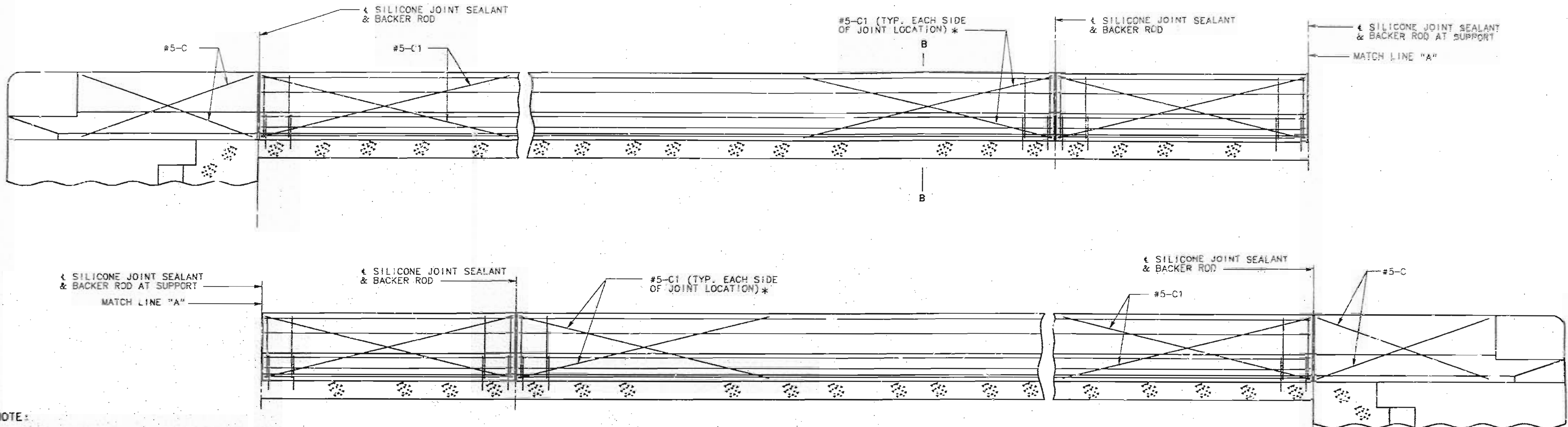
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

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JACKSON COUNTY A-167R



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NOTE:

TOP OF SAFETY BARRIER CURB SHALL BE BUILT PARALLEL TO GRADE WITH SAFETY BARRIER CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.

WHEN THE SAFETY BARRIER CURB IS BID BY LINEAR FEET, THE CONTRACT UNIT PRICE SHALL INCLUDE THE COST OF ALL CONCRETE AND REINFORCEMENT, COMPLETE-IN-PLACE.

CONCRETE IN THE SAFETY BARRIER CURB SHALL BE CLASS B1.

MEASUREMENT OF SAFETY BARRIER CURB IS TO THE NEAREST LINEAR FOOT FOR EACH STRUCTURE, MEASURED ALONG THE OUTSIDE TOP OF SLAB FROM END OF WING TO END OF WING.

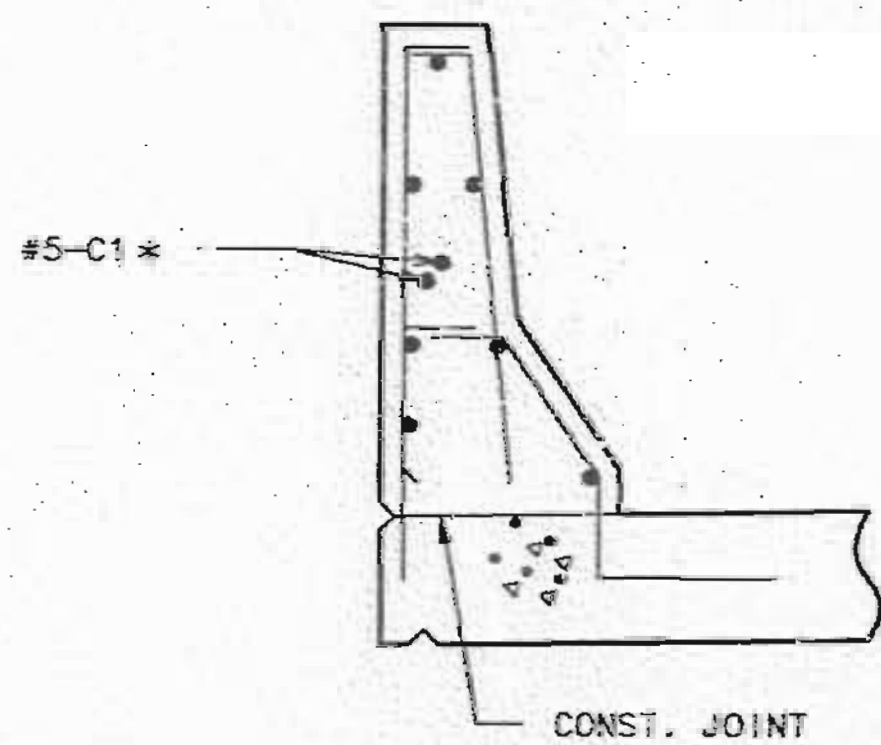
TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

NOTE:

JOINT SEALANT AND BACKER RODS SHALL BE USED ON ALL SLIP-FORM BRIDGE SAFETY BARRIER CURBS INSTEAD OF JOINT FILLER.

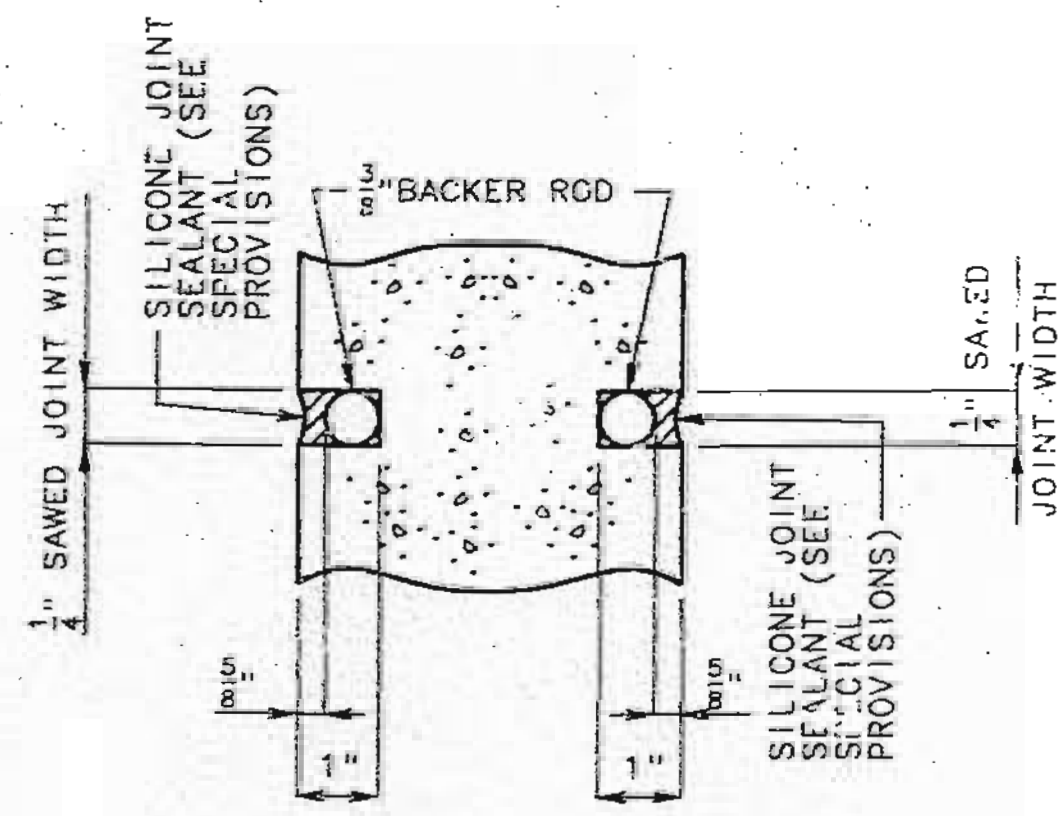
PLASTIC WATERSTOP SHALL NOT BE USED WITH SLIP-FORM OPTION.

C BARS (SLIP-FORM OPTION ONLY) SHALL BE USED IN ADDITION TO CAST-IN-PLACE CONVENTIONAL FORMING REINFORCEMENT FOR BRIDGE SAFETY BARRIER CURB.



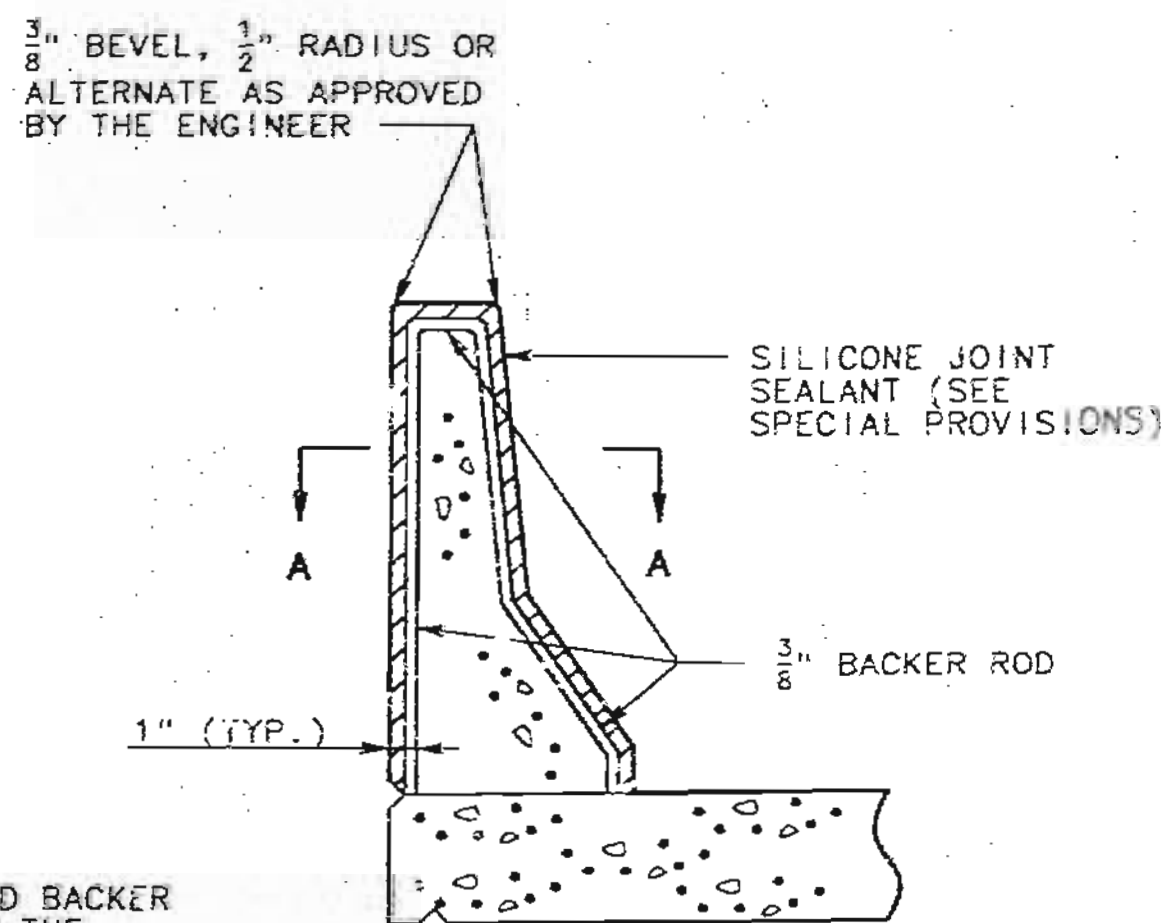
PART SECTION B-B

NOTE: \* EACH SIDE OF JOINT LOCATION.



SECTION A-A

NOTE: COST OF SILICONE JOINT SEALANT AND BACKER ROD COMPLETE IN PLACE TO BE INCLUDED IN THE CONTRACT UNIT PRICE FOR SAFETY BARRIER CURB.



SECTION THRU JOINT

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 29 OF 34

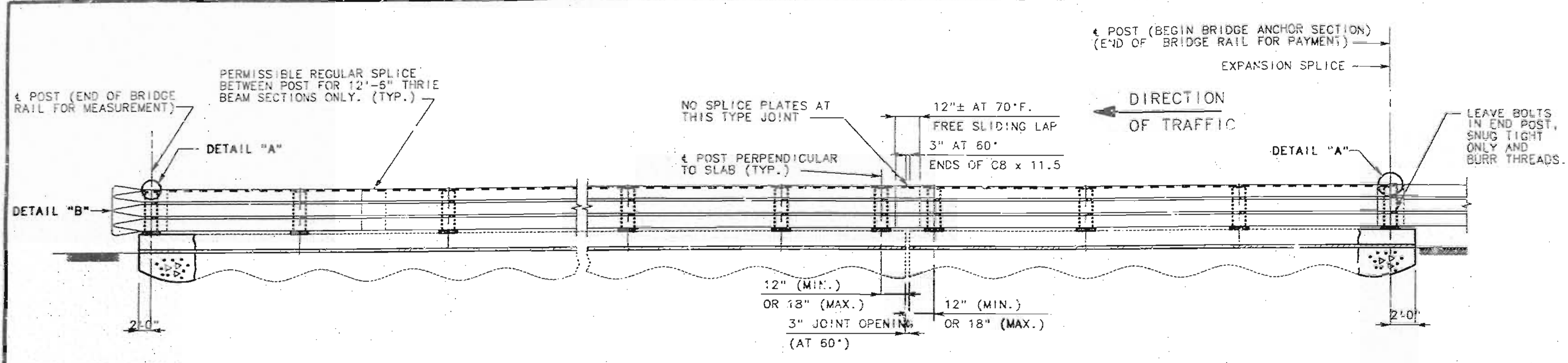
JACKSON COUNTY

A-167R

B/C SF16, GS 3.30, A  
 BARRIER CURB ELEVATION  
 FEB. 1991  
 REVISED: DEC. 1992  
 8895

DETAILED AUG. 1993  
 CHECKED OCT. 1993

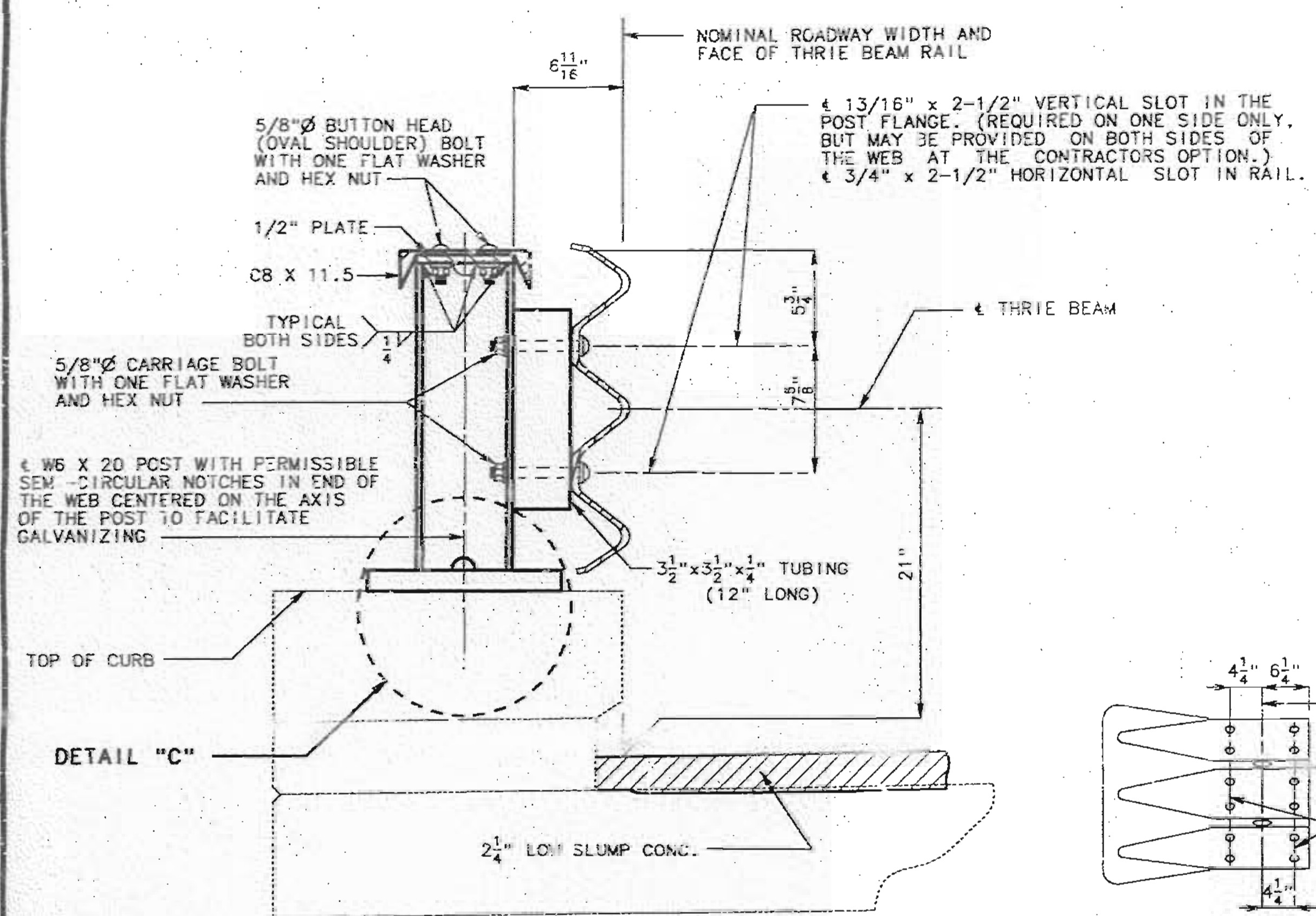
STATE	PROJ. NO.	SHEET NO.
MO.		98



NOTE: USE A GUARD RAIL AT BRIDGE ENTRANCE ENDS ONLY (UNLESS REQUIRED AT EXIT END FOR HIGH FILL).

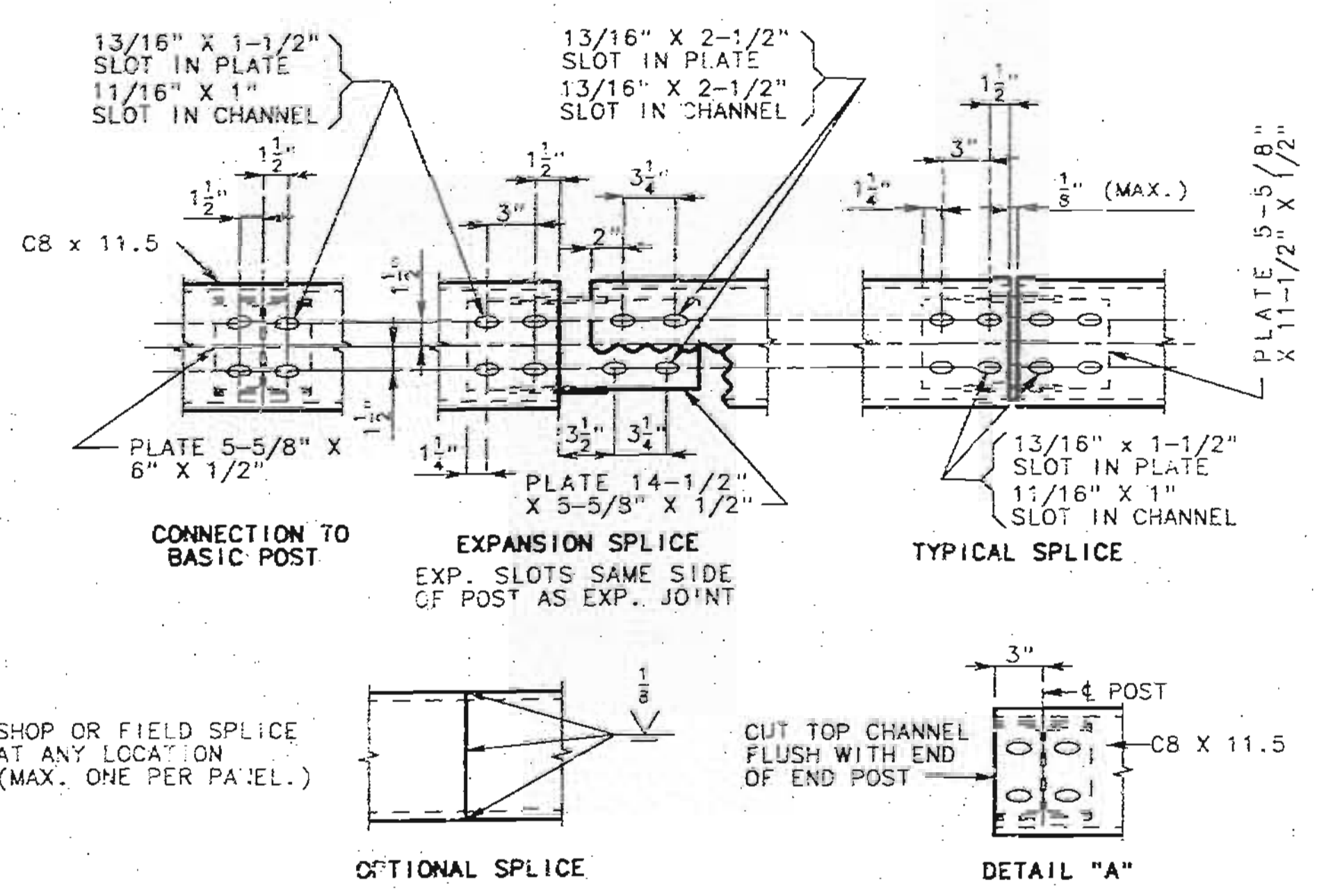
PART SECTION THRU SLAB SHOWING THRIE BEAM RAIL

**GENERAL NOTES:**  
 DESIGN AND TO 1992 SPECIFICATIONS  
 CHANNEL MEMBERS OF THRIE BEAM RAIL SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF SIX POSTS (EXCEPT AT END BENTS).  
 ALL BOLTS, NUTS, WASHERS AND PLATES ARE CONSIDERED AS PARTS OF THE THRIE BEAM RAIL FOR PAYMENT.  
 ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING AND ALL ANCHOR BOLTS, NUTS, WASHERS AND PLATES SHALL BE GALVANIZED AFTER FABRICATION, FOR PROTECTIVE COATING AND MATERIAL REQUIREMENT OF STEEL RAILING, SEE SECTION 1040 OF THE MISSOURI STANDARD SPECIFICATIONS.  
 RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION, AND ALIGNED ACCORDING TO SECTION 713 OF THE MISSOURI STANDARD SPECIFICATIONS, EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEVIATE MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE 3" X 1-3/4" AND PLACED BETWEEN THE POST AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.  
 AT THE EXPANSION SPLICE IN THE THRIE BEAM RAILS AND CHANNELS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.  
 AT THE THRIE BEAM CONNECTION TO POSTS ON WINGS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.  
 MINIMUM LENGTH OF THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.  
 USE 5/8 INCH BUTT HEAD, OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS. (THICKNESS OF HEX NUTS = 3/8" MIN.)  
 THRIE BEAM GUARD RAIL ON THE BRIDGE SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE.  
 POSTS, TOP PLATES, CHANNELS AND CHANNEL SPLICE PLATES SHALL BE FABRICATED FROM A-36 STEEL AND GALVANIZED.  
 WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN THE BOLT HEAD AND BEAM). THEY SHALL BE RECTANGULAR IN SHAPE (3" X 1-3/4" X 3/16" MIN.) AND FLAT WITH A 1/16" X 1" SLOT, OR WHEN NECESSARY OF SUCH DESIGN AS TO FIT THE CONTOUR OF THE BEAM. (USE A 3" X 1-3/4" X 5/16" RECTANGULAR WASHER BETWEEN THE POST AND THE THRIE BEAM RAIL.)  
 SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. (ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)  
 FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 712 OF THE MISSOURI STANDARD SPECIFICATIONS.  
 IN ADDITION TO THE EXPANSION PROVISIONS AT NOTED EXPANSION SPLICE, EXPANSION SPLICES IN THE THRIE BEAM RAIL AND CHANNEL SHALL BE PROVIDED AT OTHER LOCATIONS SO THAT THE MAXIMUM LENGTH WITHOUT EXPANSION PROVISIONS DOES NOT EXCEED 200 FT.  
 CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING MATERIALS.  
 SHIM PLATES 6" X 6" X 1/16" MAY BE USED BETWEEN THE TOP OF POST AND THE CHANNEL MEMBER AS REQUIRED FOR VERTICAL ALIGNMENT.  
 SEE MISSOURI STANDARD PLANS DRAWING 606.00 FOR DETAILS NOT SHOWN.  
 SEE SHEET NO. 31 FOR RAIL POST SPACING.

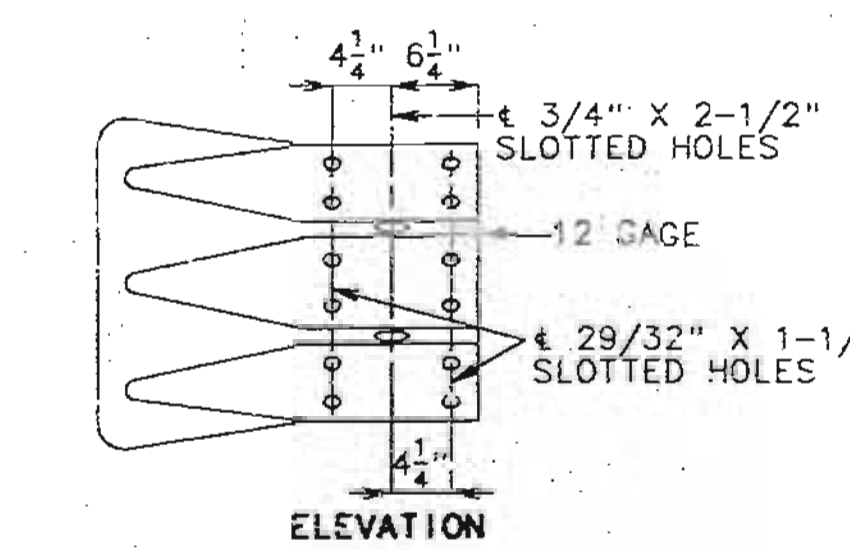


PART SECTION AT RAIL POST

NOTE: FOR DETAIL "C" SEE SHEET NO. 29.

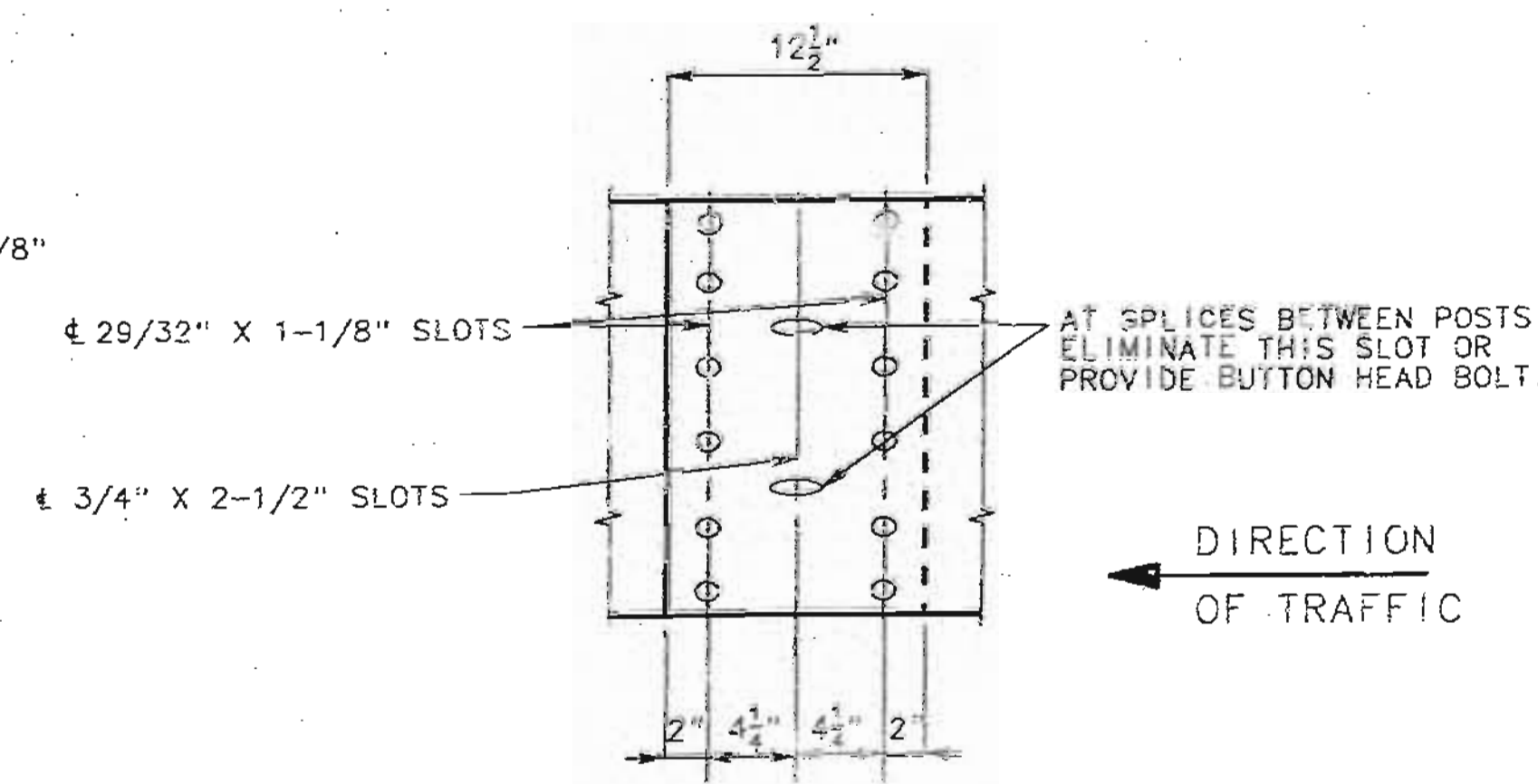


CHANNEL MEMBER DETAILS

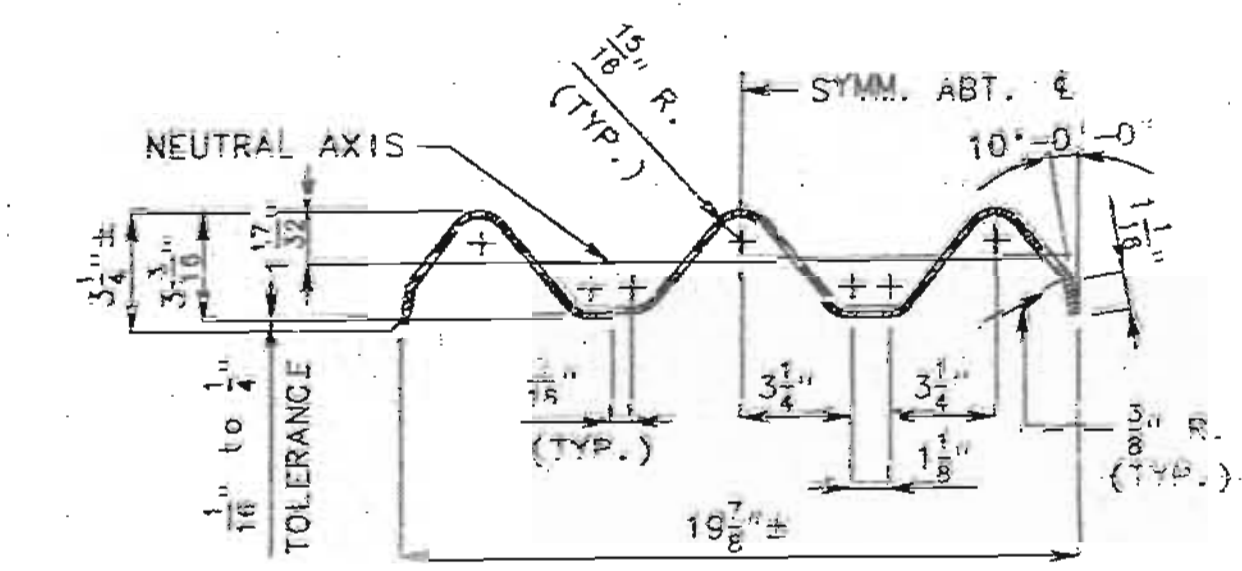


DETAIL "B" (FLARED END SECTION)

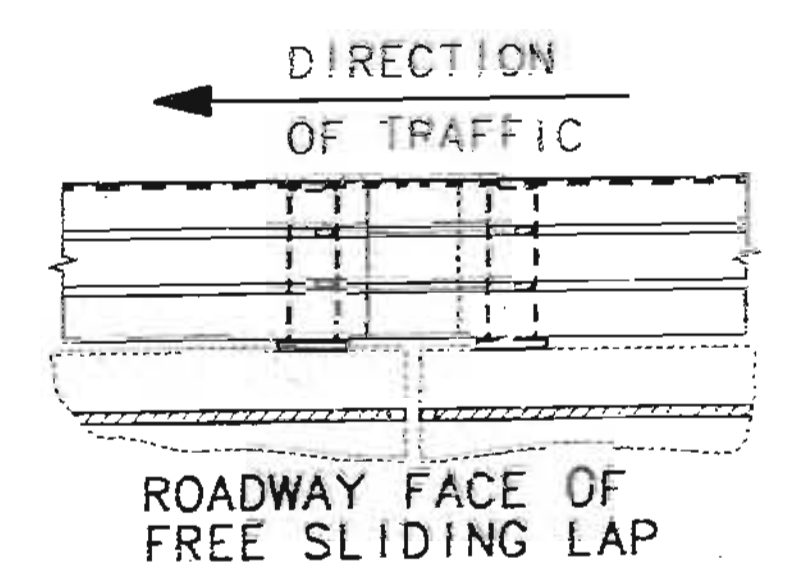
NOTE: PAYMENT FOR "FLARED END SECTION" TO BE INCLUDED IN PRICE BID FOR BRIDGE GUARD RAIL (THRIE BEAM)



THRIE BEAM RAIL SPLICE DETAILS



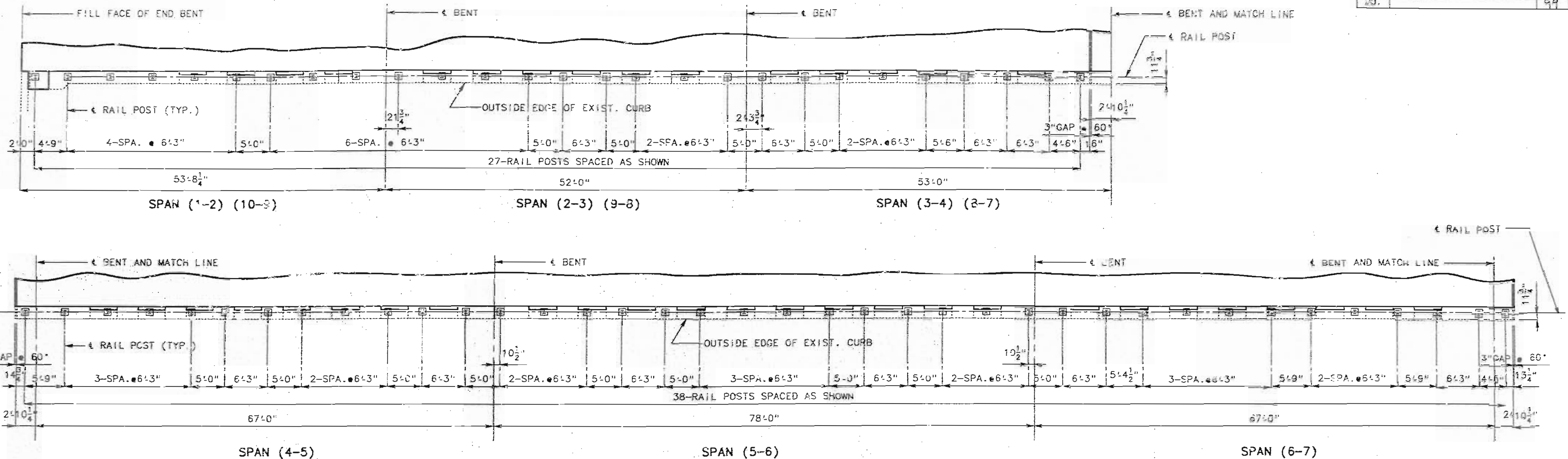
SECTION THRU THRIE BEAM RAIL



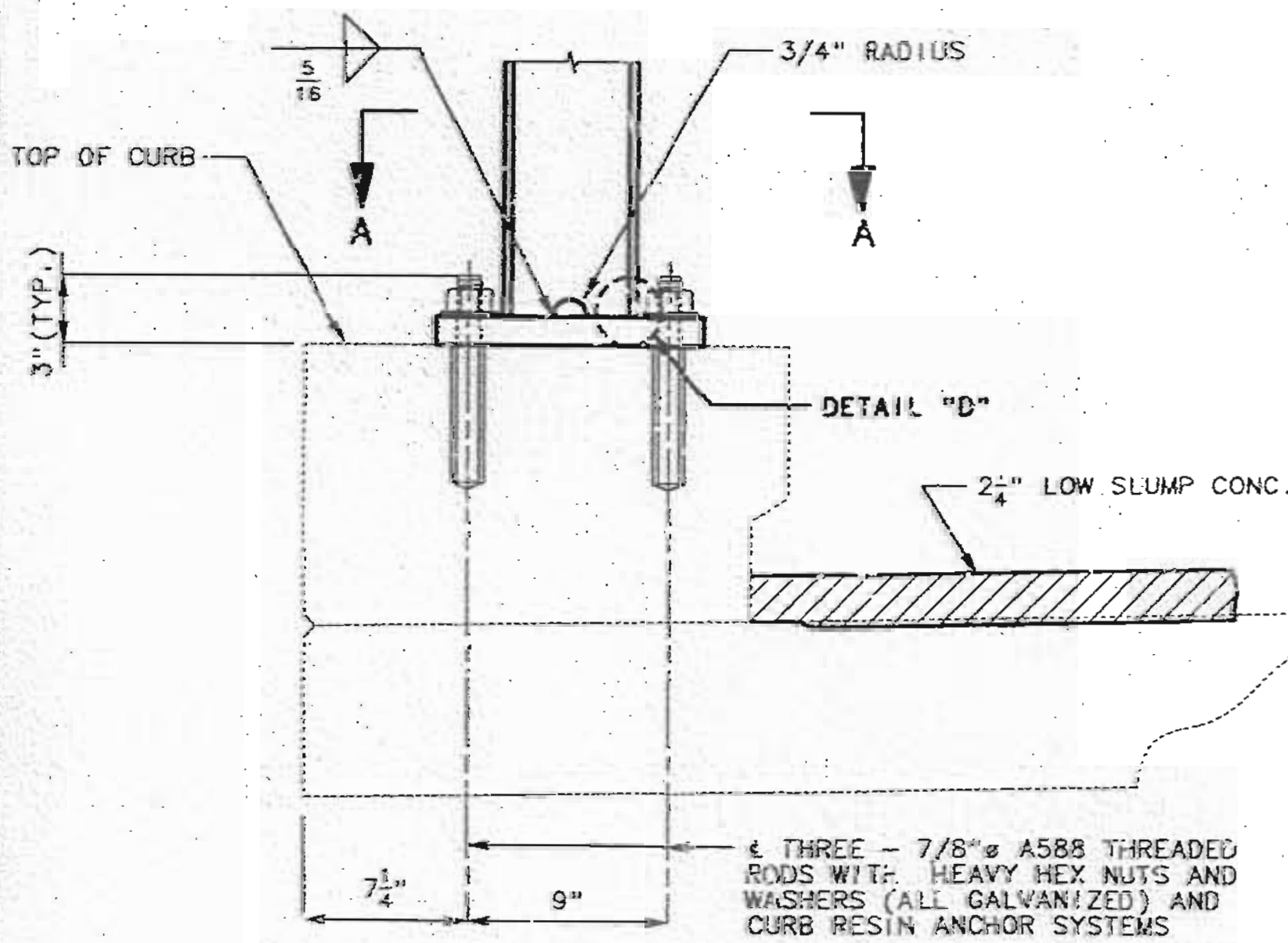
ROADWAY FACE OF FREE SLIDING LAP

THRIE BEAM RAIL  
 REVISIONS  
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 2 11/1993  
 3 01/1994  
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 5 09/1994  
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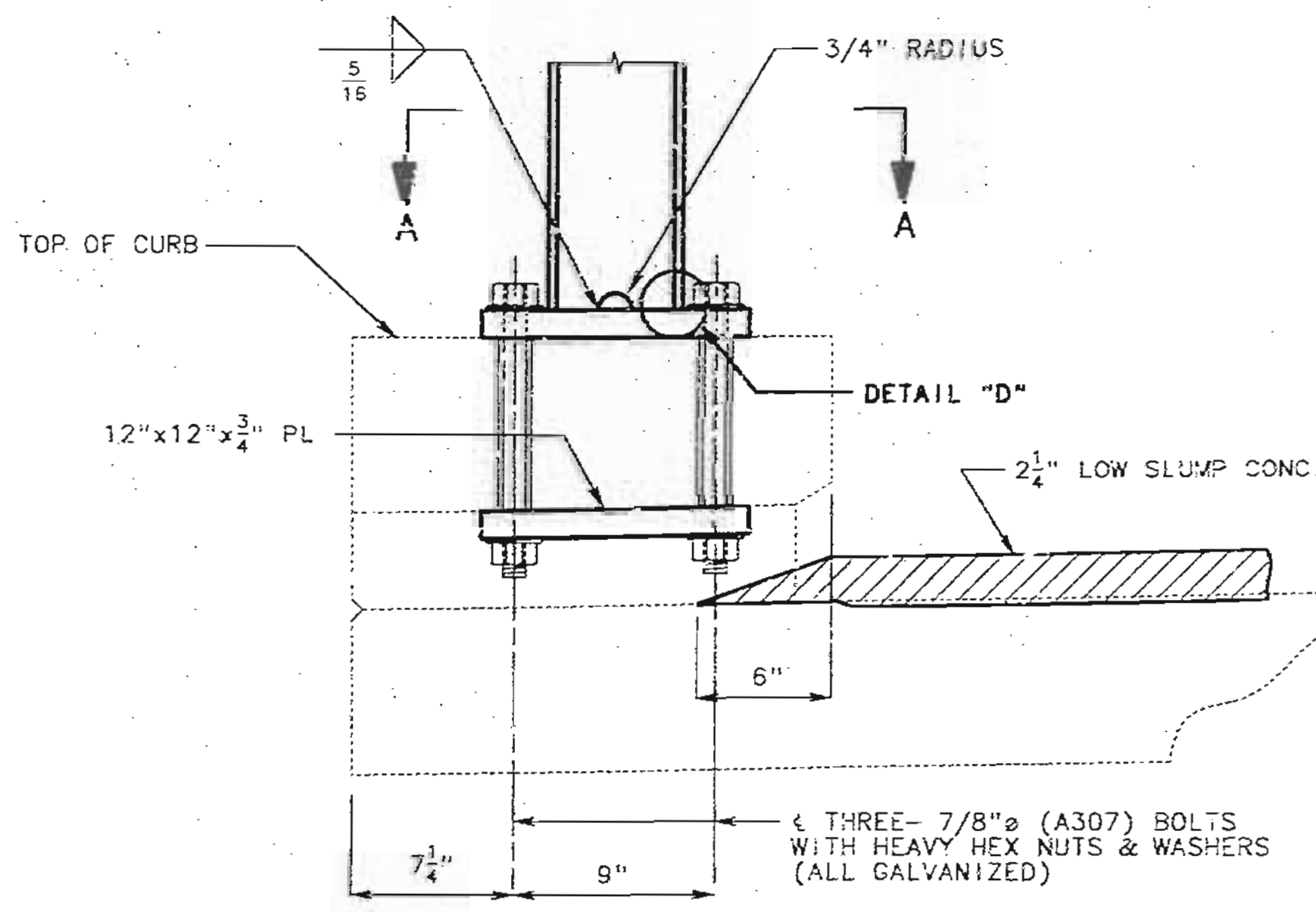
STATE	PROJ. NO.	SHEET NO.
MO.		92



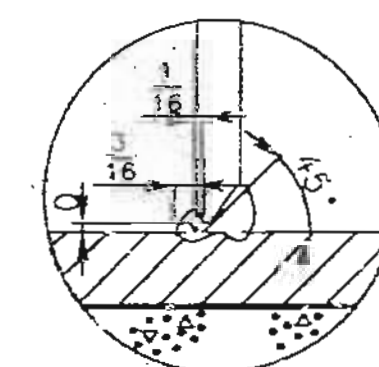
RAIL POST SPACING (RIGHT CURB)



DETAIL C (BETWEEN OUTLETS)



DETAIL C (OVER OUTLETS)



DETAIL "D"

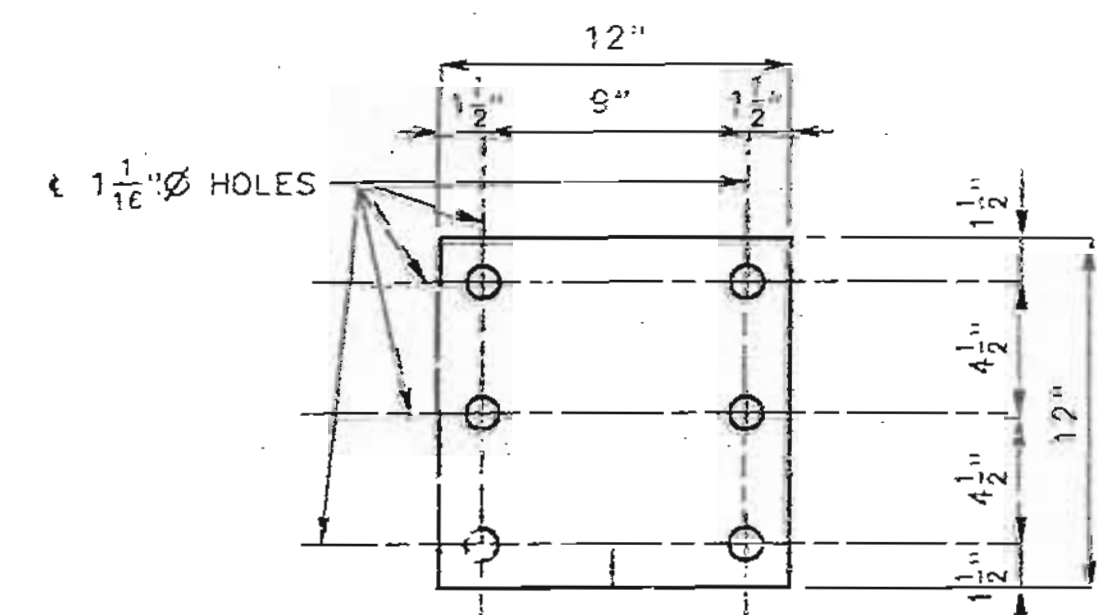
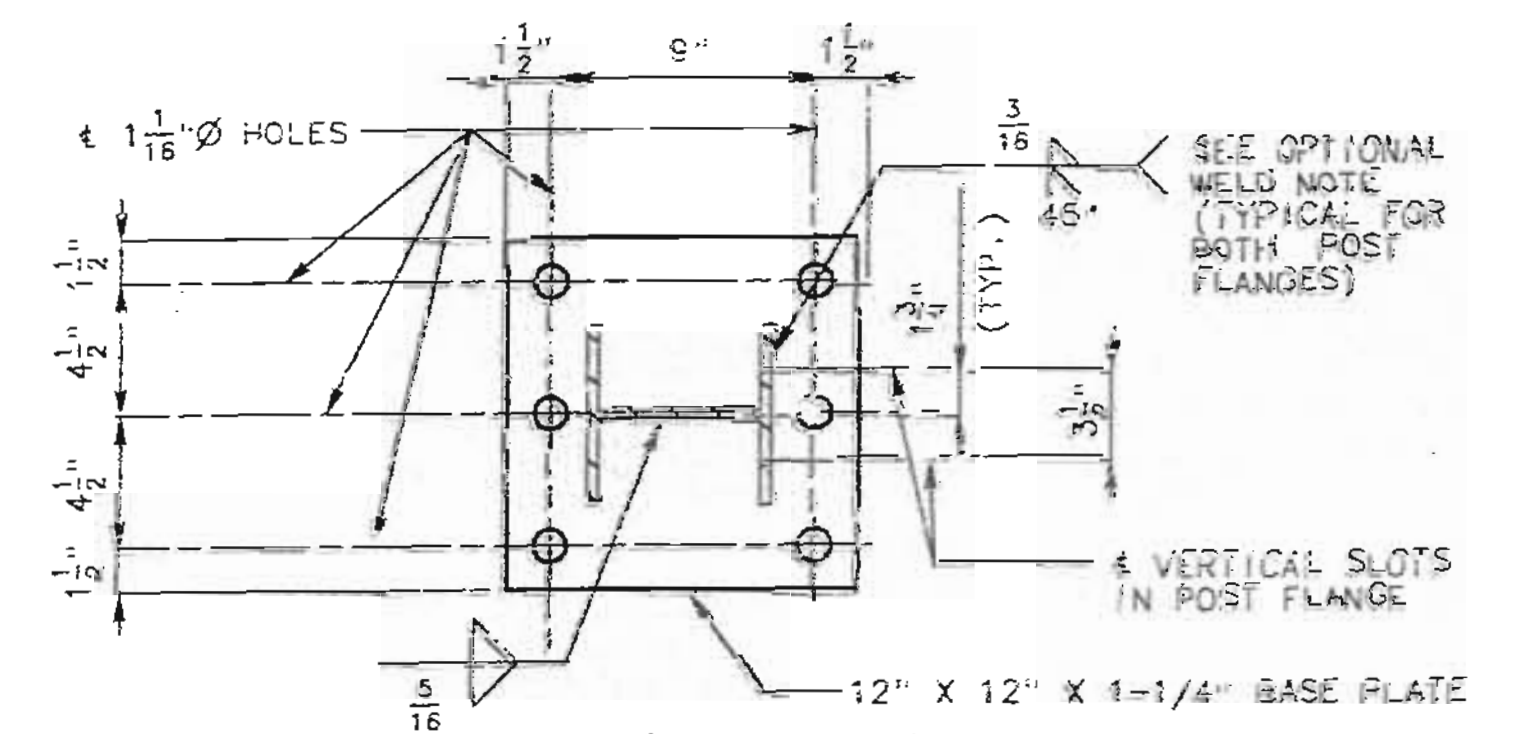


PLATE 12" X 12" X 3/4"



SECTION A-A

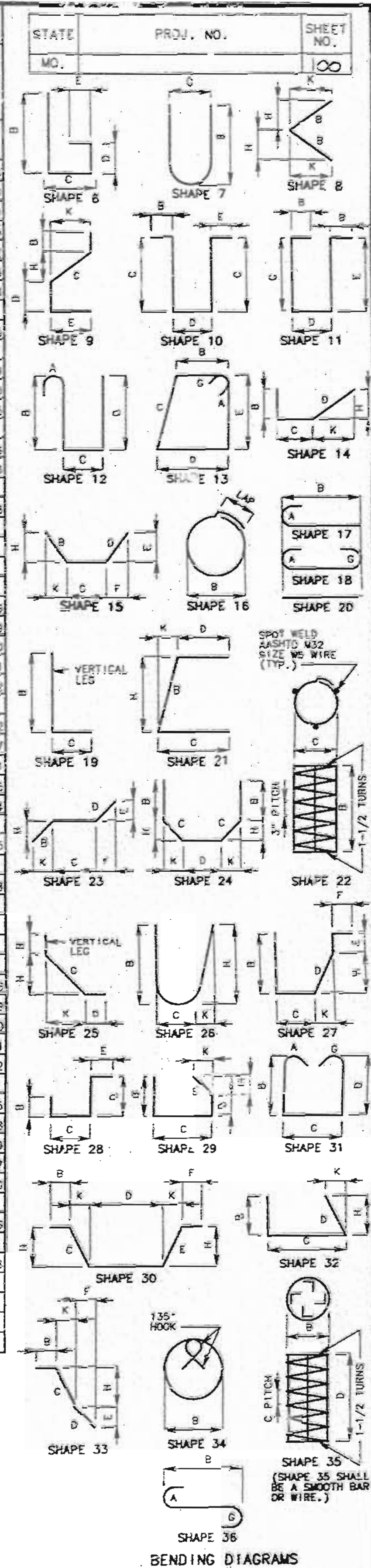
NOTE: OPTIONAL WELDING OF THE POST TO THE BASE PLATE IS A 3/8" FILLET WELD ALL AROUND (INCLUDING THE EDGES OF THE POST FLANGES) IN LIEU OF THE WELD SHOWN.

BILL OF REINFORCING STEEL

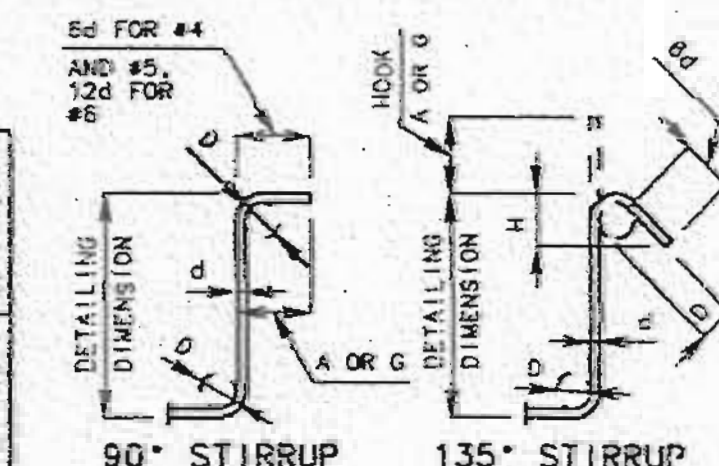
NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (U)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS						NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.		
									B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.				K FT. IN.	
SUBSTRUCTURE																			
INT. BT. NO. 2																			
4	6H20	BEAM		7	X				3	2.000	2	2.000				7 6	7 6	45	
2	6H21	BEAM		17	X				6	1.000						6 9	6 9	20	
2	6H22	BEAM		17	X				6	10.000						7 6	7 6	23	
4	6H23	BEAM		20	X				6	1.000						6 1	6 1	37	
4	6H24	BEAM		20	X				6	1.000						6 1	6 1	37	
5	4U21	BEAM		13	S	X			2	3.000	3	7.000	2	3.000	3	7.000	12 5	12 2	41
2	4U22	BEAM		10	S	X			3	7.000	2	3.000				9 5	9 3	12	
1	4U23	BEAM		13	S	X			2	2.000	3	7.000	2	2.000	3	7.000	12 3	12 0	8
1	4U24	BEAM		13	S	X			19	7.50	3	7.000	19	7.50	3	7.000	11 3	11 0	7
2	4U25	BEAM		10	S	X			6	0.000	2	3.000				3 3	3 1	4	
2	WSW1	BEAM		22	X				15	0.000	9	1.25				23 0	23 0	8	
INT. BT. NO. 3																			
4	6H20	BEAM		7	X				3	2.000	2	2.000				7 6	7 6	45	
2	6H21	BEAM		17	X				6	1.000						6 9	6 9	20	
2	6H22	BEAM		17	X				6	10.000						7 6	7 6	23	
4	6H23	BEAM		20	X				6	1.000						6 1	6 1	37	
4	6H24	BEAM		20	X				6	1.000						6 1	6 1	37	
5	4U31	BEAM		13	S	X			2	3.000	3	3.000	2	3.000	3	3.000	11 9	11 6	38
2	4U32	BEAM		10	S	X			3	3.000	2	3.000				8 9	8 7	11	
1	4U33	BEAM		13	S	X			2	2.000	3	3.000	2	2.000	3	3.000	11 7	11 4	8
1	4U34	BEAM		13	S	X			19	7.50	3	3.000	19	7.50	3	3.000	10 7	10 4	7
2	4U35	BEAM		10	S	X			6	0.000	2	3.000				3 3	3 1	4	
2	WSW1	BEAM		22	X				15	0.000	9	1.25				23 0	23 0	8	
INT. BT. NO. 4																			
4	6H41	BEAM		17	X				5	4.000						6 0	6 0	36	
6	6H42	BEAM		20	X				6	7.000						6 7	6 7	59	
2	6H43	BEAM		20	X				6	7.000						6 7	6 7	20	
3	6H44	BEAM		7	X				3	8.000	3	2.000				9 1	9 1	41	
2	6H45	BEAM		17	X				6	7.000						7 3	7 3	22	
4	4U40	BEAM		13	S	X			3	3.000	2	3.750	3	3.000	2	3.750	11 11	11 8	31
1	4U41	BEAM		13	S	X			2	6.000	2	3.750	2	6.000	2	3.750	10 5	10 2	7
2	4U42	BEAM		10	S	X			2	3.750	3	3.000				7 11	7 9	10	
2	4U43	BEAM		10	S	X			6	0.000	3	3.000				4 3	4 1	5	
7	5U44	WEB		7	X				7	4.000	21	0.000				15 7	15 7	114	
15	5V40	WEB		20	X				7	6.000						7 6	7 6	117	
2	WSW1	BEAM		22	X				15	0.000	9	1.25				23 0	23 0	8	
INT. BT. NO. 5																			
6	6D50	FOOTING		10	X				3	3.000	21	0.000				8 3	7 11	71	
13	6D51	FOOTING		20	X				6	10.000						6 10	6 10	237	

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (U)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS						NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.		
									B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.				K FT. IN.	
4	6H50	BEAM		17	X				5	4.000						6 0	6 0	36	
2	6H51	BEAM		20	X				6	7.000						6 7	6 7	20	
6	6H52	BEAM		20	X				6	7.000						6 7	6 7	59	
3	7H53	BEAM		7	X				4	0.000	3	1.500				9 8	9 8	59	
2	6H54	BEAM		17	X				6	7.000						7 3	7 3	22	
16	4H55	WEB WALL		20	X				5	0.000						5 0	5 0	53	
6	8H56	WEB WALL		20	X				5	6.000						5 6	5 6	88	
26	4P1	COLUMN		16	X				2	9.000						9 6	9 6	183	
6	5U50	BEAM		13	S	X			3	3.000	2	0.000	3	3.000	2	0.000	11 5	11 1	69
1	5U51	BEAM		13	S	X			2	6.000	2	0.000	2	6.000	2	0.000	9 11	9 7	10
2	4U52	BEAM		10	S	X			6	0.000	3	3.000				4 3	4 1	5	
13	8V50	COLUMN		17	X				27	6.000						28 5	28 5	988	
8	5V51	WEB WALL		20	X				10	0.000						10 0	10 0	83	
2	WSW1	BEAM		22	X				15	0.000	9	1.25				23 0	23 0	8	
INT. BT. NO. 6																			
4	6H61	BEAM		17	X				5	4.000						6 0	6 0	36	
6	6H62	BEAM		20	X				6	7.000						6 7	6 7	59	
2	6H63	BEAM		20	X				6	7.000						6 7	6 7	20	
3	6H64	BEAM		7	X				3	8.000	3	3.000				9 1	9 1	41	
2	6H65	BEAM		17	X				6	7.000						7 3	7 3	22	
4	4U60	BEAM		13	S	X			3	3.000	2	6.250	3	3.000	2	6.250	12 4	12 1	32
1	4U61	BEAM		13	S	X			2	6.000	2	6.250	2	6.000	2	6.250	10 10	10 7	7
2	4U62	BEAM		10	S	X			2	6.250	3	3.000				8 4	8 2	11	
2	4U63	BEAM		10	S	X			6	0.000	3	3.000				4 3	4 1	5	
8	5U64	WEB		7	X				7	0.000	21	0.000				14 11	14 11	124	
15	5V60	WEB		20	X				9	3.000						9 3	9 3	145	
2	WSW1	BEAM		22	X				15	0.000	9	1.25				23 0	23 0	8	
INT. BT. NO. 7																			
4	6H41	BEAM		17	X				5	4.000						6 0	6 0	36	
6	6H42	BEAM		20	X				6	7.000						6 7	6 7	59	
2	6H43	BEAM		20	X				6	7.000						6 7	6 7	20	
3	6H44	BEAM		7	X				3	8.000	3	2.000				9 1	9 1	41	
2	6H45	BEAM		17	X				6	7.000						7 3	7 3	22	
2	4U43	BEAM		10	S	X			6	0.000	3	3.000				4 3	4 1	5	
5	5U44	WEB		7	X				7	0.000	21	0.000				14 11	14 11	78	
4	4U70	BEAM		13	S	X			3	3.000	2	1.250	3	3.000	2	1.250	11 6	11 3	30
1	4U71	BEAM		13	S	X			2	6.000	2	1.250	2	6.000	2	1.250	10 0	9 9	7
2	4U72	BEAM		10	S	X			2	1.250	3	3.000				7 6	7 4	10	
15	5V70	WEB		20	X				5	6.000						5 6	5 6	88	
2	WSW1	BEAM		22	X				15	0.000	9	1.25				23 0	23 0	8	

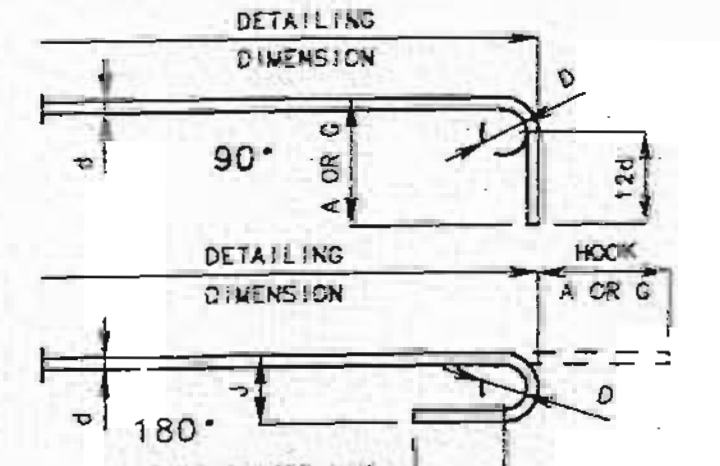


170 748



STIRRUP HOOK DIMENSIONS  
GRADES 40 - 50 - 60 KSI

BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	12"	8"	4-1/2"

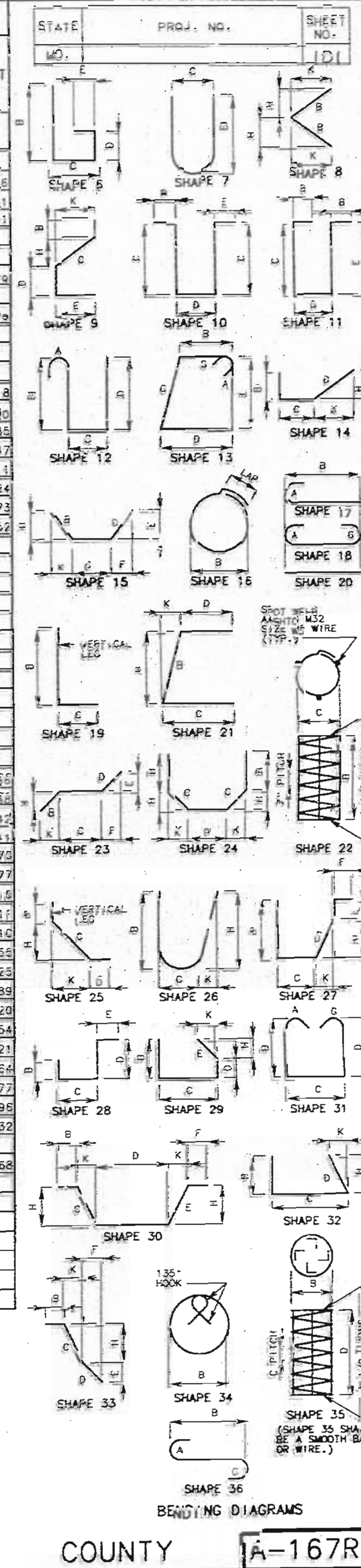


END HOOK DIMENSIONS

BAR SIZE	D (IN.)	ALL GRADES			
		180° HOOKS A OR G	90° HOOKS A OR G	90° HOOKS B OR C	90° HOOKS D OR E

BILL OF REINFORCING STEEL																			
NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
								B	C	D	E	F	H	K					
								FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.					
INT. BT. NO. 8																			
4	6H20	BEAM		7	X			3	2.000	2	2.000				7 6	7 6	45		
2	6H21	BEAM		17	X			6	1.000						6 9	6 9	20		
2	6H22	BEAM		17	X			6	10.000						7 6	7 6	23		
4	6H23	BEAM		20	X			6	1.000						6 1	6 1	37		
4	6H24	BEAM		20	X			6	1.000						6 1	6 1	37		
5	4U31	BEAM		13	S	X		2	3.000	3	3.000	3	3.000		11 9	11 9	38		
2	4U32	BEAM		10	S			3	3.000	2	3.000				8 9	8 7	11		
1	4U33	BEAM		13	S	X		2	2.000	3	3.000	3	3.000		11 7	11 4	8		
1	4U34	BEAM		13	S	X		19	7.50	3	3.000	19	7.50	5	3.000	10 7	10 4	7	
2	4U35	BEAM		10	S	X		6	0.000	2	3.000				3 3	3 1	4		
2	WSW1	BEAM		22	X			15	0.000	9	1.25				23 0	23 0	8		
INT. BT. NO. 9																			
4	6H20	BEAM		7	X			3	2.000	2	2.000				7 6	7 6	45		
2	6H21	BEAM		17	X			6	1.000						6 9	6 9	20		
2	6H22	BEAM		17	X			6	10.000						7 6	7 6	23		
4	6H23	BEAM		20	X			6	1.000						6 1	6 1	37		
4	6H24	BEAM		20	X			6	1.000						6 1	6 1	37		
5	4U21	BEAM		13	S	X		2	3.000	3	7.000	2	3.000	3	7.000	12 5	12 2	41	
2	4U22	BEAM		10	S	X		3	7.000	2	3.000				9 5	9 3	12		
1	4U23	BEAM		13	S	X		2	2.000	3	7.000	2	2.000	3	7.000	12 3	12 0	8	
1	4U24	BEAM		13	S	X		19	7.50	3	7.000	19	7.50	3	7.000	11 3	11 0	7	
2	4U25	BEAM		10	S	X		6	0.000	2	3.000				3 3	3 1	4		
2	WSW1	BEAM		22	X			15	0.000	9	1.25				23 0	23 0	8		
SUPERSTRUCT. END BENTS NO. 1 & NO. 10																			
10	BF1	DIAPH.		9				14	0.000	4	6.500	14	0.000		3 2.000	3 2.000	103		
8	BF2	DIAPH.		19				4	5.000	2	2.000				6 7	6 5	77		
8	6H1	WING		20				10	5.000						10 5	10 5	125		
24	6H2	WING		20	V	4	10	1.000							10 1	10 1	104		
INCREMENT = 4 1.000																			
14.375 INCH																			
6	6H3	WING		E 20				10	5.000						10 5	10 5	94		
24	6H10	BEAM		20				5	7.000						5 7	5 7	201		
6	6H11	DIAPH.		20				8	1.000						8 1	8 1	73		
6	6H12	DIAPH.		20				24	5.000						24 5	24 5	220		
10	6H13	DIAPH.		E 20				24	5.000						24 5	24 5	367		
2	4R14	APPR. HAUNCH		20				7	0.000						7 0	7 0	9		
10	6H15	DIAPH.		E 20				16	6.000						16 5	16 6	248		
6	6H16	DIAPH.		20				19	1.000						19 1	19 1	172		
4	6T1	WINGS		25				2	0.500	8	8.000	3	2.000		4 5.000	7 2.000	82		
10	6U10	BEAM		32	S			5	4.000	2	8.750	5	4.875		5 4.000	10.625	13 3	138	
6	6U11	BEAM		14	S			3	4.500	2	2.000	3	3.000		3 4.500	6.750	9 0	8 9	55
14	6U12	DIAPH.		E 10				2	10.000	2	3.000				7 11	7 7	158		
22	6U13	DIAPH.		E 18				2	10.000	3	8.000				6 6	6 4	208		

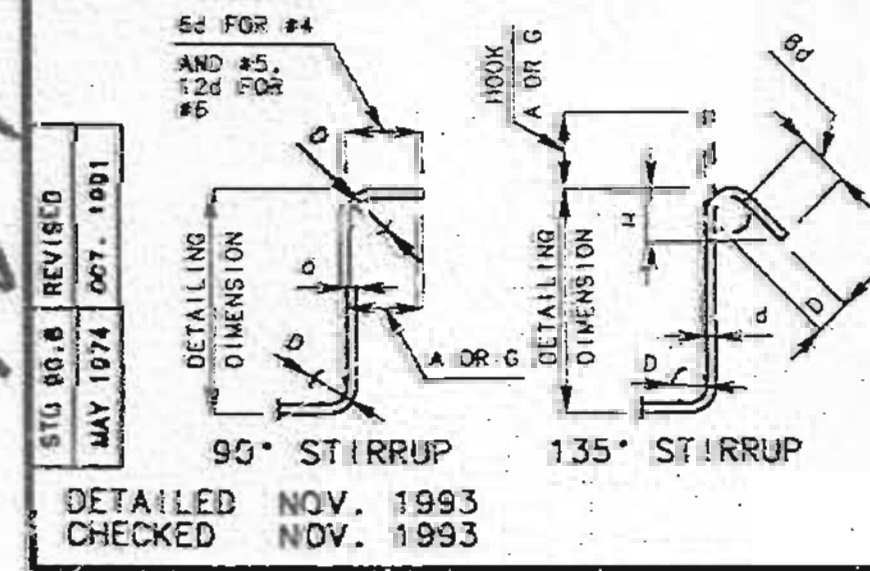
BILL OF REINFORCING STEEL																				
NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
								B	C	D	E	F	H	K						
								FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.						
12	4U14	APPR. HAUNCH		10	S										17.500	6.698	3 5	3 3	26	
84	6U15	DIAPH.		10											3 6.000	15.000	8 3	7 11	261	
80	6U16	SLAB		18											7.000	3 8.000	4 3	4 1	461	
28	6V1	WING		20	V	4	2	5.000							2 5	2 5			179	
INCREMENT = 6 1.000																				
7.375 INCH																				
8	6V2	WING		20				6	7.000						6 7	6 7	79			
2096	5S1	SLAB		E 20				8	4.000						8 4	8 4	1 6218			
100	5S2	SLAB		E 20				32	6.000						32 6	32 6	3390			
70	5S3	SLAB		E 20				32	8.000						32 8	32 8	2385			
80	5S4	SLAB		E 20				32	11.000						32 11	32 11	2747			
48	5S5	SLAB		E 20				38	2.000						38 2	38 2	1611			
24	6S6	SLAB		E 20				28	5.000						28 5	28 5	1624			
24	6S7	SLAB		E 20				27	0.000						27 0	27 0	973			
24	6S8	SLAB		E 20				37	6.000						37 6	37 6	1352			
SAFETY BARRIER CURB																				
599	5R1	CURB		E 18 S				2	6.000	3	5.000				2 10	2 8	1666			
571	5R2	CURB		E 15 S				2	6.125	3	5.000			2	6.000	3.000	2 10	2 9	1630	
545	5R3	CURB		E 19 S				17	0.000	6	0.000				23	22	1042			
545	5R4	CURB		E 27 S				6	0.000	11	1.25	7	0.000	12	0.000	9.1 25	6.375	3 0	2 10	1611
26	5R5	CURB		E 19 S				2	2.500	6	0.000				2 5	2 7	79			
26	5R6	CURB		E 27 S				6	0.000	11	1.25	17	7.50		9.1 25	6.375	2 11	2 10	77	
4	5R7	CURB		E 19 S				2	0.000	6	0.000				2 6	2 5	15			
4	5R8	CURB		E 27 S				6	0.000	7	8.75	17	7.50		6.2 50	4.750	2 8	2 7	17	
4	5R9	CURB		E 19 S				2	2.750	3	5.000				2 6	2 5	10			
12	5R10	CURB		E 16 S				2	0.000	7	5.000				4 8	4 5	56			
24	5R11	CURB		E 20				5	0.000						5 0	5 0	123			
10	5R12	CURB		E 20				8	5.000						8 6	6 6	89			
2	5R13	CURB		E 20				9	7.000						9 7	9 7	20			
84	5R15	CURB		E 20				9	9.000						9 9	9 9	854			
28	5R16	CURB		E 20				21	3.000						21 3	21 3	621			
14	5R17	CURB		E 20				31	9.000						31 9	31 9	464			
14	5R18	CURB		E 20				39	6.000						39 6	39 6	577			
28	5R19	CURB		E 20				30	8.000						30 8	30 8	896			
14	5R20	CURB		E 20				29	7.000						29 7	29 7	432			
64	5C1	SLIP FORM		E 20				10	0.000						10 0	10 0	668			



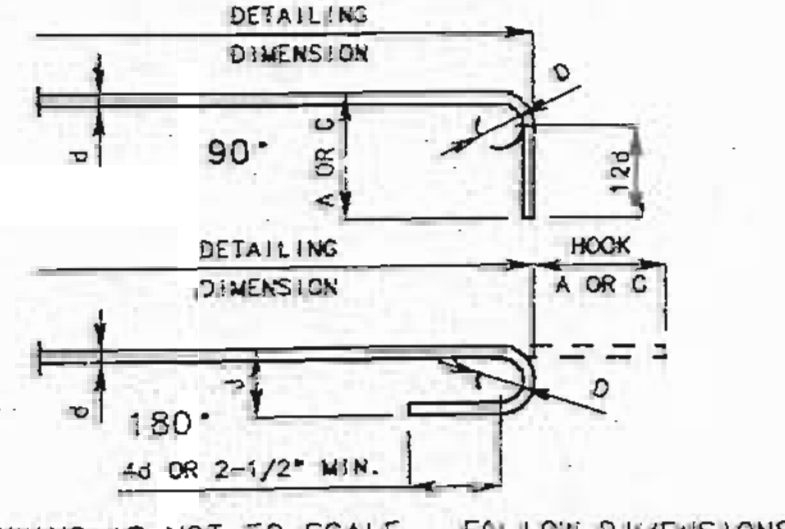
TWO ADDITIONAL #6-H3 & #5-S1 ARE INCLUDED IN THE BAR BILL FOR TESTING.

BAR SIZE	D (IN.)	END HOOK DIMENSIONS			
		ALL GRADES	180° HOOKS	90° HOOKS	
#3	2-1/4"	5"	3"	6"	
#4	3"	6"	4"	8"	
#5	3-3/4"	7"	5"	10"	
#6	4-1/2"	8"	6"	12"	
#7	5-1/4"	10"	7"	14"	
#8	6"	11"	8"	16"	
#9	6-1/2"	13"	10"	18"	
#10	7-1/4"	15"	12"	20"	
#11	8"	17"	14"	22"	
#12	9"	19"	16"	24"	
#14	11-1/4"	23"	20"	28"	

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET. E = EPOXY COATED REINFORCEMENT. S = STIRRUP. X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES. V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. NO. EA. = NUMBER OF BARS OF EACH LENGTH. NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH) ACTUAL LENGTHS ARE MEASURED ALONG CENTRAL LINE BAR TO THE NEAREST INCH. PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS. FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPACERS OR SPACERS. REINFORCING STEEL (GRADE 60) = F70,000 PSI.



BAR SIZE	D (IN.)	90° HOOK		135° HOOK	
		A OR G	B	A OR G	B
#4	2"	4-1/2"	4-1/2"	3"	
#5	2-1/2"	6"	5-1/2"	3-3/4"	
#6	4-1/2"	12"	8"	4-1/2"	

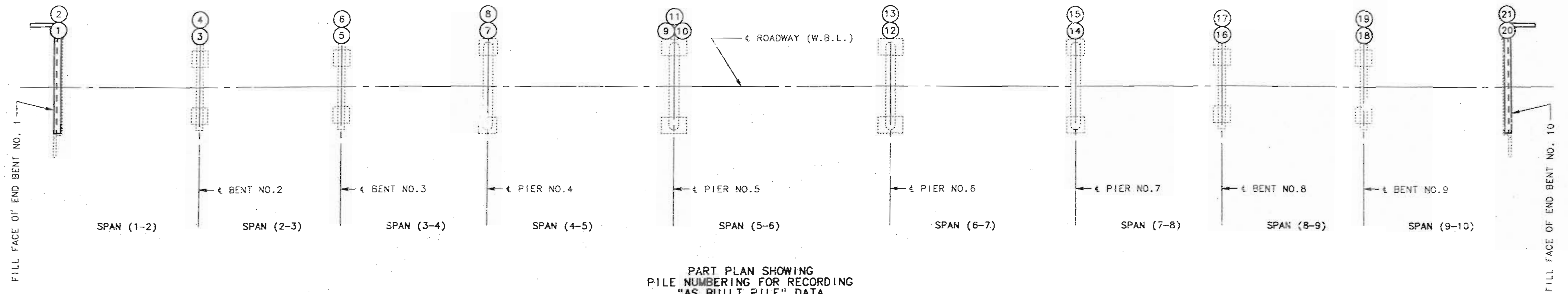


NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

STG 80.8 REVISIONS MAY 10/94 067. 1001 CHECKED NOV. 1993

STATE	PROJ. NO.	SHEET NO.
MO.		102



PART PLAN SHOWING PILE NUMBERING FOR RECORDING "AS BUILT PILE" DATA

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
END BENT NO. 1			
1			
2			
INTERMEDIATE BENT NO. 2			
3			
4			
INTERMEDIATE BENT NO. 3			
5			
6			
INTERMEDIATE PIER NO. 4			
7			
8			
INTERMEDIATE PIER NO. 5			
9			
10			
11			

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
INTERMEDIATE PIER NO. 6			
12			
13			
INTERMEDIATE PIER NO. 7			
14			
15			
INTERMEDIATE BENT NO. 8			
16			
17			
INTERMEDIATE BENT NO. 9			
18			
19			
END BENT NO. 10			
20			
21			

NOTE: INDICATE IN REMARK COLUMN:  
 A.) IF PILING WERE DRIVEN TO PRACTICAL REFUSAL.  
 B.) PILE BATTER IF OTHER THAN SHOWN ON BENT DETAIL SHEET.  
 C.) TYPE OF PILING USED.

MISC. PILES IN PLACE, A  
 PILES IN PLACE  
 MAY 1992

DETAILED OCT. 1993  
 CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 34 OF 34

FINAL PLANS

JACKSON

COUNTY

A-167R

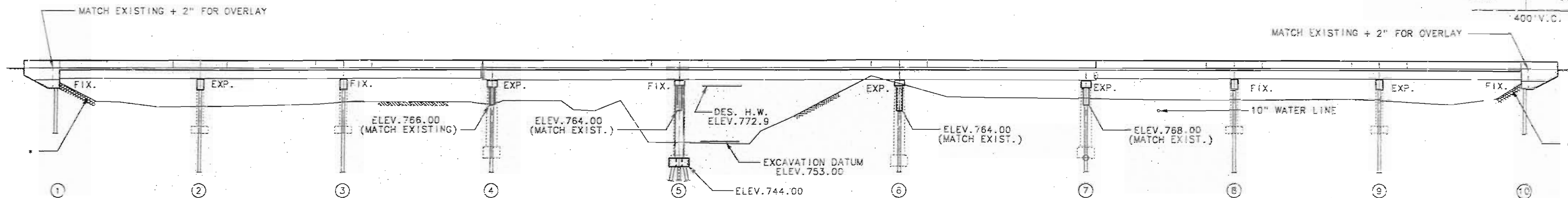
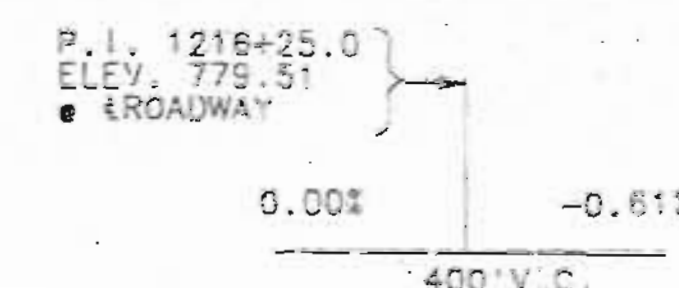


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FINAL PLANS

STATE	PROJ. NO.	SHEET NO.
MO.	F.A.I.-70-1(164)	67
SEC./SUR.	36 TWP. 49 RGE. 30	

WIDEN ON LEFT & REHAB. EXIST. (3\*52')(67'-78'-67')(3\*52') CONT. COMP. I-BEAM SPANS

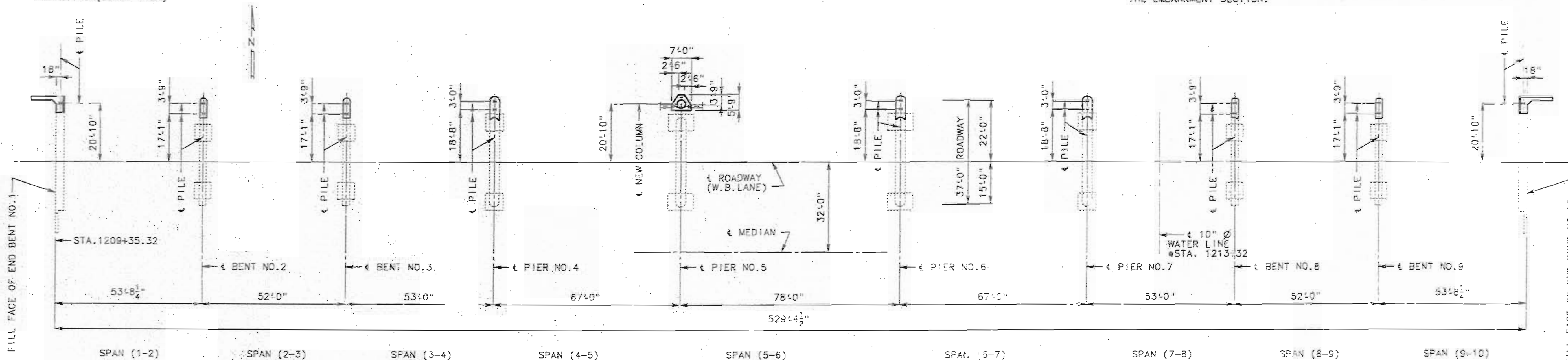


GENERAL ELEVATION

(LEFT WIDENING SHOWN FOR CLARITY)

ROADWAY FILL SHALL BE COMPLETED TO THE FINAL ROADWAY SECTION AND UP TO THE ELEVATION OF THE BOTTOM OF THE CONCRETE BEAM WITHIN THE LIMITS OF THE STRUCTURE AND FOR NOT LESS THAN 25' IN BACK OF THE FILL FACE OF THE END BENTS BEFORE PILES ARE DRIVEN FOR ANY BENTS FALLING WITHIN THE EMBANKMENT SECTION.

\* MATCH EXISTING SLOPE PROTECTION (RDWY. ITEM)



PLAN

NOTICE AND DISCLAIMER REGARDING BORING LOG DATA

THE LOCATIONS OF ALL SUBSURFACE BORINGS FOR THIS STRUCTURE ARE SHOWN ON SHEET 1 OF THE EXISTING BRIDGE PLANS. BORING DATA IS SHOWN ON SHEET NO. 2 OF EXISTING BRIDGE PLANS. THE BORING DATA FOR ALL LOCATIONS INDICATED, AS WELL AS ANY OTHER BORING LOGS OR OTHER FACTUAL RECORDS OF SUBSURFACE DATA AND INVESTIGATIONS PERFORMED BY THE DEPARTMENT FOR THE DESIGN OF THE PROJECT, IS AVAILABLE FROM THE DISTRICT MATERIALS ENGINEER UPON WRITTEN REQUEST AS OUTLINED IN THE PROJECT SPECIAL PROVISIONS. NO GREATER SIGNIFICANCE OR WEIGHT SHOULD BE GIVEN TO THE BORING DATA DEPICTED ON THE PLAN SHEETS THAN TO SUBSURFACE DATA AVAILABLE FROM THE DISTRICT OR ELSEWHERE.

THE COMMISSION DOES NOT REPRESENT OR WARRANT THAT ANY SUCH BORING DATA ACCURATELY DEPICTS THE CONDITIONS TO BE ENCOUNTERED IN CONSTRUCTING THIS PROJECT. A CONTRACTOR ASSUMES ALL RISKS IT MAY ENCOUNTER IN BASING ITS BID PRICES, TIME OR SCHEDULE OF PERFORMANCE ON THE BORING DATA DEPICTED HERE OR THOSE AVAILABLE FROM THE DISTRICT, OR ON ANY OTHER DOCUMENTATION NOT EXPRESSLY WARRANTED, WHICH THE CONTRACTOR MAY OBTAIN FROM THE COMMISSION.

HYDROLOGIC DATA	
DRAINAGE AREA	= 97 SQ. MILES
DESIGN DISCHARGE	= 19,000 CFS (FLOOD OF RECORD)
DESIGN HIGH WATER ELEV.	= 772.9 (FLOOD OF RECORD)
ESTIMATED BACKWATER	= 3.3 FT.

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM GRAIN VALLEY TO LAFAYETTE CO. LINE ABOUT 1 MILE E. OF GRAIN VALLEY

PROJECT NO. F.A.I.-70-1(164) STA. 1209+35.32  
JOB NO. J41 1014B RTE. 1-70 (WBL)

JACKSON COUNTY

STO.	606.00
STD.	706.35
A-167R	

DESIGNED AUG. 1993  
DETAILED OCT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 11 OF 34

DATE: 2/7/94

123 277

FINAL PLANS

REVISED MAR 16 1994

STATE	PROJECT	SHEET NO.
MO.	FAI-72-177	79

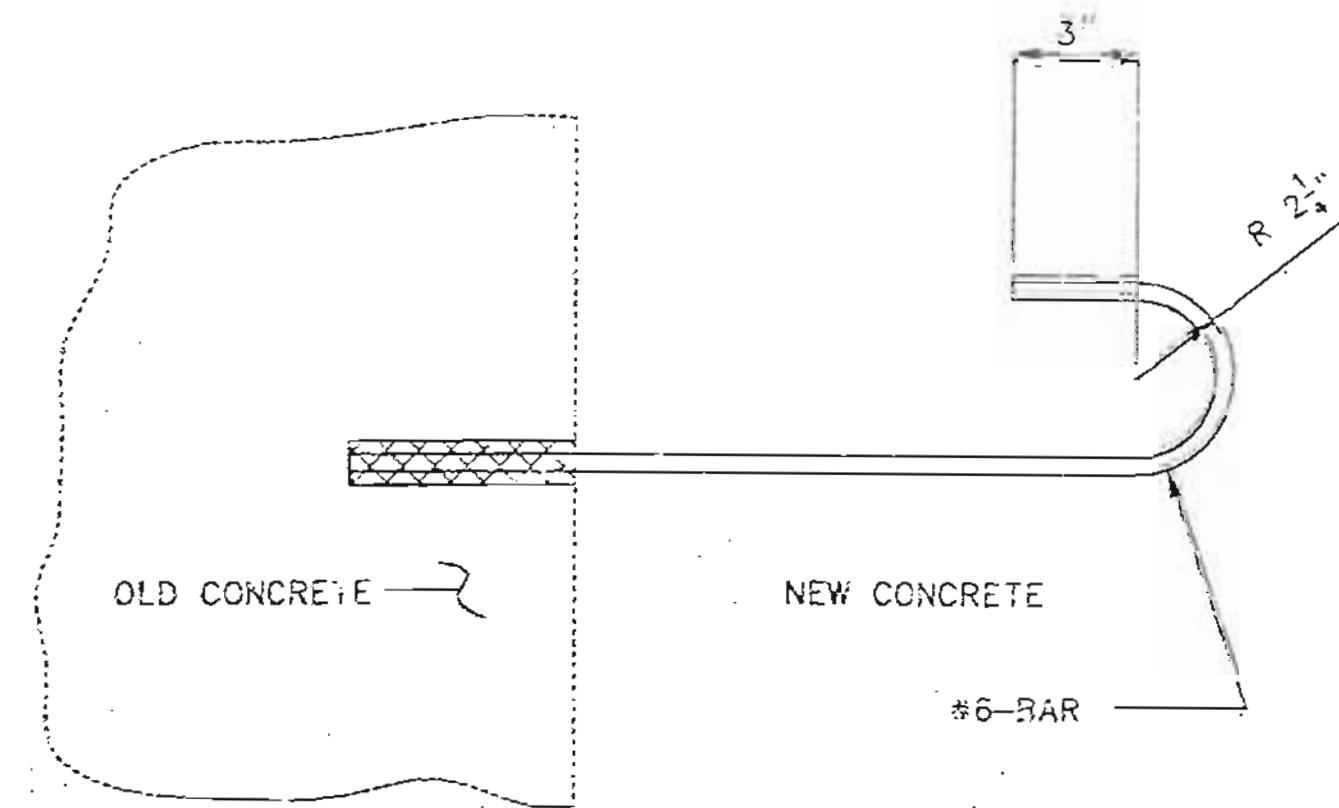
FINAL QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
SPECIAL WORK BRIDGES	LUMP SUM			1
REMOVAL AND STORAGE OF EXISTING BRIDGE RAIL	LIN. FT.		1042	1042
PARTIAL REMOVAL OF SUBSTRUCTURE CONCRETE	LUMP SUM	1		1
PARTIAL REMOVAL OF EXISTING BRIDGE DECK	SQ. FT.		1103	1103
CLASS 1 EXCAVATION FOR STRUCTURE	CU. YD.	45		45
CLASS 2 EXCAVATION FOR STRUCTURE	CU. YD.	27		27
STRUCTURAL STEEL PILES (12")	LIN. FT.	865		865
CLASS B CONCRETE (SUBSTR.)	CU. YD.	47.7		47.7
CLASS B2 CONCRETE (SUPSTR. ON STEEL)	CU. YD.		180.0	180.0
SUPERSTRUCTURE REPAIR (UNFORMED)	SQ. FT.		692	692
SAFETY BARRIER CURB	LIN. FT.		548	548
REPAIRING CONC. DECK (HALF-SOLING)	SQ. FT.		312	312
FULL DEPTH REPAIR	SQ. FT.		20	20
SLAB EDGE REPAIR (BRIDGES)	LIN. FT.		455	455
LOW SLUMP CONCRETE WEARING SURFACE	SQ. YD.		1809	1809
PLAIN NEOPRENE BEARING PADS (STEEL STRUCTURES)	EACH		2	2
LAMINATED NEOPRENE BEARING PADS (STEEL STRUCTURES)	EACH		10	10
STRIP SEAL EXPANSION DEVICE	LIN. FT.		77	77
REINFORCING STEEL (BRIDGES)	LB.	4330	3050	7380
REINFORCING STEEL (EPOXY COATED)	LB.		33080	33080
FABRICATED STRUCTURAL CARBON STEEL (I-BEAM)	LB.		88,100	88,100
EXISTING DIAPHRAGM CONNECTIONS TO FLANGE	LUMP SUM			1
SLAB DRAINS	EACH		46	46
BRIDGE GUARD RAIL (THREE BEAM)	LIN. FT.		530	530
PAINTING EXISTING STEEL	LUMP SUM			1
PAINTING NEW STEEL, PRIME COAT	TON		43.5	43.5
PAINTING NEW STEEL, TOP COAT	TON		43.5	43.5
TRANSPORTING LEAD CONTAMINATED RESIDUE	LUMP SUM			1
CONC. DISPOSAL OF LEAD CONTAMINATED RESIDUE	LUMP SUM			1

\* SAFETY BARRIER CURB SHALL BE CAST-IN-PLACE OPTION OR SLIP-FORM OPTION.

NOTE: ALL CONCRETE ABOVE THE LOWER CONSTRUCTION JOINT IN THE END BENTS IS INCLUDED WITH SUPERSTRUCTURE QUANTITIES.

ALL REINFORCEMENT IN THE END BENTS IS INCLUDED IN THE SUPERSTRUCTURE QUANTITIES. ALL CONCRETE IN THE END BENT ABOVE TOP OF BEAM AND BELOW TOP OF SLAB SHALL BE CLASS B2.

CONCRETE DIAPHRAGMS SHALL BE POURED PRIOR TO THE SLAB, ALLOWING SUFFICIENT TIME FOR THE SET OF THE CONCRETE IN THE DIAPHRAGMS.



DETAIL OF RESIN ANCHOR SYSTEM

NOTE: COST OF FURNISHING AND INSTALLING HOOK ANCHOR BOLT ASSEMBLIES SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR CONCRETE.  
 THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE JOB SPECIAL PROVISIONS.  
 THE RESIN ANCHOR SYSTEMS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS, EXCEPT AS MODIFIED BY THE JOB SPECIAL PROVISIONS AND THAT AN EPOXY COATED #6 GRADE 60 REINFORCING BAR PROJECTING 15" INTO NEW CONCRETE SHALL BE USED. A 2 1/2" EPOXY COATED, STRAIGHT REINFORCING BAR MAY BE SUBSTITUTED FOR A #6 HOOKED BAR AS SHOWN ON PLANS. THE 3/4" DIAMETER RESIN ANCHOR SYSTEMS SHALL HAVE A MINIMUM ULTIMATE PULLOUT STRENGTH OF 20,400 LB. IN CONCRETE WITH 16,000 PSI, SEE SPECIAL PROVISIONS.

NOTE: THE QUANTITY FOR "DISPOSAL OF LEAD CONTAMINATED RESIDUE" WILL BE DETERMINED BY THE CONTRACTOR AND CONSIDERED AT THE UNIT PRICE INDICATED IN THE SPECIAL PROVISIONS ENTITLED "PAINTING NEW AND EXISTING STEEL - BRIDGE NOS. L-983R AND A-157R". SEE SPECIAL PROVISIONS.

GENERAL NOTES:

DESIGN SPECIFICATIONS:

A.A.S.H.T.O. = 1992  
 LOAD FACTOR DESIGN  
 SEISMIC PERFORMANCE CATEGORY A

DESIGN LOADINGS:

HS20-44 MODIFIED 24,000# TANDEM AXLE  
 EARTH 120#/CU. FT.  
 EQUIVALENT FLUID PRESSURE = 43#/CU. FT.  
 FATIGUE STRESS BASE 1  
 NO FUTURE WEARING SURFACE

DESIGN UNIT STRESSES:

CLASS B CONCRETE (SUBSTRUCTURE)  $f'_c = 3,000$  PSI.  
 CLASS B1 CONCRETE (SAFETY BARRIER CURB)  $f'_c = 4,000$  PSI.  
 CLASS B2 CONCRETE (SUPERSTRUCTURE EXCEPT SAFETY BARRIER CURB)  $f'_c = 4,000$  PSI.  
 REINFORCING STEEL (GRADE 60)  $f_y = 60,000$  PSI.  
 STEEL PILE  $f_y = 60,000$  PSI.  
 STRUCTURAL CARBON STEEL  $f_s = 20,000$  PSI.

FABRICATED STEEL:

FABRICATED STRUCTURAL CARBON STEEL SHALL BE A36 UNLESS OTHERWISE SHOWN.  
 FIELD CONNECTIONS FOR HIGH STRENGTH BOLTS 3/4" Ø SHALL HAVE HOLES 13/16" Ø, EXCEPT AS NOTED.

HIGH STRENGTH BOLTS, NUTS AND WASHERS WILL BE SAMPLED FOR QUALITY ASSURANCE AS SPECIFIED IN STD. SPEC. 199.

TRAFFIC OVER STRUCTURE TO BE MAINTAINED DURING CONSTRUCTION.

JOINT FILLER:

ALL JOINT FILLER SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION 1057.2.4, EXCEPT AS NOTED.

REINFORCING STEEL:

MINIMUM CLEARANCE TO THE REINFORCING STEEL SHALL BE 1-1/2" UNLESS OTHERWISE SHOWN.  
 ALL REINFORCING BARS IN TOPS OF THE SUBSTRUCTURE BEAMS OR CAPS SHALL BE SPACED TO CLEAR ANCHOR BOLTS FOR BEARINGS BY AT LEAST 1/2".

NEOPRENE BEARINGS:

BEARINGS SHALL BE 60 DUROMETER NEOPRENE PADS. THE NEOPRENE PAD SHALL BE BONDED TO THE BEARING SEAT WITH AN EPOXY ADHESIVE AS APPROVED BY THE BEARING MANUFACTURER FOR BONDING NEOPRENE TO CONCRETE.  
 THE COST OF FURNISHING, FABRICATING AND INSTALLING NEOPRENE BEARING PADS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR PLAIN OR LAMINATED NEOPRENE BEARING PADS PER EACH.

NOTE:

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING NEW STEEL.

BARS BONDED IN OLD CONCRETE NOT REMOVED SHALL BE CLEANLY STRIPPED AND EMBEDDED INTO NEW CONCRETE WHERE POSSIBLE. IF LENGTH IS AVAILABLE, OLD BARS SHALL EXTEND INTO NEW CONCRETE AT LEAST 20 DIAMETERS FOR SMOOTH BARS AND 30 DIAMETERS FOR DEFORMED BARS, UNLESS OTHERWISE NOTED.

THE AREA EXPOSED BY THE REMOVAL OF CONCRETE AND NOT COVERED WITH NEW CONCRETE SHALL BE COATED WITH AN APPROVED BITUMINOUS PAINT, (SEE SPECIAL PROVISIONS).

IN ORDER TO MAINTAIN GRADE AND A MINIMUM THICKNESS OF OVERLAY AS SHOWN ON PLANS, IT MAY BE NECESSARY TO USE ADDITIONAL QUANTITIES OF OVERLAY AT VARIOUS LOCATIONS THROUGHOUT THE STRUCTURE. NO PAYMENT WILL BE ALLOWED FOR ADDITIONAL LABOR, MATERIALS OR EQUIPMENT FOR VARIATIONS IN THICKNESS OF OVERLAY.

PAINT:

Paint by the contractor in accordance with Special Provisions.

Structural steel areas to be encased in end bent concrete shall be painted with one coat of inorganic zinc primer in accordance with Special Provisions. Surfaces of concrete surfaces are to be touched up in the field before concrete is poured.

All exposed surfaces of structural steel piles shall be painted with a cathodic protection system in accordance with Special Provisions.

PILE DATA

BENT NO.	1	2	3	4	5	6	7	8	9	10
PILE TYPE AND SIZE	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53	HP12X53
NUMBER	1	2	2	2	3	2	2	2	2	1
APPROXIMATE LENGTH FT.	43	41	43	43	17	58	58	58	57	58
DESIGN BEARING TONS	44	32	32	34	44	44	34	32	32	44
HAMMER ENERGY REQUIRED FT.-LBS.	9900	7200	7200	7700	10400	9900	8900	8900	6800	9600

NOTE: MINIMUM ENERGY REQUIREMENT OF HAMMER IS BASED ON PILE LENGTH AND DESIGN BEARING VALUE OF PILES. ALL PILES SHALL BE DRIVEN TO PRACTICAL REFUSAL.

DETAILED OCT. 1993  
 CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

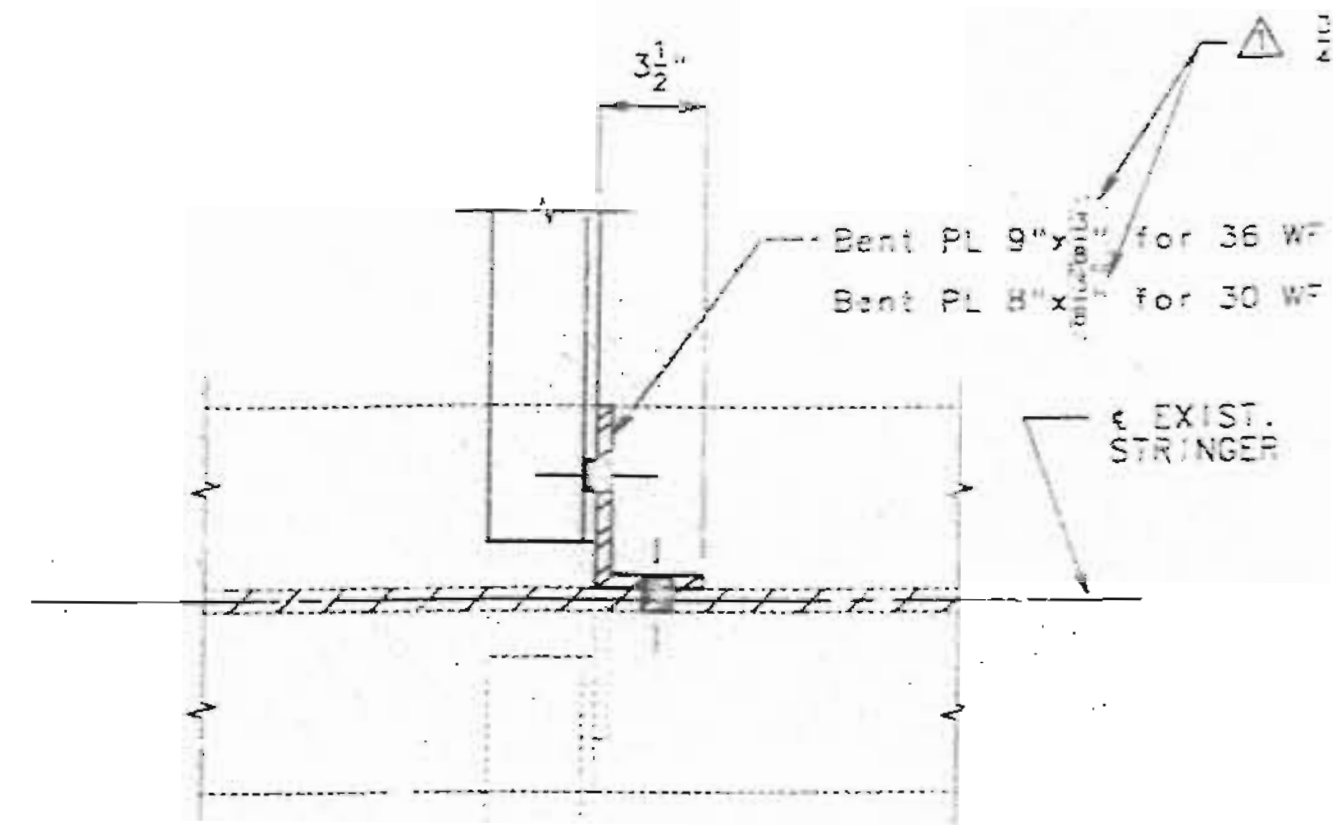
SHEET NO. 2A OF 34

JACKSON COUNTY

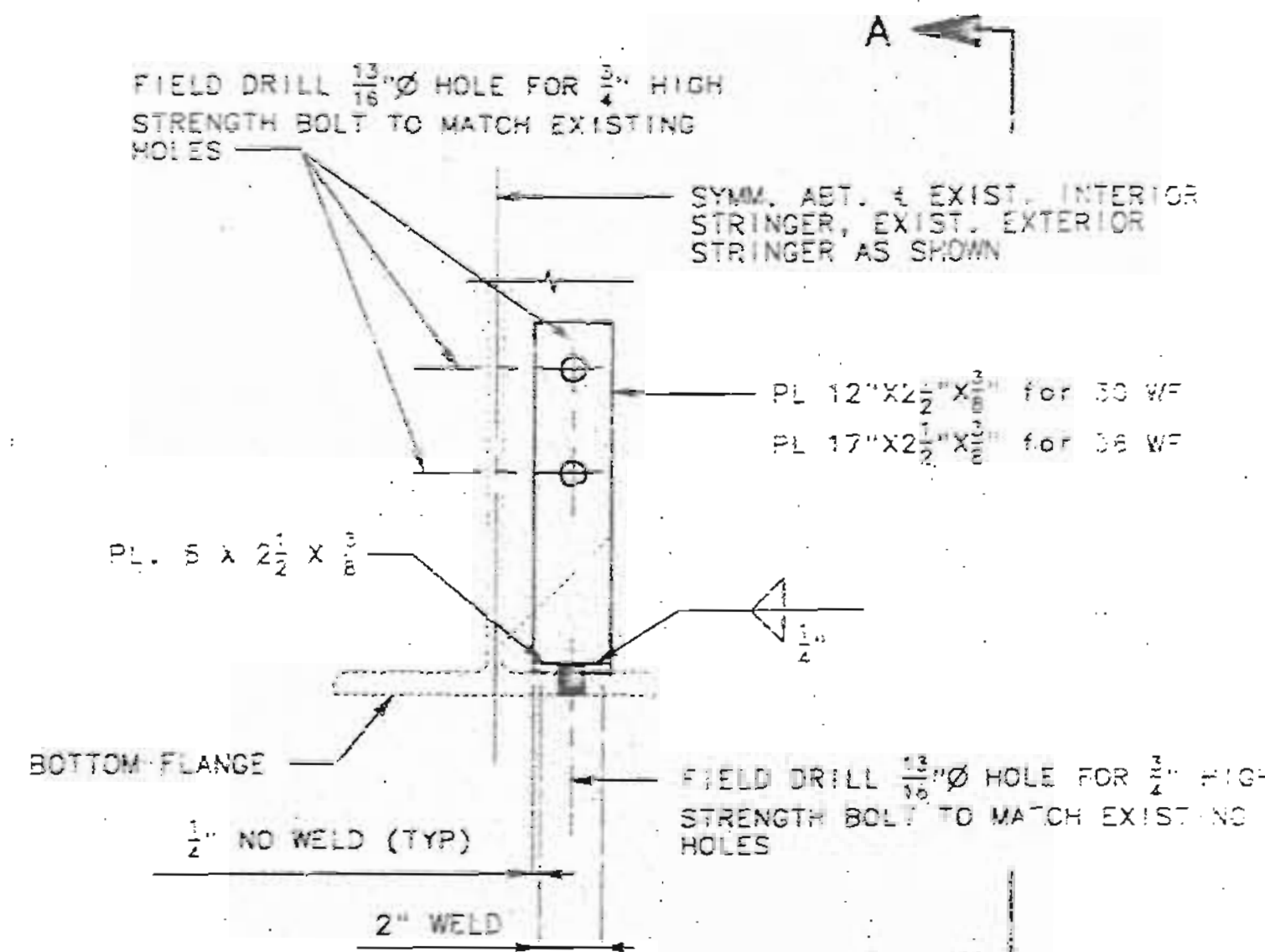
A-167R

FINAL PLANS

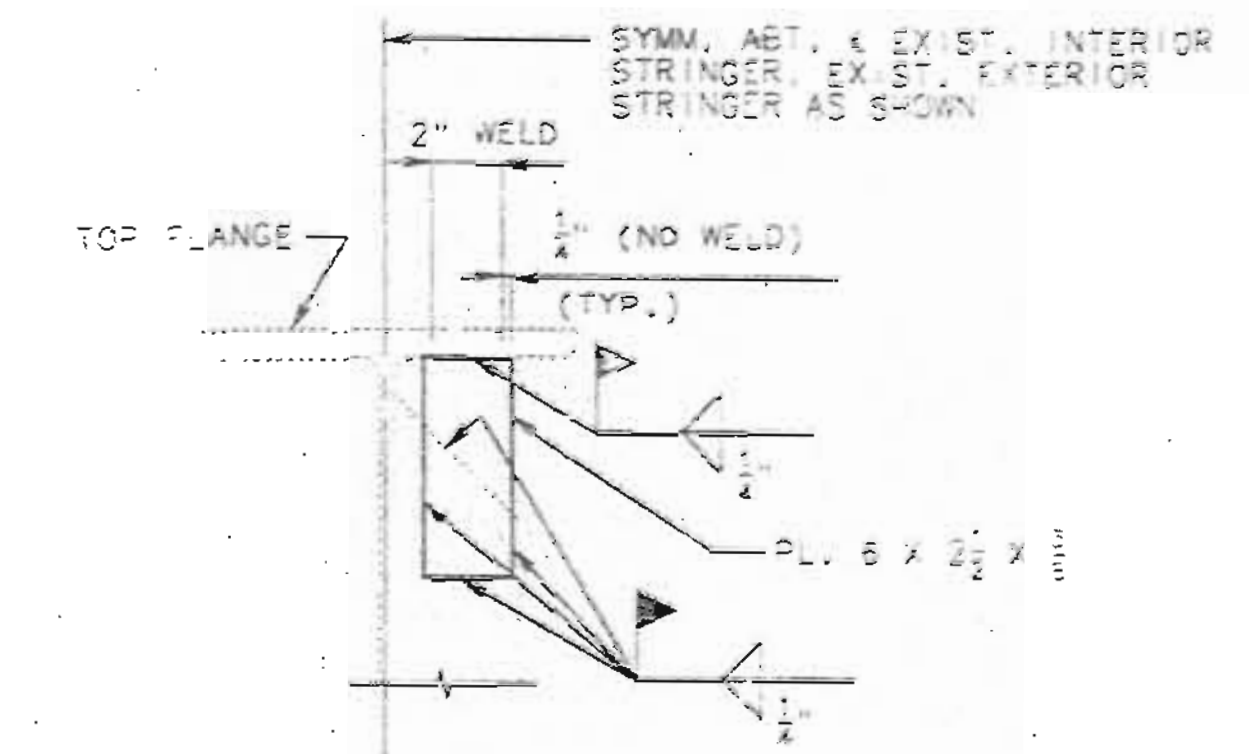
STATE	PROJ. NO.	SHEET NO.
MO.	FA-270-1(164)	86



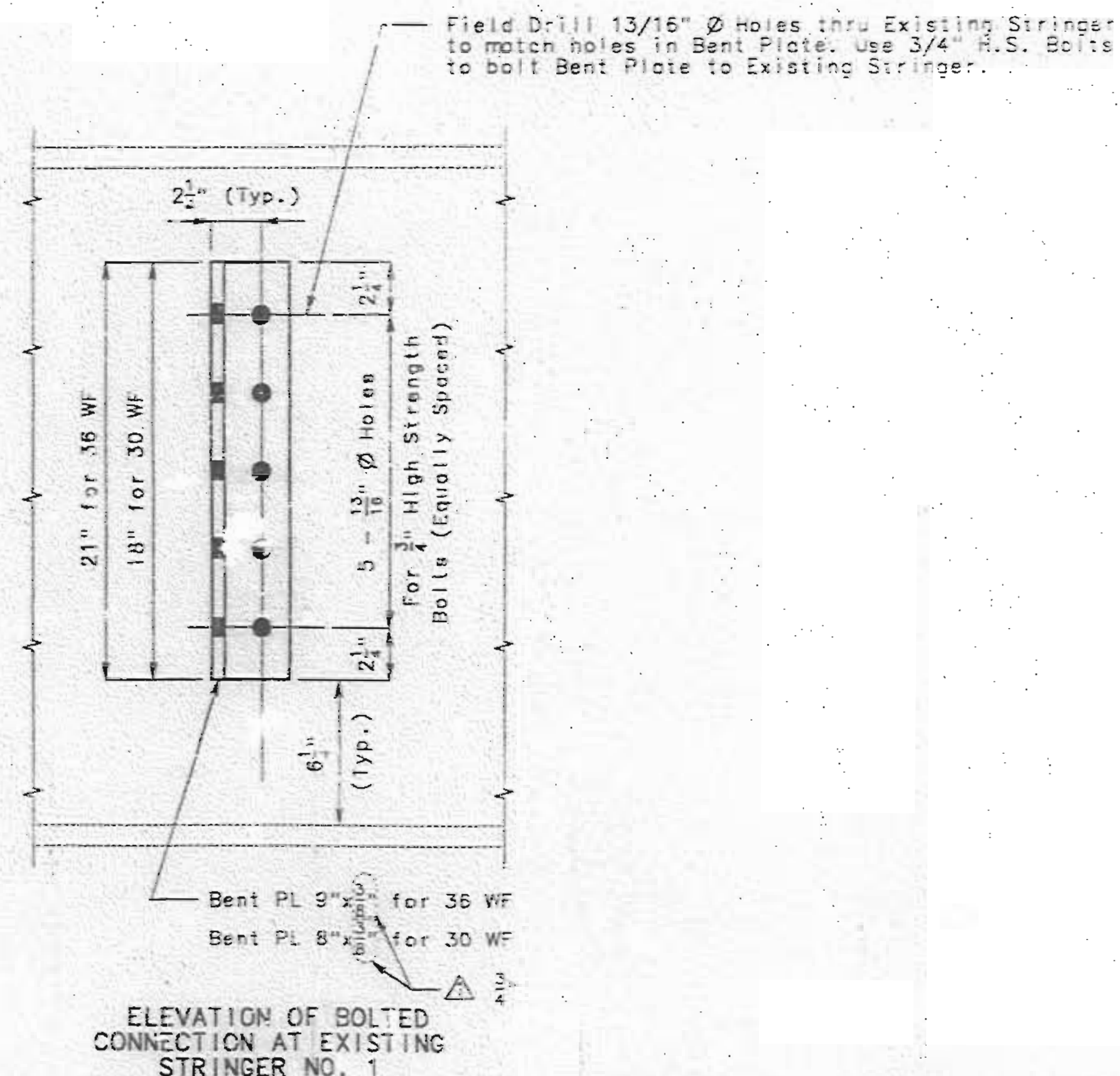
PLAN OF BOLTED CONNECTION AT EXISTING STRINGER NO. 1



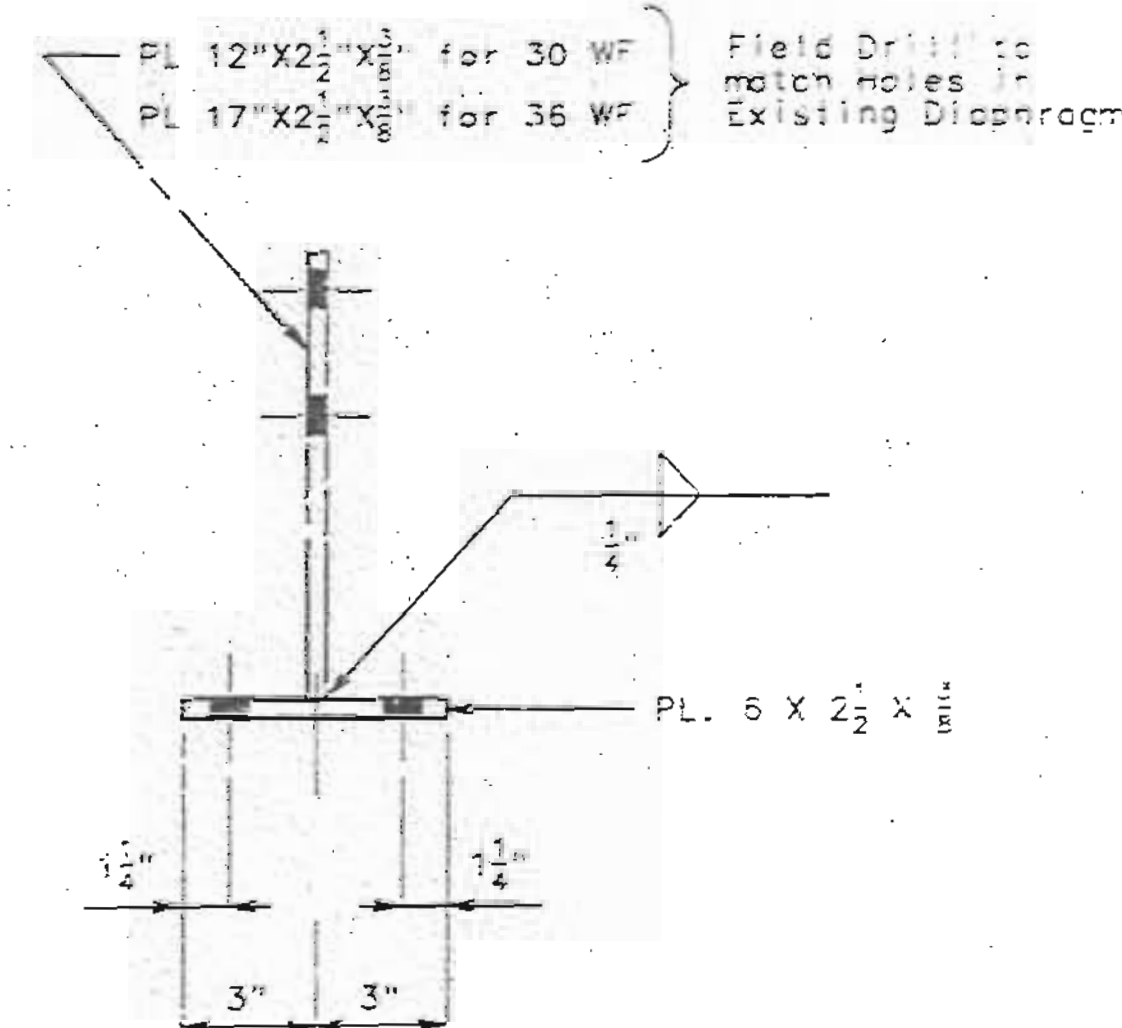
PART SECTION THRU EXISTING WF SHOWING CONN. AT BOT. FLANGE  
DETAIL "A"



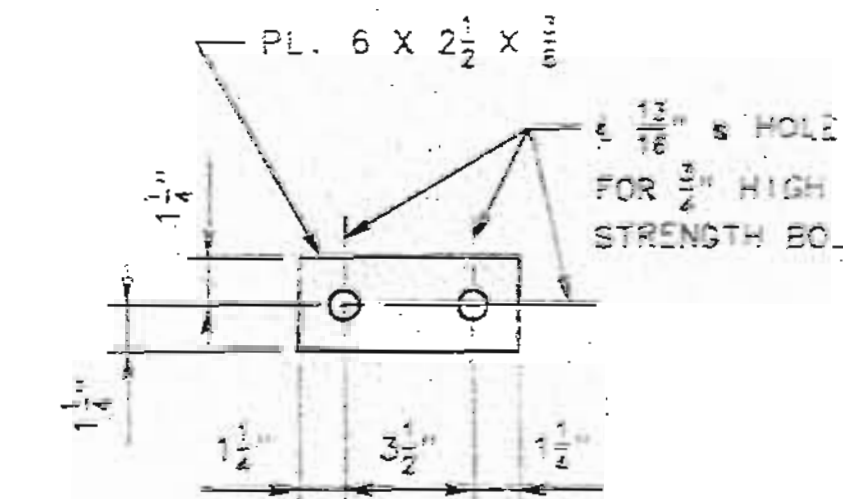
PART SECTION THRU EXISTING WF SHOWING CONN. AT TOP FLANGE  
DETAIL "B"



ELEVATION OF BOLTED CONNECTION AT EXISTING STRINGER NO. 1



PART SECTION A-A  
NOTE: Existing steel not shown for clarity.



PLAN OF 6 X 2 1/2 X 3/8 CONNECTION PLATE

NOTE: For location of existing stringers see sheet no. 13.

DETAILS OF CONNECTIONS AT EXISTING STRINGER

125  
DETAILED OCT. 1993  
CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED: 5-19-94

SHEET NO. 18 OF 34

JACKSON

COUNTY

A-167R

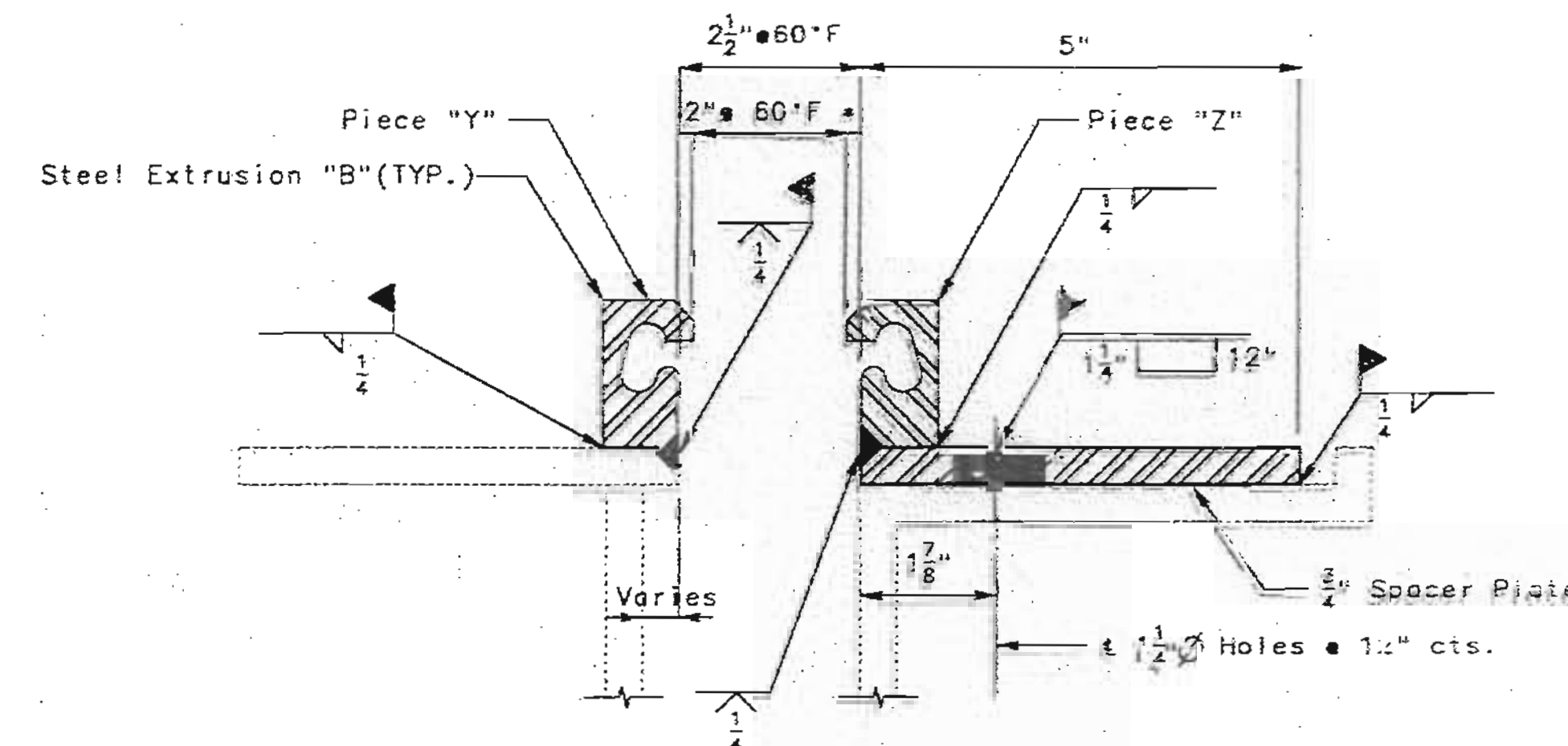
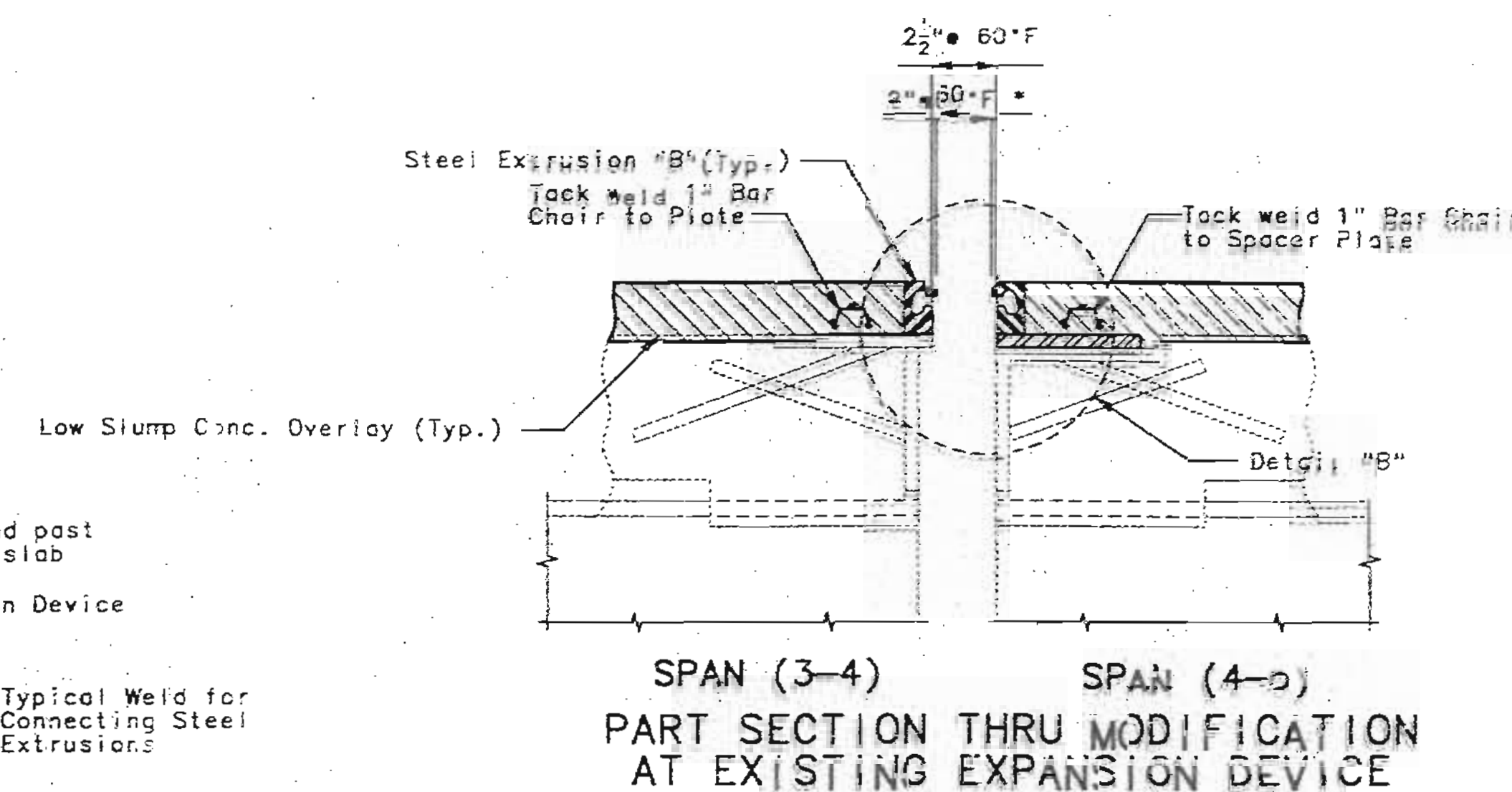
FINAL PLANS

SHEET NO.	PROJ. NO.
MO. F.A.T-70-1(1994)	89A

NOTE: Epoxy Seal open joint face of curb, outside edge of new curb and slab, and 18" back on the underside of the new slab for 2'0" either side of joint (See Special Provisions).



NOTE: The Strip Seal Gland shall extend past the edge of the slab and into the slab drain by 3/4".  
For Details of Drain at Expansion Device see sheet no. 26.

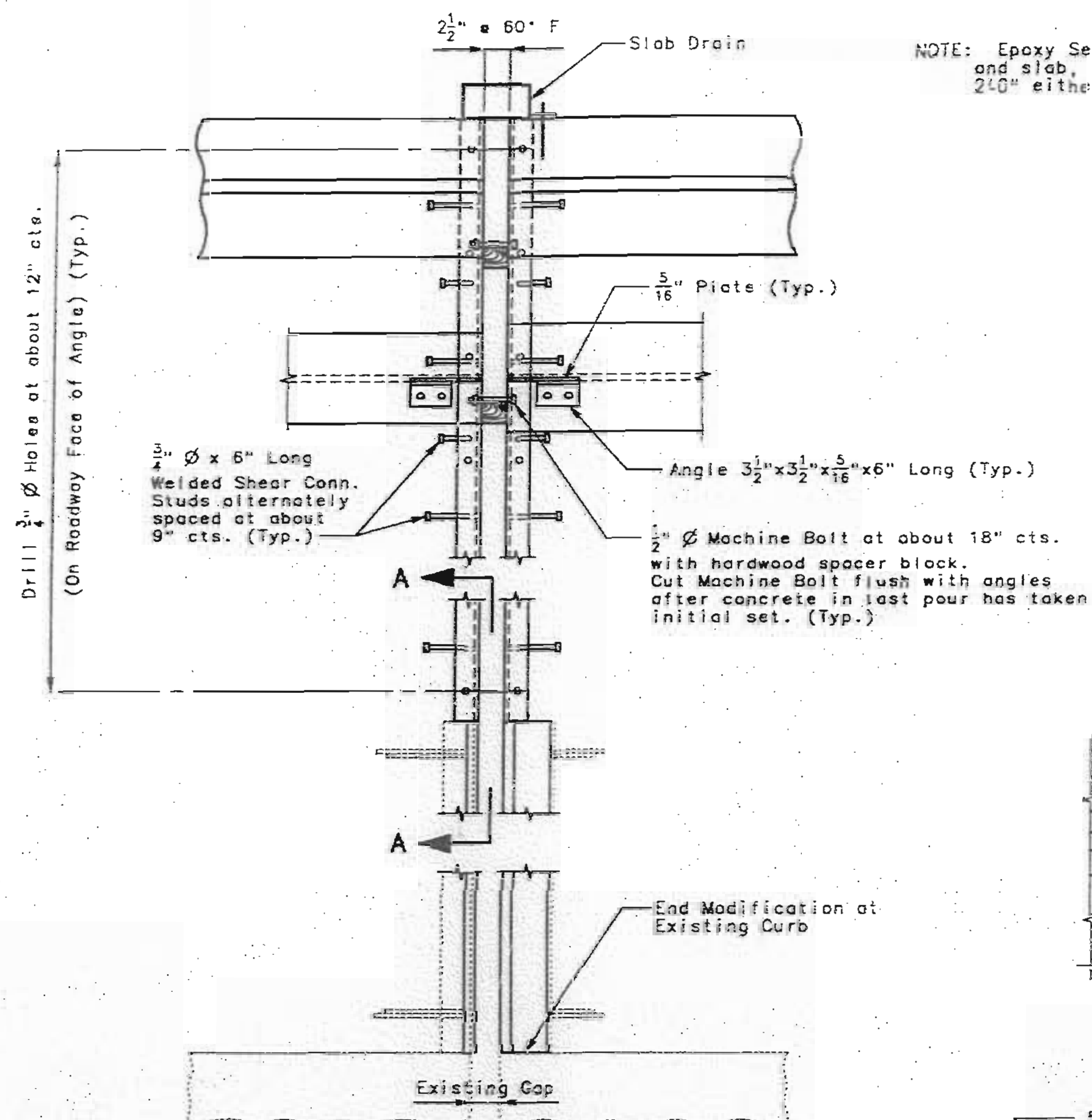


DETAIL OF EXTRUSION "B"

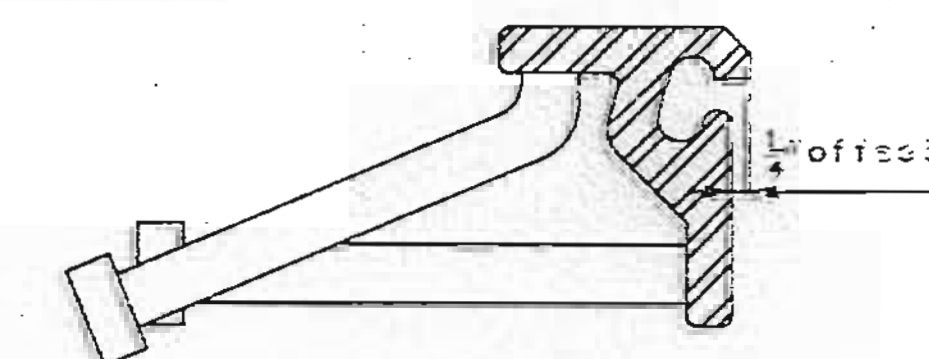
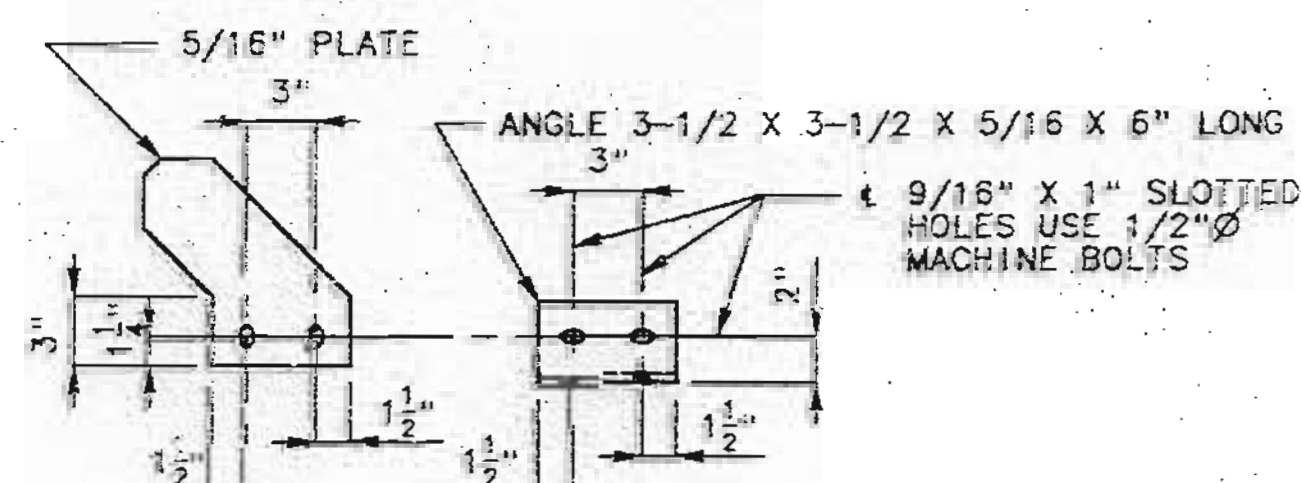
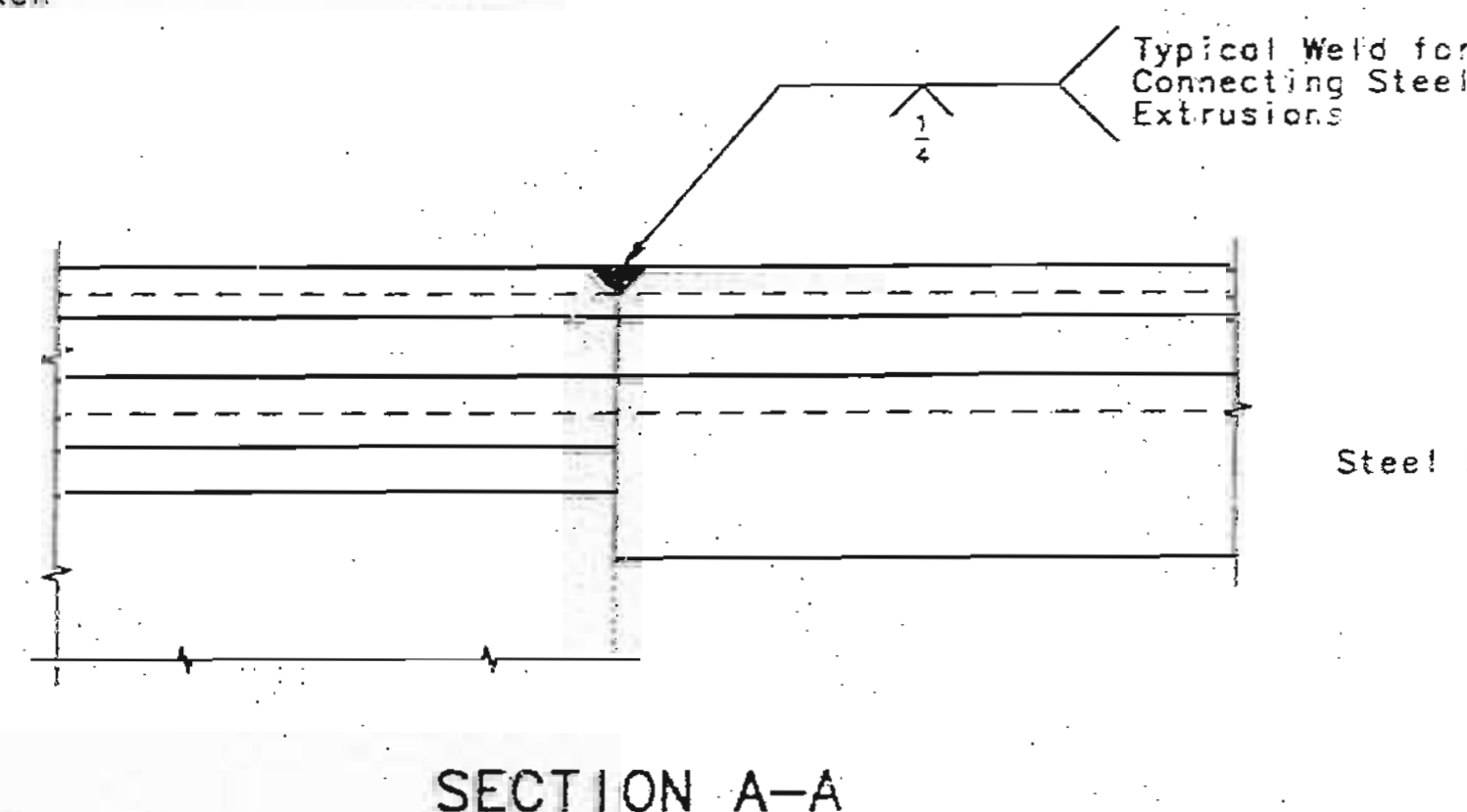
NOTES FOR STRIP SEAL:

The Expansion Device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.  
The contractor must verify all dimensions prior to fabrication.  
All welds shall conform to Section 712 of the Standard Specifications.  
Splices of steel extrusion shall develop full strength.  
All steel shall be A-36, except steel extrusions shall be A.S.T.M. A-588 or A-36.  
Anchors for the extrusions shall be approved welded studs (C1010 thru C1020).  
Payment for steel extrusions shall be made under the contract unit price for "Strip Seal Expansion Device".  
Payment for furnishing, painting and placing structural steel plates and angles shall be included in the contract unit price for "Strip Seal Expansion Device".

NOTE: If an Extrusion with offset dimension other than as shown in "DETAIL OF EXTRUSION" is utilized, dimension "x" shall be adjusted so as to maintain 2" clear expansion gap ± 60°F.  
NOTE: Gap dimension shall be increased 3/16" for each 10° fall in temperature and decreased 3/16" for each 10° rise in temperature.



PART SECTION THRU EXPANSION  
DEVICE NEAR PROPOSED STRINGER



DETAIL OF EXTRUSION "D"

DETAILS OF STRIP SEAL EXPANSION DEVICE NEAR PIER NO. 4

126  
 CHECKED OCT. 1993  
 OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED: AUG. 26, 1994  
 REPLACES SHEET NO. 21 OF 34.

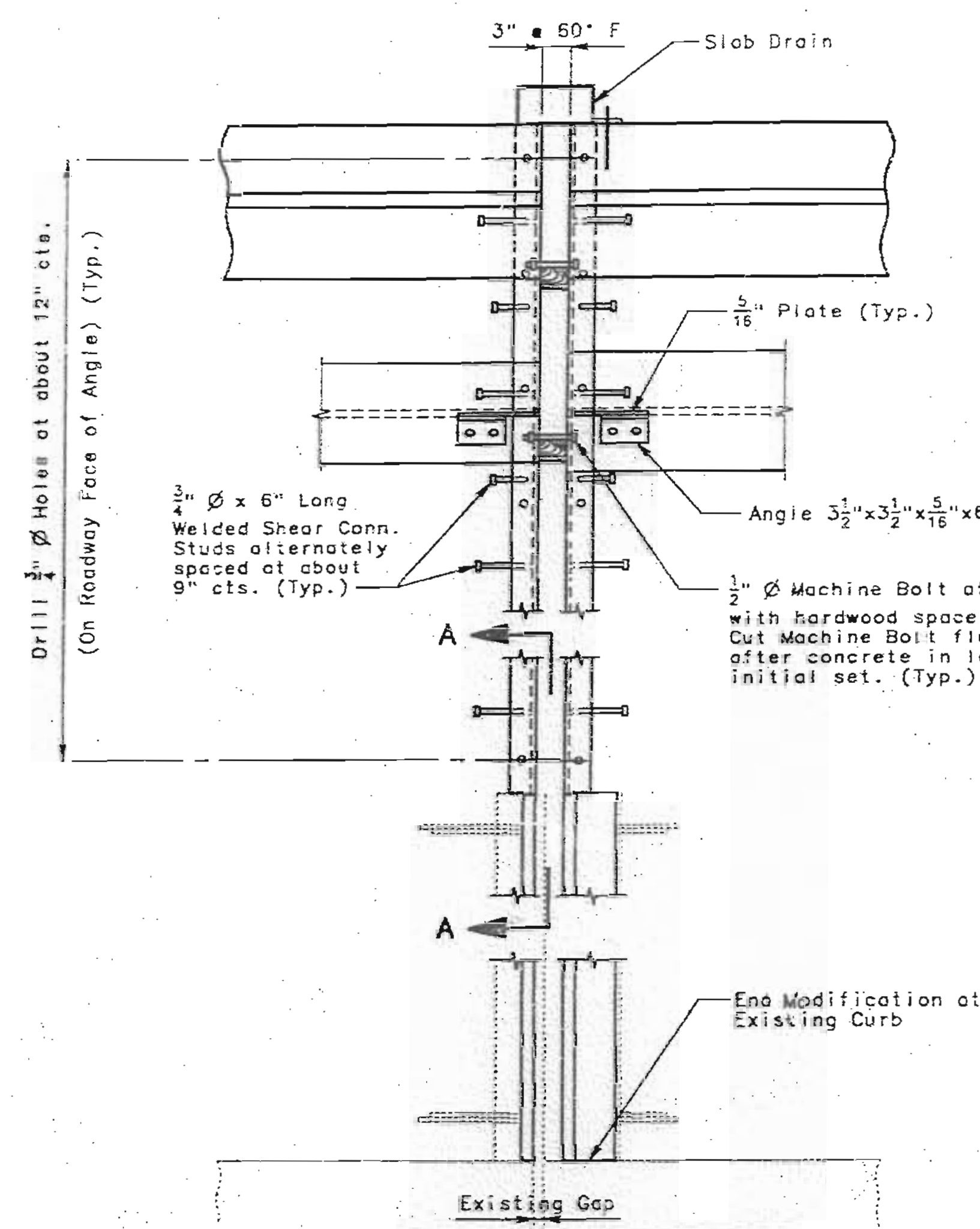
SHEET NO. 21 OF 34

JACKSON

COUNTY

A-167R

STATE	PROJ. NO.	SHEET NO.
MO.	FA.I-70-1 (164)	90A

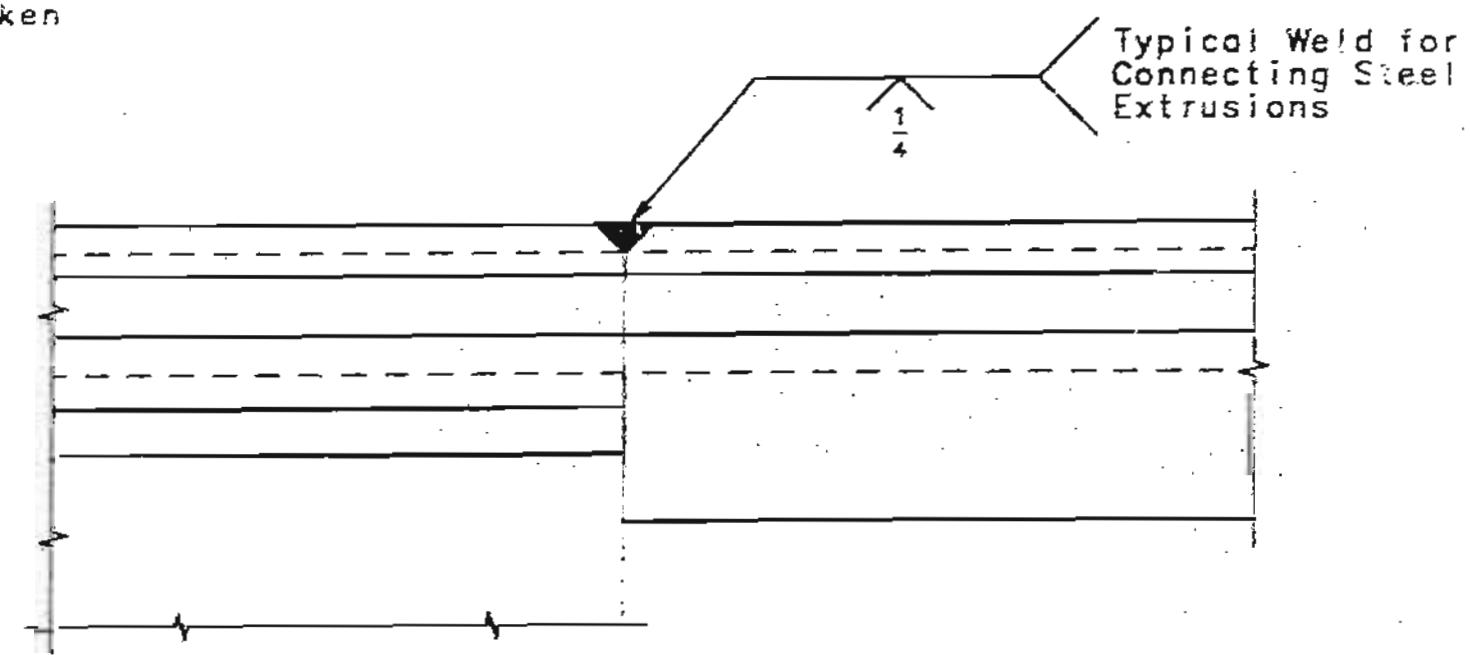
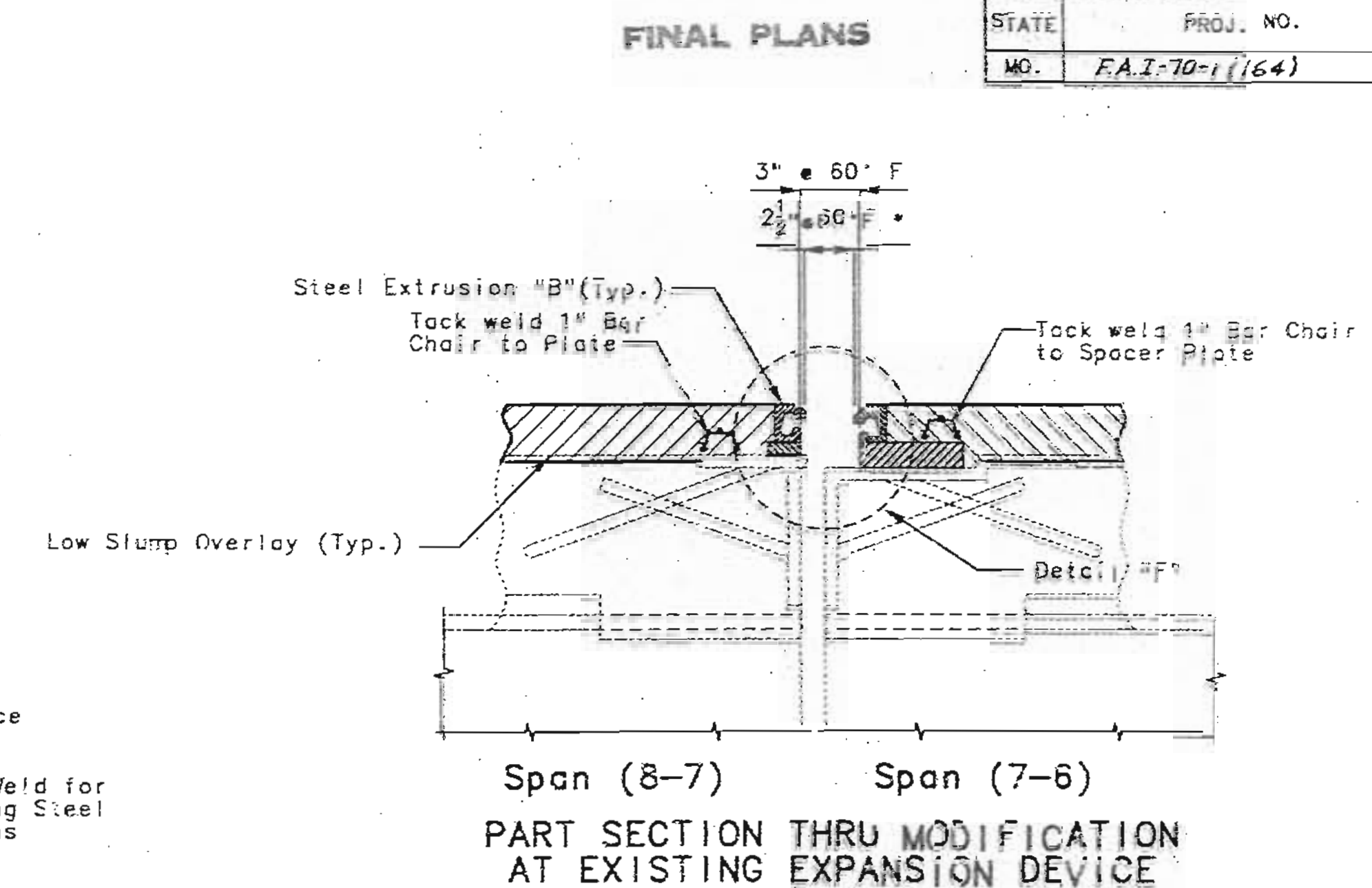


NOTE: Epoxy Seal open joint face of curb, outside edge of new curb and slab, and 18" back on the underside of the new slab for 2'0" either side of joint (See Special Provisions).

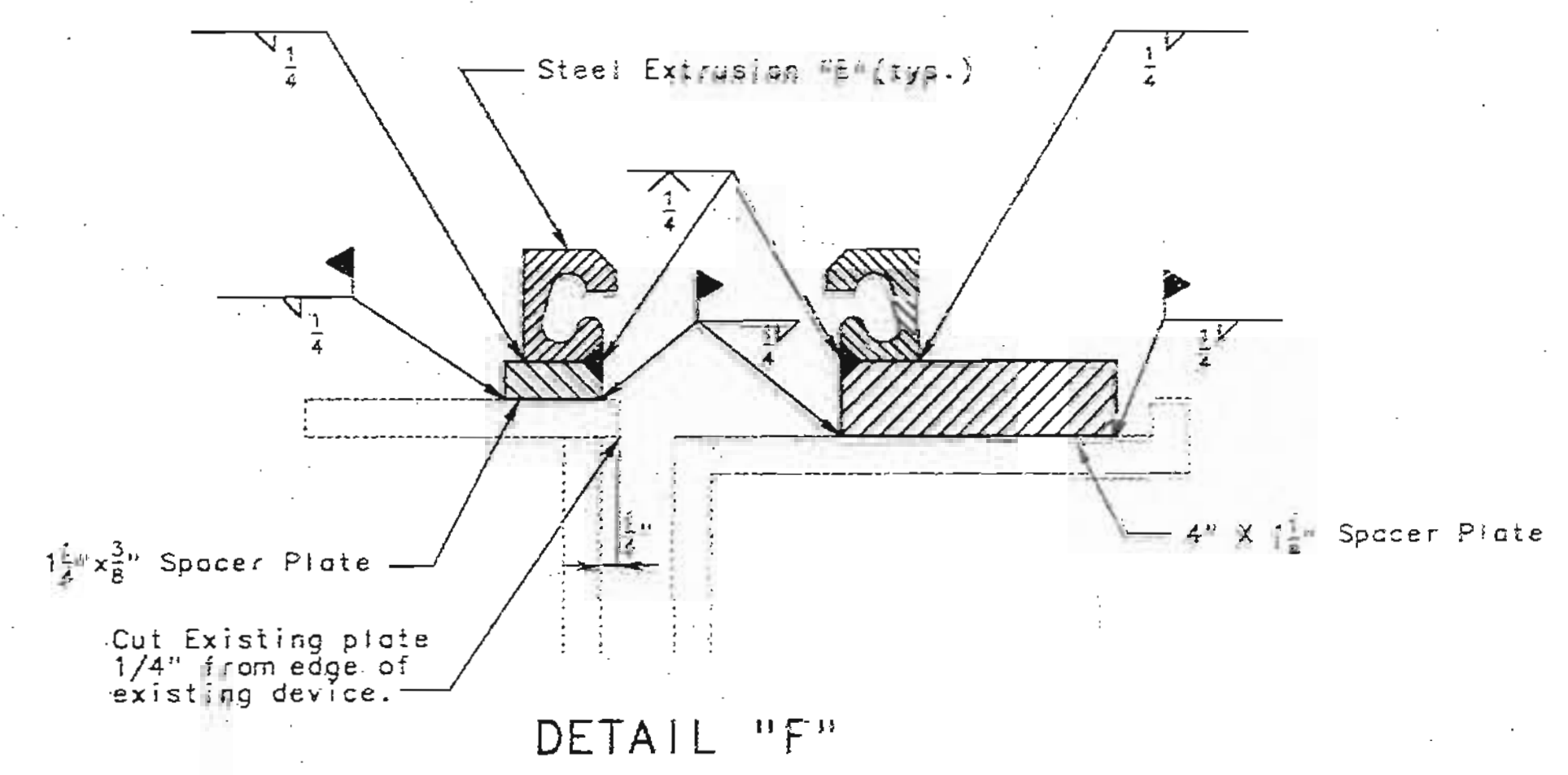


LOW PROFILE STRIP SEAL GLAND  
MOVEMENT RATING 4"

NOTE: The Strip Seal Gland shall extend past the edge of the slab and into the slab drain by 3/4".  
For Details of Drain at Expansion Device see sheet no. 26.



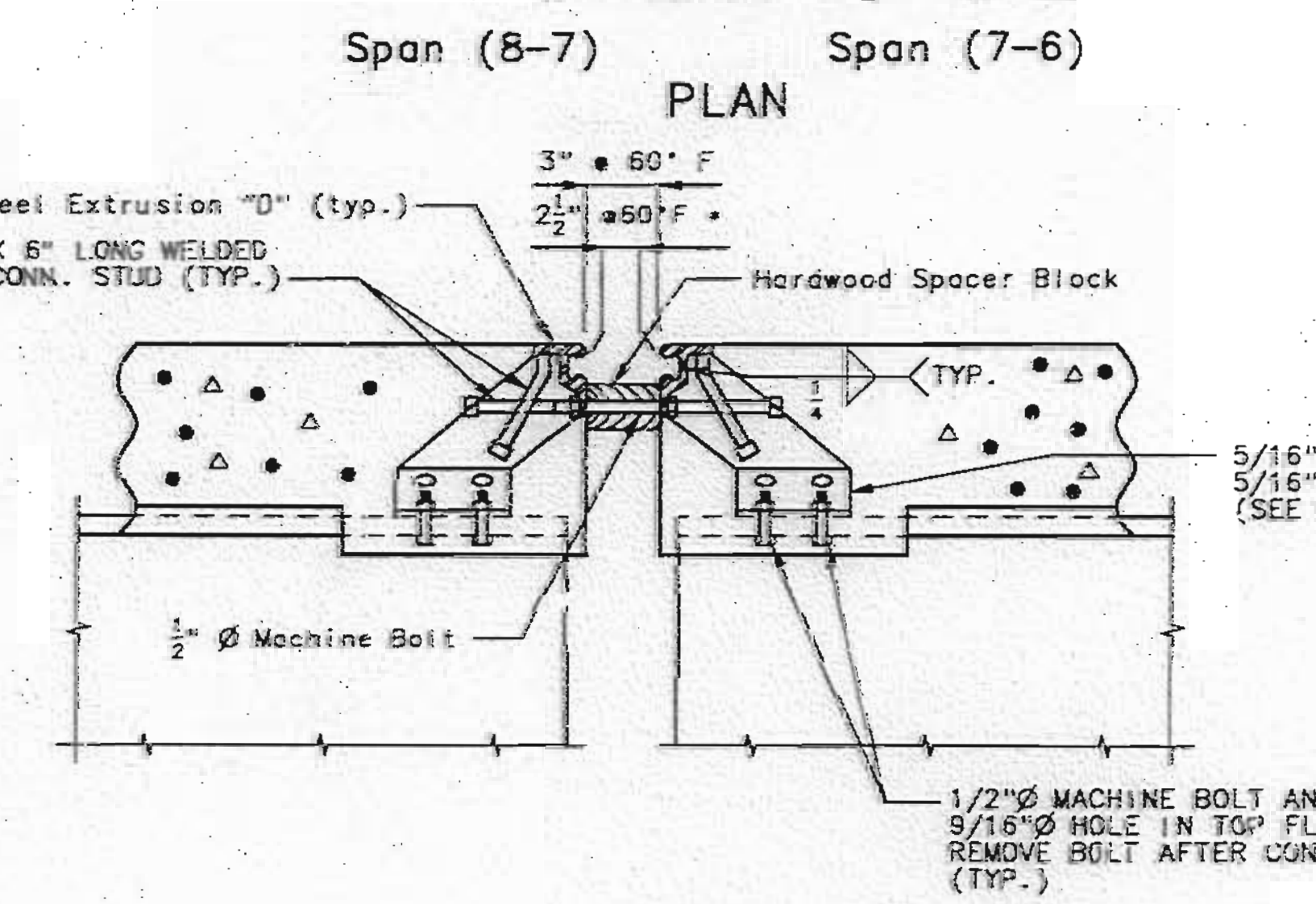
SECTION A-A



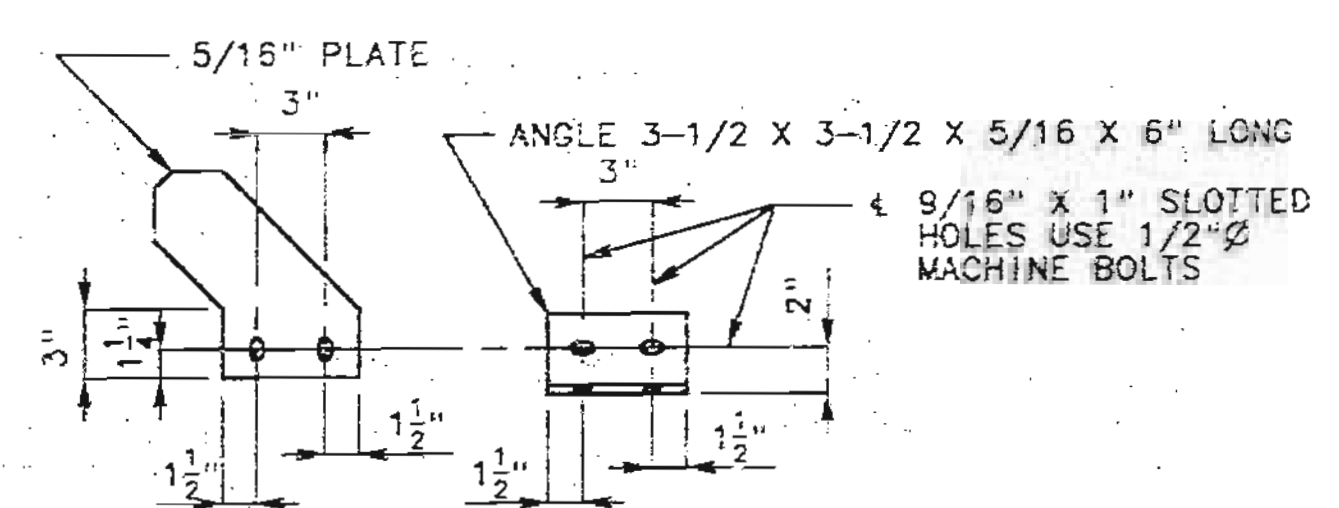
DETAIL "F"



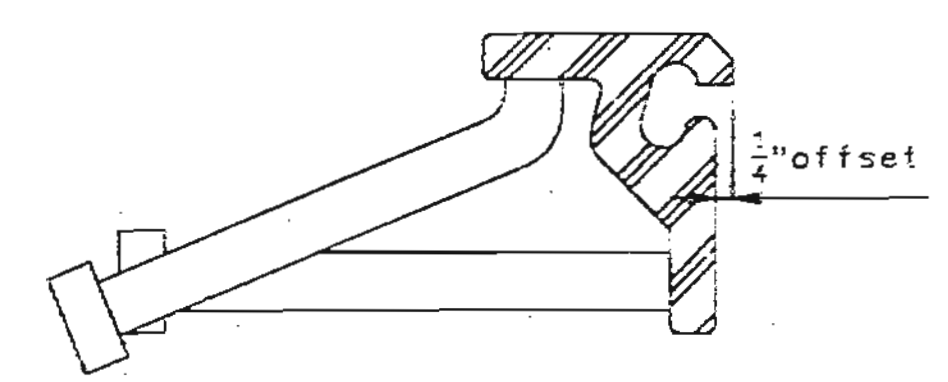
DETAIL OF EXTRUSION "B"



PART SECTION THRU EXPANSION DEVICE NEAR PROPOSED STRINGER



DETAIL "C"



DETAIL OF EXTRUSION "D"

NOTES FOR STRIP SEAL:

The Expansion Device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.  
The contractor must verify all dimensions prior to fabrication.  
All welds shall conform to Section 712 of the Standard Specifications.  
Splices of steel extrusion shall develop full strength.  
All steel shall be A-36, except steel extrusions shall be A.S.T.M. A-588 or A-36.  
Anchors for the extrusions shall be approved welded studs (C1019 thru C1025).  
Payment for steel extrusions shall be made under the contract unit price for "Strip Seal Expansion Device".  
Payment for furnishing, painting and placing structural steel plates and angles shall be included in the contract unit price for "Strip Seal Expansion Device".

NOTE: Gap dimension shall be increased 1/4" for each 10' fall in temperature and decreased 1/4" for each 10' rise in temperature.  
NOTE: If an Extrusion with offset dimension other than as shown in "DETAIL OF EXTRUSION" is utilized, dimension "x" shall be adjusted so as to maintain 2 1/2" clear expansion gap @ 60°F.

DETAILS OF STRIP SEAL EXPANSION DEVICE NEAR PIER NO. 7

DETAILED DEC. 1993  
CHECKED DEC. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

REVISED: AUG. 26, 1994  
REPLACES SHEET NO. 22 OF 34.

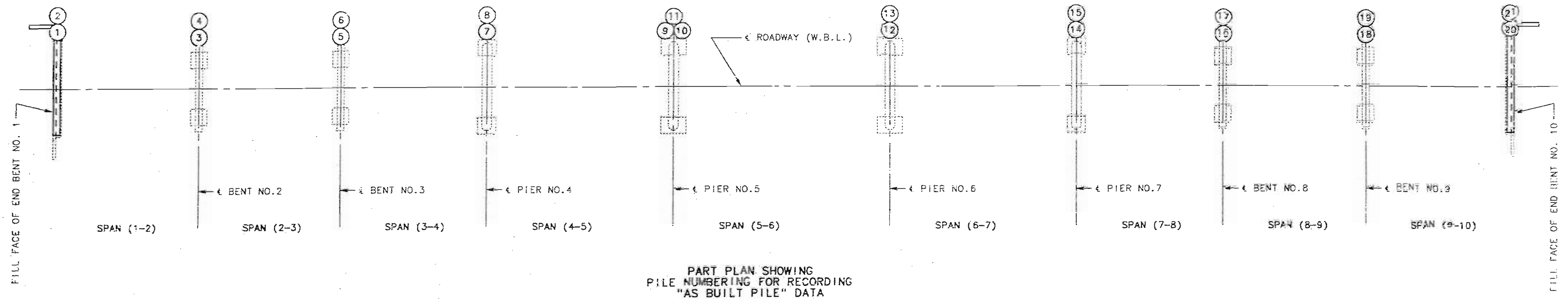
SHEET NO. 22a OF 34

JACKSON COUNTY

A-167R

FINAL PLANS

STATE	PROJ. NO.	SHEET NO.
MO.	F.A.T.-70-1(144)	102



PART PLAN SHOWING PILE NUMBERING FOR RECORDING "AS BUILT PILE" DATA

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
END BENT NO. 1			
1	43'-0"	117.0	PRACTICAL REFUSAL, STRUCTURAL STEEL
2	-	-	Not used; One pile designated in bridge details for end bent
INTERMEDIATE BENT NO. 2			
3	40'-9"	73.1	PRACTICAL REFUSAL, STRUCTURAL STEEL
4	41'-4"	76.4	" " " "
INTERMEDIATE BENT NO. 3			
5	42'-10"	65.0	PRACTICAL REFUSAL, STRUCTURAL STEEL
6	43'-1"	76.4	" " " "
INTERMEDIATE PIER NO. 4			
7	43'-2"	73.1	PRACTICAL REFUSAL, STRUCTURAL STEEL
8	42'-9"	73.1	" " " "
INTERMEDIATE PIER NO. 5			
9	16'-2"	87.3	PRACTICAL REFUSAL, STRUCTURAL STEEL
10	16'-6"	101.9	" " " "
11	17'-5"	97.5	" " " "

"AS BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT.)	COMPUTED BEARING (TONS)	REMARKS
INTERMEDIATE PIER NO. 6			
12	57'-7"	97.5	PRACTICAL REFUSAL, STRUCTURAL STEEL
13	57'-9"	106.4	" " " "
INTERMEDIATE PIER NO. 7			
14	57'-11"	78.0	PRACTICAL REFUSAL, STRUCTURAL STEEL
15	58'-2"	83.6	" " " "
INTERMEDIATE BENT NO. 8			
16	57'-10"	83.6	PRACTICAL REFUSAL, STRUCTURAL STEEL
17	58'-2"	94.1	" " " "
INTERMEDIATE BENT NO. 9			
18	56'-5"	106.4	PRACTICAL REFUSAL, STRUCTURAL STEEL
19	56'-9"	87.3	" " " "
END BENT NO. 10			
20	-	-	Not used; One pile designated in bridge details for end bent
21	57'-9"	106.4	PRACTICAL REFUSAL, STRUCTURAL STEEL

NOTE: INDICATE IN REMARK COLUMN:  
 A.) IF PILING WEB DRIVEN TO PRACTICAL REFUSAL.  
 B.) PILE BATTER IF OTHER THAN SHOWN ON BENT DETAIL SHEET.  
 C.) TYPE OF PILING USED.

MISS. PILES IN PLA. A  
 PILES IN PLACE  
 MAY 1992

DETAILED OCT. 1993  
 CHECKED OCT. 1993

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 34 OF 34

JACKSON COUNTY A-167R

**GENERAL NOTES:**

**Design Specifications:**

2002 - AASHTO LFD (17th Edition) Standard Specifications  
 Bridge Deck Rating = 7

**Design Loading:**

HS20-44 (1973 & New Construction)

**Design Unit Stresses:**

Class B-1 Concrete (Slab & Safety & Median Barrier Curbs)  $f'c = 4,000$  psi  
 Reinforcing Steel (Grade 60)  $fy = 60,000$  psi

**Reinforcing Steel:**

Minimum clearance to reinforcing steel shall be  $1\frac{1}{2}$ " unless otherwise shown.

**Expansion Joints:**

The concrete for slab and barrier & median curbs replacement shall be Class B-1.

Payment for slab concrete, complete-in-place, for expansion joint replacement will be considered completely covered by the contract unit price for Class B-1 concrete per cu. yard.

Payment for furnishing and installing slab reinforcing steel, complete-in-place, for expansion joint replacement will be considered completely covered by the contract unit price for Reinforcing Steel (Epoxy Coated).

**Concrete Protective Coatings:**

Protective coating for concrete bents and piers (Urethane or Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

**Structural Steel Protective Coatings:**

Protective Coating: All existing structural steel 10 feet from the end of girders at End Bent No. 6 and 10 feet each way from  $\phi$  of expansion joint near Int. Bent No. 3 with System G in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G, H or I)". The cost of surface preparation will be considered completely covered by the contract unit price per sq. foot for "Surface Preparation for Recoating Structural Steel".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for "Field Application of Inorganic Zinc Primer". Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coats: The color of the field coats shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract unit price per sq. foot for "Intermediate Field Coat (System G)". The cost of the finish field coat will be considered completely covered by the contract unit price per sq. foot for "Finish Field Coat (System G)".

Sec 1081.4.5 shall be modified such that the word "RECOATED" is replaced by the words "RECOATED - SYSTEM G - EXPANSION AREAS ONLY" as part of the new legend.

**Miscellaneous:**

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered by the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

Roadway surfacing adjacent to bridge ends shall match bridge overlay (Roadway Item).

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

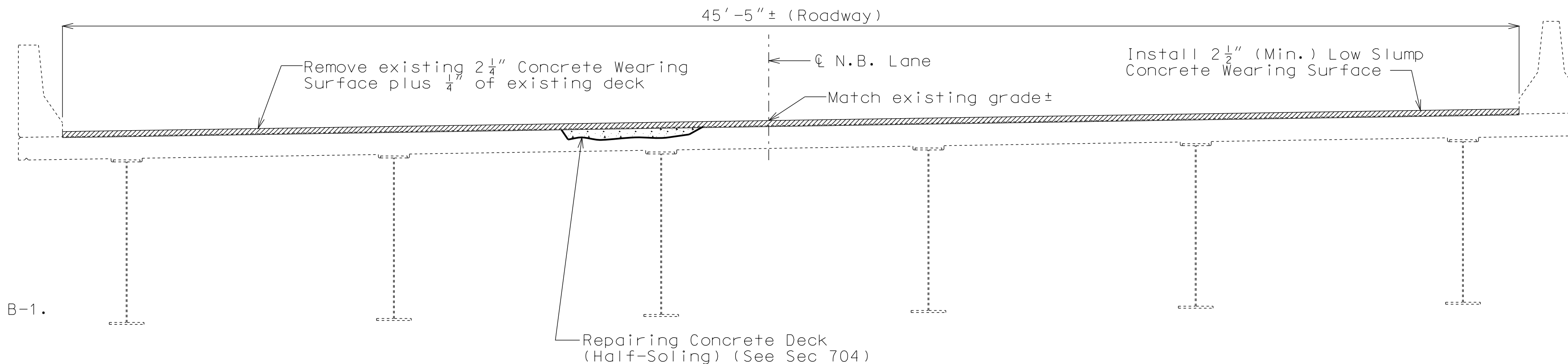
**Traffic Handling:**

Bridge A2513 will be closed to traffic during construction. See Sheet No. 2 for Details of Stage Construction and Roadway Plans for Traffic Control.

**MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION**

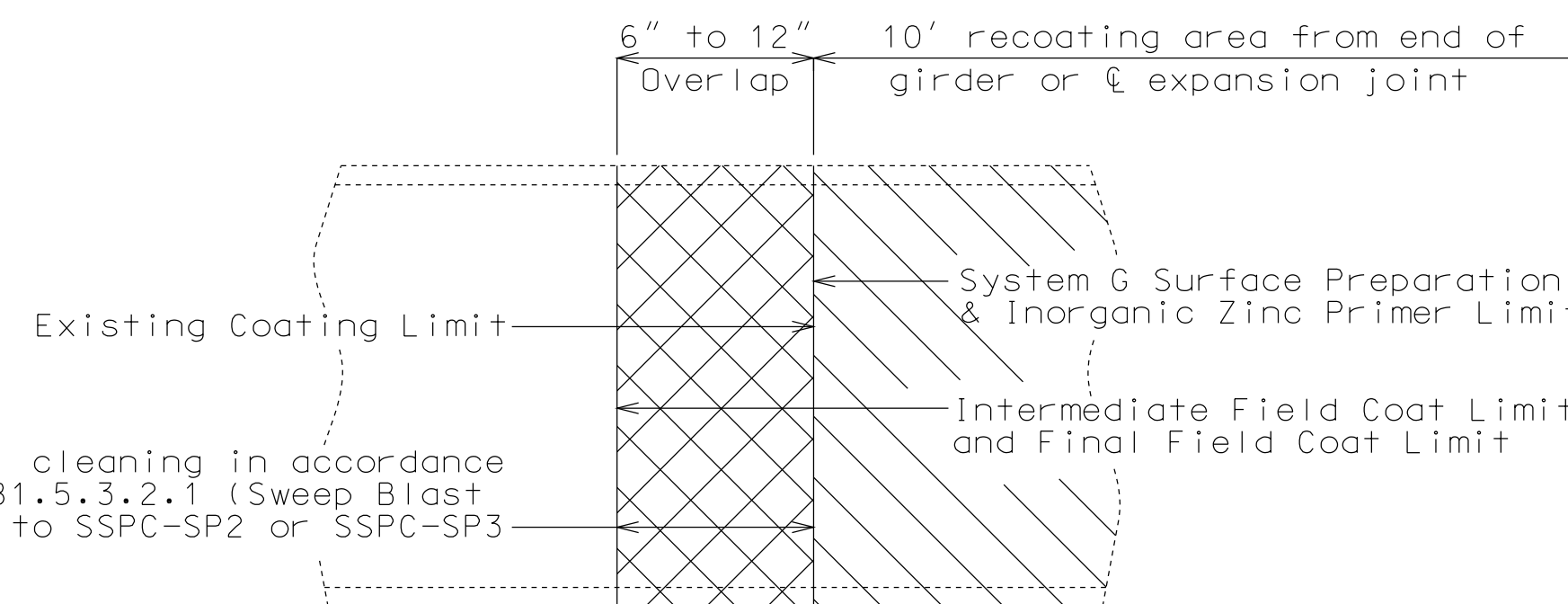
SEC/SUR 36 TWP 48N RGE 32W

**U.I.P. AND REHABILITATE EXISTING (54'-54') CONTINUOUS COMPOSITE WIDE FLANGE SPANS  
 (3'-90'-107'-59') CONTINUOUS COMPOSITE PLATE GIRDER SPANS**



**TYPICAL SECTION THRU SLAB**

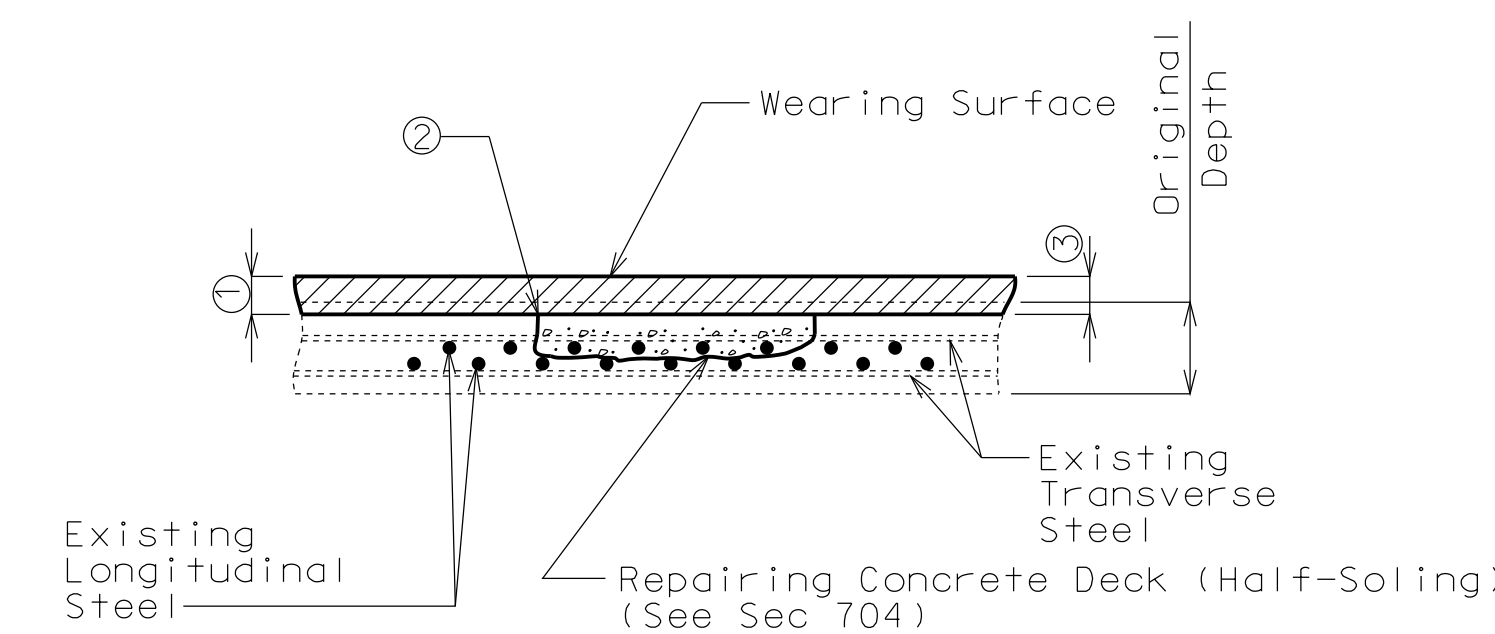
Estimated Quantities		
Item		Total
Removal of Concrete Wearing Surface	sq. foot	16,776
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	94
Remove and Replace Barrier Curb	linear foot	20
Low Slump Concrete Wearing Surface	sq. yard	1863
Class B-1 Concrete	cu. yard	12.7
Repairing Concrete Deck (Half-Soling)	sq. foot	700
Clean and Epoxy Seal	sq. foot	1080
Reinforcing Steel (Epoxy Coated)	pound	580
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Surface Preparation for Recoating Structural Steel	sq. foot	2100
Field Application of Inorganic Zinc Primer	sq. foot	2100
Intermediate Field Coat (System G)	sq. foot	2100
Finish Field Coat (System G)	sq. foot	2100
Strip Seal Expansion Joint System	linear foot	94



**PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP**  
 (Vertical or horizontal paint limit. Horizontal limit shown)

**Note:**

Limits of Paint Overlap: System G shall overlap the existing coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system near the expansion and contraction areas. The final field coating shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required.



**HALF-SOLED REPAIR**

- ① Remove existing wearing surface plus  $\frac{1}{4}$ " of existing deck.
- ② One inch vertical side shall be established outside the deteriorated area. (See Sec 704)
- ③  $2\frac{1}{2}$ " (Min.) Low Slump Concrete Wearing Surface

**REPAIRS TO BRIDGE: NW BLUE PARKWAY NB OVER I-470**

STATE ROAD FROM RTE. 291 TO RTE. 350

ABOUT 0.2 MILE EAST OF RTE. 350

STA. 419+34.30± (MATCH EXISTING)

STD. 617.20

STD. 706.35

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
11/13/2013

ROUTE I-470 STATE MO

DISTRICT BR SHEET NO. 1

COUNTY JACKSON

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A25131

DESCRIPTION

DATE

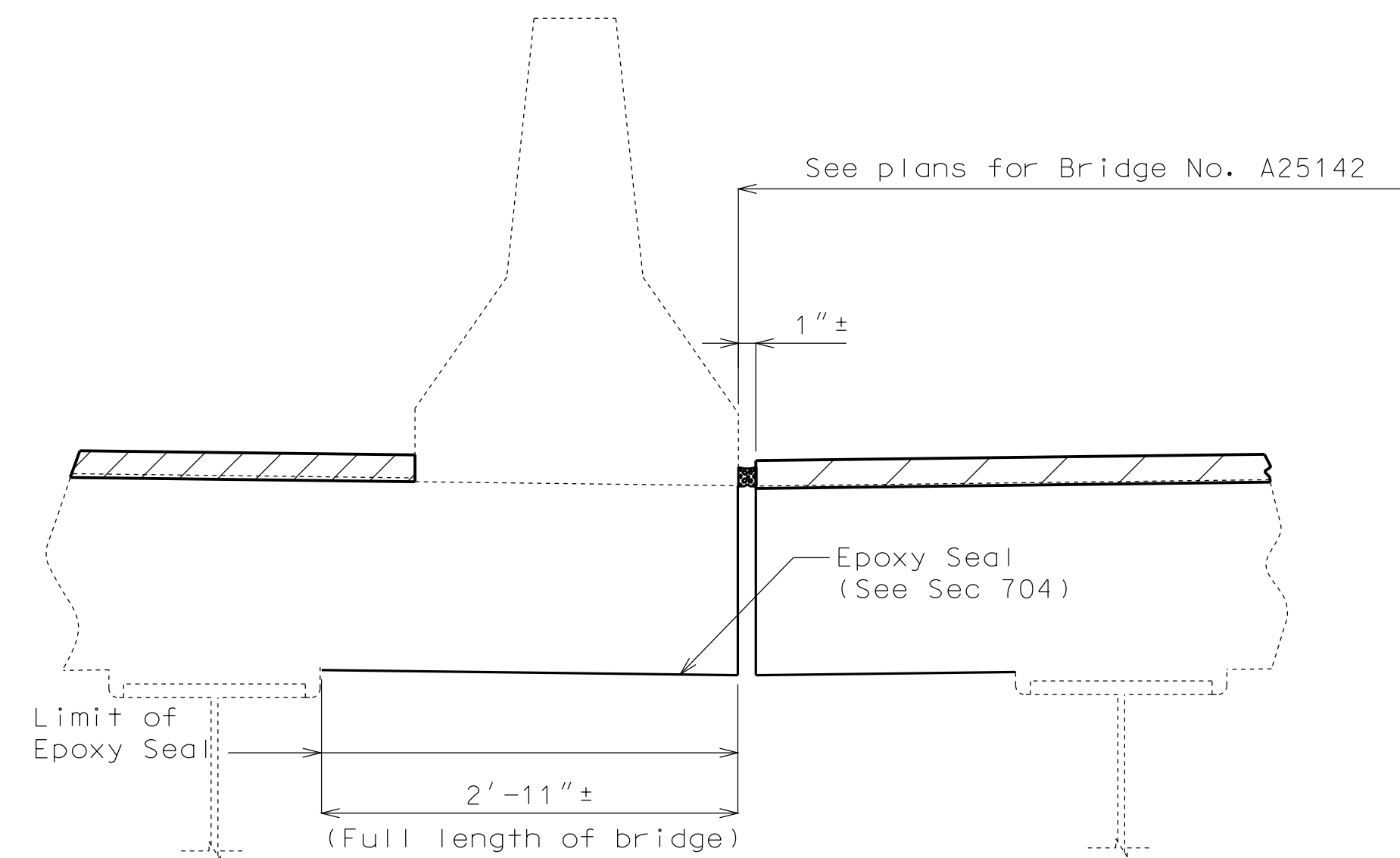
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

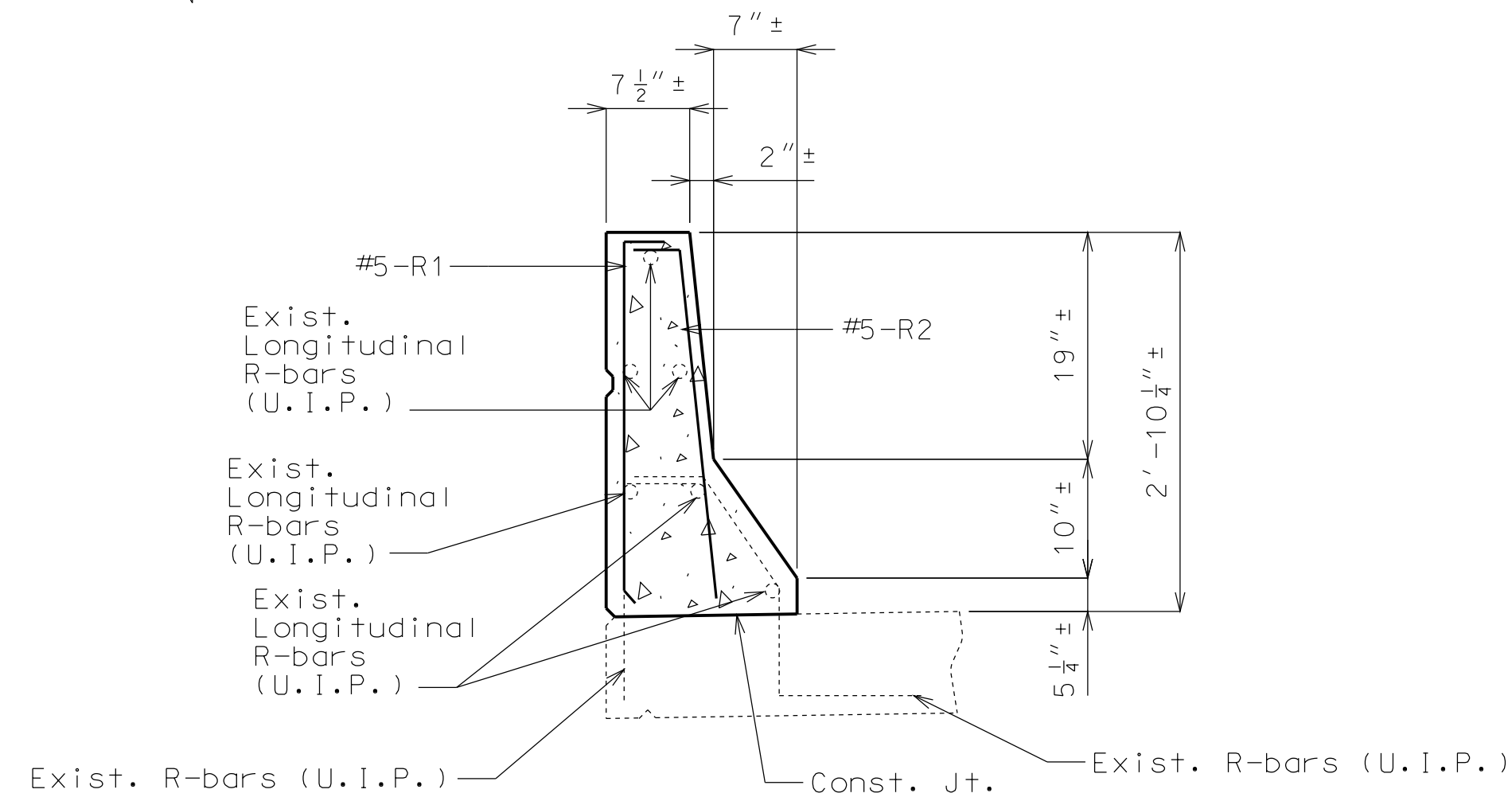
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.





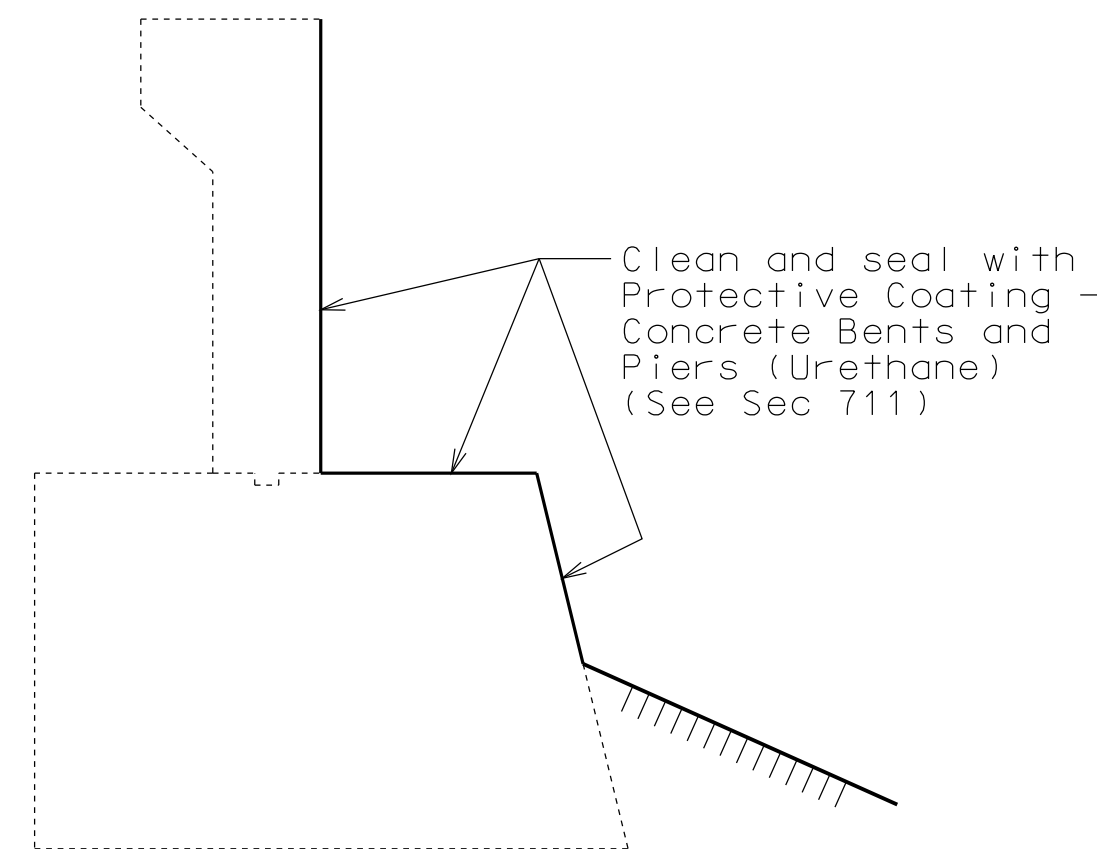


PART SECTION THRU SLAB SHOWING LIMITS OF EPOXY SEAL

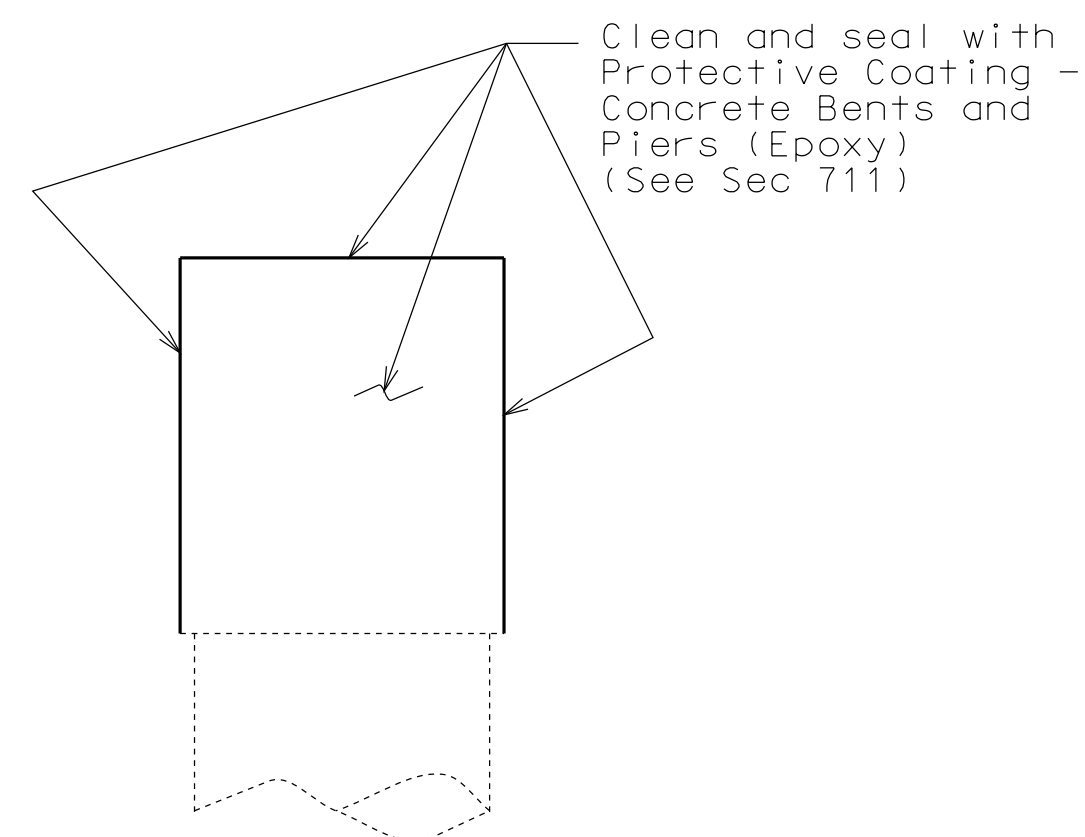


SECTION A-A

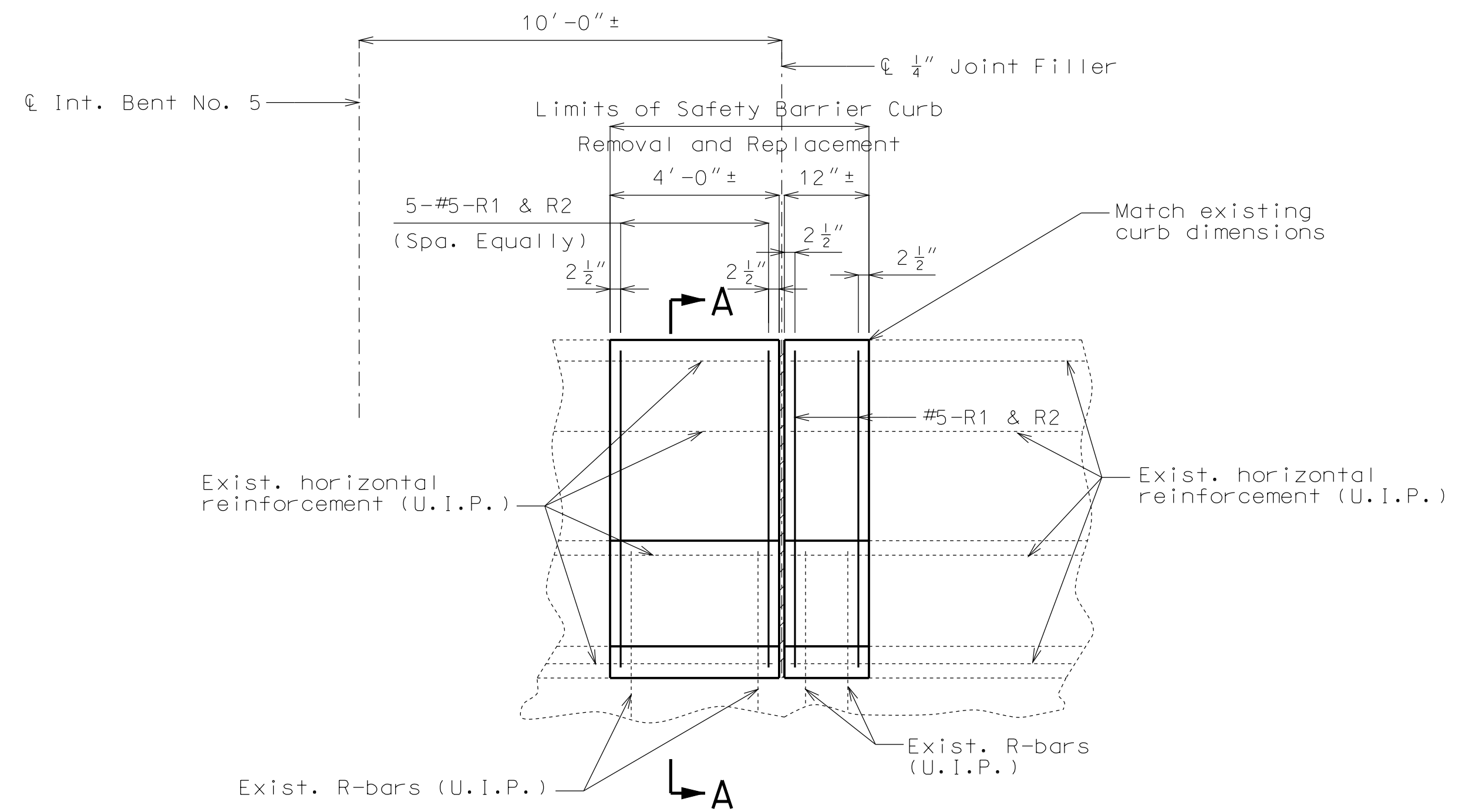
Note: Concrete Wearing Surface not shown for clarity.



TYPICAL SECTION THRU END BENTS NO. 1 & 6 SHOWING PROTECTIVE COATING

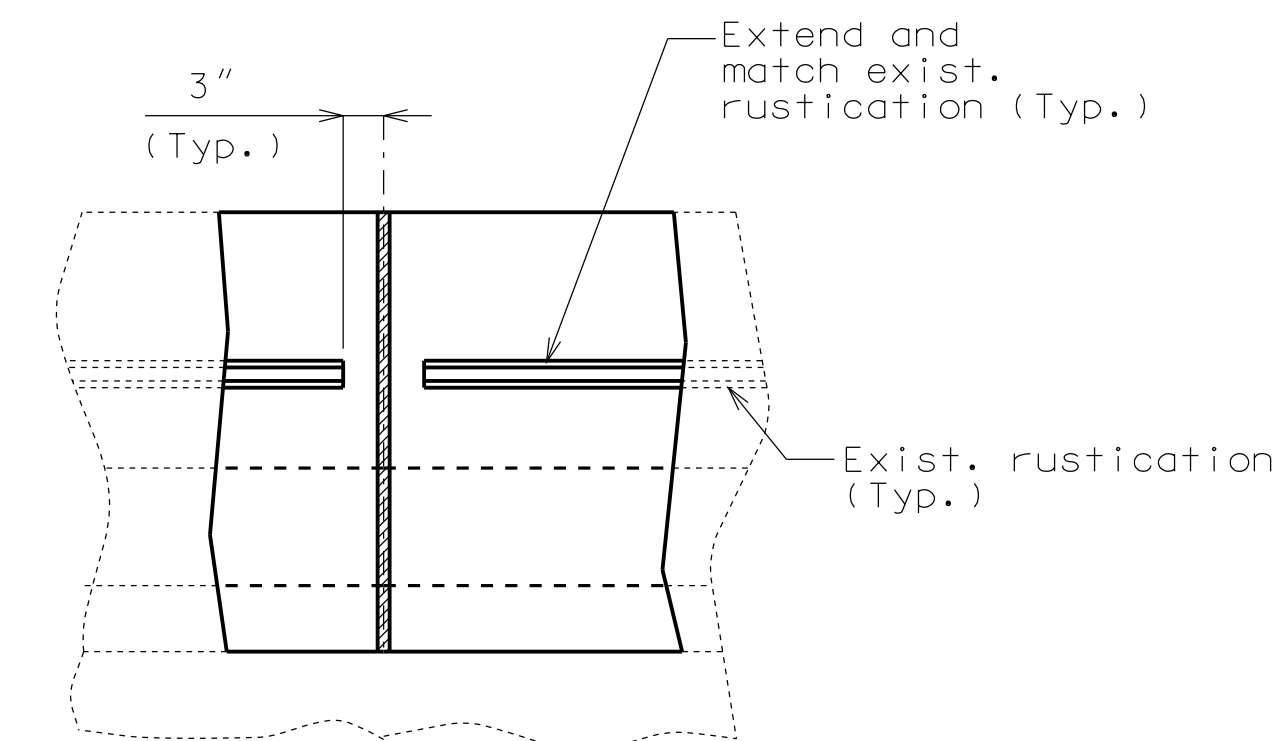


PART ELEVATION OF INT. BENT NO. 3 SHOWING PROTECTIVE COATING

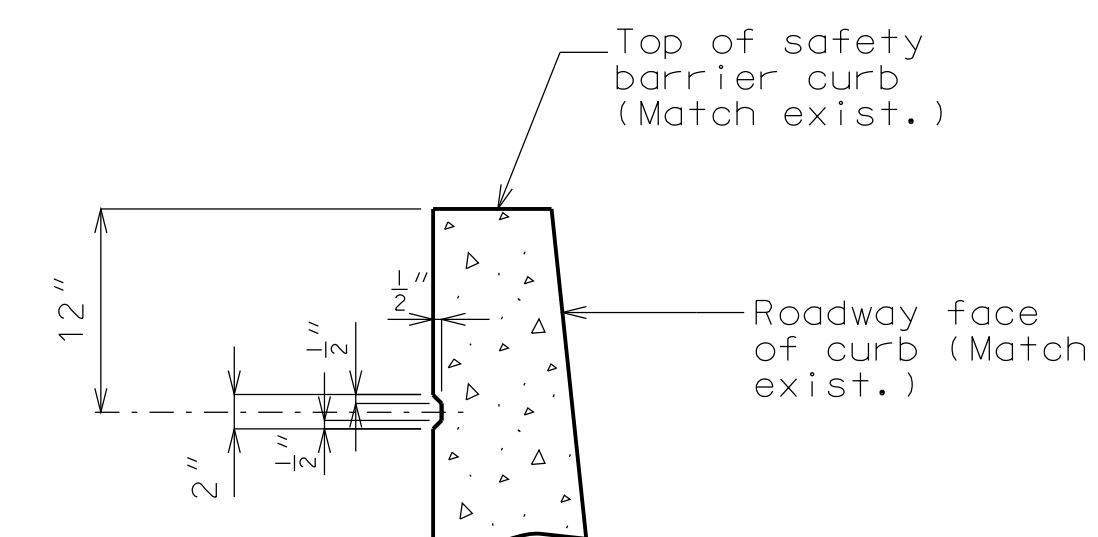


PART SECTION NEAR LEFT SAFETY BARRIER CURB NEAR BENT NO. 5 SHOWING REINFORCEMENT

Note: Concrete Wearing Surface not shown for clarity.



PART ELEVATION SHOWING PARTIAL SAFETY BARRIER CURB REPLACEMENT



PART SECTION SHOWING RUSTICATION DETAILS

Notes:

Remove existing stirrups not embedded in the slab within limits of Safety Barrier Curb Removal.

Concrete in the Safety Barrier Curb replacement shall be Class B-1.

All exposed edges of new Safety Barrier Curb shall match existing Safety Barrier Curb.

Payment for curb removal and all new concrete and reinforcement for safety barrier, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb per linear foot.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/13/2013

ROUTE I-470 STATE MO

DISTRICT BR SHEET NO. 3

COUNTY JACKSON

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A25131

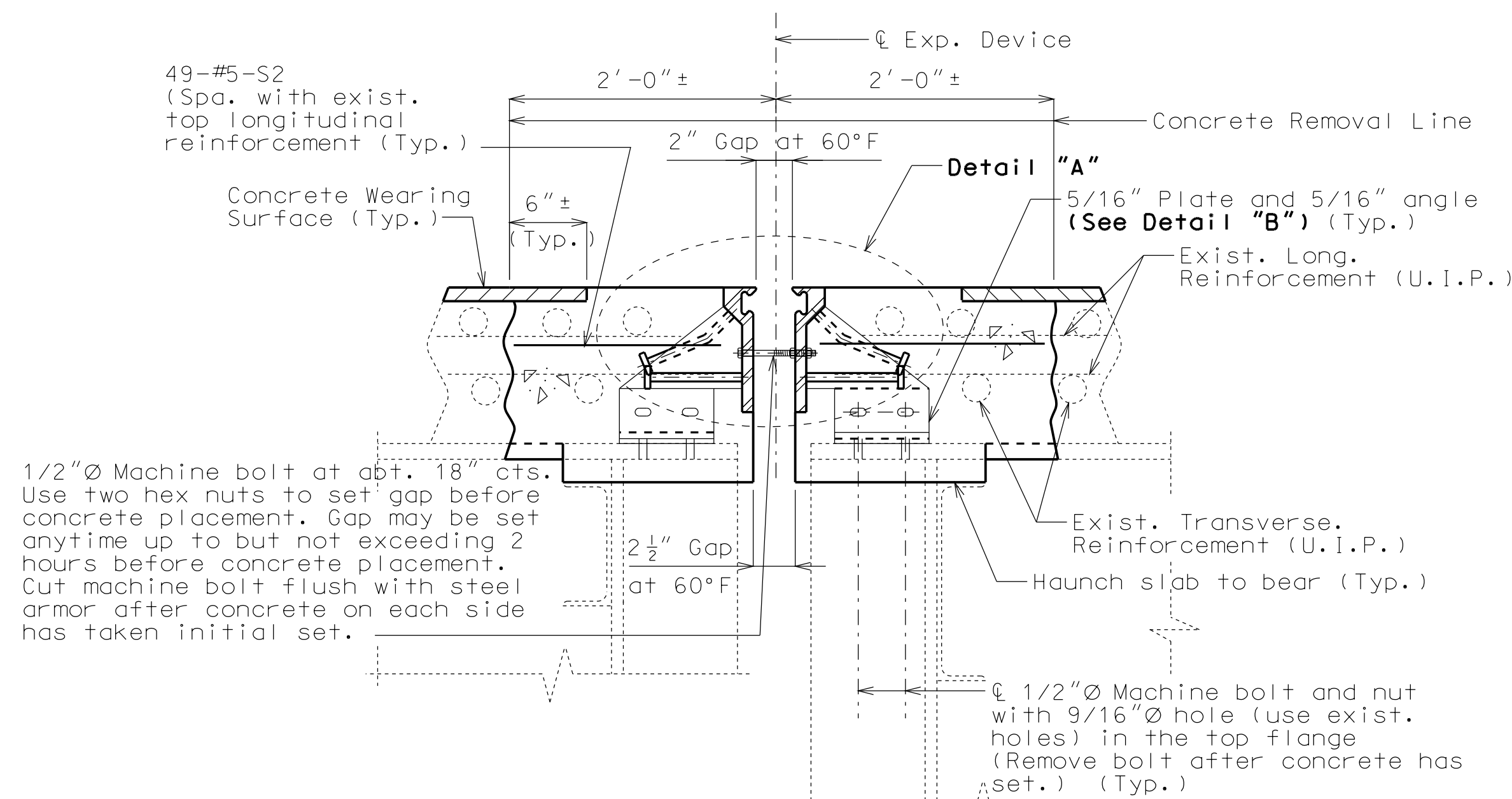
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

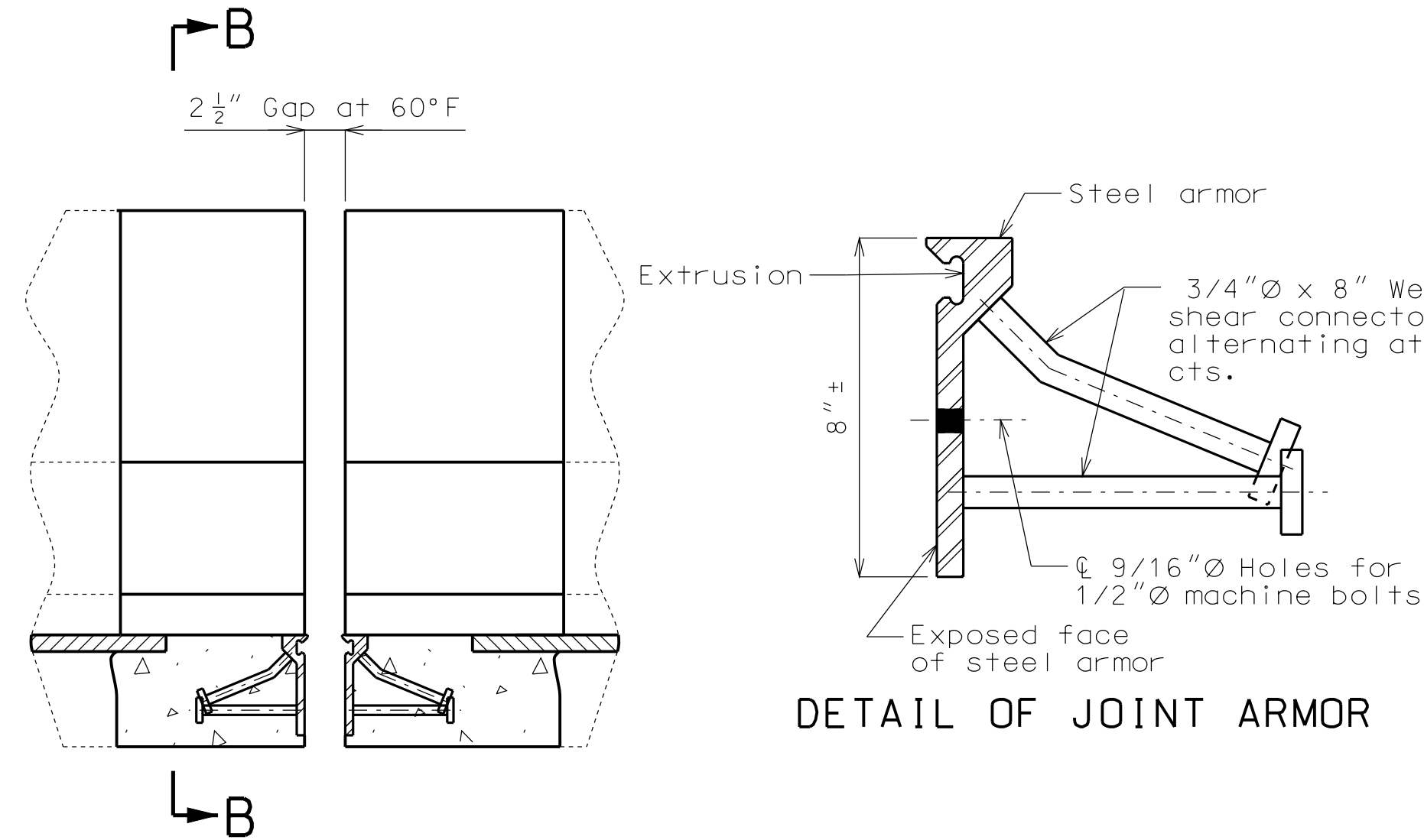
105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)



SECTION A-A

Note: Strip seal gland not shown for clarity.



GENERAL NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

New longitudinal reinforcing steel shall be placed and existing longitudinal reinforcing steel shall be cut/bent so that ends shall not be more than ±1" from vertical leg of the steel armor at the expansion joint system.

Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
11/13/2013

ROUTE I-470 STATE MO

DISTRICT BR SHEET NO. 4

COUNTY JACKSON

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

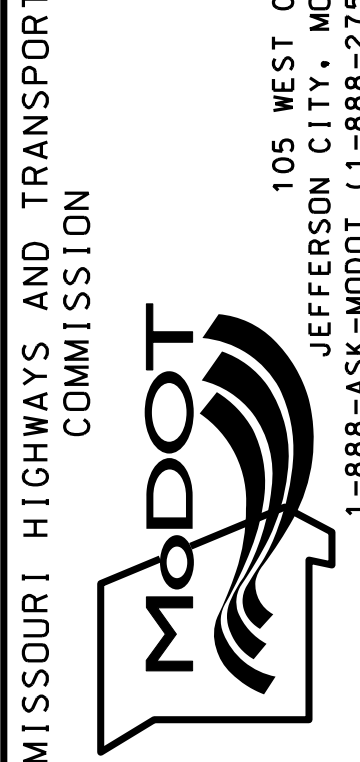
BRIDGE NO. A25131

DESCRIPTION

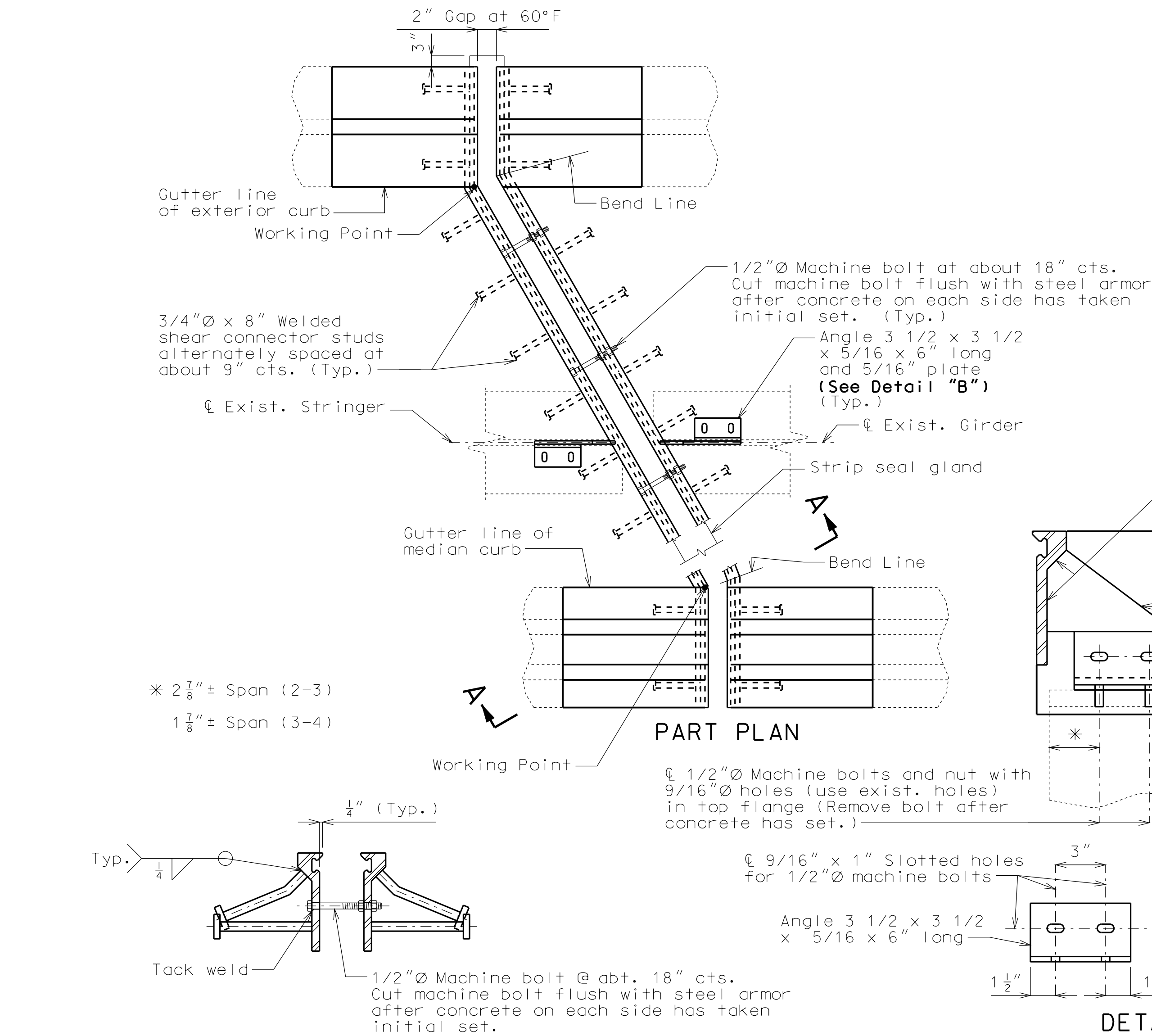
DATE	DESCRIPTION

DATE

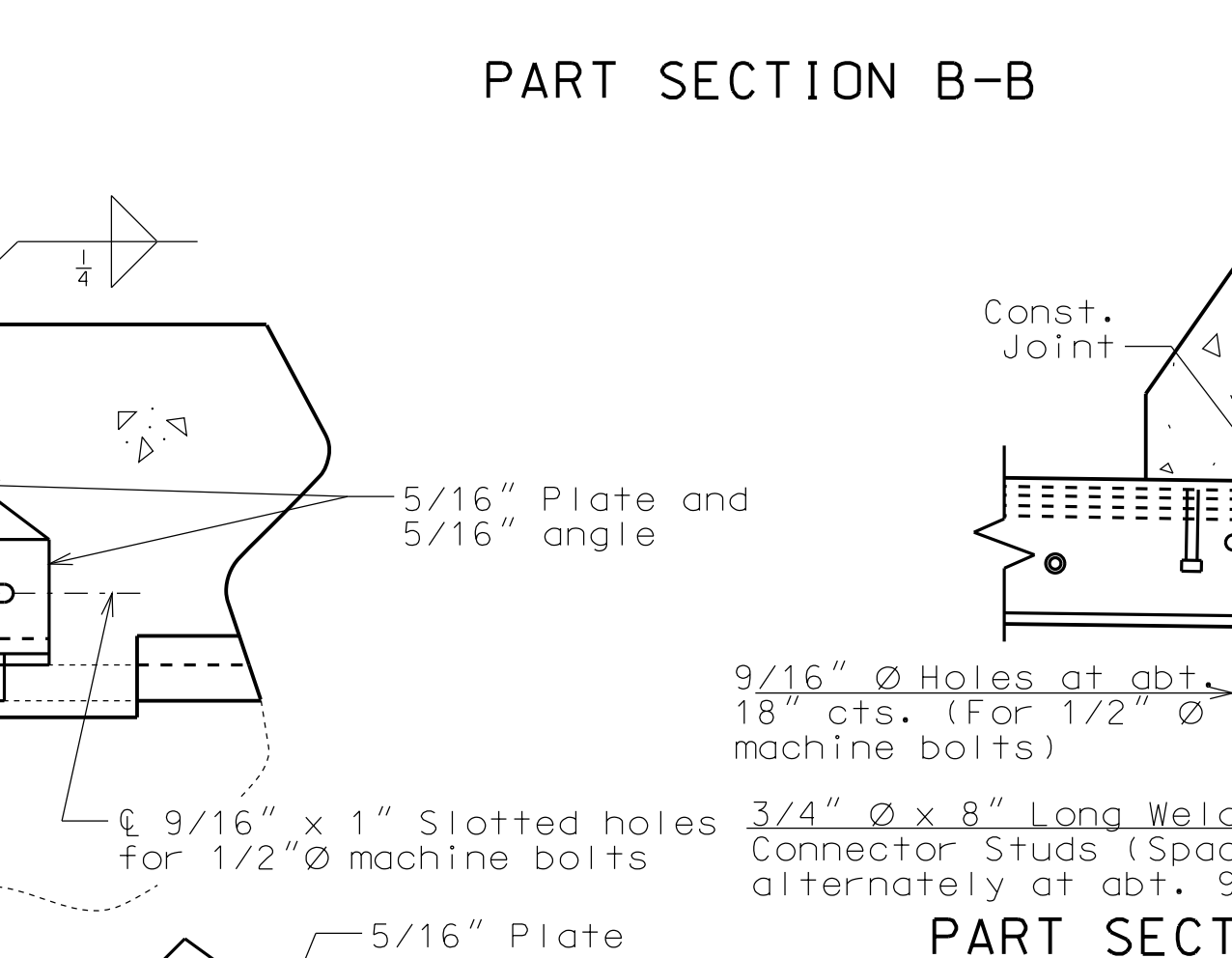
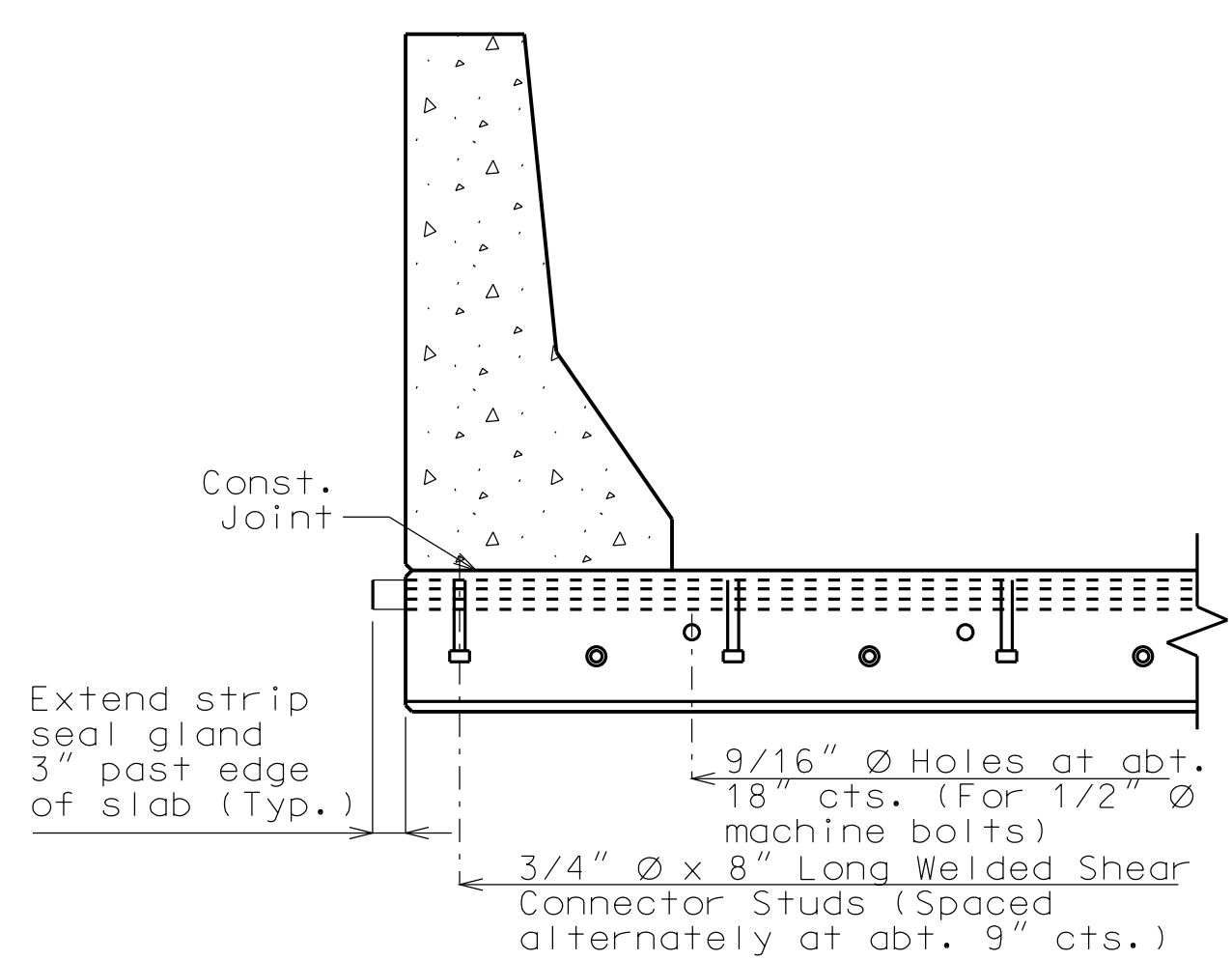
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



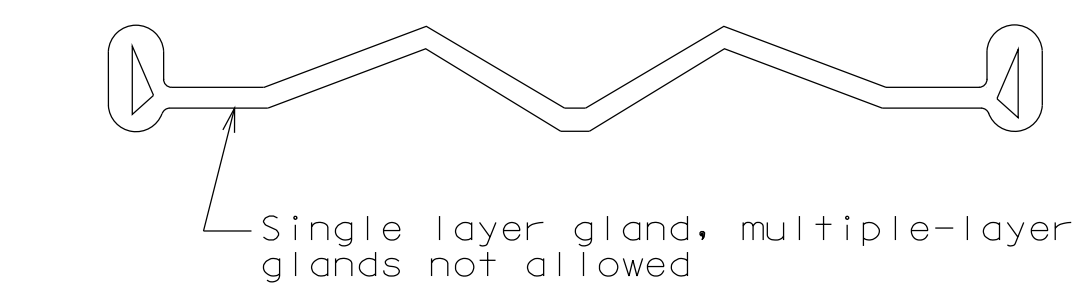
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DETAIL "A"



PART ELEVATION OF MEDIAN BARRIER CURB

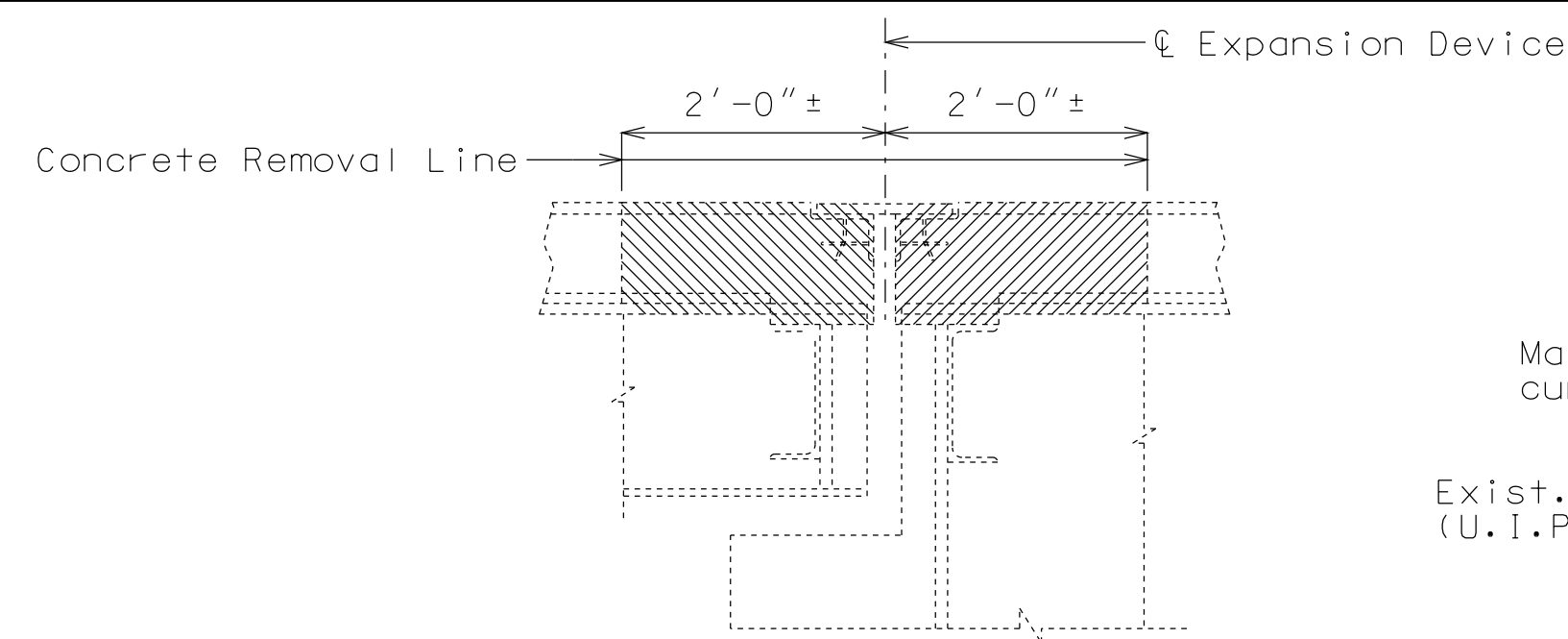


DETAIL OF GLAND

DETAILS OF STRIP SEAL NEAR INTERMEDIATE BENT NO. 3

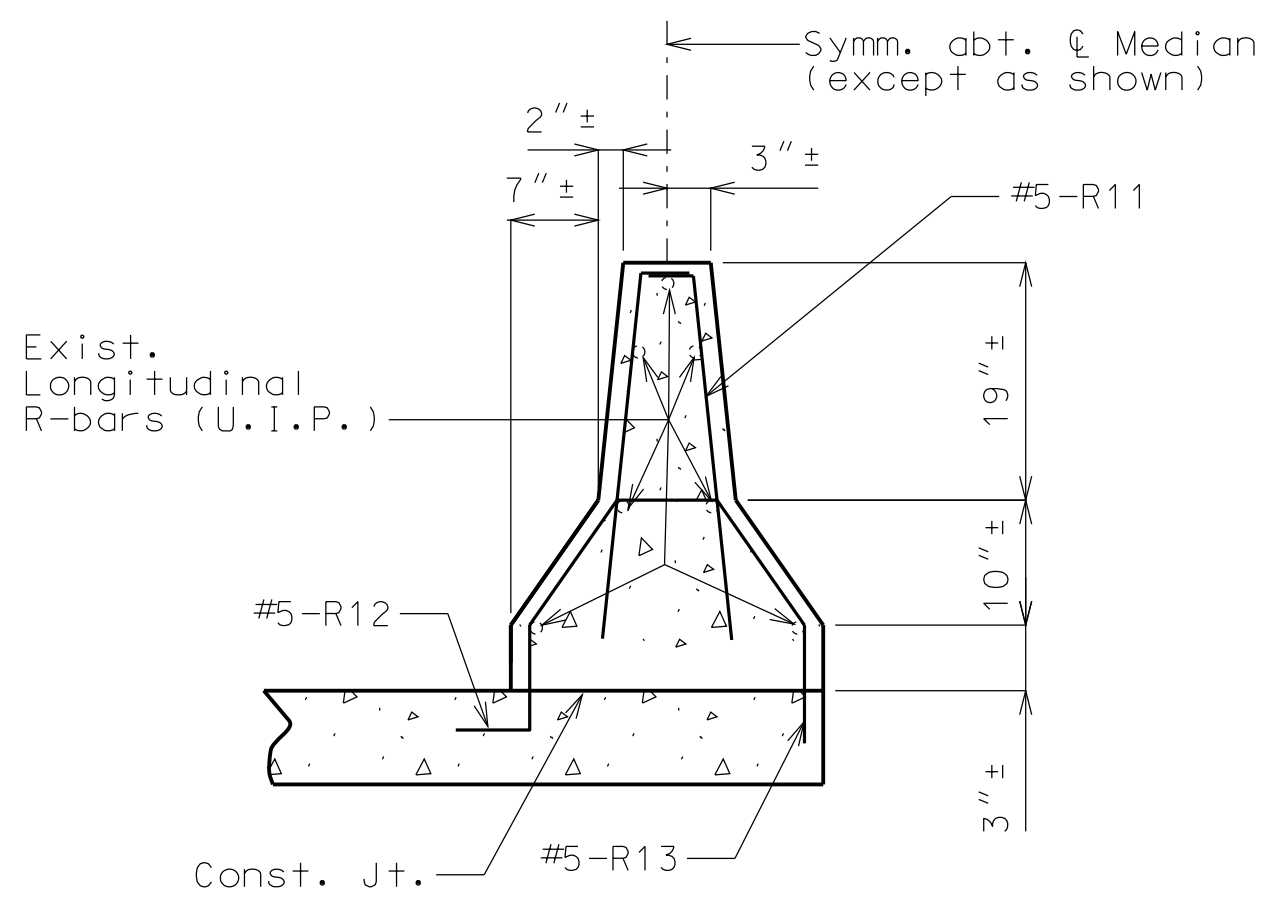
Note: This drawing is not to scale. Follow dimensions. Sheet No. 4 of 8



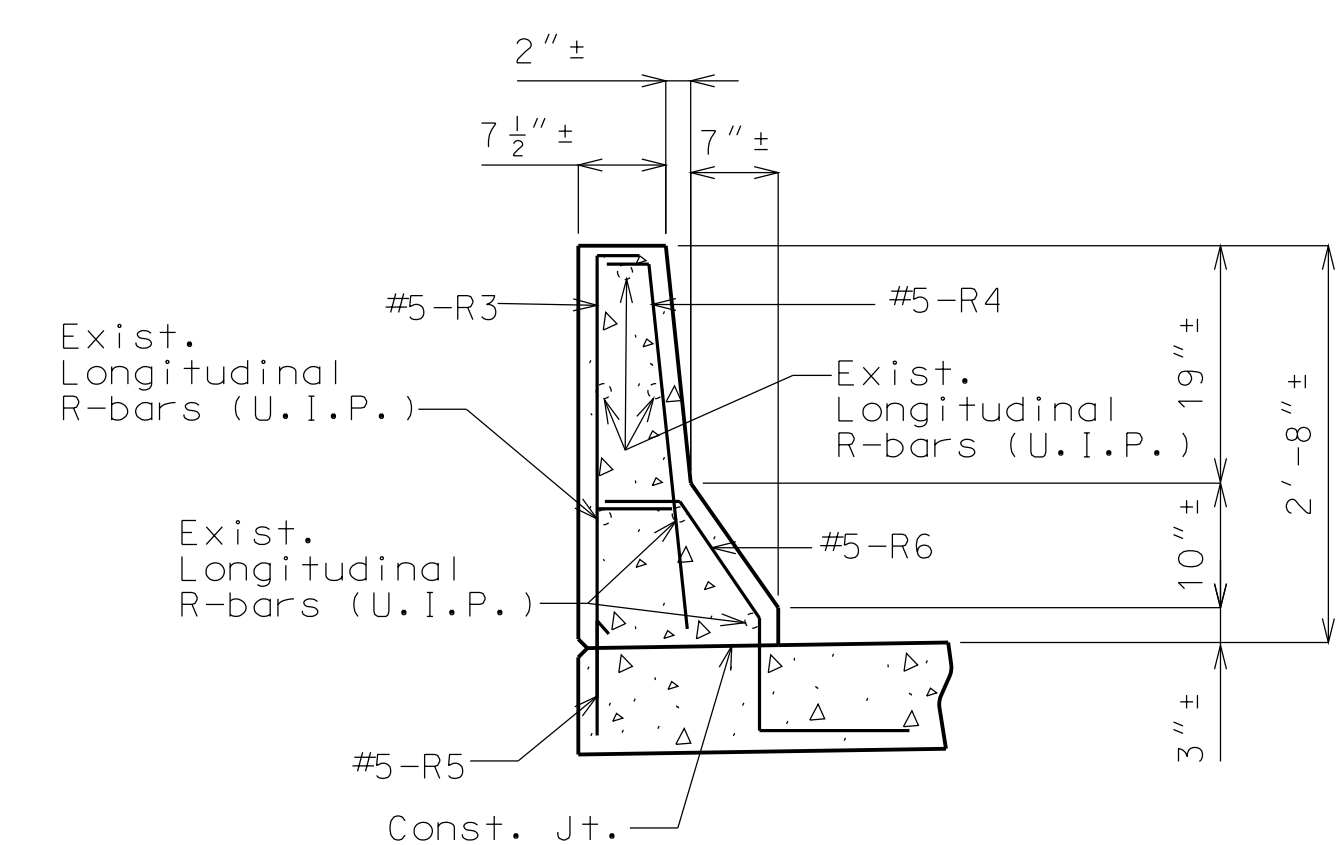


**PART SECTION THRU EXPANSION DEVICE NEAR INTERMEDIATE BENT NO. 3 SHOWING REMOVAL**  
(Normal to  $\epsilon$  Joint)

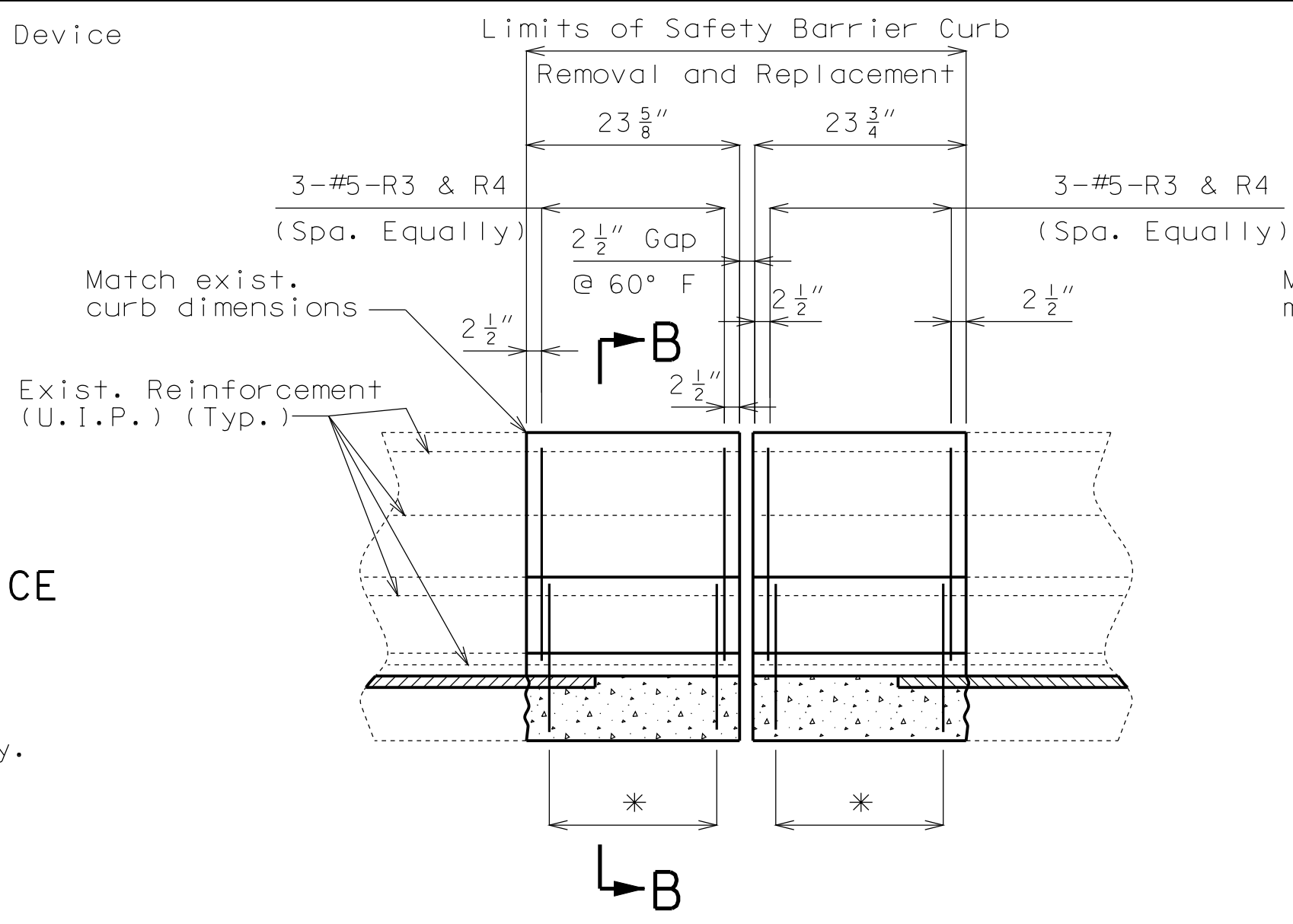
Note: Existing bearing not shown for clarity.



**SECTION C-C**

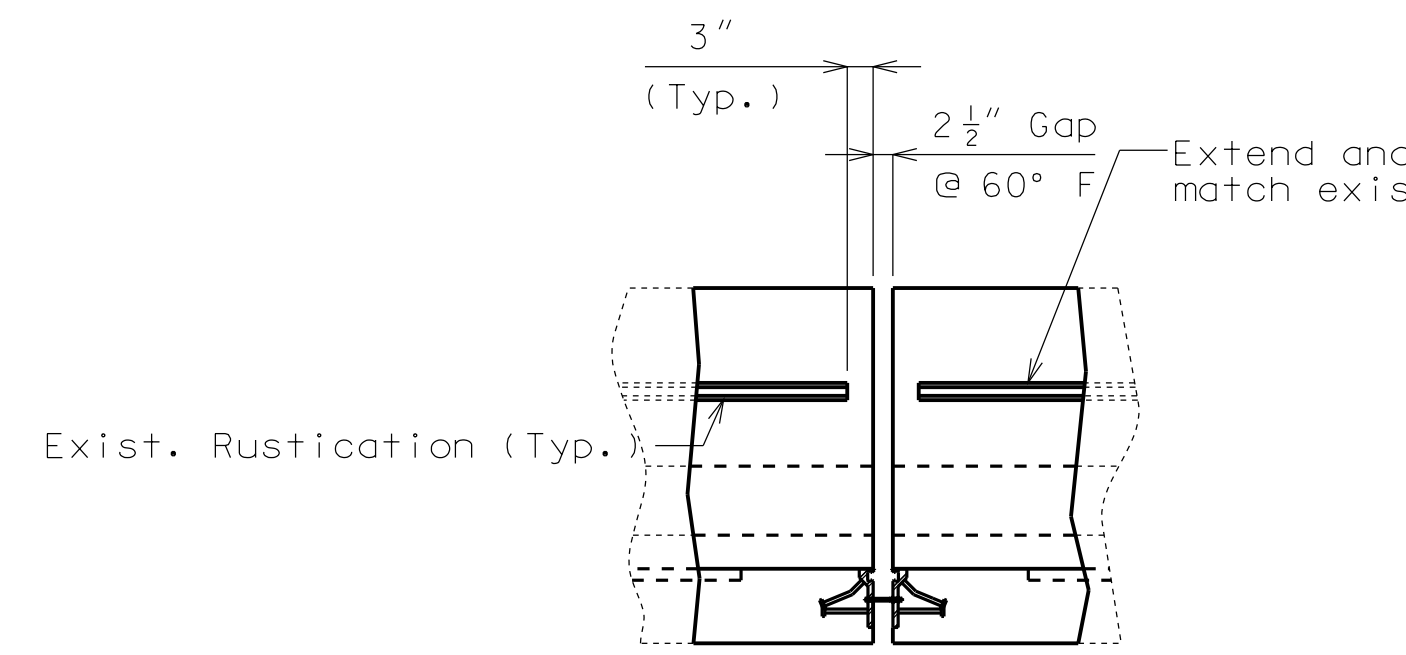


**PART SECTION B-B**



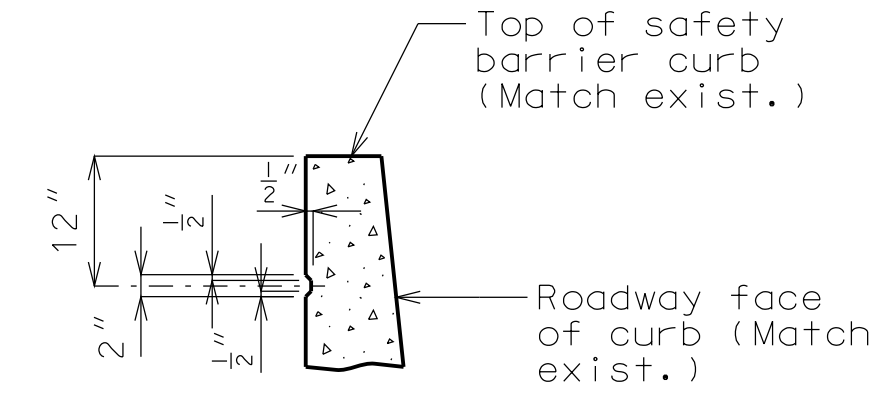
**PART SECTION SHOWING SAFETY BARRIER CURB REINFORCEMENT NEAR INTERMEDIATE BENT NO. 3**

Note: Expansion device not shown for clarity.

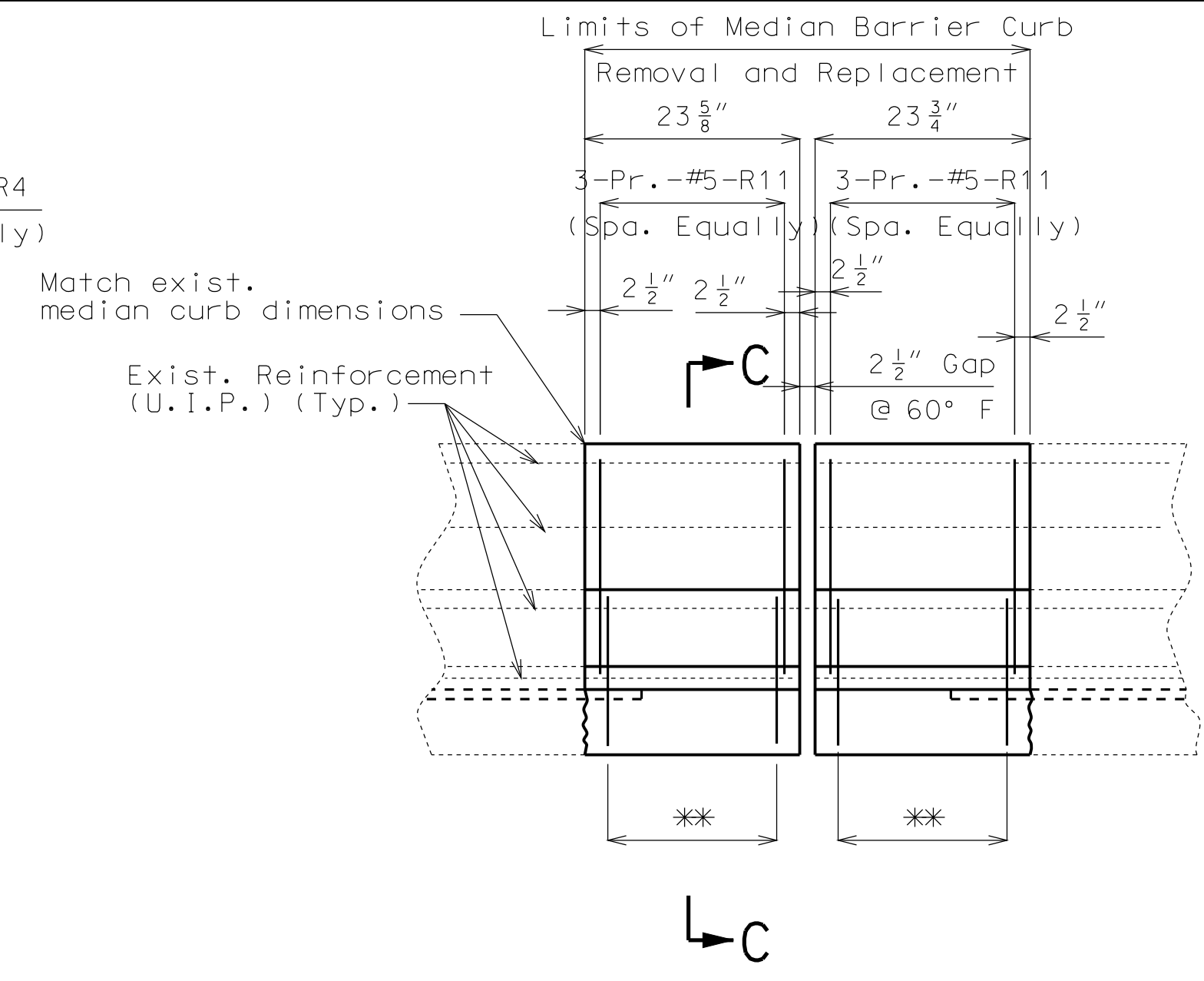


**PART ELEVATION SHOWING PARTIAL SAFETY BARRIER CURB REPLACEMENT**

Note: Strip seal gland not shown for clarity.

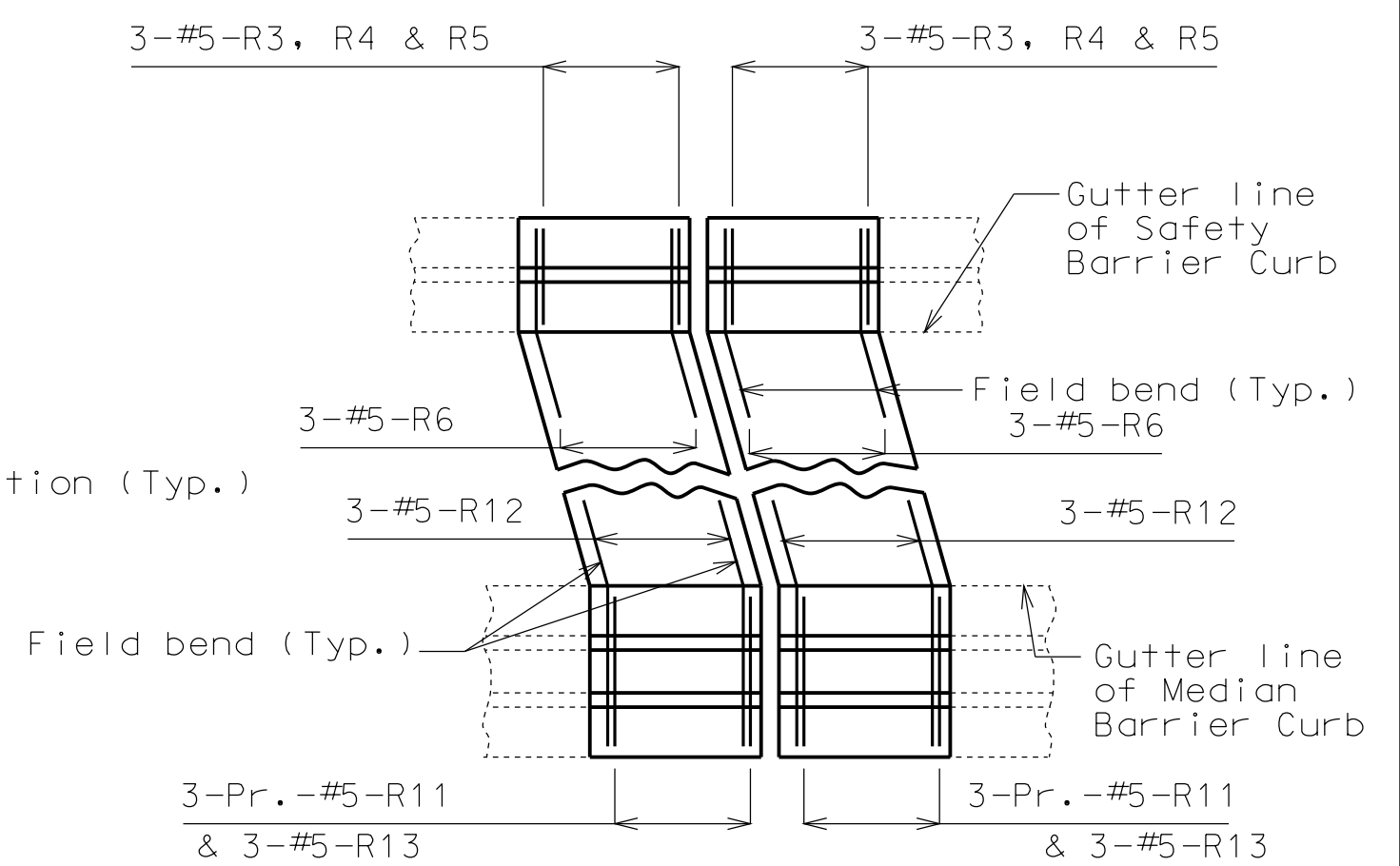


**PART SECTION SHOWING RUSTICATION DETAILS**



**PART ELEVATION SHOWING MEDIAN BARRIER CURB REINFORCEMENT NEAR INTERMEDIATE BENT NO. 3**

Note: Expansion device not shown for clarity.



**PART PLAN SHOWING BARRIER CURB REINFORCEMENT NEAR INTERMEDIATE BENT NO. 3**

**Notes:**  
Remove existing stirrups within limits of Barrier Curb Removal.  
All exposed edges of new barrier curb shall match existing barrier curb.  
Payment for concrete curb removal and all new concrete and reinforcement for barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Replace Barrier Curb per linear foot.  
Field bend horizontal leg in slab of #5-R6 & #5-R12 bars to maintain clear distance.

**DETAILS OF REMOVALS AND BARRIER CURB REPLACEMENT NEAR INTERMEDIATE BENT NO. 3**

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/13/2013	
ROUTE I-470	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY JACKSON	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A25131	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

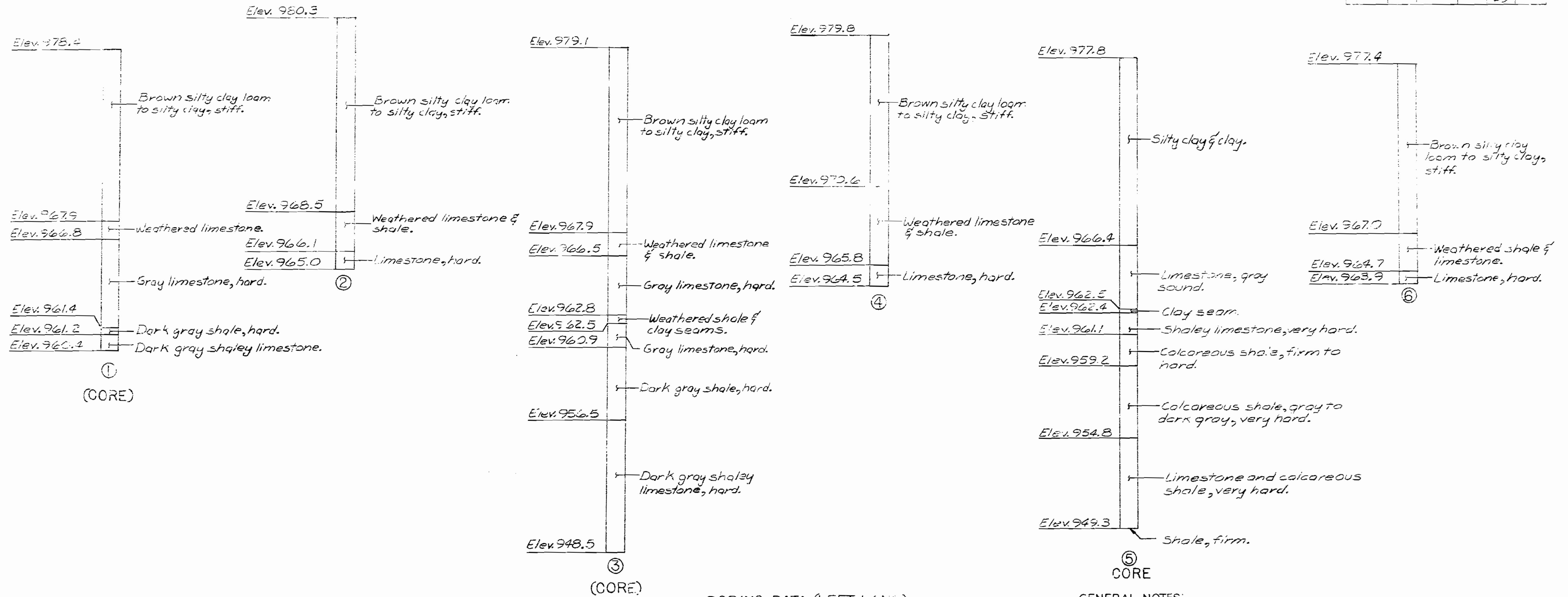






MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	63	



BORING DATA (LEFT LANE)

Note: For location of boring see sheet No. 1

GENERAL NOTES:

Design Specifications: A. A. S. H. O. - 1973

Design Loading:

H520-44 No future wearing surface.  
Earth 120# Equivalent Fluid Pressure 30# Fatigue Stress-Case 7 Interim 74

Design Unit Stresses:

Class B Concrete (Substructure)  $f_c = 1,200$  psi  
Class B Concrete (Superstructure)  $f_c = 1,600$  psi  
Reinforcing steel  $f_s = 20,000$  psi  
Structural Carbon Steel  $f_s = 20,000$  psi  
Structural Steel (A.S.T.M. A-572) Grade 50  $f_s = 27,000$  psi  
Steel Pile  $f_b = 9,000$  psi

Fabricated Steel:

Field connections, High Strength Bolts 3/4"  $\phi$ , holes 3/16"  $d$  except as noted.

Minimum clearance to Reinforcing steel shall be 1" unless otherwise shown.

Paint:

System B by contractor in accordance with Std. Spec. 712.12 Color of the final field coat shall be green.

All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least 1/2".

\*\* For alternate use of Concrete Wearing Surface, see Special Provisions. Alternate A is Latex Concrete. Alternate B is Low Slump Concrete.

PILE & FOOTING DATA							
BENT NO.		1	2	3	4	5	6
Bearing Pile	Pile Type and Size	H1710x42				H1710x42	
	Number	8					5 (Ref)
	Approximate Length Ft.	17					11 (Ref)
	Design Bearing Tons	45					45
	Hammer Energy req'd. Ft. Lb.	11,100					11,100
Spread Footing	Foundation Material		Rock	Rock	Rock	Rock	
	Design Bearing (tons)						

Minimum energy requirement of hammer based on plan length and design bearing value of piles. All piles shall be driven to practical refusal.

ESTIMATED QUANTITIES			
Item	Substr	Superstr	Total
Class I Excavation	Cu. Yd.	240	240
(** ) Conc. Wearing surface	Sq. Yd.		1868
Structural Steel Piles (10")	Lin. Ft.	361	361
Class B Concrete	Cu. Yd.	2790	2790
Class B Concrete	Cu. Yd.		531.2
Elastomeric Sealant	Lin. Ft.	95	95
Reinforcing Steel (Grade 60)	Lbs.	109,300	191,570
Fabricated Structural Carbon Steel (W-beam)	Lbs.	103,280	103,280
Fabricated Structural Carbon Steel (I-beam)	Lbs.	275,930	275,930
Fabricated Structural Low Alloy Steel	Lbs.	24400	24400
Painting (System B) Green	Sq. Ft.	2018	2018
Slab Drains	Sq.	10	10
Pre bore	ft.	343	343

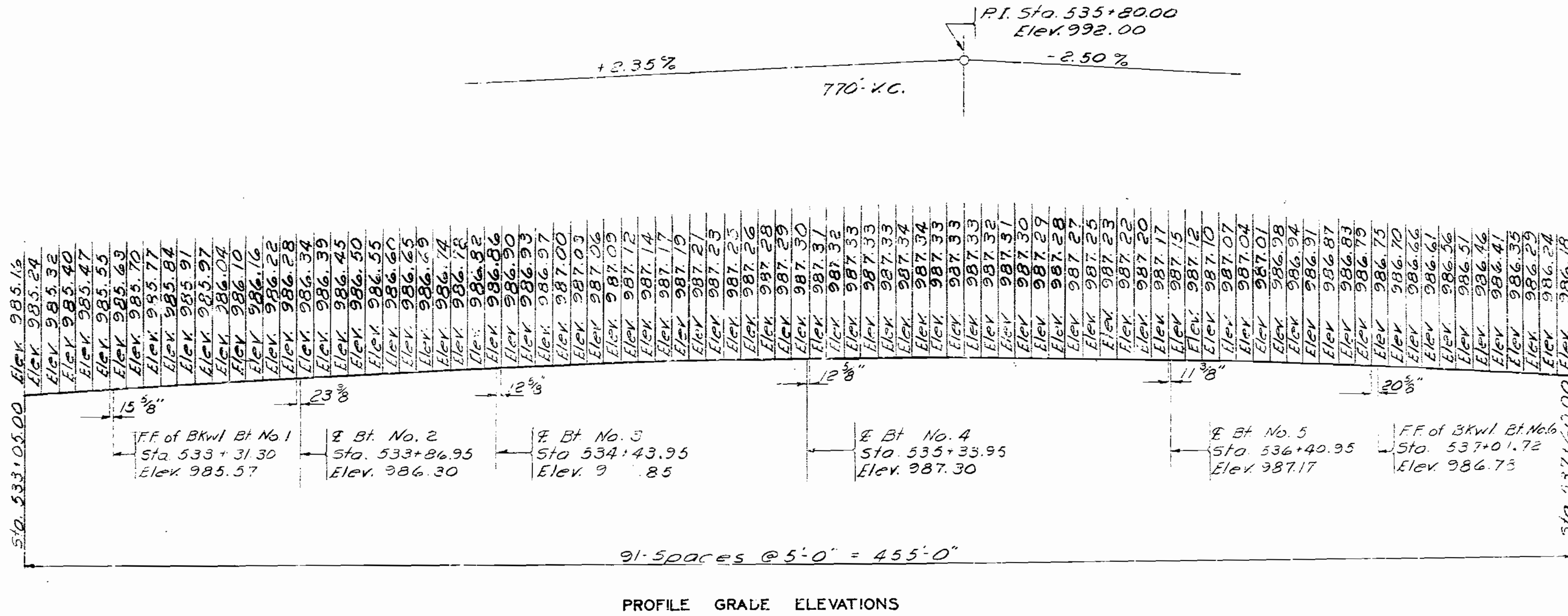
All concrete and reinforcement in end posts, curb, parapet, and concrete median barrier is included with superstructure quantities. Payweight for fabricated steel will be based on netted field splices regardless of type used.



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		55	64	

37



PROFILE GRADE ELEVATIONS

DETAILED JAN. 1974  
CHECKED MAY 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 26.

JACKSON

COUNTY

A-2513





MISSOURI STATE HIGHWAY DEPARTMENT

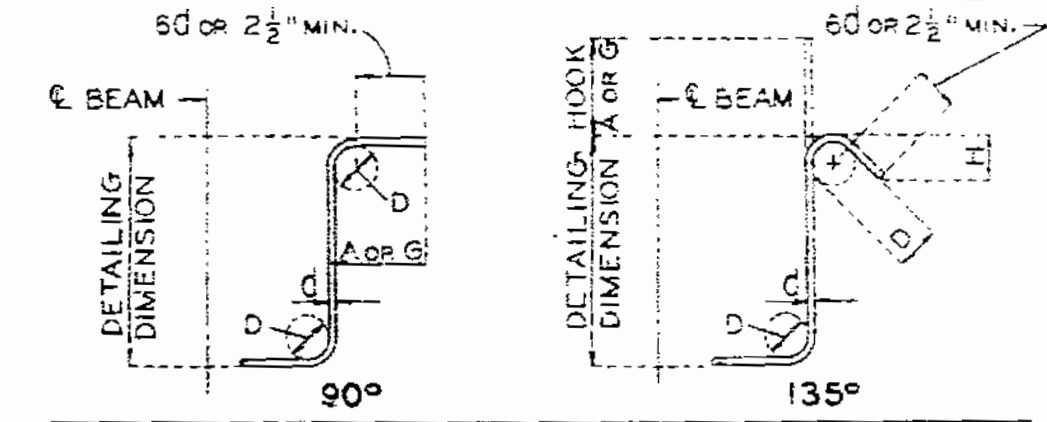
COMPLETE BILL OF REINFORCING STEEL

COMPLETE BILL OF REINFORCING STEEL

NO. REQ.	MARK NO.	LOCATION	SHAPE NO.	STIRRUP (S) SUBSTR. (X) VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
						B	C	D	E	F	H	K	FT.	IN.	FT.				IN.			
1276	651	SLAB	20		2	48	6.000								48	6	48	6	92953			
24	552	SLAB	20		2	3	3.525								3	4	3	4				
		INCR = 43.750 IN				43	4.375								43	5	43	5	843			
46	653	SLAB	20		2	3	5.500								3	6	3	6				
		INCR = 23.000 IN				45	5.000								45	9	45	9	1701			
4	654	SLAB	20		2	4	2.000								4	2	4	2	283			
46	655	SLAB	20		2	4	0.000								4	0	4	0				
		INCR = 23.125 IN				46	3.750								46	4	46	4	1739			
46	656	SLAB	20		2	4	0.000								4	0	4	0				
		INCR = 23.125 IN				46	3.750								46	4	46	4	1739			
48	457	SLAB	20		2	24	0.000								24	0	24	0	770			
48	458	SLAB	20		2	16	0.000								16	0	16	0	513			
343	459	SLAB	20		2	37	10.000								37	10	37	10	8669			
147	4510	SLAB	20		2	33	0.000								33	0	33	0	3240			
45	4511	SLAB	20		2	4	7.500								4	8	4	8				
		INCR = 4.750 IN				23	9.500								23	10	23	10	466			
134	5512	SLAB	20		2	50	0.000								50	0	50	0	6988			
12	5513	SLAB	20		1	4	4.250								4	4	4	4				
		INCR = 2.875 IN				6	11.000								6	11	6	11	70			
12	5514	SLAB	20		1	7	11.250								7	11	7	11				
		INCR = 2.875 IN				10	6.000								10	6	10	6	115			
12	5515	SLAB	20		1	11	6.250								11	6	11	6				
		INCR = 2.875 IN				14	1.000								14	1	14	1	160			
12	5516	SLAB	20		1	15	1.250								15	1	15	1				
		INCR = 2.875 IN				17	8.000								17	8	17	8	205			
12	5517	SLAB	20		1	18	8.250								18	8	18	8				
		INCR = 2.875 IN				21	3.000								21	3	21	3	250			
192	5519	SLAB	17		2	2	0.000								2	7	2	7	517			
3	5520	SLAB	20		3	4.500									3	5	3	5	11			
4	5521	SLAB	20		2	3.250									2	3	2	3	93			
335	5522	SLAB	20		2	52	10.000								52	10	52	10	18460			
27	5R1	BARRIER	27	S			6.000		11.125		16.000		12.000		9.125		6.375	3	9	3	7	101
31	5R2	BARRIER	19	S			2	2.000		6.000								2	8	2	7	84
1	5R3	BARRIER	20		13	9.000												3	9	13	9	14
12	5R4	BARRIER	20		14	9.000												14	9	14	9	185
1	5R5	BARRIER	20		9	9.000												9	9	9	9	10
12	5R6	BARRIER	20		10	9.000												10	9	10	9	135
1	5R7	BARRIER	20		10	3.000												10	3	10	3	11
1	5R8	BARRIER	20		14	3.000												14	3	14	3	15
408	5R11	BARRIER	15	S		2	8.125		6.000		2	8.000		3.000		3	2	3	1			1312
377	5R12	BARRIER	27	S			6.000		11.125		9.000		12.000		9.125		6.375	3	2	3	0	1180
6	5R14	BARRIER	20		45	3.000												45	3	45	3	283
24	5R15	BARRIER	20		8	9.000												8	9	8	9	219
12	5R16	BARRIER	20		9	9.000												9	9	9	9	122
6	5R17	BARRIER	20		35	9.000												35	9	35	9	224
12	5R18	BARRIER	20		41	10.000												41	10	41	10	524
12	5R19	BARRIER	20		44	9.000												44	9	44	9	560
6	5R20	BARRIER	20		50	3.000												50	3	50	3	314
408	5R23	BARRIER	19	S		2	8.000		3.500									3	0	2	10	1206
377	5R24	BARRIER	19	S		19.000		6.000										2	1	2	0	786
804	5R30	BARRIER	15	S		2	7.125		3.500									2	11	2	10	2376
379	5R31	BARRIER	27	S		8.000		11.125		9.000		12.000		9.125		6.375	3	4	3	2		1252
7	5R32	BARRIER	20		45	2.000												45	2	45	2	330

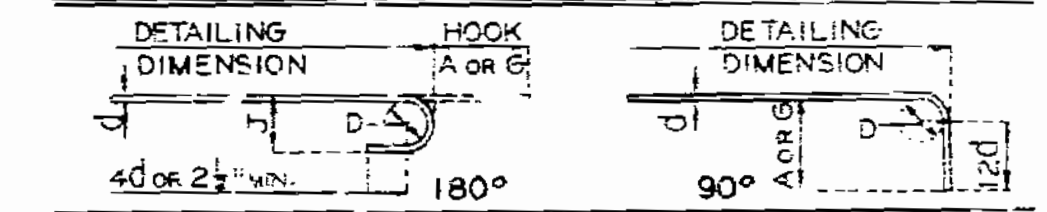
NO. REQ.	MARK NO.	LOCATION	SHAPE NO.	STIRRUP (S) SUBSTR. (X) VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
						B	C	D	E	F	H	K	FT.	IN.	FT.				IN.			
42	5R33	BARRIER	20		9	3.000												9	9	9	9	427
7	5R34	BARRIER	20		54	5.000												54	5	54	5	397
14	5R35	BARRIER	20		42	0.000												42	0	42	0	617
14	5R36	BARRIER	20		44	3.000												44	3	44	3	646
7	5R37	BARRIER	20		48	11.000												48	11	48	11	357
7	5R38	BARRIER	20		22	2.000												22	2	22	2	162
379	5R39	BARRIER	27	S			8.000		11.125		9.000				9.125		6.375	2	4	2	3	889
23	5R41	BARRIER	27	S			12.000		9.000		11.125		8.000		6.375		9.125	3	4	3	2	76
		END OF BAR LIST																				

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	17	



BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	5"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI) AND 180° HOOKS (GRADE 60 KSI)  
 D = 5d FOR #3 THRU #11  
 D = 10d FOR #14 AND #18

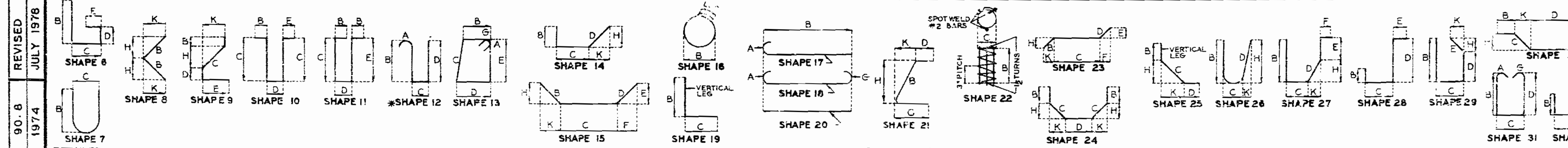
SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)  
 D = 5d FOR #3 THRU #8  
 D = 8d FOR #9, #10 AND #11  
 D = 10d FOR #14 AND #18

BAR SIZE	180° HOOKS		90° HOOKS	
	GRADE 40 A OR G	GRADE 60 J	GRADE 40 A OR G	GRADE 60 J
#3	5"	3/4"	5"	3"
#4	5"	3-1/2"	6"	4"
#5	5"	4-1/2"	7"	5"
#6	8"	5-1/4"	8"	6"
#7	9"	6-1/4"	10"	7"
#8	10"	7"	11"	8"
#9	12"	8"	15"	11-1/4"
#10	13"	9"	17"	12-3/4"
#11	14"	10"	19"	14-1/4"
#14	21-2"	20-1/2"	21-2"	20-1/2"
#18	21-11"	21-3"	21-11"	21-3"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

S - STIRRUP  
 X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.  
 V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.  
 NO. EA. - NUMBER OF BARS OF EACH LENGTH.  
 NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)  
 ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

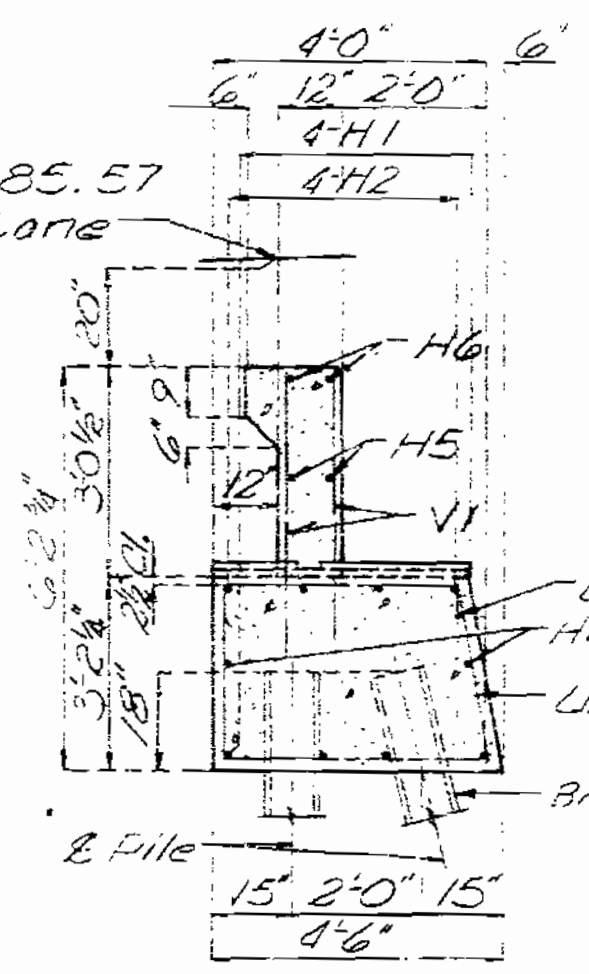
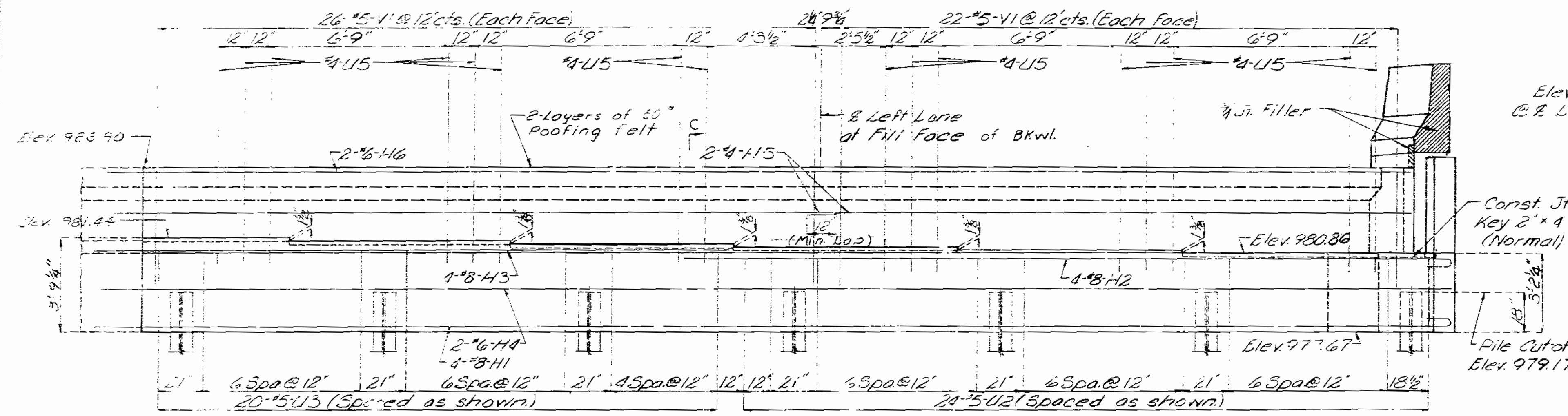
\* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (CONC.) ARE BASED ON D = 5d.



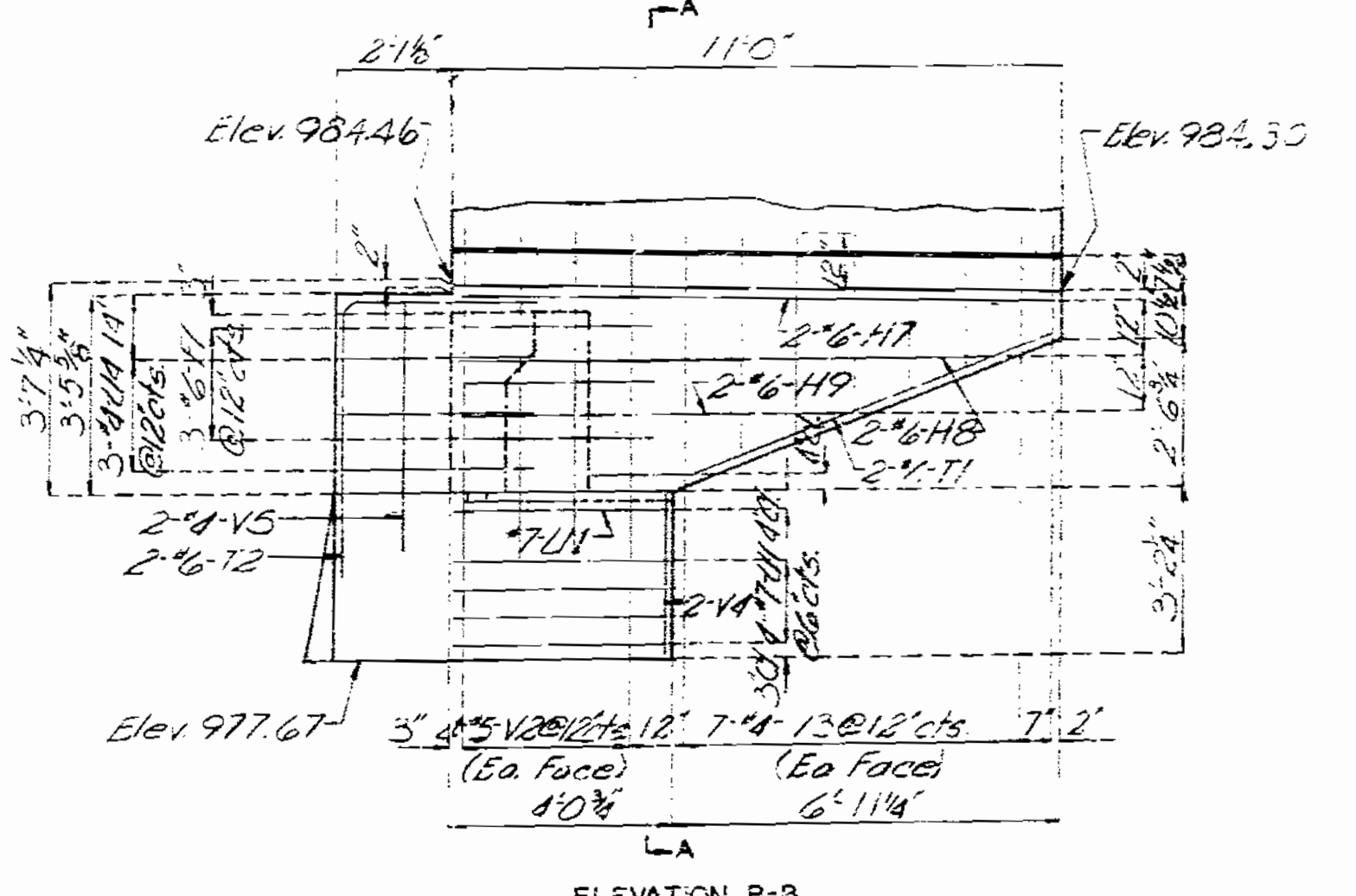
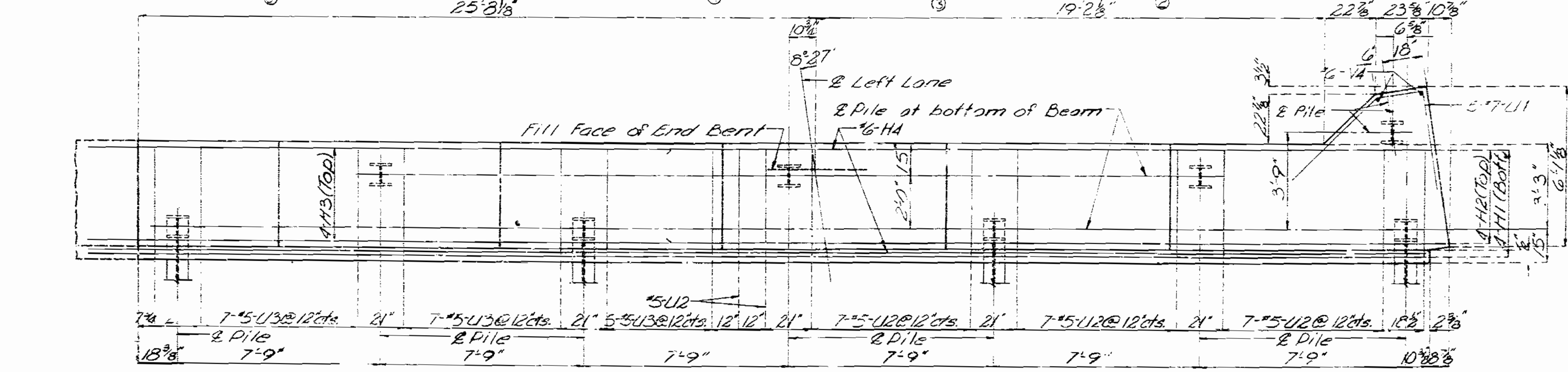
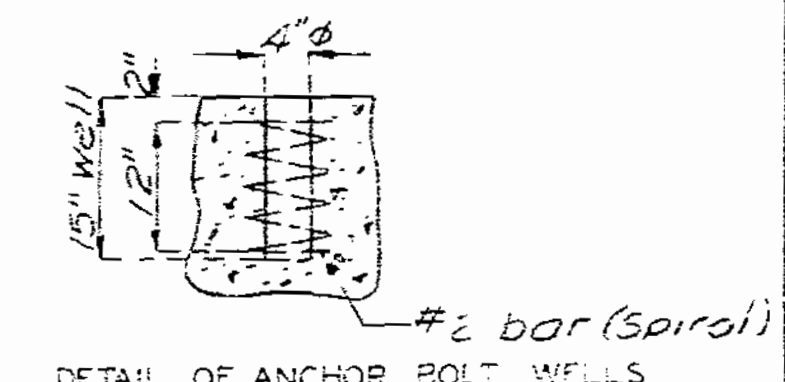
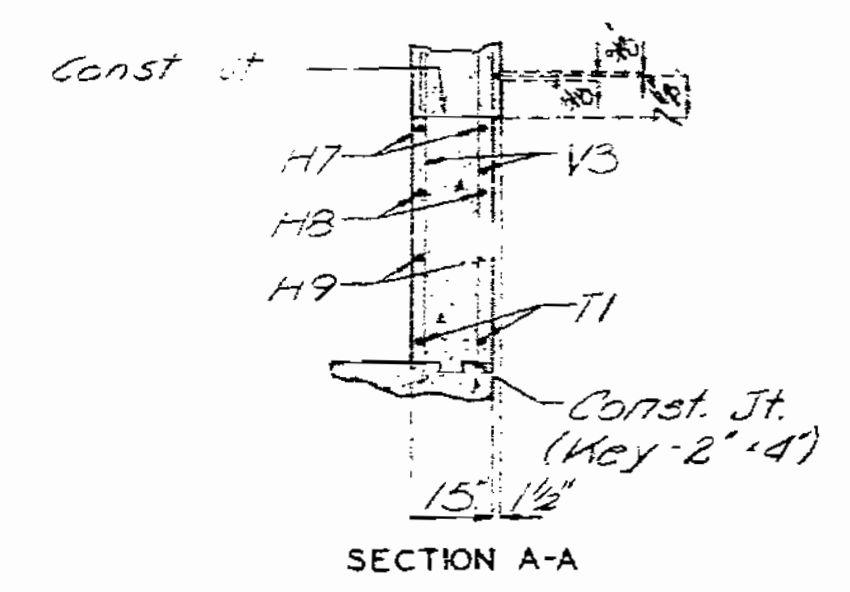
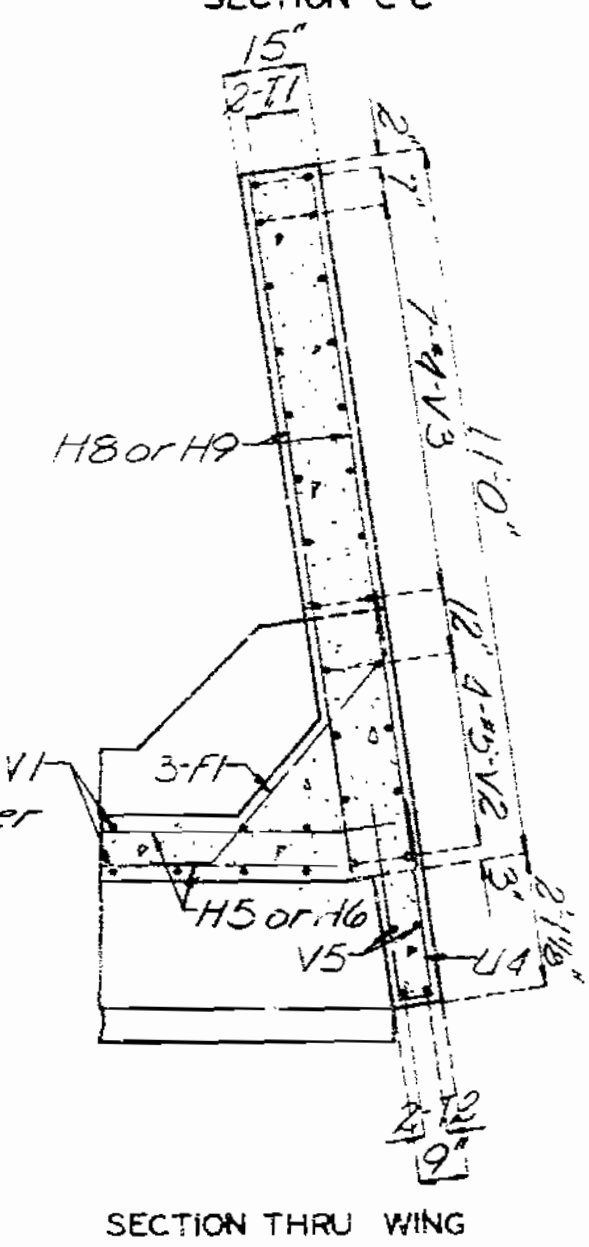
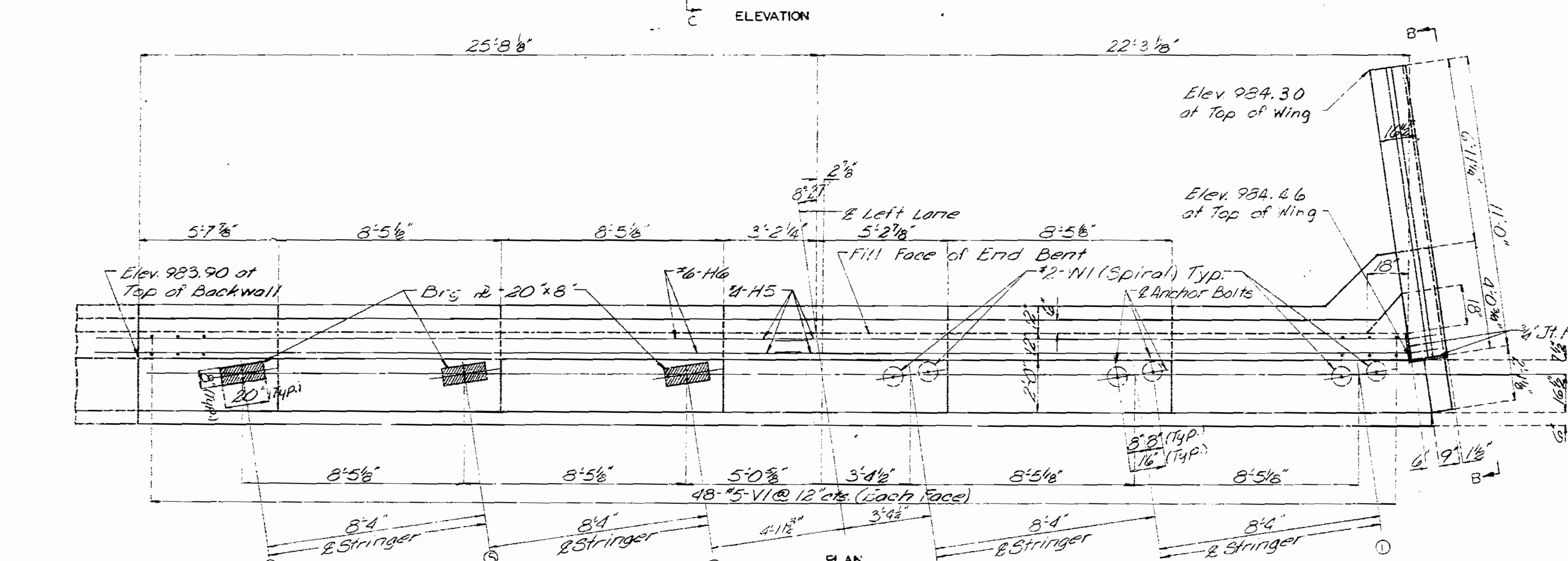
REVISED  
 JULY 1976  
 MAY 1974  
 CHECKED  
 19

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	1		68	



Note: See sheet No. 25126 for reinforcement of Barrier Curb.  
 Heavy dashed lines indicate proposed structure A-2514.



DETAILED Dec. 1970  
 CHECKED April 1971

PLAN OF BEAM (BELOW LOWER CONST. JOINT)  
 DETAILS OF END BENT NO. 1 (LEFT LANE)  
 Note: This drawing is not to scale. Follow dimensions.

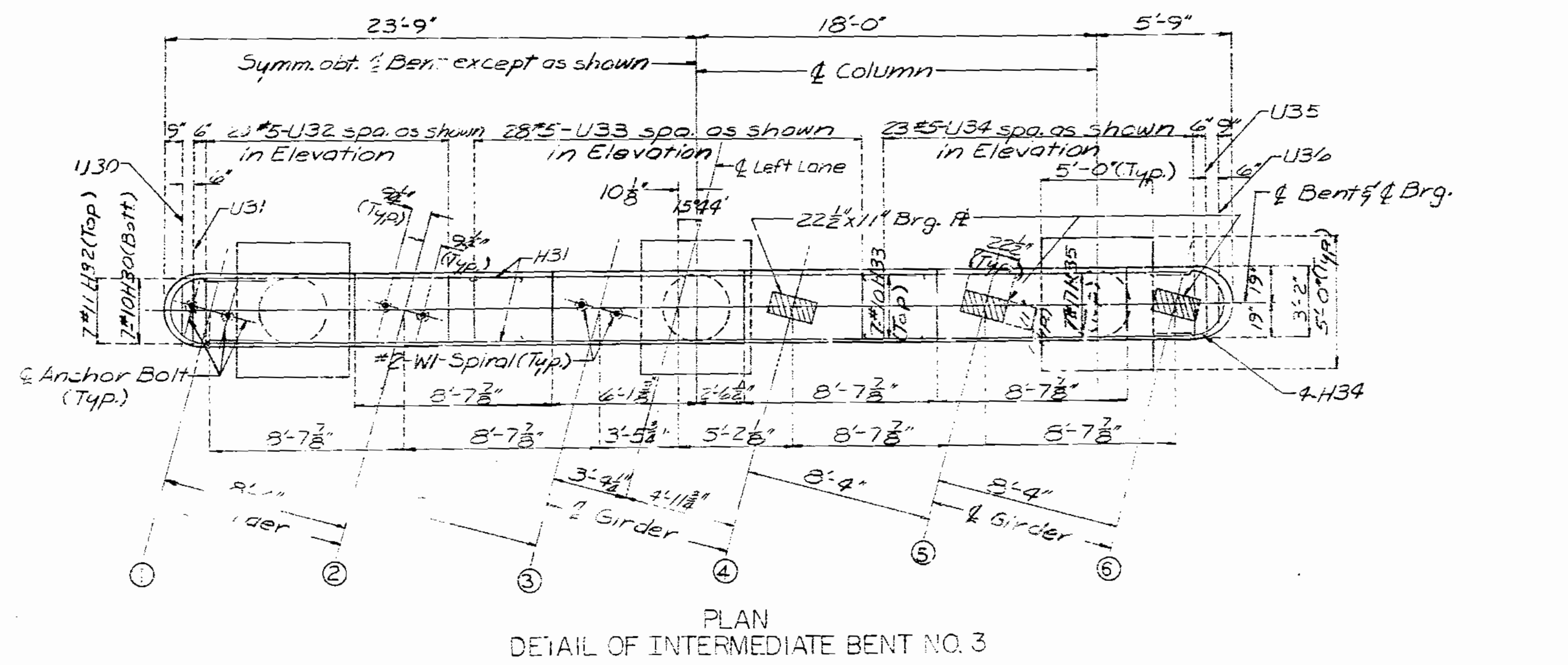
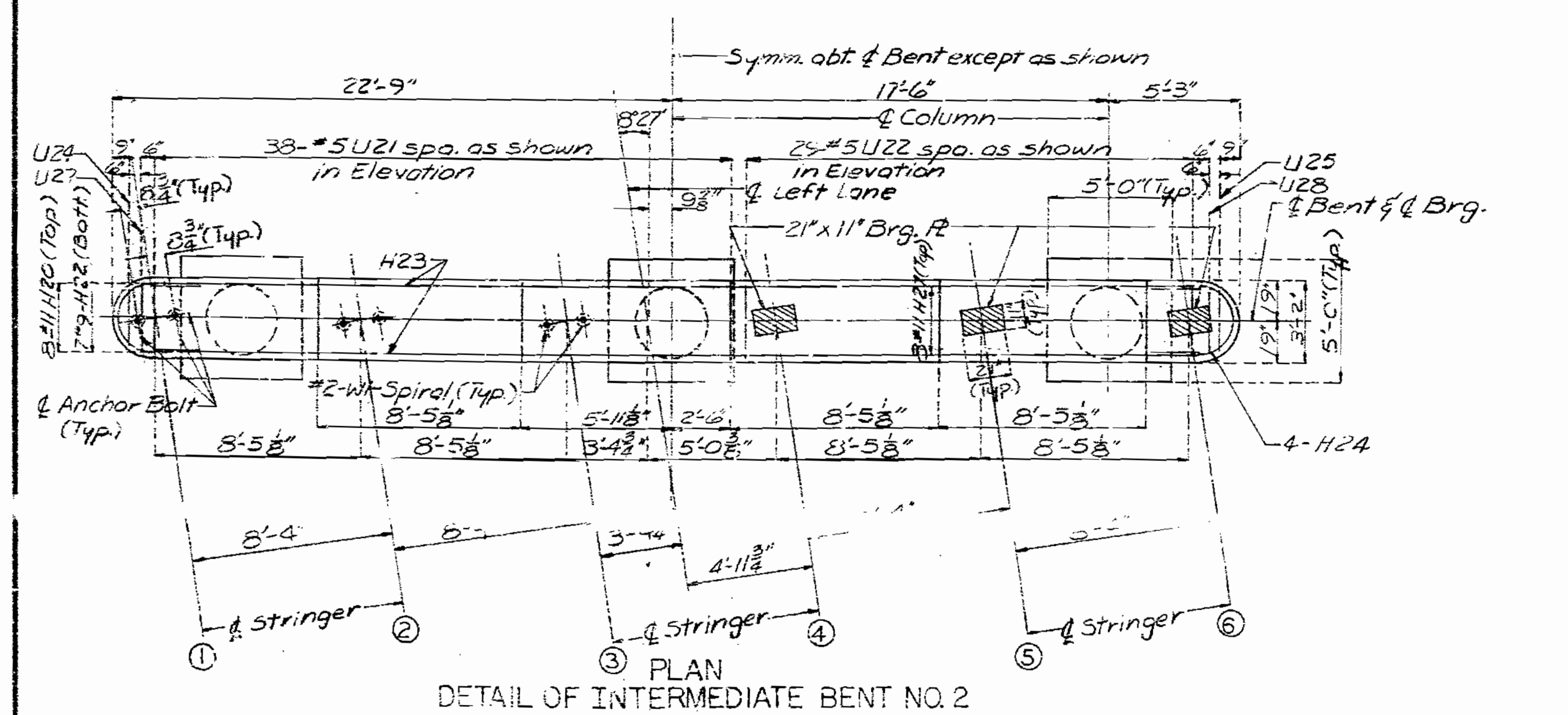
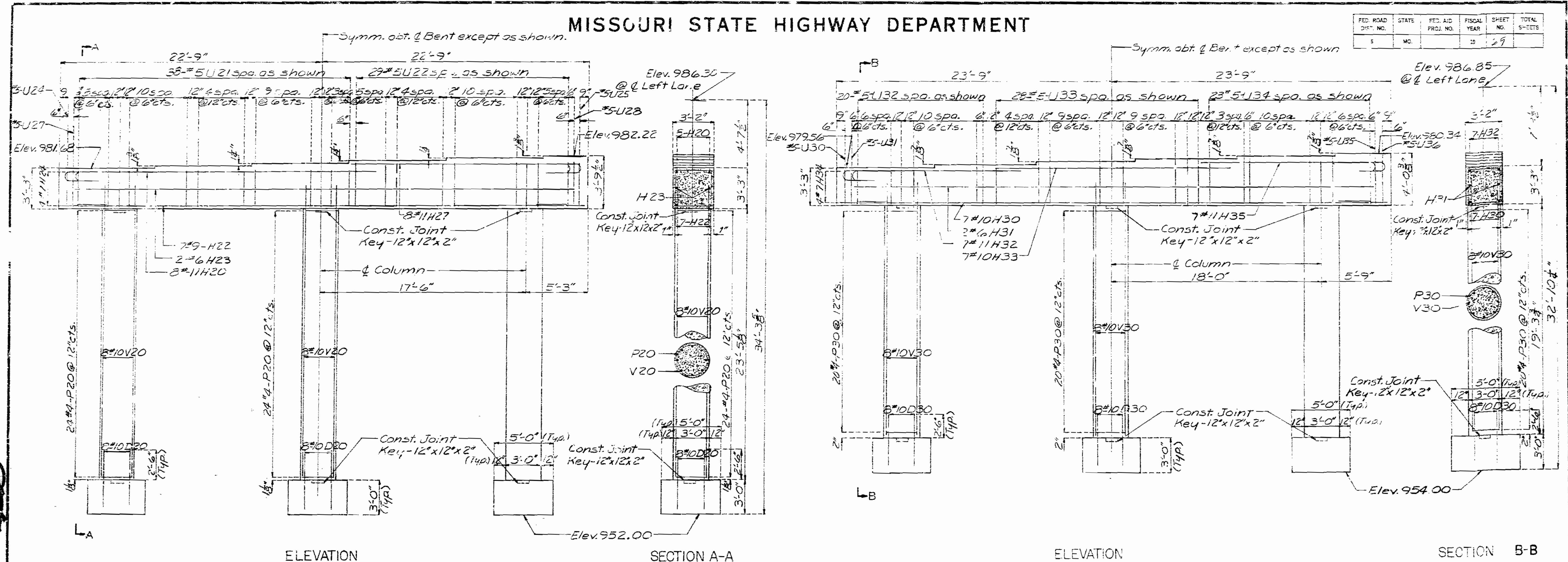
Sheet No. 7 of 26.

JACKSON COUNTY

A 2513

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		28	29	



DETAILED DEC. 1973  
 CHECKED APRIL 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 26.

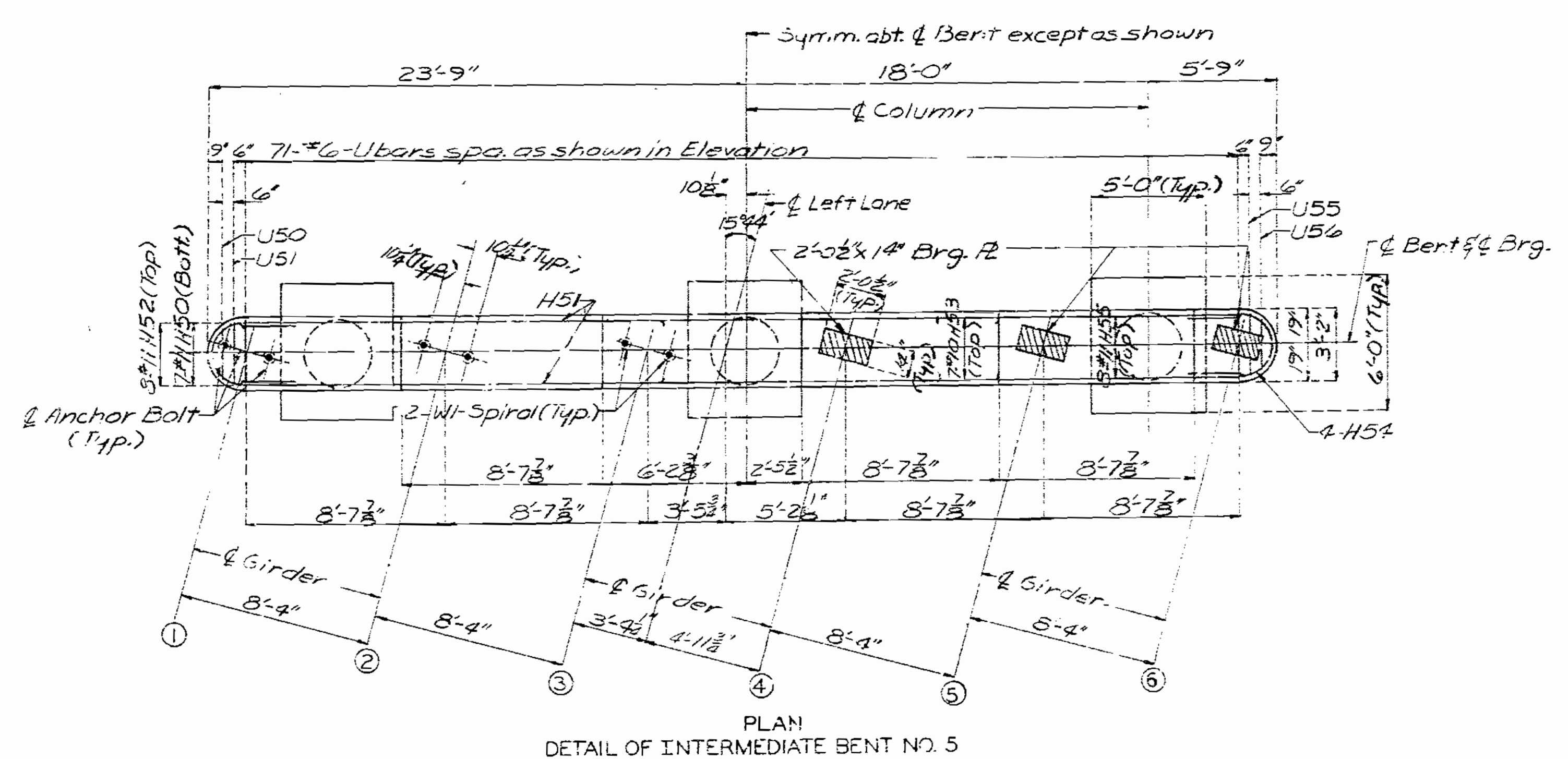
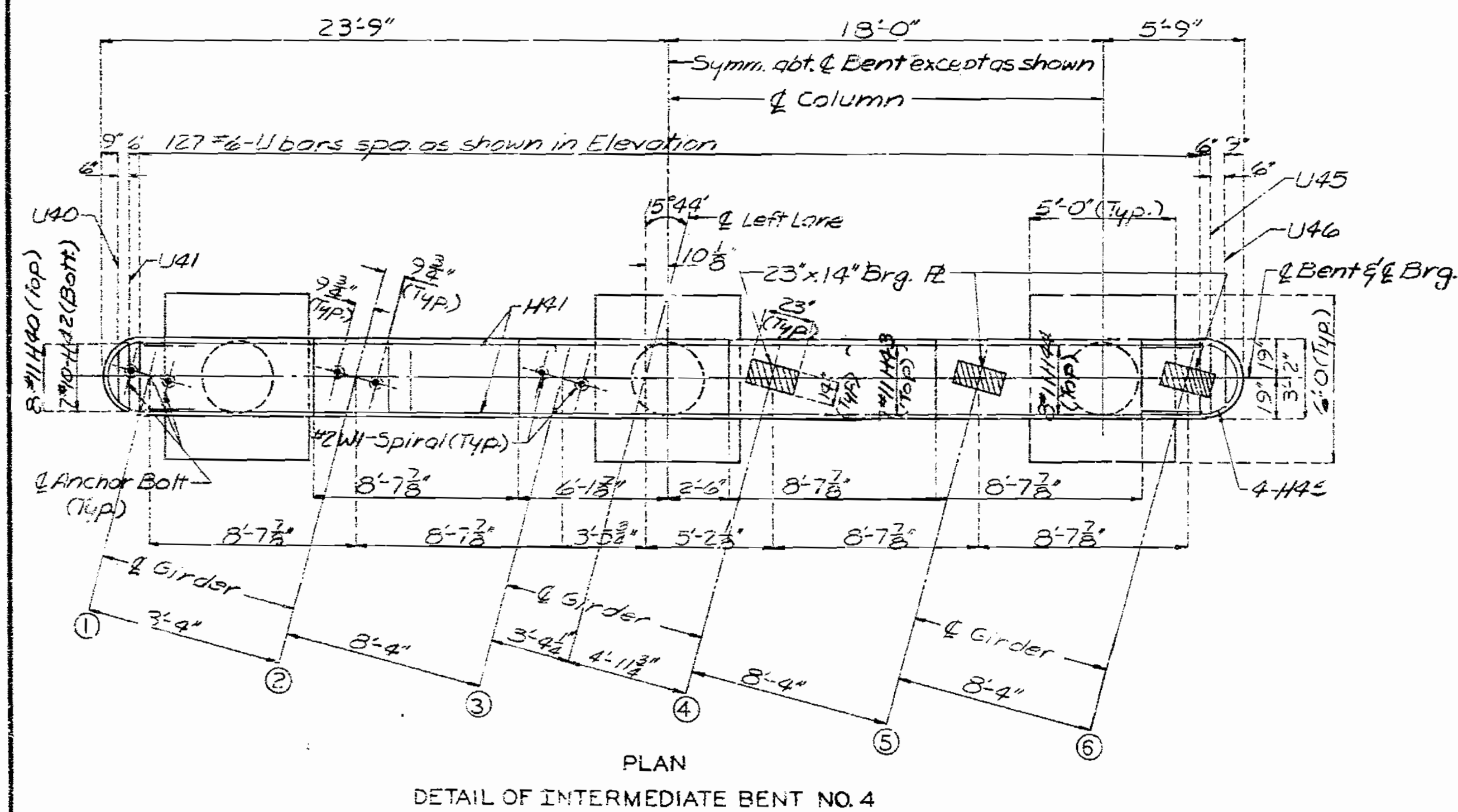
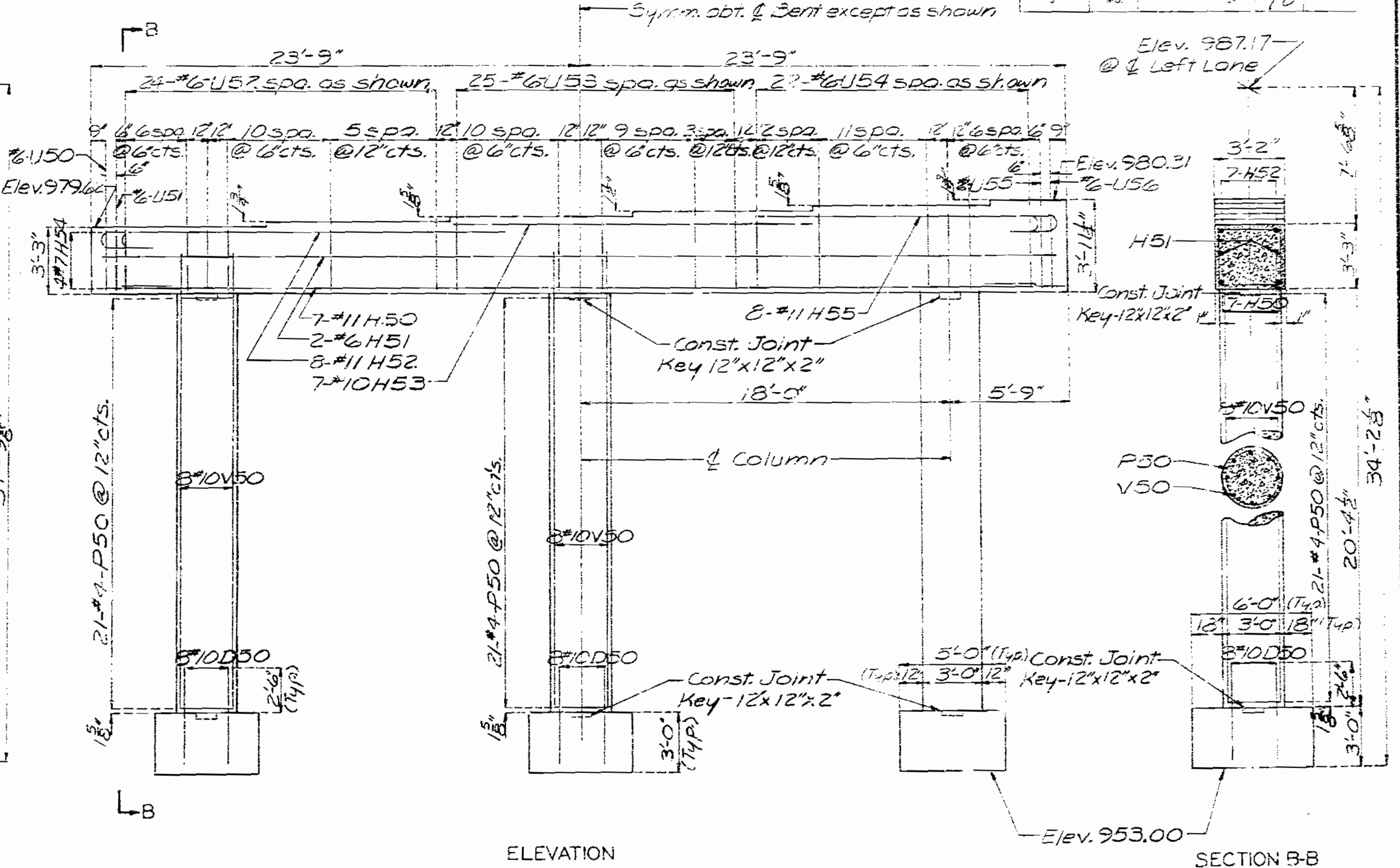
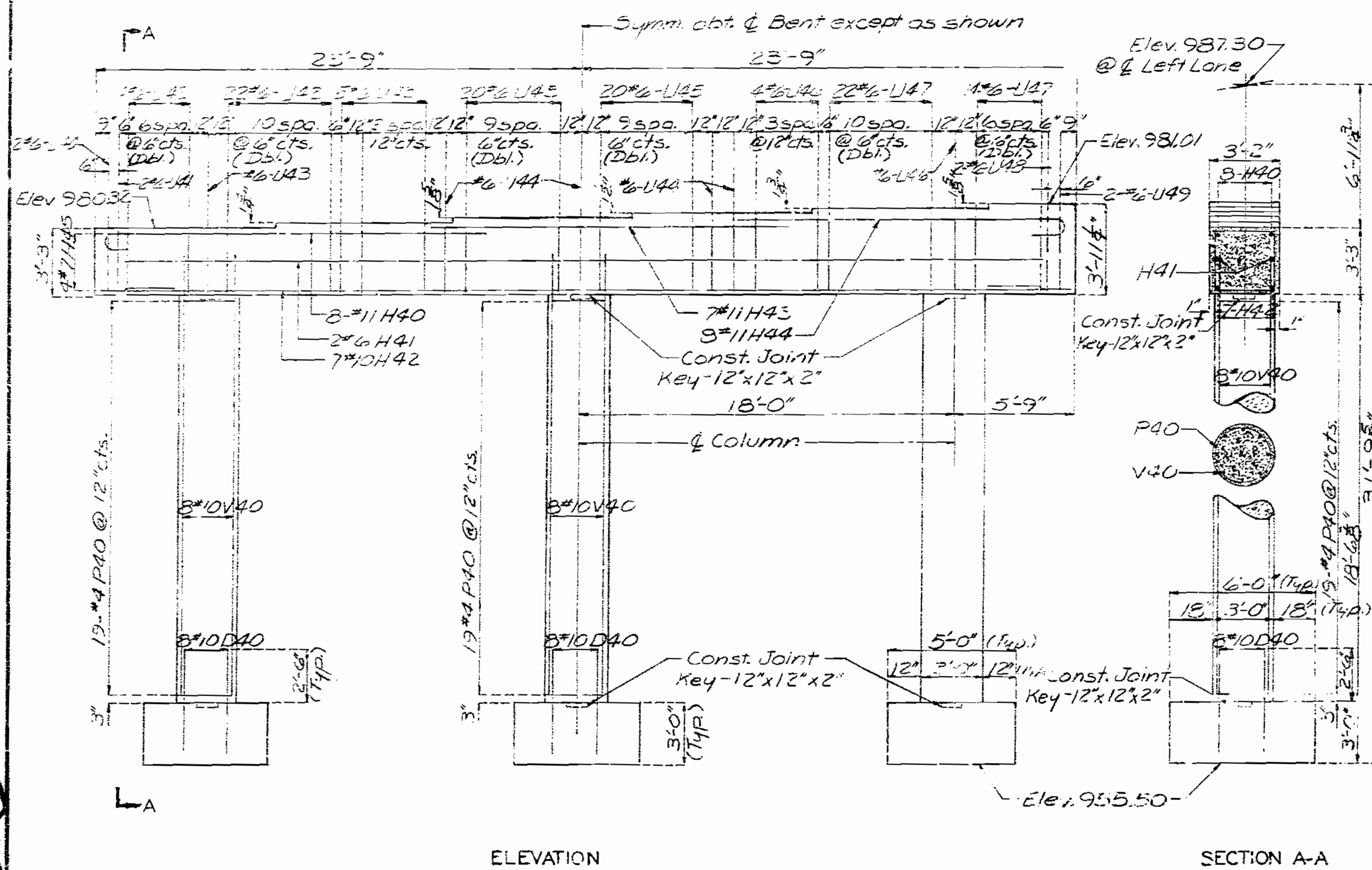
JACKSON

COUNTY

A-2513

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOT. SHEETS
	MO.		70	70	



DETAILED JAN. 1972  
CHECKED APRIL 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 26.

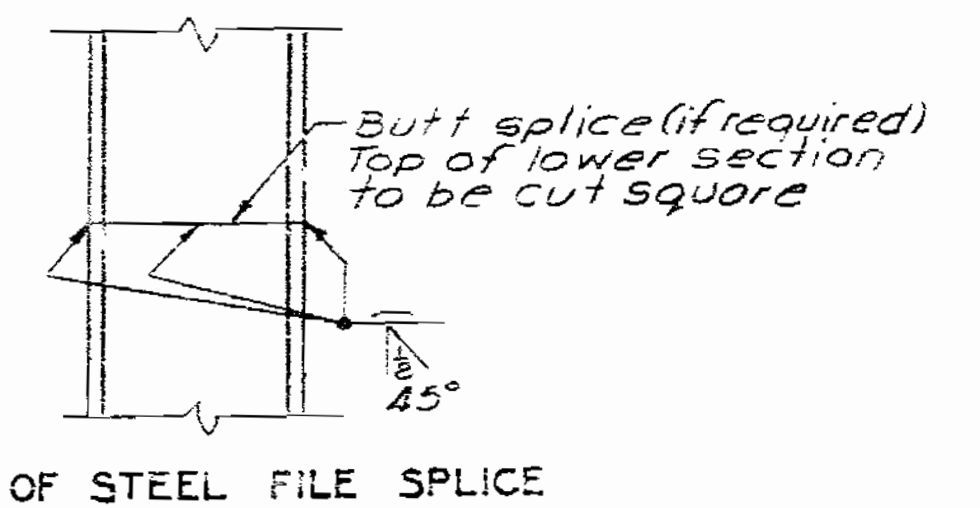
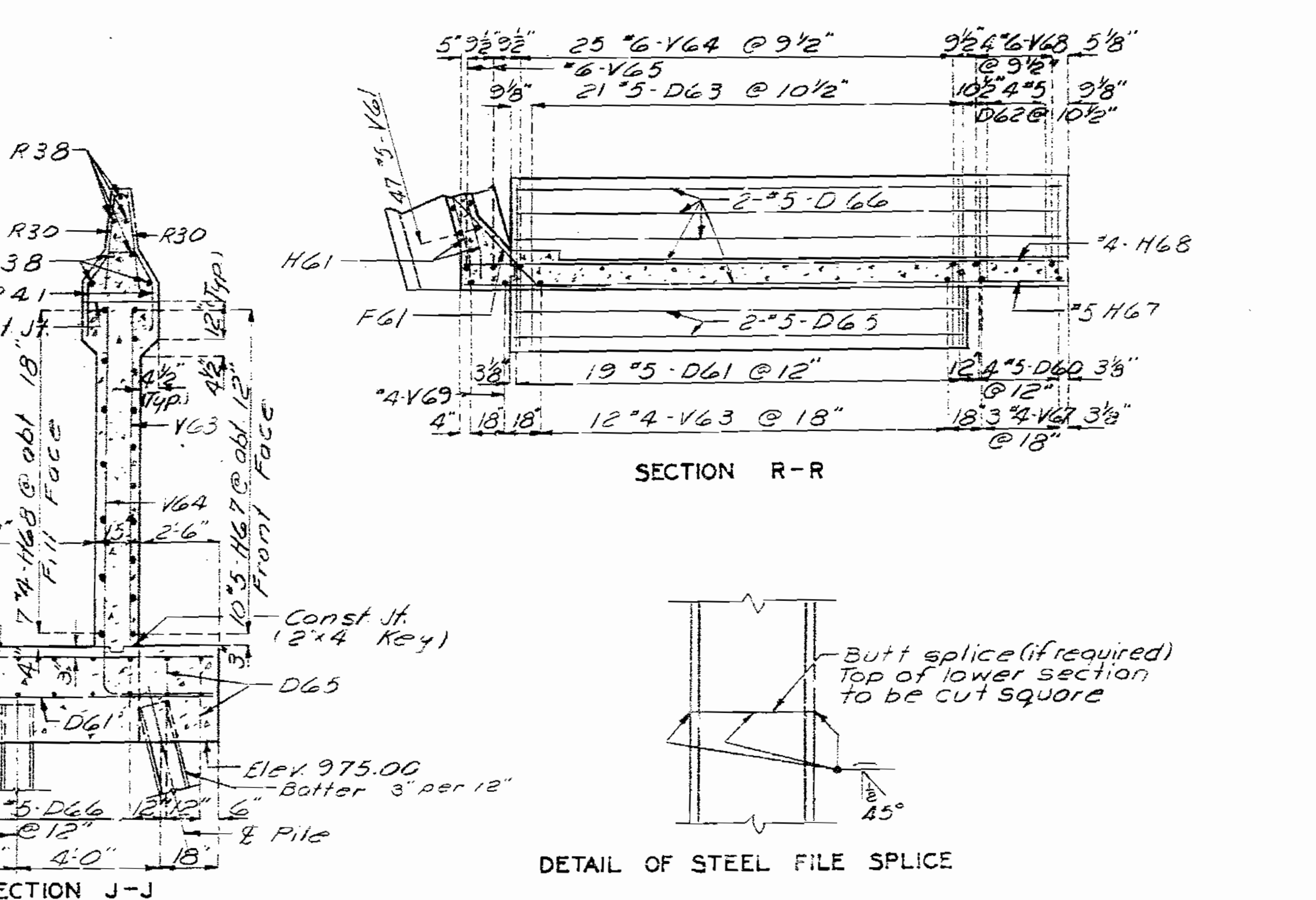
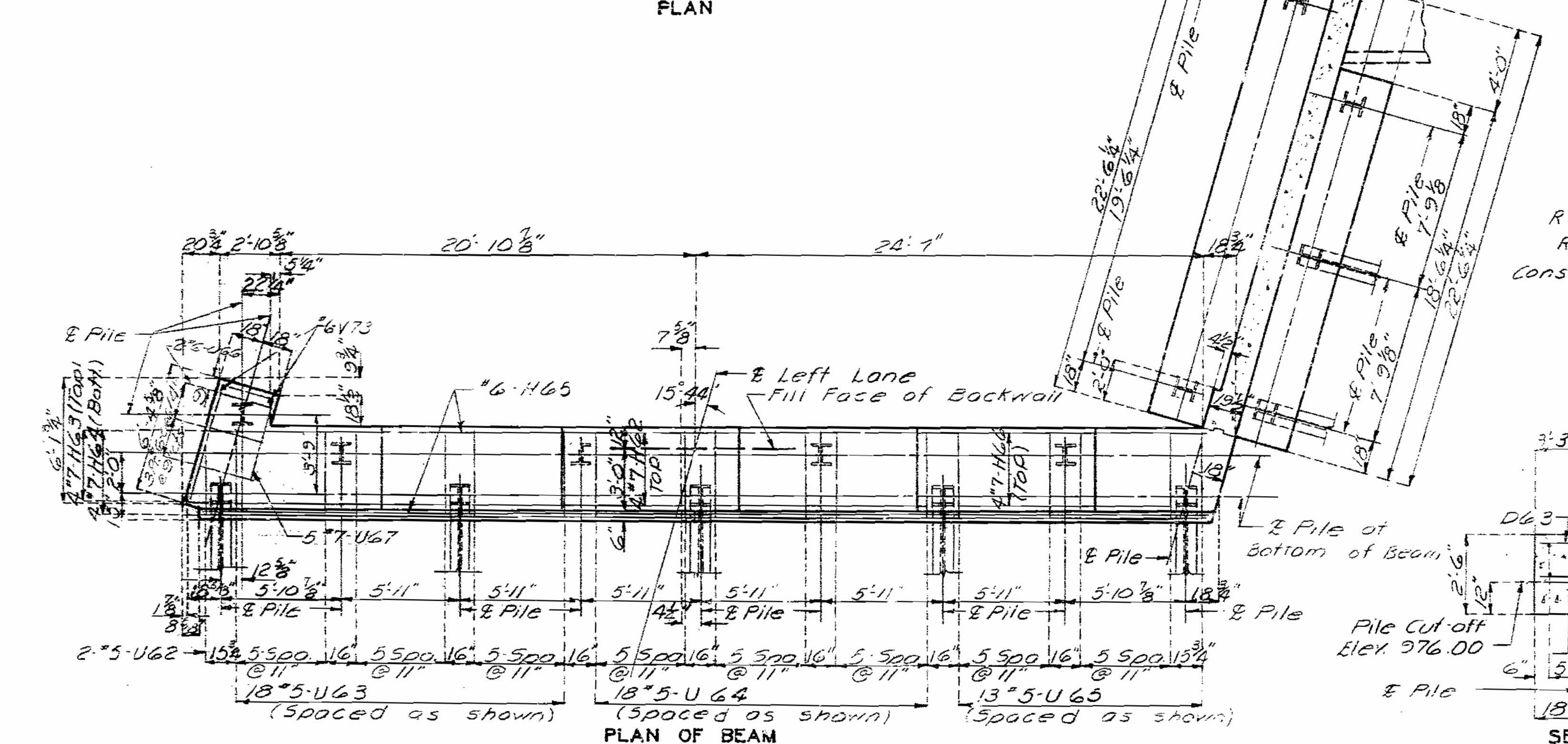
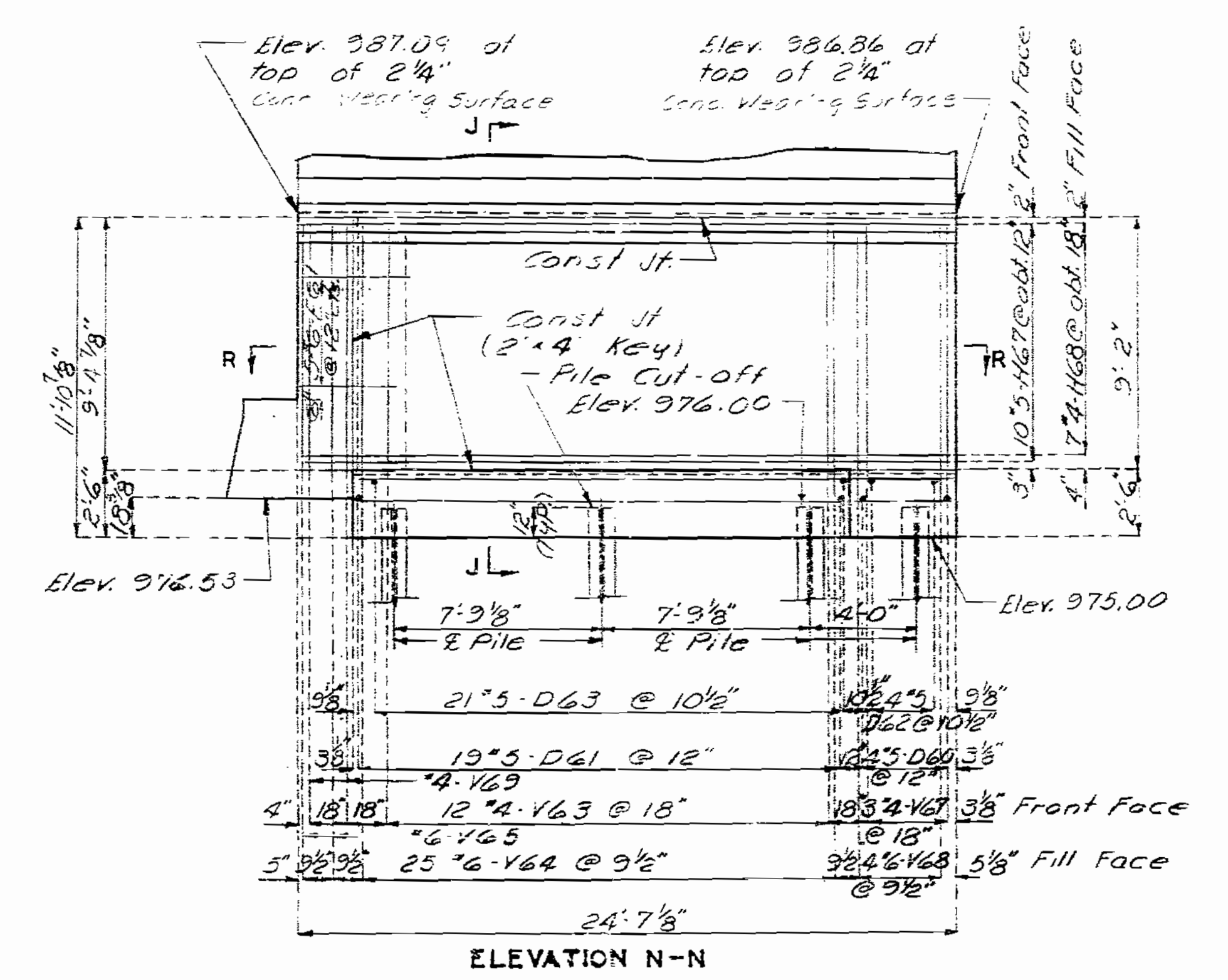
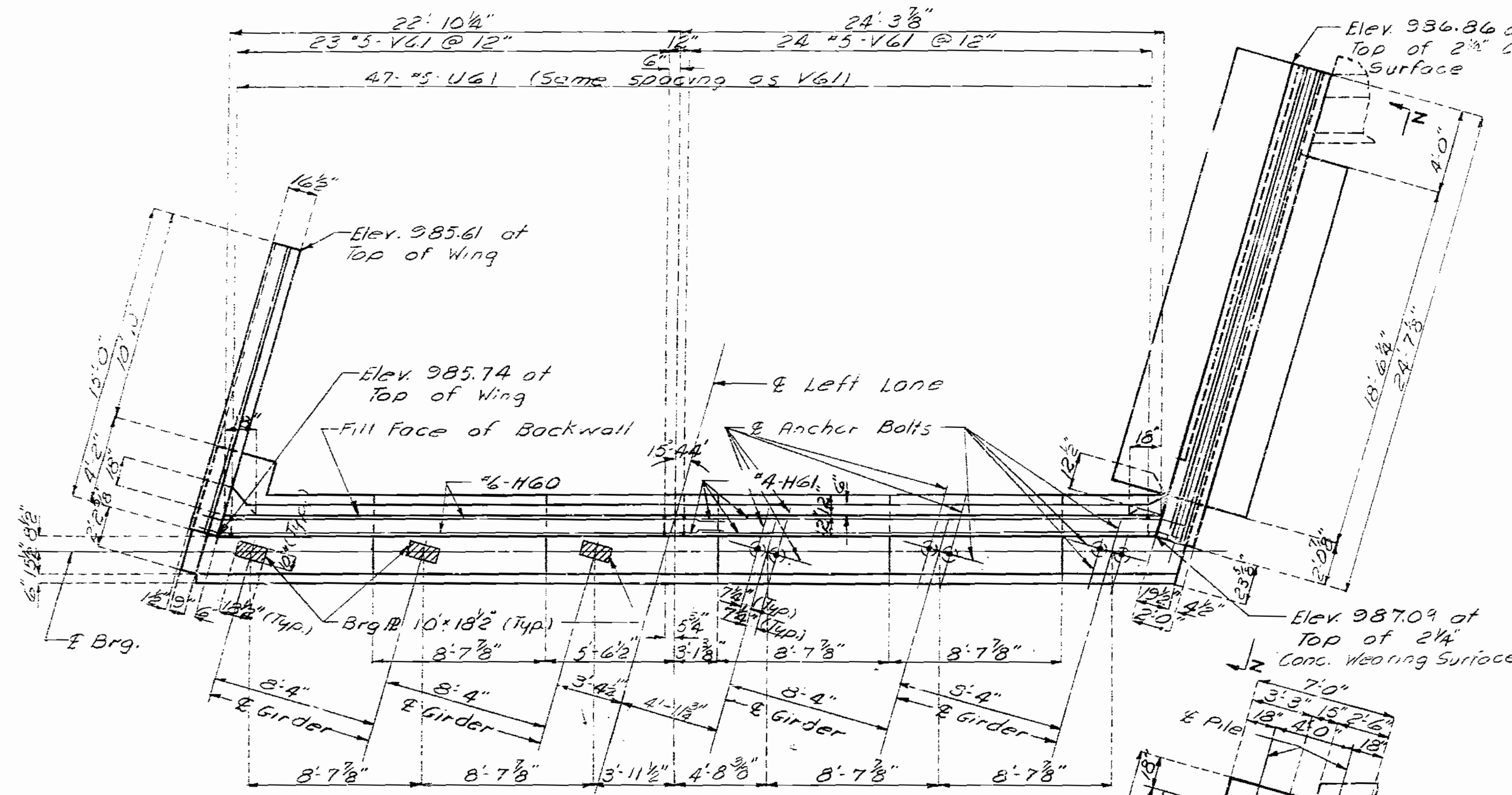
JACKSON

COUNTY

A-2513

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		53	71	



DETAILED DEC 1973  
CHECKED APRIL 1974

Note: This drawing is not to scale. Follow dimensions.

DETAIL OF END BENT NO. 6 (LEFT LANE)

Sheet No. 10 of 26.

JACKSON COUNTY

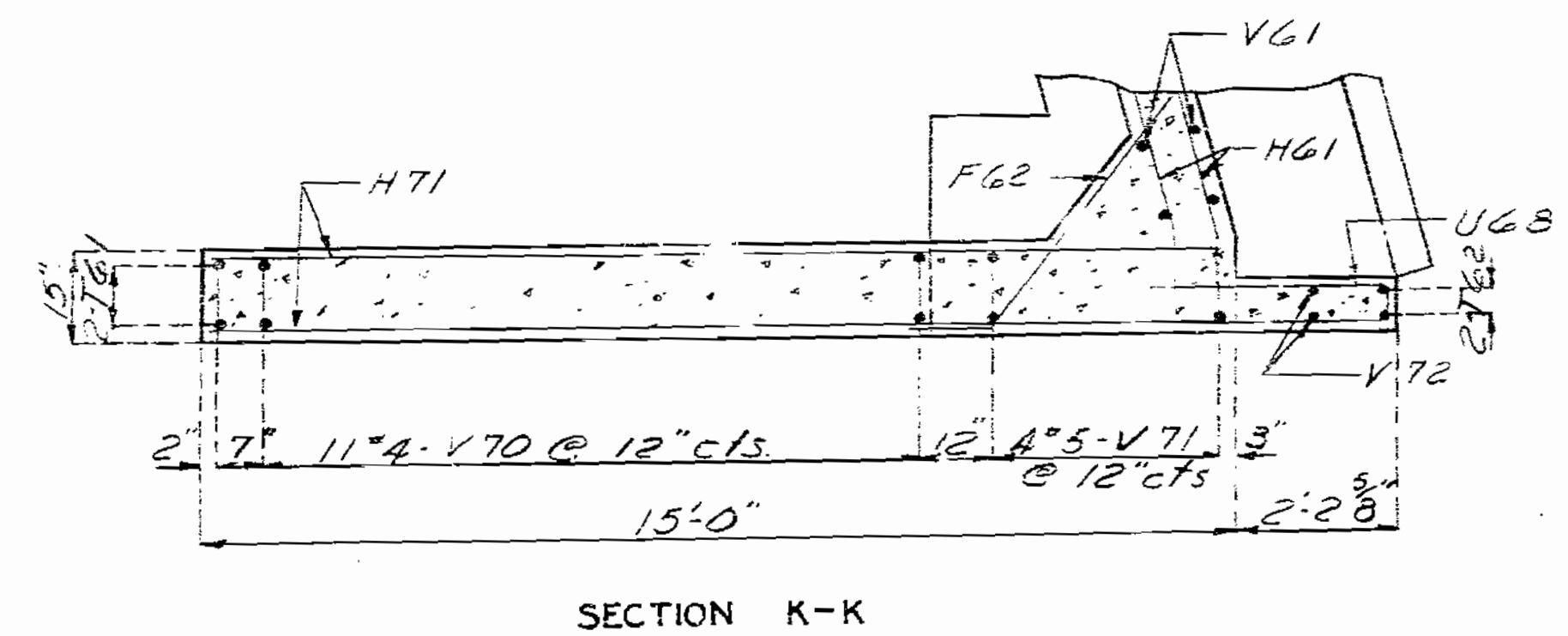
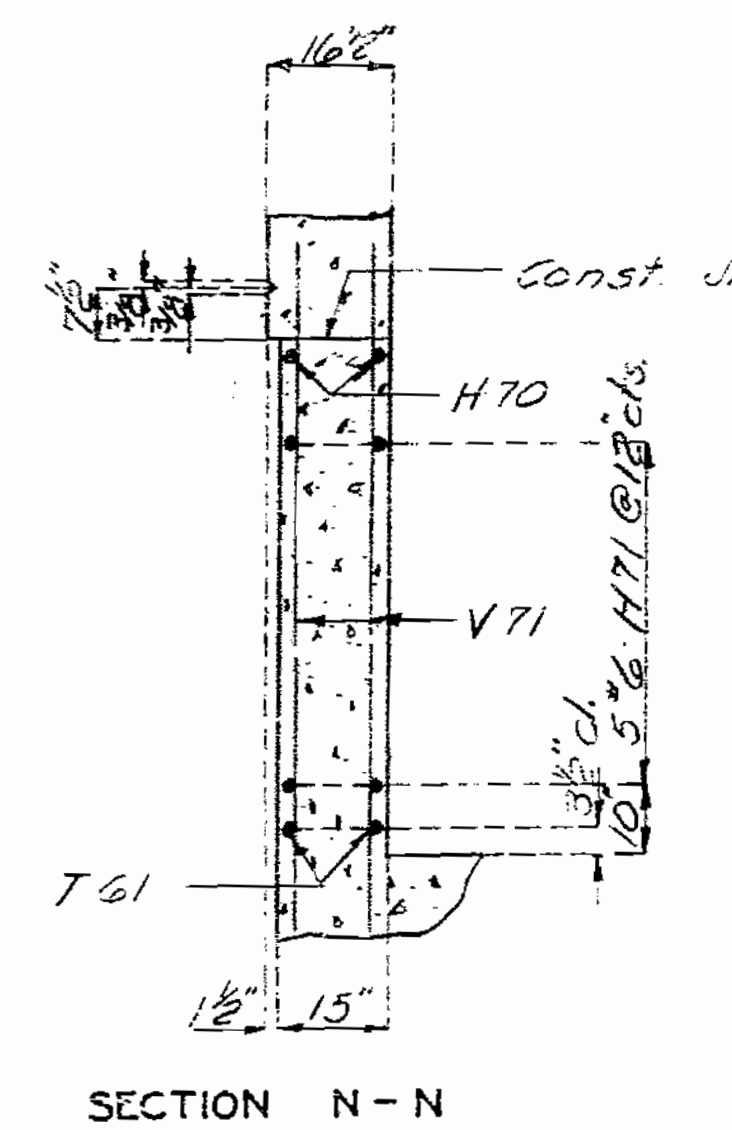
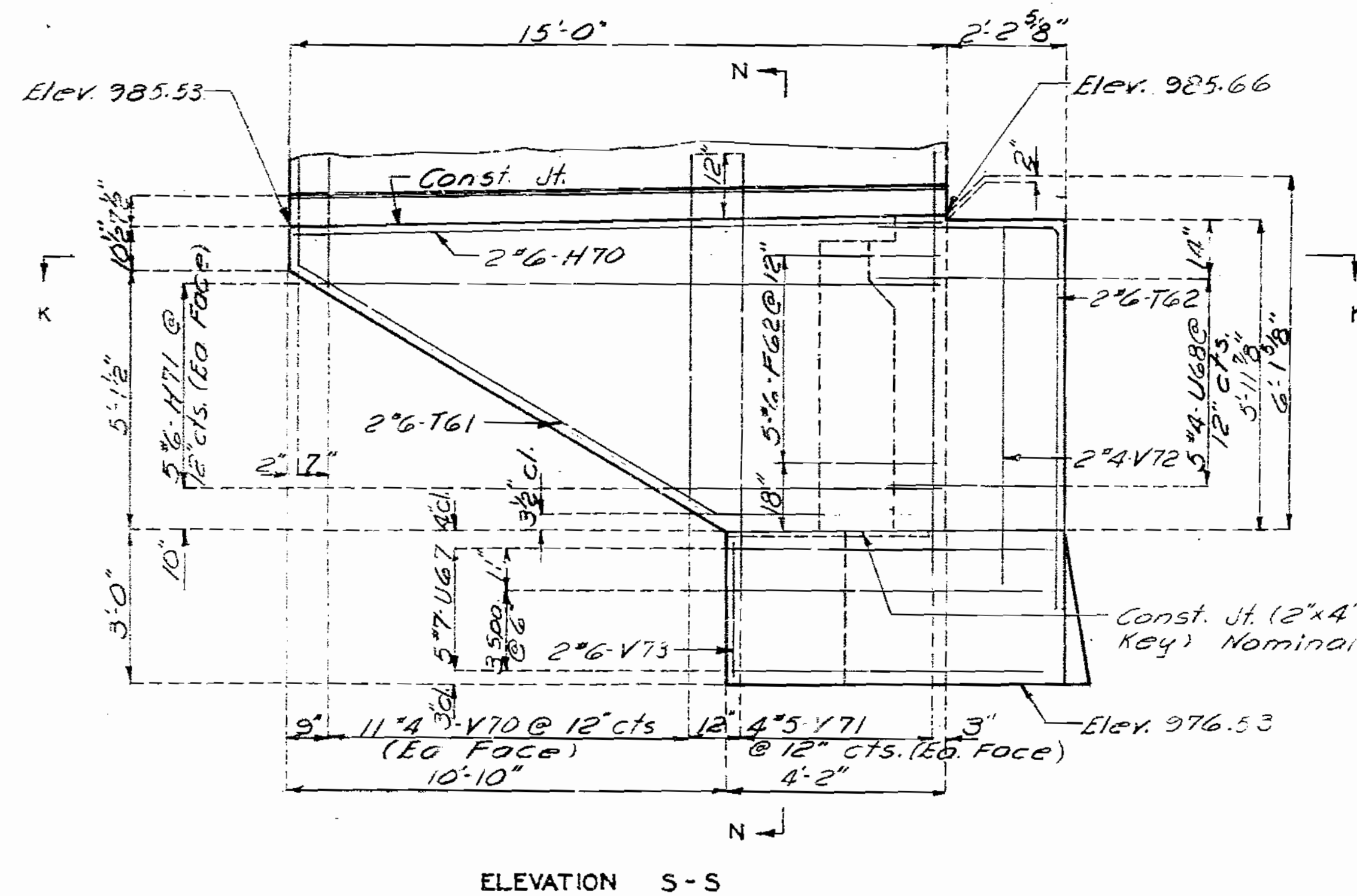
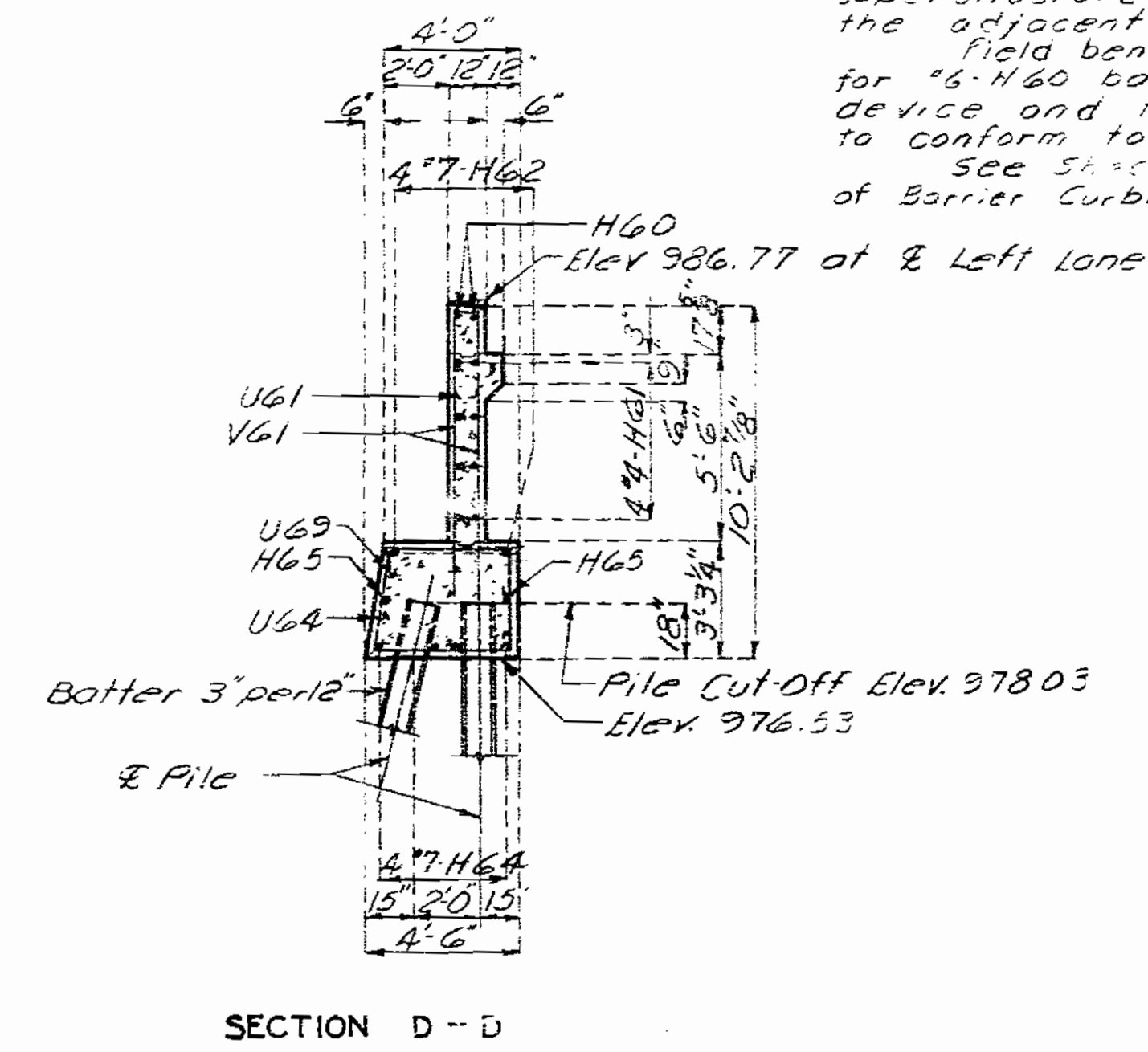
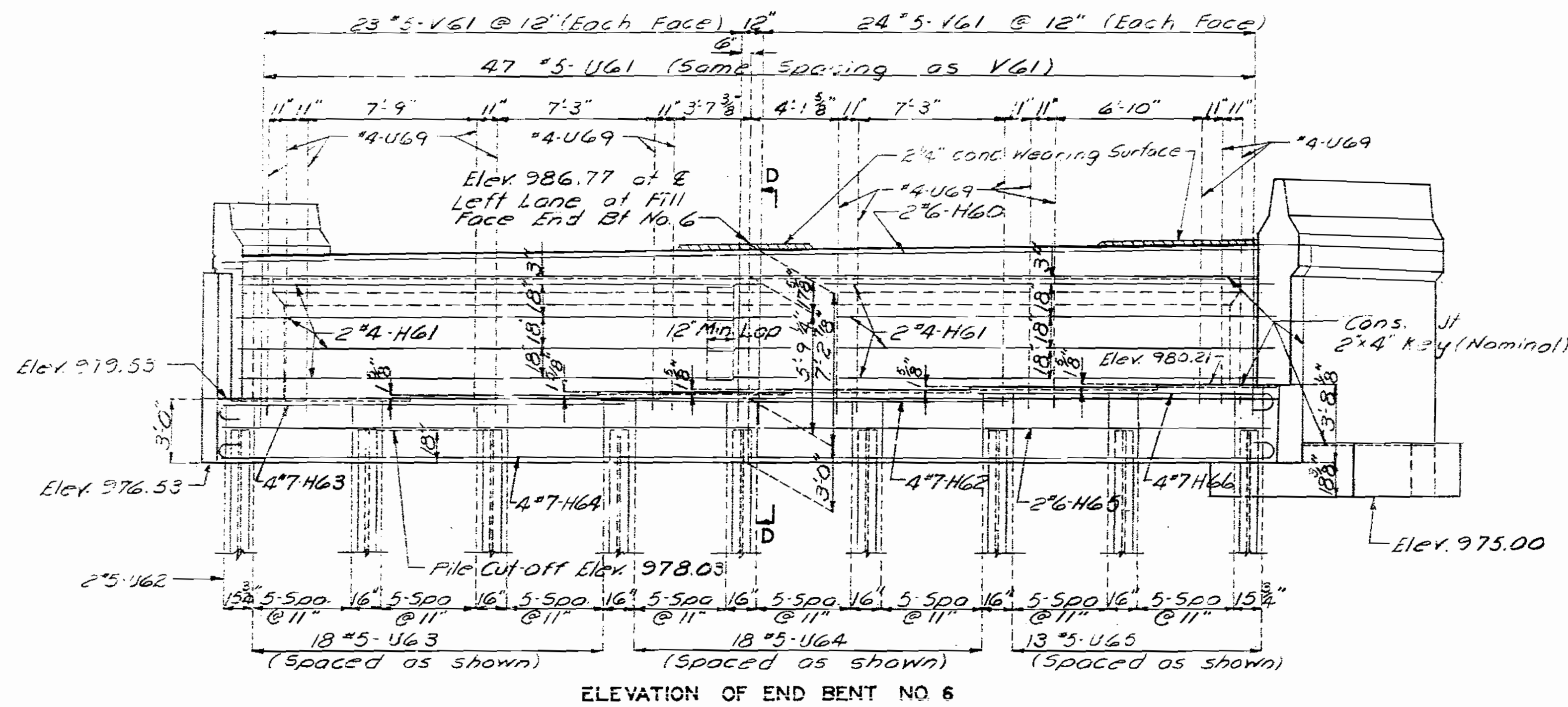
A-2513



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		75	72	

Note: Top of back wall and expansion device for end bent No. 6 to conform to slope of roadway slab.  
 Back wall above upper construction joint shall not be poured until the superstructure slab has been poured in the adjacent span.  
 Field bending shall be required at wings for #6-H60 bars in back wall with expansion device and for #62 bars when necessary to conform to slope of wing.  
 See Sheet 135, 233 & 236 for reinforcement of Barrier Curb.



DETAILS OF END BENT NO. 6 (LEFT LANE)

45  
 DETAILED JAN 1974  
 CHECKED APRIL 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 11 of 26.

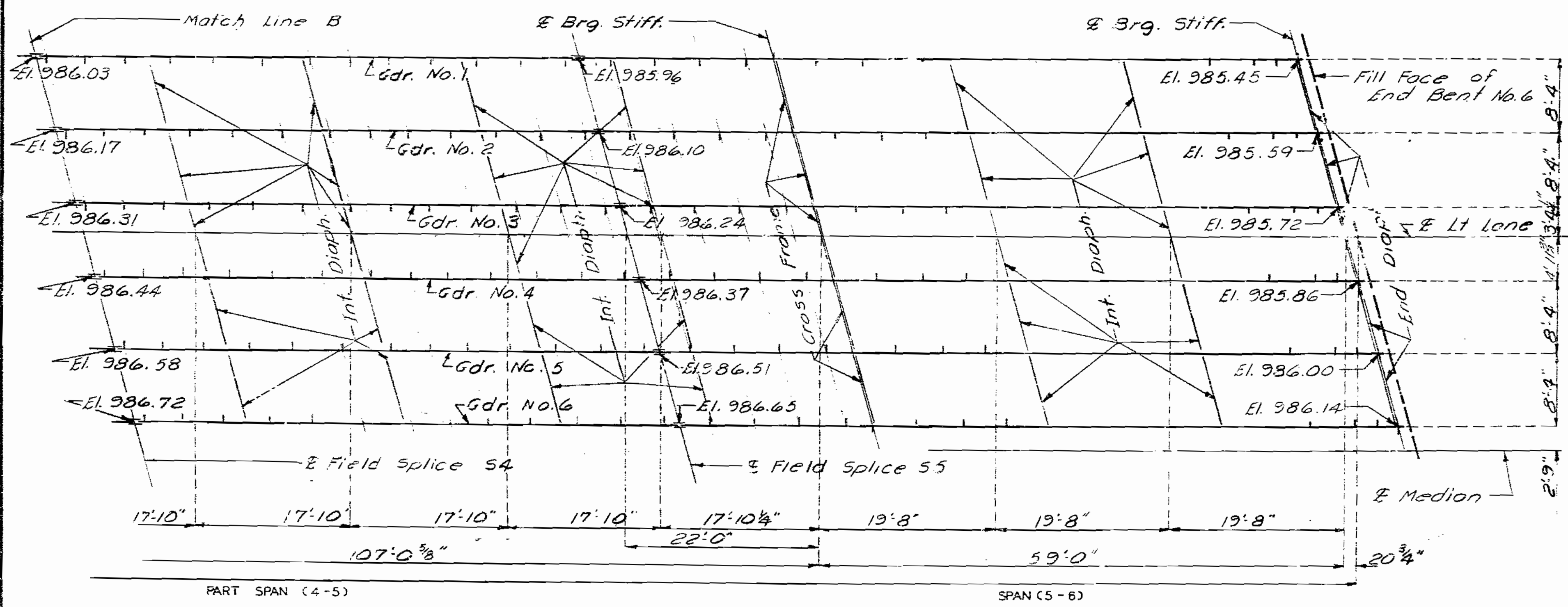
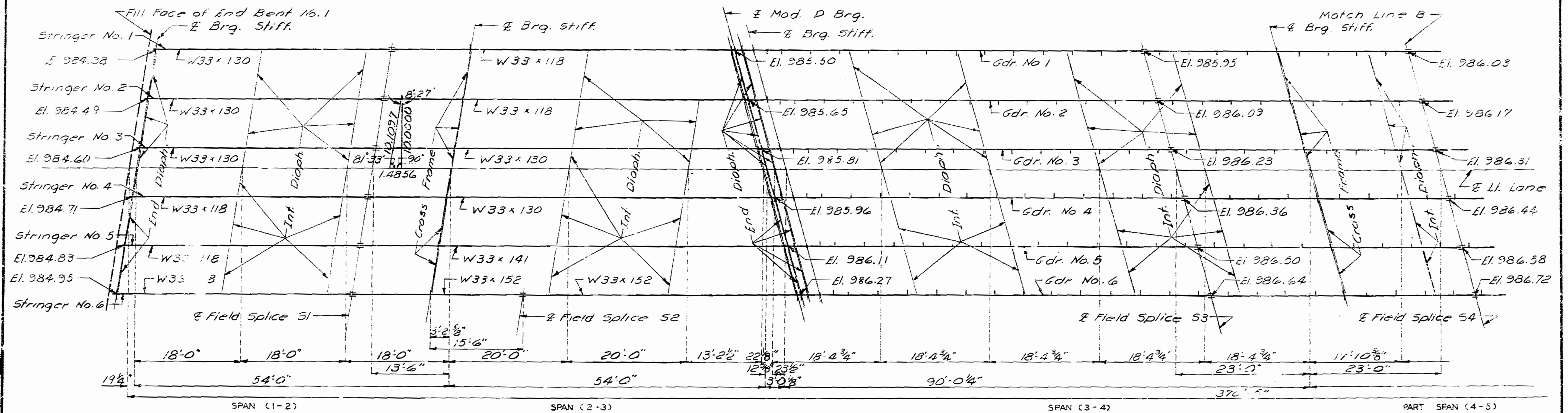
JACKSON

COUNTY

A-2513

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		75	73	



Note: All longitudinal dimensions shown are taken parallel to grade of E of Roadway. Elevation shown are at bottom of top flange of stringer and girder.

notch toughness required for W Beams

74'-16" Transverse web stiffeners shall be placed as detailed

15'-4"  
10'-8 1/2"  
90'-10-0000  
28172

PLAN OF STRUCTURAL STEEL

DETAILED NGK 19 73  
CHECKED APRIL 19 74

Note: This drawing is not to scale. Follow dimensions.

Sheet No 12 of 26.

JACKSON

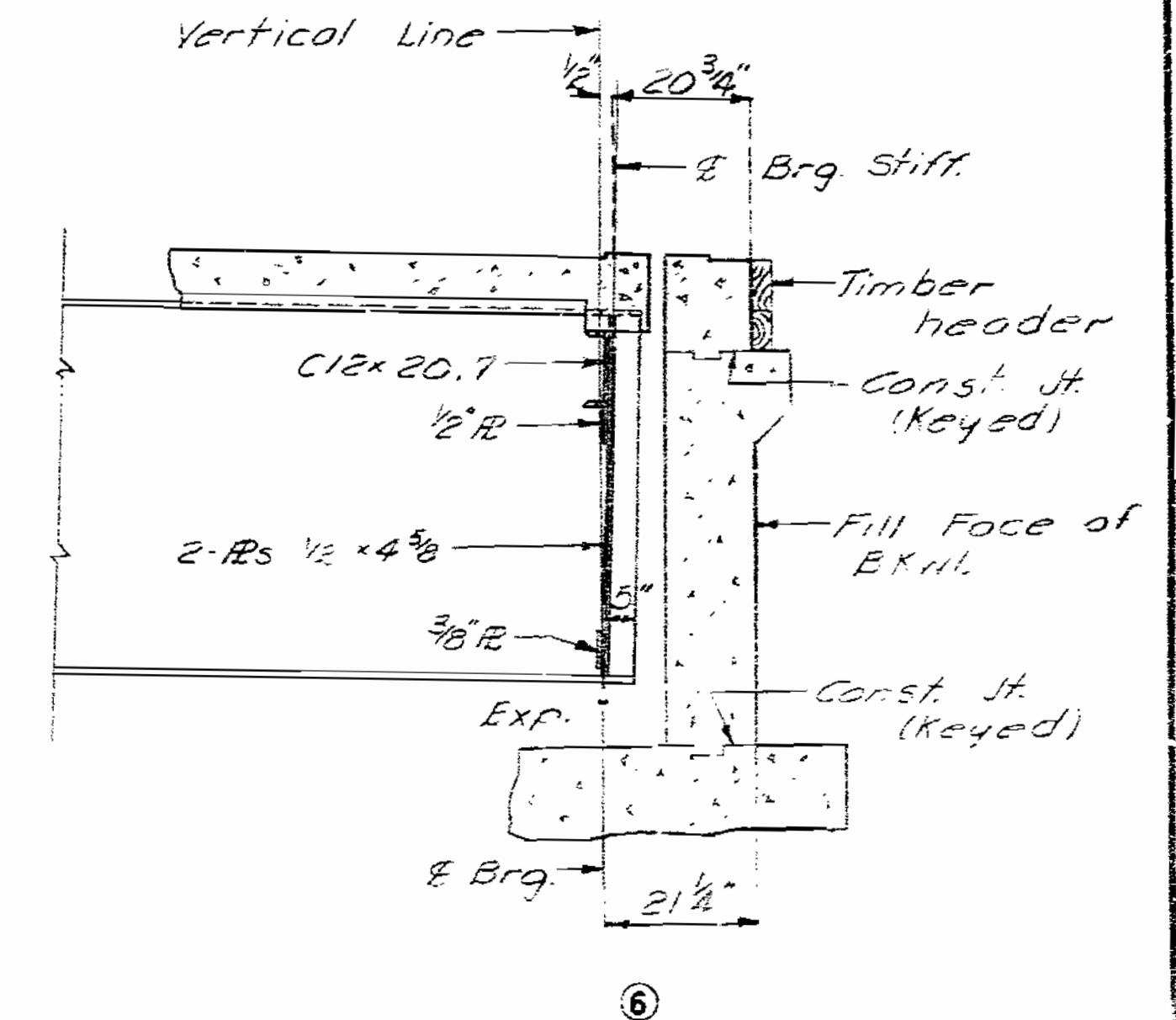
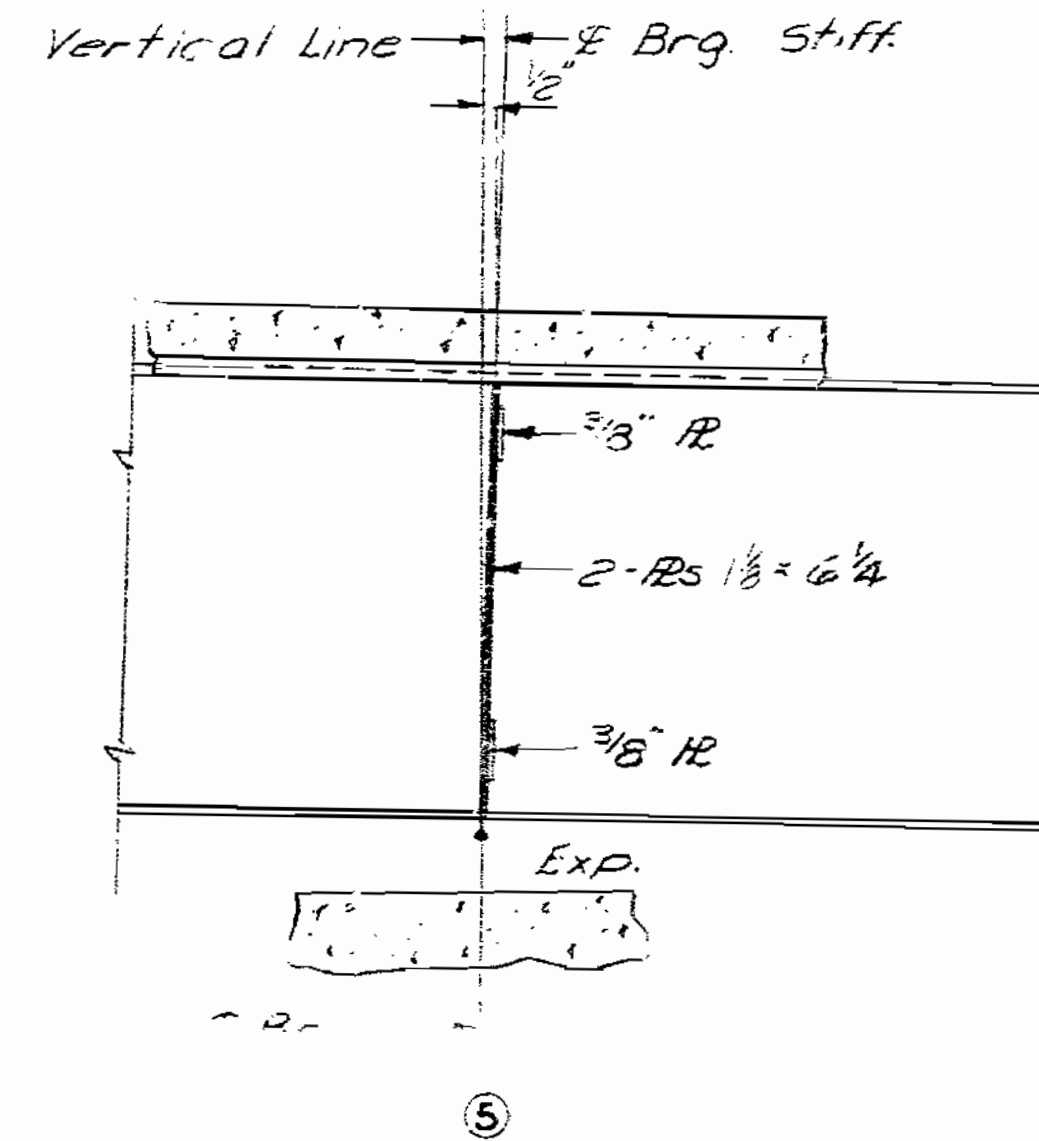
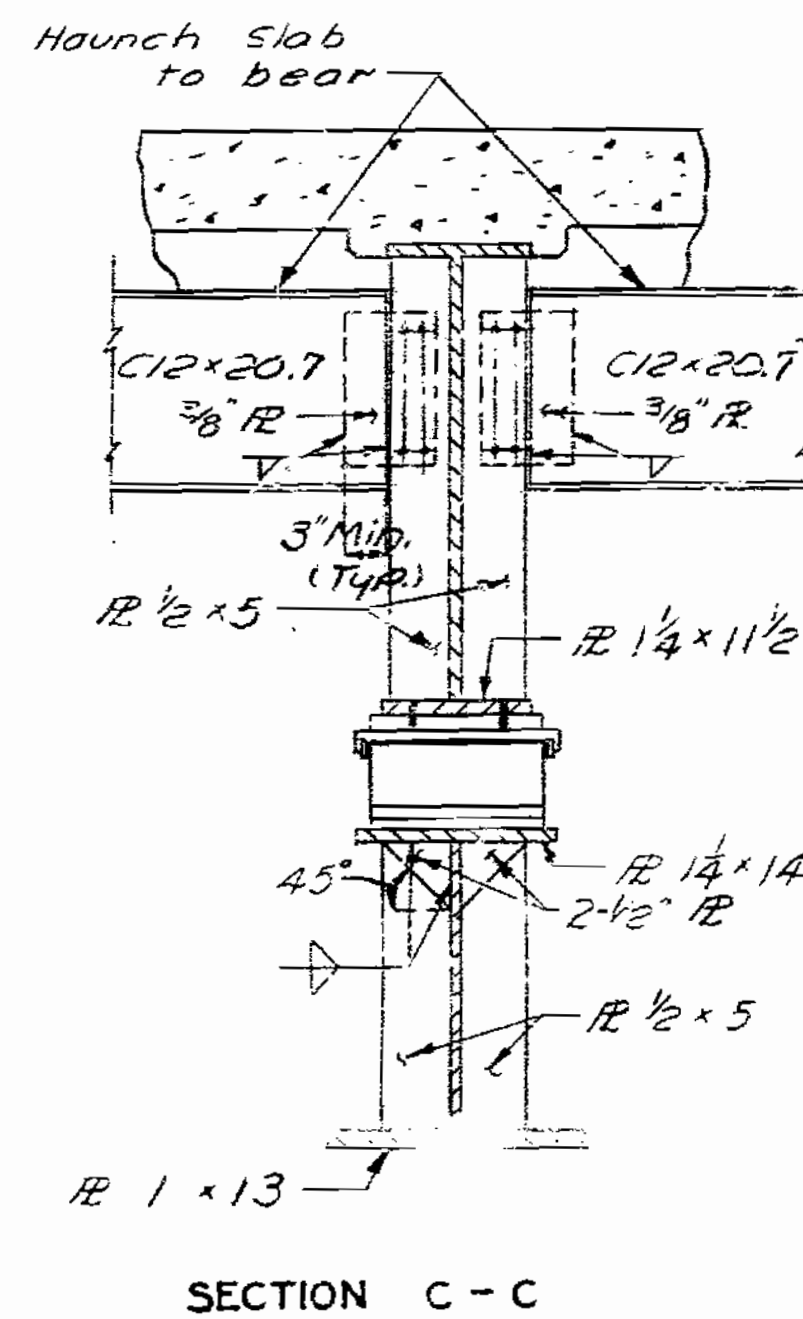
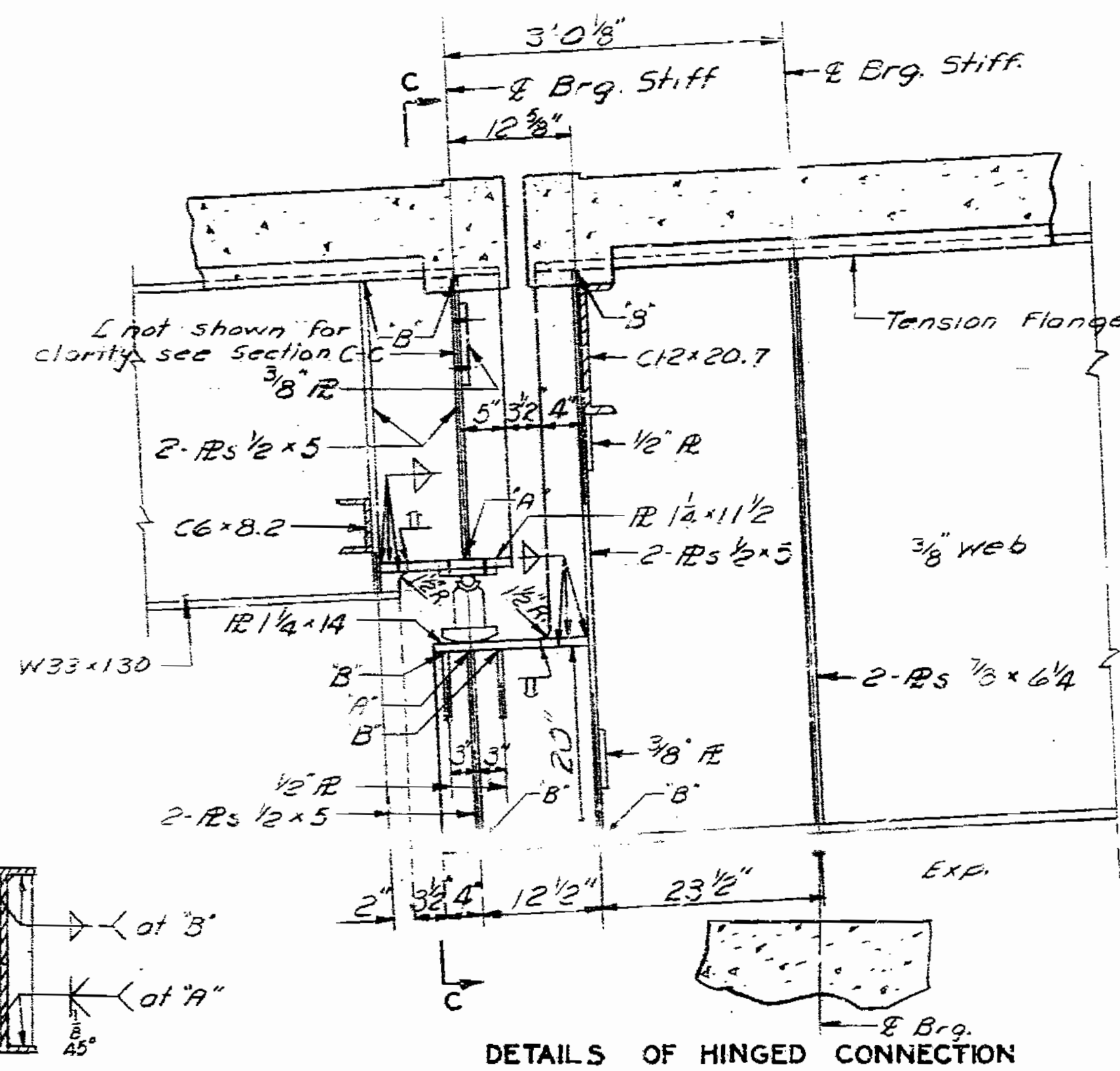
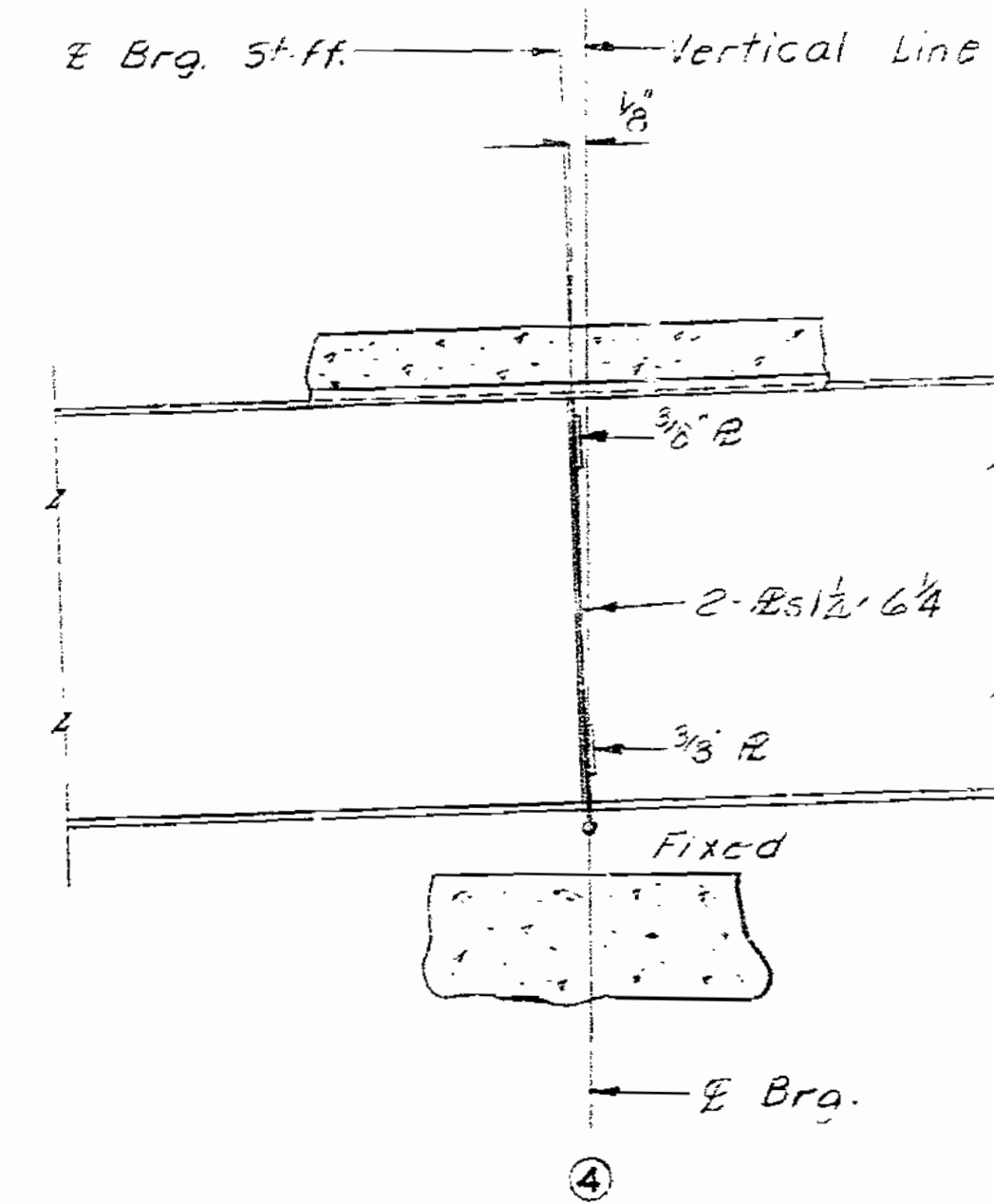
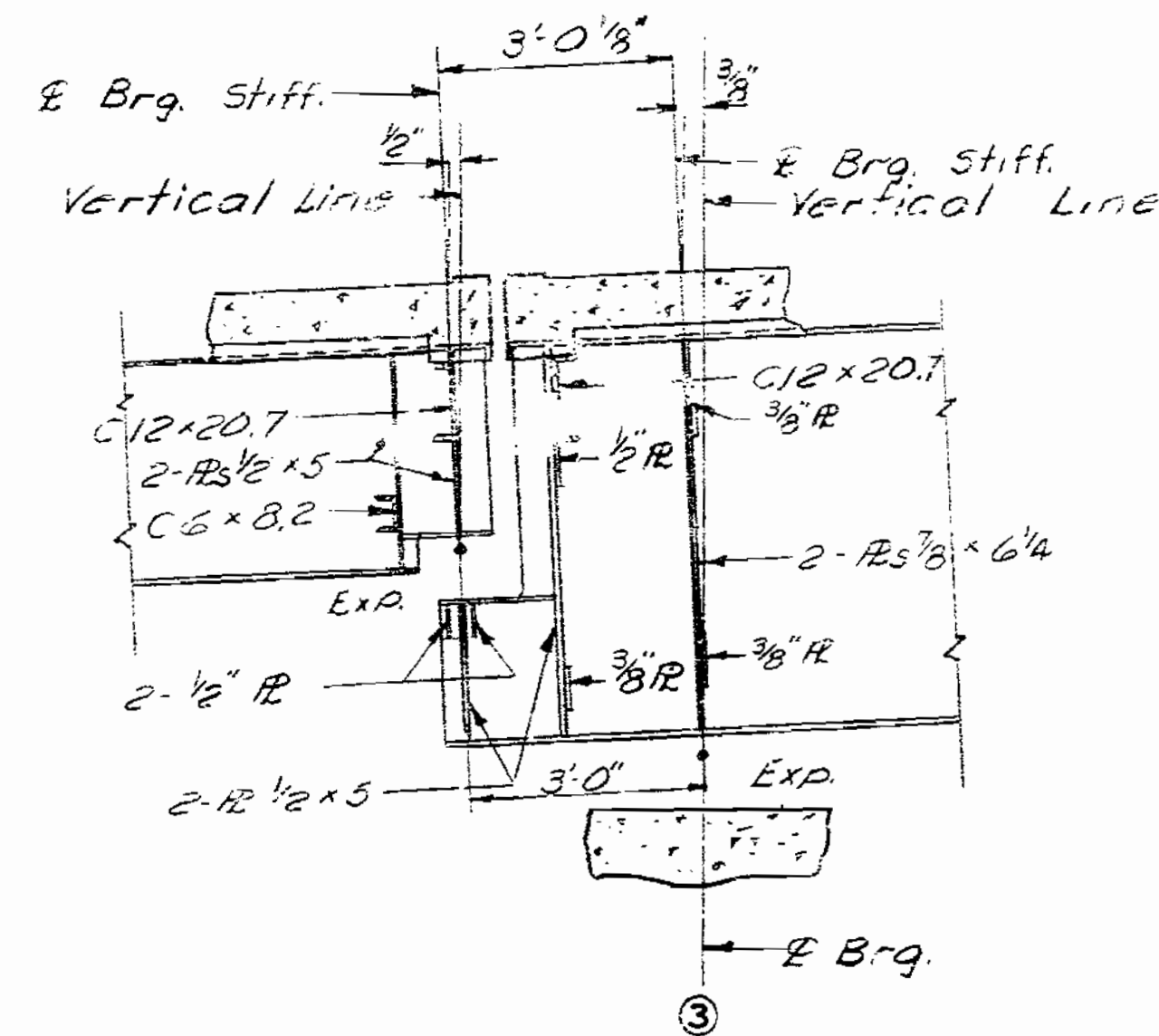
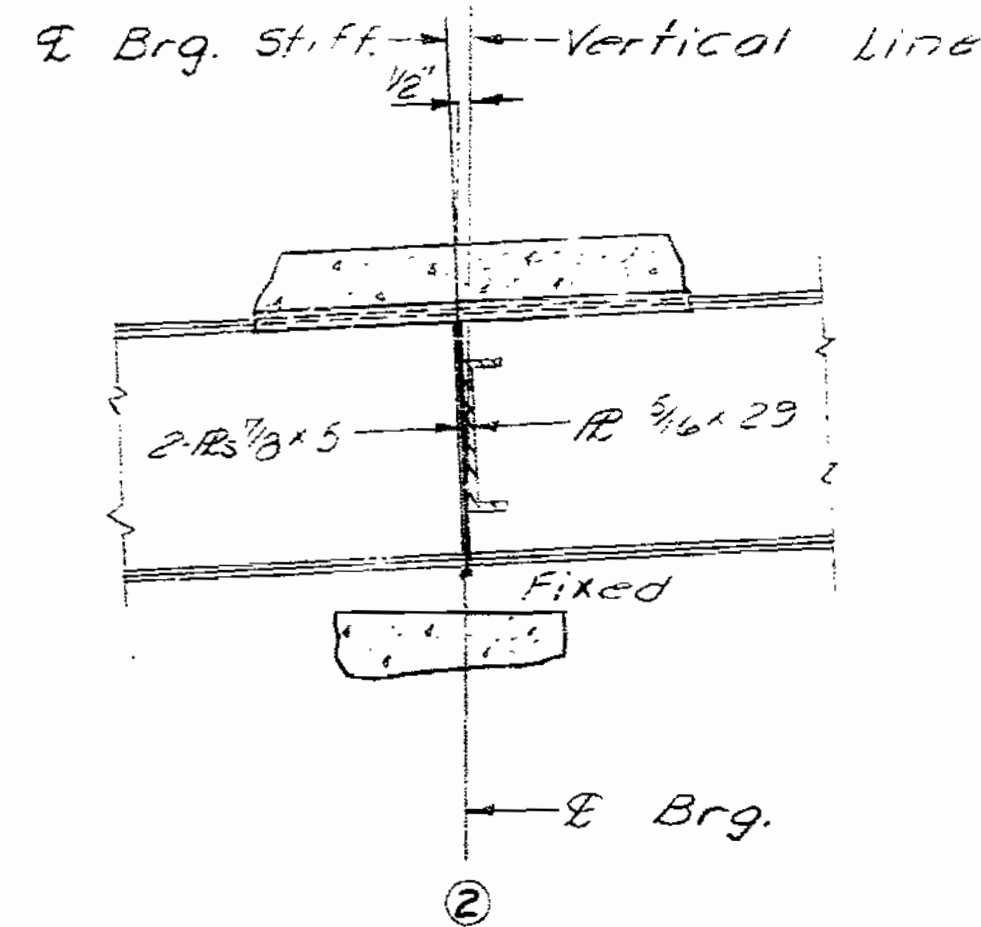
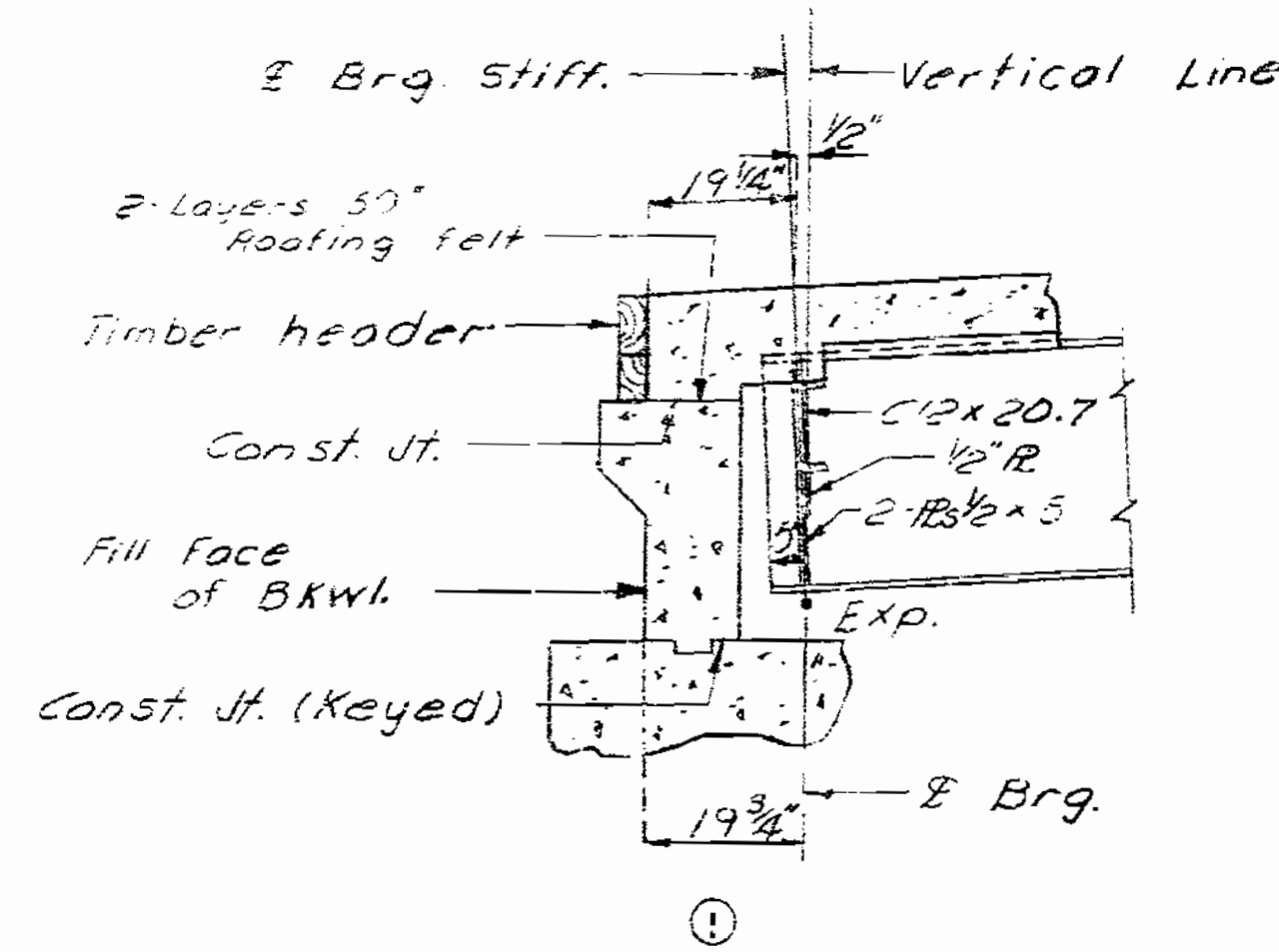
COUNTY

A-2513



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		1975	75	



PART LONGITUDINAL SECTION  
(Near Int Stringer & Girder No. 3)

TYP. WELDING DETAILS FOR STIFF PLATES

DETAILED NOV. 1975  
CHECKED APRIL 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 14 of 26..

