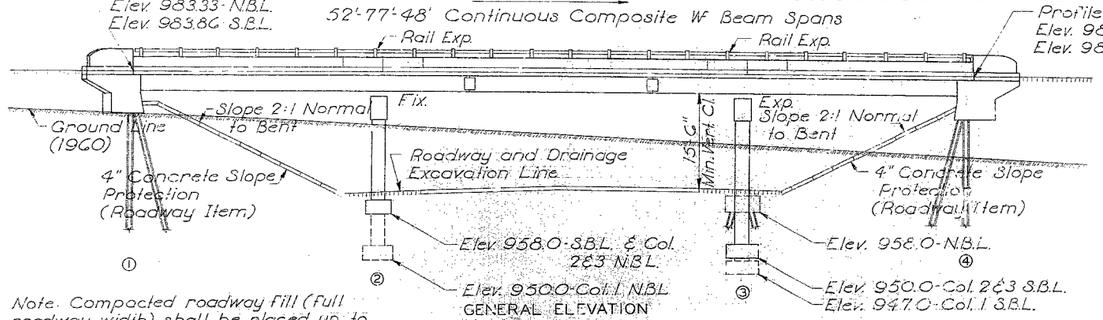
FOR INFORMATION ONLY **A11595, Sht. 15**

MISSOURI STATE HIGHWAY DEPARTMENT

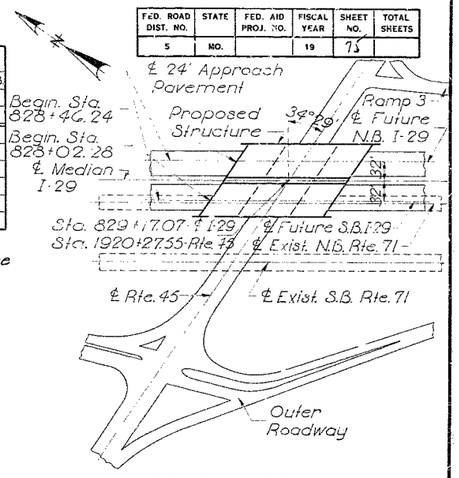


GENERAL ELEVATION

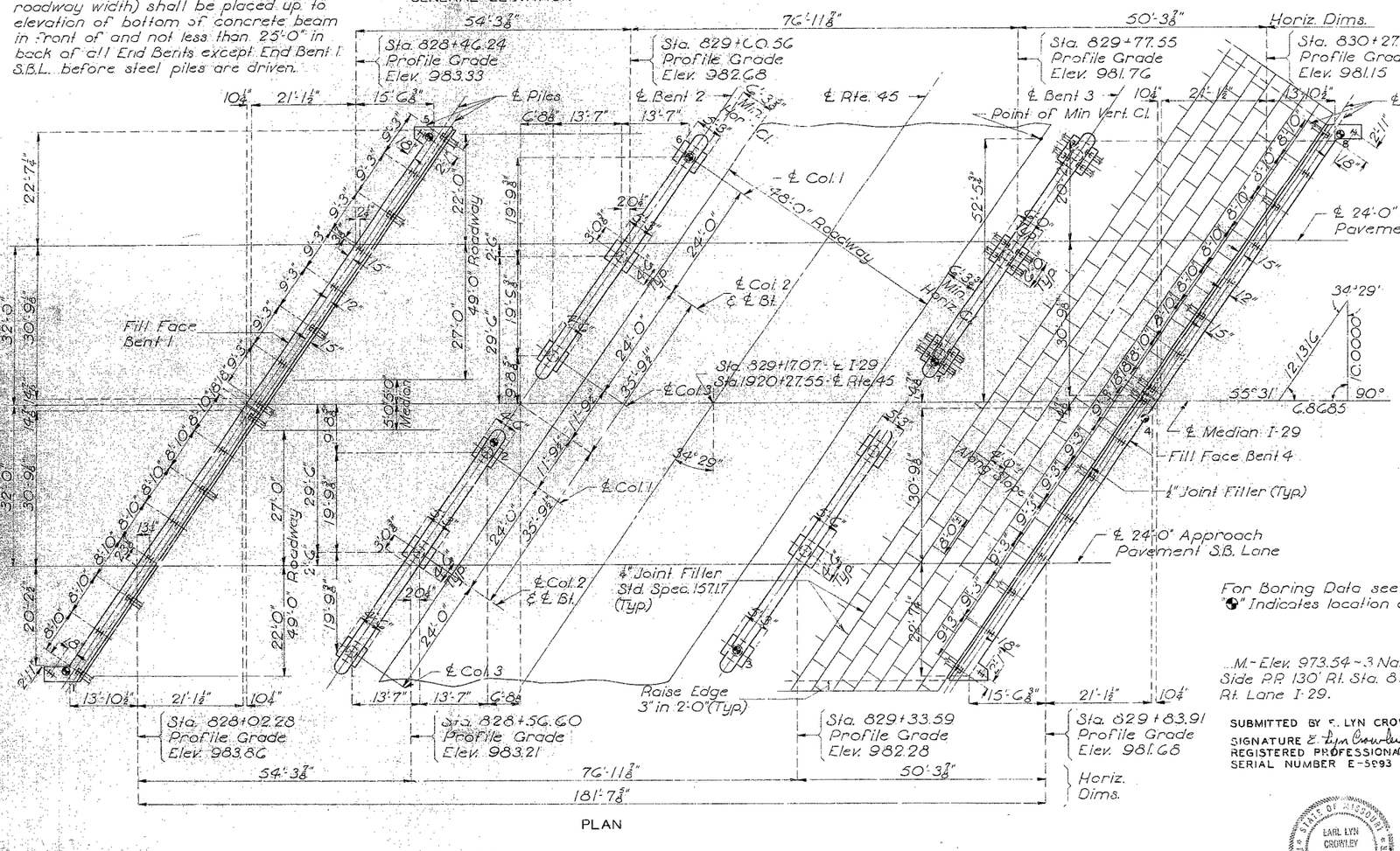
Note: Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of all End Bents except End Bent 1 S.B.L. before steel piles are driven.

FOOTING AND PILE DATA							
	BENT NO.	1	2	3 S.B.	3 N.B.	4 S.B.	4 N.B.
SPREAD FOOTINGS	Foundation Material	—	Rock or Shale		—	—	
	Design Bearing Tons/sq. Ft.	—	9.0	8.8	—	—	
BEARING PILE	Pile Type & Size	10BP42	—	—	10BP42	10BP42	
	Number	13	—	—	12	18	
	Approximate Length Ft.	17	—	—	22	32	47
	Design Bearing Value Tons	56	—	—	51	54	
	Hammer Energy Reqd.* Ft.#	13,700	—	—	12000	12,200	

Note: *Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor: (W+w)/2W when the weight of the ram (W) is less than the weight of the pile (w).
All pile shall be driven to practical refusal.
In no case shall footings of Int. Bents be placed higher than elevation 958.0 shown.



LOCATION SKETCH



PLAN

For Boring Data see Sheet 2.
"●" Indicates location of boring.

...M.-Elev. 973.54-3 Nails in N. Side P.P. 130' Rt. Sta. 828+60 Rt. Lane I-29.

SUBMITTED BY E. LYN CROWLEY
SIGNATURE E. Lyn Crowley
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER E-5693

STATE OF MISSOURI EARL LYN CROWLEY NUMBER E-5693 REGISTERED PROFESSIONAL ENGINEER

GENERAL NOTES:
Design Specifications:
A.A.S.H.O.-1961
Design Loading:
H S 20-44
15#/sq.ft. Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#
Design Unit Stresses:
Class B Concrete (substructure) fc=1,200 psi
Class B1 Concrete (superstructure) fc=1,600 psi
Reinforcing Steel fs=20,000 psi
Structural Steel (A.S.T.M. A36-62T) fs=20,000 psi
Steel Pile (A.S.T.M. A36-62T) Fb=9,000 psi
Superstructure deck to be surface scaled.
Field connections, High Strength Bolts ¾"Φ, hole 15/16"Φ except as noted.
Paint; shop, none; Field, three coats.

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR	TOTAL
Class 1 Excavation for Structures	Cu.Yds.	170	—	170
Steel Piles in Place (10")	Lin.Ft.	1281	—	1281
Class B Concrete	Cu.Yds.	317.0	—	317.0
Class B1 Concrete	Cu.Yds.	—	524.7	524.7
Reinforcing Steel	Lbs.	49,720	174,730	224,450
Painting	Tons	—	18.70	18.70
Fabricated Structural Carbon Steel	Lbs.	—	378,420	378,420
Bridge Rail (Single Tube Type)	Lin.Ft.	—	358	358
Guard Rail Type B (Steel) (Bolt Down)	Lin.Ft.	—	130	160

Note: Concrete in end posts, parapets and curbs is included with superstructure concrete.
No payment for excavation will be allowed at End Bents 1 and 4.

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

SUBMITTED BY D. D. Jenkins BRIDGE ENGINEER DATE 3-29-66

APPROVED BY M. J. Snider CHIEF ENGINEER DATE 3-29-66

STD 54.00
STD. 86.00
A-1159

PRICHARD COMPANY, INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI

DESIGNED JAN. 1966 BY R.H.B.
DETAILED JAN. 1966 BY R.W.F.
CHECKED FEB. 19 BY E.D.F.

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

Sheet No. 1 of 14.

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SEE FINAL PLANS BLUE-LINES

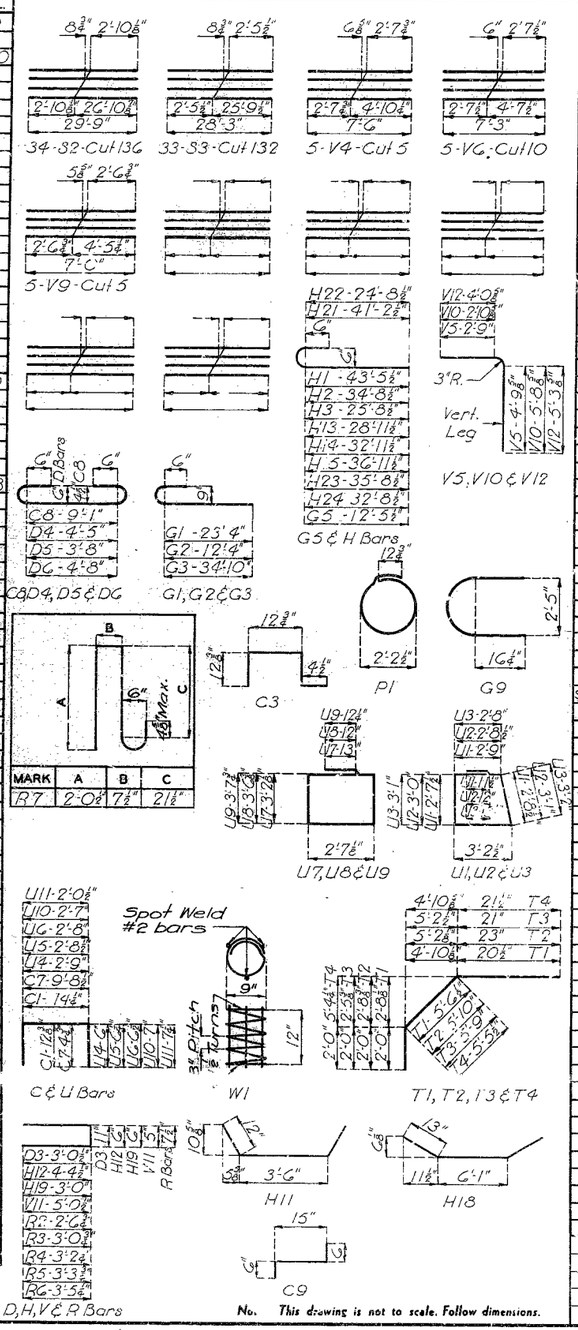
MISSOURI STATE HIGHWAY DEPARTMENT

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

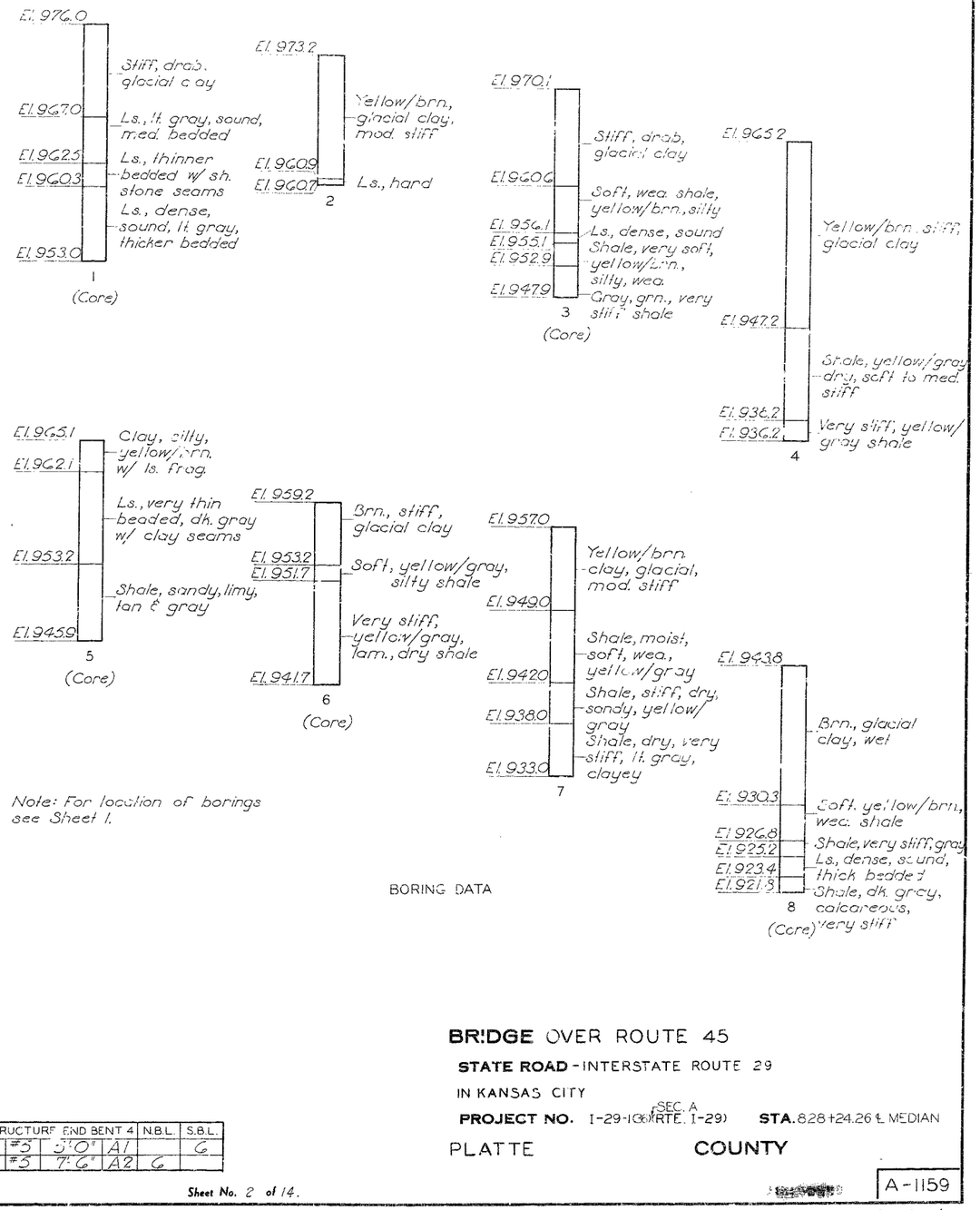
COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION N.B.L.	LOCATION S.B.L.
SUPERSTRUCTURE					
40	#5	3'-3"	C1	20	20
8	#6	9'-6"	C2	4	4
360	#5	3'-6"	C3	180	180
8	#5	27'-0"	C4	4	4
12	#5	26'-6"	C5	6	6
8	#5	25'-0"	C6	4	4
183	#4	10'-6"	C7	183	
390	#5	11'-3"	C8	390	
362	#4	2'-3"	C9	362	
14	#4	29'-3"	C10	14	
14	#4	26'-6"	C11	14	
30	#5	29'-3"	C12	30	
21	#4	26'-3"	C13	21	
75	#5	26'-6"	C14	75	
24	#5	9'-3"	R1	12	12
4	#5	5'-9"	R2	2	2
4	#5	6'-9"	R3	2	2
4	#5	7'-0"	R4	2	2
4	#5	7'-3"	R5	2	2
24	#5	7'-6"	R6	12	12
360	#5	5'-6"	R7	180	180
16	#5	22'-9"	R8	8	8
16	#5	30'-0"	R9	8	8
16	#5	20'-6"	R10	8	8
32	#5	8'-6"	R11	16	16
2576	#6	26'-6"	S1	1288	1288
136	#6	29'-9"	S2	68	68
132	#6	28'-3"	S3	66	66
624	#4	31'-0"	S4	312	312
204	#4	16'-0"	S5	102	102
510	#6	37'-3"	S6	255	255
8	#4	31'-6"	S	4	4
SUBSTRUCTURE END BENT 1				N.B.L.	S.B.L.
6	#5	5'-0"	A1	6	
6	#5	7'-6"	A2		6
4	#8	44'-9"	H1	4	
8	#8	36'-0"	H2	8	
4	#8	27'-0"	H3	4	
4	#6	34'-9"	H4	4	
8	#6	33'-9"	H5	4	4
16	#4	33'-6"	H6	8	8
2	#4	4'-0"	H7	2	
4	#6	9'-9"	H8	2	2
4	#6	9'-0"	H9	2	2
4	#6	7'-0"	H10	2	2
4	#6	5'-6"	H11	4	
3	#4	9'-3"	H12	3	
4	#8	30'-3"	H13		4
8	#8	34'-3"	H14		8
4	#8	38'-3"	H15		4
4	#6	33'-0"	H16		4
2	#4	3'-6"	H17		2
4	#6	8'-3"	H18		4
3	#4	6'-6"	H19		3
2	#6	9'-3"	T1	2	
2	#6	9'-9"	T2		2
47	#5	12'-3"	U1	22	25
43	#5	13'-0"	U2	43	
33	#5	13'-3"	U3		33
12	#4	3'-9"	U4	5	7
14	#4	3'-9"	U5	14	
11	#4	3'-9"	U6		11
244	#5	4'-9"	V1	122	122
18	#5	5'-9"	V2	10	8
16	#4	6'-9"	V3	8	8
5	#4	7'-6"	V4	5	
2	#6	8'-0"	V5		2
5	#4	7'-3"	V6		5
2	#4	10'-6"	V11	1	1
2	#6	9'-9"	V12	2	
24	#2	19'-9"	W1	12	12

BENDING SKETCHES & CUTTING DIAGRAMS



NO.	SIZE	LENGTH	MARK	LOCATION N.B.L.	LOCATION S.B.L.
SUBSTR. INT. BENTS 2&3					
16	#10	25'-0"	G1	8	8
12	#10	14'-0"	G2	6	6
16	#11	36'-6"	G3	8	8
16	#11	15'-6"	G4	8	8
16	#7	13'-9"	G5	8	8
32	#11	29'-3"	G6	16	16
32	#11	20'-0"	G7	16	16
32	#6	28'-6"	G8	16	16
32	#7	6'-6"	G9	16	16
100	#6	12'-9"	U7	50	50
48	#4	3'-9"	U10	24	24
8	#4	3'-3"	U11	4	4
96	#9	5'-0"	D1	48	48
48	#2	19'-9"	W1	24	24
SUBSTR. INT. BENT 2				N.B.L.	S.B.L.
98	#3	2'-0"	P1	53	45
8	#9	25'-9"	P2	8	
24	#9	18'-0"	P3	16	8
16	#9	18'-3"	P6		16
52	#6	13'-3"	U8	55	
55	#6	13'-6"	U9		55
36	#5	4'-0"	D2	18	18
26	#5	7'-0"	D4	18	8
18	#5	6'-3"	D5	6	12
SUBSTR. INT. BENT 3				N.B.L.	S.B.L.
108	#3	8'-0"	P1	39	69
8	#9	13'-9"	P4	8	
16	#9	16'-0"	P5	16	
8	#9	27'-9"	P7		8
16	#9	25'-0"	P8		16
55	#6	13'-3"	U8	55	
55	#6	13'-6"	U9		55
18	#5	4'-0"	D2		18
24	#5	7'-0"	D3	24	
14	#5	7'-0"	D4		14
9	#5	7'-3"	D6		9
SUBSTRUCTURE END BENT 4				N.B.L.	S.B.L.
8	#8	36'-0"	H12		8
4	#6	34'-9"	H14		4
24	#4	33'-6"	H16	12	12
2	#4	4'-0"	H17		2
4	#6	9'-9"	H8	2	2
4	#6	9'-0"	H9	2	2
4	#6	7'-0"	H10	2	2
4	#6	5'-6"	H11		4
3	#4	9'-3"	H12		3
8	#8	34'-3"	H14	8	
4	#6	33'-0"	H16	4	
4	#6	8'-3"	H18	4	
4	#4	6'-6"	H19	4	
8	#6	31'-9"	H20	4	4
4	#8	12'-6"	H21	4	
4	#8	26'-0"	H22	4	
4	#8	37'-0"	H23		4
4	#8	34'-0"	H24		4
2	#4	5'-0"	H26	2	
2	#6	9'-6"	T3	2	
2	#6	9'-3"	T4		2
40	#5	13'-3"	U11	21	28
37	#5	13'-0"	U12	31	
37	#5	13'-3"	U3		37
14	#4	3'-9"	U4	6	8
12	#4	3'-9"	U5	12	
11	#4	3'-9"	U6		11
16	#4	6'-9"	V3	8	8
5	#4	7'-3"	V6		5
240	#5	5'-9"	V7	120	120
22	#5	6'-9"	V8	10	12
5	#4	7'-0"	V9	5	
2	#6	9'-0"	V10	2	
2	#4	10'-6"	V11	1	1
2	#6	9'-9"	V12		2
24	#2	19'-9"	W1	12	12
SUBSTRUCTURE END BENT 4				N.B.L.	S.B.L.
6	#5	5'-0"	A1	6	
6	#5	7'-6"	A2		6



Note: For location of borings see Sheet 1.

BORING DATA

No.	Revised
2	Dec 1964
3	June 1961

DETAILED JAN. 1966 BY RWF

CHECKED FEB. 1966 BY FDF

No. This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 14.

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(66) (SEC. A RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

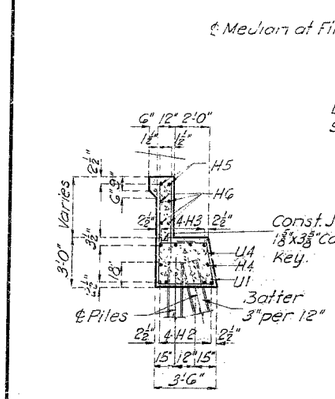
PLATTE **COUNTY**

A-1159

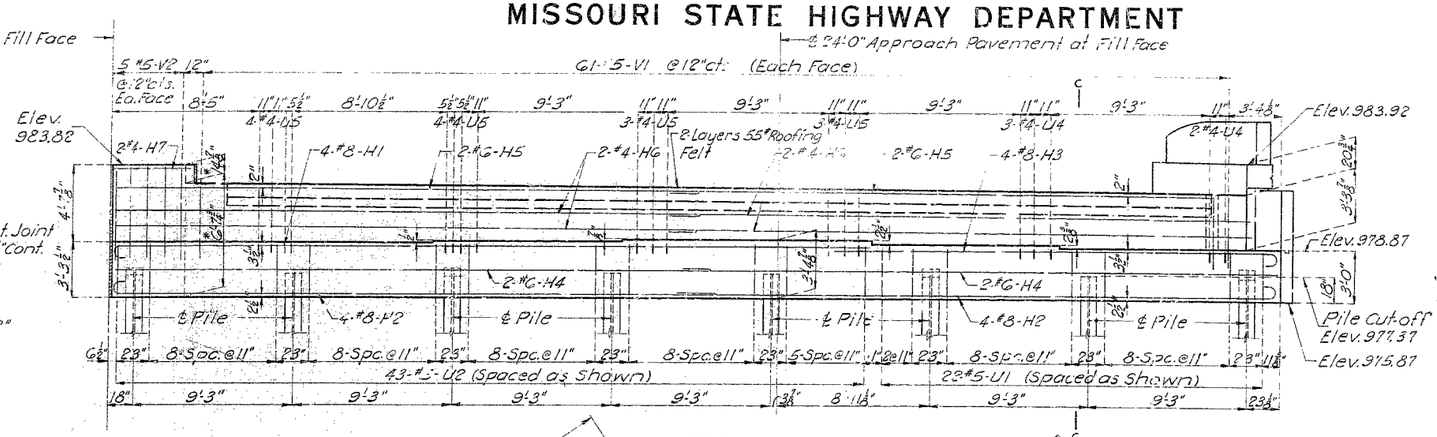
291

MISSOURI STATE HIGHWAY DEPARTMENT

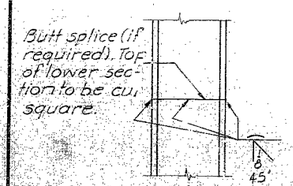
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	77	



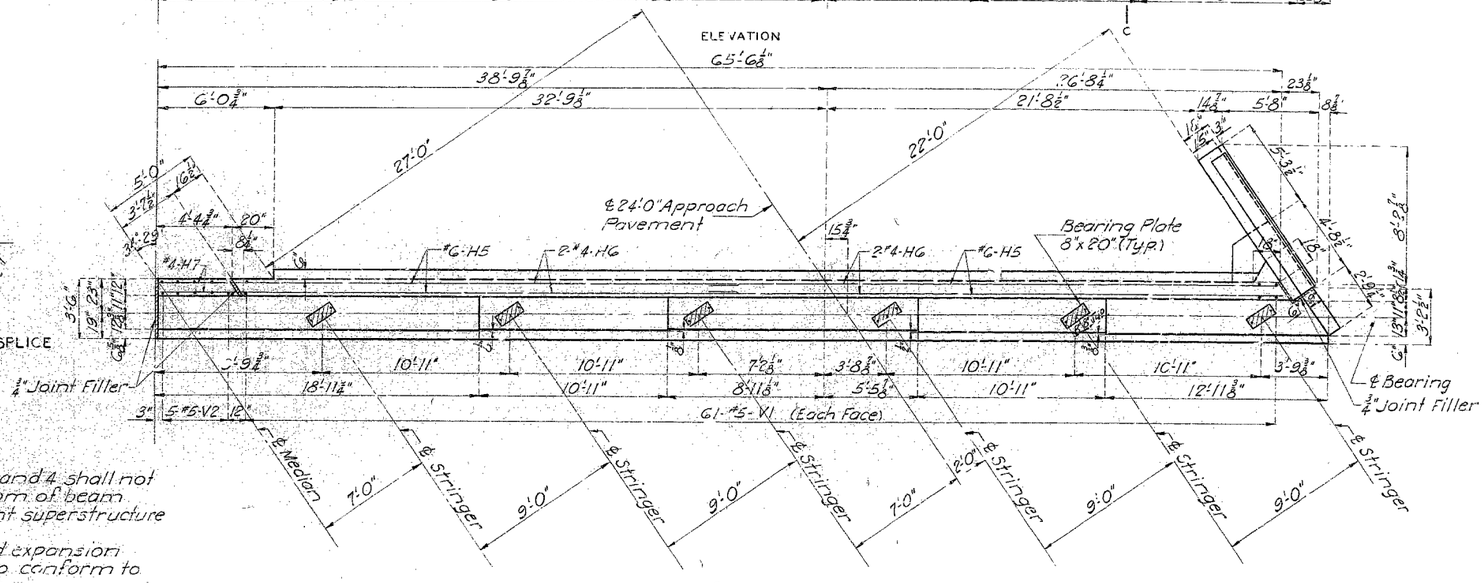
SECTION C - C



ELEVATION



DETAIL OF STEEL PILE SPLICE

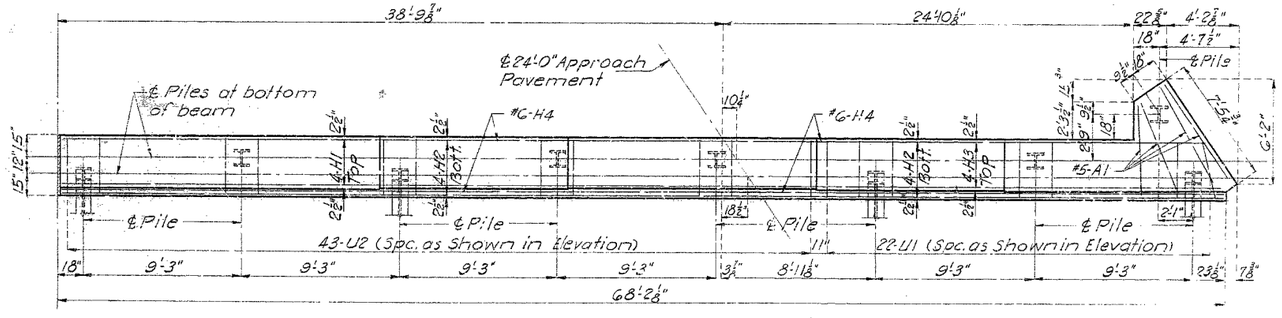


PLAN

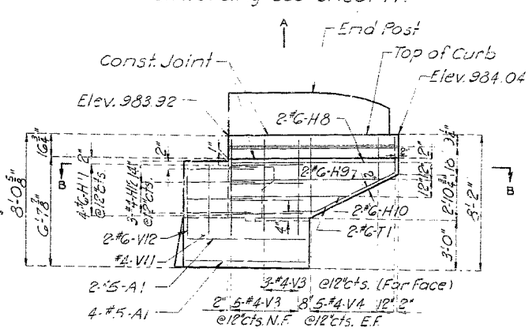
Note: Fill at end bents 1 and 4 shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.

Top of backwall and expansion device for end bent 4 to conform to crown of roadway slab.

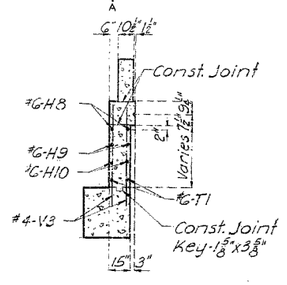
Dimensions and Elevations marked * are at the Fill Face.



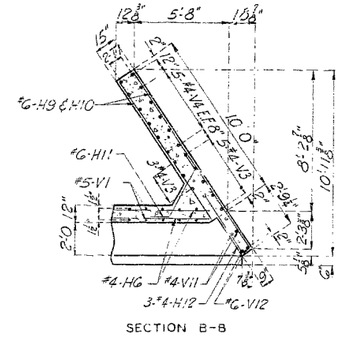
PLAN OF BEAM



ELEVATION OF WING



SECTION A-A



SECTION B-B

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(65)(RTE. I-29) SEC A **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

DETAILS OF END BENT - 1 N.B. LANE

DETAILED FEB. 1966 BY H.H.B.

