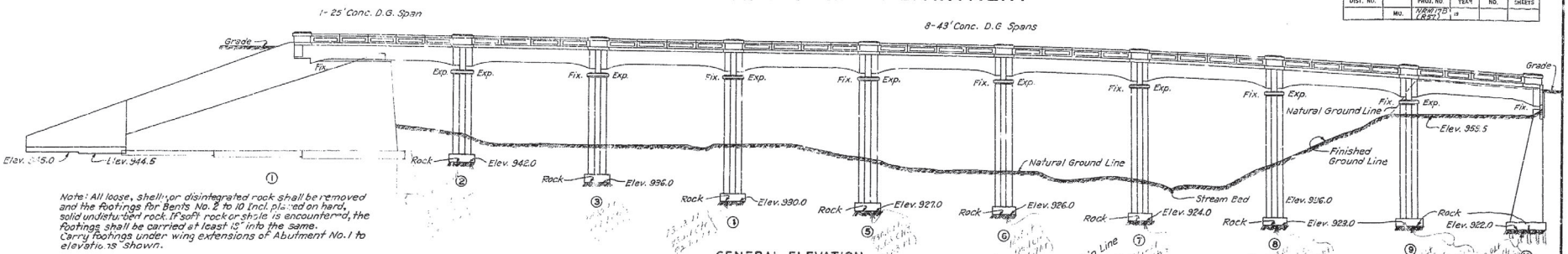
MISSOURI STATE HIGHWAY DEPARTMENT

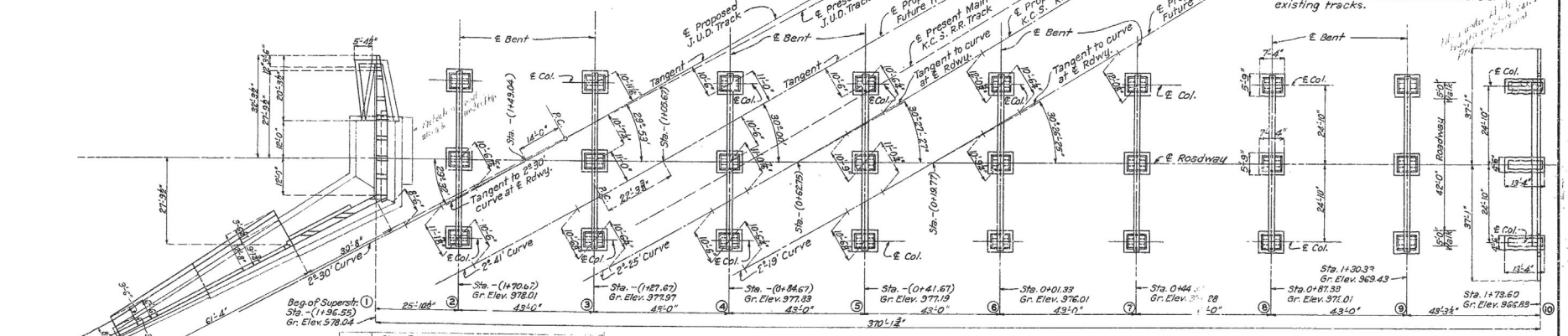
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MO.	NRM 17B (R57)	19		



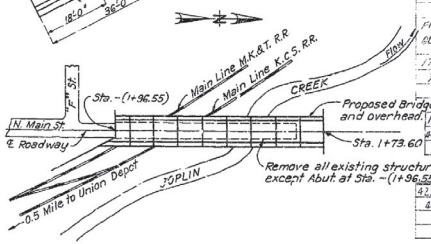
Note: All loose, shelly or disintegrated rock shall be removed and the footings for Bents No. 2 to 10 incl. placed on hard, solid undisturbed rock. If soft rock or shale is encountered, the footings shall be carried at least 15" into the same. Carry footings under wing extensions of Abutment No. 1 to elevations shown.

GENERAL ELEVATION

Note: Structure provides a minimum vertical clearance of 22'-9" based on elevations of existing tracks.



PLAN



LOCATION SKETCH

Qty.	Item	Unit
85	Class I Bridge Exc. below plans	Cu. Yds.
5.5	" " " " "	" "
1	Reinforcing Steel salvaged & used	Lbs.
1	Copper Flashing (Extra)	Sqr. Yds.
30	Metallic Edge Moulding (Extra)	Lin. Ft.

ESTIMATED QUANTITIES

Final Quan.	Item	Unit	Super-str.	Substr.	Total
1790.2	Bridge Excavation Class 1	Cu. Yds.		1790	1790
7.24	Bridge Excavation Class 2	Cu. Yds.		820	820
52.1	Concrete 1:2:3 Mix, Class "A"	Cu. Yds.	52.9		52.9
952.2	Concrete 1:2:4 Mix, Class "B"	Cu. Yds.		952.2	952.2
1299.2	Concrete 1:2:3½ Mix, Class "X"	Cu. Yds.	1299.2		1299.2
49140	Steel Castings	Lbs.	49140		49140
1	Phosphor Bronze Bearing Plates (Flanged) (8"×12") - 1 Set of 2 Plates each.				
6	Phosphor Bronze Bearing Plates (Flanged) (8"×17") - 6 Sets of 2 Plates each.				
2	Phosphor Bronze Bearing Plates (Flanged) (8"×20") - 2 Sets of 2 Plates each.				
421090	Reinforcing Steel	Lbs.	334550	86540	421090
4210	Fabricated Structural Steel	Lbs.	3910		3910
770	Fiber Conduits - 2½" ϕ	Lin. Ft.	770		770
35	Fiber Conduits - 1½" ϕ	Lin. Ft.	35		35
504	Timber Piles in place	" "			
61	Timber Pile Cut-offs	" "			

Note: Bridge excavation above Elev. 936.0 will be paid for as Class 1 Bridge Excavation.
Bridge excavation below Elev. 936.0 will be paid for as Class 2 Bridge Excavation.
Excavation required to place superstructure, allowing excavation to Elev. 959.5 and to 4'-0" outside of curb lines, will be paid for at unit price bid for roadway excavation.

GENERAL NOTES:

Concrete in handrail to be 1:2:3 Mix, Class "A". Concrete in slabs, curbs, and girders to be 1:2:3½ Mix, Class "X". All other concrete to be 1:2:4 Mix, Class "B".
All concrete shall be proportioned by the weight proportioning method. See Special Provisions.
Exposed edges to be beveled ¾" where no other bevel is noted.
Deck girder spans shall be constructed full width and length in one operation.
No construction joints permitted except as noted under sidewalk slab and curbs.
Where rubber compound is specified on plans for use in partition and expansion joints, the premoulded joint shall be securely stitched to one face of concrete with copper wire.
Two name plates type "A" as shown on Std. S-918R to be furnished and placed by contractor. Cost of name plates to be included in price bid for other items.
Bar supports and spacers will be required for reinforcing steel in superstructure. See Std. C-110R and Special Provisions.
Old surfaces to receive new concrete are to be roughened by bush-hammering and then painted with cement wash just before placing concrete.
Where concrete is to be brought to new lines the old concrete shall be removed a sufficient distance back to bring concrete to neat lines.
Holes to be drilled into old concrete, filled with cement mortar grout, and dowel bars driven into grout. Dowels to be placed not nearer than 6" from edge of old concrete.
Bridge excavation in accordance with Section 1 of Standard Specifications issued April 1, 1930.
Bottom of girders to be built parallel to grade. No permanent camber required in individual spans.
Falsework for spans over existing railroad tracks shall be constructed with a minimum vertical clearance of 21'-0" and a minimum lateral clearance of 7'-6" from centerline of tracks.

B.M. Elev. 950.33 - "X" on Top N. Guard Rail Post W. Side Viaduct 14' Lt. Sta. 5+98.5.

BRIDGE OVER K.C. SOUTHERN R.R., M. K. & T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE
ABOUT 0.5 MILE NORTH OF JOPLIN
PROJECT NO. NRM 17B (R57) STA. - (1+96.55)

JASPER COUNTY

SUBMITTED BY N. R. Lark BRIDGE ENGINEER DATE 5/22/34
APPROVED BY T. H. Cutler CHIEF ENGINEER DATE 5/22/34

STD. S-918R
STD. C-110R
K-415

Designed Feb. 1934 By F.C.L.
Drawn Mar. 1934 By F.C.L.
Traced Apr. 1934 By R.J.G.-C.A.F.
Checked May 1934 By RAB.

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

Sheet No. 1 of 10.

F.A.

