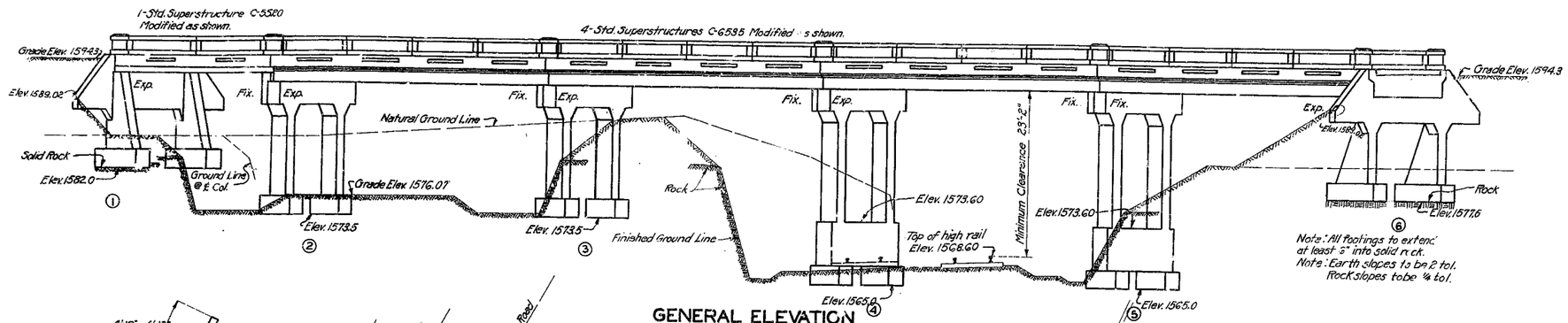
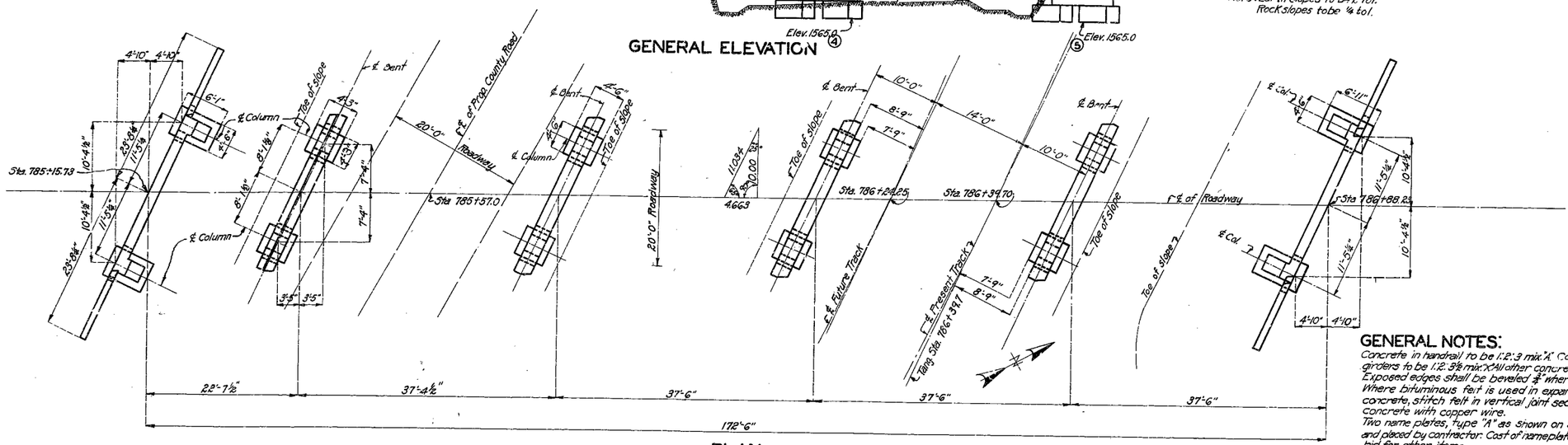
MISSOURI STATE HIGHWAY DEPARTMENT

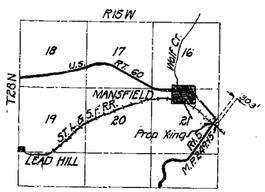
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	RS-5878	19		



GENERAL ELEVATION



PLAN



LOCATION SKETCH

Scale - 1" = 1 Mile

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Excavation Class I	Cu. Yds.	65		65
Concrete 1:2:3 mix "A"	Cu. Yds.		17.4	17.4
Concrete 1:2:3½ mix "K"	Cu. Yds.		196.5	196.5
Concrete 1:2:4 mix "B"	Cu. Yds.	137.5		137.5
Reinforcing Steel	Lbs.	12240	47470	59710
Phosphor Bronze Brng. Pls.	Lbs.		4800	4800

Note:-Excavation required for widening railroad cut and for county road at bridge site to be paid for as roadway excavation. For details see Road Plans. All bridge excavation to be paid for as Class I Excavation.

GENERAL NOTES:

Concrete in handrail to be 1:2:3 mix "A". Concrete in slab, curbs and girders to be 1:2:3½ mix "K". All other concrete to be 1:2:4 mix "B".
Exposed edges shall be beveled ¾" where no other bevel is noted.
Where bituminous felt is used in expansion or partition joints in concrete, stitch felt in vertical joint securely to one face of concrete with copper wire.
Two name plates, type "A" as shown on Std. S-818, to be furnished and placed by contractor. Cost of nameplates to be included in price bid for other items.
Falsework for spans over existing railroad tracks shall be constructed with a minimum vertical clearance of 20'-0" and lateral clearance of 8'-0" from center line of tracks.
Bridge Excavation in accordance with specification I of Standard Specifications issued April 1, 1930.
No permanent camber desired in finished spans.

B.M. Elev. 1583.89. Nail in telephone pole 30' Rt. Sta. 786+70.

BRIDGE OVER ST.L. & S.F.R.R. TRACKS

STATE ROAD FROM U.S.R.60 TO AVA

ABOUT .5 MILE S.E. OF MANSFIELD

PROJECT NO. R.S - 5878 STA. 785+15.73

WRIGHT COUNTY

SUBMITTED BY W.H. Black DATE 11/21/29 BRIDGE ENGINEER

APPROVED BY T.H. Cutler DATE 11/21/29 CHIEF ENGINEER

STD.C-5501
STD.C-5520
STD.C-6501
STD.C-65: 5
STD.S-818
H-290

Drawn Nov. 1929 By J.G.
Traced Nov. 1929 By H.M.H.
Checked Nov. 1929 By H.H.M.

Sheet No. 1 of 5

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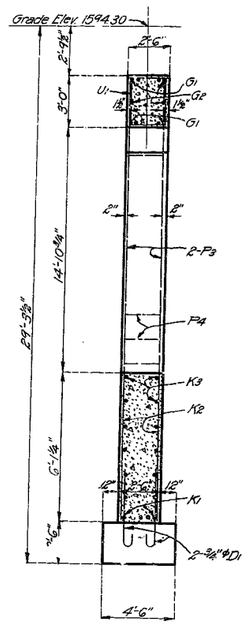
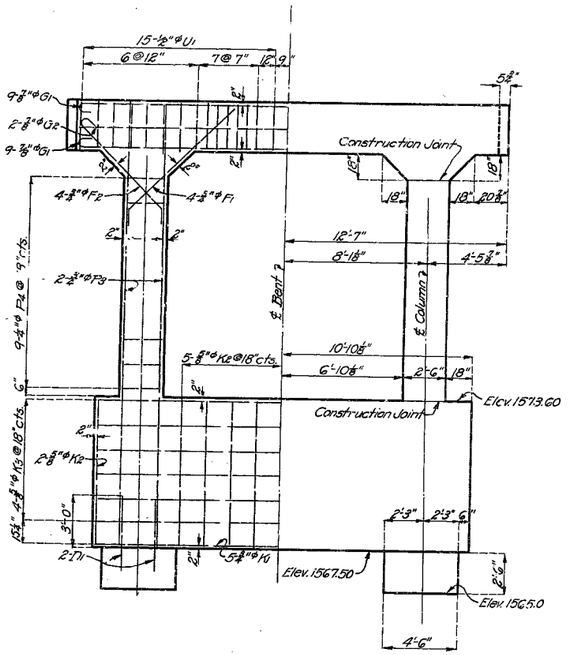
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	R5-987B	19		



SECTION AT ℄

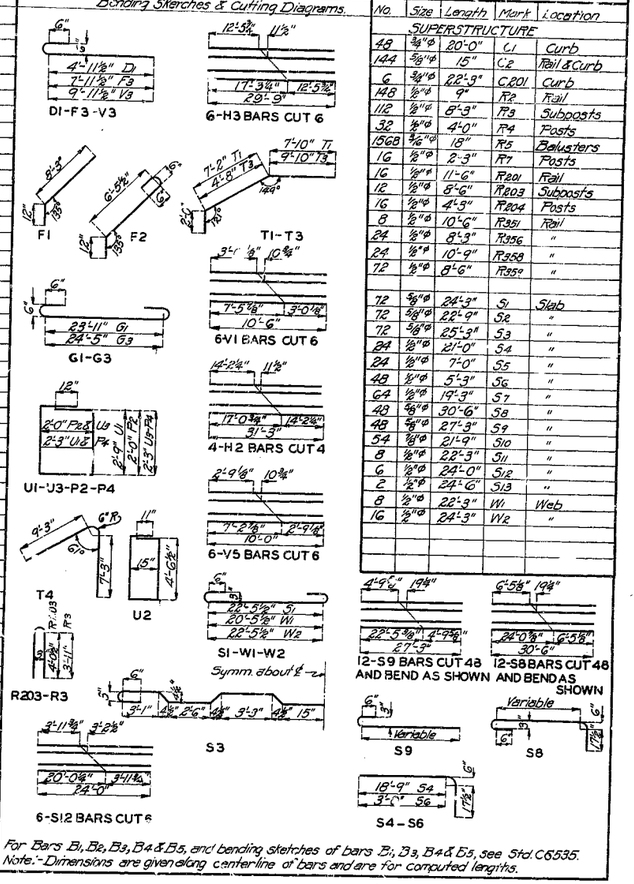


ELEVATION

BILL OF REINFORCING STEEL

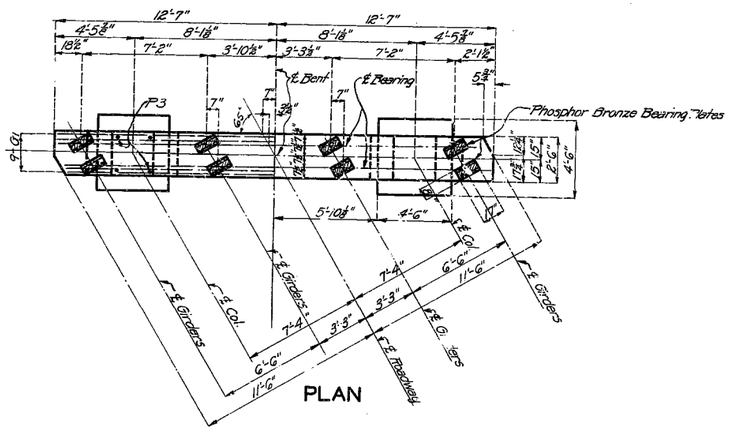
No.	Size	Length	Mark	Location
	SUBSTRUCTURE			
	Bents No. 1 & 6			
12	⅝"ϕ	6'-3"	D1	Footings
8	¾"ϕ	9'-3"	F1	Haunches
8	¾"ϕ	9'-3"	F3	"
16	¾"ϕ	17'-6"	H1	Wings
4	⅝"ϕ	31'-3"	H2	"
6	⅝"ϕ	29'-9"	H3	"
16	⅞"ϕ	25'-0"	H4	Beams
5	¾"ϕ	25'-0"	H5	"
10	⅝"ϕ	25'-0"	H6	"
6	¾"ϕ	17'-0"	T1	Wings
6	¾"ϕ	25'-0"	T2	Beam
6	¾"ϕ	16'-6"	T3	Wings
4	¾"ϕ	17'-6"	T4	"
6	½"ϕ	10'-6"	V1	"
2	½"ϕ	8'-0"	V2	"
12	¾"ϕ	11'-3"	V3	Columns
4	½"ϕ	5'-9"	V4	Beam
6	½"ϕ	10'-0"	V5	Wings
12	¾"ϕ	11'-3"	V6	Columns
31	½"ϕ	12'-6"	U2	Beam
	Bents No. 2 & 5			
16	¾"ϕ	6'-3"	D1	Footings
50	½"ϕ	3'-6"	D2	"
16	¾"ϕ	9'-3"	F1	Haunches
16	¾"ϕ	8'-9"	F2	"
18	⅞"ϕ	26'-6"	G1	Beam
2	⅞"ϕ	24'-3"	G2	"
16	⅞"ϕ	27'-0"	G3	"
2	⅞"ϕ	25'-0"	G4	"
2	⅞"ϕ	25'-0"	G5	"
16	¾"ϕ	15'-3"	F1	Columns
18	½"ϕ	9'-0"	P2	"
19	½"ϕ	10'-0"	P4	"
26	½"ϕ	11'-0"	U1	Beam
26	½"ϕ	9'-6"	U3	"
	Bents No. 3 & 4			
16	¾"ϕ	6'-9"	D1	Footings
16	¾"ϕ	9'-3"	F1	Haunches
16	¾"ϕ	8'-9"	F2	"
36	⅞"ϕ	26'-6"	G1	Beams
4	⅞"ϕ	24'-9"	G2	"
10	⅝"ϕ	21'-3"	K1	Collision Walls
44	⅝"ϕ	5'-9"	K2	" "
16	⅝"ϕ	21'-9"	K3	" "
16	¾"ϕ	23'-9"	F3	Columns
36	¼"ϕ	10'-0"	P4	"
60	½"ϕ	11'-0"	U1	Beams

Bending Sketches & Cutting Diagrams.



For Bars B1, B2, B3, B4 & B5, and bending sketches of bars B1, B3, B4 & B5, see Std. C6535.
Note:- Dimensions are given along centerline of bars and are for computed lengths.

No.	Size	Length	Mark	Location
	SUPERSTRUCTURE			
48	¾"ϕ	20'-0"	C1	Curb
144	⅝"ϕ	15"	C2	Rail & Curb
6	¾"ϕ	22'-3"	C201	Curb
148	½"ϕ	9"	R2	Rail
112	½"ϕ	8'-3"	R3	Subposts
32	½"ϕ	4'-0"	R4	Posts
1568	⅝"ϕ	18"	R5	Balusters
16	½"ϕ	2'-3"	R7	Posts
16	½"ϕ	11'-6"	R201	Rail
12	½"ϕ	8'-6"	R203	Subposts
16	½"ϕ	4'-3"	R204	Posts
8	½"ϕ	10'-6"	R351	Rail
24	½"ϕ	8'-3"	R356	"
24	½"ϕ	10'-9"	R358	"
72	½"ϕ	8'-6"	R359	"
72	⅝"ϕ	24'-9"	S1	Slab
72	⅝"ϕ	22'-9"	S2	"
72	⅝"ϕ	25'-3"	S3	"
84	½"ϕ	21'-0"	S4	"
24	½"ϕ	7'-0"	S5	"
48	½"ϕ	5'-3"	S6	"
64	½"ϕ	19'-3"	S7	"
48	⅝"ϕ	30'-6"	S8	"
48	⅝"ϕ	27'-9"	S9	"
54	½"ϕ	21'-0"	S10	"
8	½"ϕ	22'-3"	S11	"
6	½"ϕ	24'-0"	S12	"
2	½"ϕ	24'-6"	S13	"
8	½"ϕ	22'-3"	W1	Web
16	½"ϕ	24'-3"	W2	"



PLAN

DETAILS OF BENTS NO. 4 & 5

446

Drawn Feb. 1930 By T.H.M.
Traced Feb. 1930 By W.H.
Checked Mar. 4 1930 By O.K.K.

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

BRIDGE OVER ST.L. & S.F.R.R. TRACKS

STATE ROAD FROM U.S.R.60 TO AVA
ABOUT 5 MILES S.E. OF MANSFIELD
PROJECT NO. R5-987B STA. 785+15.73

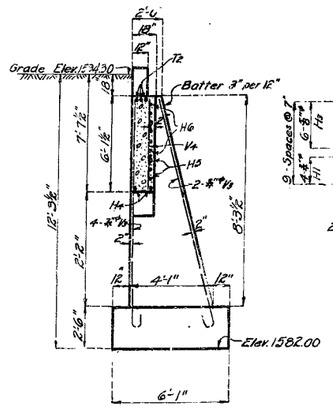
WRIGHT COUNTY

SUBMITTED BY M.R. Lacy DATE 4/9/30 BRIDGE ENGINEER
APPROVED BY W. Culler DATE CHIEF ENGINEER

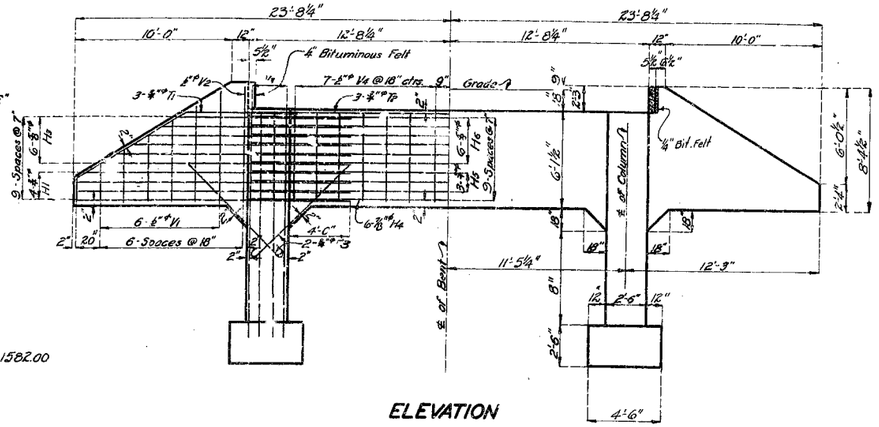
STD.C-5501
STD.C-5520
STD.C-6501
STD.C-6535
STD.S-818
H-290

MISSOURI STATE HIGHWAY DEPARTMENT

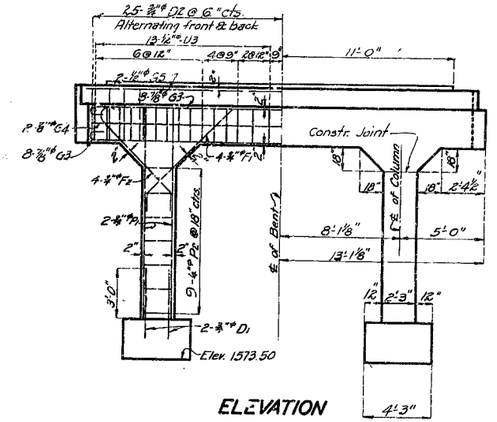
FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	*BEGIN YEAR	SHEET NO.	TOTAL SHEETS
6	MO.	BS-5878			



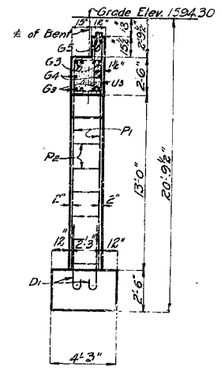
SECTION AT ℄
AT RIGHT ANGLES TO ℄ OF BENT



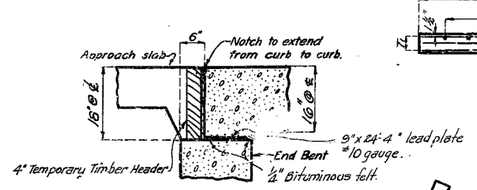
ELEVATION



ELEVATION

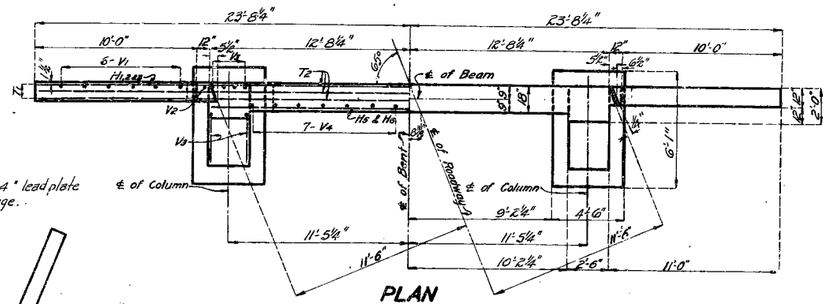


SECTION AT ℄
AT RIGHT ANGLES TO ℄ OF BENT



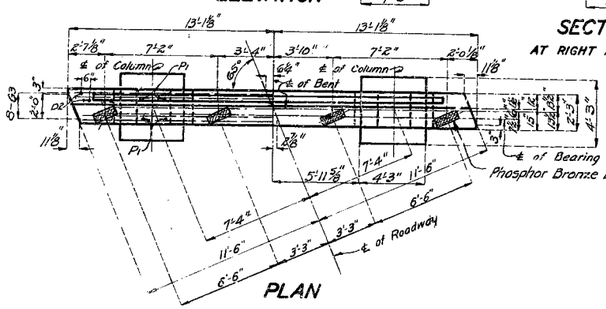
DETAILS OF NOTCH
FOR APPROACH SLAB
SECTION PARALLEL TO ℄ OF ROADWAY

Note:
For other details and notes see Std. C-5520.



PLAN

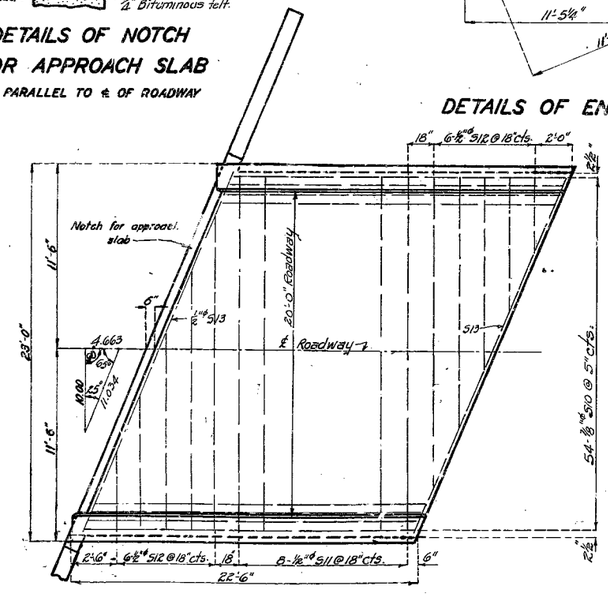
DETAILS OF END BENT NO. 1



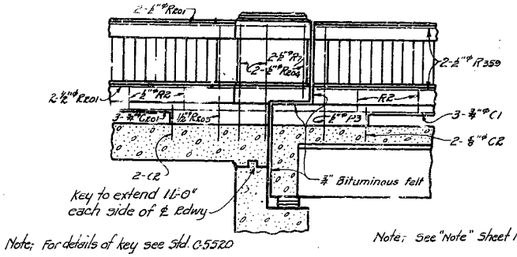
PLAN

DETAILS OF INTERMEDIATE BENT NO. 2

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



PLAN OF SLAB



Note; For details of key see Std. C-5520

Note; See "Note" Sheet No. 5

DETAILS OF EXPANSION JOINT AT BENT NO. 2

BRIDGE OVER S.L. & S.F.R.R. TRACKS

STATE ROAD FROM U.S.R. 60 TO AVA

ABOUT .5 MILES S.E. OF MANSFIELD

PROJECT NO. BS-5878 STA. 785+15.73

WRIGHT COUNTY

SUBMITTED BY M.R. Sayre DATE 4/9/30 BRIDGE ENGINEER

APPROVED BY T.H. Cutler DATE CHIEF ENGINEER

STD.C-5501
STD.C-6501
STD. S818
STD. C5520
STD. C6535
H-290

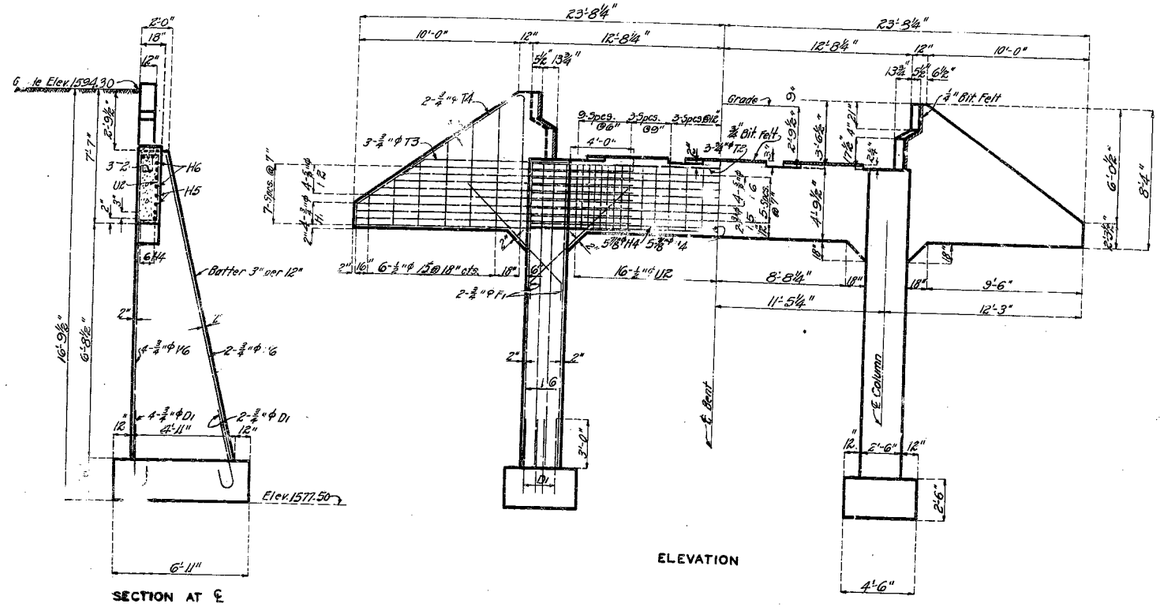
Assembled Feb. 1930 by JWM
Checked March 30 C.D.H.
Original
Corrected

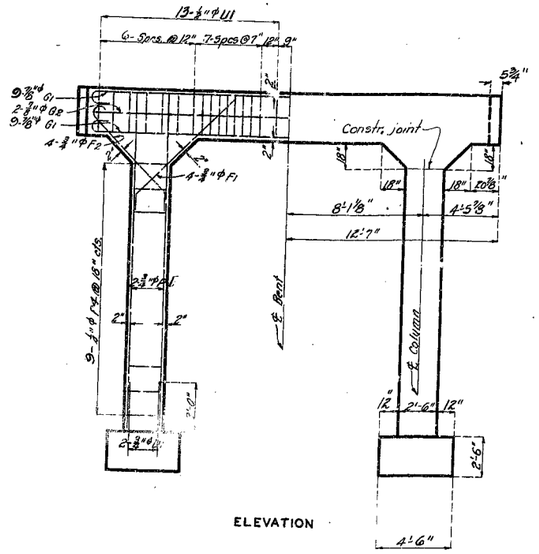
Sheet No. 3 of 5

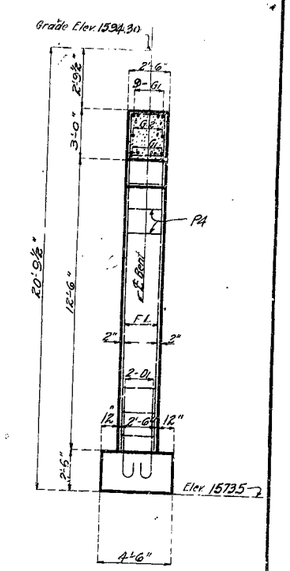
BENTS.-SLABS -SKEWED C6606

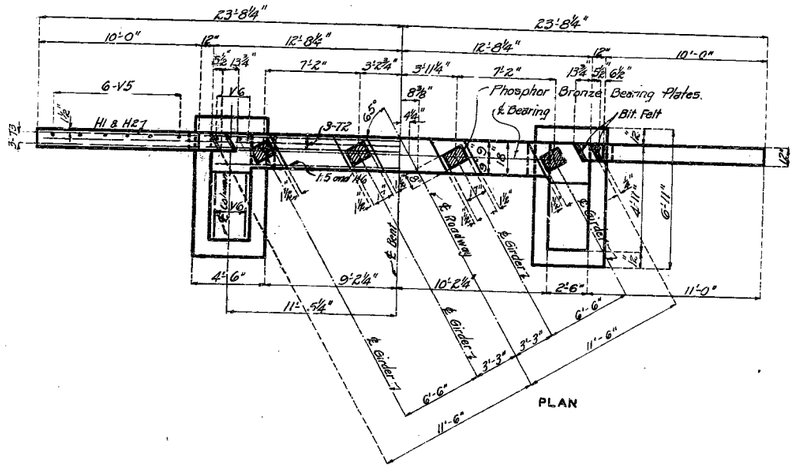
MISSOURI STATE HIGHWAY DEPARTMENT

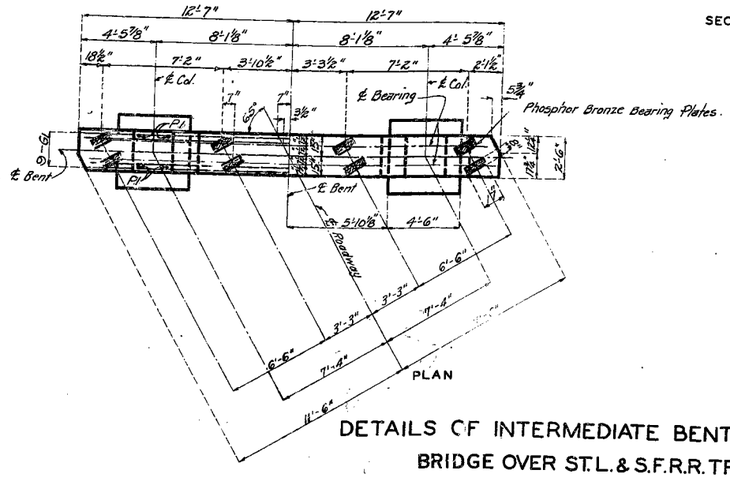
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	RS-587B			











DETAILS OF END BENT NO.6

DETAILS OF INTERMEDIATE BENT NO.3

BRIDGE OVER ST.L. & S.F.R.R. TRACKS

STATE ROAD FROM U.S.R.60 TO AVA

ABOUT .5 MILES S.E. OF MANSFIELD

PROJECT NO. R 5-587B STA. 785+15.73

WRIGHT COUNTY

SUBMITTED BY M.R. Hays DATE 4/9/30 BRIDGE ENGINEER

APPROVED BY T.H. Cutler DATE CHIEF ENGINEER

STD.C-5501
STD.C-5520
STD.C-6501
STD.C-6535
STD.S 818
H-290

Assembled by T.M.M.- Feb. 1930
Checked by G.F.K. March 1930
Drawn by H.E.C. Mar 1928
Checked by K.B. Mar. 1928

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

Sheet No. 4 of 5

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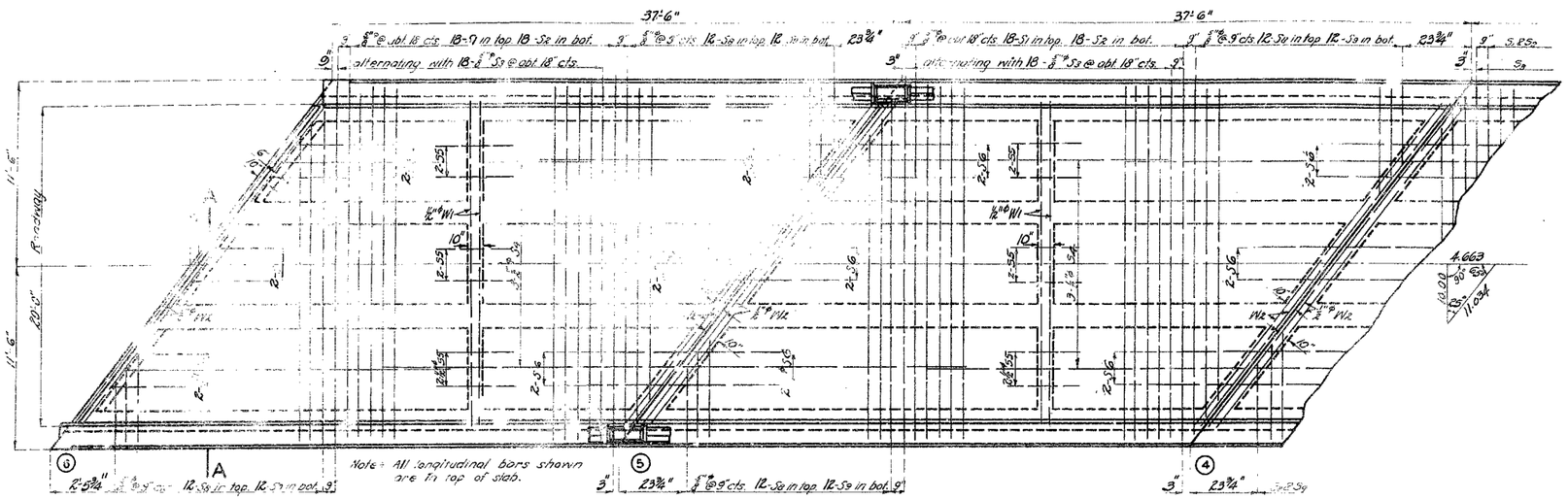
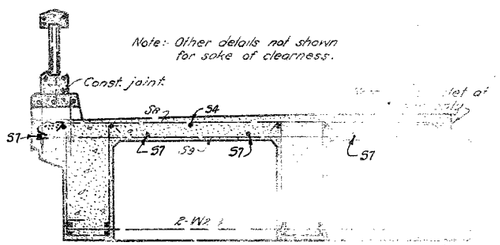
MISSOURI STATE HIGHWAY DEPARTMENT

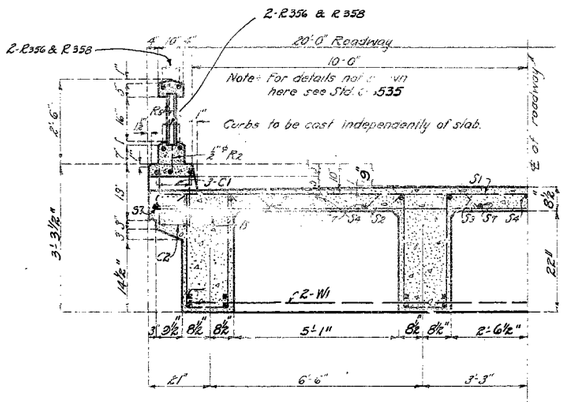
U. S. Route	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	RS-587B	19		



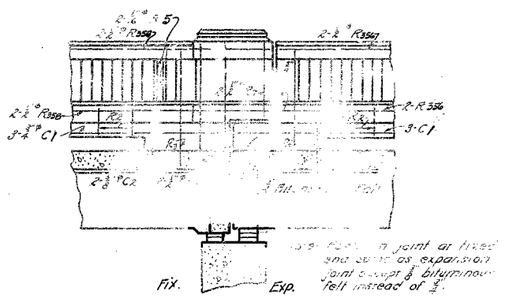
PLAN OF SLAB SHOWING REINFORCEMENT



SECTION A-A

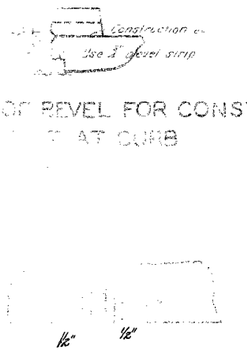


HALF CROSS SECTION



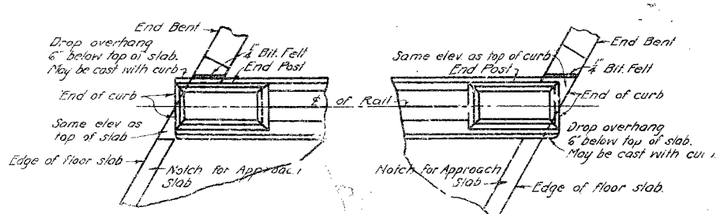
DETAIL OF HANDRAIL EXPANSION JOINTS

Note:- For details of handrail and curb for span (1-2) see "30 A" on Std. C550l
For details of handrail and curb for spans (2-3)(3-4) and (4-5) see "35B" and for span (5-6) see "35C" both on Std. C65l0l.