CHECKED FEB. 1966 BY J.E.P.

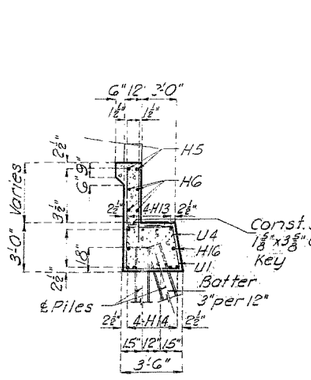
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 14.

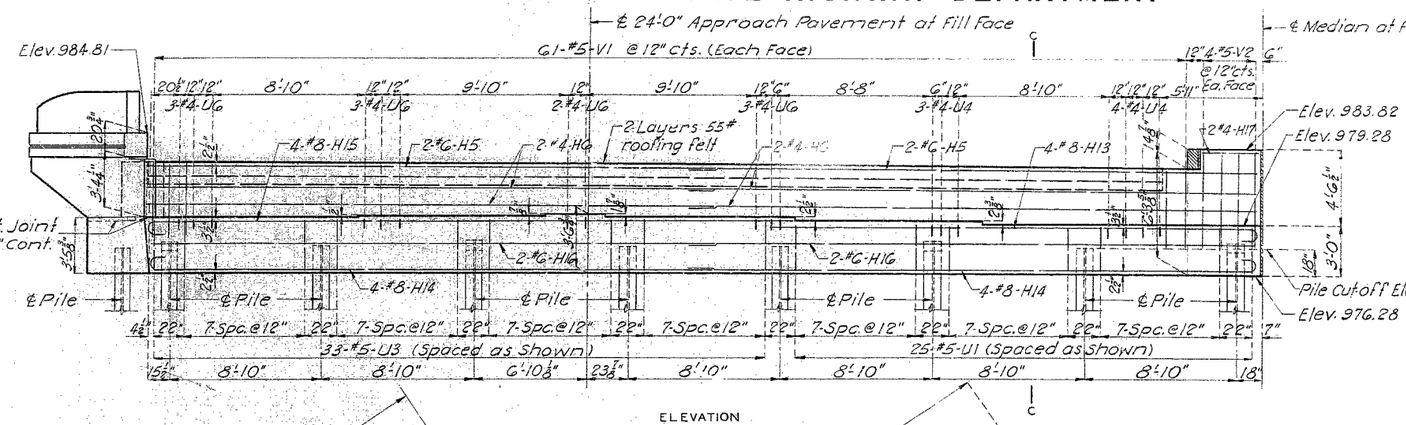
A-1159

MISSOURI STATE HIGHWAY DEPARTMENT

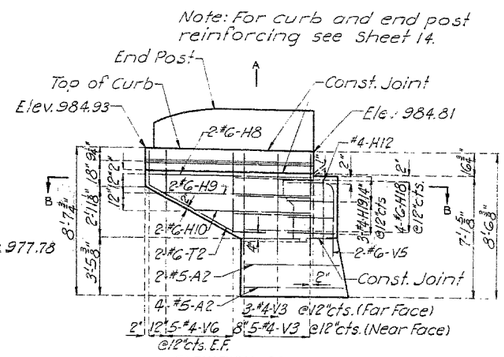
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	78	



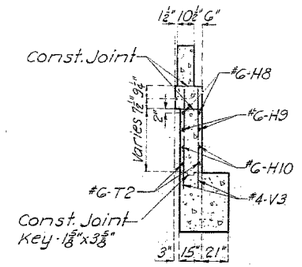
SECTION C-C



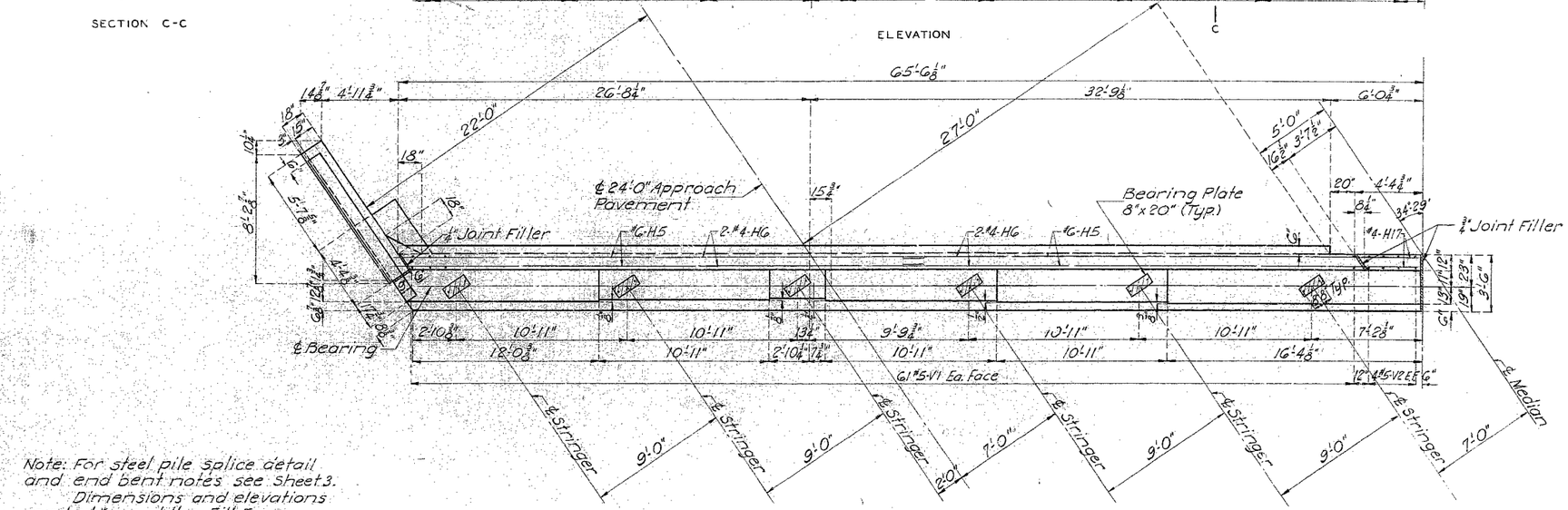
ELEVATION



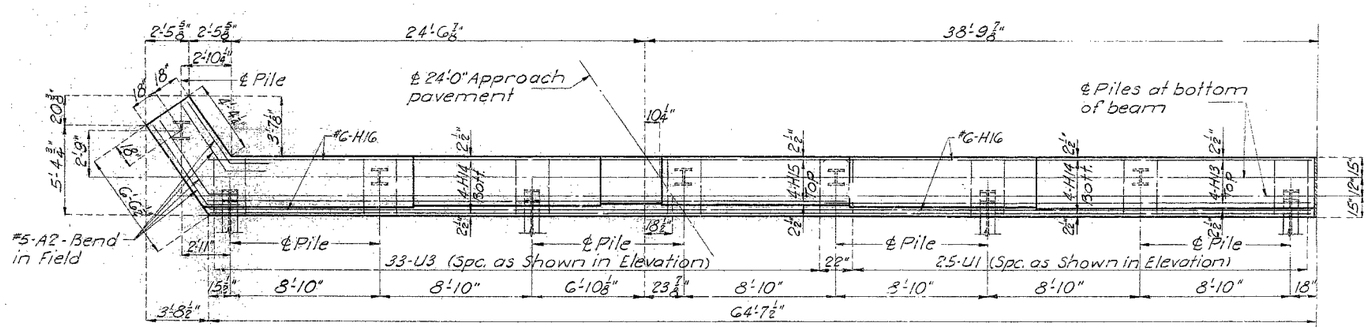
ELEVATION OF WING



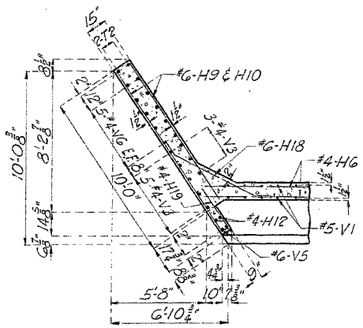
SECTION A-A



PLAN



PLAN OF BEAM



SECTION B-B

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A) (RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

DETAILED FEB. 1966 BY H.H.B.

CHECKED FEB. 1966 BY F.D.F.

DETAILS OF END BENT-1 S.B. LANE

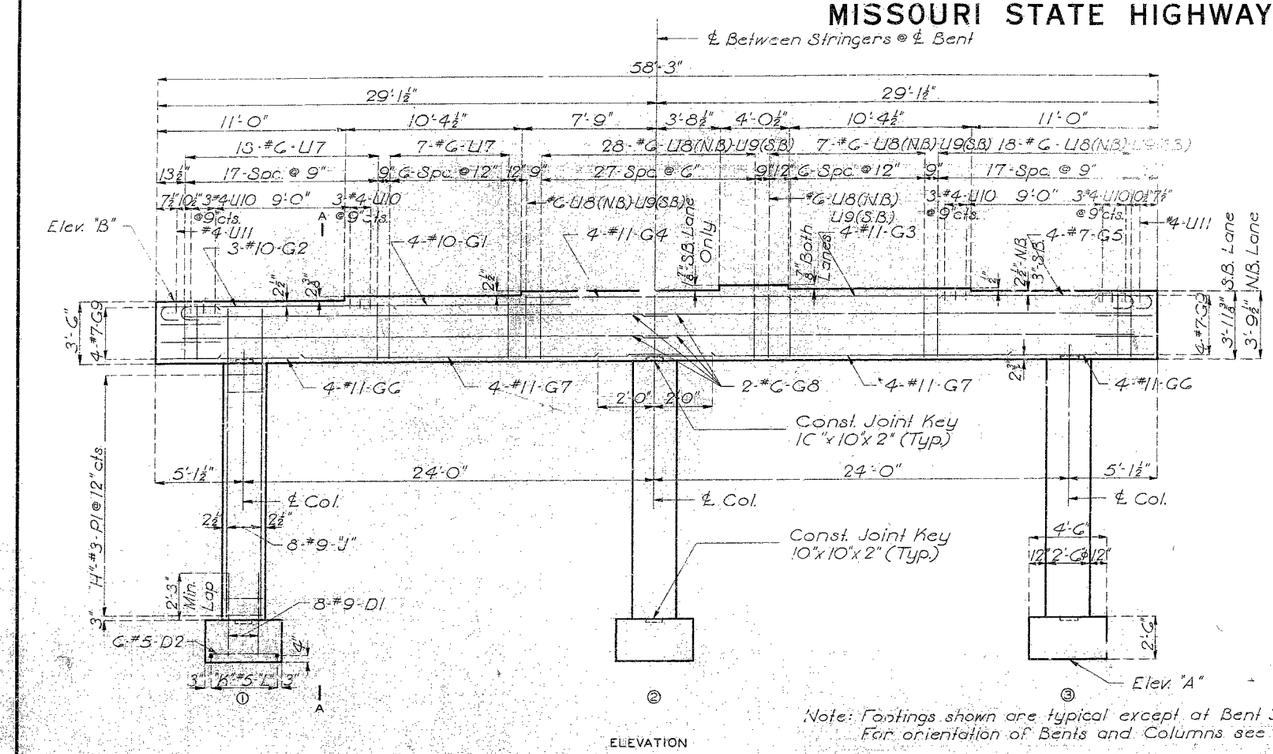
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 14.

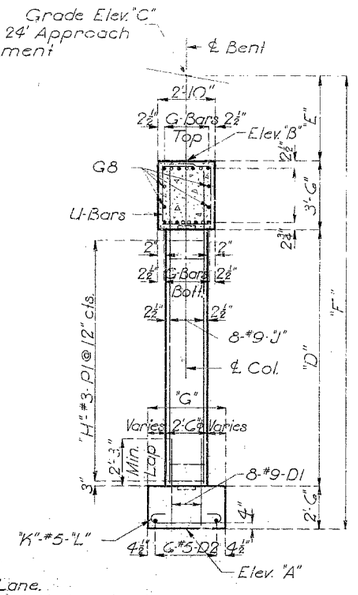
A-1159

MISSOURI STATE HIGHWAY DEPARTMENT

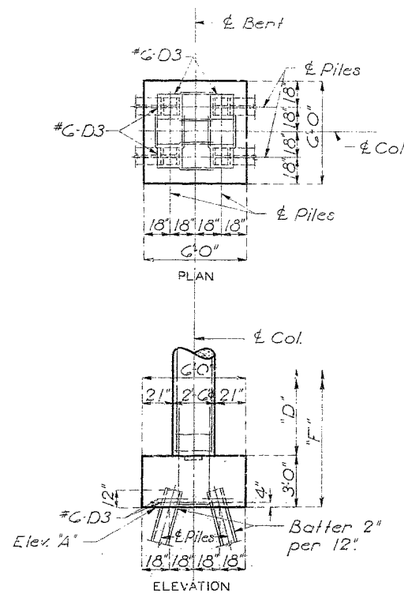
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	79	



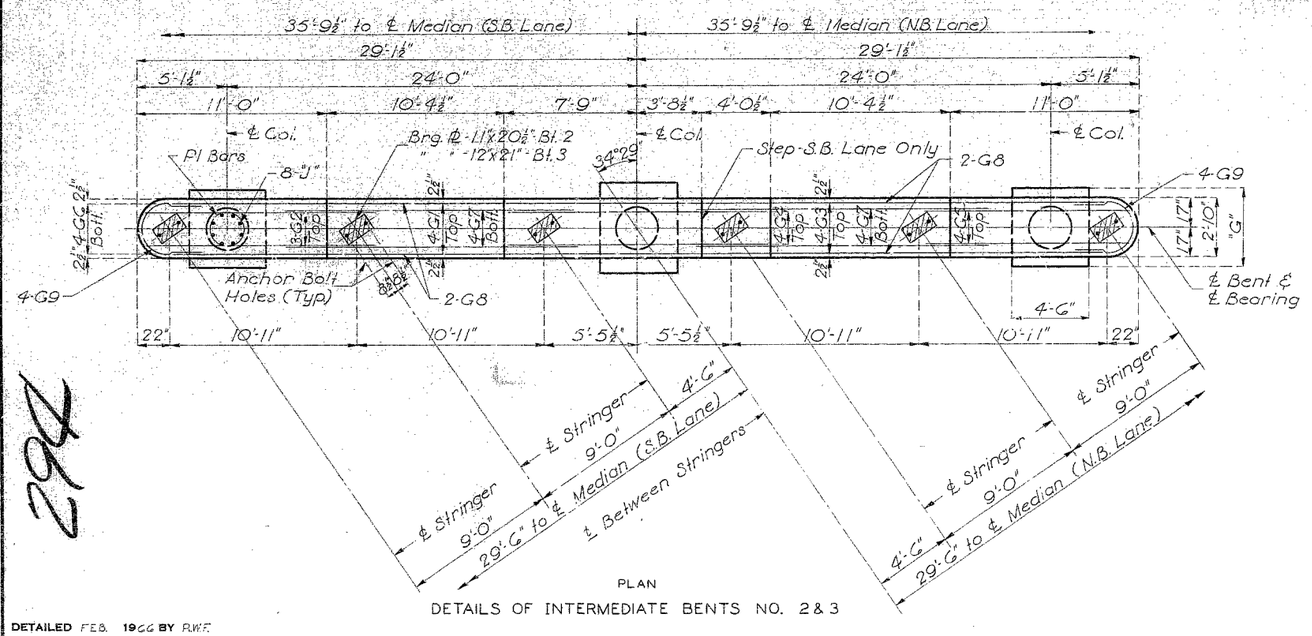
ELEVATION



SECTION A-A



FOOTING DETAILS OF BENT 3 - N.B. LANE



PLAN

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

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TABLE OF VARIABLES

LANE	NORTH BOUND						SOUTH BOUND					
BENT	2			3			2			3		
COL.	1	2	3	1	2	3	1	2	3	1	2	3
ELEV. "A"	950.0	958.0		958.0			958.0			947.0	950.0	
ELEV. "B"	978.50			977.20			978.90			977.60		
ELEV. "C"	983.04			982.12			983.57			982.64		
"D"	22'-6"	14'-6"		12'-8⅜"			14'-10⅜"			24'-7¼"	21'-7¼"	
"E"	4'-6½"			4'-11"			4'-8"			5'-0½"		
"F"	33'-0½"	25'-0½"		24'-1⅛"			25'-6⅜"			35'-7⅛"	32'-7⅛"	
"G"	5'-3"		4'-6"	——			4'-6"	5'-3"	4'-6"	5'-3"	5'-6"	5'-3"
"H"	23	15		13			15			25	22	
"J"	P2	P3		P4	P5		P3	P6		P7	P8	
"K"	9		6	——			6	8	6	7	9	7
"L"	D4		D5	——			D5	D4	D5	D4	D6	D4

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A RTE. 29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

A-1159

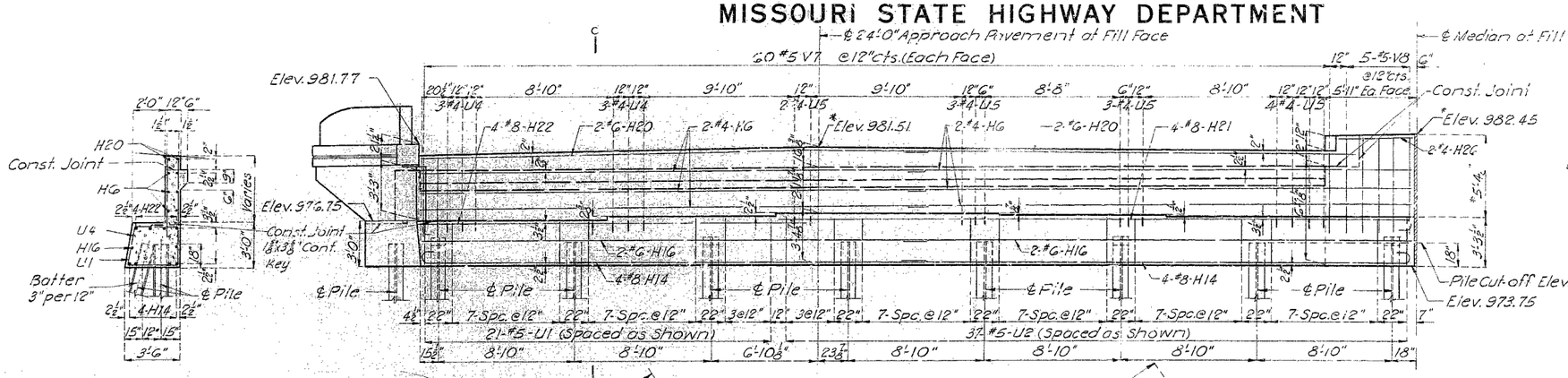
DETAILED FEB. 1966 BY R.W.F.

CHECKED FEB. 1966 BY J.E.R.

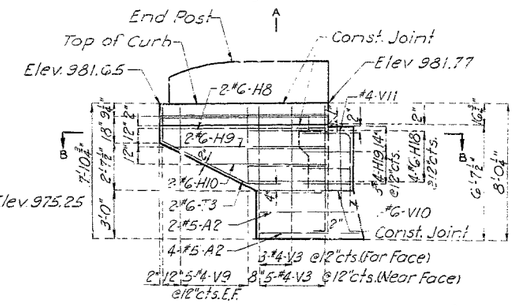
Note: This drawing is not to scale. Follow dimensions.

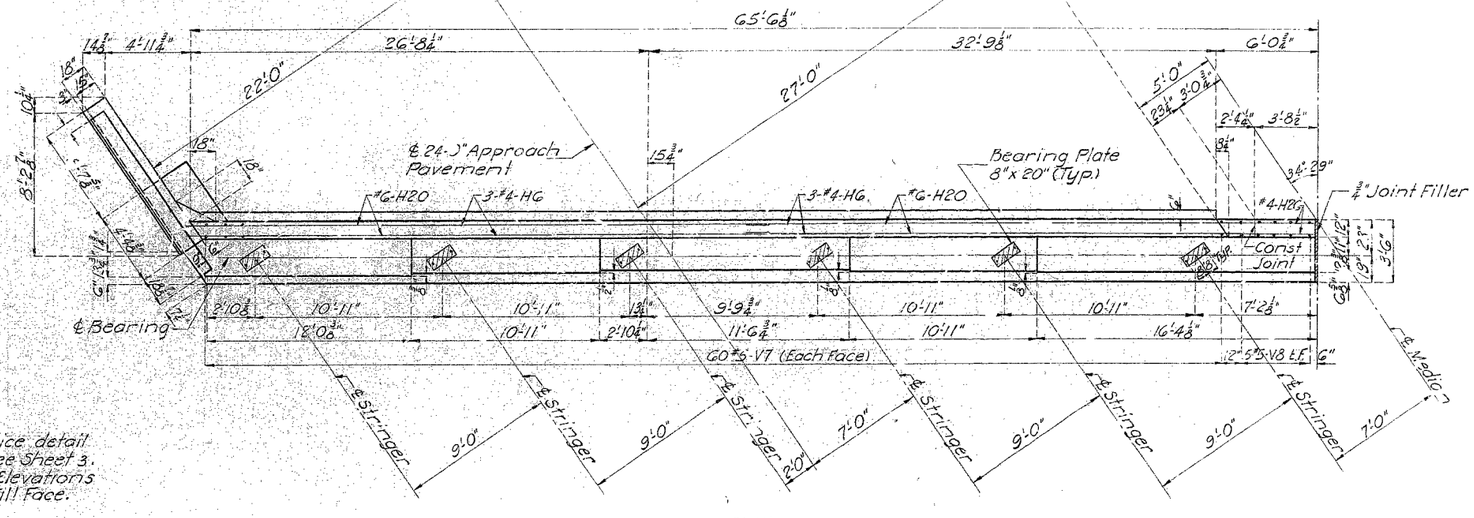
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	80	

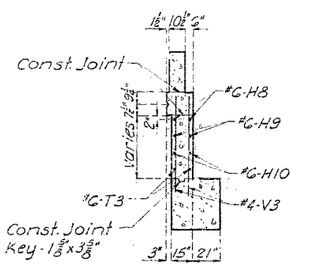


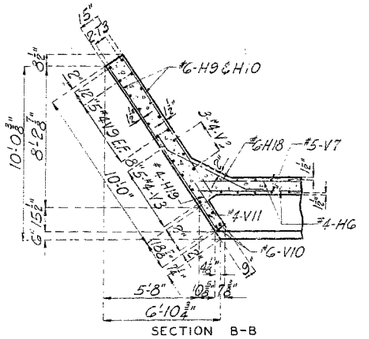
Note: For curb and end post reinforcing see Sheet 14.

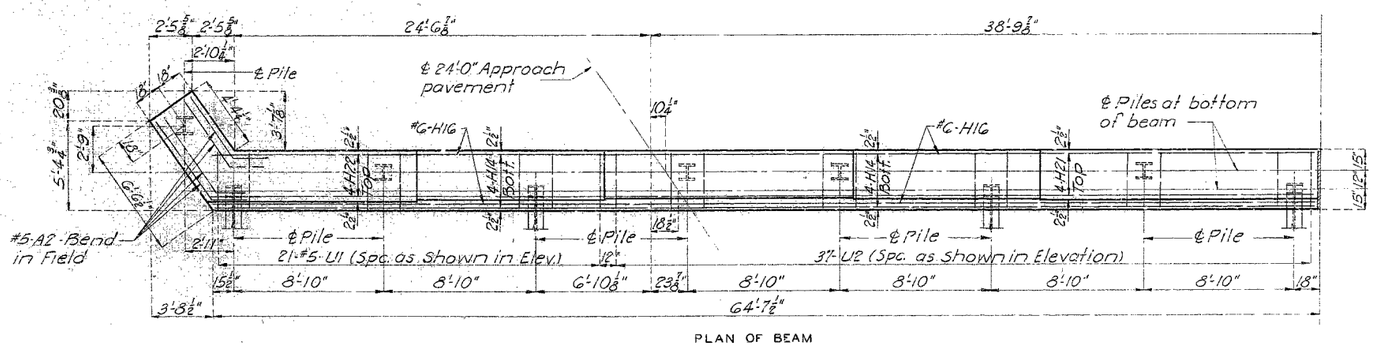




Note: For steel pile splice detail and end bent notes see Sheet 3. Dimensions and Elevations marked * are at the Fill Face.







DETAILS OF END BENT-4 N.B. LANE

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC A RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

A-1159

DETAILED FEB. 1966 BY H.H.B.

CHECKED FEB. 1966 BY F.D.F.

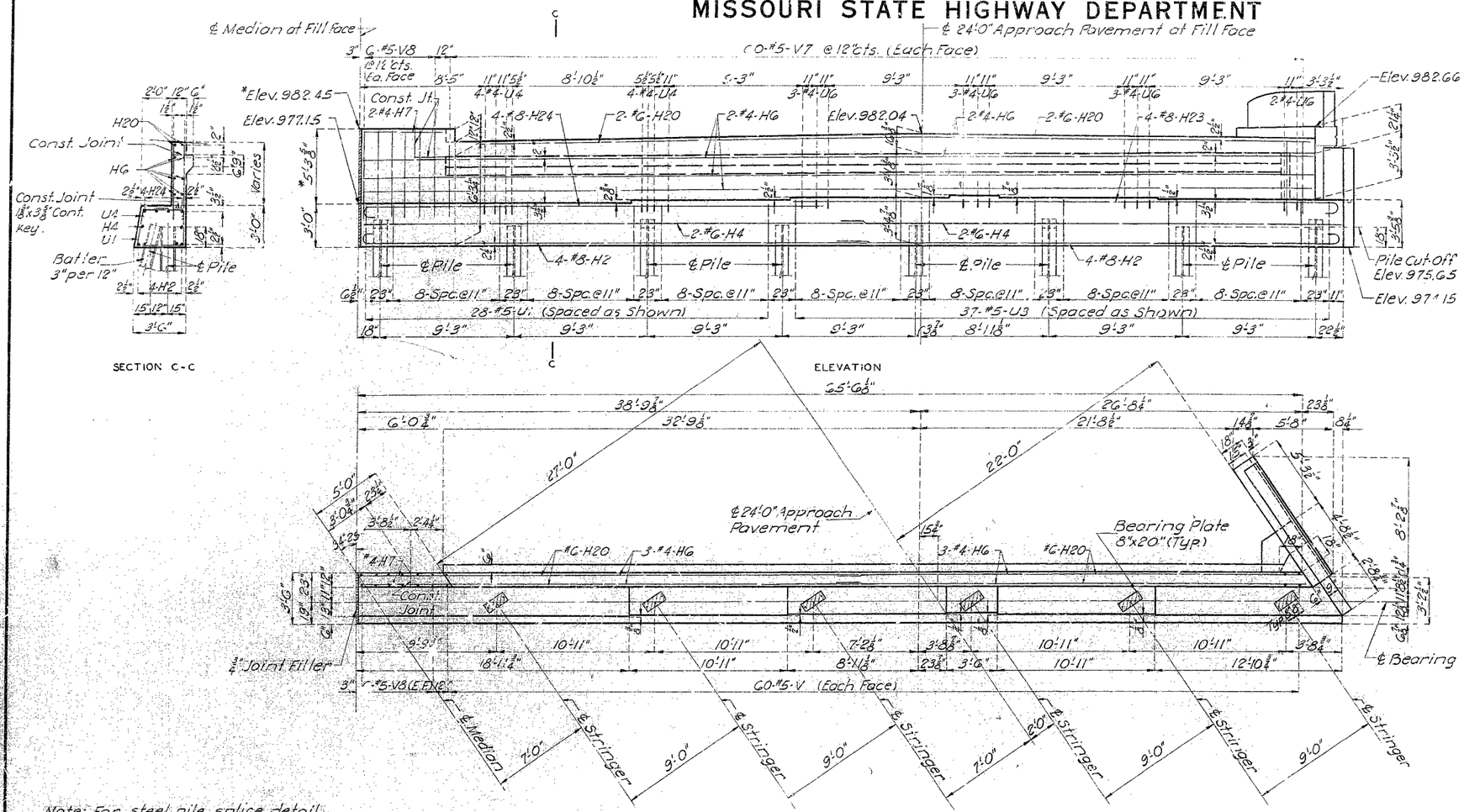
Note: This drawing is not to scale. Follow dimensions.

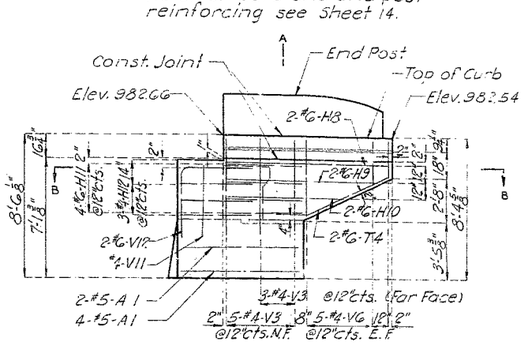
Sheet No. 6 of 14.

295

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	91	





BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A) (RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

DETAILED FEB. 1966 BY H.H.B.

CHECKED FEB. 1966 BY J.E.R.

DETAILS OF END BENT-4 S.B. LANE

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

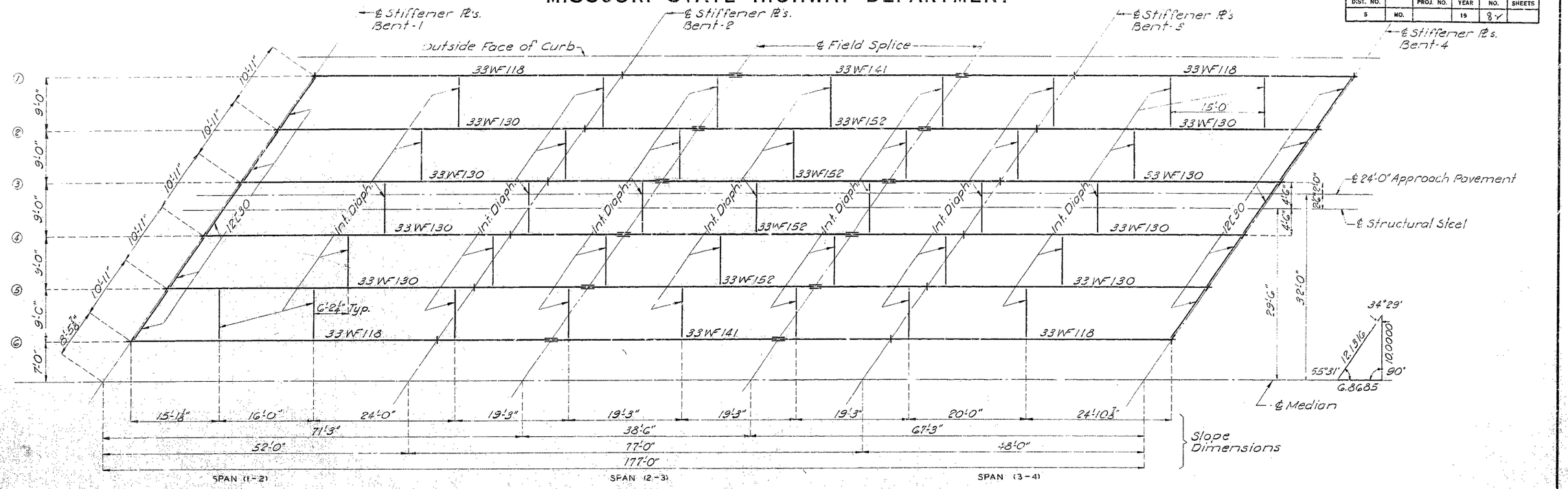
Sheet No. 7 of 14.