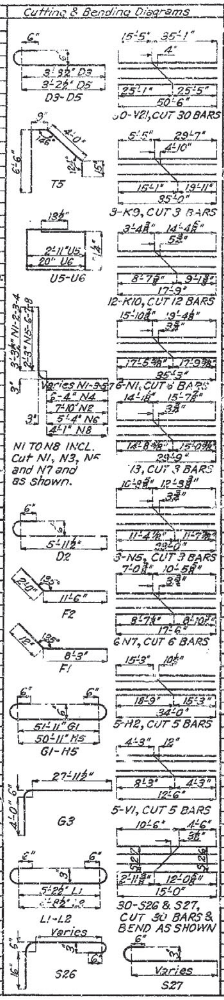
73

Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	MO.	NRM 17B (R57)	19		

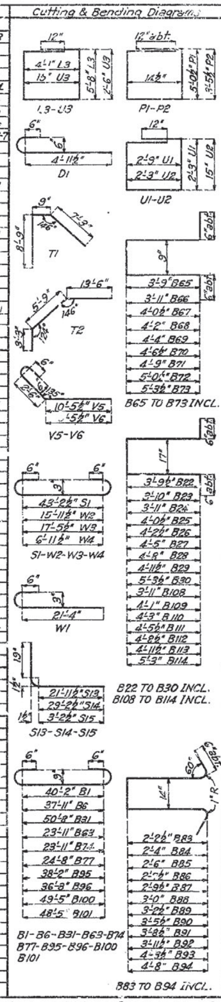
MISSOURI STATE HIGHWAY DEPARTMENT

COMPLETE BILL OF REINFORCING STEEL

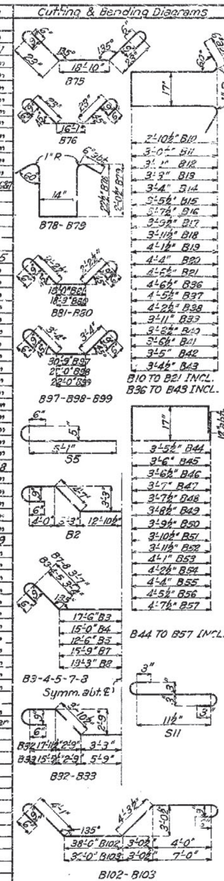
No.	Size	Length	Mark	Location
ABUTMENT NO. 1				
19	⅝"φ	5'-0"	D3	Footing
19	¾"φ	2'-0"	D4	Wing Rt.
62	½"φ	4'-6"	D5	Footing
2	½"φ	10'-3"	H10	Wing Rt.
1	½"φ	16'-0"	H11	" "
1	½"φ	21'-0"	H12	" "
3	¾"φ	23'-0"	H13	" "
3	¾"φ	16'-0"	H14	" "
9	¾"φ	27'-6"	H17	Abutment
5	½"φ	17'-6"	H18	Wing Lt.
3	¾"φ	12'-6"	H19	" "
10	½"φ	31'-6"	H20	Wall
2	½"φ	27'-6"	H21	"
2	½"φ	22'-6"	H22	"
1	½"φ	33'-0"	H23	"
1	½"φ	23'-6"	H24	"
1	½"φ	12'-0"	H25	"
4	½"φ	32'-0"	H26	"
2	¾"φ	12'-6"	T5	Wing Lt.
2	¾"φ	6'-3"	T6	" "
16	⅝"φ	10'-6"	U5	Abutment
1	⅝"φ	11'-9"	V10	Wing Rt.
7	⅝"φ	10'-0"	V11	" "
8	⅝"φ	10'-3"	V12	" "
6	⅝"φ	7'-9"	V13	" "
2	⅝"φ	5'-0"	V14	" "
3	⅝"φ	6'-3"	V15	" "
16	⅝"φ	13'-9"	V16	" Lt.
1	⅝"φ	22'-6"	V17	" "
1	⅝"φ	21'-9"	V18	" "
5	⅝"φ	6'-6"	V19	" "
1	⅝"φ	3'-6"	V20	" "
30	½"φ	50'-6"	V21	" Rt.
2	½"φ	29'-3"	V22	" "
2	¾"φ	5'-0"	H27	Wing Lt.
3	¾"φ	21'-0"	H15	" Rt.
6	½"φ	8'-0"	U6	" "
ABUT. NO. 1-RT. WING EXTENSION				
6	½"φ	17'-9"	K1	Footing
5	½"φ	35'-9"	K2	Ftg. & Wall
3	½"φ	20'-0"	K3	Footing
1	½"φ	27'-0"	K4	Wall
1	½"φ	18'-6"	K5	"
1	½"φ	10'-6"	K6	"
2	½"φ	37'-3"	K7	"
1	½"φ	34'-3"	K8	"
3	½"φ	35'-0"	K9	"
12	½"φ	17'-9"	K10	"
6	¾"φ	35'-3"	N1	"
12	¾"φ	11'-6"	N2	"
3	¾"φ	29'-9"	N3	"
6	¾"φ	10'-0"	N4	"
3	¾"φ	23'-0"	N5	"
6	¾"φ	8'-0"	N6	"
6	⅝"φ	17'-6"	N7	"
12	⅝"φ	6'-9"	N8	"
27	⅝"φ	7'-9"	K11	Footing
18	⅝"φ	5'-0"	K12	"
INTERIOR BENTS NO. 2 to 9				
192	¾"φ	6'-3"	D1	Footing
288	1"φ	7'-3"	D2	"
96	1"φ	13'-6"	F2	Columns
24	1"φ	54'-6"	G1	Beam
16	⅝"φ	52'-9"	G2	"
48	1"φ	32'-9"	G3	"
192	½"φ	7'-0"	L1	Caps
264	⅝"φ	5'-6"	L2	"
48	½"φ	20'-6"	L3	"
352	½"φ	8'-6"	U3	Beam
852	¾"φ	13'-6"	P1	Columns
992	¾"φ	10'-3"	P2	"
18	1"φ	26'-6"	A1	Col. Bt. #2
18	1"φ	32'-0"	E1	" " "
12	¾"φ	26'-6"	I1	" " "
12	¾"φ	32'-0"	J1	" " "



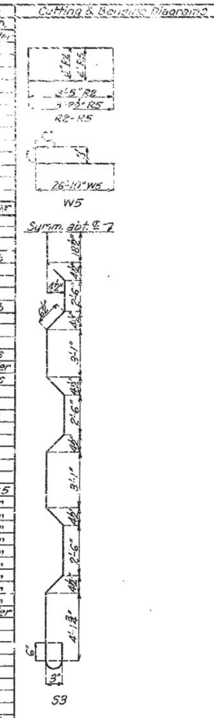
No.	Size	Length	Mark	Location
INTERIOR BENTS CONT'D.				
18	1"φ	32'-6"	A2	Col. Bt. #3
18	1"φ	38'-0"	E2	" " "
12	¾"φ	32'-6"	I2	" " "
12	¾"φ	38'-0"	J2	" " "
18	1"φ	3[illegible]'-6"	A3	Col. Bt. #4
18	1"φ	4[illegible]	E3	" " "
12	¾"φ	38'-6"	I3	" " "
12	¾"φ	44'-0"	J3	" " "
54	1"φ	40'-6"	A4	Col. Bts. 5-6-7
54	1"φ	46'-0"	E4	" " "
36	¾"φ	40'-6"	I4	" " "
36	¾"φ	46'-0"	J4	" " "
18	1"φ	39'-6"	A5	Col. Bt. #8
18	1"φ	45'-0"	E5	" " "
12	¾"φ	39'-6"	I5	" " "
12	¾"φ	45'-0"	J5	" " "
18	1"φ	36'-9"	A6	Col. Bt. #9
18	1"φ	42'-3"	E6	" " "
12	¾"φ	36'-9"	I6	" " "
12	¾"φ	42'-3"	J6	" " "
	1"φ	1310 #	D2	Col. splices
	¾"φ	430 #	D1	" "
	1"φ	430 #	D2	Col. splices (salvaged steel)
	¾"φ	140 #	D1	(do).
END BENT NO. 10				
18	¾"φ	6'-3"	D1	Footings
16	¾"φ	9'-3"	F1	Columns
12	¾"φ	19'-0"	H1	Wing
5	¾"φ	34'-0"	H2	"
16	¾"φ	26'-9"	H3	Backwall
5	¾"φ	14'-0"	H4	"
8	1"φ	53'-6"	H5	Beam
2	¾"φ	51'-6"	H6	"
4	½"φ	5'-9"	H7	Backwall
5	¾"φ	41'-0"	H8	"
5	½"φ	12'-6"	V1	Wing
6	½"φ	8'-3"	V2	Backwall
29	½"φ	7'-3"	V3	"
22	½"φ	5'-3"	V4	"
10	¾"φ	14'-3"	V5	Column
5	¾"φ	12'-3"	V6	"
18	¾"φ	35'-9"	V7	"
4	¾"φ	16'-9"	T1	Wings
6	¾"φ	22'-6"	T2	"
3	¾"φ	44'-0"	T3	Backwall
42	½"φ	11'-0"	U1	Beam
23	½"φ	8'-0"	U2	Column
4	½"φ	2'-9"	H9	Backwall.
SUPERSTR. SPAN (1-2)				
23	¾"φ	45'-0"	S1	Slab
23	¾"φ	41'-0"	S2	"
22	¾"φ	47'-0"	S3	"
344	¾"φ	6'-3"	S4	S.W. Slab
105	⅝"φ	6'-3"	S5	Slab
70	½"φ	2'-3"	S11	"
5	½"φ	23'-9"	S13	"
1	½"φ	31'-0"	S14	"
10	½"φ	5'-0"	S15	"
24	½"φ	22'-6"	S16	"
1	½"φ	27'-6"	S17	"
1	½"φ	32'-0"	S18	"
2	½"φ	35'-0"	S19	"
1	½"φ	38'-0"	S20	"
6	½"φ	23'-6"	S21	"
4	½"φ	24'-6"	S22	"
8	½"φ	26'-0"	S23	"
4	½"φ	28'-0"	S24	"
10	½"φ	25'-6"	S25	"
4	½"φ	22'-9"	S10	"
30	¾"φ	15'-0"	S26-27	"
				"
2	½"φ	25'-6"	C2	Curb
4	½"φ	28'-0"	C3	"
4	½"φ	22'-3"	W1	End Web
3	¾"φ	17'-9"	W2	" "
2	½"φ	13'-3"	W3	" "



No.	Size	Length	Mark	Location
SUPERSTR. SPAN (1-2) CONT'D.				
4	½"φ	8'-9"	W4	Int. Web
3	1"□	27'-3"	B63	Girder #1
4	¾"φ	13'-0"	B64	" "
4	½"φ	9'-3"	B65	" "
2	½"φ	9'-6"	B66	" "
2	½"φ	9'-9"	B67	" "
2	½"φ	10'-0"	B68	" "
2	½"φ	10'-6"	B69	" "
2	½"φ	10'-9"	B70	" "
2	½"φ	11'-3"	B71	" "
2	½"φ	11'-9"	B72	" "
2	½"φ	12'-3"	B73	" "
16	1¼"□	27'-3"	B74	Gir. #2,3,4,6&7
10	1¼"□	26'-0"	B75	" "
10	1¼"□	2[illegible]'-3"	B76	" "
4	1¼"□	28'-0"	B77	" "
133	½"φ	6'-0"	B78	" "
88	½"φ	6'-3"	B79	" "
4	1¼"□	27'-3"	B74	Girder #5
2	1¼"□	26'-0"	B80	" "
2	1¼"□	22'-9"	B81	" "
2	¾"φ	15'-0"	B82	" "
1	½"φ	6'-9"	B83	" "
1	½"φ	7'-0"	B84	" "
1	½"φ	7'-3"	B85	" "
1	½"φ	7'-6"	B86	" "
1	½"φ	7'-9"	B87	" "
1	½"φ	8'-3"	B88	" "
1	½"φ	8'-9"	B89	" "
1	½"φ	9'-3"	B90	" "
1	½"φ	9'-9"	B91	" "
1	½"φ	10'-3"	B92	" "
1	½"φ	10'-9"	B93	" "
1	½"φ	11'-6"	B94	" "
24	½"φ	6'-3"	B79	" "
52	½"φ	8'-3"	B10	Girder #8
[illegible]	1¼"□	41'-6"	B95	" "
3	1¼"□	40'-0"	B96	" "
2	1¼"□	40'-9"	B97	" "
2	1¼"□	37'-0"	B98	" "
1	1¼"□	32'-0"	B99	" "
2	1¼"□	52'-9"	B100	Girder #9
3	1¼"□	51'-9"	B101	" "
3	1¼"□	53'-9"	B102	" "
2	1¼"□	50'-9"	B103	" "
4	¾"φ	13'-0"	B104	" "
2	1¼"□	34'-0"	B105	" "
3	1¼"□	22'-0"	B106	" "
26	½"φ	10'-0"	B22	" "
2	½"φ	10'-3"	B108	" "
2	½"φ	10'-6"	B109	" "
2	½"φ	11'-0"	B110	" "
2	½"φ	11'-3"	B111	" "
2	½"φ	11'-9"	B112	" "
2	½"φ	12'-6"	B113	" "
2	½"φ	13'-0"	B114	" "
5	1¼"□	54'-0"	B31	End Girder
3	1"□	53'-6"	B32	" "
2	1"□	53'-6"	B33	" "
3	1¼"□	22'-0"	B34	" "
2	1¼"□	16'-0"	B35	" "
4	⅝"φ	11'-6"	B36	" "
2	⅝"φ	11'-6"	B37	" "
2	⅝"φ	11'-0"	B38	" "
2	⅝"φ	10'-3"	B39	" "
2	⅝"φ	10'-0"	B40	" "
2	⅝"φ	9'-6"	B41	" "
2	⅝"φ	9'-3"	B42	" "
20	⅝"φ	9'-3"	B43	" "
20	⅝"φ	10'-9"	B44	" "
2	⅝"φ	10'-9"	B45	" "
2	⅝"φ	11'-0"	B46	" "
2	⅝"φ	11'-0"	B47	" "
2	⅝"φ	11'-0"	B48	" "
2	⅝"φ	11'-3"	B49	" "
2	⅝"φ	11'-6"	B50	" "
2	⅝"φ	11'-6"	B51	" "
2	⅝"φ	11'-9"	B52	" "
2	⅝"φ	12'-0"	B53	" "