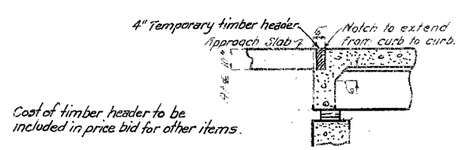


DETAIL OF BEVEL FOR CONST. JT. AT CURB

Use edging tool at top surface of roadway slab each side of felt joint.
DETAIL OF BEVEL FOR BIT.



SKETCHES SHOWING LOCATION OF END POSTS OF HANDRAIL



DETAIL OF NOTCH FOR APPROACH SLABS
SECTION PARALLEL TO ℄ OF ROADWAY

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

Feb 30 J.W.M.
March 30 C.H.W.

BRIDGE OVER ST.L. & S.F.R.R. TRACKS

STATE ROAD FROM U.S.R.60 TO AVA

ABOUT .5 MILES S.E. OF MANSFIELD

PROJECT NO R.5-587B STA. 785+15.73

WRIGHT COUNTY

SUBMITTED BY M R Lee DATE 4/9/30 BRIDGE ENGINEER

APPROVED BY W Ruby DATE CHIEF ENGINEER

STD.C-5501	
STD.C-5520	
STD.C-6501	
STD.C- 535	
STD.S-818	
H-290	

Sheet No. 5 5

9134

Missouri Department of Transportation
State Bridge Inspection Report

August 10, 2023
5:44:06AM

COUNTY: WRIGHT **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 4939** **BRIDGE: H0290**

GENERAL STRUCTURE INFORMATION

ROUTE: RTUS
FEATURE: CST SOUTH ST, BNSF RR
STATUS: P-POSTLOAD
LOG MILE: 0.067
DETOUR: 28.00 MILES
NHS: NO
BUILT: 1930
REHAB:
LOCATION: S 21 T 28 R 15 W
LATITUDE: 37 6 1.17 (DMS)
LONGITUDE: 92 34 33.94 (DMS)

 # SPANS: 5
LANES ON: 1
LANES UNDER: 2
COMPASS DIRECTION: SOUTH to NORTH
DIRECTION OF TRAFFIC: 1-LN/2-WAY
FUNCTIONAL CLASS: RL-MINOR COLLECTOR
NBI OWNER: MODOT
NBI MAINTAINED: MODOT
MAINTENANCE DISTRICT: SE
MAINTENANCE COUNTY: WRIGHT
SUB AREA: 7H04

PLACE CODE: 45740 MANSFIELD CITY
LENGTH: 173 FT 0 IN
MAXIMUM SPAN: 37 FT 6 IN
APPROACH ROADWAY: 20 FT 0 IN
CURB TO CURB: 20 FT 0 IN
OUT TO OUT: 23 FT 11 IN
AADT: 388
AADT YEAR: 2022
AADT TRUCK: 8.1%
FUTURE AADT: 601
FUTURE AADT YEAR: 2042

BRIDGE INSPECTION INFORMATION

DATE: 02/23/2023 **RESPONSIBILITY:** DISTRICT
FREQUENCY: 12 **CALCULATED INTERVAL**:** 12
TEAM LEADER: ED HESS **ELEMENT:** NO
INSPECTOR 2: **INSPECTOR 4:**
INSPECTOR 3:

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

GENERAL INSPECTION COMMENTS

FRACTURE CRITICAL INSPECTION INFORMATION

DATE: **RESPONSIBILITY:** **CATEGORY:**
FREQUENCY: **CALCULATED INTERVAL**:** **NBI:**
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

FRACTURE CRITICAL INSPECTION COMMENTS

INDEPTH INSPECTION INFORMATION

DATE: **RESPONSIBILITY:** **CATEGORY:**
FREQUENCY: **CALCULATED INTERVAL**:** **NBI:**
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

INDEPTH INSPECTION COMMENTS

SPECIAL INSPECTION INFORMATION

DATE: 09/05/2012 **RESPONSIBILITY:** DISTRICT **CATEGORY:** DAMAGE POST INCIDE
FREQUENCY: 999 **CALCULATED INTERVAL**:** **NBI:** NO
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: ED HESS **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

SPECIAL INSPECTION COMMENTS

(HESSE, 09/05/2012)--BRIDGE HIT BY TRAIN FOR THIRD TIME IN A MONTH. JUST CAUGHT THE CONCRETE ON BOTTOM OF GIRDERS. NO REBAR SHOWING

(HESSE, 08/31/2012)--TRAIN HIT FORMS FROM PREVIOUS HIT - NO DAMAGE TO REPAIRS - CONTACTED HOWARD STUART, BNSF RAILMASTER, STATED THEY WOULD NEED TO ADDRESS THIS SECTION OF TRACK TO PREVENT FUTURE HITS

(HESSE, 08/31/2012)--VERTICLE CLEARANCE MEASURED AT 20' - 4"

UNDERWATER INSPECTION INFORMATION

DATE: **RESPONSIBILITY:** **CATEGORY:**
FREQUENCY: **CALCULATED INTERVAL**:** **NBI:**
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

UNDERWATER INSPECTION COMMENTS

OTHER SPECIAL INSPECTIONS

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD

OTHER UNDERWATER INSPECTIONS

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD

COUNTY: WRIGHT **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 4939** **BRIDGE: H0290**

STRUCTURE POSTING

APPROVED CATEGORY: S-17 CL OF BR AND TRK OVR 11 T 15MPH ON BR EXCPT SNGLE UNT TRKS WT LMT 15 T OTHR TRKS WT LMT 28 T.
Ton 1: 11 **Ton 2:** 15 **Ton 3:** 28
COMMENTS:

FIELD CATEGORY: S-17 CL OF BR AND TRK OVR 11 T 15MPH ON BR EXCPT SNGLE UNT TRKS WT LMT 15 T OTHR TRKS
Ton 1: 11 **Ton 2:** 15 **Ton 3:** 28 **PROBLEM:** **PROBLEM DIRECTION:**
COMMENTS:

GENERAL COMMENTS/MAJOR RATED ITEMS

GENERAL COMMENTS: (BOWDEJ1, 08/14/2008)--(22') CONC SOLID SLAB - (37'-37'-37'-37') SMP DECK GDR SPANS

[ITEM 58] DECK: 4-POOR CONDITION **COMMENTS:** (DENNIB1, 02/18/2020)--EDGE DETERIORATION & SATURATION
RATING : 02/18/2020

[ITEM 59] SUPER: 4-POOR CONDITION **COMMENTS:** (BRAWLK1, 02/28/2022)--MOD COLLISION DAMAGE & DIAGONAL CRACKS
RATING : 02/18/2020

[ITEM 60] SUB: 4-POOR CONDITION **COMMENTS:** (DENNIB1, 02/18/2020)--VERTICLE CRACKS & SPALLING
RATING : 02/04/2021

[ITEM 61] BANK/CHANNEL: N-NOT APPLIC NO WATRWAY **COMMENTS:**
RATING : 05/18/2001

[ITEM 113] SCOUR: N-NOT APPLIC NOT WATERW **COMMENTS:**
RATING : 05/18/2001
EVALUATION TYPE :

[ITEM 71] WATERWAY ADEQUACY: NOT APPLICABLE **COMMENTS:**
RATING : 05/18/2001

[ITEM 72] APPRRDWY ALIGNMENT: 6-SATISFACTORY **COMMENTS:**
RATING : 05/18/2001

RAILING AND APPROACH PAVEMENT COMPONENTS AND RATINGS

[ITEM 36A] BRIDGE RAILING RATING: *DOESNT MEET CURRNT STND-0* ***RATING :*** *02/17/2012* ***COMMENTS:***

MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
REINFORCED CONCRETE	BALUSTER		
REINFORCED CONCRETE	CURB	BOTH	

[ITEM 36B] TRANSITION RAILING RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

[ITEM 36C] APPROACH RAILING RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

[ITEM 36D] RAIL END TREATMENT RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

COUNTY: WRIGHT **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 4939** **BRIDGE: H0290**

APPROACH PAVEMENT: *Overall condition assigned for each approach pavemenet component is shown below.

MATERIAL	CONSTRUCTION	DIRECTION	CONDITION*	COMMENTS
ASPHALT	BITUMINOUS MAT	BOTH	POOR	

DRAINAGE, EXPANSION DEVICES, BANK/SLOPE, AND DECK PROTECTIVE COMPONENTS

DECK PROTECTIVE COMPONENTS:

SERIES TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	THICKNESS	YEAR APPLIED	MANUFACTURE	OVERALL CONDITION
APPROACH SERIES-1	*WEARING SURFACE*	*ASPHALT*	*BITUMINOUS SEAL COAT*	*.4 IN*	*2014*		*POOR*
COMMENT:							
	DECK PROTECTION	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
	MEMBRANE	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
MAIN SERIES-2	*WEARING SURFACE*	*ASPHALT*	*BITUMINOUS SEAL COAT*	*.4 IN*	*2014*		*POOR*
COMMENT:							
	DECK PROTECTION	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
	MEMBRANE	*NOTAPPLICABLE*	*NONE*				
COMMENT:							

DRAINAGE COMPONENTS:

COMPONENT	MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
DRAINAGE	*REINFORCED CONCRETE*	*CURB OUTLET*		

EXPANSION DEVICE COMPONENTS:

SUB UNIT-#	SUB LABEL	COMPONENT	MATERIAL	CONSTRUCTION	GAP	YEAR APPLIED	MANUFACTURE	OVERALL CONDITION

COMMENT:

BANK/SLOPE PROTECTION COMPONENTS:

COMPONENT	MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS

DECK COMPONENTS

SPAN TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	COMMENTS
APPROACH SPANS-1	*DECK*	*REINFORCED CONCRETE*	*CAST-IN-PLACE*	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	EDGE		MODERATE		
SATURATION	RANDOM		MODERATE	40 %	
SCALING	THROUGHOUT		HEAVY		

SPALLS	AT JOINTS		MINOR			

MAIN SPANS-2 *DECK* *REINFORCED CONCRETE* *CAST-IN-PLACE*

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	EDGE		MODERATE		
SCALING	THROUGHOUT		HEAVY		
SPALLS	AT JOINTS		MINOR		

MAIN SPANS-3 *DECK* *REINFORCED CONCRETE* *CAST-IN-PLACE*

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	EDGE		MODERATE		
SATURATION	THROUGHOUT		MINOR	.15 %	
SCALING	THROUGHOUT		HEAVY		
SPALLS	AT JOINTS		MINOR		

MAIN SPANS-4 *DECK* *REINFORCED CONCRETE* *CAST-IN-PLACE*

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	EDGE		MODERATE		
OTHER	THROUGHOUT		NOT APPLICABLE		(DENNIB1, 02/16/2016)--DECK HAS SHIFTED 3" ON BENTS 4 AND 5
SCALING	THROUGHOUT		HEAVY		
SPALLS	AT JOINTS		MINOR		

MAIN SPANS-5 *DECK* *REINFORCED CONCRETE* *CAST-IN-PLACE*

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	EDGE		MODERATE		
SATURATION	RANDOM		MINOR	30 %	
SCALING	THROUGHOUT		HEAVY		
SPALLS	AT JOINTS		MINOR		

SUPERSTRUCTURE COMPONENTS

SERIES TYPE-#	SPAN TYPE	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
APPROACH SERIES-1	*SIMPLE SPAN*	*REINFORCED CONCRETE*	*SOLID SLAB*		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
APPROACH SPANS-1	NON-COMPOSITE	22 FT 8 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

MAIN SERIES-2	*SIMPLE SPAN*	*REINFORCED CONCRETE*	*DECK GIR*		*(SHRUBM1, 03/06/2012)--DECK GDR ENDS REPAIRED 2009*

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-2	NON-COMPOSITE	37 FT 5 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DIAGONAL CRACKS	ENDS		MODERATE		
REBAR EXPOSED	THROUGHOUT		MINOR		
SATURATION	ENDS		MINOR		
SPALLS	THROUGHOUT		MODERATE		
VERTICAL CRACKS	ENDS		FEW		

MAIN SPANS-3	NON-COMPOSITE	37 FT 6 IN	NO

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

DIAGONAL CRACKS	ENDS		MODERATE
REBAR EXPOSED	THROUGHOUT		MINOR
SATURATION	ENDS		MINOR
VERTICAL CRACKS	ENDS		FEW

MAIN SPANS-4 NON-COMPOSITE 37 FT 6 IN NO (FOSTEK, 01/11/2008)--A REVIEW OF THE LOAD RATING INDICATED THAT FAT 50% SECTION LOSS IN THE DECK GIRDER REINFORCEMENT IN THE SPAN OVER THE RR TRACKS, THE DECK GIRDERS DO NOT CONTROL THE RATING. THE APPROACH SLAB SPAN CONTROLLED THE RATING. 1/10/

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
COLLISION DAMAGE	MID SPAN		MINOR		
OTHER	RANDOM		NOT APPLICABLE		(BRAWLK1, 03/01/2022)--MODERATE COLLISION DAMAGE - ALL GIRDERS - TRAIN HIT
REBAR EXPOSED	THROUGHOUT		MINOR		
SATURATION	ENDS		MINOR		
VERTICAL CRACKS	ENDS		FEW		(HESSE, 08/09/2012)--COLLISION DAMAGE TO ALL 4 GIRDERS BY OVER HEIGHT LOAD FROM RAILROAD

MAIN SPANS-5 NON-COMPOSITE 37 FT 6 IN NO

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
REBAR EXPOSED	THROUGHOUT		MINOR		
SATURATION	ENDS		MINOR		
VERTICAL CRACKS	ENDS		FEW		

SUBSTRUCTURE COMPONENTS

SUBSTRUCTURE	SKEW	LENGTH	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
ABUTMENT-1	*LA-25 DEGREES*	*25 FT 5 IN*	*REINFORCED CONCRETE*	*OPEN CONCRETE*		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BACKWALL	REINFORCED CONCRETE	CAST-IN-PLACE			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
DELAMINATION	THROUGHOUT		MINOR		
HORIZONTAL CRACKS	THROUGHOUT		FINE		
VERTICAL CRACKS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
FOOTING	REINFORCED CONCRETE	SPREAD			
STRAIGHT WINGS	REINFORCED CONCRETE	CAST-IN-PLACE			
EXPANSION BEARING	TARPAPER	SLIDING LAYERS			
DIAPHRAGM	REINFORCED CONCRETE	CAST-IN-PLACE			
LEACHING	RANDOM		MINOR		
VERTICAL CRACKS	RANDOM		FEW		

SUBSTRUCTURE	SKEW	LENGTH	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
BENT-2	*LA-25 DEGREES*	*25 FT 2 IN*	*REINFORCED CONCRETE*	*MULTIPLE COLUMN*		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			

DELAMINATION	THROUGHOUT		MODERATE		
HORIZONTAL CRACKS	THROUGHOUT		FINE		
LEACHING	THROUGHOUT		MINOR		
VERTICAL CRACKS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
LEACHING	TOP		MINOR		
VERTICAL CRACKS	TOP		FEW		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
EXPANSION BEARING	TARPAPER	SLIDING LAYERS			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
EXPANSION BEARING	BRONZE	SLIDING CURVED/FLAT PL/			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***

BENT-3 LA-25 DEGREES 25 FT 2 IN REINFORCED CONCRETE MULTIPLE COLUMN

CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
ASSOCIATED COMPONENT	***MATERIAL***	***CONSTRUCTION***			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
HORIZONTAL CRACKS	THROUGHOUT		FINE		
LEACHING	THROUGHOUT		MINOR		
VERTICAL CRACKS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
DELAMINATION	TOP		MODERATE		
LEACHING	TOP		MINOR		
VERTICAL CRACKS	TOP		FEW		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
EXPANSION BEARING	BRONZE	SLIDING CURVED/FLAT PL/			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***

BENT-4 LA-25 DEGREES 25 FT 2 IN REINFORCED CONCRETE MULTIPLE COLUMN

CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
ASSOCIATED COMPONENT	***MATERIAL***	***CONSTRUCTION***			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
HORIZONTAL CRACKS	THROUGHOUT		FINE		
LEACHING	THROUGHOUT		MINOR		
SPALLS	ENDS		MODERATE		
VERTICAL CRACKS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
LEACHING	TOP		MINOR		
VERTICAL CRACKS	THROUGHOUT		MODERATE		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
COLLISION WALL	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
EXPANSION BEARING	BRONZE	SLIDING CURVED/FLAT PL/			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***

BENT-5 LA-25 DEGREES 25 FT 2 IN REINFORCED CONCRETE MULTIPLE COLUMN

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
DELAMINATION	THROUGHOUT		MODERATE		
HORIZONTAL CRACKS	THROUGHOUT		FINE		
LEACHING	THROUGHOUT		MINOR		
REBAR EXPOSED	RANDOM		MODERATE		
VERTICAL CRACKS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
LEACHING	TOP		MINOR		
VERTICAL CRACKS	THROUGHOUT		MODERATE		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
COLLISION WALL	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
COLLISION DAMAGE	THROUGHOUT		MINOR		
HORIZONTAL CRACKS	THROUGHOUT		FEW		
LEACHING	THROUGHOUT		MINOR		
VERTICAL CRACKS	THROUGHOUT		FEW		
EXPANSION BEARING	BRONZE	SLIDING CURVED/FLAT PL/			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**

ABUTMENT-6 LA-25 DEGREES 25 FT 5 IN REINFORCED CONCRETE OPEN CONCRETE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BACKWALL	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
DELAMINATION	THROUGHOUT		MODERATE		
HIGH STEEL SPALLS	TOP		FEW		
HORIZONTAL CRACKS	THROUGHOUT		MEDIUM		
LEACHING	THROUGHOUT		MINOR		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
STRAIGHT WINGS	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
VERTICAL CRACKS	TOP		MEDIUM		
DIAPHRAGM	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
LEACHING	RANDOM		MINOR		
VERTICAL CRACKS	RANDOM		FEW		
EXPANSION BEARING	BRONZE	SLIDING CURVED/FLAT PL/			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**

*****OVER/UNDER ROUTES CLEARANCE INFORMATION*****

COUNTY: WRIGHT **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 4939** **BRIDGE: H0290**

CLEARANCES OVER DECK

**NOTE: Vertical clearances for permitting purposes are taken as 2 inches less than the actual field measured clearance.

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT

CLEARANCES UNDER BRIDGE

**NOTE: Vertical clearances for permitting purposes are taken as 2 inches less than the actual field measured clearance.

RECORD #	ROUTE	# LANES	DIRECTION OF TRAFFIC	RIGHT LATERAL CLEARANCE	LEFT LATERAL CLEARANCE	UR-ID
1	CST SOUTH ST E	2	2-WAY TRAF	3 FT 0 IN		11152

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT
ACTUAL	15 FT 4 IN		05/20/2008	

RECORD #	ROUTE	# LANES	DIRECTION OF TRAFFIC	RIGHT LATERAL CLEARANCE	LEFT LATERAL CLEARANCE	UR-ID
2	BNSF RR			8 FT 9 IN		104015

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT
PLANNED	23 FT 2 IN			
ACTUAL	20 FT 3 IN	NORTH	09/06/2012	

STRUCTURE PAINT INFORMATION

CONDITION: **RUST AMOUNT :** **STEEL TONS :**

ORIGINAL PAINT	CONTRACT REPAINT	DEPARTMENT REPAINT	
PAINT TYPE :	PAINT TYPE :	PAINT TYPE :	MANUFACTURE :
NAME :	NAME :	NAME :	SURFACE PREP :
PAINT COLOR :	PAINT COLOR :	PAINT COLOR :	
PAINT YEAR :	PAINT YEAR :	PAINT YEAR :	
MILS :	MILS :	MILS :	

REQUESTED WORK ITEMS

GENERAL WORK COMMENTS:

RESPONSIBILITY	LOCATION	ITEM	CATEGORY	PRIORITY	DATE	WORK ITEM COMMENT
DISTRICT ROUTINE	ROADWAY SURFACE	SEAL - IRON MOUNTAIN CHIP	DECK	2	02/04/2021	(HESSE, 02/04/2021)--CHIP SEAL AS IS.

UTILITY ATTACHMENTS

UTILITY	OWNER	METHOD	MEASUREMENT TYPE	VALUE	NUMBER	UTILITY ATTACHMENT COMMENT

PROGRAM NOTES INFORMATION

Design_No = H0290

Missouri Department of Transportation
State Bridge Inspection Report

COUNTY: WRIGHT **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 4939** **BRIDGE: H0290**

YEAR	PROJECT #	MONTH LET	YEAR LET	ITEMS	COMMENT
2026	9S3818	0	2026	REPLACE BRIDGE	

COMPUTER GENERATED RATINGS AND DEFICIENCY ITEMS

NOTE: The items listed in this section are updated whenever computer edits are ran on a structure after the inspection updates have been entered in to TMS.

Rated Item	Rating	Rating Date
[Item 67] Structure Evaluation Rating:	4-MEETS MINIMUM TOLERABLE	10/19/2020
[Item 68] Deck Geometry Rating:	4-MEETS MINIMUM TOLERABLE	2/23/2023
[Item 69] Underclearance:	2-BASICALLY INTOLRBLE REQ	2/17/2022
Sufficiency Rating:	49.0%	2/23/2023
Deficiency:	STRUCTURAL	4/2/2003
Funding Eligibility:	FULL	----
Estimated New Structure Length:	207 FT.	----
Estimated Structure Cost:	$1,076,193	----
Estimated Total Project Cost:	$1,614,290	----
Year of Cost Estimate:	2023	----

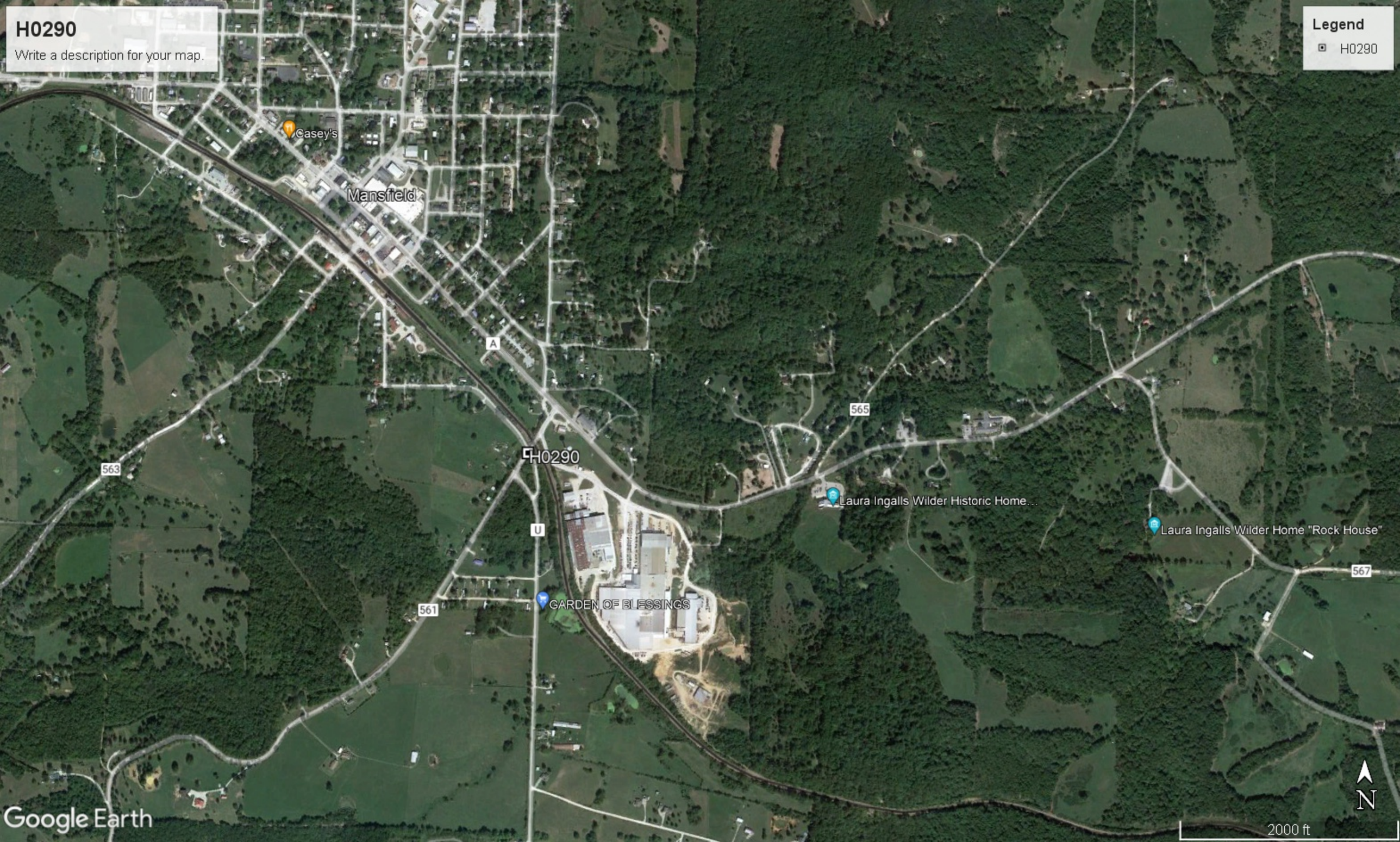
NOTE: The above structure length and cost estimates are computer generated using algorithims in the TMS system. These algorthims are generalized to use NBI items to come up with a new structure length and width to calculate a new area which is taken times a representative cost per square foot. The actual structure size and cost may vary significantly from these numbers once site specific engineering is done.

ADVANCED SIGN INFORMATION

SIGN #	SIGN TYPE	PROBLEM	PROBLEM DIRECTION
1	B - ONE LANE BRIDGE		

OUTFALL INSPECTION INFORMATION

 # OUTFALLS: **INSPECTOR:**
STATUS: **DATE:**
NOTES:


H0290
Write a description for your map.
Legend
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Casey's
Mansfield
A
565
H0290
563
U
561
Laura Ingalls Wilder Historic Home…
Laura Ingalls Wilder Home "Rock House"
567
GARDEN OF BLESSINGS
Google Earth
N
2000 ft

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:47:40am

COUNTY : WRIGHT **BRIDGE :** H0290 **REVIEW STATUS :** CONVERTED **NBI STATUS :** T
RECORD TYPE : ROUTE 'UNDER' STRUCT **RUN DATE :** 3/6/2023 **SUBMITTAL YEAR :** 2023

GENERAL STRUCTURE INFORMATION

1	State	MISSOURI
2	District	SE
3	County	WRIGHT
8	Federal ID No.	4939
27	Year Built	1930
106	Year Reconstructed	0
42A	Type of Service On	HIGHWAY
21	Structure Maintenance	
22	Structure Owner	
33	Br. Median Code	
37	Historical Significance	
101	Parallel Struc Desg	NONE EXISTS
103	Temporary Structure	NOT TEMPORARY
112	NBIS Bridge Length	

ROUTE DESIGNATION INFORMATION

5A	Record Type	ROUTE 'UNDER' STRUCT	Code : 2
5B	Route Signing Prefix	CST	
5C	Designated Level of Service	MAINLINE	
5D	Route Number	00000	
5E	Directional Suffix	NOT APPLICABLE	
7	Facility Carried	RT U S	
12	Base Hwy. Network		
13A	LRS Inventory Route No.		
13B	Subroute No.		
20	Toll Status	ON FREE ROAD	
26	Functional Classification	09-RURAL LOCAL	
28A	Lanes on Structure	01	
100	STRAHNET Designation	RTE NOT A DEFENSE HWY	
104	National Highway System	NOT ON NHS	
105	Federal Lands Highway		
110	Designated Nat. Network	NO	

STRUCTURE LOCATION INFORMATION

4	Place	MANSFIELD CITY
	Code	45740
9	Location	S 21 T 28 N R 15 W
11	Milepoint	0.60 miles
16	Latitude	37 D 6 M 1 S
17	Longitude	92 D 34 M 34 S

STRUCTURE TRAFFIC INFORMATION

29	AADT	116
30	AADT Year	2022
102	Direction of Traffic	2-WAY TRAFFIC
109	AADT Truck Percent	9%
114	Future AADT	
115	Future AADT Year	

UNDERRECORD INFORMATION

6	Features Intersected	CST SOUTH ST
42B	Type of Service Under	HIGHWAY-RAILROAD
28B	Lanes Under Structure	02
54A	Vert. Clearance Ref.	
54B	Vert. Clearance	
55A	Rt. Lat Clear Ref.	
55B	Rt. Lat Clearance	
56	Left Lat Clearance	
38	Navigation Control	
39	Nav Vertical Clear	
40	Nav Horizontal Clear	
111	Nav. Pier Protection	
116	Nav. Cl. Vert. Clear	

STRUCTURE GEOMETRIC INFORMATION

10	Inventory Rte. Vert. Clear	15 Ft. 4 In.
19	By pass Detour Length	0.00 miles
32	Approach Roadway Width	
34	Skew	
35	Struct. Flared	
47	Total Horiz. Clear	25 Ft. 11 In.
48	Maximum Span Length	37 Ft. 5 In.
49	Structure Length	172 Ft. 11 In.
50A	Left Curb/Sidewalk Width	
50B	Right Curb/Sidewalk Width	
51	Curb to Curb Br. Width	
52	Deck Width (Out-Out)	
53	Vert.Clearance Over Deck	

Design_No = H0290 and Inventory_Appraisal_Submittal_Year = 2023

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:47:40am

COUNTY :	**WRIGHT**	**BRIDGE :**	**H0290**	**REVIEW STATUS :**	**CONVERTED**	**NBI STATUS :**	**T**
RECORD TYPE :	**ROUTE 'UNDER' STRUCT**			**RUN DATE :**	**3/6/2023**	**SUBMITTAL YEAR :**	**2023**

LOAD RATING AND POSTING INFORMATION

31	Design Load
41	Structure Status
63	Oper. Rating Meth.
64	Operating Rating
65	Inventory Rating Meth
66	Inventory Rating
70	Bridge Posting Code

PROPOSED IMPROVEMENT INFORMATION

	Sufficiency Rating
	Deficiency Rating
	Funding Eligibility
75A	Proposed Work
75B	Work Done By
76	New Struc Length
94	Struc Improve Cost
95	Roadway Improve Cost
96	Total Project Cost
97	Year of Cost Estimates

APPRAISAL RATING INFORMATION

36A	Br. Rail App. Rating
36B	Transition Rail App. Rating
36C	Approach Rail App. Rating
36D	Rail End Treat. App. Rating
67	Struc Eval App. Rating
68	Deck Geometry App. Rating
69	Underclearance App. Rating
71	Waterway Adeq. App. Rating
72	Approach Road App. Rating
113	Scour Assess App. Rating

MATERIAL/CONSTRUCTION INFORMATION

43A	Main Struc. Mat type	CONCRETE
43B	Main struc Constr. Type	TEE BEAM
45	# of Main Spans	
44A	Appr Struc. Mat type	
44B	Appr Struc. Cnstr. type	
46	# of Approach Span	
107	Deck Mat/Constr.	
108A	Wear Surf Mat/Constr.	
108B	Membrane Mat/Constr.	
108C	Deck Protect Mat/Constr.	