A-1159

XX

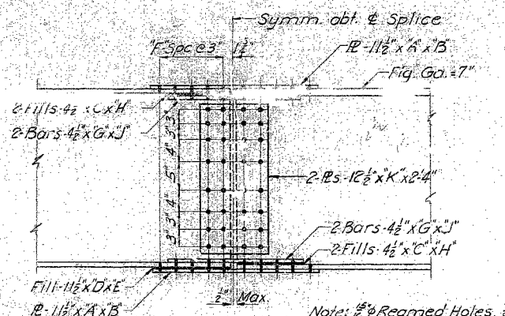
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	8Y	



PLAN OF STRUCTURAL STEEL
N.B. Lane shown S.B. Lane similar

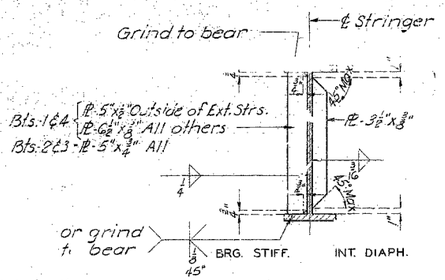
Note: Longitudinal dimensions shown are taken parallel to grade at crown of roadway.



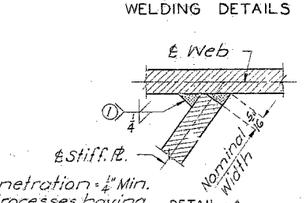
Note: 15/16" ø Reamed Holes. ⅞" H.S. Bolts.

	"A"	"B"	"C"	"D"	"E"	"F" Spcs	"G"	"H"	"J"	"K"
33WF118 to 141	½"	2-G2½"	4"	15/16"	15"	4	8"	12"	2'-0⅛"	8"
33WF130 to 152	½"	2-G2½"	4"	15/16"	15"	4	8"	15"	2'-G2½"	9"

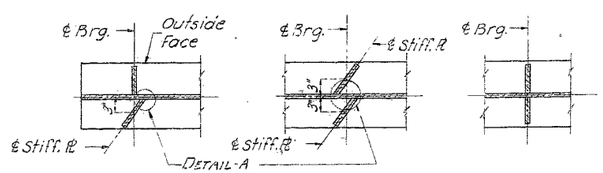
DETAILS OF FIELD SPLICES



WELDING DETAILS

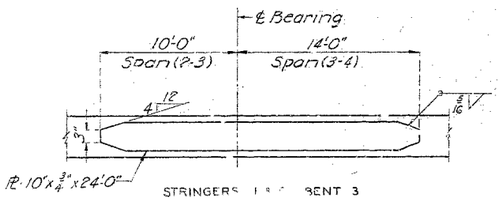


① Groove weld penetration = ¼" Min. Only welding processes having good penetration will be permitted on groove welds.



END BENTS - STRS. 1 & 6 · END BENTS - STRS. 2,3,4, & 5 · INT. BENTS

TYPICAL DETAILS LOCATING STIFF. PLATES



DETAILS OF FLANGE PLATES - TOP & BOTTOM FLANGE
INT. BENTS 2 & 3

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36)(SEC A)(RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

A-1159

29-1

DETAILED JAN. 1963 BY H.H.B.
CHECKED FEB. 1963 BY E.D.F.

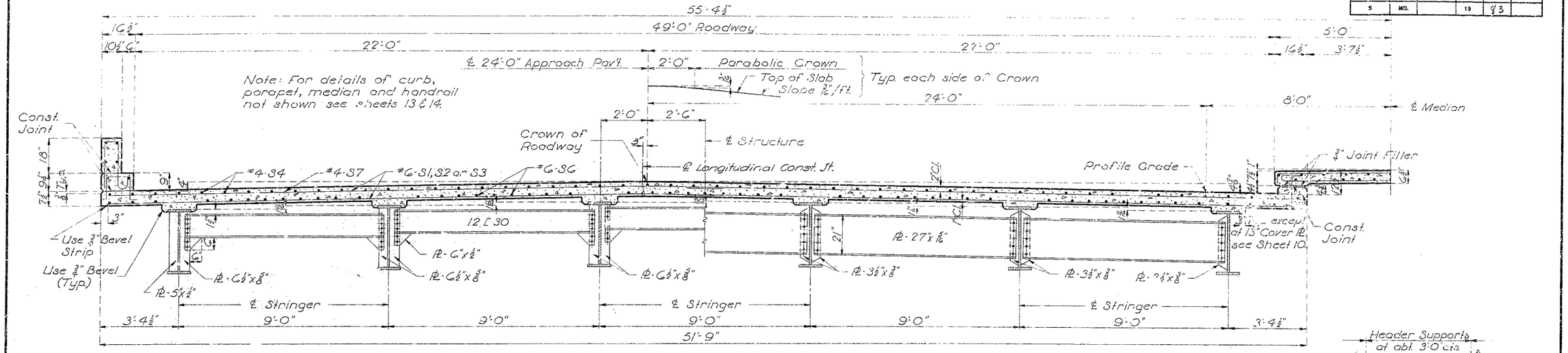
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 14.

NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

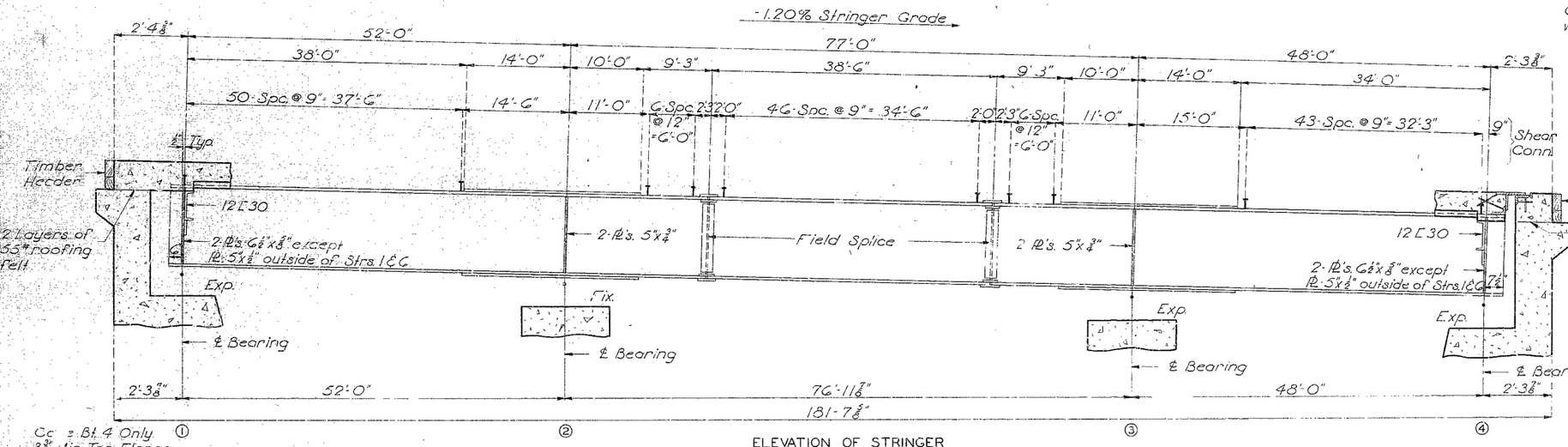
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	



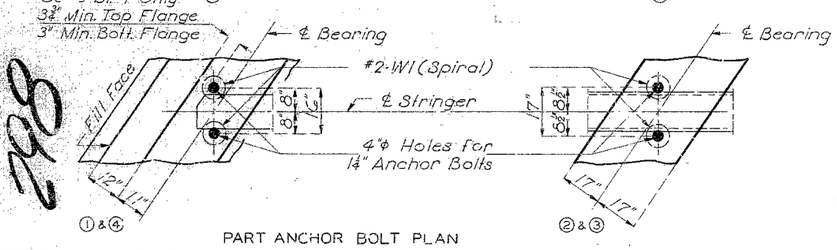
PART SECTION NEAR END DIAPH.

PART SECTION NEAR INT. DIAPH.

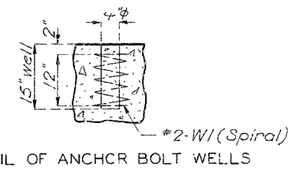
N.B. LANE SHOWN (S.B. Lane Opposite Hand)



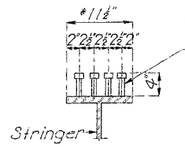
ELEVATION OF STRINGER



PART ANCHOR BOLT PLAN

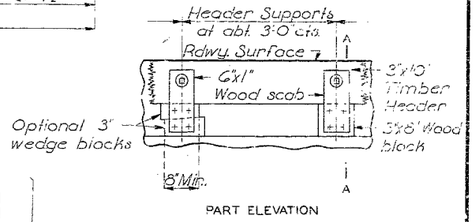


DETAIL OF ANCHOR BOLT WELLS

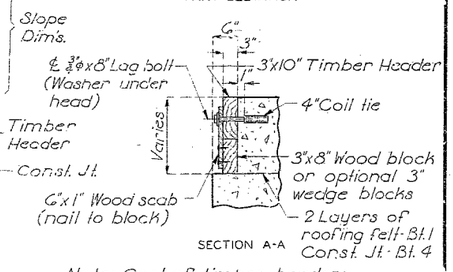


Note: #11⅞" for 152# beam.

DETAILS OF SHEAR CONNECTORS



PART ELEVATION



SECTION A-A

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

DETAILS OF TIMBER HEADER

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY (SEC. A)

PROJECT NO. I-29-1(36) (RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

DETAILED JAN. 1966 BY R.W.F.

CHECKED FEB 1966 BY F.D.F.

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

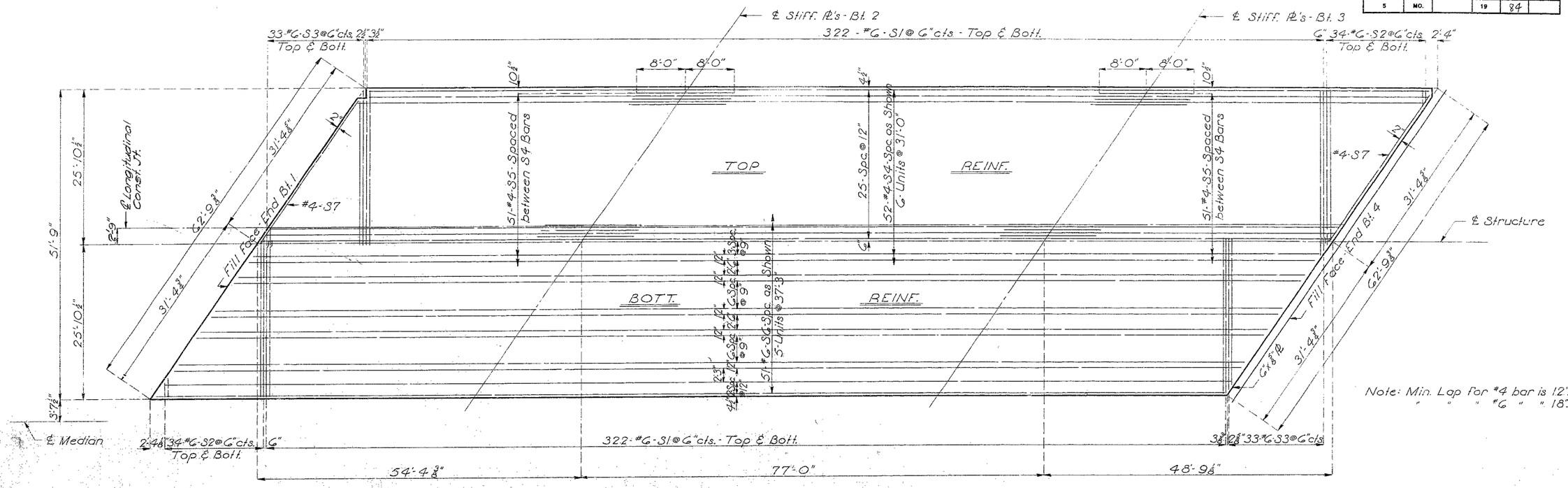
Sheet No. 9 of 14.

A-1159

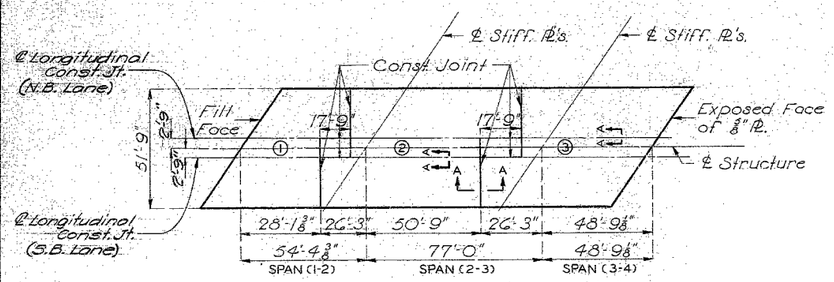
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	84	



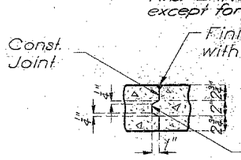
PART PLAN OF SLAB SHOWING REINFORCING STEEL
N.B. LANE SHOWN (S.B. Lane Similar except for Longitudinal Const. Jt. location)



	Sequence of Pours		
	Direction		
Basic Sequence	1	2	3
	End to 2	1 to 3	2 to End
Alternate 'A' Pours	1 + 2		3
	End to 3		2 to End
Alternate 'B' Pours	1 + 2 + 3		
	End to End		

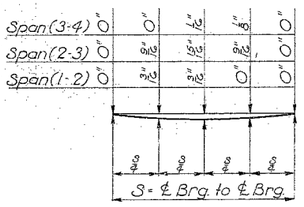
Note: The contractor shall use an approved oscillating screed type, self-propelled mechanical finishing machine and shall pour and satisfactorily finish the slab pours at a rate of not less than (46) cubic yards per hour unless he elects to use an approved retarder at his own expense to retard the set of the concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than (28) cubic yards per hour. The contractor shall observe the basic pouring sequence unless he can demonstrate to the engineer that he can pour and satisfactorily finish one of the longer alternate pours. Finishing machine loads will not be permitted on concrete less than 48 hours old. 26△ 25△

SLAB POURING SEQUENCE

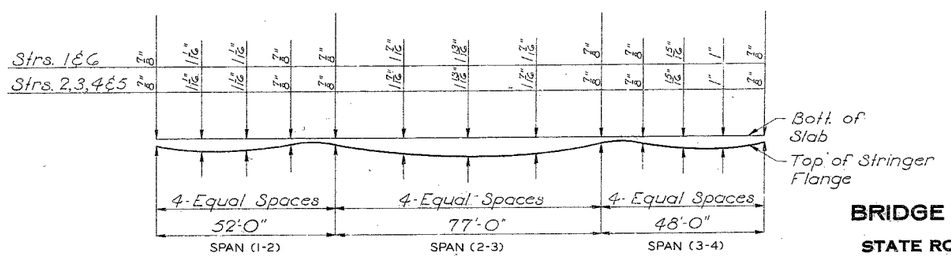


SECTION A-A

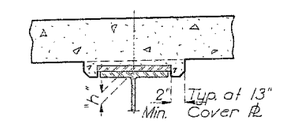
Note: Longitudinal Reinforcing Steel shall be placed so that ends shall not be more than 1" from ⅜" plate at Expansion Device.



DEAD LOAD DEFLECTION
Note: 12.6% of dead load deflection is due to weight of structural steel.



THEORETICAL SLAB HAUNCHING DIAGRAM



"h" dimension shown in slab haunching diagram

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) (SEC. A (RTE. I-29)) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

A-1159

DETAILED JAN. 1966 BY RWF

CHECKED FEB. 1966 BY JER

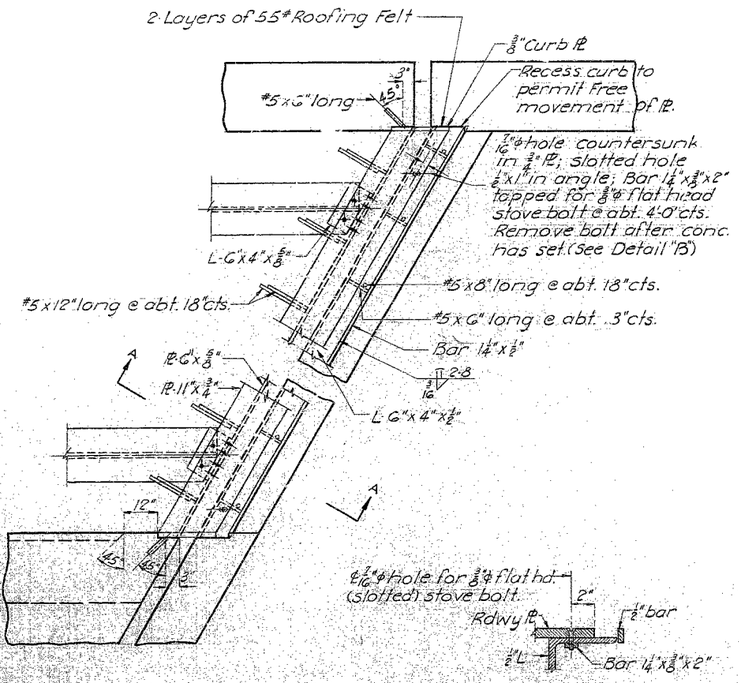
Note: This drawing is not to scale. Follow dimensions.

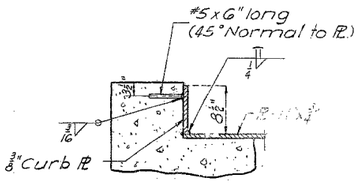
△ Revised 4-4-67

NO CONSTRUCTION CHANGES

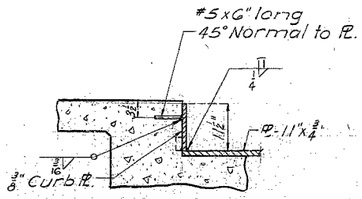
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	85	

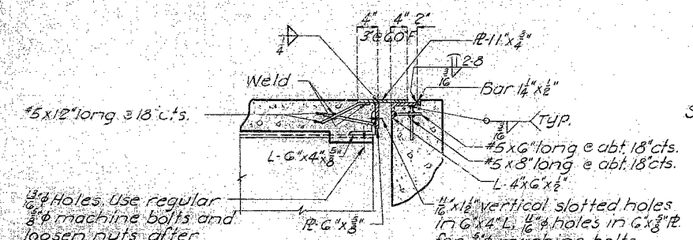




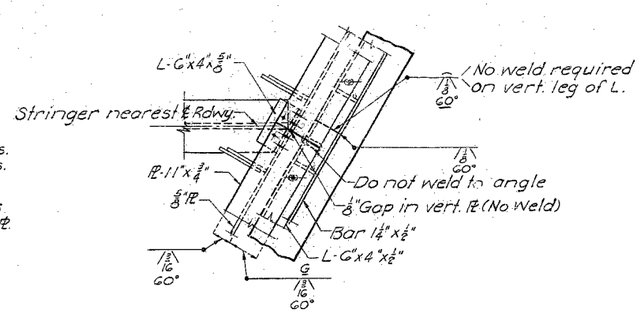
SECTION THRU CURB



SECTION THRU MEDIAN



SECTION A-A



PERMISSIBLE FIELD SPLICE

Note: Expansion device shall preferably be fabricated in one section but may be spliced as shown. The expansion device shall be bent to conform to crown and grade of roadway.

#5 Bars 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.

300

DETAILS OF PLATE EXPANSION DEVICE AT BENT 4

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(66) (SEC. A (RTE. I-29)) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

A-1159

DETAILED JAN. 1968 BY H.H.B.

CHECKED FEB. 1968 BY F.D.F

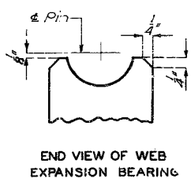
Note: This drawing is not to scale. Follow dimensions.

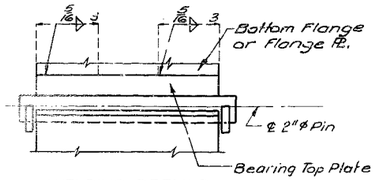
Sheet No. 11 of 14.

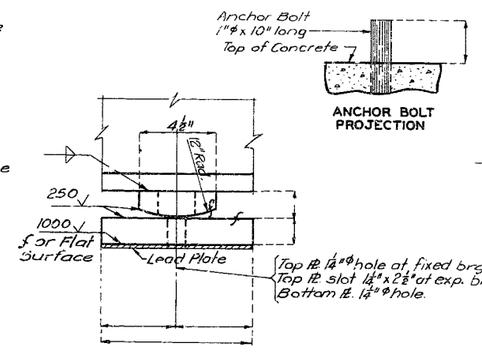
NO CONSTRUCTION CHANGES

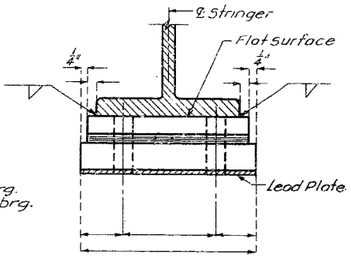
MISSOURI STATE HIGHWAY DEPARTMENT

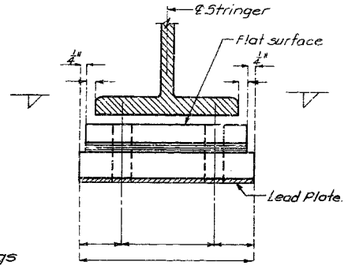
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	96	

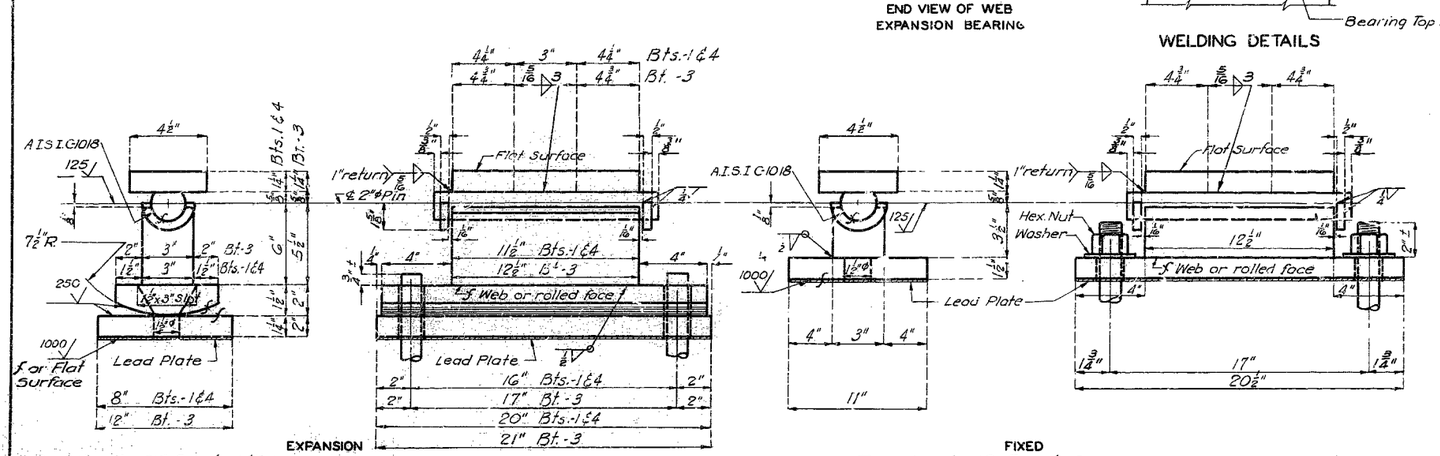












Required : 24-Bents-1℄4
12-Bent-3

TYPE "D" BEARINGS
(Estimated Weight 9,600#)

Required : 12-Bent-2

Required : -Fixed Bearings
-Expansion Bearings

TYPE "C" BEARINGS
(Estimated Weight)

NOTES: TYPE "C" BEARINGS

Anchor Bolts for Type "C" Bearings shall be 1"ϕ swedged bolts, 10" long with no heads or nuts. Top of Anchor Bolts shall be set approximately ¼" below top of bearing.

NOTES: TYPE "D" BEARINGS

Anchor Bolts for Type "D" Bearings shall be 1¼"ϕ swedged bolts and shall extend 12" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.

Rockers and pedestals shall be machined after welding.

GENERAL NOTES:

Lead plates under bearings shall be approximately ⅛" 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.

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

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(66) (SEC. A (RTE. I-29)) STA. 828+24.26 ℄ MEDIAN

PLATTE COUNTY

A-1159

No. 4.1	Revised	Feb. 1965
Dec. 1961		

301

DETAILED JAN. 1966 BY H.H.S.
CHECKED FEB. 1966 BY F.D.F.

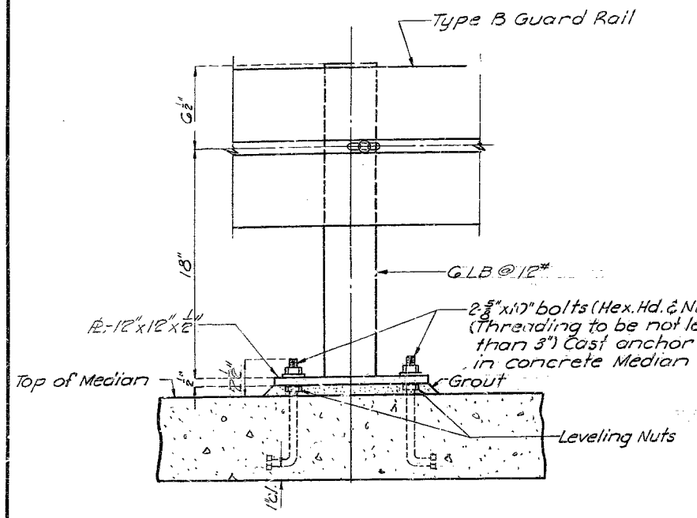
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 12 of 14.

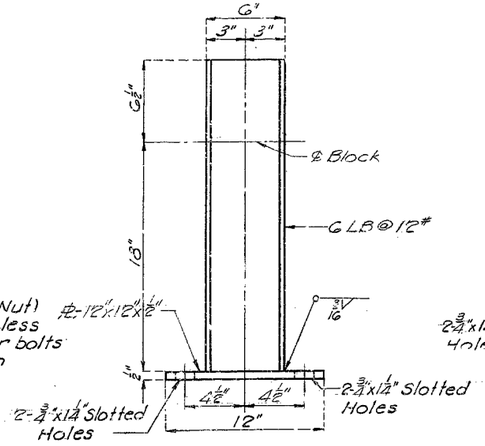
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

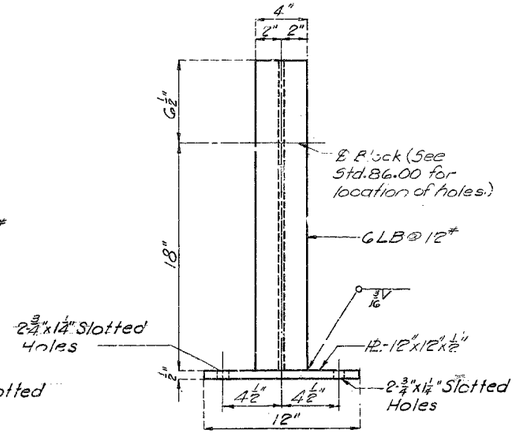
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	87	



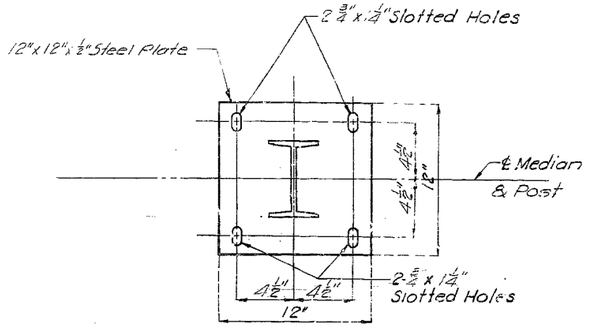
LONGITUDINAL ELEVATION



TRANSVERSE ELEVATION



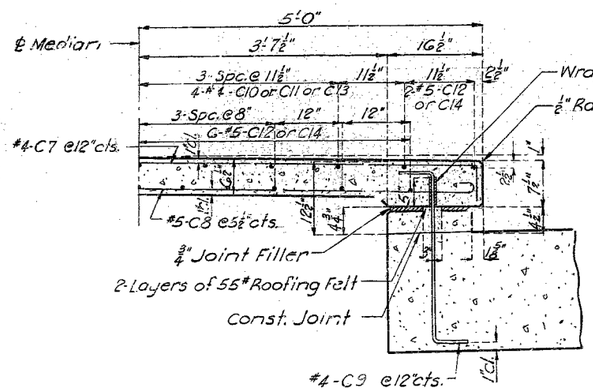
LONGITUDINAL ELEVATION



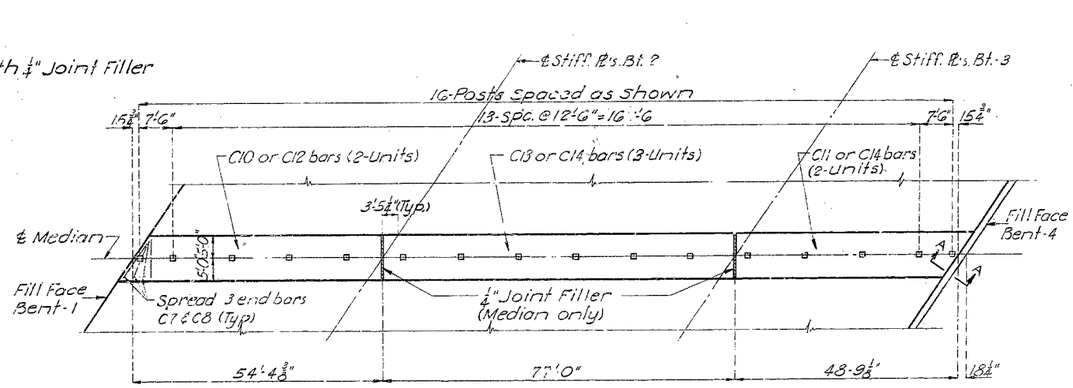
PLAN OF POST AND BASE PLATE

Note. See Standard 86.00 for Details of Blocked Out Post, Rail and Buffer Ends.

