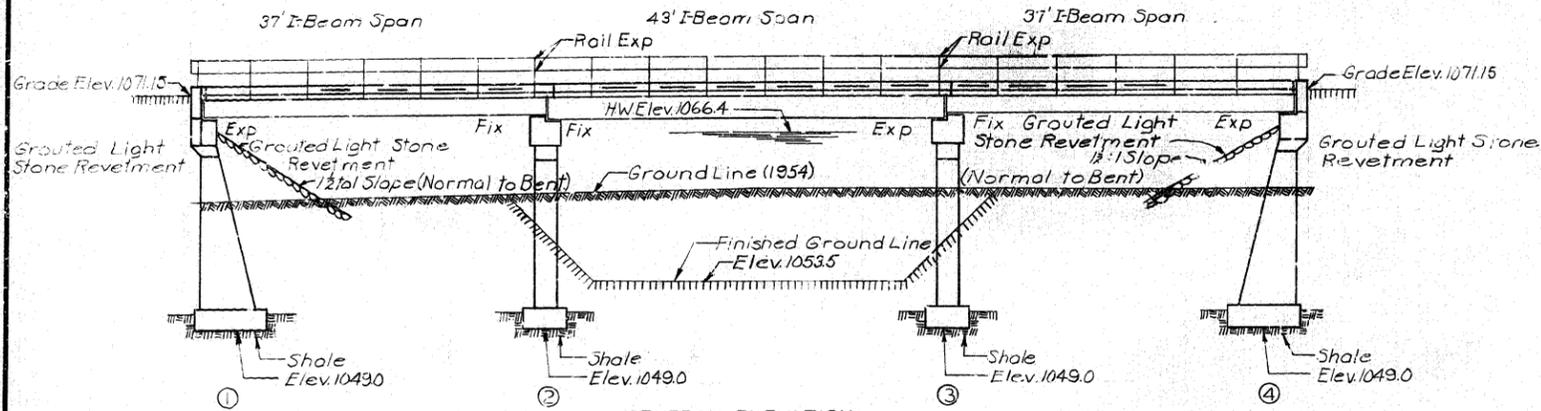
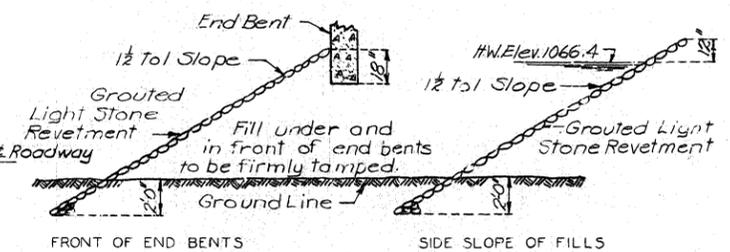
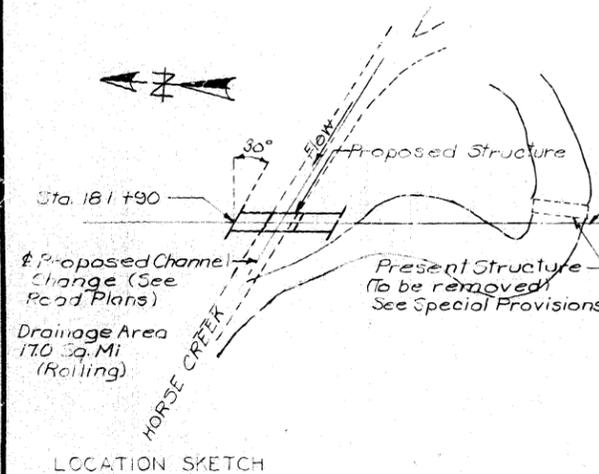
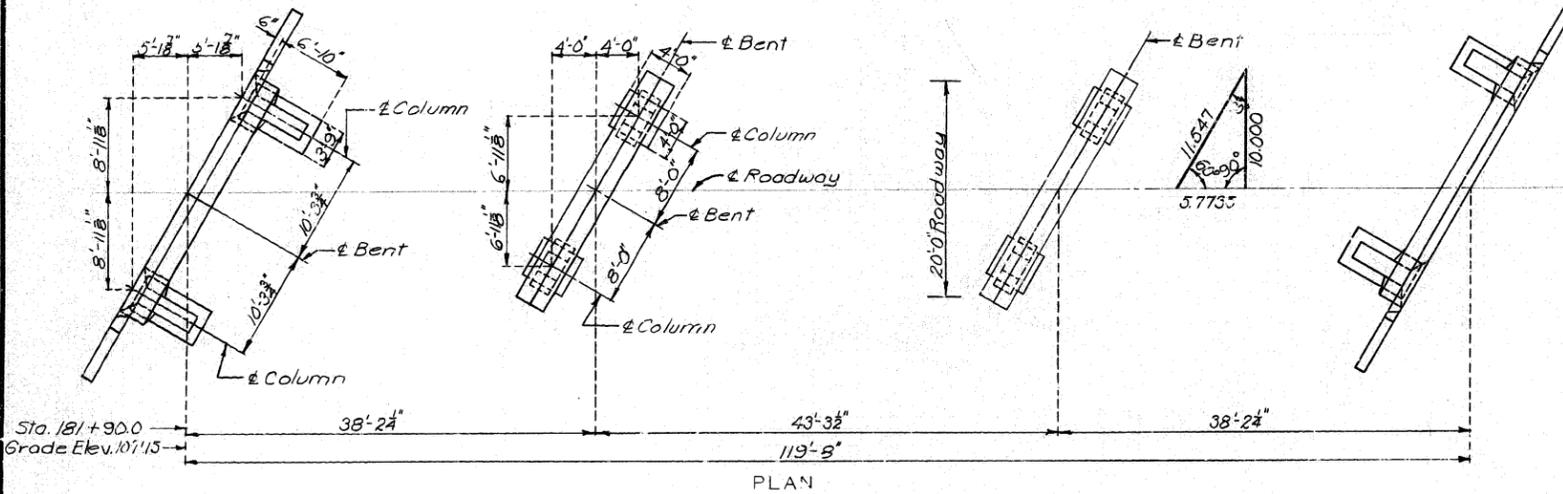


# MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	5-198(1) SEC. B(SD)	19		



Note: Footings shall be carried at least 18" into and cast against vertical faces of firm undisturbed shale or other soft rock. If solid rock is encountered, all loose, shelly, or disintegrated material shall be removed and the footings placed on hard, solid undisturbed rock.



Note: Grouted Light Stone Revetment shall be placed on fills at ends of bridge as shown in sketches. See Road Plans for Quantities.

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

**GENERAL NOTES:**  
 Design Specifications A.A.S.H.O. 1953  
 Loading: H10-44  
 Structural Steel Stress: 18,000  $\psi$ /in<sup>2</sup>  
 Reinforcing Steel Stress: 18,000  $\psi$ /in<sup>2</sup>  
 Class "B" Concrete Stress: 1000  $\psi$ /in<sup>2</sup>  
 All concrete shall be Class "B".  
 Rivets  $\frac{3}{4}$ " holes  $\frac{1}{2}$ " except in handrail where rivets shall be  $\frac{3}{8}$ " holes  $\frac{1}{4}$ ".  
 Field connections shall be riveted except as noted in handrail details or, if the Contractor desires to eliminate all field riveting on this project, he may use machine bolts except for the  $\frac{3}{8}$ " button head bolts specified for handrail heads and nuts of machine bolts shall be American Standard Regular.  
 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. No other paint to be applied by Contractor. Red lead required shall be furnished by Contractor.  
 Payment for cleaning and painting such surfaces will be included in unit price bid for Fabricated Structural Steel.  
 Where joint filler is specified on the plans it shall conform with the requirements for Premoulded Material for Filler as given in Section 3B-19A(1)h of the Standard Specifications.