CONDITION RATING INFORMATION

58	Deck Cond. Rating
59	Superstructure Cond. Rating
60	Substructure Cond. Rating
61	Channel /Channel Protection Cond. Rating
62	Culvert Cond. Rating

INSPECTION INFORMATION

90	Gen. Insp Date
91	Gen. Insp. Frequency
92A	Frac. Critical Inspection
93A	Frac. Critical Insp. Date
92B	Underwater Inspection
93B	Underwater Insp. Date
92C	Special Inspection
93C	Special Inspection Date

BORDER BRIDGE INFORMATION

98	Neighboring State Code
98B	Neighboring State % Respon
99	Neighboring State Struc. No.

APPROVED POSTING INFORMATION

Approved Posting Category

Ton1 Ton2 Ton3

Tonnage Values for Posting Sign

General Text for Posting Sign

FIELD POSTING INFORMATION

Field Posting Category

Ton1 Ton2 Ton3

Tonnage Values for Posting Sign

General Text for Posting Sign

Design_No = H0290 and Inventory_Appraisal_Submittal_Year = 2023

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:47:40am

COUNTY : WRIGHT **BRIDGE :** H0290 **REVIEW STATUS :** CONVERTED **NBI STATUS :** T
RECORD TYPE : ROUTE CARRIED 'ON' STRUCT **RUN DATE :** 3/6/2023 **SUBMITTAL YEAR :** 2023

GENERAL STRUCTURE INFORMATION

1	State	MISSOURI
2	District	SE
3	County	WRIGHT
8	Federal ID No.	4939
27	Year Built	1930
106	Year Reconstructed	0
42A	Type of Service On	HIGHWAY
21	Structure Maintenance	STATE HIGHWAY AGENCY
22	Structure Owner	STATE HIGHWAY AGENCY
33	Br. Median Code	NO MEDIAN
37	Historical Significance	NOT ELIGIBLE FOR NR OF HP
101	Parallel Struc Desg	NONE EXISTS
103	Temporary Structure	NOT TEMPORARY
112	NBIS Bridge Length	YES

ROUTE DESIGNATION INFORMATION

5A	Record Type	ROUTE CARRIED 'ON' STRUCT
5B	Route Signing Prefix	MO
5C	Designated Level of Service	MAINLINE
5D	Route Number	0000U
5E	Directional Suffix	NOT APPLICABLE
7	Facility Carried	RT U S
12	Base Hwy. Network	NO
13A	LRS Inventory Route No.	
13B	Subroute No.	
20	Toll Status	ON FREE ROAD
26	Functional Classification	08-RURAL MINOR COLLECTOR
28A	Lanes on Structure	01
100	STRAHNET Designation	RTE NOT A DEFENSE HWY
104	National Highway System	NOT ON NHS
105	Federal Lands Highway	NOT APPLICABLE
110	Designated Nat. Network	NO

STRUCTURE LOCATION INFORMATION

4	Place	MANSFIELD CITY
	Code	45740
9	Location	S 21 T 28 N R 15 W
11	Milepoint	0.07 miles
16	Latitude	37 D 6 M 1 S
17	Longitude	92 D 34 M 34 S

STRUCTURE TRAFFIC INFORMATION

29	AADT	388
30	AADT Year	2022
102	Direction of Traffic	ONE LANE BRIDGE FOR 2-WAY
109	AADT Truck Percent	8%
114	Future AADT	601
115	Future AADT Year	2042

UNDERRECORD INFORMATION

6	Features Intersected	CST SOUTH ST, BNSF RR
42B	Type of Service Under	HIGHWAY-RAILROAD
28B	Lanes Under Structure	02
54A	Vert. Clearance Ref.	HIGHWAY
54B	Vert. Clearance	15 Ft. 4 In.
55A	Rt. Lat Clear Ref.	HIGHWAY
55B	Rt. Lat Clearance	2 Ft. 11 In.
56	Left Lat Clearance	0 Ft. 0 In.
38	Navigation Control	N/A
39	Nav Vertical Clear	0 Ft. 0 In.
40	Nav Horizontal Clear	0 Ft. 0 In.
111	Nav. Pier Protection	
116	Nav. Cl. Vert. Clear	

STRUCTURE GEOMETRIC INFORMATION

10	Inventory Rte. Vert. Clear	99 Ft. 99 In.
19	By pass Detour Length	28.13 miles
32	Approach Roadway Width	20 Ft. 0 In.
34	Skew	25.00 Degrees
35	Struct. Flared	NO
47	Total Horiz. Clear	20 Ft. 0 In.
48	Maximum Span Length	37 Ft. 5 In.
49	Structure Length	172 Ft. 11 In.
50A	Left Curb/Sidewalk Width	0 Ft. 0 In.
50B	Right Curb/Sidewalk Width	0 Ft. 0 In.
51	Curb to Curb Br. Width	20 Ft. 0 In.
52	Deck Width (Out-Out)	23 Ft. 11 In.
53	Vert.Clearance Over Deck	99 Ft. 99 In.

Design_No = H0290 and Inventory_Appraisal_Submittal_Year = 2023

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:47:40am

COUNTY : WRIGHT **BRIDGE :** H0290 **REVIEW STATUS :** CONVERTED **NBI STATUS :** T
RECORD TYPE : ROUTE CARRIED 'ON' STRUCT **RUN DATE :** 3/6/2023 **SUBMITTAL YEAR :** 2023

LOAD RATING AND POSTING INFORMATION

31	Design Load	H 15
41	Structure Status	POSTED FOR LOAD
63	Oper. Rating Meth.	LOAD FACTOR
64	Operating Rating	41 Tons.
65	Inventory Rating Meth	LOAD FACTOR
66	Inventory Rating	25 Tons.
70	Bridge Posting Code	=>LEGAL LOADS

PROPOSED IMPROVEMENT INFORMATION

	Sufficiency Rating	49.0 Percent
	Deficiency Rating	STRUCTURAL
	Funding Eligibility	FULL
75A	Proposed Work	REPLACEMENT SUBSTND LOAD
75B	Work Done By	Contract
76	New Struc Length	206 Ft. 8 In.
94	Struc Improve Cost	$ 1,076,000
95	Roadway Improve Cost	$ 108,000
96	Total Project Cost	$ 1,614,000
97	Year of Cost Estimates	2023

APPRAISAL RATING INFORMATION

36A	Br. Rail App. Rating	DOES NOT MEET ACCEPT STND
36B	Transition Rail App. Rating	DOES NOT MEET ACCEPT STND
36C	Approach Rail App. Rating	DOES NOT MEET ACCEPT STND
36D	Rail End Treat. App. Rating	DOES NOT MEET ACCEPT STND
67	Struc Eval App. Rating	4
68	Deck Geometry App. Rating	4
69	Underclearance App. Rating	2
71	Waterway Adeq. App. Rating	N
72	Approach Road App. Rating	6
113	Scour Assess App. Rating	N

MATERIAL/CONSTRUCTION INFORMATION

43A	Main Struc. Mat type	CONCRETE
43B	Main struc Constr. Type	TEE BEAM
45	# of Main Spans	4
44A	Appr Struc. Mat type	CONCRETE
44B	Appr Struc. Cnstr. type	SLAB
46	# of Approach Span	1
107	Deck Mat/Constr.	1 CONCRETE CIP
108A	Wear Surf Mat/Constr.	6 BITUMINOUS
108B	Membrane Mat/Constr.	0 NONE
108C	Deck Protect Mat/Constr.	0 NONE

CONDITION RATING INFORMATION

58	Deck Cond. Rating	4
59	Superstructure Cond. Rating	4
60	Substructure Cond. Rating	4
61	Channel /Channel Protection Cond. Rating	N
62	Culvert Cond. Rating	N

INSPECTION INFORMATION

90	Gen. Insp Date	2 / 23	
91	Gen. Insp. Frequency	12	Months
92A	Frac. Critical Inspection	N	Months
93A	Frac. Critical Insp. Date		
92B	Underwater Inspection	N	Months
93B	Underwater Insp. Date		
92C	Special Inspection	N	Months
93C	Special Inspection Date		

BORDER BRIDGE INFORMATION

98	Neighboring State Code
98B	Neighboring State % Respon
99	Neighboring State Struc. No.

APPROVED POSTING INFORMATION

Approved Posting Category S-17

	Ton1	Ton2	Ton3
Tonnage Values for Posting Sign	11	15	28

General Text for Posting Sign

CL OF BR AND TRK OVR 11 T 15MPH ON BR EXCPT SNGLE UNT TRKS WT LMT 15 T OTHR TRKS WT LMT 28 T.

FIELD POSTING INFORMATION

Field Posting Category S-17

	Ton1	Ton2	Ton3
Tonnage Values for Posting Sign	11	15	28

General Text for Posting Sign

CL OF BR AND TRK OVR 11 T 15MPH ON BR EXCPT SNGLE UNT TRKS WT LMT 15 T OTHR TRKS WT LMT 28 T.

Design_No = H0290 and Inventory_Appraisal_Submittal_Year = 2023

EXHIBIT "I"

SCOPE OF SERVICES

Job. No.	J9S3818	J9S3801
Scope	Replace H0290	Replace K0789
Survey	X	X
Preliminary Geotech Report	X	X
Foundation Investigation	X	X
Staking of Sounding Locations	X	X
Preliminary Bridge Design	X	X
Final Bridge PSE	X	X
Preliminary Roadway Design	X	X
ROW Plans	X	X
Final Roadway PSE	X	X
RR Coordination		
Utility Coordination	X	X
Environmental Services		
Construction Administration / Inspection	X	X

The consultant shall perform the following services, all in accordance with the standard practice of the Commission and the following:

AASHTO "A Policy on Geometric Design of Highways and Streets" (latest version)

AASHTO "Roadside Design Guide" (latest version)

AASHTO "LRFD Design methods" (latest version)

AASHTO "Highway Drainage Guidelines" (latest version)

"Manual on Uniform Traffic Control Devices" (latest version)

"Highway Capacity Manual" (latest version)

I Administration

CONSULTANT shall participate in the following as part of the Administration tasks:

1. Attend and document milestone project meetings with MoDOT (CORE Team meetings). Meetings will be held virtually except for the project kick off and final design field check

meetings.
2. Correspondence (emails, letters, meeting minutes, phone calls)
3. Set up the project and conduct Kick-Off Meeting.
4. Coordination with subconsultants.
5. Participate in one Public Meeting. Develop handouts and exhibits for meeting.
6. Provide monthly progress reports and invoices and review subconsultants invoices and reports.
7. Provide exhibits, sketches, and back-up data to MoDOT on an as-needed basis.
8. Provide information to support the SW District MoDOT staff in maintaining a public website for the project staff to inform the public and update impacts related to the project including timelines, changes to the project, meetings, comments. The website to be maintained through the construction phase.

II Surveys

CONSULTANT shall obtain topographic survey information required for the preparation of preliminary, right of way, and final roadway plans including:

1. Perform a thorough review of any existing surveys.
2. Coordinate available survey control and benchmarks with surveyors.
    a. Translate control and benchmarks into sheet drawings to be used in construction plans, per EPG.
3. Complete remaining topographic surveys to develop preliminary plans, bridge survey, right-of-way plans and final roadway plans, including all improvements and existing topography within the limits of the project. Topographic surveys shall consist of all pertinent topographic features including, but not limited to:
    a. existing drainage and sanitary structures (pipes, types, flowlines, sizes)
    b. trees over 4 inches in diameter
    c. additional existing retaining wall shots and type of wall
    d. building front elevations and pertinent building features
    e. pertinent parking lot features
    f. driveway joints, pavement types and profiles
    g. existing signal equipment surveys
    h. drainage swales
    i. sign posts, size, identification and photo log
    j. pavement marking type
    k. miscellaneous roadside identification and photo log
    l. lighting
    m. other
4. Field locate visible above ground evidence of utilities located within the project area. “Missouri One Call” and MoDOT will be contacted and a formal request will be submitted for marking the locations of member utilities. In the event that “Missouri One Call” fails to respond, in whole or in part, to the formal request, underground facilities, structures, and utilities will be plotted from surveys and/or available records. The locations of all utilities are to be considered approximate. There may be other utilities, whose existence may not be known at the time of the survey.
5. Coordinate with District Utility Engineer on underground utility one-call locates and have utilities located in identified areas of proposed project.
6. Complete utilities survey and verify completeness and accuracy of utility topographical survey.

7. As-needed punch list surveys due to design updates and/or new development.

CONSULTANT shall perform right-of-way surveys necessary for the preparation of preliminary, right of way and final roadway plans including:

1. Identify at the earliest opportunity, the title reports to be ordered by the COMMISSION. This will be coordinated during the preliminary design phase of the project.
2. Locate existing right of way, property lines and pertinent section lines for the entire project limits.
3. Clearly identify linework in drawing with text (i.e. property lines (PL), section lines, quarter-quarter section lines, existing right-of-way, existing easements, etc.
4. Research impacted parcels. Each of these properties within the project limits shall include property owner name, assessor's map number, last deed book and page, and existing size of parcel in square feet.
5. All property lines shall have a bearing (to the nearest second) and a length (to the nearest hundredth of a foot) shown and the parcel closed within acceptable tolerances governed by the State of Missouri.
6. Incorporate all easements and identified information from the title work into the existing right-of-way drawing.
7. Provide a reference tie drawing with three-point ties.
8. Establish land corner ties.
9. If necessary, the CONSULTANT shall provide a land survey plat that is compliant with the current standards for property boundary surveys to be recorded. The CONSULTANT shall also provide survey plats and legal descriptions as defined in Section 236.4.6 of MoDOT's Engineering Policy Guide.

III Utility Coordination

The CONSULTANT shall perform the following utility coordination tasks:

1. Obtain maps from utilities of their known locations and adjust survey limits as needed.
2. Coordinate submittal of preliminary plans to utility companies.
3. Coordinate with utility companies on the development of the plan of adjustment and obtain cost estimates for reimbursable utilities for the District Utility Engineer's approval.
4. Show the existing utility facilities and plan of adjustments for proposed utilities facilities in the contract plans. (plans sheets, cross sections, culvert sections)
8 Coordinate with utility owner the relocation of each impacted utility on the project during design and construction.
9 Prepare special utility sheets as necessary (including utility profile and exhibits).
10 Assist District Utility Engineer in the preparation of agreements (includes municipal agreements).
11 Identify locations for power service needs, prepare service request for submittal and coordinate with the power company to obtain estimated costs.
12 Coordinate with MoDOT (PM and District Utility Engineer) and to provide SUE test hole information at critical utility locations.
13 Prepare utility job special provision and information for the preparation of the Utility Status Letter for District Utility Engineer.
14 Provide assistance and answer utility related questions during the construction phase for

MoDOT staff and the roadway contractor.

IV Geotechnical Investigations

The CONSULTANT will perform all geotechnical work and provide the Preliminary Geotechnical Report and Foundation Investigation Report in accordance with section 320 of the MoDOT Engineering Policy Guide (EPG). Other chapters may be applicable.

Fertility samples will be collected by the CONSULTANT and sent to MoDOT's Central Laboratory for testing. The COMMISSION will provide the seeding report based on the fertility samples collected.

The CONSULTANT will provide staking for geotechnical boring locations.

1. Perform all geotechnical work necessary for the project including the Preliminary Geotechnical Report and the final bridge soundings.

2. Consultant is responsible for obtaining all necessary permits to perform the work.

3. Produce a preliminary geotechnical report which includes an initial geotechnical investigation of the site including recommended spill slopes. The site work for the preliminary geotechnical work and the final soundings may occur simultaneously.

4. Perform all necessary bridge soundings and testing and incorporate into a Foundation Investigation Report. The report shall include rock core photographs, recommended foundation types, recommended foundation capacities, applicable resistance factors and L-pile parameters for lateral load analysis of driven piles or drilled shafts.

5. All boring holes shall be filled with cuttings.

6. Public utilities shall be notified via Missouri One-Call before drilling begins.

7. The cores shall be handled and labeled following MoDOT procedures.

8. Laboratory testing will be performed to estimate pertinent engineering properties of the soil overburden and soil and rock properties for design. Consultant shall provide staking for boring locations.

9. The CONSULTANT shall provide the following information on their boring logs:

    a. N value of blows per foot
    b. N_{60} value of blows per foot (corrected for the energy efficiency of the auto-hammer)
    c. Energy efficiency of the auto hammer
    d. Drilling equipment identification

e. Boring locations (Stations and/or Coordinates, and Elevations with datums)

10. The consultant shall provide, at a minimum, a geologist registrant in training (GRIT) or an engineer in training (FE) to log the borings in the field per MoDOT's logging protocol. The engineer or geologist shall have at least 2 years of experience logging boreholes. Logs shall be reported in gINT format. MoDOT will provide preferred gINT templates when requested. At final submittal, please provide a copy of the electronic gINT file, in addition to the final report deliverables.

11. The consultant will perform standard penetration testing (SPT) and split-barrel sampling in accordance with ASTM D1586 using an automatic hammer in accordance with section 7.4.1 Method A. The automatic hammers shall be calibrated in accordance with ASTM D4633 at least every 2 years or sooner as required therein. The calibration report shall be prepared in accordance with ASTM D4633 and shall be signed and stamped by a professional engineer.

12. A draft copy of the final draft report should be submitted to the MODOT Geotechnical Section for review prior to signing and sealing the report.

V Preliminary Roadway Design

The CONSULTANT'S attention is directed to Chapter 235 of the MoDOT Engineering Policy Guide (EPG) for general guidelines and requirements for preliminary design. Other chapters may be applicable for preliminary design preparation.

(A) Upon approval of the design criteria memorandum by COMMISSION, the CONSULTANT shall undertake the following to develop the preliminary design phase:

a. Prepare preliminary plans, as outlined in the MoDOT EPG.
    i. The COMMISSION shall furnish the CONSULTANT traffic information for the construction and design years to be used in the preliminary plans.
    ii. The COMMISSION shall furnish the CONSULTANT the latest accident data and traffic information used to calculate the project accident rate. The COMMISSION shall furnish the CONSULTANT the "statewide accident rate for a similar class of roadway" and any high hazard locations within the project limits.
    iii. The CONSULTANT shall submit the preliminary plans to the COMMISSION for review and approval as shown in Exhibit IV.
b. The preliminary plans shall be prepared in accordance with the applicable sections of the MoDOT EPG, as to what shall be shown thereon, including proposed design features.

i. The plan view English scale shall be 1"=50' horizontal (or different scale as determined by MoDOT Project Manager for clarity) and extend 100 feet beyond project limits.
ii. The profile view English scale shall be 1"=50' horizontal, and 1"=10' vertical.

c. The CONSULTANT may have to review preliminary cross sections sufficiently to make a cost comparison between using retaining walls versus acquiring additional right of way for all proposed wall locations.
d. The CONSULTANT shall prepare the construction estimate. The COMMISSION shall prepare the right of way estimate based on the right of way requirements furnished by the CONSULTANT.
e. The preliminary plans shall be submitted to the COMMISSION for review and approval. A letter of transmittal shall be provided with the preliminary plan submittal. The COMMISSION shall furnish the template for the letter of transmittal. The construction cost estimate shall also be submitted with the preliminary plans.
f. The preliminary plans shall include the tentative additional easement and right of way limits, property lines and ownerships, section lines, township and ranges, any U.S. Surveys, city limits, and a general outline of the construction staging, critical design items and other items as outlined in the EPG.
g. Traffic assignments shall be shown on the respective roadways or on a line sketch of the roadways.
h. Typical sections shall indicate heavy, medium or light duty pavement for new roadways, along with descriptions of the existing roadway types remaining in place.

(B) A Preliminary Field Check will be arranged by the CONSULTANT with the COMMISSION to discuss design features in the project area.

(C) The CONSULTANT shall provide the COMMISSION with information for proper environmental and cultural clearance including submittal of the preliminary stage RES, right of way stage RES (if needed) and final stage RES. Items that may need to be addressed include historical buildings, archaeological sites, historic bridges, conversion of farmland, endangered species, wetlands, parklands and historical sites.

(D) The CONSULTANT shall prepare and submit the Bridge Survey Report, Bridge Survey Sheets, and Bridge Survey Checklist.

(E) The CONSULTANT shall set horizontal and vertical control for the project and provide the COMMISSION the combined adjustment factor. All control furnished by the CONSULTANT shall use current datums and adjustments.

(F) The CONSULTANT shall provide all land boundary work and legal descriptions to the COMMISSION for review and approval prior to right of way plans submittal.

(G) The COMMISSION shall provide the pavement design and general Job Special Provisions related to the project including any special design elements.

(H) The COMMISSION may hold a public meeting for this project either in person or virtually and the CONSULTANT will be required to attend and coordinate meeting. The CONSULTANT shall provide exhibits for MoDOT public meeting as requested and will refer to the sections of the EPG concerning public involvement.

VI Preliminary Bridge Design

(A) Perform the geometric analysis at the proposed bridge site necessary to develop type, size and location drawings consisting of a general plan and elevation plan of the structures, typical roadway sections and roadway profiles. This includes preparation of the Bridge Memorandum & Layout (including the itemized preliminary bridge estimate).

(B) The structure and/or box culvert type and size (if applicable) shall be based on roadway alignments, geometric analysis, hydraulic analysis (if applicable), spill slope requirements, roadway overpass clearances, grades and/or clear zone requirements.

(C) The superstructure type shall be dependent upon site constraints and a detailed cost analysis comparison.

(D) All requirements of the Federal Emergency Management Agency's National Flood Insurance Program shall be met.

(E) Discharges will be estimated using USGS Regression Equations and available stream gauge data (if applicable).

(F) HEC-RAS shall be used to model of the natural, existing and proposed conditions (if applicable).

(G) Scour calculations shall be performed in accordance with FHWA Hydraulic Engineering Circular No. 18 (if applicable).

(H) The results of the hydrologic, hydraulic and scour analysis shall be documented in the Bridge Hydraulic and Scour Report (if applicable).

(I) All requirements outlined in the MoDOT Engineering Policy Guide (EPG) shall be met. The CONSULTANT shall follow MoDOT's "practical design" philosophy and submit any design exceptions as necessary.

(J) Develop final detailed design criteria in the form of Bridge Memorandum and Bridge Design Layout documents.

VII Section 404 Corps of Engineers Permit (if applicable)

The CONSULTANT shall provide the following information necessary to allow MoDOT staff to apply for any required Section 404 Corps of Engineer Permits. If the permit is required due to bridge construction, the application data shall be submitted no later than with the T.S.&L. drawings. All information should be provided to the MoDOT Project Manager who will forward the information to Central Office Design.

(A) Provide the amount and type of excavation and material that will be used in streams, lakes, and wetlands below the Corps of Engineers' ordinary high water line (OHL) elevations.

(B) Provide location and quantities of permanent berms and spill fills below OHL.
   a. Earth fill, rock blanket (square feet and cubic yards)
   b. Rock blanket along right descending bank and left descending bank (linear feet)
   c. Rock ditch (square feet)

(C) Provide location, excavation and size of pier below OHL.
   a. Excavation (cubic yards)
   b. Pier (square feet)

(D) Provide channel realignment data.
   a. Existing channel length of section to be modified (feet)
   b. Average channel width of section to be modified (feet)
   c. Realigned section, length and width (feet)

(E) Provide temporary fill amounts in wetlands or below OHL in streams.
   a. Earth fill (square feet and cubic yards)
   b. Class C (square feet and cubic yards)

(F) Provide information about temporary fills and shoring.
   a. Location of temporary fills and shoring
   b. Source of material
   c. Final disposition of removed materials

(G) Provide information about temporary culverts.
   a. Number of culverts
   b. Size (inches)
   c. Length (feet)

(H) Provide information on channel cleanout – excavation below OHL.
   a. Cleanout upstream and downstream of structure (linear feet)
   b. Total quantity of material to be removed below OHL (square feet and cubic yards)

(I) Provide 8 ½-inch by 11-inch copies of any plan or profile sheets required for the permit application.

(J) Provide bridge elevation and plan views with OHL indicated.

VIII Right of Way Design

(A) The CONSULTANT shall prepare right of way plans, which may be separate drawings from those used for design and construction details. The right of way plans shall show alignment, geometric design, removal of improvements, drainage facilities, property lines and ownership, sub-division lot lines, other land survey information, street lines and existing right of way and easements. The CONSULTANT should also include any plan details, which will require additional right of way or permanent, temporary or utility easements during the construction phase of the project such as bypasses, temporary erosion control, etc. Right of way plans include title sheet, typical sections, profile sheets, and cross sections of the roadway, entrances and side roads. Areas of new right of way, permanent easements and/or temporary easements required from each individual property owner may be shown in tabular form on the respective sheets.

a. The CONSULTANT shall finalize any previous review of the roadway cross sections sufficiently to determine the feasibility of constructing retaining walls versus obtaining additional right of way. This final review shall consist of construction estimates versus right of way estimates.
b. Upon completion of the estimates by COMMISSION and CONSULTANT, the CONSULTANT shall recommend to the COMMISSION a choice at the various locations which warrant consideration of the alternate retaining wall versus right of way solutions. The COMMISSION shall make the final determination of purchasing right of way, or constructing retaining walls.

(B) Right of way plans shall be submitted to the COMMISSION for review and approval. The right of way plans shall be at the same scale as the construction plans. The right of way plans shall include any design details that will control the width of right of way and necessary easements.

a. New right of way lines and all easements shall be dimensioned by station and offset distance from the centerline, or crossroad centerlines, if necessary. Bearings and distances on the right of way lines may be required.
b. The following minimum design features shall be included on the right of way plans:
    i. Title sheet with appropriate project limits, access note and traffic data completed.
    ii. Typical Sections
    iii. Cross sections at 100’ intervals, including additional sections at each entrance with new and existing entrance grades.
    iv. Construction limits (slope lines); drainage facilities; entrances and their reference location, width and type along with their existing and future grade percentage; property owners, with areas of new right of way, easements and remaining property; centerline bearing, ties to legal land

corners from centerline stations with notation for corner witness by a registered land surveyor; existing utility locations and easements, including replacement utility easements; horizontal curvature information; and proper right of way symbolization for new right of way (access control) and easements, including areas which may be required to accommodate temporary erosion control.

v. Township, Range, Section and/or U.S. Survey information broken down t ¼ ¼ section line level on each plan sheet near the title block or appropriate survey/section line.

(C) The CONSULTANT shall provide an updated construction estimate for the Right of Way design stage.

(D) The COMMISSION shall review, approve and certify the right of way plans as completed by the CONSULTANT. The CONSULTANT shall provide one (1) electronic set of fully signed and sealed right of way plans, for the COMMISSION'S use.

(E) The CONSULTANT shall provide title insurance information for all parcels with new right of way acquisition and the last deed of record for any parcel with easements.

(F) The COMMISSION will prepare right of way appraisals and secure the necessary right of way by negotiation or condemnation, if necessary, for construction of this project.

(G) The CONSULTANT shall be responsible for staking and re-staking tentative right of way on individual properties, as required by MoDOT staff, during right of way negotiation and acquisition phase of the project. The CONSULTANT shall also set permanent monuments as shown on the recordable land survey.

(H) The CONSULTANT shall be responsible for making all revisions to the right of way and construction plans due to negotiations with the property owners in an effort to acquire right of way.

(I) The CONSULTANT shall write, sign and seal deed descriptions for all right of way acquisitions on MoDOT's approved Exhibit A form and submit to COMMISSION.

(J) The CONSULTANT will provide the COMMISSION with information for proper environmental and cultural clearance including submittal of the Right of Way stage RES. Items that may need to be addressed include historical buildings, archaeological sites, historic bridges, conversion of farmland, endangered species, wetlands, parklands and historical sites.

IX Final Roadway Design

(A) The COMMISSION will secure execution of municipal agreements with the cities and/or county agreements. A copy of the executed agreements will be furnished to the

CONSULTANT for his information. The CONSULTANT shall conform to all design provisions of these agreements.

(B) A final design field check shall be held with CONSULTANT and COMMISSION representatives prior to completing final design plan quantities. The CONSULTANT shall make any necessary revisions to the final plans as determined by this design field check.

(C) The CONSULTANT shall prepare detailed temporary erosion control plans for review and approval before inclusion in the final design plans. The CONSULTANT will submit a Final Plans stage RES and help ensure previous RES items have been addressed.

(D) The CONSULTANT shall prepare computations for all design plan quantities. All plan quantities shall be shown on the Quantity Sheets, by construction stage, if applicable. The format for these sheets shall be furnished by the COMMISSION. Specialty items may have separate sheets for quantity tabulations.

(E) The CONSULTANT shall prepare for review and approval by the COMMISSION all General Job Special Provisions, which are to supersede the Missouri Standard Specification for Highway Construction. A brief reason for the deviation from the standard plans and specifications should also be provided. The CONSULTANT shall prepare only Job Special Provisions related to design elements shown in the plans.

(F) The following list shall be considered the minimum requirements for a complete set of Final Design Plans.

a. Title Sheet
b. Typical Sections
c. Quantity Sheets
d. Plan Sheets at 1”=50’ horizontal (or different scale as determined by MoDOT Project Manager for clarity). Plan sheets shall include all necessary adjustments to signing and proposed pavement marking.
e. Profile Sheets at 1”=50’ horizontal and 1”=10’ vertical
f. Culvert Sections at 1”=10’, if needed
g. Special Sheets for geometrics, referenced points, grading plan, traffic control plan, temporary erosion control plan and any other sheets for special design features.
h. Earthwork Quantities, Cross Sections at 25’ intervals, 1”=10’ (1:100), horizontal and vertical, including entrance sections with existing and proposed grades
i. Tabulation of Quantity Sheets
j. Job Special Provisions in electronic format readable in COMMISSION’S current word processor
k. File with the bid items and quantities as generated by COMMISSION’S Estimate Program

l. Construction Workday Study
m. Transportation Management Plan
n. Final Plans Checklist Form D-12

(G) Additional plans and information may be required to complete the Final Design Plans. With the submittal of the Final Design the CONSULTANT shall also provide the COMMISSION a statement that an internal quality control check has been conducted and to the best of the CONSULTANT'S knowledge the final design plans are free of gross errors, misleading or confusing typos, and includes adequate information to construct the project.

(H) The CONSULTANT shall prepare all plans through the use of a Computer Aided Drafting (CAD) program. The CONSULTANT shall conform to MoDOT's Specifications for Computer Deliverable Contract Plans as referenced in the MoDOT EPG.

(I) The CONSULTANT shall furnish the COMMISSION the following completed sheets and documents, as applicable, for each separate construction project included in this contract, as follows:

a. Final Design Plans showing profile grades, geometric data, alignment data, etc.
b. One (1) electronic copy of the location sketch for Commission Approval submitted in electronic format.
c. Draft copy of the job special provisions related to design elements for review. After corrections, the job special provisions shall be furnished in electronic format utilizing the COMMISSION'S latest word processing program.
d. One (1) legible electronic copy of engineering calculations and analysis.
e. One (1) electronic copy of a complete summary of quantities and estimate of construction costs. The estimate shall be prepared using the latest version of MoDOT's ESTIMATE program.
f. One (1) electronic copy of Electronic Design Data.
g. One (1) electronic copy of a workday study showing the estimated number of workdays required to construct each project.
h. The CONSULTANT shall provide a 3D model of the project exported from Geopak Open Roads Designer software for the COMMISSION'S use.

X Final Bridge Design

Furnish to the COMMISSION fully checked design plans, job special provisions, design computations, quantity computations, final cost estimate, and a construction workday study for the structure(s). The CONSULTANT is expected to make the COMMISSION aware of more economical design alternatives that may become apparent during the preparation of the final design.

(A) The plans shall be complete and shall cover all parts of the structure they represent. The degree of detail shall be comparable to that furnished on typical plans prepared by

the COMMISSION. High resolution final signed and sealed plans, will be submitted in Adobe Acrobat Reader format version 7 or higher. Final signed and sealed plans shall be in pdf full size (34" x 22") format. These deliverables shall use the file naming convention and be in accordance with the "Specifications of Computer Deliverable Contract Plans" requirement outlined in the Commission's Engineering Policy Guide, Section 237.13.3. The electronic plans in Microstation format cannot be signed and sealed. The electronic submittals shall be made in a method suitable to MoDOT.

(B) All construction changes made to the plans during construction of the project shall also be submitted electronically in Adobe Acrobat and Microstation format.

(C) The job special provisions shall be complete and describe all design features, construction procedures, or material requirements in the plans that are deviations from the latest edition of the Missouri Standard Plans for Highway Construction. Typical job special provisions that have been developed by MoDOT for previous jobs are posted on MoDOT's website and are available for use and modification as needed. The job special provisions shall include a table of contents sheet that is signed and sealed by a professional engineer registered in Missouri. The signed and sealed job special provisions shall also be submitted in Adobe Acrobat Reader format, version 7 or higher. Job Special Provisions shall also be submitted in Microstation Word format. The submittal letter shall explain the need for each provision.

(D) The design computations and plans shall be acceptable to and will become the property of the Commission. The CONSULTANT shall submit design computations in Adobe Acrobat Reader version 7.0 format or greater. The files shall be transferred in a manner acceptable to MoDOT. The design computations shall contain an index file, with electronic links to the files contained within. Submittals shall include a set of design computations for each bridge. The design computations shall not be combined with the Microstation or the Adobe Acrobat Reader submittals.

(E) The final estimate submitted by the CONSULTANT shall include backup material that supports the estimates made for non-standard or lump sum pay items.

(F) The CONSULTANT shall submit the hours and cost summarizing the design effort for each bridge. The summary shall include separate amounts for: Number of Hours for Bridge Preliminary Design, Cost of Bridge Preliminary Design, Number of Hours for Bridge Final Design, Cost of Bridge Final Design. Generally, the above amounts should include all hours and costs invoiced that are attributable to bridge design and plans preparation up to the point of turning in the signed and sealed plans. It should not include hours attributable to preparing the bridge survey, final construction cost estimate, or workday study.

(G) Bridge Load Rating: The CONSULTANT shall furnish to the COMMISSION fully checked load ratings for the structure(s) in accordance with EPG Section 753.15. The load rating

files shall be acceptable to, and will become the property of, the COMMISSION. The CONSULTANT shall submit the load ratings in an acceptable electronic format (.xml or other approved method) created using AASHTOWare BrR Bridge Rating software version 6.8 or higher. The CONSULTANT shall verify the accuracy of any load rating files provided by the COMMISSION prior to making modifications.

XI Construction Support

(A) The CONSULTANT shall be available to the COMMISSION to discuss and interpret plans and specifications during the bidding and construction phase of the project as determined necessary by the Engineer.

(B) The CONSULTANT shall be available to provide Shop Drawing review of CONTRACTOR submittals pertaining to essential structural components and review any contractor's Value Engineering Proposals.

(C) The CONSULTANT may be required to attend a pre-construction meeting, and a post construction meeting via TEAMS.

(D) If issues arise during construction, there will be a direct line of communication established between the MoDOT Construction Office and the CONSULTANT. The CONSULTANT will immediately inform the MoDOT Design Division or MoDOT Bridge Division of any recommendations or clarifications made to the Construction Office.

XII Resident Engineer and Construction Inspection

The Consultant shall provide qualified personnel to assist the Commission with inspection, testing and administration. This assistance will require at a minimum of one individual for Resident Engineer oversite and another individual for inspection.

Consultant services shall be in accordance with the standard practices of the Commission as conveyed to the Consultant by the Commission.

1. The Consultant's Representative shall supervise all the activities of all personnel furnished by the Consultant. The Consultant's Representative will report and be directly responsible to the Consultant Resident Engineer.
2. An inspector shall be present on site whenever work is being performed by the contractor, except during periods of extended delay or stoppage unless otherwise directed by the Engineer. The Consultant shall endeavor to maintain continuity of personnel on the inspection staff to minimize disruption of the Consultant's services. The Consultant shall provide inspectors that are qualified to perform the services and provide complete documentation of the time spent by each inspector performing the services.
3. Consultant staff shall be Advanced Work Zone Certified and demonstrate good knowledge of proper traffic control implementation and flagger operations.

4. Consultant staff shall perform on site Quality Assurance material testing and be properly certified through MoDOT's Technician Certification Program. Certification that is required are Concrete Field, Concrete Strength, and Aggregate Technician. QA testing frequency per MoDOT's ITP. Testing to include concrete air, slump and cylinders, concrete compressive strength, and nuclear density of aggregate base and earthwork. A proctor for soil density will need to be completed. Gradations for concrete and base rock will need to be completed per the ITP for QA testing.
5. Consultant staff shall check contractor surveying for the construction of the roadway. These checks include but not limited to roadway alignment, aggregate placement, earthwork placement, and ditch location layouts.
6. QC testing will be completed by contractor or contactor hired services. All material testing submitted by the contractor or contractor hired service will need to be compared to QA testing and approved in ASSHTOWare.
7. Consultant Resident Engineer / Inspector shall additionally comply with the Job Special Provisions for Protection of BNSF Railway Company Interests. As a part of those responsibilities, the consultant shall perform the following:

   The Consultant's Personnel shall obtain all necessary training, certification and approvals required by BNSF to work within their right of way.