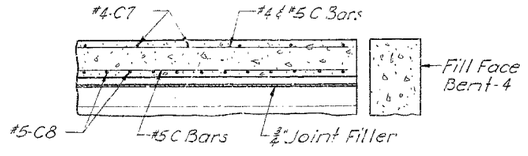
DETAILS OF TYPE B GUARD RAIL (BOLT DOWN)



HALF SECTION THRU MEDIAN



PLAN OF MEDIAN SHOWING GUARD RAIL POST SPACING



SECTION A-A

GENERAL NOTES:

All other details not shown shall comply with Std. 86.00

Grout shall comply with Std. Specs. Sec. 1016.1.5.

Tightening of nuts on bolts connecting rail members and post shall be to the extent that longitudinal movement of the bolt in slotted holes is possible. After tightening in this manner the top of the bolt shall be deformed in such a way as to prevent loss of nut.

Guard Rail Posts shall be set normal to grade.

Buffer End for Type B Guardrail will be required at each end of bridge.

All bridge guardrail shall be cleaned and painted in the field or may be cleaned and painted one coat of red lead in the shop with the two remaining coats applied in the field. In lieu of painting, the contractor may, if he prefers, galvanize this material. All galvanizing shall be done after fabrication. Cost of painting or galvanizing to be included in price bid for other items.

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1-(68) SEC. A (RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

A-1159

302

DETAILED JAN. 1966 BY H.H.B.

CHECKED FEB. 1966 BY J.E.R.

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

Sheet No. 13 of 14.

MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.		'8	99	

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.

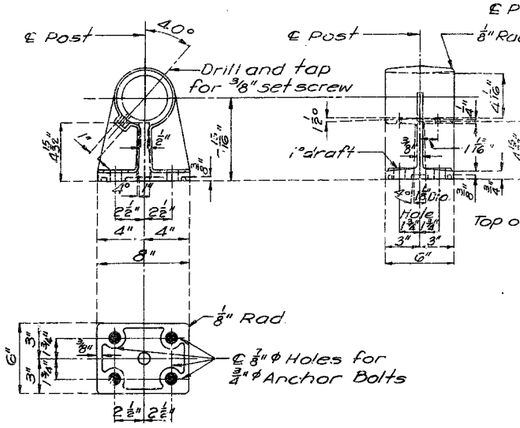
Top of curbs and parapets to be built parallel to grade with curb and parapet joints (except at end posts), normal to grade.

Concrete end posts to be vertical.

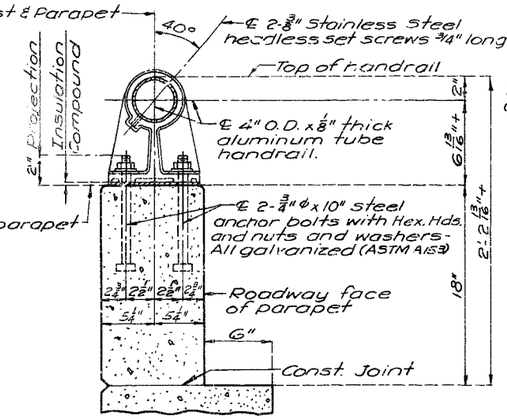
All exposed edges of end posts, parapets and curbs shall have 1/2" radius.

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

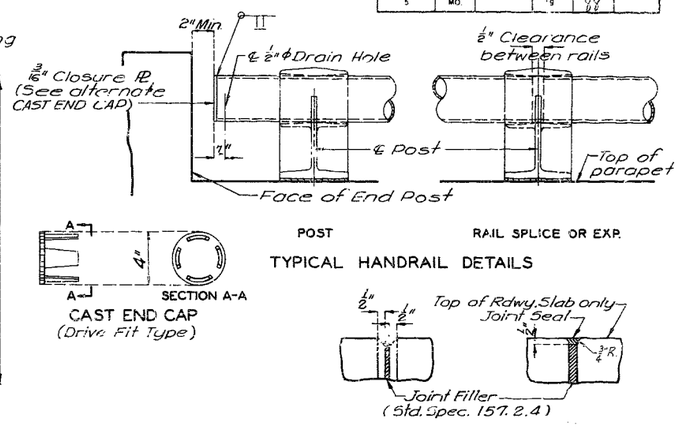
Integrally cast test coupons and a coat of clear lacquer specified in Std. Spec. 56.2.4 and 56.3.5 respectively will not be required for these rail posts.



POST DETAILS

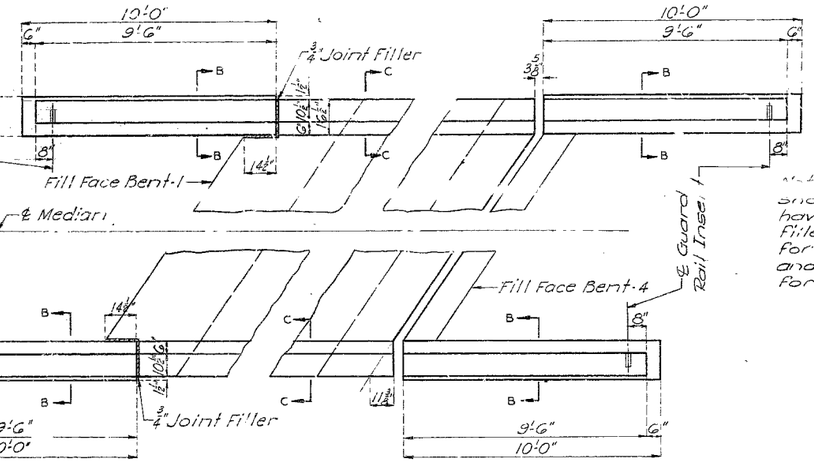


SECTION THRU HANDRAIL



TYPICAL HANDRAIL DETAILS

SINGLE TUBE ALUMINUM RAILING

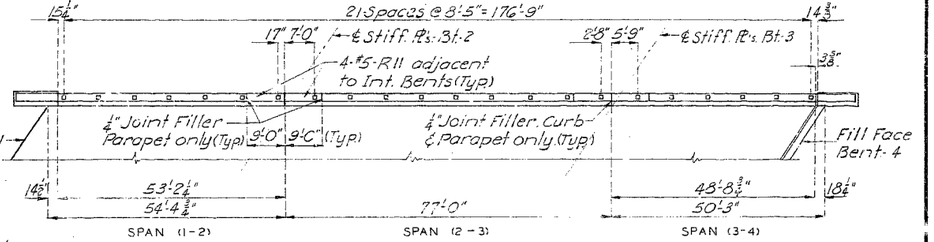


PLAN OF END POSTS

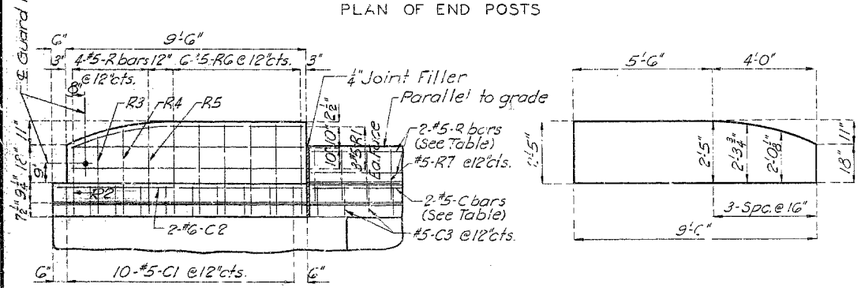
Note: Anchors for attaching guard rail shall be 3/4" threaded (Galv.) inserts having a minimum depth of 4" and filled with a plastic closing plug. Cost for furnishing and installing the insert and plug will be included in price bid for other items.

REINFORCING			
SPAN	(1-2)	(2-3)	(3-4)
CURB	#5-C4 (2-Units)	#5-C5 (3-Units)	#5-C6 (2-Units)
PARAPET	#5-R8 (2-Units)	#5-R9 (2-Units)	#5-R10 (2-Units)

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

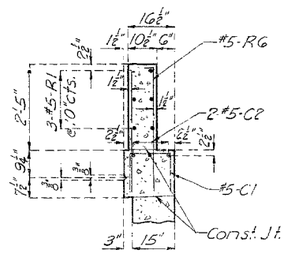


PLAN OF CURB SHOWING RAIL POST SPACING
(East curb shown, west curb similar)

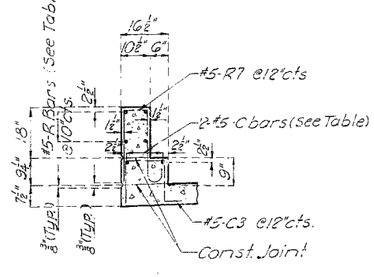


ELEVATION OF END POST

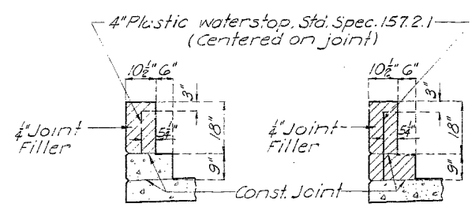
END POST ORDINATES



SECTION B-B



SECTION C-C



Note: Plastic waterstop shall be placed in all parapet and curb filled joints. (Except at End Jts) cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATER STOP

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(66) (SEC. A RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

A-1159

303

No. 1.5.2 A	NOV 1969	Revised Oct. 1965

DETAILED JAN. 1966 BY H.H.B

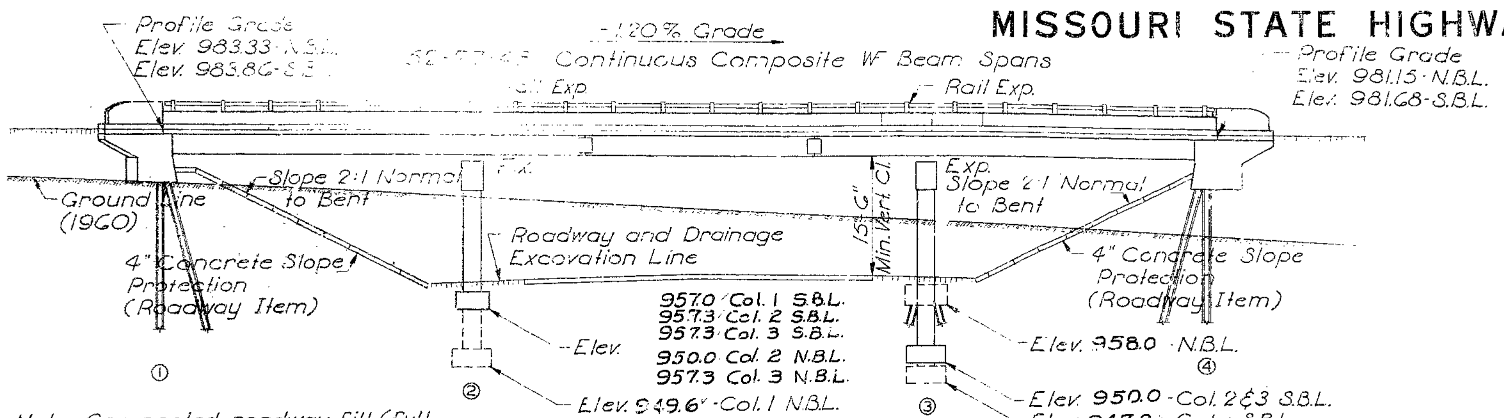
CHECKED FEB. 1966 BY J.E.R.

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

304

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	75	

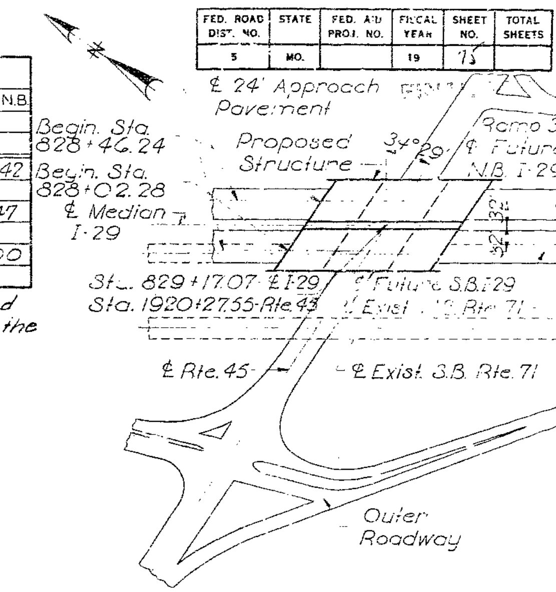


GENERAL ELEVATION

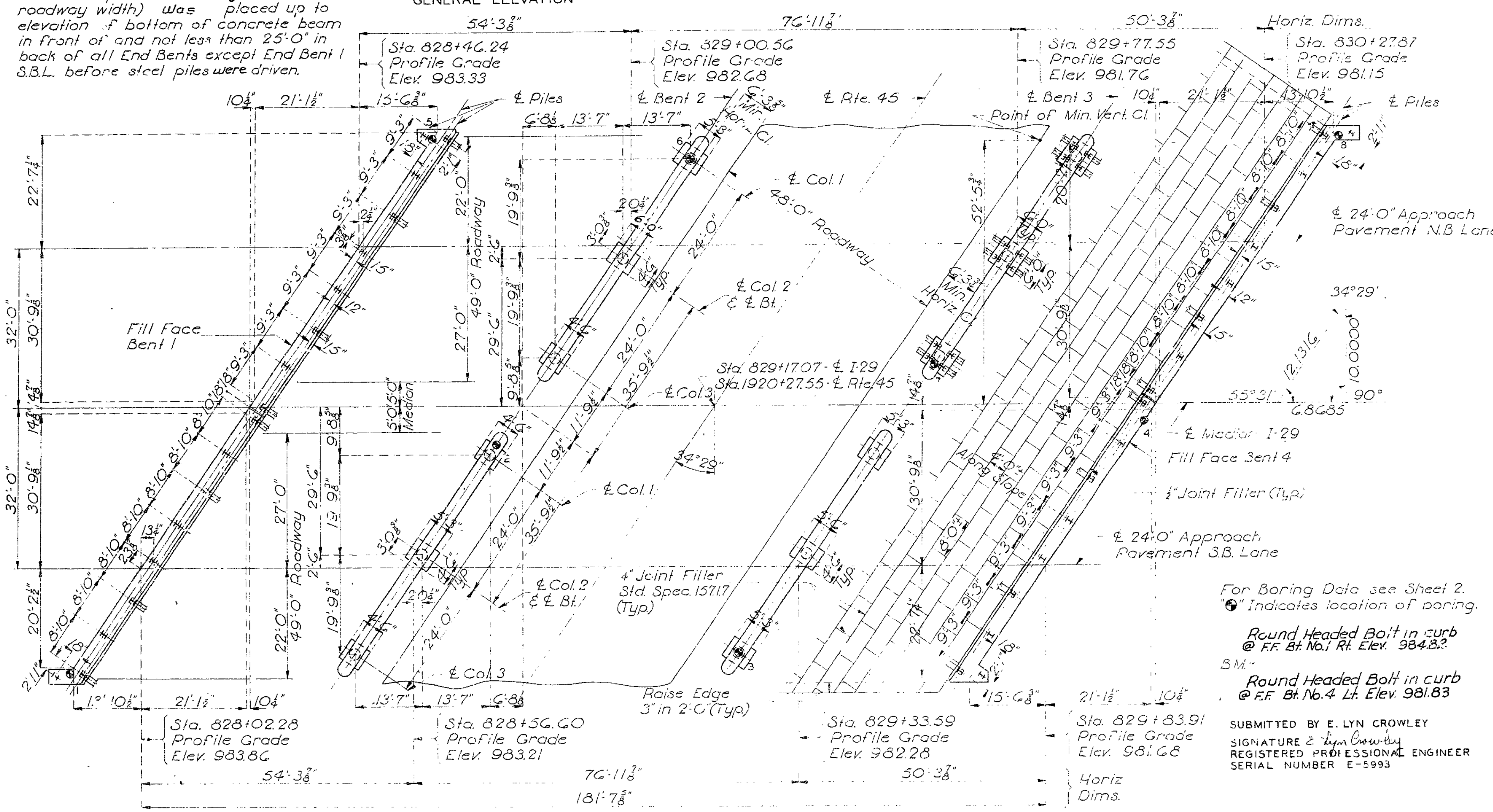
Note: Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" in back of all End Bents except End Bent 1 S.B.L. before steel piles were driven.

FOOTING AND PILE DATA							
	BENT NO.	1	2	3 S.B.	3 N.B.	4 S.B.	4 N.B.
SPREAD FOOTINGS	Foundation Material	—	Rock or Shale		—	—	
	Design Bearing Tons/sq. ft.	—	9.0	8.8	—	—	
BEARING PILE	Pile Type & Size	10BP42	—	—	10BP42	10BP42	
	Number	18	—	—	12	18	
	Approximate Length Ft.	17	—	—	22	32	47
	Design Bearing Value Tons	56	—	—	51	54	
	Hammer Energy Req'd. *ft.#	13,700	—	—	12000	12200	

Note: *Minimum energy requirement of hammer based on plan length and design bearing value of piles. Increase by the factor (W+w)/2W when the weight of the ram (W) is less than the weight of the pile (w).
All pile driven to practical refusal.
In no case were footings of Int. Bents placed higher than elevation 958.0 shown.



LOCATION SKETCH



PLAN

GENERAL NOTES:
Design Specifications:
A.A.S.H.O.-1961
Design Loading:
H S20-44
15#/sq.ft. Future Wearing Surface
Modified 24,000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#
Design Unit Stresses:
Class B Concrete (substructure) fc=1,200 psi
Class B1 Concrete (superstructure) fc=1,600 psi
Reinforcing Steel fs=20,000 psi
Structural Steel (A.S.T.M. A36-62T) fs=20,000 psi
Steel Pile (A.S.T.M. A36-62T) fb=9,000 psi
Superstructure deck surface sealed.
Field connections, High Strength Bolts 3/4"φ, holes 13/16"φ except as noted.
Paint; shop, none; Field, three coats.

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Class 1 Excavation for Structures	Cu. Yds.	204.0	—	204.0
Steel Piles in Place (10")	Lin. Ft.	1,350	—	1,350
Class B Concrete	Cu. Yds.	319.4	—	319.4
Class B1 Concrete	Cu. Yds.	—	524.7	524.7
Reinforcing Steel	Lbs.	50,090	174,730	224,820
Painting	Tons	—	186.0	186.0
Fabricated Structural Carbon Steel	Lbs.	—	376,630	376,630
Bridge Rail (Single Tube Type)	Lin. Ft.	—	358	358
GR-B-Bolt Down 6-3SP	Lin. Ft.	—	180	180
Class 1 Exc. +25%	Cu. Yds.	22.0		22.0
Drilled Test Holes	Lin. Ft.	42		42

Note: Concrete in end posts, parapets and curbs is included with superstructure concrete
No payment for excavation allowed at End Bents 1 and 4

For Boring Data see Sheet 2.
"⊕" Indicates location of boring.

Round Headed Bolt in curb @ F.F. Bt. No. 1 Rt. Elev. 984.82

B.M.

Round Headed Bolt in curb @ F.F. Bt. No. 4 Lt. Elev. 981.83

SUBMITTED BY E. LYN CROWLEY
SIGNATURE E. Lyn Crowley
REGISTERED PROFESSIONAL ENGINEER
SERIAL NUMBER E-5993

BRIDGE OVER ROUTE 45

FINISHED

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(36) SEC. A (RTE. I-29) **STA.** 828+24.26 € MEDIAN

PLATTE **COUNTY**

SUBMITTED BY [signature] BRIDGE ENGINEER DATE 3-29-66

APPROVED BY M. J. Snider CHIEF ENGINEER DATE 3-29-66

FINISHED

STD 54.00
STD. 86.00
A-1159

PRICHARD COMPANY INC.
CONSULTING ENGINEERS
INDEPENDENCE, MISSOURI

DESIGNED JAN. 1966 BY R.H.K.
DETAILED JAN. 1966 BY R.W.F.
CHECKED FEB. 19 BY F.D.F.

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

Sheet No. 1A of 5

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	76	

FINAL PLANS

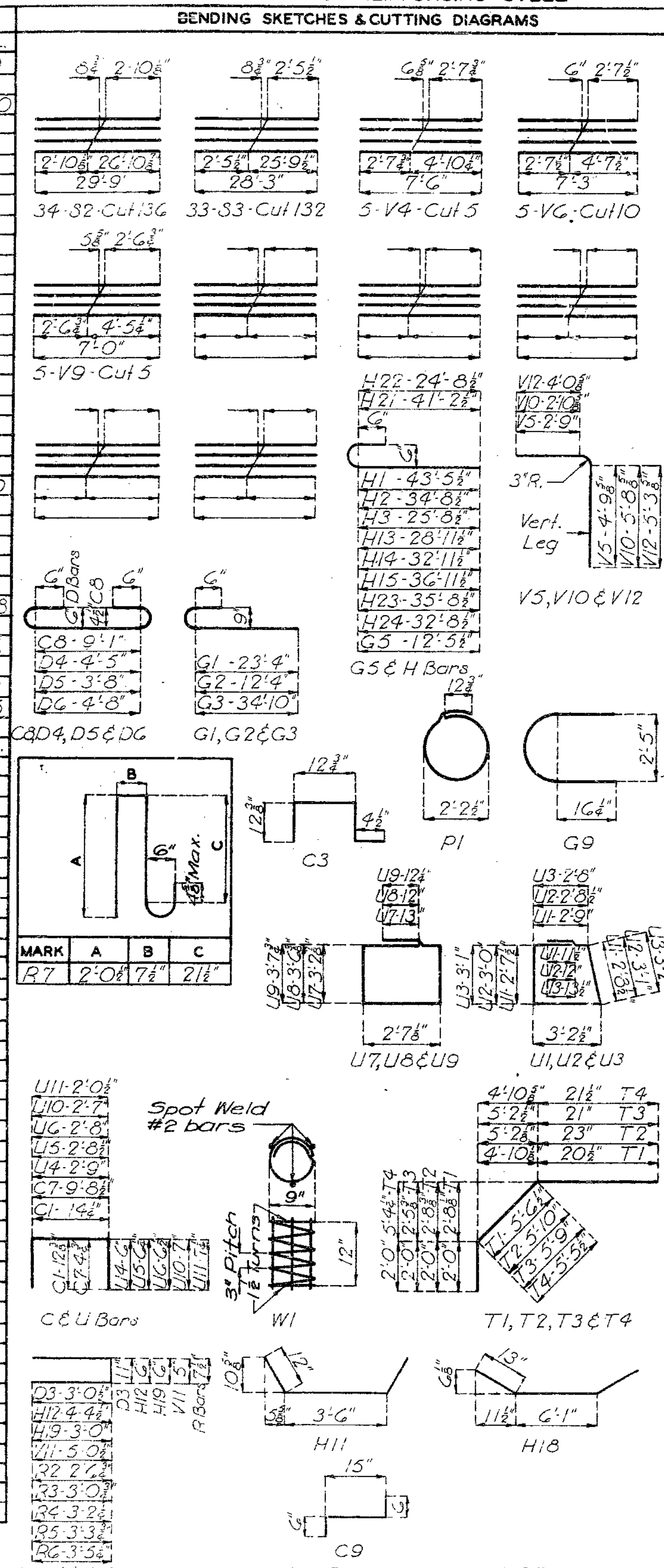
COMPLETE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION N.B.L.	LOCATION S.B.L.
SUPERSTRUCTURE				N.B.L.	S.B.L.
40	#5	3'-3"	C1	20	20
8	#6	9'-6"	C2	4	4
360	#5	3'-6"	C3	180	180
8	#5	27'-0"	C4	4	4
12	#5	26'-6"	C5	6	6
8	#5	25'-0"	C6	4	4
183	#4	10'-6"	C7	183	
390	#5	11'-3"	C8	390	
362	#4	2'-3"	C9	362	
14	#4	29'-3"	C10	14	
14	#4	26'-6"	C11	14	
30	#5	29'-3"	C12	30	
21	#4	26'-5"	C13	21	
75	#5	26'-6"	C14	75	
24	#5	9'-3"	R1	12	12
4	#5	5'-9"	R2	2	2
4	#5	6'-9"	R3	2	2
4	#5	7'-0"	R4	2	2
4	#5	7'-3"	R5	2	2
24	#5	7'-6"	R6	12	12
360	#5	5'-6"	R7	180	180
16	#5	22'-9"	R8	8	8
16	#5	30'-0"	R9	8	8
16	#5	20'-6"	R10	8	8
32	#5	8'-6"	R11	16	16
2576	#6	26'-6"	S1	1288	1288
136	#6	29'-9"	S2	68	68
132	#6	28'-3"	S3	66	66
624	#4	31'-0"	S4	312	312
204	#4	16'-0"	S5	102	102
510	#6	37'-3"	S6	255	255
8	#4	31'-6"	S7	4	4
SUBSTRUCTURE END BENT 1				N.B.L.	S.B.L.
6	#5	5'-0"	A1	6	
6	#5	7'-6"	A2		6
4	#8	44'-9"	H1	4	
8	#8	36'-0"	H2	8	
4	#8	27'-0"	H3	4	
4	#6	34'-9"	H4	4	
8	#6	33'-9"	H5	4	4
16	#4	33'-6	H6	8	8
2	#4	4'-0"	H7	2	
4	#6	9'-9"	H8	2	2
4	#6	9'-0"	H9	2	2
4	#6	7'-0"	H10	2	2
4	#6	5'-6"	H11	4	
3	#4	9'-3"	H12	3	
4	#8	30'-3"	H13		4
8	#8	34'-3"	H14		8
4	#8	35'-3"	H15		4
4	#6	33'-0"	H16		4
2	#4	3'-6"	H17		2
4	#6	8'-3"	H18		4
3	#4	6'-6"	H19		3
2	#6	9'-3"	T1	2	
2	#6	9'-9"	T2		2
47	#5	12'-3"	U1	22	25
43	#5	13'-0"	U2	43	
33	#5	13'-3"	U3		33
12	#4	3'-9	U4	5	7
14	#4	3'-9"	U5	14	
11	#4	3'-9"	U6		11
[illegible]	#5	3'-9"	V1	122	122
[illegible]	#5	5'-0"	V2	10	8
16	#4	6'-9"	V3	8	8
5	#4	7'-6"	V4	5	
2	#6	8'-0"	V5		2
5	#4	7'-3"	V6		5
2	[illegible]	[illegible]	[illegible]	1	1
[illegible]	[illegible]	[illegible]	[illegible]	2	
[illegible]	#2	19'-9"	W1	12	12