COMPLETE BILL OF REINFORCING STEEL									
No.	Size	Length	Mark	Location	Bending Sketches	Cutting Diagrams			
<b>Superstructure</b>									
176	#5	2'-9"	C1	Curb	2'-11 1/2" 7'	4'-12" 3"			
6	#6	37'-3"	C2	"	5'-3 1/2" 11 1/2"	7'-4 1/2" 4'-1 1/2"			
6	#6	38'-6"	C3	"	8'-3"	11'-6"			
12	#6	22'-3"	C4	"	5 V2 CUT 10	14 1/4 CUT 56			
168	#4	22'-0"	S1	Slab	3'-2 1/2" 10 1/2"	3'-2 1/2" 10 1/2" 2'-9 1/2"			
83	#4	24'-0"	S2	"	20'-0 1/2" 3'-2 1/2"	21'-10" 3'-2 1/2"			
128	#4	19'-9"	S3	"	26'-3"	25'-4"			
48	#4	26'-3"	S4	"	24 S4 CUT 48 & BEND AS SHOWN	23 S5 CUT 88 & BEND AS SHOWN			
88	#4	25'-6"	S5	"					
6	#4	25'-6"	S6	"					
64	#4	22'-3"	S7	"					
<b>End Bents No. 1 &amp; 4</b>									
28	#5	4'-9"	D1	Footing	23'-5" 61	3'-0 1/2" D1			
12	#6	7'-0"	F2	Haunch	24'-5" H2				
12	#6	7'-0"	F3	"	Varies S4-S5				
<b>Int. Bents No. 2 &amp; 3</b>									
32	#6	4'-9"	D1	Footing	12'-1 1/2" F2				
32	#6	7'-3"	F1	Haunch	26'-4" U1	20'-8" F2			
12	#7	26'-0"	G1	Beam	11'-P2				
12	#8	23'-9"	G2	"					
4	#6	23'-9"	G3	"					
4	#4	23'-9"	G4	Bm. Hch.	8'-2" C1	13" U2			
32	#6	17'-0"	F1	Column	2'-6" U3	2'-2 1/2" U6			
56	#3	7'-9"	F2	"	17" V4				
48	#4	10'-0"	U1	Beam	G1-U2-U3-U6-V4				
64	#4	2'-6"	U2	Bm. Hch.					
16	#4	3'-6"	U3	Beam					

ESTIMATED QUANTITIES		
Item	Substr.	Superstr. Total
Class I Excavation for Structures Cu.Yds.	140	140
Class 2 Excavation for Structures Cu.Yds.	76	76
Class "B" Concrete Cu.Yds.	670	574 1244
Fabricated Structural Steel Lbs.		43,520 43,520
Gray Iron Alloy Castings Lbs.		1280 1280
Reinforcing Steel Lbs.	7830	10470 18360

Note: Excavation for bridge made above Elev. 1053.5 will be paid for as Class 1 Excavation for Structures.  
 Excavation for bridge made below Elev. 1053.5 will be paid for as Class 2 Excavation for Structures.

B.M. Elev. 1065.89 + on S End of W. tubguard of Bridge. 7 Lt Sta 186+89.0

**BRIDGE OVER HORSE CREEK**  
 STATE ROAD FROM ROUTE SE. SOUTH TO ROUTE 150  
 ABOUT 7.5 MILES N.W. OF LOCKWOOD  
 PROJECT NO. 5-198(1) SEC. B(SD) STA. 181 + 90  
 DADE COUNTY

SUBMITTED BY J.A. Williams BRIDGE ENGINEER DATE 2/25/1955  
 APPROVED BY Roy M. Whitten CHIEF ENGINEER DATE 2/25/1955

FINISHED  
 FINISHED  
 STDC-1083  
 P-844

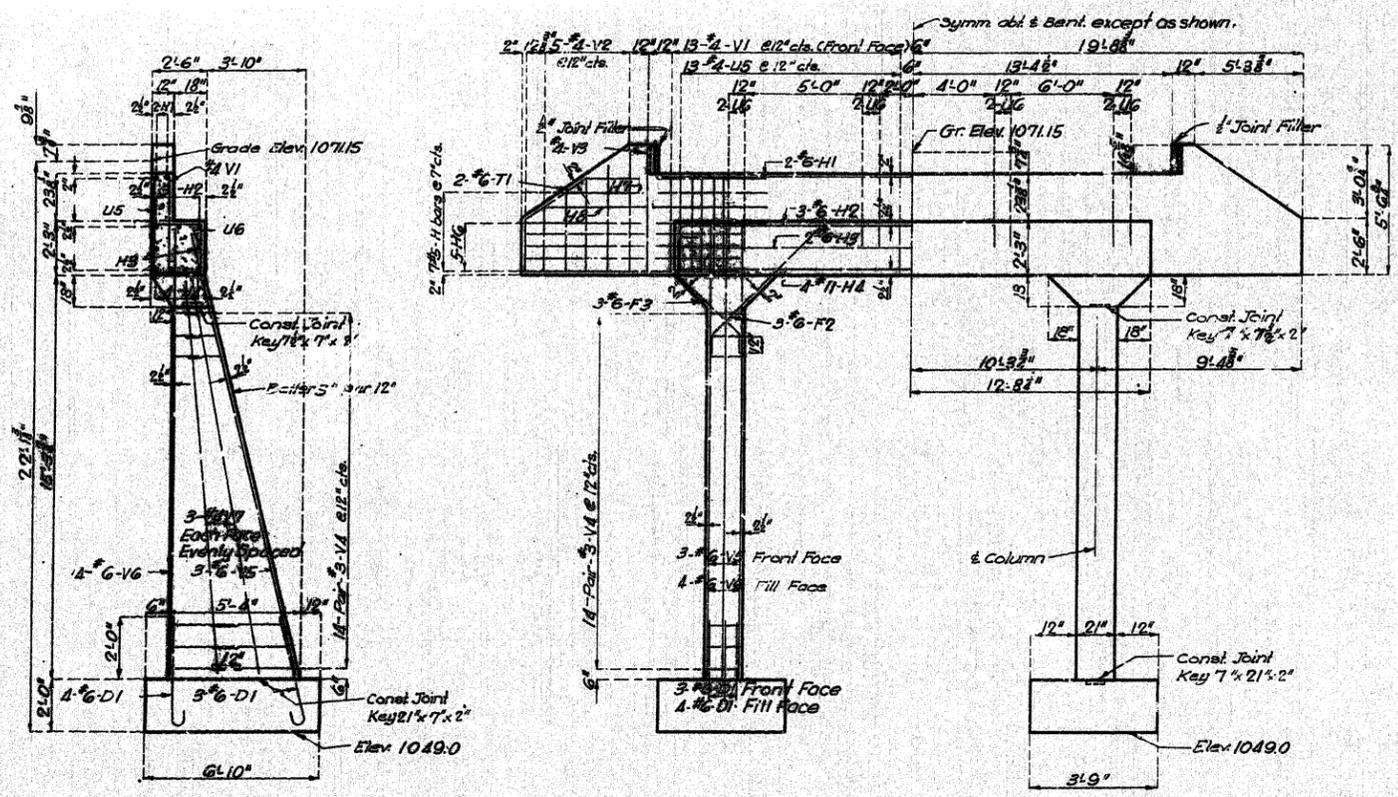
SEE FINAL PLANS BROWN-LINES

108

Drawn FEB. 19 55 by D.K.J.  
 Checked Feb. 19 55 by J.D.M.