   The Consultant's Resident Engineer and Representative shall be responsible for all communication with BNSF Railway and BNSF's Inspector/Coordinator as required. This includes management of the contractor's Railroad permits, submittals, approvals and other required correspondence with the Railroad's Inspector/Coordinator. This also includes the facilitation of PreConstruction and routine meetings with the Consultant, Contractor, BNSF Railway and the Inspector/Coordinator.

   The Consultant shall ensure that all Contractor's activities on Railroad Right of Way are performed with BNSF approval. This includes but is not limited to obtaining the appropriate approvals and clearances and coordinating all necessary BNSF Flagging.

8. Consultant staff will be required to pass a background check performed by MoDOT administrative staff. This requirement can be waived if previously completed on other MoDOT projects and will only apply to any staff that has not been added to MoDOT's system.
9. Inspectors shall perform duties to comply with MoDOT's Engineering Policy Guide, Standard Specifications for Highway Construction, MoDOT standards, the Manual on Uniform Traffic Control Devices and other related contract materials. During the performance of these services, the Consultant shall comply with applicable federal, state and local laws, rules, regulations and ordinances of the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Missouri Department of Natural Resources (MDNR), and other regulatory authorities with jurisdiction over the project.

10. Provide appropriate PPE for Consultant staff to be worn at all times while working within Commission Rights of Way includes Class 2 or Class 3 Vest or Apparel, high vis hardhat with 10 square inches of reflective tape, safety shoes and safety eyewear.
11. Attend meetings and various contractor and MoDOT internal meetings throughout the course of the construction work.
12. Prepare and document all “order Records”, “Change Orders”, “Pay Estimates”, material reporting, daily work reports and all other project related correspondence for review and approval as requested by the Resident Engineer. Pay estimates to be submitted in accordance with MoDOT pay estimate schedule.
13. Manage construction records using AASHTOWare Project software and or/ Mobile Inspector application.
14. Provide and maintain communication devices to keep in contact with Contractor and Engineer.
15. Provide and maintain all necessary computer equipment necessary for completion of the work. Consultant staff must have active email address for correspondence with Engineer.
16. Provide and maintain vehicle for Consultant staff equipped with revolving warning light meeting MoDOT specifications.
17. Enforce contract requirements and specifications with the contractors to ensure quality workmanship and timely completion of the work. When Consultant inspector determines the Contractor’s work is deviating from the contract requirements, the Consultant shall direct the Contractor to take corrective action. If differences in the interpretation of the contract requirements or specifications arise with the Contractor, the Consultant shall refer the matter to the Engineer immediately. All failing testing will need to be documented and MoDOT Engineer along with the contractor will need to be notified as soon as practically possible.
18. Provide final record drawings and assist with completion of final plans package.
19. Conduct wage rate interviews, Commercial Useful Function reviews, bulletin board inspections, traffic control inspections, etc. as required by the project and directed by the Engineer.
20. Consultant shall document Contractor work progress, and weather delays. At Engineers request, the Consultant shall provide verbal or written reports to the engineer regarding Contractor’s performance, progress and compliance with contract documents.
21. Notify Engineer when lane closures are in place and removed from roadway.
22. Notify MoDOT engineer if quantities deviate from plan.
23. The Consultant shall perform the weekly storm water data entry and all entries for rain events. This will need to be started once 1 acre or greater has been disturbed and reports will need to be entered until all erosion control items have been removed after final seed acceptance.
24. The Consultant shall check all payroll submitted by the Prime and Subcontractor. The Consultant Resident Engineer will review and sign all approved subcontracts for the project.

The Commission, the Engineer or other Commission representatives will have the following responsibilities:

1. Make available to the Consultant the necessary plans, forms, specifications, copy of the contract and other documents to permit the Consultant to perform the prescribed duties.
2. All off site inspections including concrete, steel, aggregates, signs and all other materials customarily tested and inspected off site by the Engineer.
3. Shop drawing review.
4. Resolve and decide differences in interpretation of the contract requirements between the Consultant and Contractor.
5. AASHTOWare Project Training if needed.
6. Approve change orders and pay estimates.

EXHIBIT II

SERVICES PROVIDED BY THE COMMISSION

The Commission will furnish to the Consultant without charge the following information:

A. General design criteria.
B. Available standard detail sheets in Microstation format.
C. Bridge Survey
D. Traffic and accident data.
E. Pavement Design Selection
F. All necessary environment services identified through the Request for Environmental Services
G. Right of way and easement acquisition.

The Consultant shall proceed with the final design and detail plans in accordance with the data approved or furnished by the Commission which will meet with the general standards adopted by AASHTO and approved by the Department of Transportation as provided by Title 23, United States Code, Section 109(b).

EXHIBIT IV

PERIOD OF SERVICE

The Consultant shall make submittals in accordance with the schedule described below.

Preliminary Stage Request for Environmental Services by December 8, 2023

Preliminary Road Plans by February 15, 2024

Bridge Memo by February 15, 2024

RR TSL Drawings February 15, 2024

Right of Way Stage Request for Environmental Services by February 15, 2024

Right of Way Plans by March 1, 2024

Type Size and Location Bridge Drawings June 3, 2024

Public Meeting Exhibits by June 3, 2024

Final Stage Request for Environmental Services by July 1, 2025

100% Review Plans by August 25, 2025

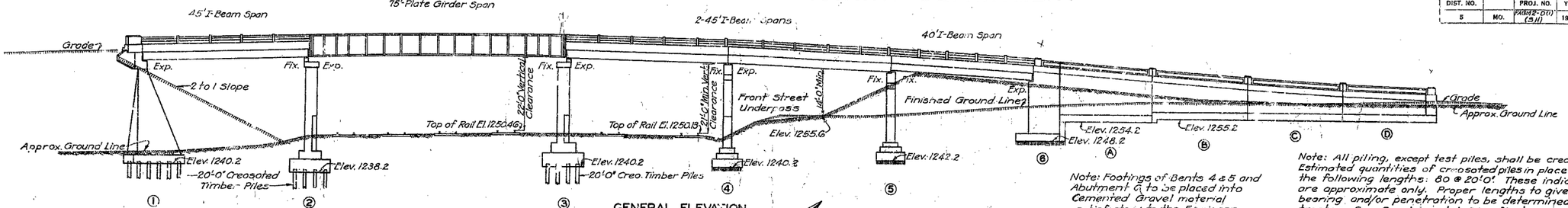
Construction Engineering / Construction Inspection as needed post award

Final Signed and Sealed Bridge Plans and Roadway Plans, Job Special Provisions, Final Construction Estimate, Working Day Study, D-12 Form and remaining PS&E documents October 1, 2025 for a December 2025 letting

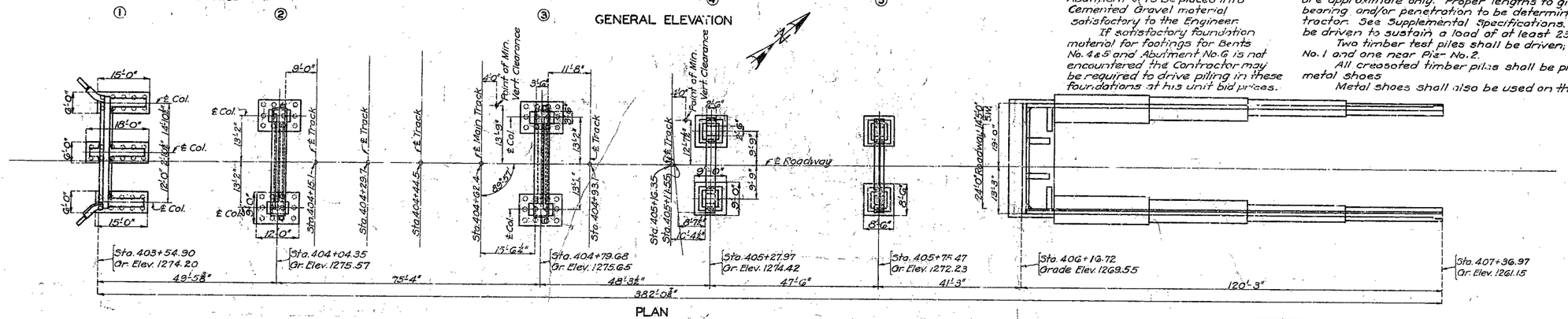
PERIOD OF SERVICE – The total period of service, including construction services, is expected to be completed by April 1, 2028.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	19		



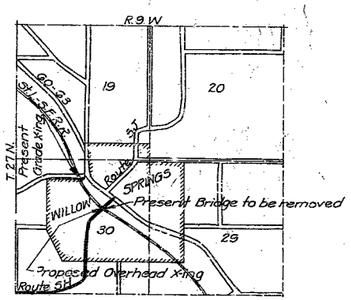
GENERAL ELEVATION



PLAN

Note: Footings of Bents 4 & 5 and Abutment G to be placed into Cemented Gravel material satisfactory to the Engineer.
If satisfactory foundation material for footings for Bents No. 4 & 5 and Abutment No. G is not encountered the Contractor may be required to drive piling in these foundations at his unit bid prices.

Note: All piling, except test piles, shall be creosoted timber. Estimated quantities of creosoted piles in place are based on the following lengths: 80 @ 20'-0". These indicated lengths are approximate only. Proper lengths to give required bearing and/or penetration to be determined by the Contractor. See Supplemental Specifications. All piling shall be driven to sustain a load of at least 23 ton per pile.
Two timber test piles shall be driven; one near Bent No. 1 and one near Pier No. 2.
All creosoted timber piles shall be provided with metal shoes.
Metal shoes shall also be used on the two test piles.



LOCATION SKETCH

GENERAL NOTES:

Design Specifications A.A.S.H.O.-1935
Loading H-15 A.A.S.H.O.
Structural Steel Stress 18,000 #/□"
Reinforcing Steel Stress 18,000 #/□"
Concrete Class "B" 900 #/□"
All concrete shall be Class "B"
Exposed edges shall be beveled ¾" where no other bevel is noted.
Bar supports and spacers will be required for reinforcing steel in superstructure. See Standard C-110 RI.
Top of concrete in both sides and front wall of Abutment No. G to be kept at same level throughout pouring.
All concrete shall be proportioned by the weight proportioning method.
Floor slab for each span shall be constructed full width and length at one operation. No longitudinal or transverse construction joints will be permitted except as shown.
Excavation for structure shall be in accordance with Specification 1 of Standard and Supplemental Specifications.
Detail shop drawings for all structural steel, wrought iron, cast steel and cast iron shall be submitted to the State Highway Department in duplicate and shall be approved before material is ordered or work started.
Beam flanges shall be squared up at all points of bearing.
The welding symbols used on these plans are the 1937 symbols of the American Welding Society.
Qualification 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 ⅞"ø, holes ⅞"ø except as noted. Handrail rivets ⅝"ø, holes ¹¹⁄₁₆"ø. Field connections for handrail channels and bars shall be ⅝"ø button head bolts and for connections of rail to rail posts shall be ⅝"ø machine bolts, holes ¹¹⁄₁₆"ø. All other field connections riveted except as noted. Washers shall be used as noted and under nuts of all turned bolts.
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 the Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for structural steel. No paint required on the galvanized material of handrail.
Where rubber compound is specified on plans for use in partition or expansion joints, the premoulded joint shall be securely stitched to one face of concrete with copper wire.
A minimum vertical clearance of 20'-0" from top of rails and a minimum lateral clearance of 8'-0" from centerline of tracks adjacent to Pier No. 2 and Bent No. 4 shall be maintained during construction. Minimum lateral clearances on all other tracks shall be 8'-6" from centerline of tracks.
See Special Provisions relative to required shoring of excavation for Piers No. 2, 3 and 4.
Existing fill shall be removed on North End of Bridge as indicated on road plans.

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds.	1590		1590
Class "B" Concrete (Handrail)	Cu. Yds.	22.2		22.2
Class "B" Concrete	Cu. Yds.	633.4	254.7	633.1
Fabricated Struct. Steel (R. Girders)	Lbs.		90000	90000
Fabricated Struct. Steel (I-Beams)	Lbs.		141,500	141,500
Steel Castings	Lbs.		1810	1810
Gray Iron Alloy Castings	Lbs.		2360	2360
Reinforcing Steel	Lbs.	53,930	51,070	105,000
Creosoted Timber Piles in Place	Lin. Ft.	2000		2000
Timber Test Piles	Lin. Ft.	60		60
26" Struct. Steel Handrail	Lin. Ft.		186	186
37" Struct. Steel Handrail	Lin. Ft.		252	252
Conduit System	Lump Sum	—	—	—
12"ø Corrugated Perforated Metal Pipe	Lin. Ft.	254		254
Wrought Iron Blast Plates	Lbs.		21,000	21,000
Porous Backfill	Cu. Yds.	135		135

Note: All excavation for bridge will be paid for as Class 1 Excavation for Structures.
Estimated quantity of creosoted timber piling includes 5 linear feet of pile in place for each metal shoe specified.

FINISHED

U.S.G.S.B.M. #A8-1928 Elevation 1253.19 56' S.E. of Viaduct. 69' Rt of Sta. 405+57.9.

BRIDGE OVER ST. L.-S.F. R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

SUBMITTED BY N.R. Lack STATE BRIDGE ENGINEER 6/26/39

APPROVED BY C.W. Brown STATE CHIEF ENGINEER 6/26/39

FINISHED

STD. C110RI

K-789

52

Drawn Oct. 1938 by T.A.M.
Traced Nov. 1938 by G.W.
Checked Nov. 1938 by J.A.M. & June 1939 by R.H.S.

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

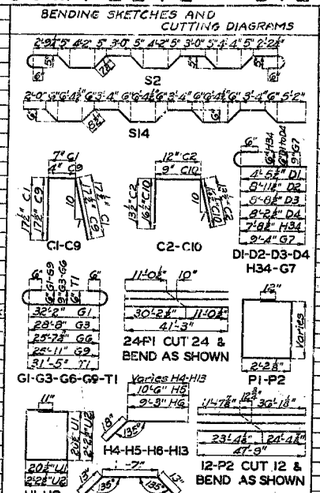
Sheet No. 1 of 11.

MISSOURI STATE HIGHWAY DEPARTMENT

COMPLETE BILL OF REINFORCING STEEL

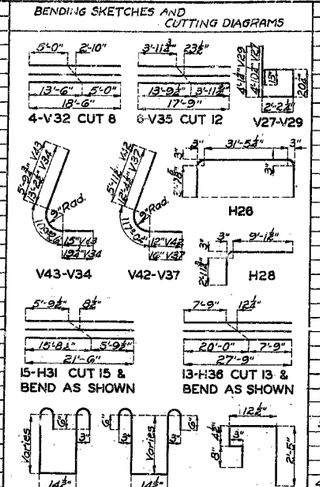
No	Size	Length	Mark	Location
		SUPERSTRUCTURE		
187	⅜"ϕ	3'-6"	C1	I-Bm. Curb
187	⅜"ϕ	3'-3"	C2	" "
20	⅜"ϕ	25'-3"	C3	" "
20	⅜"ϕ	24'-9"	C4	" "
20	⅜"ϕ	24'-9"	C5	" "
20	⅜"ϕ	22'-6"	C6	" "
18	⅜"ϕ	26'-9"	C7	R.Gdr. Curb
42	⅜"ϕ	10'-3"	C8	" "
154	⅜"ϕ	3'-3"	C9	" "
154	⅜"ϕ	3'-6"	C10	" "
189	⅜"ϕ	3'-6"	C11	I-Bm. Curb
189	⅜"ϕ	3'-3"	C12	" "
404	⅜"ϕ	26'-6"	S1	I-Bm. Slab
202	⅜"ϕ	29'-6"	S2	"
8	⅜"ϕ	25'-3"	S3	"
94	⅜"ϕ	25'-3"	S4	"
94	⅜"ϕ	25'-0"	S5	"
94	⅜"ϕ	25'-0"	S6	"
94	⅜"ϕ	22'-9"	S7	"
148	⅜"ϕ	5'-6"	S8	I-Bm. Sidewalk
8	⅜"ϕ	1'-6"	S9	"
24	½"ϕ	25'-3"	S10	"
24	½"ϕ	24'-9"	S11	"
24	½"ϕ	24'-9"	S12	"
24	⅝"ϕ	22'-9"	S13	"
56	⅜"ϕ	41'-3"	S14	R.Gdr. Slab
54	½"ϕ	39'-6"	S15	" "
54	½"ϕ	23'-6"	"16	" "
27	⅜"ϕ	35'-3"	U17	" "
142	⅜"ϕ	25'-9"	S18	" "
306	⅜"ϕ	5'-6"	S19	R.Gdr. Sidewalk
36	⅜"ϕ	26'-9"	S20	" "
		SUBSTRUCTURE		
		BENT NO.1		
14	1"□	32'-9"	G1	Beam
2	⅞"ϕ	32'-9"	G2	"
24	½"ϕ	41'-3"	P1	Column
12	½"ϕ	47'-9"	P2	"
2	⅝"ϕ	27'-9"	P3	"
6	1"ϕ	34'-0"	T1	Tie Beam
1	⅜"ϕ	11'-1"	T2	Wings
2	⅜"ϕ	1	T3	"
1	⅜"ϕ	13'-"	T4	"
2	⅜"ϕ	12'-9"	T5	"
1	⅜"ϕ	10'-3"	T6	"
1	⅜"ϕ	12'-9"	T7	"
2	⅜"ϕ	32'-9"	T8	Bk. Wall
16	⅜"ϕ	9'-3"	F1	Col. Haunch
24	1"ϕ	9'-9"	F2	Tie Beam
30	⅜"ϕ	5'-9"	D1	Footing
24	⅜"ϕ	7'-9"	U1	Tie Beam
41	⅜"ϕ	9'-9"	U2	Beam
3	⅜"ϕ	16'-0"	H1-H4	Wings
2	⅜"ϕ	9'-3"	H2	"
1	⅜"ϕ	9'-9"	H3	"
2	⅜"ϕ	12'-0"	H5	"
1	⅜"ϕ	10'9"	H6	"
3	⅜"ϕ	4'-3"	H7	Cut-5
3	⅜"ϕ	5'-3"	H8	"
4	⅜"ϕ	32'-9"	H9	Bk. Wall
2	⅜"ϕ	3'-6"	H10	" "
3	⅜"ϕ	15'-0"	H11-H13	Wings
2	⅜"ϕ	5'-0"	H12	"
2	⅜"ϕ	11'-3"	H14	"
6	⅜"ϕ	8'-6"	H15	"
8	⅜"ϕ	25'-3"	V1	Column
12	⅜"ϕ	28'-6"	V2	"
2	⅜"ϕ	7'-3"	V3	"
53	⅜"ϕ	4'-9"	V4	Bk. Wall
9	⅜"ϕ	5'-6"	V5	" "
2	⅜"ϕ	5'-6"	V6	" "
3	⅜"ϕ	6'-3"	V7	" "
2	⅜"ϕ	4'-9"	V8	" "
3	⅜"ϕ	7'-0"	V9	" "
4	⅜"ϕ	12'-9"	V10	Wings
3	⅜"ϕ	6'-6"	V11	"
2	⅜"ϕ	6'-0"	V12	"
4	⅜"ϕ	12'-9"	V13	"
2	⅜"ϕ	3'-9"	V14	"
2	⅜"ϕ	2'-5"	V15	"
2	⅜"ϕ	7'-0"	V16	"

BENDING SKETCHES AND CUTTING DIAGRAMS

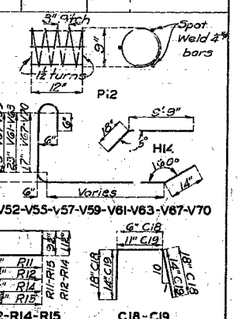


No.	Size	Length	Mark	Location
		BENT NO.1 (Cont.)		
6	⅝"ϕ	5'-3"	C11	Curb
6	⅝"ϕ	4'-3"	C12	"
7	½"ϕ	5'-0"	R1	End Post
7	½"ϕ	4'-6"	R2	" "
12	½"ϕ	5'-6"	R3	" "
12	½"ϕ	4'-3"	R4	" "
		PIERS NO. 2&3		
32	1"□	10'-3"	D2	Footing
80	⅜"ϕ	13'-9"	P4	Column
32	1"□	13'-9"	P5	"
16	1"□	16'-6"	P6	"
16	1"□	14'-9"	P7	"
14	1½"□	32'-0"	G3	Beam
14	⅜"ϕ	30'-0"	G4	"
4	⅜"ϕ	29'-6"	G5	"
72	⅜"ϕ	16'-6"	U3	"
70	½"ϕ	2'-0"	U4	Haunch
4	½"ϕ	26'-6"	H17	"
24	⅜"ϕ	32'-6"	H18	Col.W.11
8	"ϕ	32'-6"	H19	" "
34	"ϕ	9'-3"	V17	" "
54	⅝"ϕ	8'-3"	V18	" "
16	½"ϕ	10'-9"	F3	Col.Haunch
8	½"ϕ	19'-6"	P12	Cap
		BENT NO 4		
16	⅝"ϕ	10'0"	D3	Footing
16	⅝"ϕ	13'-0"	P8	Column
12	½"ϕ	18'-3"	P9	"
4	½"ϕ	9'-9"	P10	"
2	1½"□	29'-0"	G6	Beam
6	1½"□	11'-0"	G7	"
2	⅜"ϕ	26'-6"	G8	"
7	1"□	28'-6"	G9	"
35	⅜"ϕ	11'-6"	U5	"
8	⅜"ϕ	9'-3"	F1	Col. Haunch
8	⅜"ϕ	9'-3"	F4	" "
12	⅜"ϕ	24'-9"	H20	Col. Walls
5	⅜"ϕ	24'-9"	H21	" "
26	⅜"ϕ	9'-0"	V19	" "
		BENT NO.5		
16	⅜"ϕ	9'-6"	D4	Footings
34	⅜"ϕ	9'-9"	P10	Column
16	⅜"ϕ	21'-0"	P11	"
8	⅜"ϕ	9'-3"	F1	Col. Haunch
8	⅜"ϕ	9'-3"	F4	" "
3	1"□	29'-0"	G6	Beam
8	1½"□	11'-"	G7	"
2	⅜"ϕ	26'-6"	G8	"
7	1"□	28'-6"	G9	"
35	⅜"ϕ	11'-6"	U5	"
		ABUTMENT NO. 6		
40	⅜"ϕ	15'-0"	V25	Frt. Wall
5	½"ϕ	1'-9"	V26	Bk. Wall
5	½"ϕ	12'-0"	V27	"
126	⅝"ϕ	4'-0"	V28	" "
26	½"ϕ	11'-3"	V29	" "
5	⅝"ϕ	37'-9"	V30	Sidewall
5	⅝"ϕ	36'-6"	V31	"
8	½"ϕ	18'-6"	V32	C.Ft.
8	1"ϕ	19'-0"	V33	"
8	1"ϕ	16'-3"	V34	"
12	½"ϕ	17'-9"	V35	"
8	1"ϕ	17'-6"	V36	"
8	1"ϕ	15'-3"	V37	"
4	½"ϕ	18'-0"	V38	Corner
4	⅝"ϕ	18'-6"	V39	Sidewall
4	⅝"ϕ	17'-9"	V40	"
28	⅝"ϕ	3'-0"	V41	Ftg.
8	1"ϕ	8'-6"	V42	"
6	1"ϕ	8'-6"	V43	"
48	½"ϕ	4'-0"	V44	"
6	⅛"ϕ	32'-0"	H25	Bk. Wall
17	⅝"ϕ	5'-6"	H26	Frt. Wall
22	⅜"ϕ	32'-0"	H27	& Frt. Wall

BENDING SKETCHES AND CUTTING DIAGRAMS



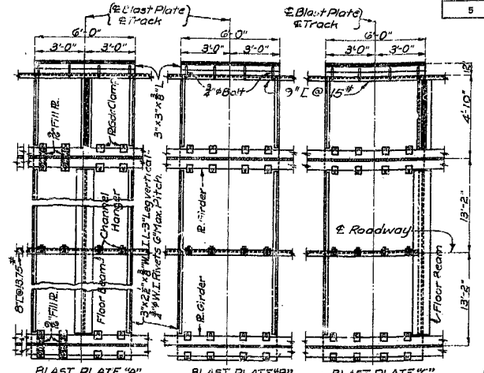
No.	Size	Length	Mark	Location
		ABUT. NO.6 (Cont.)		
24	⅝"ϕ	12'-6"	H28	Sidewall
48	⅝"ϕ	10'-0"	H29	"
6	⅝"ϕ	8'-6"	H30	"
15	⅝"ϕ	21'-6"	H31	C.Ft.
28	1"ϕ	33'-9"	H32	Ftg.
46	⅝"ϕ	9'-0"	H33	"
68	⅜"ϕ	9'-0"	H34	"
2	⅜"ϕ	33'-9"	H35	"
13	⅜"ϕ	27'-9"	H36	C.Ft.
32	⅜"ϕ	9'-3"	H37	Corner
10	⅜"ϕ	8'-6"	H39	Curb
2	⅜"ϕ	5'-0"	H39	Bk.Wall
20	⅜"ϕ	3'-5"	U6	" "
7	½"ϕ	4'-9"	C13	Curb
7	½"ϕ	3'-"	C14	"
7	½"ϕ	3'-6	C15	"
14	½"ϕ	8'-3"	R5	Rail
4	½"ϕ	8'-6"	R6	"
7	½"ϕ	8'-9"	R7	"
7	½"ϕ	6'-0"	R8	"
4	½"ϕ	5'-9"	R9	"
		RETAINING WALLS		
12	⅝"ϕ	8'-3"	V48	Ftg.
12	⅝"ϕ	9'-6"	V49	"
36	⅜"ϕ	9'-0"	V50	Wall & Ftg.
72	⅝"ϕ	10'-0"	V51	" "
19	⅝"ϕ	37'-3"	V52-V55	" "
19	⅝"ϕ	25'-9"	V53-V54	Wall
44	⅜"ϕ	8'-9"	V56	Wall & Ftg.
22	½"ϕ	29'-9"	V57-V59	" "
19	½"ϕ	19'-6"	V58-V60	Wall
32	⅝"ϕ	24'-9"	V61-V63	Wall & Ftg.
19	½"ϕ	15'-3"	V62-V64	Wall
16	½"ϕ	12'-6"	V65-V68	"
4	½"ϕ	5'-0"	V66	"
28	⅝"ϕ	20'-6"	V67-V70	Wall & Ftg.
4	½"ϕ	6'-0"	V69	Wall
16	½"ϕ	7'-6"	H49	Ftg.
162	½"ϕ	27'-3"	H50	Wall
56	⅝"ϕ	8'-0"	H51	Ftg.
56	⅝"ϕ	6'-3"	H52	"
56	⅝"ϕ	5'-0"	H53	"
56	⅝"ϕ	2'-0"	H54	"
2	½"ϕ	6'-6"	H55	Pilaster
6	⅝"ϕ	7'-0"	H56	"
16	⅝"ϕ	5'-0"	H57	Wall
76	½"ϕ	8'-6"	R6	Rail
32	½"ϕ	8'-9"	R7	"
52	½"ϕ	6'-0"	R8	"
76	½"ϕ	5'-9"	R9	"
56	½"ϕ	27'-3"	R10	"
2	½"ϕ	6'-0"	R11	"
4	½"ϕ	6'-3"	R12	"
7	½"ϕ	3'-9"	R13	"
4	½"ϕ	9'-0"	R14	"
2	½"ϕ	8'-9"	R15	"
76	½"ϕ	4'-9"	C13	Curb
76	½"ϕ	3'-0"	C14	"
76	½"ϕ	3'-6"	C15	"



Note: Dimensions given are along centerlines 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.

Drawn May 1939 by D.K.M.
Traced May 1939 by E.M.A.
Checked June 1939 by J.E.B., H. C. & R.A.B.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Mo.	FAGM 2-D(1) (SH)	19		



Note: All items of blast plates shall be furnished and placed by the contractor.
All blast plates shall be ⅜" thick with widths as shown by details.

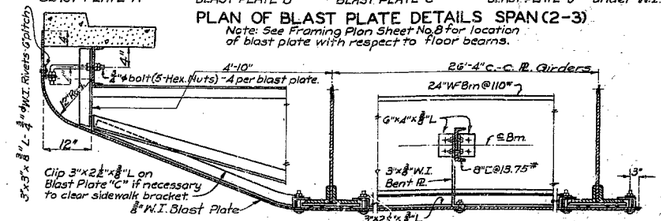
All blastplates, 3"×2½" L's, 3"×⅜" clamps, 3"×⅜" hangers, ⅞" ϕ button head bolts, and all ⅞" rivets except those in 8" Channel connections shall be wrought iron. All other material shall be structural steel.

Blast plates may be spliced at the option of the contractor. Cost of blast plate splices must be borne by the contractor. Quantities for splices are not included in Estimated Quantities. See Special Provisions for items to be paid for.

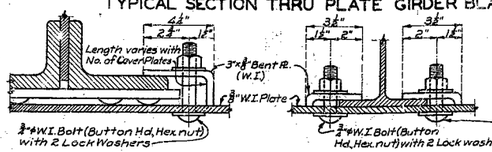
℄ Blast Plate ℄ Track "D" Details similar to Blast Plate "B" except use ⅜" Fill Pls. as for Blast Plate "A".

PLAN OF BLAST PLATE DETAILS SPAN (2-3)

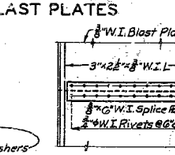
Note: See Framing Plan Sheet No. 8 for location of blast plate with respect to floor beams.



TYPICAL SECTION THRU PLATE GIRDER BLAST PLATES

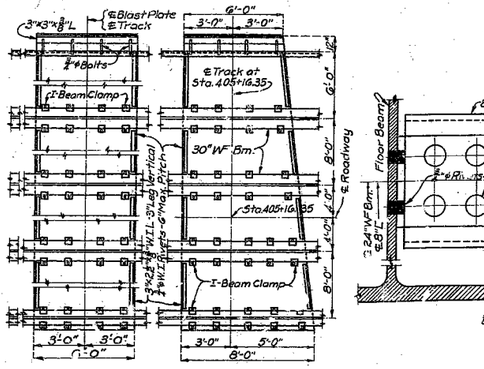


DETAIL OF PLATE GIRDER CLAMP

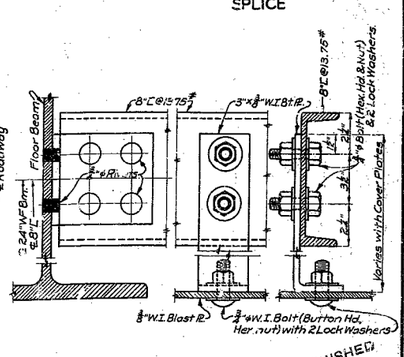


DETAIL OF I-BM. CLAMP

TYPICAL BLAST PLATE SPLICE



DETAIL OF PLATE GIRDER BLAST PLATE SPLICE



PLAN OF BLAST PLATES SPAN (3-4)

DETAILS OF CHANNEL HANGER

Note: Details of Blast Plates on Span (3-4) similar to "Typical Section Thru Plate Girder Blast Plates" for section under sidewalk. Blast plates under roadway to be clamped to all stringers with I-Beam clamps shown.

BRIDGE OVER ST. L.-S.F. R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

HOWELL COUNTY

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

Sheet No. 2 of 11.

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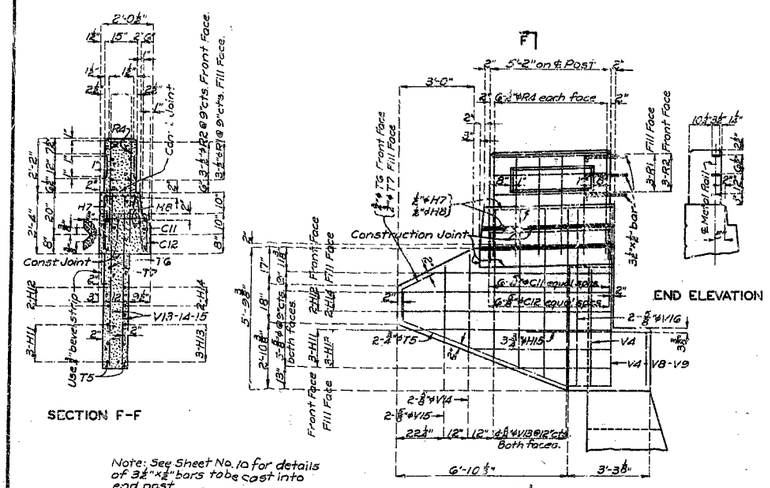
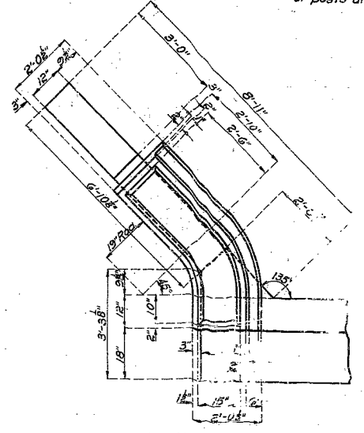
MISSOURI STATE HIGHWAY DEPARTMENT

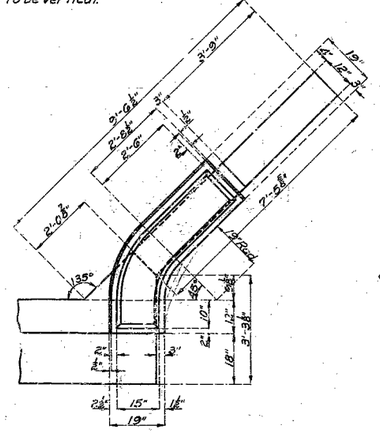
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-(11) (SH)	19		

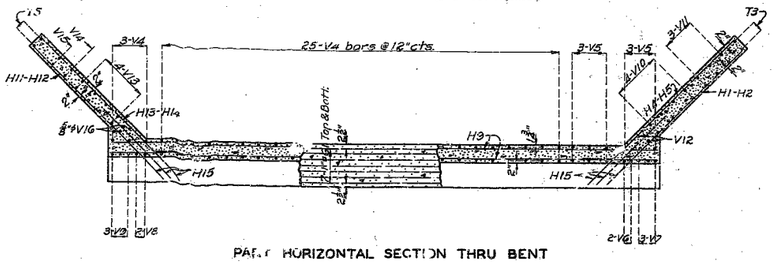


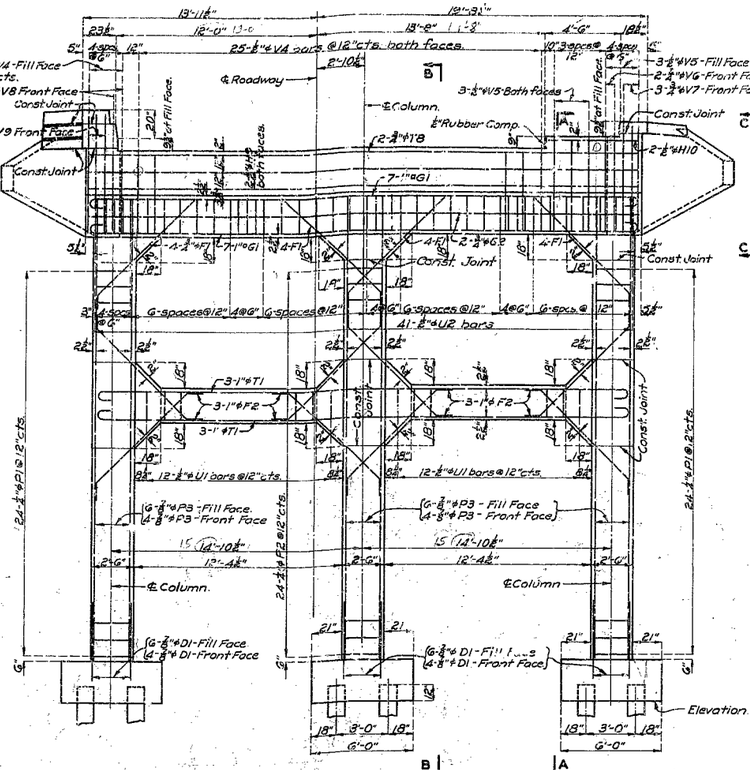
Note: See Sheet No. 10 for details of 3¼" x ¾" bars to be cast into end post.
See Sheet No. 11 for details of Lighting Conduit.