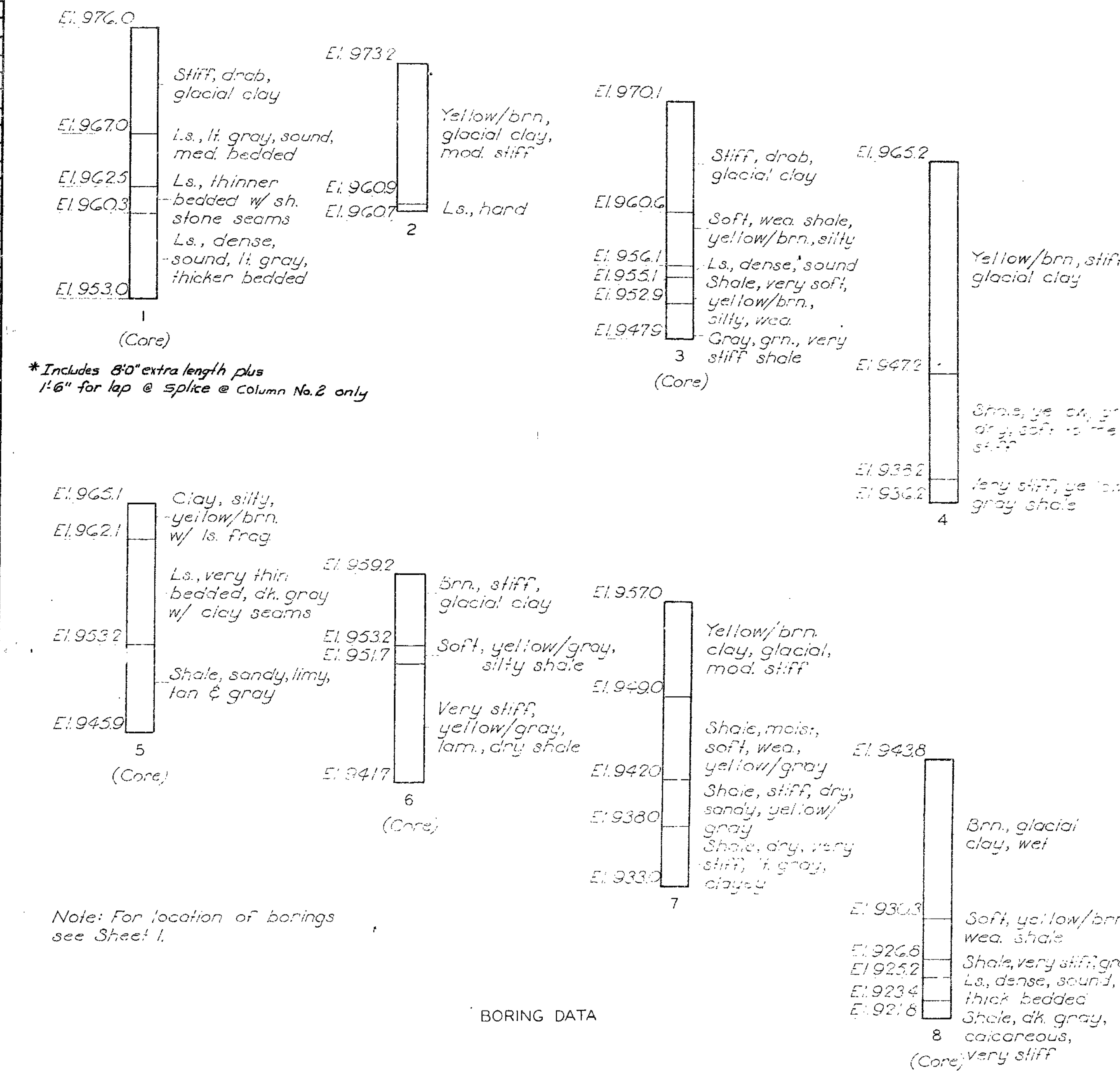
NO.	SIZE	LENGTH	MARK	LOCATION N.B.L.	LOCATION S.B.L.
SUBSTR. INT. BENTS 2 & 3				N.B.L.	S.B.L.
16	#10	25'-0"	G1	8	8
12	#10	14'-0"	G2	6	6
16	#11	36'-6"	G3	8	8
16	#11	15'-6"	G4	8	8
16	#7	13'-9"	G5	8	8
32	#11	29'-3"	G6	16	16
32	#11	20'-0"	G7	16	16
32	#6	28'-6"	G8	16	16
32	#7	6'-6"	G9	16	16
100	#6	12'-9"	U7	50	50
48	#4	3'-9"	U10	24	24
8	#4	3'-3"	U11	4	4
96	#9	5'-0"	D1	48	48
48	#2	19'-9"	W1	24	24
SUBSTR. INT. BENT 2				N.B.L.	S.B.L.
98	#3	8'-0"	P1	61	45
8	#9	25'-0"	P2	8	
24	#9	18'-0" *27'-6"	P3	16	8
16	#9	16'-3"	P6		16
55	#6	13'-3"	U8	55	
55	#6	13'-6"	U9		55
36	#5	4'-0"	D2	18	18
26	#5	7'-0"	D4	19	8
18	#5	6'-3"	D5	6	12
SUBSTR. INT. BENT 3				N.B.L.	S.B.L.
108	#3	8'-0"	P1	39	69
8	#9	15'-9"	P4	8	
16	#9	16'-0"	P5	16	
8	#9	27'-9"	P7		8
16	#9	25'-0"	P8		16
55	#6	13'-3"	U8	55	
55	#6	13'-6"	U9		55
18	#5	4'-0"	D2		18
24	#6	7'-0"	D3	24	
14	#5	7'-0"	D4		14
9	#5	7'-3"	D6		9
SUBSTRUCTURE END BENT 4				N.B.L.	S.B.L.
8	#8	36'-0"	H2		8
4	#6	34'-9"	H4		4
24	#4	33'-6"	H6	12	12
2	#4	4'-0"	H7		2
4	#6	9'-9"	H8	2	2
4	#6	9'-0"	H9	2	2
4	#6	7'-0"	H10	2	2
4	#6	5'-6"	H11		4
3	#4	9'-3"	H12		3
8	#8	34'-3"	H14	8	
4	#6	33'-0"	H16	4	
4	#6	8'-3"	H18	4	
4	#4	6'-6"	H19	4	
8	#6	31'-9"	H20	4	4
4	#8	12'-6"	H21	4	
4	#8	26'-0"	H22	4	
4	#8	37'-0"	H23		4
4	#8	34'-0"	H24		4
2	#4	5'-0"	H26	2	
2	#6	9'-6"	T3	2	
2	#6	9'-3"	T4		2
49	#5	12'-3"	U1	21	28
37	#5	13'-0"	U2	37	
37	#5	13'-3"	U3		37
14	#4	3'-9"	U4	6	8
12	#4	3'-9"	U5	12	
11	#4	3'-9"	U6		11
16	#4	6'-9"	V3	8	8
5	#4	7'-3"	V6		5
240	#5	5'-9"	V7	120	120
22	#5	6'-9	V8	10	12
5	#4	7'-0"	V9	5	
2	#6	9'-0"	V10	2	
2	#4	10'-6	V11	1	1
2	#6	9'-9"	V12		2
24	#2	19'-9"	W1	12	12

SUBSTRUCTURE END BENT 4				N.B.L.	S.B.L.
6	#5	5'-0"	A1		6
6	#5	7'-6"	A2	6	

BENDING SKETCHES & CUTTING DIAGRAMS



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



BORING DATA

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(4) (RTE. I-29) **STA.** 8[illegible]8+24.26 [illegible] MEDIAN

PLATTE COUNTY

Sheet No. 2A of 25

A-1159

DETAILED 19 BY

CHECKED 19 BY

No. 90.3	Revised
June 1961	Dec. 1964

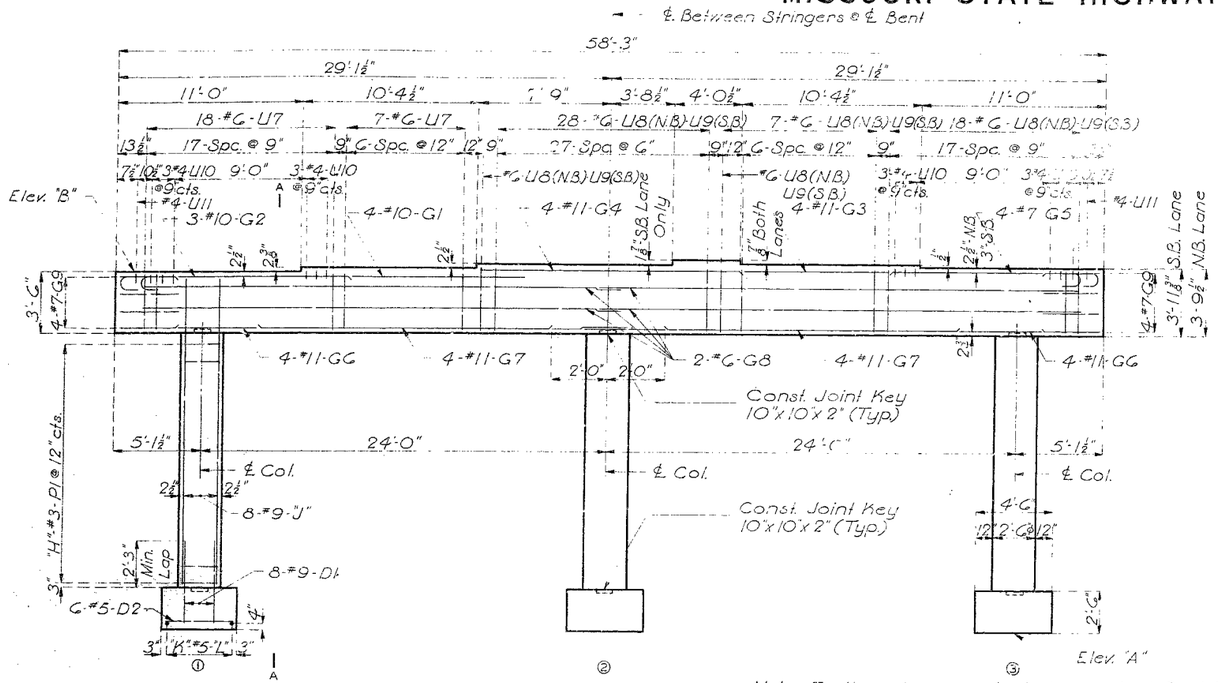
305

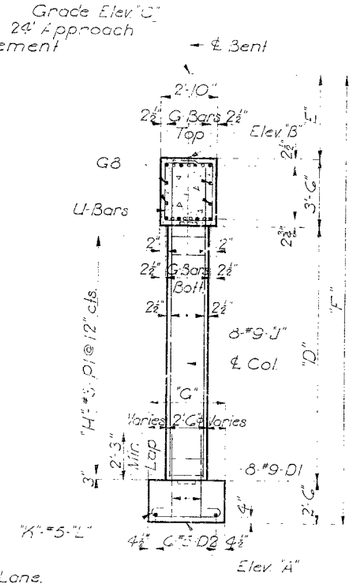
FINAL PLANS

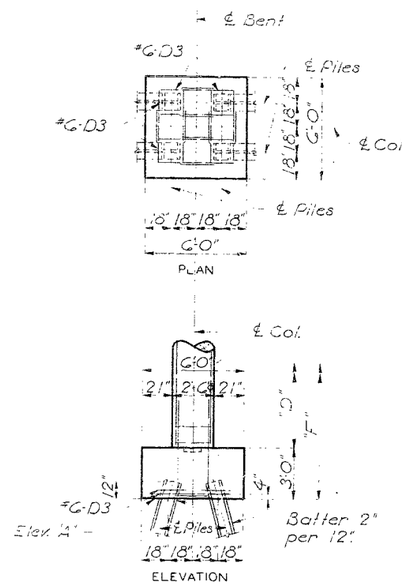
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	79	

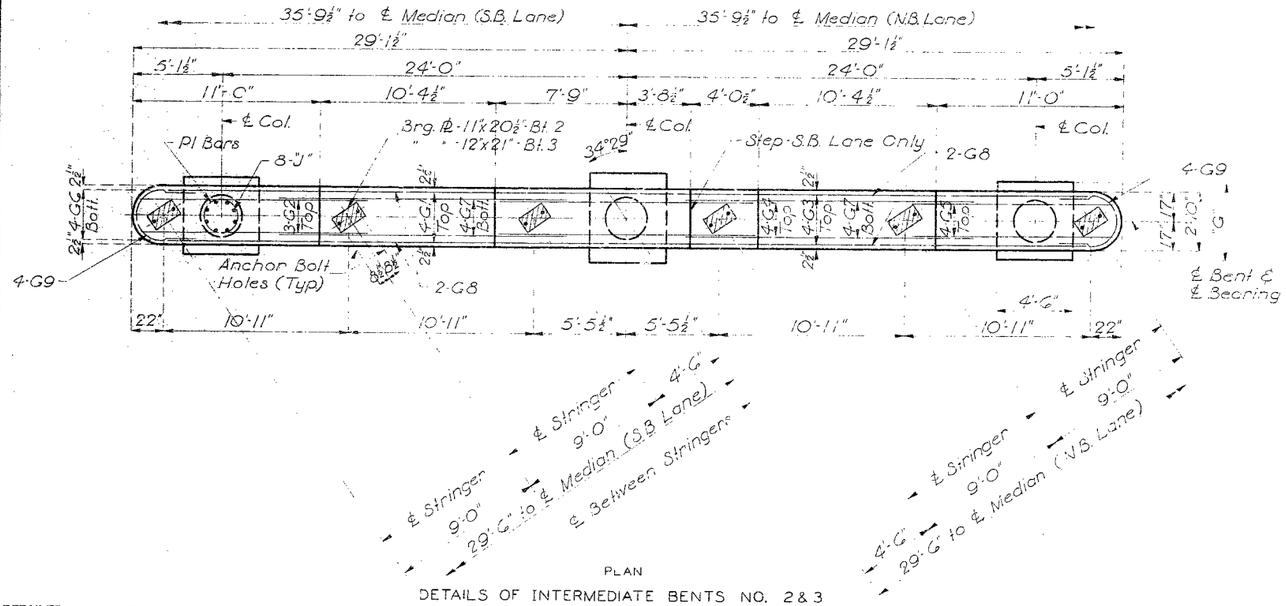
FINAL PLANS







FOOTING DETAILS OF BENT 3 - N.B. LANE



DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

TABLE OF VARIABLES																	
LANE	NORTH BOUND								SOUTH BOUND								
BENT	2			3					2			3					
COL.	1	2	3	1	2	3			1	2	3	1	2	3			
ELEV. "A"	949.6	950.0	957.3	958.0					957.0	957.3	957.3	947.0	950.0				
ELEV. "B"	978.50			977.20					978.90			977.60					
ELEV. "C"	983.04			982.12					983.57			982.64					
"D"	22'-6"	22'-6"	14'-6"	12'-8¾"					14'-10¾"			24'-7¼"	21'-7¼"				
"E"	4'-6"			4'-11"					4'-8"			5'-0½"					
"F"	33'-5¼"	33'-0⅝"	25'-8⅝"	24'-1¾"					26'-6¾"	26'-3⅜"	26'-3¾"	35'-7¾"	32'-7¾"				
"G"	5'-3"	6'-0"	4'-6"	—					4'-6"	5'-3"	4'-6"	5'-3"	5'-6"	5'-3"			
"H"	23	15		13					15			25	22				
"J"	D2	D3		D4	D5				D3	D6		D7	D8				
"K"	9	6		—					6	8	6	7	9	7			
"L"	D4	D5		—					D5	D4	D5	D4	D6	D4			

FINISHED

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1(60)(SEC A RTE. 29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE FINISHED **COUNTY**

A-1159

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DETAILED FEB. 1966 BY R.W.F.

CHECKED FEB. 1966 BY J.E.R.

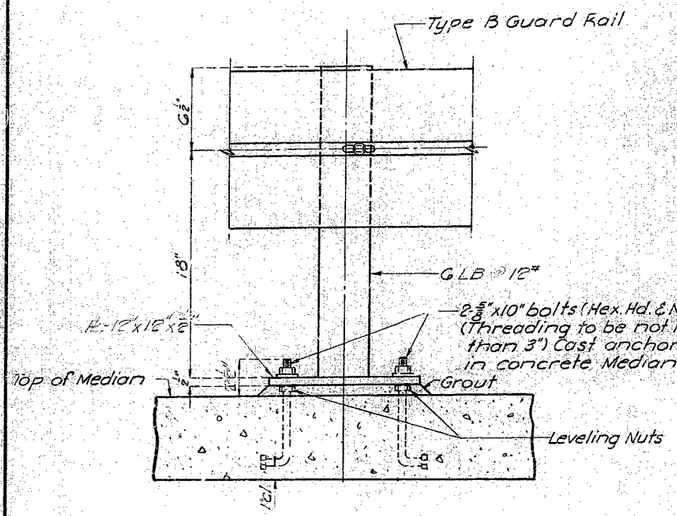
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5A of 5

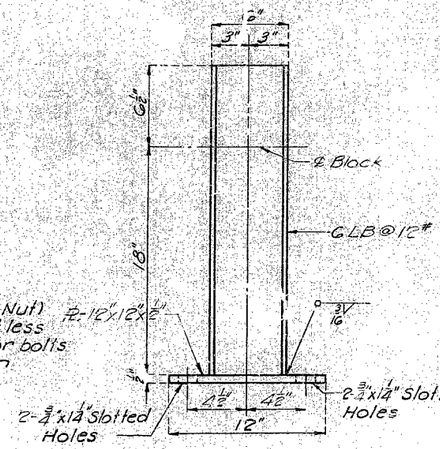
MISSOURI STATE HIGHWAY DEPARTMENT

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

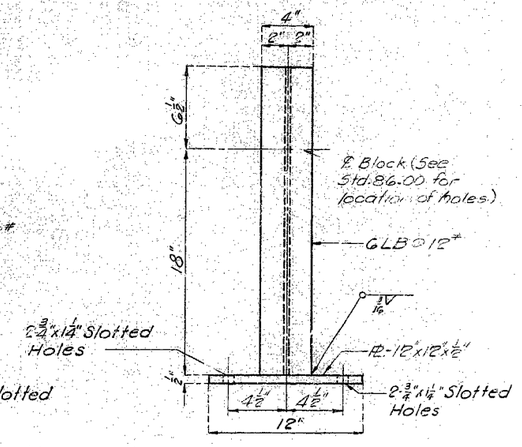
FINAL PLANS



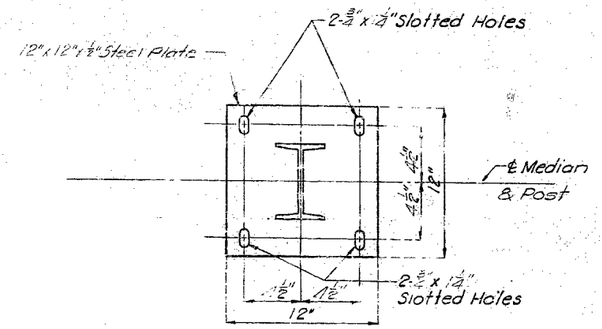
LONGITUDINAL ELEVATION



TRANSVERSE ELEVATION



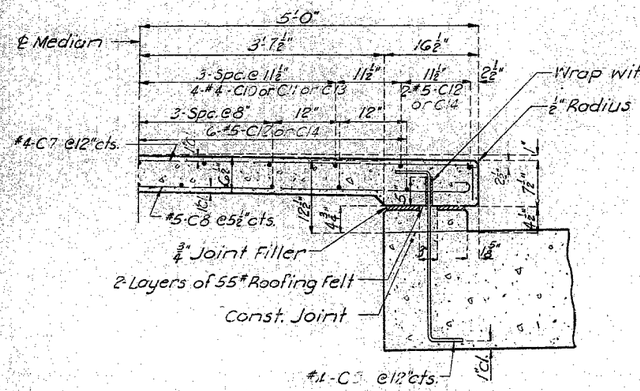
LONGITUDINAL ELEVATION



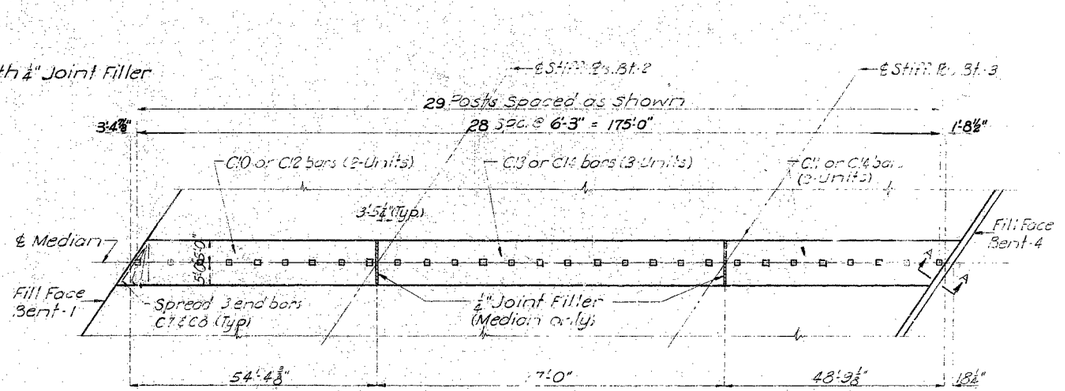
PLAN OF POST AND BASE PLATE

Note. See Standard 86.00 for Details of Blocked Out Post, Rail and Buffer Ends.

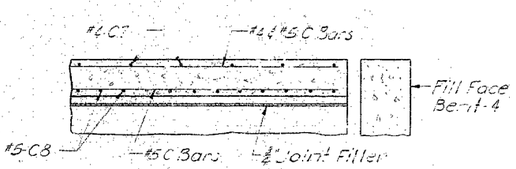
DETAILS OF TYPE B GUARD RAIL (BOLT DOWN)



HALF SECTION THRU MEDIAN



PLAN OF MEDIAN SHOWING GUARD RAIL POST SPACING



SECTION A-A

GENERAL NOTES:

All other details not shown comply with Std. 86.00

Grout Complies with Std. Specs. Sec. 1066.1.5.

Tightening of nuts on bolts connecting rail members and post shall be to the extent that longitudinal movement of the bolt in slotted holes is possible. After tightening in this manner the top of the bolt deformed in such a way as to prevent loss of nut.

Guard Rail Posts set normal to grade.

Buffer End for Type B Guardrail required at each end of bridge.

All bridge guardrail was galvanized

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DETAILED JAN 1962 BY H.C.S.

CHECKED [illegible] 19[illegible] BY J.E.R.

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

Sheet No. 13 of #5

FINISHED

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

[illegible] CITY

[illegible] I-29-1-( )(RTE. I-29) **STA.** 828+[illegible].26 ℄ MEDIAN

PLAT [illegible] **COUNTY**

A-1159

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.		19	88	

FINAL PLANS

GENERAL NOTES:

All handrail posts set normal to grade. Aluminum tube handrail 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 ⅛". 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 ¼" 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.

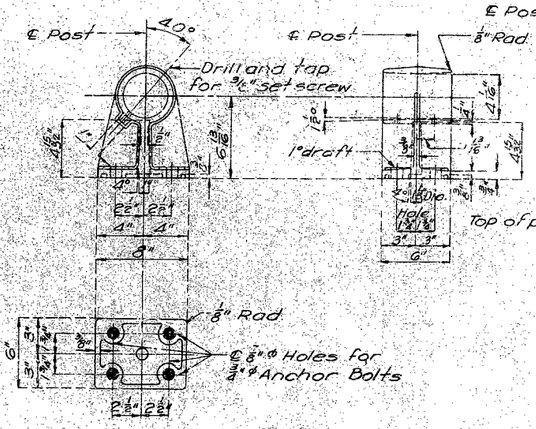
Top of curbs and parapets to be built parallel to grade, with curb and parapet joints (except at end posts), normal to grade.

Concrete end posts to be vertical.

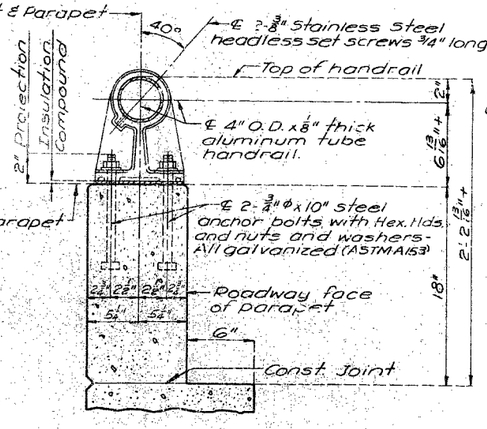
All exposed edges of end posts, parapets and curbs have ¾" radius.

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

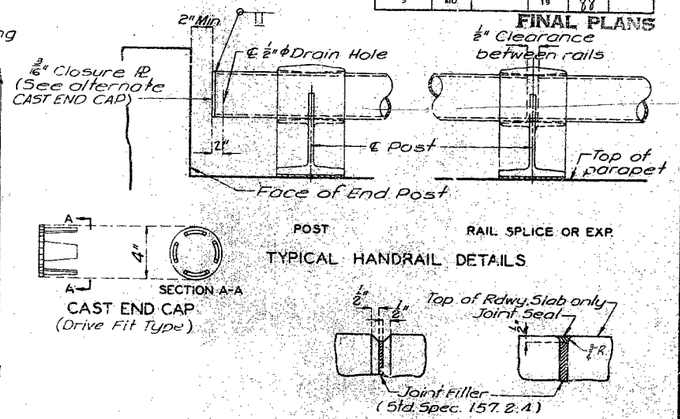
Integrally cast test coupons and a coat of clear lacquer specified in Std. Spec. 56.2.4 and 56.3.5 respectively will not be required for these rail posts.



POST DETAILS



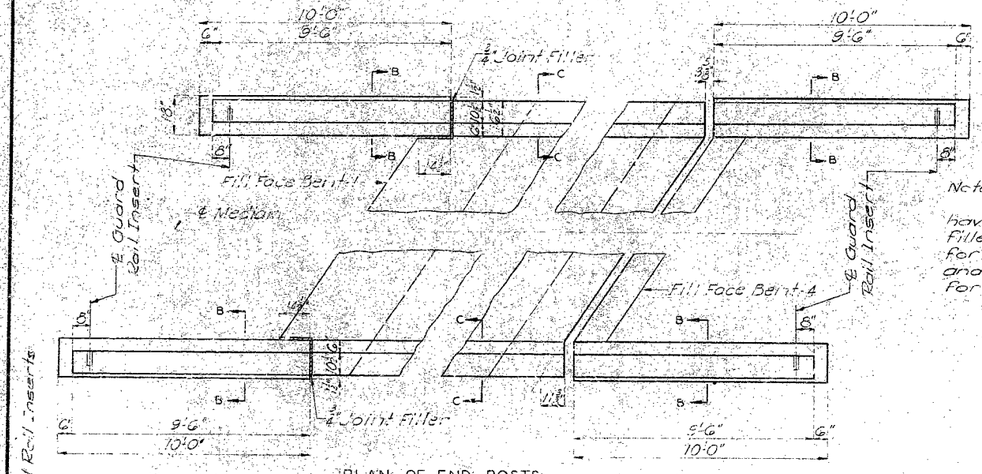
SECTION THRU HANDRAIL



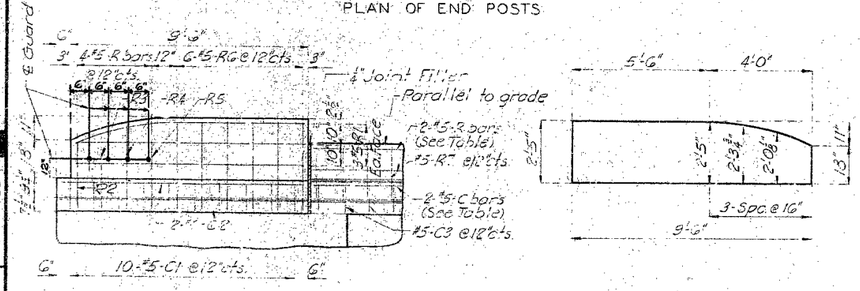
SINGLE TUBE ALUMINUM RAILING

TYPICAL HANDRAIL DETAILS

FILLED JOINT DETAILS

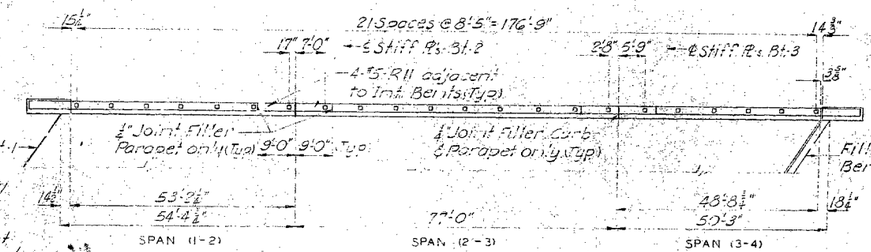


PLAN OF END POSTS



ELEVATION OF END POST

END POST ORDINATES

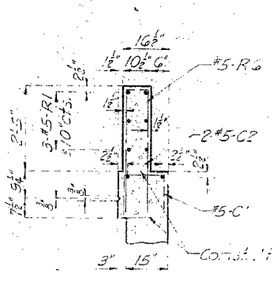


PLAN OF CURB SHOWING RAIL POST SPACING
(East curb shown, West curb similar)

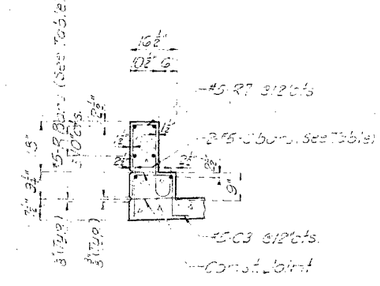
Note: Anchors for attaching guard rail ¾" threaded (Galv.) inserts having a minimum depth of 4" and filled with a plastic closing plug. Cost for furnishing and installing the insert and plug will be included in price bid for other items.

REINFORCING			
SPAN	(1-2)	(2-3)	(3-4)
CURB	#5-C4 (2 Units)	#5-C5 (3 Units)	#5-C6 (2 Units)
PARAPET	#5-R8 (2 Units)	#5-R9 (2 Units)	#5-R10 (2 Units)

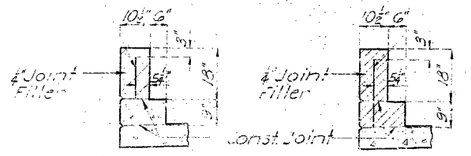
Note: For horizontal curb and parapet bars use minimum lap of 15'-0" #5.



SECTION B-B



SECTION C-C



Note: Plastic waterstop placed in all parapet and curb filled joints (except at End Bts.) Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATER STOP

BRIDGE OVER ROUTE 45

STATE ROAD - INTERSTATE ROUTE 29

IN KANSAS CITY

PROJECT NO. I-29-1( )(RTE. I-29) **STA.** 828+24.26 ℄ MEDIAN

PLATTE **COUNTY**

No.	Revised
1 & 2 A	Oct. 1965
NOV 1963	

DETAILED JAN. 1965 BY H.H.S.

CHECKED FEB. 1965 BY J.L.

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

Sheet No. 4A of 35 Sheets

A-1159

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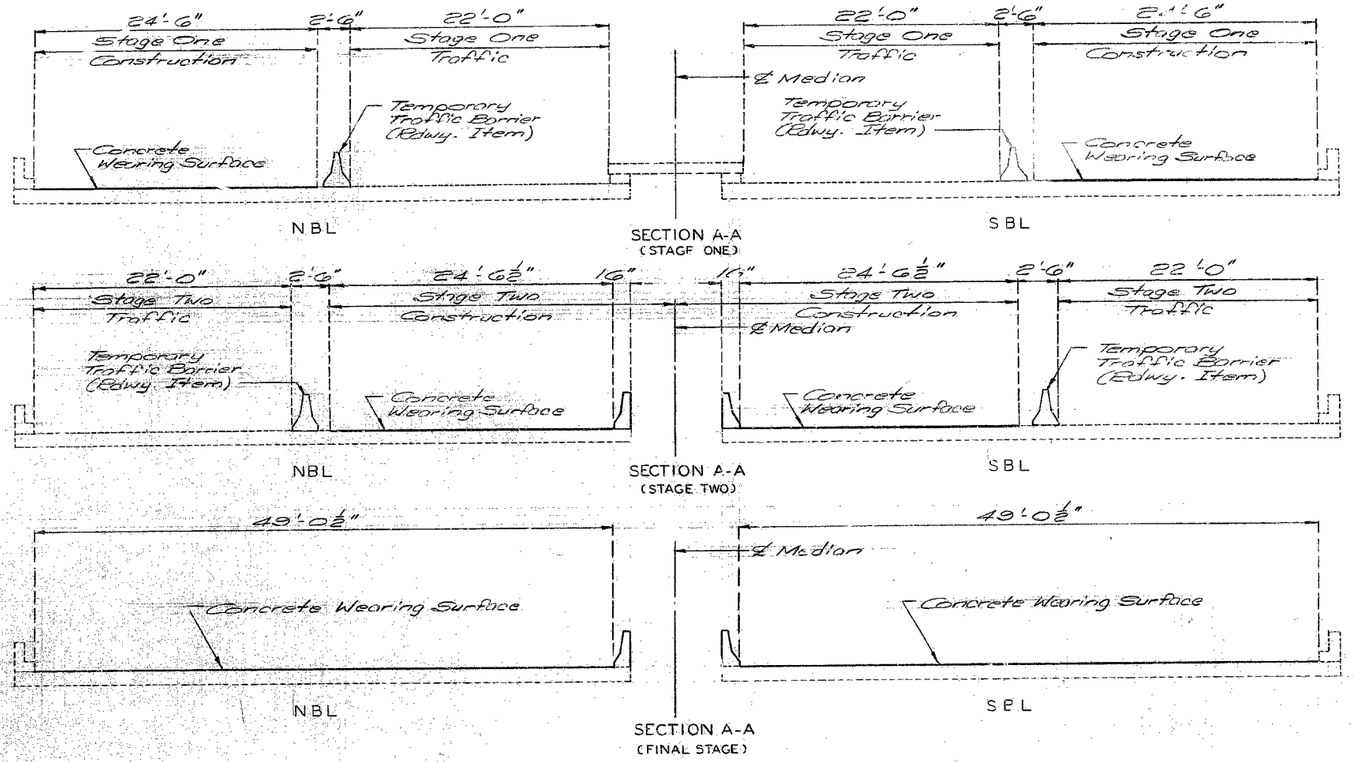
FINAL PLANS

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	49	
SEC./SUR. 20 of 29 TWP. 51N RGE. 33W					



PLAN OF SLAB
DETAILS OF TRAFFIC AND CONSTRUCTION STAGES

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

DESIGNED Sept. 1984
DETAILED Sept. 1984
CHECKED Nov. 1984

Sheet No. 1 of 7 Sheets

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. 1977 and Interims thru 1982

Design Unit Stresses:
Class B1 Concrete f'_c = 4000 psi
Reinforcing Steel (Grade 60) f_y = 60,000 psi

Joint Filler:
All joint filler shall meet the requirement of Std. Spec. 1057.2.4. except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing shall be 1½" unless otherwise shown.