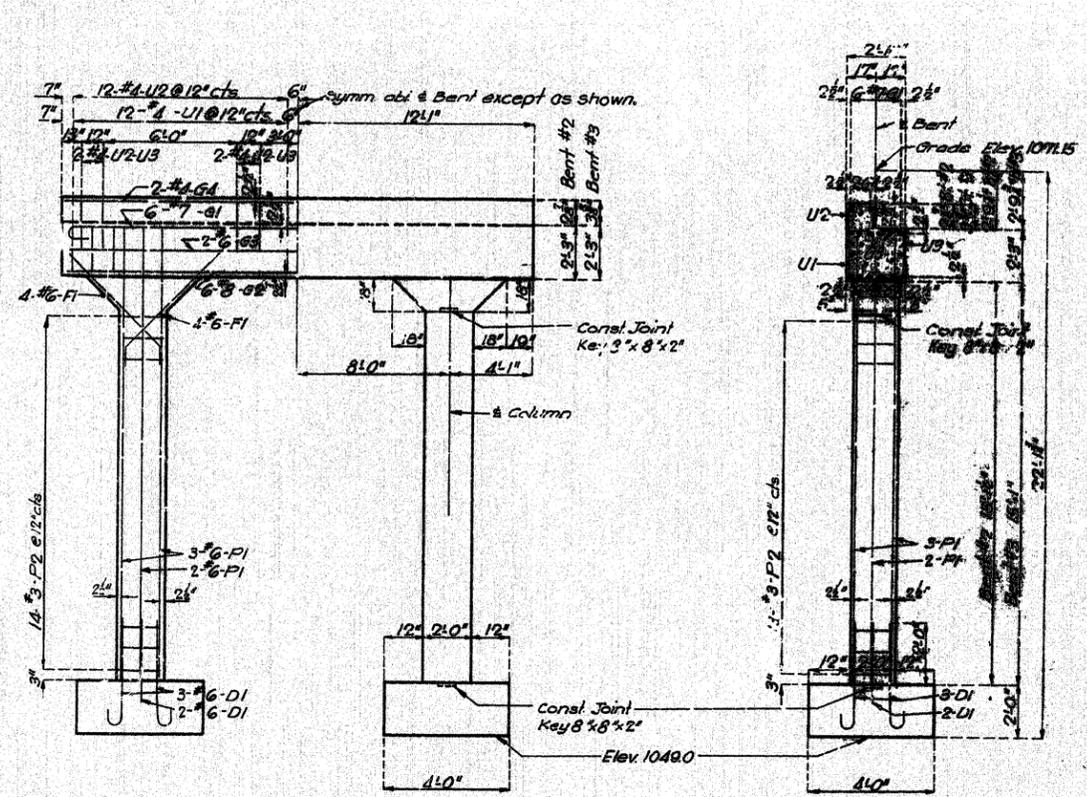
# MISSOURI STATE HIGHWAY DEPARTMENT

FED. ACAD. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS



SECTION AT A

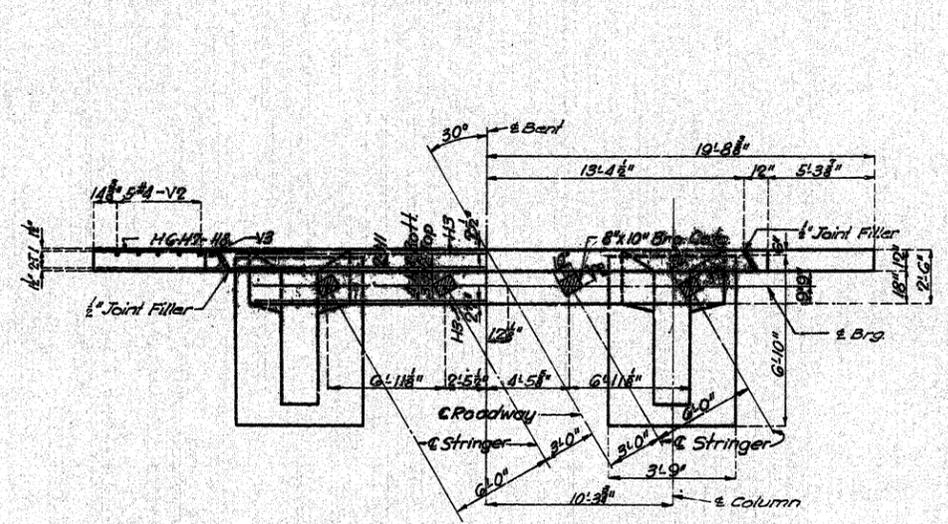
ELEVATION



ELEVATION

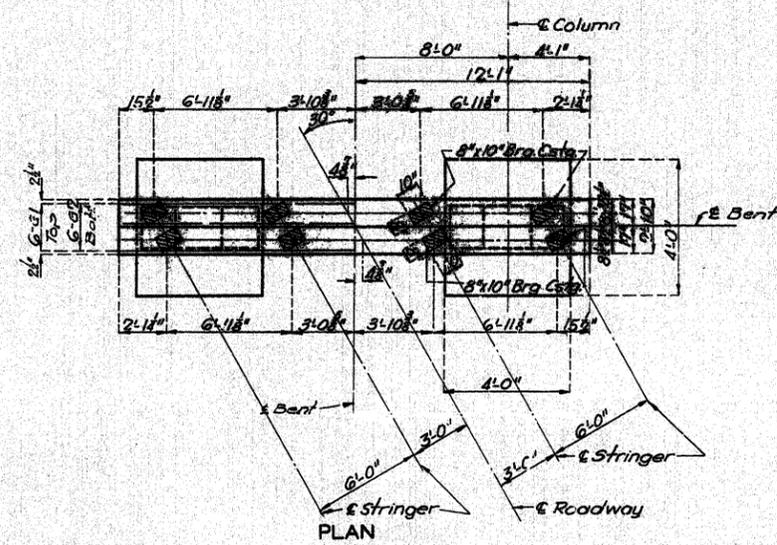
SECTION AT C

Note: Fill at end bents No. 1&4 shall not be carried above bottom of beam and wings until superstructure spans (1-2) & (3-4) are in place.



PLAN

DETAILS OF END BENTS NO. 1 & 4



PLAN

DETAILS OF INT. BENTS NO. 2 & 3

## BRIDGE OVER HORSE CREEK

STATE ROAD FROM ROUTE SE. SOUTH TO ROUTE 160  
ABOUT 7.5 MILES N.W. OF LOCKWOOD  
PROJECT NO. S-19801 SEC. B (SD) STA. 181+90

**DADE COUNTY**

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Assembled Feb. 1955 by D.K.J. & W.G.S.  
Checked Feb. 1955 by J.P.M.

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

Sheet No. 2 of 4

SEE FINAL PLANS DRAWING LINES

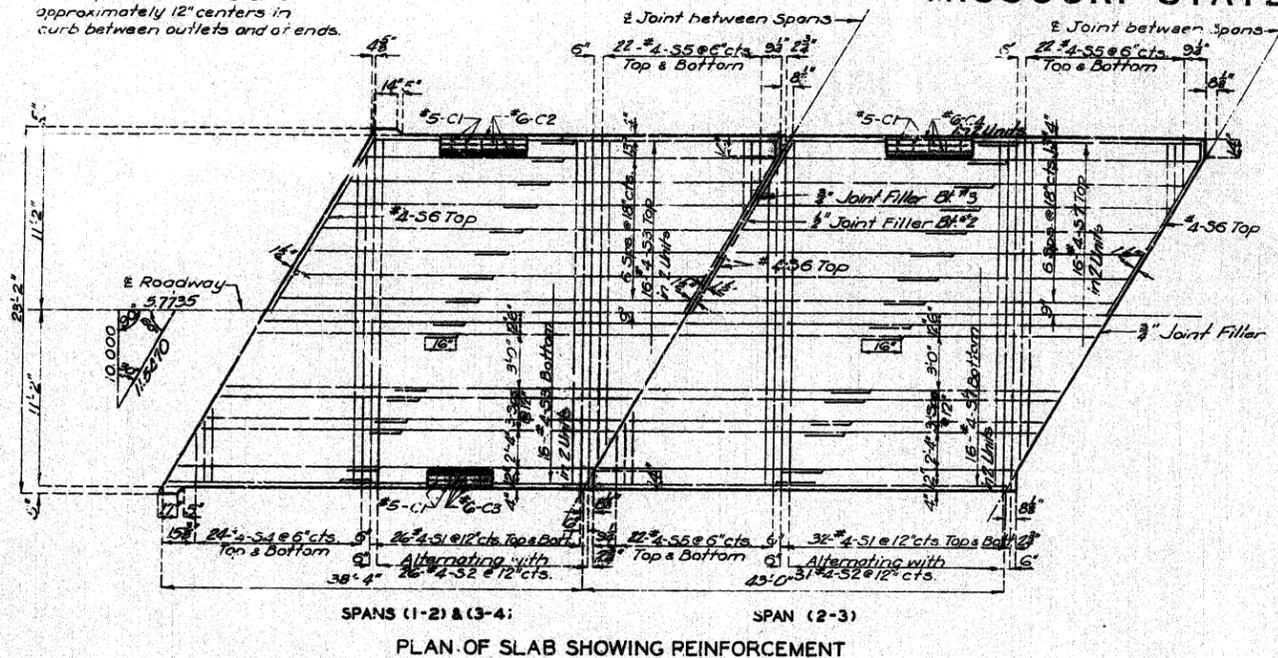
2 Col. End & 2 Col. Int. } 20' or 22' Ro. }  
Square & Skewed } H/O

