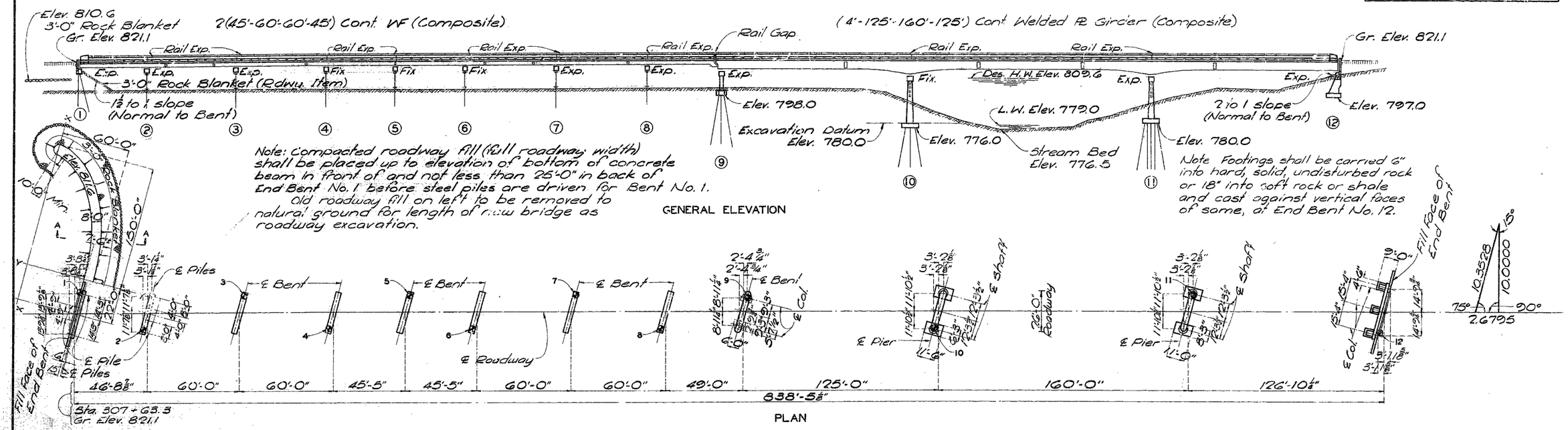
MISSOURI STATE HIGHWAY DEPARTMENT

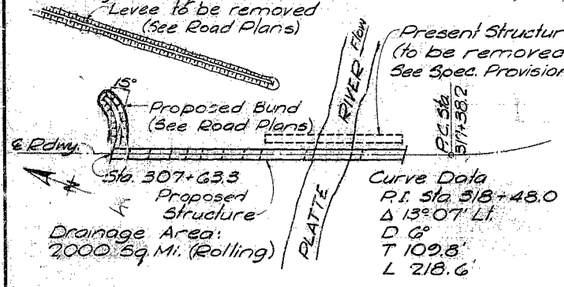
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	13	



ESTIMATED QUANTITIES

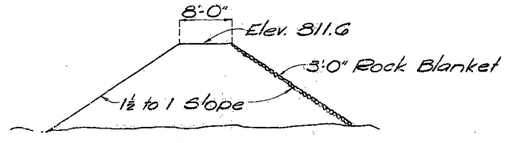
ITEM		SUBSTR.	SUPERSTR	TOTAL
Class 1 Excavation for Structures	Cu. Yd.	525		525
Class 2 Excavation for Structures	Cu. Yd.	40		40
Steel Piles-in-Place (10")	Lin. Ft.	2216		2216
Steel Pile Cut-offs (10")	Lin. Ft.	114		114
Steel Piles-in-Place (12")	Lin. Ft.	556		556
Steel Pile Cut-offs (12")	Lin. Ft.	84		84
Class B Concrete	Cu. Yd.	251.0		251.0
Class B1 Concrete	Cu. Yd.		633.1	633.1
Reinforcing Steel	Lb.	30,170	181,740	211,910
Fabricated Structural Carbon Steel (WF-Bm. span)	Lb.		182,800	191,000
Fabricated Structural Carbon Steel (PL Gdr. span)	Lb.		343,600	343,600
Bridge Rail (Single tube type)	Lin. Ft.		1,650	1,650

Note: No payment for excavation will be allowed at End Bent No. 1. Estimated weight of Fab. Str. Carbon Stl. (WF-Beam Span) includes weight of Angles required for bent No. 2, 3, 4, 5, 6 and 8.



LOCATION SKETCH

Note: For Boring Data see sheet No. 30 of 17.
"B" Indicates location of Boring.



SECTION A-A

FOOTING AND PILE DATA

	BENT OR PIER NO.	1	2	3	4	5	6	7	8	9	10	11	12
SPREAD FOOTING	Foundation Material												Rock
	Design Bearing Tons/Sq. Ft.												7.0
BEARING PILE	Pile Type and Size	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	12BP53	12BP53	
	Number	4	4	4	4	4	4	4	4	6	12	16	
	Approximate Length Ft.	60	65	65	65	65	65	65	65	45	20	25	
	Plan Bearing Tons	37	55	55	55	37	55	55	55	55	70	46	
	Minimum Required Bearing Tons	24	44	46	44	34	44	46	44	43	69	45	
	Hammer	Power	Heavy Power			Power	Heavy Power					Power	

Note: All pile shall be driven to practical refusal on or into solid rock or other point bearing material of not less than the Plan Bearing shown, unless excessive splicing is required to obtain Plan Bearing, in which case the engineer will authorize a lesser bearing, but in no case less than the Minimum Required Bearing.

Where heavy power hammer is specified all piling shall be driven with an approved power hammer developing an energy of not less than 19,000 ft. lbs. and having a ram weighing not less than 4,500 lbs.

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

Sheet No. 1 of 17.

GENERAL NOTES:

SPECIFICATIONS:
A.A.S.H.O. - 1961

DESIGN LOADING:
H15-44 (15"/sq. ft. Future Wearing Surface)
Earth - 120#, Equivalent Fluid Pressure 30#

DESIGN UNIT STRESSES:
Class B Concrete (substructure) f_c = 1,200 psi
Class B1 Concrete (superstructure) f_c = 1,600 psi
Reinforcing Steel f_s = 20,000 psi
Structural Steel (A.S.T.M. A36-62T) f_s = 20,000 psi
Steel Pile (A.S.T.M. A36-62T) f_b = 9,000 psi

SURFACE SEAL:
Superstructure deck to be surface sealed.

FABRICATED STEEL:
Field connections, High Strength Bolts ¾" ϕ, holes 13/16" ϕ except as noted.

WELDING:
Details of welded joints shown are for manual arc welding except as noted.

B.M. #3 Elev. 816.54 "a" in N.W. Cor. of S.W. Bridge Abut. 30' Lt. Sta. 316+00

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616 (2) (SZ) **STA.** 307+63.3

PLATTE **COUNTY**

DESIGNED March 1965 BY TAM
DETAILED Jun. 1965 BY Bryan
CHECKED Sept. 1965 BY AuH

SUBMITTED BY [signature] BRIDGE ENGINEER DATE 10/4/65
APPROVED BY [signature] CHIEF ENGINEER DATE 10/4/65

STD. 54.00
S-25R

103

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	14	

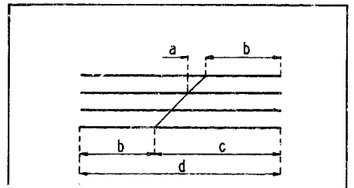
COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
End Bent No. 1				
8	#7	33'-6"	H1	Bm.
2	#6	31'-6"	H2	"
4	#4	29'-6"	H3	Backwall
6	#6	6'-9"	H4	Wing
2	#6	29'-6"	H5	Backwall
2	#6	6'-5"	H6	Wing
2	#6	5'-3"	H7	"
4	#6	10'-6"	T1	Wing
4	#6	8'-9"	T2	"
31	#4	11'-3"	U1	Bm.
10	#4	5'-3"	U2	"
54	#5	4'-6"	V1	Backwall
5	#4	9'-0"	V2	Wing
12	#5	6'-9"	V3	"
8	#2	19'-9"	W1	A.B. Wells
Int. Bent No. 2,3,4,5,6,7&8				
56	#7	29'-0"	H8	Beam
14	#6	26'-9"	H9	"
196	#4	9'-9"	U3	Bm.
84	#4	3'-3"	U4	"
48	#2	19'-9"	W1	A.B. Wells Bent 2,3,4,5,6,7,8
16	#2	19'-9"	W1	A.B. Wells Bent #5 only
Int. Bent No. 9				
4	#8	28'-3"	H18	Bm.
8	#10	24'-6"	H19	"
2	#6	24'-6"	H20	"
8	#8	11'-6"	H21	"
8	#7	6'-3"	H22	"
16	#9	4'-6"	D2	Col.
8	#6	8'-0"	D3	Footing
4	#6	7'-0"	D4	"
20	#3	8'-0"	P1	Col.
33	#5	10'-9"	U7	Bm.
10	#4	3'-6"	U8	"
2	#5	10'-3"	U9	"
16	#9	12'-6"	V13	Col.
8	#2	19'-9"	W1	A.B. Wells
Pier No. 10				
4	#7	24'-6"	H23	Cap
2	#6	27'-9"	H24	"
2	#4	23'-3"	H25	"
4	#7	8'-3"	H26	"
3	#8	25'-3"	H27	Web
10	#4	23'-9"	H28	"
36	#11	5'-6"	D5	Ftg.
4	#9	18'-0"	D6	"
16	#9	11'-3"	D7	"
12	#5	6'-0"	D8	"
28	#9	14'-0"	P2	Shaft
36	#11	19'-9"	P3	"
22	#4	12'-9"	P4	Web
15	#8	23'-3"	P5	Shaft
25	#6	6'-6"	U10	Cap
23	#5	6'-9"	U11	"

NO.	SIZE	LENGTH	MARK	LOCATION
Pier No. 10 (Cont'd)				
2	#6	5'-9"	U12	Cap
24	#5	1'-9"	U13	Web.
10	#4	4'-3"	U14	Cap
8	#2	23'-0"	W2	A.B. Wells
Pier No. 11				
4	#7	8'-3"	H26	Cap
10	#4	23'-9"	H28	Web
4	#7	24'-6"	H23	Cap
2	#6	27'-9"	H24	"
2	#4	23'-3"	H25	"
3	#8	25'-3"	H27	Web
18	#11	5'-6"	D5	Ftg.
4	#10	20'-3"	D9	"
8	#10	10'-9"	D10	"
20	#5	8'-0"	D11	"
18	#11	16'-9"	P9	Shaft
16	#9	13'-3"	P6	"
22	#4	12'-0"	P7	Web
13	#4	22'-3"	P8	Shaft
25	#6	6'-6"	U10	Cap
23	#5	6'-9"	U11	"
24	#5	7'-9"	U13	Web
10	#4	4'-3"	U14	Cap
2	#6	5'-9"	U12	"
8	#2	19'-9"	W1	A.B. Wells
End Bent No. 12				
3	#11	38'-6"	H11	Bm.
5	#10	36'-0"	H12	"
2	#6	36'-0"	H13	"
8	#4	29'-6"	H14	Backwall
2	#6	29'-6"	H15	"
10	#6	11'-0"	H16	Wing
10	#6	18'-6"	H17	"
4	#11	11'-3"	H29	Beam
30	#6	3'-0"	D1	Ftg.
16	#6	8'-6"	F1	Col.
8	#6	8'-0"	F2	"
12	#6	9'-3"	F3	"
4	#6	18'-9"	T3	Wing
51	#5	10'-6"	U5	Bm.
6	#4	3'-6"	U6	"
54	#5	8'-3"	V4	Backwall
12	#5	10'-0"	V5	"
11	#4	12'-6"	V6	Wing
18	#6	14'-0"	V7	Col.
12	#6	13'-0"	V8	"
12	#4	11'-9"	V9	"
24	#3	15'-9"	V10	"
9	#3	13'-0"	V11	"
8	#2	19'-9"	W1	A.B. Wells
Superstructure				
16-25	#5	3'-9"	C1	Curb
4	#5	23'-9"	C2	"
4	#6	23'-3"	C3	"
32	#6	30'-9"	C4	"
24	#6	23'-6"	C5	"
16	#6	33'-6"	C6	"
20	#6	33'-3"	C7	"

NO.	SIZE	LENGTH	MARK	LOCATION
Superstructure (Cont'd)				
16	#6	2'-7 9/16"	C8	Curb
4	#5	21'-0"	C9	"
24	#5	4'-9"	R1	End Post
4	#5	5'-9"	R2	" "
4	#5	6'-6"	R3	" "
4	#5	7'-0"	R4	" "
4	#5	7'-3"	R5	" "
8	#5	7'-3"	R6	" "
1984	#5	5'-6"	R7	Parapet
8	#5	31'-0"	R8	"
16	#5	38'-3"	R9	"
16	#5	37'-6"	R10	"
16	#5	34'-6"	R11	"
8	#5	34'-0"	R12	"
32	#5	30'-6"	R13	"
32	#5	35'-6"	R14	"
3542	#5	28'-3"	S1	Slab
406	#4	31'-0"	S2	"
392	#5	31'-3"	S3	"
2	#4	29'-3"	S4	"
30	#5	29'-9"	S5	"
224	#4	16'-0"	S6	"
30	#5	30'-3"	S8	"
406	#4	30'-6"	S9	"
336	#5	35'-9"	S10	"
32	#5	27'-3"	S11	"
32	#5	28'-3"	R15	Parapet
112	#5	10'-6"	R16	"
16	#5	11'-3"	R17	"

BENDING SKETCHES & CUTTING DIAGRAMS

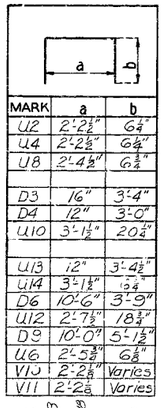


*BEND AS SHOWN

CUTTING SCHEDULE

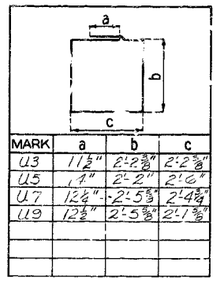
REMARKS	a	b	c	d
5-V2 Cut 5	11 1/2"	2'-7"	6'-5"	9'-0"
* 15-P5 Cut 15	3 3/8"	9'-9 3/8"	13'-5 3/8"	25'-3"
* 13-P8 Cut 13	3 3/8"	9'-6 3/8"	12'-8 3/8"	22'-3"
10-H17 Cut 10	10 3/8"	5'-2 5/8"	13'-3 3/8"	18'-6"
11-V6 Cut 11	7 3/8"	3'-0 5/8"	9'-5 3/8"	12'-6"
* 9-V10 Cut 24	5 1/4"	6'-4 1/4"	9'-4 3/8"	15'-9"
* 3-V11 Cut 9	5 1/4"	6'-0 3/8"	6'-11 1/4"	13'-0"
15-S5 Cut 30	20 1/2"	2'-11"	26'-10"	29'-9"
15-S8 Cut 30	20 1/2"	3'-2"	27'-1"	30'-3"
16-S11 Cut 32	20 1/2"	19 3/8"	25'-7 1/8"	27'-3"

H17-P5-P8-V2-V6-V10-V11-S5-S8-S11



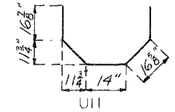
H1-H8 H11-H18

MARK	a	b
U2	2'-2 1/2"	6 1/4"
U4	2'-2 1/2"	6 1/4"
U8	2'-4 1/2"	6 1/4"
D3	16"	3'-4"
D4	12"	3'-0"
U10	3'-1 1/2"	20 1/4"
U13	12"	3'-4 1/2"
U14	3'-1 1/8"	19 1/4"
D6	10'-6"	3'-9"
U12	2'-7 1/2"	18 3/4"
D9	10'-0"	5'-1 1/2"
U6	2'-5 3/8"	6 3/8"
V10	2'-2 3/8"	Varies
V11	2'-2 3/8"	Varies

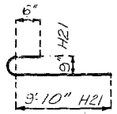


MARK	a	b	c
U3	11 1/2"	2'-2 3/8"	2'-2 3/8"
U5	4"	2'-2"	2'-6"
U7	12 1/4"	2'-5 5/8"	2'-4 7/8"
U9	12 1/2"	2'-5 5/8"	2'-7 3/8"

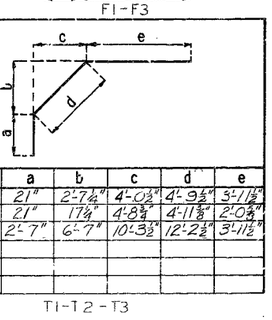
U3-U5-U7-U9



U11

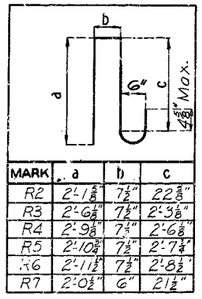


H21



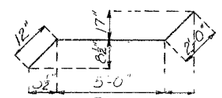
MARK	a	b	c	d	e
T1	21"	2'-7 1/4"	4'-0 1/2"	4'-9 1/2"	3'-11 1/2"
T2	21"	17 1/4"	4'-8 3/4"	4'-11 3/8"	2'-0 3/4"
T3	2'-7"	6'-7"	10'-3 1/2"	12'-2 1/2"	3'-11 1/2"

T1-T2-T3

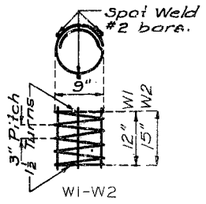


C1

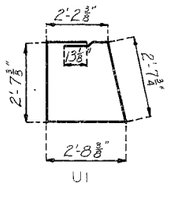
MARK	a	b	c
R2	2'-1 5/8"	7 1/2"	22 3/8"
R3	2'-6 1/8"	7 1/2"	2'-3 1/8"
R4	2'-9 3/8"	7 1/2"	2'-6 3/8"
R5	2'-10 3/8"	7 1/2"	2'-7 3/4"
R6	2'-11 1/2"	7 1/2"	2'-8 1/2"
R7	2'-0 1/2"	6"	21 1/2"



F2

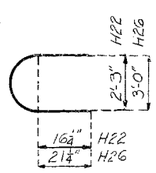


W1-W2



U1

P1 - P5



H22-H26

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616(2) (SZ) **STA.** 307+63.3

PLATTE **COUNTY**

S-25R

104

No. 904	Aug. 1963	Revised	Dec. 1964

DETAILED MAY 1965 BY CARTER

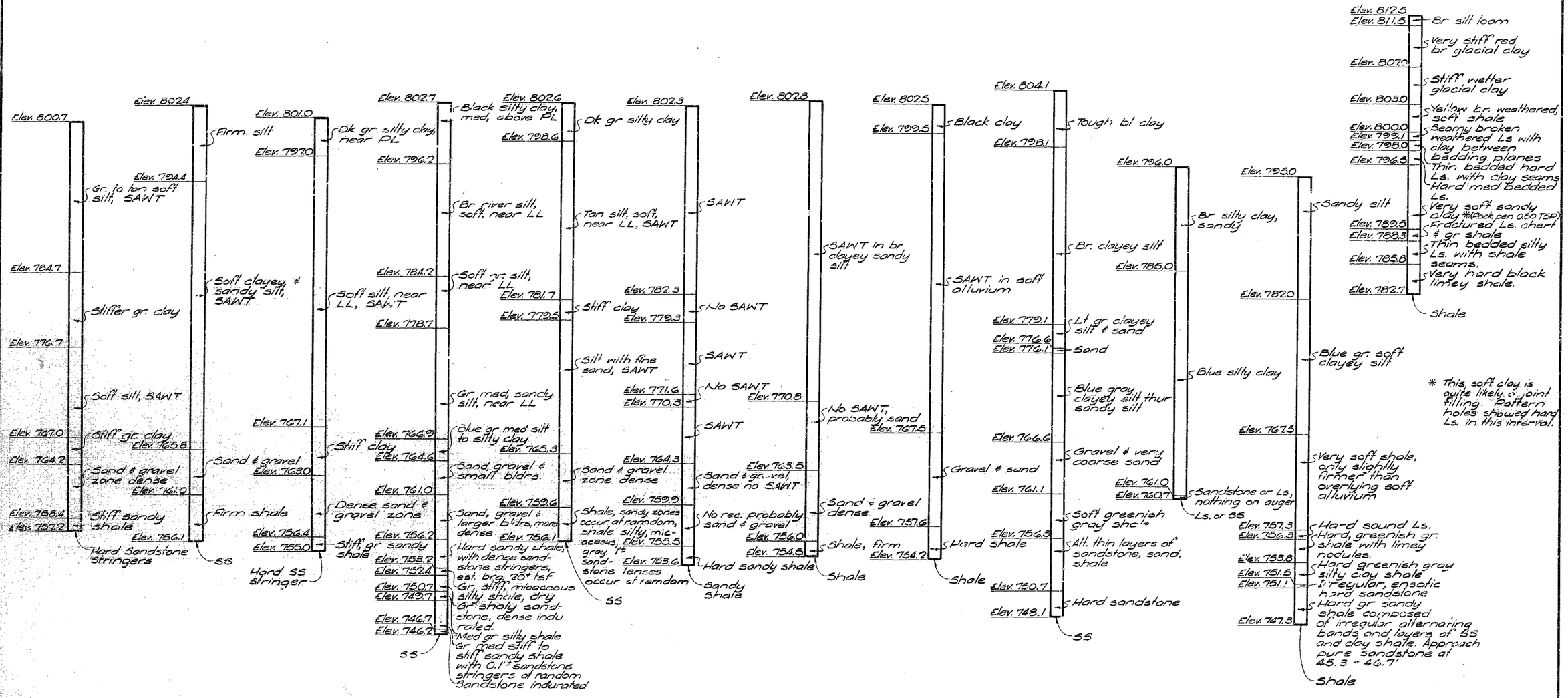
CHECKED Sept. 1965 BY Ault

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

Sheet No. 2 of 17.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	15	



105

BORING DATA

Note: "SAWT": Shoved augers without turning.

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO S-616(2) (SZ) STA. 307+63.3

PLATTE COUNTY

DETAILED May 1965 BY Bryan

CHECKED Sept. 1965 BY Ault

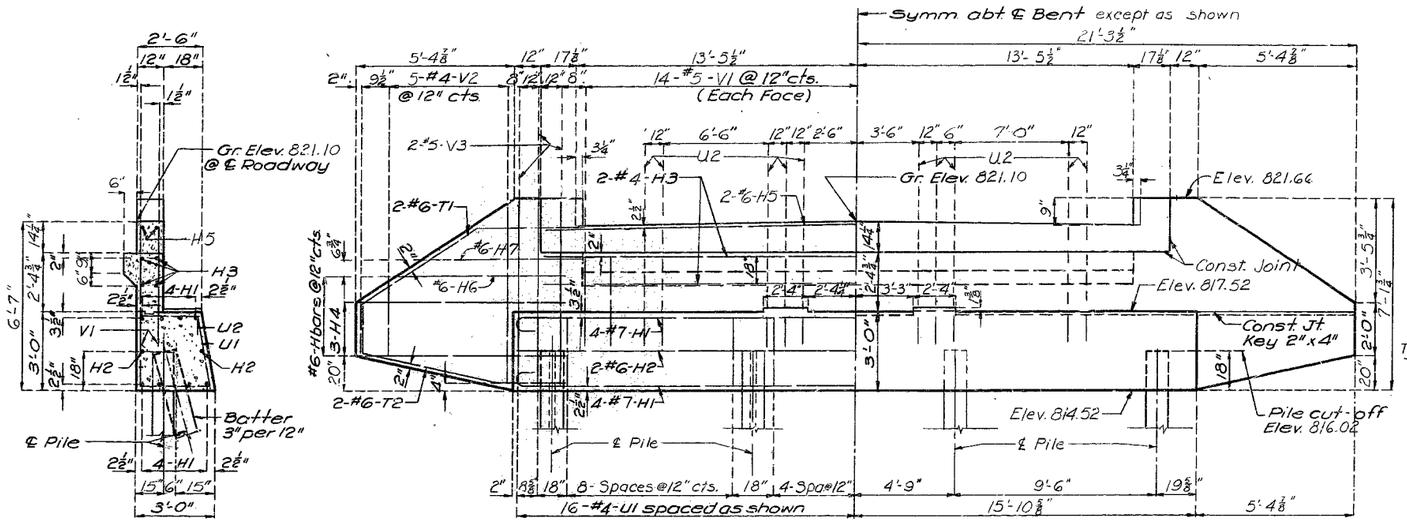
Note: This drawing is not to scale. Follow dimensions.

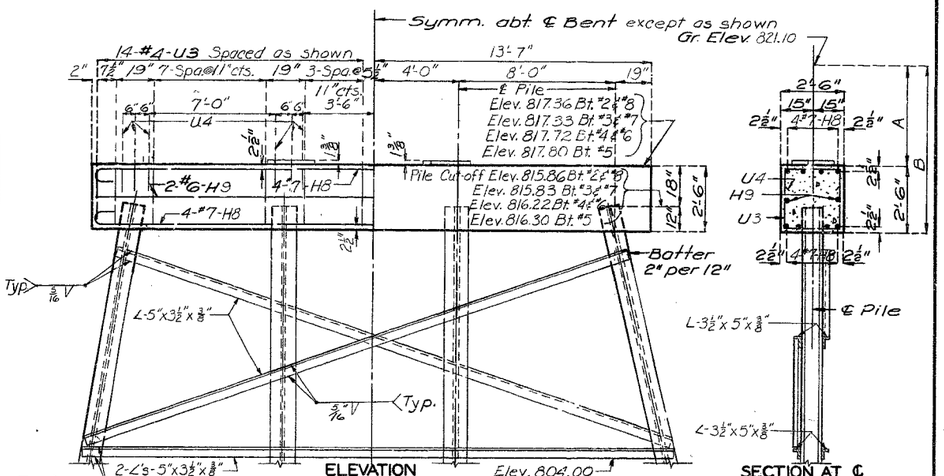
Sheet No. 3 of 17.

S-25R

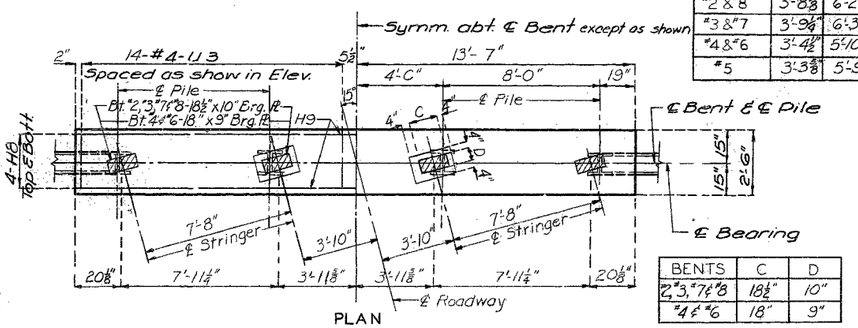
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	16	



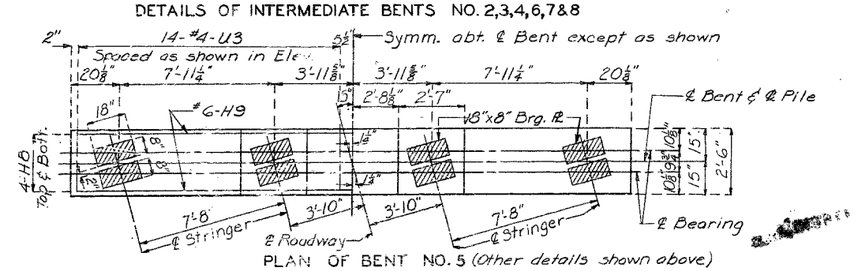


BENT	A	B
#2 & #8	3'-8⅜"	6'-2⅜"
#3 & #7	3'-9¼"	6'-3¼"
#4 & #6	3'-4½"	5'-10½"
#5	3'-3⅜"	5'-9⅜"

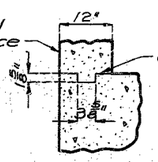


BENTS	C	D
#2, #3, #7, #8	18½"	10"
#4 & #6	18"	9"

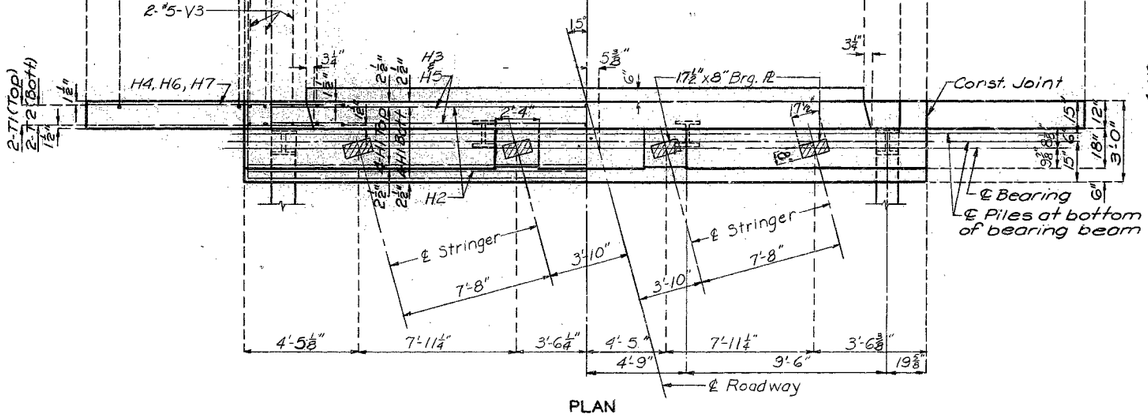
DETAILS OF INTERMEDIATE BENTS NO. 2,3,4,6,7&8



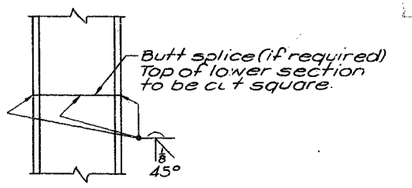
PLAN OF BENT NO. 5 (Other details shown above)



DETAIL OF KEYED CONST. JOINT



DETAILS OF END BENT NO. 1



DETAIL OF STEEL PILE SPLICE

Note: Fill at end bent No. 1 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.