Traffic:
Traffic over structure to be maintained during construction.

Construction Clearance:
A minimum vertical clearance of 14'-9" from crown of existing lanes and a minimum lateral clearance of 22'-0" centered on existing lanes shall be maintained during construction.

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

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available old bars shall extend into new concrete at least 20 diameters for smooth bars and 30 diameters for deformed bars.

Approach Slab:
Taper roadway surfacing at bridge ends to match concrete wearing surface. (Rdwy. Item).

Paint:
Areas to be encased in end bent concrete shall be painted one coat of System C primer and scratched or damaged surfaces are to be touched up before concrete is poured.

System B by contractor in accordance with Std. Spec. 712.13. Color of the final coat for System B shall be aluminum.

ESTIMATED QUANTITIES		
ITEM		TOTAL
Concrete Wearing Surface * ( )	Sq. Yd.	1979
Repairing Concrete Deck (Hand-Sawing)	Sq. Ft.	342
Full Depth Repair	Sq. Ft.	171
Safety Barrier Curb	Lin. Ft.	363
Class B1 Concrete	Cu. Yd.	907
Reinforcing Steel	Lb.	2940
Painting **	Lump Sum	1
Special Work Reinforcing Steel (Epoxy Coated)	Lump Sum Lb.	1 2460

* See Job Special Provisions for alternate use of concrete wearing surface. Alternate "A" = 1¼" (min.) Latex Modified Concrete. Alternate "B" = 2½" (min.) Low Slump Concrete.

** Approximately 186.0 Tons of existing steel are to be painted.

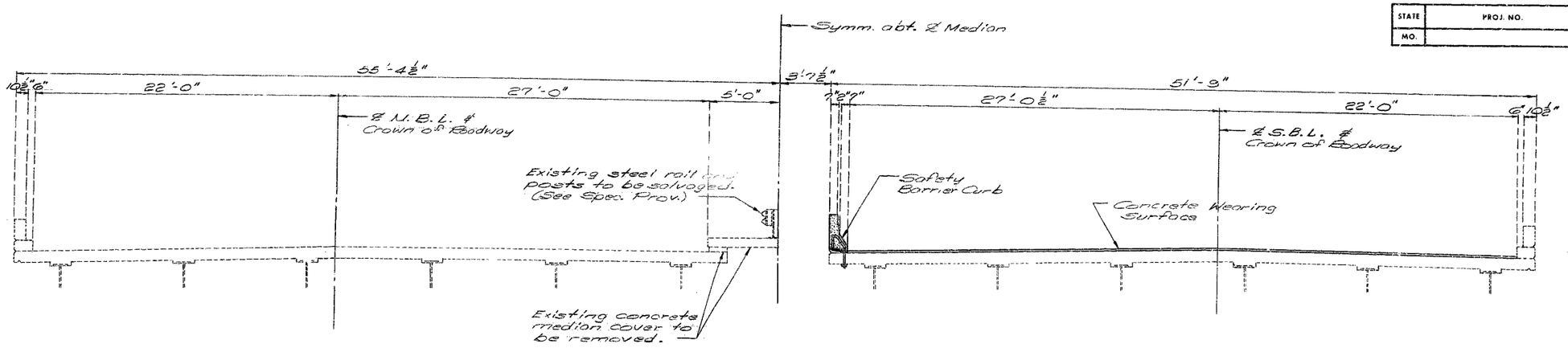
B.M.

REPAIRS TO
BRIDGE OVER RTE. 45
STATE ROAD - INTERSTATE ROUTE 29
IN KANSAS CITY
PROJECT NO. IR-29-1(80)
JOB NO. 4-1029-137C
PLATTE **COUNTY**
STA. 828+02.28±(S.B.L.)
STA. 828+46.24±(N.B.L.)
RTE. I-29
DATE December 17, 1984

STD.
STD. 706.35
A-1159R

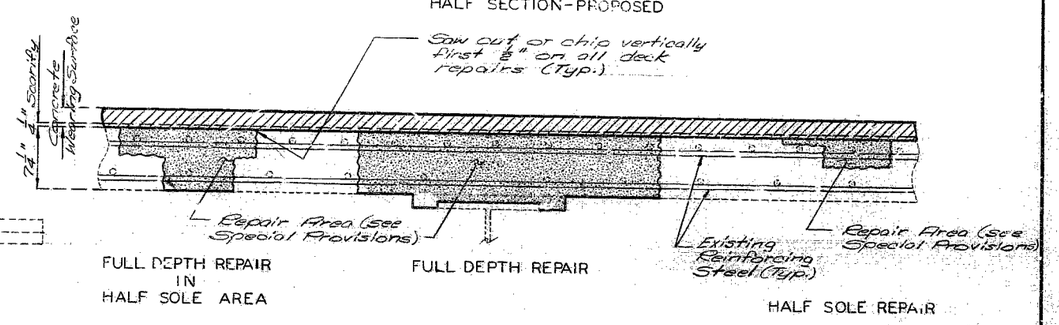
AF 339108

STATE	PROJ. NO.	SHEET NO
MO.		50



HALF SECTION - EXISTING

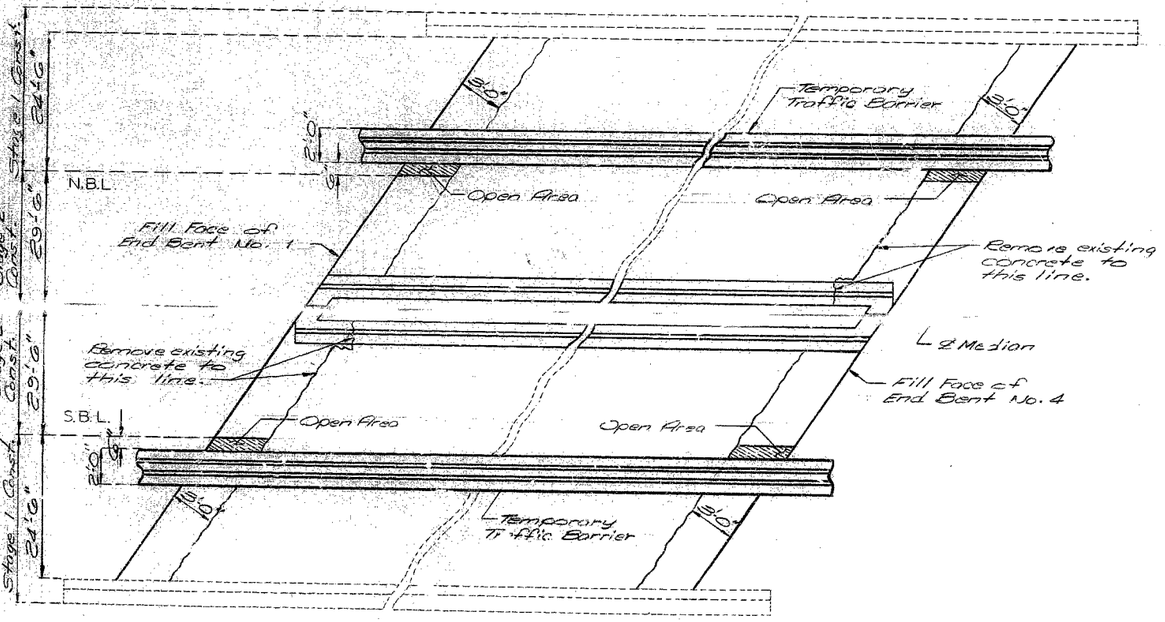
HALF SECTION - PROPOSED



FULL DEPTH REPAIR IN HALF SOLE AREA

FULL DEPTH REPAIR

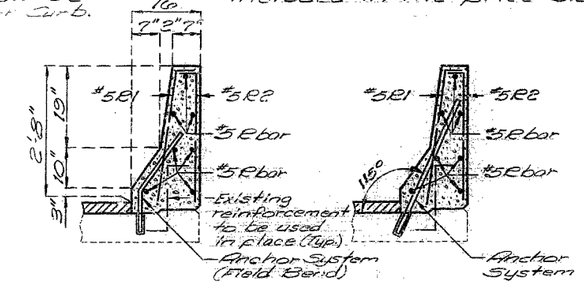
HALF SOLE REPAIR



DETAILS OF OPEN SLAB AREAS (STAGE 2)

Note: Open Areas are to remain open during stage 1 removal and construction.

Note: The contractor may use one of the following anchor systems for the barrier curb.
(1) Molly Rawlbond Capsule Anchors
(2) Hilti HVA Adhesive Anchors
(3) Sup-R-Set Synthetic Resin Capsule Anchors
These anchor systems shall be installed according to the manufacturer's specifications except that an epoxy coated ⅝" ϕ, Gr. 60 reinforcing bar 5'-6" long shall be substituted for the epoxy coated or galvanized threaded rod stud.
Cost of furnishing and installing the anchor system complete in place shall be included in the price bid per lin. ft. for concrete curb.



SECTION THRU CURB

SECTION THRU CURB

OPTIONAL ANCHORING SYSTEM

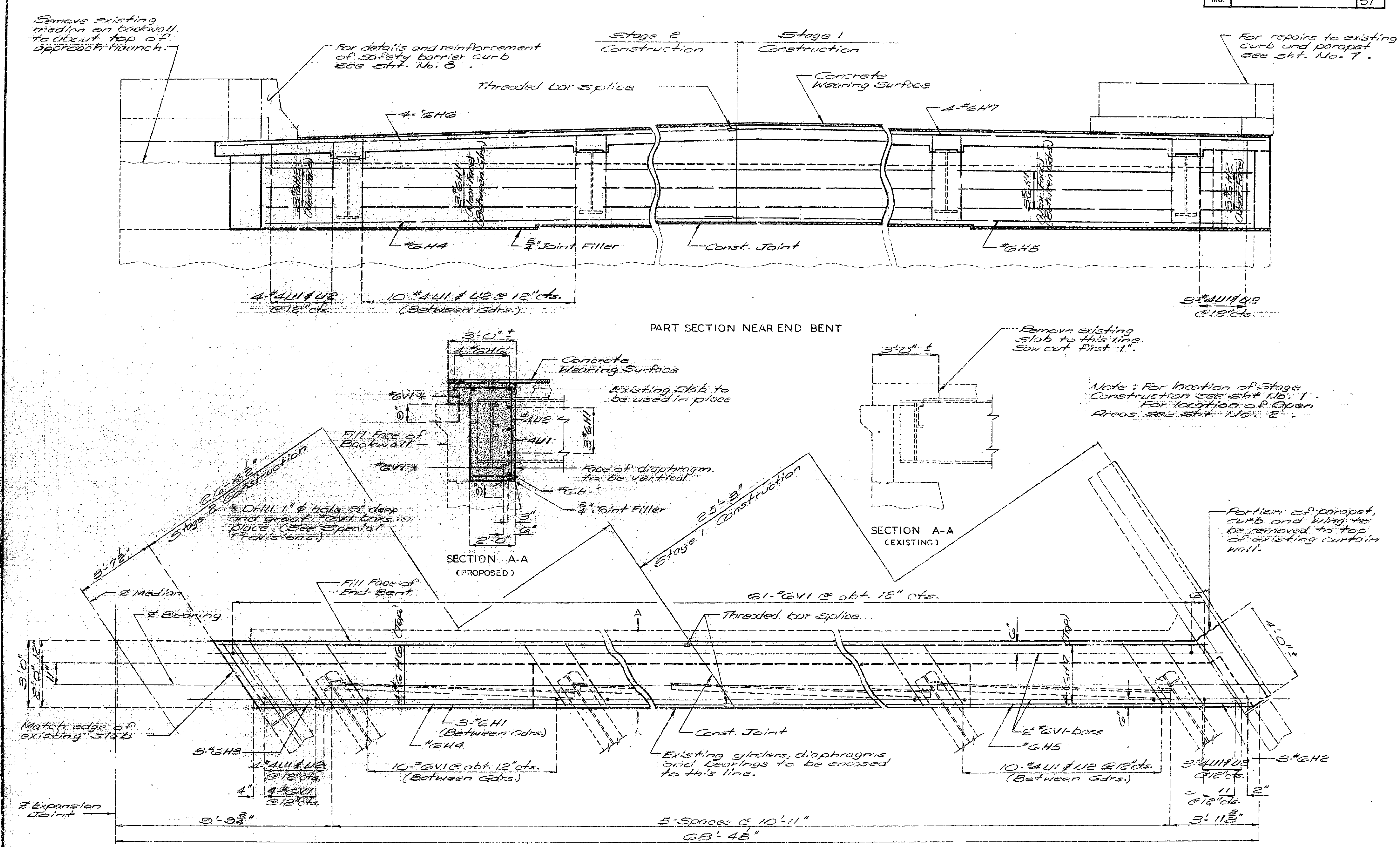
DETAILED Sept. 1984
CHECKED Nov. 1984

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

Sheet No. 2 of 9.

PLATTE COUNTY A-1159R

STATE	PROJ. NO.	SHEET NO.
MO.		51


Remove existing median on backwall to about top of approach haunch.
For details and reinforcement of safety barrier curb see Sht. No. 8.
Stage 2 Construction
Stage 1 Construction
For repairs to existing curb and parapet see Sht. No. 7.
Threaded bar splice
Concrete Wearing Surface
4-#6H6
4-#6H7
#6H4
3/4" Joint Filler
Const. Joint
#6H5
4-#4U1 & U2 @ 12" cts.
10-#4U1 & U2 @ 12" cts. (Between Gdrs.)
3-#4U1 & U2 @ 12" cts.
PART SECTION NEAR END BENT
Existing Slab to be used in place
Fill Face of Backwall
Face of diaphragm to be vertical
3/4" Joint Filler
SECTION A-A (PROPOSED)
Remove existing slab to this line. Saw cut first 1".
SECTION A-A (EXISTING)
Note: For location of Stage Construction see Sht No. 1. For location of Open Areas see Sht. No. 2.
* Drill 1" ϕ hole 9" deep and grout #6V1 bars in place. (See Special Provisions)
Stage 2 Construction
Stage 1 Construction
Portion of parapet, curb and wing to be removed to top of existing curtain wall.
℄ Median
℄ Bearing
Fill Face of End Bent
61-#6V1 @ abt. 12" cts.
Threaded bar splice
Match edge of existing slab
3-#6H3
3-#6H1 (Between Gdrs.)
#6H4
Const. Joint
Existing girders, diaphragms and bearings to be encased to this line.
#6V1 bars
#6H5
3-#6H2
10-#6V1 @ abt. 12" cts. (Between Gdrs.)
10-#4U1 & U2 @ 12" cts. (Between Gdrs.)
℄ Expansion Joint
9'-9 3/4"
5 Spaces @ 10'-11"
3'-11 5/8"
68'-4 5/8"

PART PLAN OF END BENT

Note: #6H7 bars shall extend 4" (min.) beyond construction joint. (See Special Provisions)

DETAILED Sept. 1984
CHECKED Nov. 1984

DETAILS OF END BENT NO. 1 – N.B.L.

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

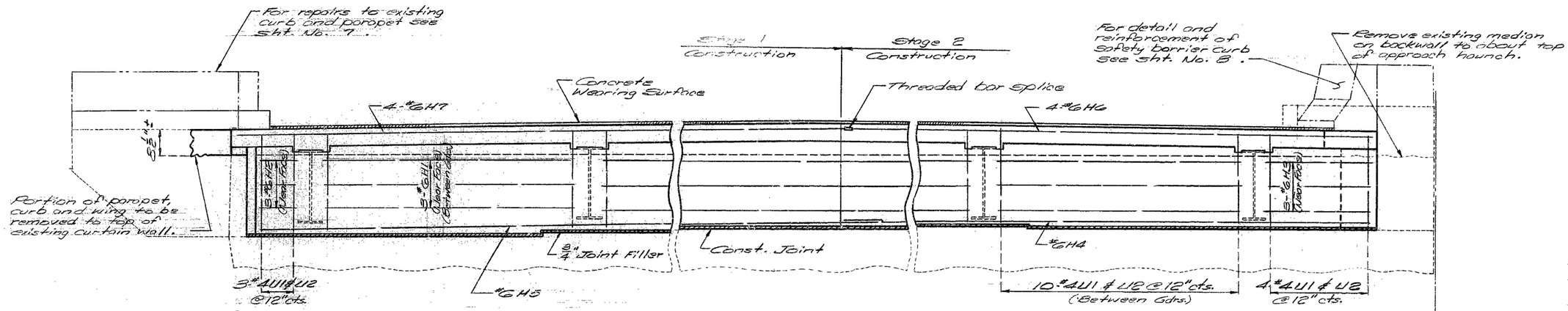
Sheet No. 3 of 7.

PLATTE COUNTY

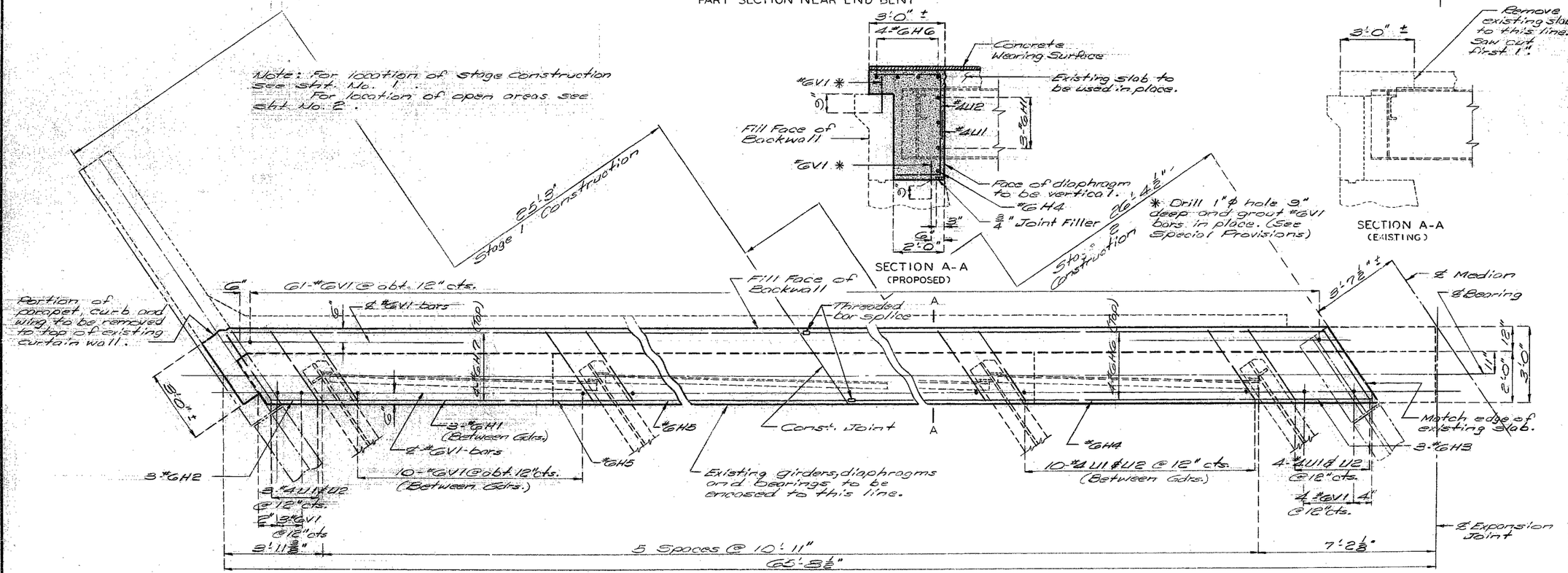
A-1159R

AF 339108

STATE	PROJ. NO.	SHEET NO.
MO.		52



PART SECTION NEAR END BENT



PART PLAN OF END BENT

DETAILS OF END BENT NO. 1 – S.B.L.

Note: #6H7 bars shall extend 4" (min) beyond construction joint. (See Special Provisions)

DETAILED Sept. 1984
CHECKED Nov. 1984

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

Sheet No. 4 of 9.

PLATTE COUNTY

A-1159R

STATE	PROJ NO	SHEET NO
MO.		53

Remove existing median on backwall to about top of the approach haunch.

For details and reinforcement of Safety barrier curb see Sht. No. 8.

Stage 2 Construction

Stage 1 Construction

For repairs to existing curb and parapet see sht. No. 7.

Concrete Wearing Surface

Threaded bar splice

4-#6H6

4-#6H7

#6H4 (Typ.)

#6H3 (Typ.)

#6H4 (Typ.)

#6H5 (Typ.)

#6H4

3/4" Joint Filler

Const. Joint

#6H5

4"#4U1&U2 @12"ctrs.

10-#4U1&U2 @12" ctrs. (Between Gdrs.)

3-#4U1&U2 @12"ctrs.

PART SECTION NEAR END BENT

3'-0" ±

4-#6H6

Concrete Wearing Surface

Existing slab to be used in place

#4U2

#4U1

3-#6H1

Fill Face of Backwall

#6V1 *

Face of diaphragm to be vertical

#6H4

3/4" Joint Filler

3"

2'-0"

* Drill 1" ϕ hole 9" deep and grout #6V1 bars in place. (See Special Provisions.)

Existing vertical steel in backwall to be used in place

3'-0" ±

Remove existing slab to this line. Saw cut first 1".

Remove existing expansion device and backwall to this line.

Note: For location of Stage Construction see Sht. No. 1. For location of Open Areas see Sht. No. 2.

SECTION A-A (PROPOSED)

SECTION A-A (EXISTING)

5'-7½"

℄ Median

℄ Bearing

Fill Face of End Bent

26'-4½" Stage 2 Construction

65'-3" Stage 1 Construction

Portion of parapet, curb and wing to be removed to top of existing curtain wall.

Existing expansion device and backwall above upper construction joint to be removed.

Threaded bar splice

A

A

5'-0"

2'-0"

1'-1"

#6H6 (Typ.)

#6H4 (Typ.)

4'-0" ±

Match edge of existing slab

3-#6H3

4-#4U1&U2 @12"ctrs.

4"

4-#6V1 @12"ctrs.

3-#6H1 (Between Gdrs.)

#6H4

10-#6V1 @ abt. 12" ctrs. (Between Gdrs.)

Const. Joint

Existing girders, diaphragms and bearings to be encased to this line.

℄ #6V1-bars

#6H5

10-#4U1&U2 @ 12" ctrs. (Between Gdrs.)

3-#6H2

3-#4U1&U2 @12"ctrs.

3-#6V1 @12"ctrs.

2"

3'-11⅜"

℄ Expansion Joint

9'-9¾"

5 Spaces @ 10'-11"

68'-4⅝"

Note: #6H7 bars shall extend 4" (min.) beyond construction joint. (See special provisions)

PART PLAN OF END BENT

DETAILS OF END BENT NO. 4 - S.B.L.

DETAILED Sept. 1984

CHECKED Nov. 1984

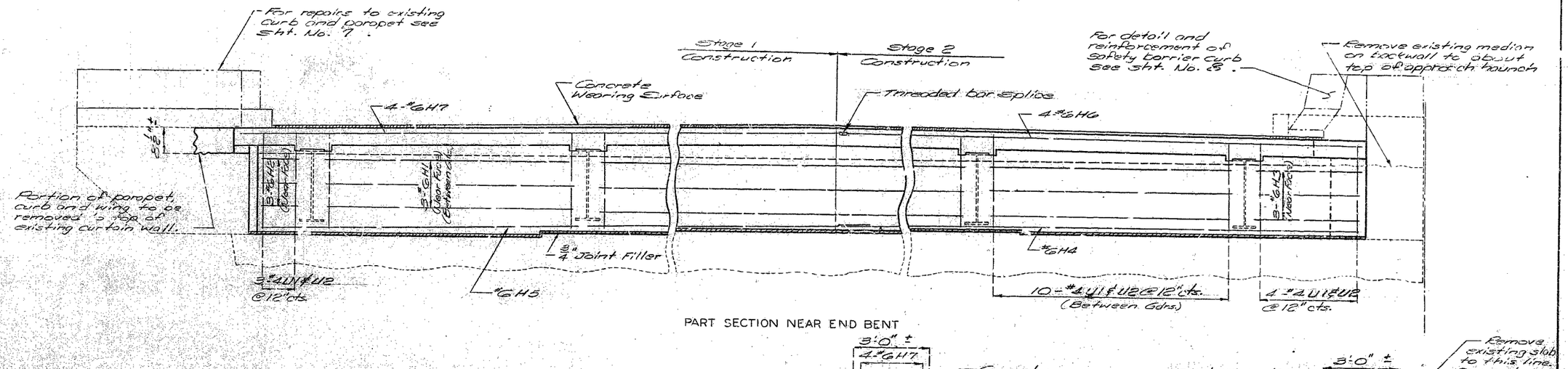
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 9.

PLATTE COUNTY

A-1159R

STATE	PROJ NO	SHEET NO
MO.		54



DETAILED Sept. 1954
CHECKED Nov. 1954

DETAILS OF END BENT NO. 4 -- N.B.L.

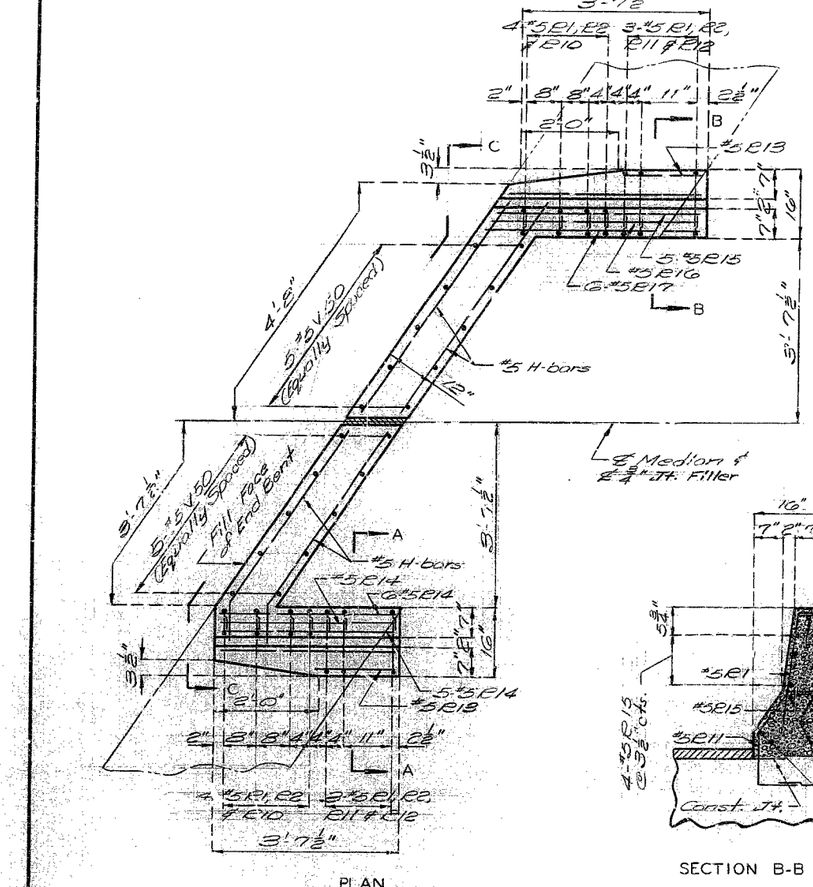
This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 9.

PLATTE COUNTY

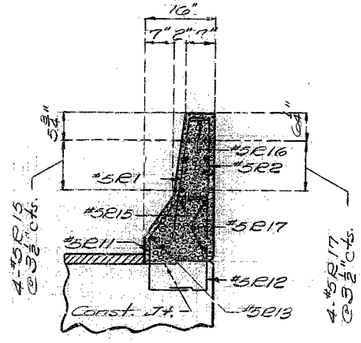
A-1159R

STATE	PROJ NO.	SHEET NO.
MO.		55

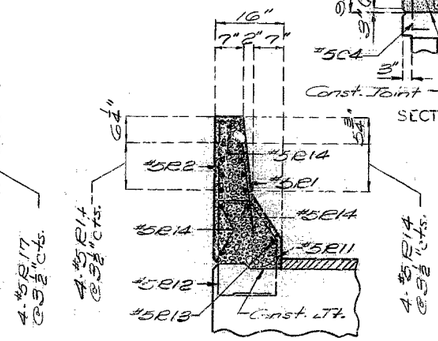


PLAN

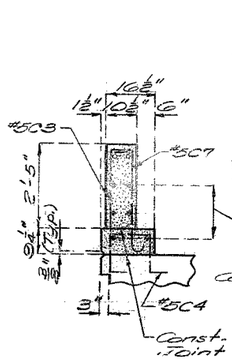
(Bent 1 Shown - Bent 4 Similar)



SECTION B-B

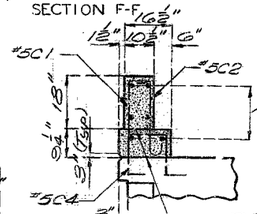


SECTION A-A

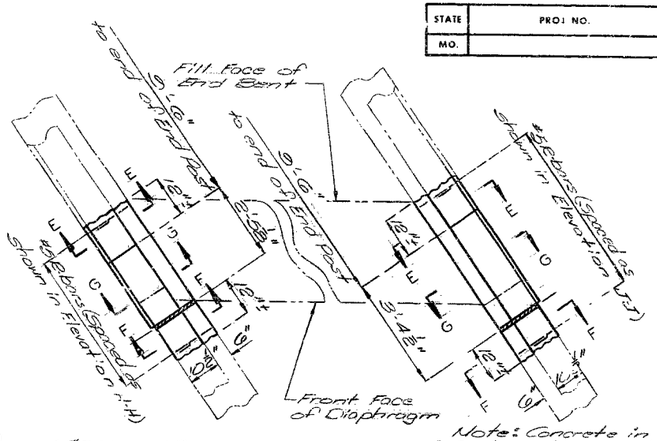


SECTION E-E

SECTION F-F

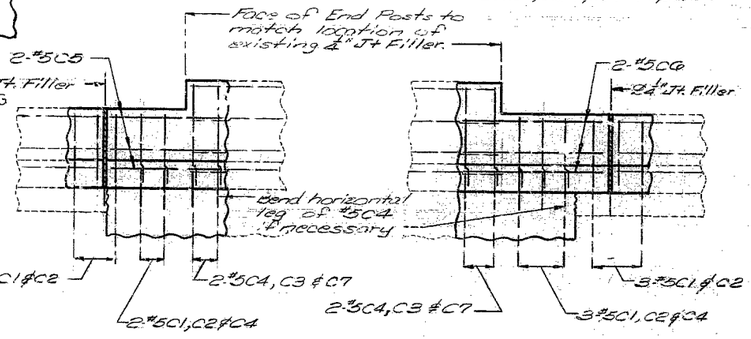


SECTION G-G



PART PLAN

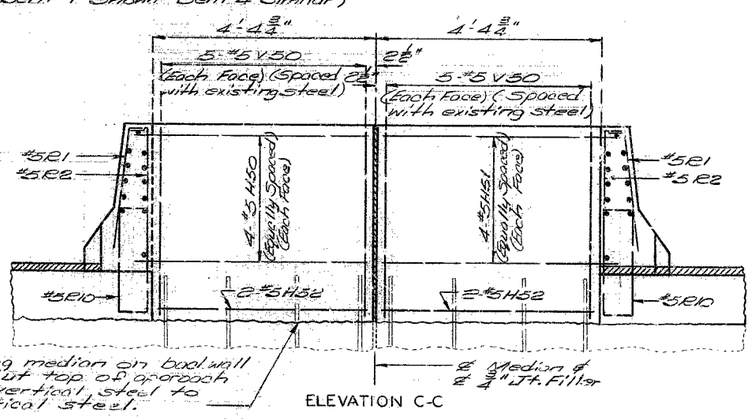
Note: Concrete in the curb and parapet repair shall be Class B1. No direct payment will be made for curb and parapet repair.