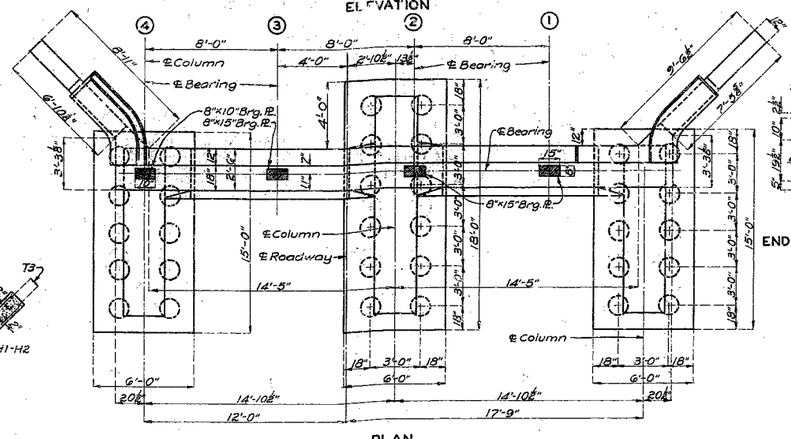
Note: Tops of wings, curbs, and posts are to be built parallel to grade. Ends of posts are to be vertical.



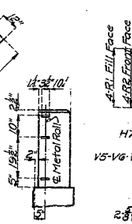


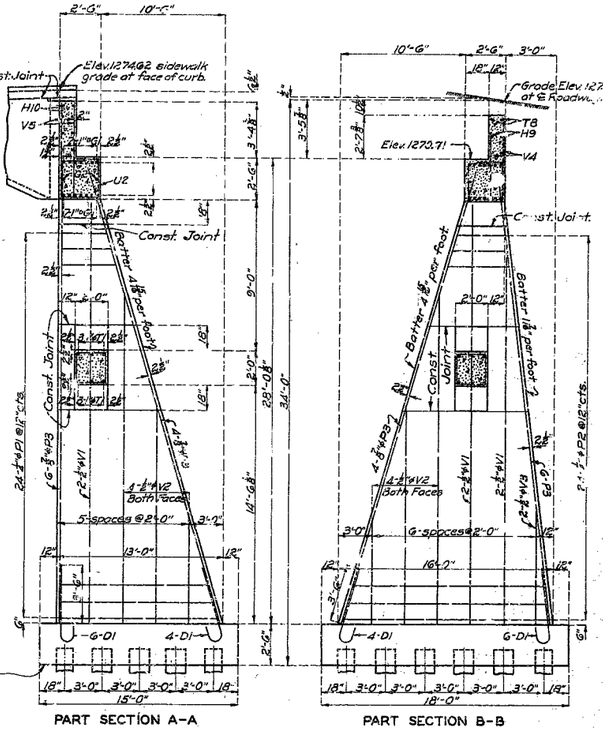


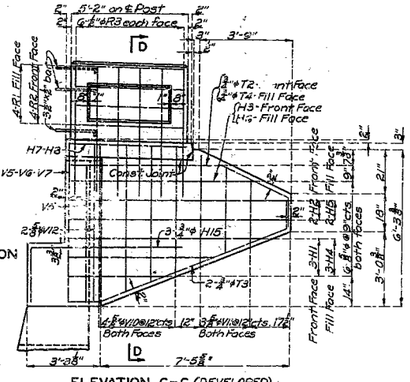


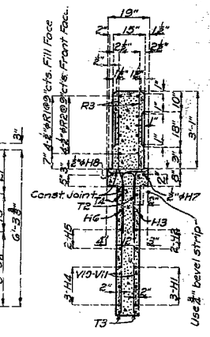


Note: Bend R1, R2, R3, H7, & H8 bars in field to fit curve of post. Bend T4 & T7 bars into backwall.









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BENT NO. 1

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2(11) (SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

Drawn Feb. 1939 by D.K.M.
Traced Apr. 1939 by E.M.A.
Checked June 1939 by R.A.B.

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

Sheet No. 3 of 11.

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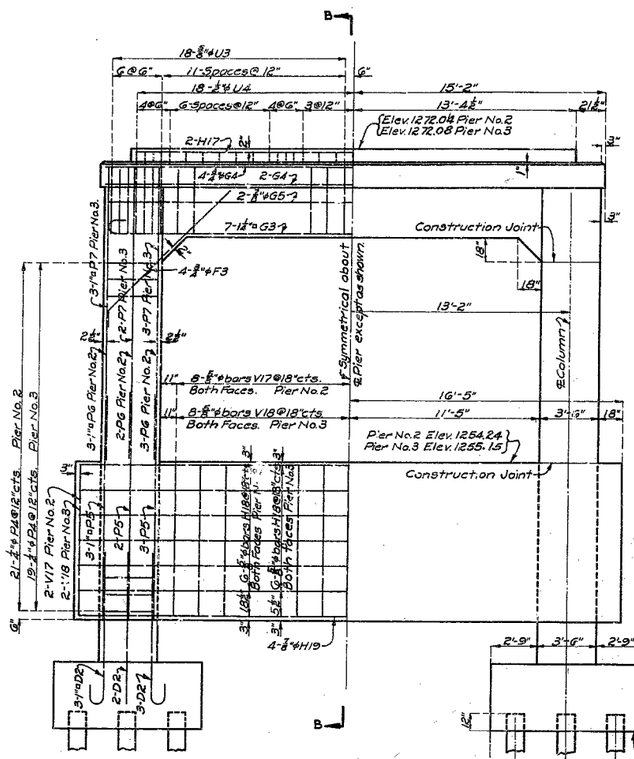
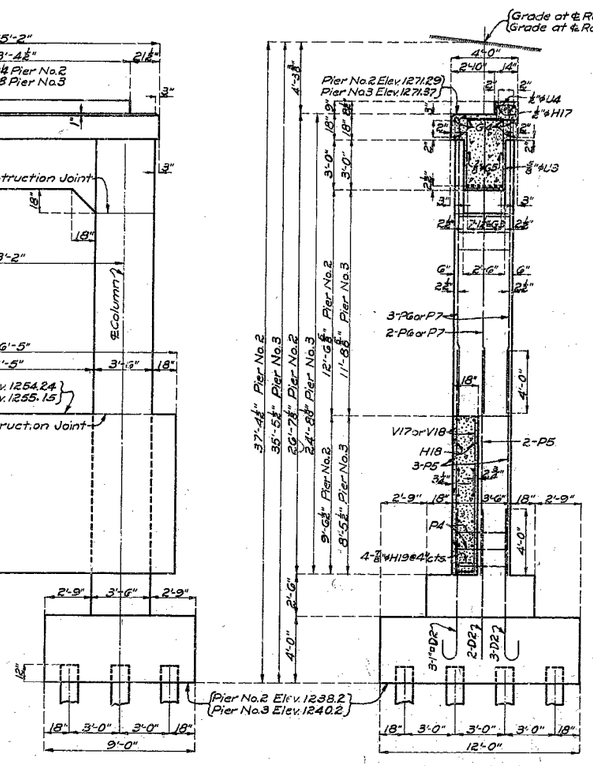
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	19		

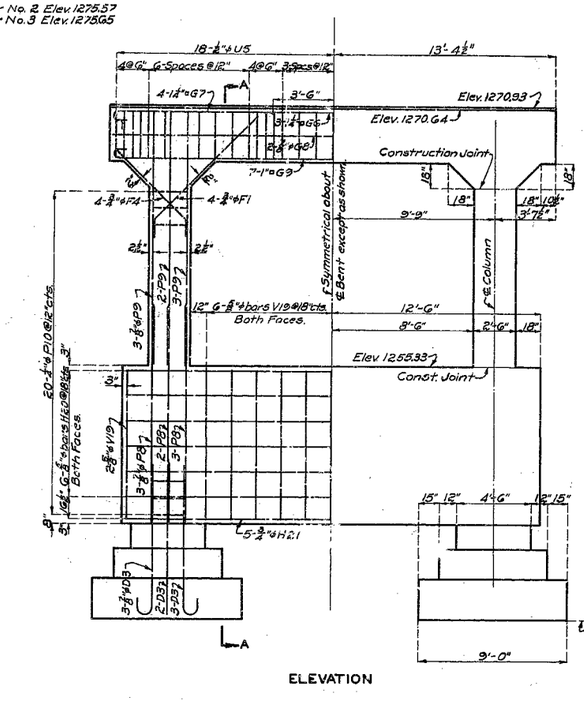


ELEVATION

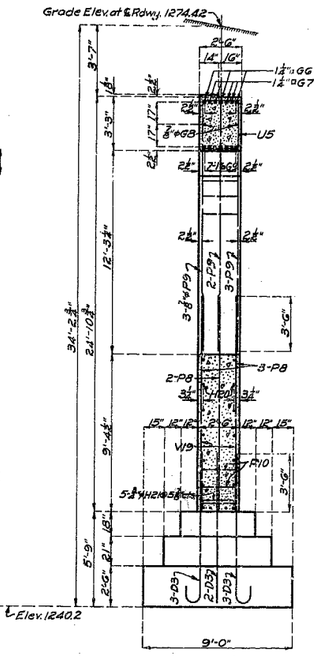


SECTION B-B

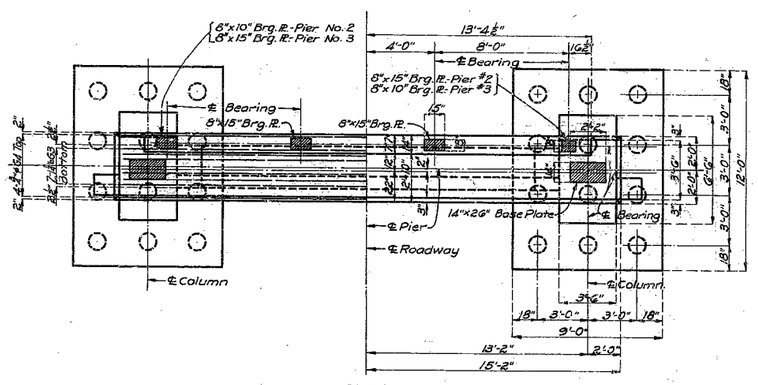
Note: Collision wall for Pier No. 3 to be built similar to details shown above (except that it shall be shifted to North side of Pier.



ELEVATION

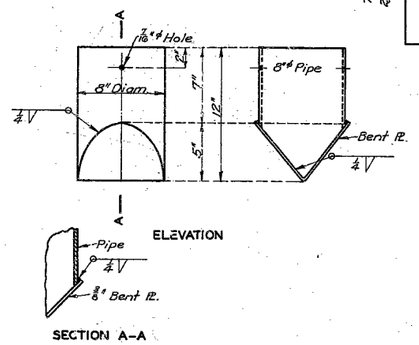


SECTION A-A



PLAN

DETAILS OF PIERS NO. 2 & 3

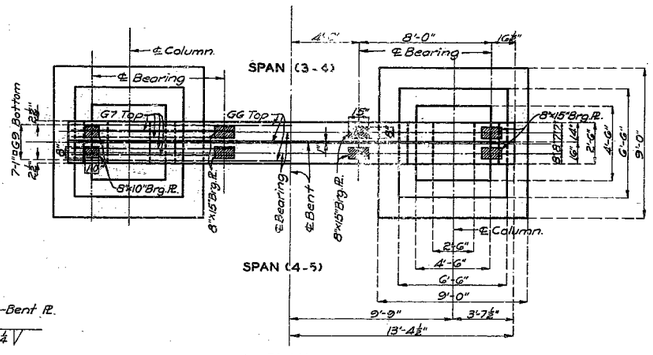


ELEVATION

SECTION A-A

DETAILS OF PILING SHOE

A total of 80 metal shoes will be required.



PLAN

DETAILS OF BENT NO. 4

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Designed Feb. 1939 by J.C.S.
Drawn Feb. 1939 by D.K.M.
Traced Apr. 1939 by E.M.A.
Checked June 1939 by H.O. & RAB.

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

Sheet No. 4 of 11.

BRIDGE OVER ST. L.-S. F. R. R. TRACKS

STATE ROAD FROM DOUGLAS COUNTY LINE TO WILLOW SPRINGS
AT WILLOW SPRINGS
PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

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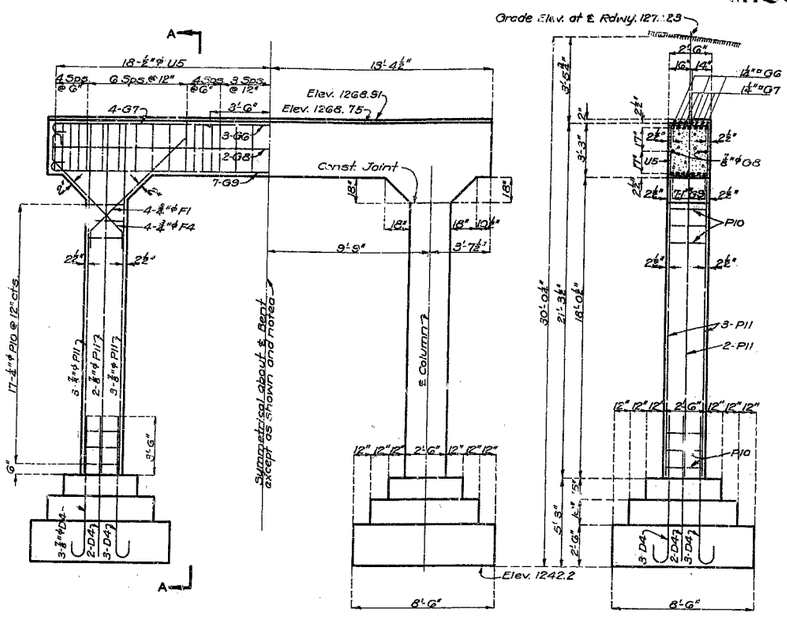
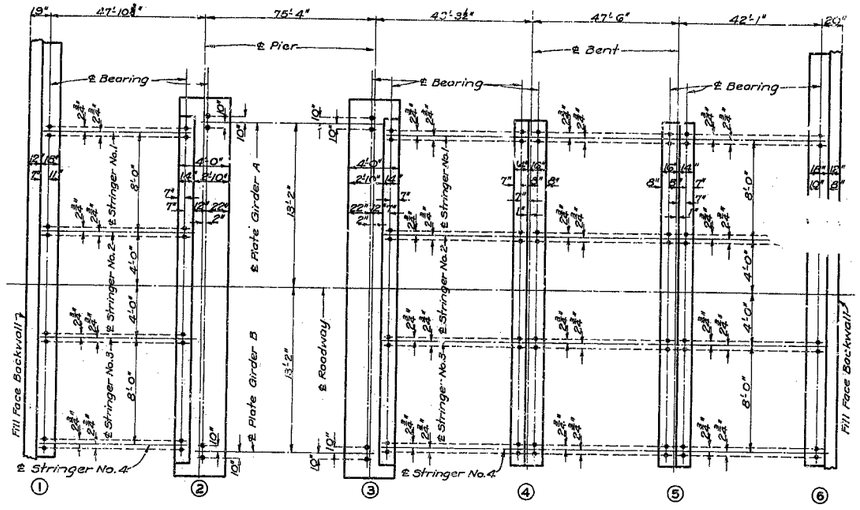
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YR.	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	19		



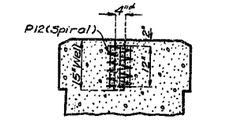
ELEVATION

SECTION A-A

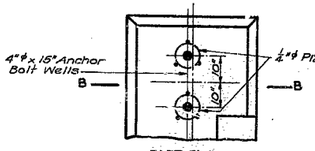


ANCHOR BOLT PLAN

Note: All bearing areas on bents and piers under and extending 2" beyond edges of bearings are to be built monolithically with bents & " above plan elevation. These areas shall be ground with carborundum brick to horizontal plane surfaces at plan elevation, and shall be adequately protected until lead plates and bearings are in place. Cost of lead plates shall be included in the price bid for structural steel.



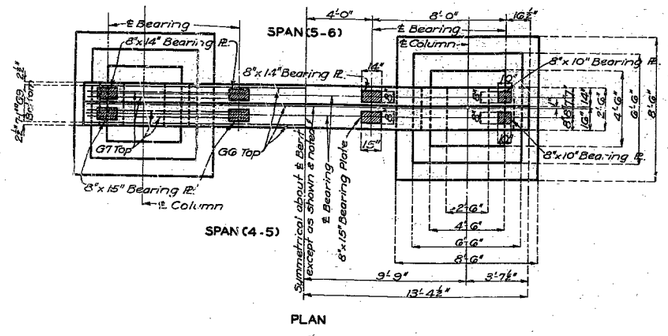
SECTION B-B



PART PLAN

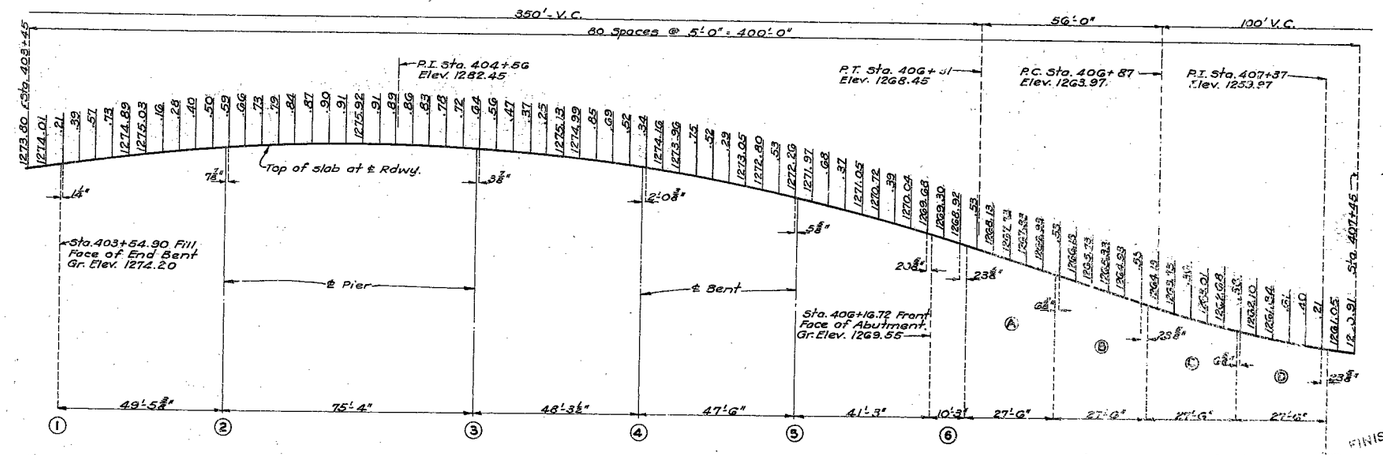
DETAILS OF ANCHOR BOLT WELLS

Note: Holes for plate girder span anchor bolts shall be formed in substructure by placing and setting with templates, 4"ϕ x 15" wells.



PLAN

DETAILS OF BENT NO. 5



GRADE AT ℄ ROADWAY

56

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90 FINISHED

HOWELL FINISHED COUNTY

K-739

Drawn Feb. 1939 by D.K.M.
Traced Apr. 1939 by G.W.
Checked May 1939 by H.D. & RAB.

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

Sheet No. 5 of 11.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGP 2-D(1) (SH)	19		

Note: See Sheet No.10 for details of 3⅛"x⅝" bars to be cast into end post.
Handrail to be built similar to handrail on Section "A", Sheet No. 7, except as shown.
End post to be built similar to details of subpost, Sheet No. 7, except as shown.

SIDE ELEVATION LEFT HANDRAIL

PART END ELEVATION

PART END ELEVATION

SIDE ELEVATION RIGHT HANDRAIL

VIEW E-E

LEFT SIDE ELEVATION

Note: Bend or shift reinforcing steel in counterforts where necessary to clear opening for 12"ø perforated corrugated metal pipe.

FRONT ELEVATION

RIGHT SIDE ELEVATION

VIEW F-F

SECTION B-B

Note: Bend Vertical wall steel in fill face to hold at least 2" edge distance.

SECTION A-A

PLAN

SECTION C-C

Note: Bend Vertical wall steel in fill face to hold at least 2" edge distance.

SECTION A-A SHOWING POROUS BACKFILL

Note: Surfaces of retaining walls and footings shall be damp-proofed. See Special Provisions. Cost of damp-proofing to be included in the price bid for concrete.

TYPICAL RETAINING WALL SECTION

SECTION D-D

SECTION THRU RETAINING WALL

PART ELEVATION

DETAILS OF PERFORATED PIPE DR[illegible]S

Note: See Road Plans for details of Special Drop Inlets.

Note: See Sheet No. 11 for details of Lighting Conduit.

DETAILS OF ABUTMENT NO. 6

BRIDGE O[illegible] ST. L.-S.F. R.R. TRACKS FINISHED

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+[illegible]4.20

HOWELL COUNTY FINISHED

K-789

Designed Feb 1939 by J.C.S.
Drawn March 1939 by D.K.M.
Traced March 1939 by D.K.M.
Checked June 1939 by J.E.B. & R.W.B.

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

Sheet No. 6 of 11.

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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.	FAGM2-D(11) (SH)	19		

Note: See Detail L-L for details of opening for 15" pipe.

ELEVATION FILL FACE LEFT WALL- SECTION "A"

END ELEVATION

PLAN LEFT WALL- SECTION "A"

END ELEVATION

ELEVATION FILL FACE LEFT WALL SECTION "B"

PLAN LEFT WALL- SECTION "B"

PART ELEVATION

PART PLAN

HANDRAIL DETAILS AT SUBPOST

PART SECTION F-F

ELEVATION FILL FACE LEFT WALL SECTION "C"

PLAN LEFT WALL- SECTION "C"

ELEVATION FILL FACE LEFT WALL- SECTION "D"

PLAN LEFT WALL- SECTION "D"

PART SECTION E-E

END ELEVATION

PART SECTION G-G

ELEVATION FRONT FACE RIGHT WALL- SECTION "A"

PLAN RIGHT WALL- SECTION "A"

ELEVATION FRONT FACE RIGHT WALL- SECTION "B"

PLAN RIGHT WALL- SECTION "B"

DETAIL M-M (SEC. "D")

Note: See Road Plans for details of Special Drop Inlet.

Note: See Special Provisions relative to required shoring of excavation adjacent to existing buildings.

DETAIL L-L (SEC. "D")

See Road Plans for type of pipe permitted. Shift or bend retaining wall reinforcing to clear opening.

ELEVATION FRONT FACE RIGHT WALL SECTION "C"

PLAN RIGHT WALL- SECTION "C"

Note: Details of Handrail End Posts Section "D" similar to details of Subposts except as shown. Details not shown on Wall Sections "B", "C" and "D" are similar to Section "A". See Sheet No. 6 for details of Porus backfill and 12" perforated corrugated pipe. See Sheet No. 11 for details of Lighting Conduit.

ELEVATION FRONT FACE RIGHT WALL- SECTION "D"

PLAN RIGHT WALL- SECTION "D"

PART SECTION K-K

Note: For details not shown see Section C-C Sheet No. 6.

Note: See Detail M-M for details of retaining wall modification at special drop inlet.

Modification at Spec. Drop Inlet.

Note: For details not shown see Section B-B Sheet No. 6.

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

Designed Mar. 1939 by J.C.S.
Drawn Mar. 1939 by J.C.S.-D.K.M.
Traced Apr. 1939 by G.W.
Checked June 1939 by H.D.

Sheet No. 7 of 11.

FINISHED

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(11)(SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

K-789

58

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	10		

SIDEWALK STRINGERS
(See Camber note, Sheet No. 9.)

FRAMING PLAN

Note: Girders shall be fabricated to the camber curve specified and web plates ordered to widths necessary to hold distance from edge of plate to back of flange angles $\frac{1}{2}$" maximum.

CAMBER DIAGRAM

TYPICAL SECTION THRU ROADWAY

Note: Curbs to be cast independently of slab. Encased portions of knee braces and stiffener angles to be coated with $\frac{1}{8}$" thickness of emulsified asphalt.
Where knee braces interfere with outer roadway slab bars, cut bars in field to fit.
Edges of roadway slab to bear on 10"D @ 20".

TYPICAL GIRDER DETAILS

Note: At the option of the Contractor, two field splices may be used, one at each third point of the girder, instead of the one shown above. Cost of the additional field splice must be borne by the Contractor.

Note: Intermediate stiffeners to be equally spaced between floorbeam connections except as shown.
Grind all stiffener angles to bear - top and bottom.
Handrail connection details shown are for Girder "B" only.
Sidewalk bracket and stringer details shown are for Girder "A" only.
All rivets $\frac{7}{8}$"ϕ. Open holes $\frac{15}{16}$"ϕ except as noted.

PART LONGITUDINAL SECTION THRU SLAB

DETAIL OF PIPE SLEEVE

CAST STEEL NUT
Req'd. - 4-3"ϕ Rolled Steel Pins.
Req'd. - 8 Cast Steel Nuts.

EXPANSION SHOE
2-Required.

Note: Top steel casting same as for expansion shoe.

FIXED SHOE
2-Required.

Note: All fillets $\frac{3}{8}$" radius.
Finish all surfaces marked 3.5".
Paint all finished surfaces one coat of white lead and tallow.
Use 12"ϕ swedged anchor bolts set 12" into concrete.
All pins, bolts, pipe sleeves, and rolled steel plates will be paid for as Fabricated Structural Steel.

DETAILS OF CAST STEEL BEARINGS

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

HOWELL COUNTY

K-789

Drawn Mar. 1939 by J.C.S.
Traced Mar., 39 by G.W.
Checked May 1939 by RAG.

Note: This drawing not to scale. Follow dimensions.

Sheet No. 8 of 11.

58

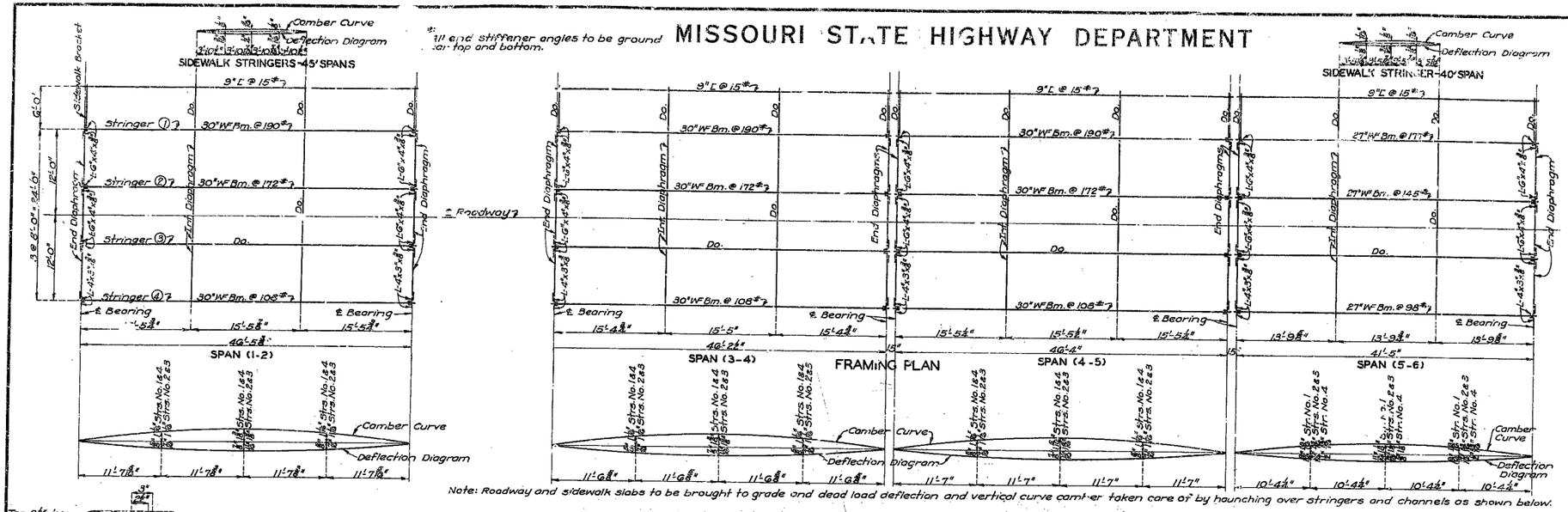
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM(2-D)(SH)	19		

All end stiffener angles to be ground flat top and bottom.

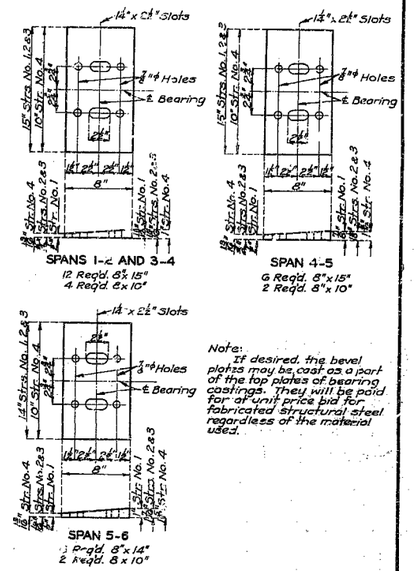
SIDEWALK STRINGERS-45'SPANS

SIDEWALK STRINGER-40'SPAN



Note: Roadway and sidewalk slabs to be brought to grade and dead load deflection and vertical curve camber taken care of by haunching over stringers and channels as shown below.

CAMBER CURVES AND DEFLECTION DIAGRAMS



DETAILS OF BEVEL PLATES

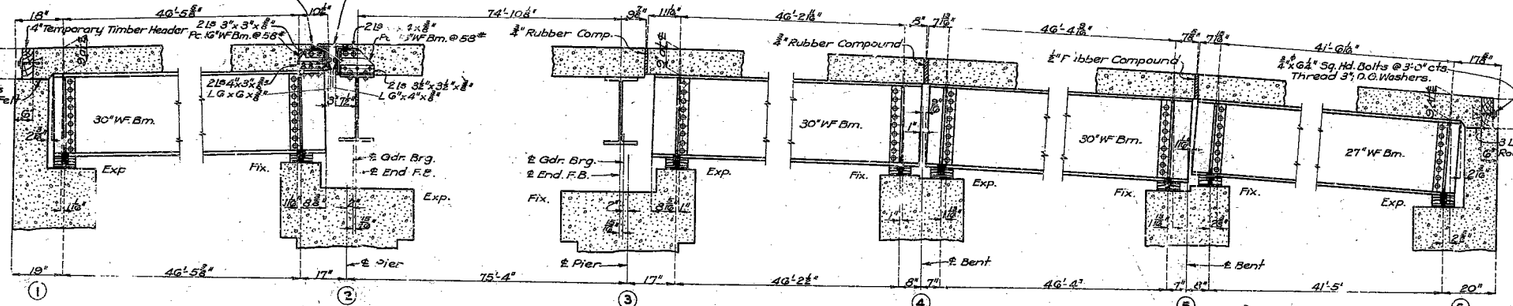
Note: If desired, the bevel plates may be cast as a part of the top plates of bearing castings. They will be paid for at unit price bid for fabricated structural steel regardless of the material used.

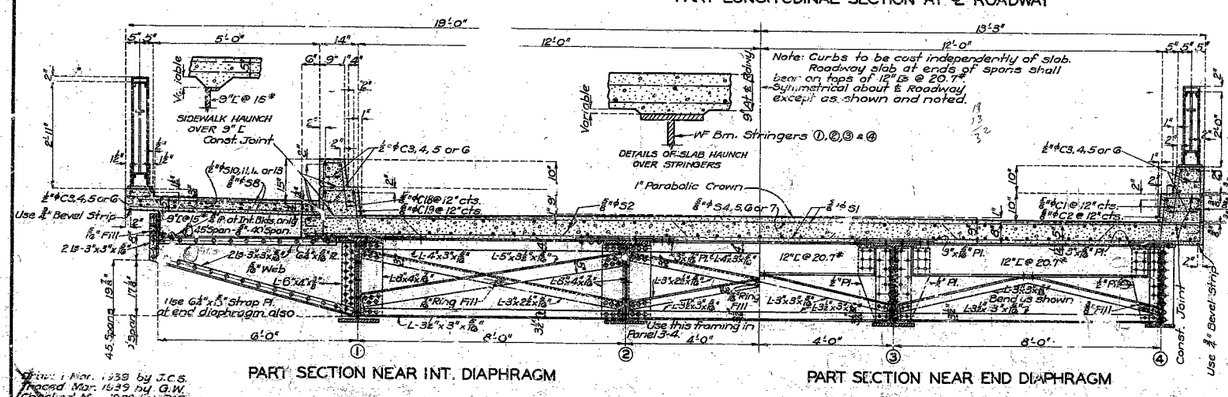
Tap 2½" deep for ⅞"ϕ bolt

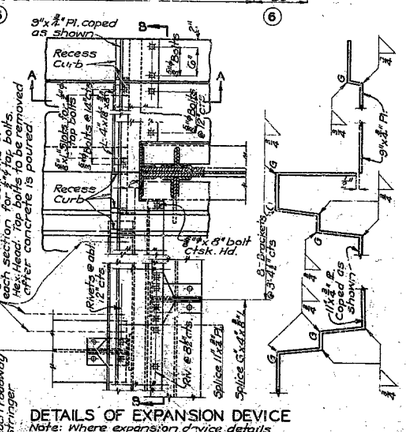
Note: An approved alternate may be substituted for the cast iron cone shown.