No.	Size	Length	Mark	Location
SUPERSTR. SPAN (1-2) CONT'D.				
2	⅝"φ	12'-3"	B54	End Girder
2	⅝"φ	12'-6"	B55	" "
2	⅝"φ	12'-9"	B56	" "
2	⅝"φ	13'-0"	B57	" "
2	⅝"φ	16'-6"	B58	" "
4	⅝"φ	10'-0"	B59	" "
4	½"φ	17'-0"	B60	" "
SUPERSTR. SPANS (2-3) To (9-10) INC.				
304	¾"φ	45'-0"	S1	Slab
304	¾"φ	41'-0"	S2	"
296	¾"φ	47'-0"	S3	"
2912	⅝"φ	6'-3"	S4	S.W. Slab
1680	⅝"φ	6'-3"	S5	Slab
96	½"φ	7'-0"	S6	"
288	½"φ	37'-9"	S7	"
320	½"φ	22'-3"	S8	S.W. Slab
64	½"φ	27'-3"	S10	Slab
688	½"φ	2'-3"	S11	"
328	1¼"□	43'-6"	B1	Girders
32	1¼"□	46'-3"	B2	S.W. Girder
96	1¼"□	45'-0"	B3	Girders
96	1¼"□	40'-0"	B4	"
48	1¼"□	35'-0"	B5	"
16	1¼"□	41'-3"	B6	"
16	1¼"□	42'-0"	B7	"
8	1¼"□	37'-0"	B8	"
96	⅝"φ	13'-0"	B9	"
1760	½"φ	8'-3"	B10	"
1064	½"φ	8'-6"	B11	"
16	½"φ	8'-9"	B.?	Girder #5
16	½"φ	9'-0"	B13	" "
16	½"φ	9'-3"	B14	" "
16	½"φ	9'-6"	B15	" "
16	½"φ	9'-9"	B16	" "
16	½"φ	10'-0"	B17	" "
16	½"φ	10'-6"	B18	" "
16	½"φ	10'-9"	B19	" "
16	½"φ	11'-3"	B20	" "
16	½"φ	11'-6"	B21	" "
240	½"φ	10'-0"	B22	S.W. Girder
3[illegible]	½"φ	10'-3"	B23	" "
32	½"φ	10'-3"	B24	" "
32	½"φ	10'-6"	B25	" "
32	½"φ	11'-0"	B26	" "
32	½"φ	11'-3"	B27	" "
32	½"φ	11'-9"	B28	" "
32	½"φ	12'-6"	B29	" "
32	½"φ	13'-0"	B30	" "
80	1¼"□	54'-0"	B31	End Girder
48	1"□	53'-6"	B32	" "
32	1"□	53'-6"	B33	" "
48	1¼"□	22'-0"	B34	" "
32	1¼"□	16'-0"	B35	" "
64	⅝"φ	11'-6"	B36	" "
32	⅝"φ	11'-6"	B37	" "
32	⅝"φ	11'-0"	B38	" "
32	⅝"φ	10'-3"	B39	" "
32	⅝"φ	10'-0"	B40	" "
32	⅝"φ	9'-6"	B41	" "
32	⅝"φ	9'-3"	B42	" "
320	⅝"φ	9'-3"	B43	" "



No.	Size	Length	Mark	Location
SUPERSTR. SPANS (2-3) To (9-10) INC.				
320	⅝"φ	10'-9"	B44	End Girder
32	⅝"φ	10'-0"	B45	" "
32	⅝"φ	11'-0"	B46	" "
32	⅝"φ	11'-0"	B47	" "
32	⅝"φ	11'-0"	B48	" "
32	⅝"φ	11'-3"	B49	" "
32	⅝"φ	11'-6"	B50	" "
32	⅝"φ	11'-6	B51	" "
32	⅝"φ	11'-9"	B52	" "
32	⅝"φ	12'-0"	B53	" "
32	⅝"φ	12'-3"	B54	" "
32	⅝"φ	12'-6"	B55	" "
32	⅝"φ	12'-9"	B56	" "
48	⅝"φ	13'-0"	B57	" "
32	⅝"φ	16'-6"	B58	" "
64	⅝"φ	10'-0"	B59	" "
64	½"φ	17'-0"	B60	" "
32	½"φ	27'-9"	W5	Int. Web
32	½"φ	8'-9"	W4	" "
64	½"φ	22'-3"	C1	Curb
HANDRAIL-SPAN (1-2)				
40	½"φ	5'-0"	R1	Post
16	½"φ	7'-6"	R2	"
12	½"φ	2'-6"	R3	"
6	½"φ	4'-0"	R4	"
50	½"φ	6'-9"	R5	Rail
16	½"φ	8'-3"	R6	"
32	½"φ	8'-6"	R7	"
8	½"φ	10'-0"	R8	"
HANDRAIL-SPANS (2-3) To (8-9) INC.				
140	½"φ	5'-0"	R1	Post
42	½"φ	7'-6"	R2	"
84	½"φ	2'-6"	R3	"
42	½"φ	4'-0"	R4	"
420	½"φ	6'-9"	R5	Rail
224	[illegible]	8'-3"	R6	"
224	[illegible]	9'-6"	R9	"
HANDRAIL-SPAN (9-10)				
20	½"φ	5'-0"	R1	Post
10	½"φ	7'-6"	R2	"
56	½"φ	6'-9"	R5	Rail
64	½"φ	8'-3"	R6	"

Note: Dimensions given are along centerline of bars and are for computed lengths.
Reinforcing bars ¾" or over in diameter, which are bent to an angle greater than 90°, shall be of structural grade.
Bars in above units shall be billed and tagged separately.

74

Drawn Mar. 1934 By R.J.G.
Traced Mar. 1934 By R.J.G.
Checked May 1934 By RAB.

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

Sheet No. 2 of 10.

BRIDGE OVER K.C. SOUTHERN R.R., M. K. & T. R. R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE
ABOUT 0.5 MILE NORTH OF JOPLIN
PROJECT NO. NRM 17B (R57) STA. - (1 + 96.55)

JASPER COUNTY

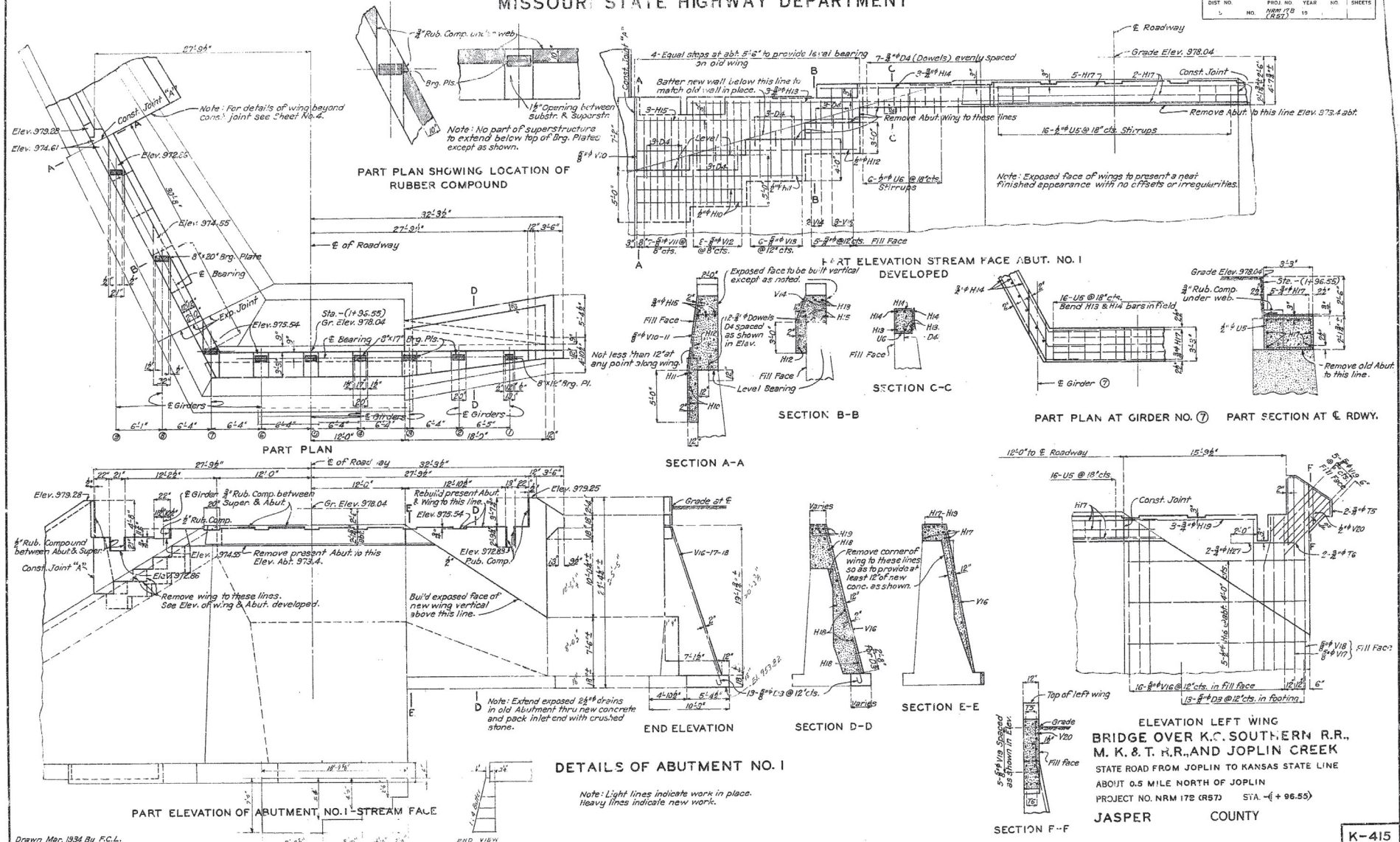
K-415

F.A.

EUCO 8-33

MISSOURI STATE HIGHWAY DEPARTMENT

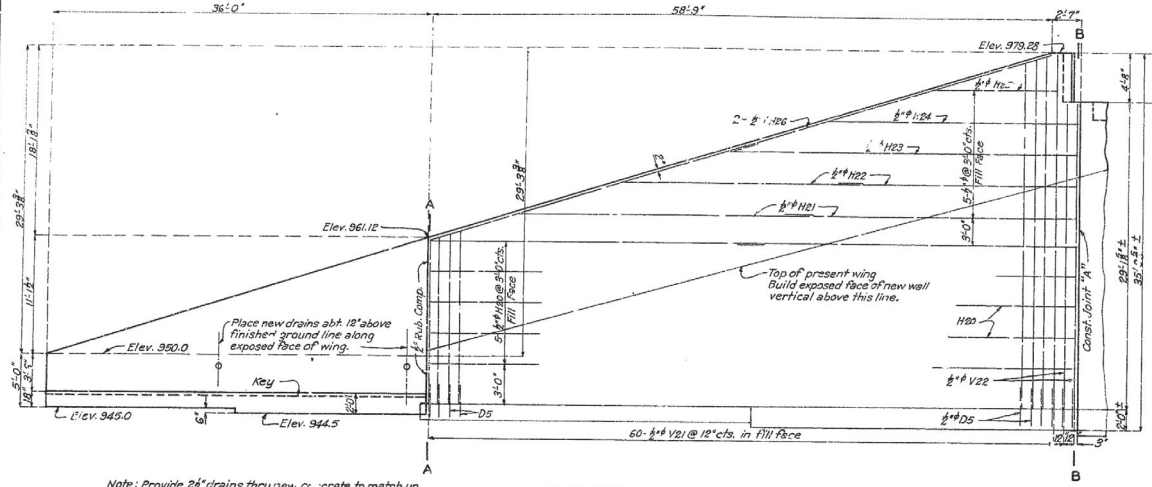
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 172 (R57)	19		



75

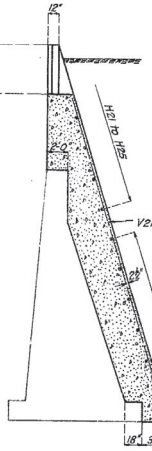
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 173 (R57)	19		

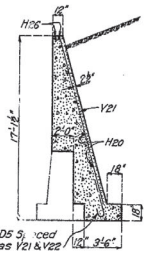


Note: Provide 2½" drains thru new concrete to match up with drains in place. Place crushed stone at inlet ends of all drains.