ELEVATION H-H

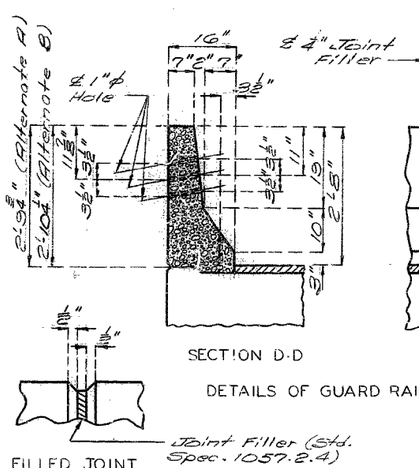
ELEVATION J-J

DETAILS OF CURB AND PARAPET REPAIR



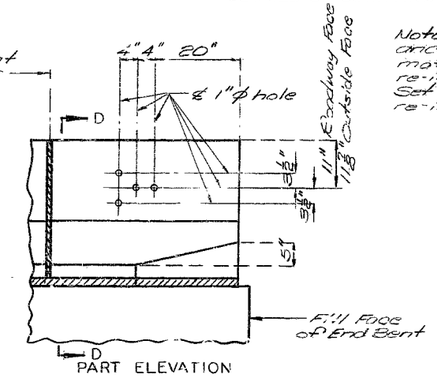
ELEVATION C-C

DETAILS OF MEDIAN CLOSURE WALL



SECTION D-D

FILLED JOINT DETAIL



PART ELEVATION

DETAILS OF GUARD RAIL ATTACHMENT

Note: Existing rail posts complete with anchor bolts and insulating material (Std. Spec. 716...5) are to be re-installed at original location. Set screws are to be omitted on re-installed rail posts.

Note: Cost of concrete and reinforcement required for Median Closure Wall, complete in place, shall be included in unit price bid per linear foot of Safety Barrier Curb.

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

DETAILED Sept. 19 54
CHECKED Nov. 1954

Sheet No. 7 of 9.

PLATTE COUNTY

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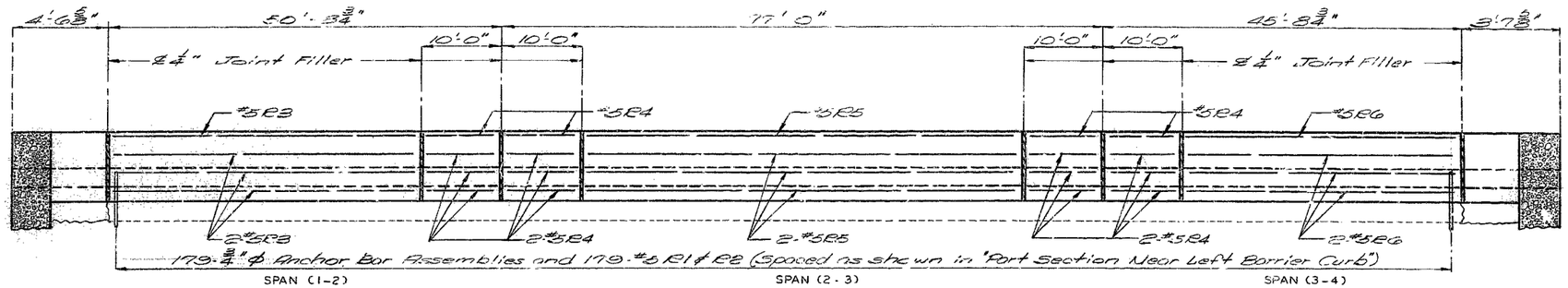
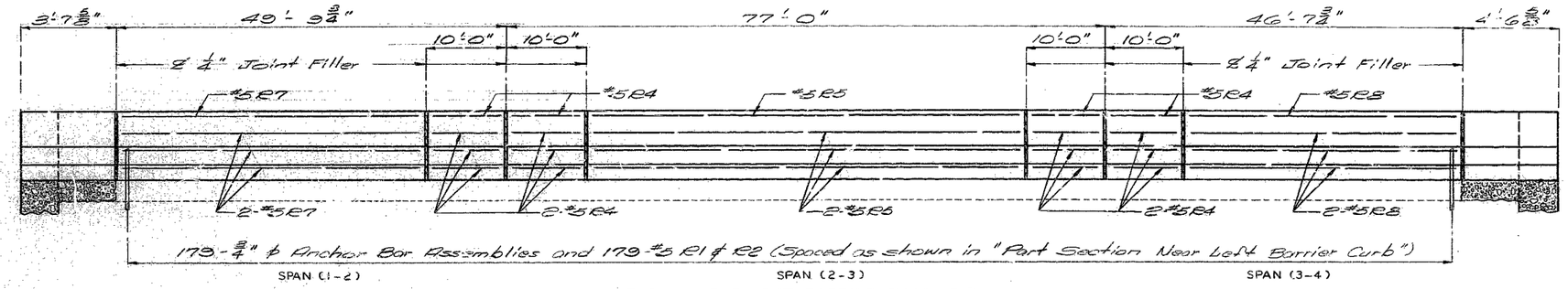
AF 339108

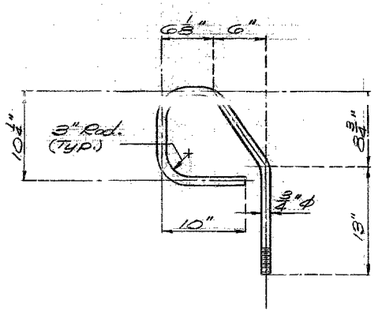
STATE	PROJ. NO.	SHEET NO
MO.		56



SECTION NEAR RIGHT BARRIER CURB - N.B.L.



SECTION NEAR LEFT BARRIER CURB - S.B.L.



ANCHOR BAR DETAIL

Note: Top of barrier curb to be built parallel to grade with barrier curb joints (except at end bents) normal to grade. All exposed edges of barrier curb shall have ½" radius or ¾" bevel unless otherwise noted.

When the barrier curb is bid by linear feet, the contract unit price shall include the cost of all concrete and reinforcement, complete in place.

Concrete in the safety barrier curb shall be [illegible].

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from fill face of end bent to fill face of end bent.

Longitudinal dimensions shown are parallel to grade of top of slab. Longitudinal dimensions are based on original plans.

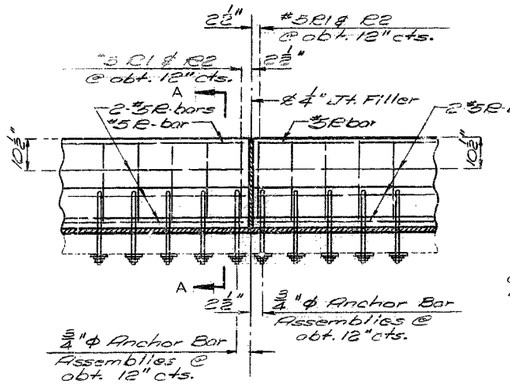
Note: Each anchor bar (A.S.T.M. A-36) shall be furnished with a 4" x 3" x ¾" PL (A.S.T.M. A-36) and one heavy hex. nut (A.S.T.M. A-307).

This entire assembly shall be galvanized in accordance with A.S.T.M. A-123 and A-153.

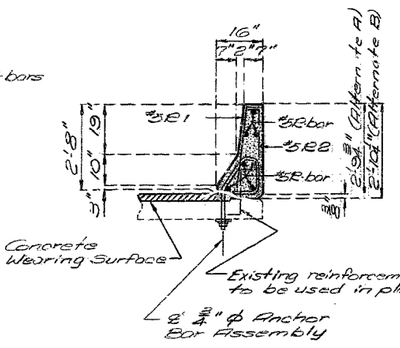
After the concrete in the barrier curb has set, the plate and nut shall be installed and the nut tightened snug tight and the threads burred.

Cost of furnishing and installing anchor bar assemblies shall be included in the price bid per l.n. ft. of barrier curb.

For Optional Anchoring System see Sht. # 2.



PART SECTION NEAR LEFT BARRIER CURB



SECTION A-A

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

DETAILED Sept. 1984
CHECKED Nov. 1984

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

Sheet No. 5 of 9.

PLATTE COUNTY

A-1159R

FOR INFORMATION ONLY

A11595, Sht. 42

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
			BENT 1 NBL																							
15	6H1		DIAPHRAGM		20					10	6.000													10 6	10 6	237
3	6H2		DIAPHRAGM		20					2	9.000													2 9	2 9	12
3	6H3		DIAPHRAGM		20					3	8.000													3 8	3 8	17
1	6H4		DIAPHRAGM		20					33	0.000													33 0	33 0	50
1	6H5		DIAPHRAGM		20					29	9.000													29 9	29 9	45
4	6H6		DIAPHRAGM	E	20					31	6.000													31 6	31 6	189
6	6H7		DIAPHRAGM	E	20					29	11.000													29 11	29 11	270
57	4U1		DIAPHRAGM		19					2	7.500	2	1.500											4 9	4 8	178
57	4U2		DIAPHRAGM	E	19					2	7.500	3	4.000											6 0	5 10	222
118	6V1		DIAPHRAGM		20					18.000														18	18	266
			BENT 1 SBL																							
15	6H1		DIAPHRAGM		20					10	6.000													10 6	10 6	237
3	6H2		DIAPHRAGM		20					2	9.000													2 9	2 9	12
3	6H3		DIAPHRAGM		20					3	8.000													3 8	3 8	17
1	6H4		DIAPHRAGM		20					33	0.000													33 0	33 0	50
1	6H5		DIAPHRAGM		20					29	9.000													29 9	29 9	45
4	6H6		DIAPHRAGM	E	20					31	6.000													31 6	31 6	189
4	6H7		DIAPHRAGM	E	20					29	11.000													29 11	29 11	180
57	4U1		DIAPHRAGM		19					2	7.500	2	1.500											4 9	4 8	178
57	4U2		DIAPHRAGM	E	19					2	7.500	3	4.000											6 0	5 10	222
118	6V1		DIAPHRAGM		20					18.000														18	18	266
			BENT 4 NBL																							
15	6H1		DIAPHRAGM		20					10	6.000													10 6	10 6	237
3	6H2		DIAPHRAGM		20					2	9.000													2 9	2 9	12
3	6H3		DIAPHRAGM		20					3	8.000													3 8	3 8	17
1	6H4		DIAPHRAGM		20					33	0.000													33 0	33 0	50
1	6H5		DIAPHRAGM		20					29	9.000													29 9	29 9	45
4	6H6		DIAPHRAGM	E	20					31	6.000													31 6	31 6	189
4	6H7		DIAPHRAGM	E	20					29	11.000													29 11	29 11	180
5	4U1		DIAPHRAGM		19					2	7.500	2	1.500											4 9	4 8	178
57	4U2		DIAPHRAGM	E	19					2	7.500	3	4.000											6 0	5 10	222
57	6V1		DIAPHRAGM		20					18.000														18	18	128
			BENT 4 SBL																							
15	6H1		DIAPHRAGM		20					10	6.000													10 6	10 6	237
3	6H2		DIAPHRAGM		20					2	9.000													2 9	2 9	12
3	6H3		DIAPHRAGM		20					3	8.000													3 8	3 8	17
1	6H4		DIAPHRAGM		20					33	0.000													33 0	33 0	50
1	6H5		DIAPHRAGM		20					29	9.000													29 9	29 9	45
4	6H6		DIAPHRAGM	E	20					31	6.000													31 6	31 6	189
4	6H7		DIAPHRAGM	E	20					29	11.000													29 11	29 11	180
57	4U1		DIAPHRAGM		19					2	7.500	2	1.500											4 9	4 8	178
57	4U2		DIAPHRAGM	E	19					2	7.500	3	4.000											6 0	5 10	222
57	6V1		DIAPHRAGM		20					18.000														18	18	128
			BENT 4 SBL																							
15	6H1		DIAPHRAGM		20					10	6.000													10 6	10 6	237
3	6H2		DIAPHRAGM		20					2	9.000													2 9	2 9	12
3	6H3		DIAPHRAGM		20					3	8.000													3 8	3 8	17
1	6H4		DIAPHRAGM		20					33	0.000													33 0	33 0	50
1	6H5		DIAPHRAGM		20					29	9.000													29 9	29 9	45
4	6H6		DIAPHRAGM	E	20					31	6.000													31 6	31 6	189
4	6H7		DIAPHRAGM	E	20					29	11.000													29 11	29 11	180
57	4U1		DIAPHRAGM		19					2	7.500	2	1.500											4 9	4 8	178
57	4U2		DIAPHRAGM	E	19					2	7.500	3	4.000											6 0	5 10	222
57	6V1		DIAPHRAGM		20					18.000														18	18	128

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.
			CURB AND PARAPET																							
22	SC1		CURB AND PARAPET	E	19	S				2	0.000		7.000											2 7	2 6	57
22	SC2		CURB AND PARAPET	E	12	S				2	0.000		7.000											3 2	3 1	71
6	SC3		CURB AND PARAPET	E	19	S				2	11.000		7.000											3 6	3 5	29
18	SC4		CURB AND PARAPET	E	11	S				11	.000		13.000		13.500		13.000							5 4	4 11	92
12	SC5		CURB AND PARAPET	E	20					3	..													3 2	3 2	40
12	SC6		CURB AND PARAPET	E	20					4	2.000													4 2	4 2	52
8	SC7		CURB AND PARAPET	E	12	S				2	11.000		7.000											4 1	4 0	33
			BARRIER CURB																							
386	5R1		BARRIER CURB	E	15					2	7.125		3.500							2	7.000		3.000	2 11	2 9	1107
386	5R2		BARRIER CURB	E	19					2	7.000		3.500											2 11	2 9	1107
7	5R3		BARRIER CURB	E	20					40	6.000													40 6	40 6	296
58	5R4		BARRIER CURB	E	20					9	9.000													9 9	9 9	580
14	5R5		BARRIER CURB	E	20					56	9.000													56 9	56 9	829
7	5R6		BARRIER CURB	E	20					35	5.000													35 5	35 5	259
7	5R7		BARRIER CURB	E	20					39	7.000													39 7	39 7	289
7	5R8		BARRIER CURB	E	20					36	6.000													36 4	36 4	265
16	5R10		BARRIER CURB	E	13	S					6.000	2	0.000		6.000	2	0.000							5 11	5 7	93
12	5R11		BARRIER CURB	E	27	S					12.000		9.000		11.125		6.000				6.375		9.125	3 2	3 0	38
12	5R12		BARRIER CURB	E	11	S							12.000		18.000		6.000							3 0	2 10	35
4	5R13		BARRIER CURB	E	20						20.000													20	20	7
24	5R14		BARRIER CURB	E	20					3	5.000													3 5	3 5	86
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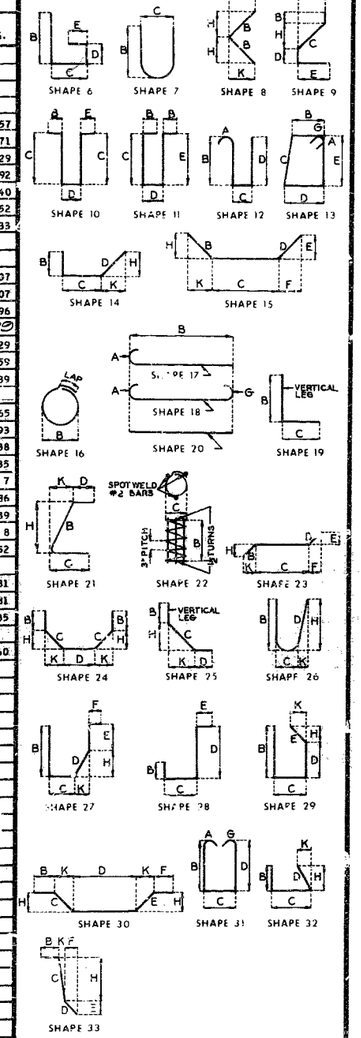
2	5R16		BARRIER CURB	E	20					3	11.000													3 11	3 11	8
12	5R17		BARRIER CURB	E	20					4	2.000													4 2	4 2	52
16	5H50		CLOSURE WALL	E	20					4	10.000													4 10	4 10	81
16	5H51		CLOSURE WALL	E	19						7.250	4	3.000								4.000		6.000	4 10	4 10	81
8	5H52		CLOSURE WALL	E	20						2.000													4 2	4 2	35
40	5V50		CLOSURE WALL	E	20					3	10.000													3 10	3 10	160
			END OF BAR LIST																							

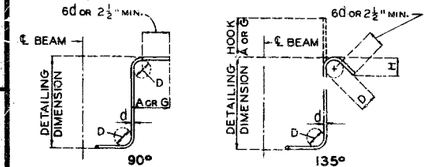
Note: Two additional #4U2, #5R4 and #6H7 are included in bar bill for testing.

BENDING DIAGRAMS



STATE	PROJ NO	SHEET NO
MO		57

STD. 90.8	REVISED
MAY 1974	MAY 1983



DETAILED Nov. 1984
CHECKED Nov. 1984

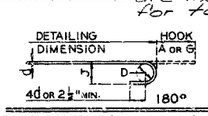
STIRRUP HOOK DIMENSIONS

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
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

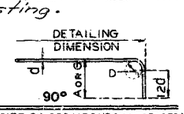
NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

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



SIZE OF 180° HOOKS (GRADE 40 KSI)

D = 5d FOR #3 THRU #11
D = 10d FOR #14 AND #18



SIZE OF 90° HOOKS (ALL GRADES) AND 180° HOOKS (GRADE 60 KSI)

D = 6d FOR #3 THRU #8
D = 8d FOR #9, #10 AND #11
D = 10d FOR #14 AND #18

END HOOK DIMENSIONS

BAR SIZE	180° HOOKS GRADE 40 A OR G	180° HOOKS GRADE 40 J	180° HOOKS GRADE 60 A OR G	180° HOOKS GRADE 60 J	90° HOOKS ALL GRADES A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21-0"
#14	21-2"	20-1/2"	21-2"	20-1/2"	21-7"

NOTES.

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E - EPOXY COATED REINFORCEMENT.
S - STIRRUP.
X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. - NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

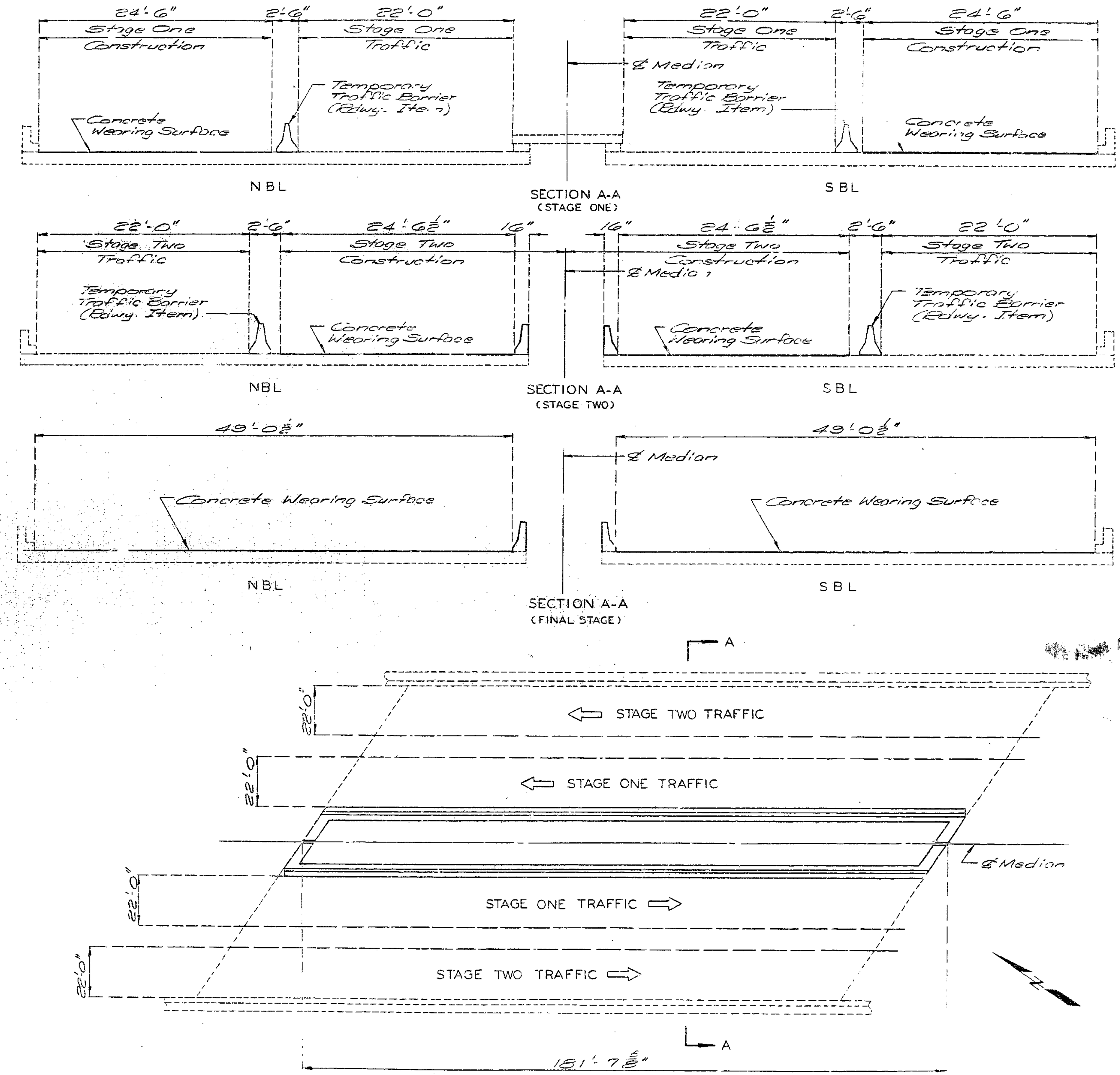
PLATTE COUNTY A-1159R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	49	

SEC./SUR. 20&29 TWP. 5 N RGE. 33W



PLAN OF SLAB
DETAILS OF TRAFFIC AND CONSTRUCTION STAGES

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. 1977 and Interims thru 1982

Design Unit Stresses:
Class B1 Concrete — f'c = 4,000 psi
Reinforcing Steel (Grade 60) — fy = 60,000 psi

Joint Filler:
All joint filler shall meet the requirement of Std. Spec. 1057.2.4. except as noted.

Reinforcing Steel:
Minimum clearance to reinforcing shall be 1½" unless otherwise shown.

Traffic:
Traffic over structure to be maintained during construction.

Construction Clearance:
A minimum vertical clearance of 14'-9" from crown of existing lanes and a minimum lateral clearance of 28'-0" centered on existing lanes shall be maintained during construction.

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

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

Approach Slab:
Taper roadway surfacing at bridge ends to match concrete wearing surface. (Rdwy. Item)

Paint:
Areas to be encased in end bent concrete shall be painted one coat of System C primer and scratched or damaged surfaces are to be touched up before concrete is poured.

System B by contractor in accordance with Std. Spec. 712.13. Color of the final coat for System B shall be aluminum.

FINAL QUANTITIES		
ITEM		TOTAL
Concrete Wearing Surface * Alt. B	Sq. Yd.	1979
Repairing Concrete Deck (Half-soling)	Sq. Ft.	3139
Full Depth Repair	Sq. Ft.	76
Safety Barrier Curb	Lin. Ft.	363
Class B1 Concrete	Cu. Yd.	90.7
Reinforcing Steel	Lb.	2940
Painting **	Lump Sum	1
Special Work	Lump Sum	1
Reinforcing Steel (Epoxy Coated)	Lb.	2460

* See Job Special Provisions for alternate use of concrete wearing surface. ~~Alternate "A" = 1¾" (min) Latex Modified [illegible]~~. Alternate "B" = 2¼" (min.) Low Slump Concrete.
** Approximately 36.0 Tons of existing steel are to be painted.

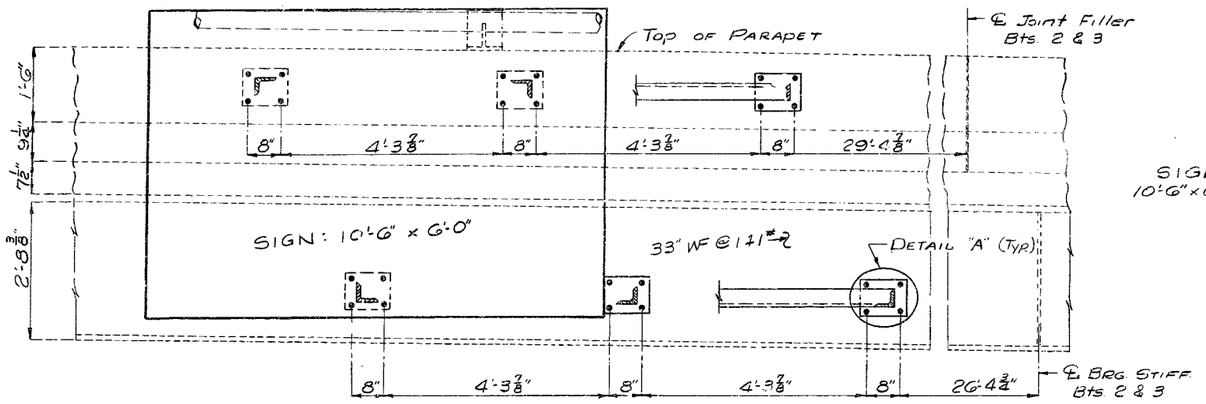
B.M.

REPAIRS TO
BRIDGE OVER RTE. 45
STATE ROAD - INTERSTATE ROUTE 29
IN KANSAS CITY
STA. 828 +02.28± (S.B.L.)
STA. 828 +46.24± (N.B.L.)
PROJECT NO. IR-29-1(80)
JOB NO. 4-I029-137C
RTE. I-29
PLATTE COUNTY
STD.
STD. 706.35
DATE December 17, 1984

DESIGNED Sept. 1984
DETAILED Sept. 1984
CHECKED Nov. 1984

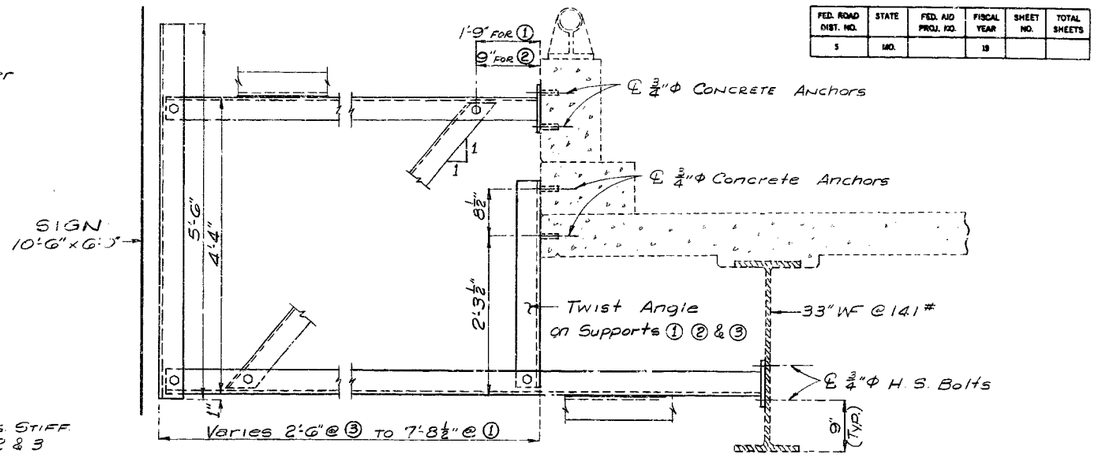
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 9



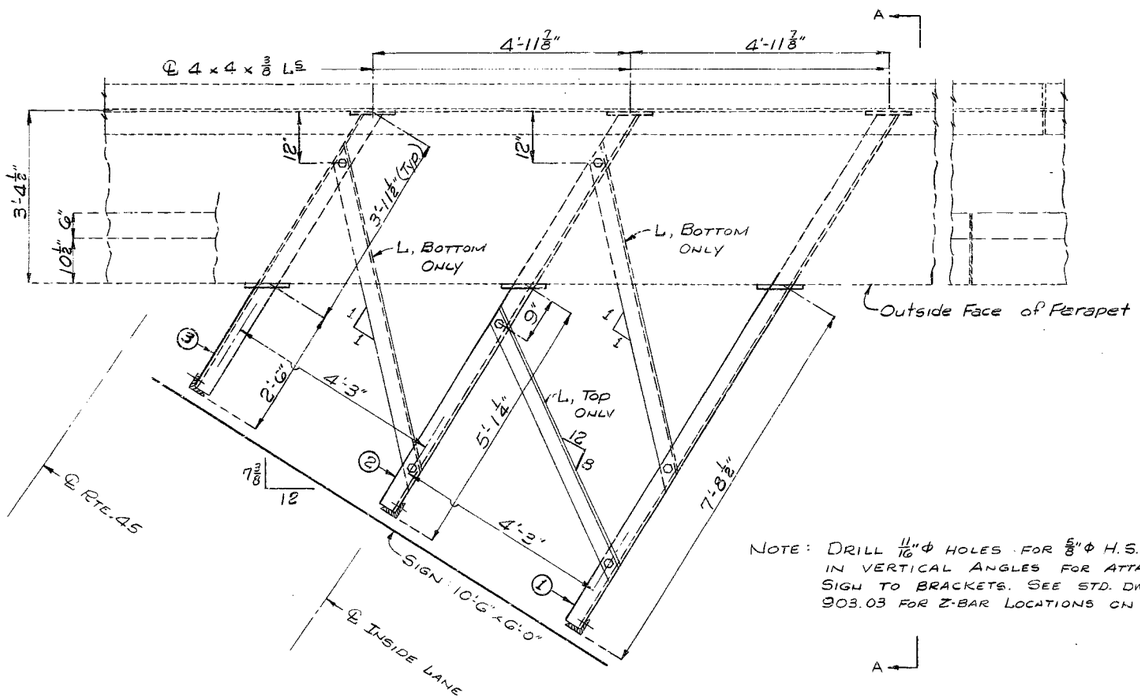
PARTIAL ELEVATION

OVER E. BOUND RTE. 45 SHOWN
W. BOUND SIMILAR EXCEPT OPPOSITE GRADE



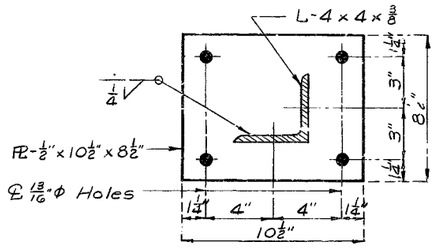
SECTION A-A

NOTE: ALL ANGLES SHALL BE 4x4x⅜



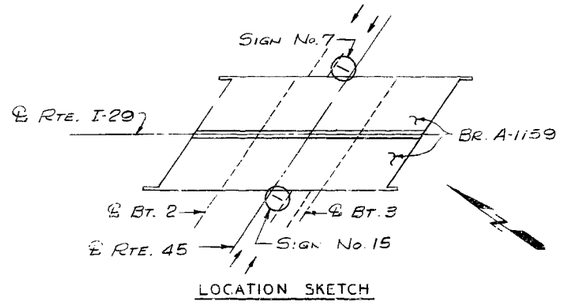
PARTIAL PLAN

NOTE: DRILL 11/16"Φ HOLES FOR ⅝"Φ H.S. BOLTS IN VERTICAL ANGLES FOR ATTACHING SIGN TO BRACKETS. SEE STD. DWGS 903.03 FOR Z-BAR LOCATIONS ON SIGN.