Cost of temporary timber headers, complete in place to be included in price bid for concrete.

CAST IRON CONE

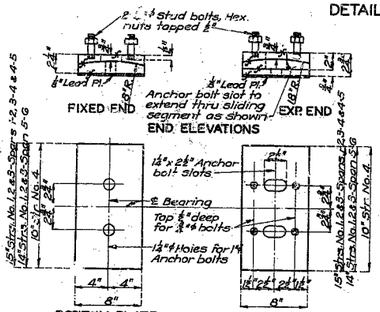






DETAILS OF EXPANSION DEVICE

Note: Where expansion device details interfere with reinforcing steel, cut or bend reinforcing steel in field to fit.



Note:

Bearing plates may be either cast steel or gray iron alloy. Finish all surfaces marked "x".

All machine finished surfaces shall be coated with white lead and tallow before shipment or before being placed in the open. Before erection, the white lead and tallow shall be completely removed and the contact surfaces given a heavy coat of graphite and oil.

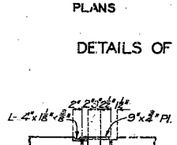
Stud bolts and nuts will be paid for at unit price bid for fabricated structural steel.

Anchor bolts shall be 1"ϕ swedged bolts, no heads or nuts, and shall extend 10" into concrete. Top ends of anchor bolts shall be above the tops of castings but not higher than ¼" below top surface of bottom flange of beam.

Four 8"x 10" three 8"x 14" and nine 8"x 15" fixed bearing castings required, each consisting of one top and one bottom plate.

Four 8"x 10" three 8"x 14" and nine 8"x 15" expansion bearing castings required, each consisting of one top, one bottom and one floater plate.

DETAILS OF BEARING CASTINGS



FINISHED

BRIDGE OVER ST.L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90 FINISHED

HOWELL COUNTY FINISHED

K-789

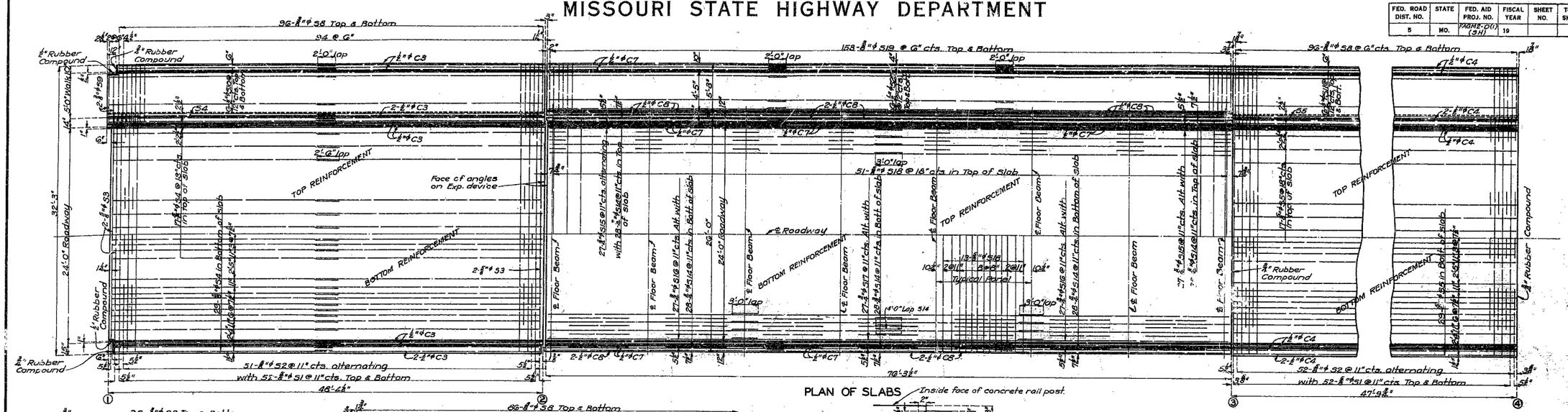
Drawn: 1 Mar. 1939 by J.C.S.
Traced Mar. 1939 by G.W.
Checked May 1939 by DWE

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

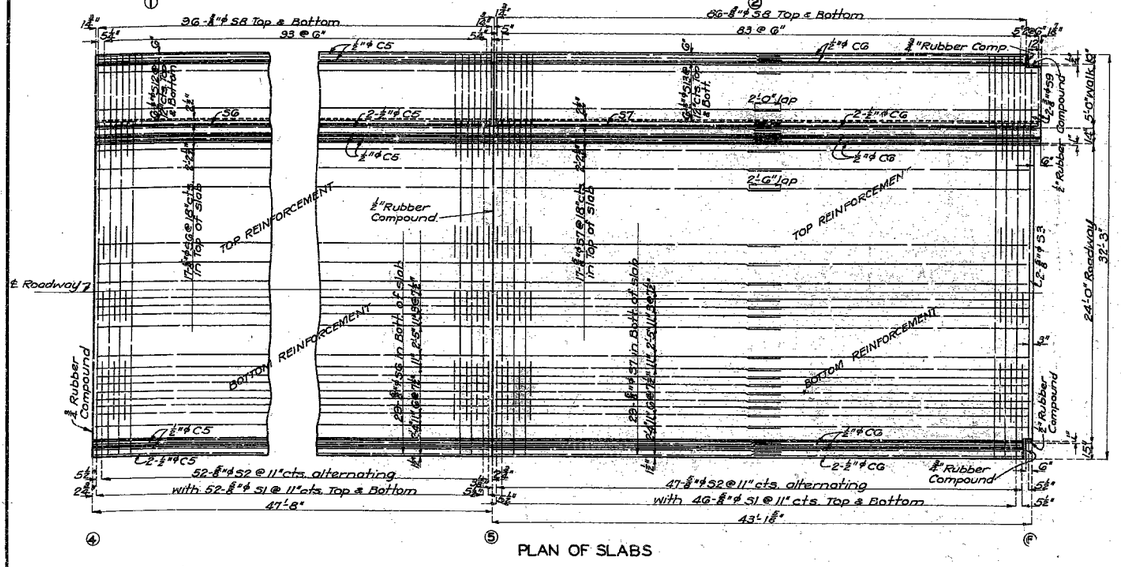
8

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM2-D(1) (SH)	19		



PLAN OF SLABS



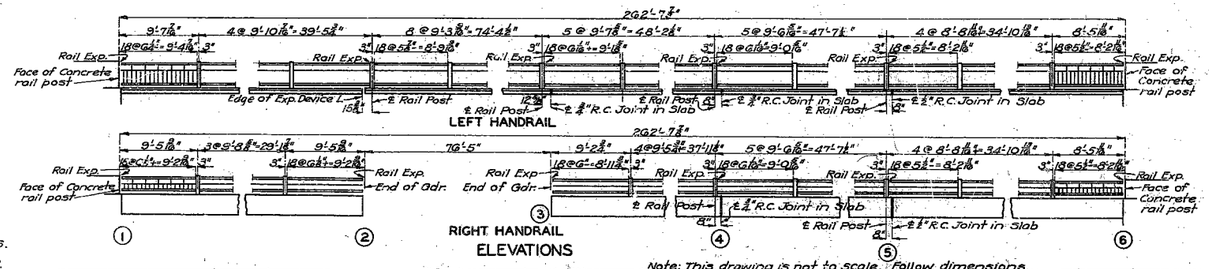
PLAN OF SLABS

Note: Rail channels and 3½"x ½" bars shall be placed on chords to the vertical curve between rail posts. The 3½"x ½" longitudinal bar shall be punched for full length. ⅝"ϕ vertical bars but not for the shorter intermediate bars. The bottom 5" channel shall be punched for all vertical bars which shall be extended ⅝" thru the web. No punching of top channel web for vertical bars will be permitted. All panels shall be marked and identified as to their location in the structure. Posts and ⅝"ϕ bars shall be vertical. See Special Provisions for basis of payment.

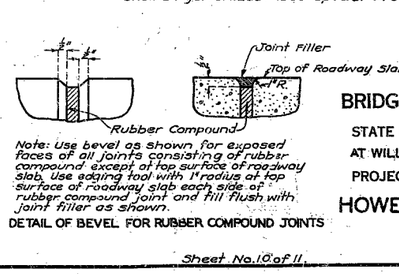
FINISHED

DETAILS OF STRUCTURAL STEEL HANDRAIL

Note: All handrail material including anchor bars, anchor bolts and all other bolts and nuts shall be galvanized. See Special Provisions.



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



Note: Use bevel as shown for exposed faces of all joints consisting of rubber compound except of top surface of roadway slab. Use edging tool with 1" radius at top surface of roadway slab each side of rubber compound joint and fill flush with joint filler as shown.

DETAIL OF BEVEL FOR RUBBER COMPOUND JOINTS

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

FINISHED

HOWELL COUNTY

Drawn Mar. 1939 by J.C.S.
Traced Mar. 1939 by G.W.
Checked May 1939 by RAS.

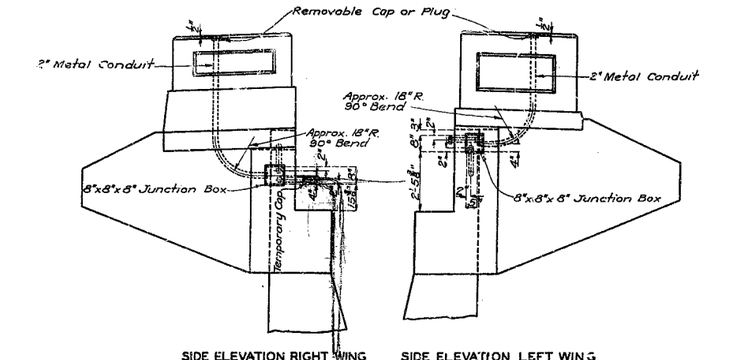
Sheet No. 10 of 11 Sheets

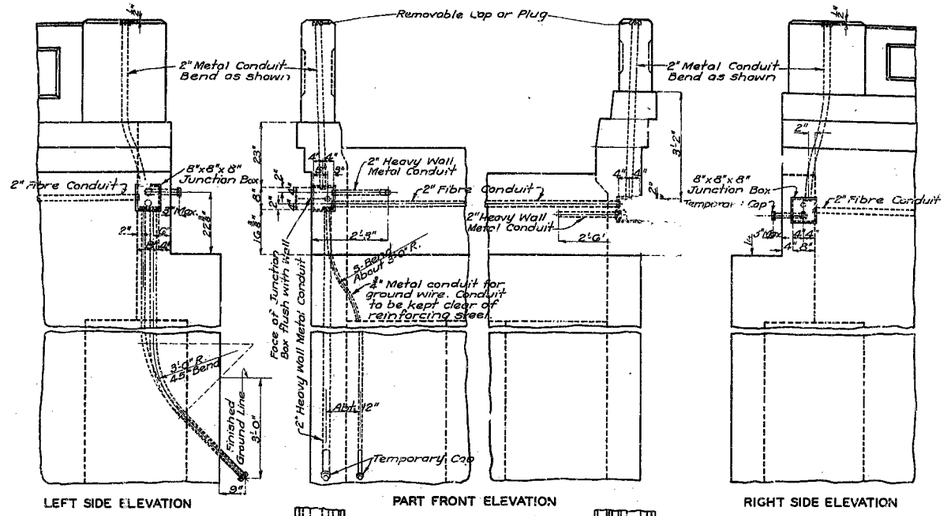
FINISHED

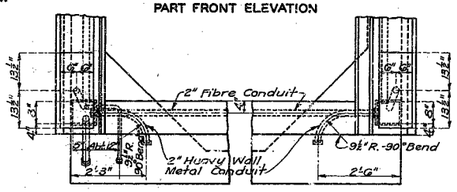
K-789

MISSOURI STATE HIGHWAY DEPARTMENT

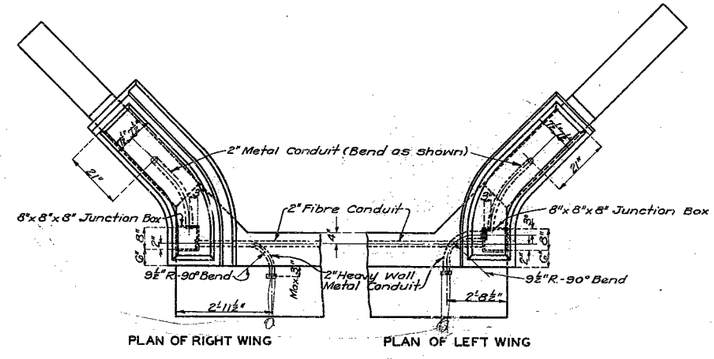
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	19		



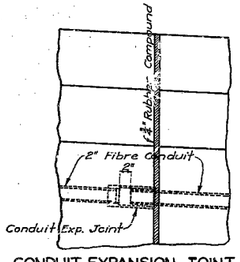




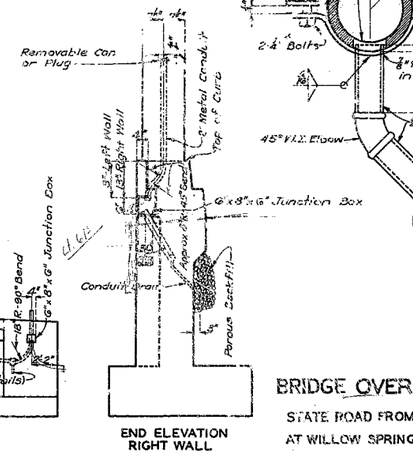
CONDUIT DETAILS ABUT. NO. 6

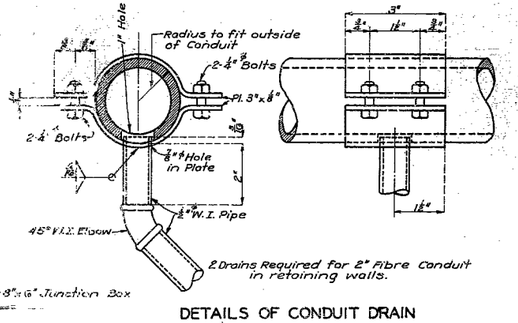


CONDUIT DETAILS BENT NO. 1

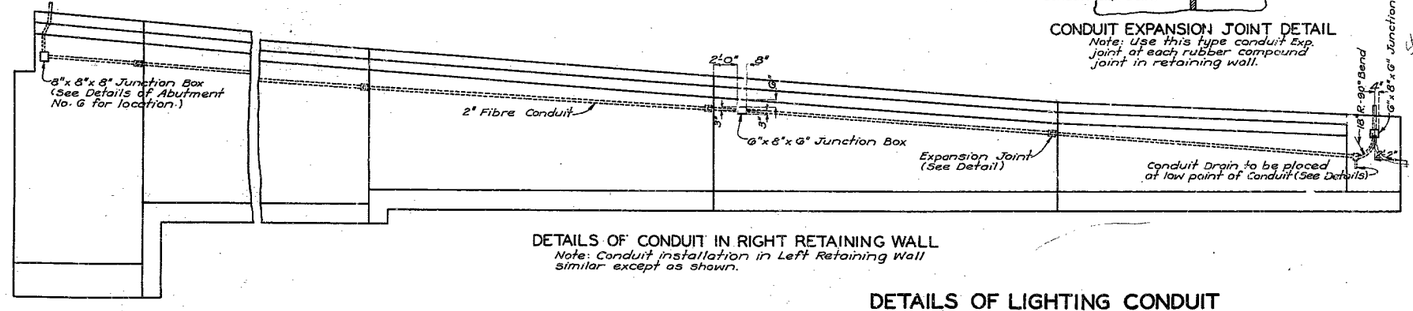


CONDUIT EXPANSION JOINT DETAIL
Note: Use this type conduit Exp. joint at each rubber compound joint in retaining wall.





DETAILS OF CONDUIT DRAIN



DETAILS OF CONDUIT IN RIGHT RETAINING WALL
Note: Conduit installation in Left Retaining Wall similar except as shown.

DETAILS OF LIGHTING CONDUIT

Note: All metal conduit running into handrail posts shall be bent to drain to junction box.
All "Heavy Wall Metal Conduit" shall be attached to junction box with a bushing and locknut.
Shift or bend reinforcing steel where necessary to install junction boxes.
Exposed face of all junction boxes to be flush with adjacent concrete surfaces.
All expansion joints shall be loosely caulked with oakum after conduit is in place.
All 2" fibre conduit shall be caulked with oakum at entrance to junction box.
All junction boxes shall be unflanged, galvanized, cast iron boxes with gaskets and bolted covers.

Conduit 4.3.V.67 Jan. 5 Pg 8

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D (1) (SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

FINISHED

FINISHED

K-789

Drawn April 1939 by D.K.M.
Traced April 1939 by G.W.
Checked June 1939 by R.A.G.

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

Sheet No. 11 of 11.

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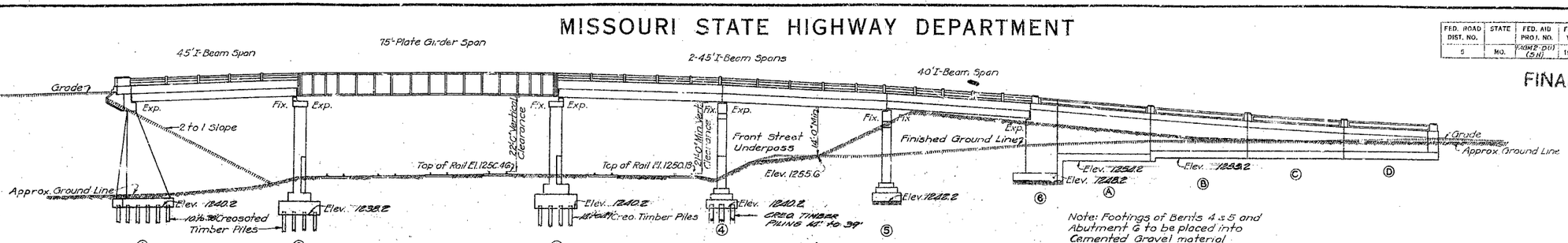
MISSOURI STATE HIGHWAY DEPARTMENT

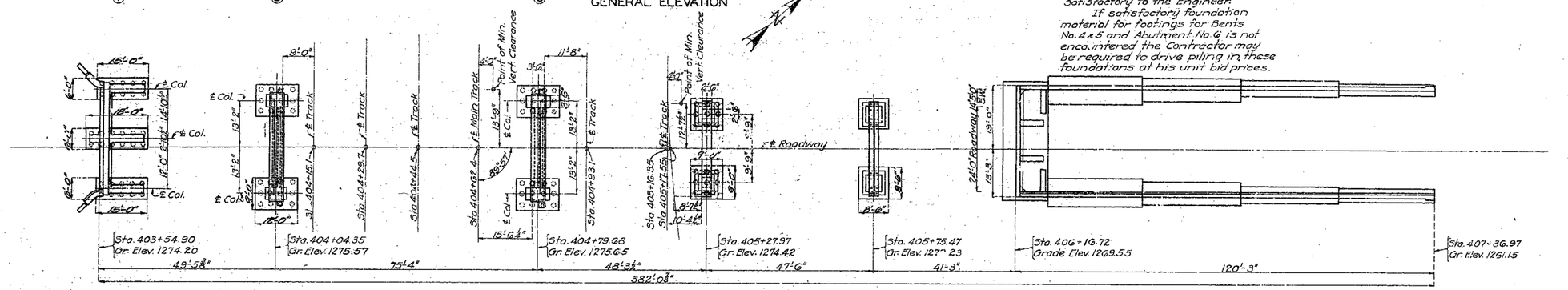
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM2-D(1) (SH)	19		

FINAL PLANS



GENERAL ELEVATION

Note: Footings of Bents 4 & 5 and Abutment 6 to be placed into Cemented Gravel material satisfactory to the Engineer. If satisfactory foundation material for footings for Bents No. 4 & 5 and Abutment No. 6 is not encountered the Contractor may be required to drive piling in these foundations at his unit bid prices.



PLAN

GENERAL NOTES:

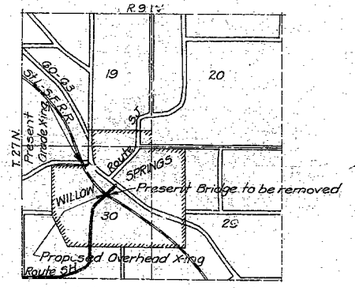
Design Specifications A.A.S.H.O.-1935
Loading H-15 A.A.S.H.O.
Structural Steel Stress 18,000 #/in²
Reinforcing Steel Stress 18,000 #/in²
Concrete Class "B" 900 #/in²
All concrete shall be Class "B".
Exposed edges shall be beveled ¾" where no other bevel is noted.
Bar supports and spacers will be required for reinforcing steel in superstructure. See Standard C-110 R.I.
Top of concrete in both sides and front wall of Abutment No. 6 to be kept at same level throughout pouring.
All concrete shall be proportioned by the weight proportioning method.
Floor slab for each span shall be constructed full width and length at one operation. No longitudinal or transverse construction joints will be permitted except as shown.
Excavation for structure shall be in accordance with Specification 1 of Standard and Supplemental Specifications.
Detail shop drawings for all structural steel, wrought iron, cast steel and cast iron shall be submitted to the State Highway Department in duplicate and shall be approved before material is ordered or work started.
Beam flanges shall be squared up at all points of bearing.
The welding symbols used on these plans are the 1937 symbols of the American Welding Society.
Qualification 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 ¾"ø, holes ⅞"ø except as noted. Handrail rivets ⅝"ø, holes ¹¹⁄₁₆"ø. Field connections for handrail channels and bars shall be ⅝"ø button head bolts and for connections of rail to rail posts shall be ⅝"ø machine bolts, holes ¹¹⁄₁₆"ø. All other field connections riveted except as noted. Washers shall be used as noted and under nuts of all turned bolts.
Paint: Shop, normal. 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 the Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for structural steel. No paint required on the galvanized material of handrail.
Where rubber compound is specified on plans for use in partition or expansion joints, the premoulded joint shall be securely stitched to one face of concrete with copper wire.
A minimum vertical clearance of 20'-0" from top of rails and a minimum lateral clearance of 8'-1" from center line of tracks adjacent to Pier No. 2 and Bent No. 4 shall be maintained during construction. Minimum lateral clearances on all other tracks shall be 8'-6" from centerline of tracks.
See Special Provisions relative to required shoring of excavation for Piers No. 2 3 and 4.
Existing fill shall be removed on North End of Bridge as indicated on road plans.

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu.Yds.	1432.5		1432.5
Class "B" Concrete (Handrail)	Cu.Yds.	22.2		22.2
Class "B" Concrete	Cu.Yds.	698.9	294.7	993.6
Fabricated Struct. Steel (I. Girders)	Lbs.		92770	92770
Fabricated Struct. Steel (I-Beams)	Lbs.		41360	41360
Steel Castings	Lbs.		1810	1810
Gray Iron Alloy Castings	Lbs.		2320	2320
Reinforcing Steel	Lbs.	53930	51070	105000
Creosoted Timber Piles in Place	Lin. Ft.	2998		2998
Timber Test Piles	Lin. Ft.	147		147
26" Struct. Steel Handrail	Lin. Ft.		180	180
31" Struct. Steel Handrail	Lin. Ft.		203	203
Conduit System	Lump Sum	—	—	—
12"ø Corrugated Perforated Metal Pipe	Lin. Ft.	254		254
Wrought Iron Bias Plates	Lbs.		22570	22570
Porous Backfill	Cu.Yds.	135		135

Note: All excavation for bridge will be paid for as Class 1 Excavation for Structures.
Estimated quantity of creosoted timber piling includes 5 linear feet of pile in place for each metal shoe specified.

FINISHED



LOCATION SKETCH

U.S.G.S. B.M. #A8-1928 Elevation 1253.19 56'S.E. of Product 69'Rt of Sta. 405+57.9.

BRIDGE OVER ST. L.-S.F. R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

SUBMITTED BY N.R. Sack STATE BRIDGE ENGINEER 6/26/39

APPROVED BY Chas. Brown STATE CHIEF ENGINEER 6/26/39

FINISHED

STD. C110R1

K-789

Drawn Oct. 1938 by T.A.M.
Traced Nov. 1938 by G.W.
Checked Nov. 1938 by J.H.M. & June 1939 by R.A.B.

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

Sheet No. 1A of 6.

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM-2(10)(SH)	19		

FINAL PLANS

SECTION F-F

Note: See Sheet No. 10 for details of 3½"×½" bars to be cast into end post.
See Sheet No. 11 for details of Lighting Conduit.

ELEVATION E-E (DEVELOPED)
(End Post shown in place)

END ELEVATION

Note: Tops of wings, curbs, and posts are to be built parallel to grade. Ends of posts are to be vertical.

ELEVATION

PART SECTION A-A

PART SECTION B-B

PLAN OF RIGHT WING
(End Post in place)

PLAN OF LEFT WING
(End Post in place)

PILING CENTER FOOTING		
PILE NO.	LENGTH	BRG.
1	25'-5"	23.3
2	26'-5"	23.2
3	24'-11"	24.2
4	19'-10"	23.6
5	14'-3"	23.2
6	18'-1"	23.0
7	21'-4"	24.0
8	22'-1"	23.2
9	20'-11"	23.2
10	19'-8"	23.6
11	19'-1"	23.5
12	18'-1"	23.2

PART HORIZONTAL SECTION THRU BENT

PLAN

PILING RT. FOOTING		
PILE NO.	LENGTH	BRG.
1	24'-0"	23.0
2	10'-5"	23.5
3	22'-9"	23.5
4	17'-0"	24.5
5	24'-7"	23.2
6	19'-8"	24.6
7	22'-8"	23.0
8	22'-0"	23.0
9	20'-7"	23.2
10	21'-8"	23.2

Note: Bend R1, R2, R3, H7, & H8 bars in field to fit curve of post. Bend T4 & T7 bars into backwall.

BENT NO. 1

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

END ELEVATION

ELEVATION C-C (DEVELOPED)
(End Post shown in place)

SECTION D-D

PILING LT. FOOTING		
PILE NO.	LENGTH	BRG.
1	19'-10"	23.3
2	14'-7"	23.0
3	13'-4"	23.0
4	17'-0"	23.2
5	17'-10"	24.5
6	17'-5"	23.5
7	14'-6"	23.5
8	18'-5"	23.2
9	13'-7"	23.7
10	15'-6"	24.6

Sheet No. 3A of 6

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM-2(10)(SH) STA. 403+54.90

HOWELL COUNTY

K-789

Drawn Feb. 1939 by D.K.M.
Traced Apr. 1939 by E.M.A.
Checked June 1939 by A.A.B.

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FINISHED

FINISHED

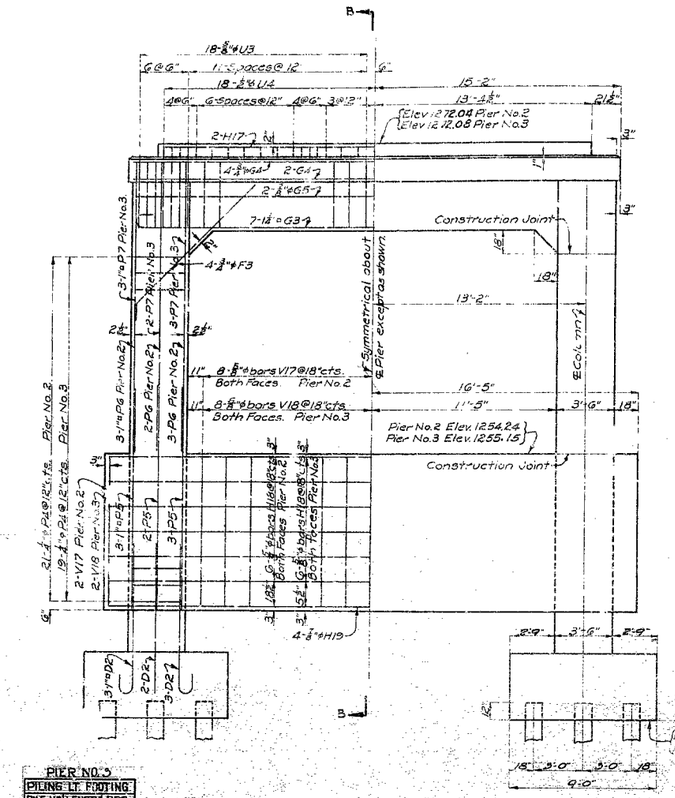
FINISHED

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	F. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM-2-D(1) (SH)	19		

FINAL PLANS



ELEVATION

SECTION B-B

Note: Collision wall for Pier No. 3 to be built similar to details shown above, except that it shall be shifted to North side of Pier.

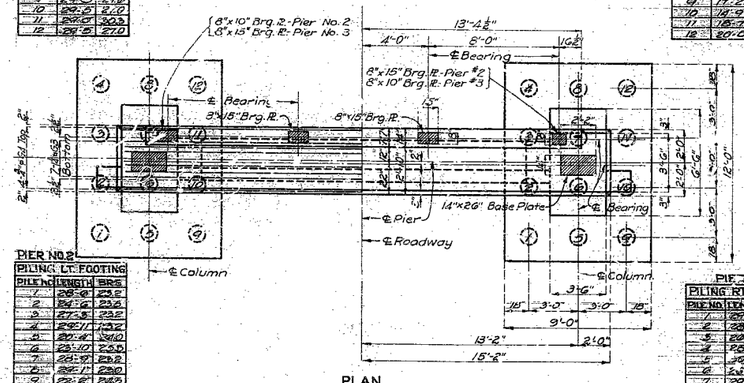
PIER NO. 3 PILING LT. FOOTING		
PILE NO.	LENGTH	BRG.
1	40'-7"	22.8
2	41'-2"	23.2
3	40'-3"	23.2
4	38'-11"	22.6
5	38'-7"	23.2
6	38'-8"	23.6
7	37'-4"	23.0
8	36'-7"	22.7
9	34'-3"	22.6
10	33'-0"	22.0
11	32'-0"	20.3
12	29'-5"	21.0

PIER NO. 3 PILING RT. FOOTING		
PILE NO.	LENGTH	BRG.
1	17'-7"	24.3
2	25'-7"	23.5
3	28'-0"	23.2
4	21'-0"	22.2
5	18'-7"	23.5
6	14'-5"	24.0
7	26'-5"	24.0
8	20'-6"	23.2
9	17'-6"	23.4
10	14'-9"	23.5
11	18'-7"	23.3
12	20'-0"	24.3

ELEVATION

SECTION B-B

PIER NO. 2 PILING LT. FOOTING		
PILE NO.	LENGTH	BRG.
1	28'-0"	23.2
2	24'-6"	23.6
3	27'-3"	23.2
4	29'-7"	24.2
5	30'-6"	24.0
6	29'-10"	23.6
7	29'-9"	23.2
8	29'-1"	23.0
9	28'-5"	22.9
10	27'-8"	23.2
11	26'-0"	24.0
12	28'-9"	24.0



PLAN

DETAILS OF PIERS NO. 2 & 3

PIER NO. 2 PILING RT. FOOTING		
PILE NO.	LENGTH	BRG.
1	25'-11"	23.0
2	28'-11"	23.2
3	29'-3"	23.0
4	28'-6"	23.2
5	29'-1"	23.5
6	28'-5"	23.6
7	29'-2"	24.0
8	28'-9"	23.2
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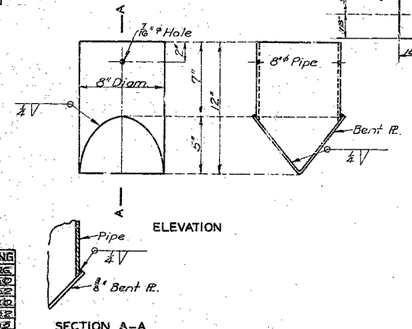
10	27'-8"	23.0
11	26'-1"	23.0
12	24'-7"	22.6

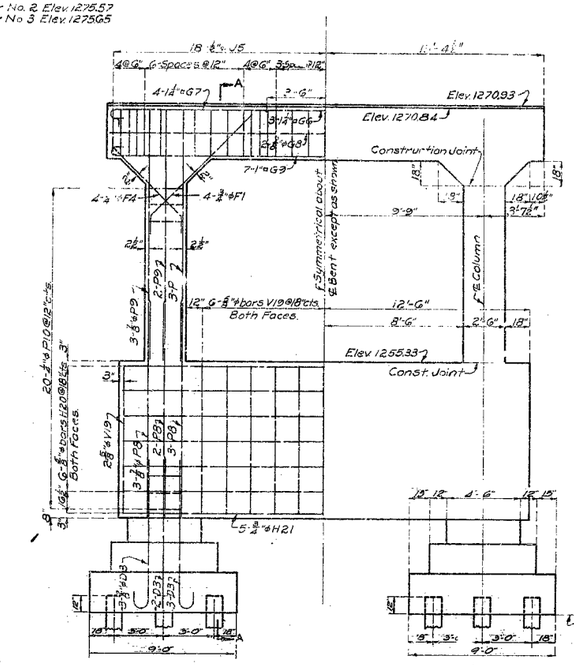


ELEVATION

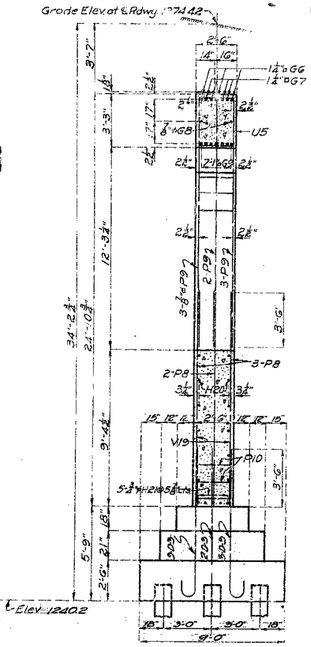
SECTION A-A

DETAILS OF PILING SHOE

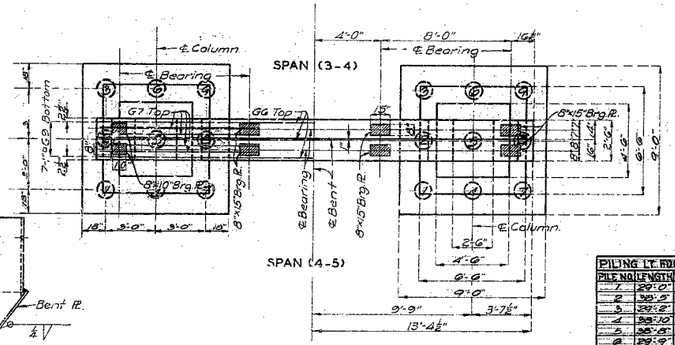
A total of 80 metal shoes will be required.