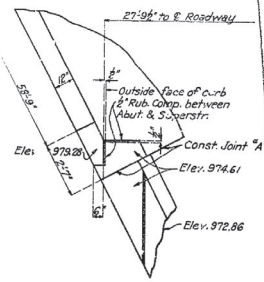
ELEVATION OF EXPOSED FACE



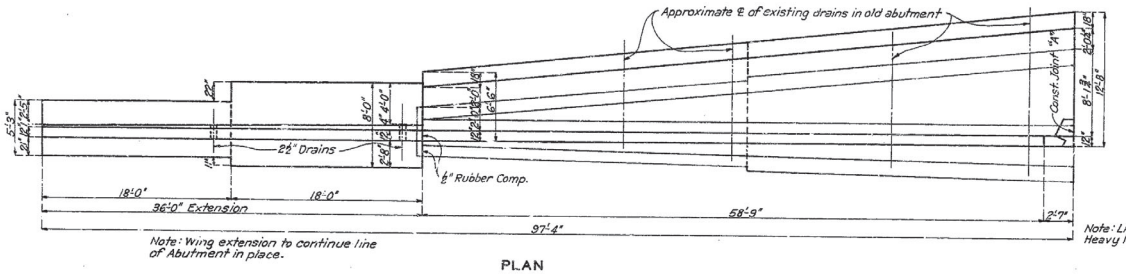
SECTION B-B



SECTION A-A



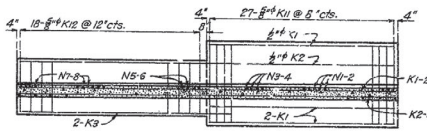
PART PLAN AT TOP OF WING



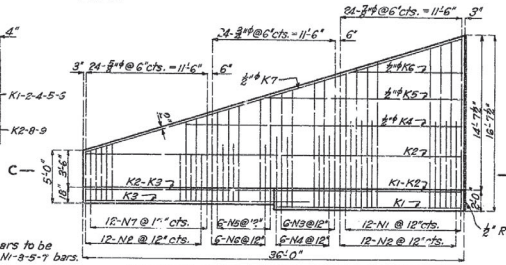
Note: Wing extension to continue line of Abutment in place.

Note: Light lines indicate old work. Heavy lines indicate new work.

PLAN

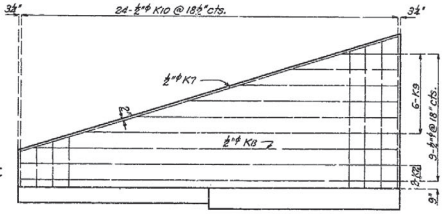


SECTION C-C

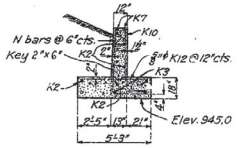


Note: N2-4-6-8 bars to be alternated with N1-3-5-7 bars.

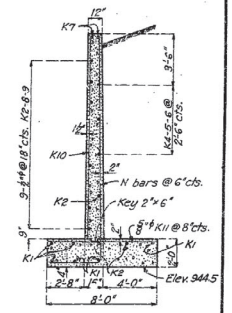
REINFORCING IN FILL FACE-EXTENSION



REINFORCING IN EXPOSED FACE-EXTENSION



LOW END



HIGH END

END ELEVATIONS-EXTENSION

BRIDGE OVER K.C. SOUTHERN R.R., M. K. & T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE

ABOUT 0.5 MILE NORTH OF JOPLIN

PROJECT NO. NRM 173 (R57) STA. -(+96.55)

JASPER COUNTY

Drawn Mar. 1934 By F.C.L.
Traced Mar. 1934 By R.J.G.
Checked May 1934 By RAB.

DETAILS OF RIGHT WING ABUTMENT NO. 1

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

Sheet No. 4 of 10.

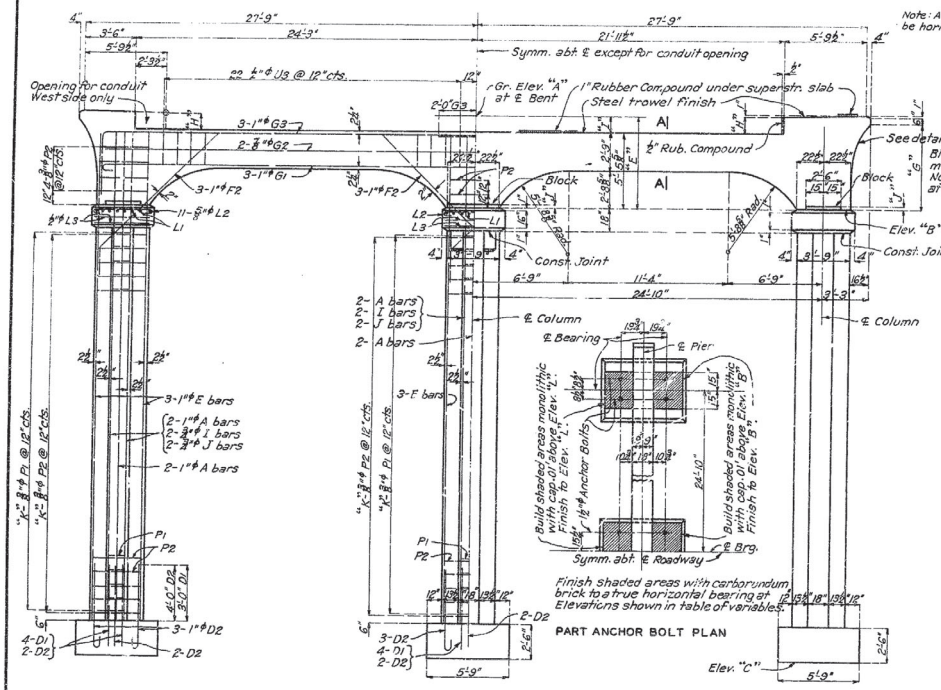
K-415

F.A.

76

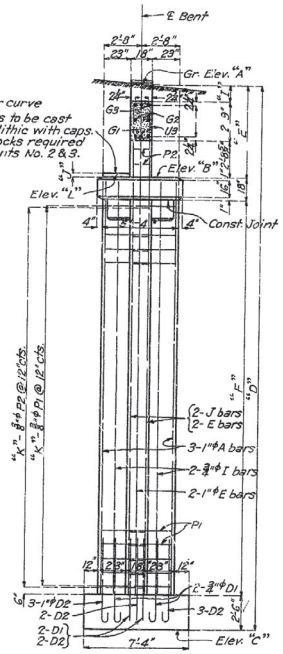
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 17B (R57)	19		

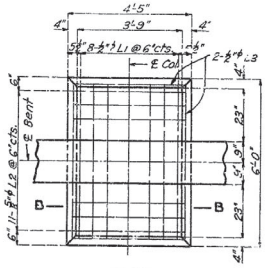


PART ANCHOR BOLT PLAN

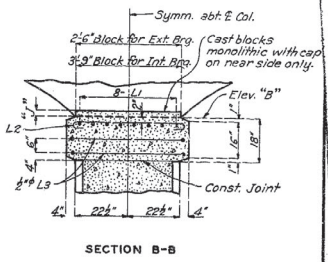
ELEVATION



SECTION A-A



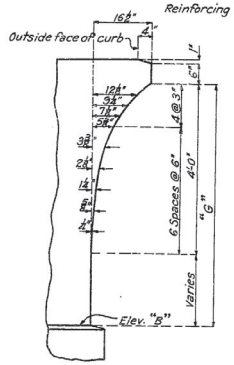
PLAN



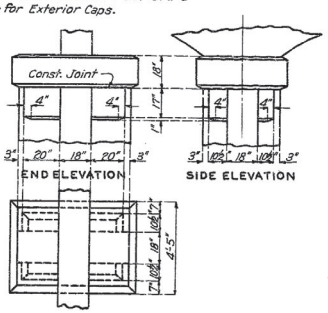
SECTION B-B

DETAIL SHOWING REINFORCING FOR CAPS

Reinforcing same for Exterior Caps.

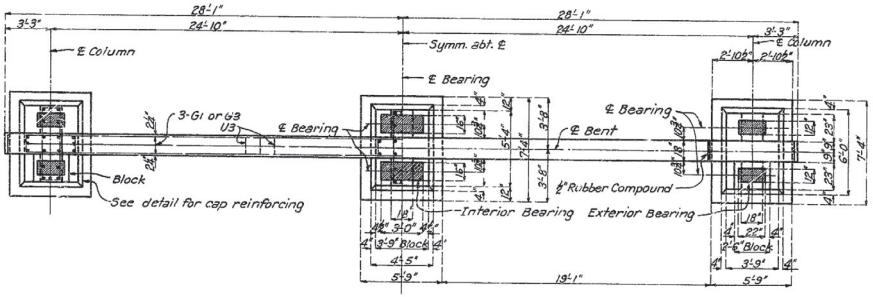


CURVE DETAILS

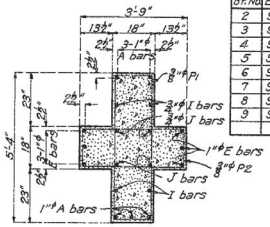


PLAN

DETAILS SHOWING BLOCKS UNDER CAP OF INTERIOR COLUMNS ONLY



PLAN



SECTION THRU COLUMNS

VARIABLES FOR INTERMEDIATE BENTS

Bt. No.	Elev. "A"	Elev. "B"	Elev. "C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"	A Bars	E Bars	I Bars	J Bars	Elev. "L"
2	978.01	971.42	942.0	36'-0"	6'-7⅛"	25'-4⅞"	6'-2⅜"	15"	13⅛"	0"	25	A1	E1	I1	J1	971.42
3	977.97	971.38	936.0	41'-11⅛"	6'-7⅛"	31'-4⅞"	6'-2⅜"	15"	13⅛"	0"	31	A2	E2	I2	J2	971.38
4	977.83	971.22	930.0	47'-10"	6'-7⅛"	37'-2⅞"	6'-2⅜"	15⅛"	13⅜"	⅛"	37	A3	E3	I3	J3	971.26
5	977.19	970.54	921.0	50'-2⅜"	6'-7⅛"	39'-6⅞"	6'-3"	15⅛"	14⅛"	⅛"	39	A4	E4	I4	J4	970.64
6	976.01	969.32	926.0	50'-0"	6'-8⅛"	39'-3⅜"	6'-3⅛"	15⅛"	14⅜"	2⅛"	39	A4	E4	I4	J4	969.51
7	974.28	967.56	924.0	50'-3⅜"	6'-8⅜"	39'-6⅞"	6'-3⅜"	16"	15"	3"	39	A4	E4	I4	J4	967.81
8	972.01	965.26	923.0	49'-0"	6'-9"	38'-3"	6'-3⅜"	16⅛"	15⅜"	3⅜"	38	A5	E5	I5	J5	965.57
9	969.43	962.68	923.0	46'-5"	6'-9"	35'-8"	6'-3⅜"	16⅛"	15⅜"	3⅜"	36	A6	E6	I6	J6	962.99

Note: For elevations of Elev. "C" see sheet #1. D. F.&A. change 1½" in elevation of soffit in Elev. "C". No change in other dimensions.

BRIDGE OVER K.C. SOUTHERN R.R., M. K. & T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE

ABOUT 0.5 MILE NORTH OF JOPLIN

PROJECT NO. NRM 17B (R57) STA. - (1+96.55)

JASPER COUNTY

DETAILS OF BENTS NO. 2, 3, 4, 5, 6, 7, 8, & 9

Drawn Mar. 1934 By F.C.L.
Traced Mar. 1934 By R.J.G.
Checked May 1934 By RAB.

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

Sheet No. 5 of 10.