Top of backwall and expansion device for end bent No. 1 to conform to crown of roadway slab.

Backwall above upper construction joint shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adjacent span.

106

No.	Revised	Mar. 1964
9.1		

DETAILED APRIL 1965 BY CARTER
CHECKED Sept. 1965 BY Ault

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

Sheet No. 4 of 17.

BRIDGE OVER PLATTE RIVER

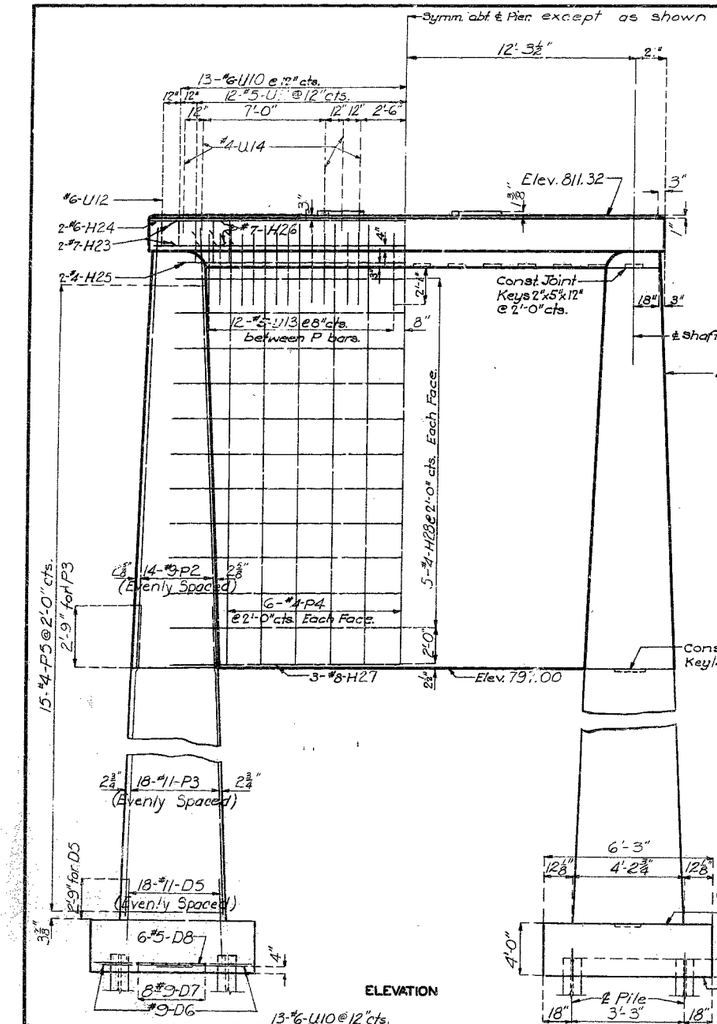
STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON
ABOUT 7.0 MILES E. OF DEARBORN
PROJECT NO. S-616(2) (SZ) STA. 307+63.3

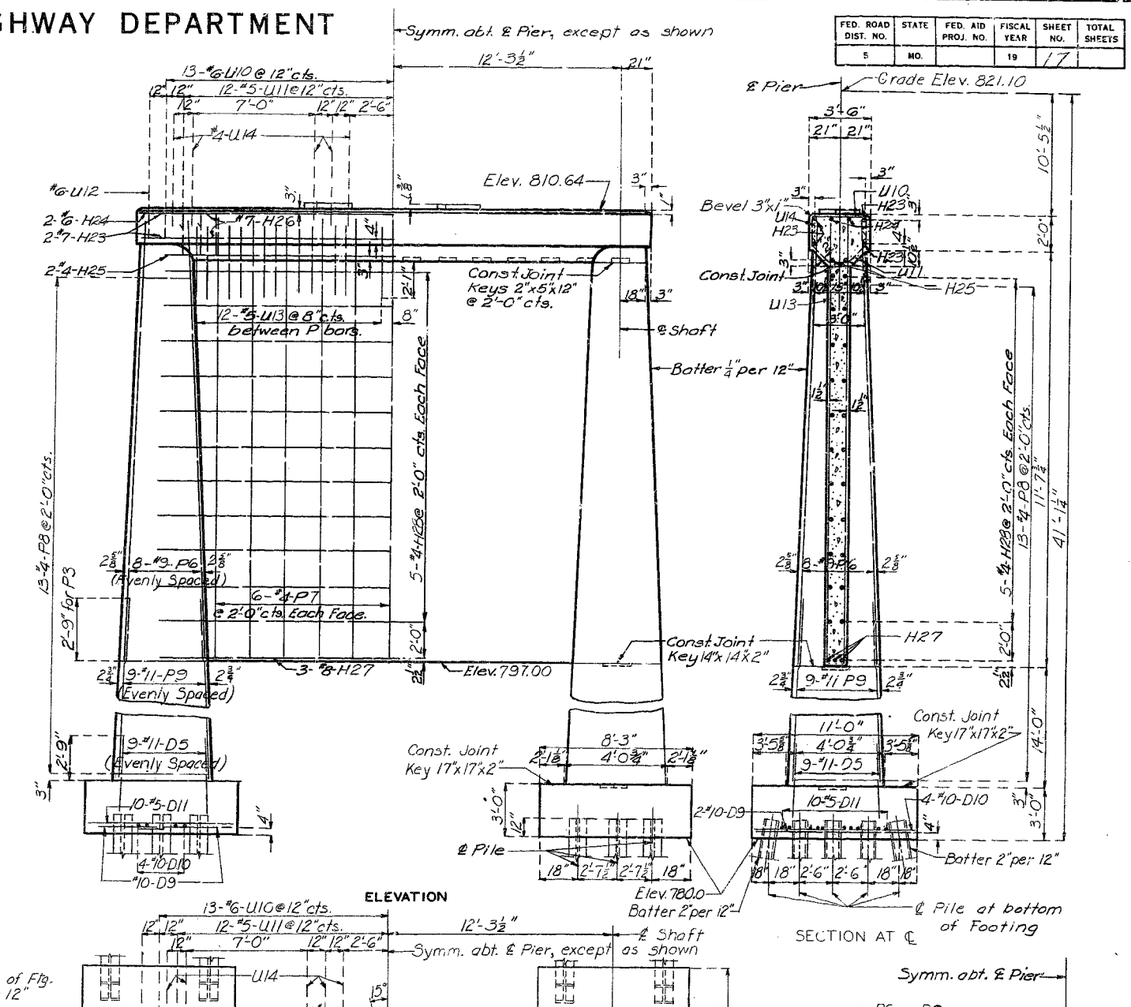
PLATTE COUNTY

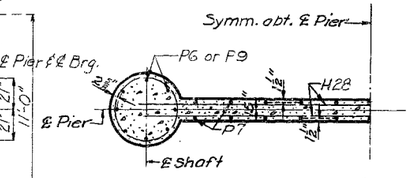
S-25R

MISSOURI STATE HIGHWAY DEPARTMENT

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







BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616(2) (SZ) **STA.** 307+63.3

PLATTE **COUNTY**

107

No.	Revised
20.2	Mar. 1964

DETAILED MAY 1965 BY CARTER

CHECKED Sept. 1965 BY Ault

Sheet No. 5 of 17.

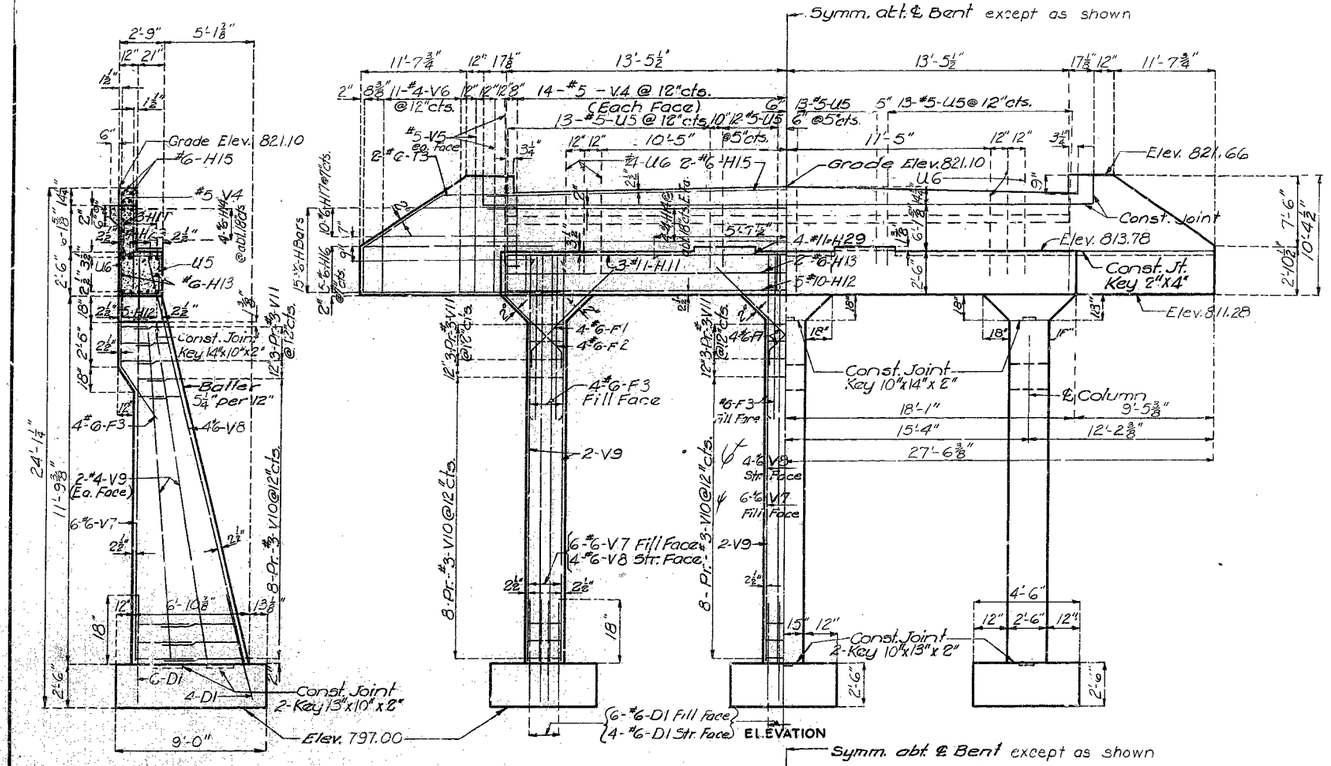
Note: This drawing is not to scale. Follow dimensions.

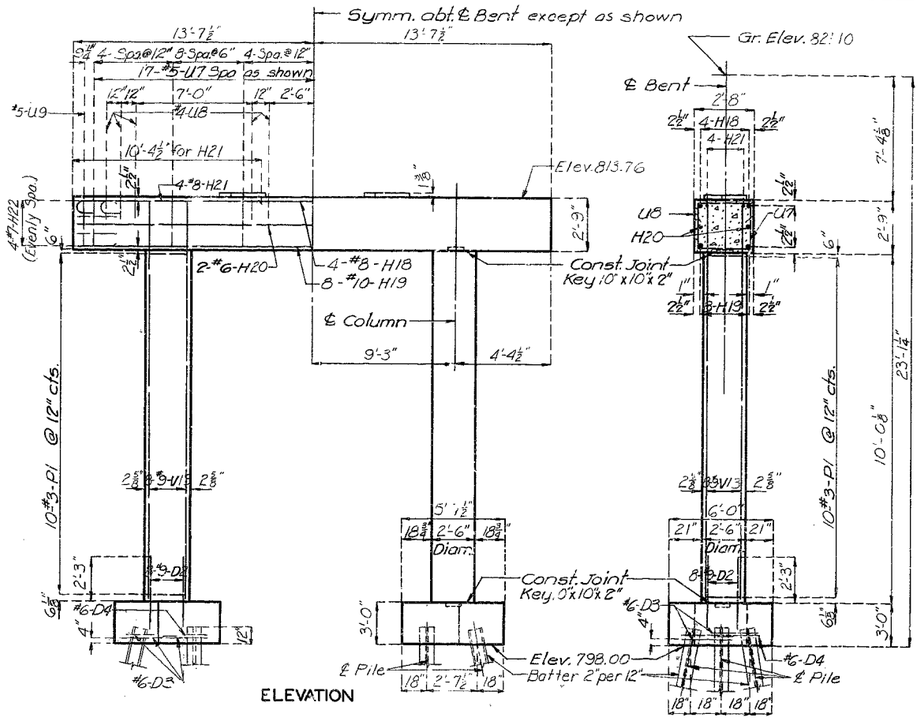
S-25R

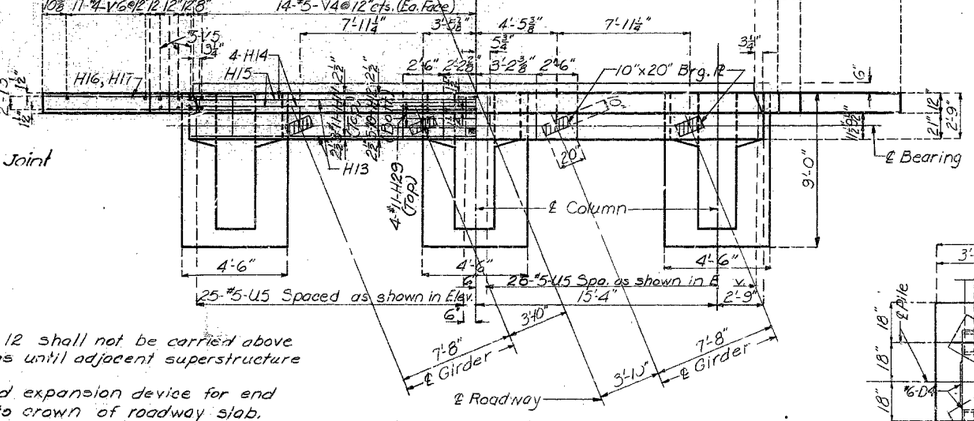
NO CONSTRUCTION CHANGES

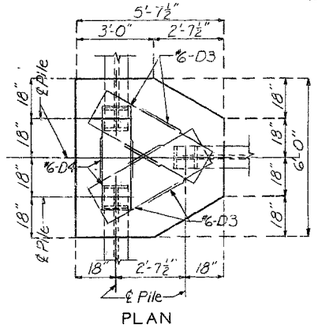
MISSOURI STATE HIGHWAY DEPARTMENT

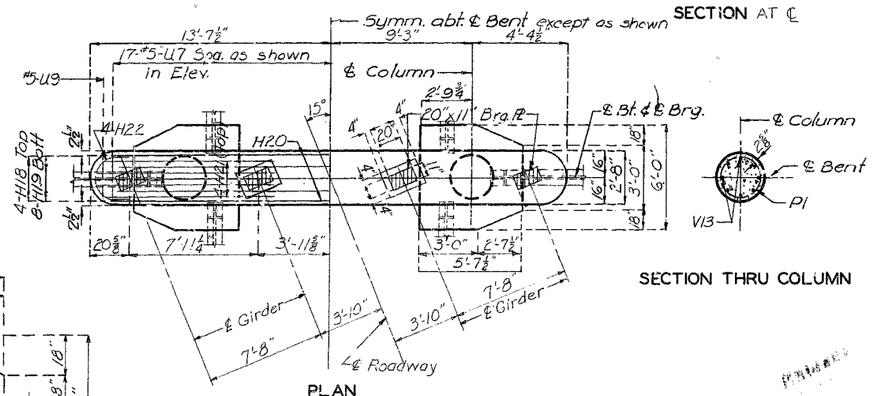
FED. ROAD DIST. NO.	STATE	FED.-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	18	











SECTION NEAR ℄

SECTION AT ℄

Note: Fill at End Bent No. 12 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.

Top of backwall and expansion device for end bent No. 12 to conform to crown of roadway slab.

Backwall above upper construction joint shall not be poured until the structural steel of the expansion device has been installed and slab has been poured in adjacent span.

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616 (2) (SZ) **STA.** 307+63.3

PLATTE **COUNTY**

S-25R

DETAILED MAY 1965 BY CARTER

CHECKED Sept. 1965 BY Ault

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

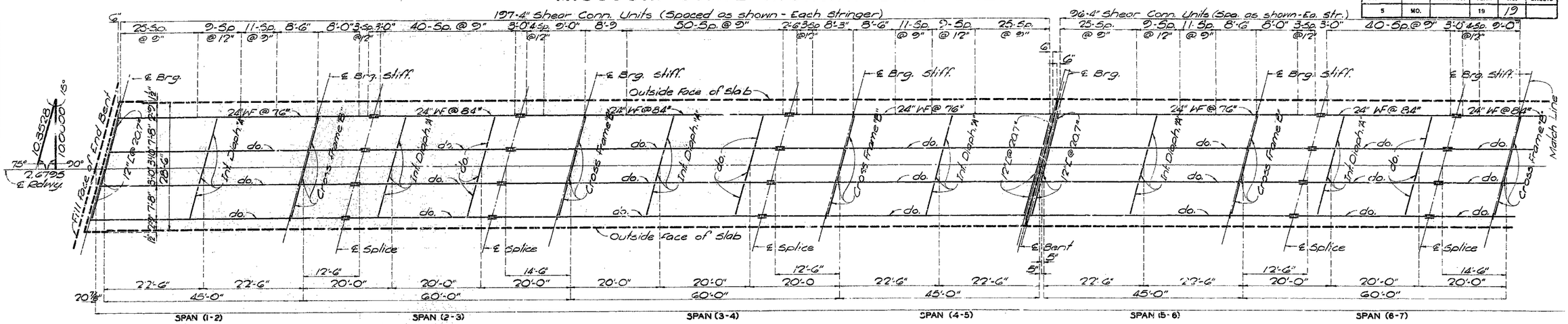
Sheet No. 6 of 17.

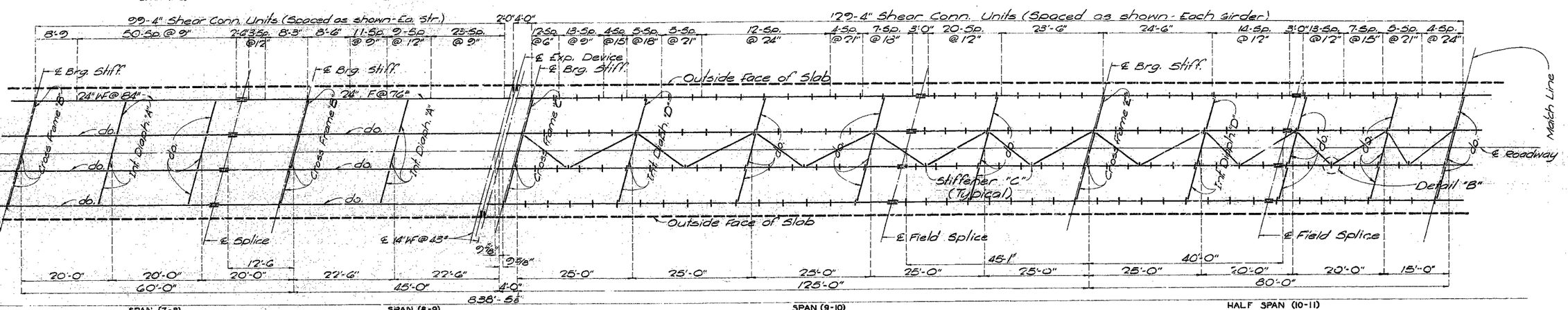
108

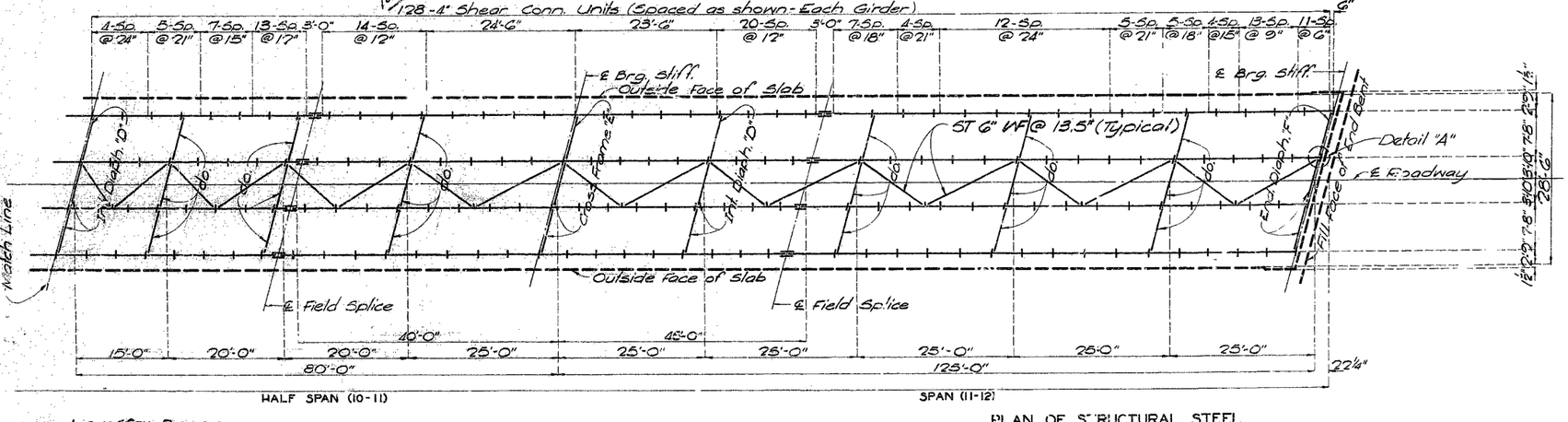
SEE FINAL PLANS FOR DETAILS

MISSOURI STATE HIGHWAY DEPARTMENT

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







Note: For Details "A" and "B", see sheet No. 10 of 17.

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616(2)(SZ) STA. 307+63.3

PLATTE COUNTY

S-25 R

PLAN OF STRUCTURAL STEEL

Sheet No. 7 of 17.

DETAILED Jun, 1965 BY Bryan

CHECKED Sept. 1965 BY Ault

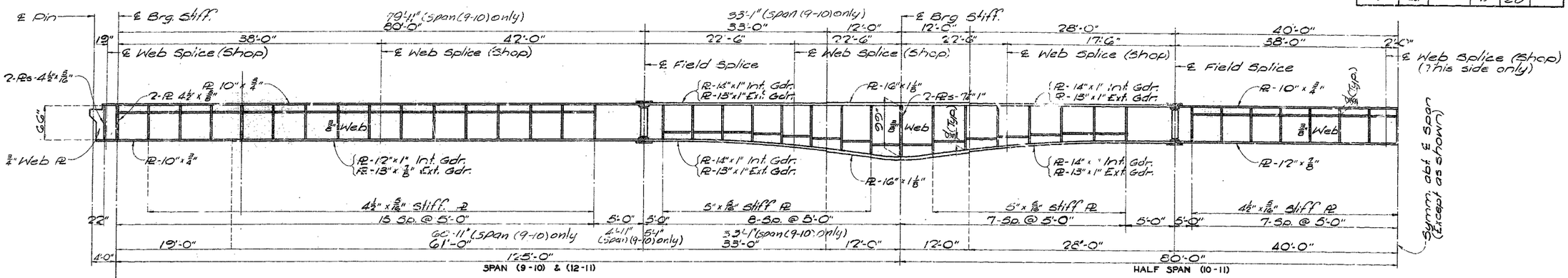
Note: This drawing is not to scale. Follow dimensions.

109

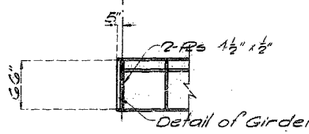
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	20	

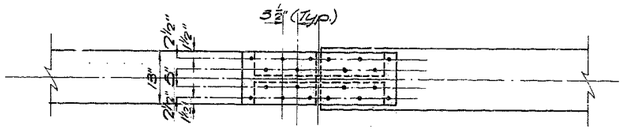


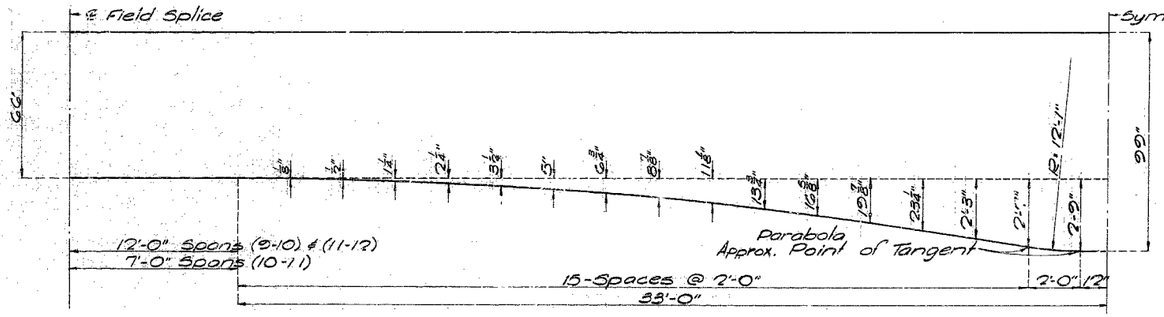
Note: Longitudinal web stiffeners shall be 4"x⅜" and shall be placed on the inside of exterior girders and on either side of interior girder. Transverse intermediate web stiffeners shall be placed on both sides of each girder.
For Camber of Plate Girder, See Sheet No. 15 of 17.



Detail of Girder end at End Bent No. 12

HALF ELEVATION OF GIRDERS

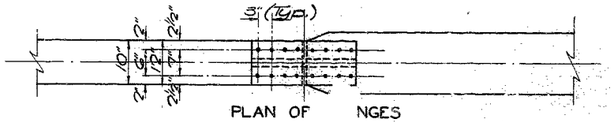




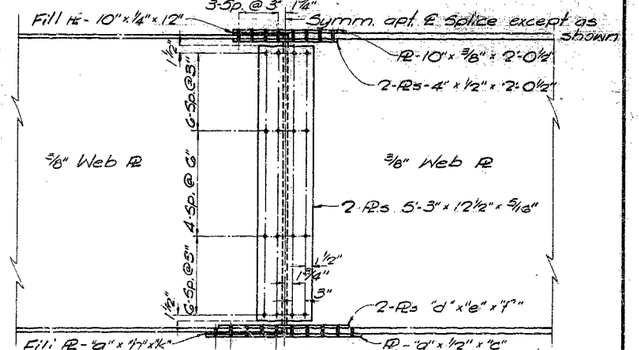
DETAIL OF GIRDER HAUNCH AT INT. SUPPORTS

TABLE OF DIMENSIONS FOR FIELD SPLICE								
Location of Splice	"a"	"c"	"J"	"e"	"f"	"h"	"k"
Ext. Gdr. Span (9-10) (11)	13	5'-5½"	6½"	1½"	2'-10½"	1⅛"	20¾"
Int. Gdr. Span "	12	3'-0½"	5"	5⅛"	3'-0½"	—	—
Gdr. Span (10-11)	12	3'-0½"	5"	1½"	2'-6½"	1⅛"	18"

Note: Use ⅞" high strength bolts with 15/16" reamed holes.