ELEVATION



SECTION A-A



PLAN

DETAILS OF BENT NO. 4

BENT NO. 4

PILING LT. FOOTING		
PILE NO.	LENGTH	BRG.
1	29'-0"	22.0
2	30'-0"	24.2
3	29'-2"	23.4
4	28'-10"	23.7
5	28'-8"	23.2
6	29'-9"	22.6
7	29'-2"	22.2
8	28'-5"	23.2
9	27'-11"	23.3

PILING RT. FOOTING		
PILE NO.	LENGTH	BRG.
1	27'-5"	23.3
2	29'-9"	22.5
3	29'-5"	23.3
4	29'-1"	23.2
5	29'-11"	24.2
6	29'-9"	22.6
7	29'-2"	22.2
8	28'-2"	24.0
9	28'-2"	23.3

FINISHED

Designed Feb. 1939 by J.C.S.
Drawn Feb. 1939 by D.K.M.
Traced Apr. 1939 by E.M.A.
Checked June 1939 by H.O. & RAB.

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

BRIDGE OVER ST. L.-S. F. R. R. TRACKS

STATE ROAD FROM DOUGLAS COUNTY LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90 FINISHED

HOWELL COUNTY FINISHED

Sheet No. 4A of 6

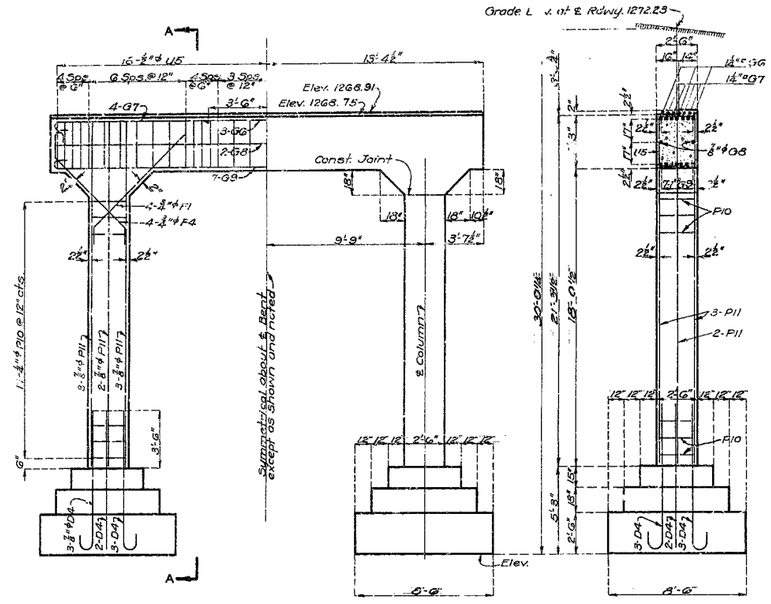
K-789

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

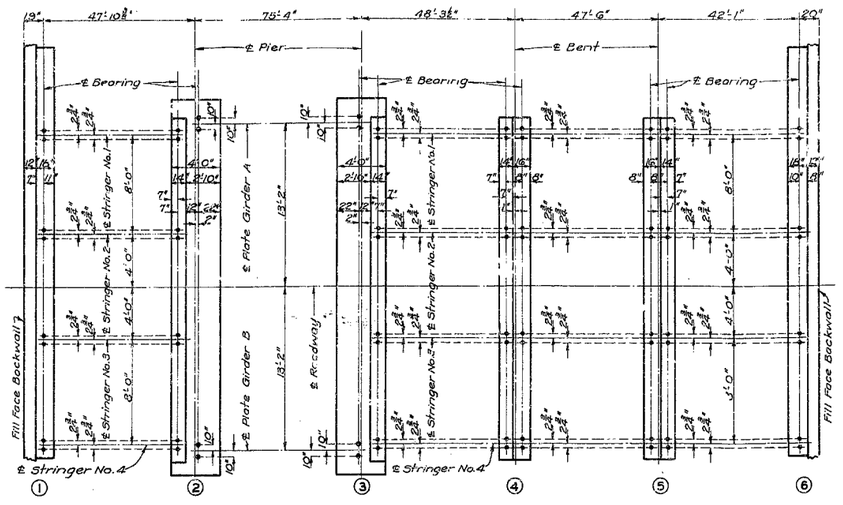
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	19		

FINAL PLANS



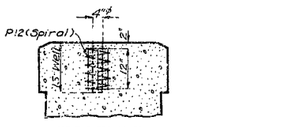
ELEVATION

SECTION A-A

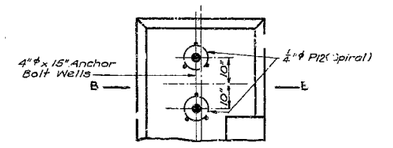


ANCHOR BOLT PLAN

Note: All bearing areas on bents and piers under and extending 2" beyond edges of bearings are to be built monolithically with bents 8" above plan elevation. These areas shall be ground with carborundum brick to horizontal plane surfaces of given elevation and shall be adequately protected until lead plates and bearings are in place. Cost of lead plates shall be included in the price bid for structural steel.



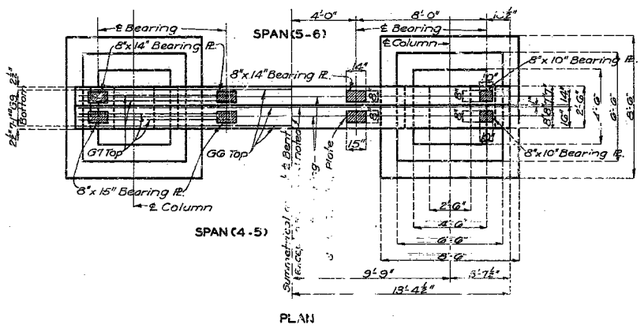
SECTION B-B



PART PLAN

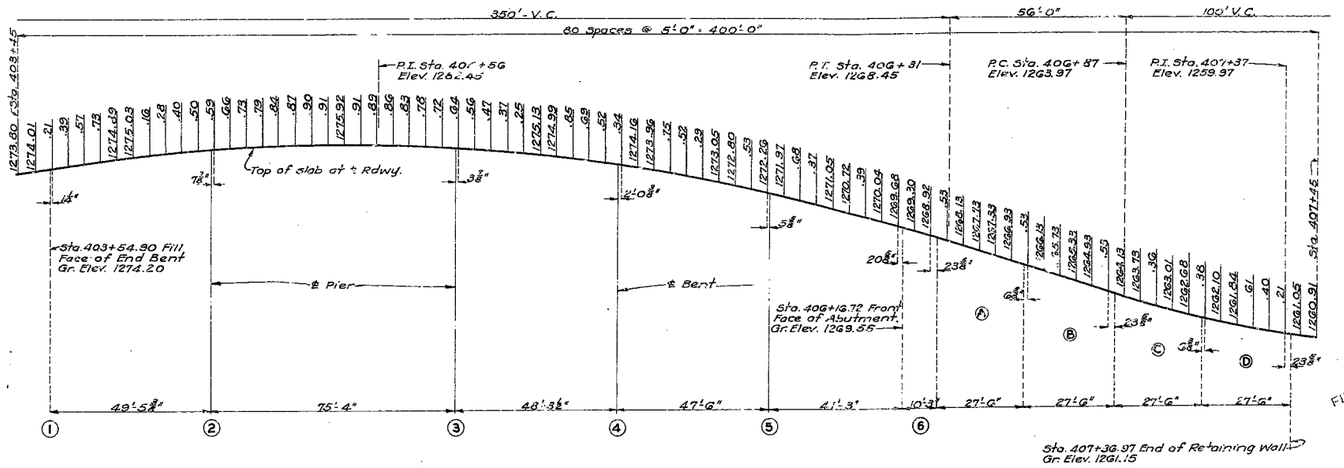
DETAILS OF ANCHOR BOLT WELLS

Note: Holes for plate girder span anchor bolts shall be formed in substructure by placing and setting with templates, 4"ϕ x 15" wells.



PLAN

DETAILS OF BENT NO. 5



GRADE AT ℄ ROADWAY

BRIDGE OVER ST. L.-S.F. R. R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90 FINISHED

HOWELL COUNTY FINISHED

K-789

Drawn Feb. 1939 by D.K.M.
Traced Apr. 1939 by G.W.
Checked May 1939 by H.D. & R.V.B.

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

Sheet No. 5A of 6

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	19		

FINAL PLANS

Note: See Sheet No.10 for details of 3/8"x 3/8" bars to be cast into end post. Handrail to be built similar to handrail on Section 74, Sheet No.7, except as shown. Endpost to be built similar to details of subpost, Sheet No.7, except as shown.

SIDE ELEVATION LEFT HANDRAIL

SIDE ELEVATION RIGHT HANDRAIL

PART END ELEVATION

PART END ELEVATION

VIEW E-E

LEFT SIDE ELEVATION

Note: Bend or shift reinforcing steel in counterforts where necessary to clear opening for 12"ø perforated corrugated metal pipe.

FRONT ELEVATION

RIGHT SIDE ELEVATION

VIEW F-F

Note: Porous backfill shall be placed as shown in section for the full length of both retaining walls and the abutment wing. 12"ø perforated, corrugated metal pipe shall be placed in porous backfill, as shown on details. See Special Provisions.

SECTION B-B

Note: Bend Vertical wall steel in fill face to hold at least 2" edge distance.

SECTION A-A

PLAN

SECTION D-D

SECTION C-C

Note: Bend Vertical wall steel in fill face to hold at least 2" edge distance.

SECTION A-A SHOWING POROUS BACKFILL

Note: Surfaces of retaining walls and footings shall be damp-proofed. See Special Provisions. Cost of damp-proofing to be included in the price bid for concrete.

TYPICAL RETAINING WALL SECTION

SECTION THRU RETAINING WALL

PART ELEVATION

DETAILS OF PERFORATED PIPE DRAINS

Note: See Road Plans for details of Special Drop Inlets.

Note: See Sheet No. 11 for details of Lighting Conduit.

DETAILS OF ABUTMENT NO. 6

BRIDGE OVER ST. L.-S.F. R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

FINISHED

FINISHED

K-789

Designed Feb. 1939 by J.C.S.
Drawn March 1939 by D.K.M.
Traced March 1939 by D.K.M.
Checked June 1939 by J.E.S. & R.W.B.

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

Sheet No. 6A of 6.

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FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PROJECT NO. (3)11			

FINAL PLANS

ELEVATION FILL FACE LEFT WALL- SECTION "A"

END ELEVATION

PLAN LEFT WALL- SECTION "A"

END ELEVATION

ELEVATION FILL FACE LEFT WALL SECTION "B"

PART ELEVATION

PART PLAN

HANDRAIL DETAILS AT SUBPOST

PLAN LEFT WALL- SECTION "B"

END ELEVATION

ELEVATION FILL FACE LEFT WALL SECTION "C"

PART SECTION F-F

PLAN LEFT WALL- SECTION "C"

Note: See Detail L-L for details of opening for 18" pipe.

PART SECTION E-E

END ELEVATION

ELEVATION FILL FACE LEFT WALL- SECTION "D"

PLAN LEFT WALL- SECTION "D"

PART SECTION G-G

END ELEVATION

ELEVATION FRONT FACE RIGHT WALL- SECTION "A"

END ELEVATION

PLAN RIGHT WALL- SECTION "A"

DETAIL M-M (SEC. "D")

Note: See Road Plans for details of Special Drop Inlet.

ELEVATION FRONT FACE RIGHT WALL- SECTION "B"

PLAN RIGHT WALL- SECTION "B"

DETAIL L-L (SEC. "D")

Sta. 401+30.5 ℄ 15" Pipe

See Road Plans for type of pipe permitted. Shift or bend retaining wall reinforcing to clear opening.

ELEVATION FRONT FACE RIGHT WALL SECTION "C"

PLAN RIGHT WALL- SECTION "C"

Note: Details of Handrail End Posts Section "B" "C" and "D" are Similar to Section "A" except as shown. Details not shown on Wall Sections "B" "C" and "D" are Similar to Section "A". See Sheet No. G for details of Porus backfill and 12" ℄ perforated corrugated pipe. See Sheet No. 11 for details of Lighting Conduit.

Note: See Detail M-M for details of retaining wall modification at special drop inlet.

ELEVATION FRONT FACE RIGHT WALL- SECTION "D"

PART SECTION K-K

PLAN RIGHT WALL- SECTION "D"

Note: See Special Provisions relative to required shoring of excavation adjacent to existing buildings.

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

Designed Mar. 1939 by J.C.S.
Drawn Mar. 1939 by J.C.S.- D.K.M.
Traced Apr. 1939 by G.W.
Checked June 1939 by H.D.

BRIDGE OVER ST. L.-S.F.R.R. TRACKS

STATE ROAD FROM DOUGLAS CO. LINE TO WILLOW SPRINGS

WILLOW SPRINGS

PROJECT NO. FAGM 2-D(1) (SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

K-789

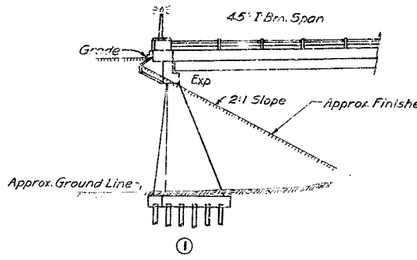
Sheet No. 7A of 9.

FINISHED

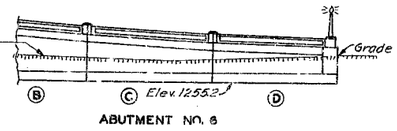
FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

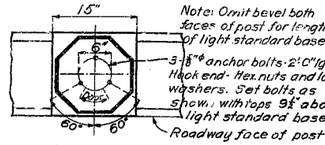
FED. ROAD DIST. NO		FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FAGM 2-D(1) (SH)	19		



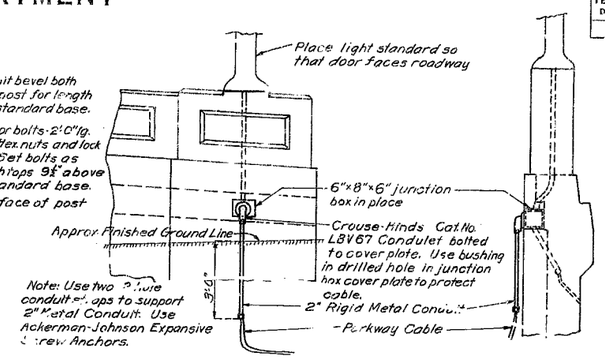
PART GENERAL ELEVATION



ABUTMENT NO. 6



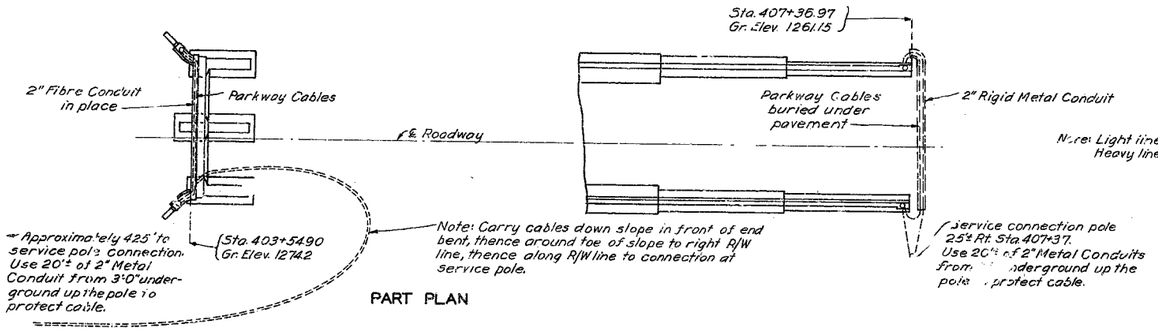
PLAN OF ANCHOR BOLTS FOR LIGHT STANDARDS



PART ELEVATION

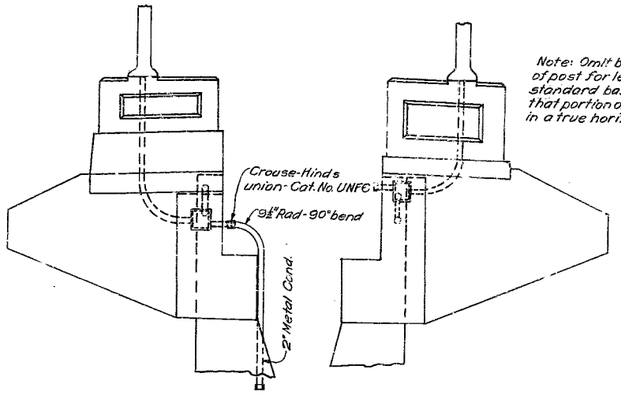
PART SECTION

DETAILS AT END OF RETAINING WALL ON RIGHT

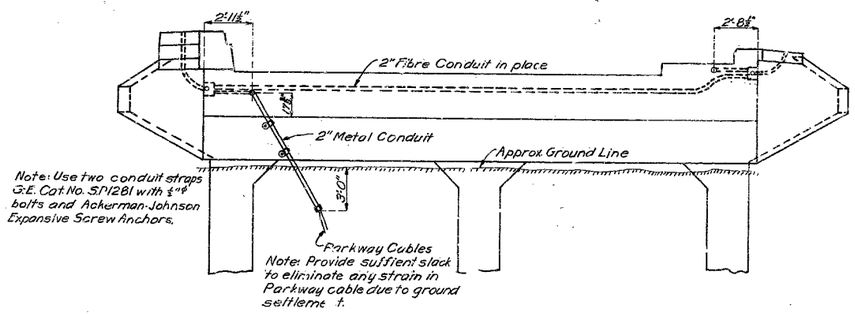


PART PLAN

Note: Light lines indicate work in original contract. Heavy lines indicate new work.



PART DEVELOPED ELEVATION OF WINGS



PART ELEVATION

DETAILS AT ABUTMENT NO. 1

GENERAL NOTES:-

Parkway cable shall be General Electric-R.R. Tellurium-Rubber parkway cable, Cat.# 51-58006-Single conductor, #6 A.W.G., stranded, 30% rubber insulation-5000 volt.

Light standards shall be Union Metal Standards as General Electric Cat.# 1122X9 with Type F Casing, Form B Luminaire with No. 127 Globe and No. 1127 Canopy.

Conduit to be 2" ϕ Rigid Metal Conduit.

Bushings shall be used on approximately all conduits.

Upper ends of 2" Conduit on service poles shall be equipped with entrance caps as General Electric Cat. No. 5P1530.

An approved equivalent may be substituted for any item designated as from a particular manufacturer.

Contractor shall ascertain and/or verify infield length of conduit, cable and fittings necessary to the proper installation of the work before ordering material.

FINISHED

BRIDGE OVER ST L.-S.F. R.R. TRACKS

STATE ROAD FROM DOUGLAS COUNTY LINE TO WILLOW SPRINGS

AT WILLOW SPRINGS

PROJECT NO. FAGM 2-D (1) (SH) STA. 403+54.90

HOWELL COUNTY

FINISHED

FINISHED

K-789A

89

Drawn April 1940 by C.S.A.
Traced April 1940 by C.S.A.
Checked Apr. 1940 by C.L.S.

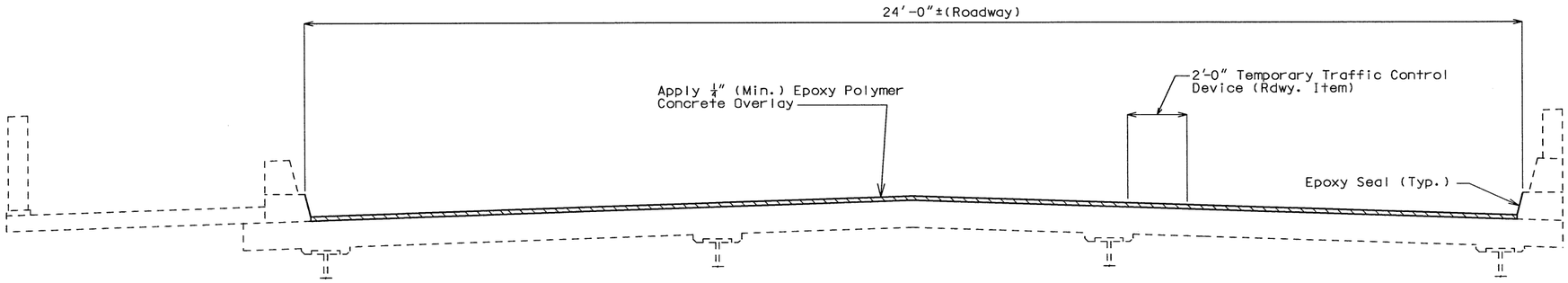
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 1.

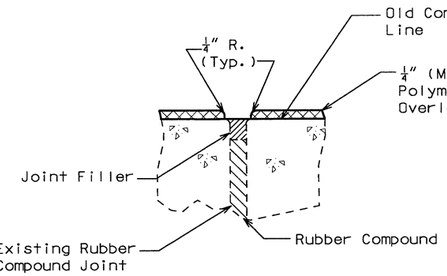
State	Proj. No.	Sheet No.
MO	J9M0036	B4
SEC/SUR 30	TWP 27N	RGE 9W

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. EXISTING (45') I-BEAM SPAN, (75') PLATE GIRDER SPAN, (45') (45') (40') I-BEAM SPANS



SECTION THRU SLAB



TYPICAL SECTION FOR RUBBER COMPOUND JOINTS

FINAL QUANTITIES

ITEM			TOTAL
Epoxy Polymer Concrete Overlay	(Includes approach slab quantities)	sq. yard	1067 ✓

GENERAL NOTES:

Design Specifications:

2002 - AASHTO 17th Edition

Traffic:

Traffic over structure to be maintained during construction.(See roadway plans for traffic control)

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. No payment will be allowed for additional labor, materials or equipment for variations in thickness of overlay.

Outline of old work is indicated by dashed lines, heavy lines indicate new work.

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

All exposed edges of overlay shall have a ¼" radius, unless otherwise noted.

The contractor shall exercise care to ensure spillage over joint edges is prevented and that a neat line is obtained along any terminating edge of the epoxy polymer concrete.

FINAL PLANS

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION. I ALSO DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

STATE OF MISSOURI
ELQUIN L. AUALA
NUMBER E-27083
REGISTERED PROFESSIONAL ENGINEER

Elquin L. Auala
SIGNATURE

5/12/05
DATE

REPAIRS TO BRIDGE OVER ST. L.- S.F. R.R. TRACKS

STATE ROAD FROM DOUGLAS COUNTY LINE TO WILLOW SPRINGS AT WILLOW SPRINGS

PROJECT NO. J9M0036 STA. 403+54.90± (Match Existing)

JOB NO. J9M0036 RTE. 137

CONTRACT ID: 040521-901

HOWELL COUNTY K07891

REV.

Designed Oct. 2003
Detailed Oct. 2003
Checked Nov. 2003

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

Sheet No. 1 of 1

Date: 05 /11 /05

T:\de-proj\j9m0036\Bridge\K07891_001.dgn 08:56:47 AM 05/11/2005

Missouri Department of Transportation
State Bridge Inspection Report

August 10, 2023
5:45:27AM

COUNTY: HOWELL **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 5941** **BRIDGE: K0789**

GENERAL STRUCTURE INFORMATION

ROUTE: MO137S
FEATURE: CST FIRST ST, BNSF RR
STATUS: P-POSTLOAD
LOG MILE: 42.361
DETOUR: 4.00 MILES
NHS: NO
BUILT: 1939
REHAB: 2004
LOCATION: S 30 T 27 R 9 W
LATITUDE: 36 59 27.89 (DMS)
LONGITUDE: 91 58 12.77 (DMS)

 # SPANS: 5
LANES ON: 2
LANES UNDER: 2
COMPASS DIRECTION: SOUTH to NORTH
DIRECTION OF TRAFFIC: 2-WAY TRAF
FUNCTIONAL CLASS: RL-MAJOR COLLECTOR
NBI OWNER: MODOT
NBI MAINTAINED: MODOT
MAINTENANCE DISTRICT: SE
MAINTENANCE COUNTY: HOWELL
SUB AREA: 7H51

PLACE CODE: 80098 WILLOW SPRINGS CITY
LENGTH: 264 FT 0 IN
MAXIMUM SPAN: 75 FT 4 IN
APPROACH ROADWAY: 24 FT 0 IN
CURB TO CURB: 24 FT 0 IN
OUT TO OUT: 32 FT 4 IN
AADT: 3464
AADT YEAR: 2022
AADT TRUCK: 8.1%
FUTURE AADT: 5196
FUTURE AADT YEAR: 2042

BRIDGE INSPECTION INFORMATION

DATE: 10/27/2021 **RESPONSIBILITY:** BRIDGEDIV
FREQUENCY: 24 **CALCULATED INTERVAL**:** 24
TEAM LEADER: CURT RICKERSON **ELEMENT:** NO
INSPECTOR 2: KEVIN WEGENER **INSPECTOR 4:**
INSPECTOR 3: KEVIN RAITHEL

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

GENERAL INSPECTION COMMENTS

FRACTURE CRITICAL INSPECTION INFORMATION

DATE: 10/27/2021 **RESPONSIBILITY:** BRIDGEDIV **CATEGORY:** 2-GIRDER SYSTEM
FREQUENCY: 24 **CALCULATED INTERVAL**:** 24 **NBI:** YES
TEAM LEADER: CURT RICKERSON **INSPECTOR 3:** JASE SHELTON (NTLQ) **METHOD:** PLATFORMTK, SNOOPER
INSPECTOR 2: KEVIN WEGENER **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

FRACTURE CRITICAL INSPECTION COMMENTS

INDEPTH INSPECTION INFORMATION

DATE: **RESPONSIBILITY:** **CATEGORY:**
FREQUENCY: **CALCULATED INTERVAL**:** **NBI:**
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

INDEPTH INSPECTION COMMENTS

SPECIAL INSPECTION INFORMATION

DATE: 04/13/2011 **RESPONSIBILITY:** BRIDGEDIV **CATEGORY:** QUALITY ASSURANCE
FREQUENCY: 999 **CALCULATED INTERVAL**:** **NBI:** NO
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: PATRICK MARTENS **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

SPECIAL INSPECTION COMMENTS

(MARTEP, 04/15/2011)--SBIE FIELD REVIEW

UNDERWATER INSPECTION INFORMATION

DATE: **RESPONSIBILITY:** **CATEGORY:**
FREQUENCY: **CALCULATED INTERVAL**:** **NBI:**
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

UNDERWATER INSPECTION COMMENTS

OTHER SPECIAL INSPECTIONS

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD

OTHER UNDERWATER INSPECTIONS

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD

COUNTY: HOWELL **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 5941** **BRIDGE: K0789**

STRUCTURE POSTING

APPROVED CATEGORY: S-15 TRUCK WEIGHT LIMIT 35 TONS EXCEPT SINGLE UNIT TANDEM REAR AXLE TRUCKS 20 TONS WEIGHT LIMIT
Ton 1: 35 **Ton 2:** 20 **Ton 3:**
COMMENTS:

FIELD CATEGORY: S-15 TRUCK WEIGHT LIMIT 35 TONS EXCEPT SINGLE UNIT TANDEM REAR AXLE TRUCKS 20 TONS
Ton 1: 35 **Ton 2:** 20 **Ton 3:** **PROBLEM:** **PROBLEM DIRECTION:**
COMMENTS:

GENERAL COMMENTS/MAJOR RATED ITEMS

GENERAL COMMENTS: (BOWDEJ1, 12/03/2009)--(49') SMP WF - (75') SMP THRU PL GDR - (48'-47'-41') SMP WF GDR SPANS (2-GDR NON-RED & RIVETED)
(NO STRG'S IN THRU PL GDR SPAN)

[ITEM 58] DECK: 4-POOR CONDITION **COMMENTS:** (MADSEJ, 11/05/2021)--LARGE, HEAVY SPALLING AT ALL JOINTS WITH REBAR EXPOSED & ADVANCED SECTION LOSS OF THE REBAR
RATING : 10/30/2019

[ITEM 59] SUPER: 3-SERIOUS CONDITION **COMMENTS:** (RICKEC, 10/28/2021)--SPANS 4 AND 5 GIRDERS TOP FLANGES WITH SEVERE SECTION LOSS OF 60% TO 100%
RATING : 10/28/2021 THROUGHOUT SEVERAL GIRDERS WITH MED SECTION LOSS IN WEB AT BOTTOM FLANGES.

[ITEM 60] SUB: 5-FAIR CONDITION **COMMENTS:** (MARTEP, 04/15/2011)--GENERAL DETERIORATION OF BENT 2.
RATING : 04/15/2011

[ITEM 61] BANK/CHANNEL: N-NOT APPLIC NO WATRWAY **COMMENTS:**
RATING : 05/18/2001

[ITEM 113] SCOUR: N-NOT APPLIC NOT WATERW **COMMENTS:**
RATING : 05/18/2001
EVALUATION TYPE :

[ITEM 71] WATERWAY ADEQUACY: NOT APPLICABLE **COMMENTS:**
RATING : 05/18/2001

[ITEM 72] APPRRDWY ALIGNMENT: 6-SATISFACTORY **COMMENTS:**
RATING : 05/18/2001

RAILING AND APPROACH PAVEMENT COMPONENTS AND RATINGS

[ITEM 36A] BRIDGE RAILING RATING: *DOESNT MEET CURRNT STND-0* ***RATING :*** *01/26/2009* ***COMMENTS:***

MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
REINFORCED CONCRETE	SIDEWALKS	EAST	
REINFORCED CONCRETE	CURB	BOTH	
GALVANIZED STEEL	OTHER RAILING	BOTH	

[ITEM 36B] TRANSITION RAILING RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

[ITEM 36C] APPROACH RAILING RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

COUNTY: HOWELL **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 5941** **BRIDGE: K0789**

[ITEM 36D] RAIL END TREATMENT RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

APPROACH PAVEMENT: *Overall condition assigned for each approach pavemenet component is shown below.