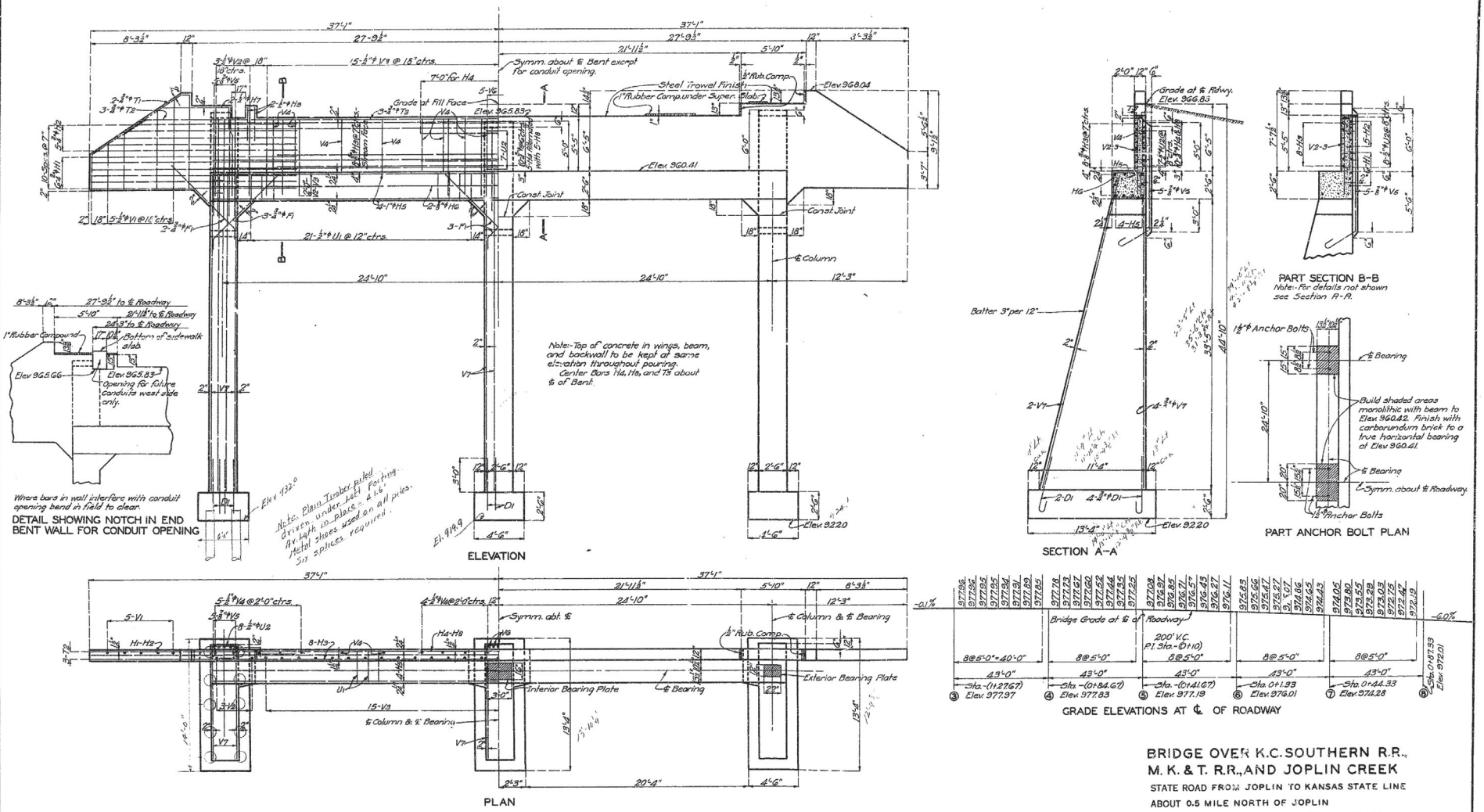
K-415

F.A.

77

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 178 (RS7)	19		



DETAILS OF BENT NO. 10

BRIDGE OVER K.C. SOUTHERN R.R., M. K. & T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE

ABOUT 0.5 MILE NORTH OF JOPLIN

PROJECT NO. NRM 178 (RS7) STA. -(1+96.55)

JASPER COUNTY

K-415

Drawn Mar. 1934 by F.C.L.
Traced Mar. 1934 by C.A.F.
Checked May 1934 by R.A.G.

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

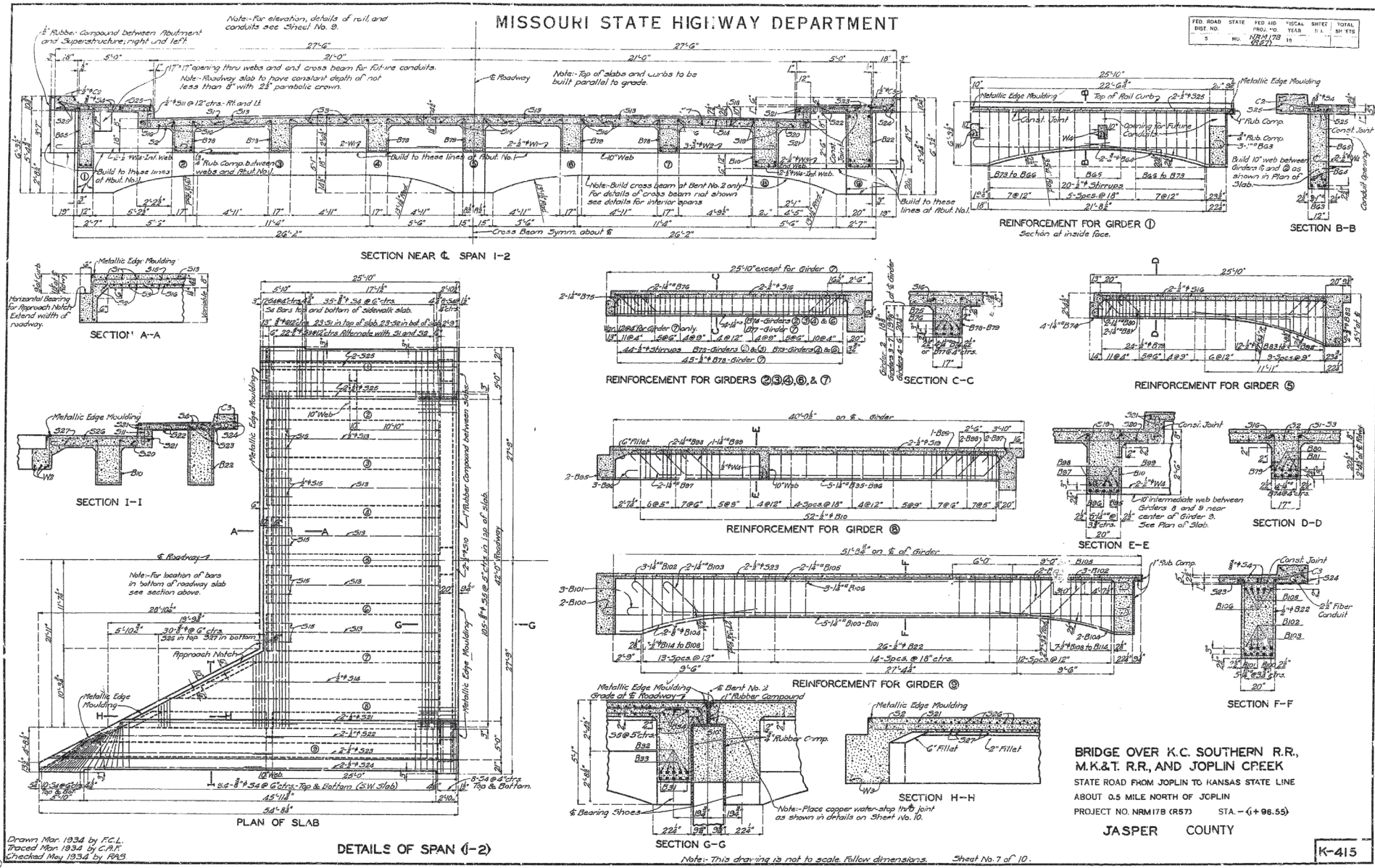
Sheet No. 6 of 10.

F.A.

78

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 178 (R57)	19		



BRIDGE OVER K.C. SOUTHERN R.R., M.K.&T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE

ABOUT 0.5 MILE NORTH OF JOPLIN

PROJECT NO. NRM 178 (R57) STA. – (1+96.55)

JASPER COUNTY

K-415

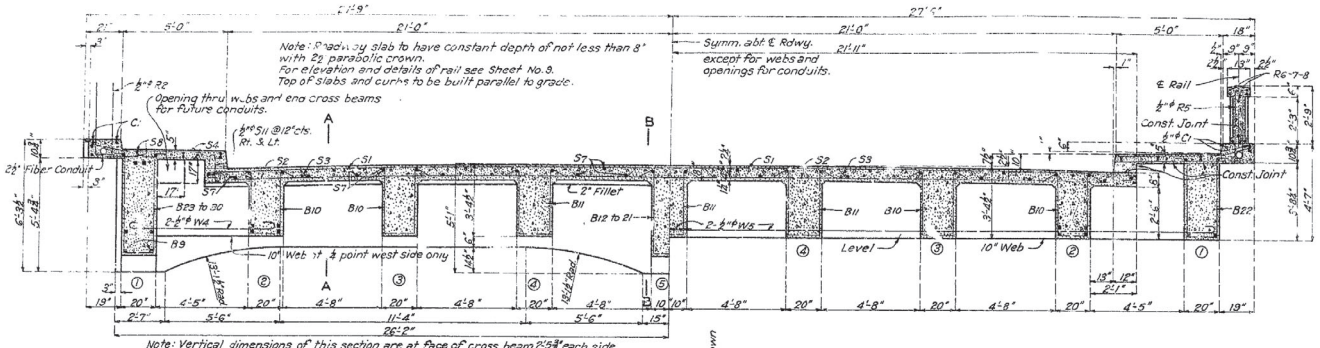
Drawn Mar. 1934 by F.C.L.
Traced Mar. 1934 by C.A.F.
Checked May 1934 by RAS

F.A.

92

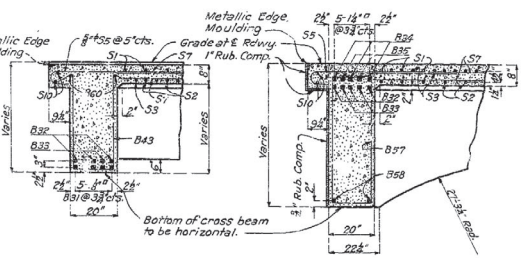
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST NO.	STATE	FED AID PROJ NO	FISCA. YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 17B (257)	19		