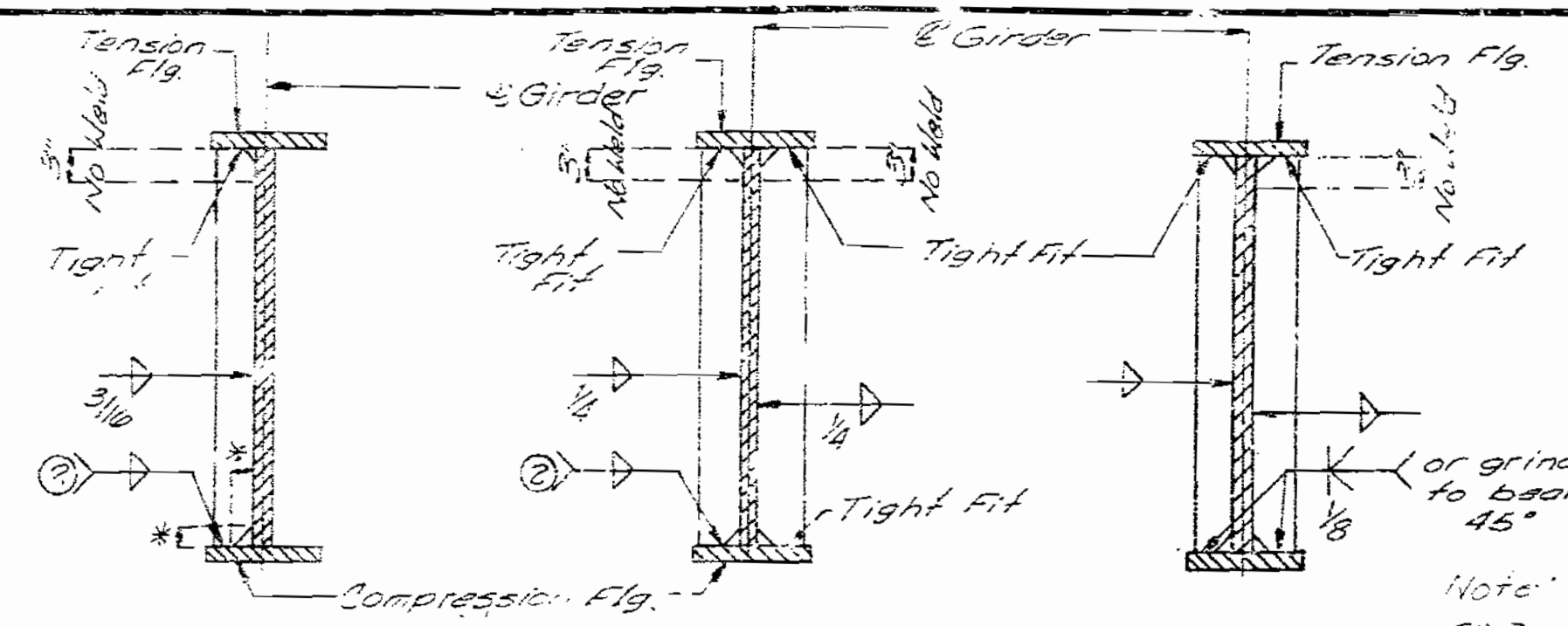
JACKSON

COUNTY

A-2513

MISSOURI STATE HIGHWAY DEPARTMENT

ROAD NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
				76	

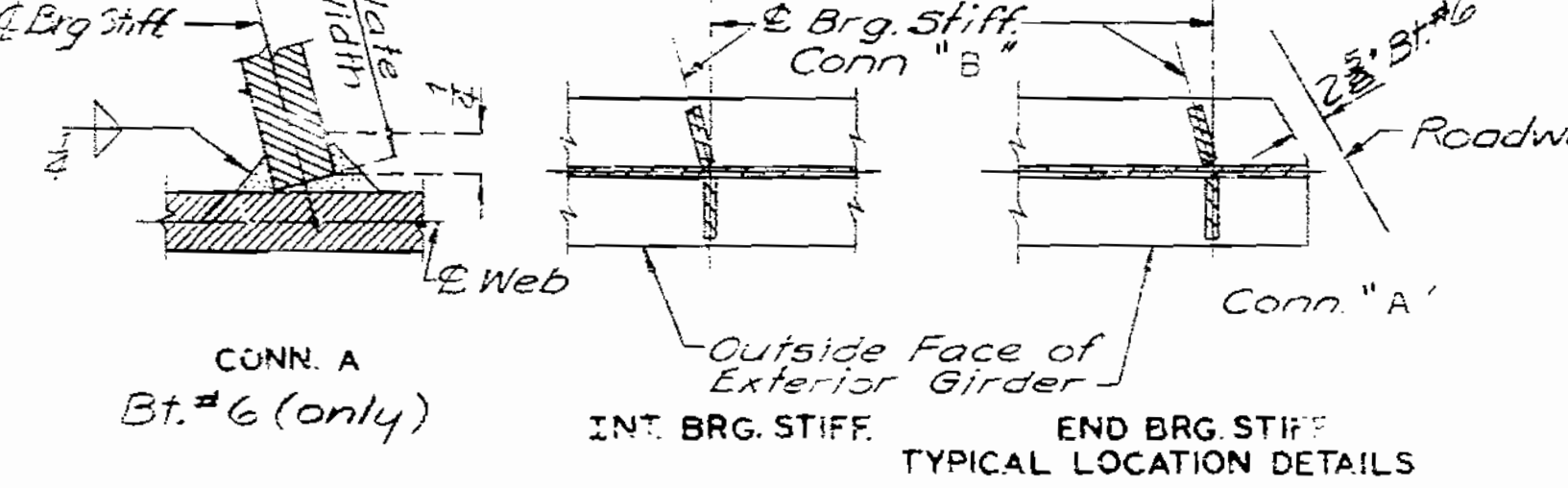


Note: For R's size see sheet # 13.

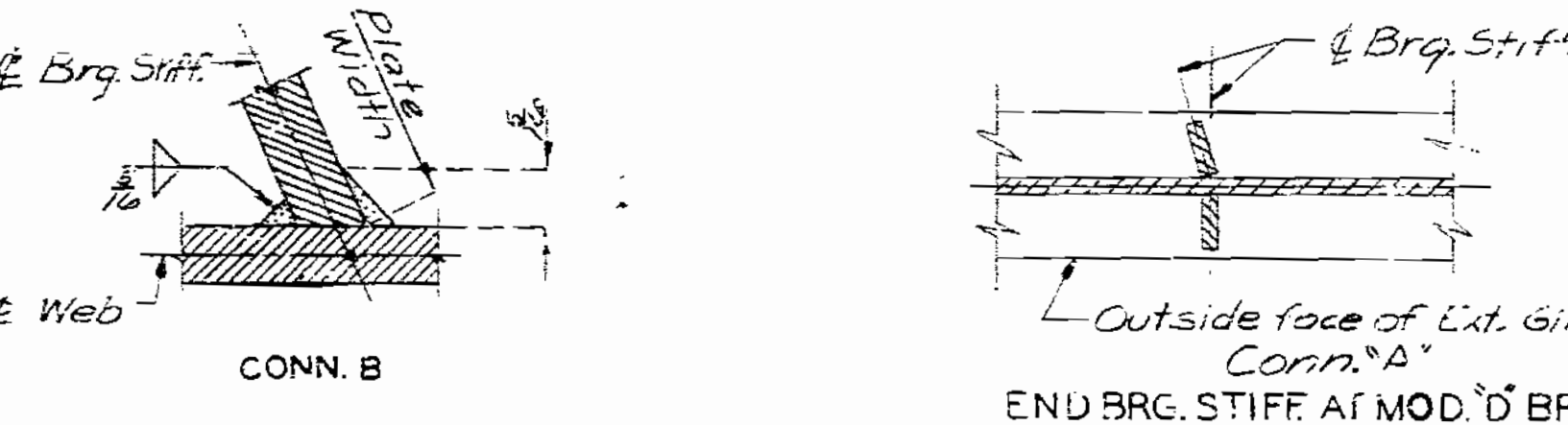
INT. WEB STIFF. \*\* INT. DIAPH. CONN. R. & WEB STIFF. INT. DIAPH. CONN. R. ONLY or at mod. 'D' Brg. END BRG. STIFF. INT. BRG. STIFF.

(One side only) Weld to compression flange as located on Elevation of Girder.

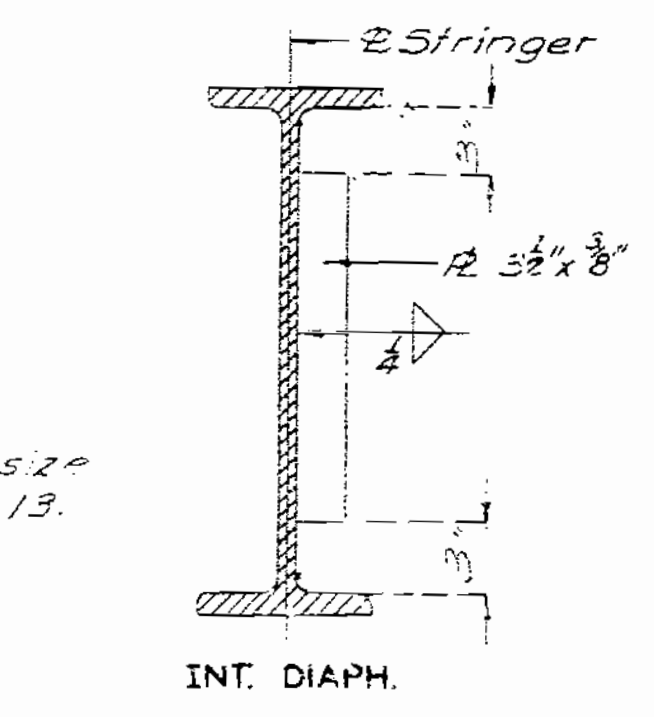
\* Not typical for all Int. Web stiff, Diaph. Conn. R. and Brg. Stiff. \*\* Weld may be omitted on interior girders, and Tight Fit used when Int. Diaph. Conn. R. is required on both sides.



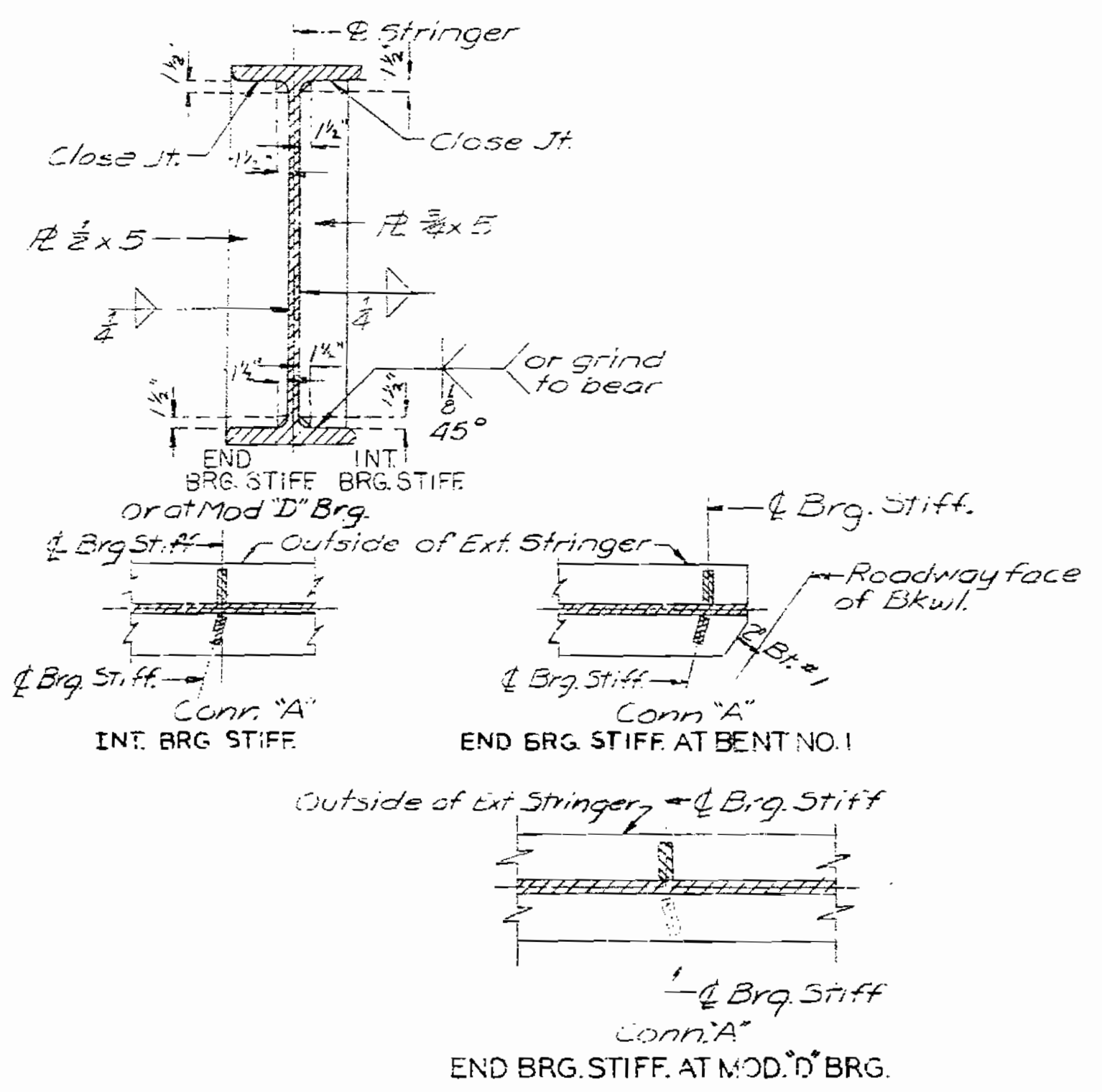
TYPICAL LOCATION DETAILS



WELDING DETAILS (R Girder Section)



WELDING DETAILS (W Beam Section)

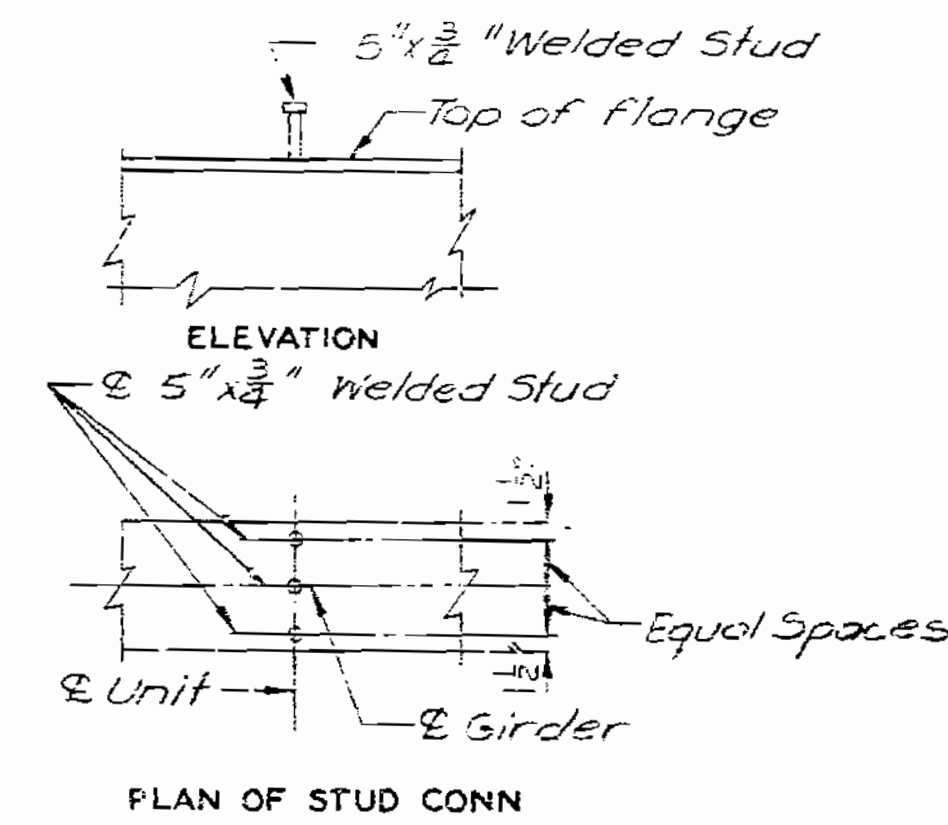


END BRG. STIFF AT MOD. 'D' BRG.

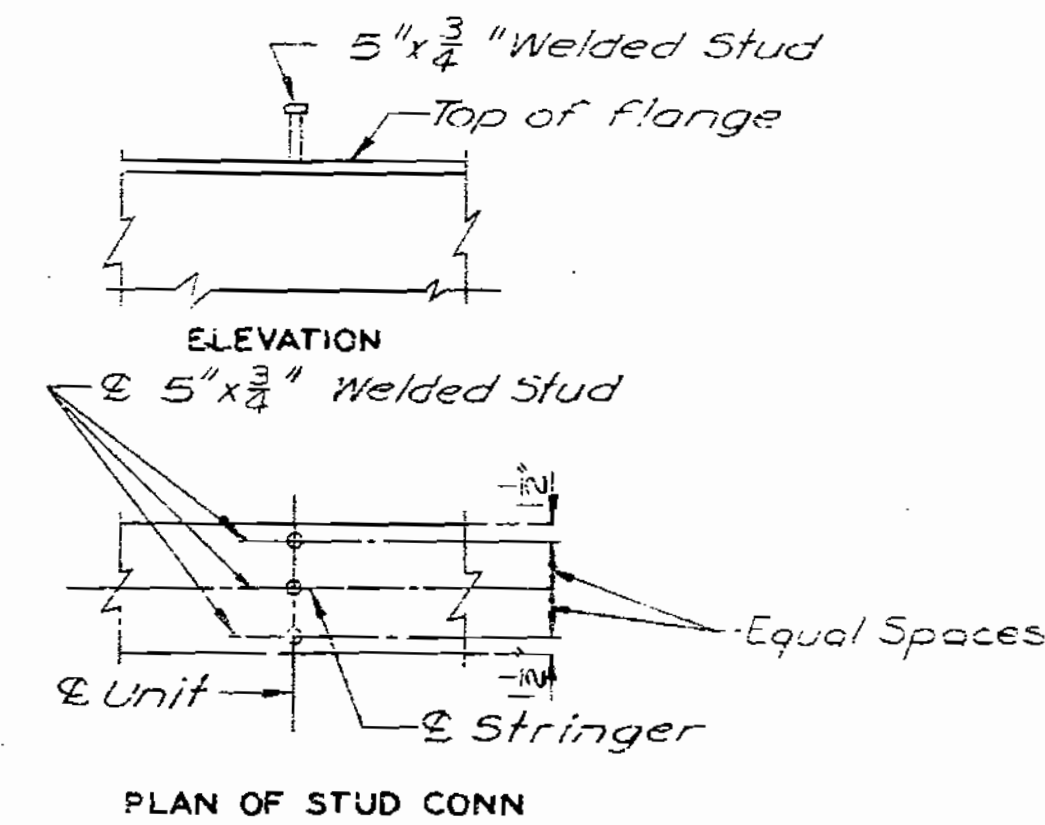
Note: Weight of 1550 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel for R Girder Section.

Note: Weight of 1210 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel for W Beam Section.

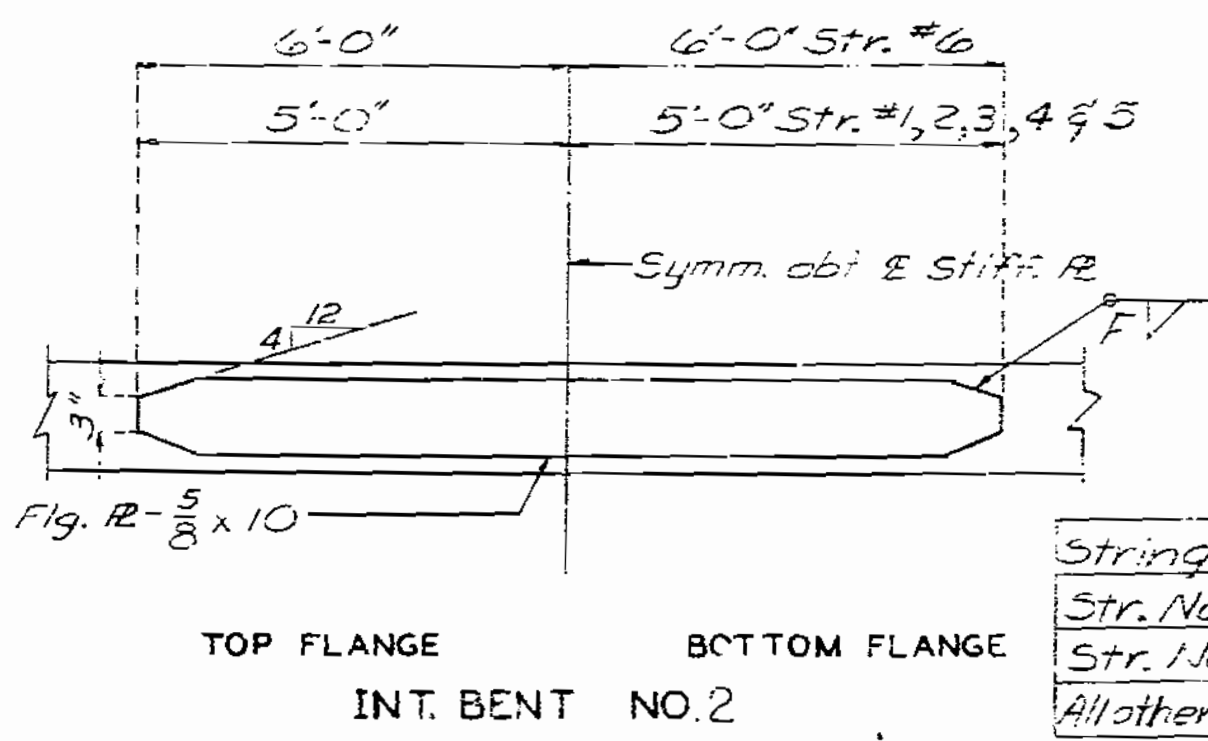
Note: When Intermediate web Stiff. R is or Intermediate diaphragm Conn. R's Interfere with Flange splice R's 5/8" bolts. Slip as shown.



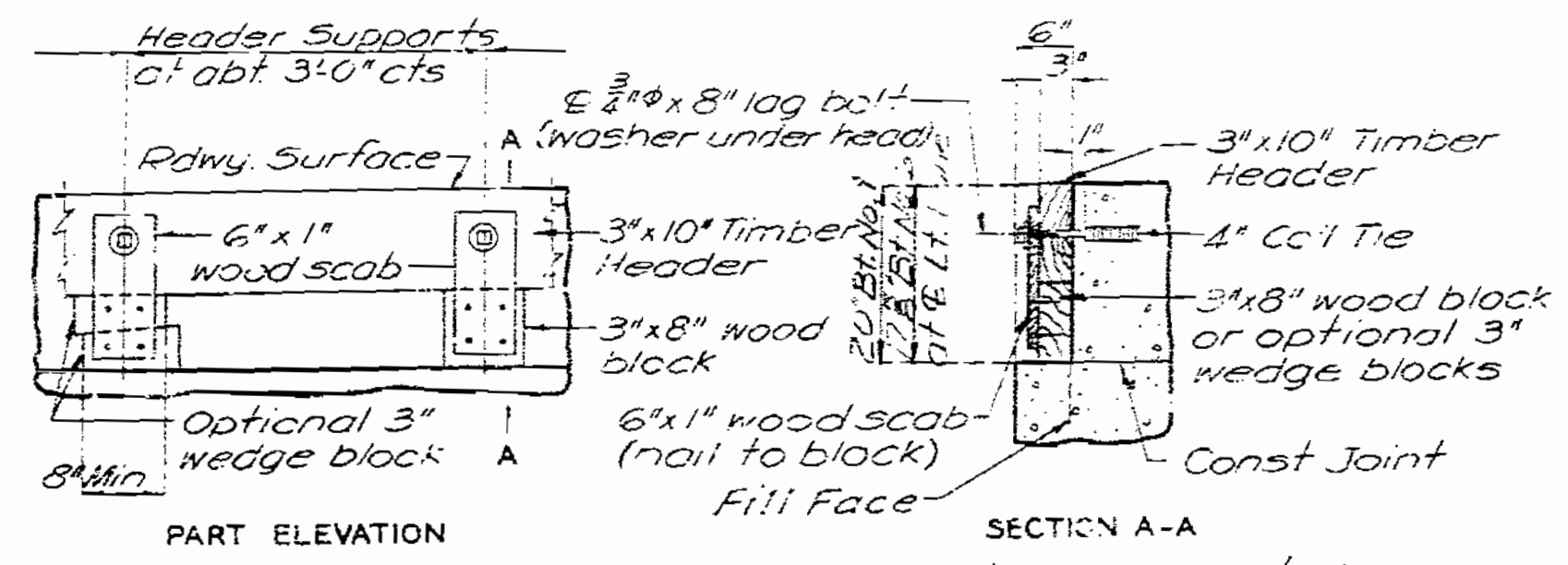
DETAILS OF SHEAR CONNECTORS (R Girder Section)



DETAILS OF SHEAR CONNECTORS (W Beam Section)



DETAILS OF FLANGE PLATES



Note: Cost of timber headers complete in place to be included in price bid for concrete.

DETAILS OF TIMBER HEADER AT END BENTS

Note: Note lengthness required for welded Flange Plates.

DATE: ED NOV. 1973  
CHECKED: April 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 15 of 26.

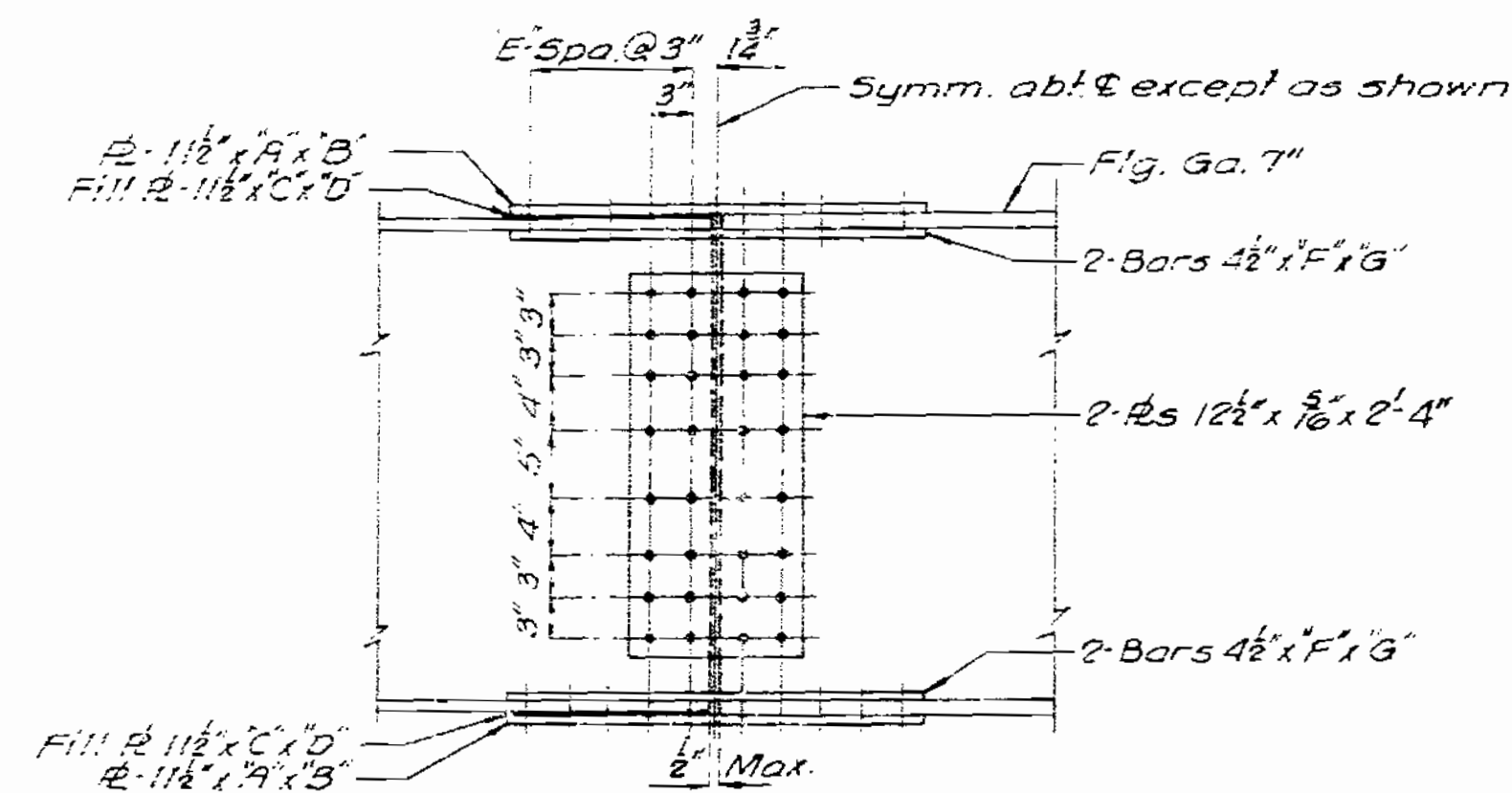
JACKSON

COUNTY

A-2513

MISSOURI STATE HIGHWAY DEPARTMENT

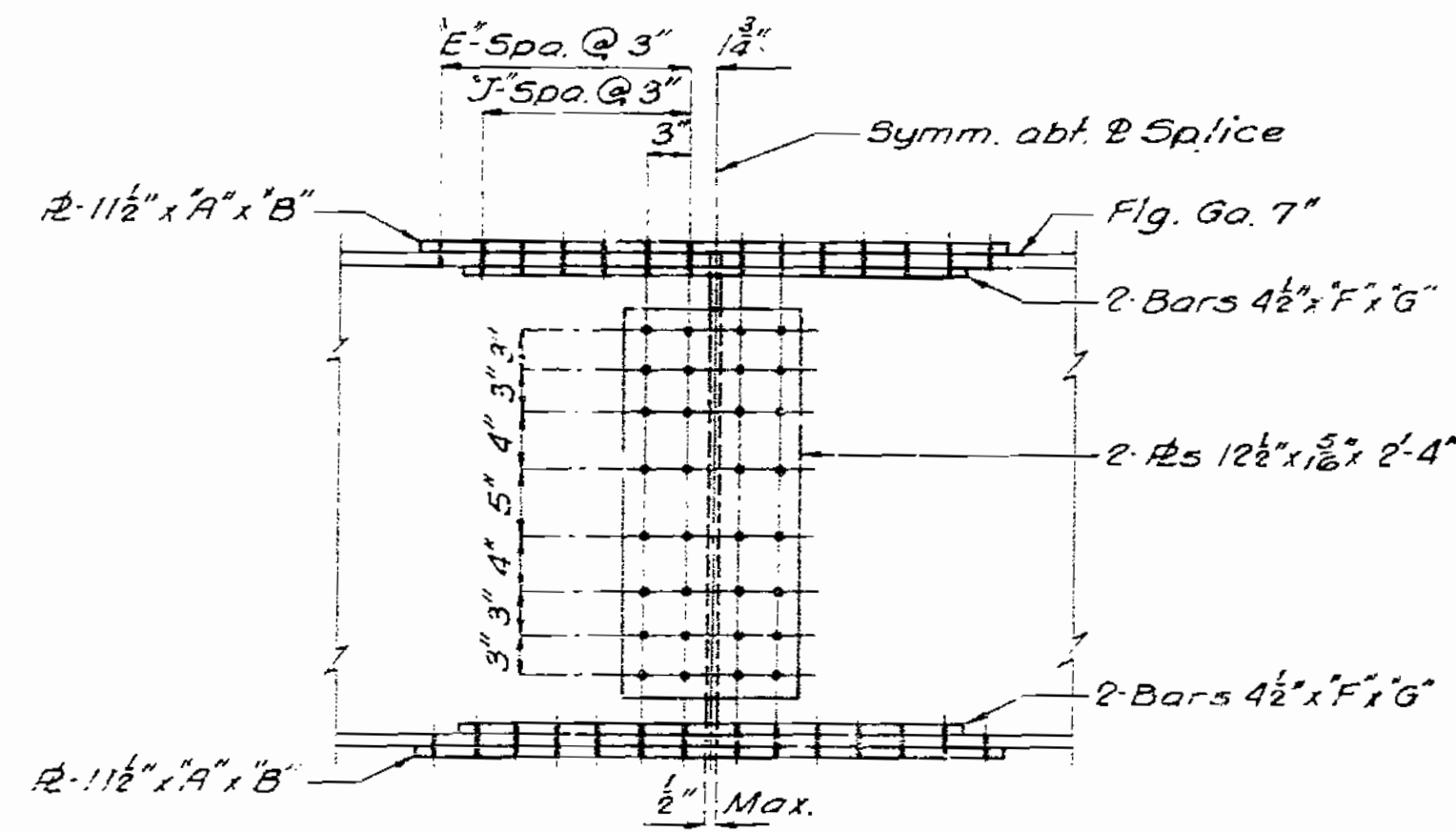
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		55	17	



Note: 1/16" reamed holes for 3/8" high strength bolts.

SIZE OF BEAM	A	B	C	D	E	F	G
W33x118 to 130	1 1/2"	2'-6 1/2"	11/16"	15"	4"	7/16"	2'-6 1/2"
W33x118 to 141	1 1/2"	2'-6 1/2"	1/4"	15"	4"	7/16"	2'-6 1/2"
W33x118 to 152	1 1/2"	2'-6 1/2"	5/16"	15"	4"	7/16"	2'-6 1/2"

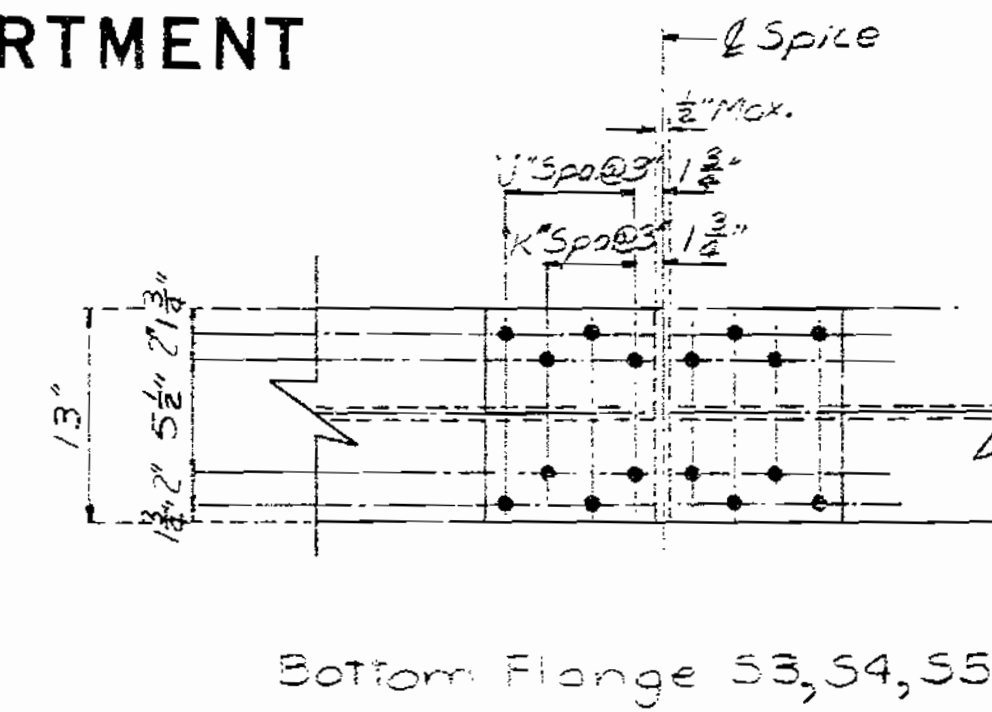
DETAIL OF W33 BEAM SPLICE



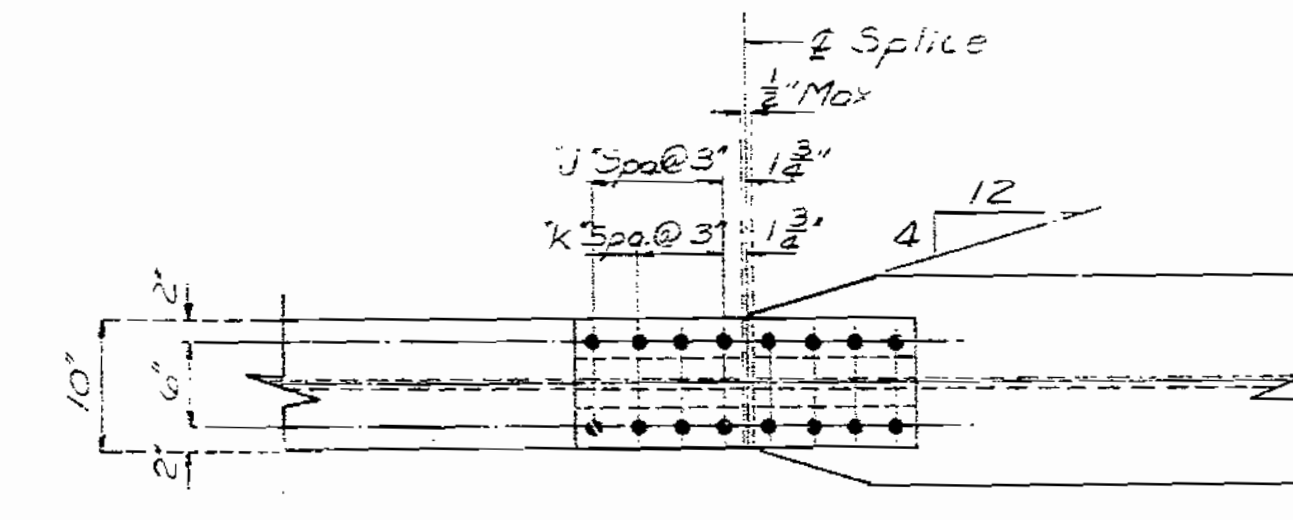
Note: 1/16" reamed holes for 3/8" high strength bolts.

SIZE OF BEAM	A	B	C	D	E	F	G	J
W33x130 to 150	5/8"	3'-0 1/2"			5	1/2"	2'-6 1/2"	4

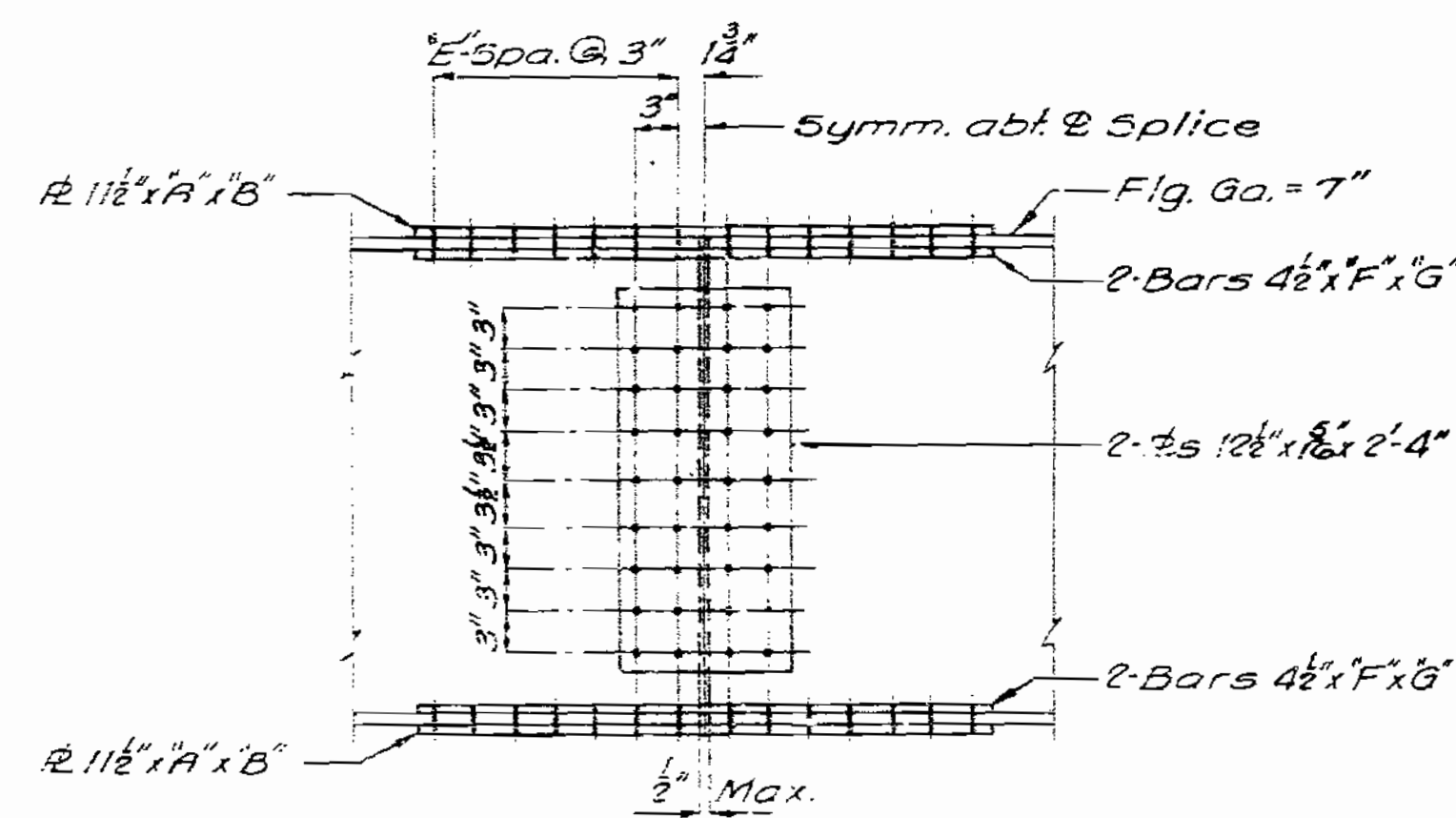
DETAIL OF W33 BEAM SPLICE



Bottom Flange S3, S4, S5



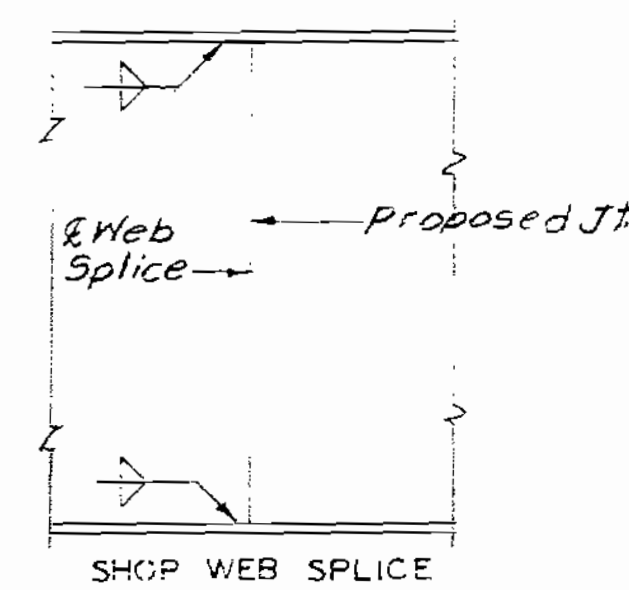
Top Flange S3, S4, S5



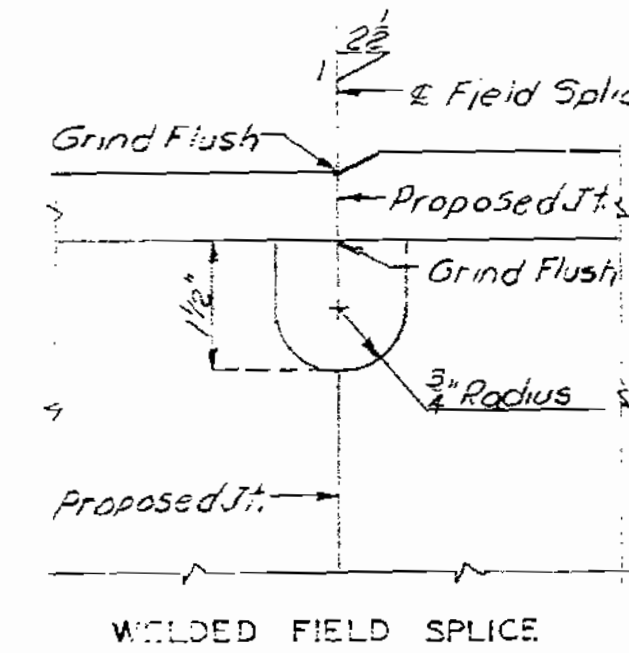
Note: 1/16" reamed holes for 3/8" high strength bolts.

SIZE OF BEAM	A	B	C	D	E	F	G
W33x152 to 152	3/4"	3'-6 1/2"			6	3/8"	3'-6 1/2"

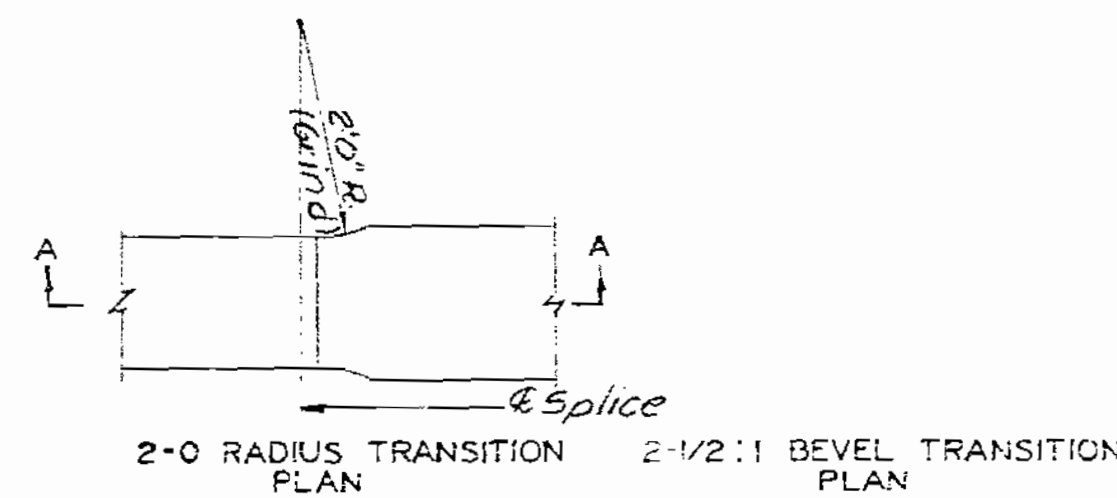
DETAIL OF W33 BEAM SPLICE



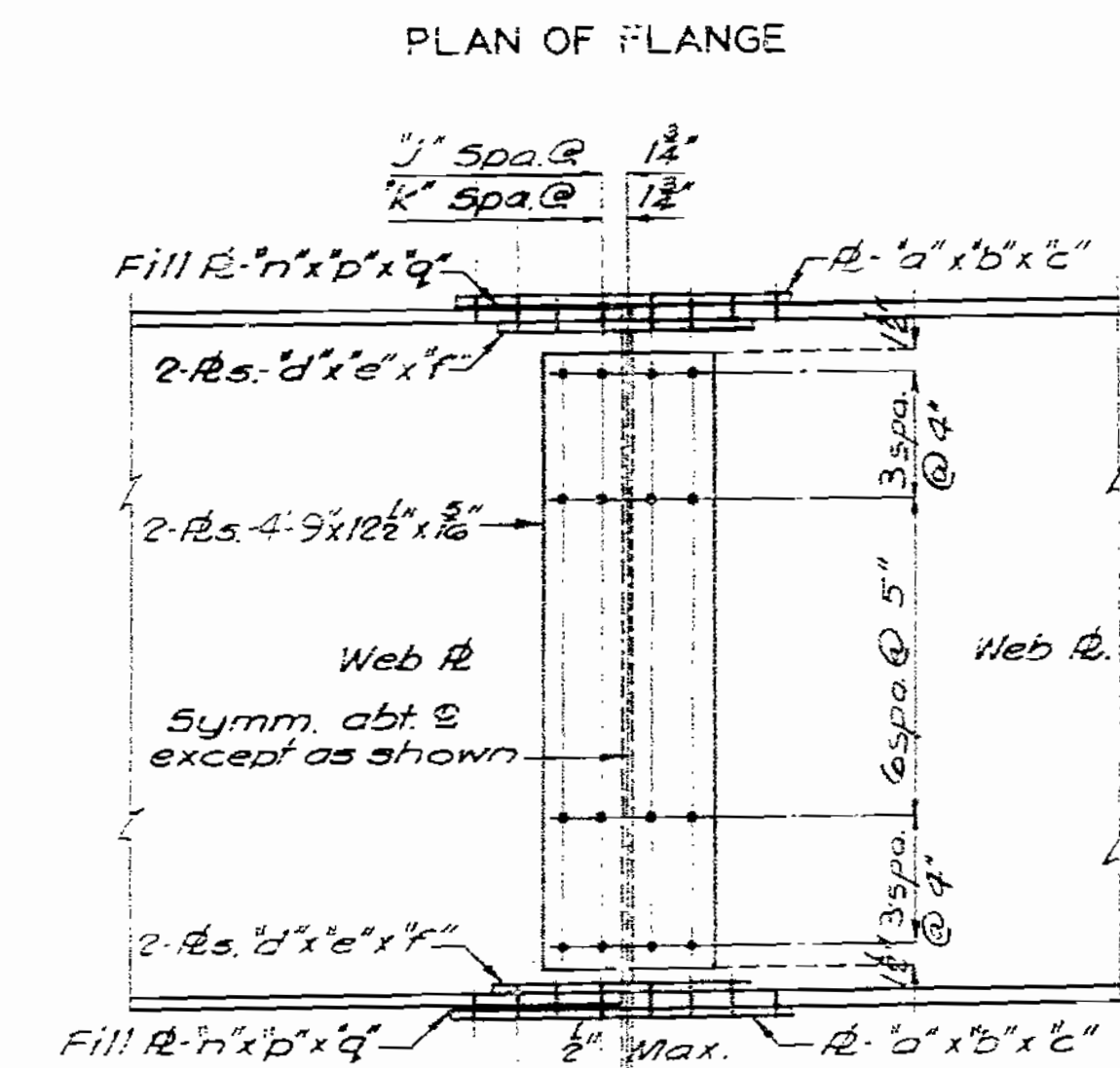
SHOP WEB SPLICE



WELDED FIELD SPLICE



SECTION A-A  
WELDED SHOP OR FIELD FLANGE SPLICE

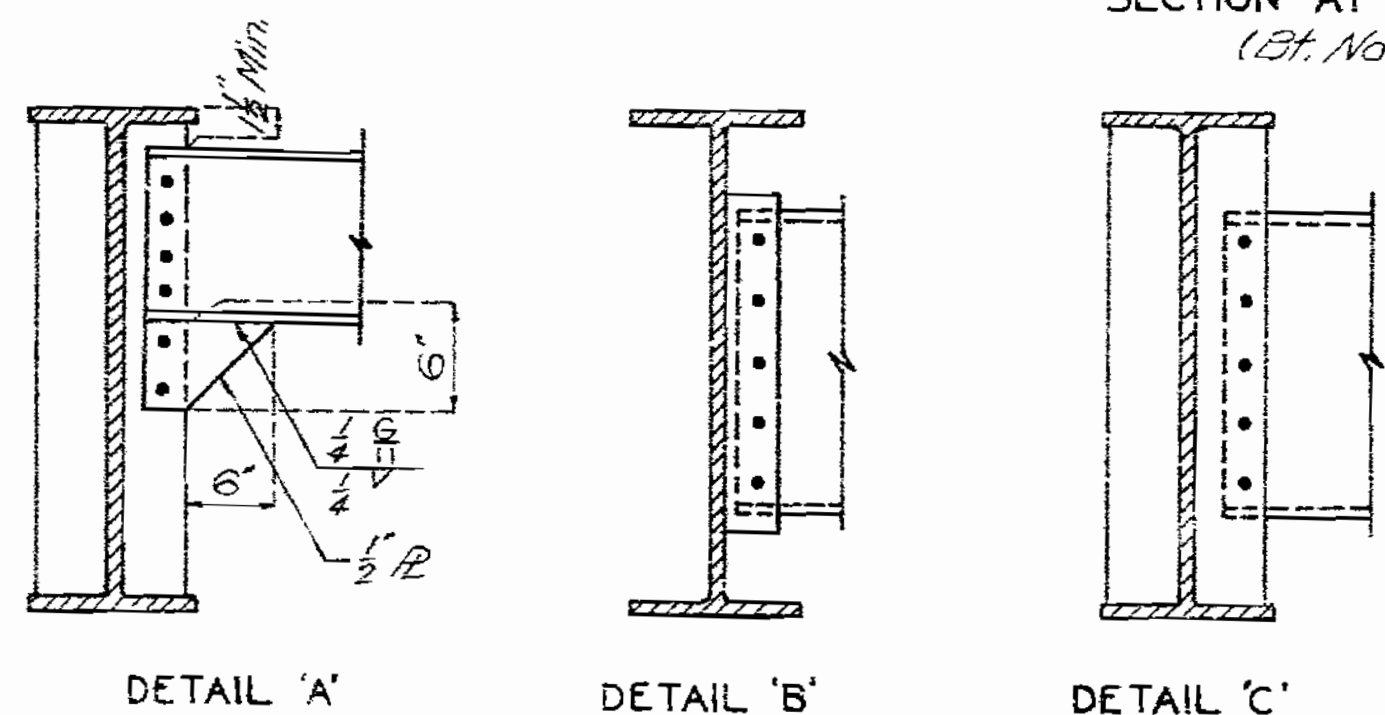
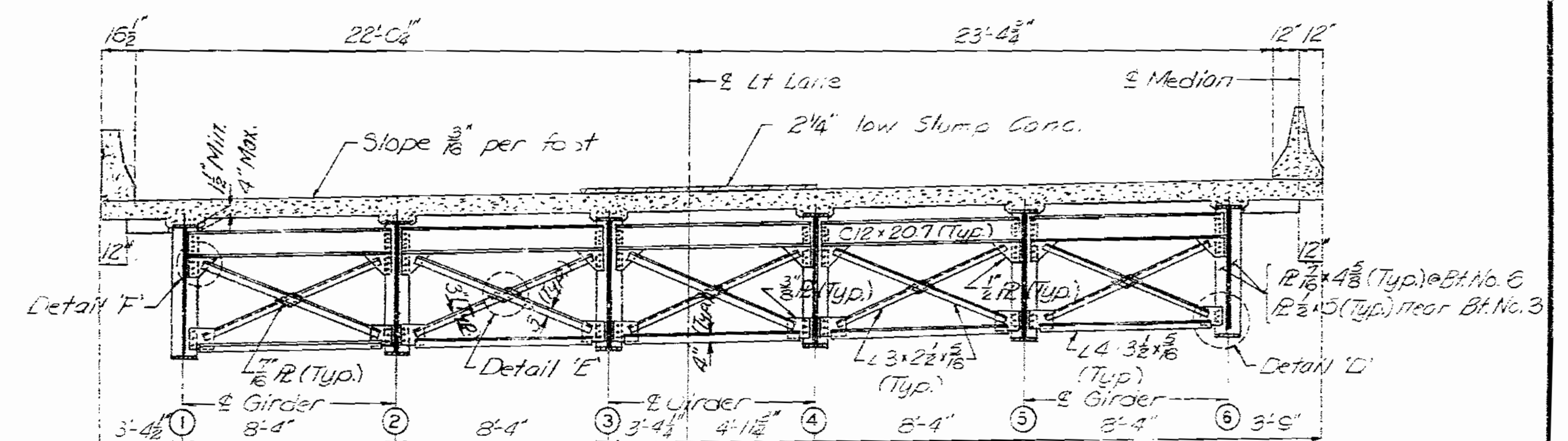
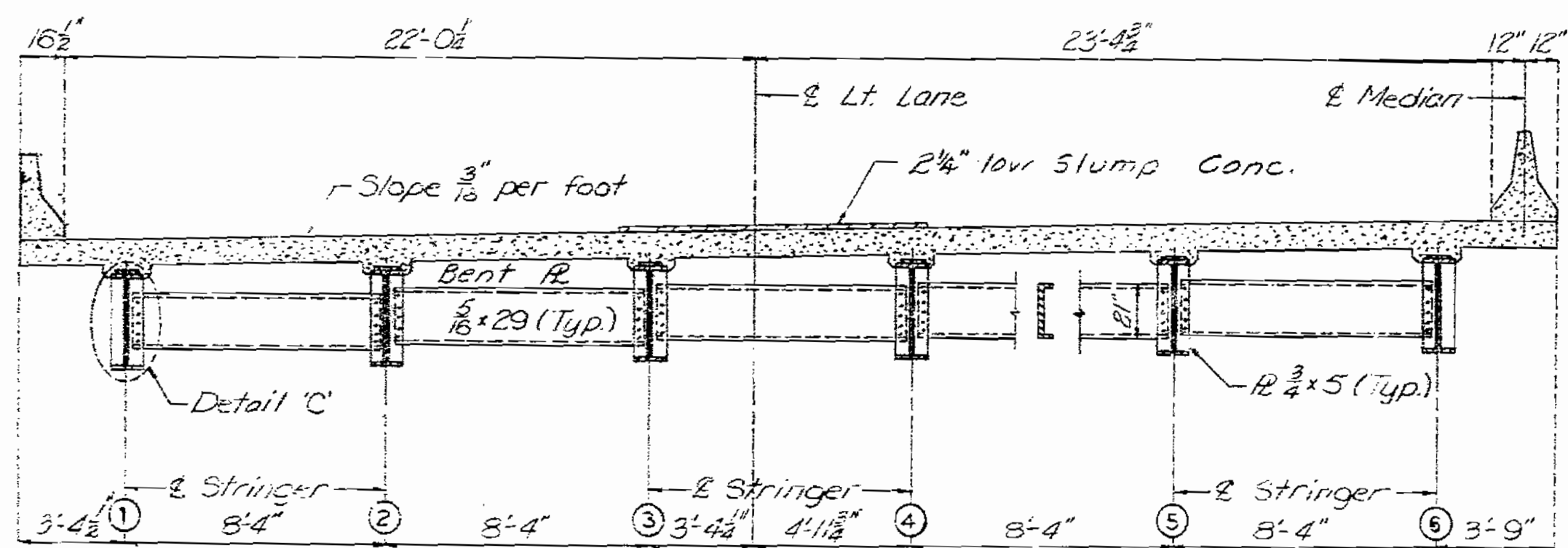
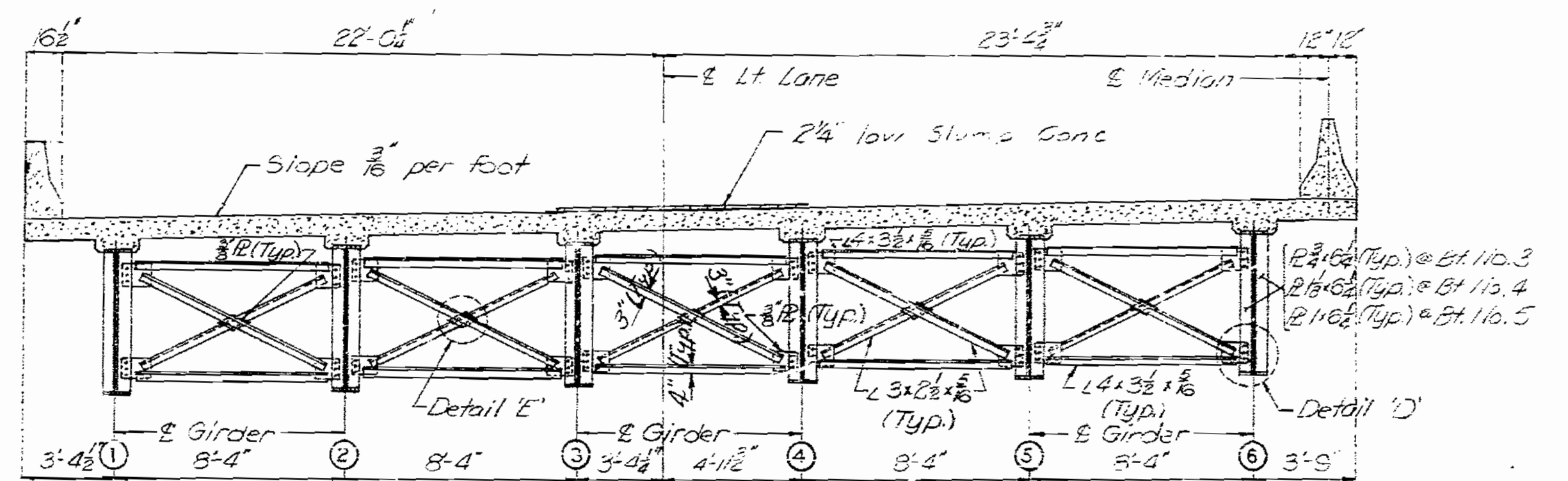
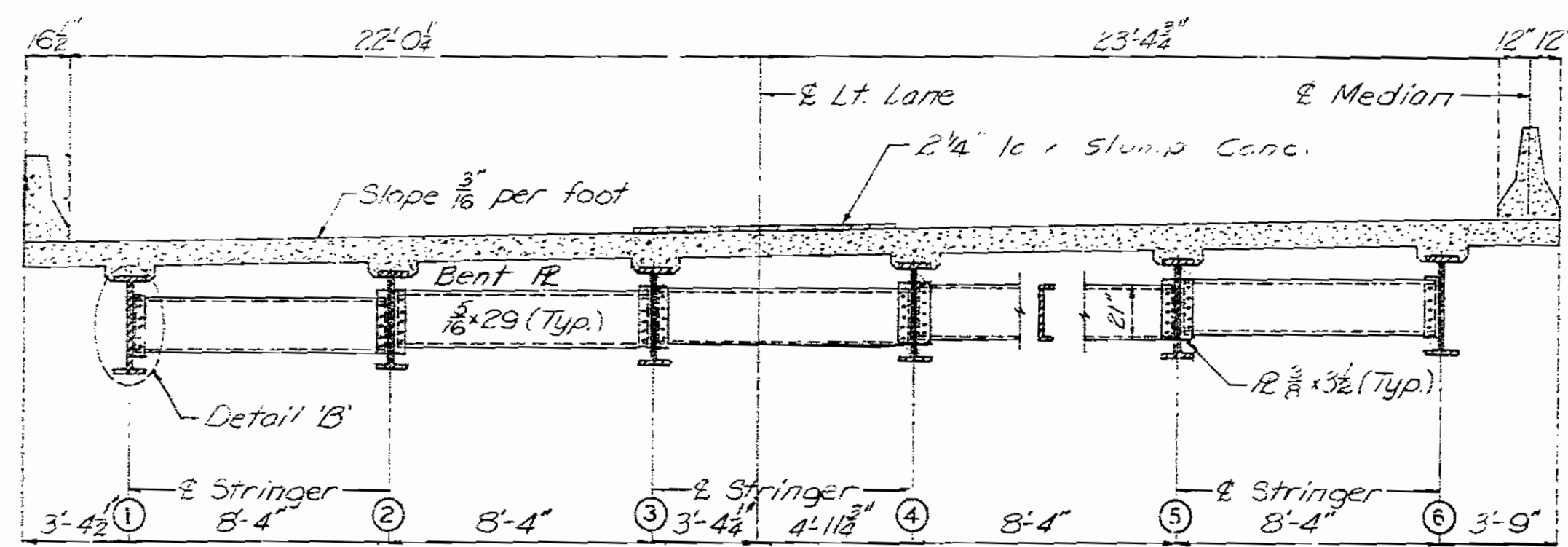
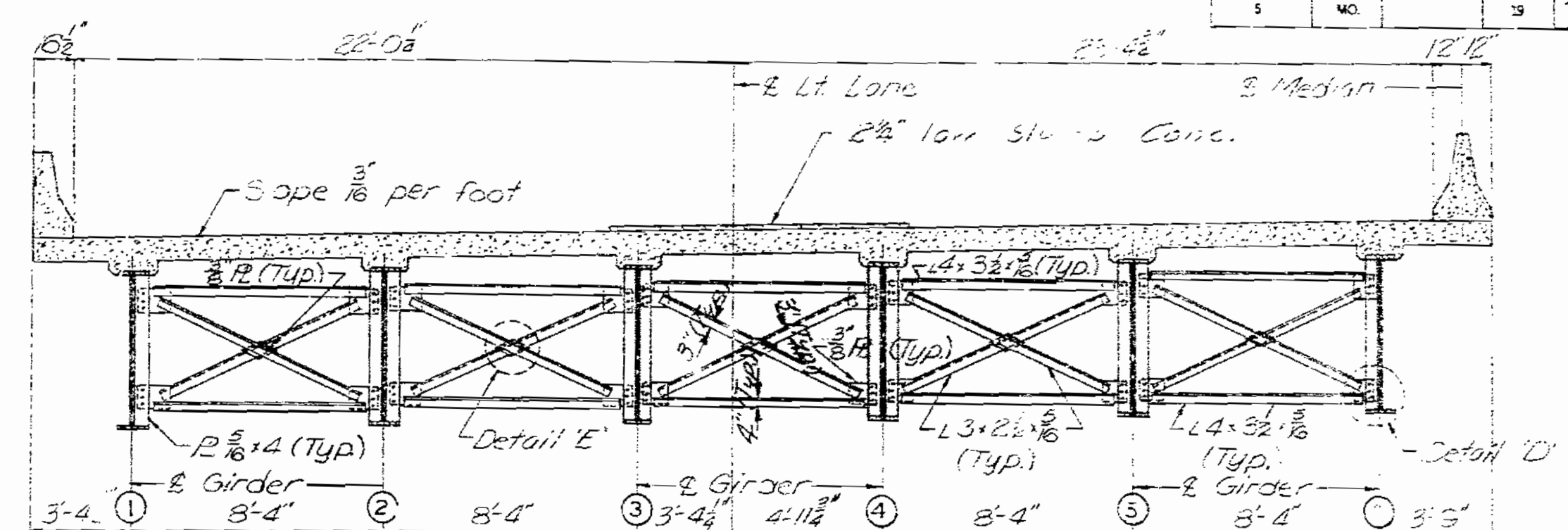
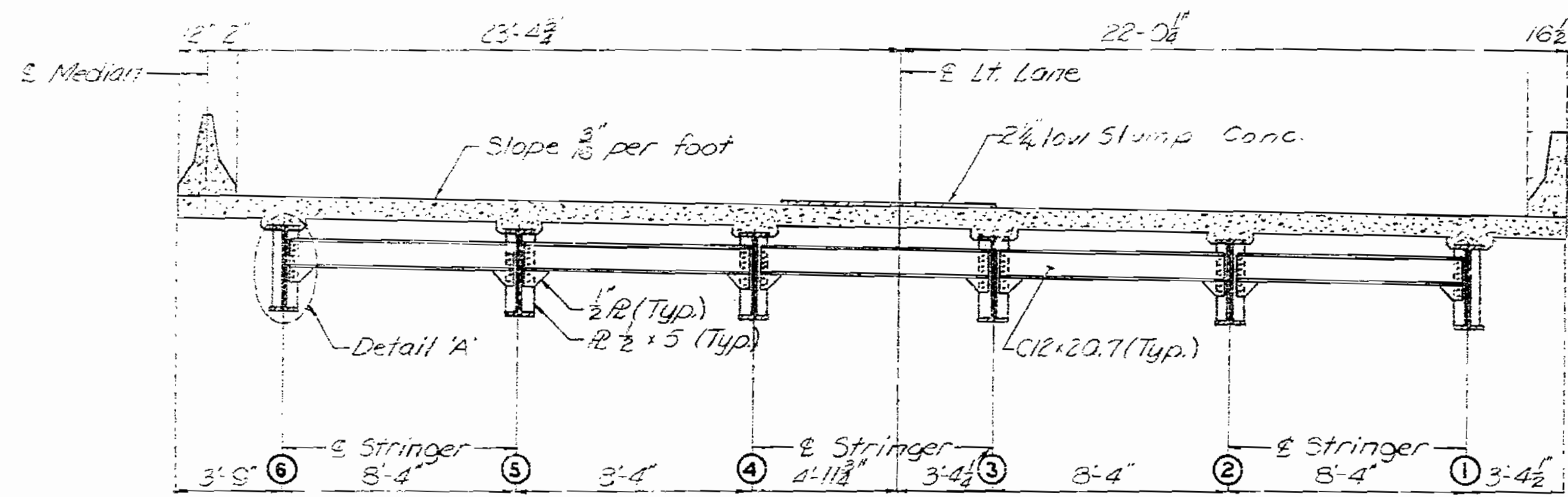


Note: Use 3/8" High strength Bolts with 1/16" reamed holes.

SPLICE LOCATION	TABLE OF DIMENSION - FIELD SPLICE										
	a	b	c	d	e	f	j	k	n	p	q
S3 Top	10"	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	3	3	10"	1/4"	12"
S3 Bottom	13"	1/2"	3'-6 1/2"	5 1/2"	5/8"	3'-6 1/2"	6	6			
S4 Top	10"	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	3	3	10	1/4"	12"
S4 Bottom	13"	1/2"	3'-6 1/2"	5 1/2"	5/8"	3'-6 1/2"	6	6			
S5 Top	10	3/8"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	3	3	10"	1/4"	12"
S5 Bottom	13"	1/2"	3'-6 1/2"	5 1/2"	5/8"	3'-6 1/2"	6	6			

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	72	



WIDE FLANGE SECTION

Note: For details and reinforcement of slab not shown, see sheets No. 22, 23  
 For details and reinforcement of Barrier Curb and median barrier not shown, see sheets No. 25, 26  
 For details of Diaph. at hinged connection see sheet No. 14.

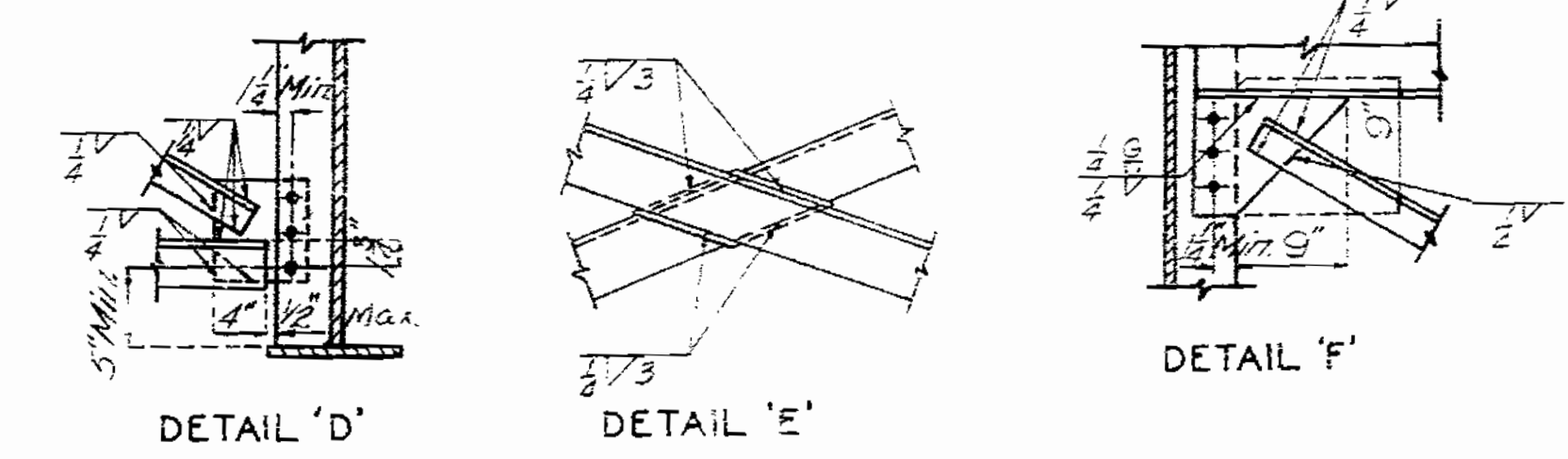


PLATE GIRDER SECTION

DETAILED DEC. 1973  
 CHECKED April 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet 25 of 26.

JACKSON

COUNTY

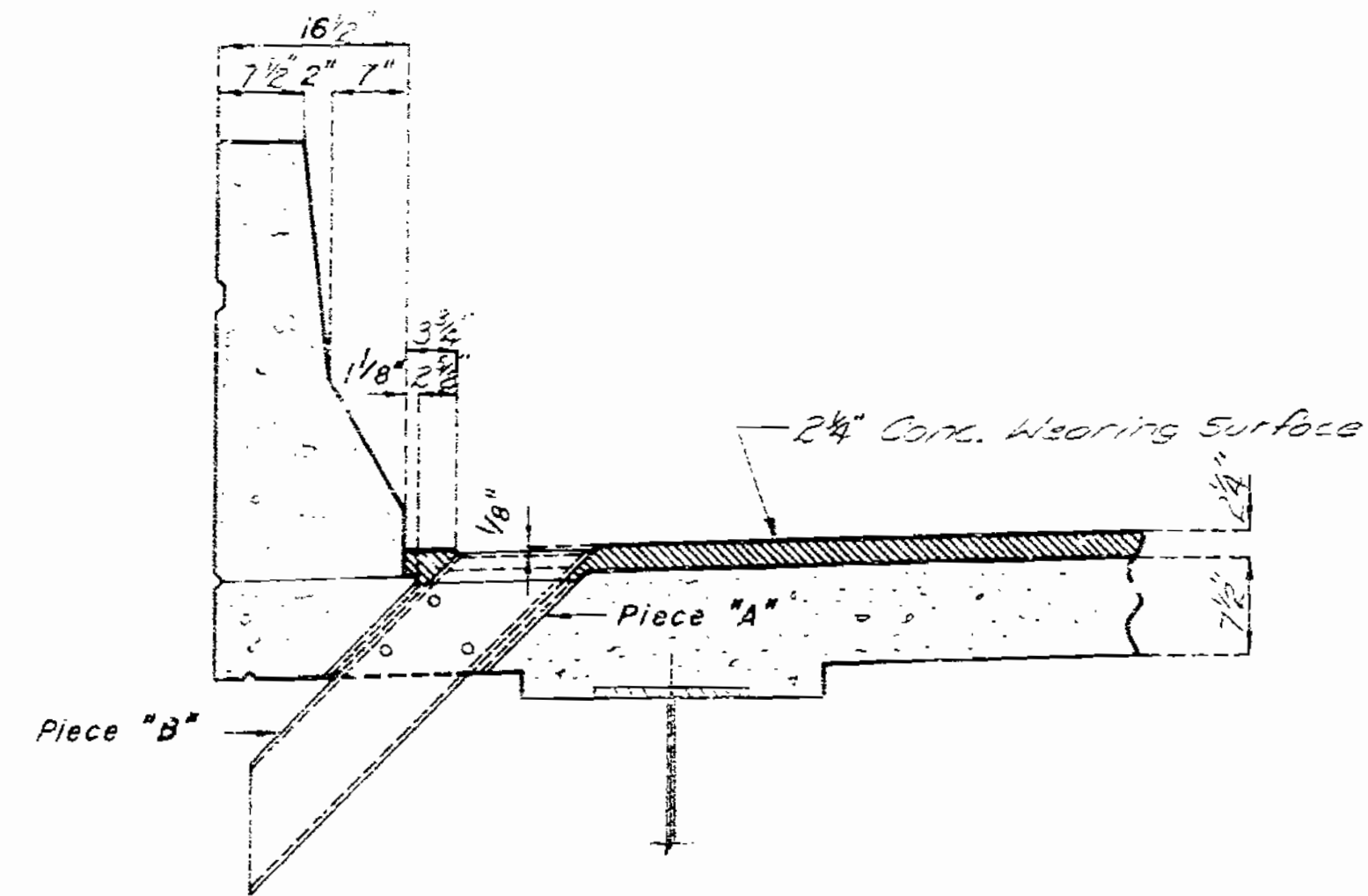
A-2513



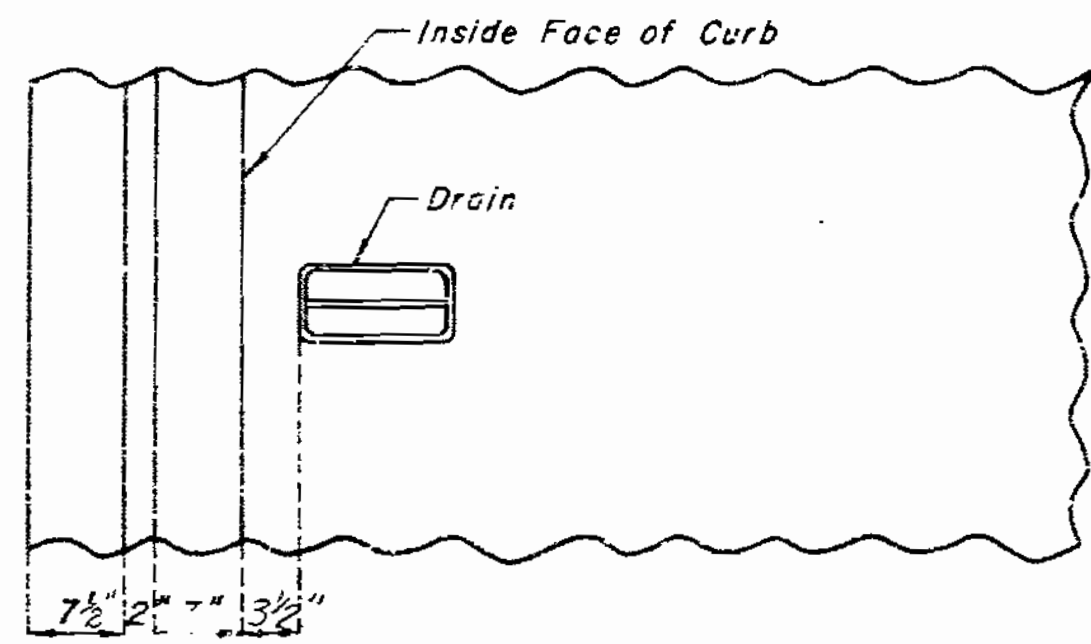


MISSOURI STATE HIGHWAY DEPARTMENT

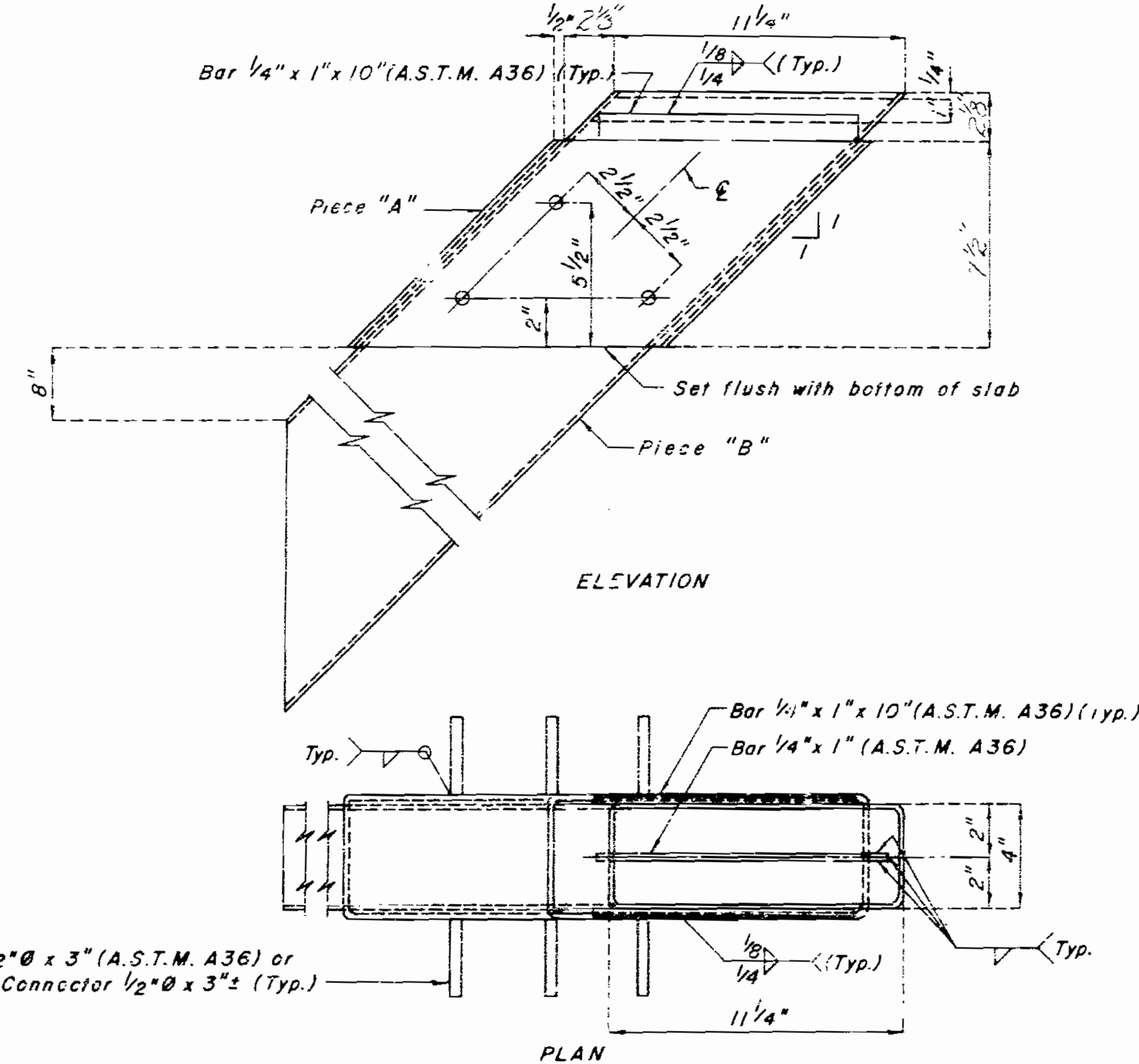
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		3	30	



PART ELEVATION OF SLAB



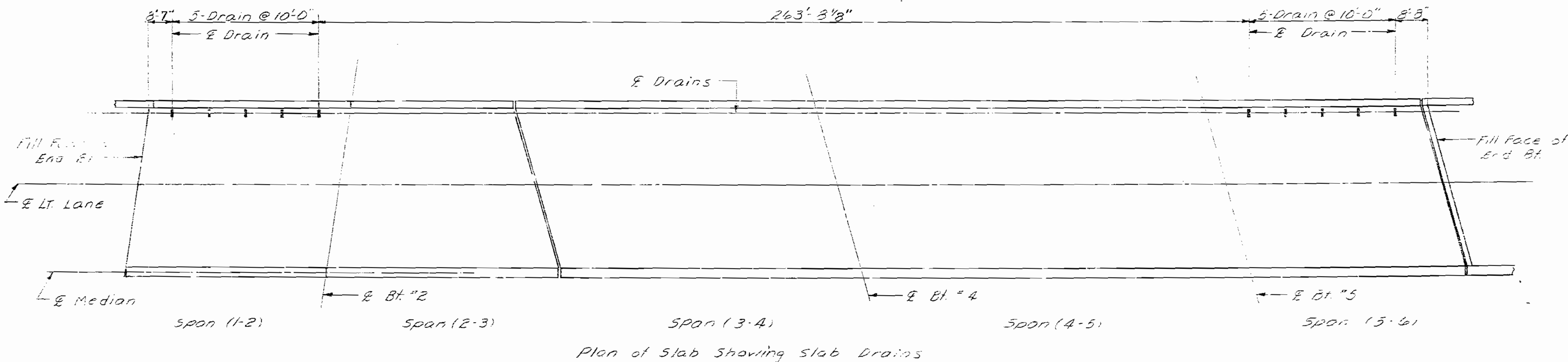
PART PLAN OF SLAB



SLAB DRAIN DETAILS

GENERAL NOTES:

- SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" WELDED SHEETS OF A.S.T.M. A36 STEEL OR FROM 1/4" STRUCTURAL STEEL TYPING A.S.T.M. A501 OF A501.
- OUTSIDE DIMENSION OF DRAINS ARE, PIECE "A" 8-3/4" x 4-3/4", PIECE "B" 8" x 4".
- PIECE "A" SHALL BE CAST IN THE CONCRETE PRIOR TO PLACEMENT OF LOW SLUMP OR DOW LATEX. PIECE "B" SHALL BE INSERTED IN PIECE "A".
- LOCATE PIECE "A" IN SLAB BY DIMENSIONS SHOWN IN PART ELEVATION.
- SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.
- PIECES "A" AND "B" SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.
- SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.
- Cost of furnishing, fabricating, galvanizing and erecting drains, complete in place, shall be included in price bid for slab drains.



Plan of Slab Showing Slab Drains

STD. S. D. - W.S. RE. SED  
 FEB. 1975 MA. 1978

DETAILED AUG. 1978  
 CHECKED 19

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 26.

JACKSON

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO		68	21	

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS SPECIFIED IN THE TABLE OF DIMENSIONS. RETURN TO 9' FOOT POUNDS A MINIMUM 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL, NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL, APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CURB IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

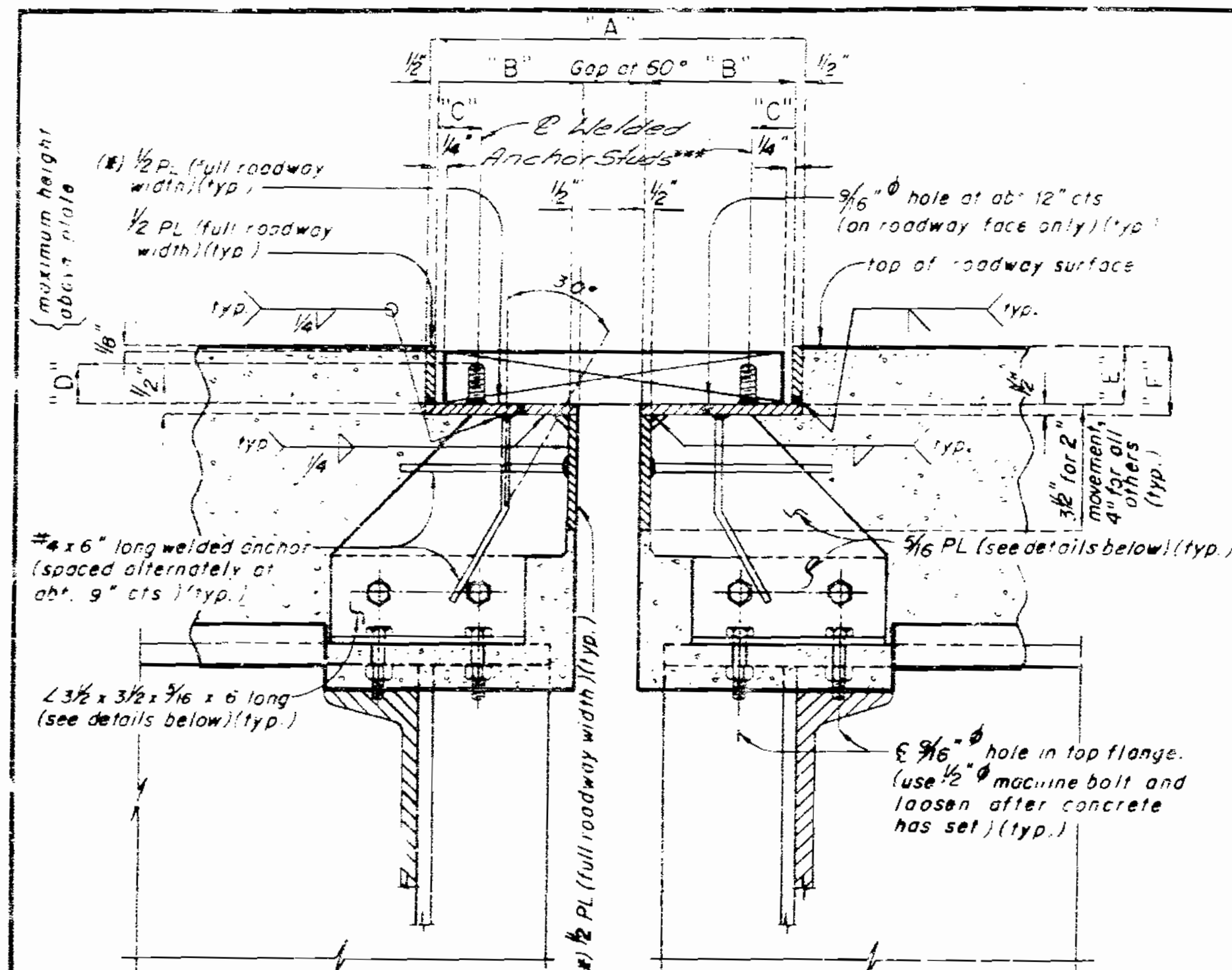
FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT BID PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT PRICE BID FOR OTHER ITEMS.

TABLE OF DIMENSIONS

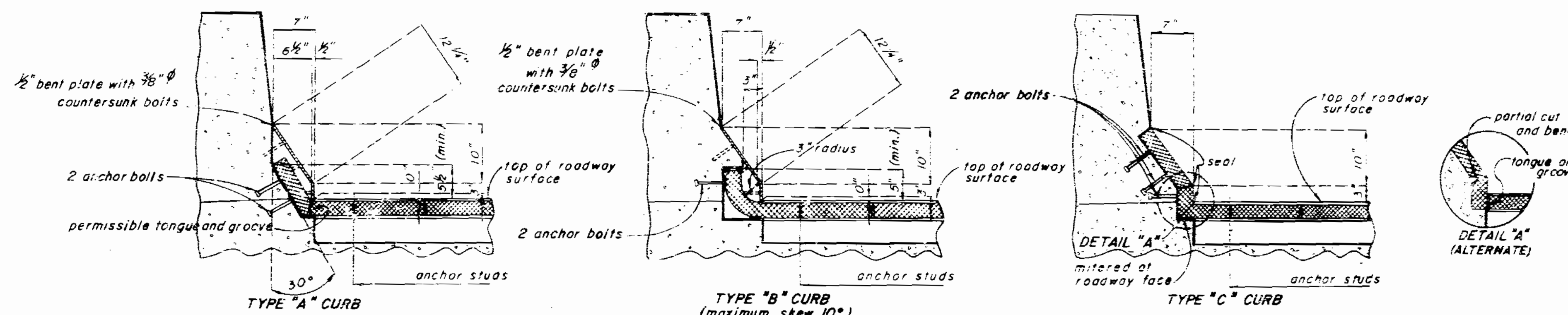
LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE * 8"
BT# 3	FEL-500A T20	1 3/8"	11 1/16"	4 1/2"	1 3/8"	1"	1 1/16"	1 13/16"	1/2" 50
	DN-FLEX 25	1 1/2"	11"	4 1/4"	1 3/8"	1 1/4"	1 1/16"	2 3/16"	1/2" 65
	TRANSFLEX 200A	1 3/8"	12 1/2"	4 1/16"	1 3/8"	1 1/4"	1 3/16"	2 1/4"	1/2" 40
	WABO-ELASTODAM 200	1 1/4"	11 1/4"	4 1/2"	1 5/8"	1"	1 1/16"	1 13/16"	1/2" 20

NOTE: All dimensions are at right angles. Expansion gap and dimension "A" shall be increased for each 10° fall in temperature and decreased for each 10° rise in temperature.

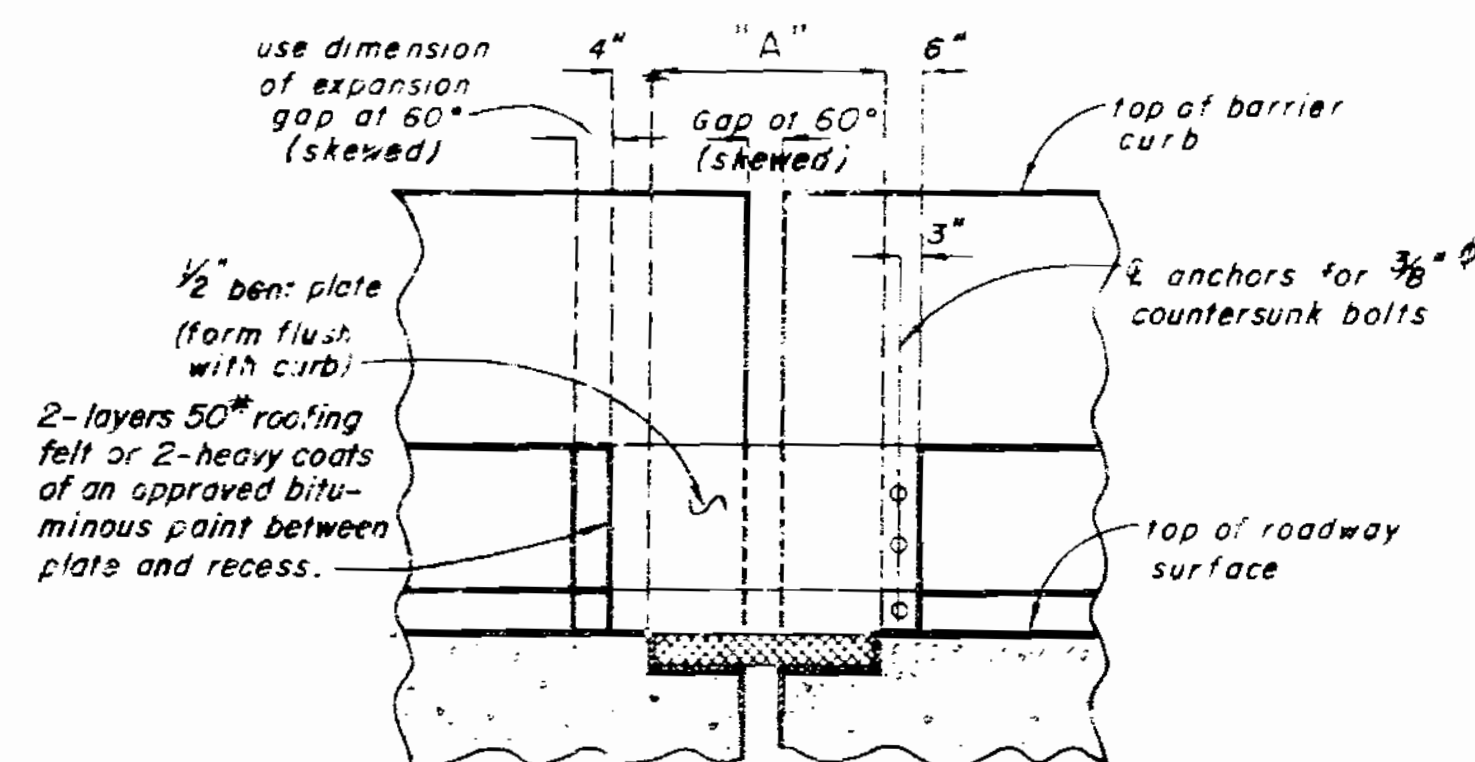


\*\*\* The welded anchor studs shall be the reduced base type. (\*) these plates may be one piece by using legs of equal or unequal angles.

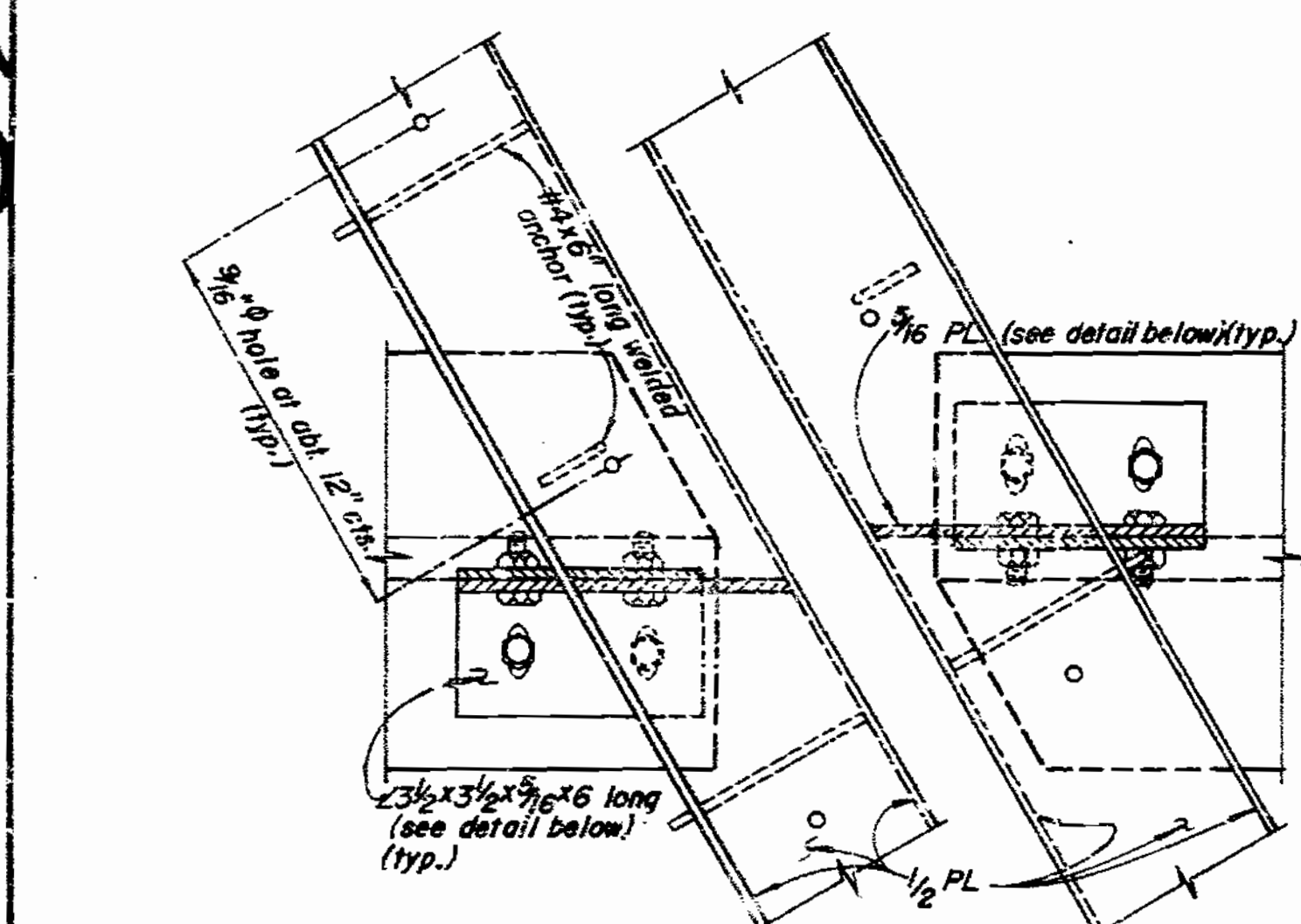
PART SECTION THRU ARMORED JOINT



ALTERNATE CURB TREATMENTS

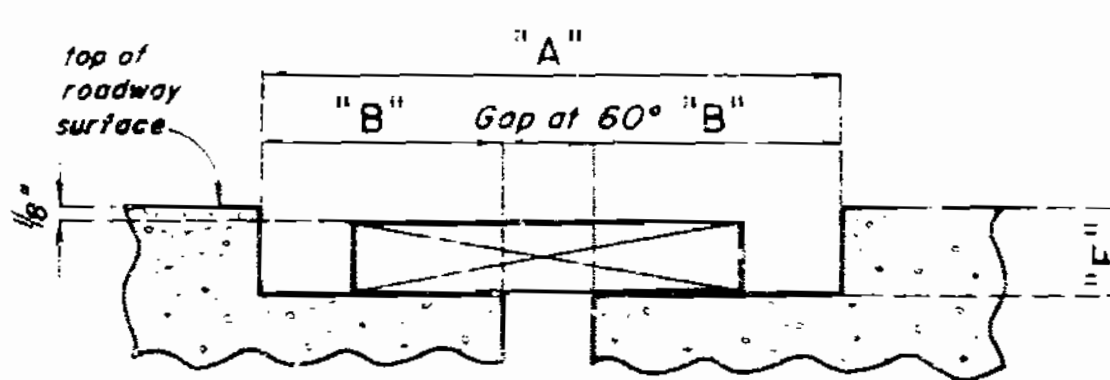


PART ELEVATION OF BARRIER CURB



PART PLAN

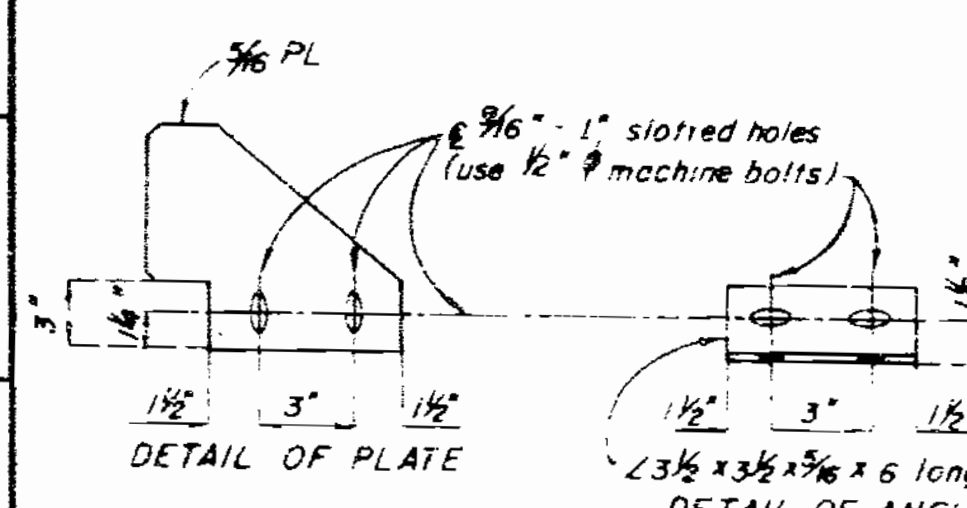
Notes: 3/16 inch plates placed at each side.



BLOCKOUT FOR MODULAR UNITS

NOTE: WHEN MODULAR UNITS ARE SPECIFIED AS AN ALTERNATE STEEL CURB PLATE TREATMENTS ARE REQUIRED.

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 3



DETAIL OF PLATE

DETAIL OF ANGLE

SPS-INT-BT. REVISED FEB. 1978 AUG. 1978

DETAILED 2-9-1978 CHECKED 19

Note: This drawing is not to scale. Follow dimensions

Sheet No 20 of 26

JACKSON COUNTY

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO		19	2	

TABLE OF DIMENSIONS

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	"G"
BH "6"	FIL-SPAN 720	1 3/8"	11 3/16"	4 1/2"	1 3/8"	1"	1 1/16"	1 1/16"	1/2"	30
	ON-FLEX 23	1 1/2"	11"	4 1/4"	1 3/8"	1 1/4"	1 1/16"	2 3/16"	1/2"	16-5
	TRANSFIX 200A	1 1/8"	12 1/4"	4 1/4"	1 3/8"	1 1/4"	1 3/16"	2 1/2"	1/2"	40
	WABD-ELASTODAM 200	1 1/4"	11 1/4"	4 1/2"	1 3/8"	1"	1 1/16"	1 1/16"	1/2"	40

NOTE: All dimensions are at right angles. Expansion gap and dimension "A" shall be increased for each 10° fall in temperature and decreased for each 10° rise in temperature.

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS OR SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "C" FOOT POUNDS A MINIMUM OF 24 HOURS AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDDED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL, NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL, APPROVED SIZE WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

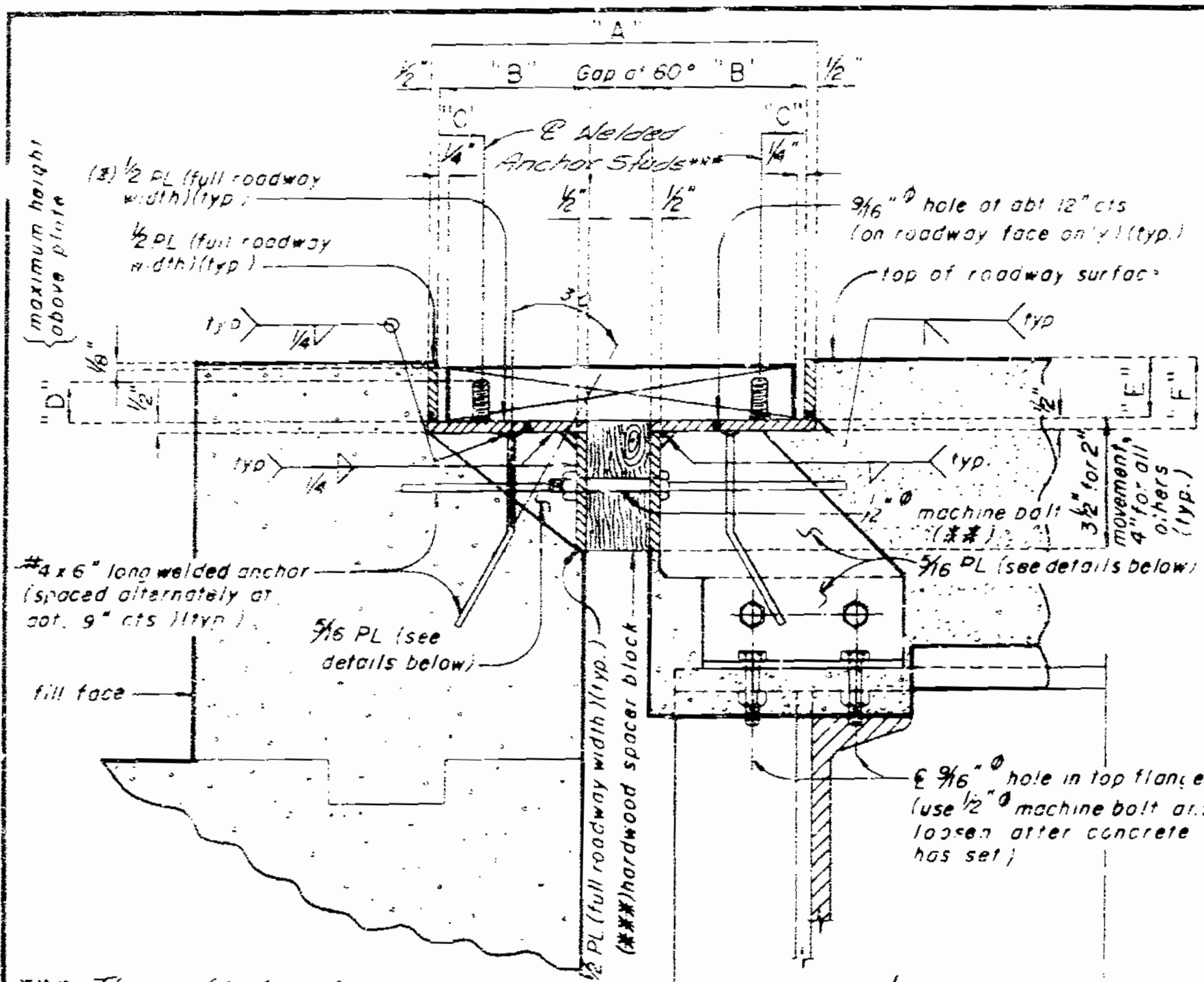
PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

PLATES SHALL BE FIELD ADJUSTED BY ADDING OR REMOVING METAL SHIMS (2" x 2"), AS REQUIRED FOR TEMPERATURE CORRECTION. THE EXPANSION GAP SHALL BE ADJUSTED FOR ANY TEMPERATURE CORRECTION PRIOR TO POURING TOP OF END BENT BACKWALL.

CONTACT SURFACE OF STEEL OR ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT BID PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT PRICE BID FOR OTHER ITEMS.

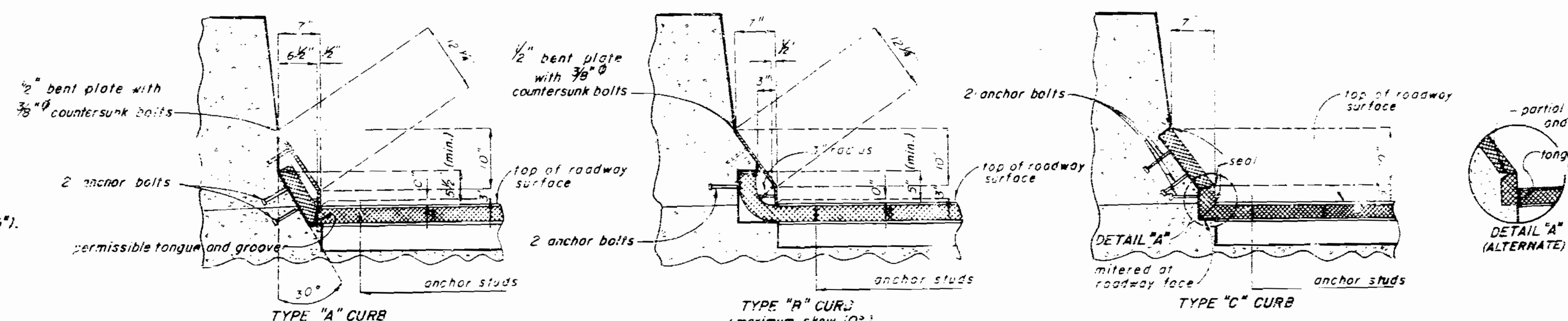


PART SECTION THRU ARMORED JOINT

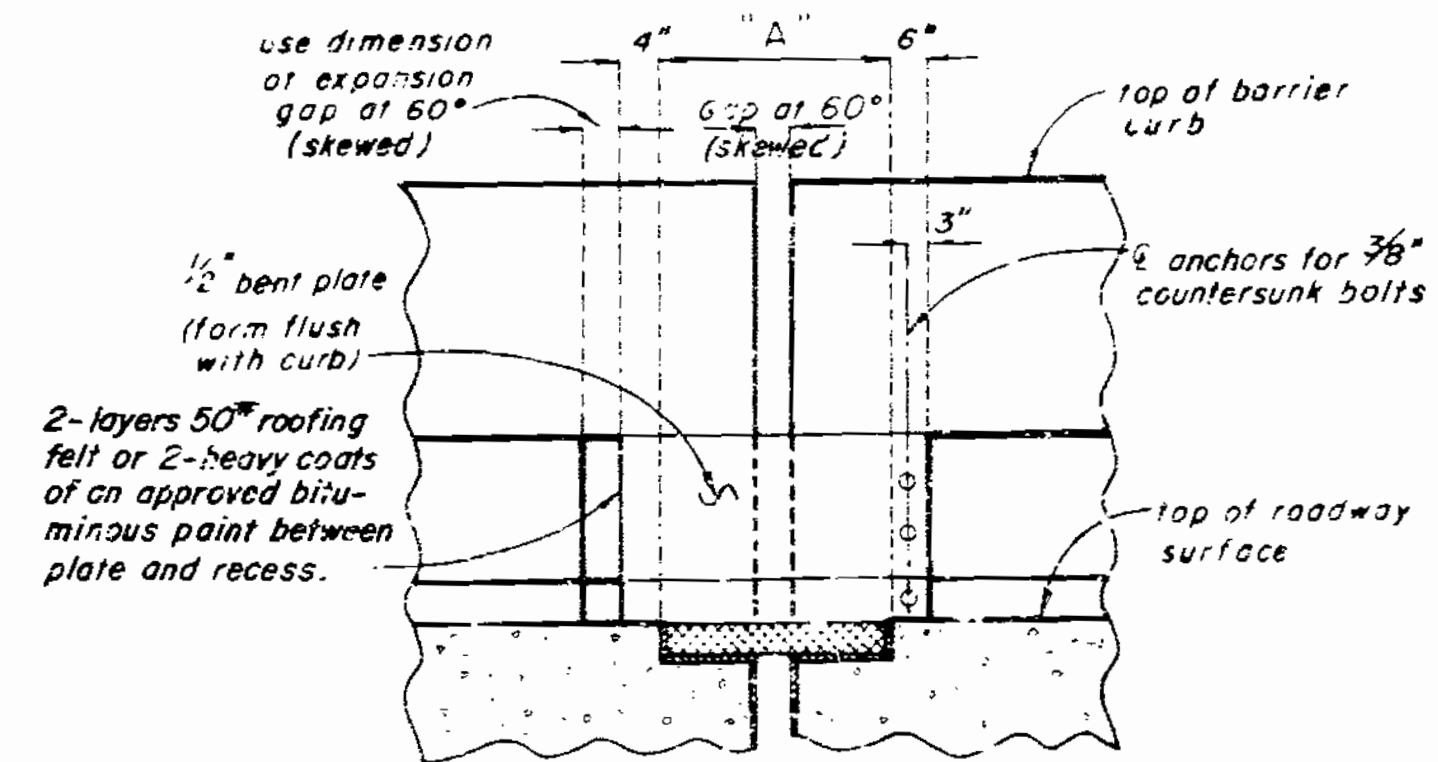
\*\*\* The welded anchor studs shall be the reduced base type.

(\*) these plates may be one piece by using legs of equal or unequal angles.

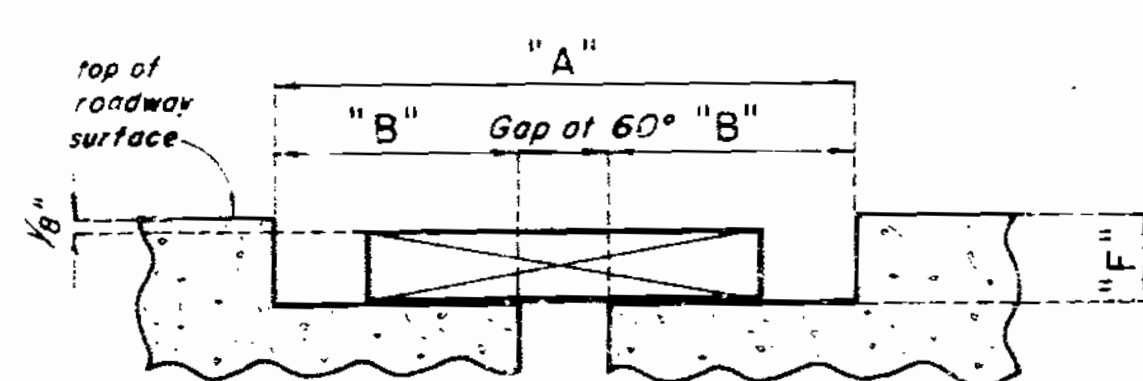
(\*\*\*) spacer may be a combination of a hardwood block and metal shims (2"x3").



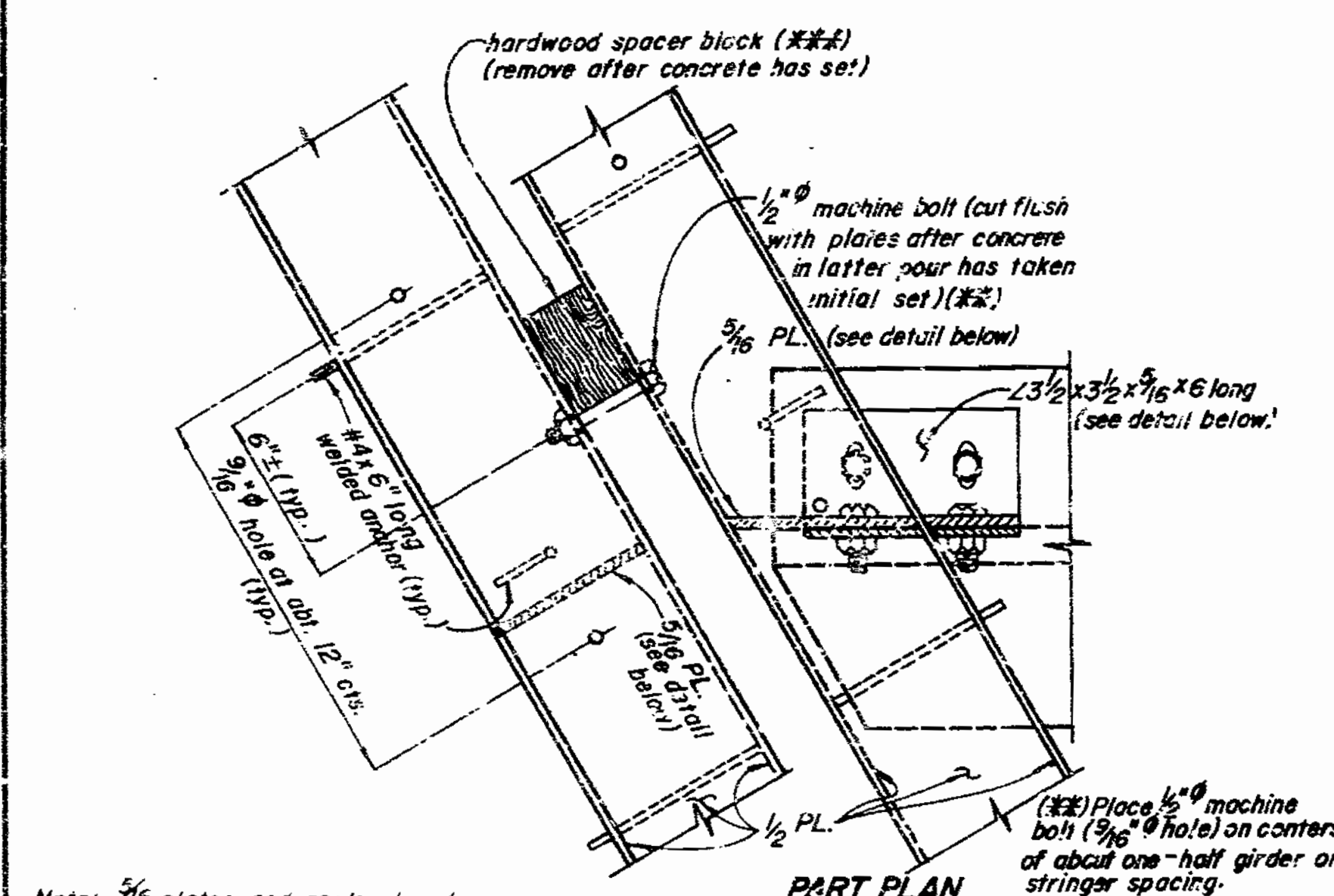
ALTERNATE CURB TREATMENTS



PART ELEVATION OF BARRIER CURB

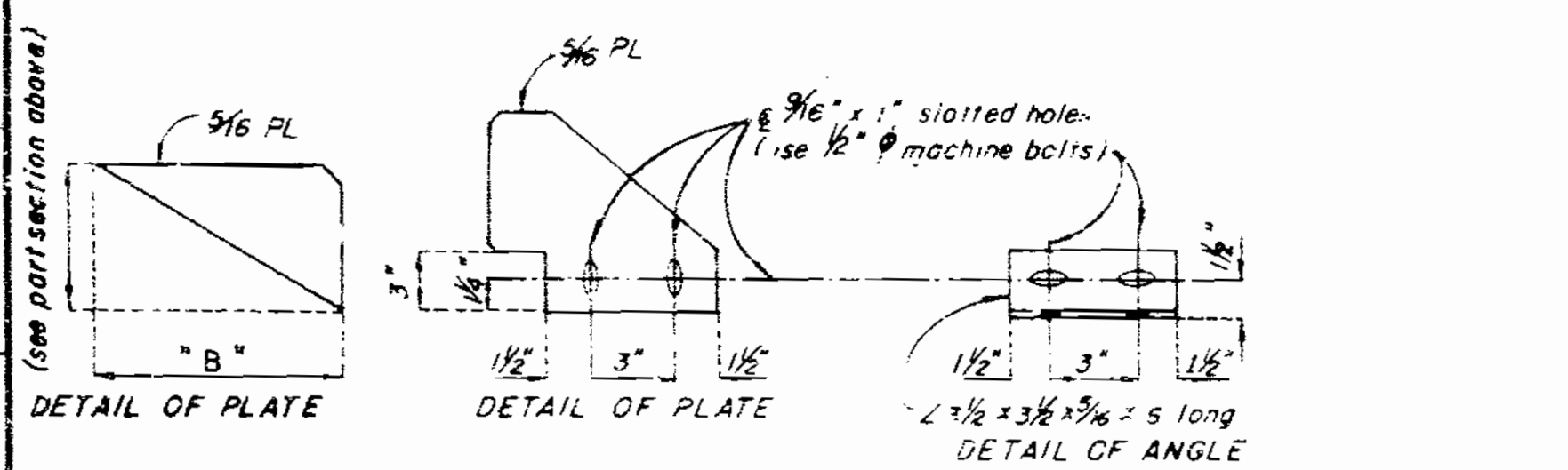


BLOCKOUT FOR MODULAR UNITS  
NOTE: WHEN MODULAR UNITS ARE SPECIFIED AS AN ALTERNATE STEEL CURB PLATE TREATMENTS ARE REQUIRED.



PART PLAN

Note: 5/16 plates and angle placed at each girder or stringer.



DETAIL OF PLATE

DETAIL OF PLATE

DETAIL OF ANGLE

Note: This drawing is not to scale. Follow dimensions.

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 6

Sheet No. 21 of 26.

JACKSON COUNTY

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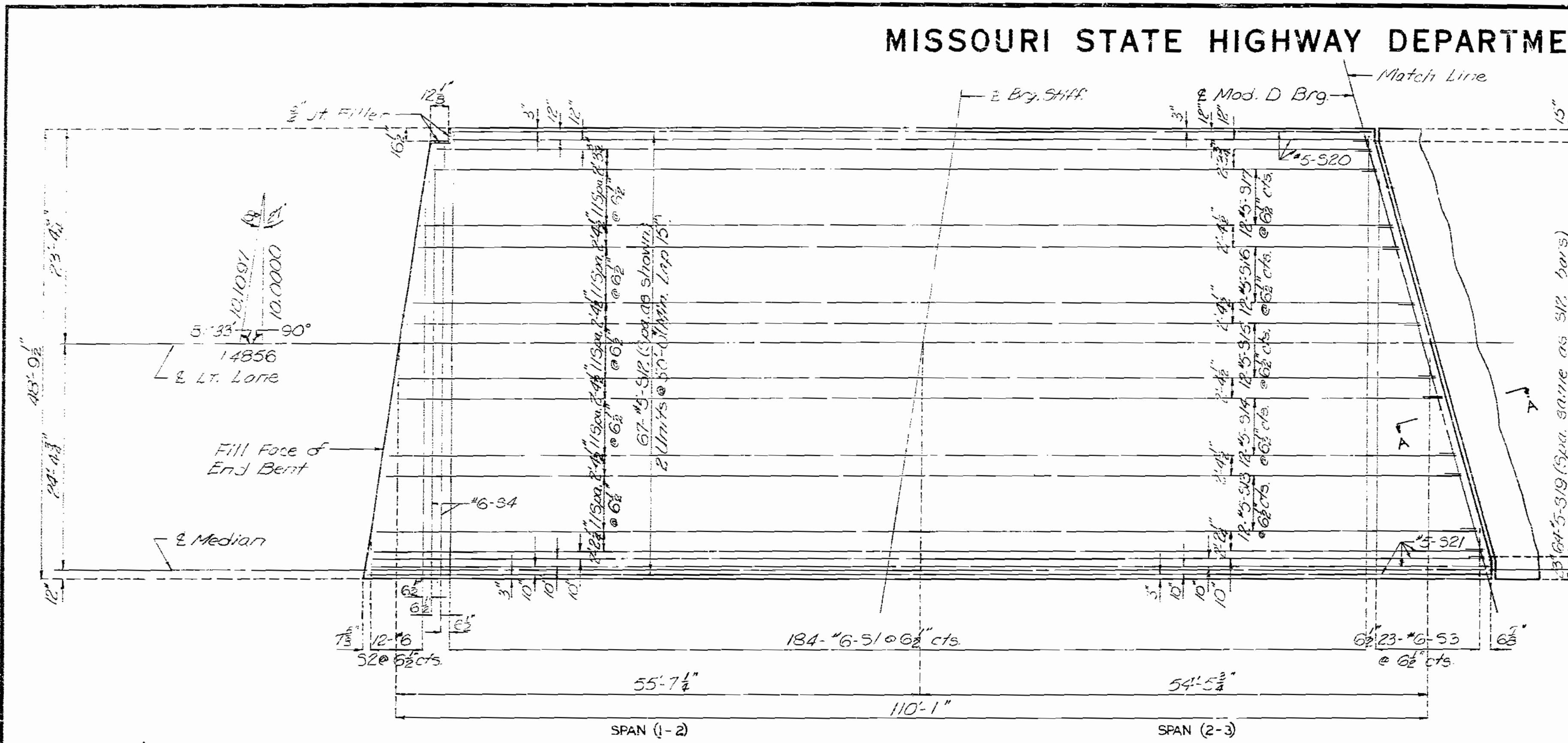
SPS-END-BT. REVISED FEB. 1978 AUG. 1978

DETAILED Aug 1978  
CHECKED 19

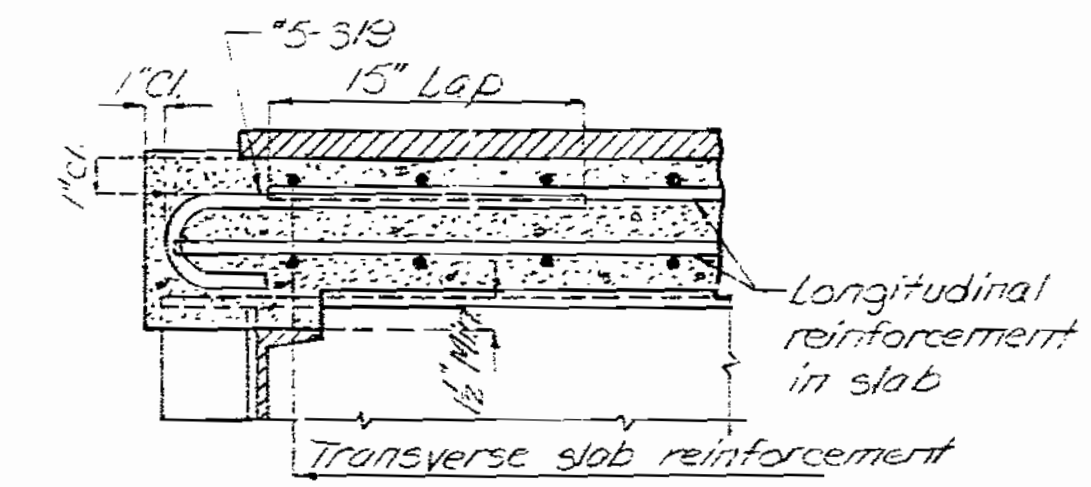


MISSOURI STATE HIGHWAY DEPARTMENT

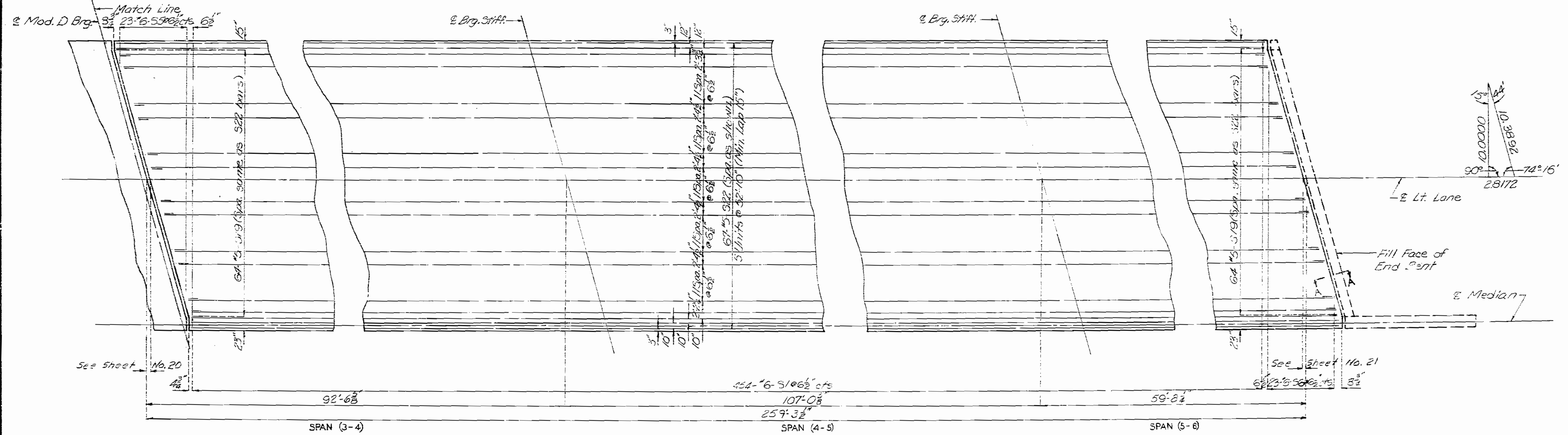
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	31	



Note: Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1" from Exp. Device.  
 Longitudinal dimensions shown are taken parallel to grade at E of roadway.  
 For Section thru Slab and Slab Pouring Sequence, see Sheet No. 22.  
 For Plan of Slab showing Top Reinforcement, see Sheet No. 20.



SECTION A-A



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

DETAILED NOV. 1973  
 CHECKED APRIL 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 23 of 26.

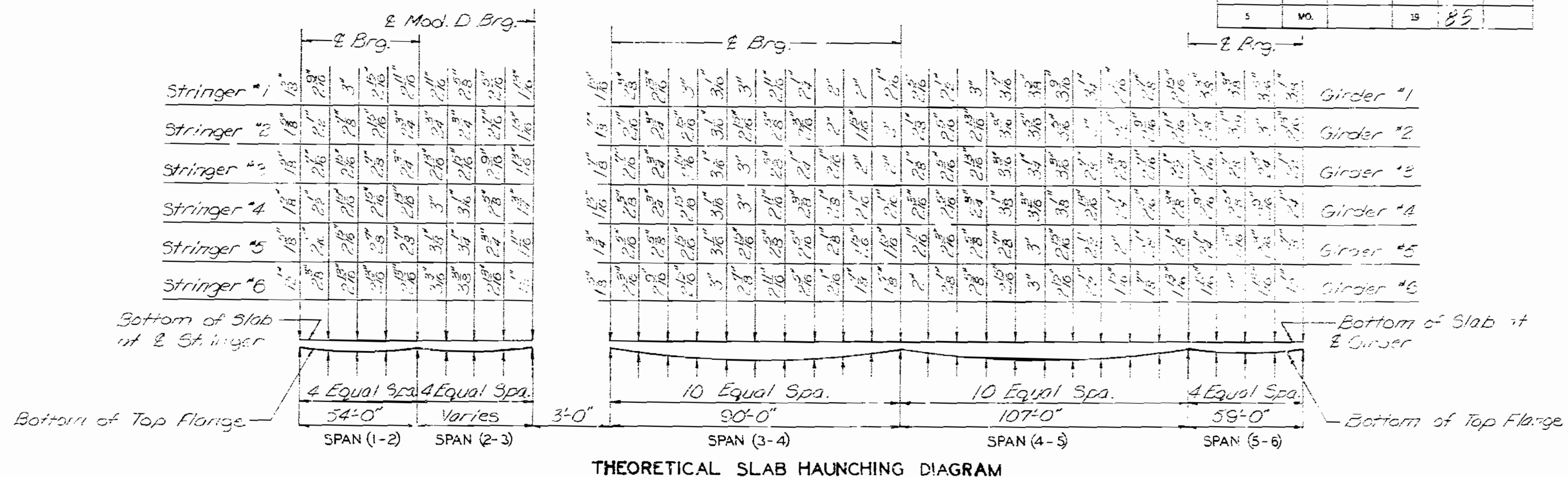
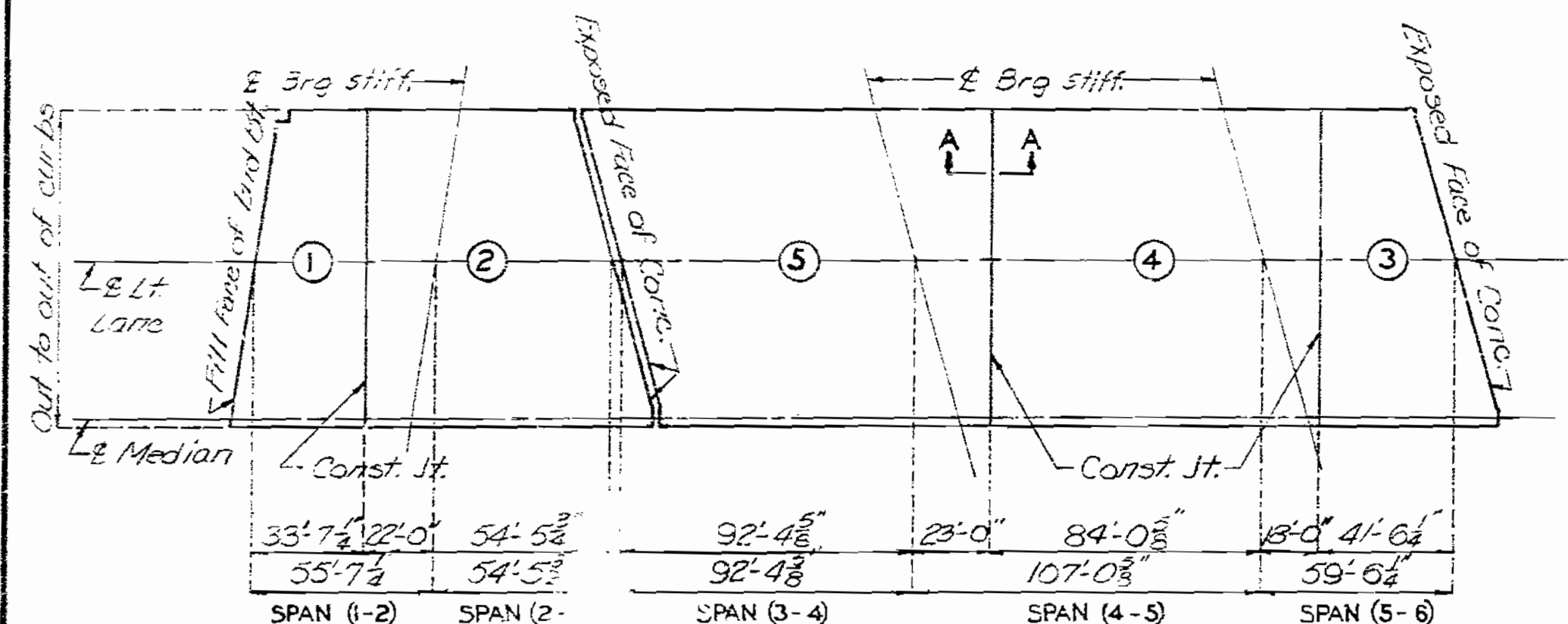
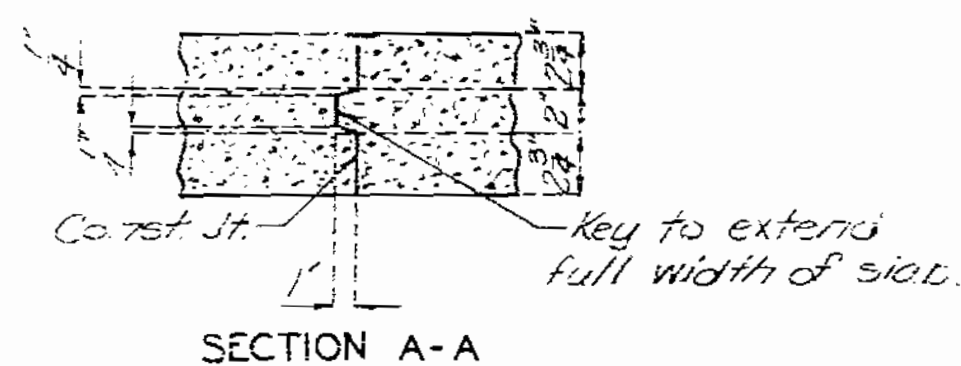
JACKSON

COUNTY

A-2513

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	25	



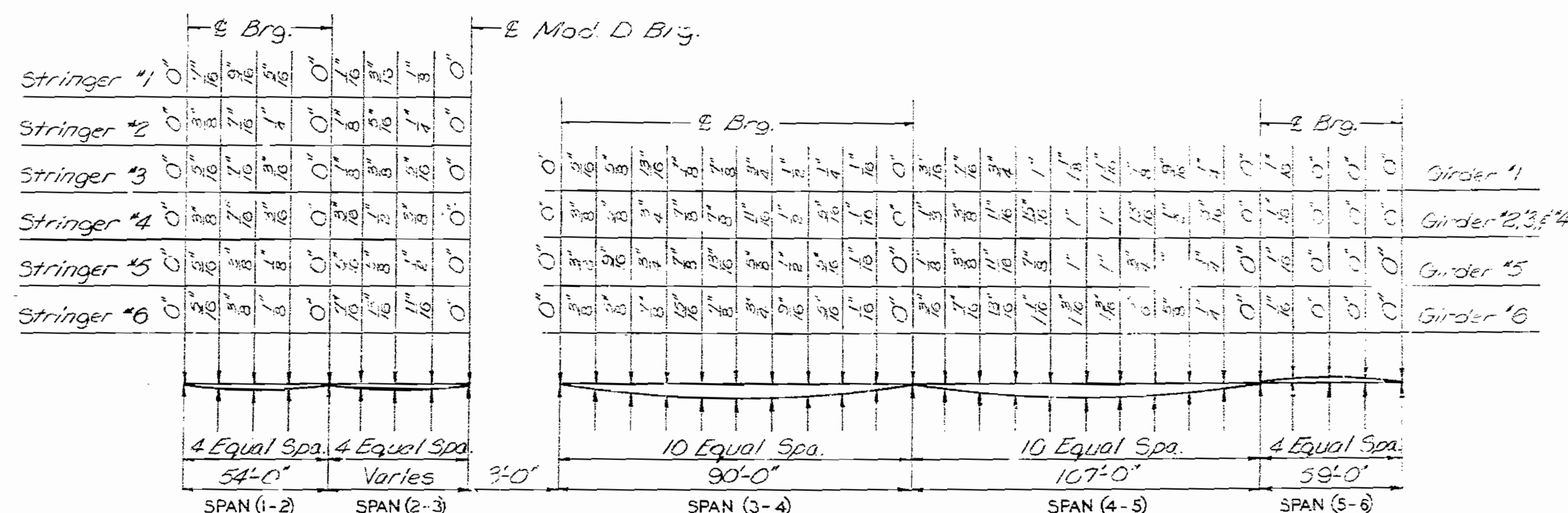
	Sequence of Pours	
	Direction	
Basic Sequence	1 to 2	1 to End
Alternate "A" Pours	1+2 to End to End	

	Sequence of Pours		
	Direction		
Basic Sequence	3 to 4	3 to 5	4 to End
Alternate "A" Pours	3+4 to 5		4 to End
Alternate "B" Pours	3+4+5 to End to End		

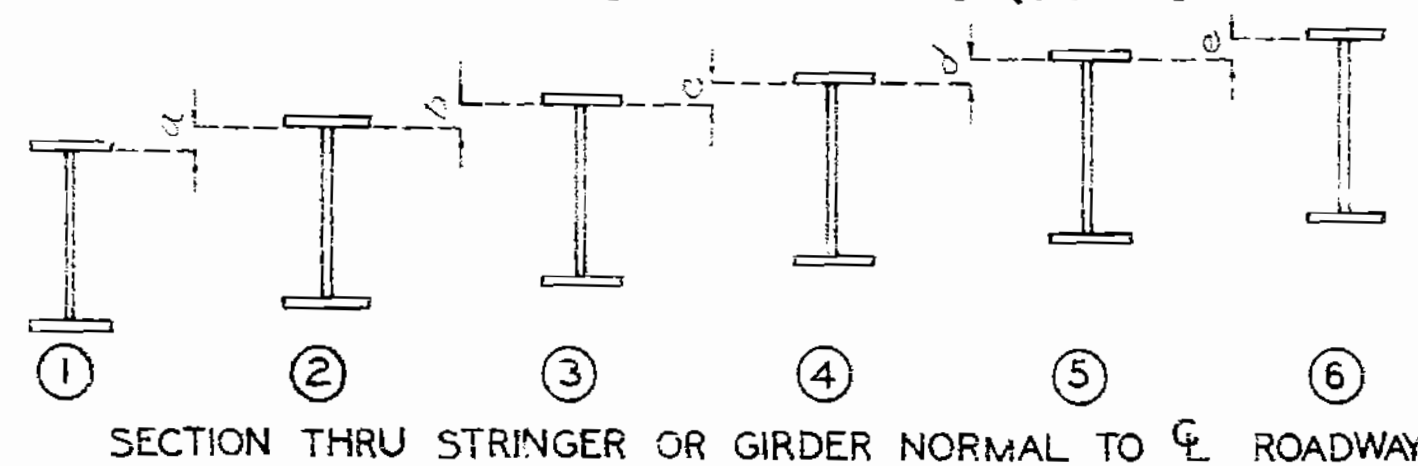
Note: The contractor shall complete pours 1 & 2 before starting pours 3, 4 & 5.

The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 44 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 26 cubic yards per hour.

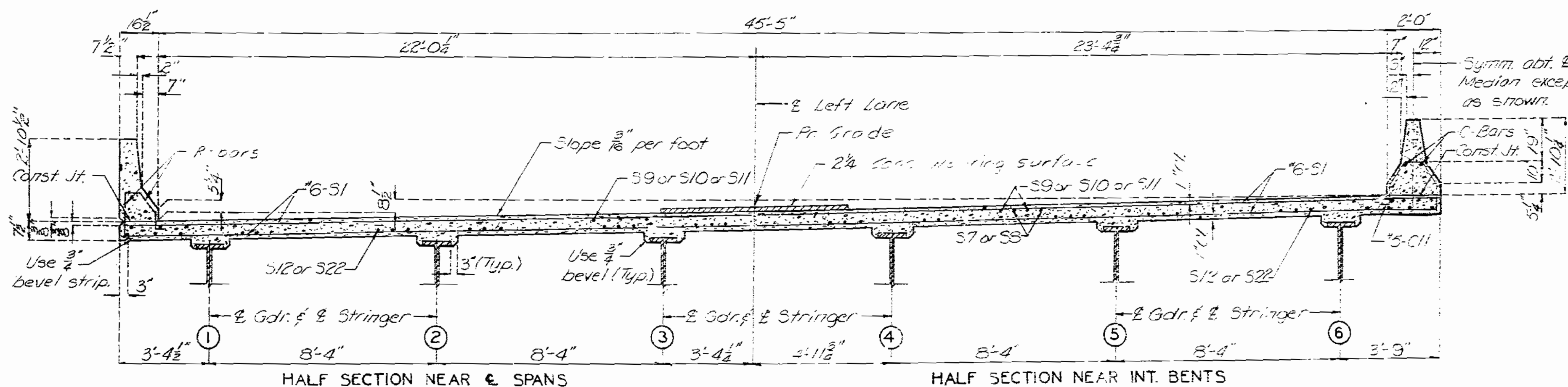
Note: The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at a rate of not less than 37 cubic yards per hour.



SLAB POURING SEQUENCES



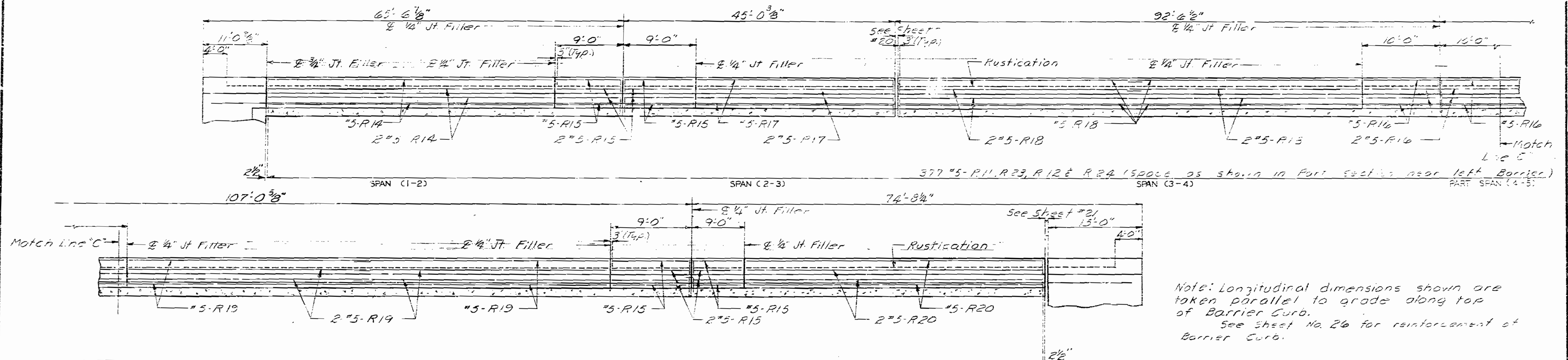
LOCATION	a	b	c	d	e
St. No. 1 to 2 Mod. D Brg.	1/2"	1/2"	1/2"	1/2"	1/8"
2 Mod. D Brg. to Splice S3	Varies				
Splice S3 to Splice S4	1/16"	1/8"	1/2"	1/8"	1/8"
Splice S4 to Splice S5	1/8"	1/8"	1/8"	1/2"	1/16"
Splice S5 to St. No. 6	1/8"	1/2"	1/2"	1/8"	1/8"



Note: For details and reinforcement of curb, parapet and median barrier not shown, see sheets No. 23, 24

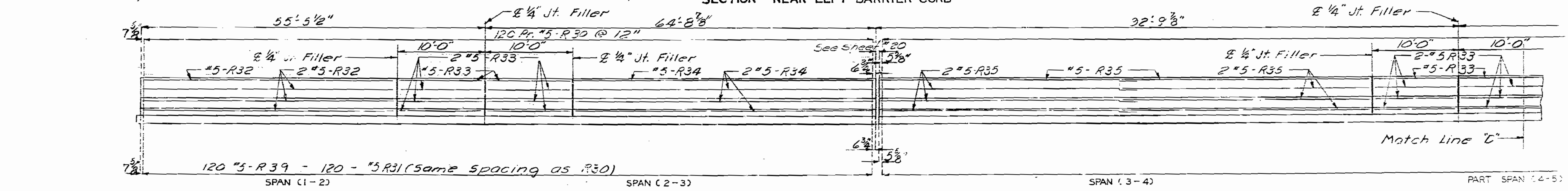
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MO.		73	86	



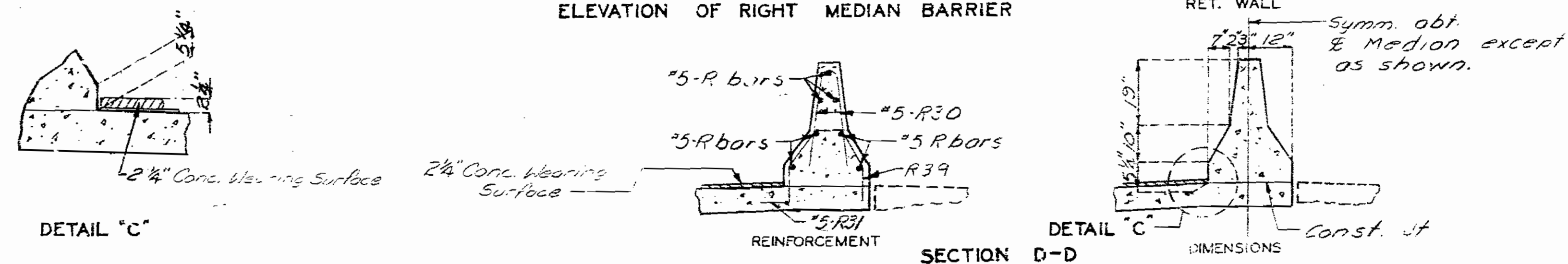
Note: Longitudinal dimensions shown are taken parallel to grade along top of Barrier Curb.  
See sheet No. 26 for reinforcement of Barrier Curb.

SECTION NEAR LEFT BARRIER CURB



Note: Longitudinal dimensions shown are taken parallel to grade along top of Median Barrier.

ELEVATION OF RIGHT MEDIAN BARRIER



DETAIL 'C'

SECTION D-D

DETAIL 'C'

DIMENSIONS

DETAILED Dec 1973  
CHECKED MAY 1979

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 25 of 26.

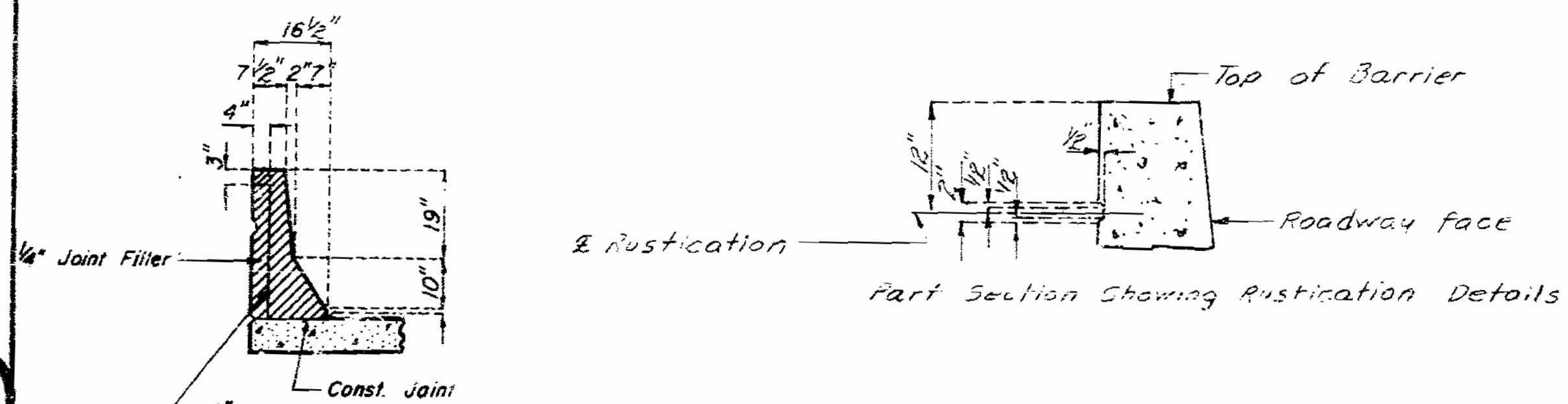
JACKSON

COUNTY

A-2513

MISSOURI STATE HIGHWAY DEPARTMENT

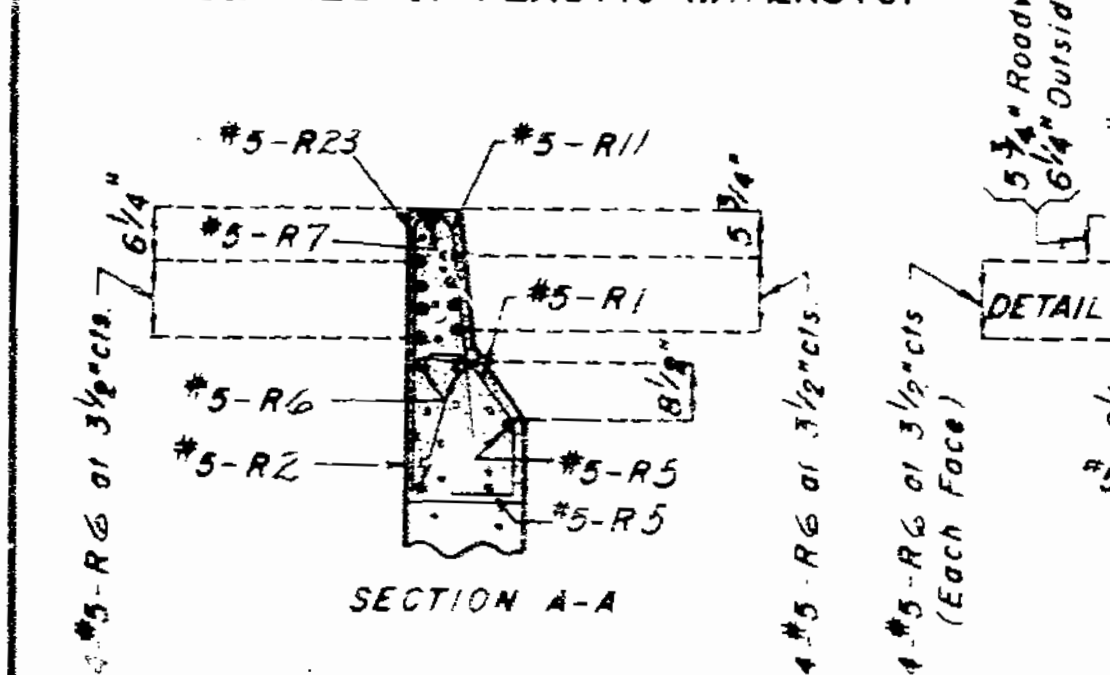
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		1978	27	



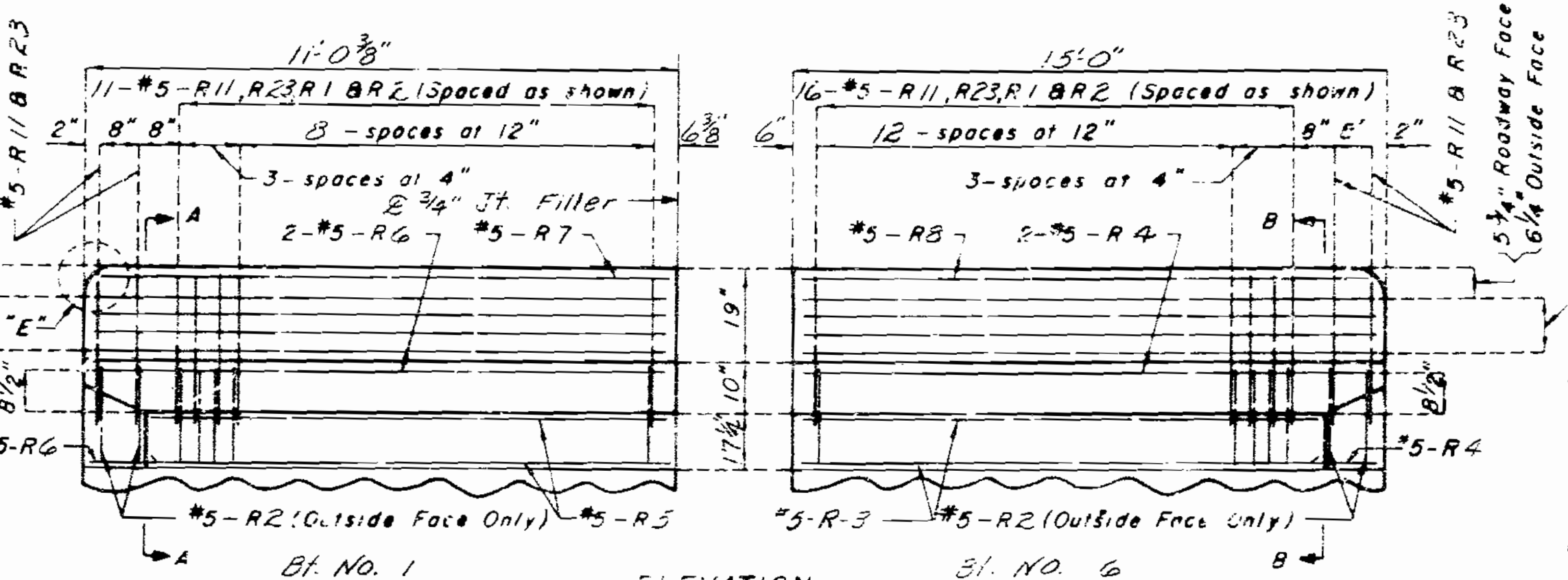
Part Section Showing Rustication Details

Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.  
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP

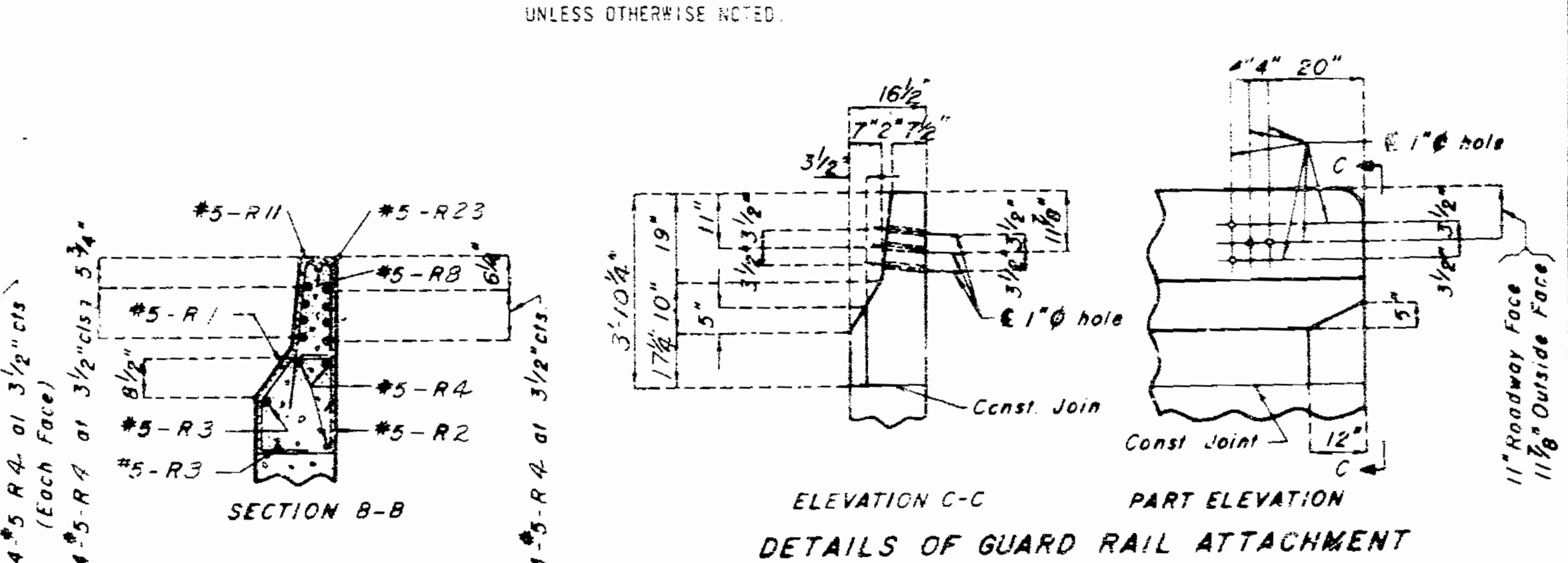


SECTION A-A

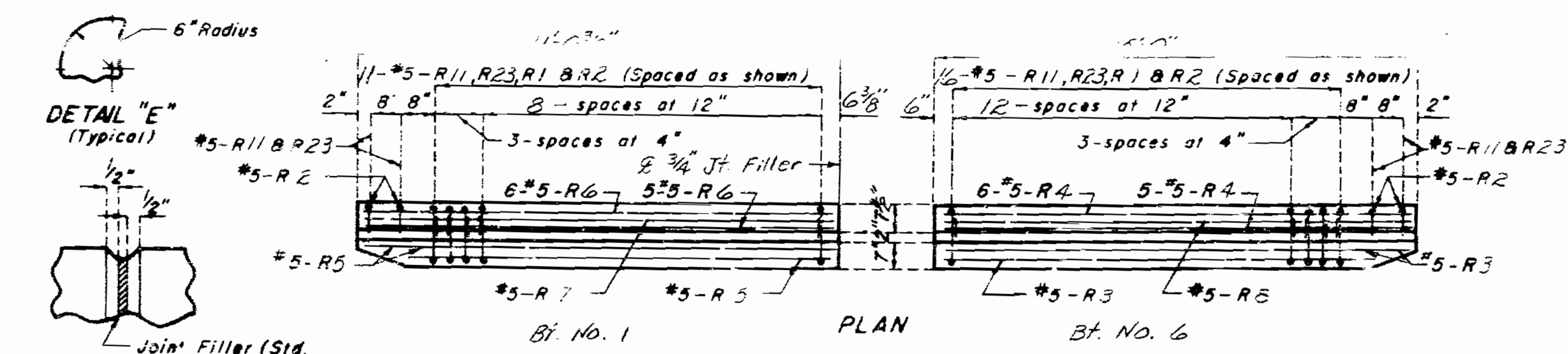


ELEVATION

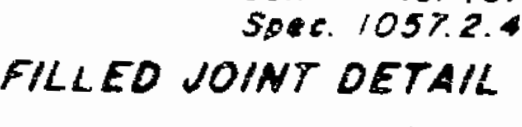
NOTES:  
TOP OF BARRIER CURB TO BE BUILT PARALLEL TO GRADE WITH BARRIED CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.  
ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1/2" RADIUS OR 3/4" BEVEL UNLESS OTHERWISE NOTED.



DETAILS OF GUARD RAIL ATTACHMENT



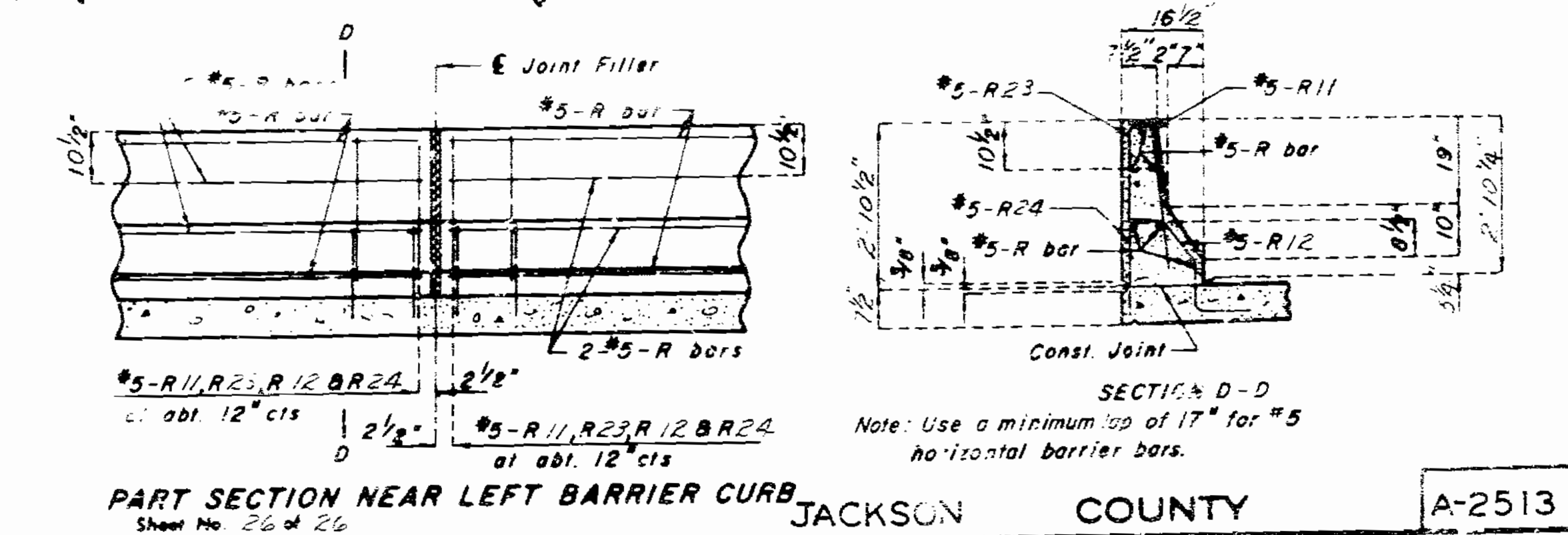
PLAN



FILLED JOINT DETAIL

DETAILS OF BARRIER CURB AT END BENTS

Note: This drawing is not to scale. Follow dimensions.



PART SECTION NEAR LEFT BARRIER CURB

Note: Use a minimum top of 17" for #5 horizontal barrier bars.

REVISED	AUG. 1978
STANDARD	AUG. 1978
CHECKED	NOV. 1978
DATE	AUG. 1978
BY	
APP'D	

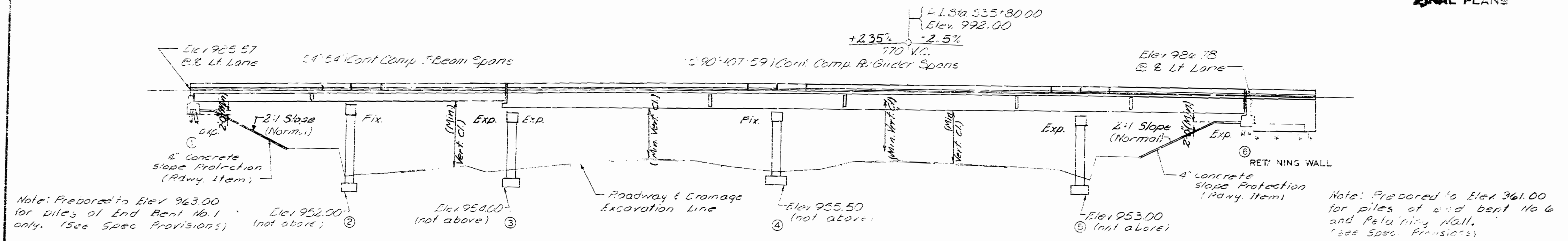
DETAILED AUG. 1978  
CHECKED NOV. 1978



MISSOURI STATE HIGHWAY DEPARTMENT

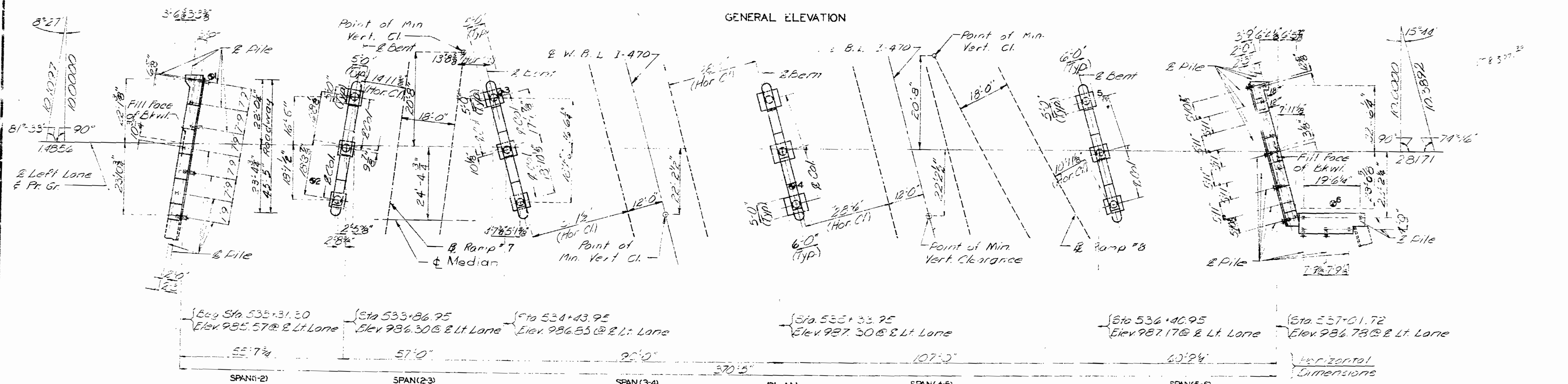
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		5	62	

FINAL PLANS



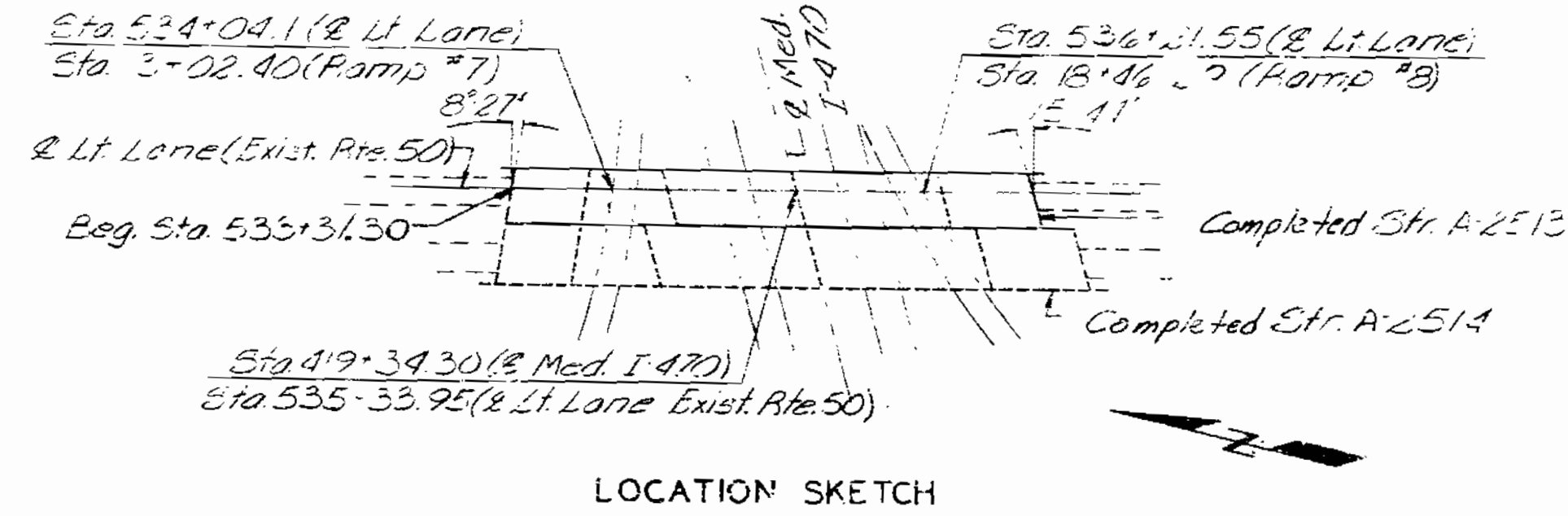
Note: Prepared to Elev 963.00 for piles of End Bent No. 1 only. (See Spec Provisions)

Note: Prepared to Elev 961.00 for piles of end bent No. 6 and Retaining Wall. (See Spec. Provisions)



Note: Heavy dashed lines indicate Completed Structure A-2514. For General Notes, Estimated Quantities, and Pile Data see sheet No. 2.

\* Indicates location of boring. For Boring Data see sheet No. 2.



B.M. 988.97 P.K. nail Lt wing 8" #6 Sta 537+10'

**BRIDGE** RTE. 50 OVER RTE. I-470  
**STATE ROAD** FROM HILLCREST TO EAST OF RTE. 50  
**ABOUT** 1 MILE S. OF COLBORN RD.  
**PROJECT NO.** I-IG-470-1(49) **STA.** 533+31.30  
**JOB NO.** J--4 I-470 45 **RTE.** I-470  
**JACKSON COUNTY**

STD.
STD.
STD. 611-60.
STD. 706-30.
A-2513

DESIGNED AUG. 1973  
 DETAILED JAN. 1974  
 CHECKED MAY 1974

Note: This drawing is not to scale. Follow dimensions.

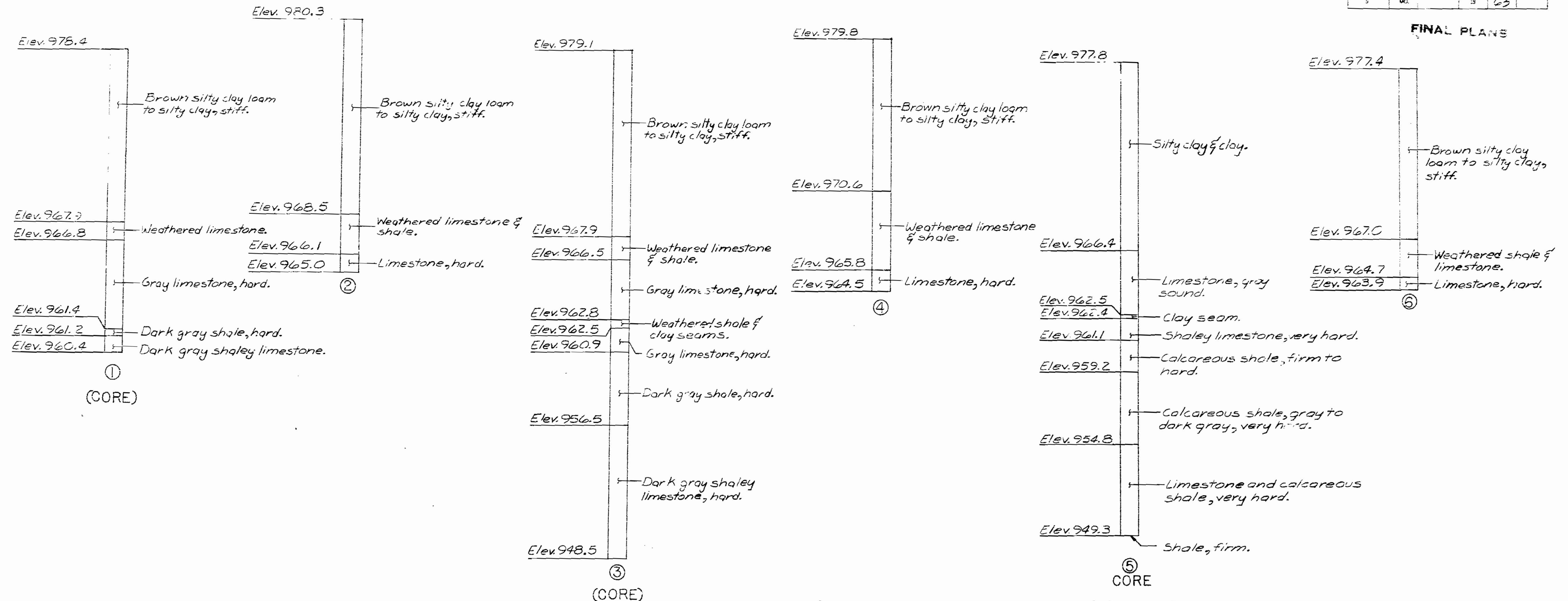
Sheet No. 1A of 26.

DATE 11-27-73

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	63	

FINAL PLANS



BORING DATA (LEFT LANE)

Note: For location of boring see sheet No. 1

GENERAL NOTES:

Design Specifications: A. A. S. H. O.-1973

Design Loading:

H520-44 No future wearing surface  
Earth 120# Equivalent Fluid Pressure 30\* Fatigue Stress-Case II Interim 74

Design Unit Stresses:

Class B Concrete (Substructure)  $f_c = 1,200$  psi  
Class B1 Concrete (Superstructure)  $f_c = 1,600$  psi  
Reinforcing steel  $f_s = 20,000$  psi  
Structural Carbon Steel  $f_s = 20,000$  psi  
Structural Steel (A.S.T.M. A-572) Grade 50  $f_s = 27,000$  psi  
Steel Pile  $f_b = 9,000$  psi

Formed Steel:

Field connections, High Strength Bolts 3/4"  $\Phi$ , holes 3/16"  $\Phi$  except as noted.

Minimum clearance to Reinforcing steel was 1 1/2" unless otherwise shown.

Paint:

System B by contractor in accordance with Std. Spec. 712.12  
Color of the final field coat: was green.

All reinforcing bars in tops of substructure beams or caps were spaced to clear anchor bolts for bearings by at least 1/2".

\*\* For alternate use of Concrete wearing surface, see Special Provisions used Alternate B  
Low Slump Concrete.

		PILE & FOOTING DATA						
		BENT NO.	1	2	3	4	5	6
Bearing Pile	Pile Type and Size	HP10x42						4P10x42
	Number	8						10 5 (Ref)
	Approximate Length, Ft.	16 to 17						19 to 21 16 to 19 (Ref)
	Design Bearing Tons	45						45 45
	Hammer Energy req'd, Ft. Lb.	11,100						11,100 11,100
Spread Footing	Foundation Material		Rock	Rock	Rock	Rock	Rock	
	Design Bearing Tons/sq. ft.		7.5	8	9.5	8		

Minimum energy requirement of hammer based on plan length and design bearing value of piles. All piles were driven to practical refusal.

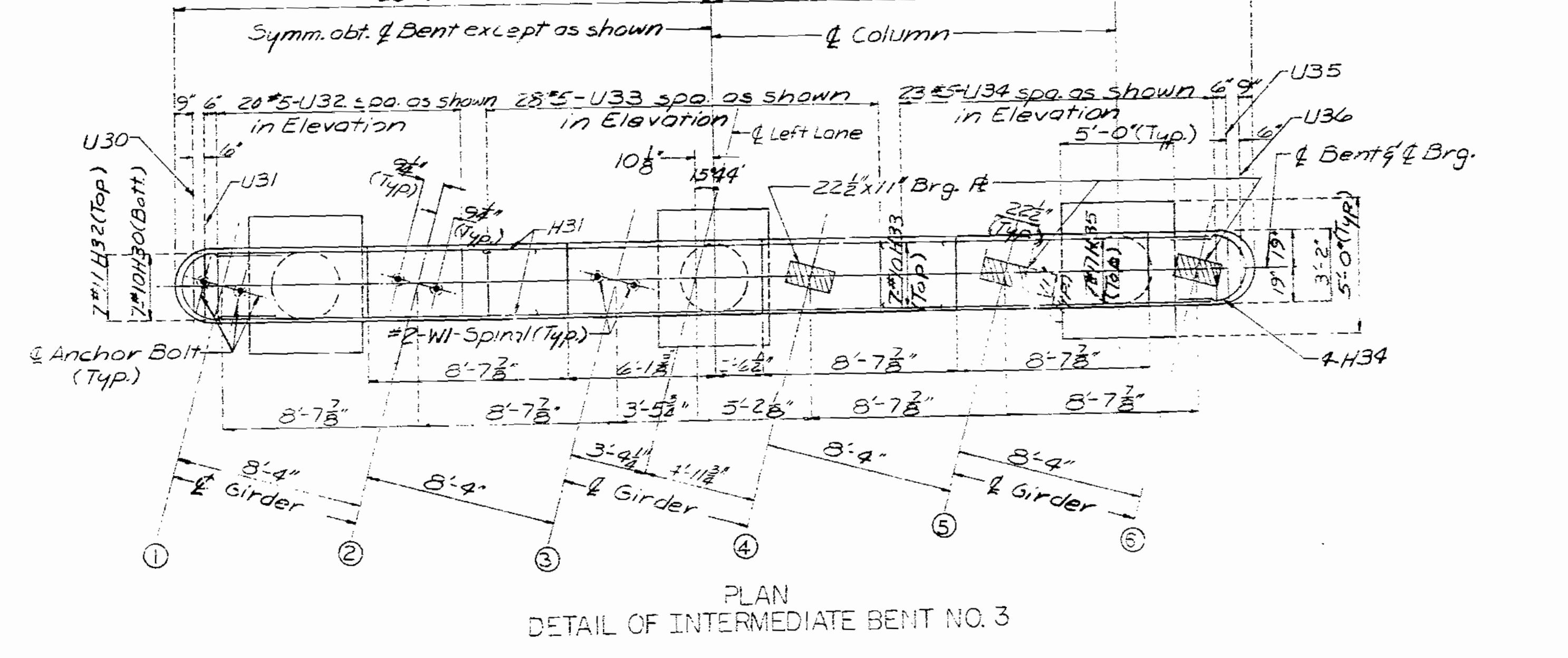
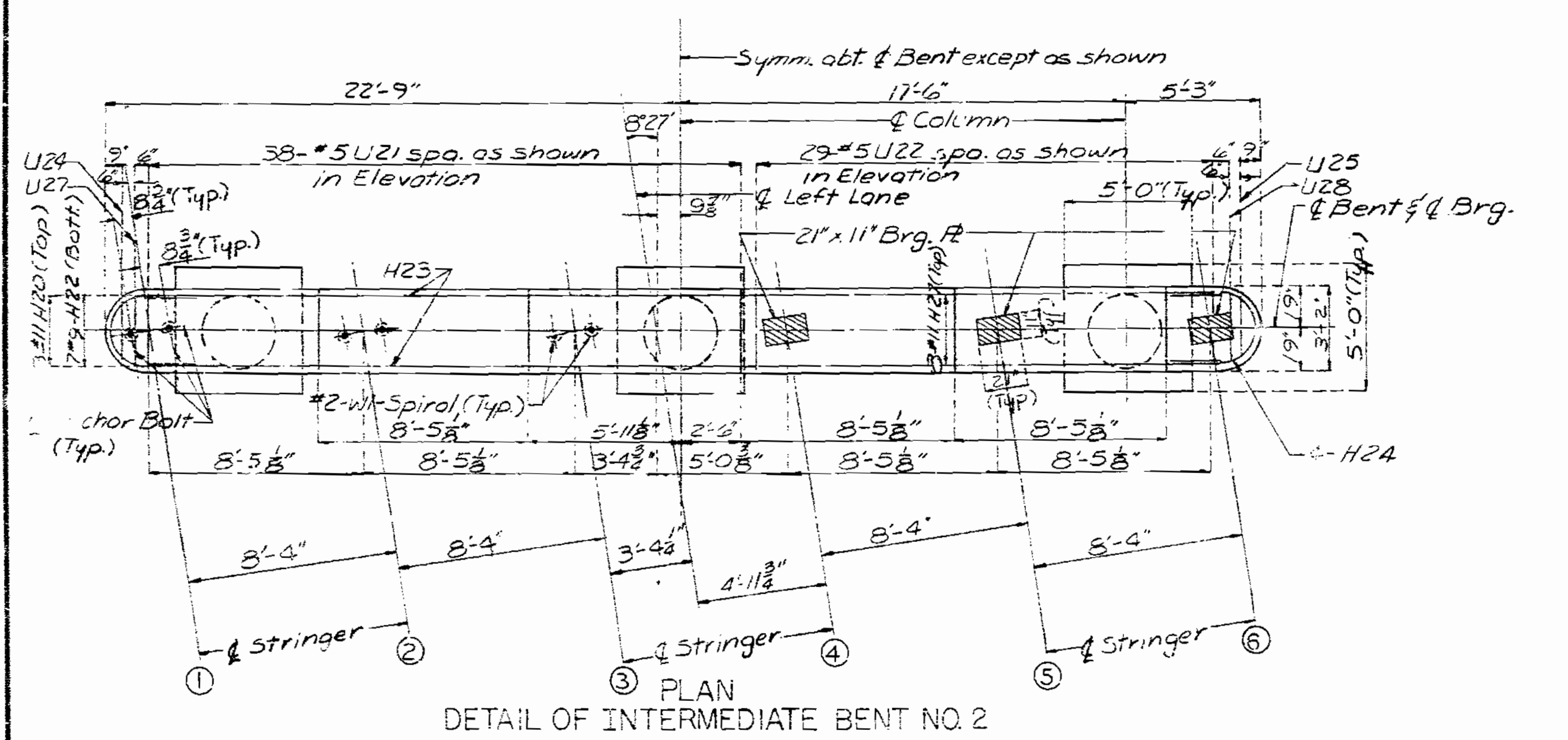
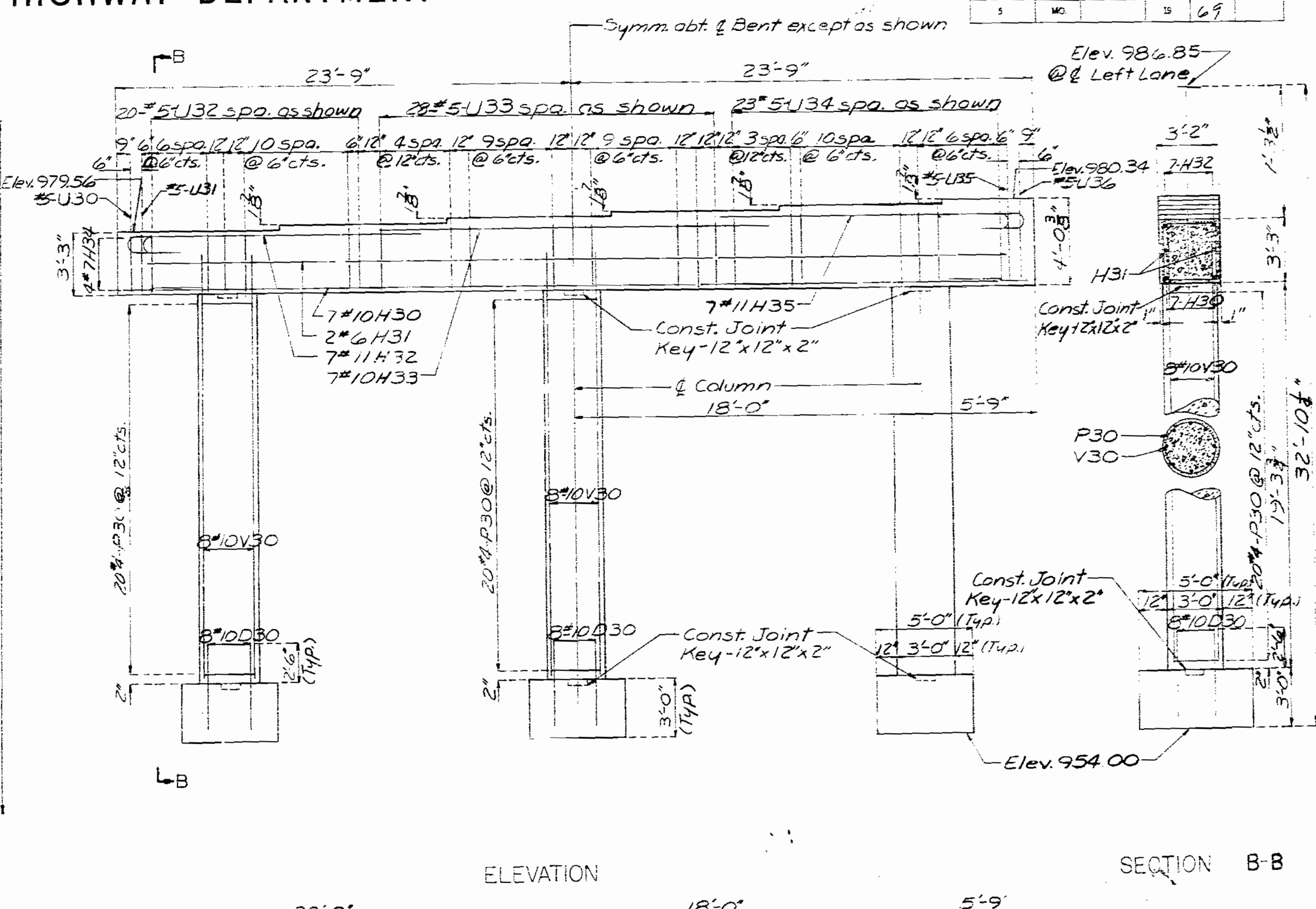
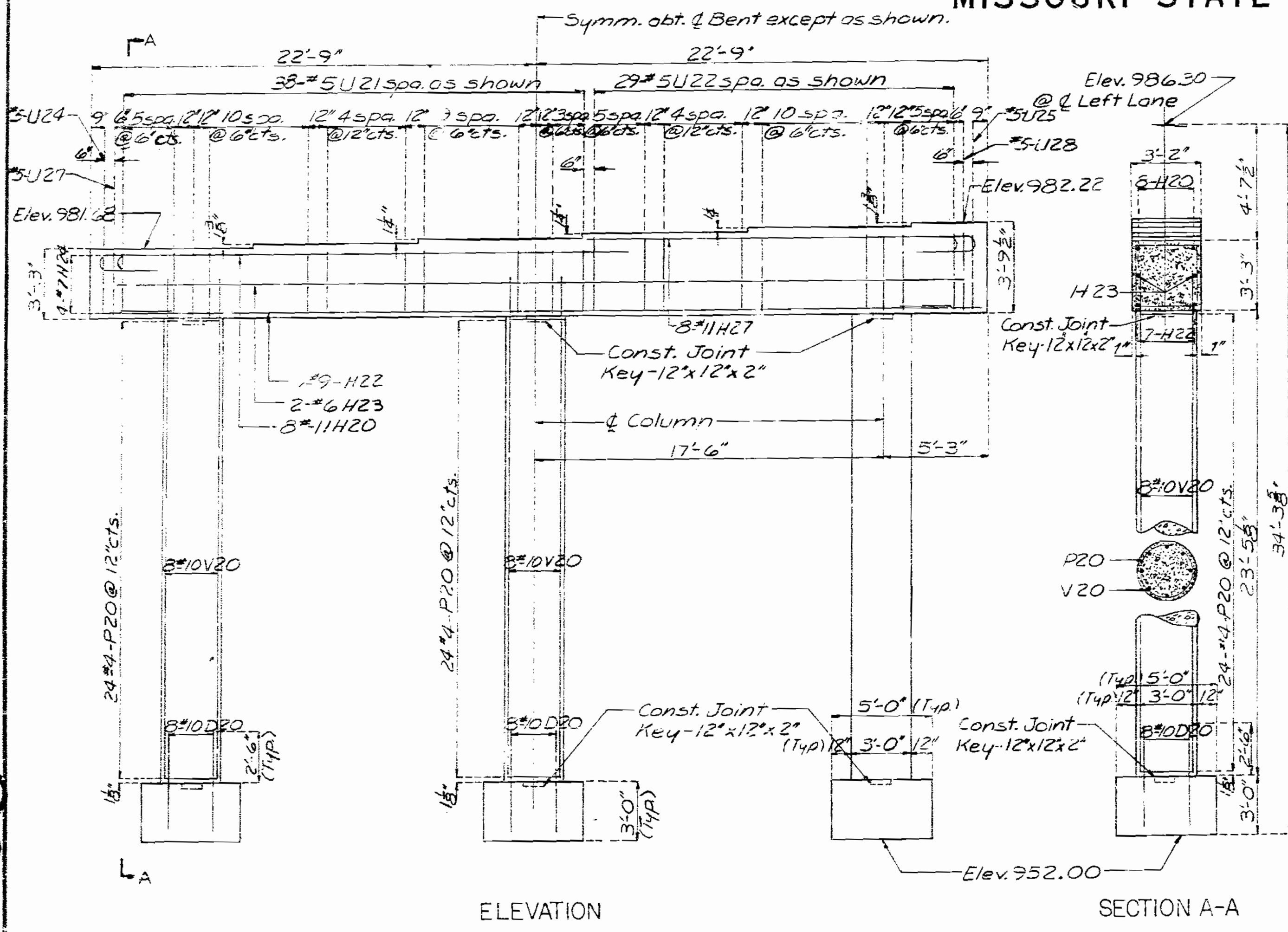
FINAL QUANTITIES			
Item	Substr.	Superstr.	Total
Class I Excavation	Cu. Yd.	232.0	232.0
Pre bore	ft.	340	340
(Low Slump) Conc. Wearing surface	Sq. Yd.		1868
Structural Steel Piles (10")	Lin. Ft.	397	397
Class B Concrete	Cu. Yd.	279.0	279.0
Class B1 Concrete	Cu. Yd.	531.2	531.2
Expansion Joint Seal (2.0 in)	Lin. Ft.		95
Reinforcing Steel (Grade 60)	Lbs.	42,820	155,260
Slab Drains	ea.		10
Four corner Structural Carbon Steel W-beams	Lbs.	101,100	101,100
Fabricated Structural Carbon Steel (1/2" Girders)	Lbs.	270,100	270,100
Fabricated Structural Low Alloy Steel	Lbs.	24,340	24,340
Painting (System B) Green	Ton	196.4	196.4
Contingent Items: test holes	Lin. Ft.	48	48
Pile Adjust Charge	Lin. Ft.	15	15

All concrete and reinforcement in end posts, curb, parapet, and concrete median barrier is included with superstructure quantities.  
Payweight for fabricated steel was based on welded field splices regardless of type used.

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLAN

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		1969	69	



DETAILED DEC. 1973  
CHECKED APR 1 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 84 of 26.

JACKSON

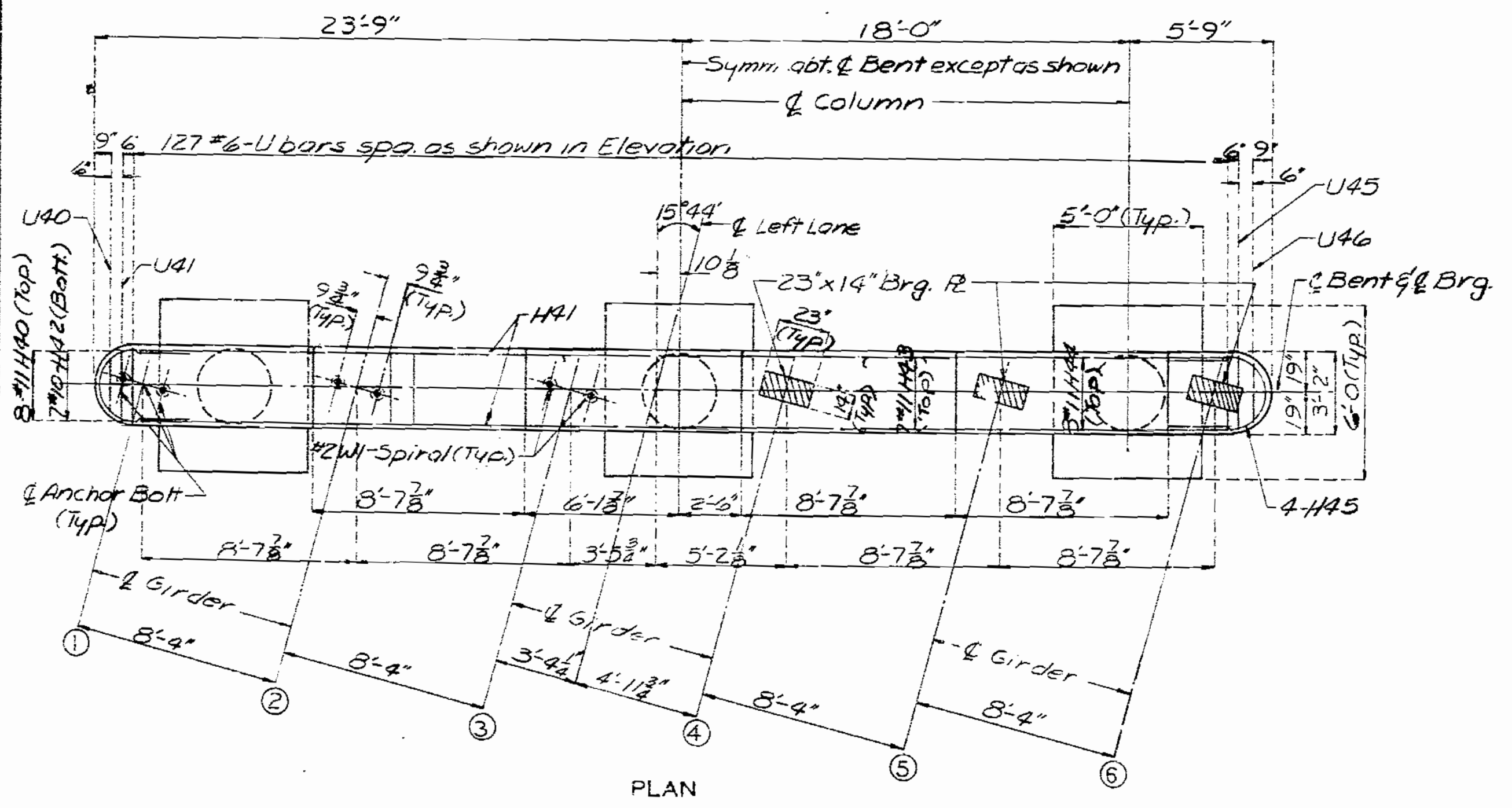
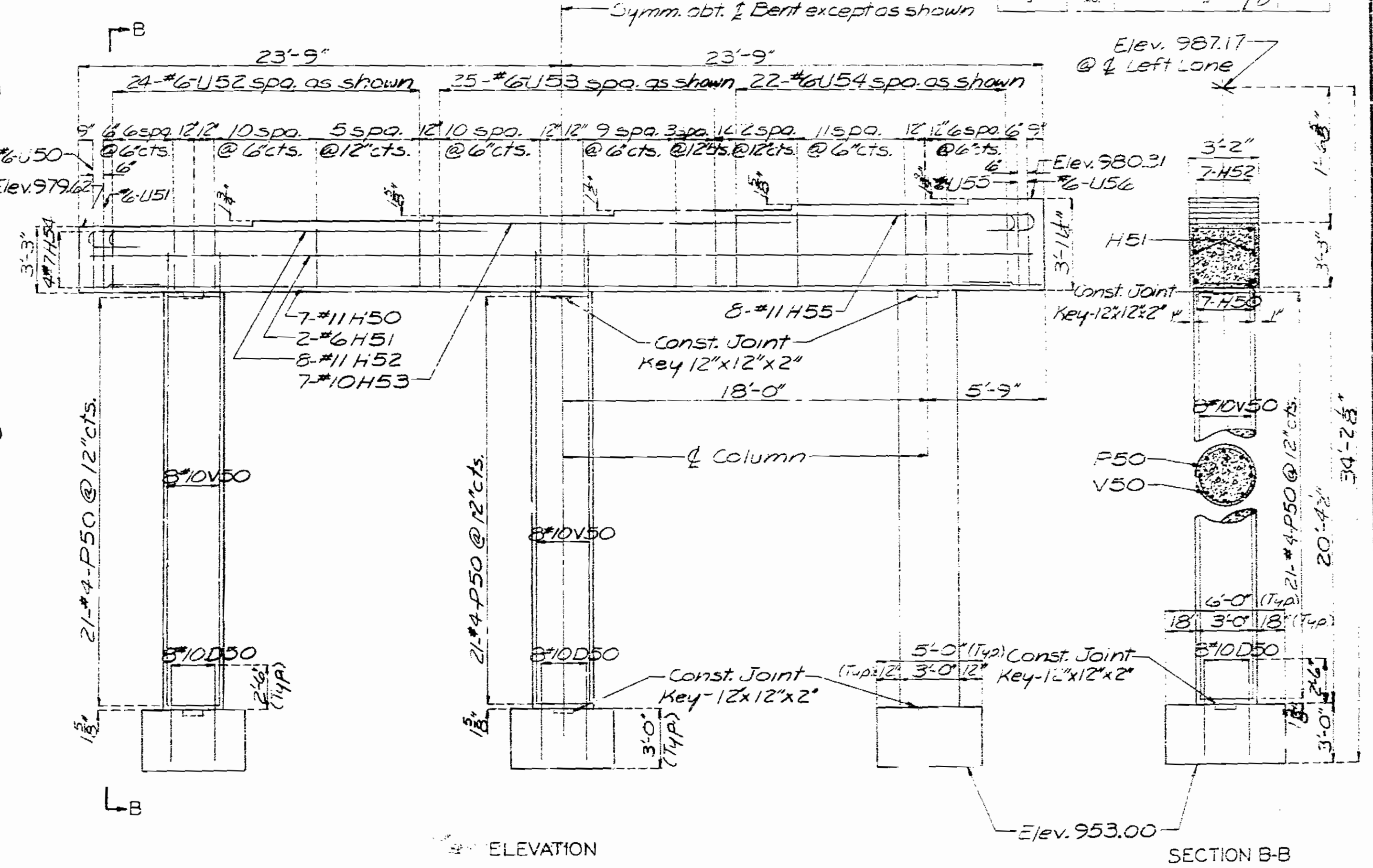
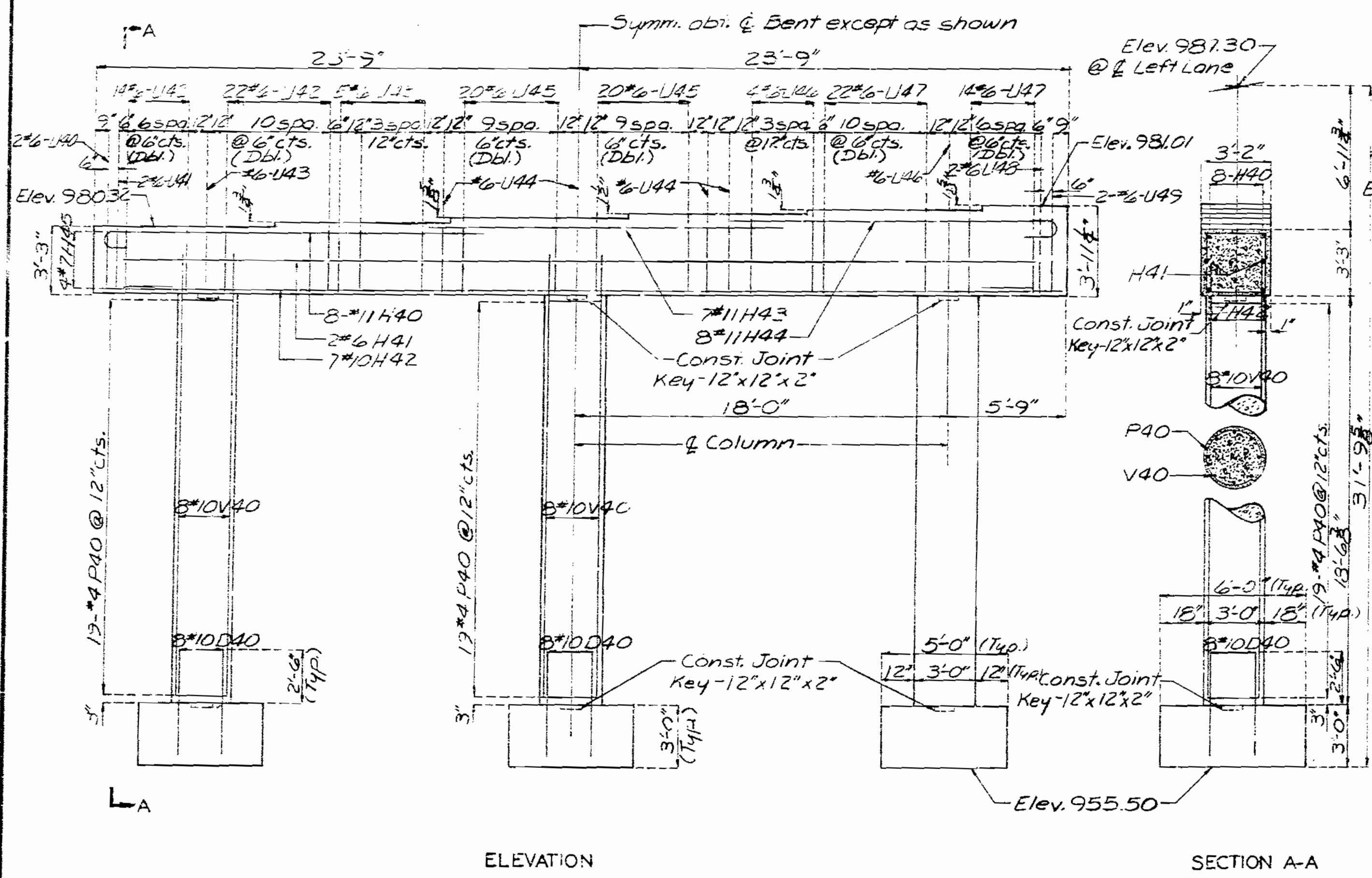
COUNTY

A-2513

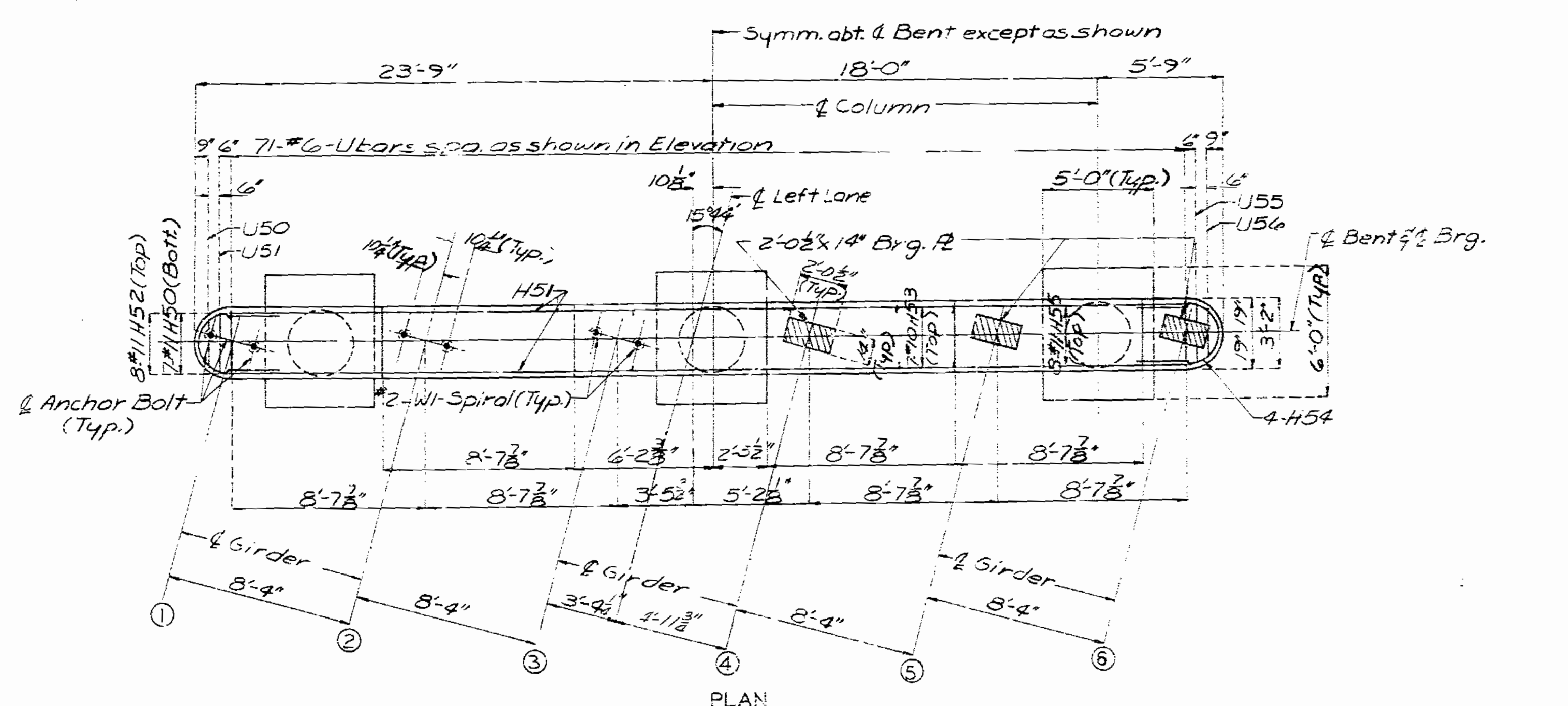
MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		70	70	



PLAN  
DETAIL OF INTERMEDIATE BENT NO. 4



PLAN  
DETAIL OF INTERMEDIATE BENT NO. 5

DETAILED JAN. 1974  
CHECKED APRIL 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 26.

JACKSON

COUNTY

A-2513

**GENERAL NOTES:**

**Design Specifications:**

2002 - AASHTO LFD (17th Edition) Standard Specifications  
 Bridge Deck Rating = 7

**Design Loading:**

HS20-44 (1973 & New Construction)

**Design Unit Stresses:**

Class B-1 Concrete (Slab & Safety Barrier Curbs)  $f'c = 4,000$  psi  
 Reinforcing Steel (Grade 60)  $fy = 60,000$  psi

**Reinforcing Steel:**

Minimum clearance to reinforcing steel shall be  $1\frac{1}{2}$ " unless otherwise shown.

**Expansion Joints:**

The concrete for slab and barrier curbs replacement shall be Class B-1.

Payment for slab concrete, complete-in-place, for expansion joint replacement will be considered completely covered by the contract unit price for Class B-1 concrete per cu. yard.

Payment for furnishing and installing slab reinforcing steel, complete-in-place, for expansion joint replacement will be considered completely covered by the contract unit price for Reinforcing Steel (Epoxy Coated).

**Concrete Protective Coatings:**

Protective coating for concrete bents and piers (Urethane & Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

**Structural Steel Protective Coatings:**

Protective Coating: All existing structural steel 10 feet from the end of girders at End Bent No. 6 and 10 feet each way from  $\phi$  of expansion joint near Int. Bent No. 3 with System G in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G, H or I)". The cost of surface preparation will be considered completely covered by the contract unit price per sq. foot for "Surface Preparation for Recoating Structural Steel".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for "Field Application of Inorganic Zinc Primer". Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coats: The color of the field coats shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract unit price per sq. foot for "Intermediate Field Coat (System G)". The cost of the finish field coat will be considered completely covered by the contract unit price per sq. foot for "Finish Field Coat (System G)".

Sec 1081.4.5 shall be modified such that the word "RECOATED" is replaced by the words "RECOATED - SYSTEM G - EXPANSION AREAS ONLY" as part of the new legend.

**Miscellaneous:**

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered by the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

Roadway surfacing adjacent to bridge ends shall match bridge overlay (Roadway Item).

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

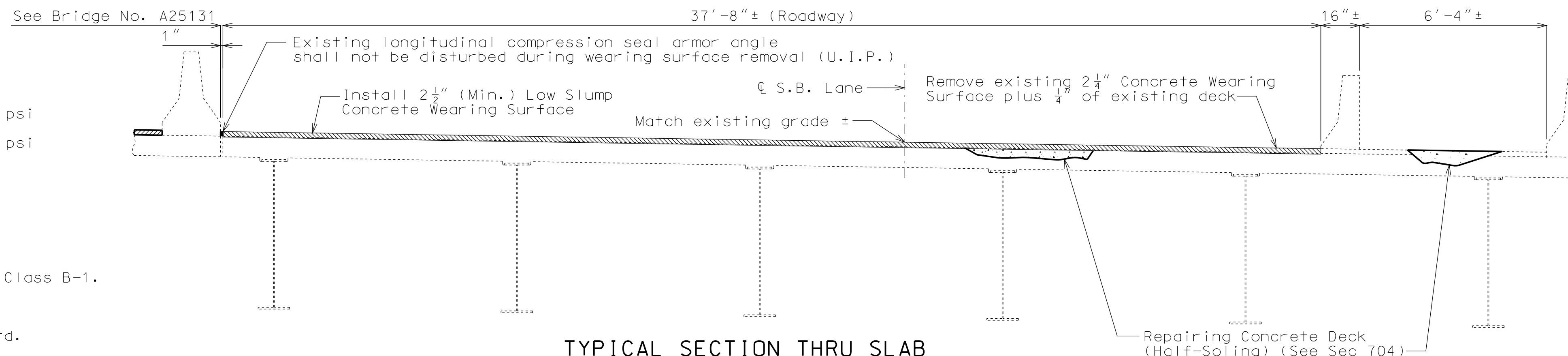
Contractor shall verify all dimensions in field before ordering new material.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

**MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION**

**U.I.P. AND REHABILITATE EXISTING (54'-54') CONTINUOUS COMPOSITE WIDE FLANGE SPANS  
 (3'-111'-124'-65') CONTINUOUS COMPOSITE PLATE GIRDER SPANS**

SEC/SUR 36 TWP 48N RGE 32W



TYPICAL SECTION THRU SLAB

**Estimated Quantities**

Item	Unit	Total
Removal of Concrete Wearing Surface	sq. foot	15,570
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	94
Removal of Existing Expansion Joint Seal or Sealant	linear foot	414
Remove and Replace Barrier Curb	linear foot	15
Low Slump Concrete Wearing Surface	sq. yard	1730
Class B-1 Concrete	cu. yard	12.2
Repairing Concrete Deck (Half-Soling)	sq. foot	700
Clean and Epoxy Seal	sq. foot	478
Reinforcing Steel (Epoxy Coated)	pound	560
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Surface Preparation for Recoating Structural Steel	sq. foot	2100
Field Application of Inorganic Zinc Primer	sq. foot	2100
Intermediate Field Coat (System G)	sq. foot	2100
Finish Field Coat (System G)	sq. foot	2100
Preformed Compression Seal	linear foot	414
Strip Seal Expansion Joint System	linear foot	78

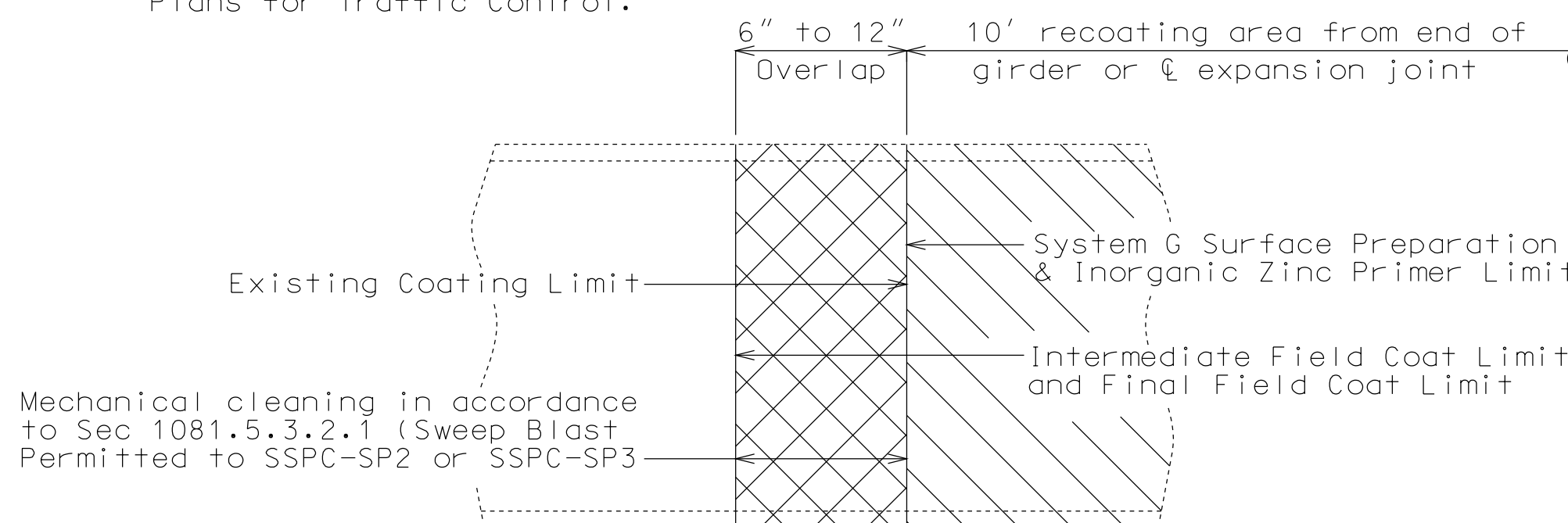
**Miscellaneous (continued):**

The existing skid plates on the sidewalk shall be reinstalled with 1/2" diameter counter sunk cone expansion anchors and they shall have a minimum ultimate pullout strength of 7500 lbs. in concrete with  $f'c = 4,000$  psi.

Cost of reinstalling existing skid plates with 1/2" diameter cone expansion anchors will be considered incidental to other pay items.

**Traffic Handling:**

Bridge A2514 will be closed to traffic during construction. See Sheet No. 2 for Details of Stage Construction and Roadway Plans for Traffic Control.

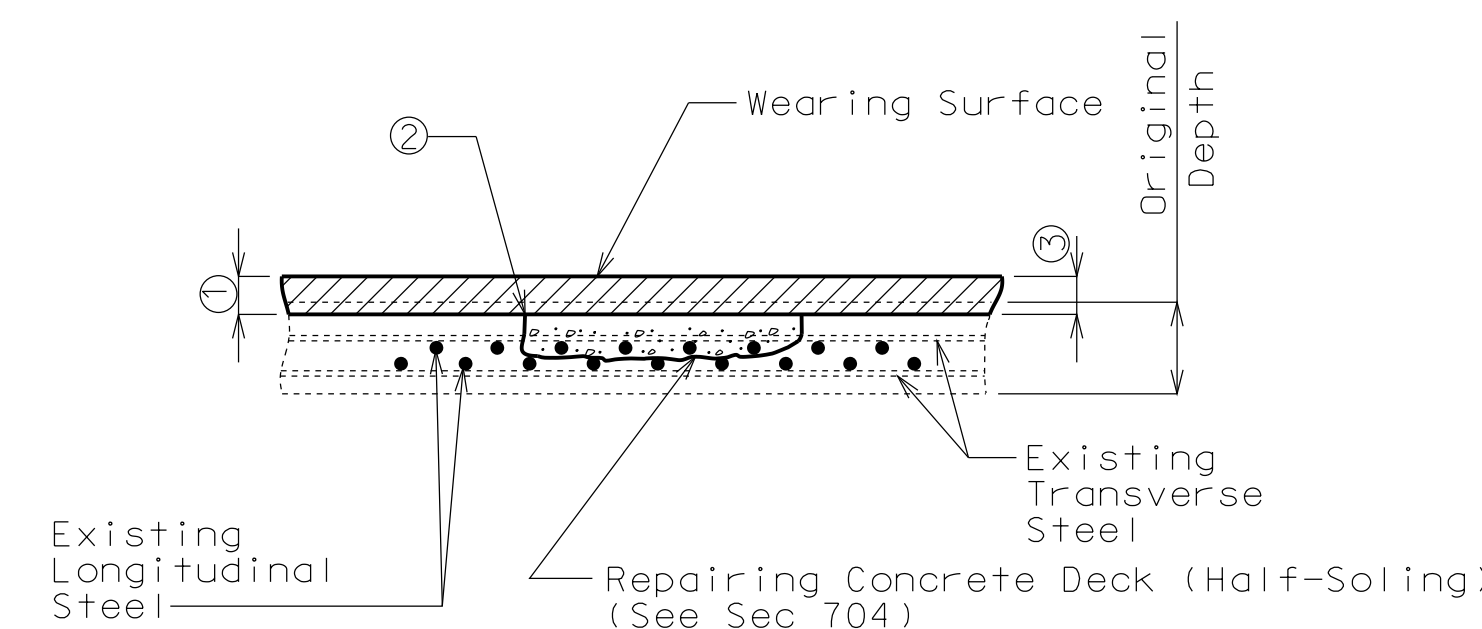


PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP

(Vertical or horizontal paint limit. Horizontal limit shown)

Note:

Limits of Paint Overlap: System G shall overlap the existing coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system near the expansion and contraction areas. The final field coating shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required.



HALF-SOLED REPAIR

- Remove existing wearing surface plus 1/4" of existing deck.
- One inch vertical side shall be established outside the deteriorated area. (See Sec 704)
- 2 1/2" (Min.) Low Slump Concrete Wearing Surface

**REPAIRS TO BRIDGE: NW BLUE PARKWAY SB OVER I-470**

STATE ROAD FROM RTE. 291 TO RTE. 350

ABOUT 0.2 MILE EAST OF RTE. 350

STA. 418+83.60 ± (MATCH EXISTING)

STD. 617.20

STD. 706.35

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
11/13/2013

ROUTE I-470 STATE MO

DISTRICT BR SHEET NO. 1

COUNTY JACKSON

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A25142

DESCRIPTION

DATE

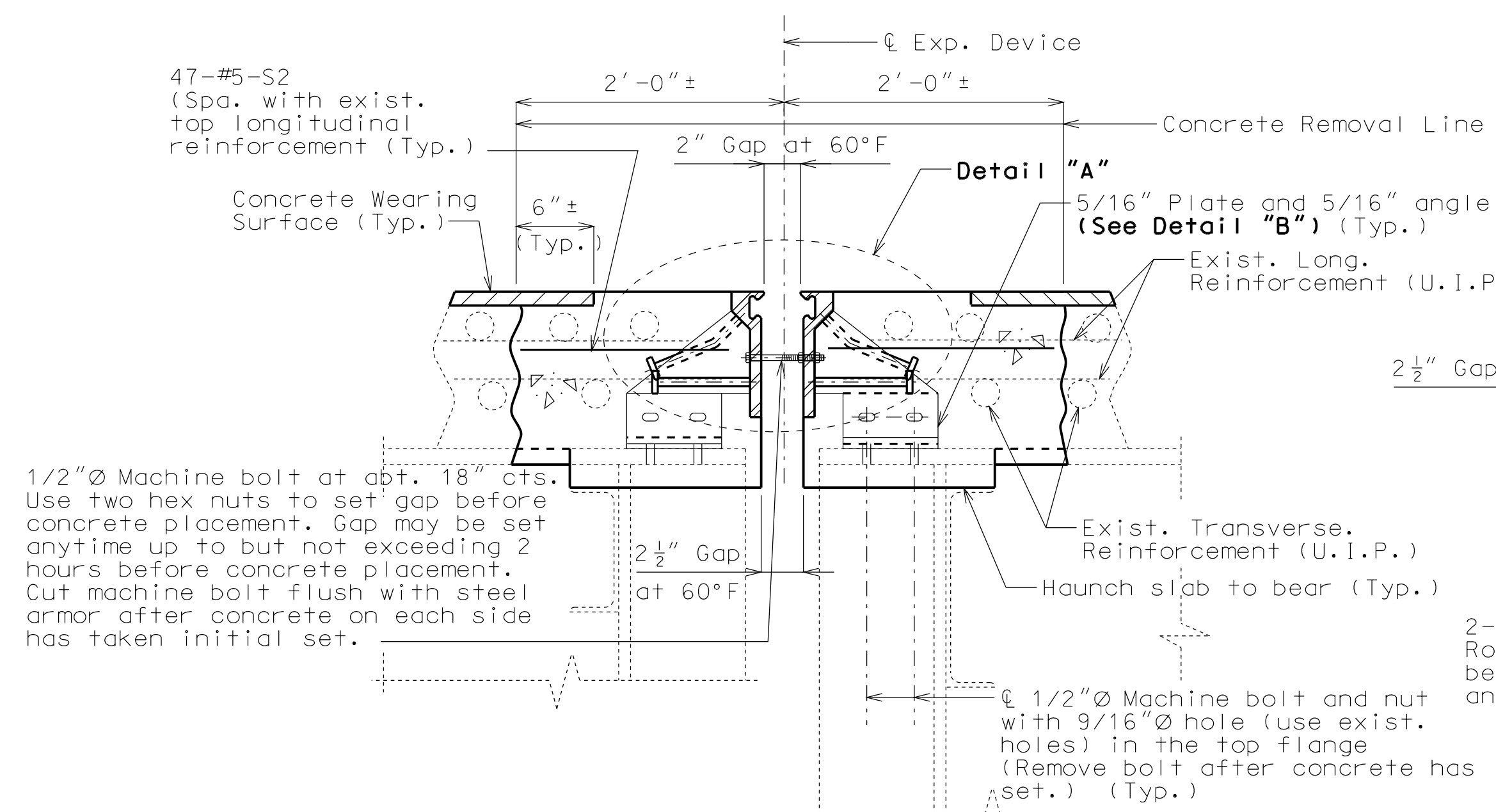
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

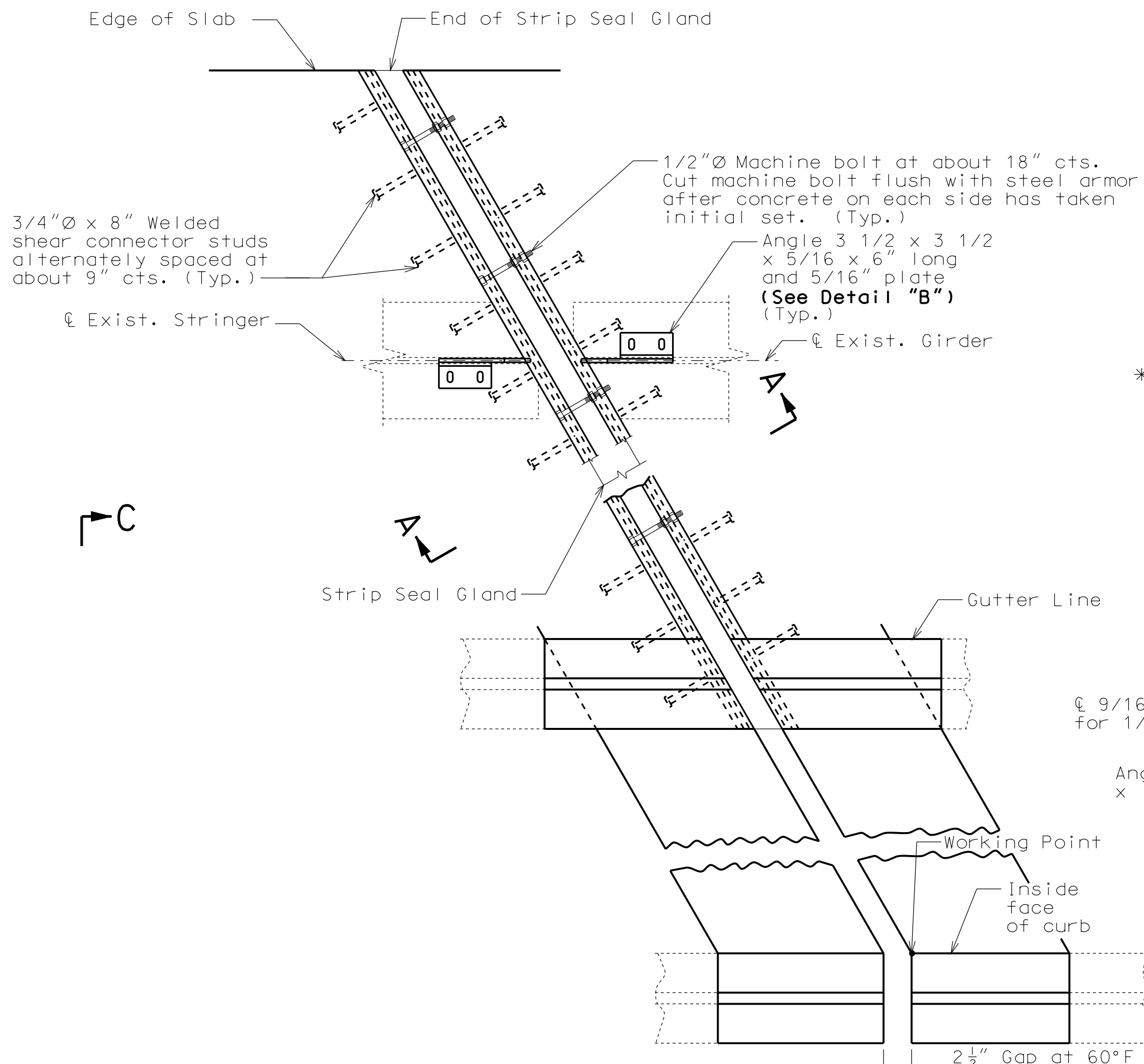






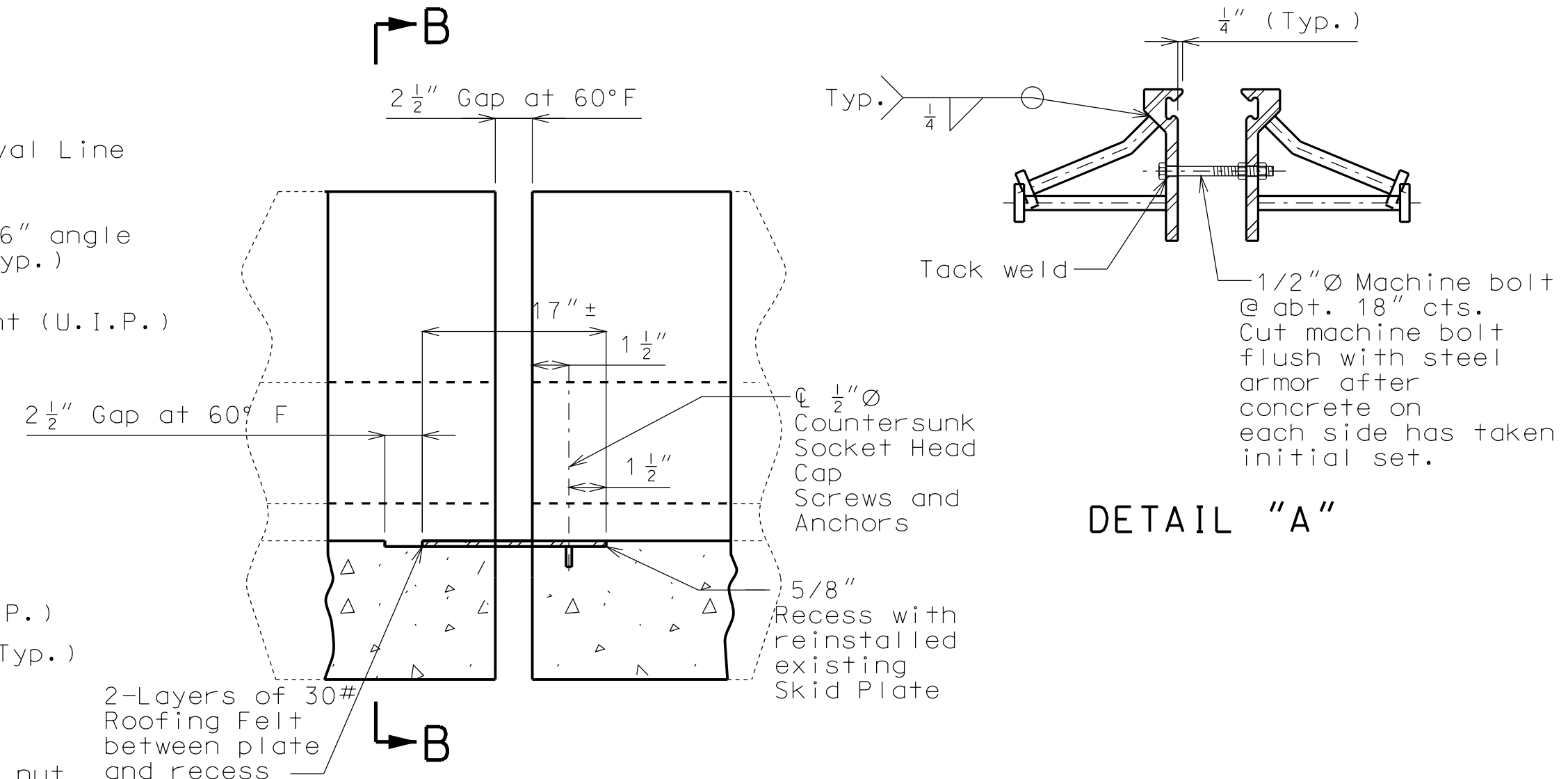
SECTION A-A

Note: Strip seal gland not shown for clarity.



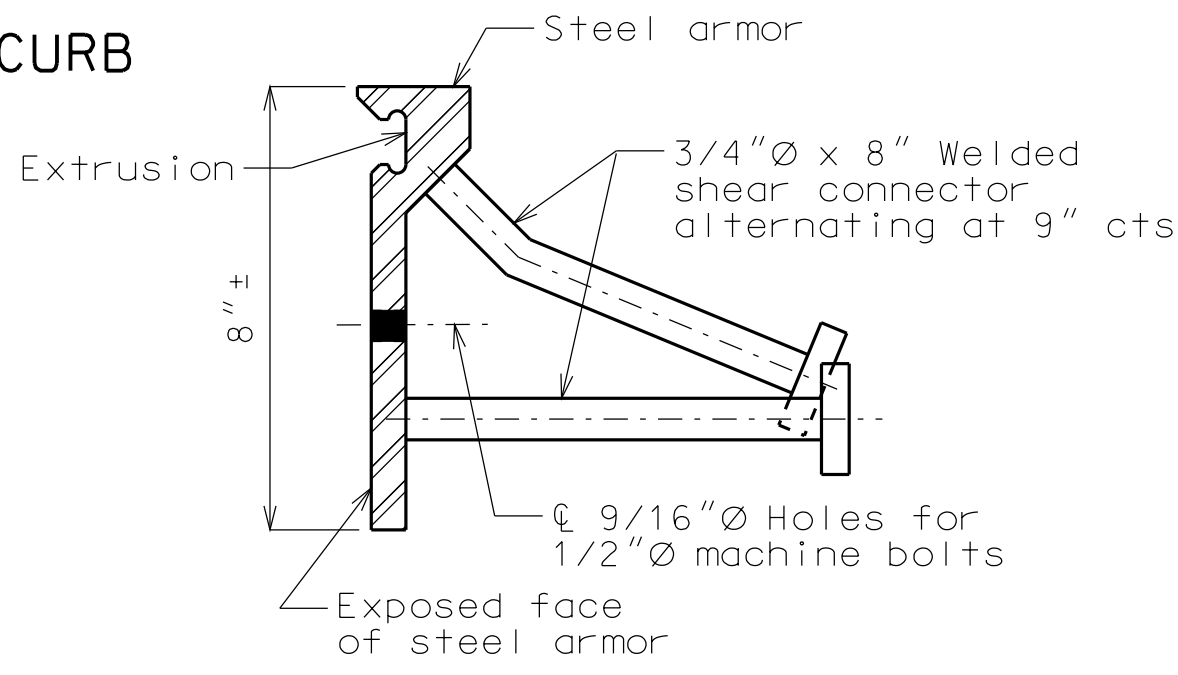
PART PLAN

Note: Skid plate not shown for clarity.

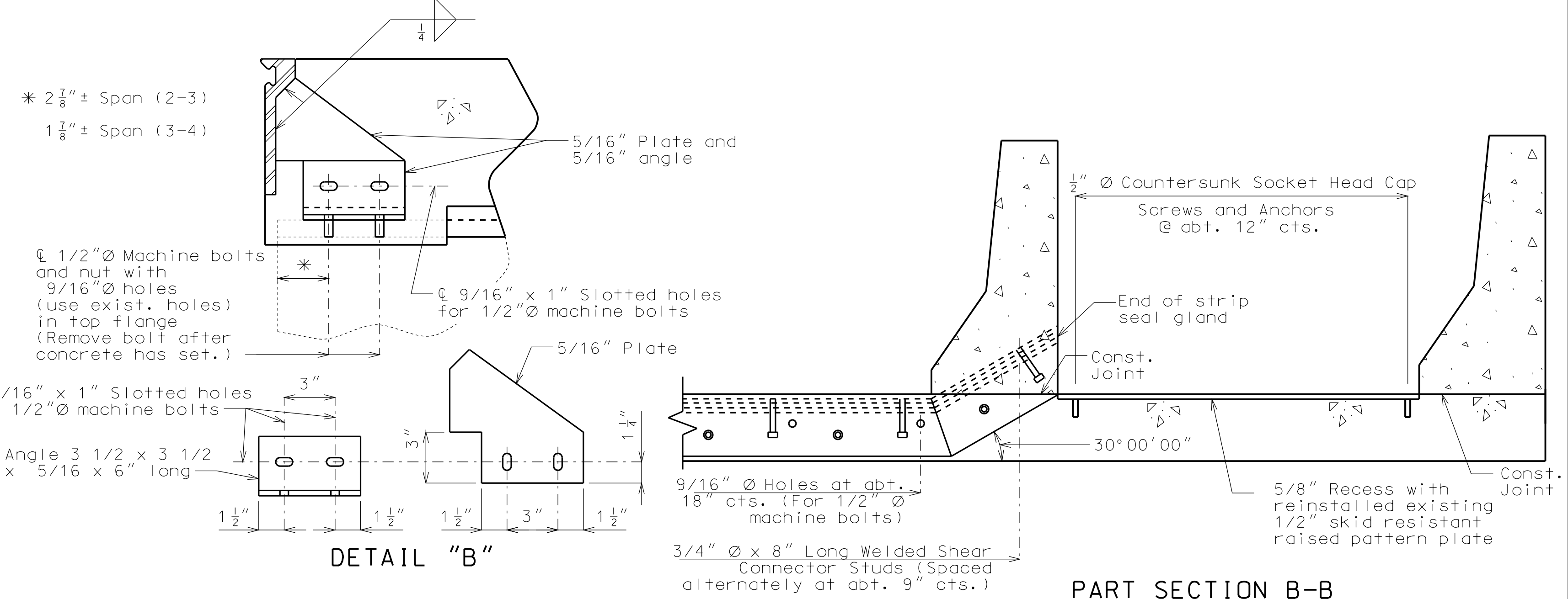


DETAIL "A"

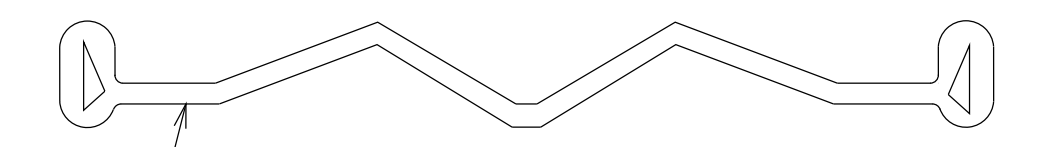
PART SECTION OF RIGHT INTERIOR BARRIER CURB



DETAIL OF JOINT ARMOR



PART SECTION B-B



DETAIL OF GLAND

GENERAL NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

New longitudinal reinforcing steel shall be placed and existing longitudinal reinforcing steel shall be cut/bent so that ends shall not be more than ±1" from vertical leg of the steel armor at the expansion joint system.

Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/13/2013	
ROUTE I-470	STATE MO
DISTRICT BR	SHEET NO. 4
COUNTY JACKSON	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A25142	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

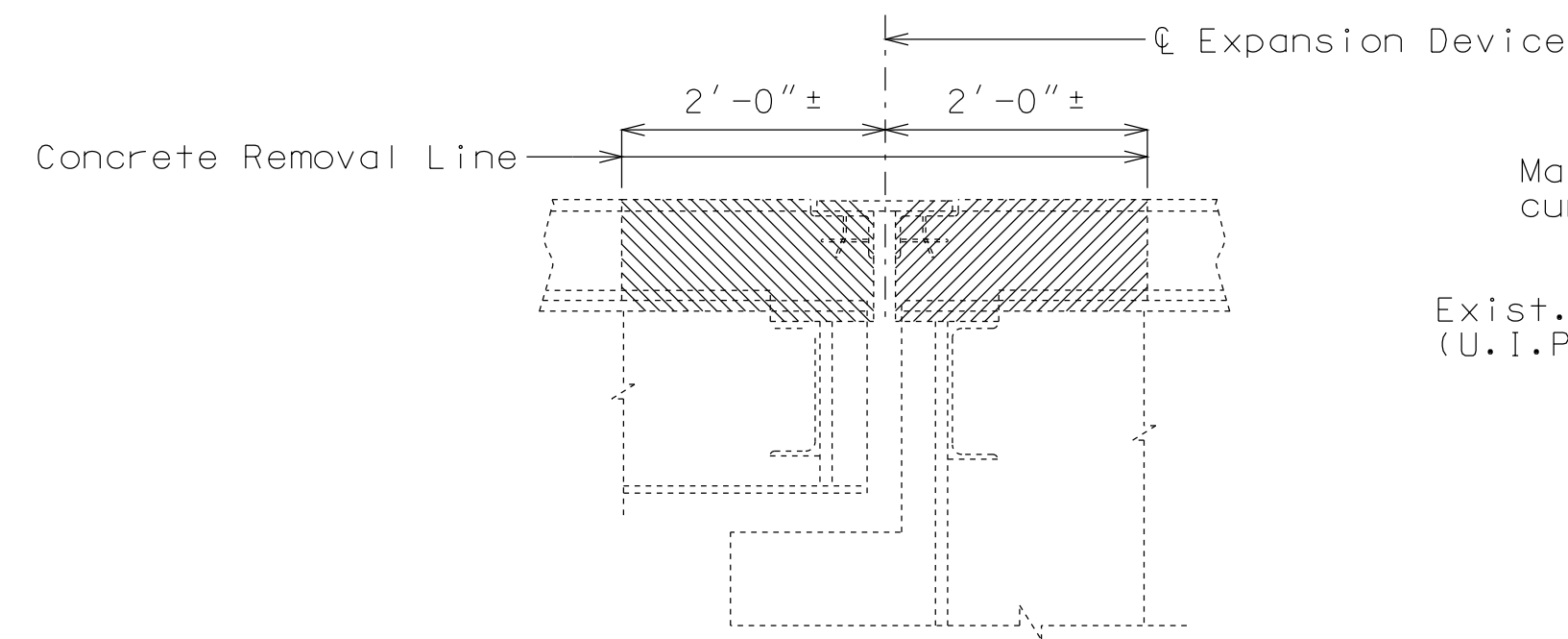
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

DETAILS OF STRIP SEAL NEAR INTERMEDIATE BENT NO. 3

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

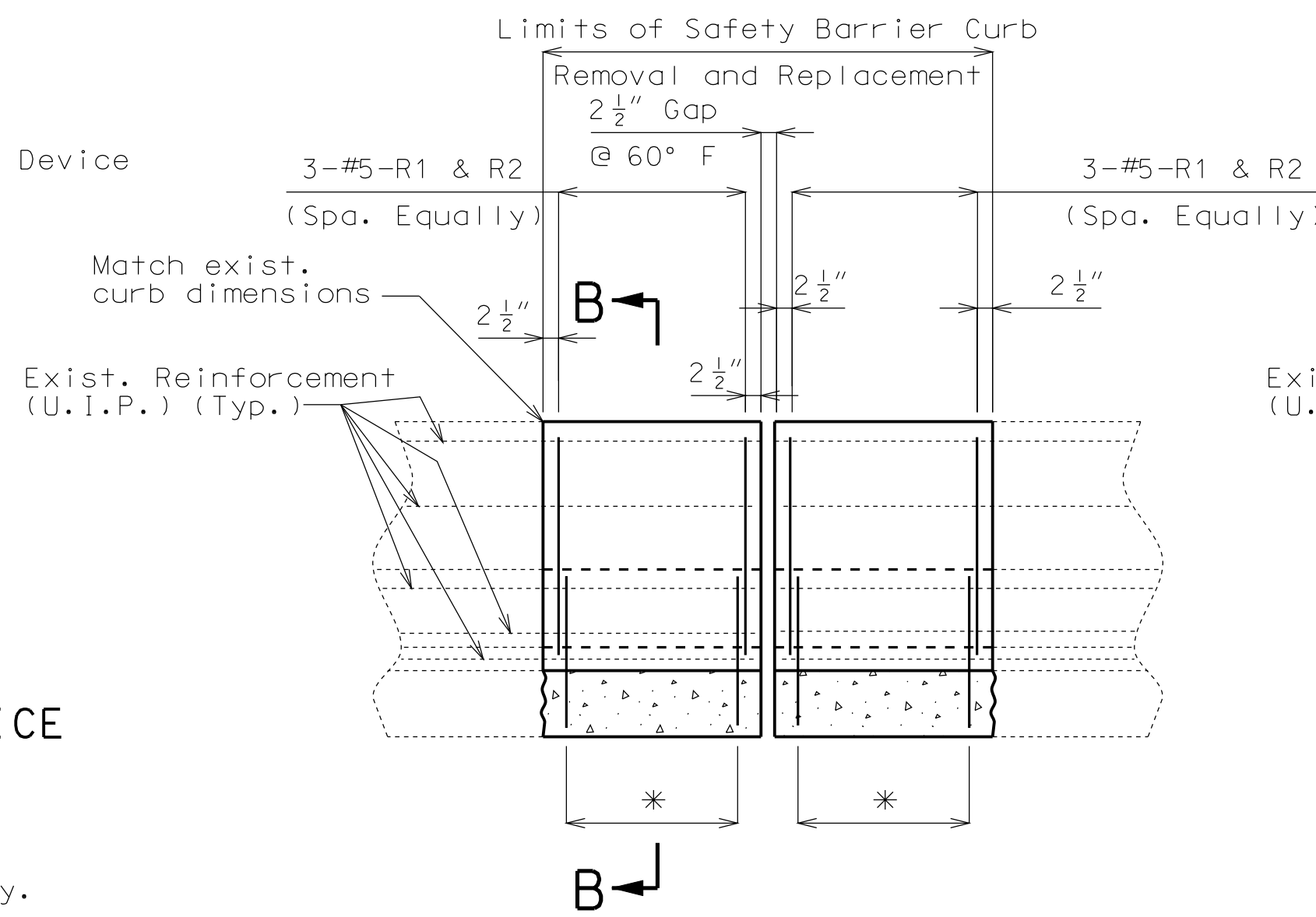






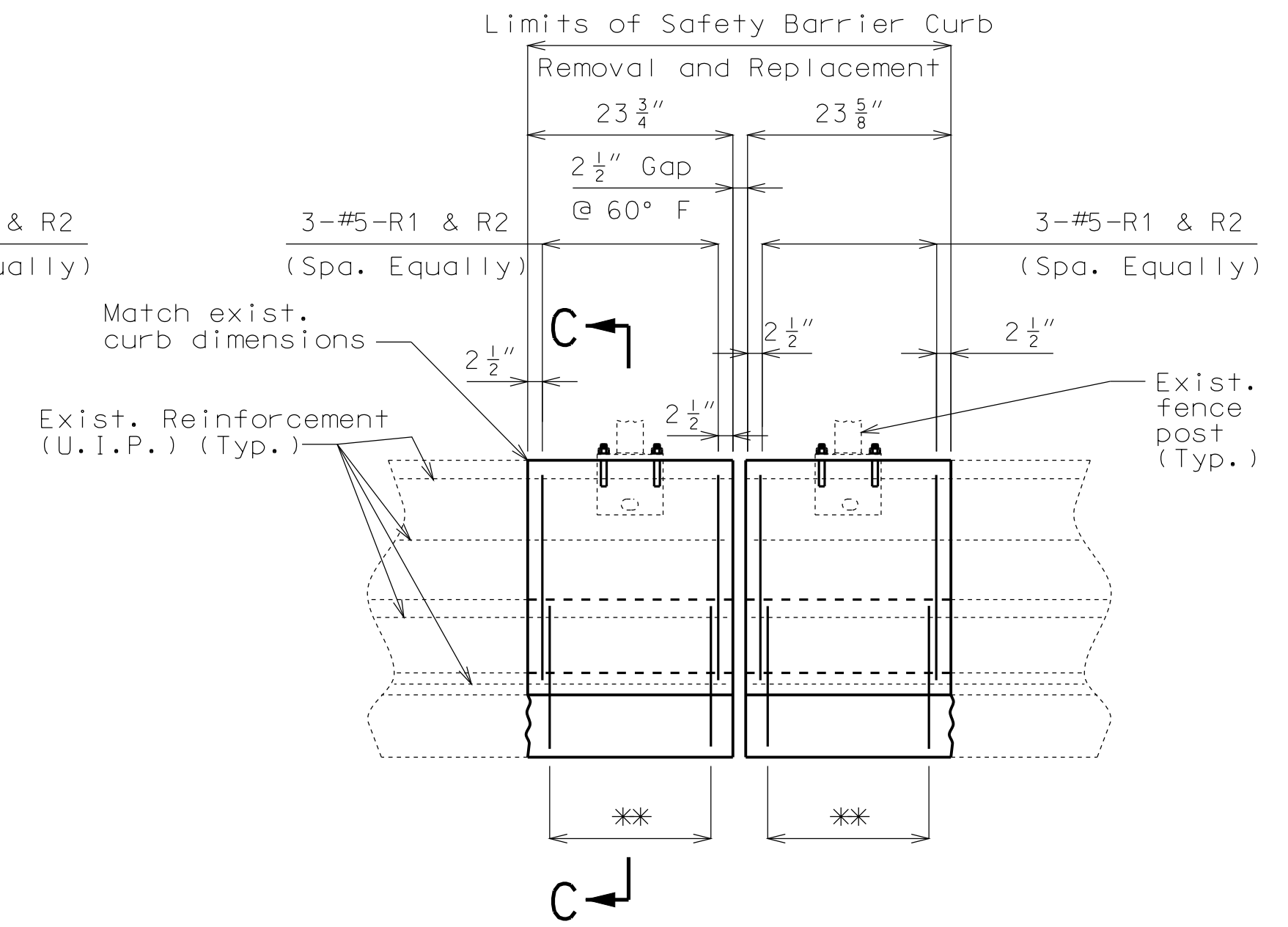
**PART SECTION THRU EXPANSION DEVICE NEAR INTERMEDIATE BENT NO. 3 SHOWING REMOVAL**  
(Normal to joint)

Note: Existing bearing not shown for clarity.



**PART SECTION SHOWING SAFETY BARRIER CURB REINFORCEMENT NEAR INTERMEDIATE BENT NO. 3 FOR INTERIOR CURB**

Note: Expansion device not shown for clarity.



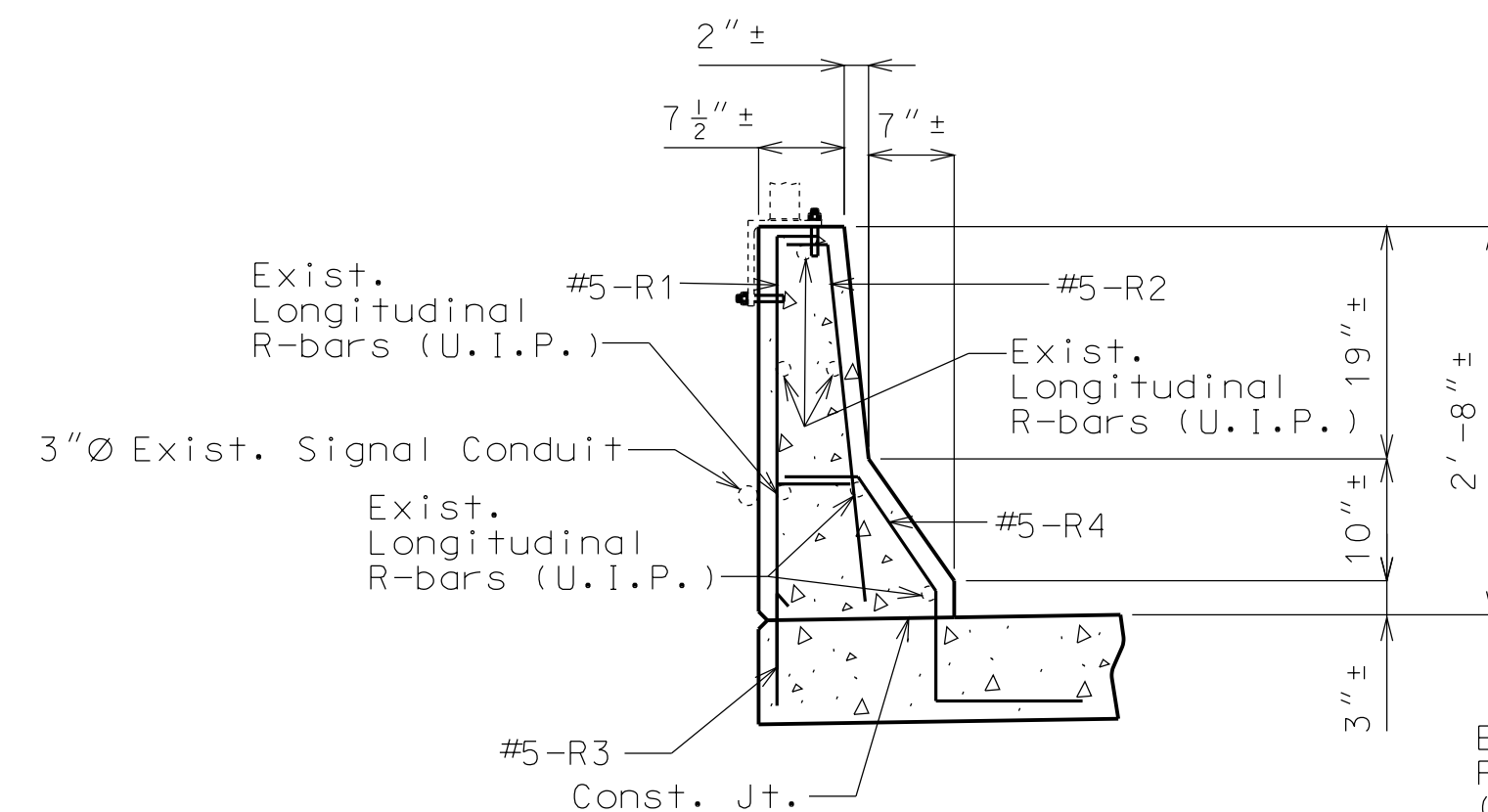
**PART ELEVATION SHOWING SAFETY BARRIER CURB REINFORCEMENT NEAR INTERMEDIATE BENT NO. 3 FOR EXTERIOR CURB**

**Notes:**

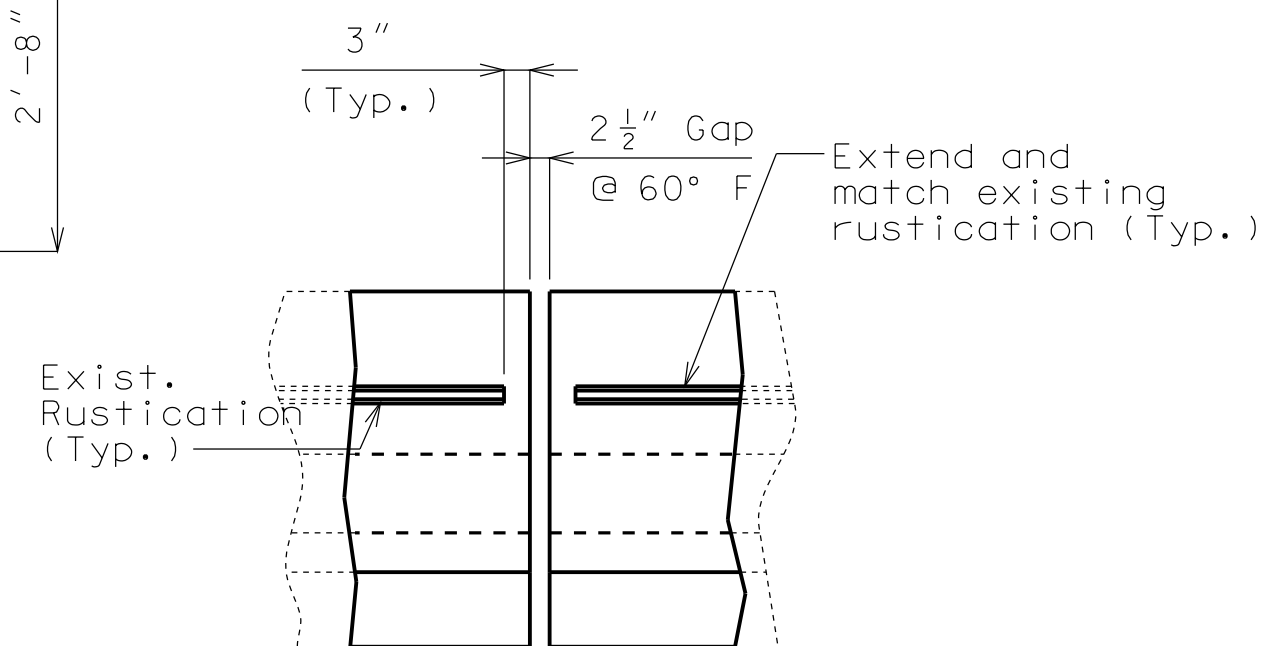
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb.

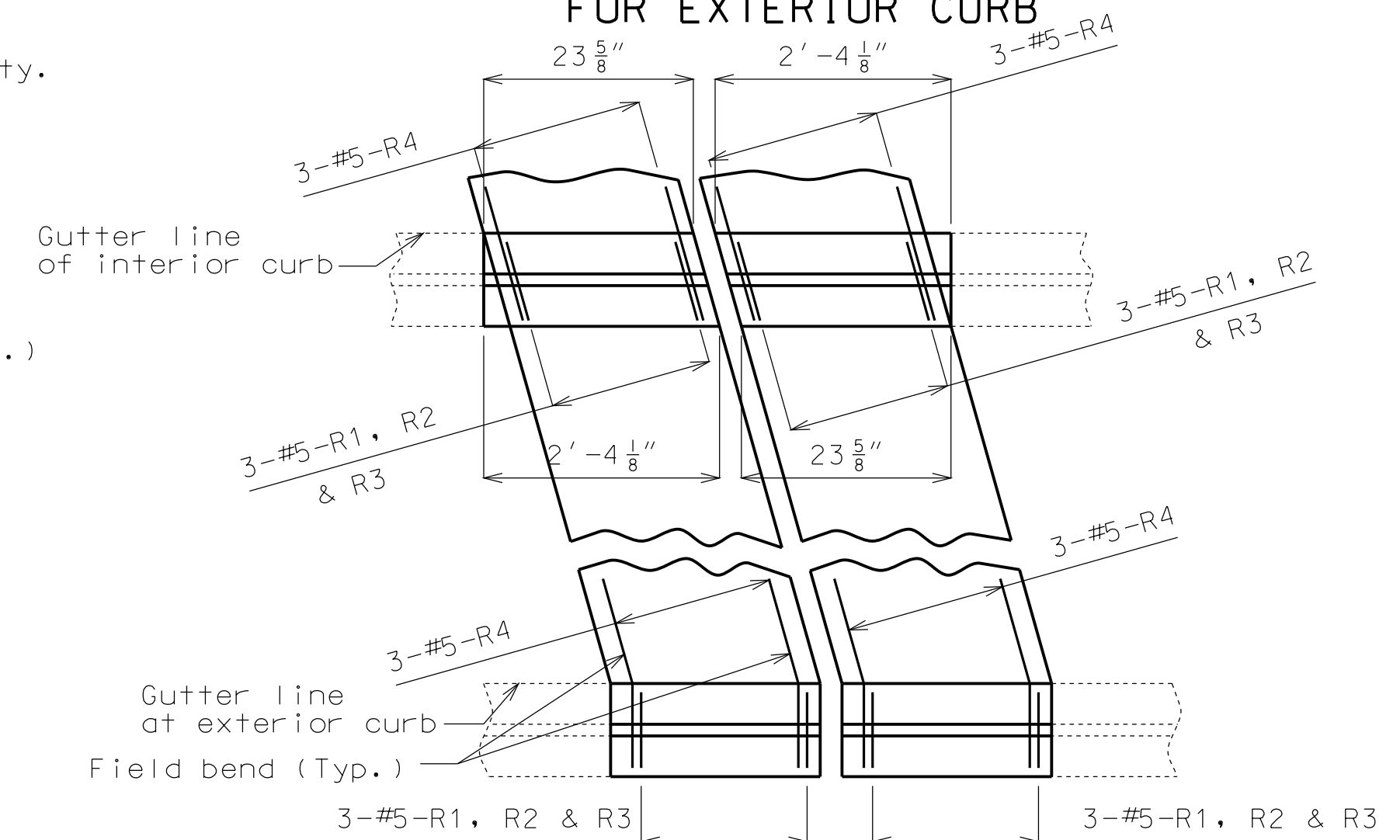
The minimum embedment depth in concrete with  $f'c = 4,000$  psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".



**PART SECTION C-C**



**PART ELEVATION SHOWING PARTIAL EXTERIOR SAFETY BARRIER CURB REPLACEMENT**



**PART PLAN SHOWING SAFETY BARRIER CURB REINFORCEMENT NEAR INTERMEDIATE BENT NO. 3**

**Notes:**

Remove existing stirrups and resin anchors within limits of Barrier Curb Removal.

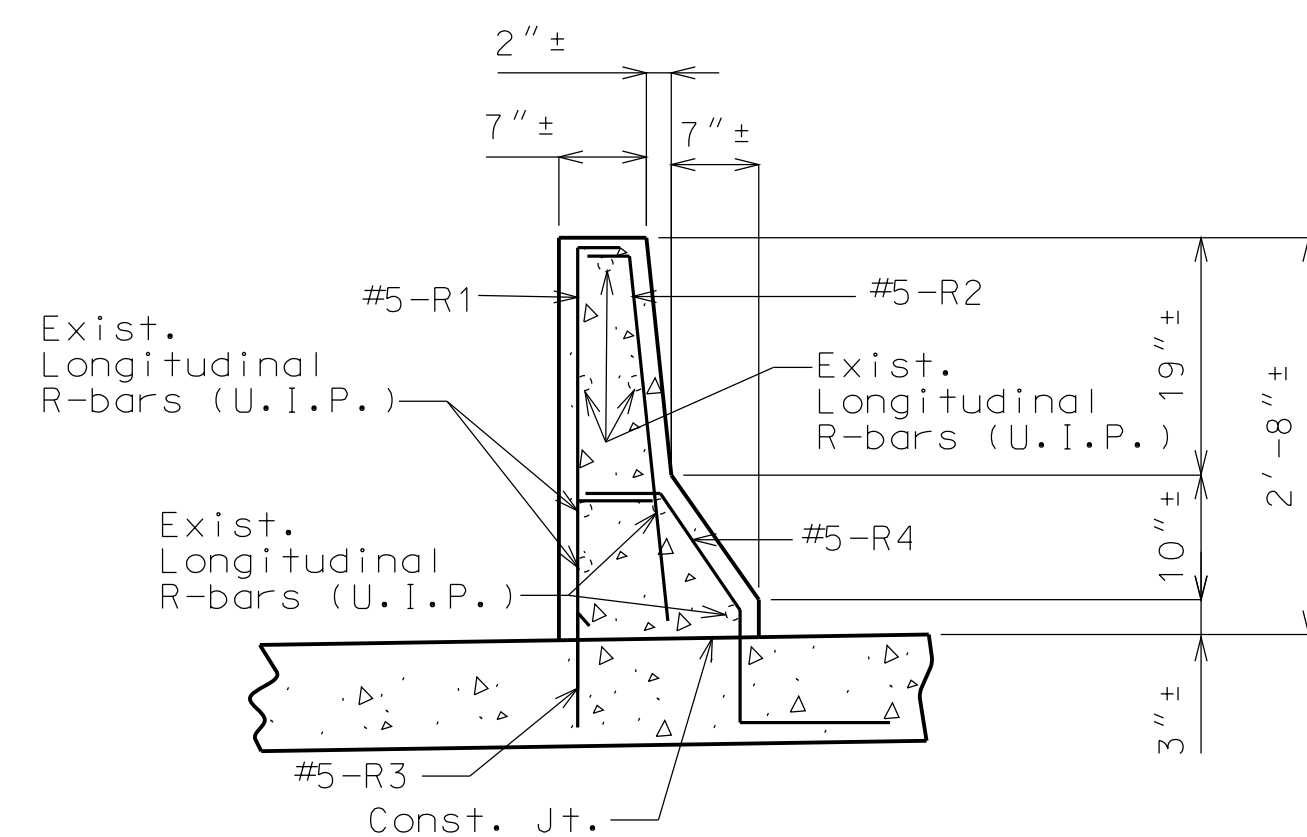
All exposed edges of new barrier curb shall match existing barrier curb.

Payment for concrete curb removal and all new concrete and reinforcement for barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb per linear foot.

Existing conduit, use-in-place, that falls within the area of slab and curb removal shall be protected from damage.

Any damage to the existing conduit and fence shall be repaired or replaced at the contractor's expense, as directed by the engineer.

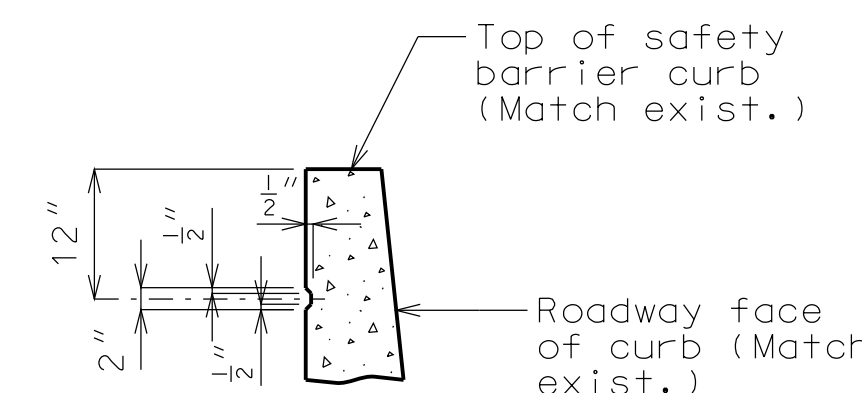
Field bend horizontal leg in slab of #5-R4 bars in exterior curb to maintain clear distance.



**PART SECTION B-B**

**Note:**

Existing fence on exterior curb shall be temporary supported and fence reinstalled on new curb with new resin anchor systems.



**PART SECTION SHOWING RUSTICATION DETAILS**  
(Exterior curb only)

**DETAILS OF REMOVALS AND BARRIER CURB REPLACEMENT NEAR INTERMEDIATE BENT NO. 3**

(Concrete wearing surface not shown for clarity.)

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/13/2013	
ROUTE I-470	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY JACKSON	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A25142	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



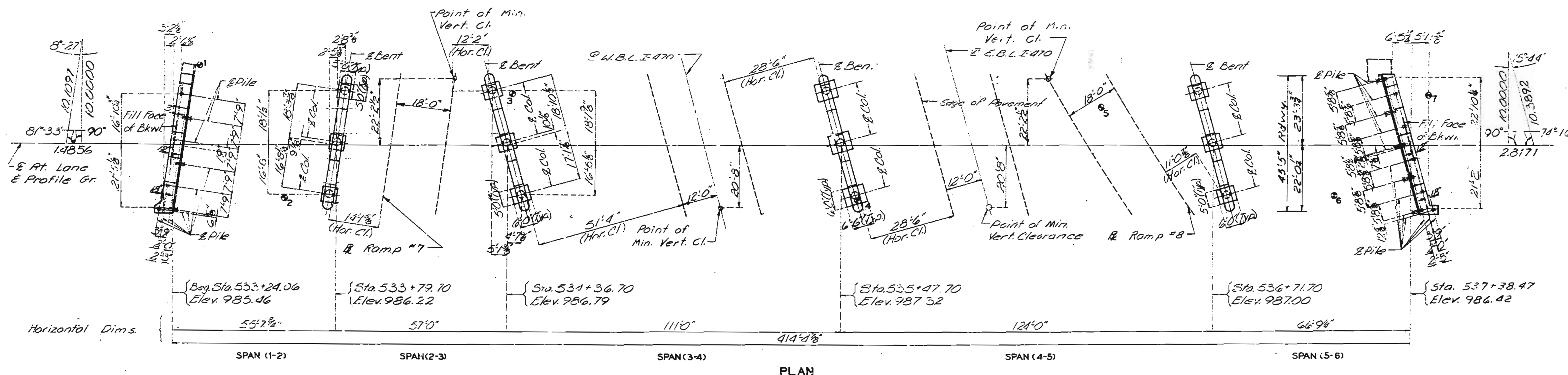
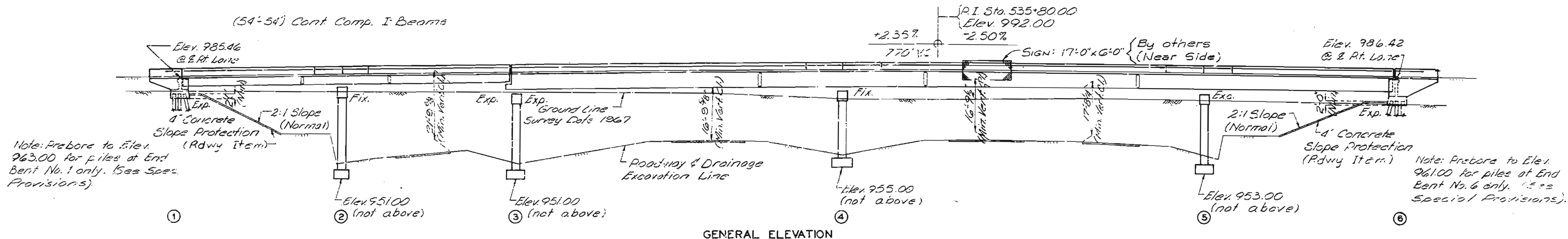


MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	27	

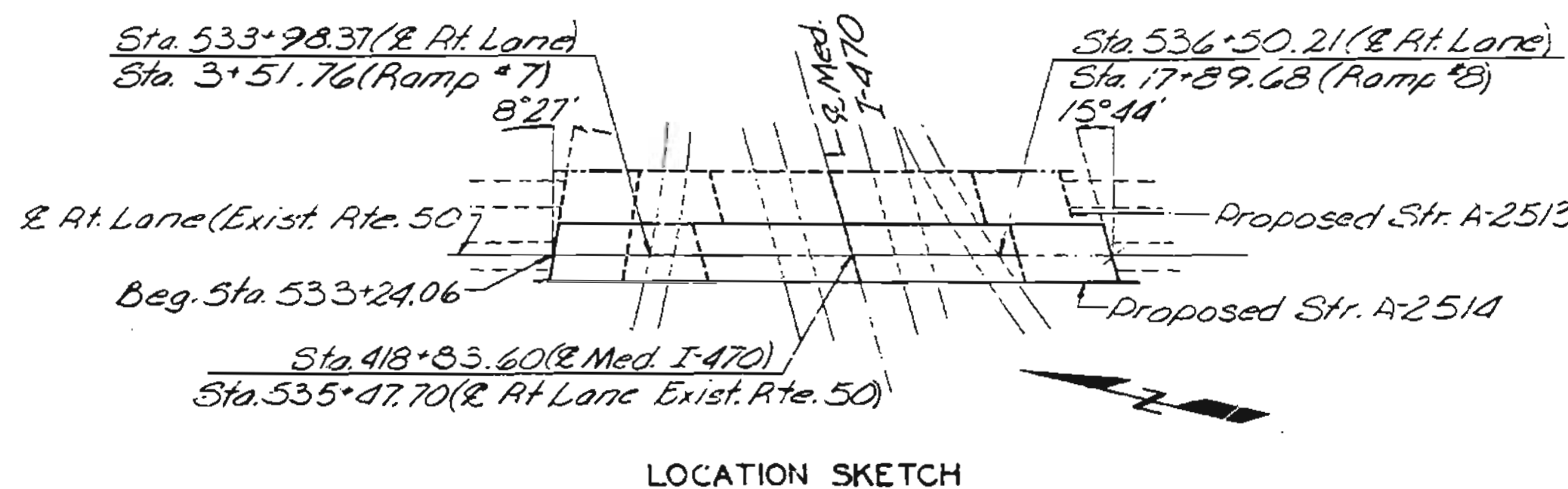
(3'-111'-124'-65') Cont. Comp. R Girder

(54'-54') Cont. Comp. I Beams



⊙ Indicates location of boring. For Boring Data see sheet No. 2.

Note: Heavy dashed lines indicate Proposed Structure A-2513. For General Notes, Estimated Quantities, and Pile Data see sheet No. 2.



B.M. Elev. 965.25 100d Spike in ... Cottonwood 400' Pt. Sta. 426+50 (U.S.G.S. Datum).

**BRIDGE** RTE. 50 OVER RTE. I-470  
**STATE ROAD** FROM HILLCREST RD. TO EAST OF RTE. 50  
**ABOUT 1 MILE S. OF COLBORN RD.**  
**PROJECT NO.** I-IG-470-1(25)  
**JOB NO.** J-4 I-470 45  
**JACKSON COUNTY**

STA. 533+24.06
RTE. I-470
STD
STD 903.60
STD. 611-60.
STD. 7.6.30
<b>A-2514</b>

DESIGNED Aug. 1973  
 DETAILED Jan. 1974  
 CHECKED MAY 1974

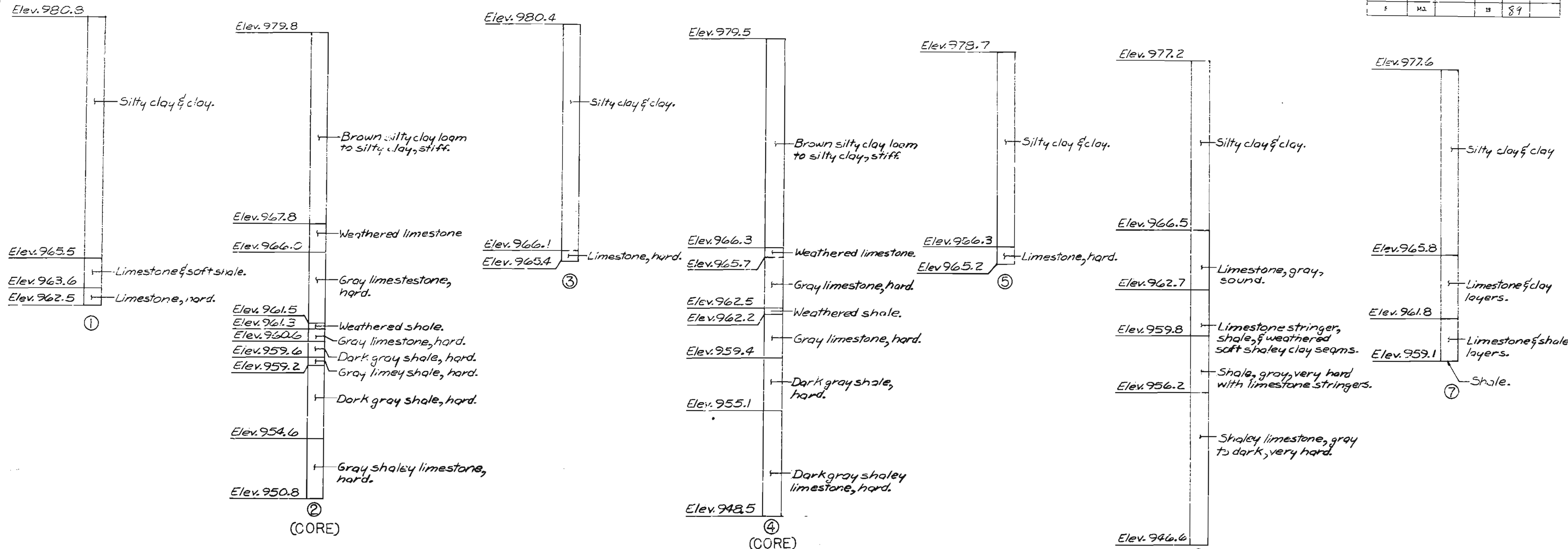
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 27.

DATE Nov. 27, 1978

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	89	



BORING DATA (RIGHT LANE)  
Note: For location of boring see sheet No. 1.

	BENT NO.						
		1	2	3	4	5	6
Bearing Pile	Pile Type and Size	HP10x42					
	Number	7					10
	Approximate Length Ft.	17					17
	Design Bearing Tons	46					45
	Hammer Energy req'd. Ft. Lb.	11400					11200
Spread Footing	Foundation Material		Rock	Rock	Rock	Rock	
	Design Bearing Tons/sq. ft.		7.5	6.5	9.5	8.5	

... bearing value of piles. All piles shall be driven to practical refusal.

Item	Substr.	Superstr.	Total
Class I Excavation	Cu. Yd. 205		205
Slab Drains	Each	11	11
( ** ) Conc. Wearing Surface	Sq. Yd.	2084	2084
Structural Steel Pile (10")	Lin. ft.	289	289
Class B concrete	Cu. Yd. 258.8		258.8
Class B-1 concrete	Cu. Yd.	528.3	528.3
Elastomeric			
Expansion Joint Seal (2.0 in.)	Lin. ft.	95	95
Reinforcing Steel (Grade 60)	Lbs.	43,680	159,020
Preformed Compression Exp. Jt. Seal (2")	Lin. ft.	415	415
Structural Carbon Steel W Beam	Lbs.		102,890
Fabricated Structural Carbon Steel 1/2 Gdr.	Lbs.	333,710	333,710
Fabricated Structural Low Alloy Steel	Lbs.	47,720	47,720
Painting (System B) Green	Ton	242.2	242.2
Pre bore	ft.	255	255
Fabricated Sign Support Brackets	Imp Sum		1

All concrete and reinforcement in safety Barrier Curb is included with superstructure quantities.  
Payweight for fabricated steel will be based on welded field splices regardless of type used.  
\*\* For alternate use of Concrete Wearing Surface, see Spec. Prov. Alternate A is Latex Concrete. Alternate B is Low Slump Concrete.

GENERAL NOTES:  
Design Specifications: A.A.S.H.O.-1973  
Design Loading:  
Hs 20-44 NO future wearing surface  
Earth 120# Equivalent Fluid Pressure 30#  
Fatigue Stress-Case II Interim "A"  
Design Unit Stresses:  
Class B Concrete (substructure)  $f_c = 1,200$  psi  
Class B1 Concrete (superstructure)  $f_c = 1,600$  psi  
Reinforcing steel  $f_s = 20,000$  psi  
Structural Carbon Steel  $f_s = 20,000$  psi  
Structural Steel (A.S.T.M. A-572) Grade 50:  $f_s = 27,000$  psi  
Steel Pile  $f_b = 9,000$  psi  
Fabricated Steel:  
Field connections, High Strength Bolts 3/4"  $\phi$ , holes 13/16"  $\phi$  except as noted.  
Reinforcing Steel:  
Minimum clearance to reinforcing steel shall be 1/2" unless otherwise shown.  
Painting:  
System B by contractor in accordance with Std. Spec. 712.12.  
Color of the final field coat shall be green.  
All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearing by at least 1/2".

DETAILED NOV. 1973  
CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 27.

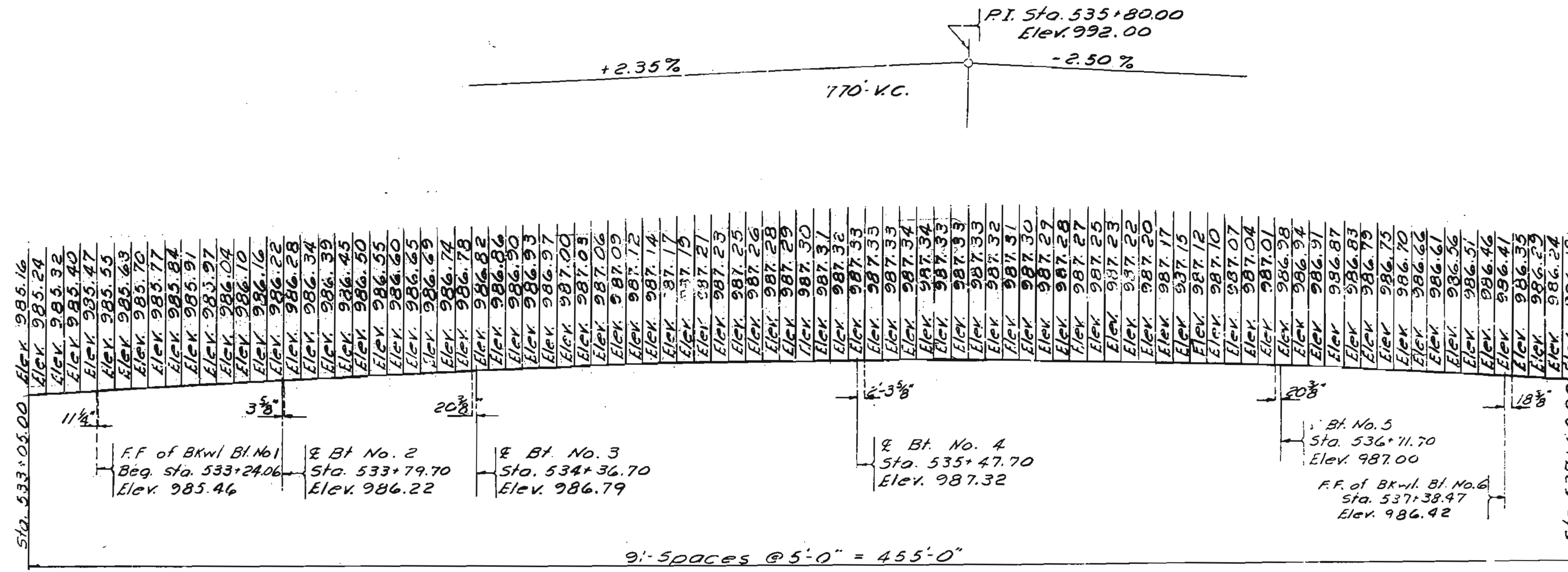
JACKSON

COUNTY

A-2514

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		79	90	



PROFILE GRADE ELEVATIONS

DETAILED JAN. 1974  
 CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 27.

JACKSON

COUNTY

A-2514

MISSOURI STATE HIGHWAY DEPARTMENT

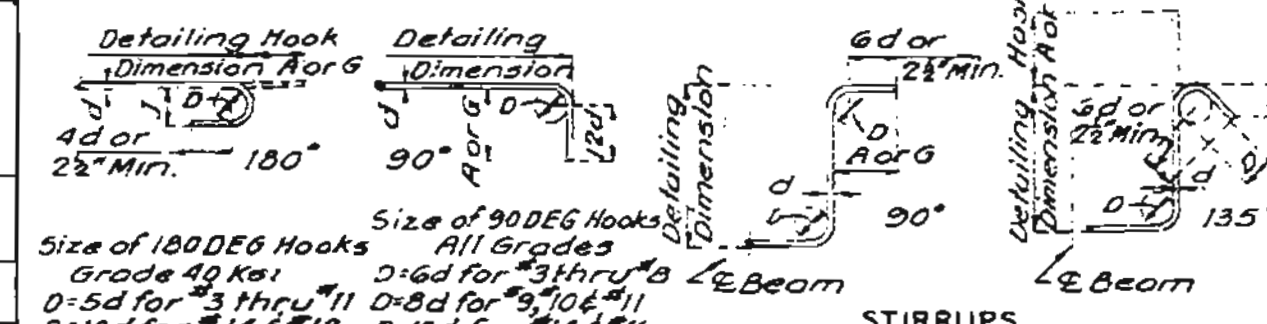
COMPLETE BILL OF REINFORCING STEEL

Table with columns: FED. ROAD DIST. NO., STATE, FED. AID PROJ. NO., FISCAL YEAR, SHEET NO., TOTAL SHEETS.

Main table with columns: NO. REQ., MARK NO., LOCATION, SHAPE NO., STIRRUP(S), DIMENSIONS (B, C, D, E, F, H, K), NOMINAL LENGTH, ACTUAL LENGTH, WEIGHT, NO. REQ., MARK NO., LOCATION, SHAPE NO., STIRRUP(S), DIMENSIONS (B, C, D, E, F, H, K), NOMINAL LENGTH, ACTUAL LENGTH, WEIGHT.

STANDARD HOOKS

STIRRUP HOOKS



END HOOK DIMENSIONS

Table with columns: BAR SIZE, 180° HOOKS, 90° HOOKS, GRADE 60, ALL GRADES.

STIRRUP HOOK DIMENSIONS

Table with columns: BAR SIZE, 90° HOOK, 135° HOOK, HOOK APPROX.

Note: Unless otherwise noted diameter D is the same for all bends and hooks on a bar.

Note: All Standard Hooks and Bends other than 180 DEG. to be bent with same procedure as for 90 DEG. Standard Hooks.

Note: Hooks and bends shall be in accordance with the procedures as shown on this sheet.

Note: Nominal Lengths are based on out to out dimensions shown in bending diagrams and are listed for fabricators use.

Note: Payweights are based on Actual Lengths.

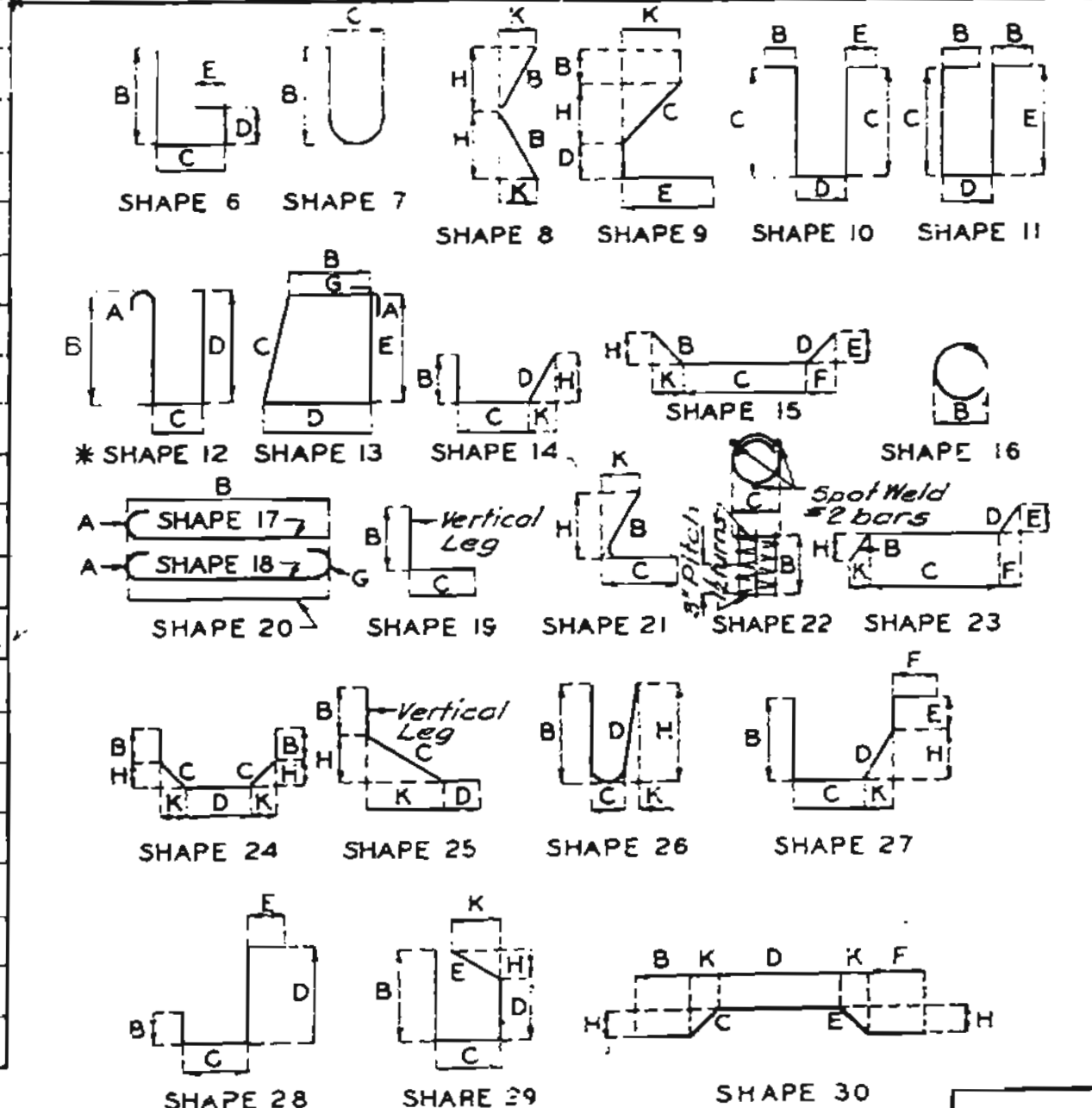
Note: 5~ stirrup. X~ bar is included in substructure quantities. Length ~ Total lengths are measured along centerline bar to the nearest inch.

Note: V~ bar dimensions vary in equal increments between dimensions shown on this line and the following line.

Note: No Ea ~ Number of bars of each length.

Note: All hooks and bends for shape No. 12 (only) are based on D=5d.

BENDING DIAGRAMS



REVISED JULY 1969 MAR. 1974

DETAILED MAY 1974 CHECKED MAY 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 27.

JACKSON COUNTY

JACKSON COUNTY

A-2514

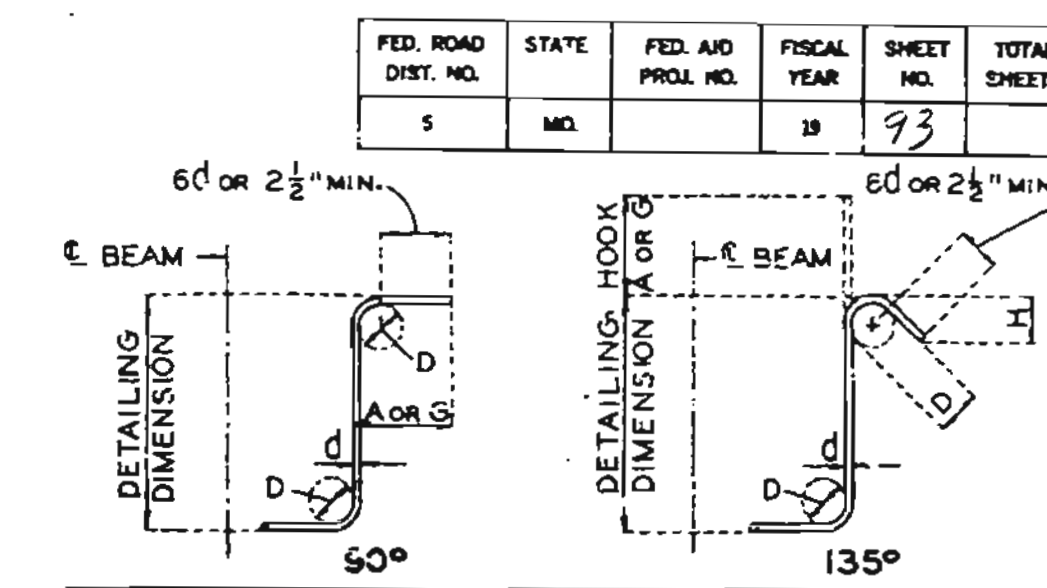




MISSOURI STATE HIGHWAY DEPARTMENT

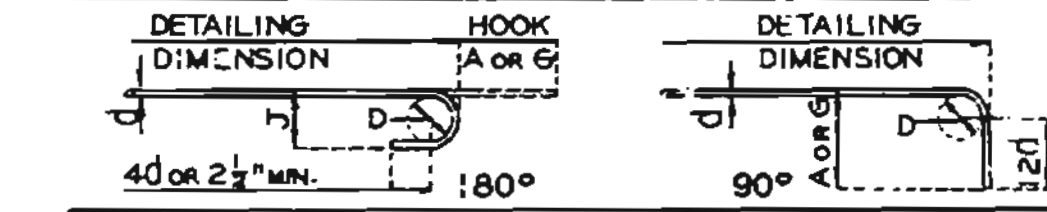
COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
								B	C	D	E	F	H	K			
								FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.			
130	5512	SLAB	20				50	0.000						50	0	4780	
12	5513	SLAB	20				20	3.250						20	3		
		INCR = 2.875 IN					22	11.000						22	11	270	
12	5514	SLAB	20				16	8.250						16	8		
		INCR = 2.875 IN					19	3.000						19	3	225	
12	5515	SLAB	20				13	1.250						13	1		
		INCR = 2.875 IN					15	8.250						15	8	180	
12	5516	SLAB	20				9	5.250						9	5		
		INCR = 2.875 IN					12	1.250						12	1	135	
12	5517	SLAB	20				5	10.000						5	10		
		INCR = 2.875 IN					8	5.000						8	5	89	
189	5519	SLAB	17				2	0.000						2	0	509	
2	5520	SLAB	20				5	4.500						5	5	11	
3	5521	SLAB	20				22	3.250						22	3	70	
28	5R1	BARRIER	19	S			2	2.000	6.000					2	8	75	
2	5R4	BARRIER	20				9	9.000						9	9	20	
11	5R5	BARRIER	20				10	9.000						10	9	123	
1	5R6	BARRIER	20				10	3.000						10	3	11	
2	5R7	BARRIER	20				13	9.000						13	9	29	
11	5R8	BARRIER	20				14	9.000						14	9	169	
1	5R9	BARRIER	20				14	3.000						14	3	15	
32	5R10	BARRIER	27	S			12.000	18.000	11.125	6.000		6.375	9.125	3	11	125	
461	5R11	BARRIER	19	S			2	8.000	3.500					3	0	1362	
461	5R12	BARRIER	19	S			2	8.125	3.500			2	8.000	3.000	3	0	1402
429	5R13	BARRIER	19	S			19.000	6.000						2	1	895	
6	5R14	BARRIER	20				45	3.000						45	3	283	
18	5R15	BARRIER	20				8	9.000						8	9	164	
12	5R16	BARRIER	20				11	9.000						11	9	147	
6	5R17	BARRIER	20				54	8.000						54	8	342	
12	5R18	BARRIER	20				51	4.000						51	4	642	
12	5R19	BARRIER	20				51	7.000						51	7	646	
6	5R20	BARRIER	20				56	3.000						56	3	352	
6	5R21	BARRIER	20				9	9.000						9	9	41	
429	5R24	BARRIER	27	S			6.000	11.125	9.000	12.000	9.125	6.375	3	2	3	1342	
		END OF BAR LIST															



BAR SIZE	D (IN.)	90° HOOK		135° HOOK	
		HOOK A OR G	APPROX. H	HOOK A OR G	APPROX. H
#3	1-1/2"	4"	2-1/2"	4"	2-1/2"
#4	2"	4-1/2"	3"	4-1/2"	3"
#5	2-1/2"	6"	3-3/4"	5-1/2"	3-3/4"
#6	4-1/2"	8"	4-1/2"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI) D=5d FOR #3 THRU #11 D=10d FOR #14 AND #18

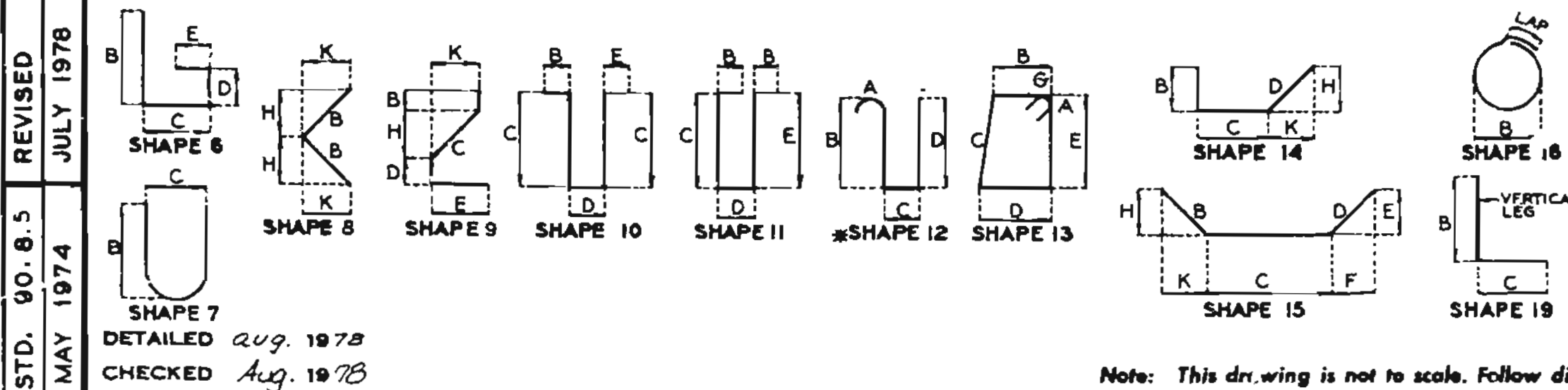
SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI) D=5d FOR #3 THRU #3 D=5d FOR #5, #10, #10#11 D=10d FOR #14 AND #18

BAR SIZE	180° HOOKS				
	GRADE 40		GRADE 60		90° HOOKS
	A OR G	J	A OR G	J	A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	4-1/2"	6"	4"	3"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	5"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21-0"
#14	21-2"	20-1/2"	21-2"	20-1/2"	21-7"
#18	21-11"	21-3"	21-11"	21-3"	31-5"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

S - STIRRUP.  
 X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.  
 V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.  
 NO. EA. - NUMBER OF BARS OF EACH LENGTH.  
 NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)  
 ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.

\* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.



BENDING DIAGRAMS

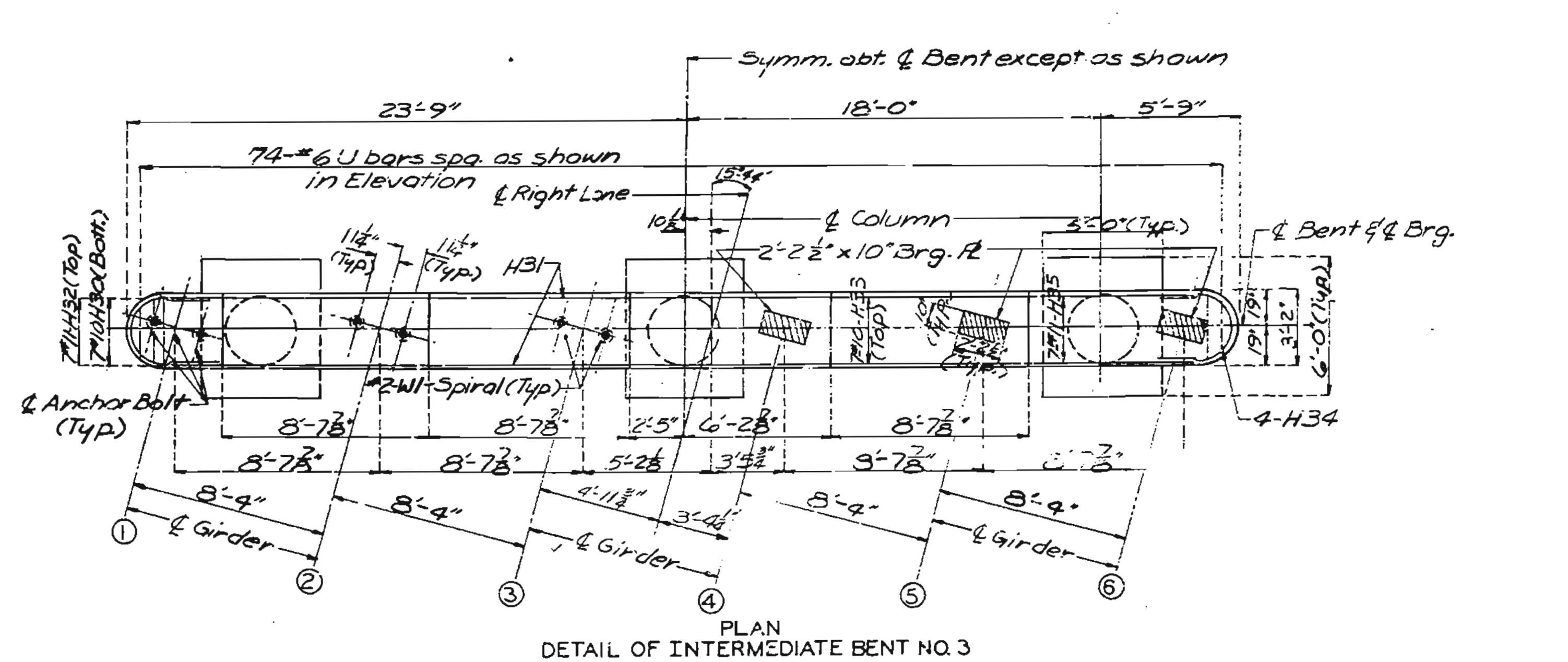
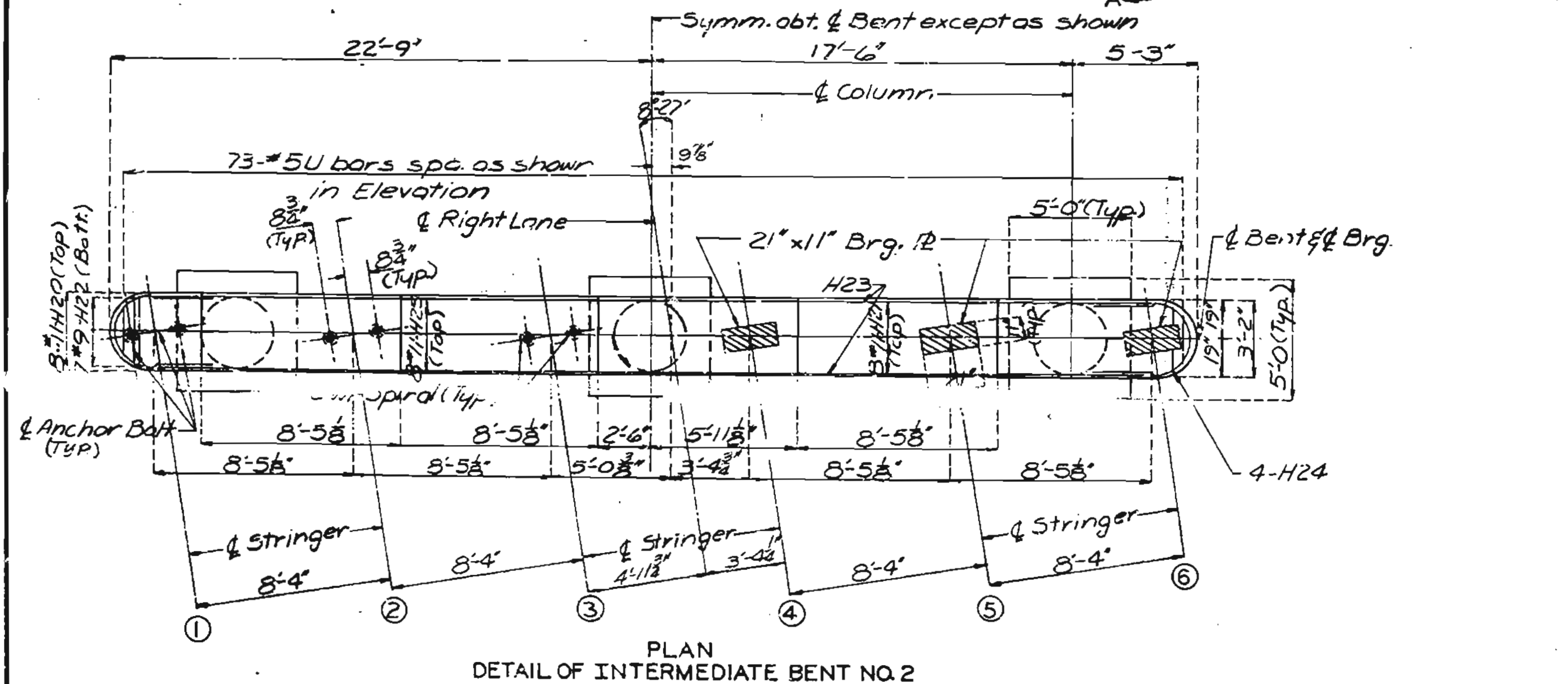
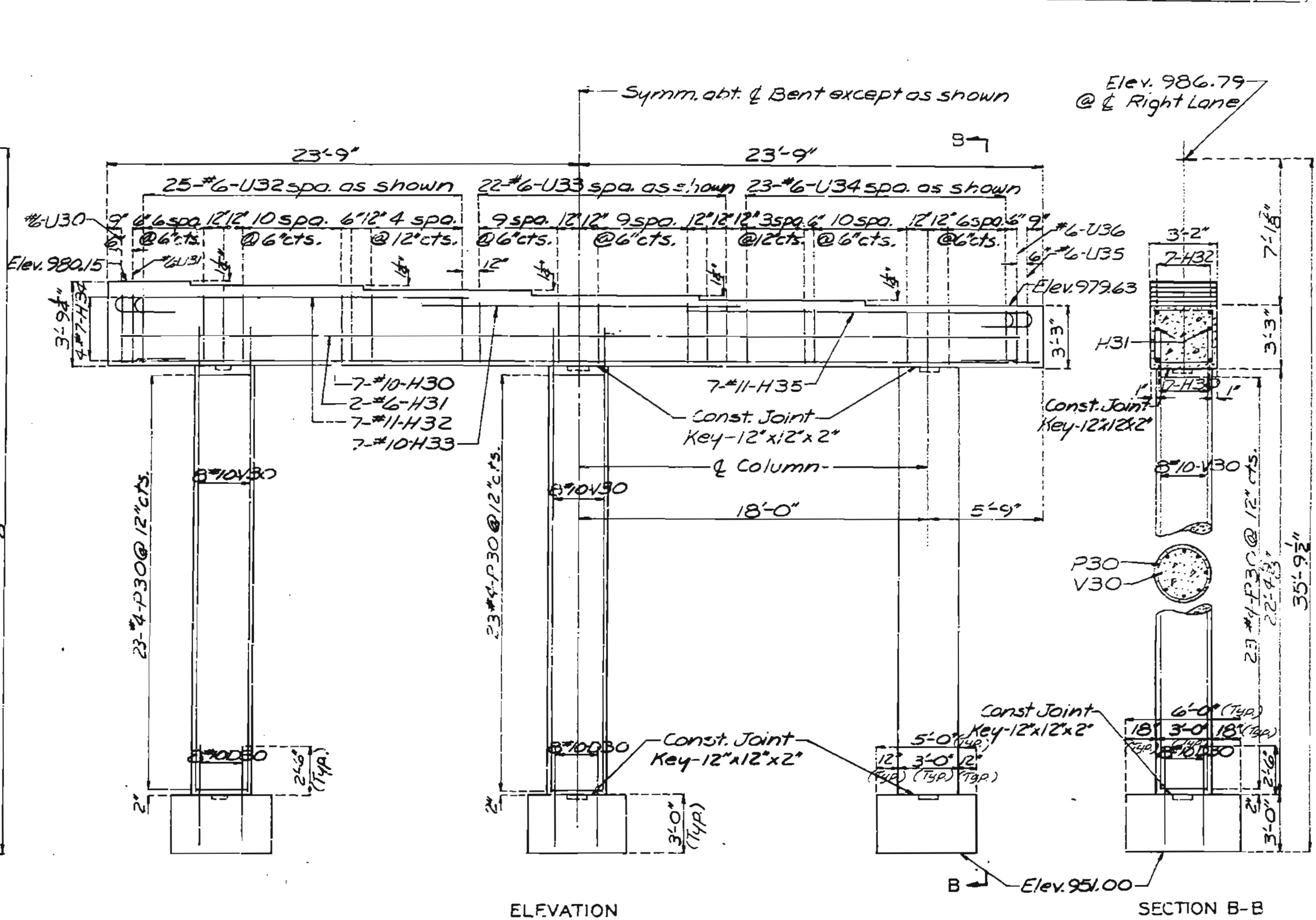
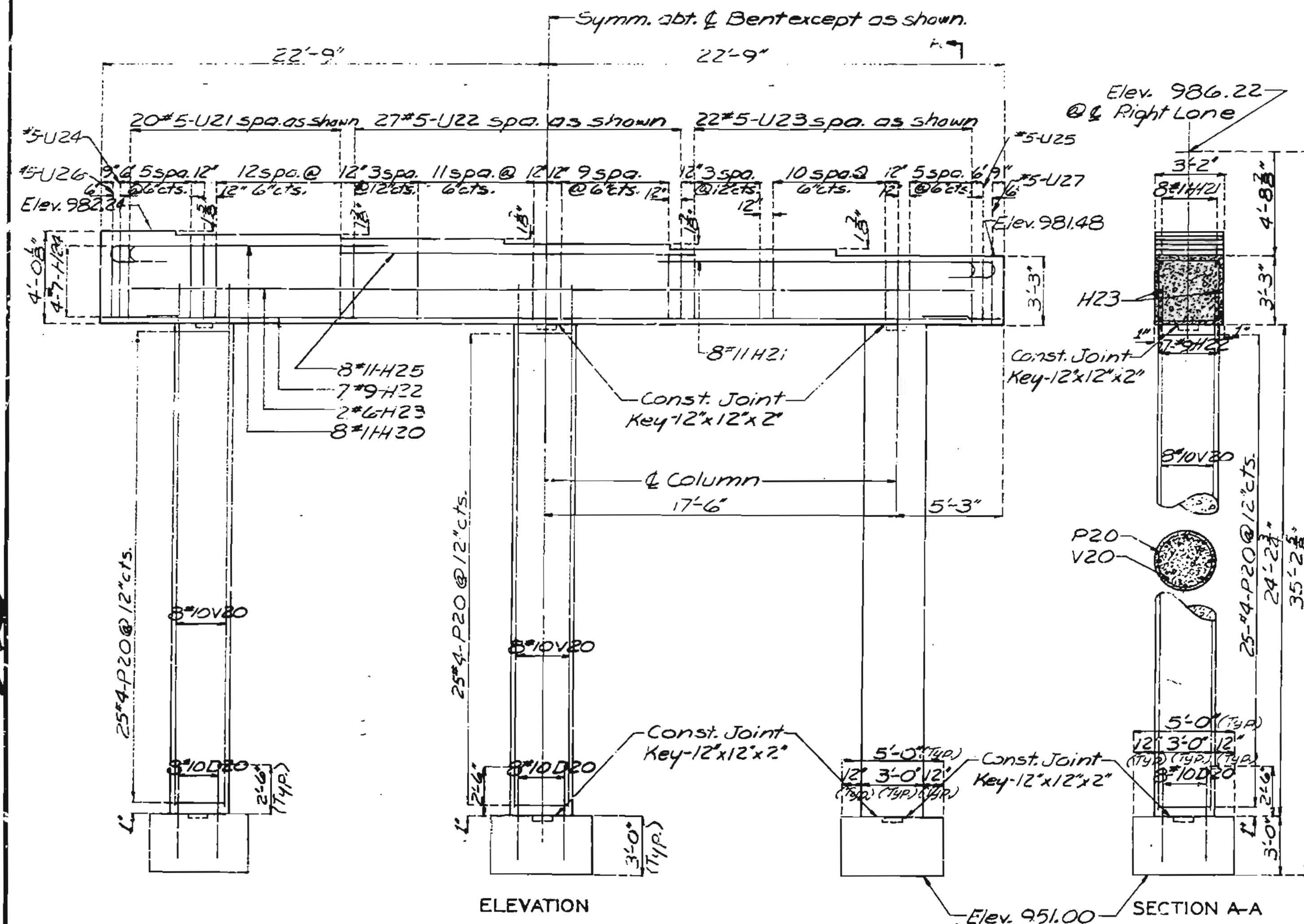
Note: This drawing is not to scale. Follow dimensions.

REVISED JULY 1978  
 MAY 1974  
 STD. 90.8.5  
 DETAILED Aug. 1978  
 CHECKED Aug. 1978



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	95	



DETAILED JAN 1974  
CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 27.

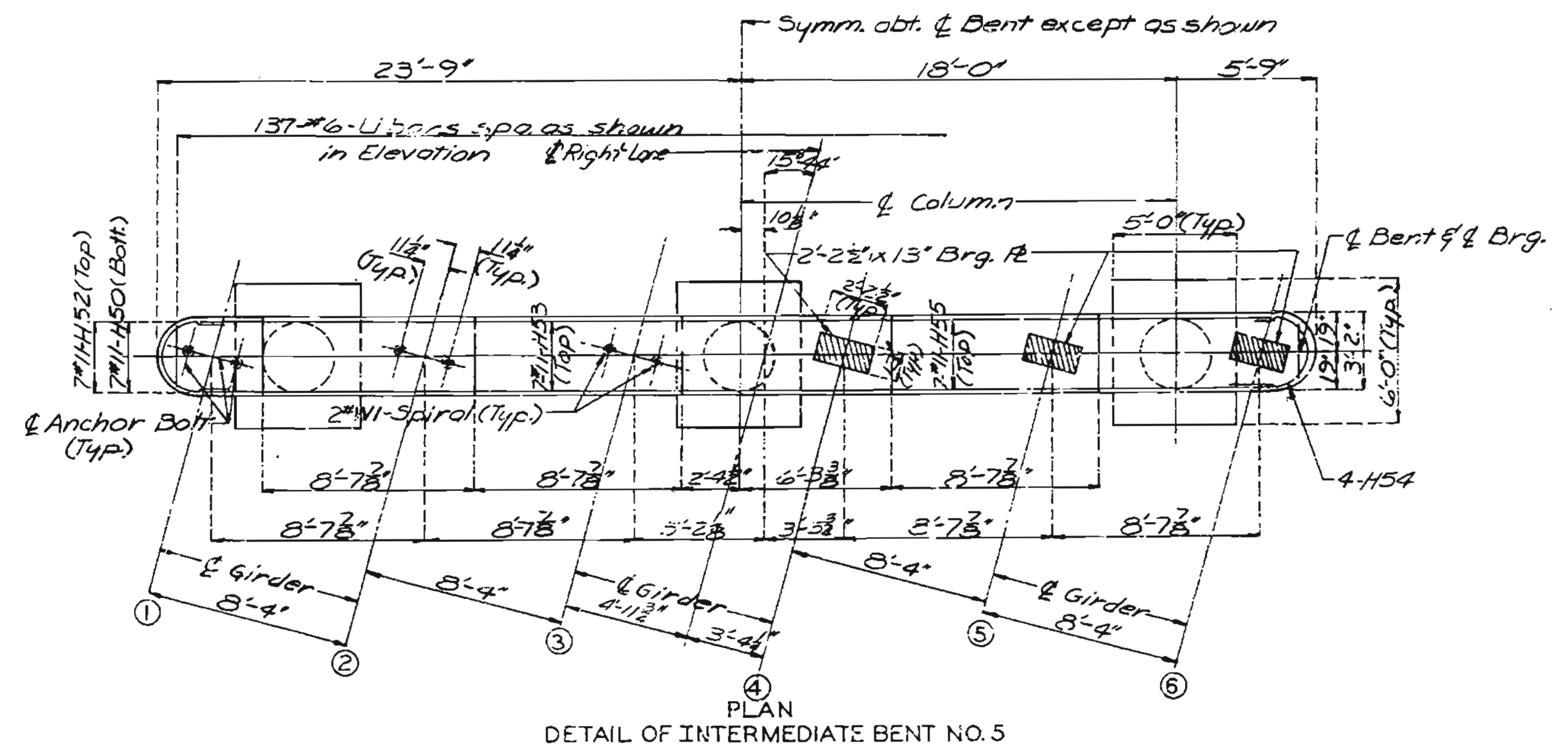
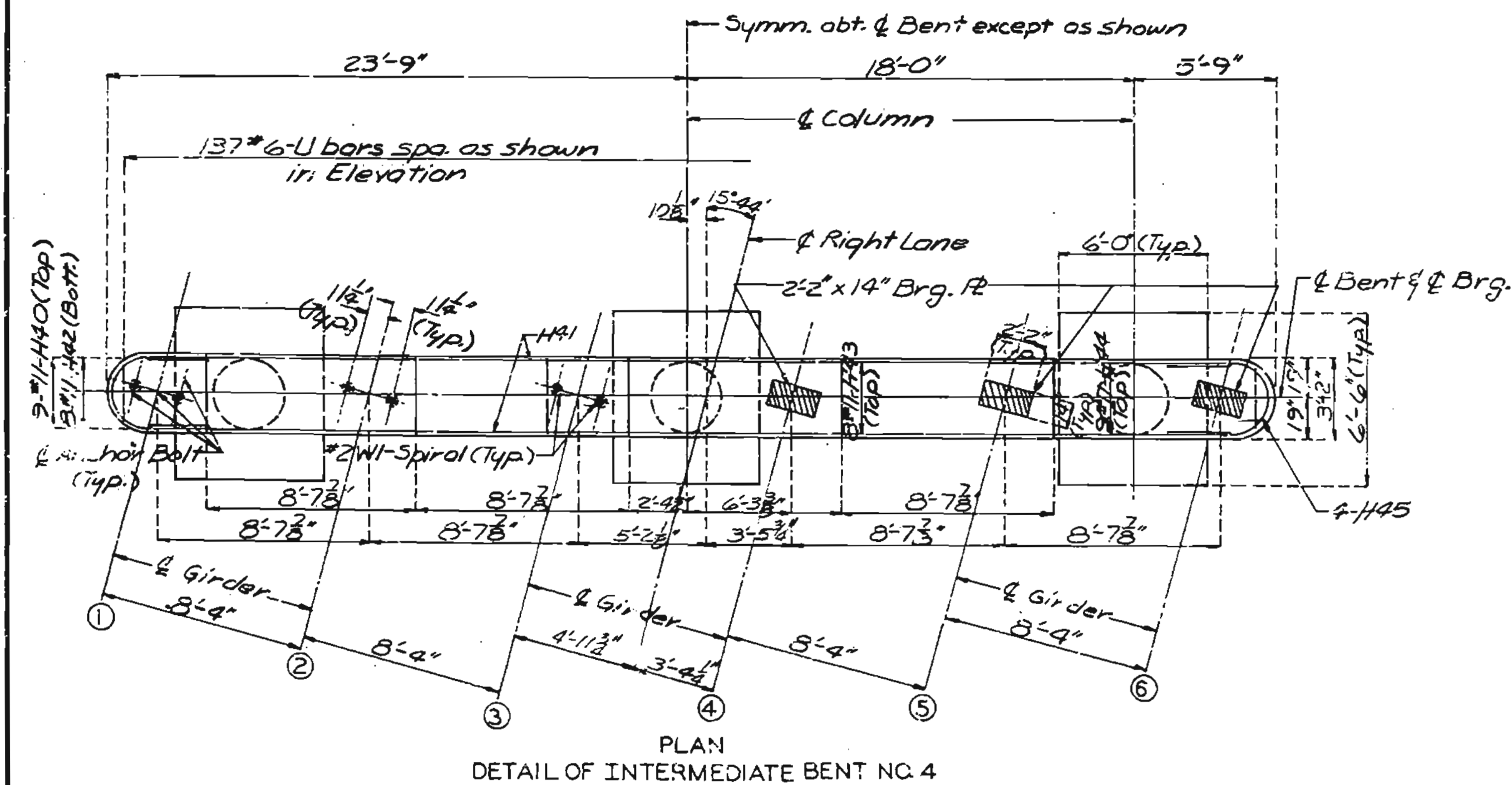
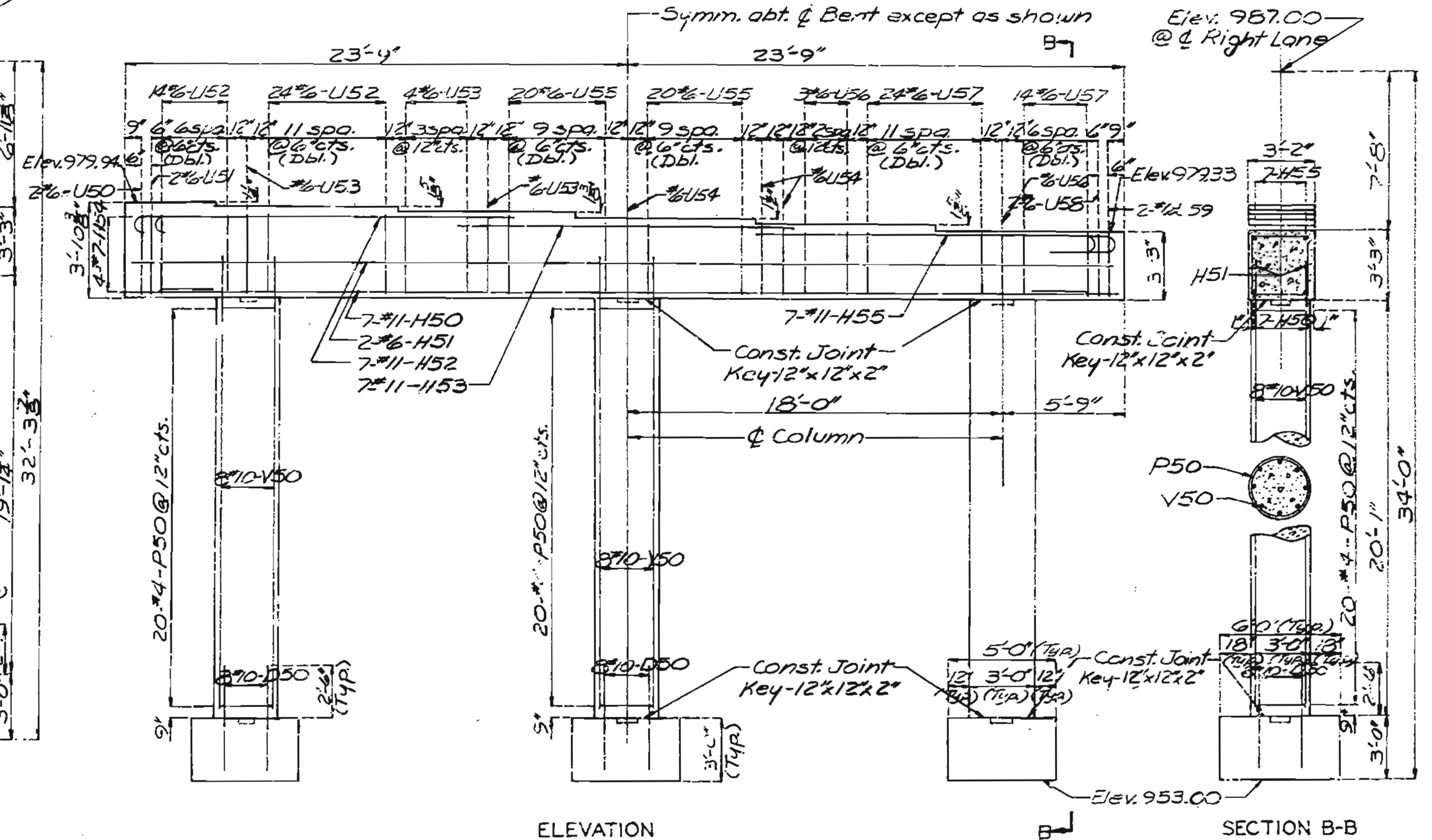
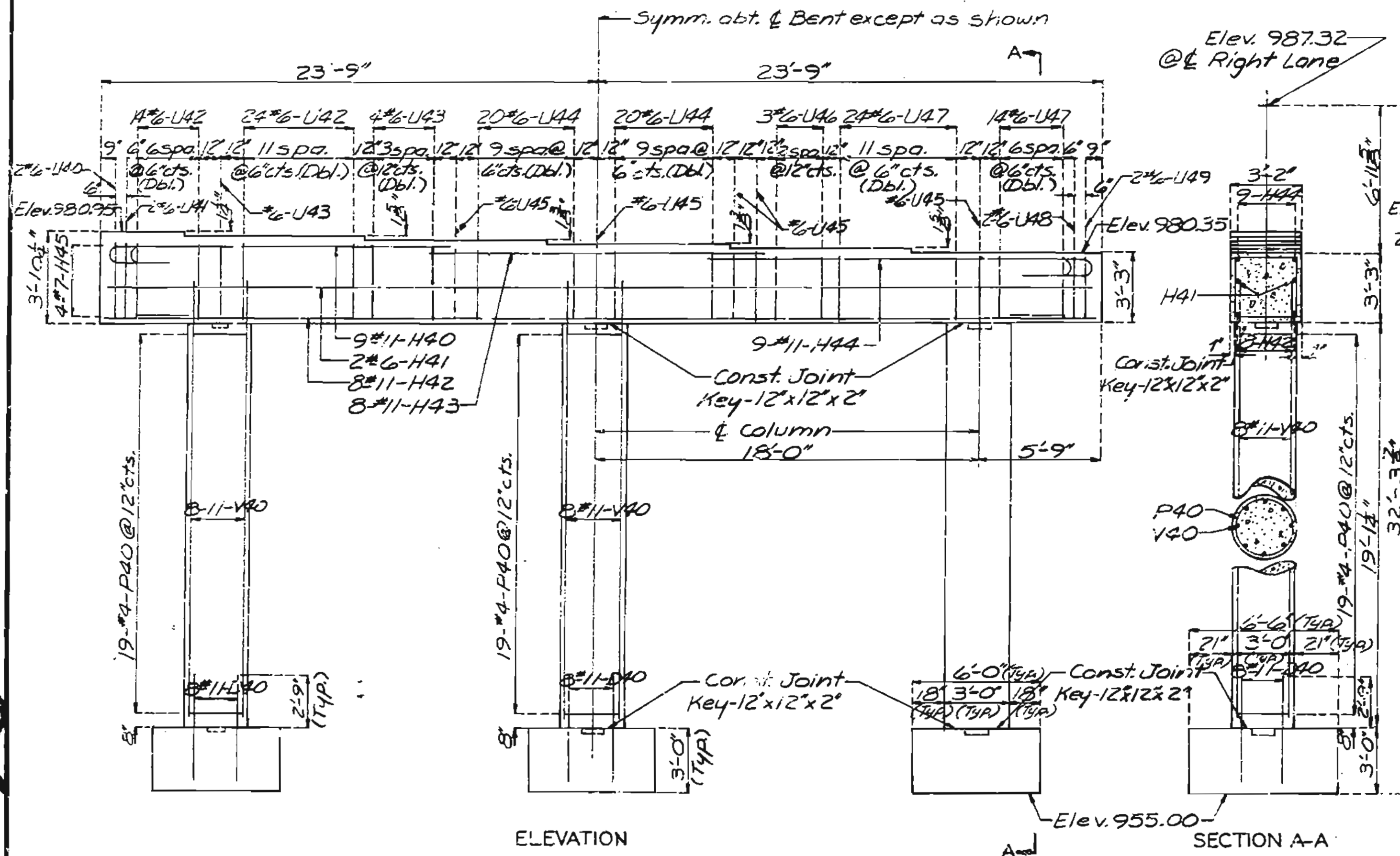
JACKSON

COUNTY

A-2514

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	94	



DETAILED JAN. 1974  
CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 27.

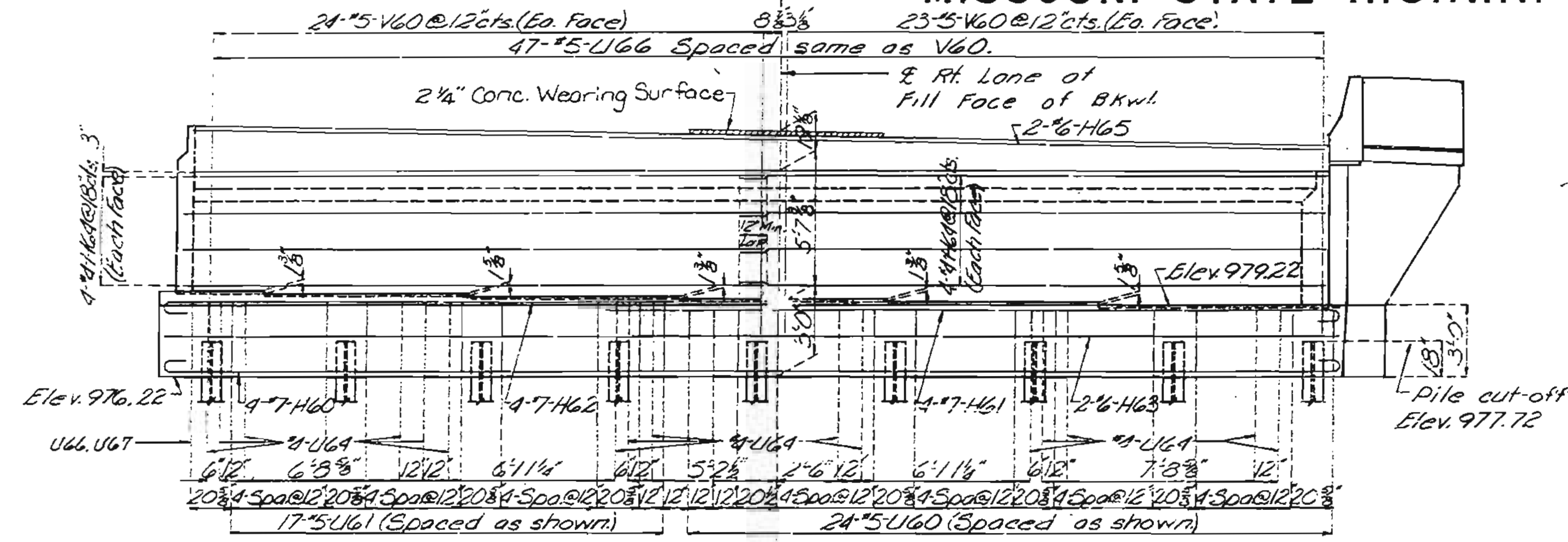
JACKSON

COUNTY

A-2514

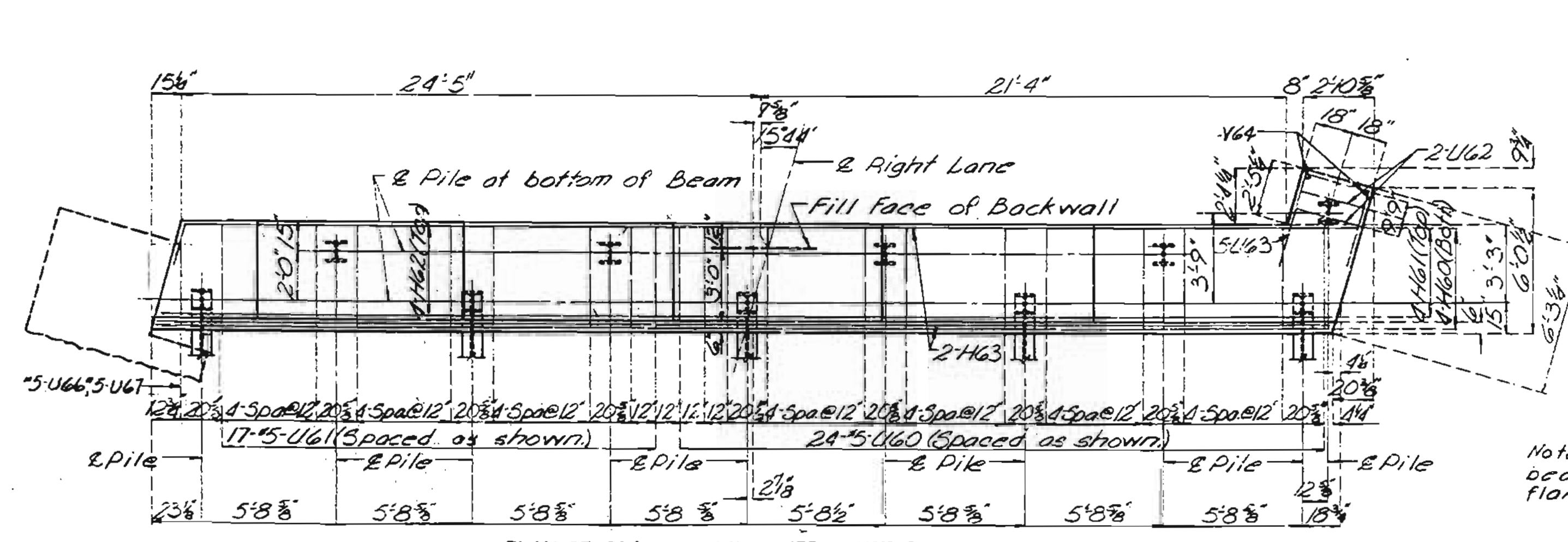
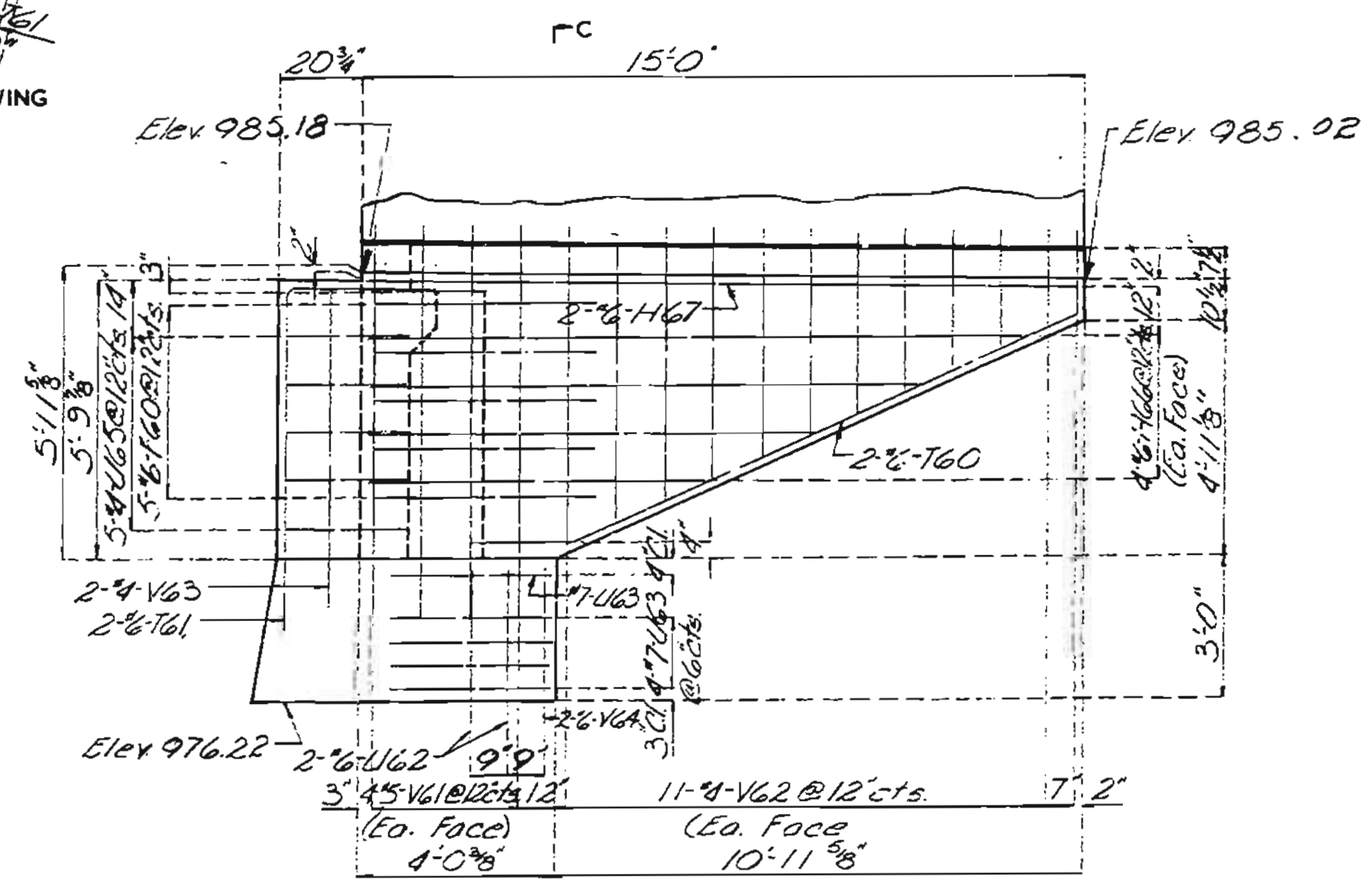
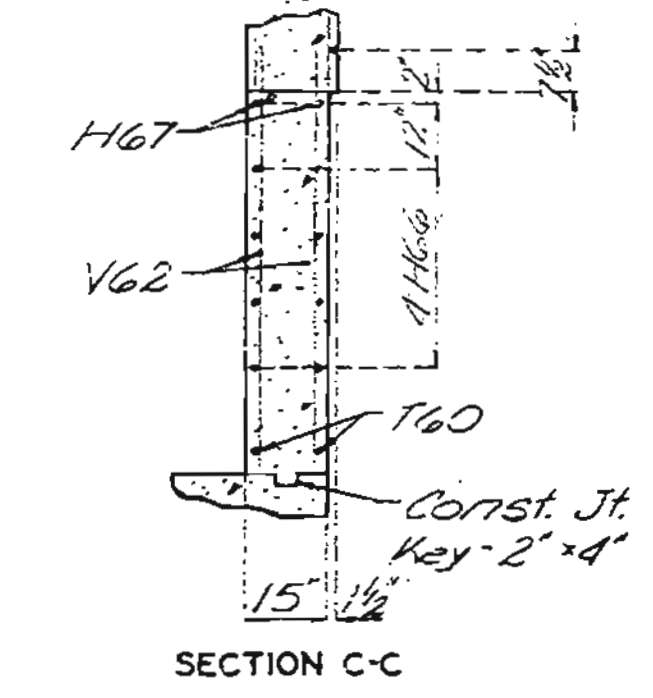
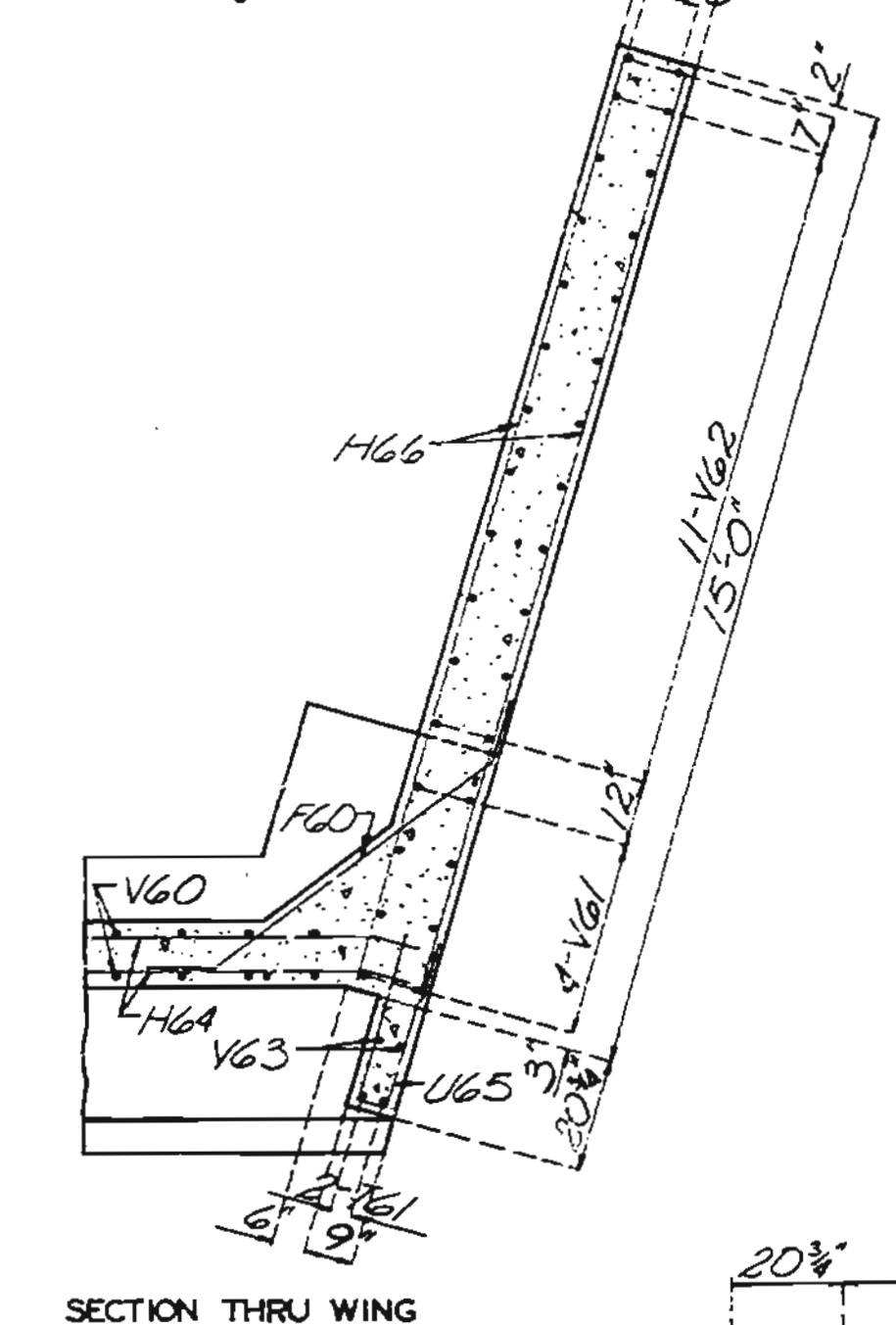
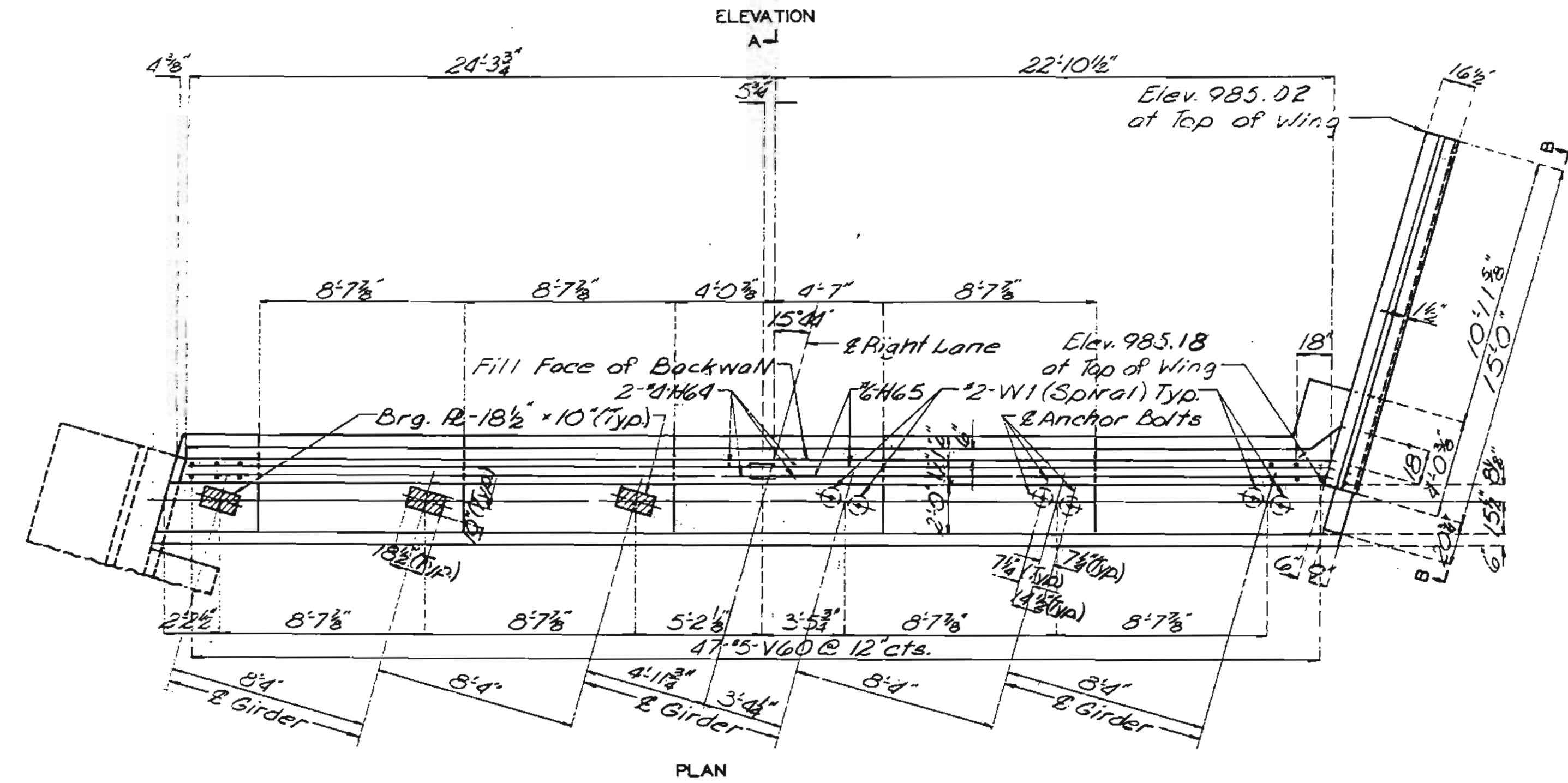
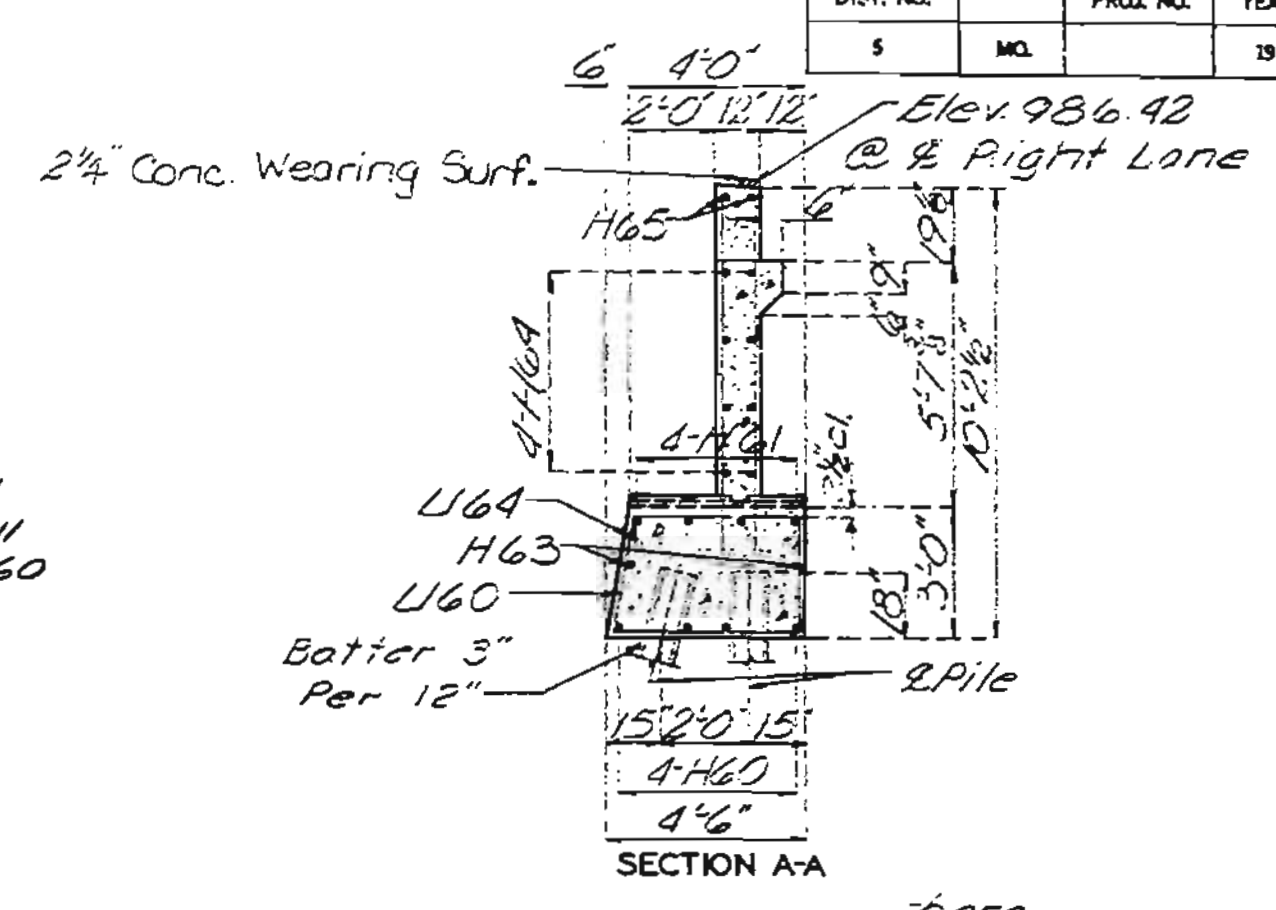
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		79	97	



Note: Top of Backwall and expansion device for end Bent No. 6 to conform to slope of Roadway slab.  
 Backwall above upper const. Joint shall not be poured until the superstructure slab has been poured in the adjacent span.  
 See sheet No. 25 for reinforcement of Barrier Curb.

Heavy dashed lines indicate proposed structure A-2513.  
 Field bending shall be required at wing for #6-H65 bars in backwall with expansion device and for #60 bars when necessary to conform to slope of wing.



Note: Elev shown at top of substructure beam is based on 3/4\"/>

PLAN OF BEAM (BELOW LOWER CONST. JT.)  
 DETAILS OF END BENT NO. 6 (RIGHT LANE)

Note: This drawing is not to scale. Follow dimensions.

DETAILED Jan. 1974  
 CHECKED May 1974

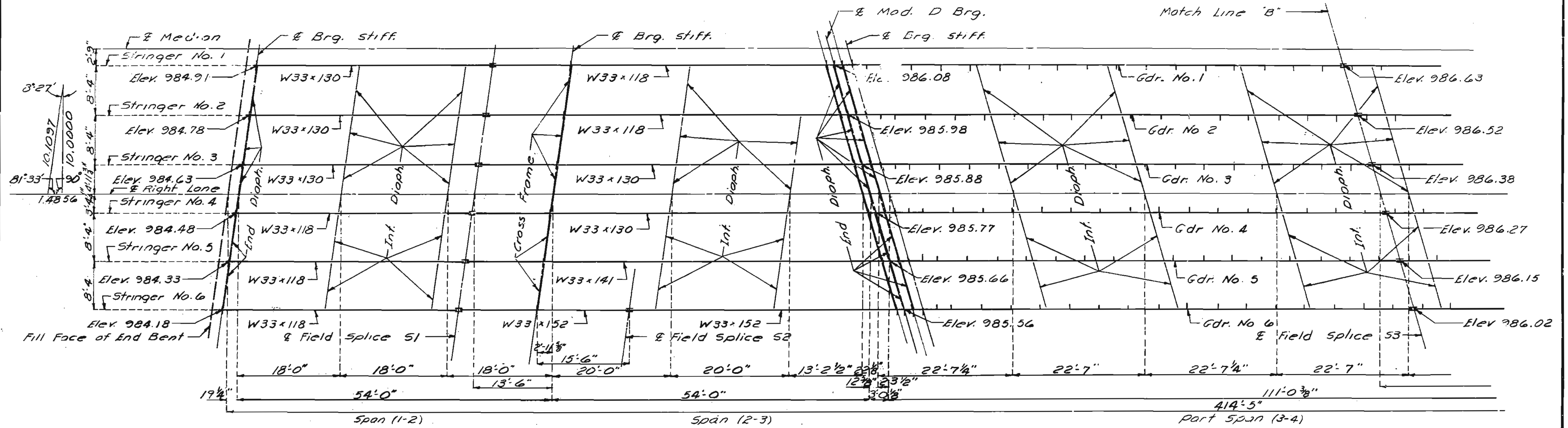
Sheet No. 10 of 27.

JACKSON COUNTY

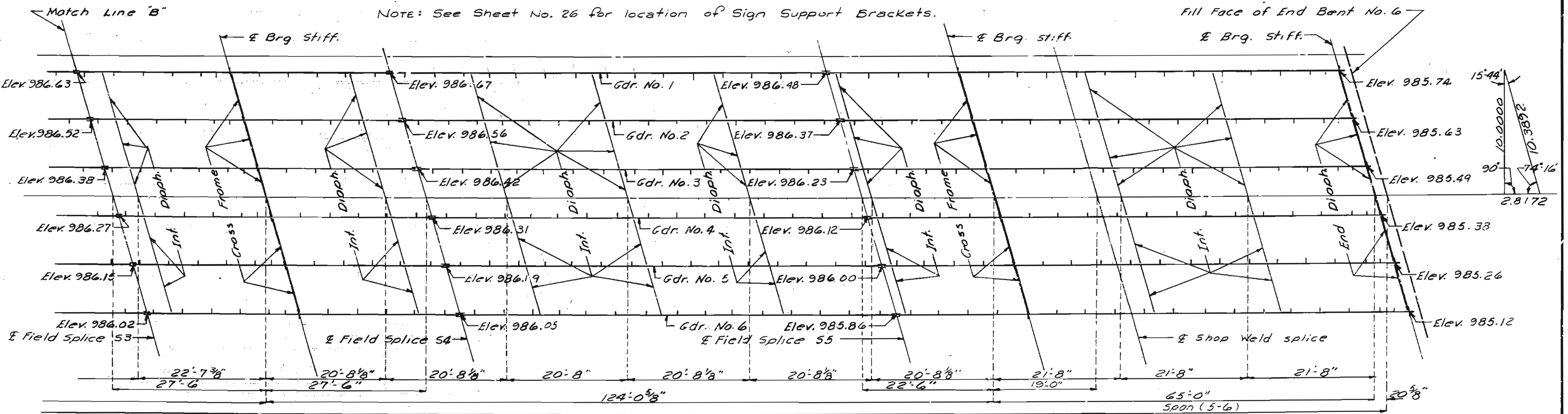
A-2514

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	98	



NOTE: See Sheet No. 26 for location of Sign Support Brackets.



Note: Notch toughness required for W beams. Transverse web stiffeners shall be placed as detailed.

Note: All longitudinal dimensions shown are taken parallel to grade of & of roadway. Elevations shown are at bottom of top flange of stringer and girder.

DETAILED JAN. 1974  
CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

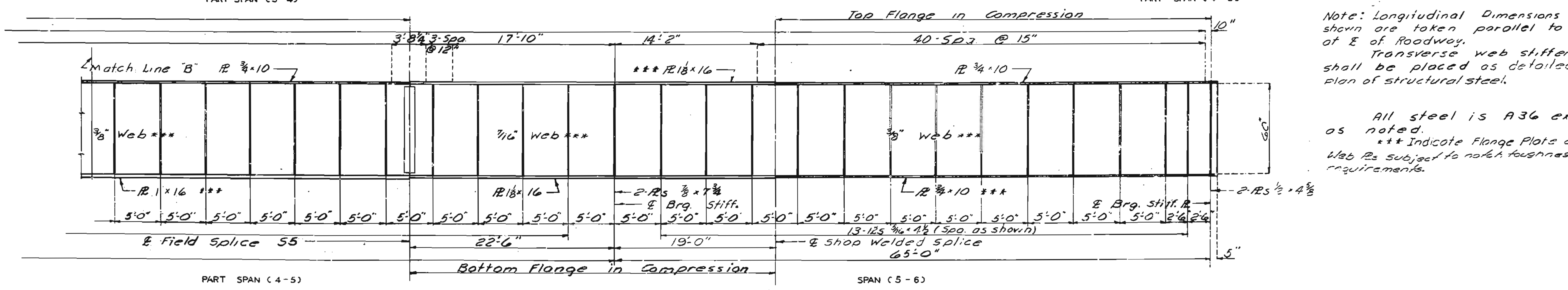
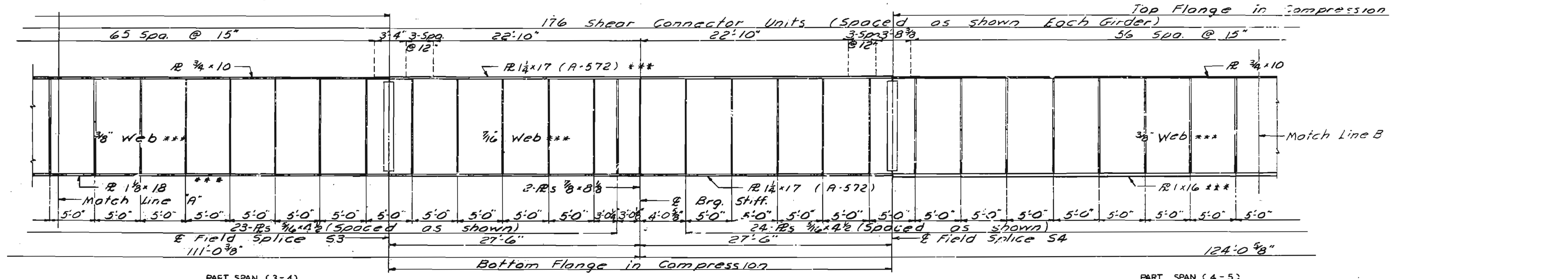
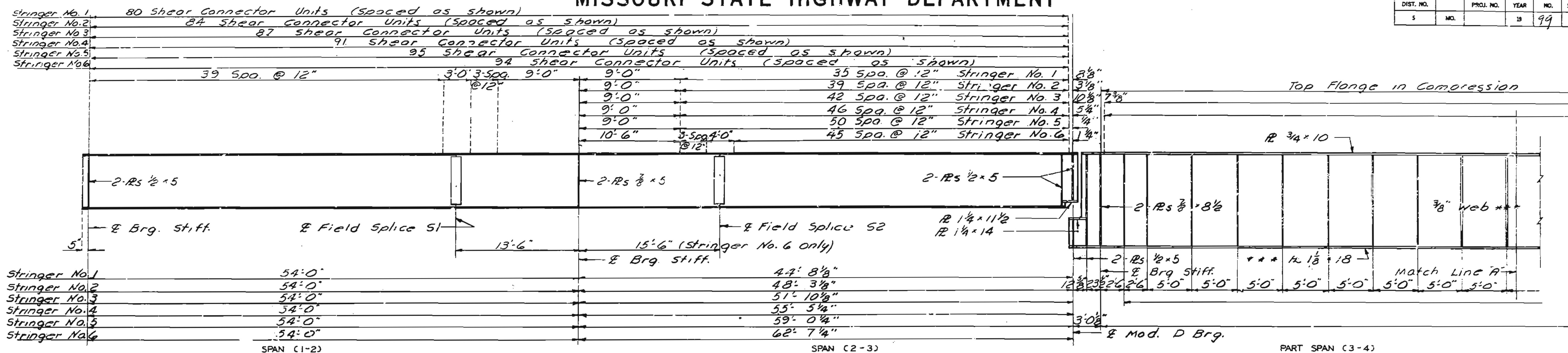
Sheet No. 11 of 27.

JACKSON COUNTY

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	99	



Note: Longitudinal Dimensions shown are taken parallel to grade at E of Roadway. Transverse web stiffeners shall be placed as detailed on plan of structural steel.

All steel is A36 except as noted. \*\*\* Indicate Flange Plots and Web Plots subject to notch toughness requirements.

Note: See Sheet No. 25 for location of Sign Support Brackets.