MATERIAL	CONSTRUCTION	DIRECTION	CONDITION*	COMMENTS
ASPHALT/CONCRETE	BITUMINOUS MAT/SLAB	BOTH		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
PATCHES	AT ABUTMENTS		LARGE	(MARTEP, 04/15/2011)--NORTH APPROACH
SPALLS	RANDOM		MANY	

DRAINAGE, EXPANSION DEVICES, BANK/SLOPE, AND DECK PROTECTIVE COMPONENTS

DECK PROTECTIVE COMPONENTS:

SERIES TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	THICKNESS	YEAR APPLIED	MANUFACTURE	OVERALL CONDITION
APPROACH SERIES-1	*WEARING SURFACE*	*EPOXY POLYMER*	*EPOXY POLYMER*	*.25 IN*			*POOR*
COMMENT:							
	DECK PROTECTION	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
	MEMBRANE	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
MAIN SERIES-2	*WEARING SURFACE*	*EPOXY POLYMER*	*EPOXY POLYMER*	*.3 IN*			*POOR*
COMMENT:							
	DECK PROTECTION	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
	MEMBRANE	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
APPROACH SERIES-3	*WEARING SURFACE*	*EPOXY POLYMER*	*EPOXY POLYMER*				*POOR*
COMMENT:							
	DECK PROTECTION	*NOTAPPLICABLE*	*NONE*				
COMMENT:							
	MEMBRANE	*NOTAPPLICABLE*	*NONE*				
COMMENT:							

DRAINAGE COMPONENTS:

COMPONENT	MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS

EXPANSION DEVICE COMPONENTS:

SUB UNIT-#	SUB LABEL	COMPONENT	MATERIAL	CONSTRUCTION	GAP	YEAR APPLIED	MANUFACTURE	OVERALL CONDITION
PIER-2		CLOSED EXPANSION JOINT	SILICON	FILLED JOINT			XJS JOINT	VERY POOR

COMMENT:

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
FAILING	THROUGHOUT		NOT APPLICABLE	

BENT-5		CLOSED EXPANSION JOINT	SILICON	FILLED JOINT			XJS JOINT	POOR

COMMENT:

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
FAILING	THROUGHOUT		NOT APPLICABLE	(REHAGM, 02/01/2007)--4-29-04 - REMOVED FLAT PLATE EXP. DEVICE INSTALLED XJS JT

BANK/SLOPE PROTECTION COMPONENTS:

COMPONENT	MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
BANK PROTECTION	EARTH FILL	BERM	SOUTH	

DECK COMPONENTS

SPAN TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	COMMENTS
APPROACH SPANS-1	DECK	REINFORCED CONCRETE	CAST-IN-PLACE	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	AT JOINTS		HEAVY		
DETERIORATION	EDGE		MINOR		
TRANSVERSE CRACKS	THROUGHOUT		MANY		

MAIN SPANS-2	DECK	REINFORCED CONCRETE	CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	AT JOINTS		MODERATE		
DETERIORATION	EDGE		MINOR		
SPALLS	THROUGHOUT		LARGE		
TRANSVERSE CRACKS	THROUGHOUT		MANY		

APPROACH SPANS-3	DECK	REINFORCED CONCRETE	CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	AT JOINTS		MODERATE		
DETERIORATION	EDGE		MINOR		
TRANSVERSE CRACKS	THROUGHOUT		MANY		

APPROACH SPANS-4	DECK	REINFORCED CONCRETE	CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	AT JOINTS		SEVERE		
DETERIORATION	EDGE		MINOR		
REBAR SECTION LOSS	BOTTOM		ADVANCED		
SPALLS	BOTTOM		LARGE		
TRANSVERSE CRACKS	THROUGHOUT		MANY		

APPROACH SPANS-5	DECK	REINFORCED CONCRETE	CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

DETERIORATION	AT JOINTS	MODERATE
DETERIORATION	EDGE	MINOR
TRANSVERSE CRACKS	THROUGHOUT	MANY

SUPERSTRUCTURE COMPONENTS

SERIES TYPE-#	SPAN TYPE	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
APPROACH SERIES-1	*SIMPLE SPAN*	*STEEL*	*WIDE FLANGE GIRDERS*		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
APPROACH SPANS-1	NON-COMPOSITE	49 FT 5 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DECK LIFTING	TOP FLANGE		EXCESSIVE	1 INCH	
RUSTING	TOP FLANGE		HEAVY		
SECTION LOSS	DIAPHRAGMS		ADVANCED		
SECTION LOSS	GIRDER ENDS		HEAVY		(MADSEJ, 11/05/2021)--TOP AND BOTTOM FLANGES AT THE ABUTMENT

MAIN SERIES-2	*SIMPLE SPAN*	*STEEL*	*GIRDER/FLOORBEAM SYSTEM*		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-2	NON-COMPOSITE	75 FT 4 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
COLLISION DAMAGE	EXTERIOR GIRDERS		MINOR		
SECTION LOSS	AT JOINTS		MINOR		
SECTION LOSS	DIAPHRAGMS		ADVANCED		
SECTION LOSS	FLOOR BEAMS		MODERATE		(MADSEJ, 11/05/2021)--FLOORBEAM ENDS AT GIRDER CONNECTIONS
SECTION LOSS	TOP FLANGE		HEAVY		

APPROACH SERIES-3	*SIMPLE SPAN*	*STEEL*	*WIDE FLANGE GIRDERS*		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
APPROACH SPANS-3	NON-COMPOSITE	48 FT 4 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DECK LIFTING	TOP FLANGE		MODERATE	.5 INCH	
PACK RUST	TOP FLANGE		HEAVY		
RUSTING	BOTTOM FLANGE		HEAVY		
SECTION LOSS	AT BEARING		ADVANCED		(MADSEJ, 11/05/2019)--TOP FLANGES AND TOP OF THE BEARING STIFFENERS AT BENT 4
SECTION LOSS	DIAPHRAGMS		ADVANCED		

APPROACH SPANS-4	NON-COMPOSITE	47 FT 6 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DECK LIFTING	TOP FLANGE		EXCESSIVE	1 INCH	
PACK RUST	TOP FLANGE		HEAVY		
RUSTING	BOTTOM FLANGE		LIGHT		
SECTION LOSS	AT JOINTS		ADVANCED		(MADSEJ, 11/05/2021)--TOP FLANGE AT BENT 4
SECTION LOSS	DIAPHRAGMS		ADVANCED		

APPROACH SPANS-5	NON-COMPOSITE	41 FT 3 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DECK LIFTING	TOP FLANGE		EXCESSIVE	1.25 INCH	
PACK RUST	TOP FLANGE		HEAVY		
RUSTING	BOTTOM FLANGE		LIGHT		
SECTION LOSS	AT JOINTS		ADVANCED		(MADSEJ, 11/05/2021)--TOP FLANGE AT BENT 4

SUBSTRUCTURE COMPONENTS

SUBSTRUCTURE	SKEW	LENGTH	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
ABUTMENT-1		32 FT 10 IN	REINFORCED CONCRETE	OPEN CONCRETE		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
SPALLS	THROUGHOUT		MEDIUM		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
FLARED WINGS	REINFORCED CONCRETE	CAST-IN-PLACE			
TIE BEAM	REINFORCED CONCRETE	CAST-IN-PLACE			
FOOTING	REINFORCED CONCRETE	TIMBER PILE			
BACKWALL	REINFORCED CONCRETE	CAST-IN-PLACE			
HORIZONTAL CRACKS	THROUGHOUT		FEW		
EXPANSION BEARING	STEEL	SLIDING CURVED/FLAT PL/			
FROZEN	THROUGHOUT		NOT APPLICABLE		
PACK RUST	THROUGHOUT		HEAVY		

SUBSTRUCTURE	SKEW	LENGTH	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
PIER-2		30 FT 4 IN	REINFORCED CONCRETE	MULTIPLE COLUMN		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
SPALLS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
FOOTING	REINFORCED CONCRETE	TIMBER PILE			
COLLISION WALL	REINFORCED CONCRETE	CAST-IN-PLACE			
EXPANSION BEARING	STEEL	ROCKER			
PACK RUST	THROUGHOUT		MEDIUM		
DIAPHRAGM	STEEL	OTHER			
SECTION LOSS	THROUGHOUT		ADVANCED		

SUBSTRUCTURE	SKEW	LENGTH	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
PIER-3		30 FT 4 IN	REINFORCED CONCRETE	MULTIPLE COLUMN		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
SPALLS	BOTTOM	THROUGHOUT	FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

SPALLS	THROUGHOUT		MEDIUM		
VERTICAL CRACKS	THROUGHOUT		LARGE		
FOOTING	REINFORCED CONCRETE	TIMBER PILE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
COLLISION WALL	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
FIXED BEARING	STEEL	PEDESTAL(ROTATING)			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
DIAPHRAGM	STEEL	OTHER			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
SECTION LOSS	THROUGHOUT		ADVANCED		

BENT-4 *26 FT 9 IN* *REINFORCED CONCRETE* *MULTIPLE COLUMN*

CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
ASSOCIATED COMPONENT	***MATERIAL***	***CONSTRUCTION***			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
DELAMINATION	THROUGHOUT		FEW		
DETERIORATION	ENDS		MODERATE		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
SPALLS	THROUGHOUT		FEW		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
COLLISION WALL	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
EXPANSION BEARING	STEEL	SLIDING CURVED/FLAT PL/			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
RUSTING	THROUGHOUT		MODERATE		
EXPANSION BEARING	STEEL	SLIDING FLAT PLATE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
RUSTING	THROUGHOUT		MODERATE		
DIAPHRAGM	STEEL	OTHER			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
RUSTING	THROUGHOUT		HEAVY		
SECTION LOSS	THROUGHOUT		ADVANCED		

BENT-5 *26 FT 9 IN* *REINFORCED CONCRETE* *MULTIPLE COLUMN*

CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
ASSOCIATED COMPONENT	***MATERIAL***	***CONSTRUCTION***			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
HIGH STEEL SPALLS	THROUGHOUT		MANY		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
DELAMINATION	RANDOM		MODERATE		
SPALLS	RANDOM		LARGE		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
EXPANSION BEARING	STEEL	SLIDING CURVED/FLAT PL/			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
RUSTING	THROUGHOUT		MODERATE		

DIAPHRAGM STEEL OTHER

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
SECTION LOSS	THROUGHOUT		ADVANCED		

COLLISION WALL REINFORCED CONCRETE CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

ABUTMENT-6 32 FT 3 IN REINFORCED CONCRETE CANTILEVER

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

ASSOCIATED COMPONENT	MATERIAL	CONSTRUCTION
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
HORIZONTAL CRACKS	AT BEARING		MEDIUM		
SPALLS	RANDOM		SMALL		
VERTICAL CRACKS	THROUGHOUT		FEW		

COLUMN REINFORCED CONCRETE CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

TURNED BACK WINGS REINFORCED CONCRETE CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
SPALLS	RANDOM		MEDIUM		

FOOTING REINFORCED CONCRETE SPREAD

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

BACKWALL REINFORCED CONCRETE CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

EXPANSION BEARING STEEL SLIDING CURVED/FLAT PL

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
RUSTING	THROUGHOUT		MODERATE		

EXPANSION BEARING STEEL SLIDING FLAT PLATE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
OTHER	RANDOM		NOT APPLICABLE		(RAITHK, 10/30/2019)--GRDR 4 BRG SLIDING OUT OF ALIGNMENT 1/2" TO THE SOUTH 1/2" TO THE WEST

OVER/UNDER ROUTES CLEARANCE INFORMATION

CLEARANCES OVER DECK

**NOTE: Vertical clearances for permitting purposes are taken as 2 inches less than the actual field measured clearance.

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT

CLEARANCES UNDER BRIDGE

**NOTE: Vertical clearances for permitting purposes are taken as 2 inches less than the actual field measured clearance.

RECORD #	ROUTE	# LANES	DIRECTION OF TRAFFIC	RIGHT LATERAL CLEARANCE	LEFT LATERAL CLEARANCE	UR-ID
1	CST FIRST ST S	2	2-WAY TRAF	4 FT 0 IN		13198

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT
ACTUAL	13 FT 11 IN			

RECORD #	ROUTE	# LANES	DIRECTION OF TRAFFIC	RIGHT LATERAL CLEARANCE	LEFT LATERAL CLEARANCE	UR-ID
2	BNSF RR			8 FT 7 IN		13199

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT
PLANNED	21 FT 0 IN			

STRUCTURE PAINT INFORMATION

CONDITION: FAIR **RUST AMOUNT :** 7 = .2% OF SURFACE RUSTED **STEEL TONS :** 144

ORIGINAL PAINT	CONTRACT REPAINT	DEPARTMENT REPAINT	
PAINT TYPE :	**PAINT TYPE :**	**PAINT TYPE :** C SYSTEM	**MANUFACTURE :**
NAME :	**NAME :**	**NAME :** INORGANIC ZINC/VINYL	**SURFACE PREP :**
PAINT COLOR :	**PAINT COLOR :**	**PAINT COLOR :** GREEN	
PAINT YEAR :	**PAINT YEAR :**	**PAINT YEAR :** 1995	
MILS :	**MILS :**	**MILS :** 9	

REQUESTED WORK ITEMS

GENERAL WORK COMMENTS:

RESPONSIBILITY	LOCATION	ITEM	CATEGORY	PRIORITY	DATE	WORK ITEM COMMENT
DISTRICT SPECIAL	SEE COMMENT	MISCELLANEOUS	SUPERSTRUCTURE	2	10/30/2019	(DENNIB1, 12/27/2012)--REPLACE RIVET WITH BOLT EAST END OF FLOORBEAM # 4 OF SPAN #2
DISTRICT ROUTINE	ROADWAY SURFACE	SEAL JTS - RODS/HOT POUR	DECK	2	10/30/2019	
DISTRICT SPECIAL	BENT JOINT	REPAIR DECK JOINTS W/CONC	DECK	2	10/30/2019	
DISTRICT SPECIAL	NORTH	REPAIR ABUT BACKWALL	SUBSTRUCTURE	2	10/30/2019	
DISTRICT SPECIAL	BENT JOINT	REPLACE JOINTS	DECK	2	10/30/2019	(HAGEMD1, 10/30/2015)--JOINT AT BENT 2 NEEDS REPLACED
DISTRICT SPECIAL	ALL BRG'S	CLEAN, PAINT, AND RESET	SUBSTRUCTURE	2	10/30/2019	(HAGEMD1, 10/30/2015)--ALL CURVED PLATE BEARINGS NEED TO BE CLEANED, PAINTED AND RESET.
FURTHER ACTION REQUIRED	SUPER-GIRDERS	REPAIR GIRDER ENDS	SUPERSTRUCTURE	2	10/30/2019	(RICKEC, 10/28/2021)--SPANS 4 AND 5 GRIDERS TOP FLANGES OVER BENTS WITH SEVERE SECTION LOSS OF 60% TO 100%
DISTRICT SPECIAL	SEE COMMENT	REPAIR DECK JOINTS W/CONC	DECK	2	10/30/2019	(WEAVER1, 10/30/2019)--ALL JOINTS NEED FULL DEPTH PATCHING

UTILITY ATTACHMENTS

UTILITY	OWNER	METHOD	MEASUREMENT TYPE	VALUE	NUMBER	UTILITY ATTACHMENT COMMENT

PROGRAM NOTES INFORMATION

COUNTY: HOWELL **DISTRICT: SE** **CLASS: STATBR** **FED-ID: 5941** **BRIDGE: K0789**

YEAR	PROJECT #	MONTH LET	YEAR LET	ITEMS	COMMENT
2026	9S3801	0	2026	REPLACE BRIDGE	

COMPUTER GENERATED RATINGS AND DEFICIENCY ITEMS

NOTE: The items listed in this section are updated whenever computer edits are ran on a structure after the inspection updates have been entered in to TMS.

Rated Item	Rating	Rating Date
[Item 67] Structure Evaluation Rating:	3-BASICALLY INTOL CORRECT	10/29/2021
[Item 68] Deck Geometry Rating:	2-BASICALLY INTOLRBLE REQ	5/18/2001
[Item 69] Underclearance:	2-BASICALLY INTOLRBLE REQ	2/17/2022
Sufficiency Rating:	2.0%	10/29/2021
Deficiency:	STRUCTURAL	1/18/2019
Funding Eligibility:		----
Estimated New Structure Length:		----
Estimated Structure Cost:		----
Estimated Total Project Cost:		----
Year of Cost Estimate:		----

NOTE: The above structure length and cost estimates are computer generated using algorithims in the TMS system. These algorthims are generalized to use NBI items to come up with a new structure length and width to calculate a new area which is taken times a representative cost per square foot. The actual structure size and cost may vary significantly from these numbers once site specific engineering is done.

ADVANCED SIGN INFORMATION

SIGN #	SIGN TYPE	PROBLEM	PROBLEM DIRECTION
1			

OUTFALL INSPECTION INFORMATION

 # OUTFALLS: **INSPECTOR:**
STATUS: **DATE:**
NOTES:

K0789

Write a description for your map.

Legend

K0789

City of Willow Springs Pool

W 10th St

1110

Davis Dr

W Main St

Bamboo House

Corn Ave

N Harris St

N Beisher Ave

Willow Springs Cemetery

5270

W High St

Willow Springs Elementary School

DD

Willow Springs Memorial Arprt-1h5

Clingan Ave

W 4th St

Willow Springs High School

N Pine St

E 6th St

Sunshine Dr

Pine Grove Rd

Casey's

W Frisco Ave

W 1st St

N Walnut St

N Grand St

N Ash St

Willow Springs Memorial Airport...

Turner Dr

Willow Springs

E 4th St

Park St

E 3rd St

Main St

O'Reilly Auto Parts

Cedar Ln

S Center St

S Harris St

E Valley St

DC Plumbing & Backhoe

1150

Lane St

Bailey Chevrolet Gmc Co

3340

W Hill St

The Campground at Willow Springs RV Park

Booster Field

Subway

Oak St

Frisco Ave

E Main St

Hwy 60

Post Oak Rd

Willow Rock

Horak Dr

C&R Gun Ammo & Pawn

Soccer Fields

Tractor Supply Co

76

N

2000 ft

Google Earth

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:46:45am

COUNTY : HOWELL **BRIDGE :** K0789 1 **REVIEW STATUS :** CONVERTED **NBI STATUS :** T
RECORD TYPE : ROUTE CARRIED 'ON' STRUCT **RUN DATE :** 3/6/2023 **SUBMITTAL YEAR :** 2023

GENERAL STRUCTURE INFORMATION

1	State	MISSOURI
2	District	SE
3	County	HOWELL
8	Federal ID No.	5941
27	Year Built	1939
106	Year Reconstructed	2004
42A	Type of Service On	HIGHWAY
21	Structure Maintenance	STATE HIGHWAY AGENCY
22	Structure Owner	STATE HIGHWAY AGENCY
33	Br. Median Code	NO MEDIAN
37	Historical Significance	HISTORICAL SIGNIF UNKNWN
101	Parallel Struc Desg	NONE EXISTS
103	Temporary Structure	NOT TEMPORARY
112	NBIS Bridge Length	YES

ROUTE DESIGNATION INFORMATION

5A	Record Type	ROUTE CARRIED 'ON' STRUCT
5B	Route Signing Prefix	MO
5C	Designated Level of Service	MAINLINE
5D	Route Number	00137
5E	Directional Suffix	NOT APPLICABLE
7	Facility Carried	MO 137 S
12	Base Hwy. Network	NO
13A	LRS Inventory Route No.	
13B	Subroute No.	
20	Toll Status	ON FREE ROAD
26	Functional Classification	07-RURAL MAJOR COLLECTOR
28A	Lanes on Structure	02
100	STRAHNET Designation	RTE NOT A DEFENSE HWY
104	National Highway System	NOT ON NHS
105	Federal Lands Highway	NOT APPLICABLE
110	Designated Nat. Network	NO

STRUCTURE LOCATION INFORMATION

4	Place	WILLOW SPRINGS CITY
	Code	80098
9	Location	S 30 T 27 N R 9 W
11	Milepoint	42.61 miles
16	Latitude	36 D 59 M 28 S
17	Longitude	91 D 58 M 13 S

STRUCTURE TRAFFIC INFORMATION

29	AADT	3464
30	AADT Year	2022
102	Direction of Traffic	2-WAY TRAFFIC
109	AADT Truck Percent	8%
114	Future AADT	5196
115	Future AADT Year	2042

UNDERRECORD INFORMATION

6	Features Intersected	CST FIRST ST, BNSF RR
42B	Type of Service Under	HIGHWAY-RAILROAD
28B	Lanes Under Structure	02
54A	Vert. Clearance Ref.	HIGHWAY
54B	Vert. Clearance	13 Ft. 11 In.
55A	Rt. Lat Clear Ref.	HIGHWAY
55B	Rt. Lat Clearance	3 Ft. 11 In.
56	Left Lat Clearance	0 Ft. 0 In.
38	Navigation Control	N/A
39	Nav Vertical Clear	0 Ft. 0 In.
40	Nav Horizontal Clear	0 Ft. 0 In.
111	Nav. Pier Protection	
116	Nav. Cl. Vert. Clear	

STRUCTURE GEOMETRIC INFORMATION

10	Inventory Rte. Vert. Clear	99 Ft. 99 In.
19	By pass Detour Length	3.75 miles
32	Approach Roadway Width	23 Ft. 11 In.
34	Skew	0.00 Degrees
35	Struct. Flared	NO
47	Total Horiz. Clear	23 Ft. 11 In.
48	Maximum Span Length	75 Ft. 6 In.
49	Structure Length	264 Ft. 1 In.
50A	Left Curb/Sidewalk Width	0 Ft. 8 In.
50B	Right Curb/Sidewalk Width	0 Ft. 0 In.
51	Curb to Curb Br. Width	23 Ft. 11 In.
52	Deck Width (Out-Out)	32 Ft. 2 In.
53	Vert.Clearance Over Deck	99 Ft. 99 In.

Design_No = K0789 and Inventory_Appraisal_Submittal_Year = 2023

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:46:45am

COUNTY : HOWELL **BRIDGE :** K0789 1 **REVIEW STATUS :** CONVERTED **NBI STATUS :** T
RECORD TYPE : ROUTE CARRIED 'ON' STRUCT **RUN DATE :** 3/6/2023 **SUBMITTAL YEAR :** 2023

LOAD RATING AND POSTING INFORMATION

31	Design Load	H 15
41	Structure Status	POSTED FOR LOAD
63	Oper. Rating Meth.	ALLOWABLE STRESS
64	Operating Rating	29 Tons.
65	Inventory Rating Meth	ALLOWABLE STRESS
66	Inventory Rating	15 Tons.
70	Bridge Posting Code	10.0-19.9% BELOW

PROPOSED IMPROVEMENT INFORMATION

	Sufficiency Rating	2.0 Percent
	Deficiency Rating	STRUCTURAL
	Funding Eligibility	FULL
75A	Proposed Work	REPLACEMENT SUBSTND LOAD
75B	Work Done By	Contract
76	New Struc Length	298 Ft. 7 In.
94	Struc Improve Cost	$ 1,913,000
95	Roadway Improve Cost	$ 191,000
96	Total Project Cost	$ 2,870,000
97	Year of Cost Estimates	2023

APPRAISAL RATING INFORMATION

36A	Br. Rail App. Rating	DOES NOT MEET ACCEPT STND
36B	Transition Rail App. Rating	DOES NOT MEET ACCEPT STND
36C	Approach Rail App. Rating	DOES NOT MEET ACCEPT STND
36D	Rail End Treat. App. Rating	DOES NOT MEET ACCEPT STND
67	Struc Eval App. Rating	3
68	Deck Geometry App. Rating	2
69	Underclearance App. Rating	2
71	Waterway Adeq. App. Rating	N
72	Approach Road App. Rating	6
113	Scour Assess App. Rating	N

MATERIAL/CONSTRUCTION INFORMATION

43A	Main Struc. Mat type	STEEL
43B	Main struc Constr. Type	GIRDER & FLOORBEAM SYSTEM
45	# of Main Spans	1
44A	Appr Struc. Mat type	STEEL
44B	Appr Struc. Cnstr. type	STRINGER/MULTIBEAM - GRD
46	# of Approach Span	4
107	Deck Mat/Constr.	1 CONCRETE CIP
108A	Wear Surf Mat/Constr.	5 EPOXY OVERLAY
108B	Membrane Mat/Constr.	0 NONE
108C	Deck Protect Mat/Constr.	0 NONE

CONDITION RATING INFORMATION

58	Deck Cond. Rating	4
59	Superstructure Cond. Rating	3
60	Substructure Cond. Rating	5
61	Channel /Channel Protection Cond. Rating	N
62	Culvert Cond. Rating	N

INSPECTION INFORMATION

90	Gen. Insp Date	10 / 21		
91	Gen. Insp. Frequency	24	Months	
92A	Frac. Critical Inspection	Y	Months	24
93A	Frac. Critical Insp. Date	10 / 21		
92B	Underwater Inspection	N	Months	
93B	Underwater Insp. Date			
92C	Special Inspection	N	Months	
93C	Special Inspection Date			

BORDER BRIDGE INFORMATION

98	Neighboring State Code
98B	Neighboring State % Respon
99	Neighboring State Struc. No.

APPROVED POSTING INFORMATION

Approved Posting Category S-15

	Ton1	Ton2	Ton3
Tonnage Values for Posting Sign	35	20	

General Text for Posting Sign

TRUCK WEIGHT LIMIT 35 TONS EXCEPT SINGLE UNIT
TANDEM REAR AXLE TRUCKS 20 TONS WEIGHT LIMIT

FIELD POSTING INFORMATION

Field Posting Category S-15

	Ton1	Ton2	Ton3
Tonnage Values for Posting Sign	35	20	

General Text for Posting Sign

TRUCK WEIGHT LIMIT 35 TONS EXCEPT SINGLE UNIT
TANDEM REAR AXLE TRUCKS 20 TONS WEIGHT LIMIT

Design_No = K0789 and Inventory_Appraisal_Submittal_Year = 2023

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:46:45am

COUNTY : HOWELL **BRIDGE :** K0789 1 **REVIEW STATUS :** CONVERTED **NBI STATUS :** T
RECORD TYPE : ROUTE 'UNDER' STRUCT **RUN DATE :** 3/6/2023 **SUBMITTAL YEAR :** 2023

GENERAL STRUCTURE INFORMATION

1	State	MISSOURI
2	District	SE
3	County	HOWELL
8	Federal ID No.	5941
27	Year Built	1939
106	Year Reconstructed	0
42A	Type of Service On	HIGHWAY
21	Structure Maintenance	
22	Structure Owner	
33	Br. Median Code	
37	Historical Significance	
101	Parallel Struc Desg	NONE EXISTS
103	Temporary Structure	NOT TEMPORARY
112	NBIS Bridge Length	

ROUTE DESIGNATION INFORMATION

5A	Record Type	ROUTE 'UNDER' STRUCT	Code : 2
5B	Route Signing Prefix	CST	
5C	Designated Level of Service	MAINLINE	
5D	Route Number	00000	
5E	Directional Suffix	NOT APPLICABLE	
7	Facility Carried	MO 137 S	
12	Base Hwy. Network		
13A	LRS Inventory Route No.		
13B	Subroute No.		
20	Toll Status	ON FREE ROAD	
26	Functional Classification	09-RURAL LOCAL	
28A	Lanes on Structure	02	
100	STRAHNET Designation	RTE NOT A DEFENSE HWY	
104	National Highway System	NOT ON NHS	
105	Federal Lands Highway		
110	Designated Nat. Network	NO	

STRUCTURE LOCATION INFORMATION

4	Place	WILLOW SPRINGS CITY
	Code	80098
9	Location	S 30 T 27 N R 9 W
11	Milepoint	0.33 miles
16	Latitude	36 D 59 M 28 S
17	Longitude	91 D 58 M 13 S

STRUCTURE TRAFFIC INFORMATION

29	AADT	116
30	AADT Year	2022
102	Direction of Traffic	2-WAY TRAFFIC
109	AADT Truck Percent	9%
114	Future AADT	
115	Future AADT Year	

UNDERRECORD INFORMATION

6	Features Intersected	CST FIRST ST
42B	Type of Service Under	HIGHWAY-RAILROAD
28B	Lanes Under Structure	02
54A	Vert. Clearance Ref.	
54B	Vert. Clearance	
55A	Rt. Lat Clear Ref.	
55B	Rt. Lat Clearance	
56	Left Lat Clearance	
38	Navigation Control	
39	Nav Vertical Clear	
40	Nav Horizontal Clear	
111	Nav. Pier Protection	
116	Nav. Cl. Vert. Clear	

STRUCTURE GEOMETRIC INFORMATION

10	Inventory Rte. Vert. Clear	13 Ft. 11 In.
19	By pass Detour Length	0.00 miles
32	Approach Roadway Width	
34	Skew	
35	Struct. Flared	
47	Total Horiz. Clear	32 Ft. 2 In.
48	Maximum Span Length	75 Ft. 6 In.
49	Structure Length	264 Ft. 1 In.
50A	Left Curb/Sidewalk Width	
50B	Right Curb/Sidewalk Width	
51	Curb to Curb Br. Width	
52	Deck Width (Out-Out)	
53	Vert.Clearance Over Deck	

Design_No = K0789 and Inventory_Appraisal_Submittal_Year = 2023

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

August 10, 2023
5:46:45am

COUNTY :	**HOWELL**	**BRIDGE :**	**K0789 1**	**REVIEW STATUS :**	**CONVERTED**	**NBI STATUS :**	**T**
RECORD TYPE :	**ROUTE 'UNDER' STRUCT**			**RUN DATE :**	**3/6/2023**	**SUBMITTAL YEAR :**	**2023**

LOAD RATING AND POSTING INFORMATION

31	Design Load
41	Structure Status
63	Oper. Rating Meth.
64	Operating Rating
65	Inventory Rating Meth
66	Inventory Rating
70	Bridge Posting Code

PROPOSED IMPROVEMENT INFORMATION

	Sufficiency Rating
	Deficiency Rating
	Funding Eligibility
75A	Proposed Work
75B	Work Done By
76	New Struc Length
94	Struc Improve Cost
95	Roadway Improve Cost
96	Total Project Cost
97	Year of Cost Estimates

APPRAISAL RATING INFORMATION

36A	Br. Rail App. Rating
36B	Transition Rail App. Rating
36C	Approach Rail App. Rating
36D	Rail End Treat. App. Rating
67	Struc Eval App. Rating
68	Deck Geometry App. Rating
69	Underclearance App. Rating
71	Waterway Adeq. App. Rating
72	Approach Road App. Rating
113	Scour Assess App. Rating

MATERIAL/CONSTRUCTION INFORMATION

43A	Main Struc. Mat type	STEEL
43B	Main struc Constr. Type	GIRDER & FLOORBEAM SYSTEM
45	# of Main Spans	
44A	Appr Struc. Mat type	
44B	Appr Struc. Cnstr. type	
46	# of Approach Span	
107	Deck Mat/Constr.	
108A	Wear Surf Mat/Constr.	
108B	Membrane Mat/Constr.	
108C	Deck Protect Mat/Constr.	

CONDITION RATING INFORMATION

58	Deck Cond. Rating
59	Superstructure Cond. Rating
60	Substructure Cond. Rating
61	Channel /Channel Protection Cond. Rating
62	Culvert Cond. Rating

INSPECTION INFORMATION

90	Gen. Insp Date
91	Gen. Insp. Frequency
92A	Frac. Critical Inspection
93A	Frac. Critical Insp. Date
92B	Underwater Inspection
93B	Underwater Insp. Date
92C	Special Inspection
93C	Special Inspection Date

BORDER BRIDGE INFORMATION

98	Neighboring State Code
98B	Neighboring State % Respon
99	Neighboring State Struc. No.

APPROVED POSTING INFORMATION

Approved Posting Category

Ton1 Ton2 Ton3

Tonnage Values for Posting Sign

General Text for Posting Sign

FIELD POSTING INFORMATION

Field Posting Category

Ton1 Ton2 Ton3

Tonnage Values for Posting Sign

General Text for Posting Sign

Design_No = K0789 and Inventory_Appraisal_Submittal_Year = 2023

PROJECT SUMMARY REPORT FOR 9S3818 AS OF Aug 8, 2023

Work District	SOUTHEAST	**Status**	ONEDOT APPROVED	**Version**	APPROVED STIP	**Project Manager**	CHRIS (PETE) BERRY	**Payment Project**	N
Award Month/Award Year	1 / 2026	**Letting Date**	Dec 01, 2025	**Estimated Submittal Date**	Feb 22, 2023	**Let by**	CENTRAL OFFICE	**Letting Exclusion**	N

Primary Route	RT U S	**County**	WRIGHT
Description / Location	Bridge replacement over BNSF Railway.		
Reason / Remarks	Project involves bridge H0290.		
District Comments			

Project Amounts	**Total Estimated Cost for the Project**									
Typical Bridge	**Major Bridge**	**Pavement**	**Safety**	**Mobility**	**Capital Improvement**	**Contingency**	**Other Non-Contractual**	**Right of Way Acquisition**	**Preliminary Engineering**	**Construction Engineering**
1,539		0				31		22	291	217
Total Bridge	**1,539**			**Total Contract Estimate**	**1,539**	**Total Construction**	**1,570**		**Total Engineering**	**508**
						Total Right of Way and Construction		**1,592**	**Total Project**	**2,100**

Yearly Program Amounts	**Amount Programmed by SFY**									
	Prior to 2024	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**Future**	**Program Total**	**Project Total**
Preliminary Engineering	42	28	113	108					249	291
Construction Engineering				217					217	217
Right of Way Acquisition			22						22	22
Construction				1,570					1,570	1,570
Total	**42**	**28**	**135**	**1,895**					**2,058**	**2,100**

How the District is Funding the Project										
Funding Category										
Asset Management - CN	0	0	0	1,570	0	0	0	0	1,570	1,570
Asset Management - RW	0	0	22	0	0	0	0	0	22	22
Total	**0**	**0**	**22**	**1,570**	**0**	**0**	**0**	**0**	**1,592**	**1,592**
Funding From Other Sources										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Funds Transfer										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Right of Way and Construction	**0**	**0**	**22**	**1,570**	**0**	**0**	**0**	**0**	**1,592**	**1,592**
Engineering	42	28	113	325	0	0	0	0	466	508
Funding From Other Sources - Engineering										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Funds Transer - Engineering										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Engineering	**42**	**28**	**113**	**325**	**0**	**0**	**0**	**0**	**466**	**508**
Total Project	**42**	**28**	**135**	**1,895**	**0**	**0**	**0**	**0**	**2,058**	**2,100**

Bridge Count	1	**Railroads Impacted**	0	**Improvement**	**Action**	**Detailed Work**	**Federal Funds Category**	**Initiatives**
Bridges				BRIDGE		BRIDGE REPLACEMENT	AC-STBG	
H0290 ,								

Route	**Begin Log**	**End Log**	**Begin County**	**TMA**	**Travelway ID**	**System**	**Functional Class**	**NHS**	**AADT**	**Conflict of Interest**
RT U S	0	0.200	WRIGHT	N	2,527	SUPPLEMENTARY	MINOR COLLECTOR	N	197	N
RT U N	13.646	13.846	WRIGHT	N	2,528	SUPPLEMENTARY	MINOR COLLECTOR	N	191	N

Lane Miles	0.4	**Centerline Miles**	0.2

PROJECT SUMMARY REPORT FOR 9S3818 AS OF Aug 8, 2023

TIP Number	

Planning Organization	Federal District	Senate District	House District
SO CENTRAL OZARK COUN OF GOVTS	8	16	141

PROJECT SUMMARY REPORT FOR 9S3801 AS OF Aug 8, 2023

Work District	SOUTHEAST	**Status**	ONEDOT APPROVED	**Version**	APPROVED STIP	**Project Manager**	CHRIS (PETE) BERRY	**Payment Project**	N
Award Month/Award Year	1 / 2026	**Letting Date**	Dec 01, 2025	**Estimated Submittal Date**	Feb 22, 2023	**Let by**	CENTRAL OFFICE	**Letting Exclusion**	N

Primary Route	MO 137 S	**County**	HOWELL
Description / Location	Bridge replacement over BNSF Railway.		
Reason / Remarks	Project involves bridge K0789.		
District Comments			

Project Amounts	**Total Estimated Cost for the Project**									
Typical Bridge	**Major Bridge**	**Pavement**	**Safety**	**Mobility**	**Capital Improvement**	**Contingency**	**Other Non-Contractual**	**Right of Way Acquisition**	**Preliminary Engineering**	**Construction Engineering**
3,635		0				73		1,231	684	512
Total Bridge	**3,635**			**Total Contract Estimate**	**3,635**	**Total Construction**	**3,708**		**Total Engineering**	**1,196**
						Total Right of Way and Construction		**4,939**	**Total Project**	**6,135**

Yearly Program Amounts	**Amount Programmed by SFY**									
	Prior to 2024	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**Future**	**Program Total**	**Project Total**
Preliminary Engineering	100	64	264	256					584	684
Construction Engineering				512					512	512
Right of Way Acquisition			1,231						1,231	1,231
Construction				3,708					3,708	3,708
Total	**100**	**64**	**1,495**	**4,476**					**6,035**	**6,135**

How the District is Funding the Project										
Funding Category										
Asset Management - CN	0	0	0	3,708	0	0	0	0	3,708	3,708
Asset Management - RW	0	0	1,231	0	0	0	0	0	1,231	1,231
Total	**0**	**0**	**1,231**	**3,708**	**0**	**0**	**0**	**0**	**4,939**	**4,939**
Funding From Other Sources										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Funds Transfer										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Right of Way and Construction	**0**	**0**	**1,231**	**3,708**	**0**	**0**	**0**	**0**	**4,939**	**4,939**
Engineering	100	64	264	768	0	0	0	0	1,096	1,196
Funding From Other Sources - Engineering										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Funds Transer - Engineering										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Engineering	**100**	**64**	**264**	**768**	**0**	**0**	**0**	**0**	**1,096**	**1,196**
Total Project	**100**	**64**	**1,495**	**4,476**	**0**	**0**	**0**	**0**	**6,035**	**6,135**

Bridge Count	1	**Railroads Impacted**	0	**Improvement**	**Action**	**Detailed Work**	**Federal Funds Category**	**Initiatives**
Bridges				BRIDGE		BRIDGE REPLACEMENT	NHPP	
K0789 ,								

Route	**Begin Log**	**End Log**	**Begin County**	**TMA**	**Travelway ID**	**System**	**Functional Class**	**NHS**	**AADT**	**Conflict of Interest**
MO 137 S	42.299	42.522	HOWELL	N	1,955	SUPPLEMENTARY	MAJOR COLLECTOR	N	1,688	N
MO 137 N	0.549	0.772	HOWELL	N	1,956	SUPPLEMENTARY	MAJOR COLLECTOR	N	1,776	N

Lane Miles	0.446	**Centerline Miles**	0.223

PROJECT SUMMARY REPORT FOR 9S3801 AS OF Aug 8, 2023

TIP Number	

Planning Organization	Federal District	Senate District	House District
SO CENTRAL OZARK COUN OF GOVTS	8	33	154