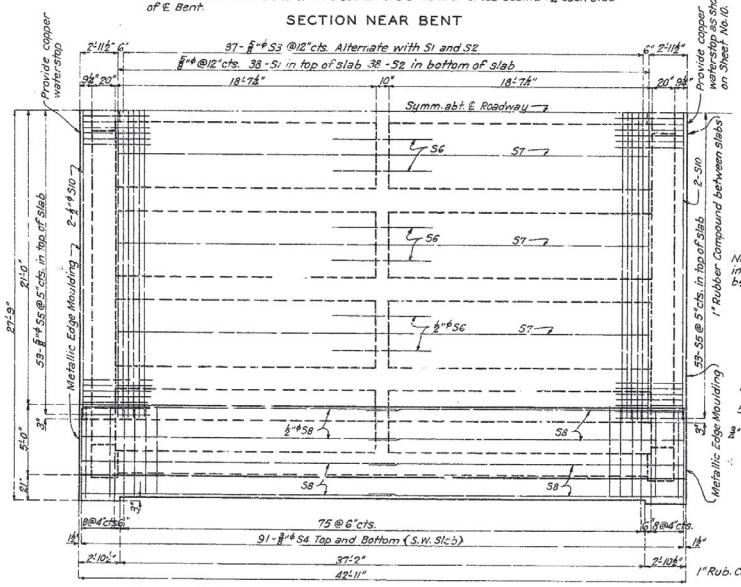
SECTION NEAR BENT

SECTION NEAR MID-SPAN

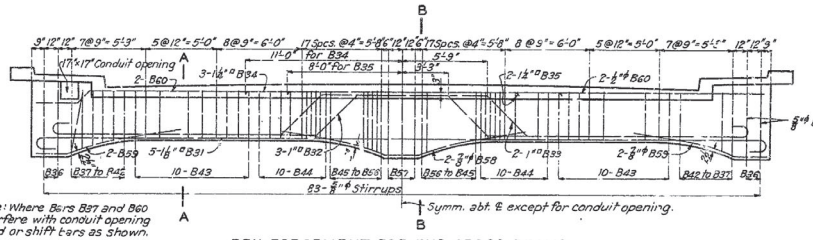


SECTION A-A

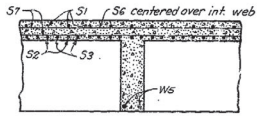
SECTION B-B



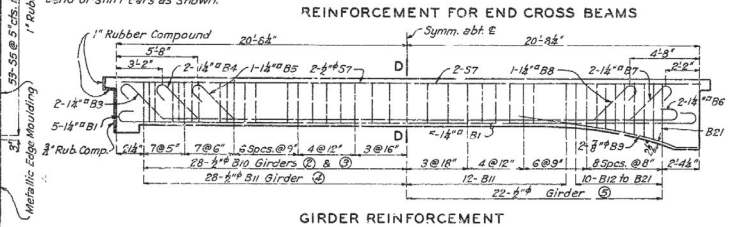
HALF PLAN SHOWING SLAB REINFORCING



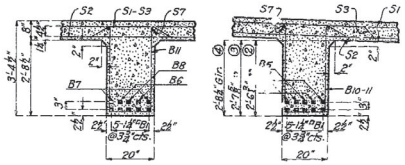
REINFORCEMENT FOR END CROSS BEAMS



PART LONGITUDINAL SECTION THRU INTERIOR WEB



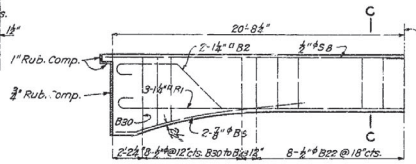
GIRDER REINFORCEMENT



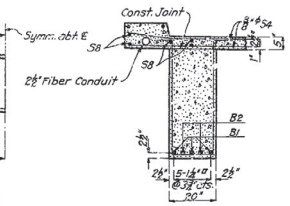
GIRDER ⑤

GIRDERS ② - ③ - ④

SECTION D-D



GIRDER REINFORCEMENT ①



SECTION C-C

Note: Details for Span (9-10) similar except as shown in Section AT End Bent No. 10 on Sheet No. 10.

DETAILS OF SPANS (2-3) TO (8-9) INCLUSIVE

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

Drawn Feb. 1934 By F.C.L.
Traced Feb. 193 By R.J.G.
Checked May 1934 By RAB

BRIDGE OVER K.C. SOUTHERN R.R., M. K. & T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE
ABOUT 0.5 MILE NORTH OF JOPLIN
PROJECT NO. NRM (7B (257) STA. - (1+96.55)

JASPER COUNTY

Sheet No. 8 of 10.

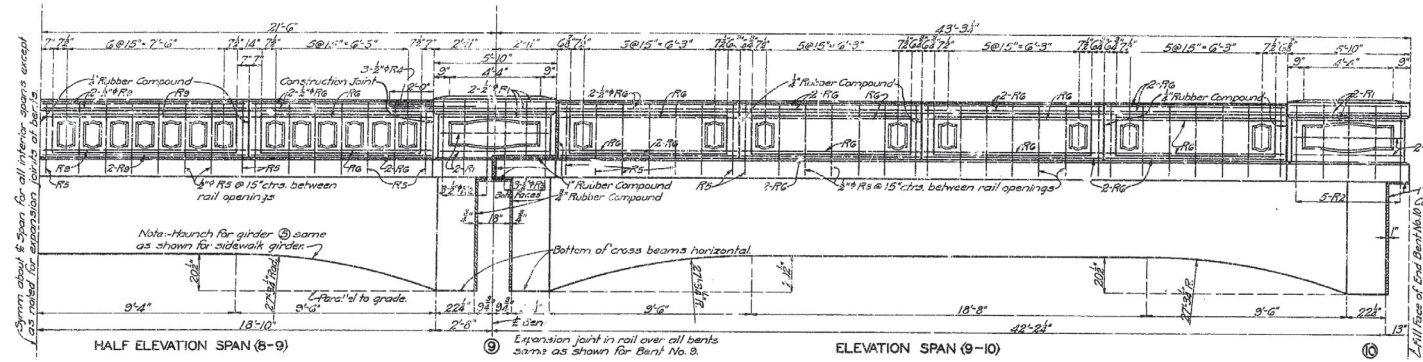
K-415

F.A.

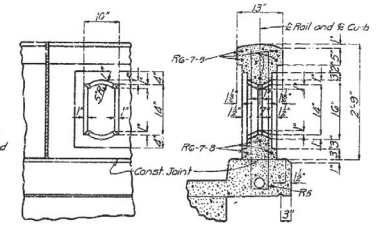
80

MISSOURI STATE HIGHWAY DEPARTMENT

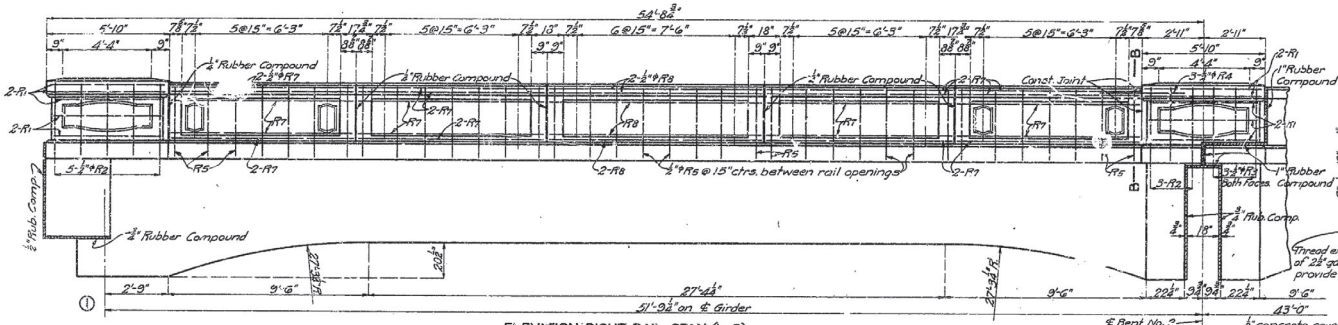
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 17B (R57)	19		



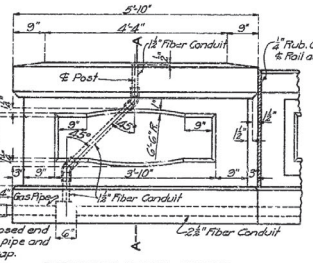
HALF ELEVATION SPAN (8-9) ⑨ ELEVATION SPAN (9-10) ⑩



ELEV. OF RAIL OPENING SEC. AT ℄ OF OPENING

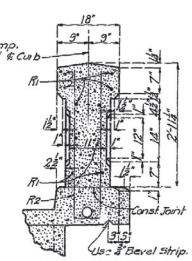


① ELEVATION RIGHT RAIL SPAN (1-2) ②

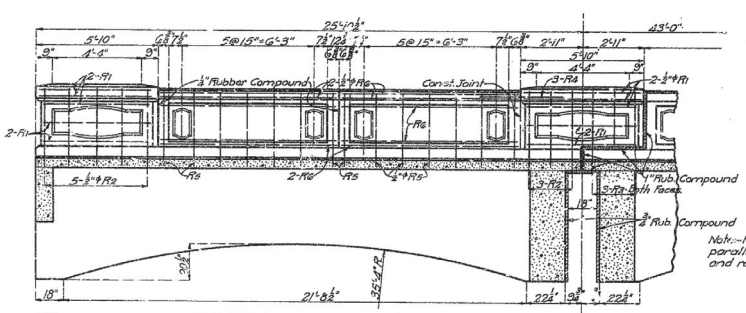


ELEVATION OF END POSTS

Note:-Use 2½" gas pipe from pull box to end of curb as shown above.

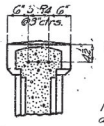


SECTION A-A



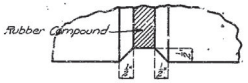
Note:-Rail, panels, and top of posts to be parallel to grade. Posts, ends of panels, and rail openings to be vertical.

① ELEVATION LEFT RAIL SPAN (1-2) ②



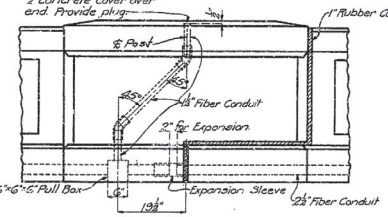
PART SEC. B-B

Rs bars to extend 2'-0" into post.



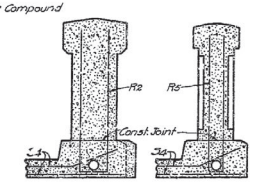
Note:-Use bevel as shown for exposed faces of all joints consisting of rubber compound except at top surface of slabs. Use metallic edge moulding at top surface of roadway and sidewalk slabs each side of rubber comp. joints.

DETAIL OF BEVEL FOR ALL RUBBER COMPOUND JOINTS



DETAILS OF INTERIOR POSTS SHOWING CONDUITS

See Elevation of End Posts above for details of rail not shown and for details of conduit at ends of bridge.



SEC. THRU POST SEC. THRU RAIL

Bend S4 bars in sidewalk to clear conduit as shown.

Note:-Panel in post not shown for sake of clearness. If 10" web interferes with pull box in right curb at end post, Abut. No. 1, place pull box near opposite end of this post.

LOCATION OF LIGHTS ON BRIDGE:-
Provide risers for lights at all 4 end posts, Abutment No. 1 and Bent No. 10.
Provide risers for lights on both sides at Interior Bents No. 4 and 7. Provide expansion sleeves over all interior bents both sides. Omit risers and pull boxes where no lights are desired.
Leave 1-No. 9 R.W.G. Galvanized wire in each conduit. Light standards and other wiring to be furnished and placed by city of Joplin.

BRIDGE OVER K.C. SOUTHERN R.R., M.K. & T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE

ABOUT 0.5 MILE NORTH OF JOPLIN

PROJECT NO. NRM 17B (R57) STA. - (+ 96.55)

JASPER COUNTY

DETAILS OF HANDRAIL & GIRDER HAUNCHES

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

Sheet No. 9 of 10.

Drawn Mar. 1934 by F.C.L.
Traced Mar. 1934 by C.P.F.
Checked May 1934 by RAB.