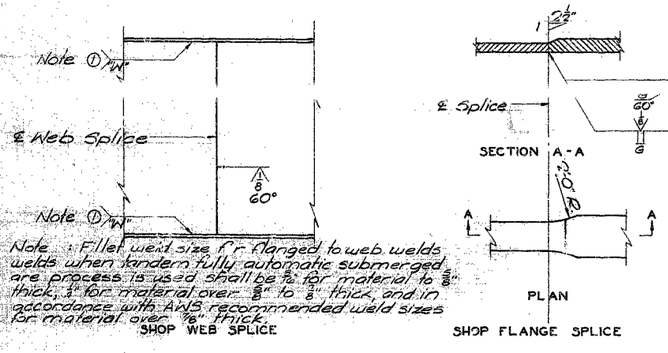


PLAN OF NGES



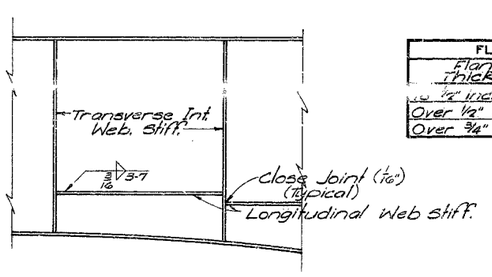
(Top PL) 4-Sp. @ 3½" 1¾" Ext. Gdr. Span (9-10) (11-12)
(Top PL) 5-Sp. @ 3" Int. Gdr. Span (9-10) (11-12) Only
(Bolt. PL) 5-Sp. @ 3" Ext. Gdr. Span (9-10), (11-12)
(Top PL) 4-Sp. @ 3" Gdr. Span (10-11)
(Bolt. PL) 5-Sp. @ 3" Gdr. Span (10-11), Int. Gdr. Span (9-10) (11-12)

DETAILS OF GIRDER FIELD SPLICE



SHOP WEB SPLICE

SHOP FLANGE SPLICE



WEB STIFFENERS

FLANGE TO WEB	
Flange Thickness	Min. Size Fillet Weld
½" inclusive	W=3/16"
Over ½" to ¾"	W=¼"
Over ¾" to 1½"	W=5/16"

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616 (2) (SZ) STA. 307 + 63.3

PLATTE COUNTY

S-25 R

DETAILED Jun. 1965 BY Bryan

CHECKED Sept. 1965 BY Ault

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

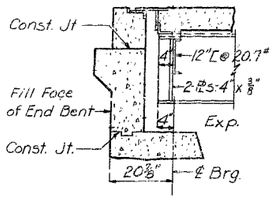
Sheet No. 8 of 17.

110

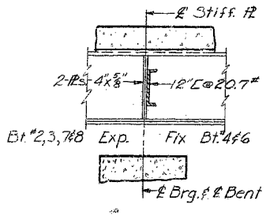
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

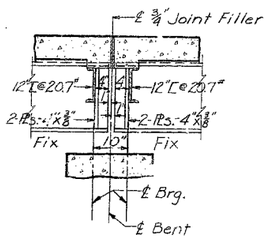
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	21	



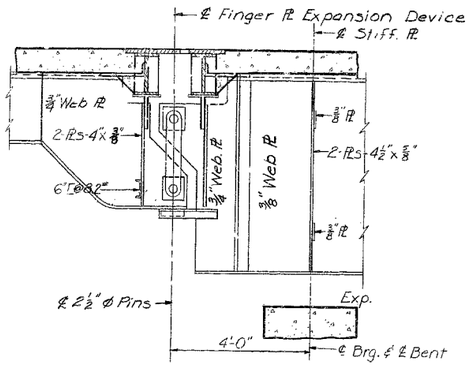
①



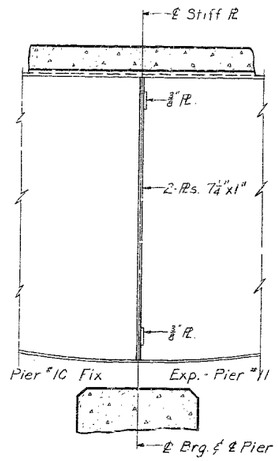
②③④
⑥⑦&⑧



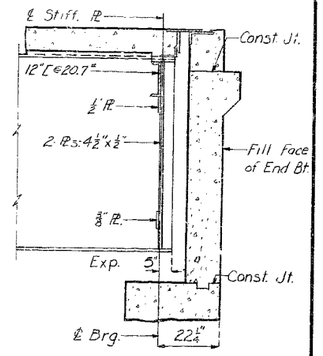
⑤



⑨

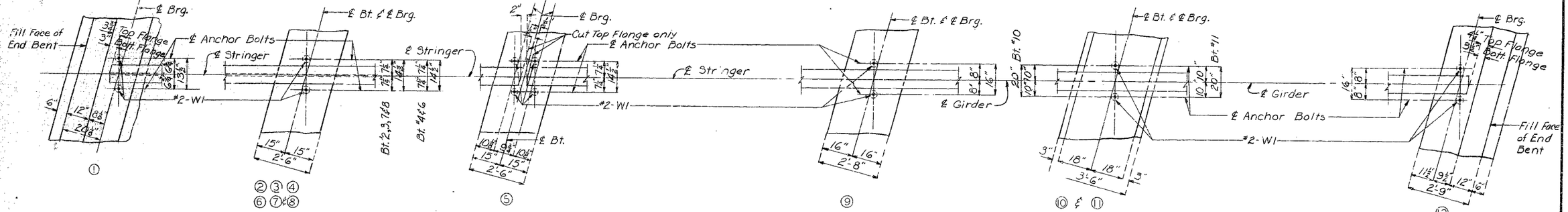


⑩ & ⑪

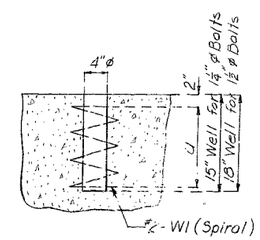


⑫

PART LONGITUDINAL SECTION



PART ANCHOR BOLT PLAN



"a" = 12" for 1 1/4" ø Bolts
"a" = 15" for 1 1/2" ø Bolts

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616(2) (SZ) **STA.** 307+63.3

PLATTE **COUNTY**

DETAILED MAY 1965 BY CARTER
CHECKED Sept. 1965 BY Ault

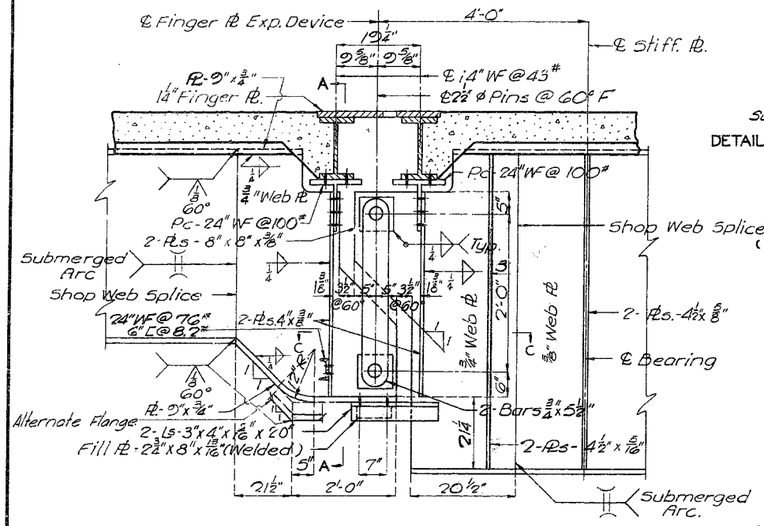
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 9 of 17

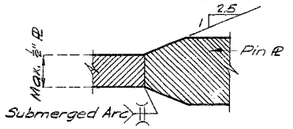
S-25R

MISSOURI STATE HIGHWAY DEPARTMENT

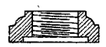
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	22	



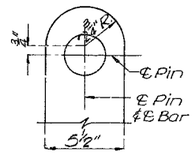
SECTION SHOWING HANGER CONNECTION
(For Section A-A, see sheet No. 11 of 17)
(Near Bt. No. 9)



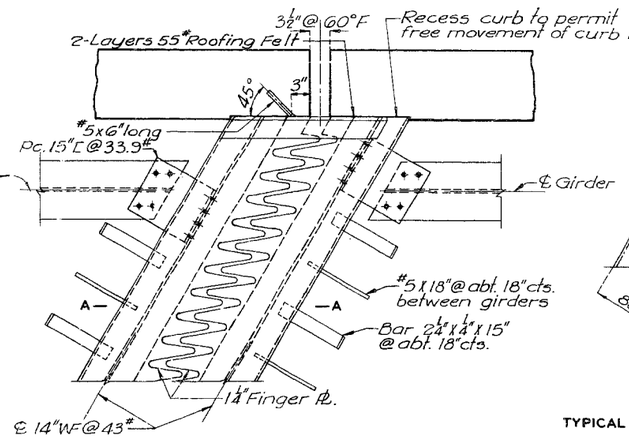
DETAILS OF SHOP WEB SPLICE



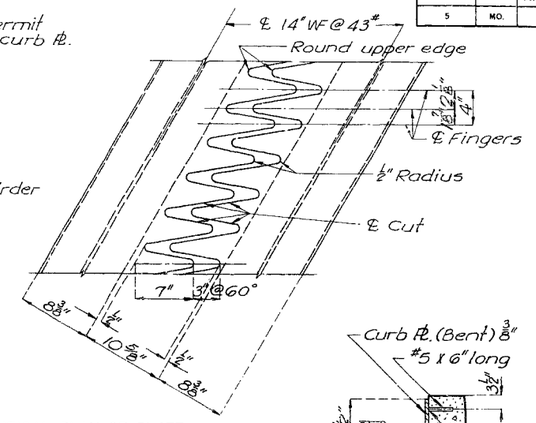
RECESSED PIN NUT
(CAST OR PRESSED STEEL)



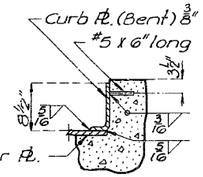
DETAIL OF HANGER BAR



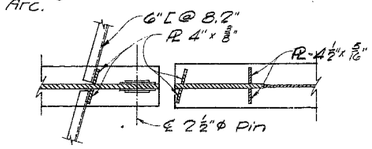
PART PLAN OF EXP. DEVICE



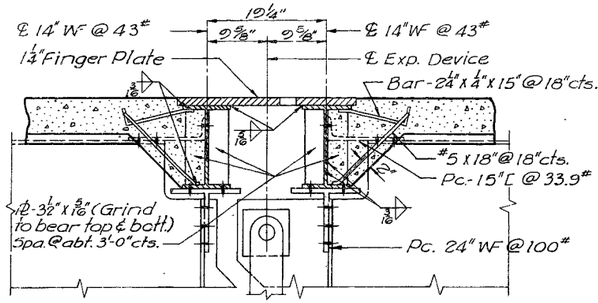
TYPICAL PLAN OF PLATE



SECTION AT CURB PLATE



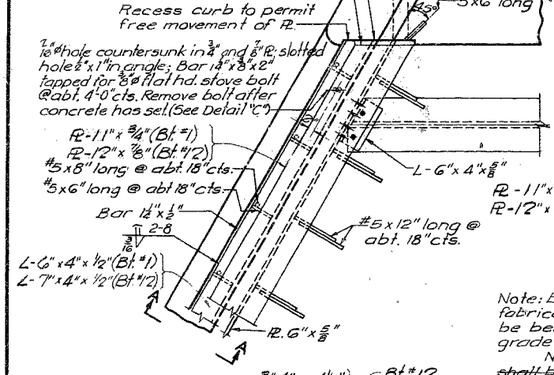
SECTION C-C

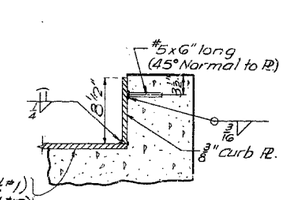


SECTION A-A

Note: Finger plates shall be cut with a gas torch from one plate 25" x 14". The surface of cut shall be perpendicular to the surface of plate. The cut shall not exceed ⅜" in width. The centerline of cut shall not deviate, more than 1/16" from the position of centerline cut shown above. No part of expansion device may be spliced.
1¼" finger plate and 14" WF @ 43# shall be bent to conform to crown of roadway.
All holes shown to be subpunched 1/16" ø and reamed to 1/16" ø in field.

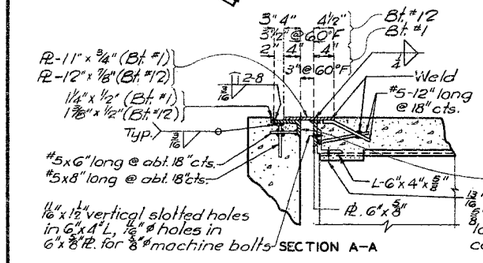
DETAILS OF FINGER PLATE EXPANSION DEVICE
(Near Bent No. 9)

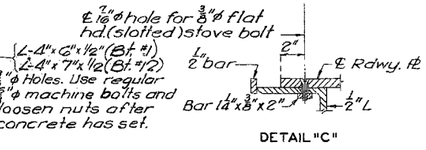




SECTION THRU CURB

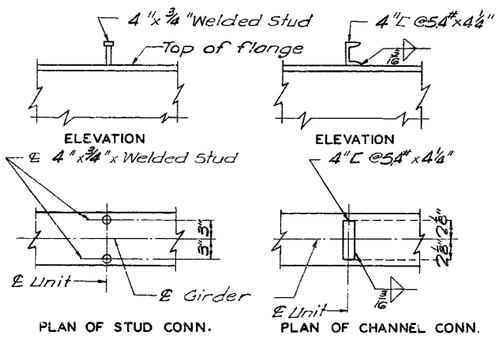
Note: Expansion Device shall be fabricated in one section and shall be bent to conform to crown and grade of roadway.
No. 5 bars for expansion device ~~shall be~~ structural grade. ~~Approved stud welded anchors may be used in lieu of #5 bars shown.~~
Use 2 Layers of 55# Roofing Felt between the sliding contact surface of curb plate and concrete backwall.





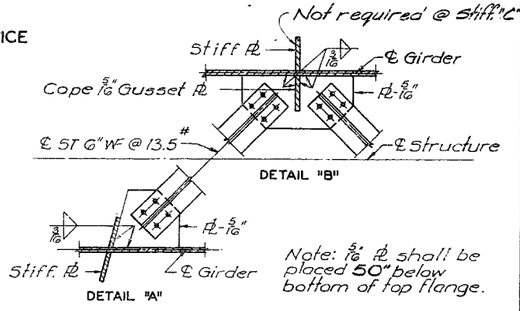
DETAIL "C"

DETAILS OF EXPANSION DEVICE
(At Bents No. 1 & 12)



Note: Locate channel connectors with back toward ends of spans.

DETAILS OF SHEAR CONNECTORS
(Pl. Girder Spans)



Note: 5/16 Pl. shall be placed 50" below bottom of top flange.

DETAILS OF LATERAL BRACING

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON
ABOUT 7.0 MILES E. OF DEARBORN
PROJECT NO. S-616 (2) (S2) STA. 307 + 63.3

PLATTE COUNTY

S-25 R

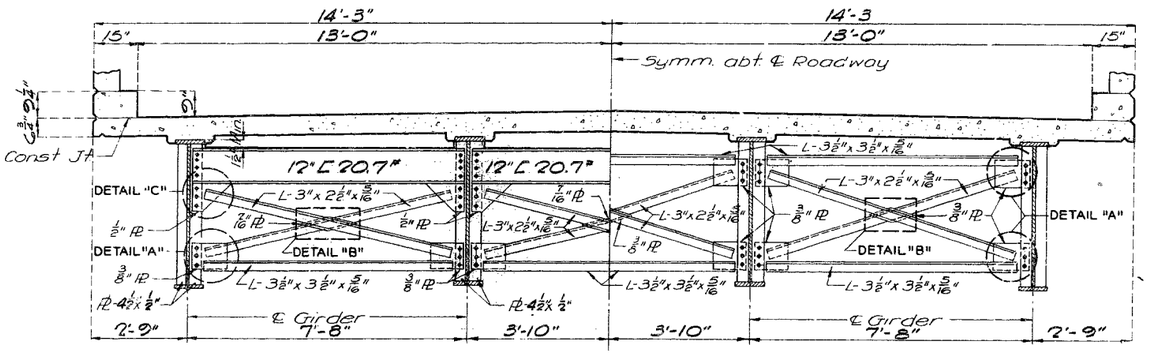
112

DETAILED Jun. 1965 BY Bryan
CHECKED Sept. 1965 BY Ault

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

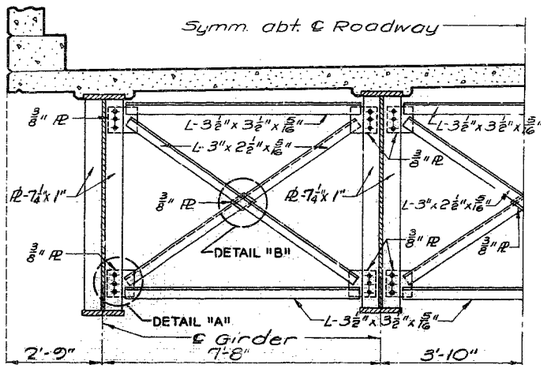
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	

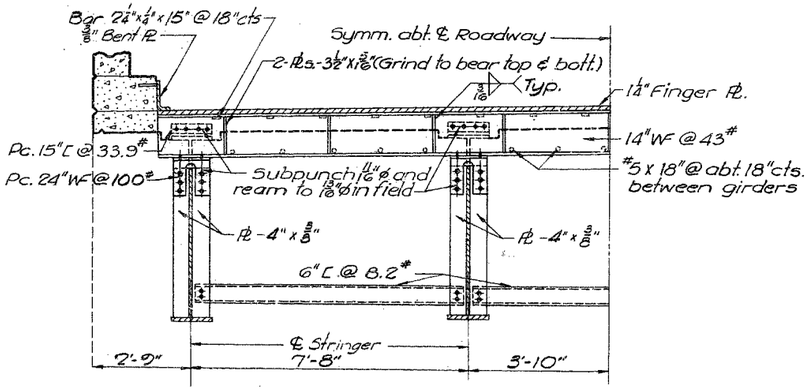


HALF SECTION SHOWING END DIAPHRAGMS "F"

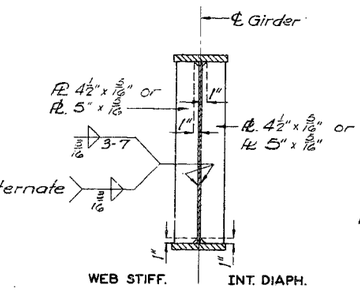
HALF SECTION SHOWING INT. DIAPHRAGMS "D"
HALF SECTION NEAR CROSS FRAMES "C"

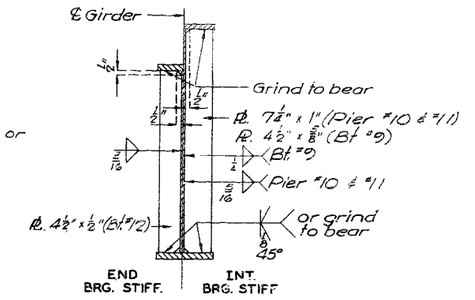


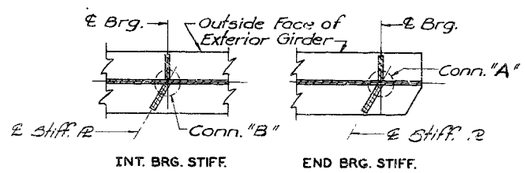
HALF SECTION NEAR CROSS FRAMES "E"



SECTION A-A

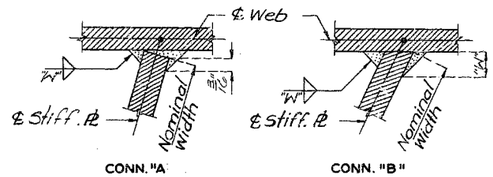






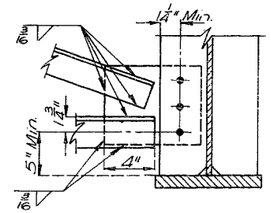
TYPICAL LOCATION DETAILS

Note: Intermediate web stiffener plates shall be fitted to form a close joint (1/16") top and bottom.

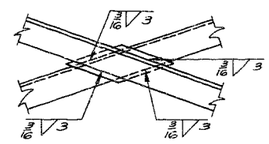


Material Thickness	"W"
To ½" incl.	5/16"
Over ½" to ¾"	⅜"
Over ¾" to 1½"	5/16"

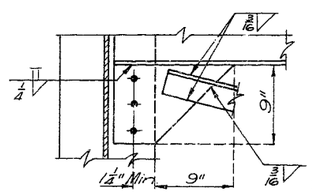
WELDING DETAILS
(Pl Girder)



DETAIL "A"



DETAIL "B"



DETAIL "C"

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616(2)(SZ) **STA.** 307+63.3

PLATTE COUNTY

S-25R

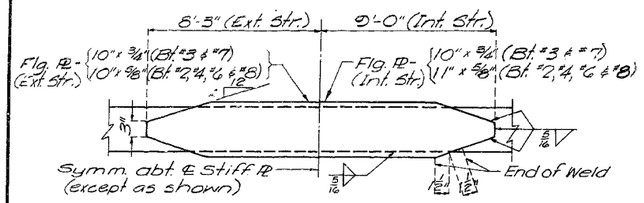
113

DETAILED Jun 1965 BY Bryan
CHECKED Sept. 1965 BY Ault

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

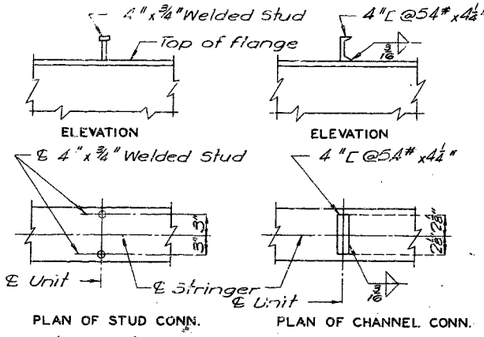
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		69	24	



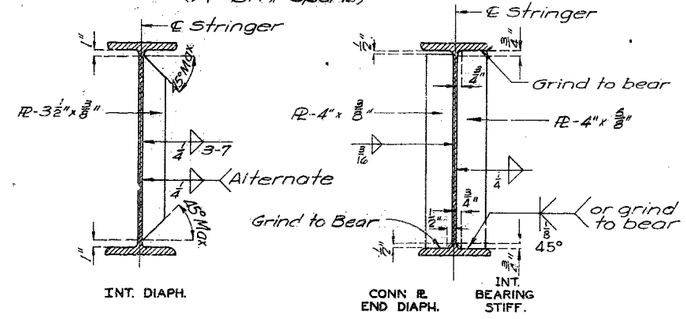
INT. BENTS NO. 2-3-4-6-7 & 8

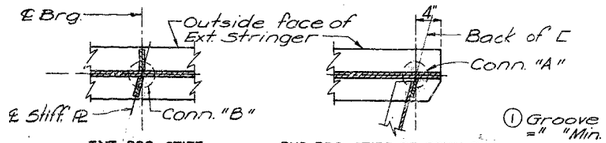
DETAILS OF FLANGE PLATES – TOP & BOTTOM FLANGE



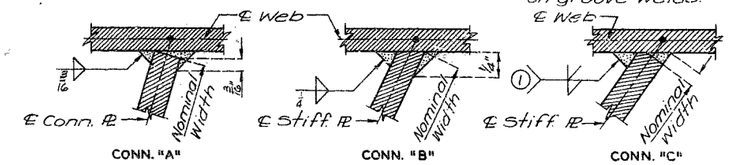
Note: Locate channel connectors with back toward ends of spans.

DETAILS OF SHEAR CONNECTORS
(WF Brm. Spans)





TYPICAL LOCATION DETAILS



WELDING DETAILS
(WF Beam Spans)

DETAILED Jun. 1965 BY Bryan
CHECKED Sept. 1965 BY Ault

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

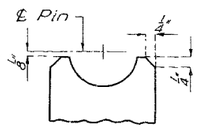
NOTES: TYPE "D" BEARINGS

Lead plates under bearings shall be approximately 1/8" thickness and weigh 8#/sq. ft. Cost of lead plates shall be included in price bid for other items. "Estimated weight" does not include weight of anchor bolts.

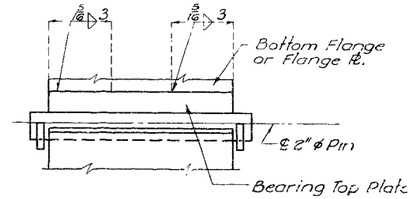
Rockers and pedestals shall be machined after welding.

Where flat surface is indicated, tolerance shall be .003 in/in in any direction.

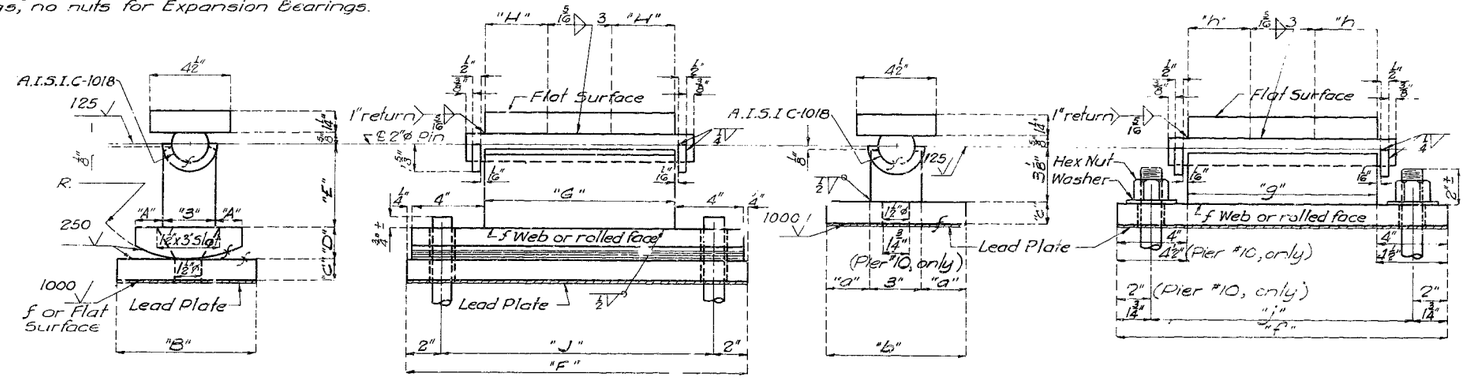
Anchor Bolts for Type "D" Bearings shall be 1 1/4" ø and 1 1/2" ø swedged bolts and shall extend 12" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.