**P-844**

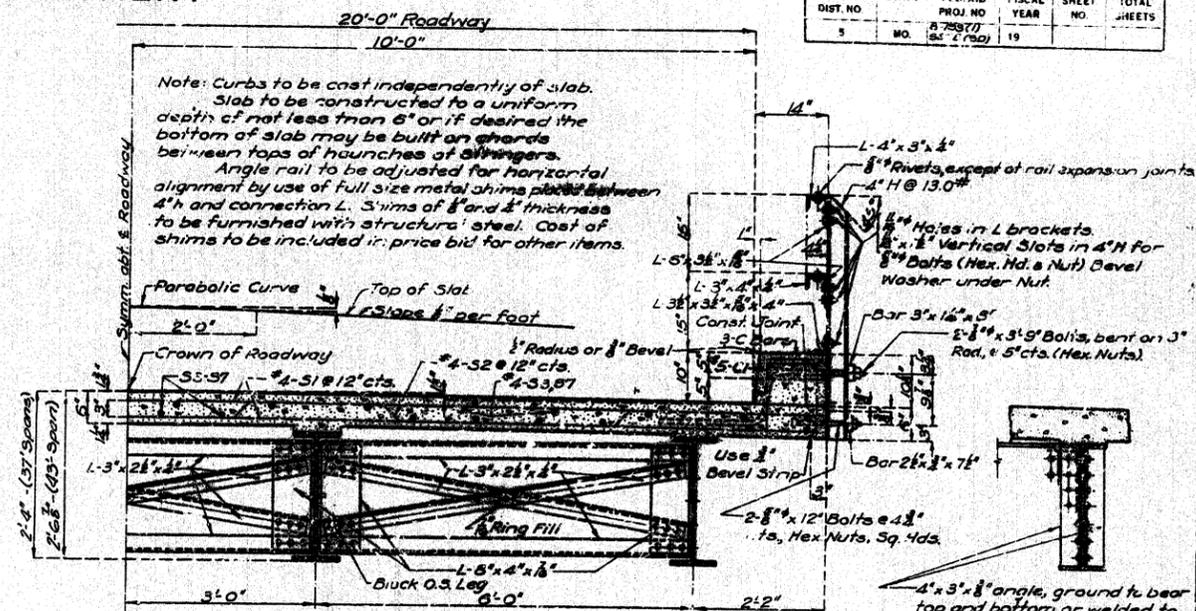
# MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-198(1) SEC. B (SD)	19		

Note: Space dowel bars C1 at approximately 12" centers in curb between outlets and at ends.



PLAN OF SLAB SHOWING REINFORCEMENT



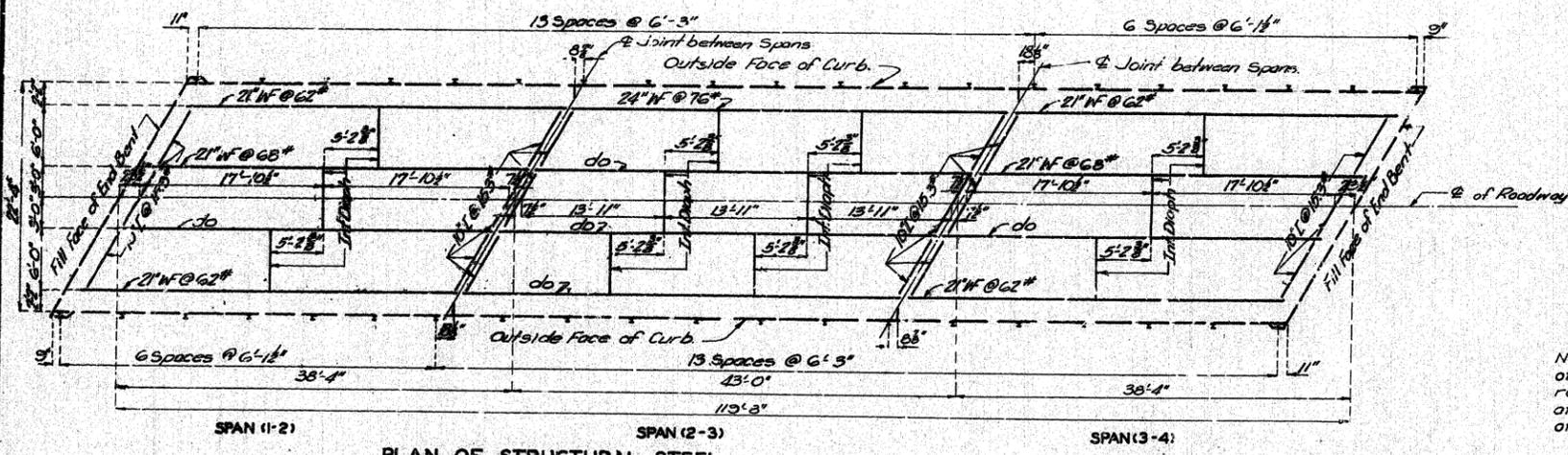
HALF SECTION THROUGH SPANS REQUIRING 21", 24" & 27" STRINGERS



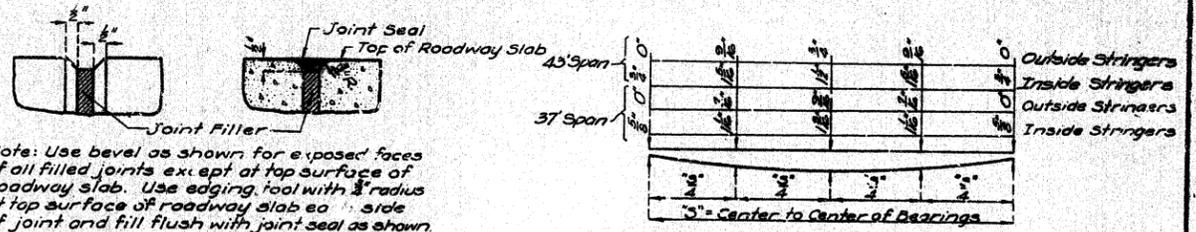
HALF SECTION THROUGH SPANS REQUIRING 14", 16" & 18" STRINGERS

4" x 3" x 1/8" angle, ground to bear top and bottom or welded to top and bottom flanges of beam with 1/2" continuous fillet weld along both sides and edge of d.s. leg. 27" STRINGERS

14", 16", 18", 21" & 24" STRINGERS  
Note: Haunch slab to bear on L separator.