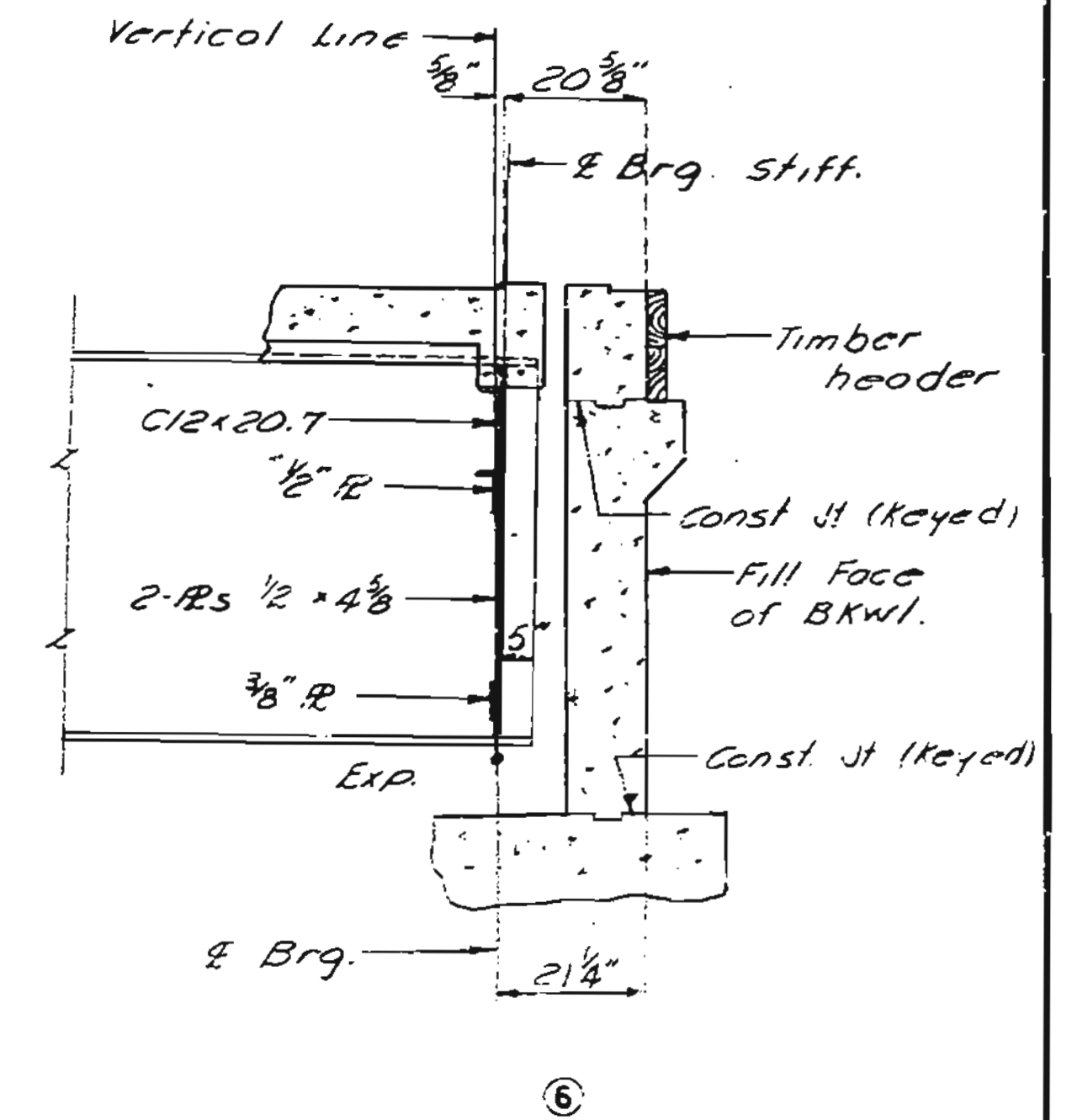
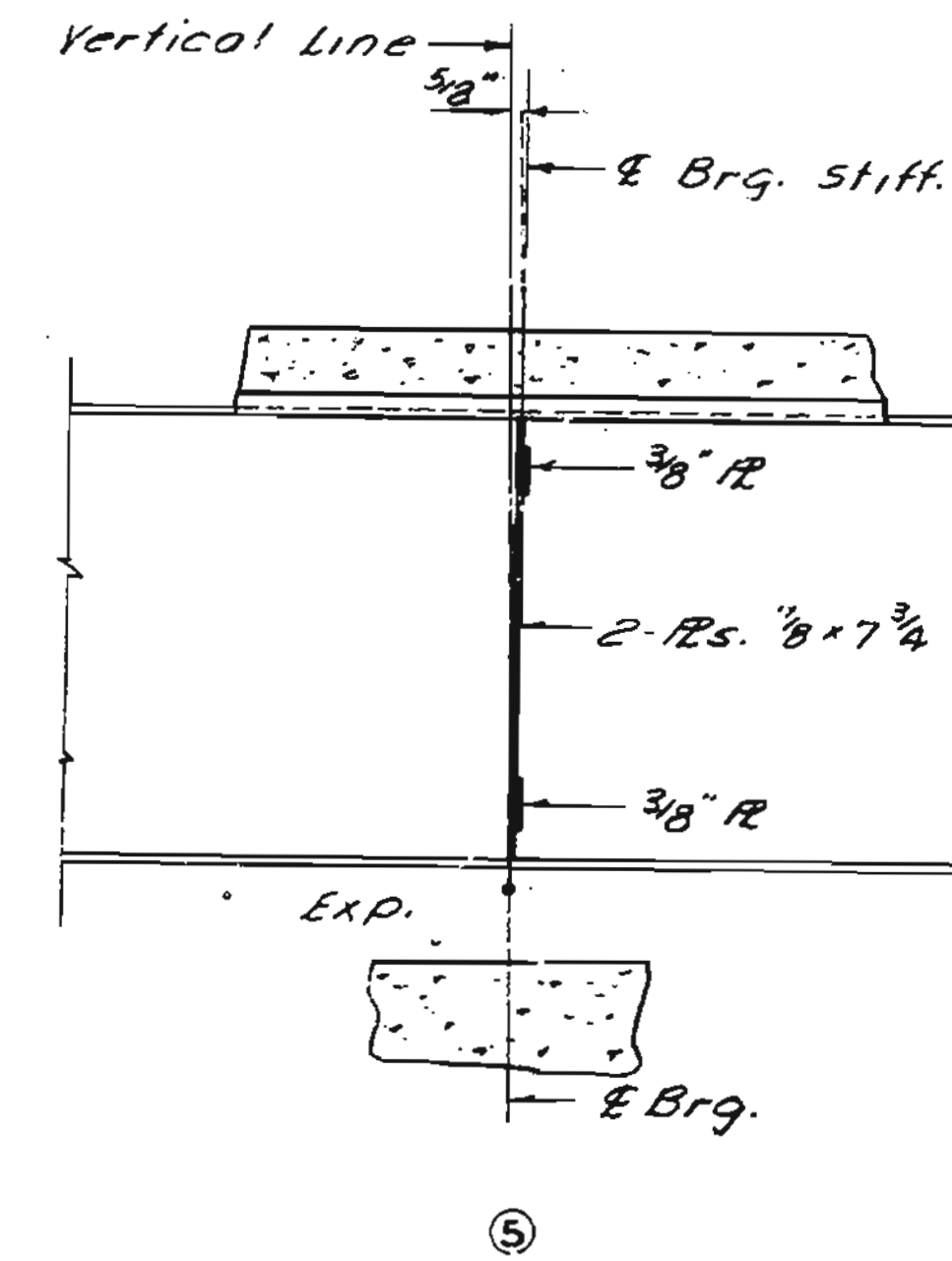
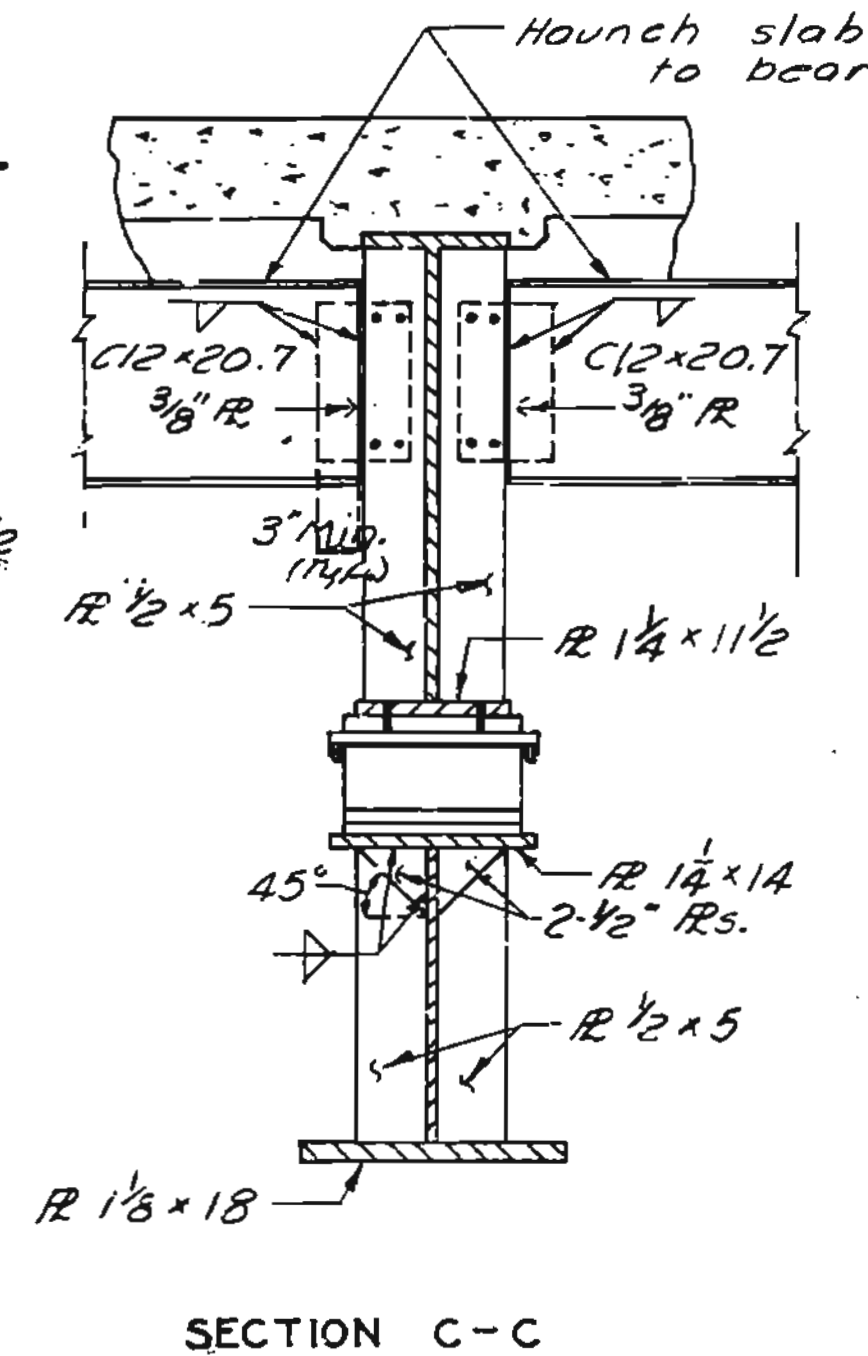
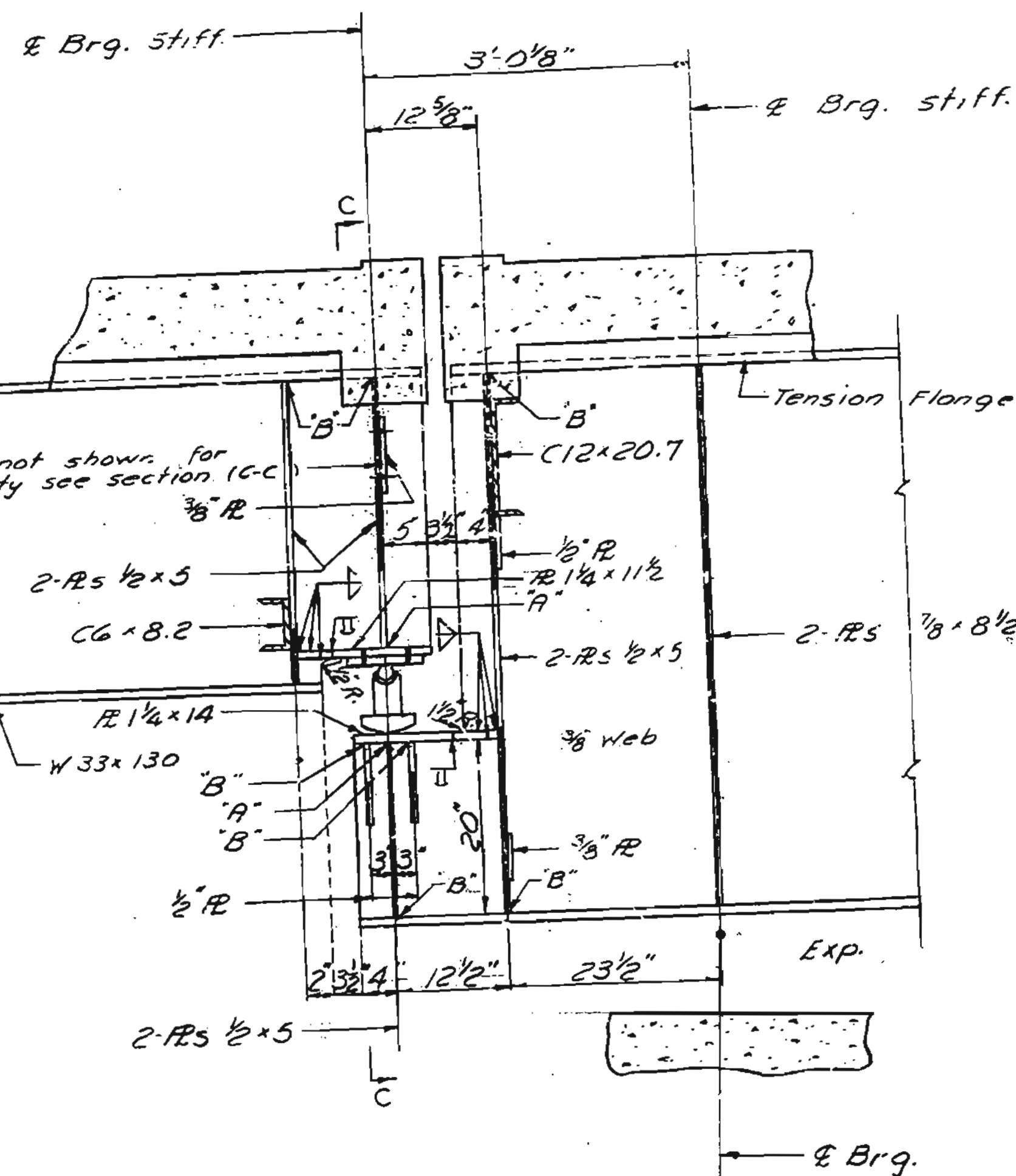
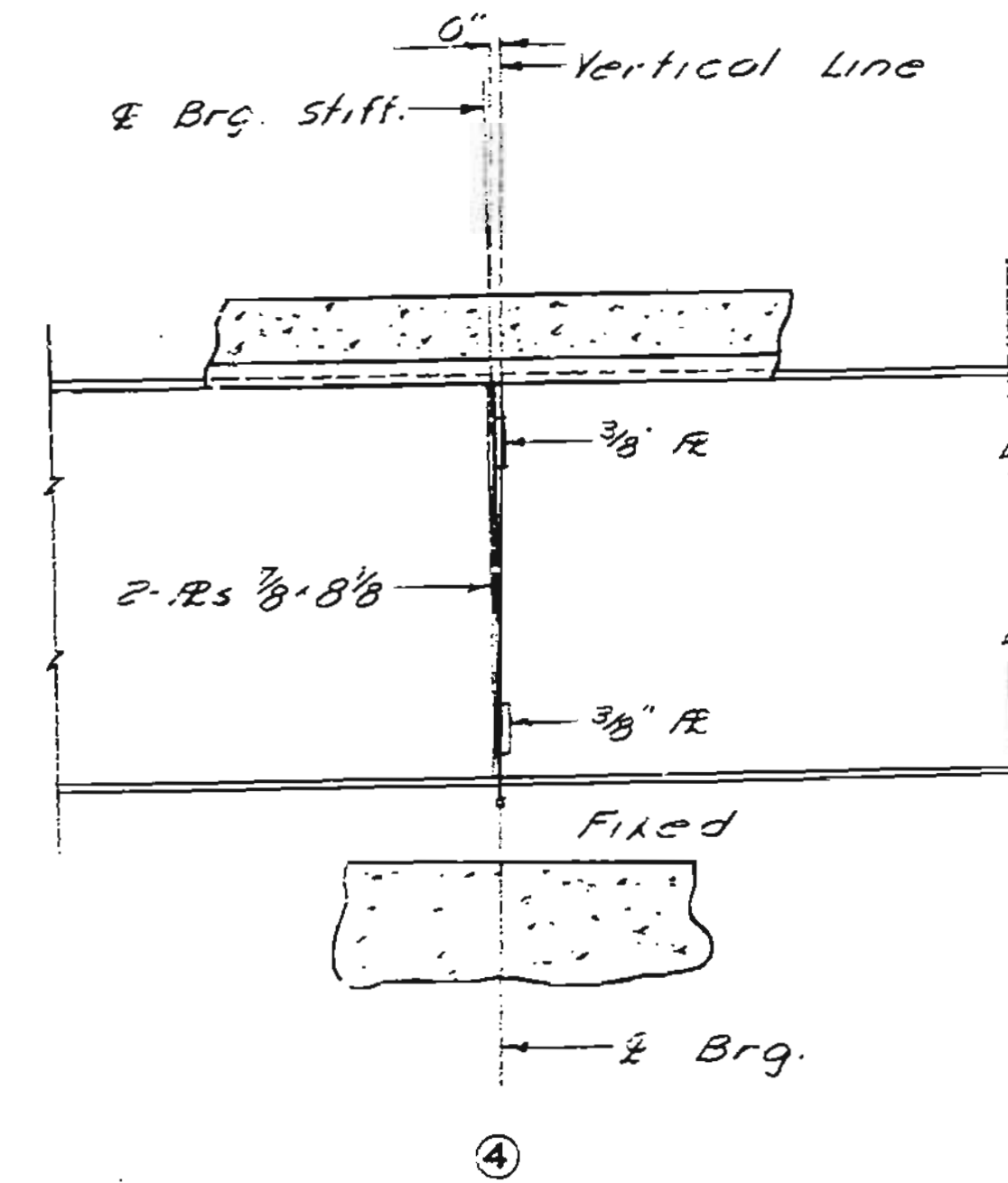
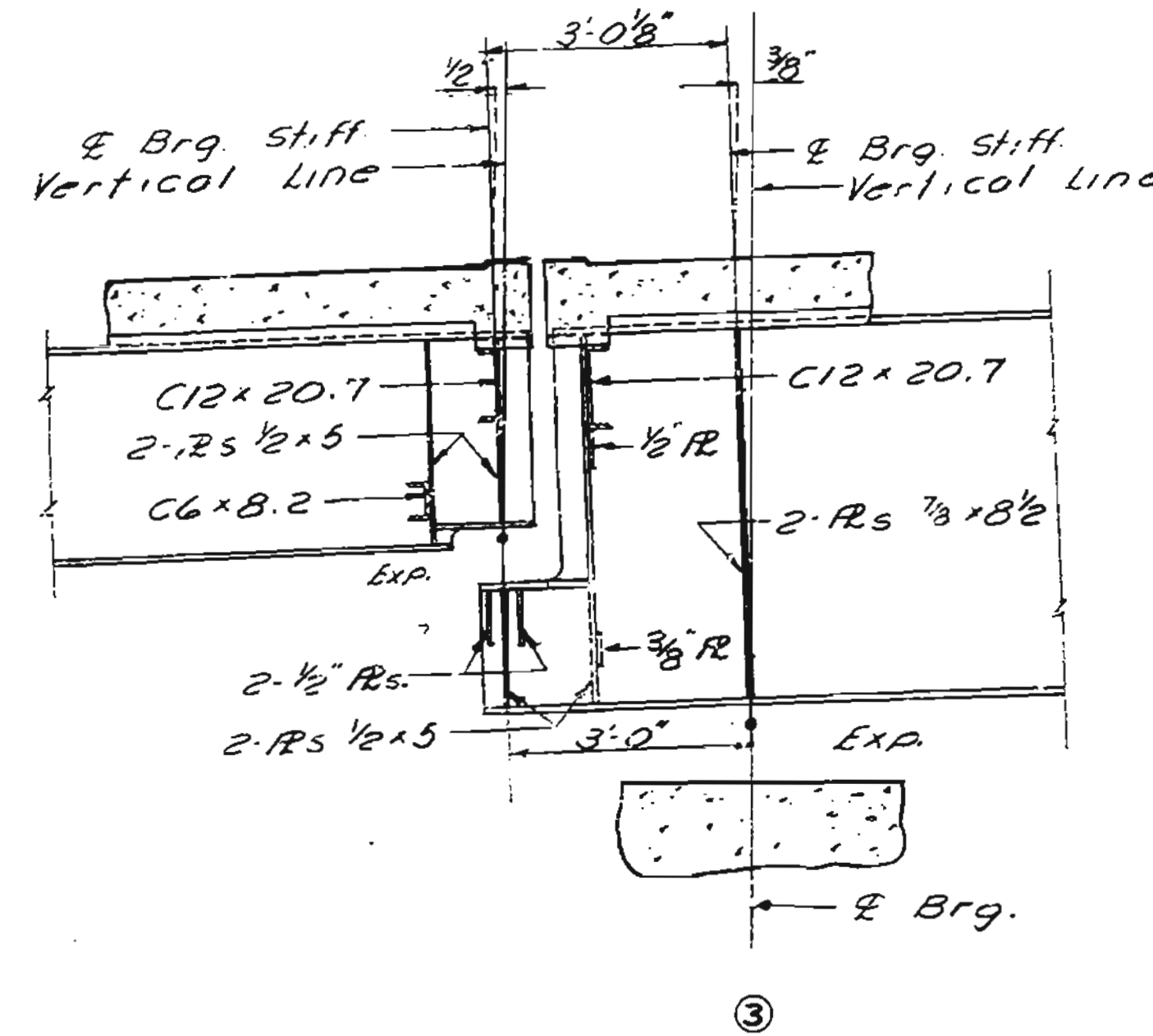
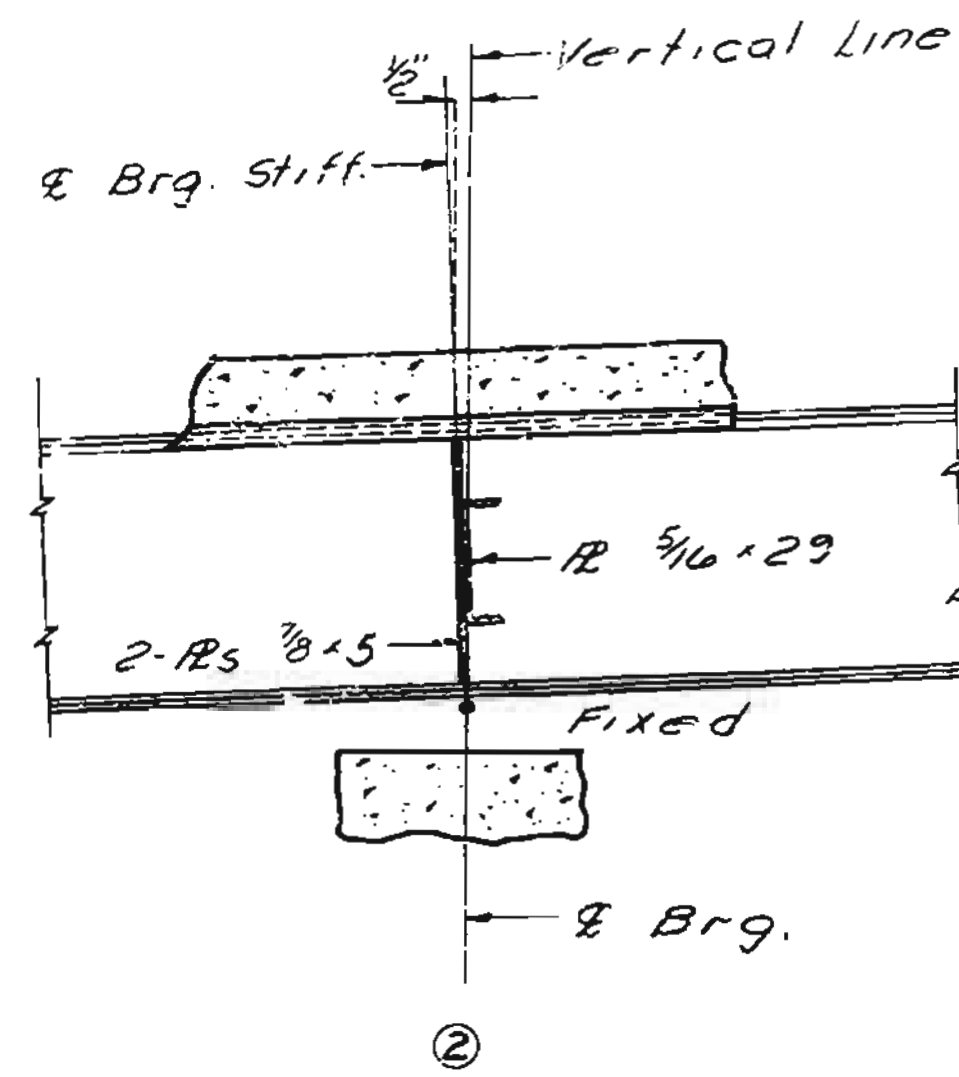
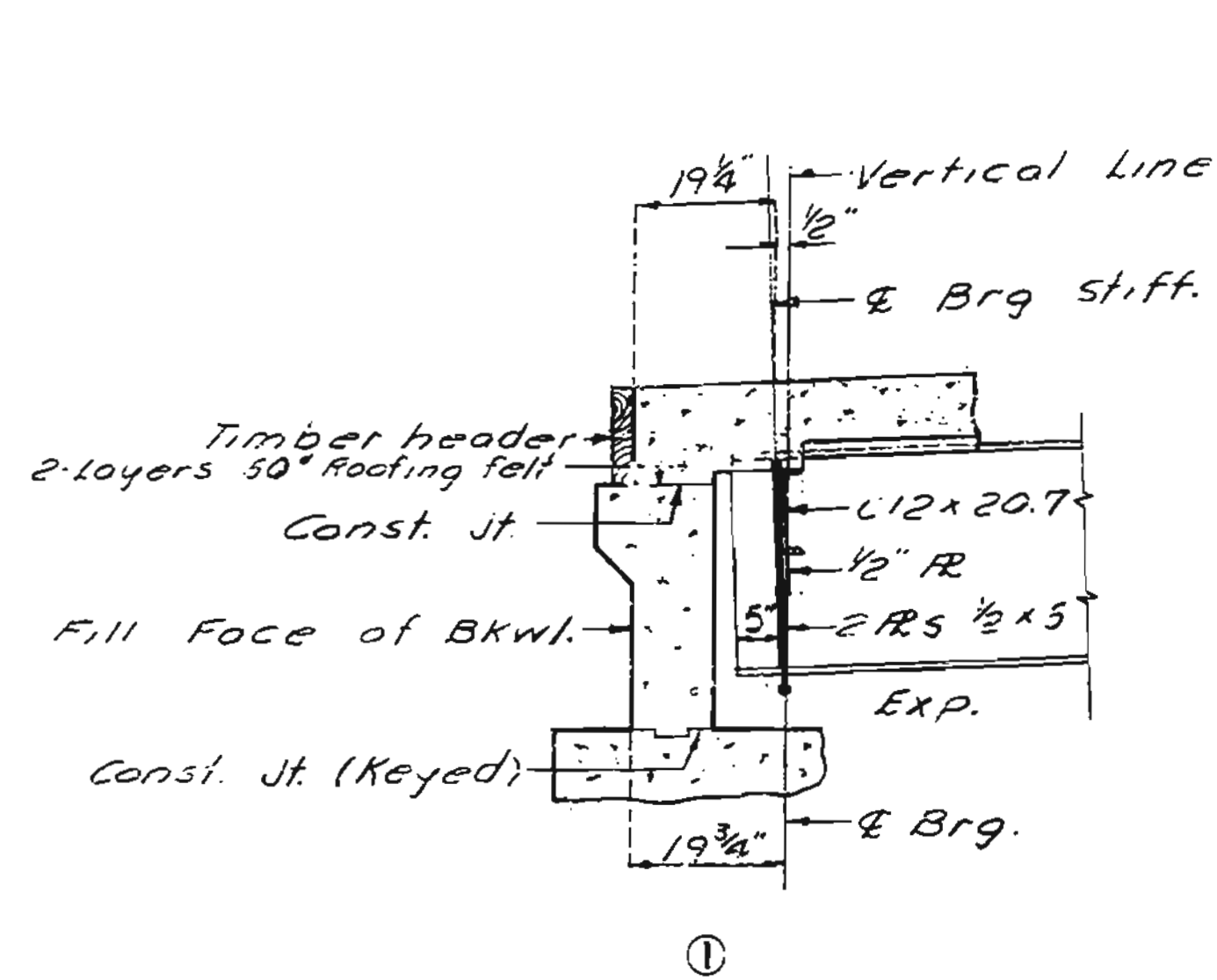
ELEVATION OF STRINGER AND GIRDER

Note: This drawing is not to scale. Follow dimensions.



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		28	102	



PART LONGITUDINAL SECTION  
(Near Int. Stringer & Girder No. 3)

TYP WELDING DETAILS FOR STIFF. PLATES

DETAILS OF HINGED CONNECTION

DETAILED JAN. 1974  
CHECKED MAY 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 13 of 27.

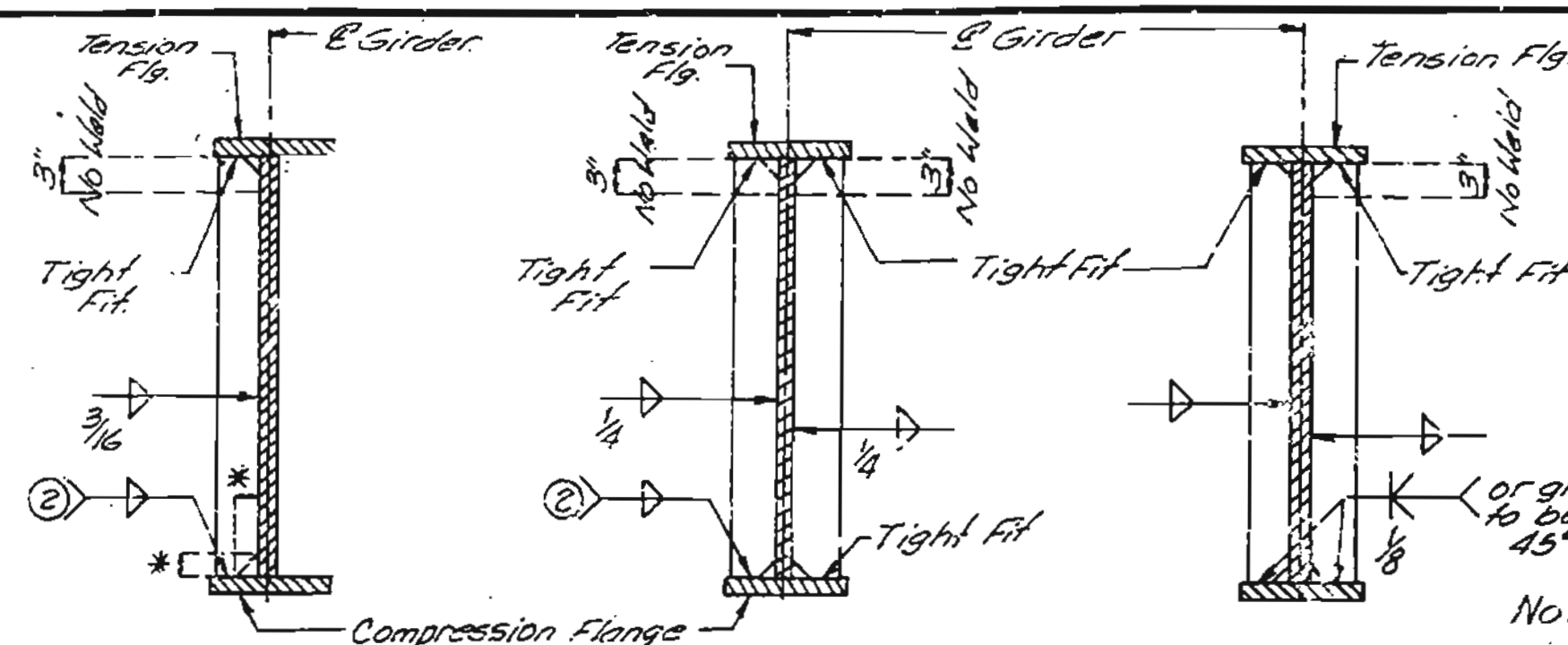
JACKSON

COUNTY

A-2514

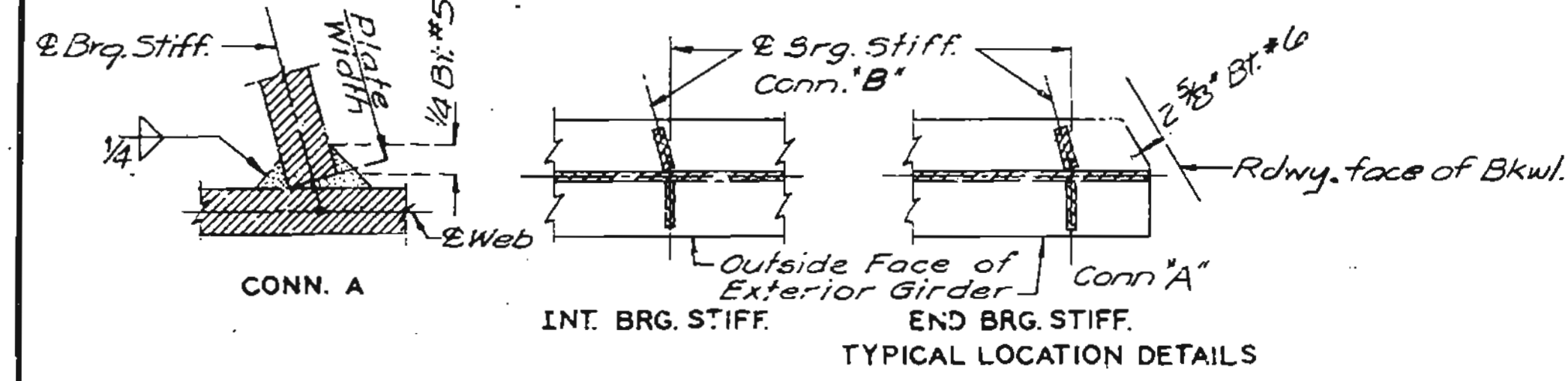
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	ST. NO.	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
				101	

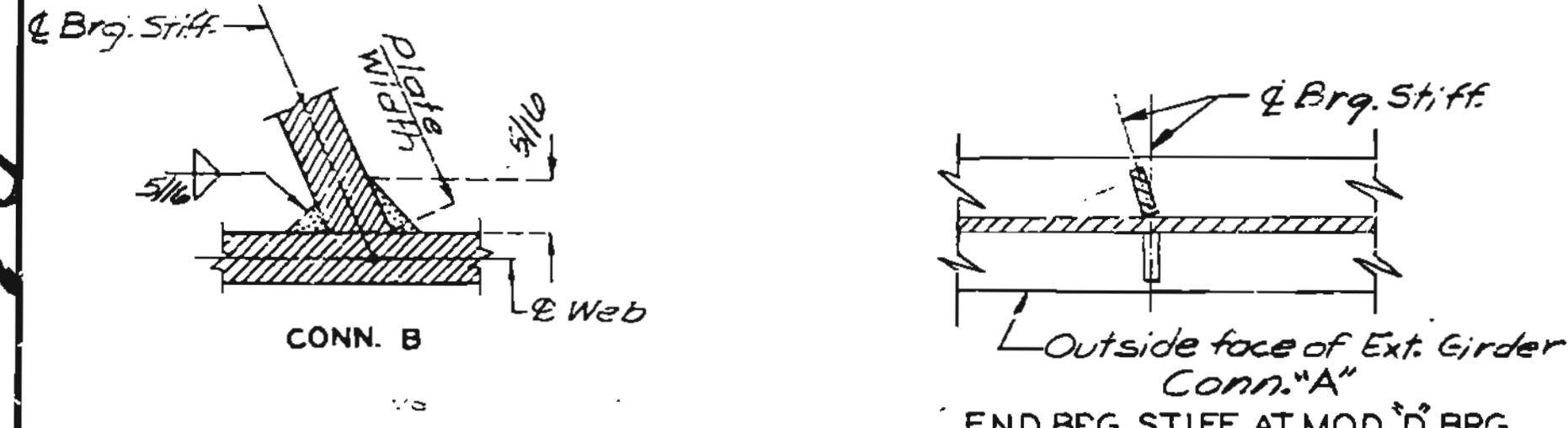


Note: For R's size see sheet #12.

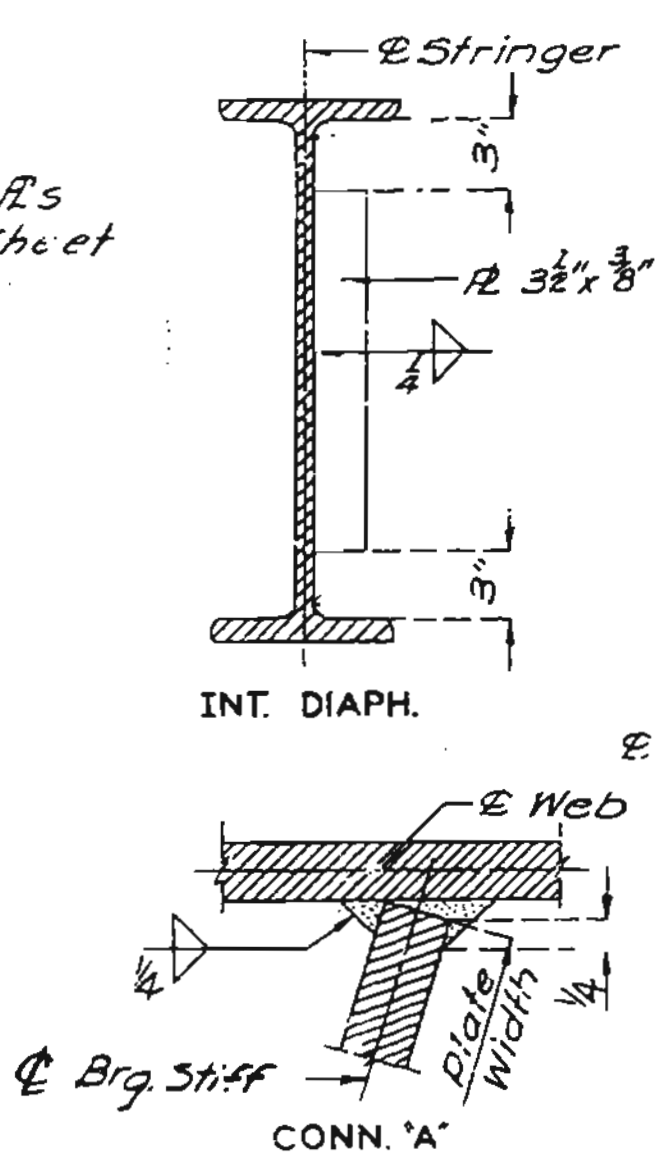
Weld to compression flange as located on Elevation of Girder.  
 \* 1/2" typical for all Int. Web Stiff, Int. Diaph. Conn. R. and Brg. Stiff.  
 \*\* Weld may be omitted on interior girders, and Tight Fit used when Int. Diaph. Conn. R. is required on both sides.



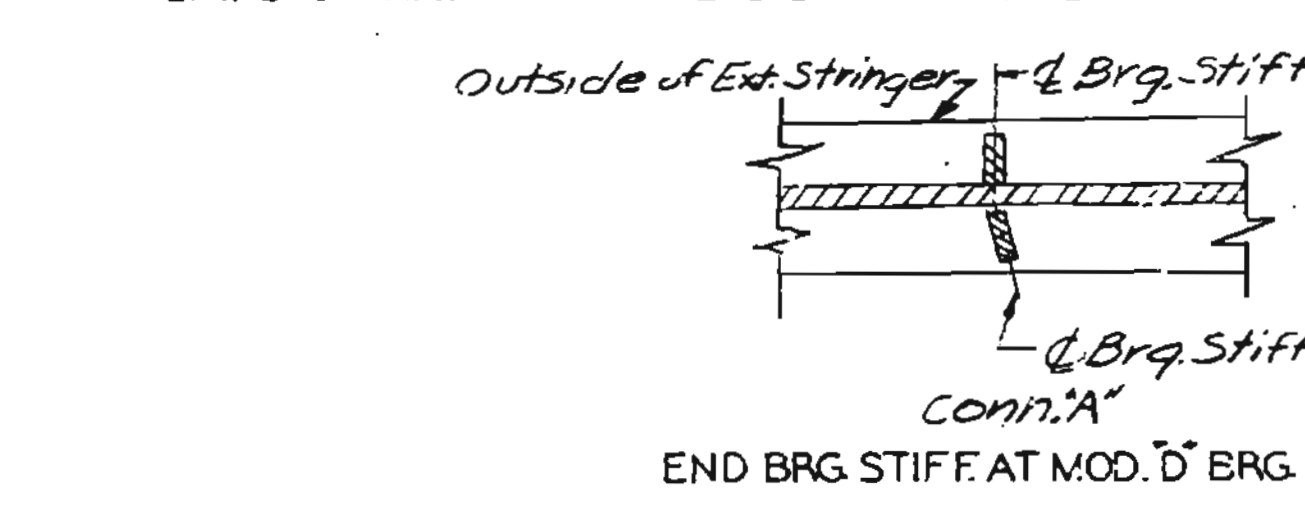
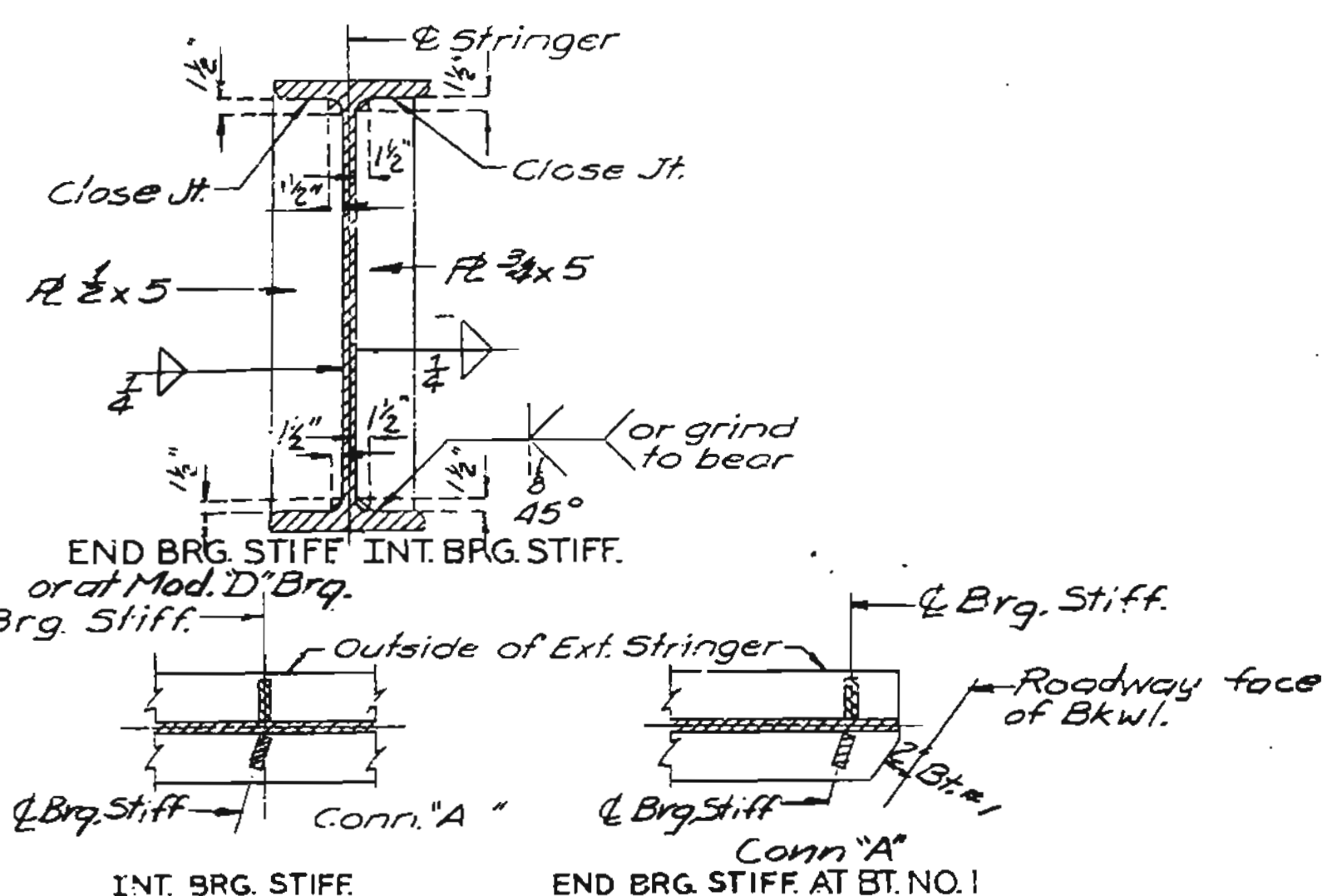
TYPICAL LOCATION DETAILS



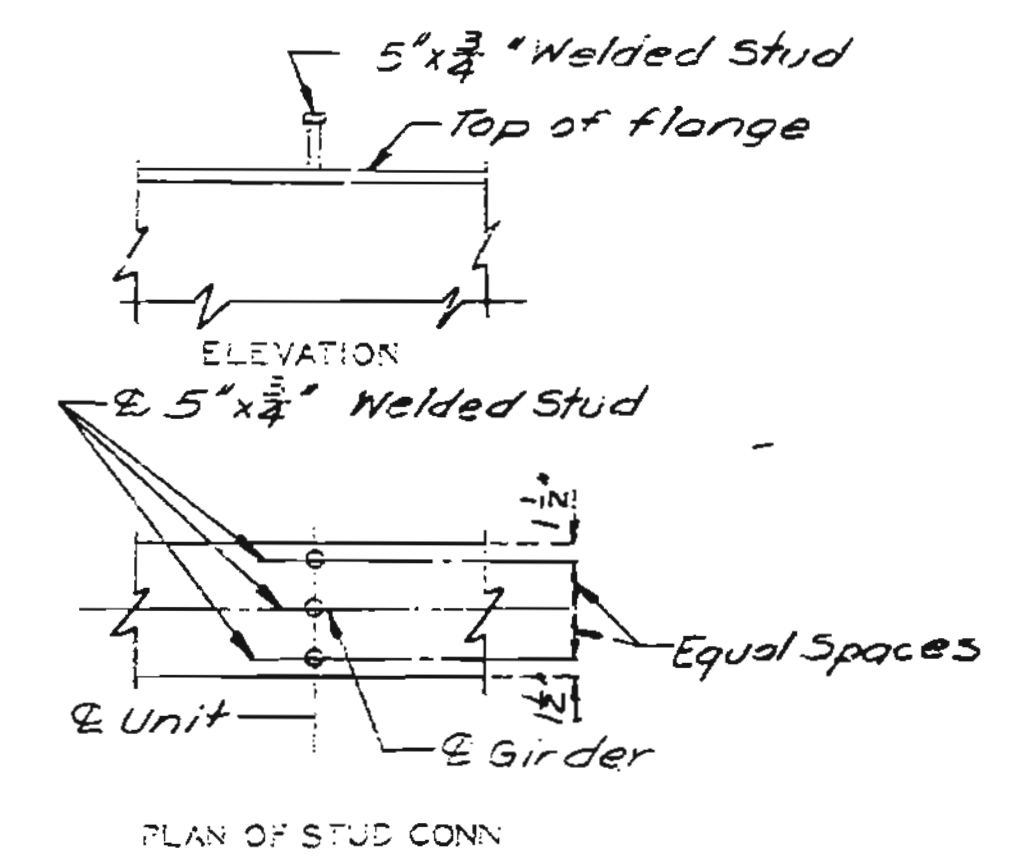
WELDING DETAILS (R Girder Section)



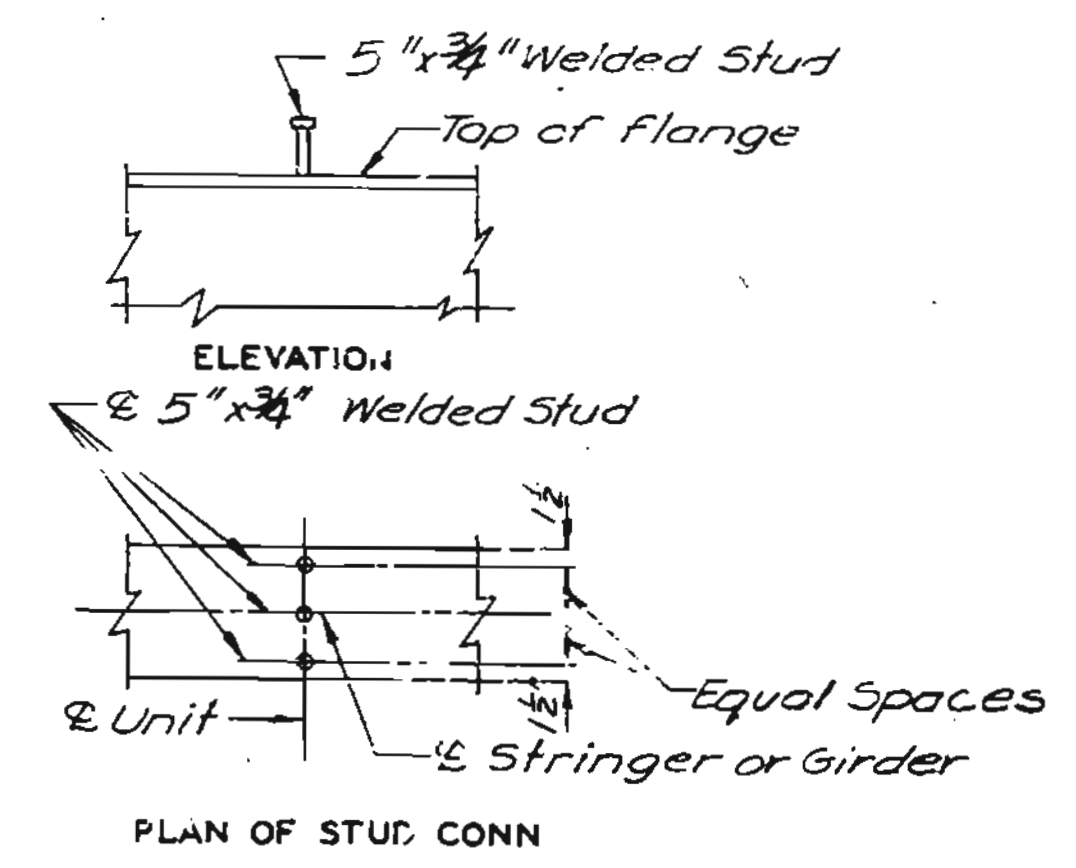
WELDING DETAILS (W Beam Section)



Note: Weight of 2390 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel for R Girder Section.



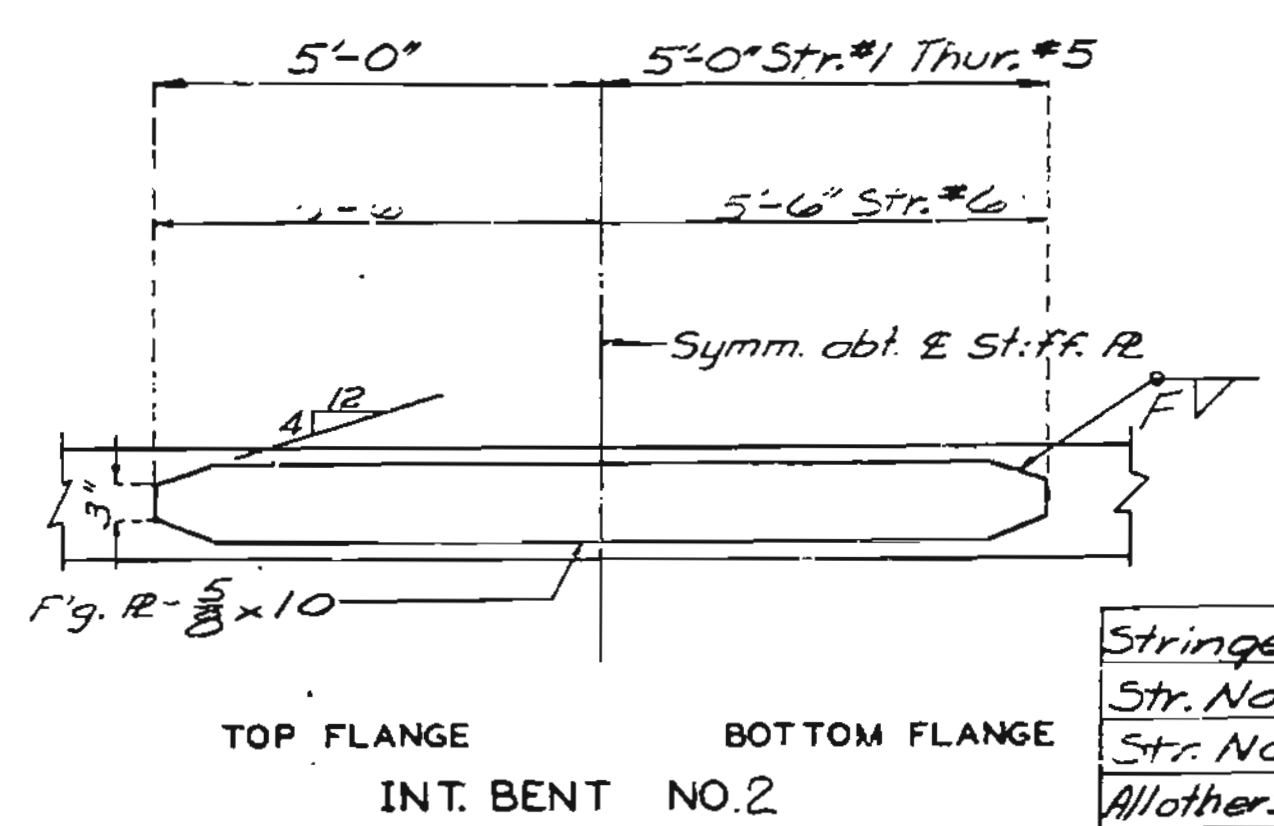
DETAILS OF SHEAR CONNECTORS (R Girder Sections)



DETAILS OF SHEAR CONNECTORS (W Beam Sections)

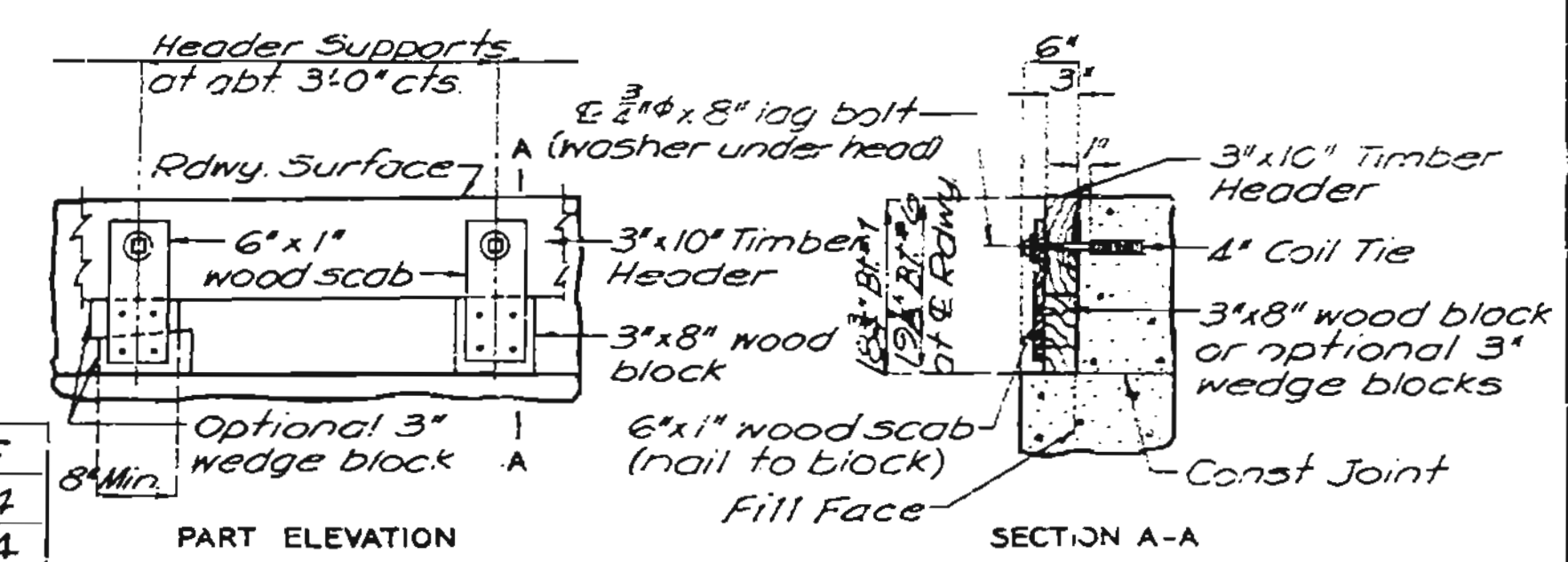
Note: Weight of 1200 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel for W Beam Section.

Note: When Intermediate web Stiff. R's or Intermediate diaphragm Conn. R's interfere with other R's or bolts, clip as shown.



DETAILS OF FLANGE PLATES Note: 1/8" thick toughness required for welded Flange R's.

Stringer	F
Str. No 1	1/4
Str. No 2	1/4
All other Str.	5/16



DETAILS OF TIMBER HEADER AT END BENTS

Note: Cost of timber headers complete in place to be included in price, bid for concrete.

DETAILED Apr. 1974  
 CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 14 of 27.

JACKSON

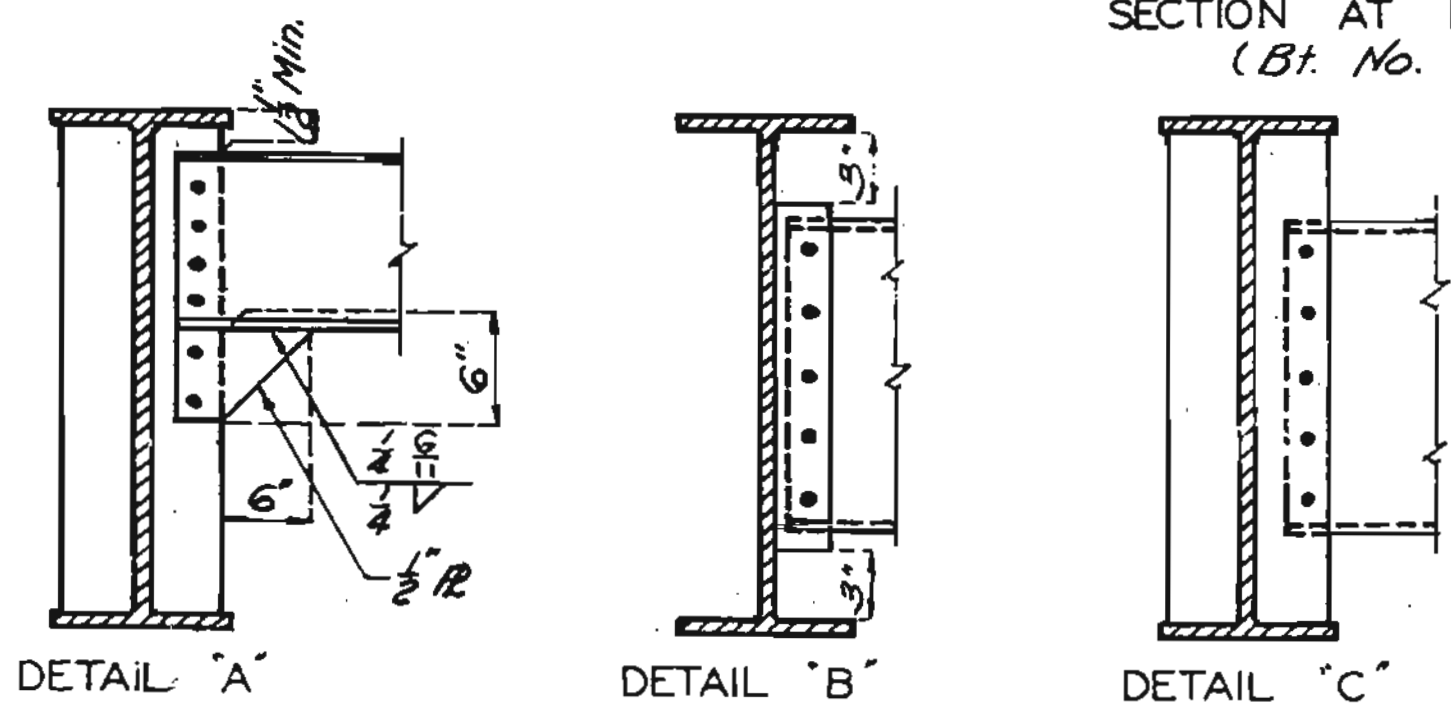
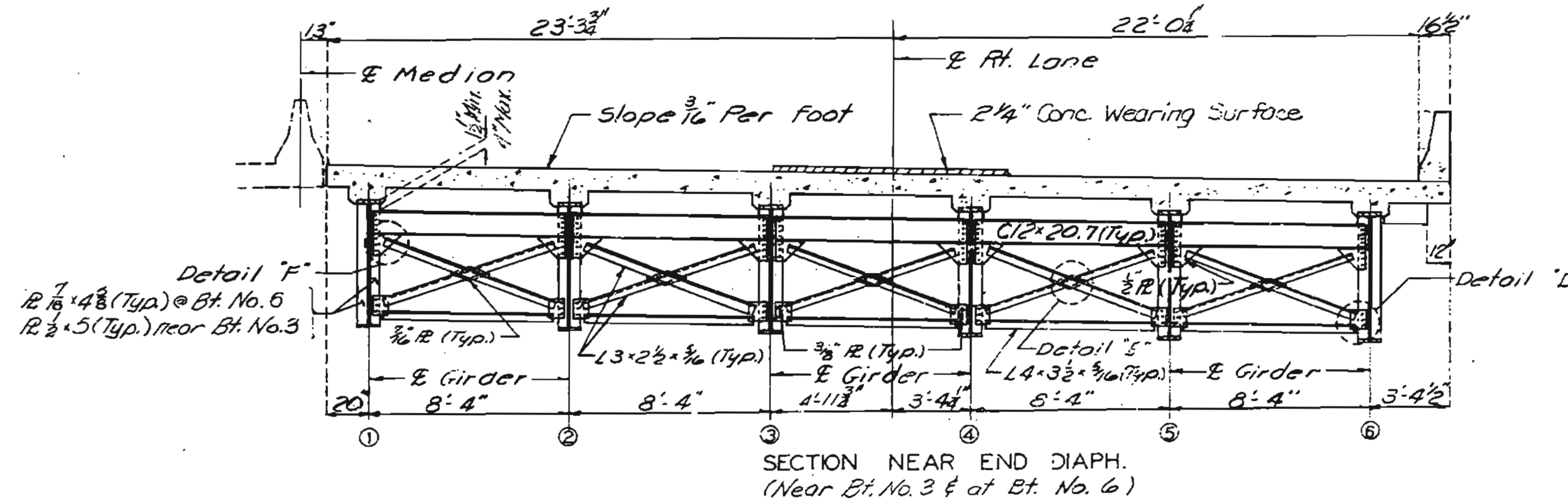
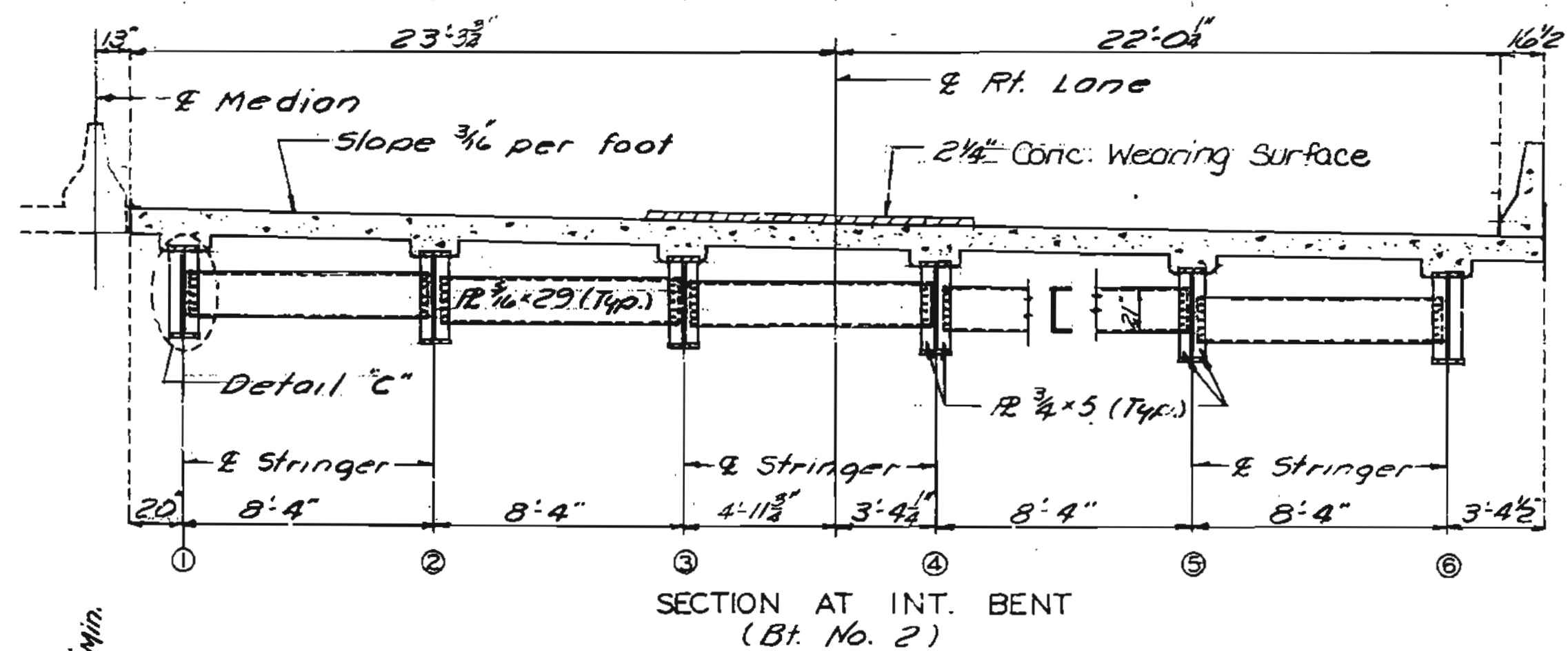
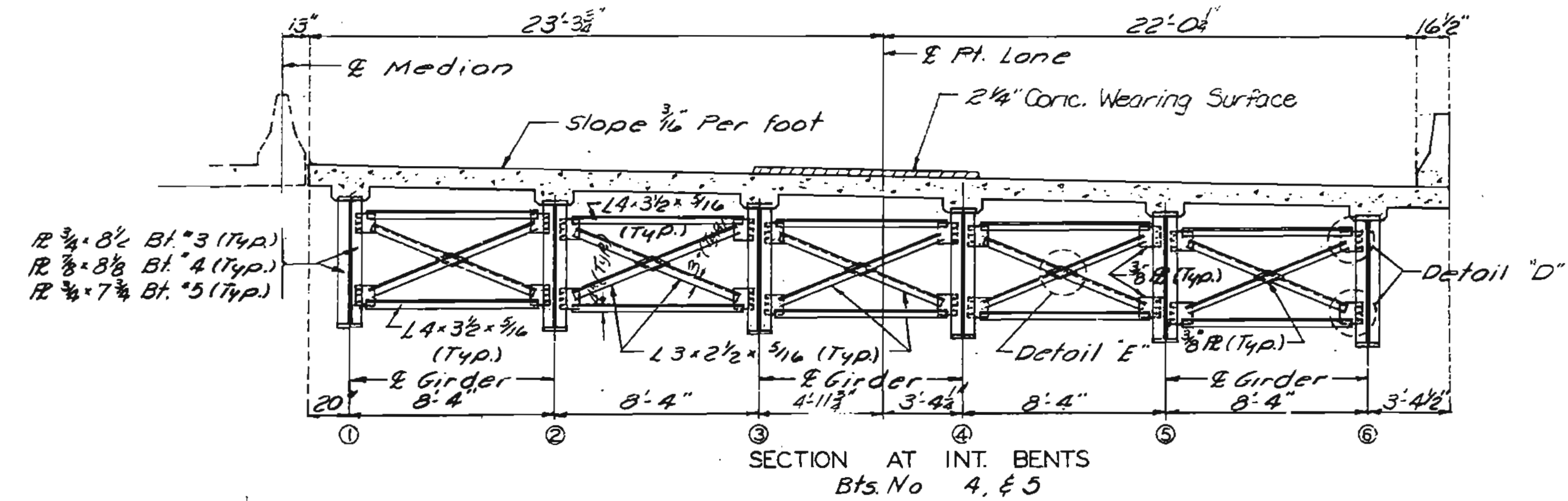
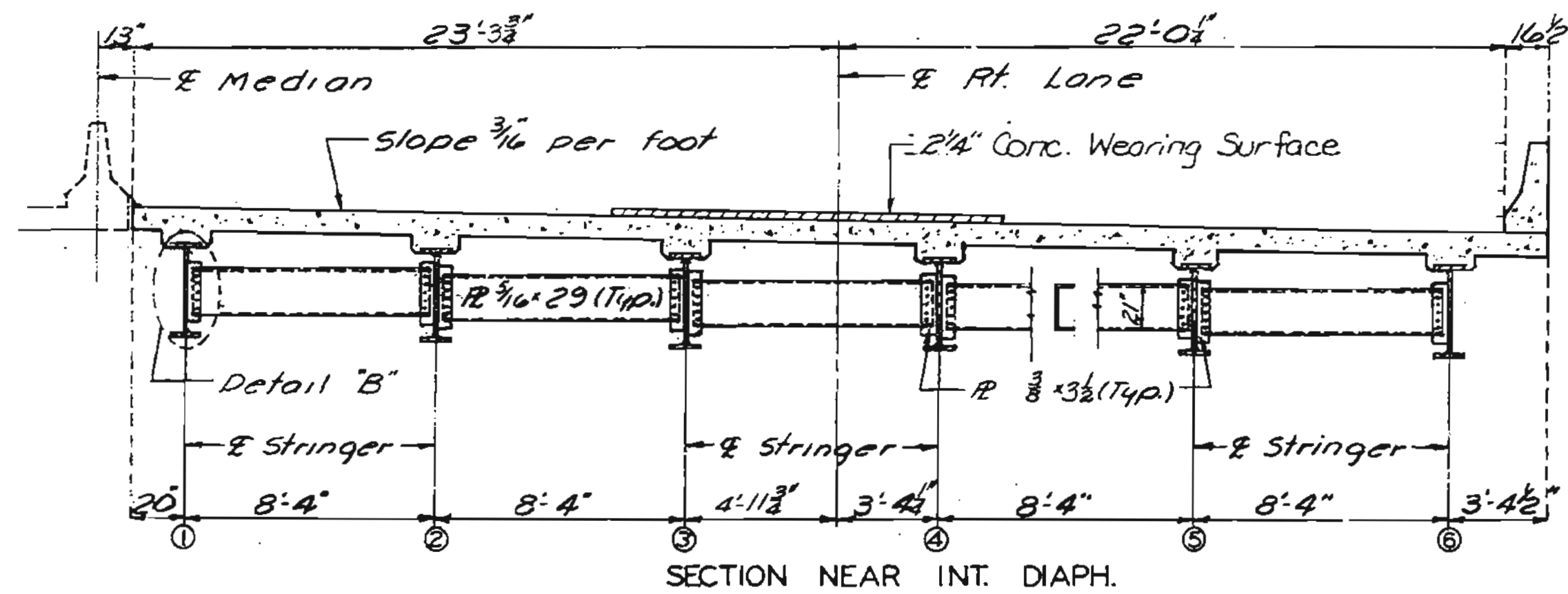
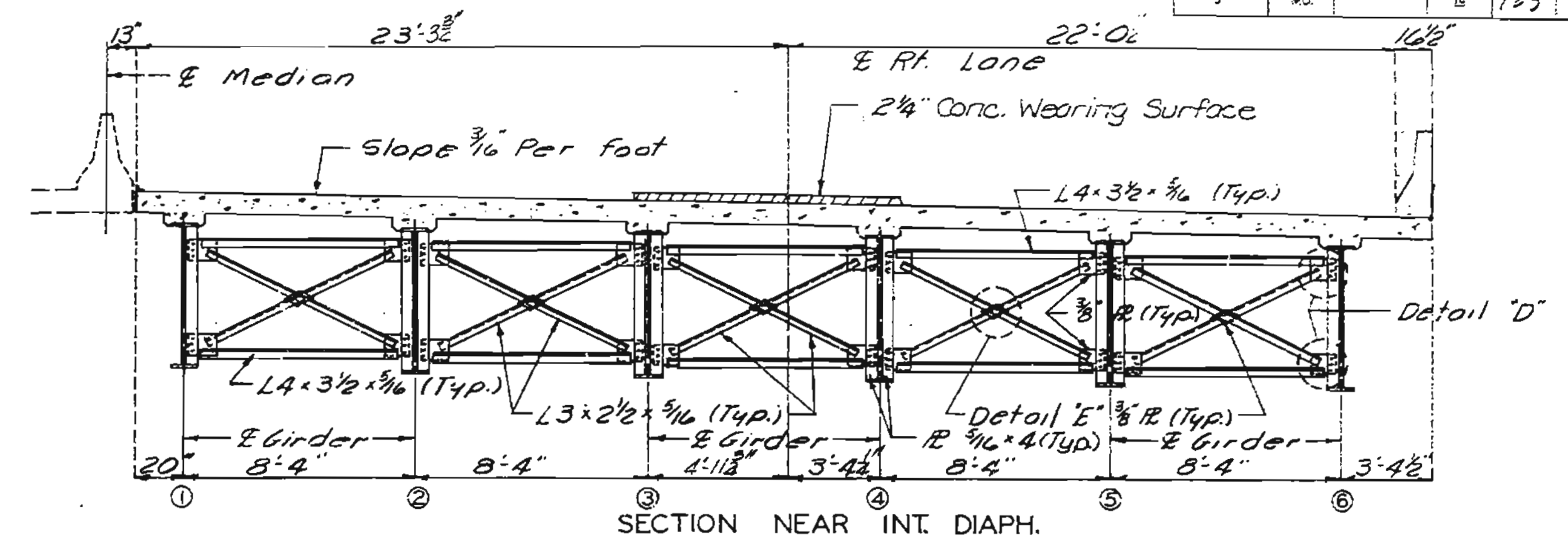
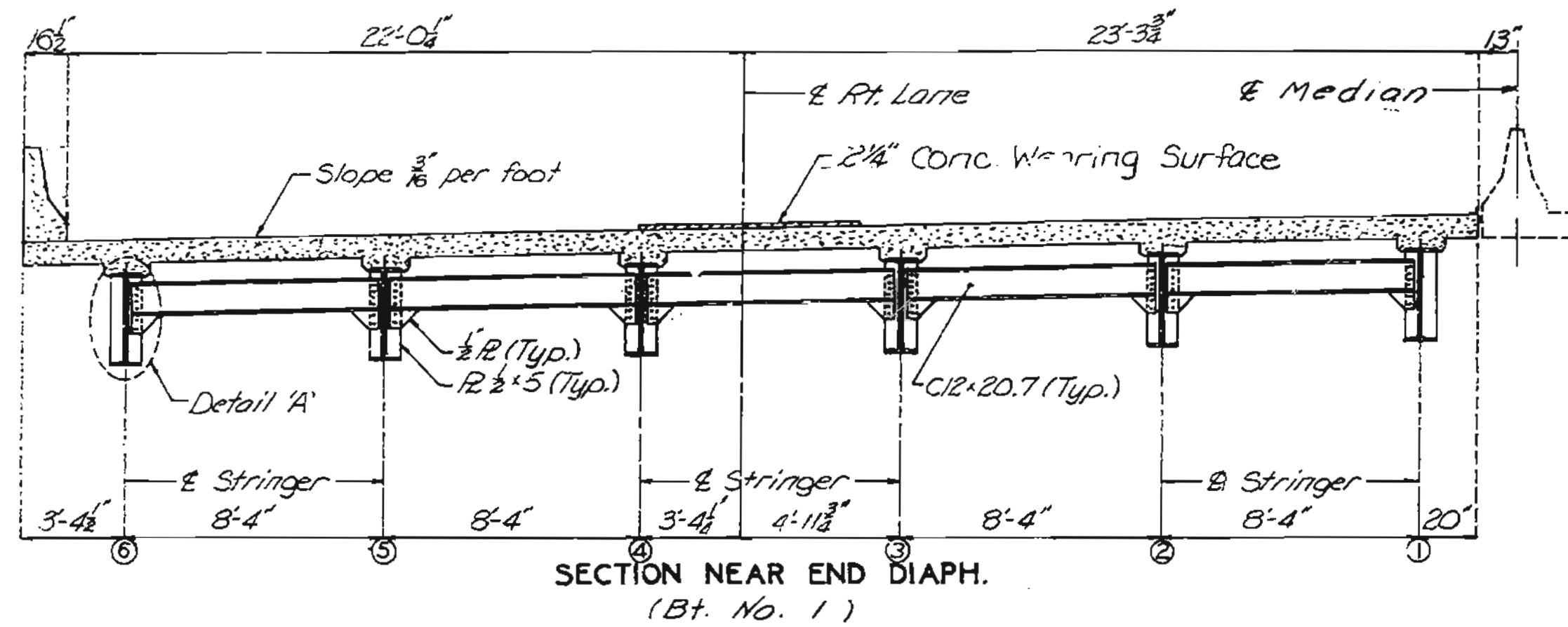
COUNTY

A-2514



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	123	



WIDE FLANGE SECTION

Note: For details and reinforcement of slab not shown, see sheets No. 21 & 22.  
 For details and reinforcement of Barrier not shown, see sheet No. 25.  
 Heavy dashed lines indicate proposed structure A-2513  
 See Sheet No. 27 for Location of Conduit in Slab  
 For details of Diaph. at Hinged connection see sheet No. 13.

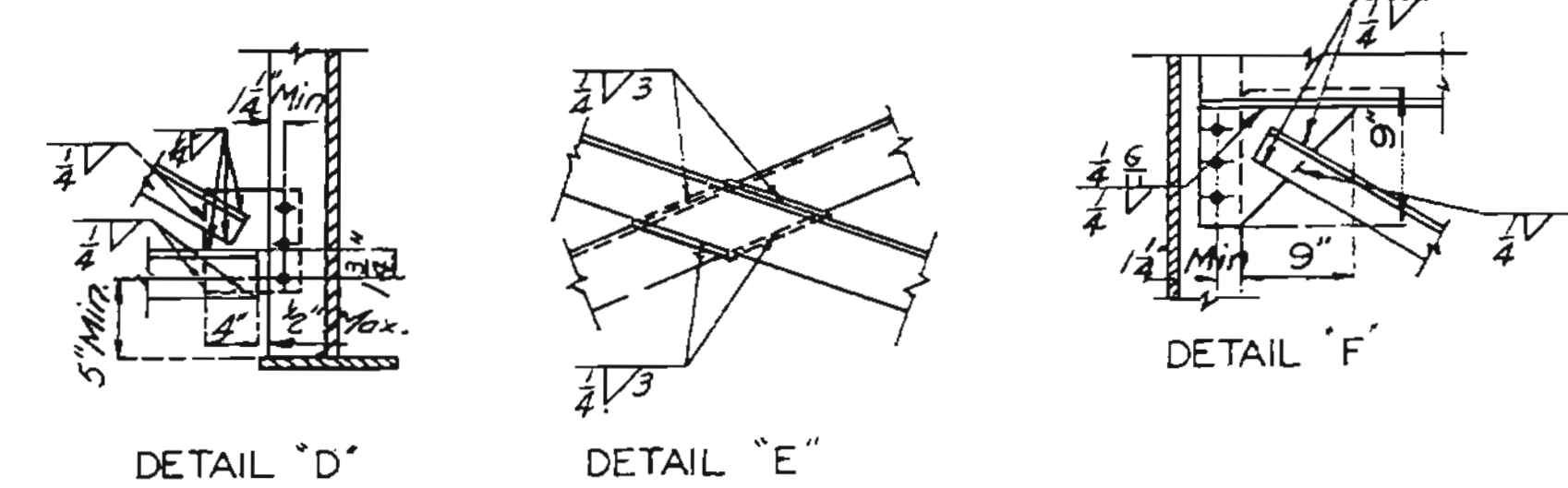


PLATE GIRDER SECTION

DETAILED JAN. 1974  
 CHECKED MAY 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 16 of 27.

JACKSON COUNTY

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		58	105	

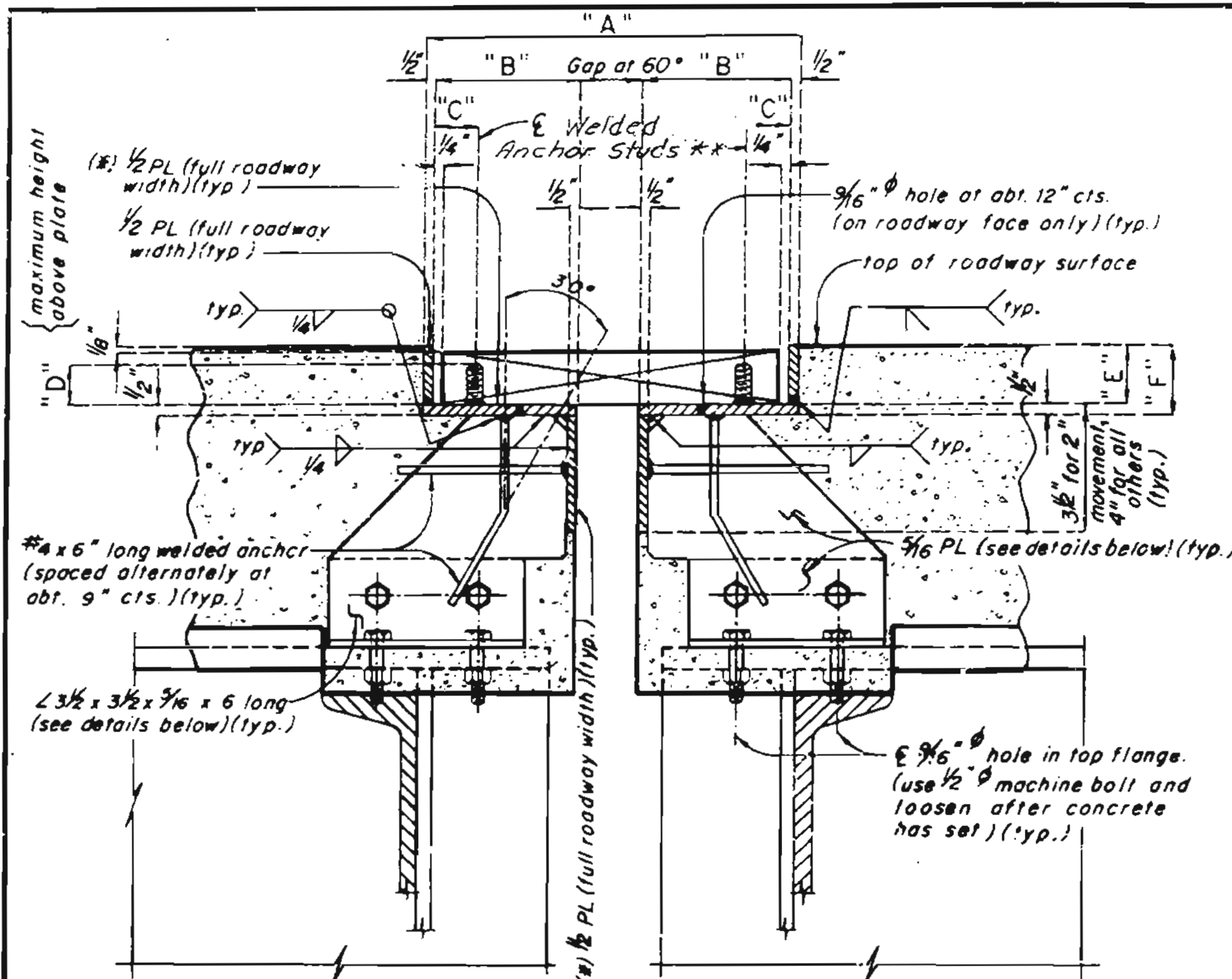
TABLE OF DIMENSIONS

LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE "G"
Bf. 16.3	FEL-SPAN T20	1 3/8"	11 3/16"	4 1/2"	1 3/8"	1"	1 3/16"	1 3/16"	1/2" 50
	ON-FLEX 25	1 1/2"	11"	4 1/4"	1 5/8"	1 1/4"	1 1/16"	2 3/16"	1/2" 65
	TRANSFLEX - 200K	1 1/2"	12 1/2"	4 1/16"	1 3/8"	1 1/4"	1 3/16"	2 1/4"	1/2" 40
	WABO-ELASTODAM 200	1 1/4"	11 1/4"	4 1/2"	1 3/8"	1"	1 3/16"	1 3/16"	1/2" 40

NOTE: All dimensions are at right angles. Expansion gap and dimension "A" shall be increased for each 10° fall in temperature and decreased for each 10° rise in temperature.

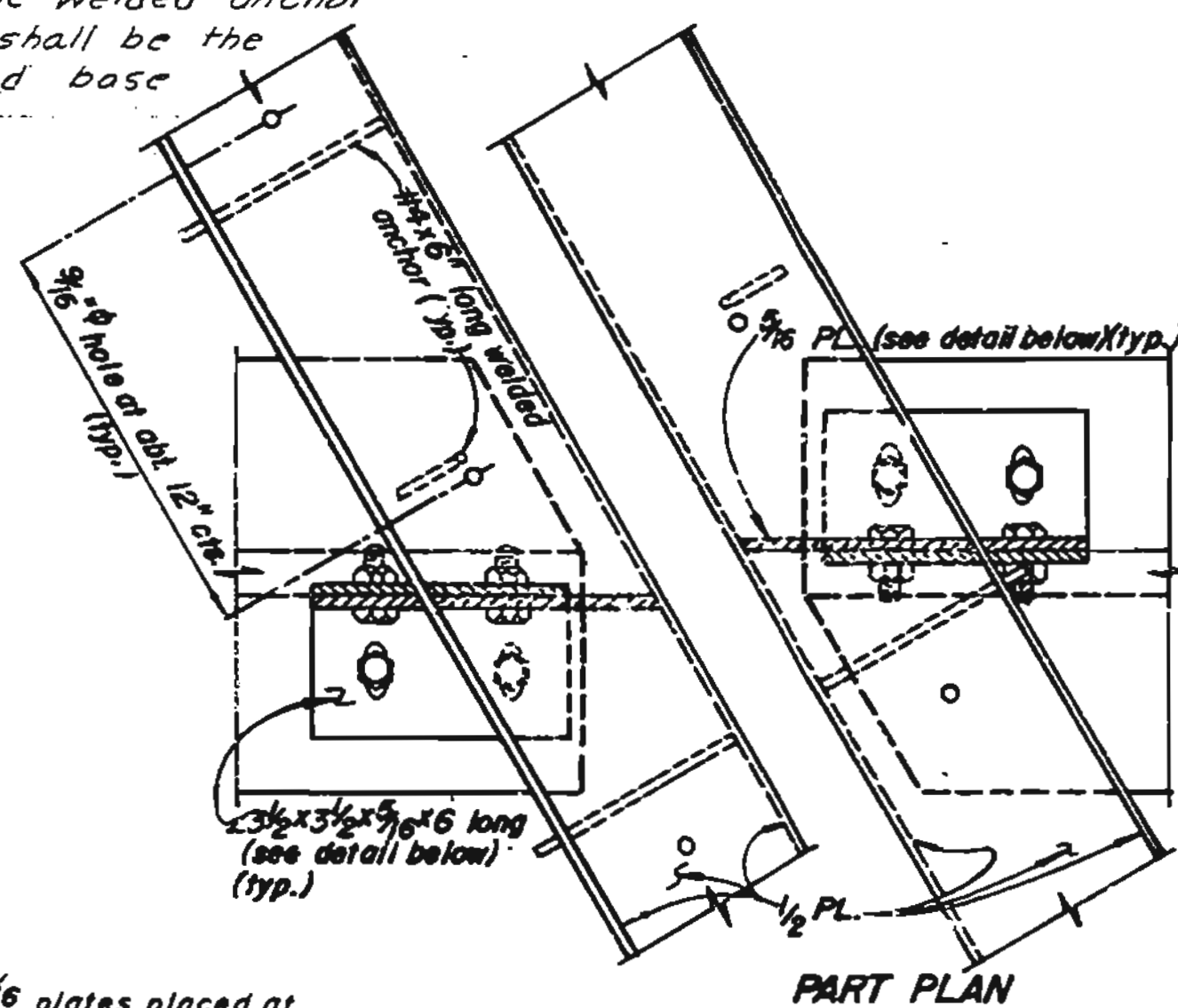
GENERAL NOTES:

- THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.
- MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL, NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.
- SEE SPECIAL PROVISIONS FOR PAINTING.
- ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.
- PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.
- CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.
- FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT BID PRICE PER LINEAR FOOT.
- FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT PRICE BID FOR OTHER ITEMS.



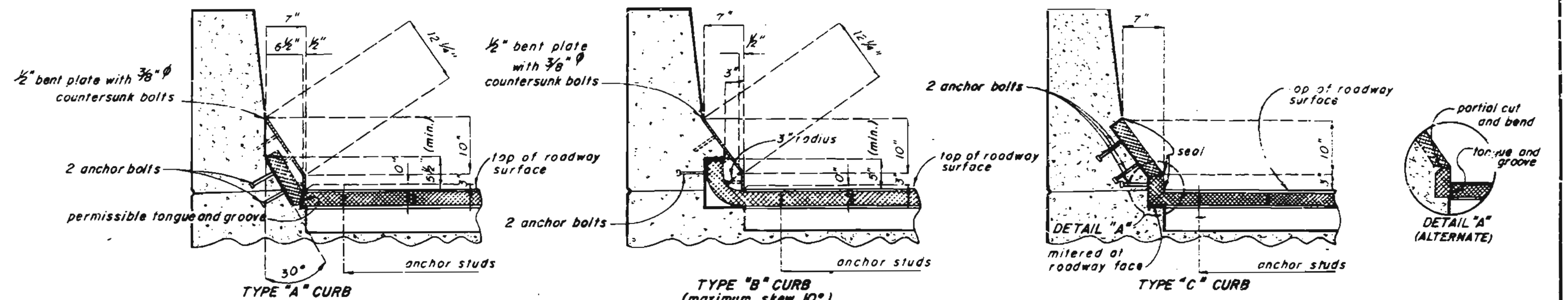
PART SECTION THRU ARMORED JOINT

(\*) these plates may be one piece by using legs of equal or unequal angles.  
 \*\* The welded anchor studs shall be the reduced base type.

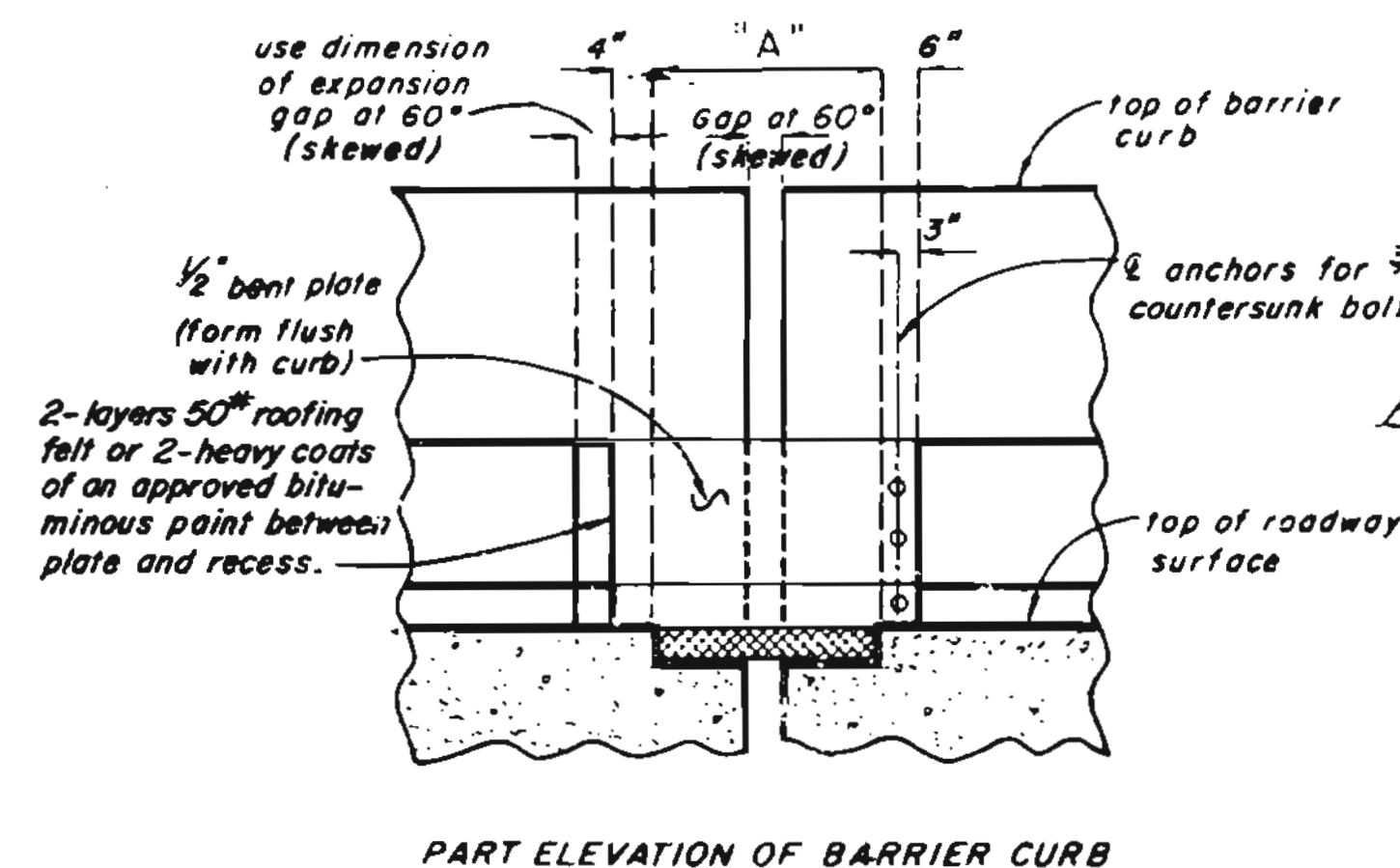


PART PLAN

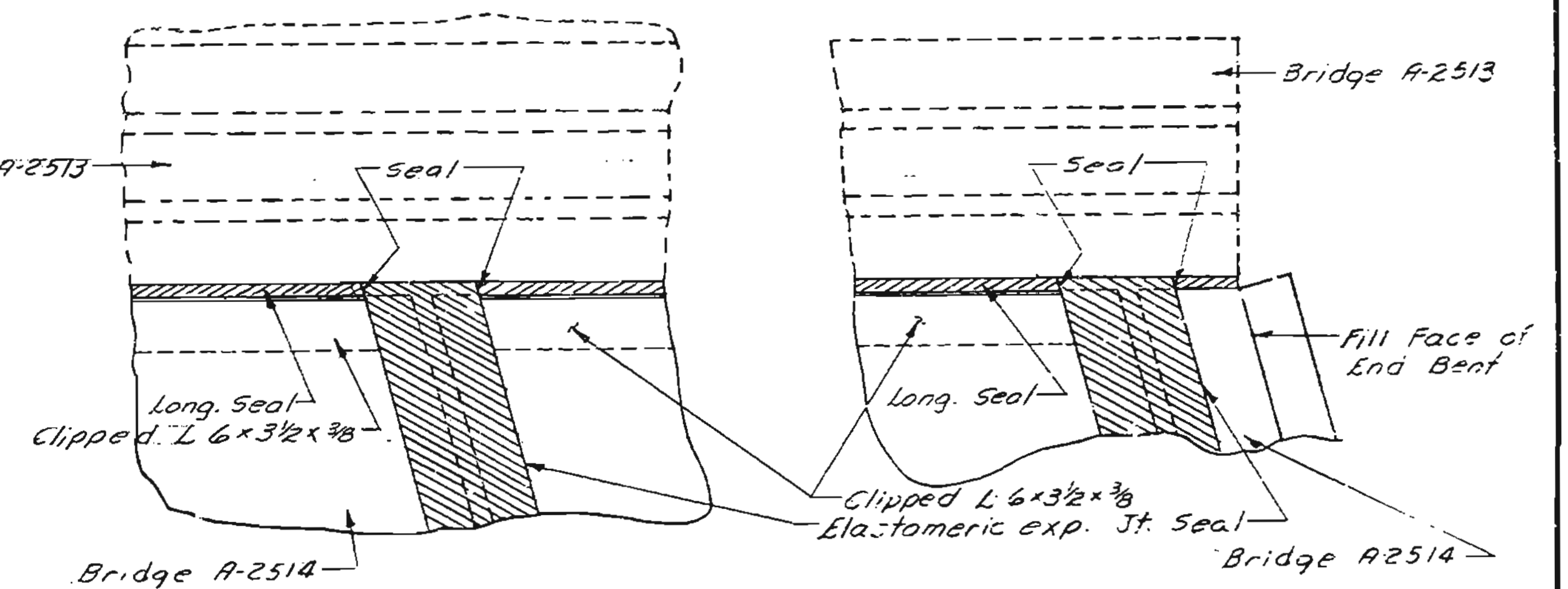
Note: 3/16 plates placed at each girder or stringer.



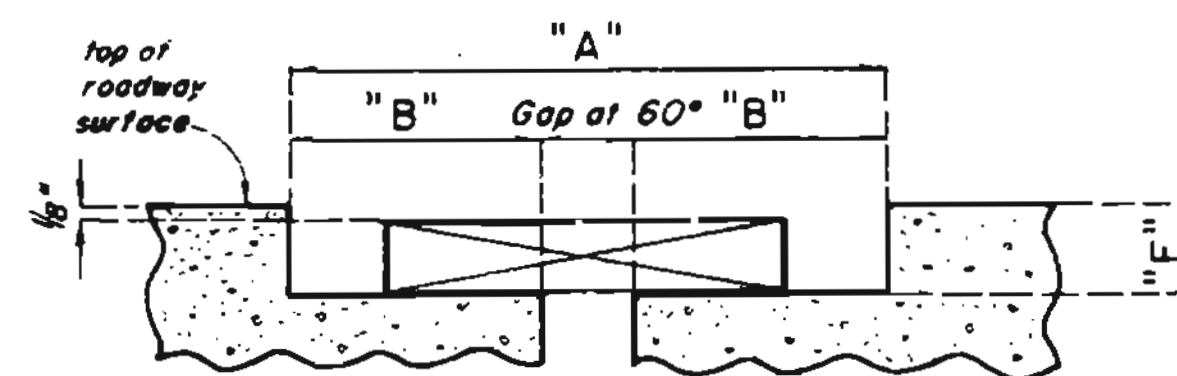
ALTERNATE CURB TREATMENTS



PART ELEVATION OF BARRIER CURB



Part Plan of Slab Showing Exp. Jts. Seal



BLOCKOUT FOR MODULAR UNITS

NOTE: WHEN MODULAR UNITS ARE SPECIFIED AS AN ALTERNATE STEEL CURB PLATE TREATMENTS ARE REQUIRED.

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL AT BENT NO. 3

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 18 of 27.

JACKSON COUNTY

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SPS-INT.-BT. REVISED FEB. 1978 AUG. 1978

DETAILED aug 19 78  
 CHECKED aug 19 78

DETAIL OF PLATE  
 3/16 PL  
 3/16 x 1" slotted holes (use 1/2" machine bolts)  
 1 1/2" 3" 1 1/2"

DETAIL OF ANGLE  
 2 x 3/16 x 3/16 x 6 long

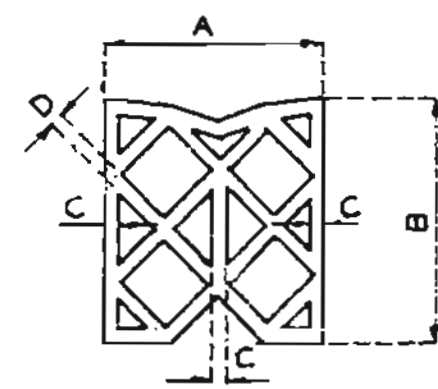


MISSOURI STATE HIGHWAY DEPARTMENT

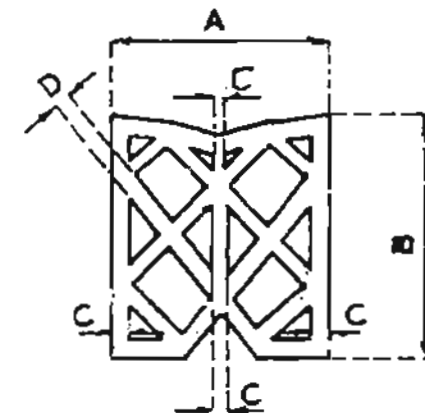
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	107	

GENERAL NOTES:

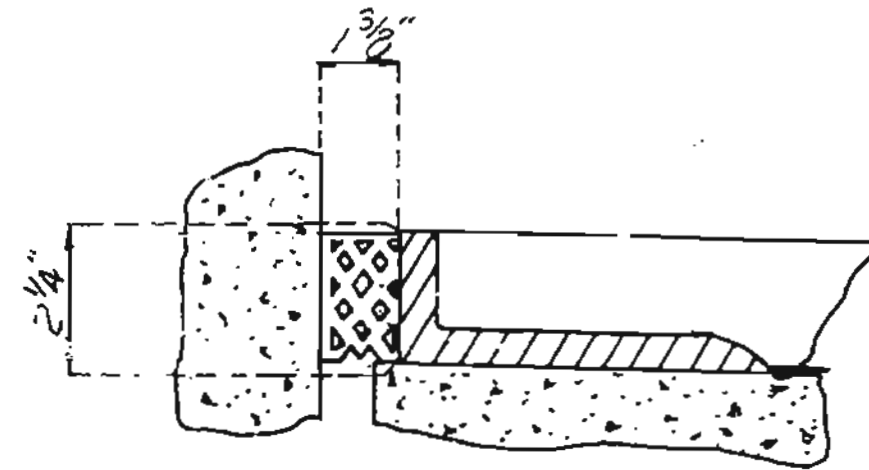
Structural steel for longitudinal seals shall be fabricated in continuous sections except that when the length is over 50 feet, splicing is permissible.  
 Payment for furnishing and placing structural steel for longitudinal seals shall be made under price bid for Fabricated Structural Carbon Steel.  
 Payment for furnishing and placing preformed joint sealer shall be made under price bid for Preformed Compression Joint Sealer.



TYPE A1



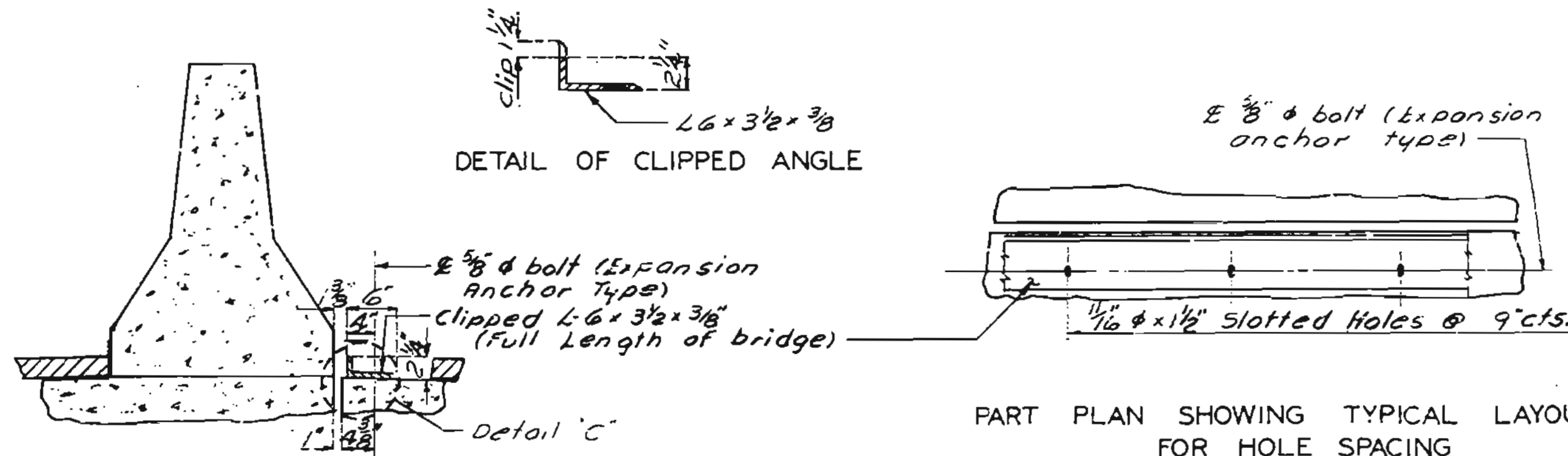
TYPE B3



DETAIL "C"

TYPE	GROOVE SIZE AT 60° F		SEAL SIZE	
	WIDTH	HEIGHT	WIDTH	HEIGHT
A1 OR B3	1 5/8"	2 3/4"	2"	2 1/8"

Armor angles for longitudinal seals will not be used unless specified on the plans.



SECTION THRU MEDIAN BARRIER

PART PLAN SHOWING TYPICAL LAYOUT FOR HOLE SPACING

TYPE	"A" (WIDTH)	"B" (HEIGHT)	"C" (SHELL)	"D" (WEB)
A1 OR B3	±0.000	±0.0625	±0.125	±0.094
	-0.000	-0.125	-0.015	-0.015

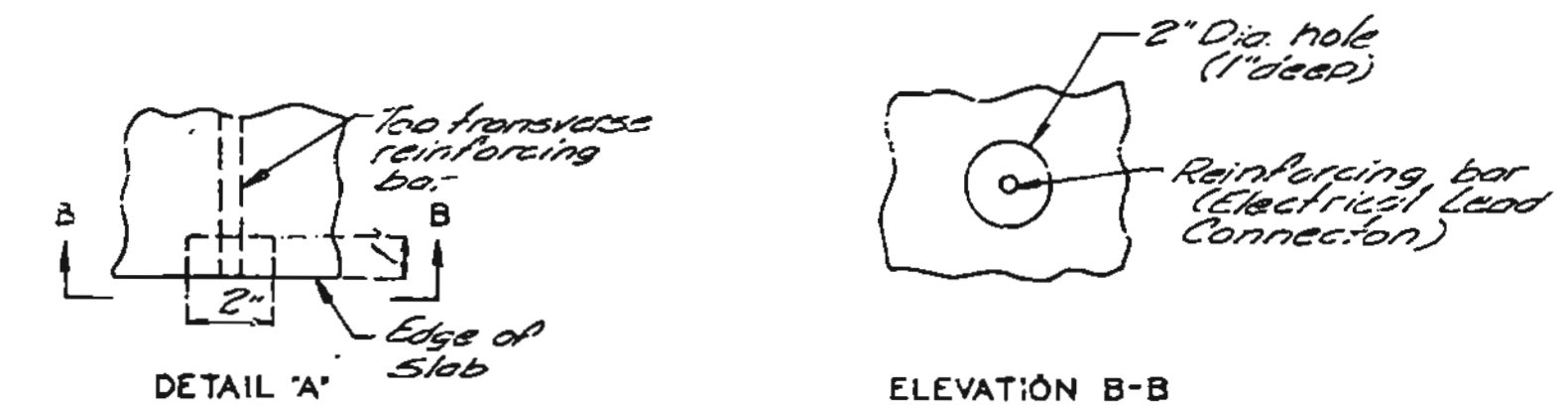
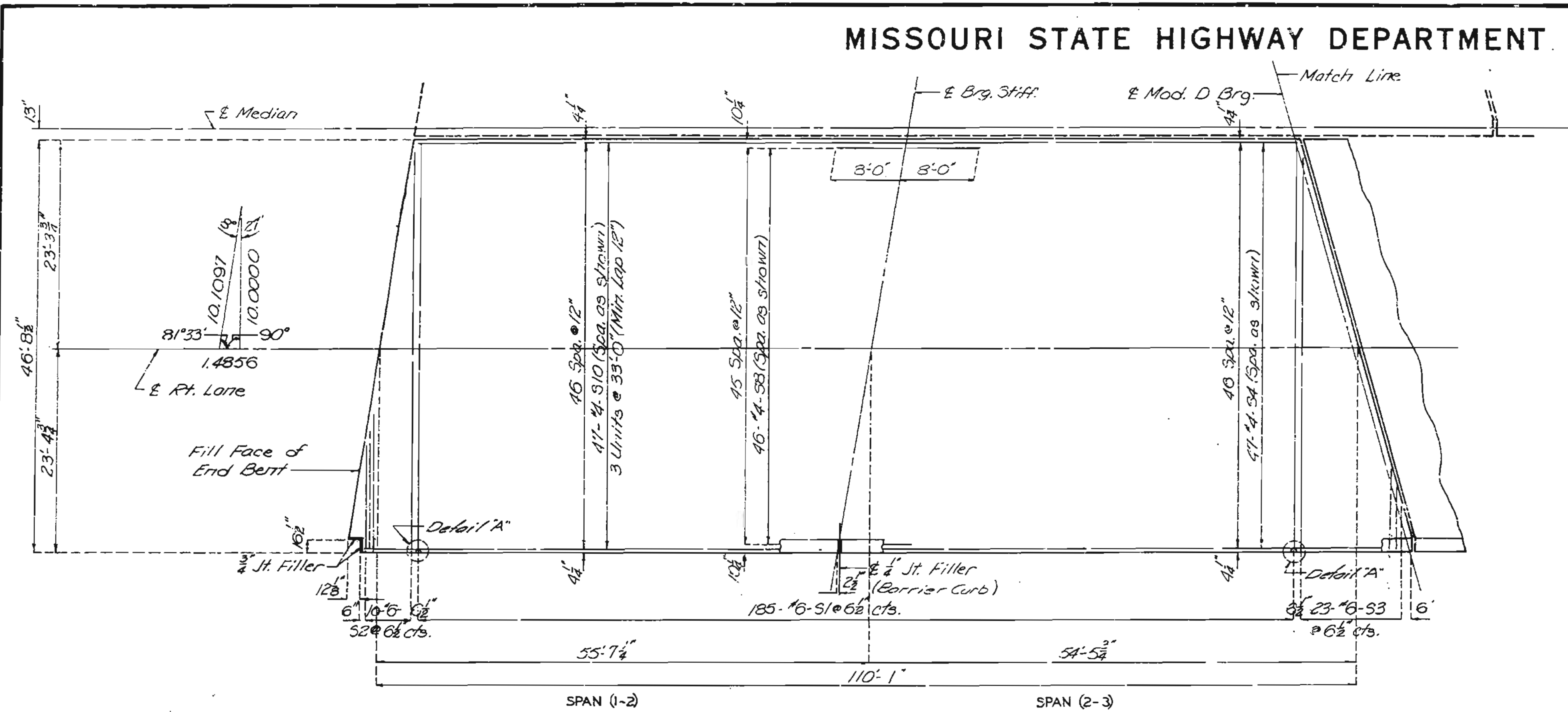
DETAILS OF LONGITUDINAL SEAL



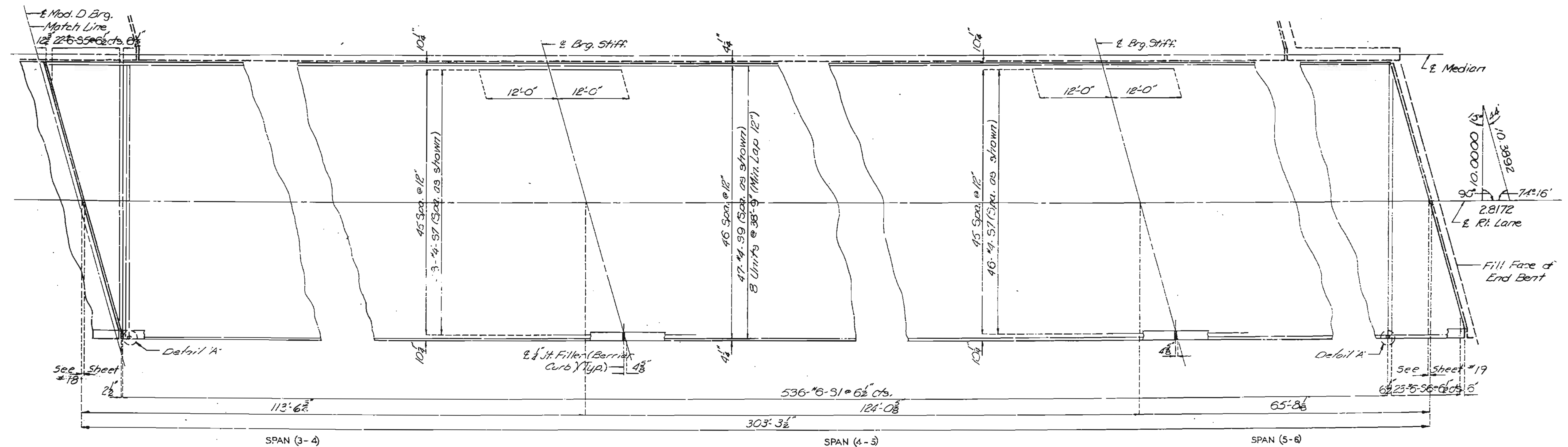
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		3	108	

Note: Longitudinal reinforcing shall be placed so that ends shall not be more than 1" from Exp. Device.  
 Longitudinal dimensions shown are taken parallel to grade of  $\frac{1}{4}$ " of roadway.  
 For Section thru Slab and Slab Pouring Sequence, see Sheet No. 23.  
 For Plan of Slab showing Bottom Reinforcement, see Sheet No. 22.  
 Heavy dashed lines indicate proposed structure A-2513.  
 See Sheet No. 27 for Location of Conduit in Slab.



Note: Shift top transverse bar to edge of slab. Electrical Lead Connections required. Actual location to be designated by the Engineer as part of the test system.



PLAN OF SLAB SHOWING TOP REINFORCEMENT

DETAILED JAN. 1974  
 CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 21 of 27.

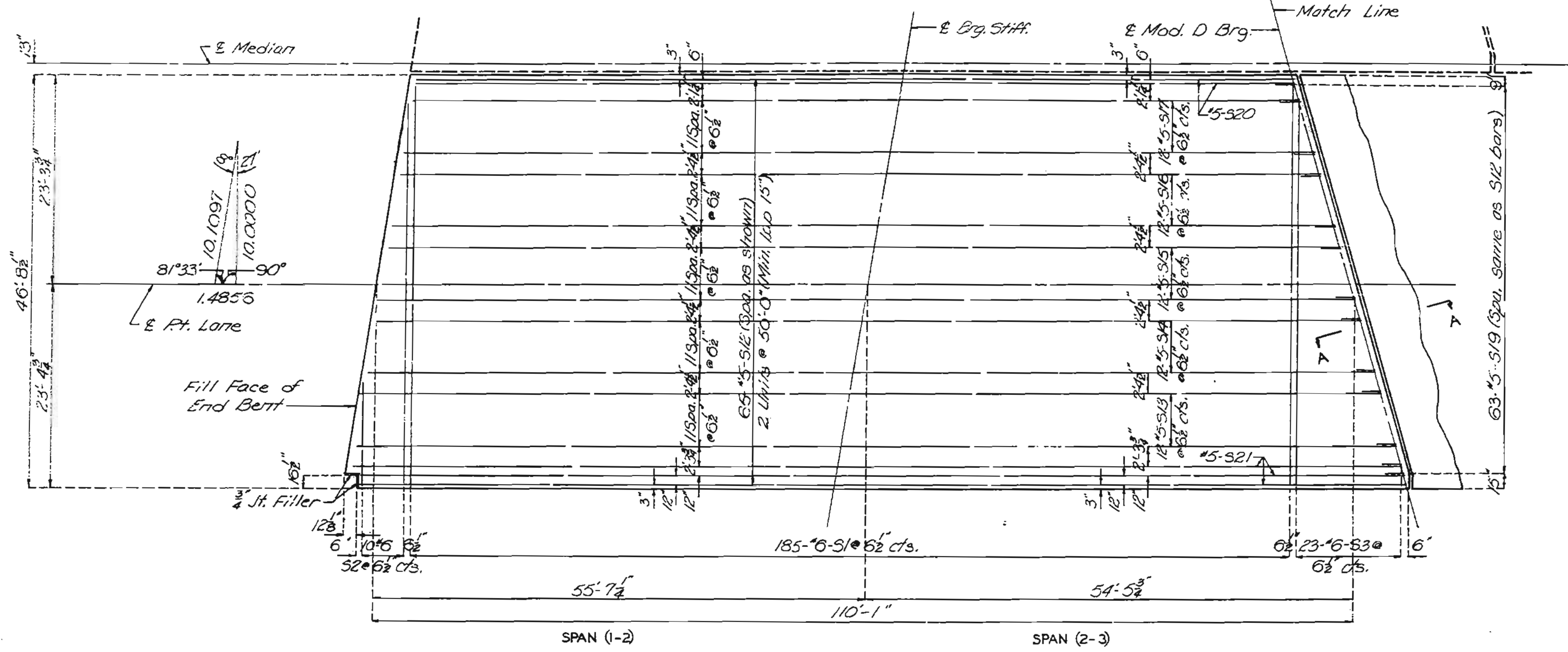
JACKSON

COUNTY

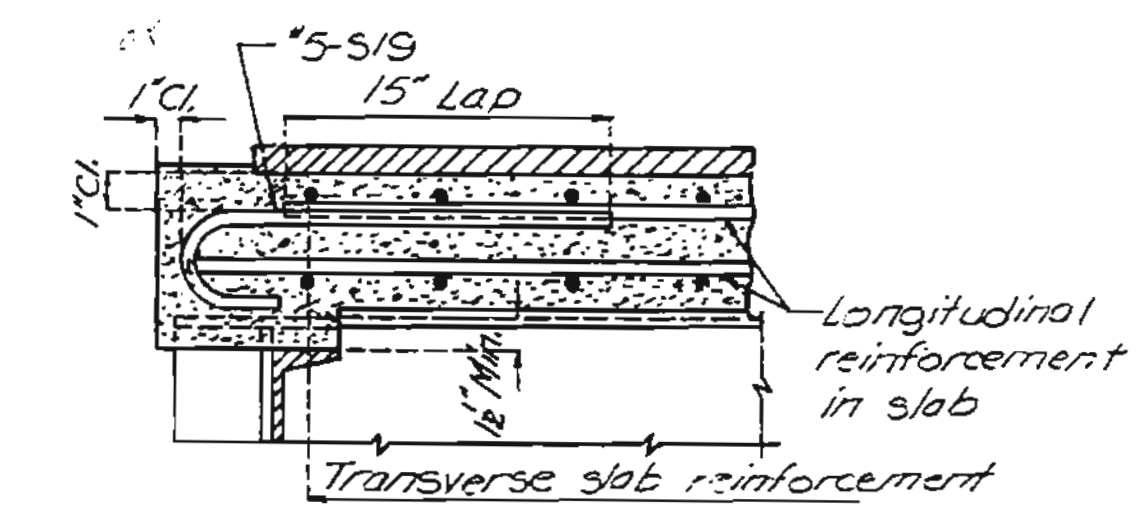
A-2514

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	109	

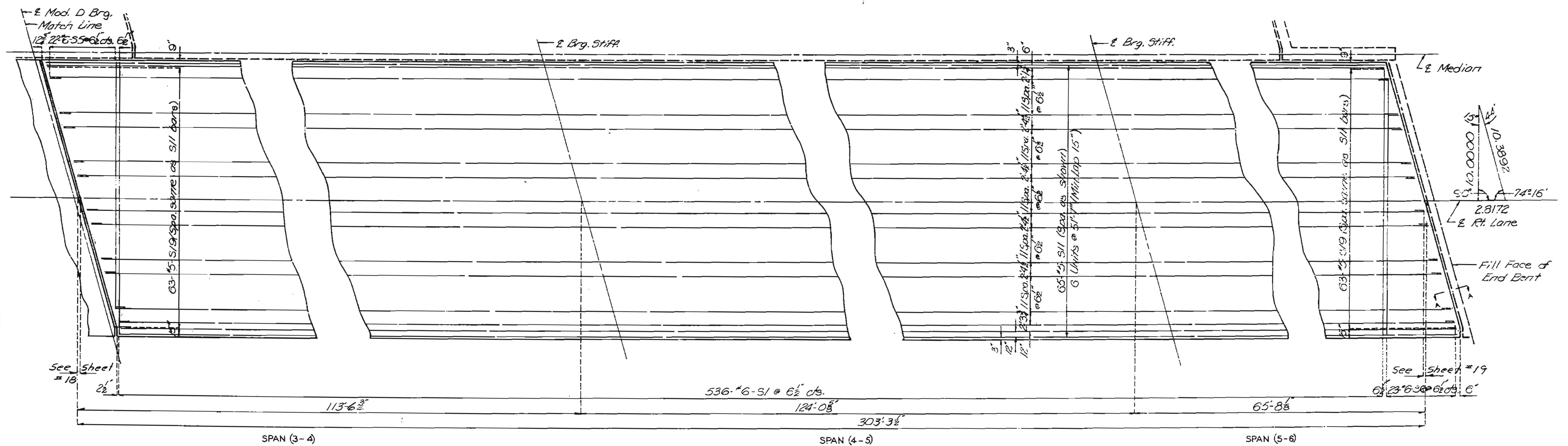


Note: Longitudinal reinforcing shall be placed so that ends shall not be more than 1" from Exp. Device.  
 Longitudinal dimensions shown are taken parallel to grade of  $\frac{1}{2}$  of roadway.  
 For Section thru Slab and Slab Pouring Sequence, see Sheet No. 23.  
 For Plan of Slab showing Top Reinforcement, see Sheet No. 21.  
 Heavy dashed lines indicate proposed structure A-2513. See Sheet No. 27 for Location of Conduit in Slab.



SECTION A-A

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PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

DETAILED JAN. 1974  
 CHECKED MCG 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 22 of 27.

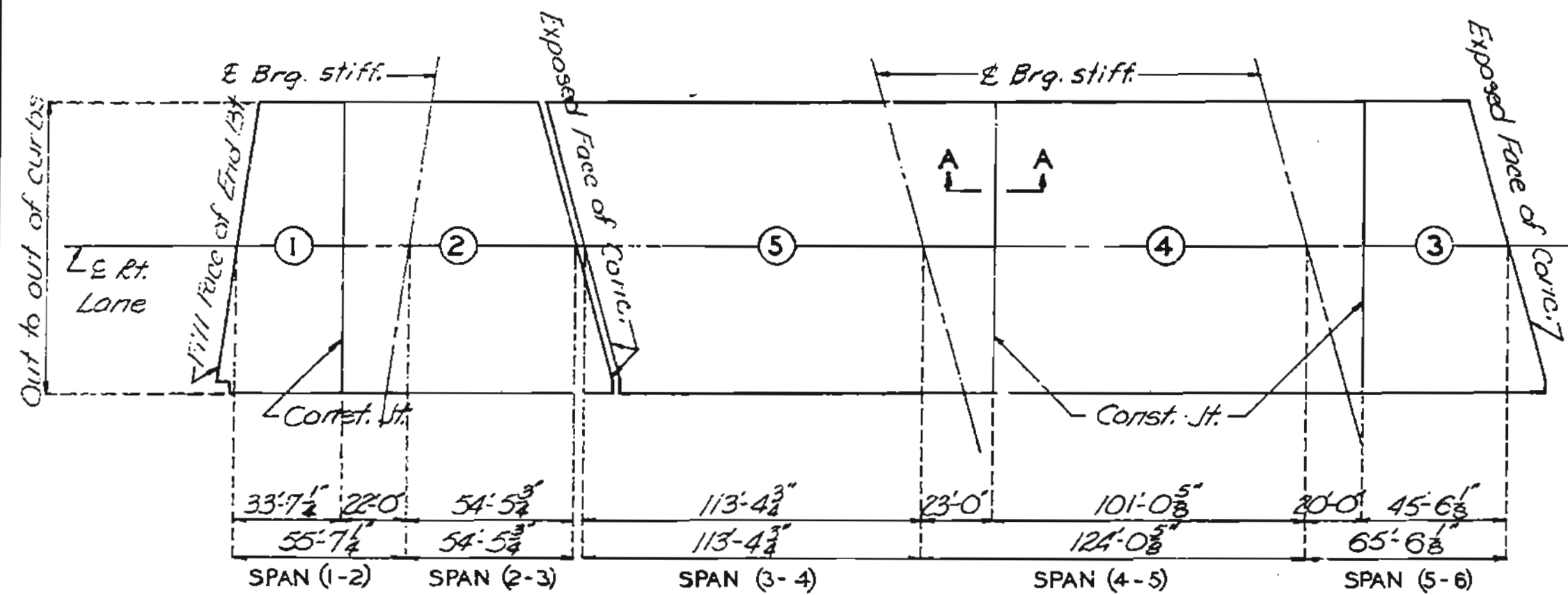
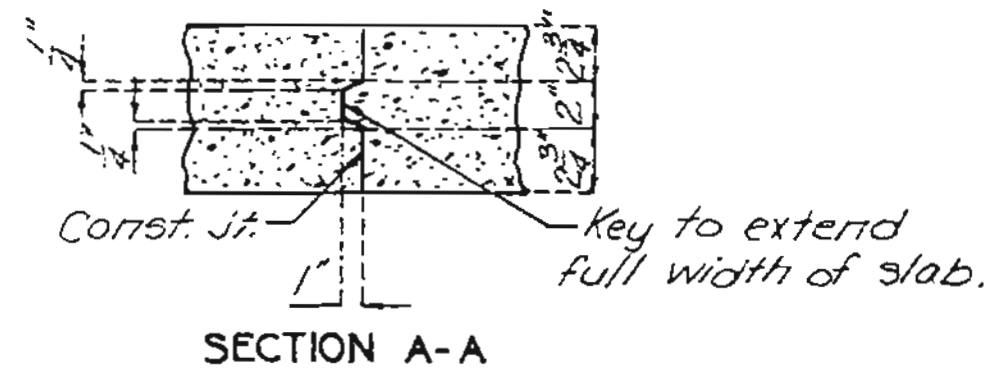
JACKSON

COUNTY

A-2514

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	110	



	Sequence of Pours	
	Direction	
Basic Sequence	1	2
Alternate "A" Pours	End to 2 1 to End	
Alternate "B" Pours	1+2 End to End	

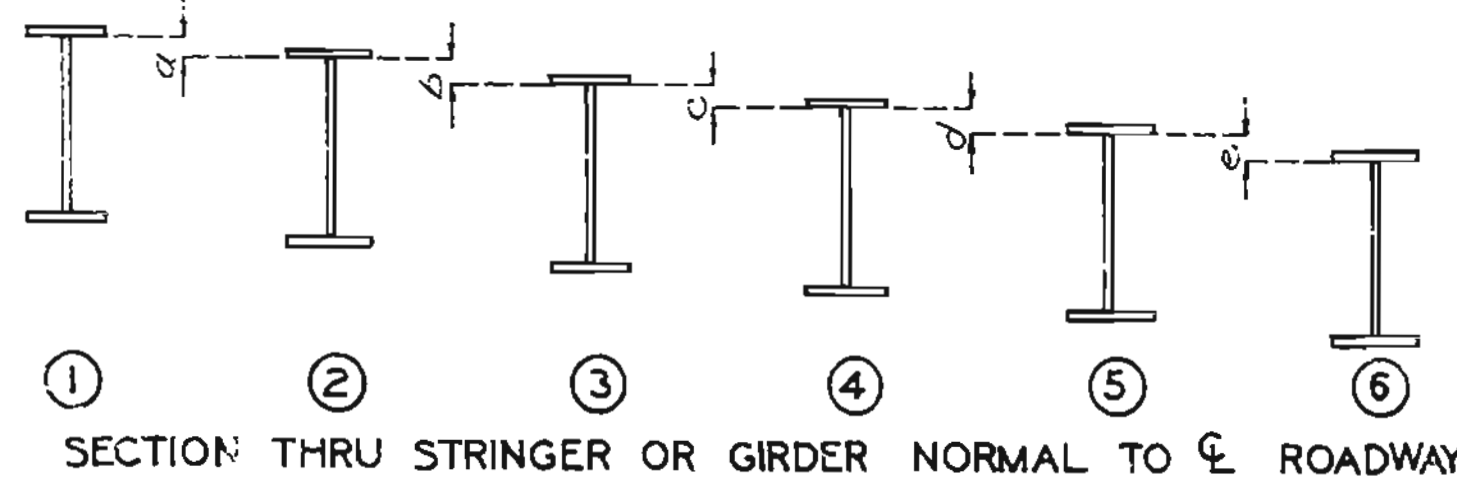
	Sequence of Pours		
	Direction		
Basic Sequence	3	4	5
Alternate "A" Pours	3+4	5	
Alternate "B" Pours	End to 5 4 to End		
	3+4+5 End to End		

Note: The contractor shall complete pours 1 & 2 before starting pours 3, 4 & 5.

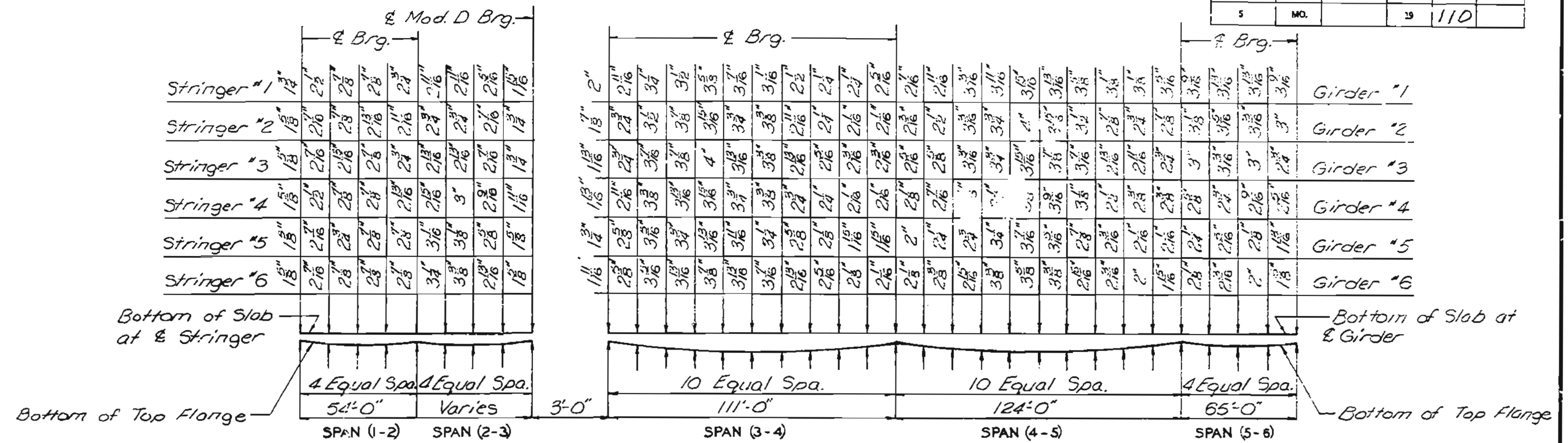
The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 42 cubic yards per hour unless he elects to use an approved retarder to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 25 cubic yards per hour.

Note: The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at a rate of not less than 40 cubic yards per hour.

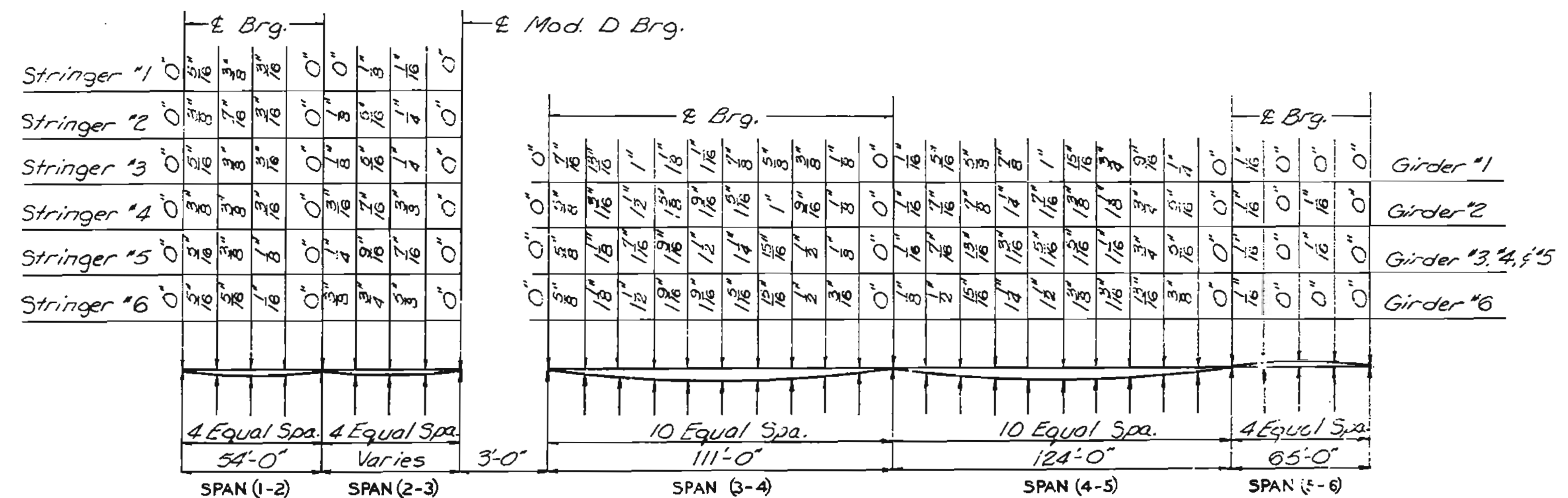
SLAB POURING SEQUENCES



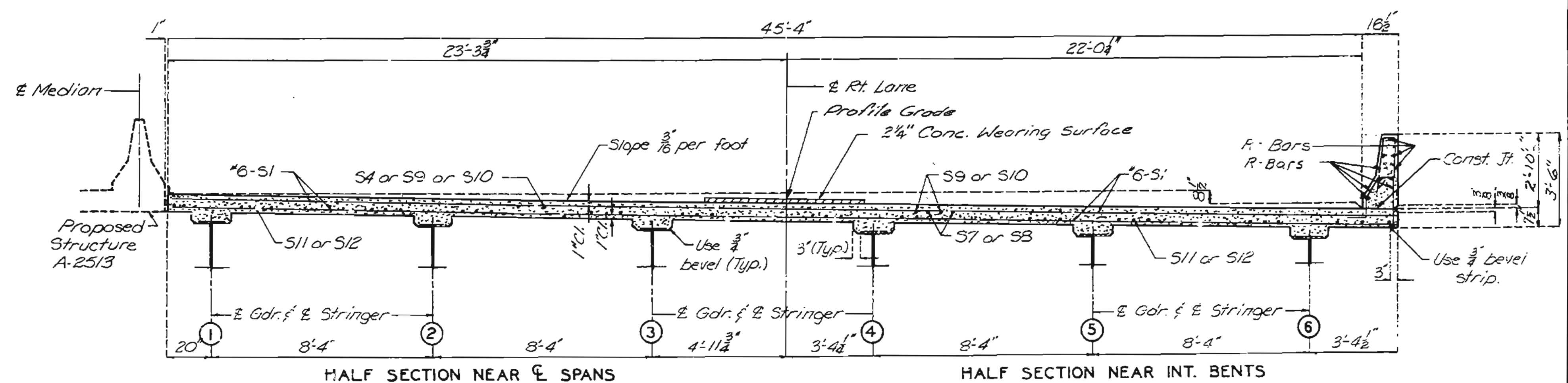
LOCATION	a	b	c	d	e
Bt. No. 1 to E Mod. D Brq.	1 1/2"	1 3/8"	1 3/8"	1 3/8"	1 3/8"
E Mod. D Brq. to Splice S3	Varies				
Splice S3 to Splice S4	1 5/8"	1 3/8"	1 1/2"	1 1/2"	1 1/2"
Splice S4 to Splice S5	1 1/4"	1 3/8"	1 3/8"	1 3/8"	1 3/8"
Splice S5 to Bt. No. 6	1 1/2"	1 3/8"	1 3/8"	1 3/8"	1 3/8"



THEORETICAL SLAB HAUNCHING DIAGRAM



DEAD LOAD DEFLECTION



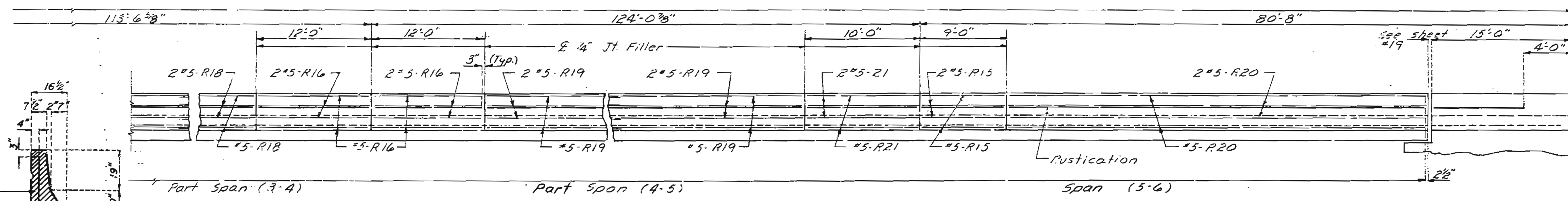
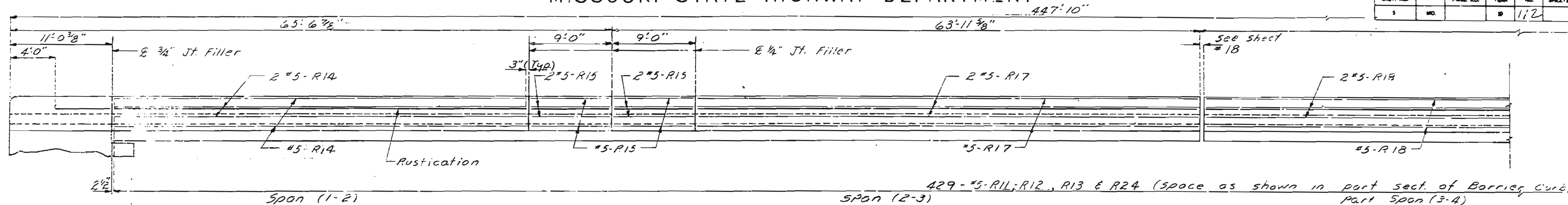
Note: For details and reinforcement of Barrier not shown, see sheet No. 25.

Note: See Sheet No. 27 for Location of Conduit in Slab.



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. EC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.			172	

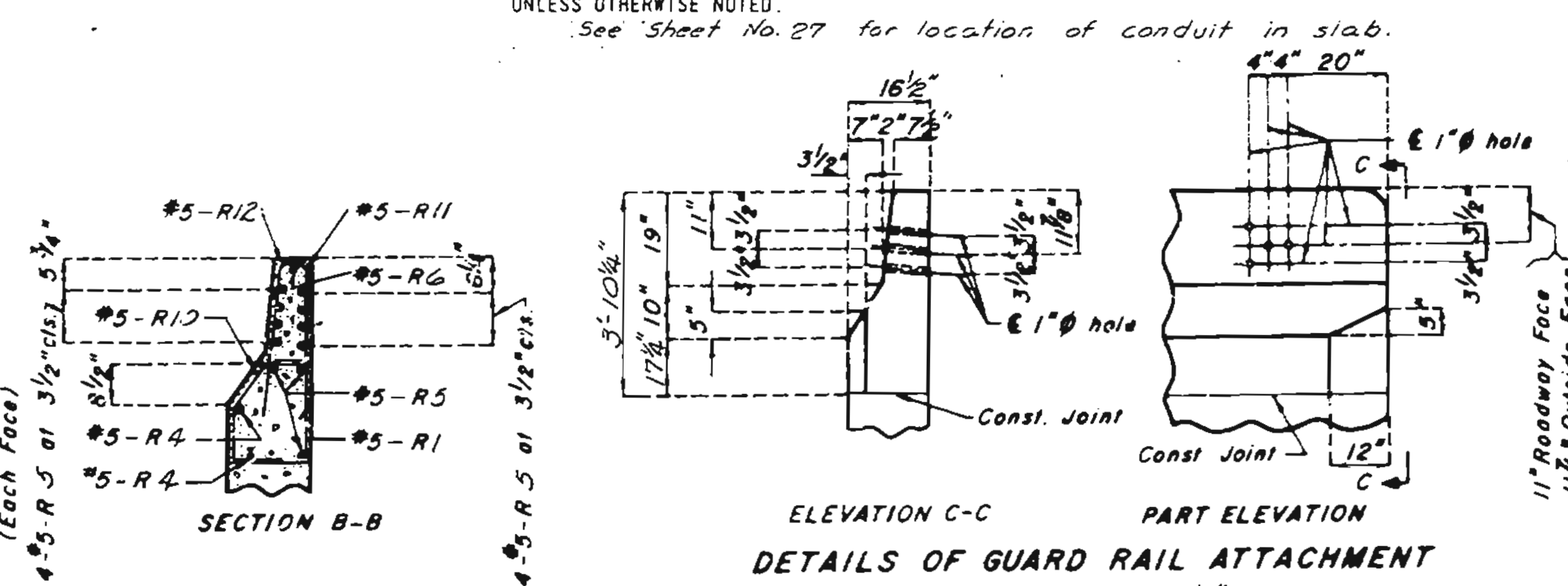
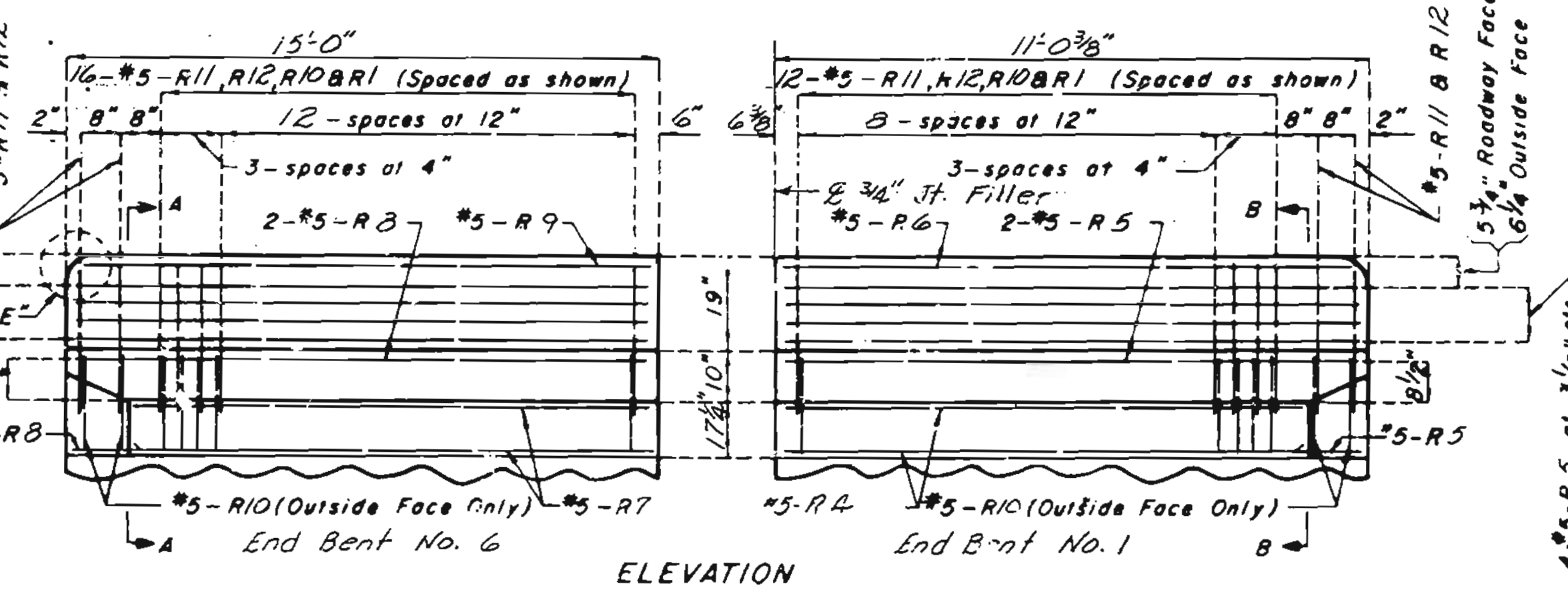
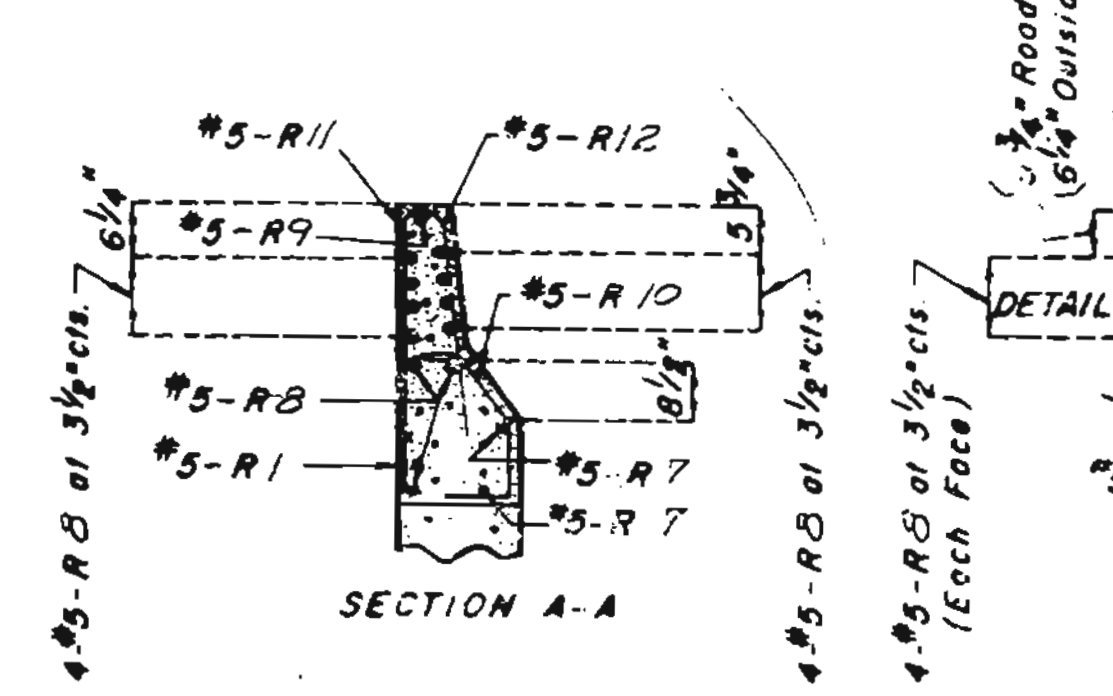


ELEVATION OF RIGHT BARRIER CURB

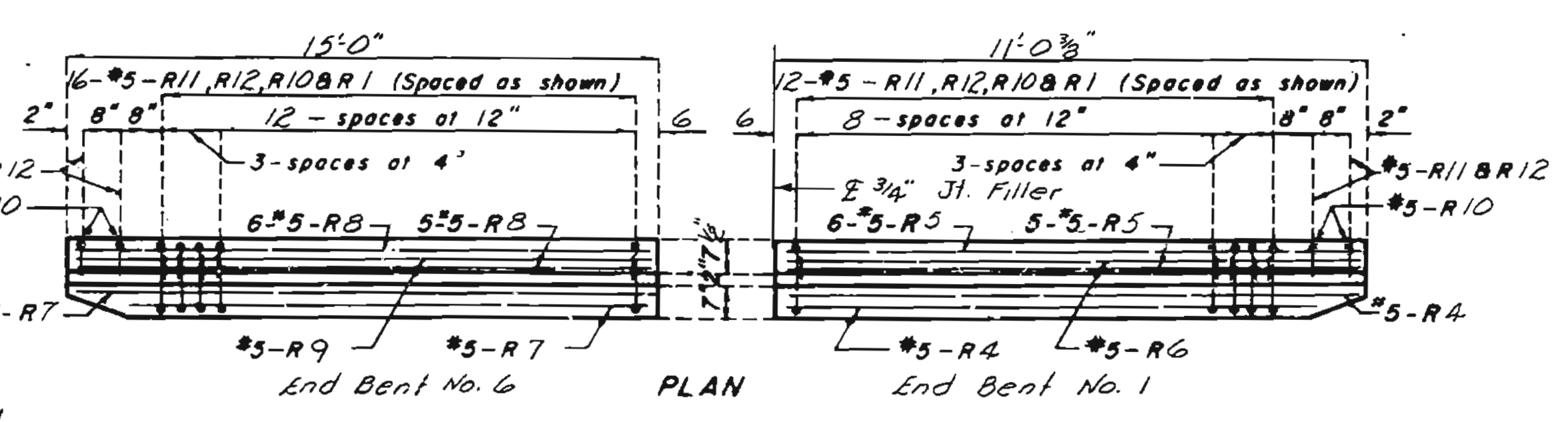
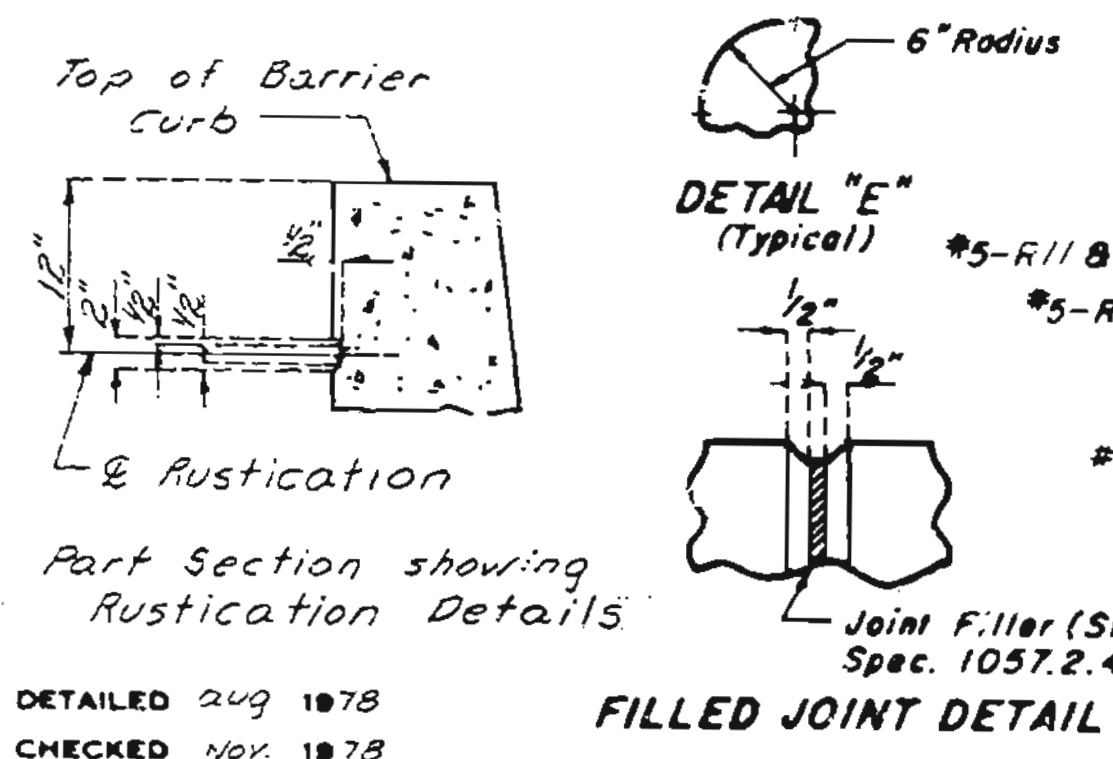
**NOTES:**  
 TOP OF BARRIER CURB TO BE BUILT PARALLEL TO GRADE WITH BARRIED CURB JOINTS (EXCEPT AT END BENTS) NORMAL TO GRADE.  
 ALL EXPOSED EDGES OF BARRIER CURB SHALL HAVE 1" 2" RADIUS OR 3" 8" BEVEL UNLESS OTHERWISE NOTED.  
 See Sheet No. 27 for location of conduit in slab.

Note: Plastic waterstop shall be placed in all safety barrier curb filled joints.  
 Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP

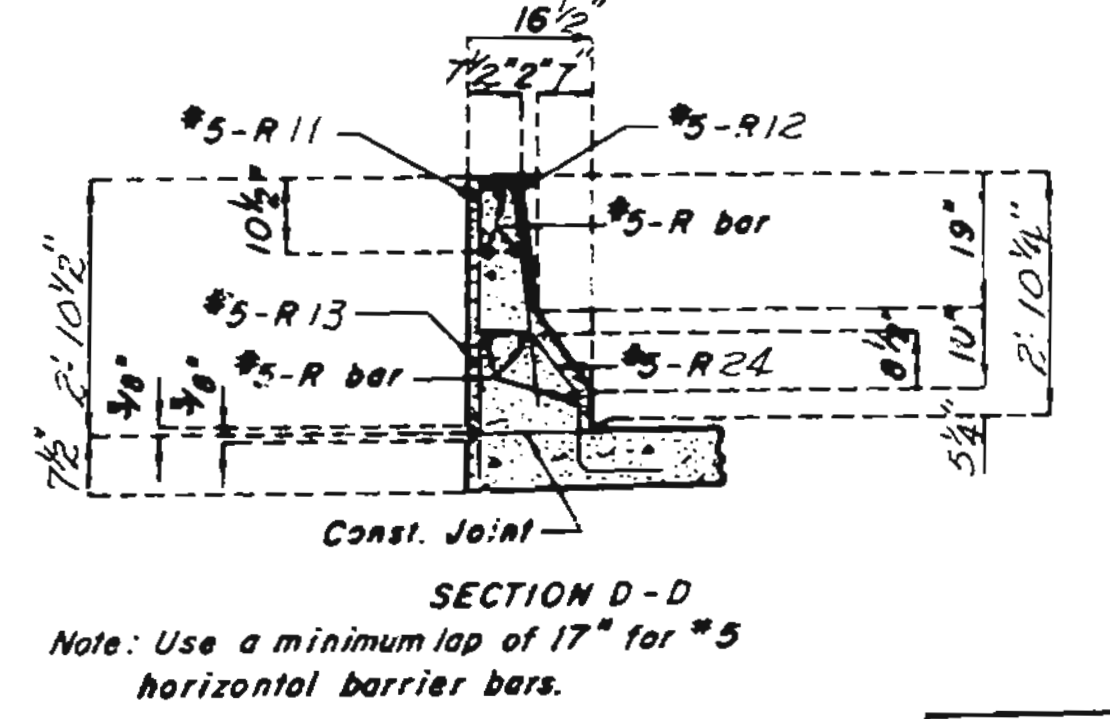
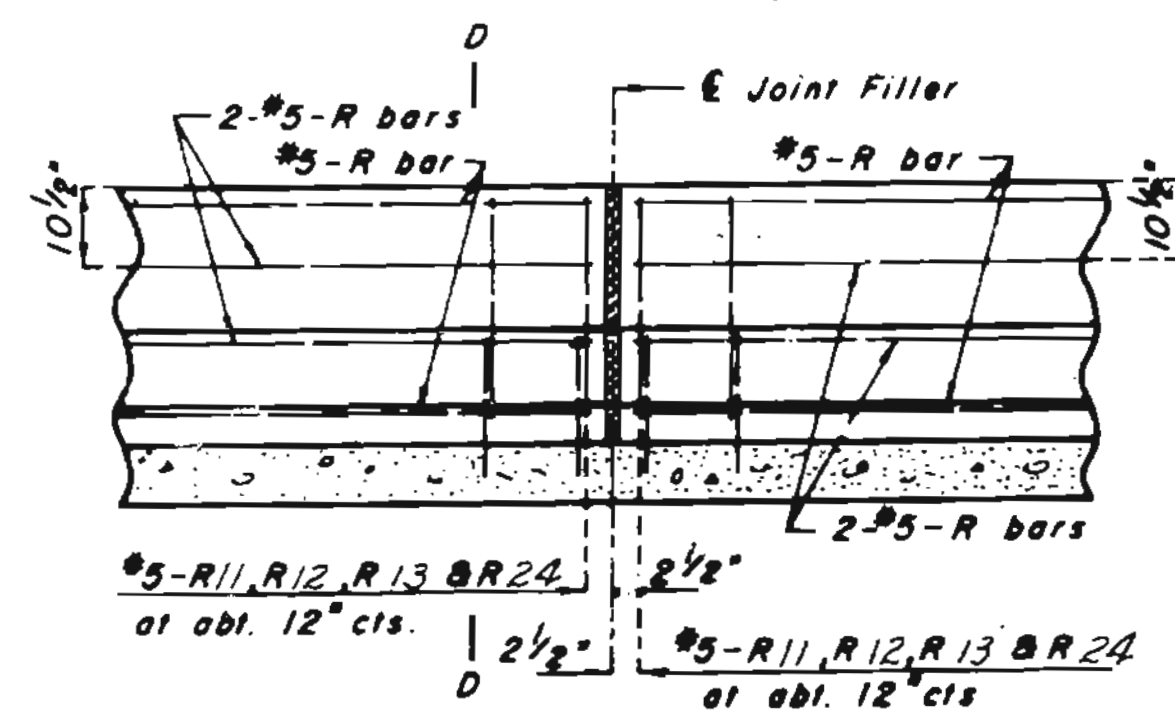


DETAILS OF GUARD RAIL ATTACHMENT



DETAILS OF BARRIER CURB AT END BENTS

Note: This drawing is not to scale. Follow dimensions.



Note: Use a minimum lap of 17" for #5 horizontal barrier bars.

STD. 1.75(N) REVISED  
 AUG. 1978

DETAILED Aug. 1978  
 CHECKED Nov. 1978

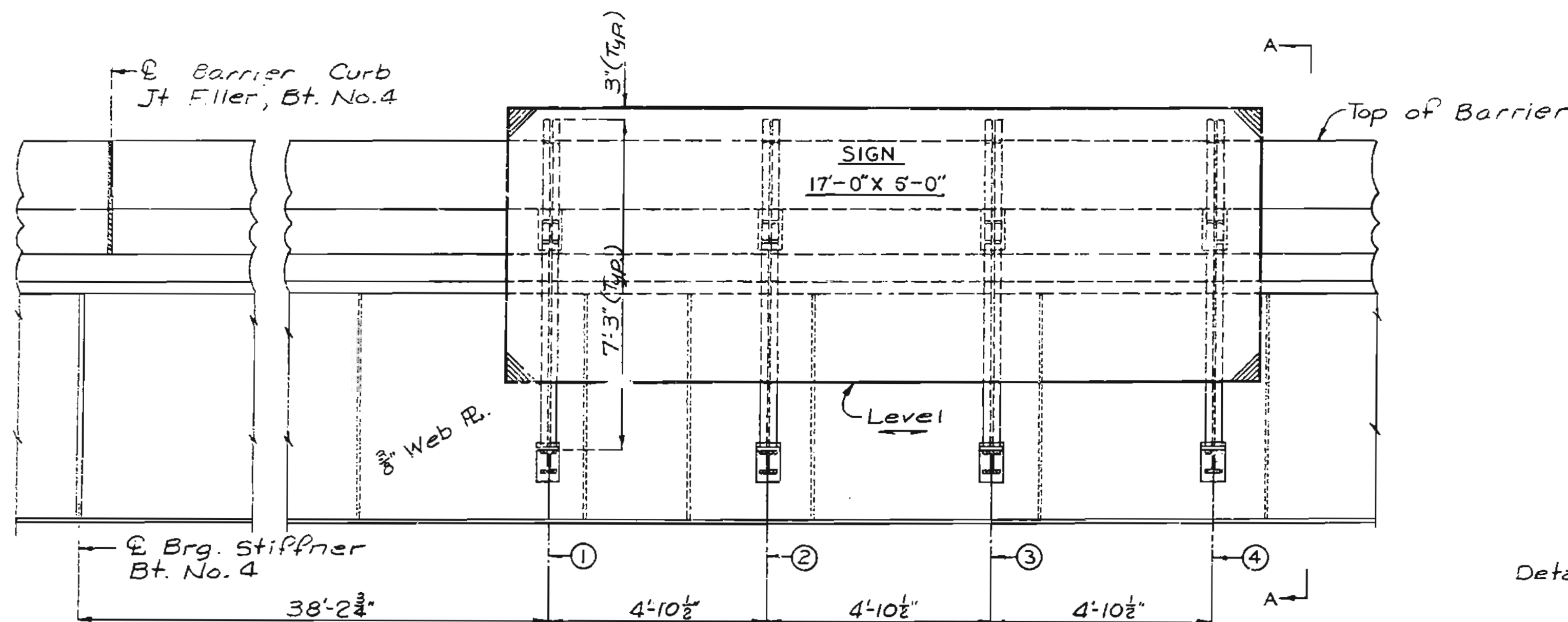
Sheet No. 25 of 27

JACKSON COUNTY

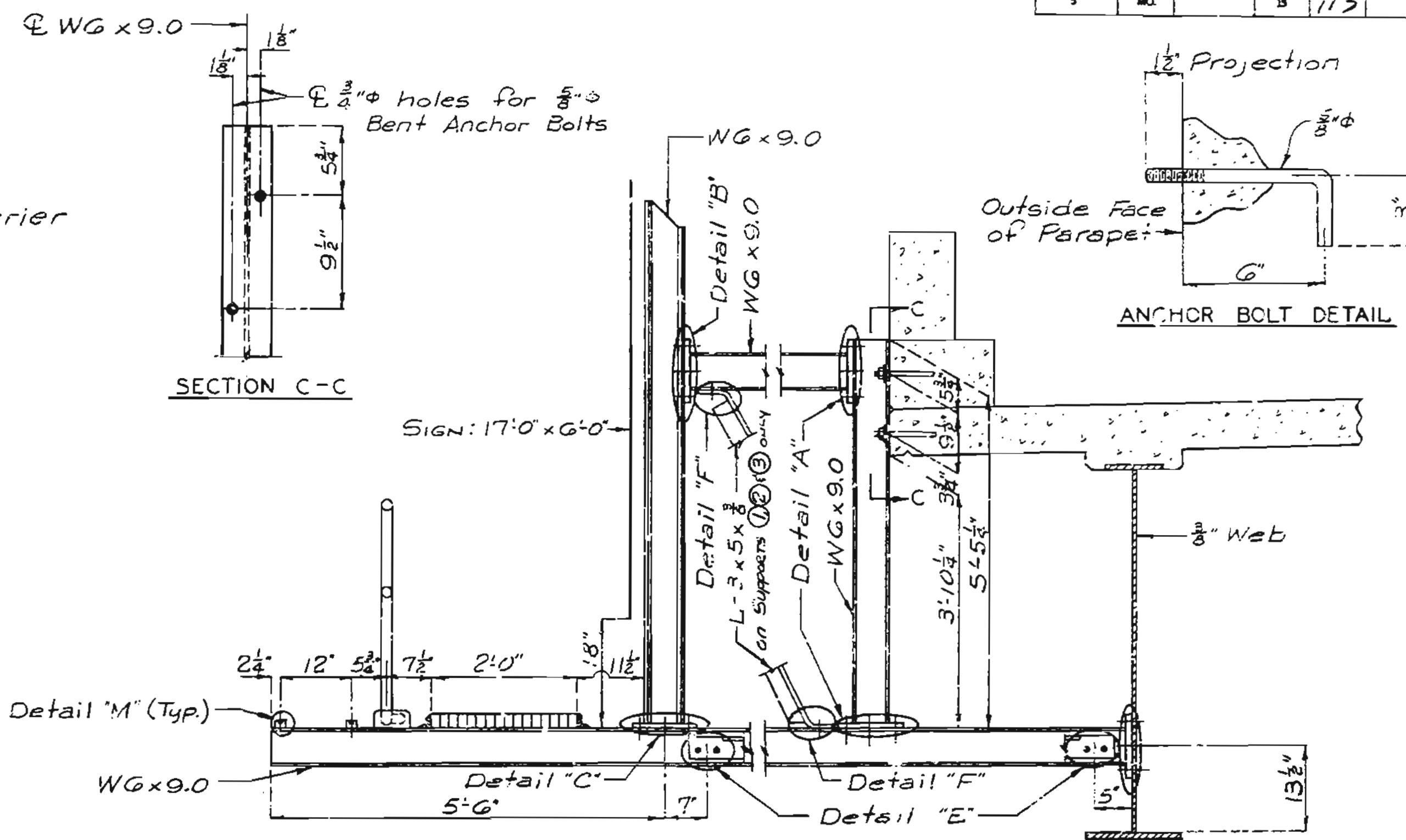
A-2514

MISSOURI STATE HIGHWAY DEPARTMENT

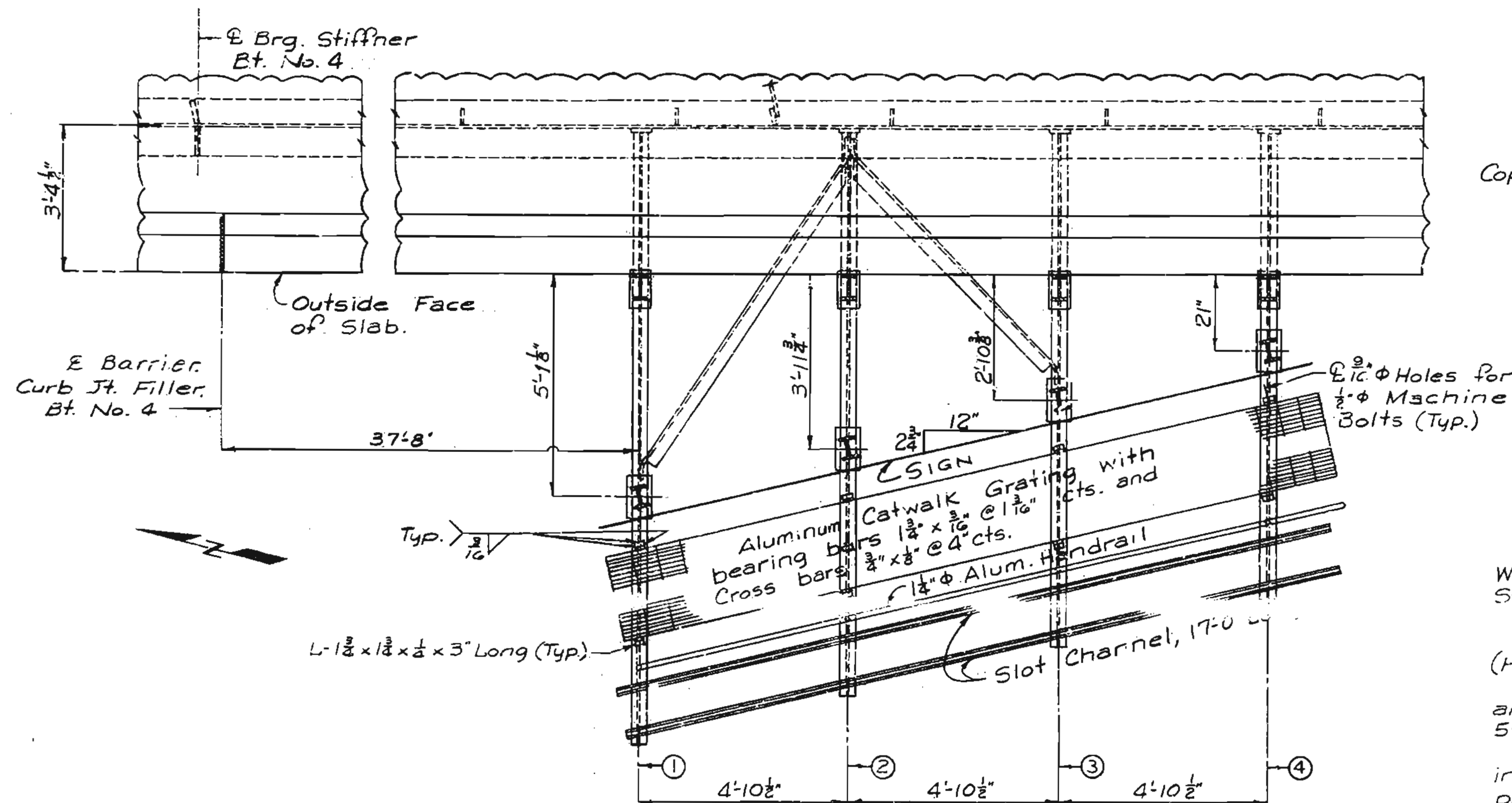
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		13	113	



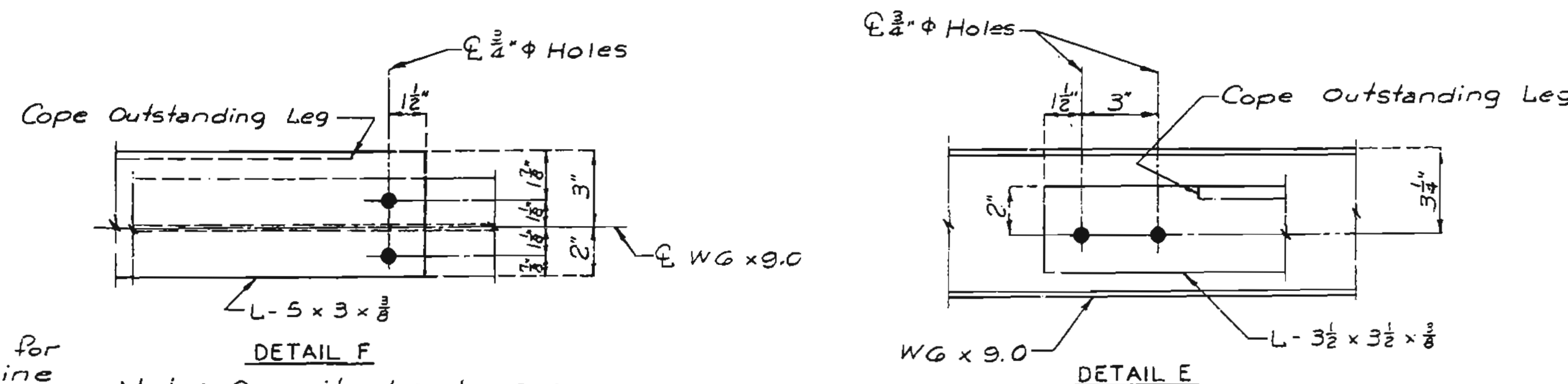
ELEVATION OF SIGN SUPPORTS  
OVER EAST BOUND I-470



Note: See Sheet No. 27 for Details A, B, C, H & M.



PLAN OF SIGN SUPPORTS  
OVER EAST BOUND I-470



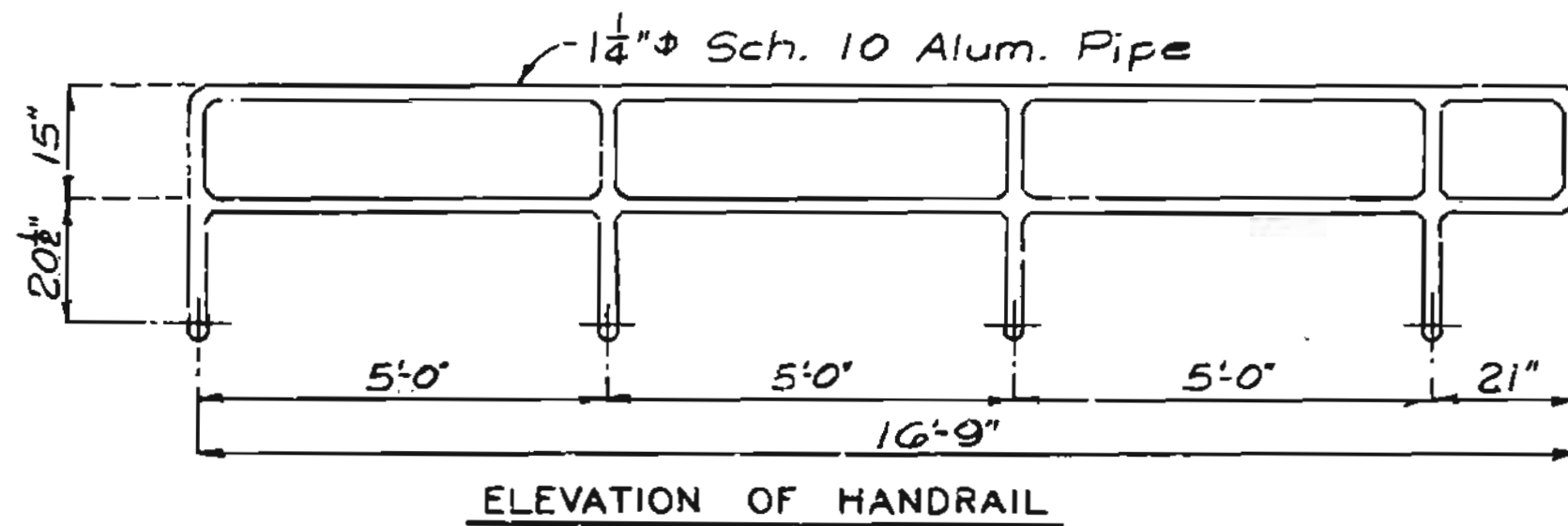
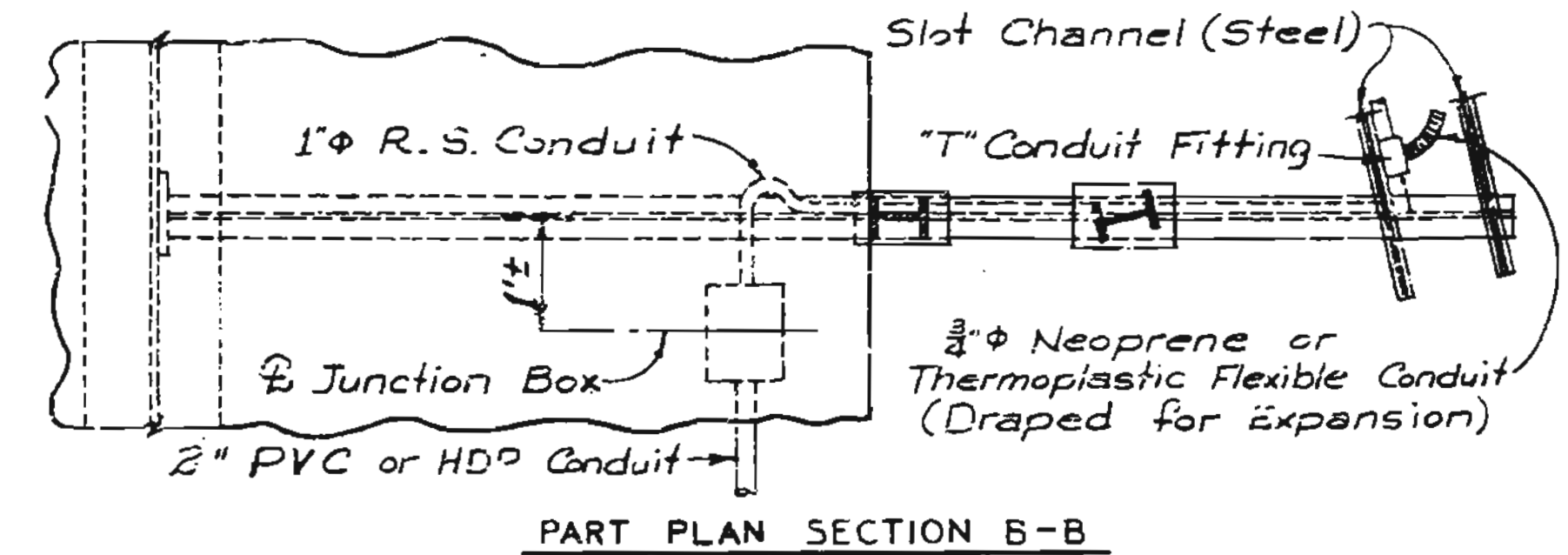
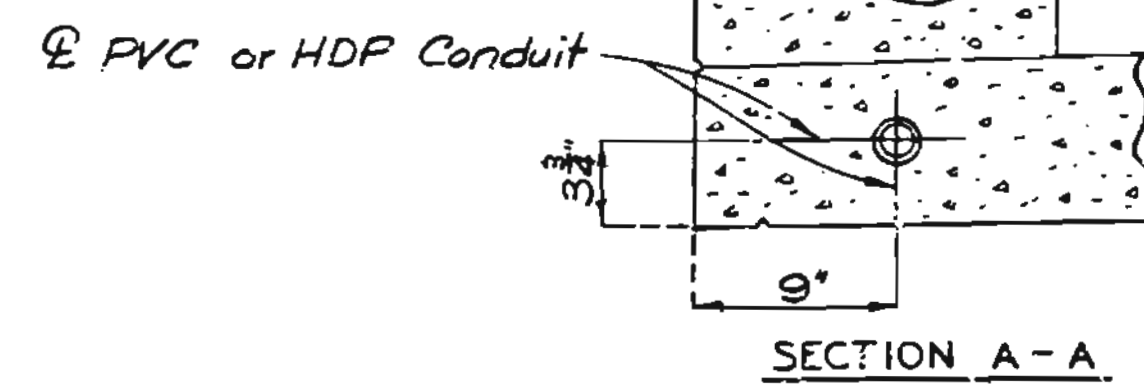
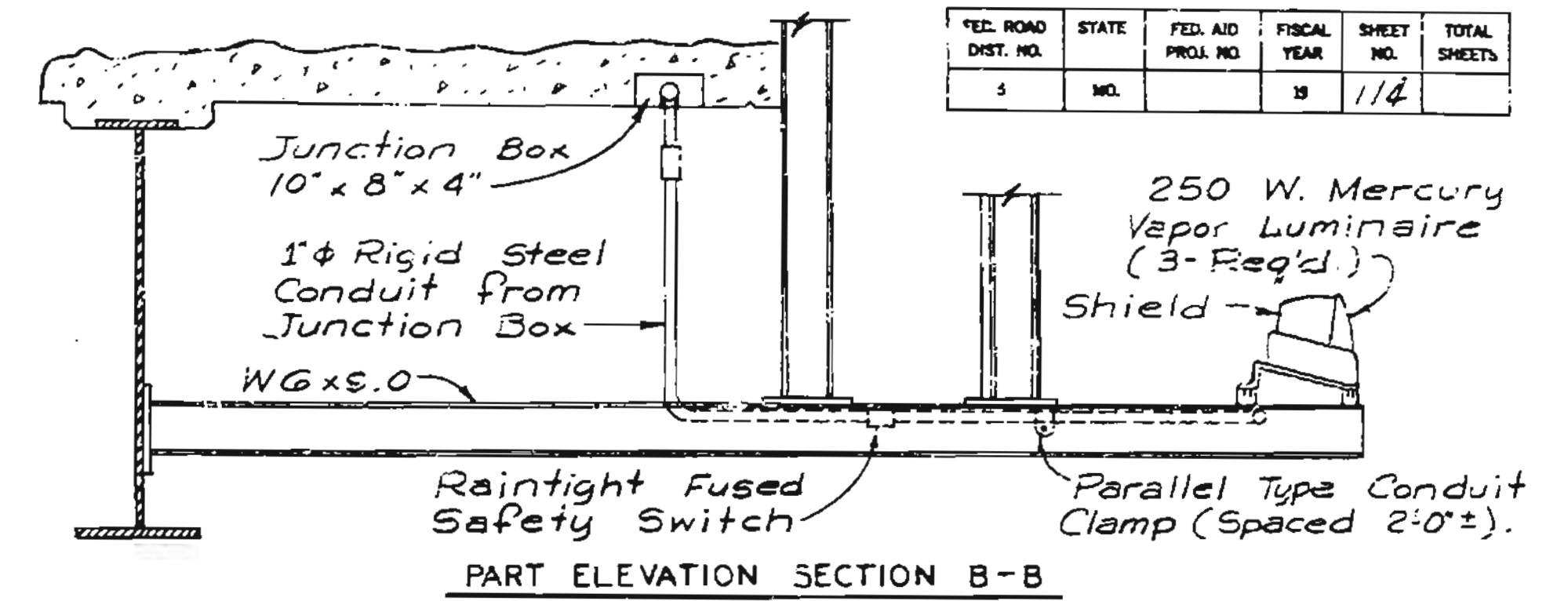
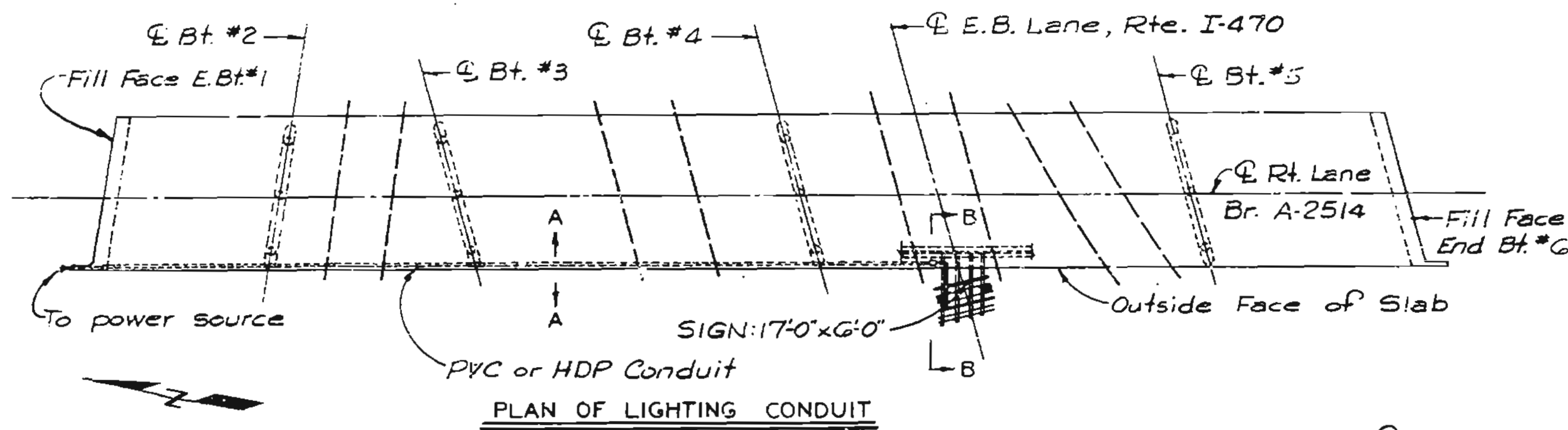
GENERAL NOTES

All Structural Steel shall be A36, Galvanized.  
 All Aluminum shall be Alloy 6061-T6 or 6063-T6.  
 Field Connections, High Strength Bolts 3/4" ⊕, Holes 3/4" ⊕ except as noted. All Bolts, Nuts and Washers shall be Galvanized. The turn-of-nut method of obtaining bolt tension for High Strength Bolts may be used. (See Std. Spec. 712.11.2).  
 Anchor Bolts: A.S.T. A307, Galvanized.  
 Conduit shall be schedule 40 Heavy Wall PVC (Polyvinyl Chloride Plastic) or HDP (High Density Polyethylene) except as noted.  
 Junction Boxes shall be flush mounted and equal to O.Z./Gedney Co. Type "YR" and/or Spring City Elec. Mfg. Co. Type "ER". Wall thickness to be sufficient to provide 5-full threads for watertight conduit joint at terminal adapters.  
 The Cost of furnishing and erecting the Sign Support Brackets, the Anchor Bolts in place, the Conduit System including Luminares and Junction Boxes complete in place shall be paid for as Fabricated Sign Support Brackets, Lump Sum.  
 For additional information on Catwalk, Slot Channels and Handrail, See Standard Drawings 903.60.

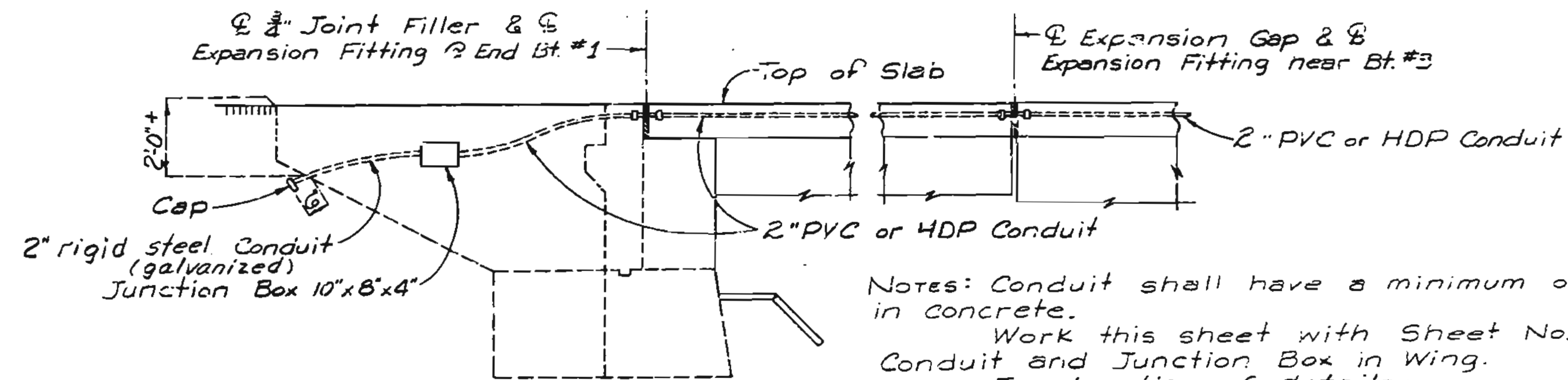
SIGN SUPPORTS

MISSOURI STATE HIGHWAY DEPARTMENT

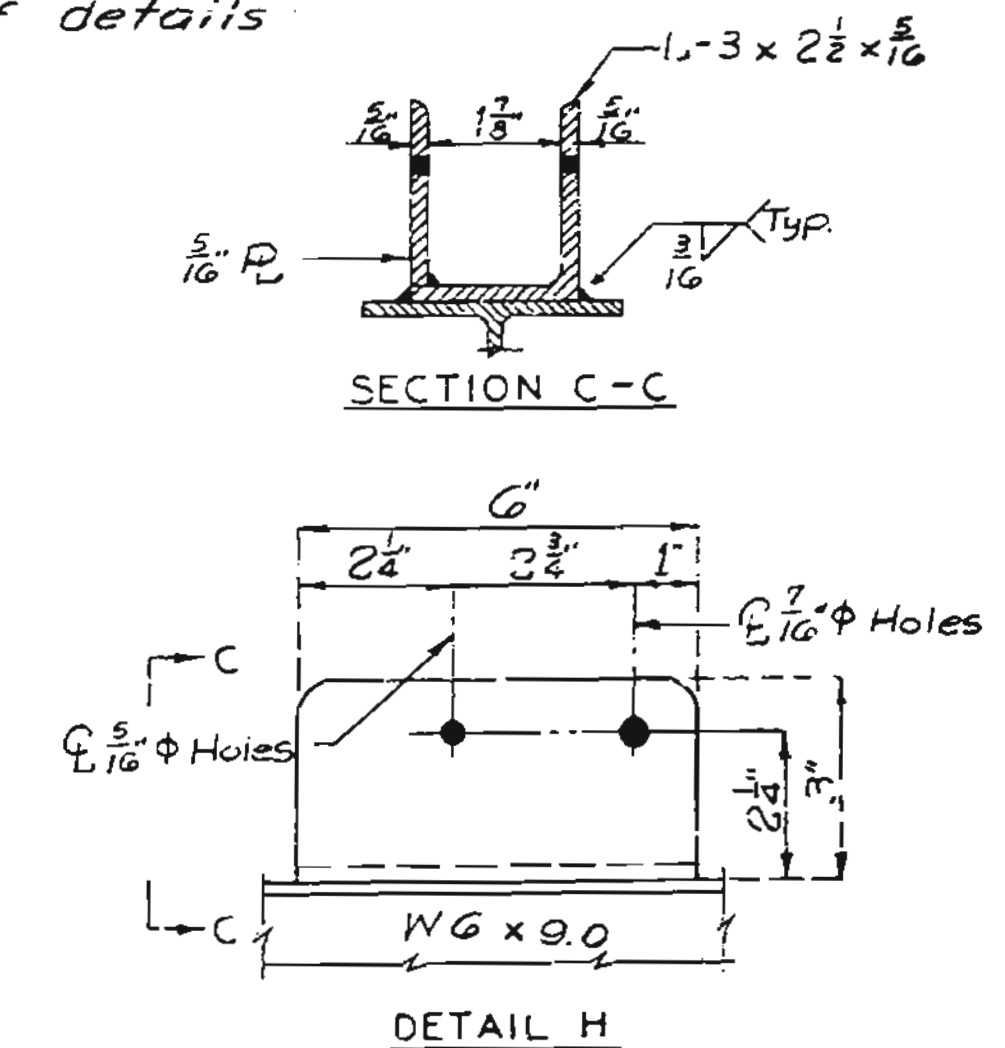
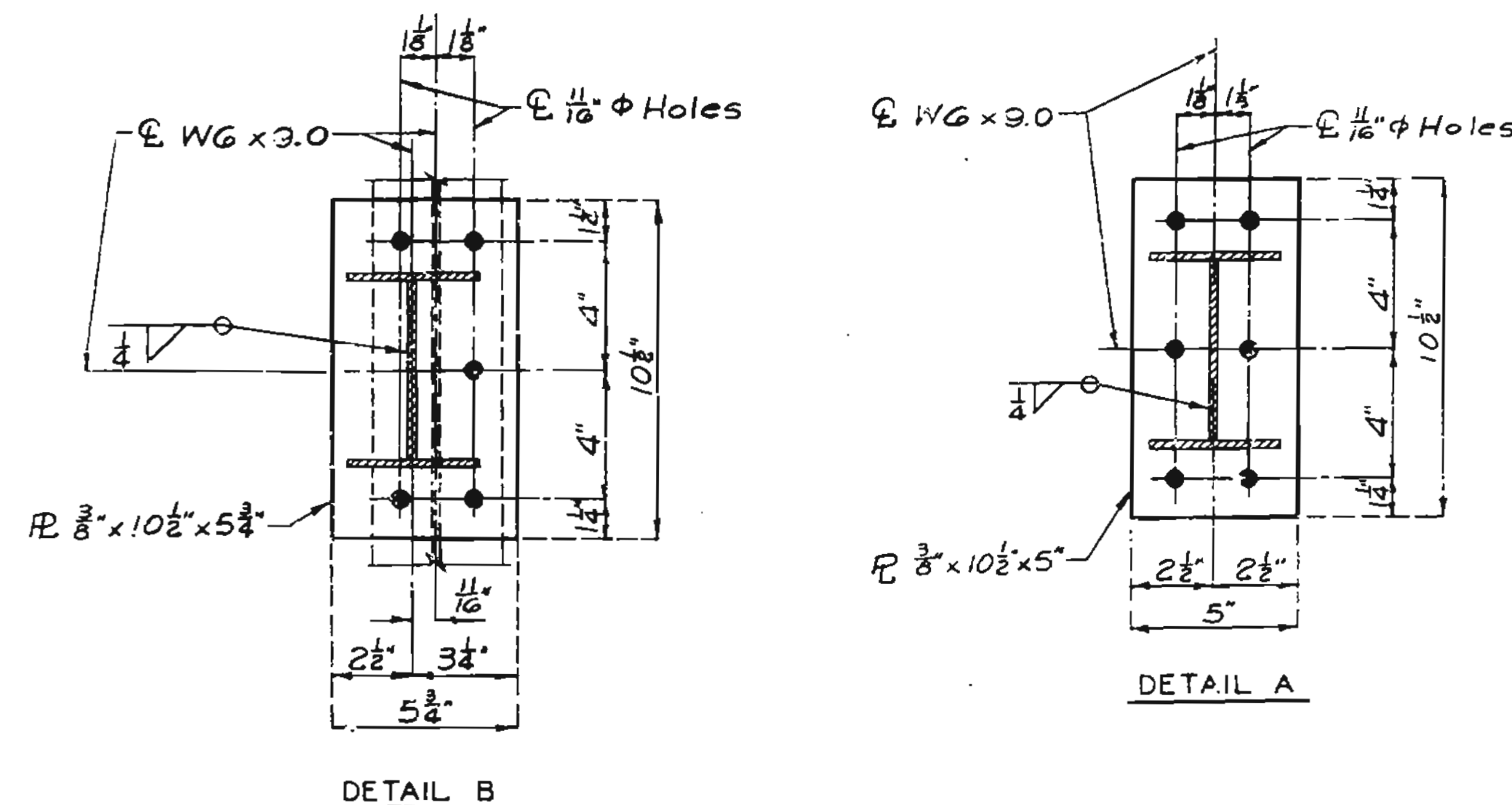
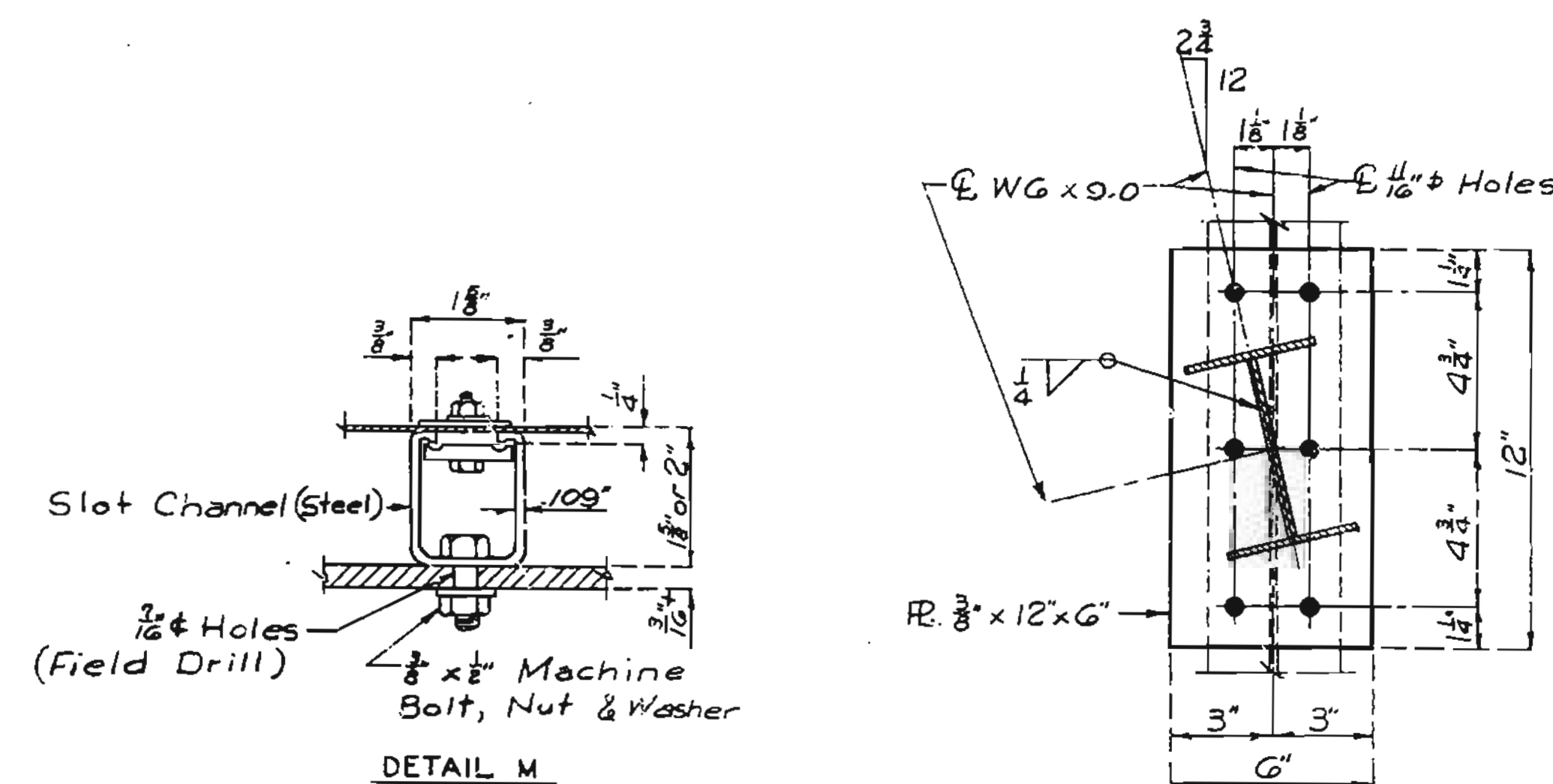
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		78	114	



NOTE: Continuous Welded Joints or Welding type Fittings may be used in construction of the Handrail.



Notes: Conduit shall have a minimum of 2" cover in concrete.  
Work this sheet with Sheet No. 7 for Locating Conduit and Junction Box in Wing.  
For location of details see sheet No. 26.



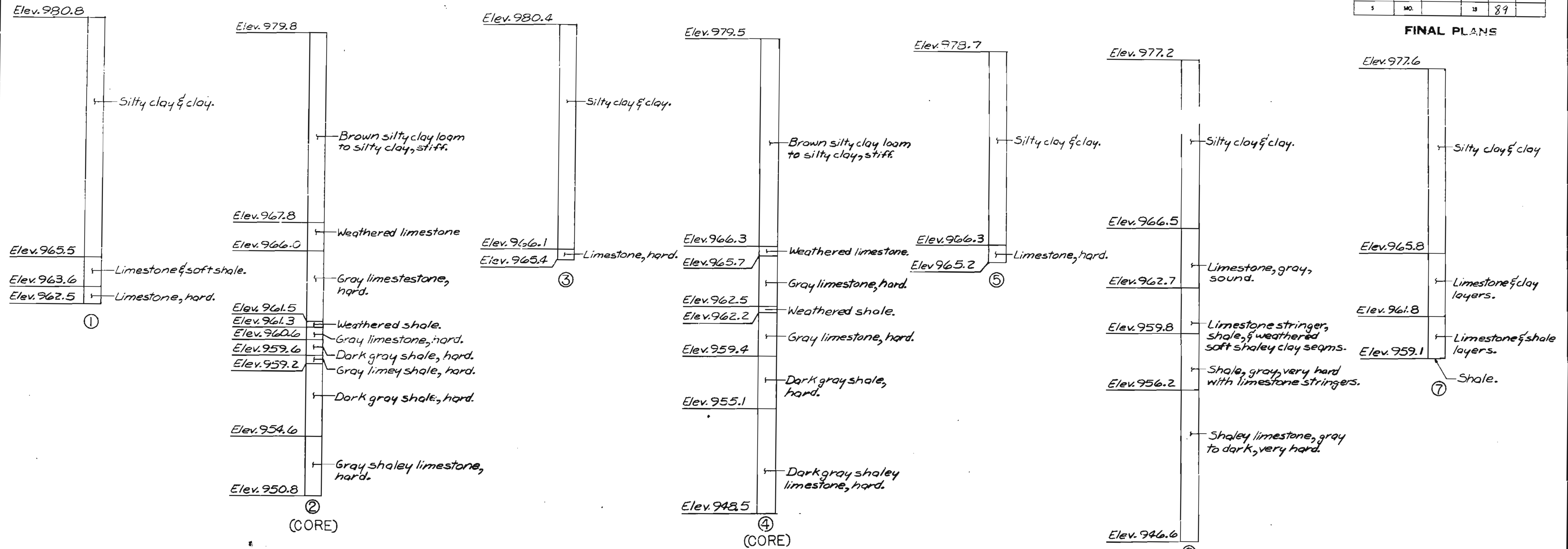




MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		1989	89	

FINAL PLANS



BORING DATA (RIGHT LANE)  
Note: For location of boring see sheet No. 1

PILE & FOOTING DATA								
		BENT NO.	1	2	3	4	5	6
Bearing Pile	Pile Type and Size	HP10x42						HP10x42
	Number	7						10
	Approximate Length Ft.	16 to 18						17 to 20
	Design Bearing Tons	46						45
	Hammer Energy reqd. Ft. Lb.	11400						11200
Spread Footing	Foundation Material		Rock	Rock	Rock	Rock	Rock	
	Design Bearing Tons/sq. ft.		7.5	6.5	9.5	8.5		

Minimum energy requirement of hammer based on plan length and design bearing value of piles. All piles were driven to practical refusal.

All concrete and reinforcement in safety barrier curb is included with superstructure quantities.

FINAL QUANTITIES			
Item	Substr.	Superstr.	Total
Class I Excavation	Cu. Yd. 223.0		223.0
Slab Drains	Each	11	11
(Low Slump) Conc. Wearing Surface	Sq. Yd. 2084		2084
Structural Steel Pile (10")	Lin. Ft. 310		310
Class B Concrete	Cu. Yd. 258.8		258.8
Class B-1 Concrete	Cu. Yd. 528.3		528.3
Elastomeric			
Expansion Joint Seal (2.0 in.)	Lin. Ft. 95		95
Reinforcing Steel (Grade 60)	Lbs. 43,810	159,020	202,830
Preformed Compression Exp. Jt. Seal (2")	Lin. Ft. 402		402
Fabricated Structural Carbon Steel W. Beam	Lbs. 101,790		101,790
Fabricated Structural Carbon Steel 1/2 Gdr.	Lbs. 326,260		326,260
Fabricated Structural Low Alloy Steel	Lbs. 47,540		47,540
Painting (System B) Green	Ton 236.0		236.0
Pre bore	Ft. 253		253
Fabricated Sign Support Brackets	Lump Sum		.01
Contingent Item: test holes	Lin. Ft. 48		48

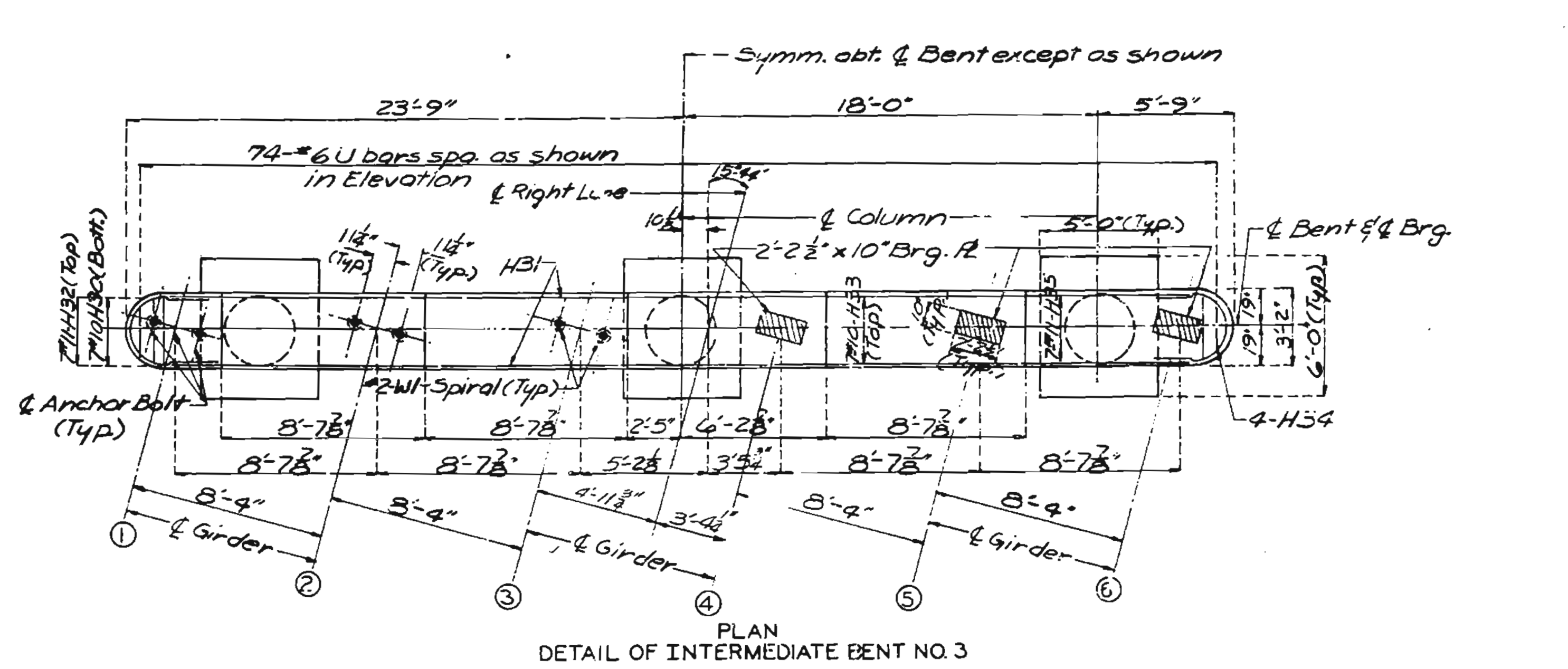
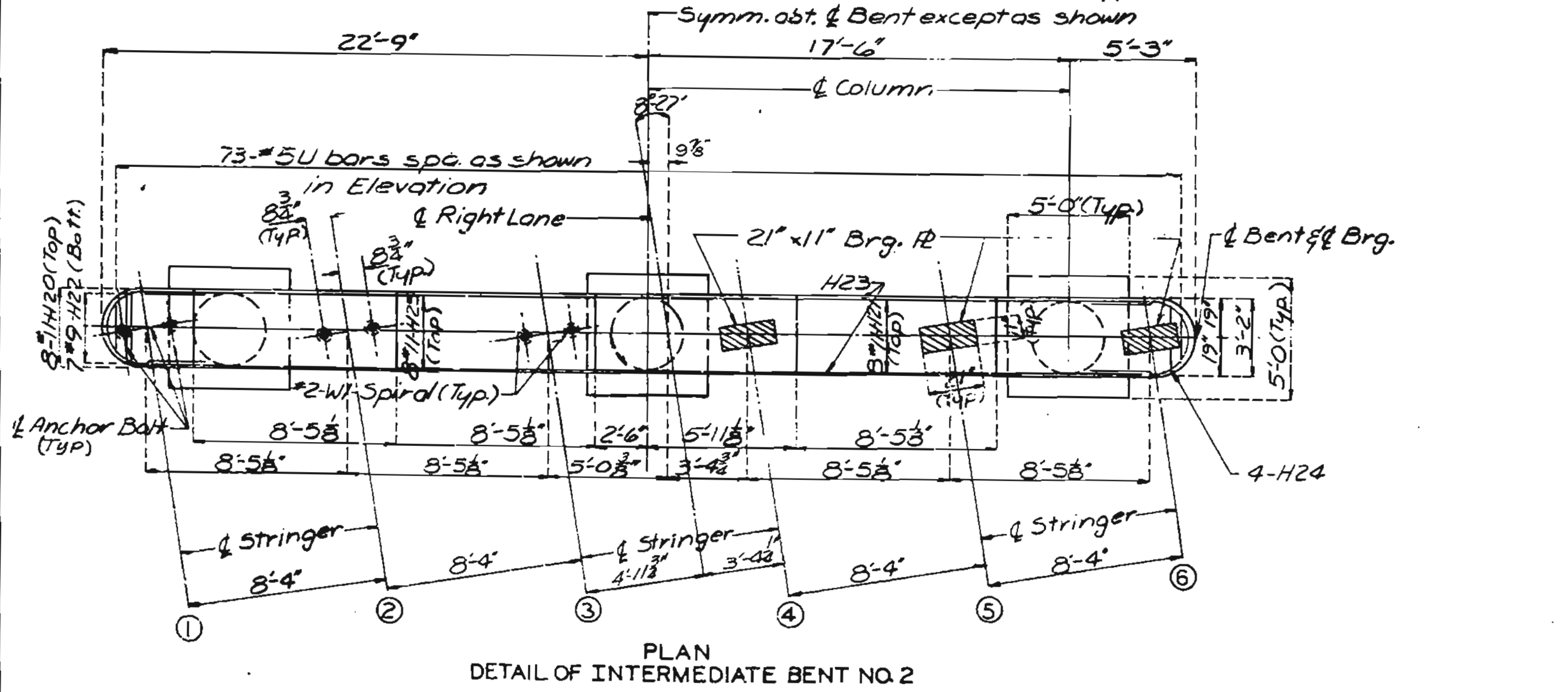
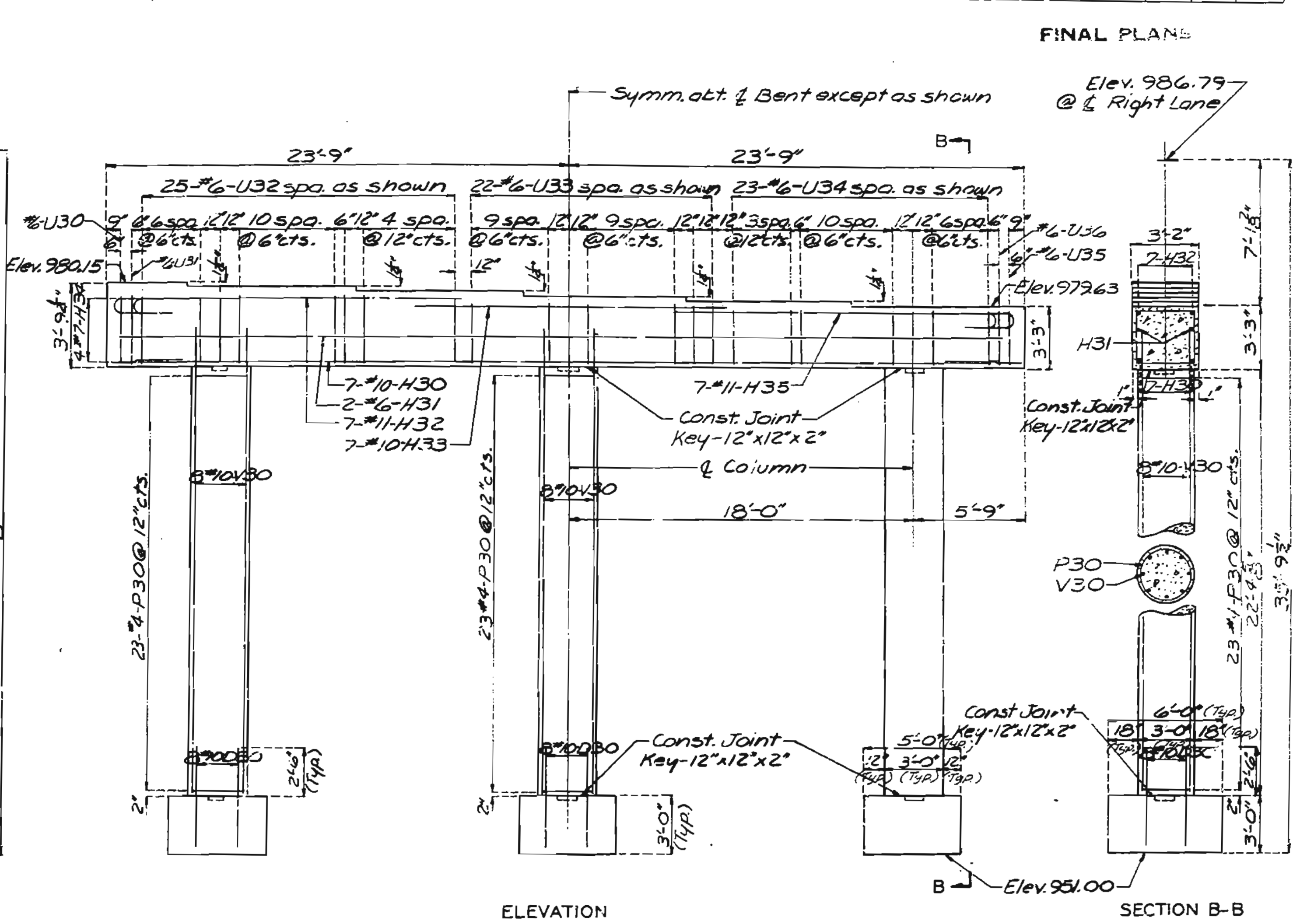
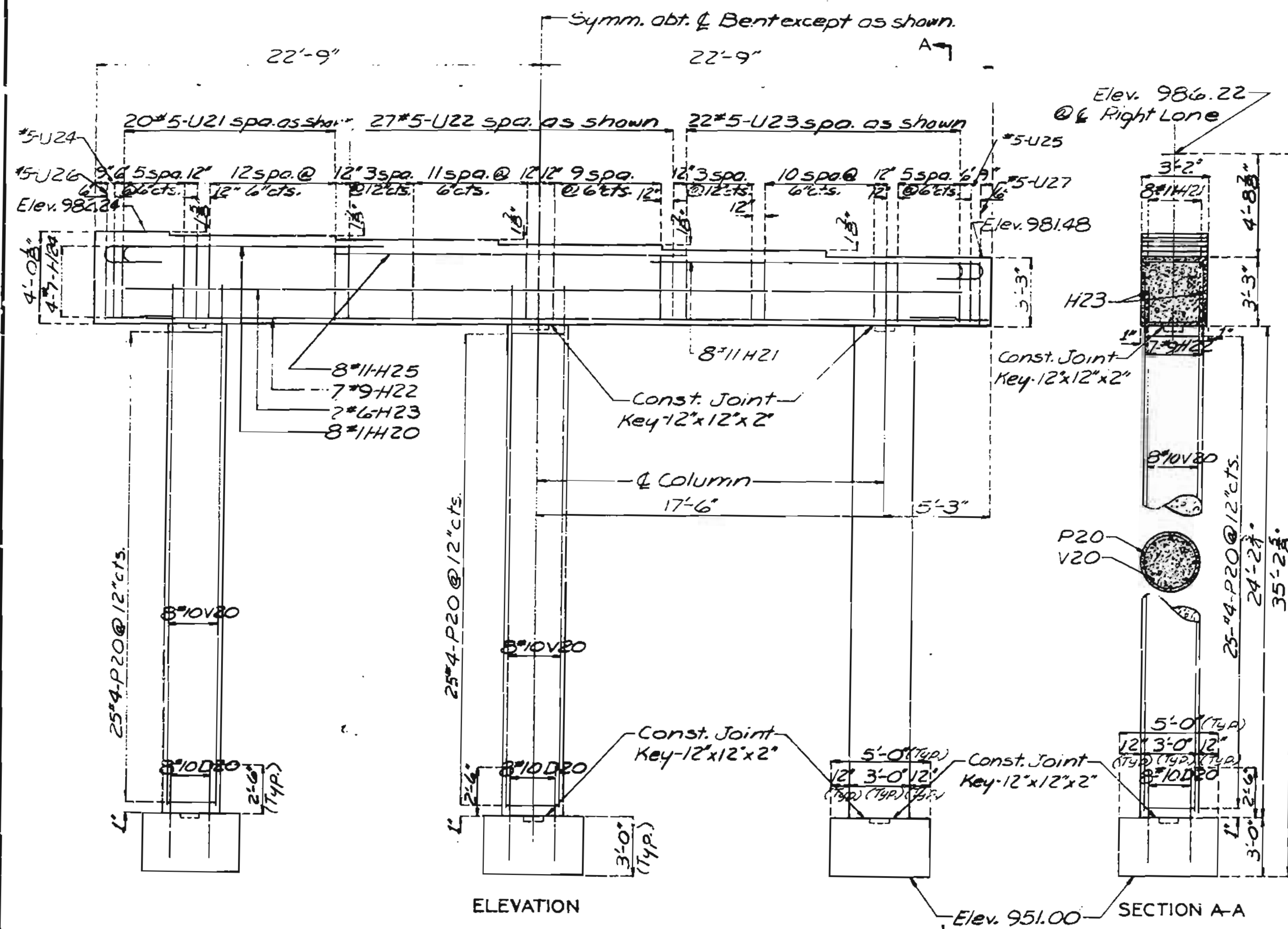
Payweight for fabricated steel was based on welded field splices regardless of type used  
\*\* For alternate use of Concrete Wearing Surface, see Spec. Prov. used Alternate B Low Slump Concrete.

GENERAL NOTES:  
Design Specifications: A.A.S.H.O.-1973  
Design Loading: Hs 20-44 NO Future wearing surface  
Earth 120# Equivalent Fluid Pressure 30#  
Fatigue Stress-Case II Interim "A"  
Design Unit Stresses:  
Class B Concrete (substructure)  $f_c = 1,200$  psi  
Class B1 Concrete (superstructure)  $f_c = 1,600$  psi  
Reinforcing steel  $f_s = 20,000$  psi  
Structural Carbon Steel  $f_s = 20,000$  psi  
Structural Steel (A.S.T.M. A-572) Grade 50  $f_s = 27,000$  psi  
Steel Pile  $f_b = 9,000$  psi  
Fabricated Steel:  
Field connections, High Strength Bolts 3/4"  $\phi$ , holes 13/16"  $\phi$  except as noted.  
Reinforcing Steel:  
Minimum clearance to reinforcing steel was 1 1/2" unless otherwise shown.  
Painting:  
System B by contractor in accordance with Std. Spec. 712.12.  
Color of the final field coat was green.  
All reinforcing bars in tops of substructure beams or caps were spaced to clear anchor bolts for bearing by at least 1/2".

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	95	

FINAL PLANS



DETAILED JAN 1974  
CHECKED May 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. BA of 27.

JACKSON

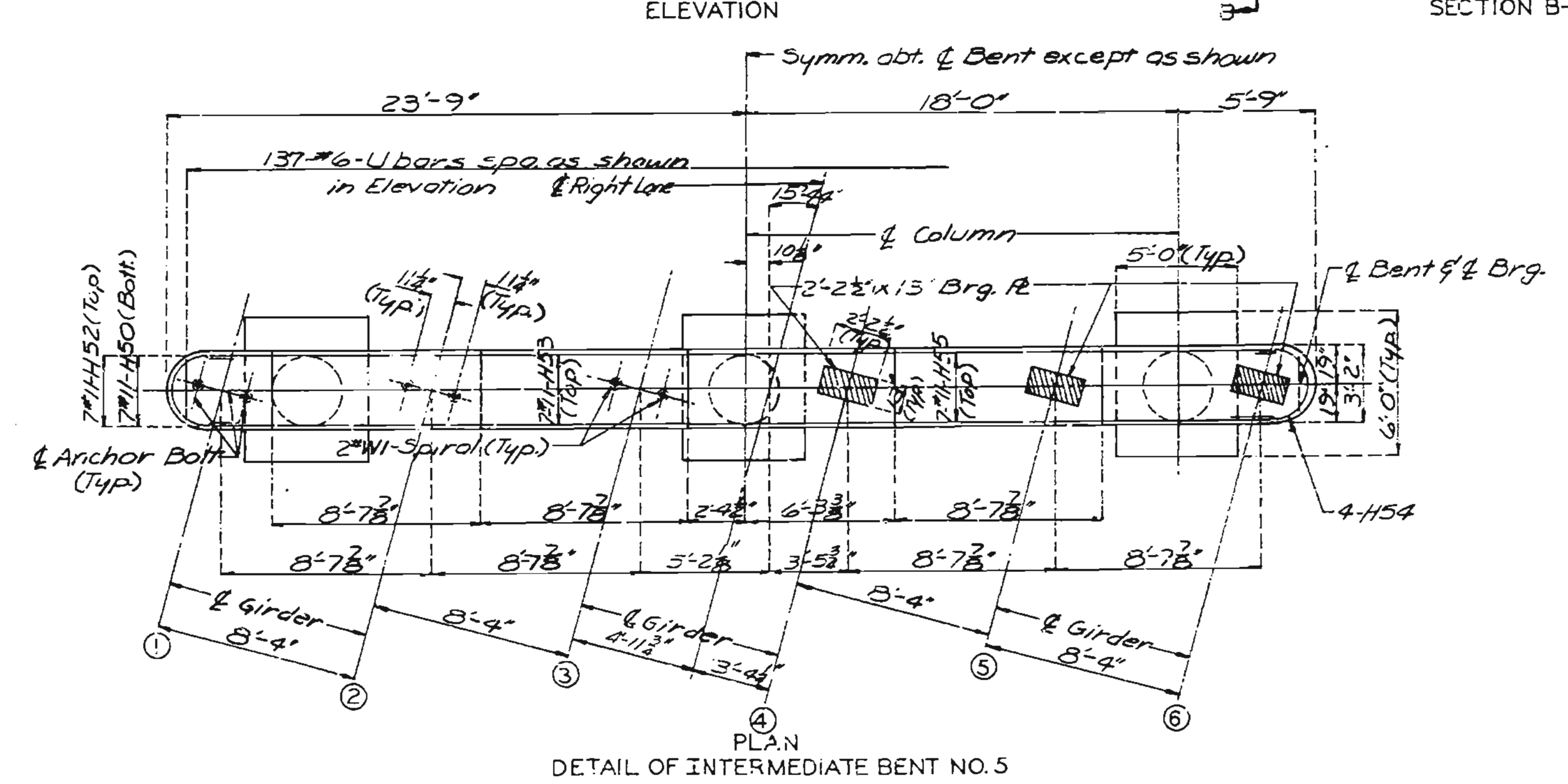
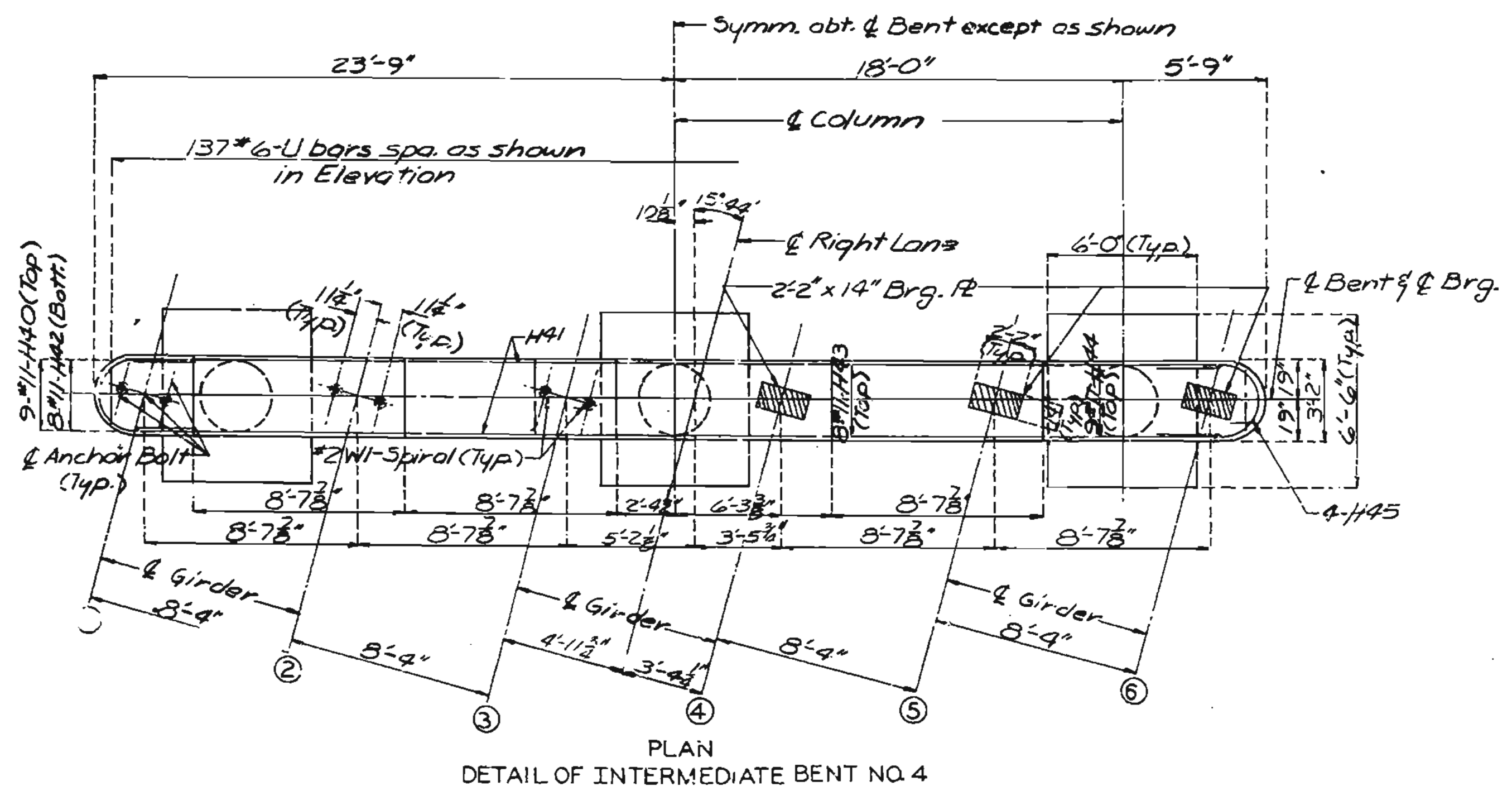
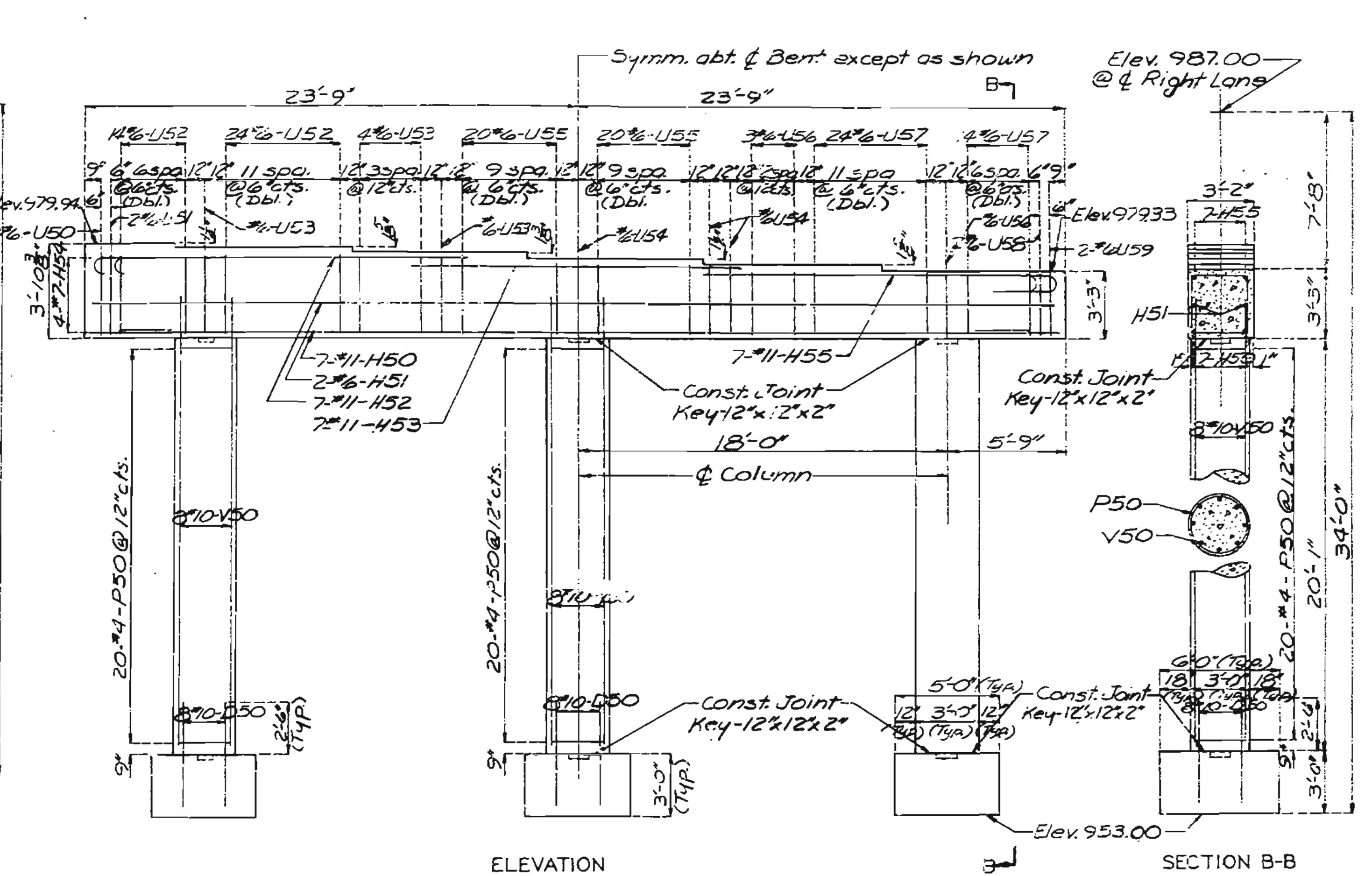
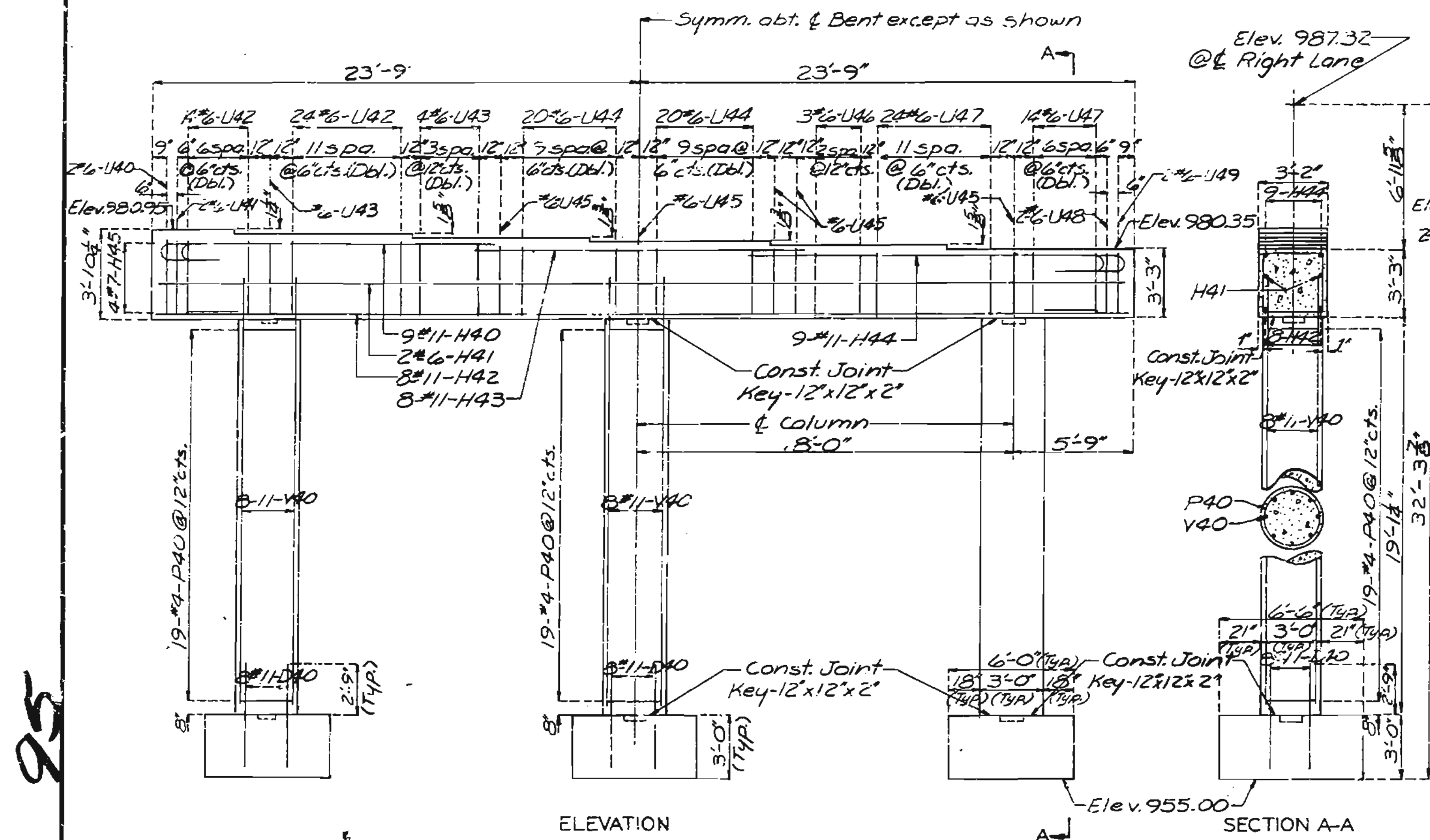
COUNTY

A2514

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	96	



DETAILED JAN. 1974  
CHECKED MAY 1974

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9A of 27.

JACKSON

COUNTY

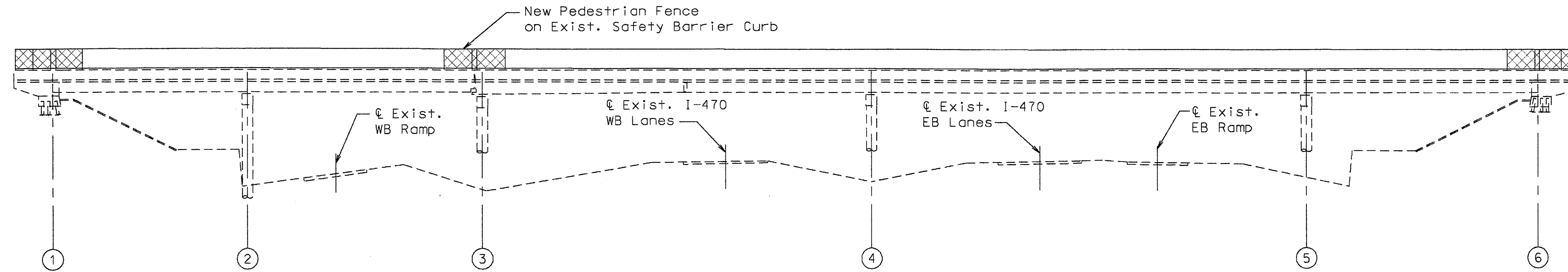
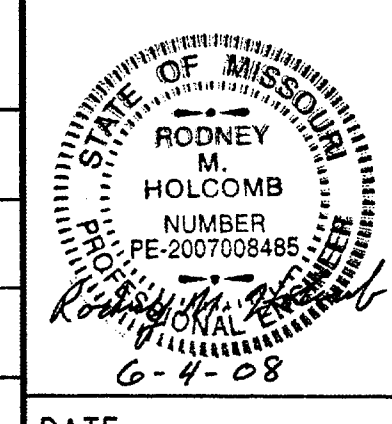
A-2514

## MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

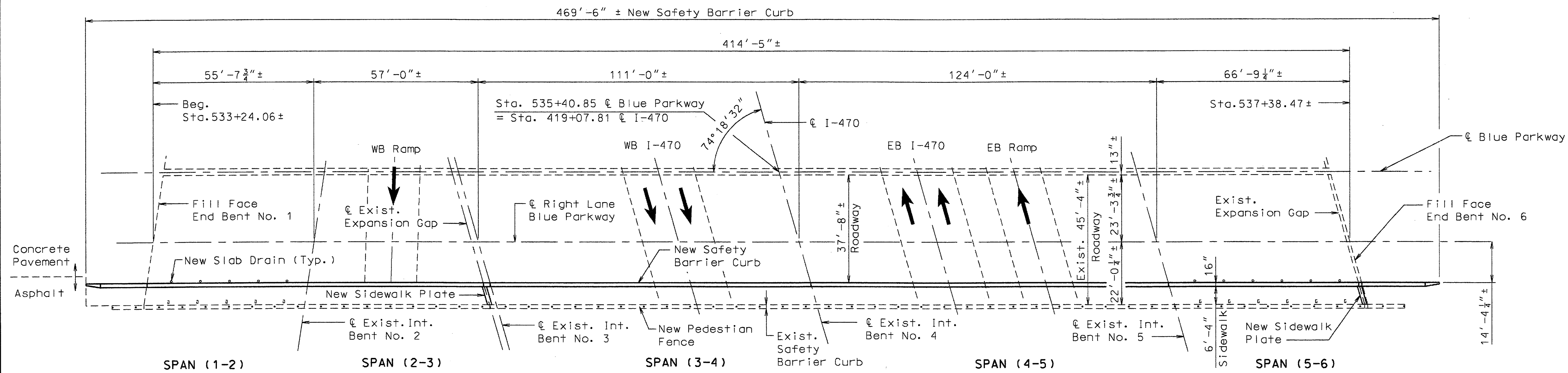
U.I.P. EXISTING (54'-54') CONT. COMP. I-BEAM SPANS, (3'-111'-124'-65') CONT. COMP. PLATE GIRDER SPANS  
 ADD SIDEWALK BY ADDING SAFETY BARRIER CURB AND PEDESTRIAN FENCE



ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	1
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE
SEC/SUR	TWP	RGE	
36	48N	32W	



GENERAL ELEVATION



PLAN

Note:  
 For General Notes and Estimated  
 Quantities, see Sheet No. 2.

BM #100.  
 SET A SPIKE STEP IN THE EAST FACE OF A POWER  
 POLE 70' ON THE WEST SIDE OF BLUE PARKWAY  
 70' NORTH OF THE WEST BRIDGE OVER I-470.  
 ELEVATION = 980.16'  
 STA. 419+19.65, 305.90 LT

**BRIDGE OVER I-470**

ABOUT 1 MILE S. OF COLBERN RD

STA. 535+40.85

Designed FEB. 2008  
 Detailed Feb. 2008  
 Checked Mar. 2008

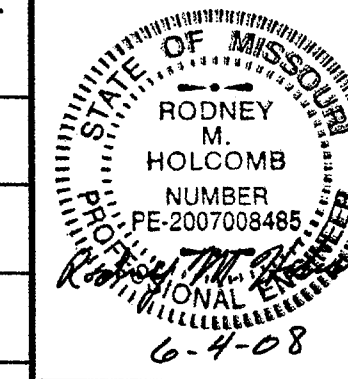
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 11

STD. 617.10
STD. 706.35
A25141



ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	2
JOB NO. J4I1641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE



ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
(72 in.) Pedestrian Fence (Structures)	linear foot		447	447
* Safety Barrier Curb	linear foot		469	469
Slab Drain	each		11	11

**Notes:**  
 \* Safety barrier curb shall be cast-in-place option or slip-form option, except as limited on Sheet No. 8.

**General Notes:**

**Design Specifications:**  
 2002 - AASHTO 17th Edition  
 Load Factor Design

**Design Unit Stresses:**  
 Class B-1 Concrete (Safety Barrier Curb)      f'c = 4,000 psi  
 Reinforcing Steel (Grade 60)                      fy = 60,000 psi  
 Structural Carbon Steel (ASTM A709 Grade 36)      fy = 36,000 psi

**Joint Filler:**  
 All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

**Reinforcing Steel:**  
 Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

**Miscellaneous:**  
 Traffic over structure to be maintained during construction. See Roadway plans for traffic control.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

**Revised Structures:**  
 Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

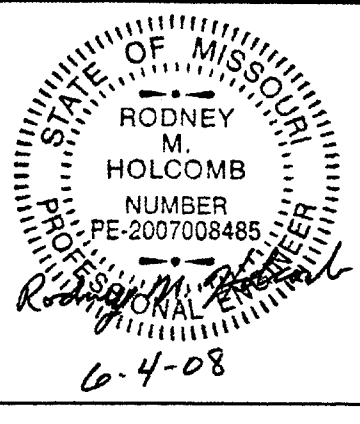
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

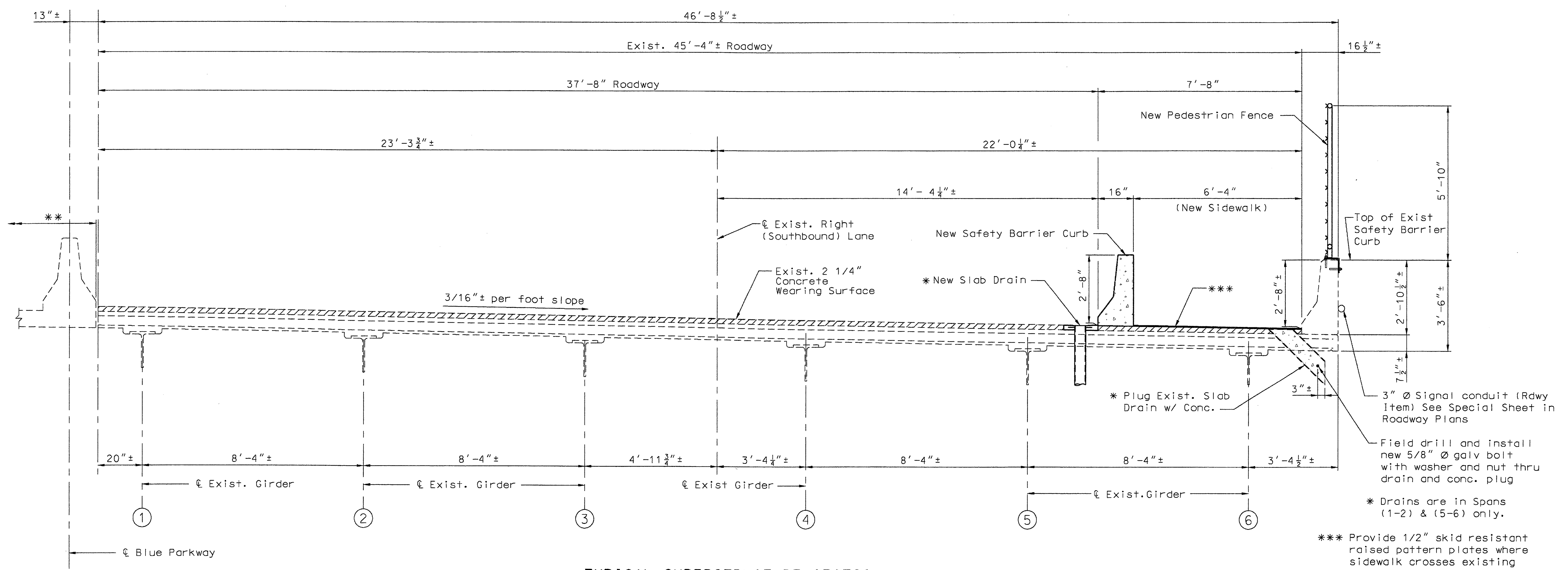
Longitudinal dimensions are based on the original design plans.



ROUTE	STATE	DISTRICT	SHEET NO.
1470	MO	4	3
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
			DATE



\*\* Exist. Northbound Bridge (A2513)



TYPICAL SUPERSTRUCTURE SECTION

Note:  
 Payment for all concrete for plugging drain and bolt complete-in-place will be considered completely covered by the contract unit price for slab drains.

\*\*\* Provide 1/2" skid resistant raised pattern plates where sidewalk crosses existing expansion joints (at Bents No. 3 and No. 6). (See Sheet No. 9)

Detailed Feb. 2008  
 Checked Mar. 2008

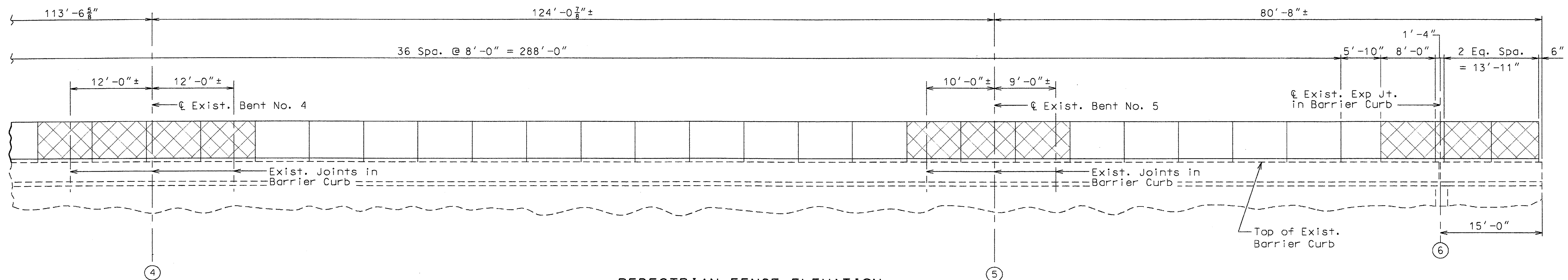
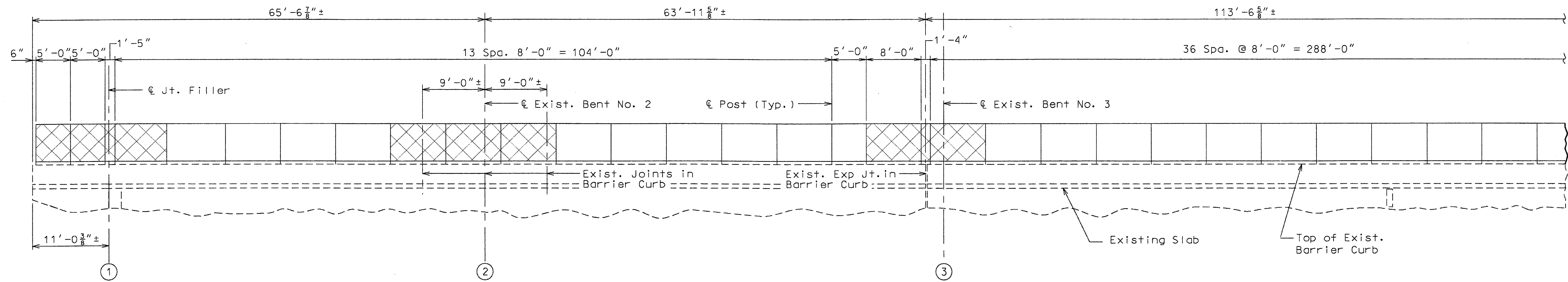
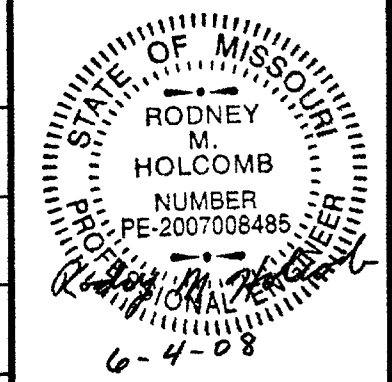
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 11

A25141



ROUTE	STATE	DISTRICT	SHEET NO.
1470	MO	4	4
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
			DATE



PEDESTRIAN FENCE ELEVATION

Notes:  
Longitudinal dimensions are horizontal.

Detailed Feb. 2008  
Checked Mar. 2008

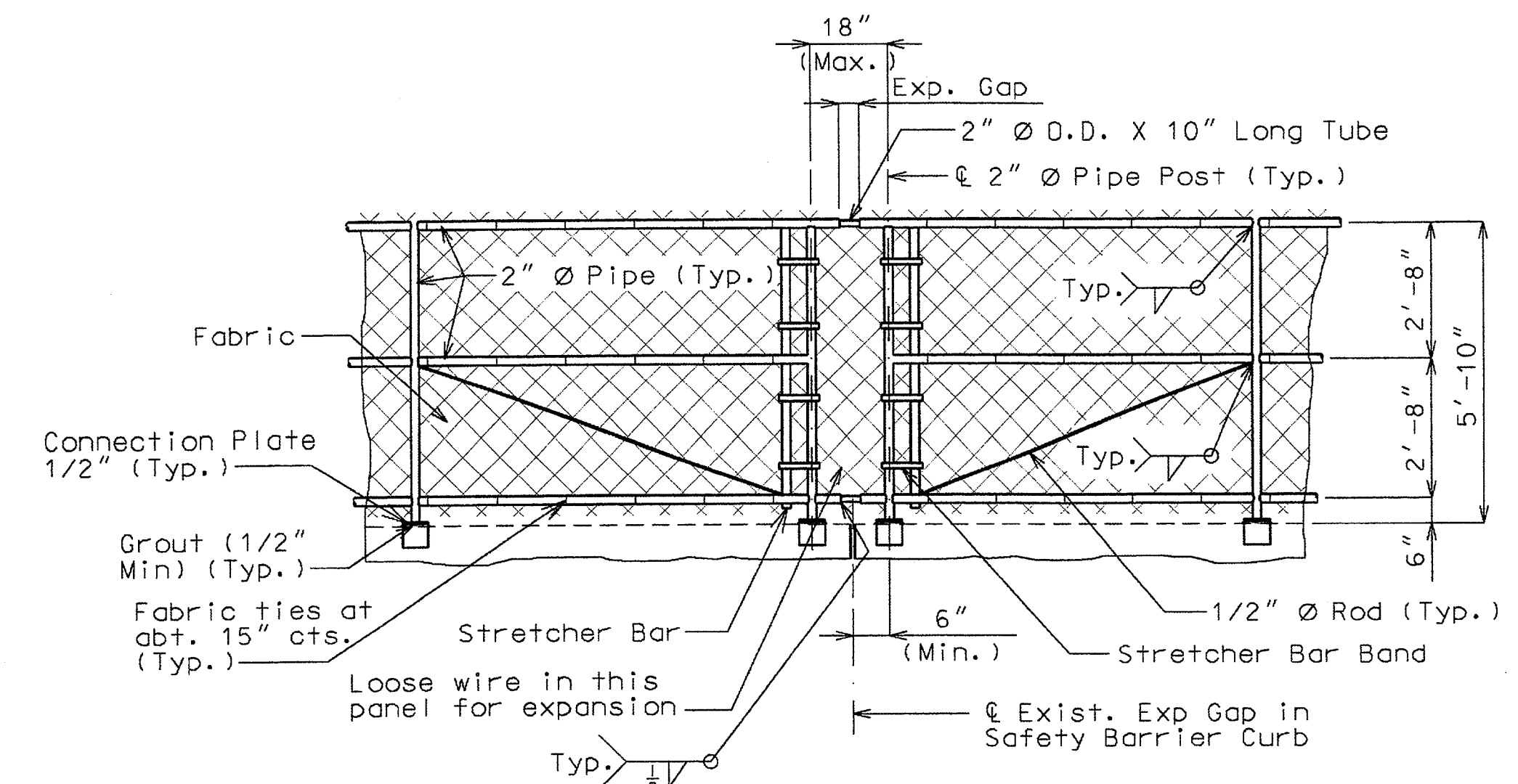
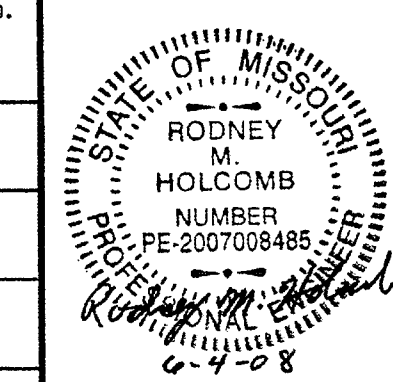
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 11

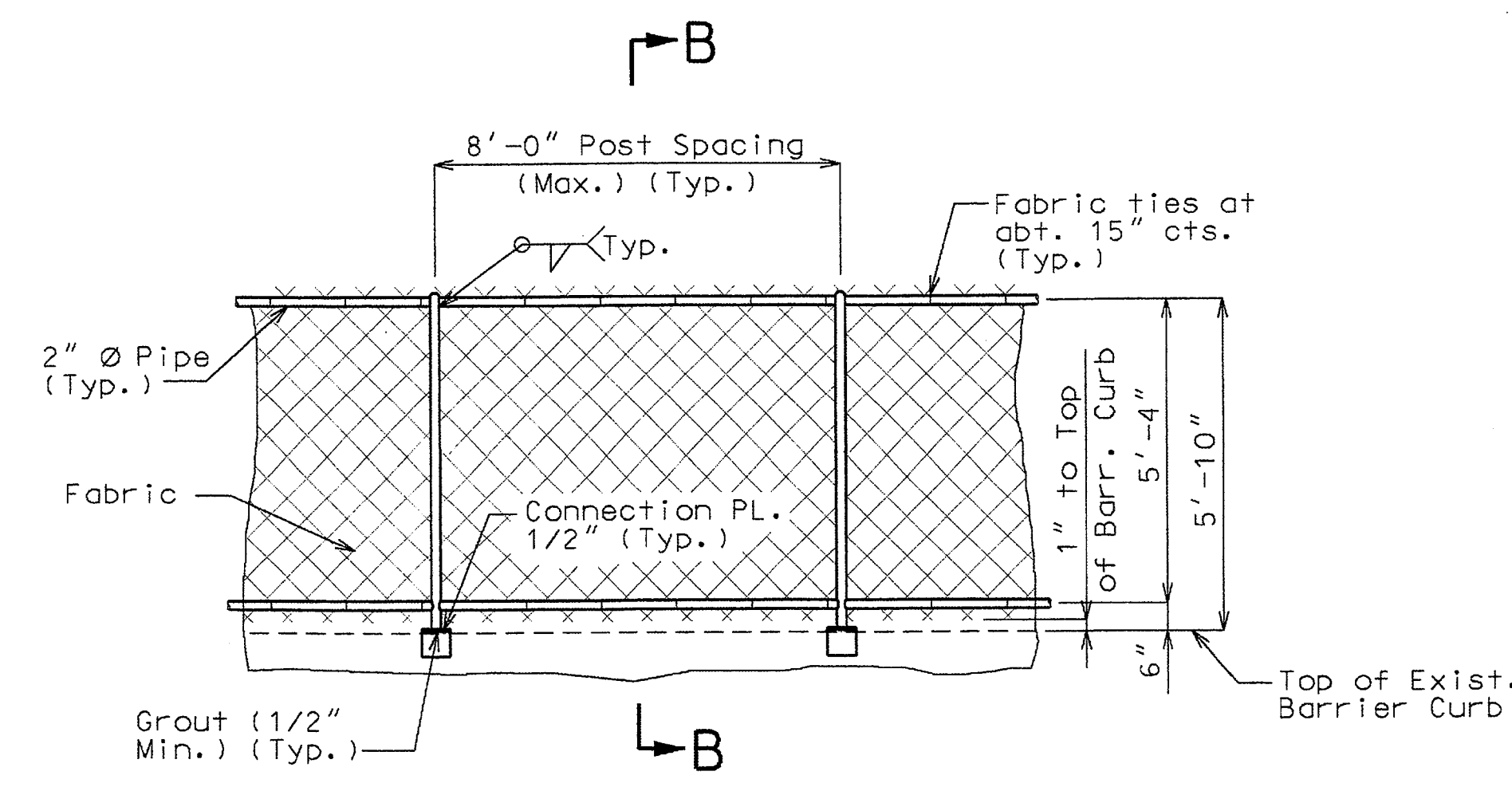
A25141



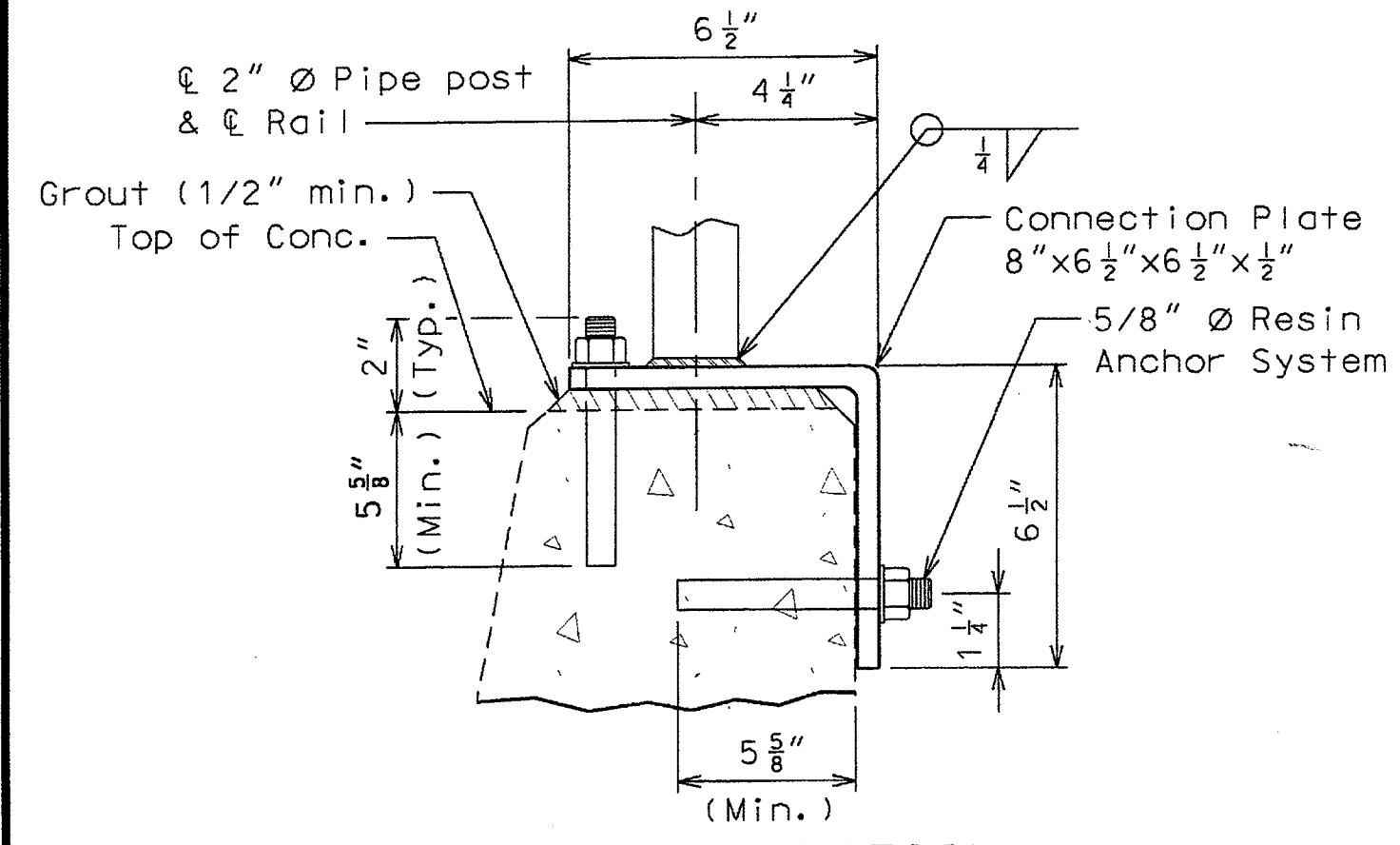
ROUTE I 470	STATE MO	DISTRICT 4	SHEET NO. 5
JOB NO. J4I1641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
DATE			



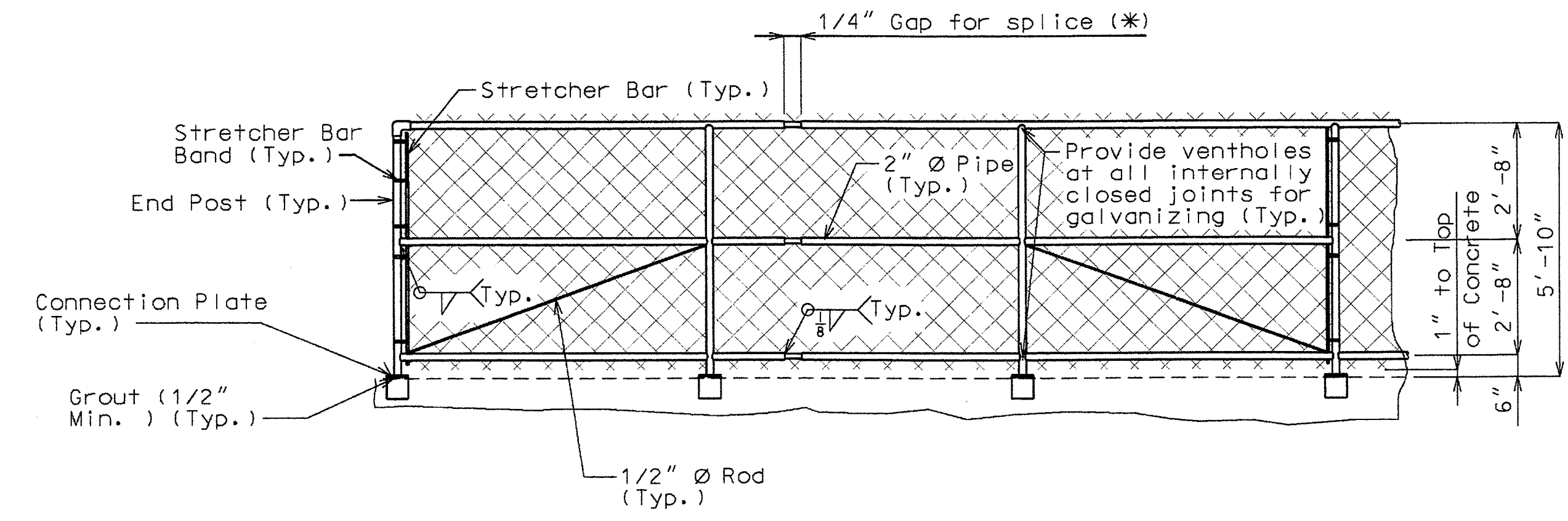
DETAIL OF PEDESTRIAN FENCE SHOWING EXPANSION DEVICE GAP (AT END BENTS 1 & 6 AND NEAR INT. BENT 3)



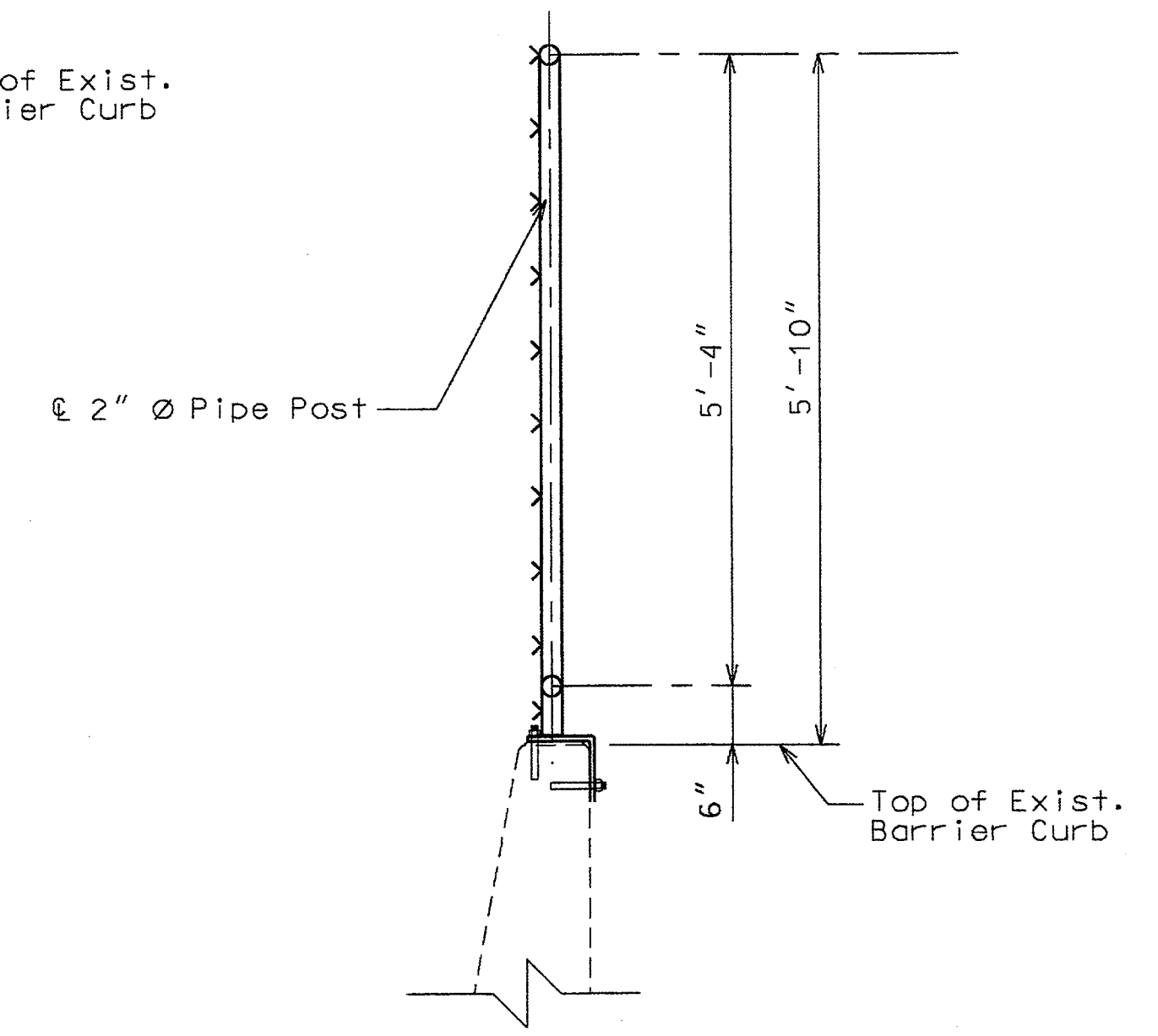
TYPICAL SECTION OF PEDESTRIAN CHAIN LINK FENCE



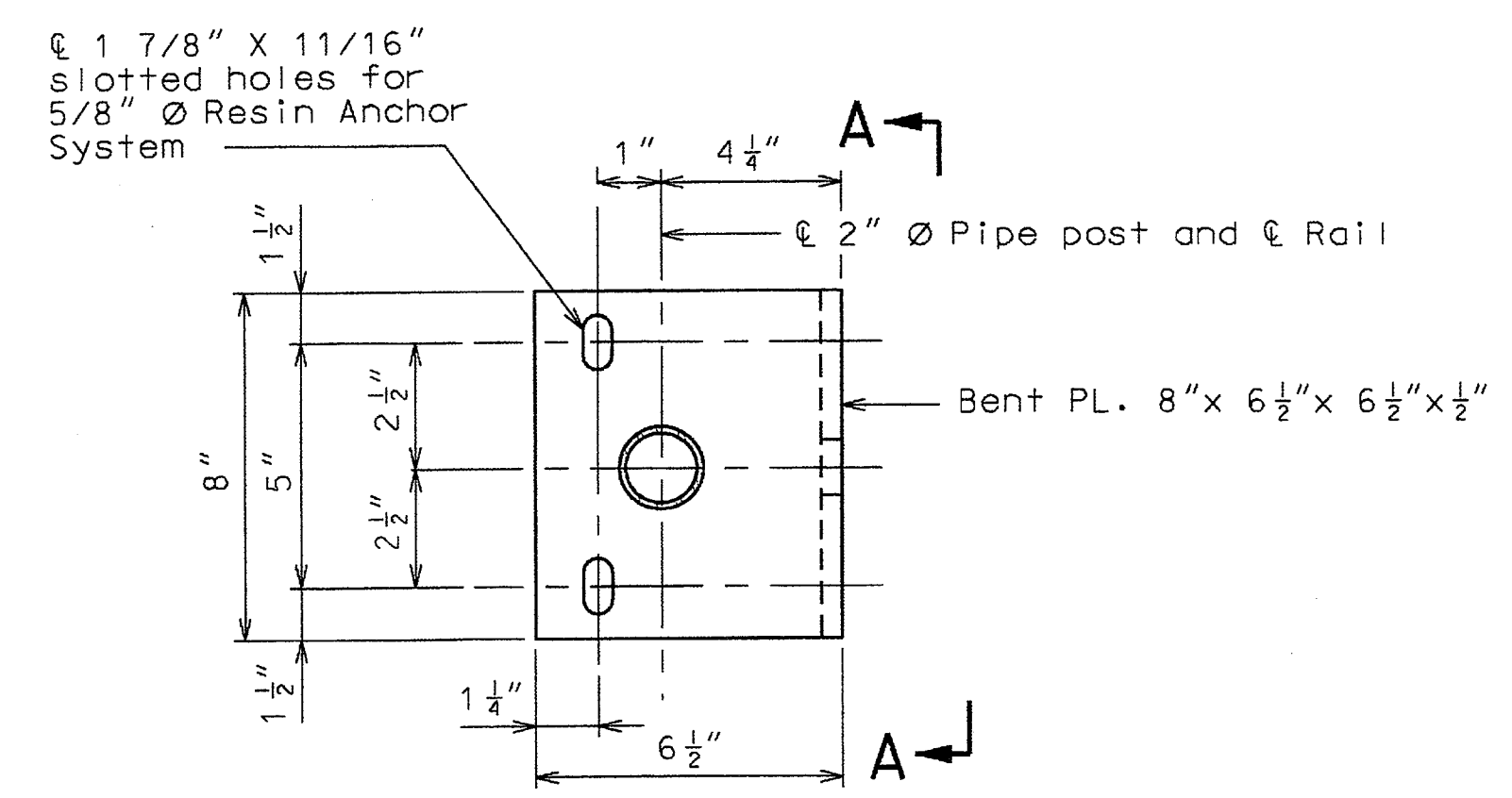
POST CONNECTION (TYPICAL)



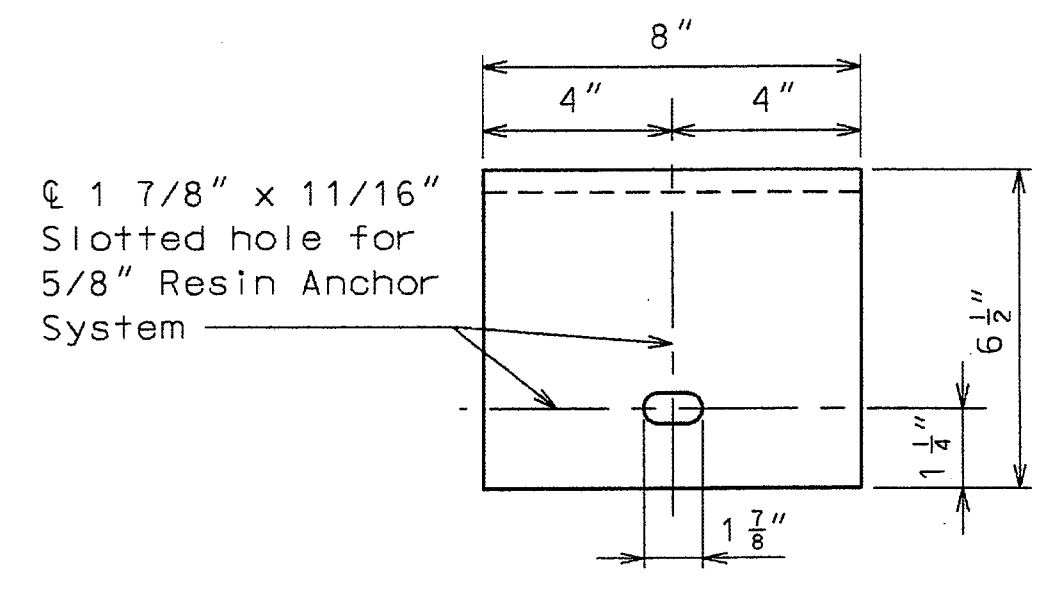
TYPICAL SECTION NEAR SPLICE GAP  
\* At about 30'-0" centers with at least one splice gap between pull posts.



SECTION B-B



PLAN OF CONNECTION PLATE



SECTION A-A

PEDESTRIAN FENCE DETAILS

NOTES:

- Pedestrian guard fence (Chain link type) shall be in accordance with Sec 1043 except all fabric shall have the top and bottom edges knuckled.
- All rail posts shall be vertical. Grout of 1/2" minimum thickness shall be placed under connection plates to provide for vertical alignment of rail posts.
- Payment for furnishing, galvanizing and erecting the fence and frame complete with resin anchor systems and washers will be considered completely covered by the contract unit price for (72 in.) Pedestrian Fence (Structures) per linear foot.
- Dimensions of pedestrian guard fence are measured horizontally.
- The maximum spacing allowed for the braced panels (Pull posts) is 100 ft.
- Connect the lower end of the 1/2" Ø rod to the end of the braced panel to which the stretcher bar is attached.
- Core wire size for wire fabric shall be 6 gage minimum.
- The Contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.
- The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5 5/8".

Detailed Feb. 2008  
Checked Mar. 2008

Note: This drawing is not to scale. Follow dimensions.

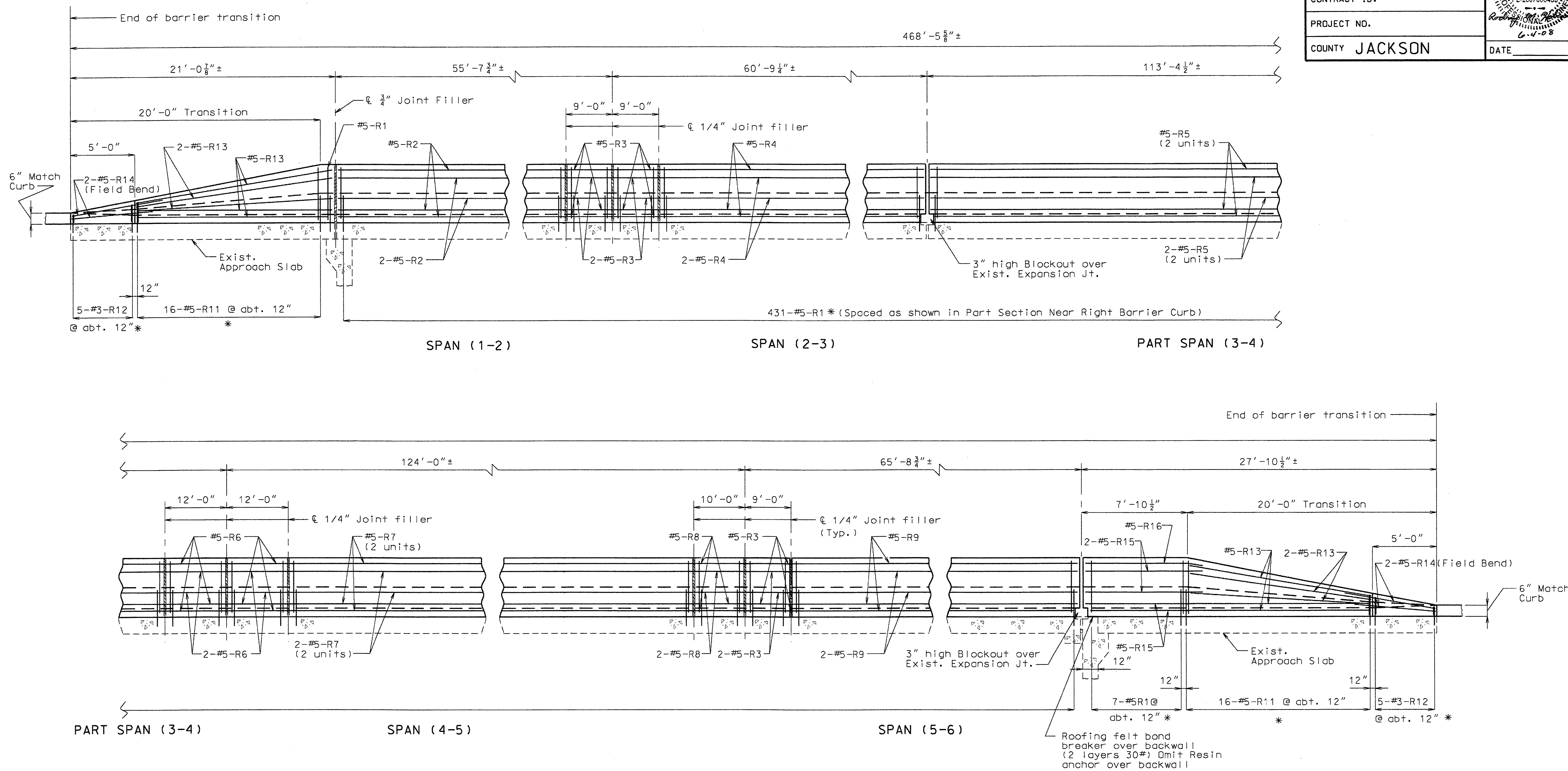
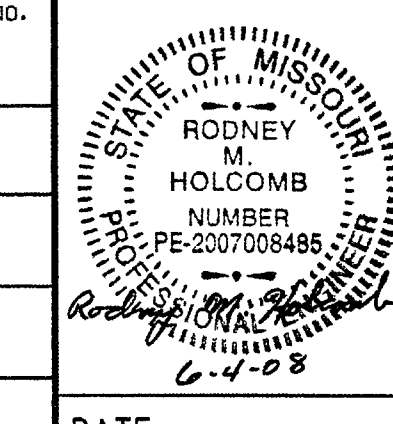
Sheet No. 5 of 11

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ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	6
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE



ELEVATION OF NEW SAFETY BARRIER CURB

Notes:  
 Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".  
 See Sheets No. 7 & No. 8 for additional safety barrier curb and transition details.

\* Spa with 5/8" Ø Resin Anchor Systems.

Detailed Feb. 2008  
 Checked Mar. 2008

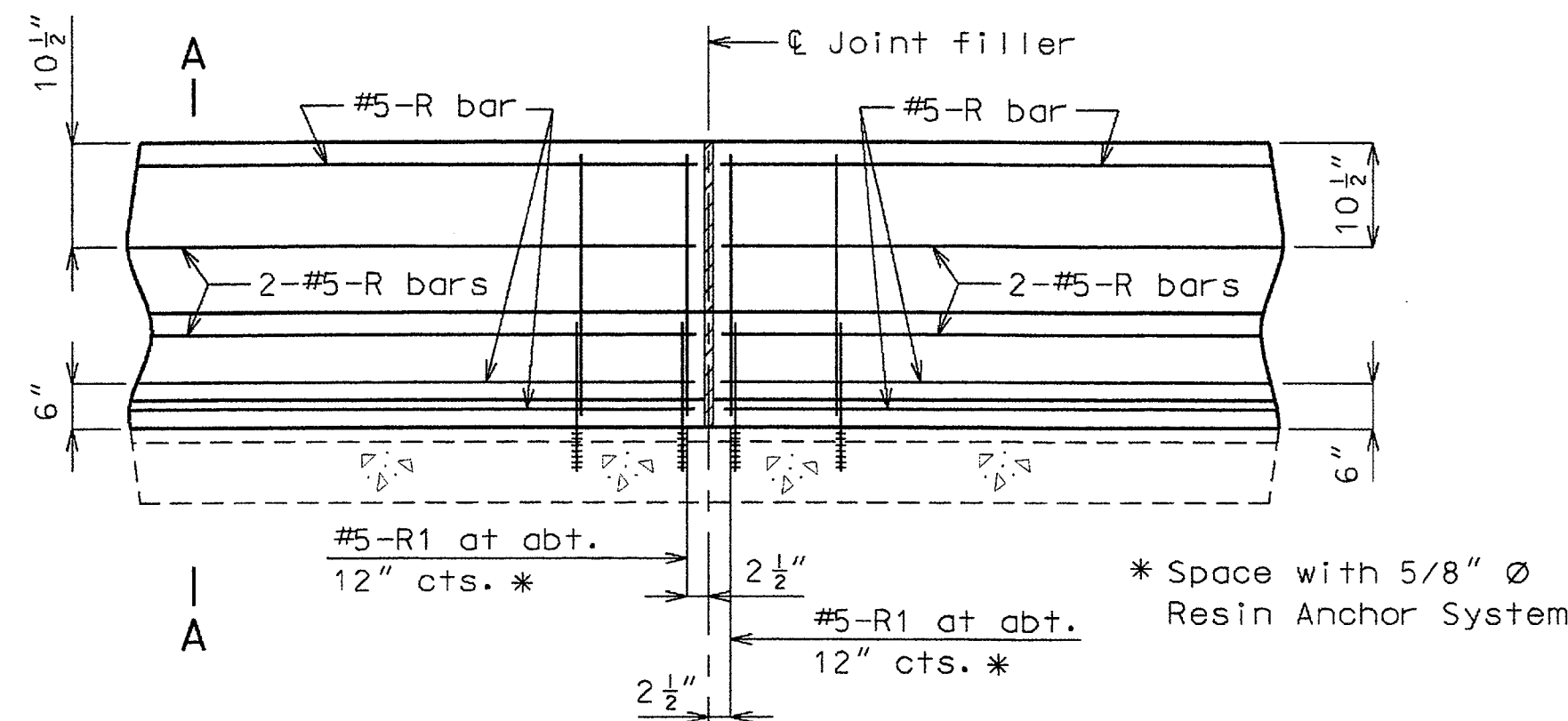
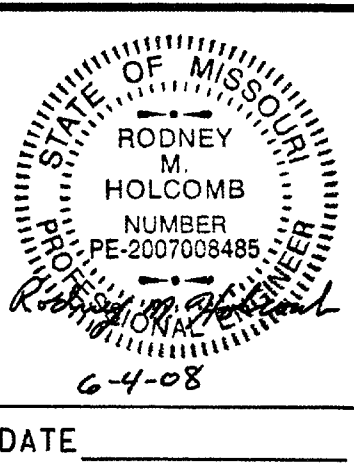
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 11

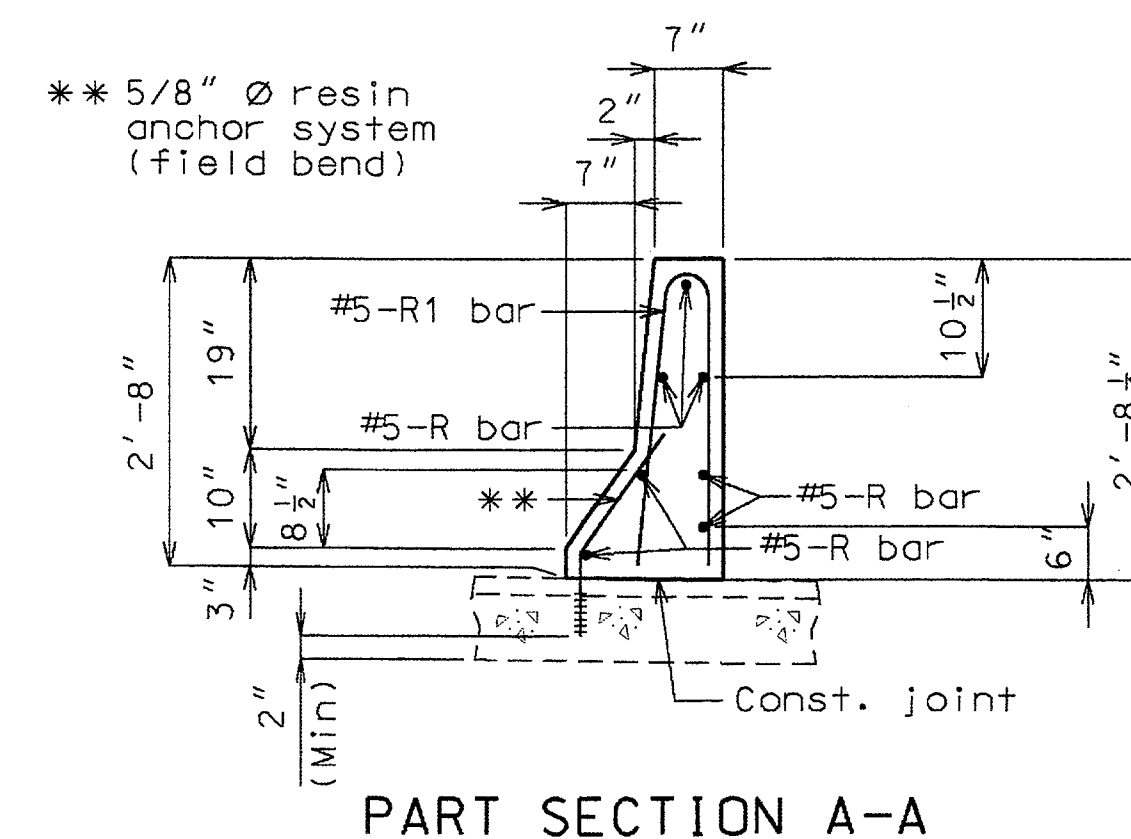
A25141



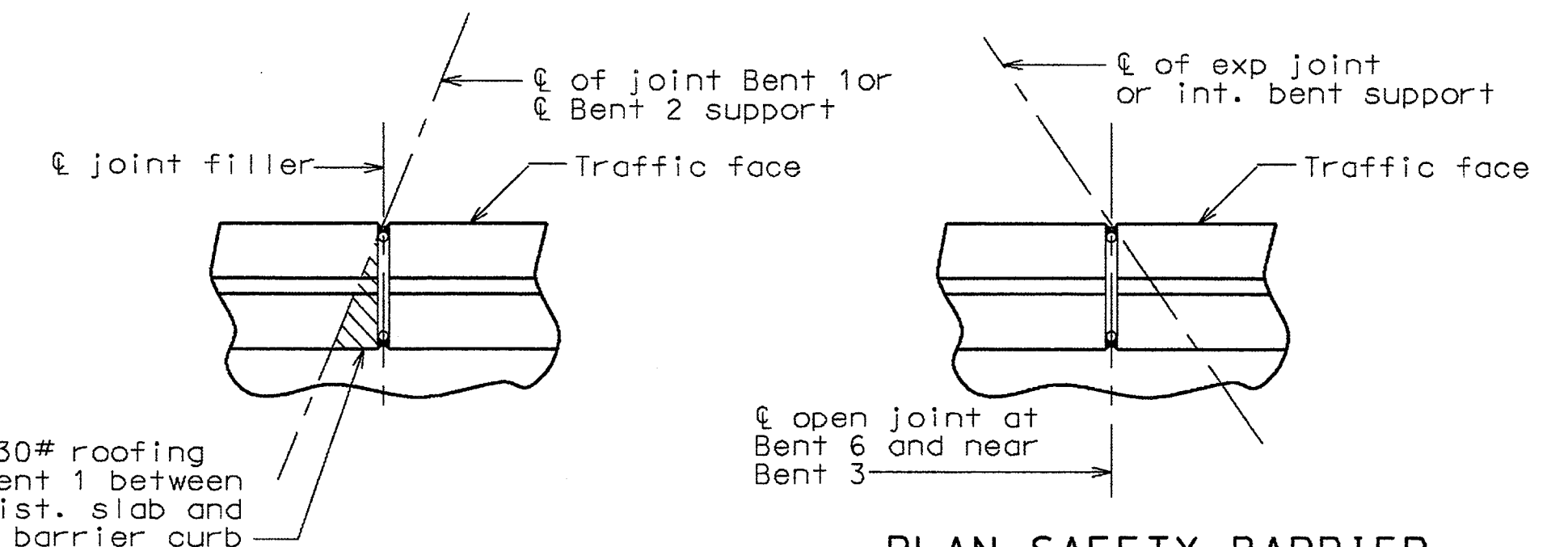
ROUTE I 470	STATE MO	DISTRICT 4	SHEET NO. 7
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE



PART SECTION NEAR RIGHT SAFETY BARRIER CURB  
(CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



Notes:  
Use a minimum lap of 2'-11" for #5 horizontal safety barrier curb bars.  
The cross-sectional area above the slab = 2.28 sq. ft.



PLAN SAFETY BARRIER CURB JOINT  
( @ BENTS 1 & 2 )

PLAN SAFETY BARRIER CURB JOINT  
( @ BENTS 3,4,5 & 6 )

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have a 3/8" bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot measured along the outside top of slab from end of transition section to end of transition section.

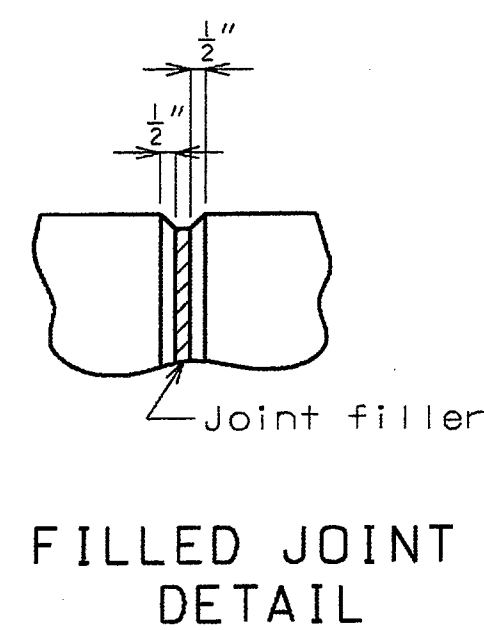
The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 is not required. Application of linseed oil at the contractor's expense is permitted.

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

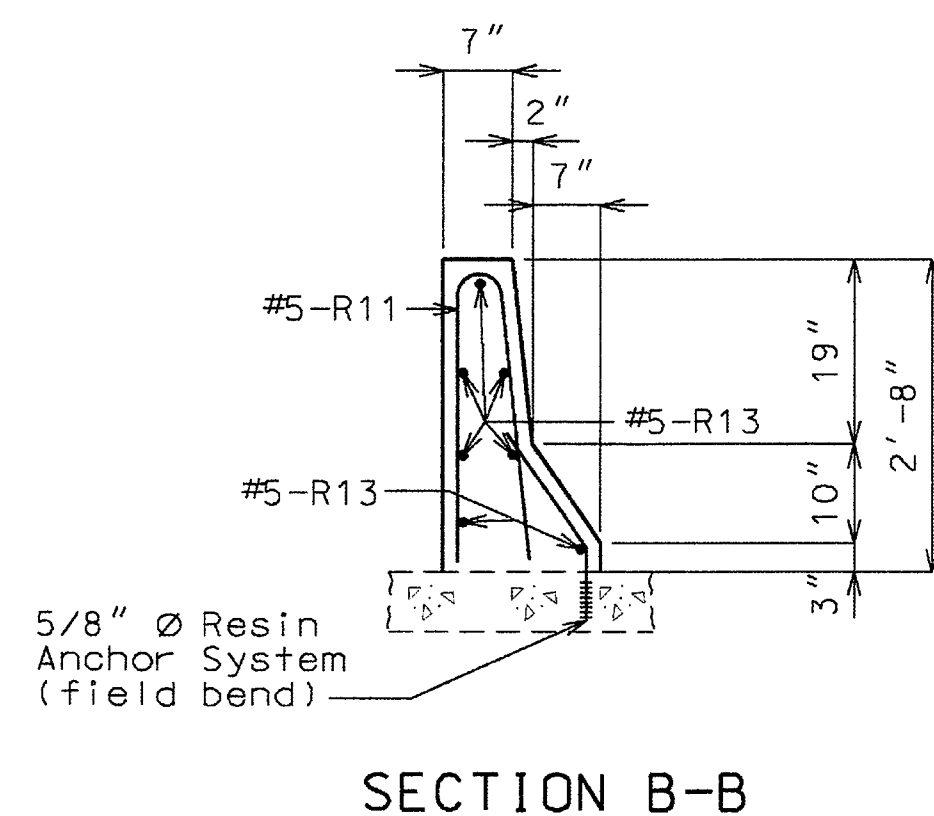
Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

The minimum embedment depth in concrete with f'c = 4000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec.1039 but shall not be less than 5".

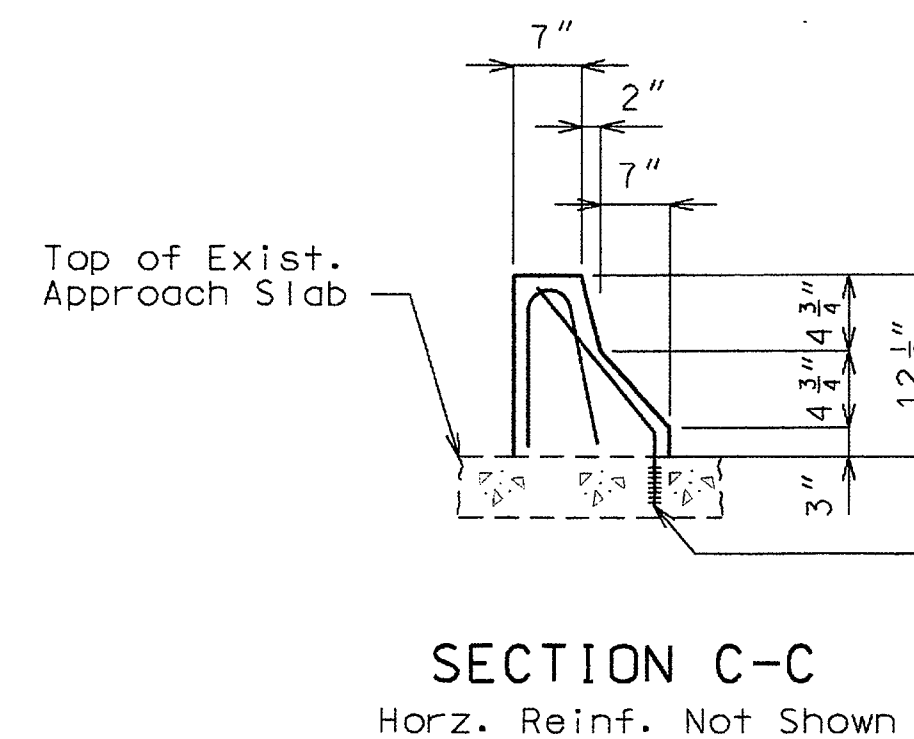
A #5 Grade 60 reinforcing bar 2'-0" long or as shown shall be substituted for the 5/8"± threaded rod.



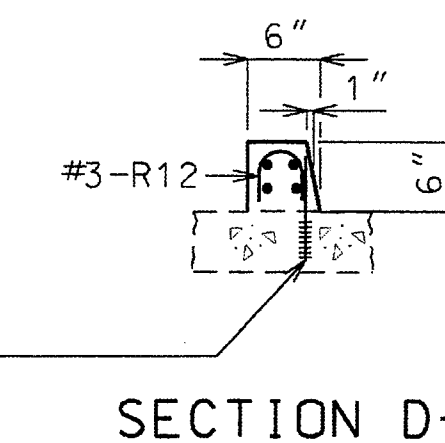
FILLED JOINT DETAIL



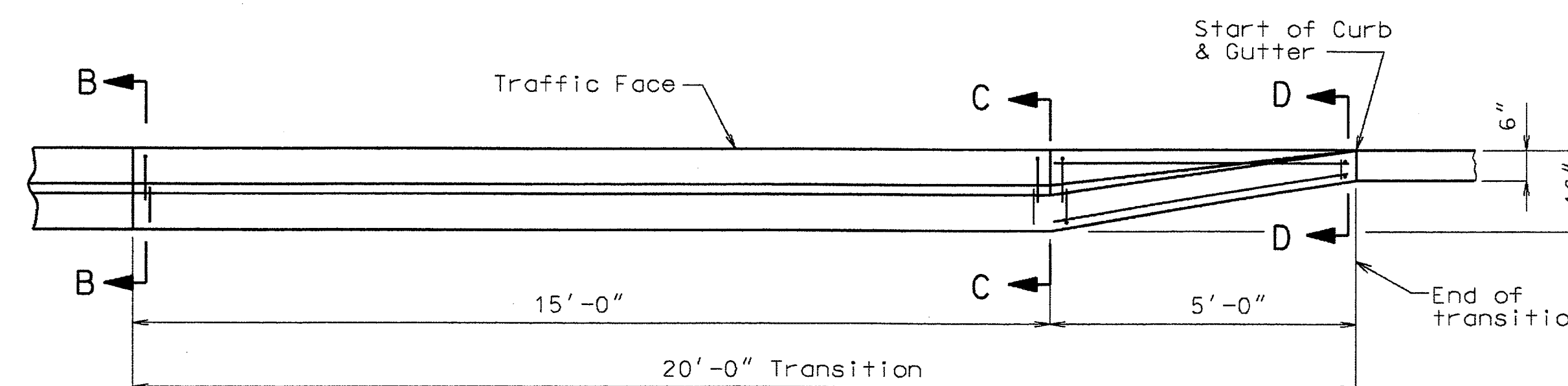
SECTION B-B



SECTION C-C  
Horz. Reinf. Not Shown



SECTION D-D



PLAN OF BARRIER CURB TRANSITION  
Horz. Reinf. Not Shown

SAFETY BARRIER CURB DETAILS

Detailed Feb. 2008  
Checked Mar. 2008

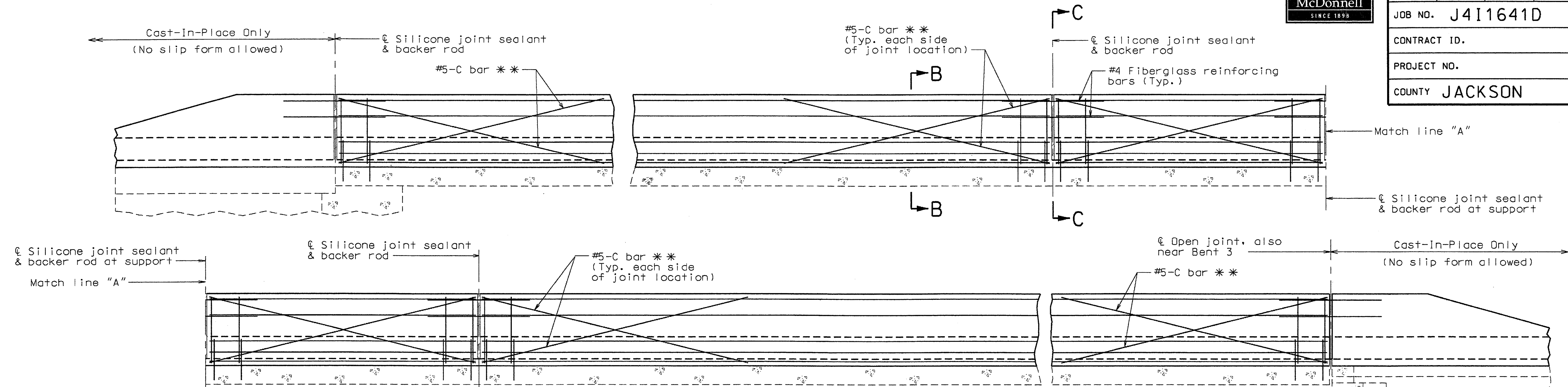
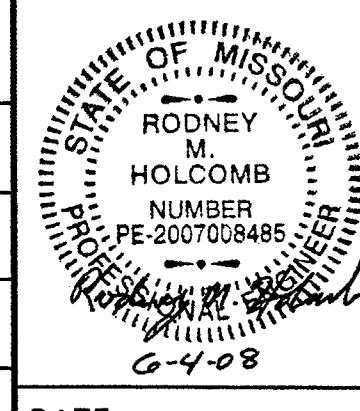
Note: This drawing is not to scale. Follow dimensions.

Sheet No.7 of 11

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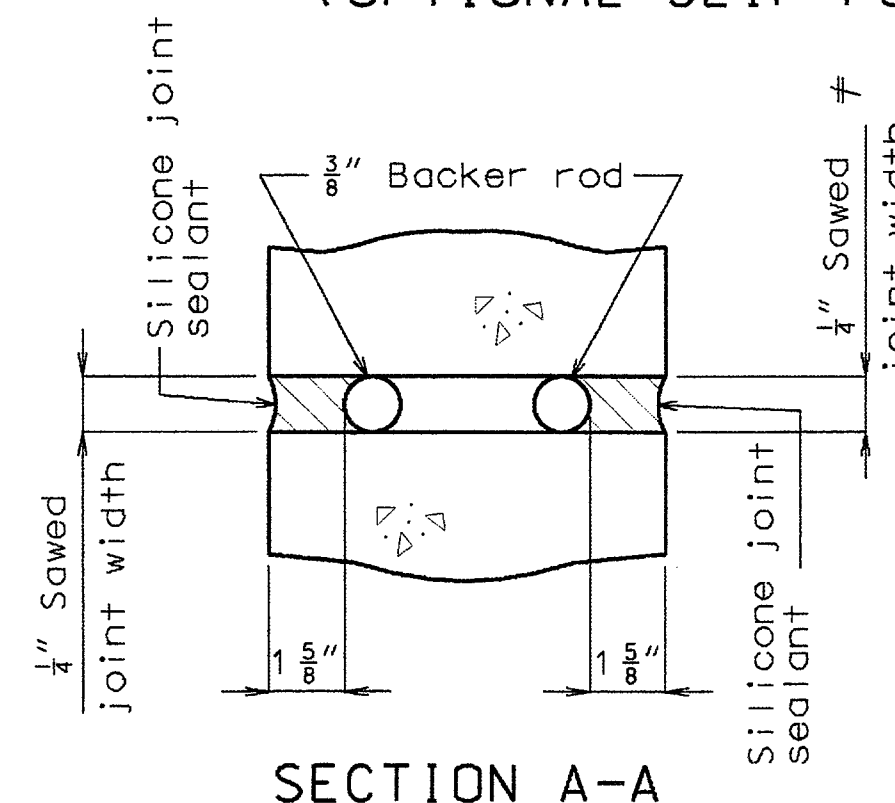


ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	8
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CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
			DATE

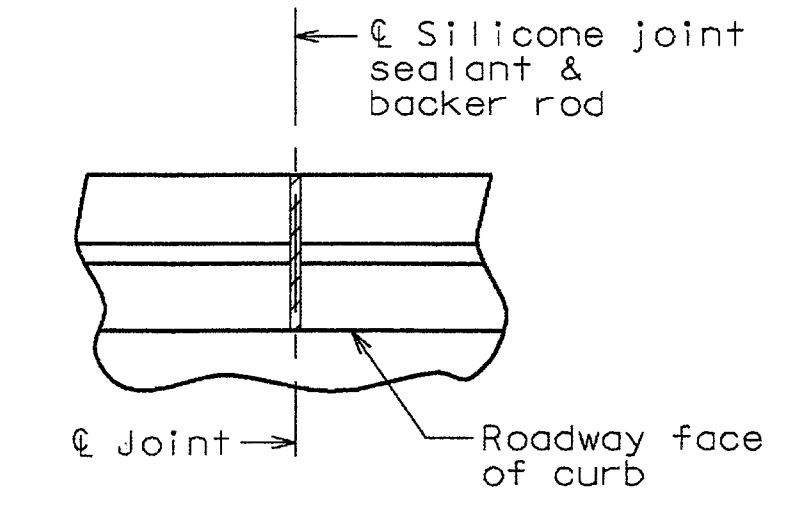


TYPICAL SECTION NEAR RIGHT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

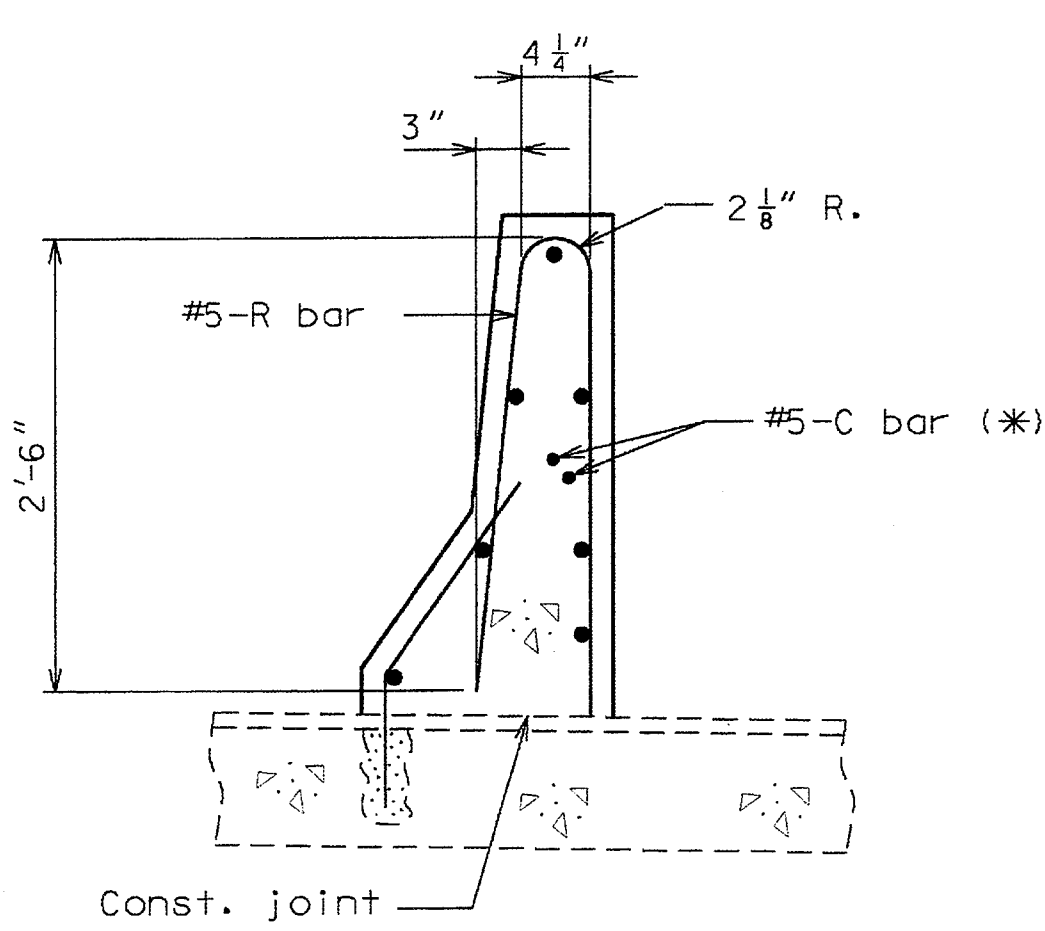
Notes:  
 See Sheet No. 6 for joint locations.  
 Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.  
 Payment for all concrete, reinforcement and sidewalk plates, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.  
 Concrete in the safety barrier curb shall be Class B-1.  
 Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of transition to end of transition.  
 The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 is not required. Application of linseed oil at the contractor's expense is permitted.



Notes:  
 Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.  
 C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb. See \*\*  
 For Slip-form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.  
 Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

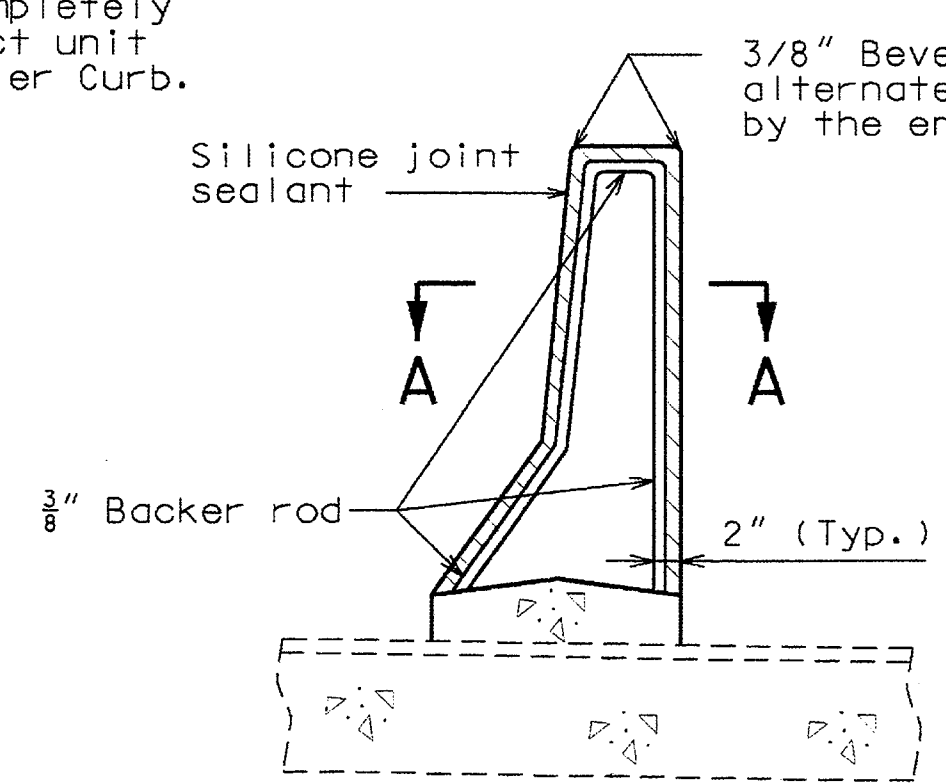


PART PLAN SHOWING SAFETY BARRIER CURB JOINT

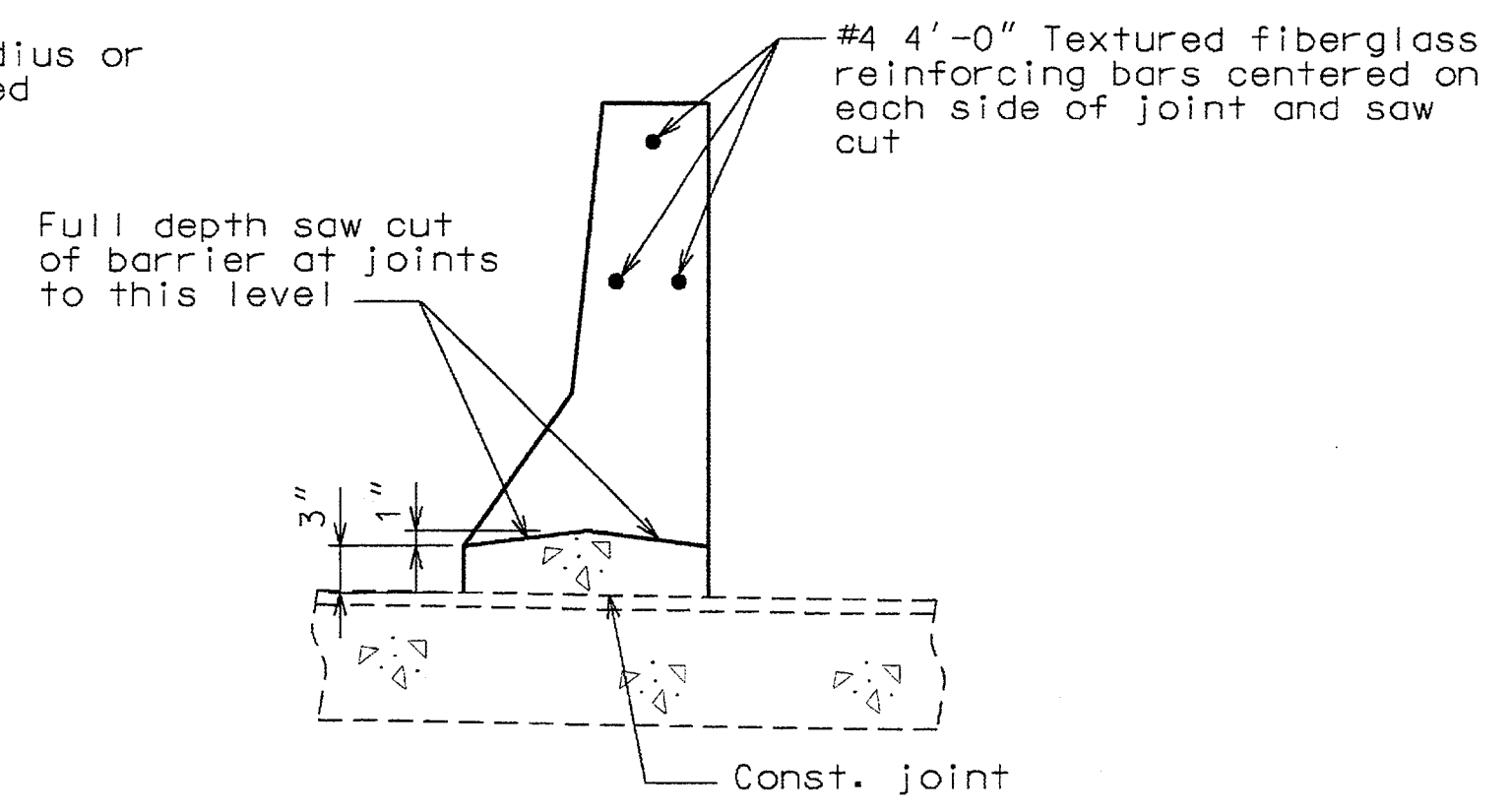


PART SECTION B-B

Note:  
 Cost of silicone joint sealant and backer rod, complete-in-place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



SECTION THRU JOINT



PART SECTION C-C

- \*\* C1 bars in barrier sections 12'-0" and longer. C2 bars in 9'-0" long Barrier sections. C3 bars in 10'-0" long Barrier sections.
- # See Sheet No. 9 for required gap in joint near Int. Bent No. 3 and End Bent No. 6

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

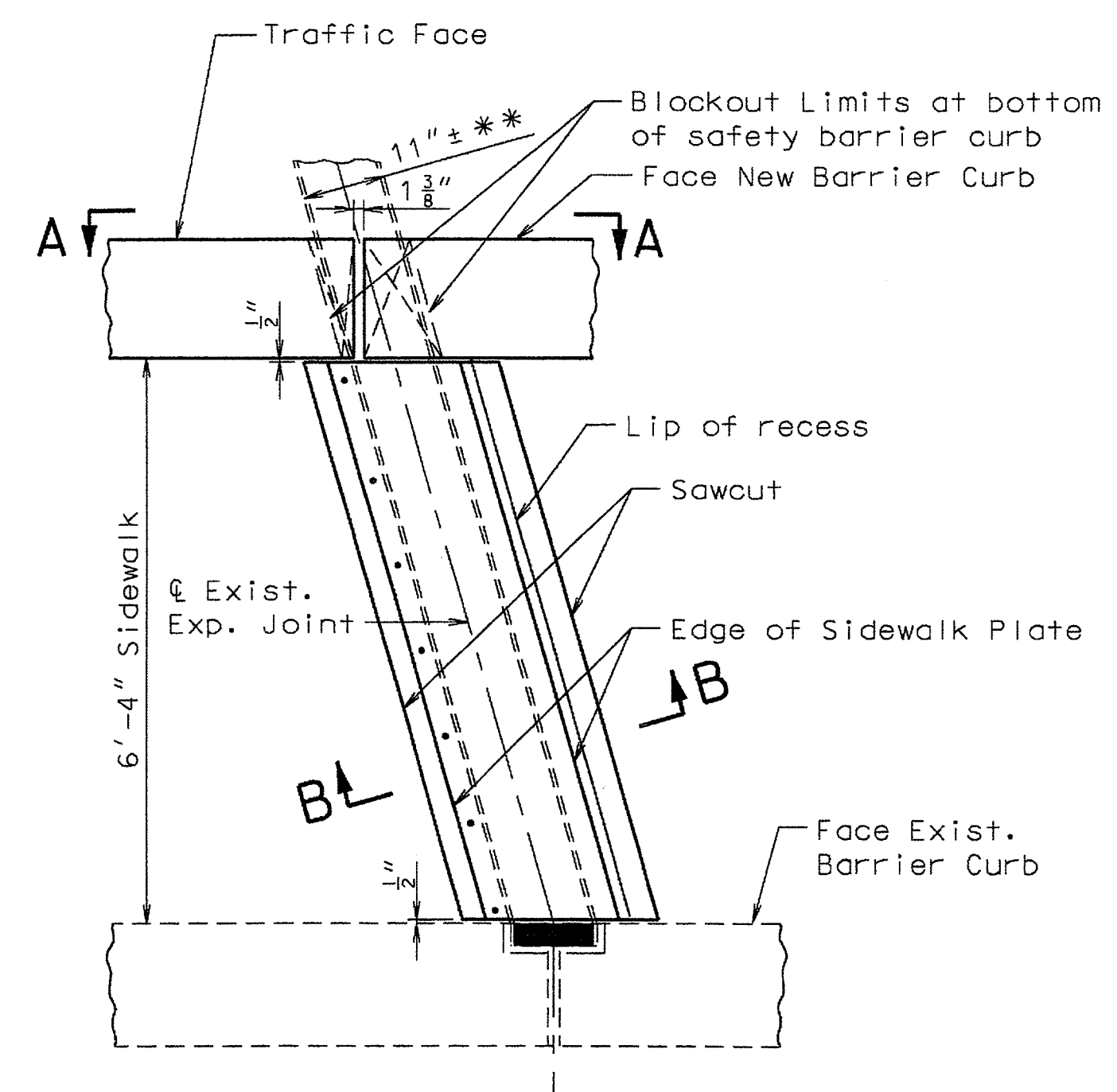
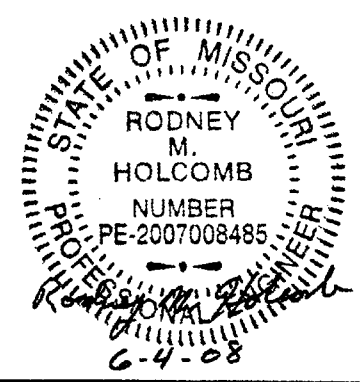
Detailed Feb. 2008  
 Checked Mar. 2008

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 11

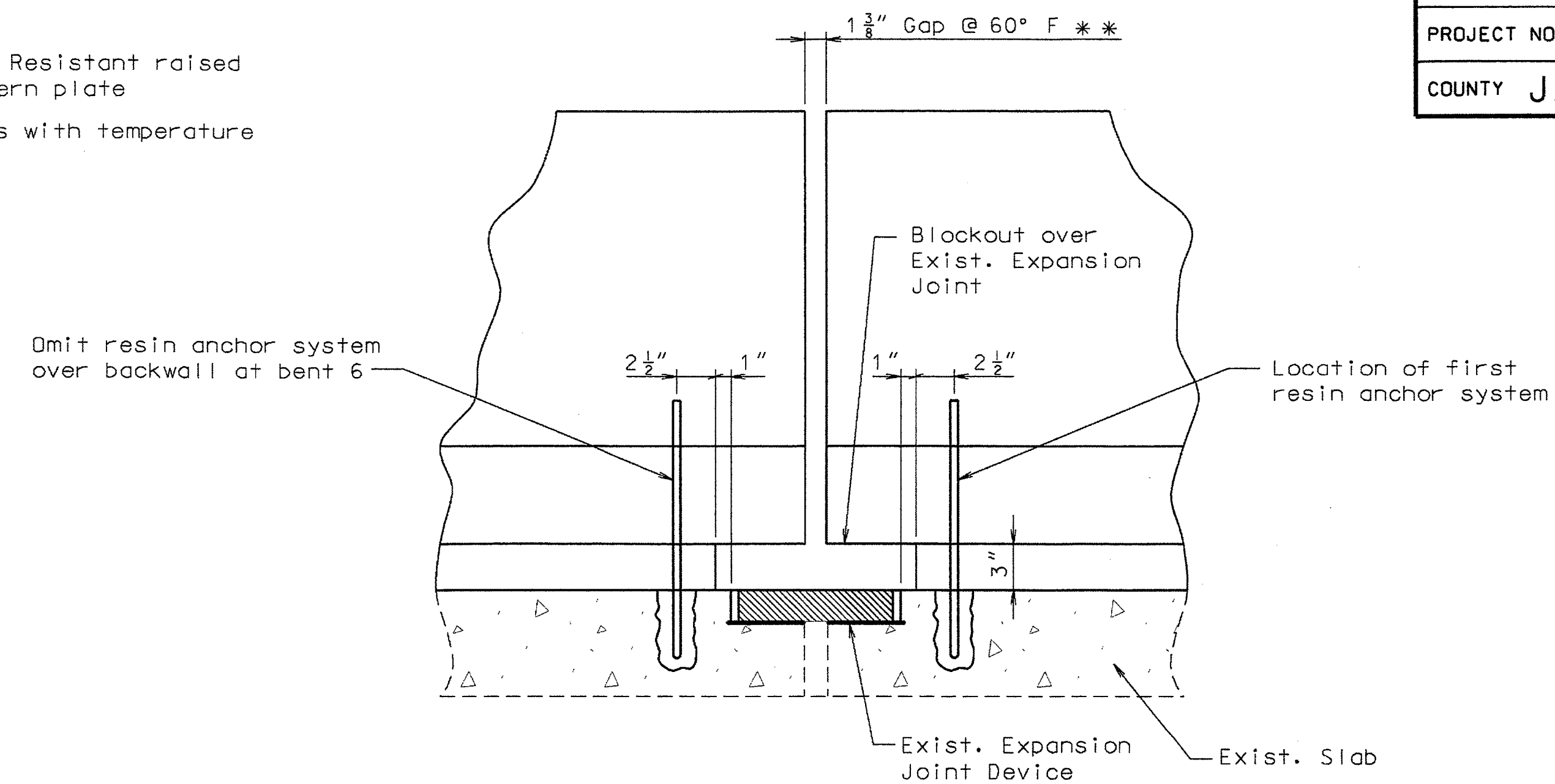


ROUTE I 470	STATE MO	DISTRICT 4	SHEET NO. 9
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PROJECT NO.			
COUNTY JACKSON			DATE



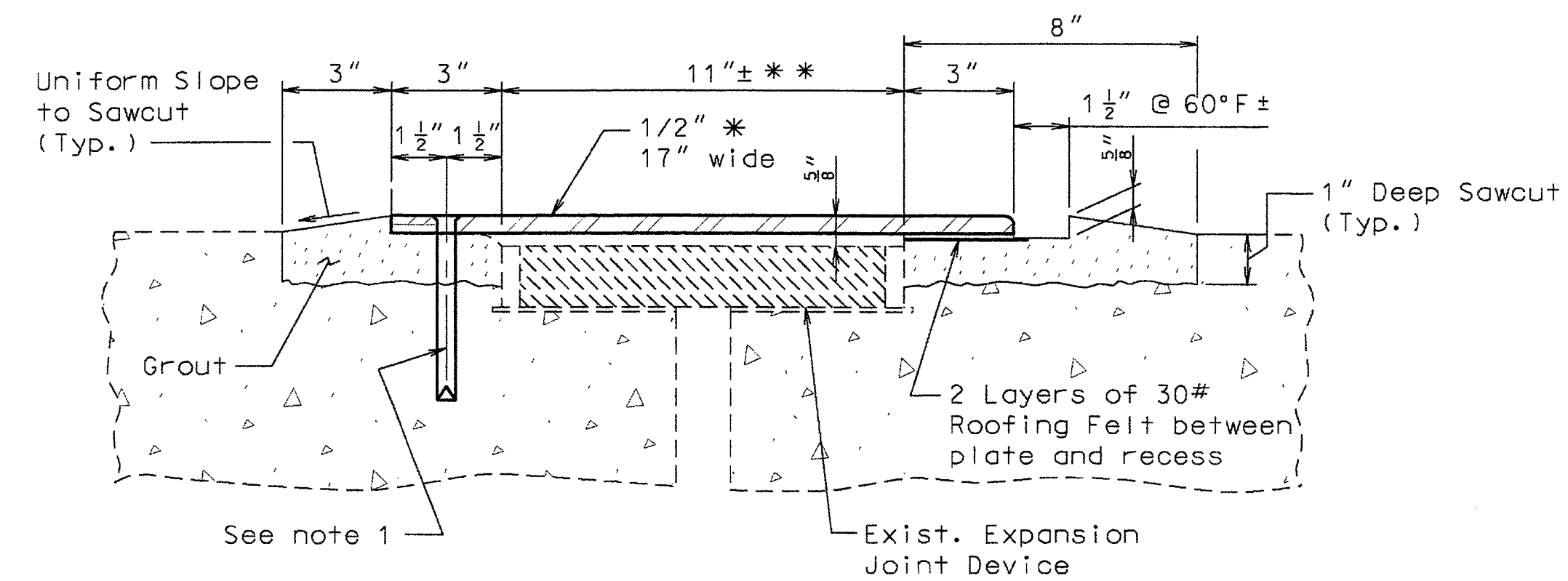
PLAN OF BARRIER CURB AND SIDEWALK AT EXPANSION JOINT  
(2 locations thus)

\* Skid Resistant raised pattern plate  
\*\* Varies with temperature



SECTION A-A

Barrier Elevation at Expansion Joints (Looking West)



SECTION B-B

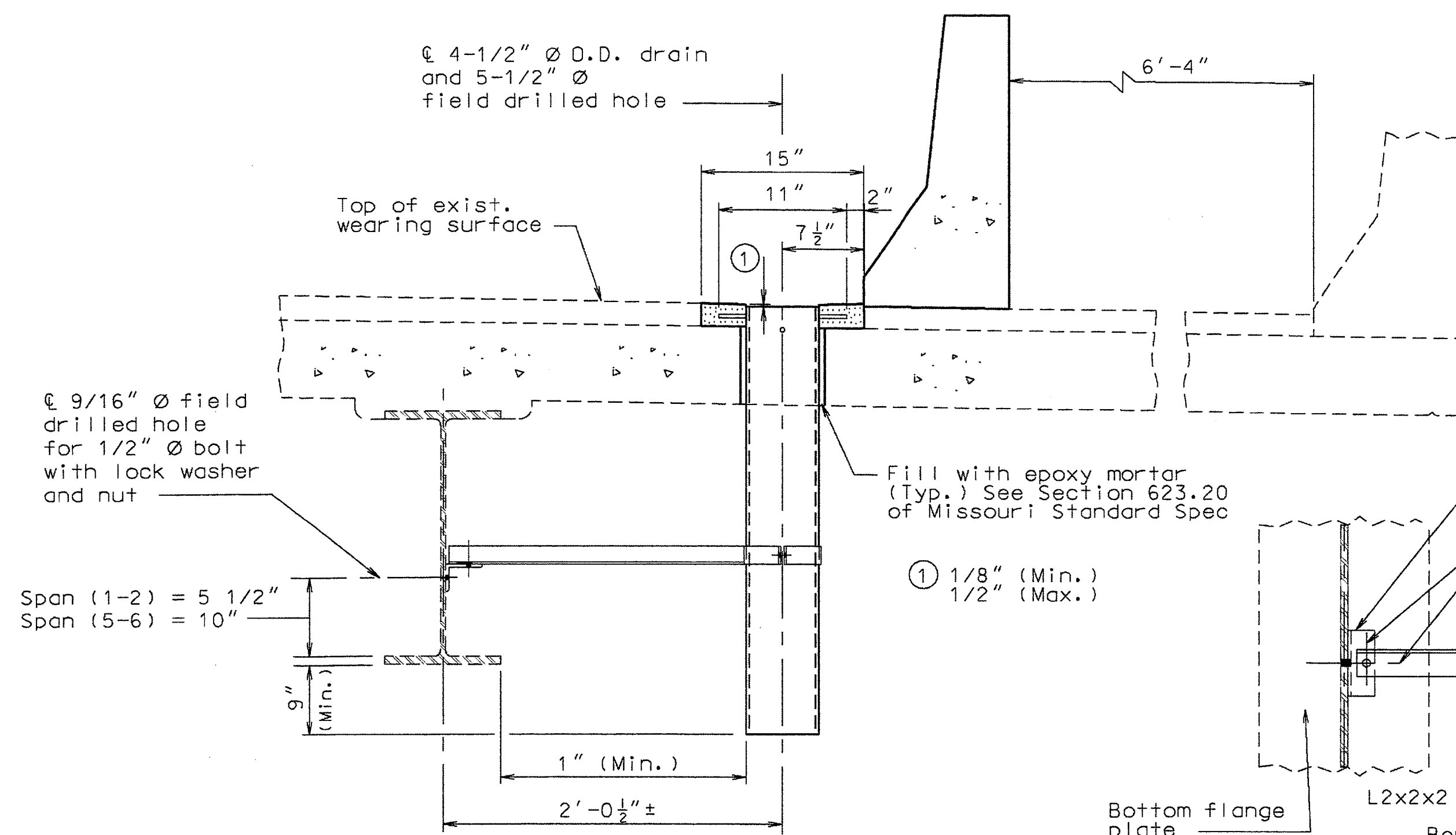
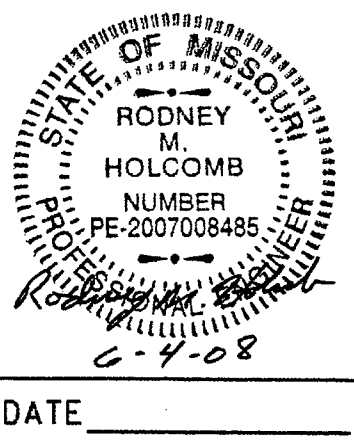
Notes:

1. Use 1/2" Ø countersunk socket head cap screws with cone expansion anchors @ abt. 12" cts.
2. At saw cut locations remove exist. conc. wearing surface 1" deep back to existing expansion joint device, typ. both ends.
3. Anchored end of skid plate is squared off while opposite end has a round edge.
4. Material for the sidewalk plates shall be ASTM A709 Grade 36 structural steel.
5. Structural steel for the Sidewalk plates shall be galvanized in accordance with ASTM A123.
6. Payment for furnishing, galvanizing and installing the sidewalk plates will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.
7. The 1/2" dia conc expansion anchor shall have a minimum ultimate pullout strength of 7,500 lbs. in concrete with f'c = 4,000 psi.

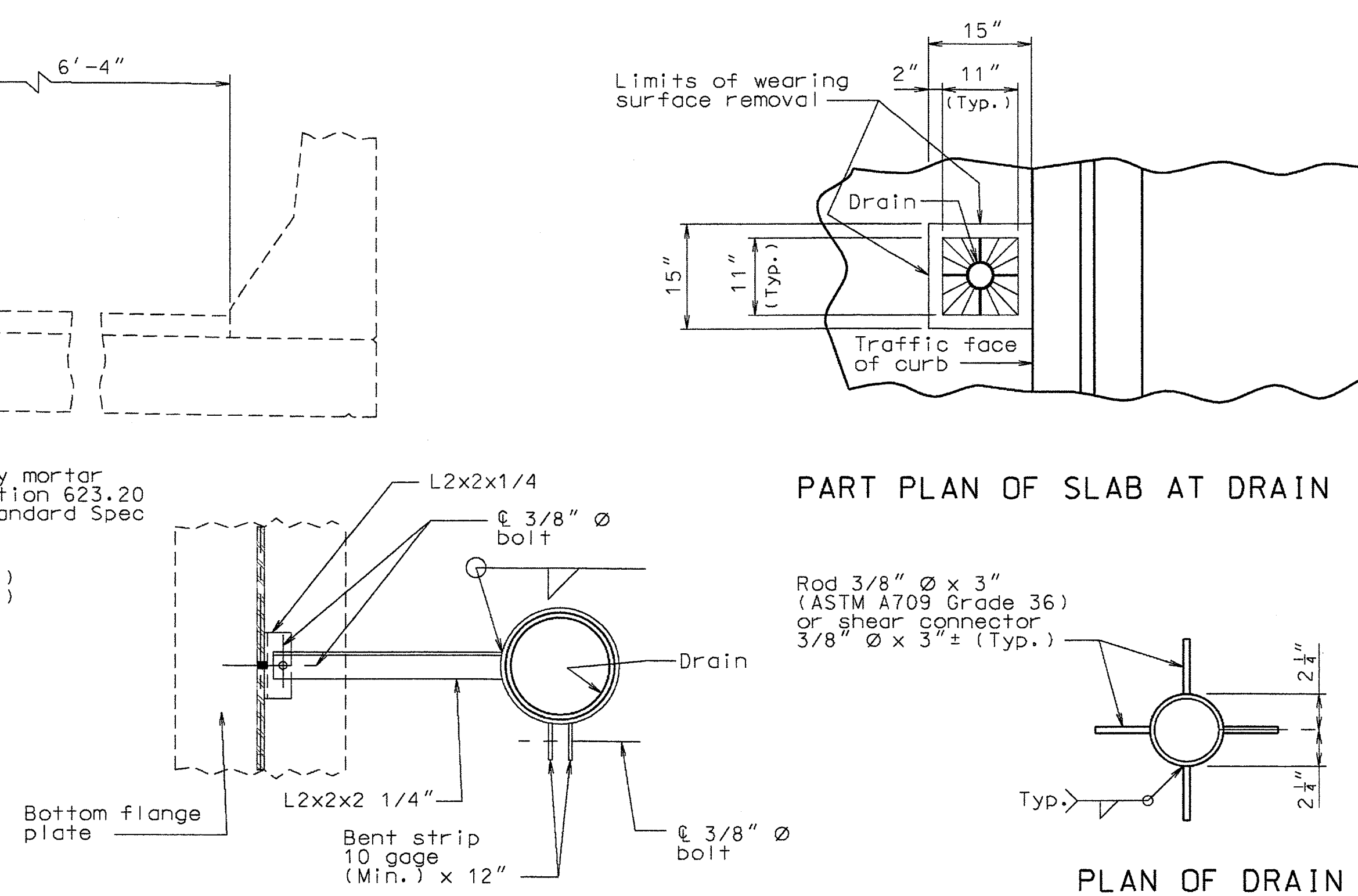
## DETAILS OF SIDEWALK PLATE



ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	10
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COUNTY JACKSON			
DATE			04-08

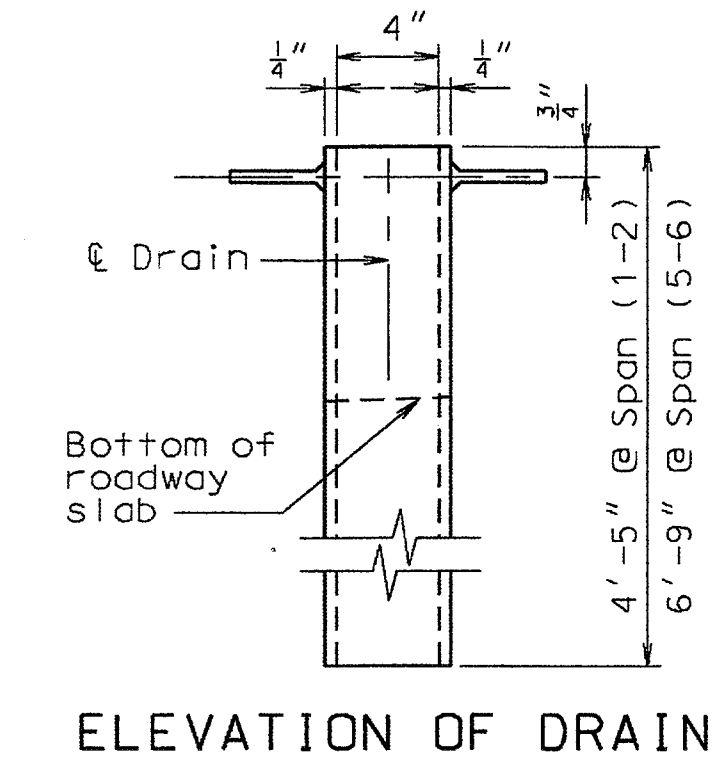


PART SECTION NEAR DRAIN



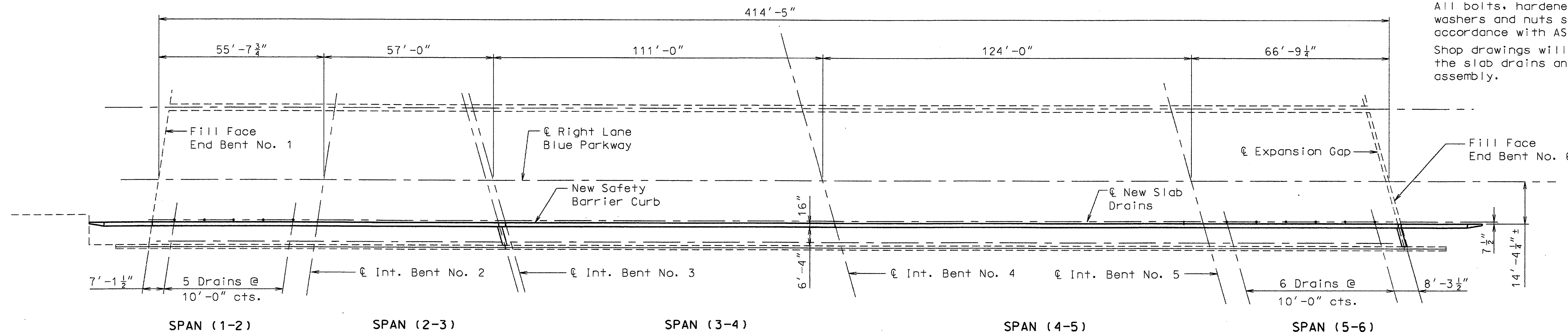
PART SECTION SHOWING BRACKET ASSEMBLY

SLAB DRAIN DETAILS



ELEVATION OF DRAIN

NOTES:  
 Cost of field drilling holes in existing girder webs and existing slab will be considered completely covered by the contract unit price for Slab Drain.  
 Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.  
 Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.  
 Locate drains in slab by dimensions shown in Part Section Near Drain.  
 The drains and bracket assembly shall be galvanized in accordance with ASTM A123.  
 All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with ASTM A153.  
 Shop drawings will not be required for the slab drains and the bracket assembly.



PLAN OF NEW SLAB DRAINS

Detailed Feb. 2008  
 Checked Mar. 2008

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 11

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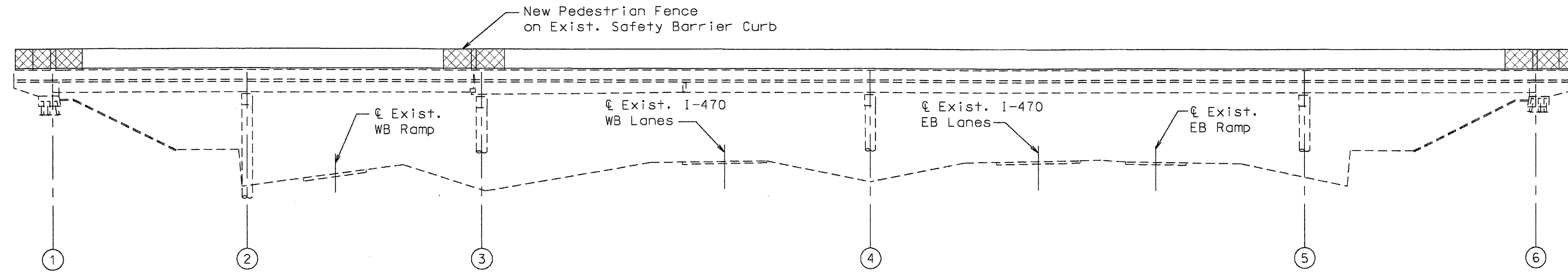
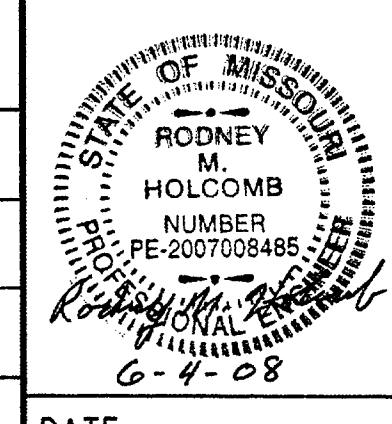


## MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

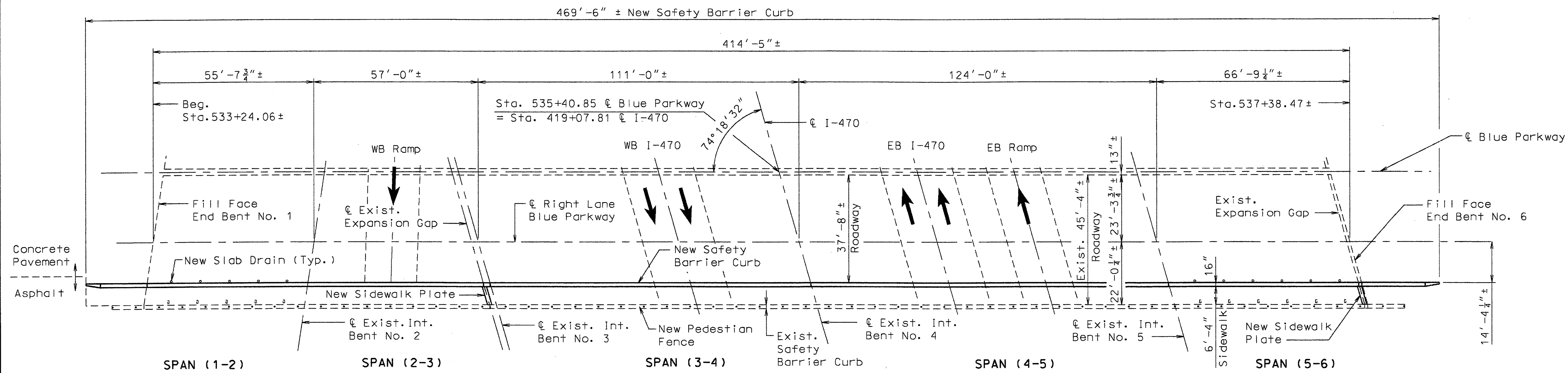
U.I.P. EXISTING (54'-54') CONT. COMP. I-BEAM SPANS, (3'-111'-124'-65') CONT. COMP. PLATE GIRDER SPANS  
 ADD SIDEWALK BY ADDING SAFETY BARRIER CURB AND PEDESTRIAN FENCE



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SEC/SUR	TWP	RGE	
36	48N	32W	



GENERAL ELEVATION



PLAN

Note:  
 For General Notes and Estimated  
 Quantities, see Sheet No. 2.

BM #100.  
 SET A SPIKE STEP IN THE EAST FACE OF A POWER  
 POLE 70' ON THE WEST SIDE OF BLUE PARKWAY  
 70' NORTH OF THE WEST BRIDGE OVER I-470.  
 ELEVATION = 980.16'  
 STA. 419+19.65, 305.90 LT

**BRIDGE OVER I-470**

ABOUT 1 MILE S. OF COLBERN RD

STA. 535+40.85

Designed FEB. 2008  
 Detailed Feb. 2008  
 Checked Mar. 2008

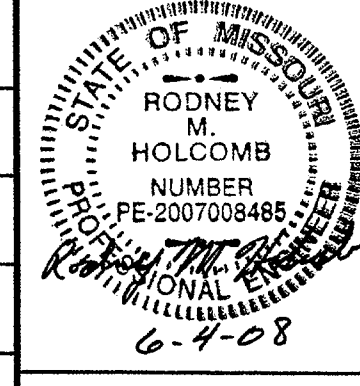
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 11

STD. 617.10
STD. 706.35
A25141



ROUTE	STATE	DISTRICT	SHEET NO.
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ESTIMATED QUANTITIES			
ITEM		SUBSTR.	TOTAL
(72 in.) Pedestrian Fence (Structures)	linear foot		447
* Safety Barrier Curb	linear foot		469
Slab Drain	each		11

**Notes:**

\* Safety barrier curb shall be cast-in-place option or slip-form option, except as limited on Sheet No. 8.

**General Notes:**

Design Specifications:  
2002 - AASHTO 17th Edition  
Load Factor Design

**Design Unit Stresses:**

Class B-1 Concrete (Safety Barrier Curb)      f'c = 4,000 psi  
Reinforcing Steel (Grade 60)                      fy = 60,000 psi  
Structural Carbon Steel (ASTM A709 Grade 36)      fy = 36,000 psi

**Joint Filler:**

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

**Reinforcing Steel:**

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

**Miscellaneous:**

Traffic over structure to be maintained during construction. See Roadway plans for traffic control.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

**Revised Structures:**

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

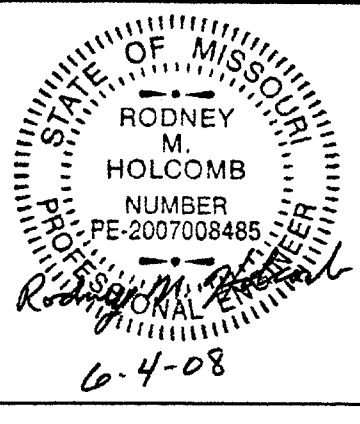
The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Longitudinal dimensions are based on the original design plans.

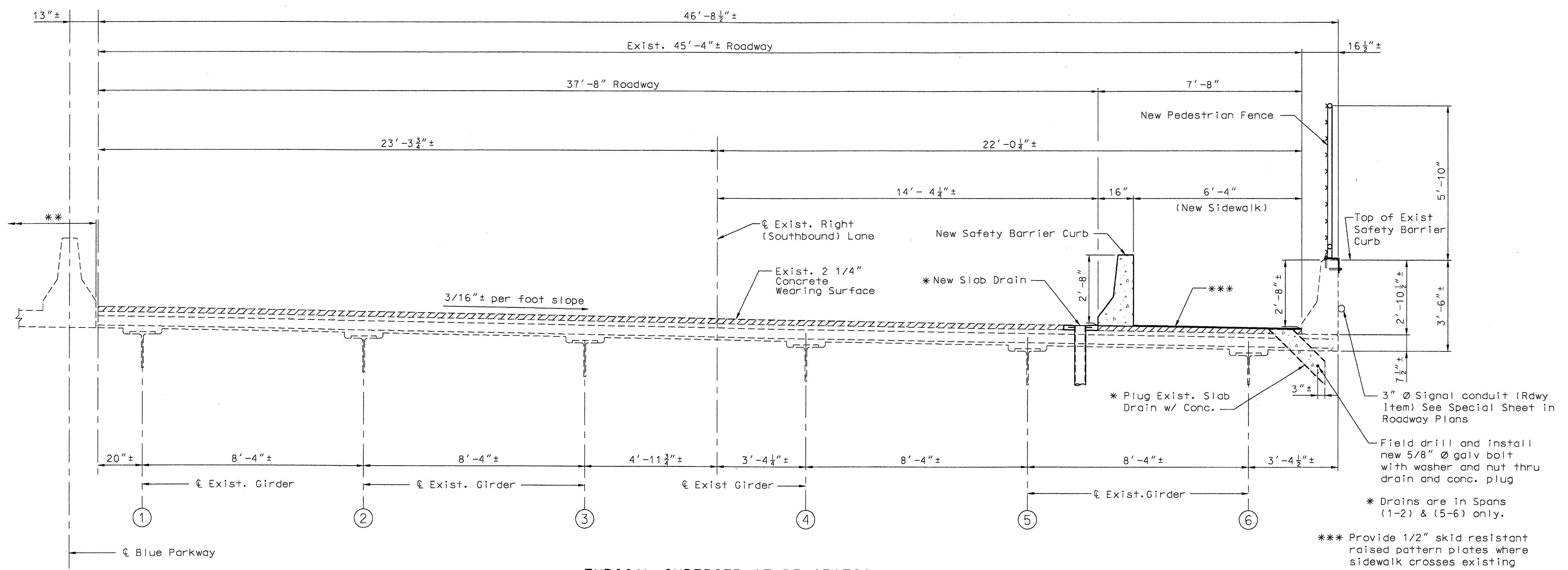




ROUTE 1470	STATE MO	DISTRICT 4	SHEET NO. 3
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
			DATE



\*\* Exist. Northbound Bridge (A2513)



TYPICAL SUPERSTRUCTURE SECTION

Note:  
Payment for all concrete for plugging drain and bolt complete-in-place will be considered completely covered by the contract unit price for slab drains.

\*\*\* Provide 1/2" skid resistant raised pattern plates where sidewalk crosses existing expansion joints (at Bents No. 3 and No. 6). (See Sheet No. 9)

Detailed Feb. 2008  
Checked Mar. 2008

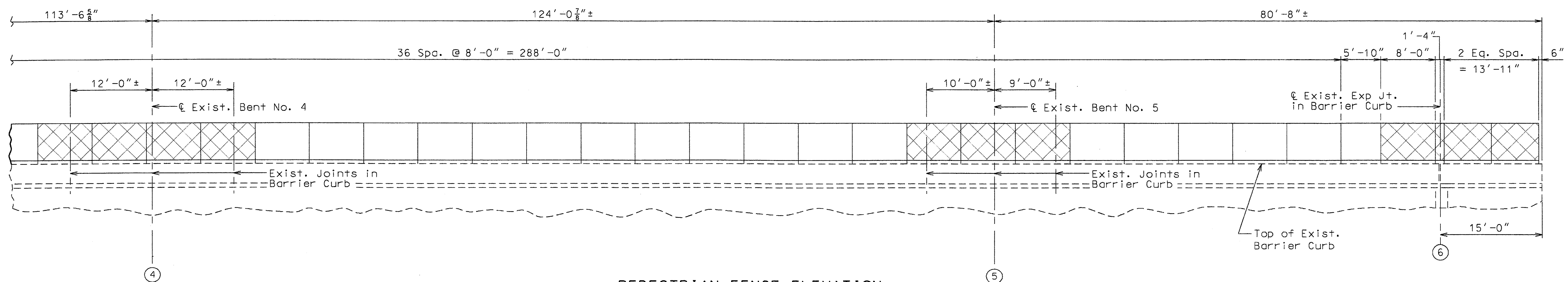
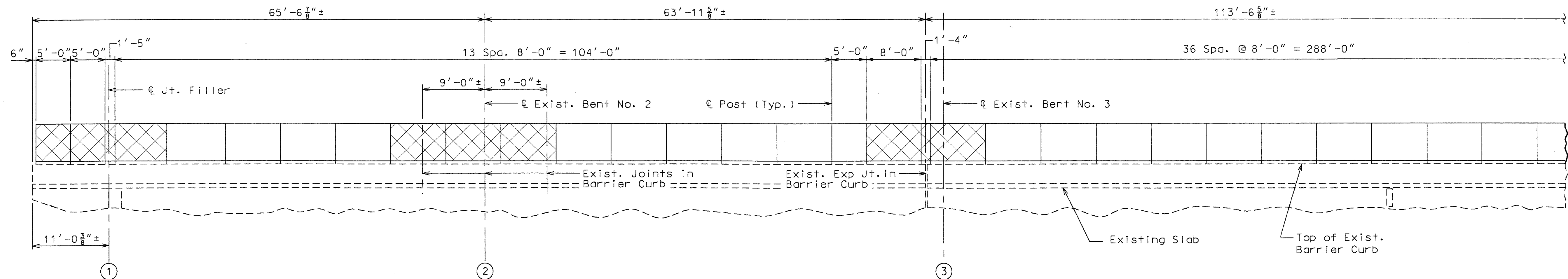
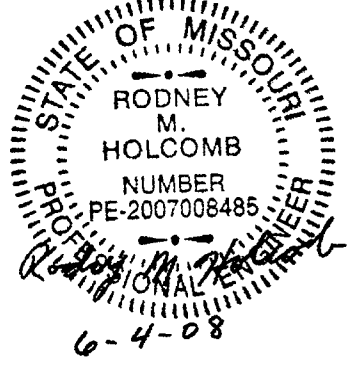
Note: This drawing is not to scale. Follow dimensions.

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I 470	MO	4	4
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COUNTY JACKSON			
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PEDESTRIAN FENCE ELEVATION

Notes:  
Longitudinal dimensions are horizontal.

Detailed Feb. 2008  
Checked Mar. 2008

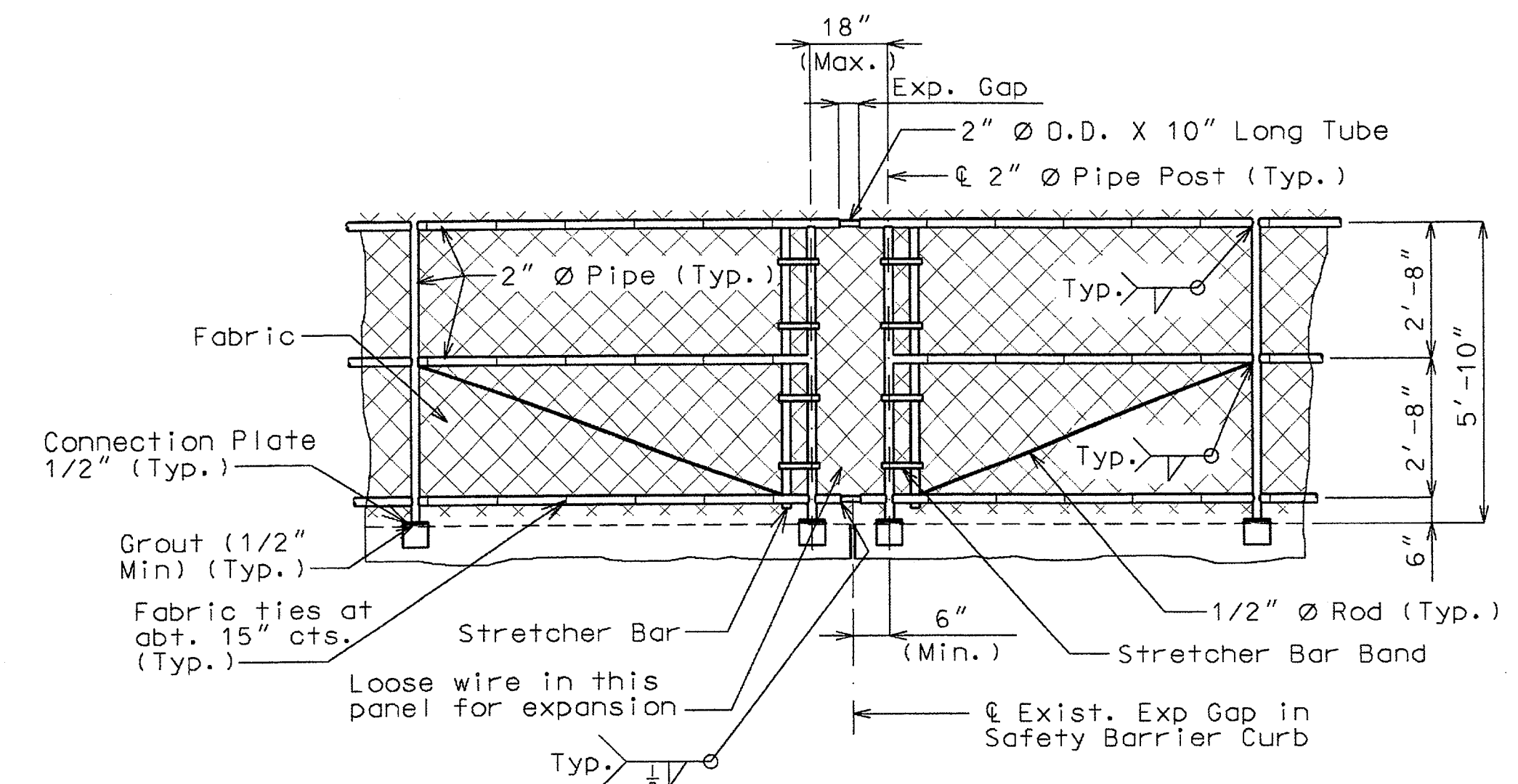
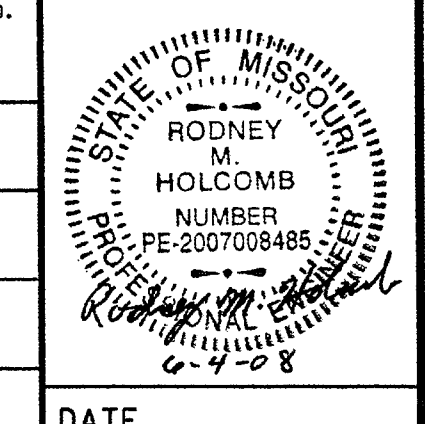
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 11

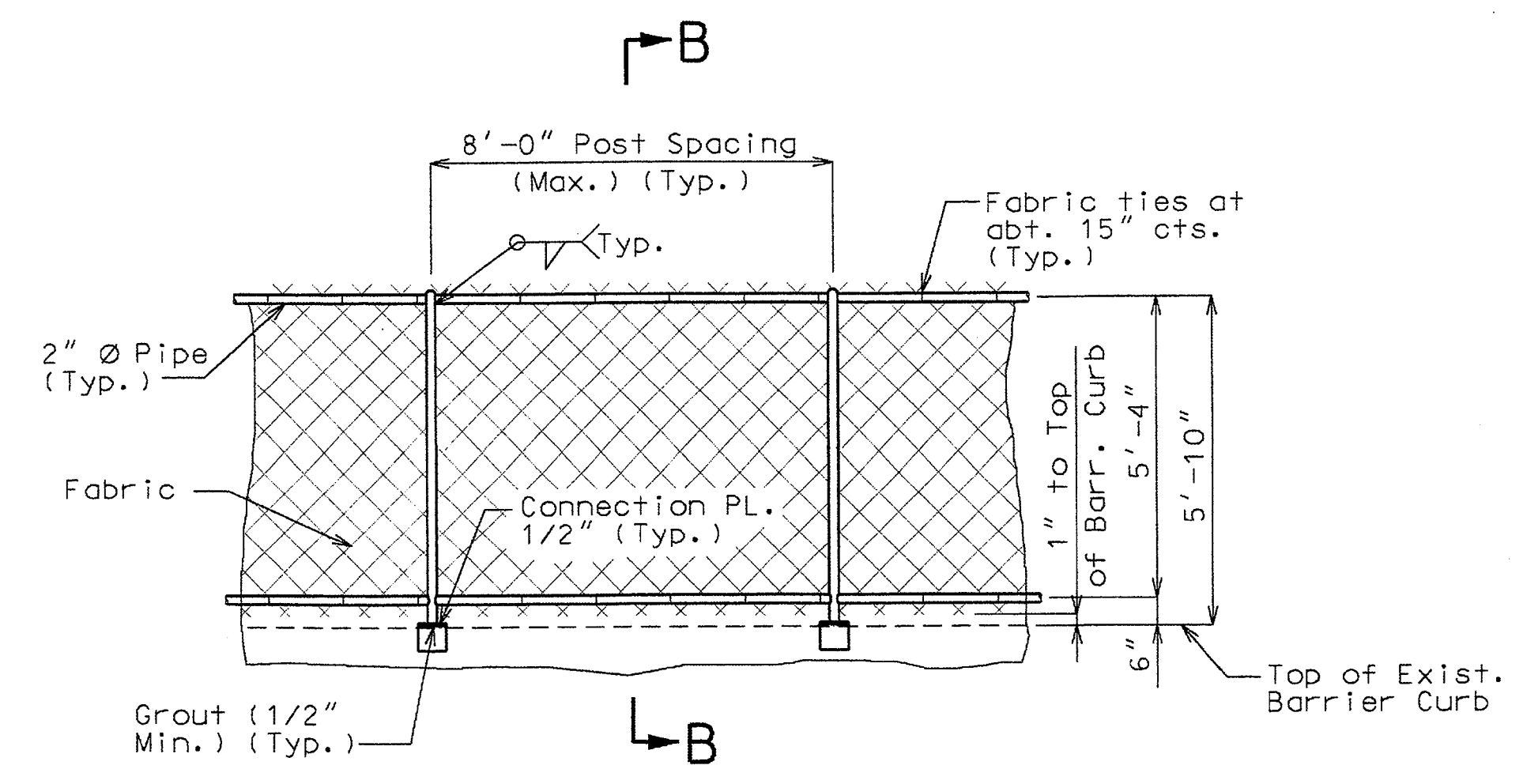
A25141



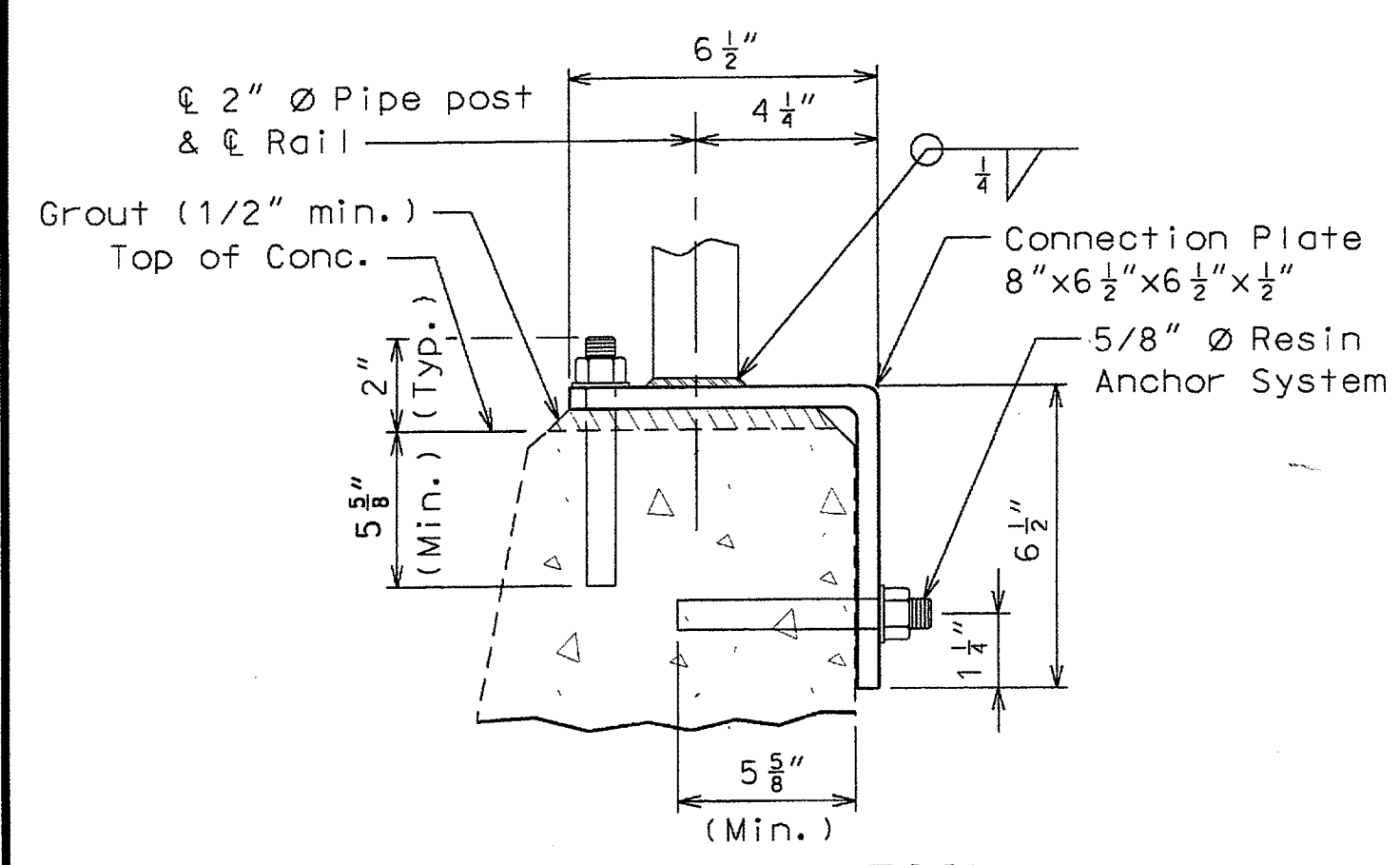
ROUTE I 470	STATE MO	DISTRICT 4	SHEET NO. 5
JOB NO. J4I1641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
DATE			



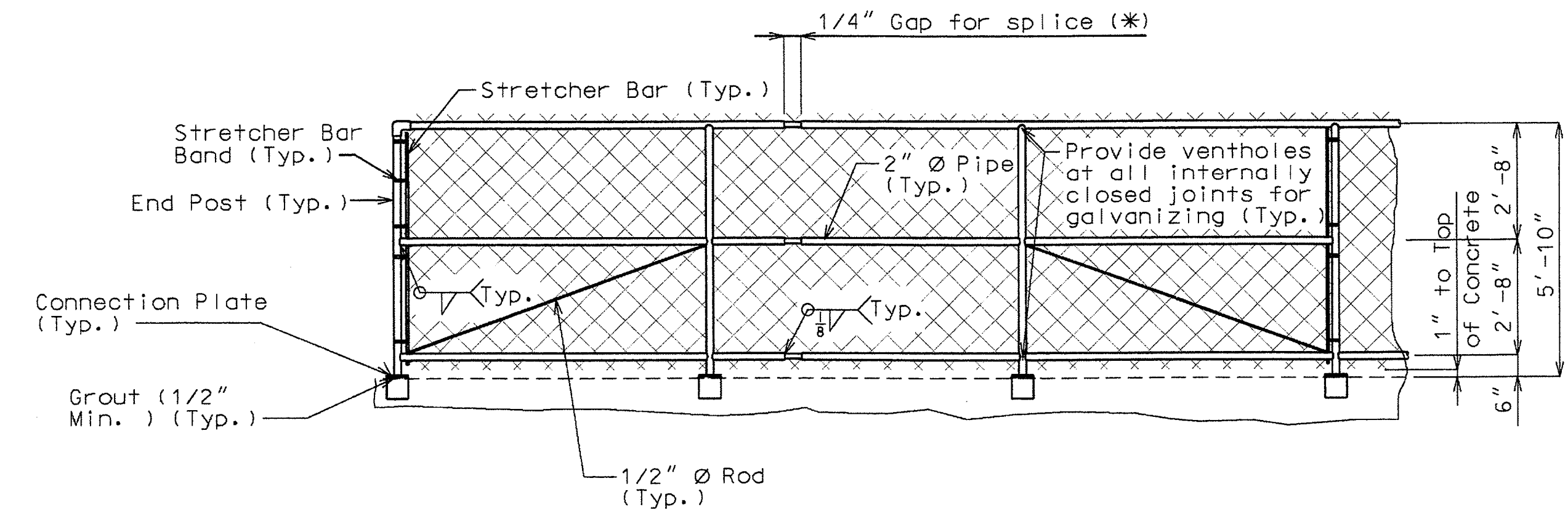
DETAIL OF PEDESTRIAN FENCE  
SHOWING EXPANSION DEVICE GAP  
(AT END BENTS 1 & 6 AND NEAR INT. BENT 3)



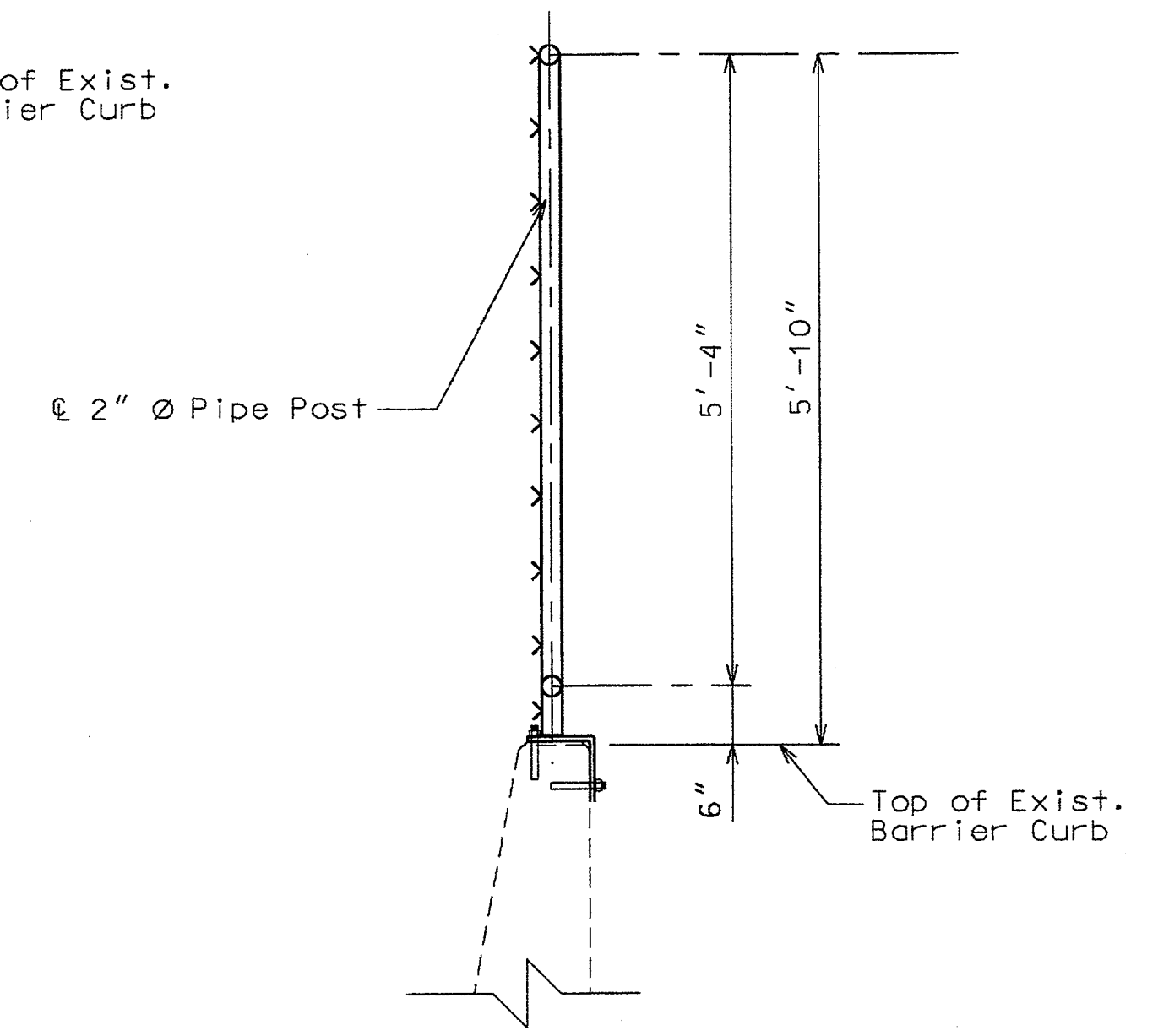
TYPICAL SECTION OF  
PEDESTRIAN CHAIN LINK FENCE



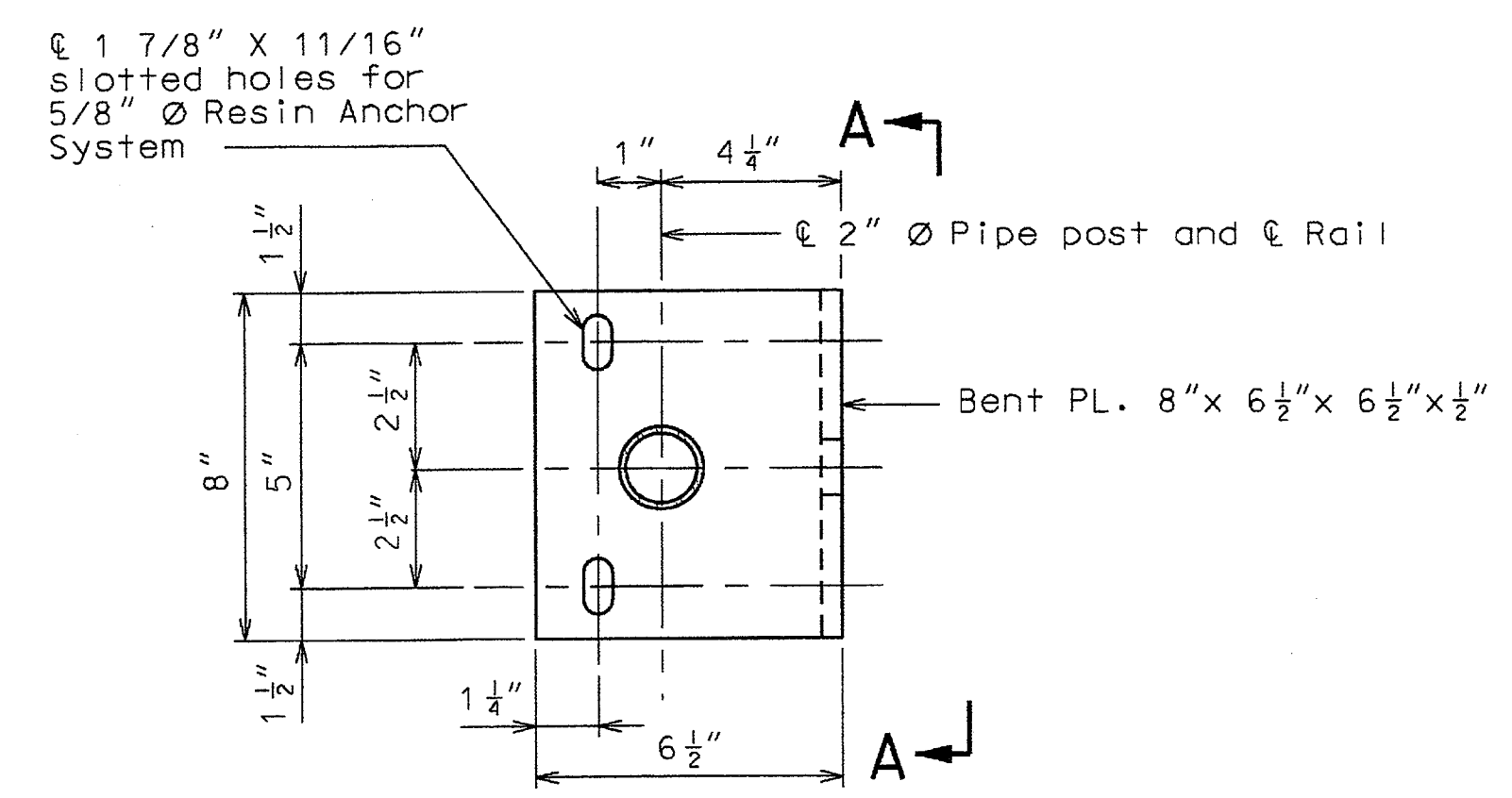
POST CONNECTION  
(TYPICAL)



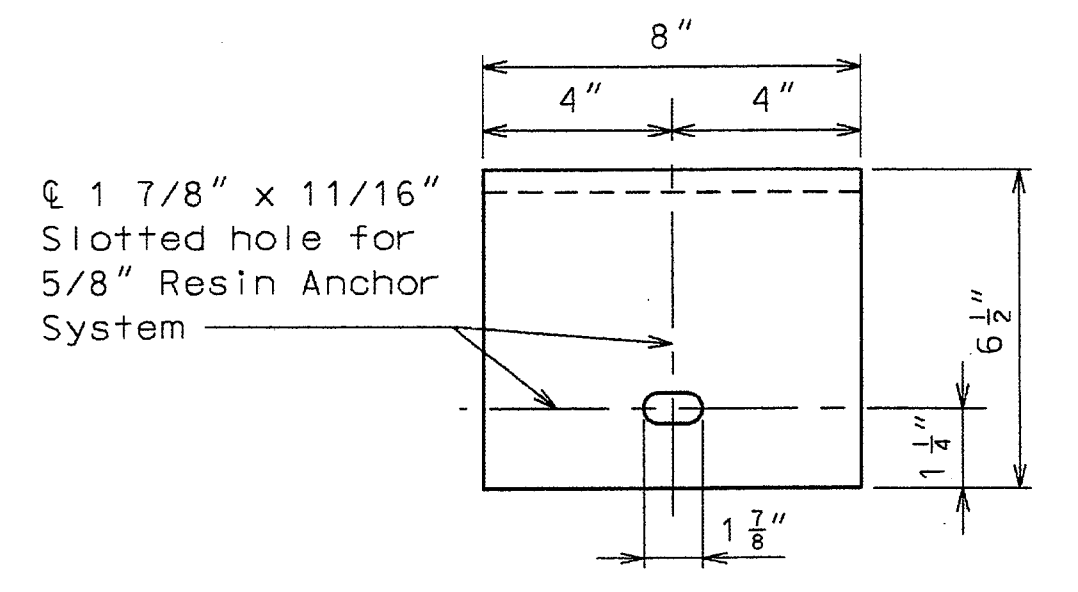
TYPICAL SECTION NEAR SPLICE GAP  
\* At about 30'-0" centers with at least one splice gap between pull posts.