END VIEW OF WEB EXPANSION BEARING



WELDING DETAILS



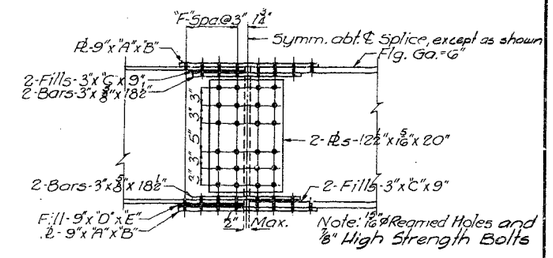
Required: 4 @ Bts. No. 1, 2, 3, 7, 8, 9 & 12
4 @ Pier No. 11

TYPE "D" BEARINGS
(Estimated Weight 10,206#)

Required: 4 @ Bts. No. 4 & 6
5 @ Bt. No. 5
4 @ Pier No. 10

BEARING DIMENSIONS

Bent	E-F	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"R"	"a"	"b"	"c"	"f"	"g"	"h"	"j"
1	E	1 1/2"	8"	1"	1 3/8"	5 1/2"	17 1/2"	9"	3"	13 1/2"	6 1/2"							
2	E	1 1/2"	10"	1 3/4"	1 7/8"	5 1/8"	18 1/2"	10"	3 1/2"	14 1/2"	7"							
3	E	1 1/2"	10"	1 3/4"	1 7/8"	5 1/8"	18 1/2"	10"	3 1/2"	14 1/2"	7"							
4	F											3"	9"	1 1/4"	18"	10"	3 1/2"	14 1/2"
5	F											2 1/2"	8"	1"	18"	10"	3 1/2"	14 1/2"
6	F											3"	9"	1 1/4"	18"	10"	3 1/2"	14 1/2"
7	E	1 1/2"	10"	1 3/4"	1 7/8"	5 1/8"	18 1/2"	10"	3 1/2"	14 1/2"	7"							
8	E	1 1/2"	10"	1 3/4"	1 7/8"	5 1/8"	18 1/2"	10"	3 1/2"	14 1/2"	7"							
9	E	1 1/2"	11"	1 3/4"	1 7/8"	5 5/8"	20"	11 1/2"	4 1/4"	16"	7 1/2"							
10	F											5 1/4"	13 1/2"	2"	24"	15"	6"	20"
11	E	2"	16 1/2"	2 3/4"	2 1/8"	8 3/8"	24"	15 1/2"	5 1/8"	20"	10 1/2"							
12	E	1 1/2"	10"	1 1/2"	1 3/4"	5 3/4"	20"	11 1/2"	4 1/2"	16"	7 1/2"							



WF SIZES	"A"	"B"	"C"	"D"	"E"	"F" SPA.
24" WF @ 76" to 84"	3/8"	18 1/2"	12 ga.	7 ga.	9"	2
" " 84# to 84"	1/2"	2'-0 1/2"	—	—	—	3

DETAIL OF 24" WF BEAM SPLICE

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616 (2)(SZ) STA. 307+63.3

PLATTE COUNTY

S-25R

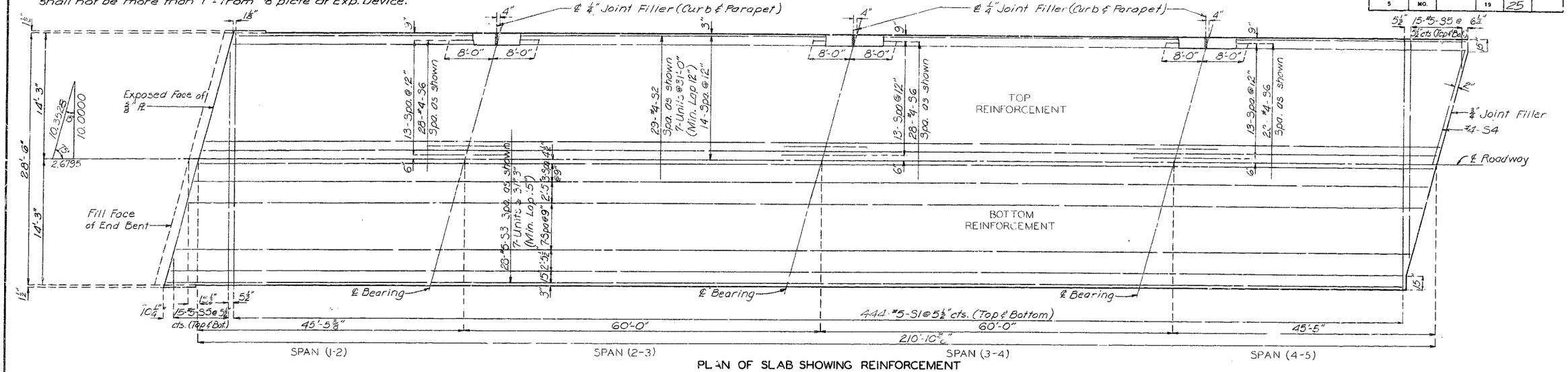
Sheet No. 12 of 17.

114

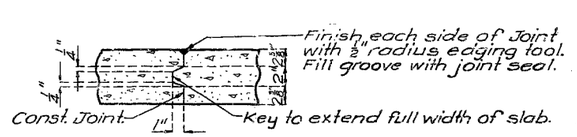
MISSOURI STATE HIGHWAY DEPARTMENT

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

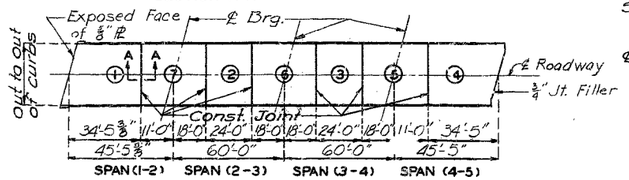
Note: Longitudinal Reinforcing steel shall be placed so that ends shall not be more than 1" from 3/8" plate at Exp. Device.



PLAN OF SLAB SHOWING REINFORCEMENT



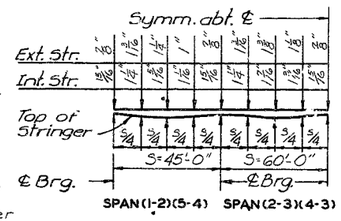
SECTION A-A



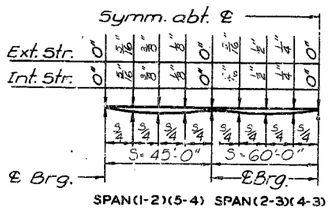
Basic Sequence	Sequence of Pours Direction 1	2	3	4	5	6	7
	Either Direction						
Alternate "A" Pours	1		7+2		6+3		5+4
	End to 7		1 to 6		2 to 5		3 to End
Alternate "B" Pours	1+7+2			6+3		5+4	
	End to 6			2 to 5		3 to End	
Alternate "C" Pours	1+7+2				6+3+5+4		
	End to 6				2 to End		
Alternate "D" Pours	1+7+2+6+3+5+4						
	End to End						

Note: The contractor ~~shall observe the basic pouring sequence and shall pour and satisfactorily finish the slab pours at a rate of not less than 12 cubic yards per hour. However, he may use~~ one of the longer alternate pours ~~if he elects to use~~ an approved oscillating screed type, self propelled mechanical finishing machine and ~~can~~ demonstrate to the engineer that he ~~can~~ pour and satisfactorily finish the slab pours at a rate of not less than 25 cubic yards per hour. Finishing machine loads will not be permitted on concrete less than 48 hours old.

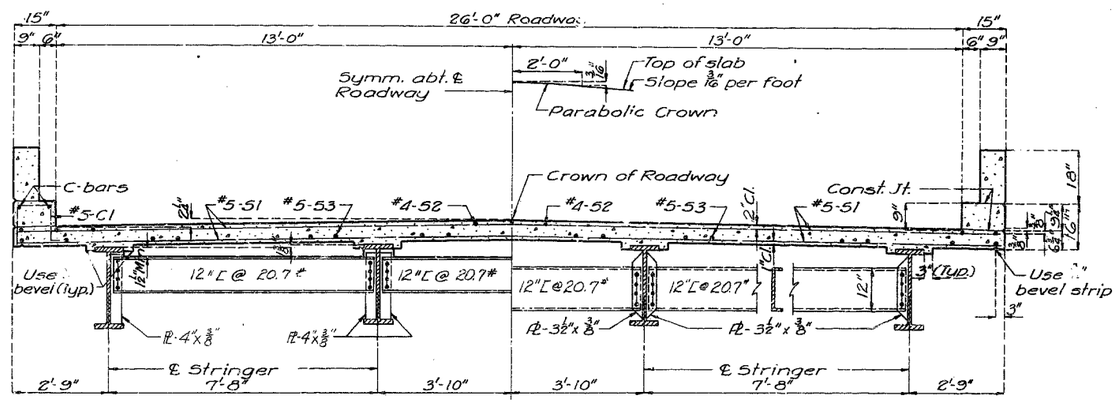
SLAB POURING SEQUENCE



THEORETICAL SLAB HAUNCHING DIAGRAM

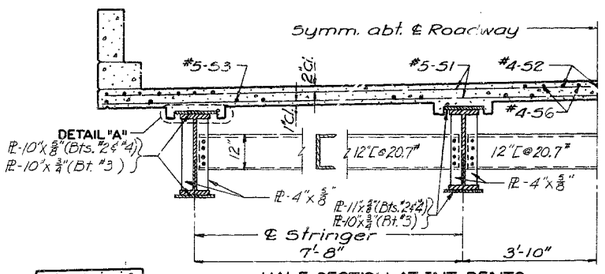


11% Structural Steel
DEAD LOAD DEFLECTION
(WF BEAM SPAN)

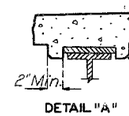


HALF SECTION NEAR END DIAPH.

HALF SECTION NEAR INT. DIAPH.



HALF SECTION AT INT. BENTS



DETAIL "A"

Note: For details and reinforcement of curb and parapet not shown see sheet No. 16 & 17 of 17.

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616(2) (SZ) **STA.** 307+63.3

PLATTE COUNTY

115

No.	Revised
41.26.3A	Dec. 1964
Oct. 364	

DETAILED JUNE 1965 BY CARTER

CHECKED Sept. 1965 BY Ault

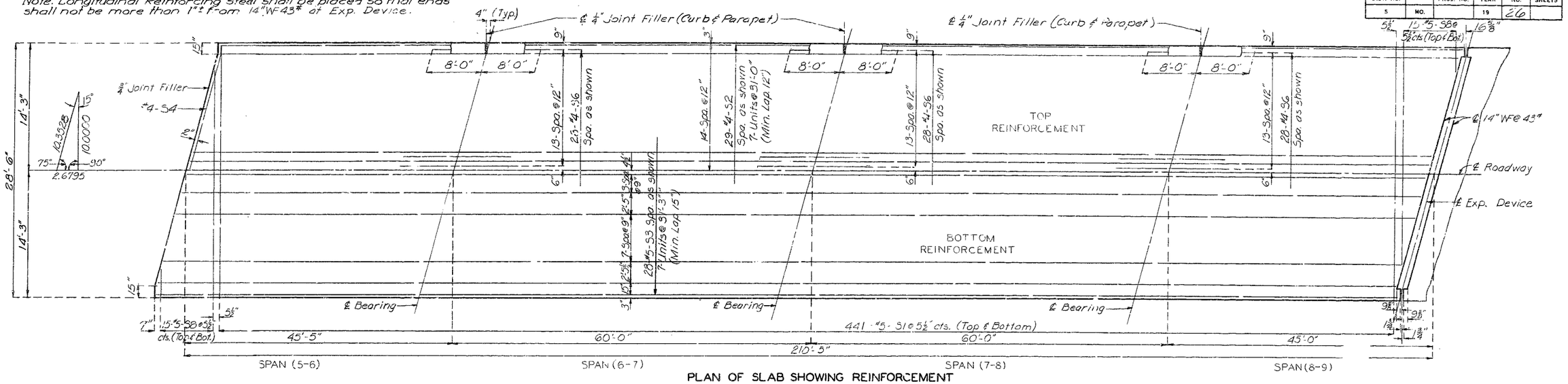
Note: This drawing is not to scale. Follow dimensions.

S-25R

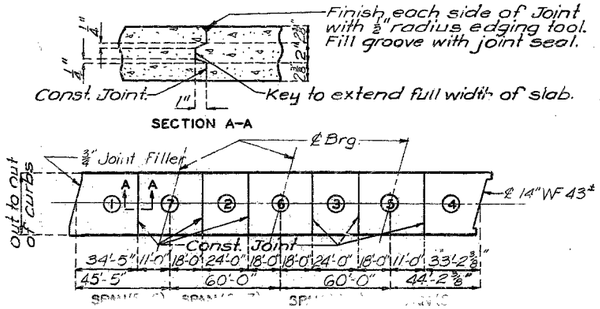
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	

Note: Longitudinal Reinforcing steel shall be placed so that ends shall not be more than 1" from 14" WF 43# at Exp. Device.



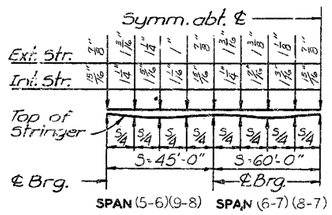
PLAN OF SLAB SHOWING REINFORCEMENT



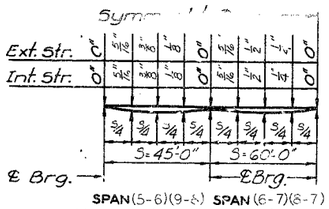
Basic Sequence	Sequence of Pours Direction						
	1	2	3	4	5	6	7
	Either Direction						
Alternate "A" Pours	1	7+2		6+3		5+4	
	End to 7	1 to 6		2 to 5		3 to End	
Alternate "B" Pours	1+7+2		6+3		5+4		
	End to 6		2 to 5		3 to End		
Alternate "C" Pours	1+7+2			6+3+5+4			
	End to 6			2 to End			
Alternate "D" Pours	1+7+2+6+3+5+4						
	End to End						

Note: The contractor ~~shall observe the basic pouring sequence and shall pour and satisfactorily finish the slab pours at a rate of not less than 12 cubic yards per hour. However, he may use~~ one of the longer alternate pours if ~~he elects to use~~ an approved oscillating screed type, self propelled mechanical finishing machine and can demonstrated to the engineer that he can pour and satisfactorily finish the slab pours at a rate of not less than 25 cubic yards per hour. Finishing machine loads will not be permitted on concrete less than 48 hours old.

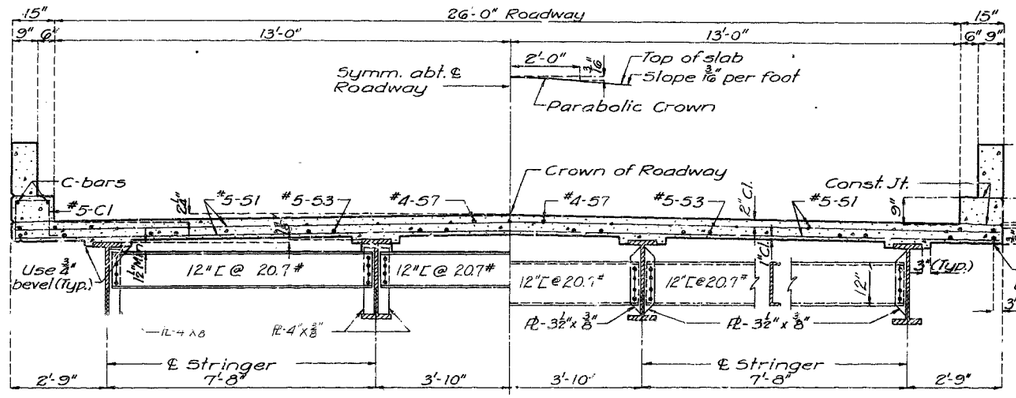
SLAB POURING SEQUENCE



THEORETICAL SLAB HAUNCHING DIAGRAM

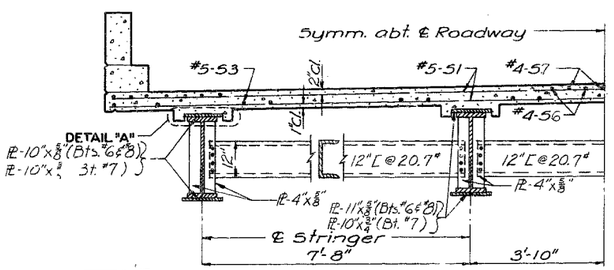


11 % Structural Steel
DEAD LOAD DEFLECTION
(WF BEAM SPAN)

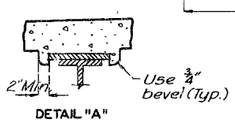


HALF SECTION NEAR END DIAPH.

HALF SECTION NEAR INT. DIAPH.



HALF SECTION AT INT. BENTS



Note: For details and reinforcement of curb and parapet not shown see sheets No. 16 & 17 of 17.

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-816(2)(SZ) STA. 307+63.3

PLATTE COUNTY

S-25R

116

No. 41.26.3A Revised Oct. 1964 Dec. 1964

DETAILED JUNE 1965 BY CARTER

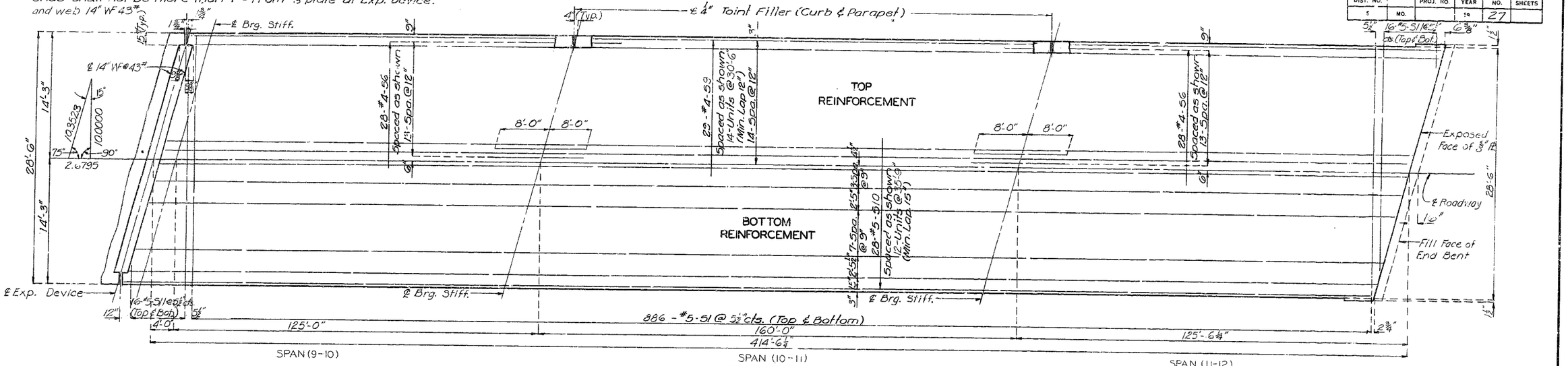
CHECKED Sept. 1965 BY Ault

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

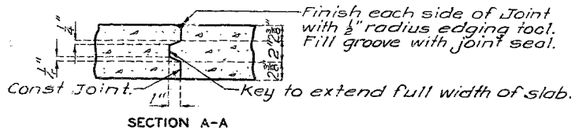
MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	

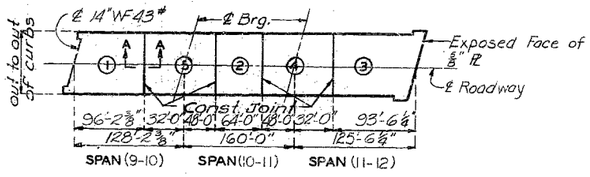
Note: Longitudinal reinforcing steel shall be placed so that ends shall not be more than 1" ± from ⅜" plate at Exp. Device and web 14" WF 43#



PLAN OF SLAB SHOWING REINFORCEMENT



SECTION A-A



	Sequence of Pours Direction				
Basic Sequence	1	2	3	4	5
	Either Direction				
Alternate "A" Pours	1	5 + 2		4 + 3	
	End to 5	1 to 4		2 to End	
Alternate "B" Pours	1 + 5 + 2			4 + 3	
	End to 4			2 to End	
Alternate "C" Pours	1 + 5 + 2 + 4 + 3				
	End to End				

Note: The contractor ~~shall observe the basic pouring sequence and shall pour and satisfactorily finish the slab pours at a rate of not less than 25 cubic yards per hour. However, he may use one of~~ the longer alternate pours ~~if he elects to~~ using an approved oscillating screed type, self-propelled mechanical finishing machine and can demonstrated to the engineer that he can pour and satisfactorily finish the slab pours at a rate of not less than 48 cubic yards per hour. Finishing machine loads will not be permitted on concrete less than 48 hours old.

SLAB POURING SEQUENCE

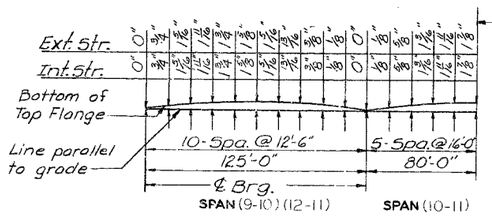
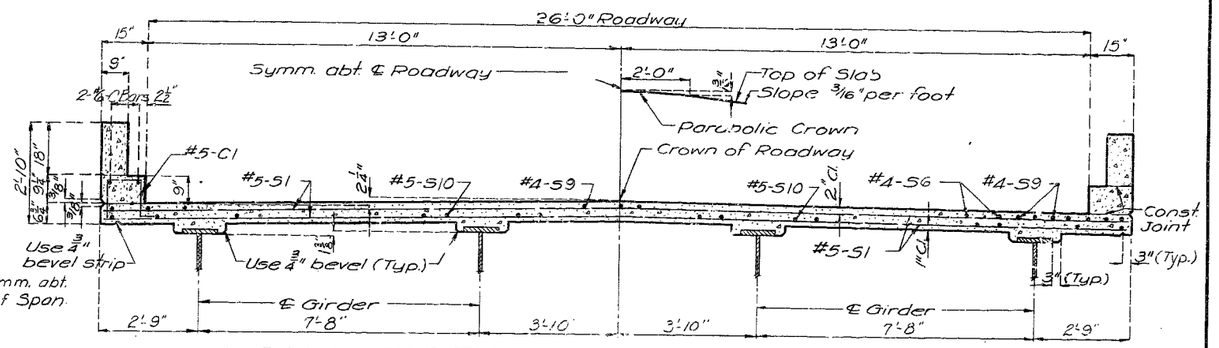


PLATE GIRDER CAMBER DIAGRAM



HALF SECTION NEAR ℄ SPAN

HALF SECTION NEAR PIERS NO. 10 & 11

Note: For details of curb and handrail not shown see sheets No. 16 & 17 of 17.

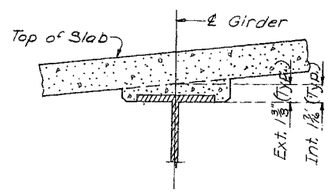


PLATE GIRDER SLAB HAUNCHING DIAGRAM

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616 (2)(SZ) STA. 307+63.3

PLATTE COUNTY

S-25R

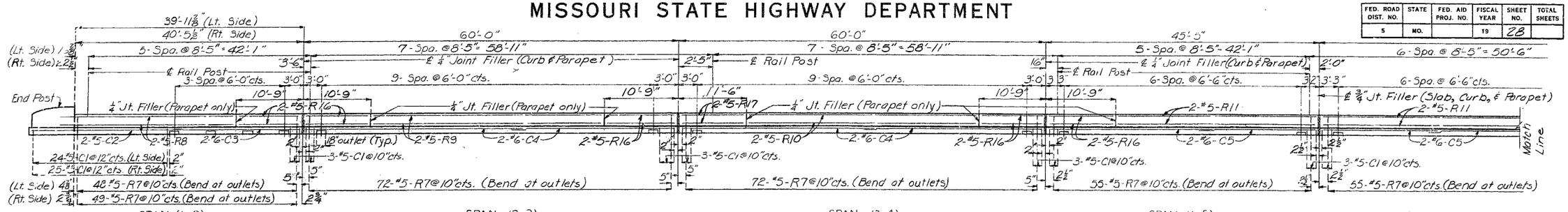
DETAILED JUNE 1965 BY CARTER

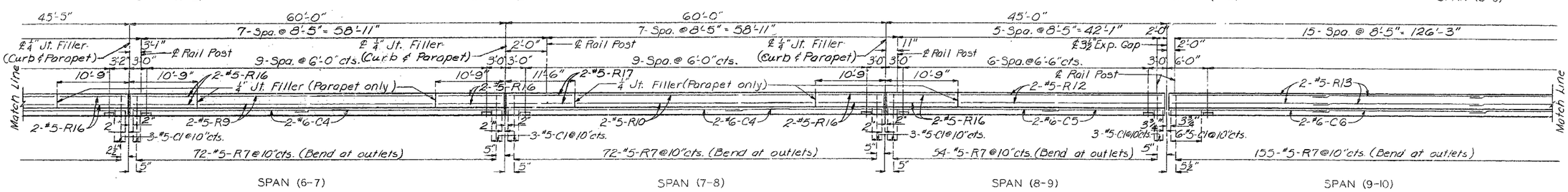
CHECKED Sept. 1965 BY Ault

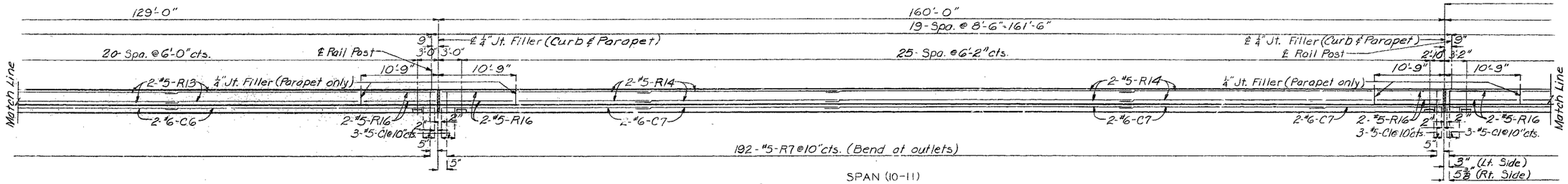
Note: This drawing is not to scale. Follow dimensions.

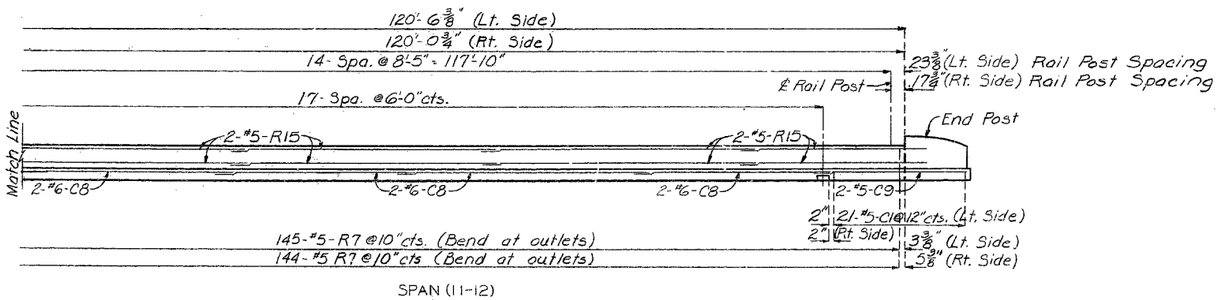
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	28	









ELEVATION OF CURB AND PARAPET (LEFT SIDE)
(Right side similar except as shown)

Note: For details and reinforcement of curb & parapet not shown see Sheet No. 17 of 17.

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616 (2) (SZ) **STA.** 307+63.3

PLATTE **COUNTY**

S-25R

DETAILED MAY 1965 BY CARTER
CHECKED Sept. 1965 BY Ault

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

Sheet No. 16 of 17.

118

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO	STATE	FED. AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	29	

GENERAL NOTES:

All handrail posts shall be set normal to grade.

Aluminum tube handrail shall be bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base may be used for adjusting handrail alignment. Maximum thickness of shims to be 1/8". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of handrail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.

The contract unit price per linear foot of "Bridge Rail" shall include furnishing and erecting the handrail complete with anchor bolts, shims and Insulating compound.

All fillets 1/4" except as noted.

All drafts 3° except as noted.

Pipe rail to be fabricated in two or three panel lengths unless otherwise approved.

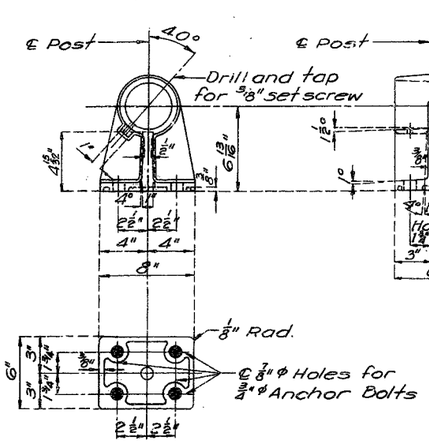
Omit set screw on side near filled joint in parapet at all expansion posts.

Top of curbs and parapets to be built parallel to grade. Vertical faces of end post to be vertical.