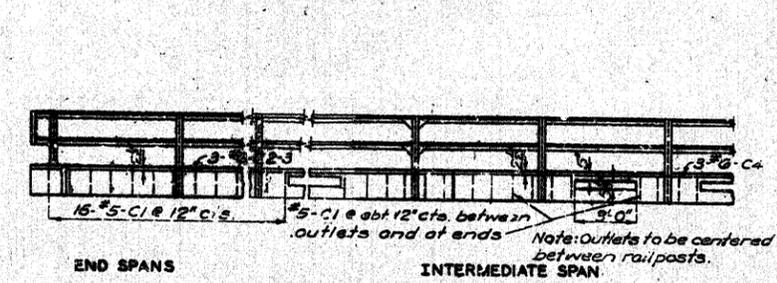


PLAN OF STRUCTURAL STEEL



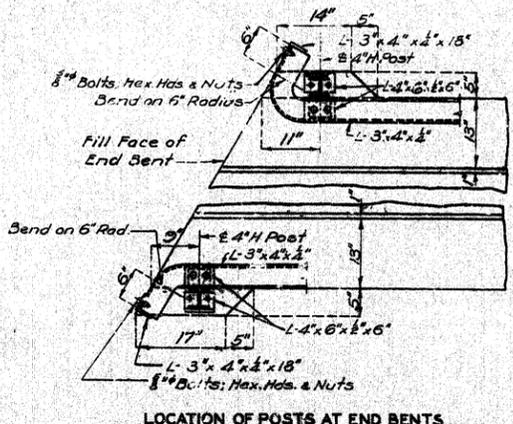
Note: Use bevel as shown for exposed faces of all filled joints except at top surface of roadway slab. Use edging tool with 1/2" radius at top surface of roadway slab on side of joint and fill flush with joint seal as shown.

DETAILS OF BEVEL FOR FILLED JOINTS

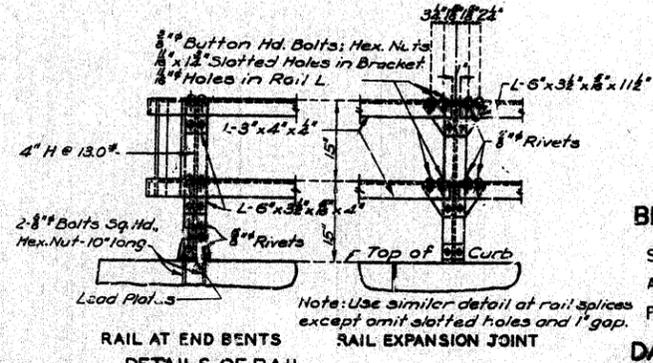


TYPICAL CURB DETAILS

Note: Top of curbs under end posts shall be finished to a smooth surface parallel to grade. Not less than one nor more than four soft lead plates of 1/8" thickness shall be used under angles of each end rail post for aligning rail to correct elevation. Plates shall be 8 1/2" x 6" and shall be punched 1/2" on same gauge as the angles. No grouting permitted. Cost of lead plates to be included in price bid for other items.



LOCATION OF POSTS AT END BENTS



RAIL AT END BENTS  
DETAILS OF RAIL

Note: Slab shall be built parallel to grade and to a minimum thickness of 6". Dead load deflection, vertical curve (if any), crown and any difference in depth of stringers 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 HORSE CREEK

STATE ROAD FROM ROUTE SE SOUTH TO ROUTE 160  
ABOUT 7.5 MILES N.W. OF LOCKWOOD  
PROJECT NO. S-198(1) SEC. B (SD) STA. 181+90

DADE COUNTY

FINISHED

FINISHED  
Sheet No. 3 of 4.

FINISHED

P-844

Assembled Feb. 1935 by D.K.J. & S.W.S.  
Checked Feb. 1935 by U.P.M.

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

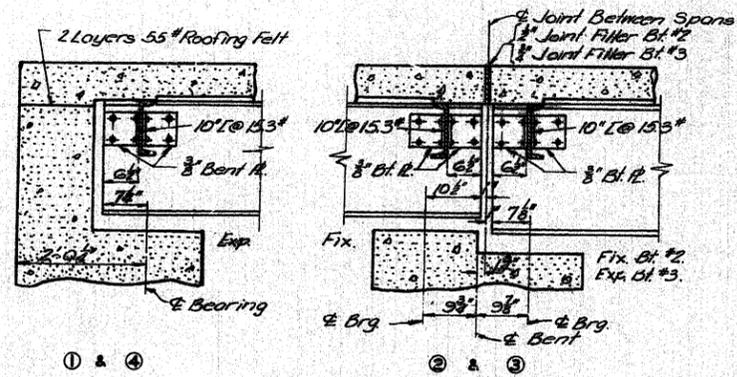
NO CONSTRUCTION CHANGES

L-20-110  
Rev. Jan. 1951

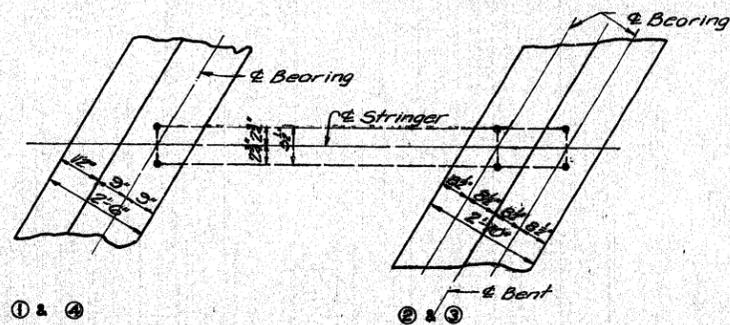
110

# MISSOURI STATE HIGHWAY DEPARTMENT

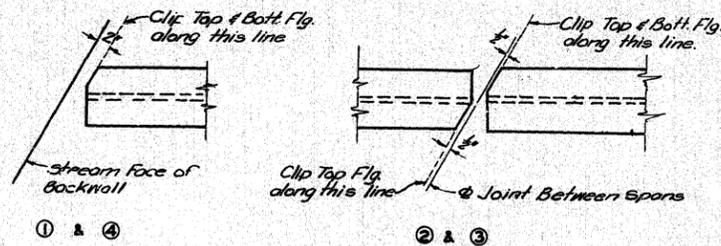
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5	MO	S-198(1) Sec. B (SD)	19		



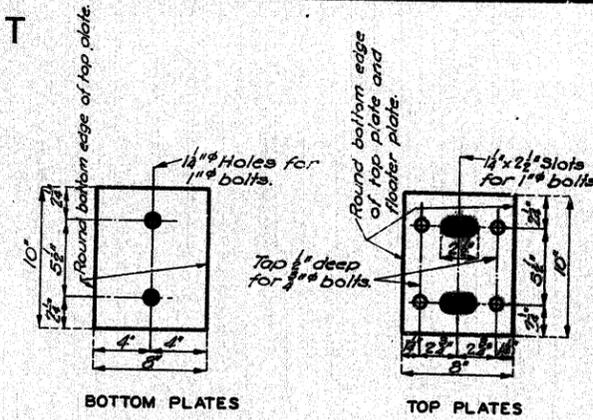
PART LONGITUDINAL SECTION



PART ANCHOR BOLT PLAN

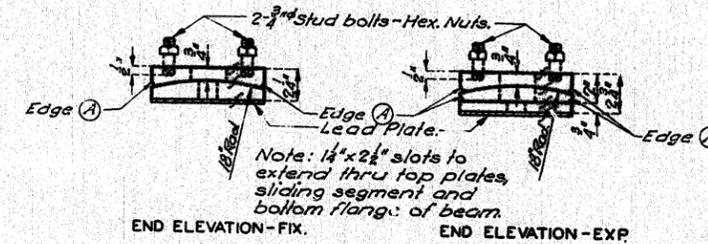


DETAILS OF FLANGES AT ENDS OF BEAMS



BOTTOM PLATES

TOP PLATES



END ELEVATION-FIX.

END ELEVATION-EXP.

Required: 12 Sets

Each set consists of 5 plates each.