SECTION B-B



PLAN OF CONNECTION PLATE



SECTION A-A

## PEDESTRIAN FENCE DETAILS

### NOTES:

Pedestrian guard fence (Chain link type) shall be in accordance with Sec 1043 except all fabric shall have the top and bottom edges knuckled.

All rail posts shall be vertical. Grout of 1/2" minimum thickness shall be placed under connection plates to provide for vertical alignment of rail posts.

Payment for furnishing, galvanizing and erecting the fence and frame complete with resin anchor systems and washers will be considered completely covered by the contract unit price for (72 in.) Pedestrian Fence (Structures) per linear foot.

Dimensions of pedestrian guard fence are measured horizontally.

The maximum spacing allowed for the braced panels (Pull posts) is 100 ft.

Connect the lower end of the 1/2" Ø rod to the end of the braced panel to which the stretcher bar is attached.

Core wire size for wire fabric shall be 6 gage minimum.

The Contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5 5/8".

Detailed Feb. 2008  
Checked Mar. 2008

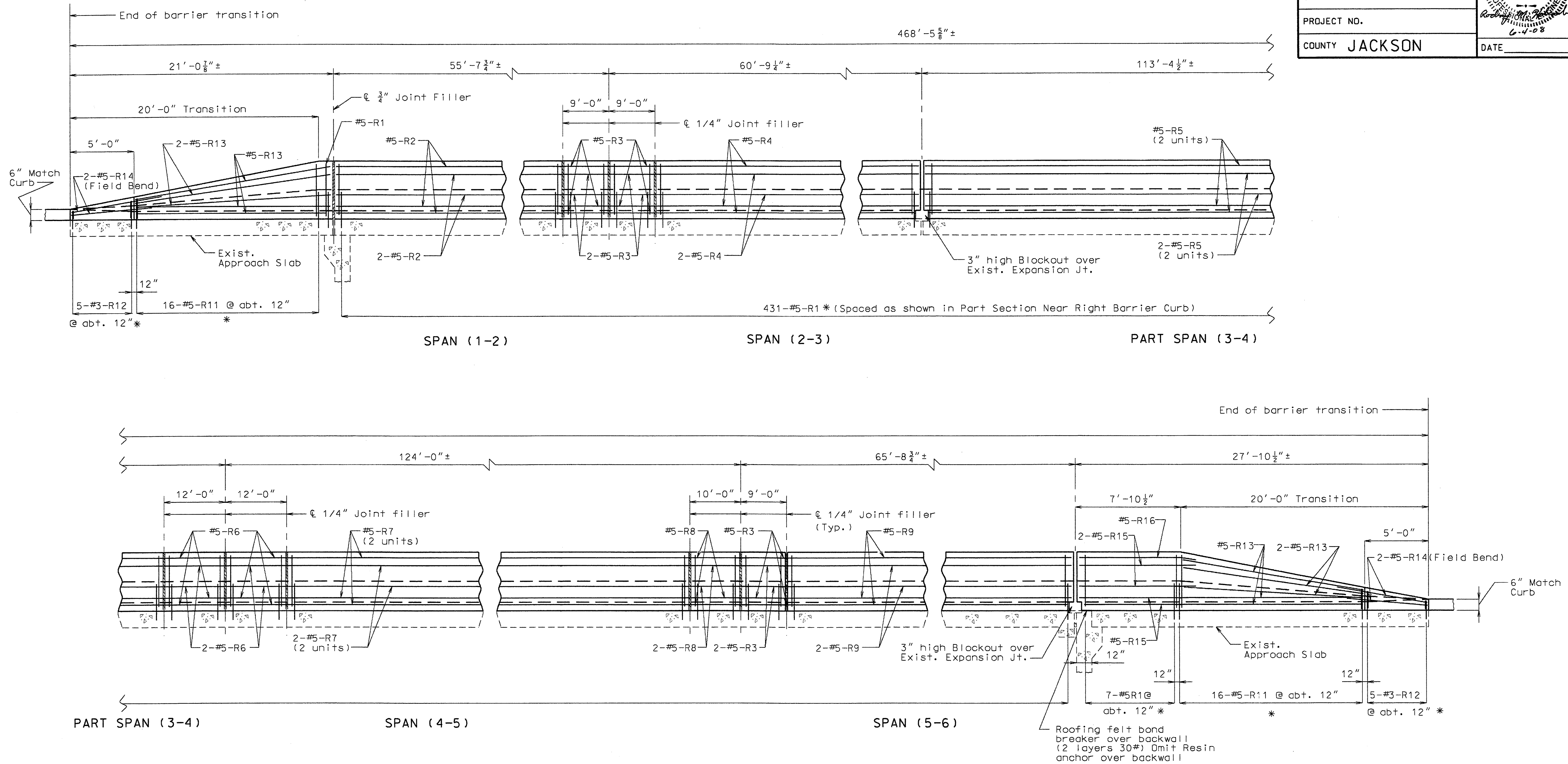
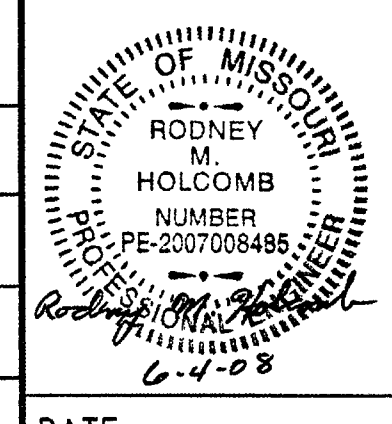
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 11

A25141



ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	6
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE



ELEVATION OF NEW SAFETY BARRIER CURB

**Notes:**  
 Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".  
 See Sheets No. 7 & No. 8 for additional safety barrier curb and transition details.

\* Spa with 5/8" Ø Resin Anchor Systems.

Note: This drawing is not to scale. Follow dimensions.

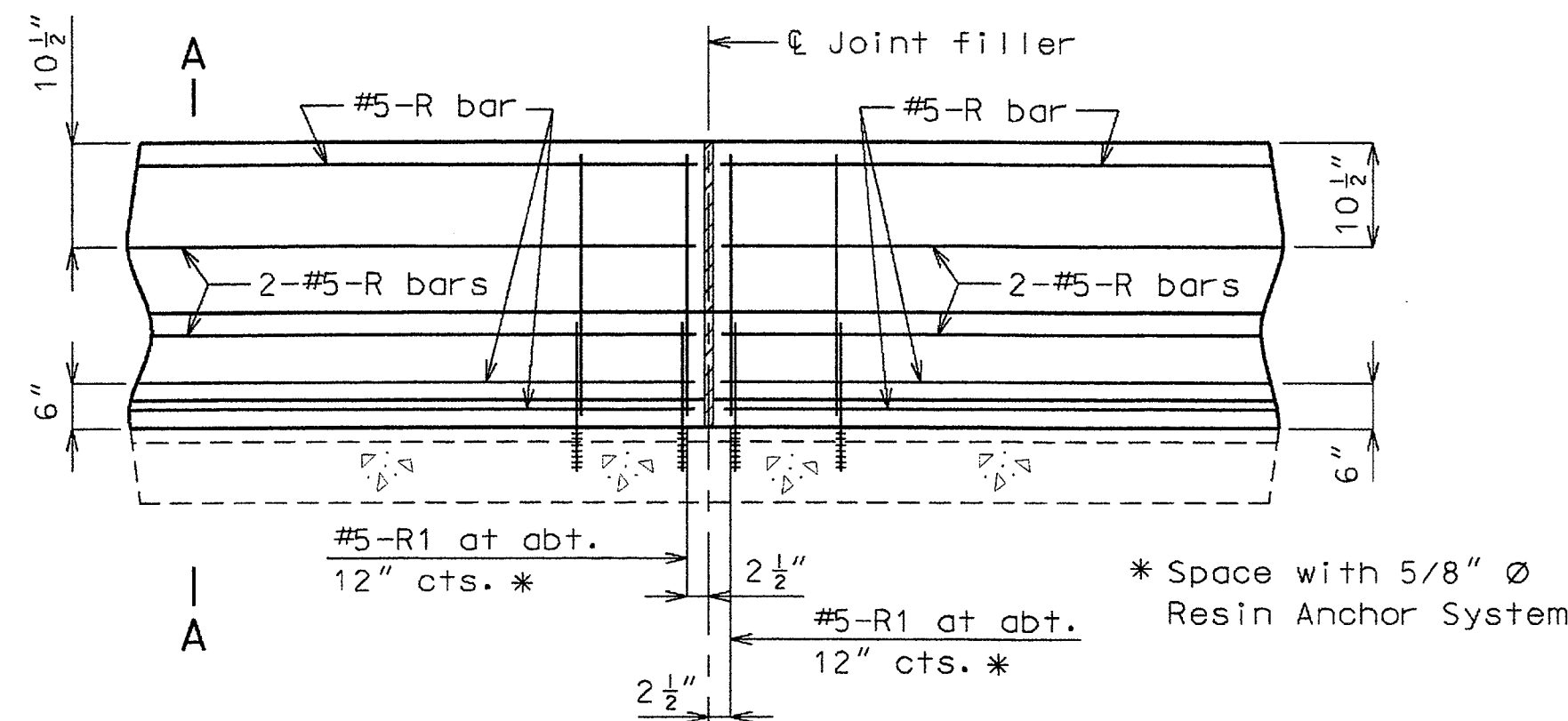
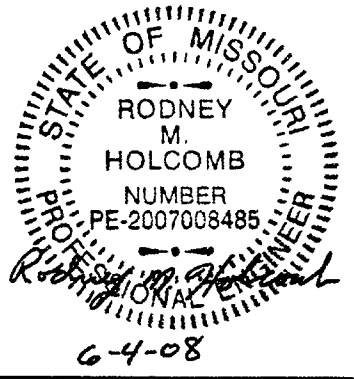
Sheet No. 6 of 11

Detailed Feb. 2008  
 Checked Mar. 2008

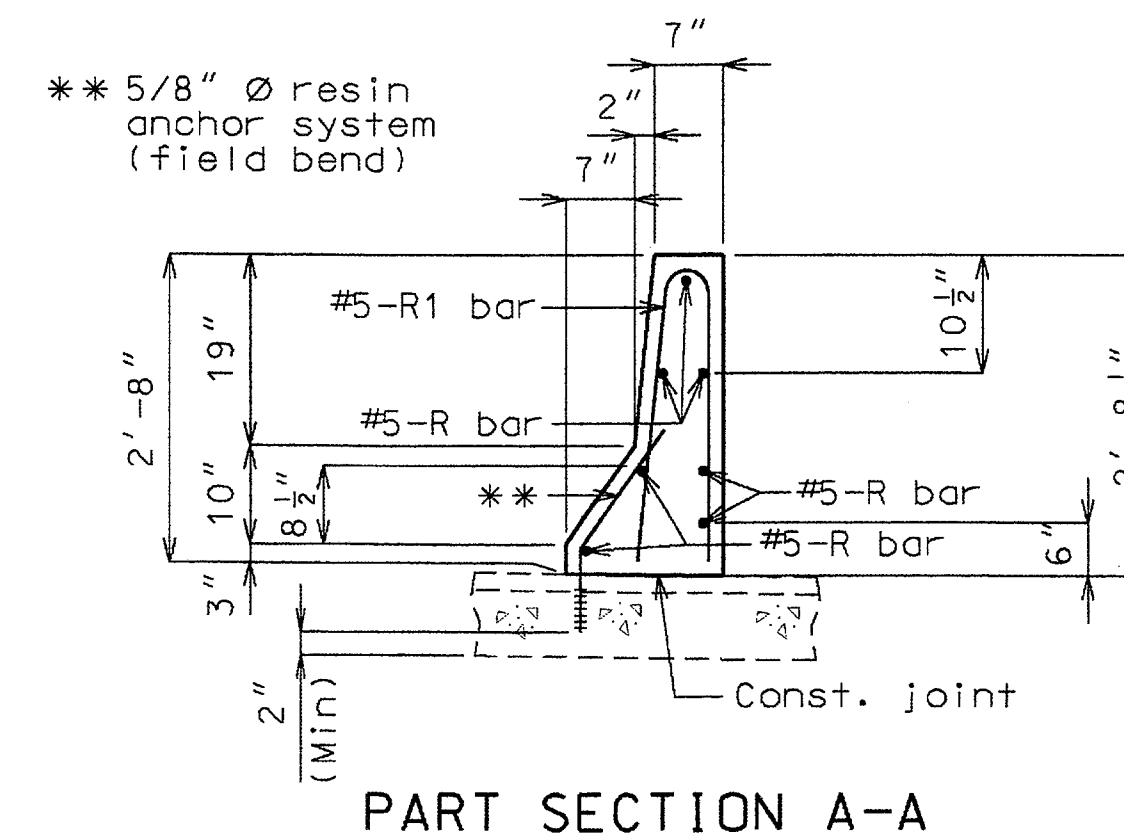
A25141



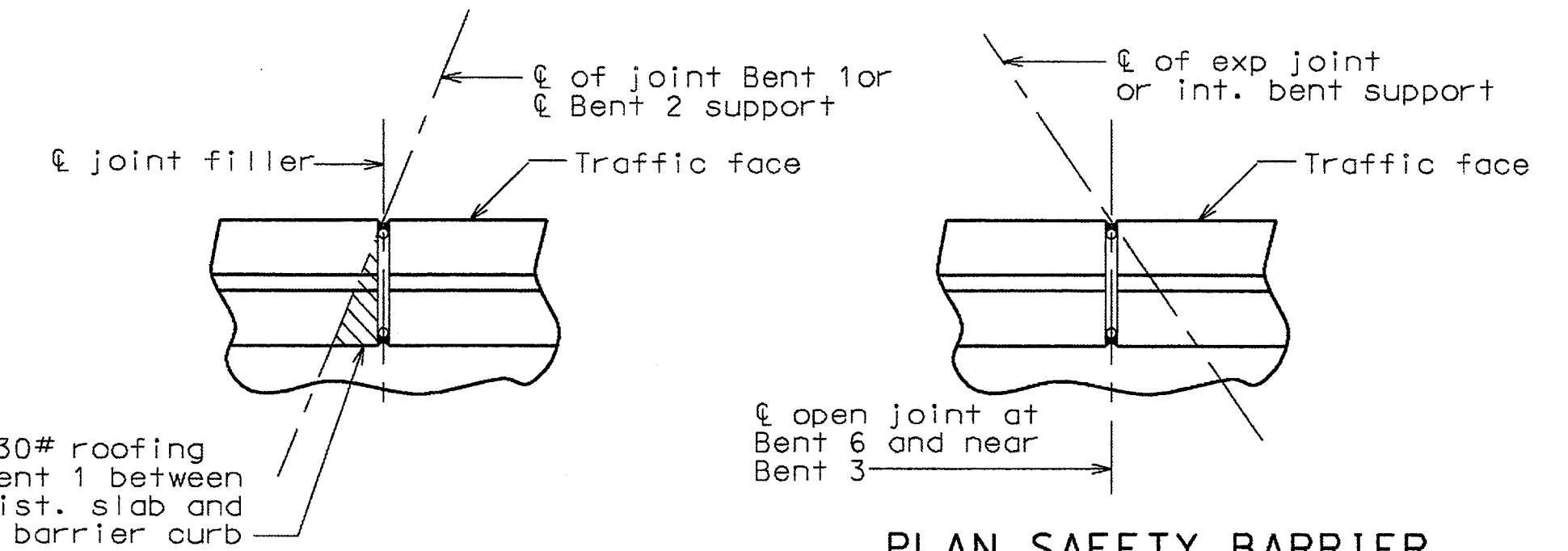
ROUTE I 470	STATE MO	DISTRICT 4	SHEET NO. 7
JOB NO. J411641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE



PART SECTION NEAR RIGHT SAFETY BARRIER CURB  
(CAST-IN-PLACE CONVENTIONAL FORMING OPTION)

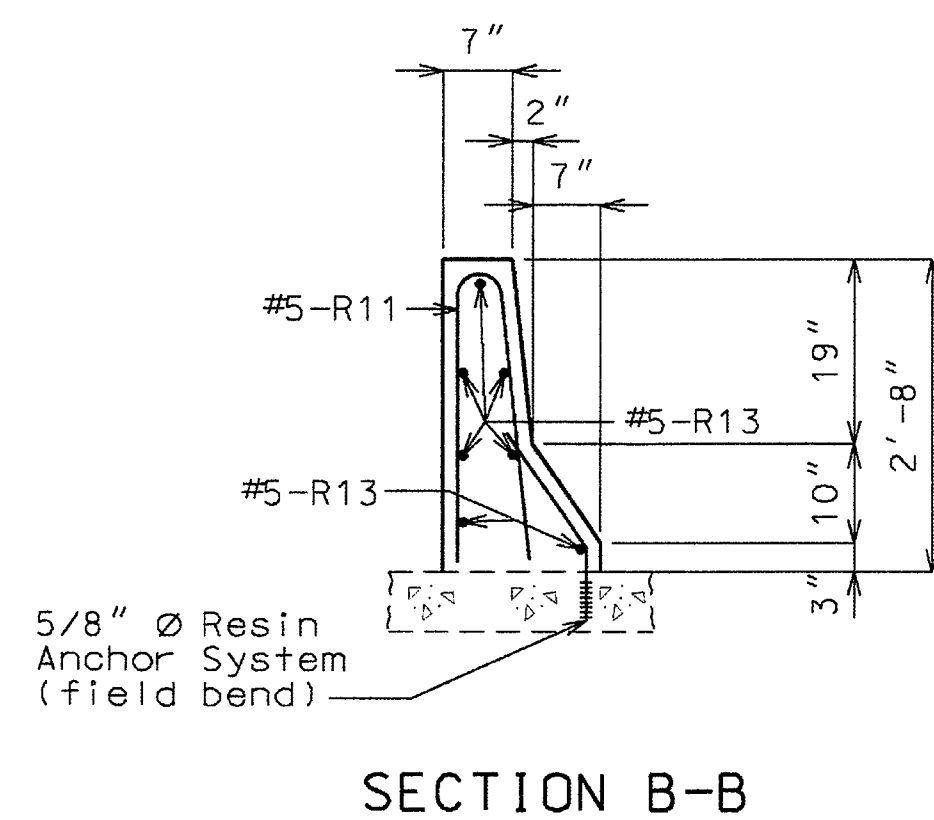
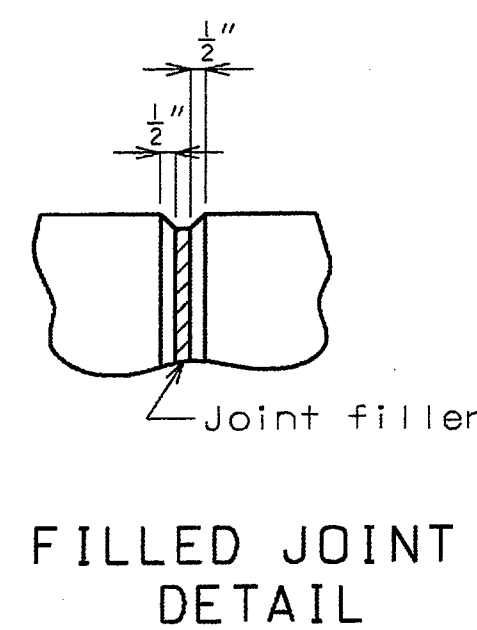


Notes:  
Use a minimum lap of 2'-11" for #5 horizontal safety barrier curb bars.  
The cross-sectional area above the slab = 2.28 sq. ft.

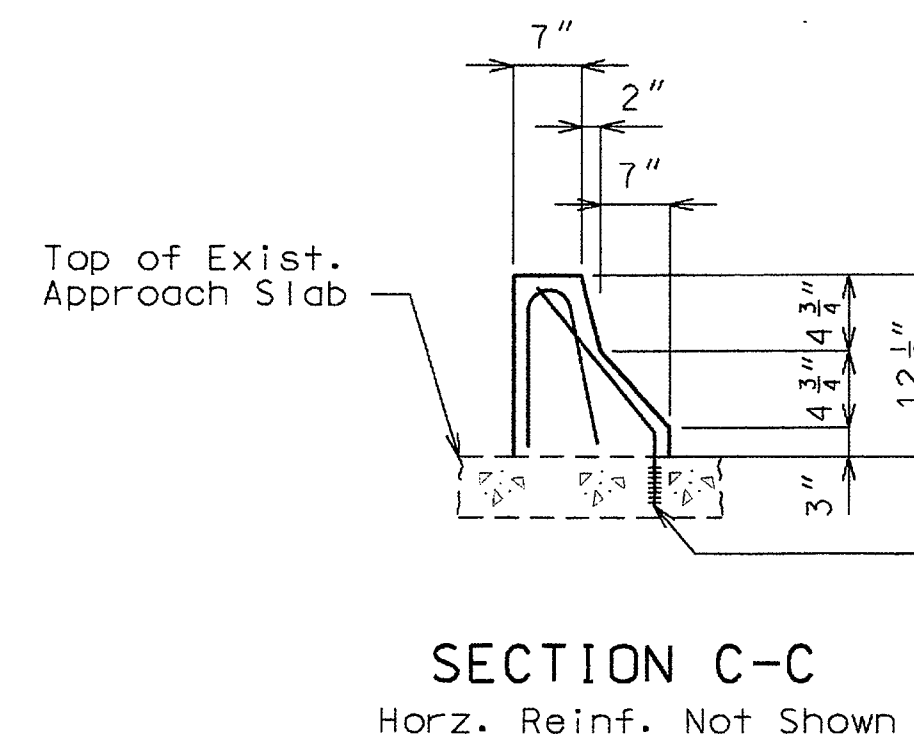


PLAN SAFETY BARRIER CURB JOINT  
( @ BENTS 1 & 2 )

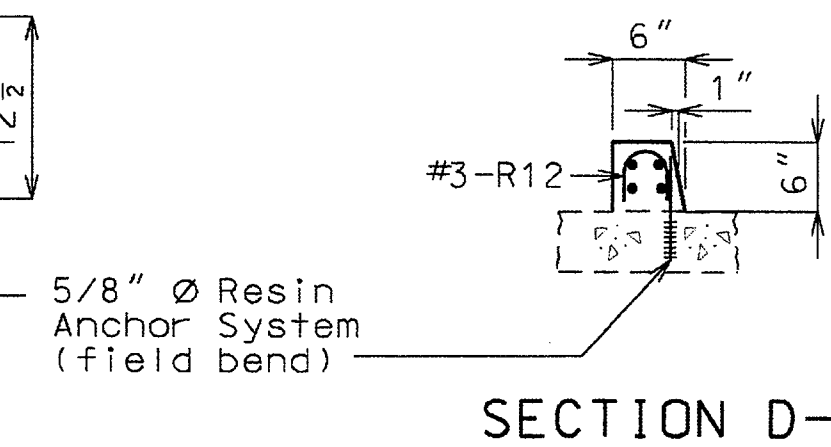
PLAN SAFETY BARRIER CURB JOINT  
( @ BENTS 3,4,5 & 6 )



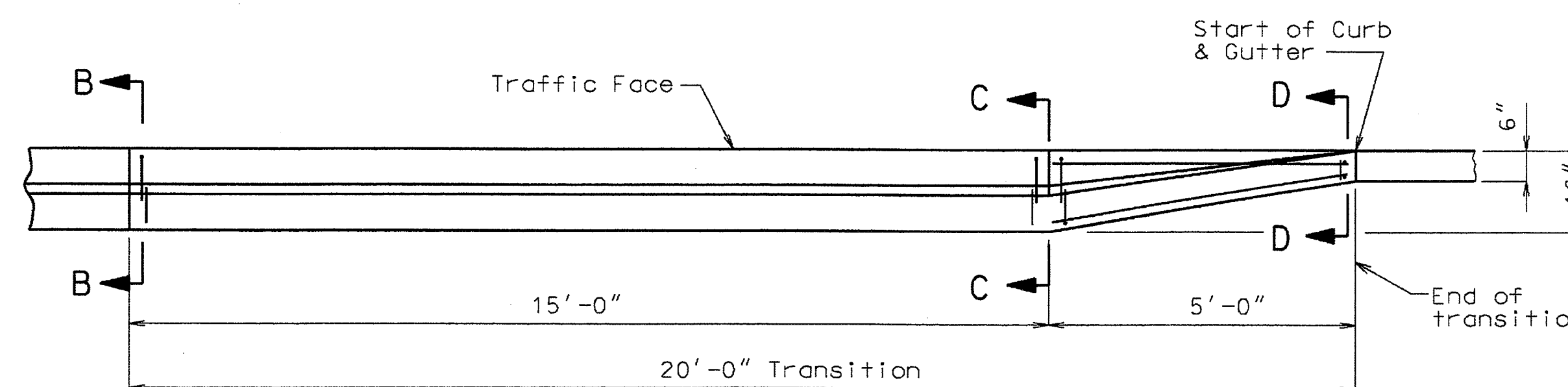
SECTION B-B



SECTION C-C  
Horz. Reinf. Not Shown



SECTION D-D



PLAN OF BARRIER CURB TRANSITION  
Horz. Reinf. Not Shown

SAFETY BARRIER CURB DETAILS

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have a 3/8" bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot measured along the outside top of slab from end of transition section to end of transition section.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 is not required. Application of linseed oil at the contractor's expense is permitted.

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

The minimum embedment depth in concrete with f'c = 4000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec.1039 but shall not be less than 5".

A #5 Grade 60 reinforcing bar 2'-0" long or as shown shall be substituted for the 5/8"± threaded rod.

Detailed Feb. 2008  
Checked Mar. 2008

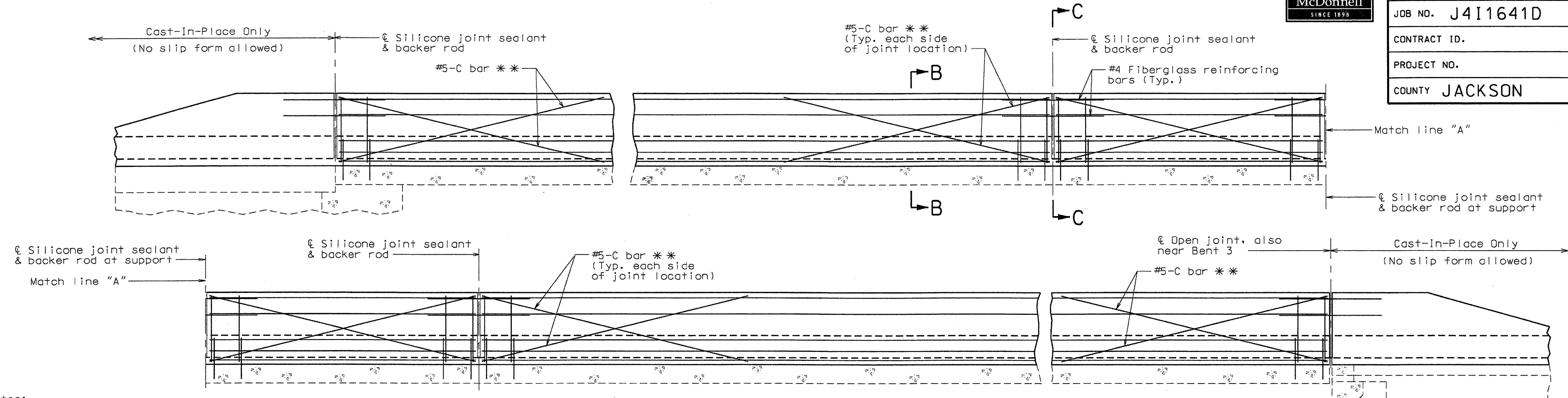
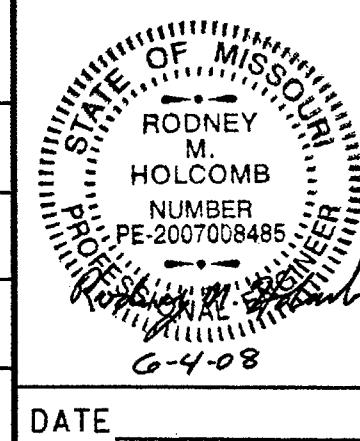
Note: This drawing is not to scale. Follow dimensions.

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A25141

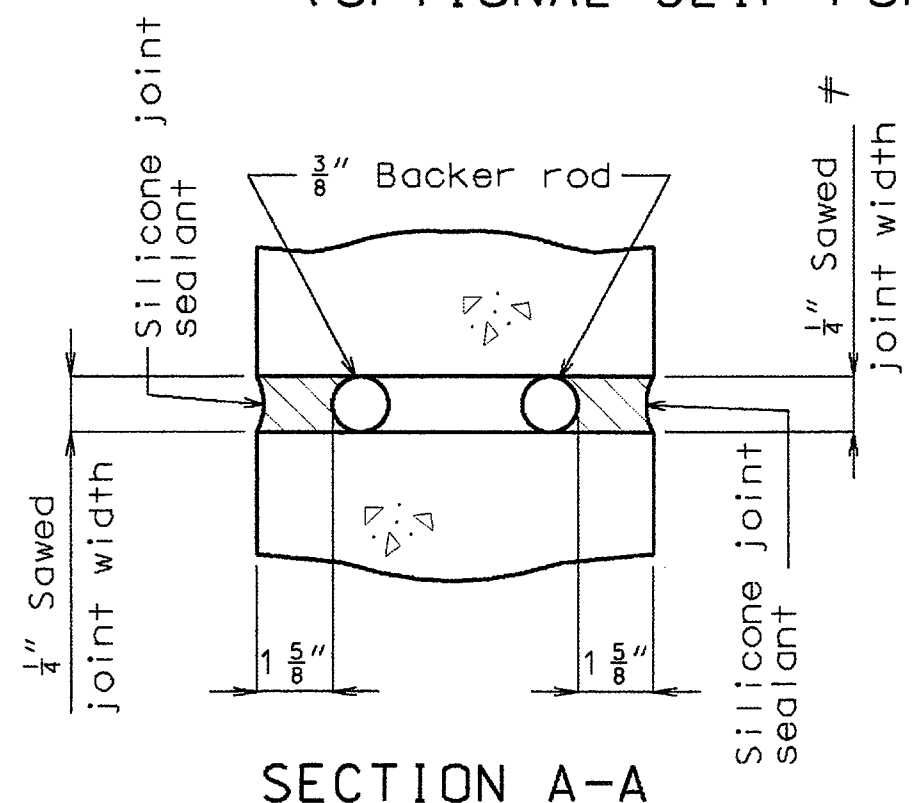


ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	8
JOB NO. J4I1641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
DATE			

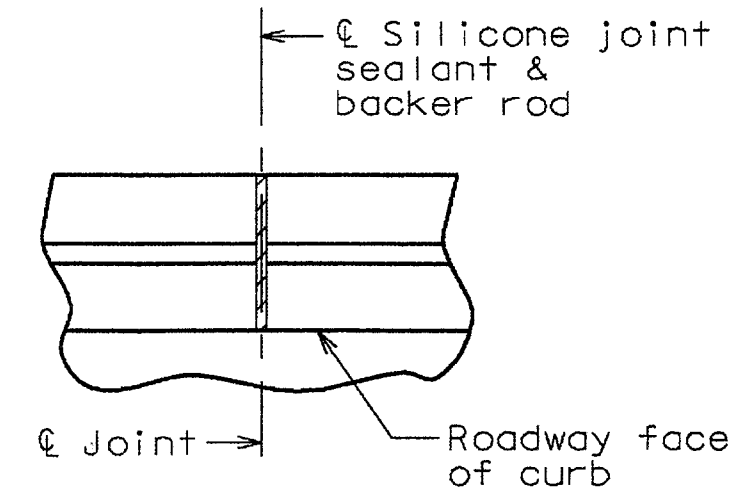


TYPICAL SECTION NEAR RIGHT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

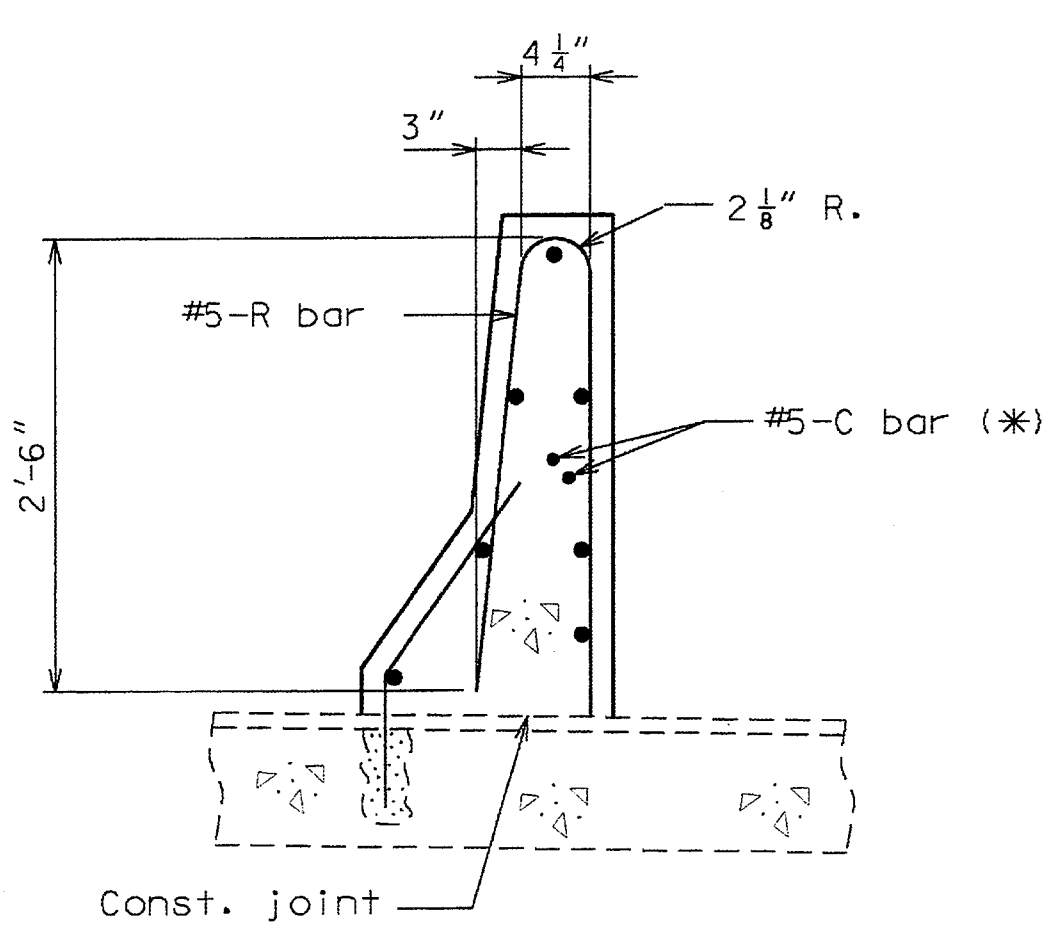
Notes:  
 See Sheet No. 6 for joint locations.  
 Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.  
 Payment for all concrete, reinforcement and sidewalk plates, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.  
 Concrete in the safety barrier curb shall be Class B-1.  
 Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of transition to end of transition.  
 The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 is not required. Application of linseed oil at the contractor's expense is permitted.



Notes:  
 Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.  
 C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb. See \*\*  
 For Slip-form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.  
 Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

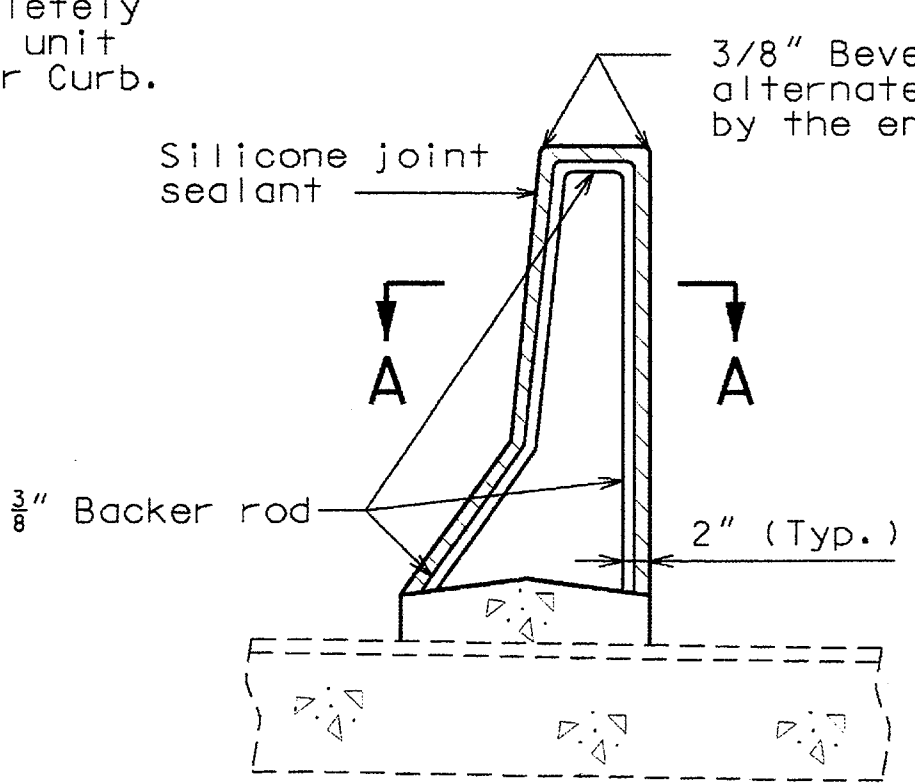


PART PLAN SHOWING SAFETY BARRIER CURB JOINT

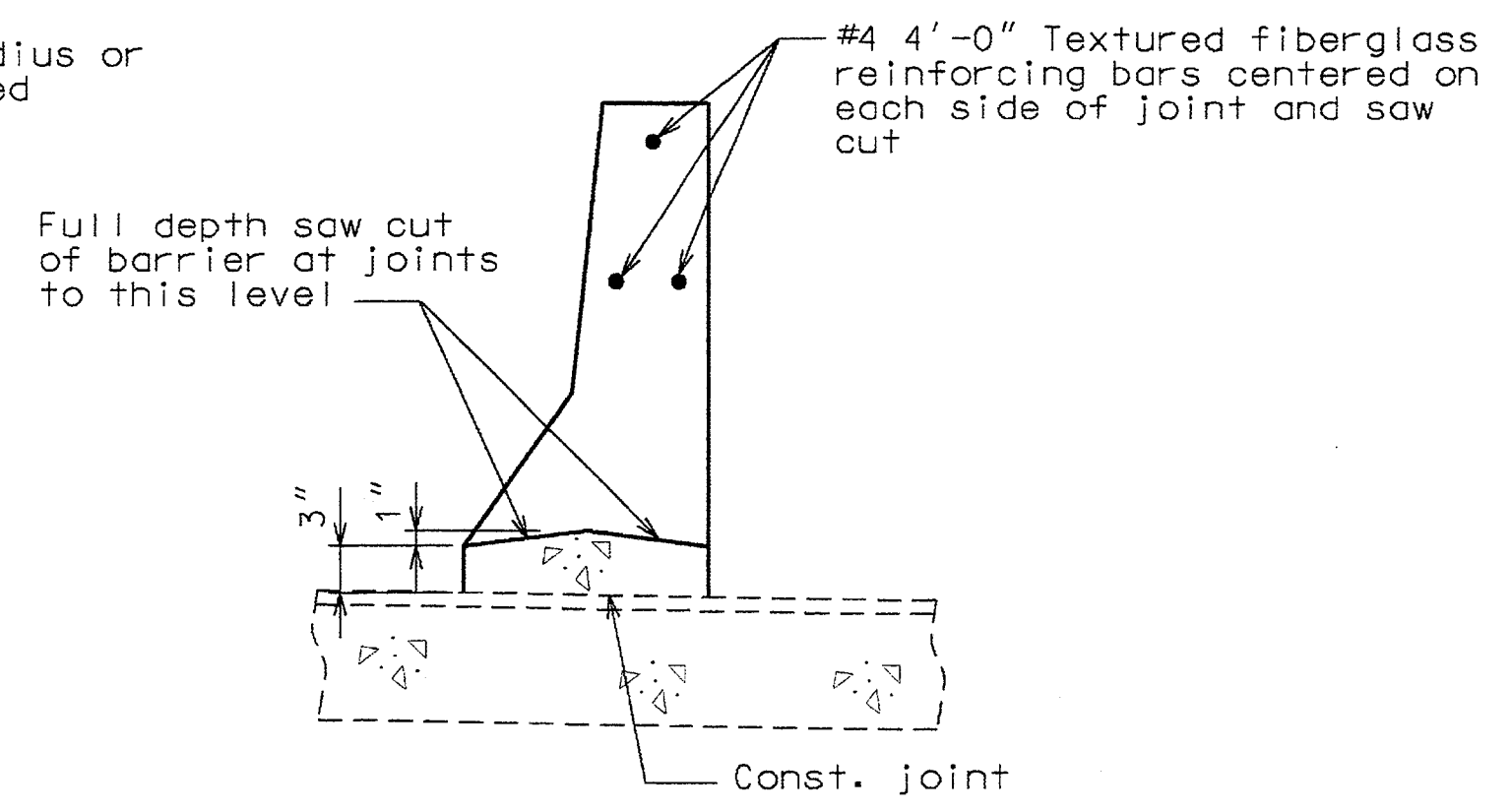


PART SECTION B-B

Note:  
 (\*) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

- \*\* C1 bars in barrier sections 12'-0" and longer. C2 bars in 9'-0" long Barrier sections. C3 bars in 10'-0" long Barrier sections.
- # See Sheet No. 9 for required gap in joint near Int. Bent No. 3 and End Bent No. 6

Detailed Feb. 2008  
 Checked Mar. 2008

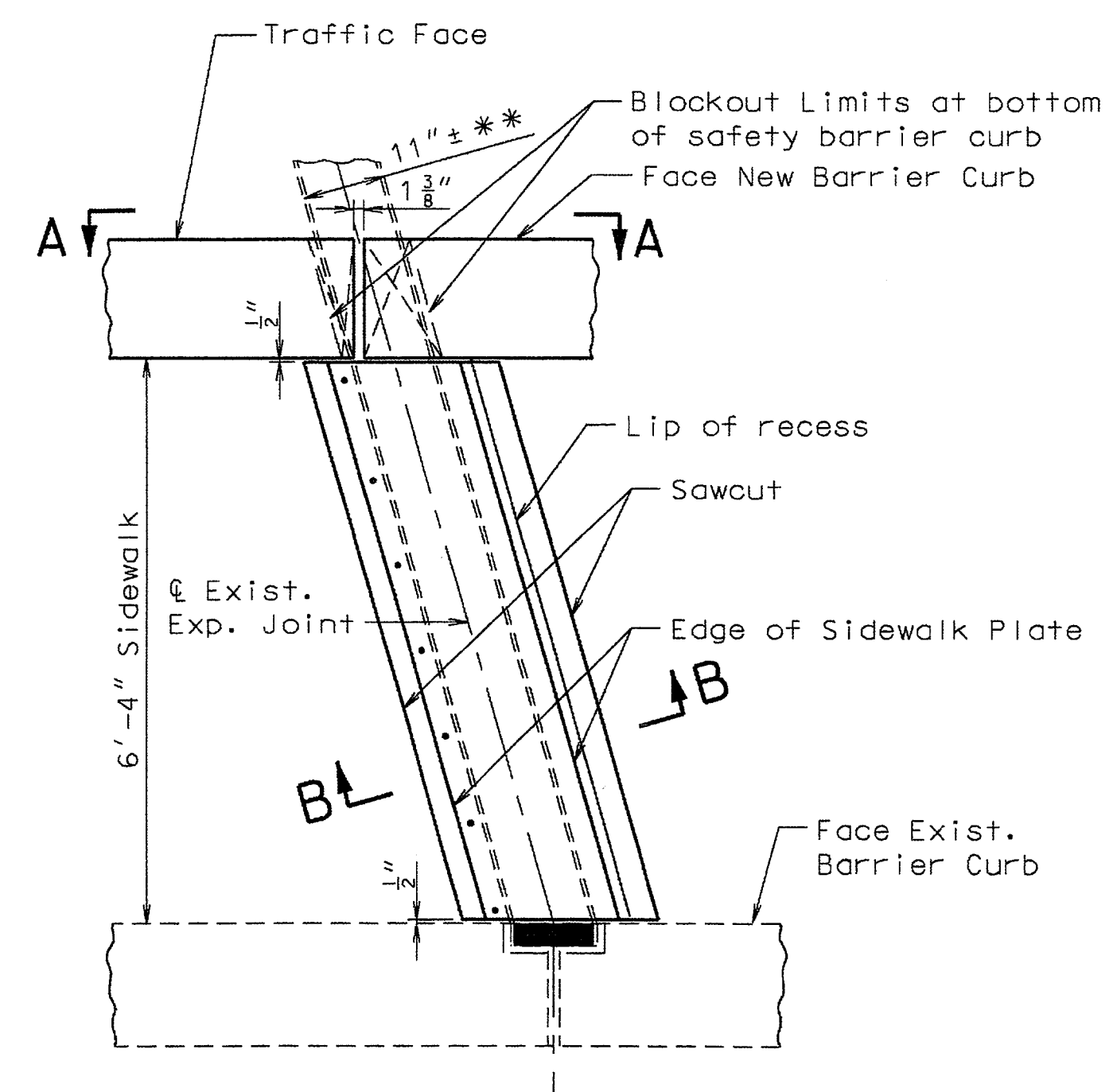
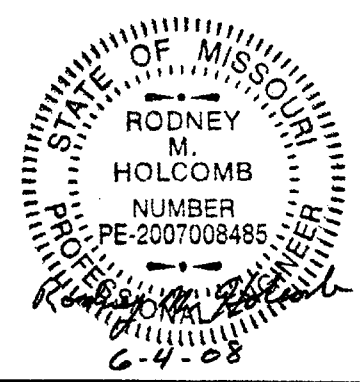
Note: This drawing is not to scale. Follow dimensions.

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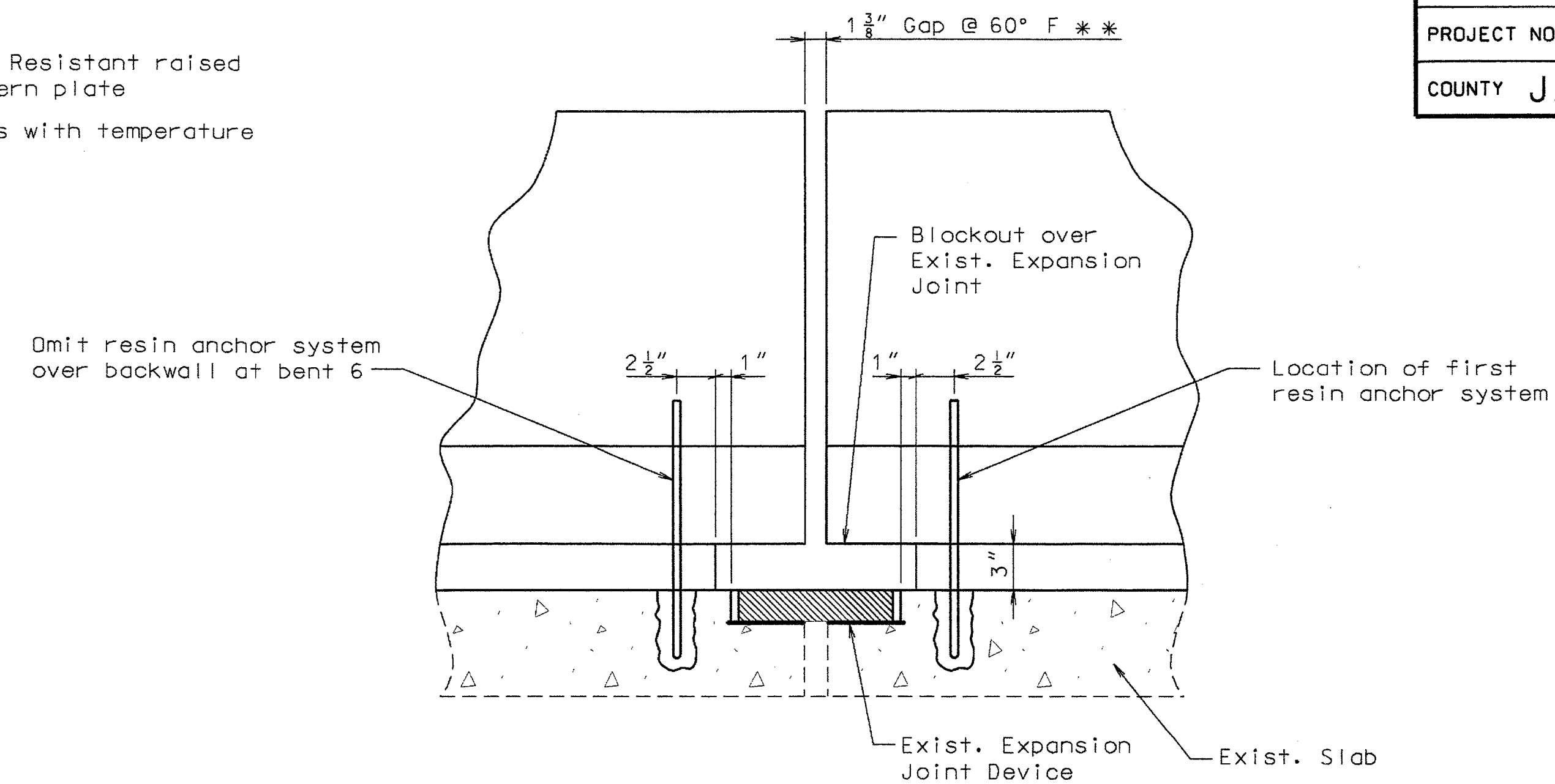


ROUTE I 470	STATE MO	DISTRICT 4	SHEET NO. 9
JOB NO. J4I1641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE



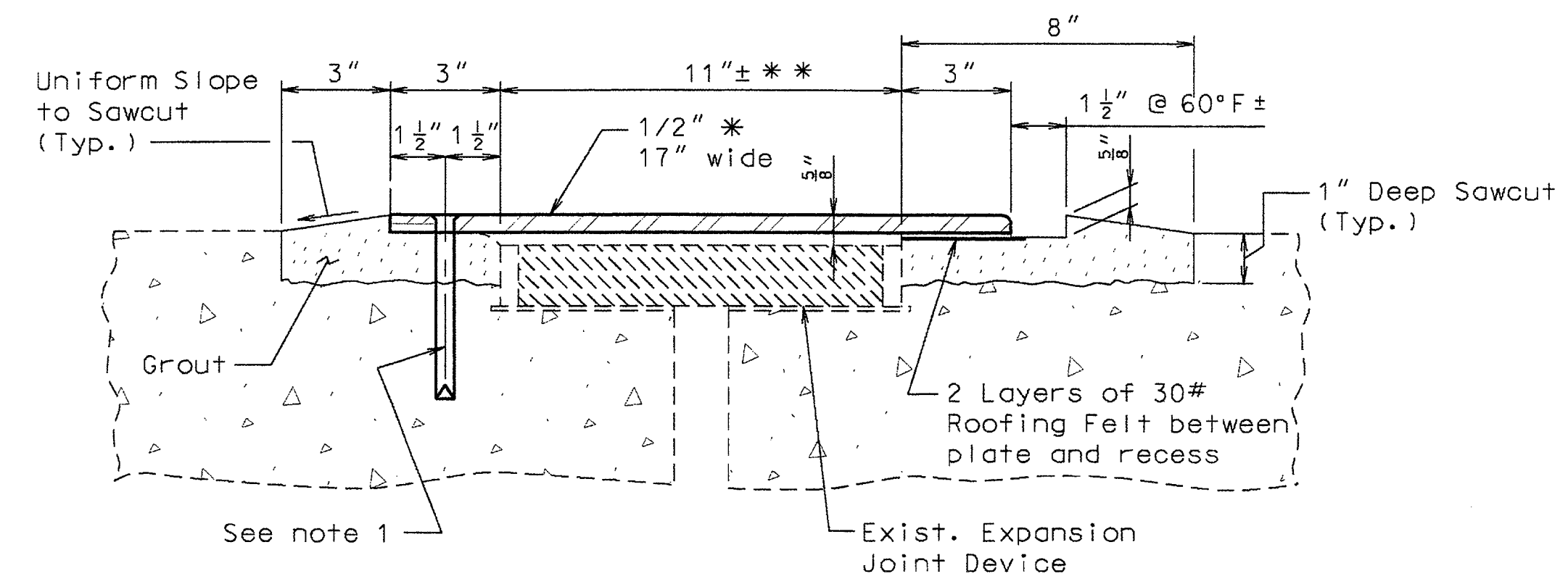
PLAN OF BARRIER CURB AND SIDEWALK AT EXPANSION JOINT  
(2 locations thus)

\* Skid Resistant raised pattern plate  
\*\* Varies with temperature



SECTION A-A

Barrier Elevation at Expansion Joints (Looking West)



SECTION B-B

Notes:

1. Use 1/2" Ø countersunk socket head cap screws with cone expansion anchors @ abt. 12" cts.
2. At saw cut locations remove exist. conc. wearing surface 1" deep back to existing expansion joint device, typ. both ends.
3. Anchored end of skid plate is squared off while opposite end has a round edge.
4. Material for the sidewalk plates shall be ASTM A709 Grade 36 structural steel.
5. Structural steel for the Sidewalk plates shall be galvanized in accordance with ASTM A123.
6. Payment for furnishing, galvanizing and installing the sidewalk plates will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.
7. The 1/2" dia conc expansion anchor shall have a minimum ultimate pullout strength of 7,500 lbs. in concrete with f'c = 4,000 psi.

DETAILS OF SIDEWALK PLATE

Detailed Feb. 2008  
Checked Mar. 2008

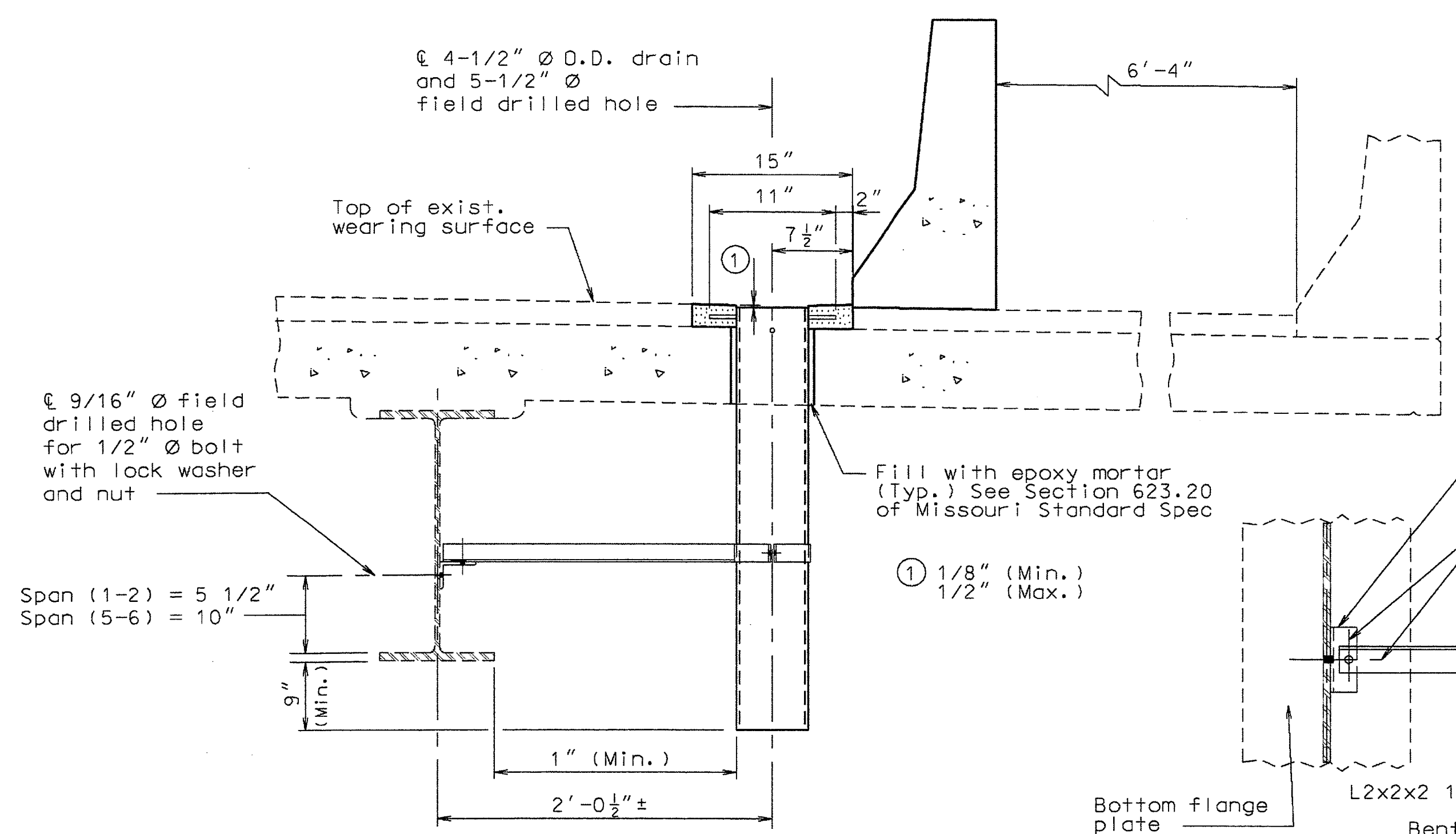
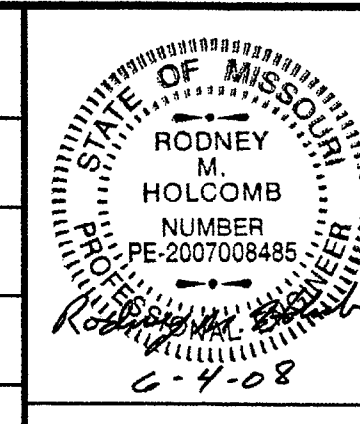
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 11

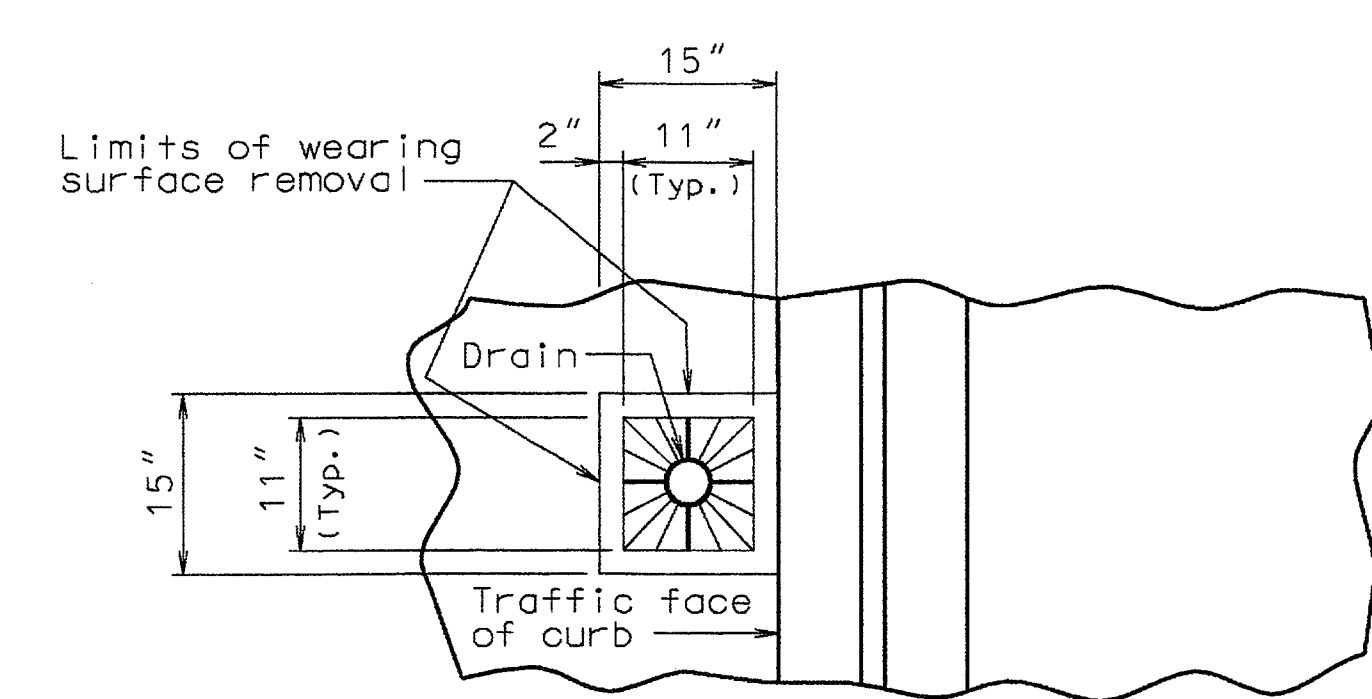
A25141



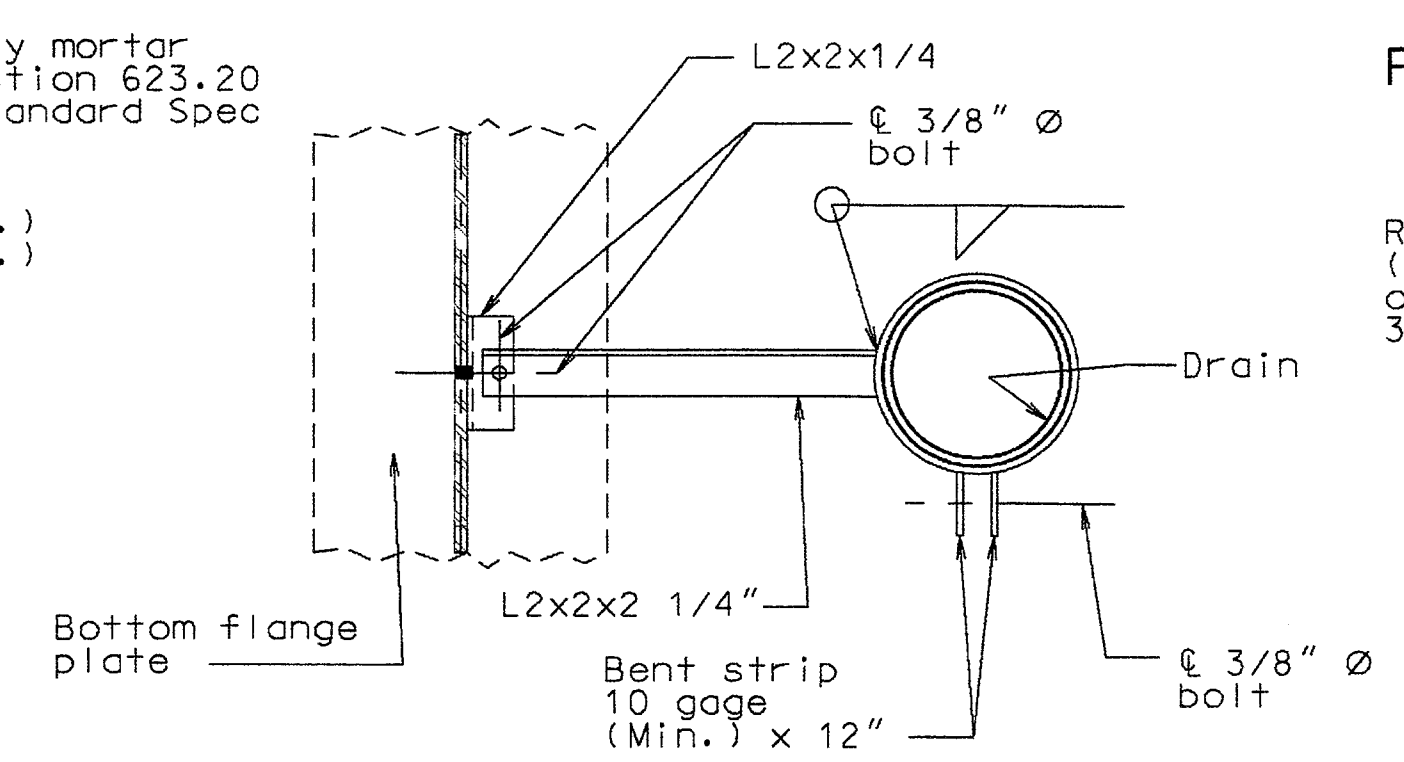
ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	10
JOB NO. J4I1641D			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			
DATE			



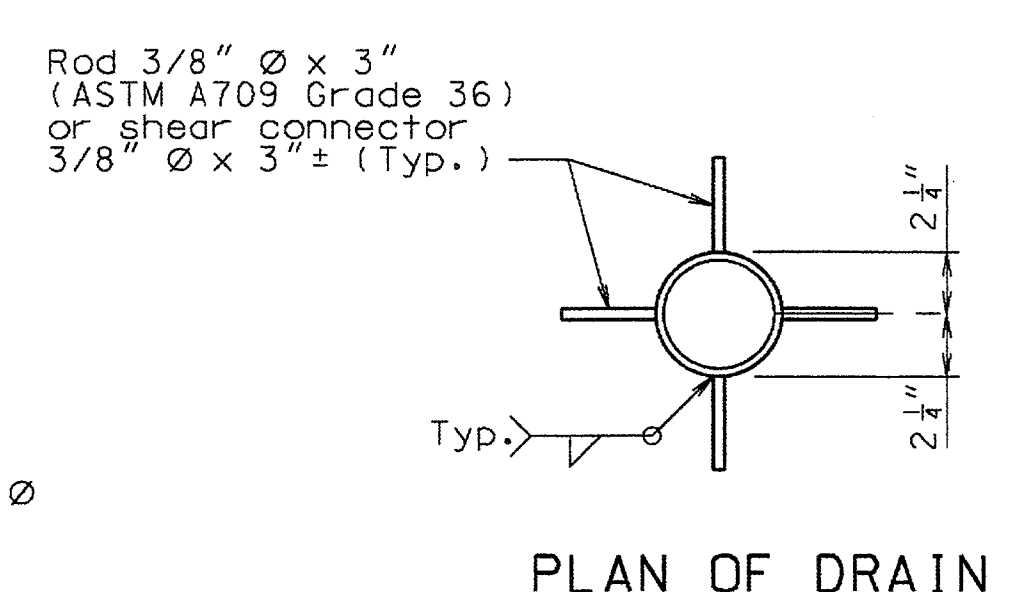
PART SECTION NEAR DRAIN



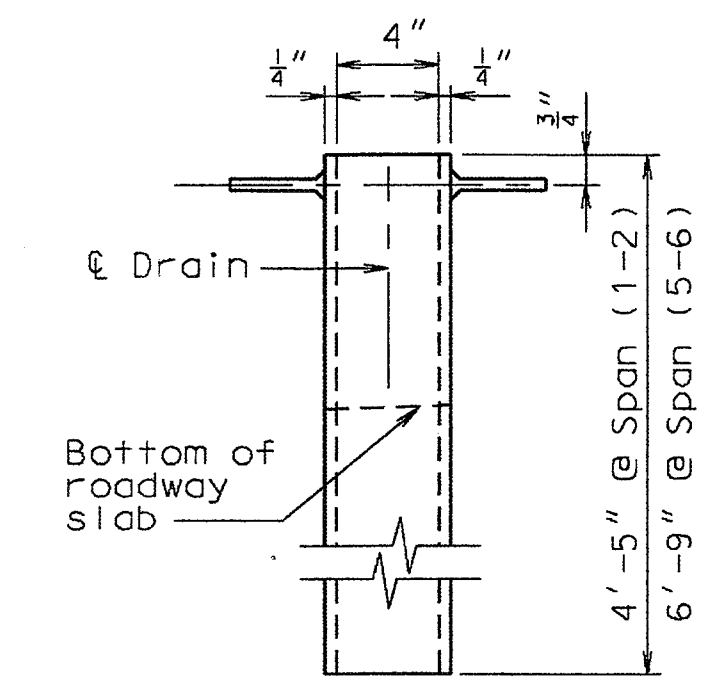
PART PLAN OF SLAB AT DRAIN



PART SECTION SHOWING BRACKET ASSEMBLY



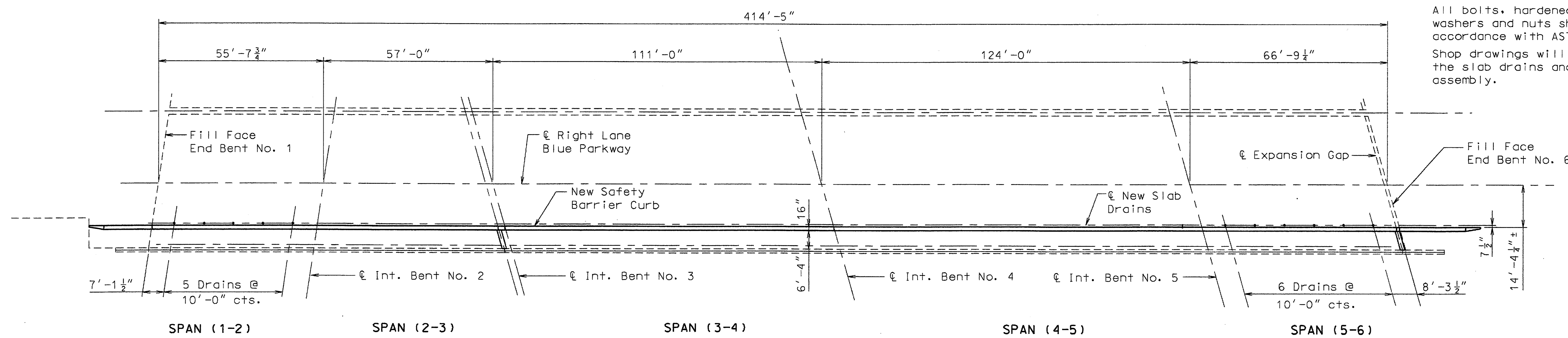
PLAN OF DRAIN



ELEVATION OF DRAIN

**NOTES:**  
 Cost of field drilling holes in existing girder webs and existing slab will be considered completely covered by the contract unit price for Slab Drain.  
 Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.  
 Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.  
 Locate drains in slab by dimensions shown in Part Section Near Drain.  
 The drains and bracket assembly shall be galvanized in accordance with ASTM A123.  
 All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with ASTM A153.  
 Shop drawings will not be required for the slab drains and the bracket assembly.

SLAB DRAIN DETAILS



PLAN OF NEW SLAB DRAINS

Detailed Feb. 2008  
 Checked Mar. 2008

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 11

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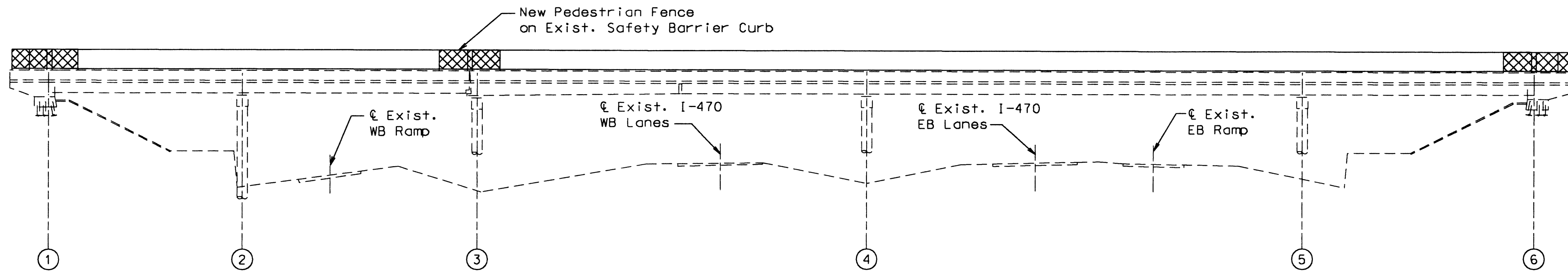


MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

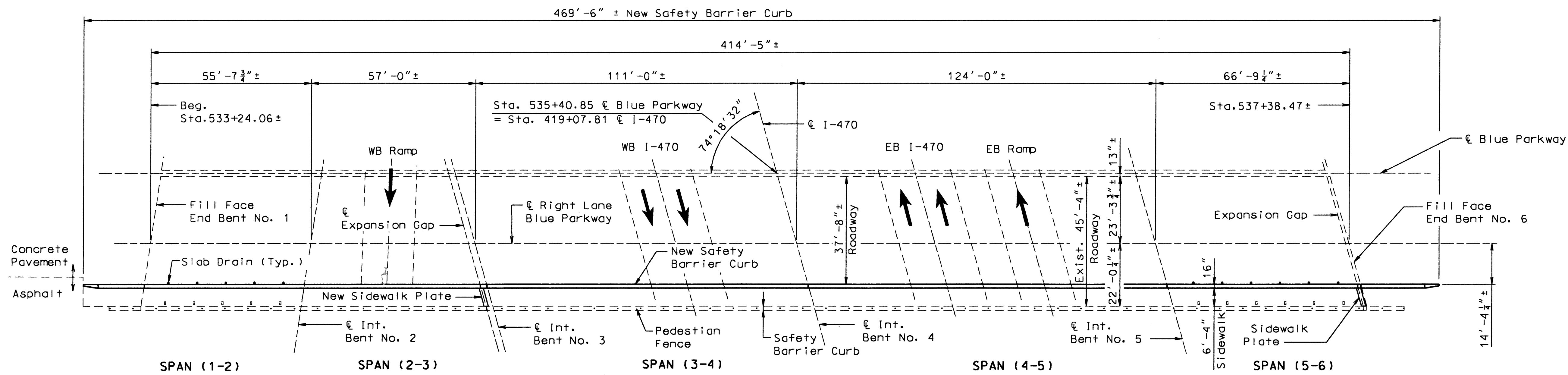
ADDED SIDEWALK BY ADDING SAFETY BARRIER CURB AND PEDESTRIAN FENCE

FINAL PLANS

ROUTE	STATE	COUNTY	SECTION
I 470	MO	4	1
JOB NO. J411641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY	DATE		
JACKSON			
SEC/SUR	TWP	RGE	
36	48N	32W	



GENERAL ELEVATION



PLAN

Note:  
For General Notes and  
Quantities, see Sheet No. 2.

BM #100.  
SET A SPIKE STEP IN THE EAST FACE OF A POWER  
POLE 70' ON THE WEST SIDE OF BLUE PARKWAY  
70' NORTH OF THE WEST BRIDGE OVER I-470.  
ELEVATION = 980.16'  
STA. 419+19.65, 305.90 LT

BRIDGE OVER I-470

ABOUT 1 MILE S. OF COLBERN RD

STA. 535+40.85

Designed FEB. 2008  
Final Plans Edited Nov. 2009

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 11

STD. 617.10

STD. 706.35

A25141

11/17/2009

FINAL PLANS

FINAL QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
(72 in.) Pedestrian Fence (Structures)	linear foot		447	447
Safety Barrier Curb	linear foot		469	469
Slab Drain	each		11	11

ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	2
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
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COUNTY JACKSON			DATE

**Notes:**  
 \* Safety barrier curb was cast-in-place.

**General Notes:**

Design Specifications:  
 2002 - AASHTO 17th Edition  
 Load Factor Design

Design Unit Stresses:  
 Class B-1 Concrete (Safety Barrier Curb)       $f'c = 4,000$  psi  
 Reinforcing Steel (Grade 60)                       $fy = 60,000$  psi  
 Structural Carbon Steel (ASTM A709 Grade 36)       $fy = 36,000$  psi

Joint Filler:  
 All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:  
 Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

Miscellaneous:  
 Traffic over structure to be maintained during construction. See Roadway plans for traffic control.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Revised Structures:  
 Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.  
  
 Contractor shall verify all dimensions in field before ordering new material.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

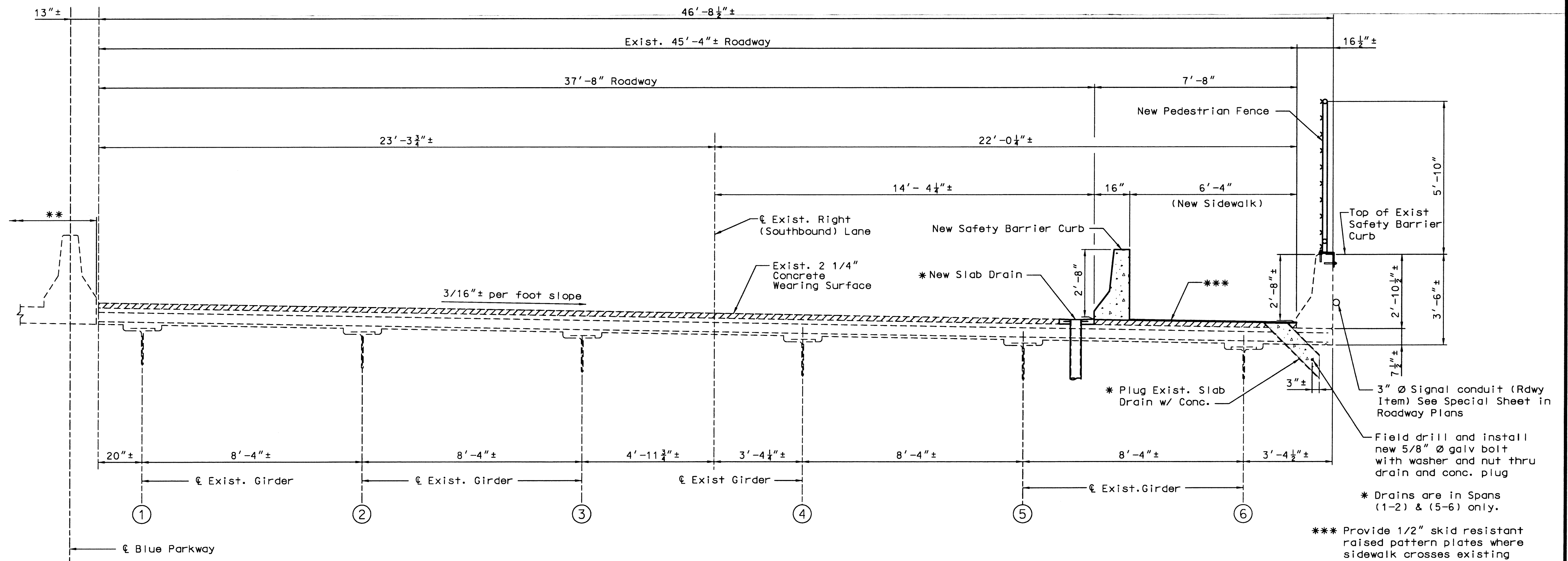
The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Longitudinal dimensions are based on the original design plans.

FINAL PLANS

ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	3
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE _____

\*\* Exist. Northbound Bridge (A2513)

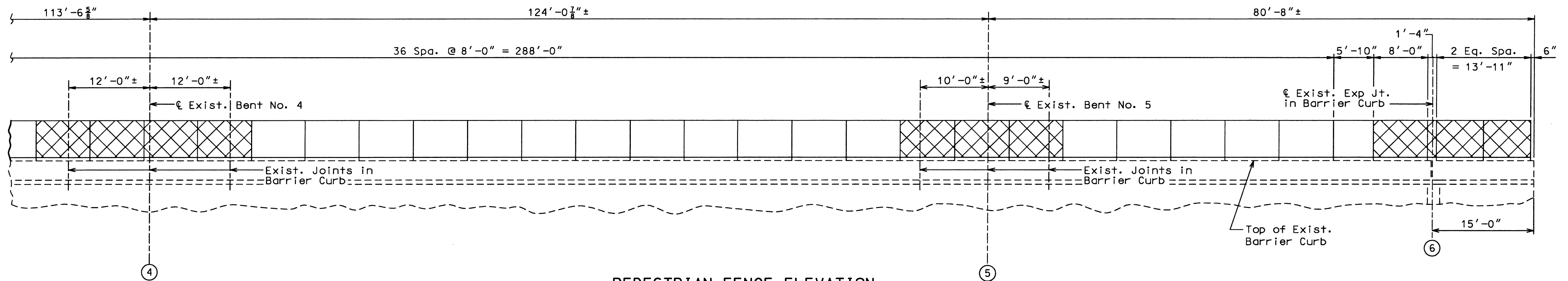
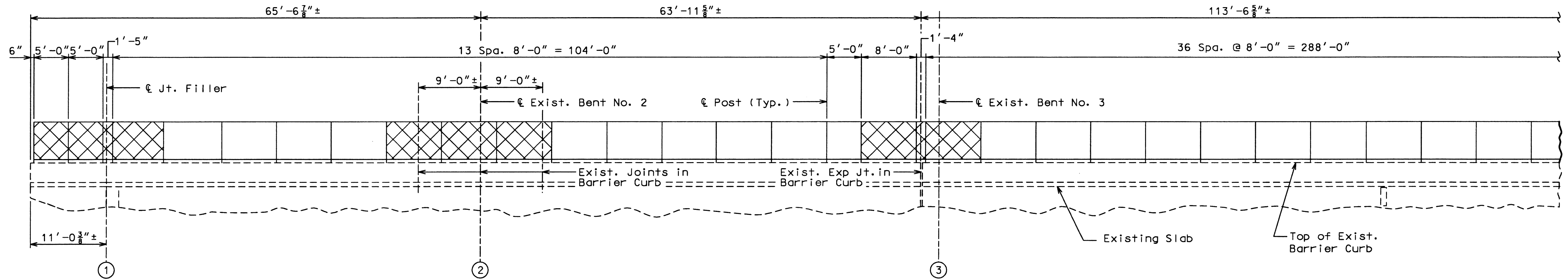


TYPICAL SUPERSTRUCTURE SECTION

Note:  
 Payment for all concrete for plugging drain and bolt complete-in-place will be considered completely covered by the contract unit price for slab drains.

FINAL PLANS

ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	4
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE

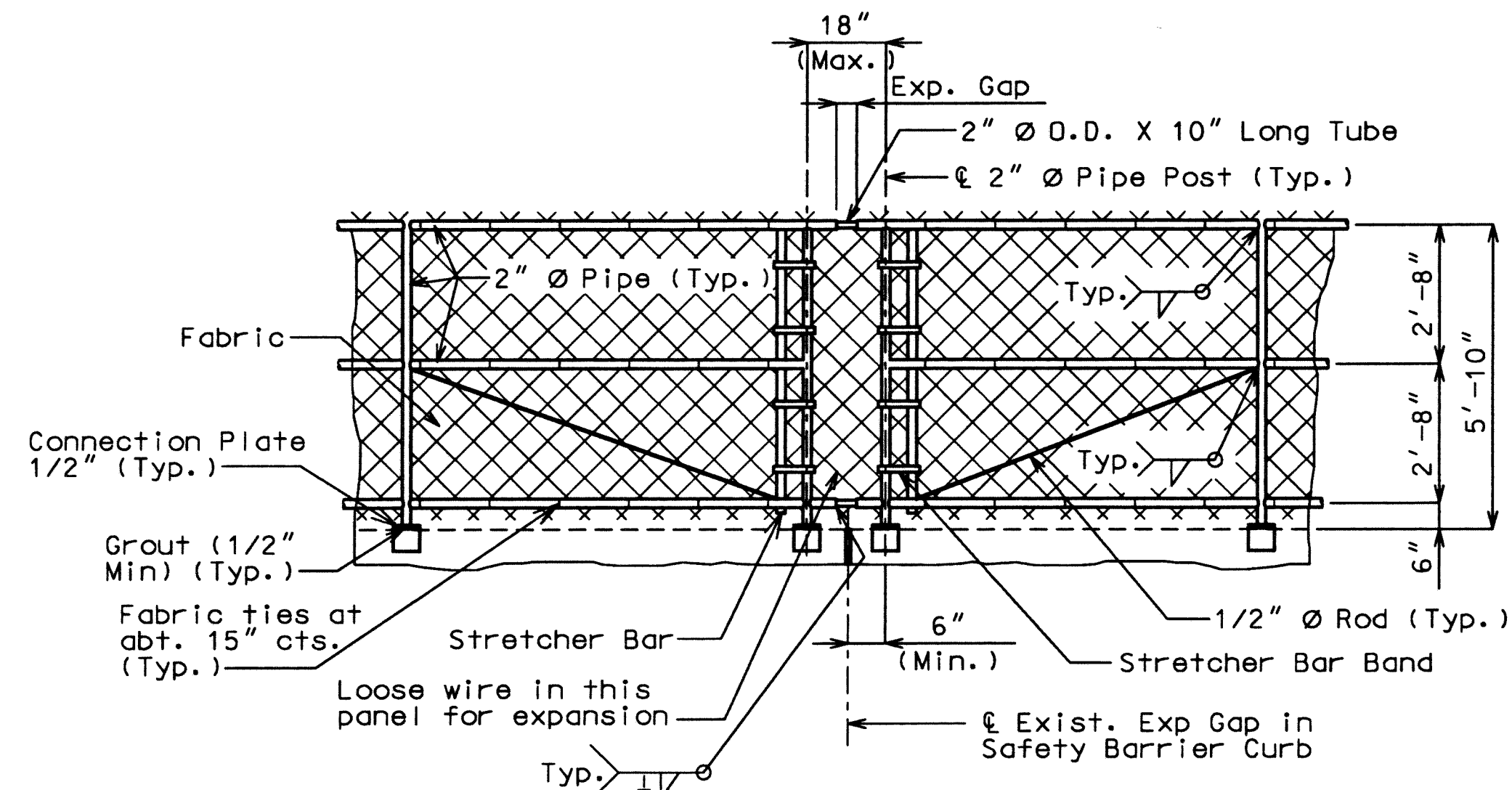


PEDESTRIAN FENCE ELEVATION

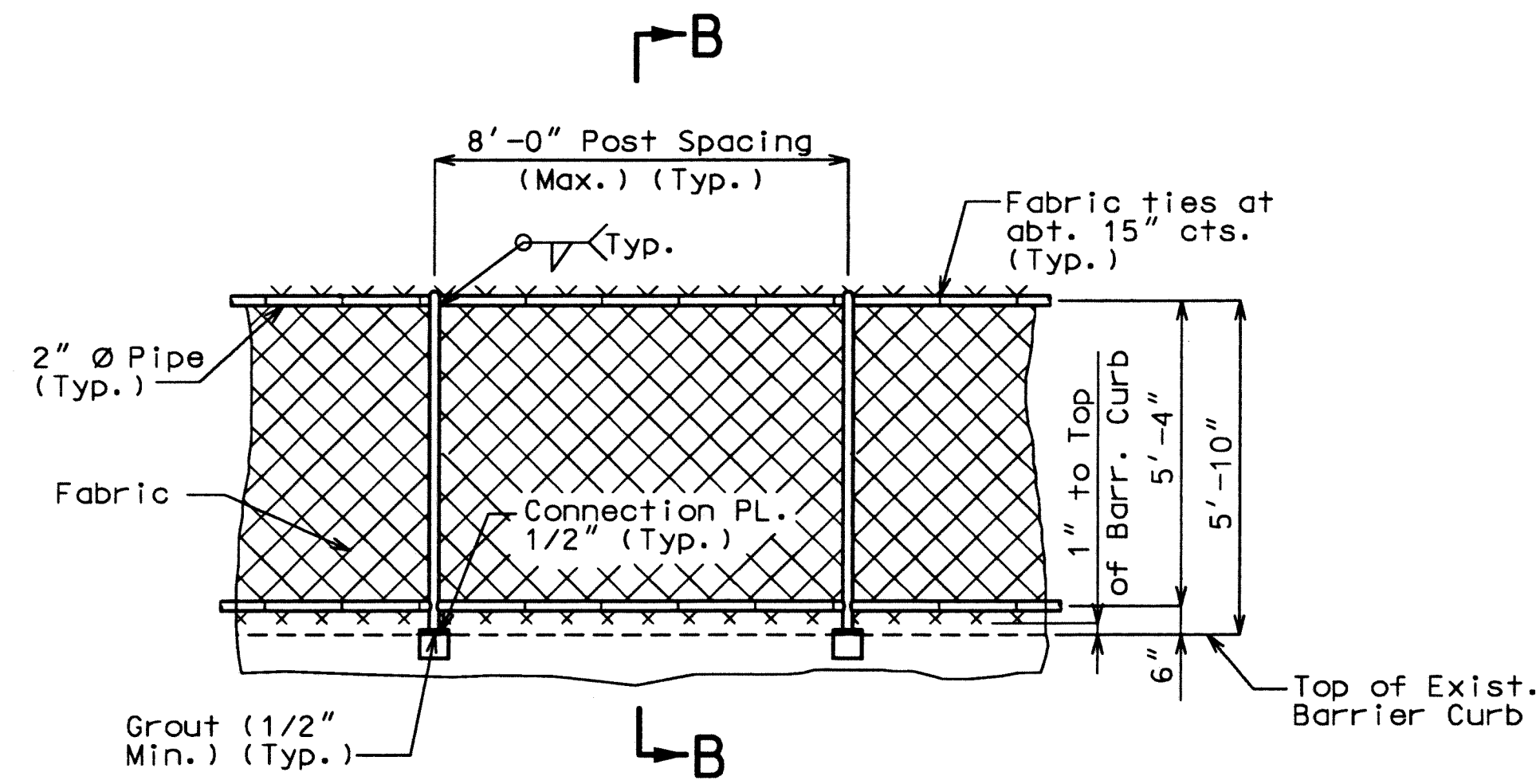
Notes:  
Longitudinal dimensions are horizontal.

## FINAL PLANS

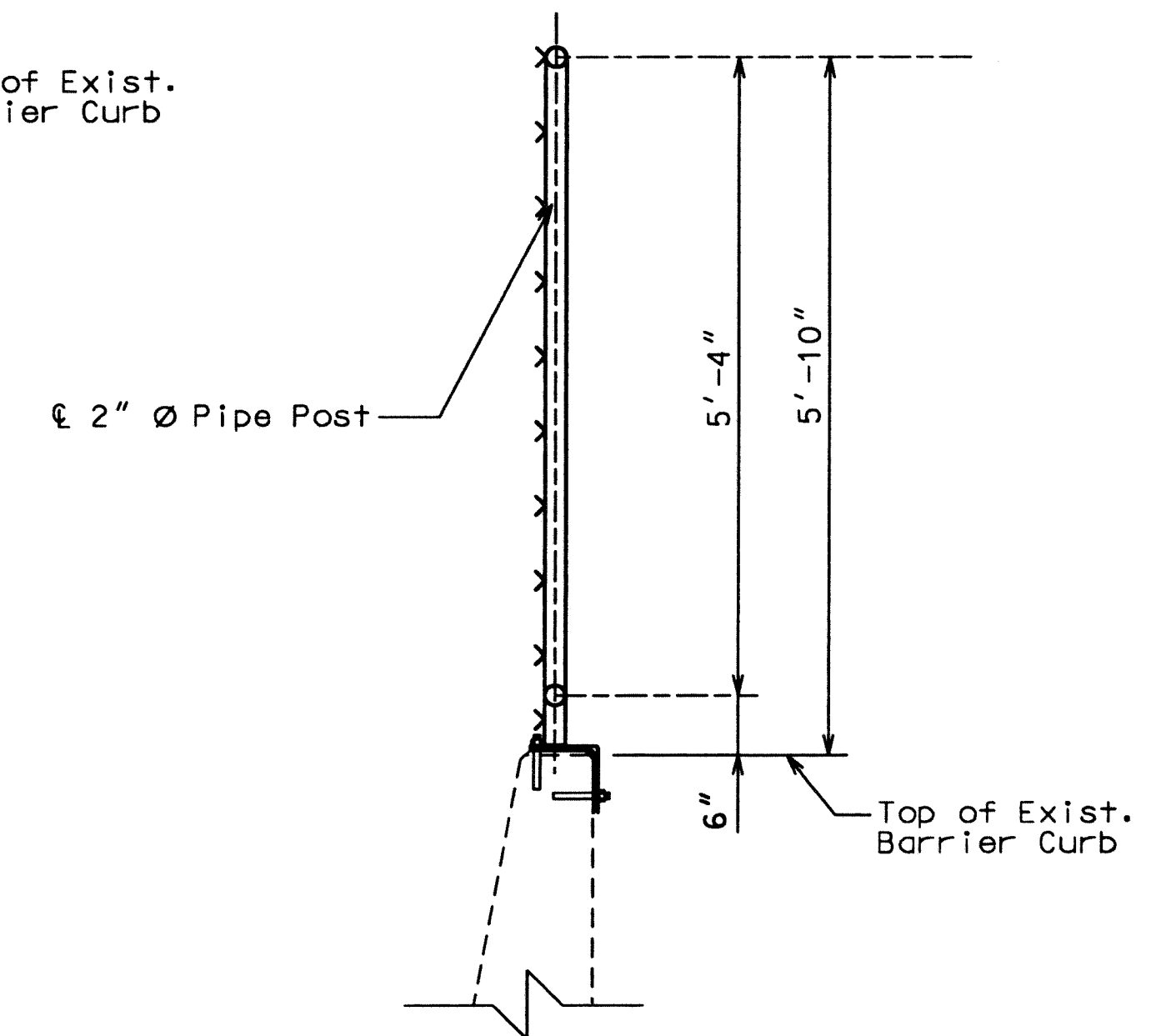
ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	5
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE



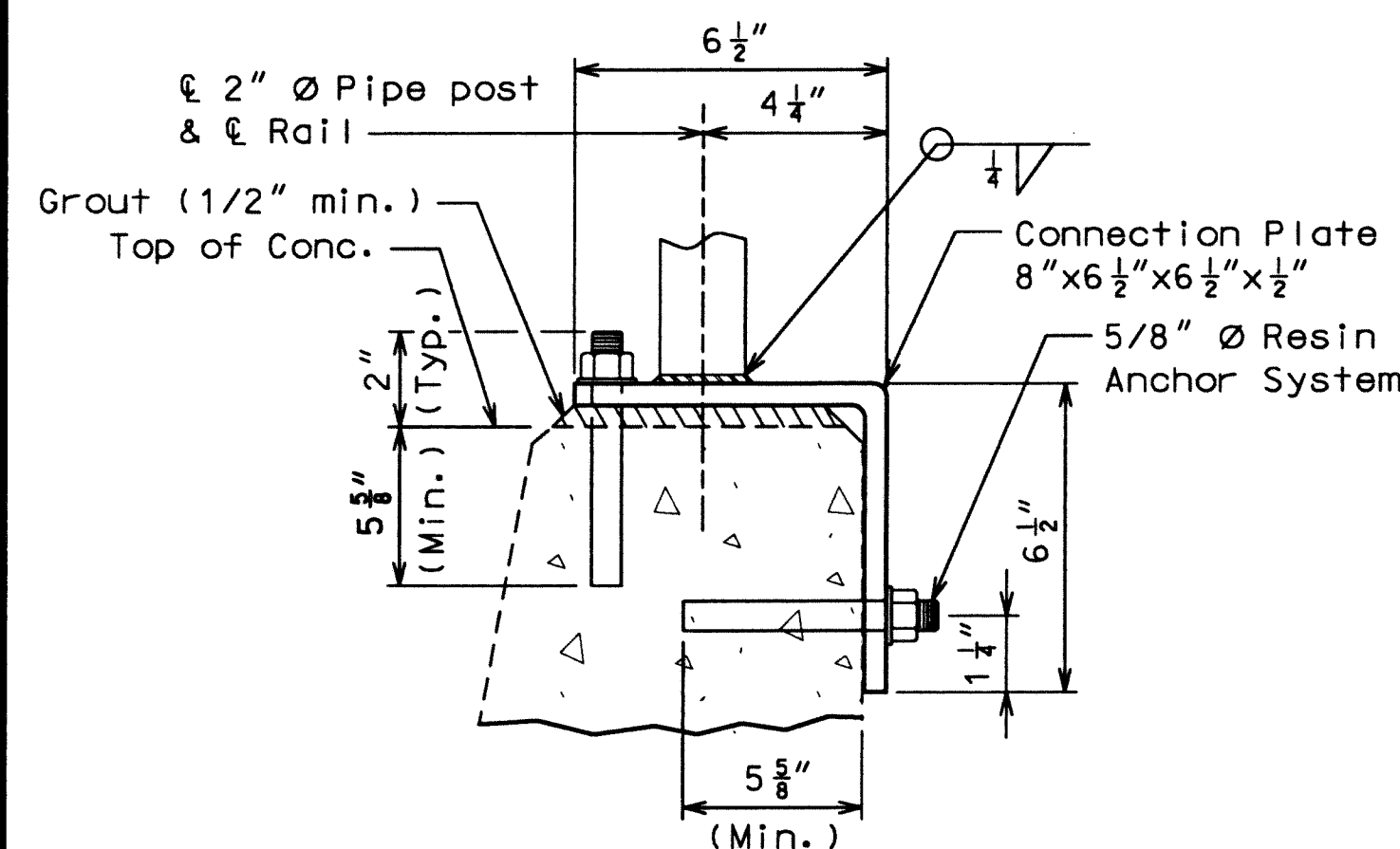
**DETAIL OF PEDESTRIAN FENCE  
SHOWING EXPANSION DEVICE GAP  
(AT END BENTS 1 & 6 AND NEAR INT. BENT 3)**



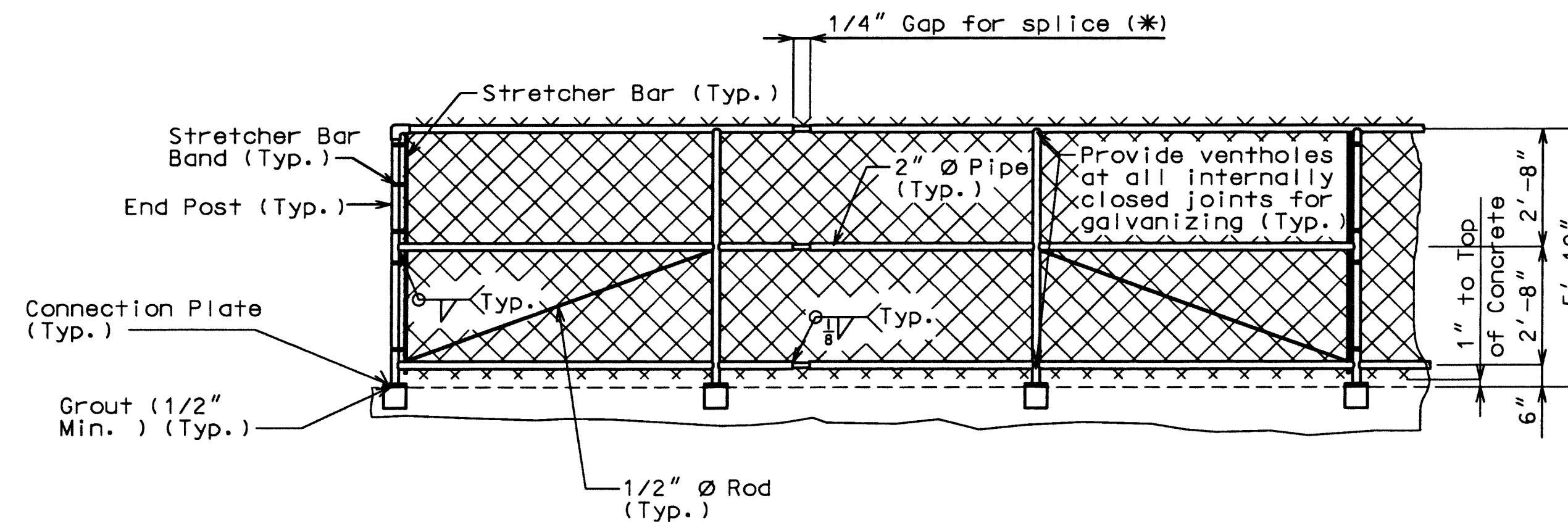
**TYPICAL SECTION OF  
PEDESTRIAN CHAIN LINK FENCE**



**SECTION B-B**

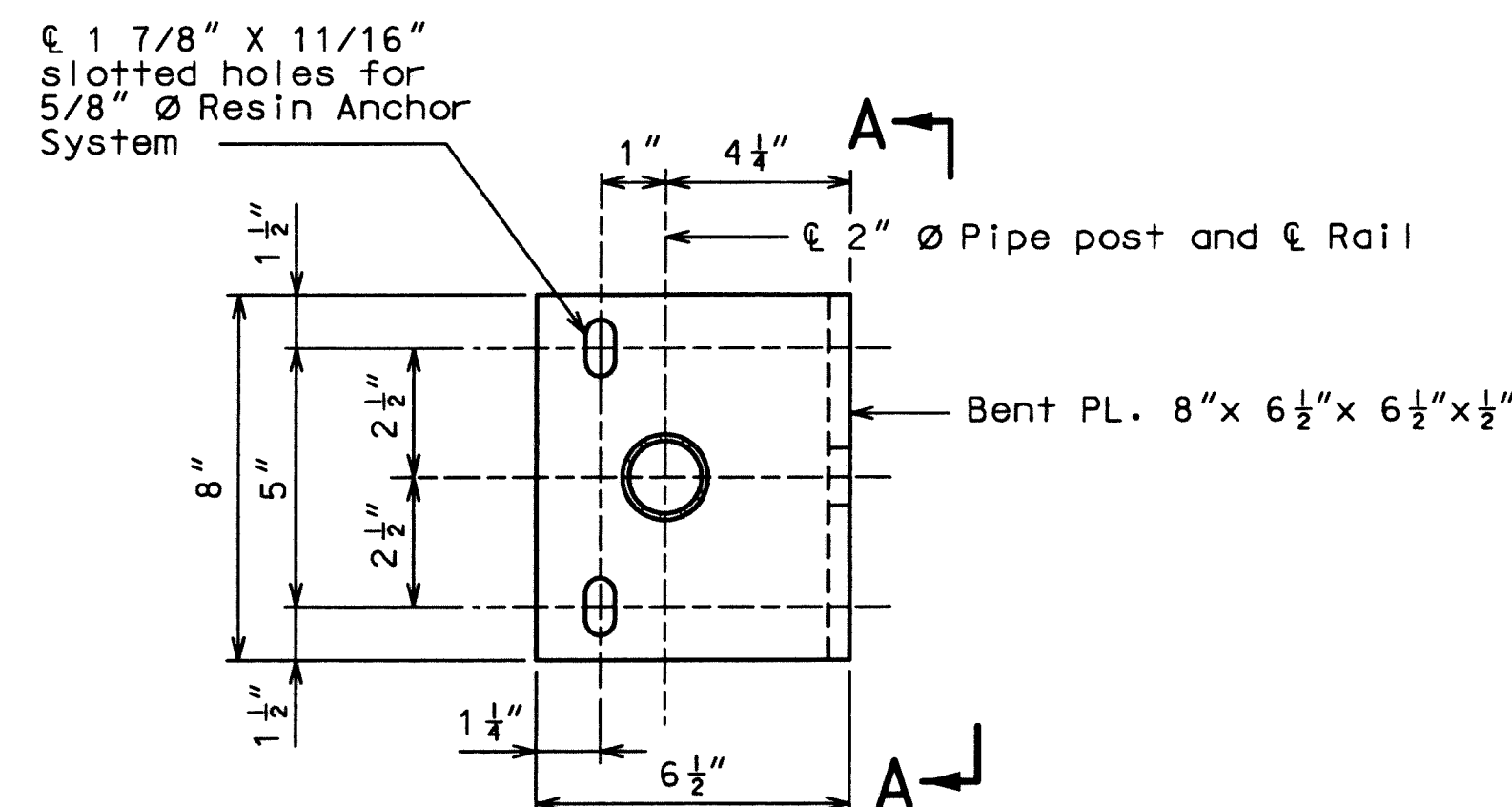


**POST CONNECTION  
(TYPICAL)**

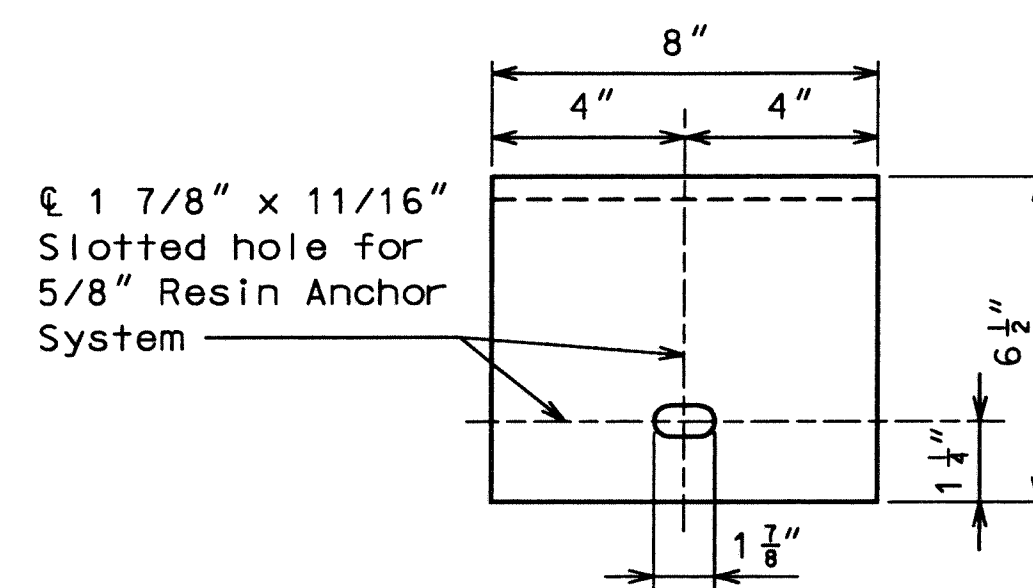


**TYPICAL SECTION NEAR SPLICE GAP**

\* At about 30'-0" centers with at least one splice gap between pull posts.



**PLAN OF CONNECTION PLATE**



**SECTION A-A**

### PEDESTRIAN FENCE DETAILS

#### NOTES:

Pedestrian guard fence (Chain link type) shall be in accordance with Sec 1043 except all fabric shall have the top and bottom edges knuckled.

All rail posts shall be vertical. Grout of 1/2" minimum thickness shall be placed under connection plates to provide for vertical alignment of rail posts.

Payment for furnishing, galvanizing and erecting the fence and frame complete with resin anchor systems and washers will be considered completely covered by the contract unit price for (72 in.) Pedestrian Fence (Structures) per linear foot.

Dimensions of pedestrian guard fence are measured horizontally.

The maximum spacing allowed for the braced panels (Pull posts) is 100 ft.

Connect the lower end of the 1/2" diameter rod to the end of the braced panel to which the stretcher bar is attached.

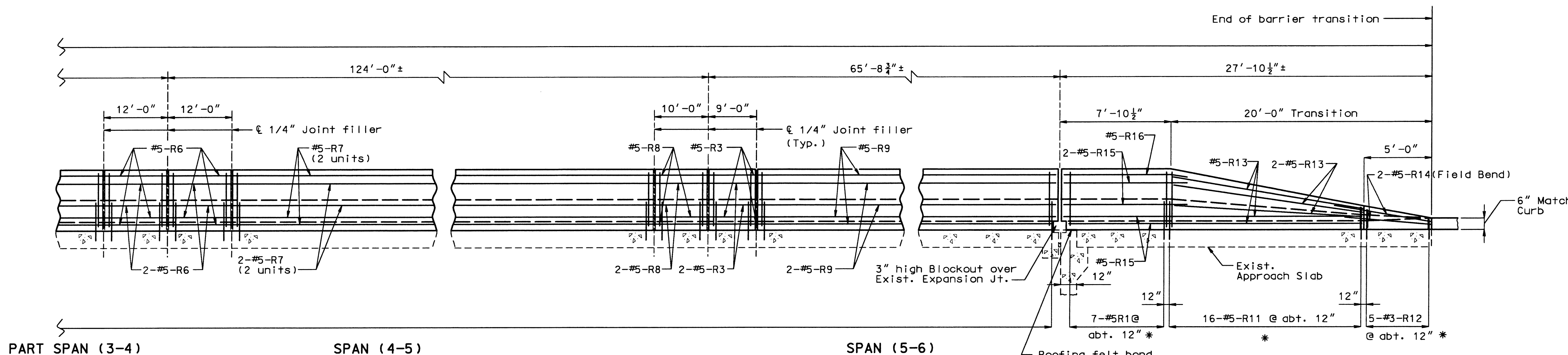
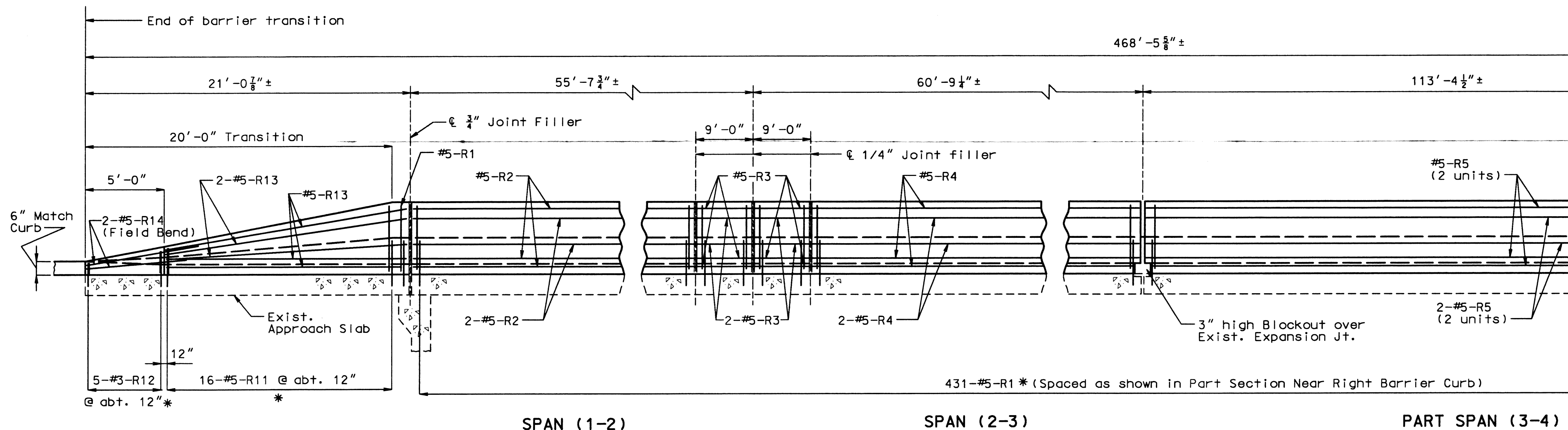
Core wire size for wire fabric shall be 6 gage minimum.

The Contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5 5/8".

FINAL PLANS

ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	6
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE



ELEVATION OF NEW SAFETY BARRIER CURB

Notes:

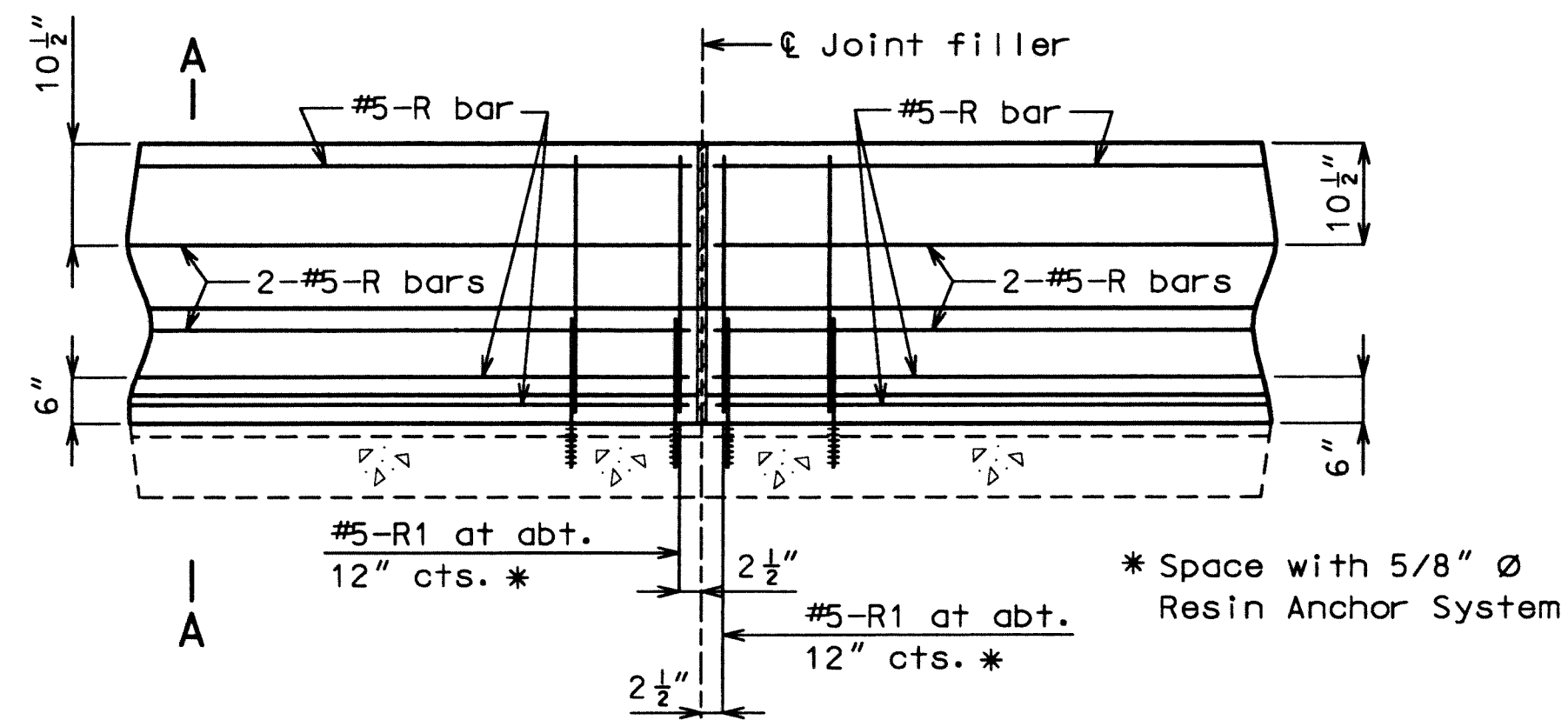
Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

See Sheets No. 7 & No. 8 for additional safety barrier curb and transition details.

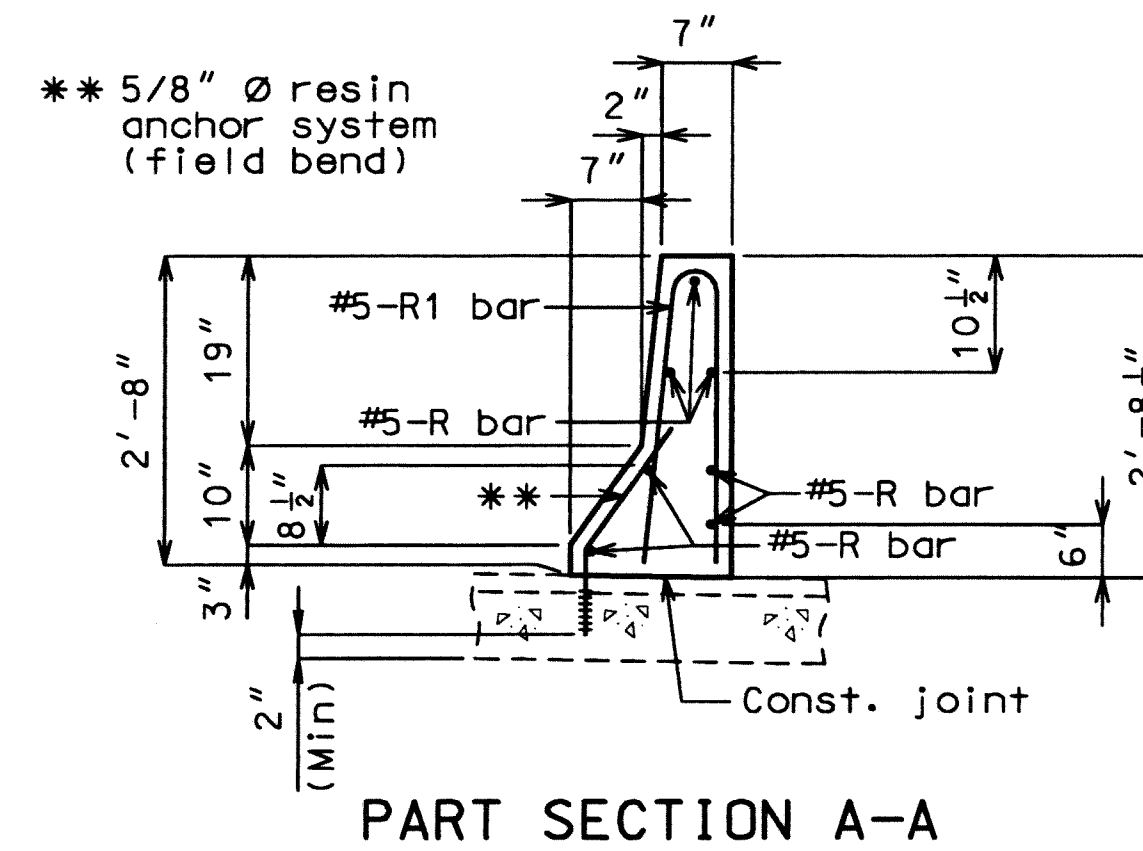
\* Spa with 5/8" Ø Resin Anchor Systems.

FINAL PLANS

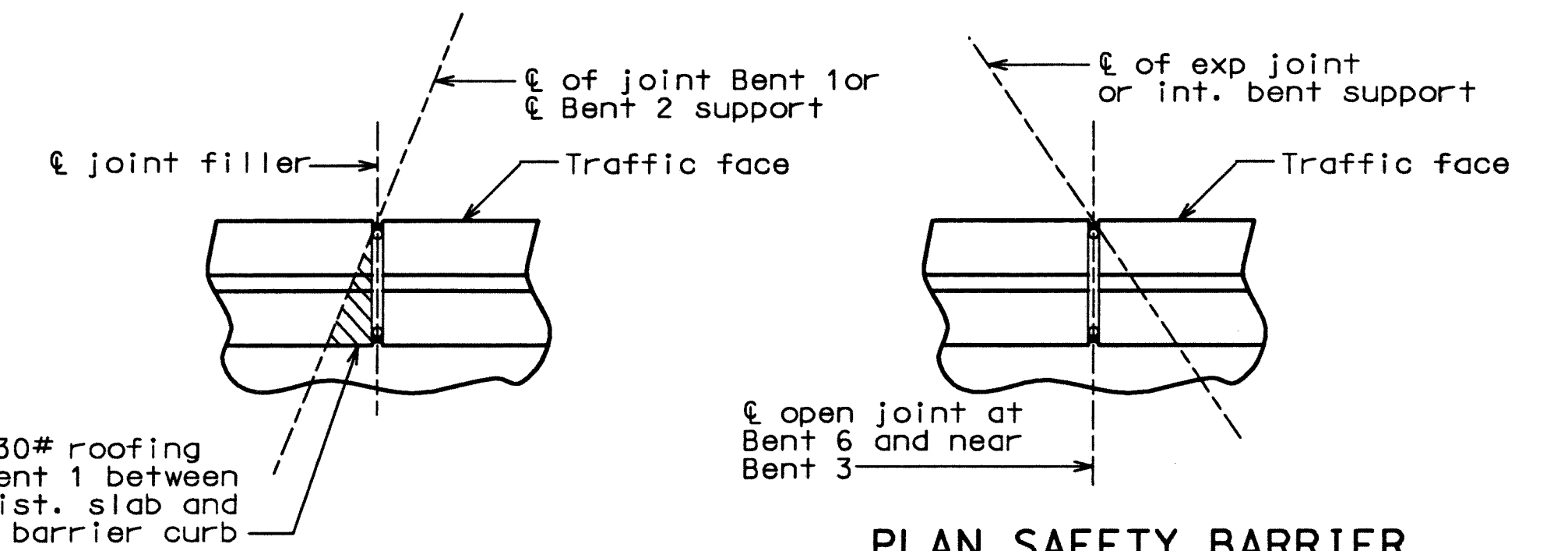
ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	7
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE



PART SECTION NEAR RIGHT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A  
Notes:  
Use a minimum lap of 2'-11" for #5 horizontal safety barrier curb bars.  
The cross-sectional area above the slab = 2.28 sq. ft.



PLAN SAFETY BARRIER CURB JOINT (@ BENTS 1 & 2)

PLAN SAFETY BARRIER CURB JOINT (@ BENTS 3,4,5 & 6)

Notes:  
Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.  
All exposed edges of safety barrier curb shall have a 3/8" bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

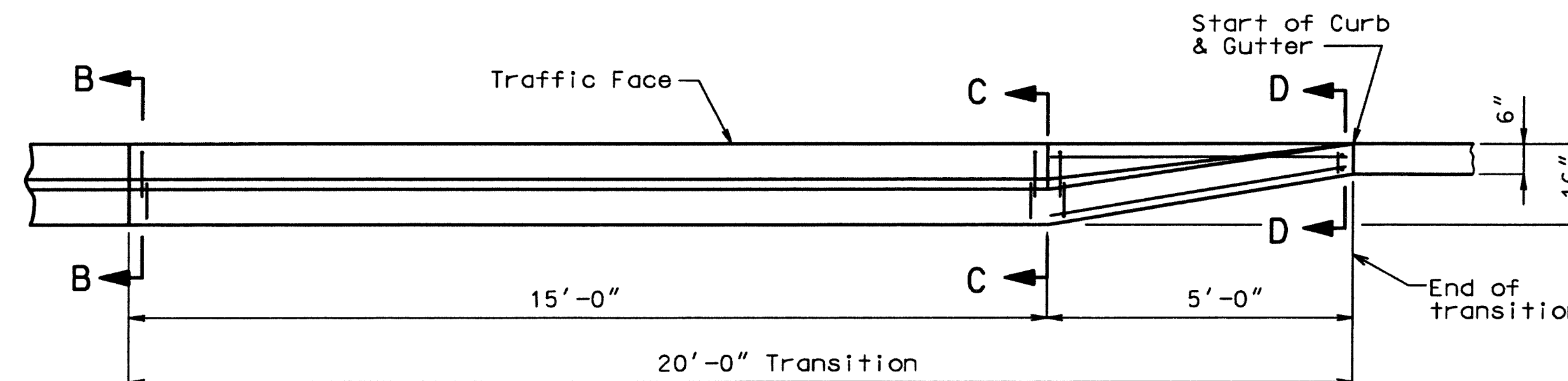
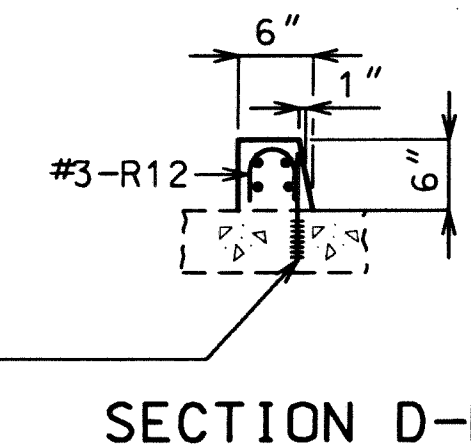
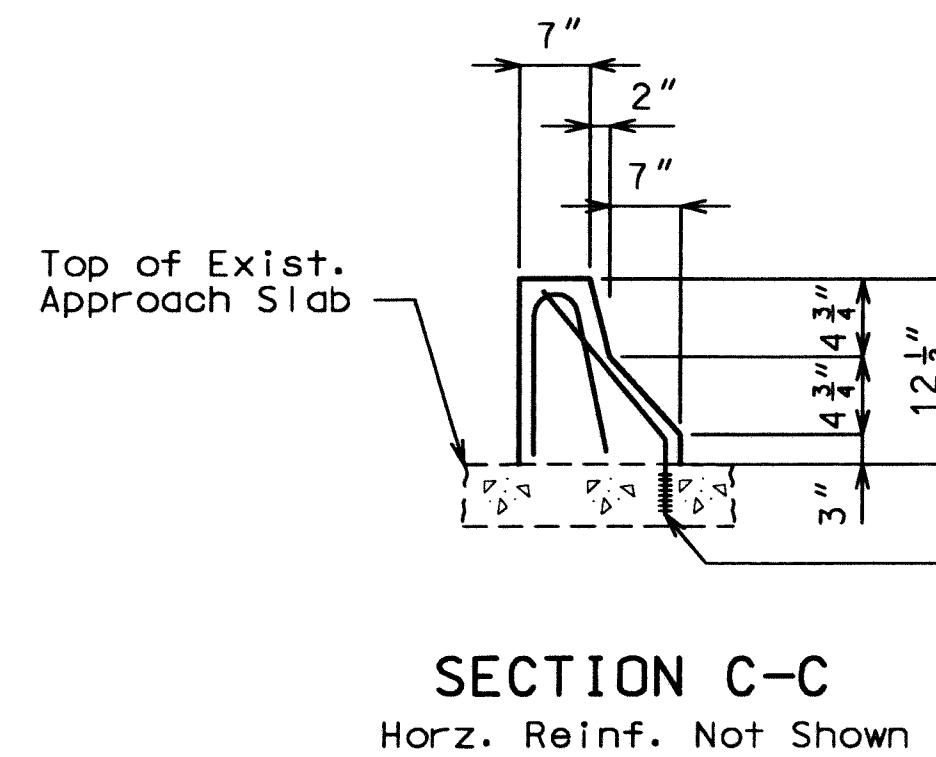
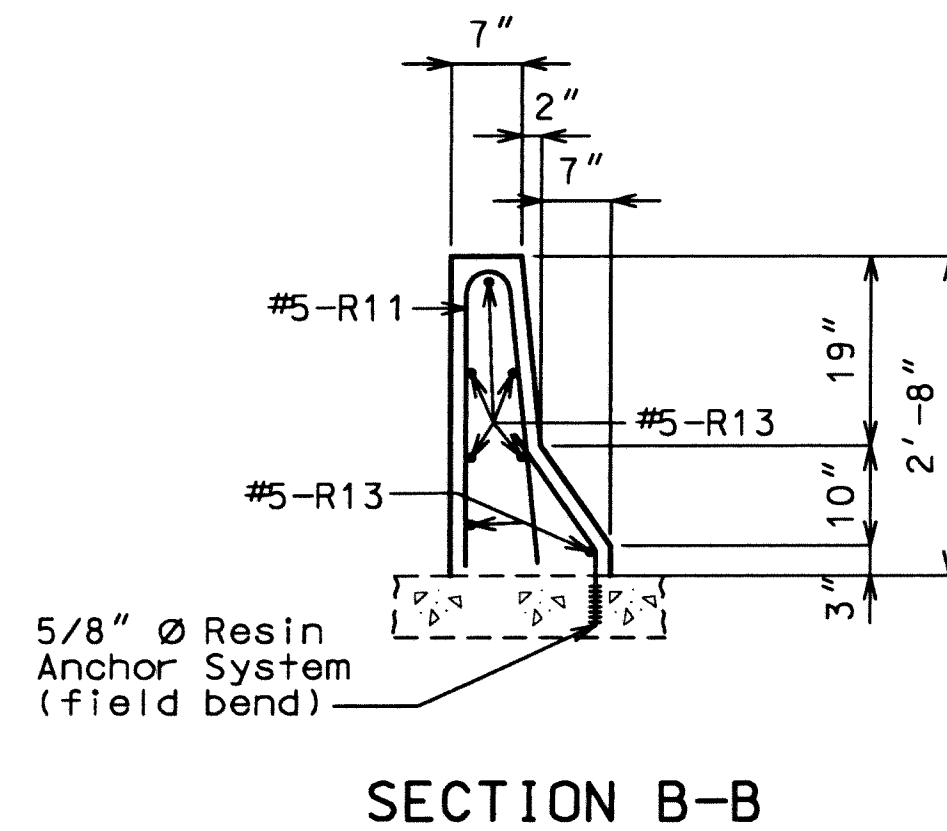
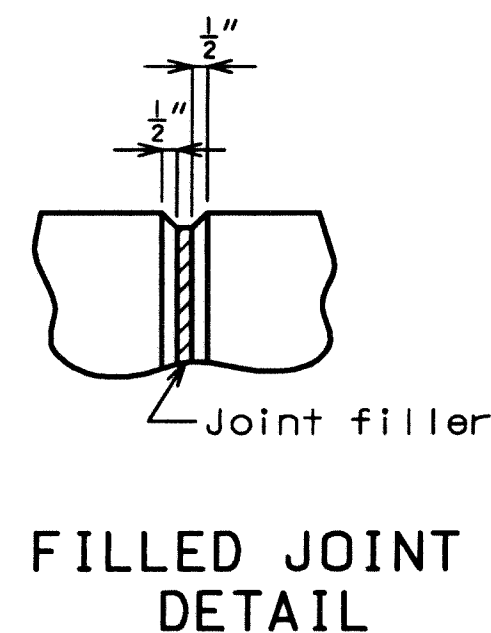
Measurement of safety barrier curb is to the nearest linear foot measured along the outside top of slab from end of transition section to end of transition section.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 is not required. Application of linseed oil at the contractor's expense is permitted.

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.  
Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

The minimum embedment depth in concrete with f'c = 4000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec.1039 but shall not be less than 5".

A #5 Grade 60 reinforcing bar 2'-0" long or as shown shall be substituted for the 5/8"± threaded rod.



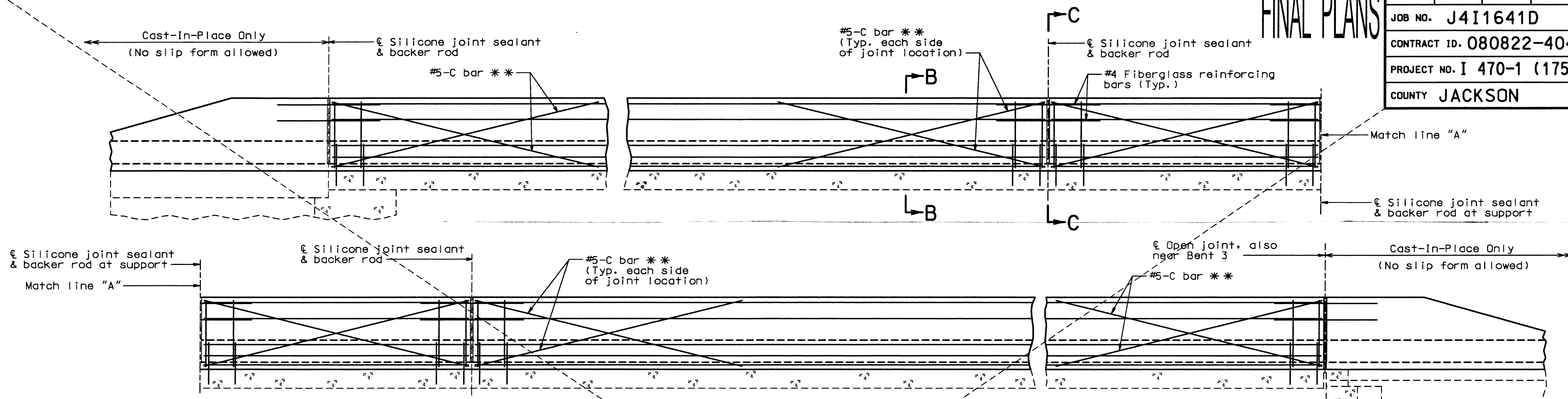
PLAN OF BARRIER CURB TRANSITION  
Horz. Reinf. Not Shown

SAFETY BARRIER CURB DETAILS



FINAL PLANS

ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	8
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE



Notes:

See Sheet No. 6 for joint locations.

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

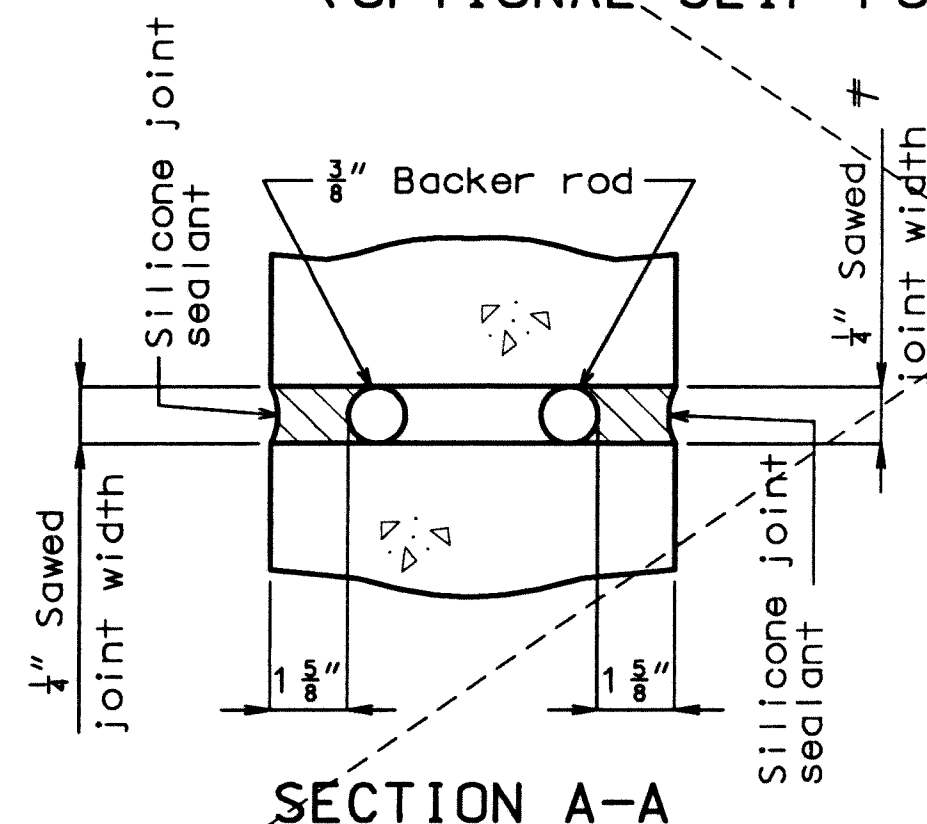
Payment for all concrete, reinforcement and sidewalk plates, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of transition to end of transition.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 is not required. Application of linseed oil at the contractor's expense is permitted.

TYPICAL SECTION NEAR RIGHT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)



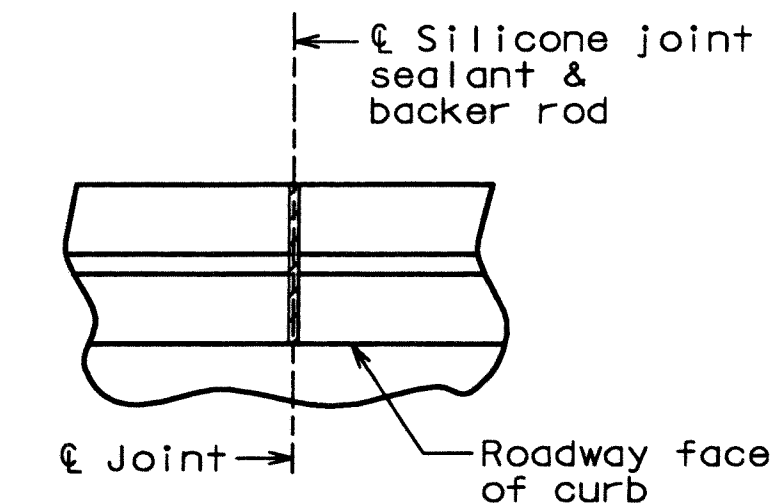
Notes:

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb. See \* \*

For Slip-Form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

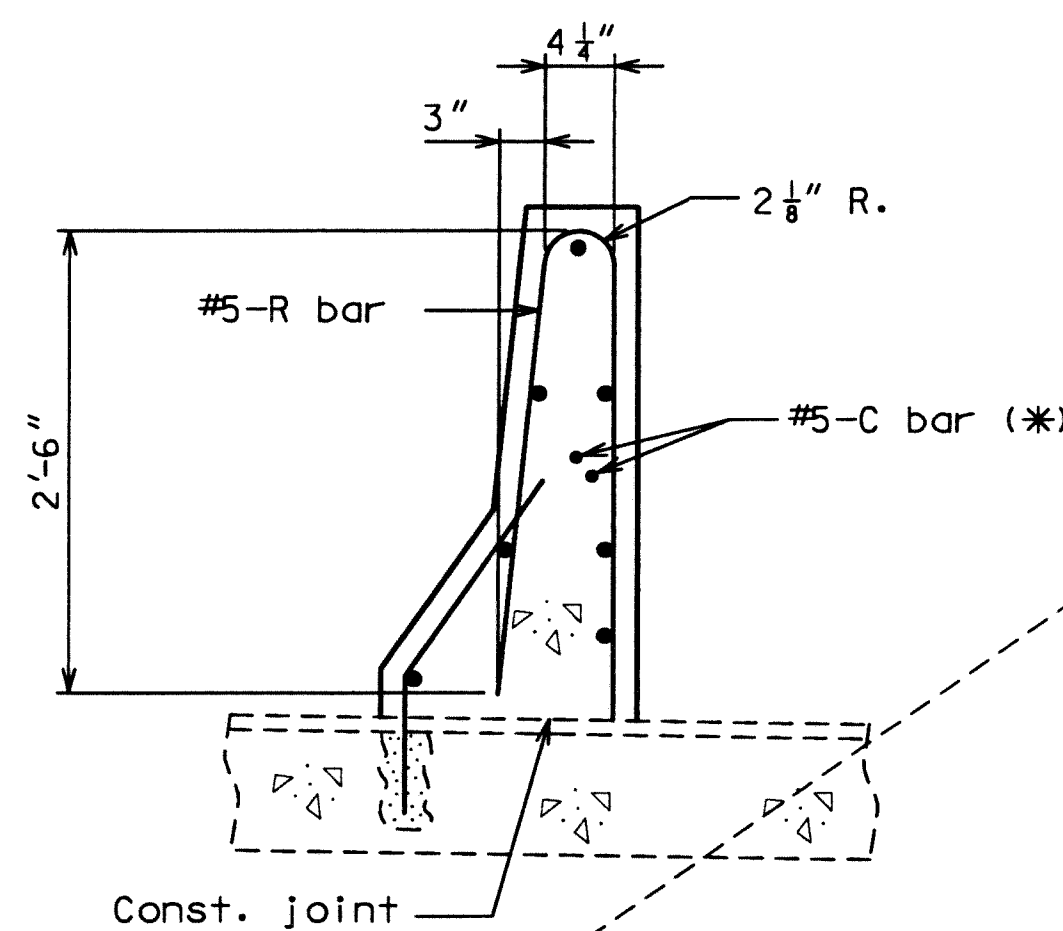
Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".



PART PLAN SHOWING SAFETY BARRIER CURB JOINT

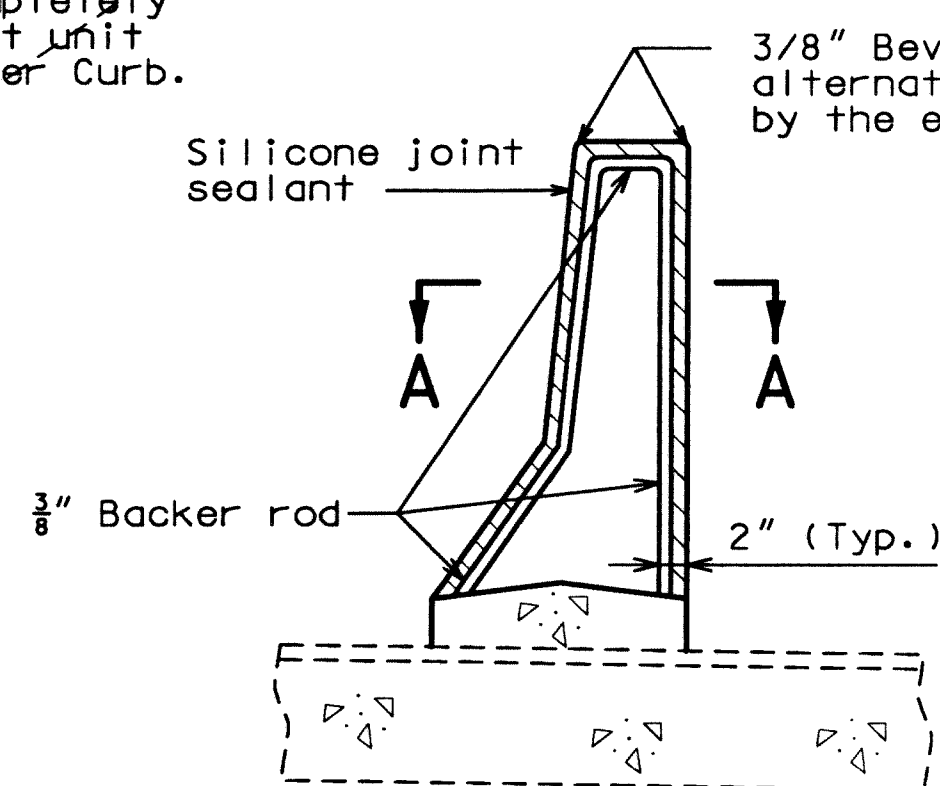
Note:

Cost of silicone joint sealant and backer rod, complete-in-place, will be considered completely covered by the contract unit price for Safety Barrier Curb.

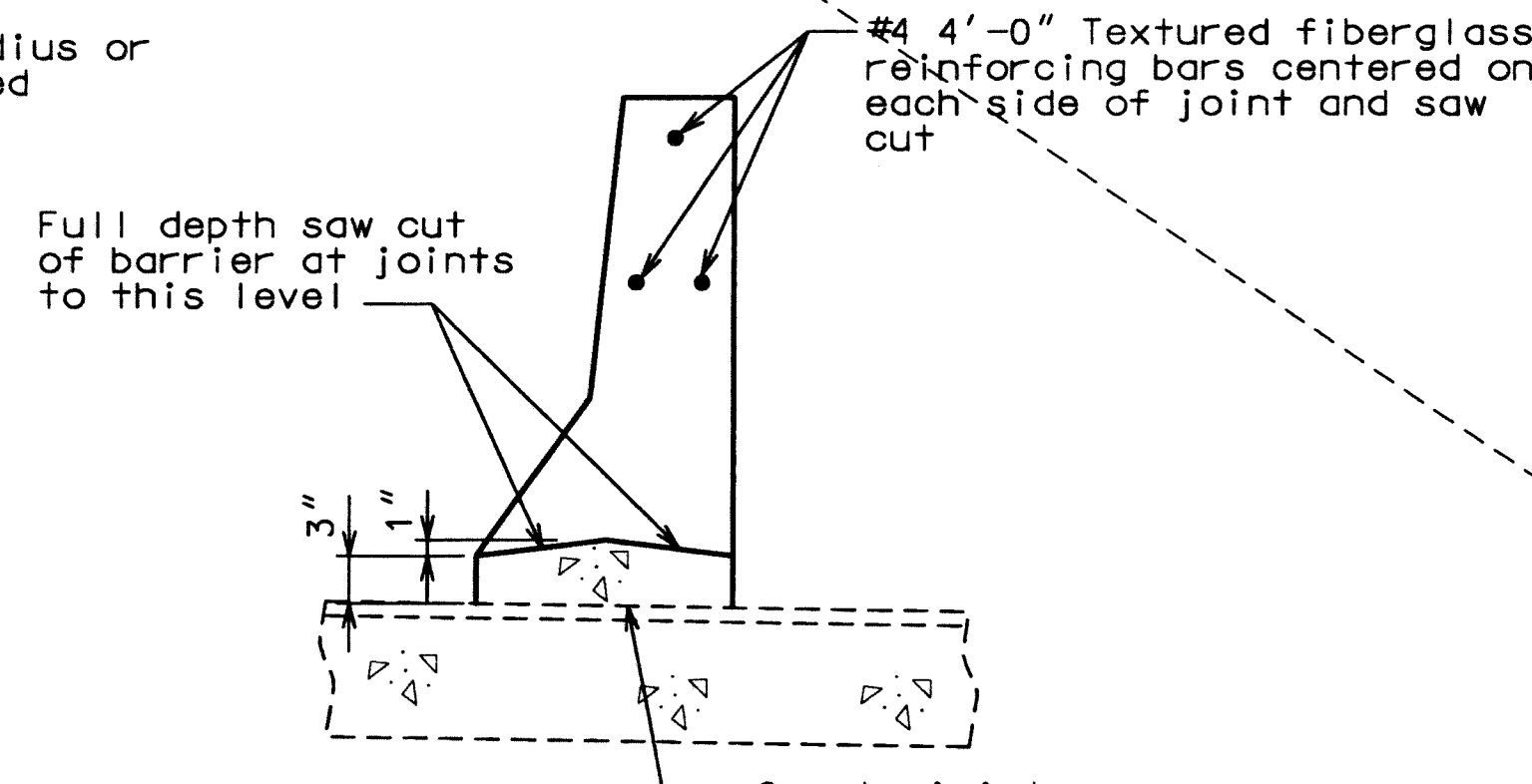


PART SECTION B-B

Note: (\*) Each side of joint location.



SECTION THRU JOINT



PART SECTION C-C

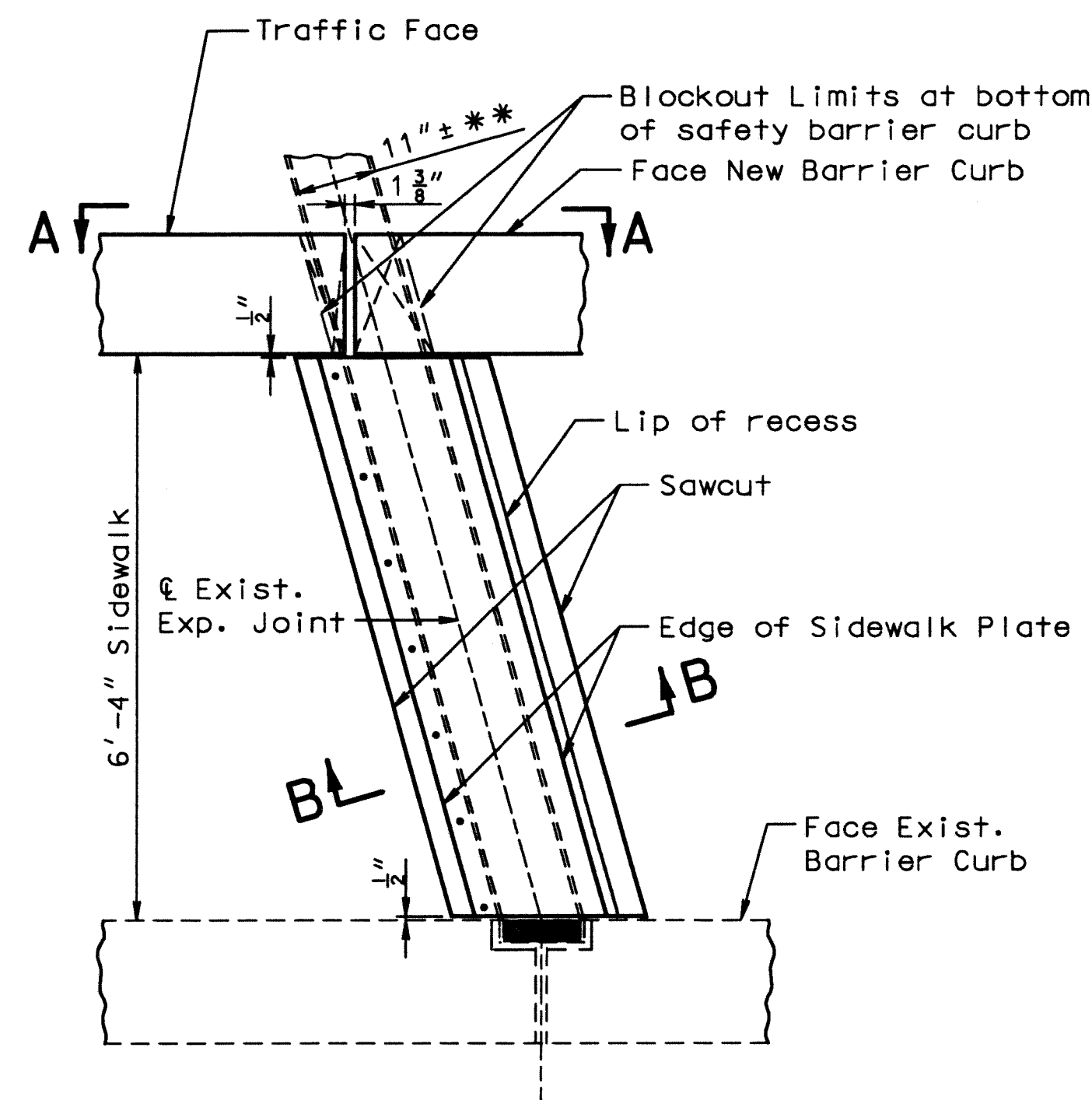
OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

\* \* C1 bars in barrier sections 12'-0" and longer. C2 bars in 9'-0" long Barrier sections. C3 bars in 10'-0" long Barrier sections.

† See Sheet No. 9 for required gap in joint near Int. Bent No. 3 and End Bent No. 6

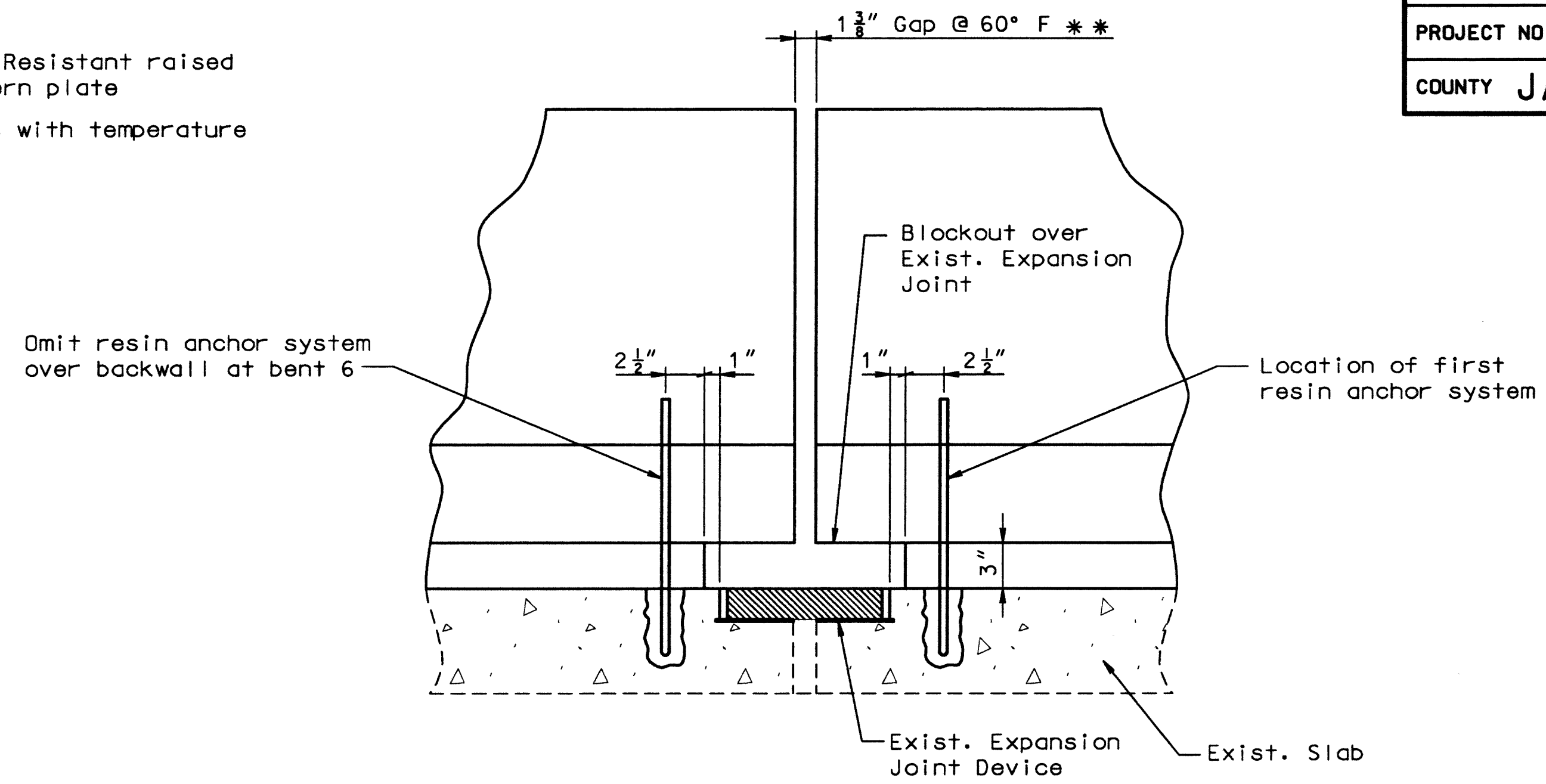
FINAL PLANS

ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	9
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE

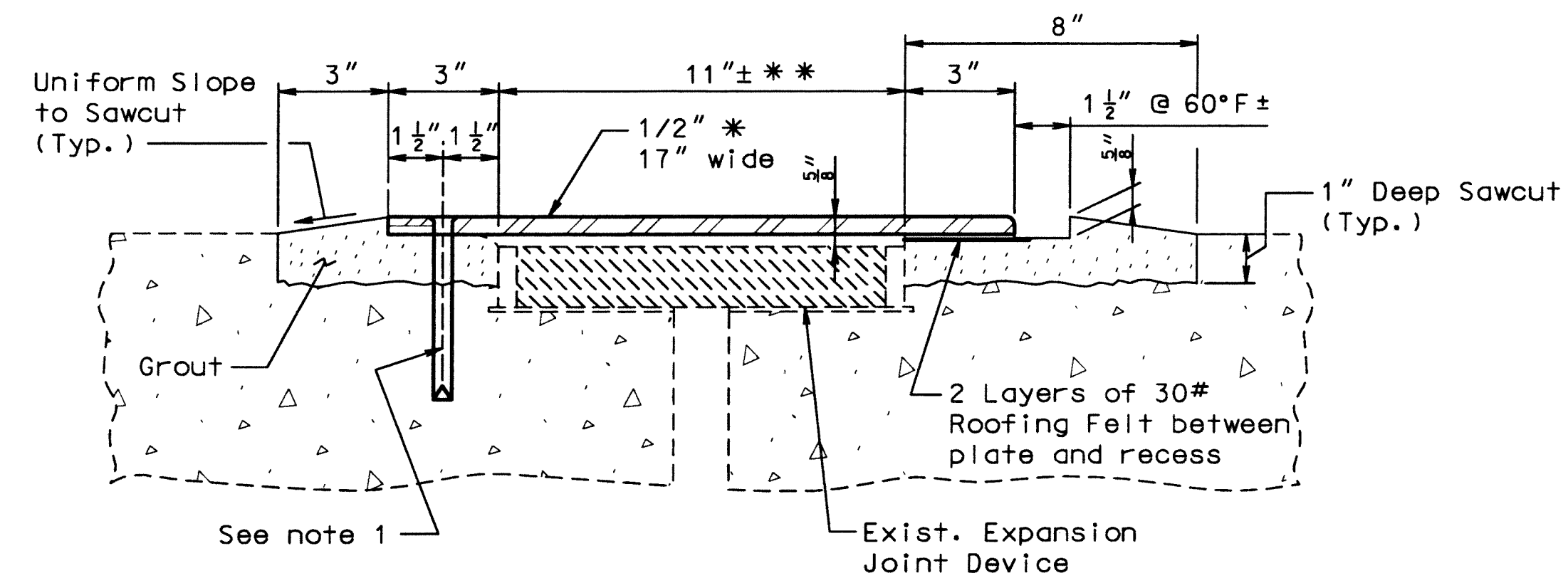


PLAN OF BARRIER CURB AND SIDEWALK AT EXPANSION JOINT  
(2 locations thus)

\* Skid Resistant raised pattern plate  
\*\* Varies with temperature



SECTION A-A  
Barrier Elevation at Expansion Joints (Looking West)



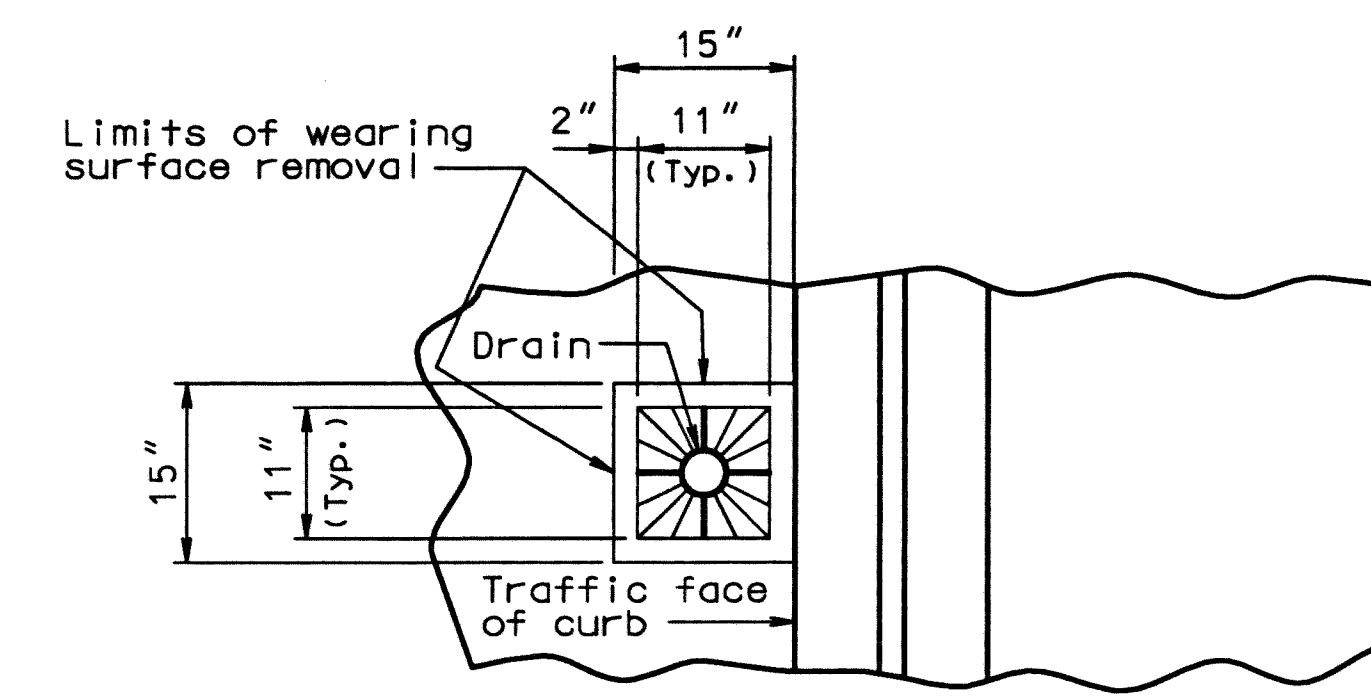
SECTION B-B

- Notes:
1. Use 1/2" Ø countersunk socket head cap screws with cone expansion anchors @ abt. 12" cts.
  2. At saw cut locations remove exist. conc. wearing surface 1" deep back to existing expansion joint device, typ. both ends.
  3. Anchored end of skid plate is squared off while opposite end has a round edge.
  4. Material for the sidewalk plates shall be ASTM A709 Grade 36 structural steel.
  5. Structural steel for the Sidewalk plates shall be galvanized in accordance with ASTM A123.
  6. Payment for furnishing, galvanizing and installing the sidewalk plates will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.
  7. The 1/2" dia conc expansion anchor shall have a minimum ultimate pullout strength of 7,500 lbs. in concrete with f'c = 4,000 psi.

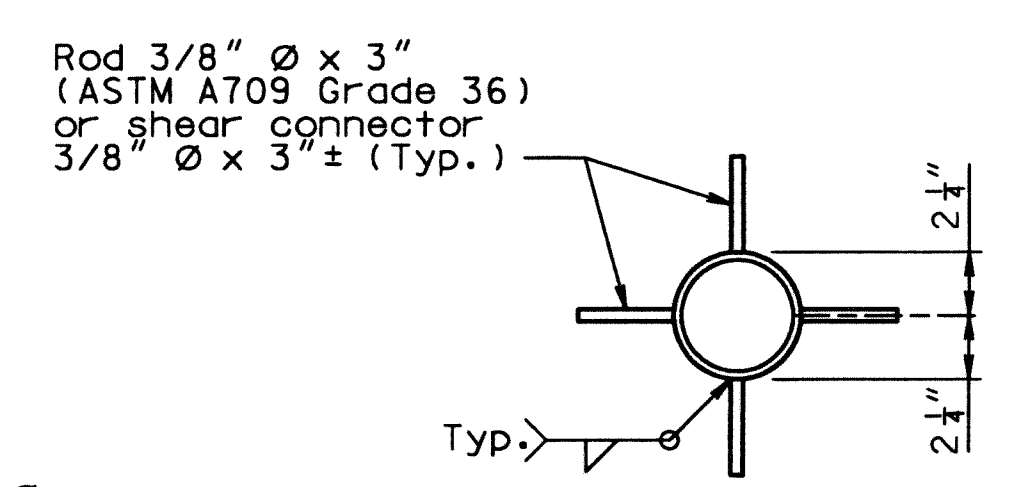
DETAILS OF SIDEWALK PLATE

ROUTE	STATE	DISTRICT	SHEET NO.
I 470	MO	4	10
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE

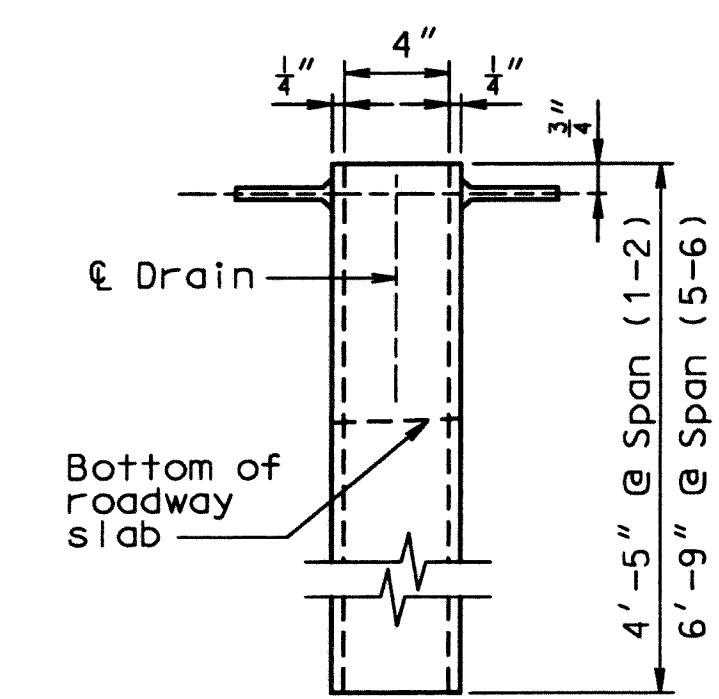
FINAL PLANS



PART PLAN OF SLAB AT DRAIN

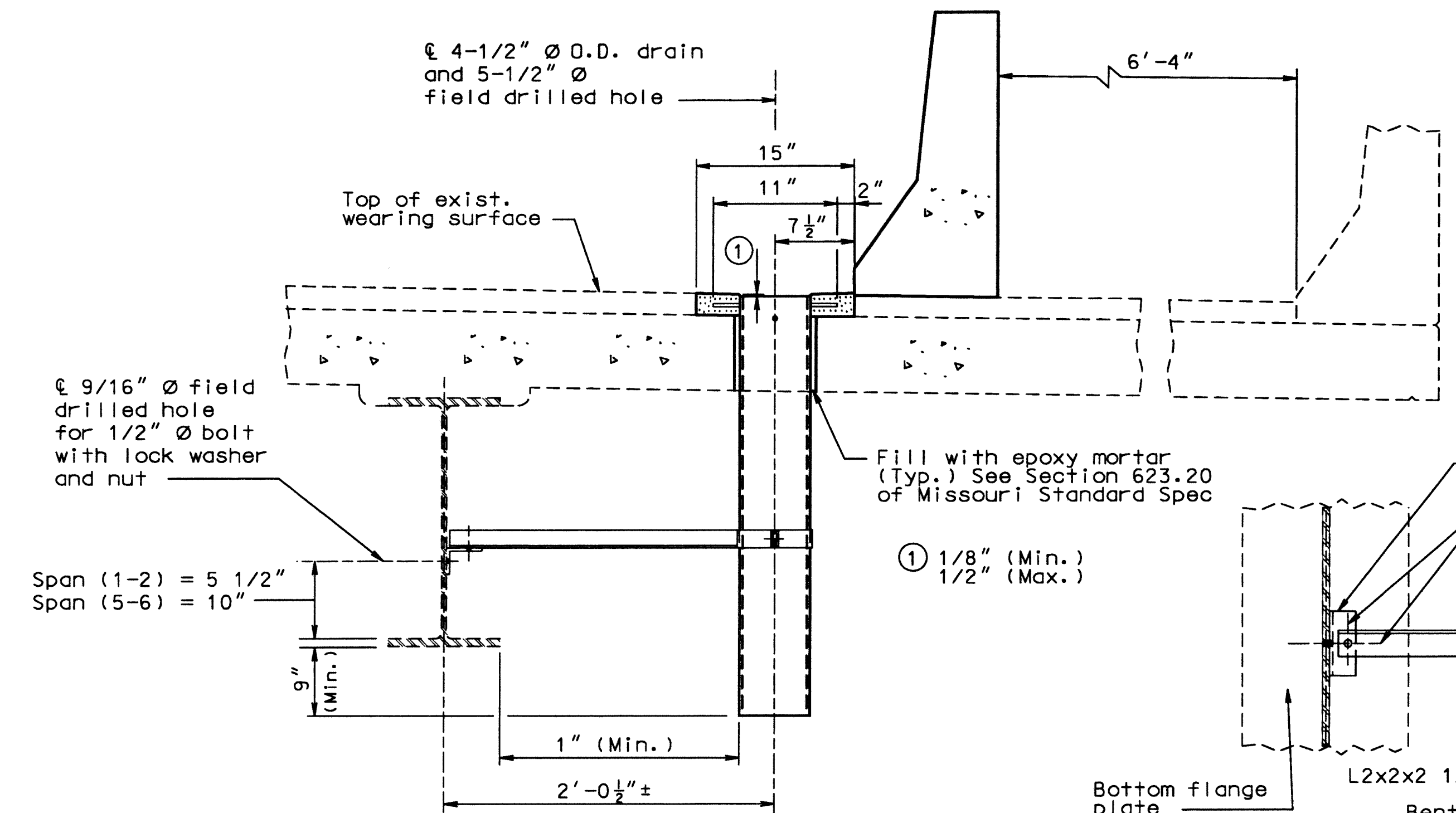


PLAN OF DRAIN

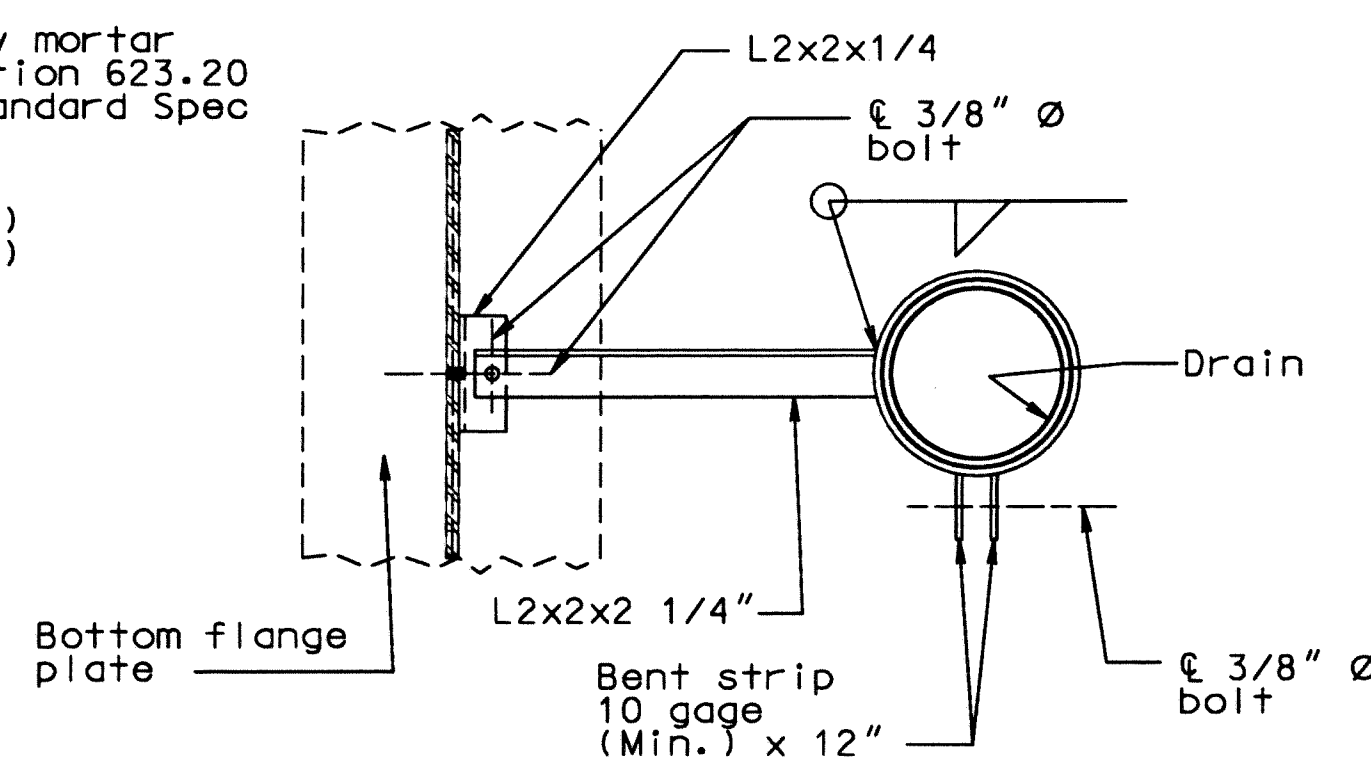


ELEVATION OF DRAIN

NOTES:  
 Cost of field drilling holes in existing girder webs and existing slab will be considered completely covered by the contract unit price for Slab Drain.  
 Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.  
 Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.  
 Locate drains in slab by dimensions shown in Part Section Near Drain.  
 The drains and bracket assembly shall be galvanized in accordance with ASTM A123.  
 All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with ASTM A153.  
 Shop drawings will not be required for the slab drains and the bracket assembly.

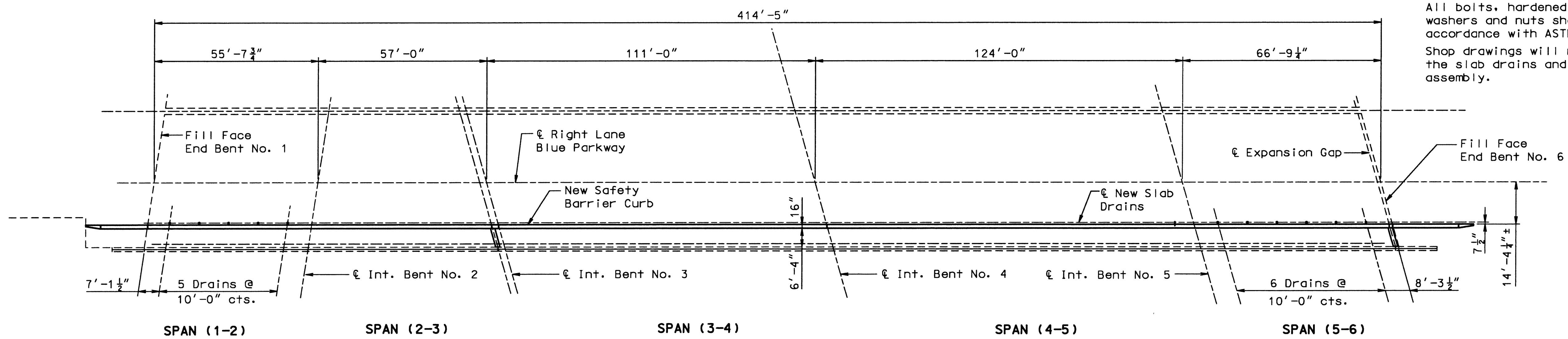


PART SECTION NEAR DRAIN



PART SECTION SHOWING BRACKET ASSEMBLY

SLAB DRAIN DETAILS



PLAN OF NEW SLAB DRAINS

FINAL PLANS

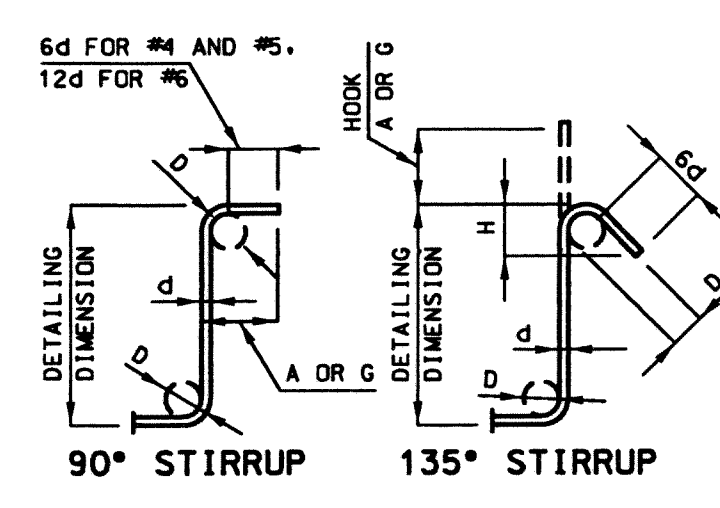
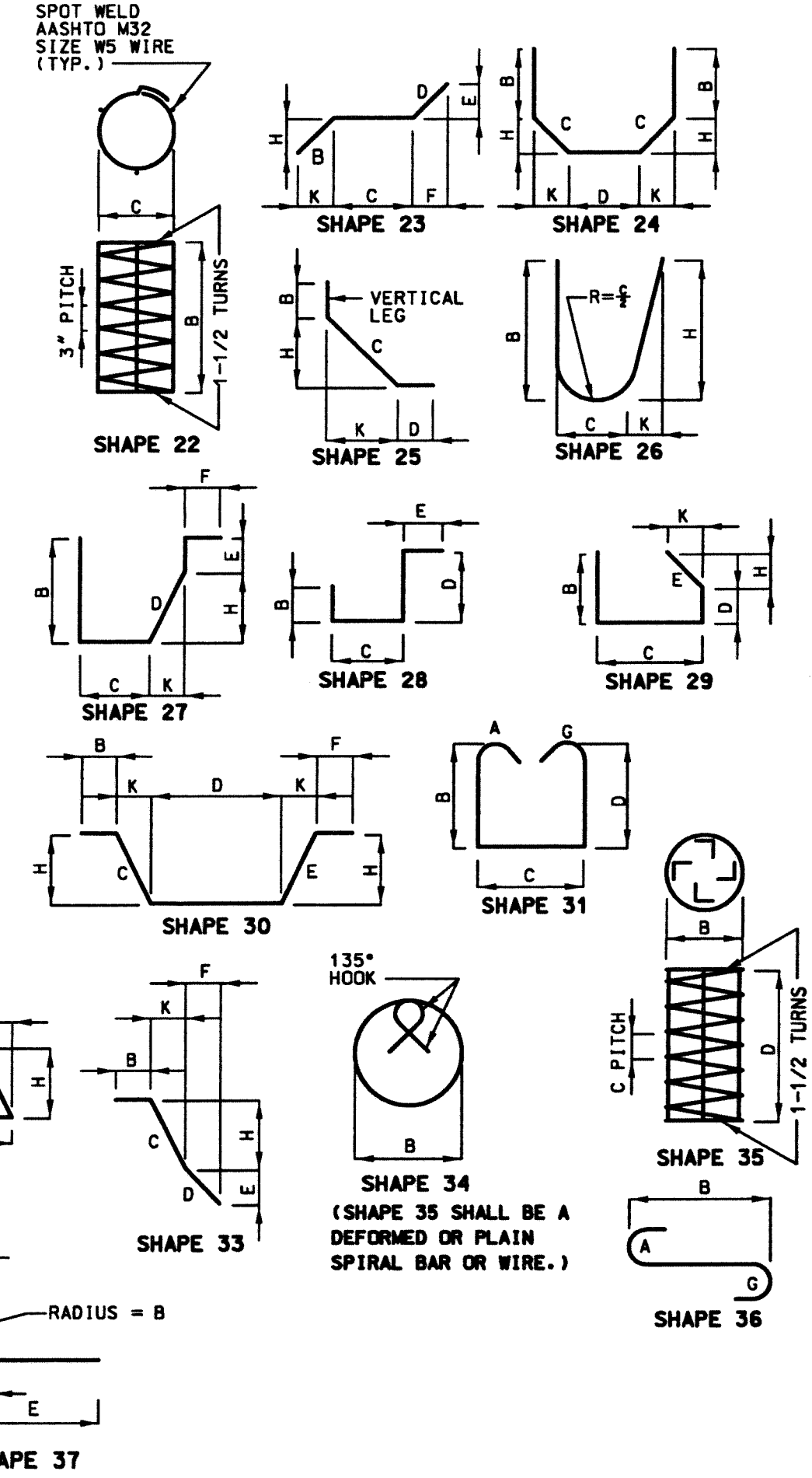
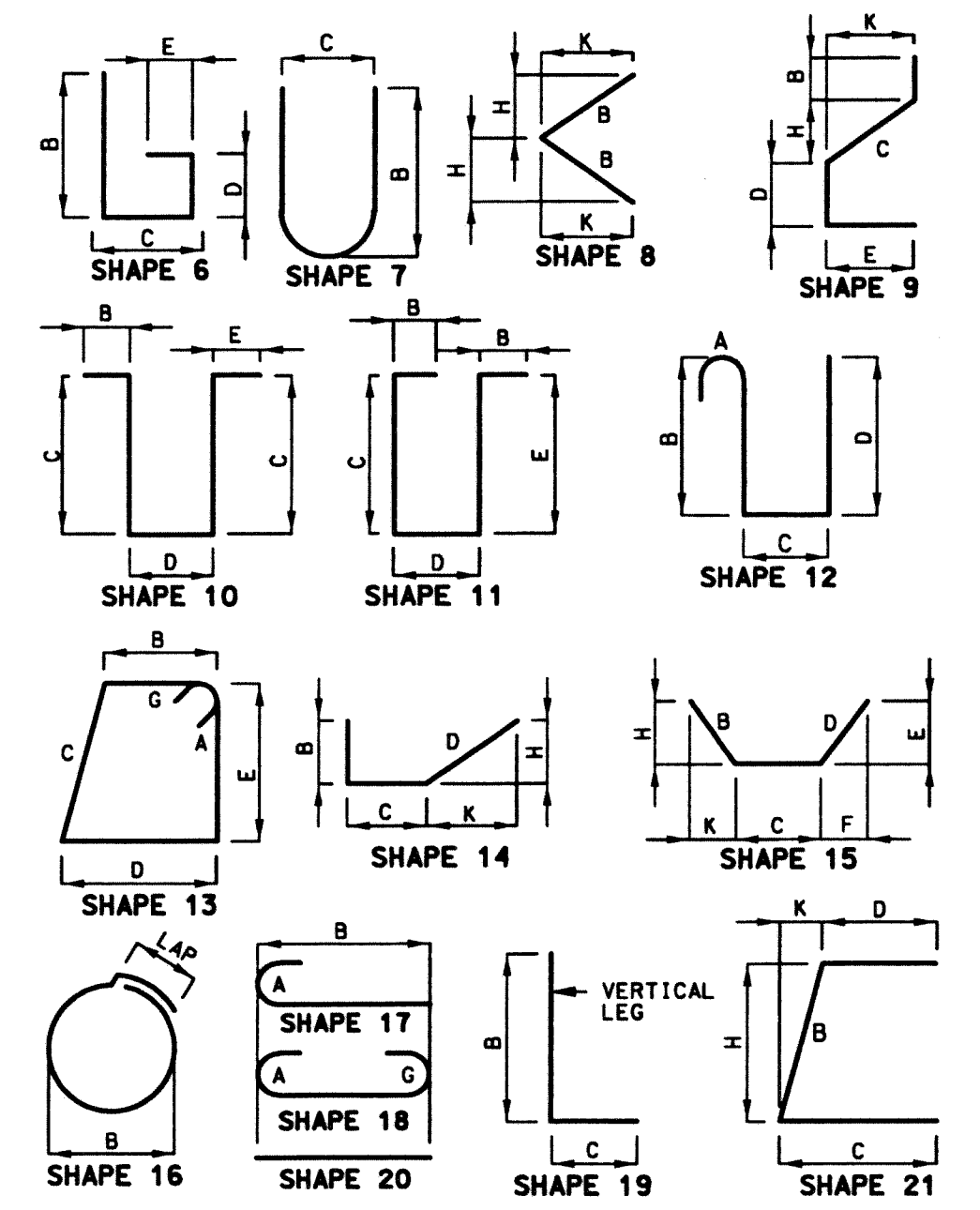
ROUTE	STATE	DISTRICT	SHEET NO.
I470	MO	4	11
JOB NO. J4I1641D			
CONTRACT ID. 080822-404			
PROJECT NO. I 470-1 (175)			
COUNTY JACKSON			DATE

BILL OF REINFORCING STEEL

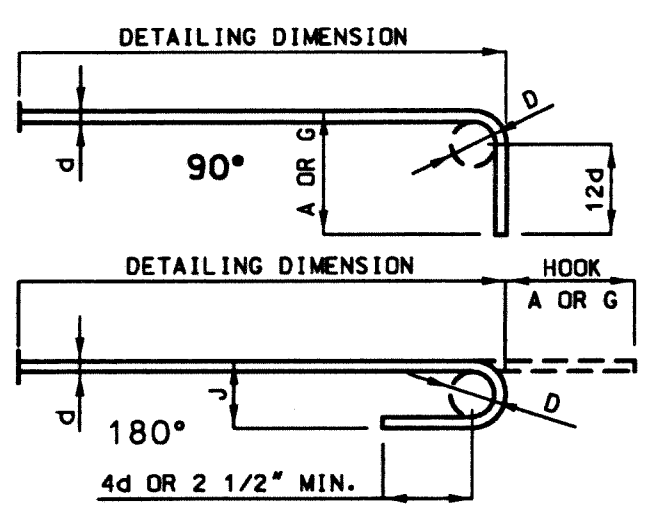
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT				
								B	C	D	E	F	H	K							
SIZE	MARK							FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	LBS.	
		BARRIER CURB																			
439	5 R1	BARRIER CURB		26	S			2	6.000	4.250			2	6.000	3.000	5	3	5	3	2404	
7	5 R2	BARRIER CURB		20					46	3.000						46	3	46	3	338	
21	5 R3	BARRIER CURB		20					8	9.000						8	9	8	9	192	
7	5 R4	BARRIER CURB		20					51	7.000						51	7	51	7	377	
14	5 R5	BARRIER CURB		20					52	3.000						52	3	52	3	763	
14	5 R6	BARRIER CURB		20					11	9.000						11	9	11	9	172	
14	5 R7	BARRIER CURB		20					52	5.000						52	5	52	5	765	
7	5 R8	BARRIER CURB		20					9	9.000						9	9	9	9	71	
7	5 R9	BARRIER CURB		20					56	5.000						56	5	56	5	412	
32	5 R11	BARRIER TRANS.		26	S	V	2	2	6.000	4.250			2	6.000	3.000	5	3	5	3	118	
									9.375	4.250						9.375	0.875	22	22		
		INCREMENT =							(.67)												
10	3 R12	BARRIER TRANS.		7		V	2		8.000	3.000						18	18			4	
									4.000	3.000						10	10				
		INCREMENT =							(1.00)												
14	5 R13	BARRIER TRANS.		20					16	0.000						16	0	16	0	234	
8	5 R14	BARRIER TRANS.		20					8	0.000						8	0	8	0	67	
6	5 R15	BARRIER TRANS.		20					10	8.000						10	8	10	8	67	
1	5 R16	BARRIER TRANS.		14					7	9.000	2	11.000		3.875	2	11.000	10	8	10	8	11
		SLIP-FORM																			
24	5 C1	SLIP-FORM		20					12	0.000						12	0	12	0	300	
6	5 C2	SLIP-FORM		20					9	1.000						9	1	9	1	57	
2	5 C3	SLIP-FORM		20					9	11.000						9	11	9	11	21	
		TOTALS																			
		Safety Barrier Curb																		4	
3																				5991	
5																				5995	
		TOTAL																			
		Slip-Form Option																			
5																				378	
		TOTAL																		378	

NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
								B	C	D	E	F	H	K						
SIZE	MARK							FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	LBS.



BAR SIZE	D (IN.)	90° HOOK		135° HOOK	
		A OR B	A OR B	A OR B	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"	
#5	2 1/2"	6"	5 1/2"	3 3/4"	
#6	4 1/2"	12"	8"	4 1/2"	



BAR SIZE	D (IN.)	ALL GRADES	
		180° HOOKS	90° HOOKS
#4	2 1/4"	5"	3"
#5	3"	6"	4"
#6	3 3/4"	7"	5"
#8	4 1/2"	8"	6"
#9	5 1/4"	10"	7"
#10	6"	11"	8"
#11	9 1/2"	15"	11 3/4"
#12	10 3/4"	17"	13 1/4"
#14	18 1/4"	21 3/4"	21 3/4"

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET. E = EPOXY COATED REINFORCEMENT. S = STIRRUP. X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES. V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE. NO. EA. = NUMBER OF BARS OF EACH LENGTH. NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH) ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH. PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS. FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS. REINFORCING STEEL (GRADE 60) F<sub>y</sub> = 60,000 PSI.







"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
10/8/2013

ROUTE F STATE MO

DISTRICT BR SHEET NO. 4

COUNTY JACKSON

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A25482

DESCRIPTION

DATE

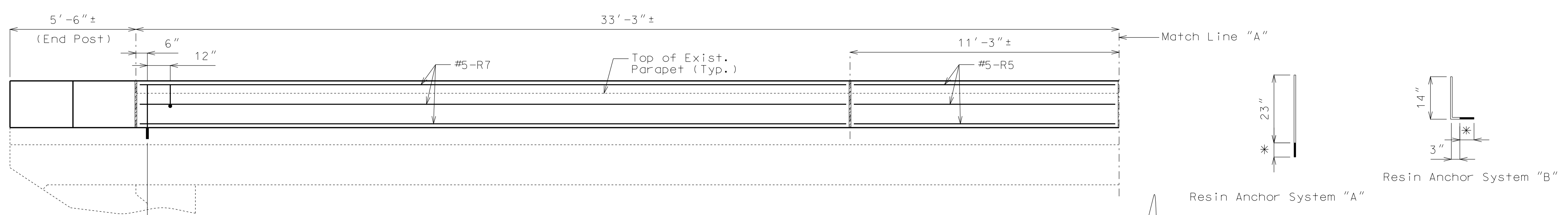
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)

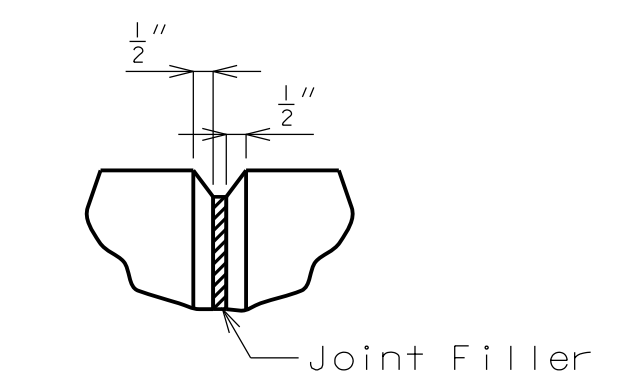
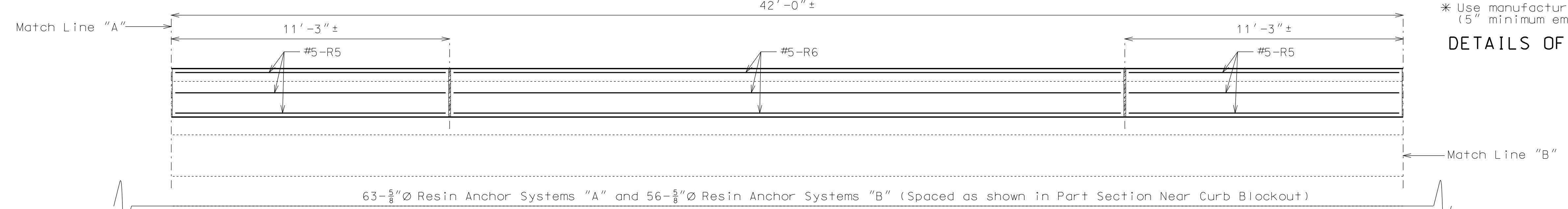
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REV.

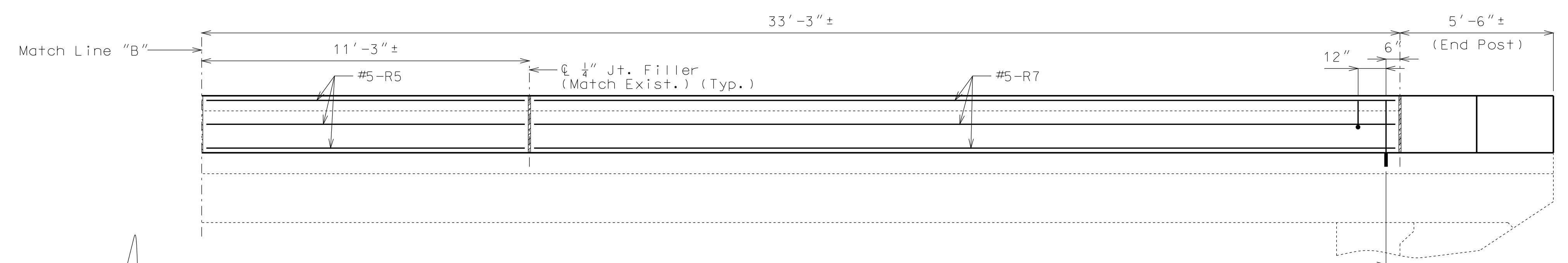


(158 req'd) (112 req'd)  
(Install in curb) (Install in parapet)  
\* Use manufacturer's embedment length.  
(5" minimum embedment)

**DETAILS OF RESIN ANCHORS**

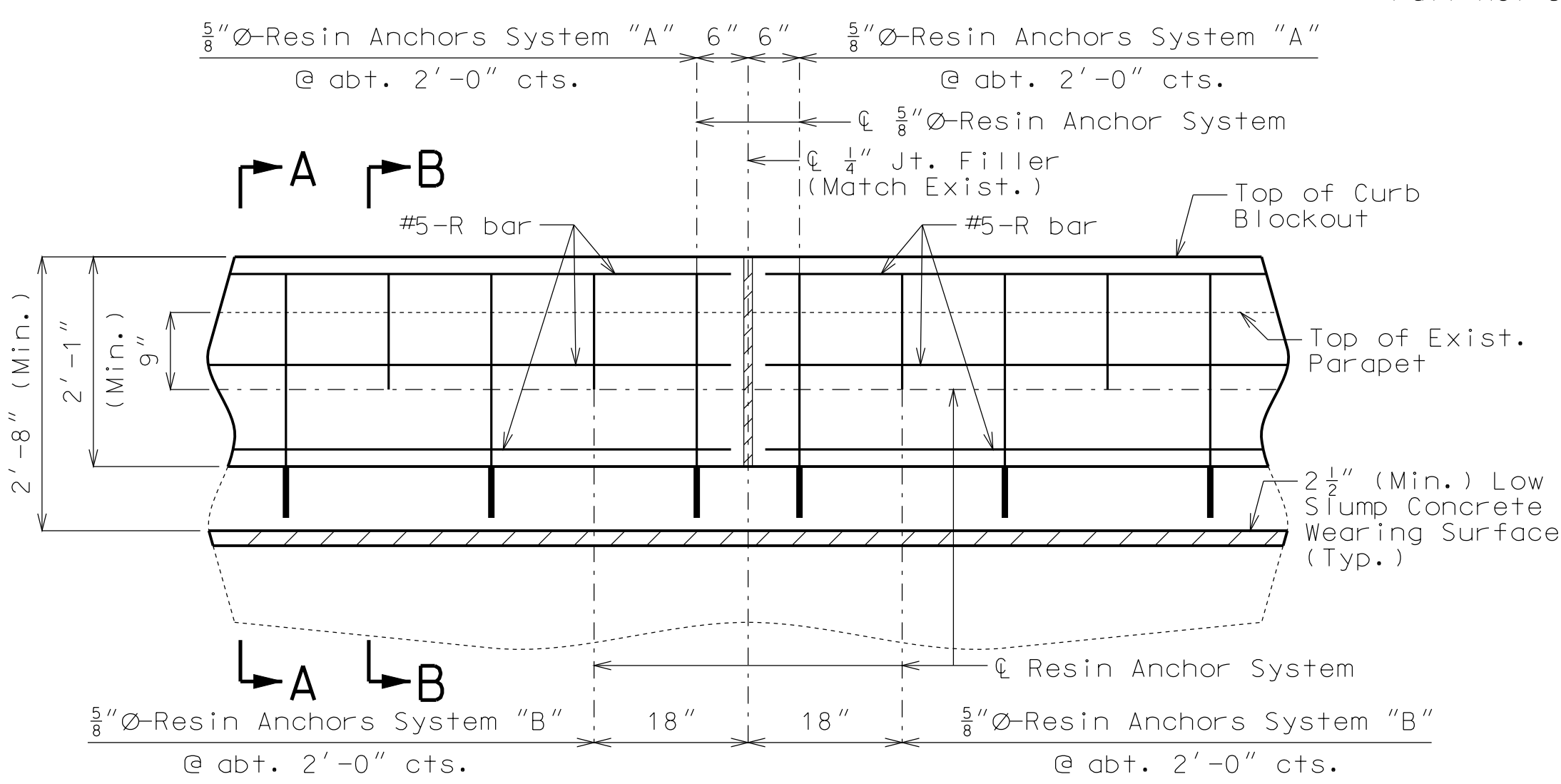


**FILLED JOINT DETAIL**

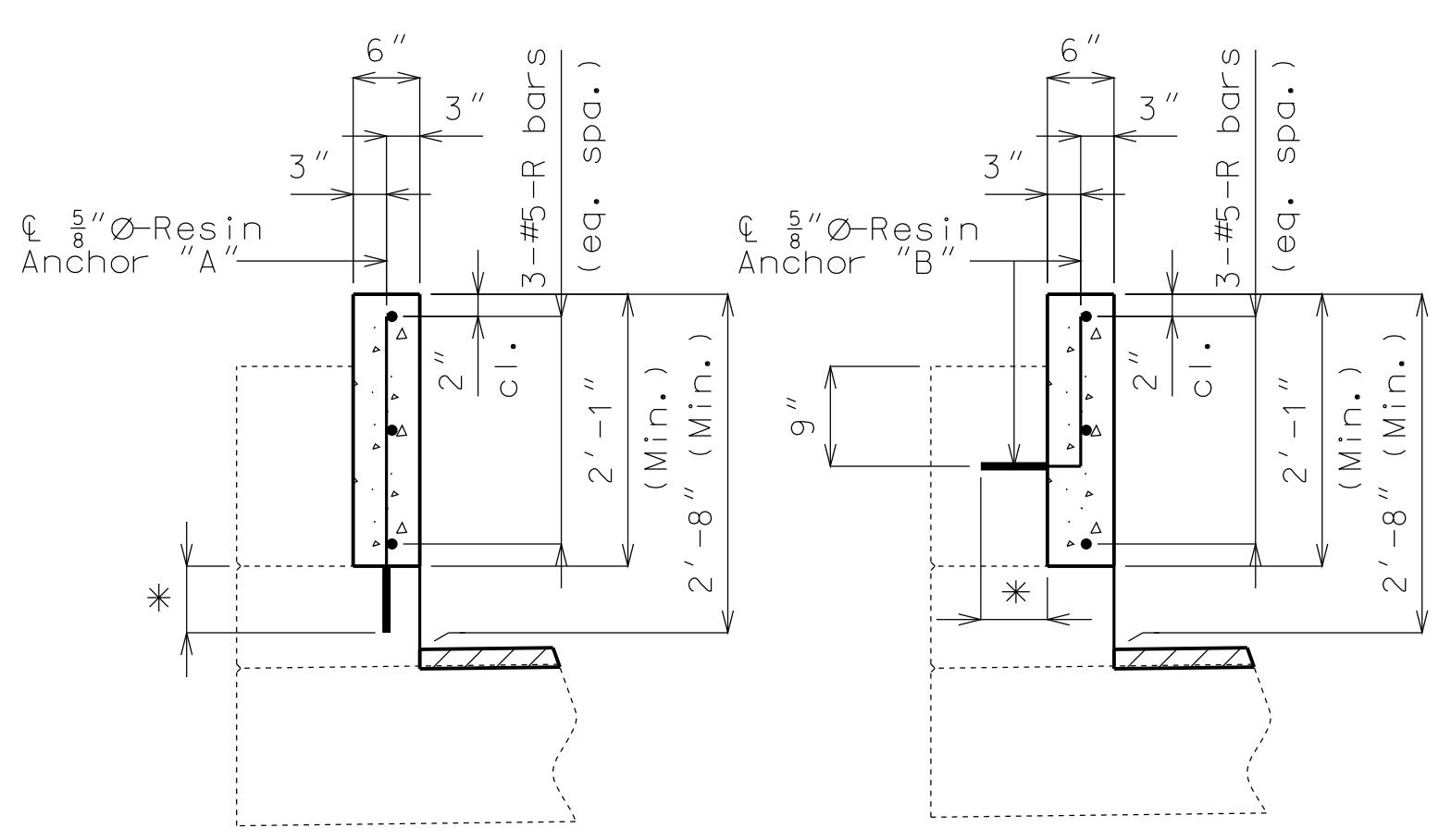


**SECTION NEAR LEFT CURB BLOCKOUT**

Note: Longitudinal dimensions shown are along grade. Exist. curb outlets, wearing surface and bridge rail not shown for clarity.



**PART SECTION NEAR CURB BLOCKOUT**



**SECTION A-A SECTION B-B**

**DETAILS OF LEFT CURB BLOCKOUT**

(Right side similar)

**Notes:**  
Concrete in curb blockout shall be Class B-1 with  $f'_c = 4000$  psi. Measurement of curb blockout is to the nearest linear foot, measured at the gutter line from end of wing to end of wing. All exposed edges of curb blockout shall have  $\frac{1}{2}$ " radius or  $\frac{3}{8}$ " bevel unless otherwise shown. Payment for concrete, reinforcing steel, resin anchors, and any other work incidental to the curb blockout, complete in place, will be included in the contract unit price for Curb Blockout per linear foot. Cost of any concrete curb or parapet repair will be included in the contract unit price for Curb Blockout. All reinforcement shall be epoxy coated.

Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, avoid curb outlets and clear existing reinforcement. Use a minimum lap of 2'-11" for #5 horizontal curb blockout bars. Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Curb Blockout".

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

The minimum embedment depth in concrete with  $f'_c = 4,000$  psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the  $\frac{5}{8}$ " Ø threaded rod.

For details of End Post, see Sheet No. 5.



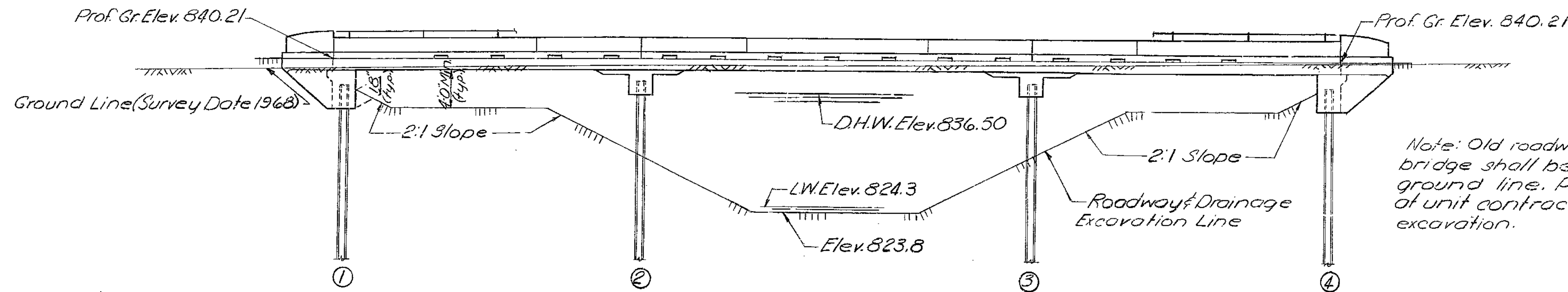




MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	19	

(32'-42'-32') Cont. Conc. Slab Spans (Solid)



GENERAL ELEVATION

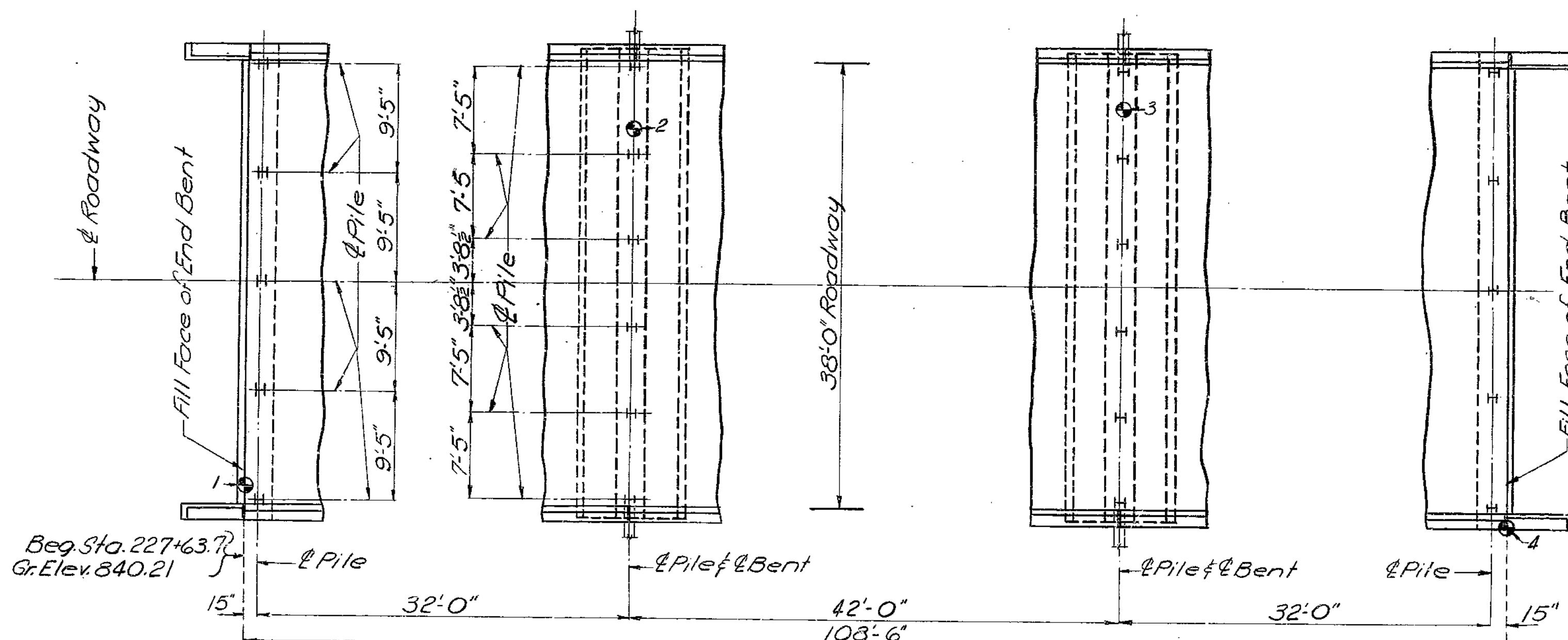
GENERAL NOTES:

Design Specifications: A.A.S.H.O.-1965  
 Design Loading:  
 H20-44 15#/sq. ft. Future Wearing Surface  
 Earth 120# Equivalent Fluid Pressure 30#  
 Design Unit Stresses:  
 Class B1 Concrete  $f_c = 1,600$  psi  
 Reinforcing Steel  $f_s = 20,000$  psi  
 Steel Pile  $f_b = 3,000$  psi

Note: Old roadway fill under end of bridge shall be removed to natural ground line. Payment will be made of unit contract price for roadway excavation.

PILE DATA				
BENT NO.	1	2	3	4
Pile Type and Size	10BP42	10BP42	10BP42	10BP42
Number	5	6	6	5
Approximate Length Ft.	25'-0"	25'-0"	25'-0"	23'-0"
Design Bearing Tons	29	45	45	29
Hammer Energy required Ft. Lbs.	7,000	10,600	10,600	7,000

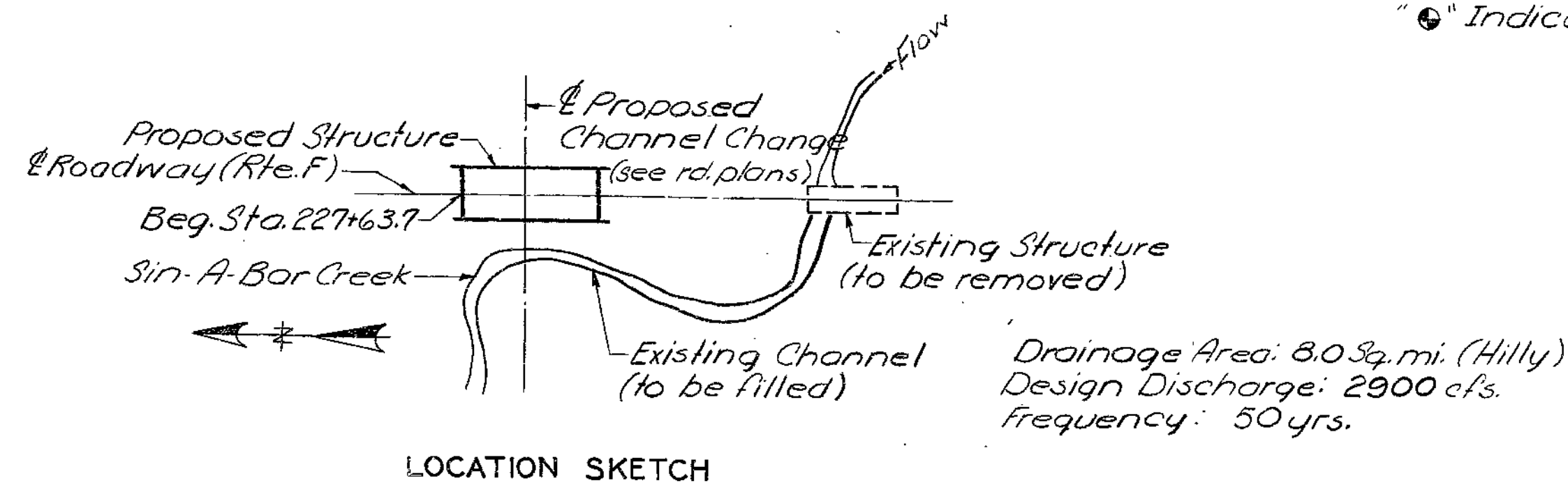
Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor  $(W+w)/2W$  when the weight of the ram (W) is less than the weight of the pile (w).  
 All pile shall be driven to practical refusal.



PLAN

Note: For Boring Data see sheet no 2 of 5.  
 ● Indicates location of boring

ESTIMATED QUANTITIES	
ITEM	TOTAL
Class I Excavation for Structures	Cu. Yd. 50
Steel Piles (10")	Lin. Ft. 565
Class B1 Concrete	Cu. Yd. 276.1
Reinforcing Steel	Lbs. 65440
Bridge Rail (One Tube Type)	Lin. Ft. 216
Bridge Removal	Each 1



LOCATION SKETCH

Note: This drawing is not to scale. Follow dimensions.

B.M. #2 Elev. 841.20 on N.W. Cor. N.W. Wingwall  
 Bridge Y-22 18' Rt. Sta. 230+15

**BRIDGE OVER BRANCH OF SNI-A-BAR CREEK**  
**STATE ROAD FROM RTE. I-70 SOUTH TO 0.5 MILE S. OF SNI MILLS**  
**ABOUT 5.0 MILES S. OF OAK GROVE**  
**PROJECT NO. C048-F(1) RTE. F STA. 227+63.7**

JACKSON COUNTY

SUBMITTED BY *W. R. Caney* DATE 3-17-69  
 BRIDGE ENGINEER

APPROVED BY *M. J. Anderson* DATE 3-17-69  
 CHIEF ENGINEER

DESIGNED OCT 1968 BY GOLDAMMER  
 DETAILED DEC 1968 BY PAYNE  
 CHECKED Jan. 1969 BY Mizani

520





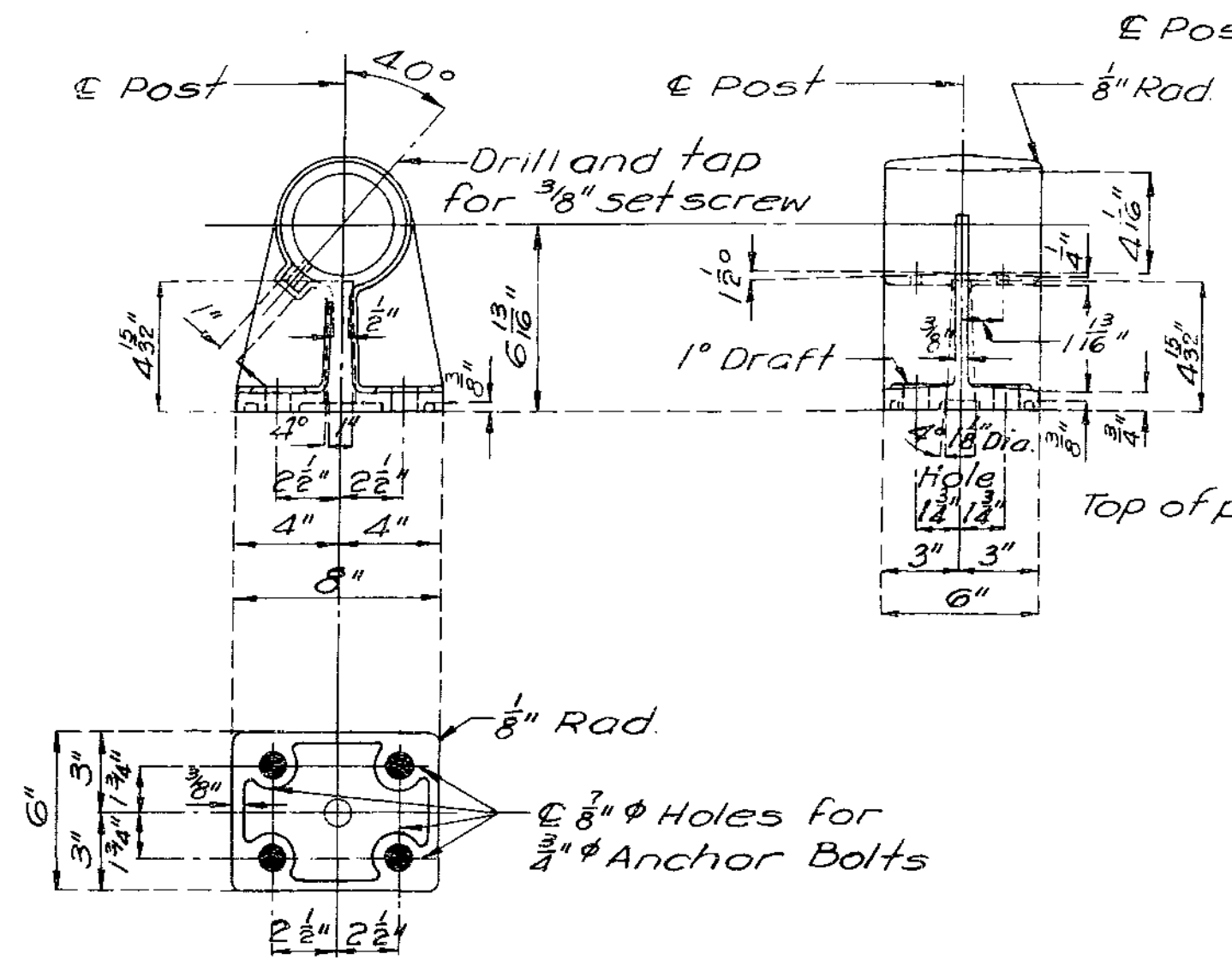


MISSOURI STATE HIGHWAY DEPARTMENT

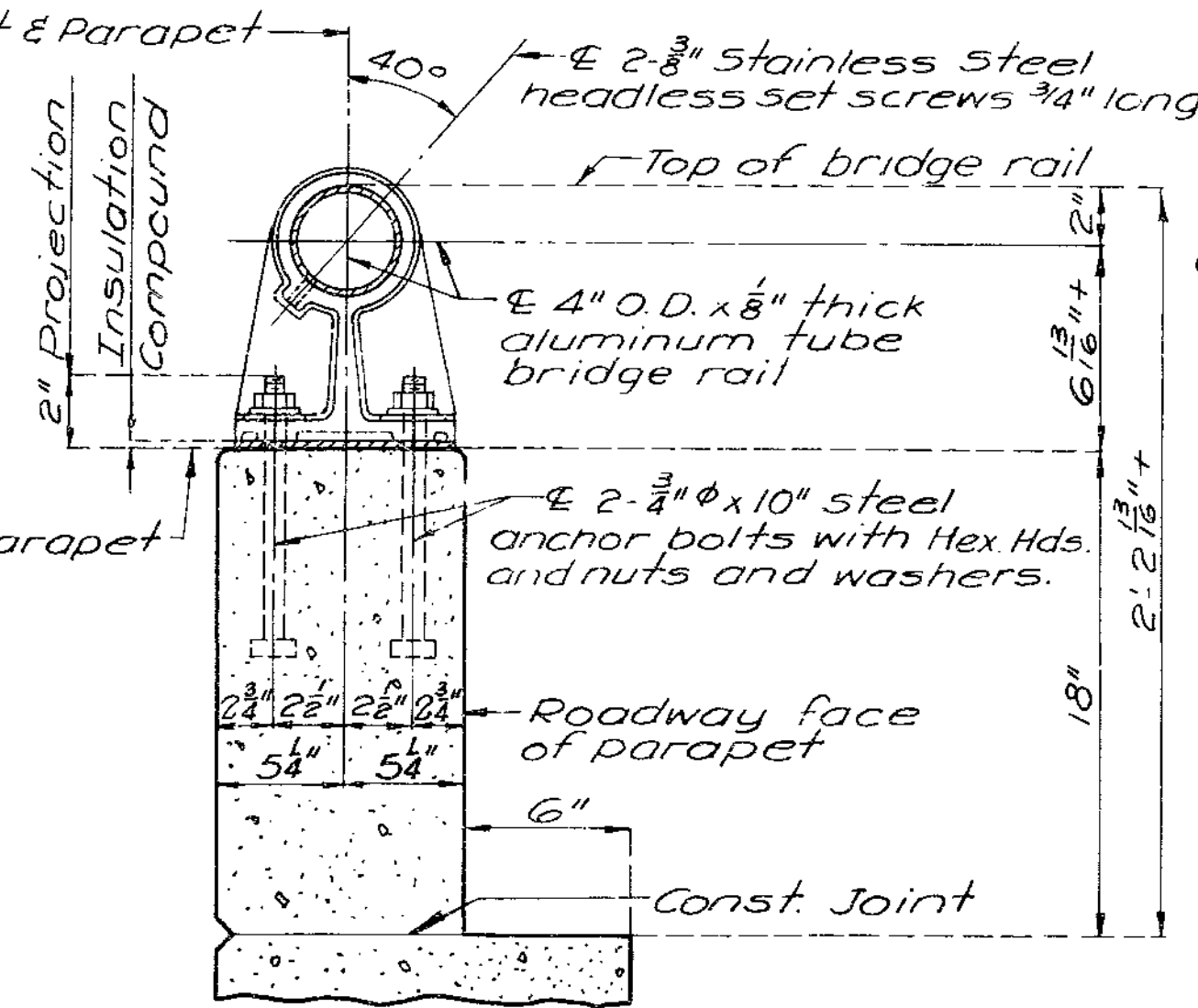
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	23	

GENERAL BRIDGE RAIL NOTES:

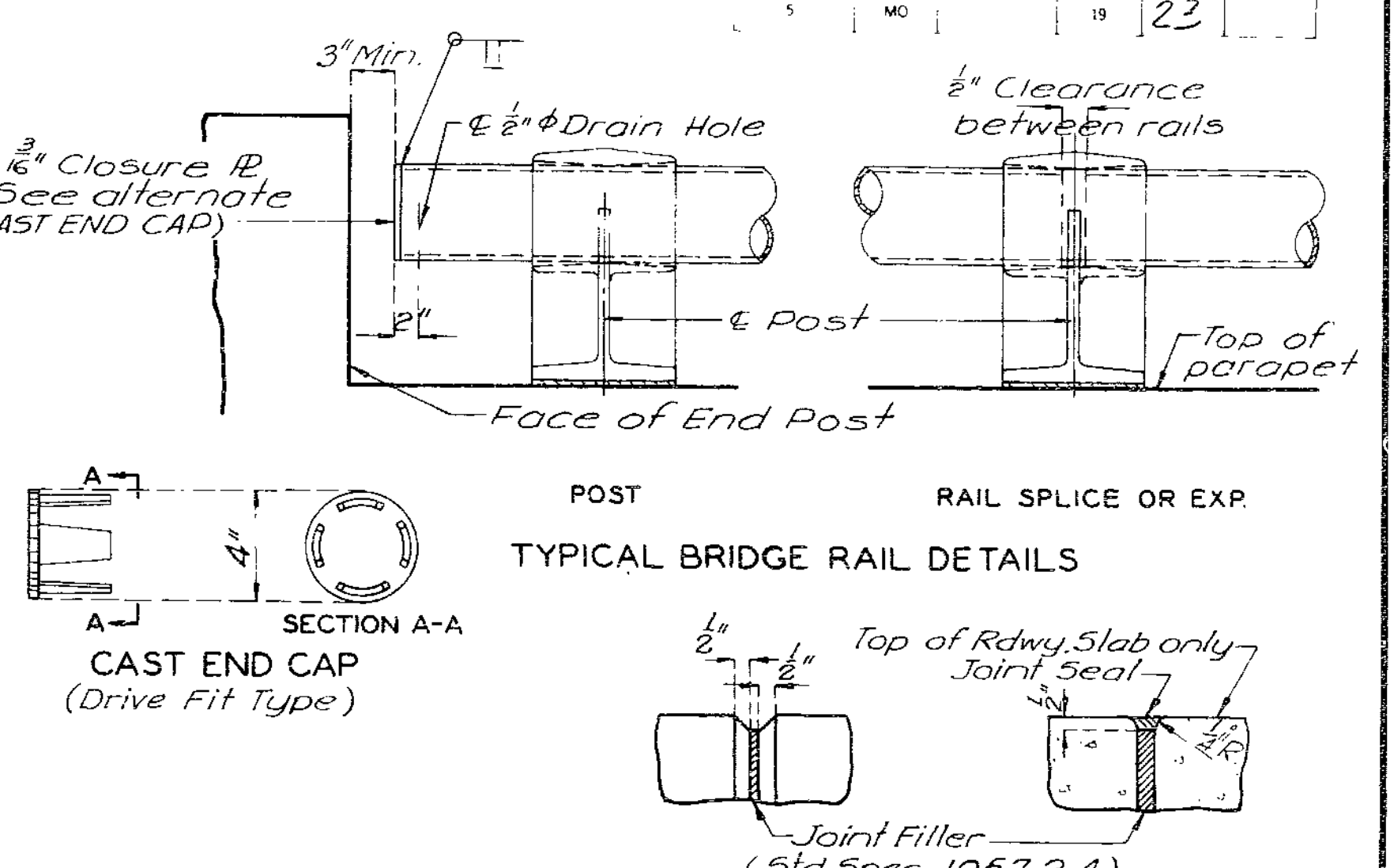
All bridge rail posts shall be set normal to grade. Aluminum tube bridge rail shall be bent to conform to vertical and horizontal alignment of parapet.  
 Aluminum washer shims between top of parapet and post base may be used for adjusting bridge rail alignment. Maximum thickness of shims to be 8". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.  
 All parts of bridge rail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.  
 All fillets 4" except as noted.  
 All drafts 3" except as noted.  
 Omit set screw in side of rail posts adjacent to filled joints in curb and parapet at rail expansion joints. Omit set screw in each side of rail post on end bents except where a gap is shown in rail over an expansion device.  
 Top of curbs and parapet to be built parallel to grade with curb and parapet joints (except at end bents) normal to grade.  
 Concrete end posts to be vertical.  
 All exposed edges of end posts shall have 1/2" bevel. All exposed edges of curbs and parapets shall have 1/2" radius or 3/8" bevel unless otherwise noted.



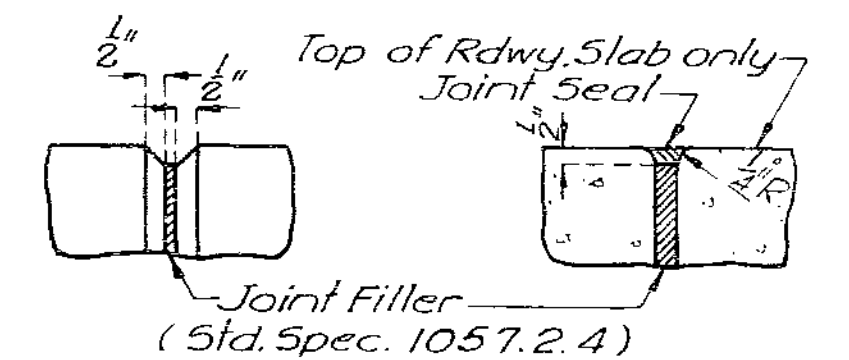
POST DETAILS



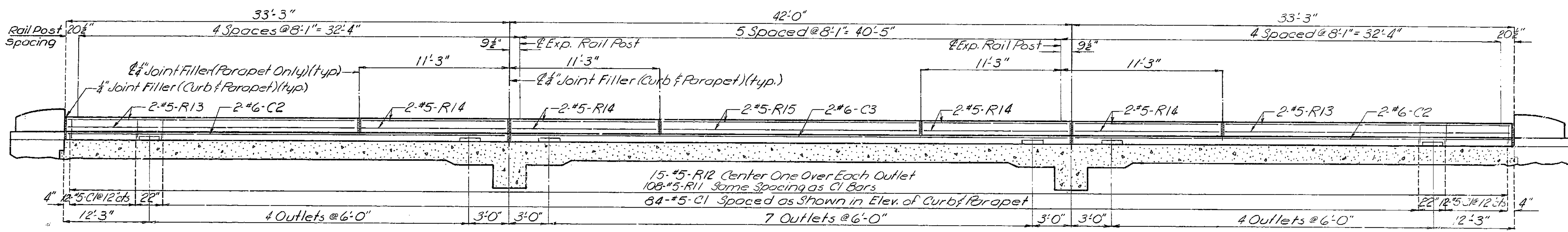
SECTION THRU BRIDGE RAIL



ONE TUBE ALUMINUM RAILING



FILLED JOINT DETAILS



SPAN (1-2)

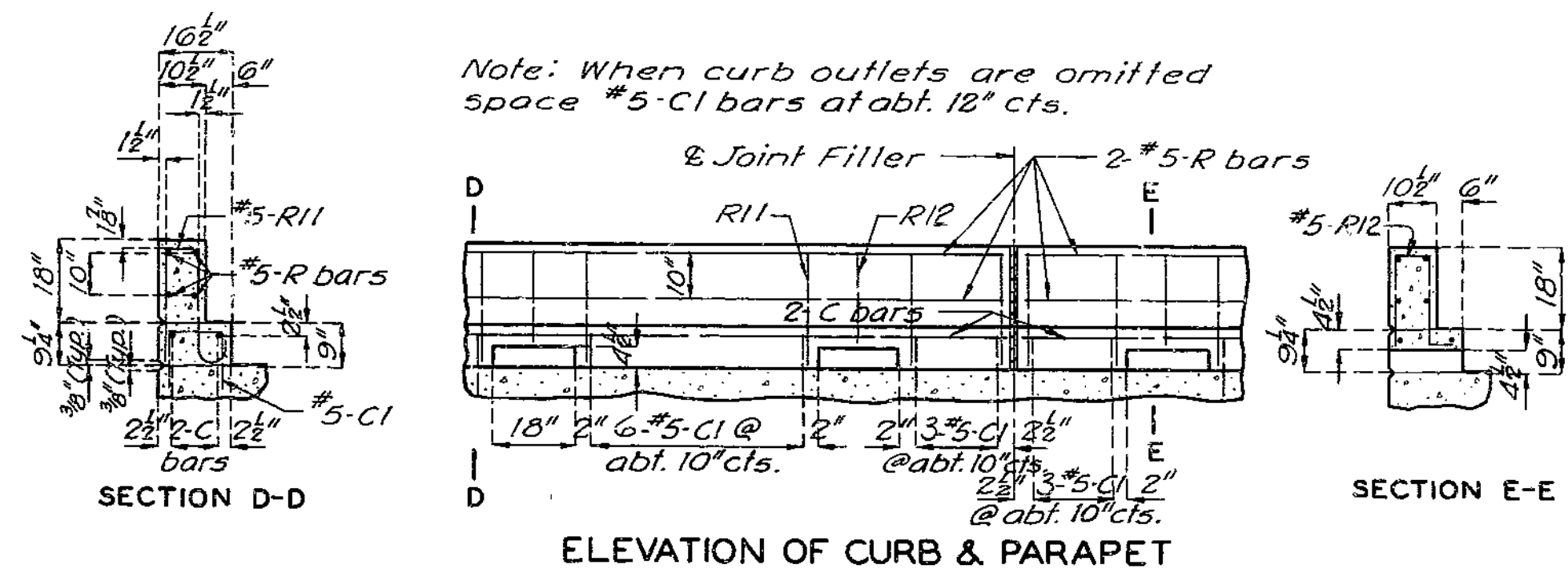
SECTION NEAR LEFT CURB AND PARAPET

SPAN (2-3)

SPAN (3-4)

Note: For end post ordinates, details, and reinforcement see sheets 3 of 5.

524



ELEVATION OF CURB & PARAPET

Note: For horizontal curb and parapet bars use a minimum lap of 15" for #5 and 18" for #6

STD. 1.5.2	REVISED
MAR 1964	OCT 1968

DETAILED DEC 1968 BY PAYNE  
 CHECKED Jan 1969 BY Mizani

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 5

JACKSON COUNTY

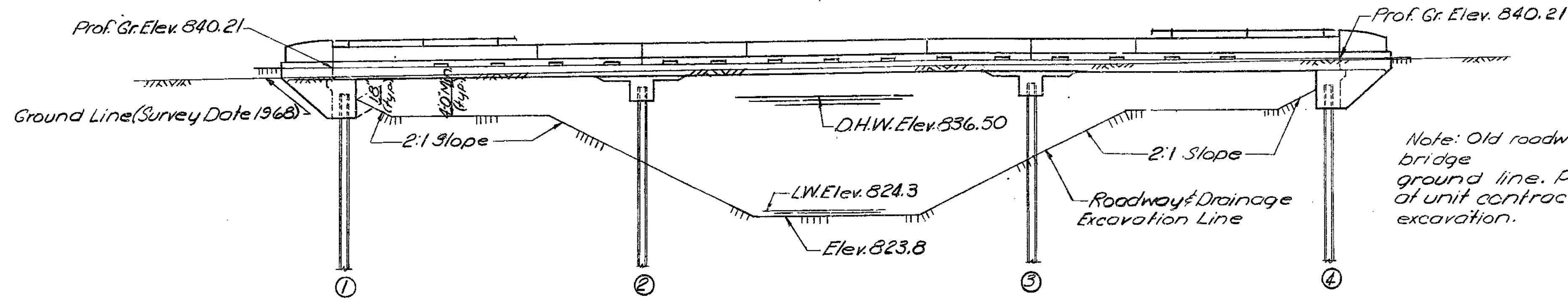
A-2548

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	19	

FINAL PLANS

(32'-42'-32') Cont. Conc. Slab Spans (Solid)



GENERAL ELEVATION

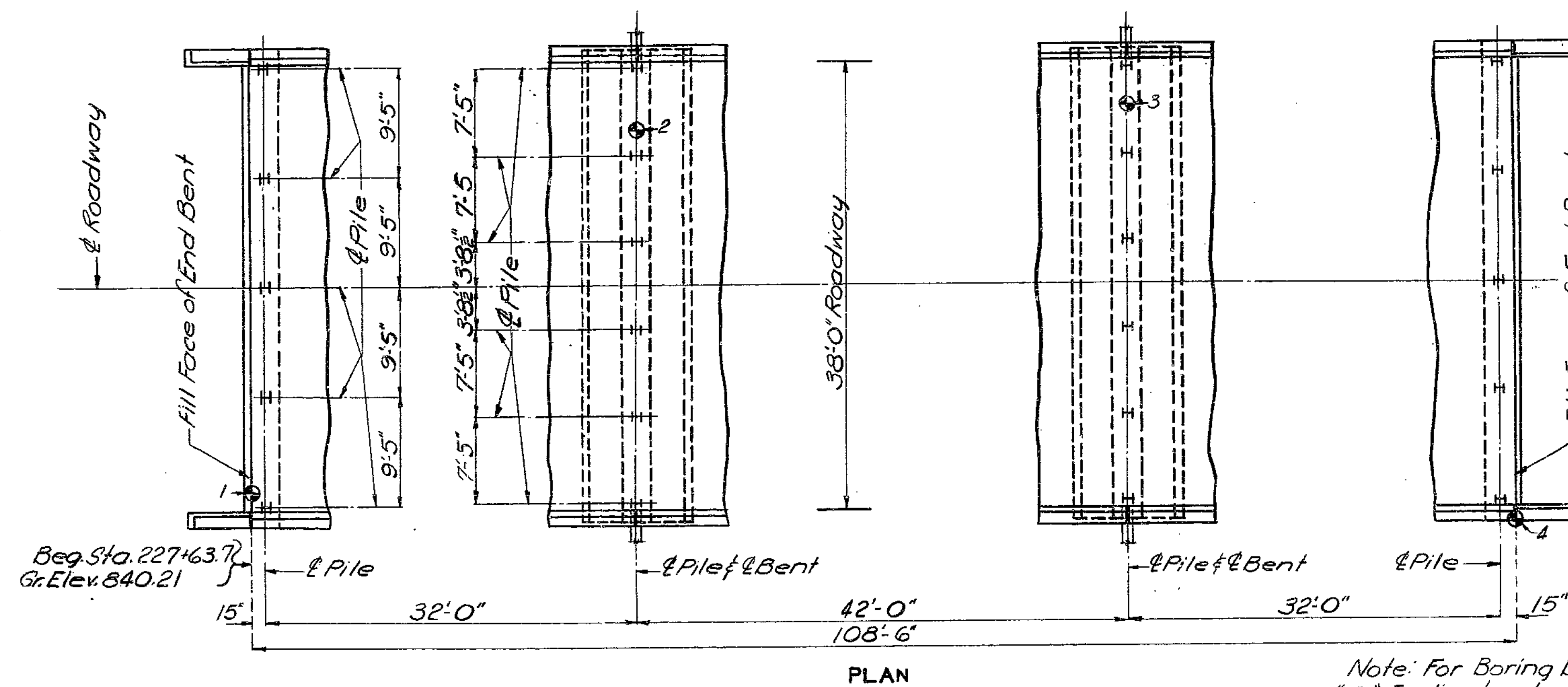
GENERAL NOTES:

Design Specifications: A. A. S. H. O. - 1965  
 Design Loading:  
 H20-44 15#/sq. ft. Future Wearing Surface  
 Earth 120# Equivalent Fluid Pressure 30#  
 Design Unit Stresses:  
 Class B1 Concrete  $f_c = 1,600$  psi  
 Reinforcing Steel  $f_s = 20,000$  psi  
 Steel Pile  $f_b = 9,000$  psi

Note: Old roadway fill under end of bridge removed to natural ground line. Payment made of unit contract price for roadway excavation.

PILE DATA				
BENT NO.	1	2	3	4
Pile Type and Size	10BP42	10BP42	10BP42	10BP42
Number	5	6	6	5
Approximate Length Ft.	25'-0"	25'-0"	25'-0"	28'-0"
Design Bearing Tons	29	45	45	29
Hammer Energy required Ft.Lbs.	7,000	10,600	10,600	7,000

Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor  $(W+w)/2W$  when the weight of the ram (W) is less than the weight of the pile (w).  
 All pile driven to practical refusal.



PLAN

Note: For Boring Data see sheet no 2 of 5  
 • Indicates location of boring

QUANTITIES	
ITEM	TOTAL
Class I Excavation for Structures	Cu. Yd. 90.0
Steel Piles (10")	Lin. Ft. 593
Class B1 Concrete	Cu. Yd. 276.1
Reinforcing Steel	Lbs. 65440
Bridge Rail (One Tube Type)	Lin. Ft. 216
Bridge Removal	Each 1

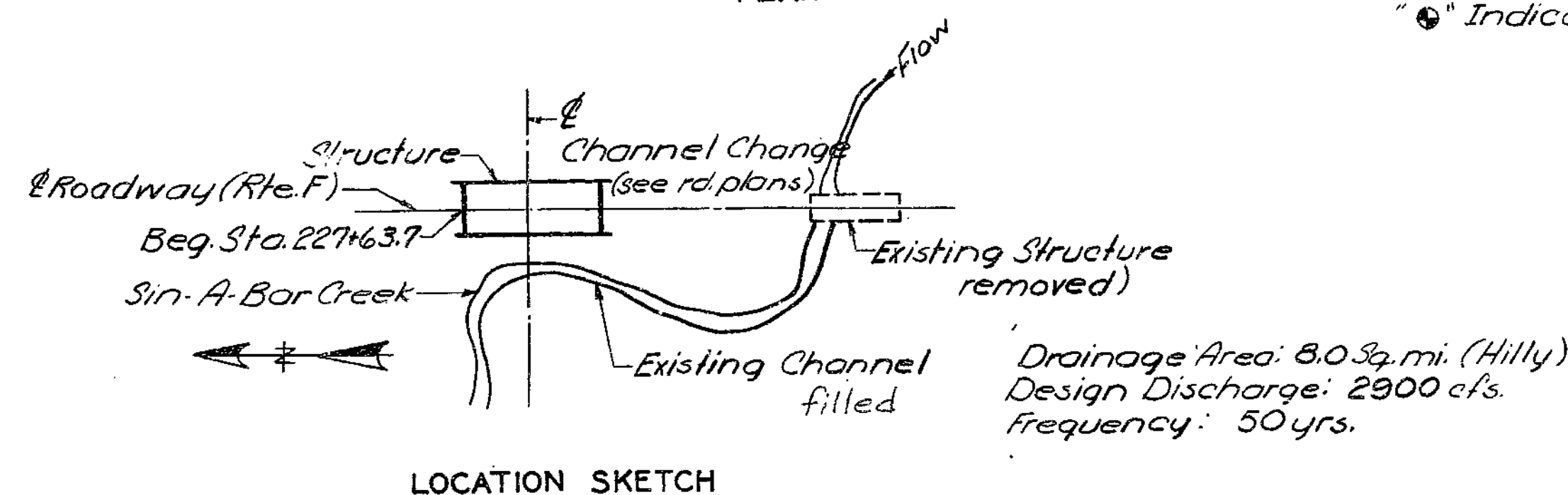
B.M. at N.E. Cor. N.E. Wing at Base of End Post  
 Elev. 840.72

BRIDGE OVER BRANCH OF SNI-A-BAR CREEK  
 STATE ROAD FROM RTE. I-70 SOUTH TO 0.5 MILE S. OF SNI MILLS  
 ABOUT 5.0 MILES S. OF OAK GROVE  
 PROJEC. NO. C048-F(1) RTE. F STA. 227+63.7

JACKSON COUNTY

SUBMITTED BY: *W. A. Sawyer* BRIDGE ENGINEER DATE: 3-17-67  
 APPROVED BY: *M. V. Anderson* CHIEF ENGINEER DATE: 3-17-67

STD.706.30  
 A-2548



LOCATION SKETCH

Note: This drawing is not to scale. Follow dimensions.

DESIGNED OCT 1968 BY GOLDAMMER  
 DETAILED DEC 1968 BY PAYNE  
 CHECKED Jan. 1969 BY Mizani

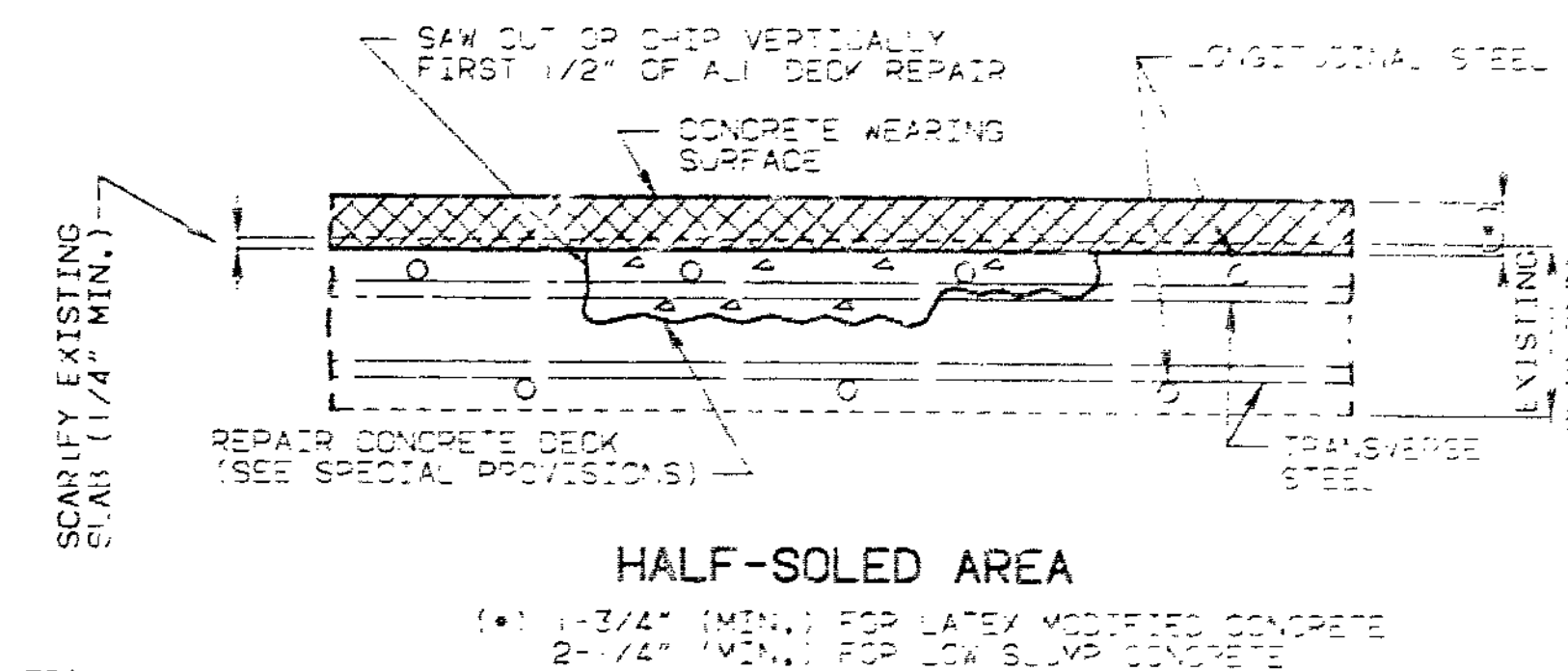
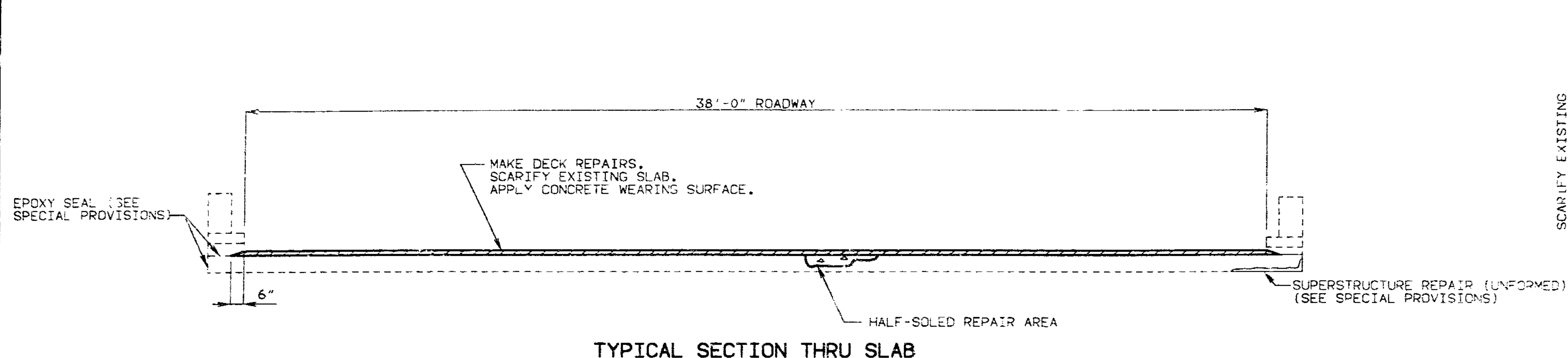
Sheet No. 1A of 1  
 FINAL PLANS

525

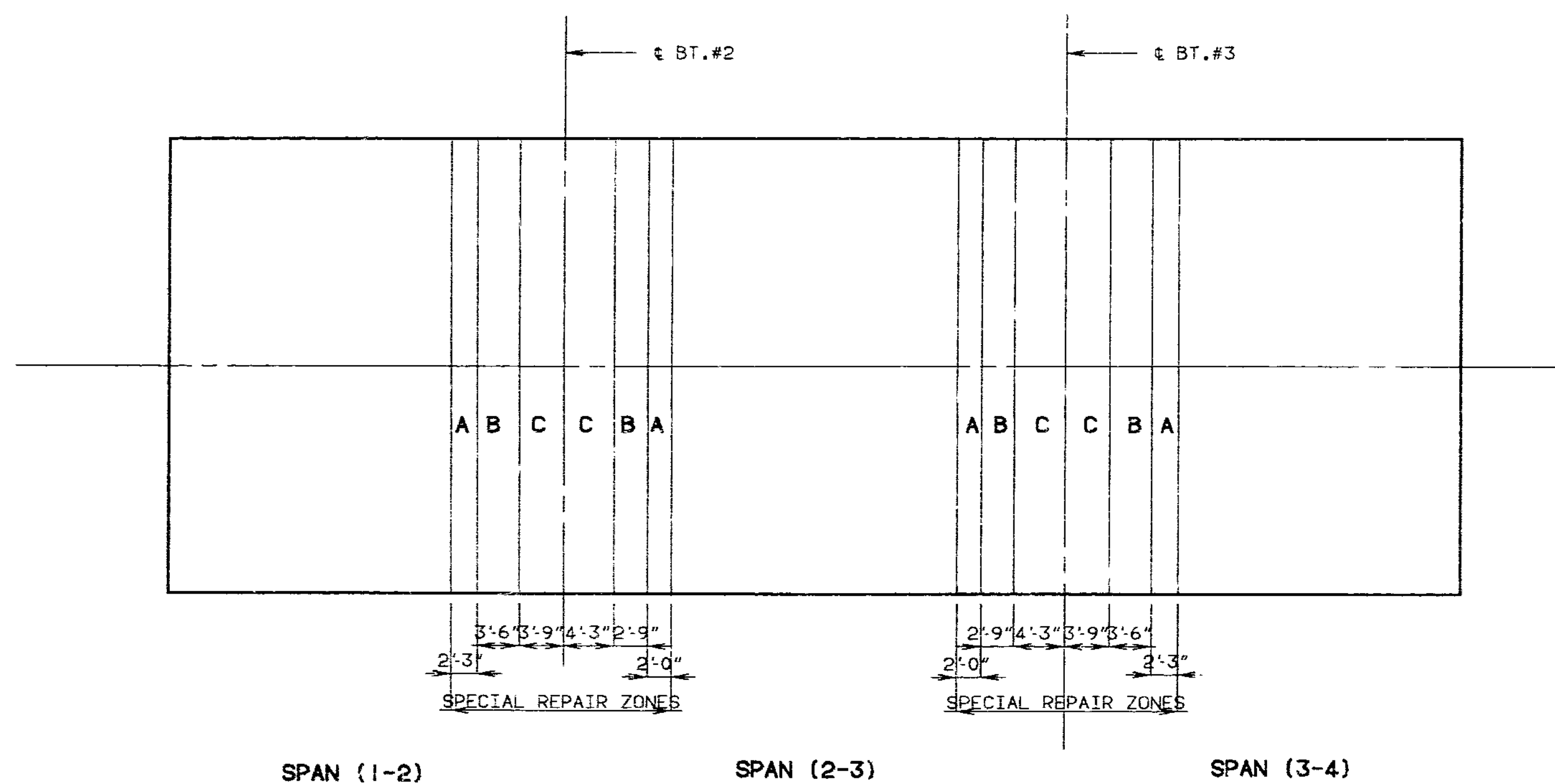


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJECT NO.	SHEET NO.
MO.	RS-463 (1)	1
SEC./SUP.	26 & 29	WP. 451 PGE. 29H



NOTE: THE CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC DURING CONSTRUCTION. (SEE ROAD PLANS)  
ROADWAY SURFACING ADJACENT TO BRIDGE ENDS SHALL BE ADJUSTED TO MATCH BRIDGE OVERLAY (ROADWAY ITEM).  
OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.



PLAN OF SLAB SHOWING SPECIAL REPAIR ZONE

SEQUENCE FOR REPAIR: ZONE A, ZONE B THEN ZONE C.  
ANY REPAIR IN THE REMAINDER OF THE BRIDGE THAT IS WITHIN 3'-0" OF ZONE A SHALL BE COMPLETED BEFORE REMOVING OLD CONCRETE IN ZONES A.  
ZONES WITH THE SAME LETTER DESIGNATION MAY BE REPAIRED AT THE SAME TIME.

ESTIMATED QUANTITIES		
ITEM		TOTAL
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	82
( ) CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS	SQ. YD.	458
SUPERSTRUCTURE REPAIR (UNFORMED)	SQ. FT.	500

REPAIRS TO BRIDGE OVER BRANCH OF SNI-A-BAR CREEK

STATE ROAD FROM RTE. I-70 SOUTH TO 0.5 MILE S. OF SNI MILLS  
ABOUT 5.0 MILES S. OF OAK GROVE  
PROJECT NO. RS-463 (1) STA. 227+63.7  
JOB NO. 45-998-F RTE. F

JACKSON

COUNTY

STD.
STD.
A-2548R

DESIGNED DEC. 1989  
DETAILED DEC. 1989  
CHECKED DEC. 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

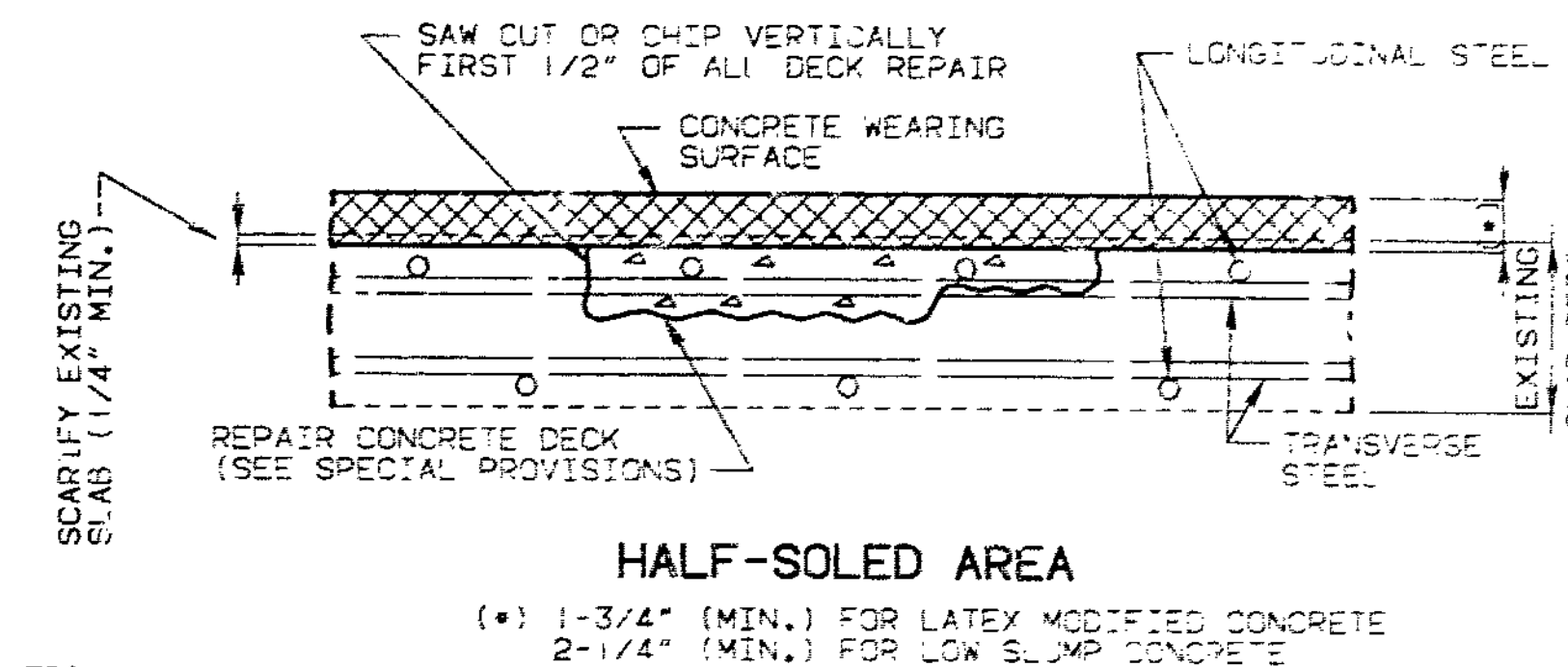
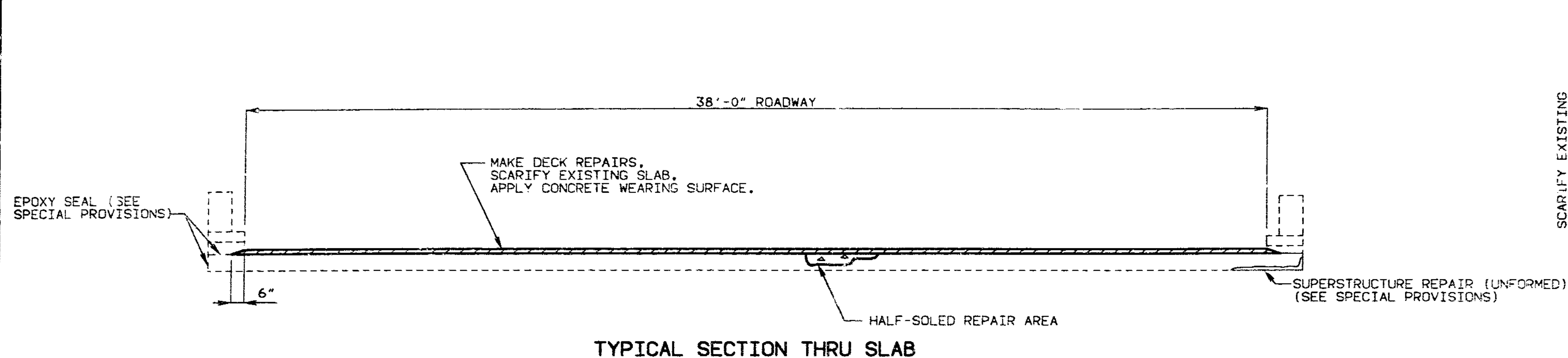
SHEET NO. 1 OF 1

DATE: 1/10/90

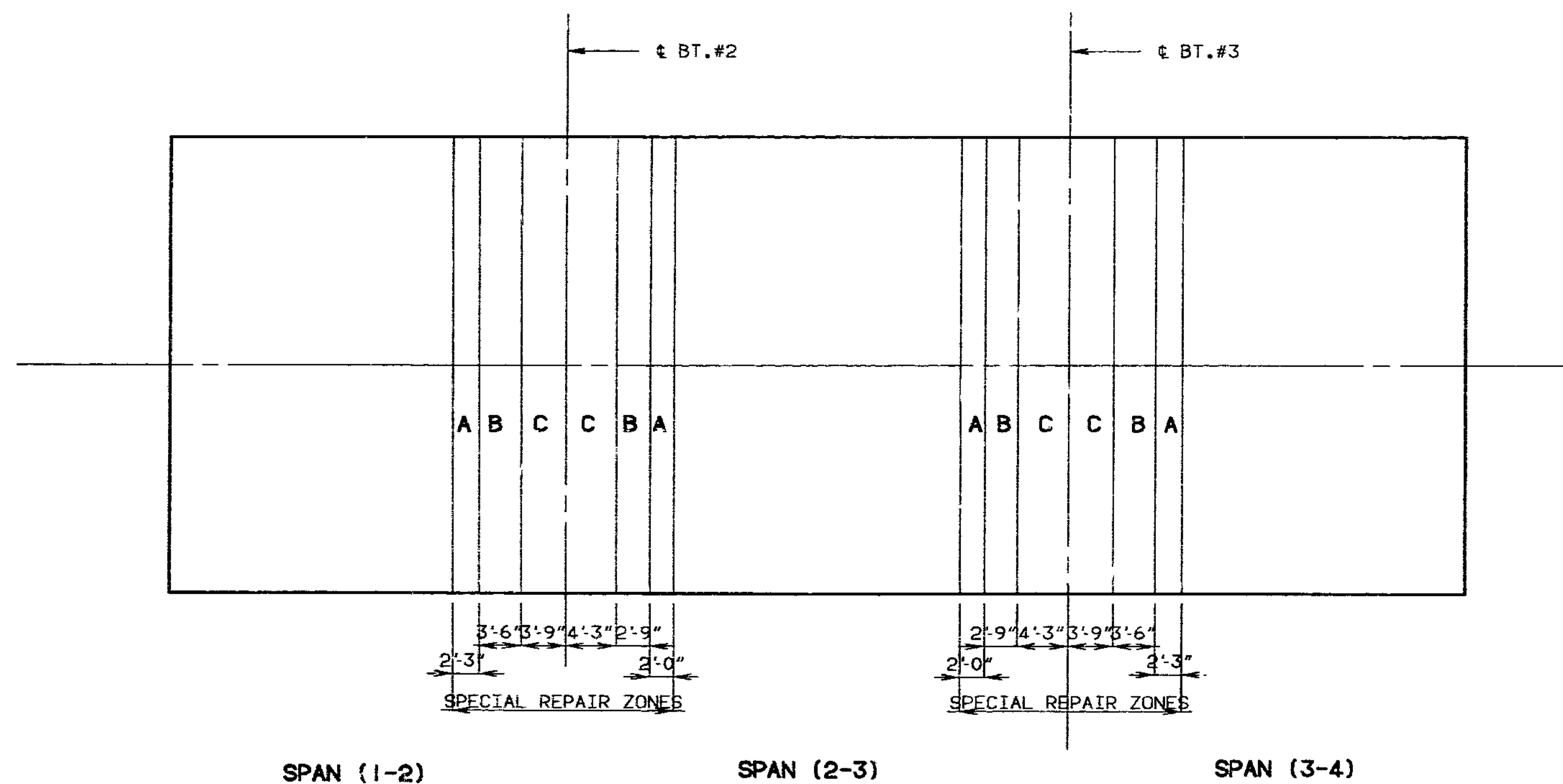
270

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO. RS-463 (1)		1
SEC./SUP. 28 & 29	TWP. 48N.	RGE. 29W



NOTE: THE CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC DURING CONSTRUCTION. (SEE ROAD PLANS)  
ROADWAY SURFACING ADJACENT TO BRIDGE ENDS SHALL BE ADJUSTED TO MATCH BRIDGE OVERLAY (ROADWAY ITEM).  
OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.



PLAN OF SLAB SHOWING SPECIAL REPAIR ZONE

SEQUENCE FOR REPAIR: ZONE A, ZONE B THEN ZONE C.  
ANY REPAIR IN THE REMAINDER OF THE BRIDGE THAT IS WITHIN 3'-0" OF ZONE A SHALL BE COMPLETED BEFORE REMOVING OLD CONCRETE IN ZONES A.  
ZONES WITH THE SAME LETTER DESIGNATION MAY BE REPAIRED AT THE SAME TIME.

ESTIMATED QUANTITIES		
ITEM		TOTAL
REPAIRING CONCRETE DECK (HALF-SOLING)	SQ. FT.	82
( ) CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS	SQ. YD.	458
SUPERSTRUCTURE REPAIR (UNFORMED)	SQ. FT.	500

REPAIRS TO BRIDGE OVER BRANCH OF SNI-A-BAR CREEK

STATE ROAD FROM RTE. I-70 SOUTH TO 0.5 MILE S. OF SNI MILLS  
ABOUT 5.0 MILES S. OF OAK GROVE  
PROJECT NO. RS-463 (1) STA. 227+63.7  
JOB NO. 45-998-F RTE. F

JACKSON COUNTY

STD.
STD.
A-2548R

DESIGNED DEC. 1989  
DETAILED DEC. 1989  
CHECKED DEC. 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

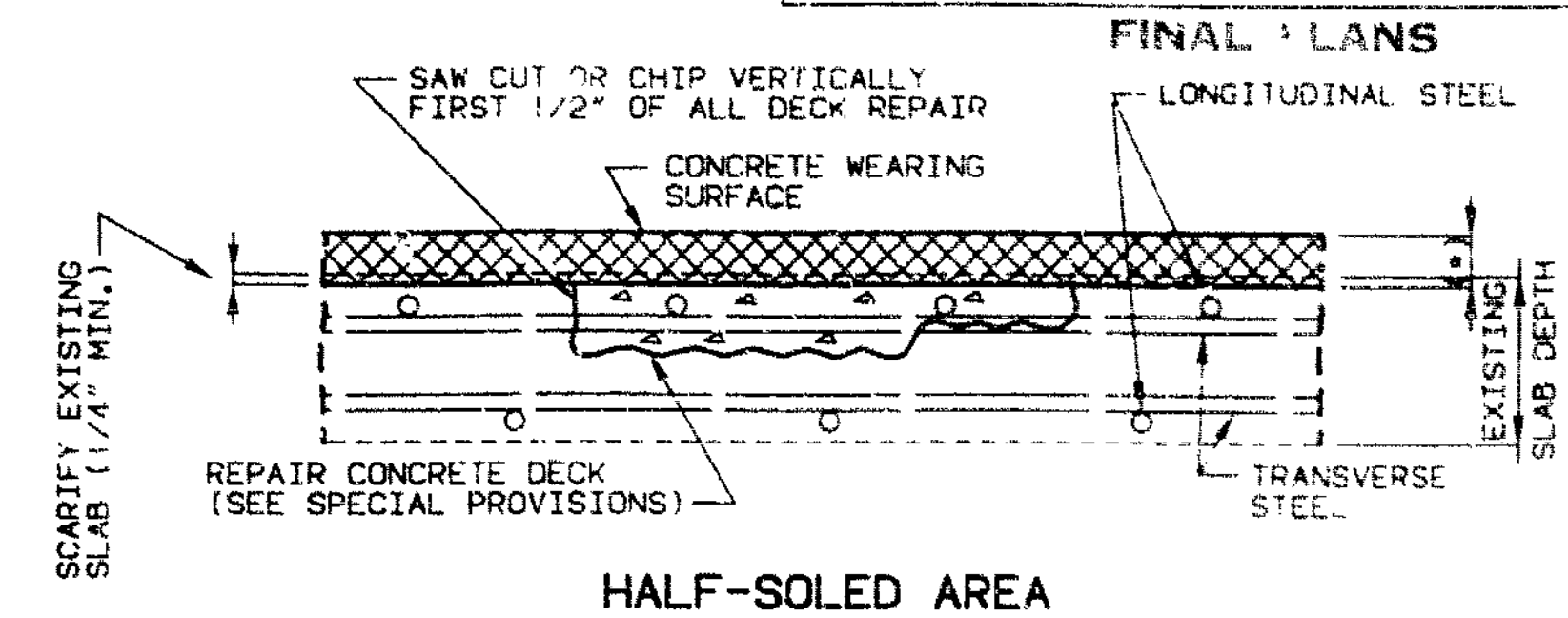
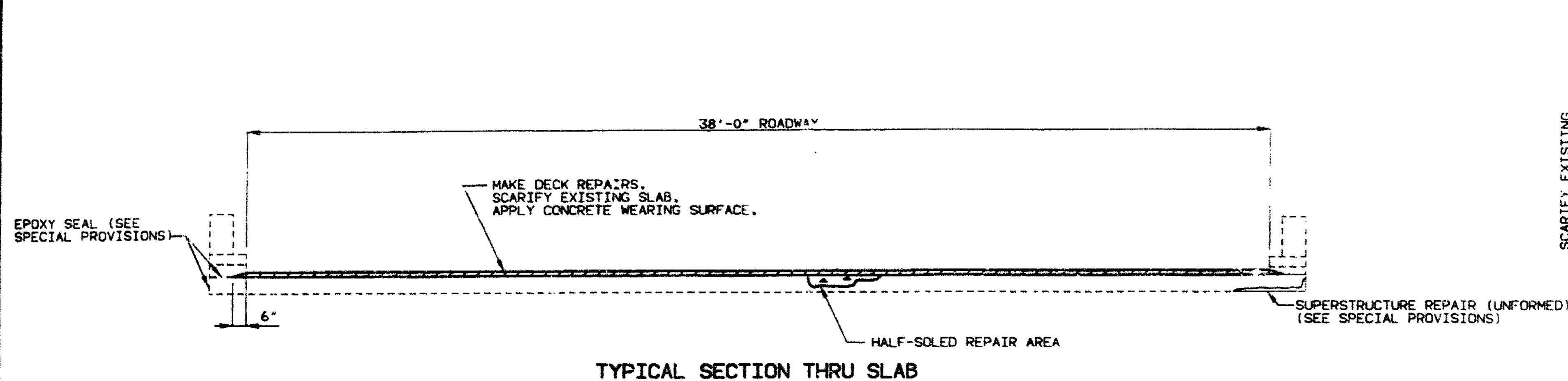
SHEET NO. 1 OF 1

DATE: 1/10/90

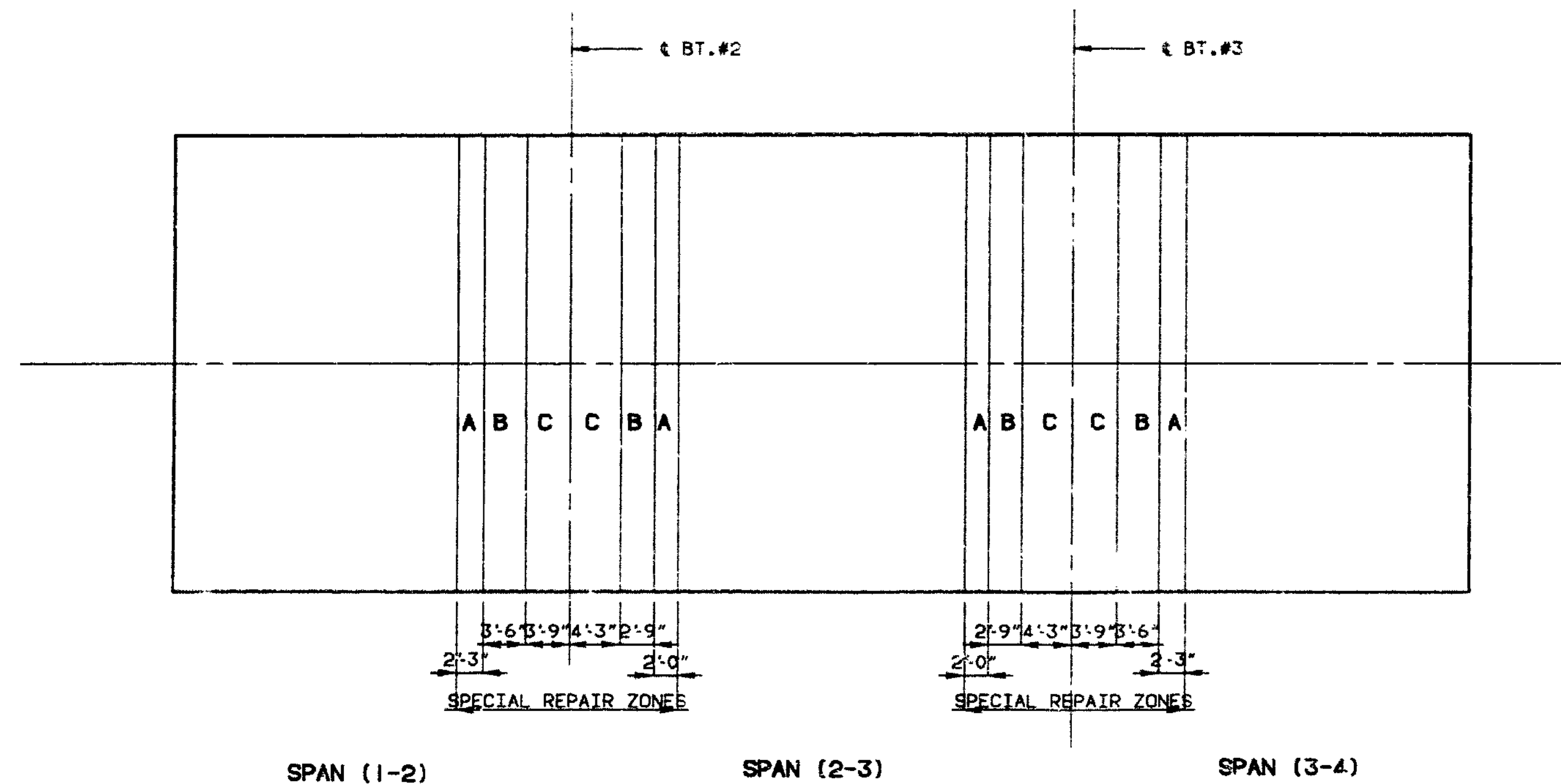
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO. RS-463 (1)		1
SEC./SUR. 28 & 29	TWP. 48N RGE. 29W	



NOTE: THE CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC DURING CONSTRUCTION. (SEE ROAD PLANS)  
 ROADWAY SURFACE: ADJACENT TO BRIDGE ENDS SHALL BE ADJUSTED TO MATCH BRIDGE OVERLAY (ROADWAY ITEM).  
 OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.



PLAN OF SLAB SHOWING SPECIAL REPAIR ZONE

SEQUENCE FOR REPAIR: ZONE A, ZONE B THEN ZONE C.  
 ANY REPAIR IN THE REMAINDER OF THE BRIDGE THAT IS WITHIN 3'-0" OF ZONE A SHALL BE COMPLETED BEFORE REMOVING OLD CONCRETE IN ZONES A.  
 ZONES WITH THE SAME LETTER DESIGNATION MAY BE REPAIRED AT THE SAME TIME.

ESTIMATED QUANTITIES		
ITEM		TOTAL
REPAIRING CONCRETE DECK (HALF-SOLING)	SO. FT.	112
(LS) CONCRETE WEARING SURFACE, LOW SLUMP	SO. YD.	458
SUPERSTRUCTURE REPAIR (UNFORMED)	SO. FT.	331

REPAIRS TO BRIDGE OVER BRANCH OF SNI-A-BAR CREEK

STATE ROAD FROM RTE. I-70 SOUTH TO 0.5 MILE S. OF SNI MILLS ABOUT 5.0 MILES S. OF OAK GROVE

PROJECT NO. RS-463 (1) STA. 227+63.7

JOB NO. 4S 998-F RTE. F

JACKSON COUNTY

DATE: 1/10/90

STD.
STD.
A-31R

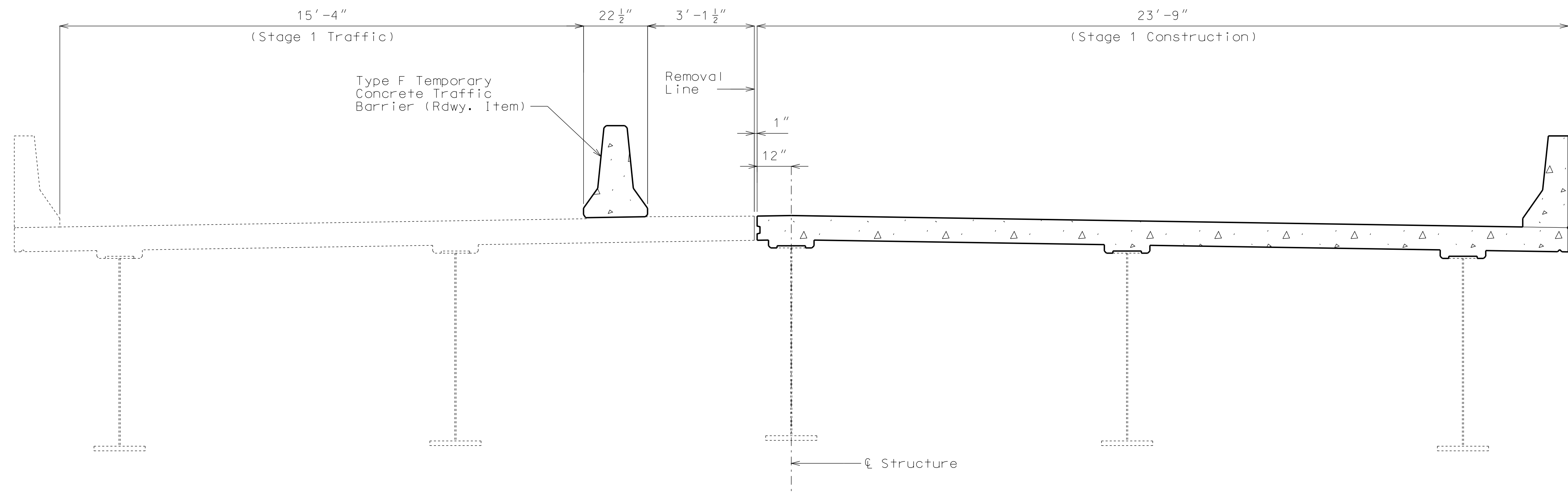
DESIGNED DEC. 1989  
 DETAILED DEC. 1989  
 CHECKED DEC. 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

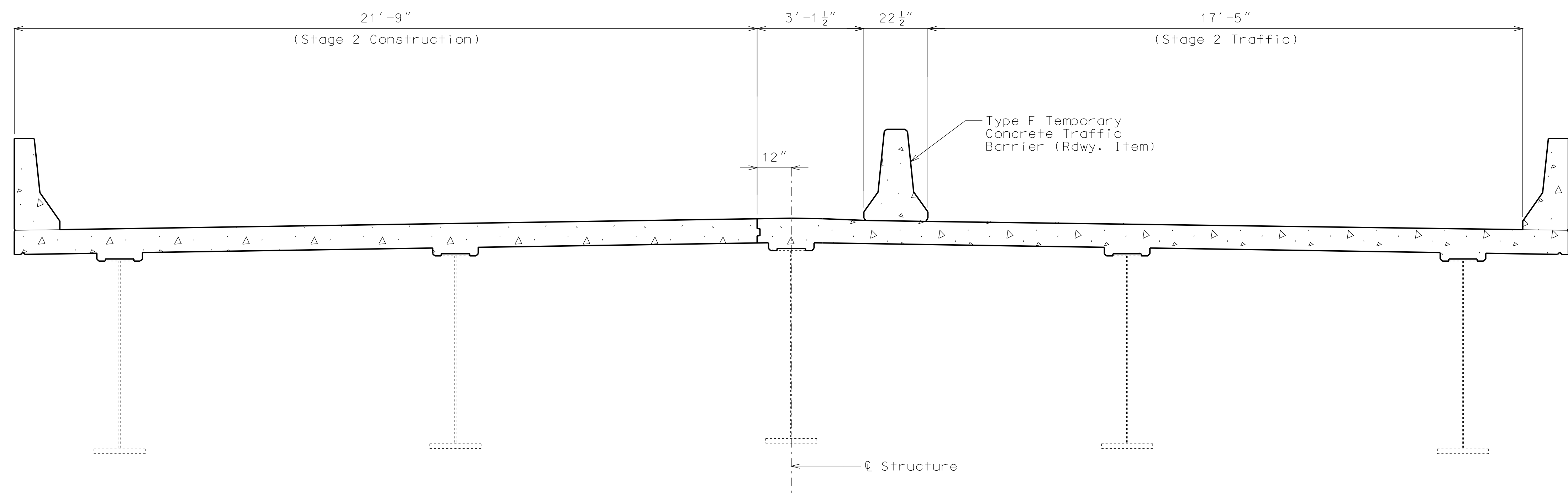
SHEET NO. 1A OF 1

271





STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

DETAILS OF STAGE CONSTRUCTION

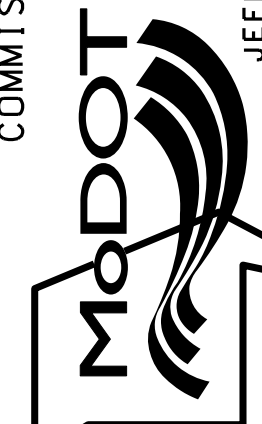
Note:  
Temporary Barrier shall not be attached to the bridge.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 10/8/2013	
ROUTE 7	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY CASS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A41531	

DATE	DESCRIPTION

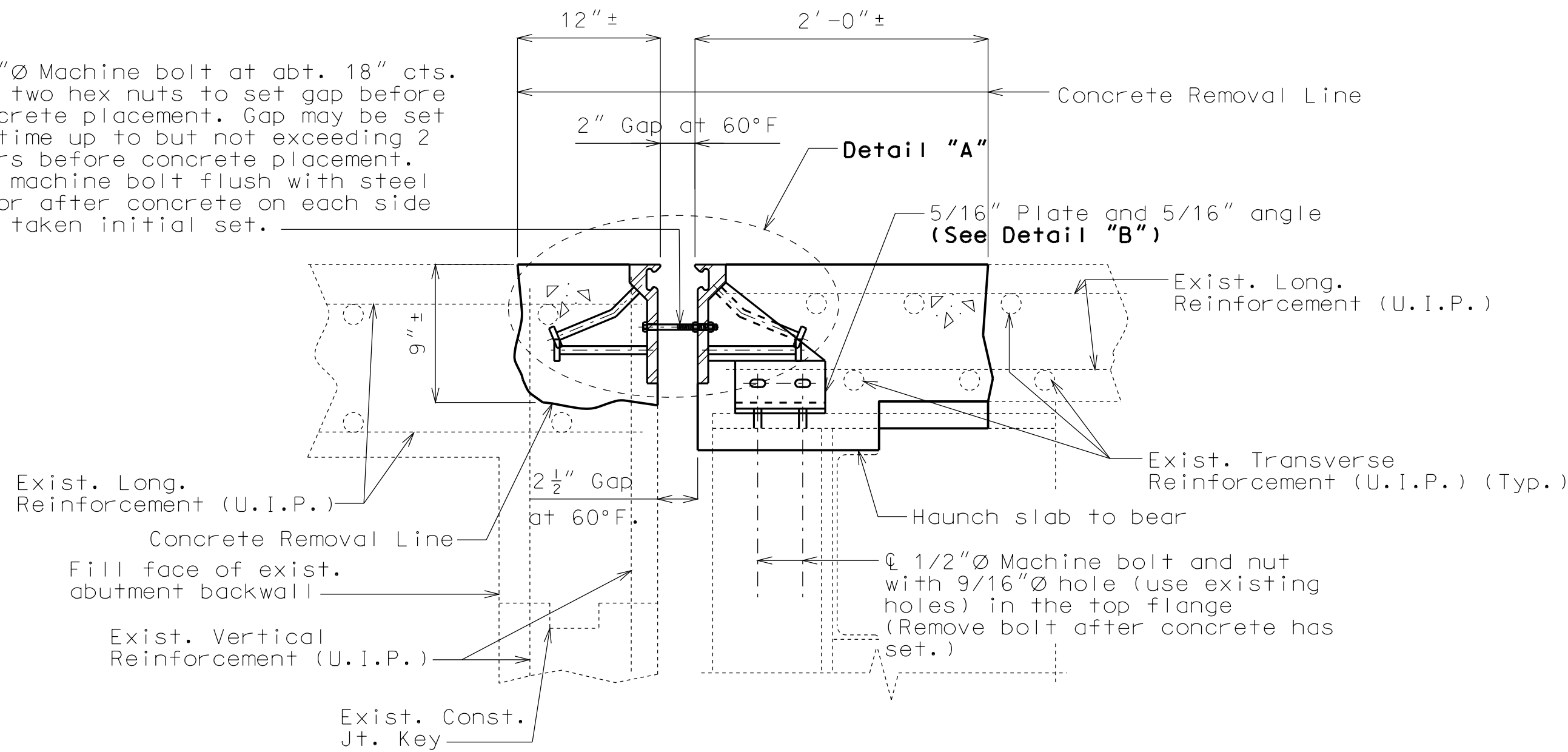
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

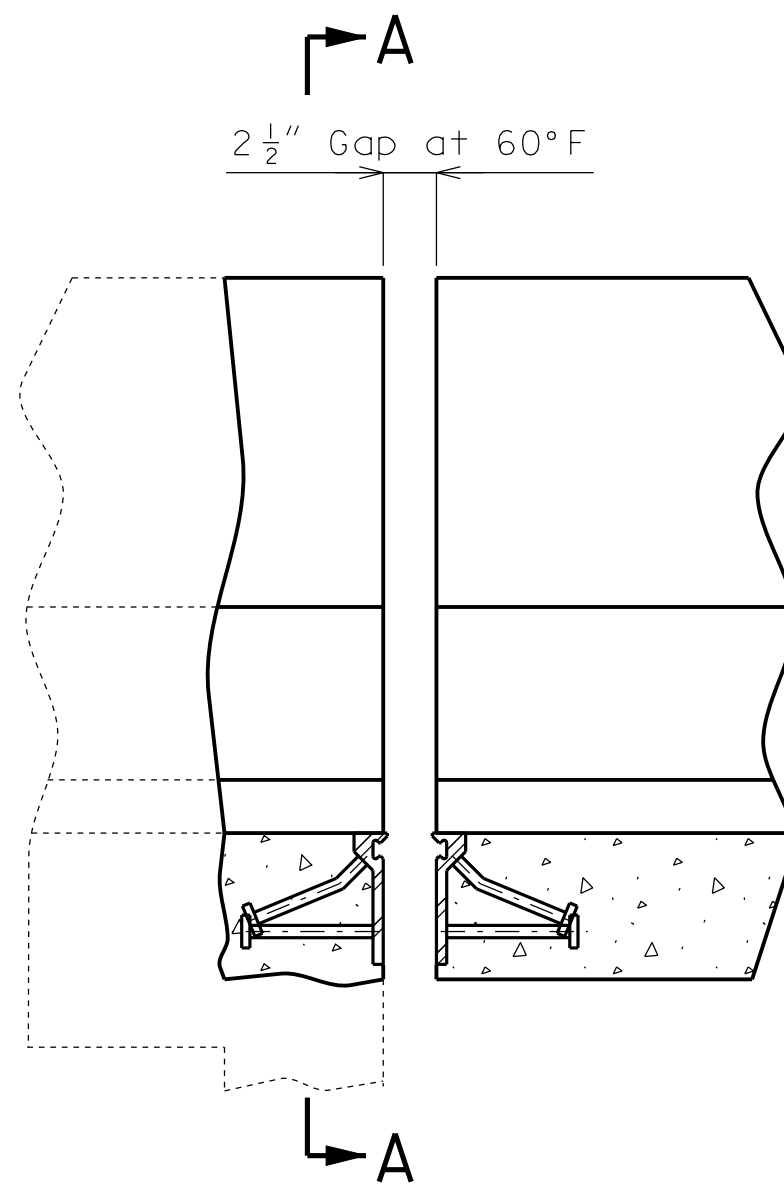
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

1/2"Ø Machine bolt at abt. 18" cts.  
Use two hex nuts to set gap before  
concrete placement. Gap may be set  
anytime up to but not exceeding 2  
hours before concrete placement.  
Cut machine bolt flush with steel  
armor after concrete on each side  
has taken initial set.

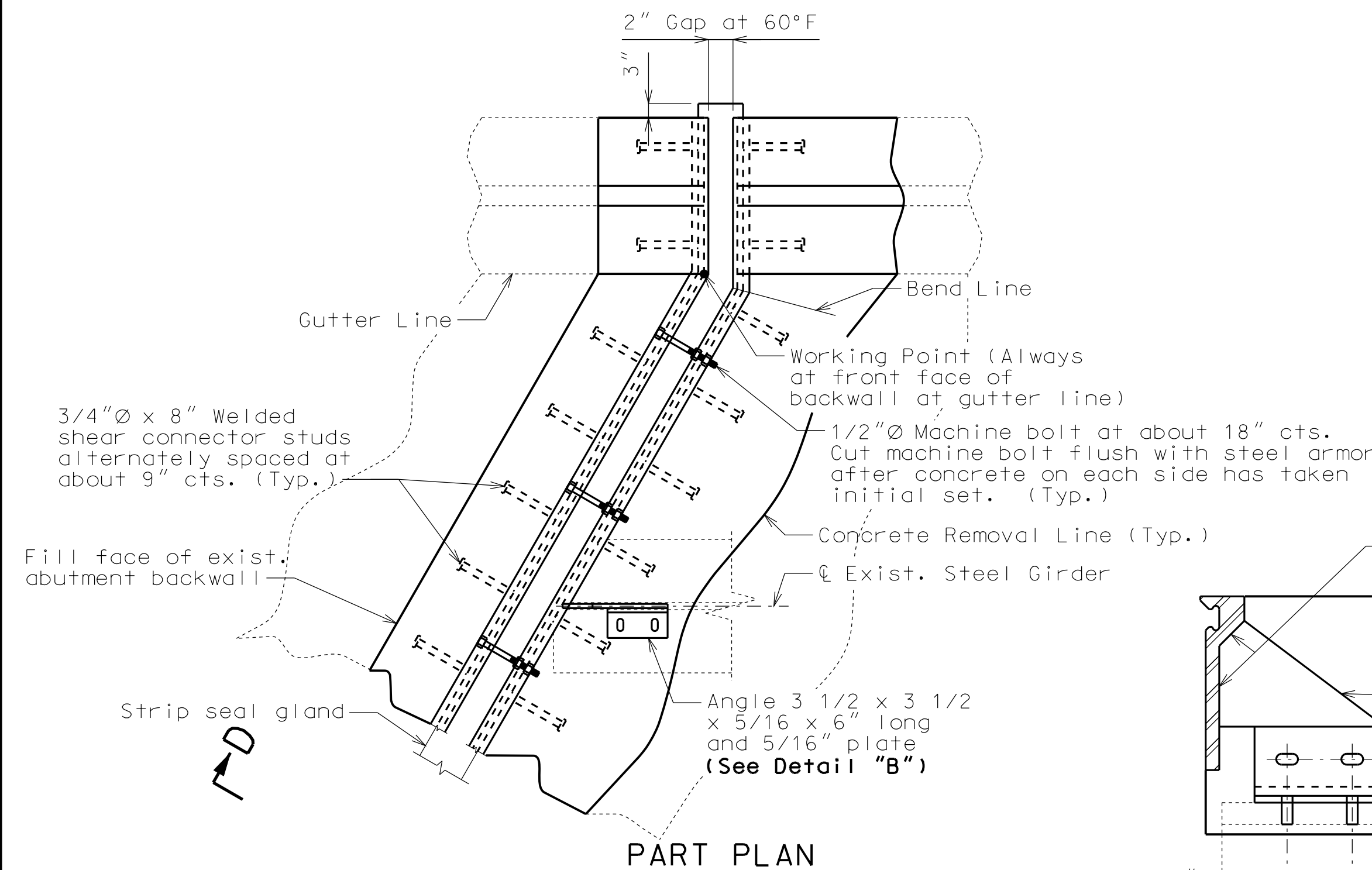


SECTION D-D

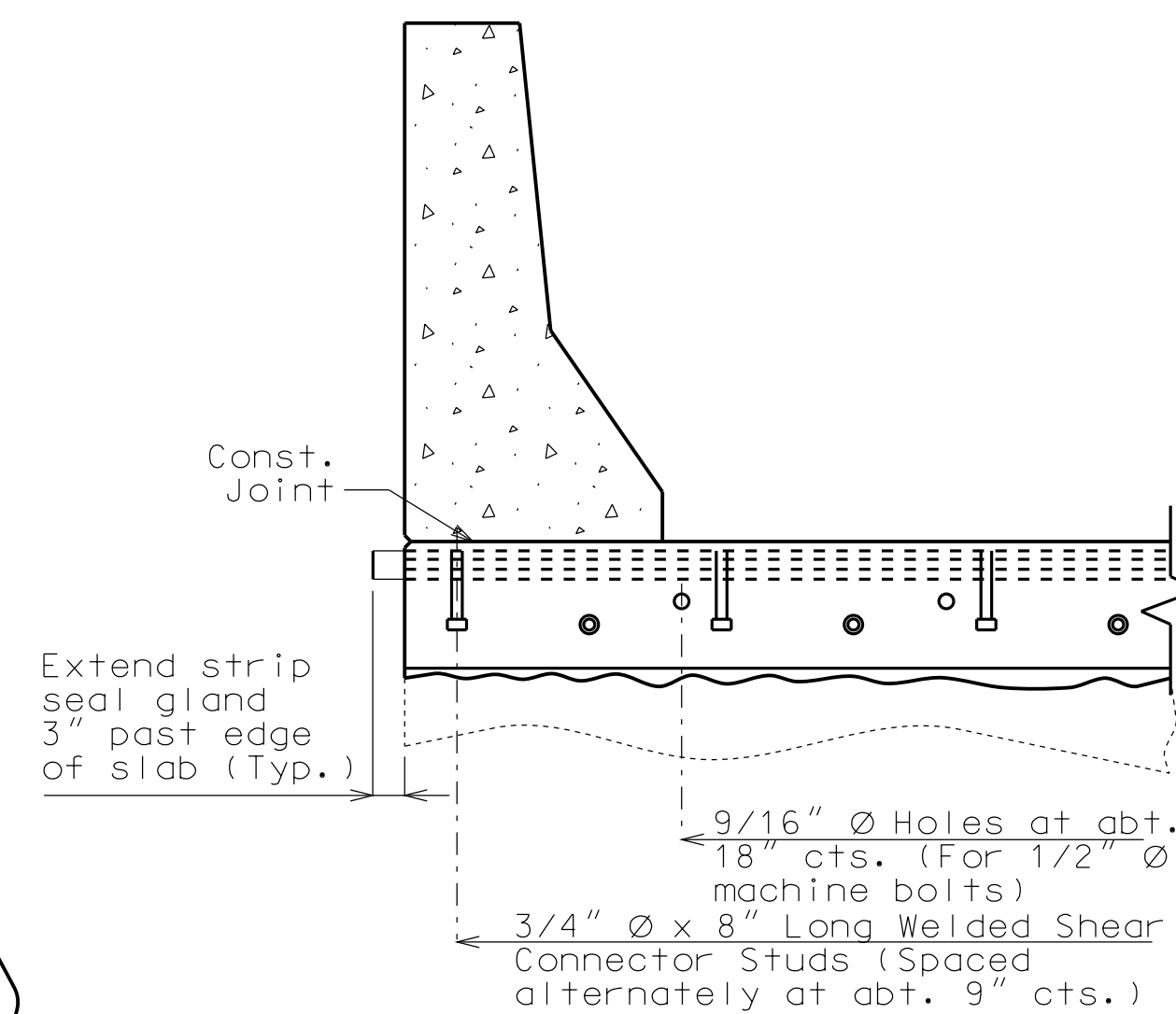
Note: Strip seal gland not shown for clarity.



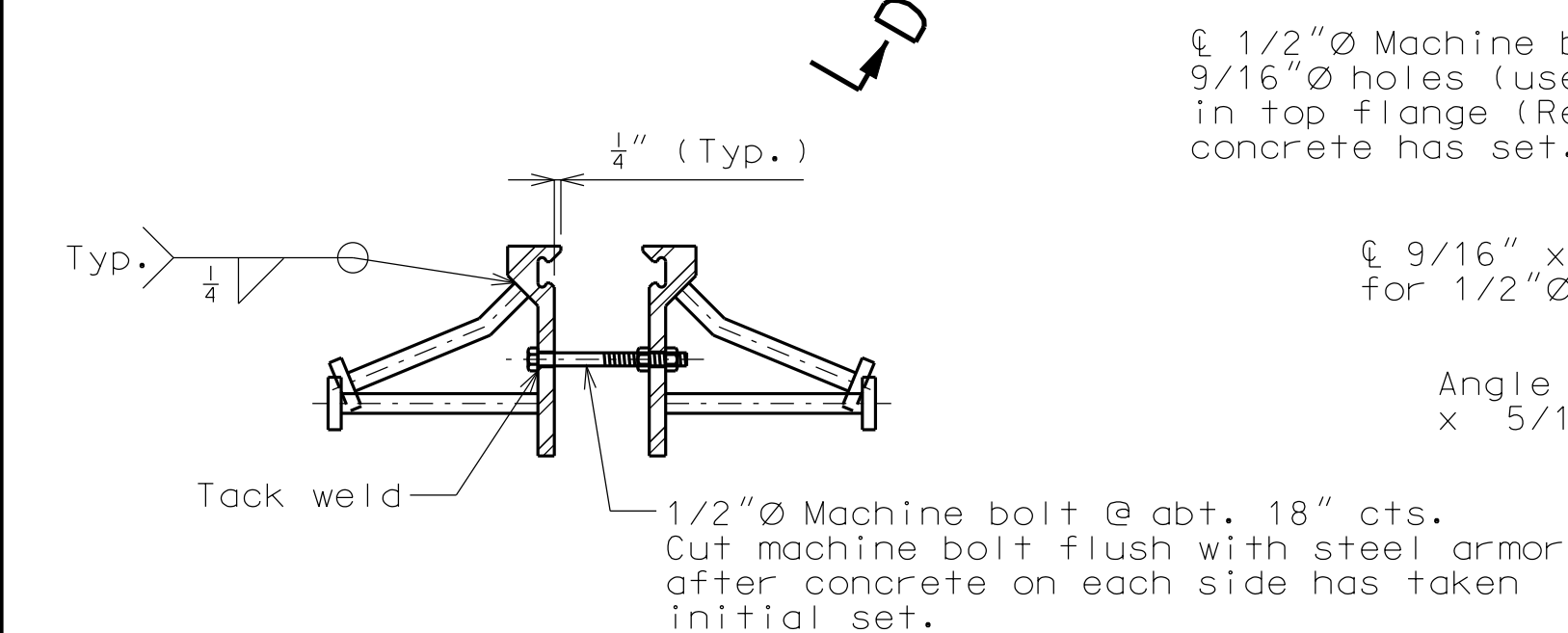
Note: Strip seal gland not shown for clarity.  
PART ELEVATION OF BARRIER CURB



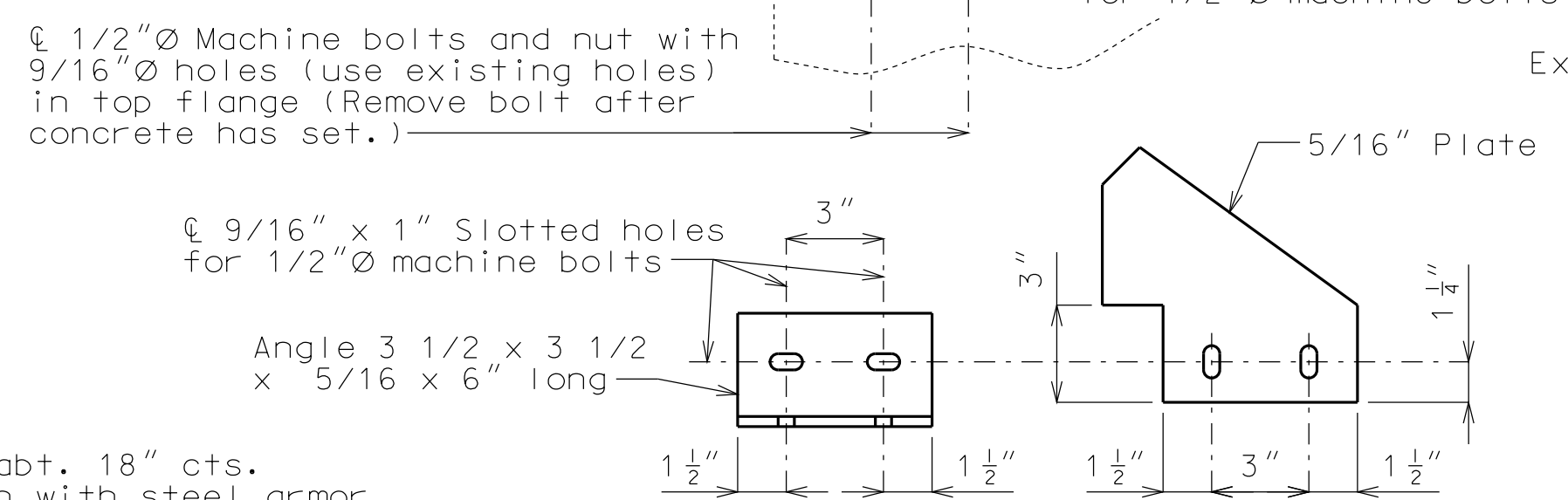
PART PLAN



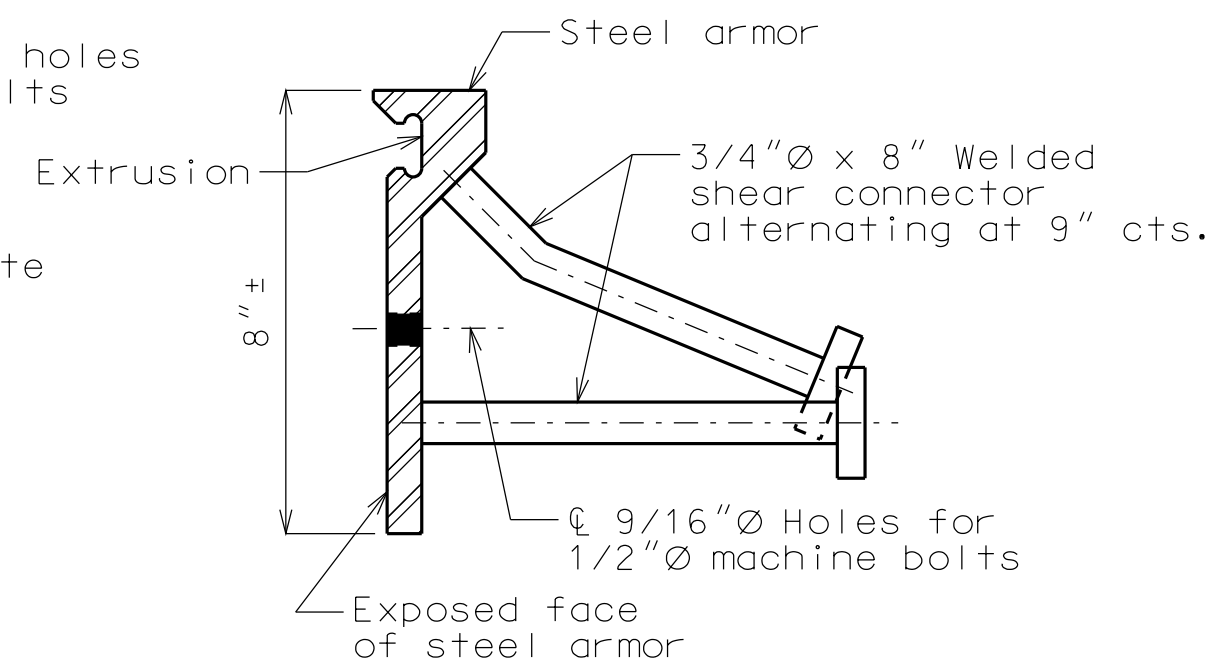
PART SECTION A-A



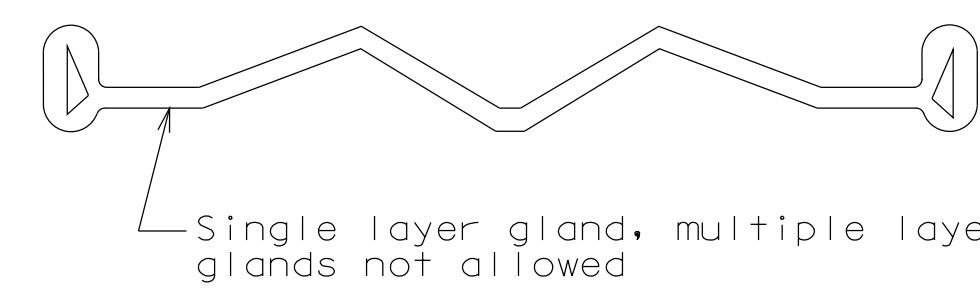
DETAIL "A"



DETAIL "B"



DETAIL OF JOINT ARMOR



DETAIL OF GLAND

GENERAL NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

Longitudinal reinforcing steel shall be cut/bent so that ends shall not be more than ±1" from vertical leg of the steel armor at the expansion joint system.

Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED

10/8/2013

ROUTE 7 STATE MO

DISTRICT BR SHEET NO. 3

COUNTY CASS

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A41531

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
10/8/2013

ROUTE 7 STATE MO

DISTRICT BR SHEET NO. 4

COUNTY CASS

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A41531

DESCRIPTION

DATE

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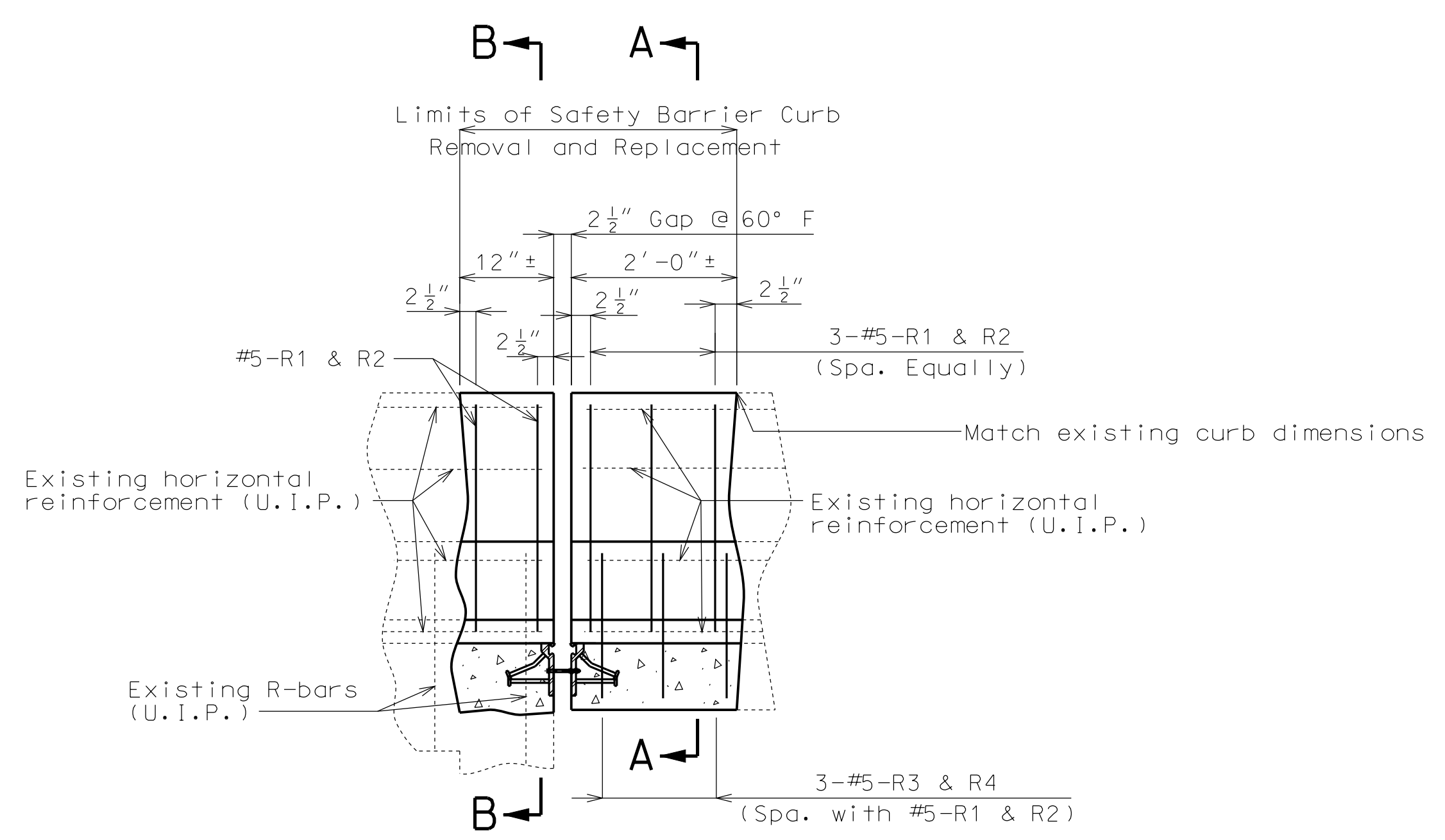
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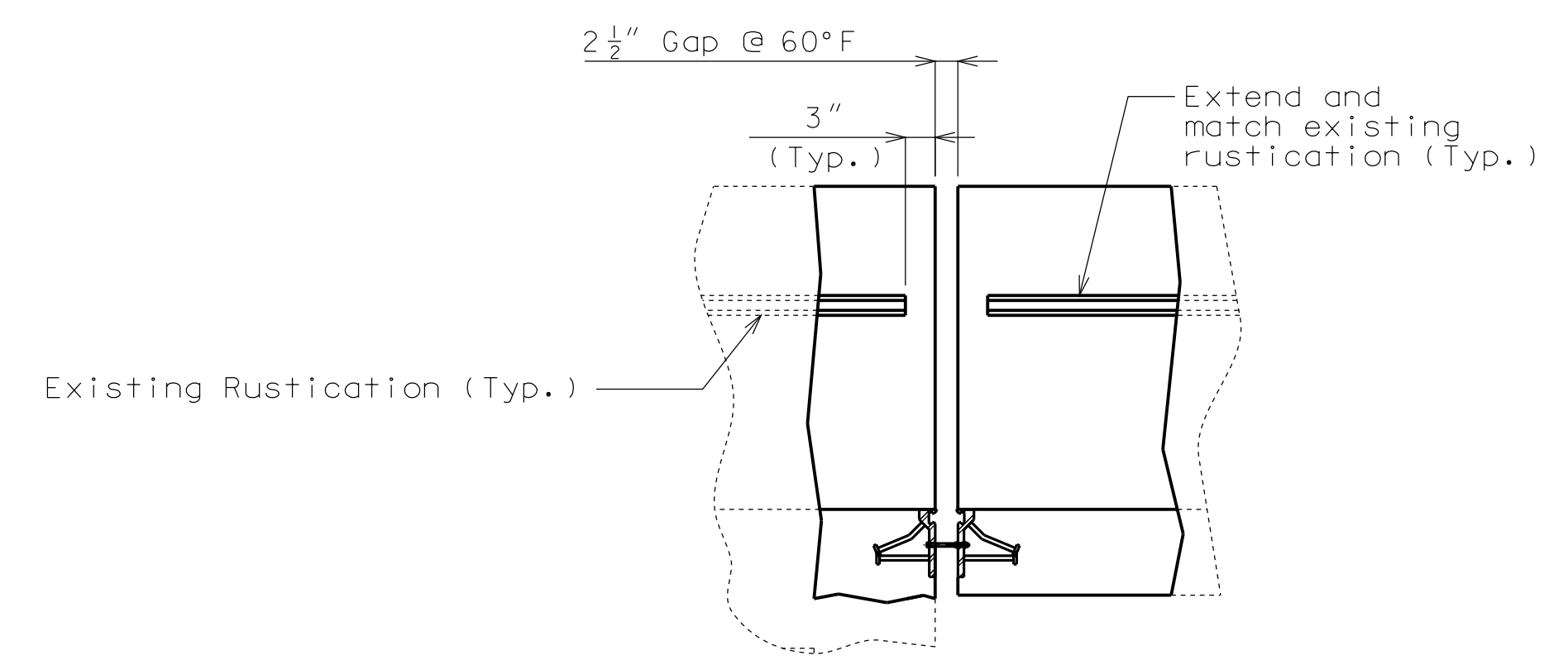
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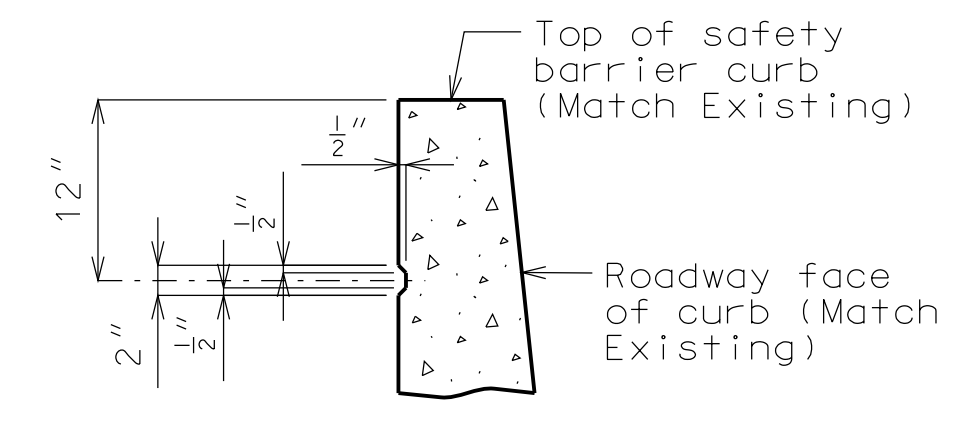
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



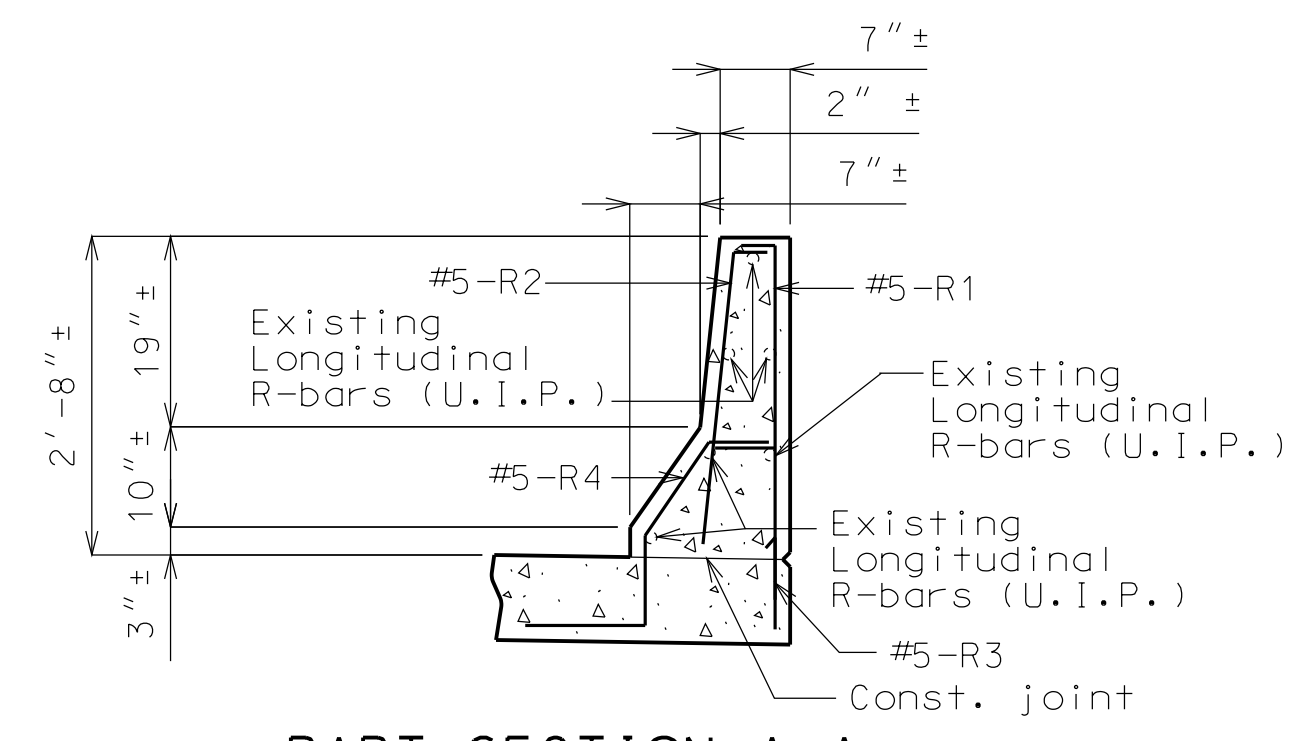
**PART SECTION SHOWING PARTIAL SAFETY BARRIER CURB REPLACEMENT**  
(Abutment No. 1 shown, Abutment No. 3 similar)



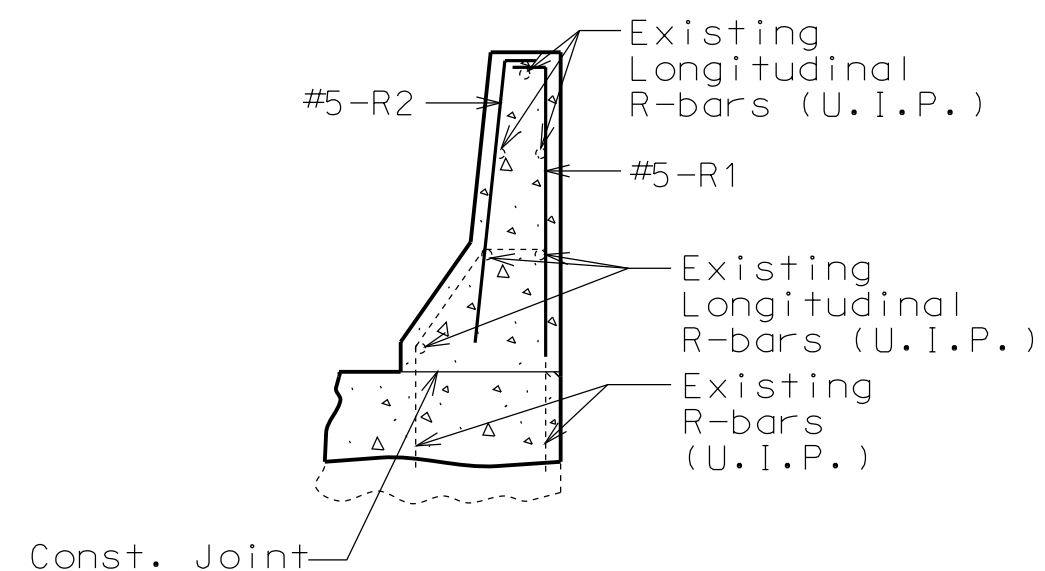
**PART ELEVATION SHOWING PARTIAL SAFETY BARRIER CURB REPLACEMENT**  
(Abutment No. 1 shown, Abutment No. 3 similar)  
Note: Strip seal gland not shown for clarity.



**PART SECTION SHOWING RUSTICATION DETAILS**



**PART SECTION A-A**




**PART SECTION B-B**

**Notes:**  
Remove existing stirrups within limits of Safety Barrier Curb Removal.  
Concrete in the Safety Barrier Curb replacement shall be Class B-1.  
All exposed edges of new Safety Barrier Curb shall match existing Safety Barrier Curb.  
Payment for curb removal and all concrete and reinforcement for safety barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb per linear foot.

**DETAILS OF SAFETY BARRIER CURB REPLACEMENT**

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)





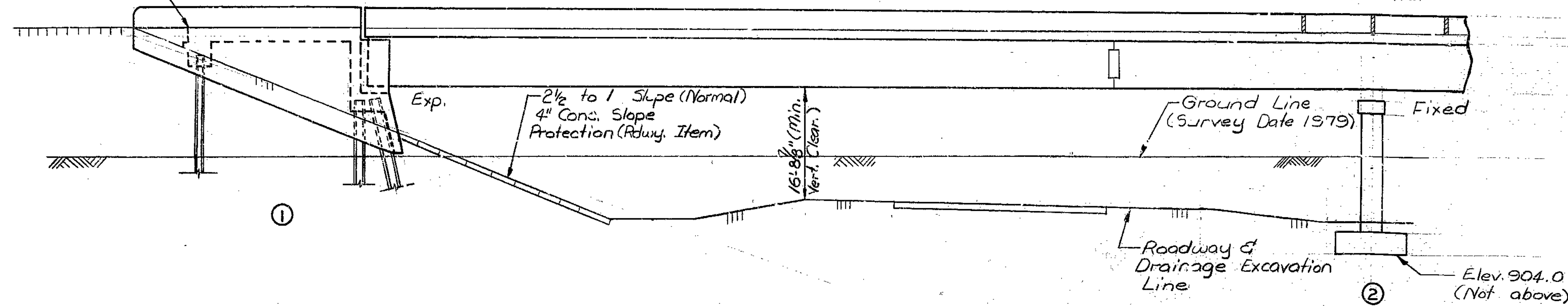
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

(132'-135') Cont. Comp. R. Girder Spans

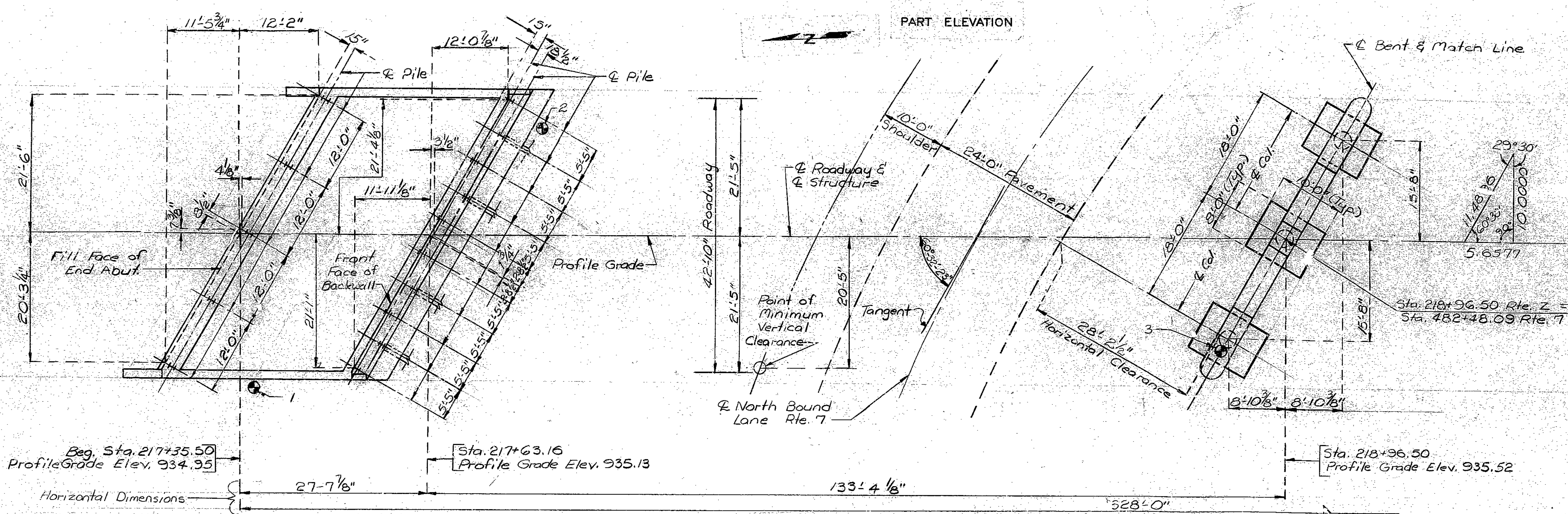
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
SEC./SUR. 26	MO.	TWP. 44 N	RGE. 30 W	48	

Pro. Gr. Elev. 934.95 @  $\perp$  Roadway

P.I. Sta. 218+96.50  
Elev. 936.65  
+1.07% -1.07%  
450' V.C.



Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete approach beam within the limits of the structure and for not less than 25' in back of the fill face of the end abuts. before piles are driven for any bents falling within the embankment section.



SPAN (1-2)

PART PLAN

Note: For Boring Data see sheet No. 3.  
⊕ Indicates location of boring.  
F General Notes see sheet No. 2.  
Pile Data, Footing Data and Estimated Quantities see sheet No. 3.

CURVE DATA RTE. 7

P.I.	= 496+40.56
$\Delta$	= 39°-33'-17\"/>
D	= 1'
T	= 2060.23
L	= 3955.49
R	= 5729.58
SE	= 0.025 1/4

B.M. Elev. 914.24 Spike nail in P.P.N.W. Quad Rte. Z & Co. Rd. (USGS Datum)

**BRIDGE RTE Z UNDERPASS**  
STATE ROAD FROM RTE. 71 TO RTE. 13  
AT GARDEN CITY  
PROJECT NO. 4-P-71-271  
JOB NO. 4-P007-271  
CASS

DESIGNED May 1984  
DETAIL May 1984  
CHECKED May 1984

Note: This drawing is not to scale. Follow dimensions.

SEE FINAL PLANS  
Sheet No. 1 of 20.

DATE July 13, 1984

STD. 611-60
STD. 706-35
A-4153

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MA.		88	49	

**GENERAL NOTES**

Design Specifications: A.A.S.H.T.O.-1977 and Interims thru 1983. Load Factor Design.

Design Loading:  
 HS20-44 35#/sq. ft. Future Wearing Surface  
 Earth 120#/cu. ft., Equivalent Fluid Pressure 30#/cu. ft.  
 Fatigue Stress - Class II

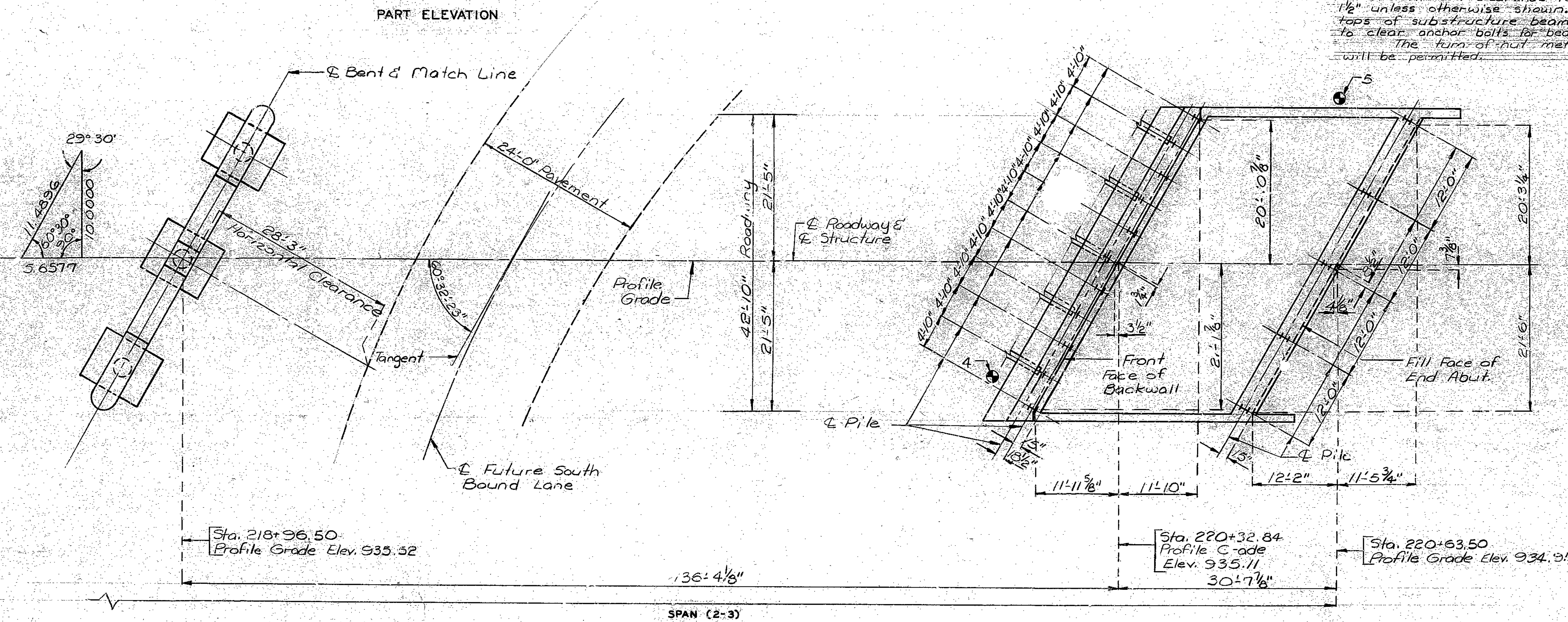
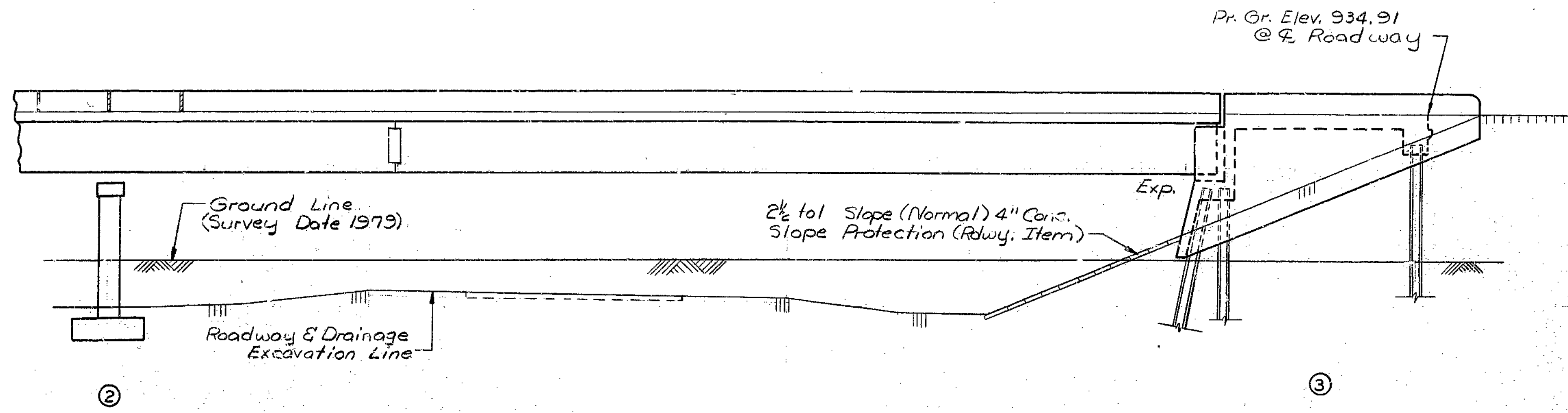
Design Unit Stresses:  
 Class B Concrete (Substructure)  $f_c = 3,000$  psi.  
 Class B2 Concrete (Superstructure except Safety Barrier Curb)  $f_c = 4,000$  psi.  
 Class B1 Concrete (Safety Barrier Curb)  $f_c = 4,000$  psi.  
 Reinforcing Steel (Grade 60)  $f_y = 60,000$  psi.  
 Structural Carbon Steel  $f_y = 36,000$  psi.  
 Structural Steel (A.S.T.M. A572) Grade 50  $f_y = 50,000$  psi.  
 Steel Pile  $f_b = 9,000$  psi.

Paint:  
 System B by contractor in accordance with Std. Spec. 712.12. (Color of the final field coat for System B shall be green).

Fabricated Steel:  
 Field connections, High Strength Bolts  $\frac{3}{4}$ "  $\phi$ , holes  $\frac{1}{16}$ "  $\phi$  except as noted.

Joint Filler:  
 All joint filler shall meet the requirement of Std. Spec. 1057.2.4 except as noted.

Reinforcing Steel:  
 Minimum clearance to reinforcing steel shall be  $\frac{1}{2}$ " unless otherwise shown. All reinforcing bars in tops of substructure beams or caps shall be spaced to clear anchor bolts for bearings by at least  $\frac{1}{2}$ ".  
 The turn-of-nut method of tensioning field bolts will be permitted.



Note: For Boring Data see sheet No. 3.  
 ● Indicates location of boring.

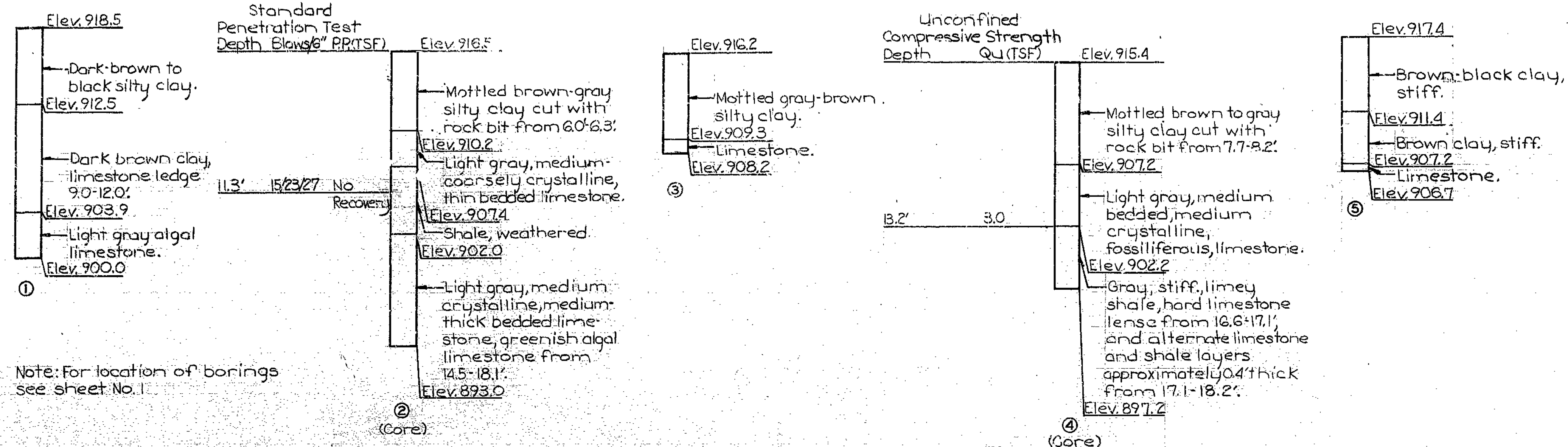
For Pile Data, Footing Data and Estimated Quantities see sheet No. 3.

DESIGNED May 1984  
 CHECKED May 1984

Note: This drawing is not to scale. Follow dimensions.

SEE FINAL PLANS  
 Sheet No. 2 of 20.

FEED. ROAD DIST. NO.	DATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NO.		88	50	



BORING DATA

ESTIMATED QUANTITIES				
ITEM	UNIT	SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation	Cu Yd	190		190
Structural Steel Pile (10 In)	Lin Ft	634		634
Class B Concrete	Sq Yd	249.7		249.7
Slab On Steel, See Special Provisions	Sq Yd		1361	1361
Safety Barrier Curb	Lin Ft		679	679
Slab On Semi-Deep Abutment	Sq Yd		295	295
Laminated Neoprene Bearing Pads	Sq Ft		15	15
Preformed Compression Expansion Joint Seal (40 In) Lin Ft	Lin Ft		94	99
Reinforcing Steel	Lb	30,610		30,610
Reinforcing Steel (Epoxy Coated)	Lb	820		820
Fabricated Structural Carbon Steel (Plate Girder)	Lb		301,200	301,200
Fabricated Structural Low Alloy Steel (Plate Girder, A-572)	Lb		88,380	88,380
Painting (System B) Green	Sq Yd		1940	1940

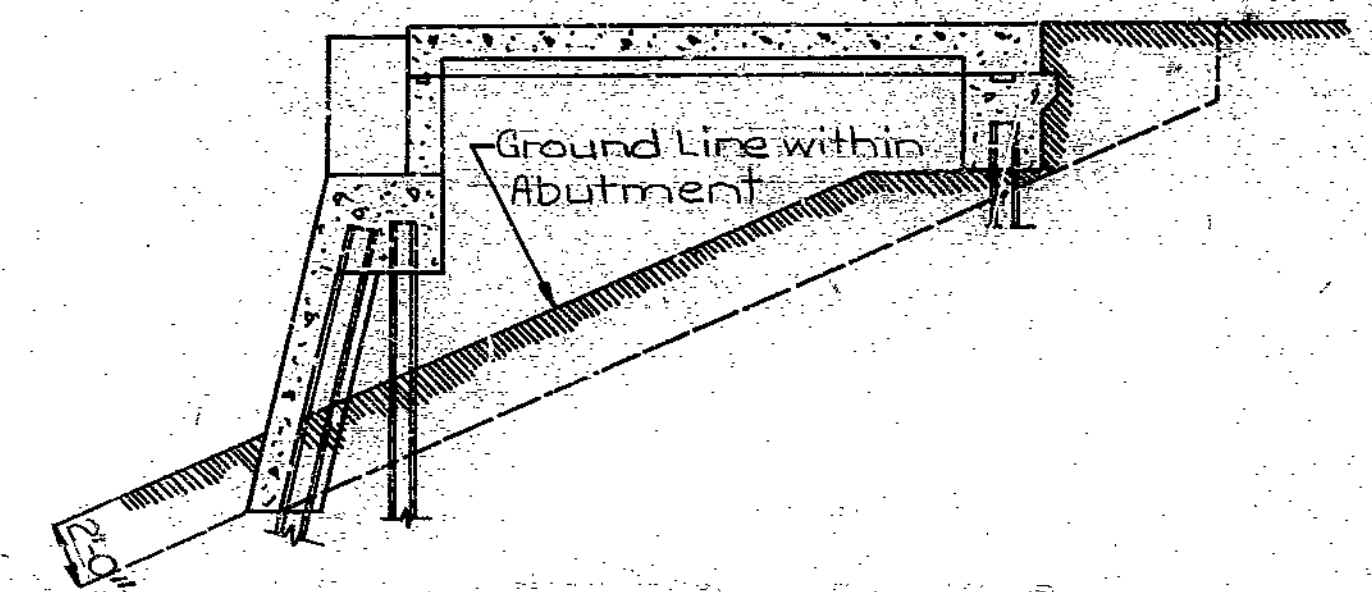
TYPE OF SLAB	ESTIMATED QUANTITIES FOR ALTERNATE SLABS		
	SLAB ON STEEL		
	EPOXY	PLAIN	CONC.
Cast-In-Place Conventional Forms	52590	38410	316.2
Stay-In-Place Forms	52590	3840**	326.1*

Note: The table of Estimated Quantities for Alternate Slabs represents the quantities used by the state in preparing the cost estimate for concrete slabs. Variations may be encountered in these estimated quantities but these variations cannot be used for an adjustment in the Contract Unit Price per square yard of Alternate Slab used. See Special Provisions for alternate methods of forming slabs.

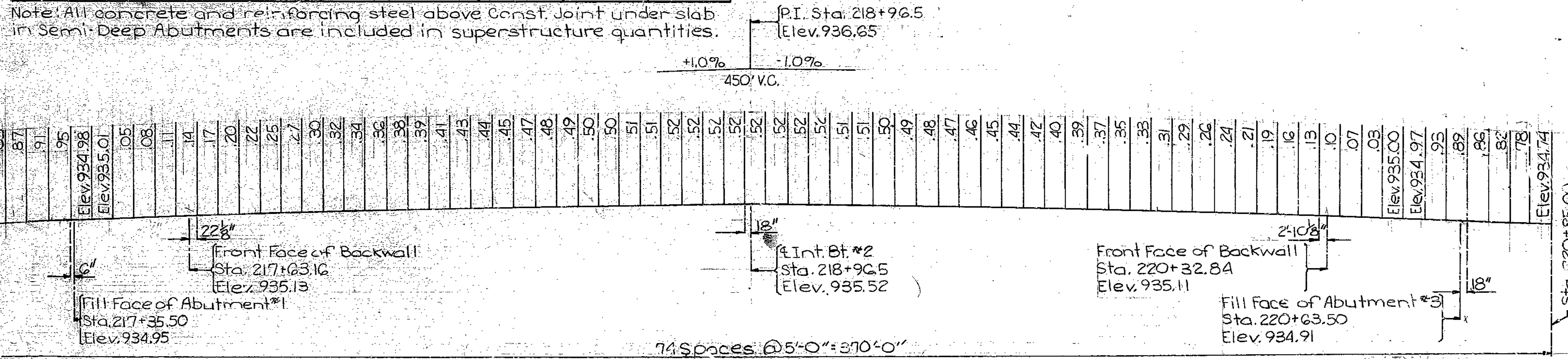
\* Does not include concrete required to fill corrugation of S.I.P. forms.  
 \*\* Does not include reinforcing bars used as bar supports.

PILE & FOOTING DATA						
BEARING PILE	BENT NO. 1		BENT NO. 2		BENT NO. 3	
	1 Brg. Bm	2 Brg. Bm	3 Brg. Bm	4 Brg. Bm	5 Brg. Bm	6 Brg. Bm
Pile Type and Size	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
Number	5	10	5	11		
Approximate Length	23 Lf 29 Ft		17		25	
Design Bearing	36 Tons		56		39	
Hammer Energy required	8000 Ft Lb		13800		8700	
SPREAD FOOTING	Foundation Material		Rock			
	Design Bearing		15.2 Tons/Sq Ft			

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles.  
 All pile shall be driven to practical refusal.



**GROUND LINE AND PILING IN ABUTMENTS**  
 Note: In no case shall the earth within abutments No. 1 and 3 be above the Ground Line shown. Forms supporting abutment slab may be left in place.  
 The maximum variation of the head of the pile and the battered face of the pile from the position shown on the plans shall be not more than 2" inches for pile under Abutments No. 1 and 3.  
 Exposed steel piles within abutment to be coated with a heavy coating of an approved bituminous paint.



DETAILED MAY 1984  
 CHECKED MAY 1984

Note: This drawing is not to scale. Follow dimensions.

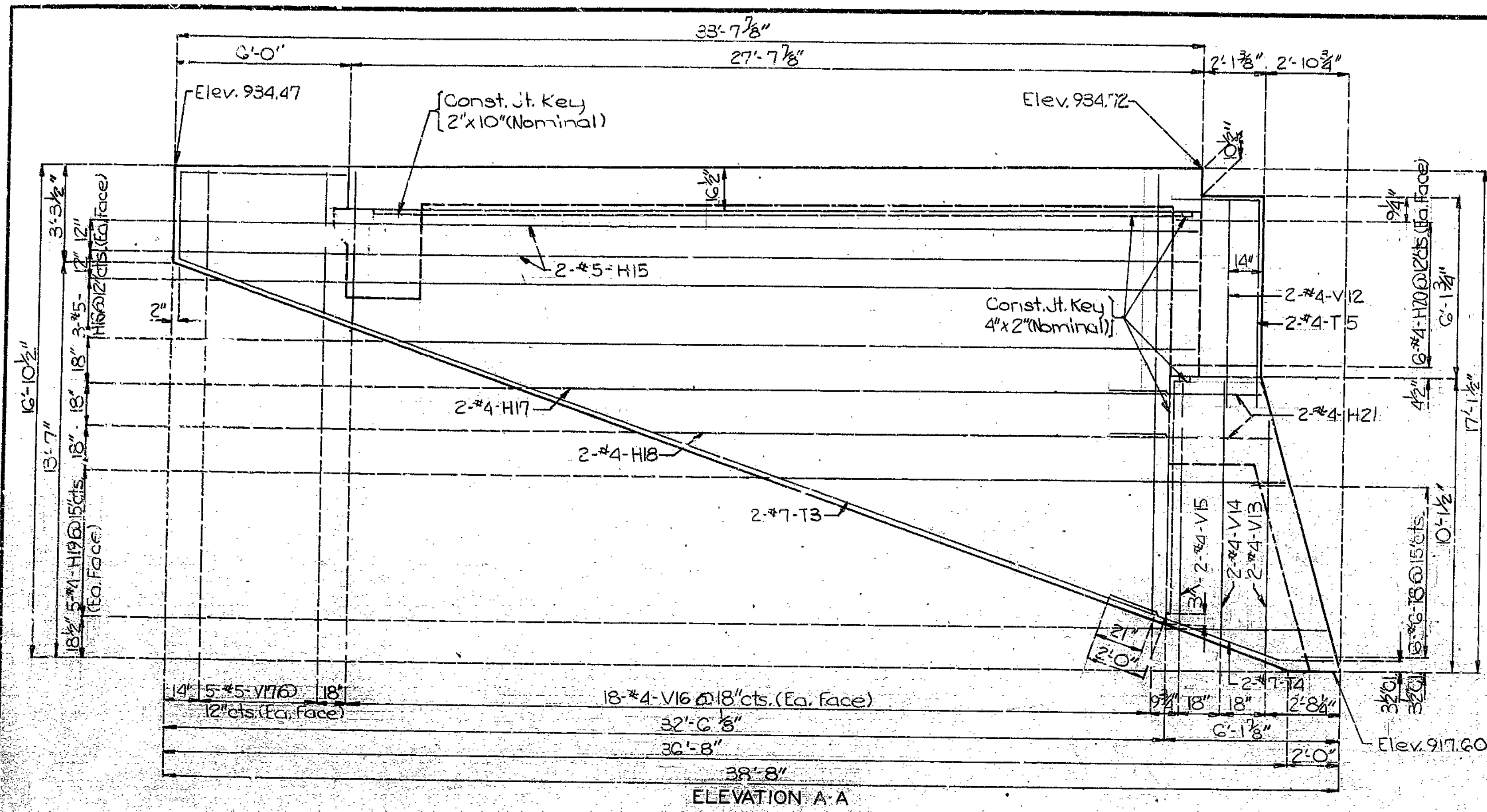
Sheet No. 3 of 20.



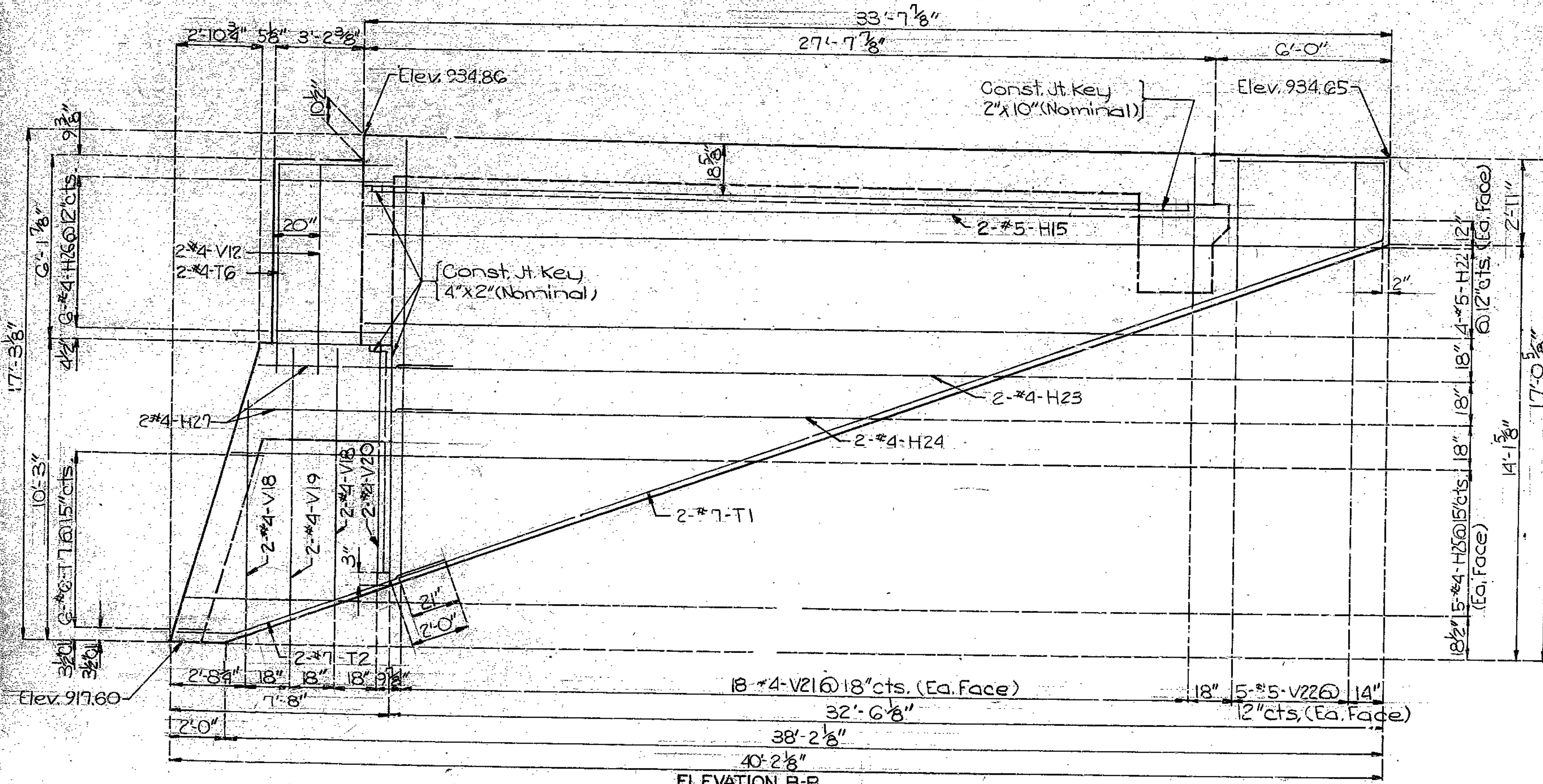




FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		19	53	

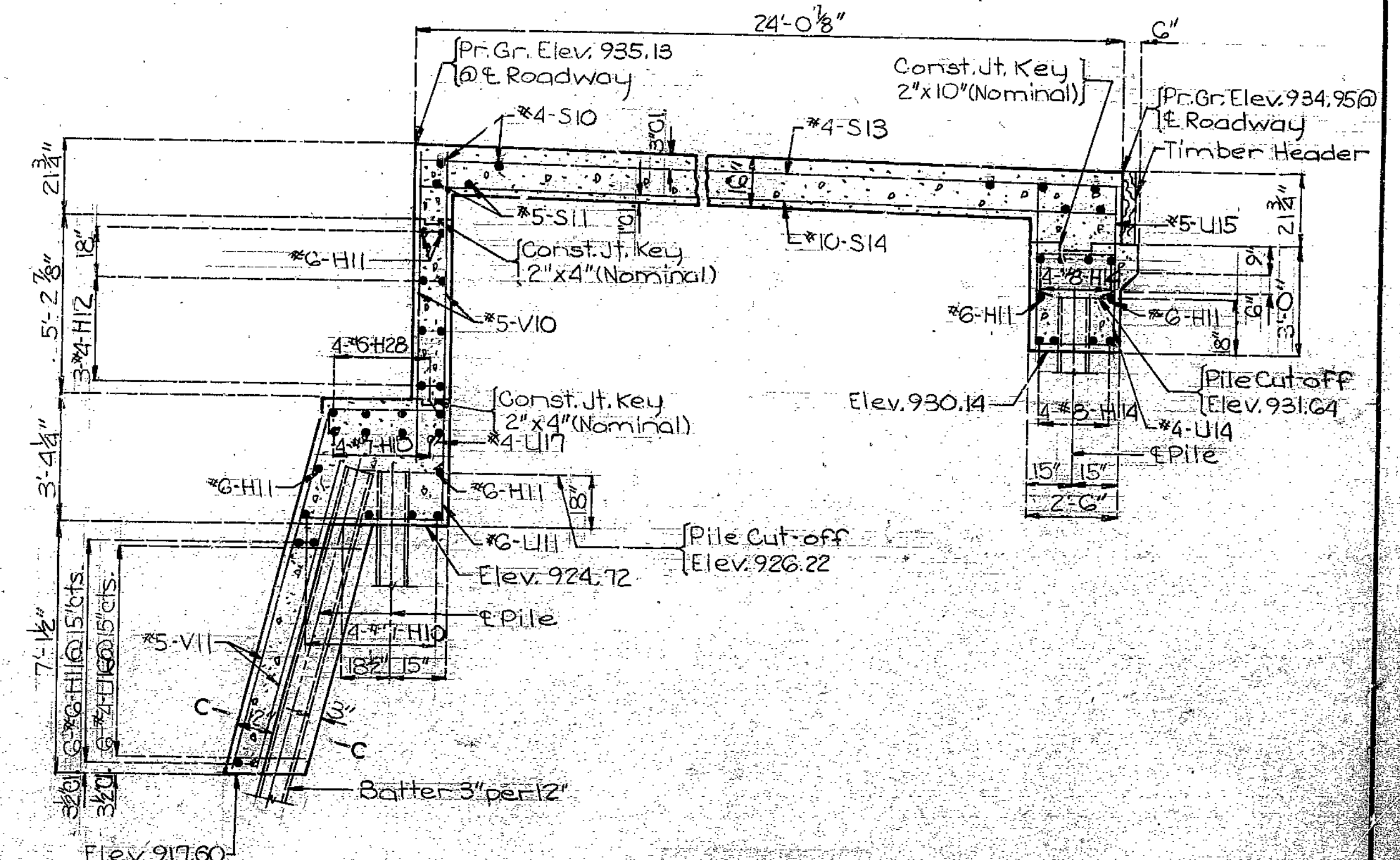


ELEVATION A-A

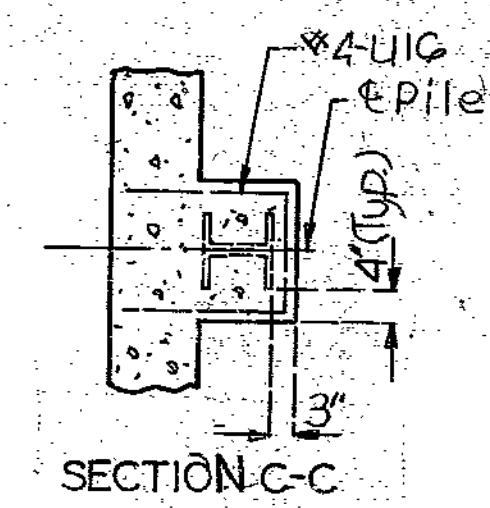


ELEVATION B-B

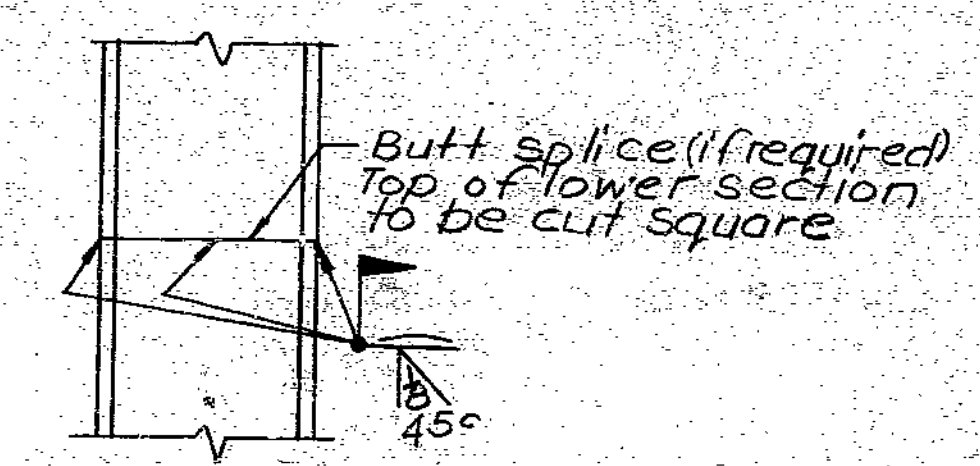
DETAILS OF ABUTMENT NO. 1



SECTION D-D



SECTION C-C



DETAIL OF STEEL PILE SPLICE

Note: For location Elevation A-A, B-B & Section D-D see sheet No. 4.  
 For details of Timber Header see sheet No. 17.  
 See sheet No. 18 for reinforcement of Safety Barrier. Curb, #5-R5, R6, & R7 must be in place before wing is poured.

DETAILED MAY 1984  
 CHECKED MAY 1984

Note: This drawing is not to scale. Follow dimensions.

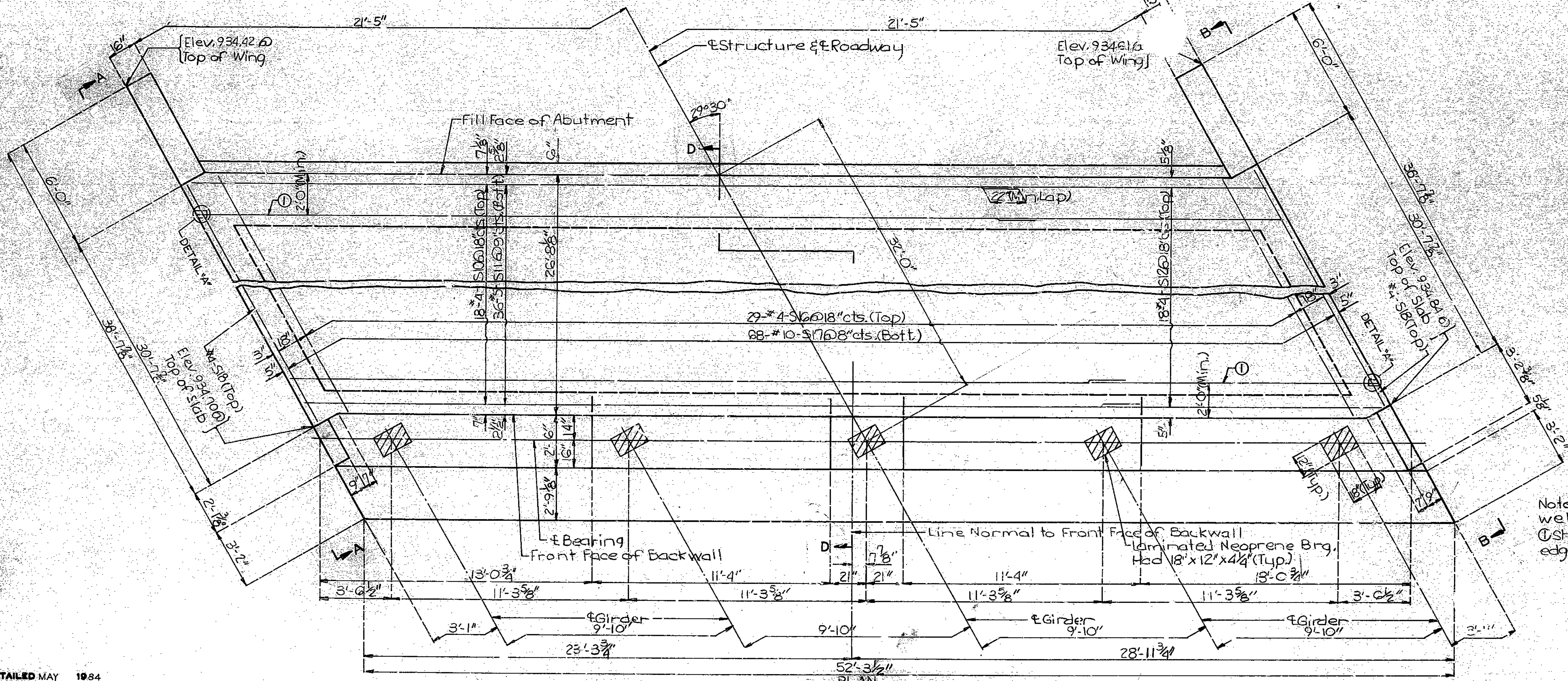
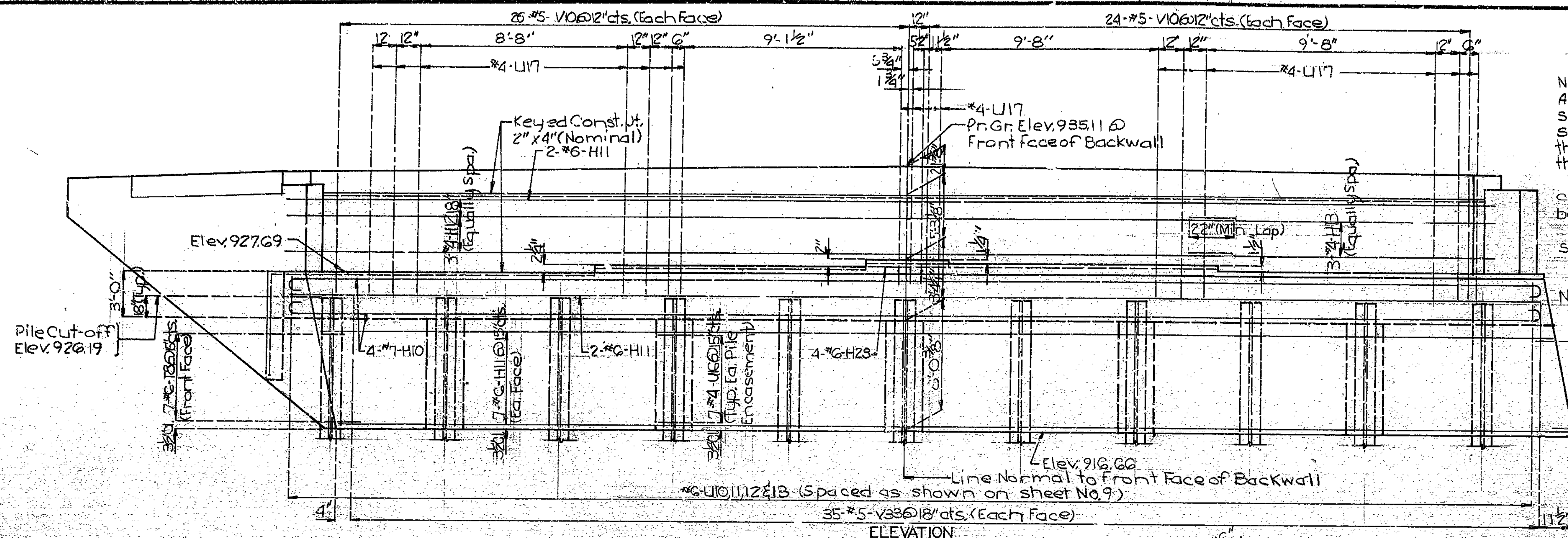
Sheet No. 6 of 20.

CASS COUNTY

A-4153

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		59	55	

Note: Top of Abut. slab and expansion device for Abutment No. 3 to conform to crown of roadway slab. Abut. slab above upper construction joint shall be Class B2 and shall not be poured until the superstructure slab has been poured in the adjacent span.  
 For details and reinforcement of barrier cur'd see sheet No. 18. \*5-R3&R4 must be in place before slab is poured.  
 For Elevation A-A, B-B & Section D-D see sheet No. 10.  
 For Detail "A" see sheet No. 16.  
 For details of Timber Header see sheet No. 17.



Note: For details of Anchor Bolt wells for brgs. see sheet No. 13  
 (C) Shift top transverse bar to edge of slab.

DETAILED MAY 1984  
 CHECKED MAY 1984

Note: This drawing is not to scale. Follow dimensions.

DETAILS OF ABUTMENT NO. 3

Sheet No. 8 of 20.

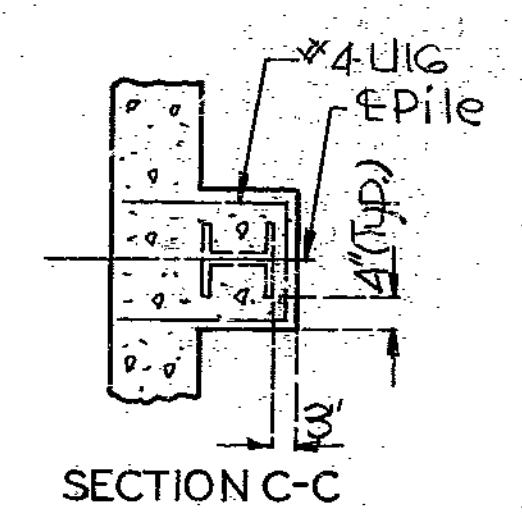
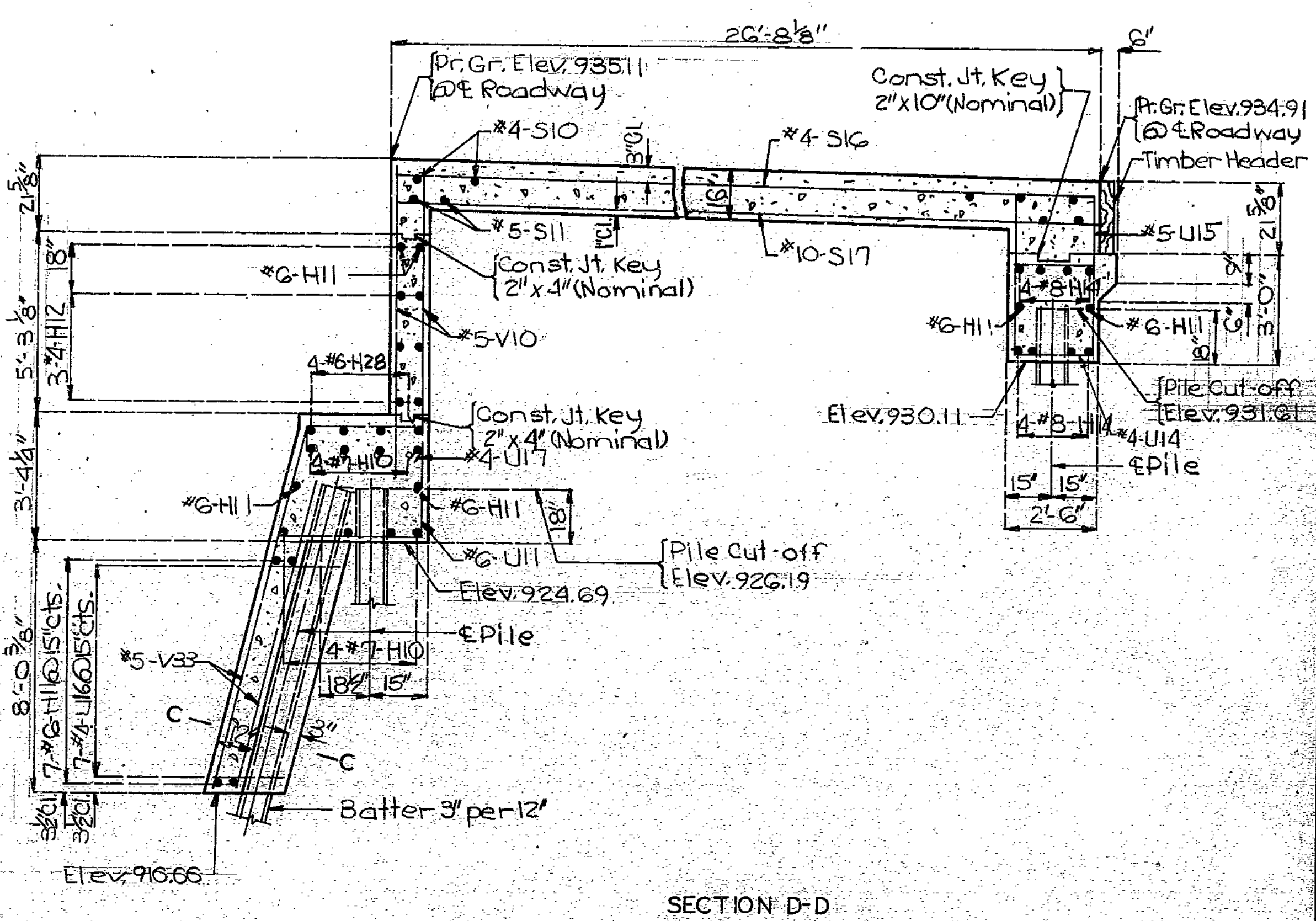
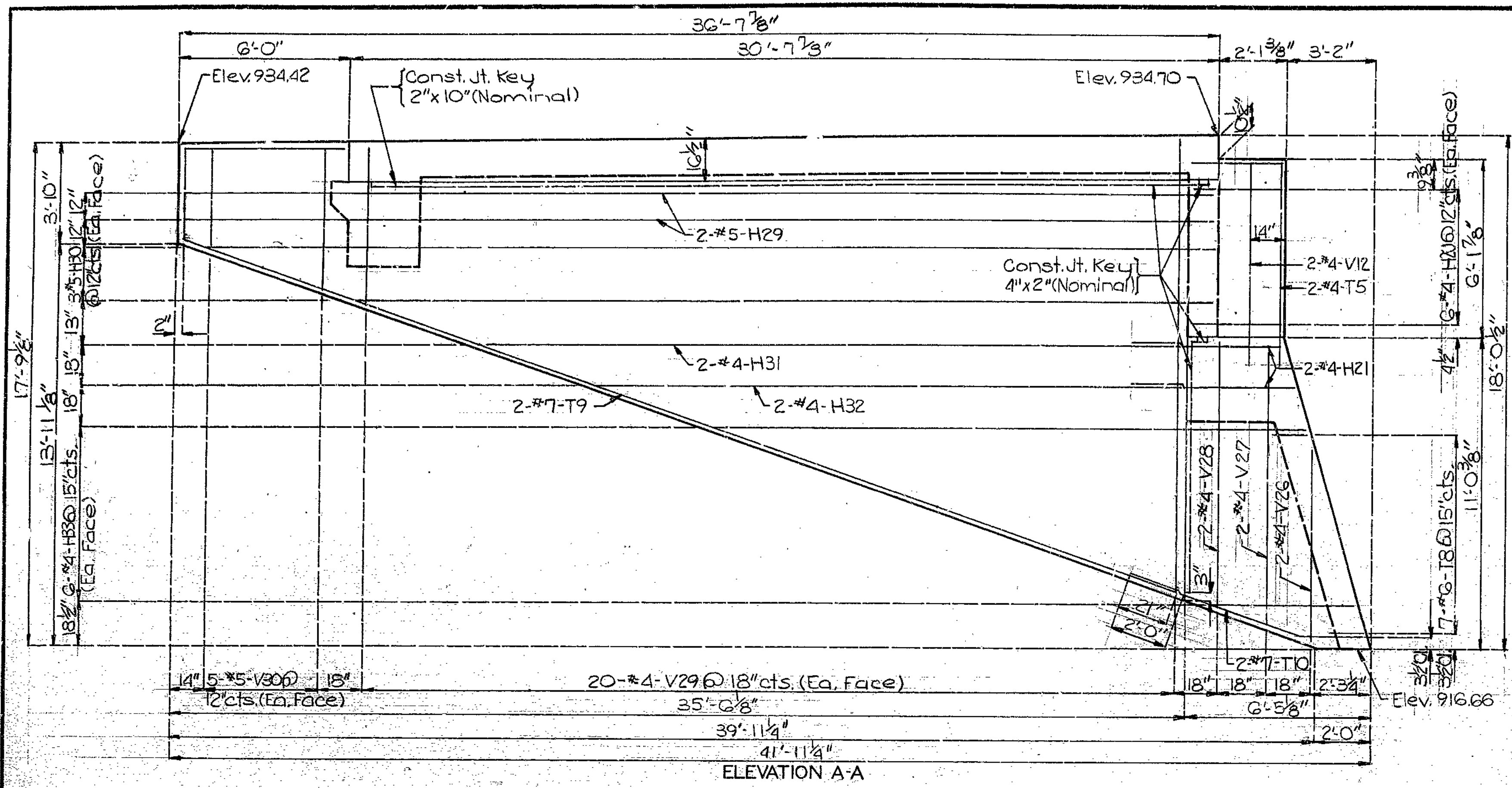
CASS COUNTY

A-4153

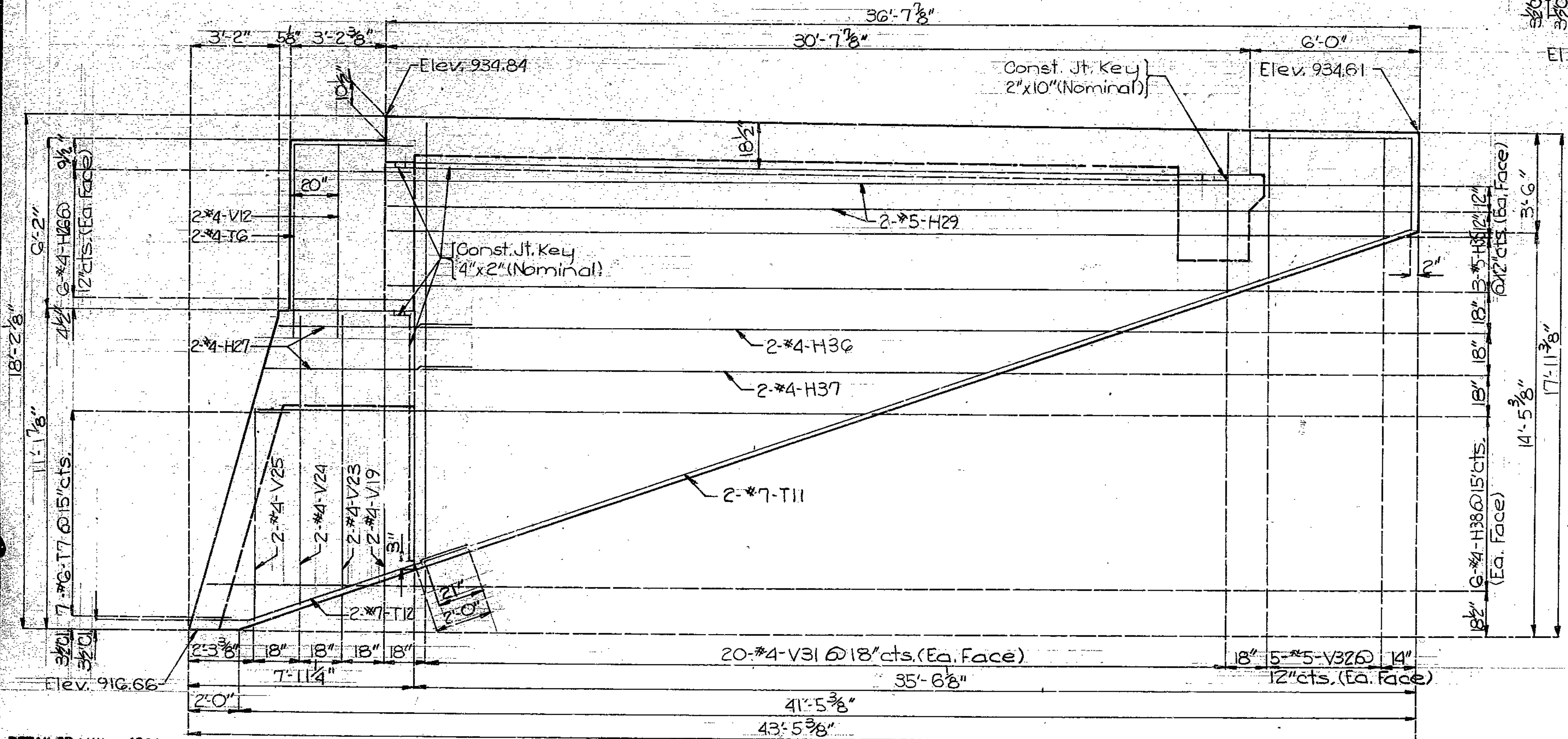




FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	57	



Note: For location Elevation A-A, B-B & Section D-D see sheet No. 8.  
 For details of Timber Header see sheet No. 17.  
 For details steel pile splice see sheet No. 6.  
 See sheet No. 18 for reinforcement of Safety Barrier Curb. #5-R5, R6 & R7 must be in place before wing is poured.



DETAILED MAY 1984  
 CHECKED MAY 1984

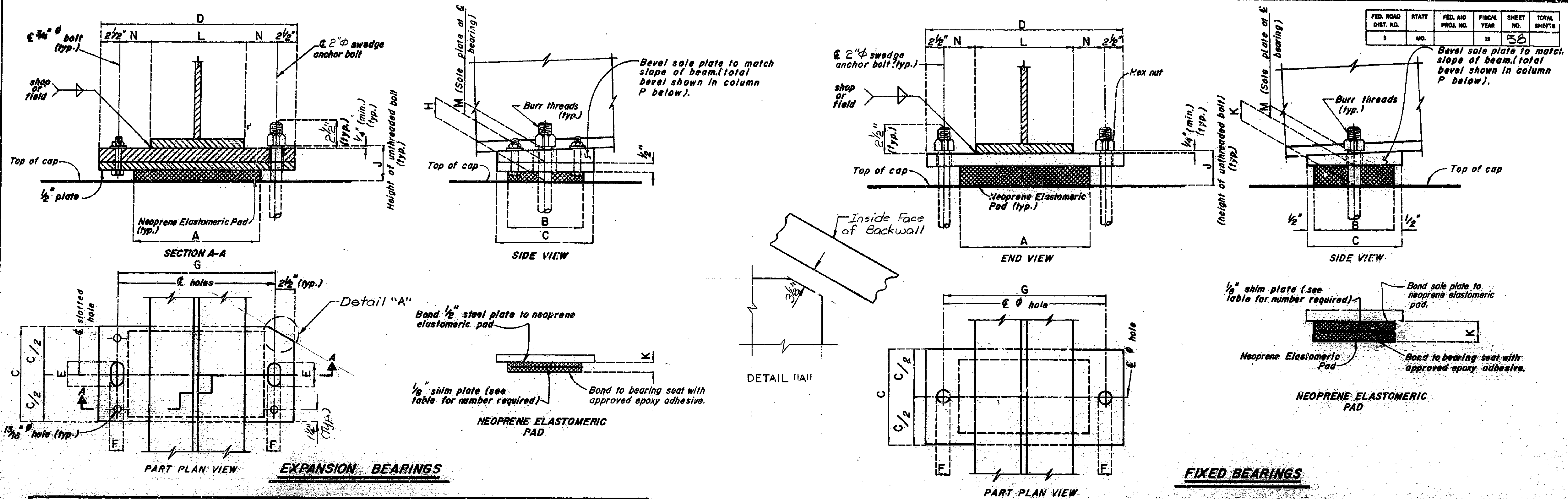
Note: This drawing is not to scale. Follow dimensions.

DETAILS OF ABUTMENT NO. 3 Sheet No. 10 of 20.