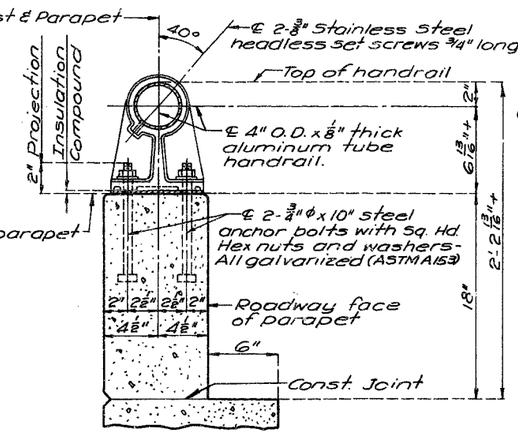
All exposed edges of end posts, parapets and curbs shall have 1/2" radius.

~~If~~ the contractor ~~desires, he may~~ Used drive fit cast aluminum end caps ~~in lieu of welded aluminum closure plates.~~

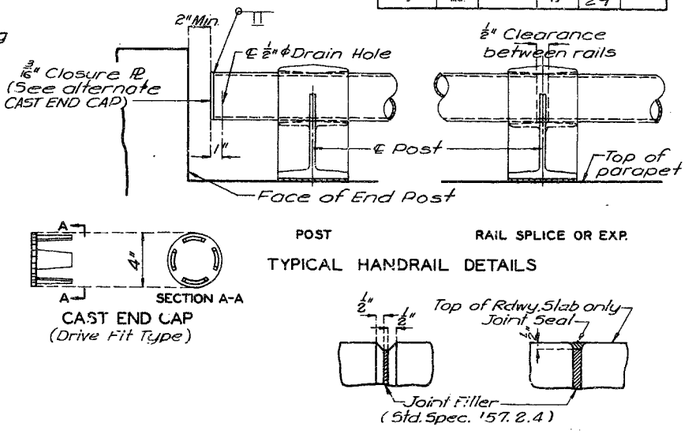
Integrally cast test coupons and a coat of clear lacquer specified in Std. Spec. 56.2.4 and 56.3.5 respectively will not be required for these rail posts.



POST DETAILS



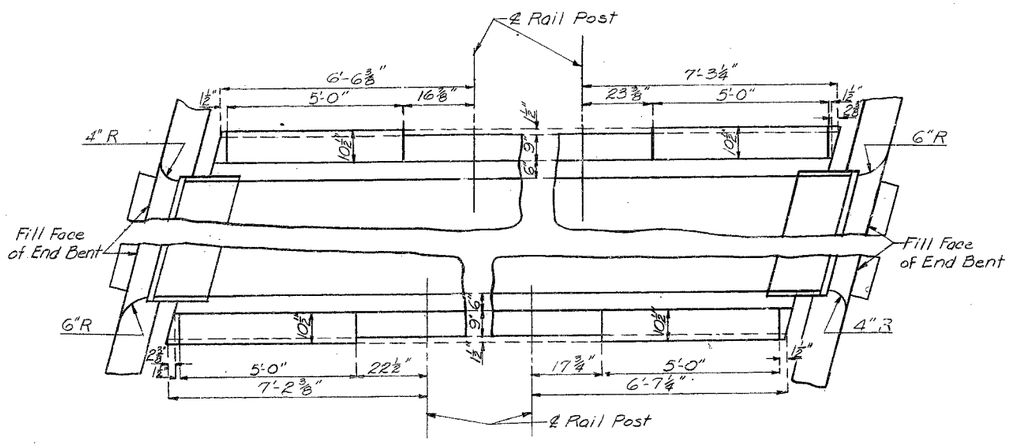
SECTION THRU HANDRAIL



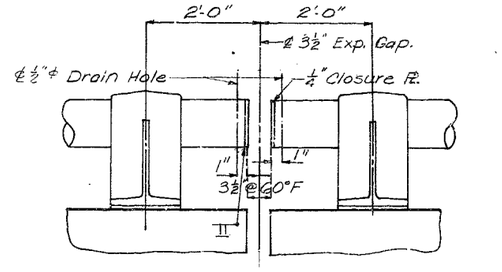
TYPICAL HANDRAIL DETAILS

SINGLE TUBE ALUMINUM RAILING

FILLED JOINT DETAILS

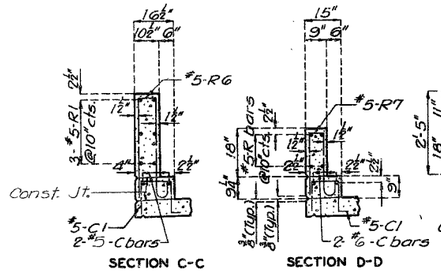


PLAN OF END POSTS

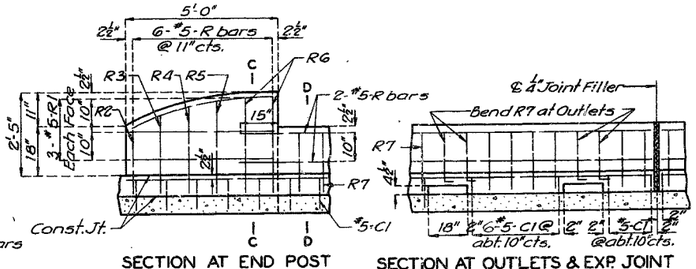


ELEVATION AT RAIL GAP NEAR BENT NO. 9

Note: For elevation of curb & parapet see Sheet No. 16 of 17.



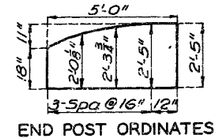
SECTION C-C SECTION D-D



SECTION AT END POST

SECTION AT OUTLETS & EXP. JOINT
Note: Where there are no outlets use #5-C1 @ abt. 12" cts.

Note: For horizontal curb and parapet bars use minimum lap of 15" for #5 and 18" for #6.



END POST ORDINATES

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616(2) (SZ) **STA.** 307+63.3

PLATTE . **COUNTY**

S-25R

119

No.	Revised
1.5.2	May 1965
Nov 1963	

DETAILED JUNE 1965 BY CARTER

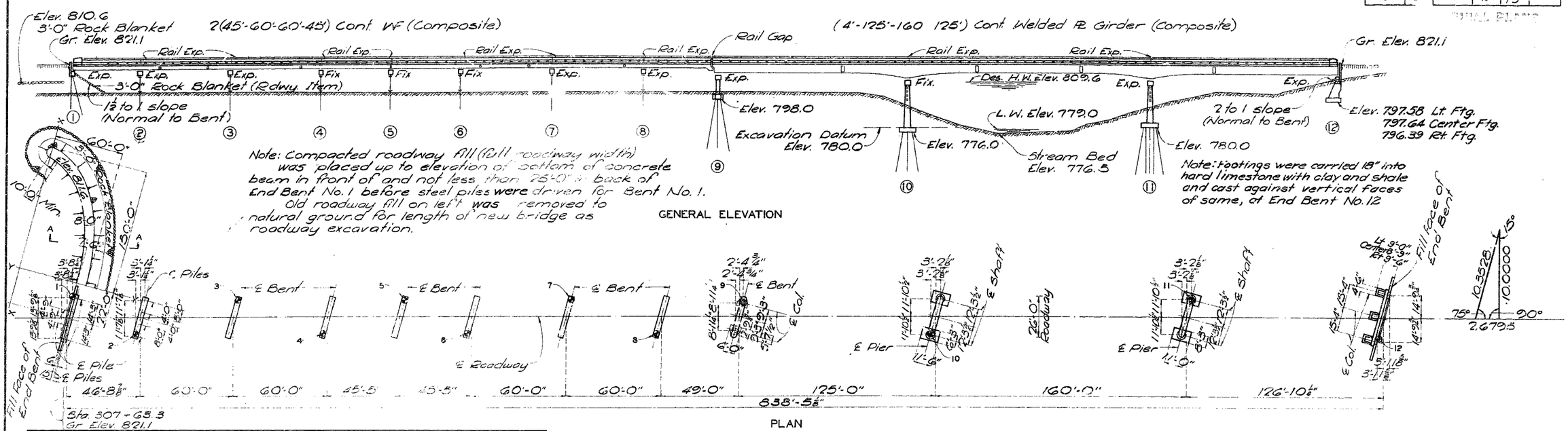
CHECKED Sept. 1965 BY Ault

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

Sheet No. 17 of 17.

MISSOURI STATE HIGHWAY DEPARTMENT

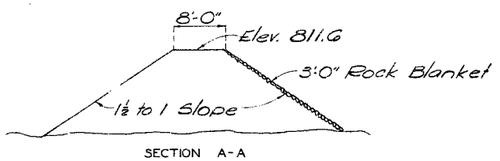
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	Mo.		19	13	



FINAL QUANTITIES

ITEM		SUBSTR.	SUPERSTR	TOTAL
Removal of Bridge	Lump Sum			1
Class 1 Excavation for Structures	Cu. Yd.	465.5		465.5
Class 2 Excavation for Structures	Cu. Yd.	39.5		39.5
Steel Piles-in-Place (10")	Lin. Ft.	2265		2265
Steel Pile Cut-off's (10")	Lin. Ea.	73		73
Steel Piles-in-Place (12")	Lin. Ft.	517		517
Steel Pile Cut-off's (12")	Lin. Ft.	123		123
Class B Concrete*	Cu. Yd.	250.9		250.9
Class B1 Concrete	Cu. Yd.		634.3	634.3
Reinforcing Steel	Lb.	30,170	181,740	211,910
Fabricated Structural Carbon Steel (WF-Brn span)	Lb.		190,790	190,790
Fabricated Structural Carbon Steel (Rd adn. span)	Lb.		343,570	343,570
Bridge Rail (Single tube type)	Lin. Ft.		1,649	1,649
Cl. 1 Exc. for Structures Below Plan El. (Contingent)	Cu. Yd.	1.0		1.0
Test Holes	Lin. Ft.	28		28

Note: For Boring Data see sheet No. 3 of 17.
● Indicates location of Boring.



SECTION A-A

GENERAL NOTES:

SPECIFICATIONS:
A.A.S.H.O. - 1961

DESIGN LOADING:
H15-44 (15#/sq. ft. Future Wearing Surface)
Earth-120#, Equivalent Fluid Pressure 30#

DESIGN UNIT STRESSES:
Class B Concrete (substructure) f_c = 1,200 psi
Class B1 Concrete (superstructure) f_c = 1,600 psi
Reinforcing Steel f_s = 20,000 psi
Structural Steel (A.S.T.M. A36-62T) f_s = 20,000 psi
Steel Pile (A.S.T.M. A36-62T) f_b = 9,000 psi

SURFACE SEAL:
Superstructure deck surface sealed.

FABRICATED STEEL:
Field connections, High Strength Bolts ¾" ϕ, holes 13/16" ϕ except as noted.

WELDING:
Details of welded joints shown are for manual arc welding except as noted.

FOOTING AND PILE DATA

ABUTMENT OR PIER NO.	1	2	3	4	5	6	7	8	9	10	11	12
Foundation Material												Rock
Design Bearing Tons/Sq. Ft.												7.0
Pile Type and Size	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	12BP53	12BP53	
Number	4	4	4	4	4	4	4	4	6	12	16	
Approximate Length Ft.	60	65	65	65	65	65	65	65	45	20	25	
Bearing Tons	37	55	55	55	37	55	55	55	55	70	46	
Minimum Required Bearing Tons	24	44	46	44	34	44	46	44	43	69	45	
Hammer	Power	Heavy Power			Power	Heavy Power					Power	

Piles were driven to practical refusal on or into solid rock or other point bearing material of the type shown on the Plan Bearing shown.

Where heavy power hammer is specified all piling were driven with an approved power hammer developing an energy of not less than 19,000 ft. lbs. and having a ram weighing not less than 4500 lbs.

This drawing is not to scale. Follow dimensions.

B.M. Elev. 821.71 "□" on N.E. Cor. Wing Wall Sta. 307+63.3
Elev. 821.72 "□" on S.W. Cor. Wing Wall

BRIDGE OVER PLATTE RIVER Sta. 316+01.73

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E. OF DEARBORN

PROJECT NO. S-616 (2) (SZ) **STA.** 307 + 63.3

PLATTE [redacted] **COUNTY**

SUBMITTED BY [redacted] BRIDGE ENGINEER DATE 10/4/65

APPROVED BY [redacted] CHIEF ENGINEER DATE 10/4/65

STD. 54.00
S-25R

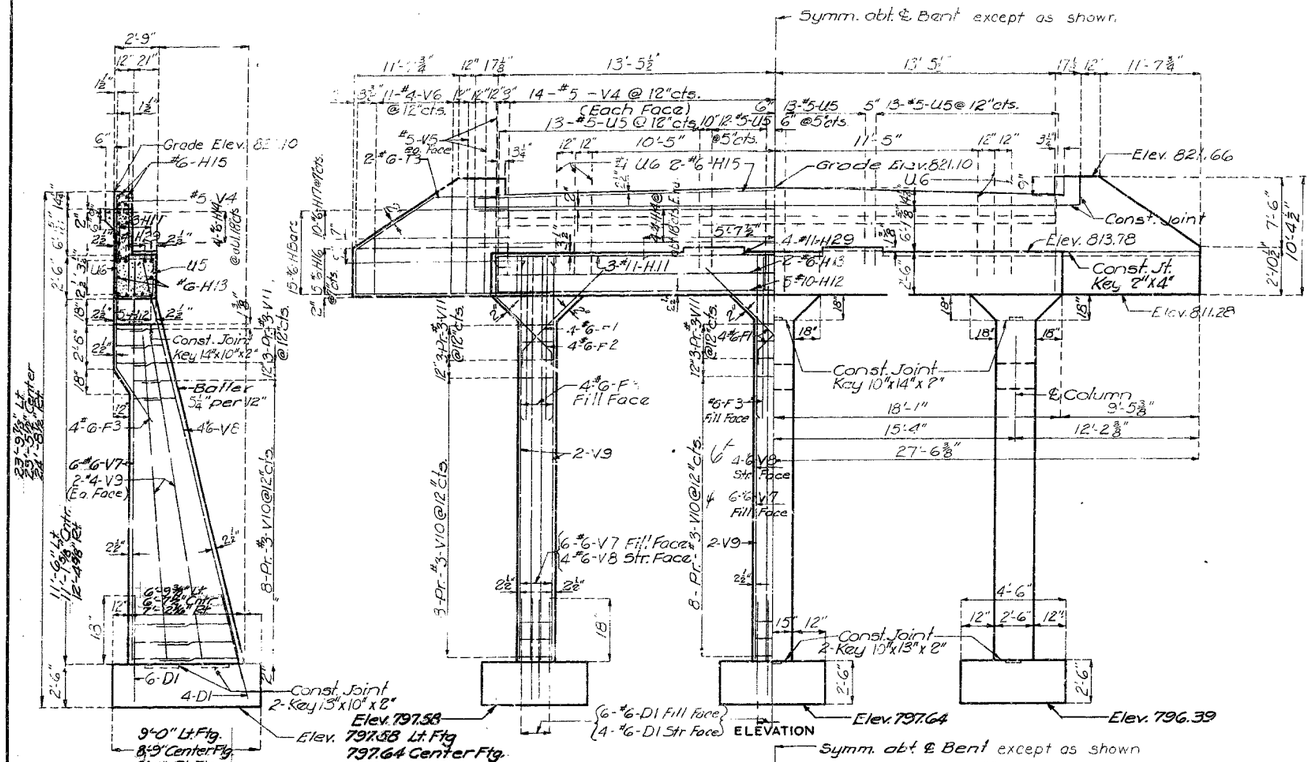
Sheet No. 19 of 2

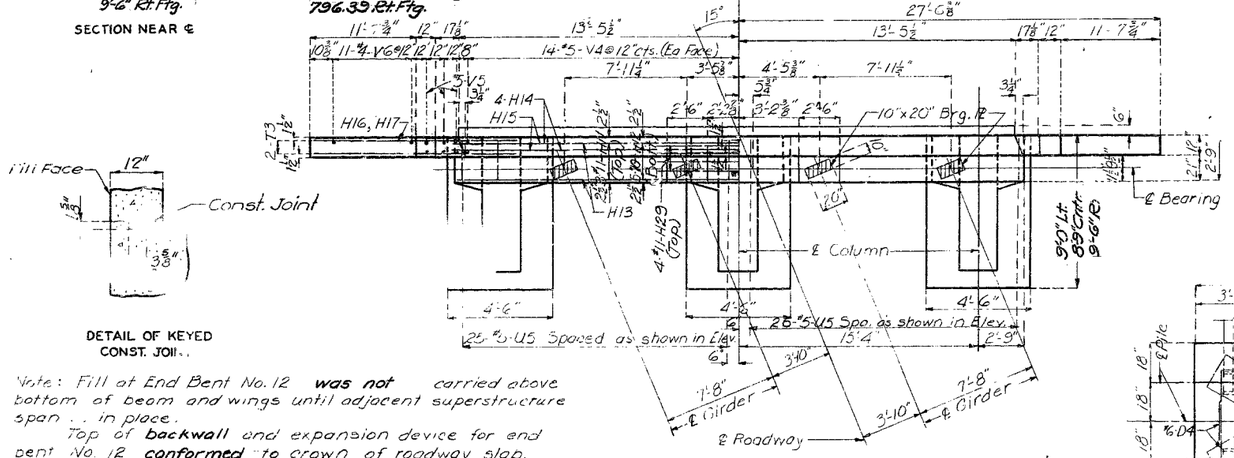
FINAL PLANS

120

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	18	



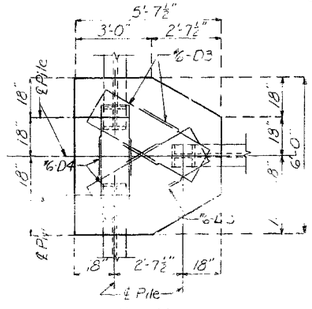


Note: Fill at End Bent No. 12 **was not** carried above bottom of beam and wings until adjacent superstructure span . . in place.

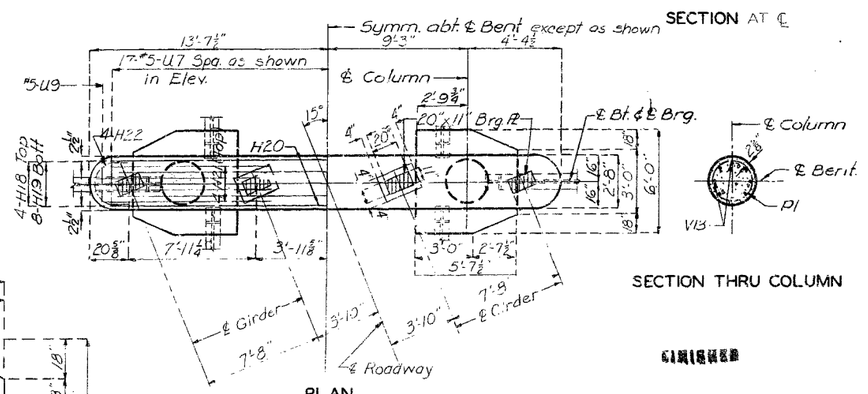
Top of **backwall** and expansion device for end bent No. 12 **conformed** to crown of roadway slab.

Backwall above upper construction joint **was not** poured until the structural steel of the expansion device **had** been installed and slab had been poured in adjacent span.

DETAILS OF END BENT NO. 12



PLAN
REINFORCED FOOTING



PLAN
DETAILS OF INTERMEDIATE BENT NO. 9

SECTION AT ℄

ENGINEER

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON

ABOUT 7.0 MILES E OF DEARBORN

PROJECT NO. S-616 (2) (SZ) **STA.** 307+63.3

PLATTE COUNTY

S-25R

DETAILED MAY 1965 BY CARTER

CHECKED FEB 1967 BY Ault

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

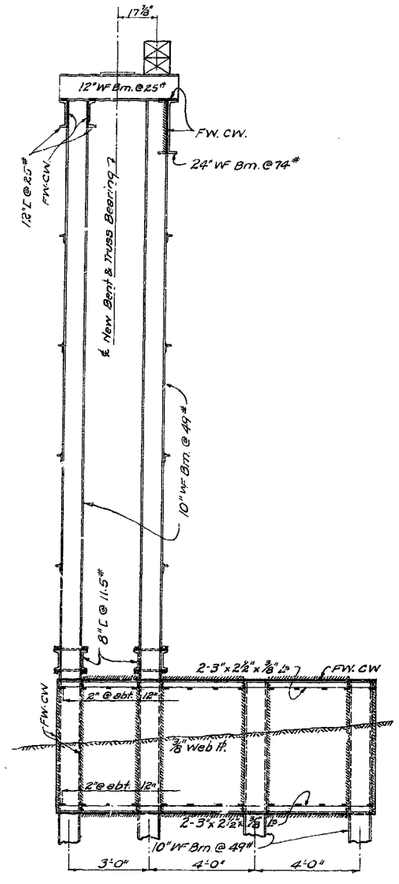
Sheet No. 6 of 2.

121

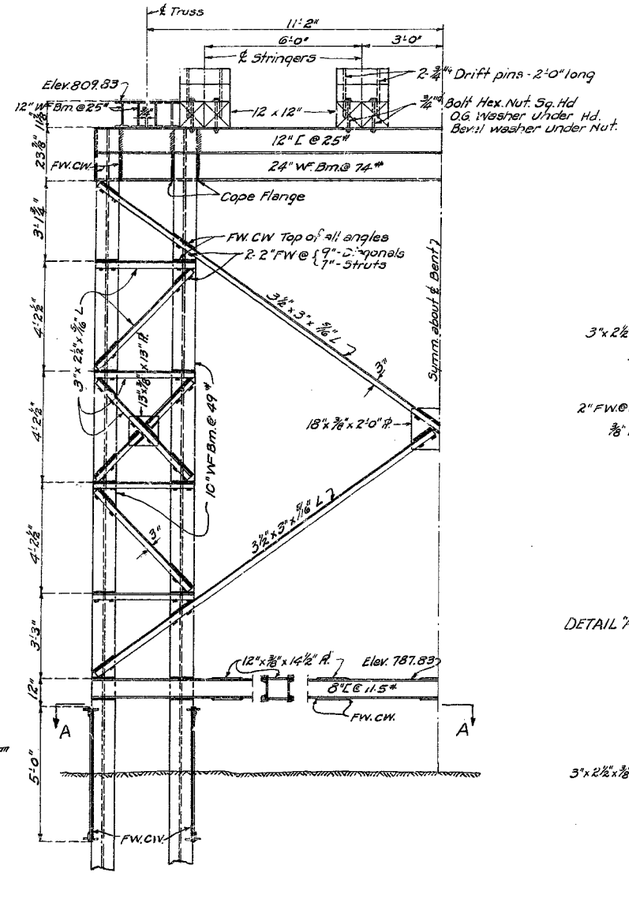
FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

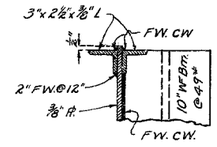
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19		



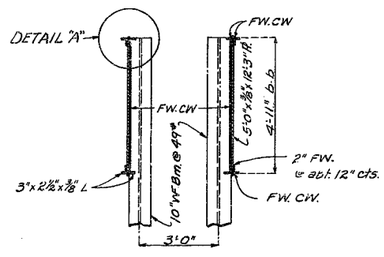
END ELEVATION C-C



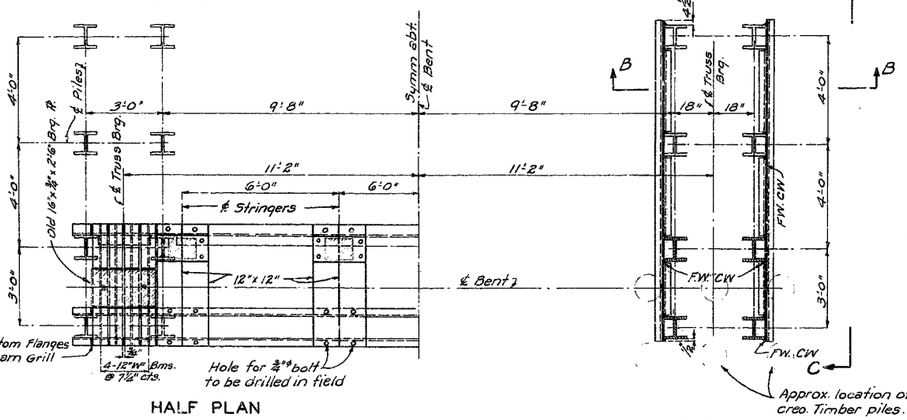
HALF ELEVATION



DETAIL "A"



SECTION B-B



HALF PLAN

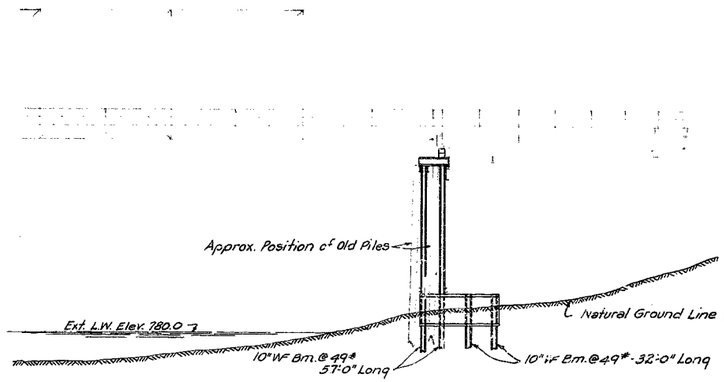
Note- Bracing not shown for sake of clearance

HALF SECTION A-A

Note: Holes for 1½" ϕ bolt in top and bottom flange of I-Beam grill to be drilled in field. Weld old plate to top of grill.

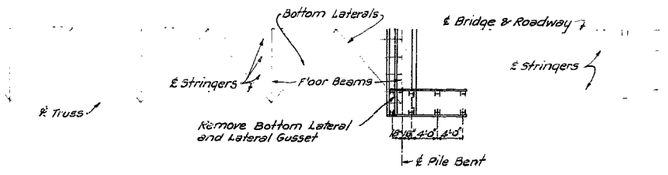
120'-0" Truss Span

45'-0" I-Bm. Span



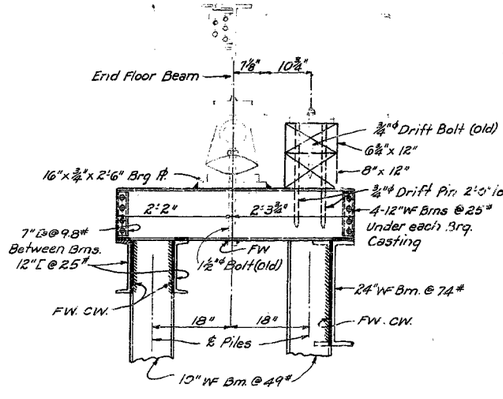
PART ELEVATION

Note: All piles shall be driven with a steam hammer developing not less than 7000 ft. lbs. at each full stroke of the piston to practical refusal into cemented gravel, boulders, shale or solid rock.



PART HALF PLAN

ESTIMATED QUANTITIES		
Fabricated Structural Steel	Lbs.	12,480
10" WF Bm. Piles in Place	Lin. Ft.	664
10" WF Bm Pile Cut-Offs	Lin. Ft.	48
¼" Weld Metal	Lin. Ft.	580

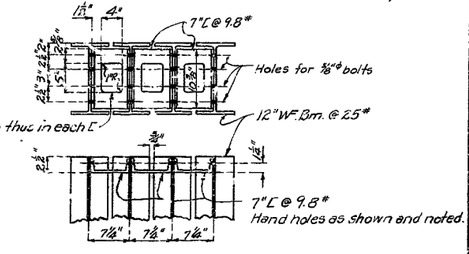


DETAIL OF TRUSS BEARING

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

CONSTRUCTION PROCEDURE

Remove expansion devices and laminated floor necessary to drive new piles.
Remove bottom laterals and lateral gussets in end panel.