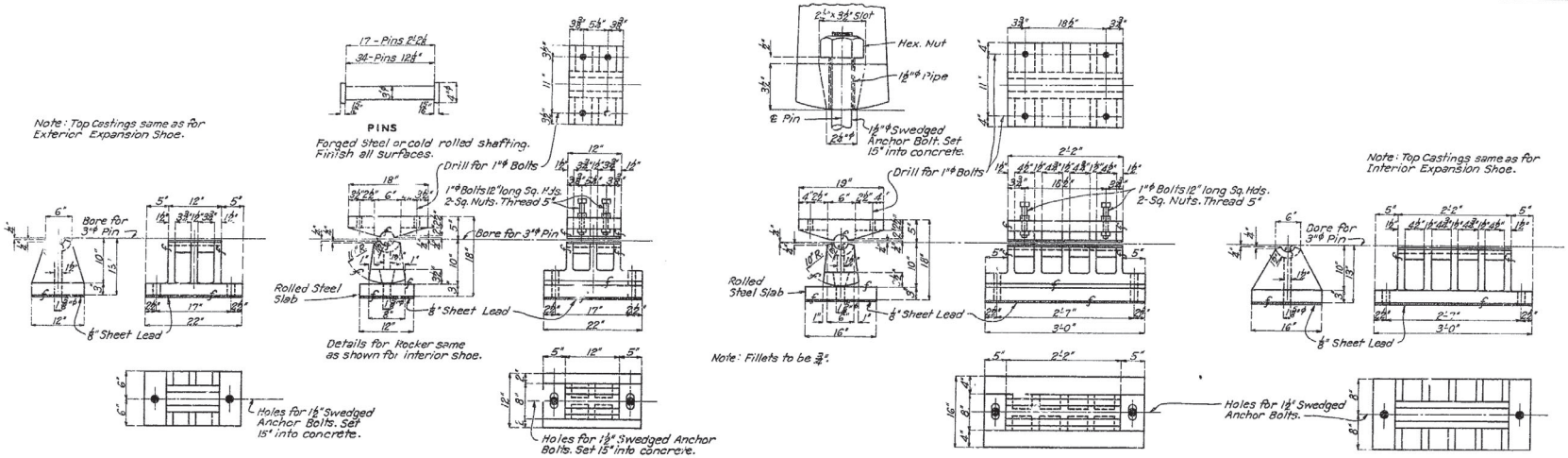
K-415

F.A.

18

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	NRM 17B (857)	19		

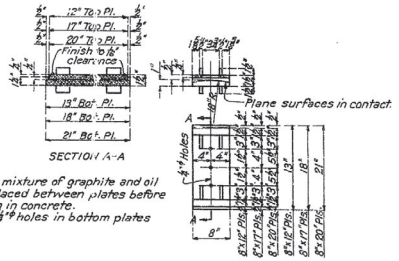


EXTERIOR FIXED SHOE
16-SHOES REQUIRED

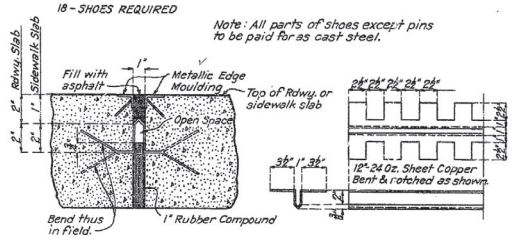
EXTERIOR EXPANSION SHOE
18-SHOES REQUIRED

INTERIOR EXPANSION SHOE
9-SHOES REQUIRED

INTERIOR FIXED SHOE
8-SHOES REQUIRED

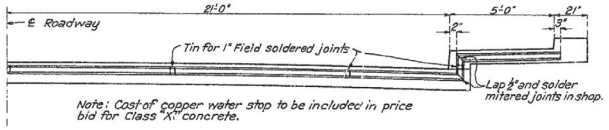


PHOSPHOR BRONZE BEARING PLATES



DETAILS OF COPPER WATERSTOP OVER INTERIOR BENTS

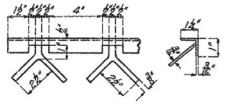
Note: Cost of copper waterstops to be included in unit bid price for concrete.



Note: Cost of copper water stop to be included in price bid for Class "X" concrete.

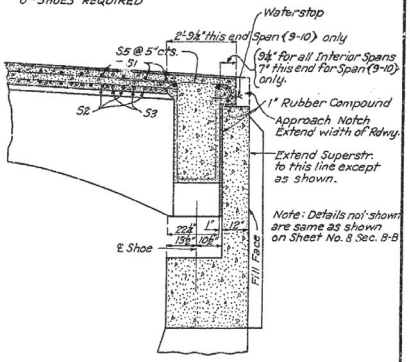
HALF END ELEVATION SHOWING COPPER WATERSTOP

Note: Shoes shall be set on ⅛" of sheet lead extending ½" beyond edges of shoes and over entire shoe area of the finished bearing surface.
Cost of sheet lead to be included in price bid for cast steel shoes.



Note: Cost of metallic edge moulding will be included in unit bid price for concrete.

METALLIC EDGE MOULDING



SECTION AT BENT NO. 10
BETWEEN GIRDERS ④ & ⑤

BRIDGE OVER K.C. SOUTHERN R.R., M. K. & T. R.R., AND JOPLIN CREEK

STATE ROAD FROM JOPLIN TO KANSAS STATE LINE

ABOUT 0.5 MILE NORTH OF JOPLIN

PROJECT NO. NRM 17B (857) STA. -(1 + 96.55)

JASPER COUNTY

K-415

Drawn Mar. 1934 By F.C.L.
Traced Mar. 1934 By R.J.G.
Checked May 1934 By FAB.

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

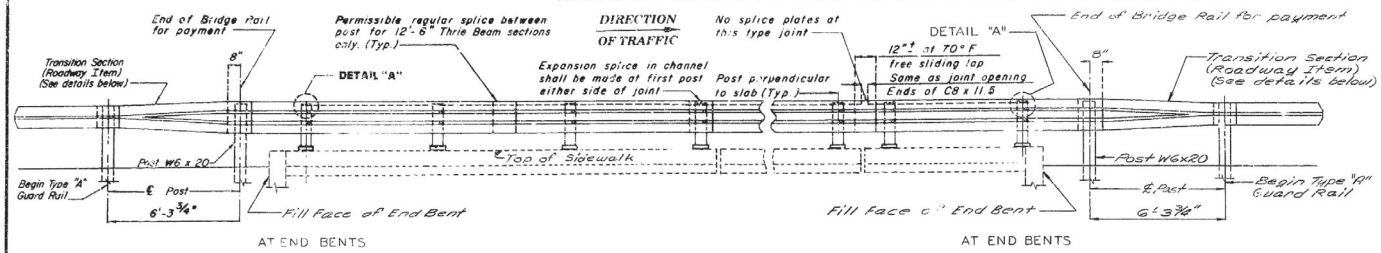
Sheet No. 10 of 10.

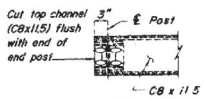
F.A.

82

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

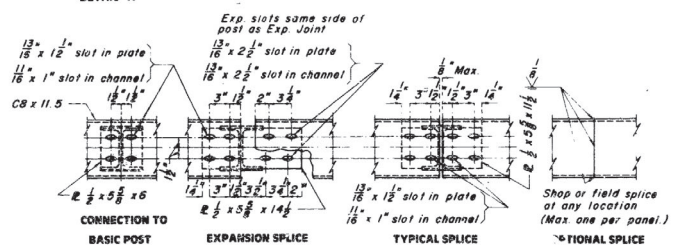
STATE	PROJ NO	SHEET NO
MO		26
SEC 283	TWP 27N	RGE 33W





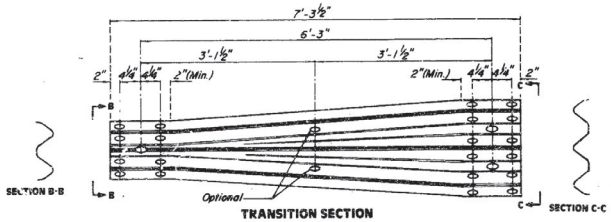
DETAIL "A"

PART SECTION SHOWING RAIL



CHANNEL MEMBER DETAILS

NOTE: SHIM PLATES 6" x 6" x 1/16" MAY BE USED BETWEEN TOP OF POST AND CHANNEL MEMBER AS REQUIRED FOR VERTICAL ALIGNMENT.



TRANSITION SECTION

GENERAL NOTES:

DESIGN AASHTO 1977 SPECIFICATIONS.

PANEL LENGTHS OF CHANNEL MEMBERS SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF SIX (EXCEPT AT END BENTS).

ALL BOLTS, NUTS, WASHERS, PLATES AND ELASTOMERIC MATERIALS ARE CONSIDERED AS PARTS OF THE RAIL FOR PAYMENT.

ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POST 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 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 STANDARD SPECIFICATIONS, EXCEPT THAT THE RAIL POST SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN 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 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.

RAIL POSTS SHALL BE SETTED ON ELASTOMERIC PADS HAVING THE SAME DIMENSIONS AS POST BASE PLATE AND 1/16" THICK. SUCH PADS MAY BE ANY ELASTOMERIC MATERIAL, PLAIN OR FIBERED, HAVING A HARDNESS (DUROMETER) 50 OR ABOVE, AS CERTIFIED BY THE MANUFACTURER TO THE ENGINEER. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.

AT EXPANSION SLOTS IN THRIE BEAM RAILS AND CHANNELS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.

5/8 INCH x 1-1/4 INCH BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX. NUTS AT ALL SLOTS. (THICKNESS OF HEX. NUTS = 3/8 INCH). *Except as shown.*

POST, BASE PLATES, CHANNELS AND CHANNEL SPLICE PLATES TO BE FABRICATED FROM A-36 STEEL AND GALVANIZED

WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN BOLT HEAD AND BEAM). THEY SHALL BE RECTANGULAR IN SHAPE (3" x 1-3/4" x 3/16" MIN.) AND FLAT, OR WHEN NECESSARY OF SUCH DESIGN TO FIT THE CONTOUR OF THE BEAM. WASHER SHALL HAVE 11/16" x 1" SLOT.

FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 712 OF THE STANDARD SPECIFICATIONS.

Contractor shall verify all dimensions in field before ordering materials.

At Thrie Beam Connection to Post on wing Tighten bolts, back off one-half turn and burr threads.

Minimum length of thrie beam sections is equal to one post space.

Thrie beam guard rail to be made of steel and shall be 12 gage.

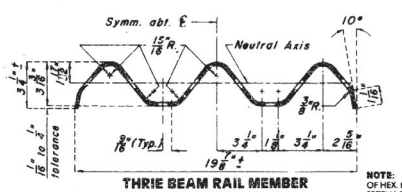
The contractor shall maintain one lane of traffic each direction on bridge during construction. (See Roadway plans.)

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

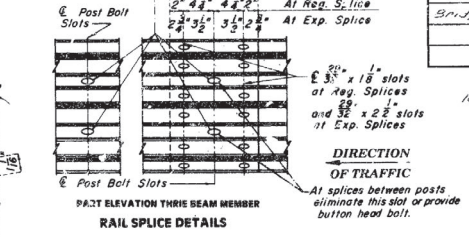
Roadway surfacing adjacent to bridge end to match existing concrete deck plus 1½"± or 2"±.

ESTIMATED QUANTITIES		
ITEM		TOTAL
Repairing Concrete Deck (Half-Soling)	Sq. Ft.	1246
Full Depth Repair	Sq. Ft.	311
* Concrete Wearing Surface	Sq. Yd.	1730
Substructure Repair (Unformed) (See Spec. Prov.)	Sq. Ft.	1815
Bridge Guard Rail (Thrie Beam)	Lin. Ft.	775

* 1¾" latex modified concrete or 2¼" (min.) low slump concrete, see Special Provisions.



THRIE BEAM RAIL MEMBER



PART ELEVATION THRIE BEAM MEMBER

RAIL SPLICE DETAILS

NOTE: 5/8" x 1-1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX. NUTS AT ALL SLOTS. (THICKNESS OF HEX. NUTS = 3/8").
SPECIAL DRILLING OF THRIE BEAM MAY BE REQUIRED AT SPLICES.
(ALL DRILLING DETAILS ARE TO BE SHOWN ON SHOP DRAWINGS).