CASS COUNTY

A-4153

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		19	50	



**EXPANSION BEARINGS**

ABUT. NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	NUMBER OF SHIM PLATES (N)
1 & 3	10"	18"	13"	27"	5 1/4"	2 1/8"	22"	4 3/4"	6"	4 1/4"	18"	1"	2"	-	6

NUMBER REQUIRED: 10- Each

**FIXED BEARINGS**

BENT. NO.	A	B	C	D	F	G	J	K	L	M	N	P	NUMBER OF SHIM PLATES (N)
2	20"	2'0"	2'11"	2'5"	2'6"	2'0"	5 3/8"	3 7/8"	18"	1 1/2"	3"	-	5

NUMBER REQUIRED: 5- Each

Note: The location of anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60°F. the slotted holes should center on the anchor bolts.

(\*) The required shim plates shall be placed between equal layers of elastomer and molded together to form an integral unit.

- GENERAL NOTES:**
- ANCHOR BOLTS SHALL BE 2" SWEDGED BOLTS AND SHALL EXTEND 18" INTO CONCRETE WITH HEXAGON NUTS.
  - WEIGHT OF ANCHOR BOLTS AND HEXAGON NUTS FOR BEARINGS SHALL BE INCLUDED IN WEIGHT OF FABRICATED STRUCTURAL STEEL.
  - NEOPRENE ELASTOMERIC PADS SHALL BE 50 DUROMETER.
  - THE SOLE PLATE SHALL BE FURNISHED WITH THE BEARING AND FIELD OR SHOP WELDED TO THE STRINGERS OR GIRDERS.
  - STRUCTURAL STEEL FOR SOLE PLATE AND 1/2" BEARING PLATE SHALL BE A-36.
  - PAYMENT FOR THE SOLE PLATE, 1/2" BEARING PLATE WILL BE INCLUDED IN THE COST OF THE BEARING ASSEMBLY. SEE SPECIAL PROVISIONS.
  - ALL ANCHOR BOLTS SHALL BE A-588 STEEL WITH A-563 HEXAGON NUTS.
  - THE ACCEPTED QUANTITY OF ELASTOMERIC BEARING ASSEMBLIES, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR LAMINATED NEOPRENE BEARINGS, EACH.
  - ALL STRUCTURAL STEEL FOR SOLE PLATES, 1/2" BEARING PLATES, ANCHOR BOLTS AND HEXAGON NUTS SHALL BE PAINTED WITH 2 COATS (5 MILS MINIMUM) OF INORGANIC ZINC. WELD AREAS TO BE TOUCHED UP AFTER ASSEMBLY.

LAMINATED NEOPRENE BEARINGS

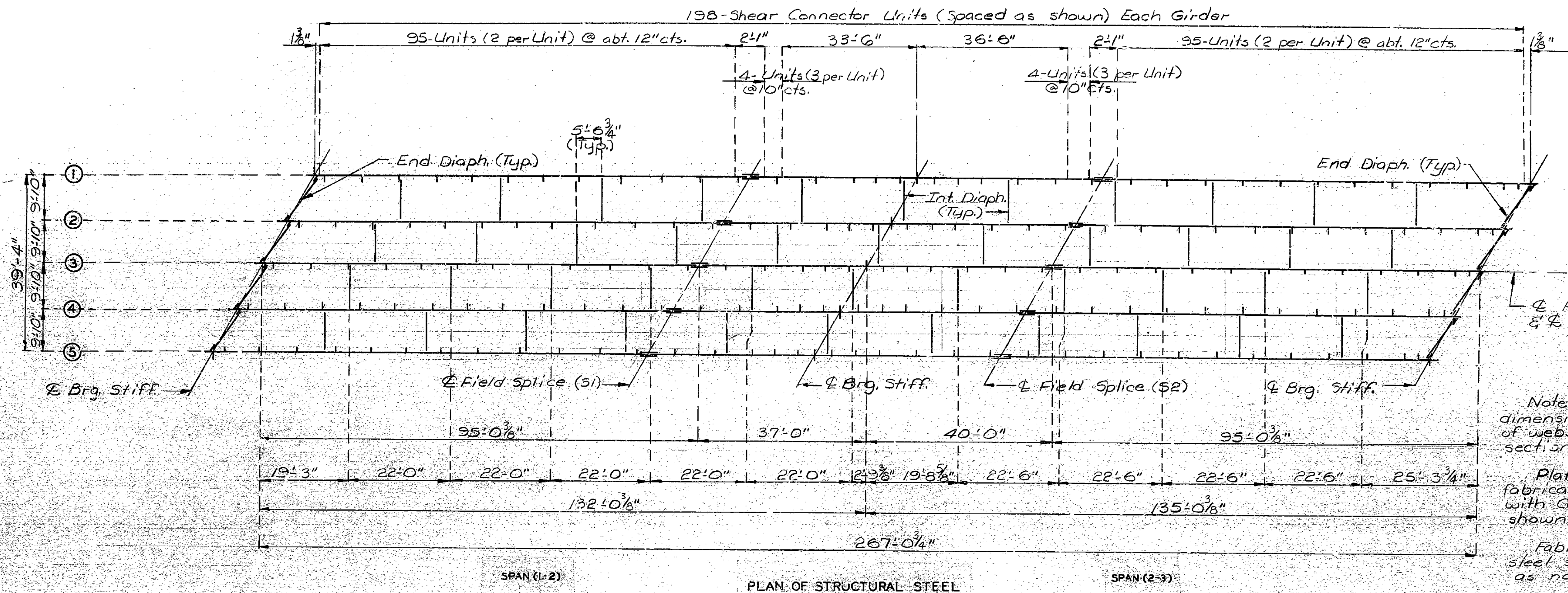
56

DETAILED May 1984  
CHECKED May 1984

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 11 of 20.

REP. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	50	



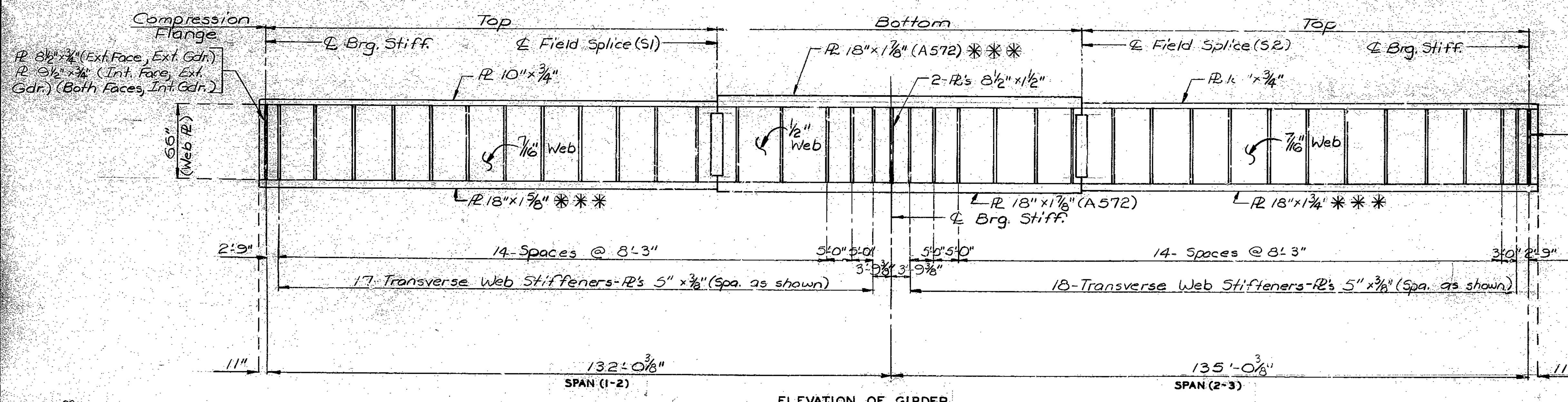
Note: Longitudinal dimensions are along top of webs. See longitudinal section, sheet No. 13.

Plate girders shall be fabricated to conform with Camber Diagram shown on sheet No. 13.

Fabricated structural steel shall be A36 except as noted.

\*\*\* Indicates Flange Plats subject to notch toughness requirements.

All web plates shall be subject to notch toughness requirements.



R 8 1/2 x 3/4 (Ext. Face, Ext. Gdr.)  
R 9 1/2 x 3/4 (Int. Face, Ext. Gdr.)  
(Both Faces, Int. Gdr.)

Note: Transverse web stiffeners shall be oriented as shown in plan of structural steel.

Intermediate web stiffener plate and diaphragm spacings may vary from plan dimensions by a maximum of 3" for diaphragm to connect to intermediate web stiffener plate.

57

DETAILED May 1934  
CHECKED May 1934

Note: This drawing is not to scale. Follow dimensions.

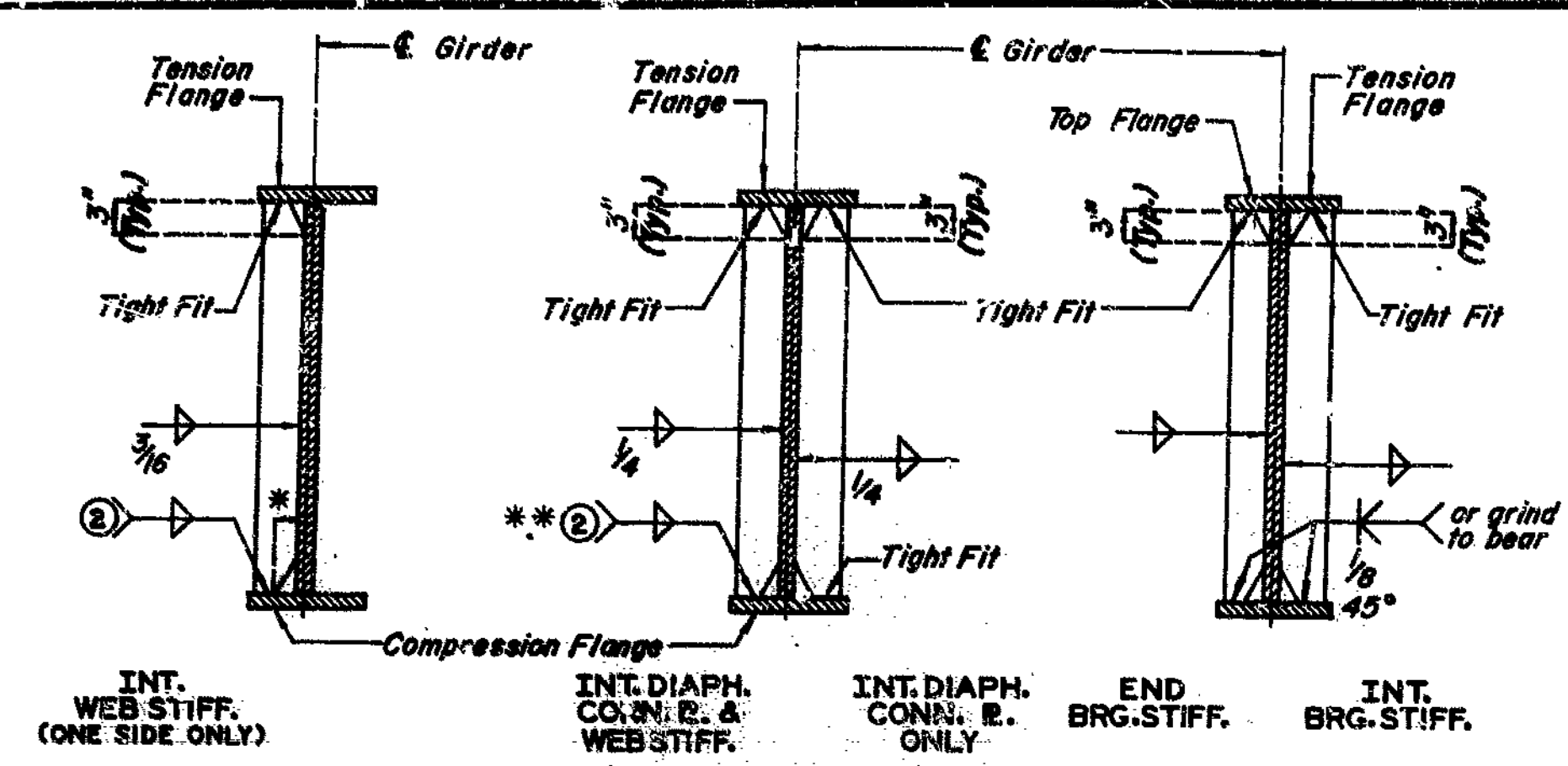
Sheet No. 12 of 20.

CASS COUNTY

A-4153

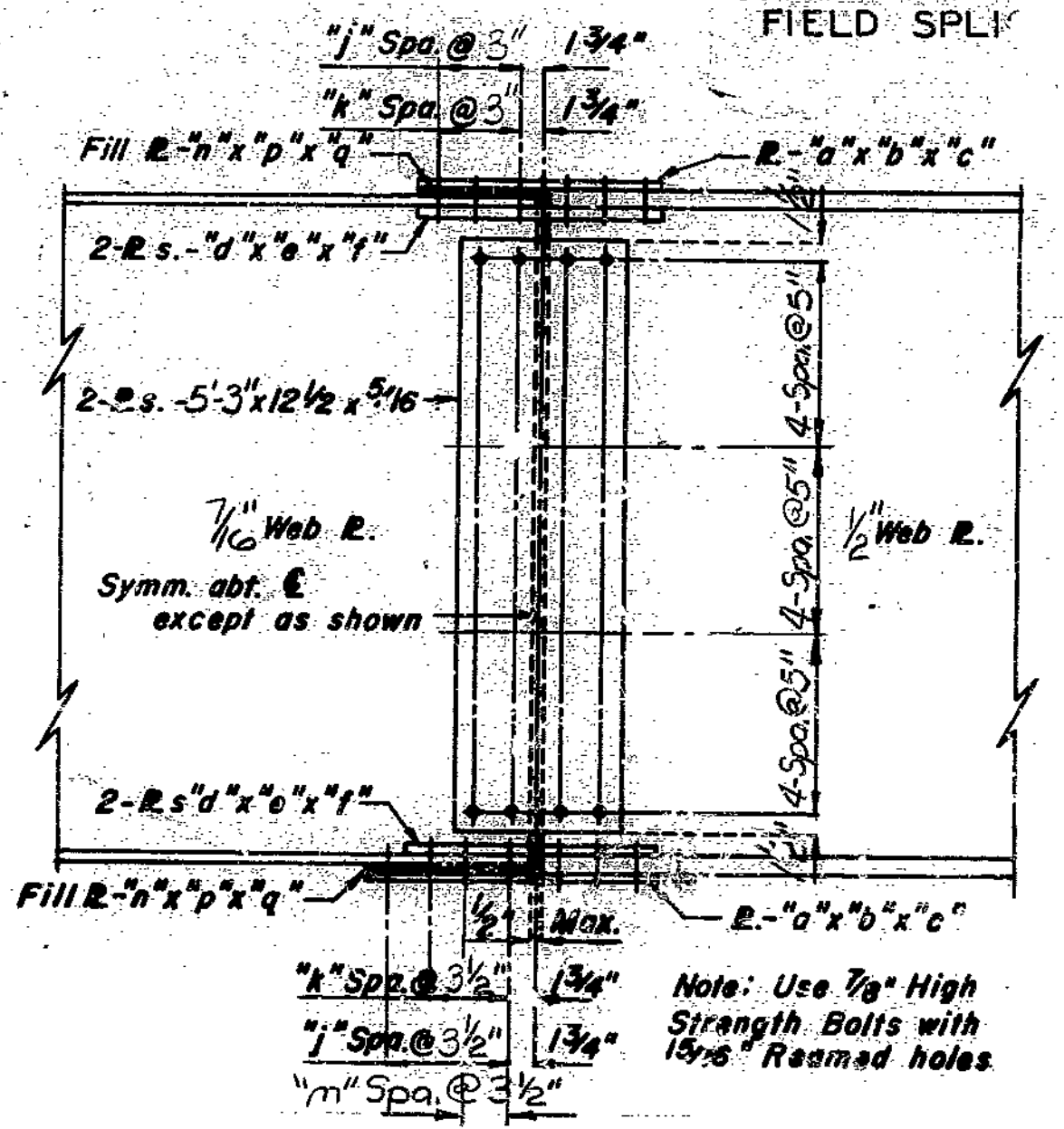
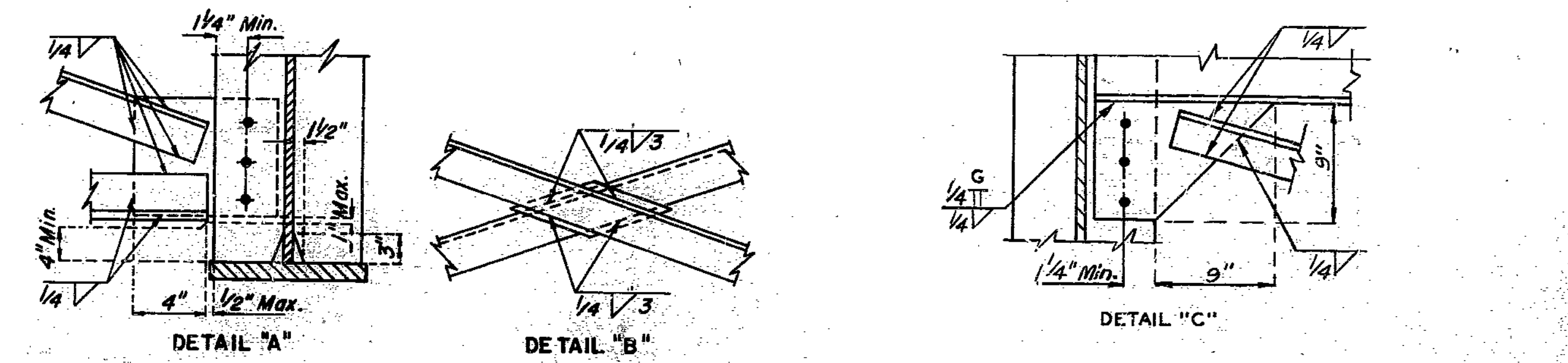
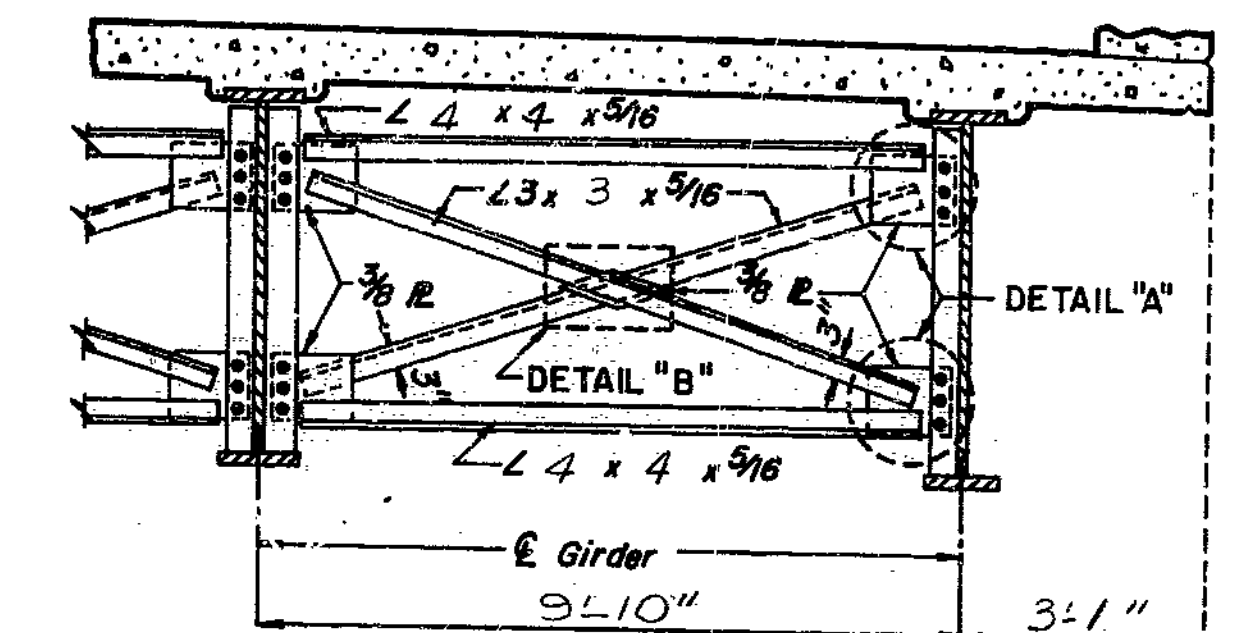
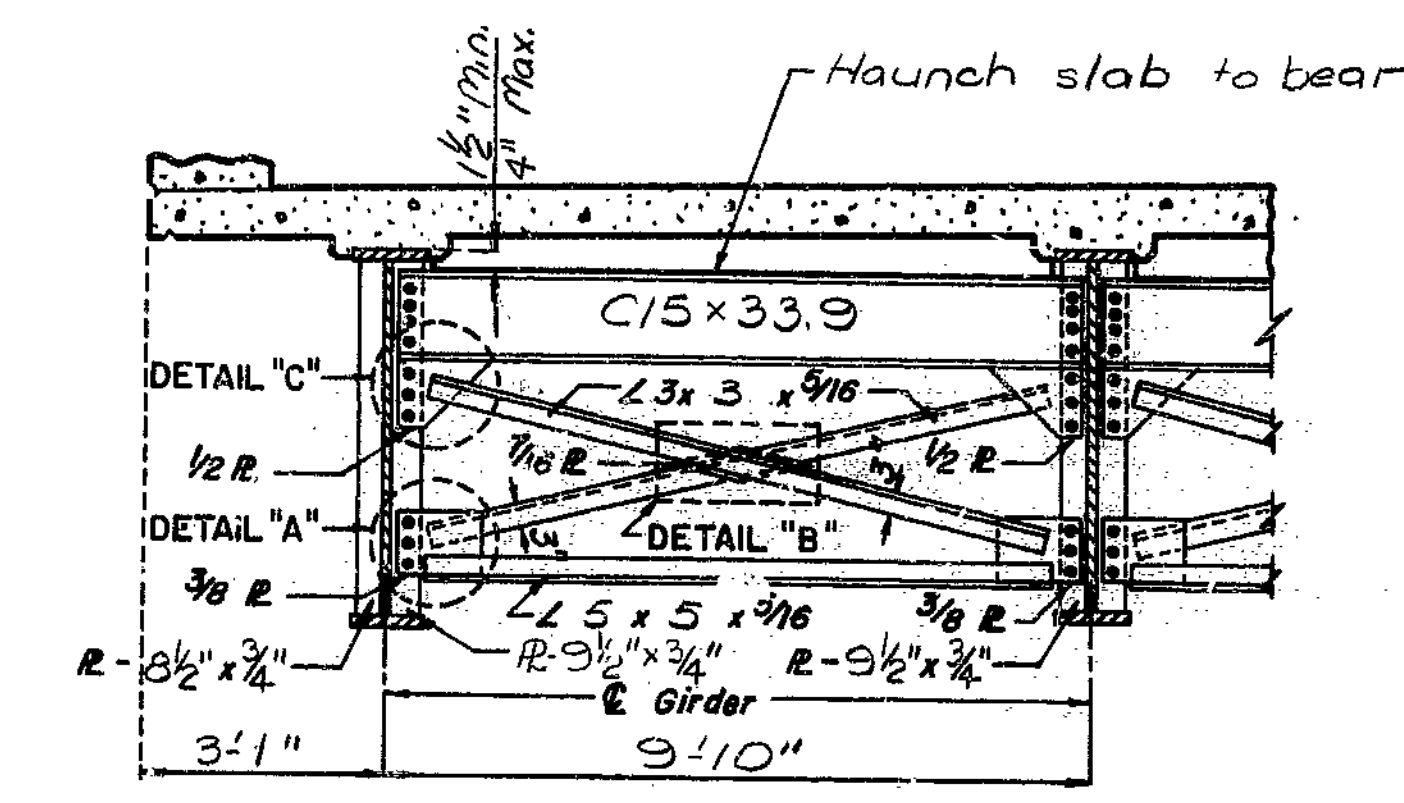
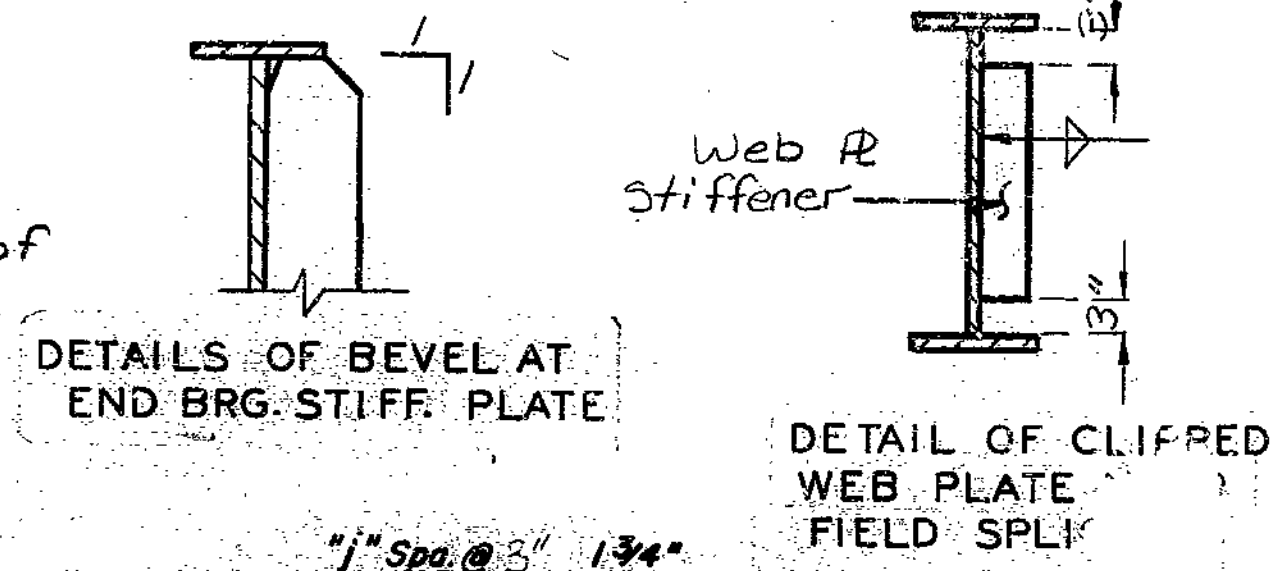
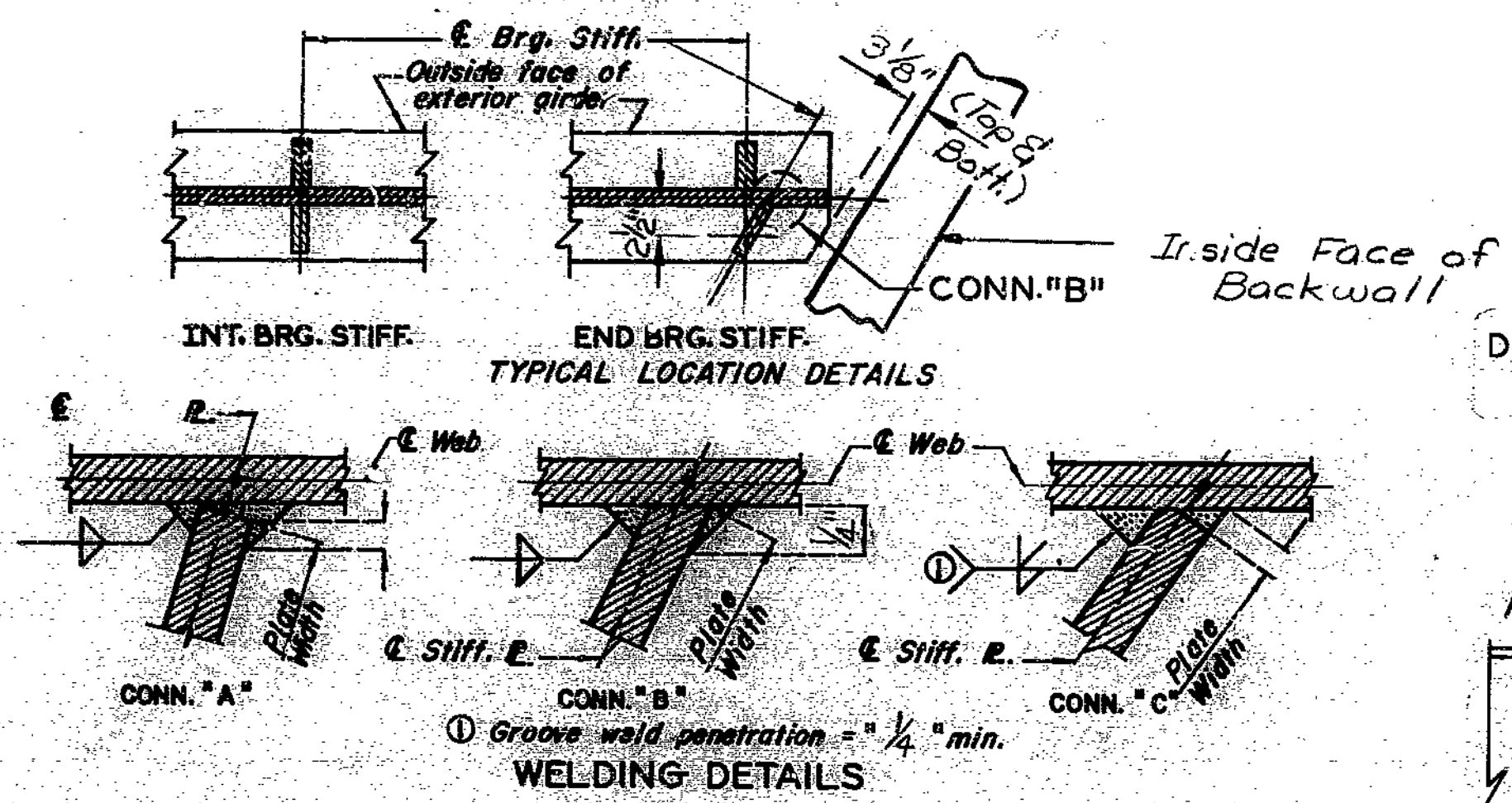


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	41	



Weld to compression flange as located on ELEVATION OF GIRDER.  
 \* 1/2" typical for all Int. Web Stiff., Int. Diaph. Conn. R. and Brg. Stiff.,  
 \*\* Weld may be omitted on interior girders, and Tight Fit used when Int. Diaph. Conn. R. is required on both sides.

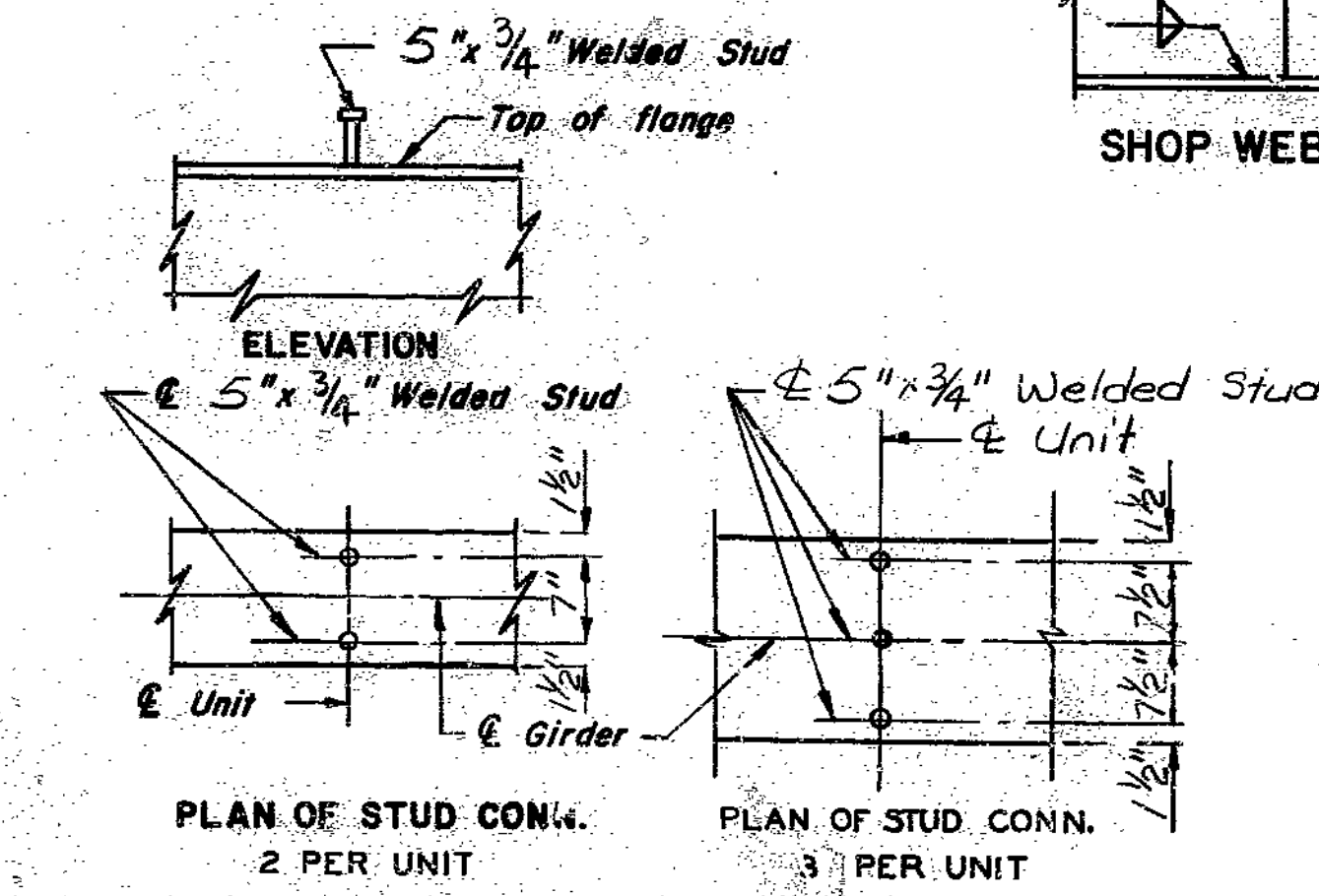
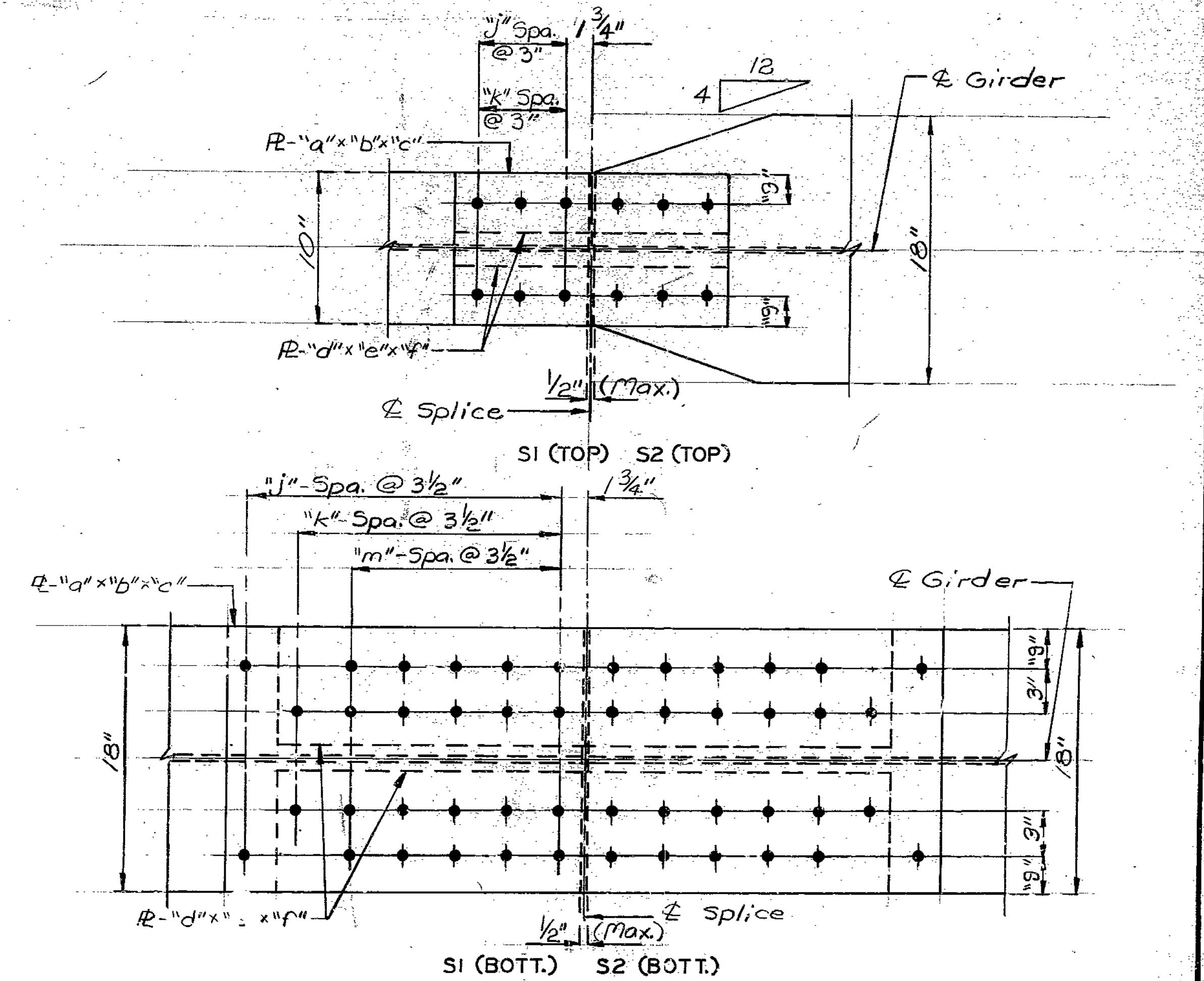
WELDING DETAILS



SPICE LOCATION	TABLE OF DIMENSIONS - FIELD SPLICE										
	"a"	"b"	"c"	"d"	"e"	"f"	"g"	"h"	"i"	"j"	"k"
S1 (Top)	10"	3/8"	18 1/2"	4"	1/2"	18 1/2"	2"	2	2	"m"	"n"
S1 (Bot.)	18"	1"	4'-0 1/2"	8"	1"	3'-5 1/2"	2 1/2"	6	5	4	18"
S2 (Bot.)	18"	1 1/8"	4'-0 1/2"	8"	1 1/8"	3'-5 1/2"	2 1/2"	6	5	4	18"

DETAILS OF FIELD SPLICE

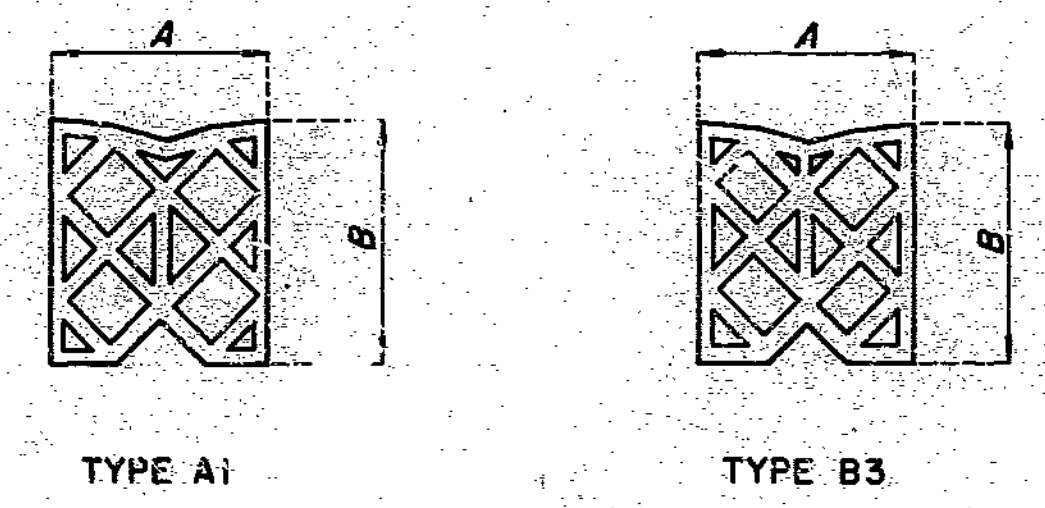
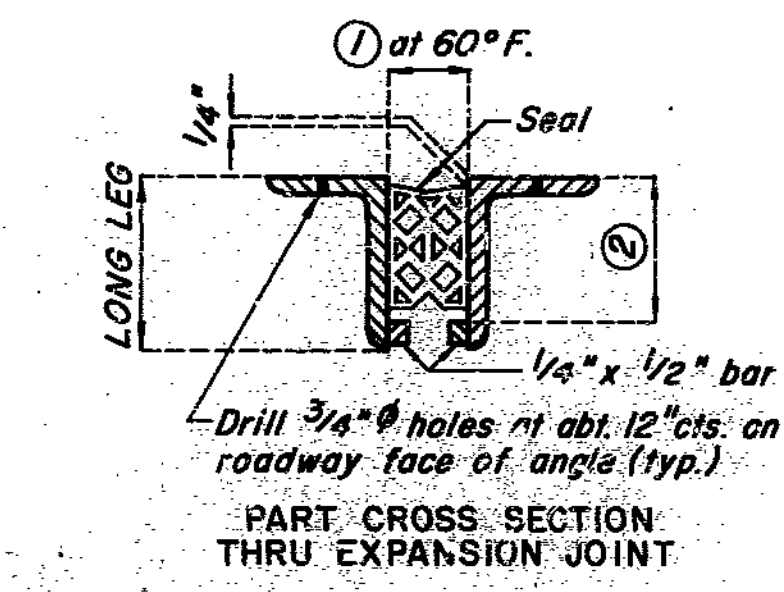
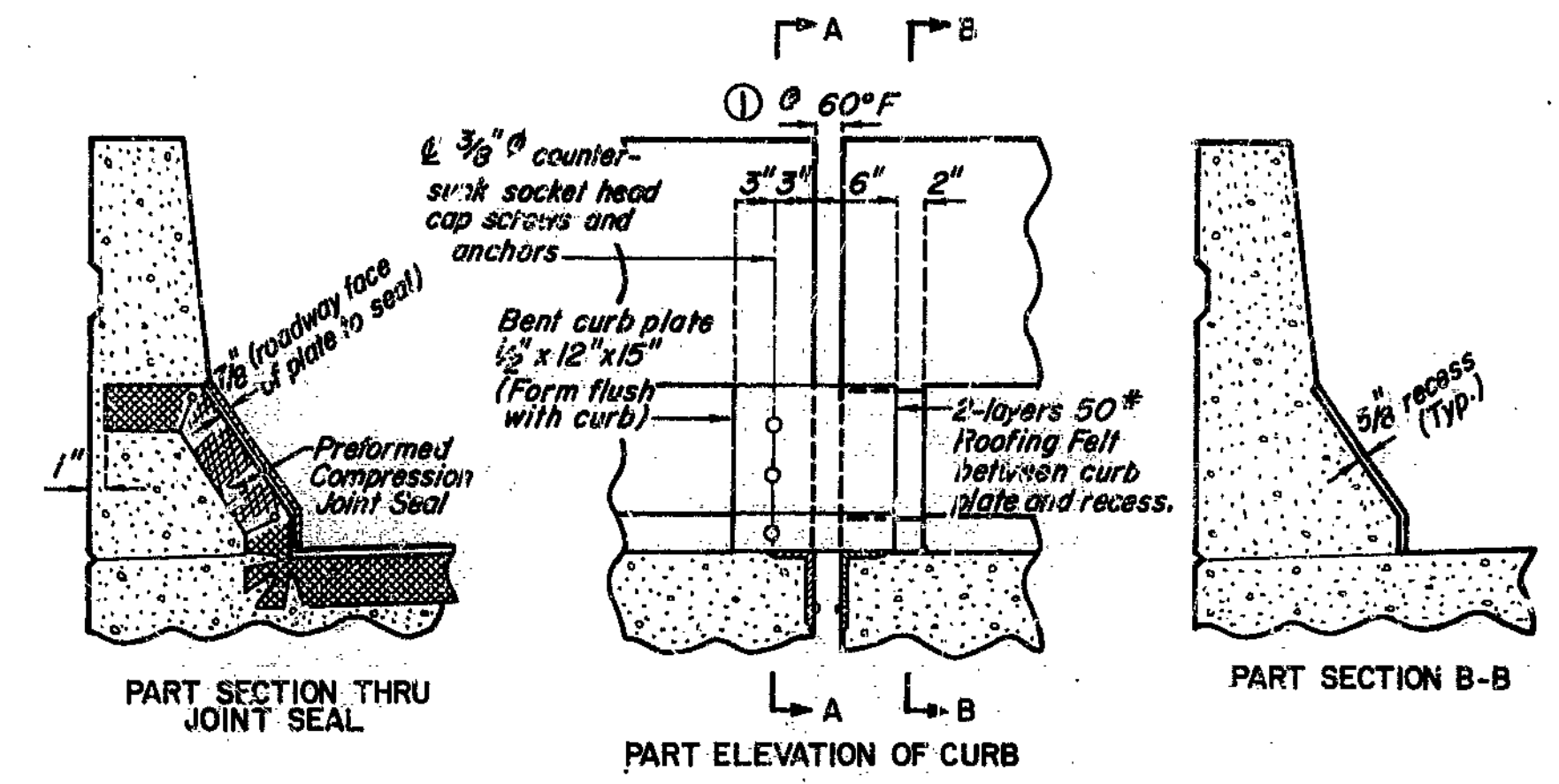
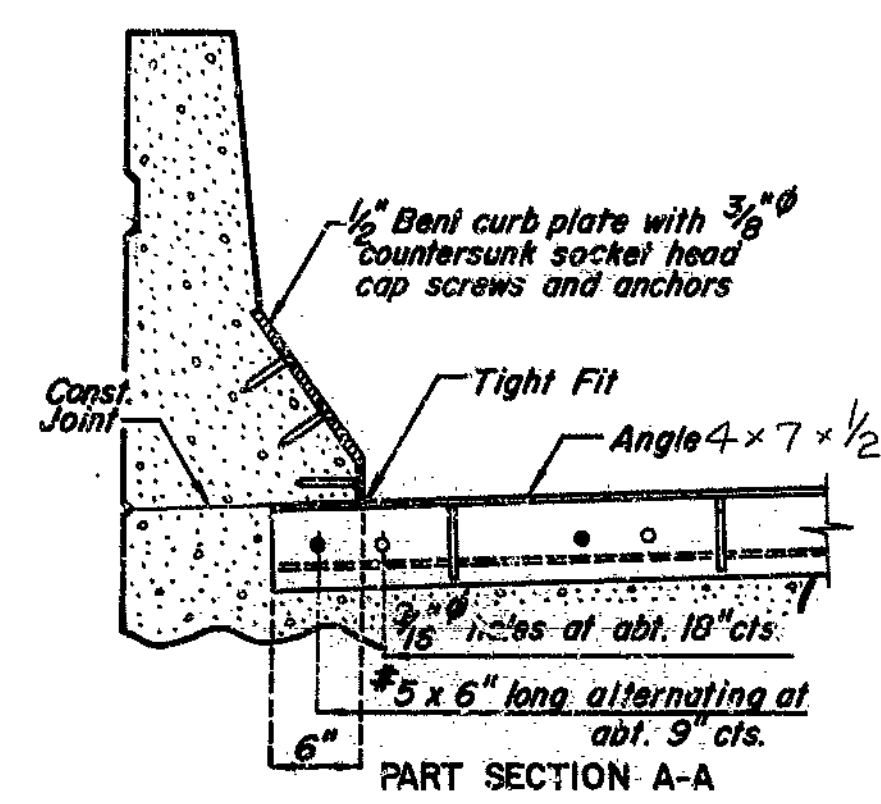
Note: Weight of 1525 lbs. of shear connectors is included in weight of Fabricated Structural Carbon Steel.  
 Note: This drawing is not scale. Follow dimensions.



DETAILED May 1934  
 CHECKED May 1934

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	62	

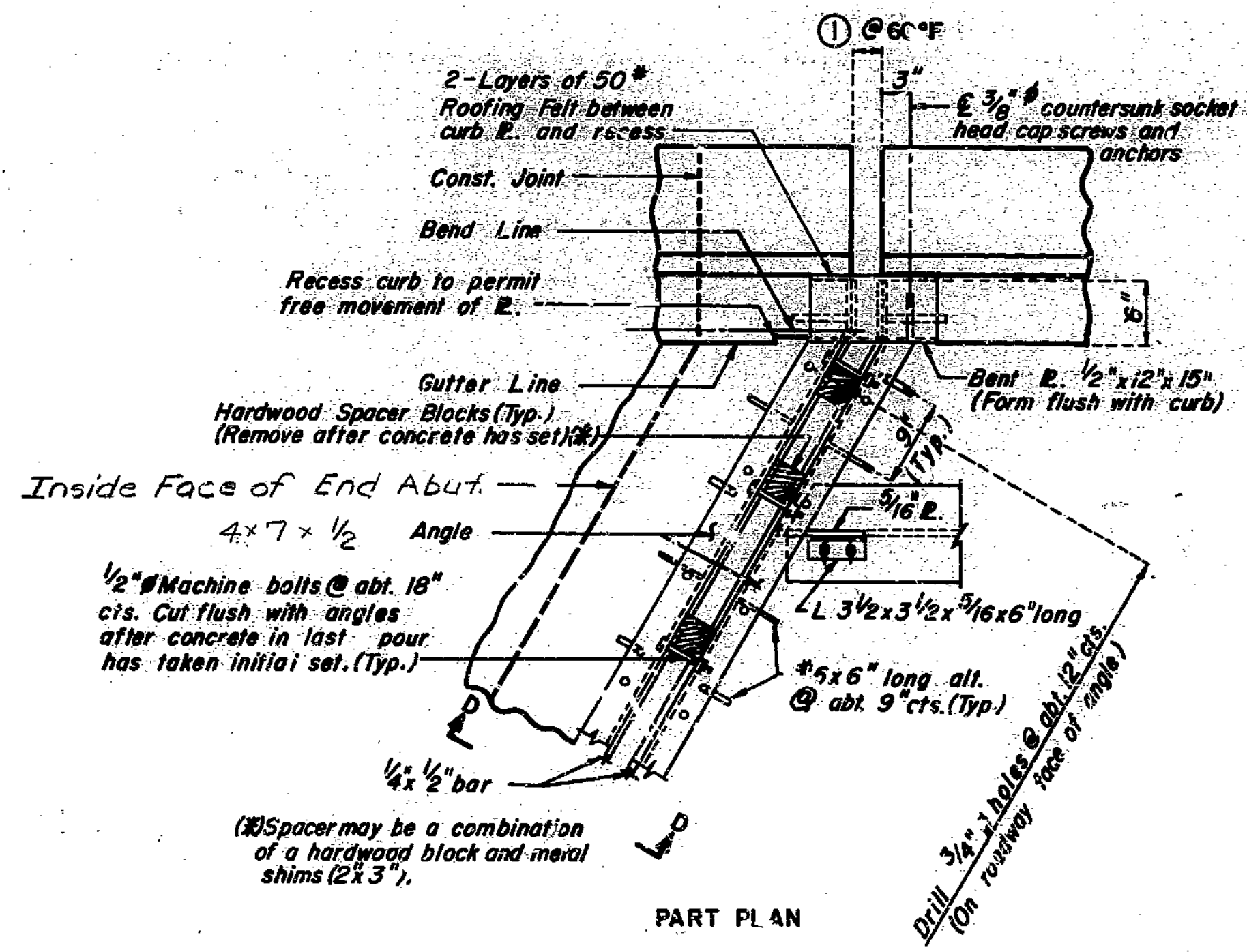
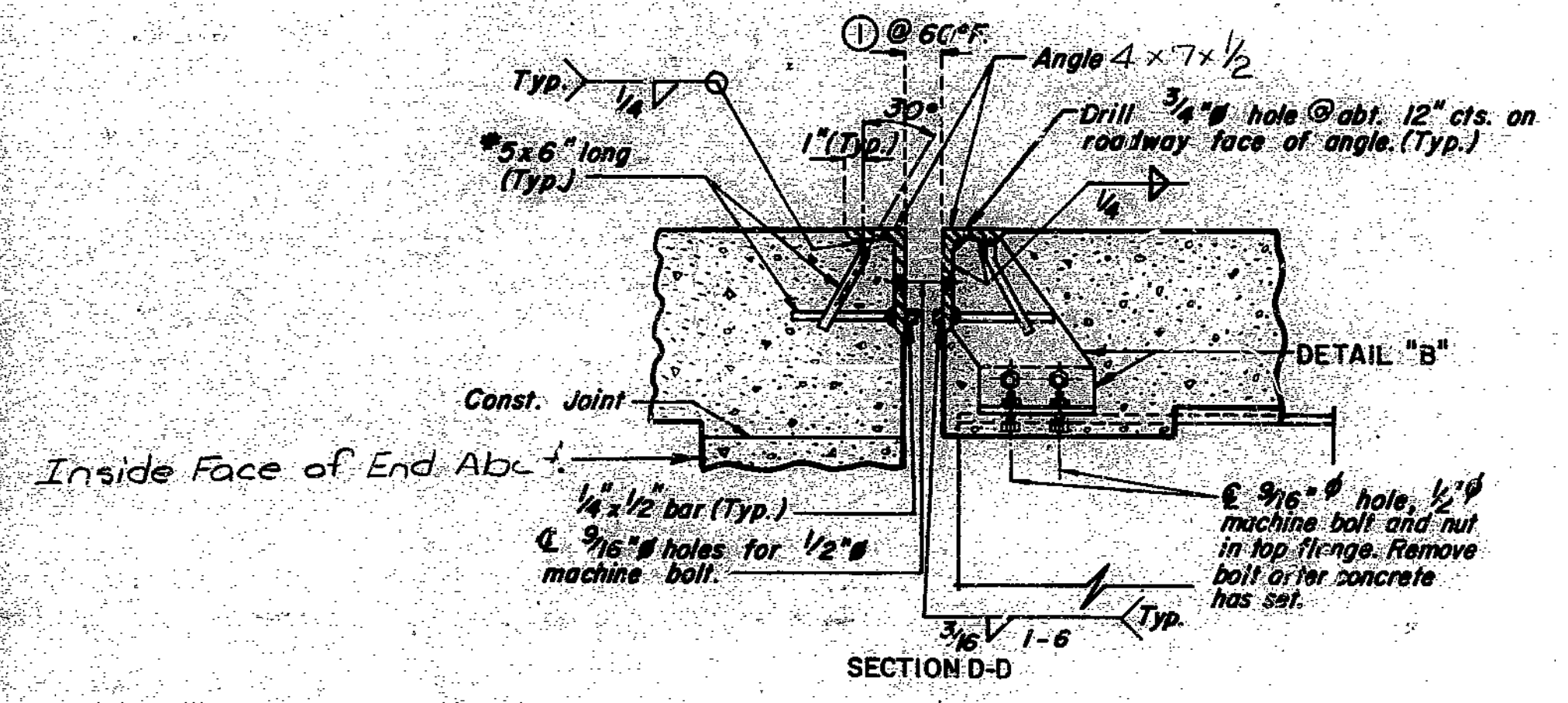
**NOTES FOR PREFORMED COMPRESSION JOINT SEAL:**  
 STRUCTURAL STEEL FOR EXPANSION DEVICE SHALL BE FABRICATED IN ONE SECTION EXCEPT THAT WHEN THE LENGTH IS OVER 50' SPlicing IS PERMISSIBLE.  
 THE EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN AND GRADE OF ROADWAY.  
 NO. 5 BARS FOR EXPANSION DEVICE SHALL BE STRUCTURAL GRADE.  
 APPROVED STUD WELDED ANCHORS (C-1010 THRU C-16) OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 5 BARS SHOWN.  
 PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60° F.  
 DIMENSION ① SHALL BE INCREASED  $\frac{3}{16}$ " FOR EACH 10° FALL IN TEMPERATURE AND DECREASED  $\frac{3}{16}$ " FOR EACH 10° RISE IN TEMPERATURE AT INSTALLATION.  
 SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.



TYPE	"A" (WIDTH)	"B" (HEIGHT)	①	②	MAX. LIMIT OF COMPRESSIBILITY
A1 OR B3	2.5"	NOT LESS THAN "A"	1 9/8"	"B" + 1/2"	46%
A1 OR B3	3.0"	NOT LESS THAN "A"	1 7/8"	"B" + 1/2"	43%
A1 OR B3	3.5"	NOT LESS THAN "A"	2 1/4"	"B" + 1/2"	42%
A1 OR B3	4.0"	NOT LESS THAN "A"	2 5/8"	"B" + 1/2"	42%
A1 OR B3	4.5"	NOT LESS THAN "A"	2 3/4"	"B" + 1/2"	40%
A1 OR B3	3.0"	NOT LESS THAN "A"	2 7/8"	"B" + 1/2"	40%

**SIZE OF ARMOR ANGLE:**  
 VERTICAL LEG OF ANGLE SHALL BE A MINIMUM OF "B" + 1/4".  
 HORIZONTAL LEG OF ANGLE SHALL BE A MINIMUM OF 3". MINIMUM THICKNESS OF ANGLE SHALL BE 3/8" FOR SEAL WIDTHS THROUGH 3.5" AND 1/2" FOR SEAL WIDTHS GREATER THAN 3.5".

IN LIEU OF THE SPECIFIED SEAL, THE NEXT LARGER SEAL MAY BE SUBSTITUTED. DIMENSIONS AND LIMITS SHALL CORRESPOND TO THE ACTUAL SEAL INSTALLED.



Abut. No. 1 & Abut. No. 3

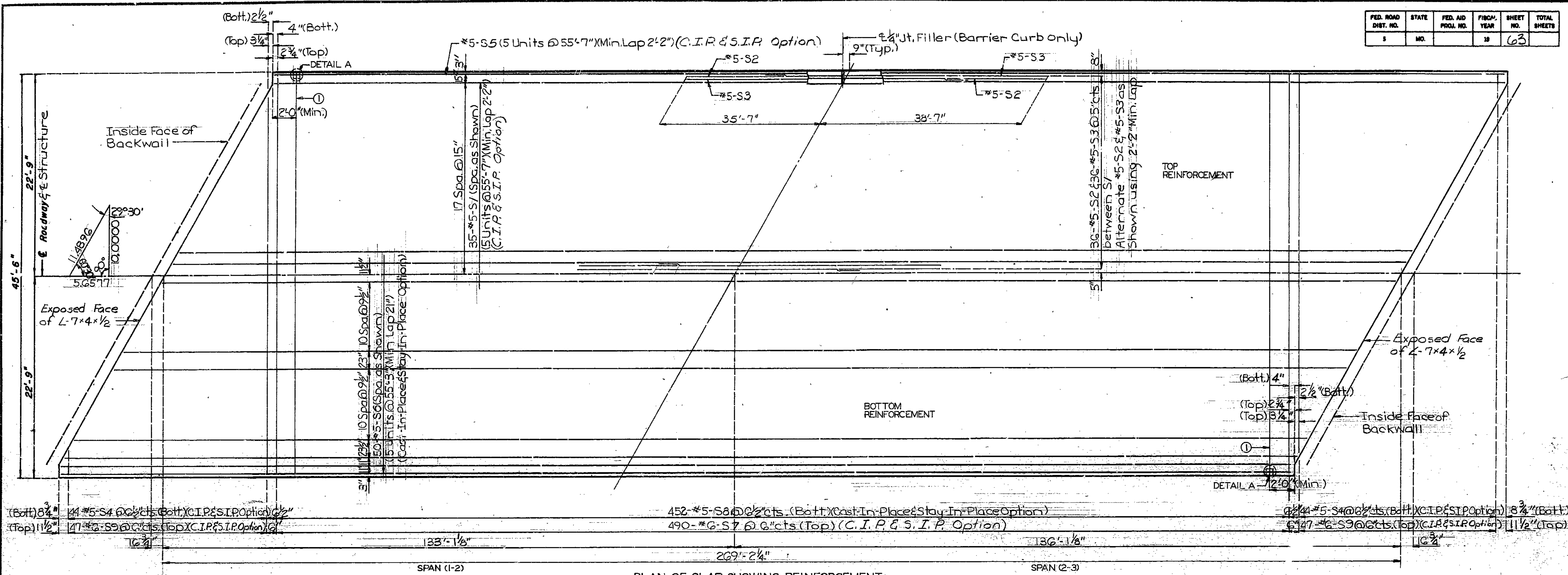
DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT ABUT. 1 & 3

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 15 of 20.

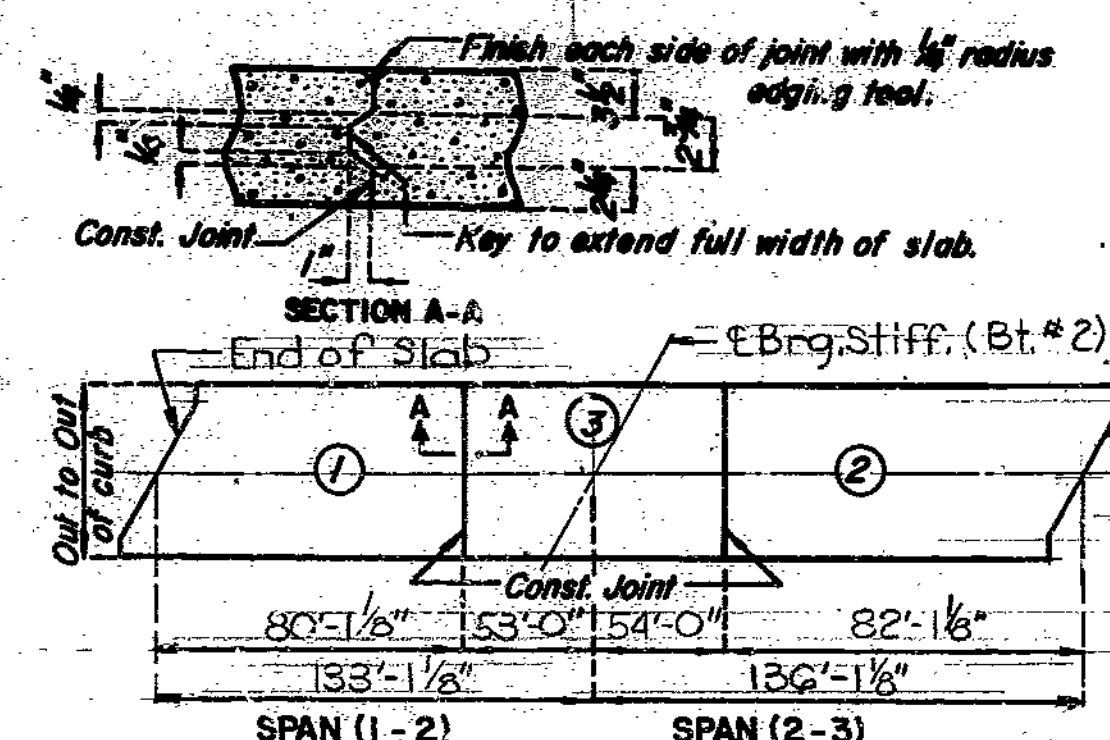
60  
 STD. PCJS  
 OCT. 1973  
 REVISED  
 OCT. 1993  
 DETAILED May 10 84  
 CHECKED May 10 84

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		88	63	



PLAN OF SLAB SHOWING REINFORCEMENT

Note: Longitudinal dimensions are parallel to grade along top edge of slab.  
 Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1" from vertical leg of angle at expansion device.  
 For slab haunching diagram: see sheet No. 13

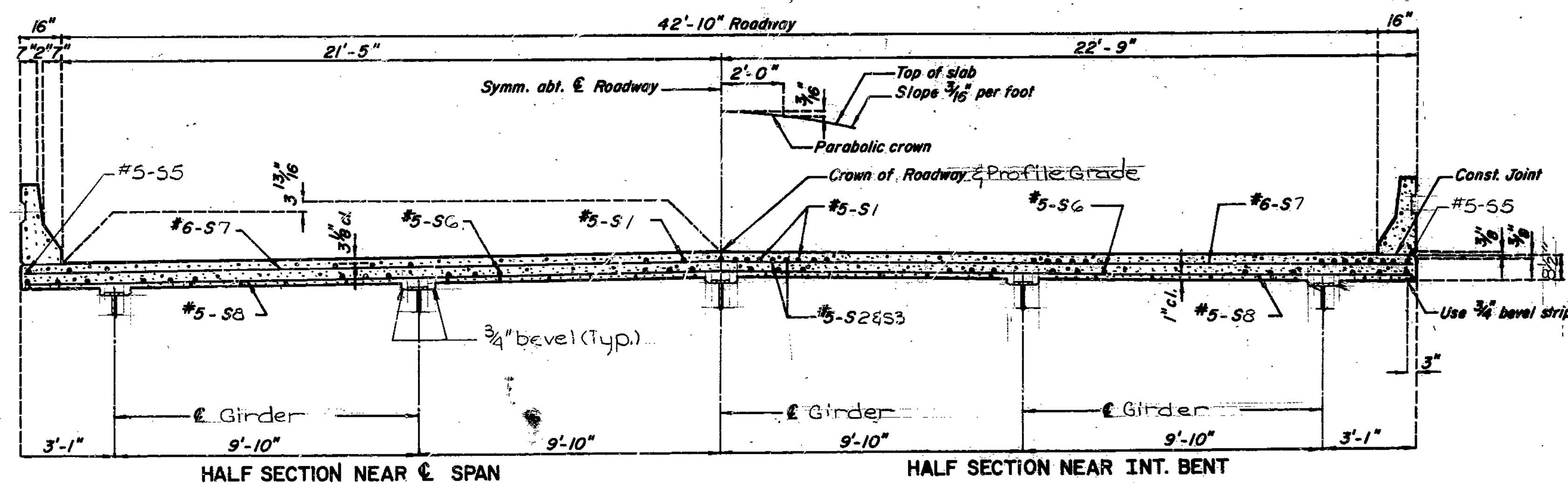


LONGITUDINAL SECTION THRU SLAB (STAY-IN-PLACE FORMS)  
 Note: Bottom transverse reinforcing steel shall be placed to match form corrugations.  
 Note: 6" Electrical Lead Connections required. Actual location to be designated by the Engineer as part of the test system.

Sequence of Pours	Minimum Rate of Pour (Cubic yards per hour)	
	With Retarder	No Retarder
Basic Sequence	25	25

The contractor shall pour and satisfactorily finish the slab pours at the rate given above. Retarder, if used, shall be an approved type and retard the set of the concrete to 2.5 hours.

SLAB POURING SEQUENCE



HALF SECTION NEAR G SPAN

HALF SECTION NEAR INT. BENT

NOTE: For details and reinforcement of safety barrier bridge curb not shown see sheet no. 17.

REVISIONS  
 JANUARY 1981  
 CHECKED May 1984

Note: This drawing is not to scale. Follow dimensions.

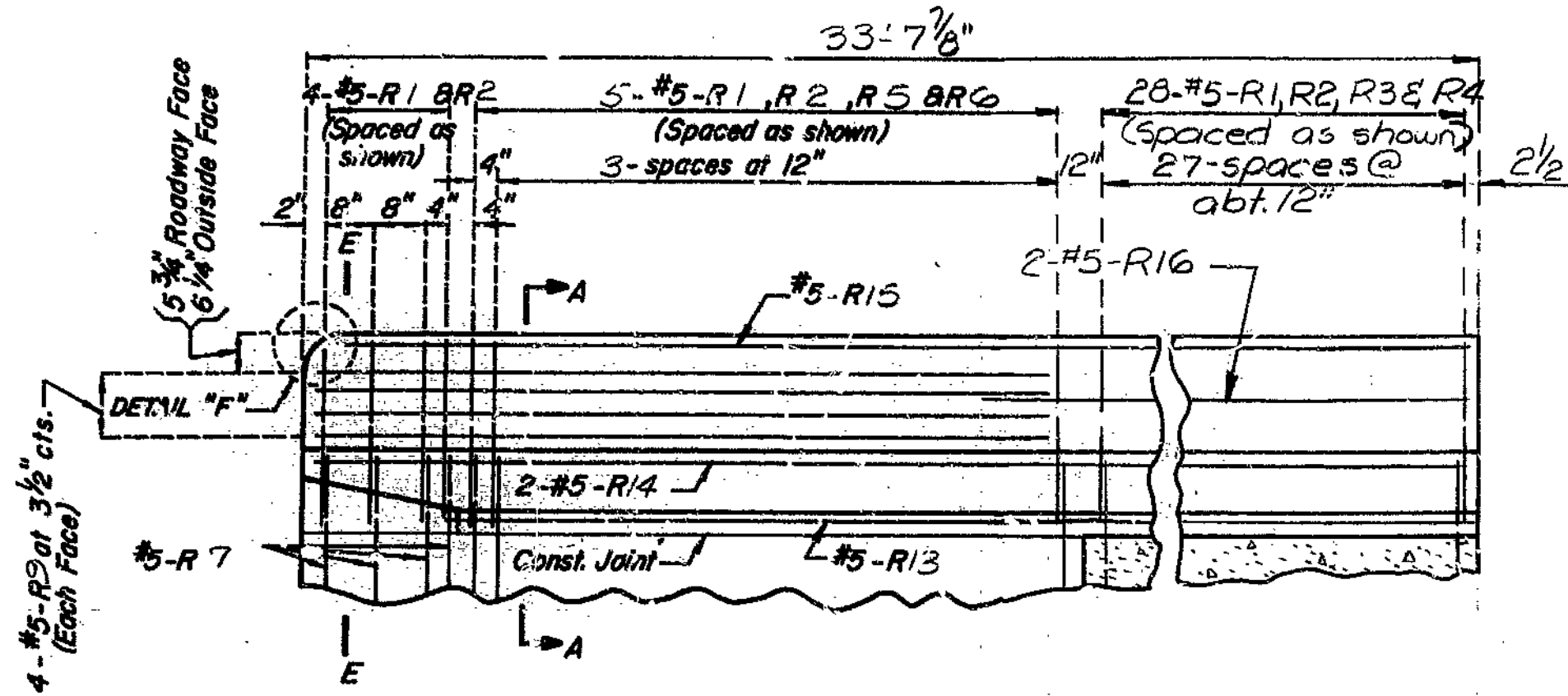
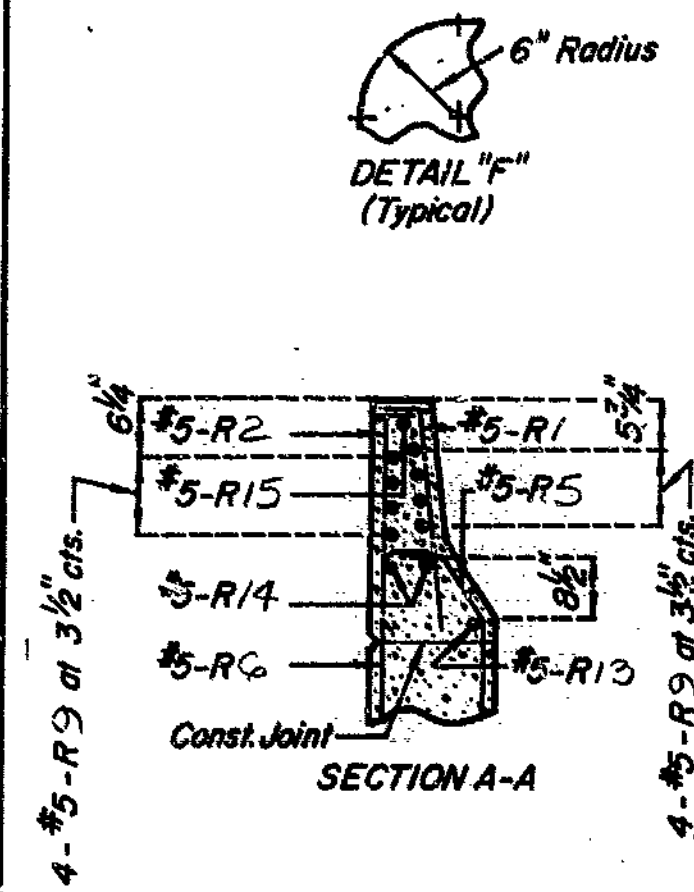
CASS COUNTY

A-41531

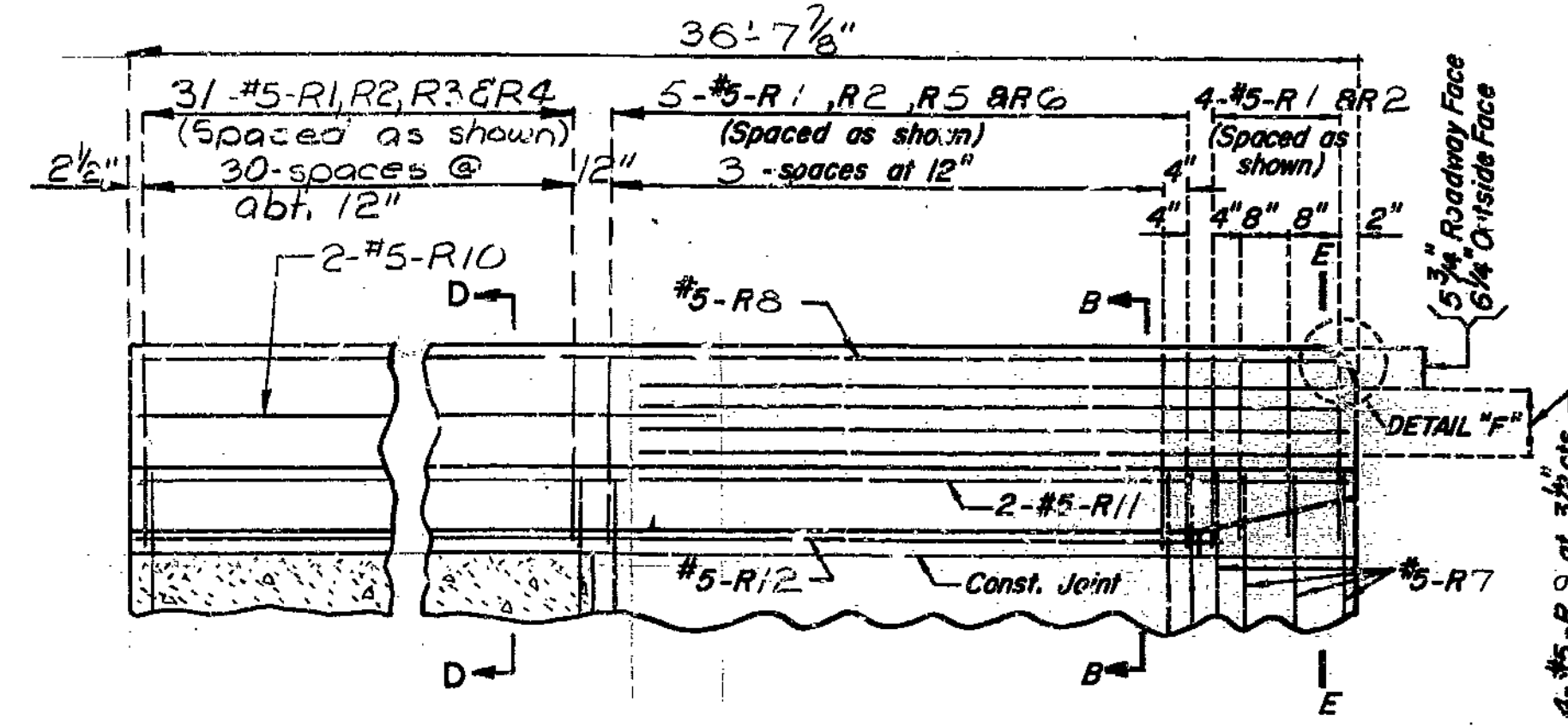




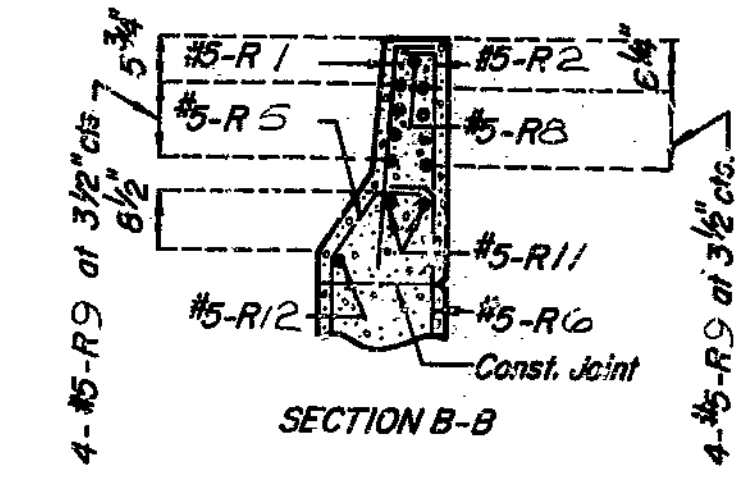
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	65	



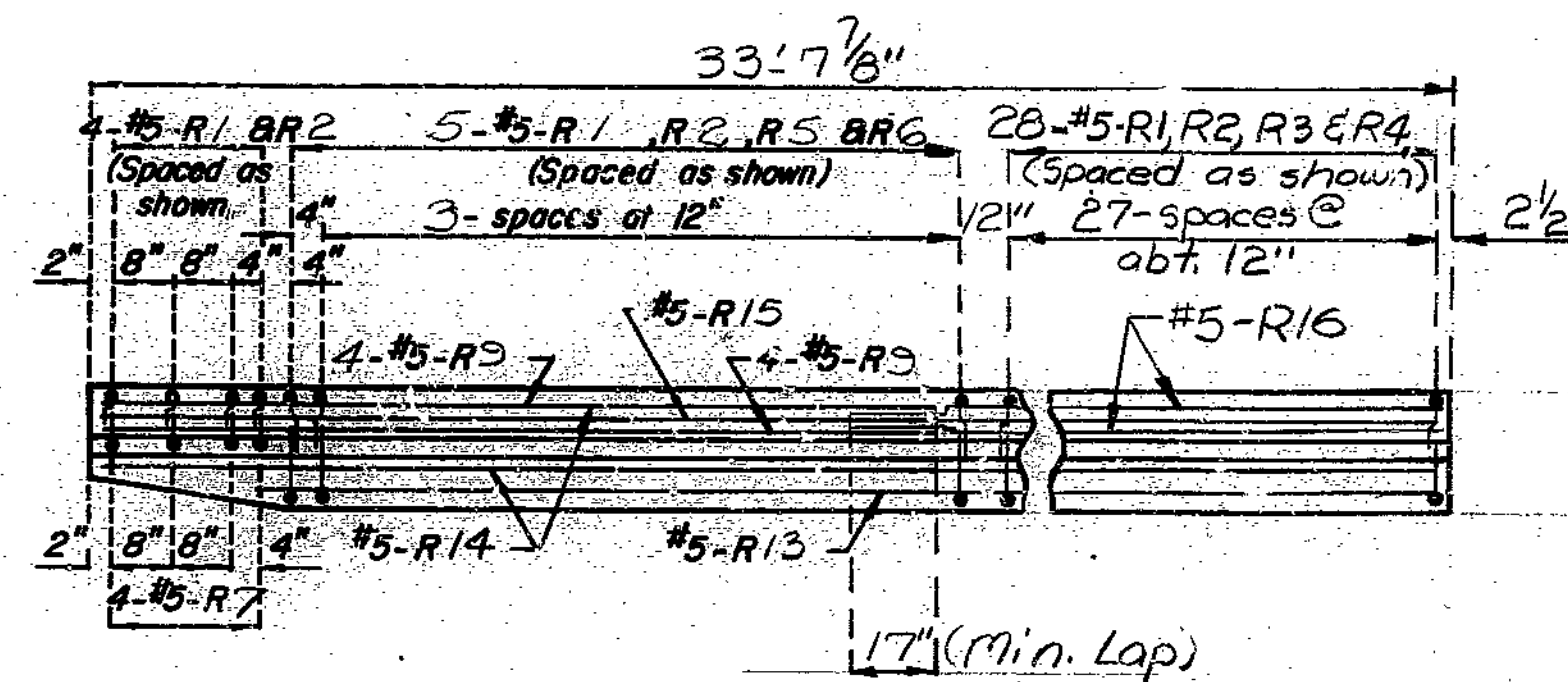
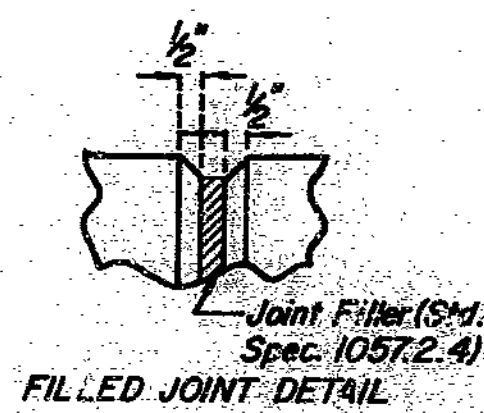
ABUT. NO. 1



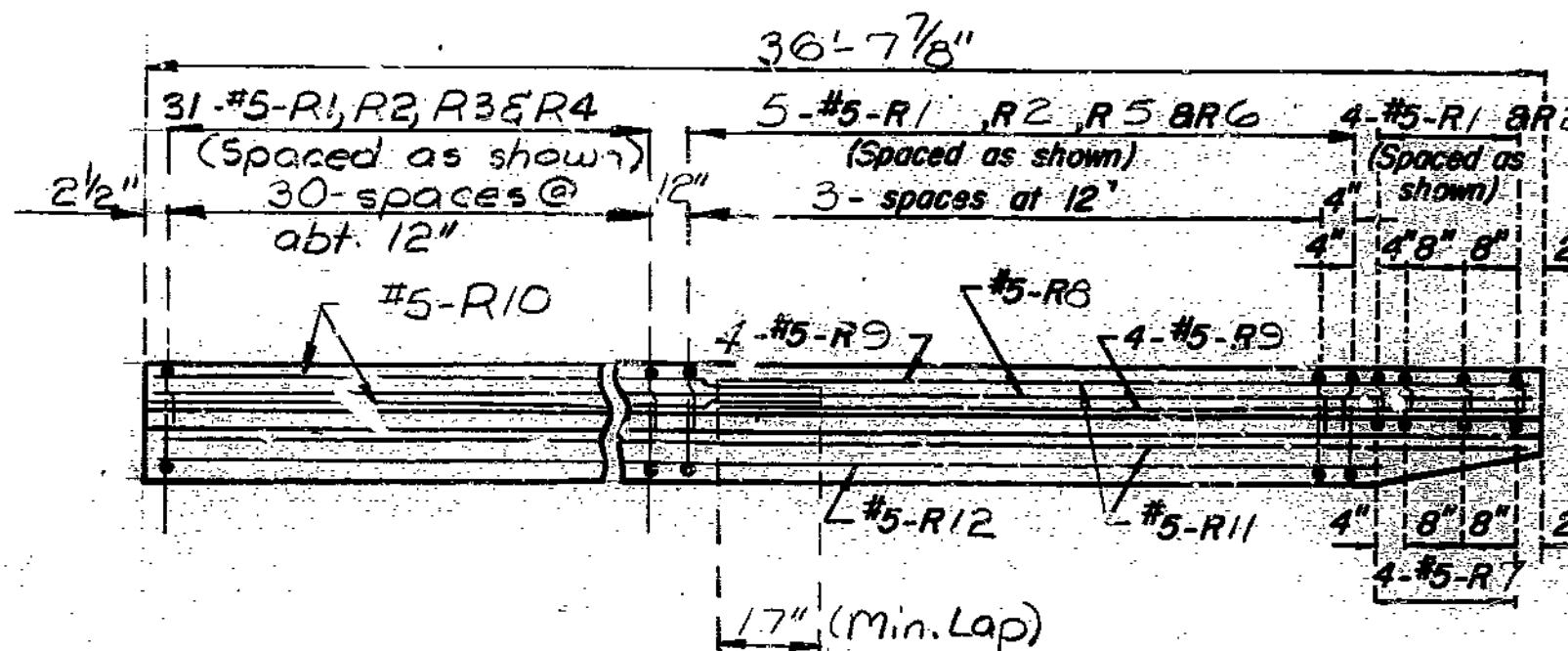
ABUT. NO. 3



ELEVATION

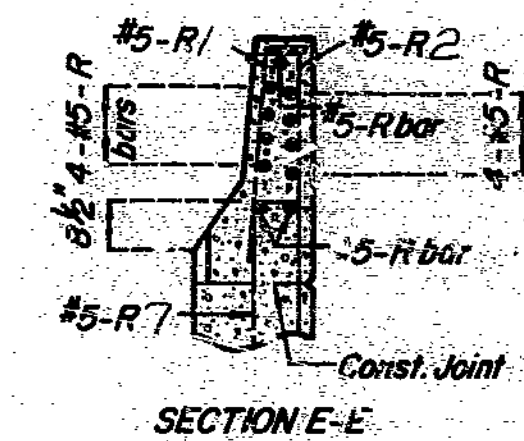


ABUT. NO. 1

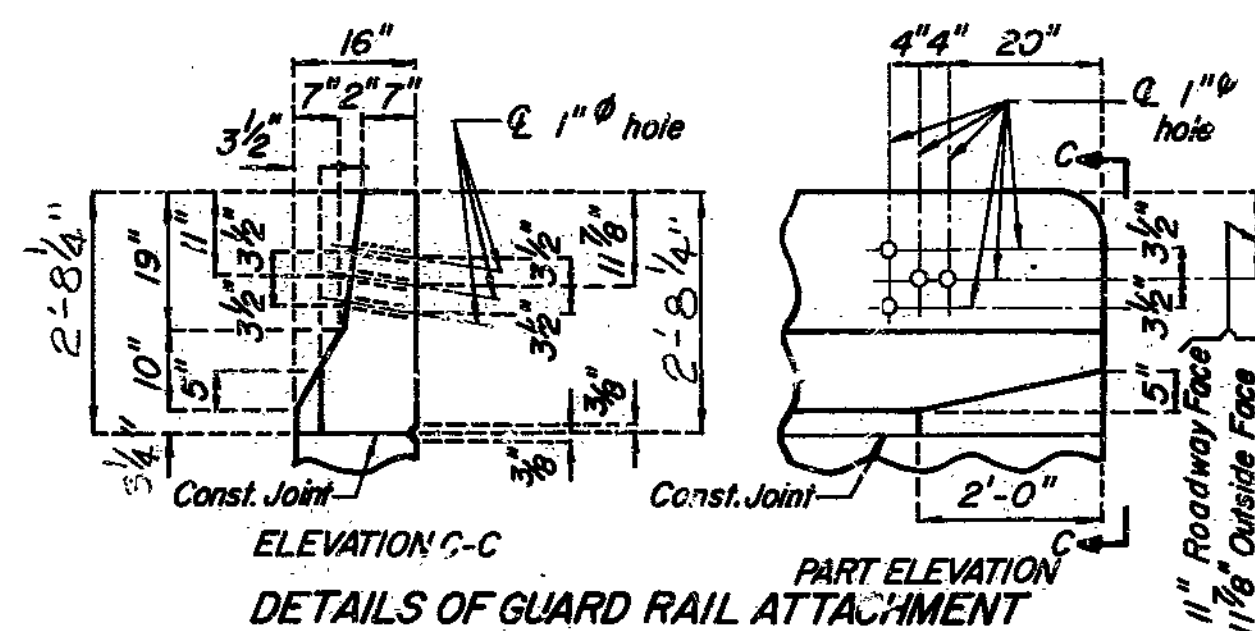


ABUT. NO. 3

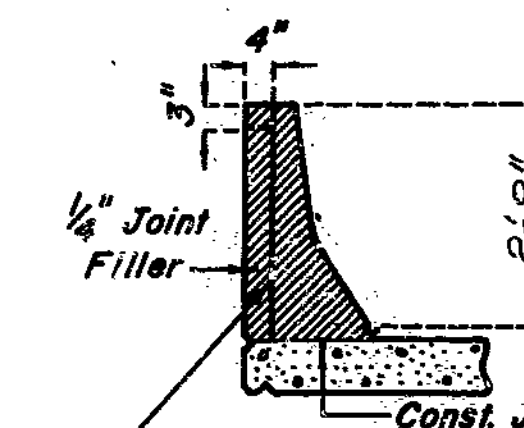
PLAN



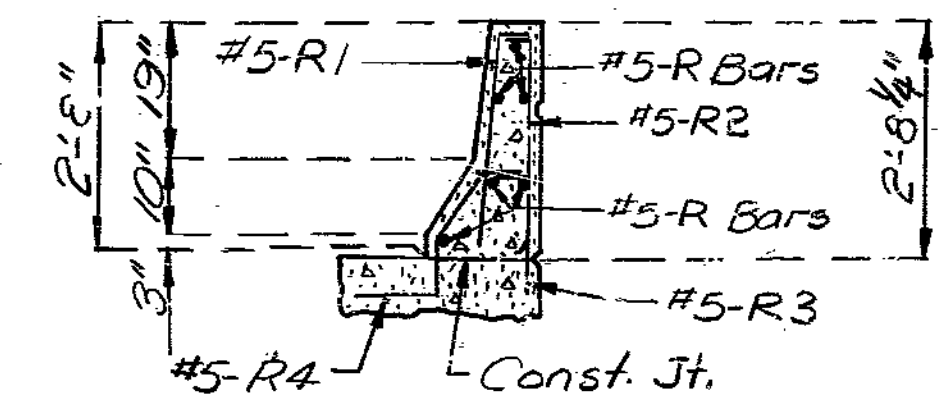
Note: Rustication not shown for clarity. For details see sheet No. 17.



ELEVATION C-C  
PART ELEVATION C  
DETAILS OF GUARD RAIL ATTACHMENT



DETAILS OF PLASTIC WATERSTOP  
Note: Plastic waterstop shall be placed in all safety barrier curb filled joints. Cost of plastic waterstop complete in place to be included in contract unit price for safety barrier curb.



SECTION D-D

63  
Detailed May 1984  
Checked May 1984

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 18 of 20.

CASS

COUNTY

A-4153

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUPS (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT										
								B	C	D	E	F	H	K	FT.	IN.	FT.				IN.									
		SUBSTRUCTURE																												
		ABUTMENT NO. 1																												
8	7H10	BRG. BEAM		18	X									52	0.000			53	8	53	8	874								
18	6H11	BEAM, APRON & BKWAL		20	X									52	0.000			52	0	52	0	1406								
6	4H12	BACKWALL		20	X									40	0.000			40	0	40	0	160								
6	4H13	BACKWALL		20	X									13	10.000			13	10	13	10	55								
8	4H14	APPR. BEAM		18	X									53	10.000			53	10	53	10	1150								
6	5H15	WINGS		20	X									33	4.000			33	4	33	4	309								
6	5H16	WING		20	X	V								31	4.000			31	4	31	4									
		INCR = 31.500 IN												26	1.000			26	1	26	1	180								
2	4H17	WING		20	X									20	10.000			20	10	20	10	28								
2	4H18	WING		20	X									16	9.000			16	9	16	9	22								
10	4H19	WING		20	X	V								17	1.000			17	1	17	1									
		INCR = 36.250 IN												5	0.000			5	0	5	0	76								
12	4H20	CURTAIN WALL		20	X									3	0.000			3	0	3	0	24								
4	4H21	WING		20	X									4	9.000			4	9	4	9	13								
8	5H22	WING		20	X	V								32	9.000			32	9	32	9									
		INCR = 33.000 IN												24	6.000			24	6	24	6	230								
2	4H23	WING		20	X									19	5.000			19	5	19	5	26								
2	4H24	WING		20	X									15	6.000			15	6	15	6	21								
10	4H25	WING		20	X	V								17	3.000			17	3	17	3									
		INCR = 36.500 IN												5	1.000			5	1	5	1	75								
12	4H26	CURTAIN WALL		20	X									4	1.000			4	1	4	1	33								
4	4H27	WING		20	X									6	4.000			6	4	6	4	17								
4	6H28	BRG. BEAM		20	X									3	3.000			3	3	3	3	20								
2	7T1	WING		14	X									5	8.000	2	8.000	34	3.125			32	1.500	11	10.750	42	7.42	4	173	
2	7T2	WING		15	X									7	5.625	2	2.000			2	7.125	7	0.000	9	8	9	7	39		
2	7T3	WING		14	X									5	8.000	3	0.000	34	1.500			32	0.000	11	10.250	42	10	42	6	174
2	7T4	WING		15	X									6	1.500	2	0.000			2	1.500	5	9.000	8	2	8	1	33		
2	4T5	CURTAIN WALL		19	S	X								7	0.000	3	0.000			10	0	9	11	13						
2	4T6	CURTAIN WALL		19	S	X								7	0.000	4	1.000			11	1	11	0	15						
6	6T7	WING & APRON		21	X									2	0.000	2	8.000			20	0.875	11	0.875	4	8	3	4	30		
6	6T8	WING & APRON		15	X									2	0.000	2	8.000			20	0.875	11	0.875	4	8	4	7	41		
42	6U10	BRG. BEAM		13	X									3	3.000	10	0.250	4	0.000	2	9.000			14	10	14	4	904		
6	6U11	BRG. BEAM		13	X									3	2.000	3	2.625	4	0.000	3	1.250			15	6	15	0	93		
1	6U12	BRG. BEAM		13	X									2	6.000	2	9.000	2	6.000	2	9.000			12	6	12	0	18		
1	6U13	BRG. BEAM		13	X									2	1.000	2	10.375	2	10.500	2	9.000			12	7	12	1	18		
50	4U14	APPR. BEAM		13	S	X								2	7.000	2	7.000	2	9.000	2	9.000			11	5	11	2	373		
52	5U15	APPR. BEAM		10	S	X								2	7.000	2	7.000			7	9	7	7	411						
24	4U16	PILE ENCASEMENT		10	S	X								22	0.000	15	0.000			4	11	4	9	76						
15	4U17	BRG. BEAM		10	S	X								6	0.000	3	3.000			4	3	4	1	41						
100	5V10	BACKWALL		20	X									8	4.000					8	4	8	4	869						
70	5V11	APRON WALL		20	X									8	3.000					8	3	8	3	602						
4	4V12	CURTAIN WALL		20	X									7	0.000					7	0	7	0	19						
2	4V13	WING		20	X									8	5.000					9	5	8	5	11						
2	4V14	WING		20	X									9	0.000					9	0	9	0	12						
2	4V15	WING		20	X									8	5.000					8	5	8	5	11						
36	4V16	WING		20	X	V								15	2.000					15	2	15	2							
		INCR = 6.875 IN												5	6.000					5	6	5	6	248						
10	5V17	WING		20	X	V								4	11.000					4	11	4	11							
		INCR = 4.500 IN												3	5.000					3	5	3	5	43						
4	4V18	WING		20	X									8	7.000					8	7	8	7	23						
2	4V19	WING		20	X									9	2.000					9	2	9	2	12						
2	4V20	WING		20	X									8	0.000					8	0	8	0	11						
36	4V21	WING		20	X	V								14	9.000					14	9	14	9							
		INCR = 6.750 IN												5	2.000					5	2	5	2	239						

COMPLETE BILL OF REINFORCING STEEL

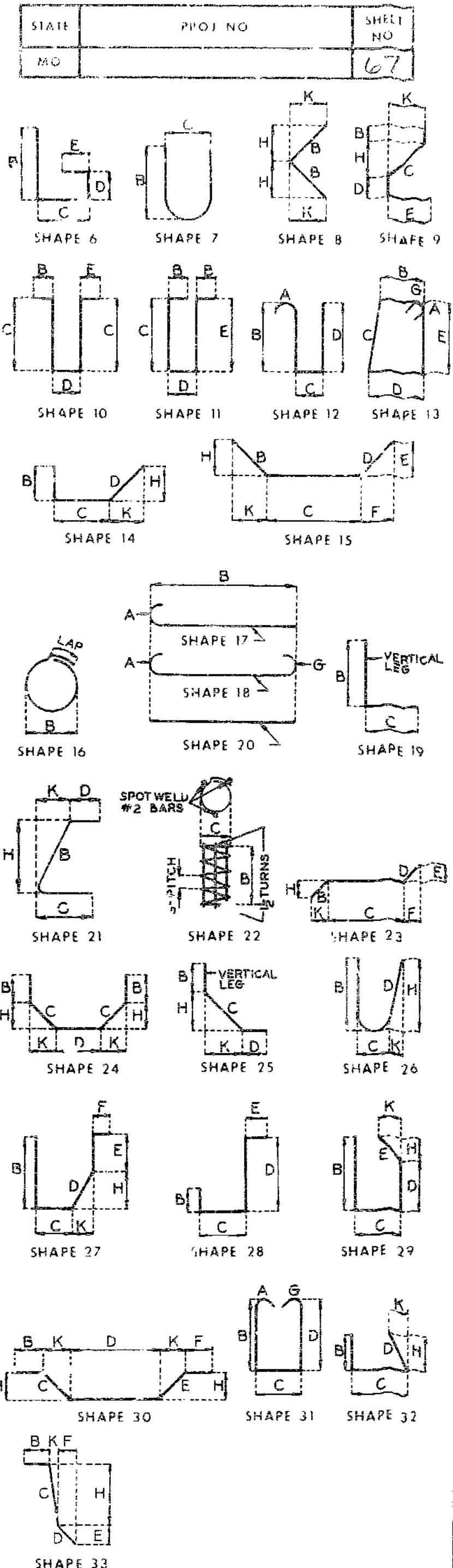
NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUPS (S)	SUBSTR. (X)	VARIES (V)	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT										
								B	C	D	E	F	H	K	FT.	IN.	FT.				IN.									
10	5V22	WING		20	X									4	7.000					4	7	4	7							
		INCR = 4.750 IN												3	0.000					3	0	3	0	40						
10	2W1	A.B. WELLS		22	X									18	0.000	9	1.25			2	1	26	1	44						
		INT. BT. NO. 2																												
27	11D1	COLUMN & FOOTING		17	X									10	2.000					11	9	11	9	1686						
24	8D2	FOOTINGS		18	X									9	9.000					11	7	11	7	742						
21	6D3	FOOTINGS		18	X									7	9.000					9	1	9	1	287						
4	5H1	BEAM		20	X									47	0.000					47	0	47	0	1618						
4	6H2	BEAM		20	X									47	0.000					47	0	47	0	282						
12	10H3	BEAM		17	X									15	4.000					16	9	16	9	865						
4	10H4	BEAM		18	X									47	0.000					49	10	49	10	858						
8	7H5	BEAM		7	X									4	3.000	3	4.500			10	4	10	4	169						
4	6H6	BEAM		20	X									4	3.000					4	3	4	3	26						
54	4P1	COLUMNS		16	X									3	3.000					11	1	11	1	400						
27	6U1	BEAM		13	X									3	6.000	3	9.000	3	6.000	3	9.000			16	6	16	0	649		
80	6U2	BEAM		13	X									2	4.000	3	9.000	2	4.000	3	9.000			14	2	13	8	1642		
2	6U3	BEAM		13	X									3	2.000	3	9.000	3	2.000	3	9.000			15	10	15	4	46		
2	6U4	BEAM		13	X									2	7.000	3	9.000	2	7.000	3	9.000			14	8	14	2	43		
6	6U5	BEAM		10	S	X								6	0.000	3	6.000			4	6	4	4	17						
27	11V1	COLUMNS		17	X									19	7.000					21	2	21	2	3036						
10	2W1	A.B. WELLS		22	X									18	0.000	9	1.25			26	1	26	1	44						
		ABUTMENT NO. 3																												
8	7H10	BRG. BEAM		18	X									52	0.000															

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	SHAPE NO.	NO. EACH	DIMENSIONS											NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.	
					B	C	D	E	F	H	K	FT.	IN.	FT.	IN.				
2	RT5	CURTAIN WALL	19	S	7	0.000	3	0.000								10	0	11	13
2	RT6	CURTAIN WALL	19	S	7	0.000	4	1.000								11	1	11	15
7	ST7	WING & APRON	21	X	2	0.000	2	0.000		20.875	11.875	4	8	3	4				35
7	ST8	WING & APRON	21	X	2	0.000	2	0.000		20.875	11.875	4	8	4	7				48
2	TT9	WING	15	X	5	8.000	3	6.000	37	0.875		35	0.000	12	2.500	46	3	45	108
2	TT10	WING	15	X	6	2.125	2	3.000		2	0.375	5	10.000	8	4	8	4		34
2	TT11	WING	16	X	8	8.000	3	2.000	36	11.875		34	11.000	12	1.000	45	9	45	185
2	TT12	WING	16	X	7	10.250	2	0.000		7	7.000	7	5.000	9	10	9	10		40
38	QU10	BRG. BEAM	13	X	3	3.000	2	10.250	1	0.000	2	9.000				14	10	14	4
3	QU11	BRG. BEAM	13	X	3	2.000	2	2.000	9	0.000	5	1.250				15	6	15	0
1	QU12	BRG. BEAM	13	X	2	6.000	2	9.500	2	6.000	2	9.000				12	6	12	0
1	QU13	BRG. BEAM	13	X	4	1.000	2	10.375	2	10.500	2	9.000				12	7	1	1
50	QU14	APPR. BEAM	13	X	2	7.000	2	9.000	2	7.000	2	9.000				12	0	11	8
52	QU15	APPR. BEAM	10	S	2	7.000	2	7.000				7	9	7	7				411
35	QU16	PILE ENCASUREMENT	10	S	22	0.000	15	0.000				4	11	6	9				111
17	QU17	BRG. BEAM	10	S	6	0.000	2	3.000				4	3	4	1				46
100	SV10	BACKWALL	20	X	8	4.000						8	4	8	4				859
4	4V12	CURTAIN WALL	20	X	7	0.000						7	0	7	0				19
2	4V19	WING	20	X	9	2.000						9	2	9	2				12
2	4V23	WING	20	X	9	7.000						9	7	9	7				13
2	4V24	WING	20	X	10	2.000						10	2	10	2				14
2	4V25	WING	20	X	7	1.000						7	1	7	1				9
2	4V26	WING	20	X	6	9.000						6	9	6	9				9
2	4V27	WING	20	X	10	1.000						10	1	10	1				13
2	4V28	WING	20	X	9	7.000						9	7	9	7				13
40	4V29	WING	20	X	16	1.000						16	1	16	1				13
		INCR = 6.375 IN			5	11.000						5	11	5	11				294
10	5V30	WING	20	X	2	5	3.000					5	3	5	3				48
		INCR = 4.000 IN			3	11.000						3	11	3	11				48
40	4V31	WING	20	X	2	15	8.000					15	8	15	8				283
		INCR = 6.375 IN			5	6.000						5	6	5	6				283
10	5V32	WING	20	X	2	5	1.000					5	1	5	1				46
		INCR = 4.250 IN			3	8.000						3	8	3	8				46
70	5V33	APRON WALL	20	X	9	3.000						9	3	9	3				675
10	2H1	A-B WELLS	22	X	18	0.000	9	1.25				26	1	26	1				44

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO.	LOCATION	SHAPE NO.	NO. EACH	DIMENSIONS											NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.	
					B	C	D	E	F	H	K	FT.	IN.	FT.	IN.				
		SAFETY BARRIER CURB																	
200	SR1	CURB	E 15	S	2	6.125	3.500					2	6.000	3.000					2008
700	SR2	CURB	E 19	S	2	6.000	3.500					2	6.000	3.000					1947
664	SR3	CURB	E 19	S		17.000	6.000												1276
664	SR4	CURB	E 27	S		6.000	11.125	7.000	12.000			9.125	6.375	3	0	2	10		1567
20	SR5	CURB	E 27	S		6.000	11.125	15.000				9.125	6.375	2	8	2	7		54
20	SR6	CURB	E 19	S	2	0.000	6.000					2	0.000	6.000					50
16	SR7	CURB	E 10	S		2	0.000	6.000											72
2	SR8	CURB	E 20			36	2.000												75
32	SR9	CURB	E 20			5	6.000												184
4	SR10	CURB	E 20			32	6.000												136
4	SR11	CURB	E 20			36	4.000												152
2	SR12	CURB	E 20			34	9.000												72
2	SR13	CURB	E 20			31	9.000												66
1	SR14	CURB	E 20			33	4.000												139
2	SR15	CURB	E 20			33	2.000												69
4	SR16	CURB	E 20			29	6.000												123
24	SR17	CURB	E 20			9	9.000												244
36	SR18	CURB	E 20			43	0.000												1615
36	SR19	CURB	E 20			42	0.000												1577
		SLAB ON SEMI-DEEP ABUT. NO. 1																	
16	4S10	ABUT. SLAB	E 20			40	0.000												428
32	5S11	ABUT. SLAB	E 20			52	0.000												1736
18	4S12	ABUT. SLAB	E 20			13	10.000												187
29	4S13	ABUT. SLAB	E 20			27	4.000												530
68	10S14	ABUT. SLAB	E 20			27	4.000												7998
2	4S15	ABUT. SLAB	E 20			27	4.000												37
		SLAB ON SEMI-DEEP ABUT. NO. 3																	
18	4S10	ABUT. SLAB	E 20			40	0.000												481
38	5S11	ABUT. SLAB	E 20			52	0.000												1952
18	4S12	ABUT. SLAB	E 20			13	10.000												166
29	4S16	ABUT. SLAB	E 20			30	4.000												888
68	10S17	ABUT. SLAB	E 20			30	4.000												8076
2	4S18	ABUT. SLAB	E 20			30	4.000												41
		END OF BAR LIST																	



BENDING DIAGRAMS

NOTES:  
 ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.  
 HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.  
 E - EPOXY COATED REINFORCEMENT.  
 S - STIRRUP.  
 X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.  
 V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.  
 NO. EA. - NUMBER OF BARS OF EACH LENGTH.  
 NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)  
 ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.  
 PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

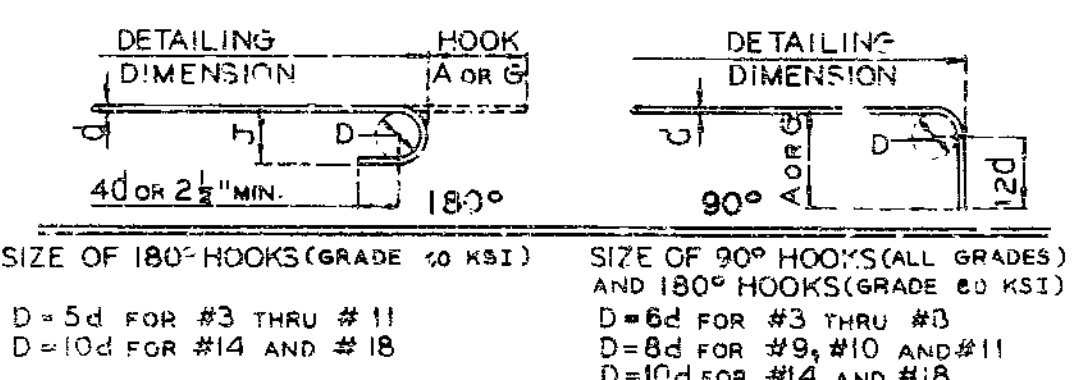
\*\* Two additional #5-8, #6-57E #4-512 are included in bar bill for testing.

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS		90° HOOKS	
	GRADE 40	GRADE 60	ALL GRADES	
#3	5"	2-3/4"	5"	3"
#4	6"	3-1/2"	6"	4"
#5	7"	4-1/2"	7"	5"
#6	8"	5-1/4"	8"	6"
#7	9"	6-1/4"	10"	7"
#8	10"	7"	11"	8"
#9	12"	8"	15"	11-1/4"
#10	13"	9"	17"	12-3/4"
#11	14"	10"	19"	14-1/4"
#14	21-2"	20-1/2"	21-2"	21-7"

STIRRUP HOOK DIMENSIONS

BAR SIZE	D (IN.)	90° HOOK		135° HOOK	
		HOOK A OR G	APPROX. H	HOOK A OR G	APPROX. H
#3	1-1/2"	4"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	4"	3"
#5	2-1/2"	6"	5-1/2"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"	



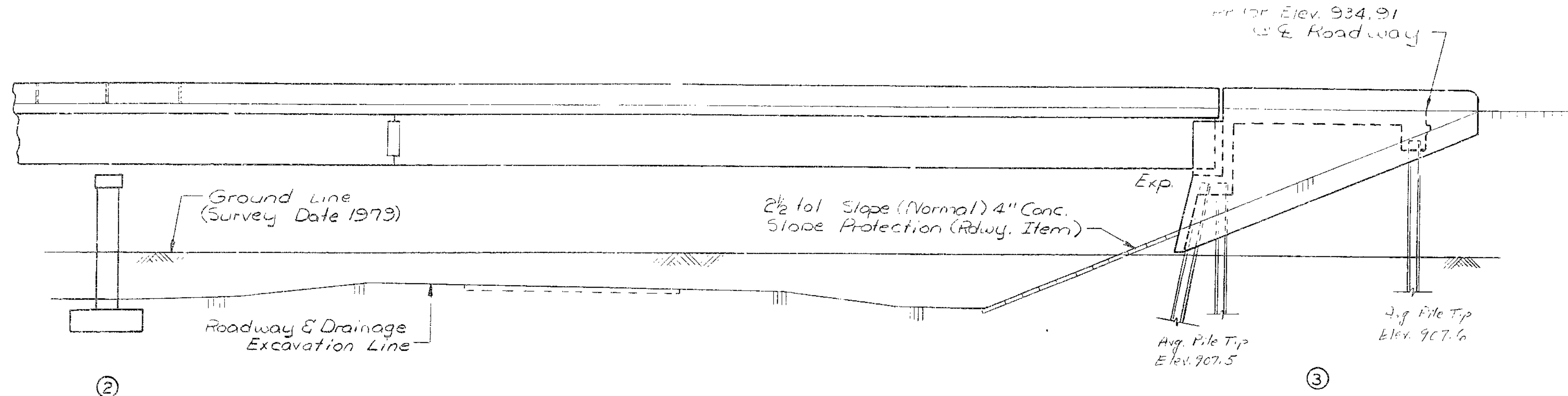
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE



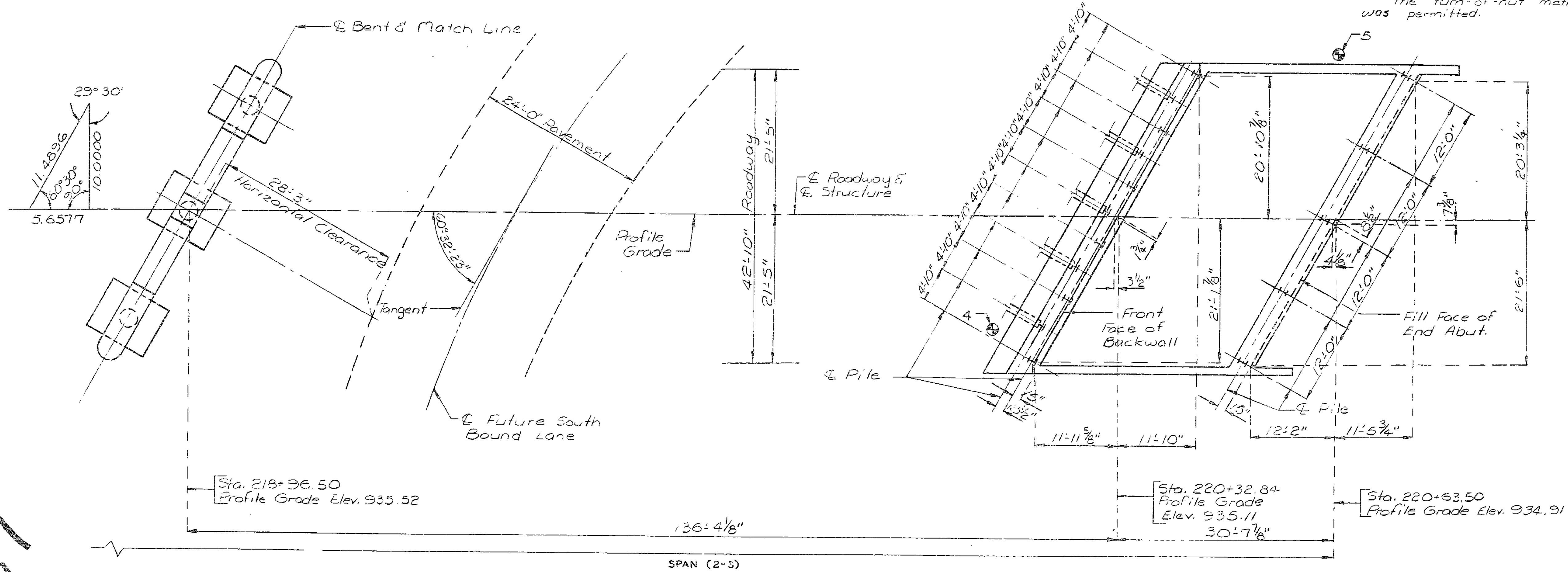
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	49	

GENERAL NOTES

Design Specifications: A.A.S.H.T.O.-1977 and Interim's thru 1983 Load Factor Design  
 Design Loading:  
 HS20-44 35'15g. ft. Full-Wearing Surface  
 Earth 120#/cu. ft., Equivalent Fluid Pressure 30#/cu. ft.  
 Fatigue Stress - Case II  
 Design Unit Stresses:  
 Class B Concrete (Substructure)  $f'_c = 3,000$  psi.  
 Class B2 Concrete (Superstructure except Safety Barrier Curb)  $f'_c = 4,000$  psi.  
 Class B1 Concrete (Safety Barrier Curb)  $f'_c = 4,000$  psi.  
 Reinforcing Steel (Grade 60)  $f_y = 60,000$  psi.  
 Structural Carbon Steel  $f_y = 36,000$  psi.  
 Structural Steel (A.S.T.M. A572) Grade 50  $f_y = 50,000$  psi.  
 Steel Pile  $f_b = 9,000$  psi.  
 Paint:  
 System B by contractor in accordance with Std. Spec. 712.12. (Color of the final field coat for System B was green).  
 Fabricated Steel:  
 Field connections, High Strength Bolts  $\frac{3}{4}$ "  $\phi$ , holes  $1\frac{1}{16}$ "  $\phi$  except as noted.  
 Joint Filler:  
 All joint filler did meet the requirement of Std. Spec. 1057.2.4 except as noted.  
 Reinforcing Steel:  
 Minimum clearance to reinforcing steel was  $\frac{1}{2}$ " unless otherwise shown. All reinforcing bars in tops of substructure beams or caps was spaced to clear anchor bolts for bearings by at least  $\frac{1}{2}$ ".  
 The turn-of-nut method of tensioning field bolts was permitted.



PART ELEVATION



PART PLAN

Note: For Boring Data see sheet No. 3.  
 "⊕" Indicates location of boring.

For Pile Data, Footing Data and Quantities see sheet No. 3.

DETAILED May 1984  
 CHECKED May 1984

Note: This drawing is not to scale. Follow dimensions.

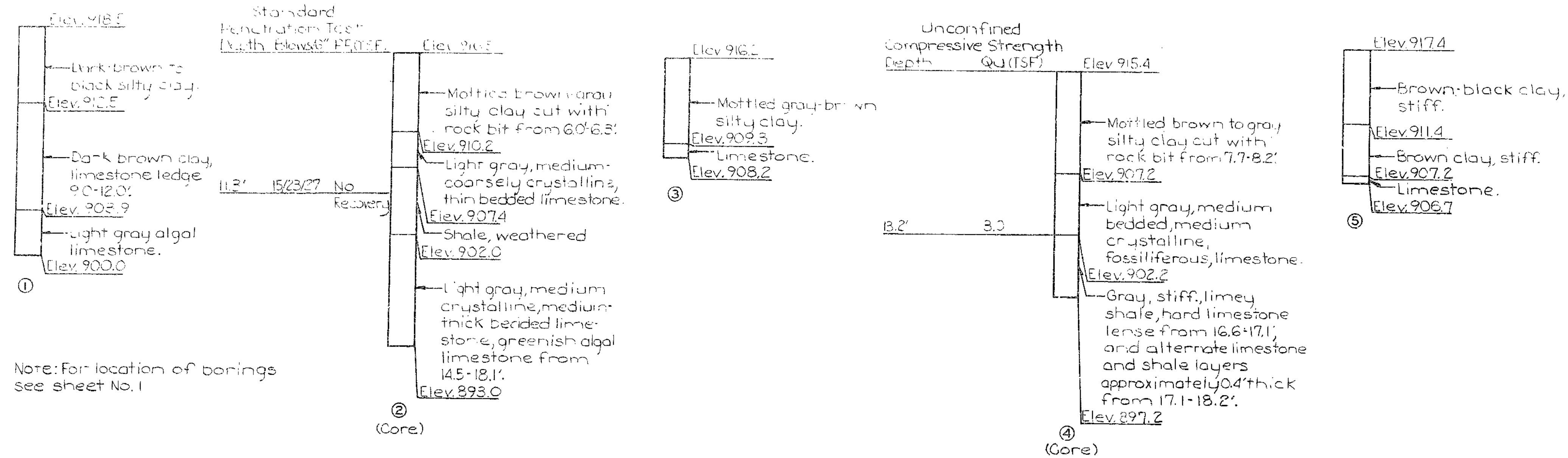
Sheet No. 2 of 20.

CASS

COUNTY

A-4153

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	50	



BORING DATA

QUANTITIES			
ITEM		SUBSTR.	TOTAL
Class 1 Excavation	Cu. Yd.	197.5	197.5
Structural Steel Pile (10 In.)	Lin. Ft.	653	653
Class B Concrete	Cu. Yd.	271.3	271.3
Stay-In-Place Forms - Slab on Steel	Sq. Yd.		1361
Safety Barrier Curb	Lin. Ft.		79
Slab On Semi-Deep Abutment	Sq. Yd.		295
Laminated Neoprene Bearing Pads	Ea.	15	15
Preformed Compression Expansion Joint Seal (4.0 In.)	Lin. Ft.	99	99
Reinforcing Steel	Lb.	30,610	30,610
Reinforcing Steel (Epoxy Coated)	Lb.	820	820
Fabricated Structural Carbon Steel (Plate Girder)	Lb.	303,500	303,500
Fabricated Structural Low Alloy Steel (Plate Girder)	Lb.	88,170	88,170
Painting (System 3) Green	Ton	195.1	195.1
<b>CONTINGENT ITEMS</b>			
50% of Class 1 Excavation +125%	Cu. Yd.	13.5	13.5
50% of Test Holes	Lin. Ft.	12	12

QUANTITIES FOR ALTERNATE SLABS			
TYPE OF SLAB	SLAB ON STEEL		
	REINF. (LBS.)		CONC.
	EPOXY	PLAIN	CU. YD.
Stay-In-Place Forms	52590	3840**	326.1 *

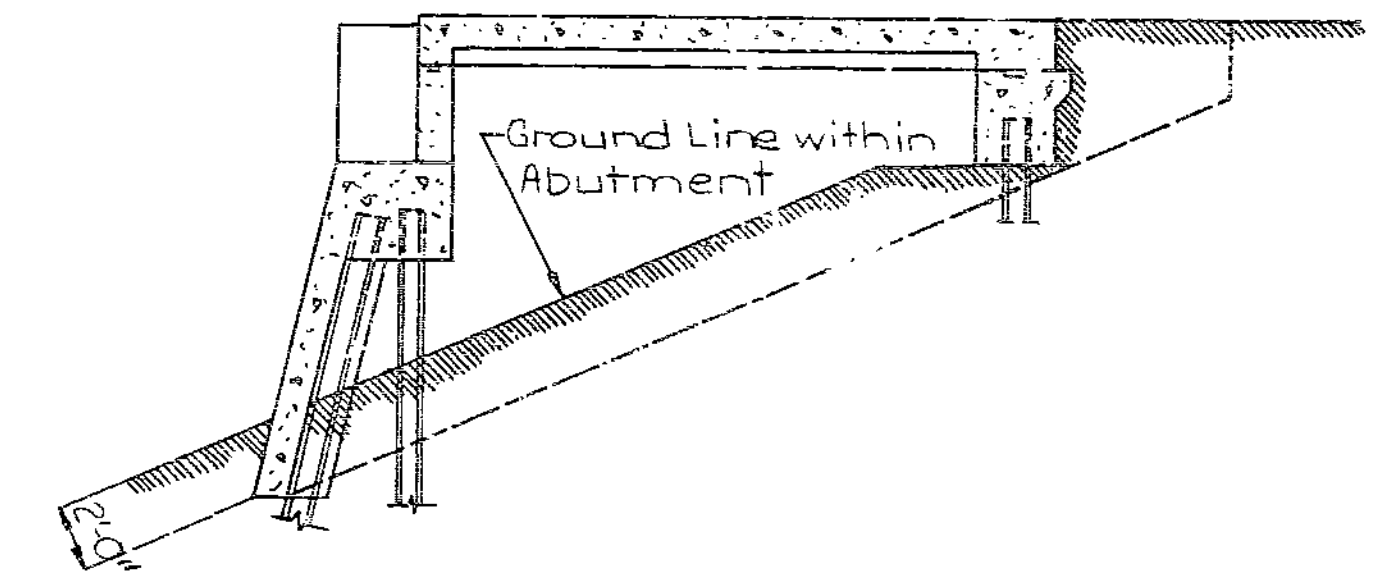
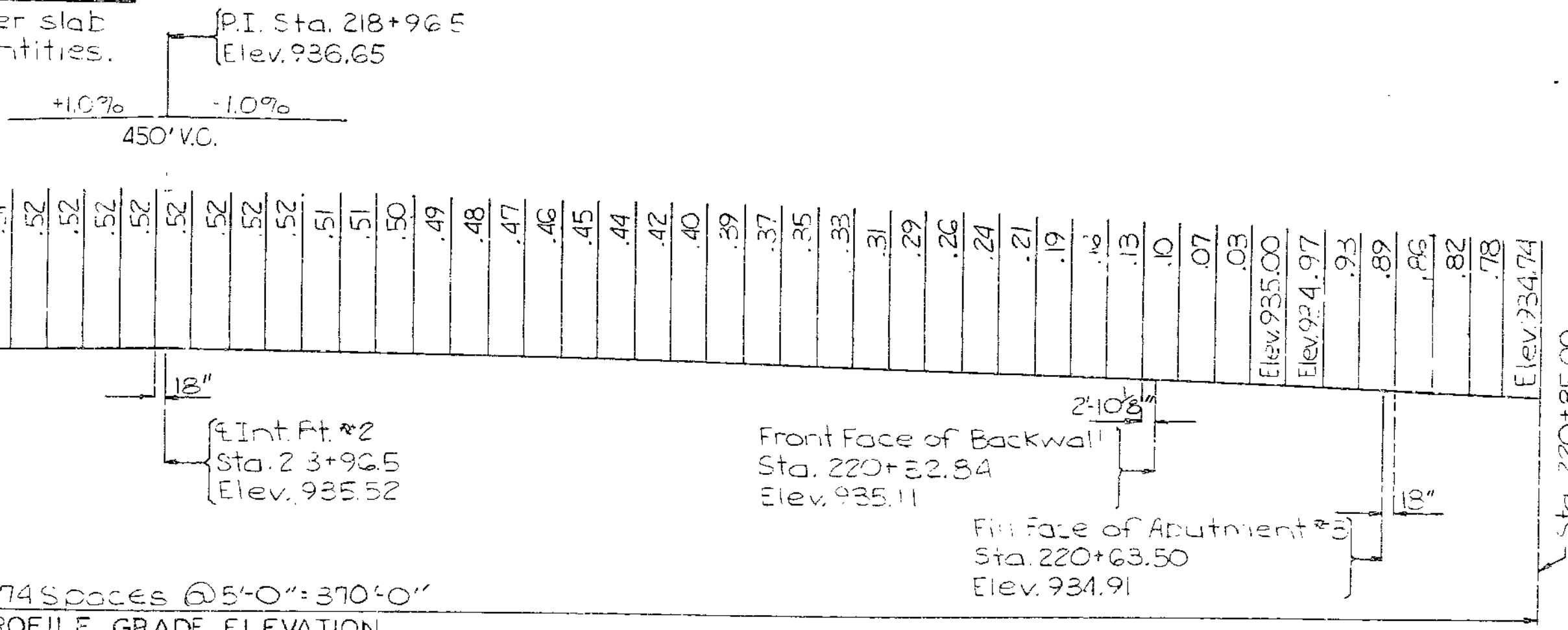
PILE & FOOTING DATA					
		BENT NO. 2		BENT NO. 3	
		1 Appr. Bm	1 Brg. Bm	3 Appr. Bm	3 Brg. Bm
BEARING PILE	Pile Type and Size	HP10x42	HP10x42	HP10x42	HP10x42
	Number	5	10	5	11
	Approximate Length	Ft. 25'	20'	19'	21'
	Design Bearing	Tons 36	56	39	51
	Hammer Energy required	Ft-lbs 8000	13800	8700	12500
SPREAD FOOTING	Foundation Material			Rock	
	Design Bearing	Tons/Sq. Ft.		52	

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles. All pile were driven to practical refusal.

\* Does not include concrete required to fill corrugation of S.I.P. forms.  
 \*\* Does not include reinforcing bars used as bar supports.

Note: All concrete and reinforcing steel above Const. Joint under slab in Semi-Deep Abutments are included in superstructure quantities.

88



**GROUND LINE AND PILING IN ABUTMENTS**  
 Note: In no case is the earth within abutments No. 1 and 3 above the Ground Line shown. Forms supporting abutment slab were left in place.  
 The maximum variation of the head of the pile and the battered face of the pile from the position shown on the plans was not more than 2" inches for pile under Abutments No. 1 and 3.  
 Exposed steel piles within abutment were coated with a heavy coating of an approved bituminous paint.

DETAILED MAY 1984  
 CHECKED MAY 1984

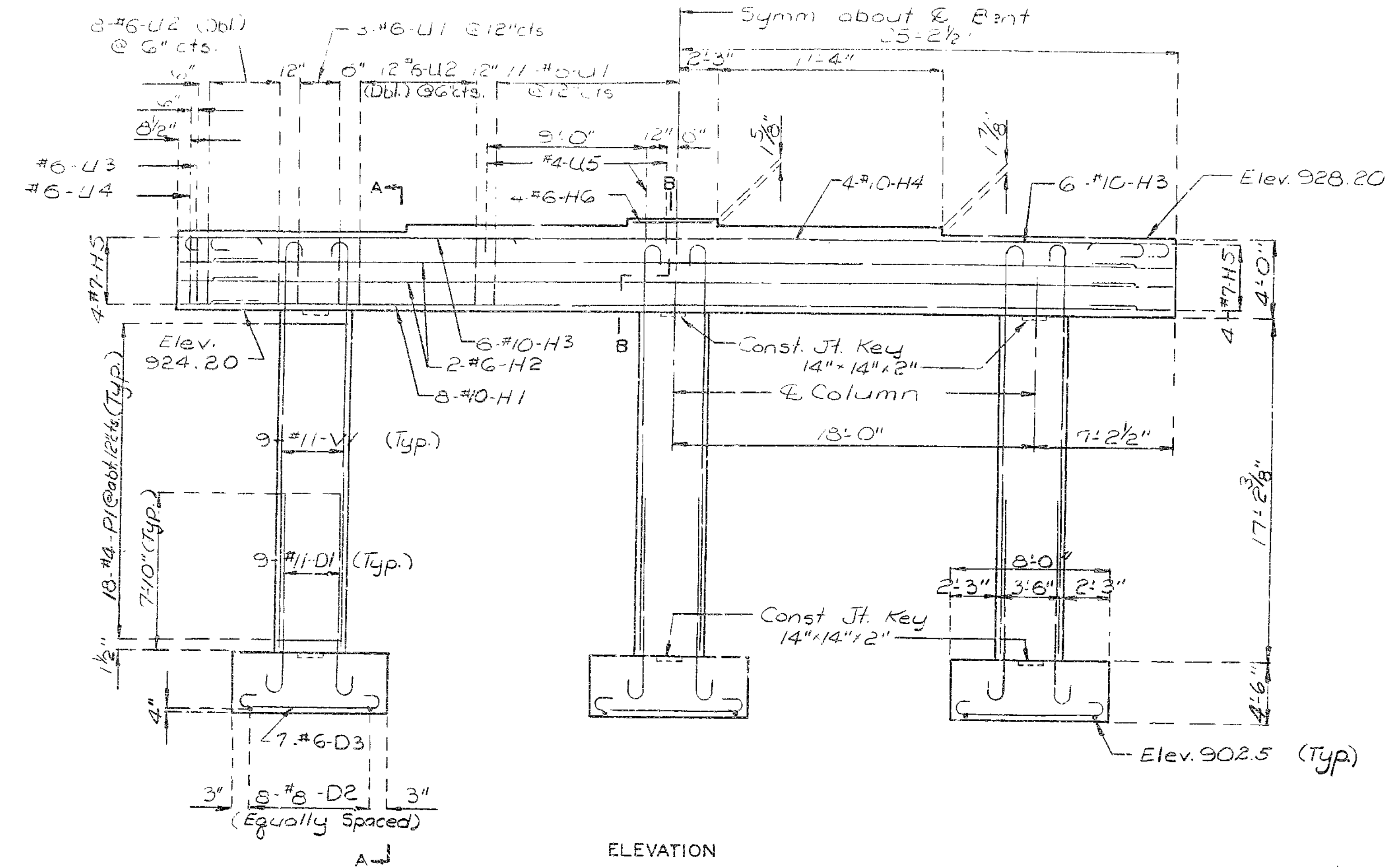
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3A of 20.

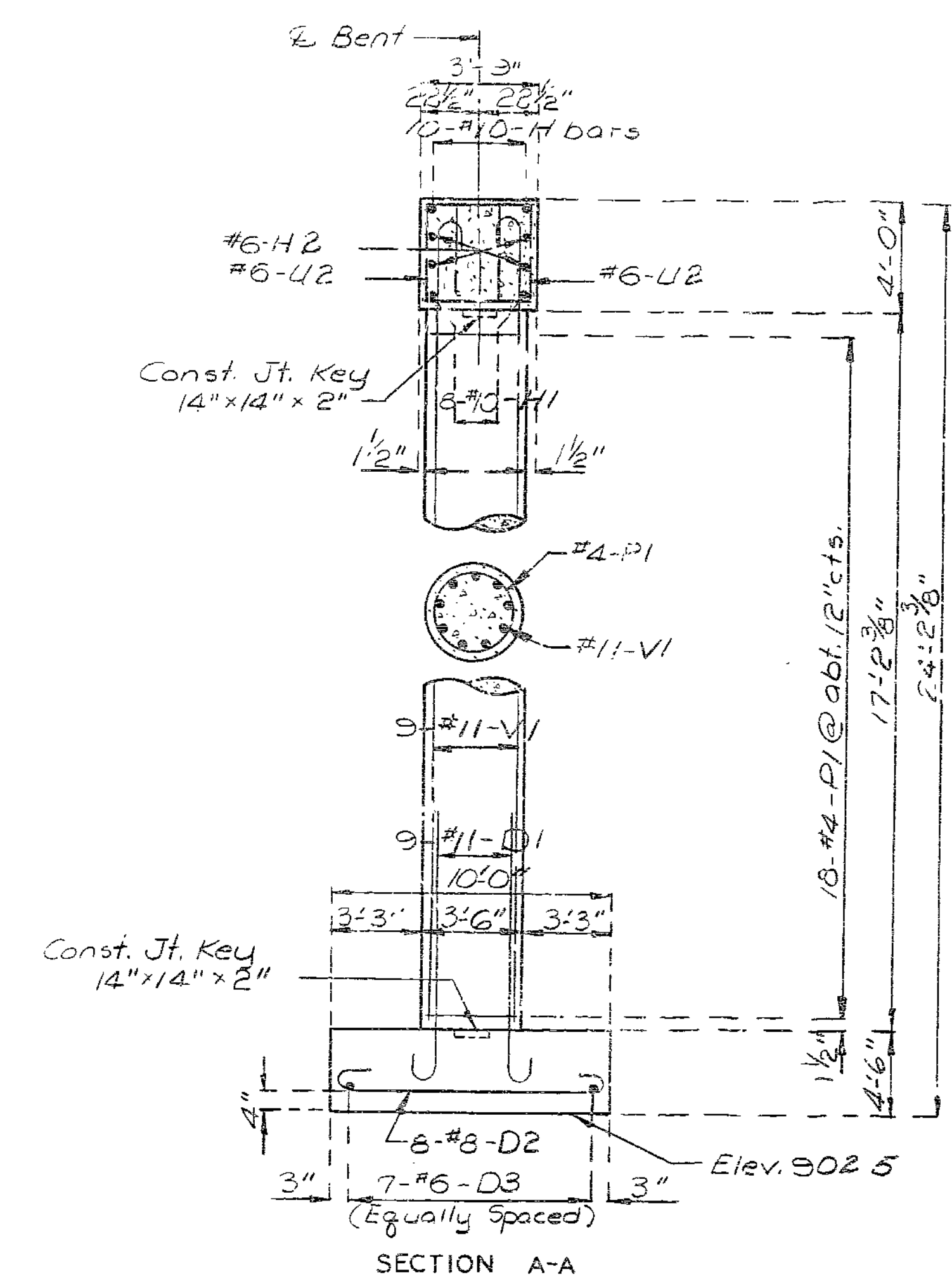
CASS COUNTY

A-4153

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		15	54	

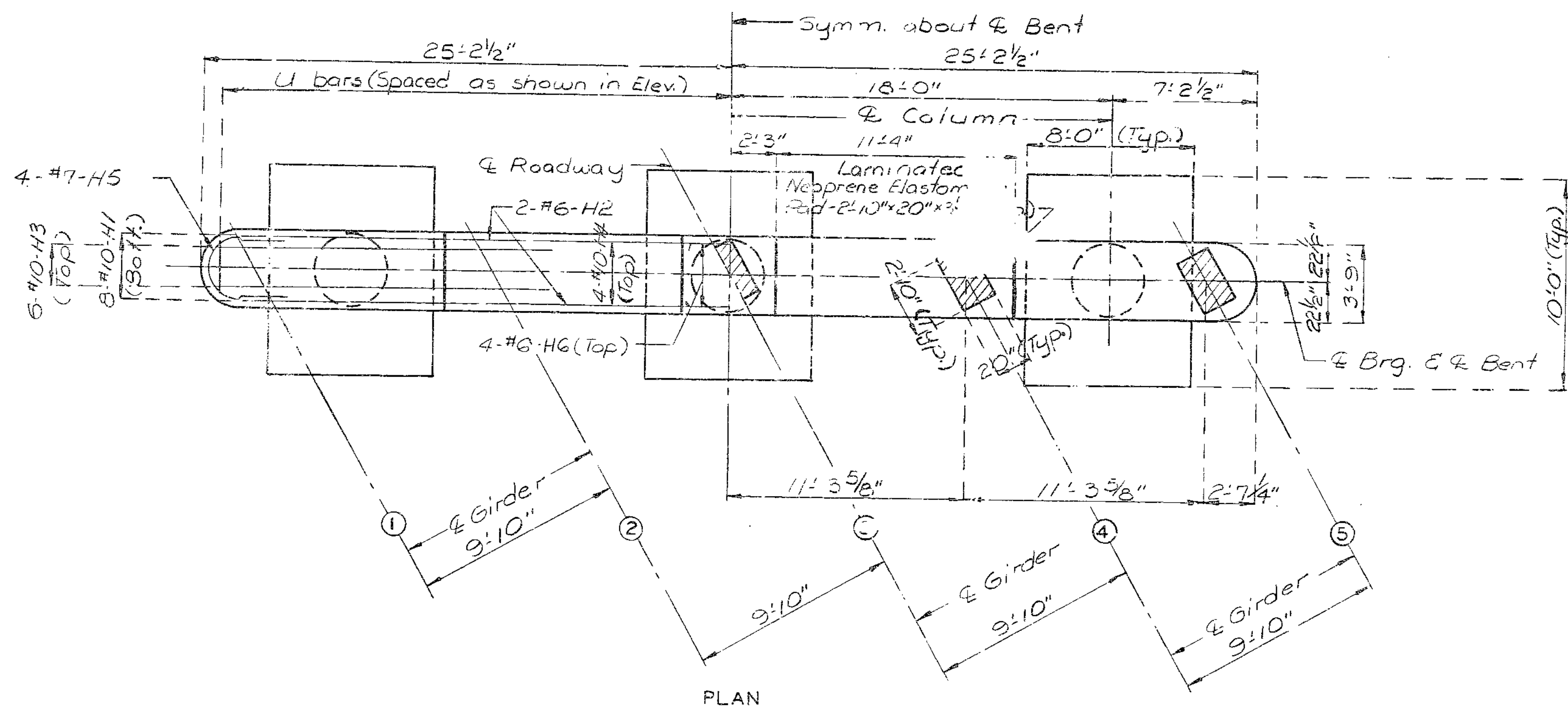


ELEVATION



SECTION A-A

SECTION B-B



PLAN

DETAILS OF INTERMEDIATE BENT NO.2

Note: For details & location of Anchor Bolt Wells see sheet No. 13.

8  
 DETAILED May 1984  
 CHECKED May 1984

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7A of 20.

CASS COUNTY

A-4153



**General Notes:**

**Design Specifications:**

2002 - AASHTO LFD (17th Edition) Standard Specifications  
 Bridge Deck rating = 7

**Design Loading:**

H15-44 (1944 & 1977)  
 HS20-44 (New Construction)  
 15#/sq. ft. Future Wearing Surface

**Design Unit Stresses:**

Class B-1 Concrete (Safety Barrier Curb, Slab, Diaphragm and Wings)  $f'c = 4,000$  psi  
 Reinforcing Steel (Grade 60)  $f_y = 60,000$  psi

**Joint Filler:**

All joint filler shall be in accordance with Sec.1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

**Reinforcing Steel:**

Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

**Miscellaneous:**

Protective coating for concrete bents and piers (Urethane) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for plain bars and 30 diameters for deformed bars, unless otherwise noted.

Roadway surfacing adjacent to bridge ends shall match new bridge slab surface (Roadway Item).

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

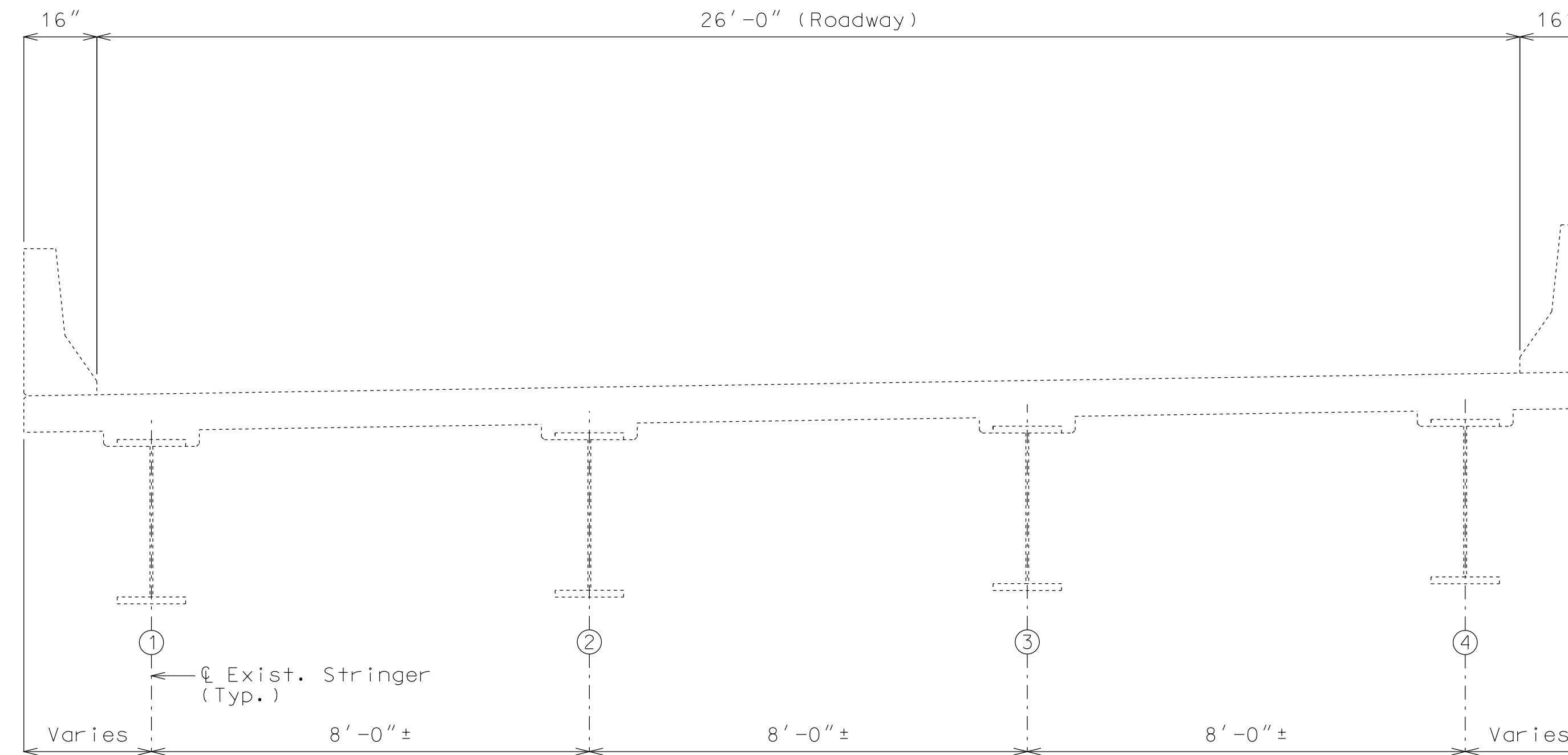
The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Cost of any required excavation for bridge will be considered completely covered by the contract unit price for other items.

**Traffic Handling:**

Structure to be closed during construction.

**MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION**  
**U.I.P. AND REHABILITATE EXISTING (60'-60') CONTINUOUS COMPOSITE WIDE FLANGE SPANS**  
**(260') TRUSS (47'-47') CONTINUOUS COMPOSITE WIDE FLANGE SPANS**



**TYPICAL SECTION THRU SLAB  
 CONTINUOUS COMPOSITE WIDE FLANGE SPANS**

**Estimated Quantities**

Item		Total
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	104
Partial Removal of Substructure Concrete	lump sum	1
Remove and Replace Barrier Curb	linear foot	40
Removal of Existing Bearings	each	16
Class B-1 Concrete	cu. yard	23.7
Substructure Repair (Formed)	sq. foot	40
Substructure Repair (Unformed)	sq. foot	20
Reinforcing Steel (Epoxy Coated)	pound	5,180
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Vertical Drain at End Bents	each	2
Remove and Replace Truss Bearing	each	2
Laminated Neoprene Bearing Pad Assembly	each	8
Strip Seal Expansion Joint System	linear foot	52


Method of forming the slab shall be in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 11/25/2013	
ROUTE 7	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY CASS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. L00232	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MODOT (1-888-275-6636)

**REPAIRS TO BRIDGE: RTE 7 OVER  
 ABANDONED RR & BIG CREEK**  
 STATE ROAD FROM RTE. 58 TO RTE. P  
 ABOUT 0.6 MILE SOUTH OF RTE. 58  
 STA. 85+56.65± (Match Existing)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



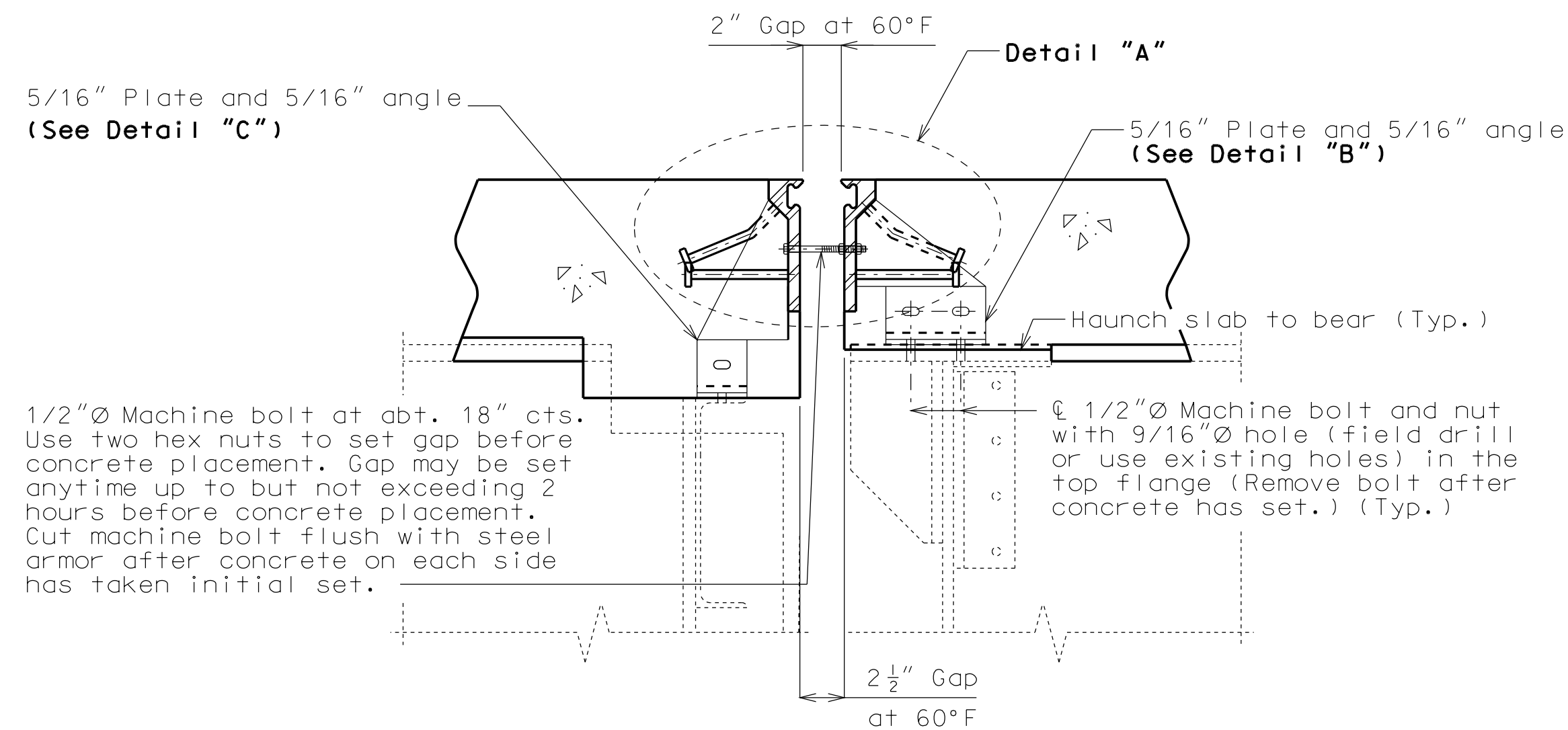






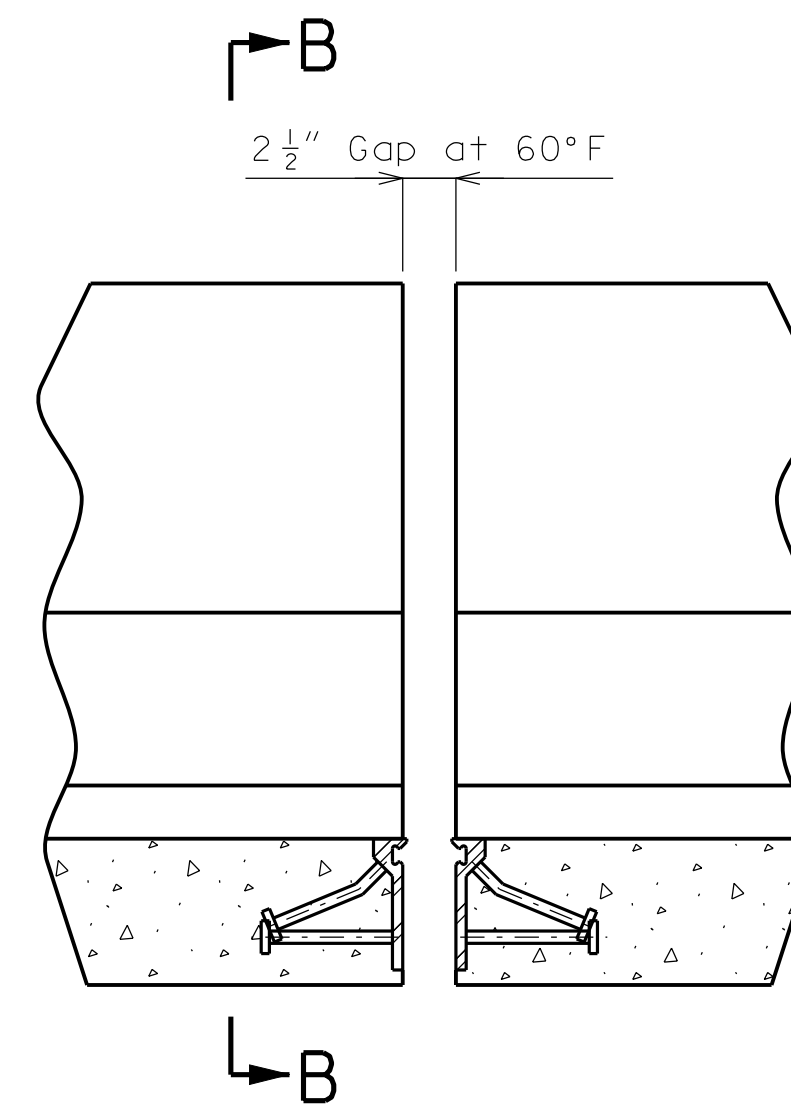






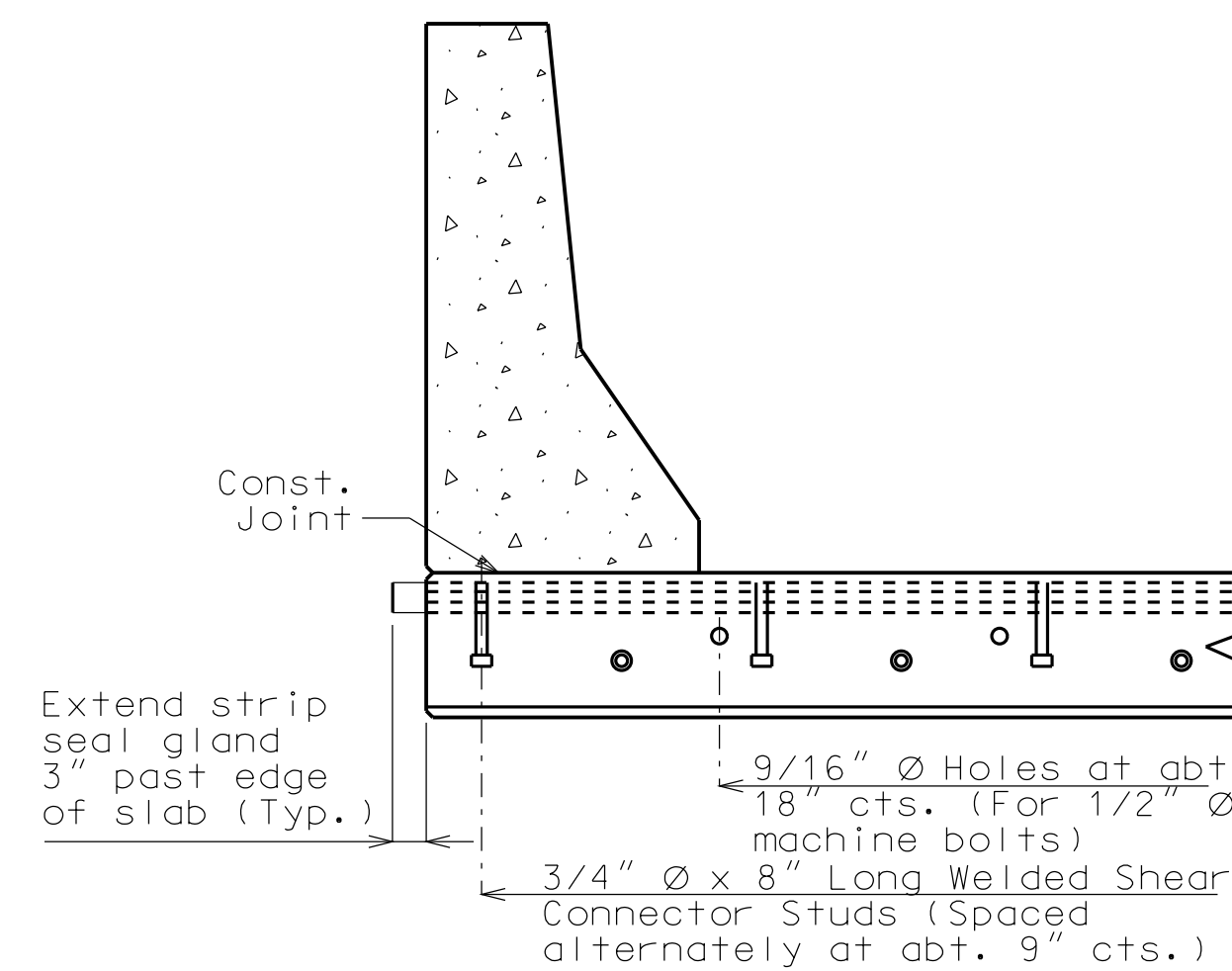
SECTION A-A

Note: Strip seal gland not shown for clarity.



PART ELEVATION OF BARRIER CURB

Note: Strip seal gland not shown for clarity.



PART SECTION B-B

**GENERAL NOTES:**

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

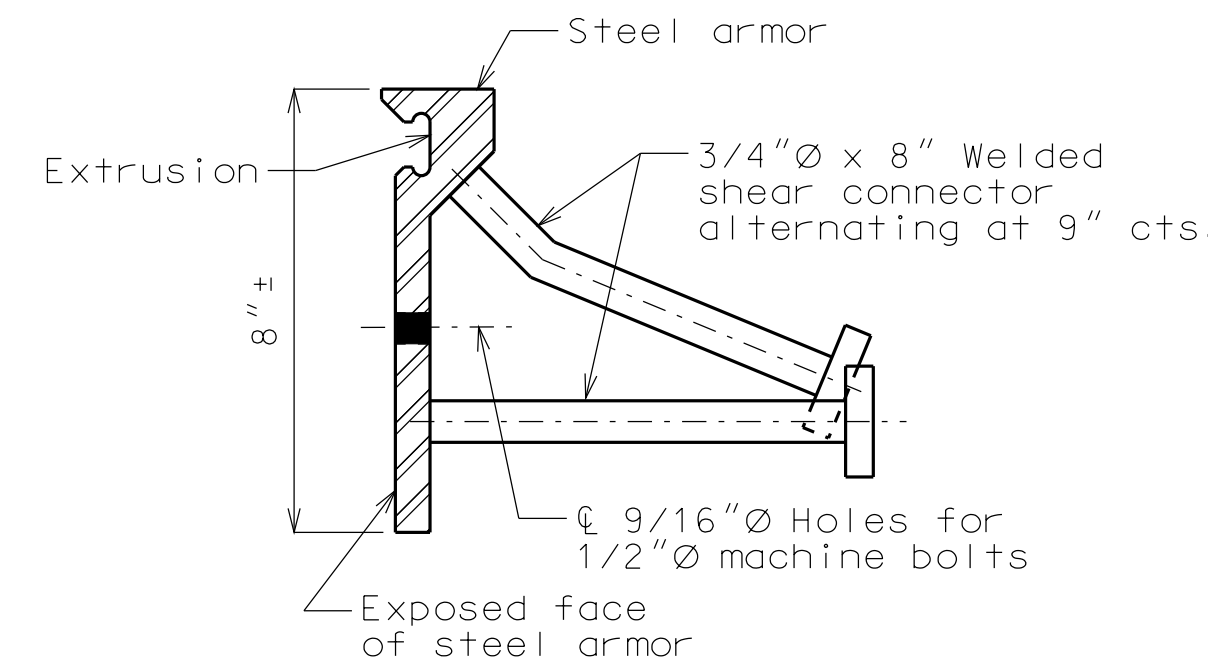
Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

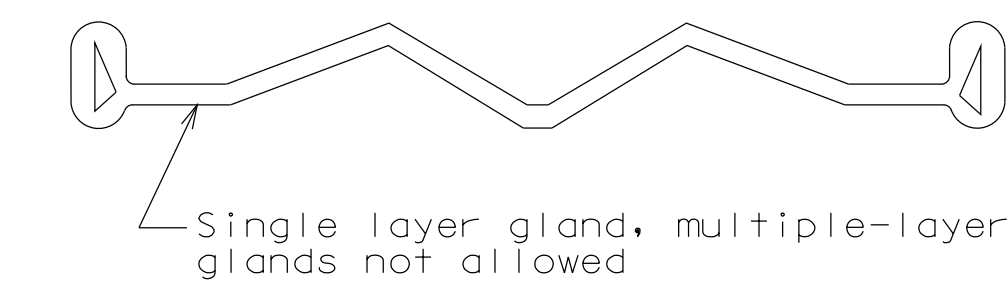
Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/4 inch for each 10° fall or rise in temperature at installation.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than ±1 inch from vertical leg of the steel armor at the expansion joint system.

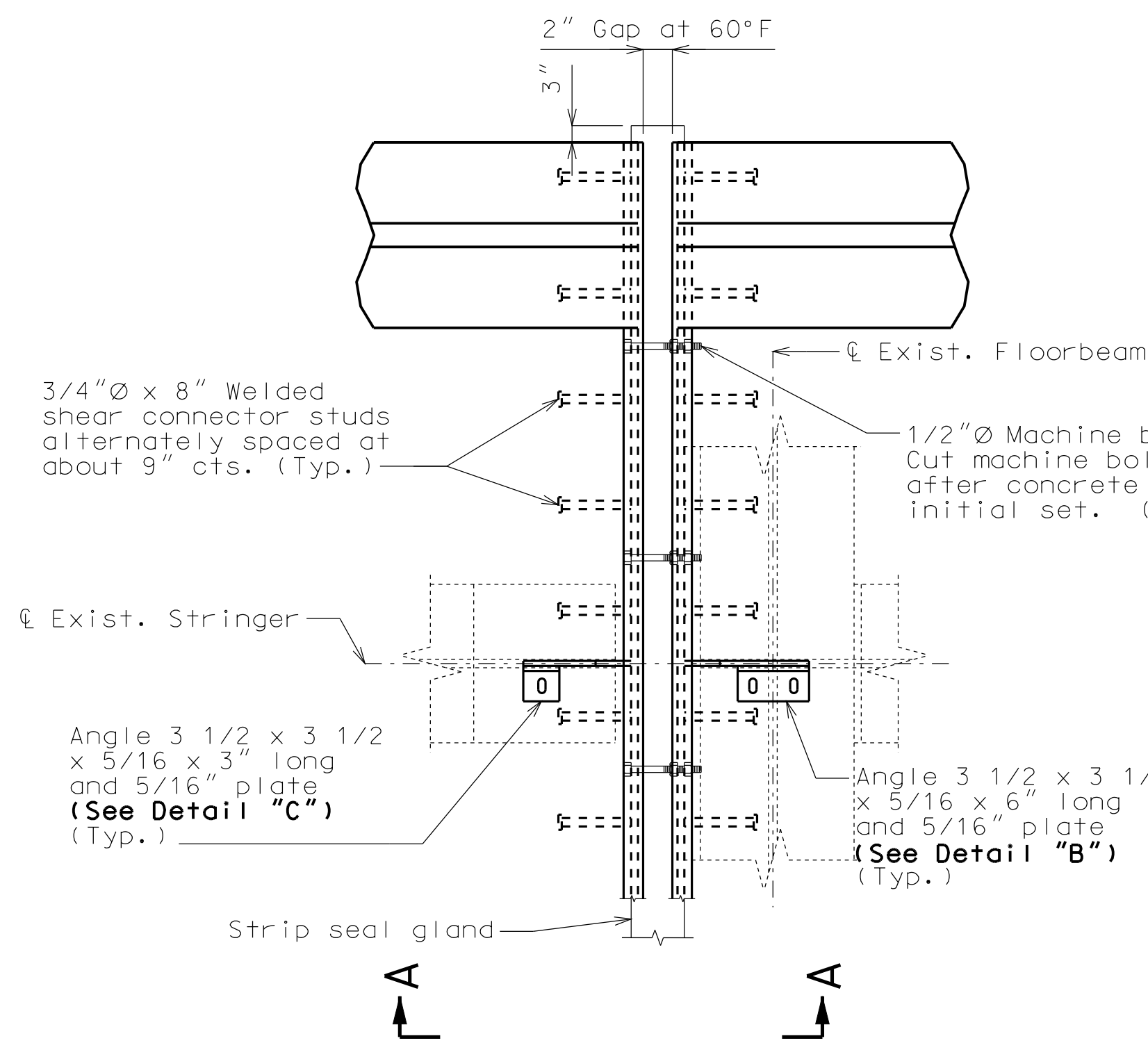
Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.



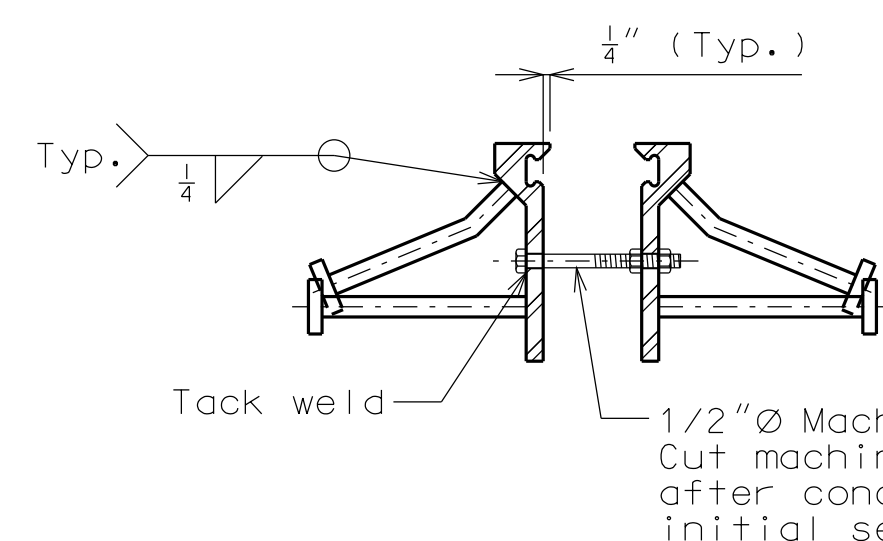
DETAIL OF JOINT ARMOR



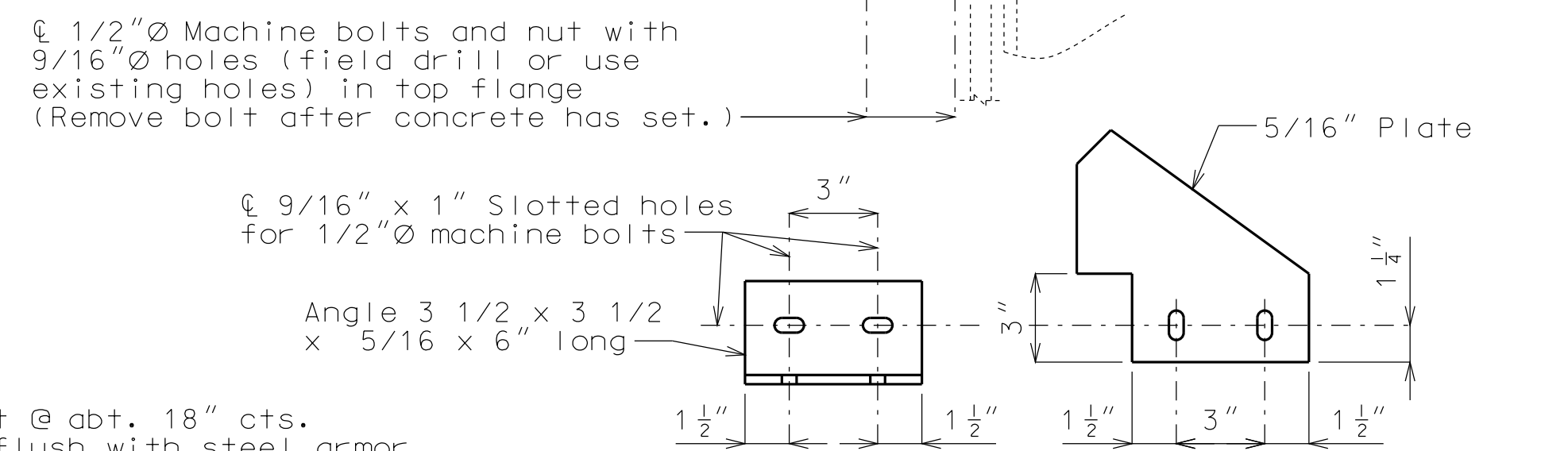
DETAIL OF GLAND



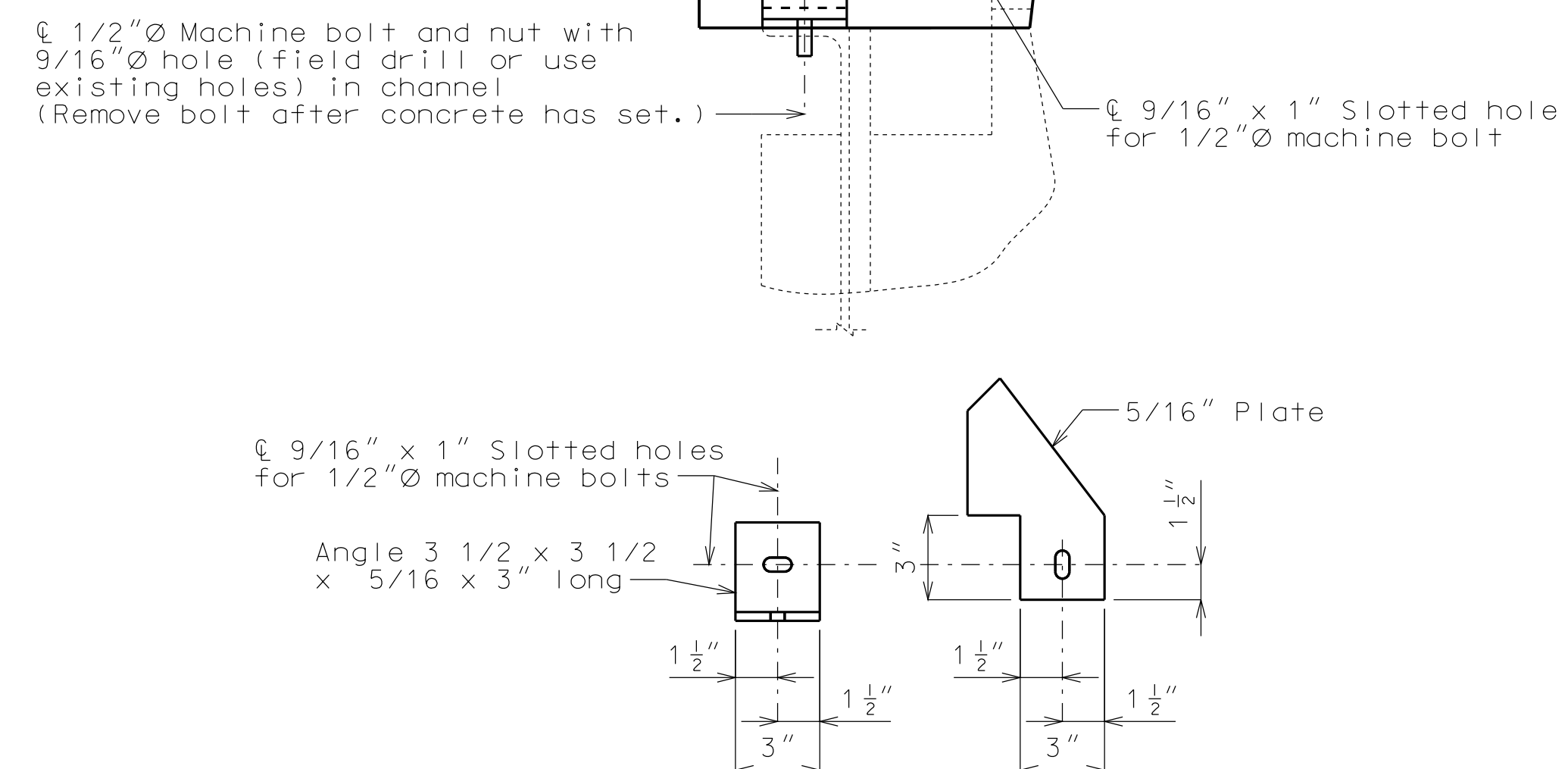
PART PLAN



DETAIL "A"



DETAIL "B"



DETAIL "C"

**DETAILS OF STRIP SEAL AT PIER NO. 3**

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 13

Detailed July 2013  
Checked Sep. 2013

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED		11/25/2013	
ROUTE	STATE	BR	MO
DISTRICT	SHEET NO.	8	
COUNTY			
CASS			
JOB NO.			
J4P2191B			
CONTRACT ID.			
PROJECT NO.			
BRIDGE NO.			
L00232			

DESCRIPTION

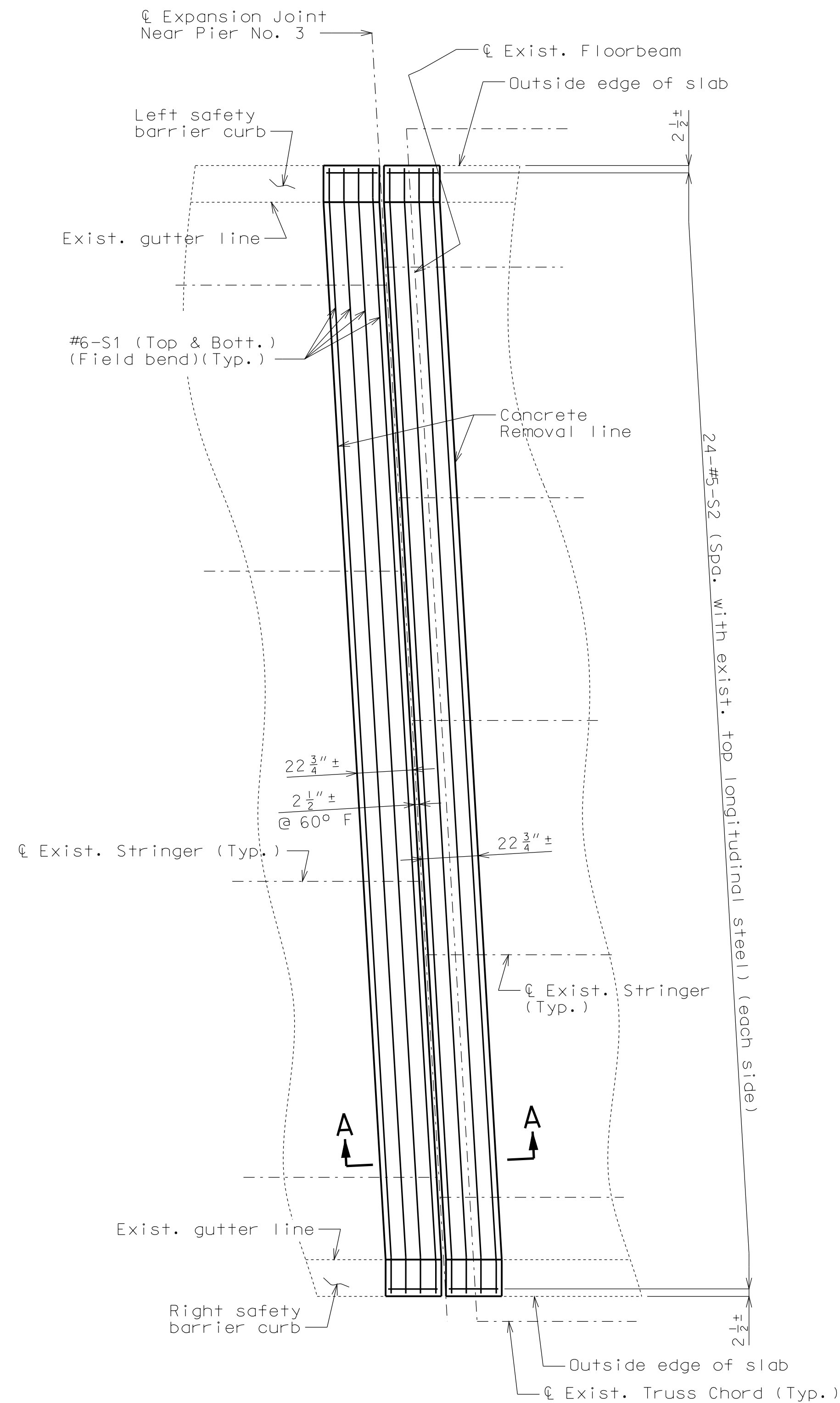
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

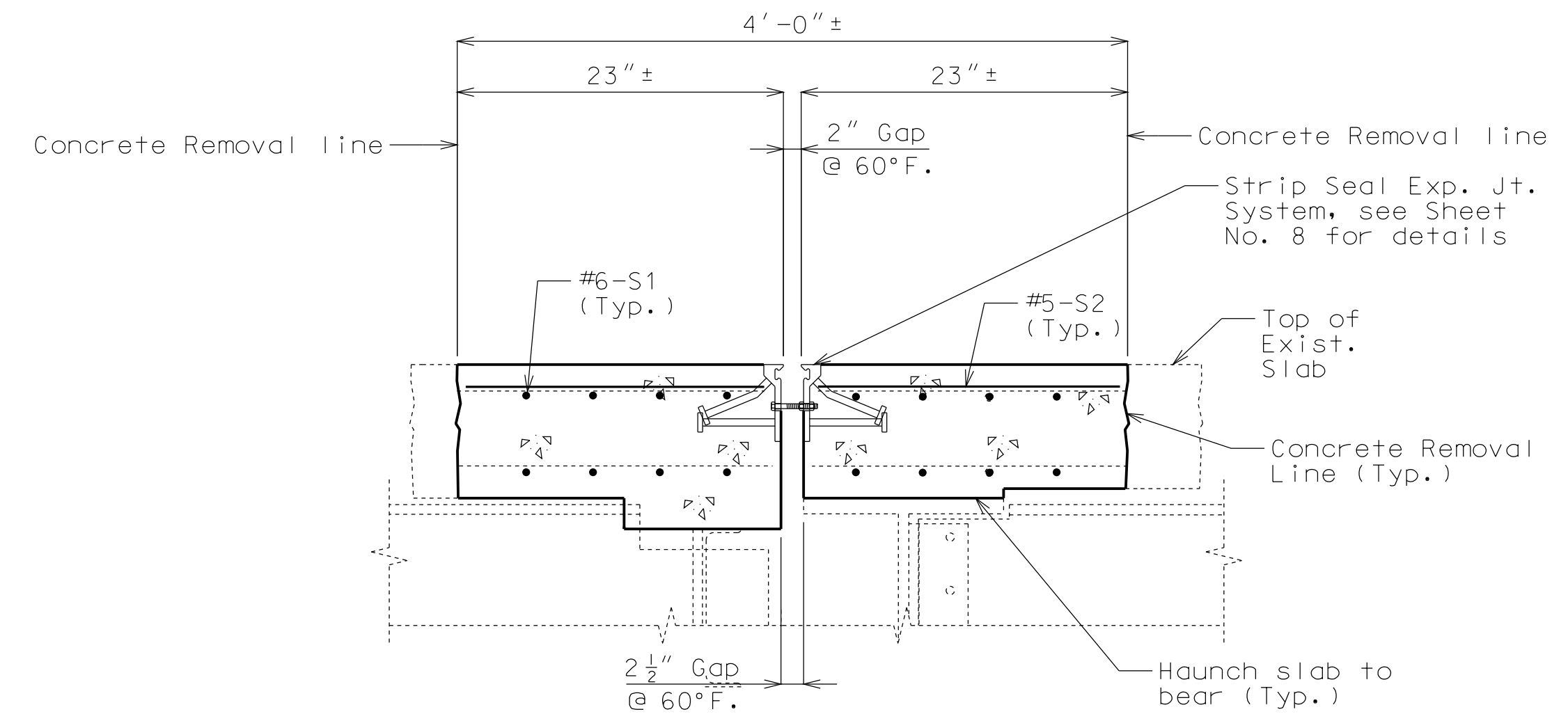


IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

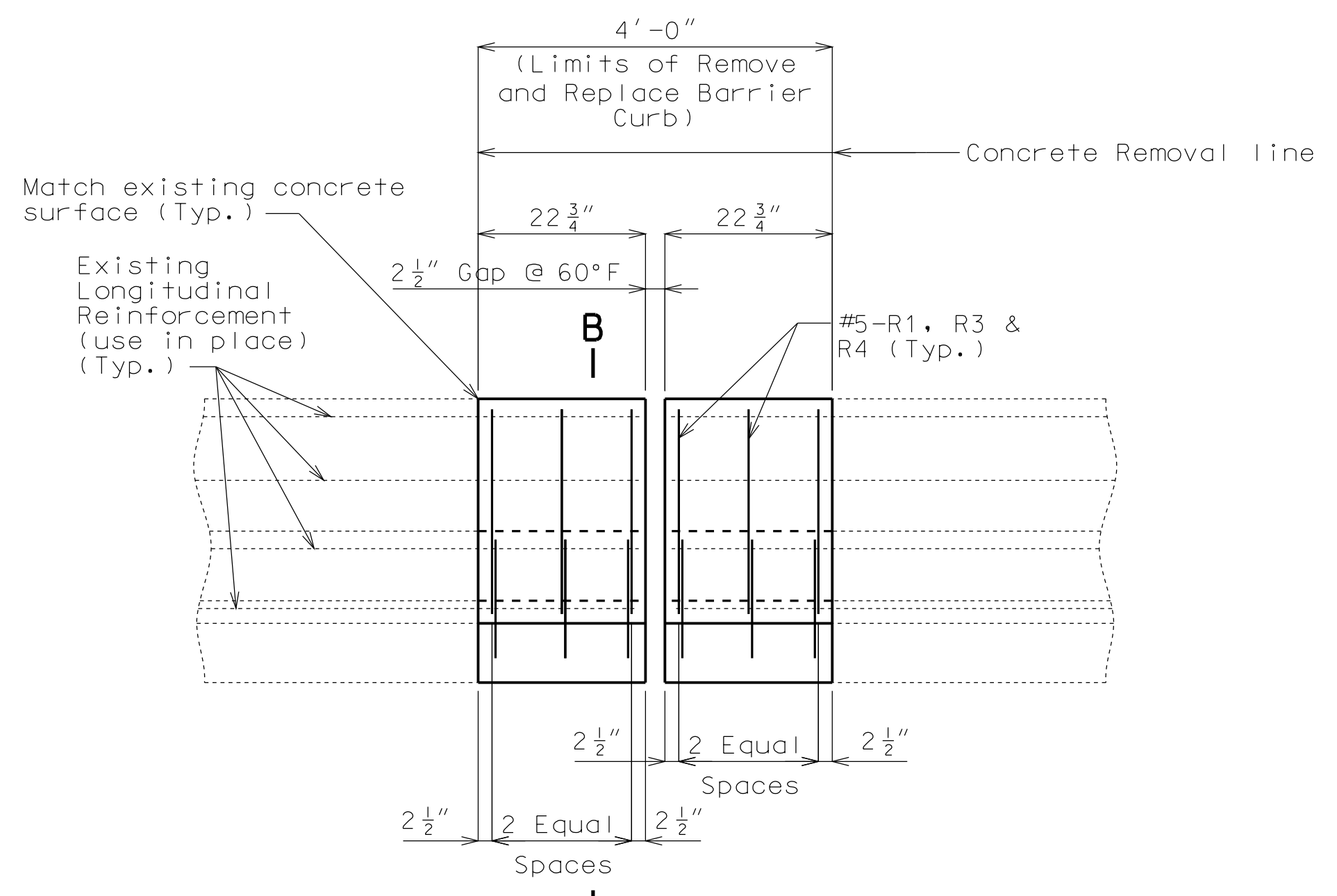




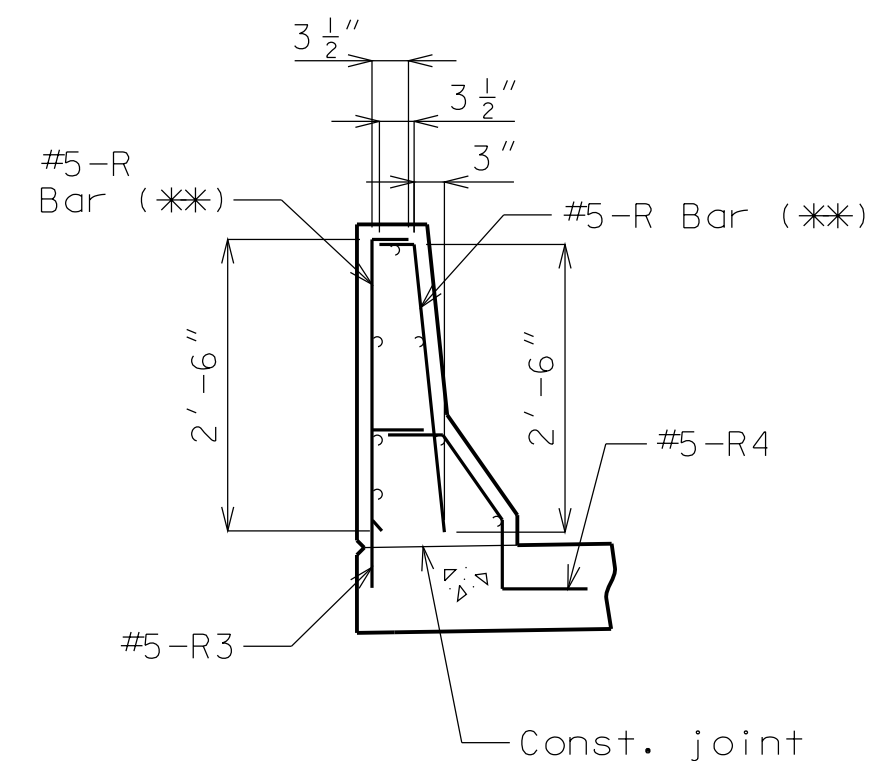
PART PLAN OF SLAB NEAR PIER NO. 3



SECTION A-A

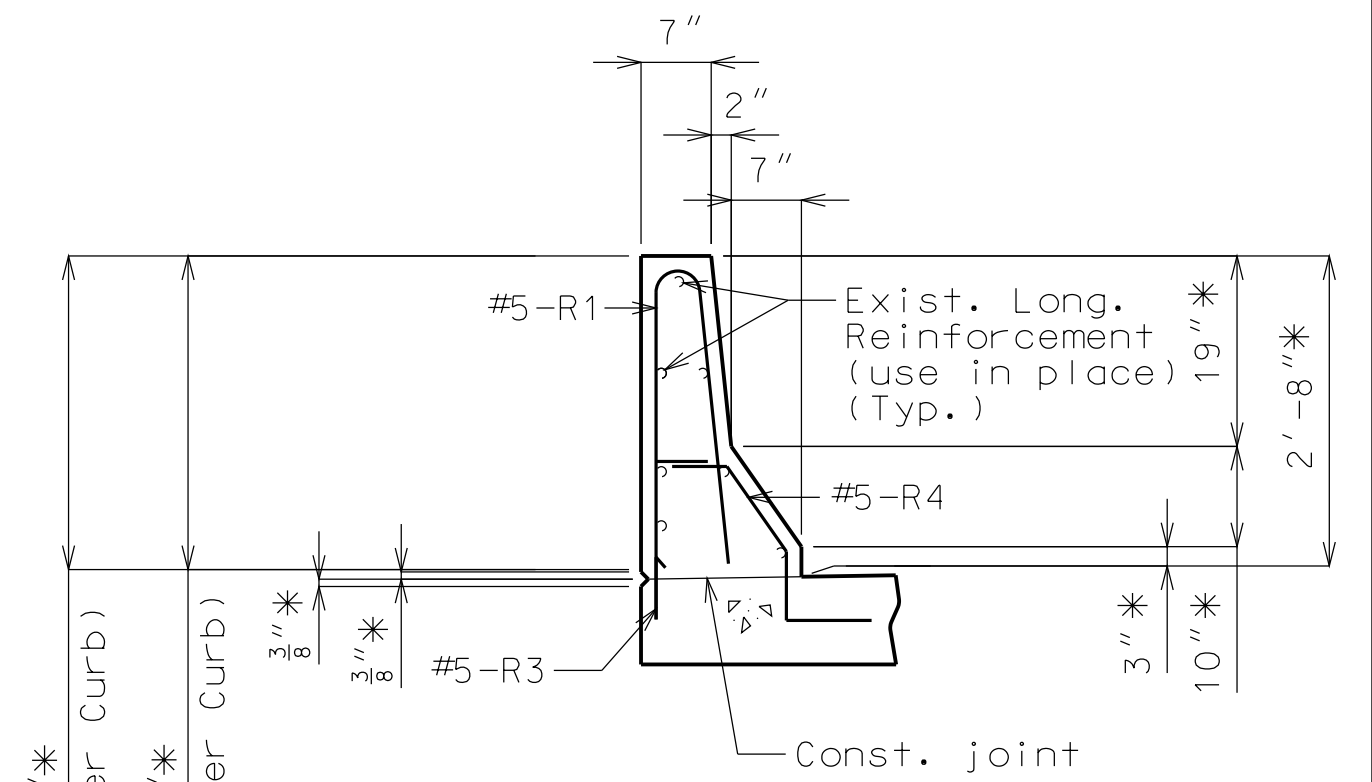


PART ELEVATION OF RIGHT SAFETY BARRIER CURB  
(Right barrier curb shown, left barrier curb similar)



R-BAR PERMISSIBLE ALTERNATE SHAPE

(\*\*) The R1 bar may be separated into two bars as shown, at the contractor's option. (All dimensions are out to out.)



PART SECTION B-B  
\* Match existing.

Notes:

Payment for all concrete and reinforcement for safety barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Barrier Curb per linear foot.

All exposed edges of safety barrier curb shall have either a 1/2" radius or a 3/8" bevel, unless otherwise noted.

DETAILS OF SLAB AND BARRIER CURB AT PIER NO. 3

Detailed June 2013  
Checked Sep. 2013

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 13

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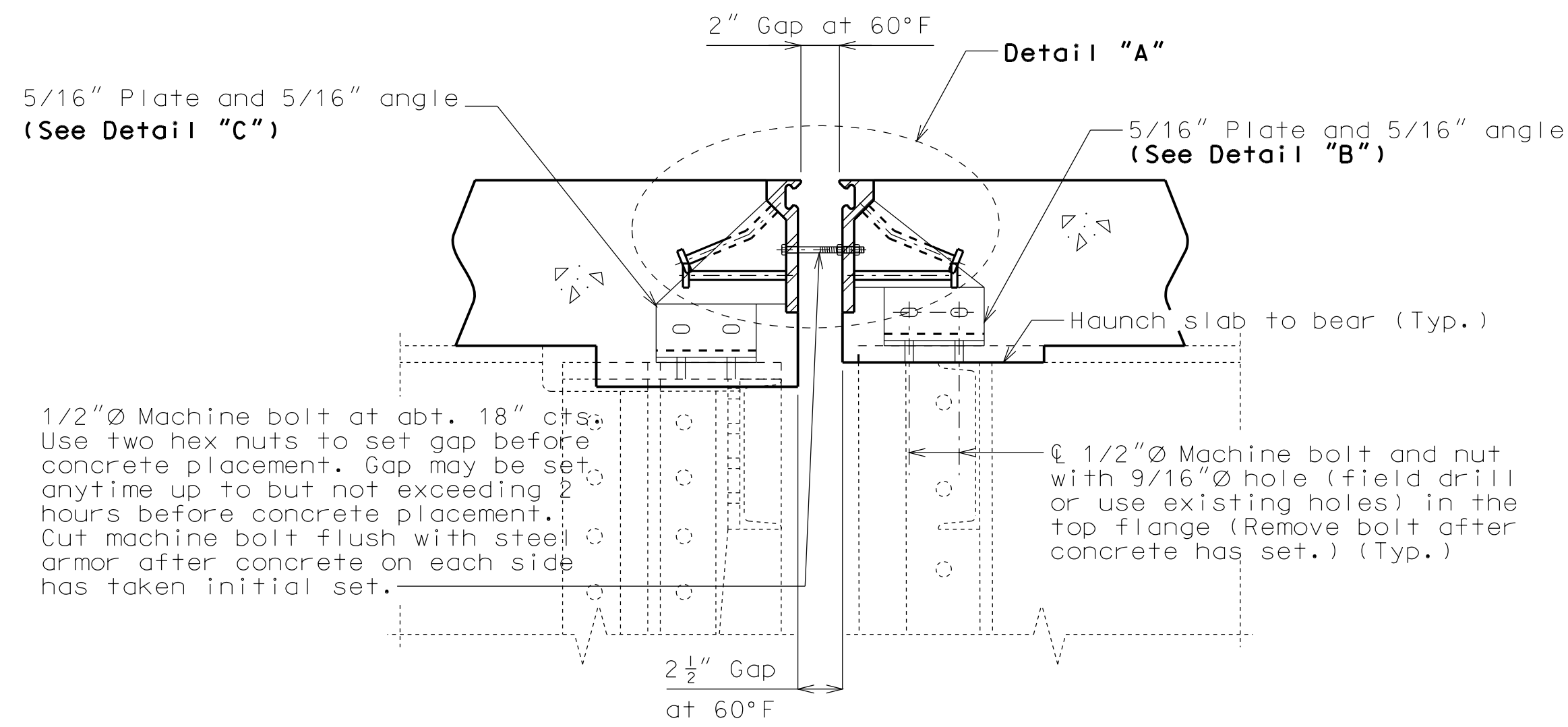
DATE PREPARED 11/25/2013	
ROUTE 7	STATE MO
DISTRICT BR	SHEET NO. 9
COUNTY CASS	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. L00232	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

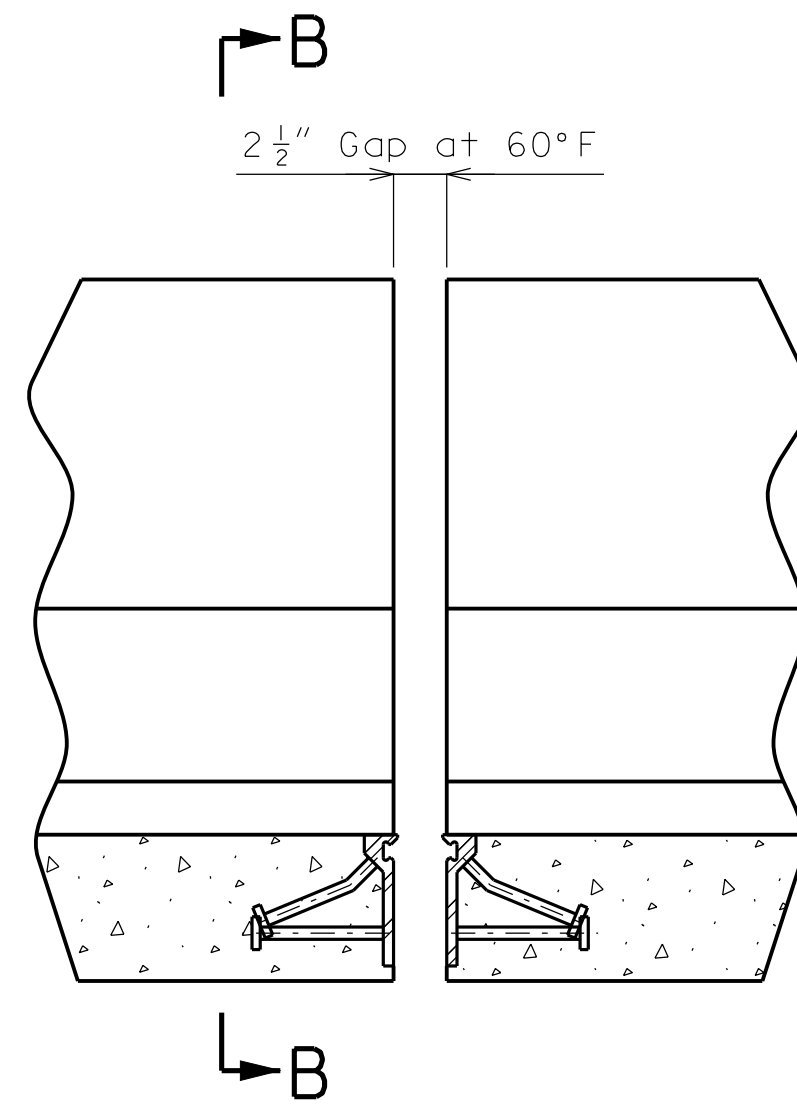
105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



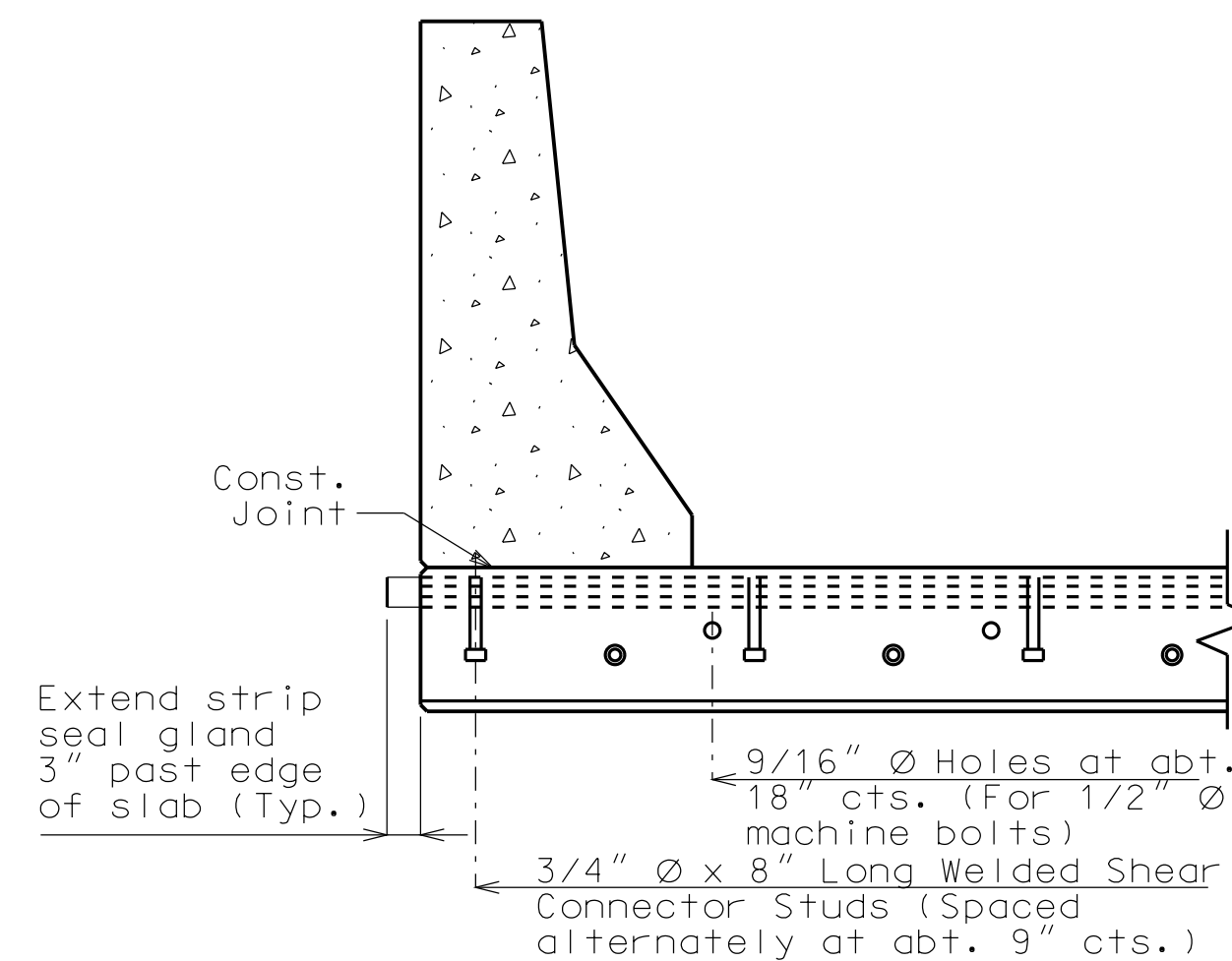
SECTION A-A

Note: Strip seal gland not shown for clarity.



Note: Strip seal gland not shown for clarity.

PART ELEVATION OF BARRIER CURB



PART SECTION B-B

GENERAL NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

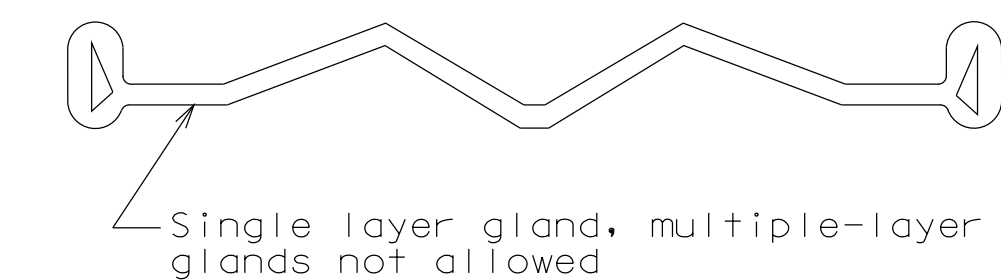
Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

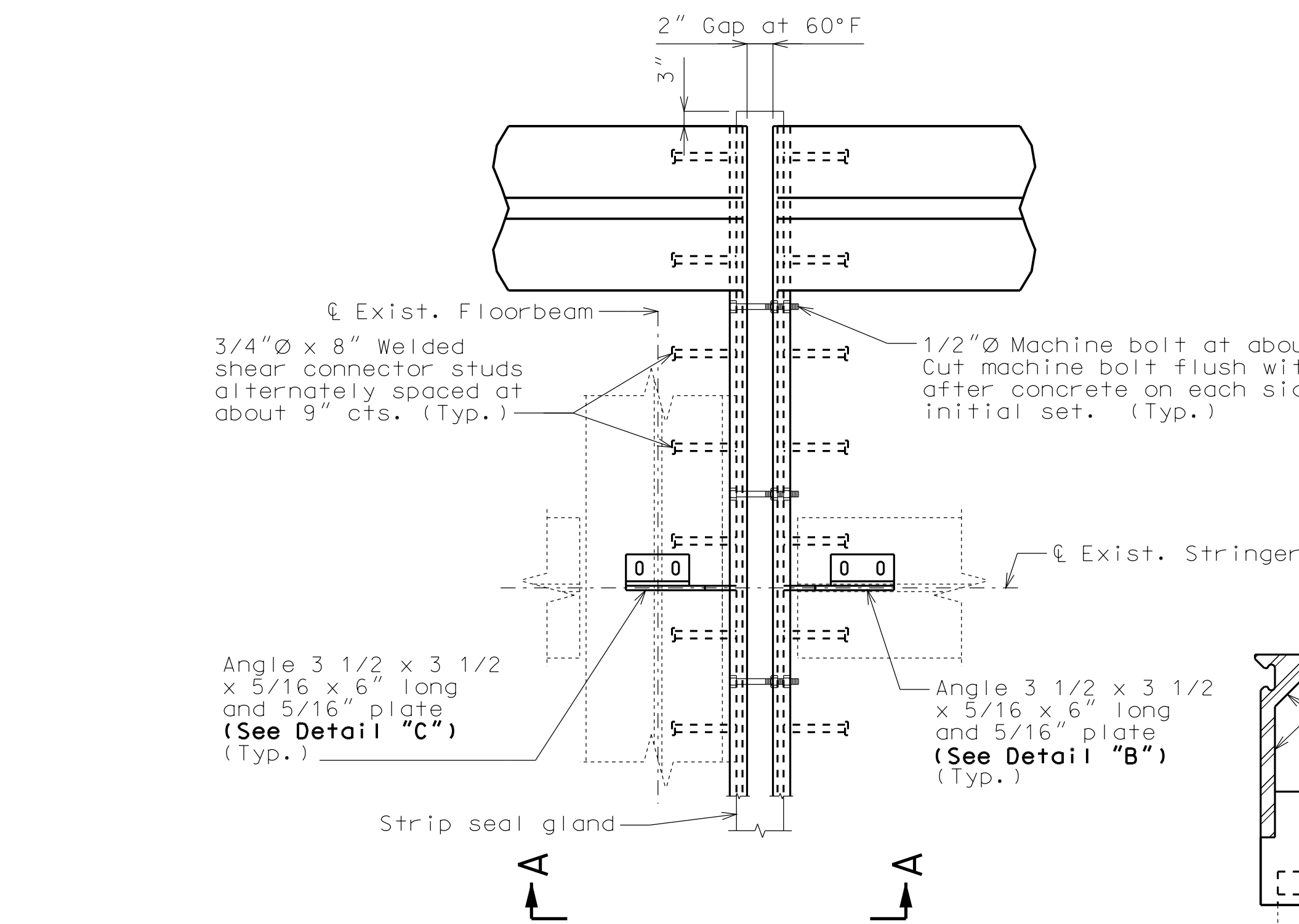
Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/16" for each 10° fall or rise in temperature at installation.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than ±1" from vertical leg of the steel armor at the expansion joint system.

Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

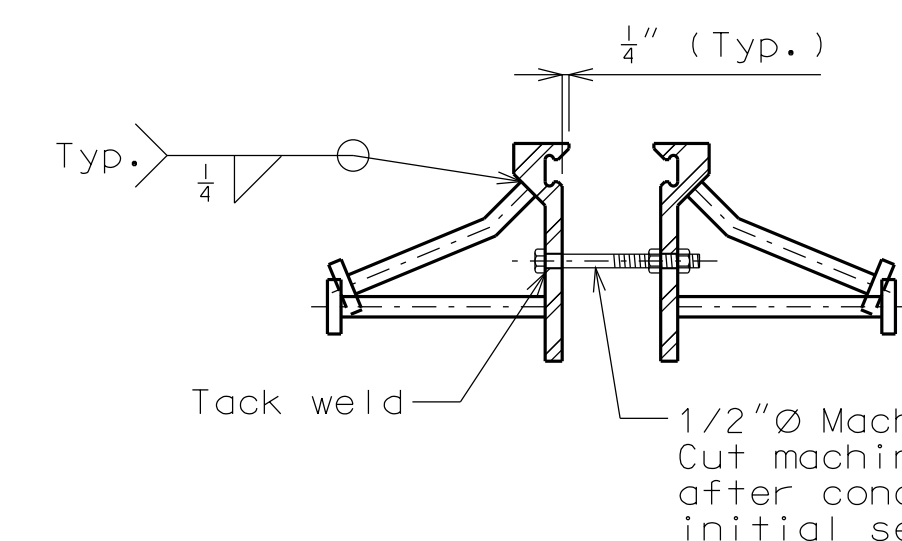


DETAIL OF GLAND

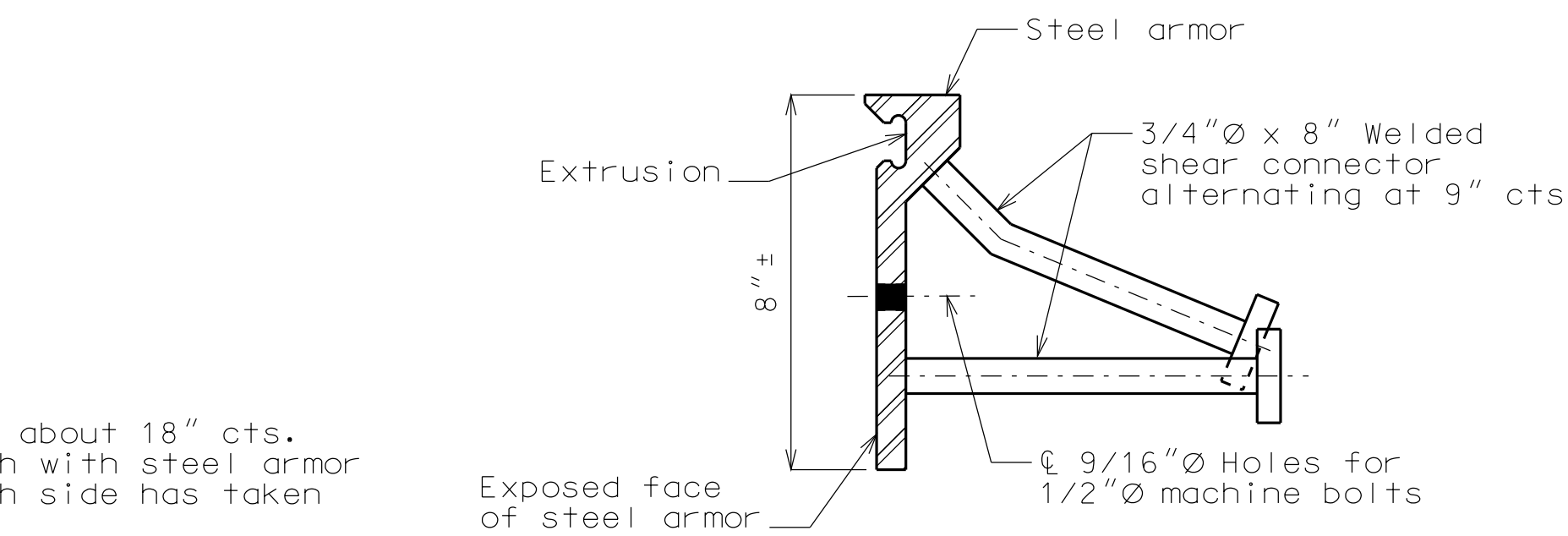


PART PLAN

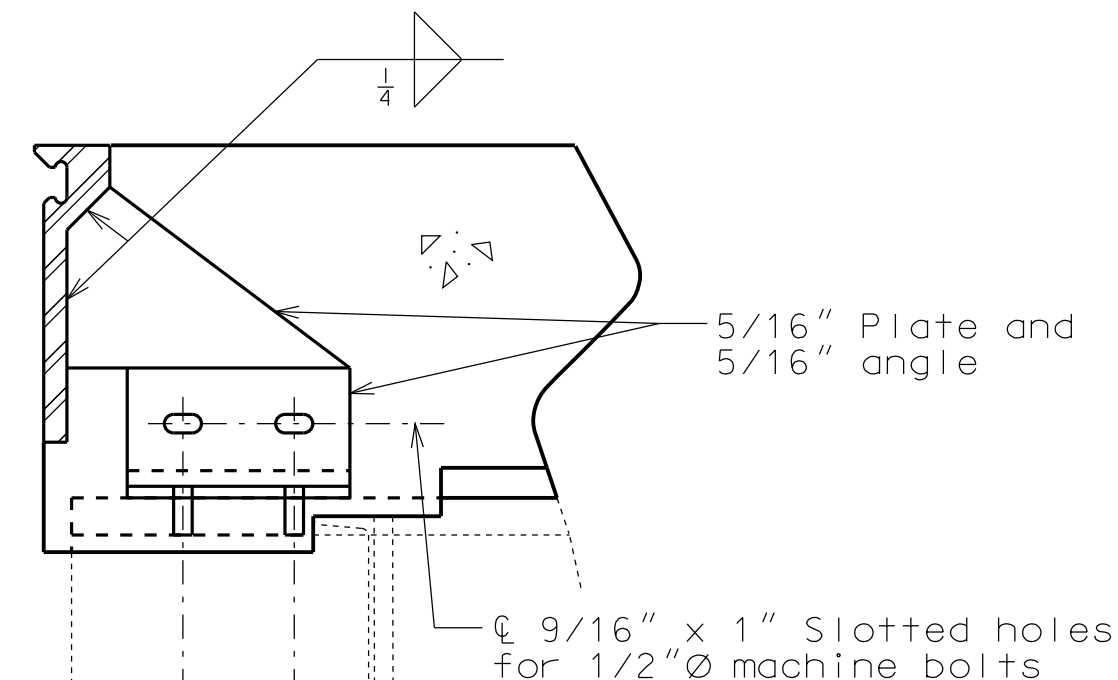
1/2" Machine bolts and nut with 9/16" holes (field drill or use existing holes) in top flange (Remove bolt after concrete has set.)



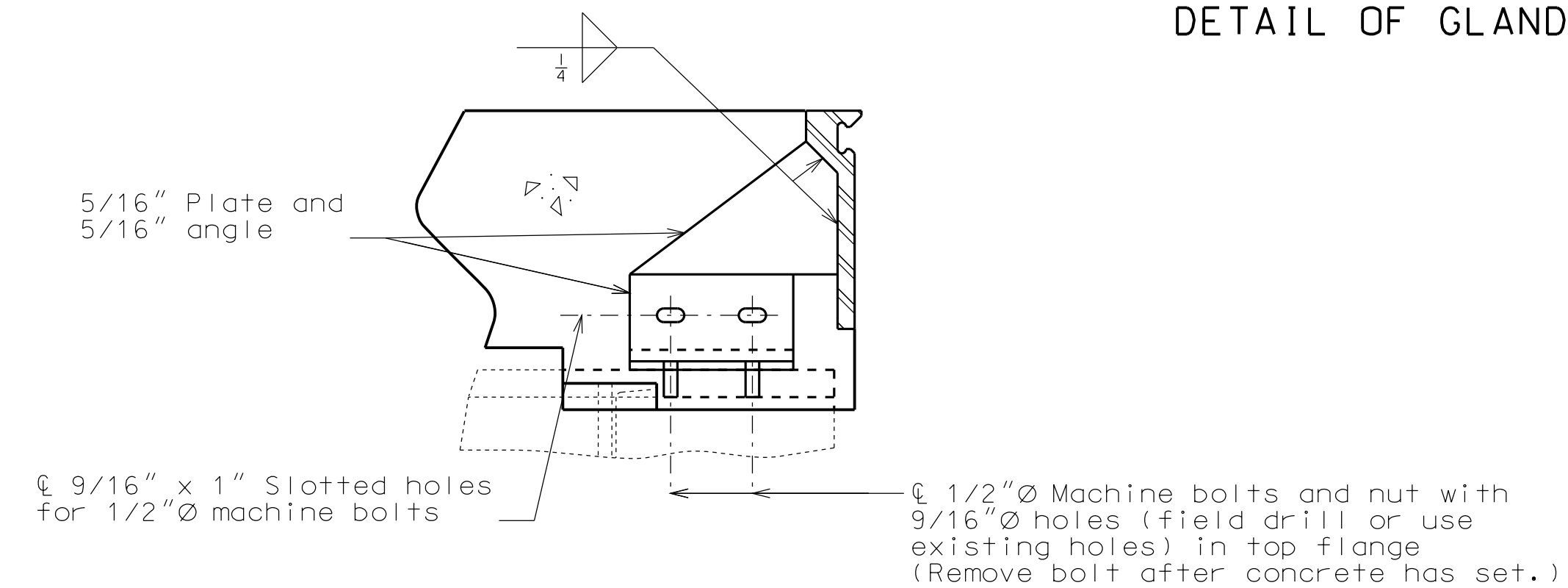
DETAIL "A"



DETAIL OF JOINT ARMOR



DETAIL "B"



DETAIL "C"

DETAILS OF STRIP SEAL AT PIER NO. 4

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 13

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED	
11/25/2013	
ROUTE	STATE
7	MO
DISTRICT	SHEET NO.
BR	10
COUNTY	
CASS	
JOB NO.	
J4P2191B	
CONTRACT ID.	

PROJECT NO.	
BRIDGE NO.	
L00232	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



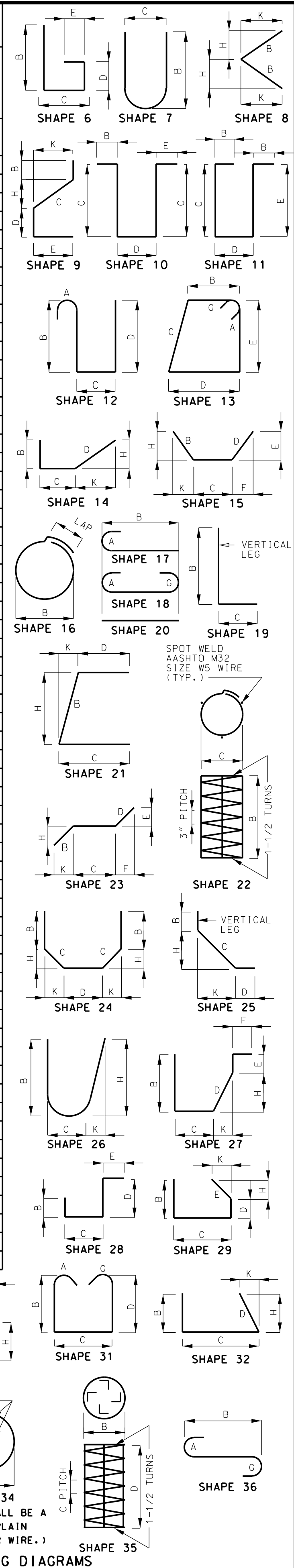


### BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS									NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
									B			C			D						E		
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.				IN.	FT.	IN.
		END BENT 1																					
12	6 H10	DIAPHRAGM	E	20					28	5.000						28	5	28	5	512			
4	6 H11	DIAPHRAGM	E	20					28	5.000						28	5	28	5	171			
10	6 H12	WING	E	20			V	2	8	11.000						8	11	8	11				
		INCREMENT =							4	11.000						4	11	4	11	104			
		12.000 INCH																					
2	6 H13	WING	E	20					5	11.000						5	11	5	11	18			
10	6 H14	WING	E	20			V	2	9	3.000						9	3	9	3				
		INCREMENT =							5	3.000						5	3	5	3	109			
		12.000 INCH																					
26	5 H15	DIAPHRAGM	E	20					2	6.000						2	6	2	6	68			
2	6 T1	DIAPHRAGM	E	25	S				20.250	8 4.625	4 5.750			4 7.750	6 11.750	14 7 14	6			44			
2	6 T2	DIAPHRAGM	E	25	S				15.000	8 2.375	4 8.625			4 6.625	6 9.750	14 2 14	1			42			
26	6 U10	DIAPHRAGM	E	11						2 6.625	2 3.000	2 6.625				7 4 7	1			277			
30	6 U11	DIAPHRAGM	E	19					3 6.000		21.000					5 3 5	1			229			
26	5 U12	DIAPHRAGM	E	11						3 6.000		21.000	3 6.000			8 9 8	6			231			
4	6 V10	DIAPHRAGM	E	20					2 6.000							2 6	2 6			15			
14	6 V11	WING	E	20			V	2	6 0.000							6 0	6 0						
		INCREMENT =							2 0.000							2 0	2 0			84			
		8.000 INCH																					
14	6 V12	WING	E	20			V	2	5 7.000							5 7	5 7						
		INCREMENT =							19.000							0 19	0 19			75			
		8.000 INCH																					
2	6 V13	WING	E	20					6 4.000							6 4	6 4			19			
2	6 V14	WING	E	20					5 9.000							5 9	5 9			17			
		END BENT 6																					
8	6 H60	DIAPHRAGM	E	20					28	5.000						28	5	28	5	341			
4	6 H61	DIAPHRAGM	E	20					28	5.000						28	5	28	5	171			
10	6 H62	WING	E	20			V	2	8 6.000							8 6	8 6						
		INCREMENT =							4 6.000							4 6	4 6			98			
		12.000 INCH																					
2	6 H63	WING	E	20					5 3.000							5 3	5 3			16			
8	6 H64	WING	E	20			V	2	8 1.000							8 1	8 1						
		INCREMENT =							5 1.000							5 1	5 1			79			
		12.000 INCH																					
26	5 H65	DIAPHRAGM	E	20					2 6.000							2 6	2 6			68			
4	6 V60	DIAPHRAGM	E	20					23.000							0 23	0 23			12			
12	6 V61	WING	E	20			V	2	4 11.000							4 11	4 11						
		INCREMENT =							19.000							0 19	0 19			59			
		8.000 INCH																					
14	6 V62	WING	E	20			V	2	6 0.000							6 0	6 0						
		INCREMENT =							2 0.000							2 0	2 0			84			
		8.000 INCH																					
2	6 V63	WING	E	20					5 5.000							5 5	5 5			16			
2	6 T61	DIAPHRAGM	E	25	S				15.000	7 6.750	4 5.000			4 2.375	6 3.500	13 3 13	2			40			
2	6 T62	DIAPHRAGM	E	25	S				20.250	7 7.500	4 4.625			4 2.750	6 4.125	13 8 13	7			41			
26	6 U60	DIAPHRAGM	E	11						23.000	2 3.000	23.000				6 1 5	9			225			
30	6 U61	DIAPHRAGM	E	19					2 10.000		21.000					4 7 4	5			199			
26	5 U62	DIAPHRAGM	E	11						2 10.000		21.000	2 10.000			7 5 7	2			194			
		SLAB																					

### BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS									NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
									B			C			D						E		
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.				IN.	FT.	IN.
32	6 S1	SLAB	E	20					28	5.000						28	5	28	5	1366			
96	5 S2	SLAB	E	20						19.000						0 19	0 19			159			
		BARRIER CURB																					
24	5 R1	BARRIER CURB	E	26					2 6.000	4.250	2 6.125			2 6.000	3.000	5 2 5	2			129			
24	5 R3	BARRIER CURB	E	19	S					17.000	6.000					0 23	0 22			46			
24	5 R4	BARRIER CURB	E	27	S					6.000	11.125	7.000	12.000	9.125	6.375	3 0 2	10			71			
60	5 K1	BARRIER CURB	E	19	S				2 5.000	5.125						2 10	2 9			172			
60	5 K2	BARRIER CURB	E	14	S				5.125	11.125	18.000			2.000	17.875	2 10	2 9			172			
24	5 K4	BARRIER CURB	E	7					3.000	6.000						0 8	0 8			17			
26	5 K9	BARRIER CURB	E	20					5 9.000							5 9	5 9			156			
4	5 K11	BARRIER CURB	E	8					2 2.125					2 2.000	2.375	4 4 4	4			18			
		TOTALS																					
5			E																	1501			
6			E																	4463			
		TOTAL																		0			
		TOTAL																		5964			
		Slab on Girder																					
5			E																	720			
6			E																	4463			
		TOTAL																		5183			
		Safety Barrier Curb																					
5			E																	781			
		TOTAL																		781			



"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED: 11/25/2013

ROUTE: 7 STATE: MO

DISTRICT: BR SHEET NO.: 13

COUNTY: CASS

JOB NO.: J4P2191B

CONTRACT ID:

PROJECT NO.:

BRIDGE NO.: L00232

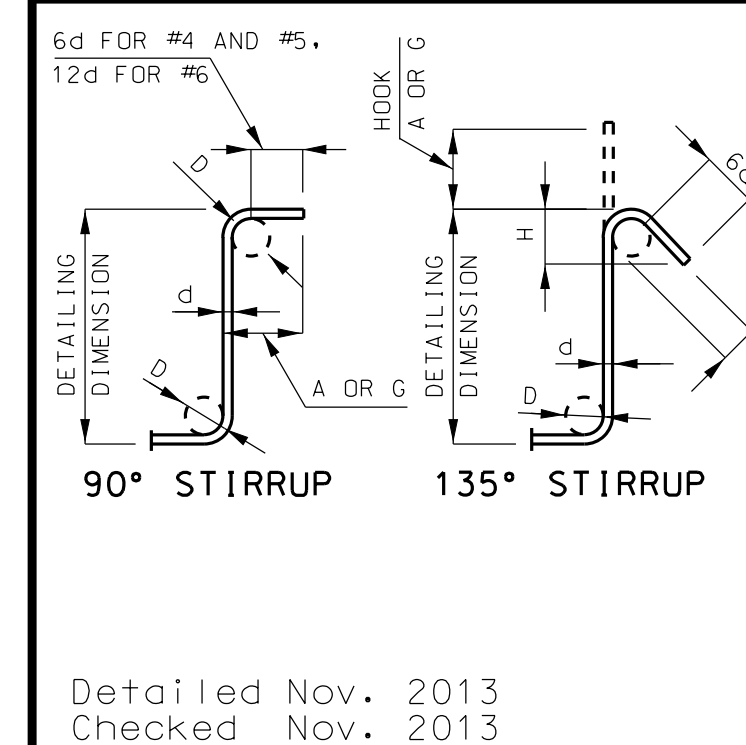
DESCRIPTION:

DATE:

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

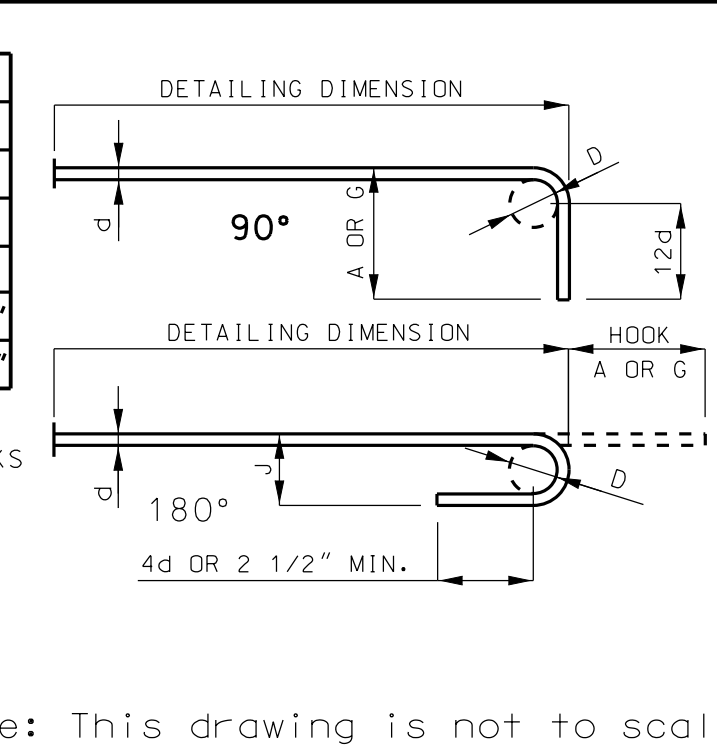
105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)



BAR SIZE	D (IN.)	90° HOOK		135° HOOK		APPROX. H
		HOK A OR G	HOK A OR G	HOK A OR G	HOK A OR G	
#4	2"	4 1/2"	4 1/2"	3"		
#5	2 1/2"	6"	5 1/2"	3 3/4"		
#6	4 1/2"	12"	8"	4 1/2"		

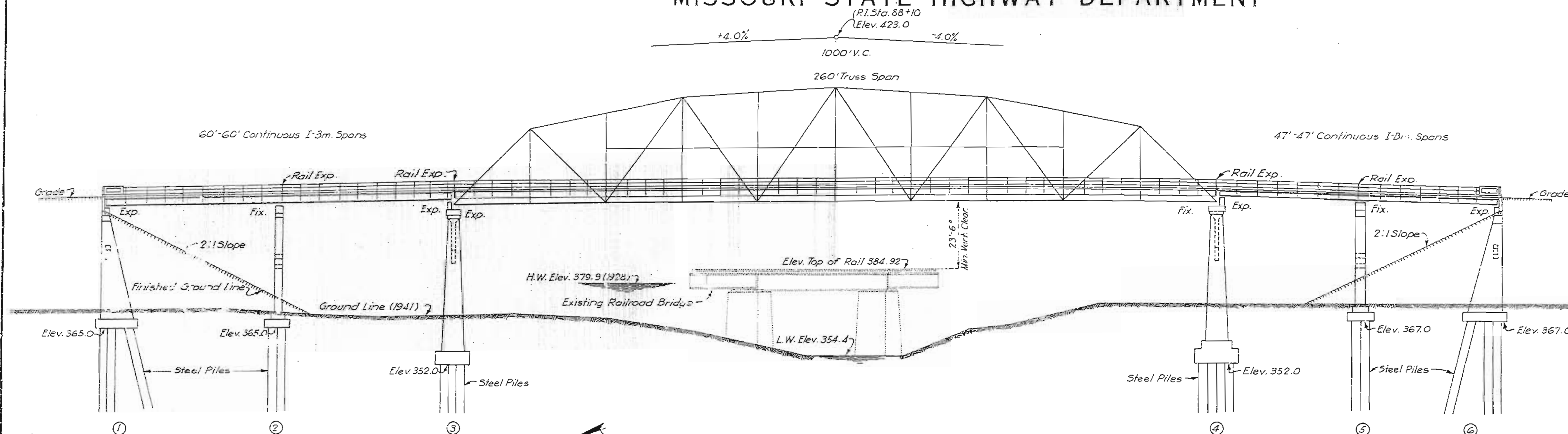
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



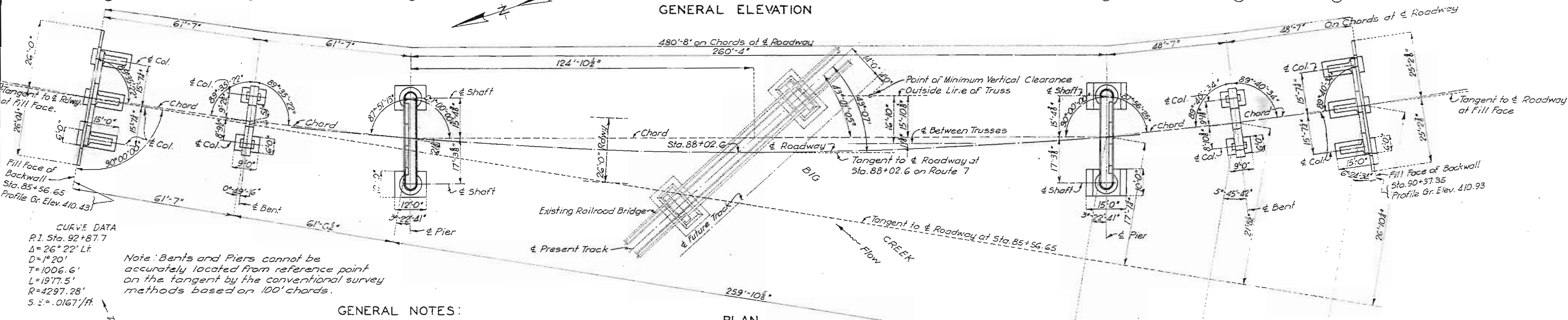
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS	
		A OR G	J	A OR G	A OR G
#3	2 1/4"	5"	3"	6"	
#4	3"	6"	4"</		

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FG-741(6) (RT. 7)	19		



Note: All piling shall be 12" Brg. Pile @ 53" and shall conform with details and notes on Sheet No. 3. of these design plans. All piles shall be driven to practical refusal or into solid rock, boulders shale, or cemented gravel, or to not less full length authorized and to sustain a load of at least 60 ton per pile.  
 Estimated quantities shown on plans are based on the following lengths: 40 @ 35'-0", 54 @ 22'-0" and 40 @ 38'-0". These indicated lengths are approximate only. Proper lengths to give required bearing and/or penetration will be authorized by the Engineer. See Special Provisions.



CURVE DATA  
 P.I. Sta. 92+87.7  
 $\Delta = 26^\circ 22' 14''$   
 $D = 1^\circ 20'$   
 $T = 1006.6'$   
 $L = 1917.5'$   
 $R = 4297.28'$   
 $S. E. = .0167/ft.$

Note: Bents and Piers cannot be accurately located from reference point on the tangent by the conventional survey methods based on 100' chords.

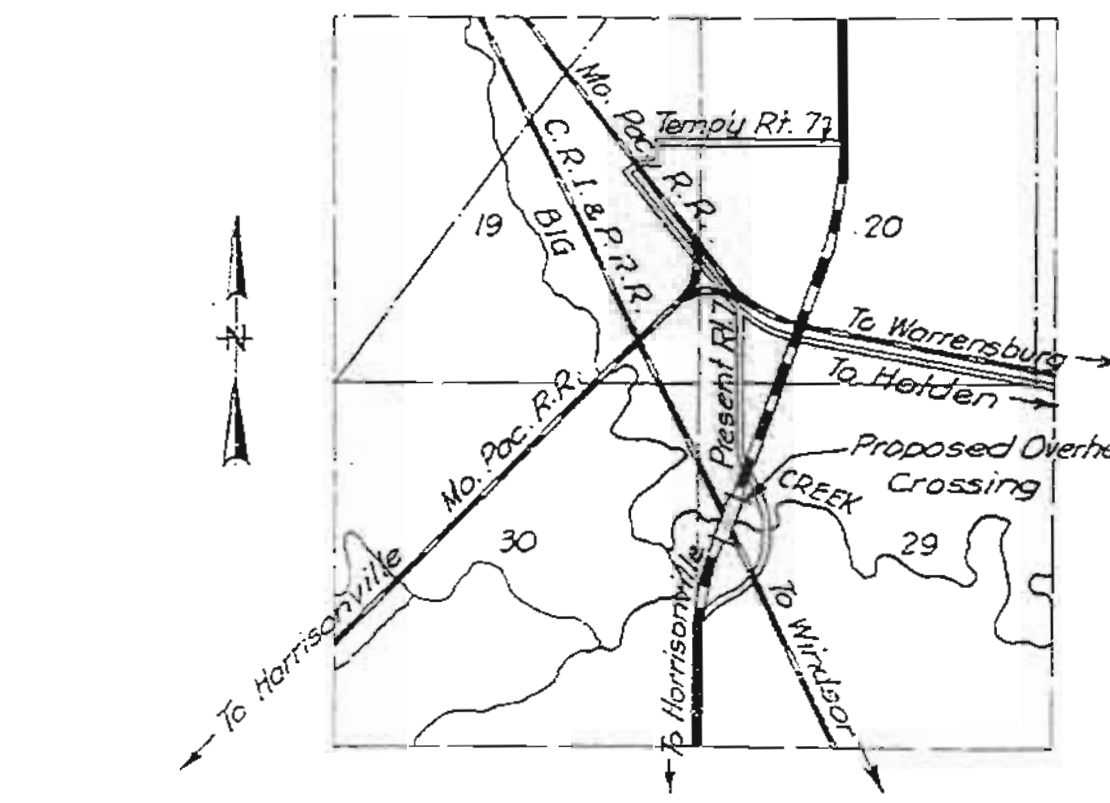
GENERAL NOTES:

Design Specifications A.A.S.H.O. 1944.  
 Loading H-15  
 Structural Steel Stress 18,000#/sq.  
 Reinforcing Steel Stress 18,000#/sq.  
 Concrete Class "B" 1000#/sq.  
 All concrete shall be Class "B".  
 Qualifications of all welding operators and electrodes will be required in accordance with Specifications, except that a proper certification of electrodes previously qualified will be acceptable.  
 Rivets 3/4" except where otherwise noted.  
 Paint: Shop, none; field, contact surfaces of bolted field connections one coat of red lead and surfaces inaccessible after erection three coats of red lead. Blast plates one coat of an approved asphaltic primer and a second coat of an approved asphaltic paint. All other exposed surfaces one coat brown, second coat aluminum tinted blue and final coat aluminum. Payment for cleaning and painting such surfaces shall be included in price bid for material painted.  
 Where joint filler is specified it shall conform with the requirements for Premoulded Material Filler as given in Section 38-19A(11) of the Standard Specifications.  
 A rubbed surface finish will be required on all exposed surfaces of curbs, concrete end posts and on outside faces of roadway slab.  
 Falsework for span over existing railroad tracks shall be constructed with a minimum vertical clearance of 21'-0" from top of rails and minimum lateral clearance of 9'-0" from centerline of track.

PLAN

ESTIMATED QUANTITIES			
Item	Substr.	Superstr.	Total
Class 1 Excavation for Structures Cu.Yds.	710		710
Class 2 Excavation for Structures Cu.Yds.	191		191
Class "B" Concrete Cu.Yds.	736.7	327.5	1064.2
Fabricated Structural Steel (Truss Span) Lbs.		485580	485580
Fabricated Structural Steel (I-Beam Spans) Lbs.		146590	146590
Steel Castings Lbs.		2880	2880
Gray Iron Alloy Castings Lbs.		1980	1980
Reinforcing Steel Lbs.	51890	78980	130870
Fabricated Wrought Iron (Blast Plates) Lbs.		5560	5560
Fabricated Wrought Iron (Drains) Lbs.		920	920
6" Metal Pipe Lin. Ft.	44		44
8" Metal Pipe Lin. Ft.	167		167
Steel Piling in place Lin. Ft.	3706		3706
Steel Pile Cut-Offs Lin. Ft.	402		402

Note: Excavation for bridge made above Elev. 358.0 will be paid for as Class 1 Excavation for Structures. Excavation for bridge made below Elev. 358.0 will be paid for as Class 2 Excavation for Structures.



Designed May 1947 By R.A.C.  
 Drawn May 1947 By H.T.B.  
 Traced May 1947 By J.T.F.  
 Checked May 1947 By R.A.B. & N.W.R.

B.M. Elev. 383.66 - S.E. Corner North Abutment of R.R. Bridge.

BRIDGE OVER C. R. I. & P. R. R. AND BIG CR.  
 STATE ROAD FROM PLEASANT HILL SOUTH  
 AT PLEASANT HILL  
 PROJECT NO. FG-741(6) (RT. 7) STA. 85+56.65  
 CASS COUNTY

SUBMITTED BY: U.W. Emmons DATE 3/8/1948  
 APPROVED BY: C.W. Brown DATE 3/8/1948

STD-C10R3  
 L-23



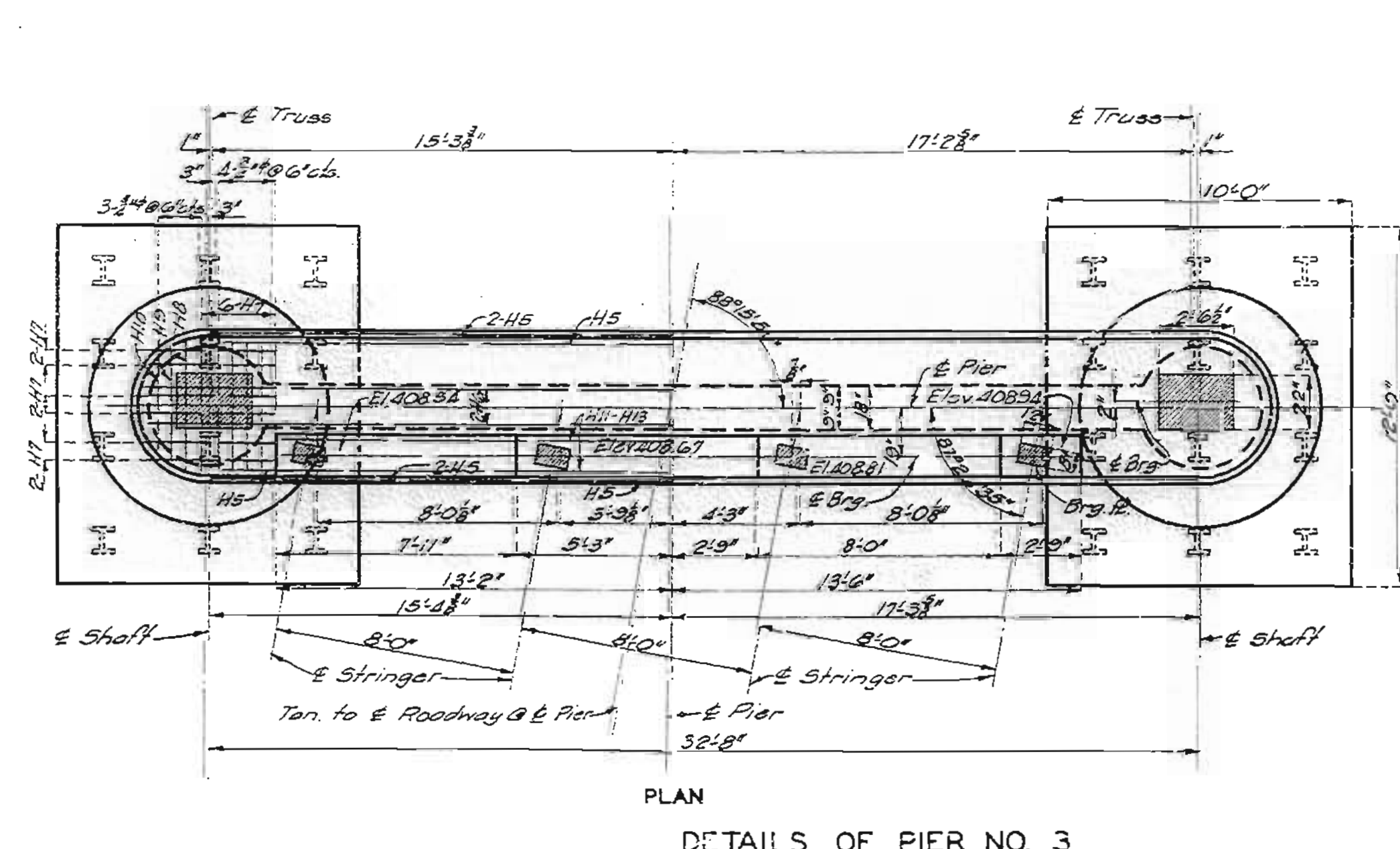
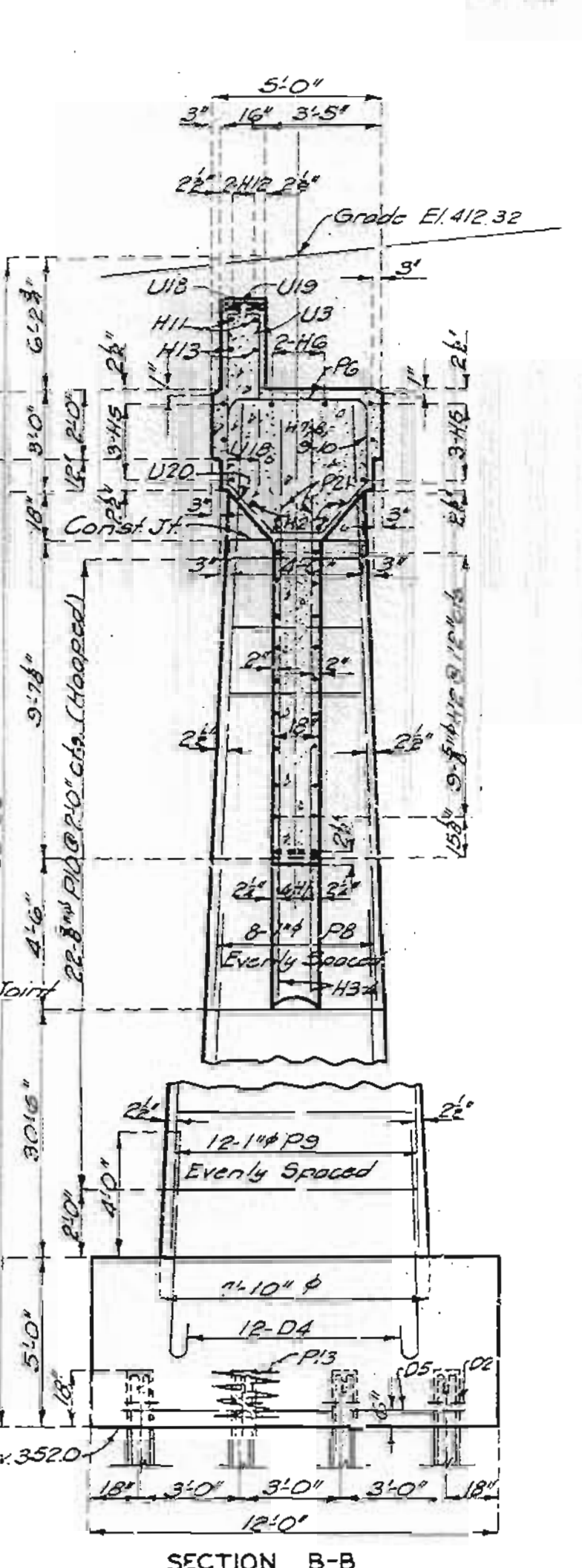
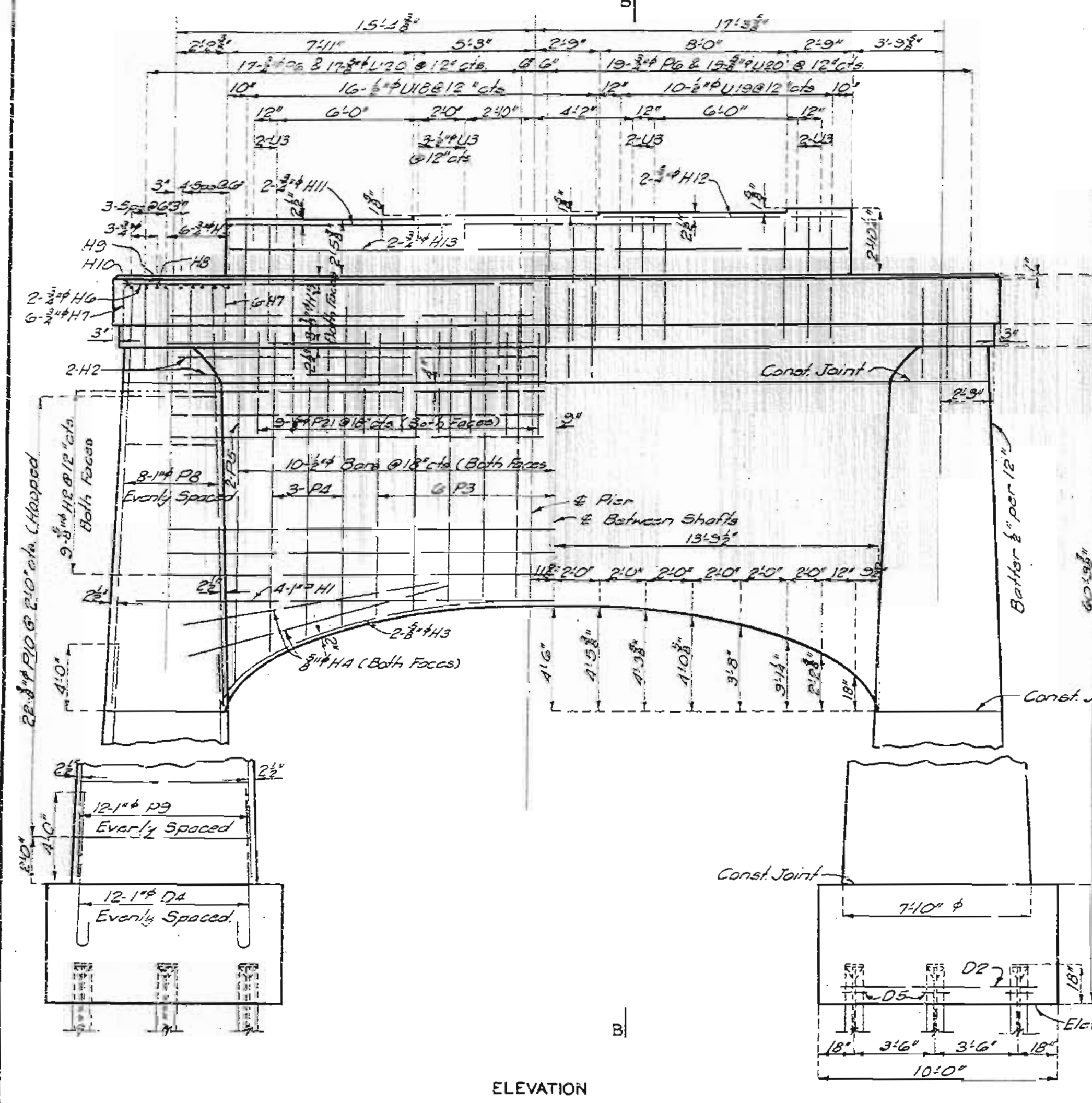




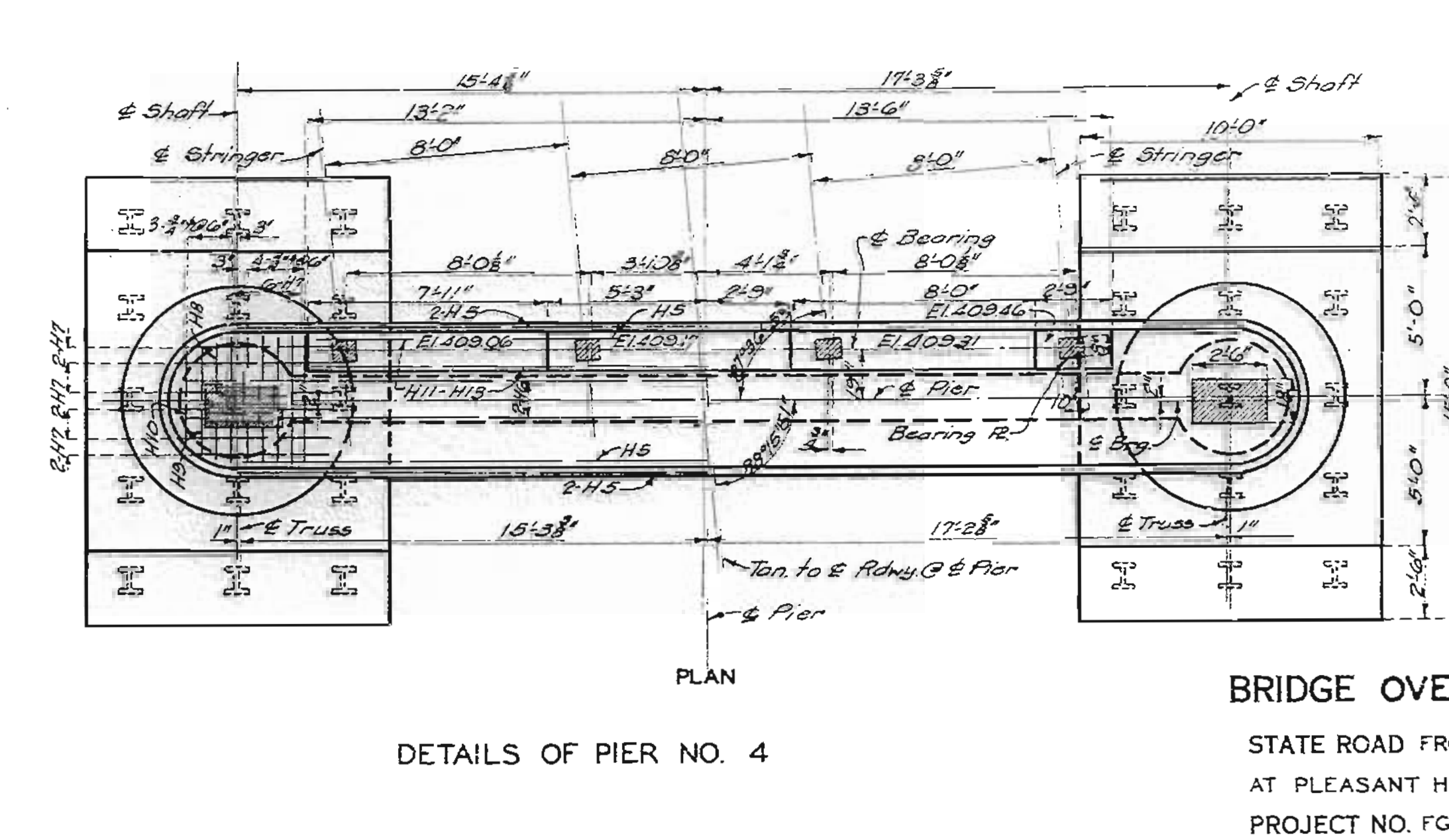
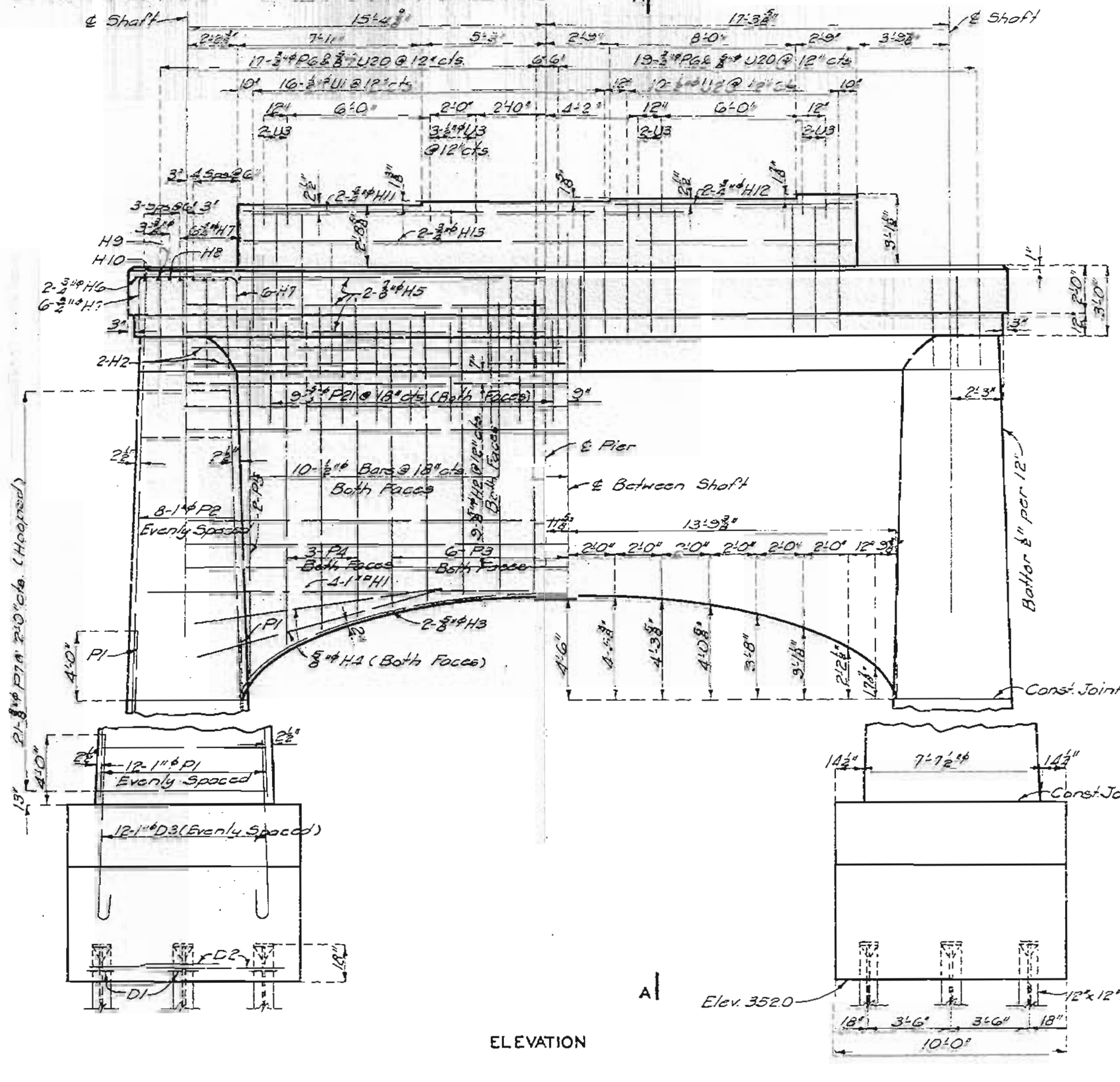


MISSOURI STATE HIGHWAY DEPARTMENT

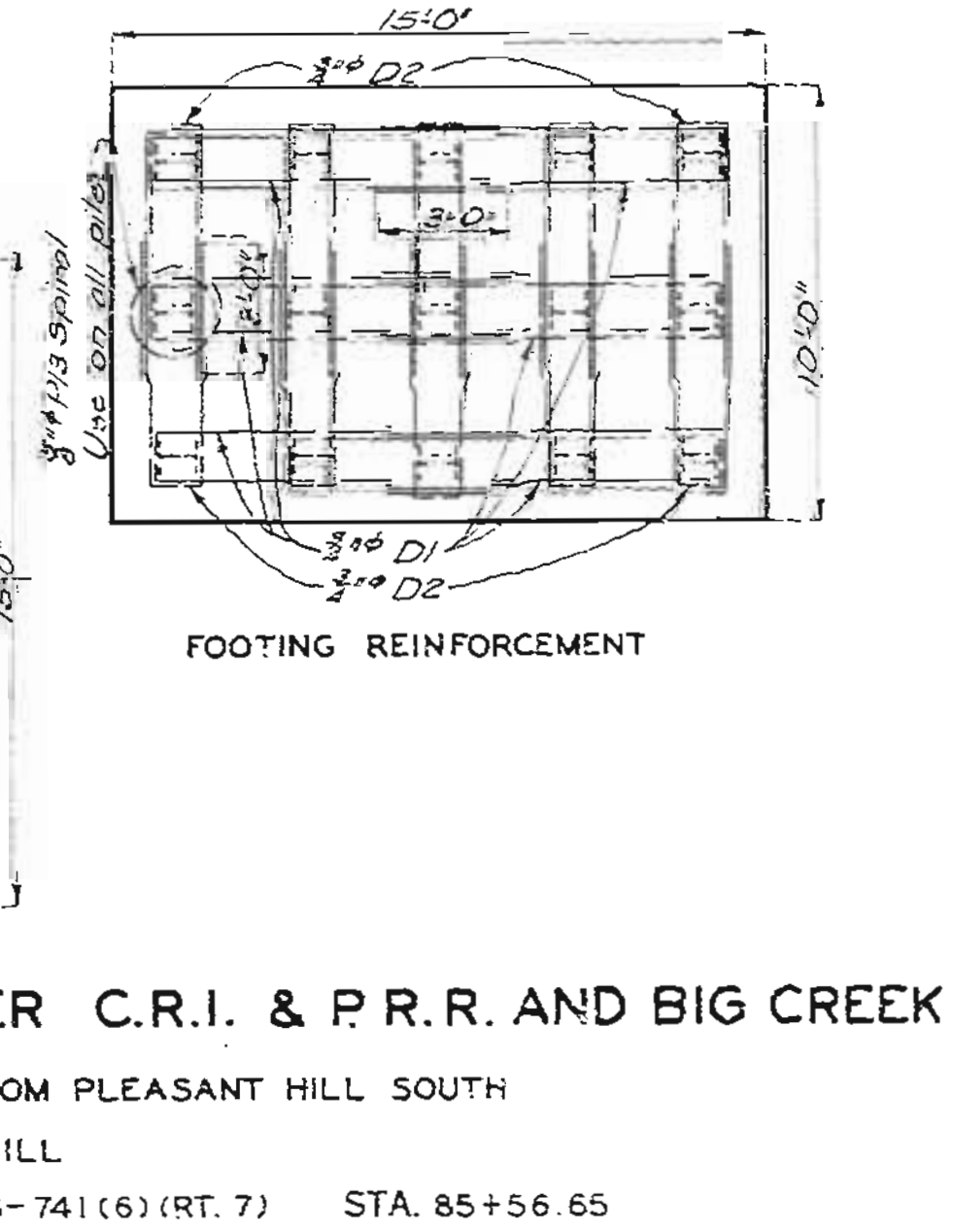
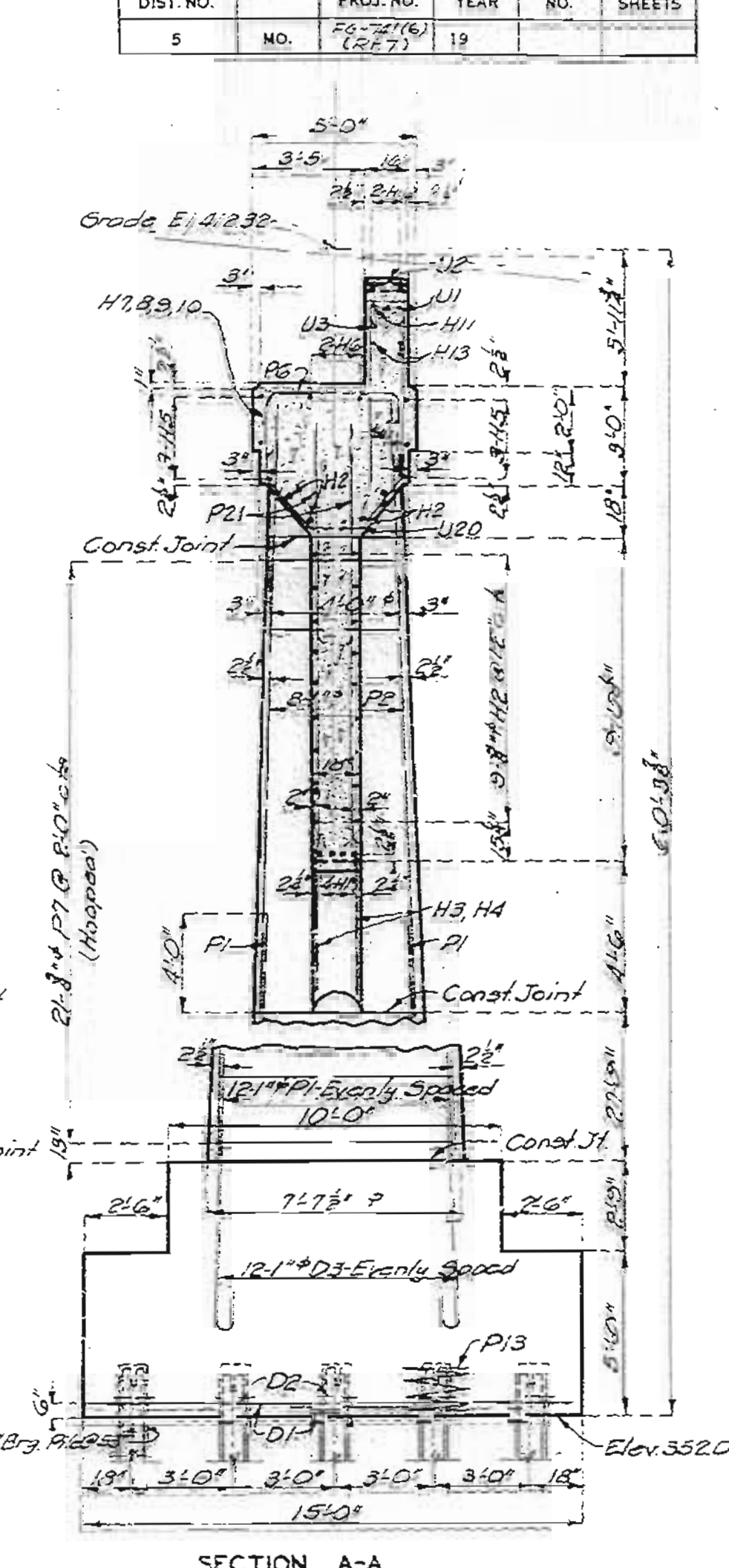
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	70-21(6) (C&T)	19		



DETAILS OF PIER NO. 3



DETAILS OF PIER NO. 4



BRIDGE OVER C.R.I. & P.R.R. AND BIG CREEK  
 STATE ROAD FROM PLEASANT HILL SOUTH  
 AT PLEASANT HILL  
 PROJECT NO. FG-741(6) (RT. 7) STA. 85+56.65  
 CASS COUNTY

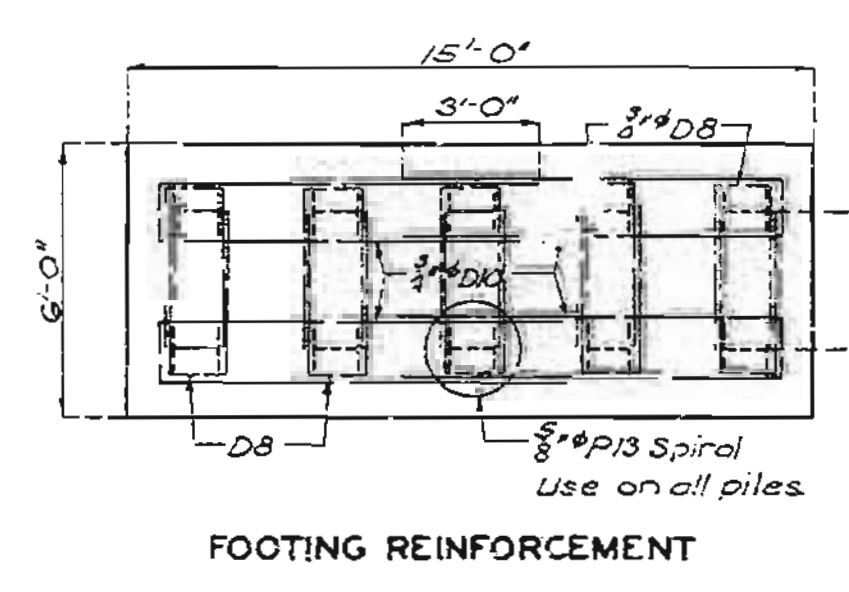
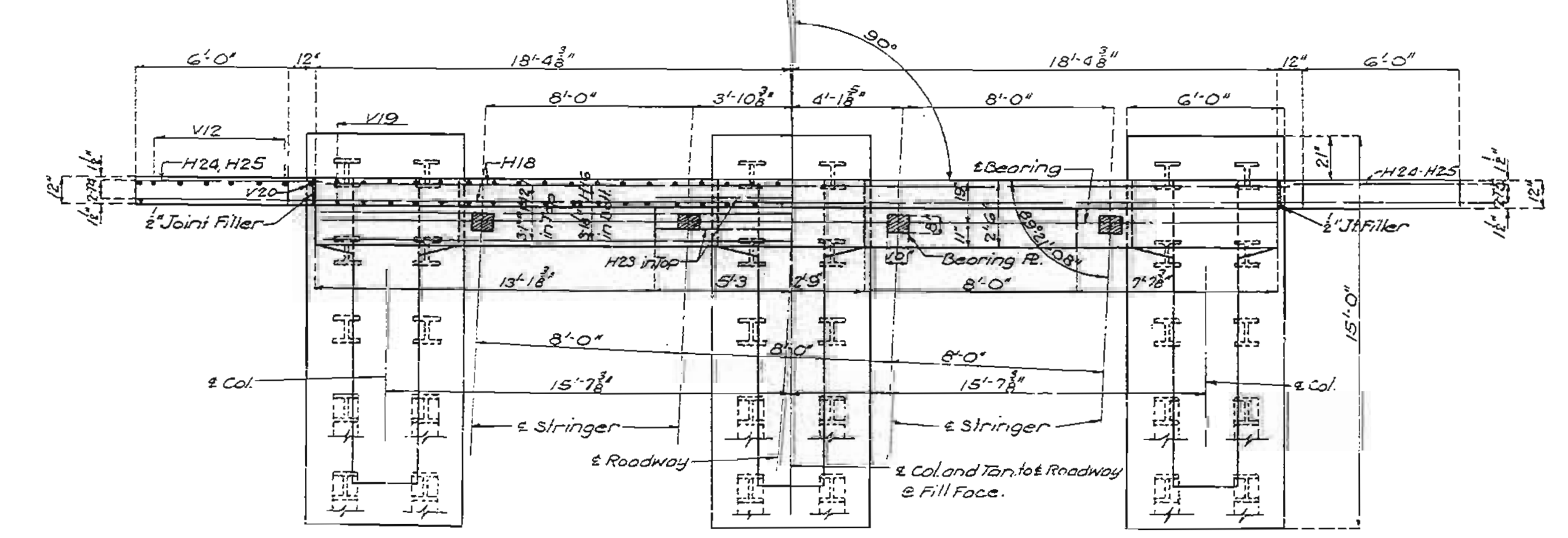
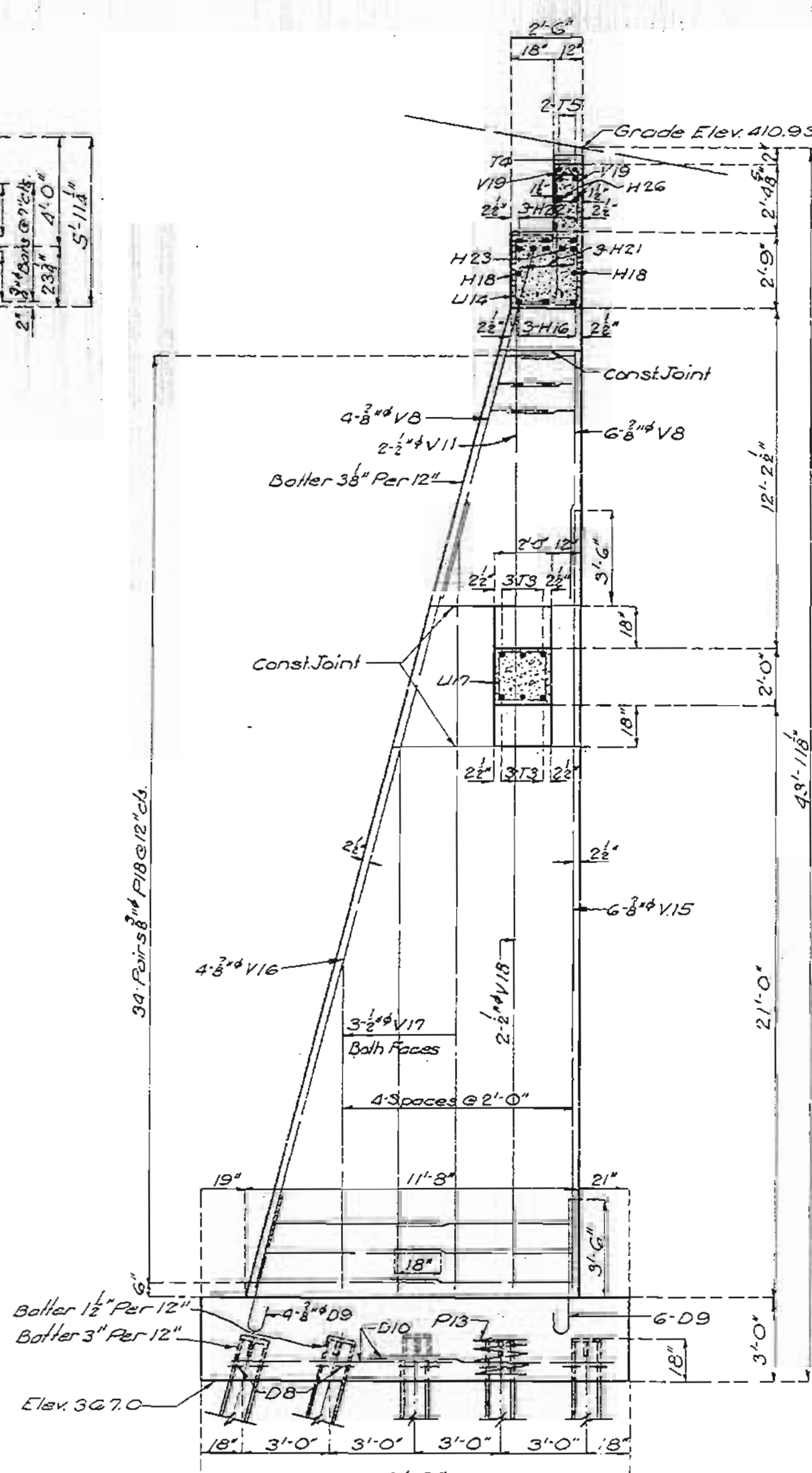
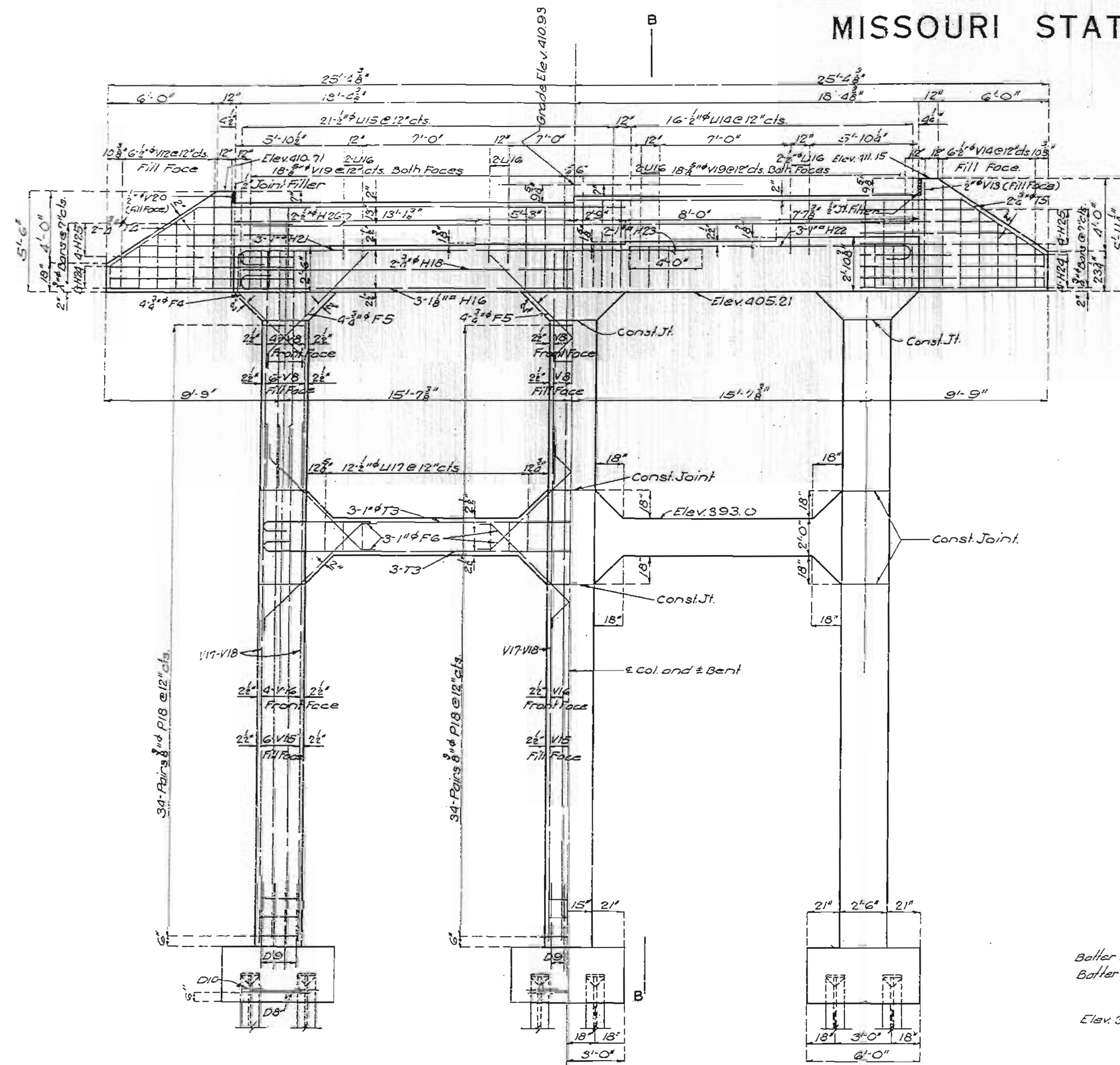
Designed April 1947 by R.A.C.  
 Drawn May 1947 by R.E.S.  
 Traced June 1947 by J.N.N.  
 Checked Jan. 1948 by N.W.R.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 14.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	5-22161 (R.T. 7)	19		



**BRIDGE OVER C.R.I. & P.R.R. AND BIG CREEK**  
 STATE ROAD FROM PLEASANT HILL SOUTH  
 AT PLEASANT HILL  
 PROJECT NO. FG-741(6)(RT. 7) STA. 85+56.65  
 CASS COUNTY

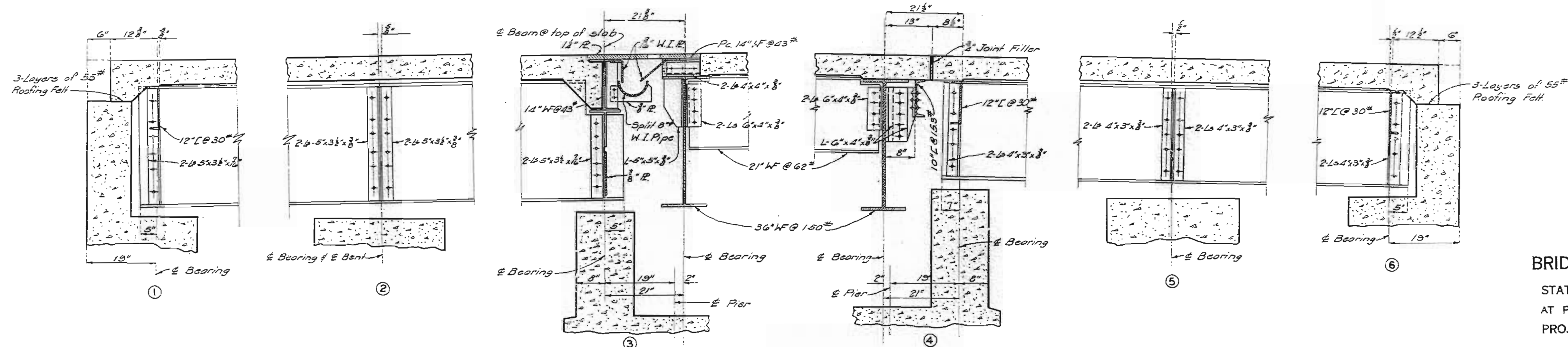
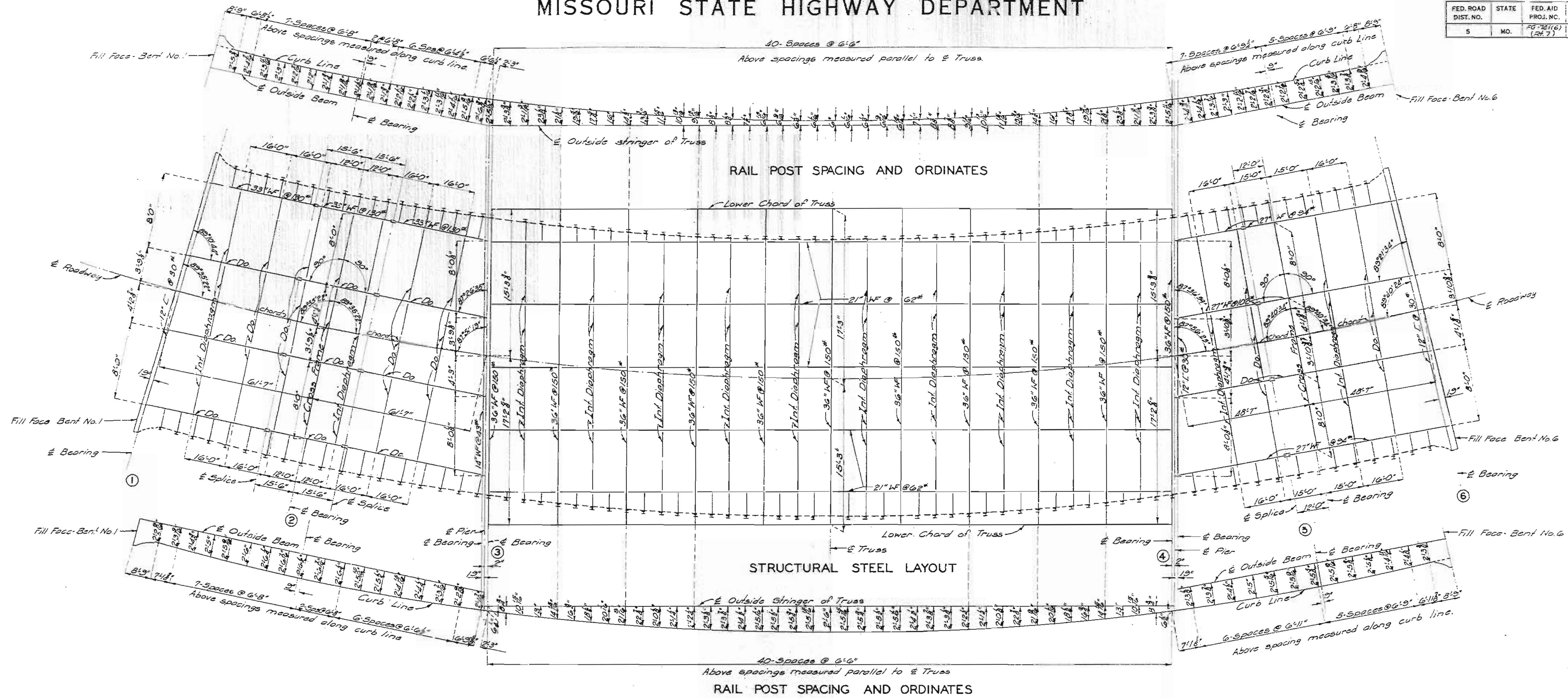
Designed April 1947 by R.A.C.  
 Drawn May 1947 by R.E.S.  
 Traced June 1947 by K.R.W.  
 Checked Jan 1948 by N.W.R.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 14

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	RD-211(6) (RT. 7)	19		



BRIDGE OVER C.R.I. & P.R.R. AND BIG CREEK  
 STATE ROAD FROM PLEASANT HILL SOUTH  
 AT PLEASANT HILL  
 PROJECT NO. FG-741(6)(RT. 7) STA. 85+56.65  
 CASS COUNTY

Designed Feb. 1947 by R.A.C.  
 Drawn Apr. 1947 by H.T.B.  
 Traced May 1947 by J.N.N.  
 Checked Nov. 1947 by M.M.R.

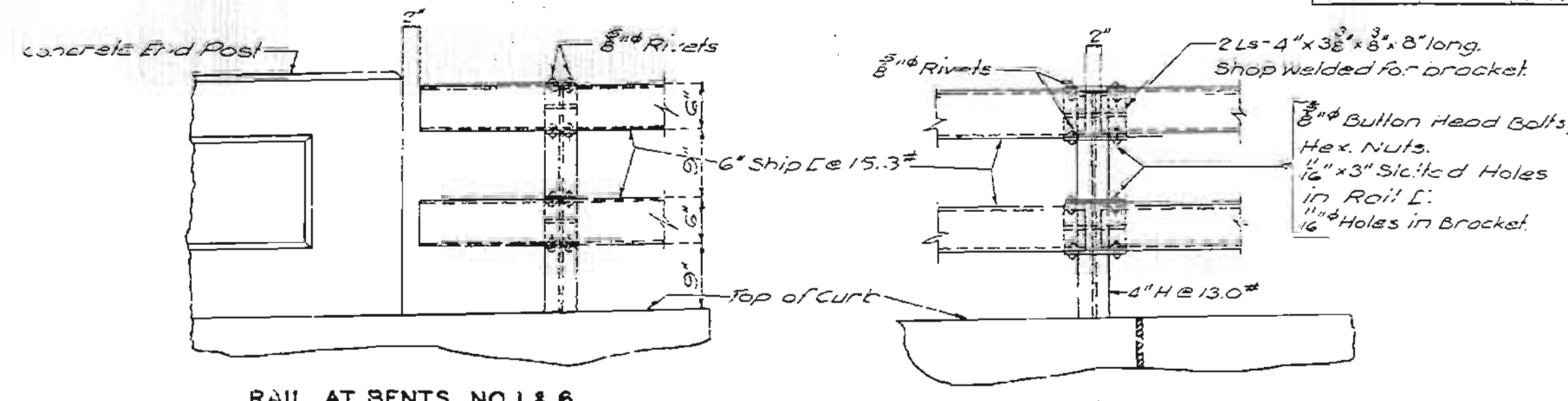
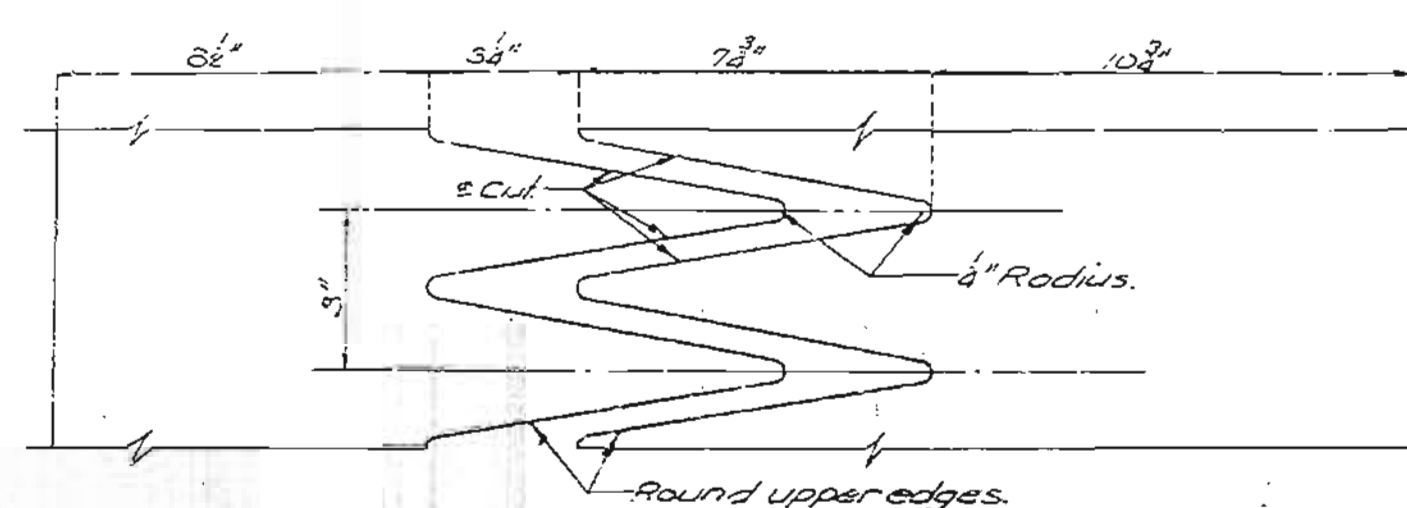
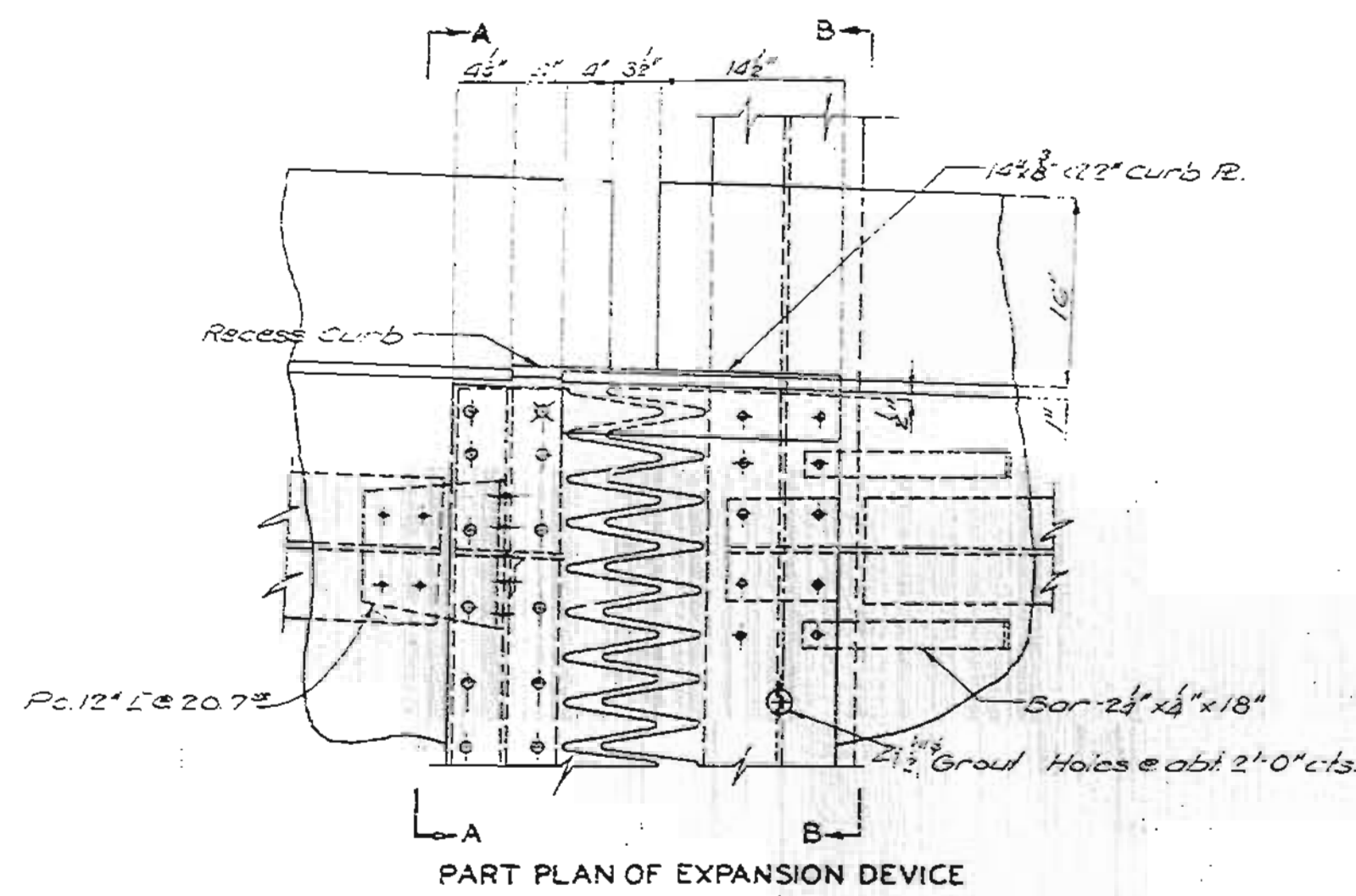
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 14



MISSOURI STATE HIGHWAY DEPARTMENT

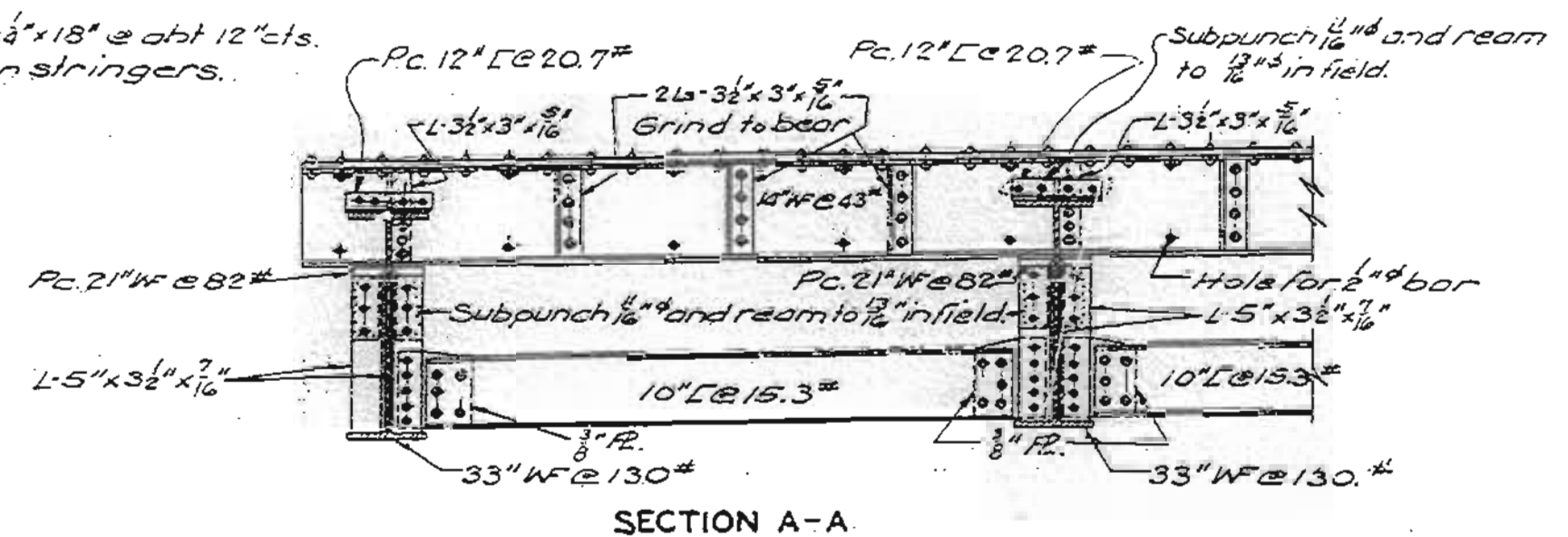
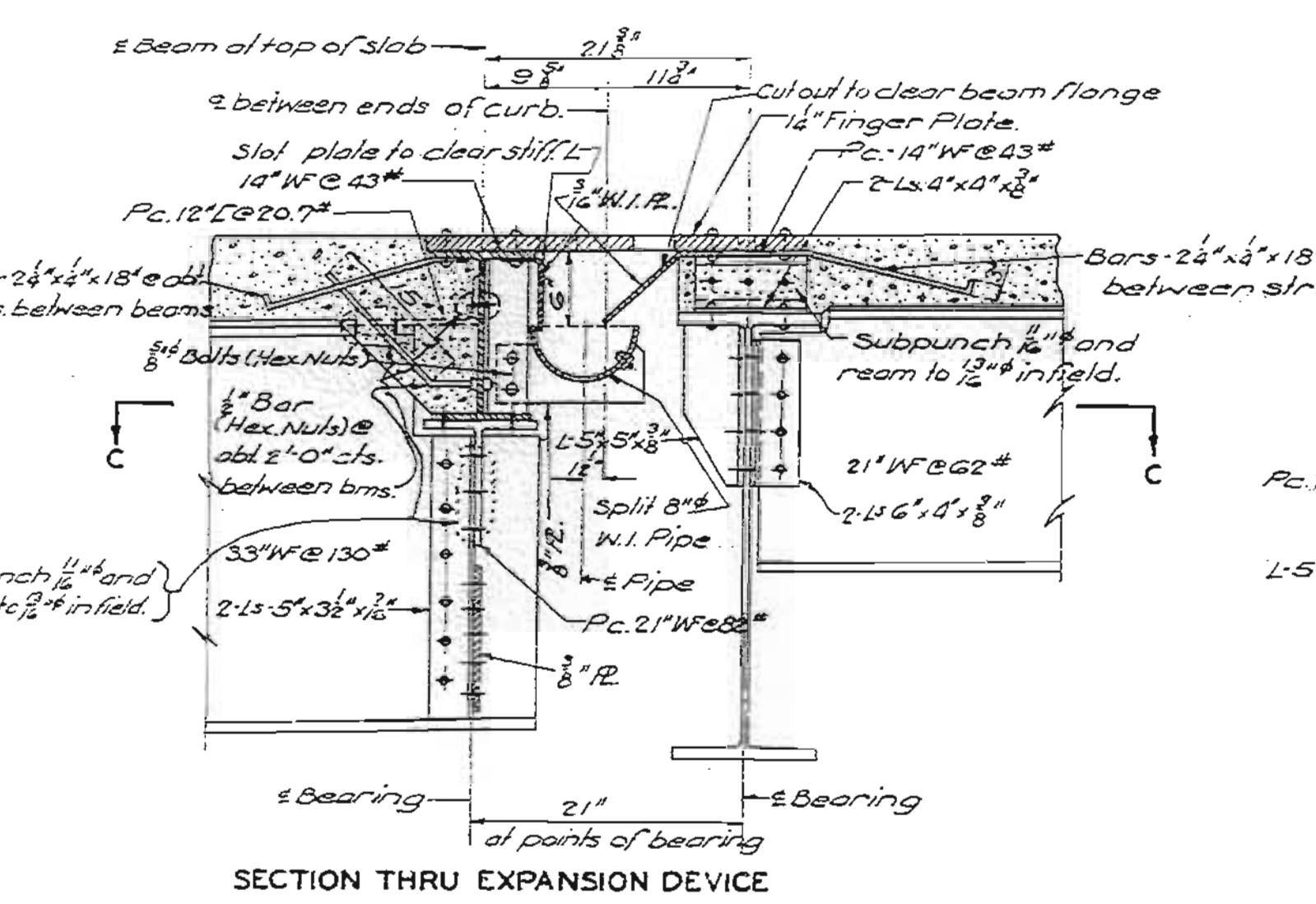
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	1947	19		



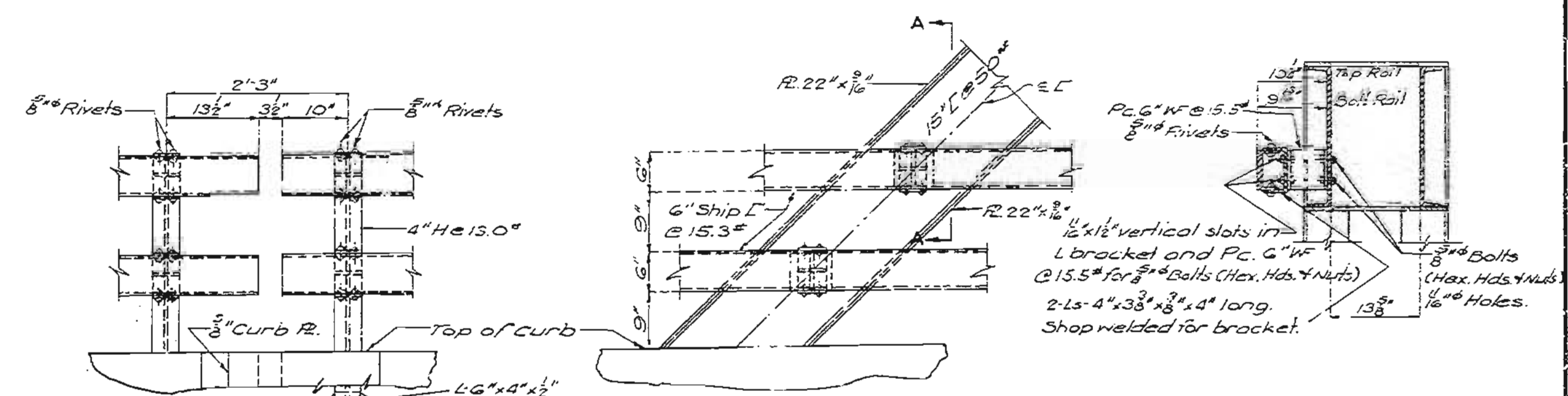
RAIL AT BENTS NO. 1 & 6

Note: Use similar detail of rail splices except omit slotted holes and 2\"/>

RAIL EXPANSION JOINT AT BENTS NO. 2 & 5 AND PIER NO. 4

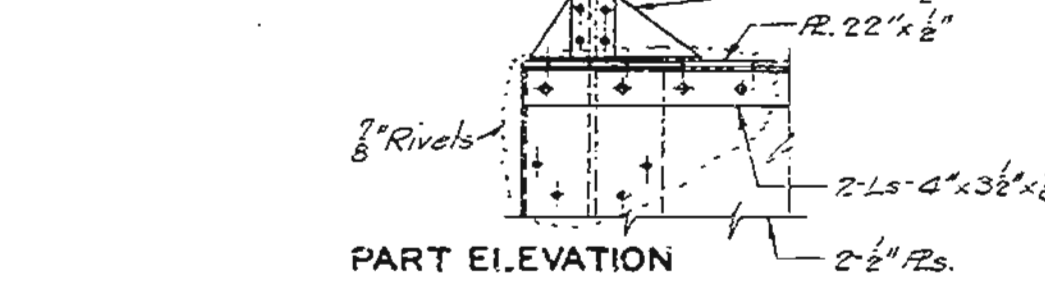


SECTION A-A

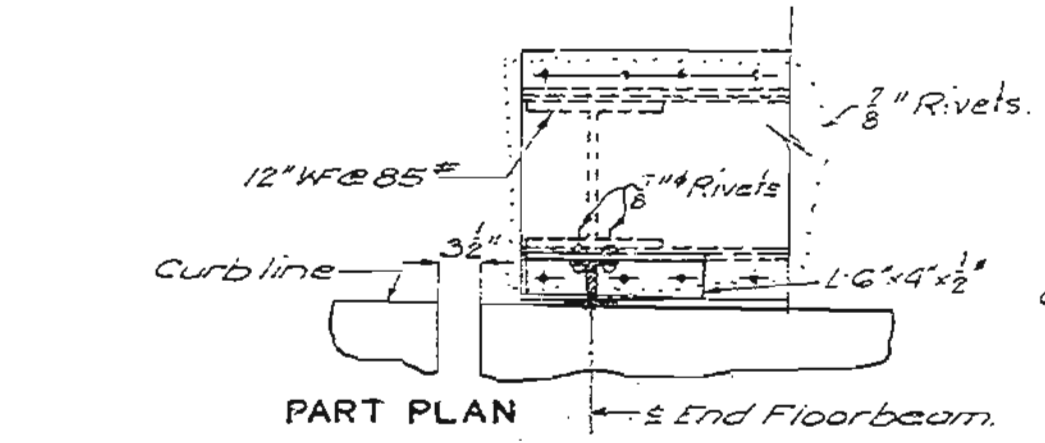


RAIL CONNECTION TO TRUSS END POST LEFT SIDE OF ROADWAY (Connection near L shown. Connection near L' similar.)

SECTION A-A (Lower rail connections similar)



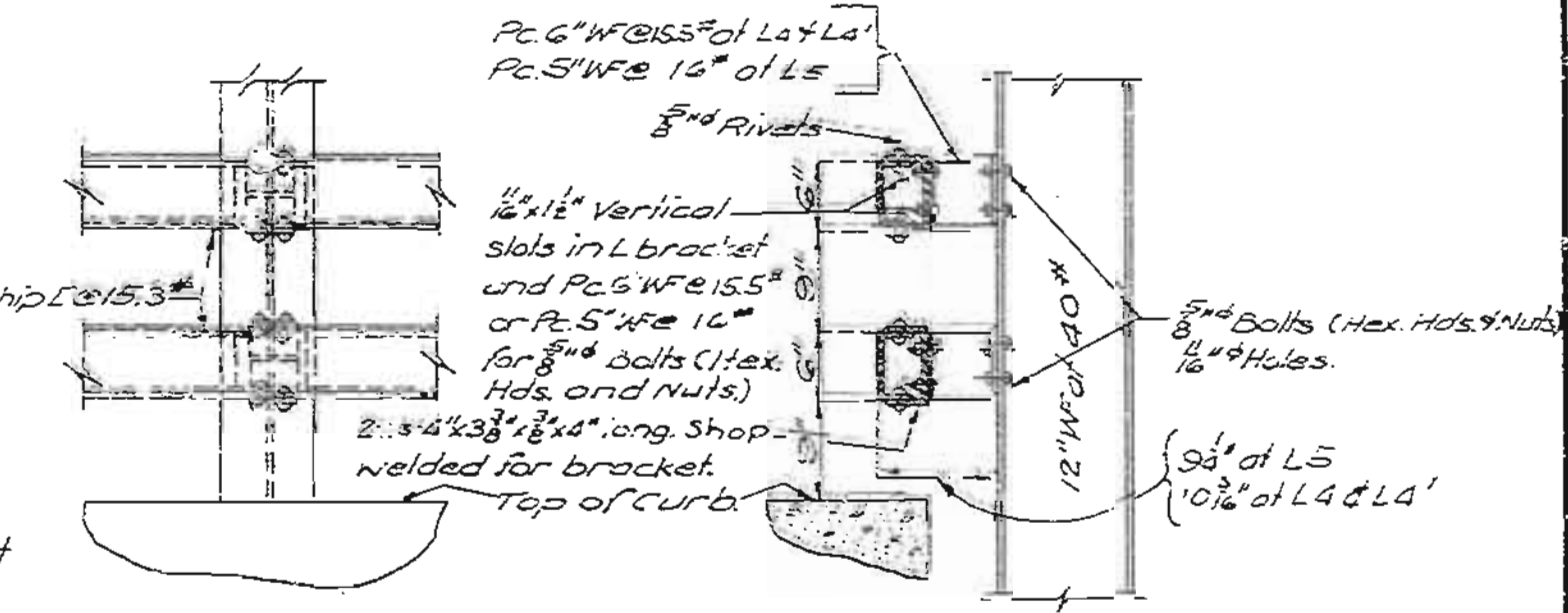
PART ELEVATION



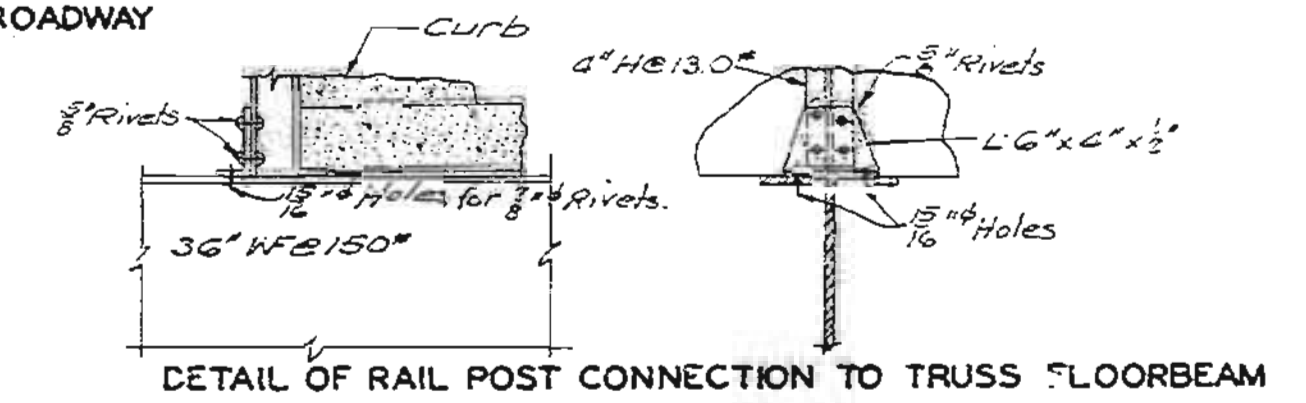
PART PLAN

Note: Use similar rail details on right side of roadway at Pier No. 3. Use similar rail post connection to truss on left side of roadway at Pier No. 4. Rail post connection to floorbeams on right side of roadway at Piers No. 3 and 4 to be as shown below.

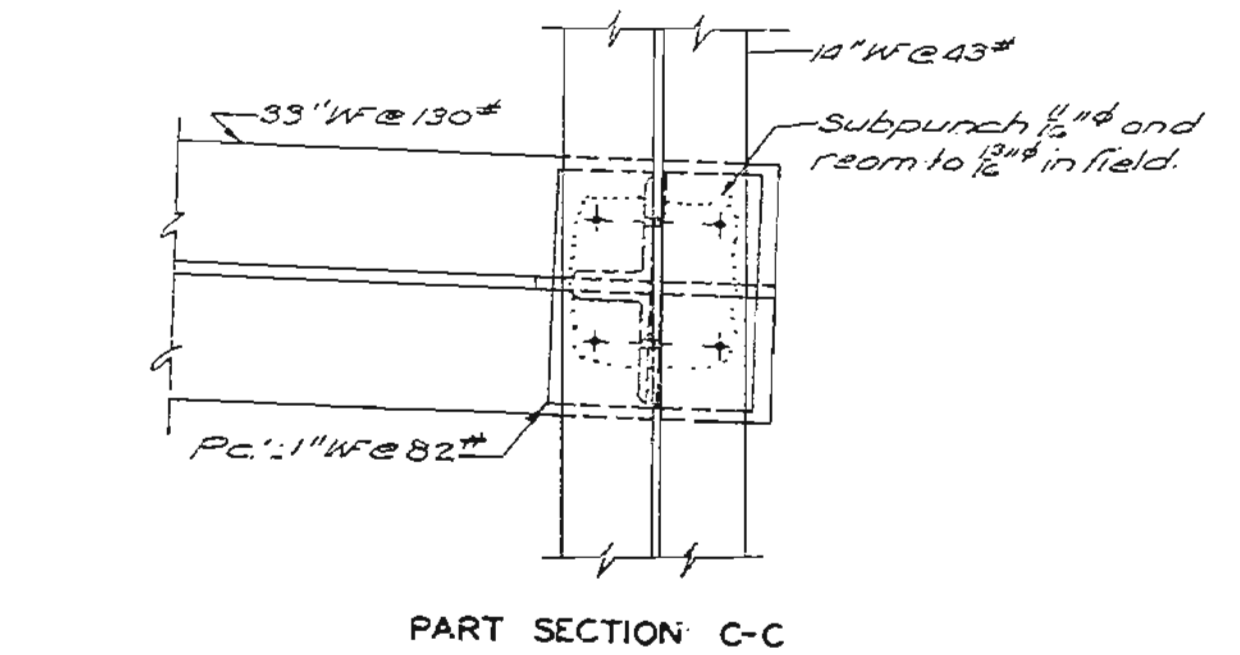
RAIL & RAIL POST CONNECTIONS AT PIER NO. 3 LEFT SIDE OF ROADWAY



RAIL CONNECTION TO TRUSS VERTICALS AT L4, L5 AND L4' RIGHT SIDE OF ROADWAY



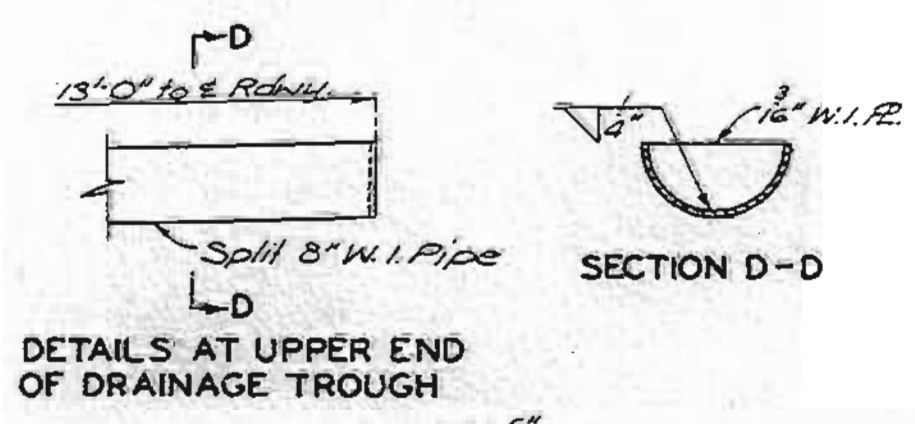
DETAIL OF RAIL POST CONNECTION TO TRUSS FLOORBEAM



PART SECTION C-C

DETAILS OF EXPANSION DEVICE AT PIER NO. 3

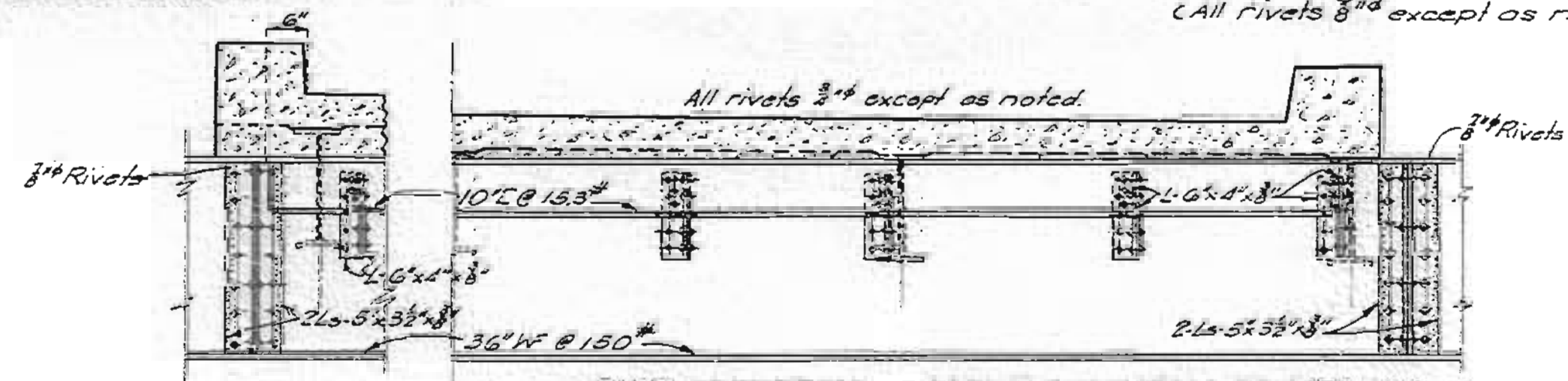
(All rivets 3/4\"/>



DETAILS AT UPPER END OF DRAINAGE TROUGH

DETAILS OF HANDRAIL

(All rivets 3/4\"/>



PART ELEVATION OF END FLOOR BEAM AT PIER NO. 4

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 14

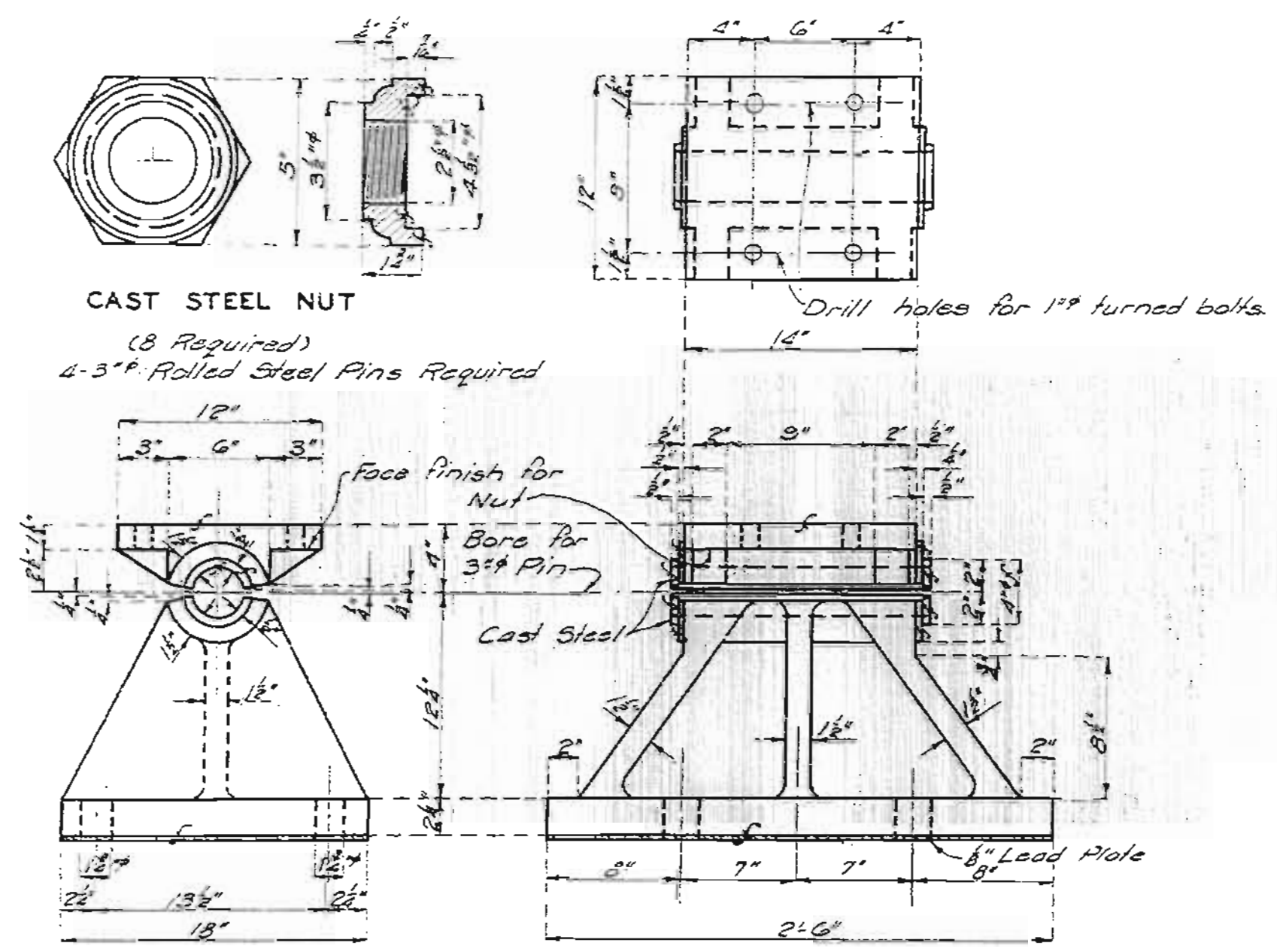
BRIDGE OVER C. R. I. & P. R. R. AND BIG CREEK

STATE ROAD FROM PLEASANT HILL SOUTH  
 AT PLEASANT HILL  
 PROJECT NO. FG-741(6)(RT. 7) STA. 85+56.65  
 CASS COUNTY

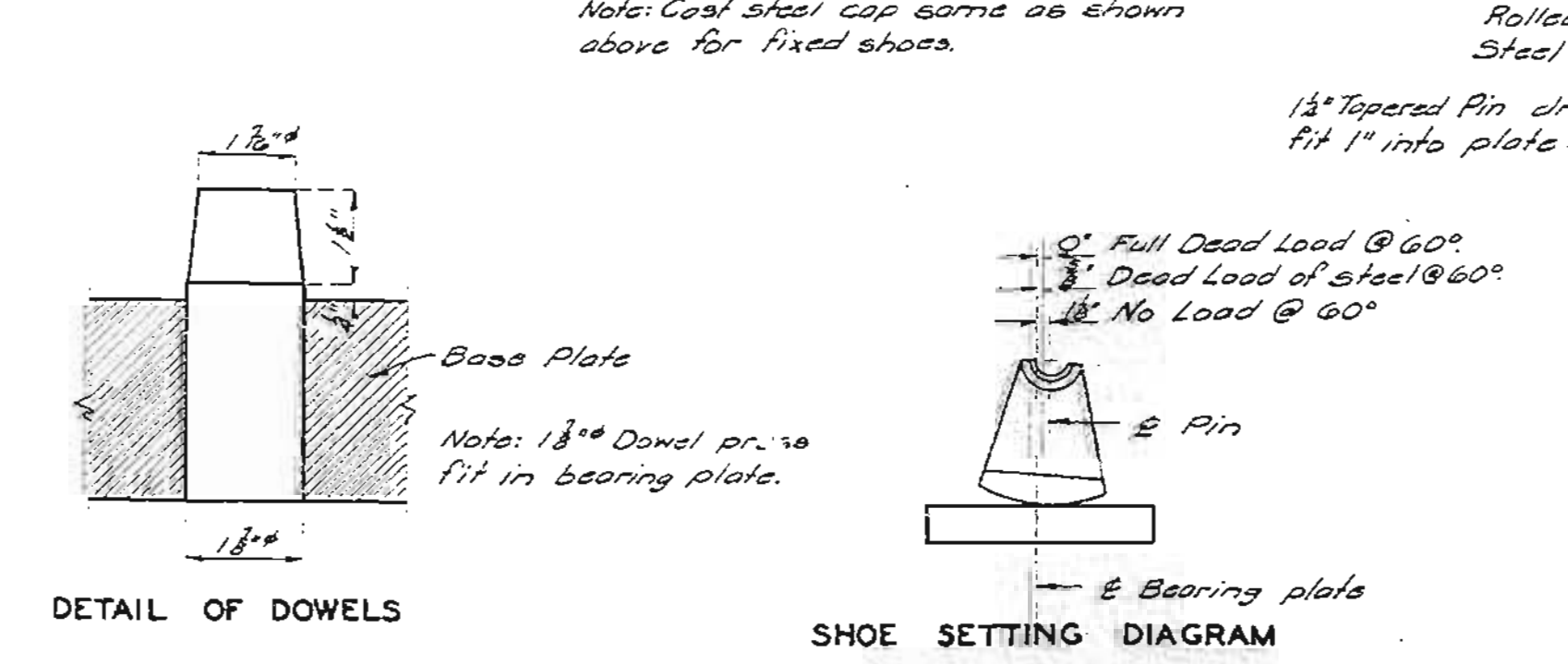
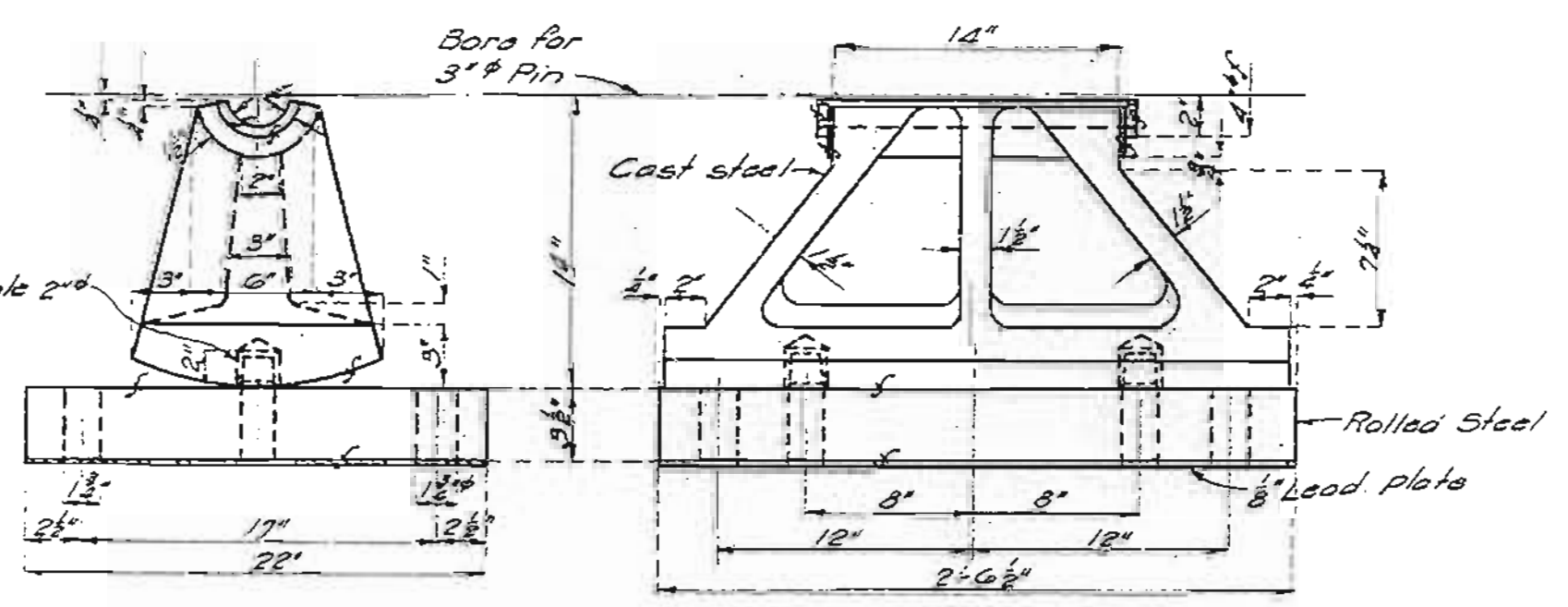
Designed April 1947 by R.A.C.  
 Drawn June 1947 by H.T.B.  
 Traced July 1947 by K.R.W.  
 Checked Nov. 1947 by N.M.R.

MISSOURI STATE HIGHWAY DEPARTMENT

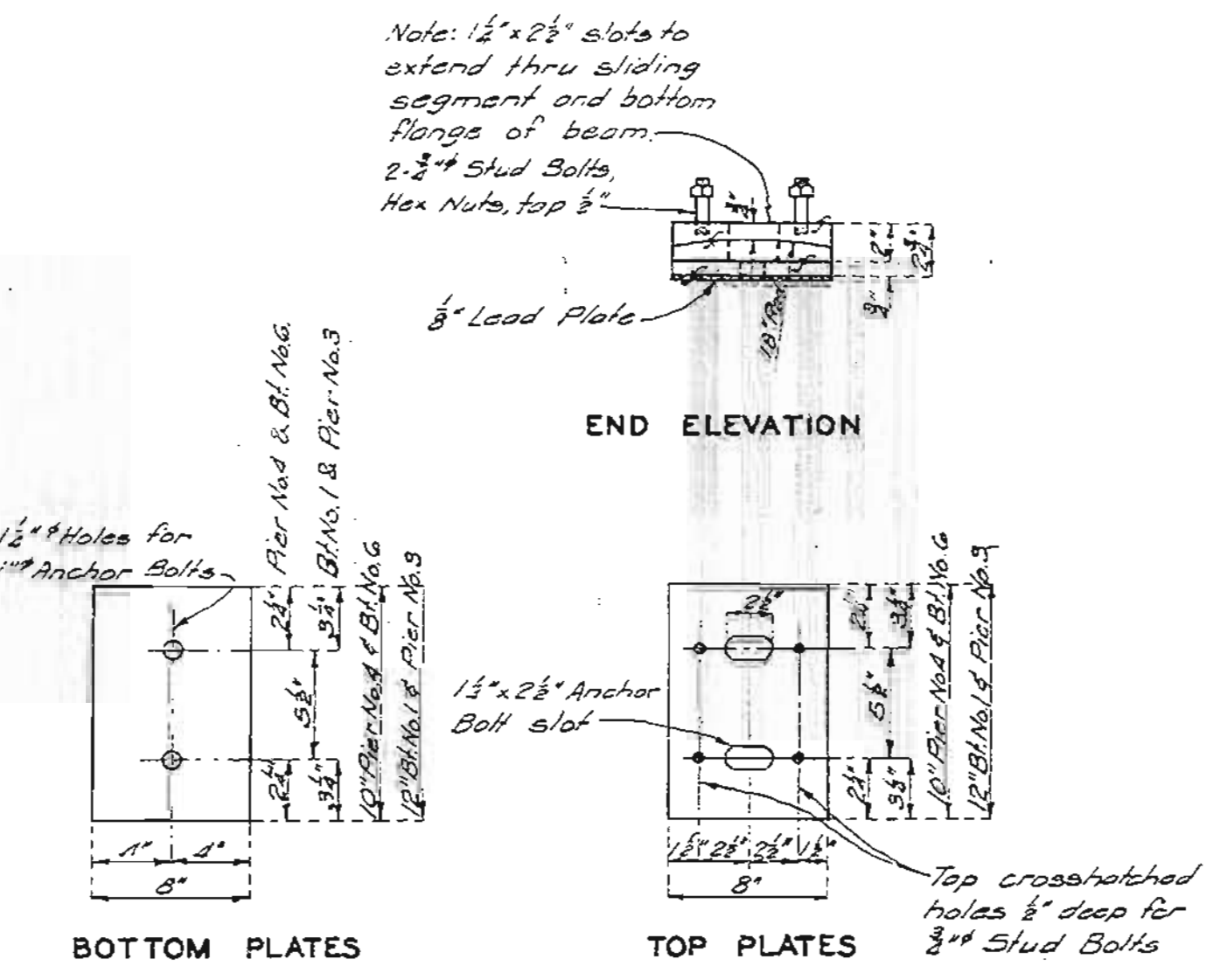
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FG-741(6) (RT. 7)	19		



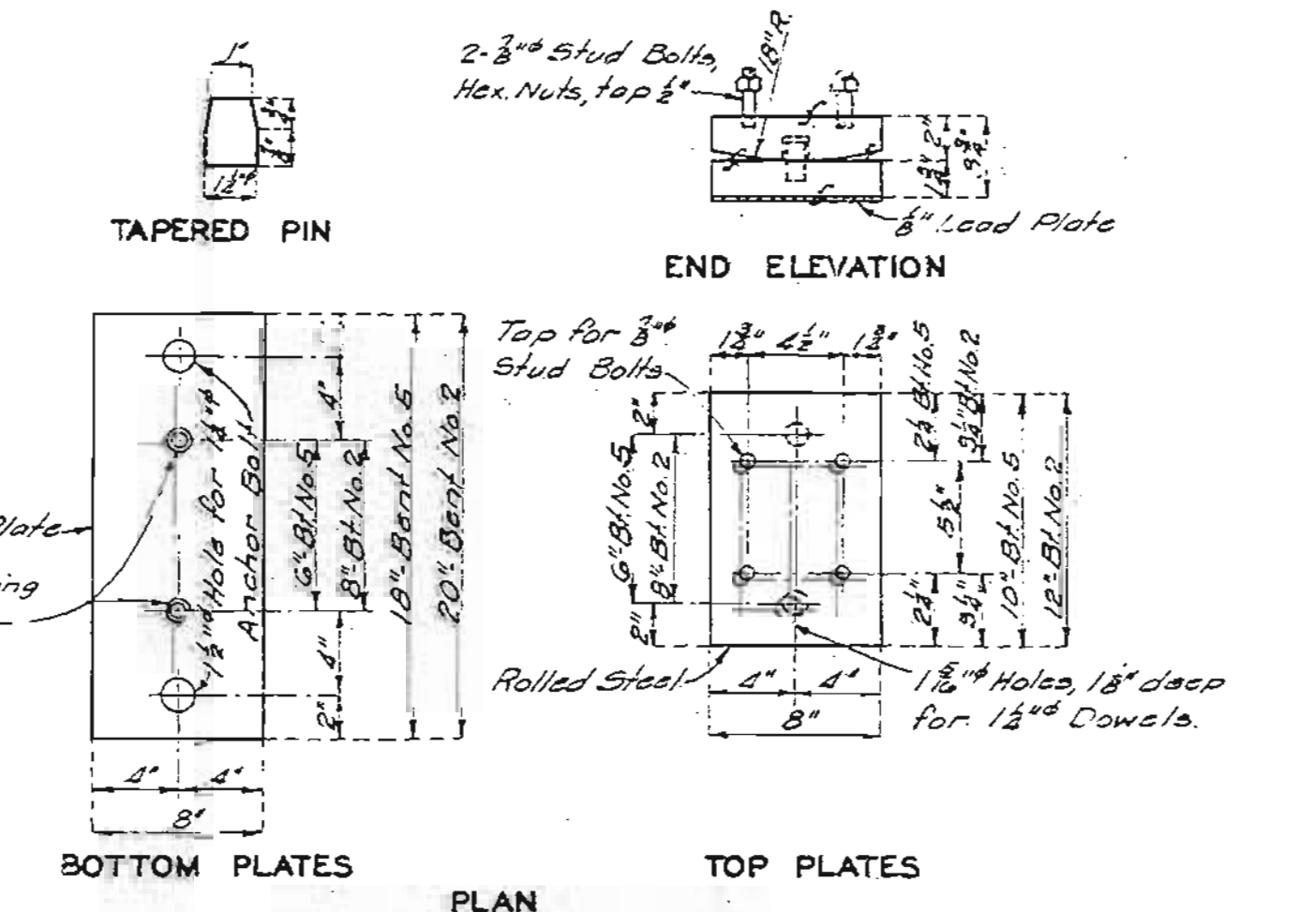
DETAILS OF FIXED SHOES FOR TRUSS SPAN AT PIER NO. 4 (2 Sets Required)



DETAILS OF EXPANSION SHOES FOR TRUSS SPAN AT PIER NO. 3 (2 Sets Required)

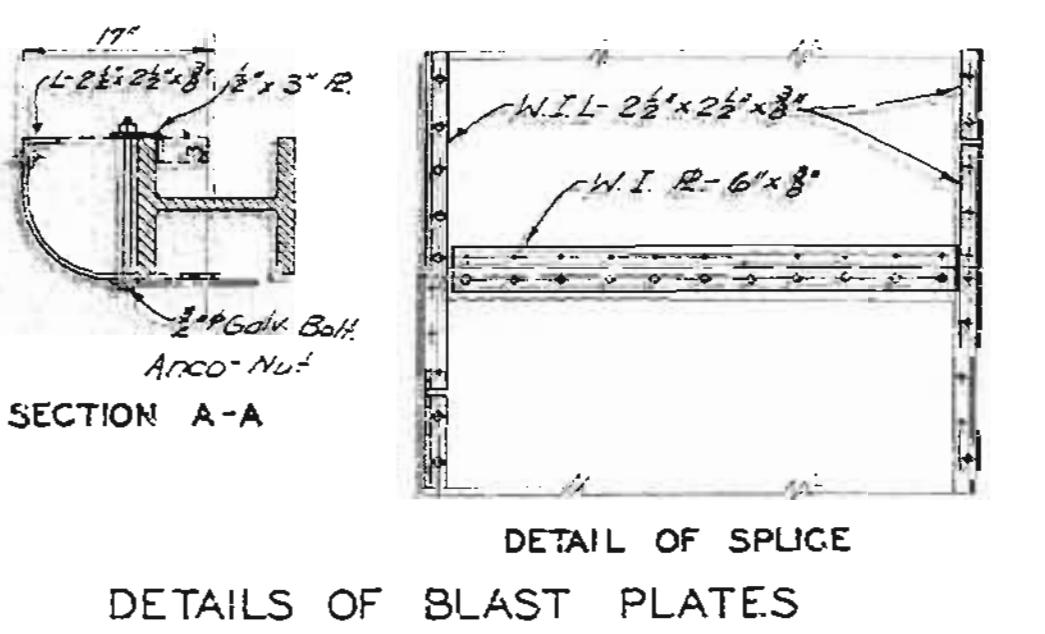
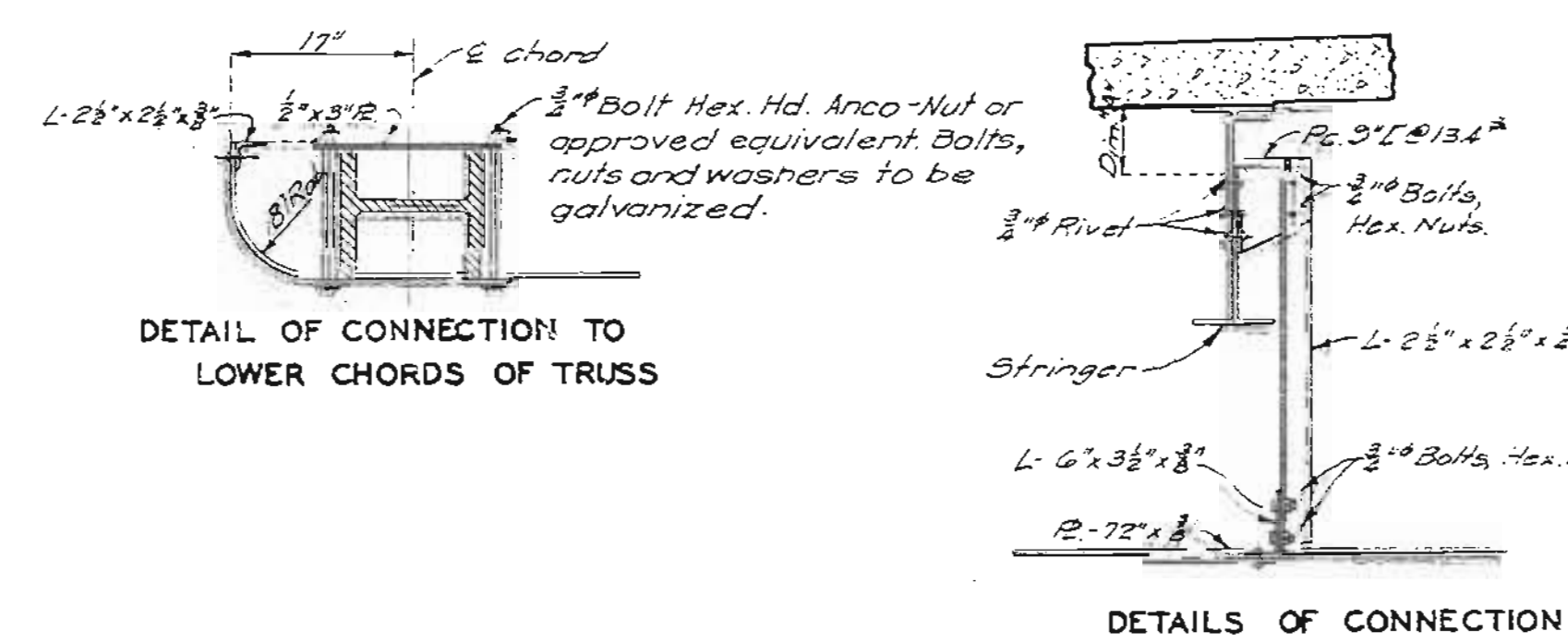
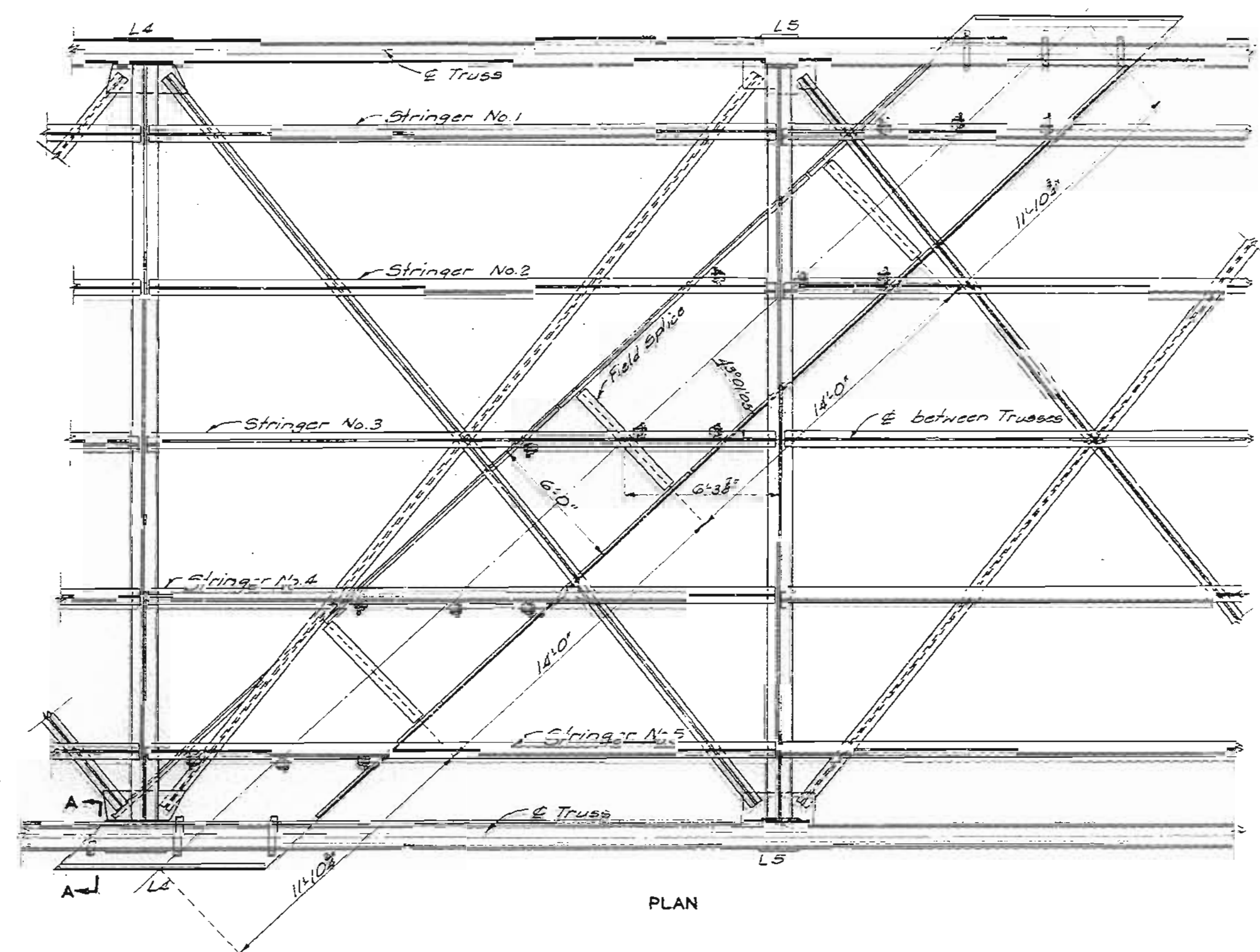


DETAILS OF BEARING PLATES FOR BEAM SPANS AT BENTS NO. 1 & 6 AND PIERS NO. 3 & 4 (5 Sets Required - Bent No. 1 & Pier No. 3) (8 Sets Required - Pier No. 4 & Bent No. 6)



DETAILS OF BEARING PLATES FOR BEAM SPANS AT BENTS NO. 2 & 5 (4 Sets Required - Bent No. 2) (4 Sets Required - Bent No. 5)

Notes:  
 All fillets shall have 3/8" radius.  
 Finish all surfaces marked "F".  
 Bearing castings at Bents No. 1 & 6 and Piers No. 3 & 4 shall be either grey iron alloy or cast steel.  
 Anchor bolts for bearing plates at Bents No. 1 & 6 and Piers No. 3 & 4 shall be 1" swaged bolts, no heads or nuts and shall extend 10" into concrete. Top ends of anchor bolts shall be above the top of casting but not higher than 4" below top surface of bottom flange of beam.  
 Anchor bolts for bearing plates at Bents No. 2 & 5 shall be 1 1/2" swaged bolts with hex nuts and shall extend 12" into concrete.  
 Anchor bolts for shoes at Piers No. 3 & 4 shall be 1 1/2" swaged bolts with hex nuts and shall extend 15" into concrete.  
 All pins, bolts, nuts, dowels, and rolled plates will be paid for as structural steel.  
 Cost of lead plates shall be included in price bid for other items.  
 All finished surfaces shall be painted with one coat of white lead and tallow.  
 See Specifications for field coatings.



Str. No.	Dim. A'
1	6 3/8"
2	7 3/8"
3	9 1/2"
4	10 3/8"
5	11 3/8"

Note: All blast plates are to be wrought iron plates 7/8" x 3/8" edge 18" to be wrought iron 2 1/2" x 2 1/2". All rivets in Blast Plates are to be 3/4" wrought iron. Max. pitch 10 to be 6".

BRIDGE OVER C.R.I. & P.R.R. AND BIG CREEK  
 STATE ROAD FROM PLEASANT HILL SOUTH  
 AT PLEASANT HILL  
 PROJECT NO. FG-741(6)(RT. 7) STA. 85+56.65  
 CASS COUNTY

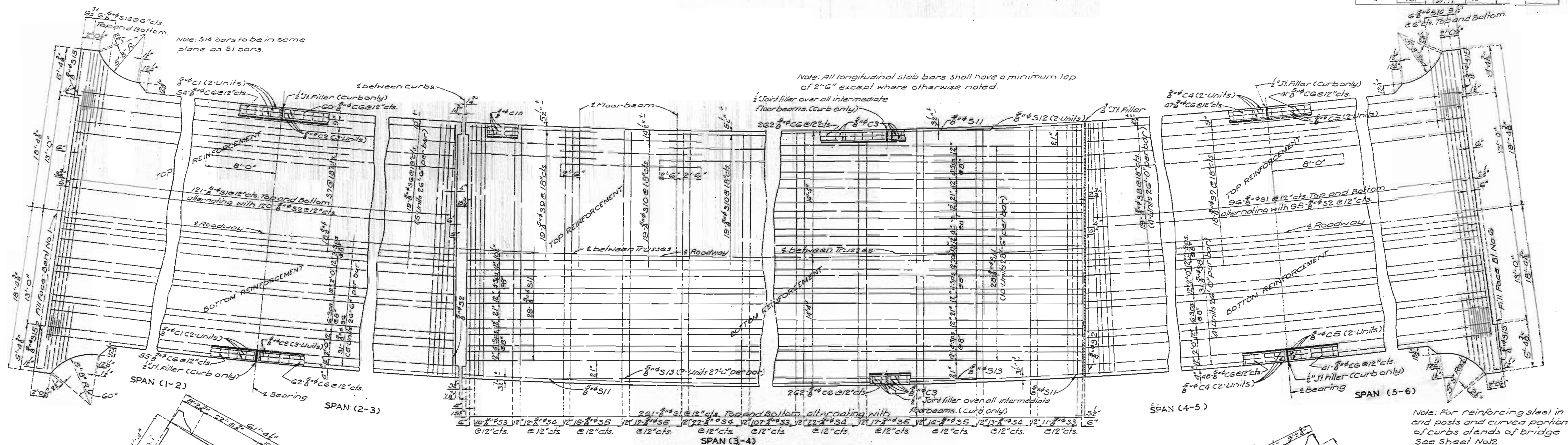
Designed Apr. 1947 by R.A.C.  
 Drawn Apr. 1947 by H.T.B.  
 Traced Apr. 1947 by J.W.N.  
 Checked Nov. 1947 by N.W.R.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 12

MISSOURI STATE HIGHWAY DEPARTMENT

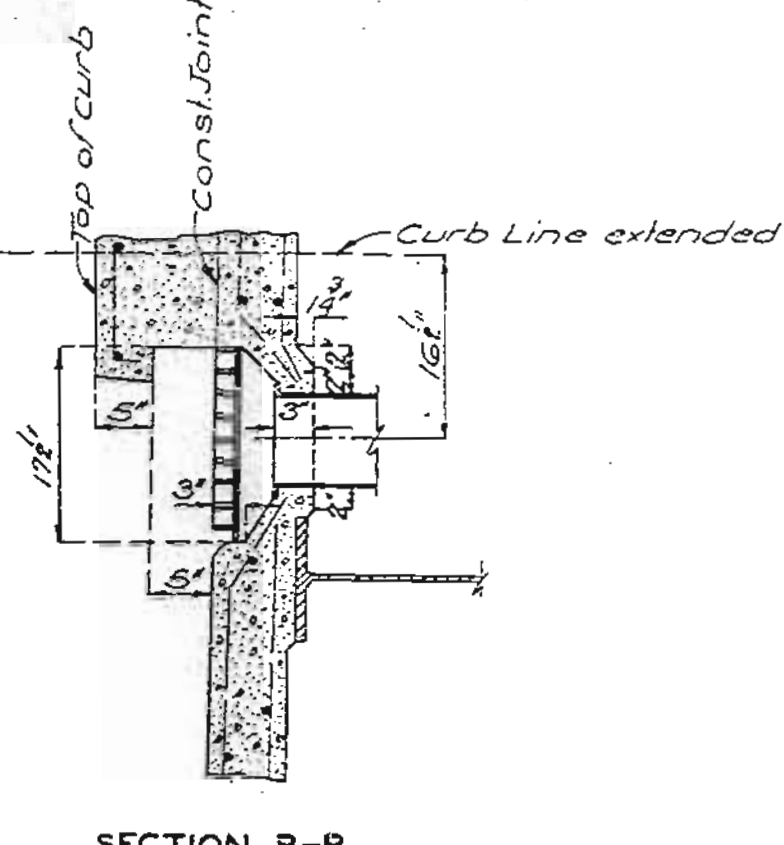
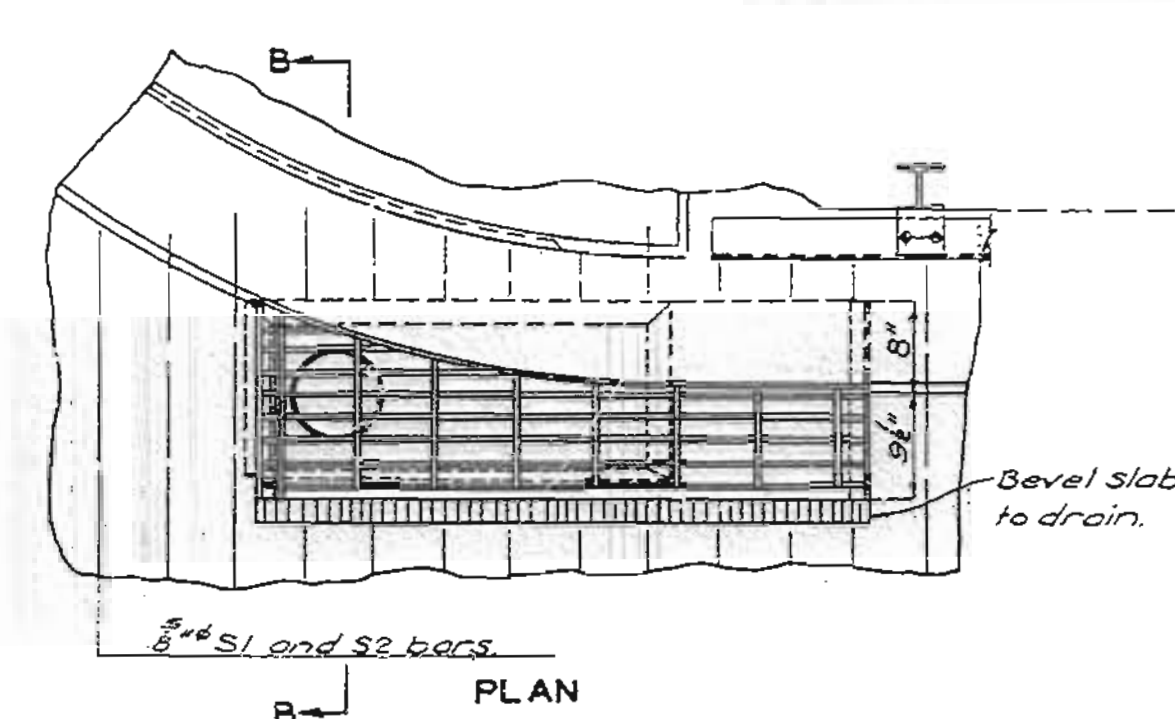
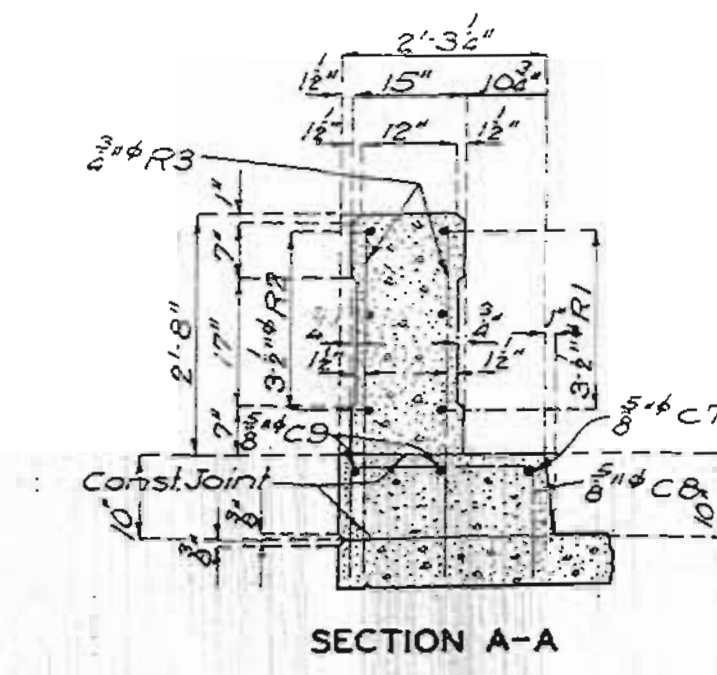
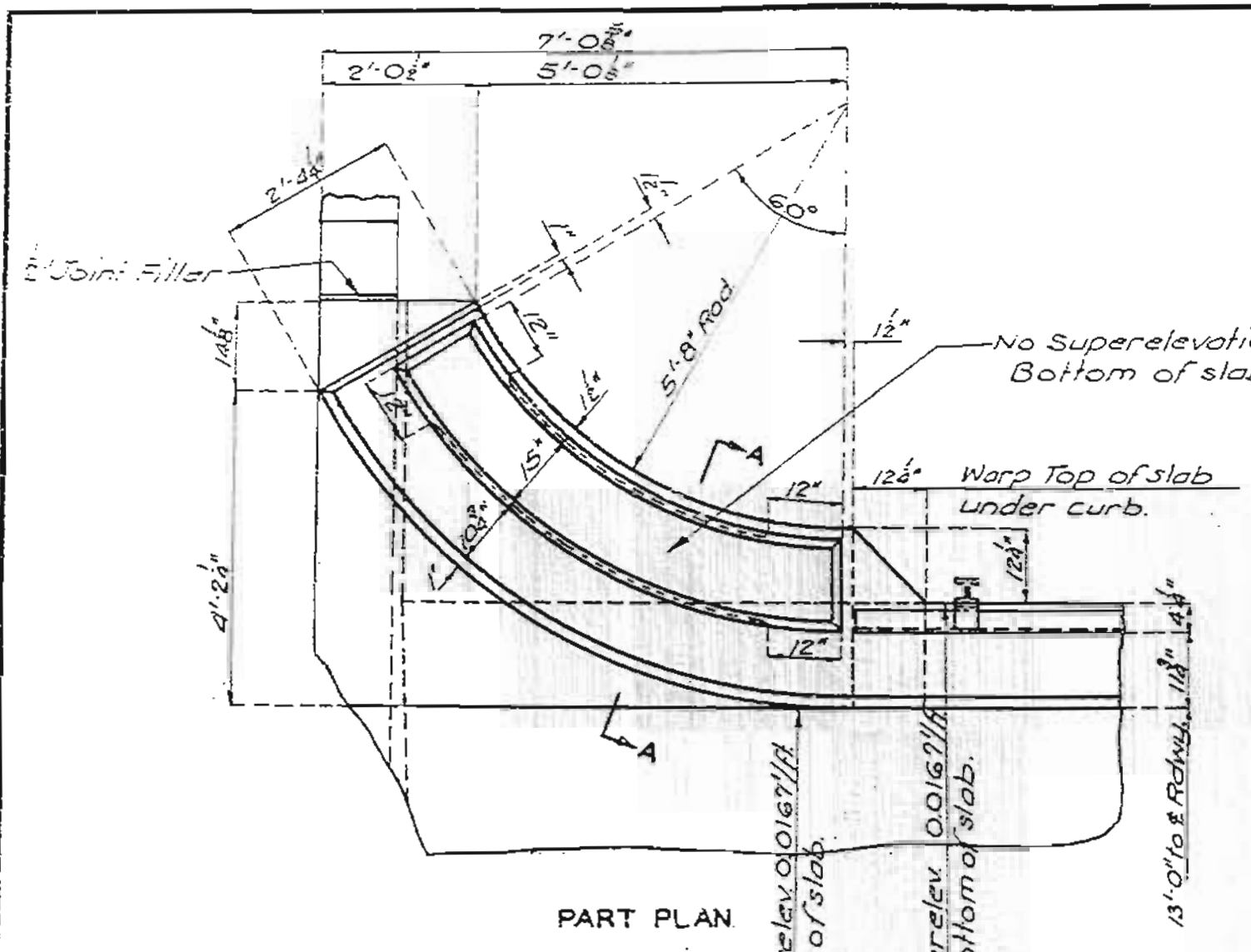
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FG-741(6) (RT. 7)	19		



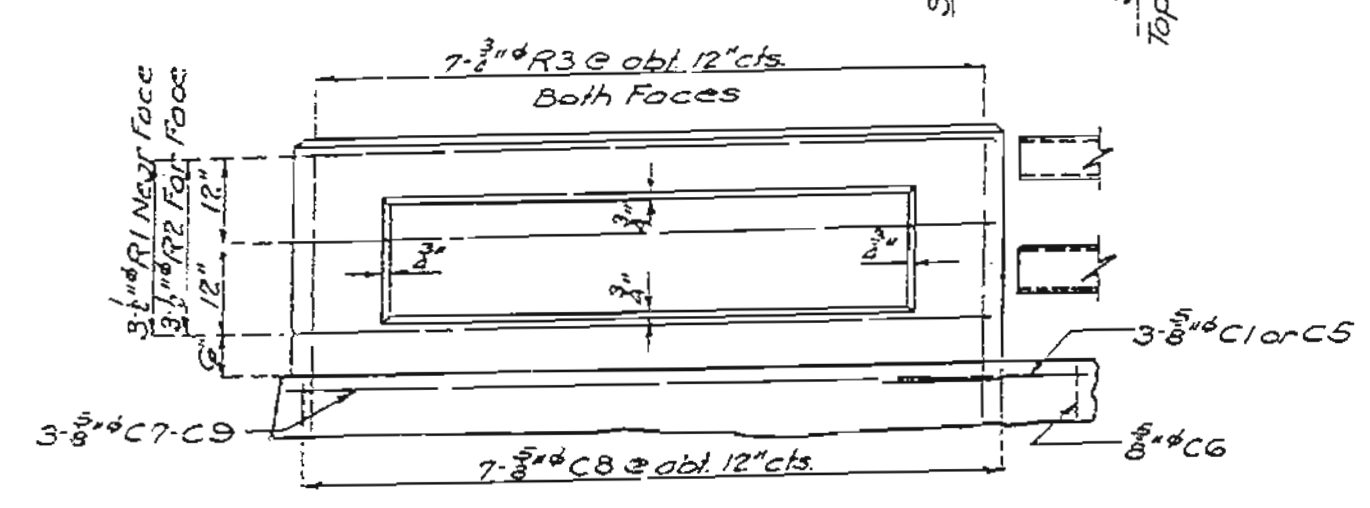


MISSOURI STATE HIGHWAY DEPARTMENT

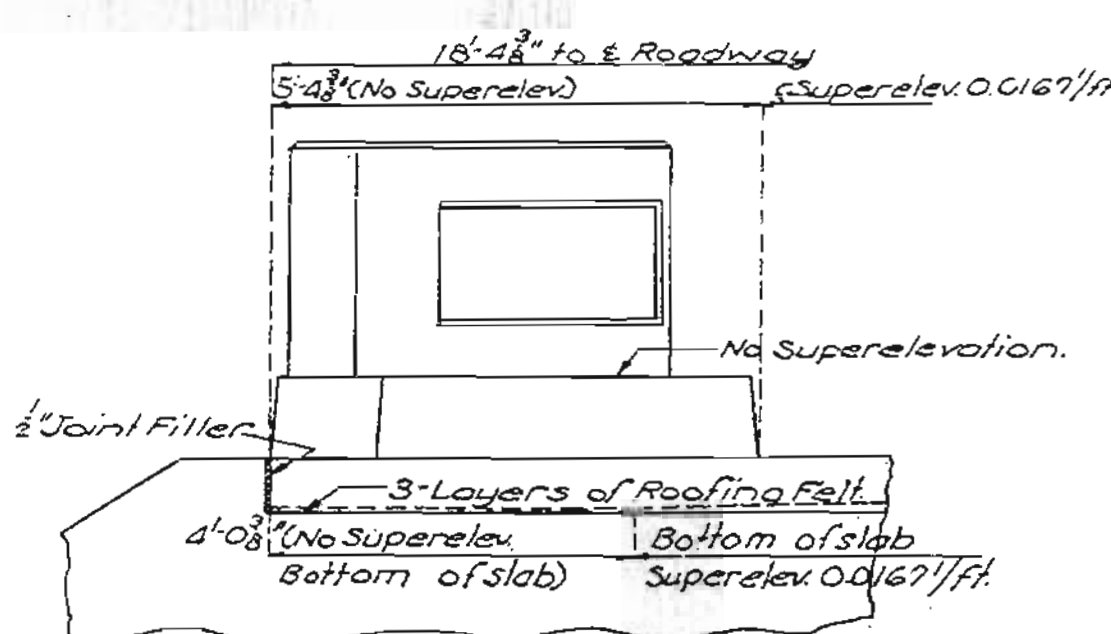
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FG-741(6) (RT. 7)	19		



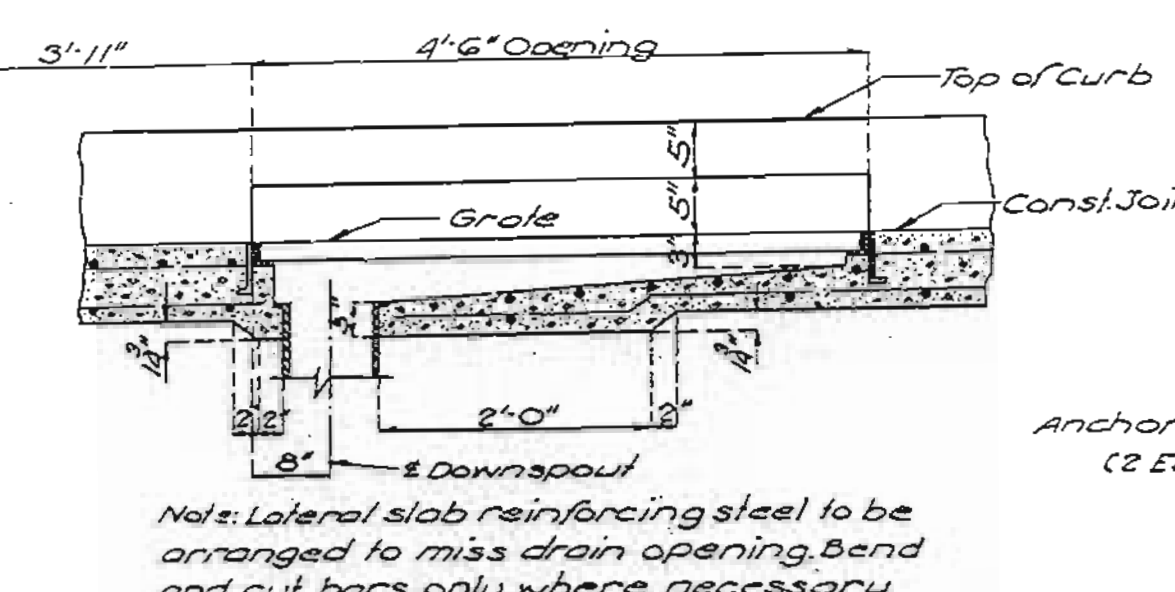
**PLAN OF GRATES**  
(2 Required)  
Note: Grates will be paid for as Fabricated Structural Steel. Details for anchoring grates securely in place shall be submitted to the Engineer for approval before grates are fabricated.



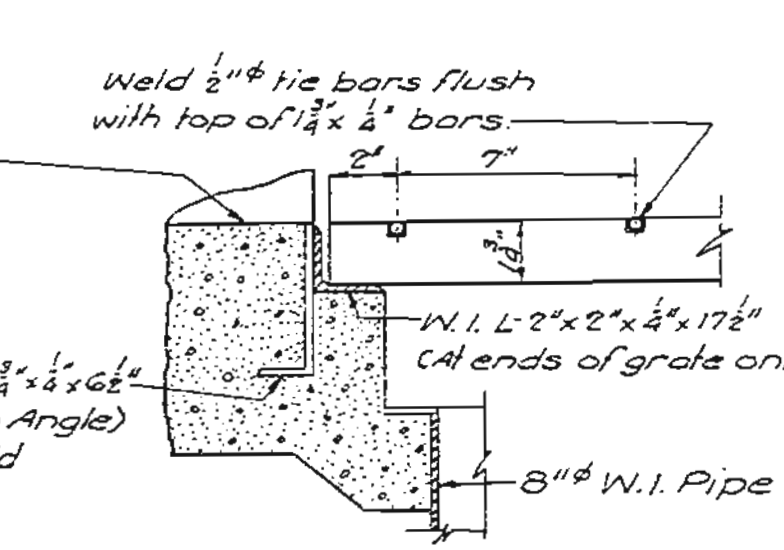
DEVELOPED ELEVATION OF END POST SHOWING REINFORCEMENT



PART END ELEVATION



LONGITUDINAL SECTION



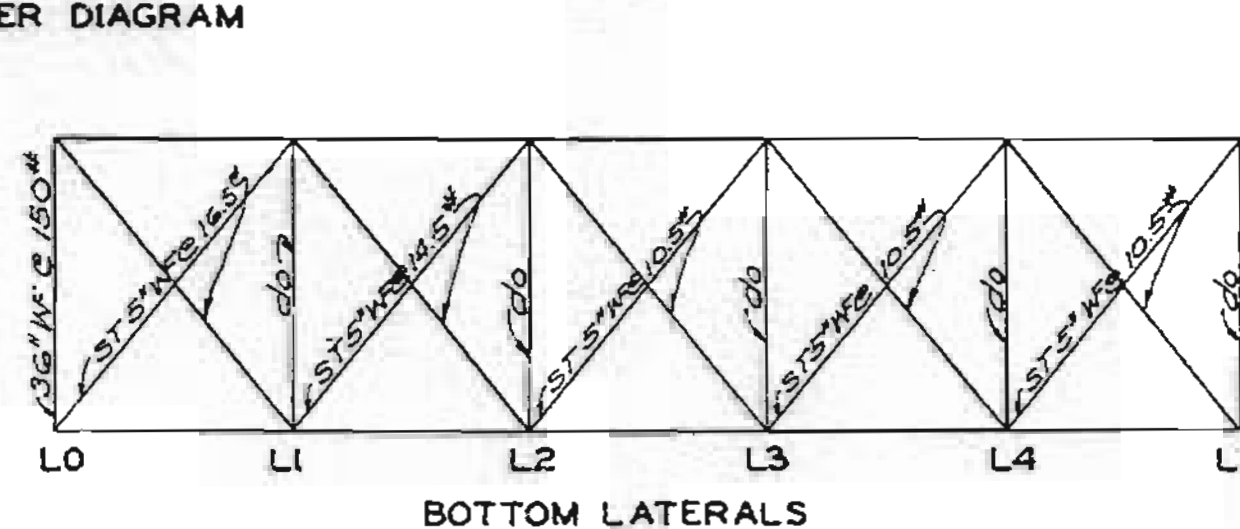
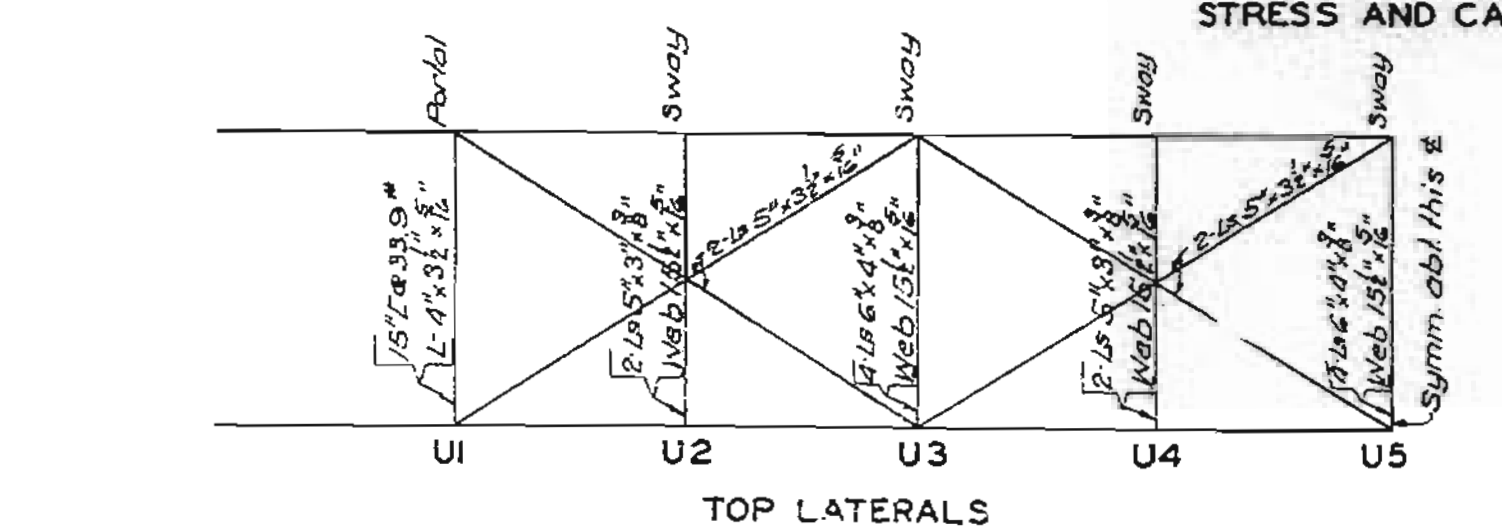
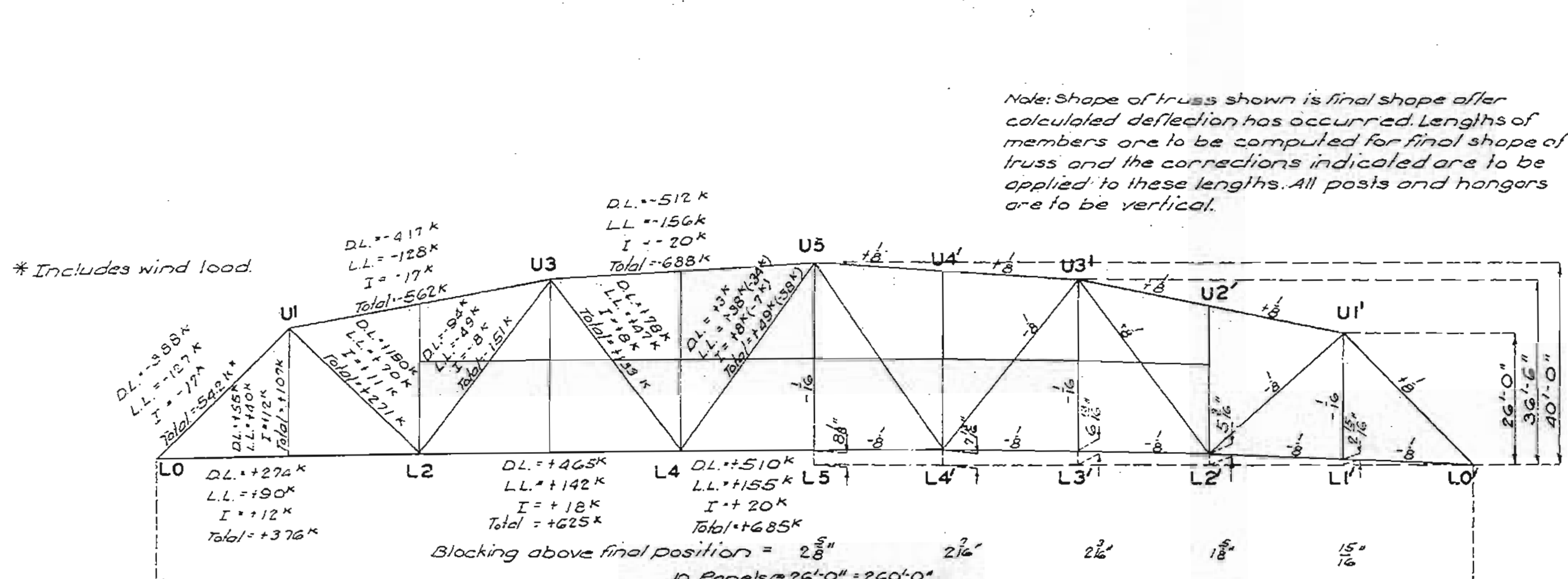
PART SECTION AT END OF GRATE

Note: All 12 Ga. metal used in drainage system, all bars, angles, plates, bolts, and expansion bolts used in fastening 12 Ga. metal pipes to concrete shall be galvanized.

Expansion bolts to be National Lead Co. Cinch Anchor Type II, with two units or an approved equivalent.

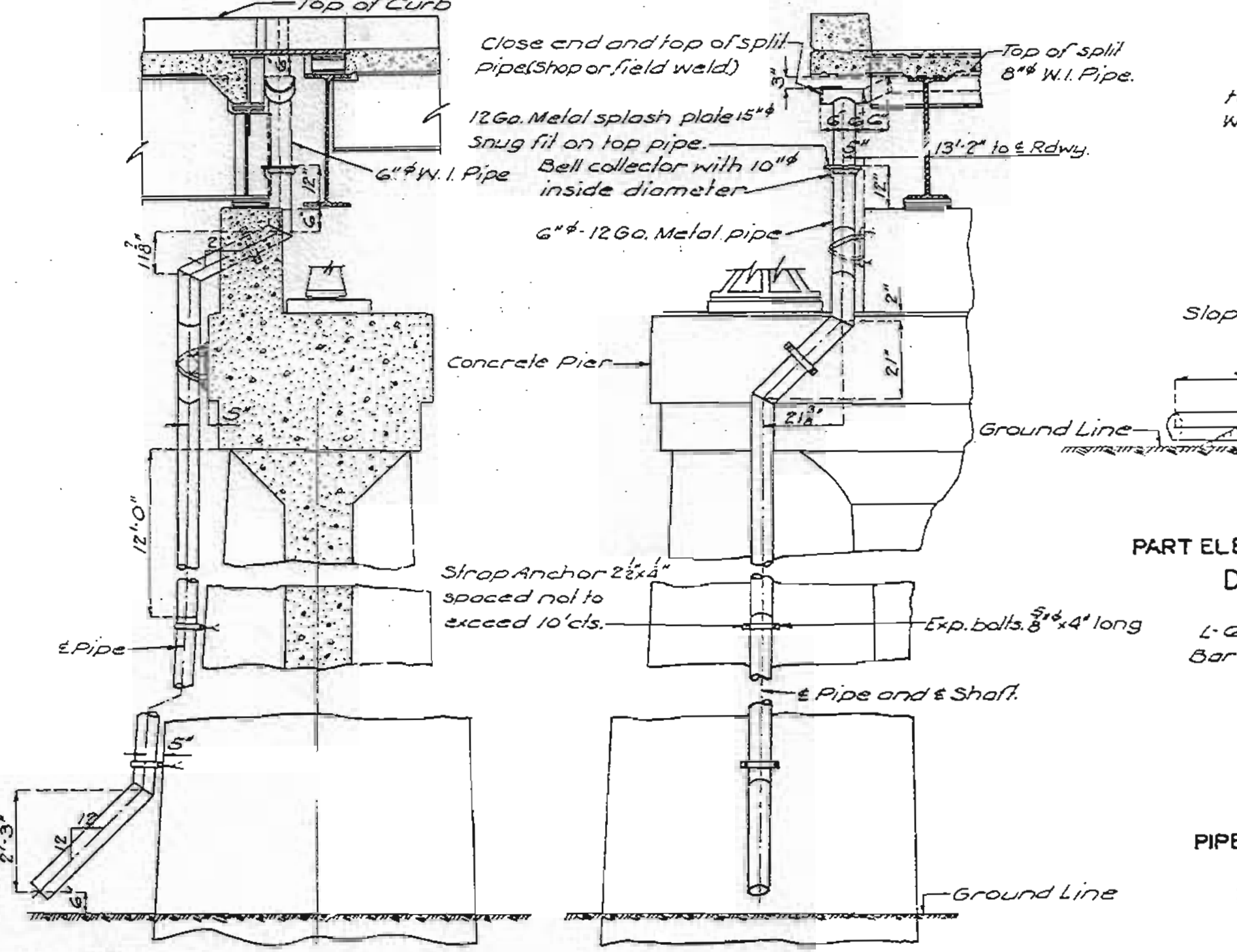
For details of connection of 8" split pipe to structural steel at Pier No. 3 See Sheet No. 9 of 14.