DETAILS OF I-BEAM GRILL

BRIDGE OVER PLATTE RIVER

FINISHED

STATE ROAD FROM DEARBORN TO EDGERTON

ABOUT 2.0 MILES N.W. OF EDGERTON

PROJECT NO. SZ STA. 312+50

PLATTE COUNTY

SUBMITTED BY _____ DATE _____ BRIDGE ENGINEER

APPROVED BY _____ DATE _____ CHIEF ENGINEER

FINISHED

Sheet 1

S-25 A

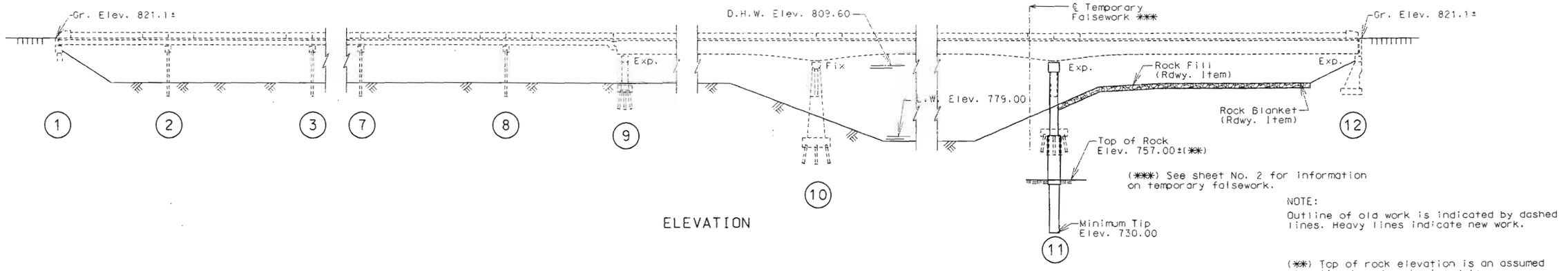
102

5-A-26-37

Drawn April 1937 By JKM.
Checked April 1937 By R. A.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

State	Proj. No.	Sheet No.
MO		B1
SEC/SUR 1	TWP 54N	RGE 34W

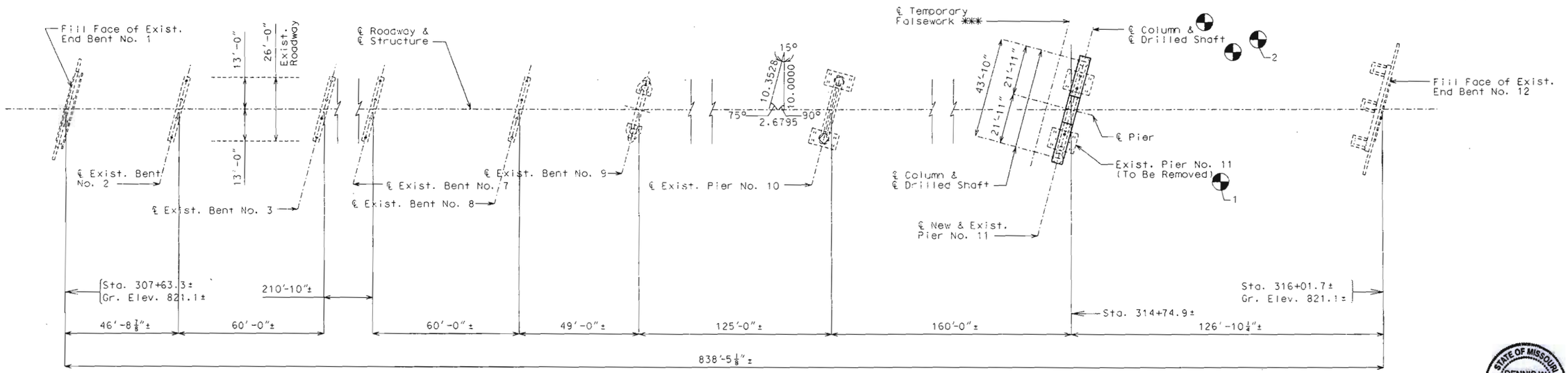


ELEVATION

(***) See sheet No. 2 for information on temporary falsework.

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

(**) Top of rock elevation is an assumed elevation based on boring data.



PLAN

" ⊕ " Indicates location of borings.

B.M. Elev. 821.72 "□" on S.W. Cor. Wing Wall
Sta. 316+01.73

Notice and Disclaimer Regarding Boring Log Data

The locations of all recent subsurface borings for this structure are shown on the bridge plan sheet for this structure.

Boring data for the numbered locations is shown on sheet no. 3.
The Boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, is available from the Project Contact upon written request as outlined in the project special provisions.

No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project.

A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
3/10/99

REPAIRS TO BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON
ABOUT 7 MILES EAST OF DEARBORN
PROJECT NO. STA. 307+63.3±
JOB NO. J4S1368 RTE. Z

PLATTE COUNTY
Date: 3/10/99

STD. 706.35
S00253

Designed Jan. 1999
Detailed Feb. 1999
Checked Feb. 1999

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

State	Proj. No.	Sheet No.
MO		13 2

ESTIMATED QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Pier no. 11	Lump Sum			1
Temporary Falsework	Lump Sum			1
Supplementary Foundation Test Holes (NX)	Lin. Ft.	20		20
Supplementary Cored Holes	Lin. Ft.	38		38
Drilled Shafts (8'-0" Dia.)	Lin. Ft.	24		24
Rock Sockets (7'-6" Dia.)	Lin. Ft.	52		52
Supplementary Television inspection	Each	1		1
Class B1 Concrete (Substructure)	Cu. Yds.	114.8		114.8
Laminated Neoprene Bearing Pads (Steel Structures)	Each		4	4
Reinforcing Steel (Bridges)	Pound	48,040		48,040

NOTE: The cost of furnishing, fabricating and installing Neoprene Bearing Pads, complete-in-place, will be paid for at the contract unit price for Laminated Neoprene Bearing Pads, (Steel Structures), per each.

GENERAL NOTES:

DESIGN SPECIFICATIONS:

AASHTO-1996 and interim 1997
Load Factor Design.

Seismic Performance Category A

DESIGN LOADINGS:

H15-44
Fatigue Case II
15#/Sq. Ft. Future Wearing Surface

DESIGN UNIT STRESSES:

Class B1 Concrete (Substructure) f'c = 4,000 psi.

Reinforcing Steel (Grade 60) fy = 60,000 psi.

Bearings shall be 60 Durometer Neoprene Pads.

The neoprene pad shall be bonded to the bearing seat with an epoxy adhesive as approved by the bearing manufacturer for bonding neoprene to concrete.

REINFORCING STEEL:

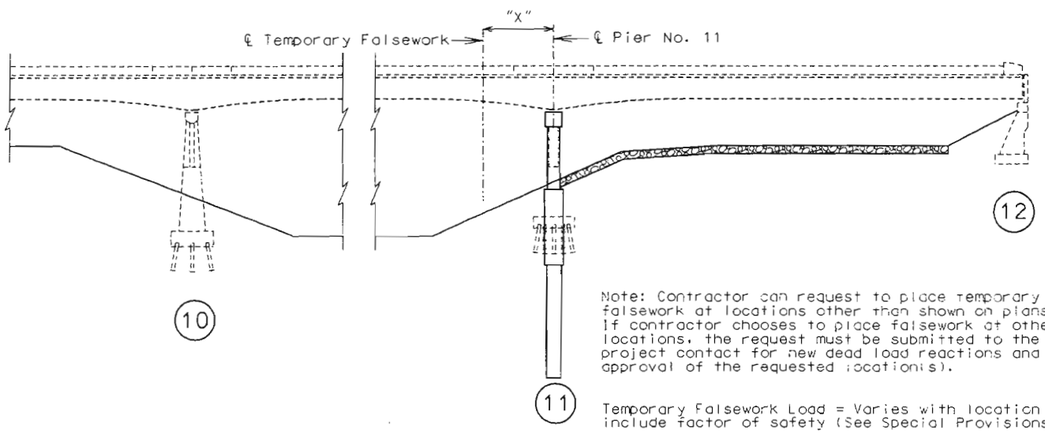
Minimum clearance to the reinforcing steel shall be 1-1/2", unless otherwise shown.

All reinforcing bars in top of substructure beam or cap shall be spaced to clear anchor bolt wells for bearings by at least ½".

MISC.

Contractor shall verify all dimensions in field before ordering materials.

Bridge will be closed to traffic during construction. No construction live load shall be allowed on bridge.



Note: Contractor can request to place temporary falsework at locations other than shown on plans. If contractor chooses to place falsework at other locations, the request must be submitted to the project contact for new dead load reactions and approval of the requested location(s).

Temporary Falsework Load = Varies with location (see table) and does not include factor of safety (See Special Provisions)

Use 4x4 Temporary Timber Blocking as bearing stiffeners for falsework and jacking points. Place on each side of existing web or brg. stiffener as required by design.

Dim. "X"	INT. GDR. DEAD LOAD REACTION (TONS)(PER GDR.)	EXT. GDR. DEAD LOAD REACTION (TONS)(PER GDR.)
10'-0"	88 tons	77 tons
15'-0"	86 tons	75 tons

DRILLED SHAFT DATA		
PIER NO. 11	Left(1)	Right(2)
Foundation Material	Shale	Shale
Approximate length (Ft.)	38	38
Design Side Friction (Tons/Sq. Ft.)	0.57	0.57

PAY LIMITS FOR EACH SHAFT AND SOCKET	
Drilled Shaft	Rock Socket
12'-0"	26'-0"

DRILLED SHAFT NOTES :

The top of sound rock is assumed at the elevation determined from the borings. The pay length is based on this assumed top of rock elevation.

Prior to placing drilled shaft casings the contractor shall be required to drill an NX size core hole at each shaft for additional subsurface investigation. The holes shall be located by the Engineer and shall extend at least 10 ft. below the bottom of socket elevation. See Special Provisions.

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
Dennis W. Heckman 3/10/99

Detailed Feb. 1999
Checked Feb. 1999

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

PLATTE COUNTY S00253

	Proj. No.	Sheet No.
		B3

STANDARD PENETRATION TEST

DEPTH, FT.	PP/TSF	
		Elev. 805.60±
		← Brown lean clayey silt, medium stiff, moist.
		Elev. 803.10±
4	0.25	
		← Brown lean clay, soft, moist.
6	3.0	Elev. 799.40±
		← Gray to brown lean clay with scattered silt and root fragments.
8	1.5	Elev. 798.20±
		Brown lean clay, soft to medium stiff, moist.
11	2.25	Elev. 797.70±
		Gray lean clay, scattered roots and wood, stiff.
14	1.5	
		Elev. 796.00±
16	0.75	Gray to brown lean clay, slightly mottled, stiff, scattered roots also present.
		Elev. 791.10±
19	1.0	Light brown lean clay, medium stiff.
21	1.0	Elev. 789.40±
22	3.75	Light brown lean clay with scattered silty layers, stiff.
		Elev. 784.10±
		Weathered brown shale, soft.
		Elev. 780.70±
		Brown shale, very soft.
		Elev. 780.30±
		Light gray, medium to coarse grained limestone, thin bedded.
		Elev. 778.30±
36.6	9.0+	Gray calcareous siltstone, hard.
		Elev. 777.90±
		Gray calcareous shaley siltstone, hard.
		Elev. 773.90±
		Dark gray calcareous shale, hard.
		Elev. 773.70±
		Gray shaley limestone, hard.
		Elev. 773.30±
		Gray limey shale, hard with interlayered limestone stringers.
		Elev. 762.30±
48.6	9.0+	← Gray shale moderately hard to hard.
		Elev. 753.20±
		← Gray fine grained, medium bedded limestone, hard.
		Elev. 752.00±
		Gray shale, moderately hard.
		Elev. 750.70±

① CORE

STANDARD PENETRATION TEST

DEPTH, FT.	PP/TSF	
		Elev. 805.60±
		Clayey gravel, dense.
		Elev. 805.00±
3	1.7	Brown silt, scattered sand, moist,
4	2.5	medium stiff to stiff.
		Elev. 802.10±
6	1.5	Red-brown and yellow lean clay with sand and gravel, stiff, moist.
8	2.0	Elev. 800.40±
		Dark gray laminated silt with fine grained sand laminations, stiff, moist, trace fine gravel, very soft, wet layer from 9.0 to 9.5'.
11	0.5	Elev. 795.60±
13	0.6	
15	1.0	← Dark gray-green lean clay to silt, scattered sand partings, some gravel, stiff to medium stiff, wet.
17	1.0	
18	0.1	Elev. 787.90±
20	0.40	
		← Light brown lean clay to silt, soft, moist.
22	0.50	Elev. 783.20±
		← Brown hard silt or weathered shale.
		Elev. 781.60±
		Weathered shale.
		Elev. 781.00±
28.7	9.0+	Gray shaley limestone, hard.
		Elev. 779.90±
		Brown shale, medium hard.
		Elev. 779.70±
33.2	9.0+	Brown to gray shaley limestone, hard.
		Elev. 778.80±
35.5	9.0+	Gray fine grained, thick bedded limestone, hard.
		Elev. 777.40 ±
		Gray, silty, calcareous shale, hard.
		Elev. 775.10±
		Dark gray calcareous shale with limestone stringers, medium hard.
		Elev. 774.00±
		Gray shale, hard with interlayered limestone stringers.
		Elev. 754.20±
		Gray, fine grained, medium bedded limestone, hard.
		Elev. 753.50±
		Dark gray limey shale with limestone stringers, hard.
		Elev. 750.20±
		← Dark gray shale, scattered limestone stringers, hard.
		Elev. 743.40±
		← Dark gray shale with sandstone stringers, hard.
		Elev. 740.00±
		← Gray fine grained, poorly sorted, poorly cemented sandstone.
		Elev. 737.70±
		Gray, medium grained, thin bedded limestone, hard.
		Elev. 737.30±
		Gray, fine grained, silty sandstone, hard.
		Elev. 735.60±
		Dark gray shale, interbedded sandstone layers, hard.
		Elev. 731.00±

② CORE

Note: For location of borings see sheet No. 1.

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
3/16/99

Detailed Feb. 1999
Checked Feb. 1999

BORING DATA

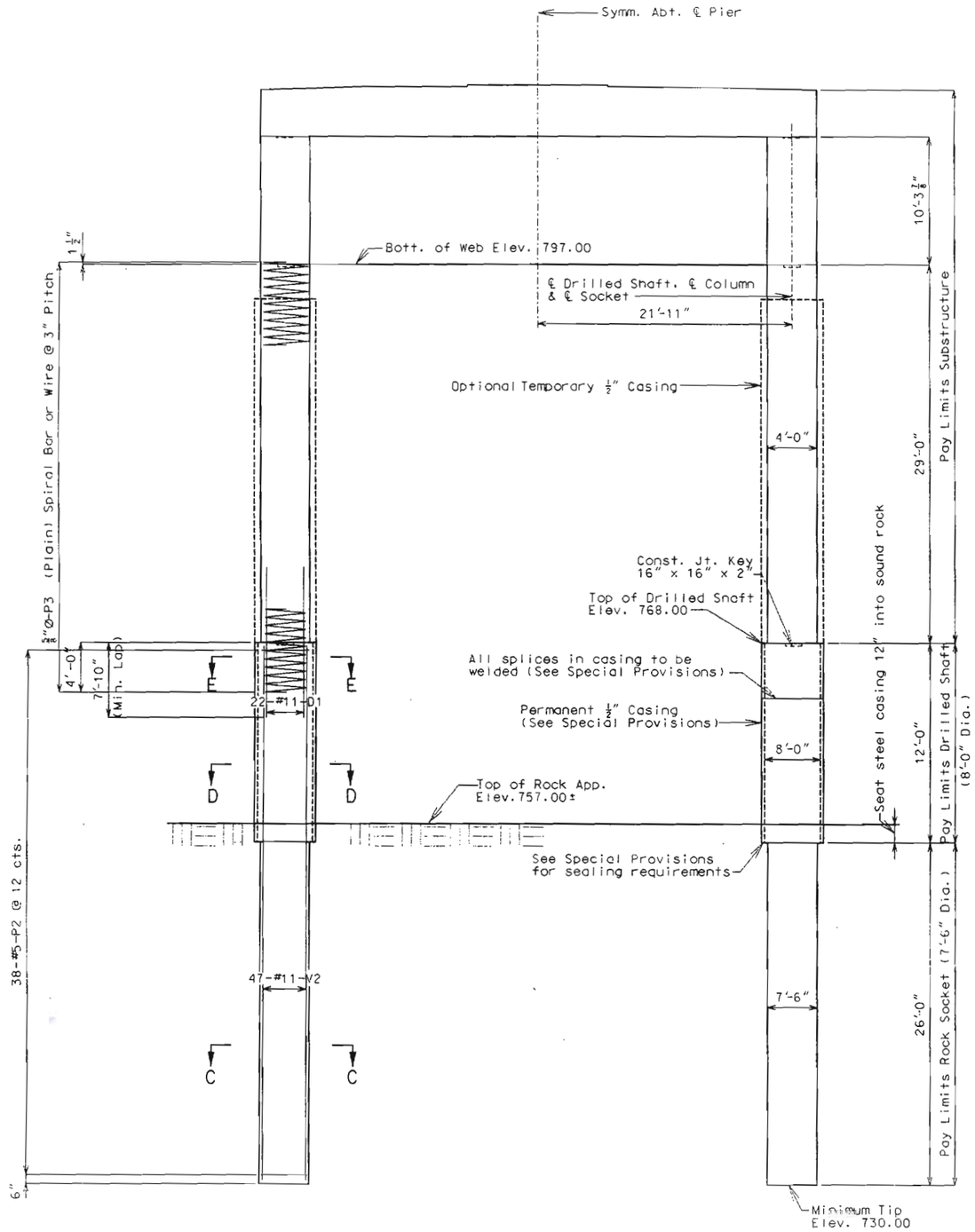
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 8

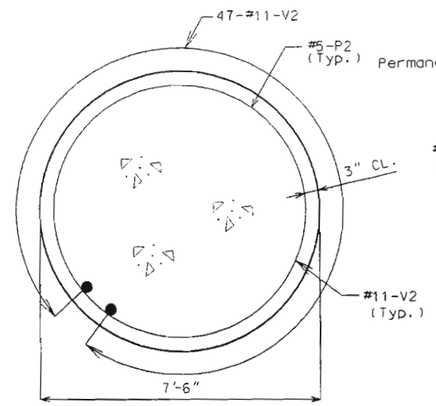
PLATTE COUNTY

S00253

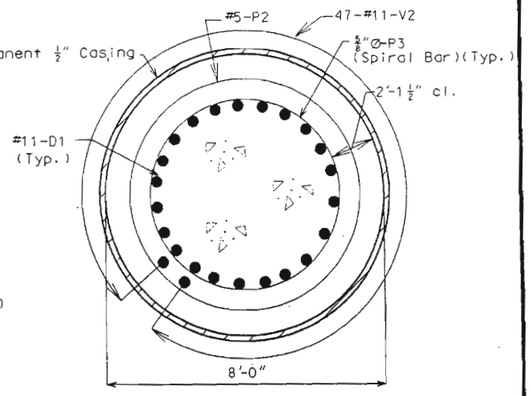
State	Proj. No.	Sheet No.
MO		84



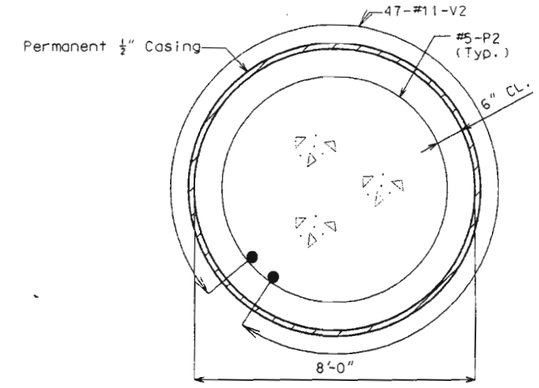
ELEVATION OF DRILLED SHAFTS & ROCK SOCKETS



SECTION C-C



SECTION E-E



SECTION D-D

NOTE:

The contract unit price for "Drilled Shafts (8'-0" Dia.)" shall be full compensation for construction of the drilled shafts within the pay limits shown here and sheet No. 2. The contract price does not include reinforcing steel.

The contract unit price for "Rock Sockets (7'-6" Dia.)" shall be full compensation for construction of the rock sockets within the pay limits shown here and sheet No. 2. The contract price does not include reinforcing steel.

ESTIMATED QUANTITIES FOR DRILLED SHAFTS & ROCK SOCKETS

ITEM		QUANTITY
Reinforcing Steel	pound	26,380

Note: All reinforcement in drilled shafts and rock sockets are included in Substructure Quantities.

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
3/10/99
Dennis W. Heckman

DETAILS OF PIER NO. 11

Detailed Feb. 1999
Checked Feb. 1999

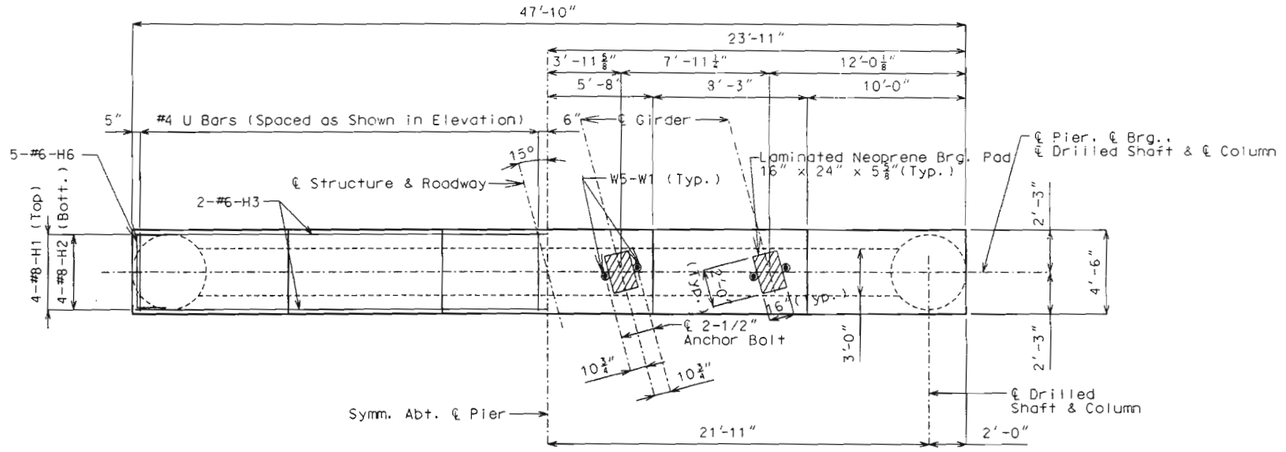
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 8

PLATTE COUNTY

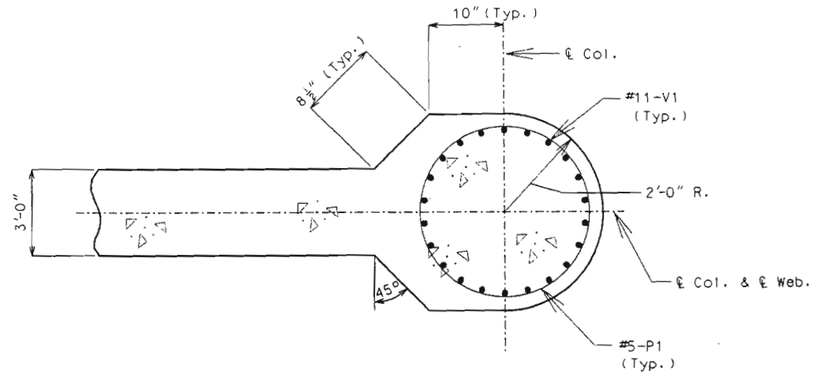
S00253

State	Proj. No.	Sheet No.
MO		G 5

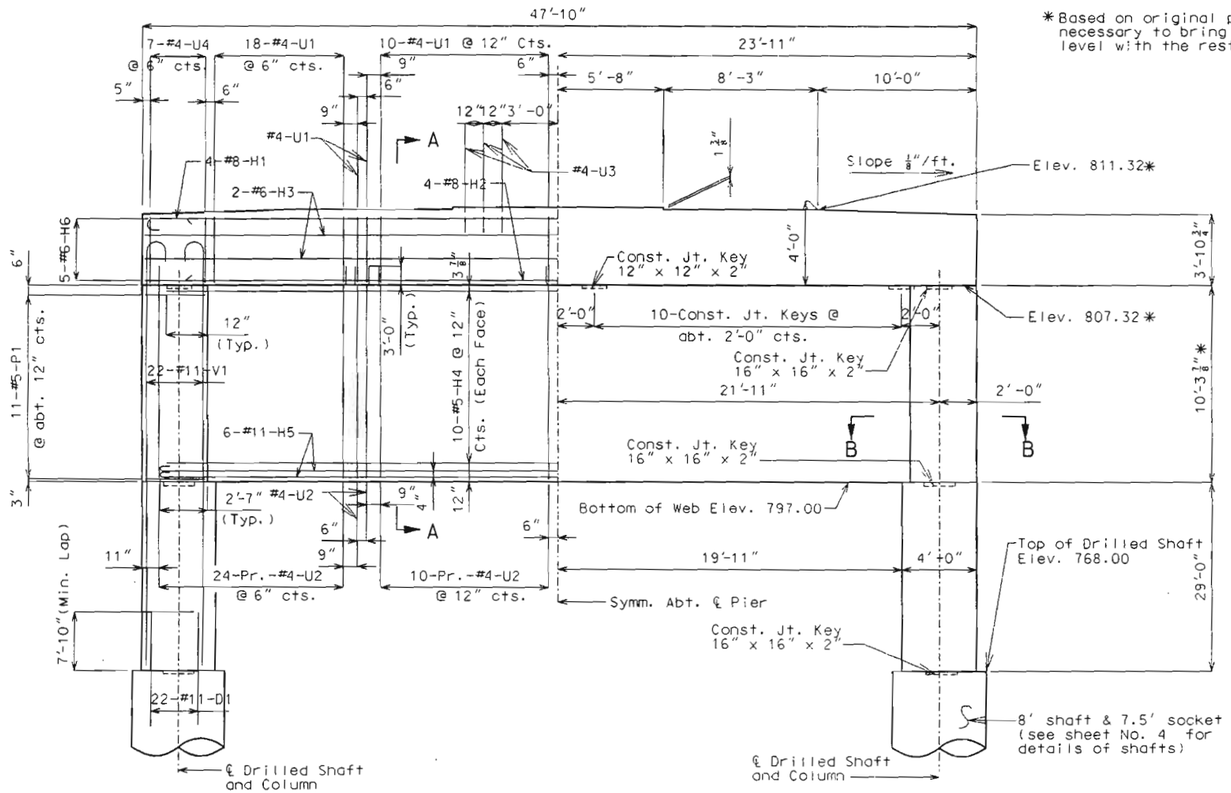


PLAN

NOTE: Column and web reinforcement not shown for clarity.
See sheet No. 4. For details of ⅜"Ø P bar in column below web.
All reinforcing bars in the tops of substructure beams or caps shall be spaced to clear anchor bolt wells for bearings by at least ½".

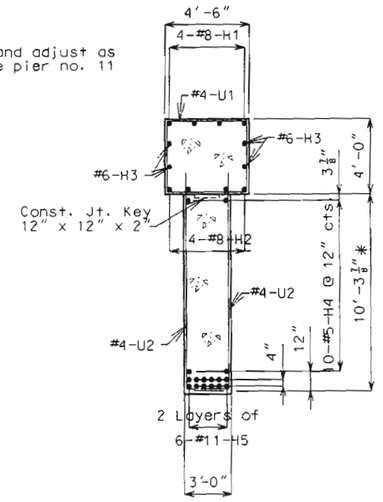


SECTION B-B



ELEVATION

*Based on original plans. Measure in field and adjust as necessary to bring top of bridge deck above pier no. 11 level with the rest of the bridge.



SECTION A-A

SUBSTRUCTURE QUANTITY TABLE FOR PIER NO. 11

ITEM		QUANTITY
Supplementary Foundation Test Holes (NX)	Lin. Ft.	20
Supplementary Cored Holes	Lin. Ft.	38
Drilled Shafts (8'-0" Dia.)	Lin. Ft.	24
Rock Sockets (7'-6" Dia.)	Lin. Ft.	52
Supplementary Television Inspection	Each	1
Class B1 Concrete (Substructure)	Cu. Yd.	114.8
Reinforcing Steel (Bridges)	pound	48.040

Note: These quantities are included in the estimated quantities table on sheet No. 2.