**GENERAL NOTES:**

- Finish all surfaces marked *f*.
- Bearings castings shall be either gray iron alloy or cast steel, but payment will be made as Gray Iron Alloy.
- All bolts and nuts shall be paid for as structural steel.
- Anchor bolts for 8" x 10" castings shall be 1" wedged bolts, no heads or nuts and are to extend 10" into concrete. Top end of anchor bolts shall be above the top castings but not higher than 1/4" below the top surface of the bottom flange of beam.
- Lead plates under bearings shall be approximately 3/8" thick and weigh 8 1/2 lbs. Cost of lead plates shall be included in price bid for other items.
- Edge (A) to be rounded (1/2" to 3/4" radius).

**BRIDGE OVER HORSE CREEK**

STATE ROAD FROM ROUTE SE SOUTH TO ROUTE 160  
ABOUT 75 MILES NW OF LOCKWOOD  
PROJECT NO. S-198(1) SEC. B (SD) STA. 181+90

DADE COUNTY

Assembled Feb. 1955 by J.L.F.S.M.S.  
Checked Feb. 1955 by J.D.M.

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

Sheet No. 4 of 4

FINISHED

P-844

# MISSOURI STATE HIGHWAY DEPARTMENT

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

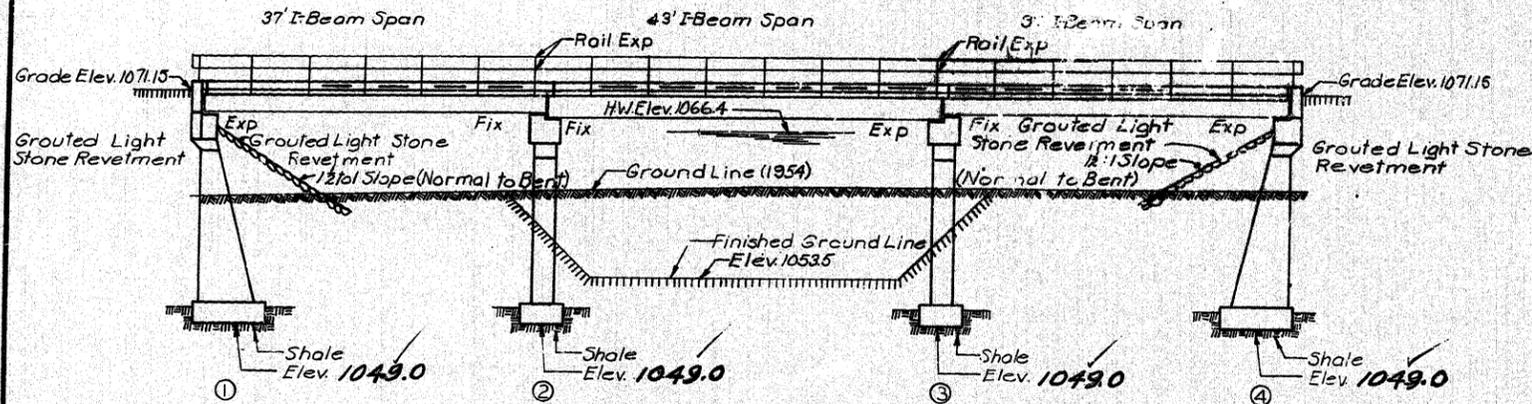
## FINAL PLANS

### COMPLETE BILL OF REINFORCING STEEL

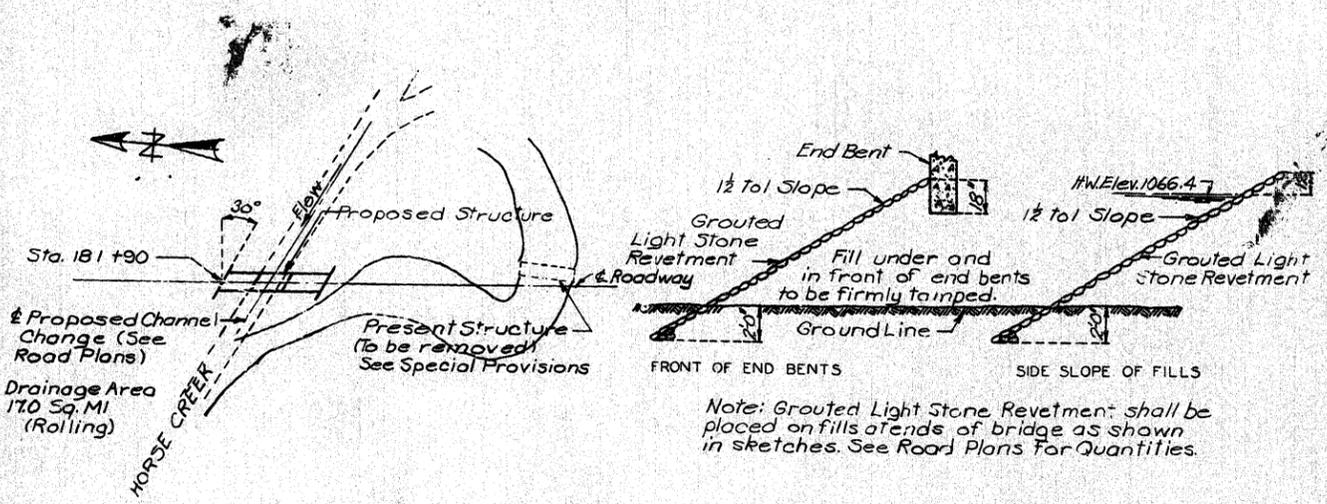
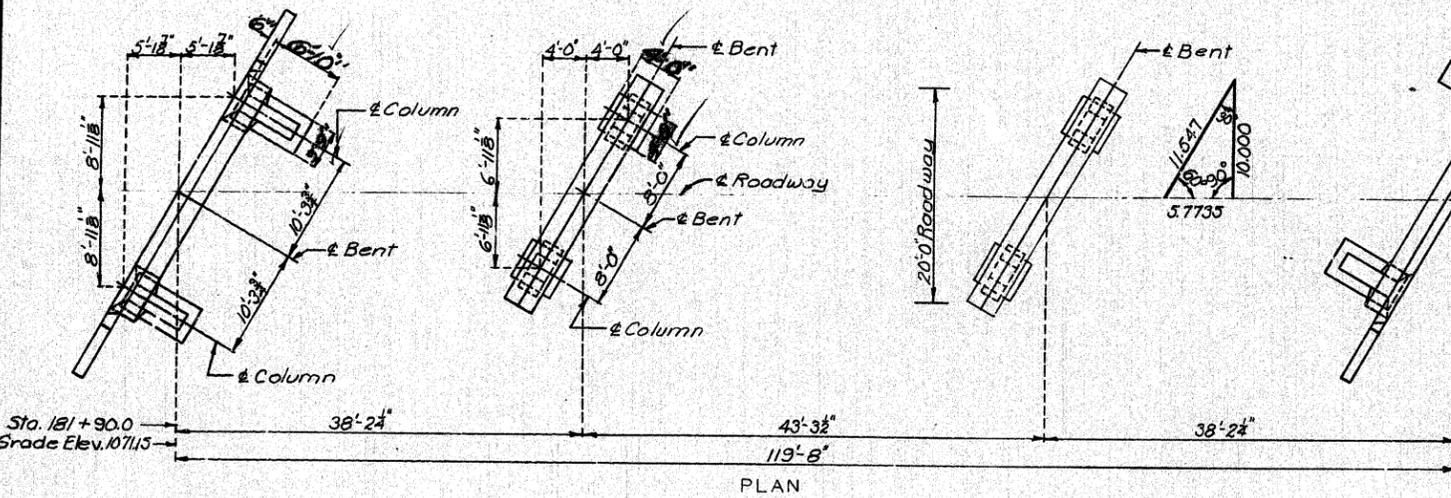
No.	Size	Length	Mark	Location	Bending Sketches	Cutting Diagrams
<b>Superstructure</b>						
176	#5	2'-9"	C1	Curb	2'-11 1/2" T	4'-11" 3"
6	#6	37'-3"	C2			
6	#6	38'-6"	C3			
12	#6	22'-3"	C4		5'-3 1/2" 2'-11 1/2"	7'-4 1/2" 4'-11"
168	#4	22'-0"	S1	Slab	8'-3"	11'-6"
83	#4	24'-0"	S2		5 V2 CUT 10	4 V4 CUT 56
128	#4	19'-9"	S3		3'-2 1/2" 10"	2'-2 1/2" 11'-2 1/2"
48	#4	26'-3"	S4			
88	#4	26'-6"	S5			
6	#4	25'-6"	S6		25'-0" 3'-2 1/2"	21'-10" 13'-2"
64	#4	22'-3"	S7		26'-3"	25'-0"
<b>End Bents No. 1 &amp; 4</b>						
28	#6	4'-9"	D1	Footing	24'-5 1/2" 61"	3'-5 1/2" D1
<b>Int. Bents No. 2 &amp; 3</b>						
12	#6	7'-0"	F2	Haunch	24'-5 1/2" 54'-3"	DI
12	#6	7'-0"	F3		GI-H2-S4-S5	
<b>Other Members</b>						
4	#6	26'-9"	H1	Brkwall	2'-9 1/2" 5'-3 1/2"	T1
6	#6	27'-0"	H2	Beam		U5
4	#6	25'-0"	H3			
8	#7	25'-0"	H4			
20	#5	8'-6"	H6	Wing		
4	#5	6'-6"	H7			
4	#5	7'-9"	H8			
8	#6	8'-9"	T1	Wing	6'-3" F1	
52	#4	11'-3"	U5	Beam	12" 4'-5 1/2" F2	
16	#4	3'-3"	U6	Beam	12" 4'-5 1/2" F3	
52	#4	3'-3"	V1	Brkwall		
10	#4	8'-3"	V2	Wing		
4	#4	5'-3"	V3			
56	#3	11'-6"	V4	Column	12" 11" F2	
12	#6	17'-9"	V5			
16	#6	17'-9"	V6			
24	#4	13'-3"	V7			
<b>Int. Bents No. 2 &amp; 3</b>						
32	#6	4'-8"	D1	Footing	24" U1	
32	#6	7'-3"	F1	Haunch	20" P2	
<b>Other Members</b>						
12	#7	26'-0"	G1	Beam		
12	#8	27'-9"	G2			
4	#6	23'-9"	G3			
4	#4	23'-3"	G4	Brk.Hch.		
32	#6	17'-0"	P1	Column		
36	#3	7'-9"	P2			
48	#4	10'-0"	U1	Beam		
64	#4	2'-6"	U2	Brk.Hch.		
16	#4	3'-6"	U3	Beam		