TYPICAL DETAILS OF FLARED END POST

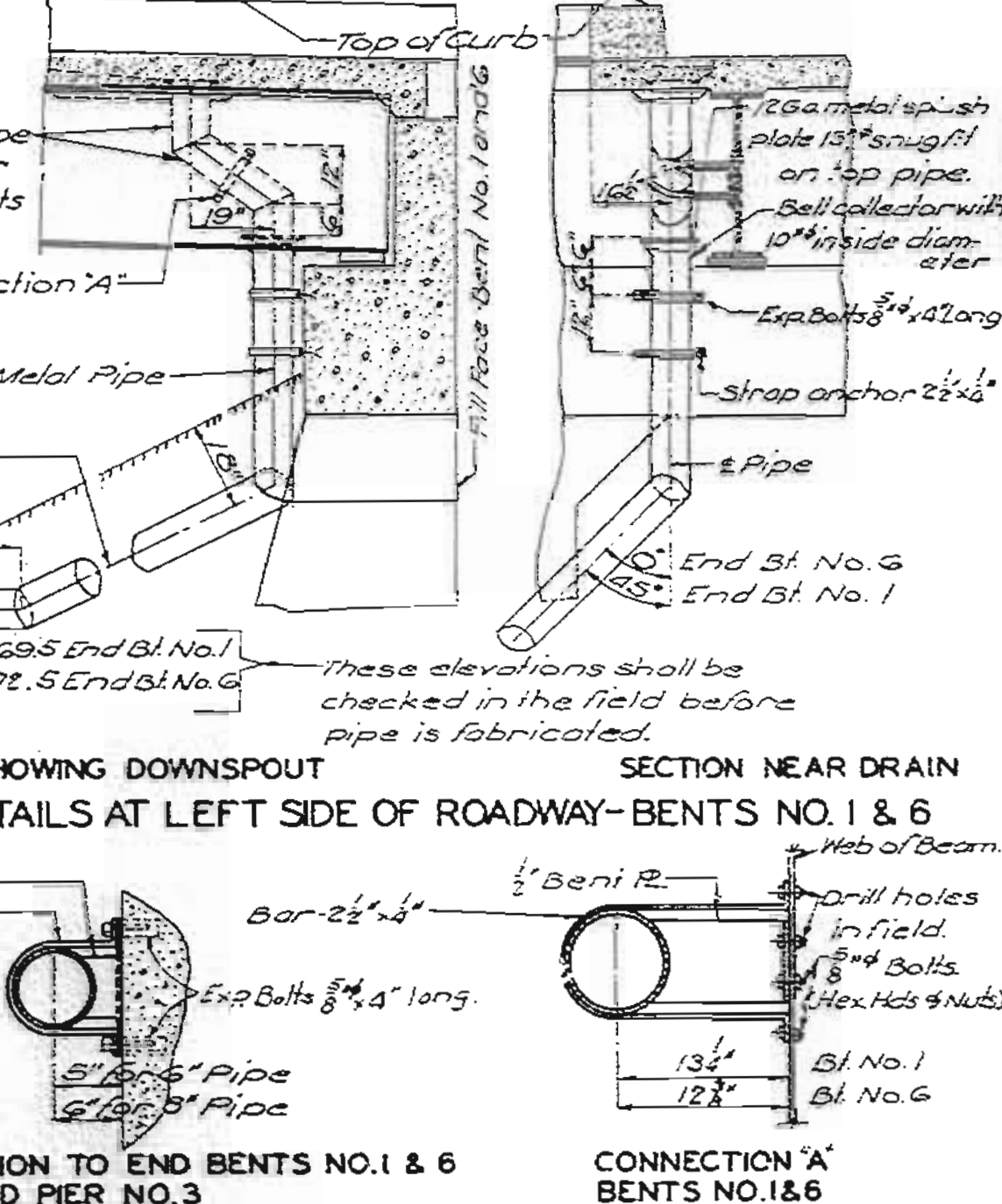


TRUSS DETAILS

DETAILS OF DRAINS AT LEFT SIDE OF ROADWAY - BENTS NO. 1 & 6



DRAIN DETAILS AT LEFT SIDE OF ROADWAY - PIER NO. 3



CONNECTION A BENTS NO. 1 & 6

BRIDGE OVER C. R. & P. R. R. AND BIG CREEK

STATE ROAD FROM PLEASANT HILL SOUTH AT PLEASANT HILL  
PROJECT NO. FG-741(6) (RT. 7) STA. 85+56.65

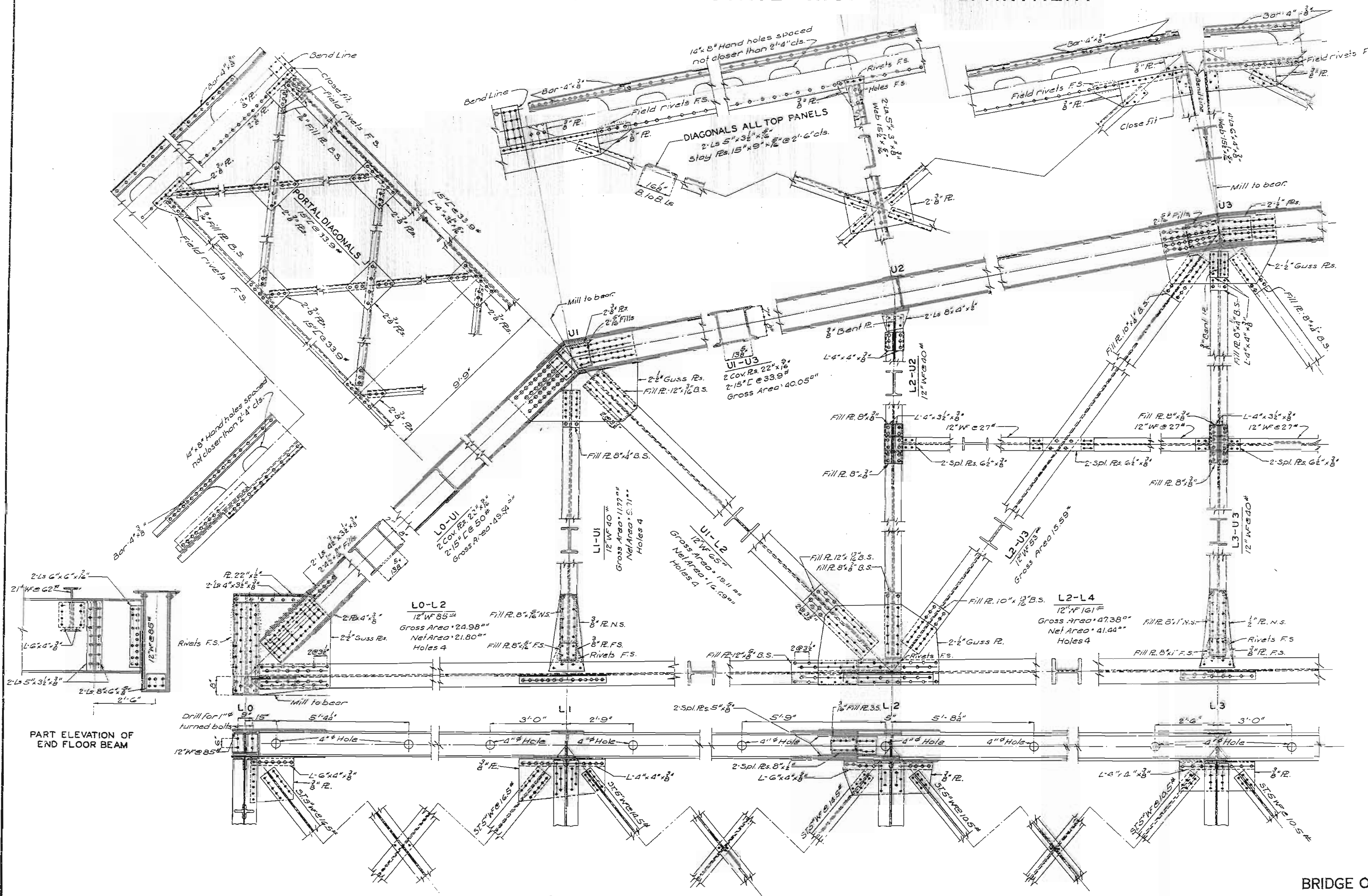
CASS COUNTY

Designed April 1947 by R.A.C.  
Drawn May 1947 by H.T.B.  
Traced July 1947 by K.R.W.  
Checked Nov. 1947 by J.H.R.

Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	3-3476 (2-7)	19		



BRIDGE OVER C. R. I. & P. R. R. AND BIG CREEK

STATE ROAD FROM PLEASANT HILL SOUTH  
AT PLEASANT HILL

PROJECT NO. FG-741 (6) (RT. 7) STA. 85+56.65

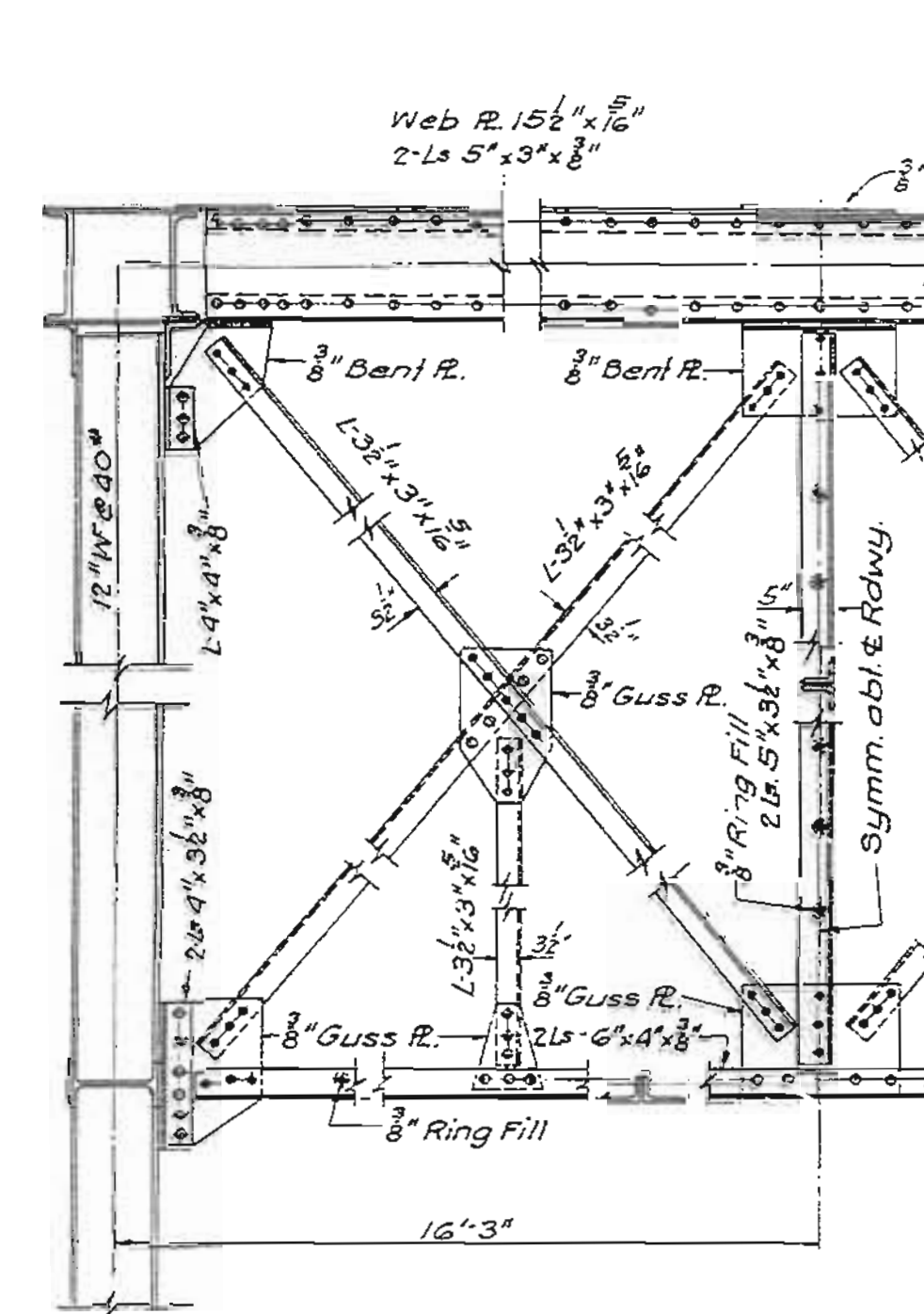
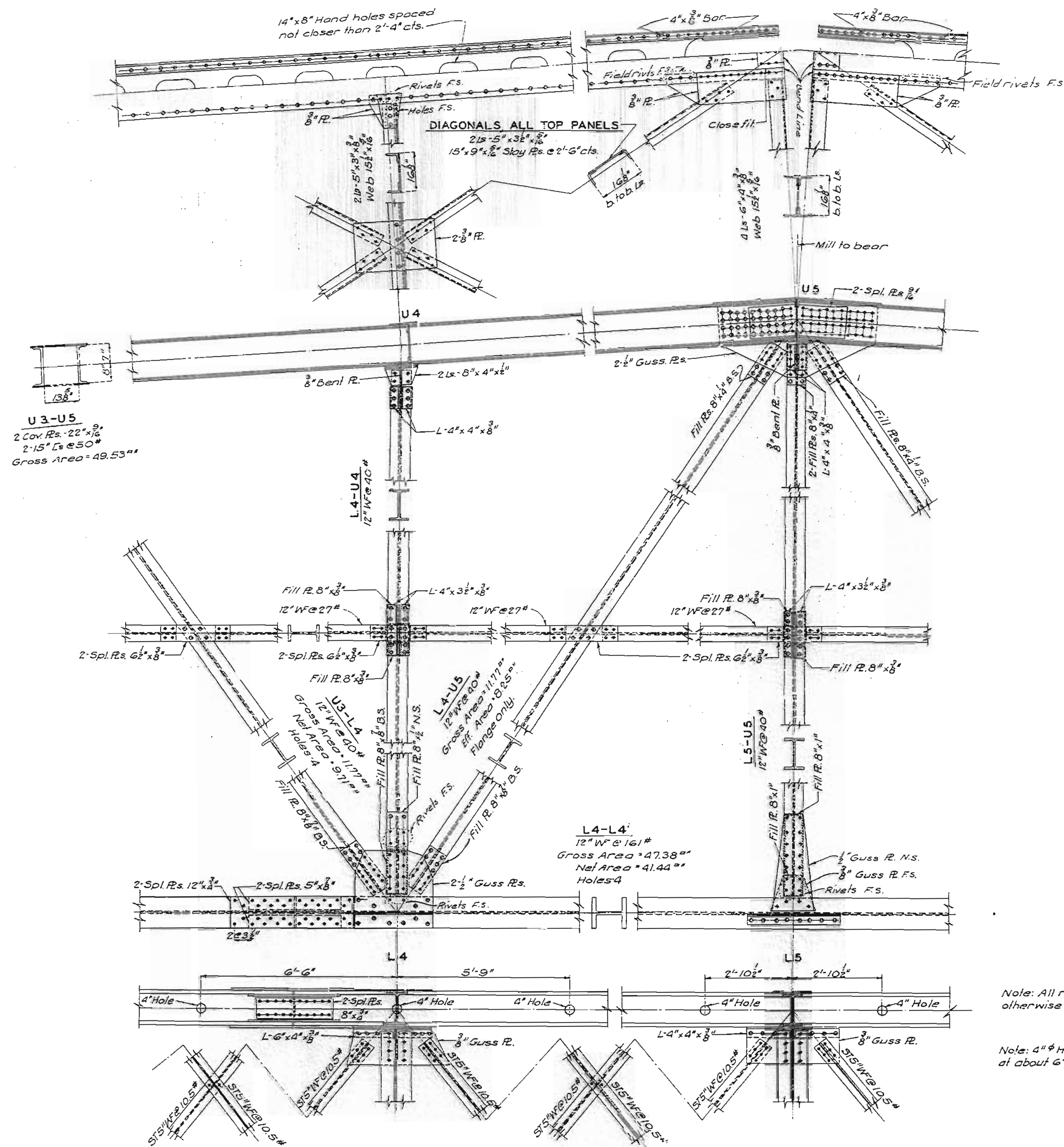
CASS

COUNTY

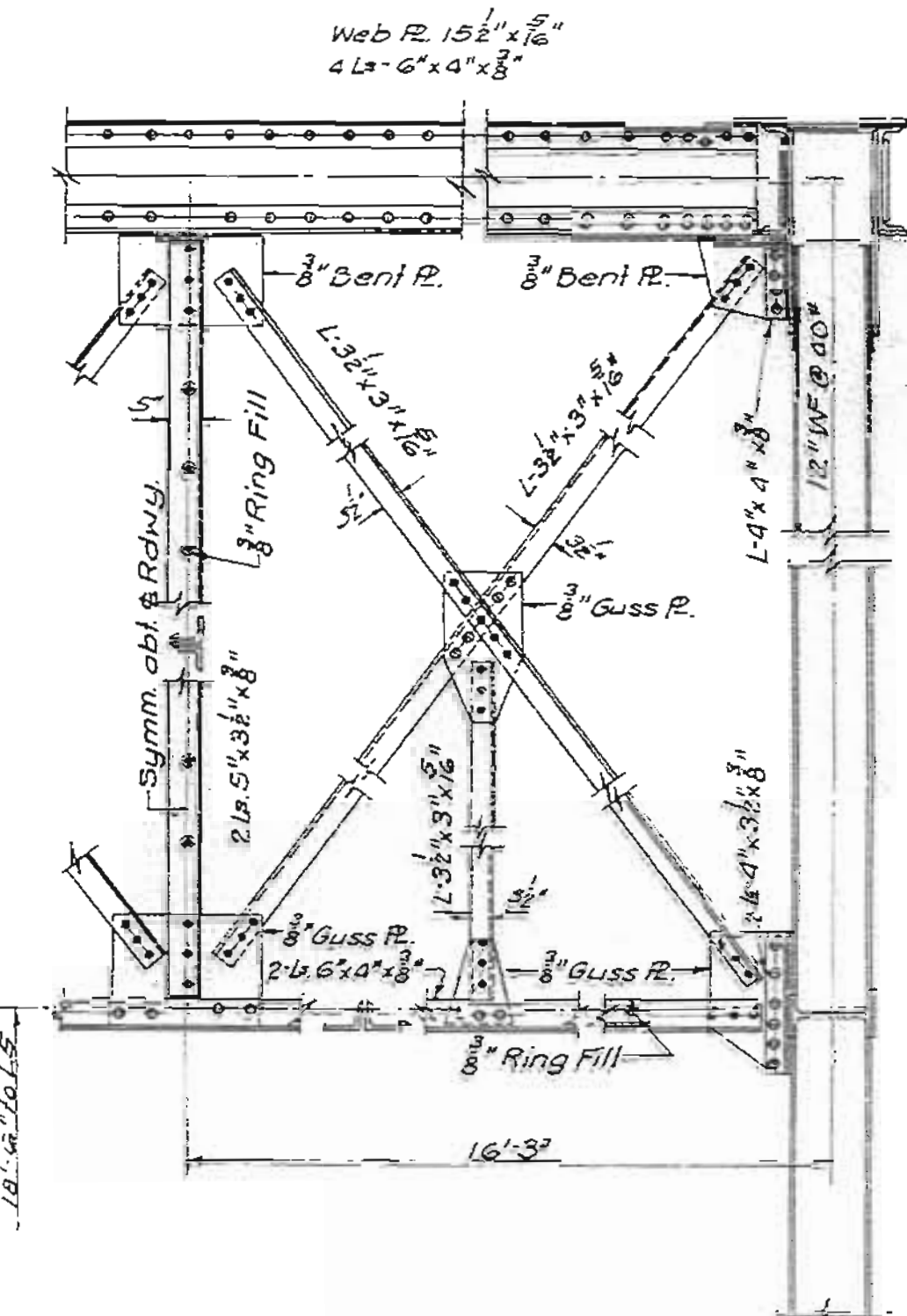
Designed Feb. 1947 by R.A.C.  
Drawn Mar. 1947 by H.T.B.  
Traced April 1947 by K.R.W.  
Checked Nov. 1947 by N.H.R.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FG-741(6) (RT.7)	19		



SWAY FRAME AT U4  
(Sway Frame at U2 similar)



SWAY FRAME AT U5  
(Sway Frame at U3 similar)

Note: All rivets 3/8\"/>

Note: 4\"/>

BRIDGE OVER C. R. I. & P. R. R. AND BIG CREEK

STATE ROAD FROM PLEASANT HILL SOUTH  
AT PLEASANT HILL

PROJECT NO. FG-741(6) (RT.7) STA. 85+56.65

CASS

COUNTY

Designed Feb. 1947 by R.A.C.  
Drawn Mar. 1947 by H.T.B.  
Traced April 1947 by R.W.  
Checked Nov. 1947 by N.W.R.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. of 4

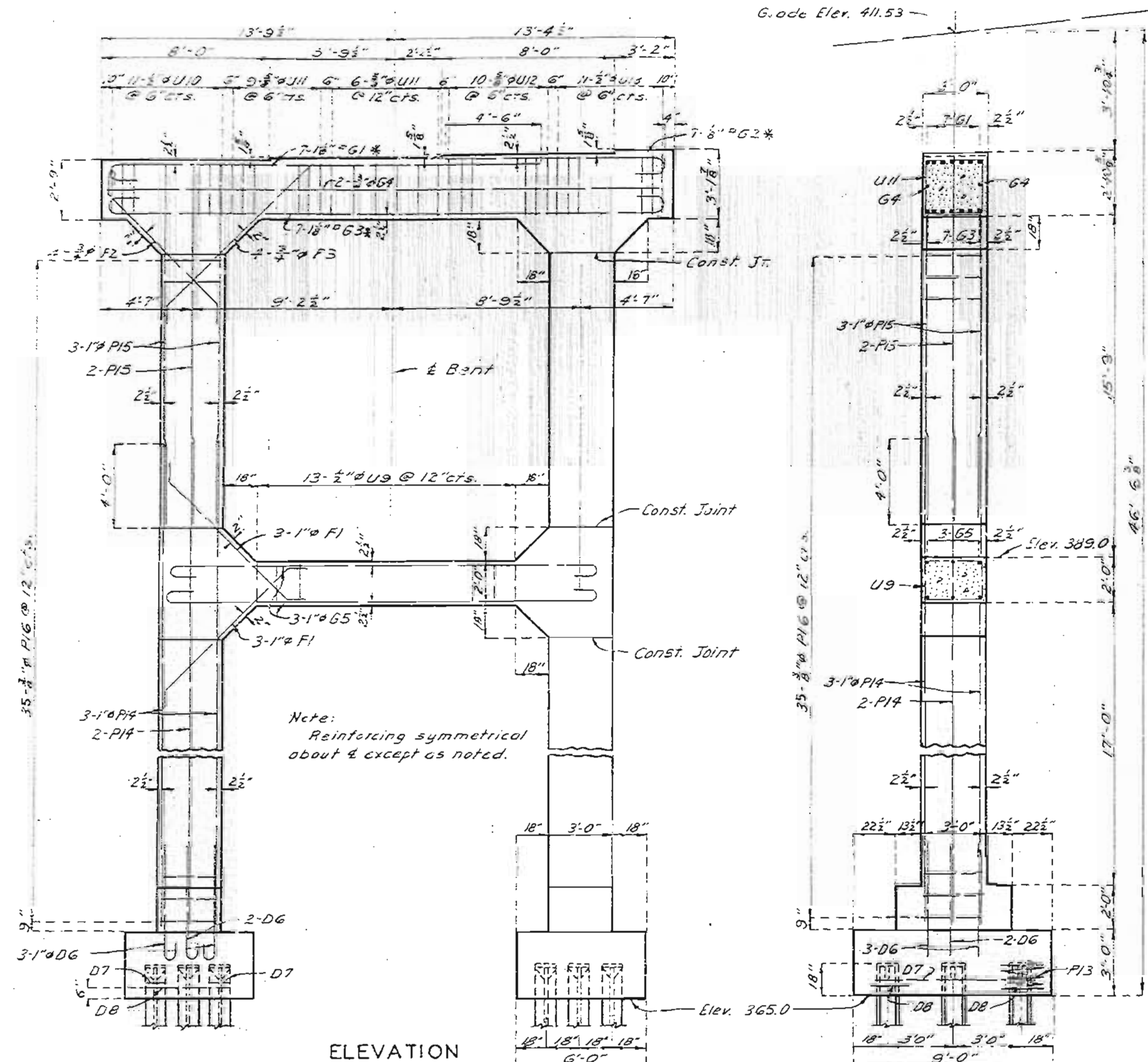




MISSOURI STATE HIGHWAY DEPARTMENT

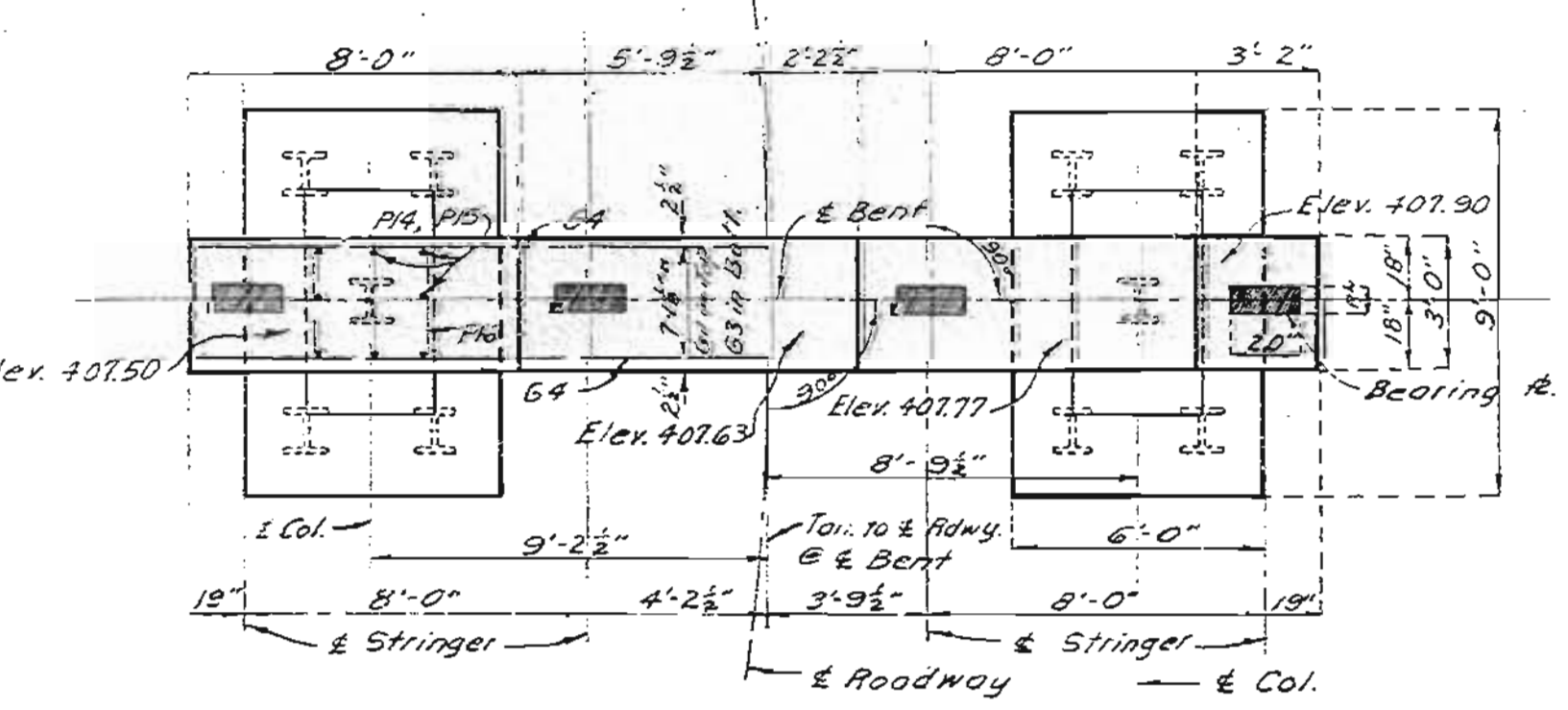
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	74-1(6) (RT. 7)	19		

FINAL PLANS



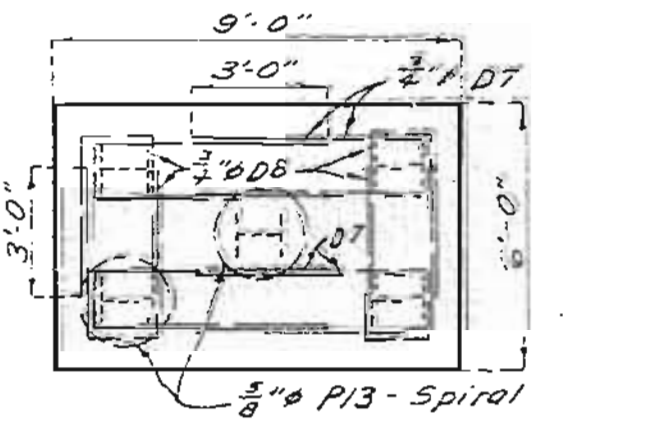
ELEVATION

SECTION AT C



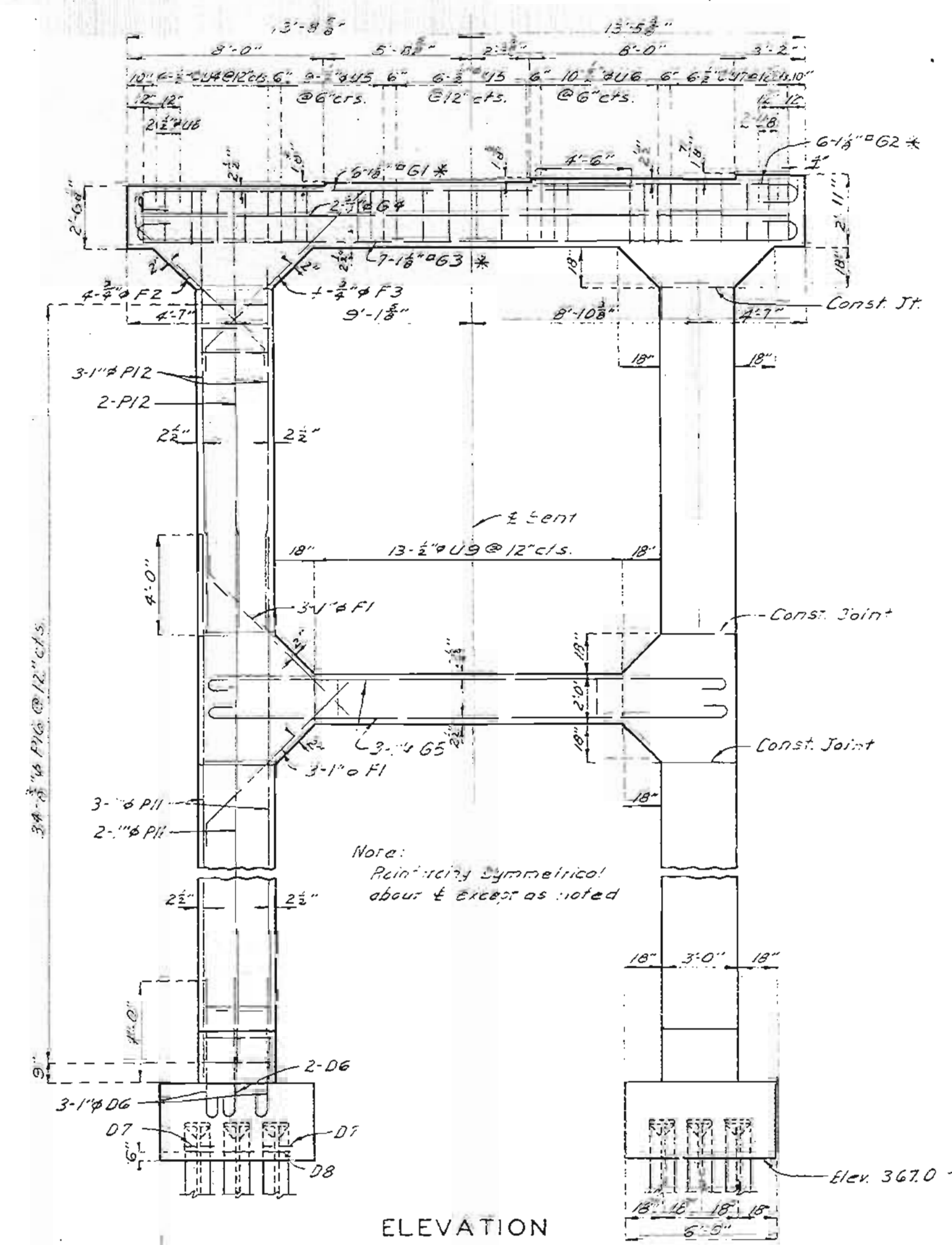
PLAN

DETAILS OF BENT NO. 2



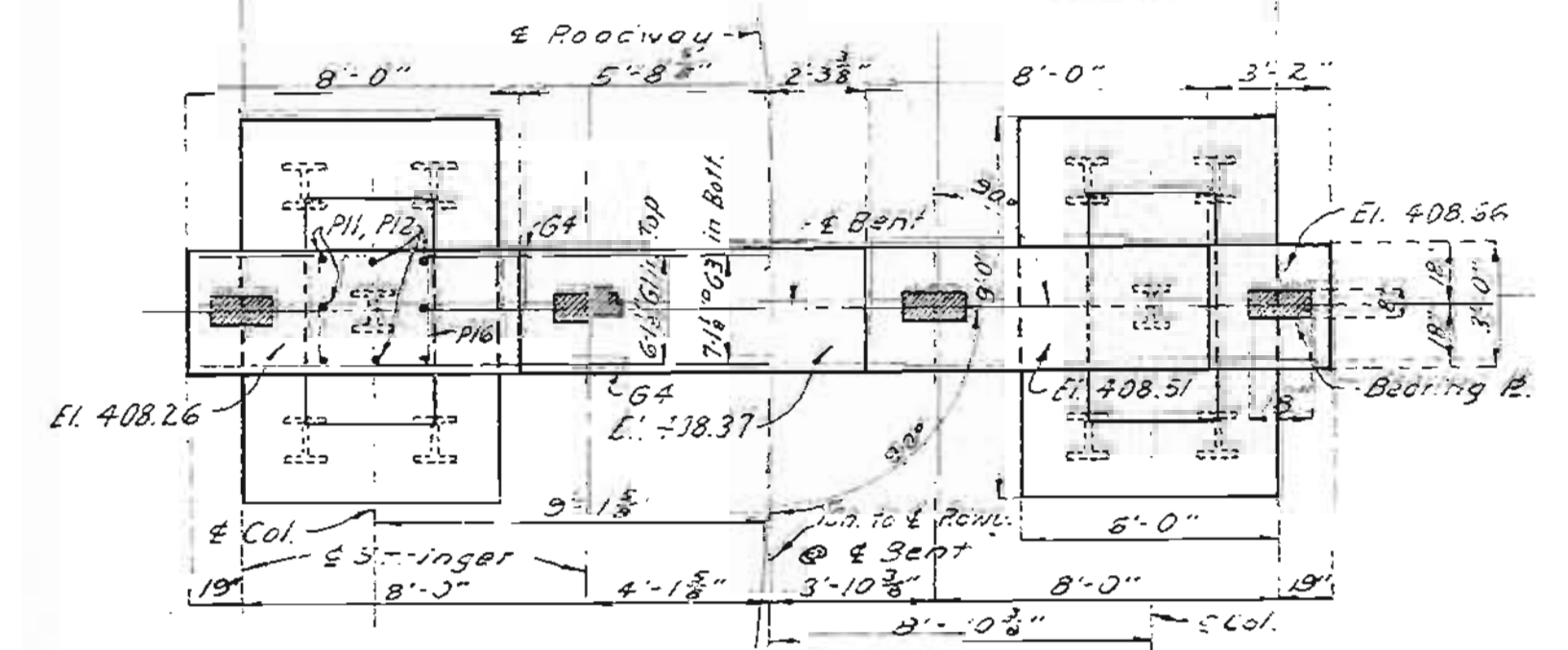
FOOTING REINFORCEMENT  
Used 38' Steel Piles

\* NOTE  
ROUND EQUIV. BARS USED FOR ALL  
1/2" # BARS IN BENTS 2 & 3  
SEE G1, G2 & G3 BARS



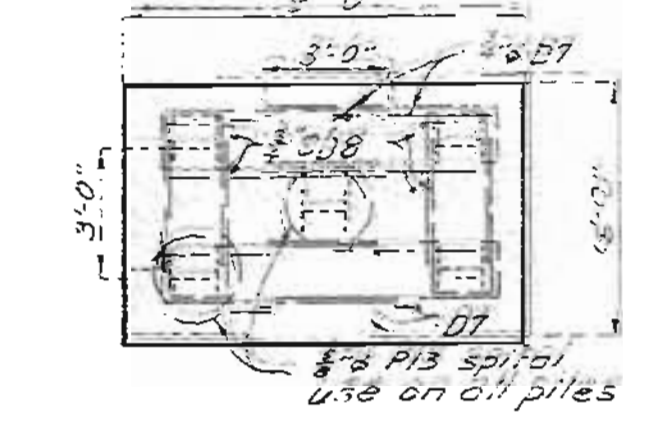
ELEVATION

SECTION AT C



PLAN

DETAILS OF BENT NO. 5



FOOTING REINFORCEMENT  
Used 40' Steel Piles

BRIDGE OVER C. R. I. & P. R. R. AND BIG CREEK

STATE ROAD FROM PLEASANT HILL SOUTH  
AT PLEASANT HILL  
PROJECT NO. FG-741(6) (RT. 7) STA. 85 + 56.65

CASS COUNTY

Designed April 1947 by P.A.C.  
Drawn May 1947 by P.E.S.  
Traced July 1947 by S.G.S.  
Checked Jan 1948 by N.W.R.

Note: This drawing is not to scale. Follow dimensions.

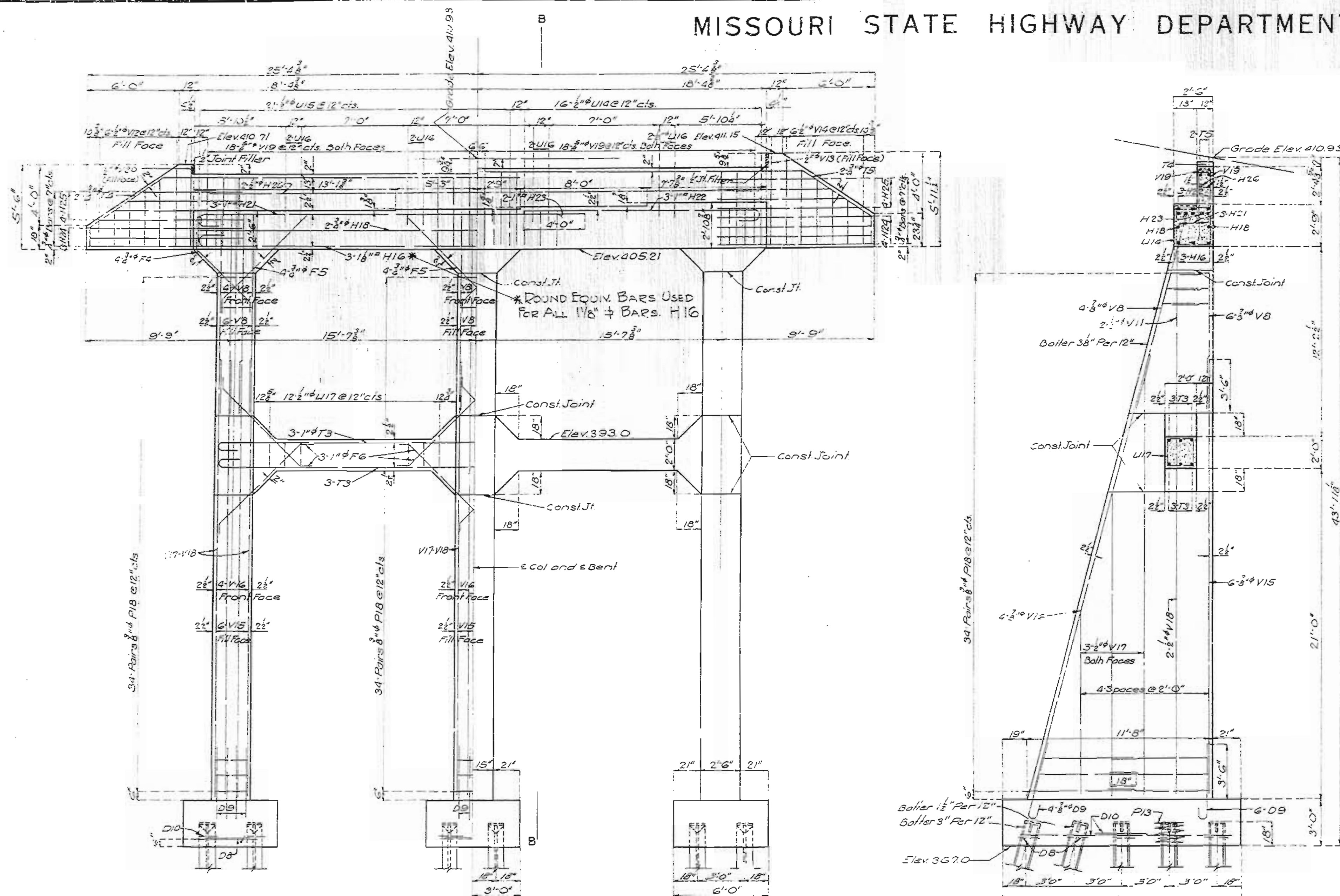
Sheet No. 4A of 5.



MISSOURI STATE HIGHWAY DEPARTMENT

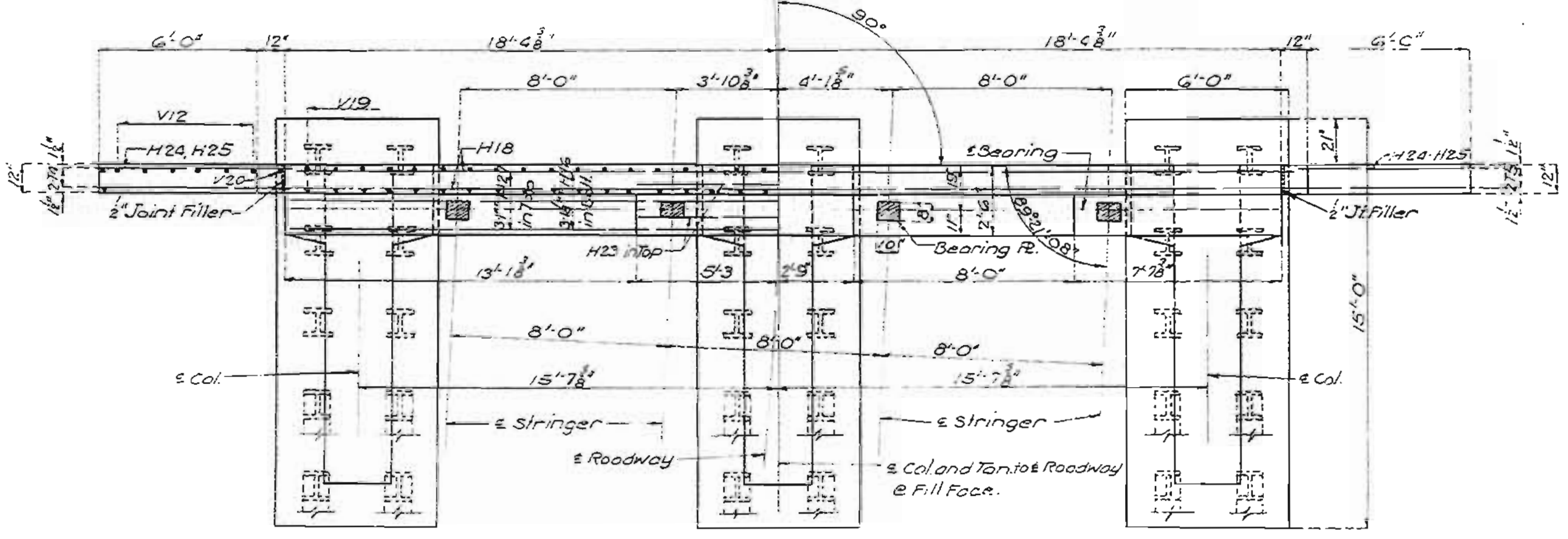
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FG-741(6) (RT. 7)	19		

FINAL PLANS



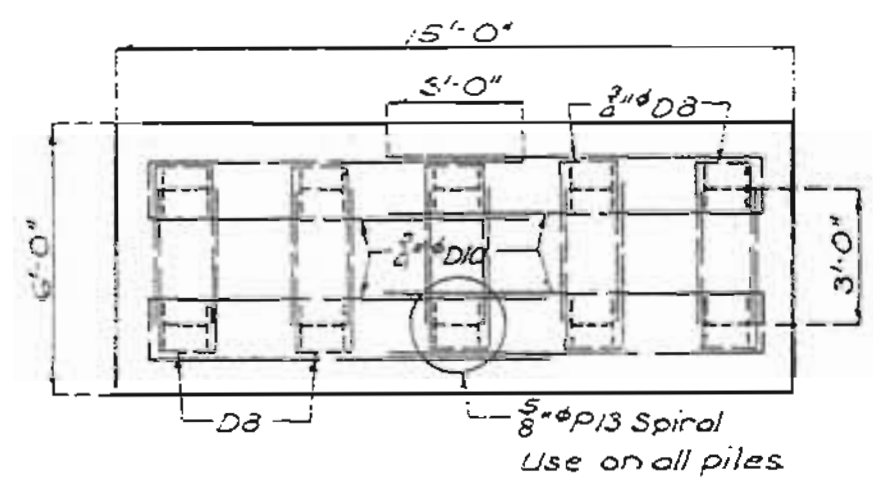
ELEVATION

SECTION B-B



PLAN

DETAILS OF BENT NO. 6



FOOTING REINFORCEMENT  
Used 40' Steel Piles

BRIDGE OVER C.R.I. & P.R.R. AND BIG CREEK

STATE ROAD FROM PLEASANT HILL SOUTH  
 AT PLEASANT HILL  
 PROJECT NO. FG-741(6)(RT. 7) STA. 85+56.65

CASS COUNTY

Designed April 1947 by R.A.C.  
 Drawn May 1947 by R.E.S.  
 Traced June 1947 by K.R.W.  
 Checked Jan 1948 by H.W.R.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. G.A. of 5.

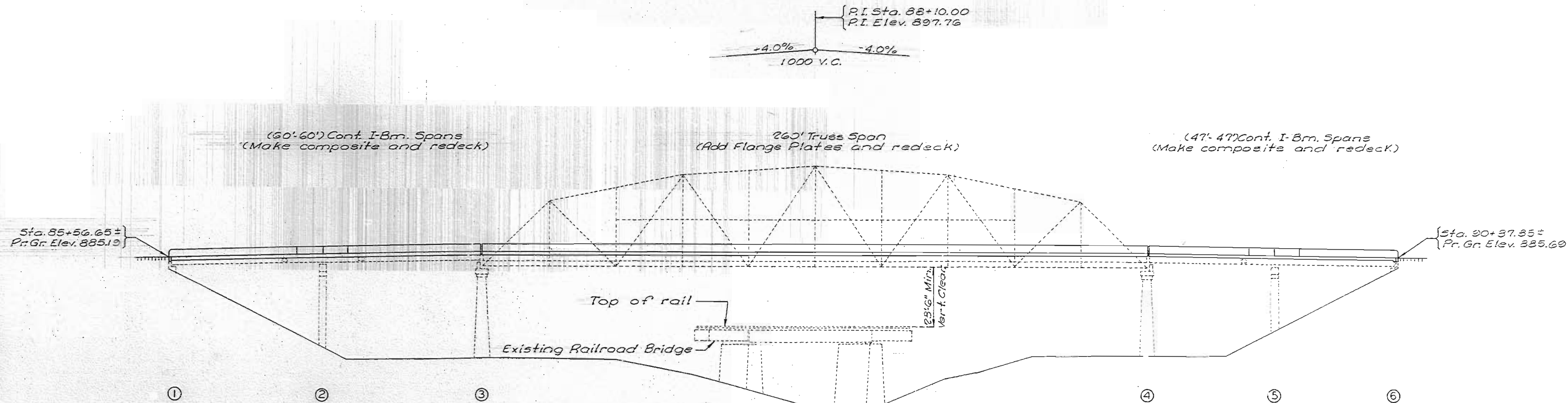
L-23

FINAL PLANS



## MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	14	



Note: Profile Grade and stationing are along & Roadway.

GENERAL DEVELOPED ELEVATION

**GENERAL NOTES:**

Design Specifications (Redecking only):  
A.A.S.H.T.O. - 1977 Load Factor Design

Design Loading:  
H15-44 - 15<sup>sq</sup>/sq. ft. Future Wearing Surface

Design Unit Stresses:  
Class B1 Concrete (substructure) f'c=4,000 psi  
Class B1 Concrete (Safety Barrier Curb) f'c 4,000 psi  
Class B2 Concrete (Superstructure except Safety Barrier Curb) f'c 4,000 psi  
Reinforcing Steel (Grade 60) fy=60,000 psi  
Structural Carbon Steel fy=36,000 psi  
Fabricated Structural Carbon Steel:  
Field connections, High Strength Bolts 3/4" φ, holes 1 1/16" φ except as noted.

Paint:  
Paint, System C, see Special Provisions.

Construction Clearance:  
A minimum vertical clearance of 23 1/16" from top of rails shall be maintained during construction.

Reinforcing Steel:  
Minimum clearance to reinforcing steel shall be 1 1/2" unless otherwise shown.

Existing Work:  
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Bars banded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars.

ESTIMATED QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq. Ft.	13,825	13,825
Non-Destructive Testing	Lin. Ft.	37	37
Class B1 Concrete	Cu. Yd.	1	80.8
Class B2 Concrete	Cu. Yd.	344.1	344.1
Elastomeric Expansion Joint Seal (4.0 inches)	Lin. Ft.	26	26
Preformed Compression Expansion Joint Seal (2.5 inches)	Lin. Ft.	26	26
Reinforcing Steel (Grade 60)	Lb.	40,280	40,280
Reinforcing Steel (Epoxy Coated)	Lb.	70,440	70,440
Fabricated Structural Carbon Steel	Lb.	2,610	2,610
Special Work	Lump Sum	1	1
Painting (System C) Green (See Special Provisions)	Lump Sum	1	1

Note: Cost of any required excavation for bridge shall be included in contract unit price for other items.  
For removal of existing drainage system see Special Provisions.  
Cost of furnishing and installing slab drains shall be included in the contract price bid for other items.

**LONGITUDINAL DIMENSIONS:**

Longitudinal dimensions are based on dimensions shown on original design plans.

**HORIZONTAL CURVE DATA:**

P.I. Sta. 92+37.7  
Δ = 26°-22' Lt.  
D = 1°-20'  
T = 1006.6'  
L = 1977.5'  
R = 4297.28  
S.E. = .01671 ft.

B.M. Elev. 885.20 N.W. Cor. Rt. Wing @ Sta. 85+56.65 (U.S.G.S. Datum)

BRIDGE OVER ST LOUIS SOUTH WESTERN RAILWAY CO. & BIG CREEK  
STATE ROAD FROM PLEASANT HILL TO HARRISONVILLE  
ABOUT 0.75 MILES SOUTH OF PLEASANT HILL

PROJECT NO. BHS-455(14) STA. 85+56.65±

JOB NO. 4-S-7-332

CASS

RTE. 7

COUNTY

STD.
STD. 706.30
L-23R

DESIGNED JUNE 1980  
DETAILED AUG 1980  
CHECKED SEPT. 1980

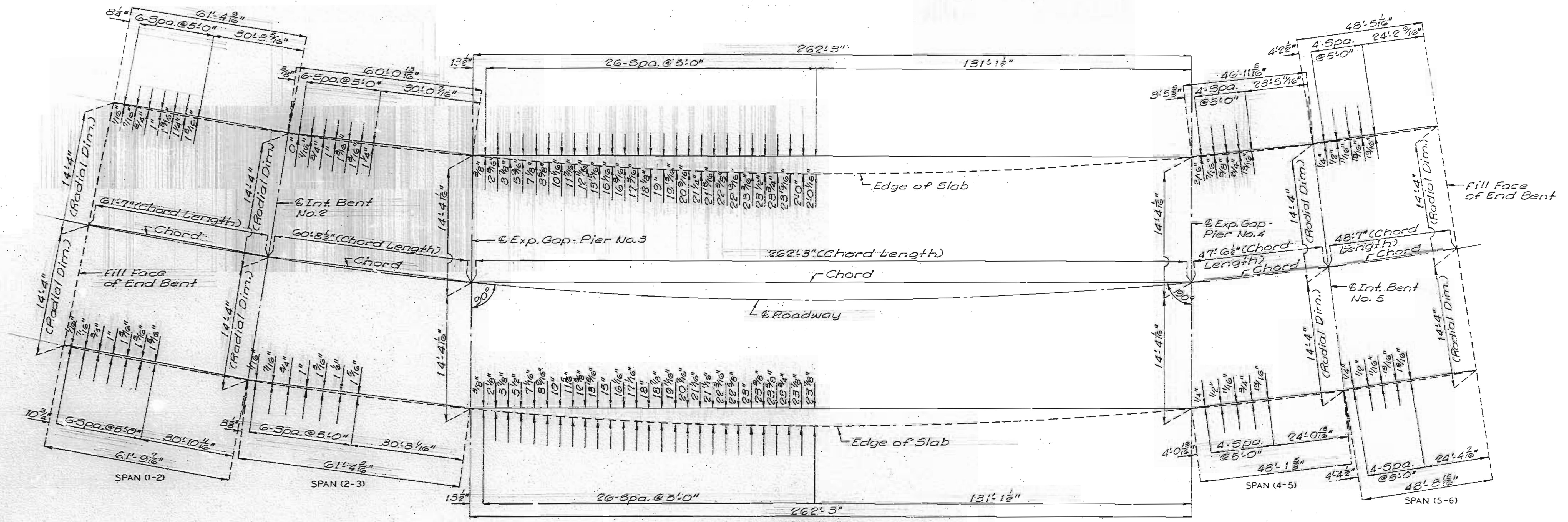
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 11.

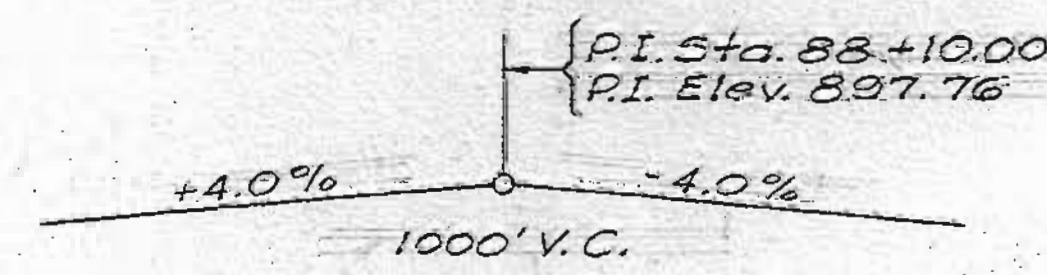
SEE FINAL PLAN

DATE 12/15/83

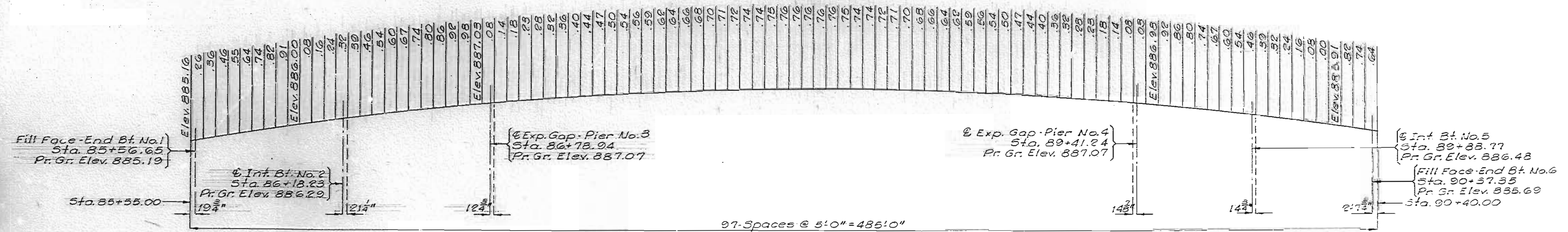
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MD.		19	15	



PLAN OF SLAB SHOWING CURB ORDINATES



Note: Dimensions shown are horizontal. Dimensions are based on dimensions shown on original design plans.



PROFILE GRADE ELEVATIONS AT ROADWAY

DETAILED JULIE 1980  
CHECKED AUG. 1980

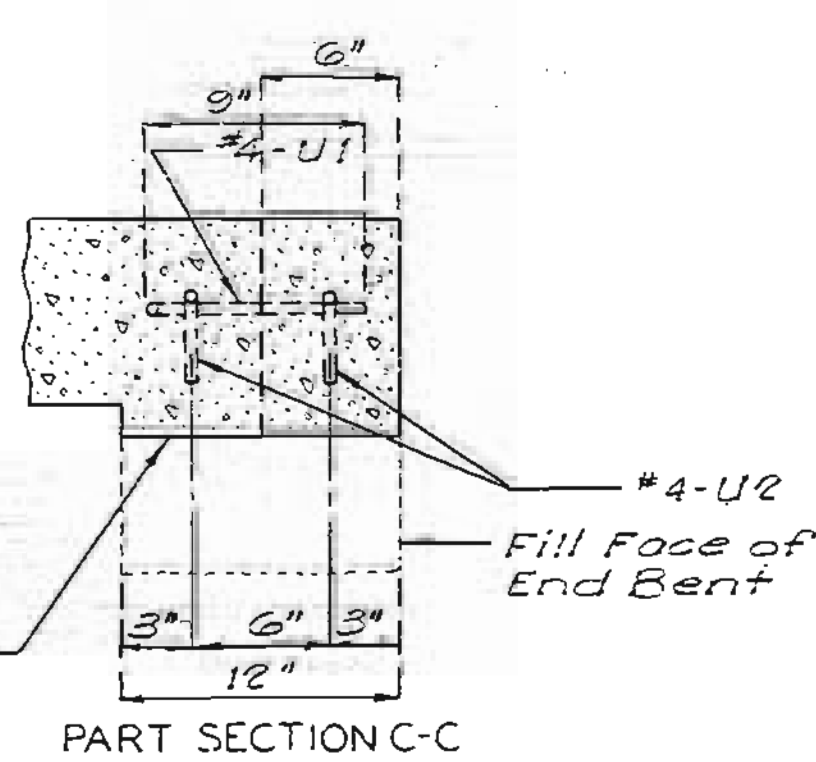
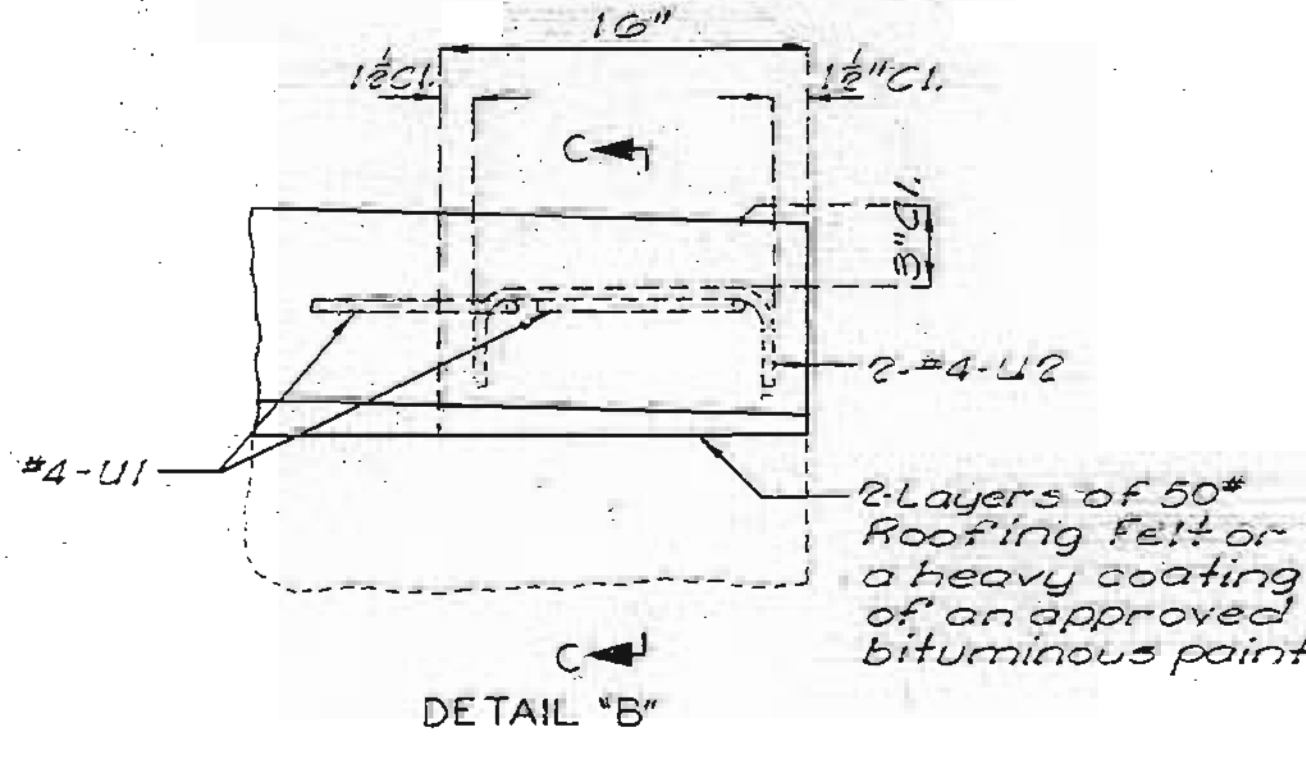
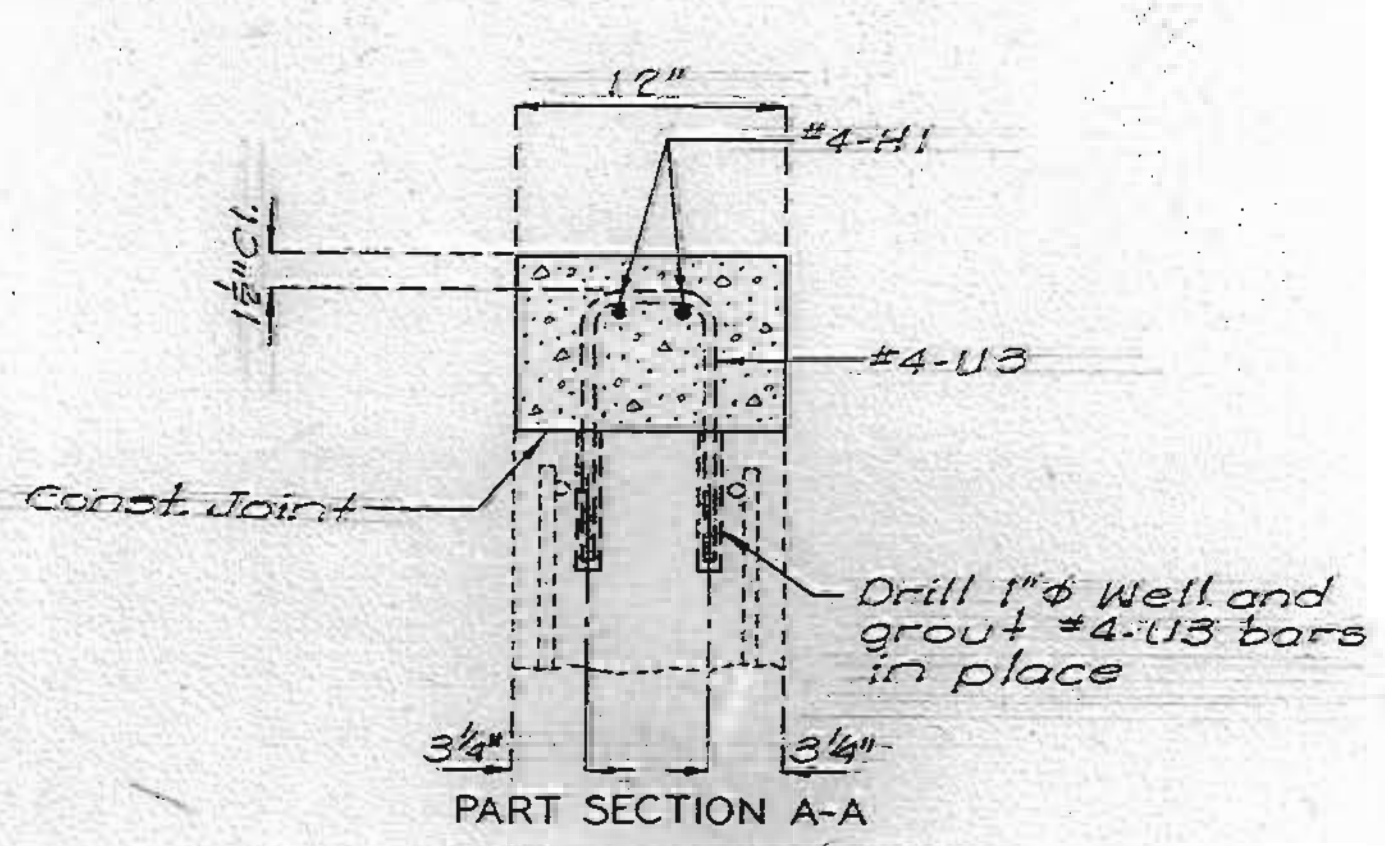
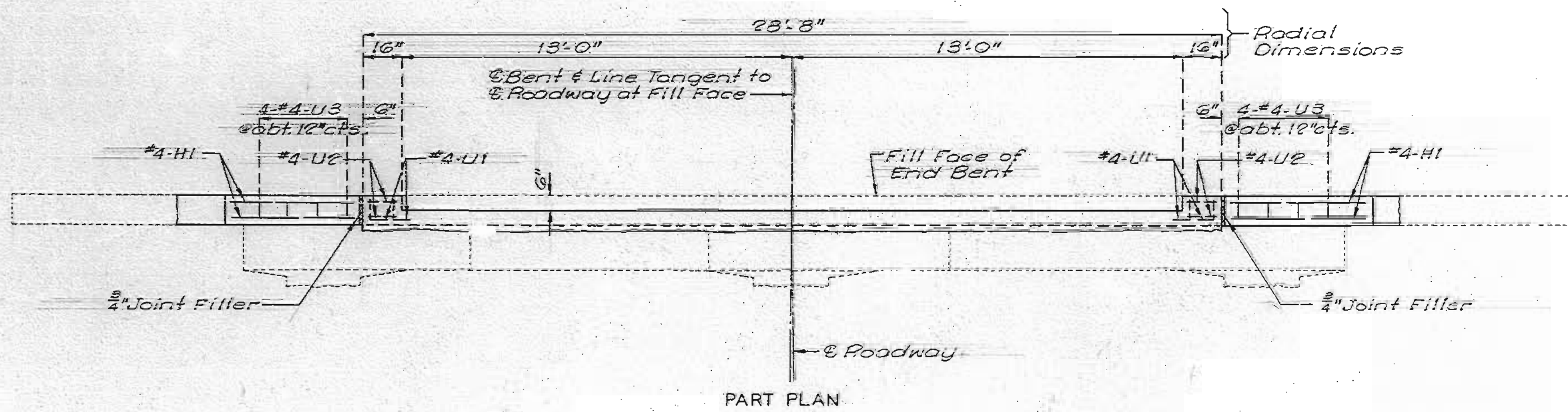
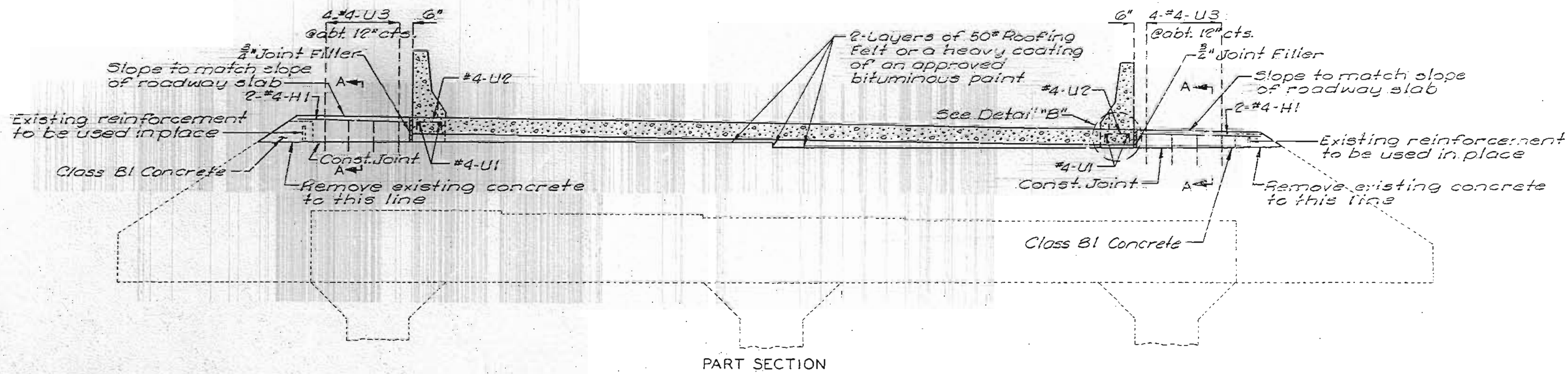
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 11.

CASS COUNTY

L-23R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	16	



DETAILS AT END BENTS  
(END BENT NO.1 SHOWN-END BENT NO.6 SIMILAR)

DETAILED JUNE 1980  
CHECKED AUG. 1980

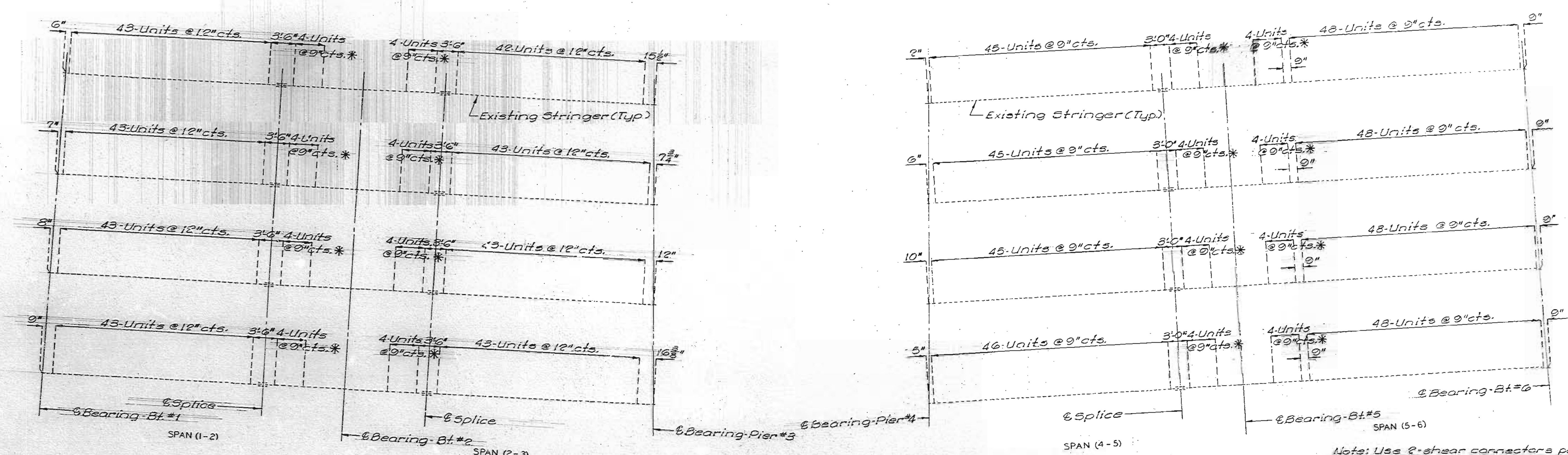
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 11

CASS COUNTY

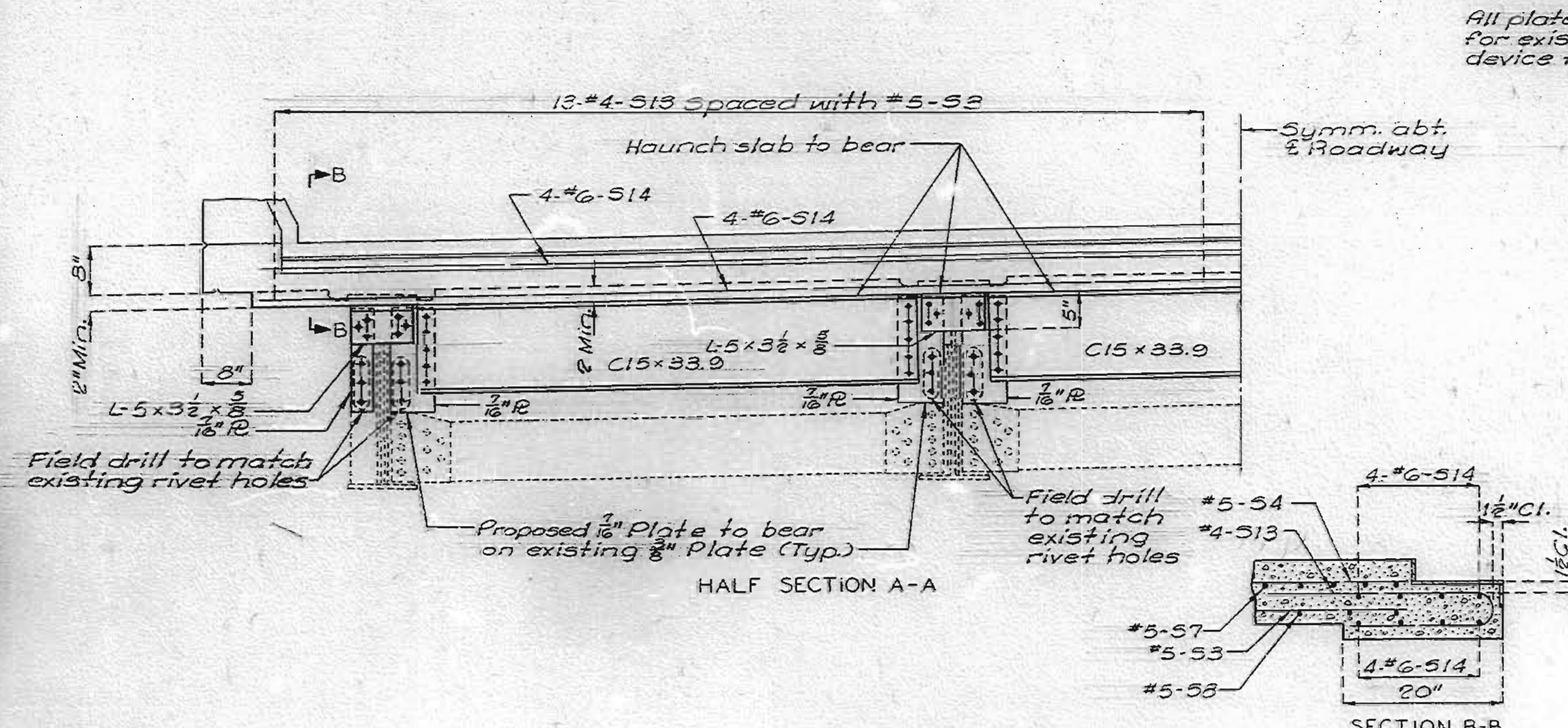
L-23R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	

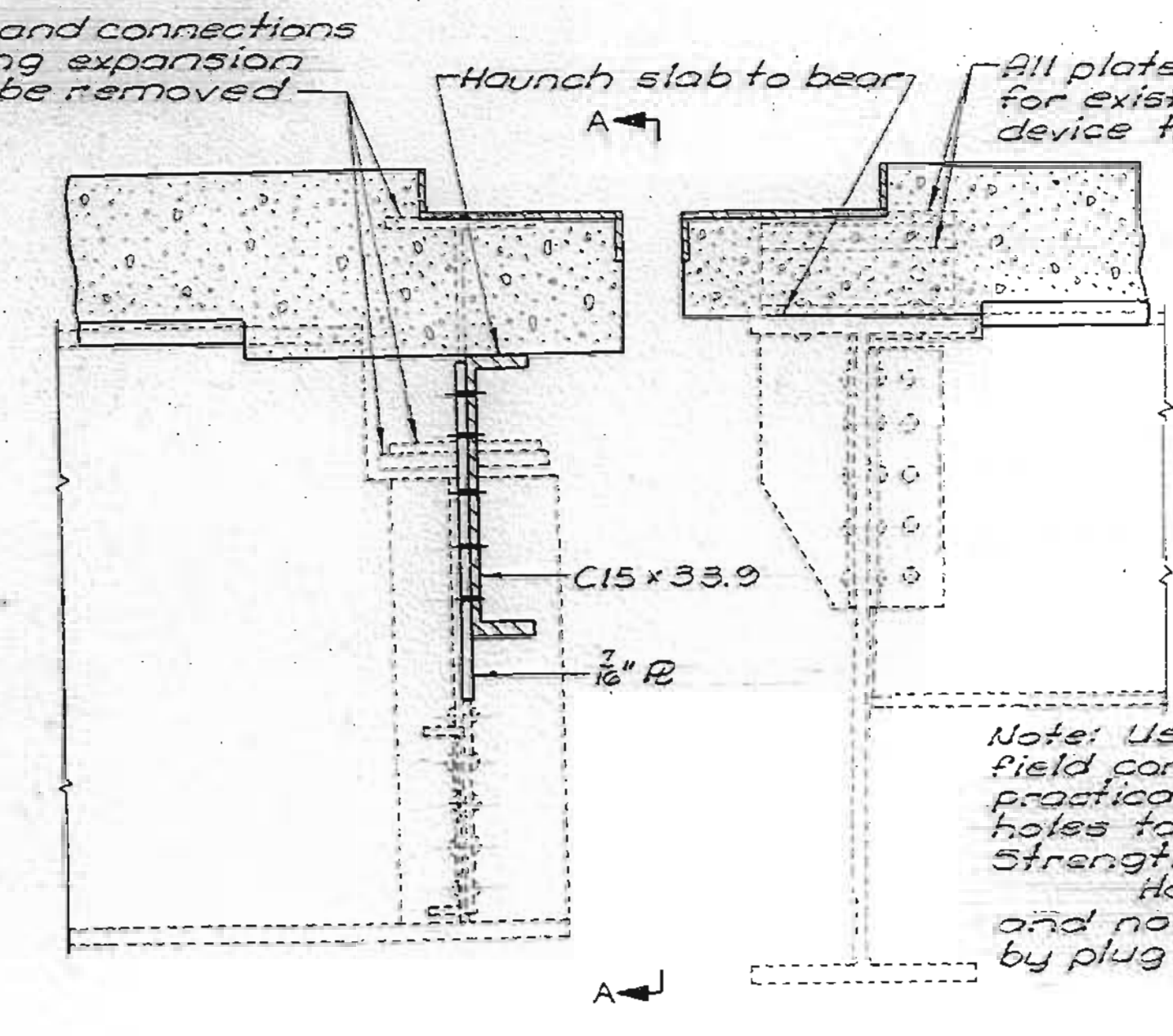


PART PLAN OF STRUCTURAL STEEL SHOWING SHEAR CONNECTOR SPACING

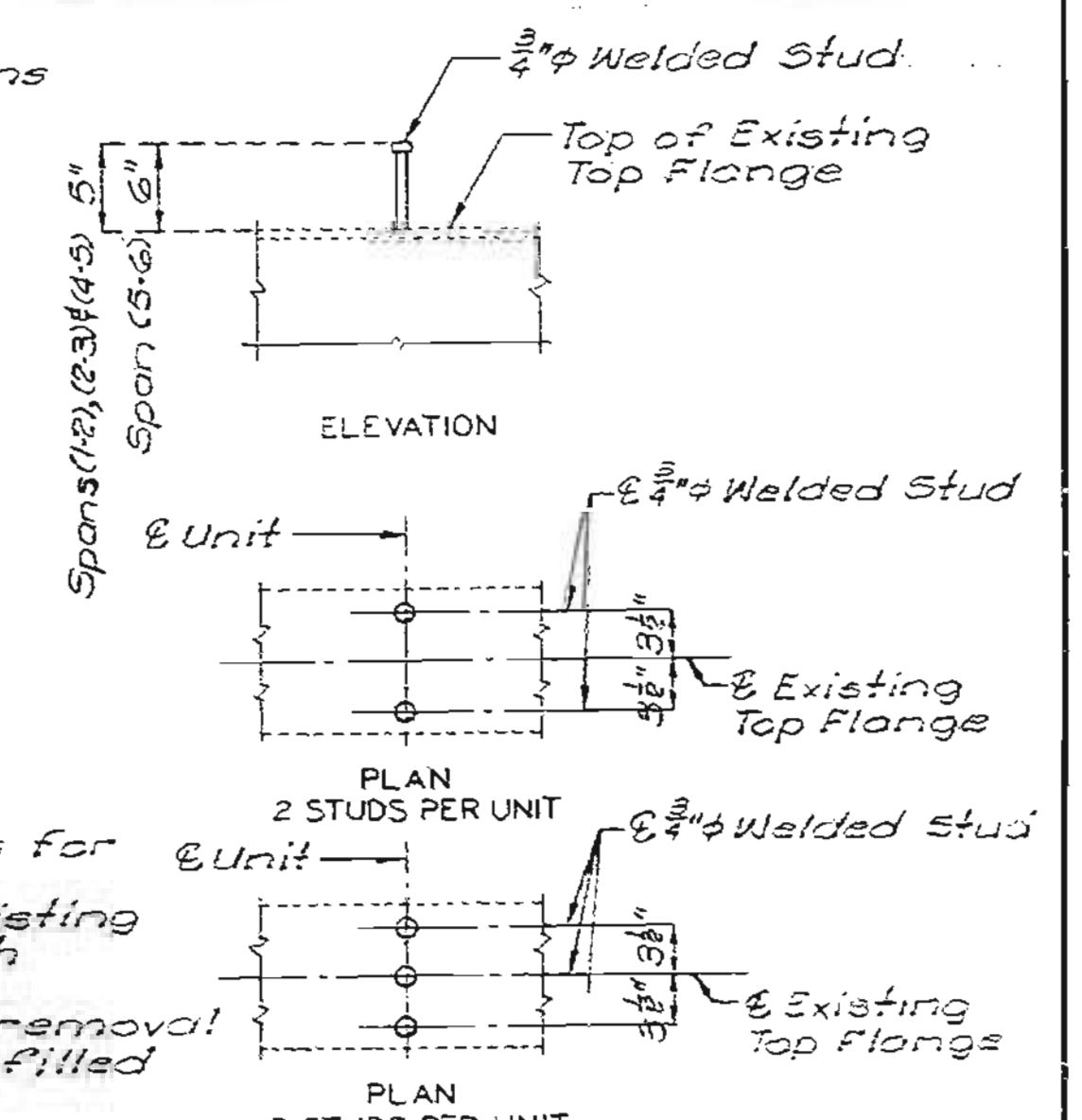
Note: Use 2 shear connectors per unit except as noted.  
 Shear connectors to be 5" x 3/4" except Span (5-6) use 6" x 3/4" shear connectors.  
 \* indicates 3 shear connectors per unit.



DETAILS FOR WF BEAM SPANS



PART LONGITUDINAL SECTION AT PIER NO. 3



Note: Use existing holes for field connections where practical. Field ream existing holes to 1 1/8" for 3/4" High Strength Bolts.  
 Holes created by removal and not used shall be filled by plug welding.

DETAILED MAY 1930  
 CHECKED SEPT. 1930

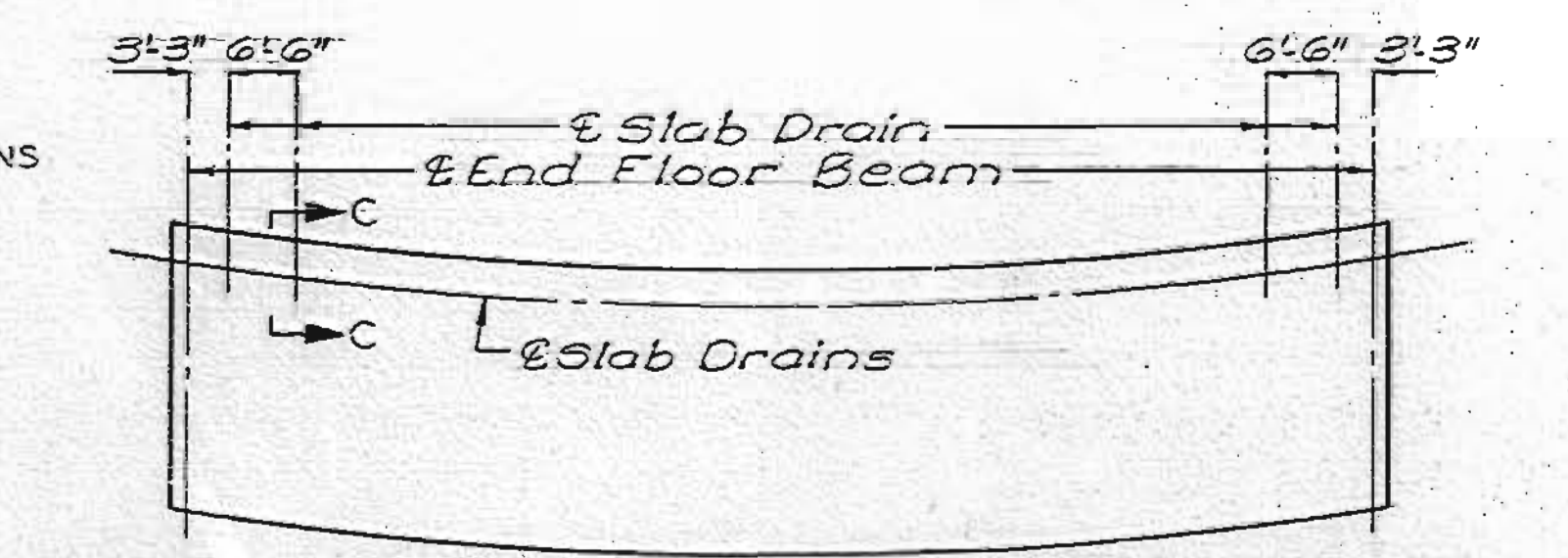
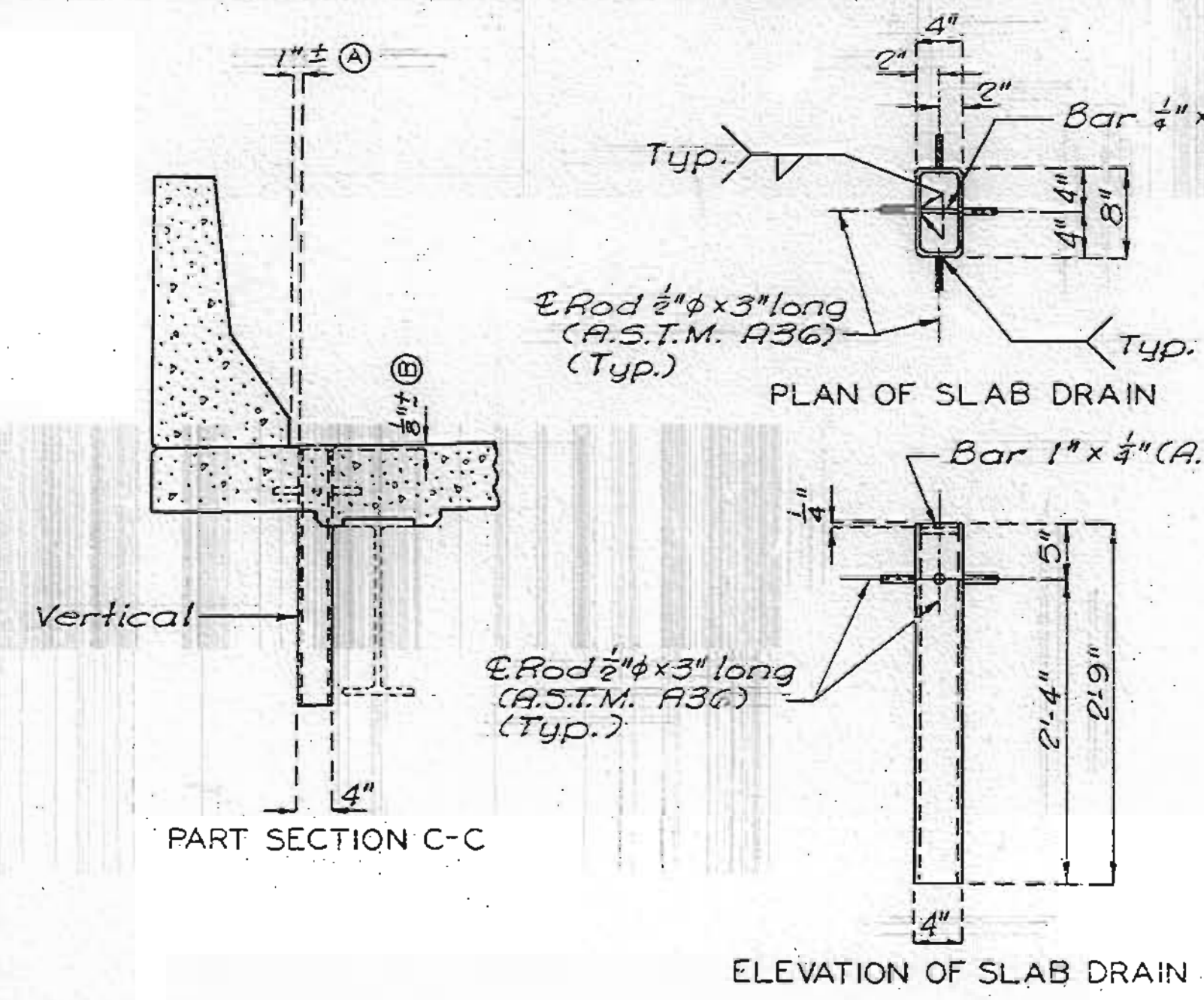
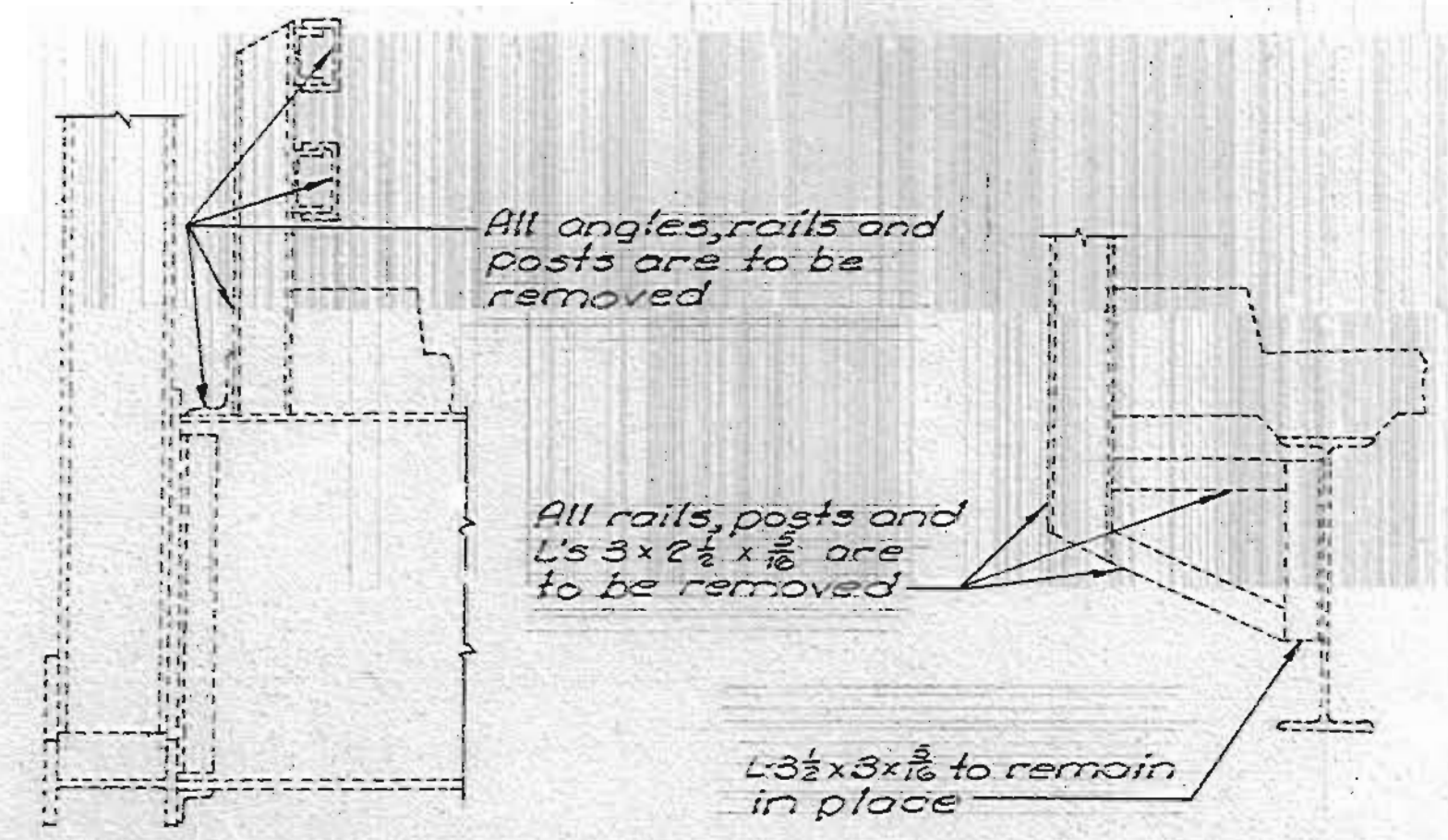
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 11.

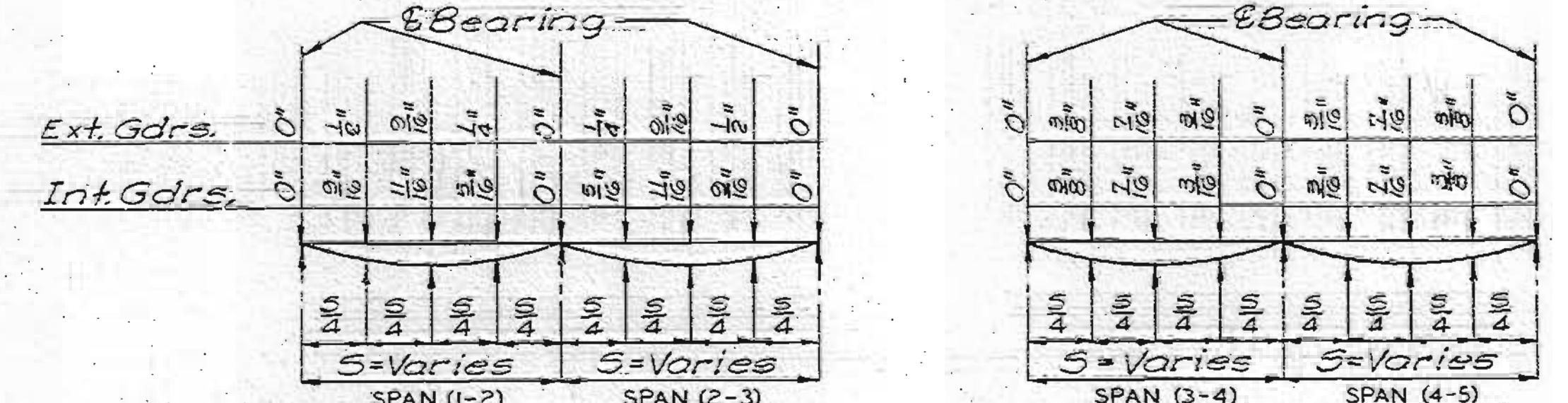
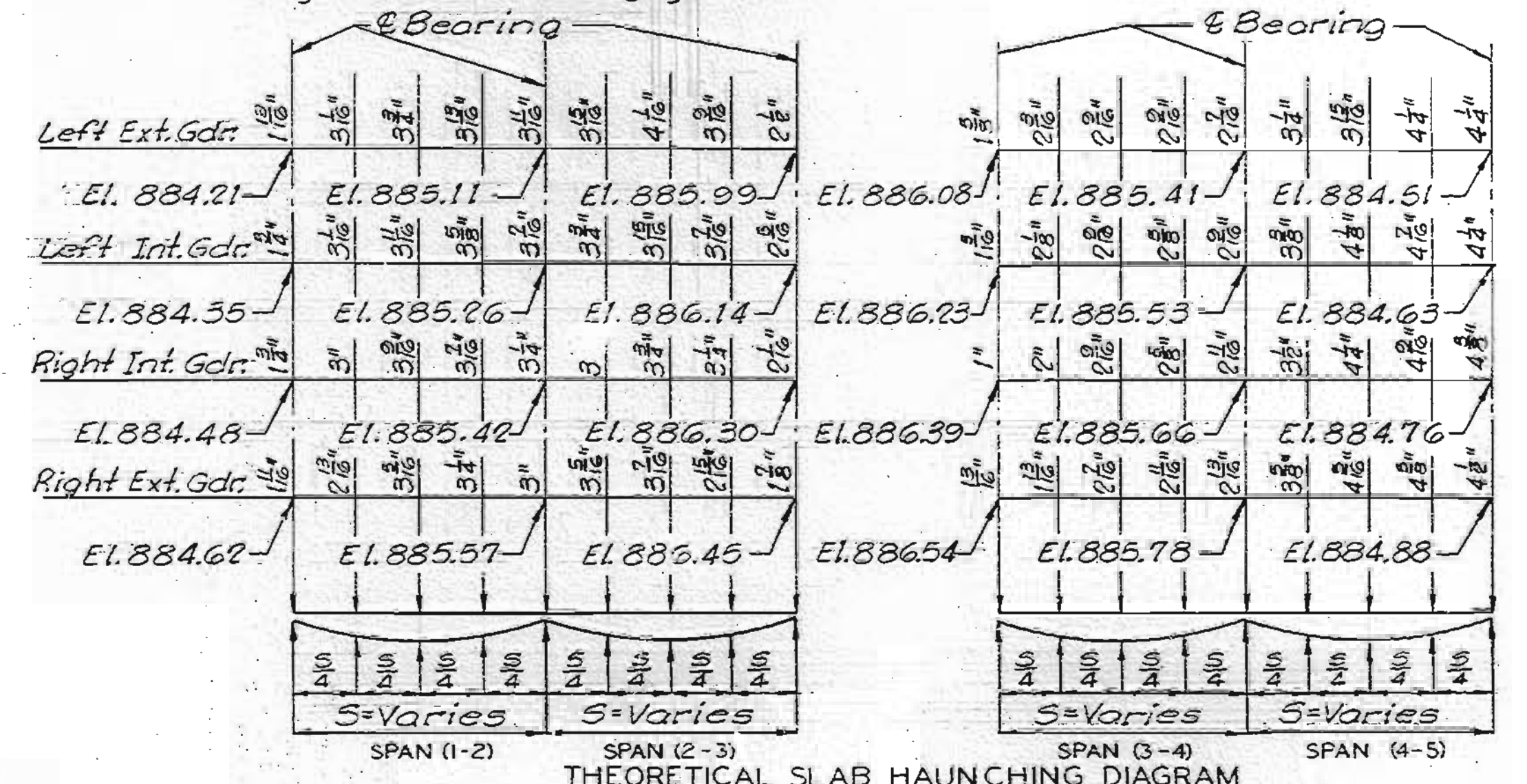
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		13	18	

Note: Slab drains may be fabricated of either 1/4" Welded Sheets of A.S.T.M. A36 steel, from 1/4" Structural Steel Tubing A.S.T.M. A500 or A501 or from A120 pipe schedule 40 with a minimum wall thickness of 0.322".  
The Drains shall be galvanized in accordance with A.S.T.M. A123.  
Outside dimensions of Drains are 8" x 4".  
Shop drawings will not be required for Slab Drains.

Note: The elevations shown in the Theoretical Slab Haunching Diagram are of the bottom of the top flange of the WF beam, these elevations were used for calculating the slab haunches. If the actual elevations or deflections differ from those shown the slab haunches are to be adjusted accordingly.

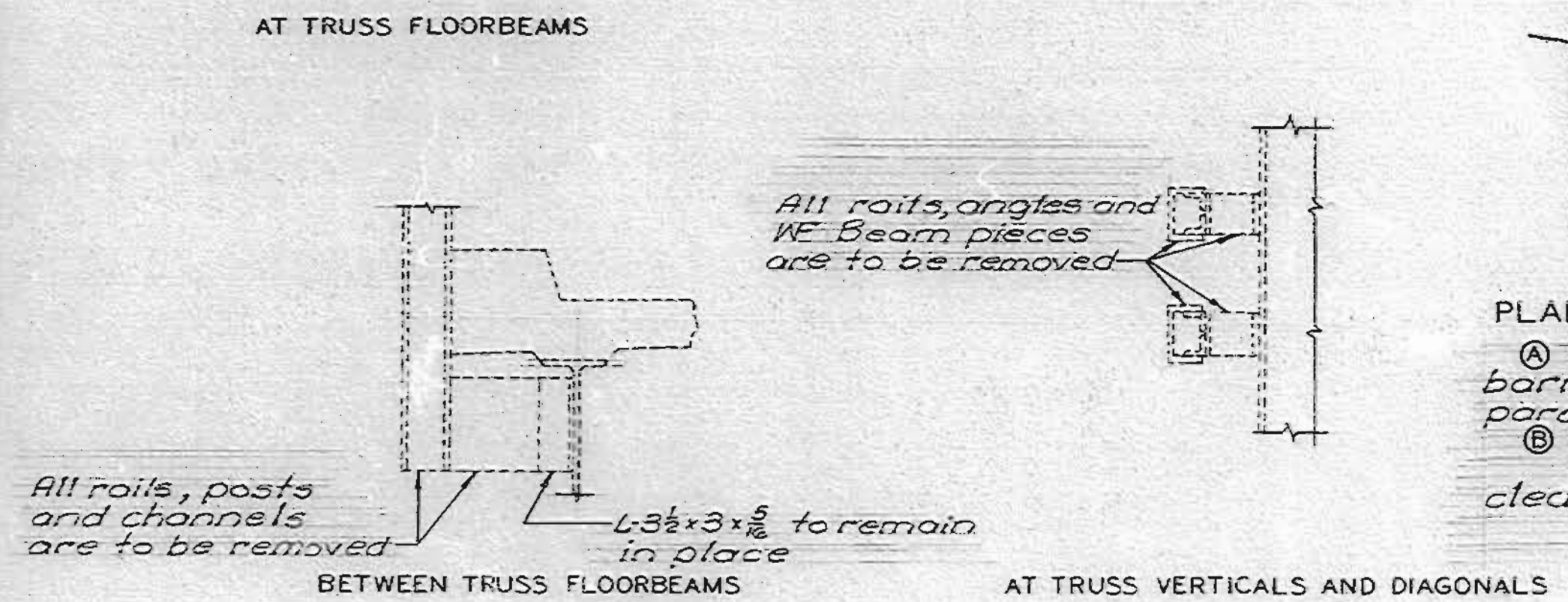


PLAN OF SLAB SPAN (3-4)-SHOWING LOCATION OF SLAB DRAINS  
 (A) Place slab drains 1"± from roadway face of barrier curb. Slab drains to be placed approximately parallel to roadway face of barrier curb.  
 (B) Recess slab drains 1/8"± below roadway surface. Shift reinforcing in field where necessary to clear drains.

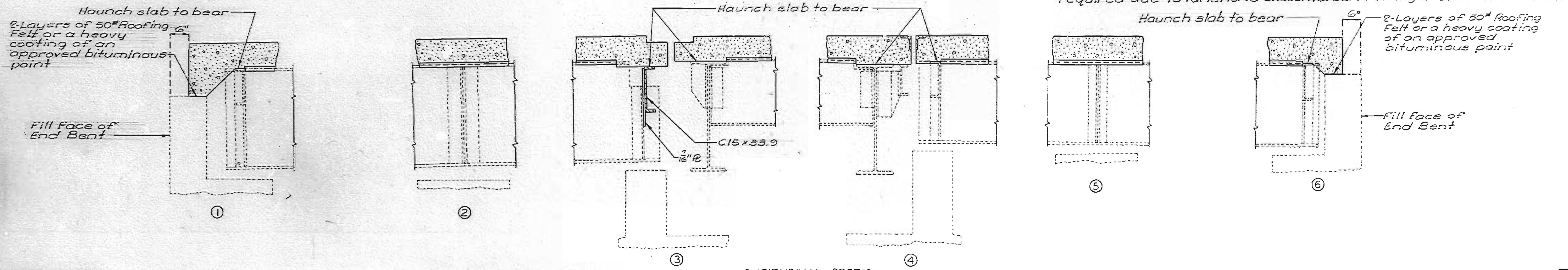


Note: 14.2% of dead load deflection is due to the weight of the structural steel.  
 Note: 11.3% of dead load deflection is due to the weight of the structural steel.

Note: No direct payment will be made for any additional labor or materials required due to variations encountered in stringer elevations or deflections.



DETAILS FOR REMOVAL OF EXISTING GUARD RAIL



LONGITUDINAL SECTION

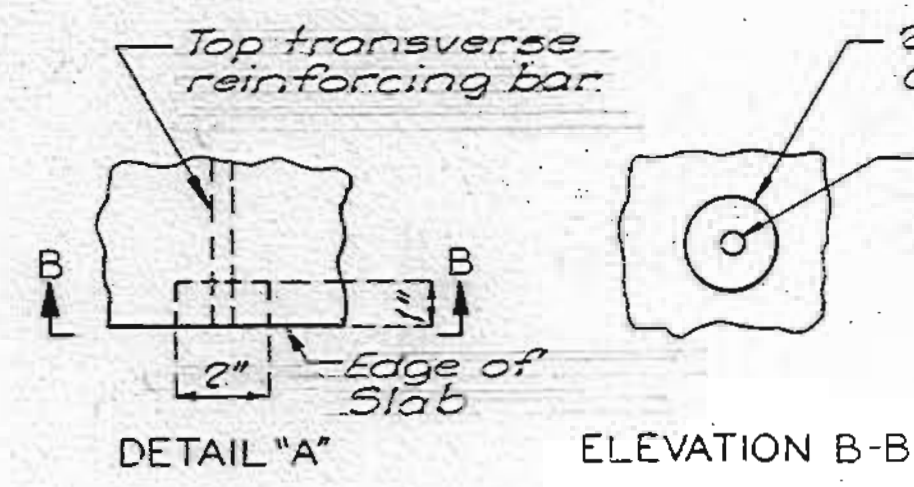
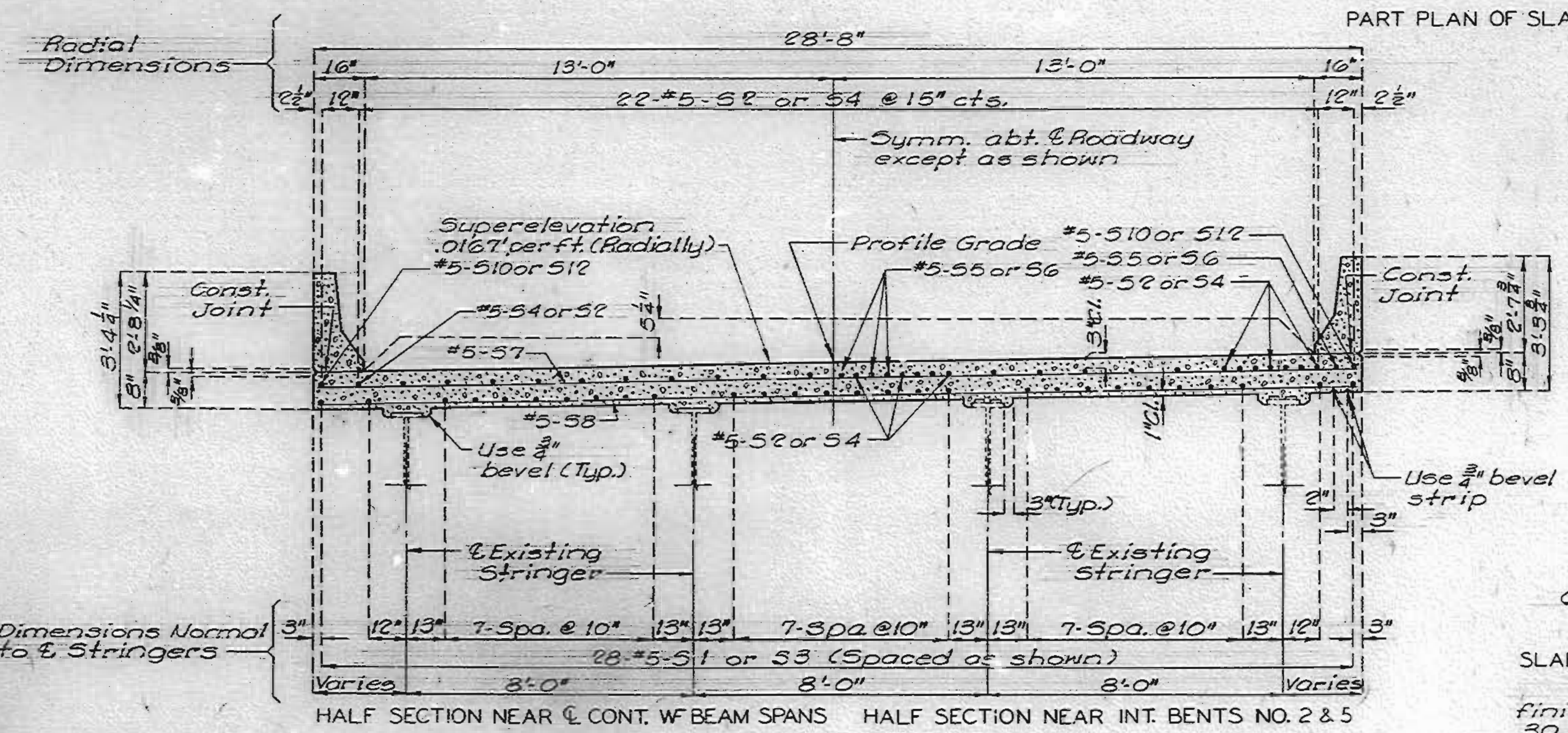
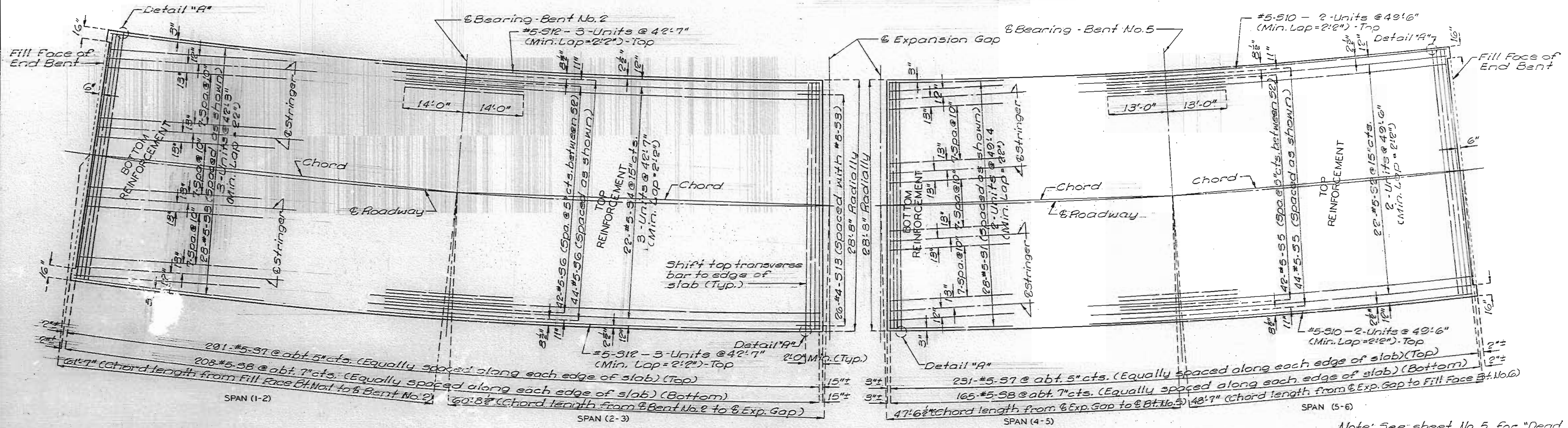
DETAILED JUNE 1980  
 CHECKED SEPT. 1980

Note: This drawing is not to scale. Follow dimensions.

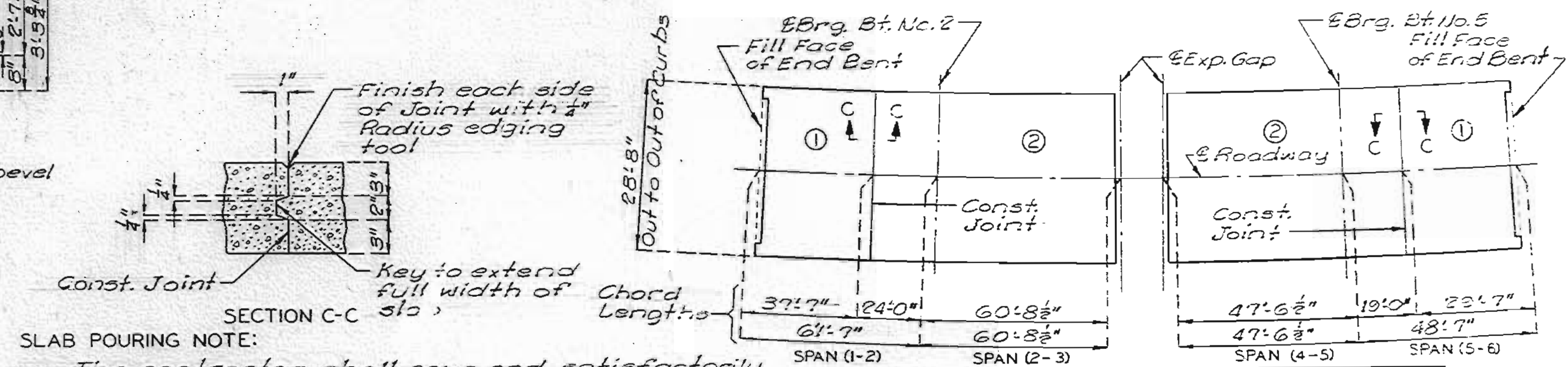
Sheet No. 5 of 11.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	19	

Note: Longitudinal Reinforcing Steel shall be placed so that ends are not more than 1"± from vertical leg of angle or vertical plate of Expansion Device.

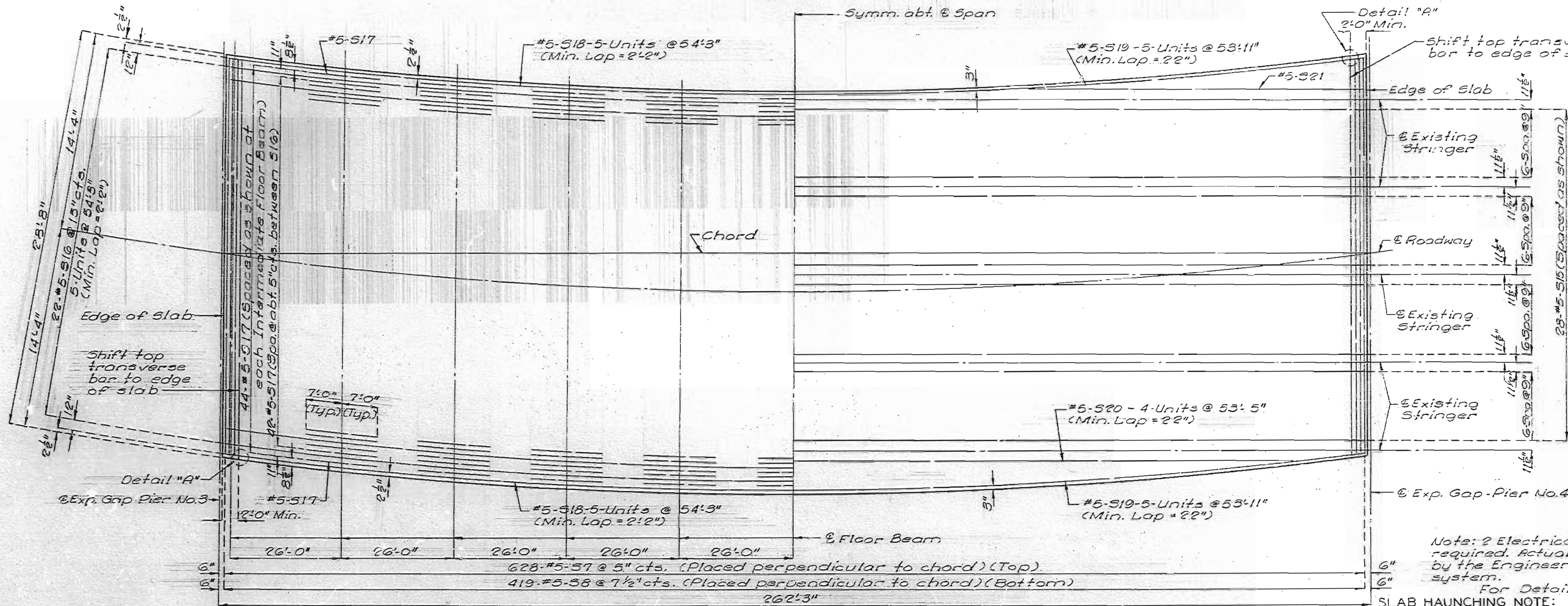


Note: See sheet No. 5 for "Dead Load Deflection Diagram" and "Theoretical Slob Haunching Diagram".  
 Note: 4 Electrical Lead Connections are required. Actual location to be designated by the Engineer as part of the test system.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	20	

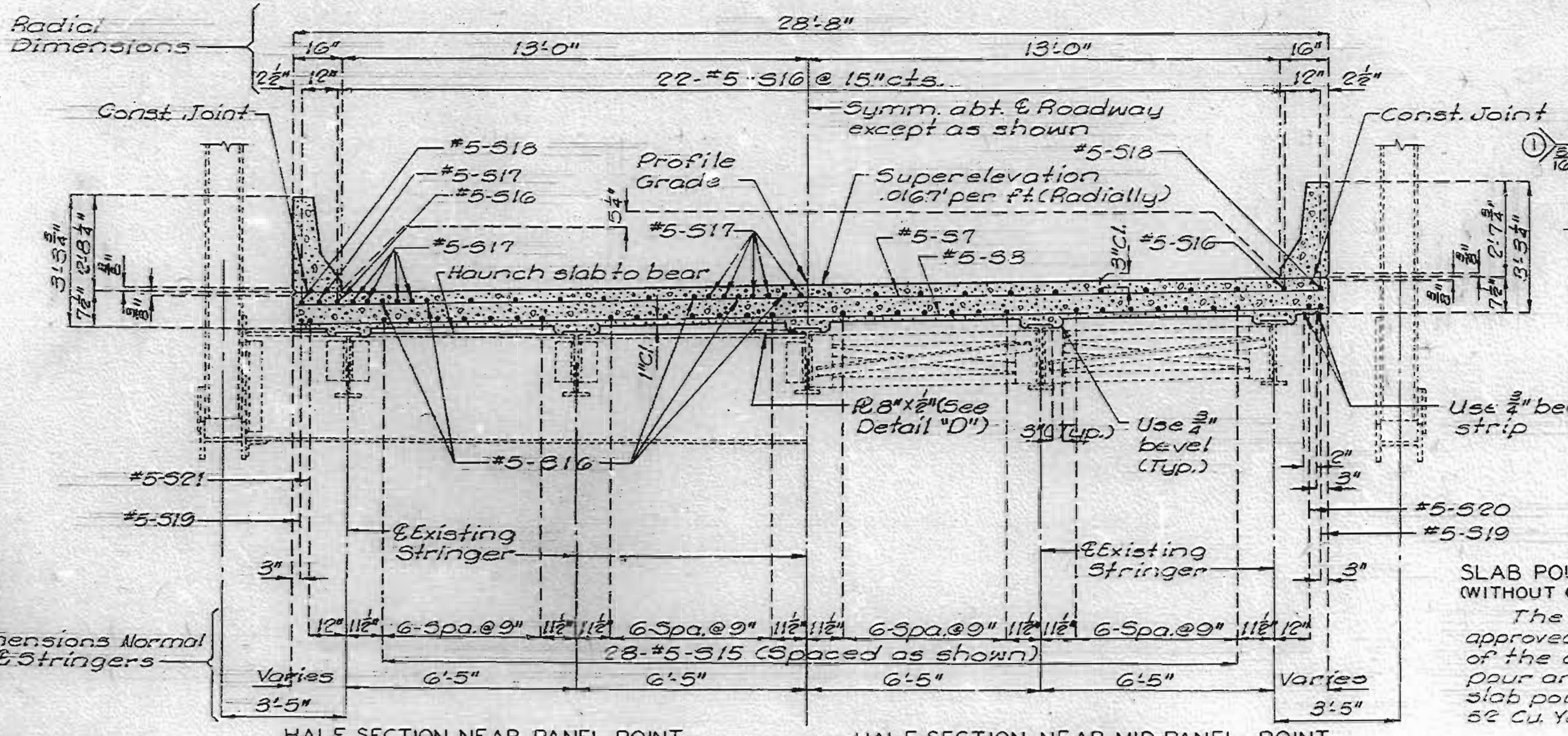
Note: For details and location of slab drains in span (3-4) see sheet No. 5.



HALF PLAN OF SLAB SHOWING TOP REINFORCEMENT  
 PLAN OF SLAB FOR TRUSS SPAN-SPAN (3-4)  
 HALF PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

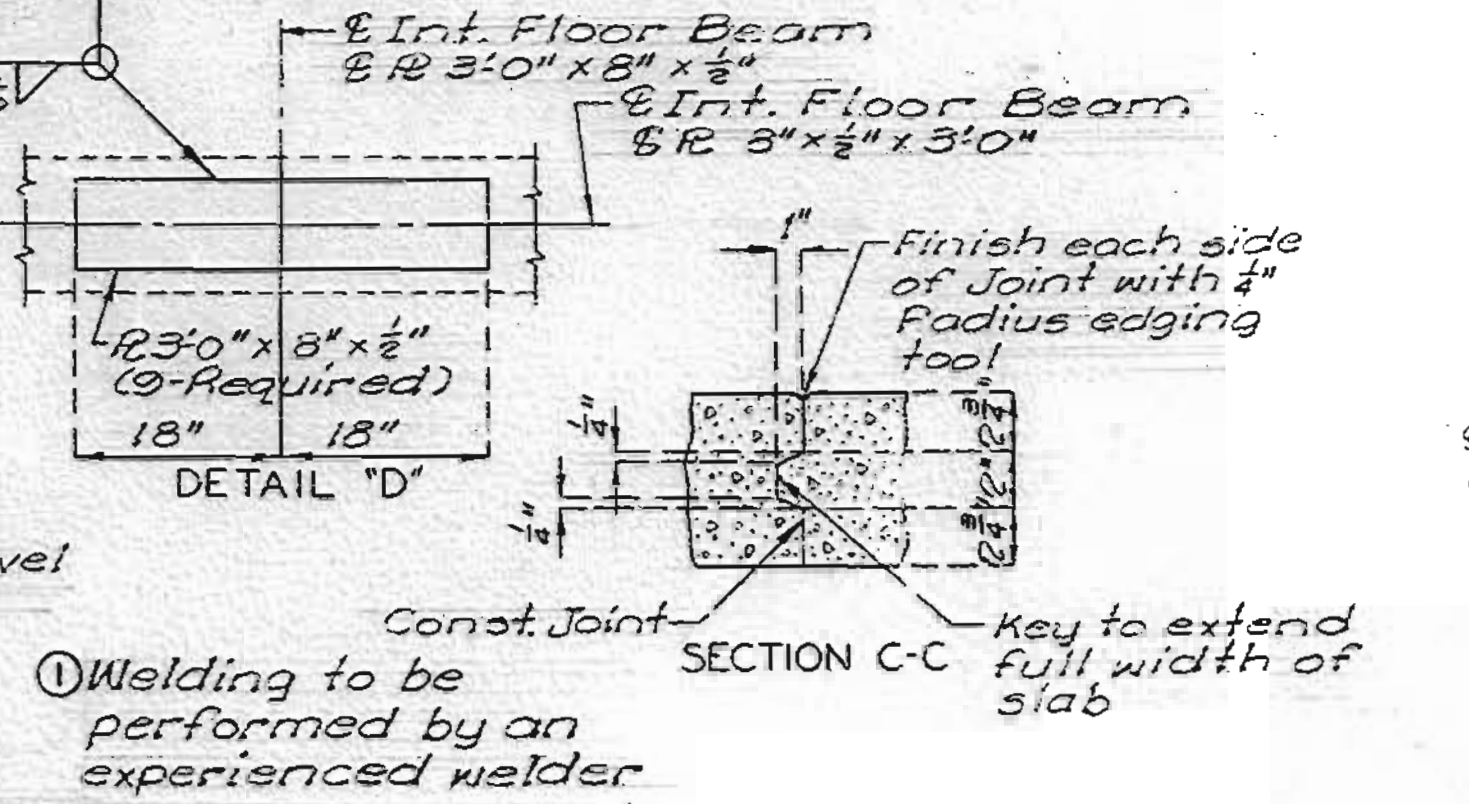
Note: 2 Electrical Lead Connections are required. Actual location to be designated by the Engineer as part of the test system.  
 For Detail "A" see sheet No. 6.

SLAB HAUNCHING NOTE:  
 The slab on the truss span shall be built to grade and to a uniform thickness of 7 1/2". The slab shall be haunched to compensate for a maximum dead load deflection of 1/16" in the stringers and 1/16" in the floor beam, slope due to superelevation and vertical curve.



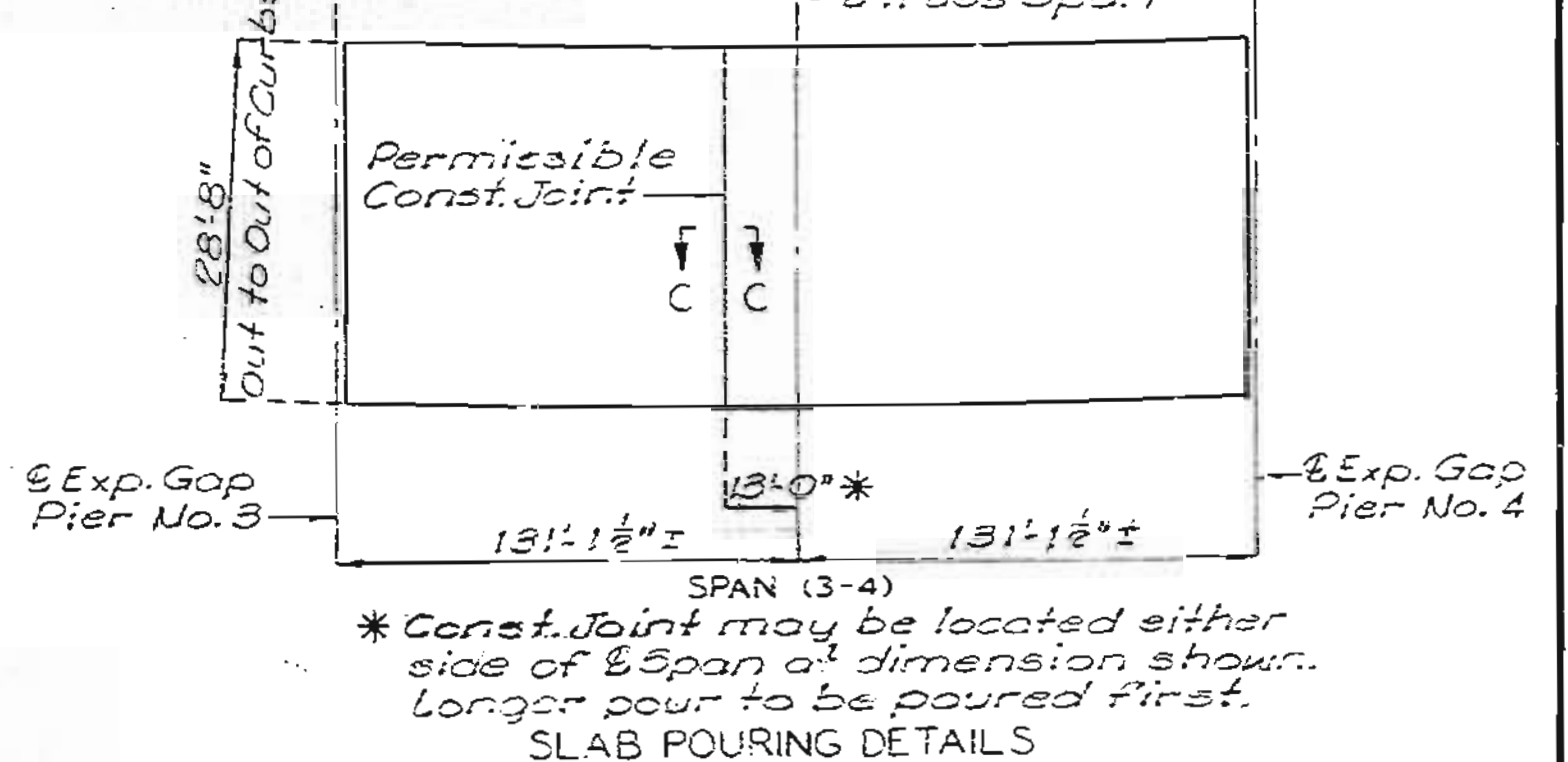
HALF SECTION NEAR PANEL POINT  
 HALF SECTION NEAR MID-PANEL POINT

Note: Longitudinal Reinforcing Steel shall be placed so that ends are not more than 1" from vertical leg of angle or vertical plate at Expansion Device.



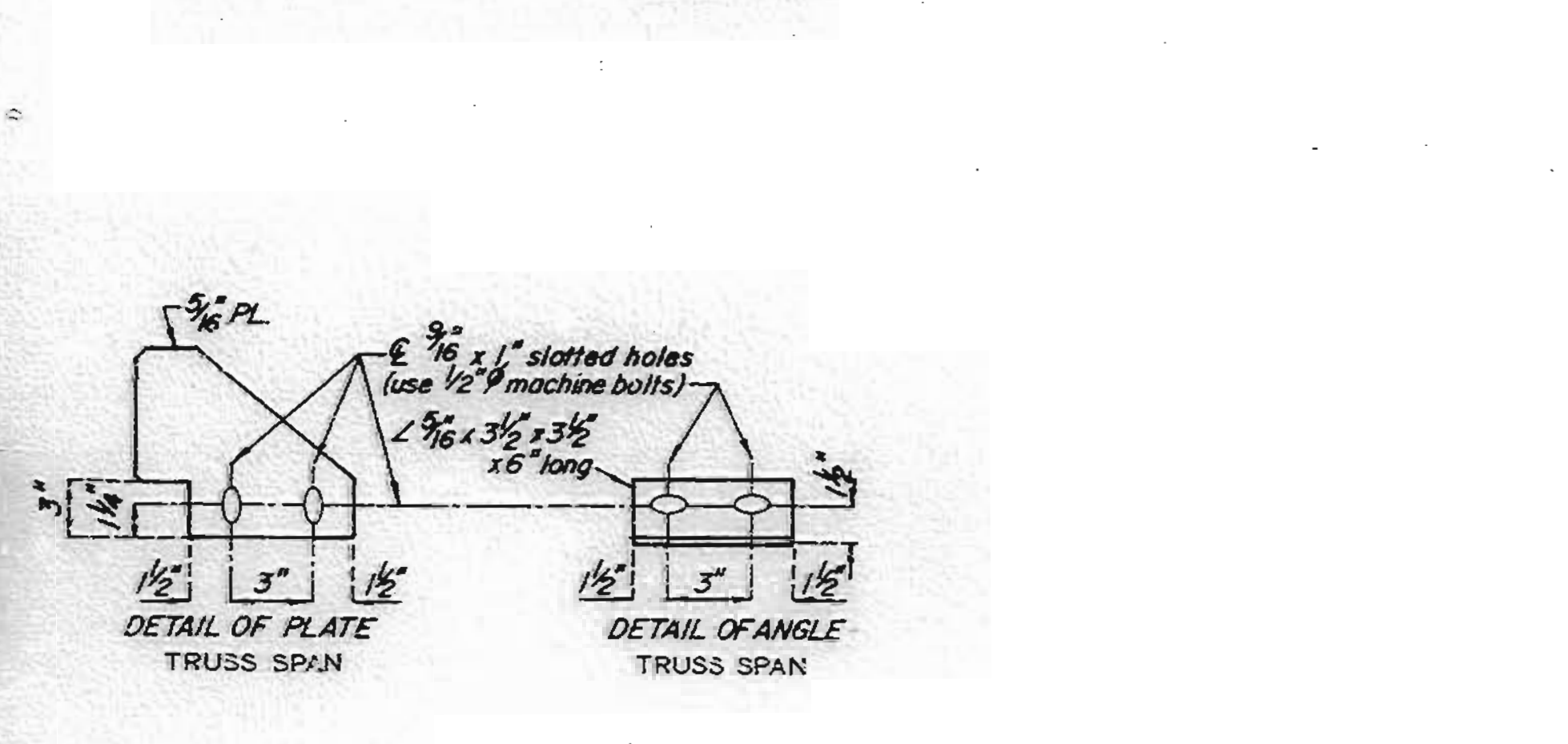
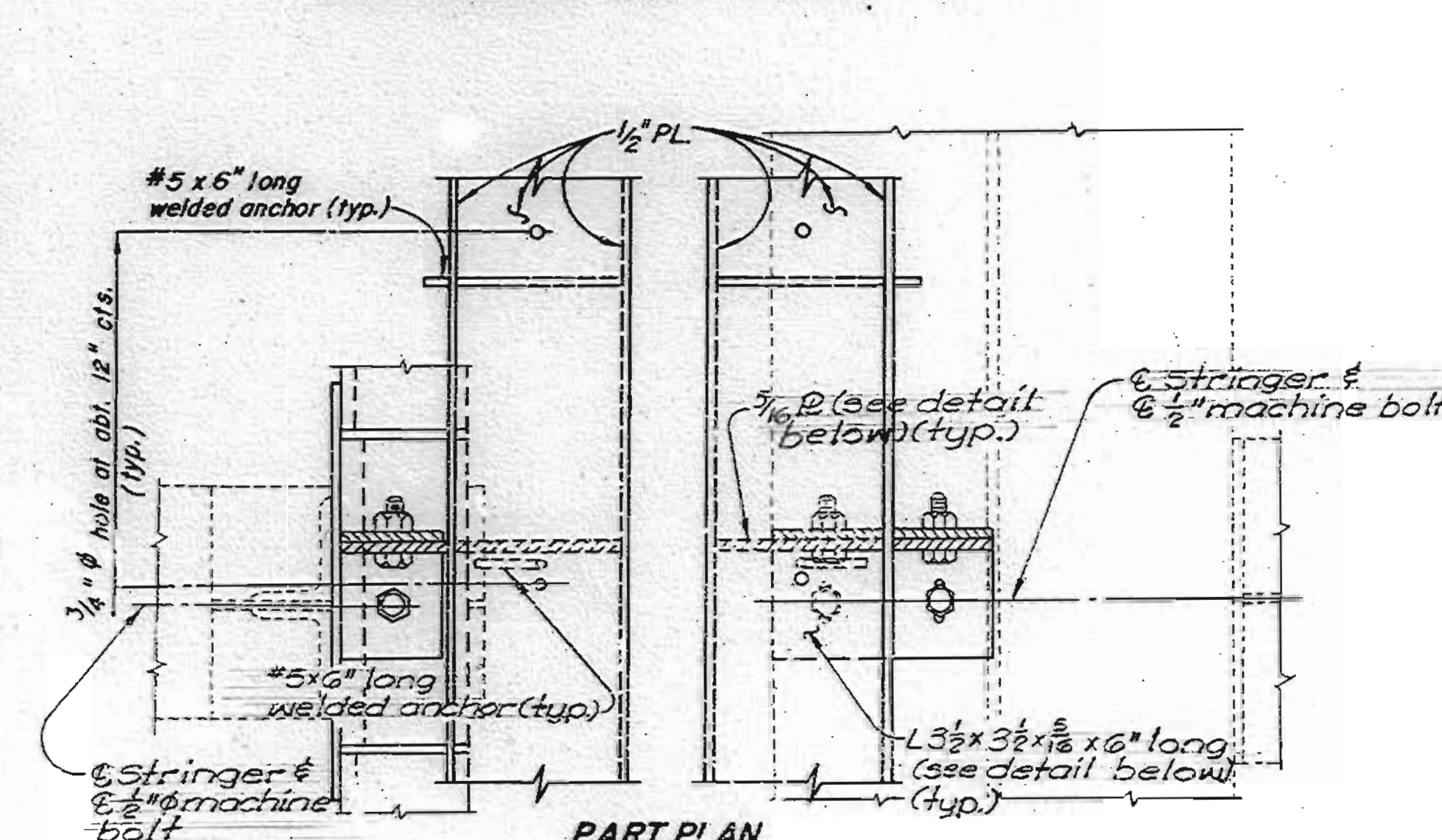
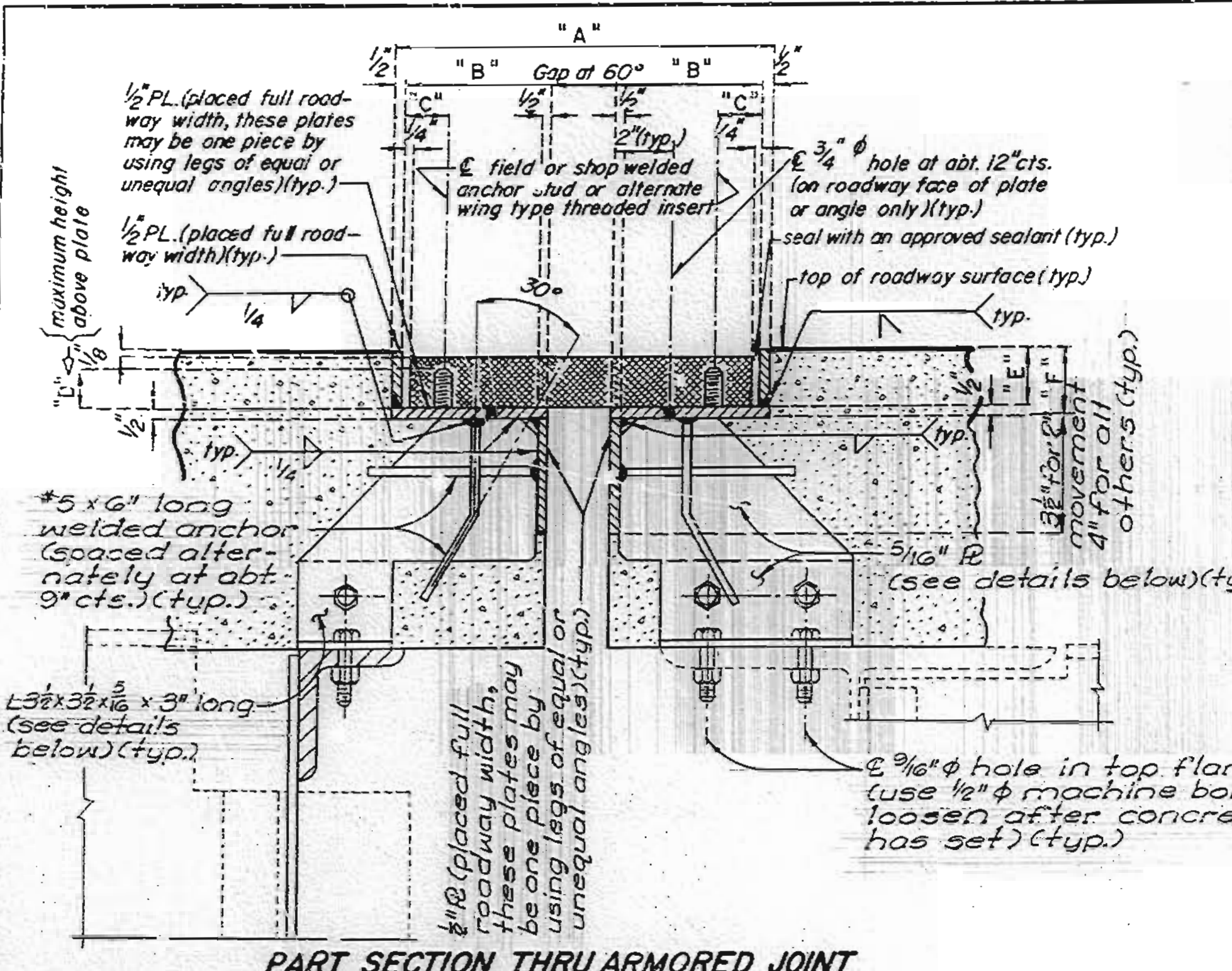
SLAB POURING NOTE:  
 (WITHOUT CONST. JOINT)  
 The contractor shall furnish an approved retarder to retard the set of the concrete to 25 hours and shall pour and satisfactorily finish the slab pours at a rate of not less than 52 Cu. Yds. per hour.

SLAB POURING NOTE:  
 (WITH CONST. JOINT)  
 The contractor shall pour and satisfactorily finish the slab pours at a rate of not less than 52 Cu. Yds. per hour unless he elects to use an approved retarder to retard the set of the concrete to 25 hours in which case he may reduce his pouring and finishing rate to not less than 48 Cu. Yds. per hour.



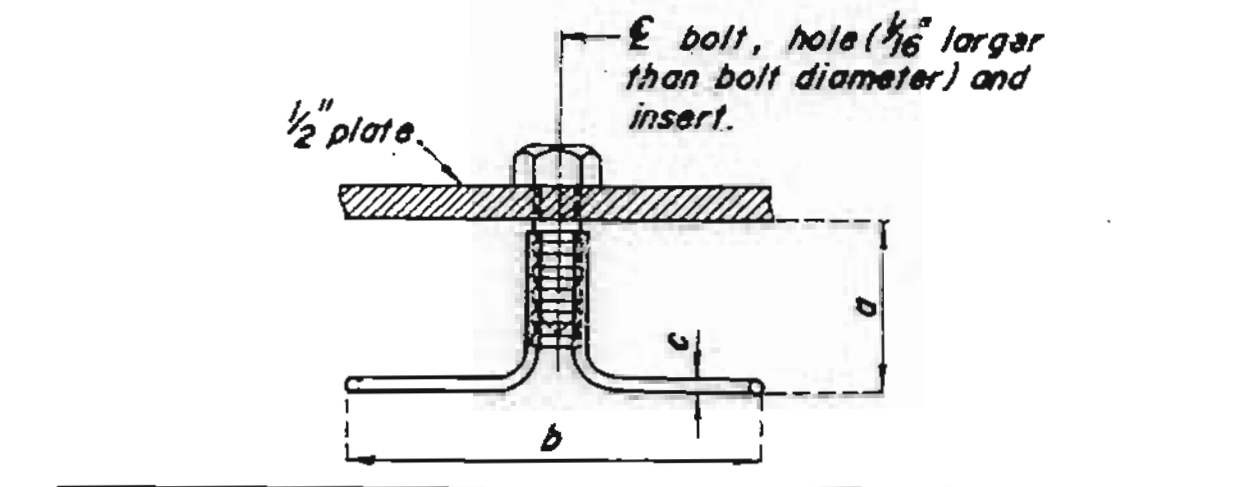
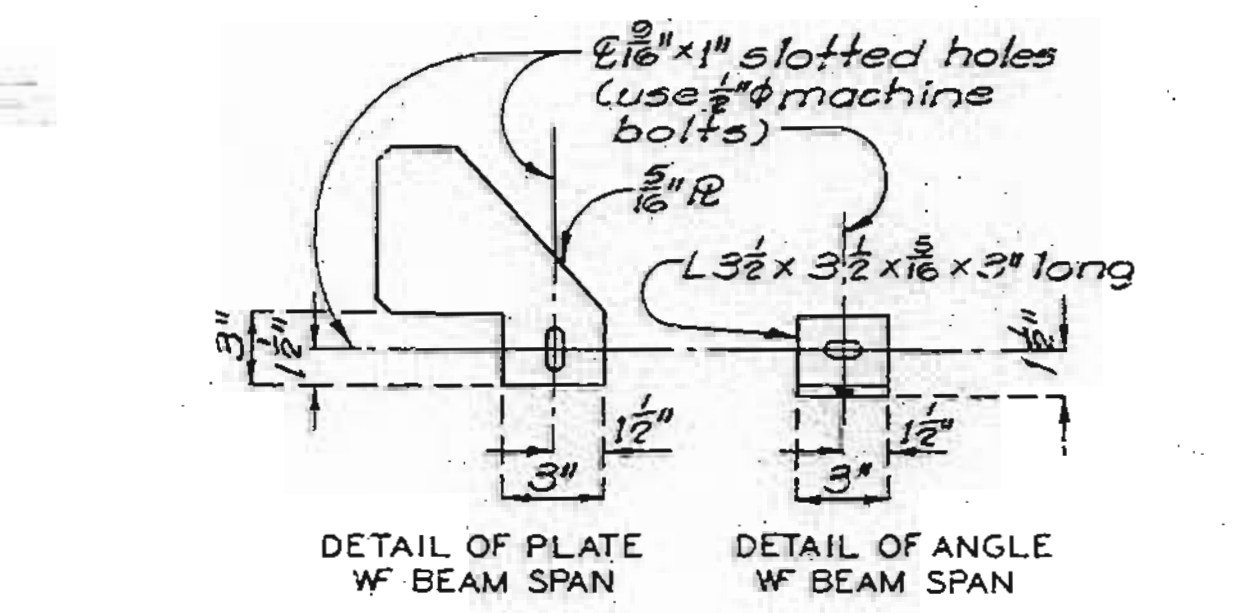
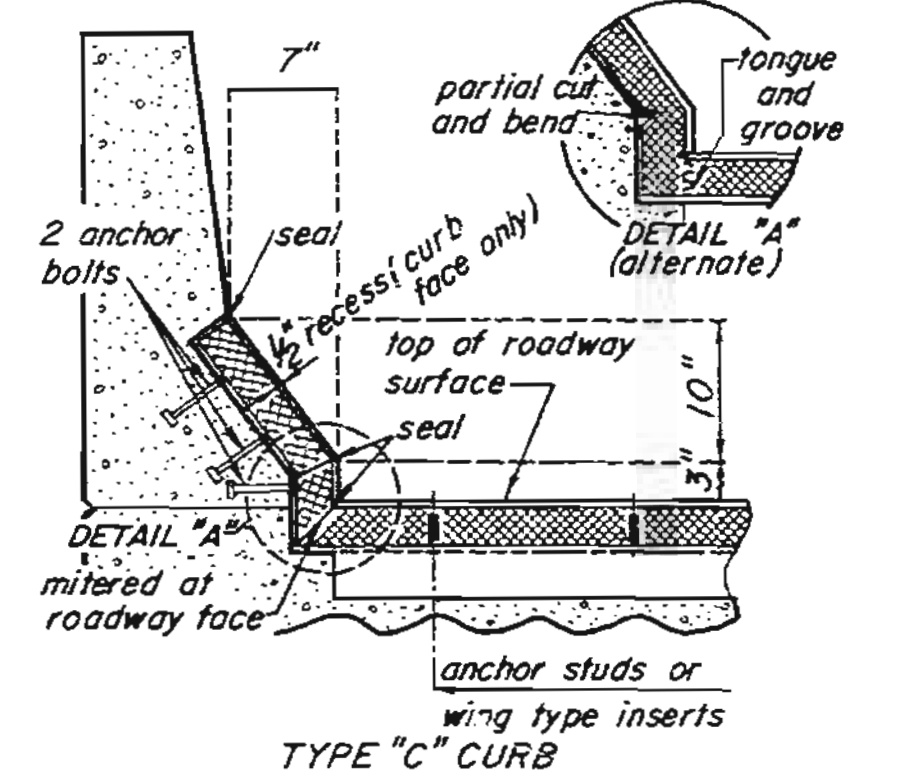
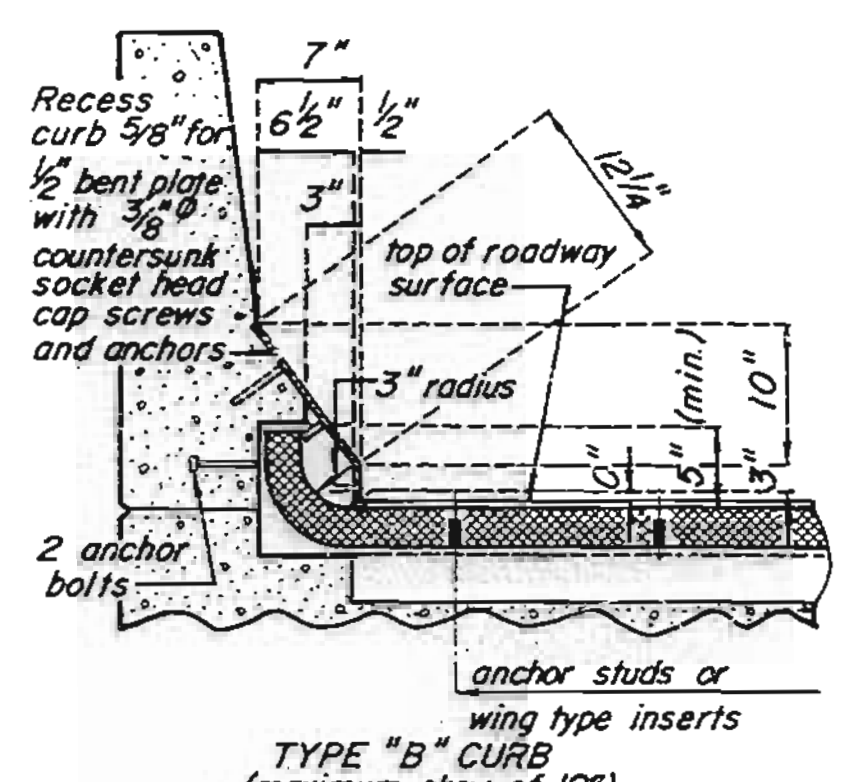
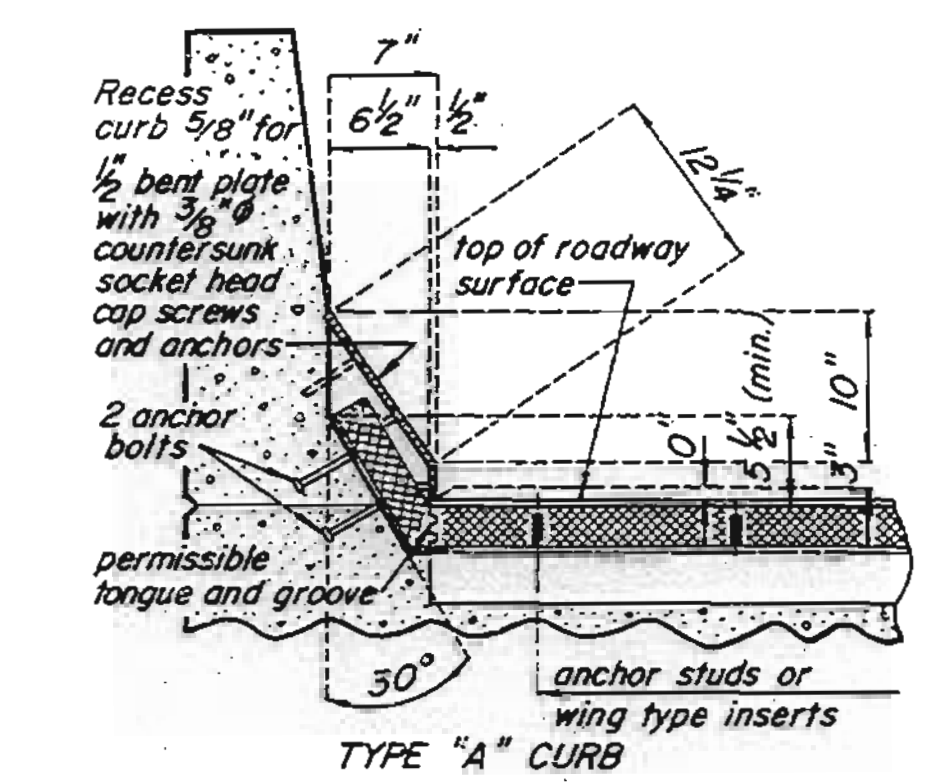
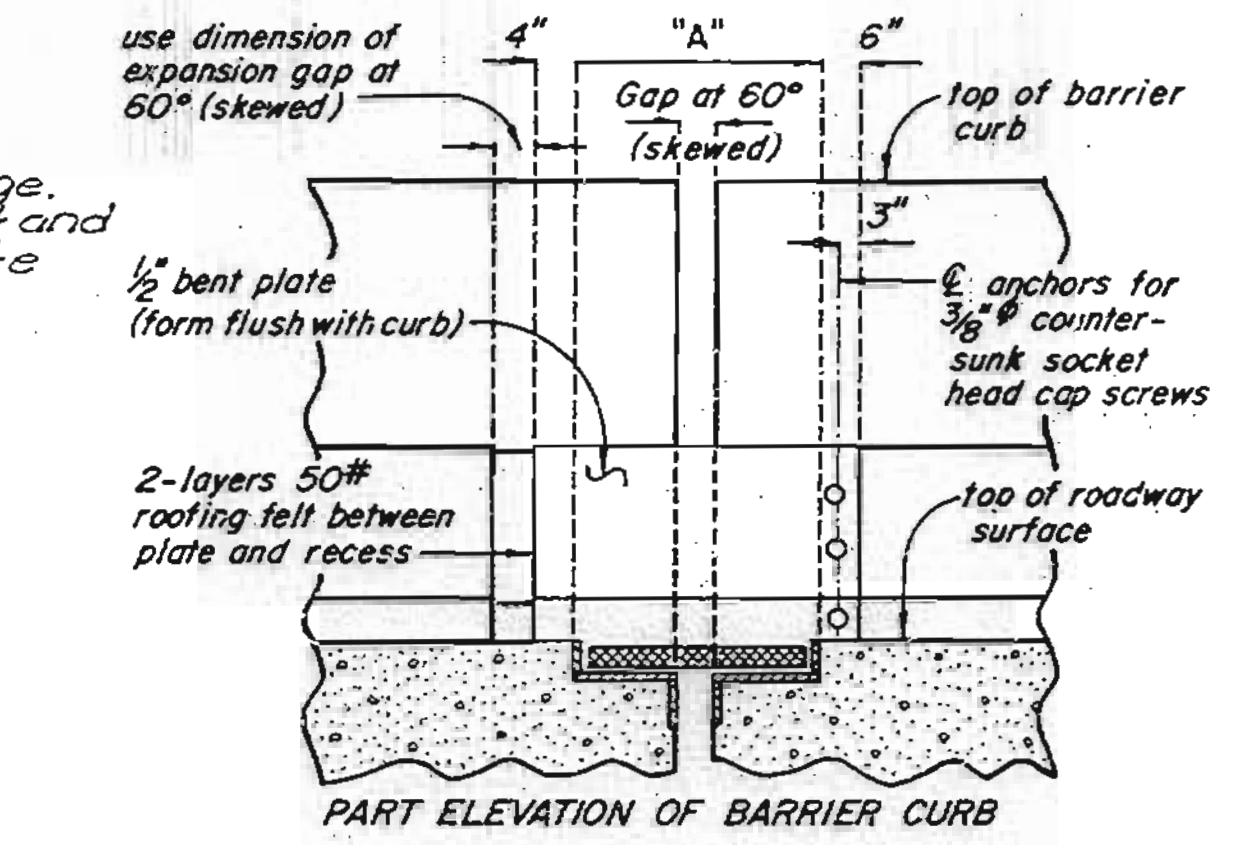
DIRECTION OF POUR:  
 Direction of pour shall be from Exp. Gap toward Span. Direction of pour to be constant throughout span.

SLAB POURING DETAILS  
 \* Const. Joint may be located either side of Span as dimension shown. Longer pour to be poured first.



LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP GAP AT 60°	"A" AT 60°	"E"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE "G"
Pier No. 3	On-Flex 45	2 1/4"	11 3/4"	4 1/4"	1 5/8"	1 1/2"	2 3/4"	3 1/4"	1/2" 66
	Wabo Bendoflex 450	2 1/2"	12"	4 1/4"	1 5/8"	1 1/4"	2 3/4"	3 1/4"	1/2" 50
	Fel-Span 140 GS	2 1/4"	12 1/4"	4 1/2"	1 5/8"	1 1/2"	2 1/4"	2 3/4"	1/2" 50

NOTE: All dimensions are at right angles. Expansion gap and dimension "A" shall be increased 1/16" for each 10° fall in temperature and decreased 1/16" for each 10° rise in temperature.



Bolt Diameter	Safe Load Tension (lbs.) (min.)	Approx. Ult. Cap. Tension (lbs.) (min.)	Dimensions (min.)		
			a	b	c
1/2"	800	8,000	1-5/8"	5"	.218"
5/8"	1,300	9,200	1-5/8"	5"	.218"
3/4"	1,800	13,200	2-1/4"	6"	.262"
7/8"	2,000	16,200	2-1/2"	6-1/2"	.306"
1"	2,000	16,200	2-1/2"	6-1/2"	.306"

DETAILS OF ALTERNATE WING TYPE THREADED INSERT (Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)

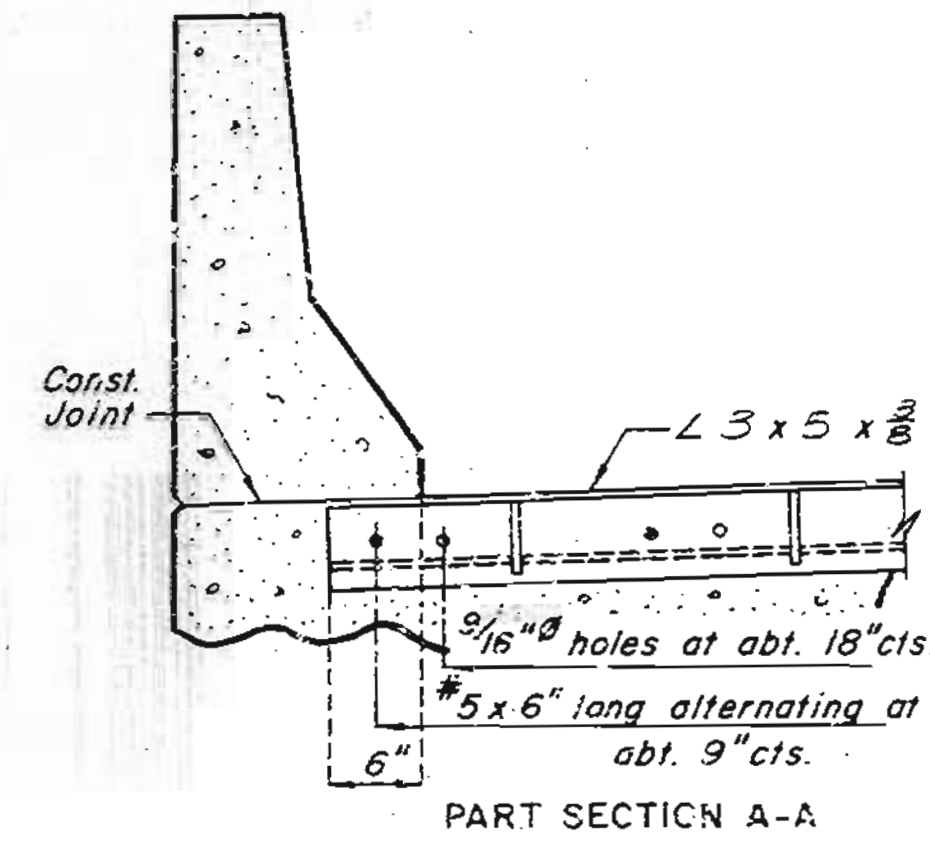
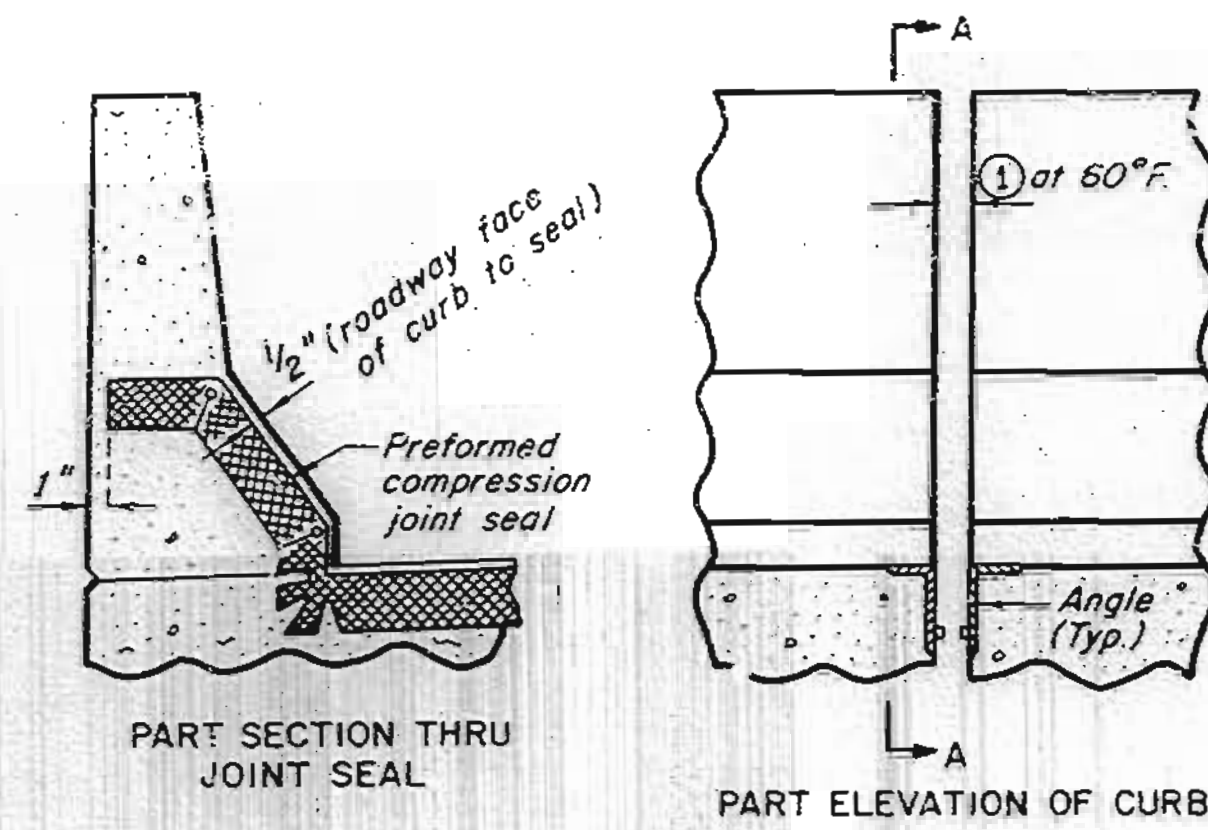
### GENERAL NOTES:

- THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- THE CERTIFIED NUTS AND BOLTS FOR THE ANCHOR STUDS OR WING TYPE THREADED INSERTS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.
- MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL, NO. 5 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL, APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 5 BARS SHOWN.
- SEE SPECIAL PROVISIONS FOR PAINTING.
- ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.
- PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.
- CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.
- FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.
- FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

FED. AC. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	21	



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	22	



NOTES FOR PREFORMED COMPRESSION JOINT SEAL:

STRUCTURAL STEEL FOR EXPANSION DEVICE SHALL BE FABRICATED IN ONE SECTION EXCEPT THAT WHEN THE LENGTH IS OVER 50' SPlicing IS PERMISSIBLE.

THE EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN A.I.D GRADE OF ROADWAY.

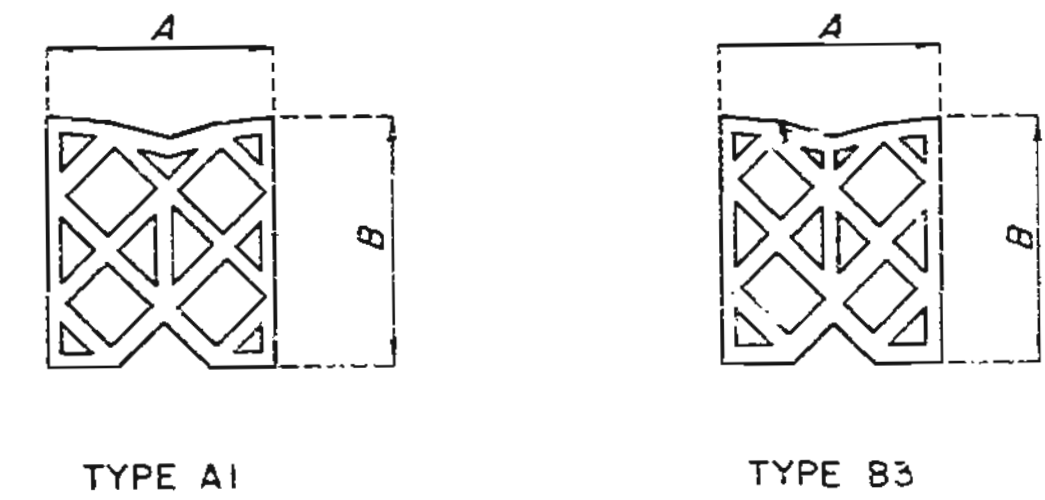
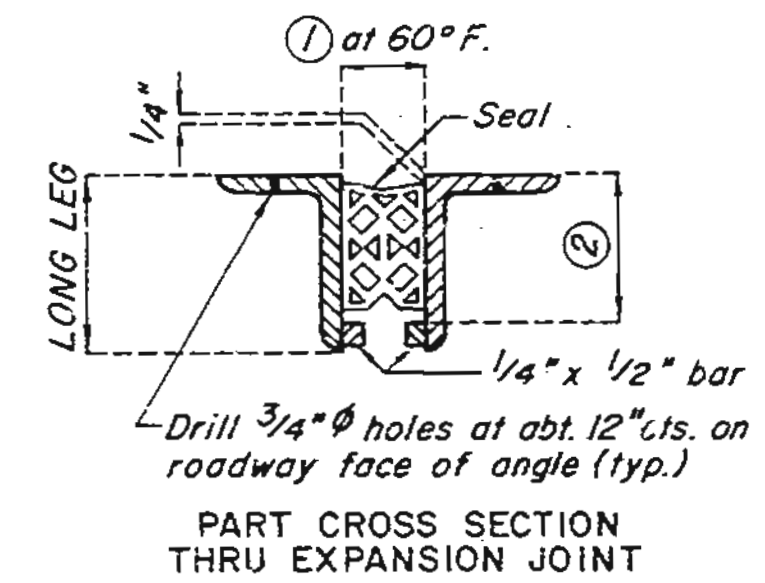
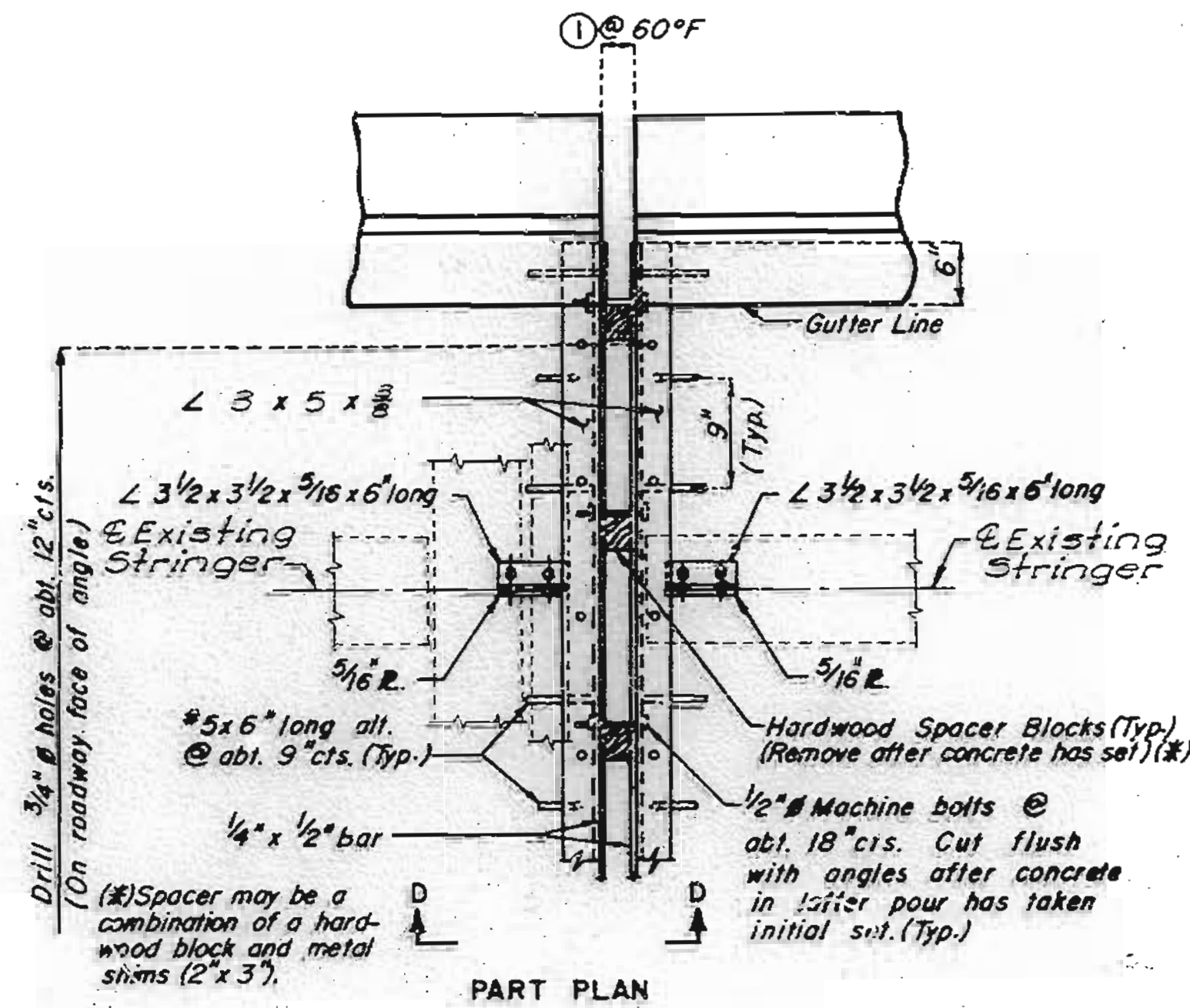
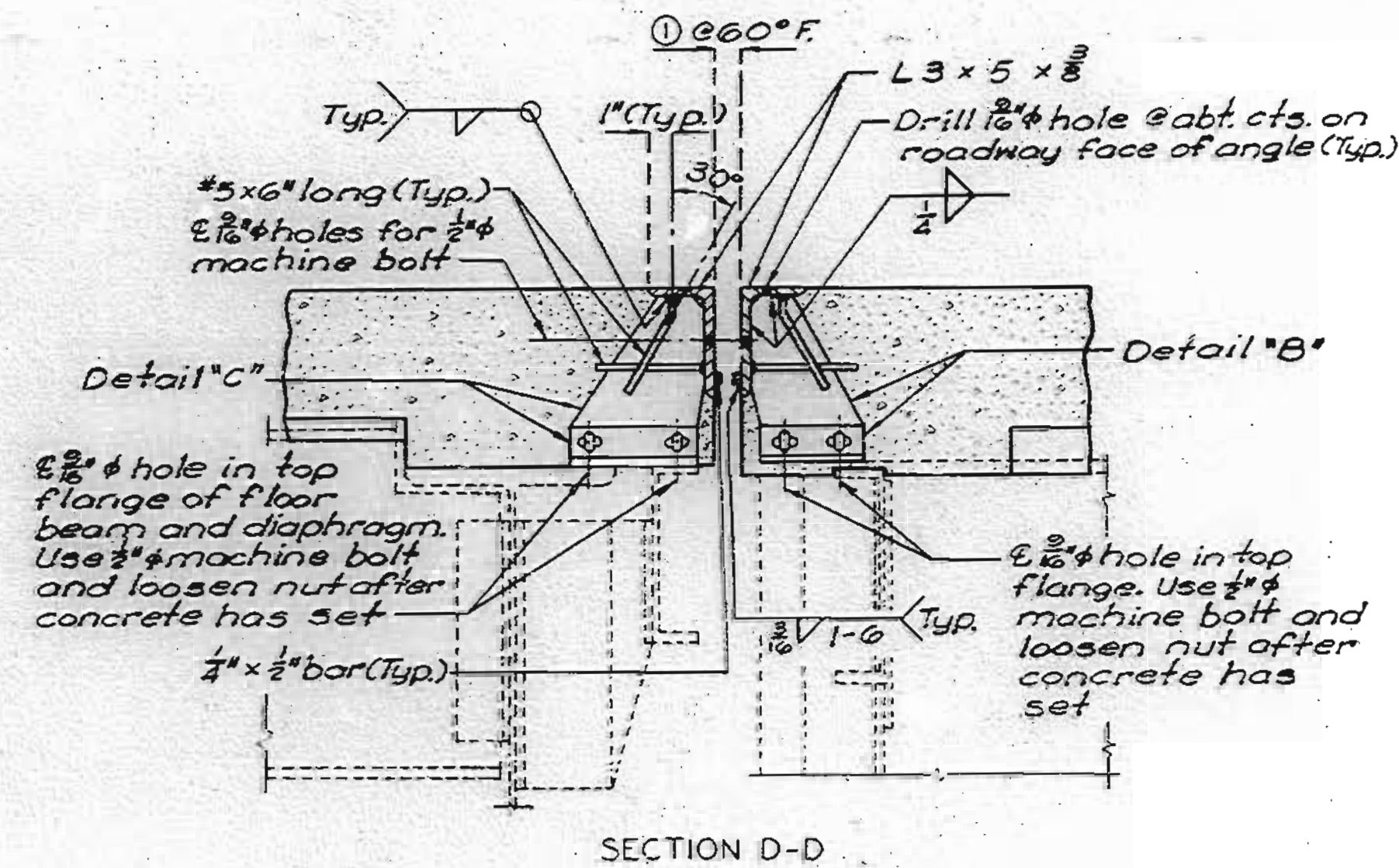
NO. 5 BARS FOR EXPANSION DEVICE SHALL BE STRUCTURAL GRADE.

APPROVED STUD WELDED ANCHORS (C-1010 THRU C-1020) OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 5 BARS SHOWN.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60° F.

DIMENSION ① SHALL BE INCREASED  $\frac{1}{16}$ " FOR EACH 10° FALL IN TEMPERATURE AND DECREASED  $\frac{1}{16}$ " FOR EACH 10° RISE IN TEMPERATURE AT INSTALLATION.

SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.



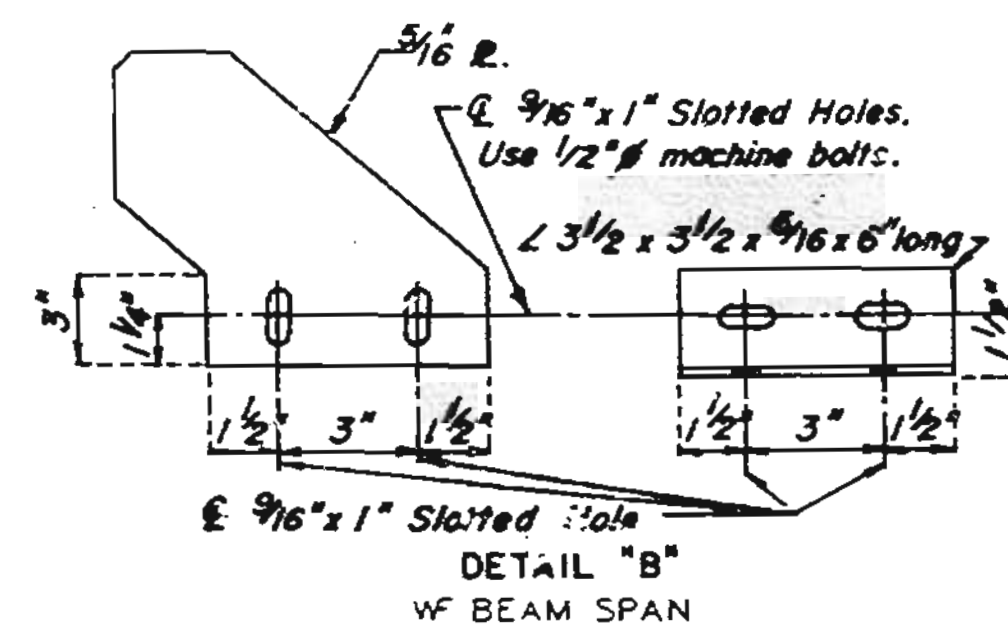
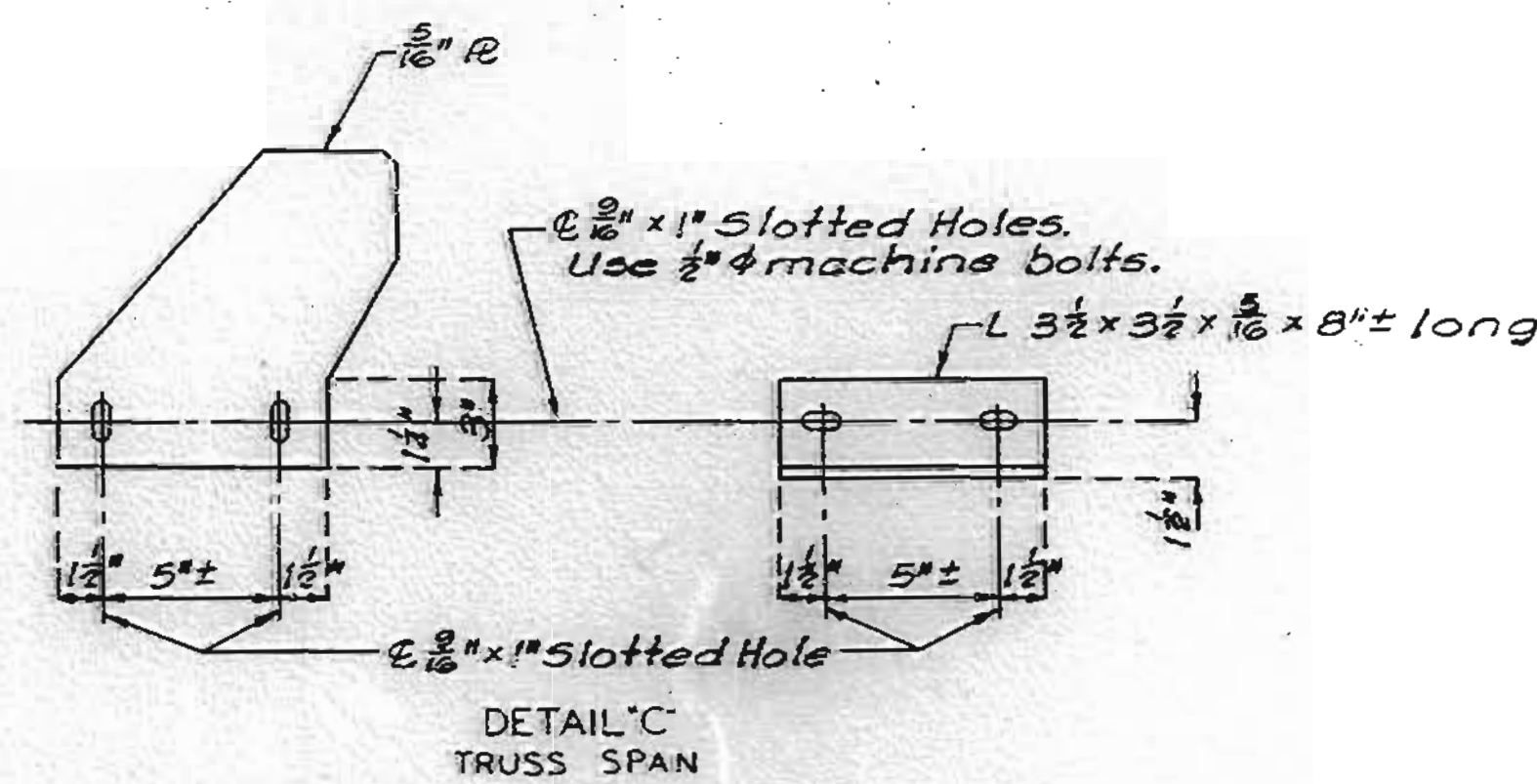
TYPE	"A" (WIDTH)	"B" (HEIGHT)	①	②	MAX. LIMIT OF COMPRESSIBILITY
AI OR B3	2.5"	NOT LESS THAN "A"	1 5/8"	"B" + 1/2"	46%
AI OR B3	3.0"	NOT LESS THAN "A"	1 7/8"	"B" + 1/2"	43%
AI OR B3	3.5"	NOT LESS THAN "A"	2 1/4"	"B" + 1/2"	42%
AI OR B3	4.0"	NOT LESS THAN "A"	2 5/8"	"B" + 1/2"	42%
AI OR B3	4.5"	NOT LESS THAN "A"	2 3/4"	"B" + 1/2"	40%
AI OR B3	5.0"	NOT LESS THAN "A"	2 7/8"	"B" + 1/2"	40%

SIZE OF ARMOR ANGLE:

VERTICAL LEG OF ANGLE SHALL BE A MINIMUM OF "B" + 1/4"

HORIZONTAL LEG OF ANGLE SHALL BE A MINIMUM OF 3". MINIMUM THICKNESS OF ANGLE SHALL BE 3/8" FOR SEAL WIDTHS THROUGH 3.5" AND 1/2" FOR SEAL WIDTHS GREATER THAN 3.5"

IN LIEU OF THE SPECIFIED SEAL, THE NEXT LARGER SEAL MAY BE SUBSTITUTED. DIMENSIONS AND LIMITS SHALL CORRESPOND TO THE ACTUAL SEAL INSTALLED.

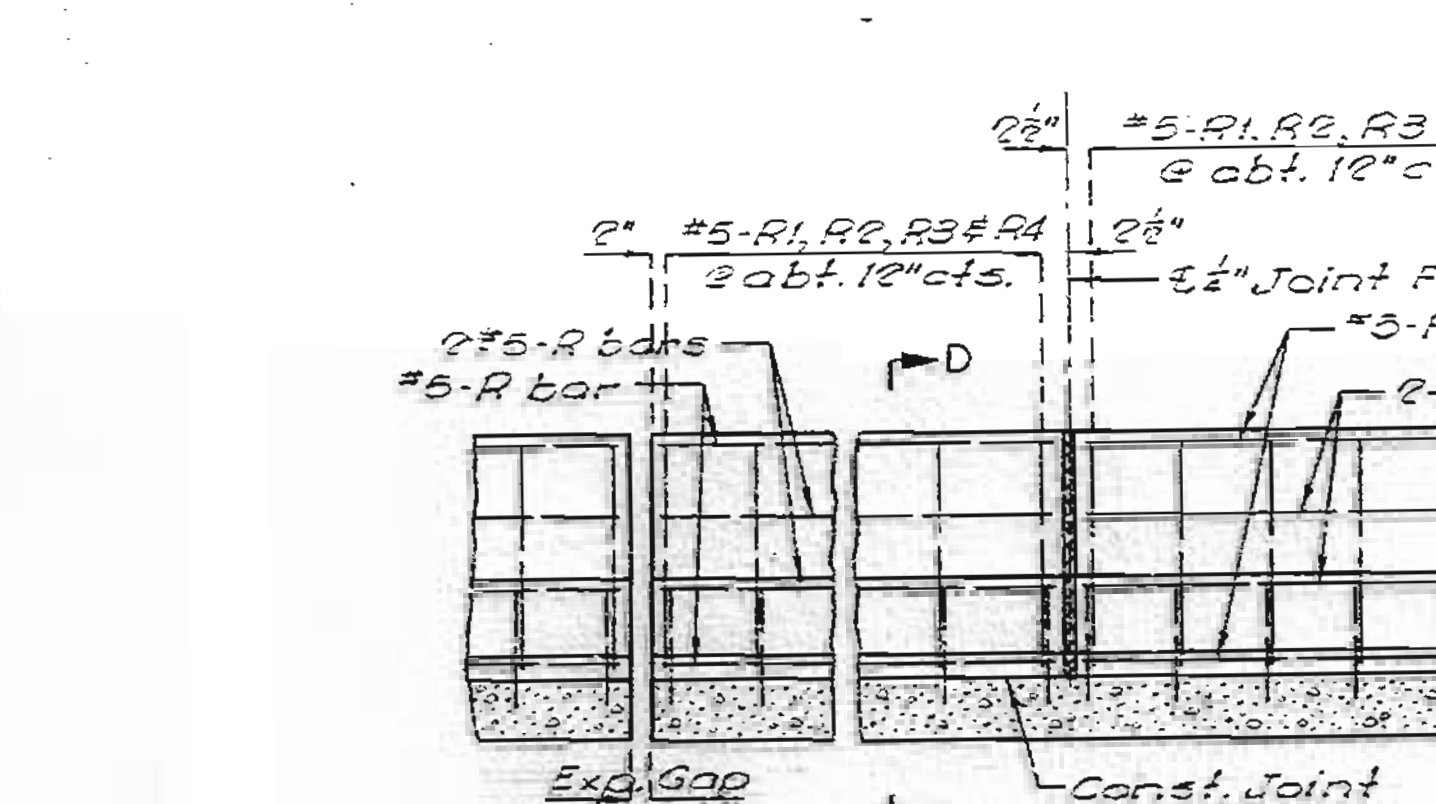
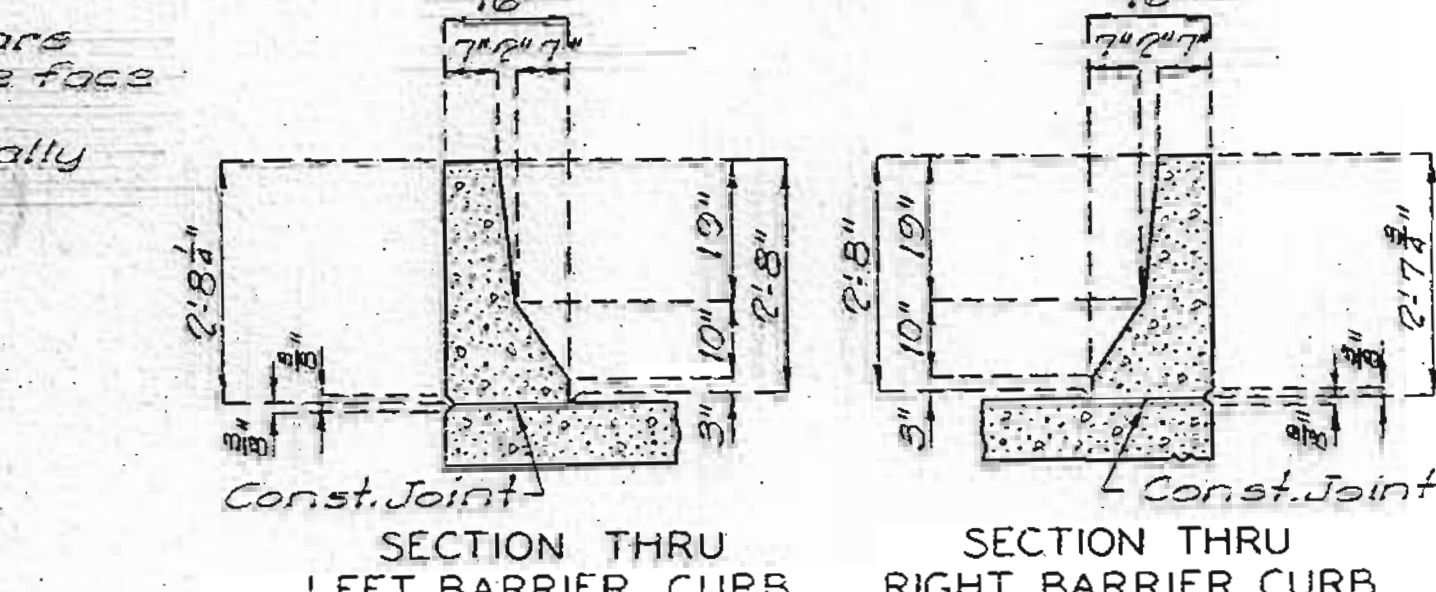
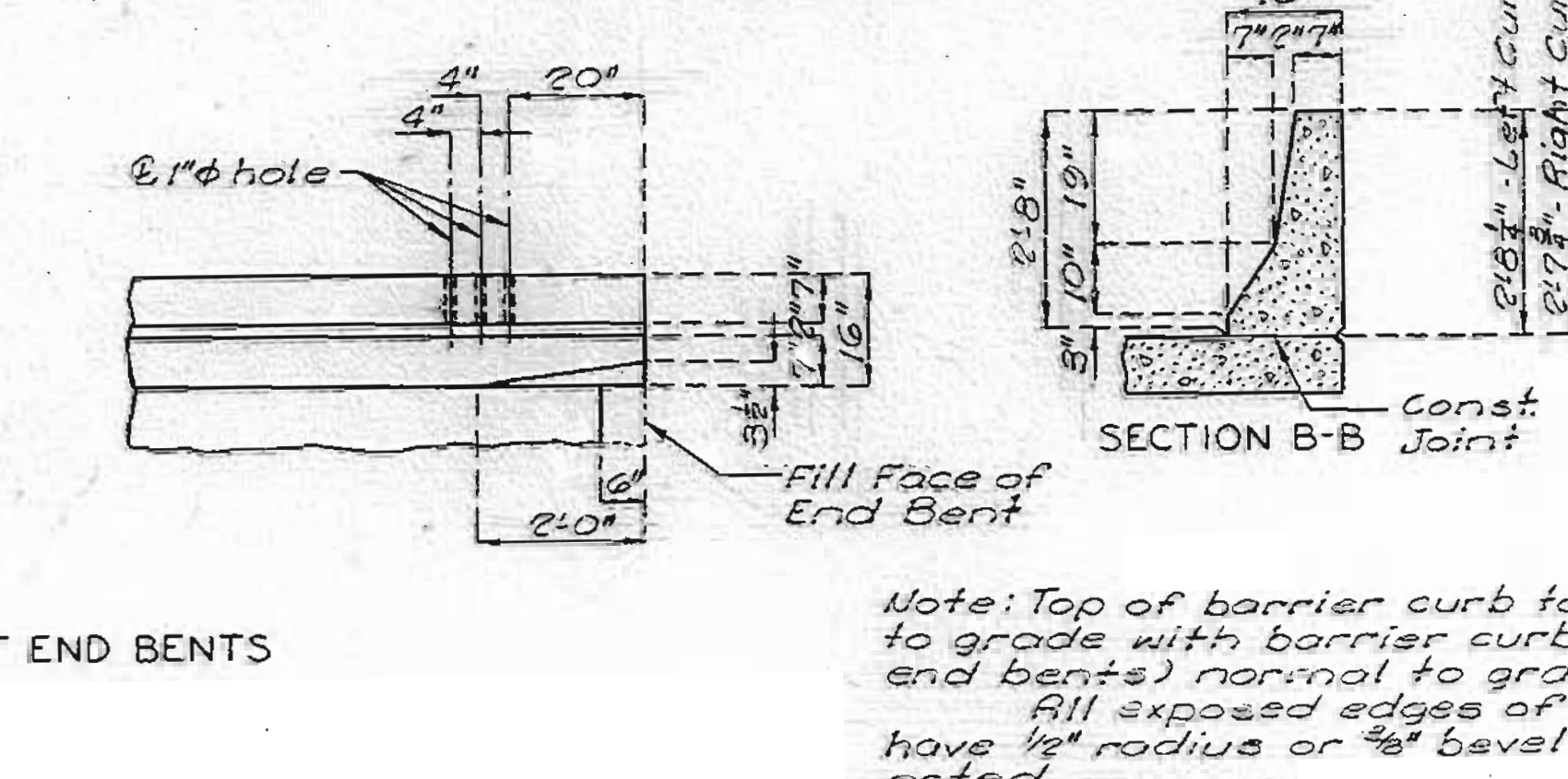
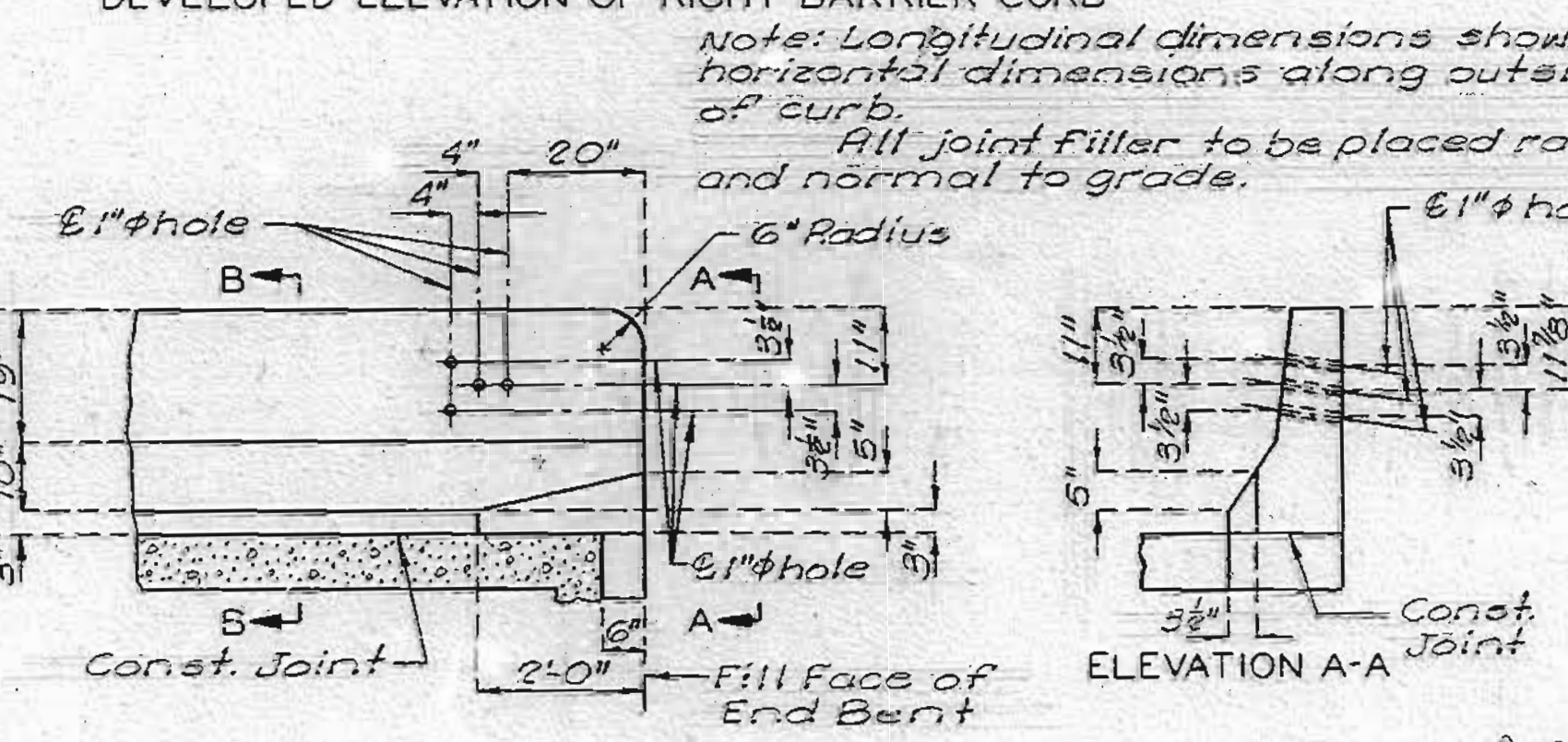
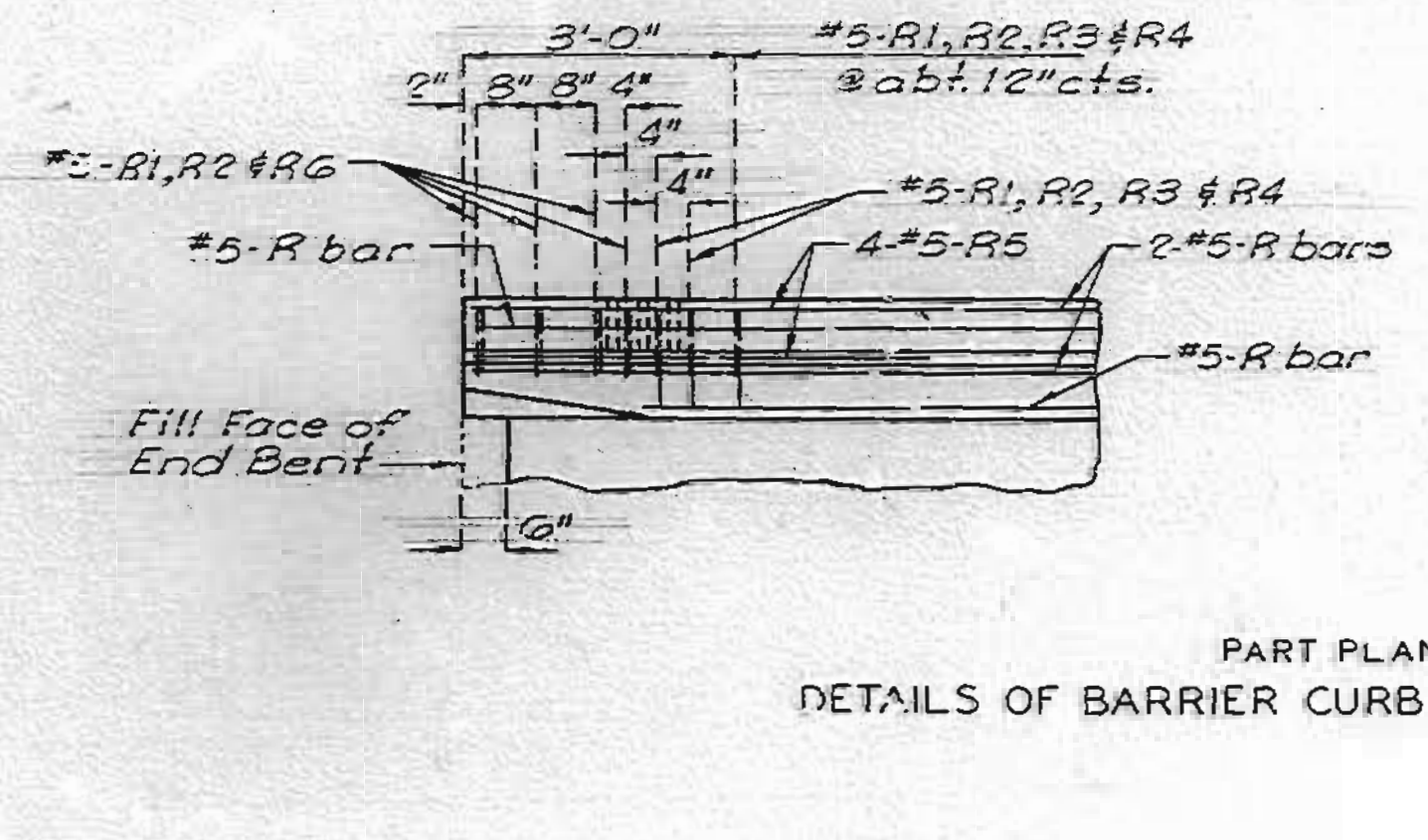
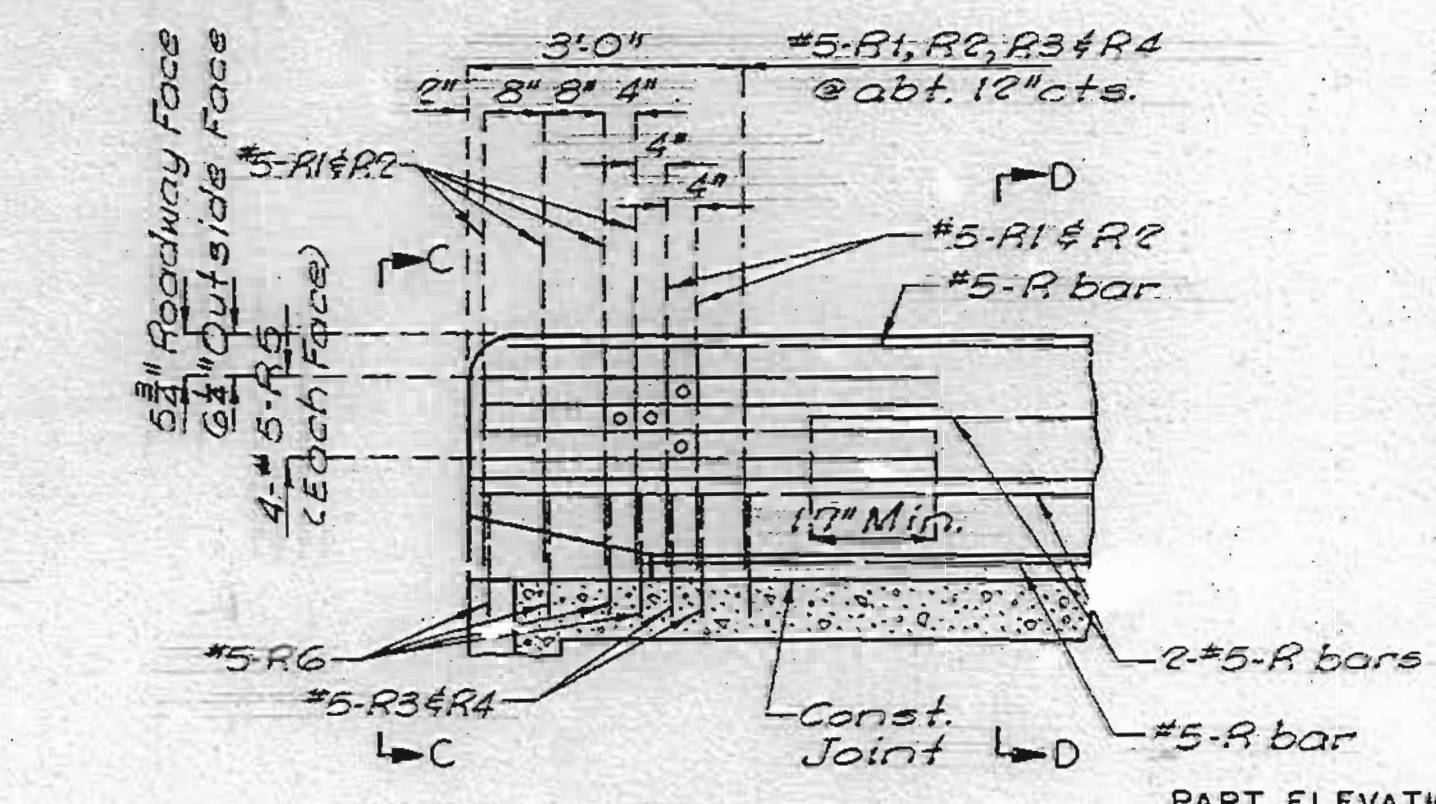
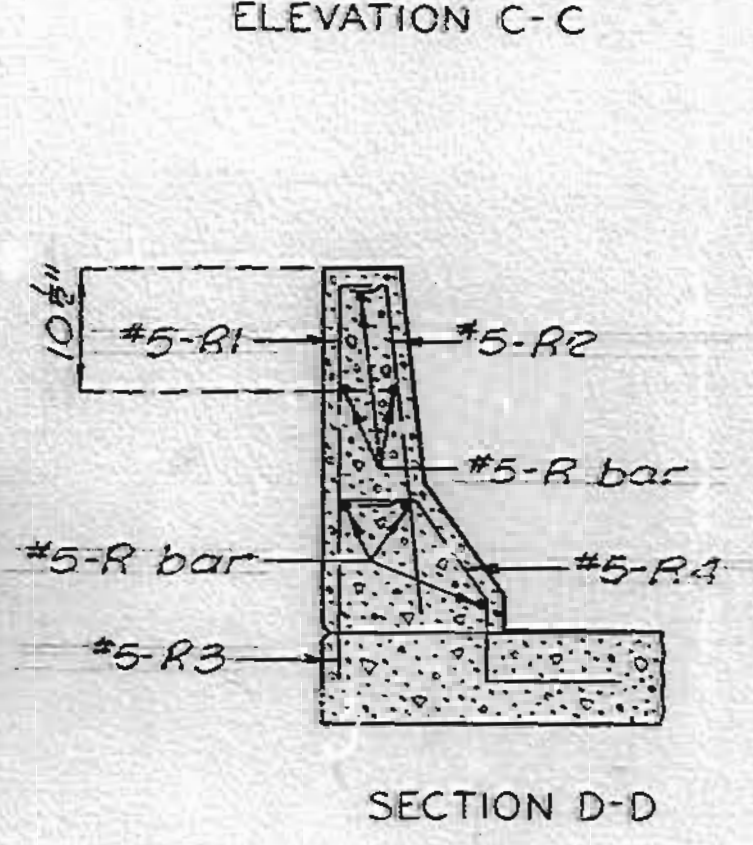
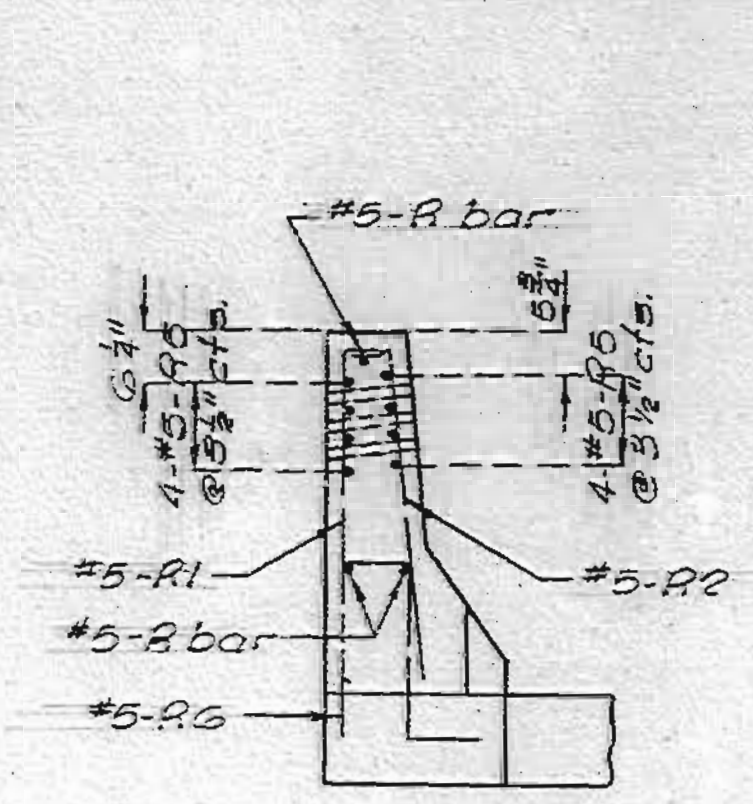
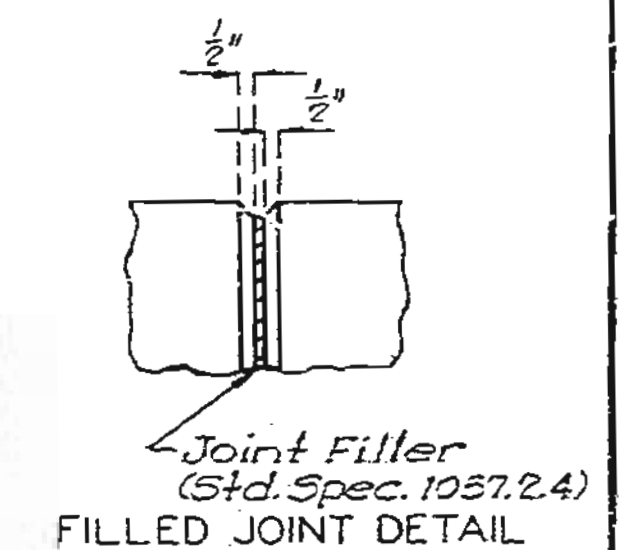
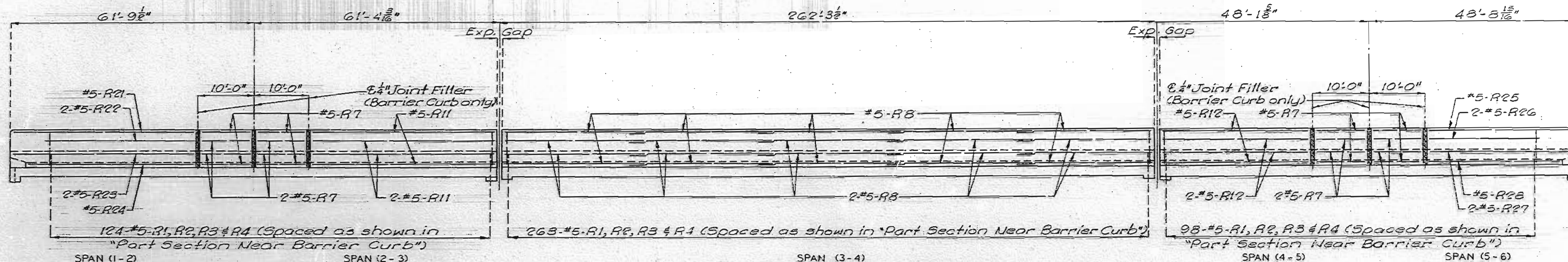
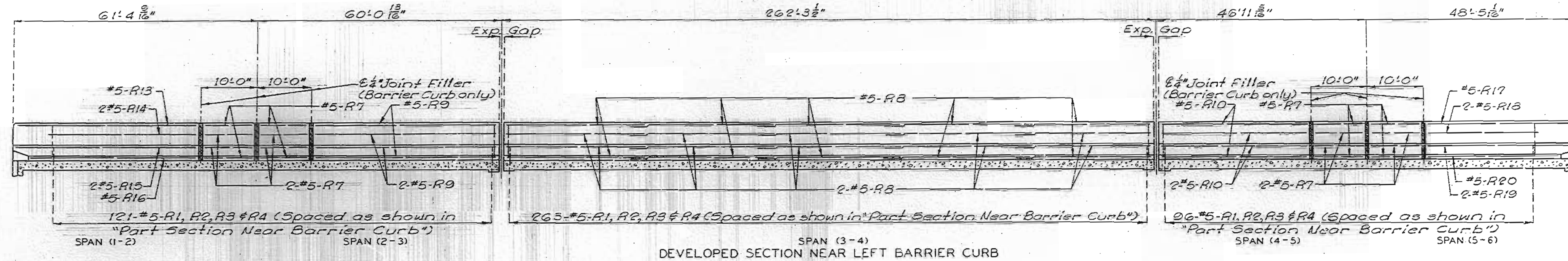


DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT PIER NO. 4

Note: This drawing is not to scale. Follow dimensions.

DETAILED NOV. 1983  
 CHECKED NOV. 1983  
 OCT. 1983

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		59	23	



Note: Longitudinal dimensions shown are horizontal dimensions along outside face of curb.  
 All joint filler to be placed radially and normal to grade.  
 Note: Top of barrier curb to be built parallel to grade with barrier curb joints (except at end bents) normal to grade.  
 All exposed edges of barrier curb shall have 1/2" radius or 1/8" bevel unless otherwise noted.  
 All concrete for barrier curb to be Class B1.

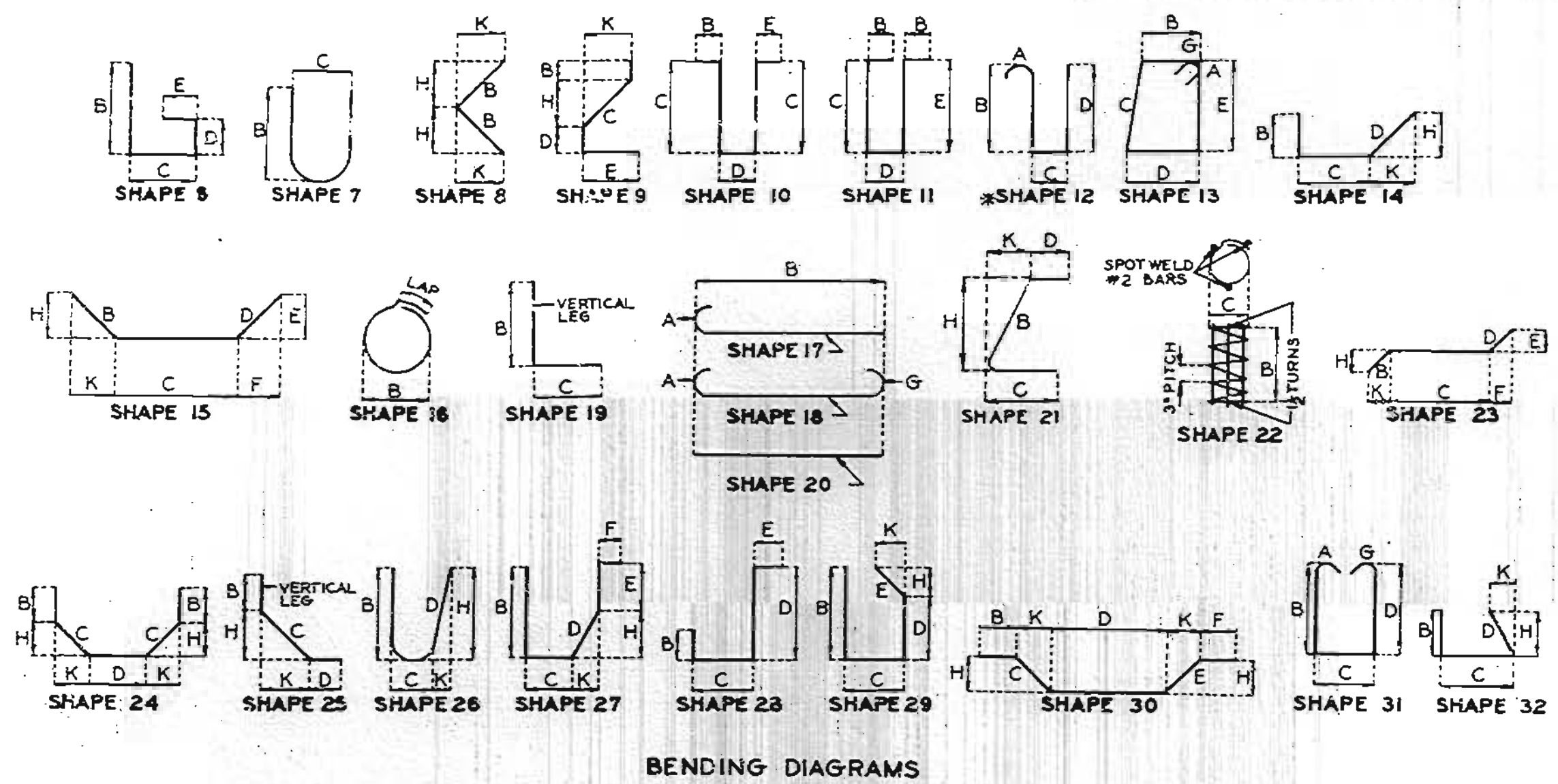
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 11.

CASS COUNTY

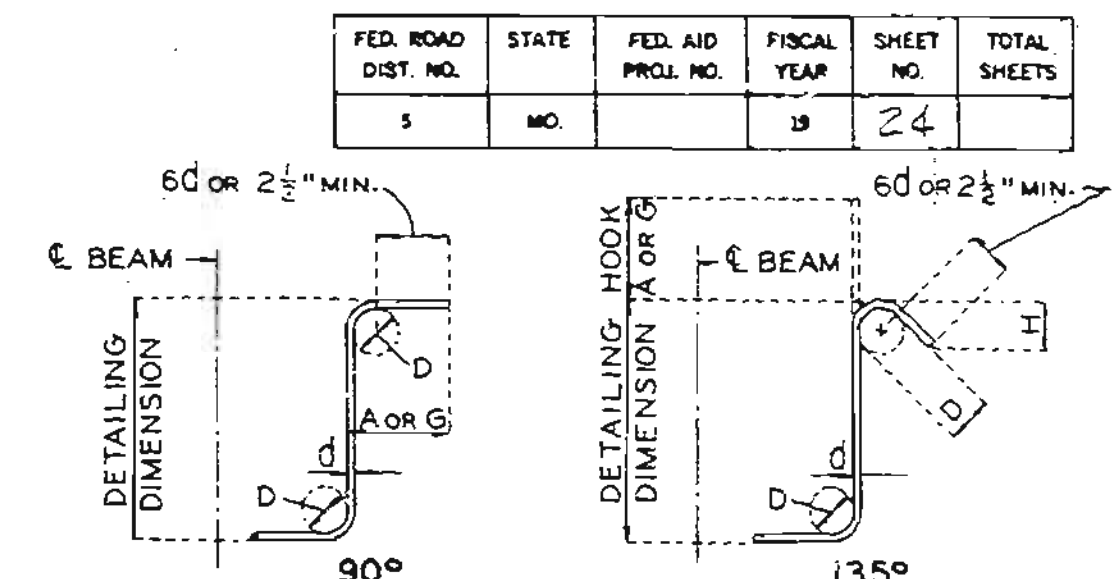
L-23R

DETAILED JUNE 1980  
 CHECKED SEPT. 1980



COMPLETE BILL OF REINFORCING STEEL

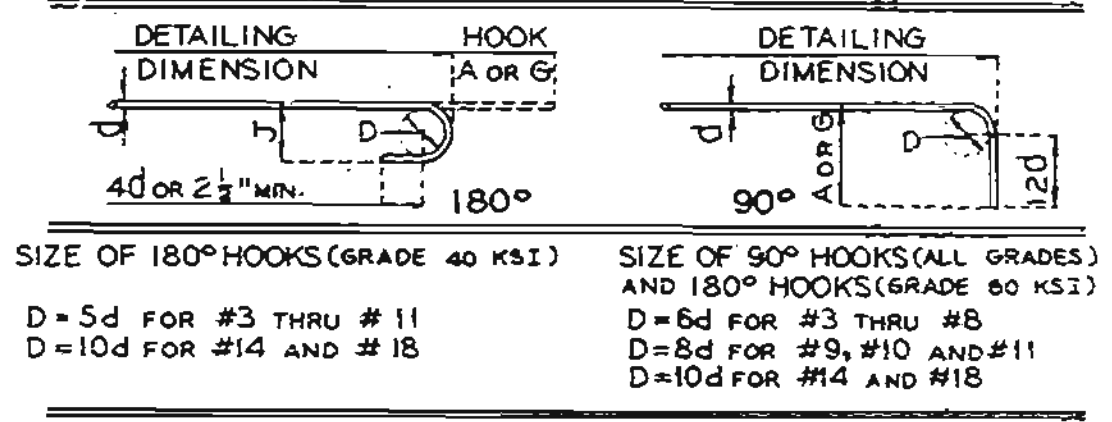
NO. REQD.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH FT.	ACTUAL LENGTH FT.	WEIGHT LBS.
									B	C	D	E	F	H	K				
SUBSTRUCTURE																			
END BENTS NO 166																			
8	4H1	BACKWALL		20	X			4	6.000							4	6	24	
8	4U1	SLAB		19	S	X		9	9.000	12.000						21	20	9	
8	4U2	SLAB		10	S	X				4.000	15.000					21	19	8	
16	4U3	BACKWALL		10	S	X				2	0.000	6.000				4	6	46	
SUPERSTRUCTURE																			
989	5R1	BARRIER CURB	E	19	S			2	6.000	3.500						2	10	2	2751
989	5R2	BARRIER CURB	E	15	S			2	6.125	3.500				2	6.000	3.000	2	9	2837
973	5R3	BARRIER CURB	E	19	S				17.000	6.000						23	22	1861	
973	5R4	BARRIER CURB	E	27	S				6.000	11.125	7.000	12.000	9.125	6.375	3	0	2	10	2875
32	5R5	BARRIER CURB	E	20				5	0.000						5	0	5	0	167
16	5R6	BARRIER CURB	E	10	S				6.000	17.000	6.000				3	10	3	6	58
50	5R7	BARRIER CURB	E	20				9	9.000						9	9	9		508
60	5R8	BARRIER CURB	E	20				53	6.000						53	6	53	6	3348
6	5R9	BARRIER CURB	E	20				49	8.000						49	8	8		311
6	5R10	BARRIER CURB	E	20				36	7.000						36	7	36	7	229
6	5R11	BARRIER CURB	E	20				50	11.000						50	11	50	11	319
6	5R12	BARRIER CURB	E	20				37	9.000						37	9	37	9	236
1	5R13	BARRIER CURB	E	20				50	10.000						50	10	50	10	53
2	5R14	BARRIER CURB	F	20				47	8.000						47	8	47	8	99
2	5R15	BARRIER CURB	E	20				51	1.000						51	1	51	1	107
1	5R16	BARRIER CURB	E	20				49	5.000						49	5	49	5	52
1	5R17	BARRIER CURB	E	20				37	11.000						37	11	37	11	40
2	5R18	BARRIER CURB	E	20				34	10.000						34	10	34	10	73
2	5R19	BARRIER CURB	E	20				38	2.000						38	2	38	2	80
1	5R20	BARRIER CURB	E	20				36	6.000						36	6	36	6	38
1	5R21	BARRIER CURB	E	20				51	3.000						51	3	51	3	53
2	5R22	BARRIER CURB	E	20				48	2.000						48	2	48	2	100
2	5R23	BARRIER CURB	E	20				51	6.000						51	6	51	6	107
1	5R24	BARRIER CURB	E	20				49	8.000						49	8	49	8	52
1	5R25	BARRIER CURB	E	20				38	2.000						38	2	38	2	40
2	5R26	BARRIER CURB	E	20				35	1.000						35	1	35	1	73
2	5R27	BARRIER CURB	E	20				38	5.000						38	5	38	5	80
1	5R28	BARRIER CURB	E	20				36	9.000						36	9	36	9	38
56	5S1	SLAB		20				49	4.000						49	4	49	4	2881
44	5S2	SLAB	E	20				49	6.000						49	6	49	6	2272
84	5S3	SLAB		20				42	3.000						42	3	42	3	2702
66	5S4	SLAB	E	20				42	7.000						42	7	42	7	2931
44	5S5	SLAB	E	20				26	0.000						26	0	26	0	1193
44	5S6	SLAB	E	20				28	0.000						28	0	28	0	1285
1150	5S7	SLAB	E	20				28	5.000						28	5	28	5	34084
792	5S8	SLAB		20				28	5.000						28	5	28	5	23474
4	5S10	SLAB		20				49	6.000						49	6	49	6	207
6	5S12	SLAB		20				42	7.000						42	7	42	7	266
26	4S13	SLAB	E	26				3	0.000	4.000	17.000		17.000		4	6	4	6	78
8	6S14	SLAB		20				27	1.000						27	1	27	1	325
140	5S15	SLAB		20				53	11.000						53	11	53	11	7873
110	5S16	SLAB	E	20				54	3.000						54	3	54	3	6224
396	5S17	SLAB	E	20				14	0.000						14	0	14	0	5782
10	5S18	SLAB		20				54	3.000						54	3	54	3	566
10	5S19	SLAB		20				53	11.000						53	11	53	11	562
4	5S20	SLAB		20				53	5.000						53	5	53	5	223
2	5S21	SLAB		20				50	6.000						50	6	50	6	105
NOTE: 2 EXTRA R7 BARS ARE INCLUDED IN BAR LIST FOR TESTING PURPOSES.																			
END OF BAR LIST																			



STIRRUP HOOK DIMENSIONS  
GRADES 40-50-60 KSI

BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI) SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)  
 D = 5d FOR #3 THRU #11 D = 10d FOR #14 AND #18  
 D = 6d FOR #3 THRU #8 D = 8d FOR #9, #10 AND #11 D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS		90° HOOKS	
	GRADE 40 A OR G	GRADE 60 J	ALL GRADES A OR G	ALL GRADES J
#3	5"	2-3/4"	5"	3"
#4	6"	3-1/2"	6"	4"
#5	7"	4-1/2"	7"	5"
#6	8"	5-1/4"	8"	6"
#7	9"	6-1/4"	10"	7"
#8	10"	7"	11"	8"
#9	12"	8"	15"	11-1/4"
#10	13"	9"	17"	12-3/4"
#11	14"	10"	19"	14-1/4"
#14	21-2"	20-1/2"	21-2"	20-1/2"
#18	21-11"	21-3"	21-11"	21-3"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.  
 HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.  
 E - EPOXY COATED REINFORCEMENT.  
 S - STIRRUP.  
 X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.  
 V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.  
 NO. EA. - NUMBER OF BARS OF EACH LENGTH.  
 NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)  
 ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.  
 \* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.

REVISED NOV. 1979  
 MAY 1974

DETAILED SEPT. 1980  
 CHECKED SEPT. 1980

Note: This drawing is not to scale. Follow dimensions.

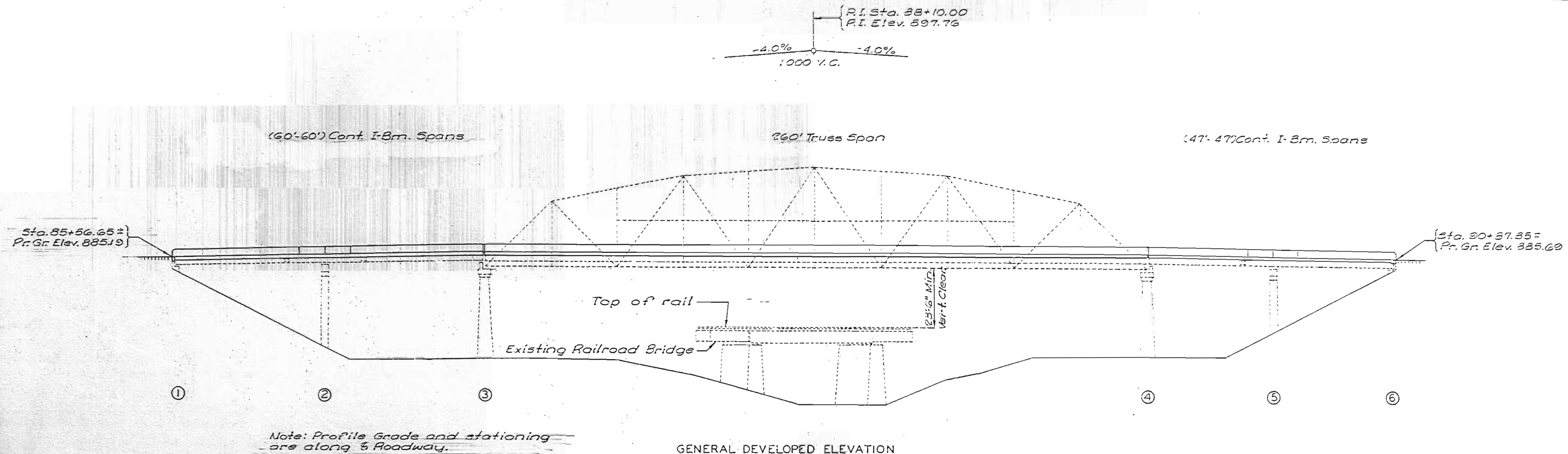
Sheet No. 11 of 11

CASS COUNTY L-23R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	BHS-455(4)	15	14	



GENERAL NOTES:

Design Specifications (Redecking only):  
A.A.S.H.T.O. - 1977 Load Factor Design

Design Loading:  
H15-44 - 15<sup>2</sup>/sq. ft. Future Wearing Surface

Design Unit Stresses:  
Class B1 Concrete (substructure) f'c = 4,000 psi  
Class B1 Concrete (Safety Barrier Curb) f'c = 4,000 psi  
Class B2 Concrete (Superstructure except Safety Barrier Curb) f'c = 4,000 psi  
Reinforcing Steel (Grade 60) fy = 60,000 psi  
Structural Carbon Steel fy = 36,000 psi  
Fabricated Structural Carbon Steel:  
Field connections, High Strength Bolts 3/4" φ, holes 13/16" φ except as noted.

Paint:  
Paint, System C, see Special Provisions.

Construction Clearance:  
A minimum vertical clearance of 23'6" from top of rails maintained during construction.

Reinforcing Steel:  
Minimum clearance to reinforcing steel 1 1/2" unless otherwise shown.

Existing Work:  
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Bars bonded in old concrete not removed cleanly stripped and embedded into new concrete where possible. If length is available, old bars extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars.

ESTIMATED QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq. Ft.	13,825	13,825
Non-Destructive Testing	Lin. Ft.	37	37
Class B1 Concrete	Cu. Yd.	80.8	81.8
Class B2 Concrete	Cu. Yd.	344.3	344.3
Elastomeric Expansion Joint Seal (4.0 inches)	Lin. Ft.	26	26
Preformed Compression Expansion Joint Seal (2.5 inches)	Lin. Ft.	26	26
Reinforcing Steel (Grade 60)	Lb.	40,280	40,280
Reinforcing Steel (Epoxy Coated)	Lb.	70,440	70,440
Fabricated Structural Carbon Steel	Lb.	2,690	2,690
Special Work	Lump Sum	1	1
Painting (System C) Green (See Special Provisions)	Lump Sum	1	1
Repair welds	Lump Sum		#104:48

Note: Cost of any required excavation for bridge included in contract unit price for other items.  
For removal of existing drainage system see Special Provisions.  
Cost of furnishing and installing slab drains included in the contract price bid for other items.

LONGITUDINAL DIMENSIONS:

Longitudinal dimensions are based on dimensions shown on original design plans.

HORIZONTAL CURVE DATA:

P.I. Sta. 92+37.7  
Δ = 26°-22' Lt.  
D = 1°-20'  
T = 1006.6'  
L = 1977.5'  
R = 4297.28  
S.E. = .0167' / ft.

B.M. = S.E. Cor. Conc. Beam Bt. #1  
18' Lt. Sta. 85+57 Elev. 881.26  
B.M. = N.E. Cor. Conc. Beam Bt. #6  
18' Lt. Sta. 90+37 Elev. 882.16  
BRIDGE OVER ST LOUIS SOUTH WESTERN RAILWAY CO. & BIG CREEK

STATE ROAD FROM PLEASANT HILL TO HARRISONVILLE

ABOUT 0.75 MILES SOUTH OF PLEASANT HILL

PROJECT NO. BHS-455(4) STA. 85+56.65±

JOB NO. 4-S-7-332

CASS

RTE. 7

COUNTY

STD.
STD. 706.30
L-23R

DESIGNED JUNE 1980  
DETAILED AUG 1980  
CHECKED SEPT. 1980

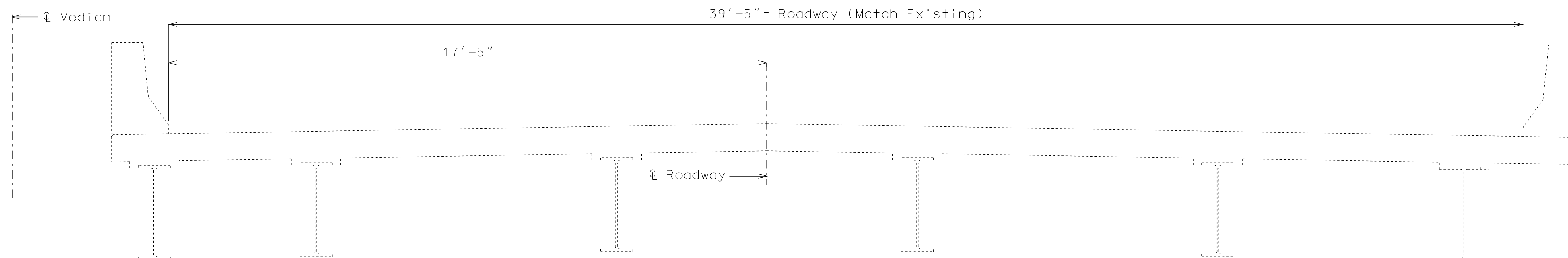
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 'A' of 11.

DATE 12/15/83

**MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION**  
 U.I.P. & REHAB. EXISTING (52'-52'-49')(4'-67.5'-78'-67.5'-4')(49'-52'-52')  
 CONTINUOUS COMPOSITE WIDE FLANGE SPANS

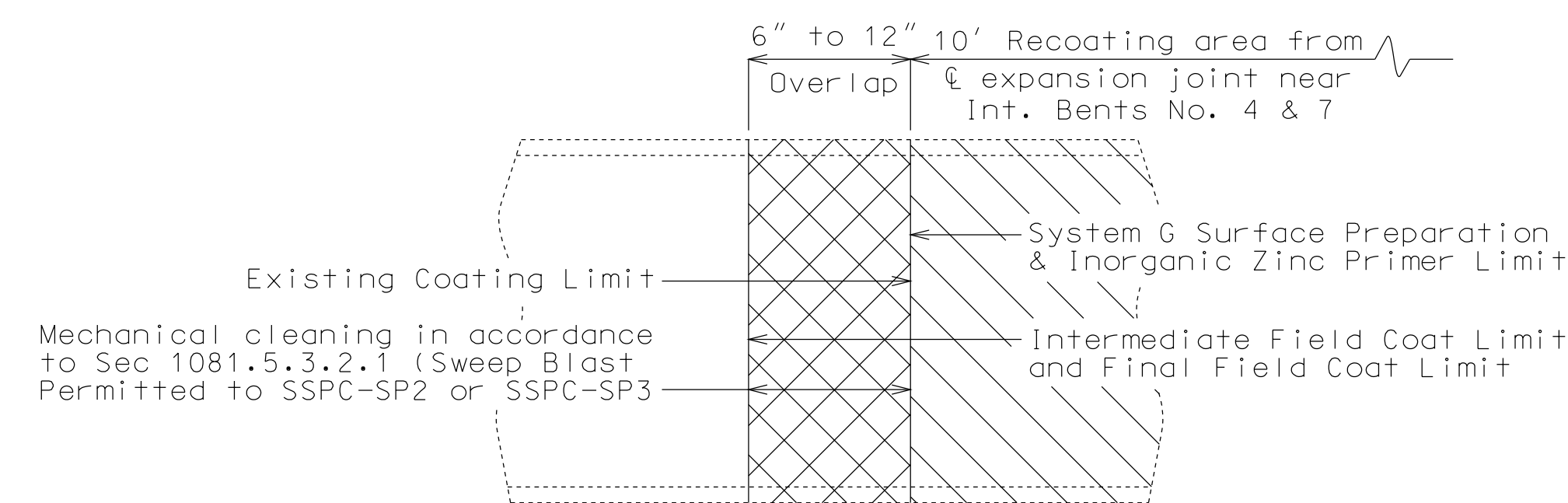
"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."



TYPICAL SECTION THRU EXISTING DECK

**General Notes:**

- Design Specifications:**  
 2002 AASHTO LFD (17th Ed.) Standard Specifications  
 Seismic Performance Category A  
 Bridge Deck Rating = 7
- Design Loading:**  
 H20 (1944)  
 HS20-44 (1973 & New Construction)  
 Military 24,000# Tandem axle
- Design Unit Stresses:**  
 Class B-1 Concrete (End Bents, Safety Barrier Curb & Superstructure)  $f'_c = 4,000$  psi  
 Reinforcing Steel (Epoxy Coated)  $f_y = 60,000$  psi  
 Structural Carbon Steel (ASTM A709 Grade 36)  $f_y = 36,000$  psi
- Joint Filler:**  
 All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.
- Reinforcing Steel:**  
 Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.
- Miscellaneous:**  
 Protective coating for concrete bents and piers (Urethane) shall be applied as shown on the bridge plans and in accordance with Sec 711.
- Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.
- Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
- Contractor shall verify all dimensions in field before ordering new material.
- The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.
- Traffic Handling:**  
 Traffic over structure to be maintained during construction. See Sheet No. 2 for staging.
- Structural Steel Protective Coating**  
**Coating Limits:** All existing structural steel within 10 feet of  $\phi$  expansion joint near Intermediate Bents No. 4 & 7 shall be recoated. Within these limits, items to be recoated shall include stringers, diaphragms, stiffeners, bearings and miscellaneous structural steel items.
- Protective Coating:** System G in accordance with Sec 1081.  
**Surface Preparation:** Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G, H or I)". The cost of surface preparation will be considered completely covered by the contract unit price for "Surface Preparation for Recoating Structural Steel".
- Prime Coat:** The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for "Field Application of Inorganic Zinc Primer." Tint of the prime coat for System G shall be similar to the color of the field coat to be used.
- Field Coat:** The color of the finish field coat shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract unit price per sq. foot for "Intermediate Field Coat (System G)". The cost of the finish field coat will be considered completely covered by the contract unit price per sq. foot for "Finish Field Coat (System G)".
- Sec 1081.4.5 shall be modified such that the word "RECOATED" is replaced by the word "RECOATED - SYSTEM G - EXPANSION AREAS ONLY".



PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP  
 (Vertical or horizontal paint limit. Horizontal limit shown)

Estimated Quantities		
Item		Total
Removal of Existing Expansion Joints and Adjacent Concrete	linear foot	158
Remove and Replace Safety Barrier Curb	linear foot	24
Class B-1 Concrete	cu. yard	40.9
Reinforcing Steel (Epoxy Coated)	pound	5,260
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Diaphragm Replacement	each	10
Surface Preparation for Recoating Structural Steel	sq. foot	2,100
Field Application of Inorganic Zinc Primer	sq. foot	2,100
Intermediate Field Coat (System G)	sq. foot	2,100
Finish Field Coat (System G)	sq. foot	2,100
Strip Seal Expansion Joint System	linear foot	79

Cost of any required excavation for bridge will be considered completely covered by the contract unit price for other items.

**REPAIRS TO BRIDGE: RTE. I-70 EB OVER SNI-A-BAR CREEK**

STATE ROAD FROM RTE. F WEST TO RTE. 40

ABOUT 0.8 MILE EAST OF RTE. 40

STA. 1049+50.00± (Match Existing)

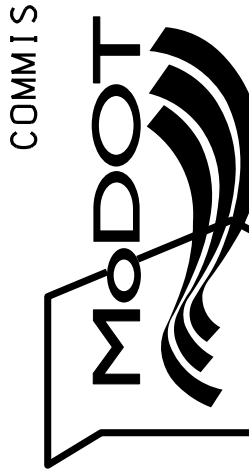
STD. 617.20

STD. 706.35

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL  
 JEFFERSON CITY, MO 65102  
 1-888-ASK-MDOT (1-888-273-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

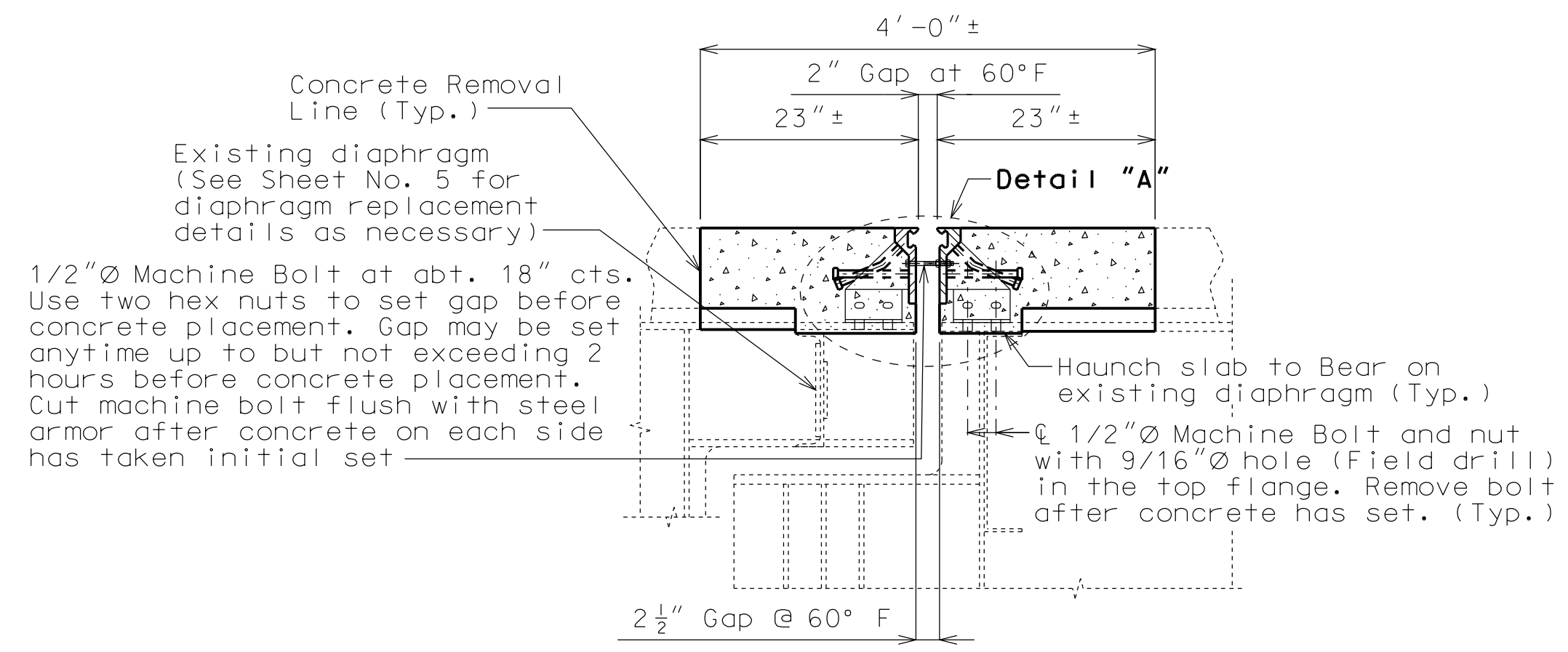








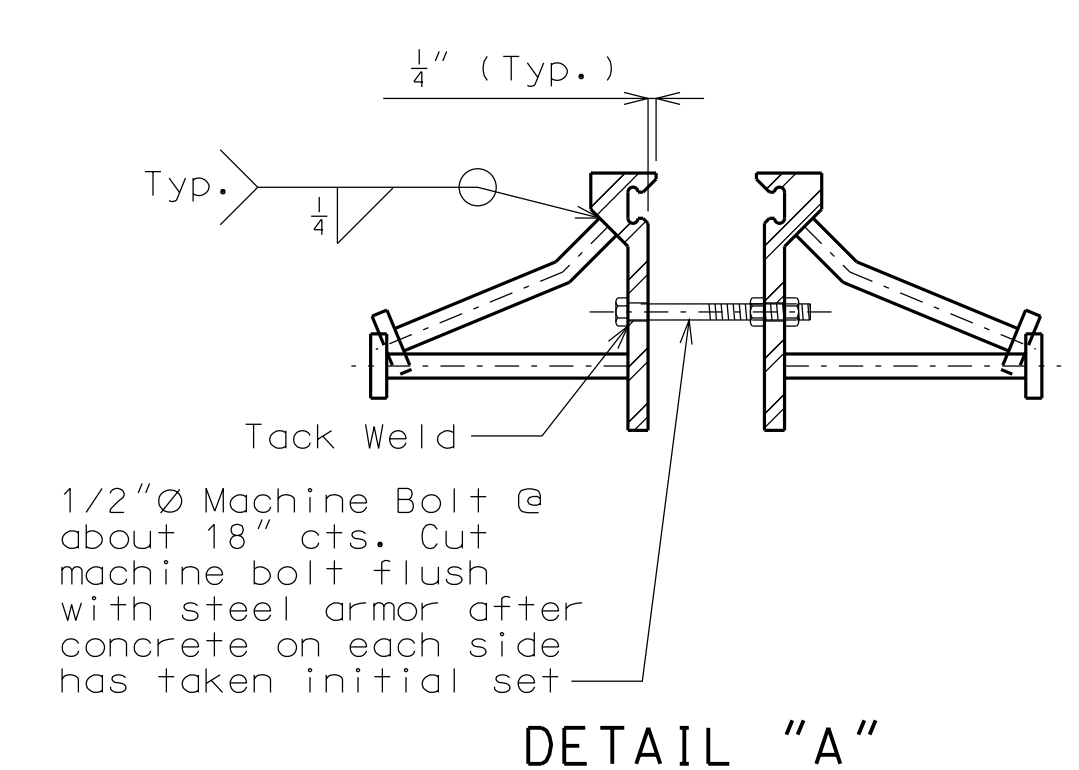




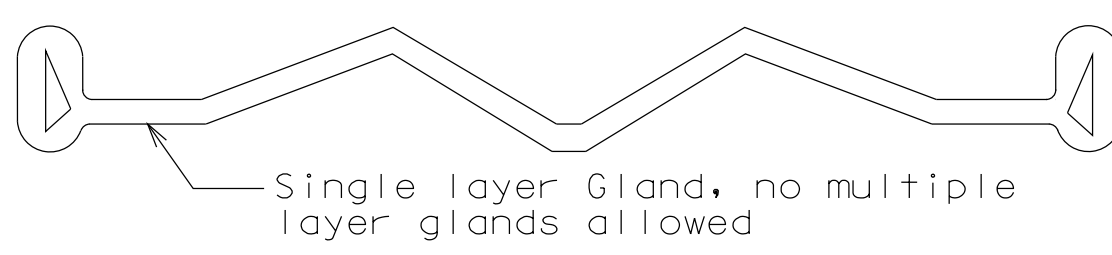
**SECTION A-A**

Note: Strip seal gland, slab reinforcement and existing bearing not shown for clarity.

Expansion joint near Intermediate Bent No. 4 shown. Expansion joint near Intermediate Bent No. 7 similar.

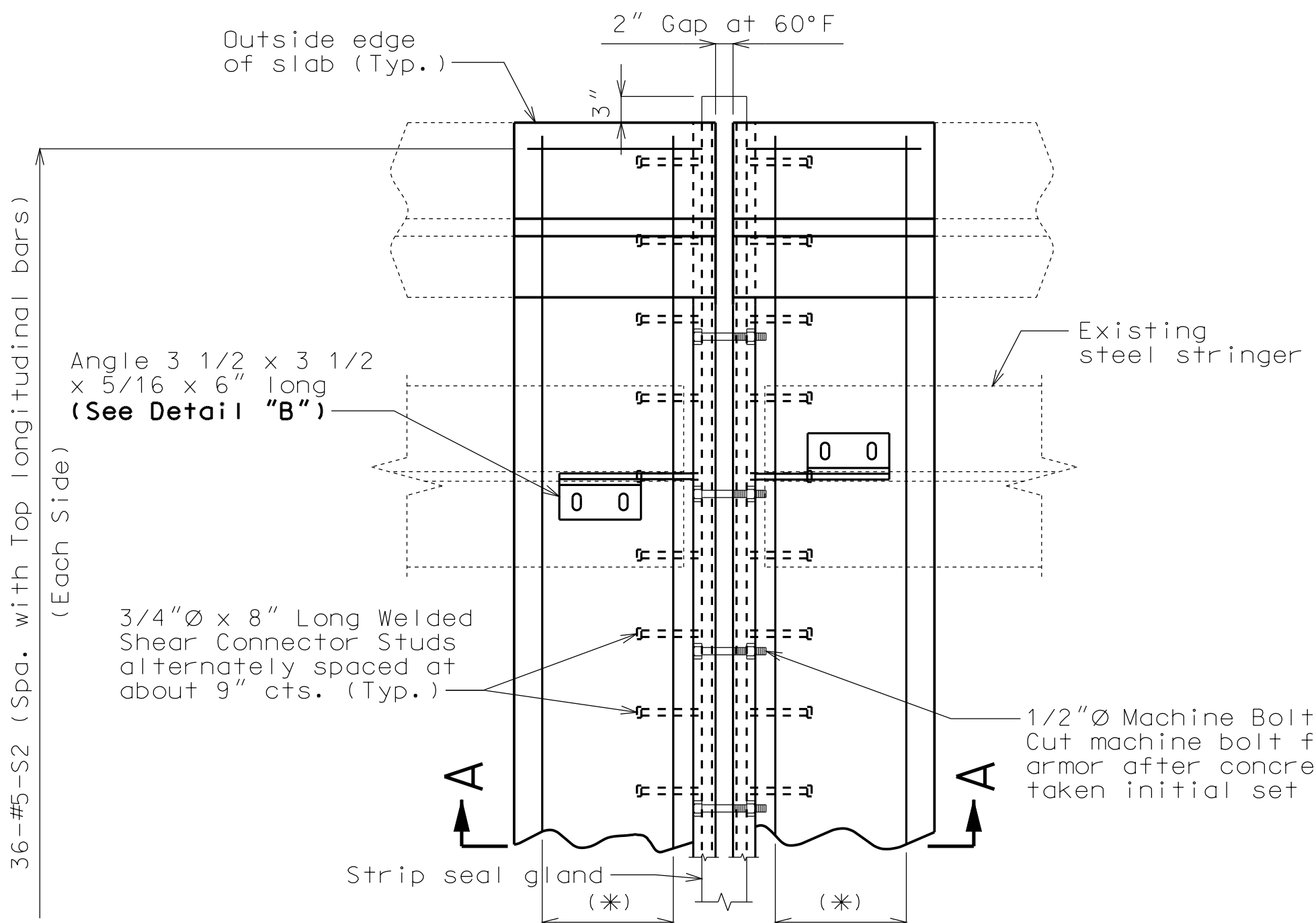


**DETAIL "A"**



**DETAIL OF GLAND**

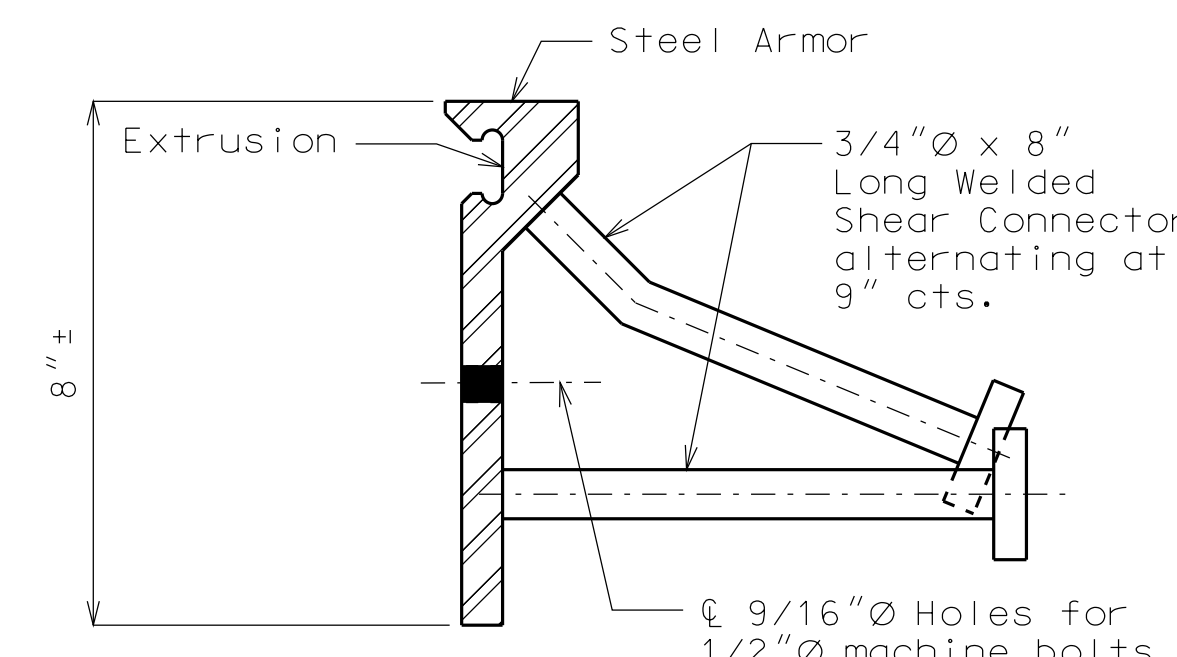
Strip seal gland size = 4"



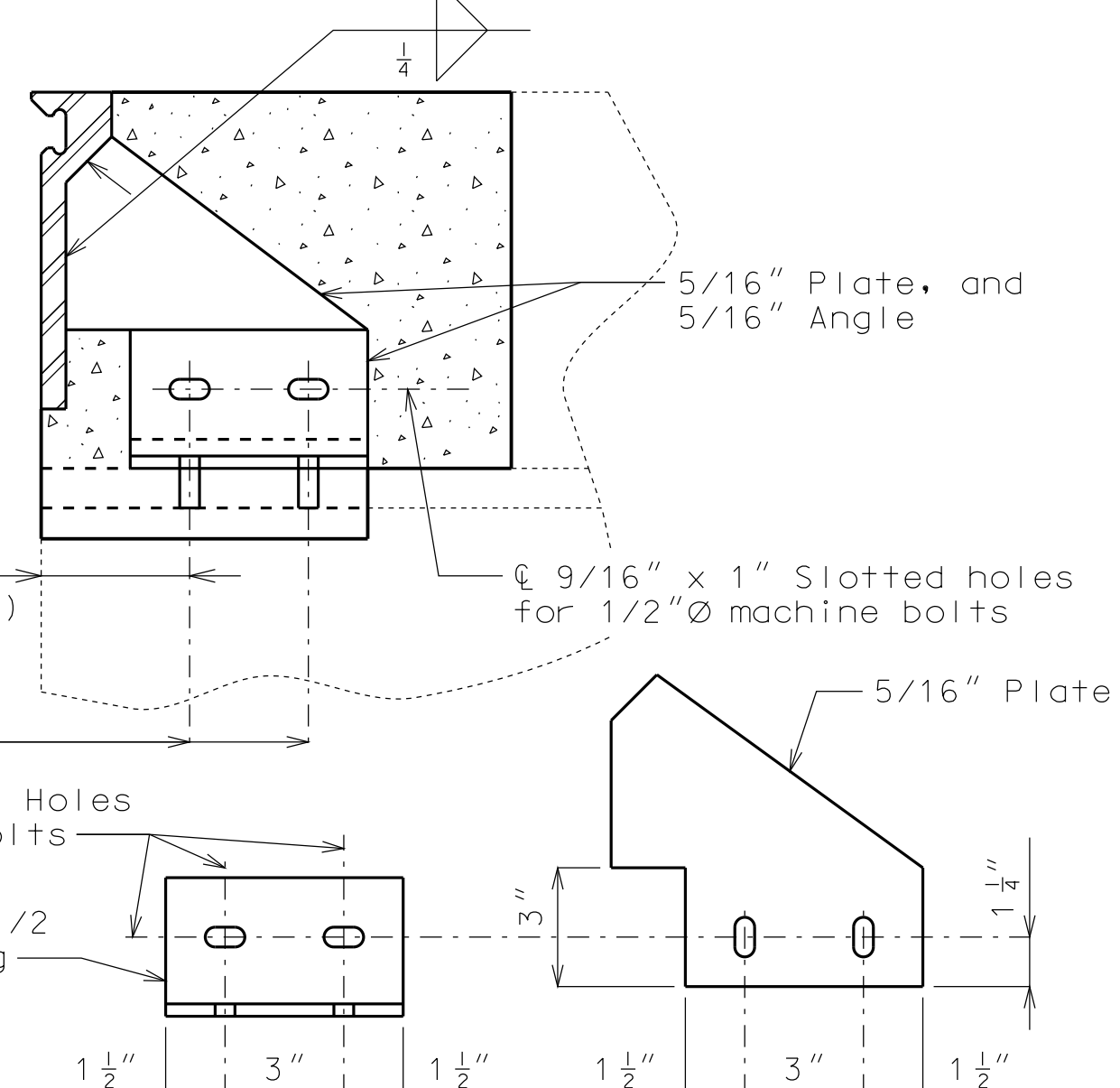
**PART PLAN NEAR SAFETY BARRIER CURB**

Note: Safety barrier curb reinforcement and existing longitudinal slab reinforcement not shown for clarity.

Note: (\*) 4-#6-S1 @ 6" cts. (Top & Bottom)



**DETAIL OF JOINT ARMOR**



**DETAIL "B"**

**GENERAL NOTES:**

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices. Factory splicing will be permitted for joints in excess of 53 feet.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Anchors for the expansion joint system shall be in accordance with Sec 1037. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 1/8" for each 10° fall or rise in temperature at installation.

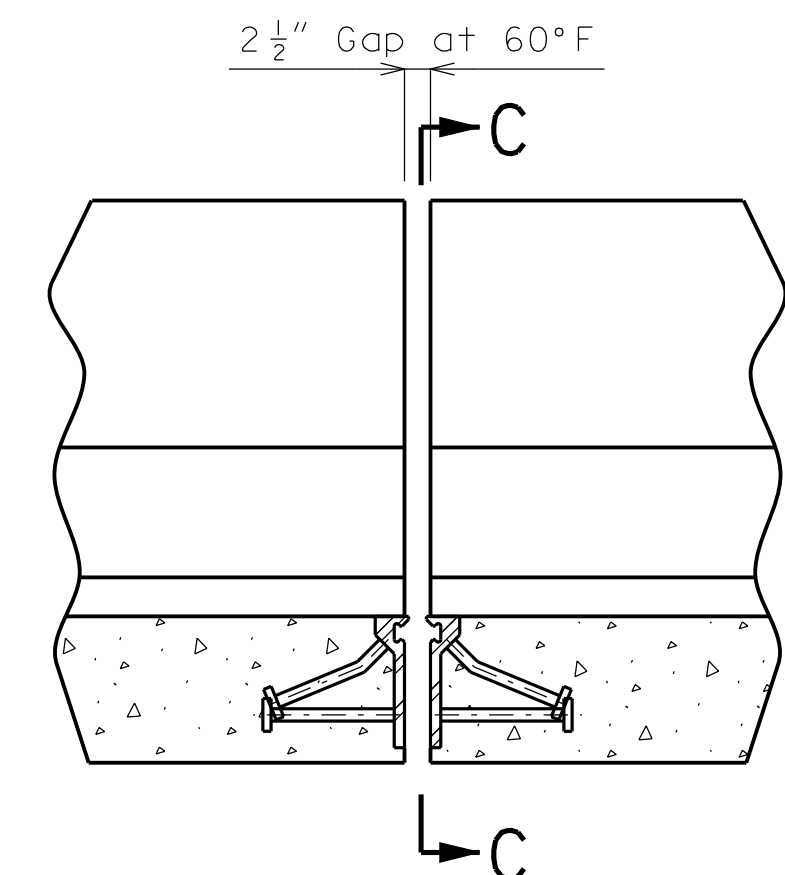
Existing longitudinal reinforcing steel shall be cut or bent so that ends shall not be more than ±1" from vertical leg of the steel armor at the expansion joint system.

Concrete shall be forced under and around steel armor and anchors. Proper consolidation of the concrete shall be achieved by localized internal vibration.

The contractor shall use a mechanical bar splice for #5-S1 bars at the location required for stage construction in accordance with the traffic control plans. The total bar lengths for bars indicated in the bill of reinforcing steel are determined based on bars being provided in one segment. Actual bar lengths shall be determined in the field and the bar lengths in the bar bill adjusted as required.

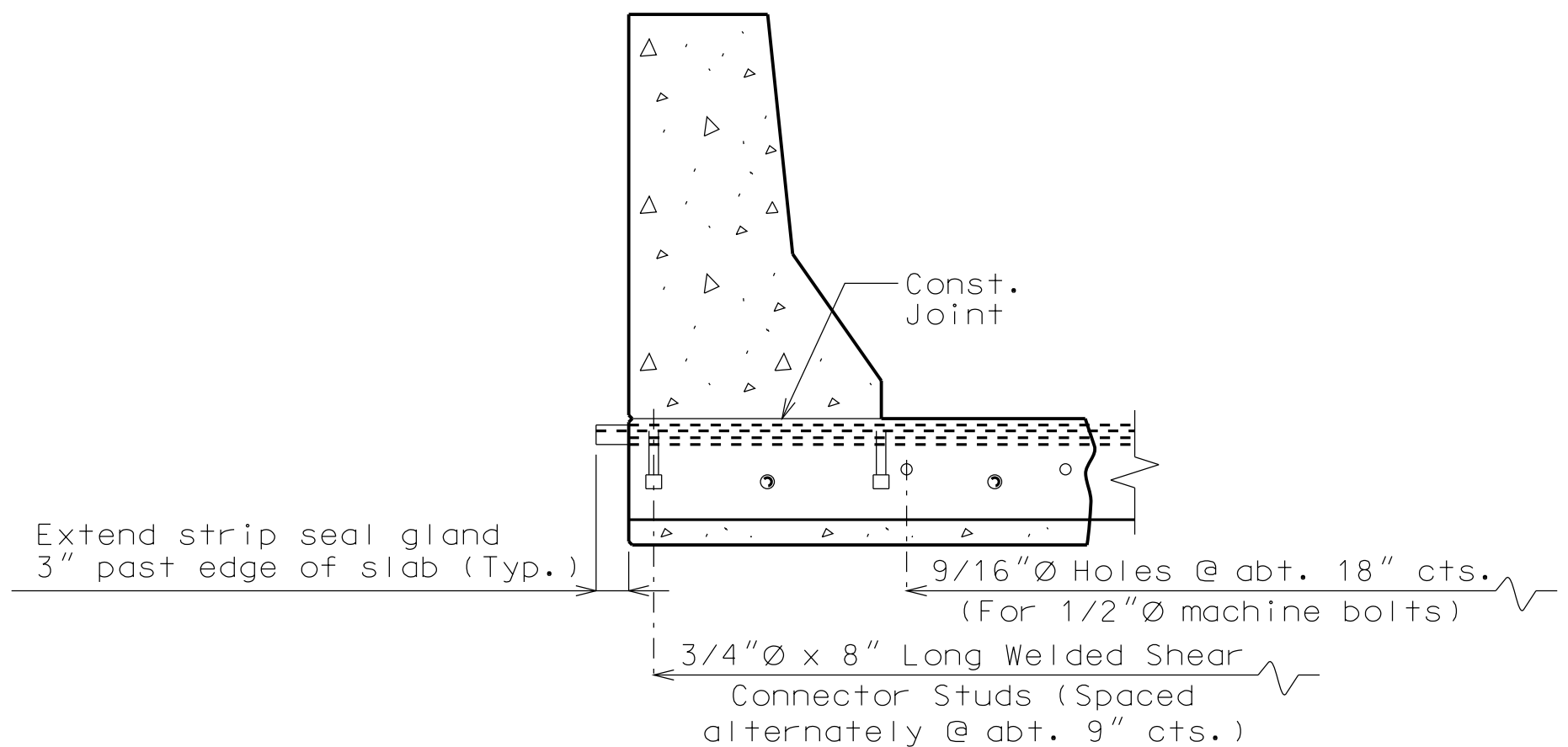
No additional payment will be made for any additional bar lengths required for the mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 706 except that no measurement will be made for mechanical bar splice and will be considered completely covered by the contract unit price for the reinforcing steel.

For details of replacement of safety barrier curb, see Sheet No. 7.

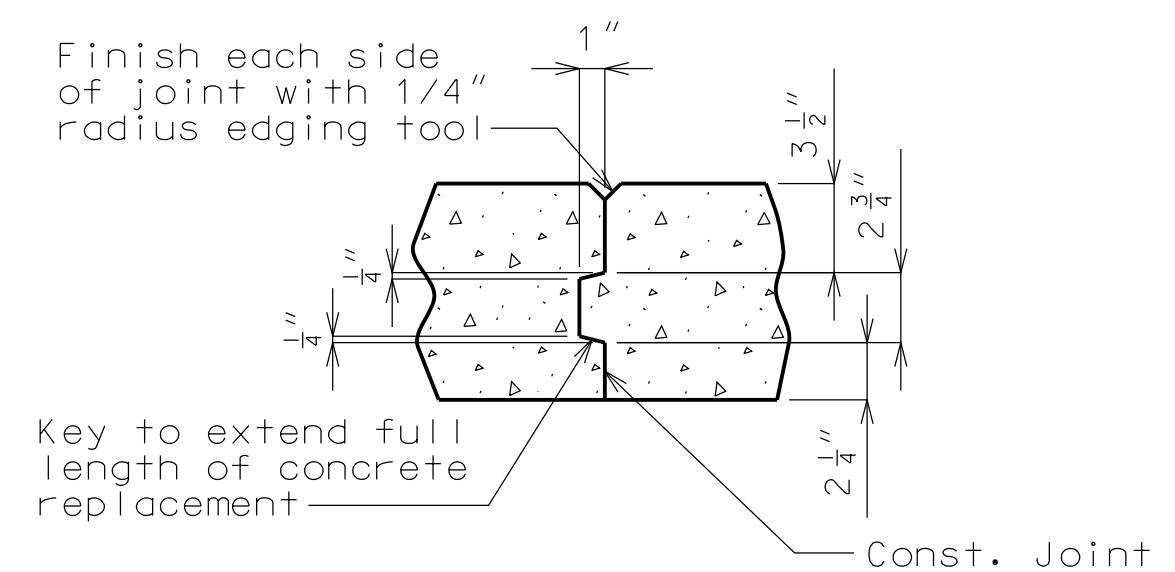


**PART ELEVATION OF BARRIER CURB**

Note: Strip seal gland not shown for clarity.



**PART SECTION C-C**



**SLAB CONSTRUCTION JOINT DETAILS**

**DETAILS OF STRIP SEAL NEAR INT. BENTS NO. 4 & 7**

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 8

Detailed Oct. 2013  
Checked Oct. 2013

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)

DATE PREPARED 11/26/2013	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY JACKSON	
JOB NO. J4P2191B	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. L01463	
DESCRIPTION	DATE

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED  
11/26/2013

ROUTE I-70 STATE MO

DISTRICT BR SHEET NO. 7

COUNTY JACKSON

JOB NO. J4P2191B

CONTRACT ID.

PROJECT NO.

BRIDGE NO. L01463

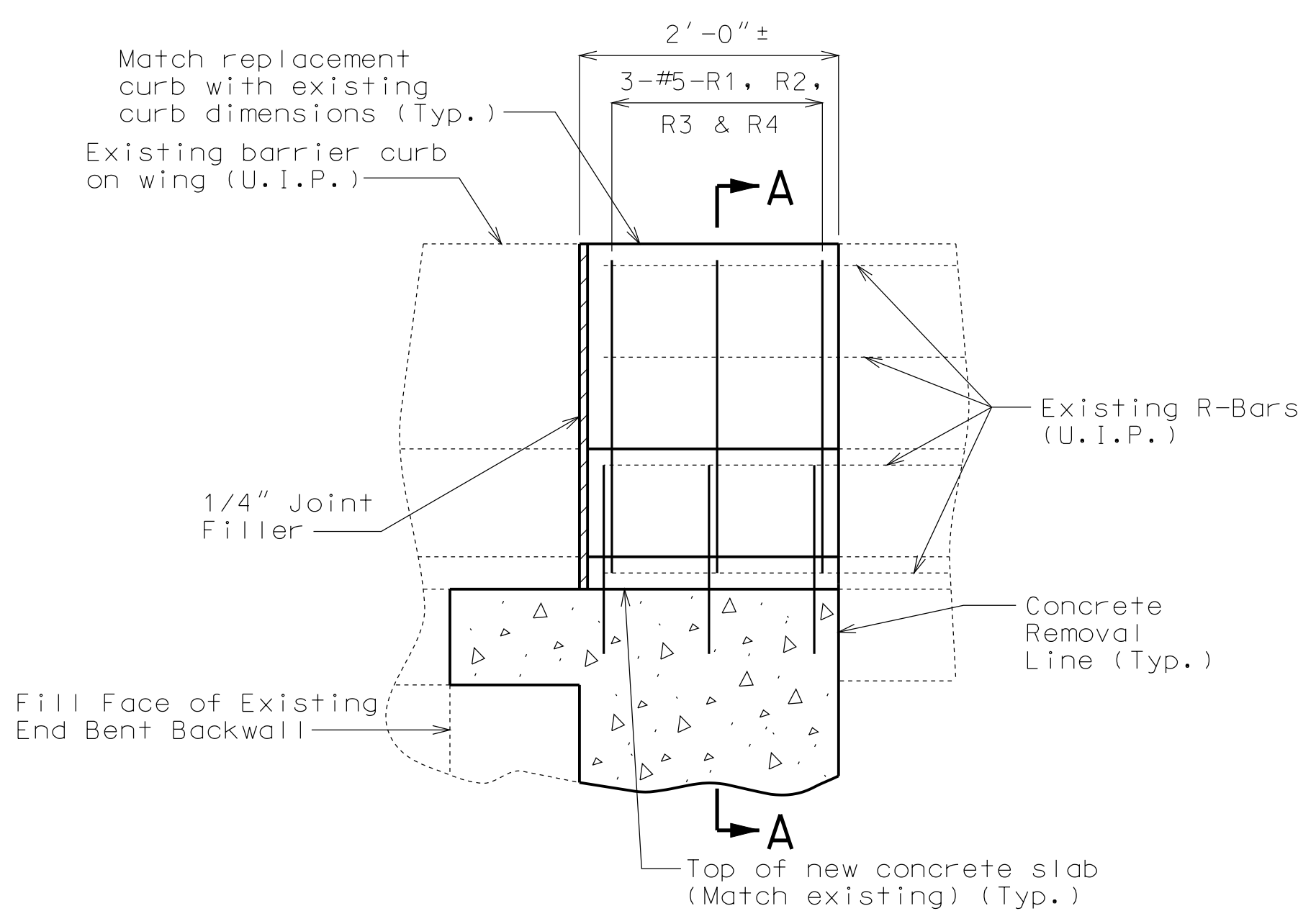
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

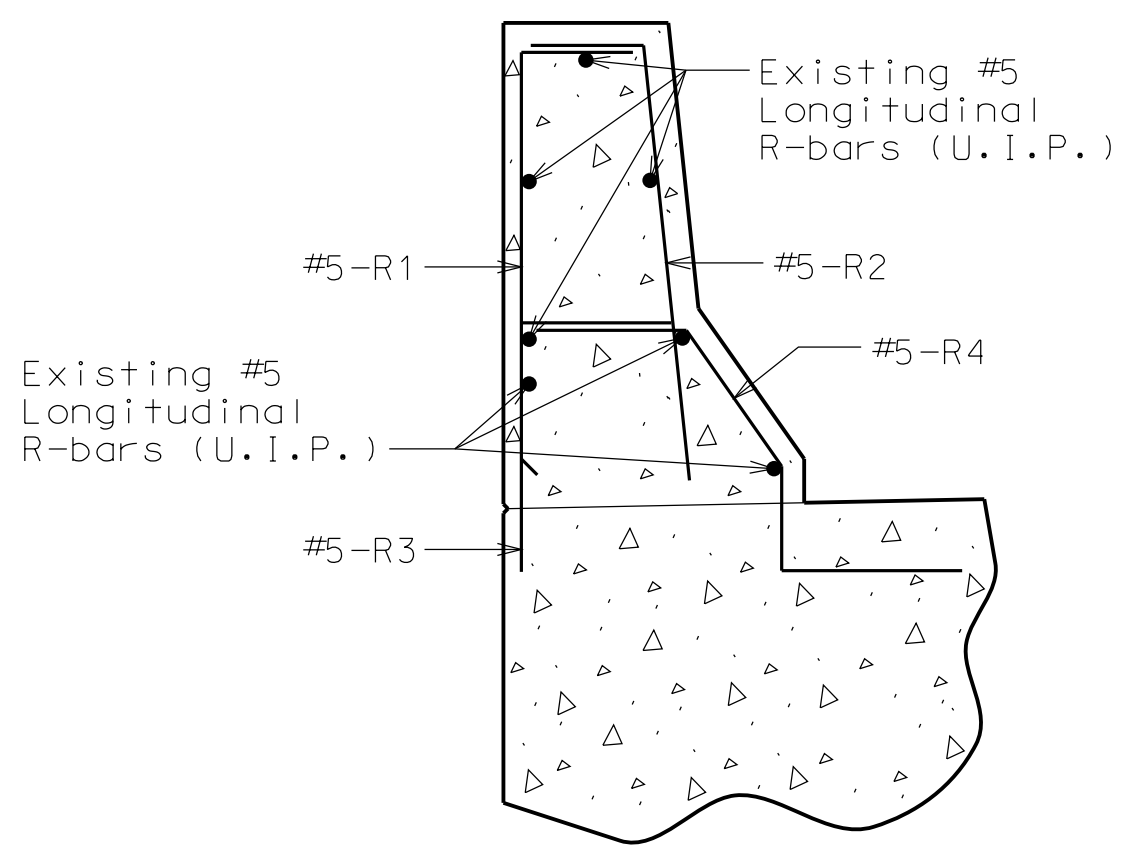
**MoDOT**

105 WEST CAPITOL  
JEFFERSON CITY, MO 65102  
1-888-ASK-MODOT (1-888-275-6636)

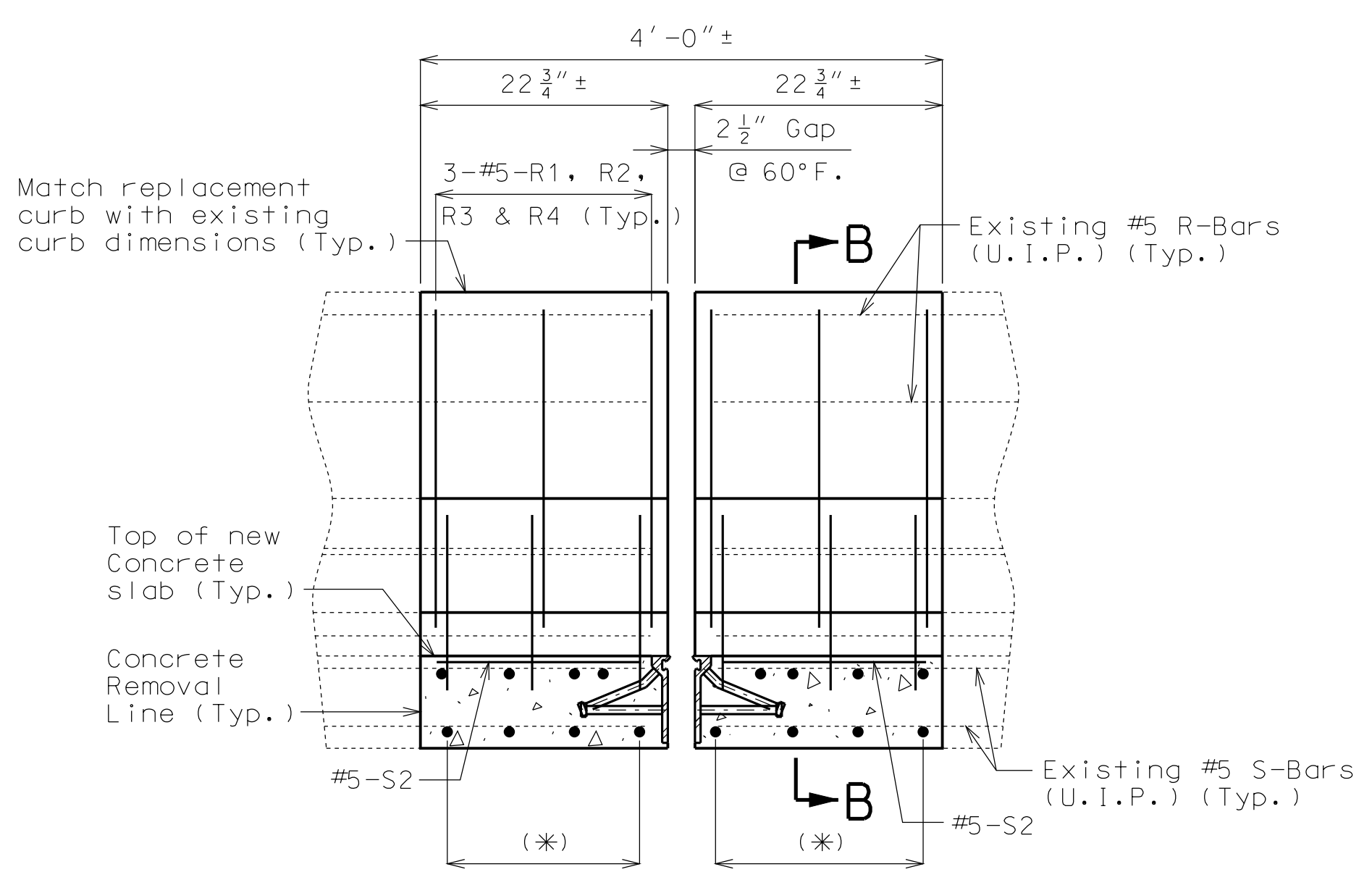
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



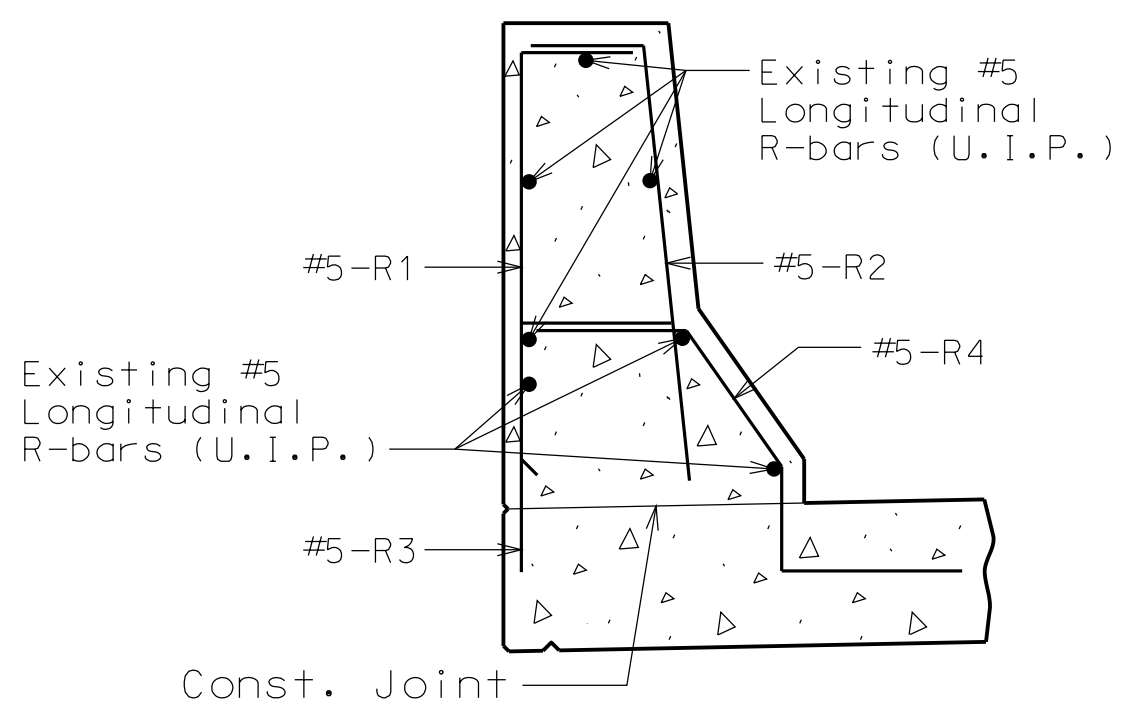
**PART ELEVATION OF BARRIER CURB**  
End Bent No. 1 shown, End Bent No. 10 similar.



**PART SECTION A-A**



**PART SECTION THRU SLAB SHOWING BARRIER CURB**  
Int. Bent No. 4 shown, Int. Bent No. 7 similar.  
Note: Strip seal gland not shown for clarity.



**PART SECTION B-B**

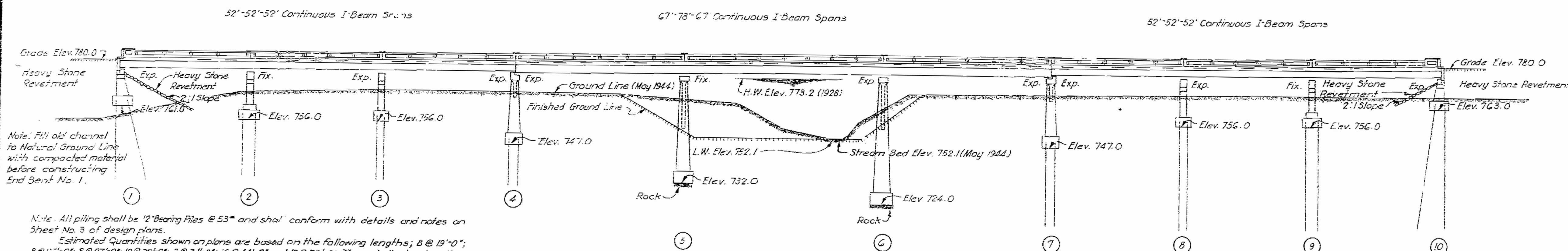
Note:  
(\*) 4-#6-S1 @ 6" cts. (Top & Bottom)

Note:  
Payment for all concrete and reinforcement for safety barrier curb, complete-in-place, will be considered completely covered by the contract unit price for Remove and Replace Safety Barrier Curb per linear foot.



MISSOURI STATE HIGHWAY DEPARTMENT

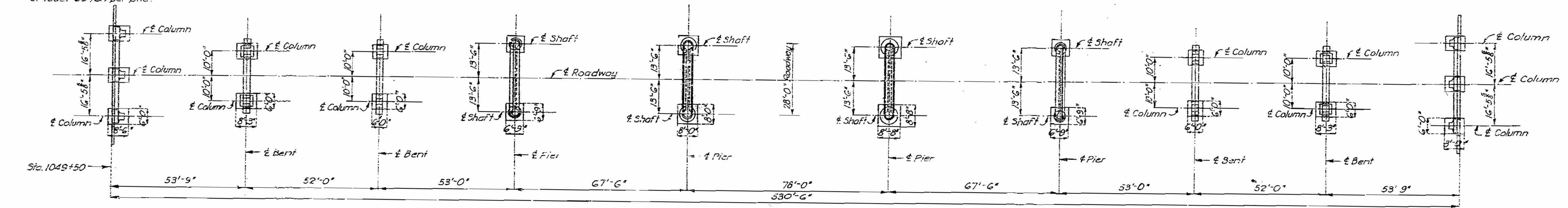
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	1-352(U) SEC. B (US 40 STA. 1049+50)	19		



GENERAL ELEVATION

Note: All piling shall be 12" bearing piles @ 53" and shall conform with details and notes on Sheet No. 3 of design plans.  
 Estimated Quantities shown on plans are based on the following lengths; B @ 19'-0"; 8 @ 25'-0"; 8 @ 27'-0"; 12 @ 32'-0"; 3 @ 34'-0"; 16 @ 44'-0" and 12 @ 50'-0". These indicated lengths are approximate only. Proper lengths to give required bearing and/or penetration will be authorized by the Engineer. See Special Provisions.  
 All piles shall be driven to practical refusal or into solid rock, boulders, shale or cemented gravel, or to not less than the full length authorized and to sustain a load of at least 60 tons per pile.

Note: All loose, shelly or disintegrated rock shall be removed and the footings for Piers No. 5 & 6 placed on hard, solid, undisturbed rock. If soft rock or shale is encountered, the footings shall be carried at least 18" into and rest against vertical faces of same.



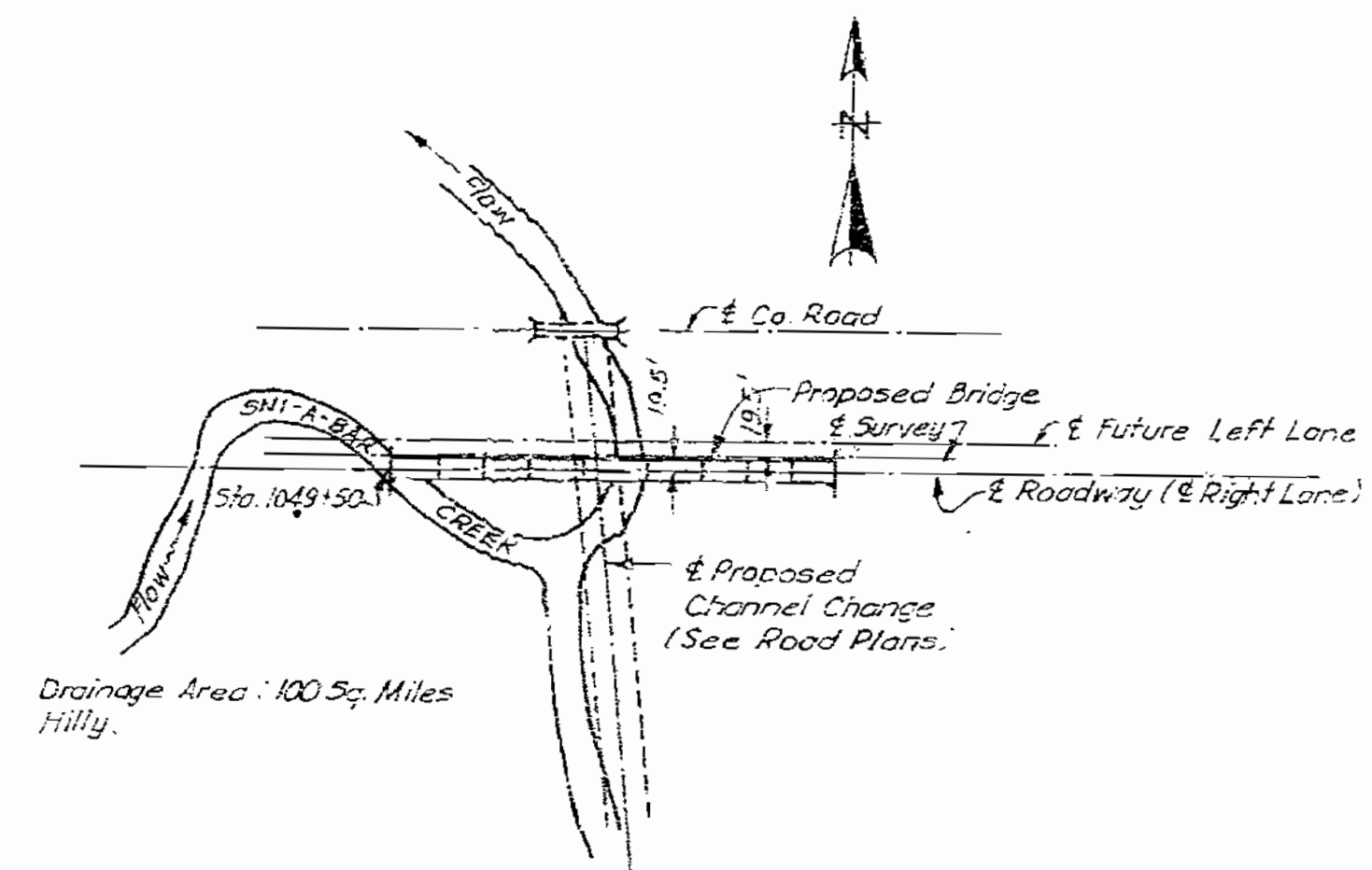
PLAN

GENERAL NOTES:

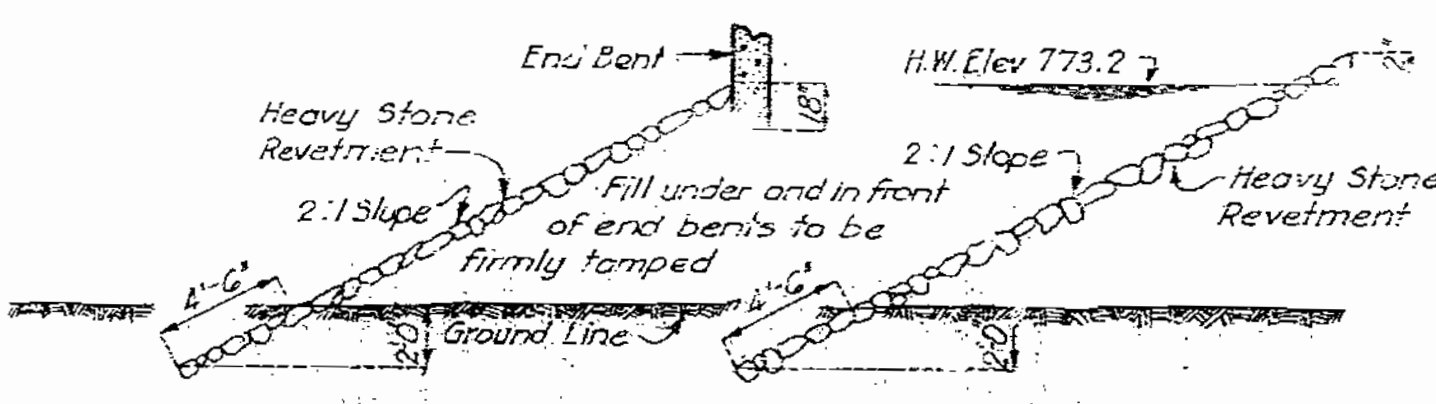
Design Specifications A.A.S.H.O. - 1944.  
 Loading H-20 A.A.S.H.O.  
 Structural Steel Stress 18,000 #/sq.  
 Reinforcing Steel Stress 18,000 #/sq.  
 Class "B" Concrete Stress 1,000 #/sq.  
 All concrete shall be Class "B".  
 Rivets 3" except as noted.  
 Paint: Shop, none; field, surfaces inaccessible, after erection three coats of red lead. No other paint to be applied by Contractor. Red lead required shall be furnished by the Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for Structural Steel.  
 Where joint filler is specified on plans it shall conform with the requirements of Section 38-12A(1) of the Standard Specifications for Preformed Material for Filler.  
 Qualification of all welding operators and electrodes will be required in accordance with specifications, except that a proper certification of electrodes qualified after 1944 will be acceptable.  
 A rubbed surface finish will be required on all exposed surfaces of handrails and curbs, and on outside faces of roadway slabs.

Item	Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds. 900		900
Class 2 Excavation for Structures	Cu. Yds. 598		598
Class "B" Concrete (Handrail)	Cu. Yds. 59.9		59.9
Class "B" Concrete	Cu. Yds. 5300	446.4	9766.4
Fabricated Structural Steel	Lbs. 415,630		415,630
Reinforcing Steel	Lbs. 43,720	112,370	158,190
Steel Casings	Lbs. 11,440		11,440
Gray Iron Alloy Castings	Lbs. 1,470		1,470
Steel Piles in Place	Lin. Ft. 2312		2312
Steel Pile Cut-offs	Lin. Ft. 216		216

Note: Excavation for bridge made above Elev. 754.0 will be paid for as Class 1 Excavation for Structures.  
 Excavation for bridge made below Elev. 754.0 will be paid for as Class 2 Excavation for Structures.



LOCATION SKETCH



FRONT OF END BENTS SIDE SLOPES OF FILL

Heavy Stone Revetment shall be placed on fills at ends of bridge as shown in sketches.  
 Approximately 700 Sq. Yds. of Heavy Stone Revetment Work included in road contract.

HEAVY STONE REVETMENT SKETCHES

RM #23 Elev. 768.56 Spike & Washer in W. Roof of 21" Fl. 153" L.F. = 370.1000 20.

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
 ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
 PROJECT NO. F1-352(U) SEC. B (US 40 STA. 1049+50) (19.5' RIGHT)  
 JACKSON COUNTY

SUBMITTED BY J.W. Enslin DATE 8/24/1946  
 APPROVED BY C.W. Bauer DATE 8/24/1946

FINISHED  
 STD. C1063

Designed Jan. 1946 By R.A.C.  
 Drawn April 1946 By G.W.  
 Traced May 1946 By J.T.F.  
 Checked July 1946 By R.A.S.

Note: This drawing is not to scale. Follow dimensions.

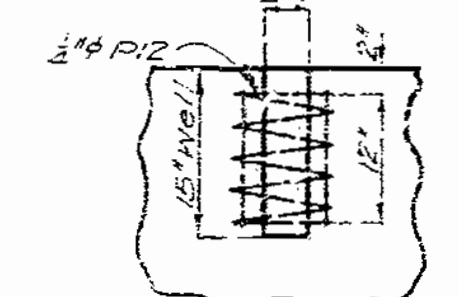
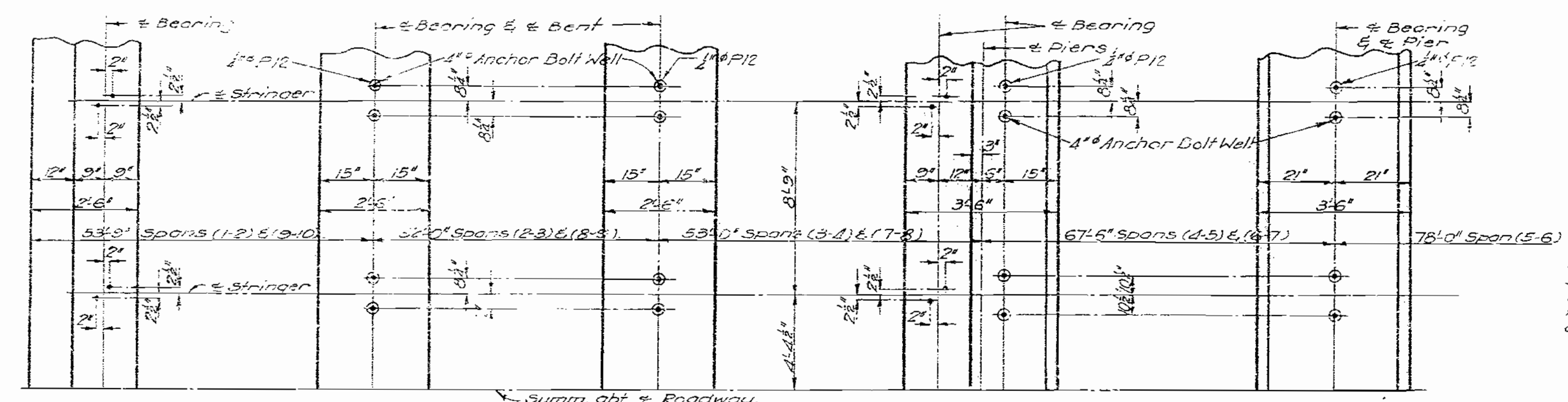
Sheet No. 1 of 8

SEE FINAL PLANS BROWN LINES

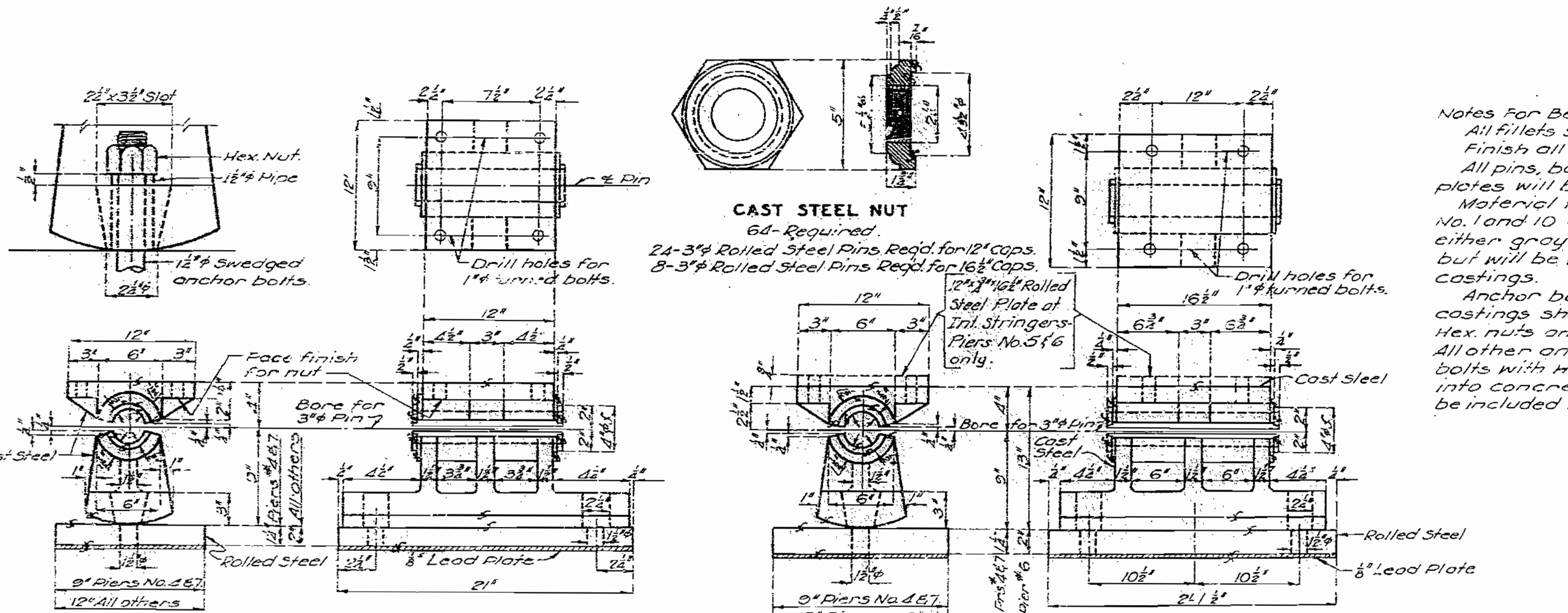
FINISHED L-145

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
E	MO	33-300-100-002	19	10	16



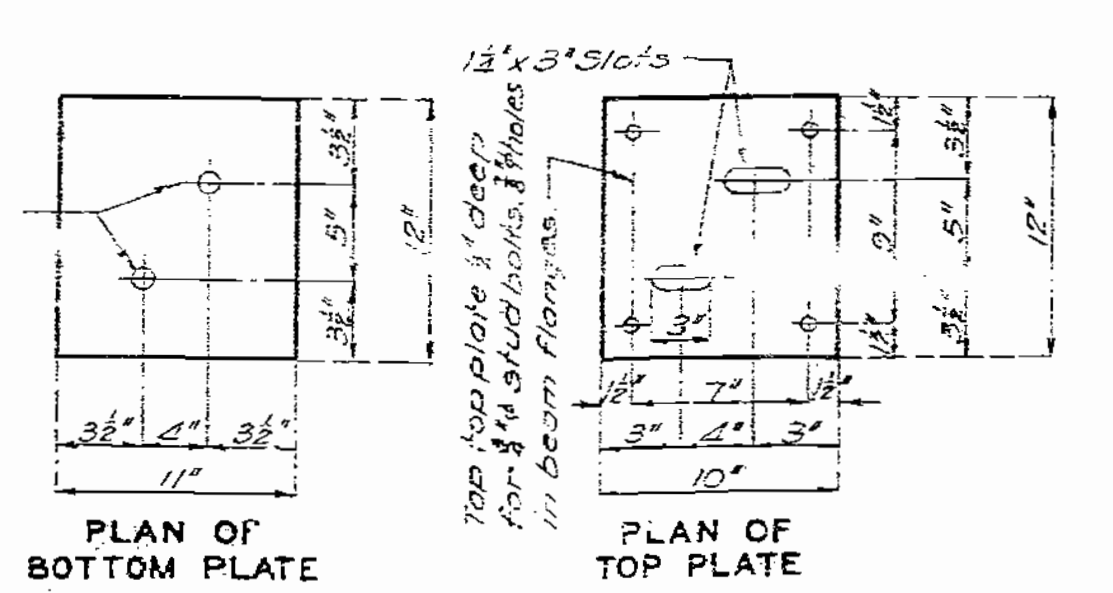
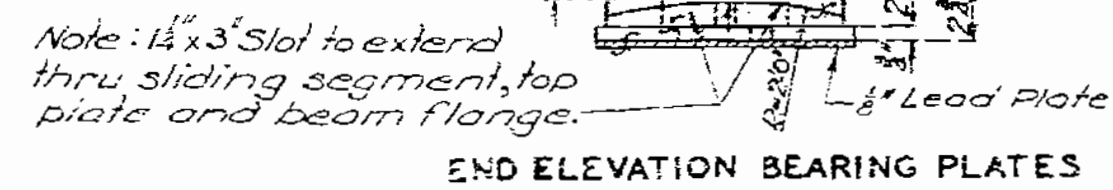
BENTS NO. 1 & 10. BENTS NO. 2 & 9. BENTS NO. 3 & 8. PIERS NO. 4 & 7. PIERS NO. 5 & 6. PART ANCHOR BOLT PLAN. Note: Grout for anchor bolts shall be of Iron Oxide cement (Embeco or an approved equivalent).



CAST STEEL NUT. 6d-Required. 24-3# Rolled Steel Pins Req'd. for 12" caps. 8-3# Rolled Steel Pins Req'd. for 16" caps. EXPANSION SHOES FOR BENTS NO. 3 & 8 AND EXT. STRINGERS PIERS NO. 4-6-7. 10-Sets Required for Bents No. 3 and 8. Ext. Str. Pier. No. 6. 2-Sets Required for Ext. Stringers Piers No. 4 & 7. EXPANSION SHOES FOR INT. STRINGERS PIERS NO. 4, 6 AND 7. 4-Sets Required for Piers No. 4 & 7. 2-Sets Required for Pier No. 6. FIXED SHOES FOR BENTS NO. 2 & 9 AND EXT. STRINGERS PIER NO. 5. 10-Sets Required. FIXED SHOES FOR INT. STRINGERS PIER NO. 5. 2-Sets Required. Note: Cast Steel Cap same as shown above for Expansion Shoes.

Notes for Bearings:  
 All fillets shall have 3/8" radius.  
 Finish all surfaces marked "F".  
 All pins, bolts, nuts, washers and rolled plates will be paid for as structural steel.  
 Material for bearing plates of Bents No. 1 and 10 and Piers No. 4 and 7 may be either gray iron alloy or cast steel, but will be paid for as gray iron alloy castings.  
 Anchor bolts for gray iron alloy castings shall be 1 1/2" swaged bolts with Hex. nuts and shall extend 10" into concrete. All other anchor bolts shall be 1 1/2" swaged bolts with Hex. nuts and shall extend 12" into concrete. Cost of lead plates shall be included in price bid for other items.

COMPLETE BILL OF REINFORCING STEEL										
No.	Size	Length	Mark	Location	Bending sketches & Cutting Diagrams	No.	Size	Length	Mark	Location
Bents No. 1, 2, 3, 8, 9, 10										
60	3/8"	5'-6"	D1	Footing	[Sketches for Bents 1, 2, 3, 8, 9, 10]	28	1/2"	21'-0"	C1	Subpost
12	3/8"	10'-6"	D2	"		65d	3/8"	4'-6"	C2	"
12	3/8"	10'-6"	D3	"		4	3/8"	6'-3"	C3	"
24	3/8"	8'-0"	D4	"		4	3/8"	7'-0"	C4	"
16	3/8"	7'-0"	F1	Haunch		4	3/8"	7'-0"	C5	"
32	3/8"	7'-0"	F2	"		4	3/8"	8'-6"	C6	"
8	3/8"	7'-0"	H1	Backwall		16	3/8"	25'-0"	C7	"
8	3/8"	7'-0"	H2	"		16	3/8"	25'-0"	C8	"
8	3/8"	7'-0"	H3	"		32	3/8"	27'-3"	C9	"
6	3/8"	11'-6"	H4	"		32	3/8"	27'-3"	C10	"
12	3/8"	11'-6"	H5	"	48	3/8"	24'-0"	C11	"	
10	3/8"	17'-6"	H7	"	24	3/8"	28'-0"	C12	"	
24	3/8"	37'-9"	D1	Footing	12	3/8"	6'-0"	R1	End Post	
8	3/8"	13'-6"	T1	Wing	576	3/8"	9'-0"	R2	Curb	
92	3/8"	9'-0"	U1	Beam	348	3/8"	7'-3"	R3	Subpost	
156	3/8"	5'-0"	V1	Backwall	184	3/8"	4'-3"	R4	Posts	
30	3/8"	11'-3"	V2	Column	3936	3/8"	2'-4"	R5	Bolster	
6	3/8"	7'-0"	V3	"	12	3/8"	6'-0"	R6	End Post	
6	3/8"	7'-0"	V4	"	16	3/8"	13'-3"	R7	Roll	
6	3/8"	5'-0"	V5	"	32	3/8"	11'-0"	R8	"	
21	3/8"	14'-9"	V6	"	16	3/8"	12'-3"	R9	"	
15	3/8"	14'-0"	V7	"	64	3/8"	10'-0"	R10	"	
14	3/8"	7'-9"	V8	Wing	96	3/8"	9'-0"	R11	"	
4	3/8"	6'-0"	V9	"	32	3/8"	11'-3"	R12	"	
8	3/8"	3'-3"	V10	Beam	64	3/8"	10'-0"	R13	"	
Piers No. 4, 5, 6, 7										
48	3/8"	8'-0"	D4	Footing	12	3/8"	6'-0"	R5	End Post	
18	3/8"	10'-3"	D5	"	16	3/8"	13'-3"	R7	Roll	
32	3/8"	9'-0"	D6	"	32	3/8"	11'-0"	R8	"	
32	3/8"	7'-0"	D7	"	16	3/8"	12'-3"	R9	"	
64	3/8"	9'-0"	F2	Haunch	64	3/8"	10'-0"	R10	"	
56	3/8"	3'-0"	G1	Beam	96	3/8"	9'-0"	R11	"	
8	3/8"	20'-0"	G2	"	32	3/8"	11'-3"	R12	"	
32	3/8"	37'-9"	P1	Footing	64	3/8"	10'-0"	R13	"	
80	3/8"	9'-0"	P2	Column	16	3/8"	10'-3"	R14	"	
32	3/8"	13'-0"	P3	"	48	3/8"	9'-3"	R15	"	
32	3/8"	15'-0"	P4	"	1266	3/8"	30'-3"	S1	Slab	
32	3/8"	10'-9"	P12	Wells	630	3/8"	32'-9"	S2	"	
188	3/8"	11'-6"	U2	Beam	456	3/8"	28'-9"	S3	"	
Bents No. 2, 3, 8, 9										
48	3/8"	8'-0"	D4	Footing	126	3/8"	16'-0"	S4	"	
32	3/8"	10'-3"	D5	"	48	3/8"	5'-0"	S5	"	
32	3/8"	9'-0"	D6	"	48	3/8"	8'-0"	S6	"	
32	3/8"	7'-0"	D7	"	684	3/8"	23'-3"	S7	"	
Piers No. 4, 5, 6, 7										
64	3/8"	8'-0"	D8	Footing						
32	3/8"	8'-0"	D9	"						
4	3/8"	28'-5"	H3	Haunch						
8	3/8"	20'-0"	H5	COP						
16	3/8"	27'-6"	H10	"						
12	3/8"	31'-6"	H11	Web						
48	3/8"	28'-0"	H12	"						
16	3/8"	37'-9"	P1	Footing						
224	3/8"	9'-3"	P5	COP						
60	3/8"	5'-9"	P6	Web						
32	3/8"	22'-6"	D7	Shaft						
32	3/8"	20'-6"	P5	"						
16	3/8"	21'-0"	P9	"						



BEARING PLATES FOR BENTS NO. 1 & 10 AND PIERS NO. 4 & 7. 16-Sets Required.

BRIDGE OVER SNA-AR CREEK  
 STATE ROAD FROM BLUE SPRINGS TO GAK GROVE  
 ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
 PROJECT NO. FI-352(1) SEC. B (US 40) STA. 1049+50  
 JACKSON COUNTY

Designed Jan. 1946 by R.A.C.  
 Drawn April 1946 by S.W.  
 Traced May 1946 by H.C.  
 Checked July 1946 by P.A.B.

Note: This drawing is not to scale. Follow dimensions.

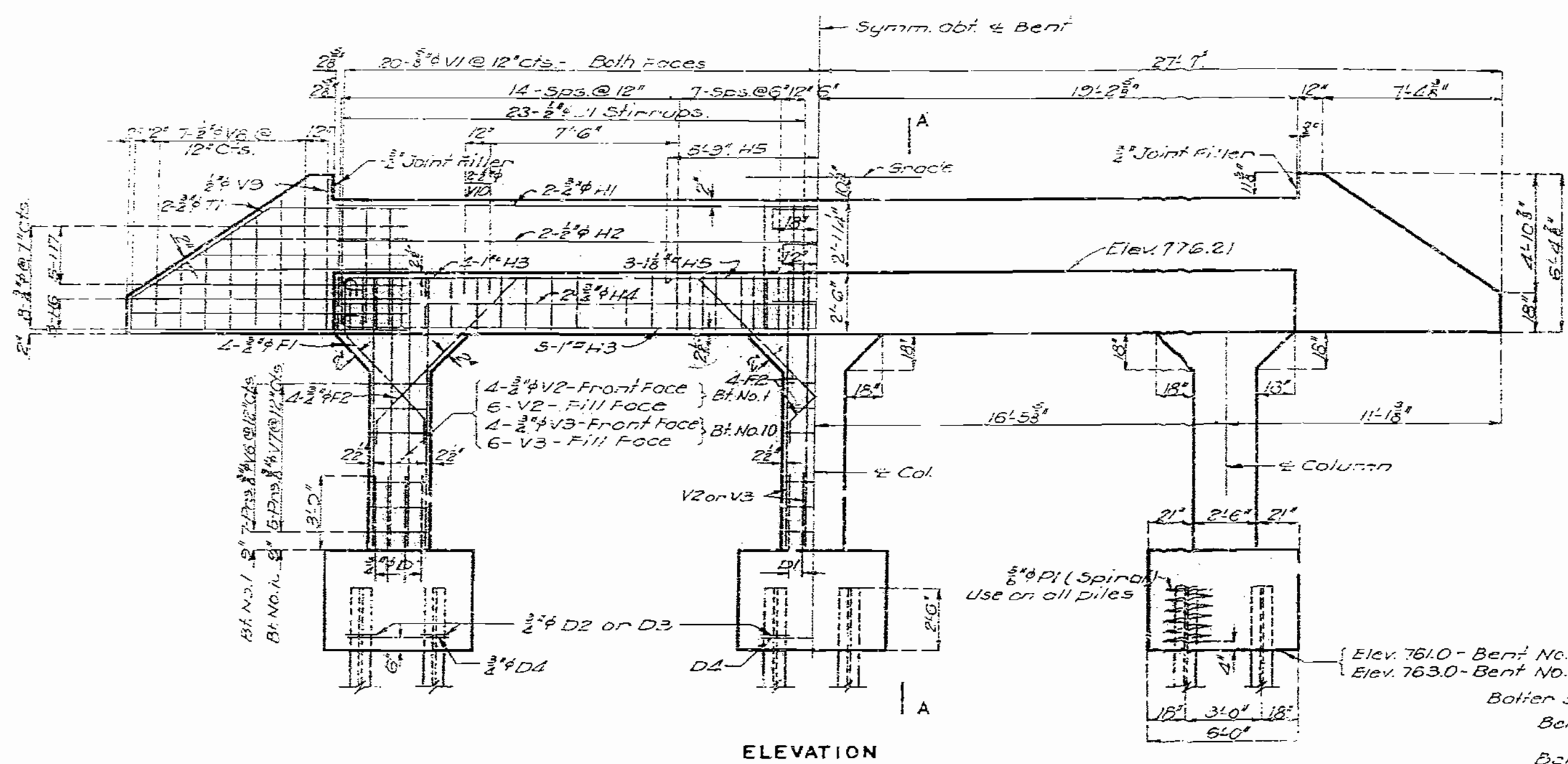
Sheet No. 2 of 3.

L-146

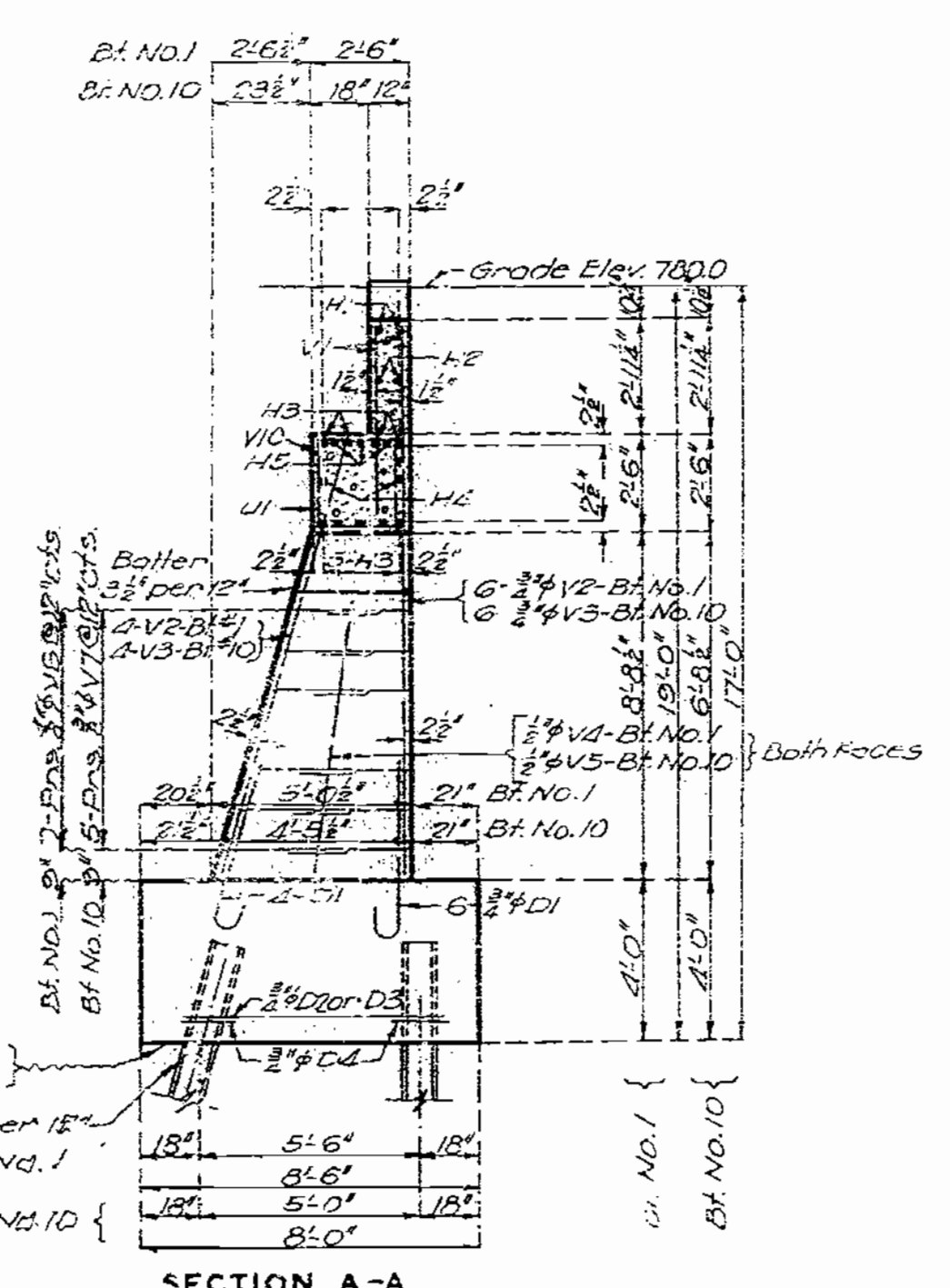
268

MISSOURI STATE HIGHWAY DEPARTMENT

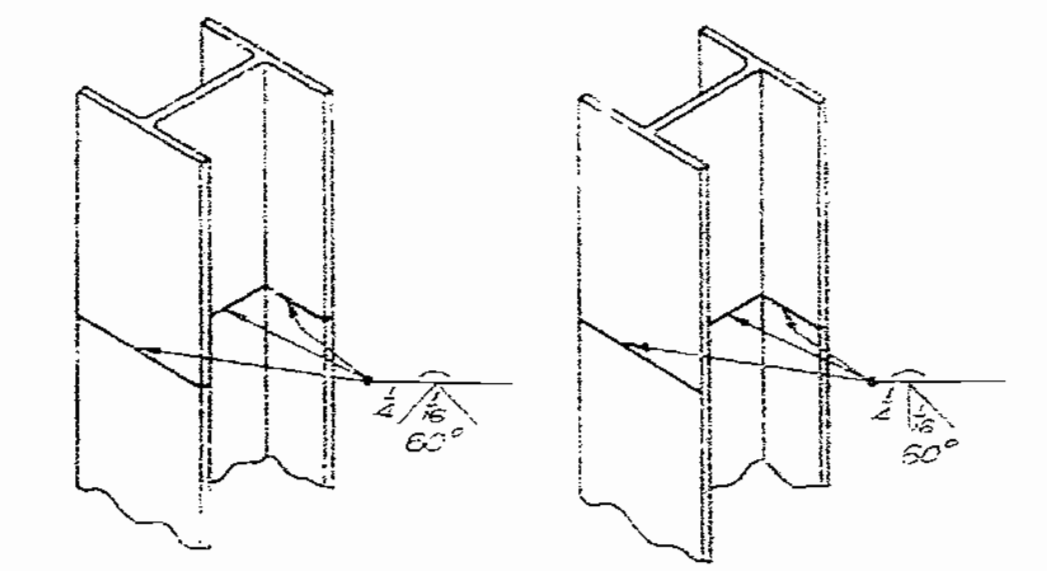
FED. ROAD DIST. NO.	STATE	FYD. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	1935-1936 (U.S.A.)	19		



ELEVATION



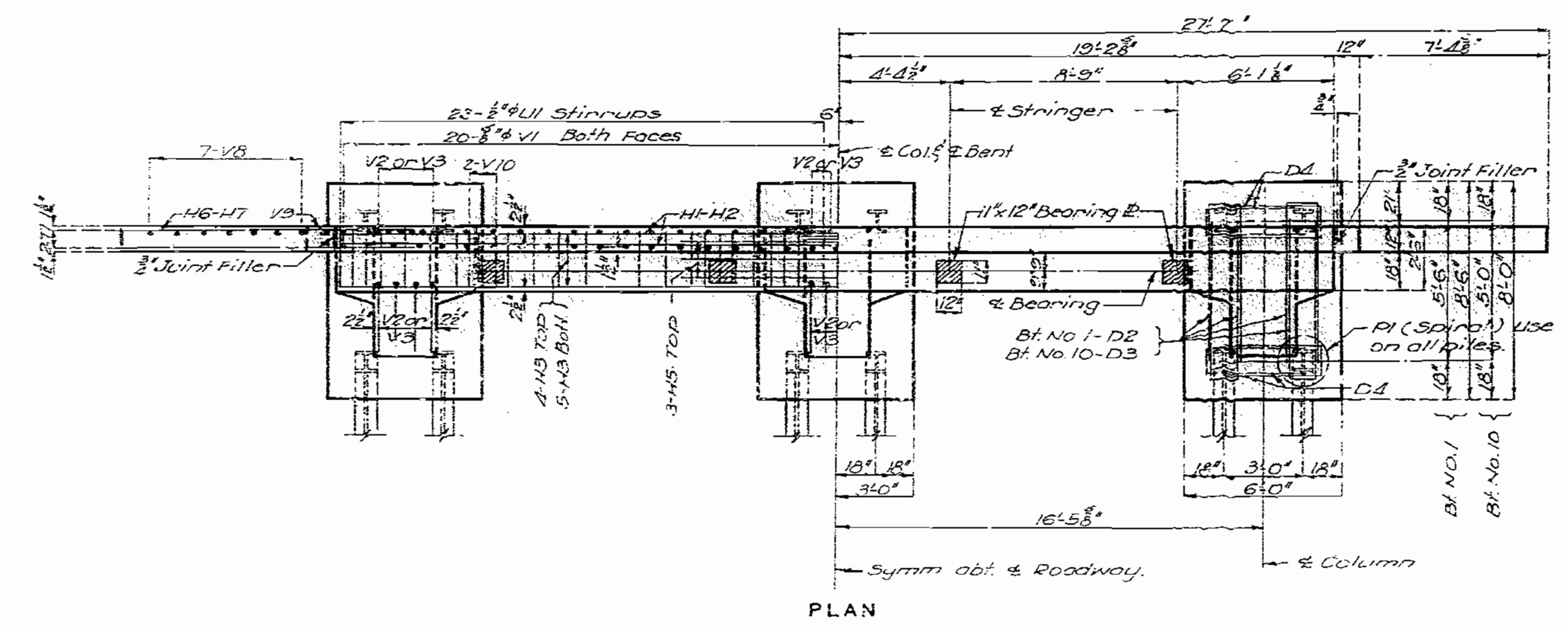
SECTION A-A



Thus if welded in flat position

Thus if welded in vertical position (top of lower section to be cut square)

**BUTT SPLICE FOR STEEL PILING**



PLAN

DETAILS OF END BENTS NO. 1 AND 10.

249

Designed Jan 1946 by R.A.C.  
 Drawn April 1946 by G.V.  
 Traced May 1946 by H.C.  
 Checked July 1946 by PAB.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 8.

**BRIDGE OVER SNI-A-BAR CREEK**  
 STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
 ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
 PROJECT NO. FI-352(1) SEC. R. (US 40) STA. 1049+50  
 JACKSON COUNTY

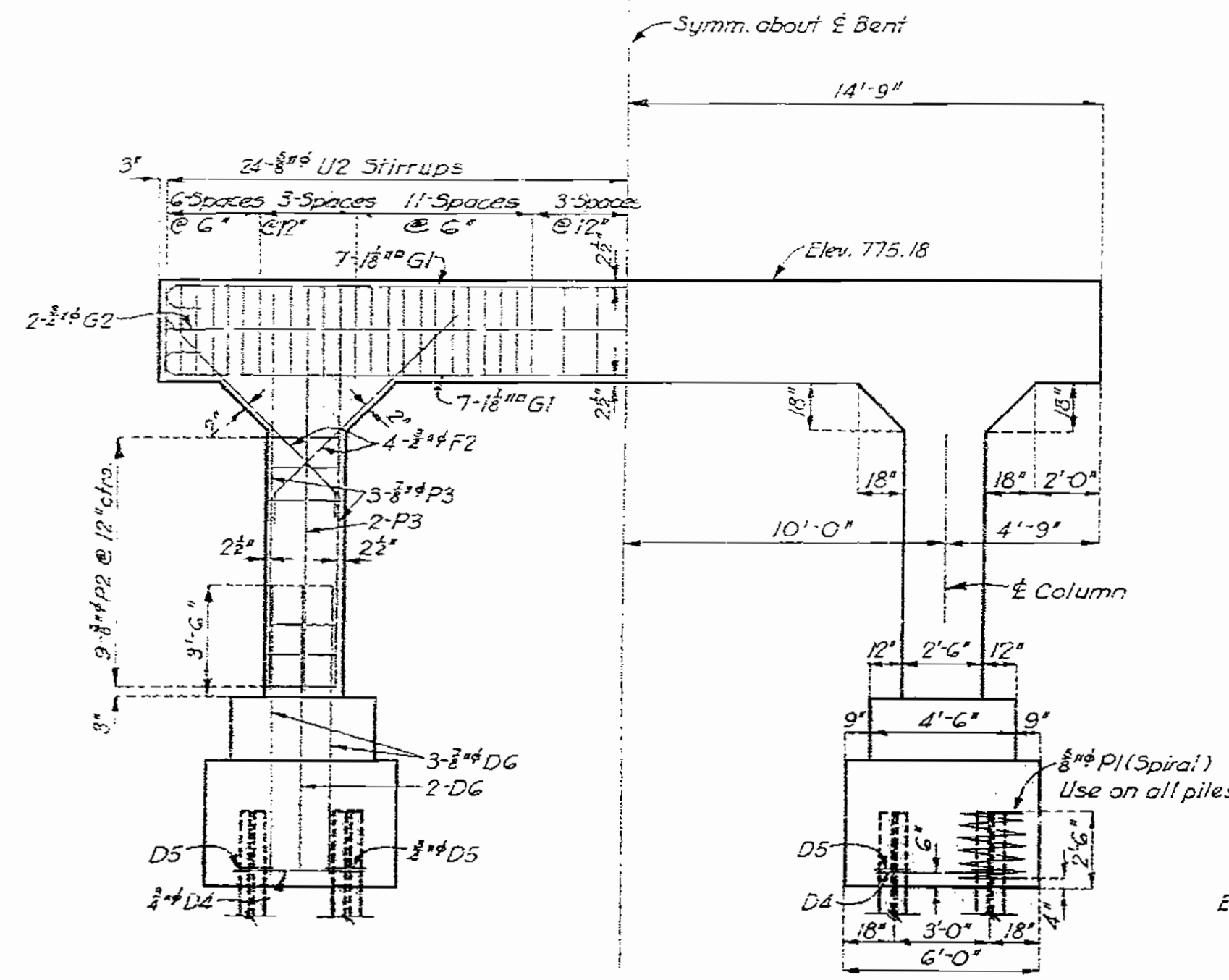
L-146

FINISHED

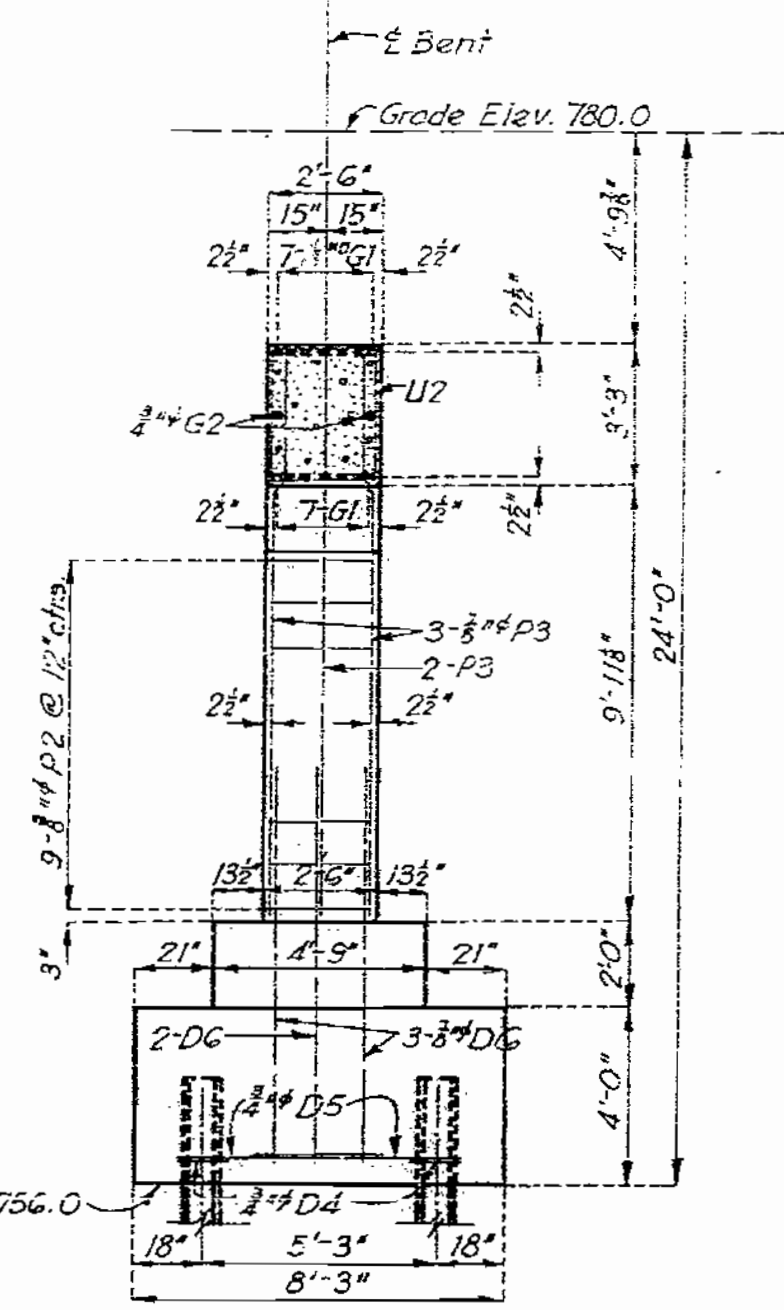
SEE OTHER PLANS FOR DIMENSIONS

MISSOURI STATE HIGHWAY DEPARTMENT

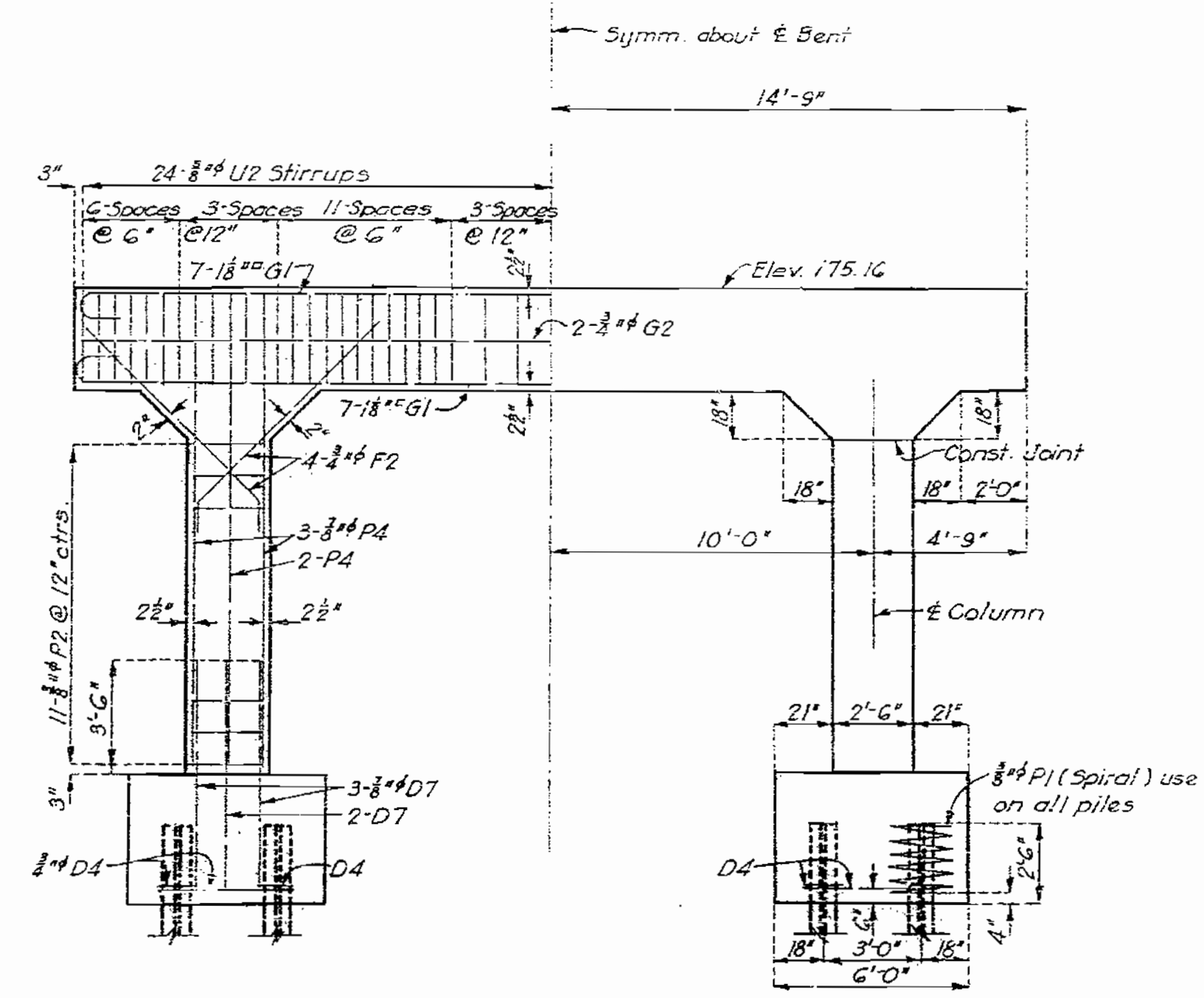
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	100011132A (C4022)	19		



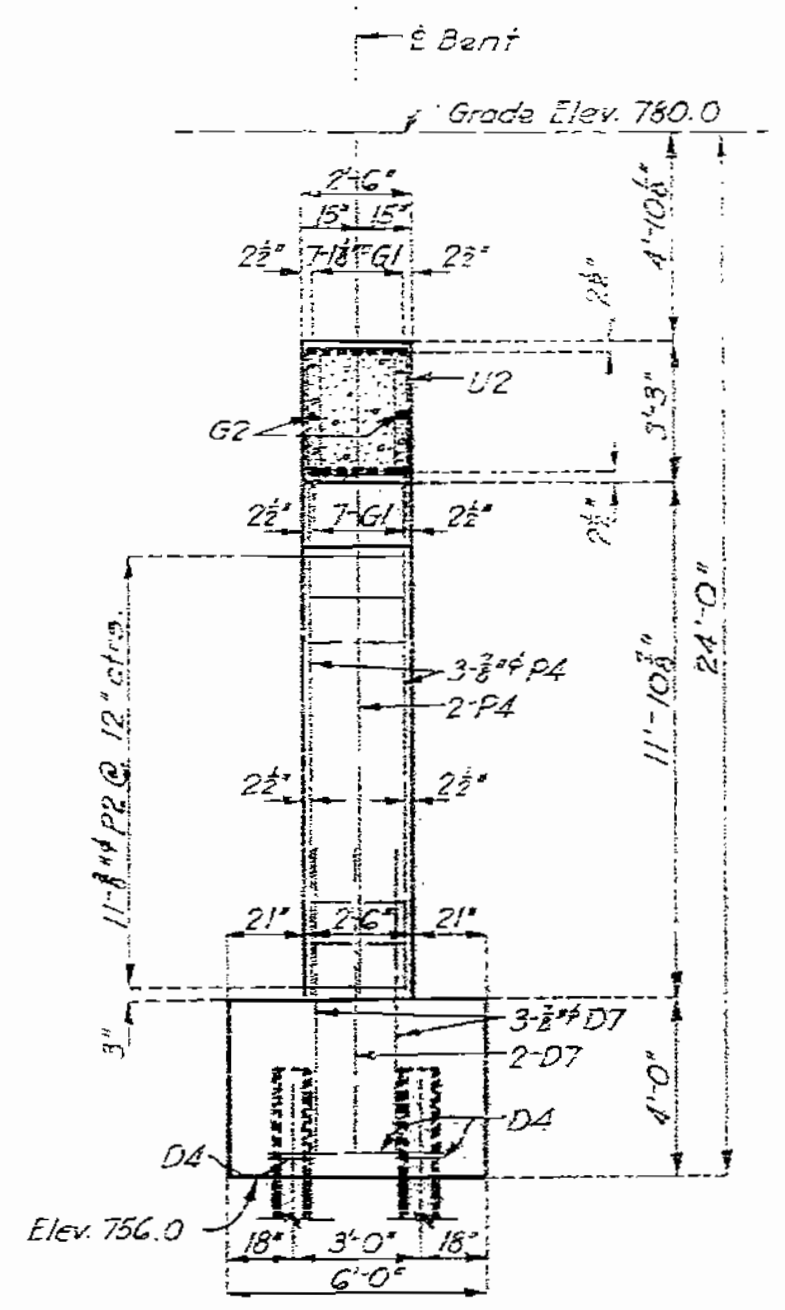
ELEVATION



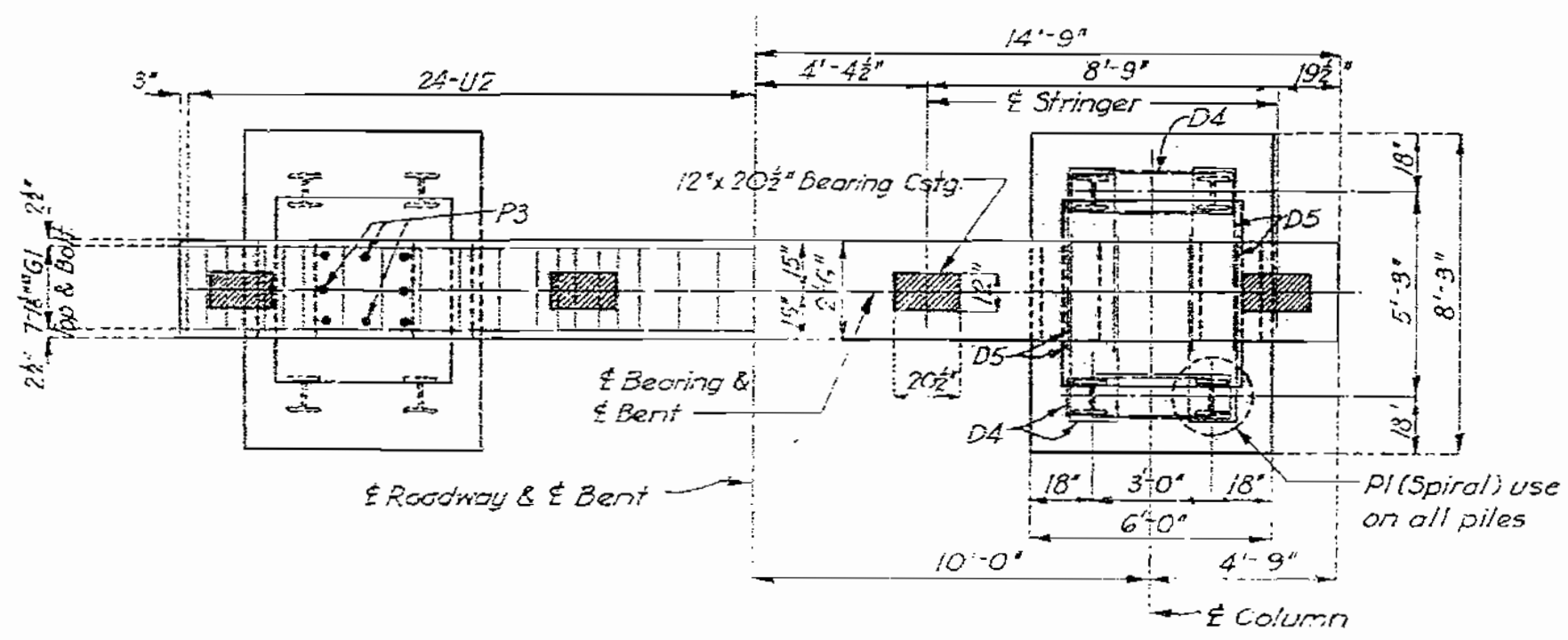
SECTION AT E



ELEVATION

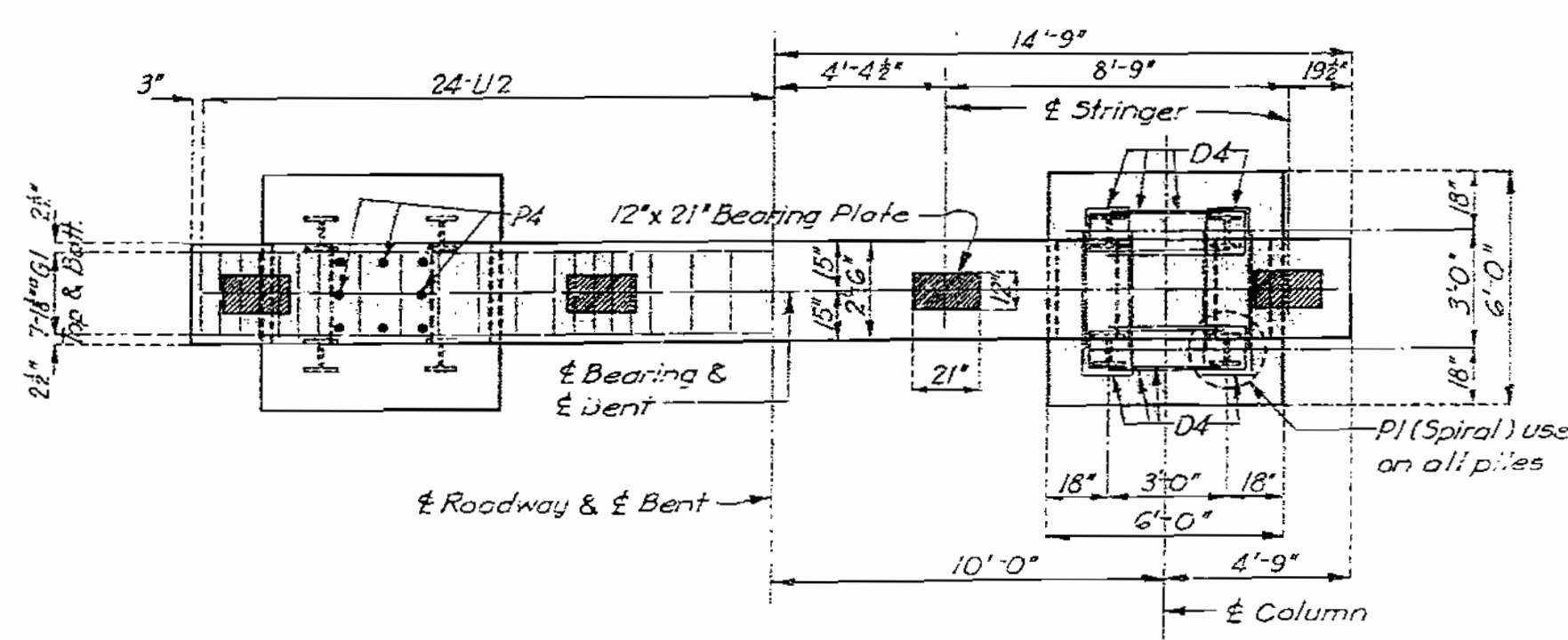


SECTION AT E



PLAN

DETAILS OF INTERMEDIATE BENTS NO. 2 & 9



PLAN

DETAILS OF INTERMEDIATE BENTS NO. 3 & 8

Note: For details of top of piles and butt splice see sheet No. 3 of 8.

Note: This drawing is not to scale. Follow dimensions.

BRIDGE OVER SNI-A-BAR CREEK  
STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
PROJECT NO. F-352(1) SEC. B (US-40) STA. 1049+50

JACKSON COUNTY

Designed Jan. 1946 By R.A.C.  
Drawn April 1946 By E.W.  
Traced May 1946 By J.T.F.  
Checked July 1946 By P.A.B.

Sheet No. 2 of 8

SEE FINAL PLANS BROWN-LINER

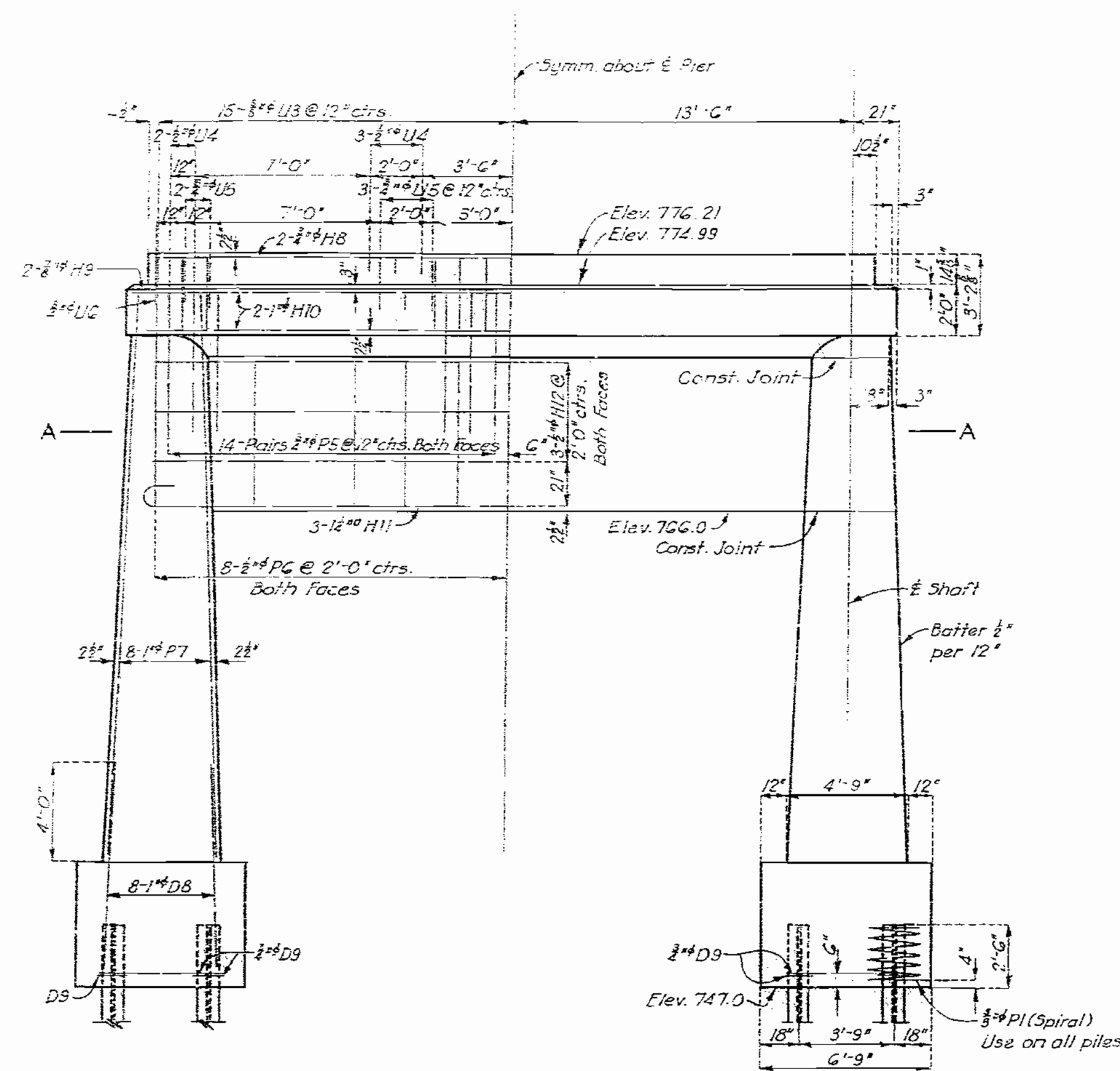
L-146

067

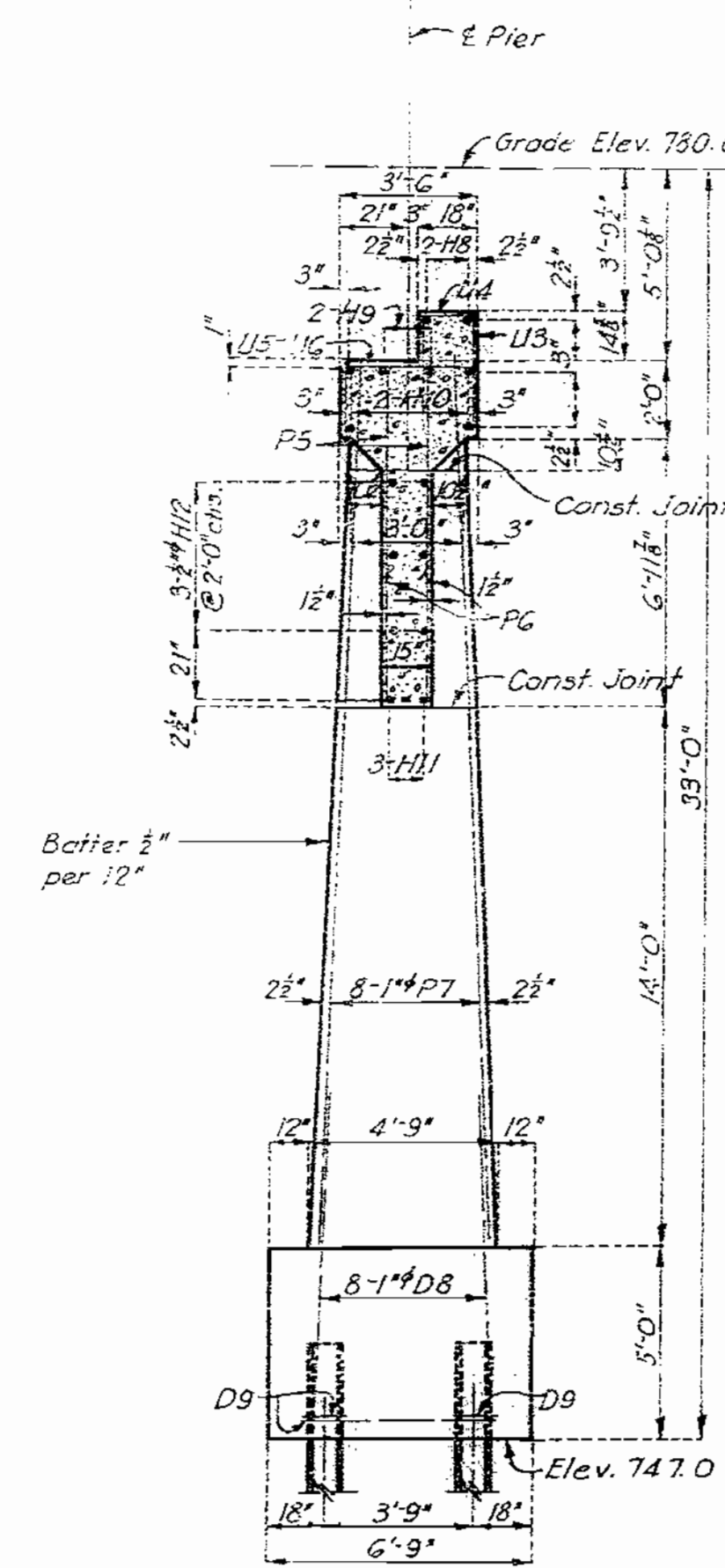


MISSOURI STATE HIGHWAY DEPARTMENT

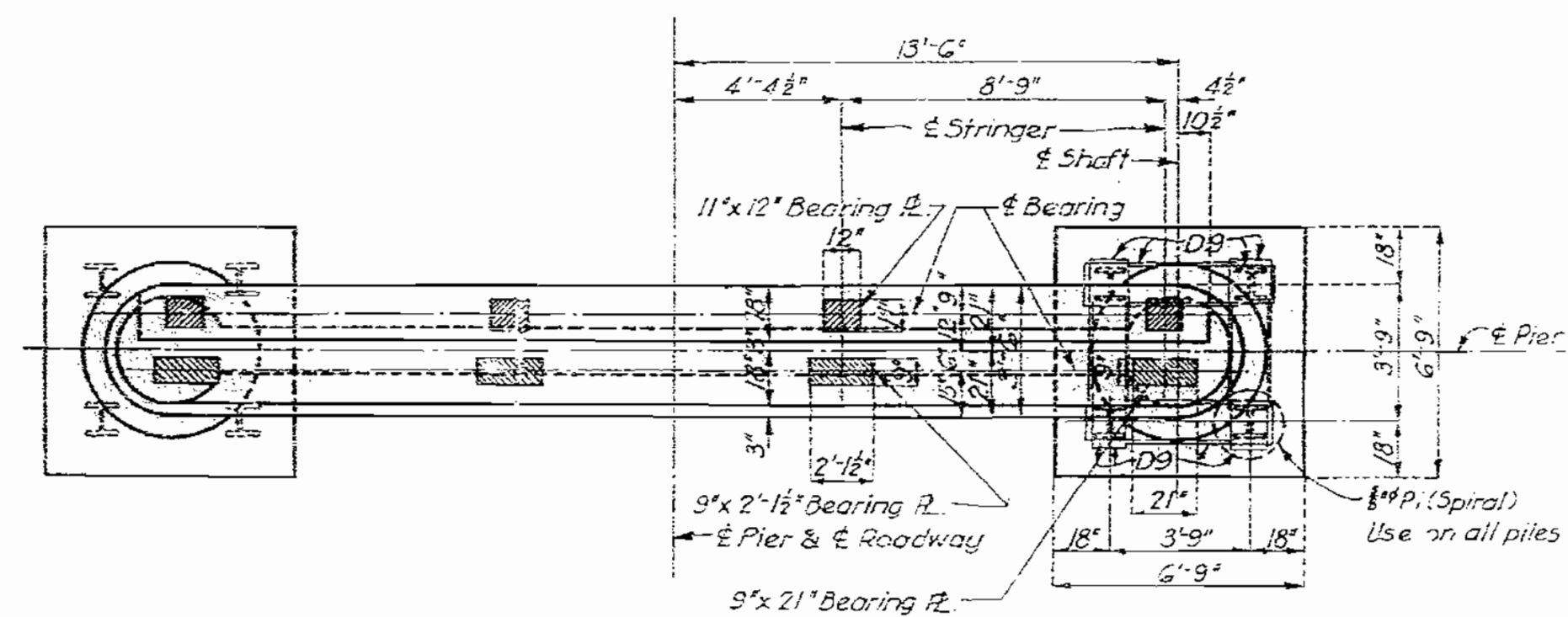
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ELEVATION

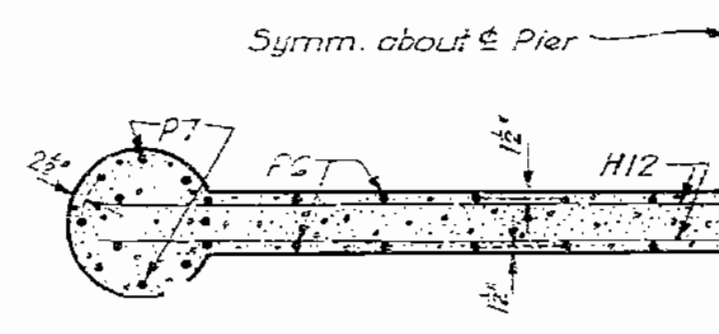


SECTION AT E

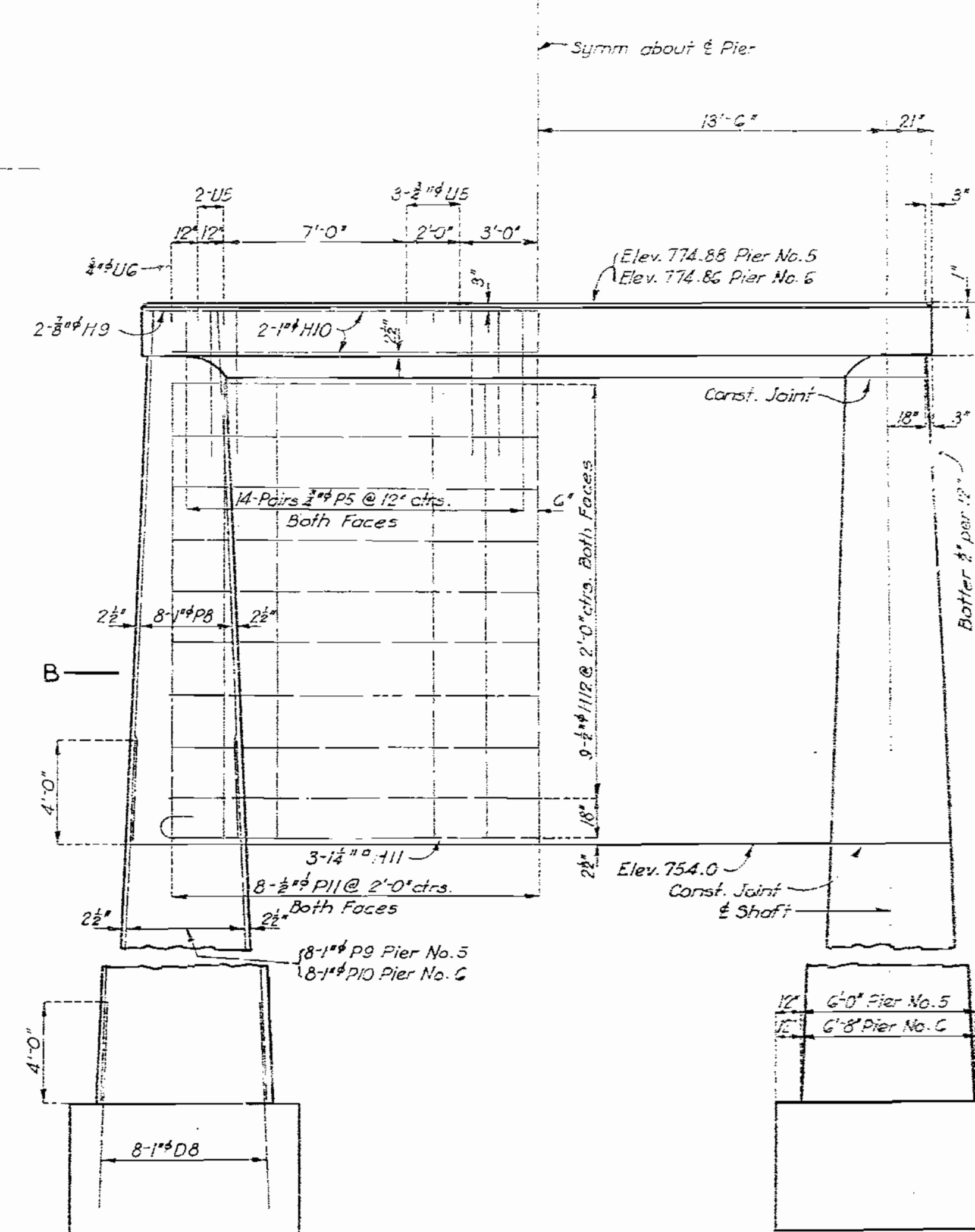


PLAN

DETAILS OF PIERS NO. 4 & 7

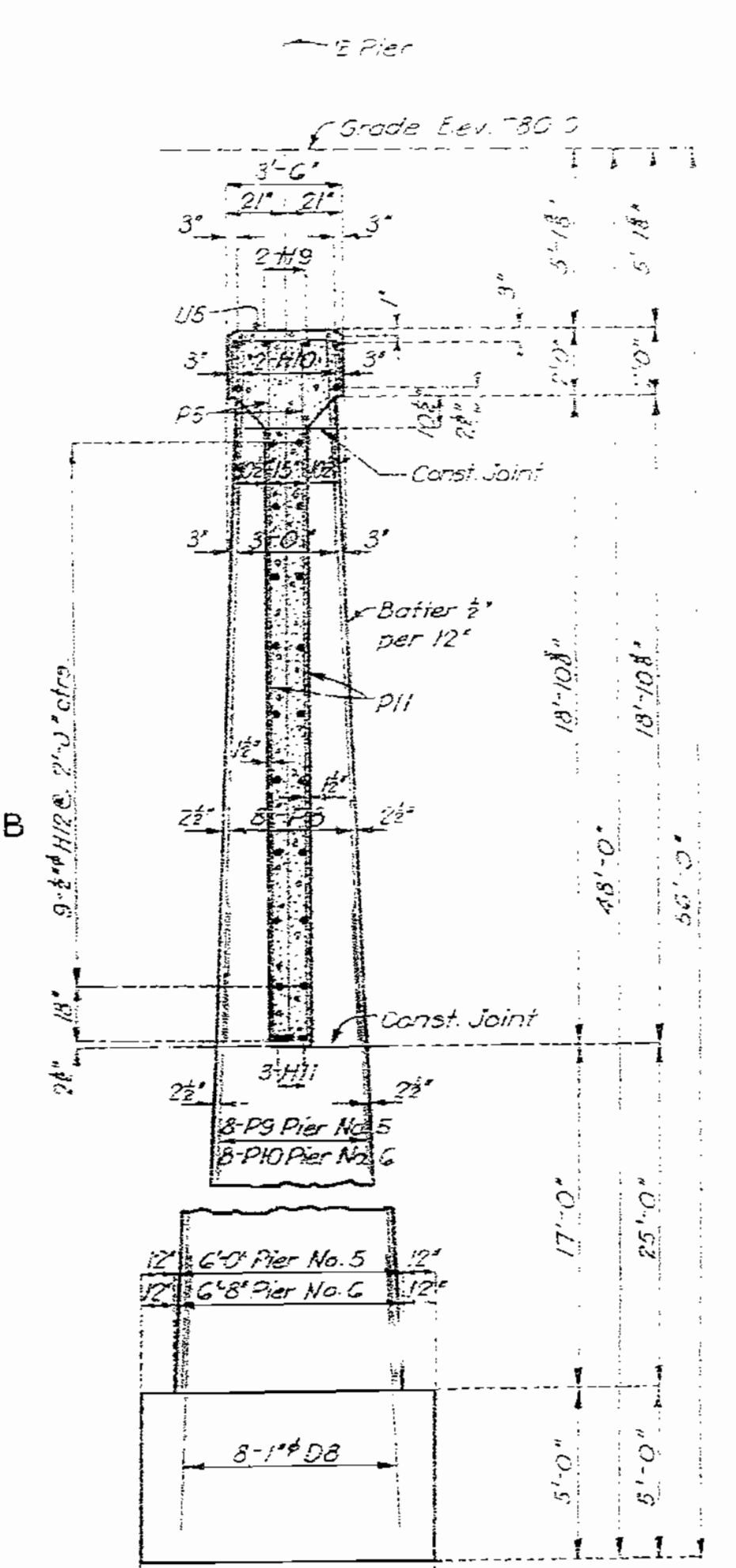


HALF HORIZONTAL SECTION A-A

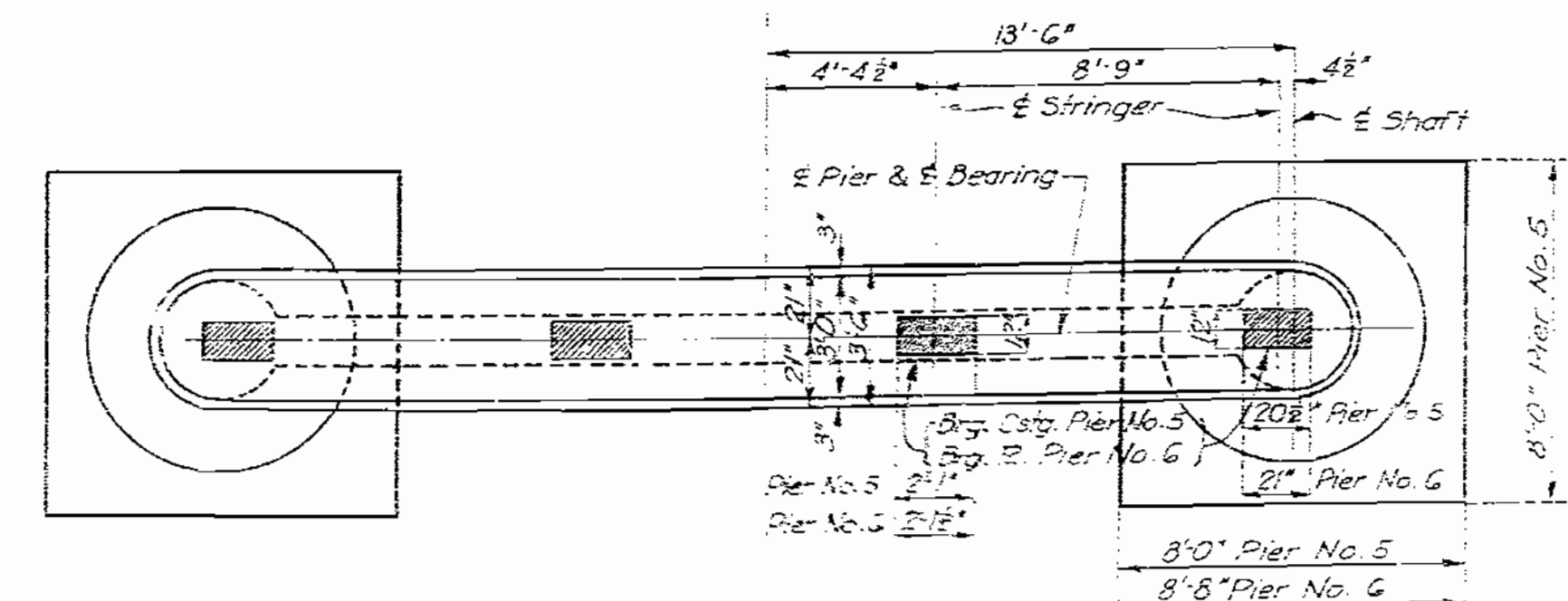


ELEVATION

DETAILS OF PIERS NO. 5 & 6



SECTION AT E



PLAN

HALF HORIZONTAL SECTION B-B

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM BLUE SPRINGS TO OAK GROVE ABOUT 1.2 MILES EAST OF GRAIN VALLEY PROJECT NO. FT-352(11) SEC. B(US40) STA. 10+49+50

JACKSON COUNTY

Designed Jan. 1946 By R.A.C.  
Drawn April, 1946 By G.W.  
Traced May, 1946 By J.T.F.  
Checked July, 1946 By P.A.B.

Note: This drawing is not to scale. Follow dimensions.

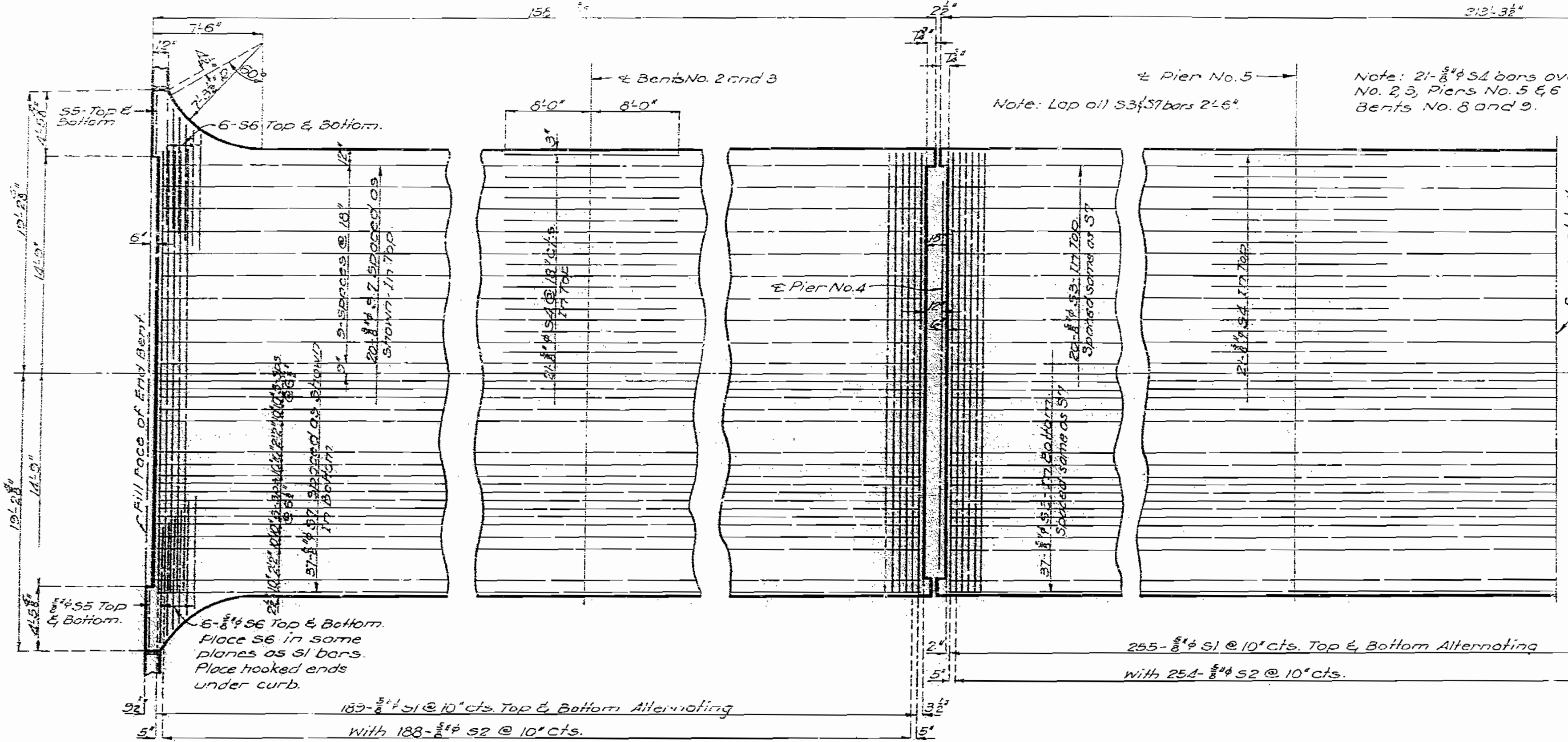
Sheet No. 5 of 8

GENERAL PLANS BROWN LINES

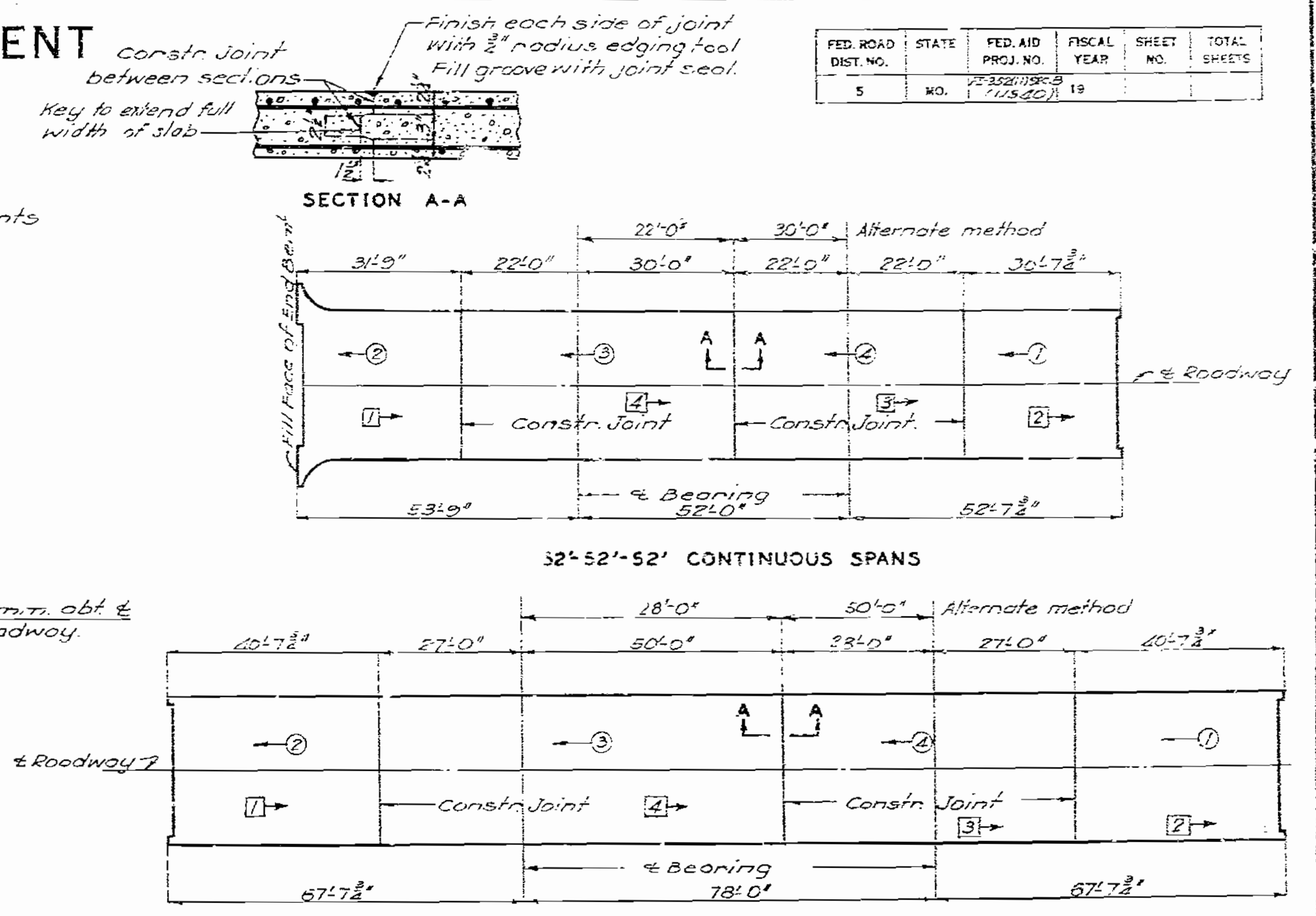
152

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	115-201	19	14	19

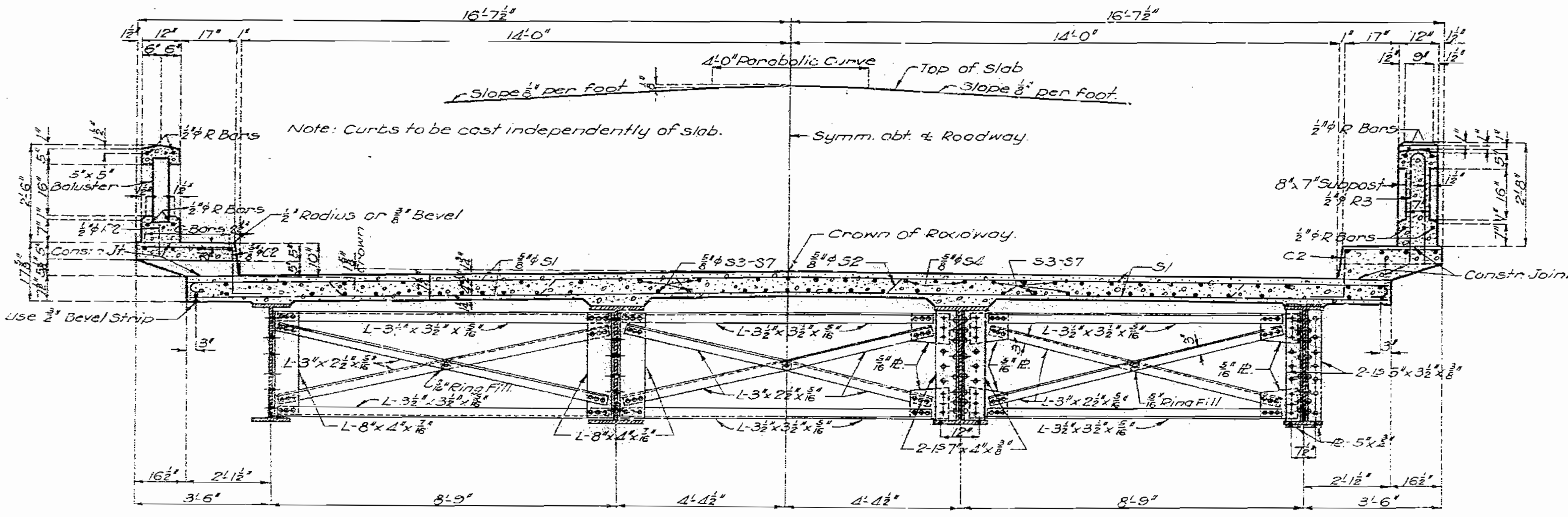


PART PLAN OF SLAB SHOWING REINFORCING



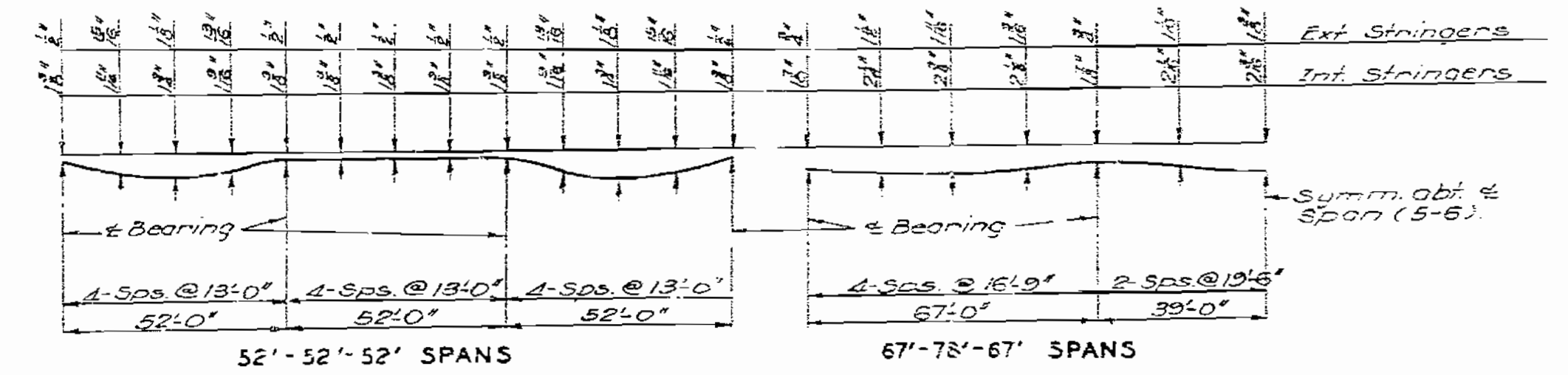
Note: The slab, for each series of continuous spans, shall be poured in sections of the size shown above and in the sequence indicated by the numbers 1, 2, 3 and 4, or as an alternate by the numbers 1, 2, 3 and 4. The separate pours shall also progress in the direction indicated by the arrows. Longitudinal construction joints will not be permitted.