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
3/10/99

Detailed Feb. 1999
Checked Feb. 1999

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

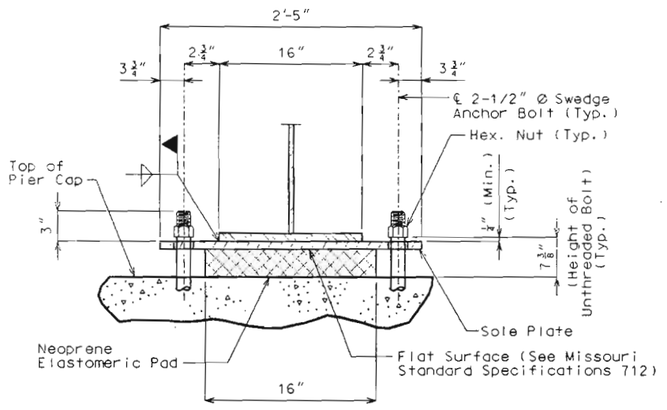
DETAILS OF PIER NO. 11

Sheet No. 5 of 8

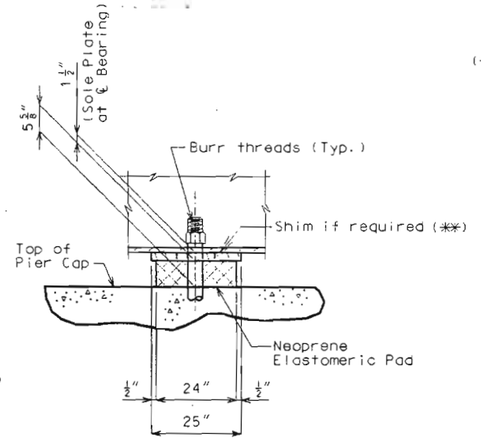
PLATTE COUNTY

S00253

State	Proj. No.	Sheet No.
MO		86

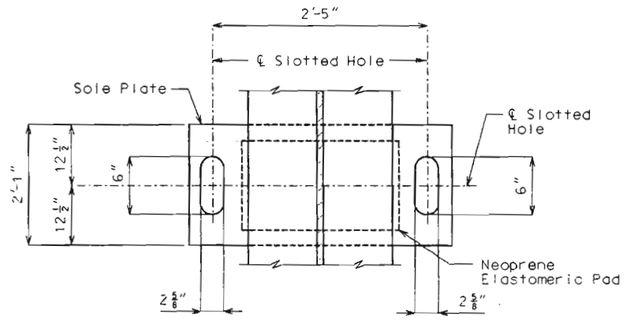


END VIEW

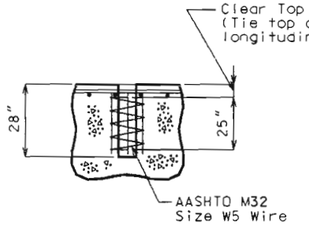


SIDE VIEW

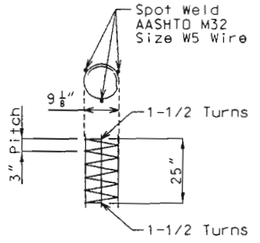
(**) Shims shall be used if the bottom flange of the existing girders are not level with the top of the pier cap. They shall not be used to compensate for erroneous top of pier cap elevation.



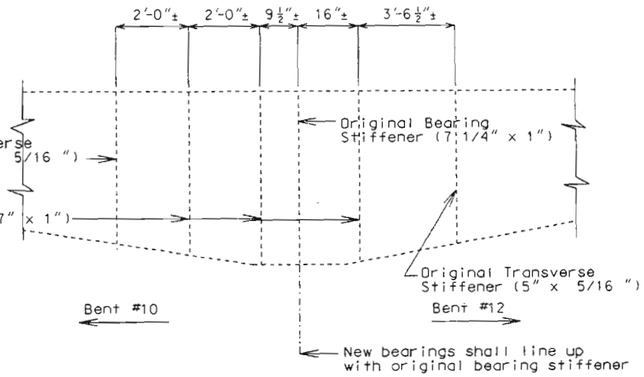
PART PLAN



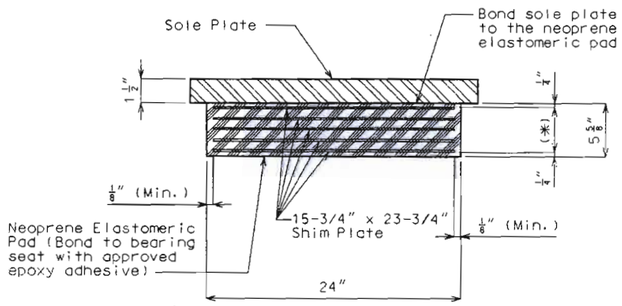
DETAIL OF ANCHOR BOLT WELLS



DETAIL OF SPIRAL REINFORCEMENT



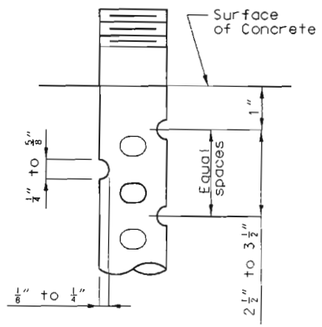
DETAIL OF LOCATION FOR NEW BEARING



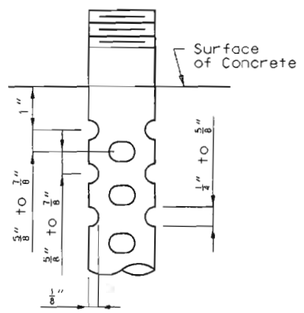
NEOPRENE ELASTOMERIC PADS

(Total of 4 Each)

(*) Layers of ½" elastomer alternating with 11 gage or ⅛" shim plate.



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



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

SWEDGE ANCHOR BOLT DETAILS

GENERAL NOTES:

Anchor bolts shall be 2-1/2" diameter ASTM A709 Grade 50W steel swedged bolts and shall extend 25" into the concrete with ASTM A194-2, 2H or ASTM A563-C, C3, D, DH, DH3 heavy hexagon nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. Swedging shall be 1" less than the extension into the concrete.

All structural steel for the anchor bolts and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A153.

Neoprene Elastomeric Pads shall be 60 Durometer. The neoprene pad shall be bonded to the bearing seat with an epoxy adhesive as approved by the bearing manufacturer for bonding neoprene to concrete.

The sole plate (and any required shims) shall be furnished with the bearing and field welded to the girders.

Structural steel for the sole plate (and any required shims) shall be ASTM A709 Grade 36 and shall be coated with a minimum of 2 coats of inorganic zinc primer (5 mils minimum).

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

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

STATE OF MISSOURI DENNIS W. HECKMAN NUMBER E-27141 REGISTERED PROFESSIONAL ENGINEER 3/10/99

DETAILS OF LAMINATED NEOPRENE BEARINGS (STEEL STRUCTURES)

Detailed Dec. 1998
Checked Feb. 1999

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

PLATTE COUNTY

S00253

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			PIER NO. 11																
4	8	H1	BEAM		18		X			47 7.000							49 5	49 5	528
4	8	H2	BEAM		20		X			47 7.000							47 7	47 7	508
4	6	H3	BEAM		20		X			47 7.000							47 7	47 7	286
20	5	H4	WEB		20		X			41 10.000							41 10	41 10	873
12	11	H5	WEB		18		X			45 0.000							48 2	48 2	3071
10	6	H6	BEAM		10	S	X				22.000	4 2.000					7 10	7 6	113
22	5	P1	COLUMN		16		X			3 9.000							12 10	12 10	294
2	5	P3	COLUMN		35		X			3 9.000	3.000	33 1.500					1574 6	1574 6	3284
60	4	U1	BEAM		13	S	X			4 3.000	3 7.750	4 3.000	3 7.750				16 7	16 4	655
144	4	U2	WEB		19	S	X			13 2.500	2 9.000						16 0	15 11	1531
6	4	U3	BEAM		10	S	X				6.000	4 3.000					5 3	5 1	20
14	4	U4	BEAM		10	S	X				3 7.750	4 3.000					11 7	11 5	107
44	11	V1	COLUMN		17		X			42 8.000							44 3	44 3	10344
8	W5	W1	A.B. WELLS		22		X			2 1.000	9.125						33 2	33 2	44
			DRILL SHAFTS																
44	11	D1	COLUMN		20		X			15 8.000							15 8	15 8	3662
76	5	P2	COLUMN		16		X			7 0.000							23 1	23 1	1830
94	11	V2	COLUMN		20		X			41 10.000							41 10	41 10	20892

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B	C	D	E	F	H	K	NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
										FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	LBS.

State	Proj. No.	Sheet No.
MO		13 7

SHAPE 6 SHAPE 7 SHAPE 8

SHAPE 9 SHAPE 10 SHAPE 11

SHAPE 12 SHAPE 13 SHAPE 14

SHAPE 15 SHAPE 16 SHAPE 17 SHAPE 18 SHAPE 20

SHAPE 19 SHAPE 21 SPOT WELD AASHTO M32 SIZE W5 WIRE (TYP.)

SHAPE 23 SHAPE 24 SHAPE 22

SHAPE 25 SHAPE 26 SHAPE 27

SHAPE 28 SHAPE 29 SHAPE 31

SHAPE 30 SHAPE 32

SHAPE 36 SHAPE 35 SHAPE 34 SHAPE 33

(SHAPE 35 SHALL BE A SMOOTH BAR OR WIRE.)

BENDING DIAGRAMS

6d FOR #4 AND #5. 12d FOR #6

90° STIRRUP 135° STIRRUP

STIRRUP HOOK DIMENSIONS

GRADES 40 - 50 - 60 KSI

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

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

DETAILING DIMENSION

90° 180°

4d OR 2-1/2" MIN.

END HOOK DIMENSIONS

BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2-1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3-3/4"	7"	5"	10"
#6	4-1/2"	8"	6"	12"
#7	5-1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9-1/2"	15"	11-3/4"	19"
#10	10-3/4"	17"	13-1/4"	22"
#11	12"	19"	14-3/4"	2'-0"
#14	18-1/4"	2'-3"	21-3/4"	2'-7"

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

DETAILED Feb. 1999
CHECKED Feb. 1999

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

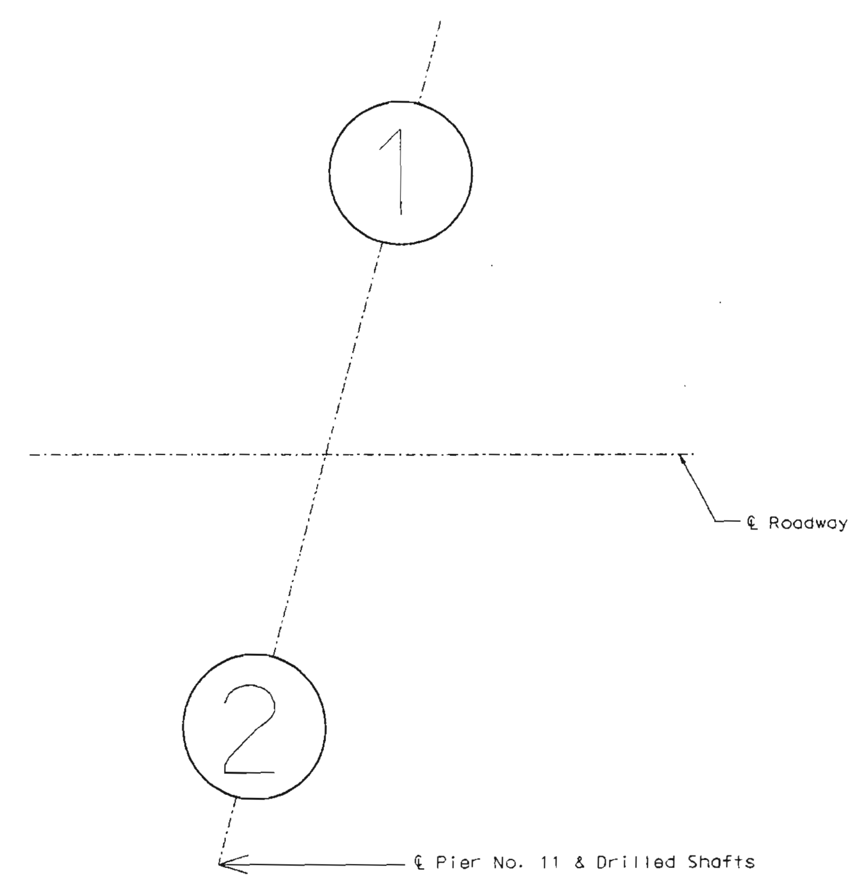
SHEET NO. 7 OF 8.

STATE OF MISSOURI DENNIS W. HECKMAN NUMBER E-27141 REGISTERED PROFESSIONAL ENGINEER 3/18/99

PLATTE COUNTY S00253

State	Proj. No.	Sheet No.
MO		B8

"AS BUILT DRILLED SHAFT" DATA			
"PIER NO. 11 (DRILLED SHAFT)"			
SHAFT NO.	BOTTOM OF DRILLED SHAFT (ELEV.)	BOTTOM OF ROCK SOCKET (ELEV.)	REMARKS
1			
2			



STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
3/10/99

Detailed Feb. 1999
Checked Feb. 1999

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

PLATTE COUNTY S00253

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

State	Proj. No.	Sheet No.
MO	J4S1368	81
SEC/SUR 1	TWP. 54N.	RGE. 34W.

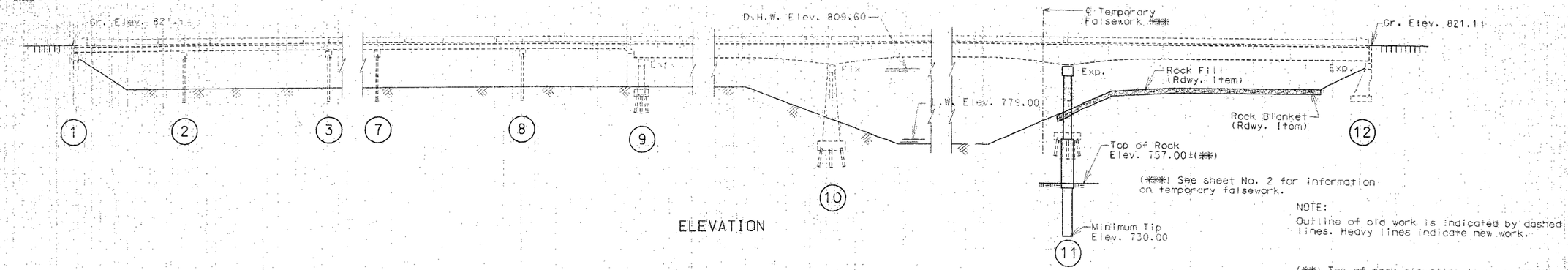
Contract ID - 990423-403

FINAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

SIGNATURE

DATE

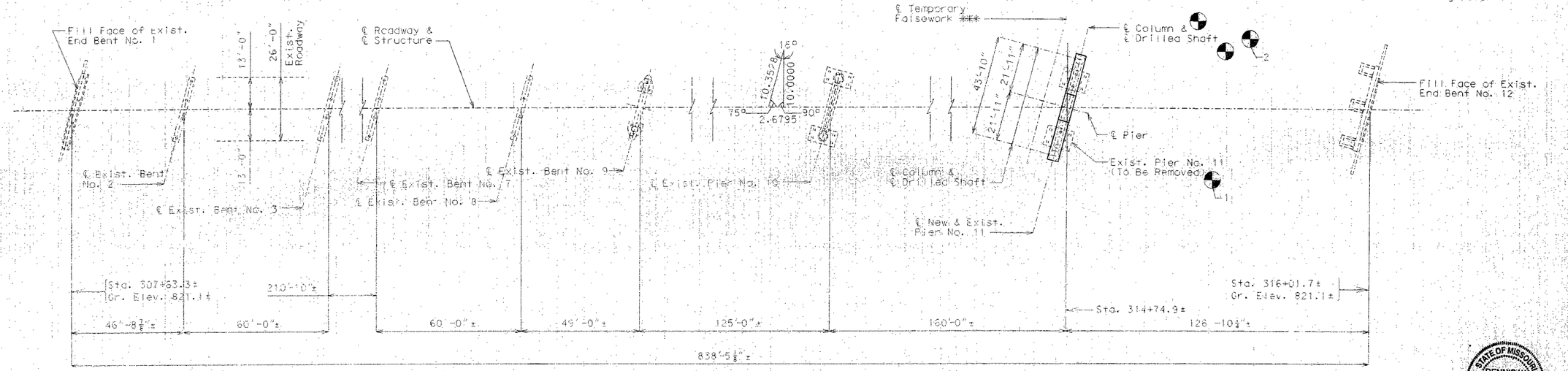


ELEVATION

(***) See sheet No. 2 for information on temporary falsework.

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

(**) Top of rock elevation is an assumed elevation based on boring data.



PLAN

Indicates location of borings.

B.M. Elev. 821.72"□" on S.W. Cor. Wing Wall
Sta. 316+01.73

Notice and Disclaimer Regarding Boring Log Data

The locations of all recent subsurface borings for this structure are shown on the bridge plan sheet for this structure.

Boring data for the numbered locations is shown on sheet no. 3.
The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of this project, is available from the Project Contract upon written request as outlined in the project special provisions.

No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project.

A contractor assumes all risks in any way connected with basing its bid prices, time or schedule of performance on the boring data depicted thereon or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

REPAIRS TO BRIDGE OVER PLATTE RIVER

STATE ROAD FROM RTE. F SOUTHEAST TO EDGERTON
ABOUT 7 MILES EAST OF DEARBORN
PROJECT NO. STA. 307+63.3±
JOB NO. J4S1368 RTE. Z

PLATTE COUNTY
Date: 3/10/99

STD. 706.35
S00253

Designed Jan. 1999
Detailed Feb. 1999
Checked Feb. 1999

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

Sheet No. 1 of 8

State	Proj. No.	Sheet No.
MO	J4S1368	B 2

Contract ID 990423-403

FINAL QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Pier no. 11	Lump Sum			1 ✓
Temporary Falsework	Lump Sum			1 ✓
Supplementary Foundation Test Holes (NX)	Lin. Ft.	20		20 ✓
Supplementary Cored Holes	Lin. Ft.	38		38 ✓
Drilled Shafts (8'-0" Dia.)	Lin. Ft.	24		24 ✓
Rock Sockets (7'-6" Dia.)	Lin. Ft.	52		52 ✓
Supplementary Television Inspection	Each	1		1 ✓
Class B1 Concrete (Substructure)	Cu. Yds.	114.8		114.8 ✓
Laminated Neoprene Bearing Pads (Steel Structures)	Each		4	4 ✓
Reinforcing Steel (Bridges)	Pound	48,040		48,040 ✓
CONTINGENT: Class B-2 Concrete for drilled shafts	Cu. Yds.	129.8		129.8

NOTE: The cost of furnishing, fabricating and installing Neoprene Bearing Pads, complete-in-place, will be paid for at the contract unit price for Laminated Neoprene Bearing Pads, (Steel Structures), per each.

GENERAL NOTES:

DESIGN SPECIFICATIONS:

AASHTO-1996 and Interim 1997
Load Factor Design.

Seismic Performance Category A

DESIGN LOADINGS:

H15-44

Fatigue Case II

15#/Sq. Ft. Future Wearing Surface

DESIGN UNIT STRESSES:

Class B1 Concrete (Substructure) f'c = 4,000 psi.

Reinforcing Steel (Grade 60) fy = 60,000 psi.

Bearings shall be 60 Durometer Neoprene Pads.

The neoprene pad shall be bonded to the bearing seat with an epoxy adhesive as approved by the bearing manufacturer for bonding neoprene to concrete.

REINFORCING STEEL:

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

All reinforcing bars in top of substructure beam or cap shall be spaced to clear anchor bolt wells for bearings by at least 3".

MISC.

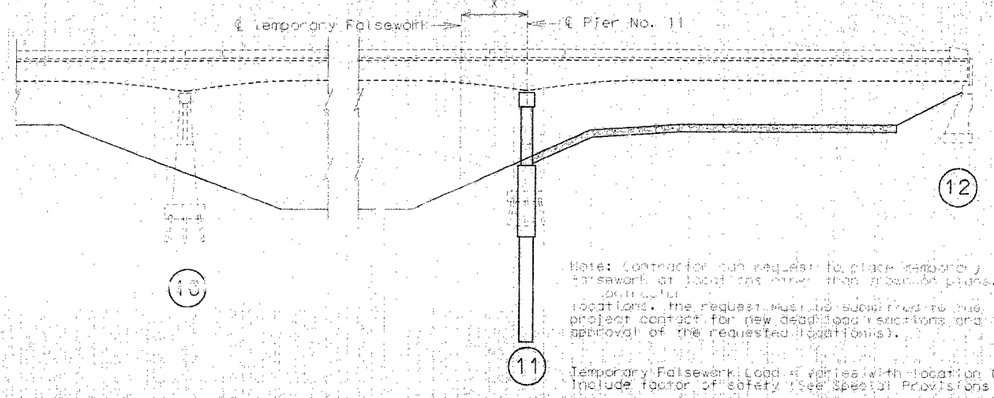
Contractor shall verify all dimensions in field before ordering materials.

Bridge will be closed to traffic during construction. No construction live load shall be allowed on bridge.

FINAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE BOAT [illegible] AS CONSTRUCTED ON THIS PROJECT.

DATE



Note: Contractor can request to place temporary falsework at locations other than those shown. Contractor locations, the request must be submitted to the project contact for new dead load reactions and approval of the requested location(s).

Temporary Falsework Load R varies with location (see table) and does not include factor of safety (See Special Provisions)

Use 4x4 Temporary Timber Blocking as bearing stiffeners for falsework and jacking points. Place on each side of existing web or brg. stiffener as required by design.

Dim. "X"	INT. GDR. DEAD LOAD REACTION (TONS/PER GDR.)	EXT. GDR. DEAD LOAD REACTION (TONS/PER GDR.)
0'-0"	88 tons	77 tons
5'-0"	86 tons	75 tons

253

DRILLED SHAFT DATA		
PIER NO. 11	Left(1)	Right(2)
Foundation Material	Shale	Shale
Approximate length (Ft.)	38	38
Design Side Friction (Tons/Sq. Ft.)	0.57	0.57

PAY LIMITS FOR EACH SHAFT AND SOCKET	
Drilled Shaft	Rock Socket
12'-0"	26'-0"

DRILLED SHAFT NOTES :

The top of sound rock is assumed at the elevation determined from the borings. The pay length is based on this assumed top of rock elevation.

Prior to placing drilled shaft casings the contractor shall be required to drill an NX size core hole at each shaft for additional subsurface investigation. The holes shall be located by the Engineer and shall extend at least 10 ft. below the bottom of socket elevation. (See Special Provisions.

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
Dennis W. Heckman 3/19/99

Detailed Feb. 1999
Checked Feb. 1999

Note: this drawing is not to scale, follow dimensions.

PLATTE COUNTY S00253

	Proj. No.	Sheet No.
	JAS1308	B3

Contract ID 990423-405

STANDARD PENETRATION TEST

DEPTH, FT.	PP/TSF
4	0.25
6	3.0
8	1.5
11	2.25
14	1.5
16	0.75
19	1.0
21	1.0
22	3.75
36.6	9.0+
43.6	9.0+

Elev. 805.60±

- Brown lean clayey silt, medium stiff, moist.
  Elev. 803.10±
- Brown lean clay, soft, moist.
  Elev. 795.40±
- Gray to brown lean clay with scattered silt and root fragments.
  Elev. 798.20±
- Brown lean clay, soft to medium stiff, moist.
  Elev. 797.70±
- Gray lean clay, scattered roots and wood, stiff.
  Elev. 796.00±
- Gray to brown lean clay, slightly mottled, stiff, scattered roots also present.
  Elev. 791.10±
- Light brown lean clay, medium stiff.
  Elev. 789.40±
- Light brown lean clay with scattered silty layers, stiff.
  Elev. 784.10±
- Weathered brown shale, soft.
  Elev. 780.70±
- Brown shale, very soft.
  Elev. 780.30±
- Light gray, medium to coarse grained limestone, thin bedded.
  Elev. 778.30±
- Gray calcareous siltstone, hard.
  Elev. 777.90±
- Gray calcareous shaley siltstone, hard.
  Elev. 773.90±
- Dark gray calcareous shale, hard.
  Elev. 773.70±
- Gray shaley limestone, hard.
  Elev. 773.30±
- Gray limey shale, hard with interlayered limestone stringers.
  Elev. 762.30±
- Gray shale moderately hard to hard.
  Elev. 753.20±
- Gray fine grained, medium bedded limestone, hard.
  Elev. 752.00±
- Gray shale, moderately hard.
  Elev. 750.70±

① CORE

STANDARD PENETRATION TEST

DEPTH, FT.	PP/TSF
3	1.7
4	2.5
6	1.5
8	2.0
11	0.5
13	0.6
15	1.0
17	1.0
18	0.1
20	0.40
22	0.50
28.7	9.0+
33.2	9.0+
35.5	9.0+

Elev. 805.60±

- Clayey gravel, dense.
  Elev. 805.00±
- Brown silt, scattered sand, moist, medium stiff to stiff.
  Elev. 802.10±
- Red-brown and yellow lean clay with sand and gravel, stiff, moist.
  Elev. 800.40±
- Dark gray laminated silt with fine grained sand laminations, stiff, moist, trace fine gravel, very soft, wet layer from 9.0 to 9.5'.
  Elev. 795.60±
- Dark gray-green lean clay to silt, scattered sand partings, some gravel, stiff to medium stiff, wet.
  Elev. 787.90±
- Light brown lean clay to silt, soft, moist.
  Elev. 783.20±
- Brown hard silt or weathered shale.
  Elev. 781.60±
- Weathered shale.
  Elev. 781.00±
- Gray shaley limestone, hard.
  Elev. 779.90±
- Brown shale, medium hard.
  Elev. 779.70±
- Brown to gray shaley limestone, hard.
  Elev. 778.80±
- Gray fine grained, thick bedded limestone, hard.
  Elev. 777.40 ±
- Gray, silty, calcareous shale, hard.
  Elev. 775.10±
- Dark gray calcareous shale with limestone stringers, medium hard.
  Elev. 774.00±
- Gray shale, hard with interlayered limestone stringers.
  Elev. 754.20±
- Gray, fine grained, medium bedded limestone, hard.
  Elev. 753.50±
- Dark gray limey shale with limestone stringers, hard.
  Elev. 750.20±
- Dark gray shale, scattered limestone stringers, hard.
  Elev. 739.40±
- Dark gray shale with sandstone stringers, hard.
  Elev. 740.00±
- Gray fine grained, poorly sorted, poorly cemented sandstone.
  Elev. 737.70±
- Gray, medium grained, thin bedded limestone, hard.
  Elev. 737.30±
- Gray, fine grained, silty sandstone, hard.
  Elev. 735.60±
- Dark gray shale, interbedded sandstone layers, hard.
  Elev. 731.00±

② CORE

Note: For location of borings see sheet No. 1.

BORING DATA

Detailed Feb 1999
Checked Feb 1999

Note: This drawing is not to scale, follow dimensions.