### GENERAL NOTES:

Design Specifications A.A.S.H.O. 1053  
 Loading: H10-44  
 Structural Steel Stress: 18,000 psi  
 Reinforcing Steel Stress: 18,000 psi  
 Class "B" Concrete Stress: 1000 psi  
 All concrete shall be Class "B".  
 Rivets 3/4" holes 1/2" except in handrail where rivets shall be 5/8" holes 3/4".  
 Field connections shall be riveted except as noted in handrail details or, if the Contractor desires to eliminate all field riveting on this project, he may use machine bolts except for the 5/8" button head bolts specified for handrail heads and nuts of machine bolts shall be American Standard Regular.  
 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. No other paint to be applied by Contractor. Red lead required shall be furnished by Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for Fabricated Structural Steel.  
 Where joint filler is specified on the plans it shall conform with the requirements for Pre-molded Material for Filler as given in Section 38-19A(1)h of the Standard Specifications.



Note: Footings shall be carried at least 18" into and cast against vertical faces of firm undisturbed shale or other soft rock. If solid rock is encountered, all loose, shelly, or disintegrated material shall be removed and the footings placed on hard, solid undisturbed rock.



FINAL QUANTITIES			
Item	Substr.	Superstr.	Total
Class 1 Excavation for Structures Cu.Yds.	1,000		1,000
Class 2 Excavation for Structures Cu.Yds.	1,000		1,000
Class "B" Concrete Cu.Yds.	6,200		6,200
Fabricated Structural Steel Lbs.		7,890	7,890
Gray Iron Alloy Castings Lbs.		2,200	2,200
Reinforcing Steel Lbs.		7,890	7,890

Note: Excavation for bridge made above Elev. 1053.5 will be paid for as Class 1 Excavation for Structures.  
 Excavation for bridge made below Elev. 1053.5 will be paid for as Class 2 Excavation for Structures.

B.M. Elev. 1065.89 + on S. End of W. Hubguard of Bridge. 7 Lt. Sta. 186 + 890

**BRIDGE OVER HORSE CREEK**  
 STATE ROAD FROM ROUTE SE. SOUTH TO ROUTE 160  
 ABOUT 7.5 MILES N.W. OF LOCKWOOD  
 PROJECT NO. S-198(1) SEC. B (SD) STA. 181 + 90

DADE COUNTY  
 SUBMITTED BY *J.A. Williams* DATE 2/25/1955  
 FINISHED BY *W.L. Whitton* DATE 2/25/1955

Drawn FEB. 19 55 by D.K.J.  
 Checked Feb. 19 55 by J.D.M.