SLAB POURING SEQUENCE



HALF SECTION THRU 67'-78'-67' CONT. SPAN SHOWING INTERMEDIATE DIAPHRAGM (Half section thru 52'-52'-52' continuous spans similar.)

HALF SECTION AT PIERS NO. 5 AND 6.



Note: slab shall be built parallel to grade and to a uniform thickness of 7 1/2". Dead load deflection and crown shall be taken care of by haunching to stringers by the amounts shown above. This additional concrete is included in "Estimated Quantities."

SLAB HAUNCHING DIAGRAM

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
 ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
 PROJECT NO. FI-352(11) SEC. B (US 40) STA. 1049+50  
 JACKSON COUNTY

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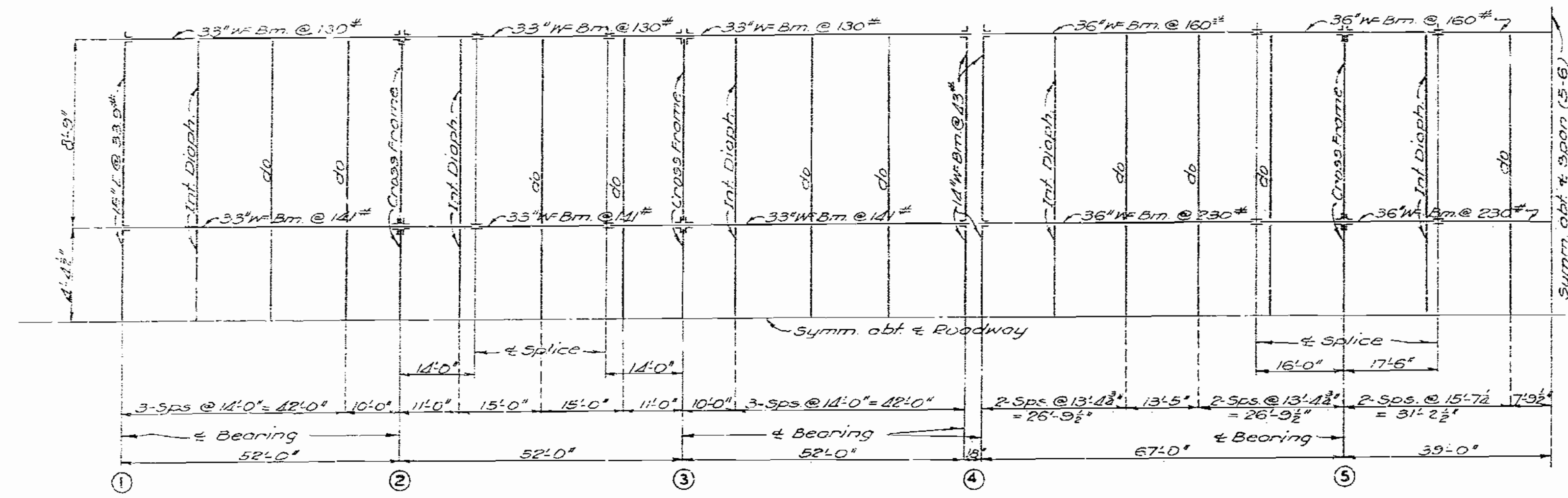
Designed Dec. 1945 by R.A.C.  
 Drawn Feb. 1946 by E.M.  
 Traced May 1946 by H.C.  
 Checked July 1946 by A.W.

Note: This drawing is not to scale. Follow dimensions.

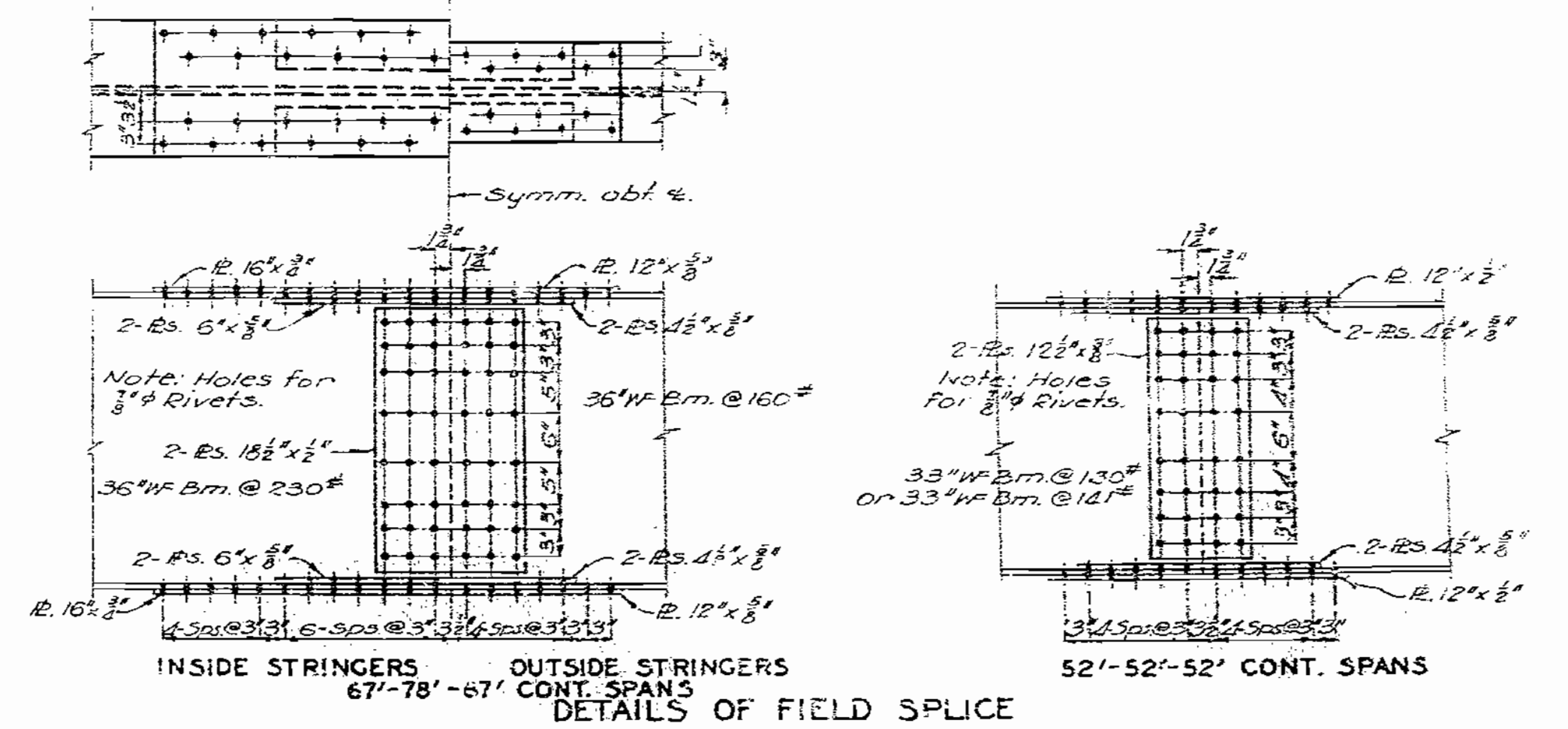
Sheet No. 6 of 8

MISSOURI STATE HIGHWAY DEPARTMENT

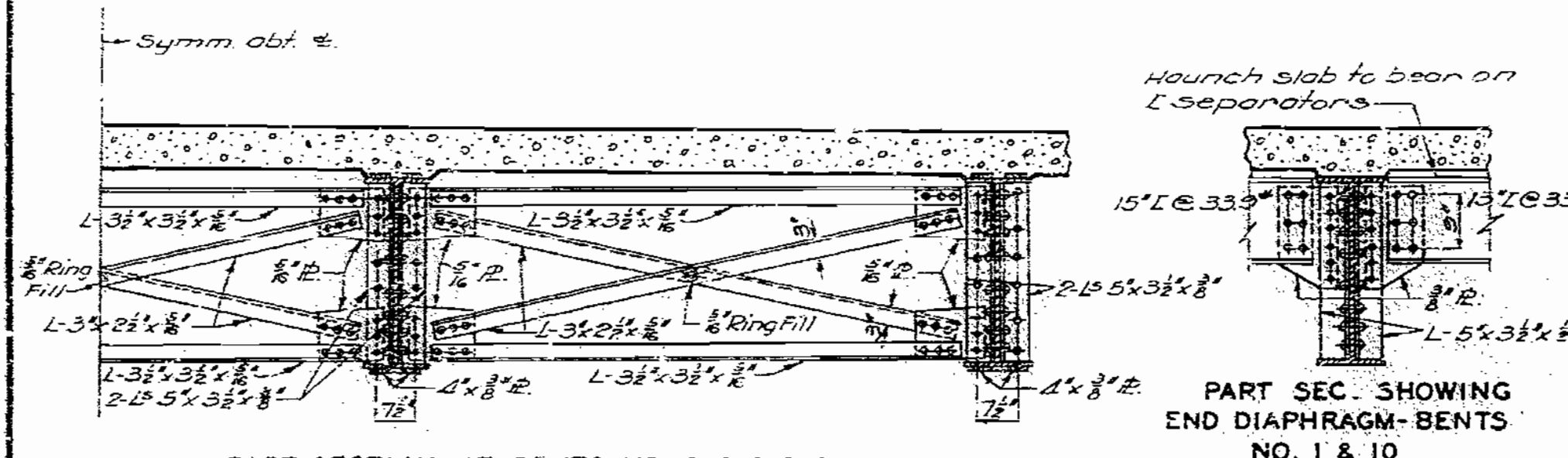
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	57-387(1) SEC. 6 (US 40)	13		



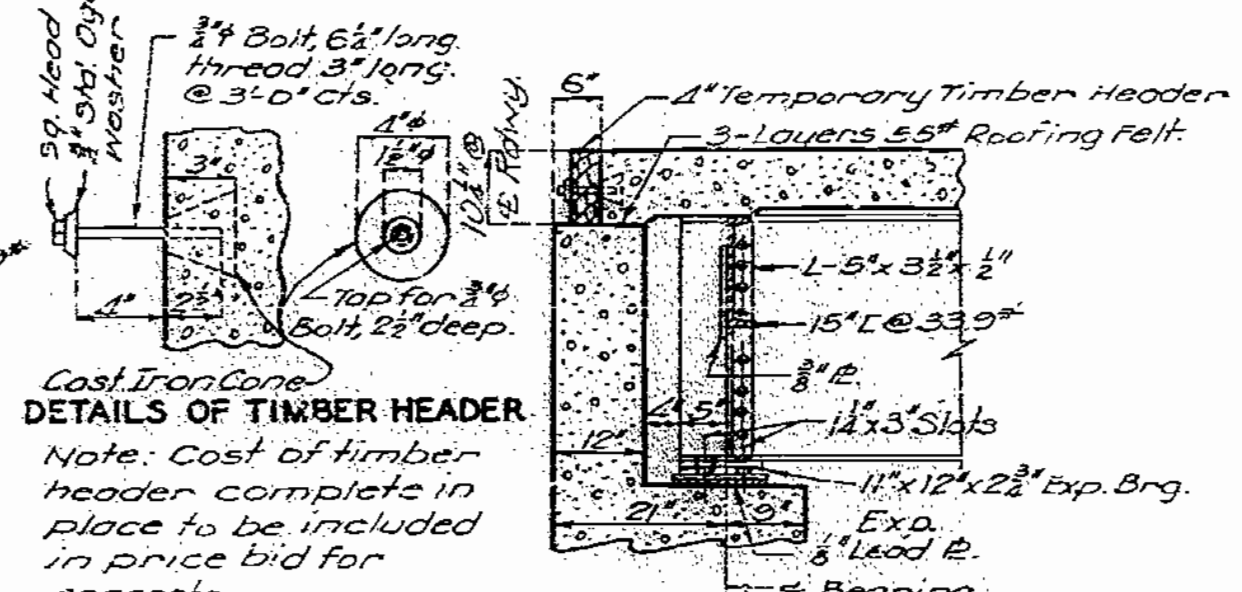
QUARTER PLAN OF STRUCTURAL STEEL LAYOUT



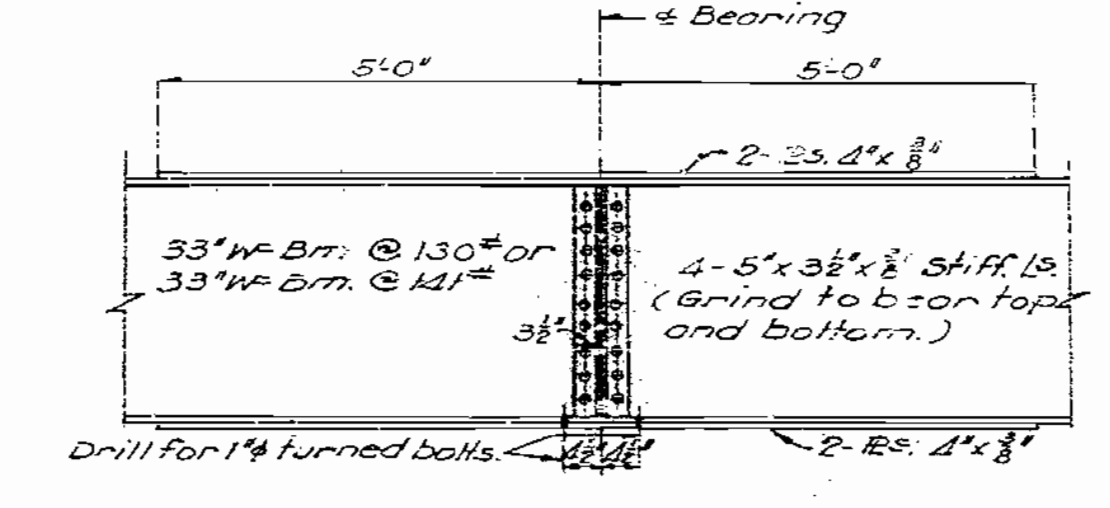
INSIDE STRINGERS  
OUTSIDE STRINGERS  
52'-52'-52' CONT. SPANS  
DETAILS OF FIELD SPLICE



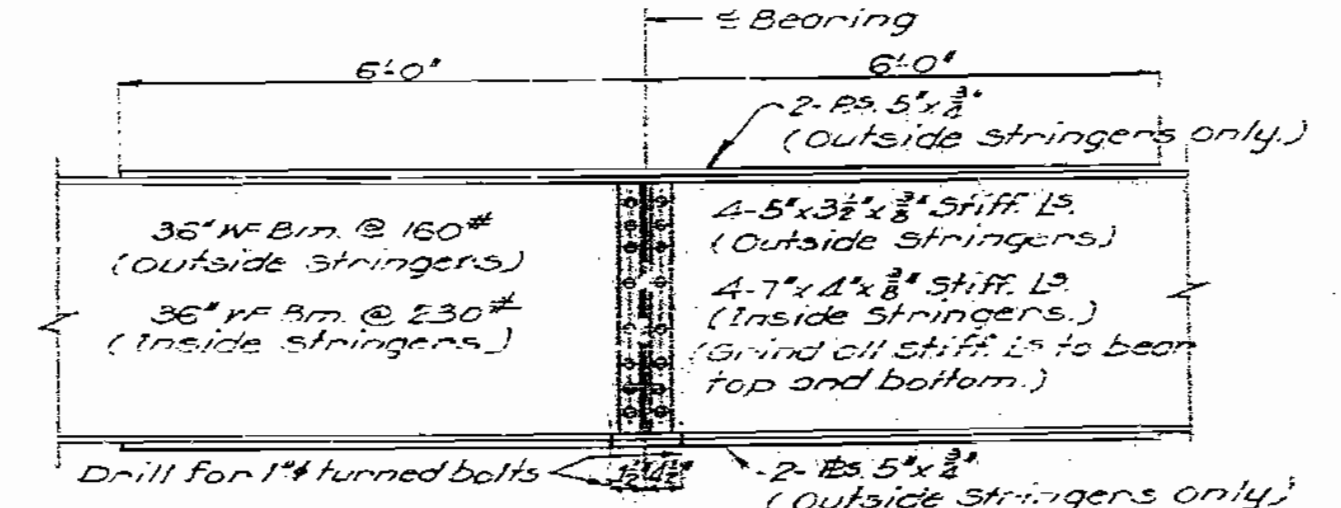
PART SECTION AT BENTS NO. 2, 3, 8 & 9



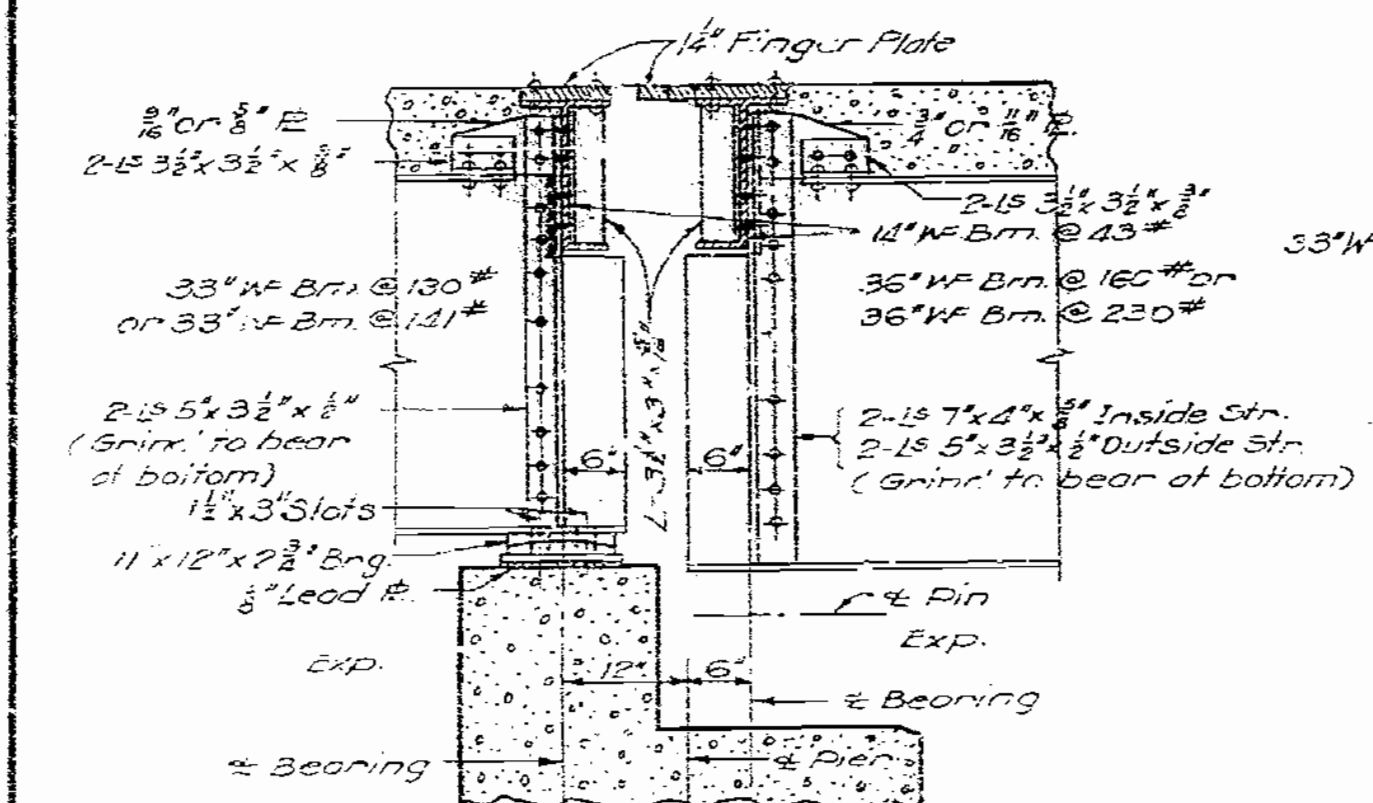
DETAILS OF TIMBER HEADER  
PART LONGITUDINAL SECTION  
END BENTS NO. 1 & 10



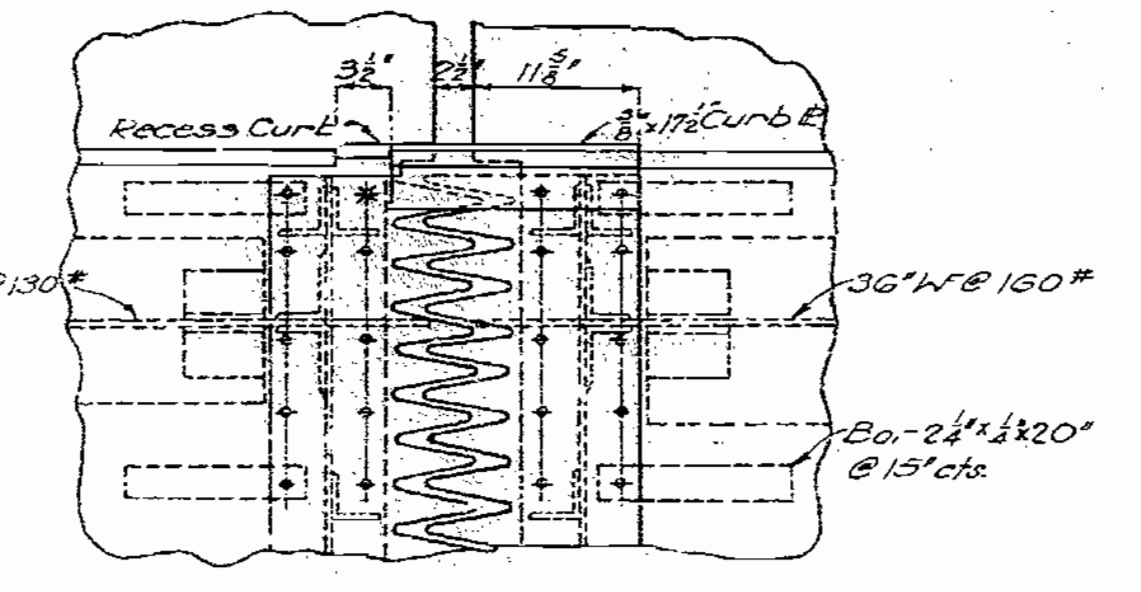
BENTS NO. 2, 3, 8 & 9  
DETAILS OVER INTERMEDIATE SUPPORTS



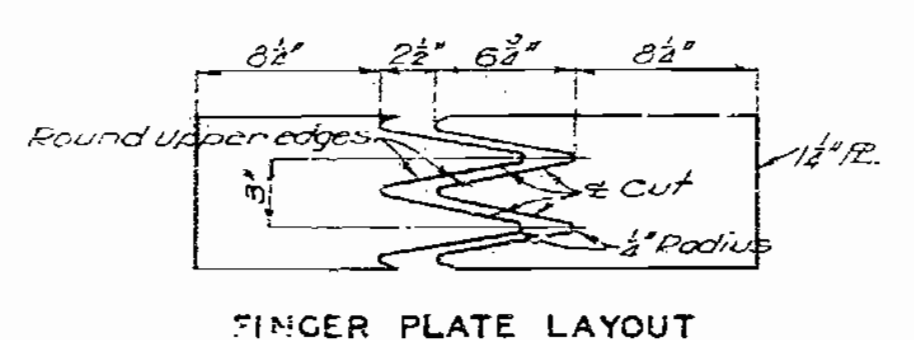
PIERS NO. 5 & 6  
DETAILS OVER INTERMEDIATE SUPPORTS



PART LONGITUDINAL SECTION  
PIERS NO. 4 & 7



PART PLAN OF EXPANSION DEVICE-PIERS NO. 4 & 7



FINGER PLATE LAYOUT

Note: Finger plates shall be cut with gas torch from one plate 23 1/2" x 1 1/2". The surface of cut shall be perpendicular to the surface of plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of cut shown in Finger Plate Layout. No part of Expansion Device may be spliced. Grind all stiffener angles to bear.

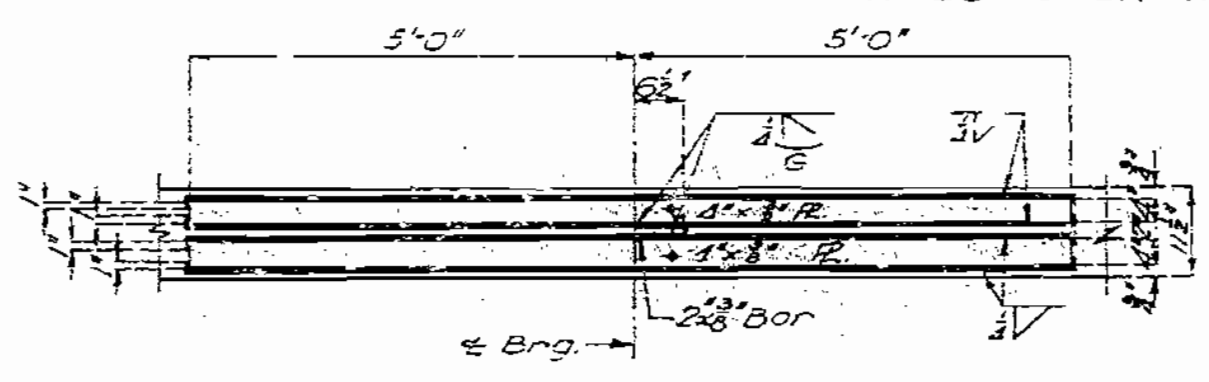


PLATE ON TOP FLANGE  
BENTS NO. 2, 3, 8 & 9

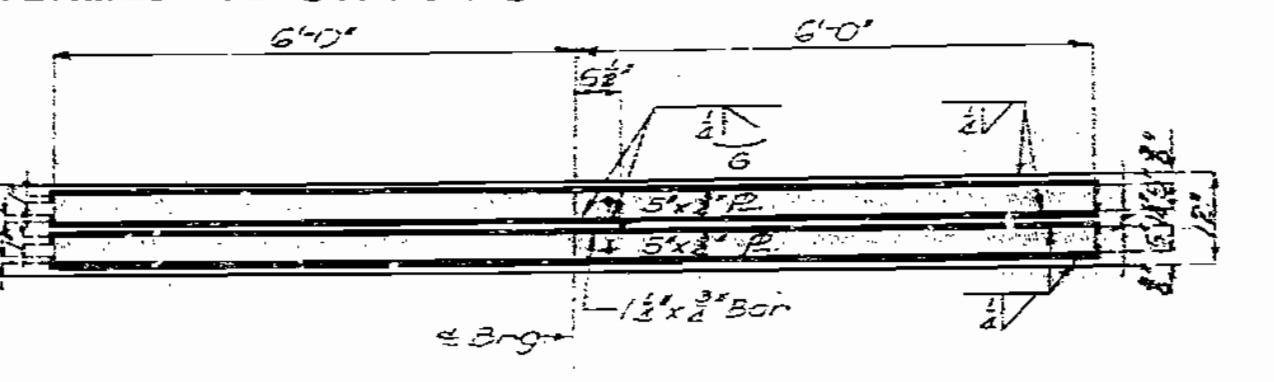
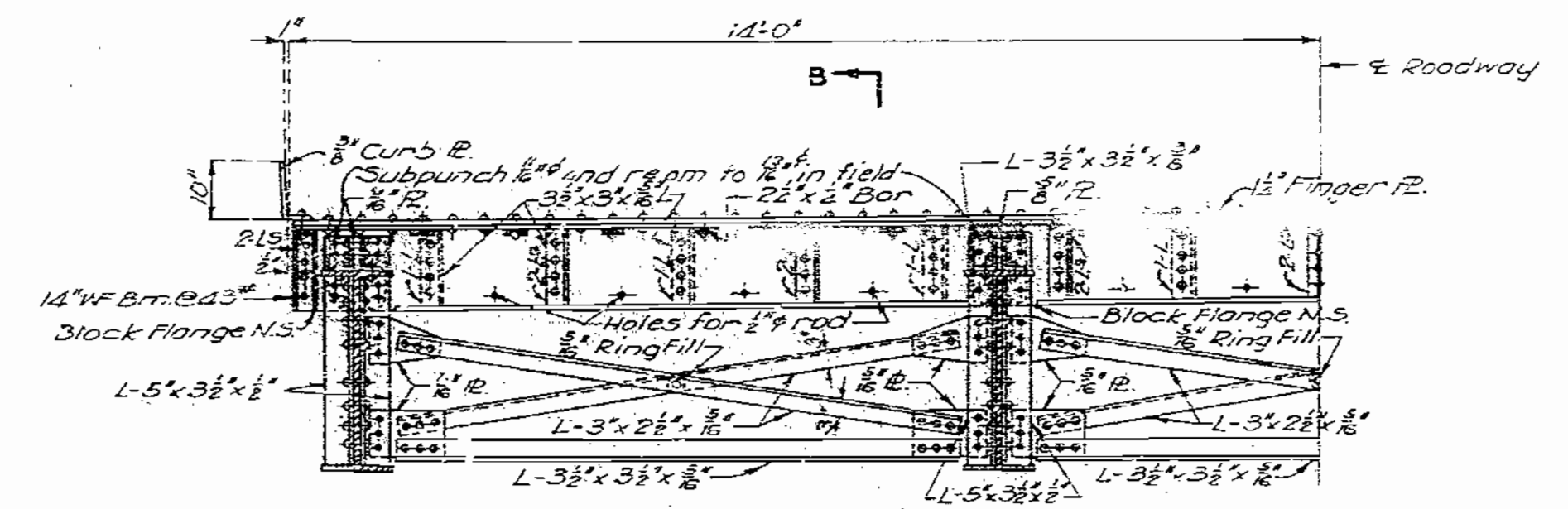


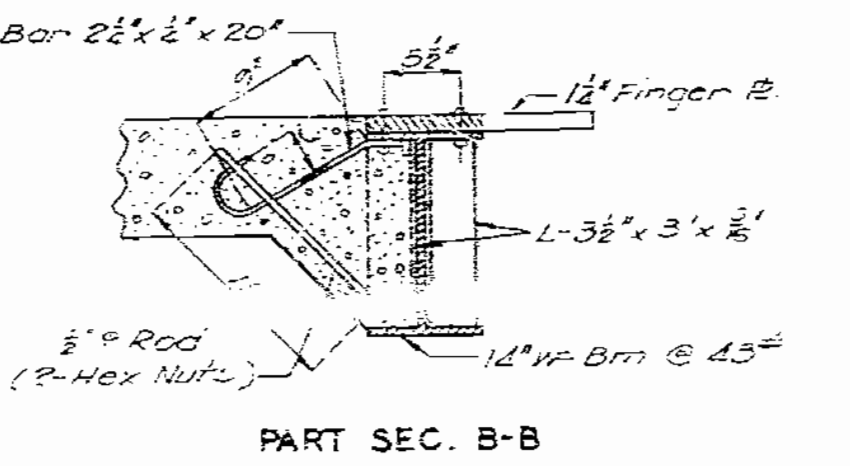
PLATE ON BOTTOM FLANGE  
PIERS NO. 5 & 6

WELDING DETAILS FOR COVER PLATES



PART SECTION AT PIERS NO. 4 & 7-52'-52'-52' CONT. SPANS

Note: Use similar details for 67'-78'-67' Continuous spans except for stiffeners and bracket plates as shown in Part Longitudinal Section Piers No. 4 & 7.



PART SEC. B-B

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM BLUE SPRINGS TO OAK GROVE ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
PROJECT NO. 57-387(1) SEC. 6 (US 40) STA. 1049+50

JACKSON COUNTY

FINISHED

L-146

Designed Dec 1945 by R.A.C.  
Drawn Feb 1946 by G.W.  
Traced April 1946 by H.C.  
Checked July 1946 by P.R.D.

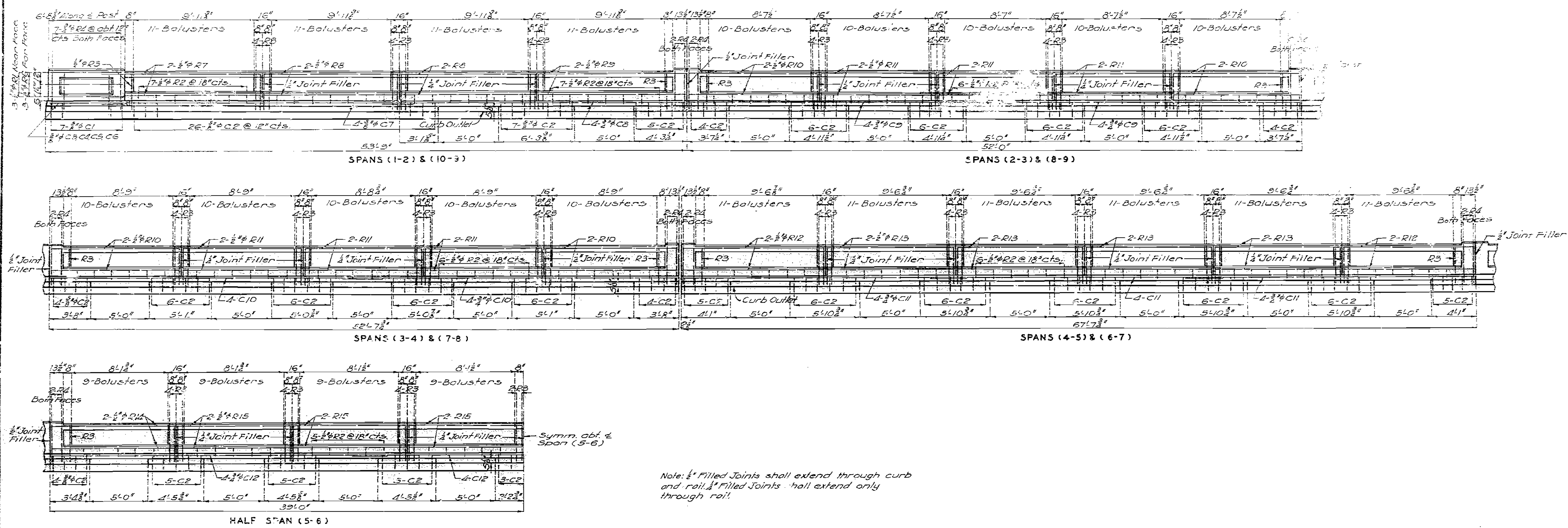
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 8.

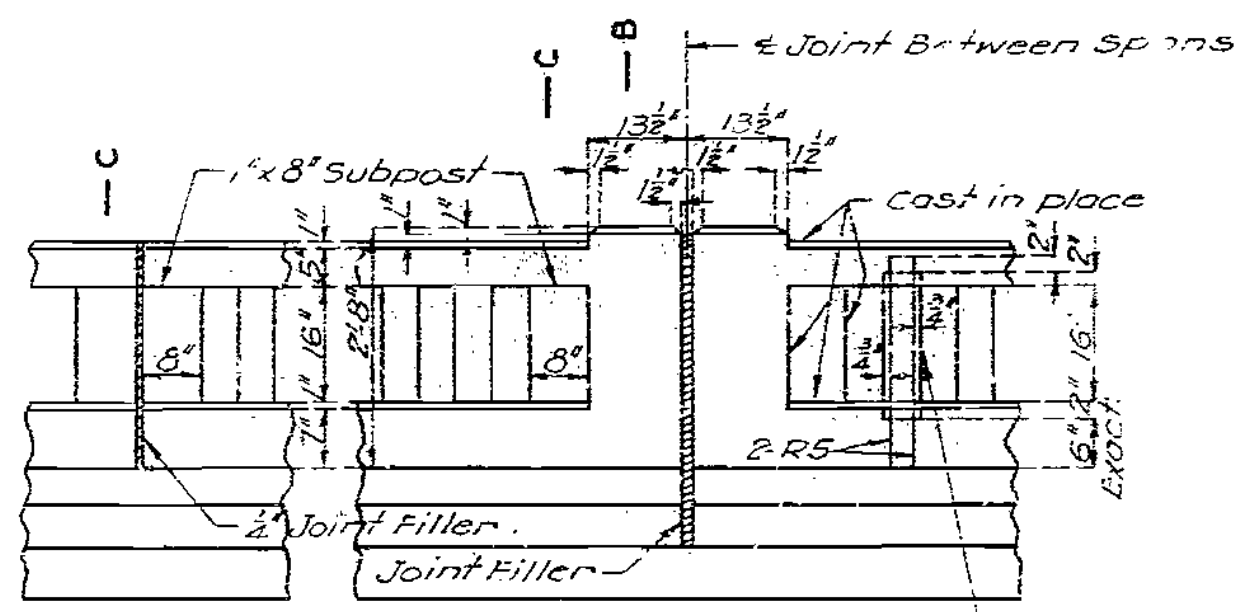
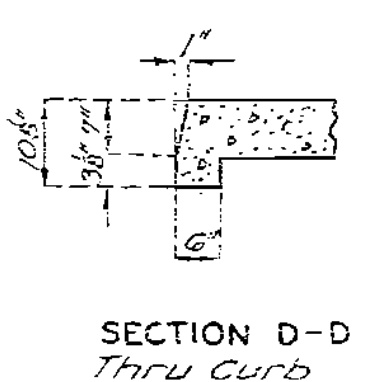
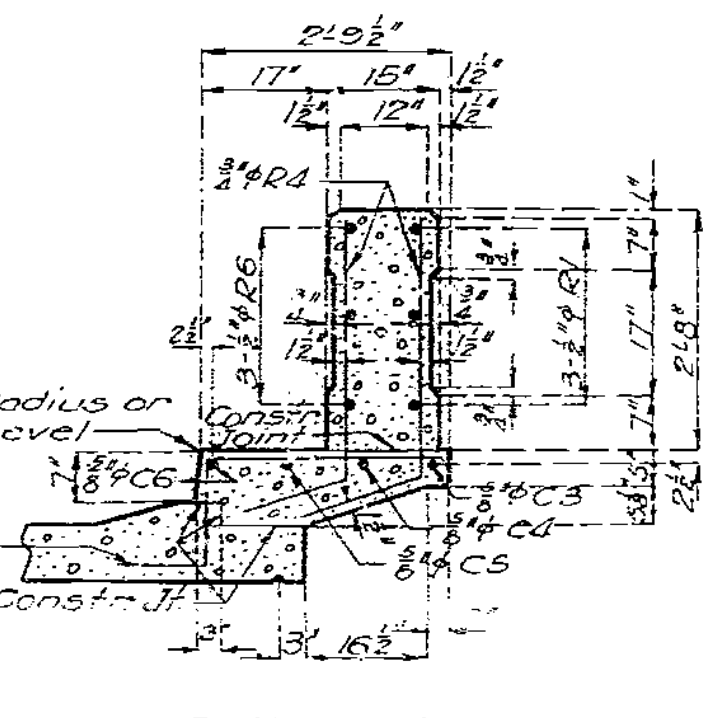
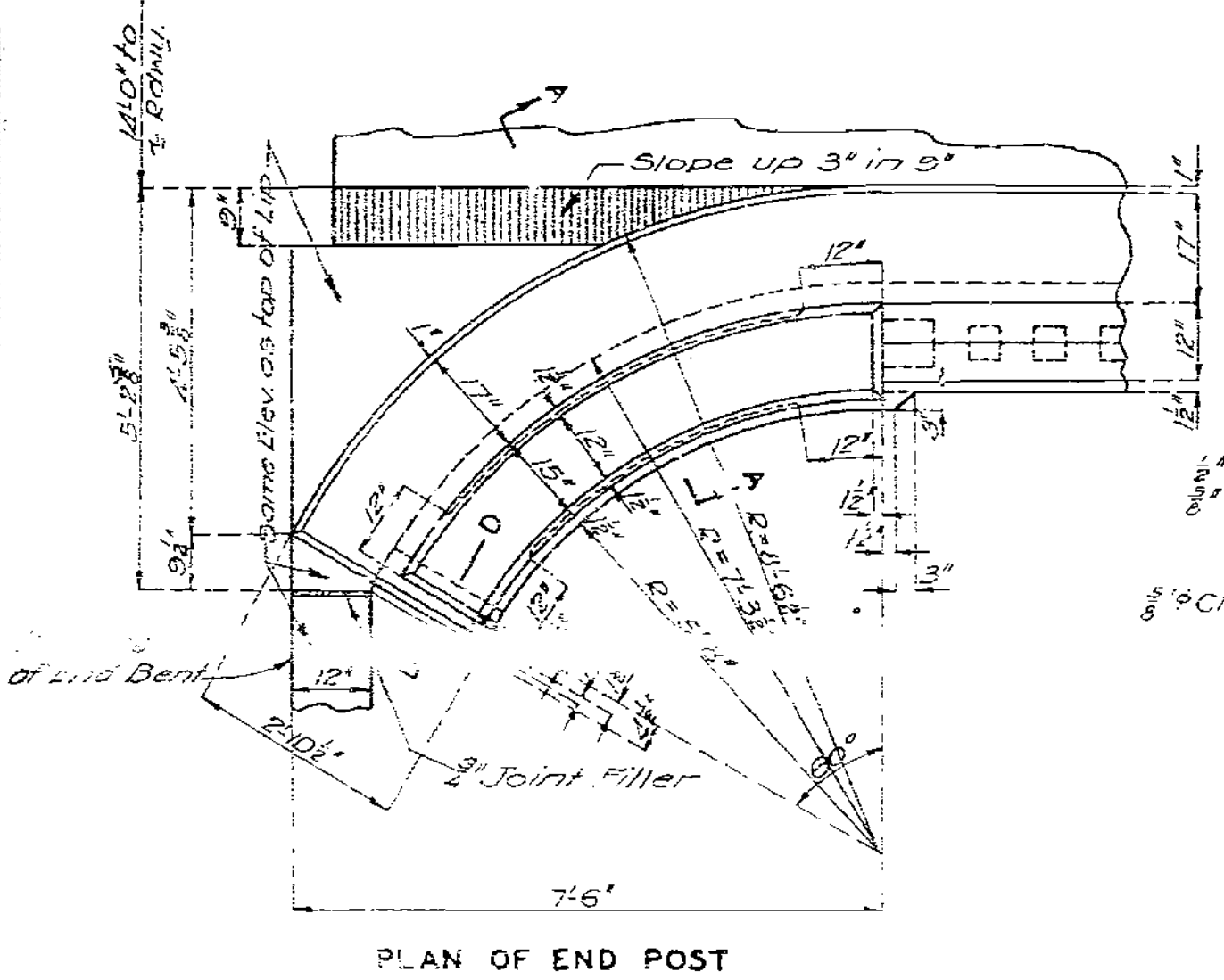
253

MISSOURI STATE HIGHWAY DEPARTMENT

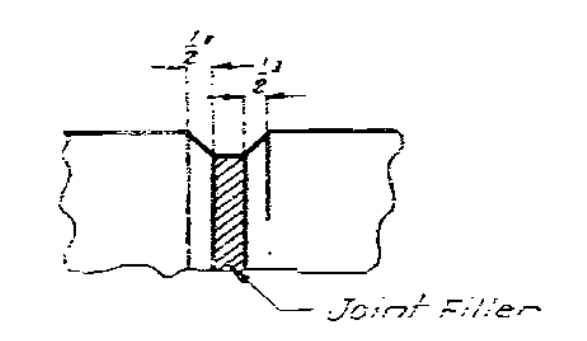
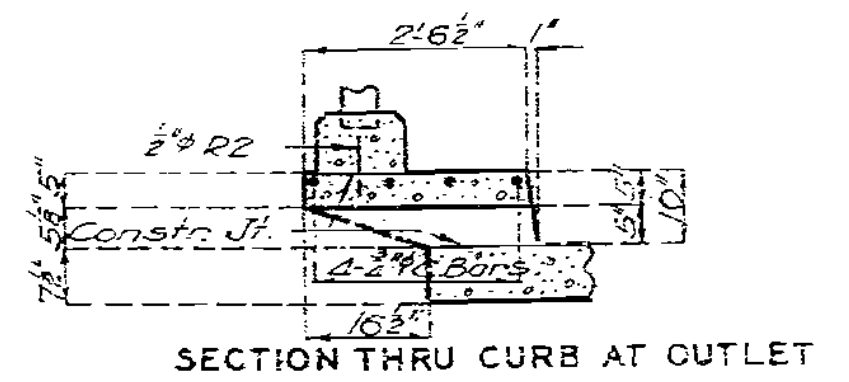
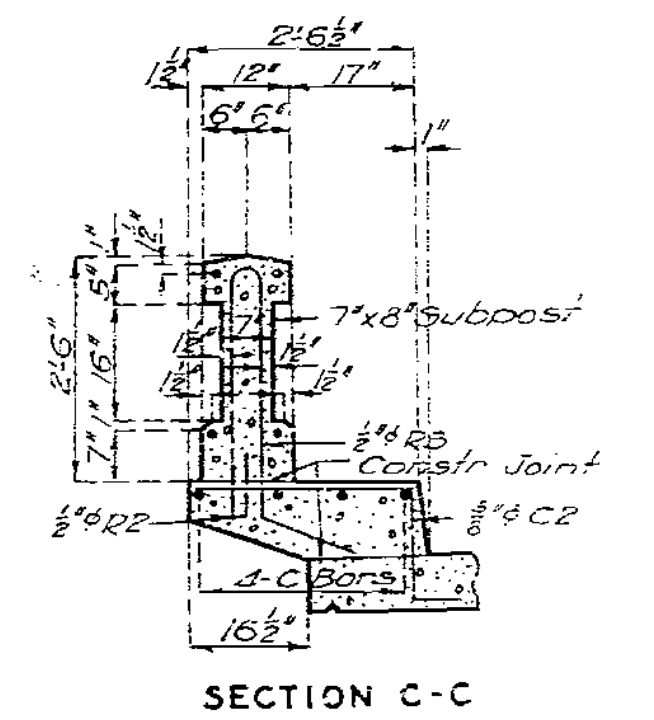
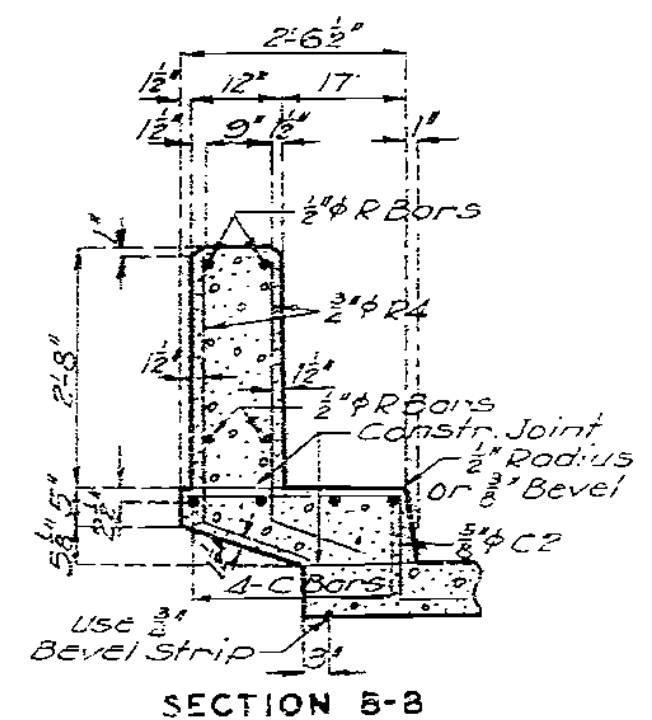
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	15-352012-2 (USC2)	19		



ELEVATION OF CURB AND RAIL



5"x5" Bolusters at abt. 10" cts. evenly spaced, 20" long. Precast. Each reinforced with 4-#4 wires 2'4" long. RS to be beveled 1/2". Bolusters to be beveled 1/2".



Note: Use bevel as shown for exposed faces of all joints consisting of joint filler.

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM BLUE SPRINGS TO C.K. GROVE ABOUT 1.2 MILES EAST OF GRAIN VALLEY PROJECT NO. FI-352011 SEC. B (US40) STA. 1049+50

JACKSON COUNTY

Designed Jan. 1926 by P.A.C.  
 Drawn April 1926 by G.M.  
 Traced May 1926 by H.C.  
 Checked July 1926 by J.R.S.

Note: This drawing is not to scale. Follow dimensions.

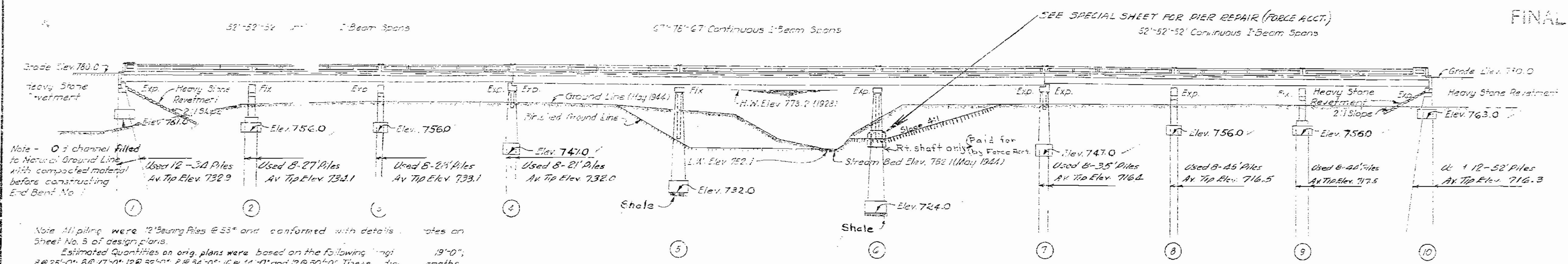
Sheet No. 8 of 8

L-146

254

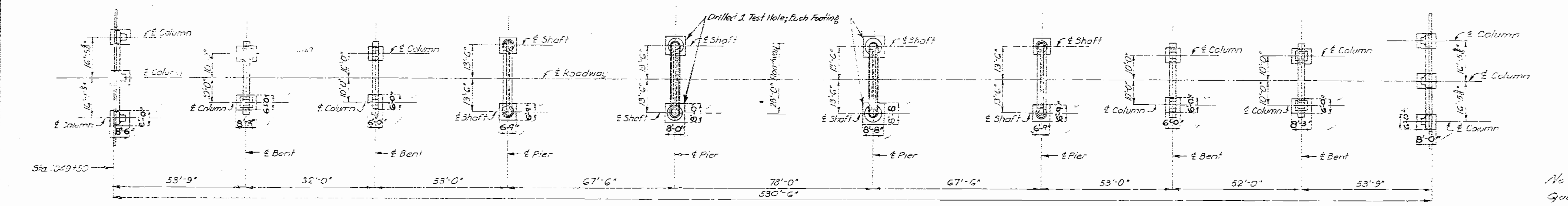
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	10762	1946	17	17



Note: All piling were 12" bearing piles @ 53" and conformed with details on sheet No. 3 of design plans.  
Estimated quantities on orig. plans were based on the following: 19'-0" @ 25'-0", 8 @ 17'-0", 12 @ 52'-0", 2 @ 34'-0", 16 @ 44'-0" and 12 @ 30'-0". These pile lengths were approximate only. Proper lengths to give required bearing and penetration were authorized by the Engineer. See Special Provisions.  
All piles were driven to practical refusal in shale.

Note: All loose, shelly or disintegrated rock shall be removed and the footings for Piers No. 5 & 6 placed on hard, solid, undisturbed rock. Shale was encountered; the footings were carried at least 18" into and cast against vertical faces of same.



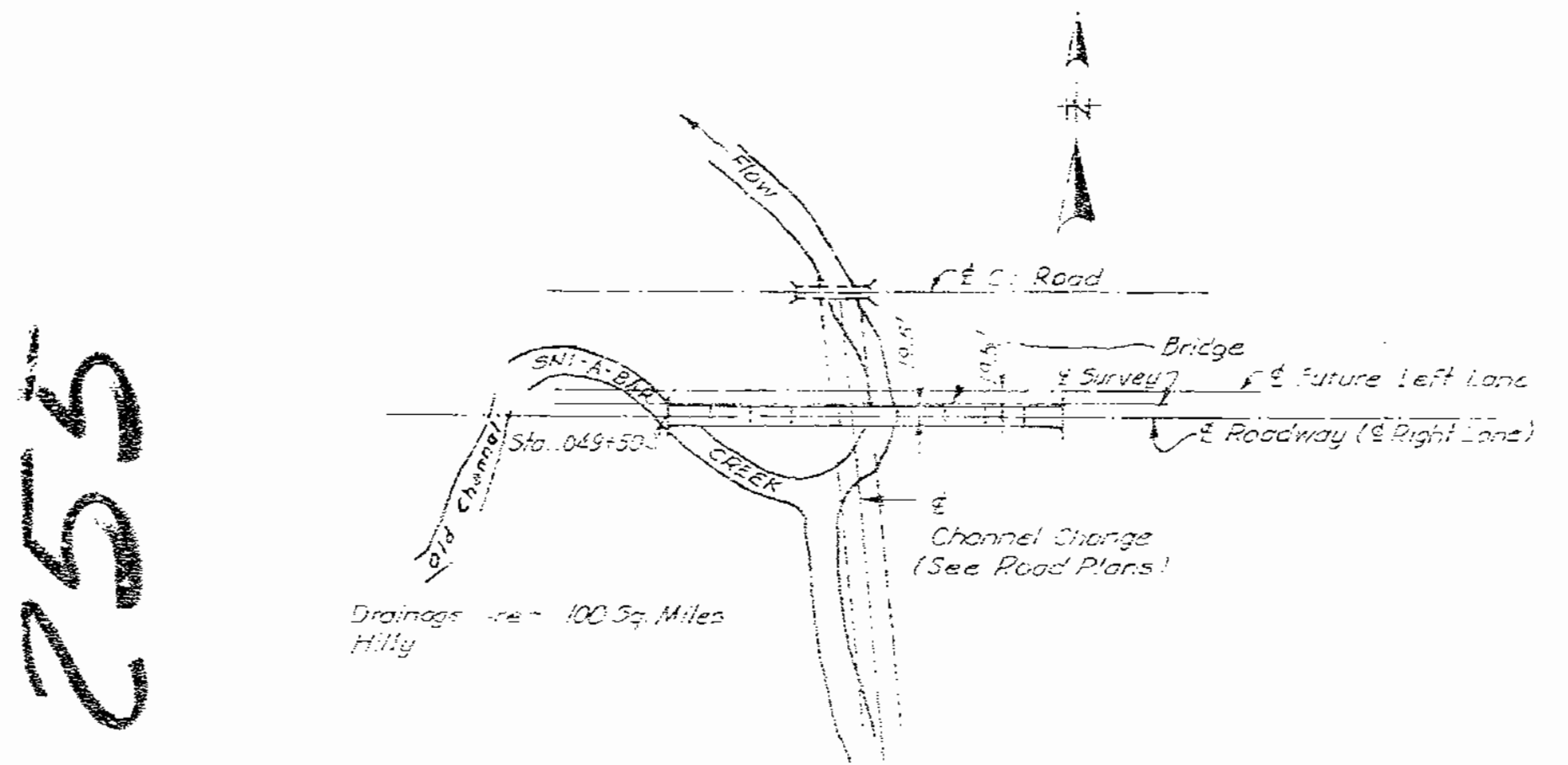
PLAN

GENERAL NOTES:

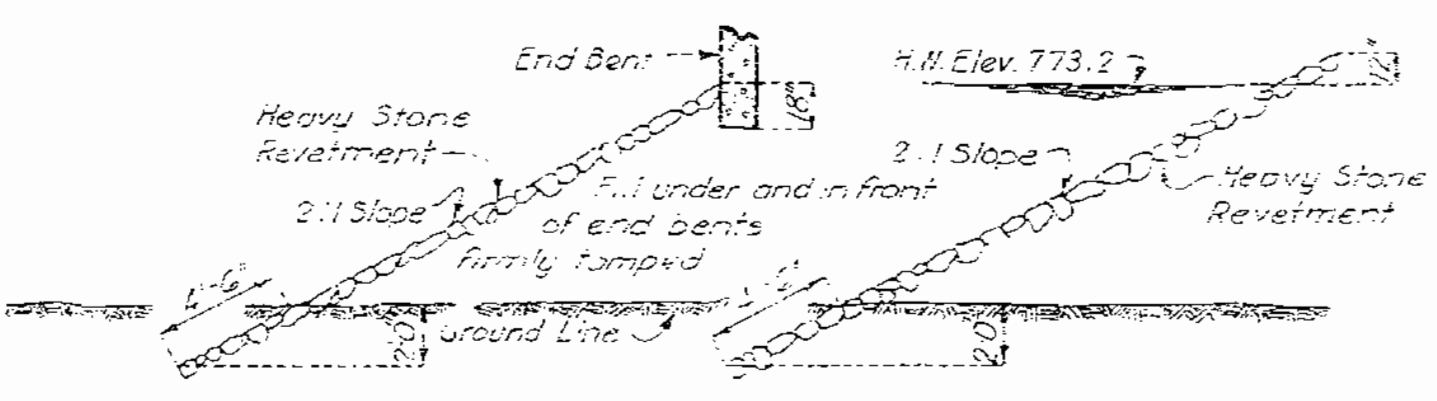
Design Specifications A.A.S.H.O. - 1944  
Loading H-20 A.A.S.H.O.  
Structural Steel Stress 18,000 #/sq.  
Reinforcing Steel Stress 18,000 #/sq.  
Class "B" Concrete Stress 1,000 #/sq.  
All concrete used was Class "B".  
Rivets 2" except as noted.  
Paint: Shop, none; Field, surfaces inaccessible after erection three coats of red lead. No other paint was applied by Contractor. Red lead was furnished by the Contractor. Payment for cleaning and painting such surfaces was included in unit price bid for Structural Steel.  
Where joint filler is specified on plans it shall conform with the requirements of Section 38-10A of the Standard Specifications for Pre-molded Material. For Filler Qualification of all welding operators and electrodes will be required in accordance with specifications, except that a proper certification of electrodes qualified after 1944 will be acceptable.  
A rubbed surface finish was required on all exposed surfaces of handrails and curbs, and on outside faces of roadway slabs.

FINAL QUANTITIES			
	Substr.	Supervis.	Total
Class 1 Excavation for Structures	Cu. Yds. 921.0		921.0
Class 2 Excavation for Structures	Cu. Yds. 608.0		608.0
Class "B" Concrete (Handrail)	Cu. Yds. 599	59.9	658.9
Class "B" Concrete	Cu. Yds. 530.0	446.6	976.6
Fabricated Structural Steel	Lbs. 415720	415720	831440
Reinforcing Steel	Lbs. 43720	114470	158190
Steel Castings	Lbs. 11360	1380	12740
Gray Iron Alloy Castings	Lbs. 1460	1460	2920
Steel Piles in Place	Lin. Ft. 9274		9274
Steel Pile Cut-offs	Lin. Ft. 204		204
Test Holes	Lin. Ft. 14.5		14.5
REPAIR PIER G (C.O. #3) FORCE ACCT.	L.S. 1		1

No Change in Concrete Quantities from Design Plans Made during Construction Except for Pier G Repair



LOCATION SKETCH



FRONT OF END BENTS SIDE SLOPES OF FILL

Heavy Stone Revetment placed on fills at ends of bridge as shown in sketches. Approximately 700 Sq. Yds. of Heavy Stone Revetment Work included in road contract

HEAVY STONE REVETMENT SKETCHES

Note: This drawing is not to scale. Follow dimensions.

Excavation for bents made below Elev. 754.0 paid for as Class 2 Excavation for Structures  
Excavation for bridge made above Elev. 754.0 paid for as Class 1 Excavation for Structures

5M\*25 Elev. 760.72 \* on top of S.W. corner of Rt. curb Abut. #1 Sta. 1049+50  
BRIDGE OVER SNI-A-BAR CREEK  
STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
PROJECT NO. FT-352(1) SEC. B (US 40 STA. 1049+50 (19.5' RIGHT)

JACKSON COUNTY

DESIGNED BY: W. W. Anderson  
CHECKED BY: C. H. Brown

STD. CHGRS  
L-146

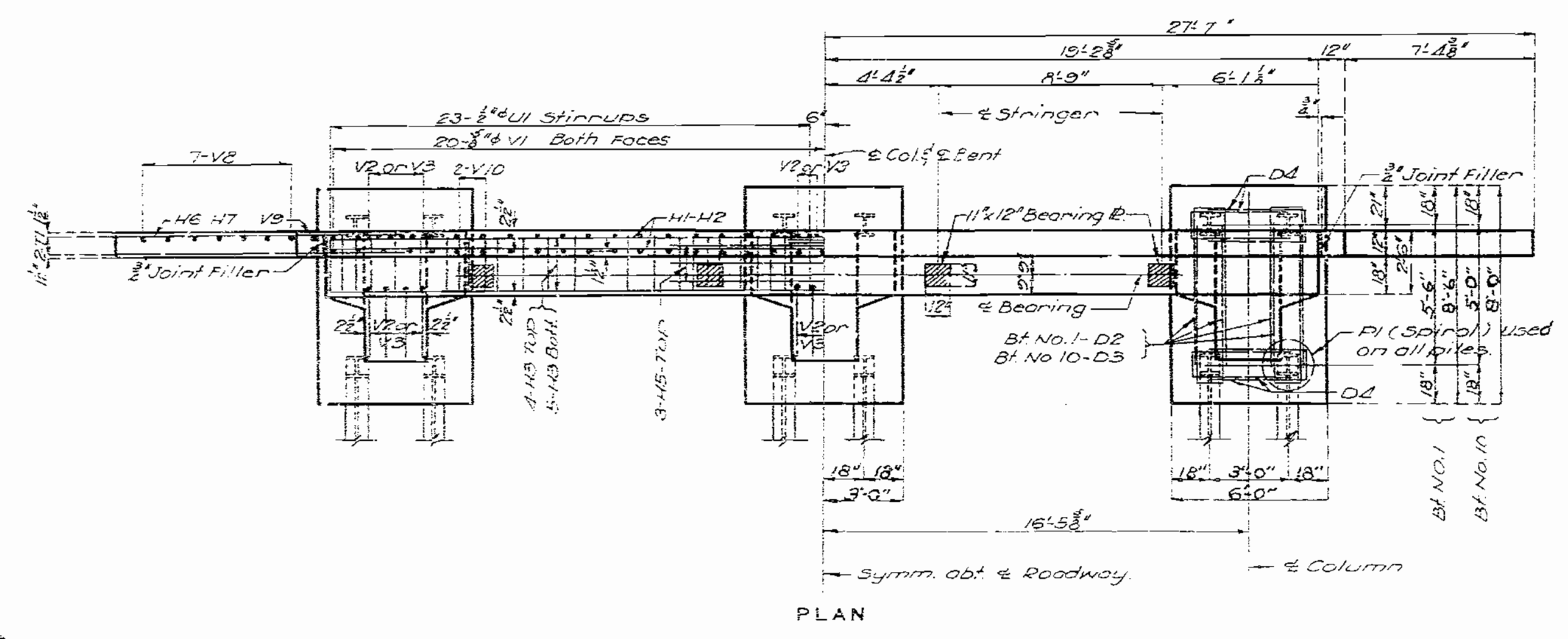
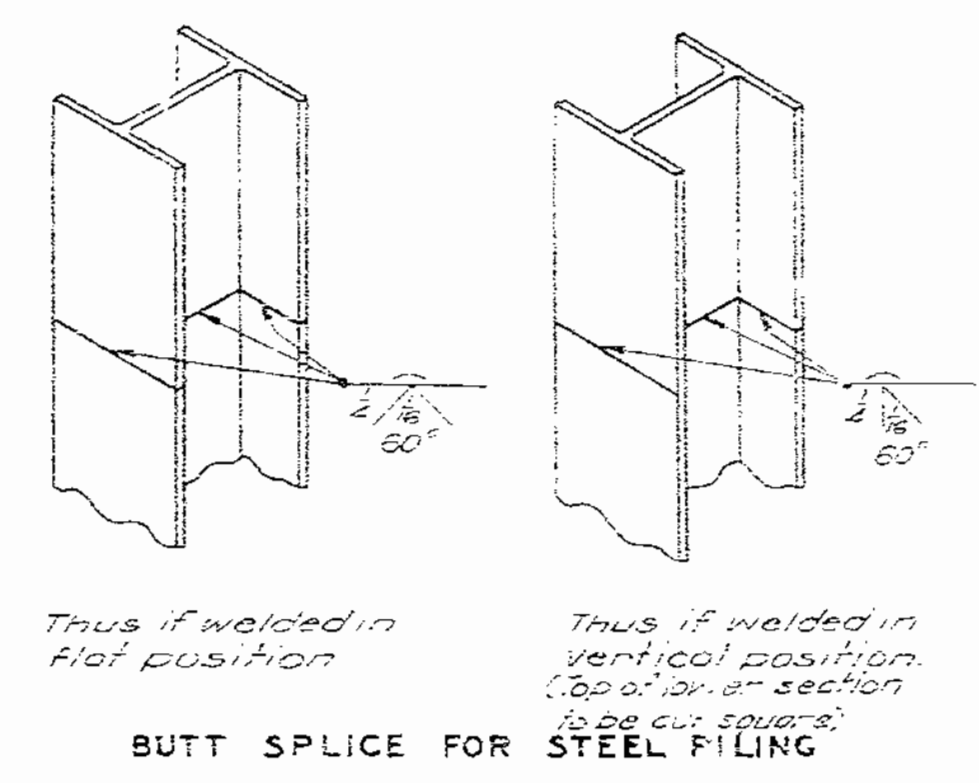
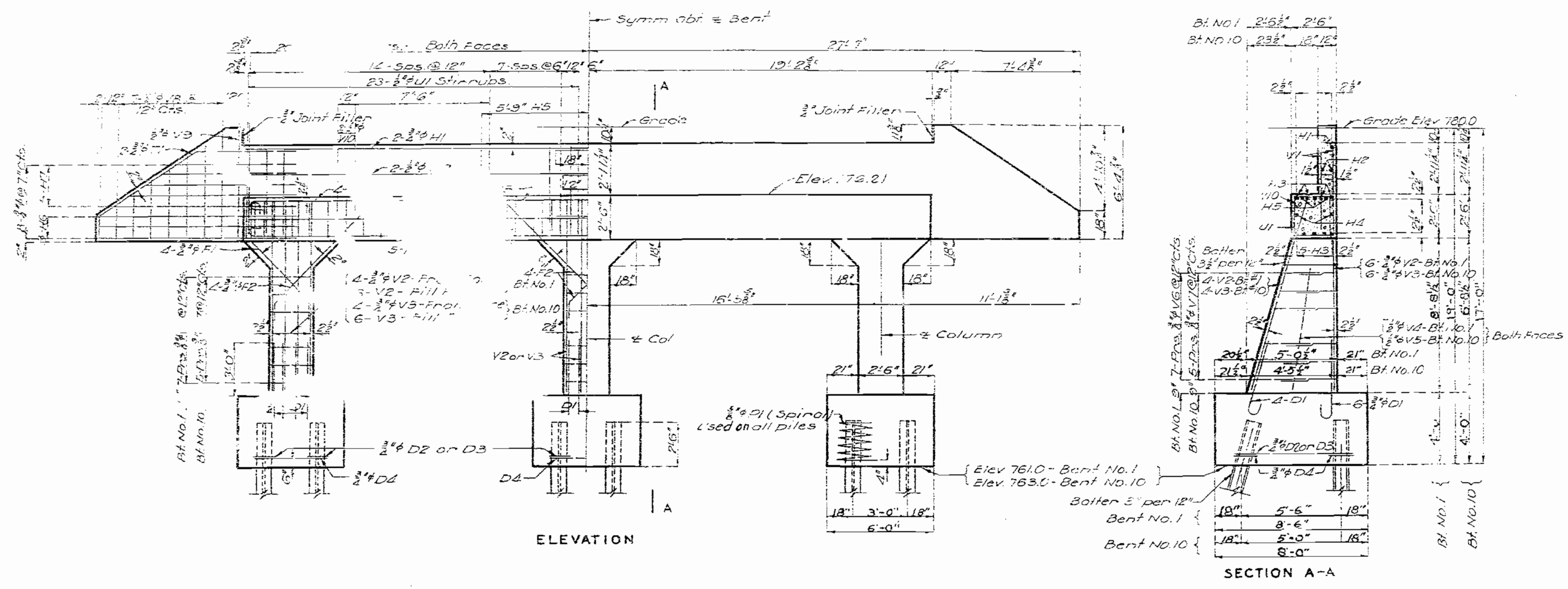
Designed Jan. 1946 By P. C.  
Drawn April 1946 By G. M.  
Traced May 1946 By J. T. F.  
Checked July 1946 By P. C.



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	11-10-01		19	

FINAL PLANS



DETAILS OF END BENTS NO. 1 AND 10.

257

Designed Jan 1946 by R.A.C.  
 Drawn April 1946 by G.W.  
 Traced May 1946 by H.C.  
 Checked July 1946 by J.V.

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3A of 4

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
 ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
 PROJECT NO. FI-352(11) SEC. B (US 40) STA. 1049+50  
 JACKSON COUNTY

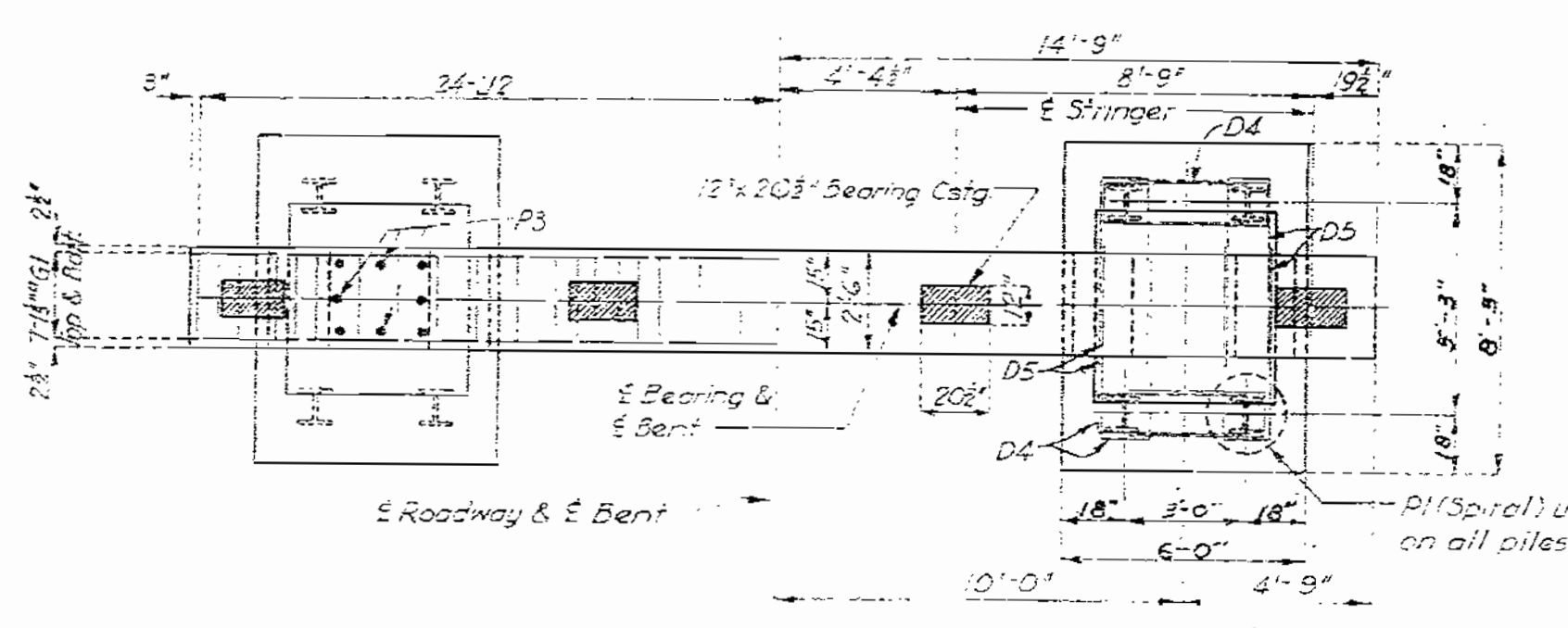
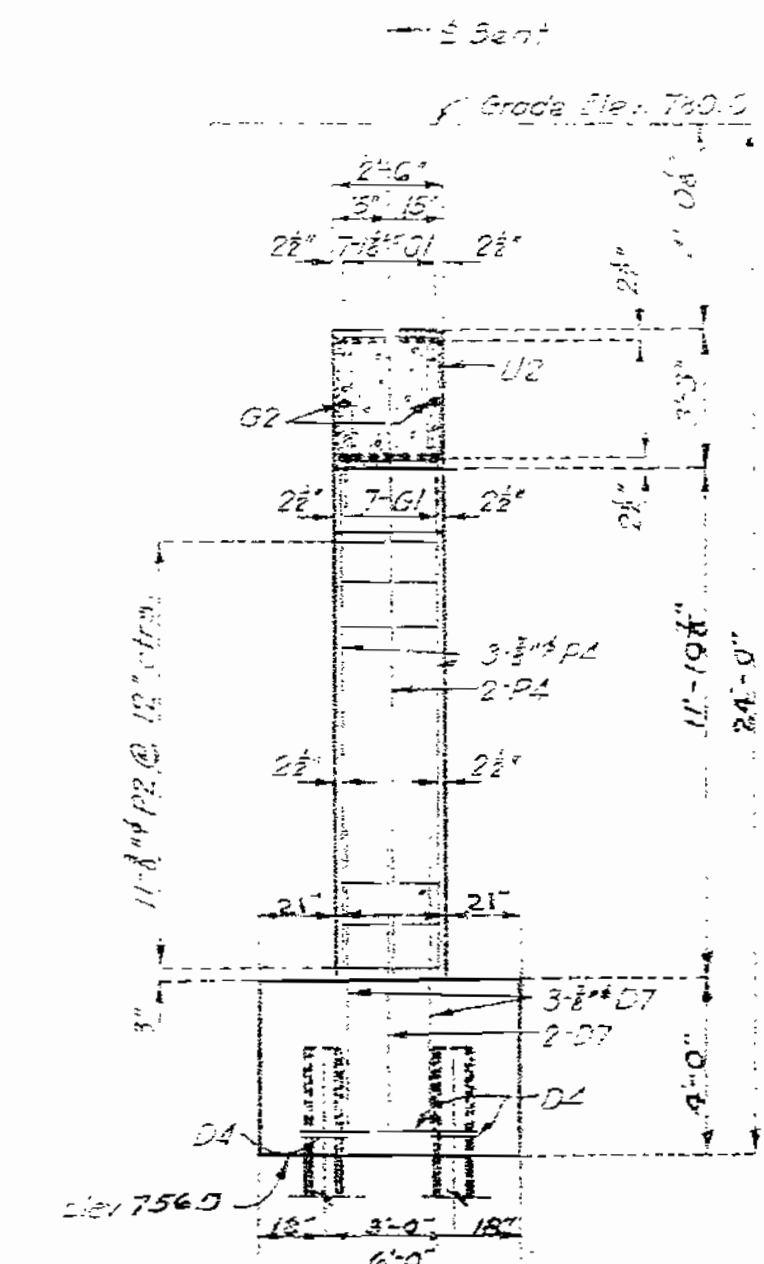
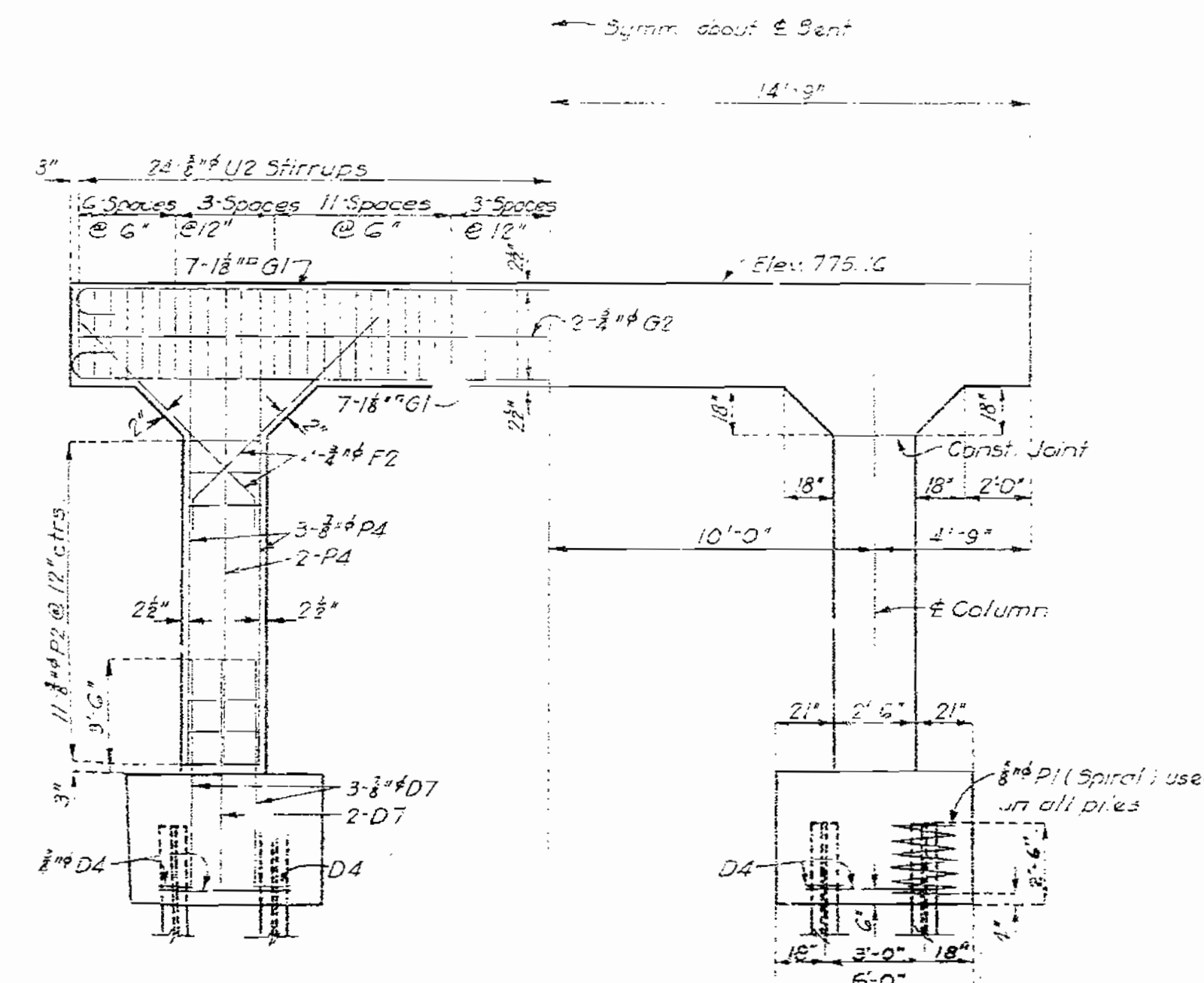
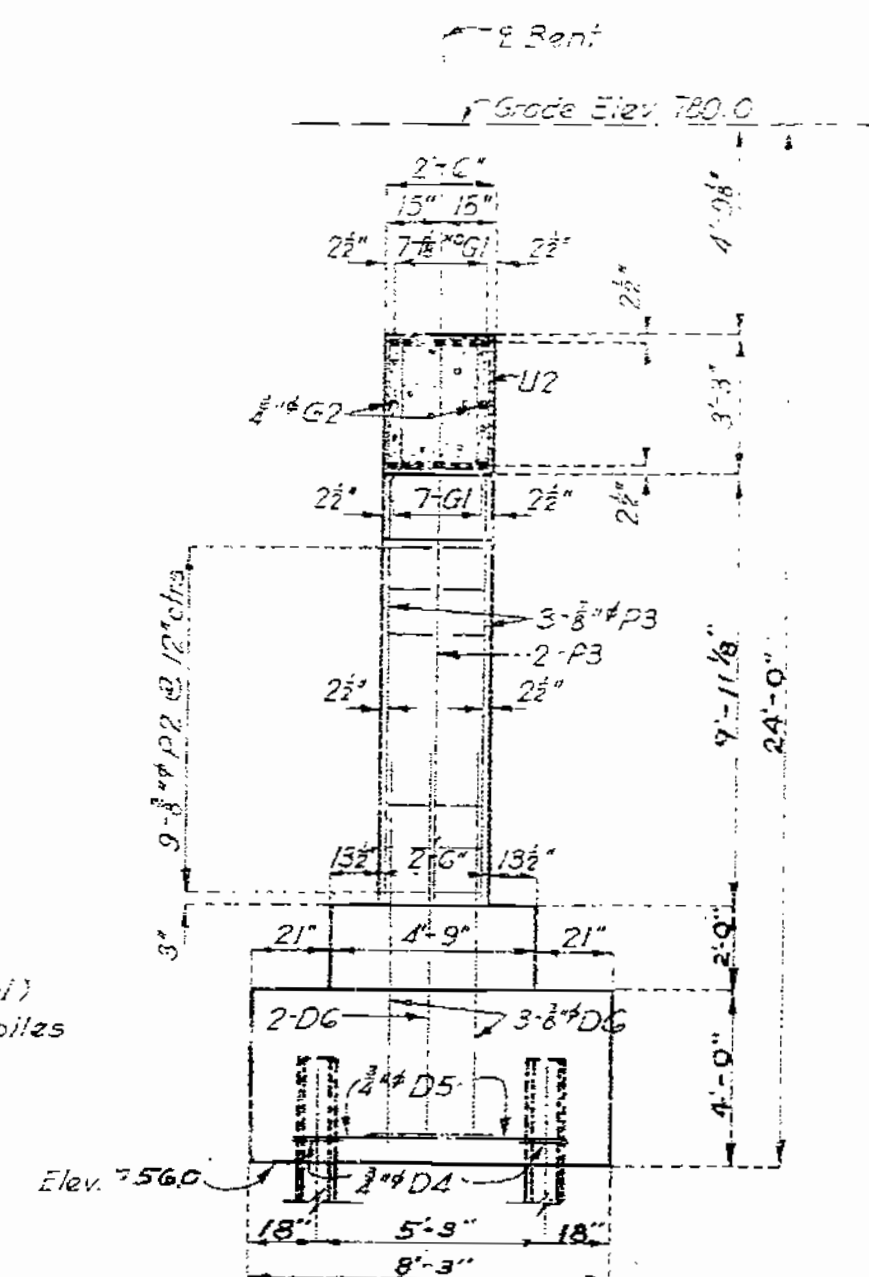
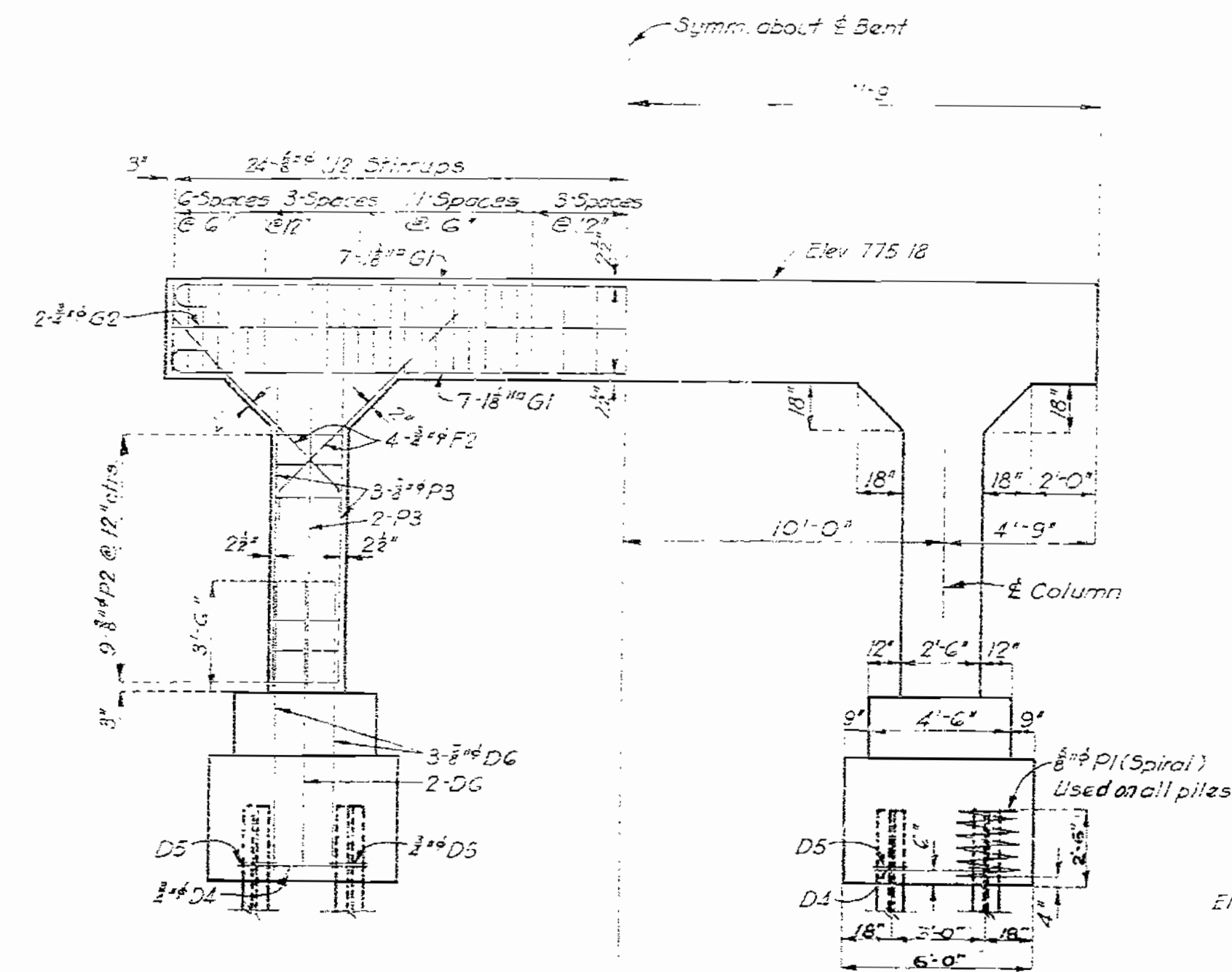
L-146

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

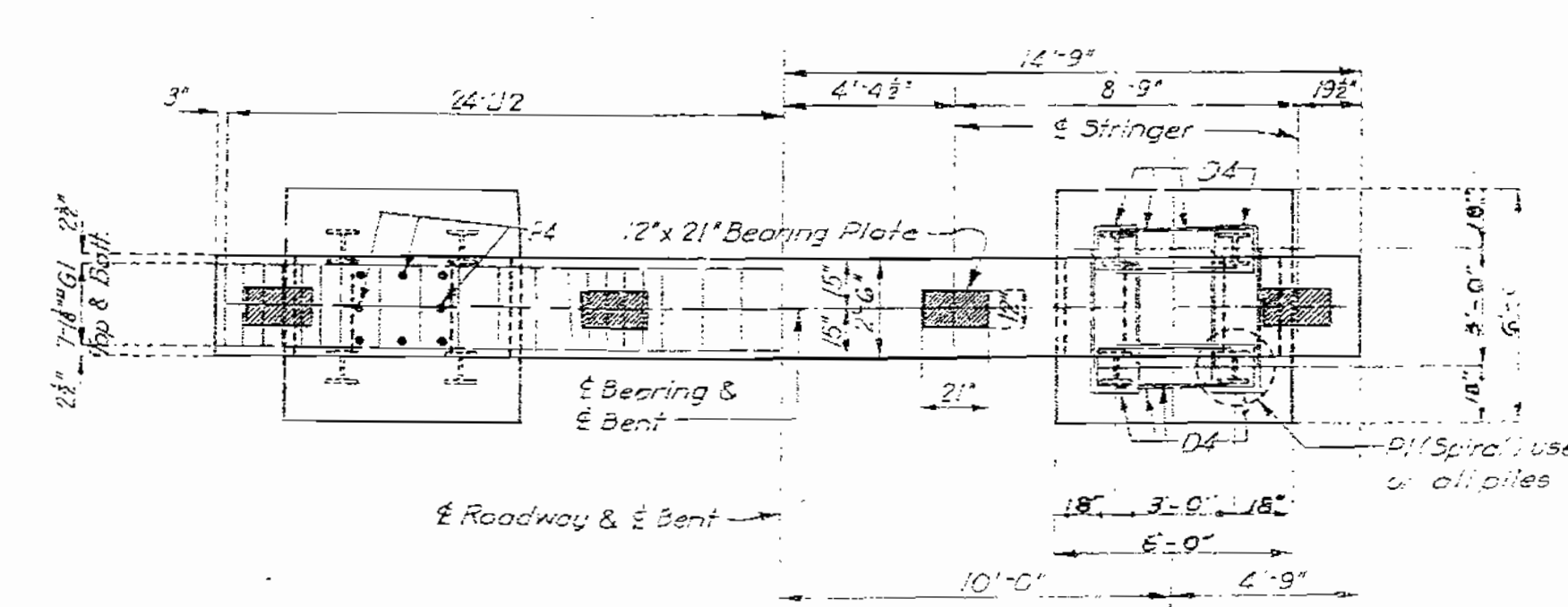
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	200000000	1946	20	20

FINAL PLANS



DETAILS OF INTERMEDIATE BENTS NO 2 & 9

Note: For details of top of piles and out-splite see sheet No 3 of 8.



DETAILS OF INTERMEDIATE BENTS NO. 3 & 8

258

Designed Jan. 1946 by R.P.C.  
Drawn April, 1946 by G.W.  
Traced May 1946 by J.T.F.  
Checked July 1946 by P.A.B.

Note: This drawing is not to scale. Follow dimensions.

Sheet No 4 of 4

BRIDGE OVER SNI-A-BAR CREEK  
STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
PROJECT NO FT-352(1) SEC. B (US 40) STA. 1049-50  
JACKSON COUNTY

L-146

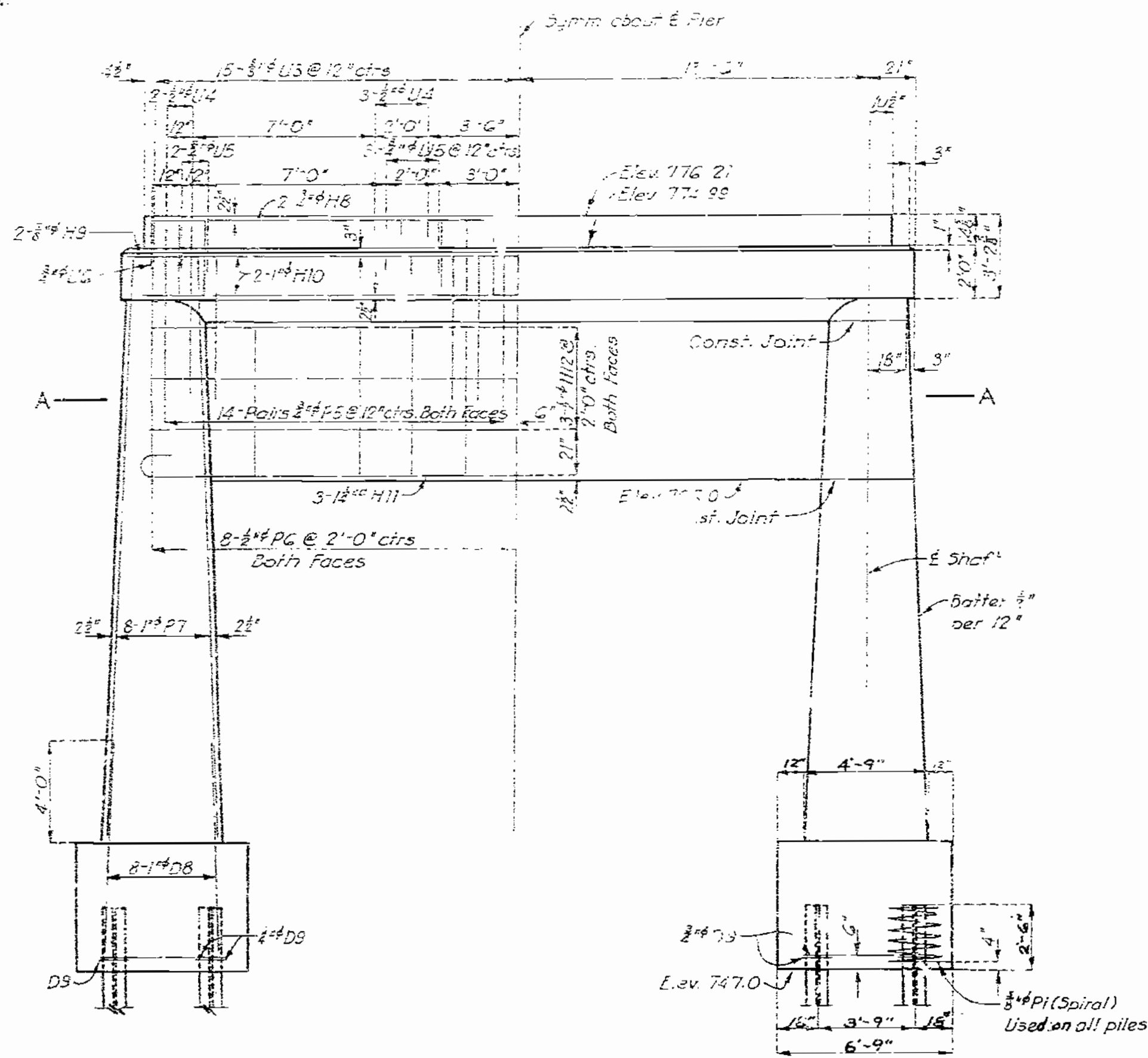
FINAL PLANS



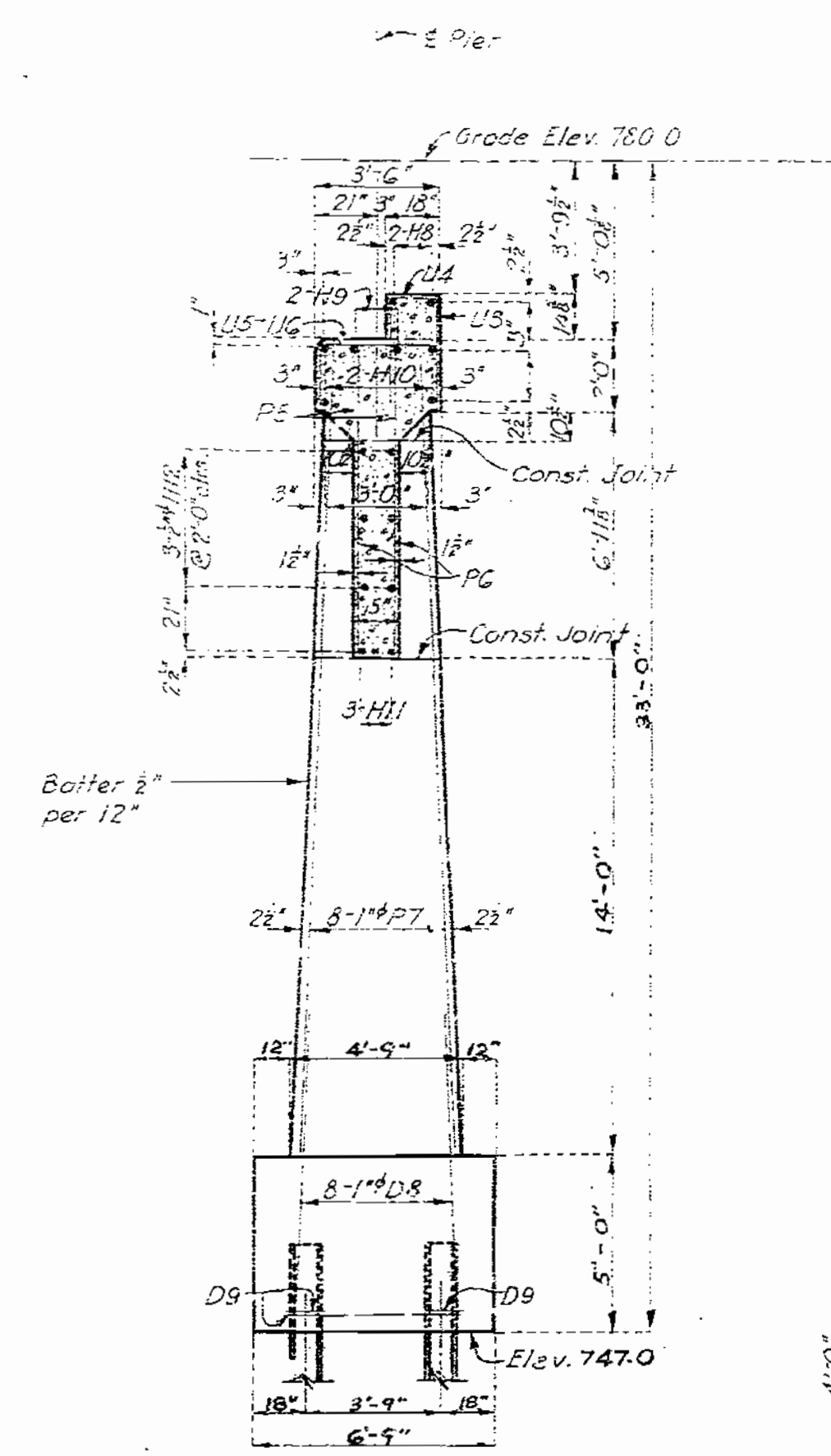
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. A. D. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	113220000	19		

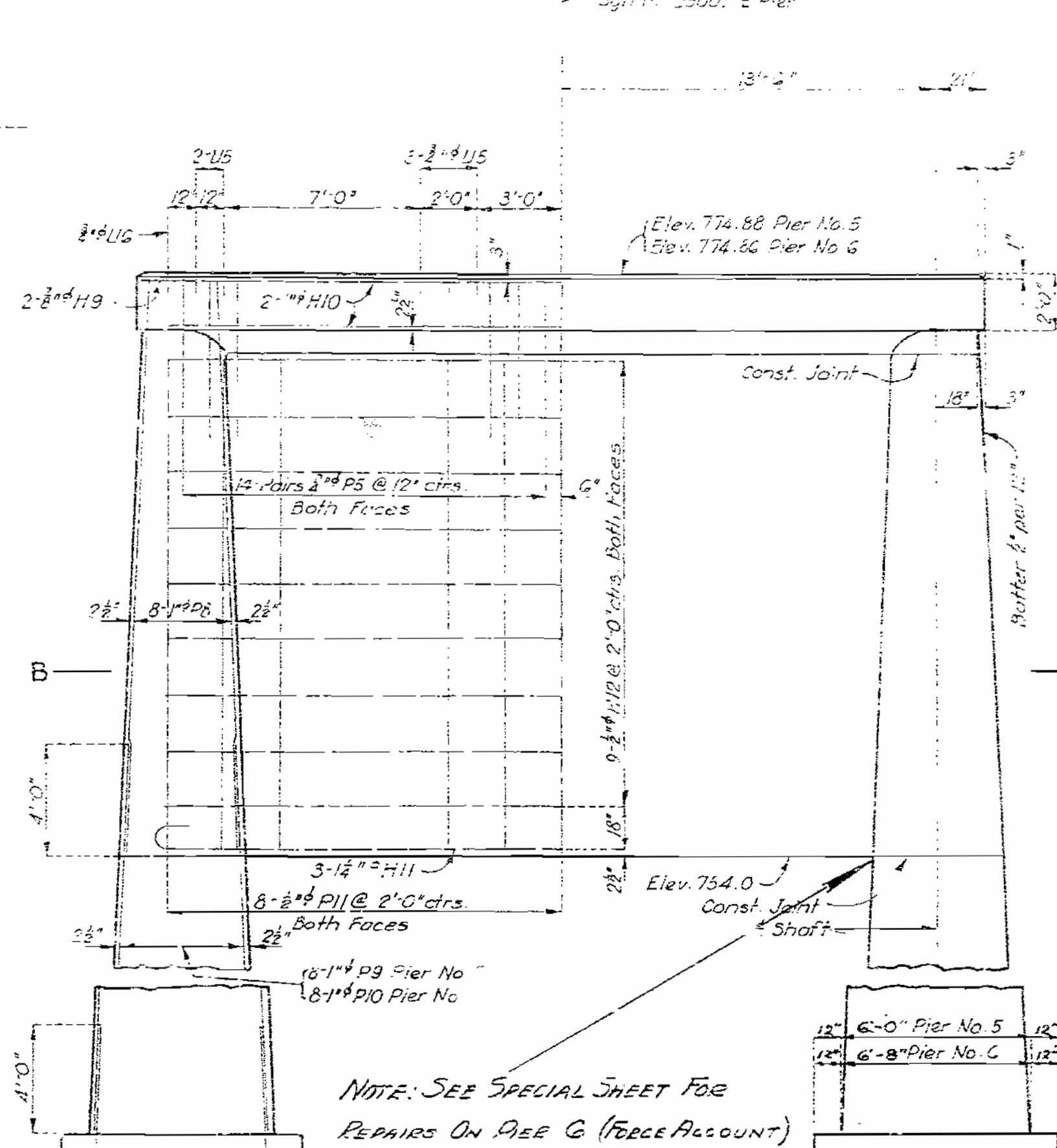
FINAL PLANS



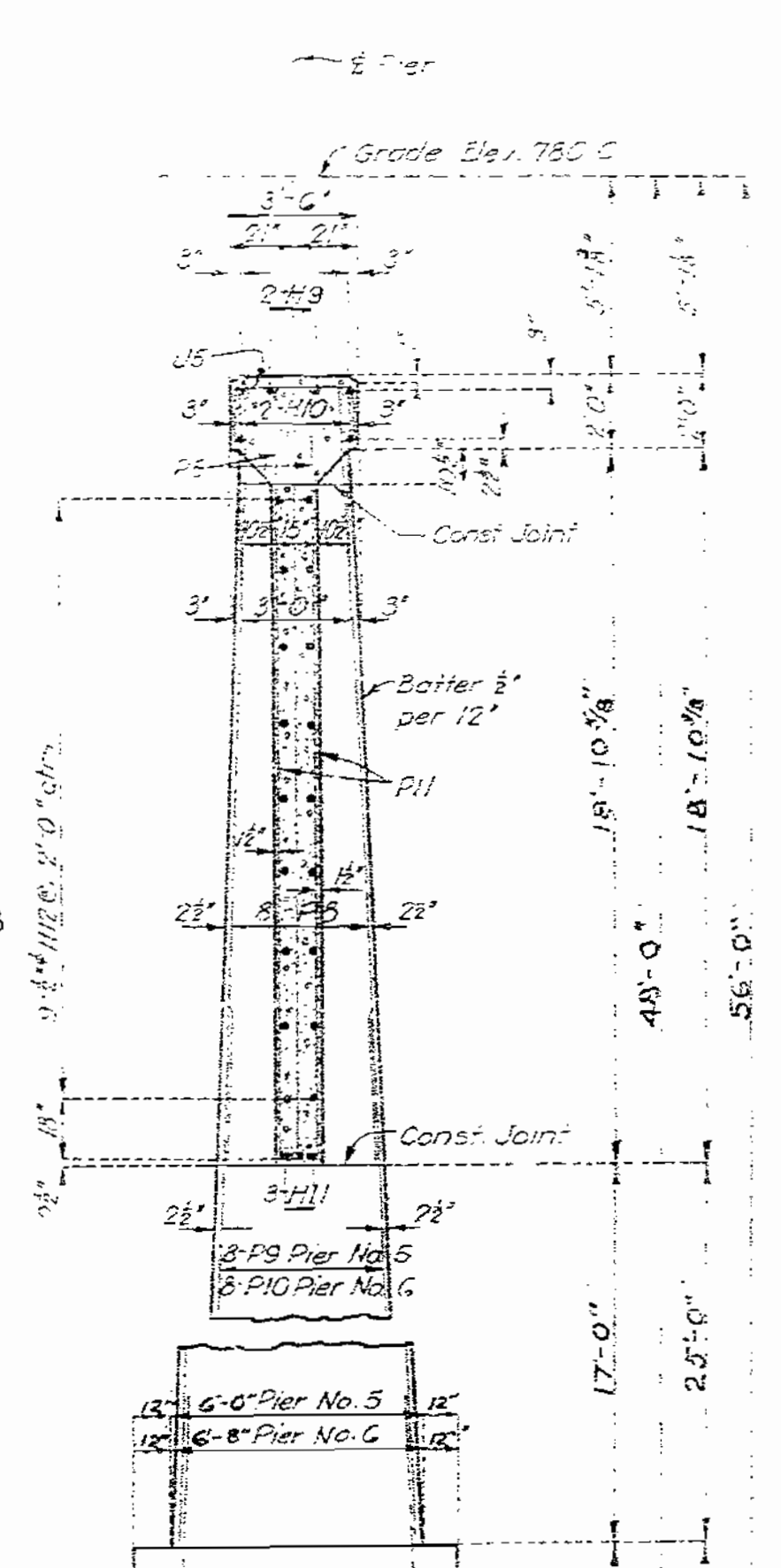
ELEVATION



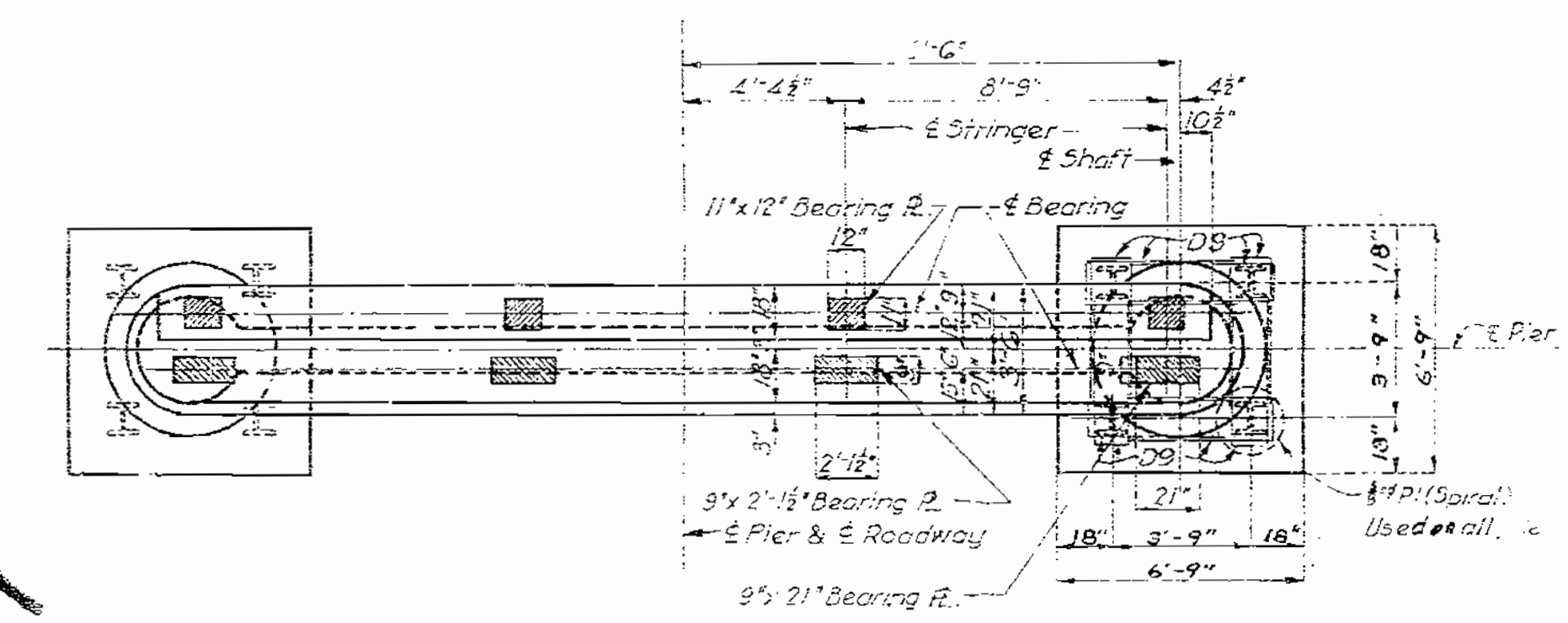
SECTION AT E



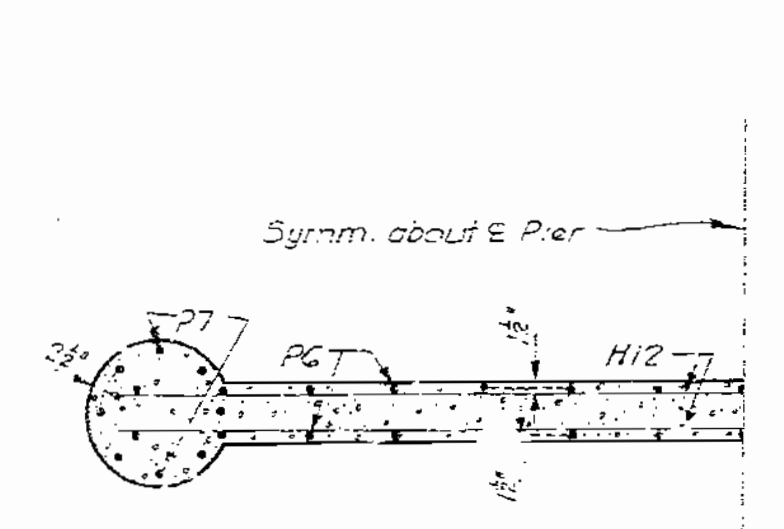
ELEVATION



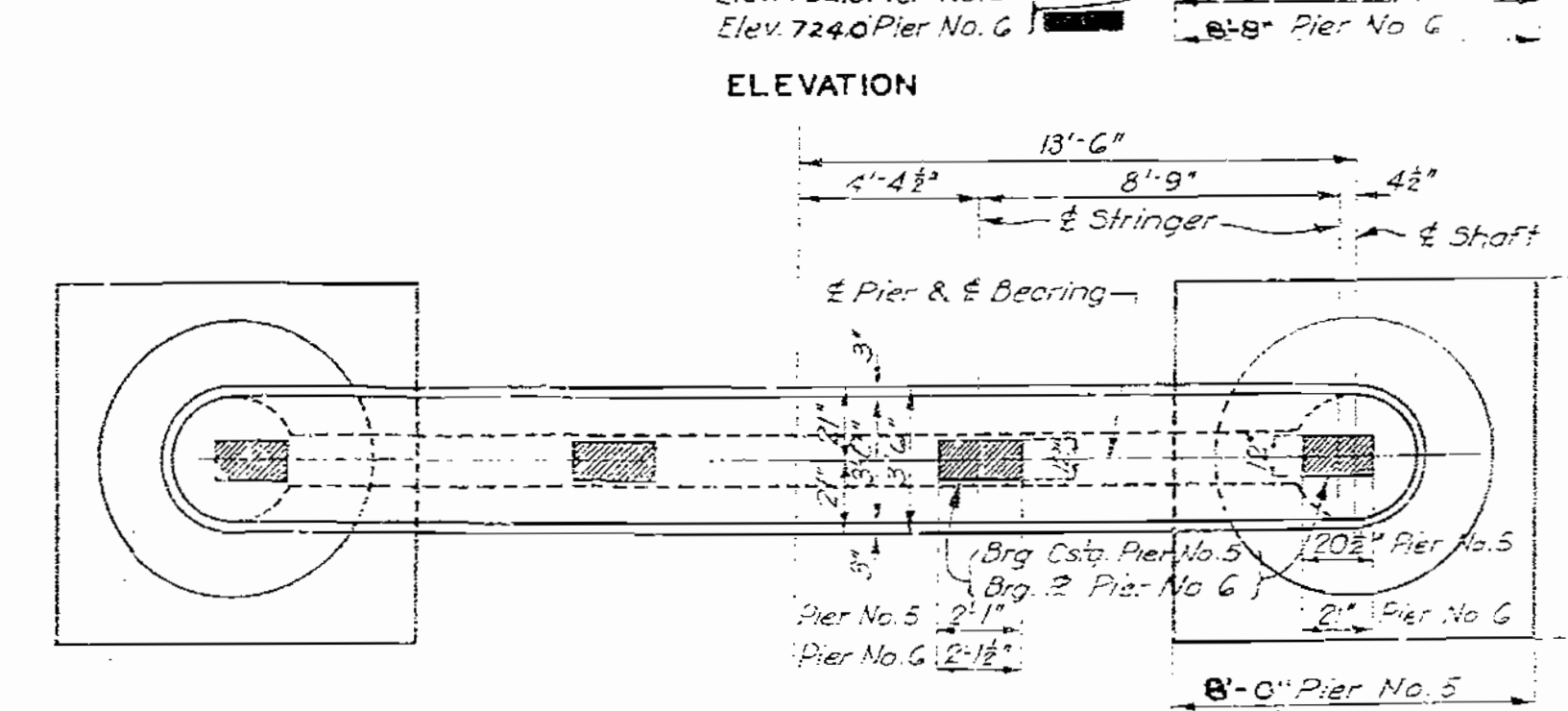
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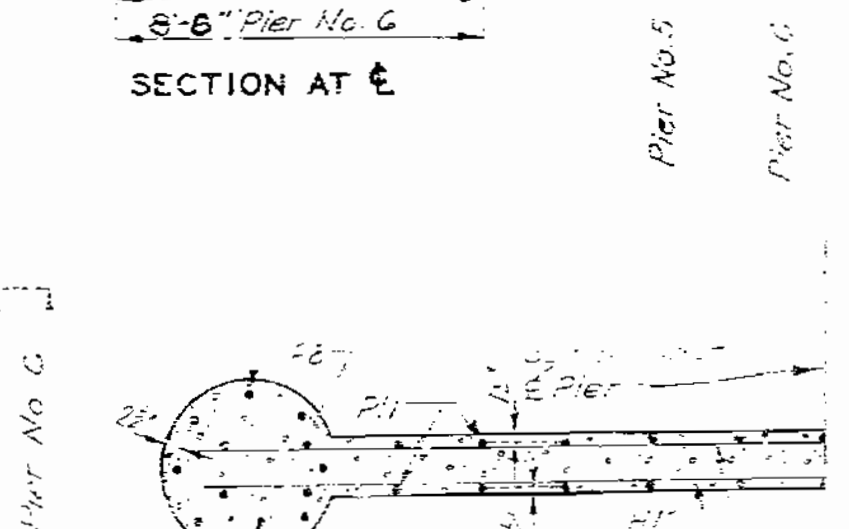
PLAN



HALF HORIZONTAL SECTION A-A



PLAN



HALF HORIZONTAL SECTION B-B

DETAILS OF PIERS NO. 4 & 7

DETAILS OF PIERS NO. 5 & 6

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM BLUE SPRINGS TO OAK GROVE  
 ABOUT 1.2 MILES EAST OF GRAIN VALLEY  
 PROJECT NO. FT-352(11) SFC. B.O.S.401 STA. 10.49+50

JACKSON COUNTY

652

Designed Jan. 1940 By R. A. C.  
 Drawn April 1940 By G. W.  
 Traced Nov. 1946 By J. W. F.  
 Checked July 1946 By P. B.

Note: This drawing is not to scale. Follow dimensions

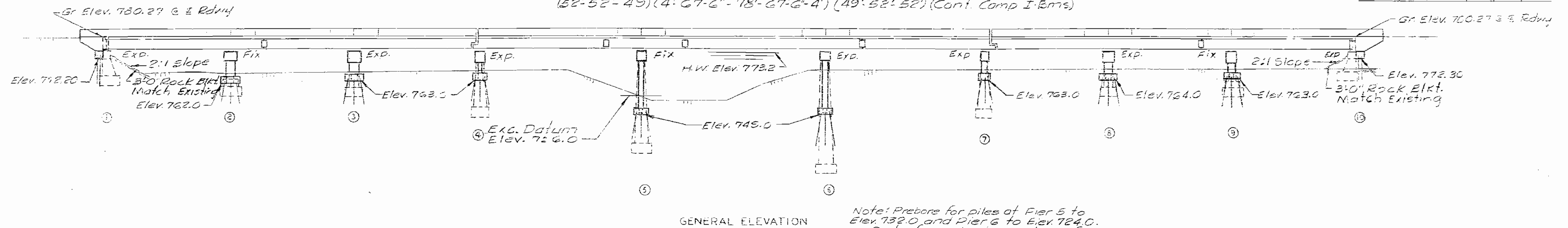
Sheet No. 5A of A

L-146

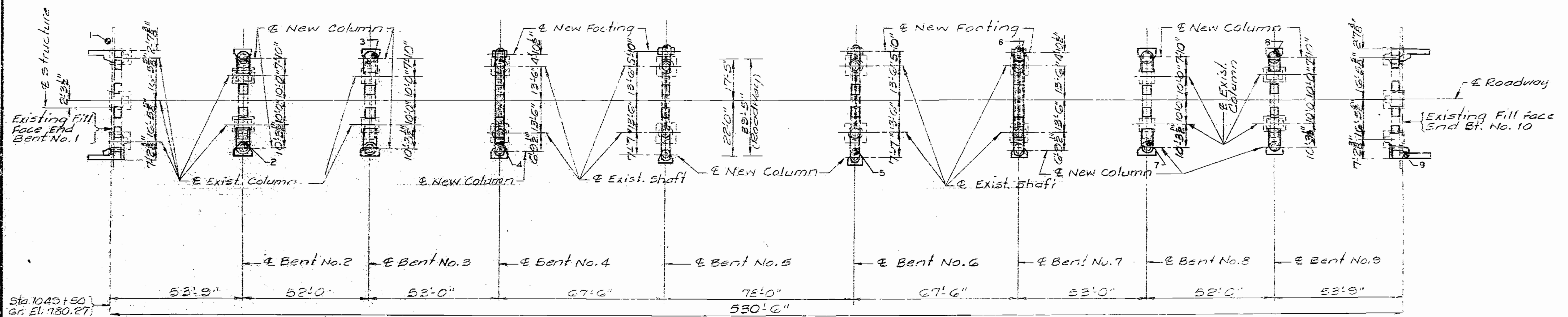
FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT  
 Remove Deck - widen and Replace Deck - widen Substructure  
 (52'-52'-49')(4'-67'-6"-78'-67'-6"-4')(49'-52'-52')(Cont. Comp. I-B.ms)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		55	6	



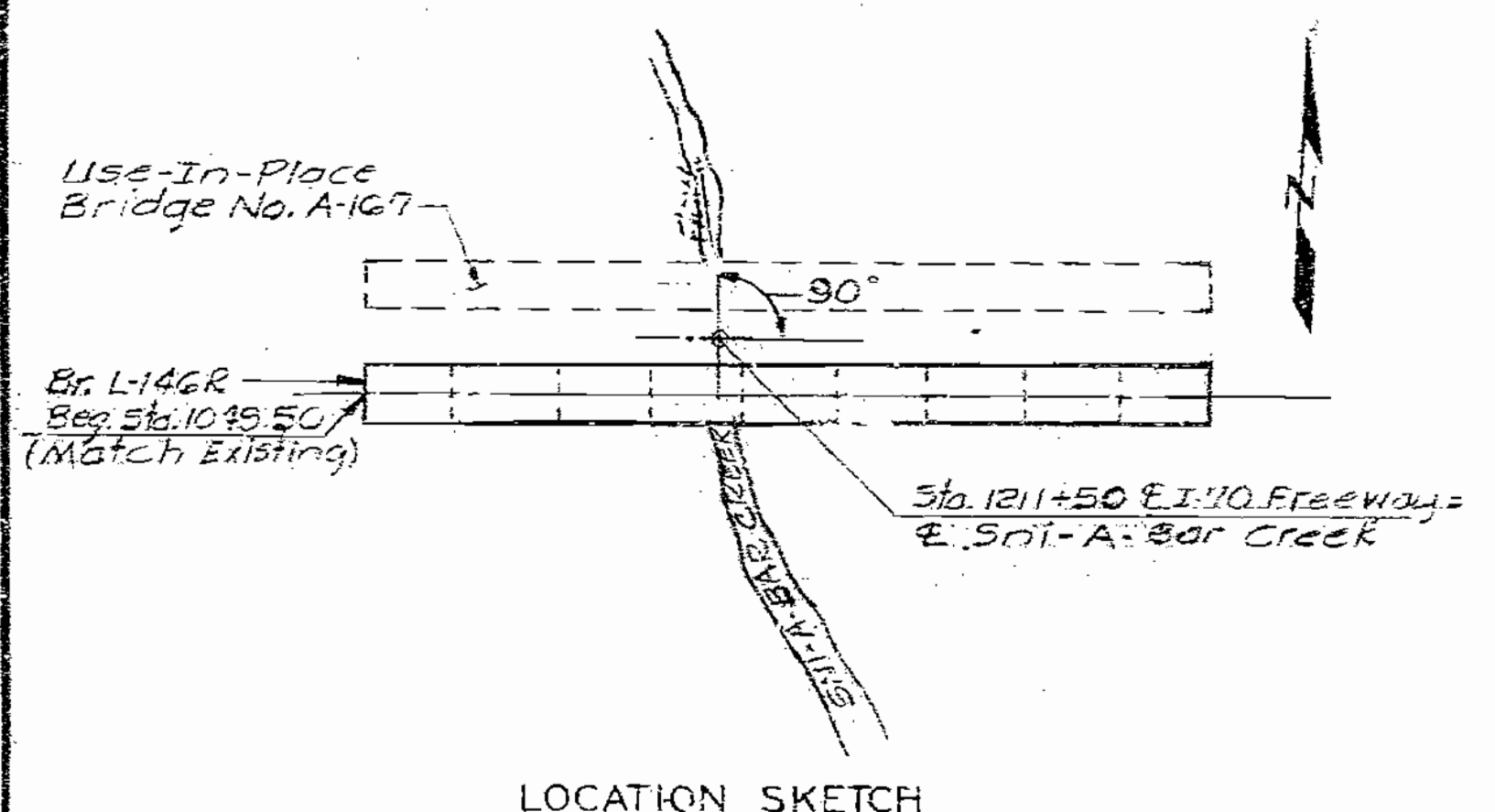
Note: Prebore for piles of Pier 5 to Elev. 732.0 and Pier 6 to Elev. 724.0. Cost of pre-boring and backfilling shall be included in unit price bid for structural steel piles.



Note: 5" Indicates location of Boring. For Boring Data, see sheet No. 3

Note: Light dotted lines indicate old work. Heavy lines indicate new work. Piles not shown in Plan for clarity.

PLAN



LOCATION SKETCH

HYDRAULIC DATA	
Drainage Area:	37 sq. mi.
Design Discharge:	13,000 cfs
Design H.W. Elev.:	773.2
Frequency:	Flood of Record
BASIC FLOOD DATA	
Flood of Record exceeds Basic Flood	

B.M. Equ. = Elev. 780.56 BK. (GR) = Elev. 780.72 AH (BR) X on Top S.W. Corn. Rt. Br. Curb Sta. 1049+50.

BRIDGE OVER SNI-A-BAR CREEK  
 STATE ROAD BLUE SPRINGS TO GRAIN VALLEY  
 ABOUT 1.2 MI. EAST OF GRAIN VALLEY  
 PROJECT NO. I-70-1(80) STA. 1049+50  
 JOB NO. 4 1070 173 RTE I-70  
 JACKSON COUNTY

DESIGNED May 1977  
 DETAILED July 19 77  
 CHECKED Aug 19 77

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 25.

DATE 11/22/73

STD.
STD. 706.35
L-146R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	7	

PILE DATA										
BENT NO.	1	2	3	4	5	6	7	8	9	10
PILE TYPE & SIZE	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
NUMBER	3	6	6	5	5	5	5	6	6	3
APPROXIMATE LENGTH FT.	40	27	31	32	18	26	46	7	45	58
DESIGN BEARING TONS	29	24	28	27	36	54	8	28	24	29
HAMMER ENERGY REQUIRED FT. LBS.	7,000	7,000	7,000	7,000	8,400	13,700	7,000	7,000	7,000	7,200

Minimum energy requirement of hammer based on plan length and design bearing value of piles.  
All pile shall be driven to practical refusal.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. 1973

Design Loading:

HS20-44 Modified 24,000# Single Axle  
15' / 29' Ft. Future Wearing Surface  
Earth 120# Equivalent Fluid Pressure 30#  
Fatigue Stress Case I Interim 1974

Design Unit Stresses:

Class B Concrete (Substructure)  $f_c = 1,200$  psi  
Class B1 Concrete (Superstructure)  $f_c = 1,600$  psi

Reinforcing steel (Grade 60)  $f_y = 60,000$  psi

Structural Carbon steel  $f_s = 20,000$  psi  
Structural Steel (ASTM A-572) Grade 50  $f_s = 27,000$  psi  
Steel Pile  $f_b = 9,000$  psi

Fabricated Steel:

Payweight for fabricated steel will be based on welded field splices regardless of type used.

Field Connections, High Strength Bolts  $\frac{3}{4}$ " holes  $\frac{13}{16}$ " except as noted.

Reinforcing steel:

Minimum clearance to reinforcing steel shall be  $\frac{1}{2}$ " unless otherwise shown.

Paint:

System A or B by contractor in accordance with std. spec. 712.12 color of final field coat for system B shall be aluminum.

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new steel.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars.

Hook Anchors:

Anchors shall be self drilling expansion type, made of casehardened and drawn, carburized steel, with self cutting annular brooching grooves.

Cost of furnishing and installing hook anchor bolt assemblies shall be included in price bid for concrete.

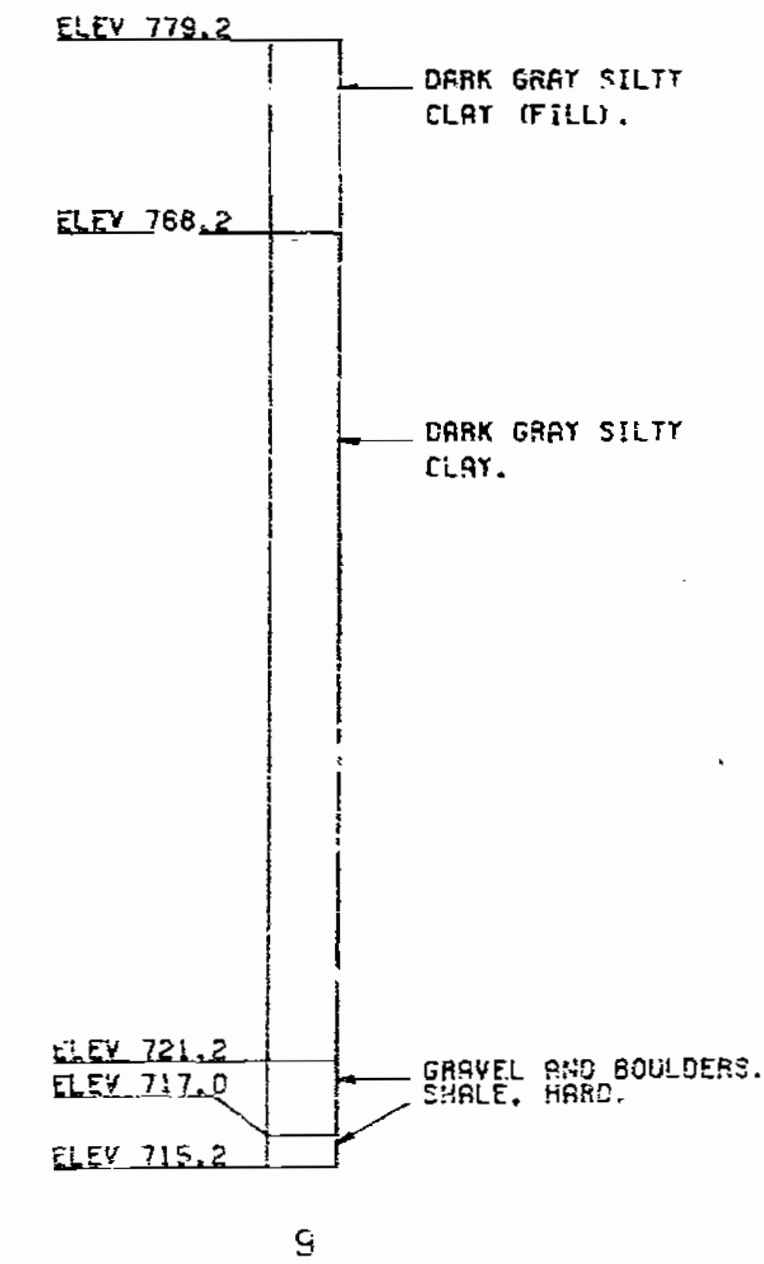
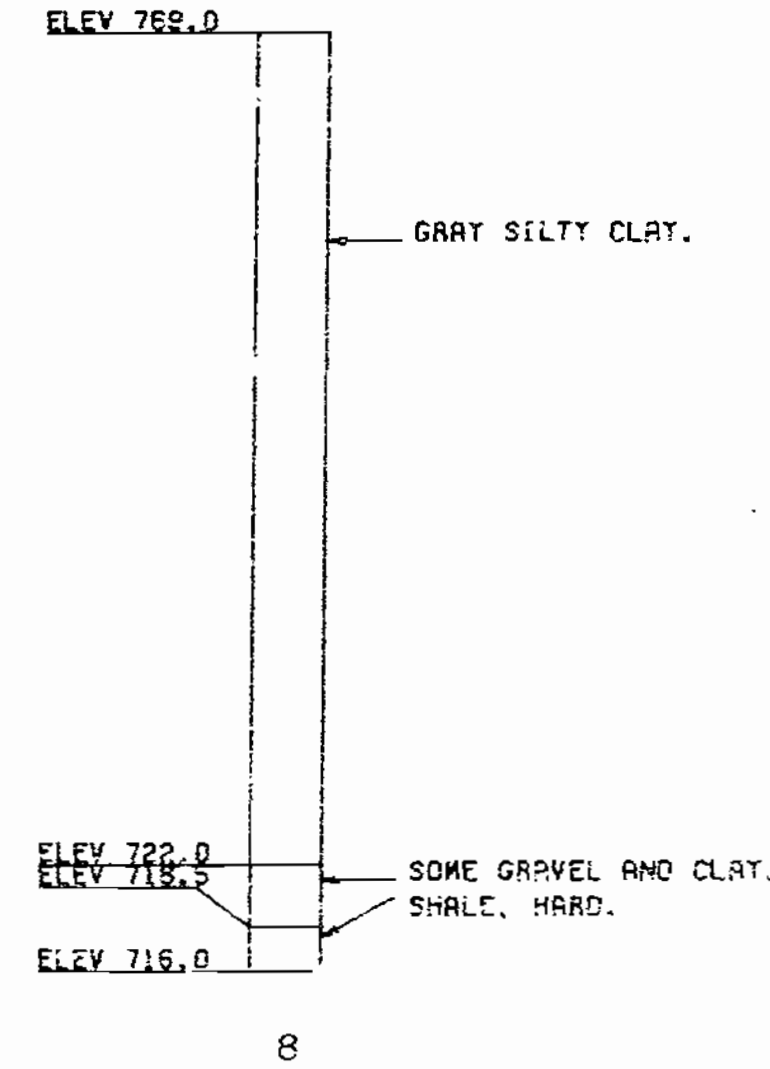
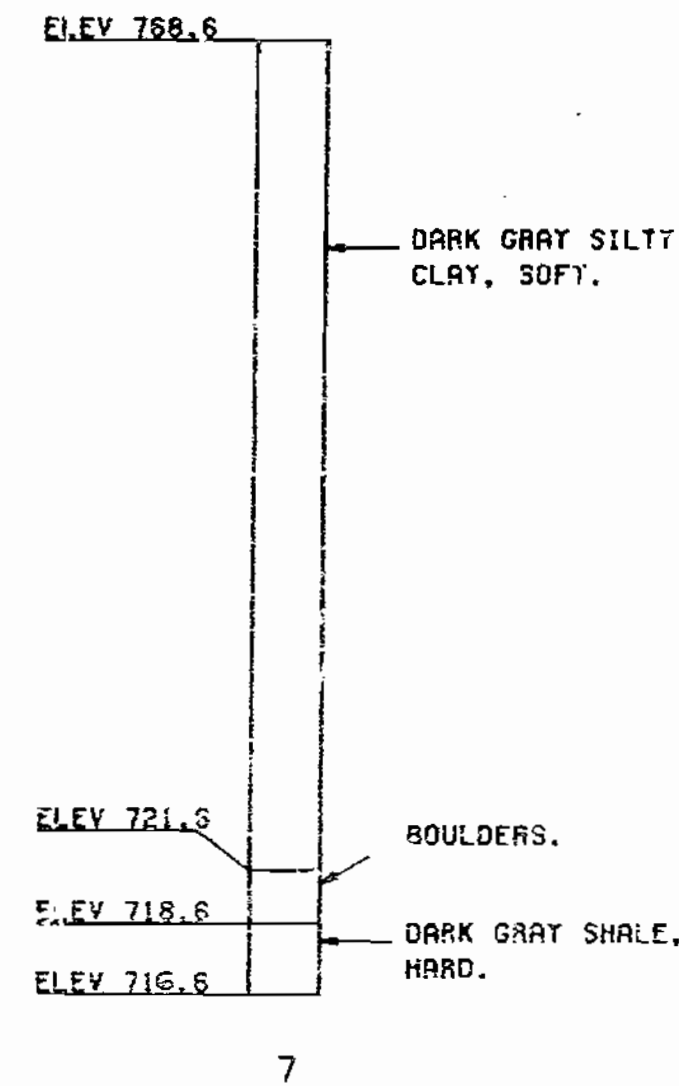
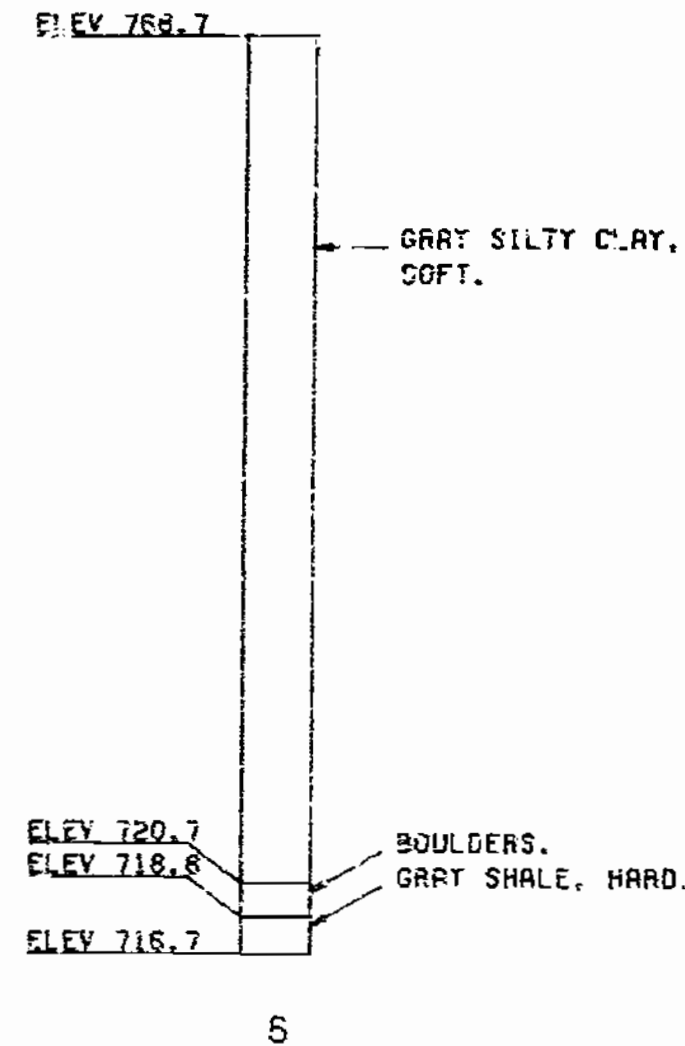
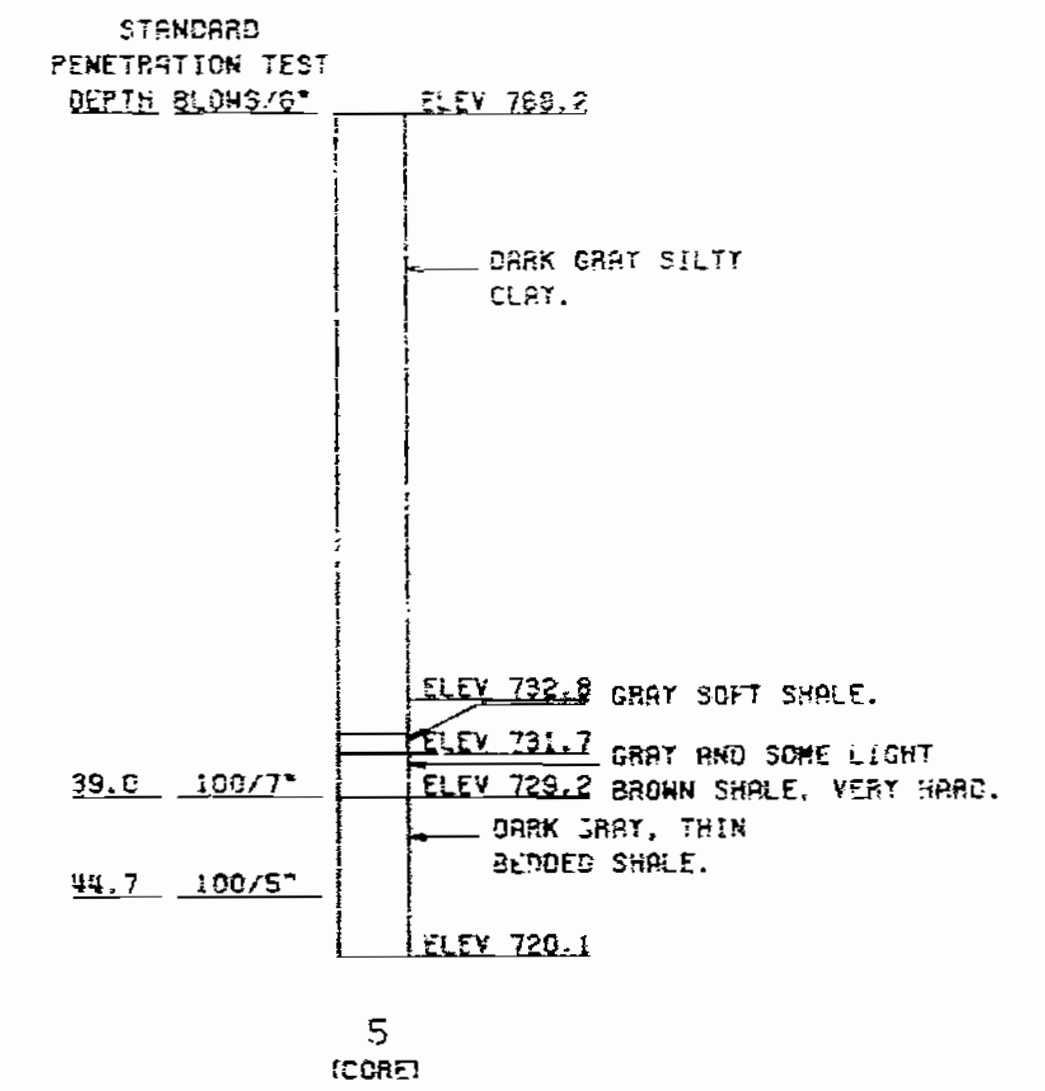
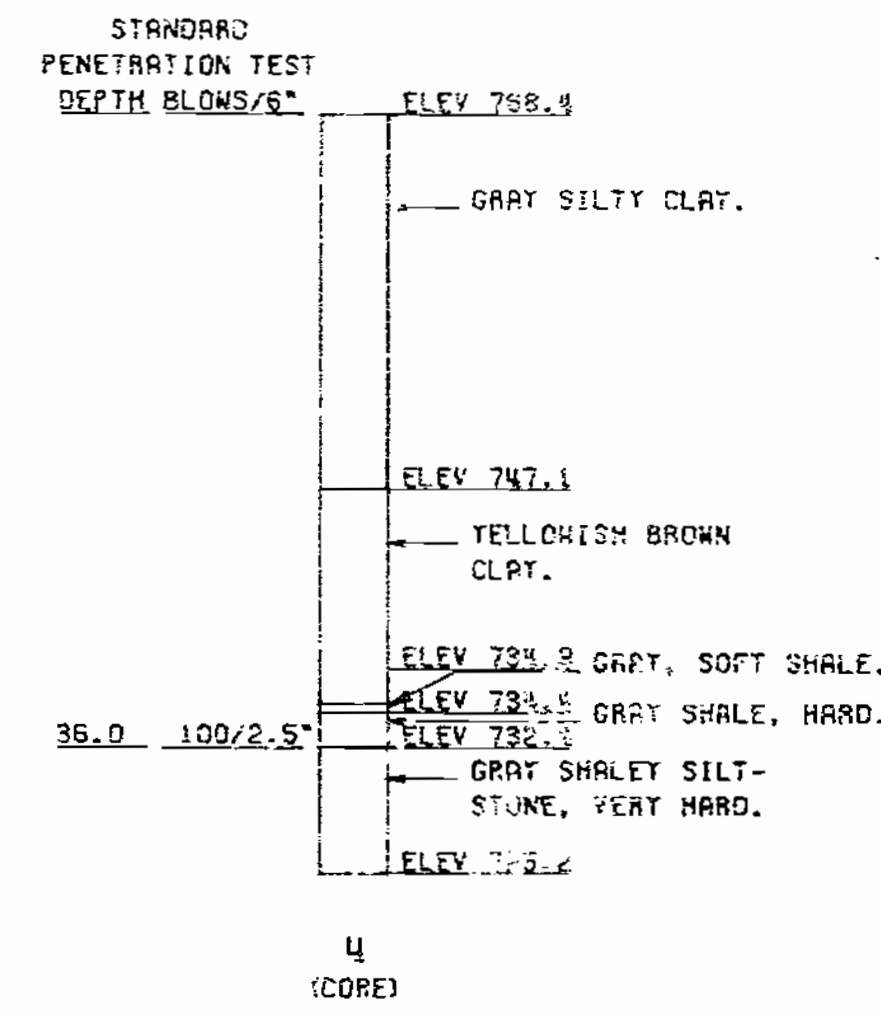
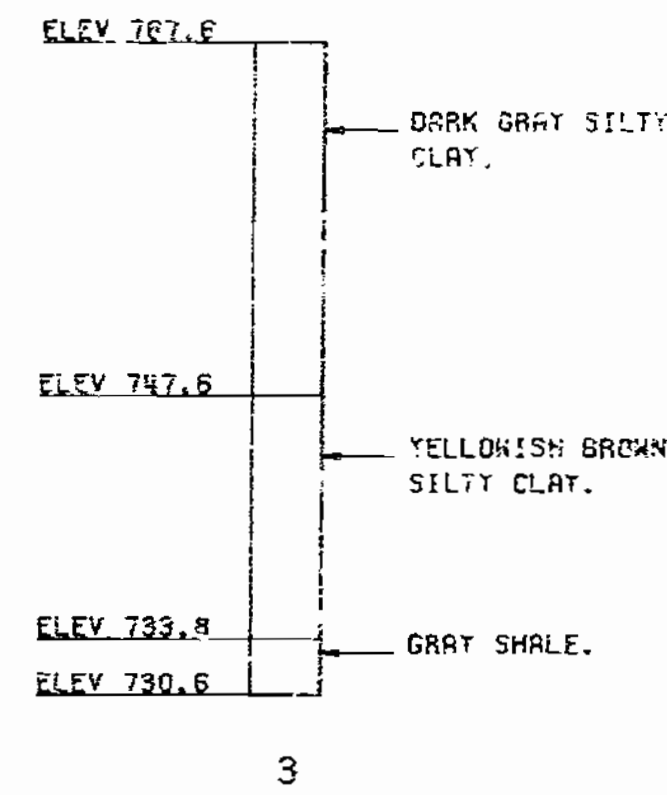
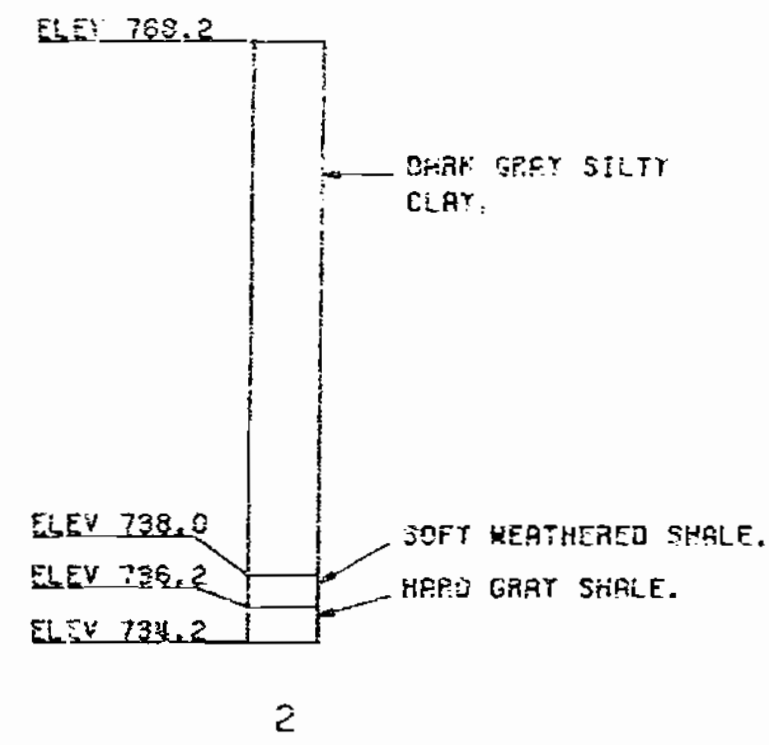
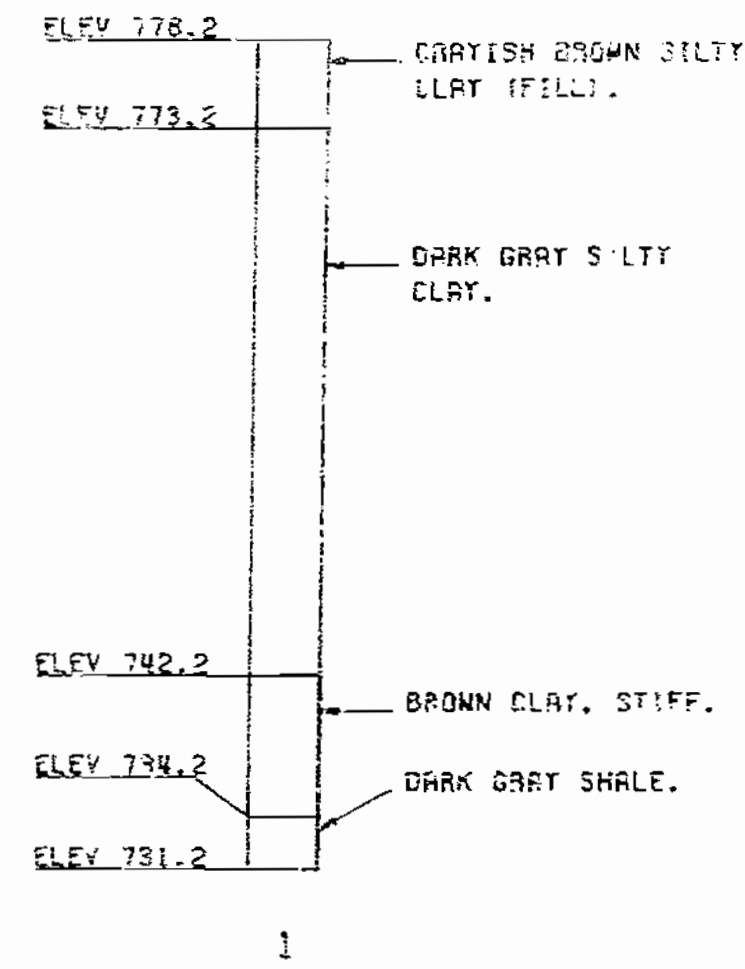
ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq. Ft.		17,639	17,639
Class I Excavation	Cu. Yd.	210		210
Class I Excavation	Cu. Yd.	67		67
Structural Steel Pile	Lin. Ft.	1804		1804
Class B Concrete	Cu. Yd.	1844		1844
Class B1 Concrete	Cu. Yd.		738.9	738.9
Elastomeric Expansion Jt. Seal (2.0 in.)	Lin. Ft.		40	40
Elastomeric Expansion Jt. Seal (2.5 in.)	Lin. Ft.		40	40
Removal of Existing Structural Steel	Lump Sum			1
Reinforcing steel (Grade 60)	Lbs.	21,130	107,740	128,870
Reinforcing steel (Epoxy)	Lbs.		85,850	85,850
Fabricated structural Carbon steel (A-36)	Lbs.	173,230		173,230
Paint (System A or B) Aluminum	Ton	232.5		232.5
Special Work	Lump Sum			1
Type F Elastomeric Bearing	Each		72	72
Fabricated structural Low Alloy steel (A-572)	Lbs.		298,250	298,250
Slab Drains (Type A)	Each		45	45
Slab Drains (Type B)	Each		45	45

Note: All concrete and reinforcement in safety barrier curb is included with superstructure quantities.

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	5	



BORING DATA  
FOR LOCATION OF BORINGS SEE SHEET NO. 1.

DETAILED July 1977  
CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

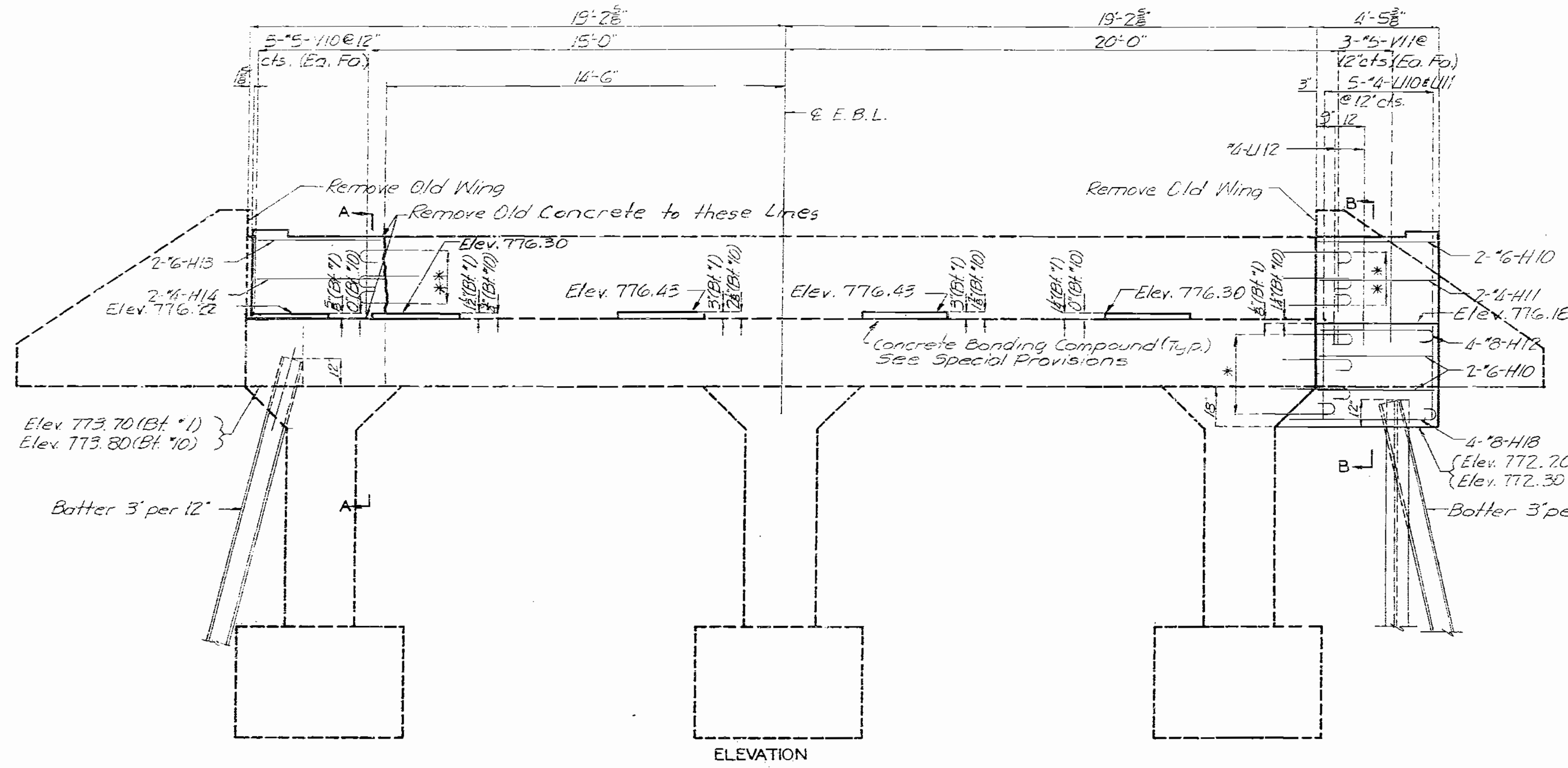
Sheet No. 3 of 25.

JACKSON COUNTY

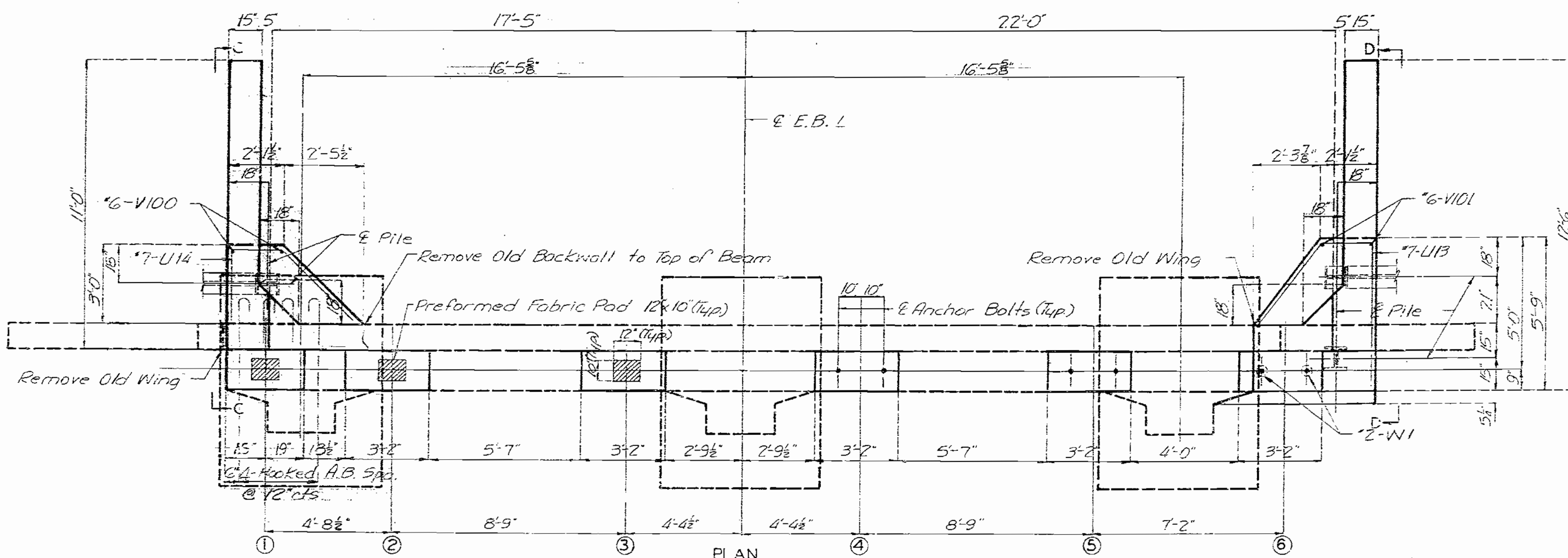
L-146R

MISSOURI STATE HIGHWAY DEPARTMENT

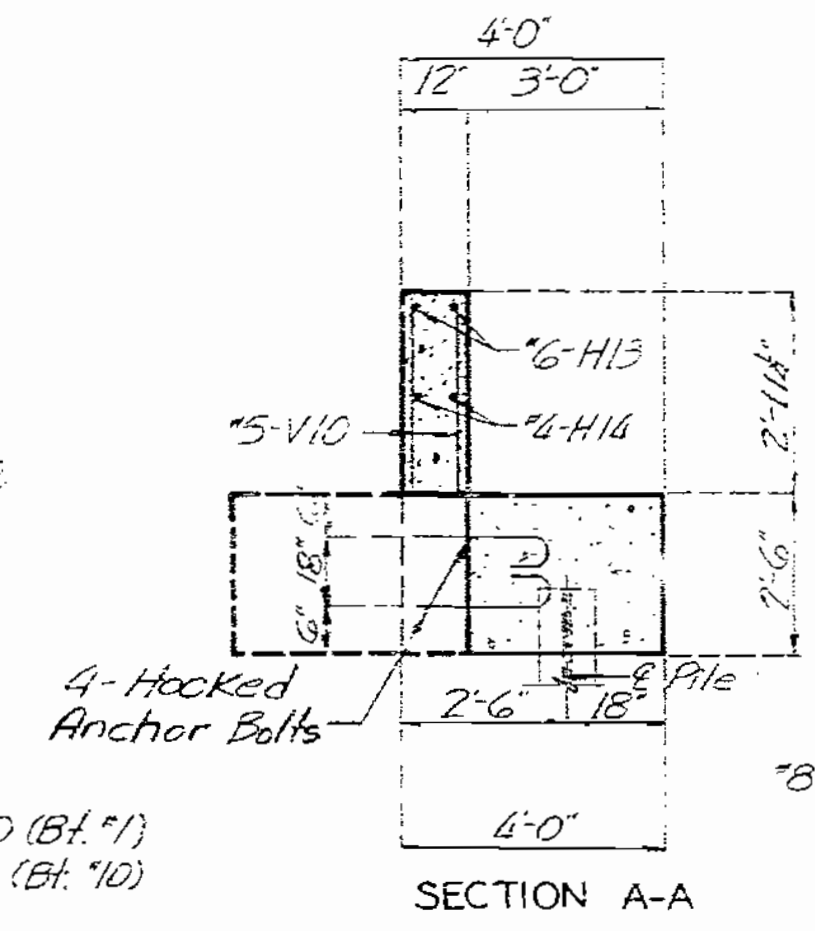
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		73	5	



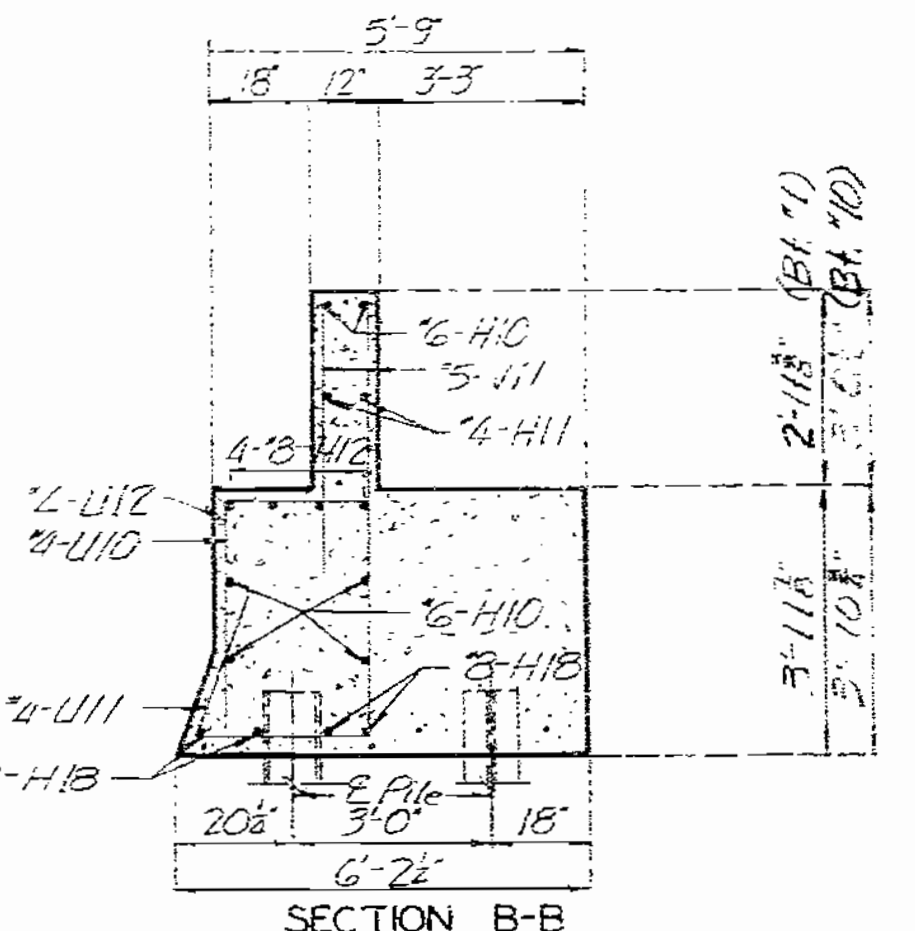
ELEVATION



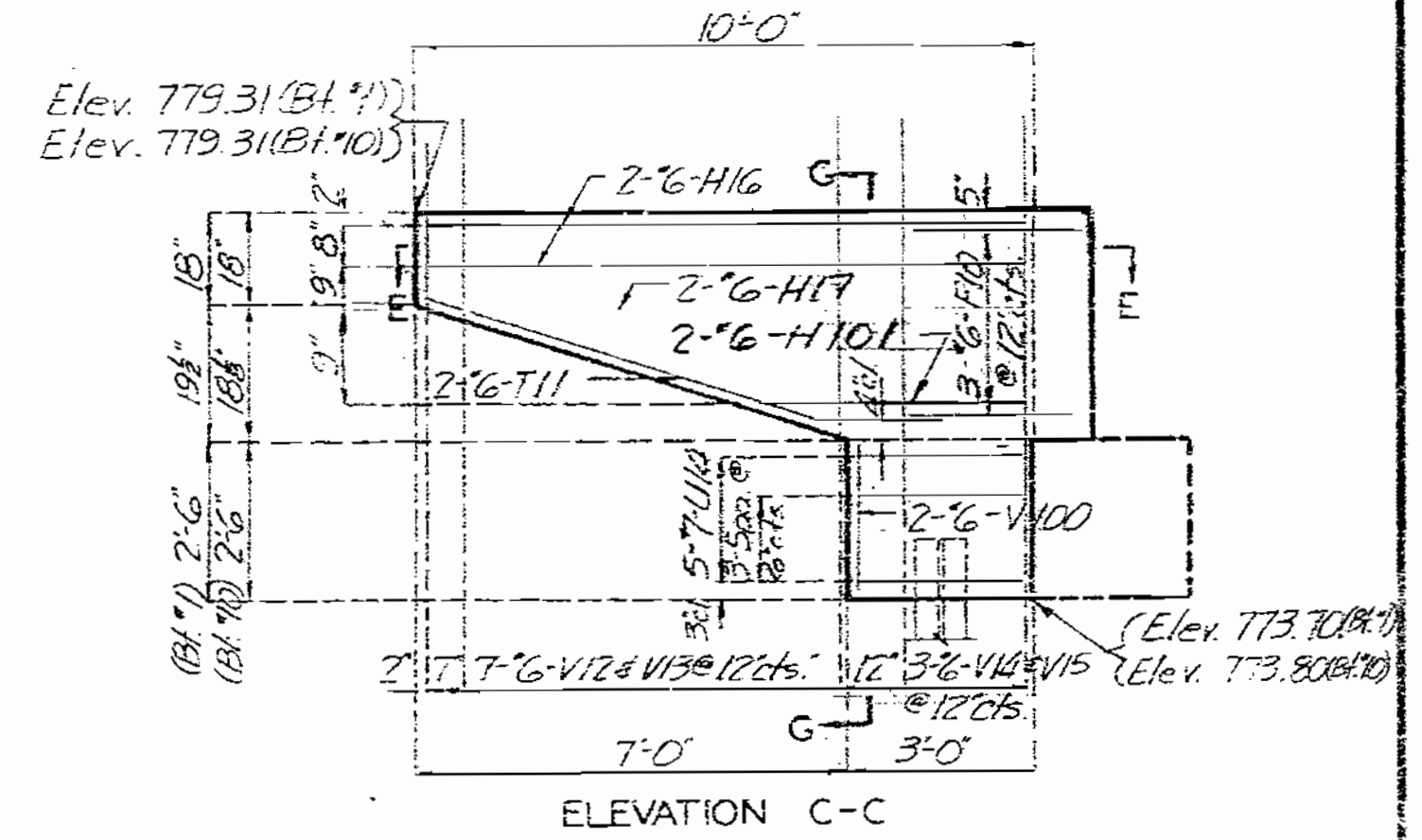
PLAN



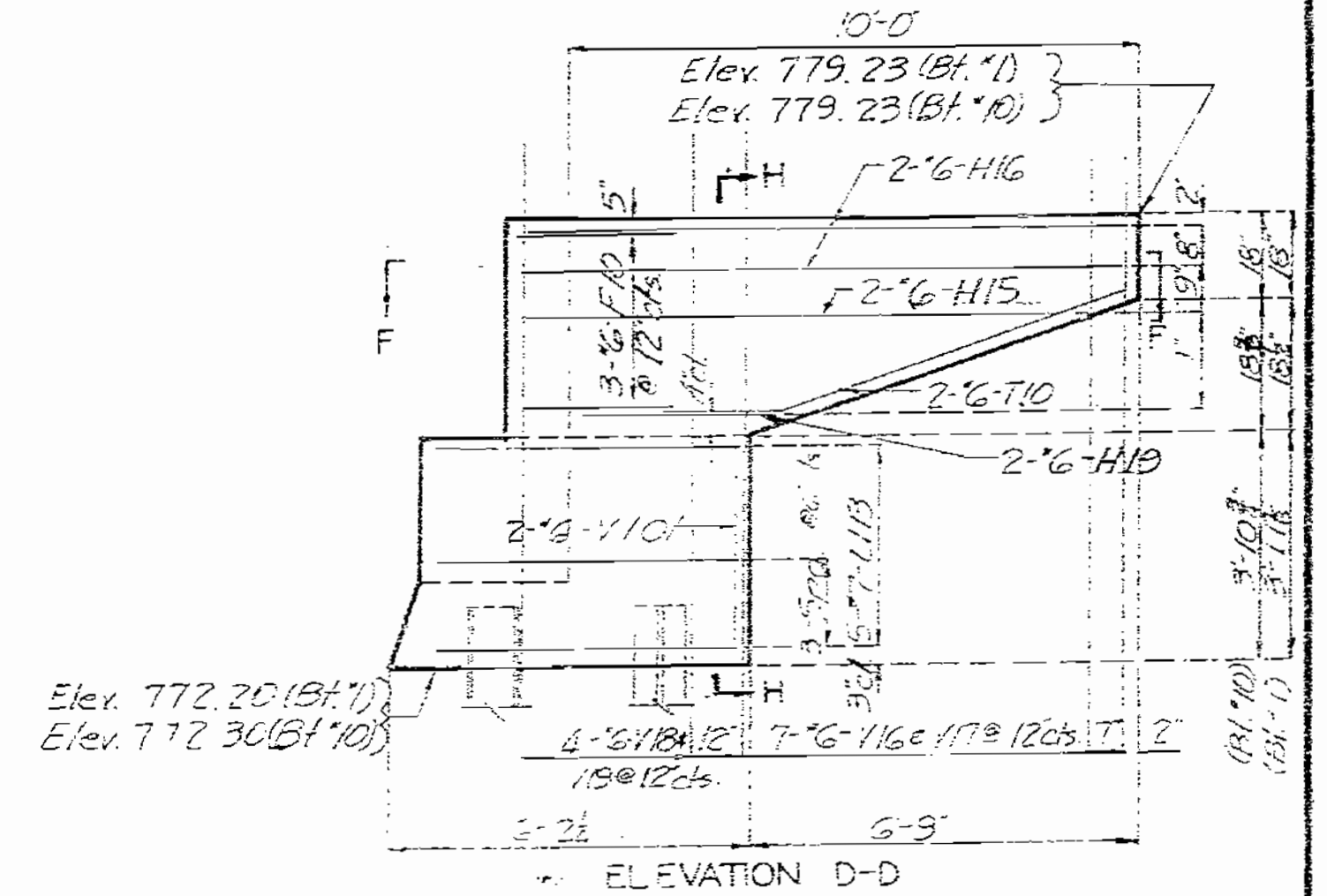
SECTION A-A



SECTION B-B



ELEVATION C-C



ELEVATION D-D

Note: Bent No. 10 shown, Bent No. 1 similar by Rotation.

Notes: \*, \*\* Indicates location of Hooked Anchor Bolts for details see sheet No. 5  
 For Details and Reinforcement of Wings not shown see sheet No. 5  
 For Details of Anchor Bolt Well see sheet No. 5  
 For Sections E-E, F-F, G-G & H-H see sheet No. 5  
 Old Anchor Bolts to be removed see Special Provisions.

DETAILED June 1977  
 CHECKED Aug. 1977

Note: This drawing is not to scale. Follow dimensions. DETAILS OF END BENTS NO. 1 & 10

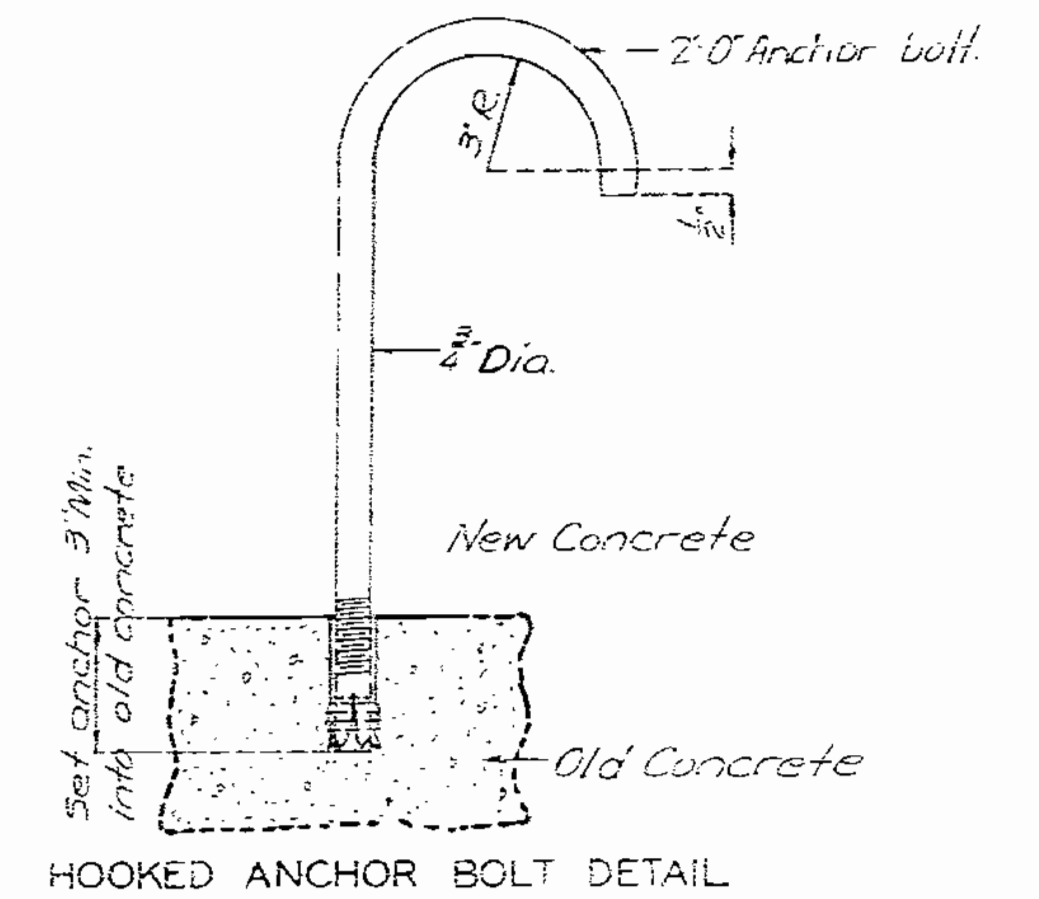
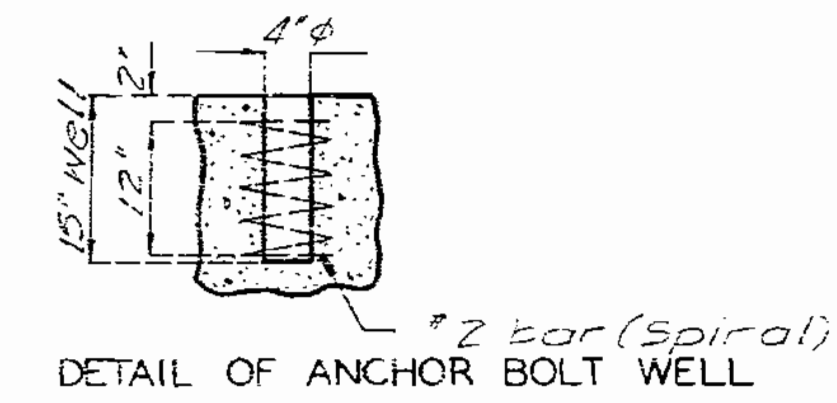
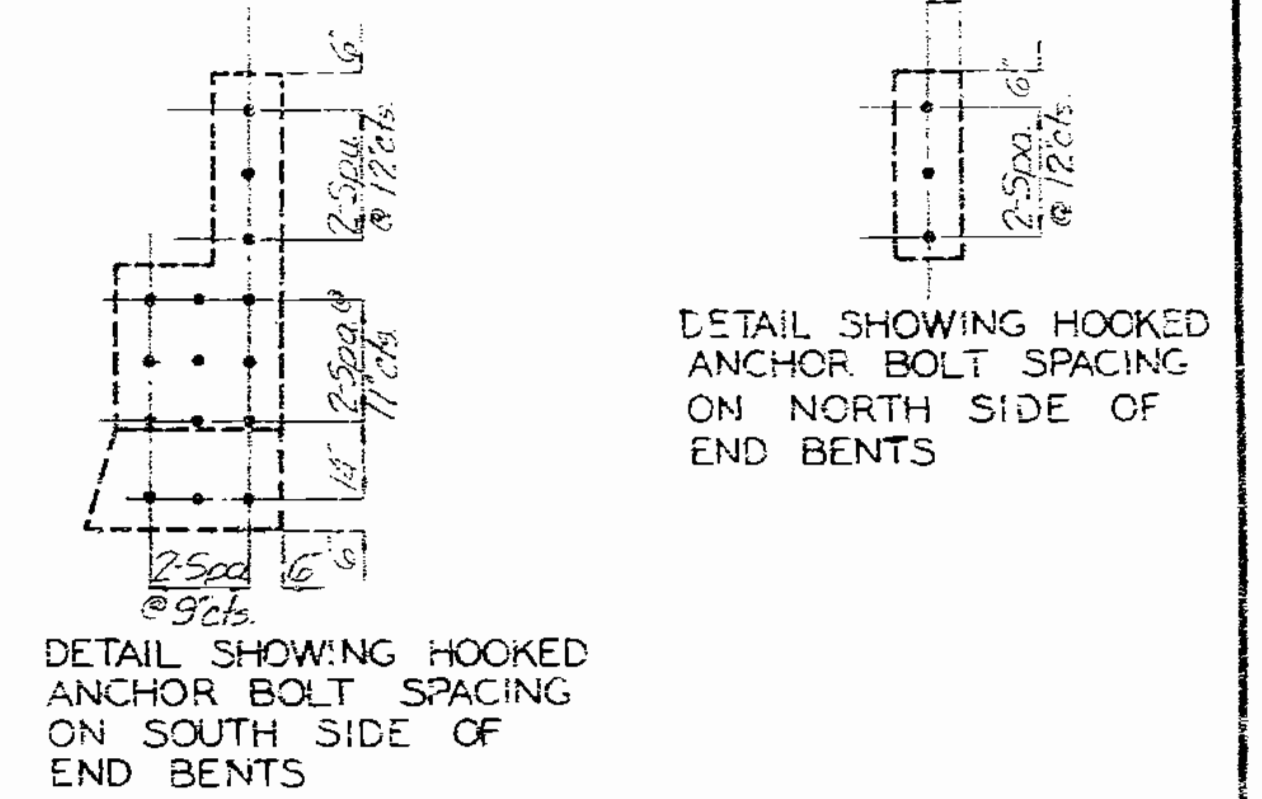
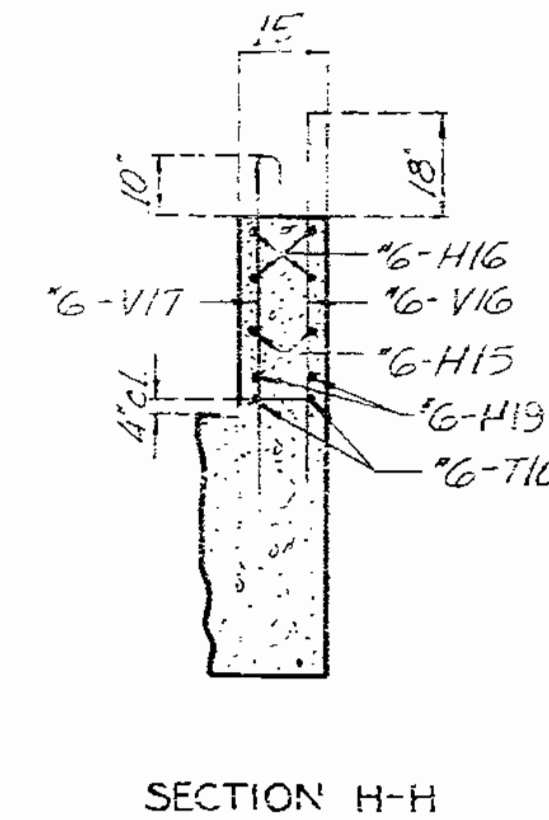
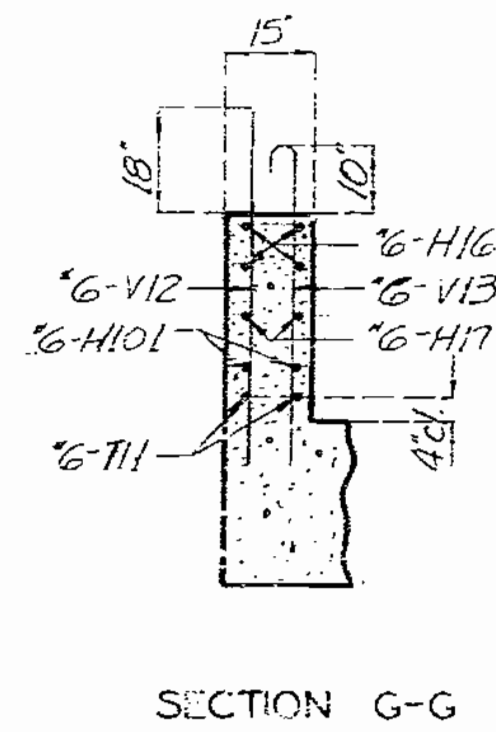
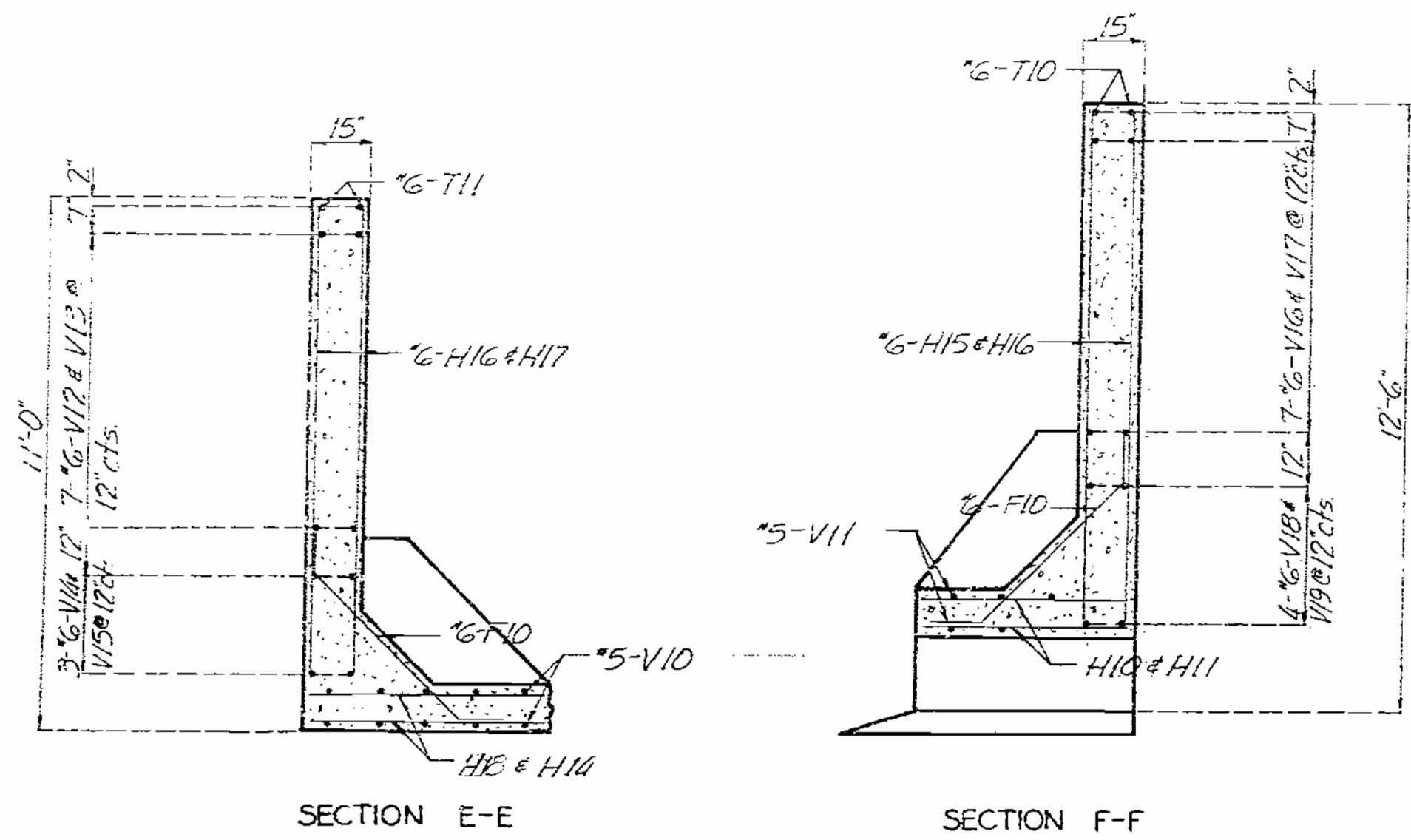
Sheet No. 4 of 25

JACKSON COUNTY

L-146 R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		59	10	



Note: For location of Sections E-E, F-F, G-G, & H-H see sheet No. 4

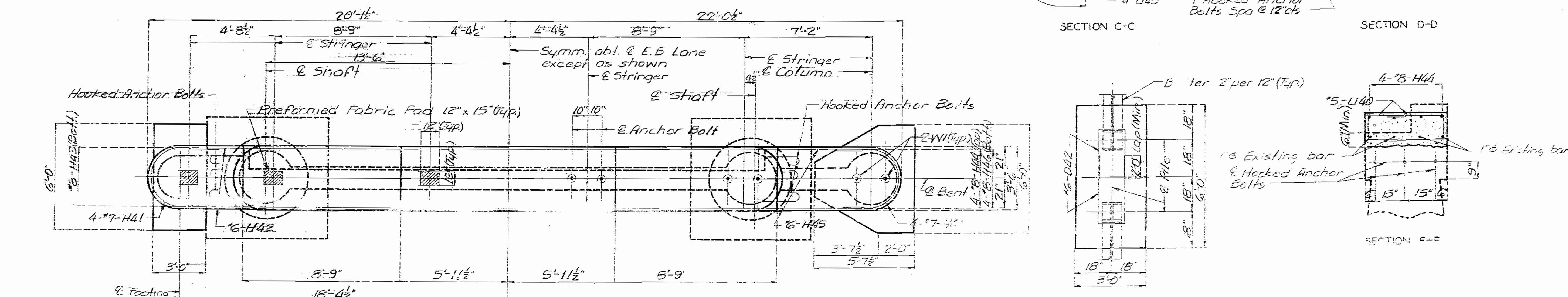
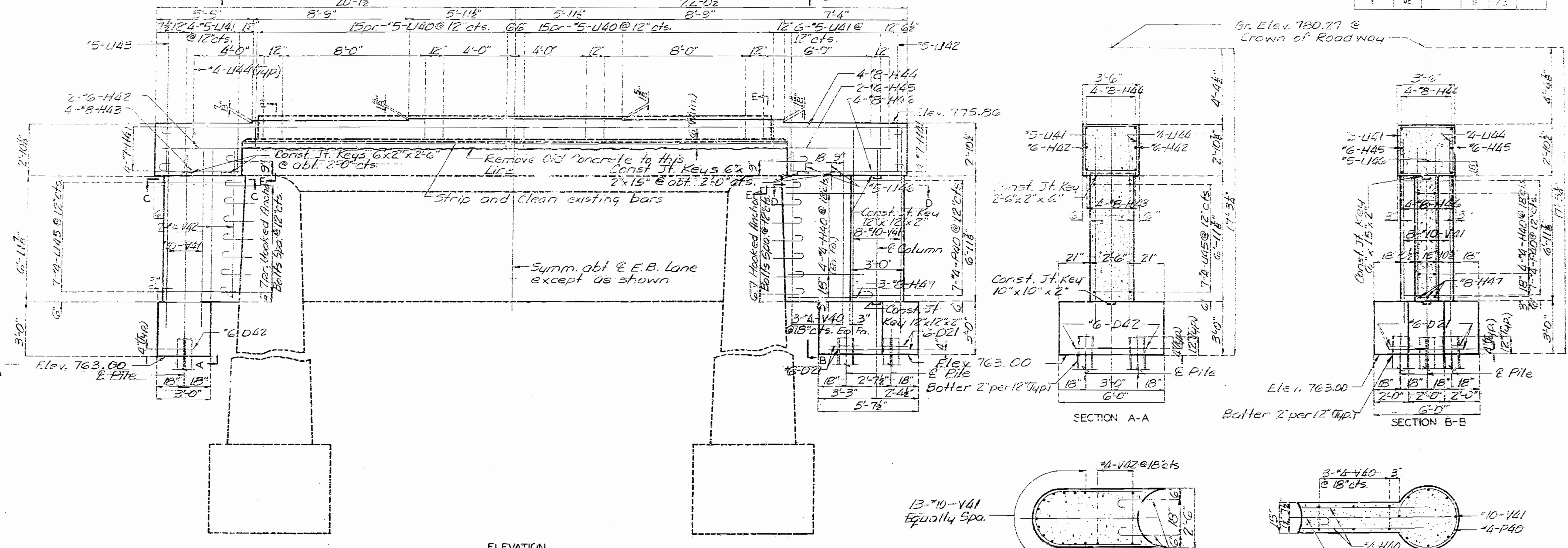






MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.			15	13



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DETAILED July 1977  
CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions. DETAILS OF INT. BTS. 4 & 7

Sheet No. 8 of 23

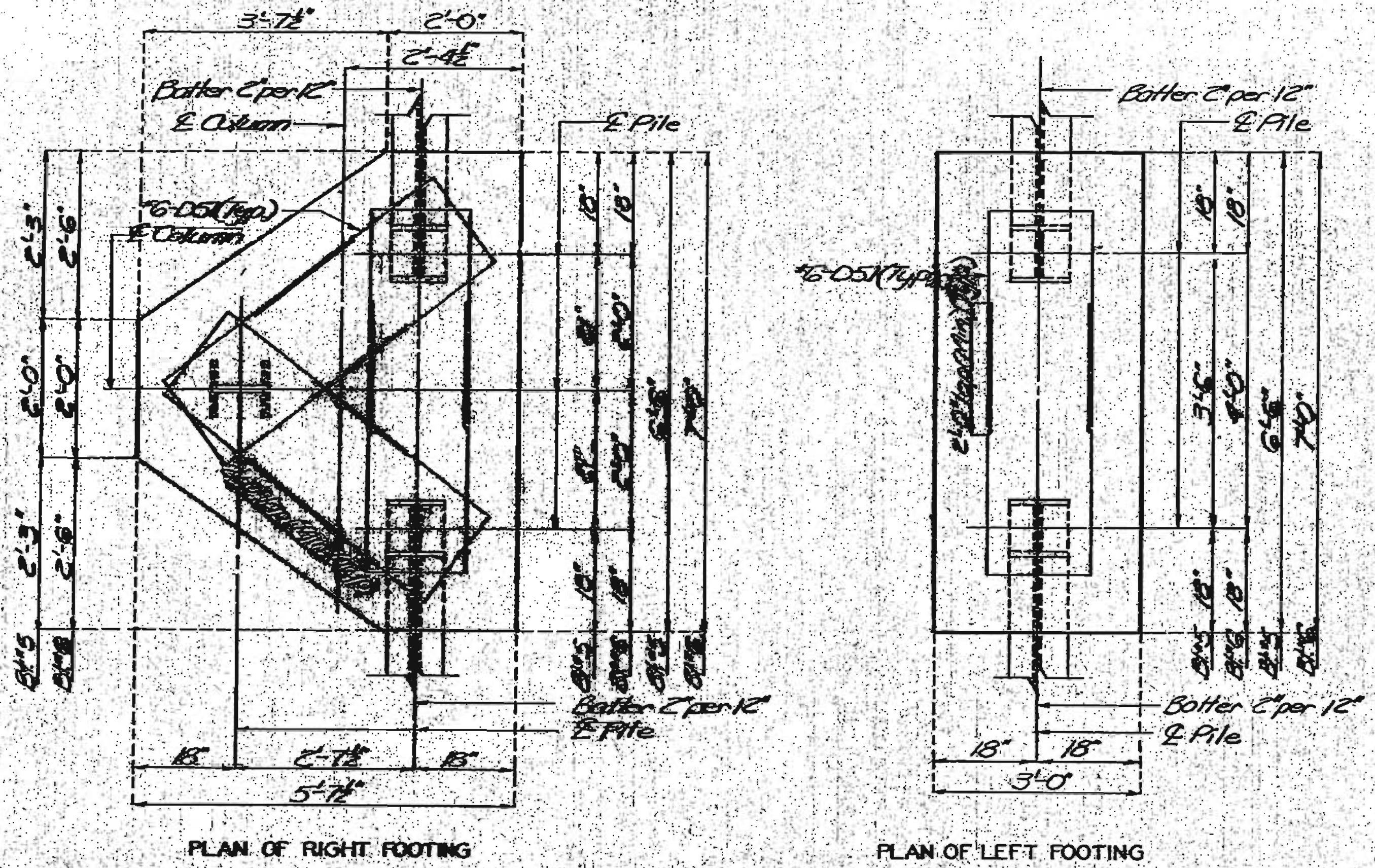
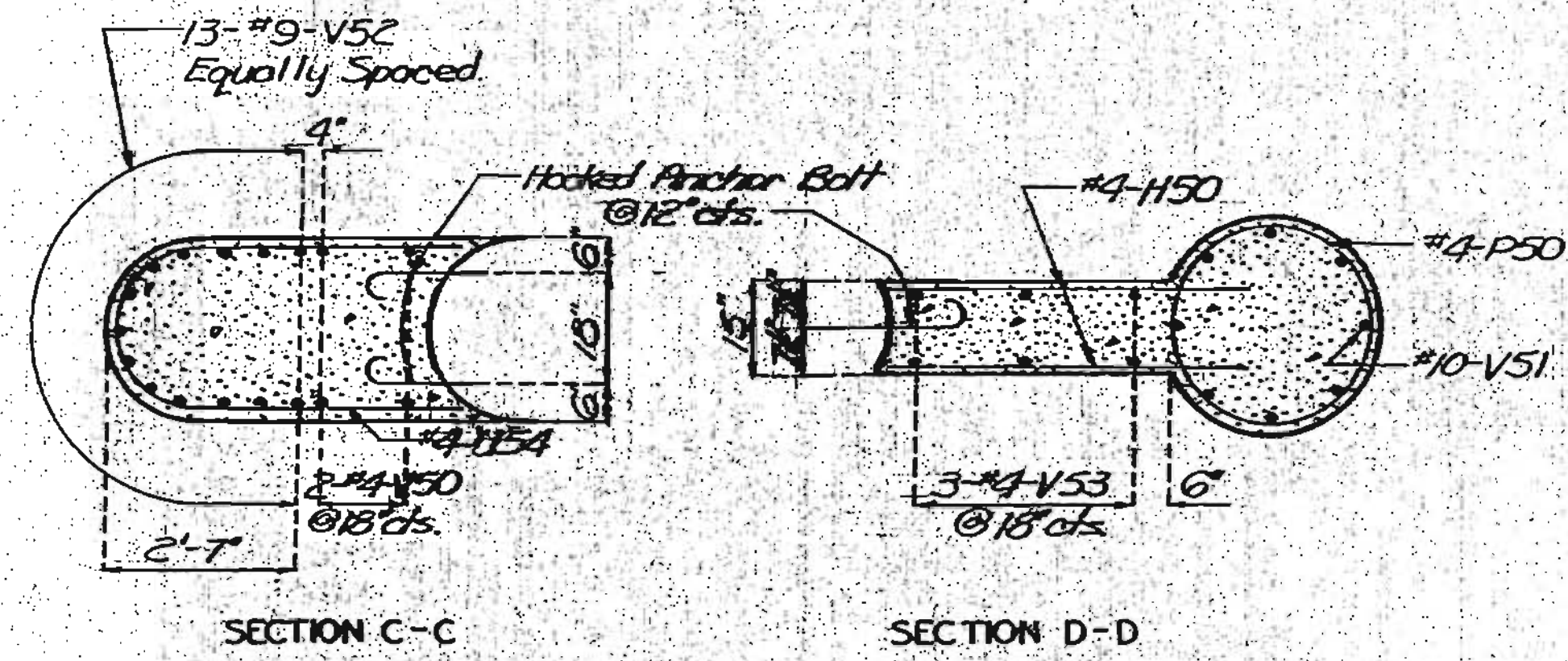
JACKSON COUNTY

L-146 R



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		75	15	



DETAILS OF INT. BENTS 5 & 6

DETAILED July 1977  
CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 26

JACKSON

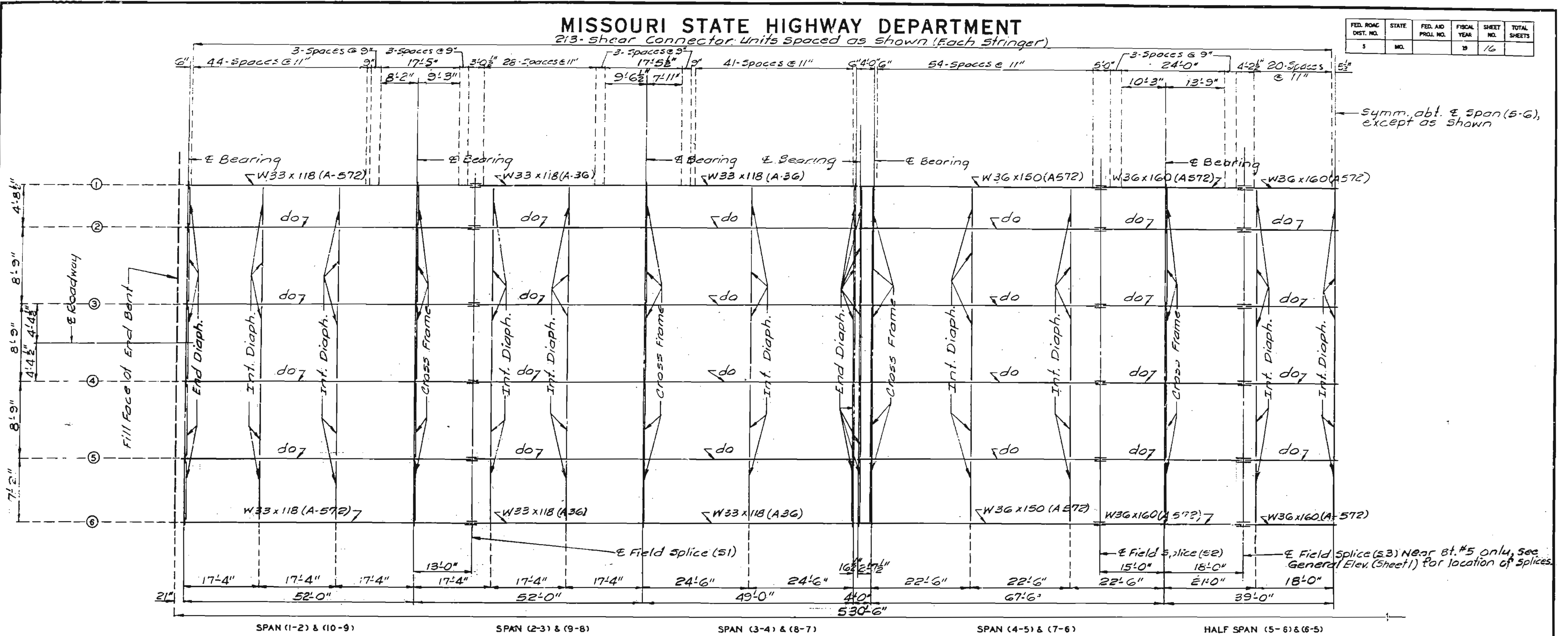
COUNTY

L-146R

MISSOURI STATE HIGHWAY DEPARTMENT

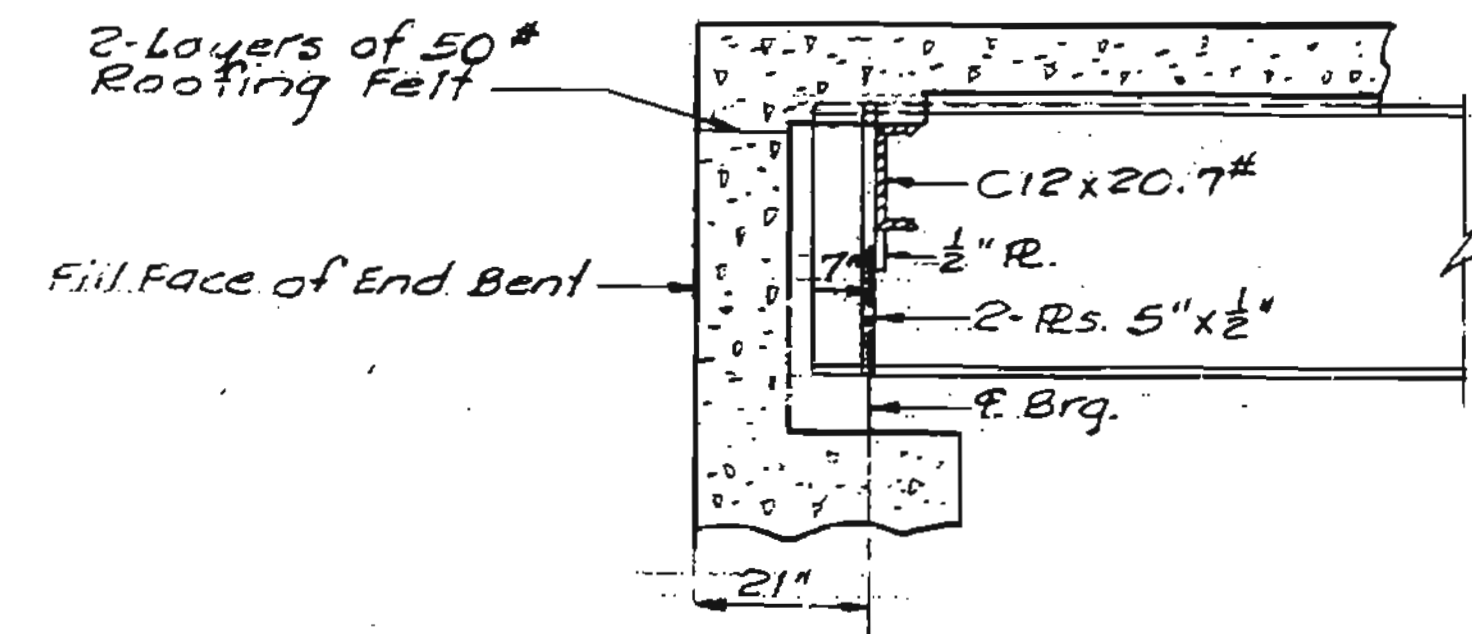
213 - Shear Connector Units Spaced as Shown (Each Stringer)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	16	



PART PLAN OF STRUCTURAL STEEL

Note: Notch toughness required for all WF Beams.



PART LONGITUDINAL SECTION BENTS NO. 1 & 10

DETAILED July 19 77  
CHECKED Aug 19 77

Note: This drawing is not to scale. Follow dimensions.

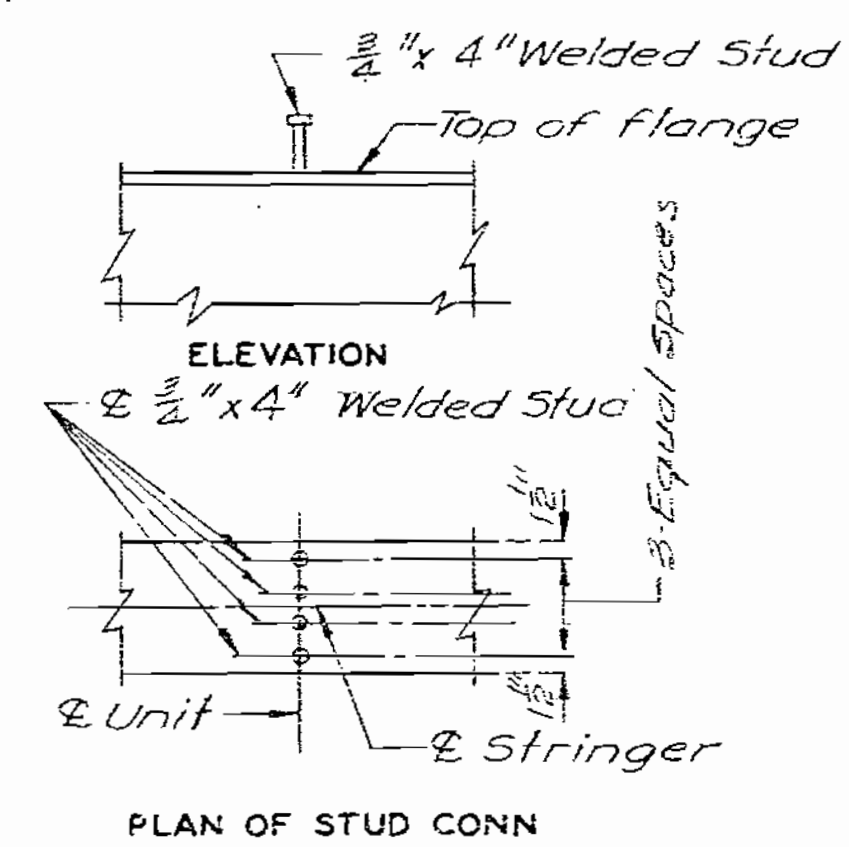
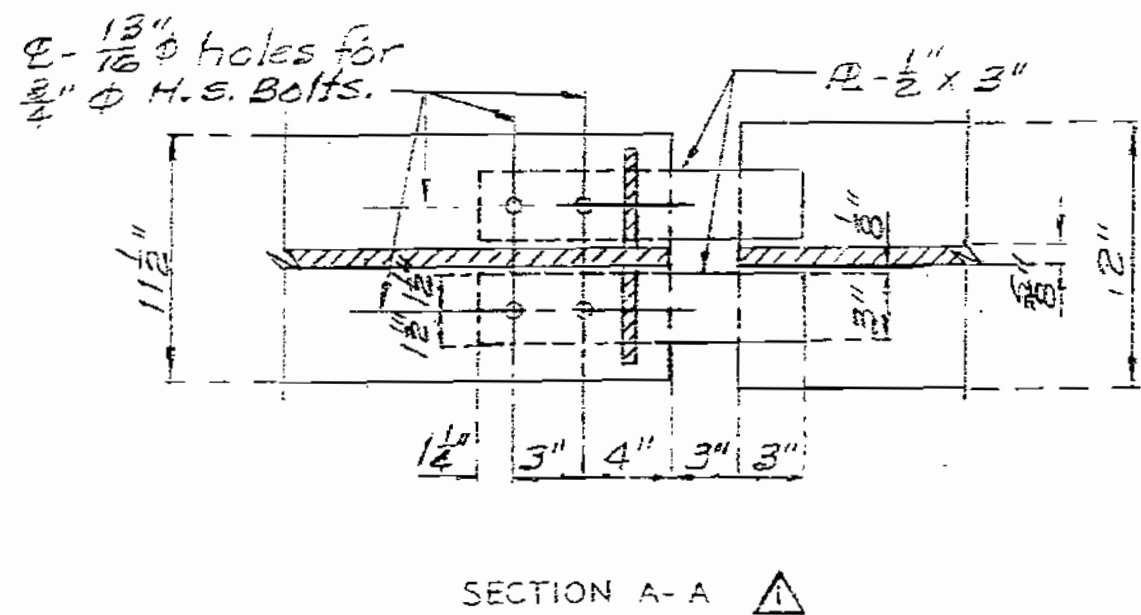
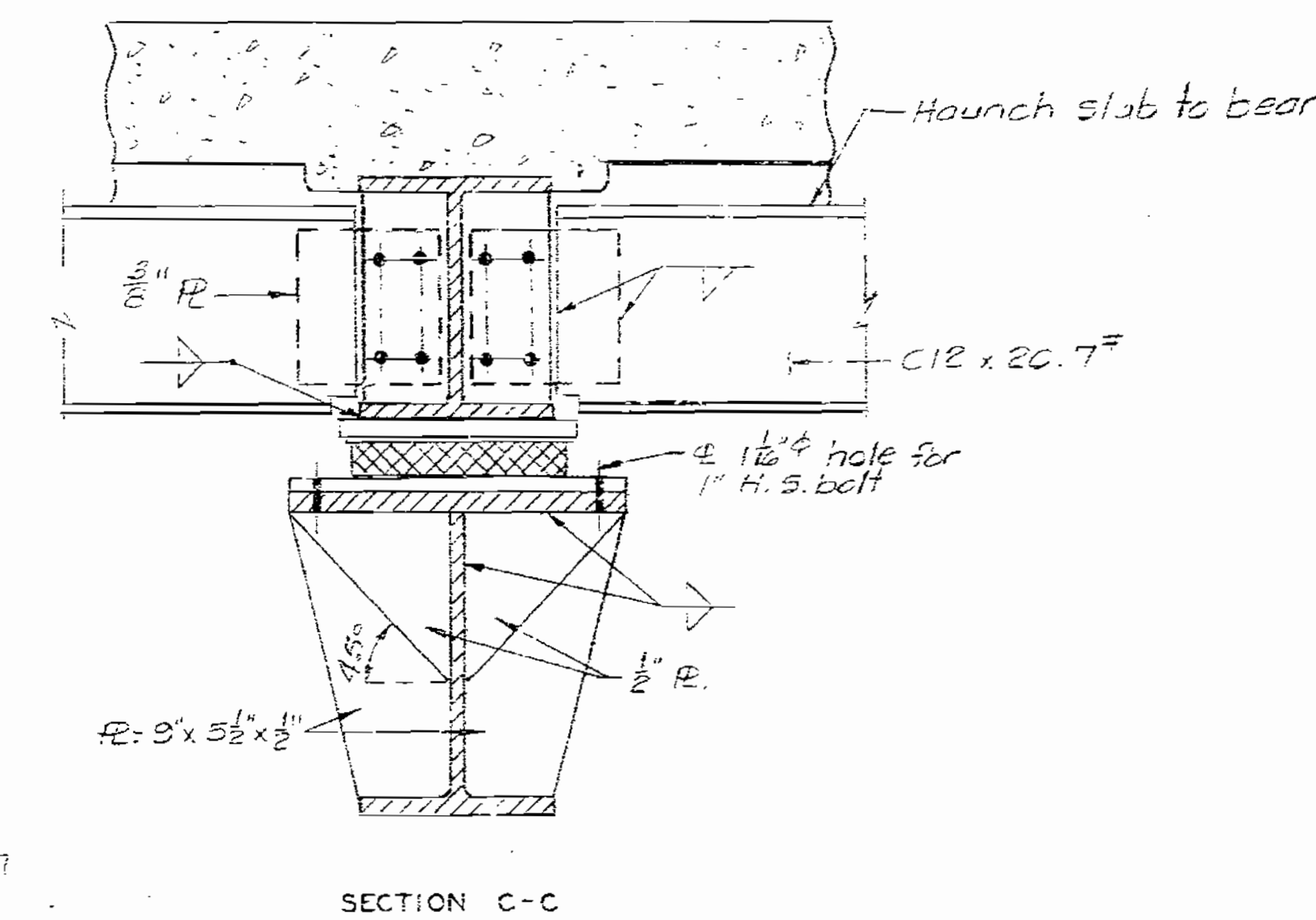
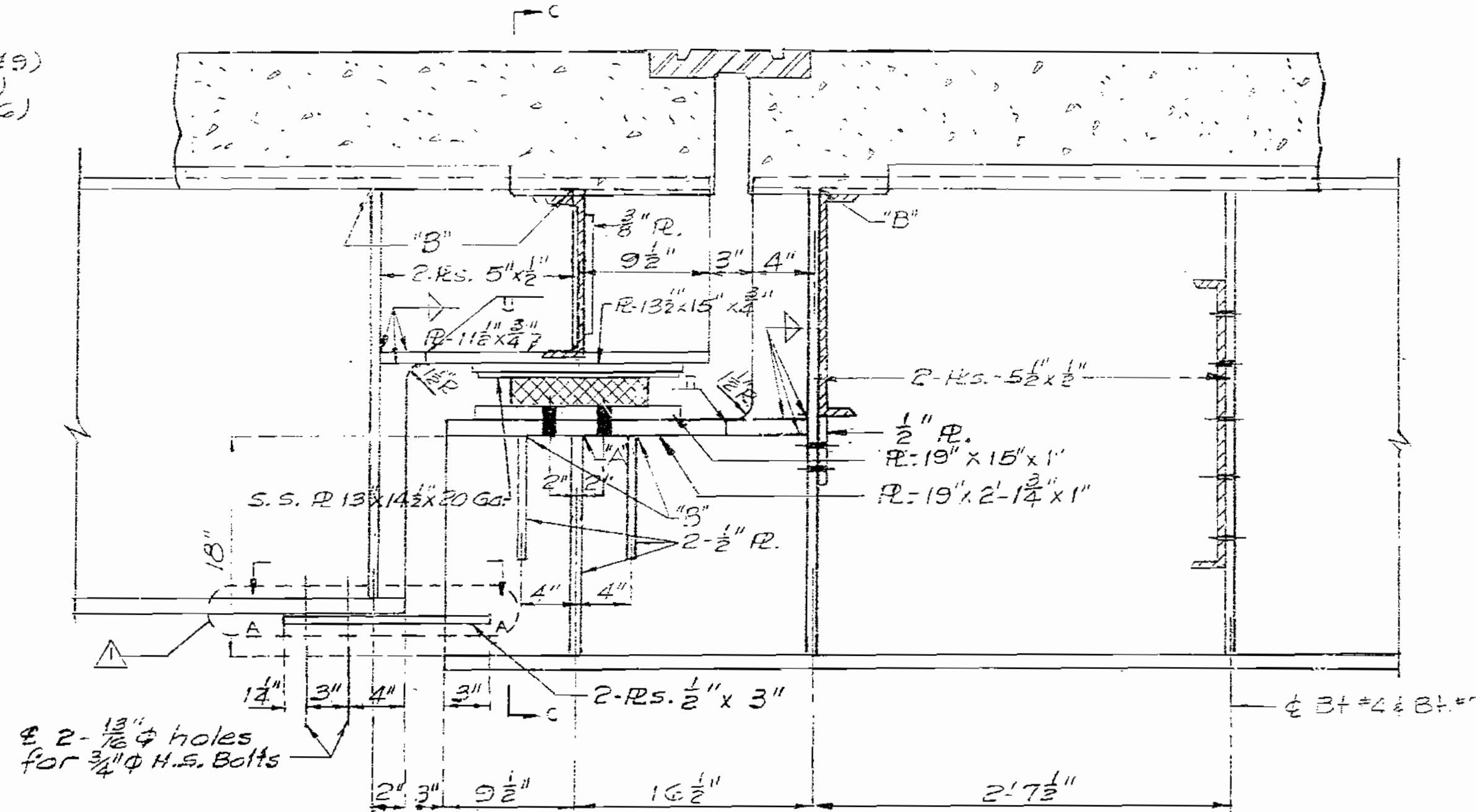
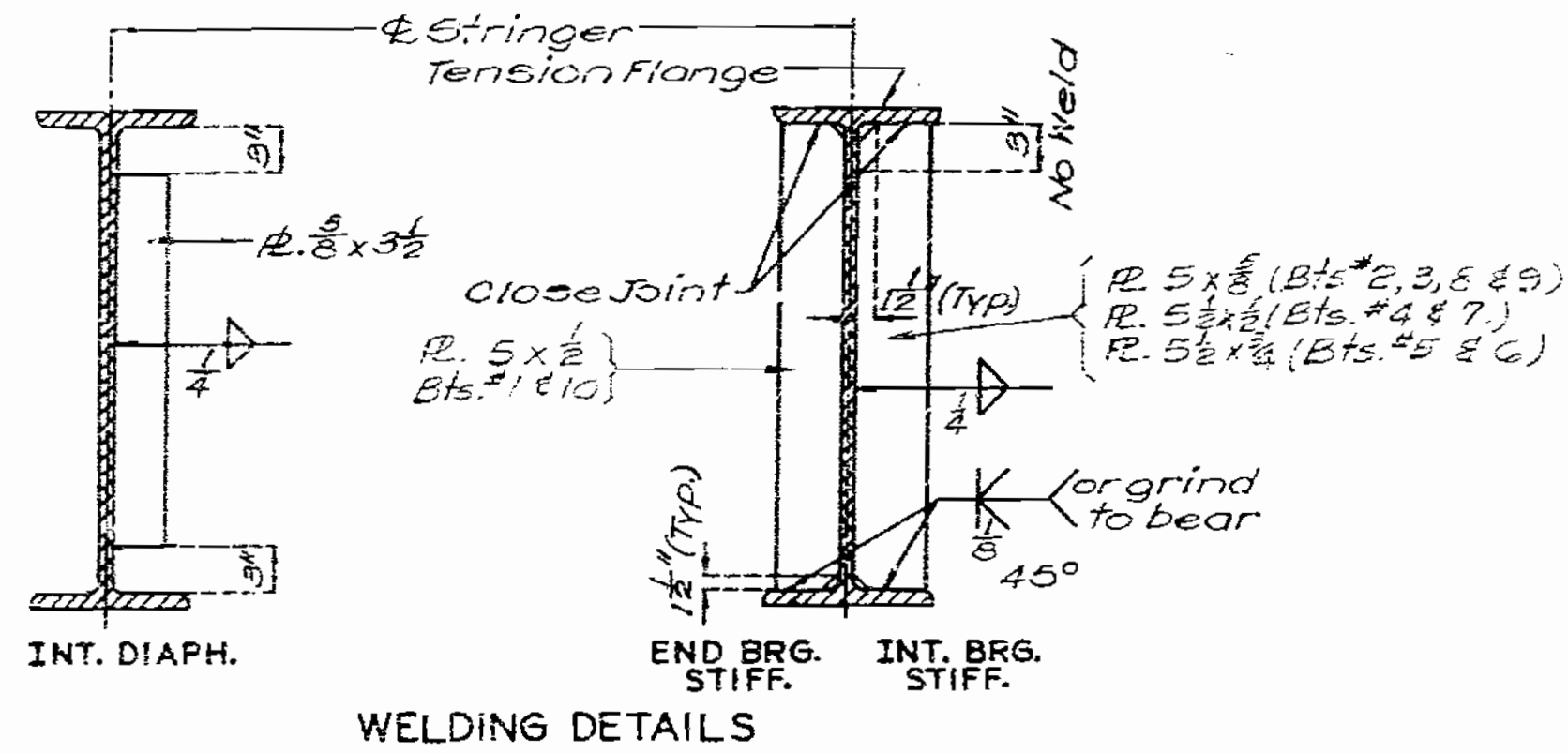
Sheet No. 11 of 25

JACKSON COUNTY

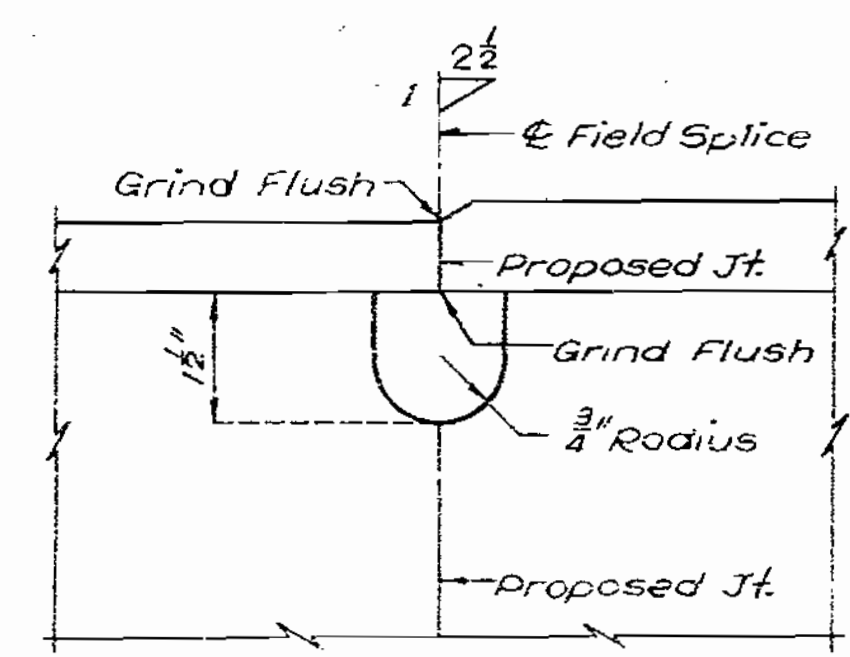
L146 R

MISSOURI STATE HIGHWAY DEPARTMENT

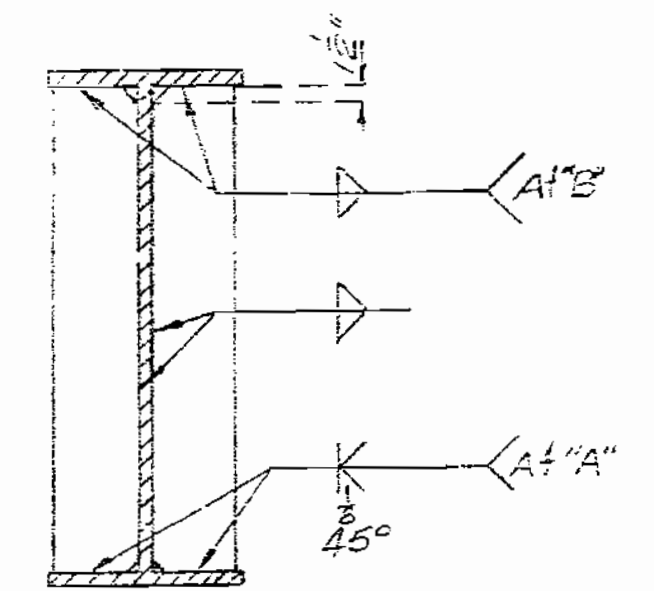
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MO.		5	17	



DETAILS OF SHEAR CONNECTORS  
 Note: Weight of 944 lbs. of shear connectors is included in weight of fabricated structural carbon steel.

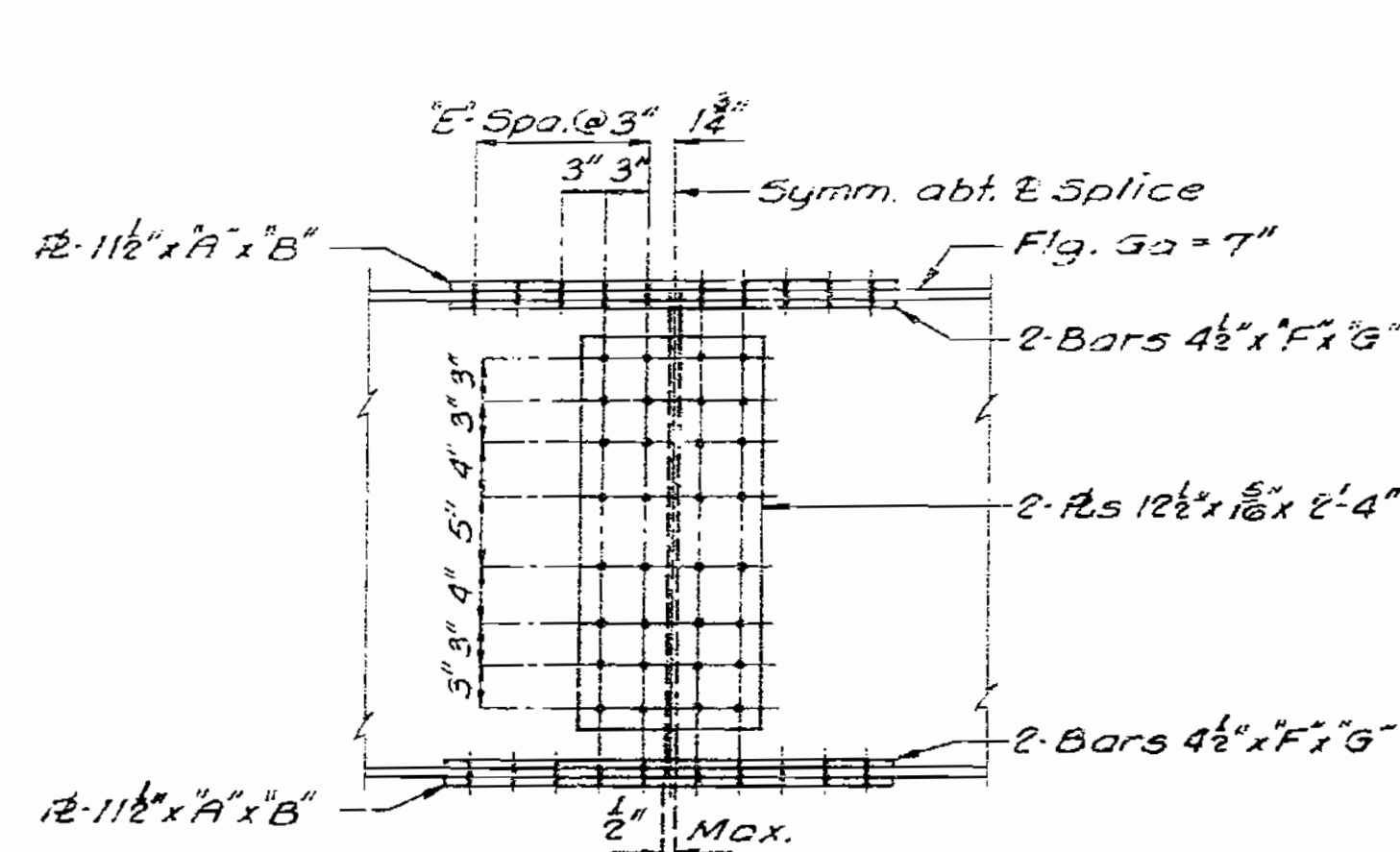


Note: Field splices may be field welded or field bolted.



MISSOURI STATE HIGHWAY DEPARTMENT

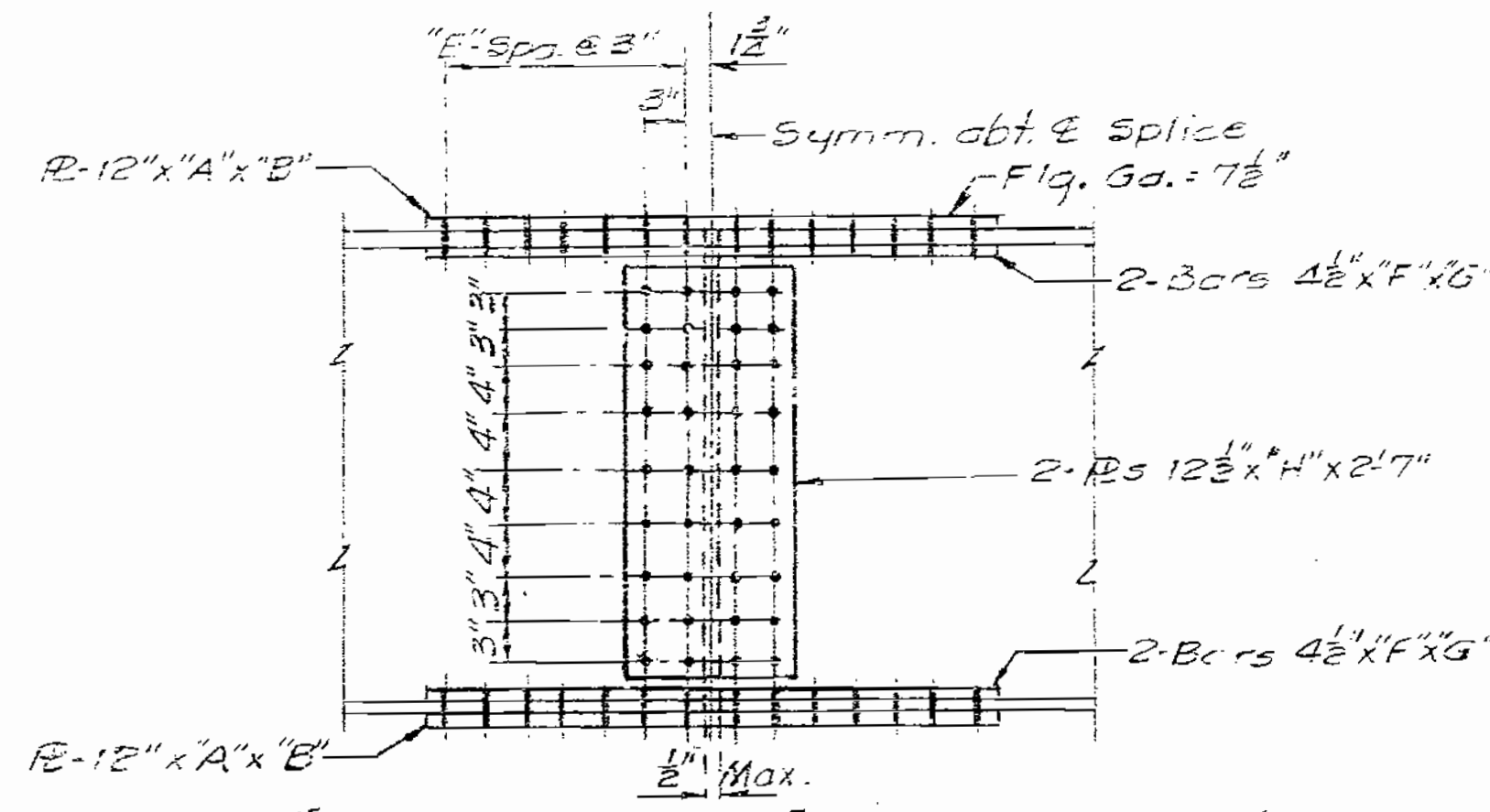
CD. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
				13	18



Note: 1/8" reamed holes for 3/8" high strength bolts.

SIZE OF BEAM	A	B	C	D	E	F	G
W33x118 to 110	1/2"	2'-0 1/2"	—	—	4"	1/2"	0'-0 1/2"

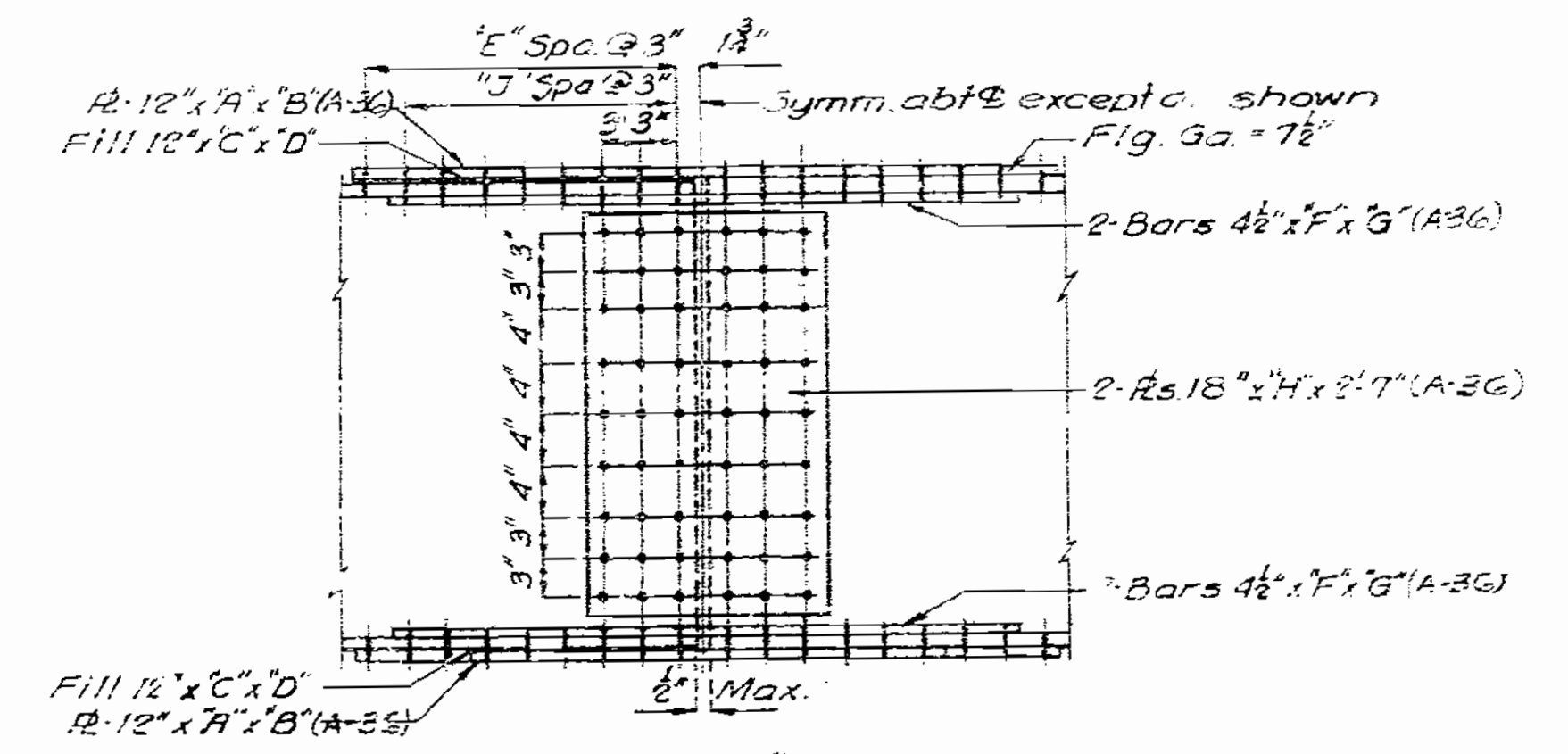
DETAIL OF W33 BEAM SPLICE (S1)



Note: 1/8" reamed holes for 3/8" high strength bolts.

SIZE OF BEAM	A	B	C	D	E	F	G	H
W36x160 to 160	1/8"	3'-0 1/2"	—	—	9"	1/2"	4'-6 1/2"	1/2"

DETAILS OF W36 BEAM SPLICE (S3)



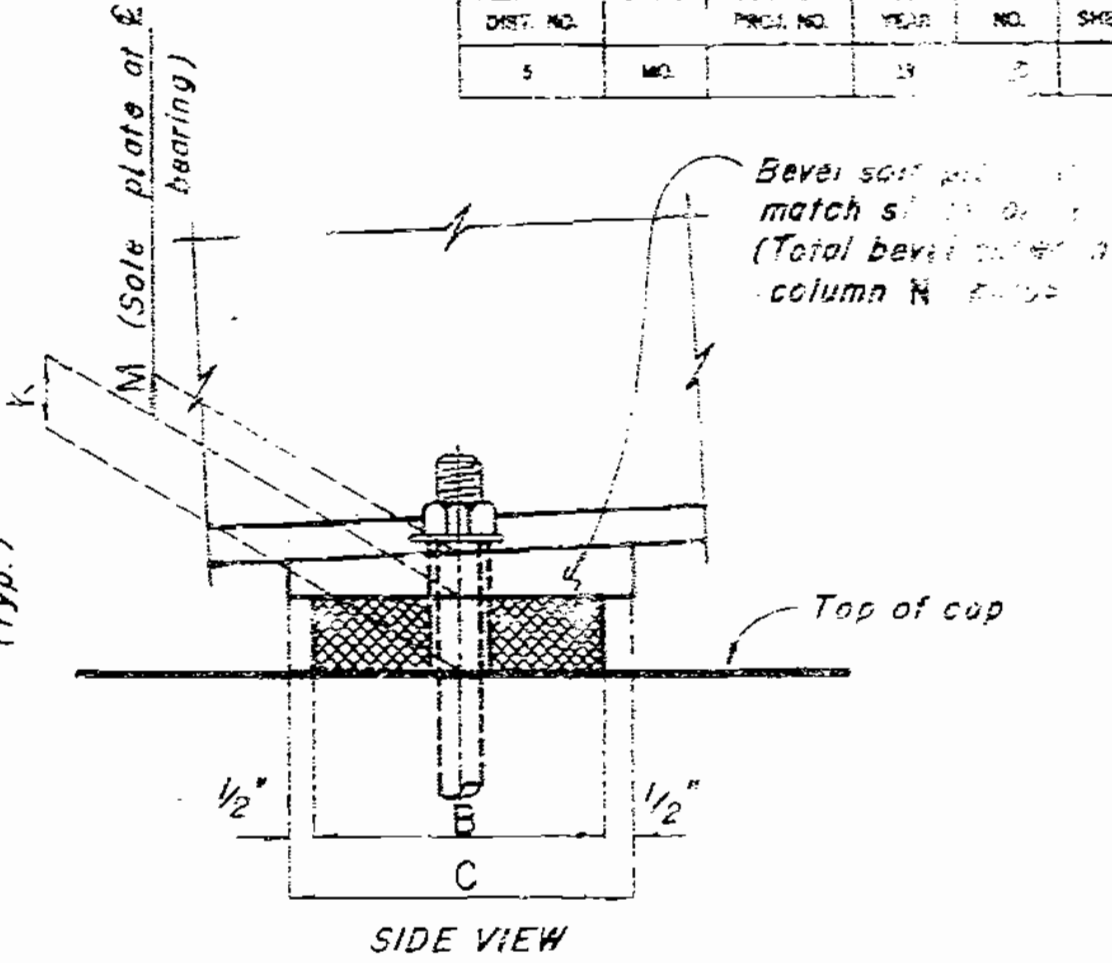
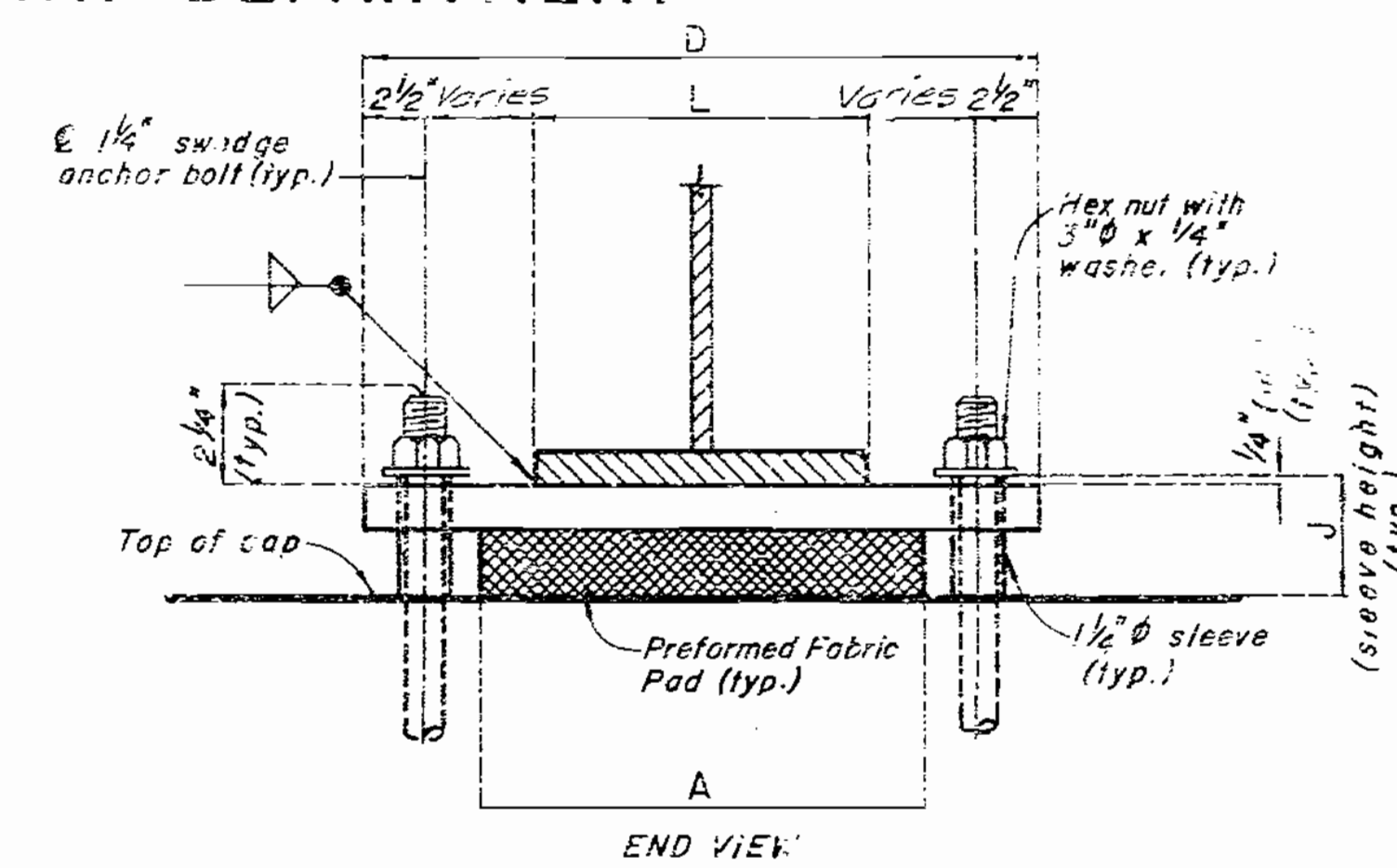
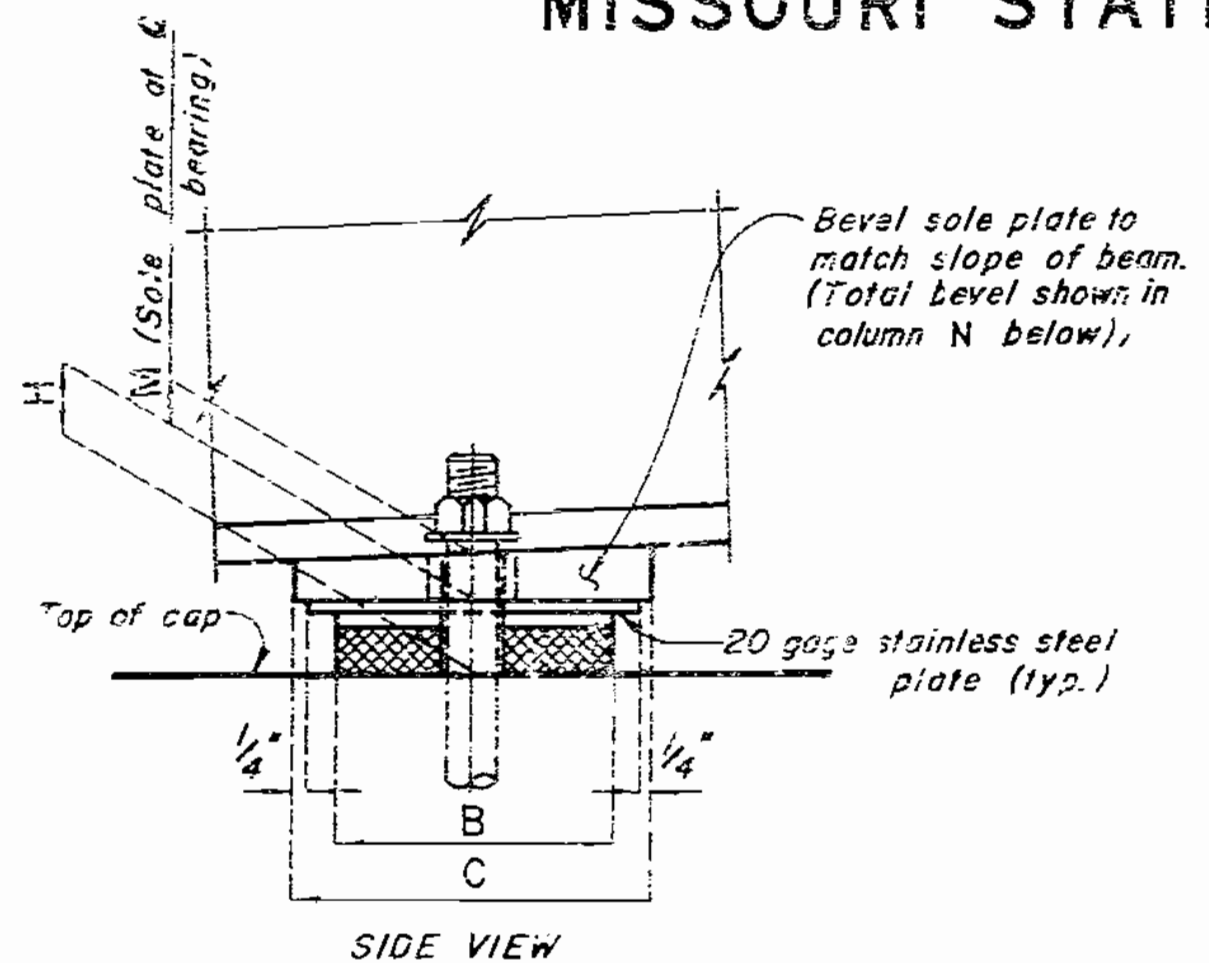
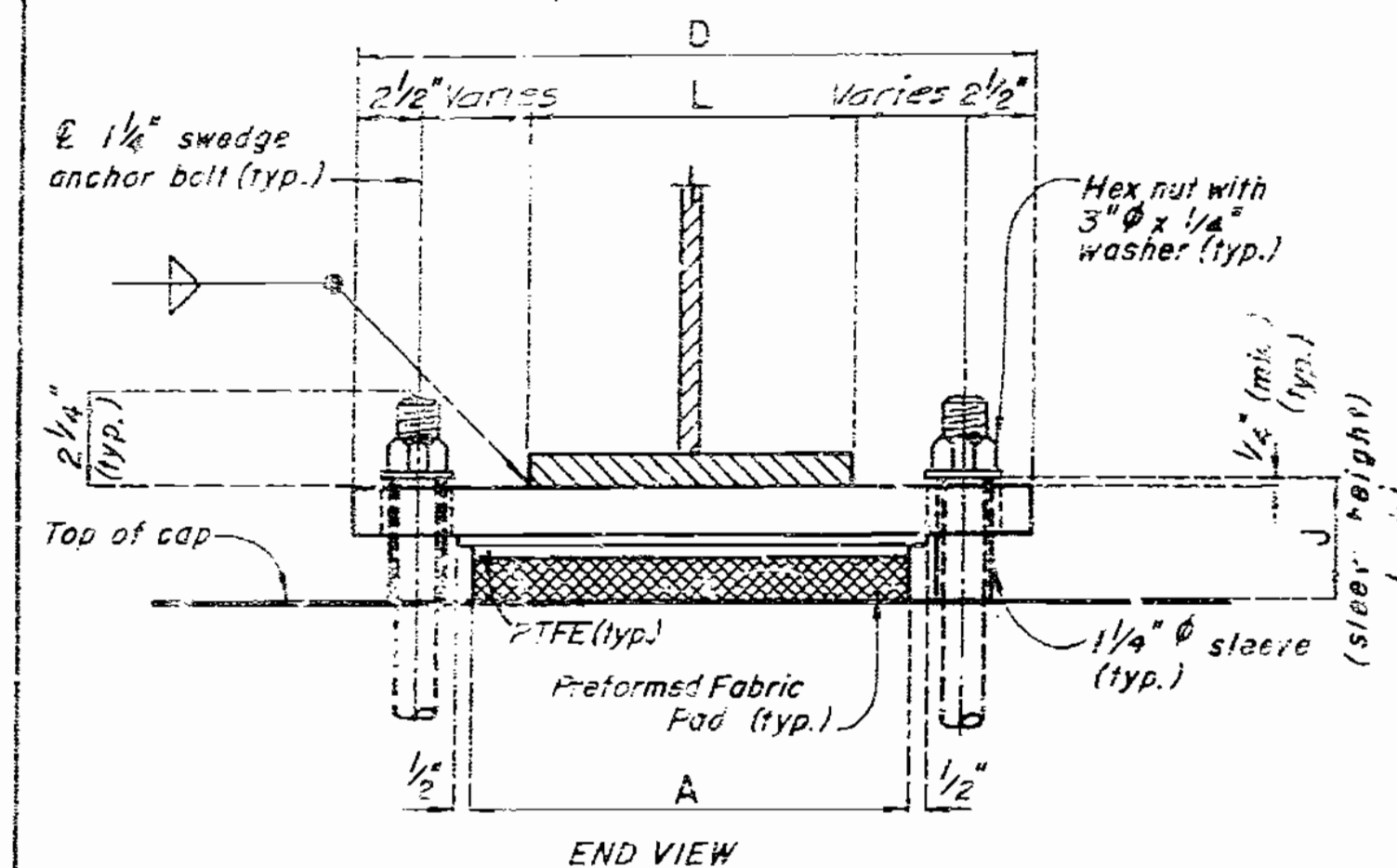
Note: 1/8" reamed holes for 3/8" high strength bolts.

SIZE OF BEAM	A	B	C	D	E	F	G	H	J
W36x150 to 160	1/8"	4'-6 1/2"	14 Ga.	2'-3"	8"	1/2"	4'-0 1/2"	1/2"	?

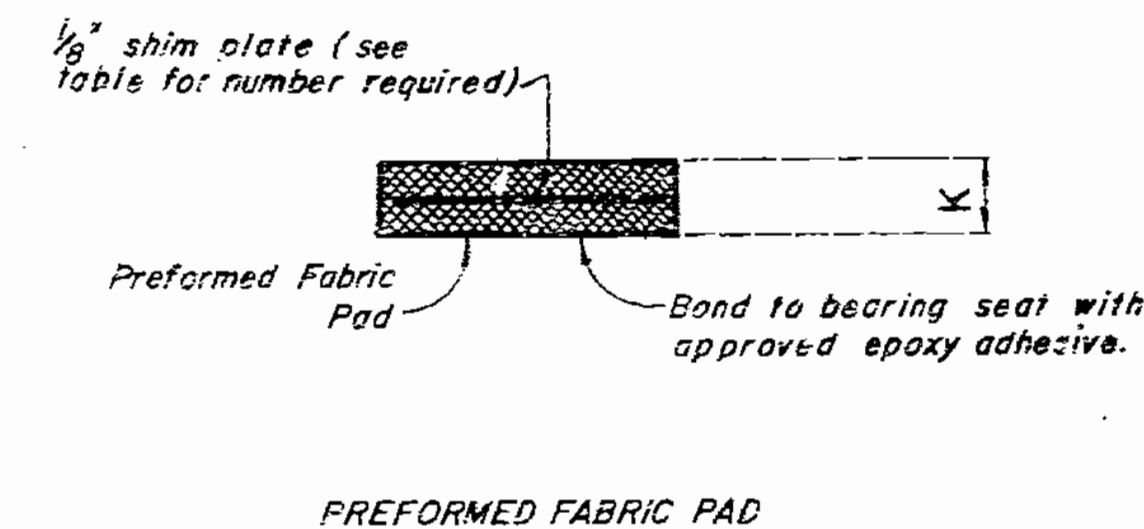
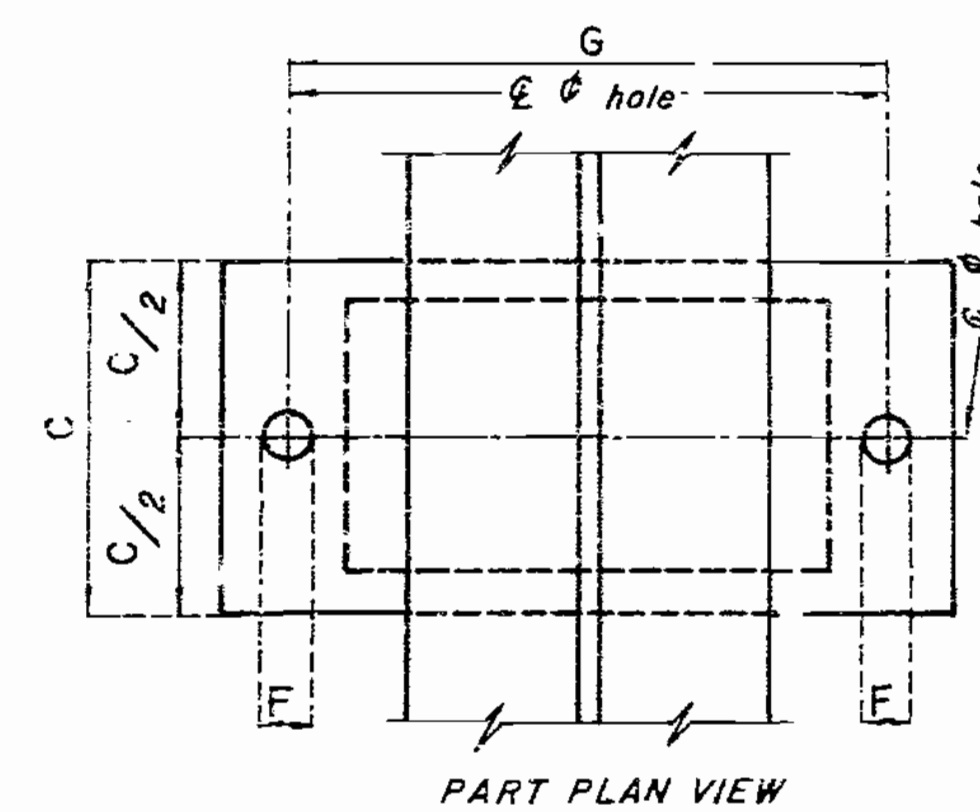
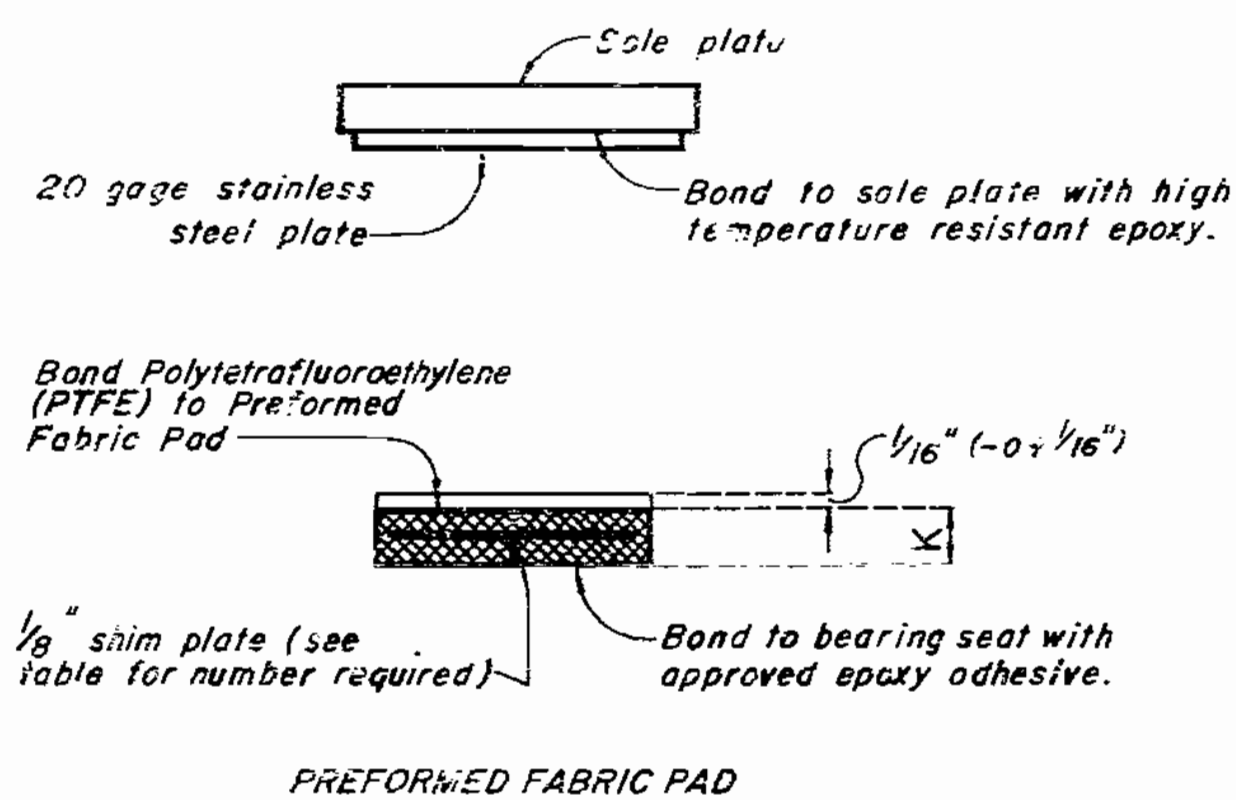
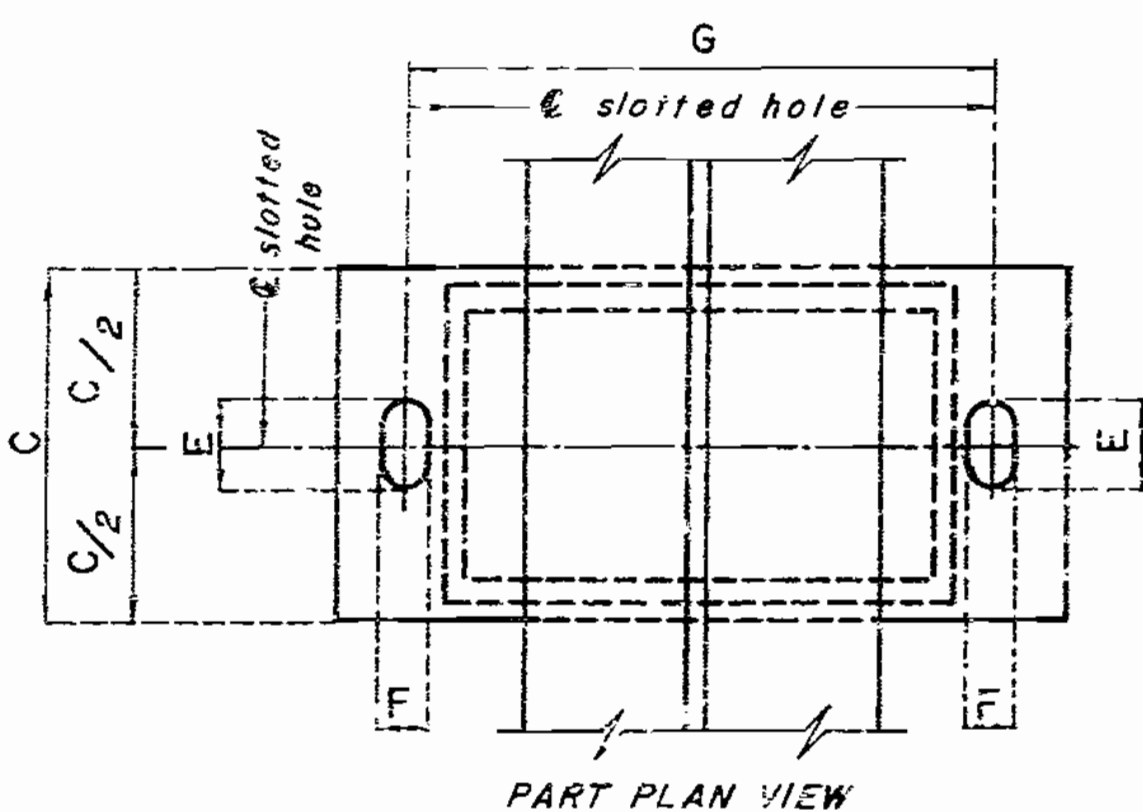
DETAILS OF W36 BEAM SPLICE (S2)

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		59	2	2



Note: The location of anchor bolts in relation to the slotted holes in the sole plate shall correspond with the temperature at the time of erection. At 60°F. the slotted holes should center on the anchor bolts.



PTFE SLIDING BEARINGS

FIXED BEARINGS

PTFE SLIDING BEARINGS														
BENT NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	NUMBER OF SHIM PLATES (*)
1 & 10	12"	10"	12"	2 1/2"	3"	1 1/2"	20"	2 1/8"	3 1/16"	2"	1 1/2"	3/4"	—	1
3 & 8	12"	16"	8"	2 1/2"	3"	1 1/2"	20"	3 1/8"	4 1/16"	3"	1 1/2"	3/4"	—	1
4 & 7	12"	15"	13"	2 1/2"	3"	1 1/2"	20"	3 1/8"	3 1/16"	2 3/8"	12"	3/4"	—	1
6	16"	16"	19"	2 1/2"	3"	1 1/2"	20"	3 1/8"	4 1/16"	3"	12"	3/4"	—	1
Orig. Near Sigs. No. 447	12"	10"	15"	13 1/2"	—	1 1/2"	14"	2"	2 1/8"	1 7/8"	1 1/2"	3/4"	—	—

NUMBER REQUIRED: 6 Each Bent  
: 6 Near Bent No. 4  
: 6 Near Bent No. 7

(\*) The required shim plates shall be placed between equal layers of preformed fabric and molded together to form an integral unit.

GENERAL NOTES:

ANCHOR BOLTS SHALL BE 1/4" SWEDGED BOLTS AND SHALL EXTEND 12" INTO CONCRETE WITH HEXAGON NUTS AND PLAIN WASHERS.

WEIGHT OF ANCHOR BOLTS FOR BEARINGS SHALL BE INCLUDED IN WEIGHT OF FABRICATED STRUCTURAL STEEL.

THE SOLE PLATE SHALL BE FURNISHED WITH THE BEARING AND FIELD WELDED TO THE STRINGERS OR GIRDERS.

PAYMENT FOR THE SOLE PLATE WILL BE INCLUDED IN THE COST OF THE BEARING ASSEMBLY, SEE SPECIAL PROVISIONS.

FIXED BEARINGS													
BENT NO.	A	B	C	D	F	G	J	K	L	M	N	NUMBER OF SHIM PLATES (*)	
2 & 3	12"	16"	17"	2 1/2"	1 1/2"	20"	4"	3"	1 1/2"	1"	—	1	
5	16"	16"	17"	2 1/2"	1 1/2"	20"	3 3/8"	3"	12"	7/8"	—	1	

NUMBER REQUIRED: 6 Each Bent

(\*) The required shim plate shall be placed between equal layers of preformed fabric and molded together to form an integral unit.

TYPE "F" ELASTOMERIC BEARINGS

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 14 of 25.

JACKSON COUNTY

L146 R

REVISIONS  
REVISED JUNE 1978  
SPS-PFBP APRIL 1978

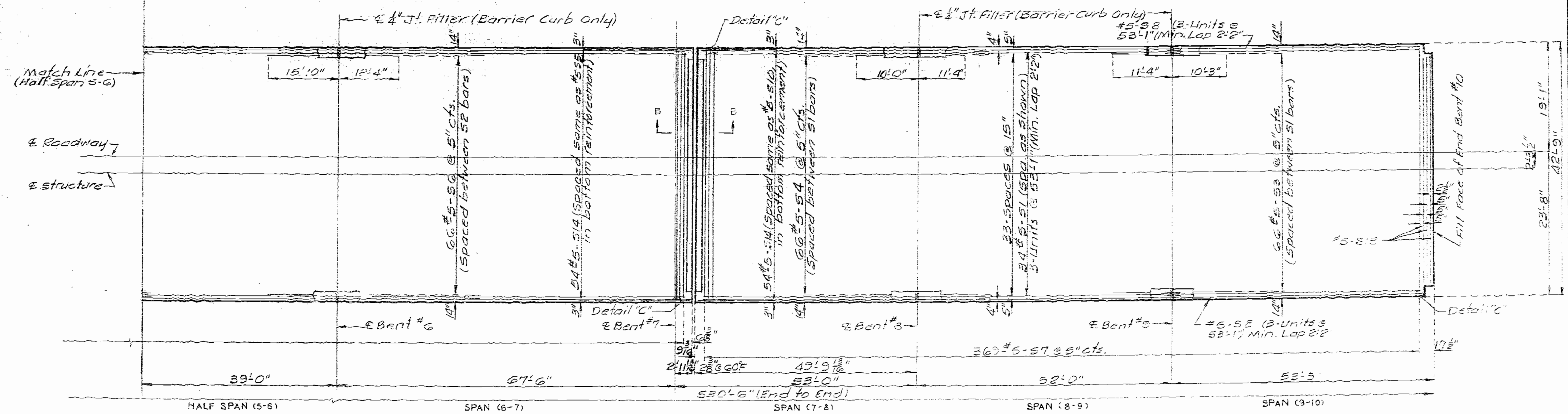
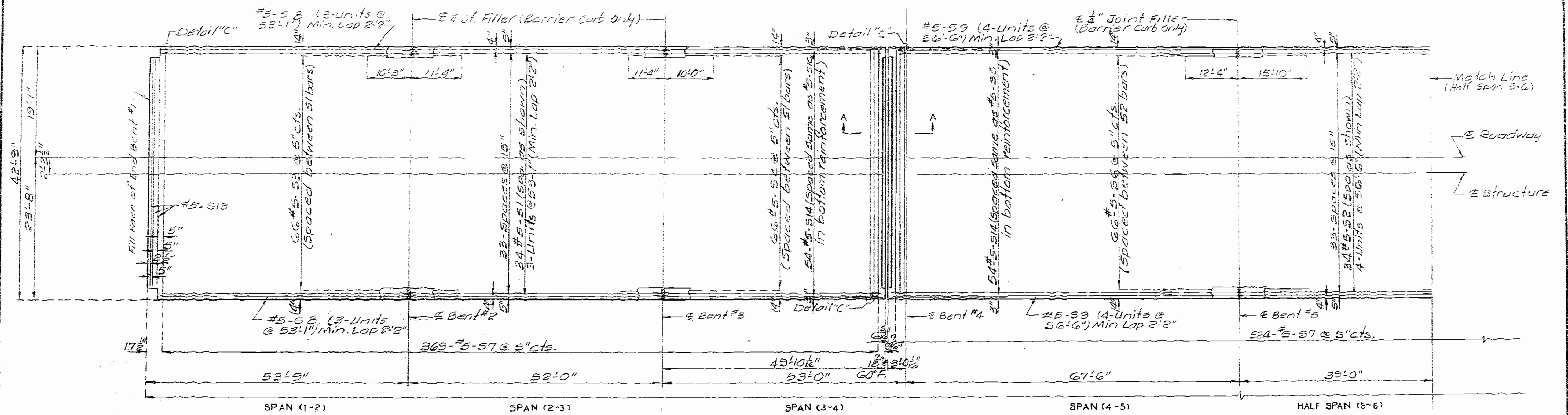
DETAILED July 16 77  
CHECKED Aug. 19 77





MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		65	21	



PLAN OF SLAB SHOWING TOP REINFORCEMENT

DETAILED June 1977  
CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

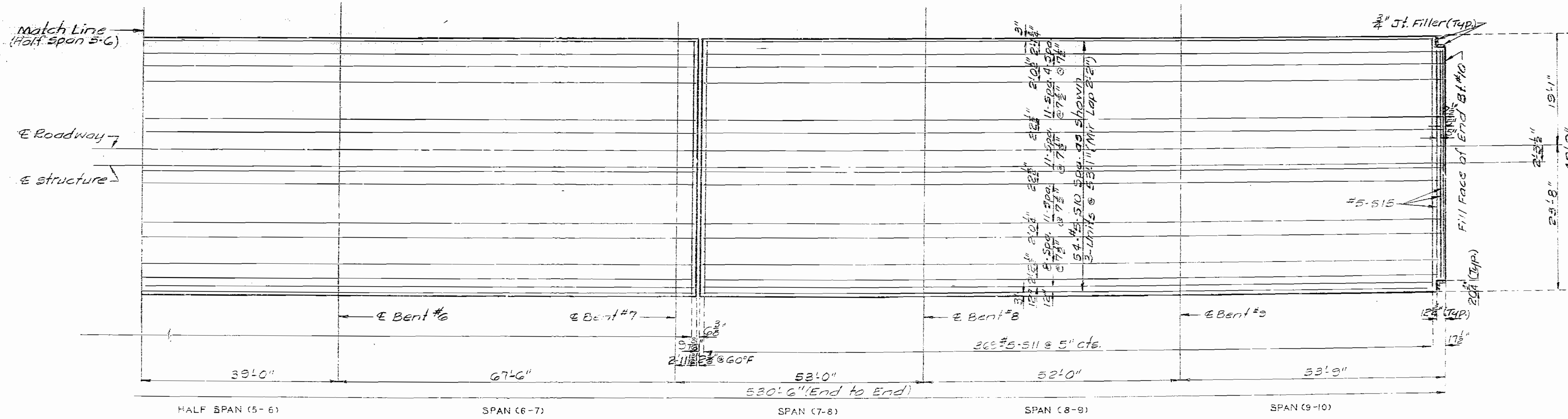
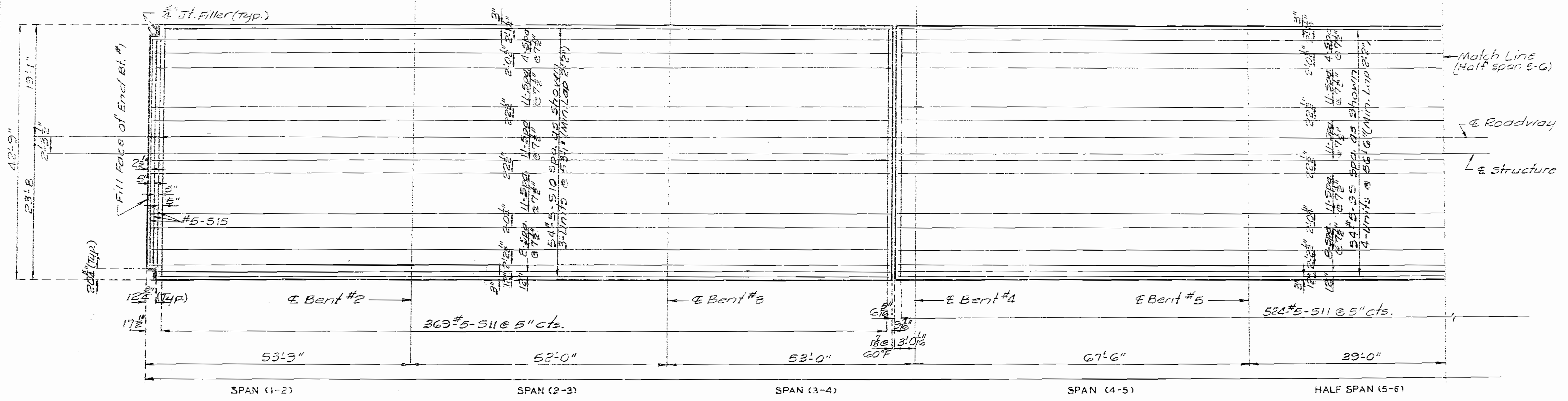
Sheet No. 16 of 25

JACKSON COUNTY

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	22	



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

DETAILED June 1977  
CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 17 of 25

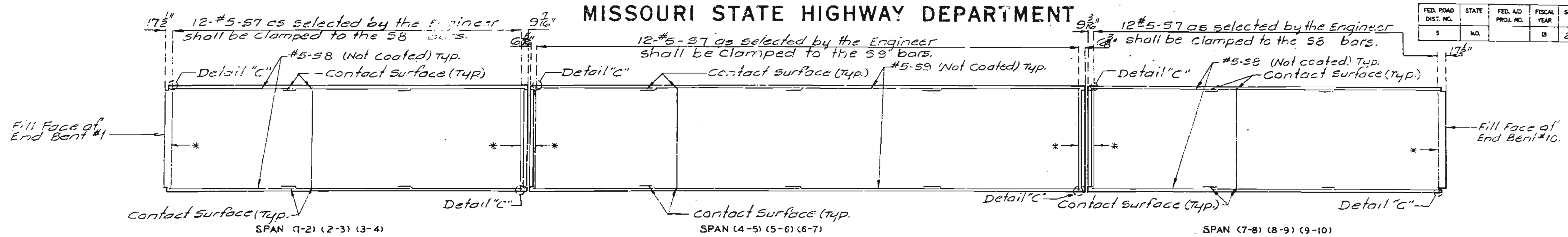
JACKSON COUNTY

L-146R



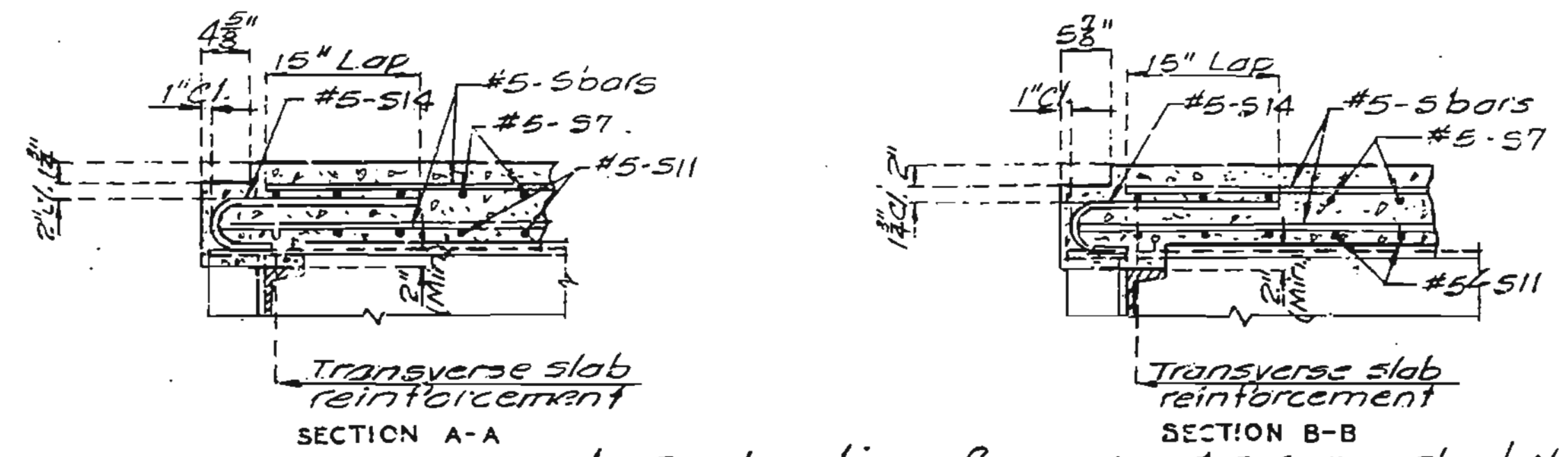
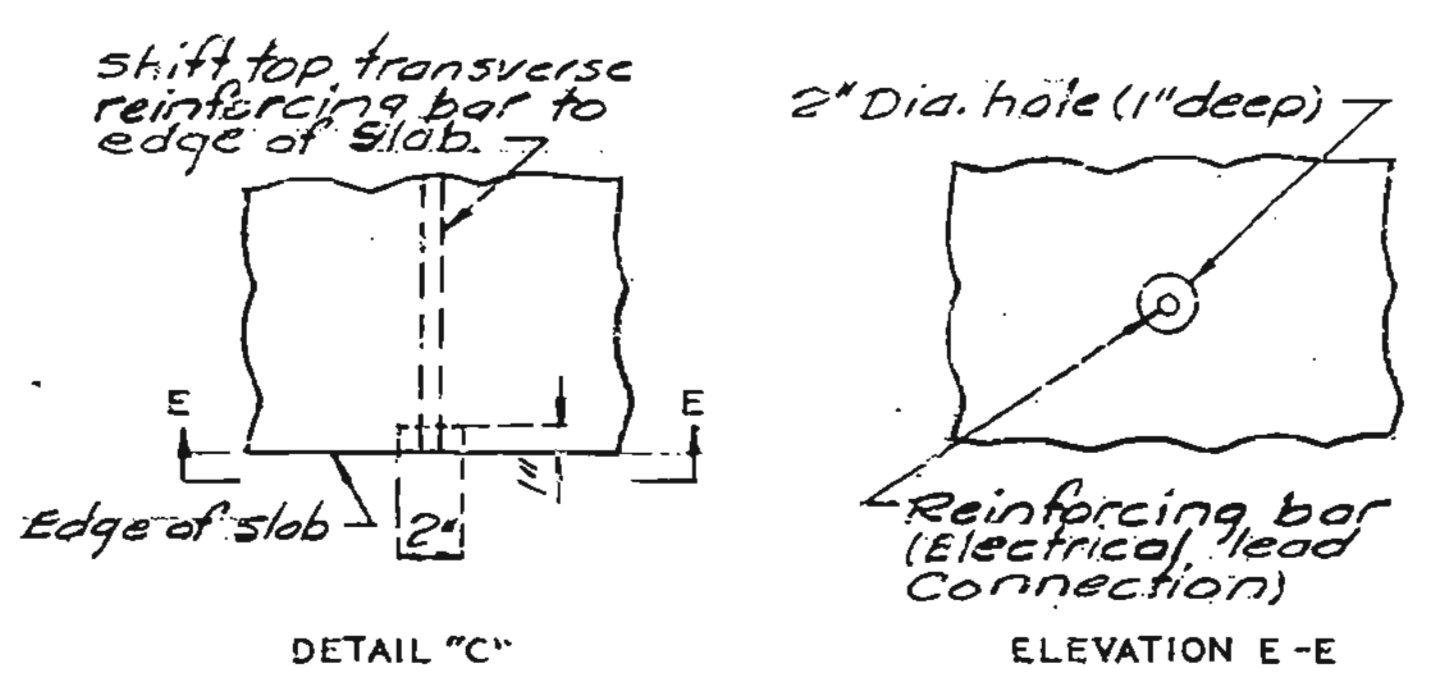
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	24	

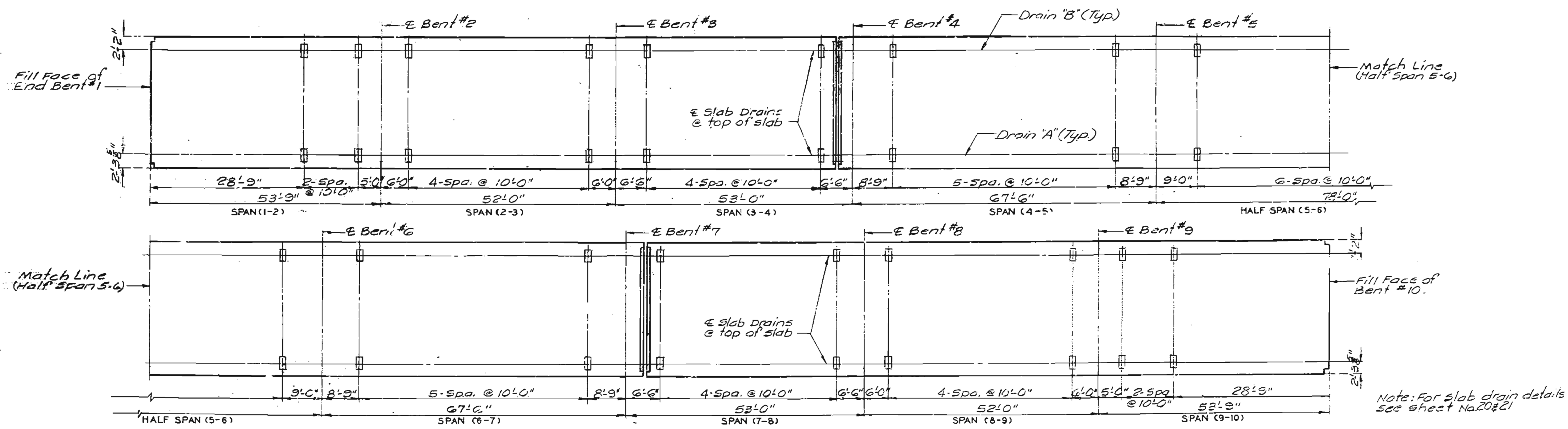


PLAN OF SLAB LOCATING BARS FOR TEST SYSTEM (TOP OF SLAB)  
(SEE SPECIAL PROVISIONS)

Note: Concrete shall not be poured until the test system has been checked by the engineer.  
\* indicates bar to be shifted to edge of slab.



Note: For location of sec. A-A & B-B, see sheet No. 16.



LOCATION OF SLAB DRAINS

Note: For slab drain details see sheet No. 20 & 21

DETAILED JUNE 1977  
CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

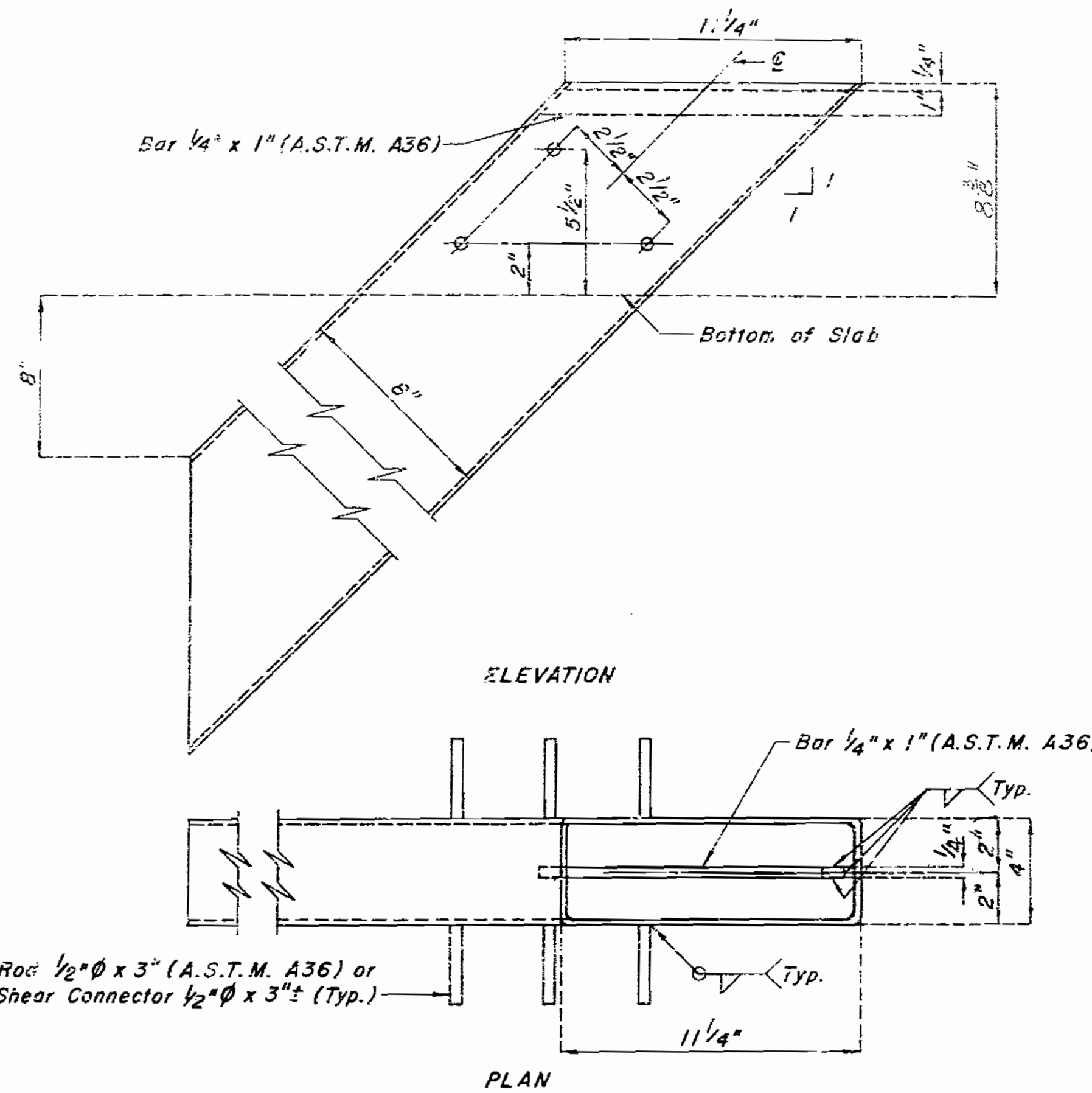
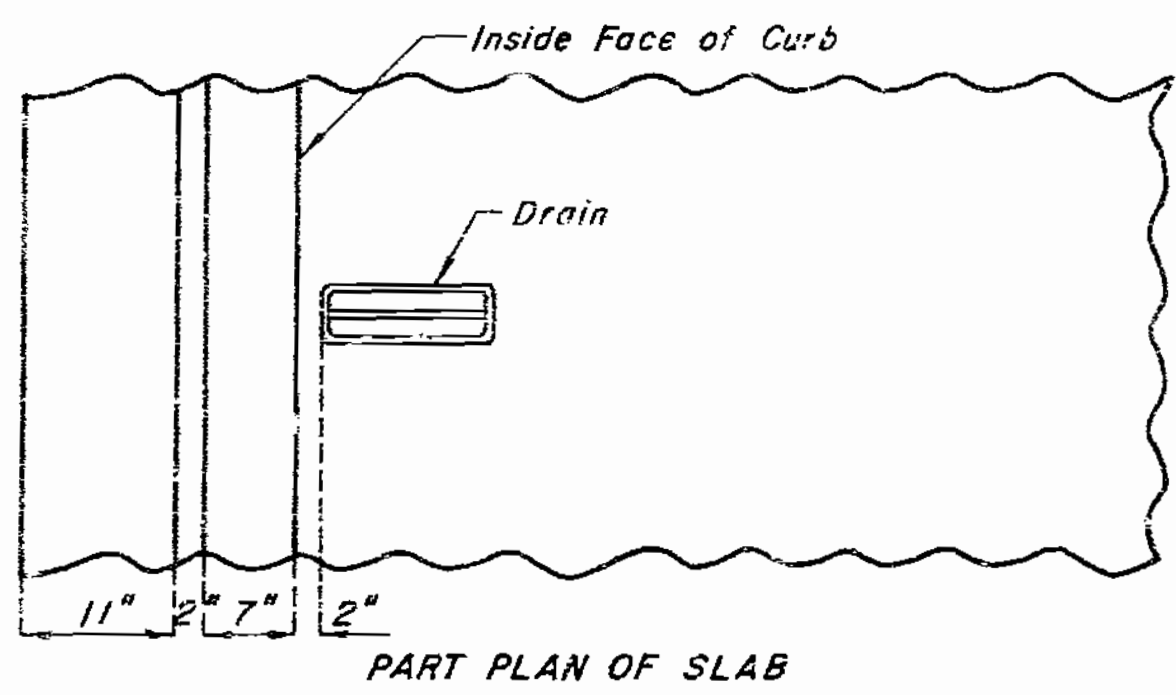
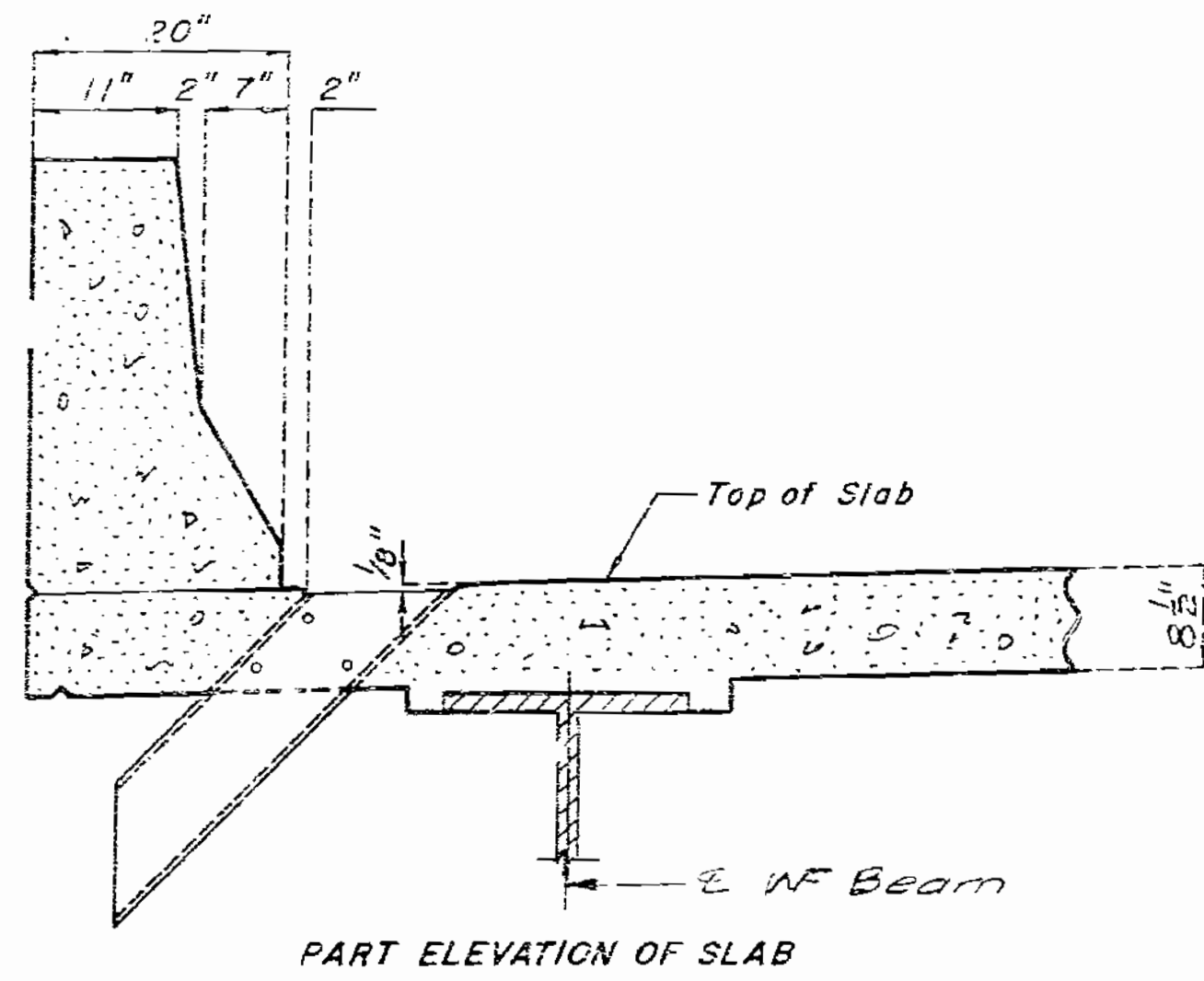
Sheet No. 19 of 25

JACKSON COUNTY

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		19	25	



**TYPE "A" SLAB DRAIN DETAILS**  
 Number Required: 45  
 Note: see sheet No. 19 for location of Drains.

**GENERAL NOTES:**  
 SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" WEIDED SHEETS OF A.S.T.M. A36 STEEL OR FROM 1 1/4" STRUCTURAL STEEL TUBING A.S.T.M. A500 OR A501.  
 OUTSIDE DIMENSIONS OF DRAINS ARE 8" x 4".  
 THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING 1/2" BELOW THE FINISHED CONCRETE LINE.  
 LOCATE DRAINS WITH DIMENSIONS SHOWN IN THE PART ELEVATION.  
 SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.  
 THE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.  
 SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.

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STD. S. D.-M.W.S. FEB. 1975  
 REVISED MAR. 1978

DETAILED June 1977  
 CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions

Sheet No. 20 of 25.

JACKSON COUNTY

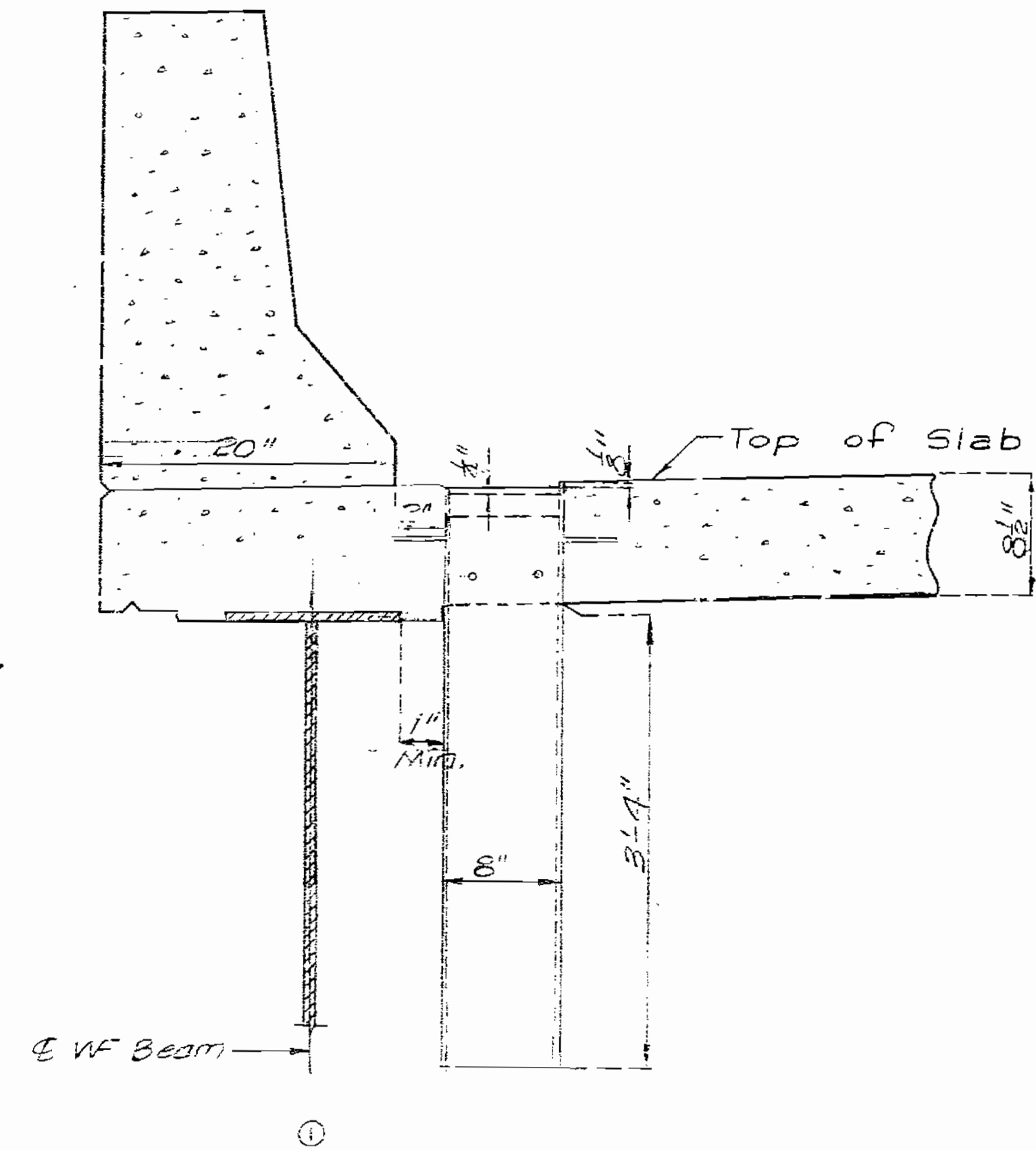
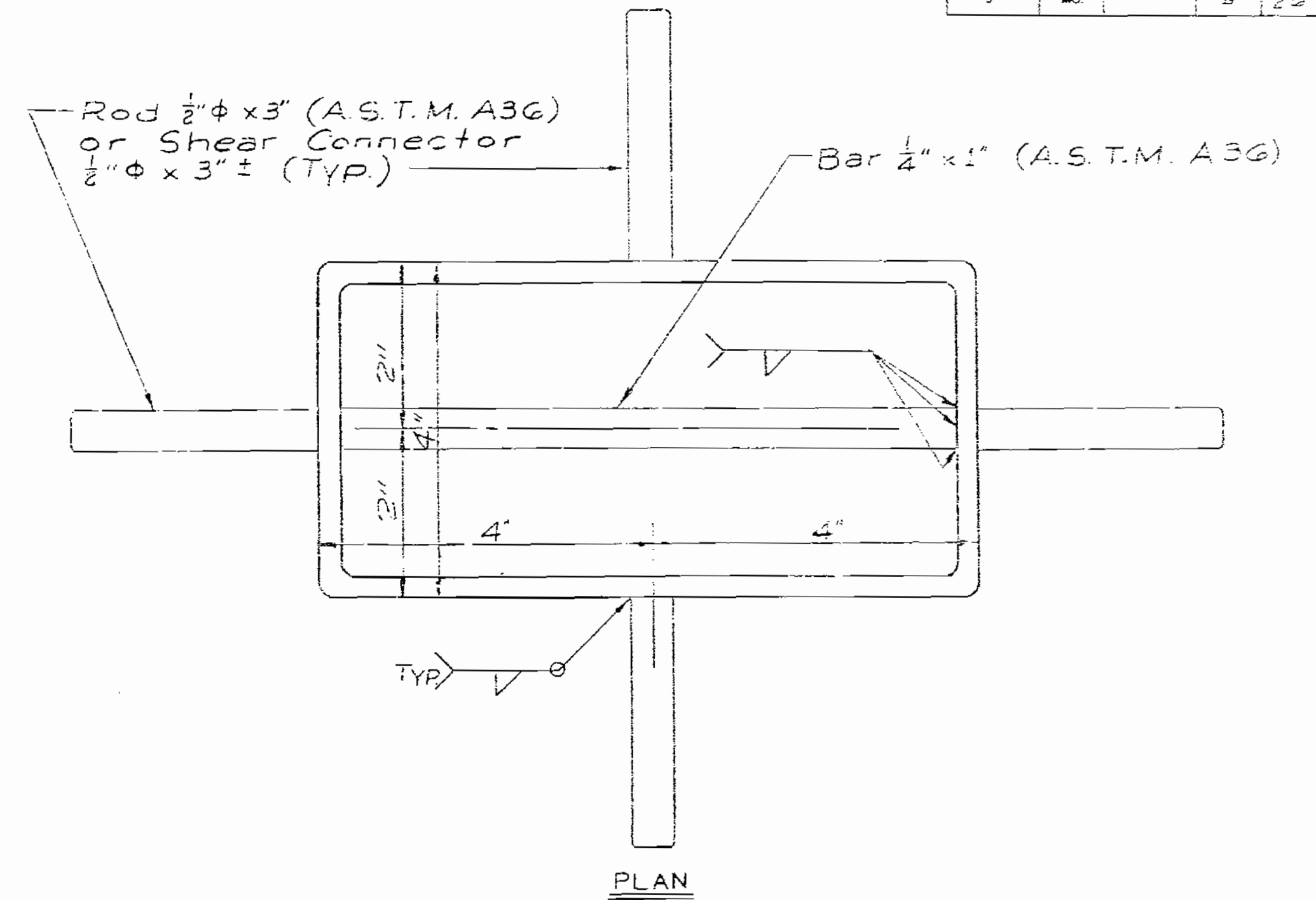
E146 R

MISSOURI STATE HIGHWAY DEPARTMENT

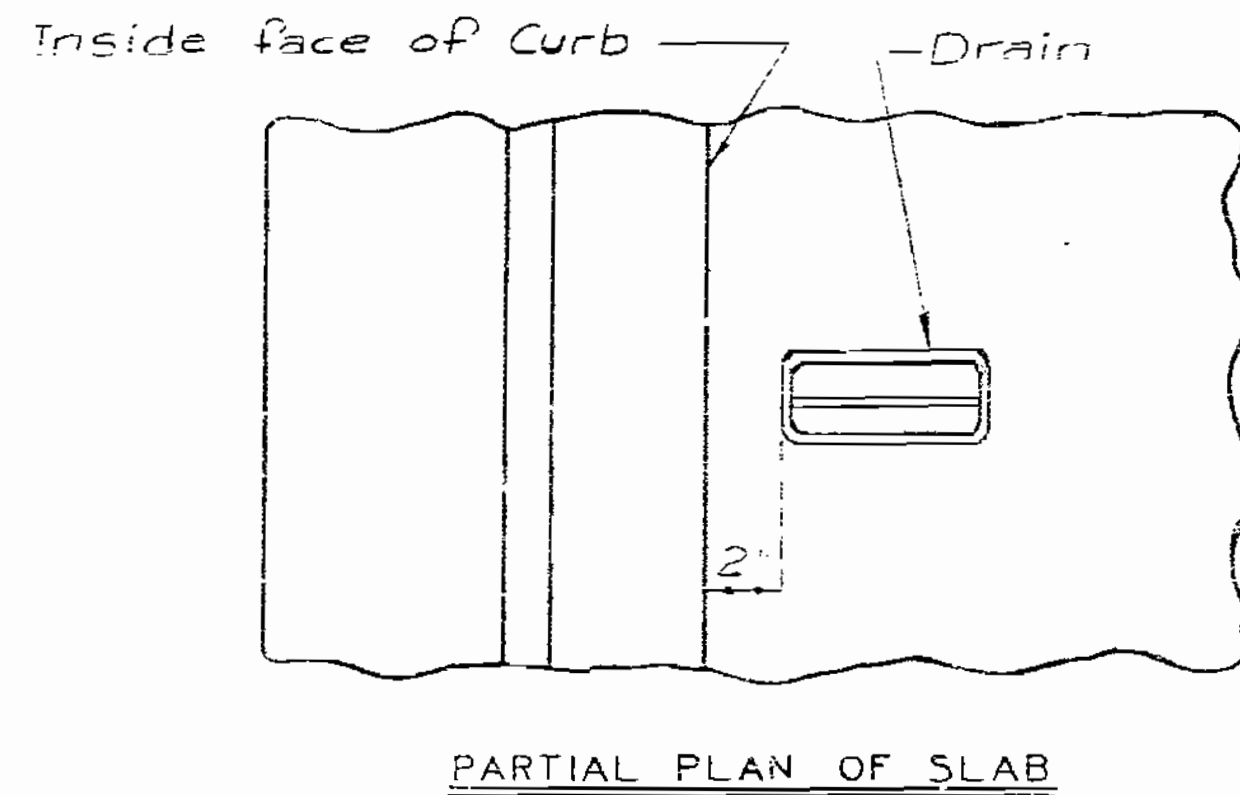
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		76	26	

GENERAL NOTES

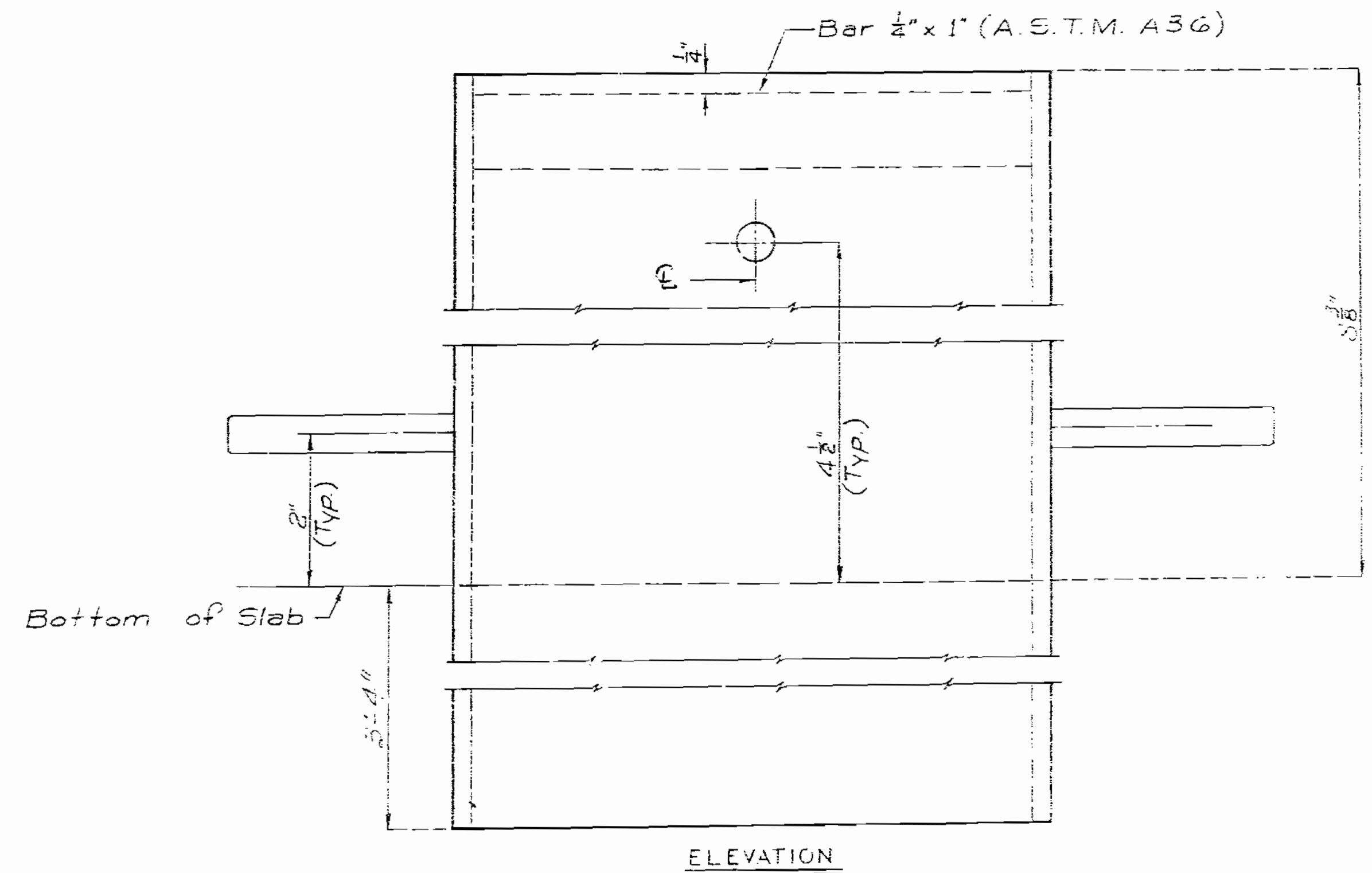
Slab Drains shall be fabricated of  $\frac{1}{4}$ " welded sheets of A.S.T.M. A36 steel or from  $\frac{1}{4}$ " Structural Steel Tubing A.S.T.M. A500 or A501.  
 Outside dimensions of Drains are 8"x4".  
 The Drains shall be cast in the Concrete with the top of the drains being  $\frac{1}{8}$ " below the finished concrete line.  
 Locate Drains in Slab by dimensions shown in Partial Elevation.  
 Shift Reinforcing Steel in field where necessary to clear drains.  
 The Drains shall be Galvanized in accordance with A.S.T.M. A123.  
 Shop Drawings will not be required for the slab Drains.



PARTIAL ELEVATION OF SLAB



PARTIAL PLAN OF SLAB



TYPE "B" SLAB DRAIN DETAILS

NUMBER REQUIRED: 45

NOTE: See Sheet No. 19 for location of Drains.

STD. S.D.-PG.-N.W.S. APRIL 1976  
 REVISED NOV. 1976

DETAILED June 1977  
 CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

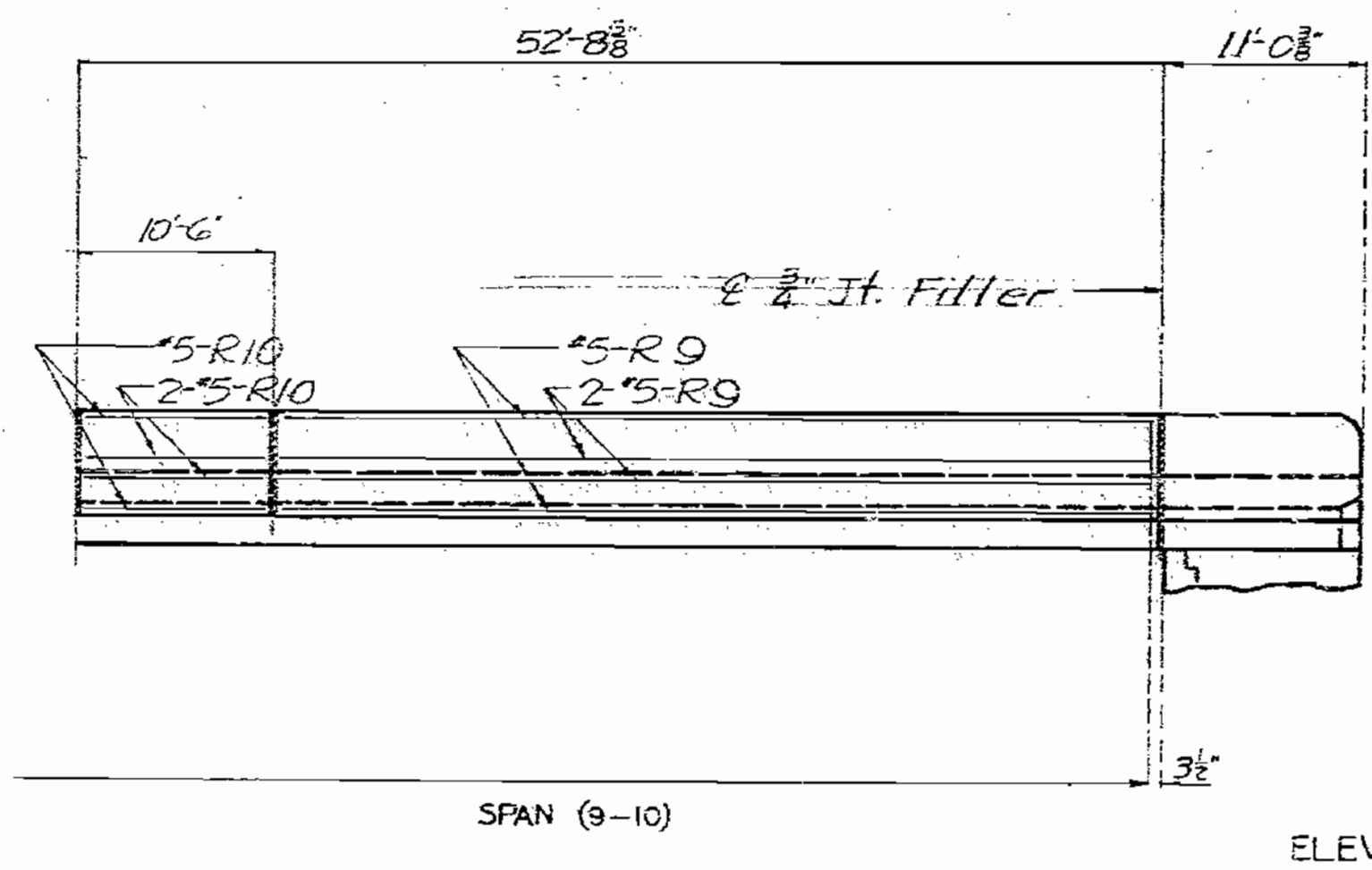
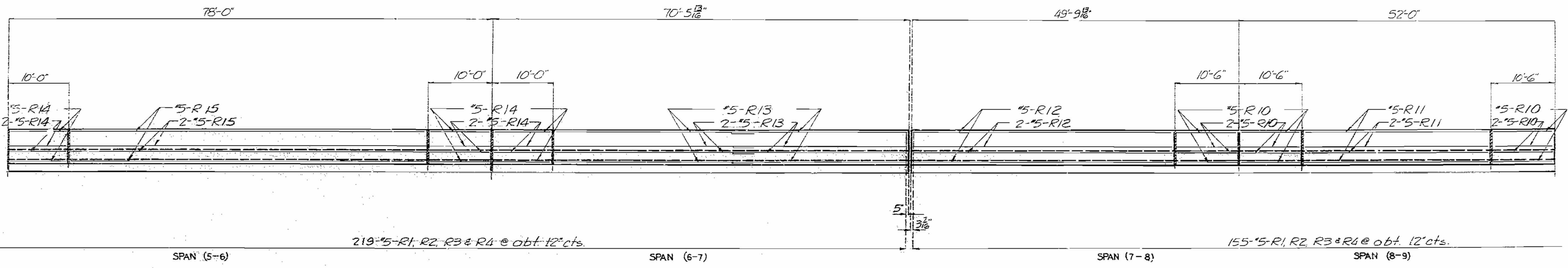
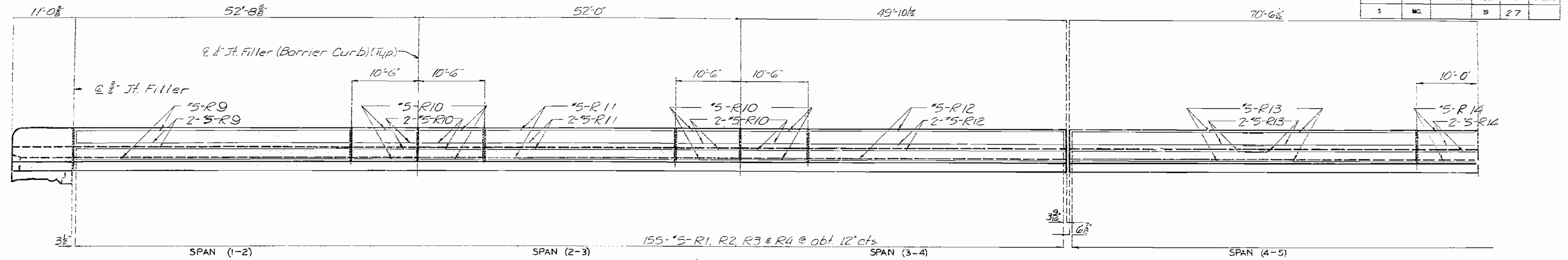
Sheet No. 21 of 25

JACKSON COUNTY

L-146 R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	F.D. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		55	27	



ELEVATION OF RIGHT BARRIER CURB

Note: Longitudinal dimensions shown are Horizontal dimensions taken at E and top of Barrier Curb.  
 For Details of Part Section see sheet No. 23  
 Use a minimum top of 15" for #5 horizontal barrier curb bars.  
 All Fillets 1/2" except as noted.  
 All exposed edges of Barrier Curb shall have 1/2" Radius or 3/8" Bevel unless otherwise noted.

189

DETAILED June 1977  
 CHECKED Aug. 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 22 of 26

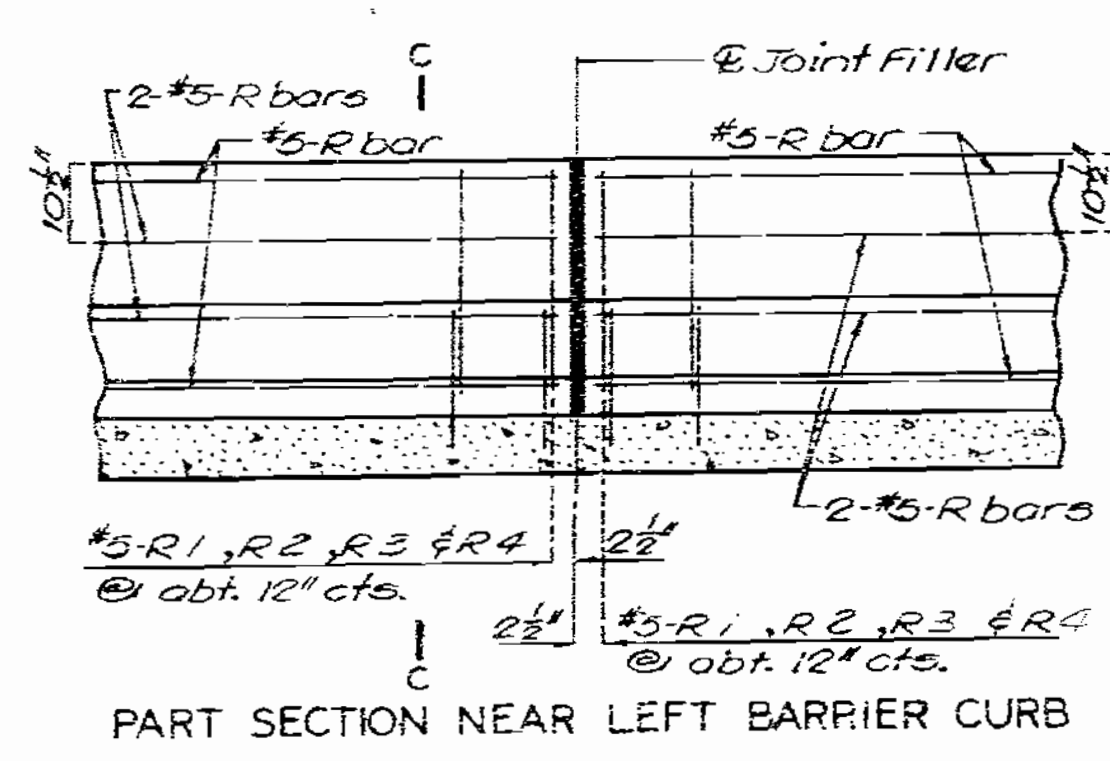
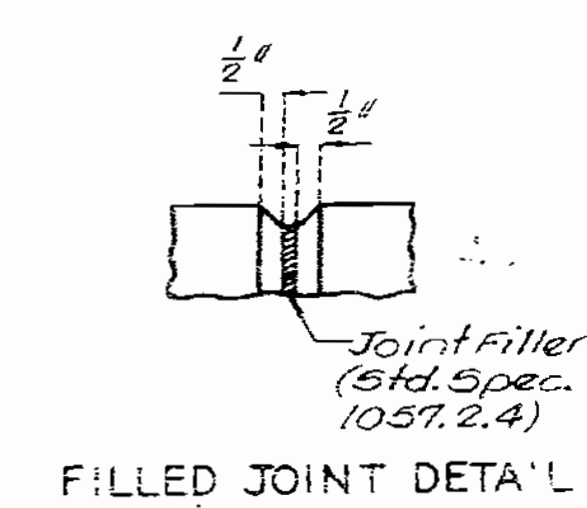
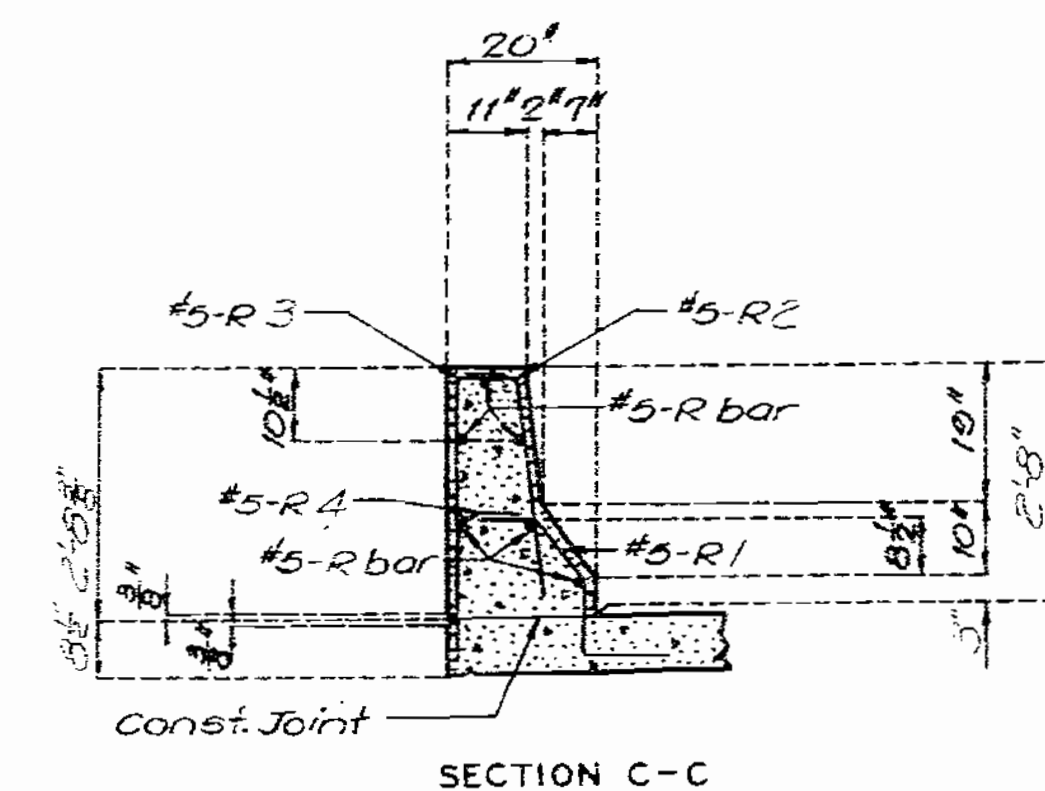
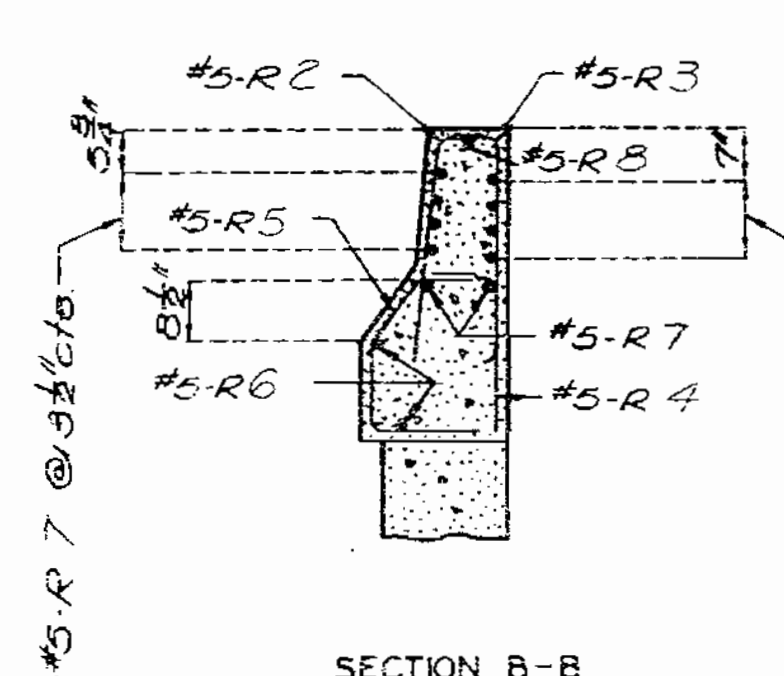
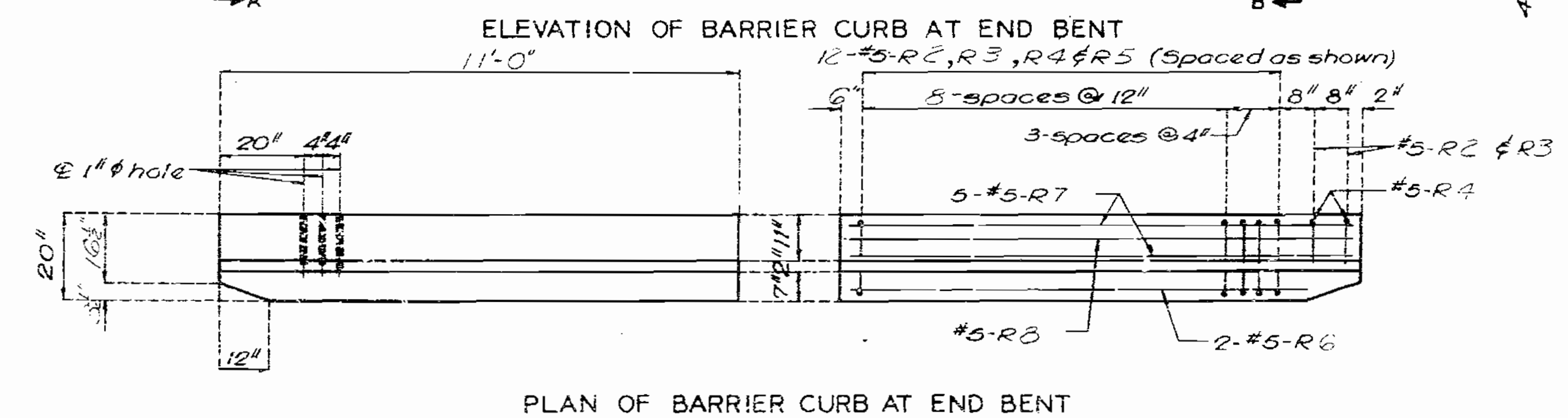
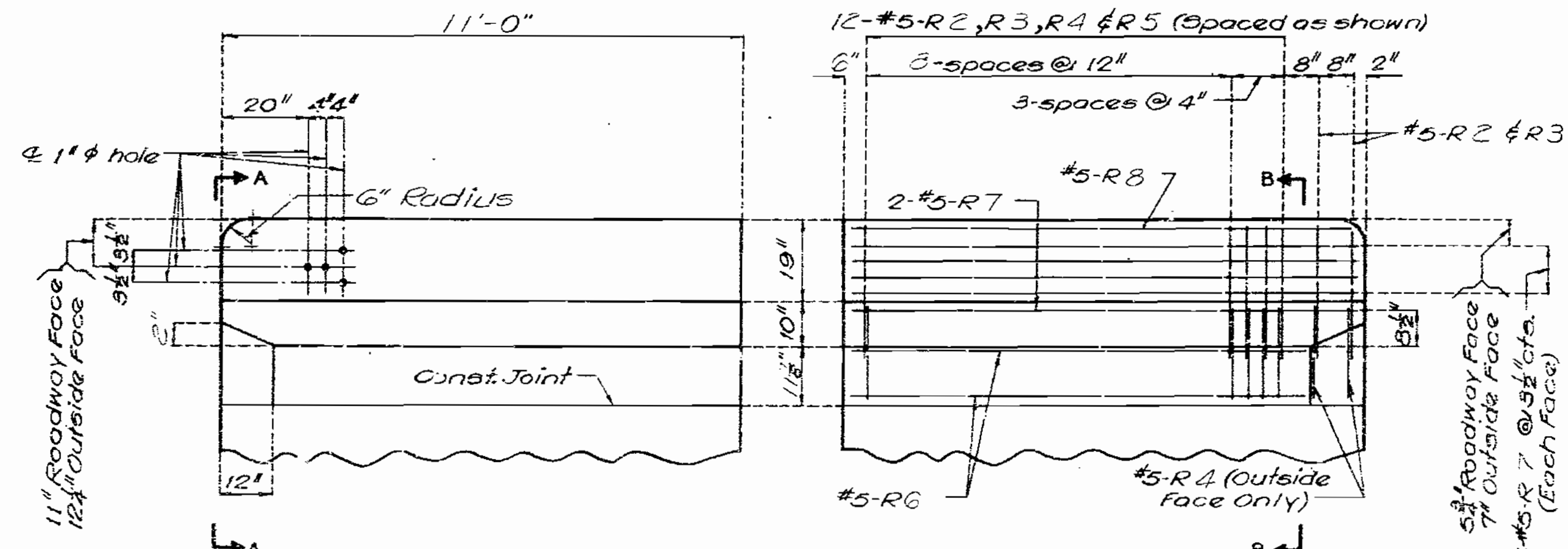
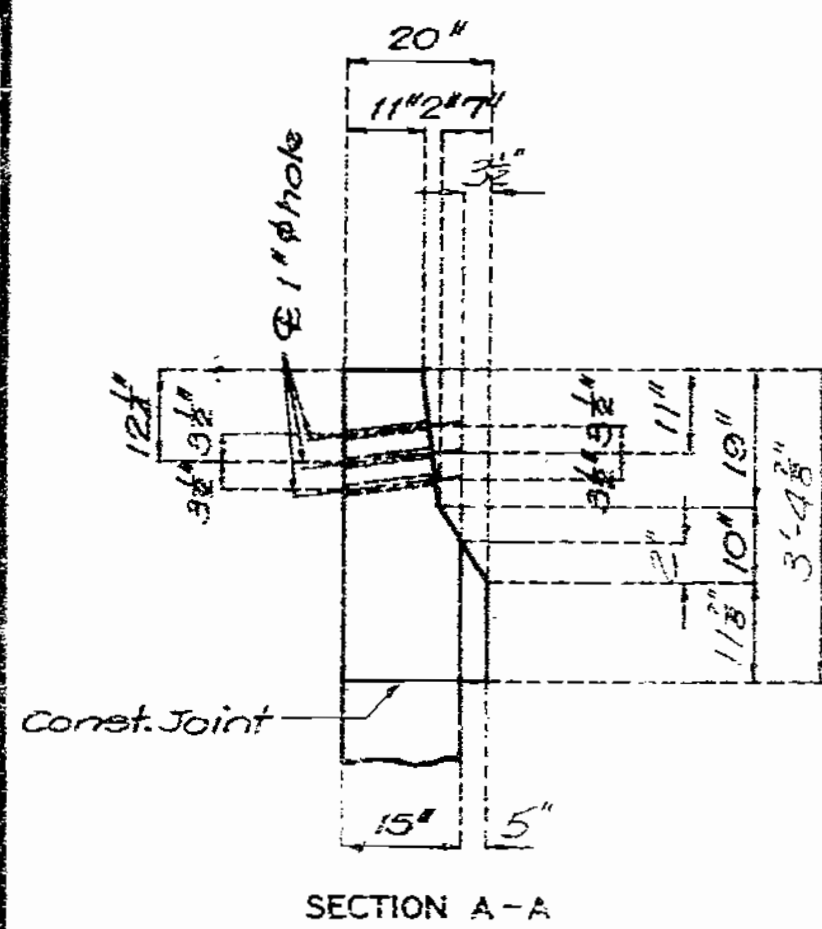
JACKSON COUNTY

L-146R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	28	

130



STD. I. 7.3 REVISED  
 NOV. 1974 MAY 1975  
 DETAILED July 1977  
 CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 23 of 25

JACKSON COUNTY

L-146R



MISSOURI STATE HIGHWAY DEPARTMENT

Table with columns: FED. ROAD DIST. NO., STATE, FED. AID PROJ. NO., FISCAL YEAR, SHEET NO., TOTAL SHEETS

COMPLETE BILL OF REINFORCING STEEL

COMPLETE BILL OF REINFORCING STEEL

Table with columns: NO. REQD., MARK NO., LOCATION, DIMENSIONS (B, C, D, E, F, H, K), NOMINAL LENGTH, ACTUAL LENGTH, WEIGHT

Table with columns: NO. REQD., MARK NO., LOCATION, DIMENSIONS (B, C, D, E, F, H, K), NOMINAL LENGTH, ACTUAL LENGTH, WEIGHT

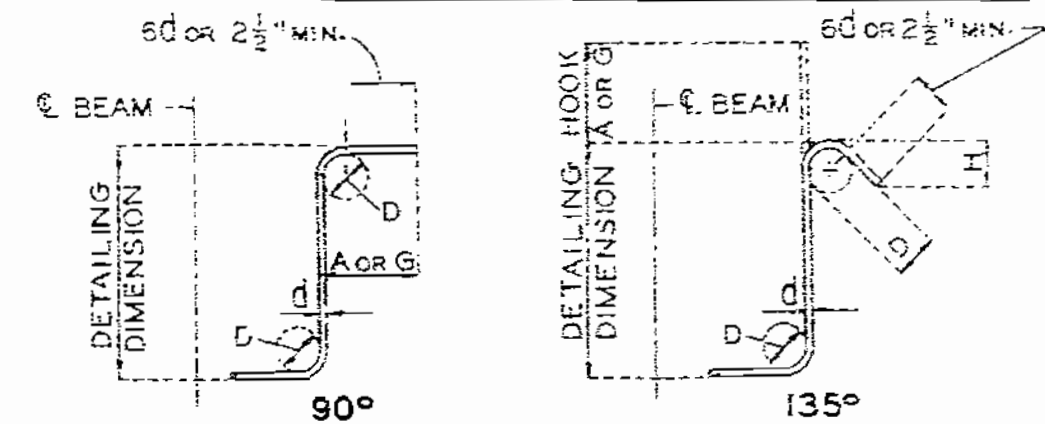
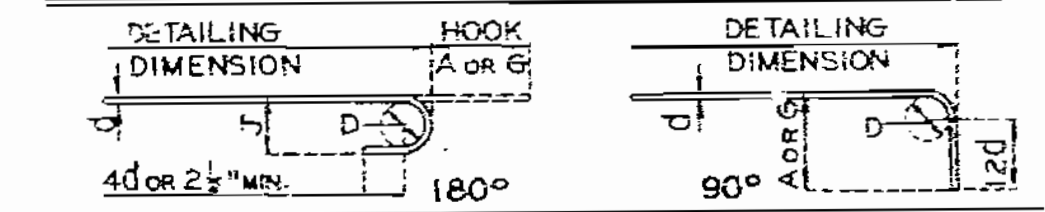


Table: STIRRUP HOOK DIMENSIONS GRADES 40-50-60 KSI. Columns: BAR SIZE, D (IN.), 90° HOOK, 135° HOOK.

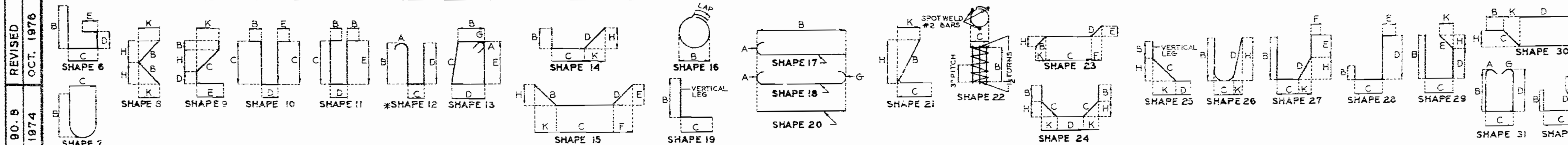
NOTE: UNLESS OTHERWISE NOTED DIAMETER 'D' IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI) SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)

Table: END HOOK DIMENSIONS. Columns: GAP SIZE, GRADE 40, GRADE 60, ALL GRADES.

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.



REVISED OCT. 1976, MAY 1974, CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 20 of 25

JACKSON COUNTY L-146 R

MISSOURI STATE HIGHWAY DEPARTMENT

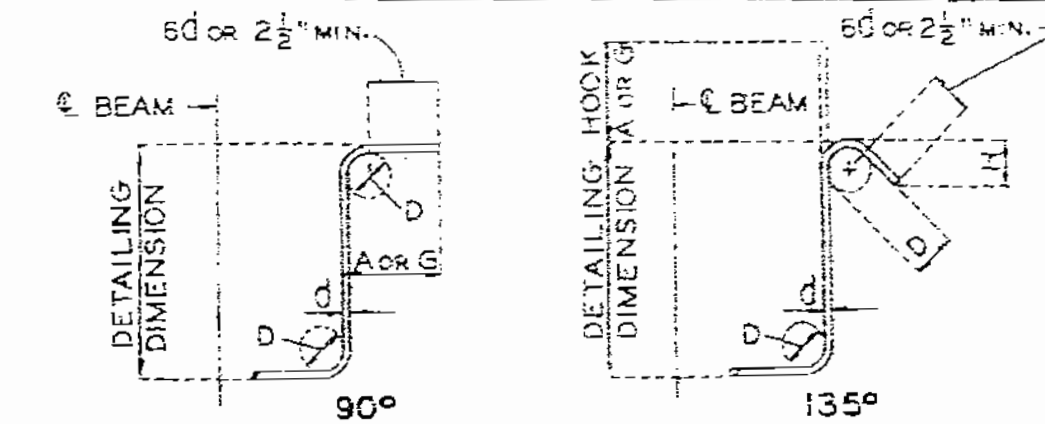
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		59	30	

COMPLETE BILL OF REINFORCING STEEL

COMPLETE BILL OF REINFORCING STEEL

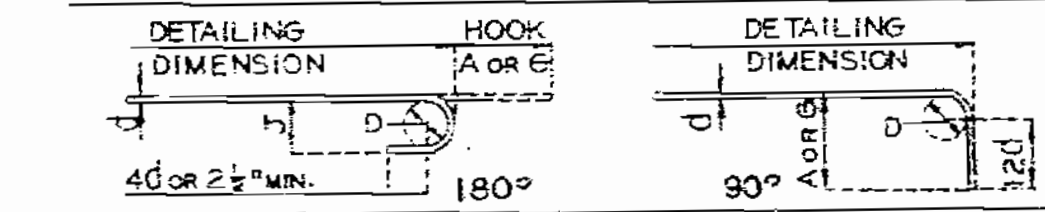
NO. REQD.	MARK NO.	LOCATION	GRADE (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT							
									B	C	D	E	F	H	K	FT.	IN.	FT.				IN.						
8	4Y42	WEB	20	X				2	8	5.000								8	5	8	5	45						
24	241	A.B. WELL	22	X					12	0.000	9	125						19	9	19	9	79						
16	10050	FOOTING	20	X				6	9.000									6	9	6	9	465						
16	6051	FOOTING	10	X				1	6.500	17	000							8	6	9	2	196						
52	4H50	WEB	20	X				2	6	11.000								6	11	6	11							
16	7H51	BEAM	7	X				4	5.500	3	000							10	8	10	8	349						
6	8H52	WEB	17	X				7	2.000									8	0	8	0	128						
8	8H53	BEAM	17	X				9	5.000									10	3	10	3	219						
4	6H54	BEAM	20	X				7	1.000									7	1	7	1	43						
8	8H55	BEAM	17	X				7	1.000									7	1	7	1	169						
8	8H56	BEAM	17	X				7	8.000									8	6	8	6	182						
4	6H57	BEAM	20	X				5	4.000									5	4	5	4	32						
8	8H58	BEAM	17	X				5	4.000									6	2	6	2	132						
16	6H59	BEAM	20	X				2	11.000									2	11	2	11	70						
42	4P50	COLUMN	16	X				2	9.000									9	6	9	6	267						
20	4U50	BEAM	13	X				3	3.000	2	8.000	3	3.000	2	8.000			12	7	12	4	165						
2	4U51	BEAM	13	X				3	0.000	2	8.000	3	0.000	2	8.000			12	1	11	0	16						
2	4U52	BEAM	13	X				2	3.000	2	8.000	2	3.000	2	8.000			10	7	10	4	14						
8	4U53	BEAM	10	X						0.600	3	3.000						3	4	3	2	17						
42	4U54	WEB	7	X				2	4	11.250	2	3.000						11	1	11	1							
40	4U55	BEAM	10	X				3	1.250	2	3.000							7	5	7	5	260						
2	4U56	BEAM	13	X				3	2.000	2	8.000	3	2.000	2	8.000			12	5	12	2	16						
2	4U57	BEAM	13	X				2	6.000	2	8.000	2	6.000	2	8.000			11	1	10	10	14						
4	5U51	BEAM	10	X				3	0.000	12	600							7	0	6	10	25						
2	4U59	BEAM	10	X				3	2.500	6.000								4	3	4	1	5						
20	4V50	WEB	20	X				22	3.000									22	3	22	3	297						
16	10V51	COLUMN	26	X				22	3.000									22	3	22	3	1532						
26	9V52	WEB	20	X				23	11.000									23	11	23	11	2114						
8	2W1	A.B. WELL	22	X					12	000	9	125						19	9	19	9	26						
SUPERSTRUCTURE																												
1058	5R1	BARRIER CURB	27	S						9.000	11	125	7	000	12	000	9	125	6	375	3	3	3	1	3402			
1114	5R2	BARRIER CURB	15	S						2	6.125	3	500							2	6.000	2	000	2	10	2	9	3195
1114	5R3	BARRIER CURB	19	S						2	6.000	6	000							3	0	2	11					3389
1114	5R4	BARRIER CURB	19	S						17	000	9	000							2	2	2	1					2421
48	5R5	BARRIER CURB	27	S						17	000	11	000	11	125	9	000			6	325	9	125	4	0	3	10	192
8	5R6	BARRIER CURB	20	S						9	000									9	9	9	9					81
48	5R7	BARRIER CURB	20	S						10	9.000									10	9	10	9					450
4	5R8	BARRIER CURB	20	S						10	8.000									10	8	10	8					45
24	5R9	BARRIER CURB	20	S						41	11.000									41	11	41	11					1049
56	5R10	BARRIER CURB	20	S						10	3.000									10	3	10	3					1026
24	5R11	BARRIER CURB	26	S						30	9.000									30	9	30	9					770
24	5R12	BARRIER CURB	20	S						39	1.0									39	1	39	1					978
48	5R13	BARRIER CURB	20	S						30	9.000									30	9	30	9					1539
48	5R14	BARRIER CURB	20	S						9	9.000									9	9	9	9					488
12	5R15	BARRIER CURB	20	S						57	9.000									57	9	57	9					723

NO. REQD.	MARK NO.	LOCATION	GRADE (H)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS										NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT			
									B	C	D	E	F	H	K	FT.	IN.	FT.				IN.		
204	5S1	SLAB	20						53	1.000								53	1	53	1	11295		
134	5S2	SLAB	20						56	6.000								56	6	56	6	8014		
132	5S3	SLAB	20						21	7.000								21	7	21	7	2972		
134	5S4	SLAB	20						21	4.000								21	4	21	4	2982		
216	5S5	SLAB	20						56	6.000								56	6	56	6	12729		
132	5S6	SLAB	20						29	2.000								28	2	28	2	3878		
1262	5S7	SLAB	20						42	6.000								42	6	42	6	55941		
12	5S8	SLAB	20						53	1.000								53	1	53	1	664		
3	5S9	SLAB	20						56	6.000								56	6	56	6	471		
324	5S10	SLAB	20						53	1.000								53	1	53	1	17959		
1262	5S11	SLAB	20						42	6.000								42	6	42	6	55941		
6	5S13	SLAB	20						39	0.000								39	0	39	0	244		
216	5S14	SLAB	17						21	000								2	1	2	4	526		
6	5S15	SLAB	20						39	0.000								39	0	39	0	244		
END OF BAR LIST																								



BAR SIZE	D (IN.)	90° HOOK		135° HOOK	
		A OR G	HOOK	A OR G	HOOK
#3	1-1/2"	4"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	5"	5-1/2"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"	

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



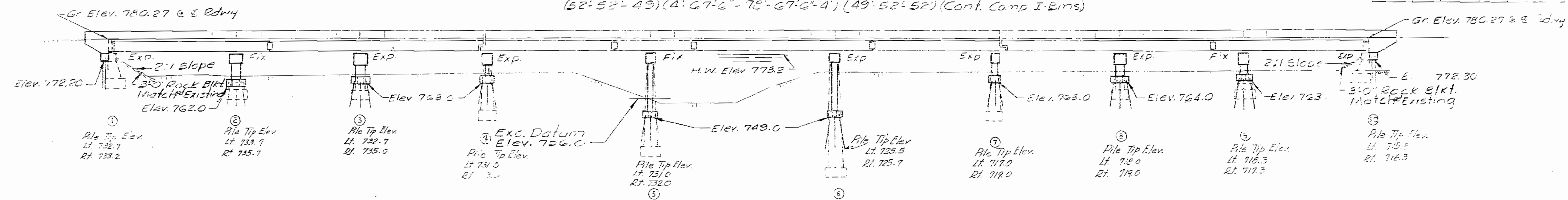
SIZE OF 180° HOOKS (GRADE 40 KSI): D=5d FOR #3 THRU #11; D=10d FOR #14 AND #18.  
 SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI): D=6d FOR #3 THRU #6; D=8d FOR #9, #10 AND #11; D=10d FOR #14 AND #18.

BAR SIZE	180° HOOKS				90° HOOKS	
	GRADE 40		GRADE 60		ALL GRADES	
	A OR G	J	A OR G	J	A OR G	J
#3	5"	2-3/4"	5"	3"	6"	6"
#4	6"	3-1/2"	6"	4"	8"	8"
#5	7"	4-1/2"	7"	5"	10"	10"
#6	8"	5-1/4"	8"	6"	12"	12"
#7	9"	6-1/4"	10"	7"	14"	14"
#8	10"	7"	11"	8"	16"	16"
#9	12"	8"	15"	11-1/4"	19"	19"
#10	13"	9"	17"	12-3/4"	22"	22"
#11	14"	10"	19"	14-1/4"	21-0"	21-0"
#14	21-2"	20-1/2"	21-3"	20-1/2"	21-7"	21-7"
#18	21-11"	21-3"	21-11"	21-3"	31-5"	31-5"

NOTES: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS

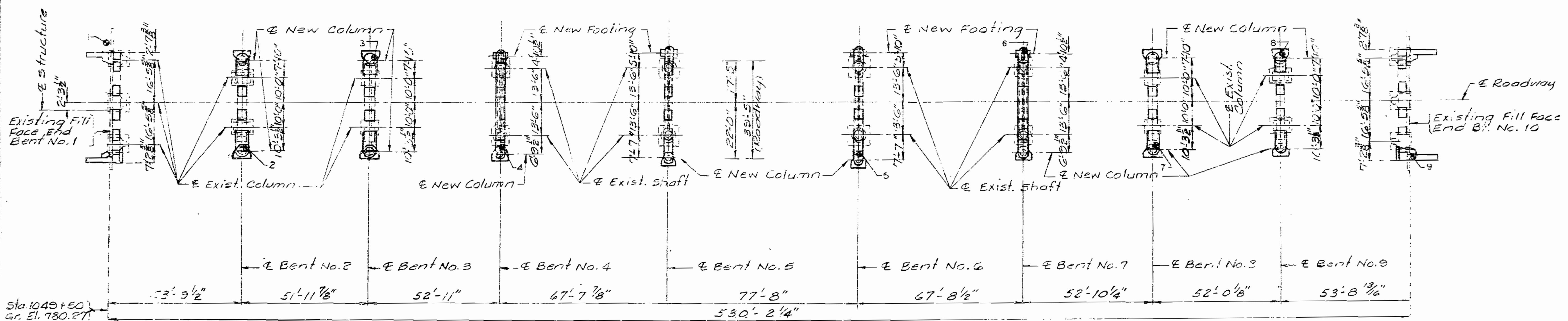
MISSOURI STATE HIGHWAY DEPARTMENT  
 Removed Deck - 41.12' - 49' Gr. d. Replaced Deck - 49' Substructure  
 (52'-52'-49') (4'-67'-6" - 72'-67'-6" - 4') (49'-52'-52') (Cont. Comp. I-Bms)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		75	6	



GENERAL ELEVATION

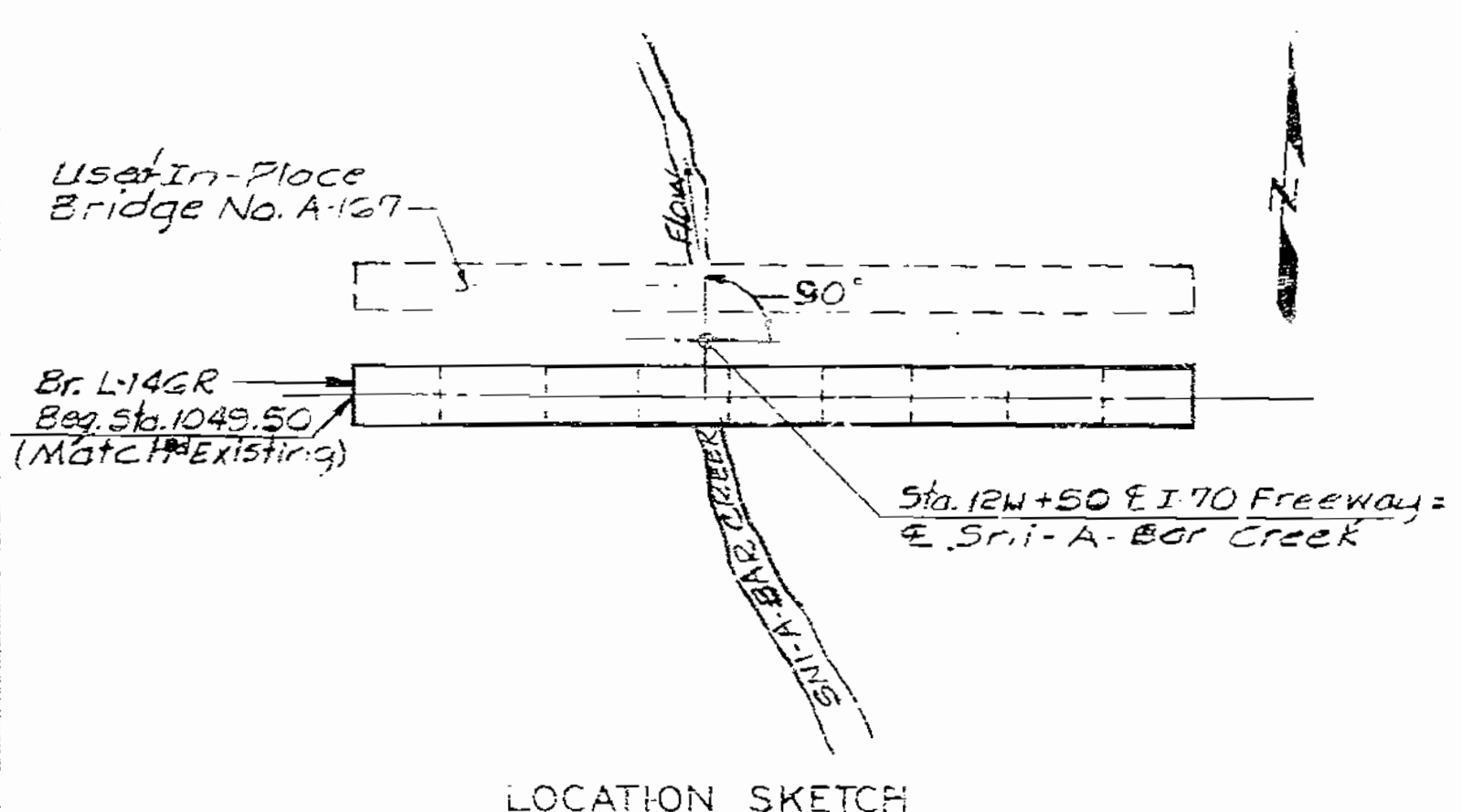
Note: Prepared for piles of Pier 5 to Elev. 732.0 and Pier 6 to Elev. 724.0. Cost of pre-boring and backfilling was included in unit price bid for structural steel piles.



PLAN

Note: 'B' indicates location of Boring. For Boring Data, see sheet No. 2

Note: Light dotted lines indicate old work. Heavy lines indicate new work. Piles not shown in plan for clarity.



LOCATION SKETCH

HYDRAULIC DATA	
Drainage Area:	37 Sq. Mi.
Design Discharge:	19,000 cfs
Design H.W. Elev.:	773.2
Frequency:	Flood of Record
BASIC FLOOD DATA	
Flood of Record exceeds Basic Flood	

B.M.'s #1 - 1/4" Nail in top of S.W. wing wall - E.B.L. - 55' R/L @ Median Sta. 1049+50 - Elev. 782.67  
 #2 - 1/4" Nail in top of N.E. wing wall - E.B.L. - 13.5' R/L @ Median Sta. 1049+50 - Elev. 782.77

**BRIDGE OVER SRI-A-BAR CREEK**  
 STATE ROAD BLUE SPRINGS TO GRAIN VALLEY  
 ABOUT 1.2 MI. EAST OF GRAIN VALLEY  
 PROJECT NO. I-70-1(80) STA. 1049+50  
 JOB NO. 4 1070 173 RTE I-70  
 JACKSON COUNTY  
 DATE 11/22/78

STD.
STD. 706.35
L-146R

DESIGNED May 1977  
 DETAILED July 1977  
 CHECKED Aug 1977

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 14 of 25.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		79	7	

FINAL PILE DATA										
BENT NO.	1	2	3	4	5	6	7	8	9	10
PILE TYPE & SIZE	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42	HP10x42
NUMBER	3	6	6	5	5	5	5	6	6	3
FINAL LENGTH Ave/bent FT.	40.7	28.3	30.2	31.4	18.4	29.4	45.8	47.5	46	57.7
DESIGN BEARING TONS	29	24	28	27	36	54	27	28	24	29
HAMMER ENERGY REQUIRED FT. LBS.	7,000	7,000	7,000	7,000	8,400	13,700	7,000	7,000	7,000	7,200
FINAL BEARING Ave./Bent TONS	84.5	85.8	112.6	96.9	121.5	166.1	85.1	89.8	79.1	75.3

Minimum energy requirement of hammer based on plan length and design bearing value of piles.  
All pile were driven to practical refusal or better.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. 1973

Design Loading:

HS20-44 Modified 24,000# Tandem Axle  
15#/sq. Ft. Future Wearing Surface  
Earth 120# Equivalent Fluid Pressure 20#  
Fatigue Stress Case I Interim 1974

Design Unit Stresses:

Class B Concrete (substructure)  $f_c = 1,200$  psi  
Class B1 concrete (superstructure)  $f_c = 1,600$  psi

Reinforcing steel (Grade 60)  $f_y = 60,000$  psi

Structural Carbon Steel  $f_s = 20,000$  psi  
Structural Steel (ASTM A-572) Grade 50  $f_s = 27,000$  psi  
Steel Pile  $f_b = 9,000$  psi

Fabricated Steel:

Payweight for fabricated steel was based on welded field splices regardless of type used.

Field Connections, High strength Bolts  $\frac{3}{4}$ " holes  $\frac{13}{16}$ " except as noted.

Reinforcing steel:

Minimum clearance to reinforcing steel is "6" unless otherwise shown.

Paint:

System B by contractor in accordance with std. spec. 712.12 color of final field coat for system B is aluminum.

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor did verify all dimensions in field before ordering new steel.

Bars bonded in old concrete not removed were cleanly stripped and embedded into new concrete where possible. If length is available, old bars did extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars.

Hook Anchors:

Anchors are self drilling expansion type, made of casehardened and drawn, carburized steel, with self cutting annular broaching grooves.

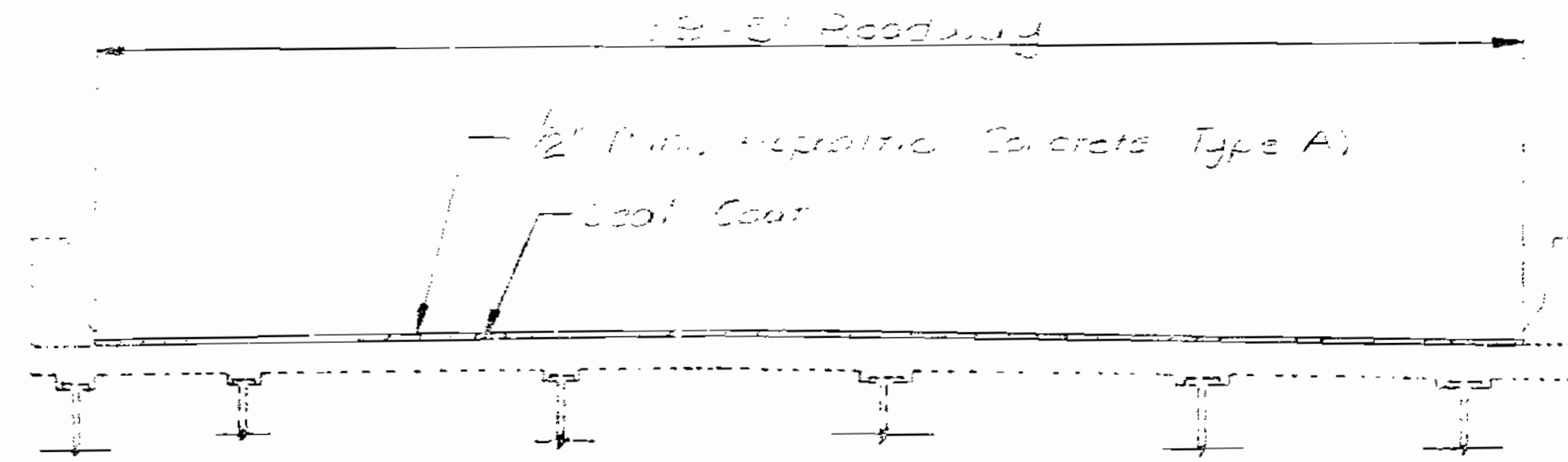
Cost of furnishing and installing hook anchor bolt assemblies are included in price bid for concrete.

FINAL QUANTITIES			
ITEM		SUBSTR.	SUPERSTR. TOTAL
Removal of Existing Bridge Deck	Sq. Ft.		17,639
Class I Excavation	Cu. Yd.	2135	2135
Class II Excavation	Cu. Yd.	67	67
Structural Steel Pile	Lin. Ft.	1807	1807
Class B Concrete	Cu. Yd.	1844	1844
Class B1 concrete	Cu. Yd.		738.9
Elastomeric Expansion Jt. Seal (2.0 in.)	Lin. Ft.		40
Elastomeric Expansion Jt. Seal (2.5 in.)	Lin. Ft.		40
Removal of Existing Structural Steel	Lump Sum		1
Reinforcing Steel (Grade 60)	Lbs.	21,160	107,740
Reinforcing Steel (Epoxy)	Lbs.		85,850
Fabricated structural Carbon steel (A-36)	Lbs.	175,100	175,100
Paint (System A or B) Aluminum	Ton	233.8	233.8
Special Work	Lump Sum		1
Type F Elastomeric Bearing	Each		72
Fabricated structural Low Alloy steel (A-572)	Lbs.		298,020
Slab Drains (Type A)	Each		45
Slab Drains (Type B)	Each		45
CONTINGENT ITEMS			
Cap Repair	(FA)		25,972.21
Cast-in-place Structural Steel Plates	Each	12	12

Note: All Concrete and reinforcement in safety barrier curb was included with Superstr. Quantities

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO	IR-70-1(127)	1
SEC. 36	TWP. 49N	RGE. 30W



PART SECTION THRU SLAB

GENERAL NOTES

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Bars exposed shall be cleanly stripped and embedded into new concrete. Some bending may be necessary.

Maintain one lane traffic during construction. (See Road Plans)

Class B Concrete  $f_c = 3,000$  psi (at new curb plates)

STRIP SEAL NOTES:

The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.

The contractor must verify all dimensions prior to fabrication. All welds shall conform to Section 712 of the Standard Specifications. Splices of steel extrusion shall develop full strength. All steel shall be A-36 except steel extrusions shall be A-36, A-500 or A-36.

Neoprene glands shall meet A.S.T.M. D-8299-66 modified for use in road construction.

anchors for the armor shall be approved welded studs (C1010 thru C1020).

Payment for steel extrusions and neoprene glands shall be made under contract unit price for "Strip Seal Expansion Device".

Payment for furnishing, painting and priming structural steel plates shall be included in contract unit price for "Strip Seal Expansion Device".

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD BLUE SPRINGS TO GRAIN VALLEY

ABOUT 1.2 MI. EAST OF GRAIN VALLEY

PROJECT NO. IR-70-1(127) STA. 1049+50

JOB NO. 4 I070 685 RTE. I-70

JACKSON COUNTY

STD.
STD.
L-146RI

ESTIMATED QUANTITIES		
ITEM		TOTAL
Asphalt Cement (Asphaltic Concrete) (60-70 or AC-20)	Ton	9.7
Mineral Aggregate (Asphaltic Concrete) (Type A Mix)	Ton	152
Strip Seal Expansion Device	Lin. Ft.	79
Deck Drain Modification	Each	90
Polymer Modified Asphalt (Seal Coat)	Gal.	820
Cover Aggregate (See Special Provisions)	Ton	35

The bituminous material shall be a polymer modified asphalt emulsion Grade CRS-2 Modified applied at a rate of .35 Gal. per Sq. Yd.

The cover aggregate shall be applied at a rate of .015 Ton per Sq. Yd.

333

DESIGNED Jan. 1985  
 DETAILED Jan. 1985  
 CHECKED Feb. 1985

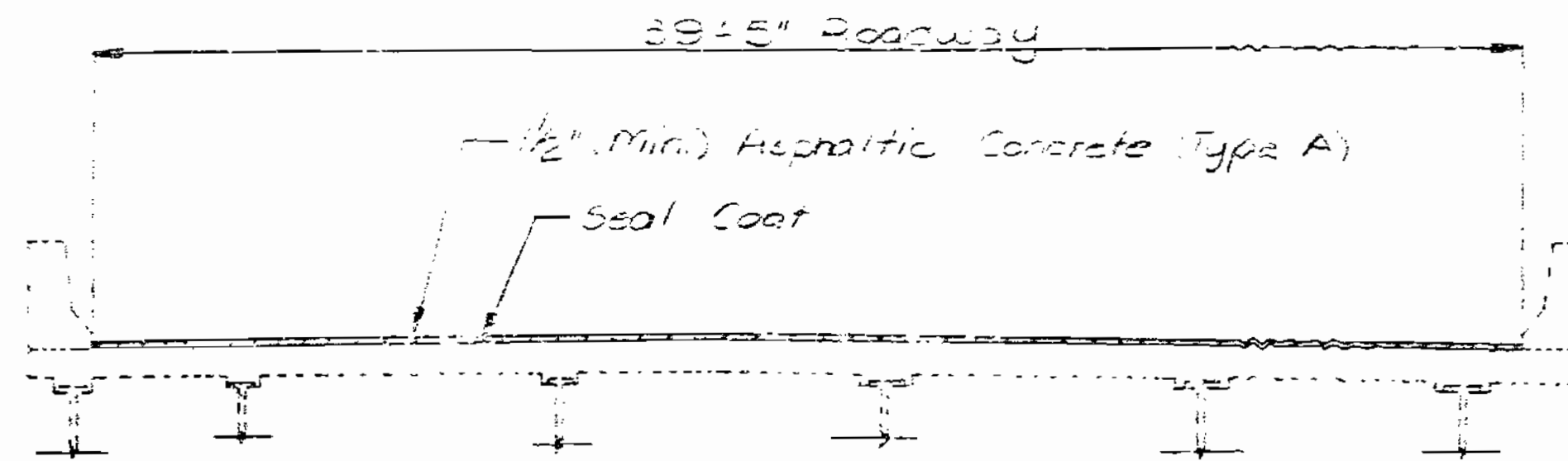
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 2

DATE 7/23/86

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO	IR-70-1(127)	1
SEC. 36	TWP. 49N	R. 10W



PART SECTION THRU SLAB

GENERAL NOTES

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Bars exposed shall be clearly stripped and embedded into new concrete. Some bending may be necessary.

Maintain one lane traffic during construction. (See Road Plans)

Class B Concrete  $f_c = 3,000$  psi. (at new curb plates)

STRIP SEAL NOTES:

The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the special provisions.

The contractor must verify all dimensions prior to fabrication. All welds shall conform to Section 712 of the Standard Specifications. Splices of steel extrusion shall develop full strength. All steel shall be A-36 except steel extrusions shall be A.S.T.M. A-588 or A-36.

Neoprene glands shall meet A.S.T.M. D-2628-69 modified (recovery tests excluded).

Anchors for the armor shall be approved welded studs (C1010 thru C1020).

Payment for steel extrusions and neoprene glands shall be made under contract unit price for "Strip Seal Expansion Device".

Payment for furnishing, painting, and placing structural steel plates shall be made under contract unit price for "Strip Seal Expansion Device".

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD BLUE SPRINGS TO GRAIN VALLEY

ABOUT 1.2 MI. EAST OF GRAIN VALLEY

PROJECT NO. IR-70-1(127)

STA. 1049+50

JOB NO. 4 I070 685

RTE. I-70

JACKSON

COUNTY

DATE 7/23/86

STD.
STD.
L-146RI

ESTIMATED QUANTITIES			TOTAL
ITEM			
Asphalt Cement (Asphaltic Concrete) (60-70 or AC-20)	Ton	0	0
Mineral Aggregate (Asphaltic Concrete) (Type A Mix)	Ton	0	0
Strip Seal Expansion Device	Lin. Ft.	0	0
Deck Drain Modification	Each	0	0
Polymer Modified Asphalt (Seal Coat)	Gal.	0	0
Cover Aggregate (See Special Provisions)	Ton	0	0

The bituminous material shall be a polymer modified asphalt emulsion Grade CRS-2 Modified applied at a rate of .35 Gal. per Sq. Yd.

The cover aggregate shall be applied at a rate of .015 Ton per Sq. Yd.

\* Quantities underrun due to bridge condition.

DESIGNED Jan. 1985  
 DETAILED Jan. 1985  
 CHECKED Feb. 1985

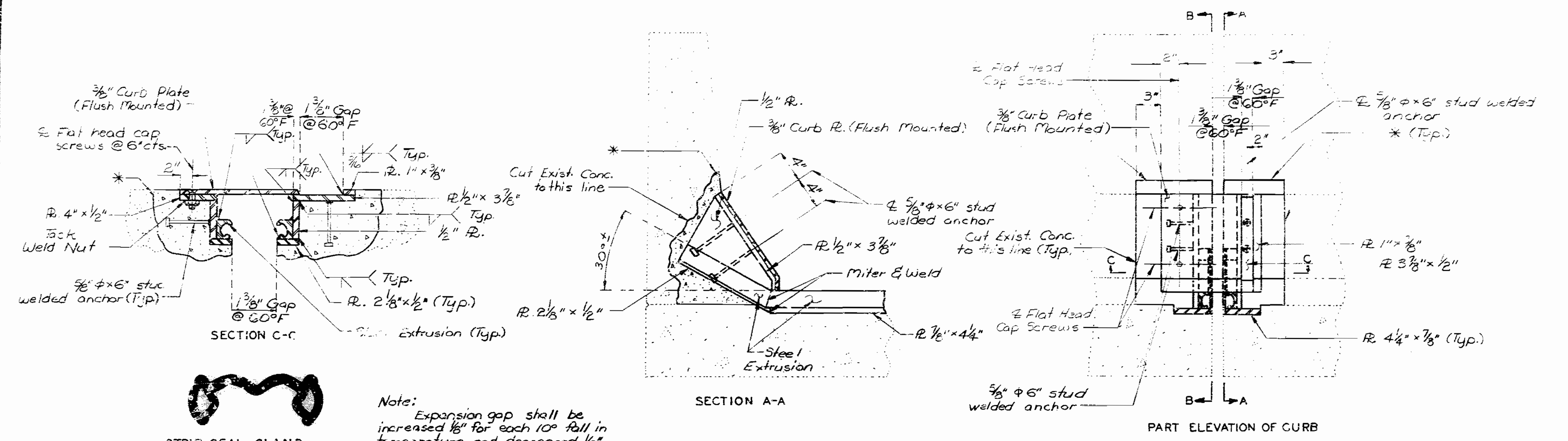
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 4.

354

STATE	PROJECT NO.	SHEET NO.
MO	IR-70-(27)	2

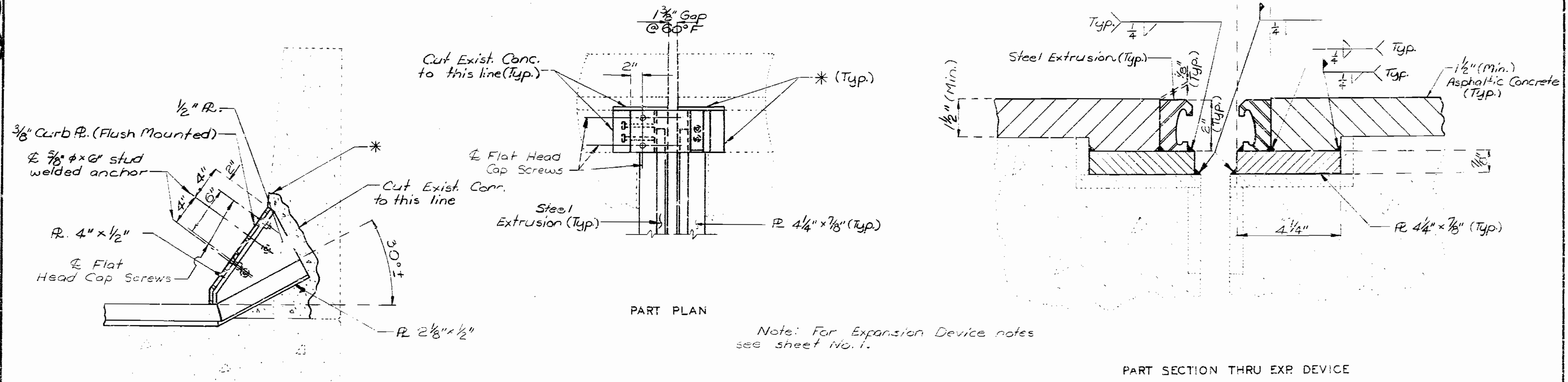
\* Saw cut or chip first 1"



STRIP SEAL GLAND  
MOVEMENT RATING - 2"

Note:  
Expansion gap shall be increased 1/8" for each 10° fall in temperature and decreased 1/8" for each 10° rise in temperature.

335



Note: For Expansion Device notes see sheet No. 1.

Note: Cut off existing anchor studs and grind flush.