Sheet No. 3 of 8

PLATTE COUNTY S00253

SEAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE STRUCTURE AND APPURTENANCES AS CONSTRUCTED FOR THIS PROJECT

DATE

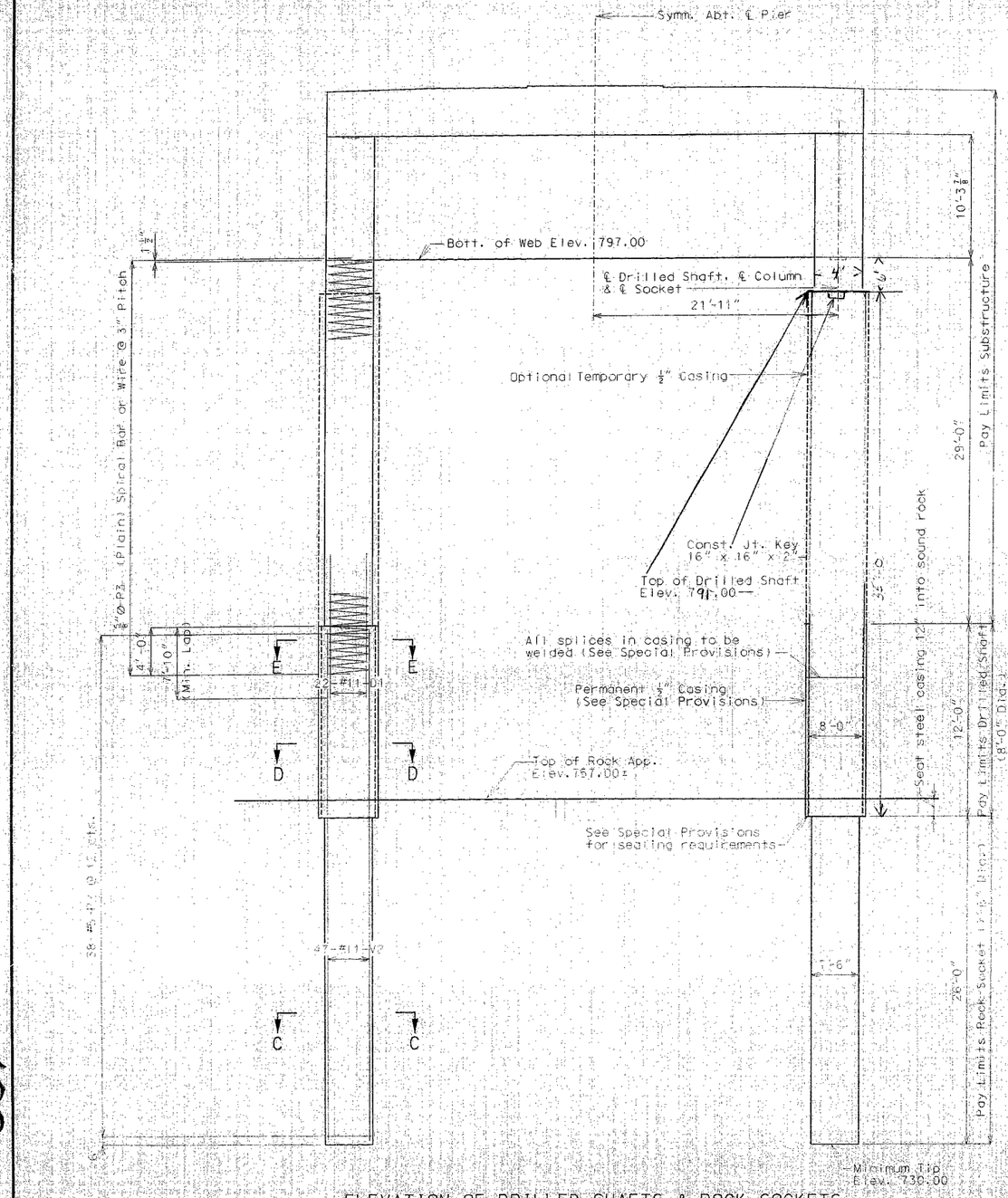
STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER

3/16/99

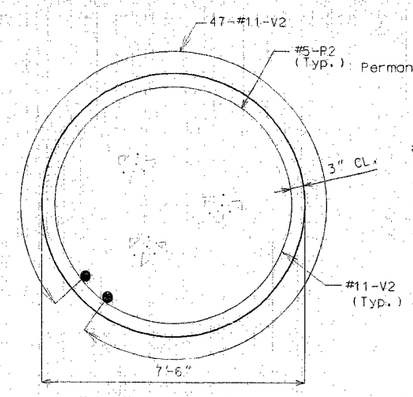
2.5.6

State	Proj. No.	Sheet No.
MO	J4S1368	84

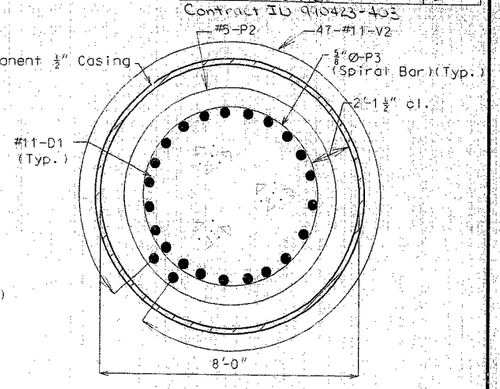
Contract ID 980423-403



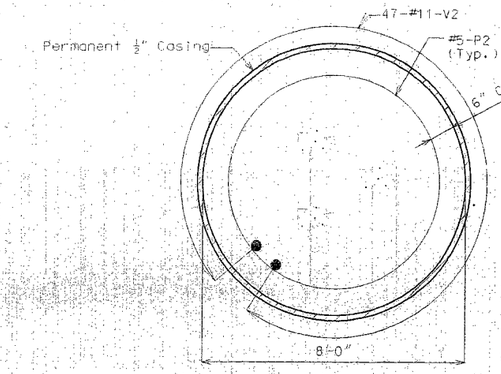
ELEVATION OF DRILLED SHAFTS & ROCK SOCKETS



SECTION C-C



SECTION E-E



SECTION D-D

NOTE:

The contract unit price for "Drilled Shafts (8'-0" Dia.)" shall be full compensation for construction of the drilled shafts within the pay limits shown here and sheet No. 2. The contract price does not include reinforcing steel.

The contract unit price for "Rock Sockets (7'-6" Dia.)" shall be full compensation for construction of the rock sockets within the pay limits shown here and sheet No. 2. The contract price does not include reinforcing steel.

ESTIMATED QUANTITIES FOR DRILLED SHAFTS & ROCK SOCKETS

ITEM		QUANTITY
Reinforcing Steel	pound	26,380

Note: All reinforcement in drilled shafts and rock sockets are included in Substructure Quantities.

FINAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE PERMANENT APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

DATE

STATE OF MISSOURI DENNIS W. HECKMAN NUMBER E-27141 REGISTERED PROFESSIONAL ENGINEER 3/10/99

Dennis W. Heckman

Detailed Feb. 1999
Checked Feb. 1999

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

DETAILS OF PIER NO. 11

Sheet No. 4 of 8

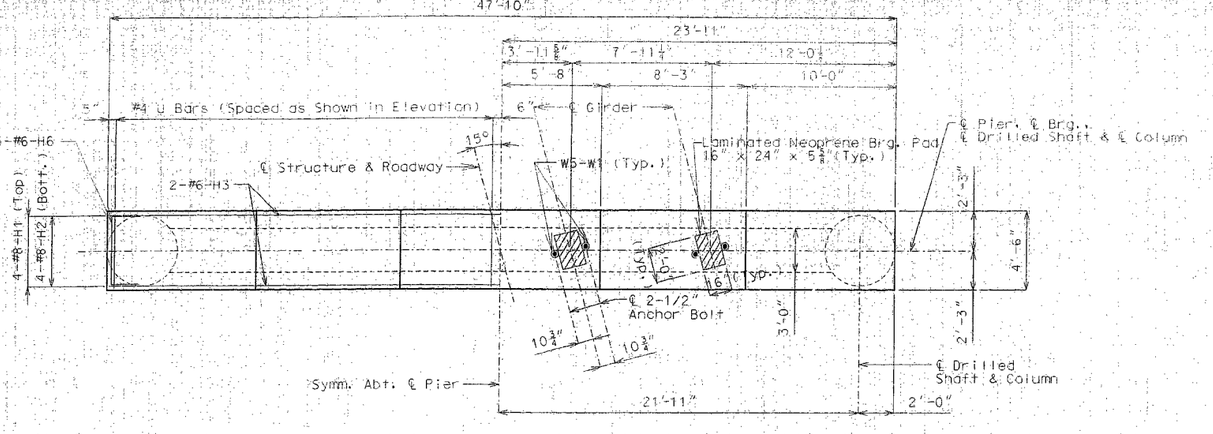
PLATTE COUNTY S00253

257

24 to 1

State	Proj. No.	Sheet No.
MO	J4S1368	85

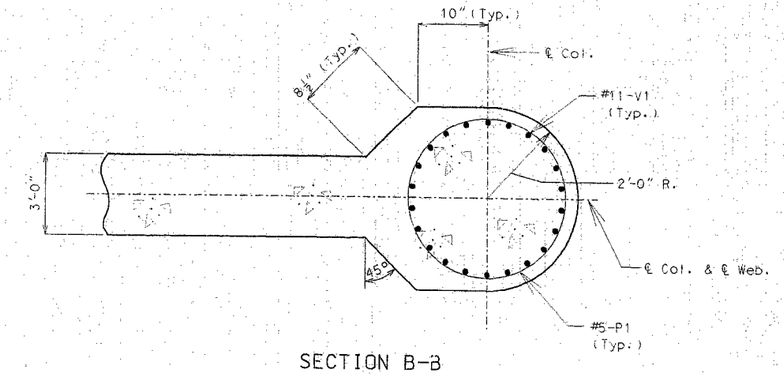
Contract ID 110423-403



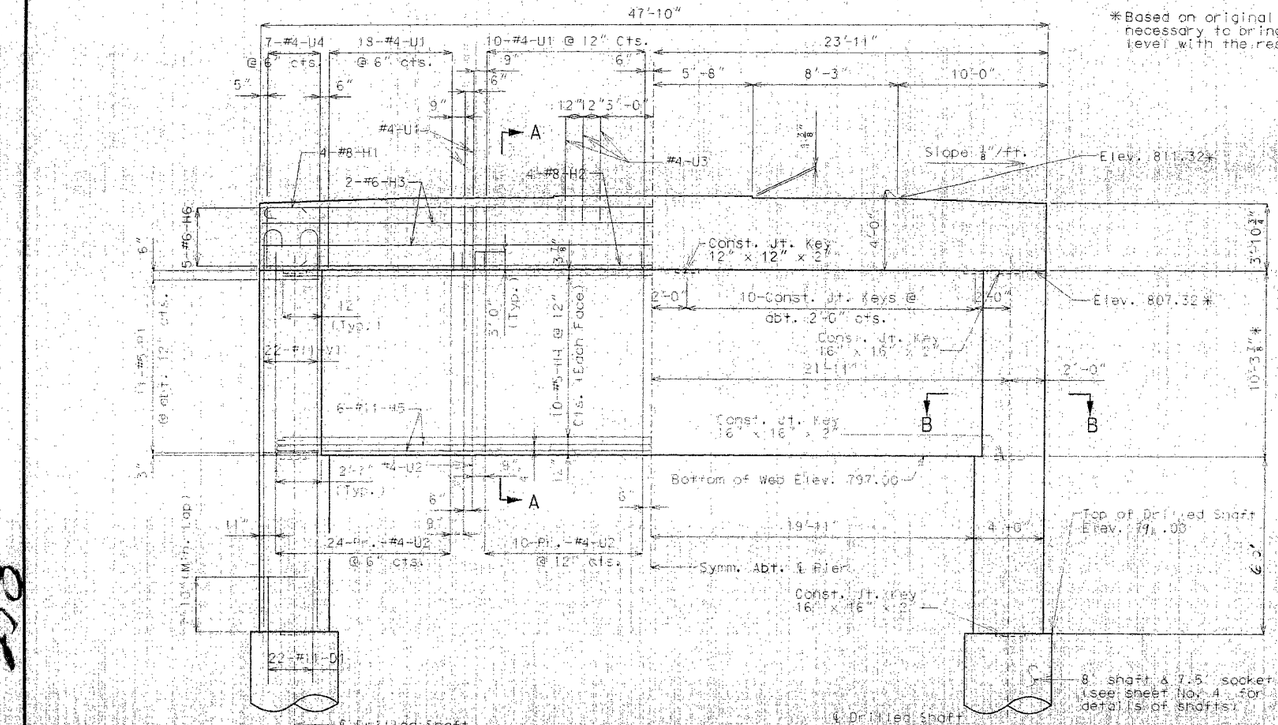
PLAN

NOTE: Column and web reinforcement not shown for clarity.
See sheet No. 4. For details of ⅝"Ø P bar in column below web.

All reinforcing bars in the tops of substructure beams or caps shall be spaced to clear anchor bolt wells for bearings by at least ½".

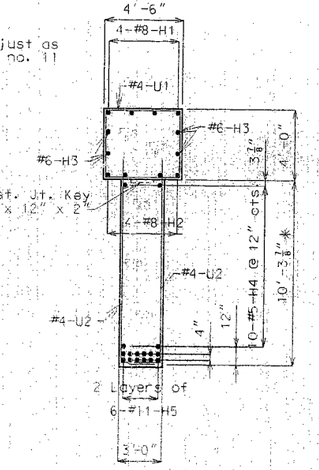


SECTION B-B



ELEVATION

*Based on original plans. Measure in field and adjust as necessary to bring top of bridge deck above pier no. 11 level with the rest of the bridge.



SECTION A-A

FINAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REPRESENTS THE CONFIGURATION AND LOCATION OF THE [illegible] AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

DATE

SUBSTRUCTURE QUANTITY TABLE FOR PIER NO. 11		
ITEM		QUANTITY
Supplementary Foundation Test Holes (NX)	Lin. Ft.	0
Supplementary Cored Holes	Lin. Ft.	0
Drilled Shafts (8'-0" Dia.)	Lin. Ft.	24
Rock Sockets (7'-6" Dia.)	Lin. Ft.	52
Supplementary Television Inspection	Each	0
Class B1 Concrete (Substructure)	Cu. Yd.	114.8
Reinforcing Steel (Bridges)	pound	48,040

Note: These quantities are included in the estimated quantities table on sheet No. 2.

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER
3/10/99

Detailed Feb. 1999
Checked Feb. 1999

Note: This drawing is not to scale, follow dimensions.

DETAILS OF PIER NO. 11

Sheet No. 5 of 8

PLATTE COUNTY

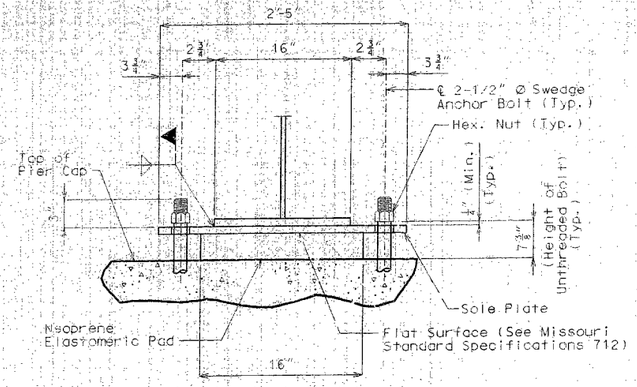
S00253

359

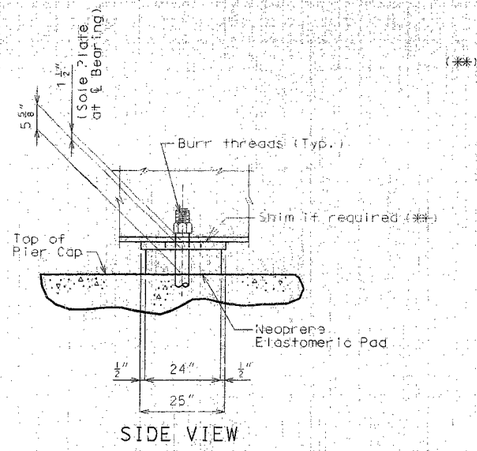
State	Proj. No.	Sheet No.
MO	J4S1365	86

Contract ID 98C403-403

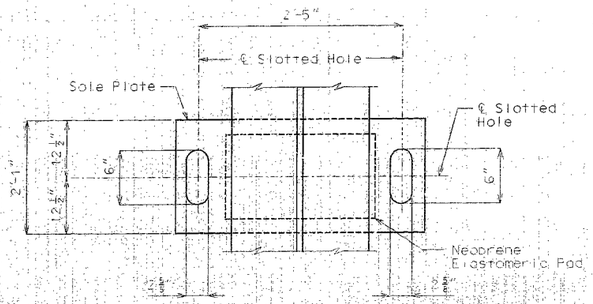
(***) Shims shall be used if the bottom flange of the existing girders are not level with the top of the pier cap. They shall not be used to compensate for erroneous top of pier cap elevation.



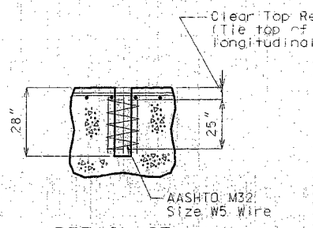
END VIEW



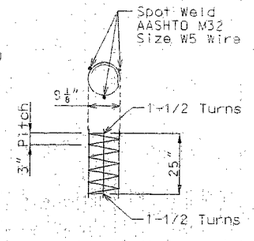
SIDE VIEW



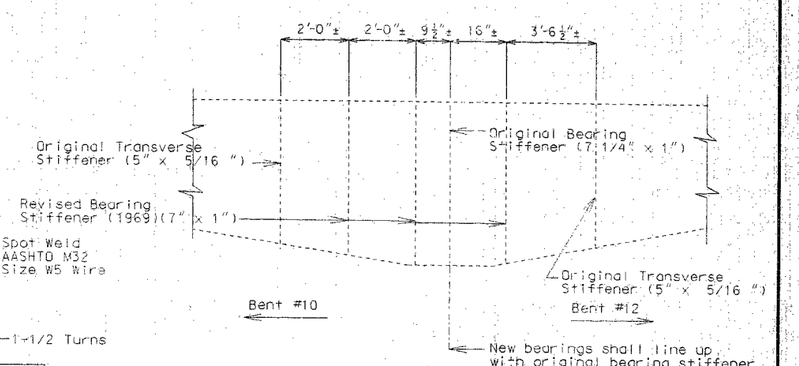
PART PLAN



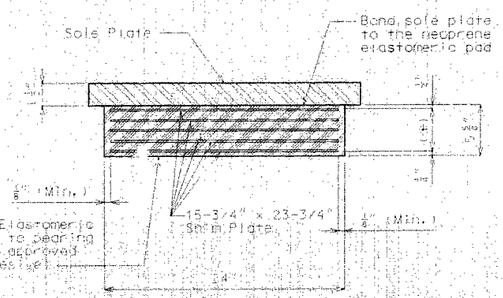
DETAIL OF ANCHOR BOLT WELLS



DETAIL OF SPIRAL REINFORCEMENT



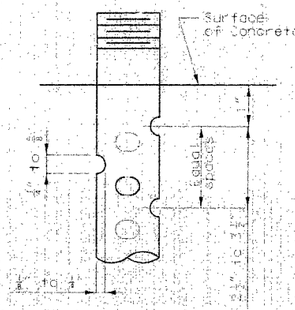
DETAIL OF LOCATION FOR NEW BEARING



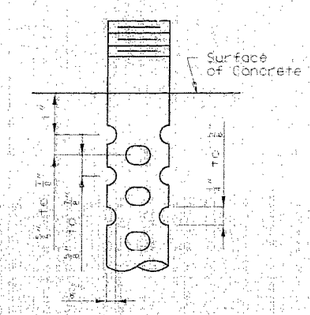
NEOPRENE ELASTOMERIC PADS

(Total of 4 Each)

(a) Layers of elastomer alternating with 11 gage or ¼" shim plate.



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



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

SWEDGE ANCHOR BOLT DETAILS

GENERAL NOTES:

Anchor bolts shall be 2-1/2" diameter ASTM A709 Grade 50W steel swedged bolts and shall extend 25" into the concrete with ASTM A194-2, 2H or ASTM A563-C, C3, D, DH, DH3 heavy hexagon nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. Swedging shall be 1" less than the extension into the concrete.

All structural steel for the anchor bolts and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A153.

Neoprene Elastomeric Pads shall be 60 Durometer. The neoprene pad shall be bonded to the bearing seat with an epoxy adhesive as approved by the bearing manufacturer for bonding neoprene to concrete.

The sole plate (and any required shims) shall be furnished with the bearing and field welded to the girders.

Structural steel for the sole plate (and any required shims) shall be ASTM A709 Grade 36 and shall be coated with a minimum of 2 coats of inorganic zinc primer (5 mils minimum).

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

Payment for the sole plate, shim plates (if any), anchor bolts and heavy hexagon nuts shall be included in the cost of the bearing assembly, see Special Provisions.

SEAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REPRESENTS THE CONFIGURATION AND LOCATION OF THE APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

Date

STATE OF MISSOURI DENNIS W. HECKMAN NUMBER E-27141 REGISTERED PROFESSIONAL ENGINEER

Dennis W. Heckman 3/10/99

259

DETAILS OF LAMINATED NEOPRENE BEARINGS (STEEL STRUCTURES)

Detailed Dec. 1998
Checked Feb. 1999

Note: This drawing is not to scale, follow dimensions.

PLATTE COUNTY S00253

FINAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS [illegible]

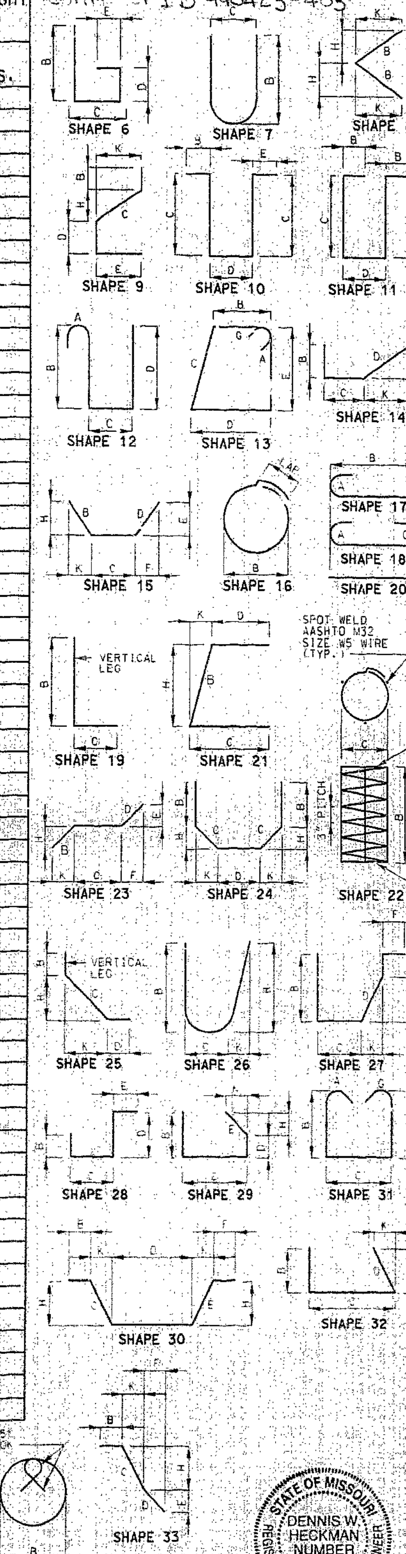
BILL OF REINFORCING STEEL

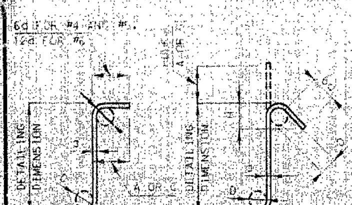
NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			PIER NO. 11																
4	8	H1	BEAM		18		X			47 7.000							49 5	49 5	528
4	8	H2	BEAM		20		X			47 7.000							47 7	47 7	508
4	6	H3	BEAM		20		X			47 7.000							47 7	47 7	286
20	5	H4	WEB		20		X			41 10.000							41 10	41 10	873
12	11	H5	WEB		18		X			45 0.000							48 2	48 2	3071
10	6	H6	BEAM		10	S	X				22.000	4 2.000					7 [illegible]	7 6	113
22	5	P1	COLUMN		16		X			3 9.000							12 10	12 10	294
2	5	P3	COLUMN		35		X			3 9.000	3.000	33 1.500					1574 6	1574 6	3284
60	4	U1	BEAM		13	S	X			1 3.000	3 7.750	4 3.000	3 7.750				16 7	16 4	655
144	4	U2	WEB		19	S	X			13 2.500	2 9.000						16 0	15 11	1531
5	4	U3	BEAM		10	S	X				6.000	4 3.000					5 3	5 1	20
14	4	U4	BEAM		10	S	X				3 7.750	4 3.000					11 7	11 5	107
44	11	V1	COLUMN		17		X			42 8.000							44 3	44 3	10344
6	W5	W1	A.B. WELLS		22		X			2 1.000	9.125						33 2	33 2	44
			DRILL SHAFTS																
44	11	D1	COLUMN		20		X			15 8.000							15 8	15 8	3662
76	5	P2	COLUMN		16		X			7 0.000							23 1	23 1	1830
94	[illegible]	[illegible]	COLUMN		20		X			[illegible] 10.000							41 10	41 10	[illegible]

BILL OF REINFORCING STEEL

NO. REQ'D.	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.

State	Proj. No.	Sheet No.
MO	J4S1365	37

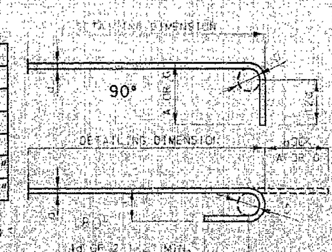




90° STIRRUP 135° STIRRUP

STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK: HOOK A OR G	135° HOOK: HOOK A OR G	135° HOOK: APPROX. H
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	12"	8"	4-1/2"

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



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS: A OR G	180° HOOKS: J	90° HOOKS: A OR G
#3	2-1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3-3/4"	7"	5"	10"
#6	4-1/2"	8"	6"	12"
#7	5-1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9-1/2"	15"	11-3/4"	19"
#10	10-3/4"	17"	13-1/4"	22"
#11	12"	19"	14-3/4"	2'-0"
#14	18-1/4"	2'-3"	21-3/4"	2'-7"

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

DETAILED Feb. 1999
CHECKED Feb. 1999

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

SHEET NO. 7 OF 8

STATE OF MISSOURI
DENNIS W. HECKMAN
NUMBER E-27141
REGISTERED PROFESSIONAL ENGINEER

BENDING DIAGRAMS

PLATTE COUNTY

S00253

24 to 1

misc2 as built drilled shaft Feb. 1999

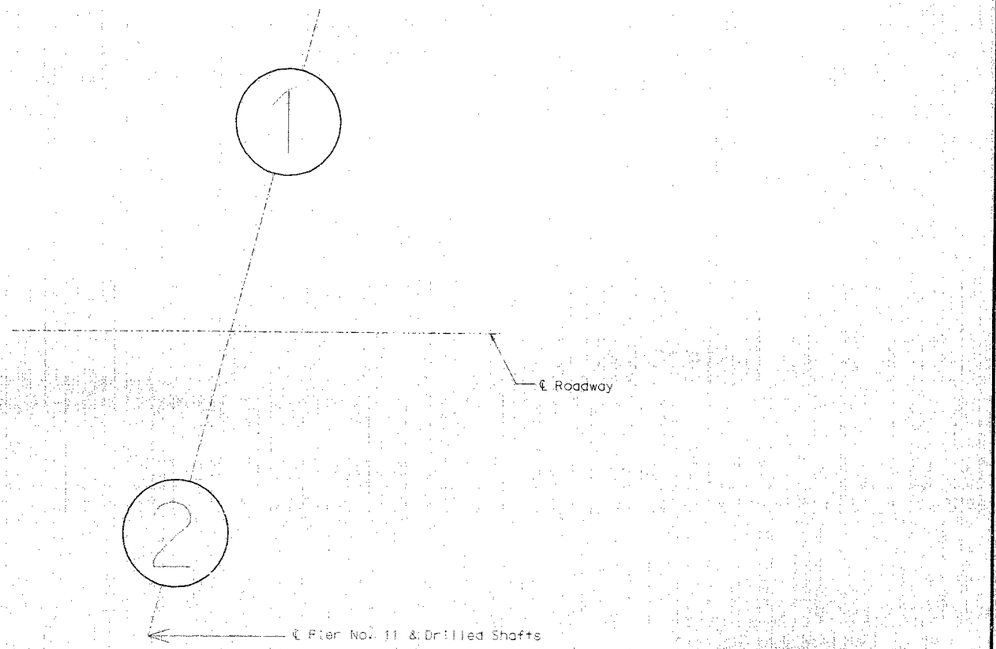
State	Proj. No.	Sheet No.
MO	J4P1326	8

Contract ID #10423-403

"AS BUILT DRILLED SHAFT" DATA

"PIER NO. 11 (DRILLED SHAFT)"

SHAFT NO.	BOTTOM OF DRILLED SHAFT (ELEV.)	BOTTOM OF ROCK SOCKET (ELEV.)	REMARKS
1	757.0	729.33	
2	757.0	729.2	



SEAL PLANS

I CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT

DENNIS W. HECKMAN NUMBER E-27141 REGISTERED PROFESSIONAL ENGINEER

DATE 2/10/99

STATE OF MISSOURI DENNIS W. HECKMAN NUMBER E-27141 REGISTERED PROFESSIONAL ENGINEER

2/10/99

Detailed Feb. 1999
Checked Feb. 1999

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

Sheet No. 8 of 8

PLATTE COUNTY S00253

361