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

Sheet No. 1A of 2

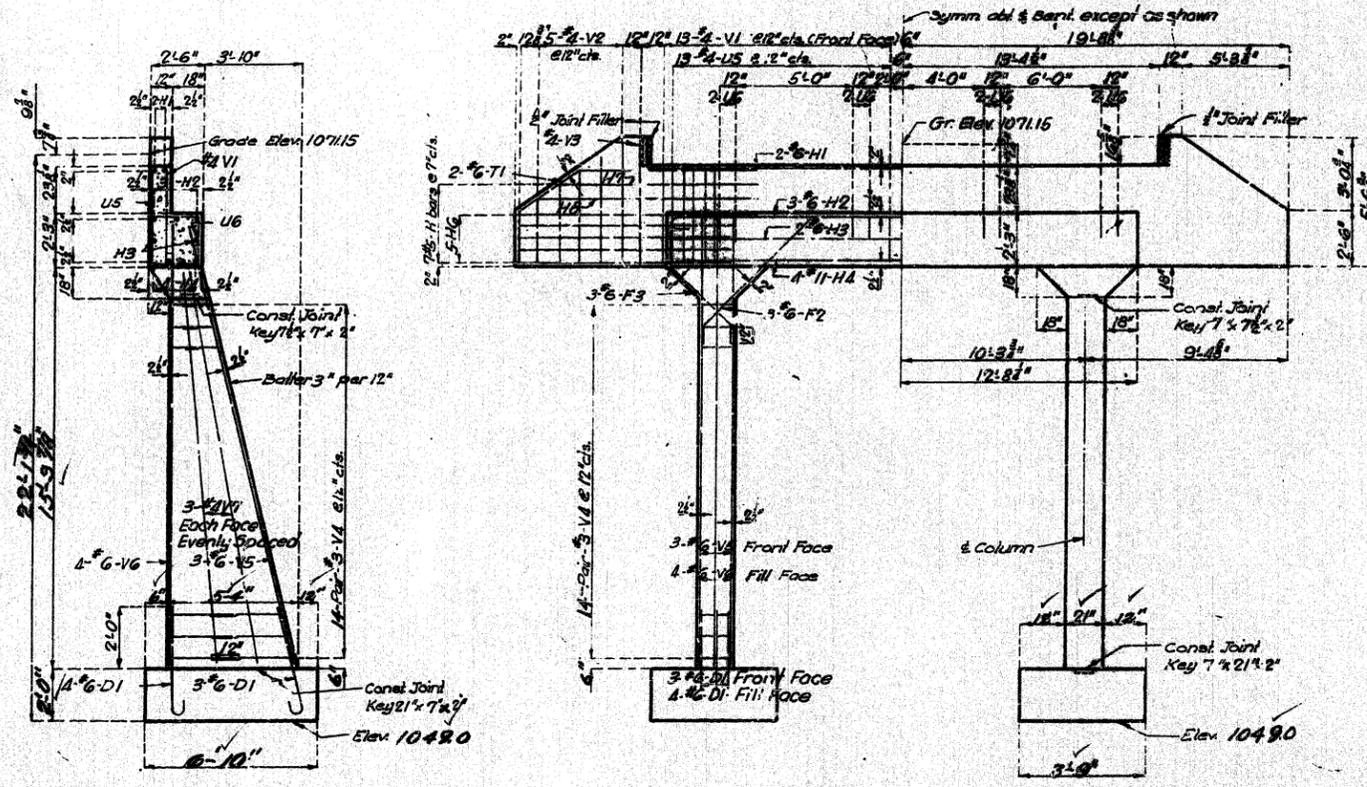
## FINAL PLANS

STDC10R3  
 P-844

# MISSOURI STATE HIGHWAY DEPARTMENT

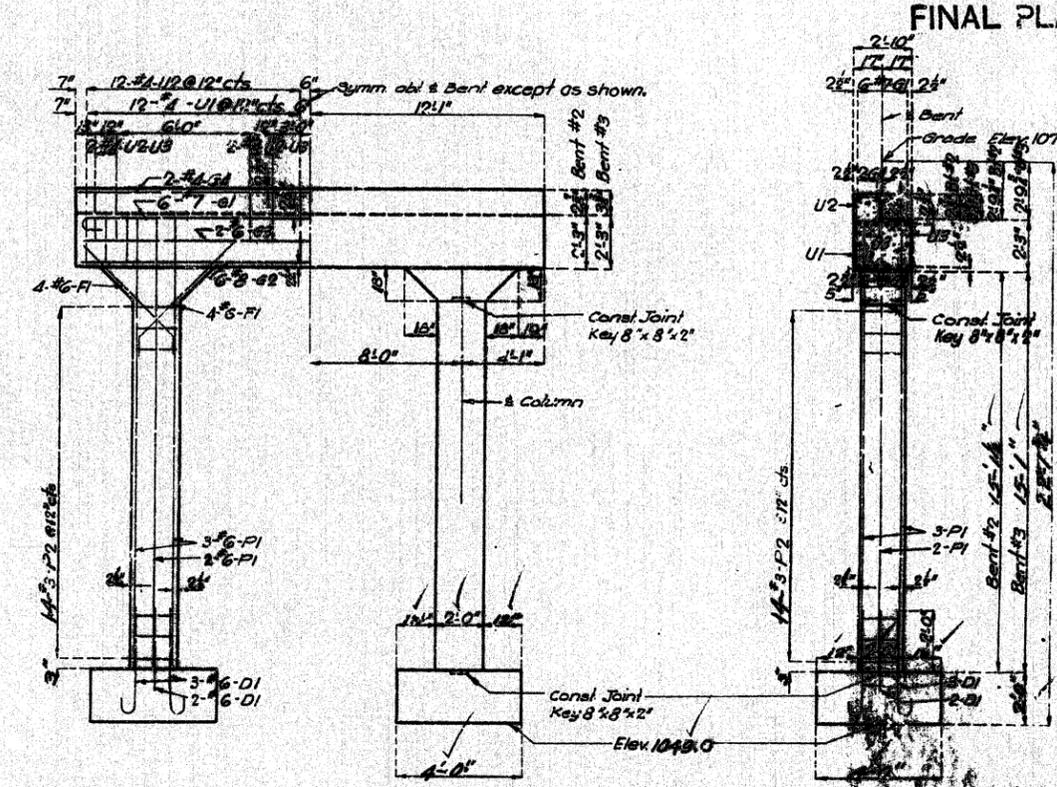
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-1984 (Sec. B)	19	2A	2

## FINAL PLANS



SECTION AT C

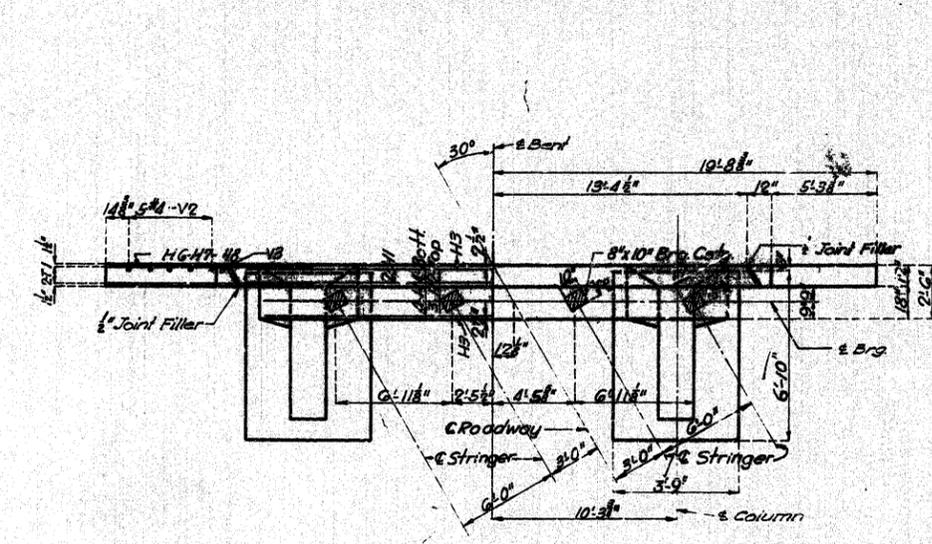
ELEVATION



ELEVATION

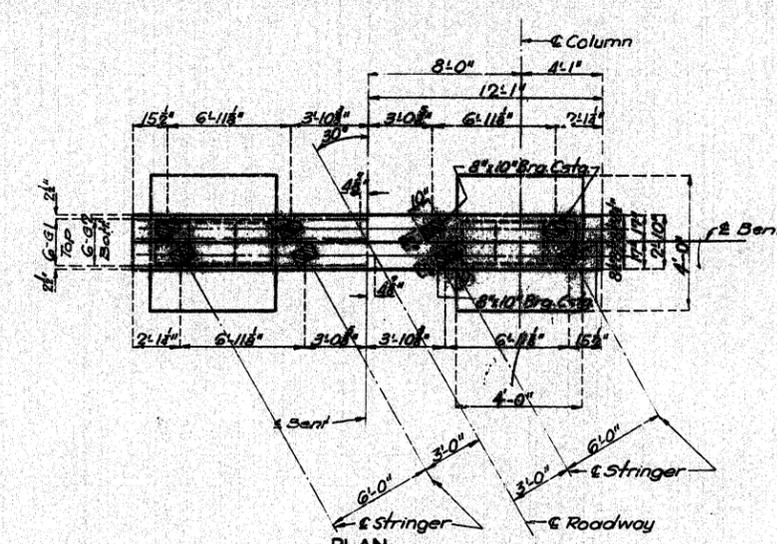
SECTION AT C

Note: Fill of end bents No. 1&4 shall not be carried above bottom of beam and wings until superstructure spans (1-2) & (3-4) are in place.



PLAN

DETAILS OF END BENTS NO. 1 & 4



PLAN

DETAILS OF INT. BENTS NO. 2 & 3

### BRIDGE OVER HORSE CREEK

STATE ROAD FROM ROUTE SE. SOUTH TO ROUTE 160  
 ABOUT 7.5 MILES N.W. OF LOCKWOOD  
 PROJECT NO. S-1984 SEC. B (SD) STA. 181+90

DADE COUNTY

FINISHED

FINISHED

FINISHED

P-844

Assembled Feb. 1955 by D.K.J. & W.G.S.  
 Checked Feb. 1955 by W.D.M.

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

Sheet No. 2A of 2

## FINAL PLANS

2 Col. End & 2 Col. Int. } 20' or 22' Ro. }  
 Squares & Skewed } H10

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