REPAIRS TO
BRIDGE OVER K.C. SOUTHERN R.R. M.K.& T. R.R. AND JOPLIN CREEK

STATE ROAD

IN JOPLIN

PROJECT NO. BHM-MAM-MAMG-3209(105) STA.-(1+96.55)

JOB NO. 7U043-283 RTE. 43

JASPER COUNTY

DATE 10/8/86

STD.
STD. 606.00
K-415R

DESIGNED July 1986
DETAILED July 1986
CHECKED Sept. 1986

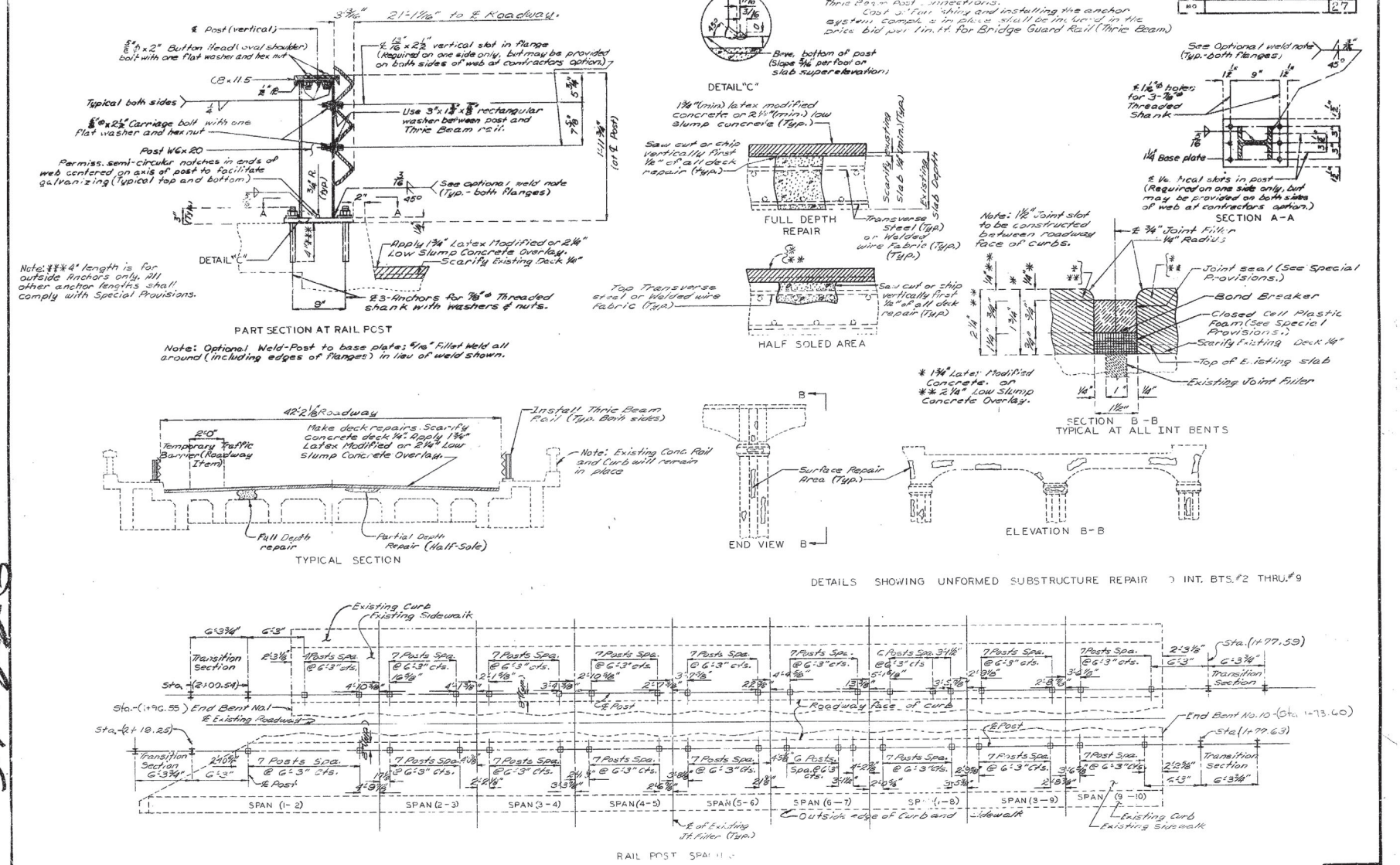
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 2

33 225

STATE	PROJ NO	SHEET NO
MO		27

Note: The contractor shall use one of the resin anchor systems listed in the Special Provisions for the Thrie Beam Post connections. Cost of furnishing and installing the anchor system complete in place shall be included in the price bid per lin. ft. for Bridge Guard Rail (Thrie Beam)



DETAILED July 1986
CHECKED Sept. 1986

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

Sheet No. 2 of 2

JASPER COUNTY

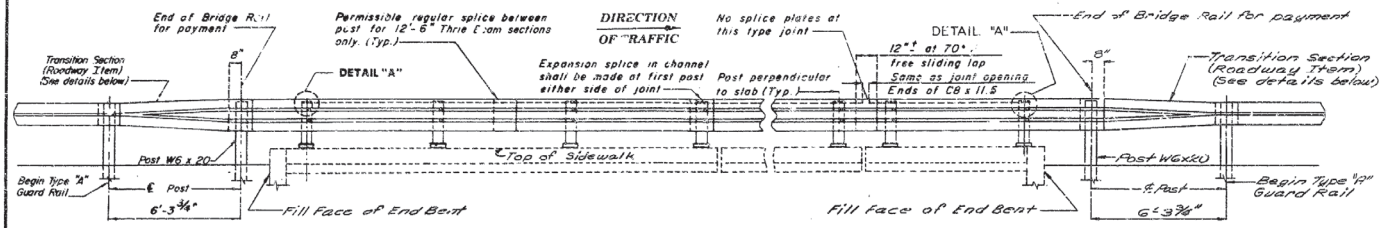
K-415R

34 226

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

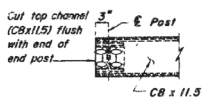
FINAL PLANS

STATE	PROJ NO	SHEET NO
MO	BHM-MAM-MAMG-3209(105)	26
SEC 28.3	TWP 27N	RGE 33W



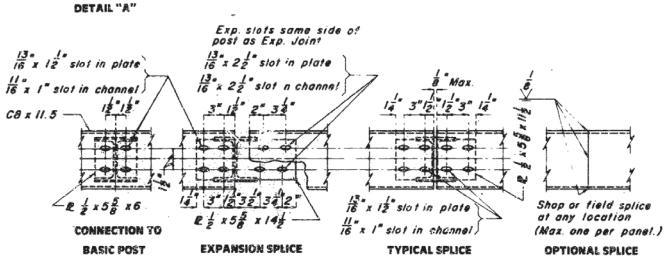
AT END BENTS

AT END BENTS



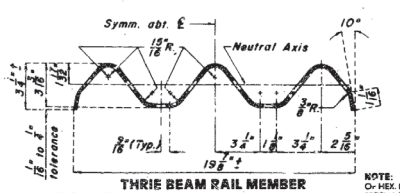
PLAN

DETAIL "A"

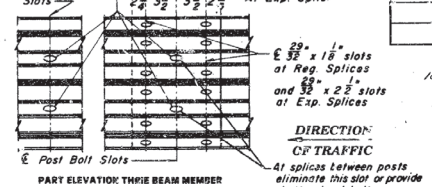


CHANNEL MEMBER DETAILS

NOTE: SHIM PLATES 6" x 6" x 3/16" MAY BE USED BETWEEN TOP OF POST AND CHANNEL MEMBER AS REQUIRED FOR VERTICAL ALIGNMENT.



THRIE BEAM RAIL MEMBER

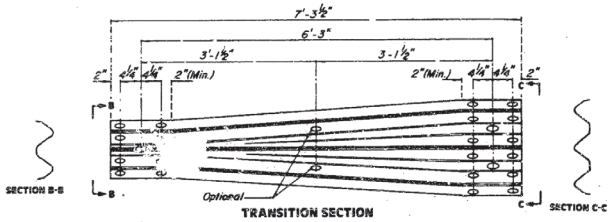


PART ELEVATION THRIE BEAM MEMBER

RAIL SPLICE DETAILS

NOTE: 5/8"Ø x 1-1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX. NUTS AT ALL SLOTS. (THICKNESS OF HEX. NUTS = 3/8").
SPECIAL DRILLING OF THRIE BEAM MAY BE REQUIRED AT SPLICES.
(ALL DRILLING DETAILS ARE TO BE SHOWN ON SHOP DRAWINGS).

PART SECTION SHOWING RAIL



TRANSITION SECTION

FINAL QUANTITIES		
ITEM		TOTAL
Repairing Concrete Deck (Half-Soling)	Sq. Ft.	279
Full Depth Repair	Sq. Ft.	822
* Concrete Wearing Surface	Sq. Yd.	4730
Sub-structure Repair (Unformed)(See Spec. Prov.)	Sq. Ft.	684
Bridge Guard Rail (Thrie Beam)	Lin. Ft.	775

* 2 1/4" (min.)

low slump concrete, see Special Provisions.

GENERAL NOTES:

DESIGN AASHTO 1977 SPECIFICATIONS.

PANEL LENGTHS OF CHANNEL MEMBERS SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF SIX (EXCEPT AT END BENTS).

ALL BOLTS, NUTS, WASHERS, PLATES AND ELASTOMERIC MATERIALS ARE CONSIDERED AS PARTS OF THE RAIL FOR PAYMENT.

ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POST 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 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 STANDARD SPECIFICATIONS, EXCEPT THAT THE RAIL POST SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN 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 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.

RAIL POSTS SHALL BE SEATED ON ELASTOMERIC PADS HAVING THE SAME DIMENSIONS AS POST BASE PLATE AND 1/16" THICK. SUCH PADS MAY BE ANY ELASTOMERIC MATERIAL, PLAIN OR FIBERED, HAVING A HARDNESS (DUROMETER) 50 OR ABOVE, AS CERTIFIED BY THE MANUFACTURER TO THE ENGINEER. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.

AT EXPANSION SLOTS IN THRIE BEAM RAILS AND CHANNELS, TIGHTEN BOLTS, BACK OFF ONE-HALF TURN AND BURR THREADS.

5/8 INCH x 1-1/4 INCH BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX. NUTS AT ALL SLOTS. (THICKNESS OF HEX. NUTS = 3/8 INCH). Except as shown.

POST, BASE PLATES, CHANNELS AND CHANNEL SPLICE PLATES TO BE FABRICATED FROM A-36 STEEL AND GALVANIZED.

WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN BOLT HEAD AND BEAM). THEY SHALL BE RECTANGULAR IN SHAPE (3" x 1-3/4" x 3/16" MIN.) AND FLAT, OR WHEN NECESSARY OF SUCH DESIGN TO FIT THE CONTOUR OF THE BEAM. WASHER SHALL HAVE 11/16" x 1" SLOT.

FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 712 OF THE STANDARD SPECIFICATIONS.

Contractor shall verify all dimensions in field before ordering materials.

At Thrie Beam Connection to Post on wing Tighten bolts, back off one-half turn and burr threads.

Minimum length of thrie beam sections is equal to one post space.

Thrie beam guard rail to be made of steel and shall be 12 gage.

The contractor shall maintain one lane of traffic each direction on bridge during construction. (See Roadway plans.)

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

Roadway surfacing adjacent to bridge end to match existing concrete deck 2" ±.

REPAIRS TO
BRIDGE OVER K.C. SOUTHERN R.R., M.K.& T. R.R. AND JOPLIN CREEK

STATE ROAD
IN JOPLIN

PROJECT NO. BHM-MAM-MAMG-3209(105) STA. -(+96.55)
JOB NO. 7-U043-283 RTE. 43
JASPER COUNTY

DATE 10/8/86

STD.
STD. 506.00
K-415R

DESIGNED July 1986
DETAILED July 1986
CHECKED Sept. 1986

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

Sheet No. 1A of 2

B 227