EXPANSION DEVICE AT BENT NO. 4

DETAILED Jan 1965  
CHECKED Feb 1965

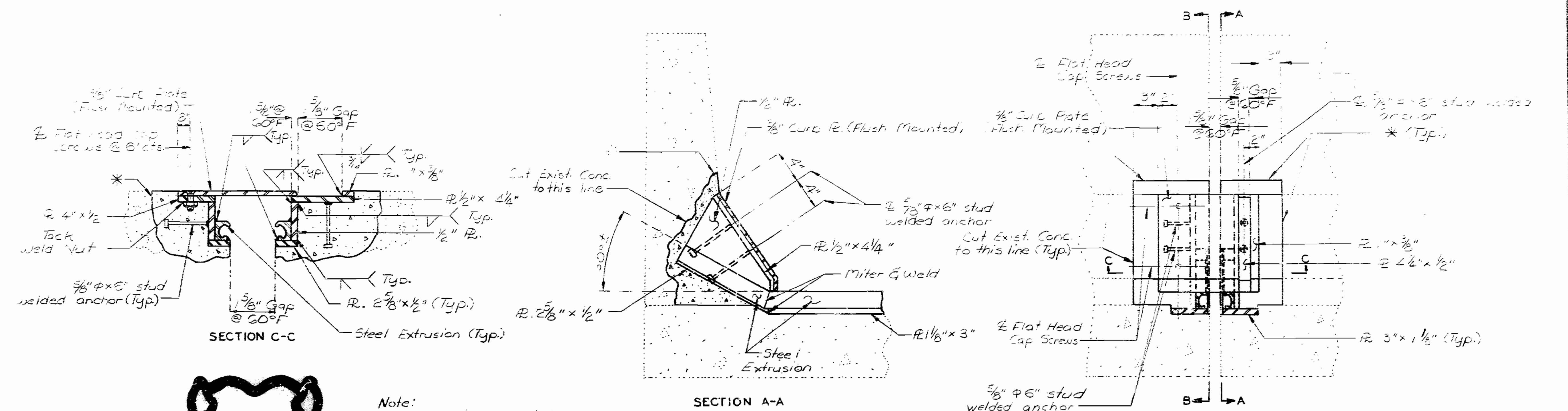
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 4

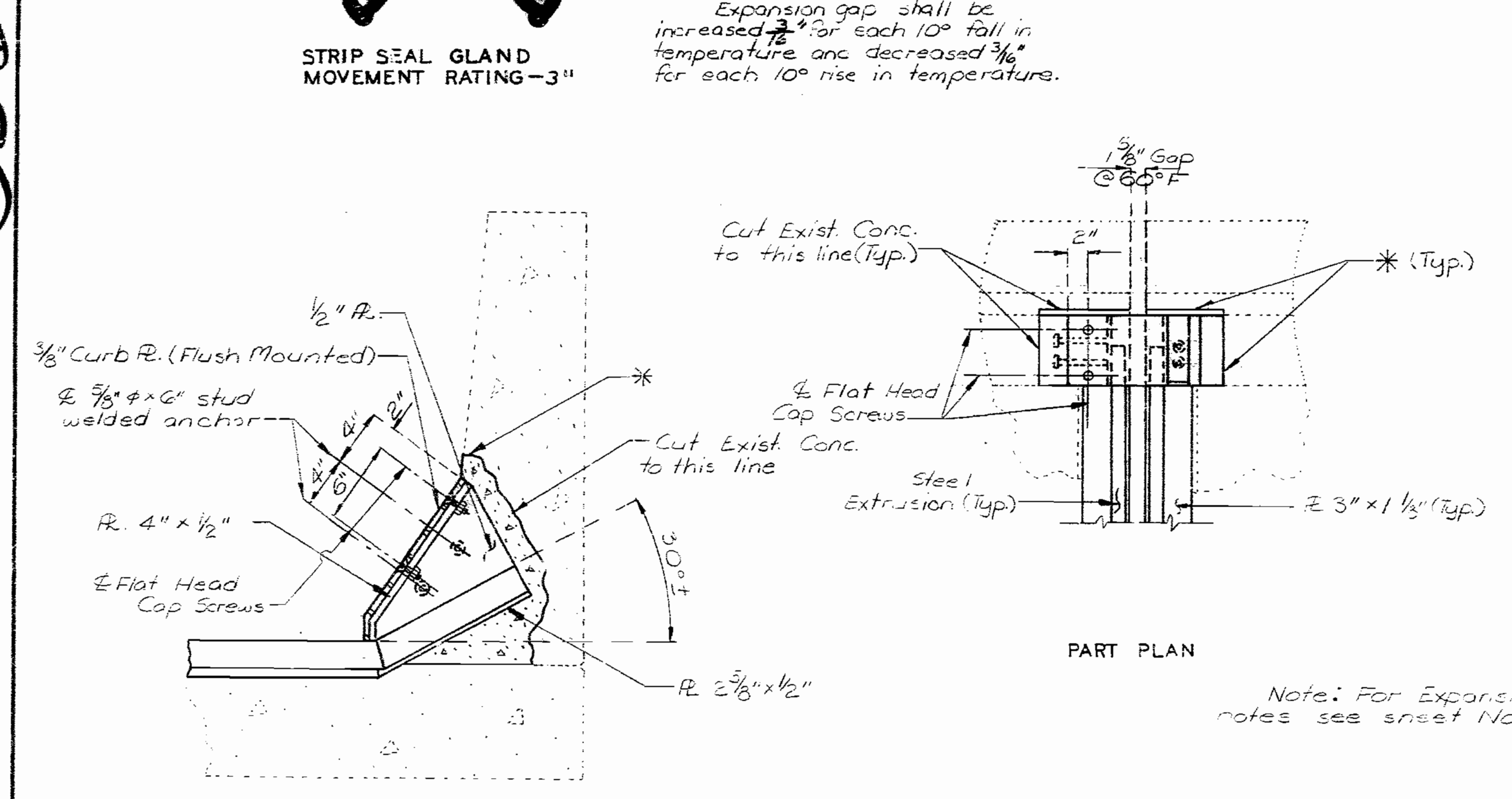
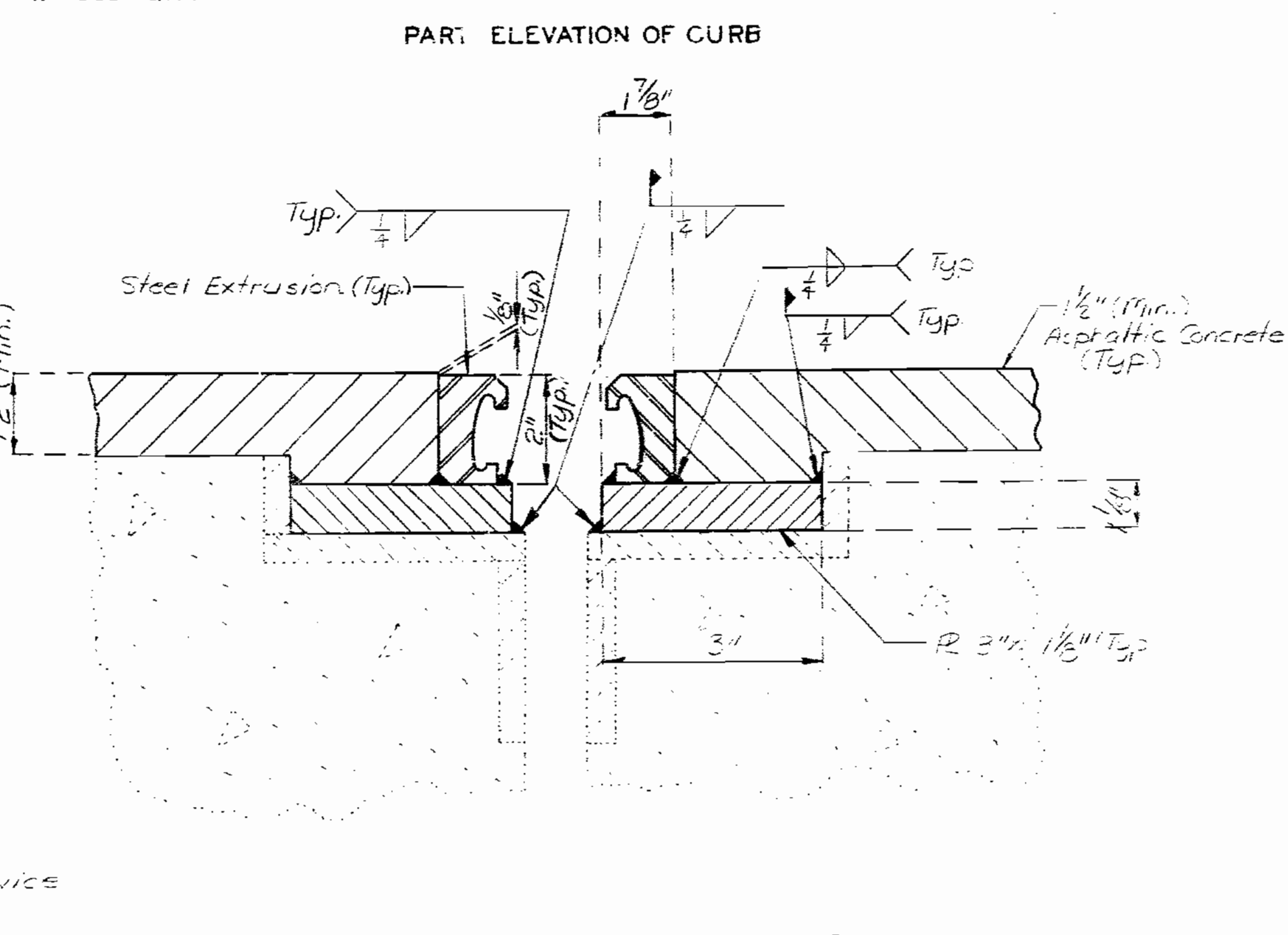
JACKSON COUNTY

L-146R1

STATE	PROJ NO	SHEET NO
MO	LR-70-1(127)	3



Note: Expansion gap shall be increased  $\frac{3}{16}$ " for each 10° fall in temperature and decreased  $\frac{3}{16}$ " for each 10° rise in temperature.



EXPANSION DEVICE AT BENT NO. 7

Note: For Expansion Device notes see inset No. 1.

Note: Cut off existing anchor studs and grind flush.

336

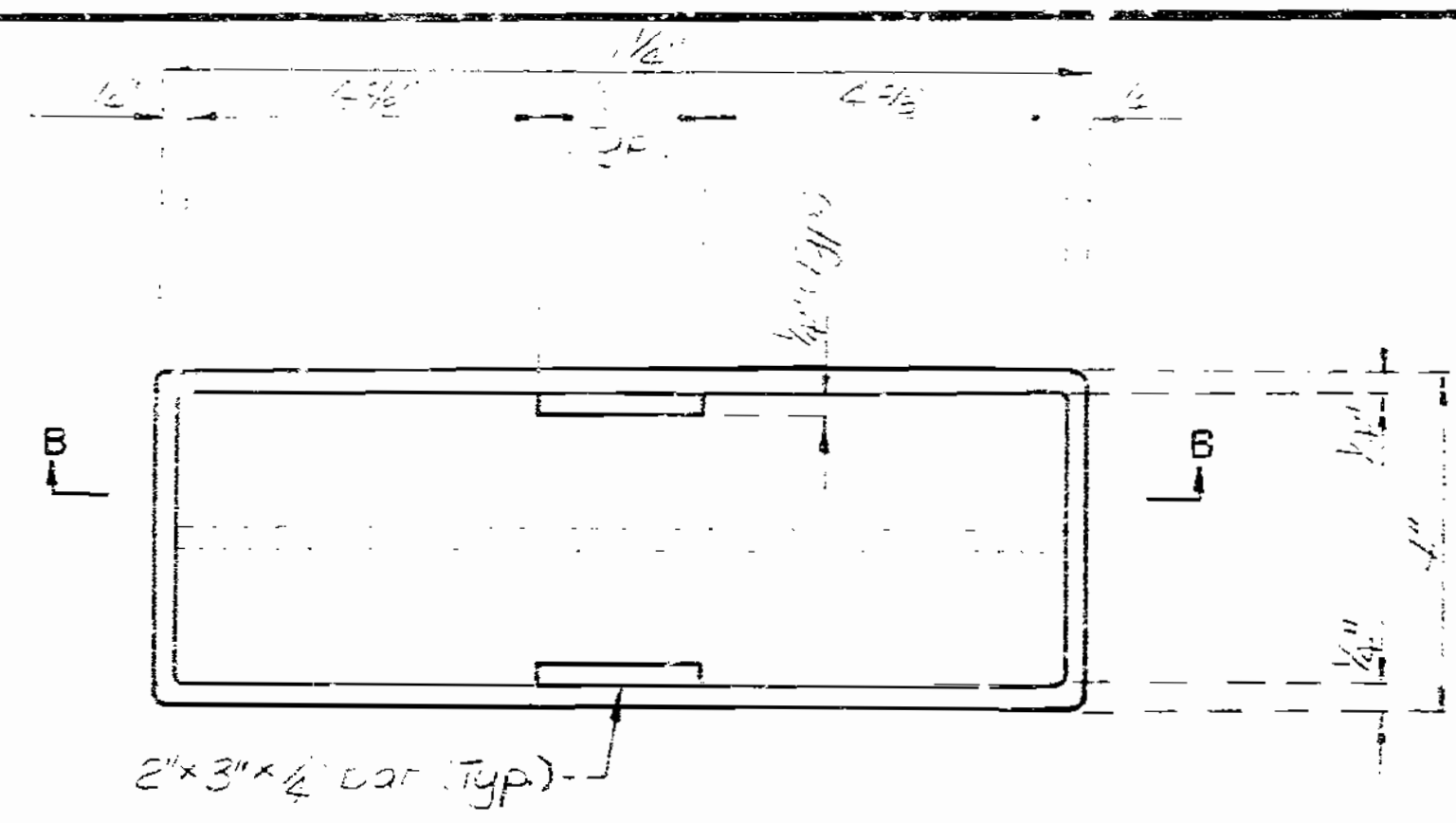
DETAILED Jan. 1955  
CHECKED Feb. 1955

Note: This drawing is not to scale. Follow dimensions.

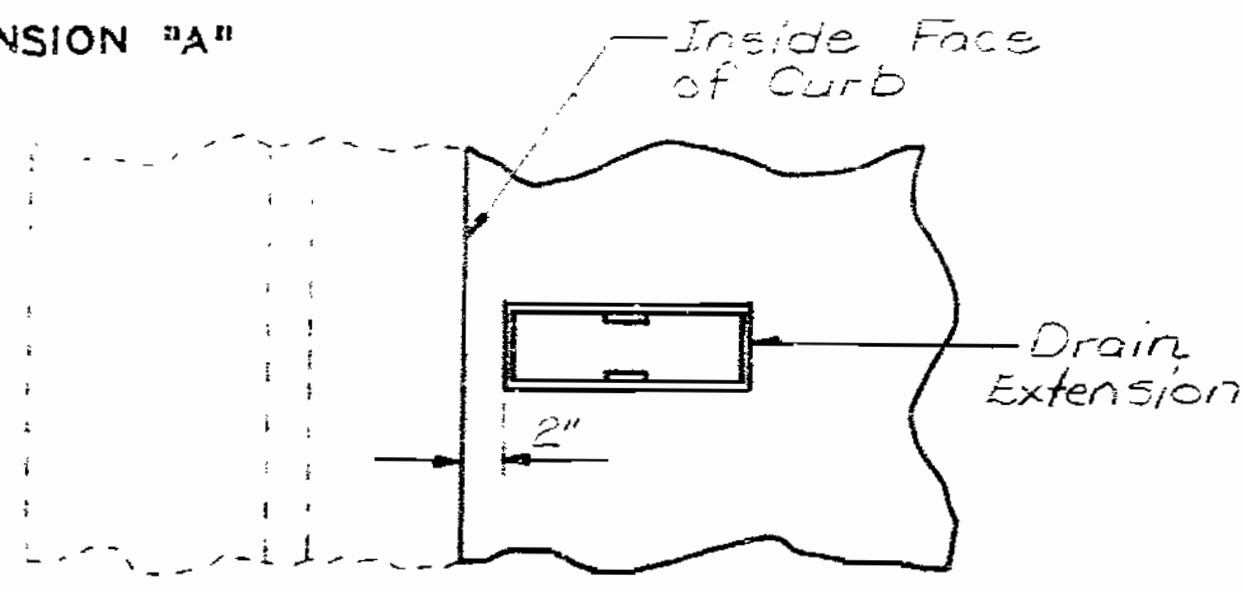
Sheet No. 3 of 4



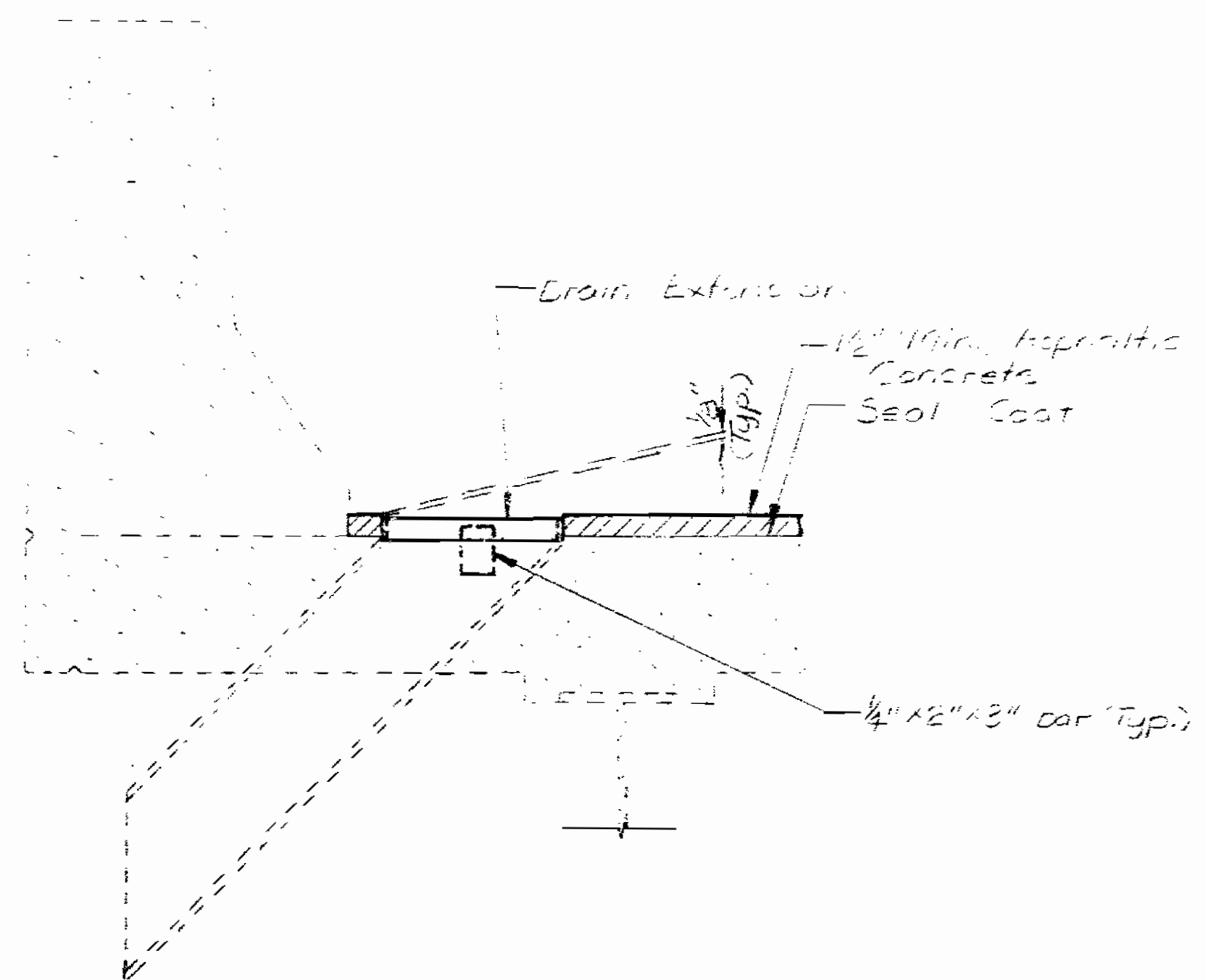
STATE	PROJ. NO.	SHEET NO.
MO.	IR-70-11(27)	4



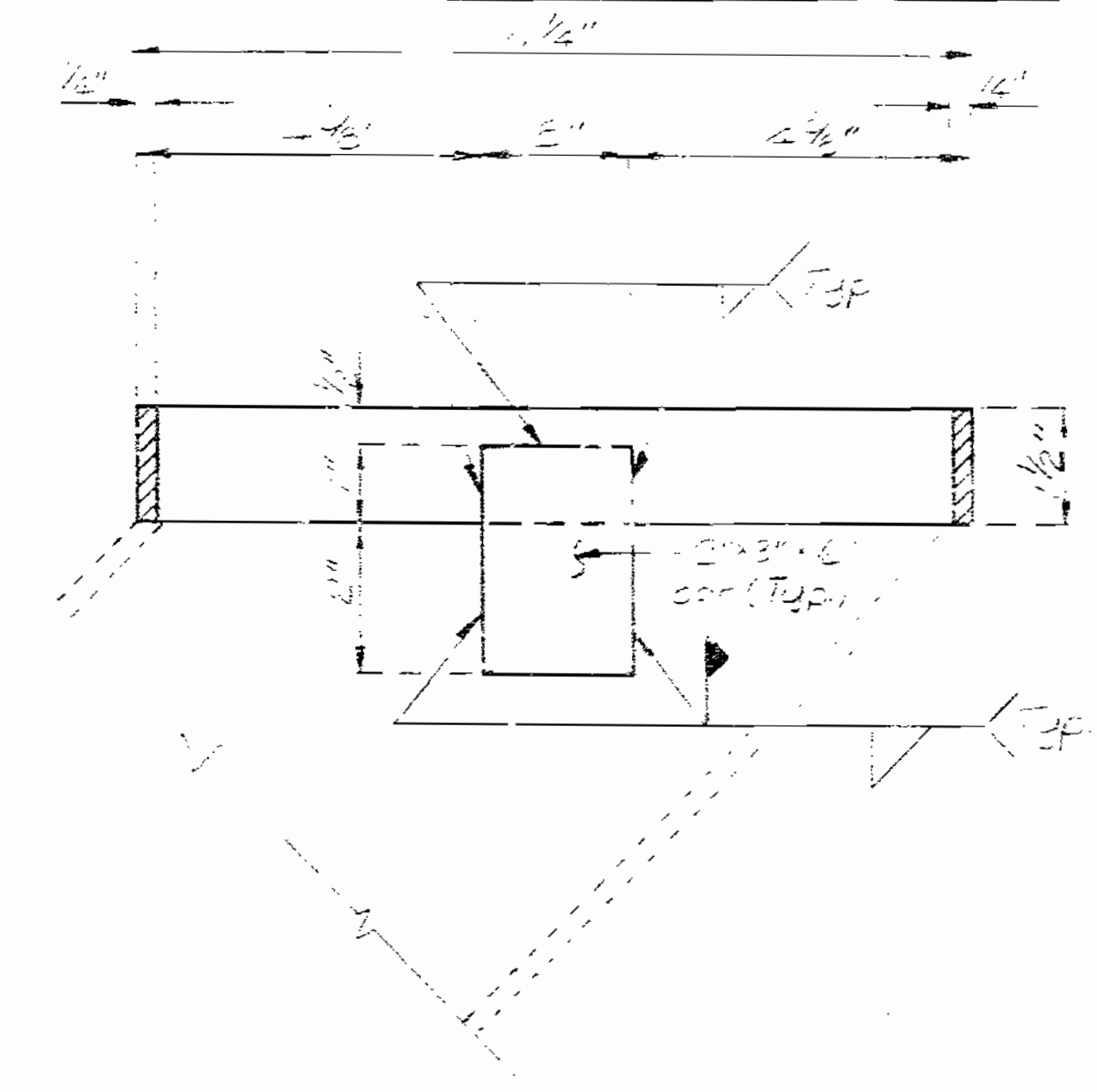
PLAN OF DRAIN EXTENSION "A"



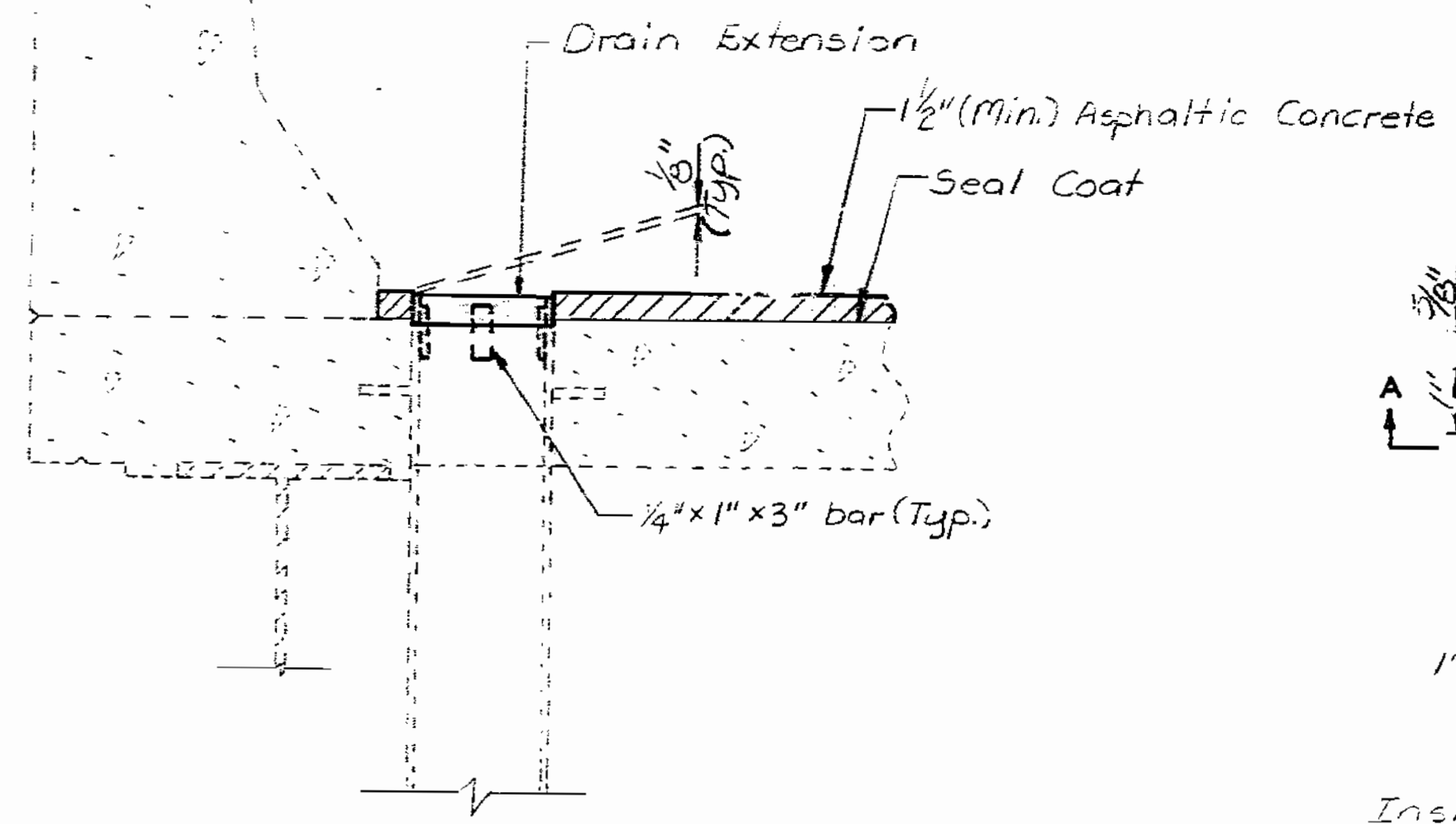
PART PLAN OF SLAB SHOWING DRAIN EXTENSION "A"



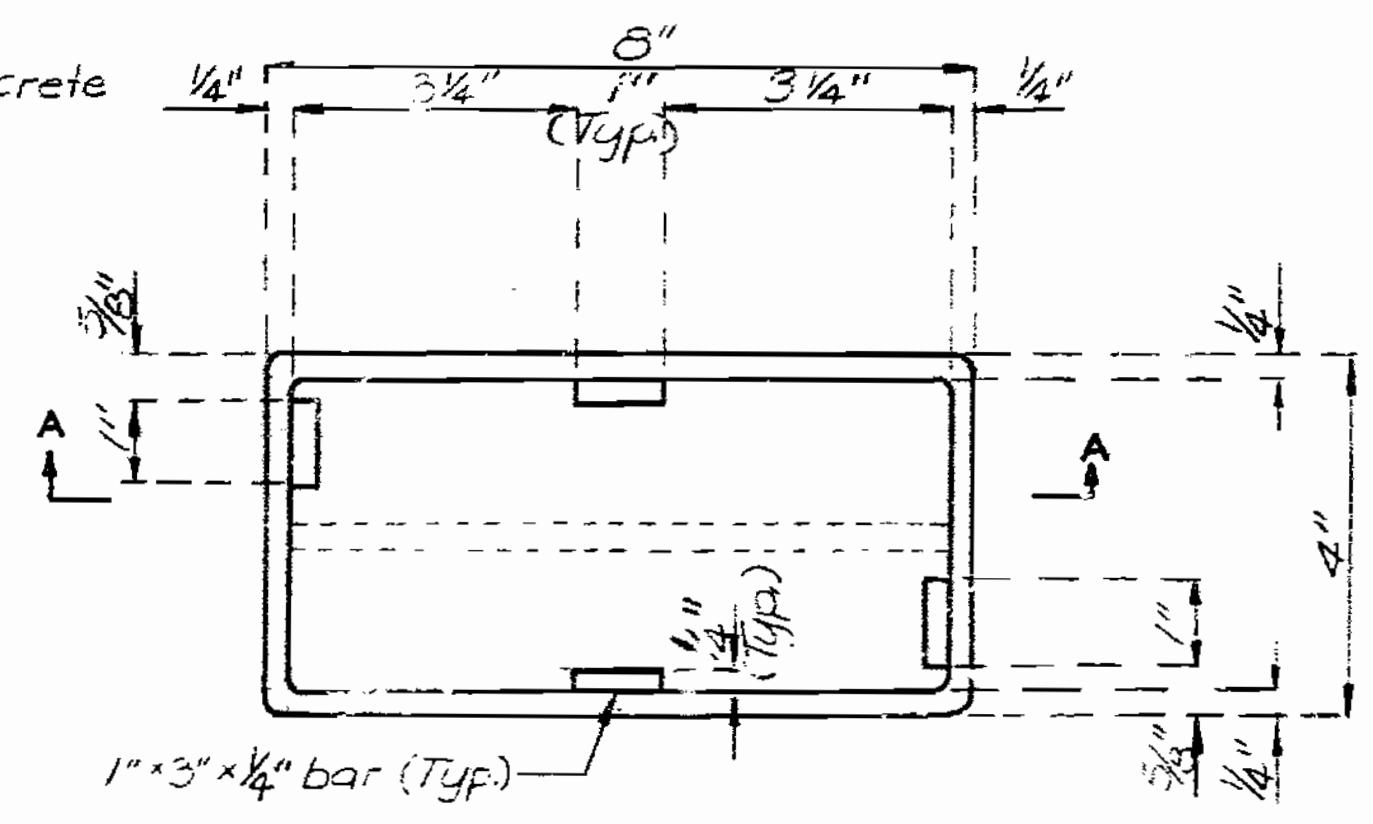
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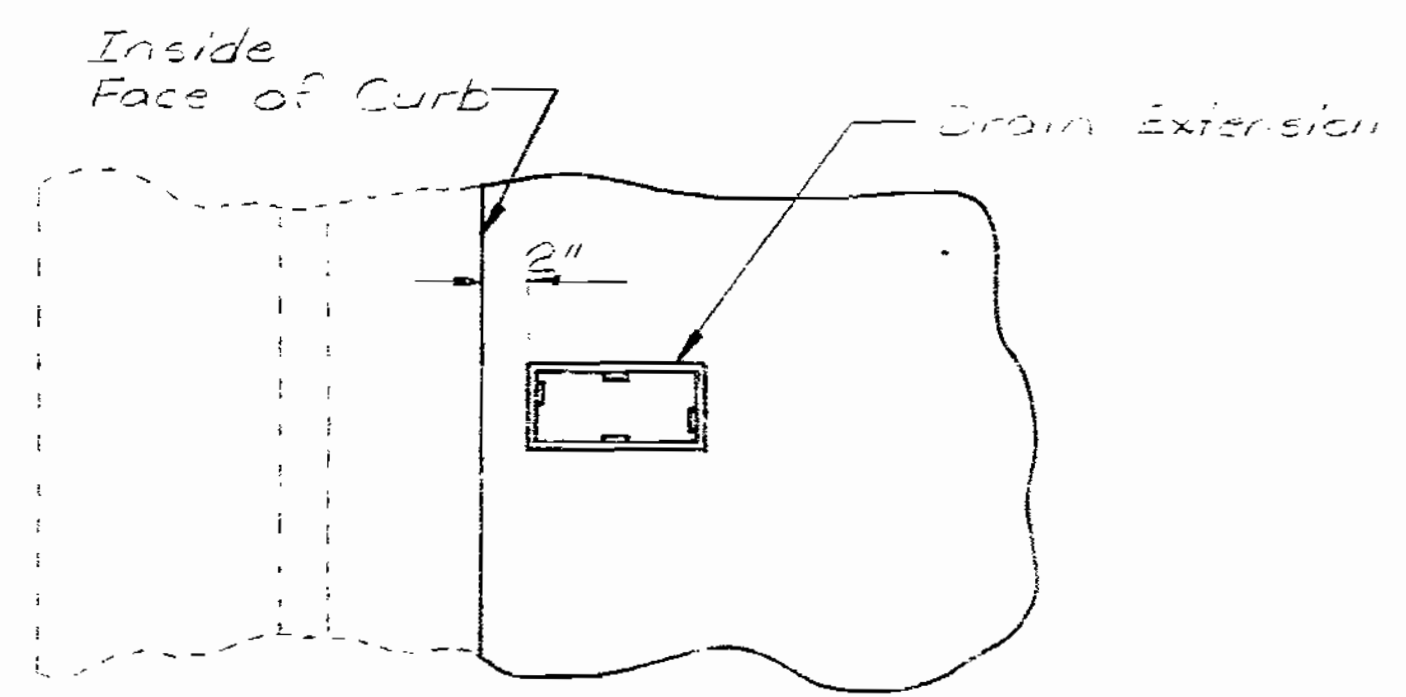
SECTION B-B



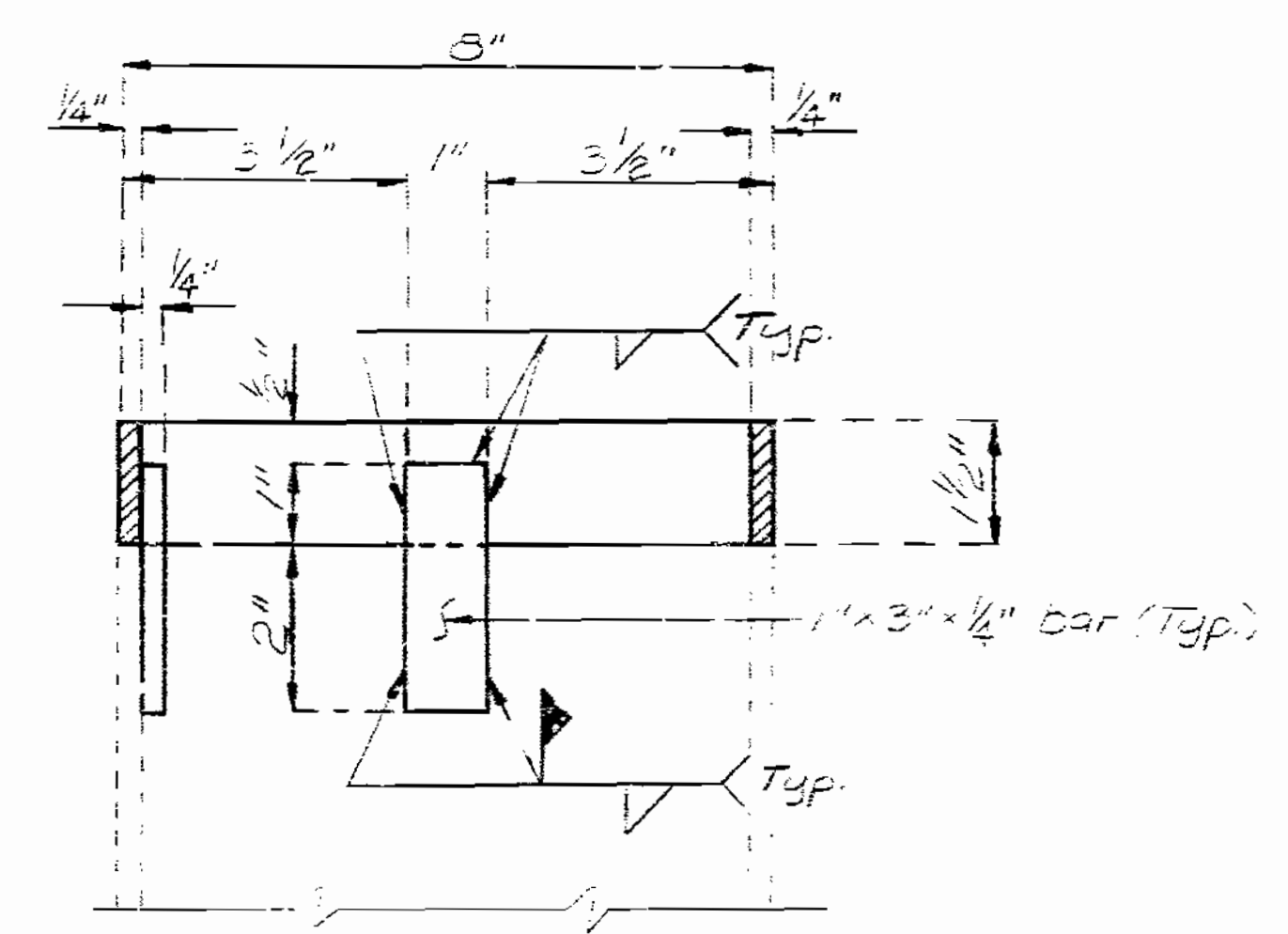
PART SECTION NEAR DRAIN EXTENSION "B"



PLAN OF DRAIN EXTENSION "B"



PART PLAN OF SLAB SHOWING DRAIN EXTENSION "B"



SECTION A-A

**DRAIN EXTENSION NOTES**

Drain Extensions shall be fabricated of either 1/2" Welded Sheets of A.S.T.M. A36 steel or from 1/2" Structural Steel Tubing A.S.T.M. A500 or A501.  
 The drain extensions assembly shall be galvanized in accordance with A.S.T.M. A123.  
 Shop drawings will not be required for drain extensions.

Type "A" Drain Extension: No. Required=45 (Right Side of Curb)  
 Type "B" Drain Extension: No. Required=45 (Left Side of Curb)

337

DETAILED Jan. 1952  
 CHECKED Feb. 1955

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 4

JACKSON COUNTY

L-146R!

SHOP DRAWINGS FOR STEEL STRUCTURE

Jackson COUNTY BRIDGE NO. L-146

PROJECT NO. FI-352 (11) Sec. B (U.S. 40)

INDEX

ERECTION SHEET NOS. E1 THRU \_\_\_\_\_

GENERAL MATERIALS SHEET NOS. 1 THRU 5

BOLT LIST SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

BEARING DETAILS SHEET NOS. 1,1 THRU \_\_\_\_\_

BRIDGE RAILING DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

PAINT DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

BLOCKING DIAGRAM SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

EXPANSION DEVICE DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

SHOP WELDED SPLICE DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

WEB AND FLANGE CUTTING DETAILS SHEETS NOS. \_\_\_\_\_ THRU \_\_\_\_\_

DRAIN DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

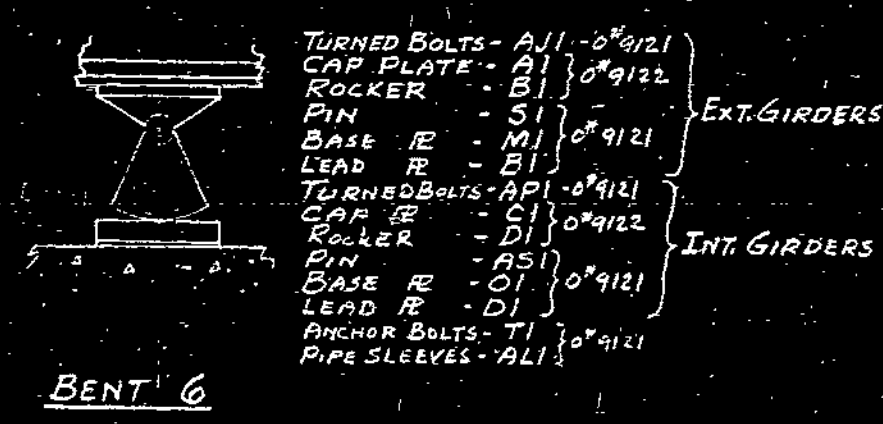
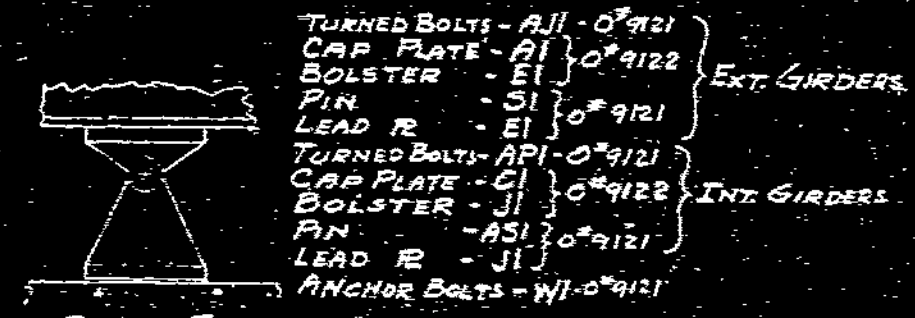
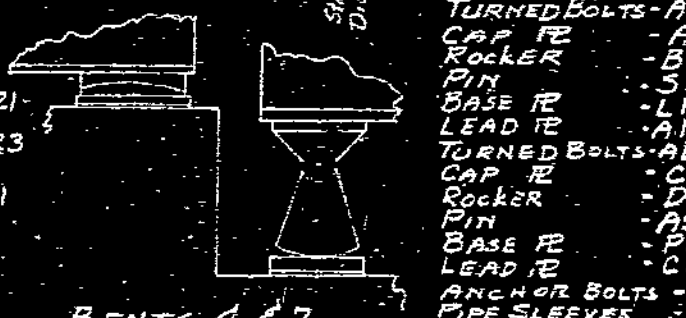
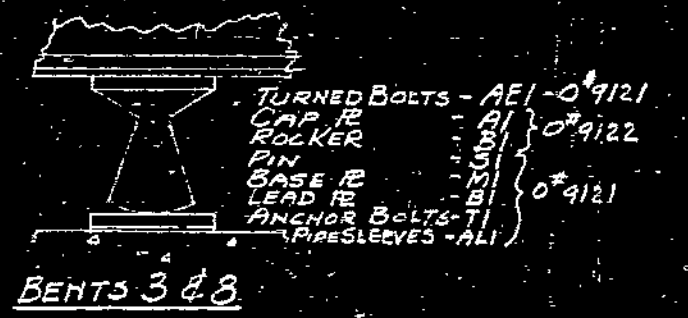
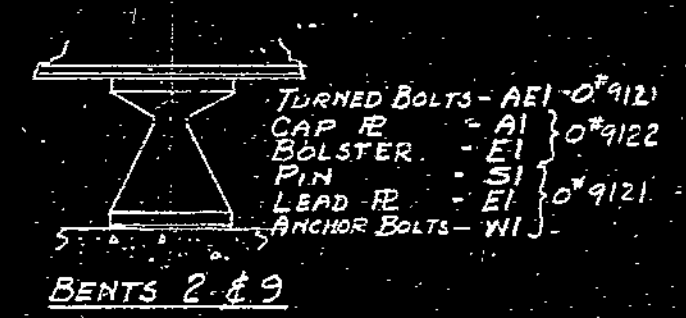
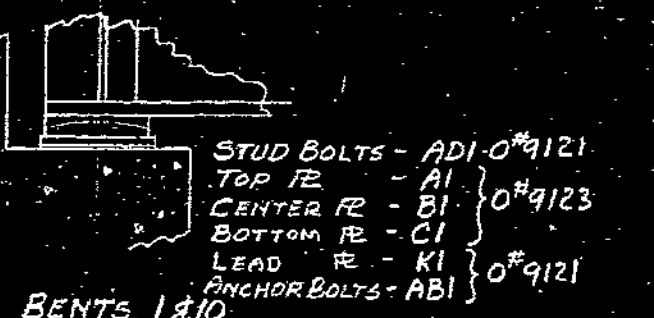
DRAINAGE SYSTEM DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

STEEL GRID FLOORING DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

PEDESTRIAN FENCE DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

168

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
5	Mo.	11-3 (U.S. 40)			



ERECTION AND MATCH MARKING PLAN  
Note: Tops of beams on straight line (No vertical curve).

Field Rivet List

Net	Dia	Grid	Lat	Location
380	1/2"	R	2 3/4	A1-K2-E1-L2-B2-Splice-Flag
64	1/2"	R	2 3/4	- do - do
256	1/2"	R	2 3/4	- do - Web
380	1/2"	R	4	C-R-D-R-D-J-B-Splice-Flag
128	1/2"	R	3 3/4	- do - do
384	1/2"	R	3 3/4	- do - Web
380	1/2"	R	3 3/4	A-E-B3-Splice-Flag
64	1/2"	R	2 3/4	- do - do
256	1/2"	R	2 3/4	- do - Web
448	1/2"	R	4 3/4	C-D-J-B-Splice-Flag
380	1/2"	R	3 3/4	- do - do
384	1/2"	R	3 3/4	- do - Web
144	3/8"	R	2 3/4	A4
72	3/8"	R	2 3/4	B4
72	3/8"	R	2 3/4	D4
24	3/8"	R	2 3/4	C4

Field Rivet List

Net	Dia	Grid	Lat	Location
24	3/8"	R	2 3/4	C4
24	3/8"	R	2 3/4	M4
72	3/8"	R	2 3/4	K-L4
216	3/8"	R	3	E4
216	3/8"	R	3	E4
144	3/8"	R	2 3/4	J4
144	3/8"	R	2 3/4	J4
48	3/8"	R	2 3/4	A5
24	3/8"	R	2 3/4	B5
24	3/8"	R	2 3/4	B5

ERECTION PLAN  
BRIDGE OVER SNI-A-BAR CREEK  
PROJECT No. FI-352 (11) SEC. B (U.S. 40) STA. 1049+50  
JACKSON COUNTY, MO.

DESIGNED BY: *[Signature]*  
DATE: 10-20-1949  
SCALE: AS SHOWN

REVISIONS

APPROVED: *[Signature]*

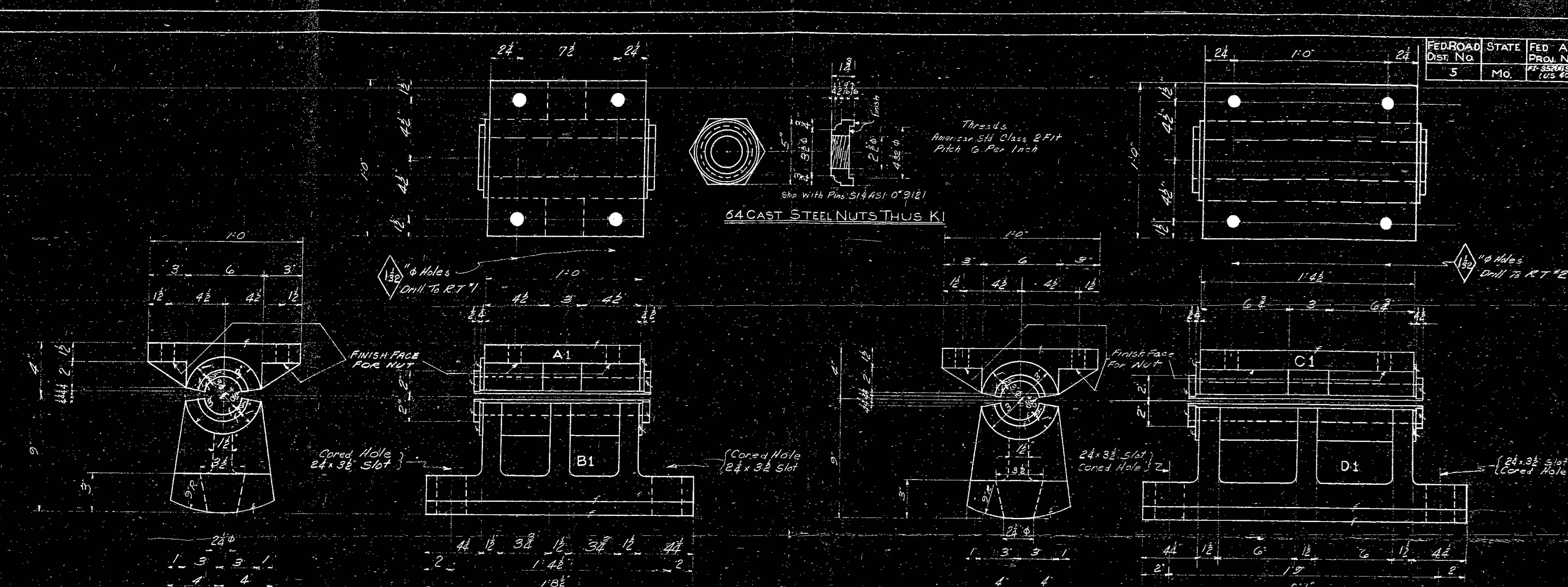
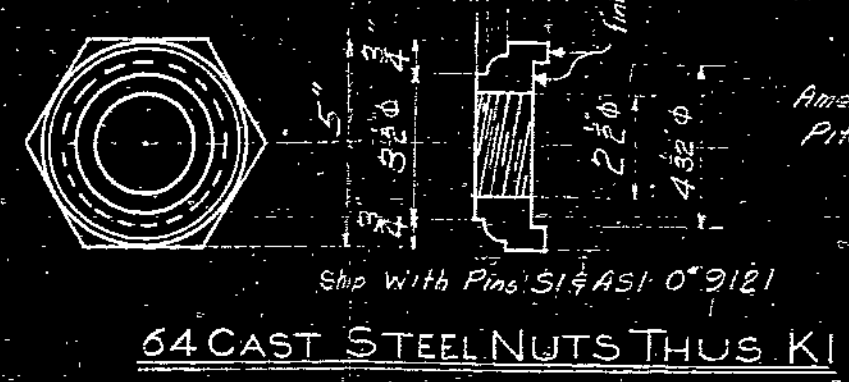
UNLESS NOTED OTHERWISE, ALL MATERIALS SHALL BE AS SHOWN ON DRAWINGS.

KANSAS CITY STRUCTURAL STEEL CO.

169

12/10

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	AP-330-105 (US 49)	19		



24 CAST STEEL CAPS THUS A1  
4 CAST STEEL ROCKERS THUS B1

4 FOR EXT. STR. PIERS No. 4 & 7  
10 FOR BENTS No. 3 & 8, & EXT. STR. PIER No. 6  
10 d. d. No. 2 & 9, & d. d. No. 5  
4 FOR EXT. STR. PIERS No. 4 & 7  
10 d. d. d. d. No. 6, & BENTS No. 3 & 8

6 CAST STEEL CAPS THUS C1  
6 CAST STEEL ROCKERS THUS D1

4 FOR PIERS No. 4 & 7  
2 d. d. No. 6  
2 FOR d. d. No. 5  
4 FOR PIERS No. 4 & 7  
2 d. d. No. 6

**NOTE**  
ROCKERS SHALL BE SUFFICIENTLY TRUE TO FORM THAT THEY WILL FIT MACHINED GROOVES OF PINS WITHOUT BINDING. NO MACHINING OR GRINDING OF ROCKERS WILL BE PERMITTED THAT WILL REDUCE THE BEARING SURFACES ON THE PINS TO LESS THAN THOSE INDICATED.

ALL STEEL CASTINGS SHALL BE GRADE B1, FULLY ANNEALED.  
ALL FILLETS SHALL HAVE 3/4" RADIUS.

**PAINT NOTE**  
ALL FINISHED SURFACES SHALL BE PAINTED ONE COAT WHITE LEAD AND TALLOW

BEARING DEVICES  
BRIDGE OVER SNI-A-BAR CREEK  
PROJECT No. FI-352(II) SEC. B (U.S. 40) STA. 1049+5.0  
JACKSON COUNTY MO.

9122 ONE

**KANSAS CITY STRUCTURAL STEEL CO.**

DATE 10-12-42

170

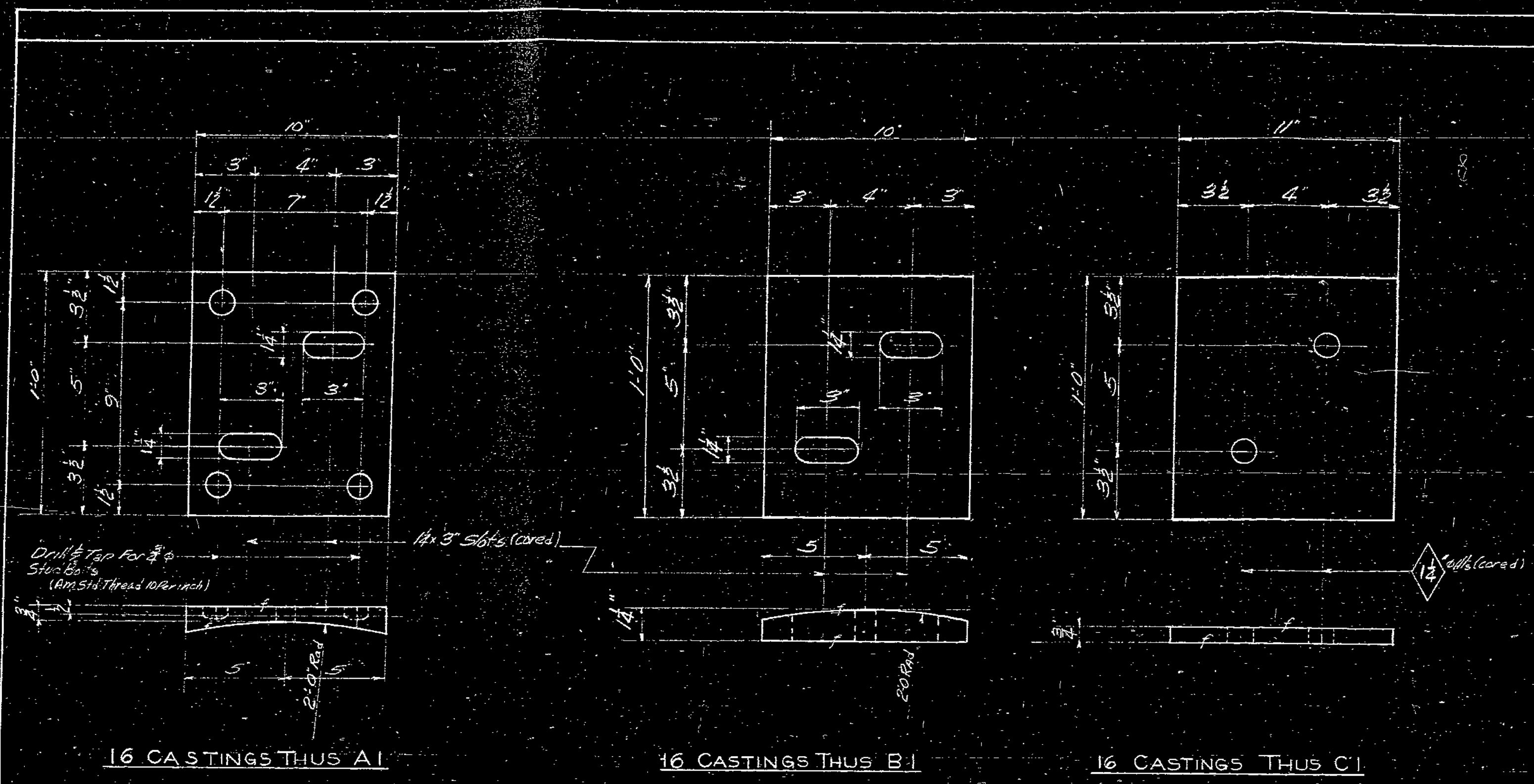
9122 ONE

10 CAST STEEL SHOES THUS E1 {BENTS No. 2 & 9, & EXT. STR. PIER No. 5

2 CAST STEEL SHOES THUS J1 PIER No. 5

DATE	REVISIONS	DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FIS. CAL. YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FI-352(11) SEC. B(US 40) STA. 1049+50	19		



16 CASTINGS THUS A

16 CASTINGS THUS B

16 CASTINGS THUS C

**NOTE**  
 CASTINGS TO BE GRAY IRON ALLOY.  
 ALL FINISHED SURFACES TO BE PAINTED ONE COAT OF WHITE LEAD & TALLOW

*Bought on Reg. #8950  
 Ship with O 9121*

BEARING CASTINGS  
 BRIDGE OVER SNI-A-BAR CREEK  
 PROJECT NO. FI-352(11) SEC. B(US 40) STA. 1049+50  
 JACKSON COUNTY, MO.

9123	ONE
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**EMERGENCY SUPPLY**

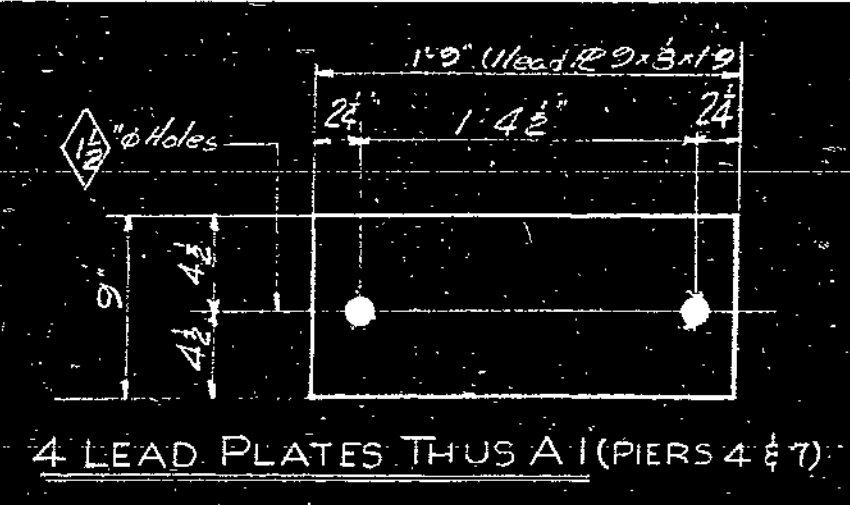
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 APPROVED: [Signature]

11

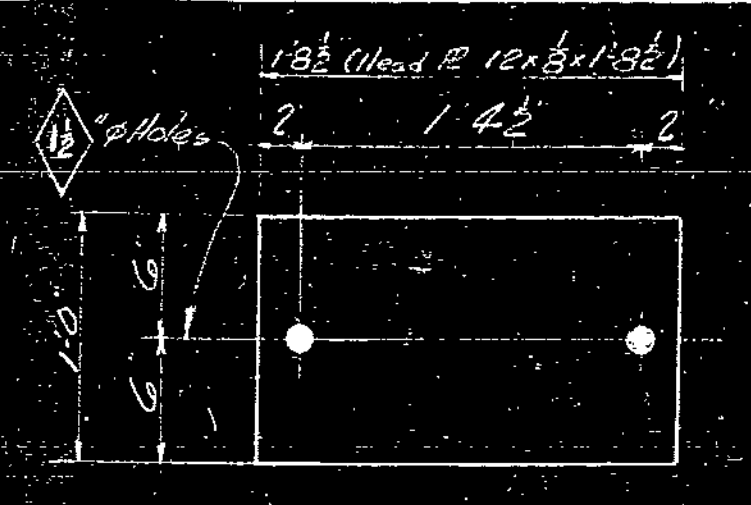
9/23  
 ONE

DATE	REVISIONS	BY

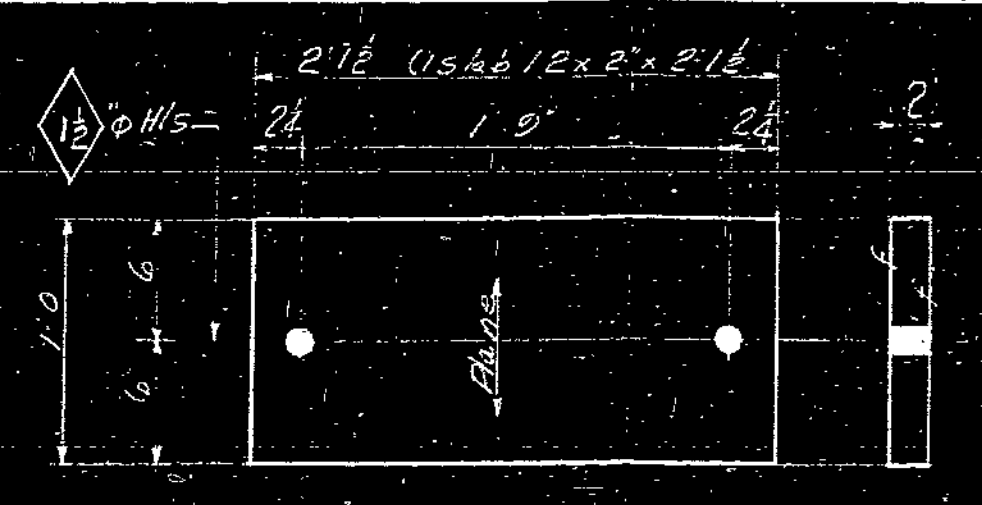
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5	Mo.	115-15-4	19		



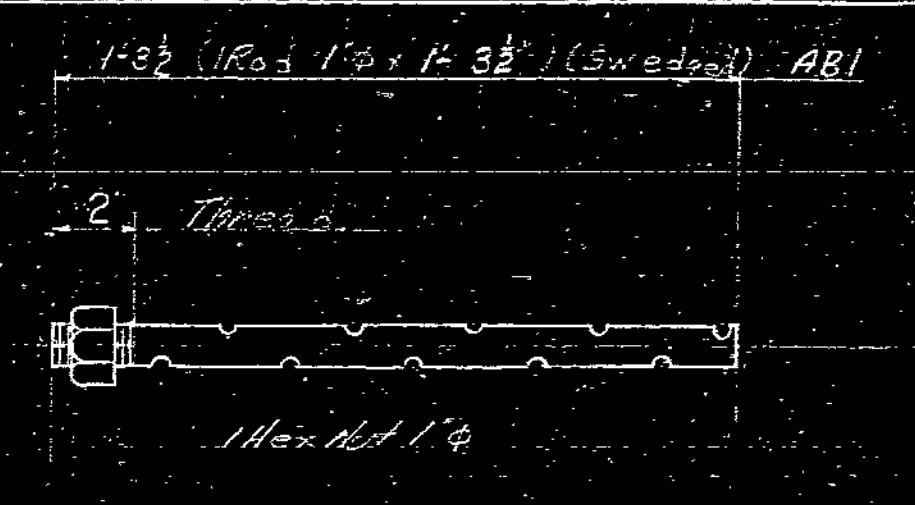
4 LEAD PLATES THUS A (PIERS 4 & 7)



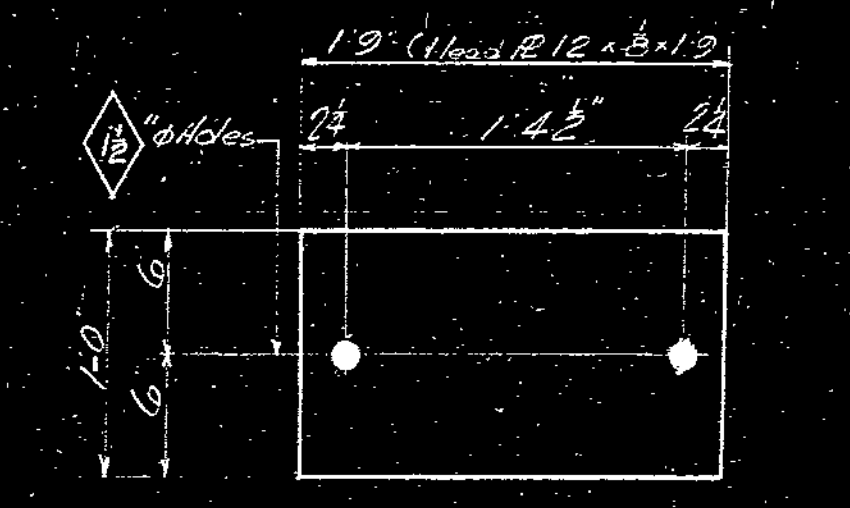
10 LEAD PLATES THUS E



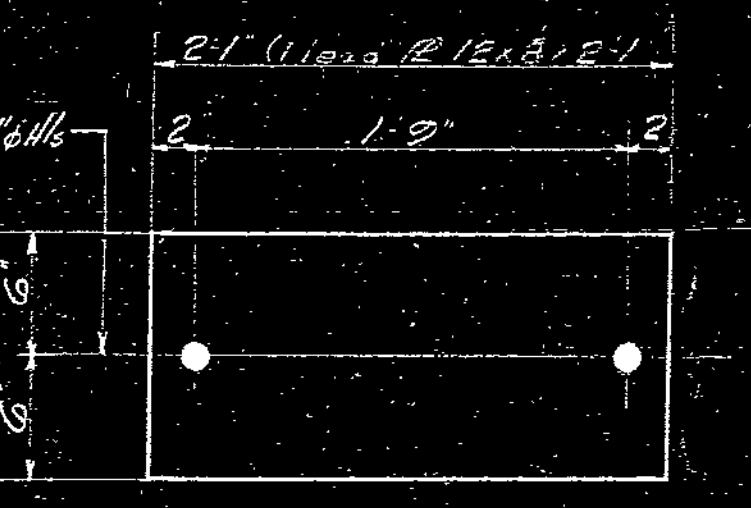
2 SLABS THUS O



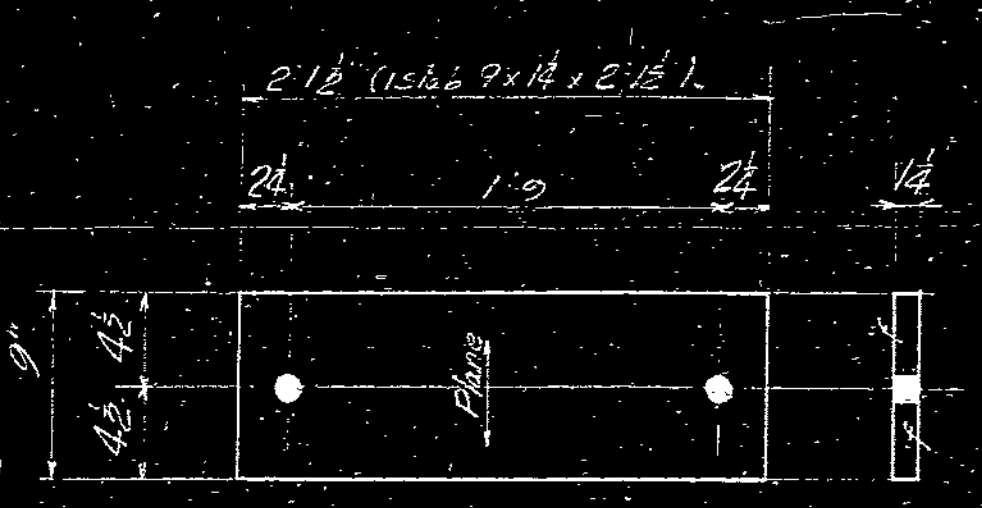
32 ANCHOR BOLTS THUS AS NOTED A B I



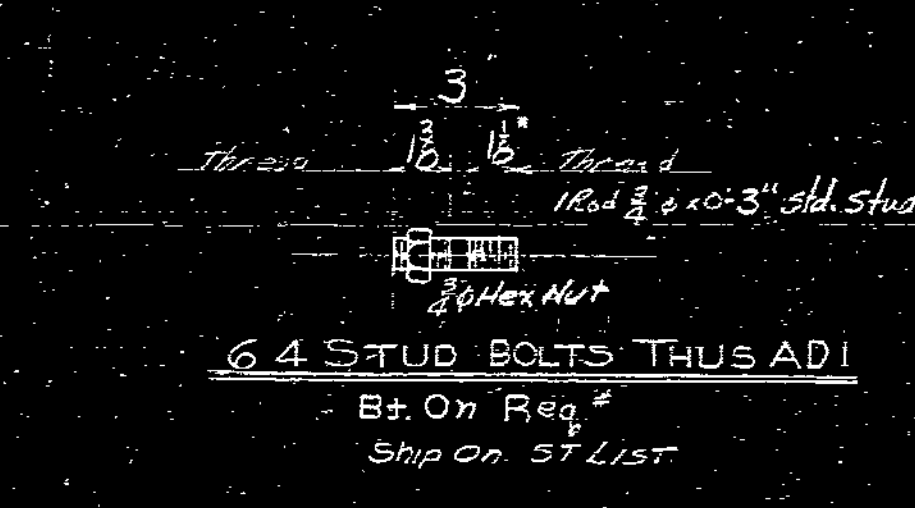
10 LEAD PLATES THUS B



2 LEAD PLATES THUS J

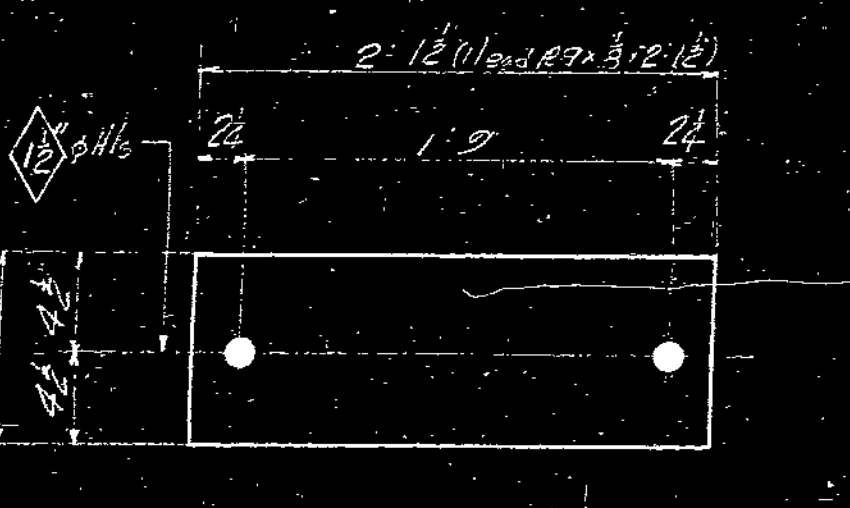


4 SLABS THUS P

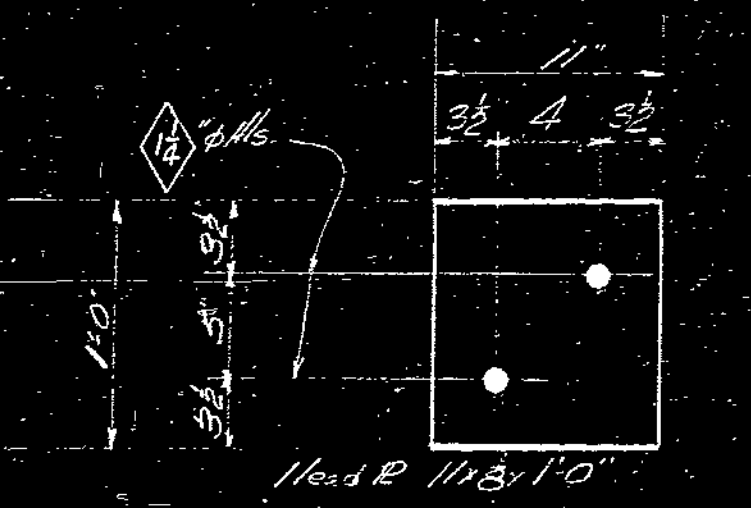


64 STUD BOLTS THUS A  
B+ On Req.  
Ship on SLIST

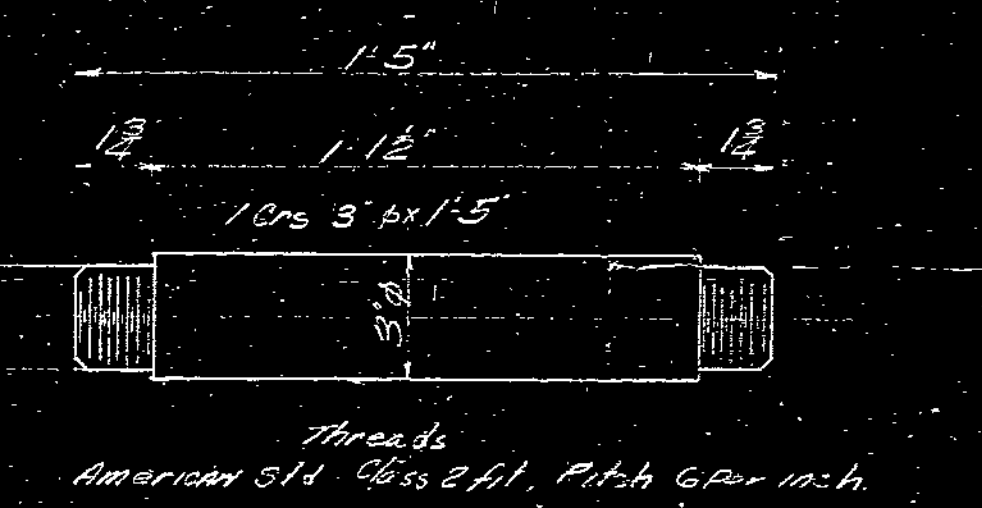
64 WASHERS THUS- AMI  
1/2" thick R.F.



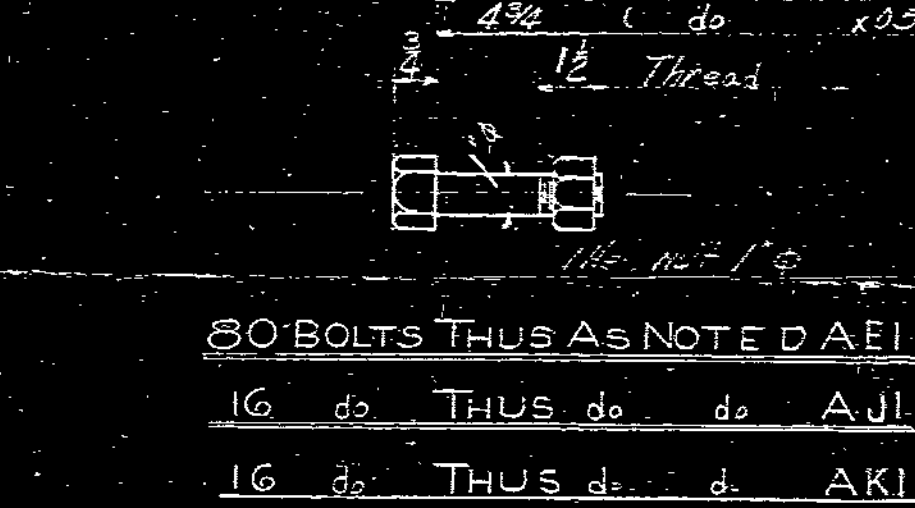
4 LEAD PLATES THUS C



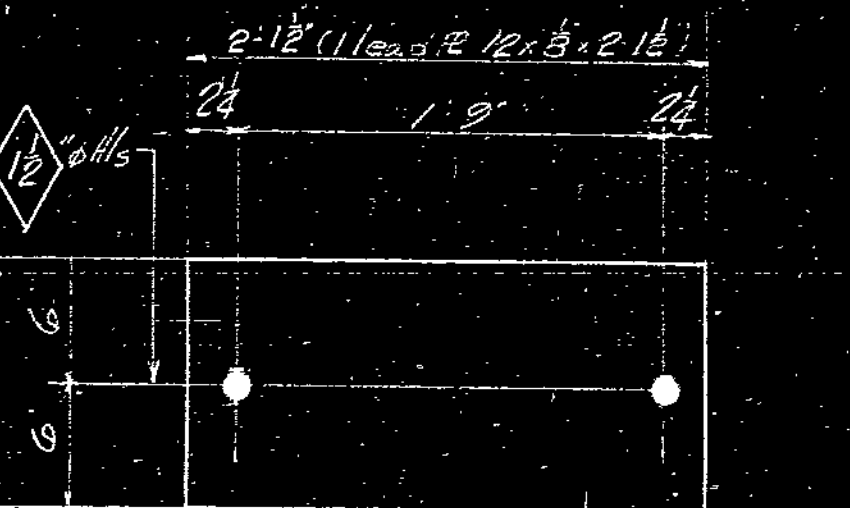
16 LEAD PLATES THUS K



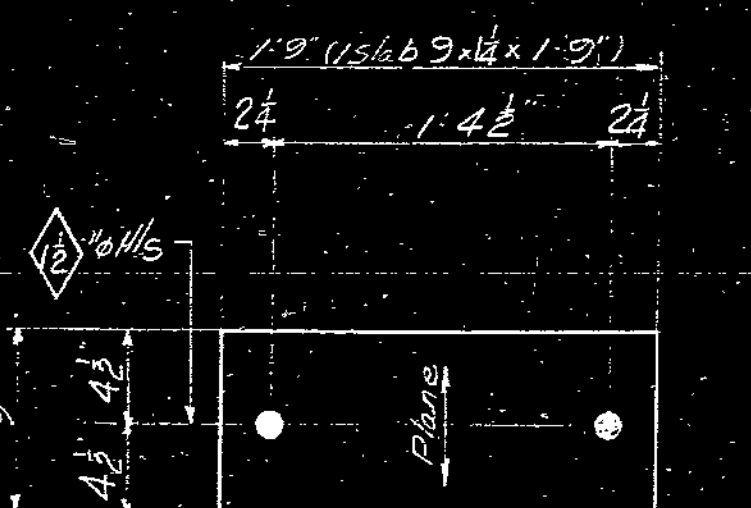
24 PINS THUS S



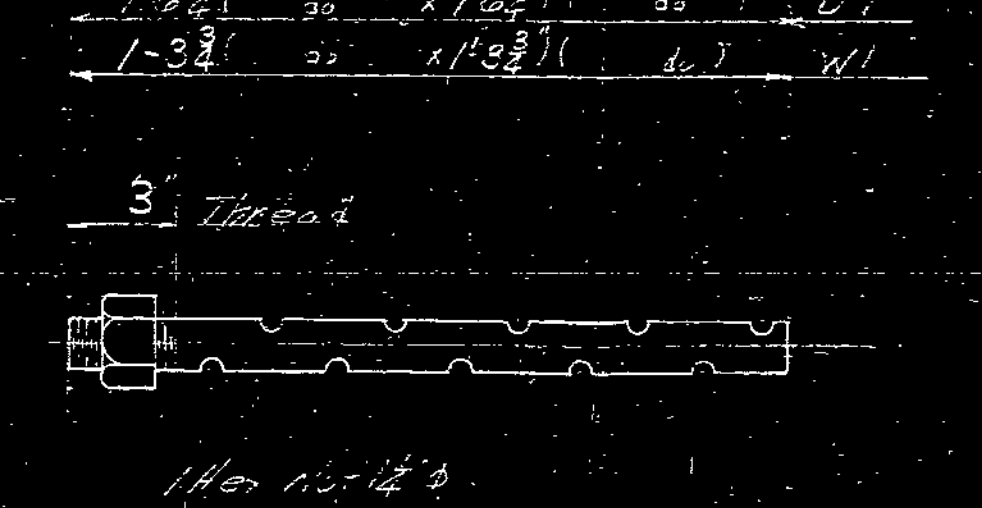
60 BOLTS THUS AS NOTE D A E I  
16 do THUS do do A U I  
16 do THUS do do A K I  
16 do THUS do do A P I



2 LEAD PLATES THUS D

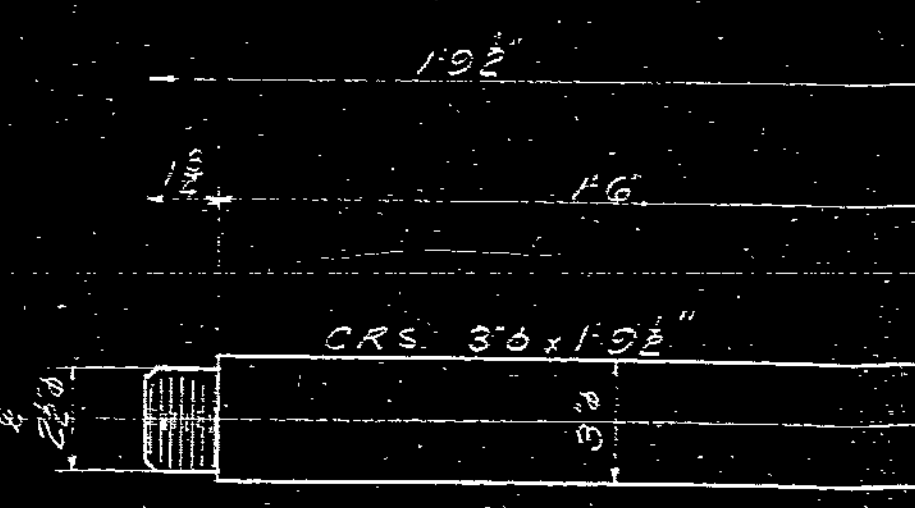


4 SLABS THUS L



24 ANCHOR BOLTS THUS AS NOTED T I

- 16 do do THUS do do U I
- 24 do do THUS do do W I



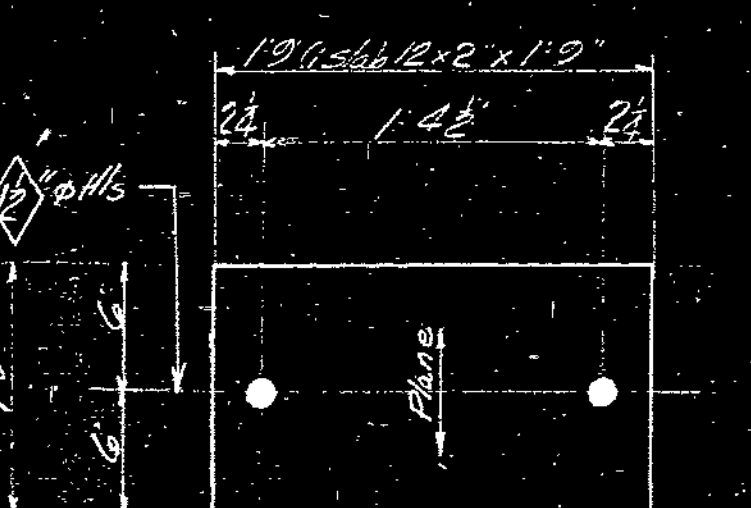
8 PINS THUS A S I

PLAIN MATERIAL  
40 Pins 1 1/2" x 1 1/2" x 1 1/2" A L I

NOTE  
ALL FINISHED SURFACES TO BE PAINTED ONE COAT WHITE LEAD ETALLOW

172

9121 ONE



10 SLABS THUS M

BEARING DEVICES  
BRIDGE OVER SNI-A-BAR CREEK  
PROJECT NO. FI-352(1) SEC. B (US40) STA. 1049 +50  
JACKSON COUNTY MO.

INVEST. Name: \_\_\_\_\_ UNLESS NOTED  
POLAR As Noted UNLESS NOTED  
REPAIR PARTS None Except  
As Noted  
DATE THIS DRAWING MADE ONE COPY  
DATE THIS DRAWING MADE ONE COPY

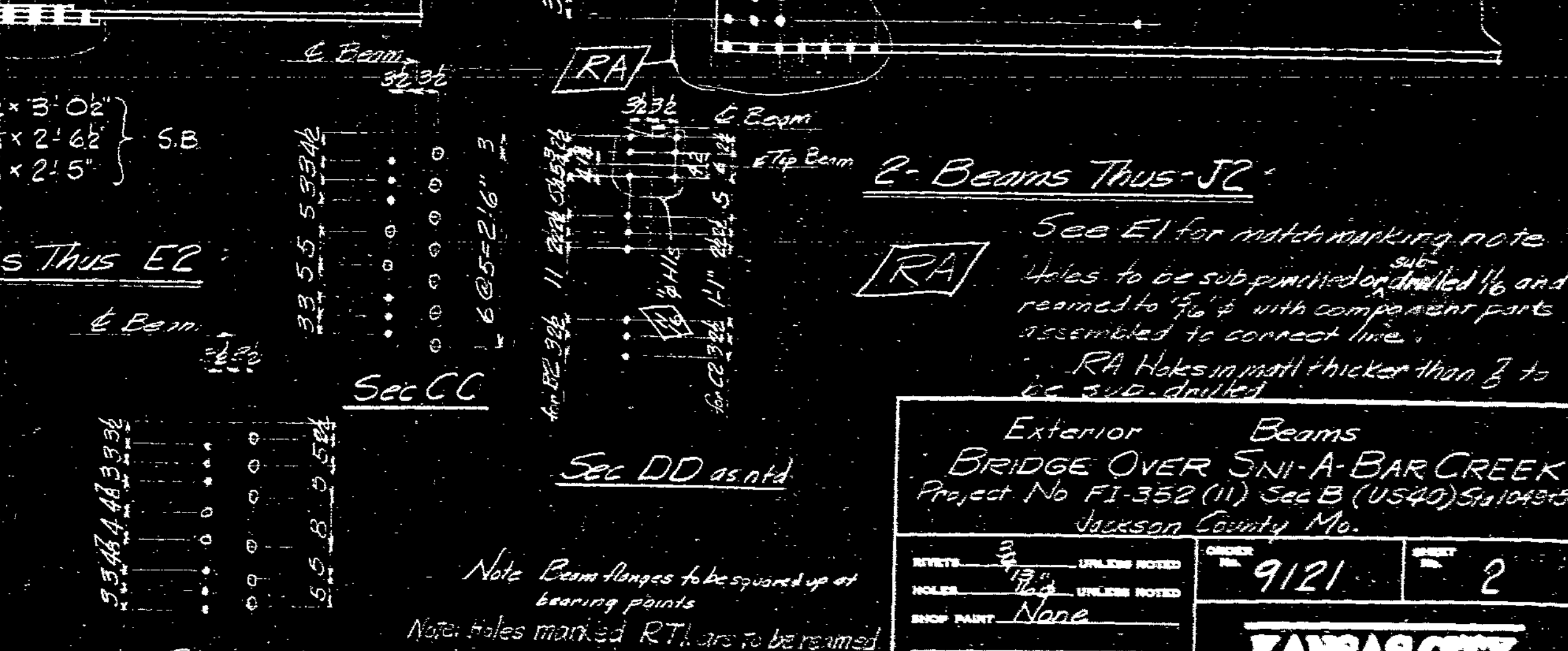
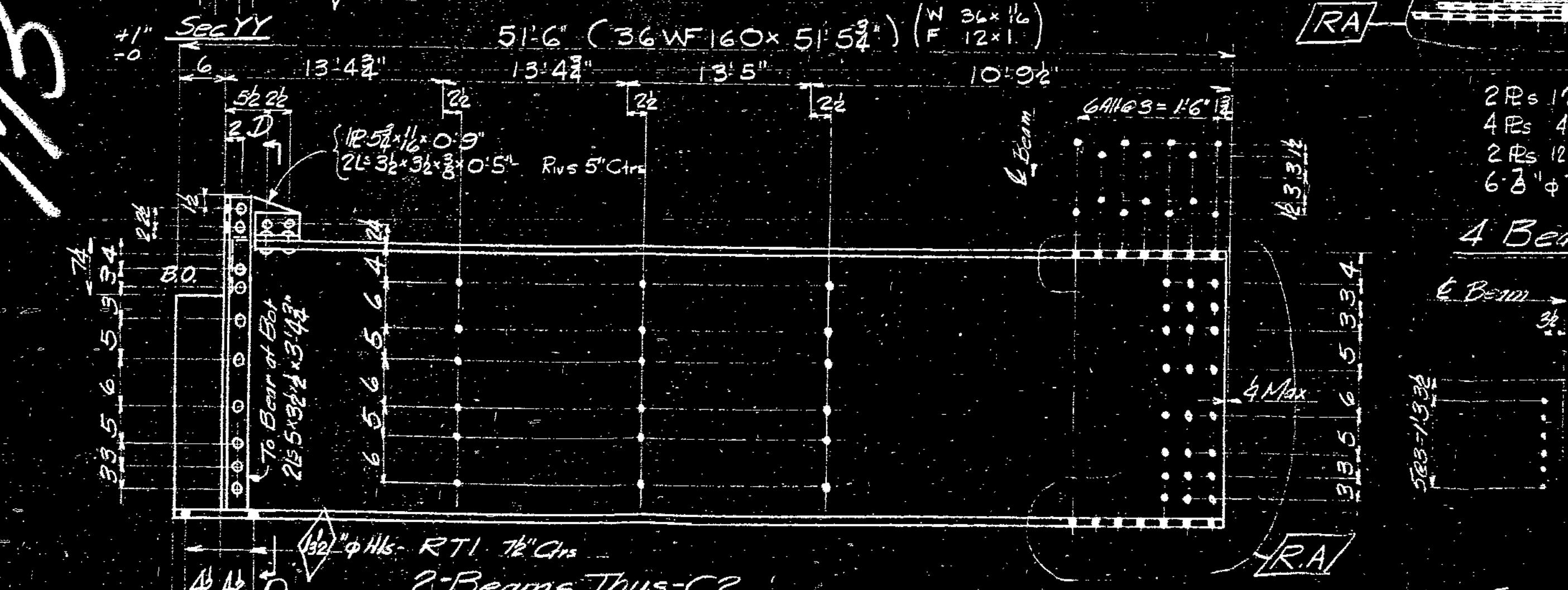
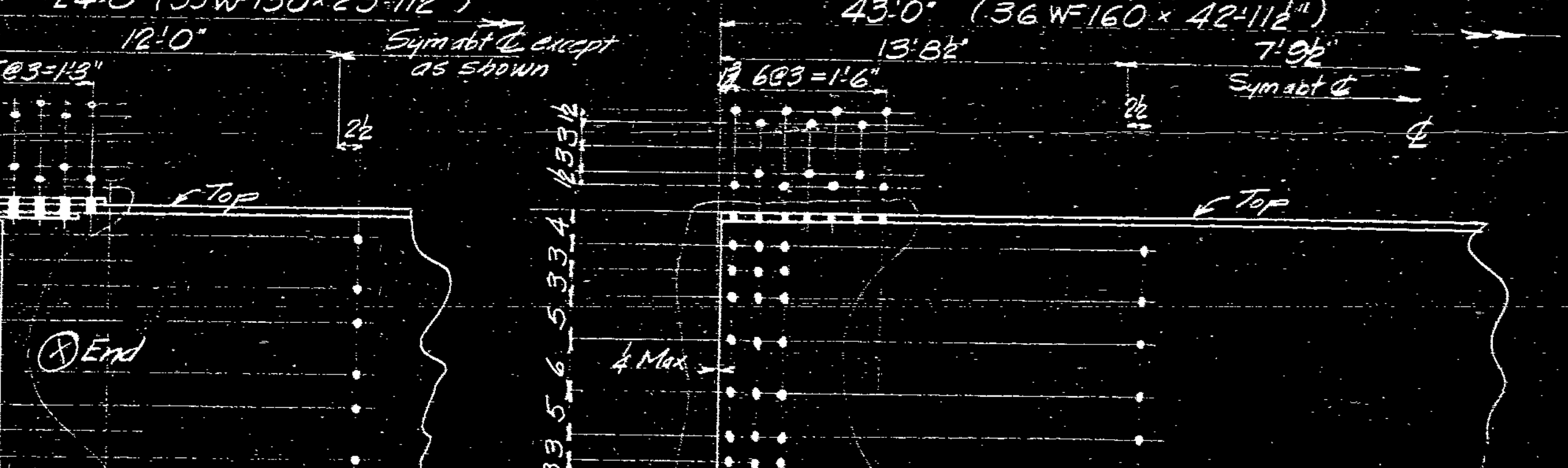
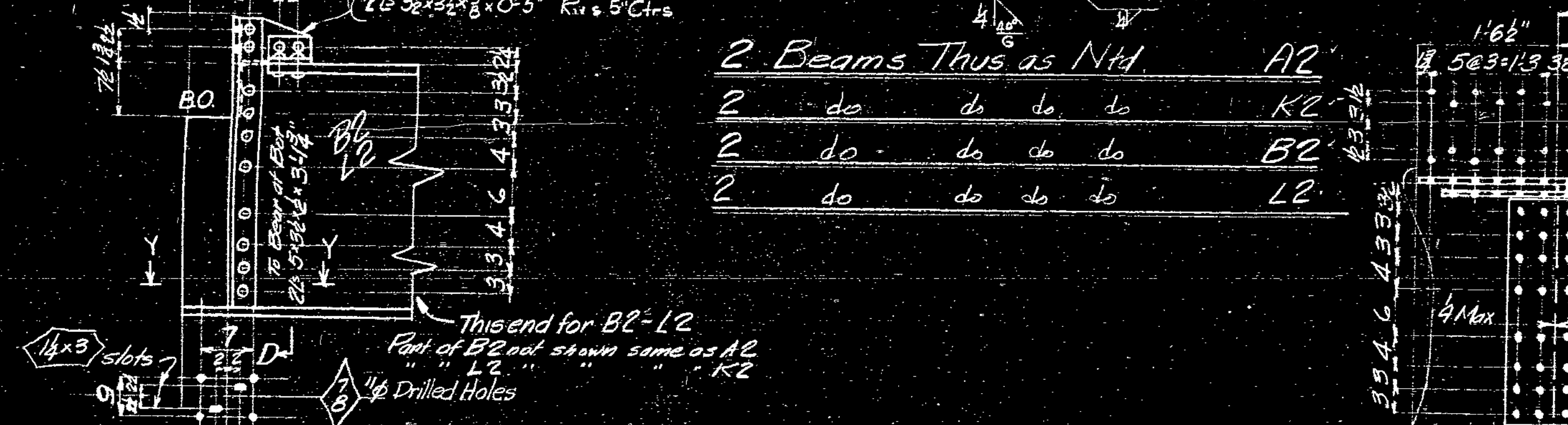
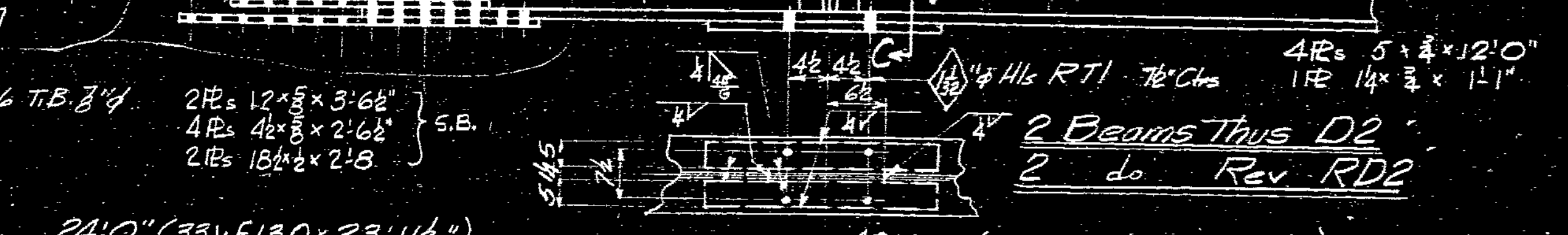
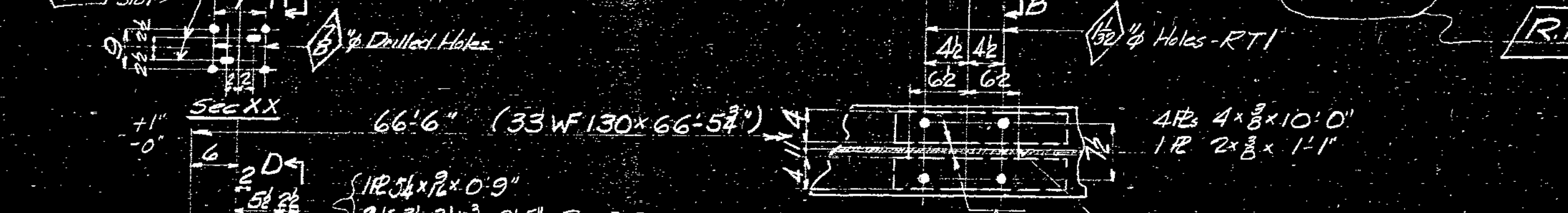
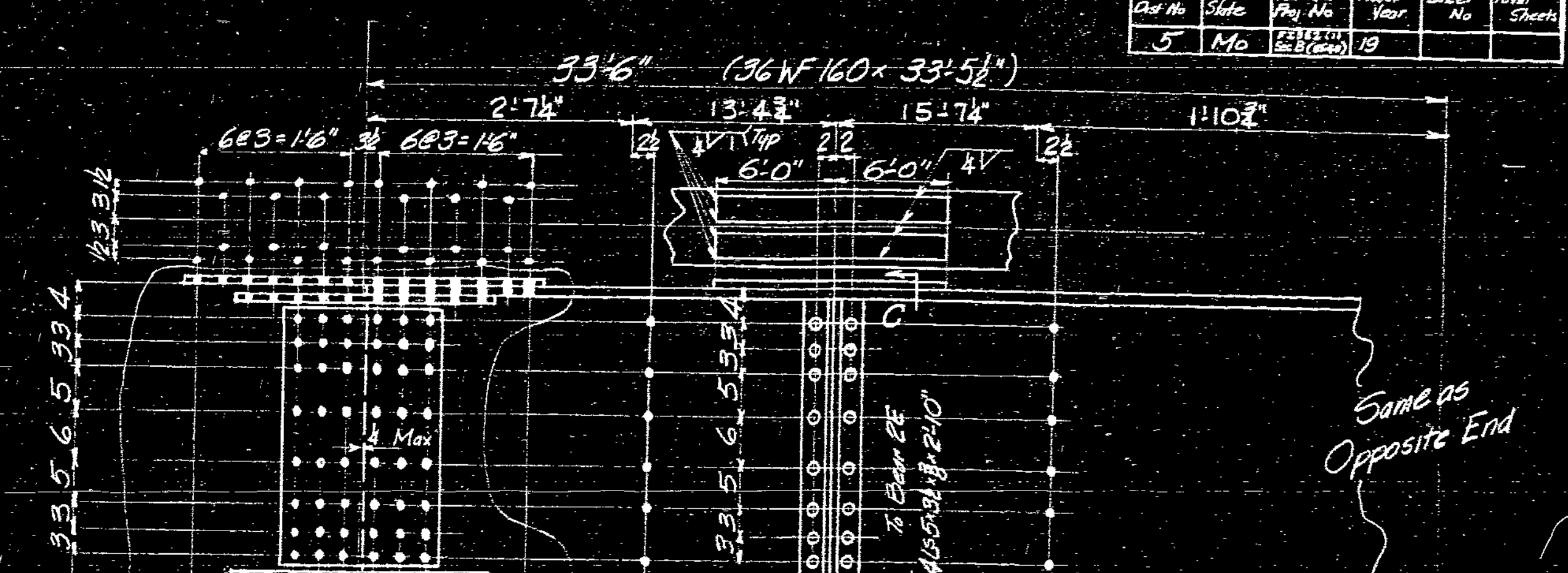
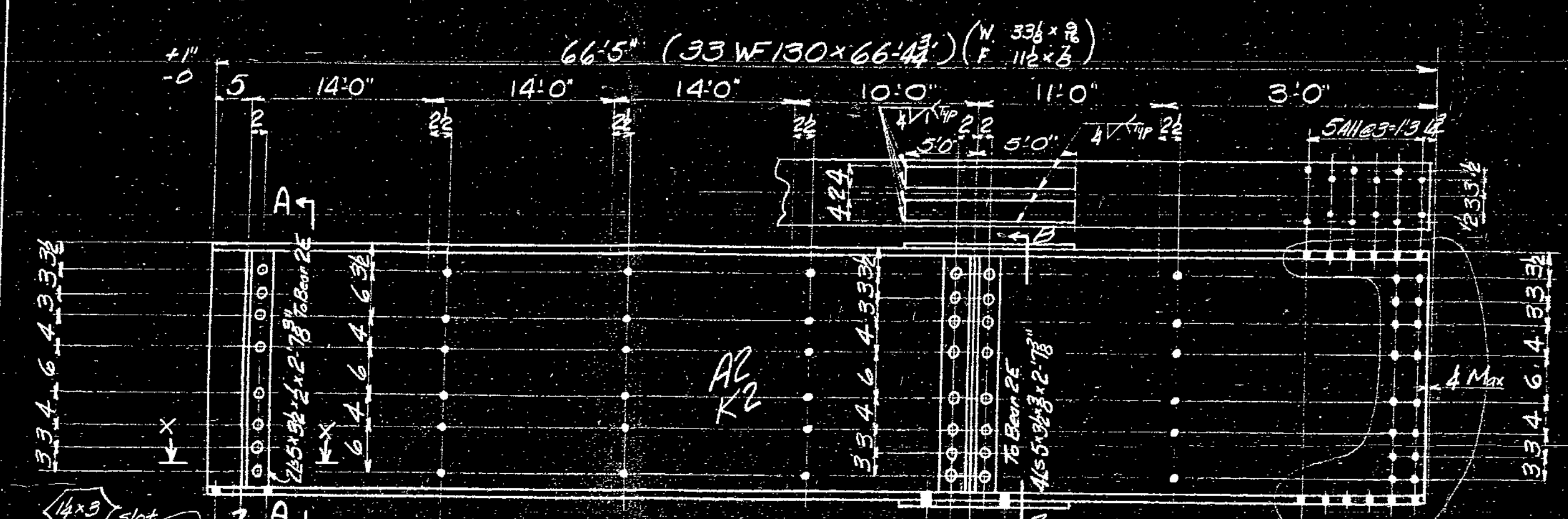
DRAWN BY: Vandover  
CHECKED BY: AMI  
DATE: 10-19-38  
ROAD LEGEND: A.M. 4

9121 ONE

KANSAS CITY STRUCTURAL STEEL CO.

DATE	REVISIONS	BY

Proj. No.	Site	Proj. No.	Year	Sheet No.	Total Sheets
5	Mo	9121	19		



See E1 for match marking note  
 holes to be sub finished or drilled 1/8 and  
 reamed to 7/8" with component parts  
 assembled to connect line.  
 RA Holes in mat thicker than 3/4 to  
 be sub-drilled.

Exterior Beams  
 BRIDGE OVER SNI-A-BAR CREEK  
 Project No FI-352 (11) Sec B (US40) S1045-59  
 Jackson County Mo.

9121	2
9121	2
KANSAS CITY STEEL CO.	

Note Beam slumps to be squared up at  
 bearing points  
 Note holes marked RTI are to be reamed  
 to reaming template.

DATE	REVISIONS	DATE	APPROVED

Drawn by [Signature]

Proj. No.	State	Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	MO	FT 352 (11) Sec B (149)	19		



or subdrilled  
 [RA] Holes to be sub-punched 1/8" and reamed to 3/4" with component parts assembled to correct line. Material over 3/8" to be sub-drilled. See E1 for match-marking.

Interior Beams  
 BRIDGE OVER SNI-A-BAR CREEK  
 Project No. FT 352 (11) Sec B (149) S/A RA9+50  
 Jackson County Missouri

9121 3



DATE: 9/27/1999  
 DRAWN BY: J. Patton  
 CHECKED BY: J. Patton  
 APPROVED BY: J. Patton

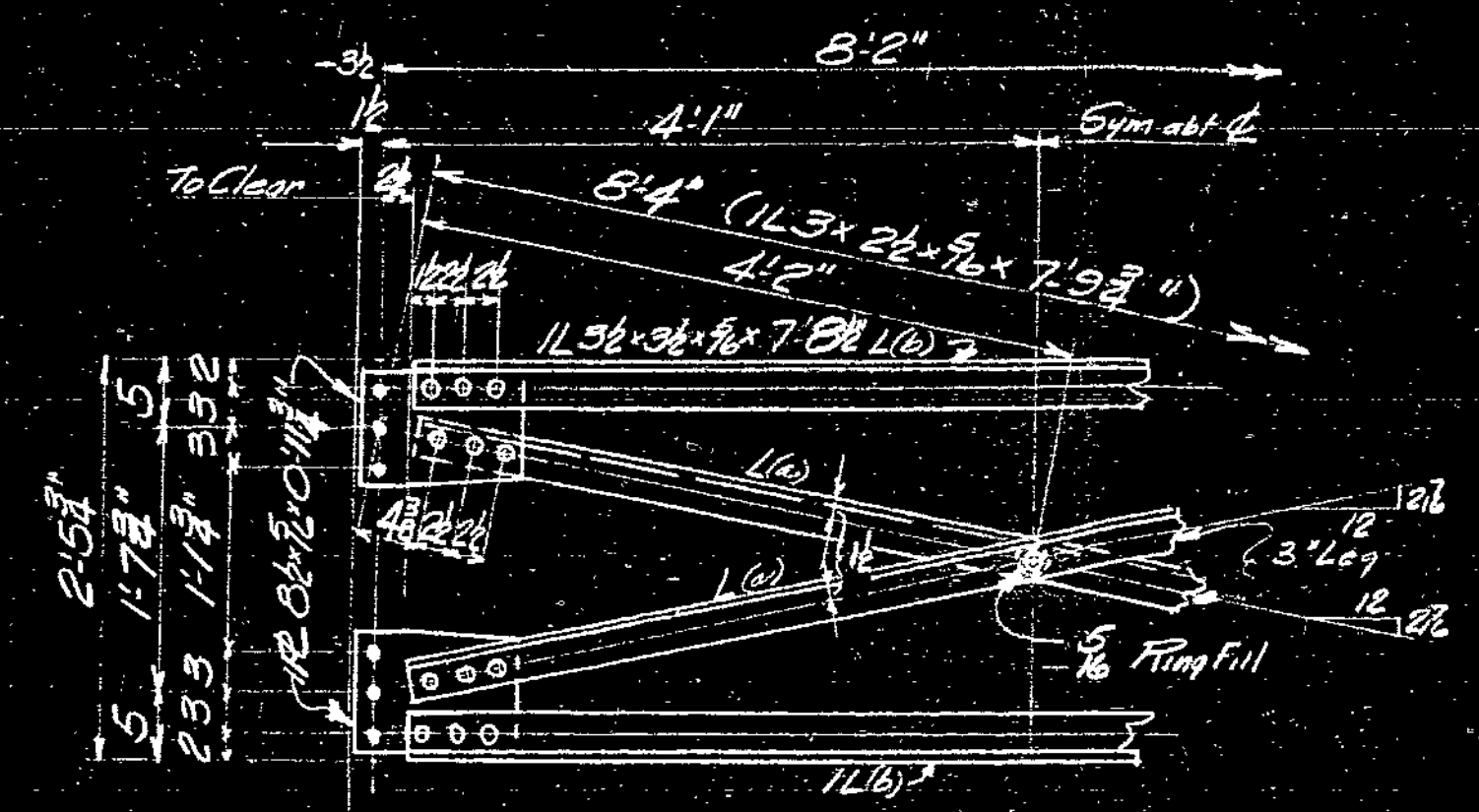
Note: Holes marked RT1 & RT2 are to be reamed to reaming templates.

DATE	REVISIONS	BY	CHKD

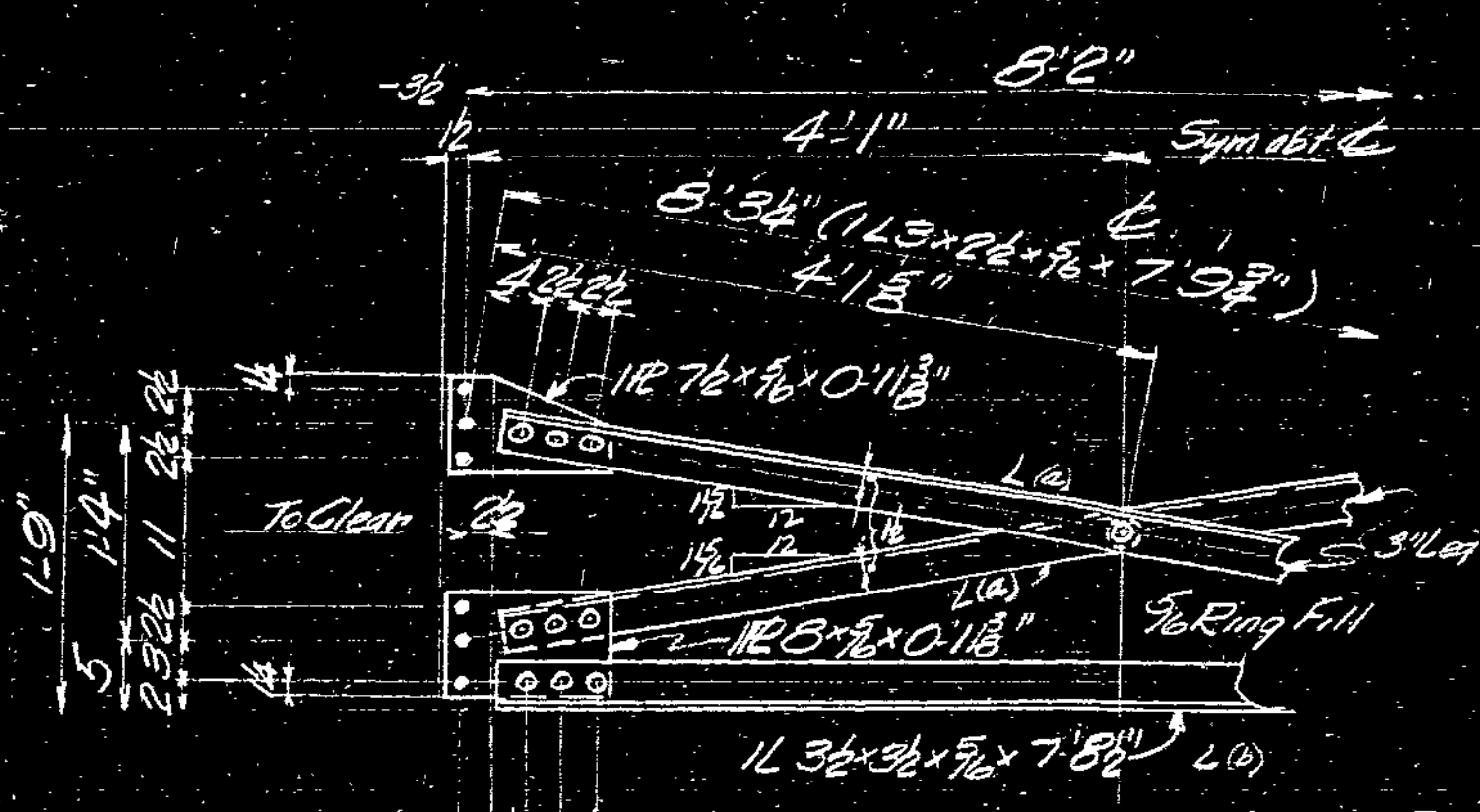
Drawn by J. Patton



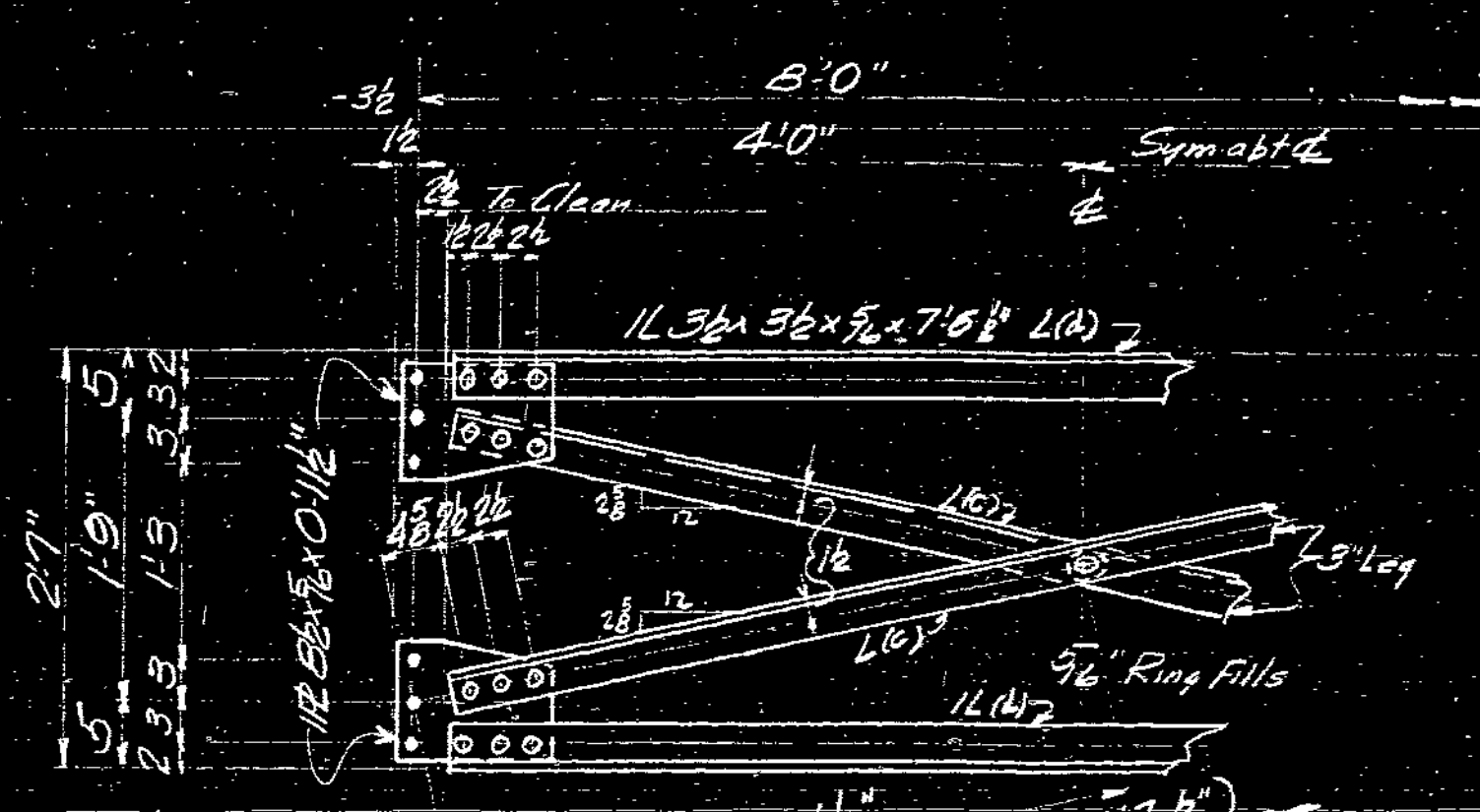
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5	Mo.	FI 352(II) Sec B (US 40)	19		



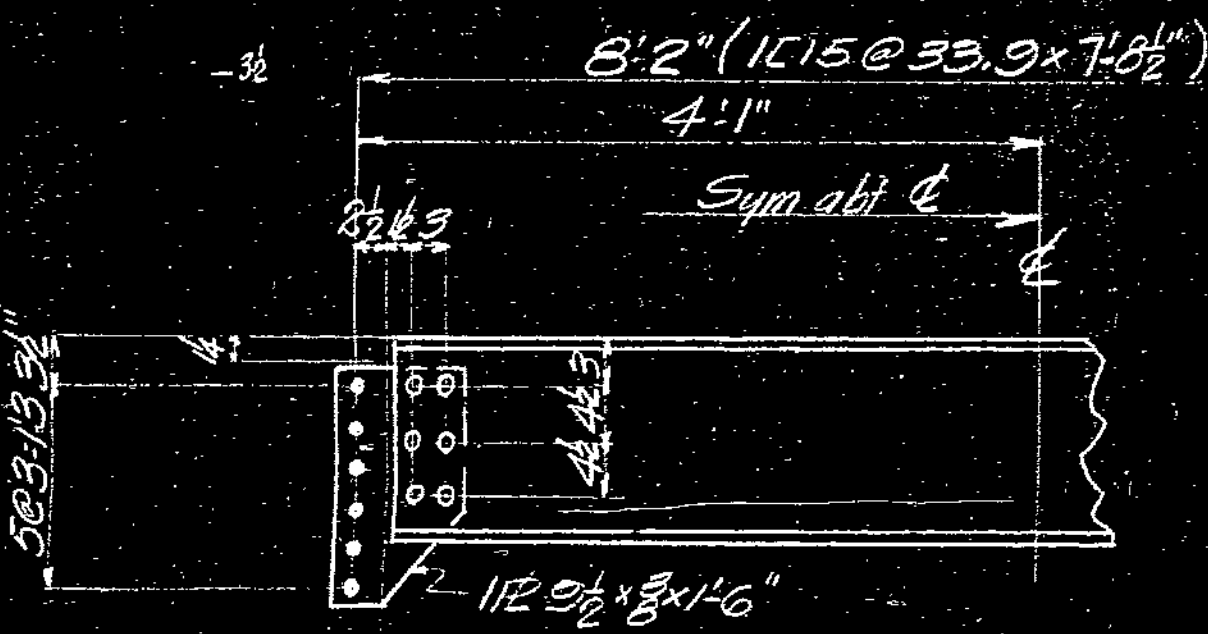
12 Cross Frames Thus A4



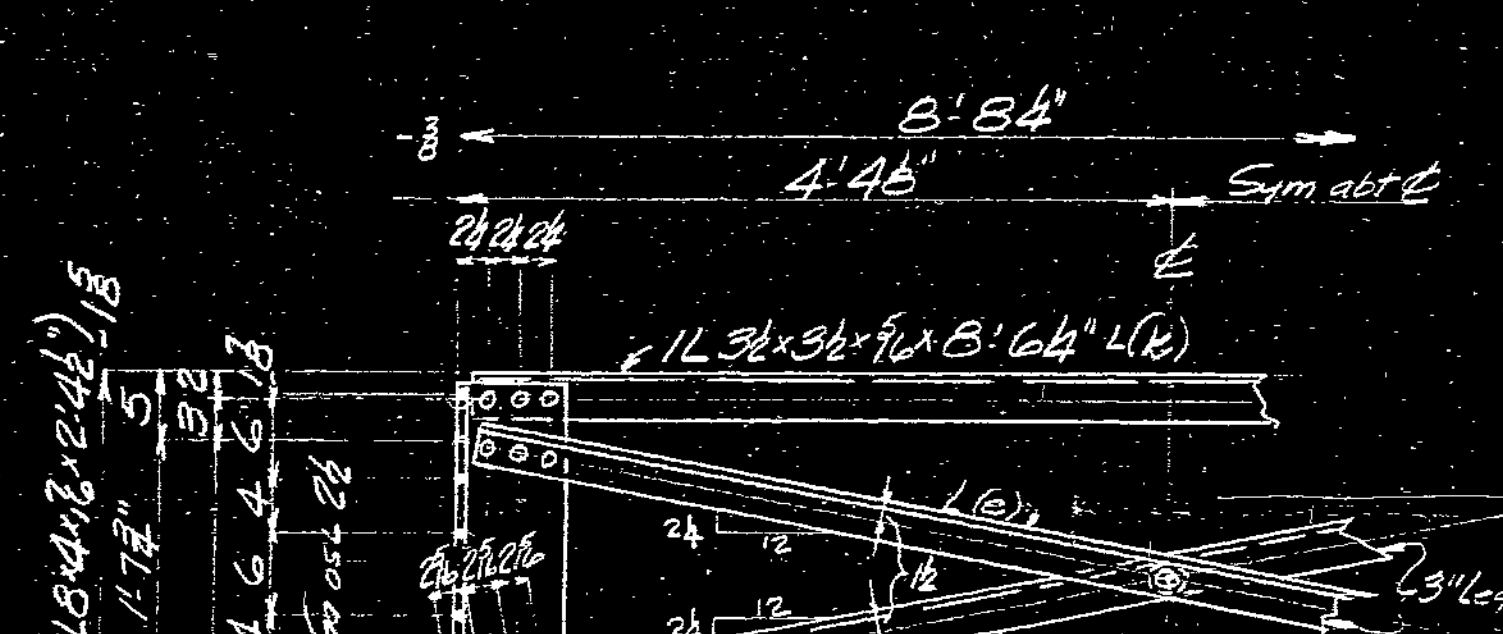
6 Cross Frames Thus D4



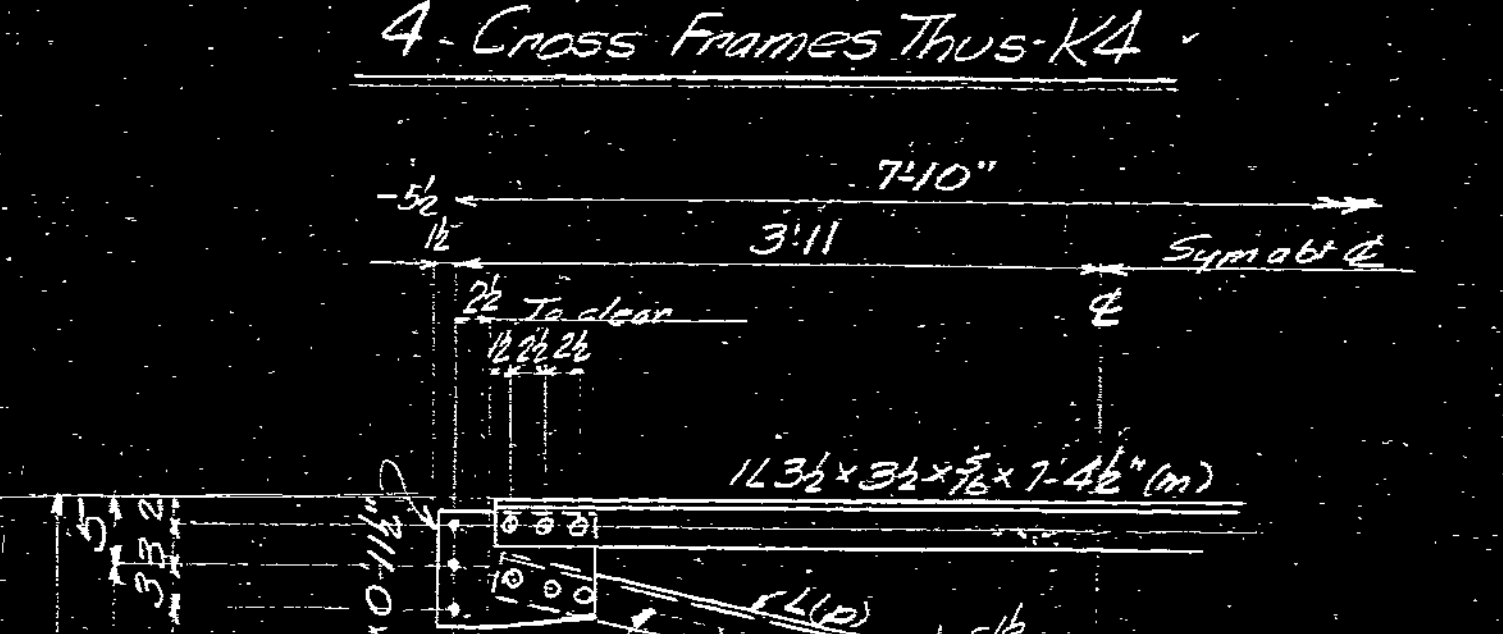
4 Cross Frames Thus K4



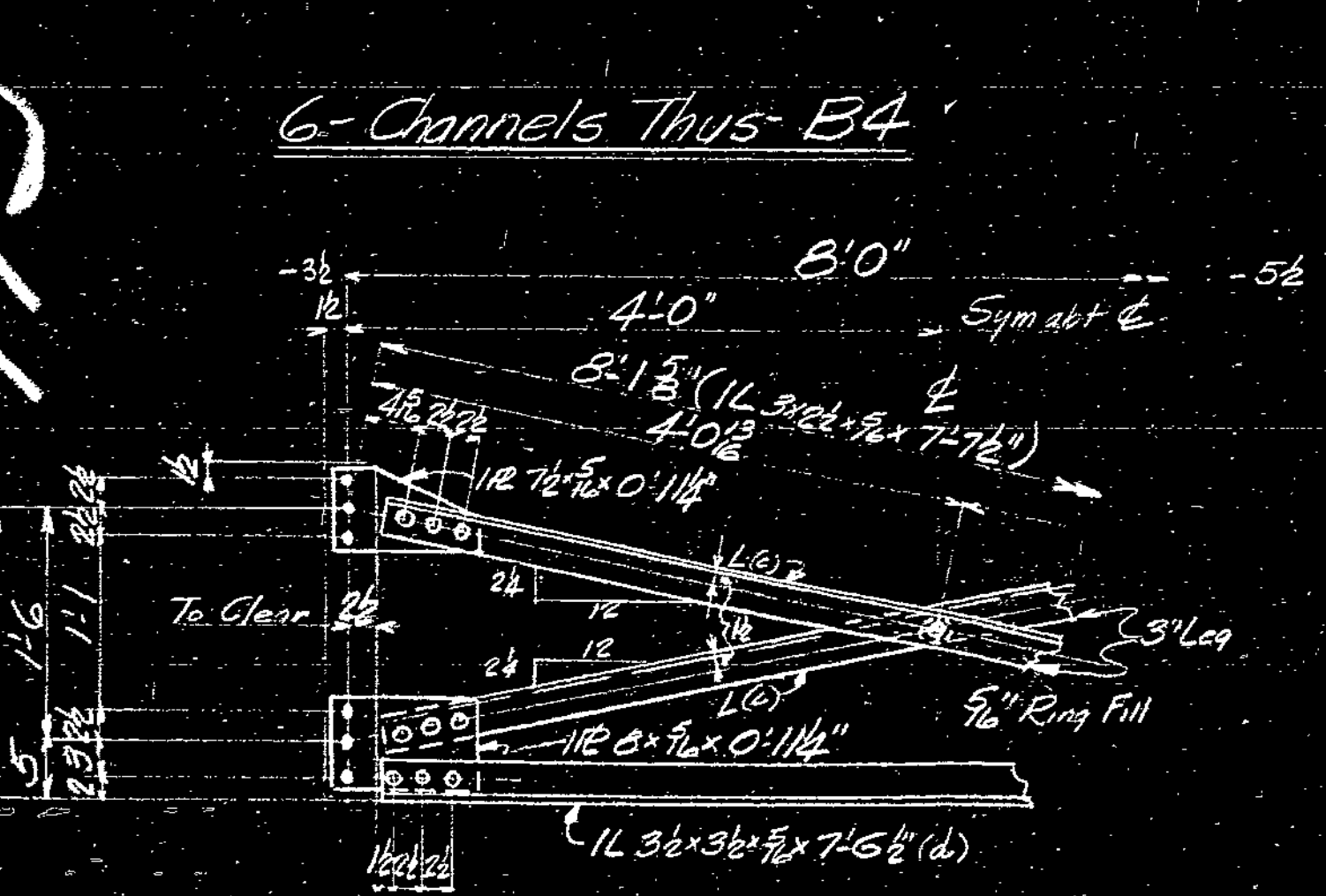
6 Channels Thus B4



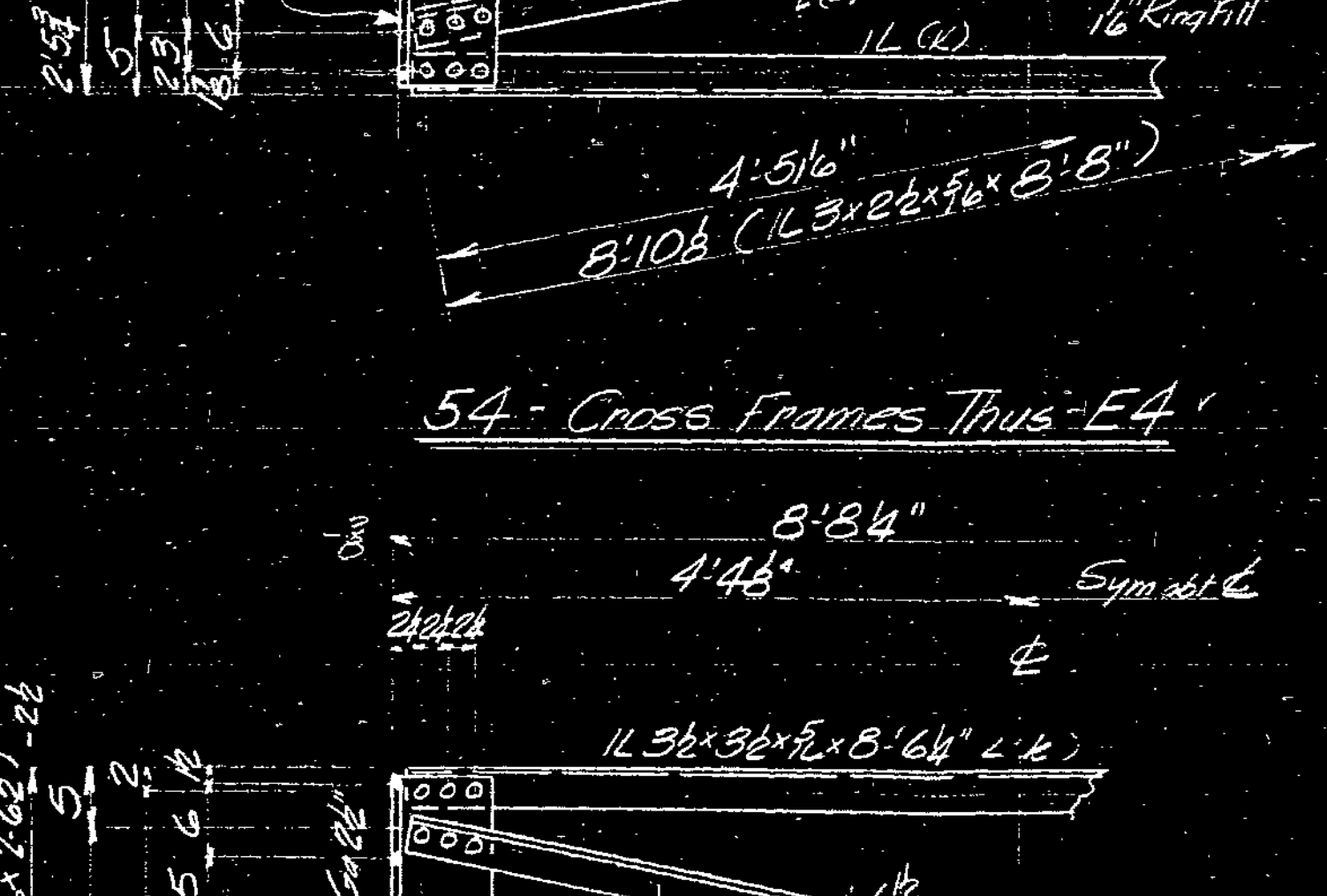
54 Cross Frames Thus E4



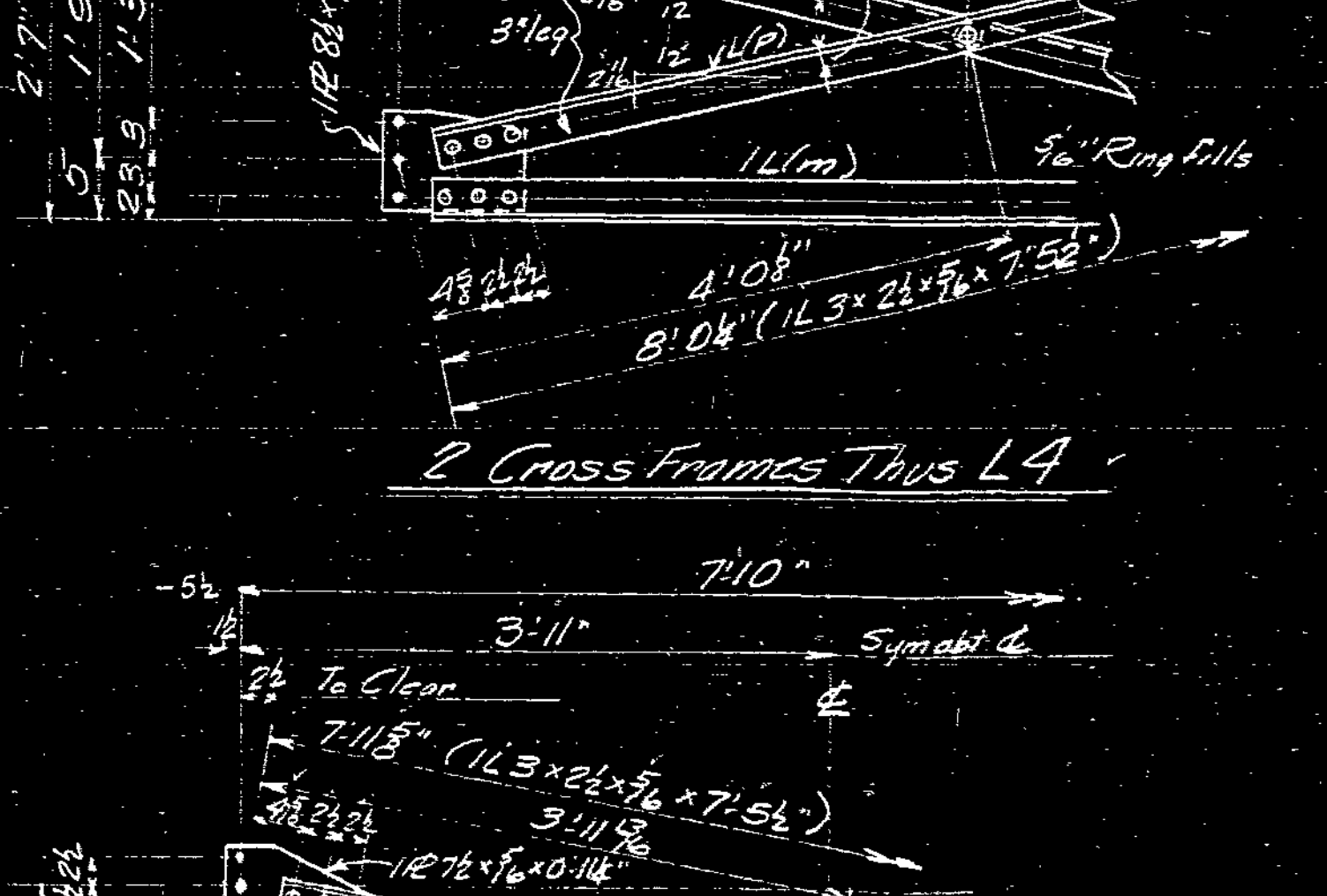
2 Cross Frames Thus L4



4 Cross Frames Thus C4



36 Cross Frames Thus J4



2 Cross Frames Thus M4

175

9/21  
4

DATE MADE	REVISIONS	DATE APPROVED

Cross Frames  
BRIDGE OVER SNI-A BAR CREEK  
Project No. FI 352(II) Sec B (US 40) 57A-143+50  
Jackson County Missouri

REVISED: 3/6 UNLESS NOTED  
MATERIAL: 13/4 UNLESS NOTED  
GROUP PAINT: None

DO NOT PAINT CONTRACT SURFACES  
PARTY ENDORSING THIS DRAWING IS RESPONSIBLE FOR THE CORRECTNESS OF THE INFORMATION CONTAINED HEREIN BEFORE ASSEMBLY.

DRAWN BY: Raydon  
CHECKED BY: [Signature]  
DATE: 9/21/1949  
SQUAD LEADER: [Signature]

9/21 4

**KANSAS CITY  
STRUCTURAL  
STEEL CO.**  
MEMPHIS - KANSAS CITY - ST. LOUIS

DATE: 9/21/49

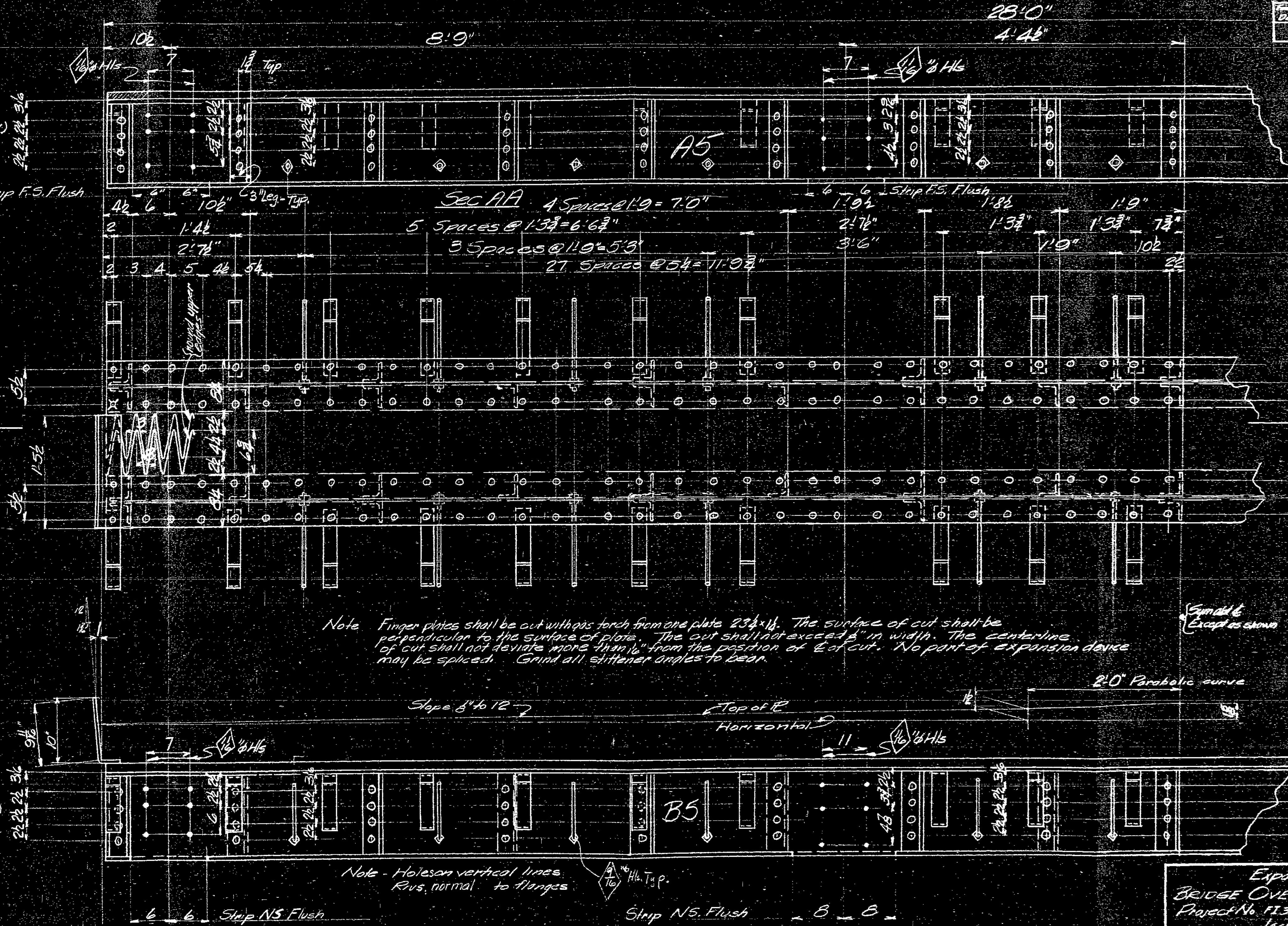
Doug Inap by Hill

Rev.	Date	By	Check	Appr.
5	1/21/57	W. J. ...	...	...

176

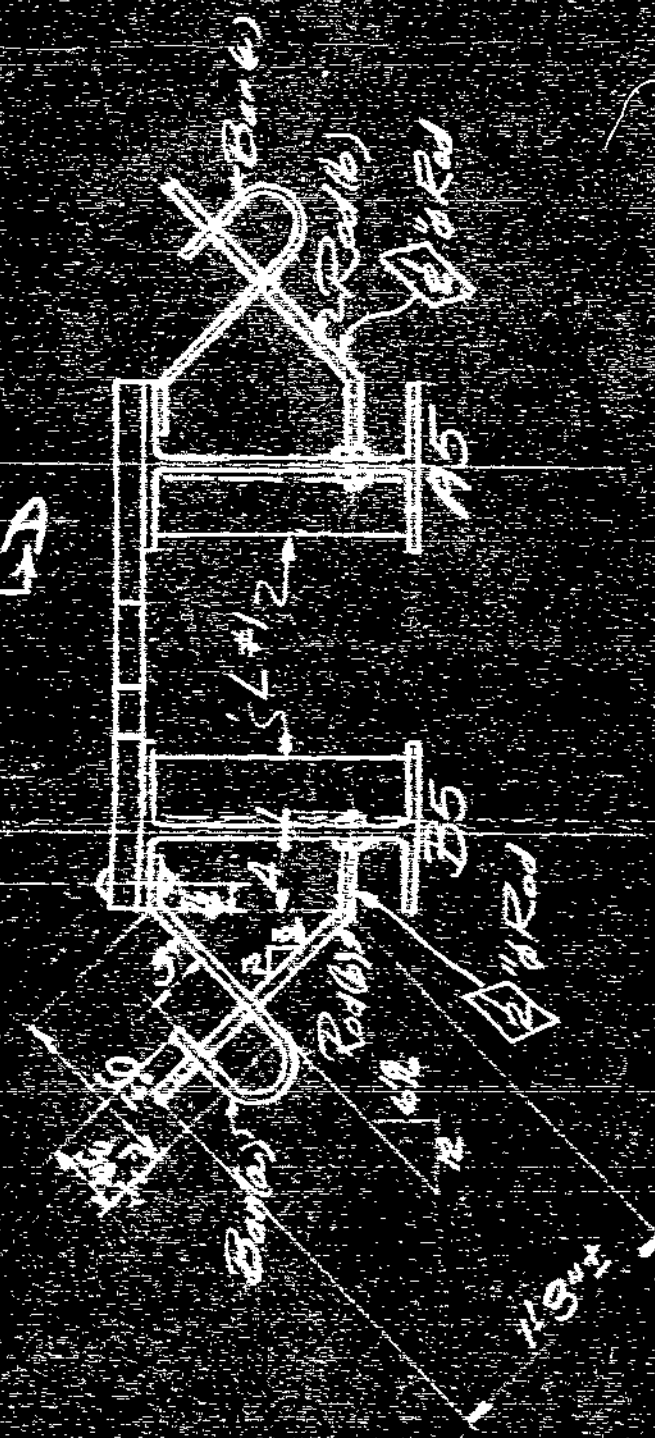
1 1/4" WF 43 x 27 1/2" Bolt  
 2 R 234 x 14 x 27 1/2"  
 26 Ls 3/4 x 3 1/2 x 1 1/8" hex nut (1)  
 20 Bars 2 1/4 x 4 x 1 1/8" bolt (a)  
 12 Rods 1/4 x 1 1/8" bolt (b)  
 24 Hex Nuts 1/2"

1 1/4" WF 43 x 27 1/2" Bolt  
 2 R 234 x 14 x 27 1/2"  
 26 Ls 3/4 x 3 1/2 x 1 1/8" hex nut (1)  
 20 Bars 2 1/4 x 4 x 1 1/8" bolt (a)  
 12 Rods 1/4 x 1 1/8" bolt (b)  
 24 Hex Nuts 1/2"



Note: Finger plates shall be cut without torch from one plate 23 1/2 x 1 1/2. The surface of cut shall be perpendicular to the surface of plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of E of cut. No part of expansion device may be spliced. Grind all stiffener angles to bead.

2 Expansion Devices Thus A5  
 2 do do do B5



Expansion Device  
 BRIDGE OVER SNA BAR CREEK  
 Project No. 11352 (11) Sec 2 (USADP) ...  
 Jackson, La.

Rev.	Date	By	Check	Appr.
5	1/21/57	W. J. ...	...	...

W. J. ...  
 1/21/57

Drawn by ...

SHOP DRAWINGS FOR STEEL STRUCTURE

Jackson COUNTY BRIDGE NO. L-146R

PROJECT NO. I-70-1(80)

INDEX

ERECTION SHEET NOS. E1 THRU E2

GENERAL MATERIALS SHEET NOS. 2 THRU 13

BOLT LIST SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

BEARING DETAILS SHEET NOS. 1 THRU 3

BRIDGE RAILING DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

PAINT DETAILS SHEET NOS. P1 THRU \_\_\_\_\_

BLOCKING DIAGRAM SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

EXPANSION DEVICE DETAILS SHEET NOS. \_\_\_\_\_ ~~THRU~~ See Below

SHOP WELDED SPLICE DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

WEB AND FLANGE CUTTING DETAILS SHEETS NOS. \_\_\_\_\_ THRU \_\_\_\_\_

DRAIN DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

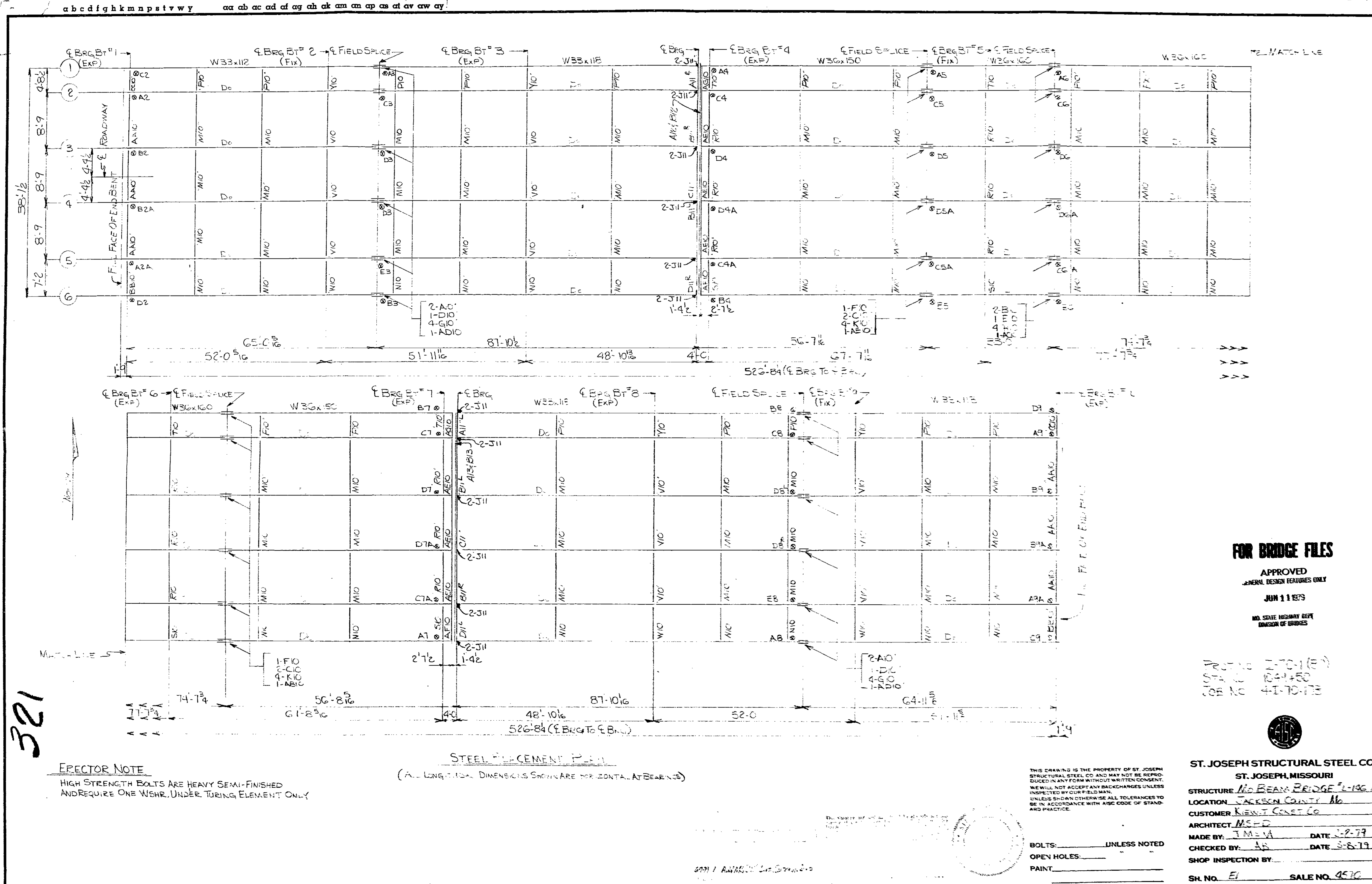
DRAINAGE SYSTEM DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

STEEL GRID FLOORING DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

PEDESTRIAN FENCE DETAILS SHEET NOS. \_\_\_\_\_ THRU \_\_\_\_\_

*Exp. Sheets 892, 892-1, 892-2, Spec. 1, T20 & T30 SA*

320



FOR BRIDGE FILES

APPROVED  
GENERAL DESIGN FEATURES ONLY  
JUN 11 1979  
MO. STATE HIGHWAY DEPT.  
DIVISION OF BRIDGES

CONTRACT NO. 1-70-1(15)  
JOB NO. 41-70-173



ST. JOSEPH STRUCTURAL STEEL CO.  
ST. JOSEPH, MISSOURI  
STRUCTURE NO BEAM BRIDGE # L-186.5  
LOCATION JACKSON COUNTY MO  
CUSTOMER KIEWIT CONST CO  
ARCHITECT M.S.F.D.  
MADE BY J.M.S.A. DATE 3-2-79  
CHECKED BY AS DATE 3-8-79  
SHOP INSPECTION BY \_\_\_\_\_  
SH. NO. E1 SALE NO. 4510

THIS DRAWING IS THE PROPERTY OF ST. JOSEPH STRUCTURAL STEEL CO. AND MAY NOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN CONSENT. WE WILL NOT ACCEPT ANY BACKCHARGES UNLESS INSPECTED BY OUR FIELD MAN. UNLESS SHOWN OTHERWISE ALL TOLERANCES TO BE IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE.

BOLTS: \_\_\_\_\_ UNLESS NOTED  
OPEN HOLES: \_\_\_\_\_  
PAINT: \_\_\_\_\_

ELECTOR NOTE  
HIGH STRENGTH BOLTS ARE HEAVY SEMI-FINISHED AND REQUIRE ONE WSHR. UNDER TURNING ELEMENT ONLY

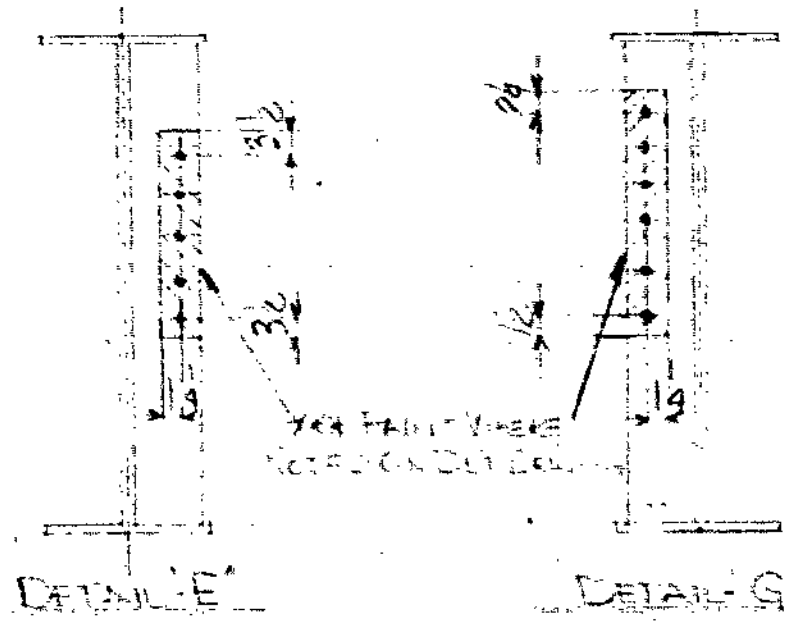
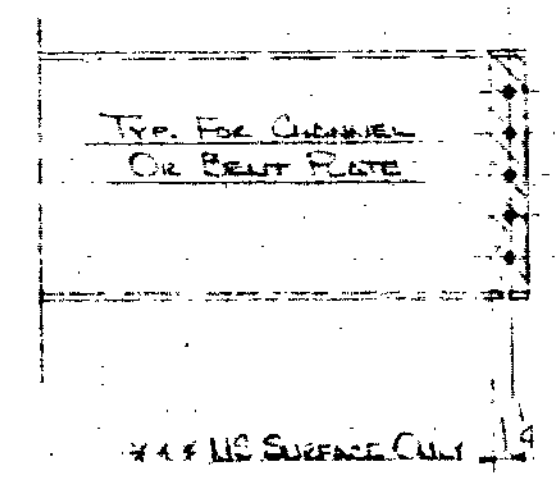
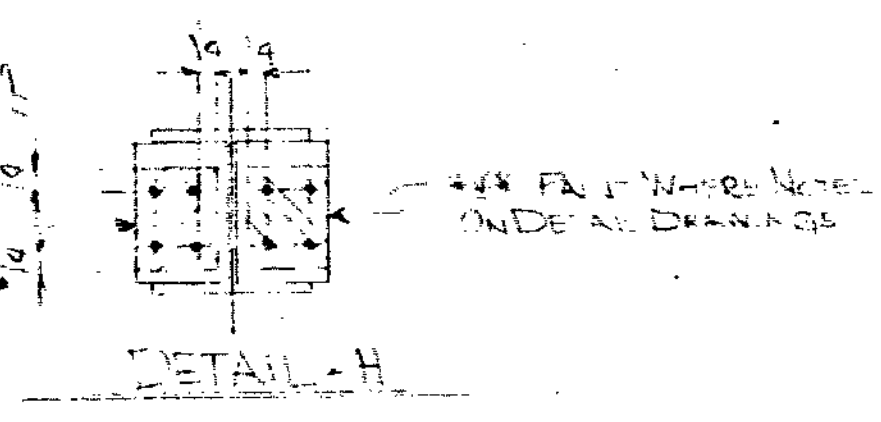
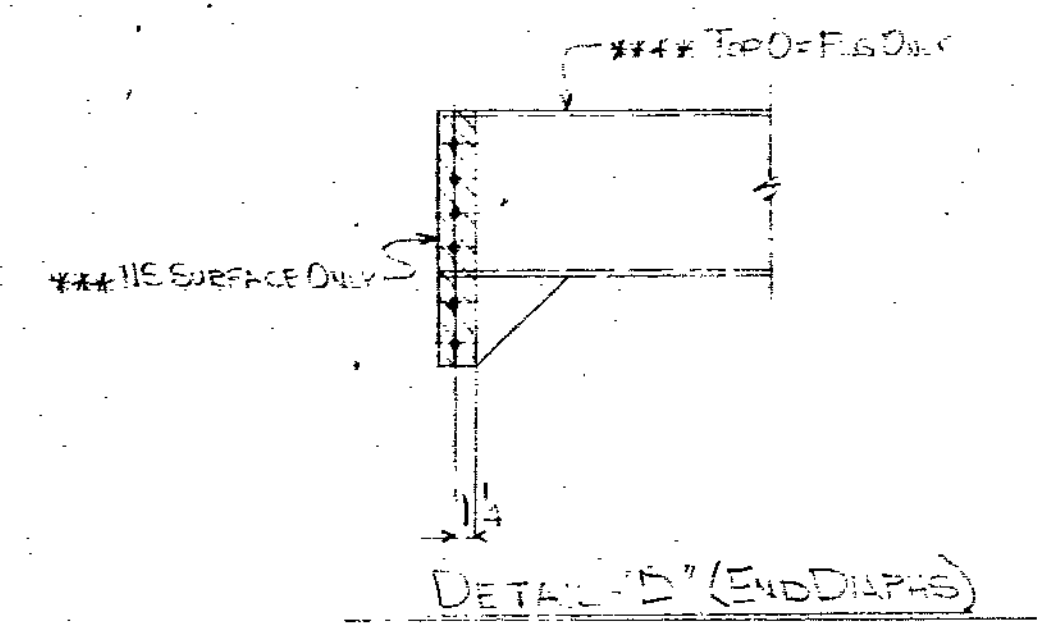
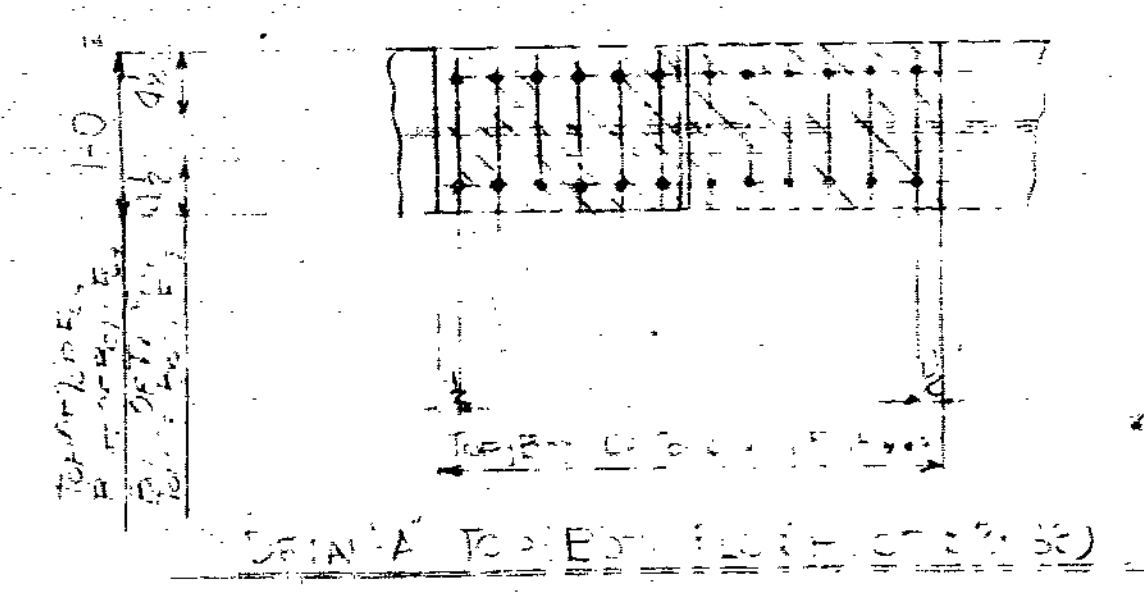
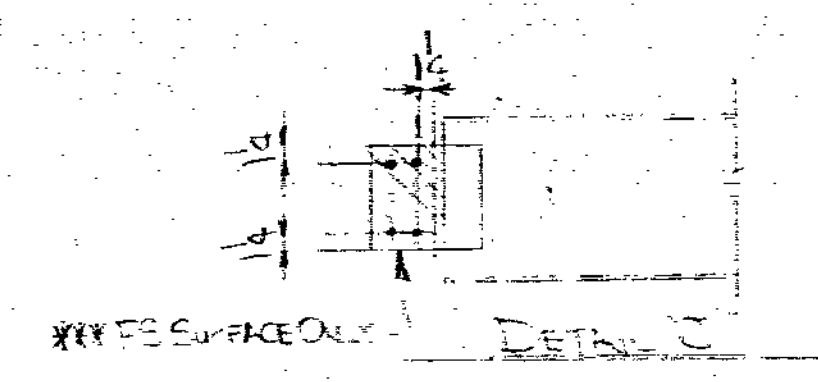
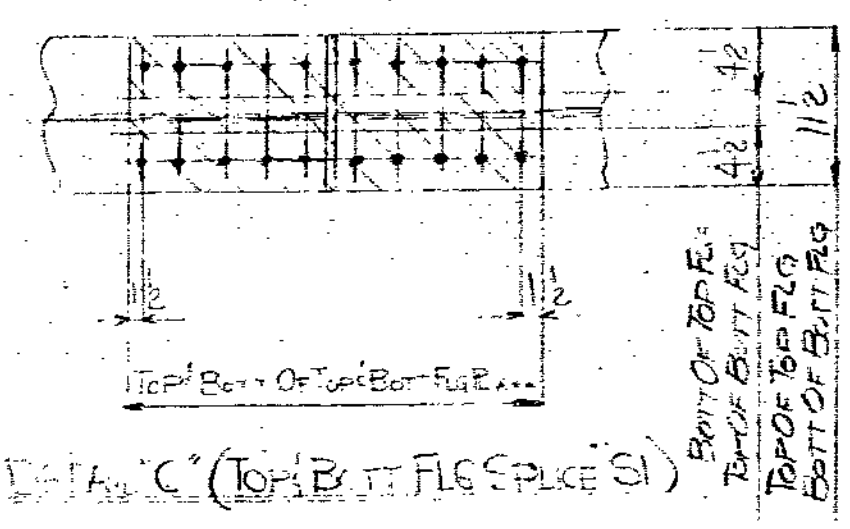
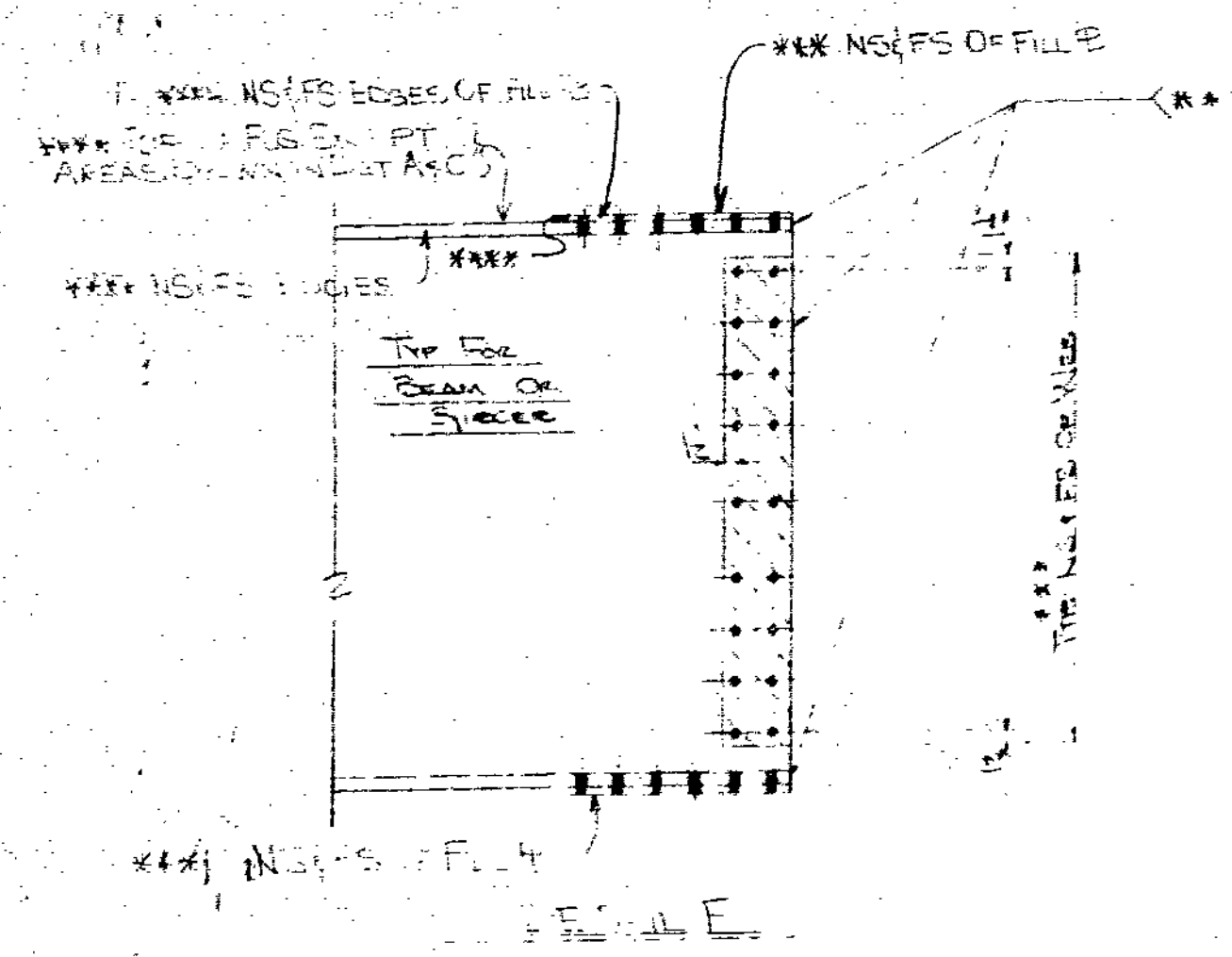
STEEL PLACEMENT PLAN  
(ALL LONGITUDINAL DIMENSIONS SHOWN ARE FOR ZONAL AT BEAMS)

321





abcd efgh kmnpsvwy aa ab ac ad of ag ah ak am an ap as at av aw ay



GENERAL NOTE:

All material with this mark \* must meet Charpy-V-Notch toughness requirements in accordance with ASTM A-573-74. Mill Tests must include results of Charpy-V-Notch Test.

All material shall have heat numbers marked approximately 3" - 6" from left end.

All material shall be ASTM A-36-75, unless noted otherwise.

Mark "Top" and "End" on all beams or girders.

Beam or girder flanges shall be squared up at points of bearing.

Sub-pier or sub-drill beam or girder splices 11/16"  $\phi$  and ream to 1 1/16"  $\phi$  with component parts assembled to a correct line.

Prepare all open holes for high strength bolts, unless marked "M.B."

Beams or girders shall be matchmarked as required, see Sheet "E1" for matchmarks.

Splice material shall be matchmarked and shipped in place.

All welding shall conform to the American Welding Society specifications for welded highway and railway bridges and to Missouri State Highway Department specifications and special provisions.

Magnetic Particle Inspection will be required on all beams or girders on at least 10% of each size and type of fillet welds between flanges and webs, between bearing stiff and webs, and for bearing devices. The tests shall be located at random in the members so as to be typical for each size and type of weld.

STEEL SHALL BE PAINTED IN ACCORDANCE WITH STANDARD SPECIFICATION 712.12

Surfaces to be painted shall be blast cleaned with abrasives producing a nominal height of profile of 2.5 mil. in accordance with Paragraph 712.12.2.1 or 712.12.2.2 of the Special Provisions.

All areas not mentioned below shall receive one coat Semi-Quick Drying Basic Lead Silico Chromate Type II, Sec. 1045.11.1 to produce a minimum dry film thickness of 2.0 mil. System-B.

No paint within 2 inches of edges to be field welded.

No paint on studs.

Inaccessible areas after erection to receive three coats Semi-Quick Drying Basic Lead Silico Chromate Type II, Sec. 1045.11.1 to produce a 6.0 mil. minimum dry film thickness.

- \* End faces of beams or girders.
- \* Inside faces of stiff plates and webs.
- \* Bottom surfaces of bearing base plates.
- \* Inside angles of bolt holes.

Contact surface of high strength and reaction bolted connections shall be coated with inorganic zinc paint to a dry film thickness over the profile peaks to not less than 1.5 mil. and not greater than 2.5 mil.

Anchor bolts to receive one 2.0 mil. minimum coat of Inorganic Zinc Silicate on area in concrete and three coats 4.0 mil. min. of Semi-Quick Drying Basic Lead Silico Chromate Type II, Sec. 1045.11.1.

Hanger pins, pin plates, bearing pins, and pin seats to receive no paint. These areas to receive white lead and tallow or approved equal.

- \* All surfaces to be in contact with concrete to receive 2.0 mil. min. of Inorganic Zinc Silicate.
  - \* Top of top flange and edges.
  - \* Top of top flange splice plates and edges.
  - \* Top of end diaphragms.

Stiffener expansion device member to receive 3 coats Inorganic Zinc Silicate to produce a min. dry film thickness of 4.0 mil.

Spec No. 2-70-1(80)  
 Date 10-9-50  
 Job No. 4-I-70-73

FOR BRIDGE FILES

APPROVED  
 GENERAL DESIGN FEATURES ONLY  
 APR 26 1975  
 MO. STATE HIGHWAY DEPT.  
 DIVISION OF BRIDGES



ST. JOSEPH STRUCTURAL STEEL CO.  
 ST. JOSEPH, MISSOURI

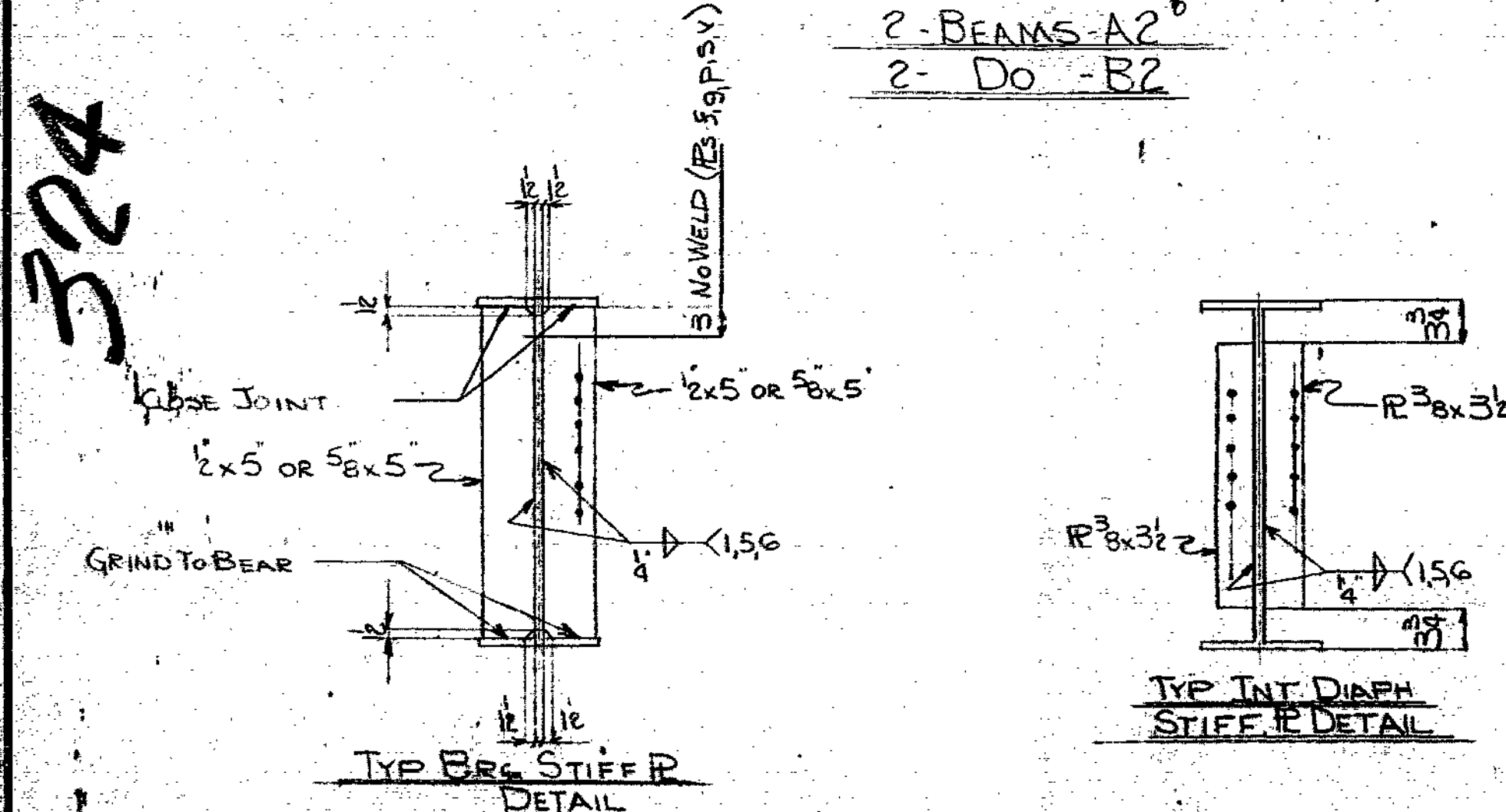
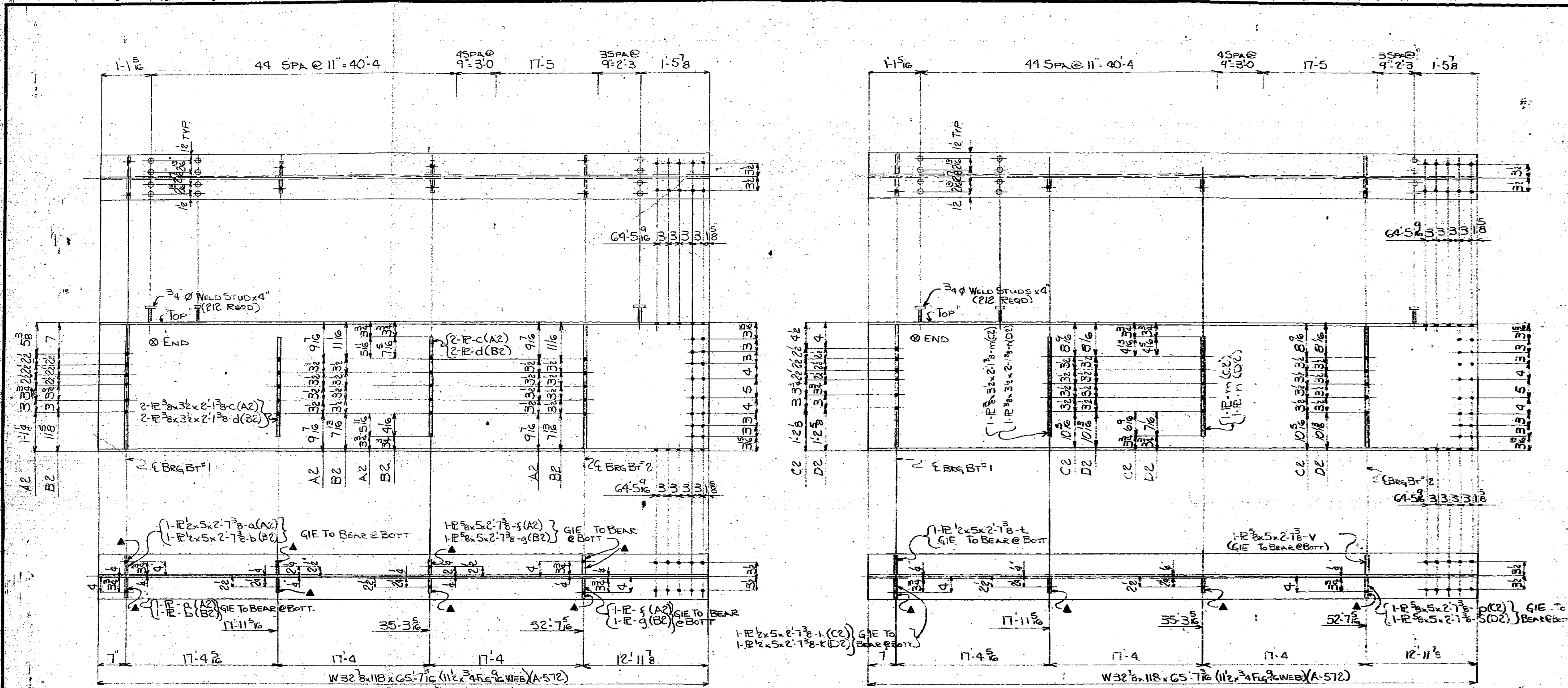
STRUCTURE McBEE BRIDGE  
 LOCATION JEFFERSON COUNTY, MO  
 CUSTOMER SMITH CONSTRUCTION CO.  
 ARCHITECT J. S. W.  
 MADE BY J. M. S. DATE 4-26-79  
 CHECKED BY A. E. DATE 3-9-79  
 SHOP INSPECTION BY R. S. D.  
 SH. NO. 71 SALE NO. 4570

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BOLTS: \_\_\_\_\_ UNLESS NOTED  
 OPEN HOLES: \_\_\_\_\_  
 PAINT: \_\_\_\_\_

323

abcdefghijklmnopqrstuvwxyz aa ab ac ad ae ag ah ak am an ap as at av aw ay



**SHOP NOTE**  
 ALL STEEL A-36 UNLESS OTHERWISE NOTE  
 NOTCH TOUGHNESS REQUIRED ON ALL BEAMS  
 SEE GENERAL NOTE SHT "PI"  
 ▲ - PAINT THIS SURFACE AS SHOWN IN DETAIL  
 E.G. SHT "PI" WHERE INDICATED ABOVE

PROJ No I-70-1(80)  
 STA No. 1049+50  
 APPROVED JOB No. 4-I-70-173  
 GENERAL DESIGN FEATURES ONLY  
 APR 26 1973  
 MISSOURI STATE HIGHWAY DEPT  
 DIVISION OF HIGHWAYS

FOR BRIDGE FILE

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 INSPECTED BY OUR FIELD MAN.  
 UNLESS SHOWN OTHERWISE ALL TOLERANCES TO  
 BE IN ACCORDANCE WITH AISC CODE OF STAND-  
 ARD PRACTICE.

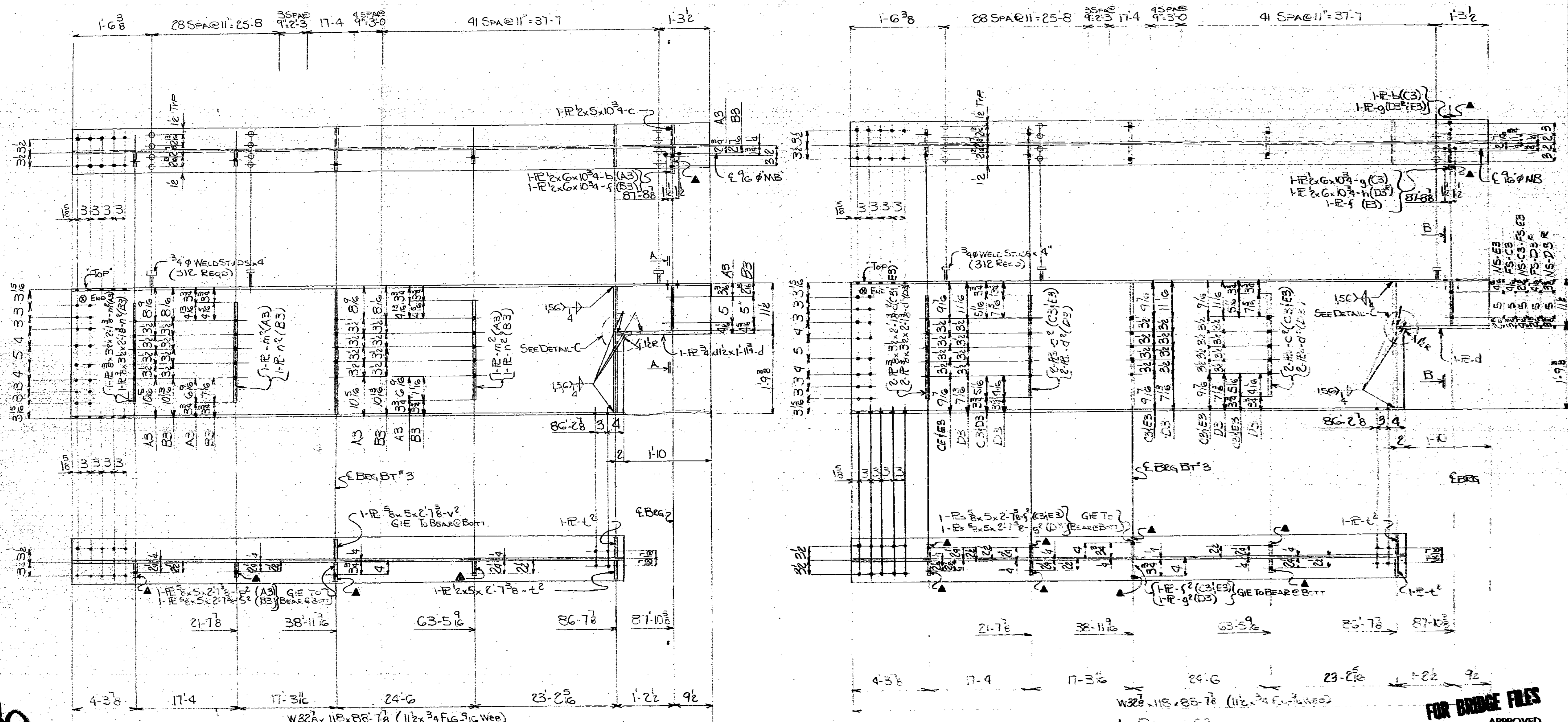
ST. JOSEPH STRUCTURAL STEEL CO.  
 ST. JOSEPH, MISSOURI  
 STRUCTURE Mo BEAM BRIDGE I-146 R  
 LOCATION JACKSON COUNTY MO  
 CUSTOMER KIEWIT CONST Co  
 ARCHITECT MSHD  
 MADE BY: JMSM DATE 2-7-79  
 CHECKED BY: AB DATE 3-8-79  
 SHOP INSPECTION BY: MSHD  
 SH. NO. 2 SALE NO. 9570

BOLTS: UNLESS NOTED  
 OPEN HOLES: 1/8"  
 PAINT: SEE PAINT NOTE SHT "PI"

324

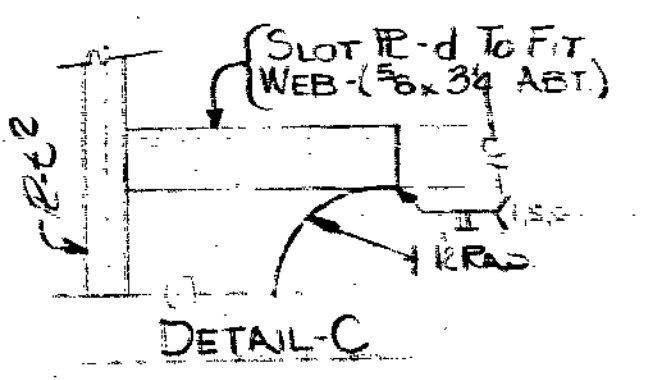
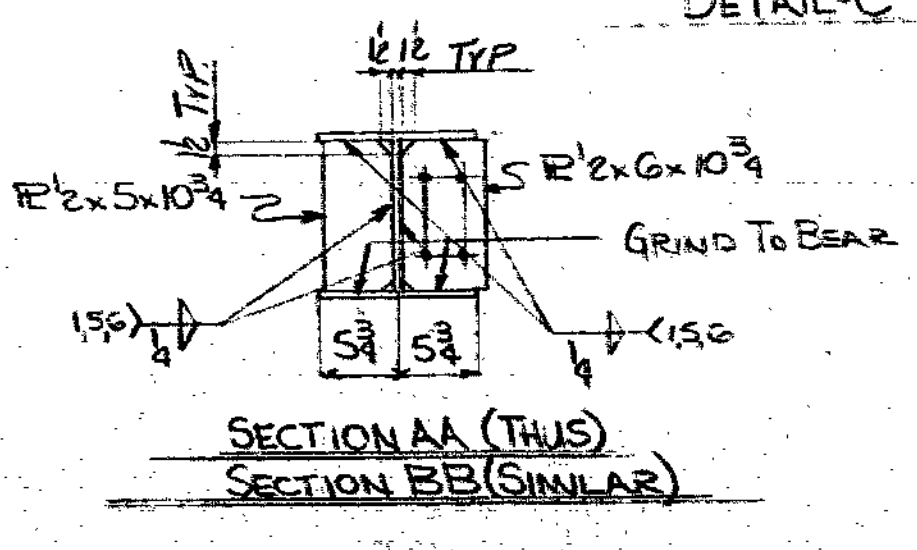
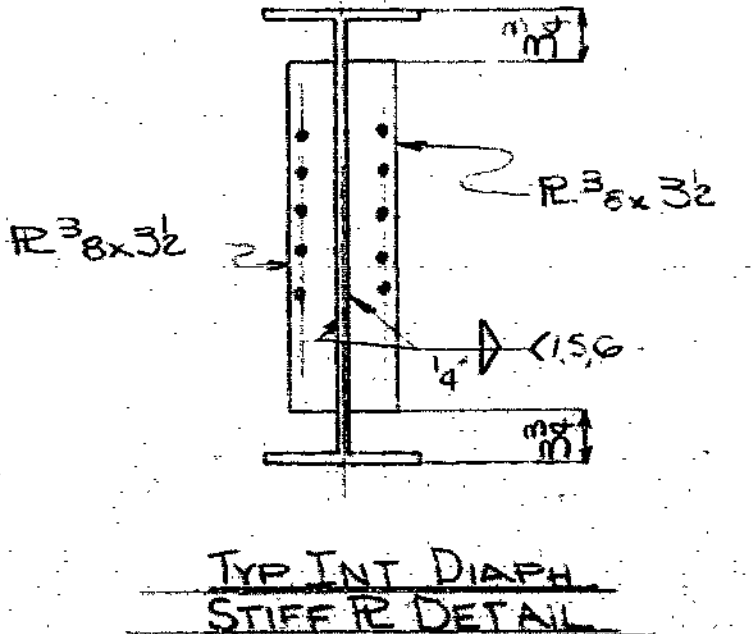
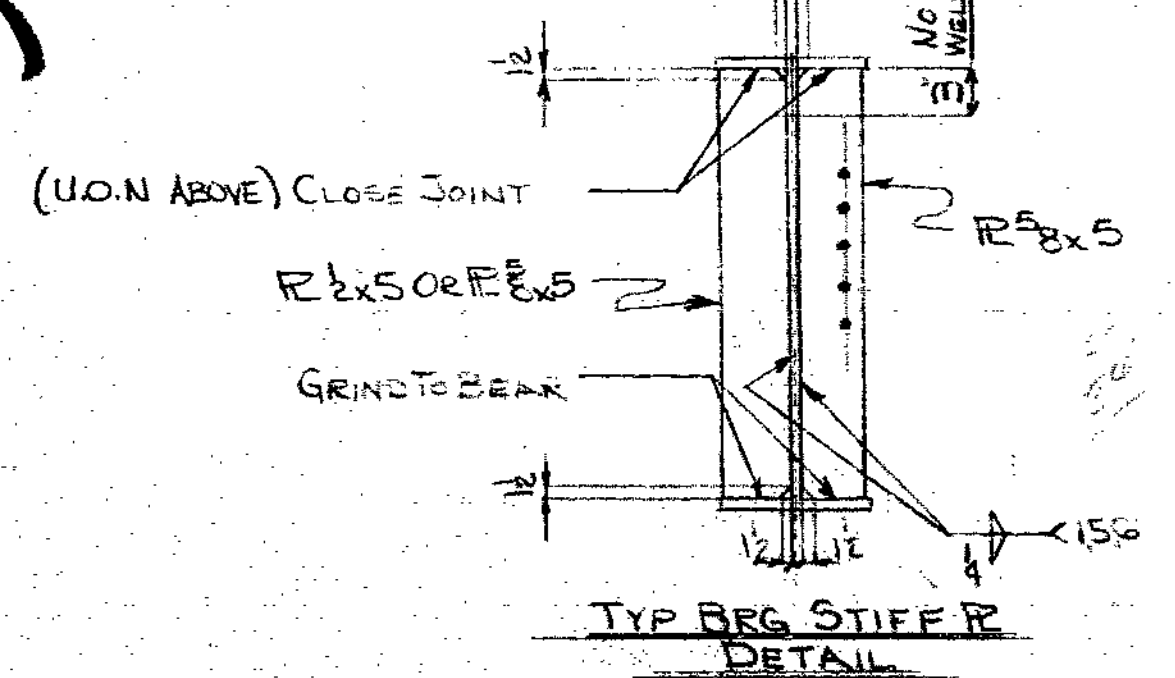


abcdefghijklmnopqrstuvwxyz aa ab ac ad of ag ah ak am an ap as at av aw ay



305

1-BEAMS - A3 (THUS)  
 1- DO - B3 (REV)



**SHOP NOTE**  
 ALL STEEL A-36 UNLESS OTHERWISE NOTED  
 NOTCH TOUGHNESS REQUIRED ON ALL BEAMS  
 SEE GENERAL NOTE SHT P1  
 PAINT THIS SURFACE AS SHOWN IN DETAIL E/H SHT P1 WHERE INDICATED ABOVE

BOLTS: UNLESS NOTED  
 OPEN HOLES: 1/8"

1-BEAM - C3  
 2- DO - D3  
 1- DO - E3

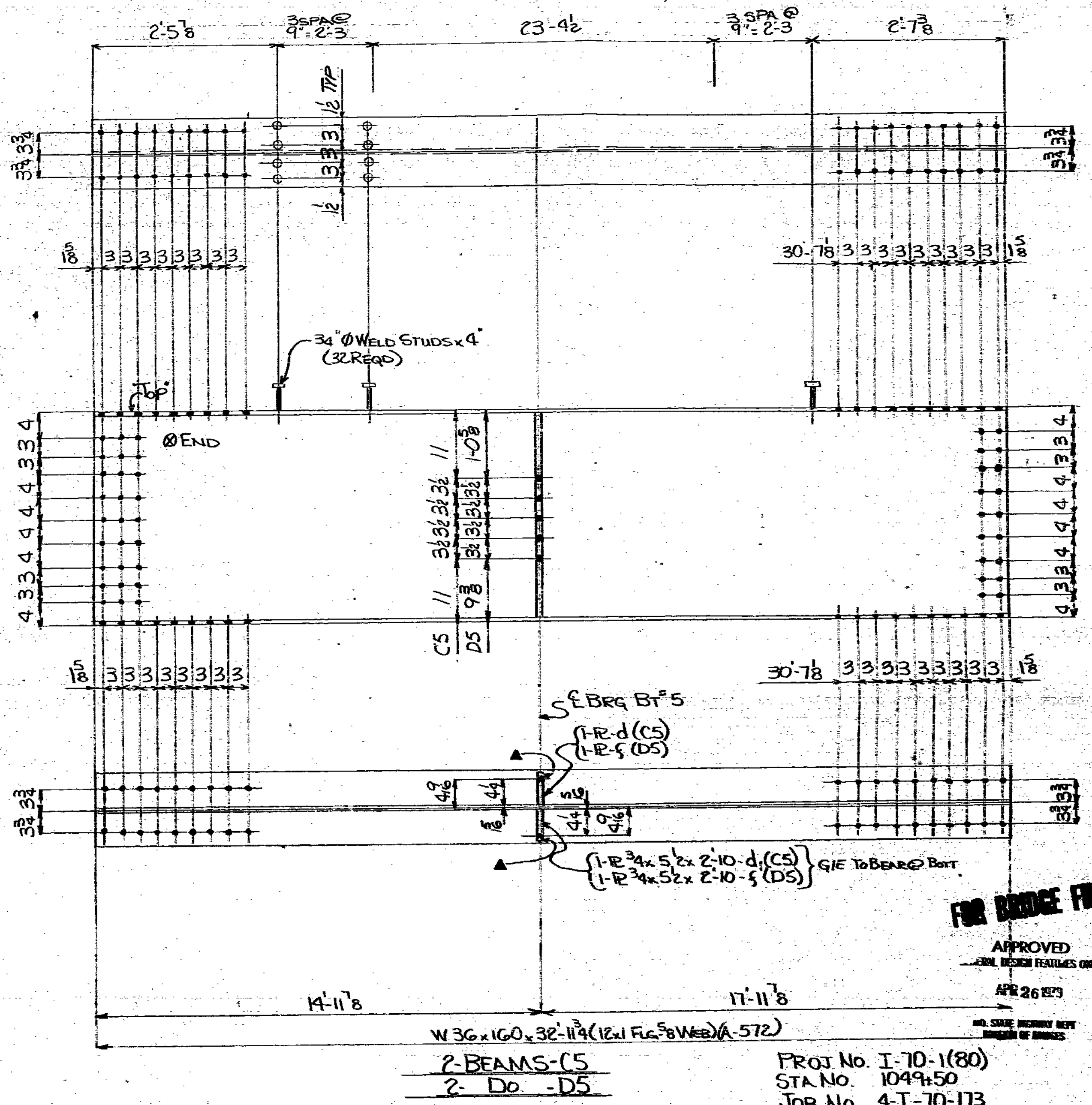
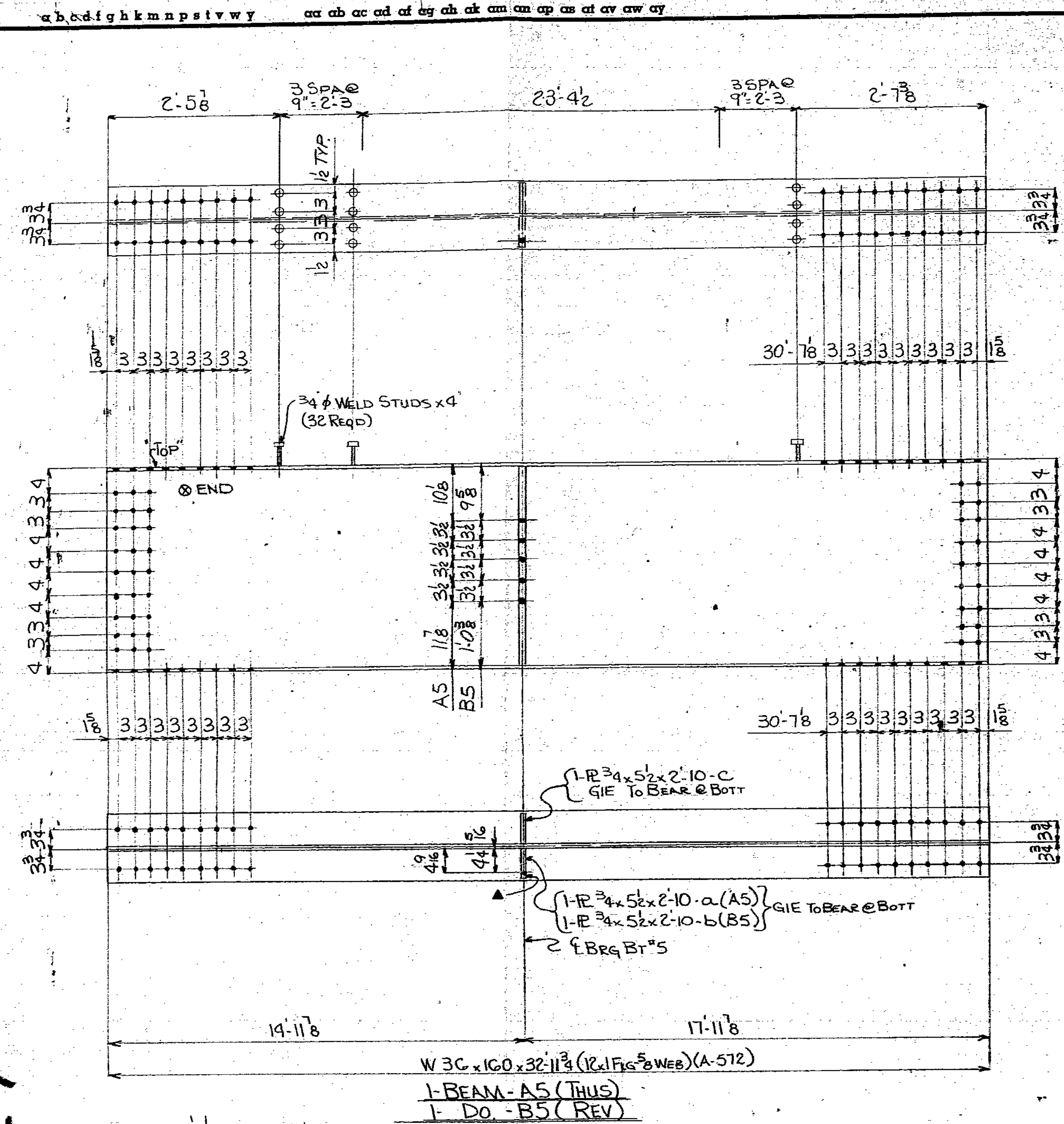
PROJ No I-70-1(80)  
 STA No 1049-50  
 JOB No 4-I-70-173

FOR BRIDGE FILES

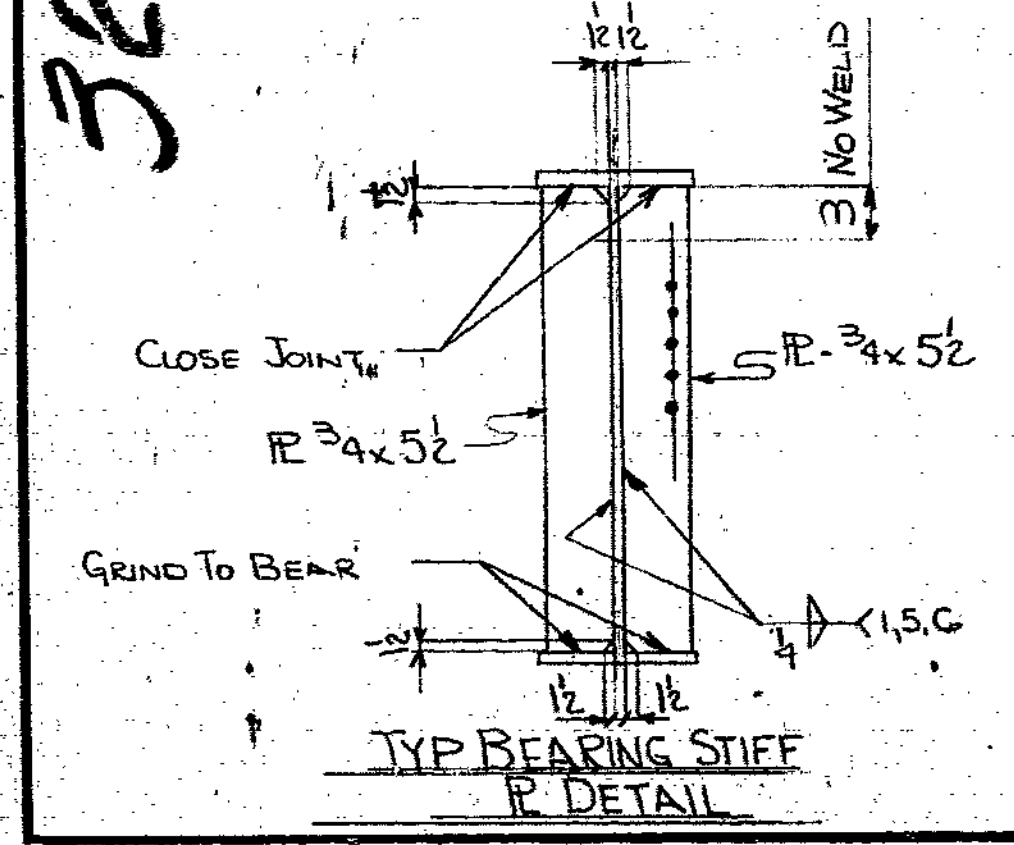
APPROVED  
 GENERAL DESIGN FEATURES ONLY  
 JUN 11 1979  
 MISSOURI DEPT  
 DIVISION OF BRIDGES

ST. JOSEPH STRUCTURAL STEEL CO.  
 ST. JOSEPH, MISSOURI  
 STRUCTURE 1/2 BEAM BRIDGE #1-196R  
 LOCATION JACKSON COUNTY, MO  
 CUSTOMER KIEWIT CONST CO  
 ARCHITECT JMSHD  
 MADE BY JMSHD DATE 2-9-79  
 CHECKED BY AB DATE 3-14-79  
 SHOP INSPECTION BY JMSHD  
 SH. No 3 SALE NO. 4570





327



**SHOP NOTE**  
 ALL STEEL A-36 UNLESS OTHERWISE NOTED  
 NOTCH TOUGHNESS REQUIRED ON ALL BEAMS  
 SEE GENERAL NOTE SHT "PI"  
 ▲ PAINT THIS SURFACE AS SHOWN IN DETAIL "E"  
 SHT "PI" WHERE INDICATED ABOVE

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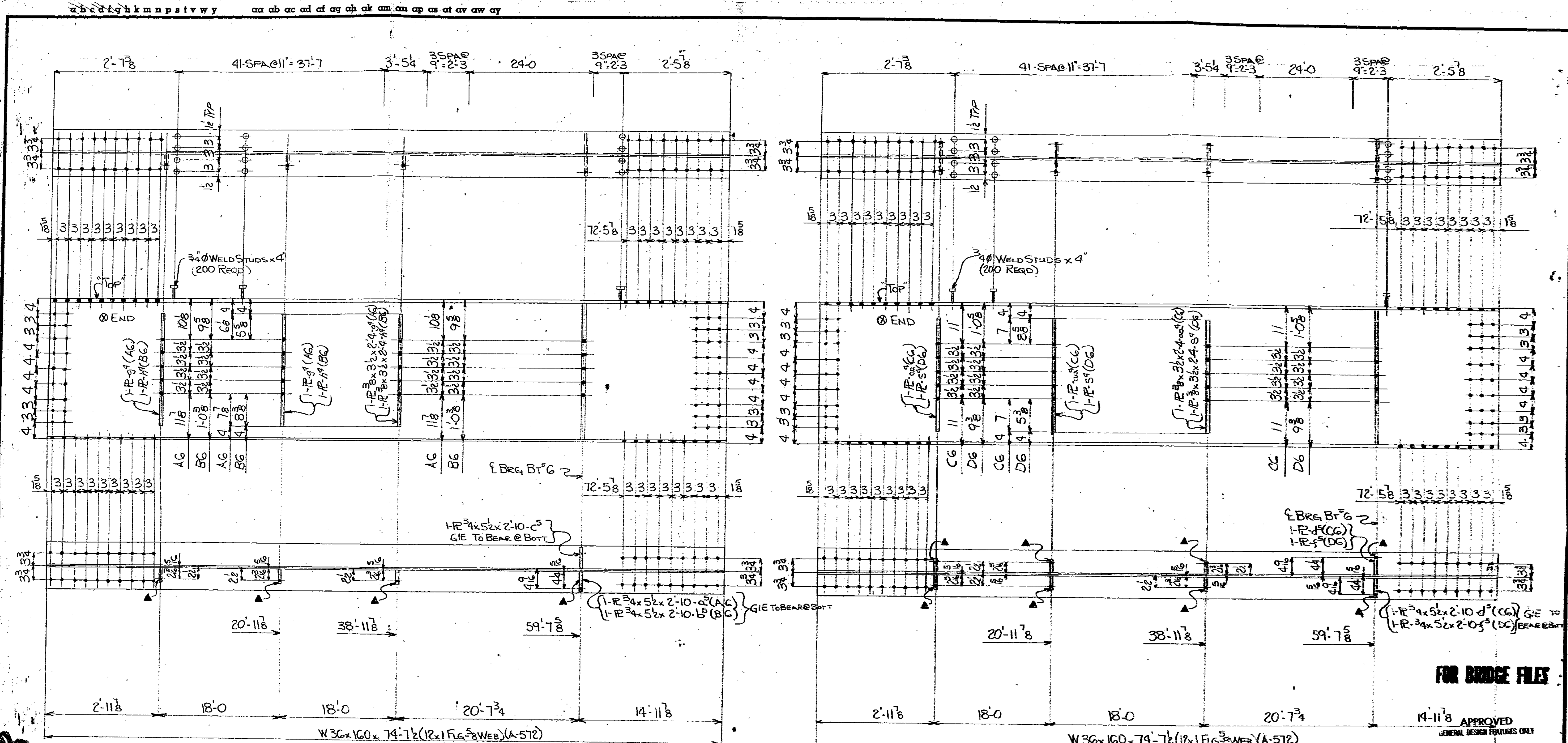
BOLTS UNLESS NOTED  
 OPEN HOLES 1/8"  
 PAINT SEE PAINT NOTE SHT "PI"

FOR BRIDGE FILES

APPROVED  
 APR 26 1979  
 MR. STEVE HENNING MEET DIRECTOR OF BRIDGES

PROJ No. I-70-1(80)  
 STA No. 1049+50  
 JOB No. 4-I-70-113

ST. JOSEPH STRUCTURAL STEEL CO.  
 ST. JOSEPH, MISSOURI  
 STRUCTURE MO BEAMA BRIDGE "L-MCR"  
 LOCATION JACKSON COUNTY MO  
 CUSTOMER KIEWIT CONST CO  
 ARCHITECT MSHD  
 MADE BY JMSM DATE 2-19-79  
 CHECKED BY AS DATE 3-15-79  
 SHOP INSPECTION BY MSHD  
 SH. No. 5 SALE NO. 9510



FOR BRIDGE FILES

APPROVED  
GENERAL DESIGN FEATURES ONLY  
APR 28 1973

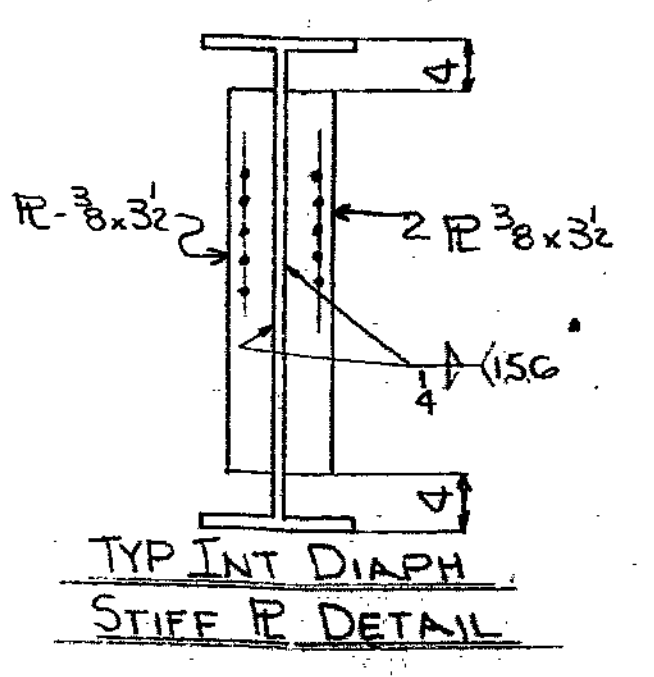
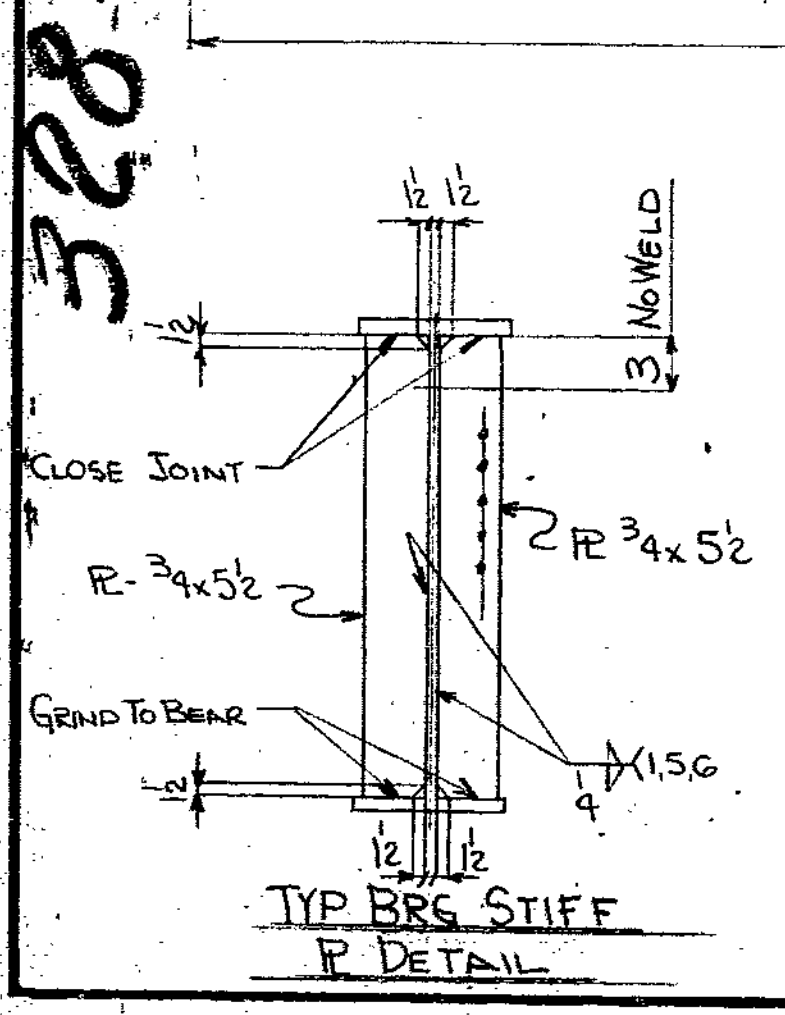
MO. STATE HIGHWAY DEPT  
DIVISION OF BRIDGES  
PROJ No I-70-1(80)  
STA No 1049+50  
JOB No 4-I-70-173

SHOP NOTE  
ALL STEEL A-36 UNLESS OTHERWISE NOTED  
NOTCH TOUGHNESS REQUIRED ON ALL BEAMS  
SEE GENERAL NOTE SMT 'PI'  
▲ PAINT THIS SURFACE AS SHOWN IN DETAIL 'E'  
SMT 'PI' WHERE INDICATED ABOVE

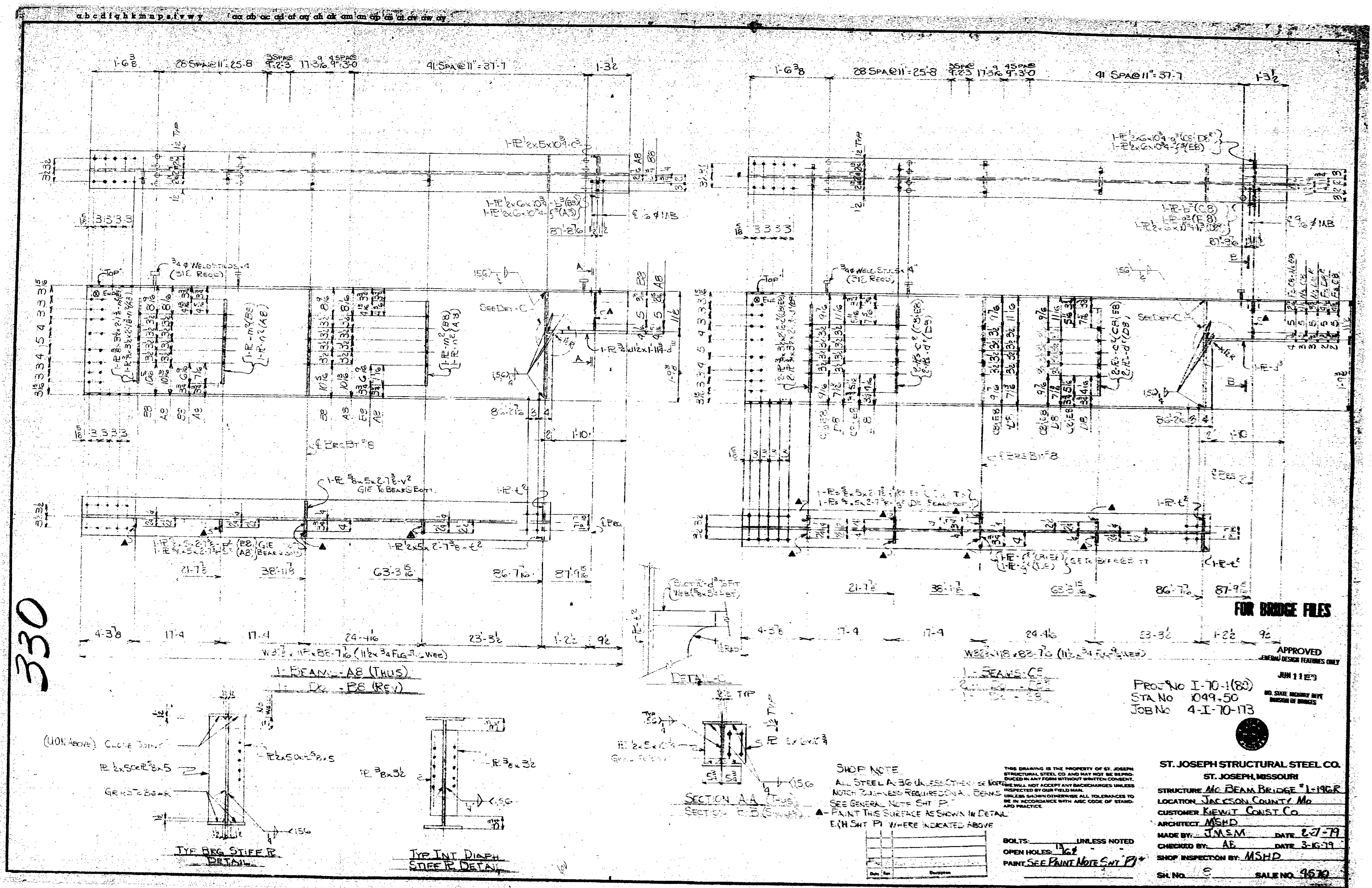
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BOLTS: UNLESS NOTED  
OPEN HOLES: 1/16"  
PAINT: SEE PAINT NOTE SMT 'PI'

ST. JOSEPH STRUCTURAL STEEL CO.  
ST. JOSEPH, MISSOURI  
STRUCTURE No BEAMA BRIDGE 7-1-106 R  
LOCATION JACKSON COUNTY Mo  
CUSTOMER LEWIS CONST Co  
ARCHITECT MSHD  
MADE BY JMSM DATE 2-16-79  
CHECKED BY AB DATE 3-6-79  
SHOP INSPECTION BY MSHD  
SH. NO. 6 SALE NO. 4570







330

FOR BRIDGE FILES

APPROVED GENERAL DESIGN FEATURES ONLY

JUN 11 1973

PROJ No I-70-1(80)  
 STA No 1049-50  
 JOB No 4-I-70-113

NO. SAME INDUSTRY REPT DIVISION OF BRIDGES

ST. JOSEPH STRUCTURAL STEEL CO.

ST. JOSEPH, MISSOURI

STRUCTURE Mc BEAM BRIDGE #1-1968

LOCATION JACKSON COUNTY, Mo

CUSTOMER KIEWIT CONST CO

ARCHITECT MS&H

MADE BY J.N.S.M. DATE 2-7-73

CHECKED BY AB DATE 3-16-73

SHOP INSPECTION BY MS&H

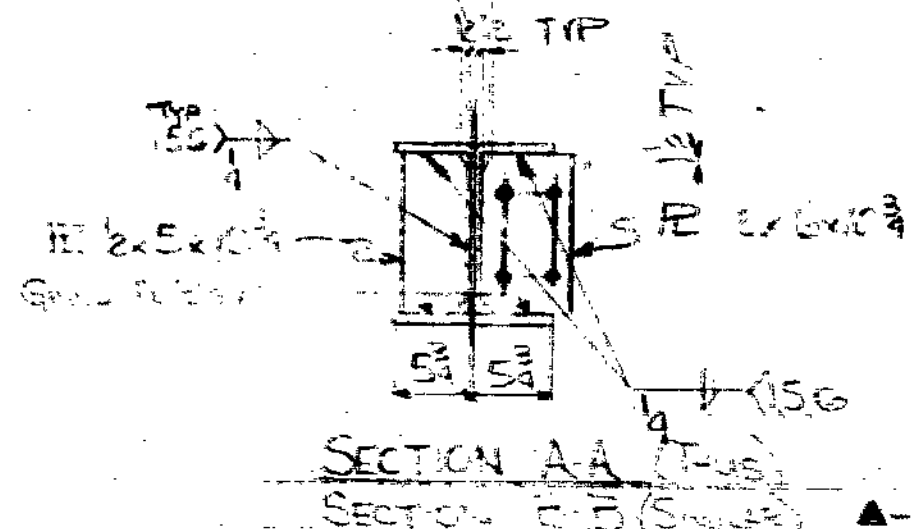
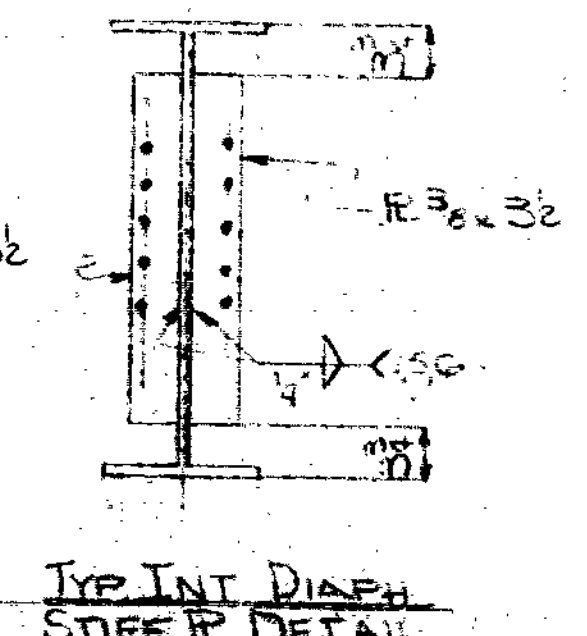
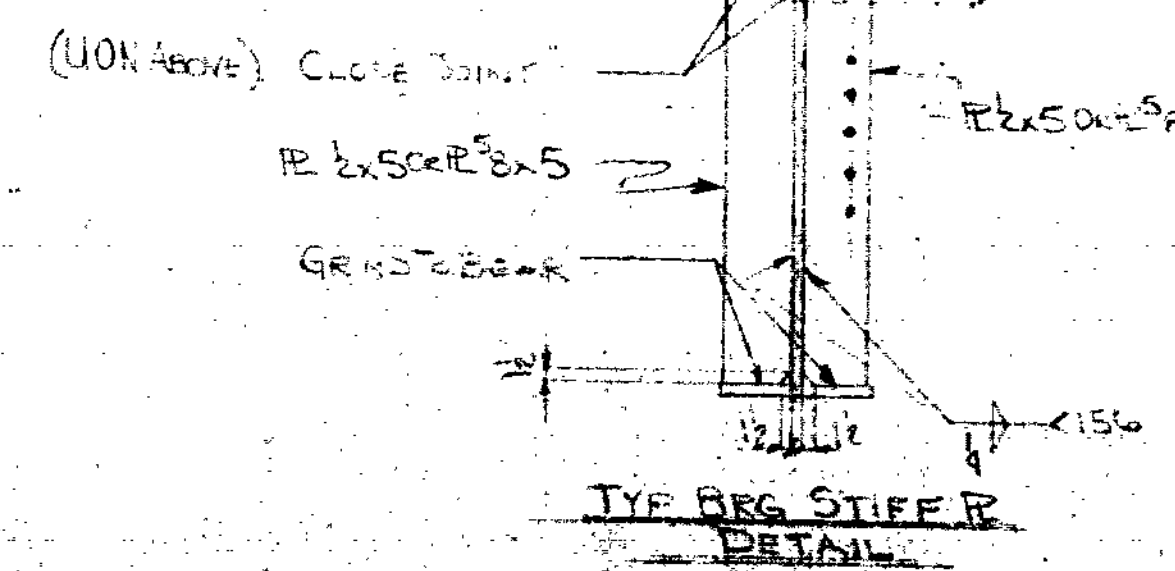
SIL NO. E SALE NO. 9670

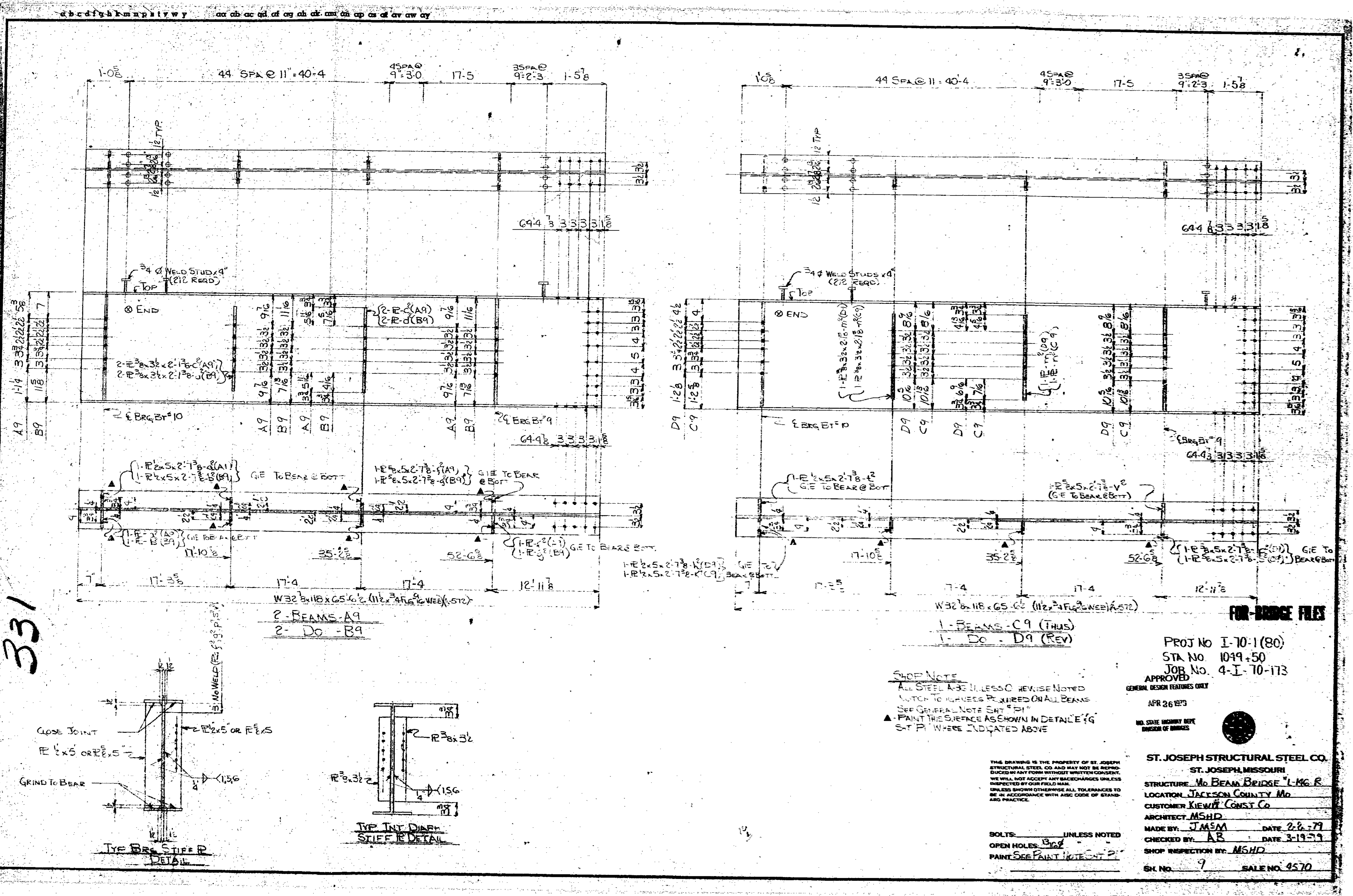
SHOP NOTE

ALL STEEL AS SHOWN UNLESS OTHERWISE NOTED  
 NOTCH BUSINESS REQUIREMENTS  
 SEE GENERAL NOTE SHT P1  
 PAINT THIS SURFACE AS SHOWN IN DETAIL  
 E/H SHT P1 WHERE INDICATED ABOVE

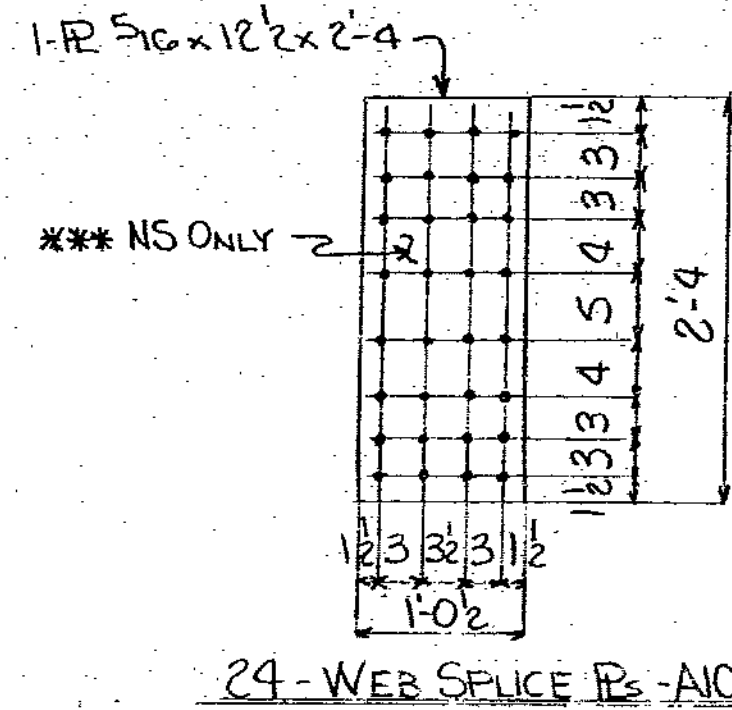
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BOLTS UNLESS NOTED  
 OPEN HOLES 1/8"  
 PAINT SEE PAINT NOTE SHT P1

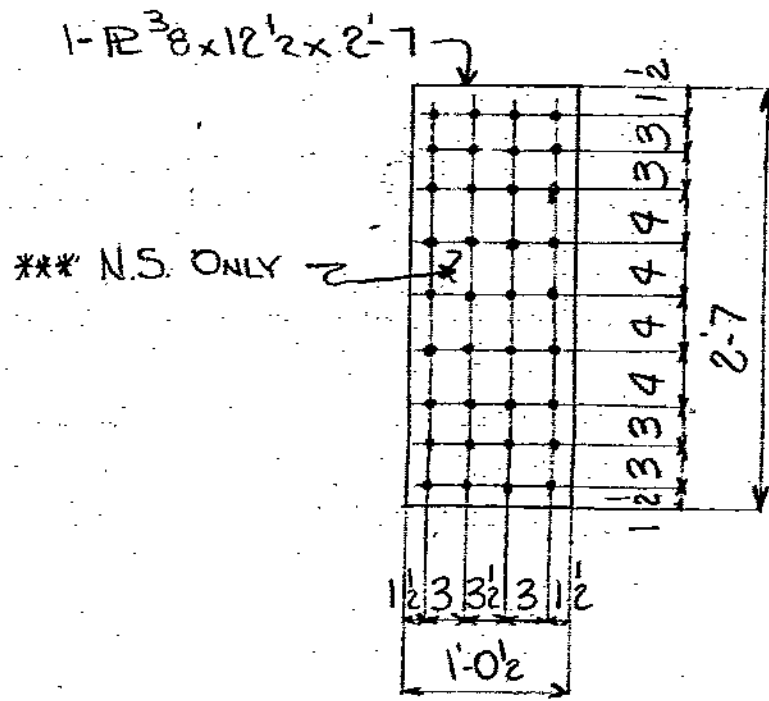




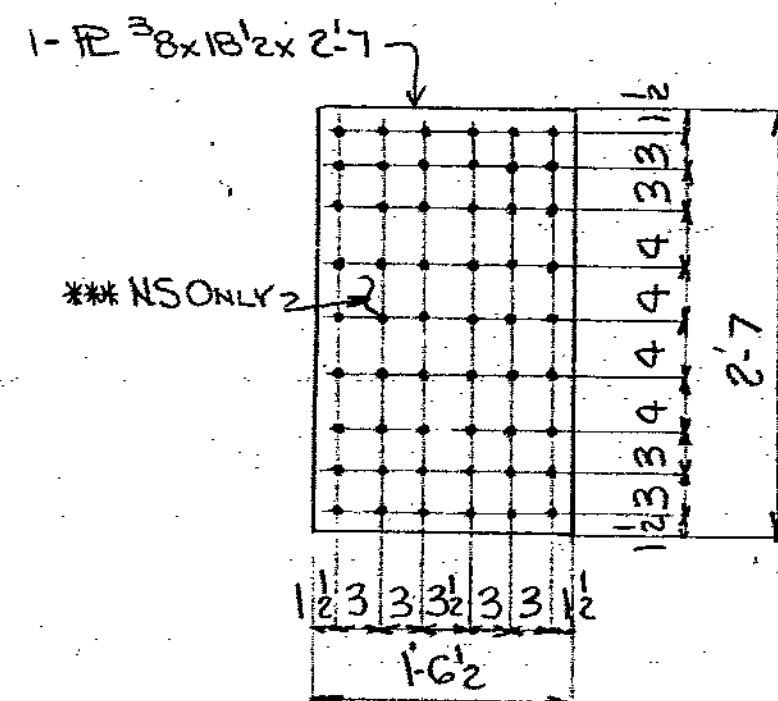
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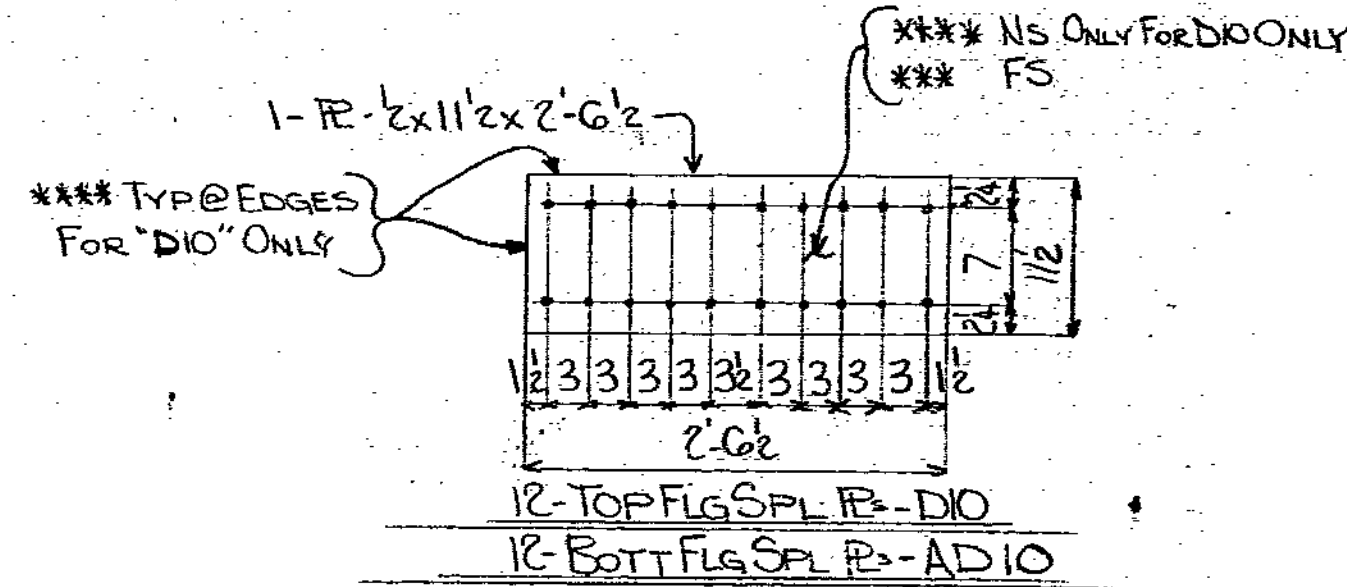
24-Web Splice R<sub>2</sub>-A10



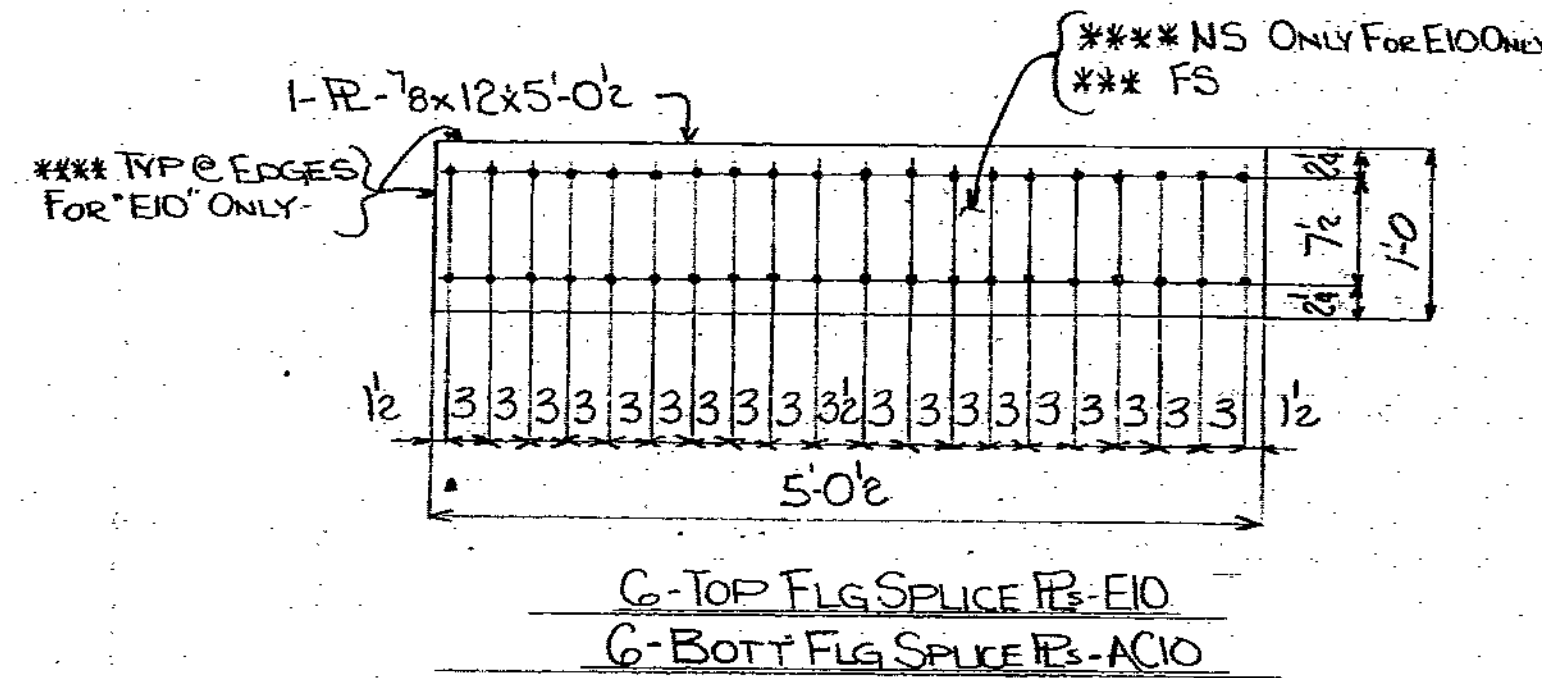
12-Web Splice R<sub>2</sub>-B10



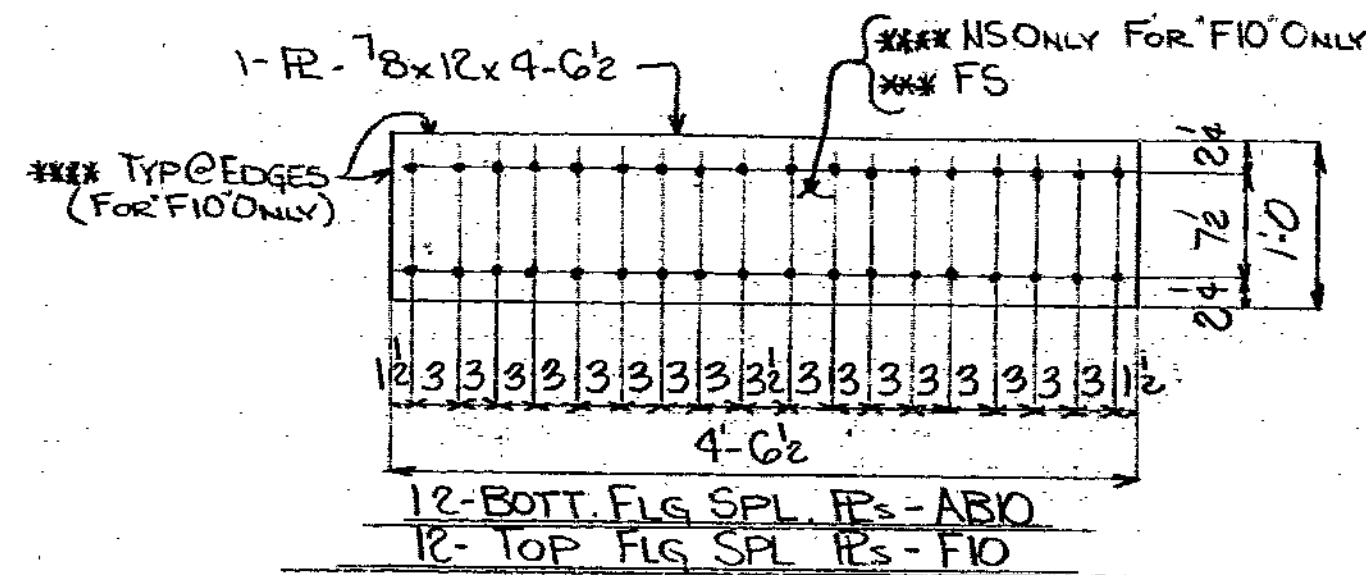
24-Web Splice R<sub>2</sub>-C10



12-Top Flg Splice R<sub>2</sub>-D10  
12-Bottom Flg Splice R<sub>2</sub>-A-D10

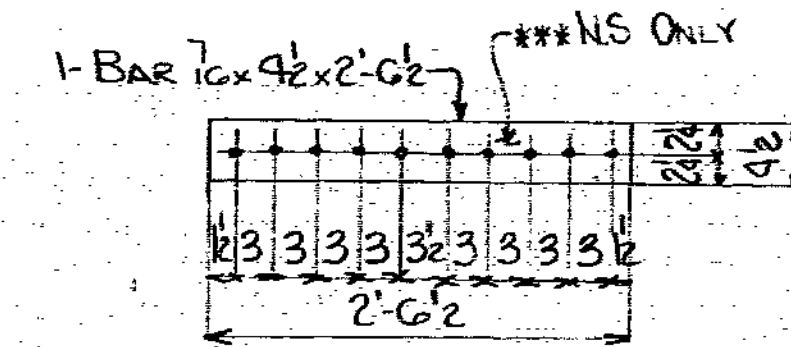
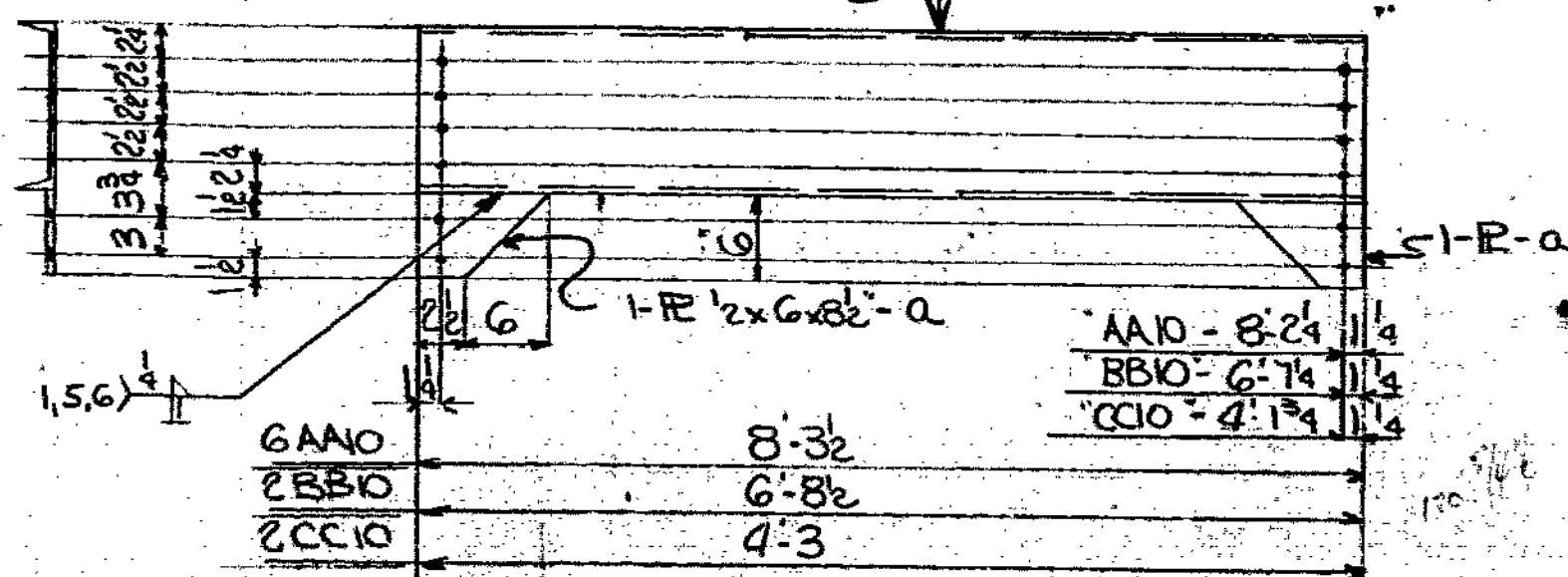


6-Top Flg Splice R<sub>2</sub>-E10  
6-Bottom Flg Splice R<sub>2</sub>-A-C10

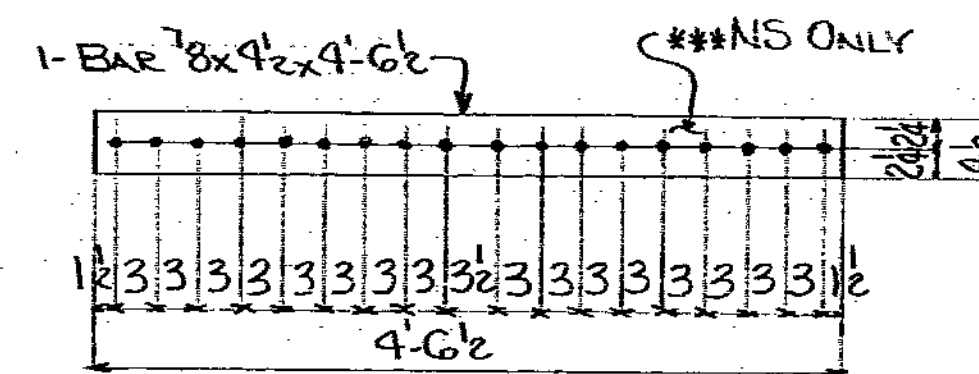


12-Bottom Flg Splice R<sub>2</sub>-A-B10  
12-Top Flg Splice R<sub>2</sub>-F10

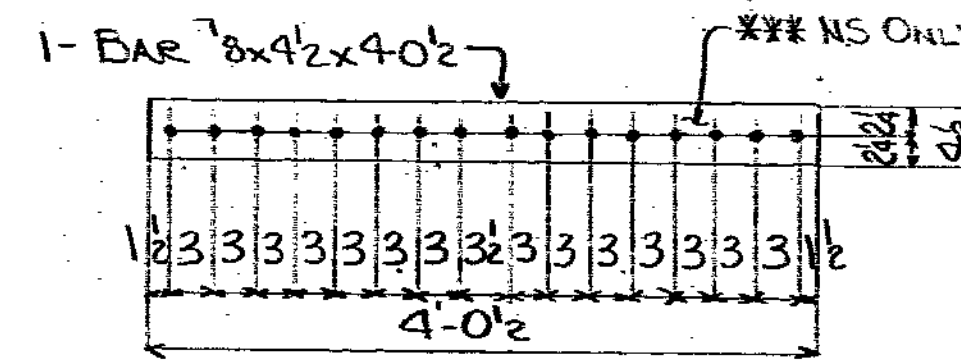
- 1-C12x20.7x8-3/8 (For AA10)
- 1-Do x 6-8 1/2 (For BB10)
- 1-Do x 4-3 (For CC10)



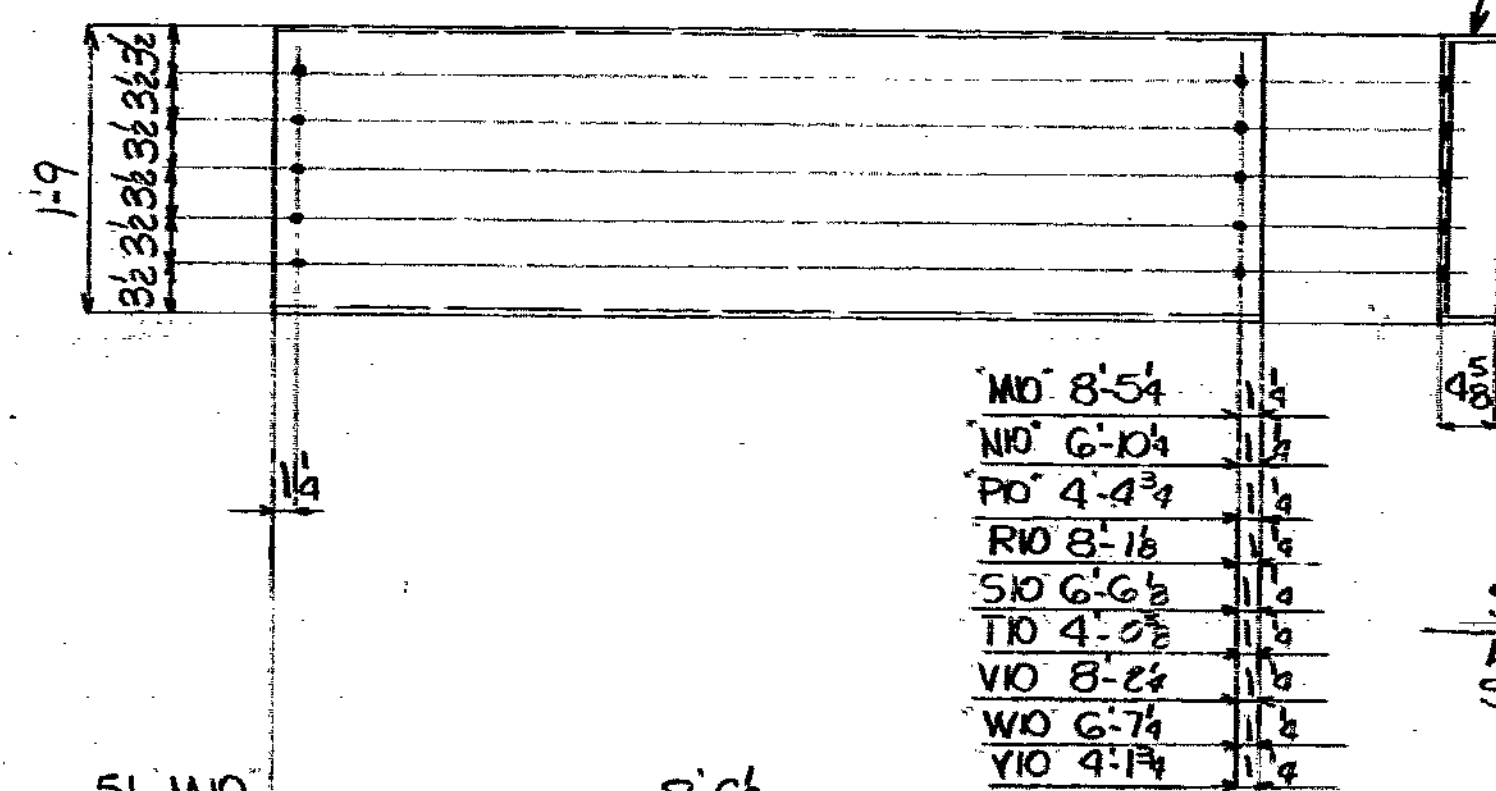
48-Top & Bottom Flg Splice R<sub>2</sub>-G10



24-Top & Bottom Flg Splice R<sub>2</sub>-H10



48-Top & Bottom Flg Splice R<sub>2</sub>-K10



- 1-B: 1/2 x 29 x 8-6 1/2 (For M10)
- 1-Do x 6-11 1/2 (For N10)
- 1-Do x 4-6 (For P10)
- 1-Do x 8-2 3/8 (For R10)
- 1-Do x 6-7 3/8 (For S10)
- 1-Do x 4-1 3/8 (For T10)
- 1-Do x 8-3 1/2 (For V10)
- 1-Do x 6-8 1/2 (For W10)
- 1-Do x 4-3 (For Y10)

**SHOP NOTE**  
ALL STEEL A-36 UNLESS OTHERWISE NOTED  
SEE GENERAL NOTE SHT P1

**FOR BRIDGE FILES**

PROJ. No I-70-1(80)  
STA. No 1049+50  
JOB No 4-I-70-173

APPROVED  
GENERAL DESIGN FEATURES ONLY  
APR 26 1979  
MSHD MISSOURI DEPT. OF HIGHWAYS

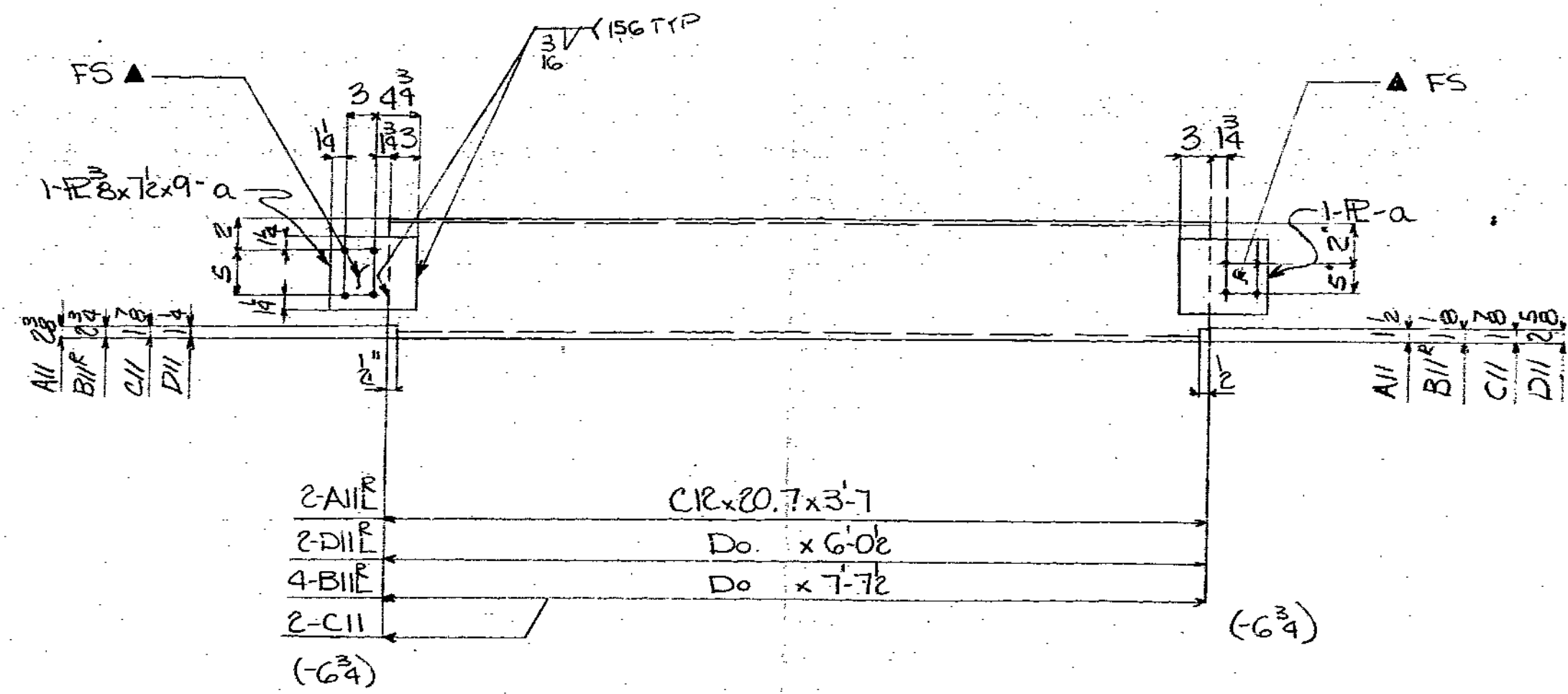
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**ST. JOSEPH STRUCTURAL STEEL CO.**  
ST. JOSEPH, MISSOURI  
STRUCTURE Mo BEAM BRIDGE 119C-R  
LOCATION JACKSON COUNTY Mo  
CUSTOMER KIEWIT CONST. Co  
ARCHITECT M.S.H.D.  
MADE BY J.M.S.M. DATE 2-23-79  
CHECKED BY AB DATE 3-7-79  
SHOP INSPECTION BY MSHD  
SH. No 10 SALE NO. 9570

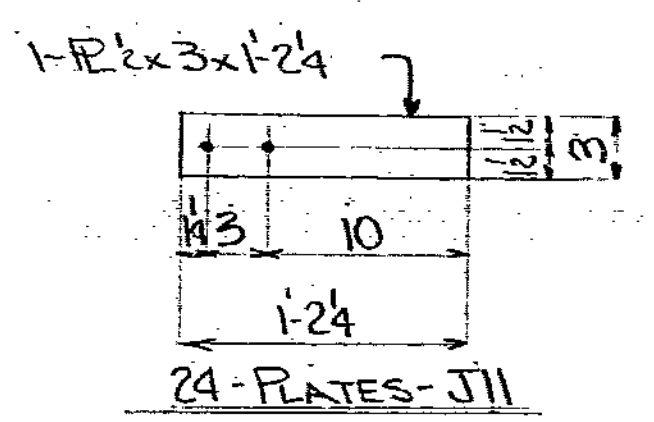
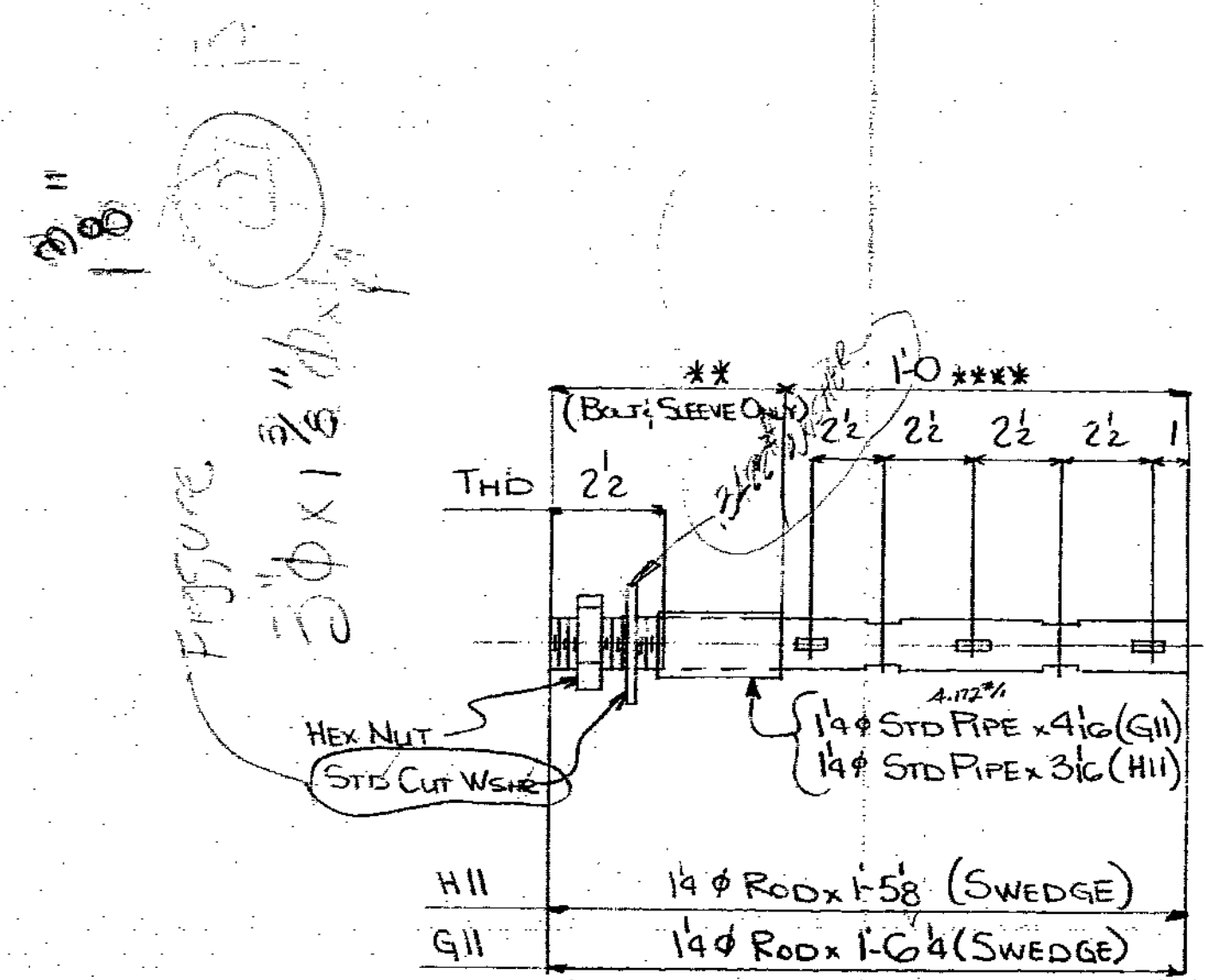
332



a b c d e f g h k m n p s t v w y aa ab ac ad af ag ah ak am an ap as at av aw ay



FIELD BOLTS			
NET	SHIP	DESCRIPTION	LOCATION
384	392	7/8 H.S. BOLTS x 2 1/2 (A325)	WEB SPLICE 'S'
864	881	Do x 2 3/4 (Do)	Do 'S2/S3'
980	990	Do x 3 (Do)	FLG SPLICE 'S'
144	147	Do x 3/4 (Do)	Do 'S2/S3'
1200	1224	Do x 4 (Do)	Do 'S2/S3'
1190	1214	3/4 H.S. BOLTS x 2 (Do)	END DIAPHRAGM WEBS END DIAPHRAGM STIFFENERS & STIFF.
330	338	Do x 2 1/4 (Do)	END DIAPHRAGM STIFFENERS & STIFF.
48	49	Do x 2 1/2 (Do)	ALIGNMENT 'Z...'
1571	1603	3/4 HARDENED WHEELS	
3072	3133	7/8 Do	
48	49	2 H.A.C.H. EX-S x 1 1/4	EXP JOINT
48	49	Do x 1 3/4	EXP JOINT TO BEAM



26 - ANCHOR BOLTS - G11 (@Brs 2,3,4,5,6,7,8,9)  
 24 - DO - H11 (@Brs 1,10)

SHOP NOTE  
 ALL STEEL A-56 UNLESS OTHERWISE NOTED  
 SEE GENERAL NOTE SHT P1  
 ▲ SEE P1 SHT DETAIL J

FOR BRIDGE FILES

PROJ No I-70-1(50) APPROVED  
 STA No 1049-50 GENERAL DESIGN FEATURES ONLY  
 JOB No 4-I-70-173 JUN 11 1979

MO. STATE HIGHWAY DEPT.  
 DIVISION OF BRIDGES

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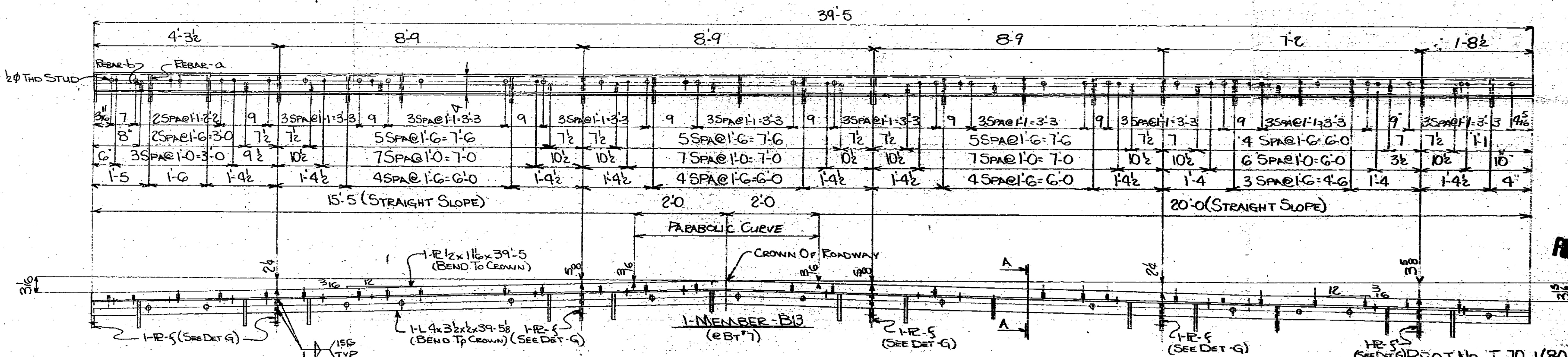
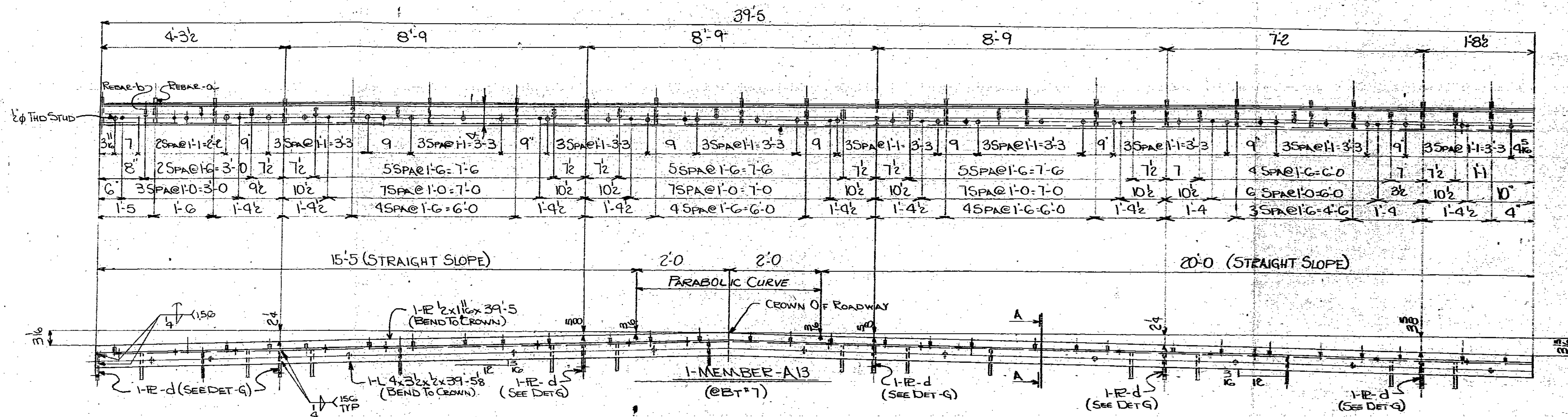
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ST. JOSEPH STRUCTURAL STEEL CO.  
 ST. JOSEPH, MISSOURI  
 STRUCTURE I-70 BEAM BRIDGE L-1968  
 LOCATION JACKSON COUNTY MO  
 CUSTOMER KIEWIT CONST CO  
 ARCHITECT MSHD  
 MADE BY J. WEAH DATE FEB 23 79  
 CHECKED BY AS DATE 3-22-79  
 SHOP INSPECTION BY MSHD  
 Sht. No. 11 SALE NO. 4570

BOLTS: UNLESS NOTED  
 OPEN HOLES: 1/8"  
 PAINT: SEE PAINT NOTES SHT P1

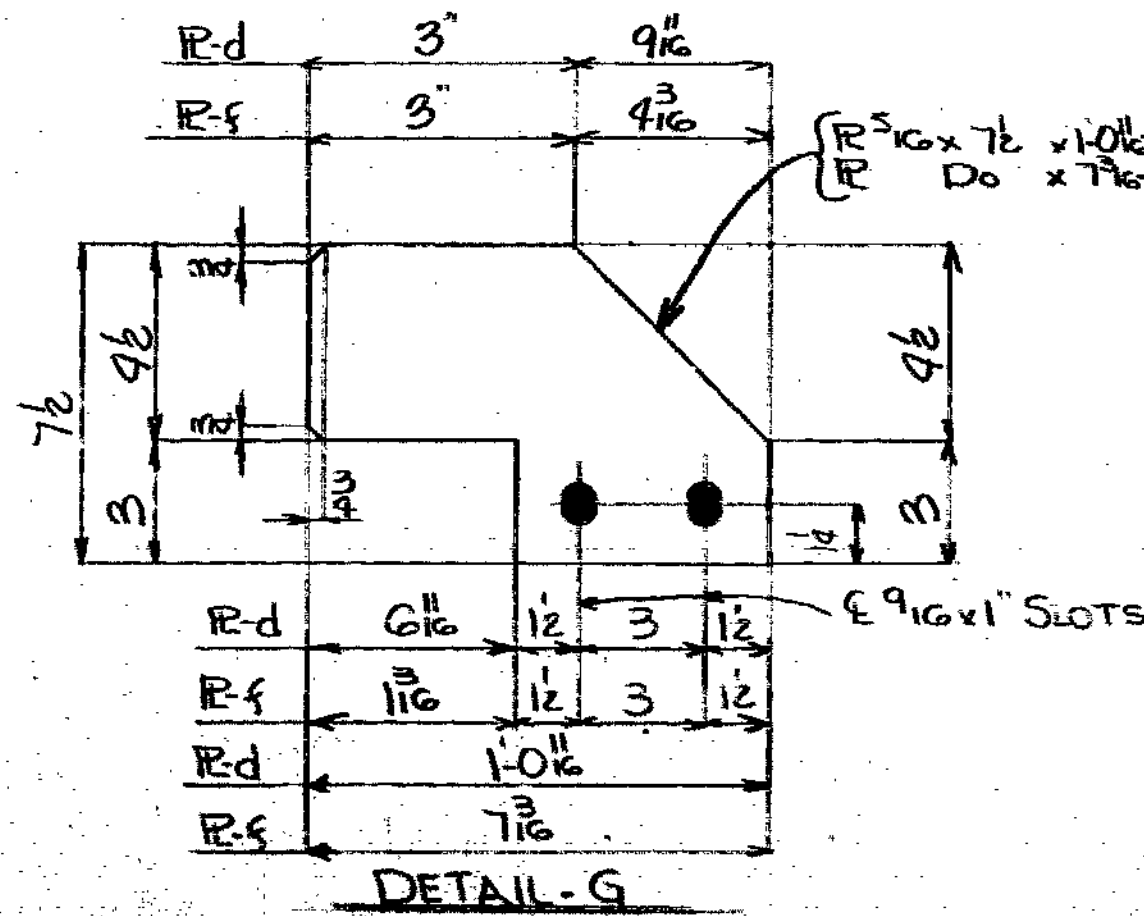
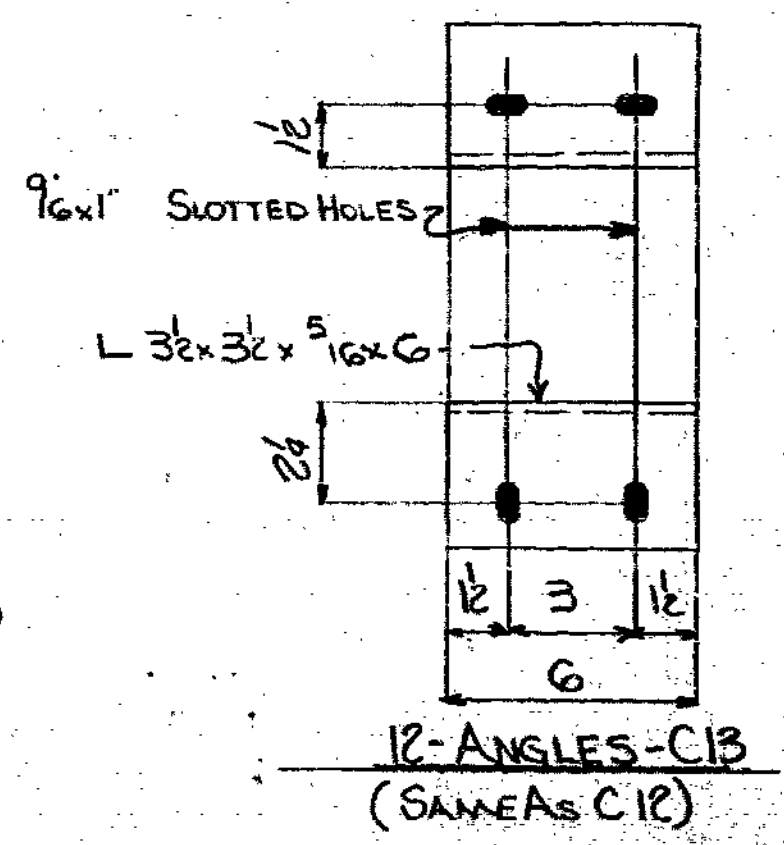
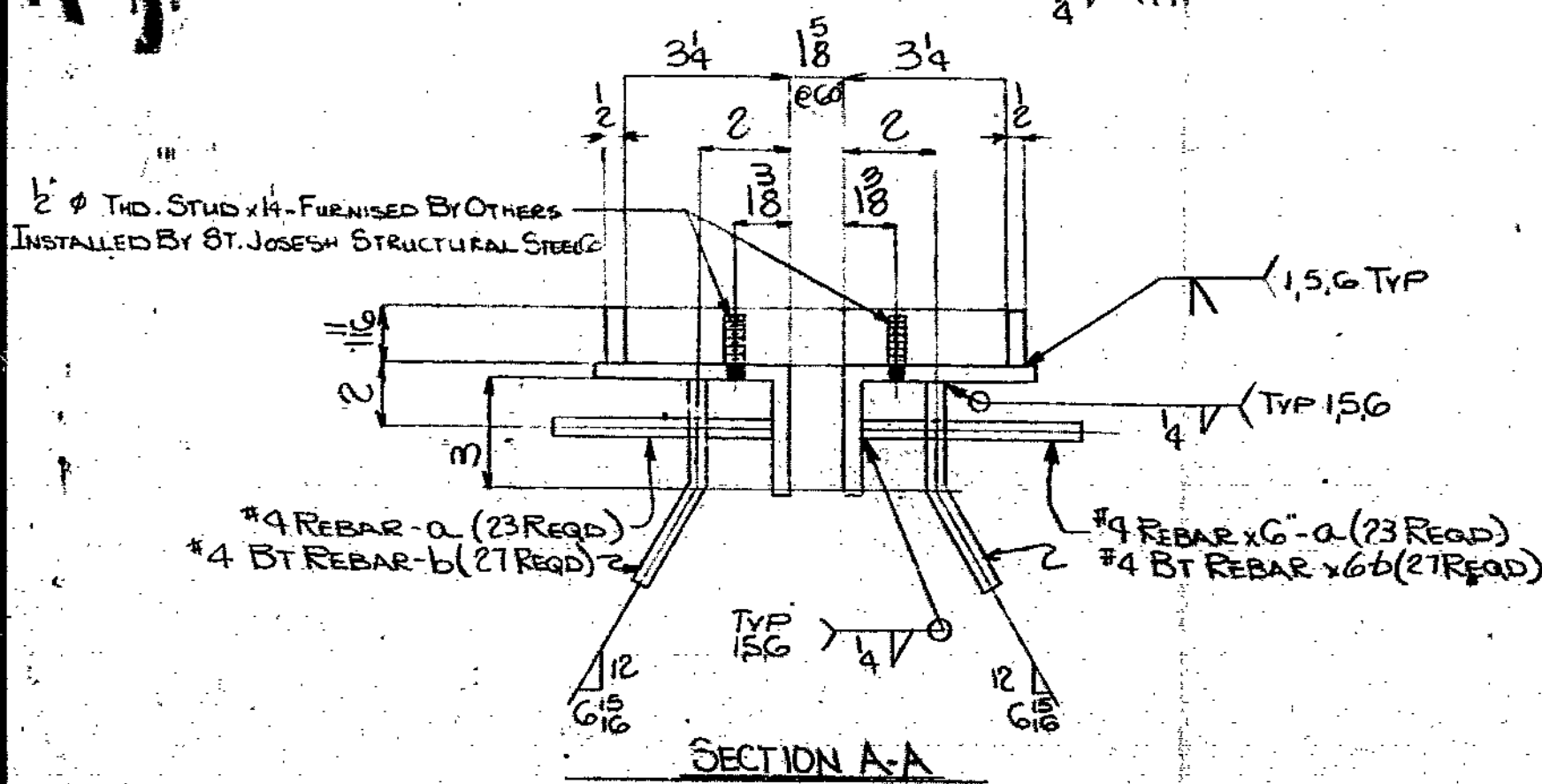


abcdefghijklmnopqrstuvwxyz abc ab ac ad ae af ah ak am an ap as at av aw ay



335

FOR INDEX FILES



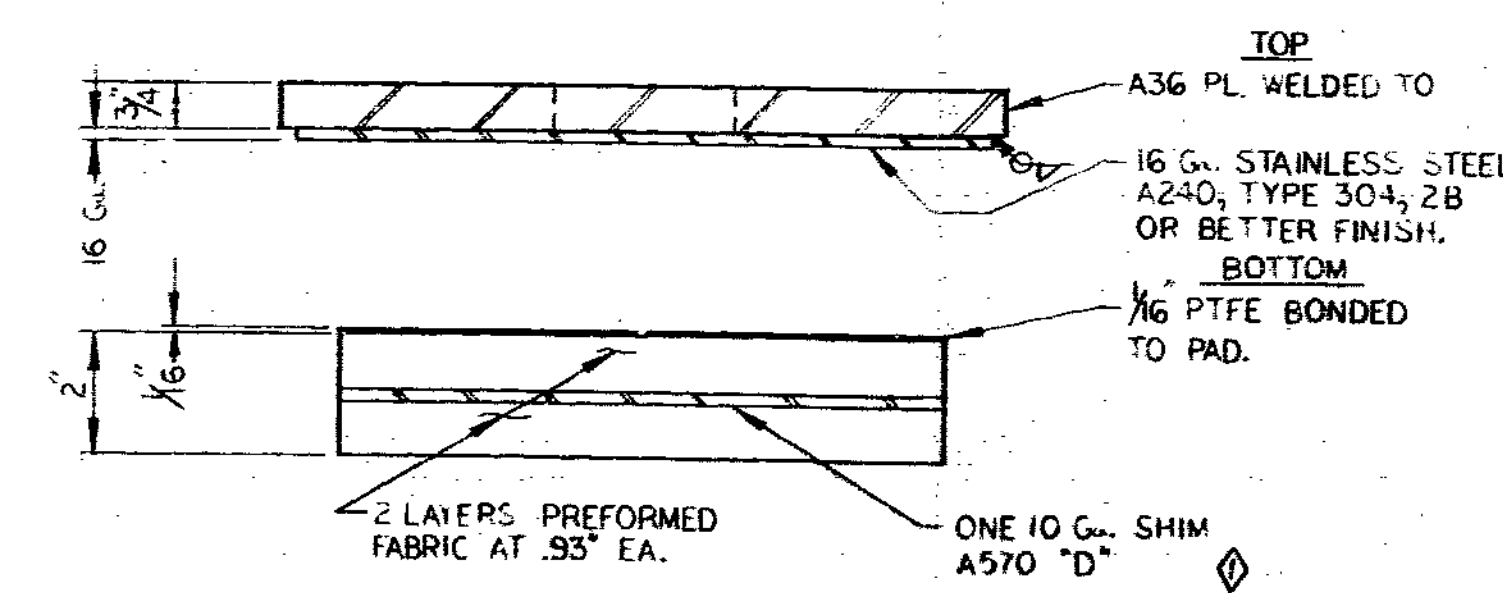
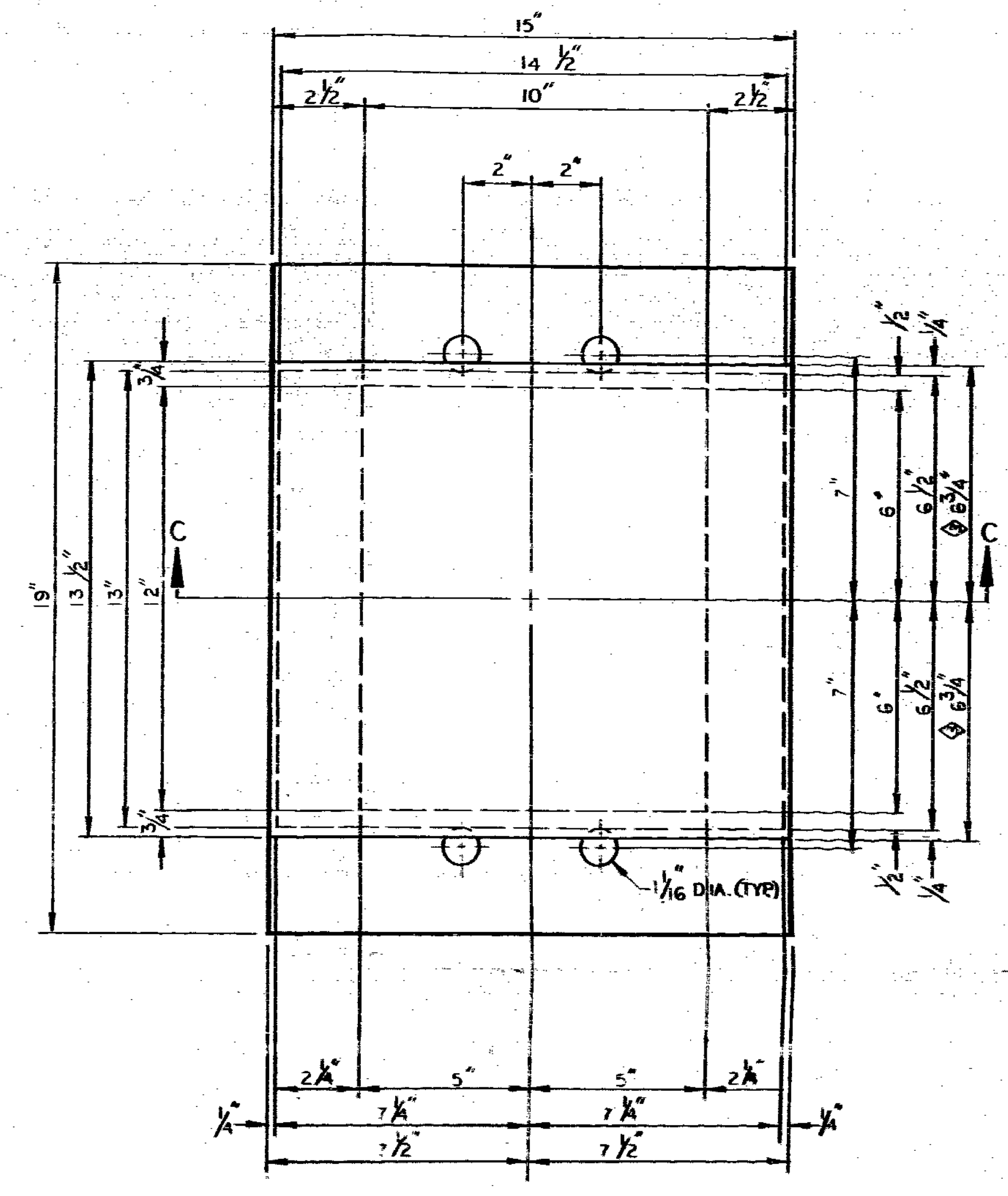
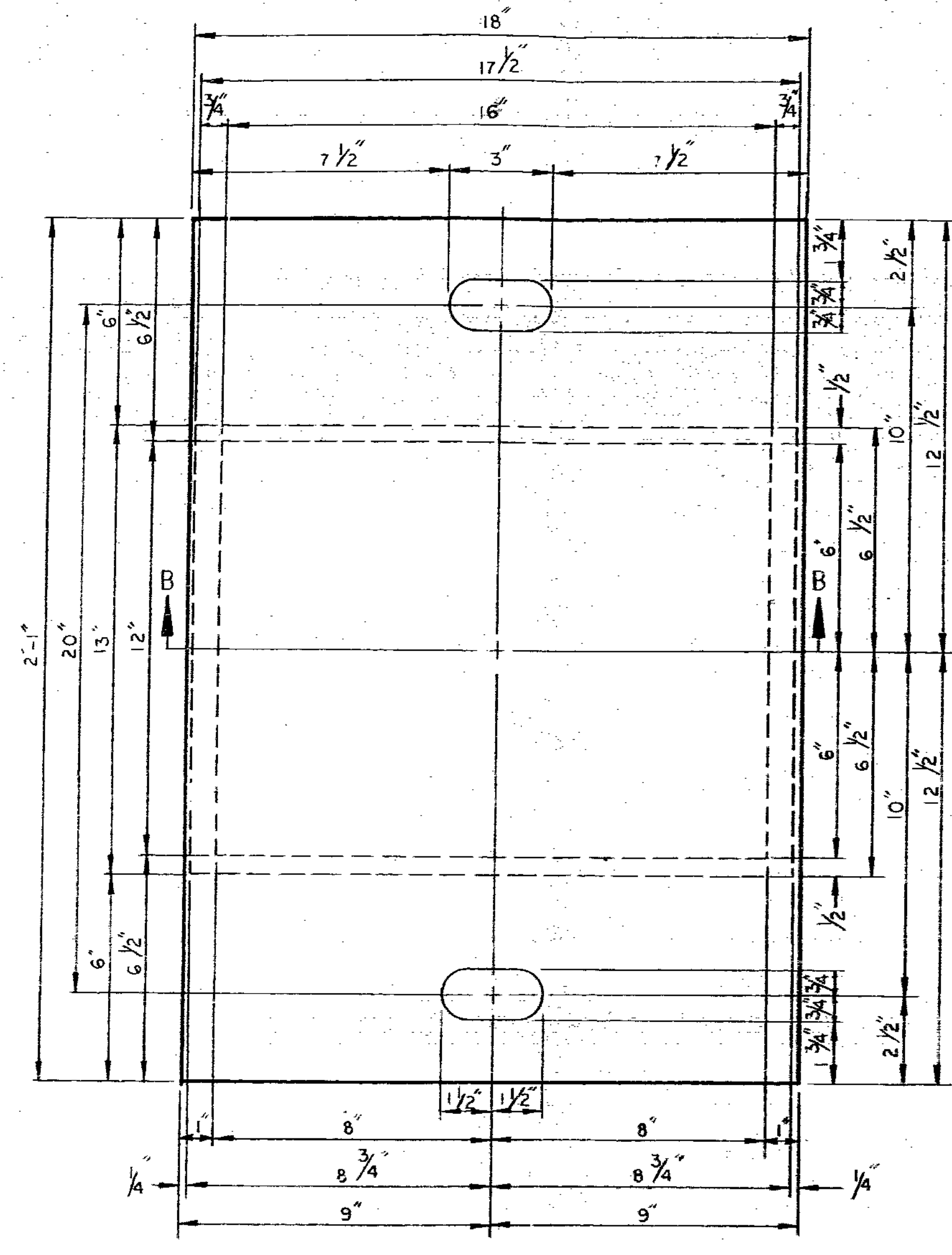
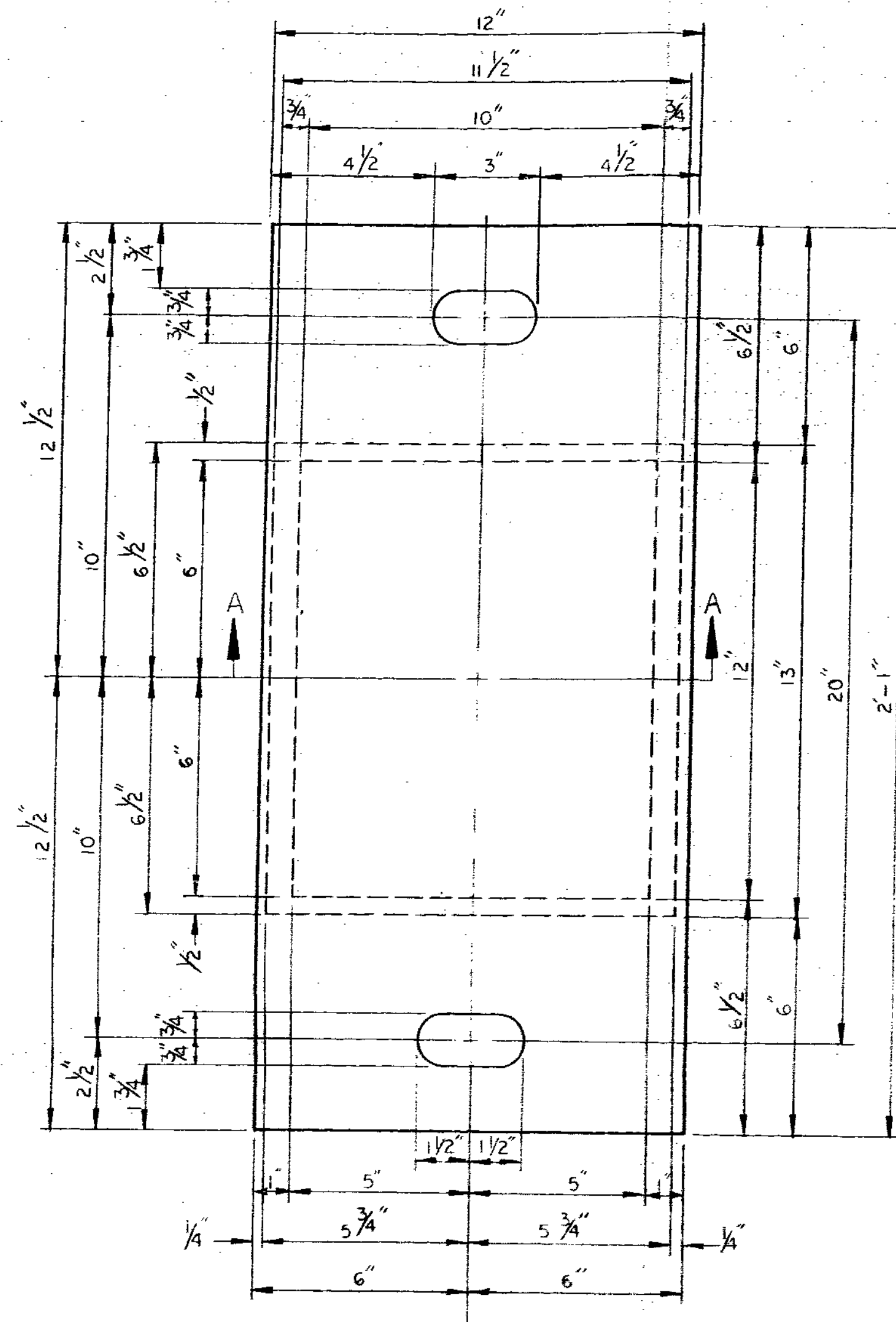
PROJECT No. I-70-1(80) APPROVED  
 STA No. 1049+50 GENERAL DESIGN FEATURES ONLY  
 JOB No. 4-I-70-173 APR 26 1979  
 MR. STATE HIGHWAY DEPT  
 DIVISION OF HIGHWAYS

**SHOP NOTE**  
 ALL STEEL TO BE A36. ALL NO. 4 REBAR  
 TO BE STRUCTURAL GRADE.  
 HOLES IN HORIZ. LEGS MAY BE MOVED SLIGHTLY  
 AS REQD FOR CLEARANCE

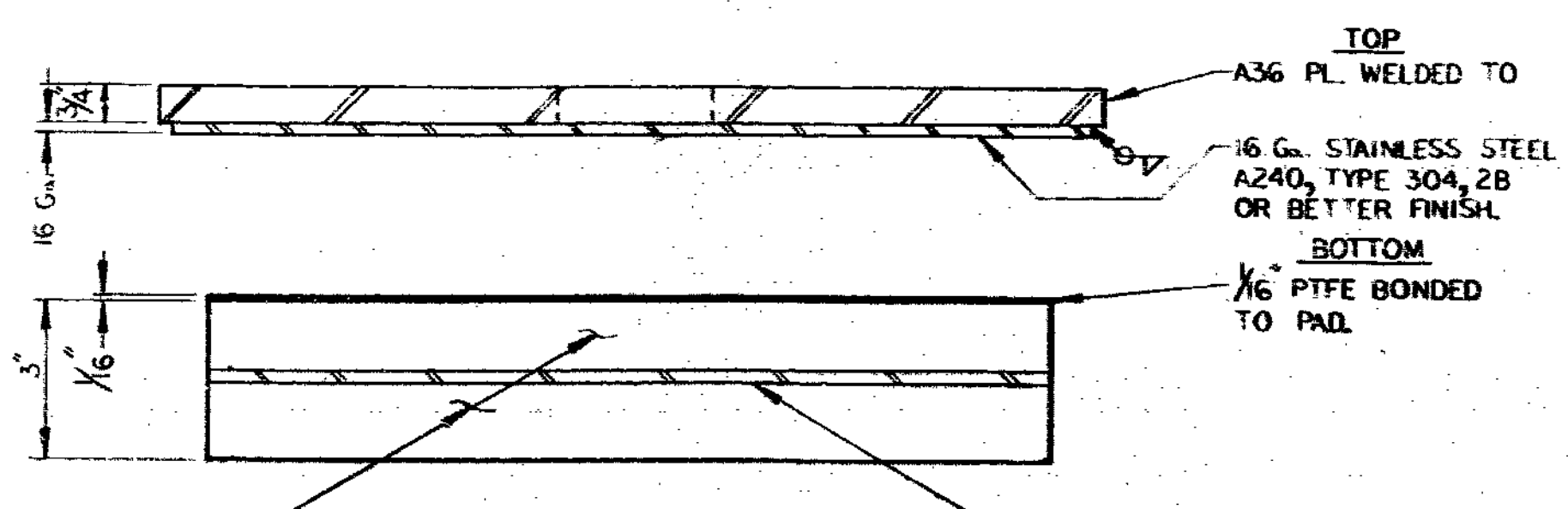
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BOLTS: \_\_\_\_\_ UNLESS NOTED  
 OPEN HOLES: 9/16"  
 PAINT: SEE PAINT NOTE SHEET P1

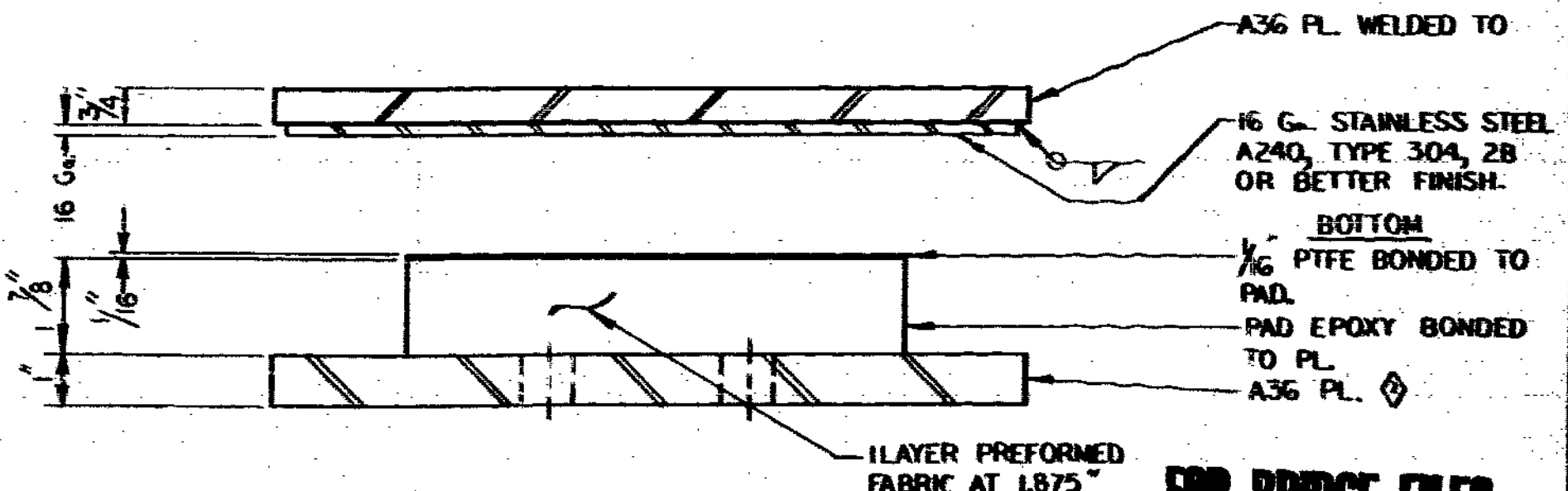
**ST. JOSEPH STRUCTURAL STEEL CO.**  
 ST. JOSEPH, MISSOURI  
 STRUCTURE: MO. BEAN BRIDGE "C-1462"  
 LOCATION: JACKSON COUNTY MO  
 CUSTOMER: KIEWIT CONST CO  
 ARCHITECT: MSJD  
 MADE BY: JMSM DATE: 3-5-79  
 CHECKED BY: AB DATE: 3-27-79  
 SHOP INSPECTION BY: MSJD  
 SH. No. 13 SALE NO. 4570



SECTION A-A  
BENT NO. 1 & 10  
12 REQ'D.  
MK-A



SECTION B-B  
BENT NO. 3 & 8  
12 REQ'D.  
MK-B



SECTION C-C  
BENT NO. 4 & 7  
12 REQ'D.  
MK-C

NOTES:  
MATERIALS TO MEET THE REQUIREMENTS OF THE MISSOURI HWY. DEPT. SPECIFICATIONS 1977, SEC. 1038 AND THE PLANS AND PROPOSAL JACKSON COUNTY, MO., PROJECT NO. I-70-1(80)

PTFE SLIDING BEARINGS  
TYPE "F" ELASTOMERIC BEARINGS

FOR BRIDGE FILES  
APPROVED  
GENERAL DESIGN FEATURES ONLY  
JUN 21 1979  
MO. STATE HIGHWAY DEPT.  
DIVISION OF BRIDGES

336

Gene Harris 6-15-79



PROJECT NO. I-70-1(80)		JOB # 4-I-70-173		BRIDGE # L-146R	
THE CARTER-WATERS CORP.		MISSOURI STATE HIGHWAY DEPT.		JACKSON COUNTY	
MADE BY OTHERS	6 K	ADDED INFO.	DATE	BY	DATE
			5-15-79		
ELASTOMERIC BEARING PAD				D 10429	





# FEL-SPAN

HIGHWAY JOINT SYSTEM INSTALLATION DETAILS.

GENERAL NOTES: (IMPORTANT FOR INSTALLING CONTRACTOR)

- (1) IT IS VITAL FOR A SUCCESSFUL INSTALLATION THAT THE FORMING DIMENSIONS SHOWN ON THE JOINT LAYOUT AND FORMING DETAIL SHEET(S) ARE KEPT ACCURATELY. EXTRAORDINARY CARE AT THIS POINT CAN SAVE THE CONTRACTOR COSTLY CORRECTIVE MEASURES AT THE TIME OF THE INSTALLATION.
- (2) WHEN FEL-SPAN IS INSTALLED ON CONCRETE, THE CONCRETE SURFACE IN CONTACT WITH THE RUBBER PADS HAS TO BE FREE OF LAITANCE AND UNSOUND CONCRETE BEFORE BEDDING EPOXY IS APPLIED.
- (3) WHEN FEL-SPAN IS INSTALLED ON STEEL, THE STEEL SURFACE IN CONTACT WITH THE RUBBER PADS HAS TO BE FREE OF RUST AND OTHER CONTAMINATING MATERIAL COMPLETELY BEFORE APPLYING THE BEDDING EPOXY.
- (4) THE LAST PAD INSTALLED ON THE ROADWAY, SIDEWALK AND MEDIAN JOINT HAS TO BE CUT IN FIELD BY THE INSTALLING CONTRACTOR TO INSURE PROPER FIT AT THE CURB FACE. OTHER FEL-SPAN UNITS MAY HAVE TO BE FIELD CUT IF THERE ARE DISCREPANCIES BETWEEN THE DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS AND THE "AS BUILT" DIMENSIONS.
- (5) IN NEW CONSTRUCTION, IT IS STRONGLY RECOMMENDED TO SPACE THE DECK REBARS TO MISS THE FEL-SPAN ANCHOR BOLTS.

DRWG*	INDEX OF SHEETS	TITLE
A-FS-892	TITLE SHEET	
A-FS-892-1	JOINT LAYOUT AND FORMING DETAILS - BENT #4	
A-FS-892-2	JOINT LAYOUT AND FORMING DETAILS - BENT #7	
A-FS-SPEC.	FEL-SPAN EXPANSION JOINT SPECIFICATIONS AND INSTALLATION PROCEDURE	
A-FS-T20-1 1/4	FEL-SPAN T20-1 1/4 THICK - 2" TOTAL MOTION RATING ELASTOMERIC EXPANSION DEVICE FEL-PRO# 54106	
A-FS-T30SA-1 1/2	FEL-SPAN T30SA-1 1/2 THICK - 3" TOTAL MOTION RATING ELASTOMERIC EXPANSION DEVICE FEL-PRO# 54144	

APPROVED  
GENERAL DESIGN FEATURES ONLY  
JUN 4 1979  
MO. STATE HIGHWAY DEPT.  
DIVISION OF BRIDGES

FOR BRIDGE FILES

MISSOURI STATE HIGHWAY COMMISSION  
BRIDGE I-70 OVER SAI-A BAR CREEK AREA  
1.2 MI. EAST OF GRAIN VALLEY,  
PROJECT = I-70-1(80)  
BRIDGE = L-146 R.  
STA. 1049 + 50  
JOB = 4 1070 173  
RTE. I-70  
JACKSON COUNTY

FEL-PRO FILE # MO-9-5

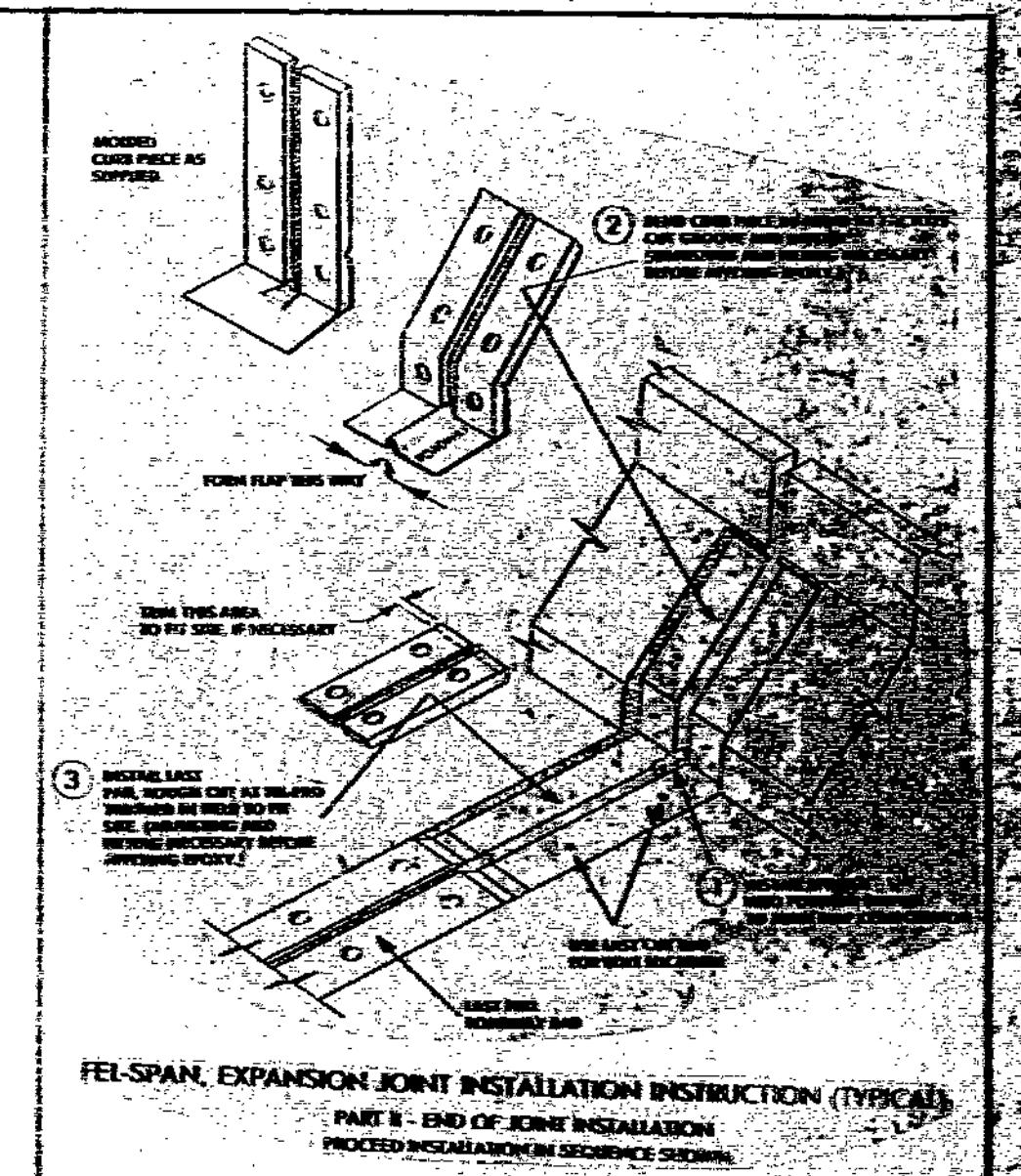
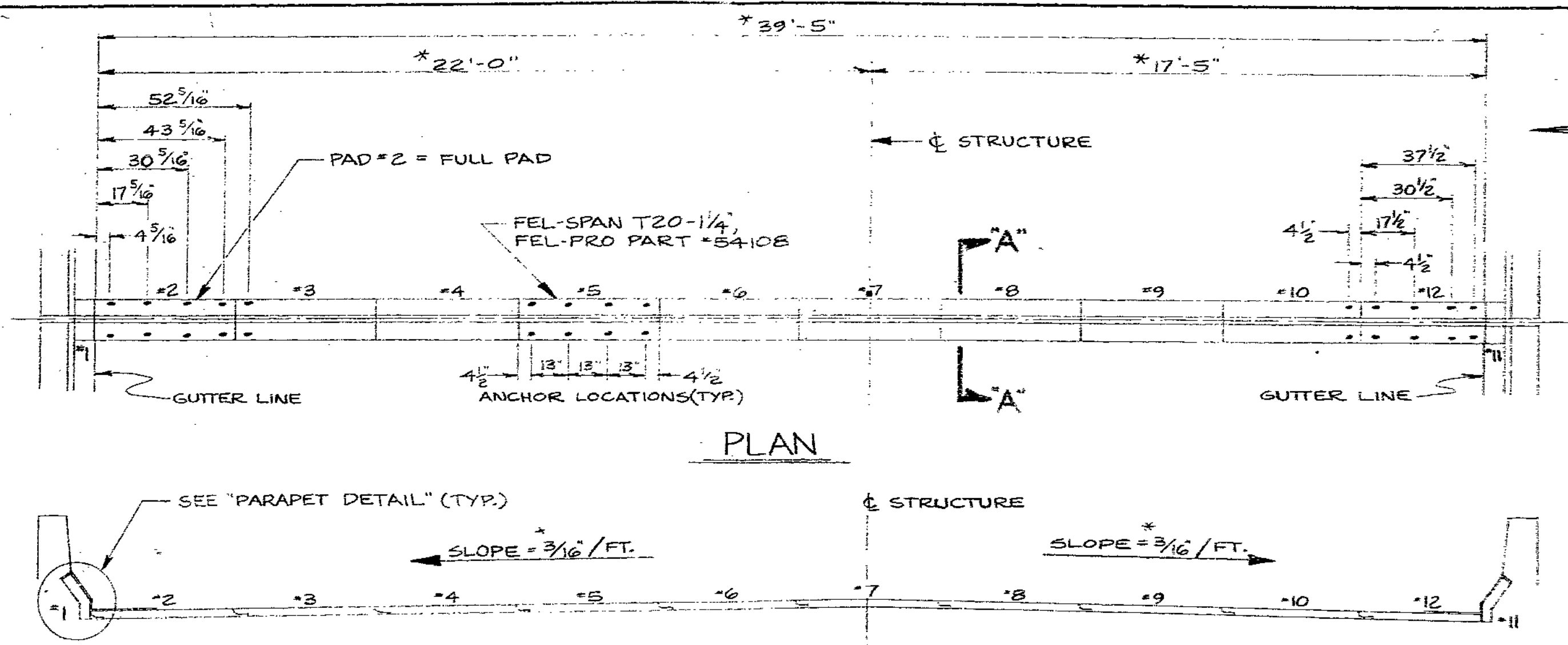
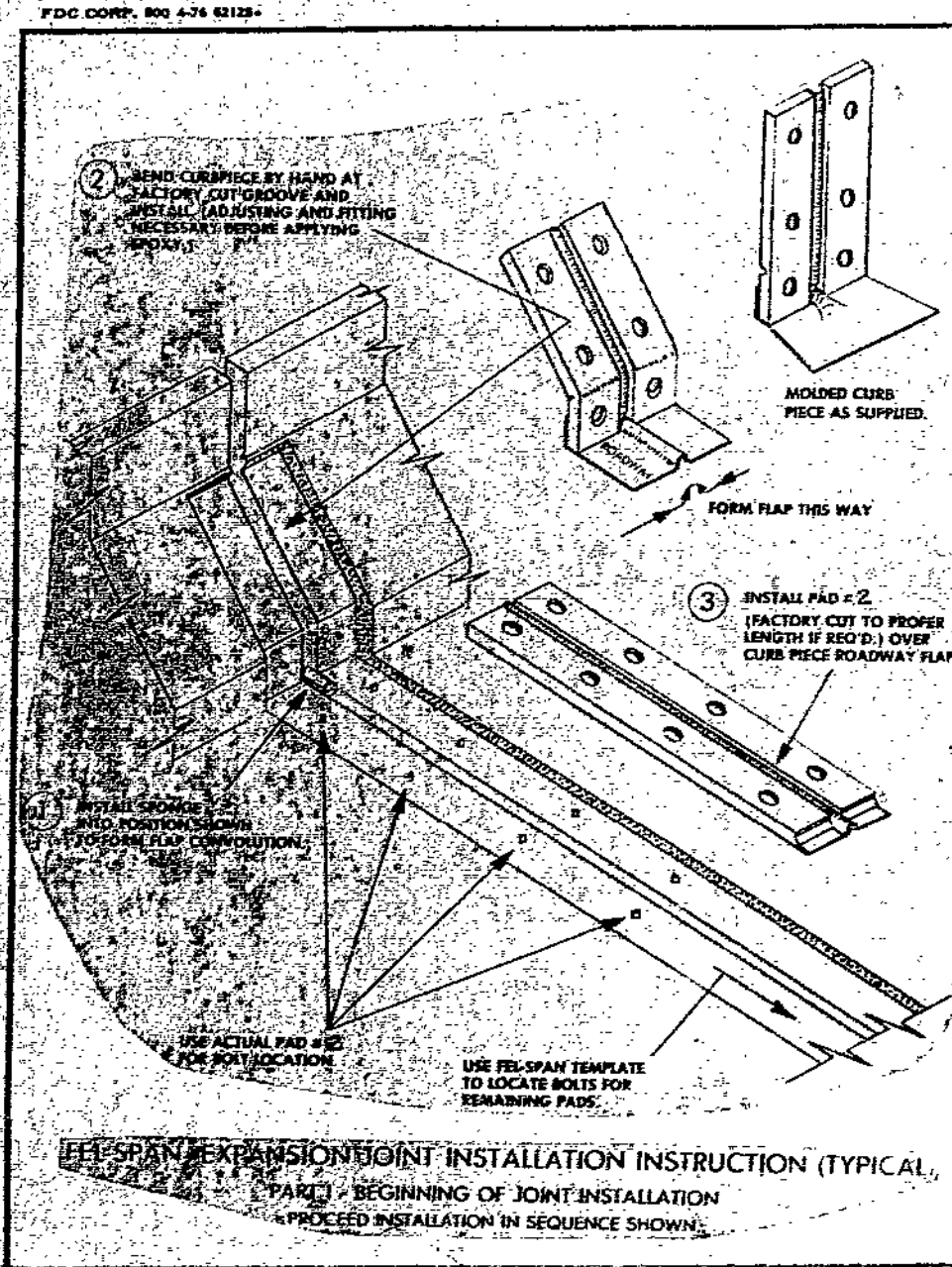
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CONSTRUCTION PRODUCTS DIVISION  
7450 MCCORMICK BLVD. SIOCKE, ILLINOIS

FEL-SPAN INSTALLATION TITLE SHEET

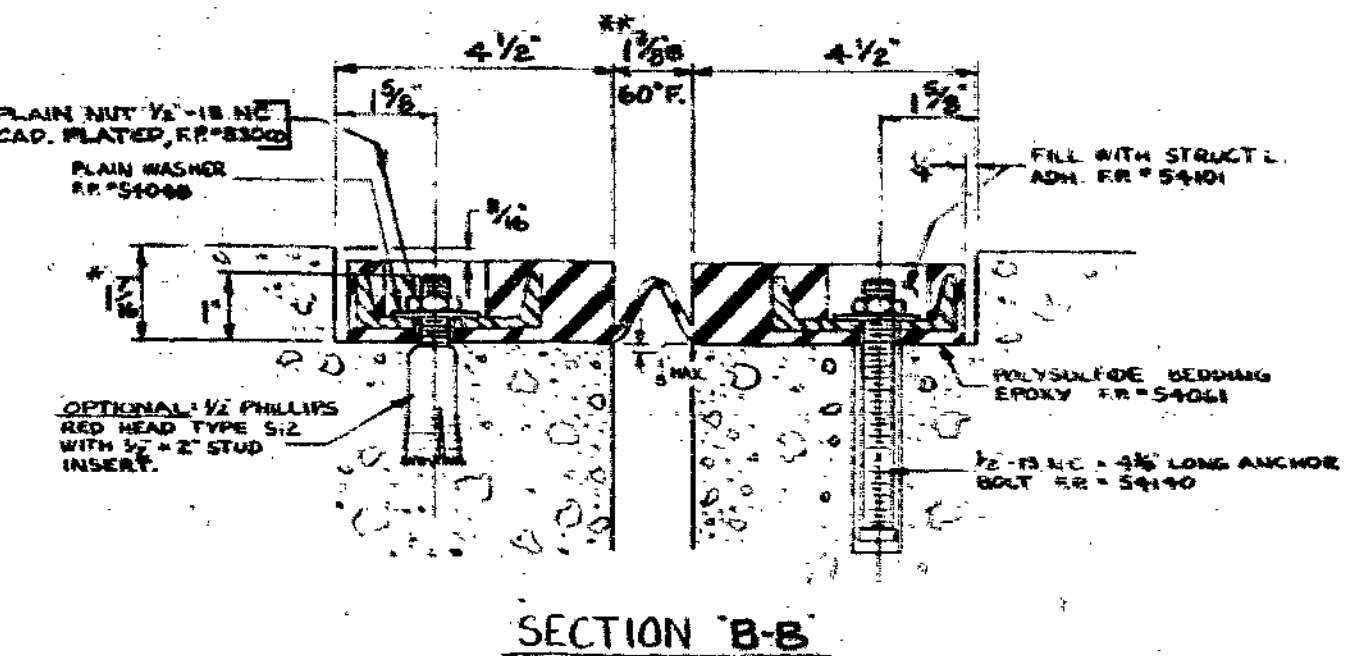
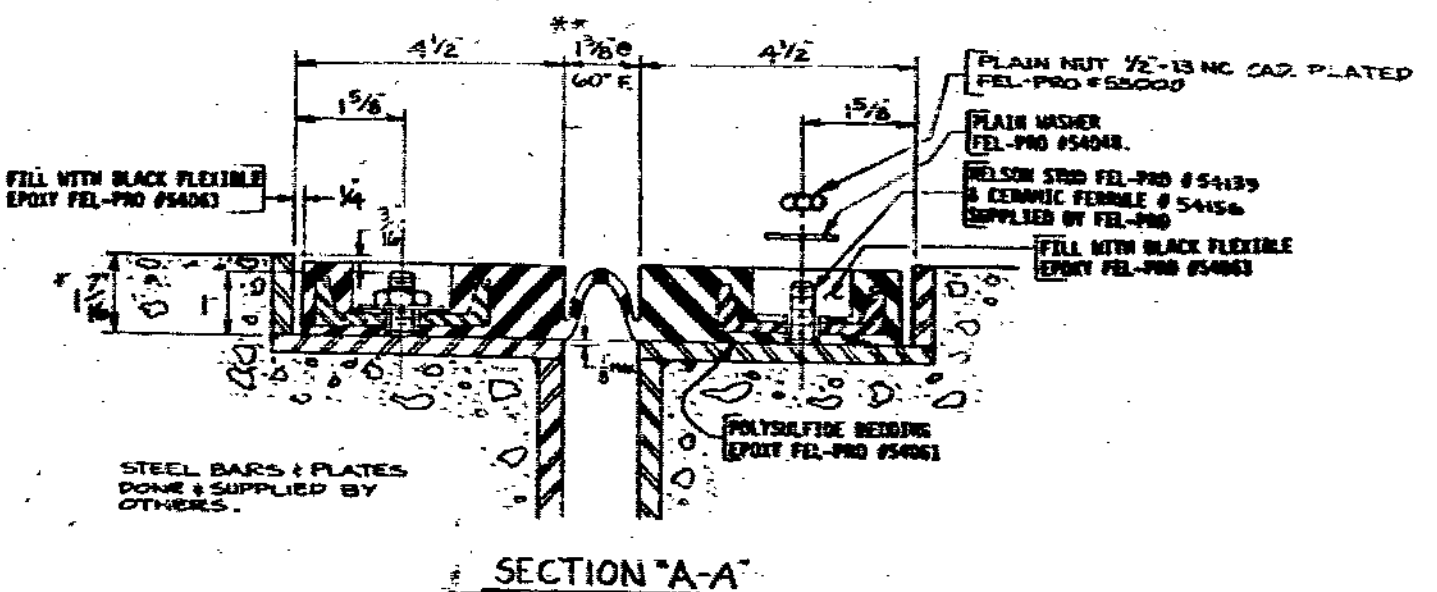
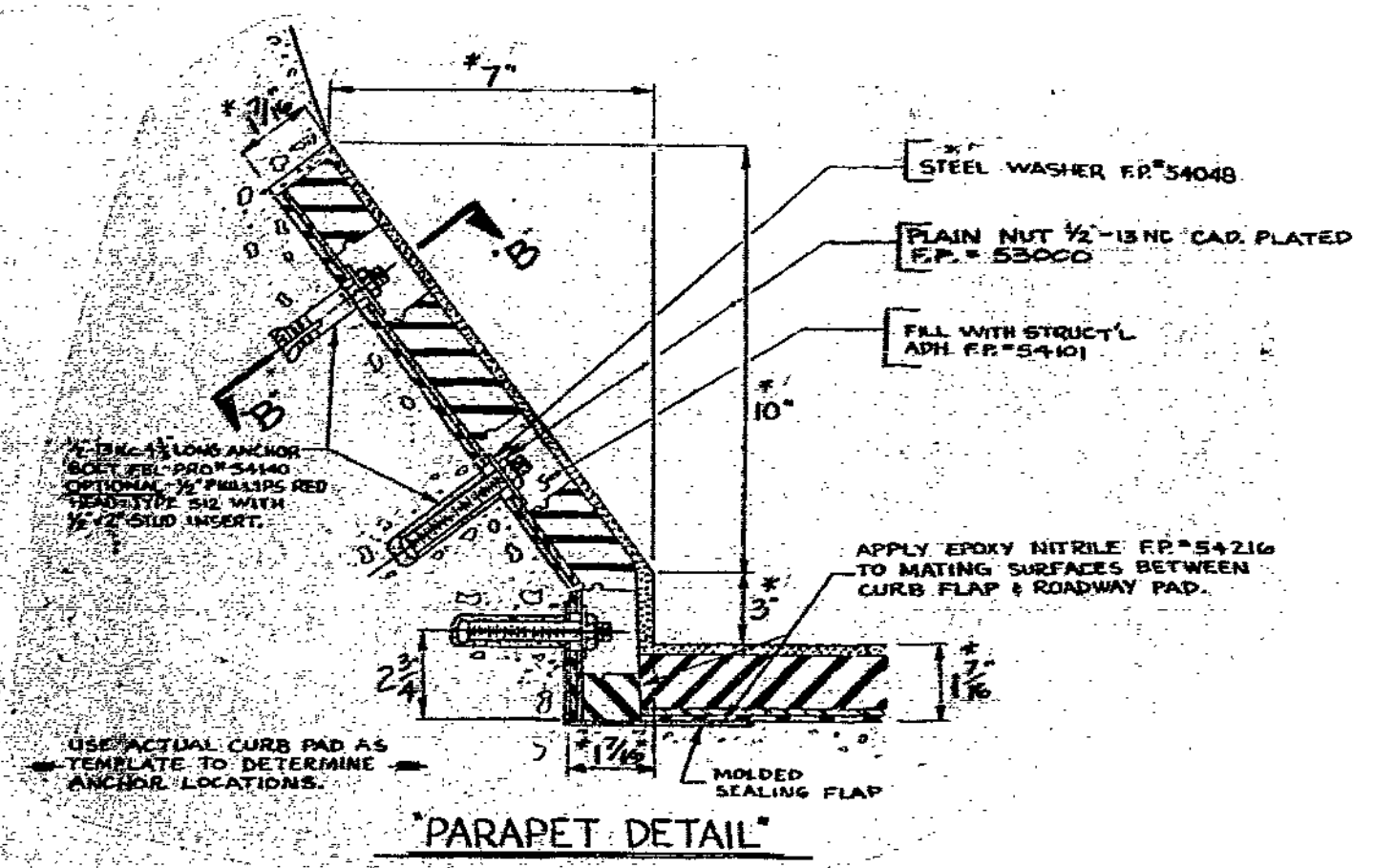
339

A	B	C	D	E	F	G	H	I	J	K	L	M			
CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION

DRAWN BY *M.L.* DATE 3-12-79 SCALE  
CHECKED BY *M.L.* PROD. ENG. *[Signature]* APPROV. *[Signature]*



ELEVATION  
JOINT @ BENT #4  
ANCHOR SYSTEM: STUDWELD & ROADWAY  
DRILL & GROUT @ PARAPETS



NOTE "A"  
PAD #1 AND SUBSEQUENT NUMBERS INDICATE SEQUENCE OF INSTALLATION OF EXPANSION JOINT PADS. MODIFIED AT FACTORY TO FIT DIMENSIONS OF JOINT. LENGTH PAD WAS CUT AT FEL-PRO TO THE DIMENSIONS SHOWN. MODIFIED AT FACTORY AND/OR IN FIELD AS REQUIRED. DIMENSIONS FEL-PRO PART #5410B STANDARD PAD, BUT FINAL CUTTING IS A SOURCE IN FIELD TO CONFORM TO ACTUAL SITE DIMENSIONS.  
  
PADS #1 & #11 MODIFIED AT FACTORY.  
PAD #12 MODIFIED AT FACTORY AND/OR IN FIELD AS REQUIRED. (PER NOTE "A")  
  
PADS #2 & #12 EACH EXTEND 3/16" INTO CURB.  
  
\*\* DIMENSION SHALL BE INCREASED BY 1/8" FOR EACH 10' FALL IN TEMPERATURE AND DECREASED BY 1/8" FOR EACH 10' RISE IN TEMPERATURE.

FOR BRIDGE FILES

APPROVED  
GENERAL DESIGN FEATURES ONLY IMPORTANT:  
JUN 4 1979  
MO. STATE HIGHWAY DEPT.  
DIVISION OF BRIDGES  
  
ALL DIMENSIONS SPECIFIED ON THE FORM AND DRAWINGS MUST BE KEPT ACCURATELY. ANY VARIATION BEYOND 1/8" W/RT REQUIRE APPROVAL OF THE RESIDENT ENGINEER.

MISSOURI STATE HIGHWAY COMMISSION  
BRIDGE I-70 OVER SMI-A-BAR CREEK ABOUT 1.2 MI. EAST OF GRAN VALLEY, PROJECT = I-70-1(80), BRIDGE = L-146 R STA. 104.9 + 50 JOB = 4 1070 173 R.T.E. I-70 JACKSON COUNTY

FEL-PRO FILE # MO-9-5  
FEL-PRO INCORPORATED  
CONSTRUCTION PRODUCTS DIVISION  
7450 MCCORMACK BLVD. ST. LOUIS, MISSOURI

JOINT LAYOUT & FORMING DETAILS  
BENT #4

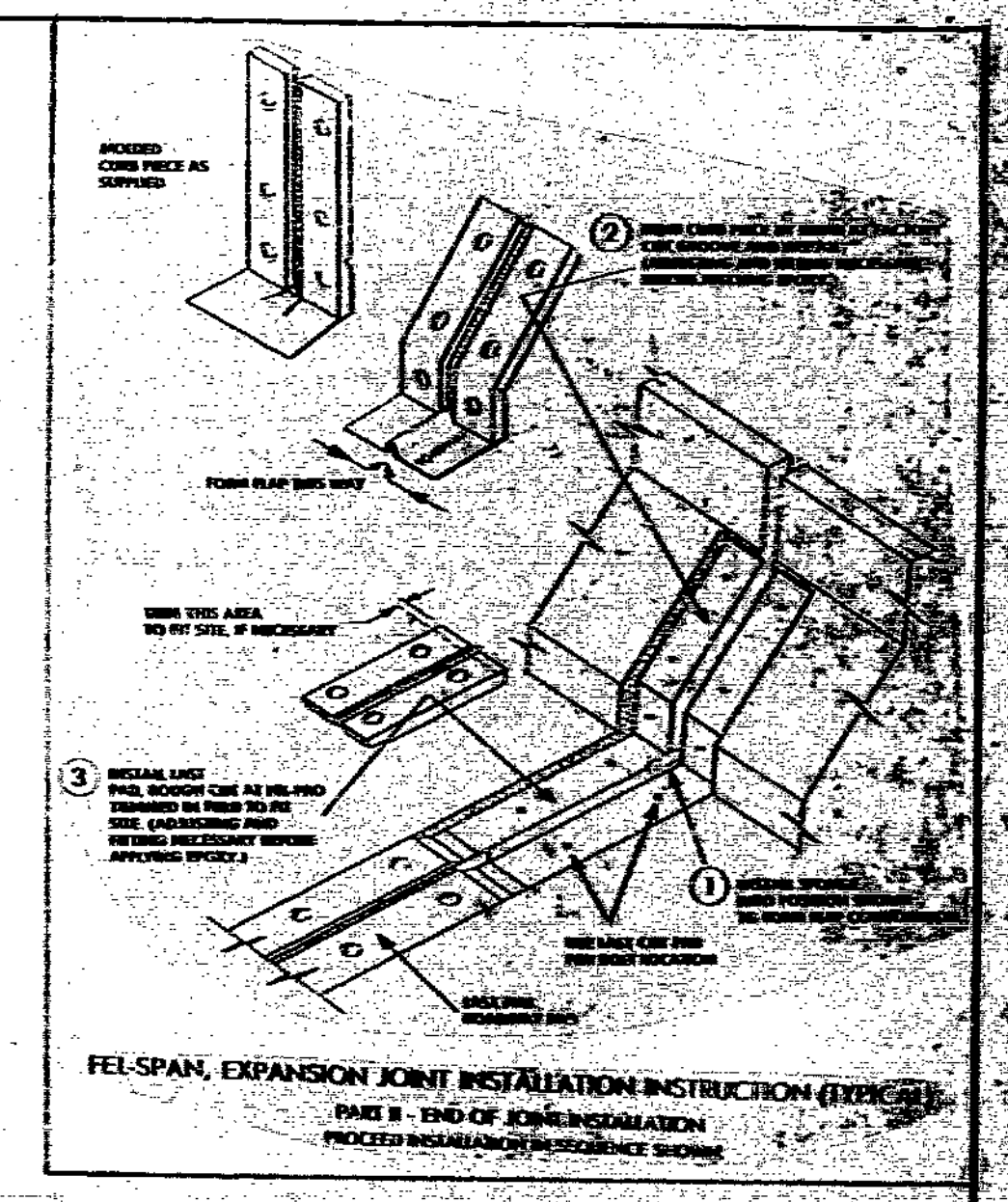
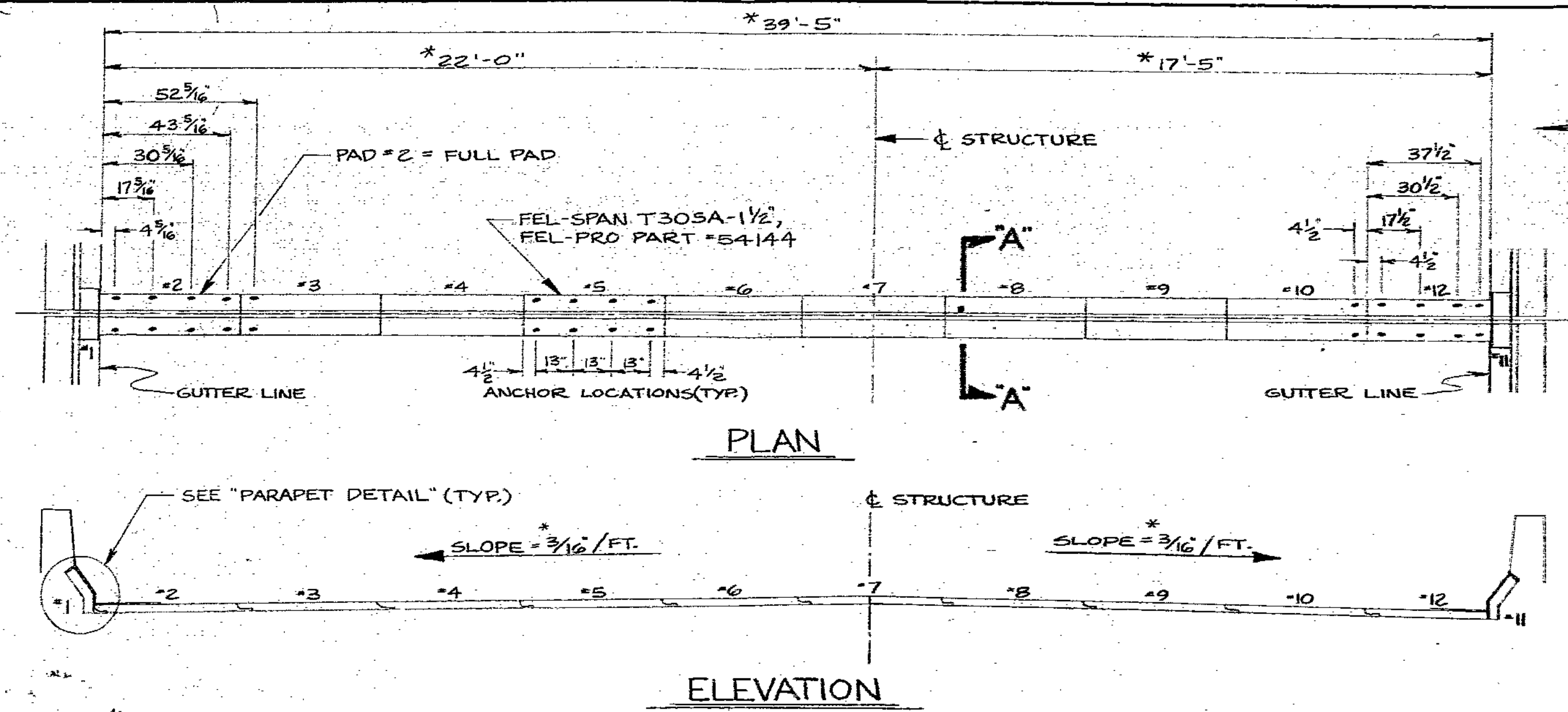
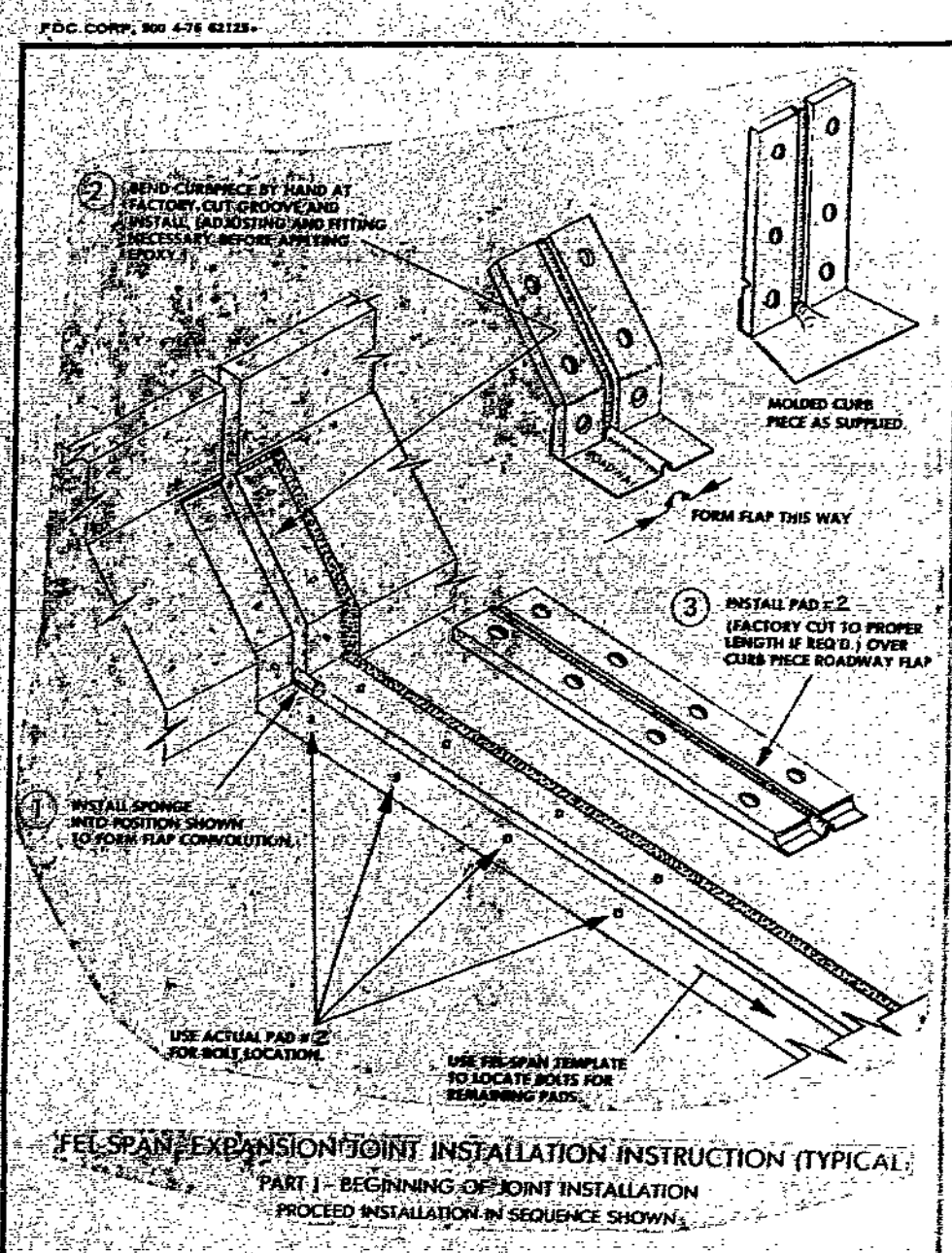
340

CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION

DRAWN BY *M.L.* DATE 3-12-79 SCALE *1/8" = 1'-0"*  
CHECKED BY *M.L.* PROJ. ENG. *M.L.* NO. AFS





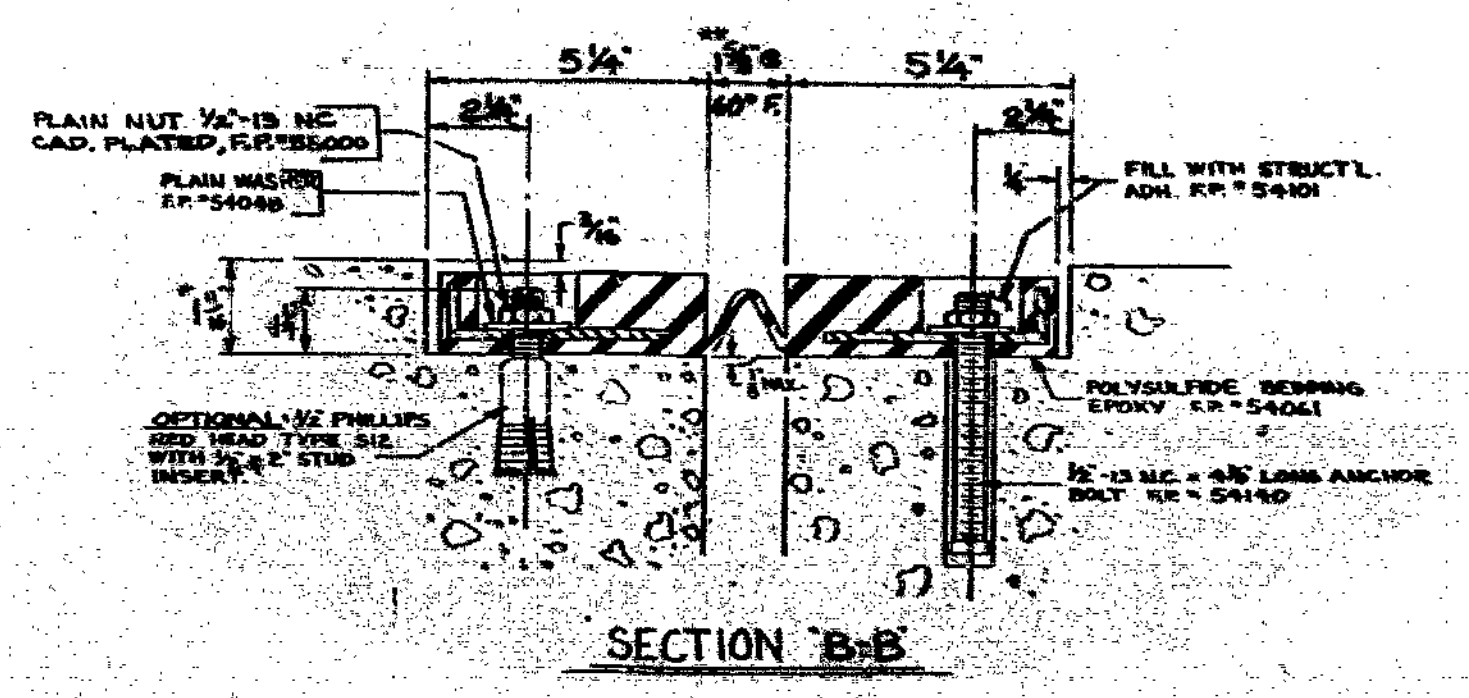
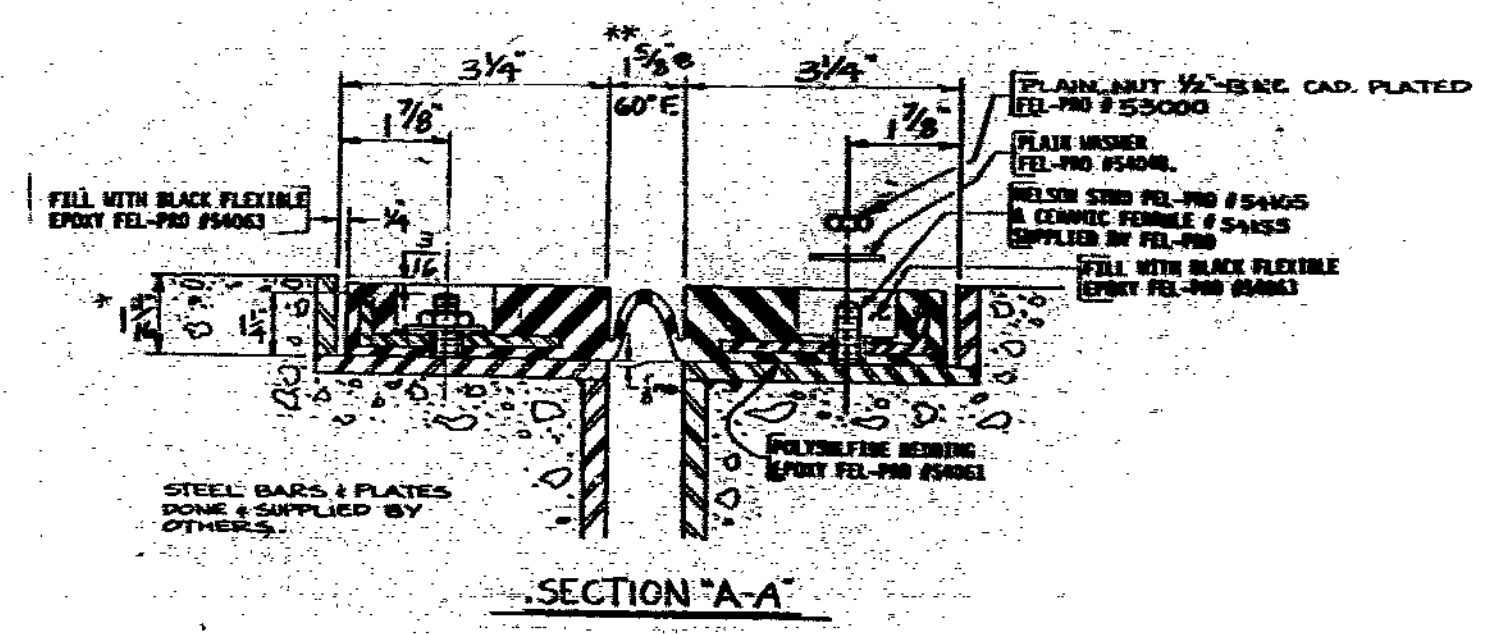
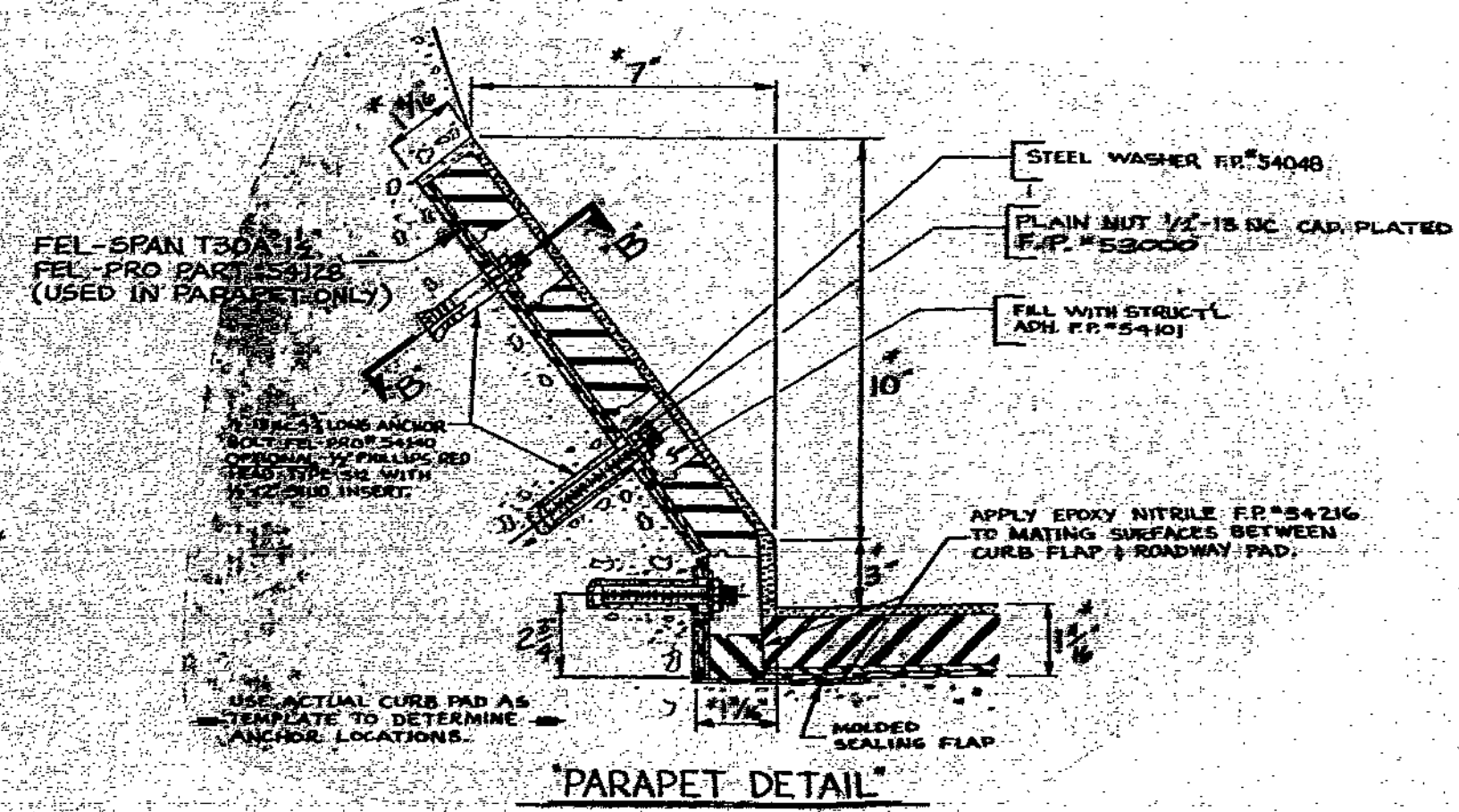


**NOTE "A"**  
 PAD #1 AND SUBSEQUENT NUMBERS INDICATE SEQUENCE OF INSTALLATION OF EXPANSION JOINT PADS. DIMENSIONS INDICATE STANDARD LENGTH PADS CUT AT FEL-PRO TO THE LENGTHS SHOWN. DIMENSIONS INDICATE STANDARD PADS, BUT FINAL CUTTING IS REQUIRED IN THE FIELD TO CONFORM TO ACTUAL SITE DIMENSIONS.

PADS #1 & #12 MODIFIED AT FACTORY. PAD #12 MODIFIED AT FACTORY AND/OR IN FIELD AS REQUIRED. (PER NOTE "A")

PADS #2 & #12 EACH EXTEND 1/2" INTO CURB.

\*\* DIMENSION SHALL BE INCREASED BY 3/8" FOR EACH 10' FALL IN TEMPERATURE AND DECREASED BY 3/8" FOR EACH 10' RISE IN TEMPERATURE.



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**FOR BRIDGE FILES**

APPROVED  
 GENERAL DESIGN FEATURES ONLY  
 JUN 4 1979  
 MO. STATE HIGHWAY DEPT.  
 DIVISION OF BRIDGES

**IMPORTANT:**  
 ALL DIMENSIONS SPECIFIED ON THE FORM OUT DETAIL MUST BE KEPT ACCURATELY. ANY VARIATION BEYOND 1/8" WILL REQUIRE APPROVAL OF THE RESIDENT ENGINEER.

MISSOURI STATE HIGHWAY COMMISSION  
 BRIDGE I-70 OVER SANI-A-BAR CREEK ABOUT  
 1.2 MI. EAST OF SPAIN VALLEY  
 PROJECT # I-70-1180)  
 BRIDGE # L-146 R  
 STA. 1049 + 50  
 JOB # 4 1070 173  
 RTE. I-70  
 JACKSON COUNTY

FEL-PRO FILE # MO-9-5  
 FEL-PRO INCORPORATED  
 CONSTRUCTION PRODUCTS DIVISION  
 7450 MCCORMICK BLVD. SKOKIE, ILLINOIS  
**JOINT LAYOUT & FORMING DETAILS**  
 BENT #7

CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION

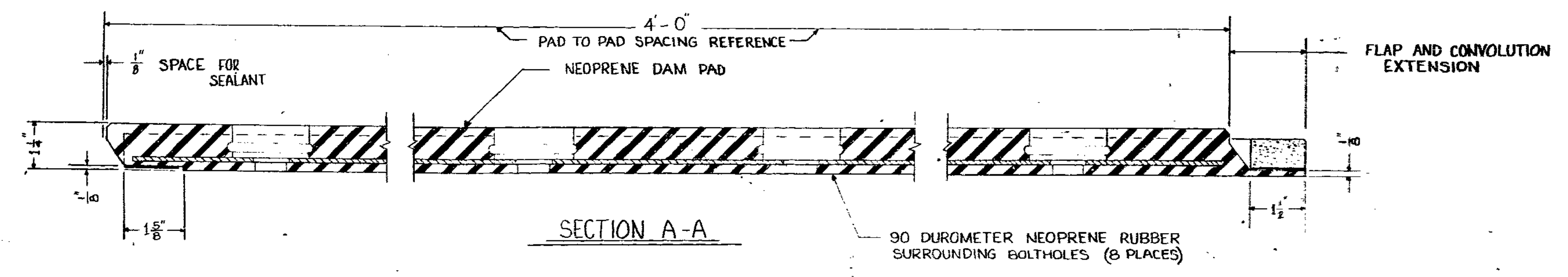
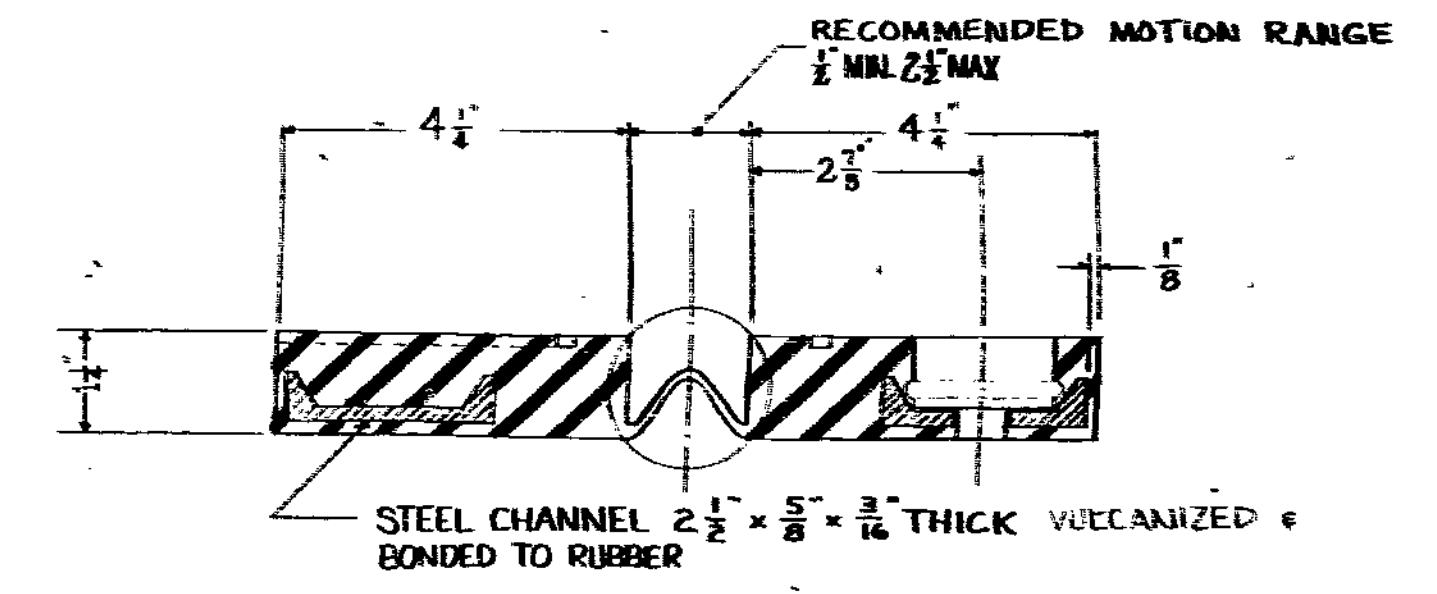
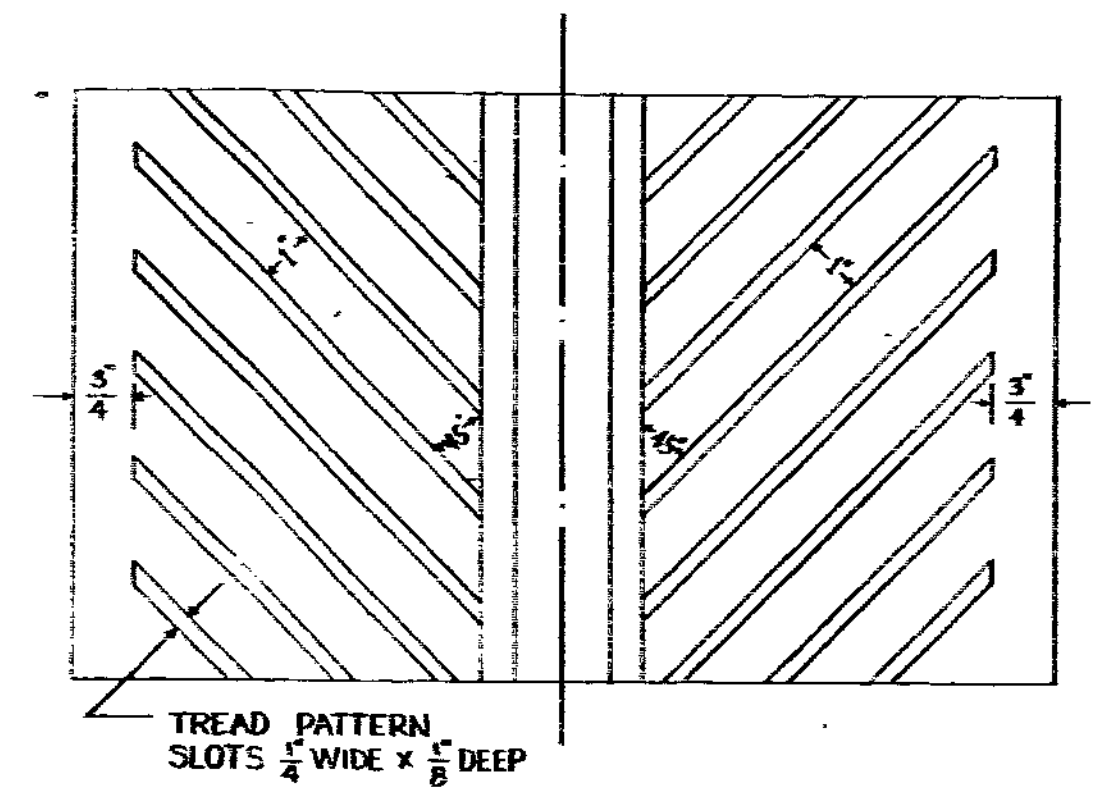
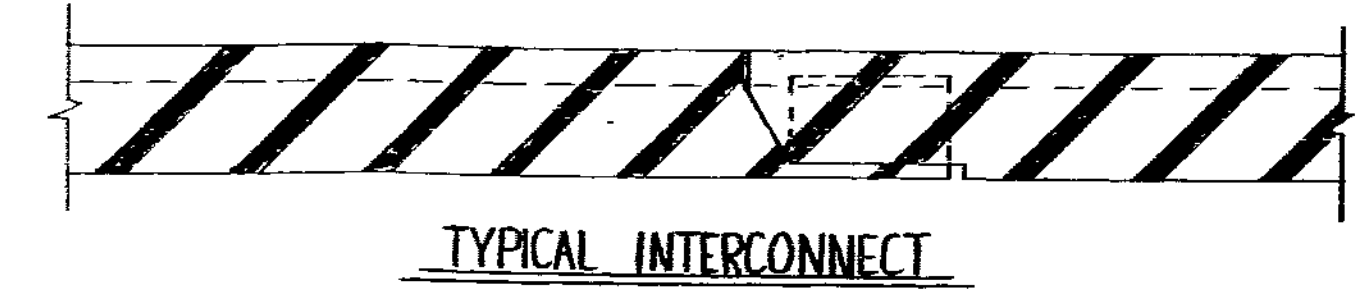
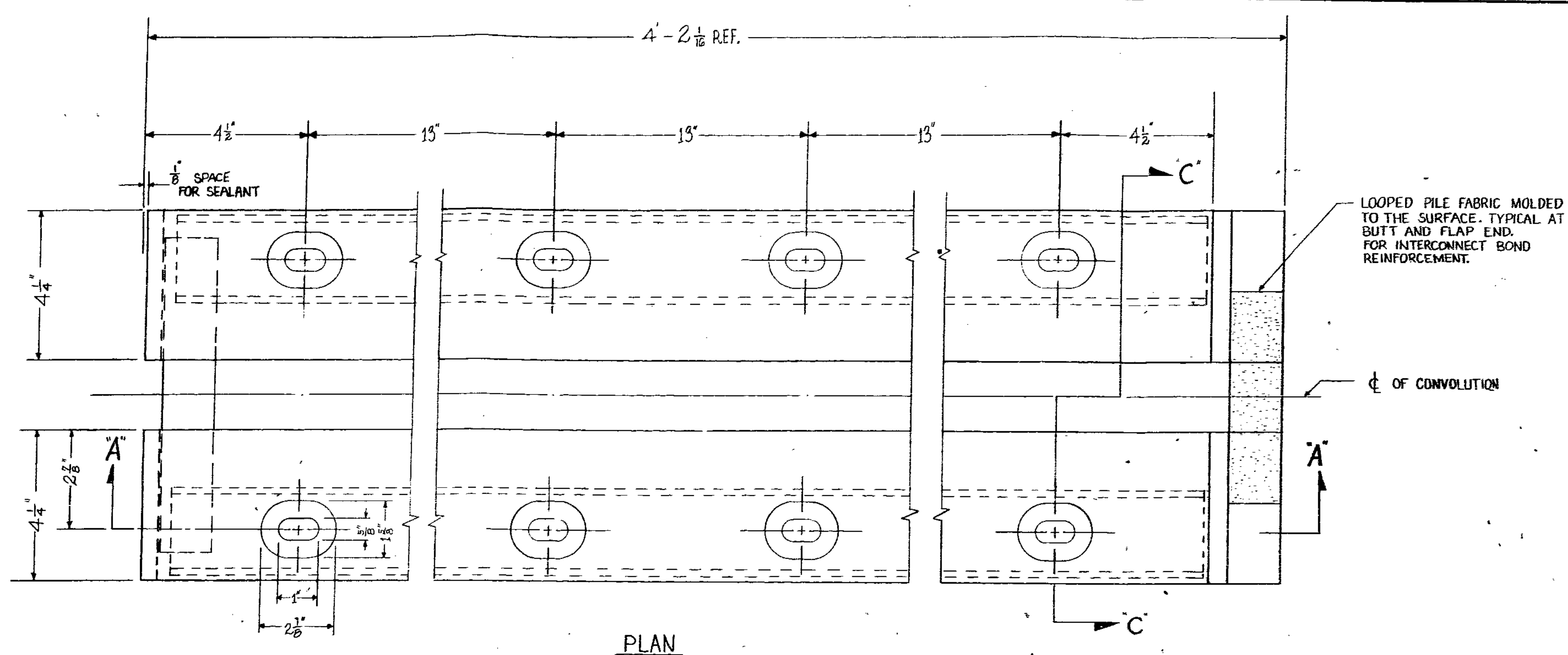
DRAWN BY: [Signature]  
 DATE: 3-12-78  
 SCALE: 1/8" = 1'-0"  
 CHECKED BY: [Signature]  
 PROJ. ENG. APPROV.: [Signature]  
 NO. A-FS-100







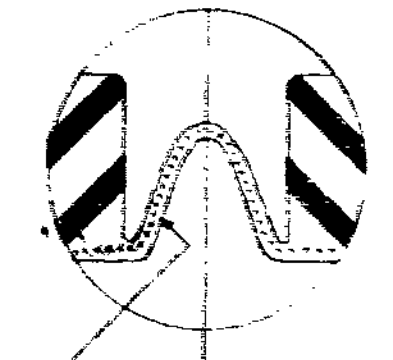
FDC CORP. 88-478 REISS.



**MATERIAL SPECIFICATIONS:**

NEOPRENE SHALL MEET THE REQUIREMENTS OF ASTM D-2000 2BC 620 A14 B14 C12 F17 K2 2' STEEL SHALL MEET THE REQUIREMENTS OF M1020.

**FELSPAN** LOGO AND VARIOUS PATENT NOS. ARE MOLDED INTO THE TOP SURFACE AT VARIOUS LOCATIONS.



FOR BRIDGE TIES

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JUN 4 1979  
MIL STATE HIGHWAY DEPT.  
DIVISION OF BRIDGES

**FELSPAN**

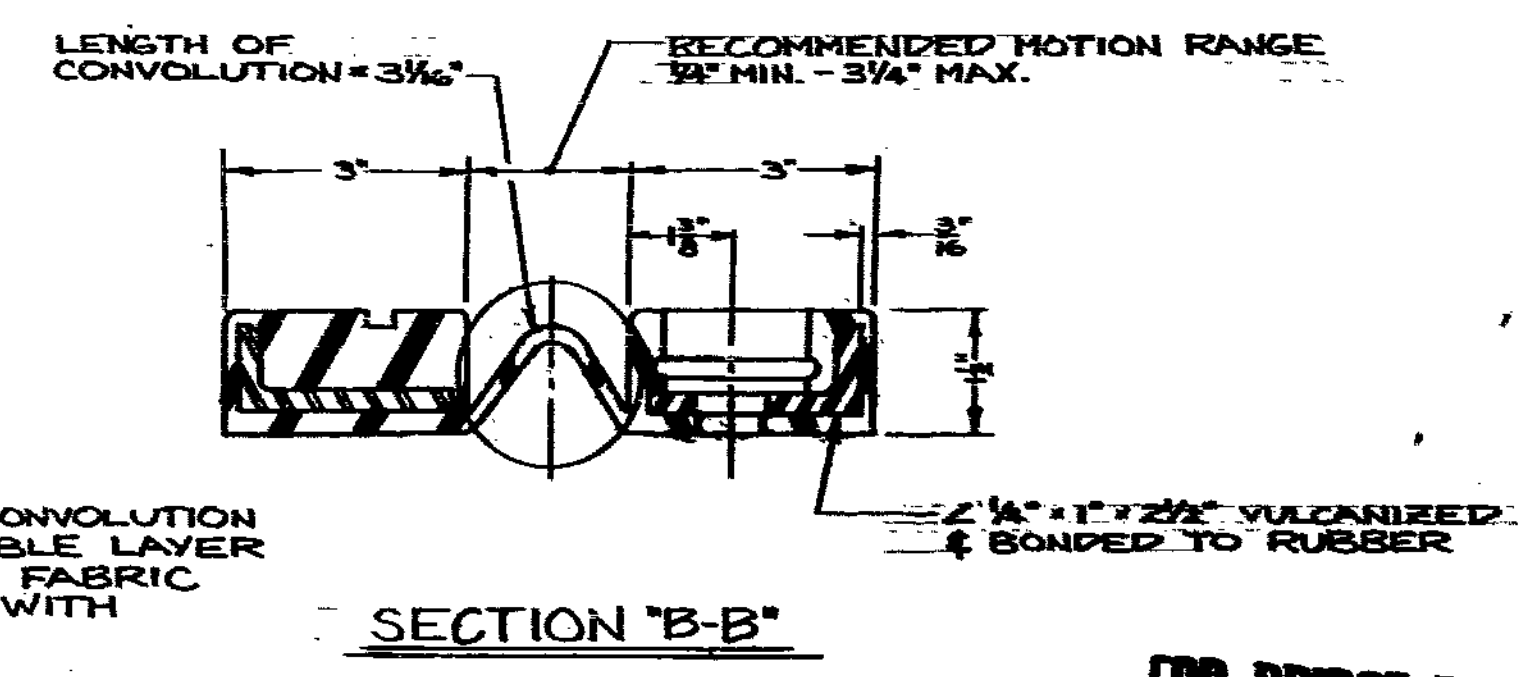
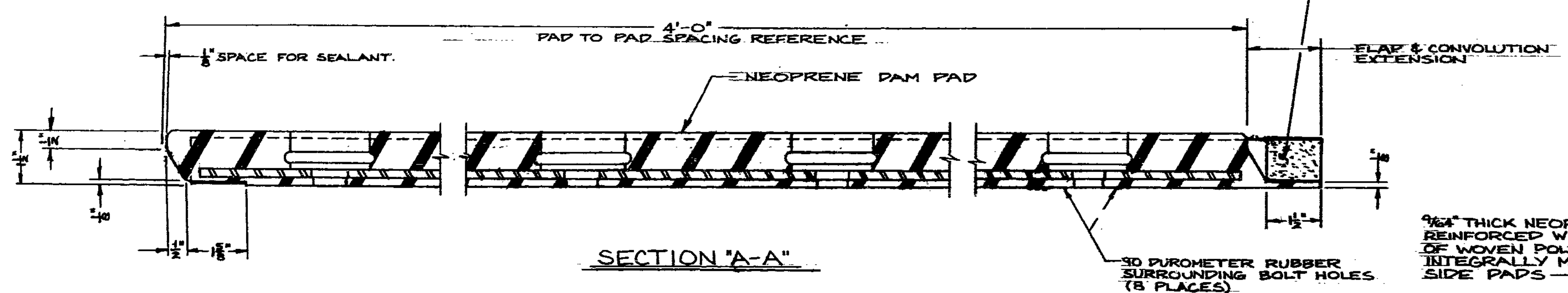
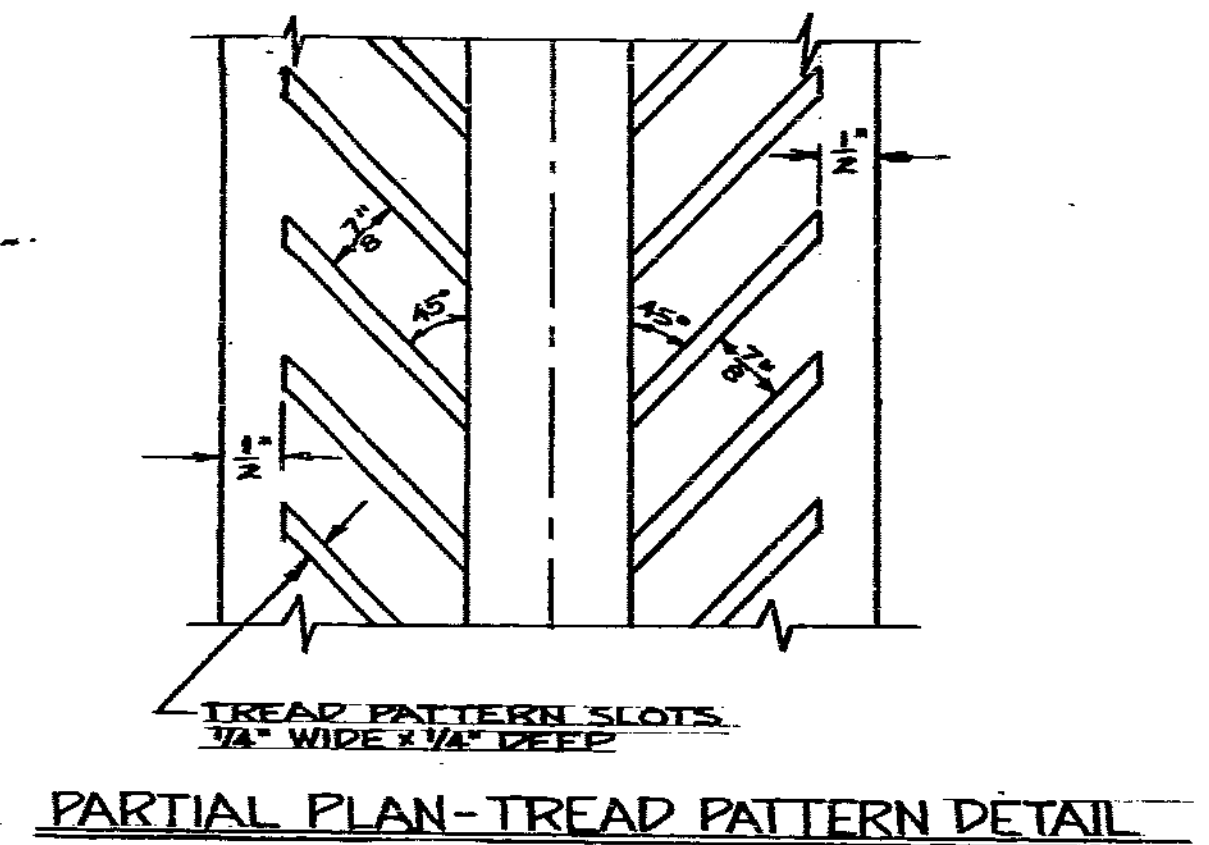
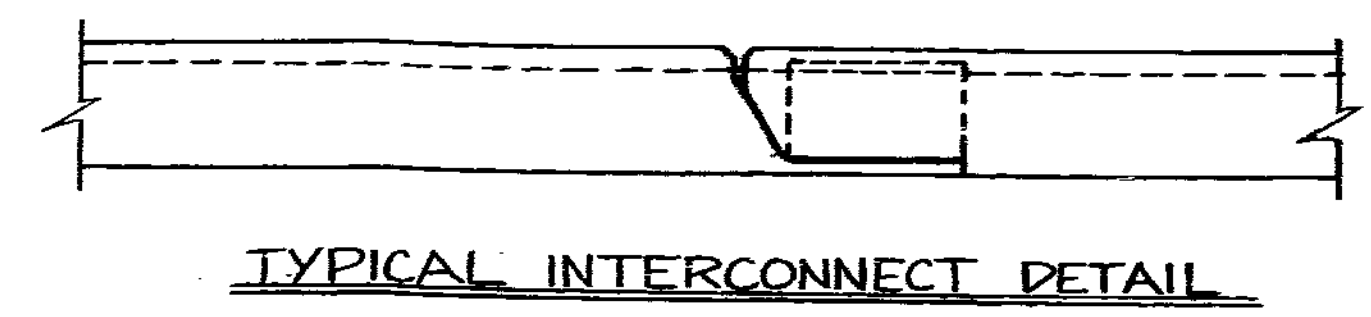
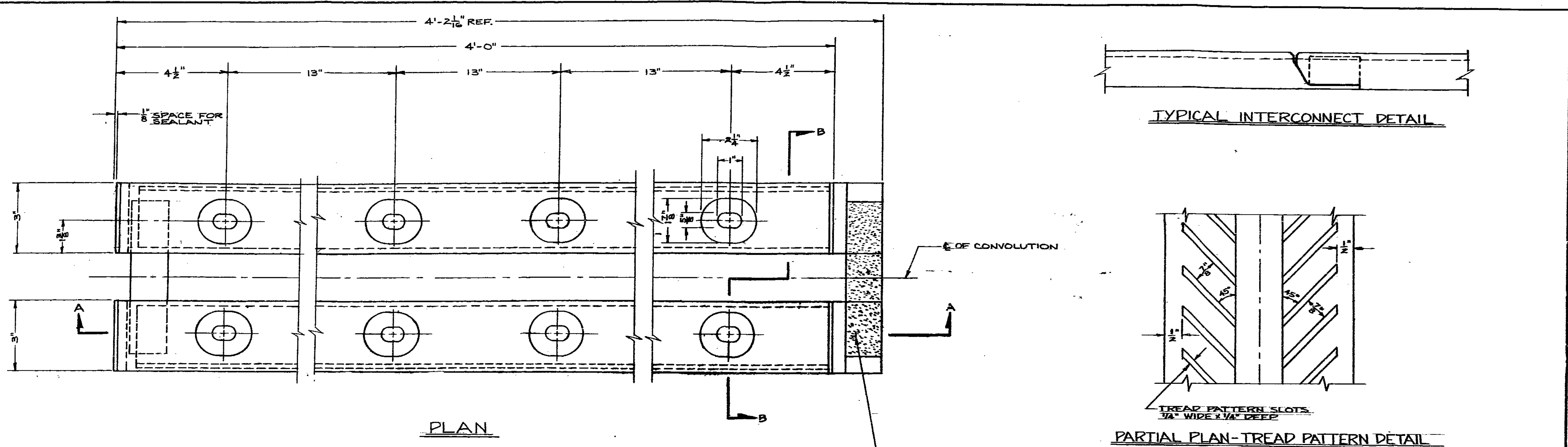
FEL-PRO INCORPORATED  
CONSTRUCTION PRODUCTS DIVISION  
7450 McCORMICK BLVD. SKOKIE, ILL. 60076

FEL-SPAN T20-1 1/2" THICK - 2" TOTAL MOTION RATIO, 3 ELASTOMERIC EXPANSION DEVICE

DRAWN BY E.T. DATE 3-10-77 SCALE  
CHECKED BY L.J. PROD. ENG. APPROV. A-FS-T20-1

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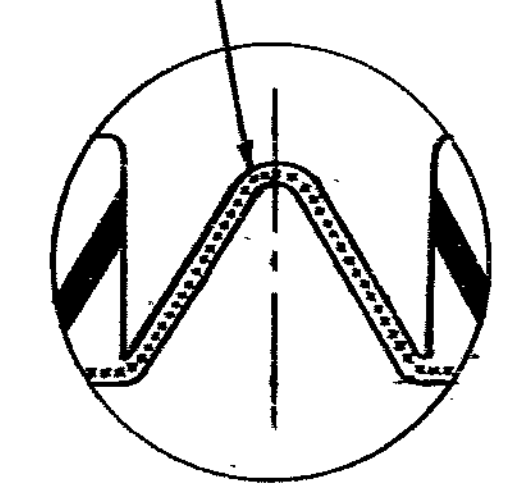
CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION
A	3-10-77	J.S.	REVISED & REDRAWN	C				G				J				L			
B	1-30-78	G.Z.	NEOPRENE SPEC. REV'D.	D				H				K				M			



LOOPED PILE FABRIC MOLDED TO THE SURFACE FOR INTERCONNECT BOND REINFORCEMENT (TYPICAL AT BUTT & FLAP ENDS)

3/8\"/>

30 DUROMETER RUBBER SURROUNDING BOLT HOLES (8 PLACES)



FELSPAN Logo & PATENT NUMBERS ARE MOLDED INTO THE TOP SURFACE AT VARIOUS LOCATIONS.

**MATERIAL SPEC'S**  
 NEOPRENE SHALL MEET THE REQUIREMENTS OF ASTM D-2000 2BC 620 A14 B14 C12 F17 K21 Z1 F  
 STEEL SHALL MEET THE REQUIREMENTS OF ASTM A570 GRADE D OR A36

FOR BRIDGE FILES

APPROVED  
 GENERAL DESIGN FEATURES ONLY  
 JUN 4 1979  
 ILL. STATE HIGHWAY DEPT  
 DIVISION OF BRIDGES

**FELSPAN**

FEL-PRO INCORPORATED  
 CONSTRUCTION PRODUCTS DIVISION  
 7450 MCCORMICK BLVD. SKOKIE, ILLINOIS

FEL-SPAN T30SA-1 1/2\"/>

CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION	CODE	DATE	BY	REVISION
D	11-3-77	G.Z.	REDRAWN	F	1-30-78	G.Z.	NEOPRENE SPEC. REV'D.												
E	1-3-78	G.Z.	STEEL SPEC. REV'D.	G	4-15-78	M.V.	WAS C20												

DRAWN BY G.Z. DATE 11-3-77 SCALE NONE  
 CHECKED BY M.V. PROD. ENG. APPROV. [Signature] NO. A-FS-T30SA-1 1/2

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REV. C