DETAIL "A"

SEE ELEVATION FOR DIRECTION OF L.S.



LOCATION SKETCH

GENERAL NOTES

STRUCTURAL STEEL SHALL BE A.S.T.M. A36, GALVANIZED

FIELD CONNECTIONS HIGH STRENGTH BOLTS ⅝"Φ, HOLES 11/16"Φ EXCEPT AS NOTED. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. THE TURN-OF-NUT METHOD OF OBTAINING BOLT TENSION FOR HIGH STRENGTH BOLTS MAY BE USED (SEE STD. SPEC. 712.11.2)

CONCRETE ANCHORS SHALL BE THE NON-DRILLING EXPANSION TYPE. THEY SHALL HAVE A CERTIFIED CONCRETE PULL-OUT STRENGTH (ULTIMATE LOAD) OF AT LEAST 15,500 POUNDS IN 3500 psi CONCRETE. THE HOLE SHALL BE PRE-DRILLED WITH A CONVENTIONAL CARBIDE MASONRY BIT.

THE COST OF FURNISHING AND ERECTING THE SIGN SUPPORTS, INCLUDING THE CONCRETE ANCHORS COMPLETE IN PLACE, SHALL BE PAID FOR AS FABRICATED SIGN SUPPORT BRACKETS, LUMP SUM.

CENTER AND LEVEL SIGN ON BRACKETS.

SIGNS TO BE FURNISHED BY OTHERS.

BRIDGE: SIGN SUPPORT BRACKETS

STATE ROAD: INTERSTATE RTE. I-29 & RTE. 45

JOB NO. J--4 I-29-464

LATTE COUNTY

A-1159A

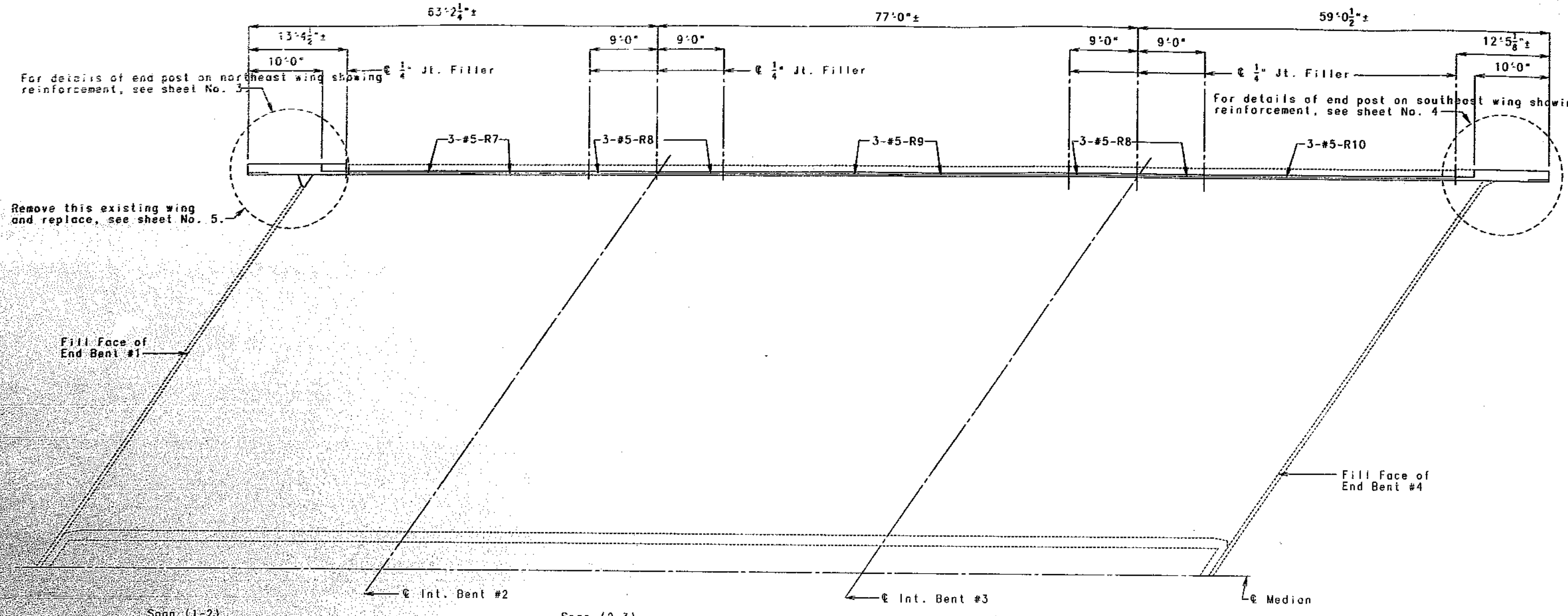
230

DETAILED JULY 1983
CHECKED AUG. 1983

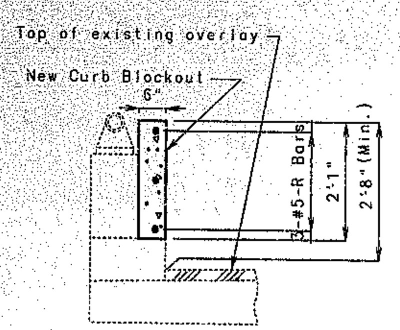
Note: This drawing is not to scale. Follow dimensions.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

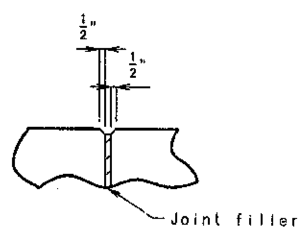
STATE	PROJ. NO.	SHEET NO.
MO.		137
SEC./SUR. 20 & 29 TWP. 51N RGE. 33W		



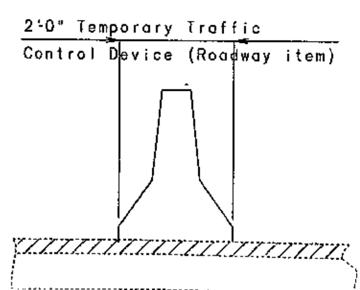
PLAN OF CURB BLOCKOUT SHOWING REINFORCEMENT (NORTHBOUND ROADWAY)



TYPICAL SECTION THRU CURB BLOCKOUT



FILLED JOINT DETAIL



DETAIL OF TEMPORARY TRAFFIC BARRIER

ESTIMATED QUANTITIES		
ITEM		TOTAL
Curb Blockout	Lin.Ft.	199
*Rehabilitation of Existing Wing	Lump Sum	1

* Cost of partial removal of wing, resin anchors, excavation, Class B1 Concrete and reinforcing steel for northeast wing at Bent #1 to be included in bid price for rehabilitation of existing wing. (See Special Provisions)

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1996

DESIGN UNIT STRESSES:
Class B1 Concrete (Curb Blockout & End Bent Wing) f'c=4000 psi
Reinforcing Steel (Grade 60) fy=60,000 psi

JOINT FILLER:
All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.

REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.

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

VERIFY DIMENSIONS:
Contractor shall verify dimensions in field before ordering new material.

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

The contractor shall use one of the resin anchor systems listed in the job special provisions for the curb blockout. These anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that an epoxy coated #5 grade 60 reinforcing bar as shown shall be substituted for the ⅝"ø threaded rod stud.

Cost of furnishing and installing the anchor systems complete in place shall be included in the price bid per linear foot of curb blockout.

· The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 18,600 lbs. in concrete with f'c= 4000 psi. See special provisions.

NOTES FOR CURB BLOCKOUT
Concrete in curb blockout shall be Class B1.
Measurement of curb blockout is to the nearest linear foot measured at the gutter line from end of wing to end of wing.
All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.
Payment for concrete and reinforcing steel in curb blockout complete in place shall be included in the contract unit price for the curb blockout per linear foot.
Cost of any concrete end post and curb removal shall be considered completely covered in the contract unit price for the curb blockout per linear foot.
Minimumm lap for R-bar reinforcement to be 2'11".

TRAFFIC HANDLING:
See roadway plans for traffic control during construction.

EXISTING PARAPET RAILING:
Where parapet is removed reattach parapet railing to new concrete using ¾"x10" anchor bolts. Leave set screws out of rail post for expansion. Cost to be included in unit price for curb blockout.

EXISTING LOW SLUMP CONCRETE OVERLAY:
Any damage to the existing low slump concrete overlay shall be repaired or replaced as directed by the engineer. No direct payment will be made for any replacement or repairs to the low slump concrete overlay.

EXISTING SLOPE PROTECTION:
Contractor shall be responsible for any damage to existing paved slope protection.

REPAIRS TO: BRIDGE OVER ROUTE 45

STATE ROAD FROM RTE. I-635 TO RTE. 152
ABOUT 2 MILES NW OF RTE. I-635
PROJECT NO. STA. 828+46.24 (MATCH EXISTING)
JOB NO. J411246 RTE. I-29 (NBL)
PLATTE COUNTY

STD.
STD.
DATE 1/27/98
A11592

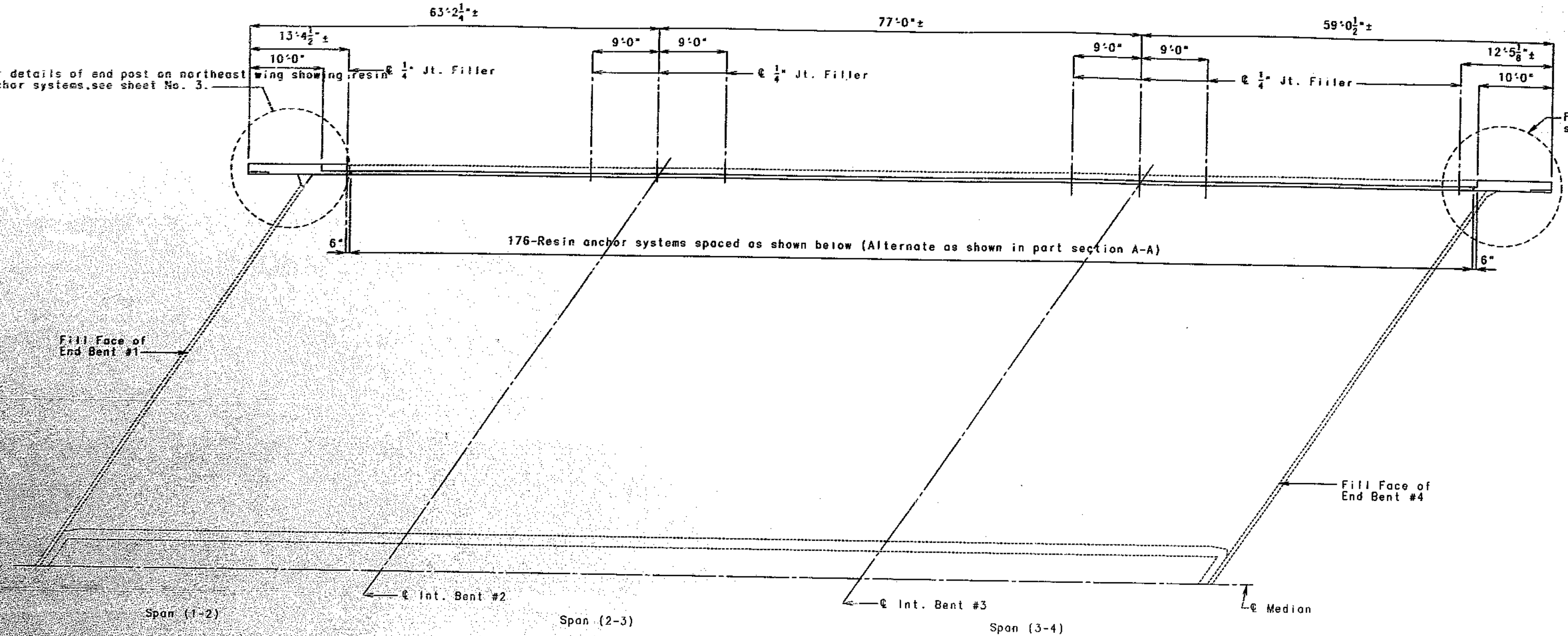
STATE OF MISSOURI MICHAEL D. HARMS ... PROFESSIONAL ENGINEER
DATE 1/13/98

DESIGNED MAY 1997
DETAILED MAY 1997
CHECKED DEC. 1997

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

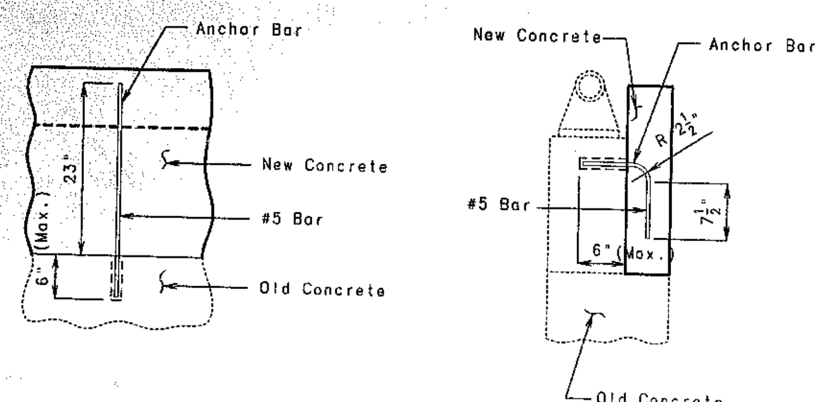
226

STATE	PROJ. NO.	SHEET NO.
MO.		138

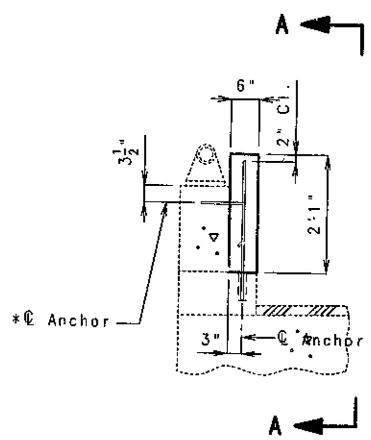


PLAN OF CURB BLOCKOUT SHOWING RESIN ANCHOR SPACING (NORTHBOUND ROADWAY)

Note: Curb Blockout Joint Filler shall match those of Existing Structure.

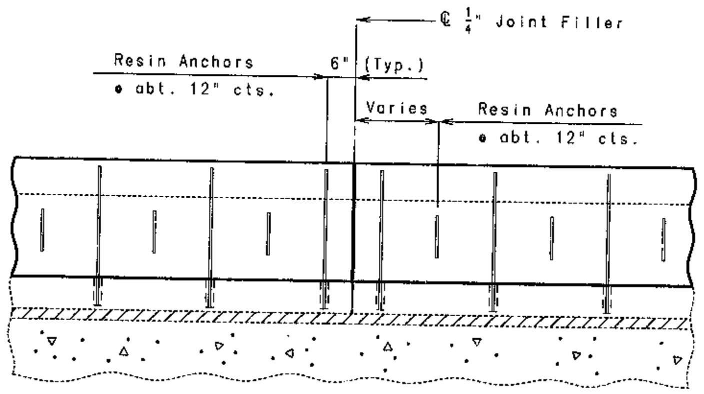


RESIN ANCHOR SYSTEMS DETAILS



TYPICAL SECTION THRU CURB

* Shift Resin Anchors to clear existing steel anchor bolts for tube rail.



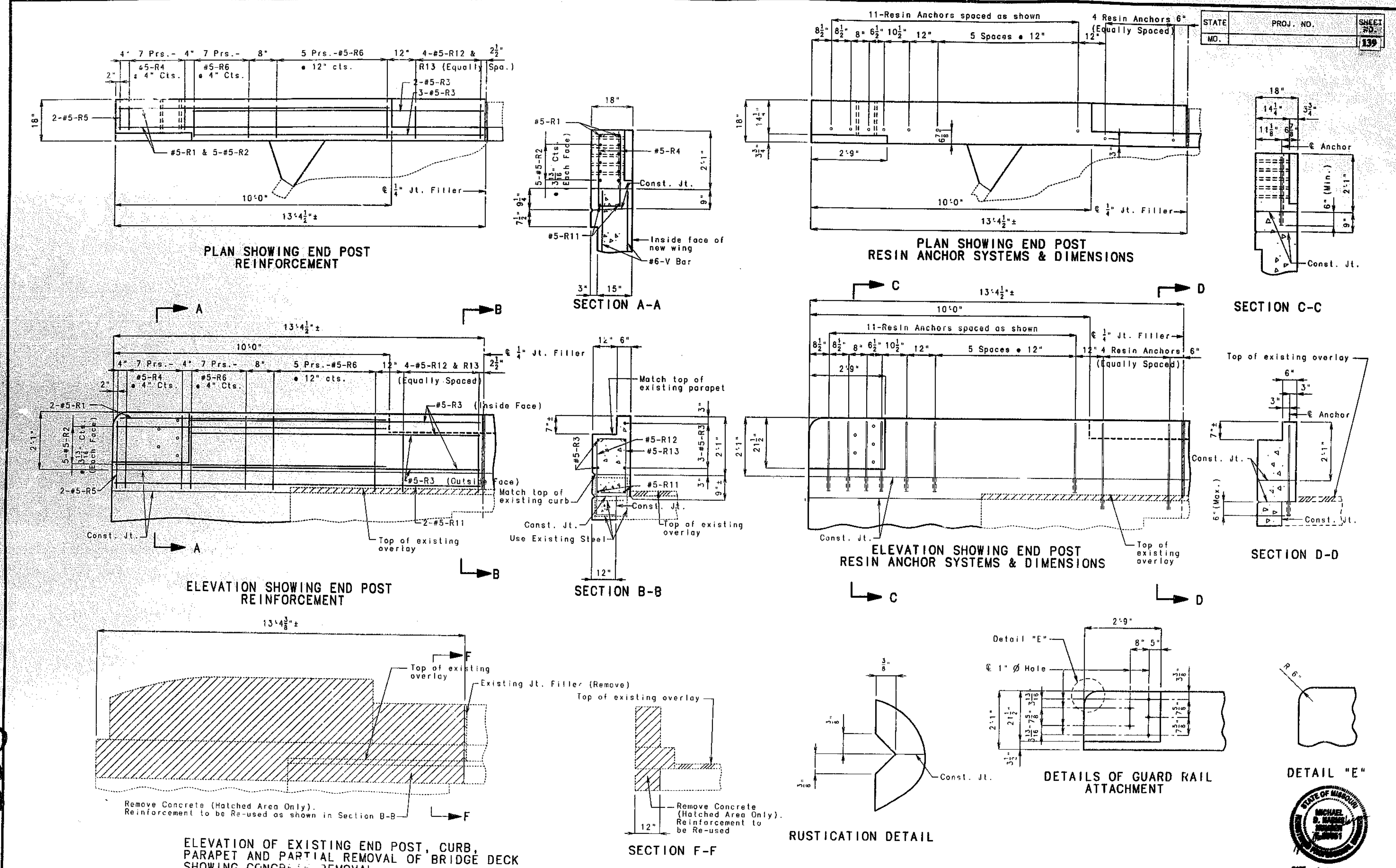
PART SECTION A-A

DETAILED MAY 1997
CHECKED DEC. 1997

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

SHEET NO. 2 OF 6.

PLATTE COUNTY


STATE MO. PROJ. NO. SHEET NO. 139
PLAN SHOWING END POST REINFORCEMENT
SECTION A-A
PLAN SHOWING END POST RESIN ANCHOR SYSTEMS & DIMENSIONS
SECTION C-C
ELEVATION SHOWING END POST REINFORCEMENT
SECTION B-B
ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS & DIMENSIONS
SECTION D-D
11-Resin Anchors spaced as shown
4 Resin Anchors 6" (Equally Spaced)
5 Spaces @ 12"
Const. Jt.
Top of existing overlay
Match top of existing parapet
Match top of existing curb
Use Existing Steel
Inside face of new wing
#6-V Bar
Existing Jt. Filler (Remove)
Remove Concrete (Hatched Area Only). Reinforcement to be Re-used as shown in Section B-B
Remove Concrete (Hatched Area Only). Reinforcement to be Re-used
ELEVATION OF EXISTING END POST, CURB, PARAPET AND PARTIAL REMOVAL OF BRIDGE DECK SHOWING CONCRETE REMOVAL
SECTION F-F
RUSTICATION DETAIL
DETAILS OF GUARD RAIL ATTACHMENT
DETAIL "E"
Detail "E"
℄ 1" Ø Hole
℄ Anchor
R 6"

Note: For limit [illegible] of removal of wing see sheet No. 5.

DETAILS OF END POST ON NORTHEAST WING

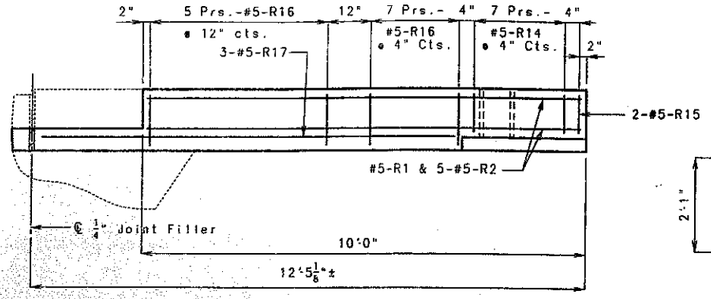
DETAILED NOV. 1997
CHECKED DEC. 1997

SHEET NO. 3 OF 6.

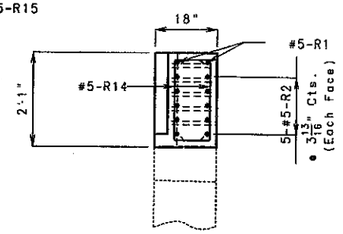
PLATTE COUNTY

A11592

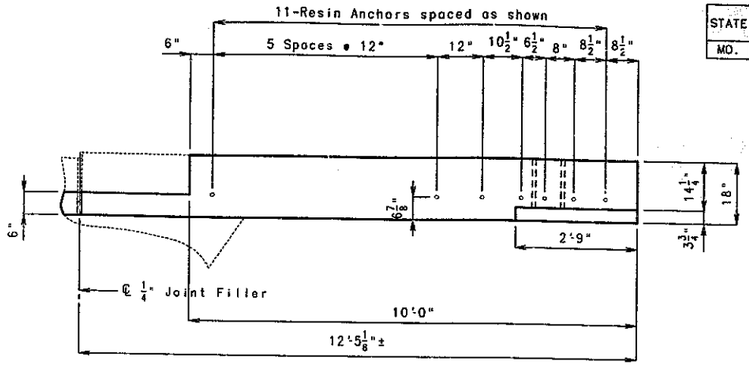
STATE	PROJ. NO.	SHEET NO.
MO.		140



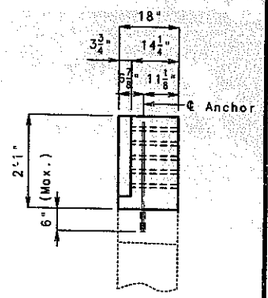
PLAN SHOWING END POST REINFORCEMENT



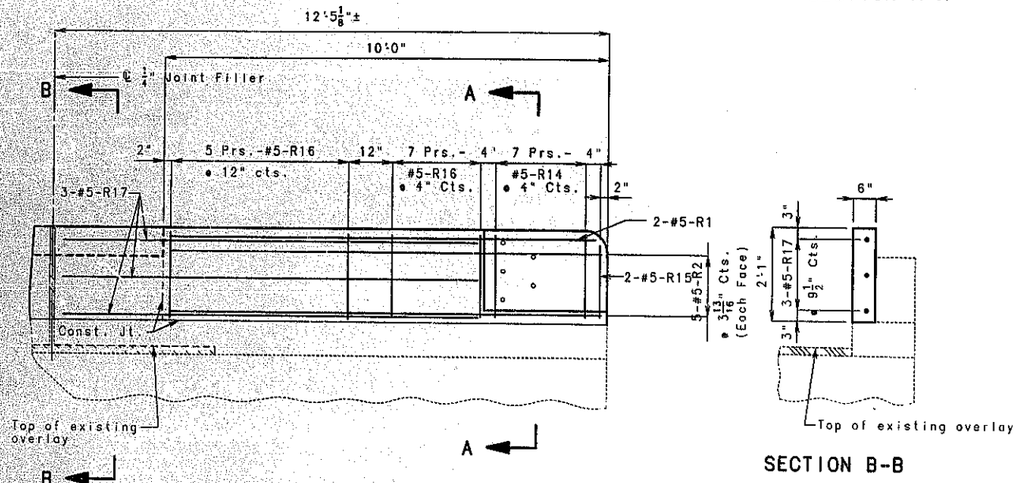
SECTION A-A



PLAN SHOWING END POST RESIN ANCHOR SYSTEMS & DIMENSIONS

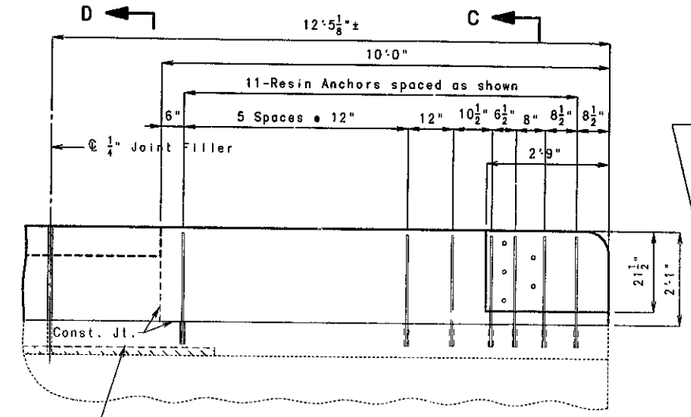


SECTION C-C

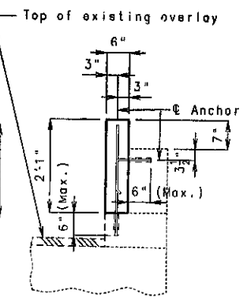


ELEVATION SHOWING END POST REINFORCEMENT

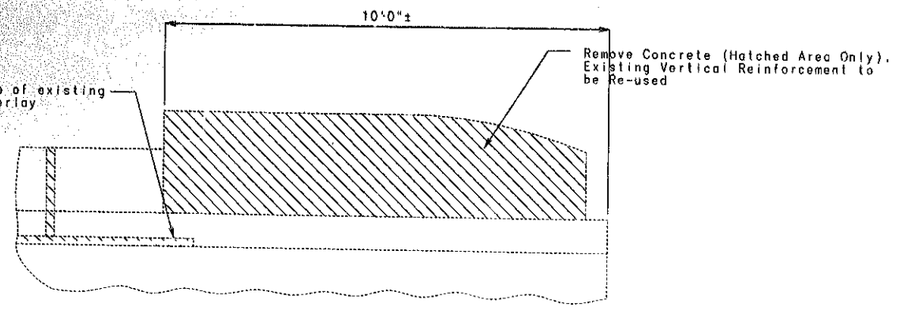
SECTION B-B



ELEVATION SHOWING END POST RESIN ANCHOR SYSTEMS & DIMENSIONS



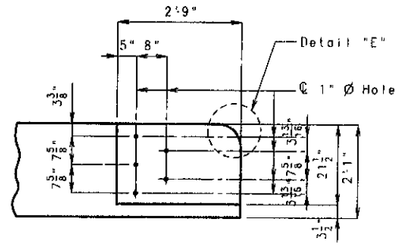
SECTION D-D



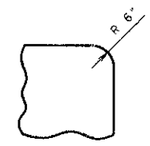
ELEVATION OF EXISTING END POST SHOWING CONCRETE REMOVAL

D

C



DETAILS OF GUARD RAIL ATTACHMENT



DETAIL "E"

STATE OF WISCONSIN
MICHAEL S. HACKE
NUMBER E-25651
REGISTERED PROFESSIONAL ENGINEER
DATE 1/16/98

DETAILS OF END POST ON SOUTHEAST WING

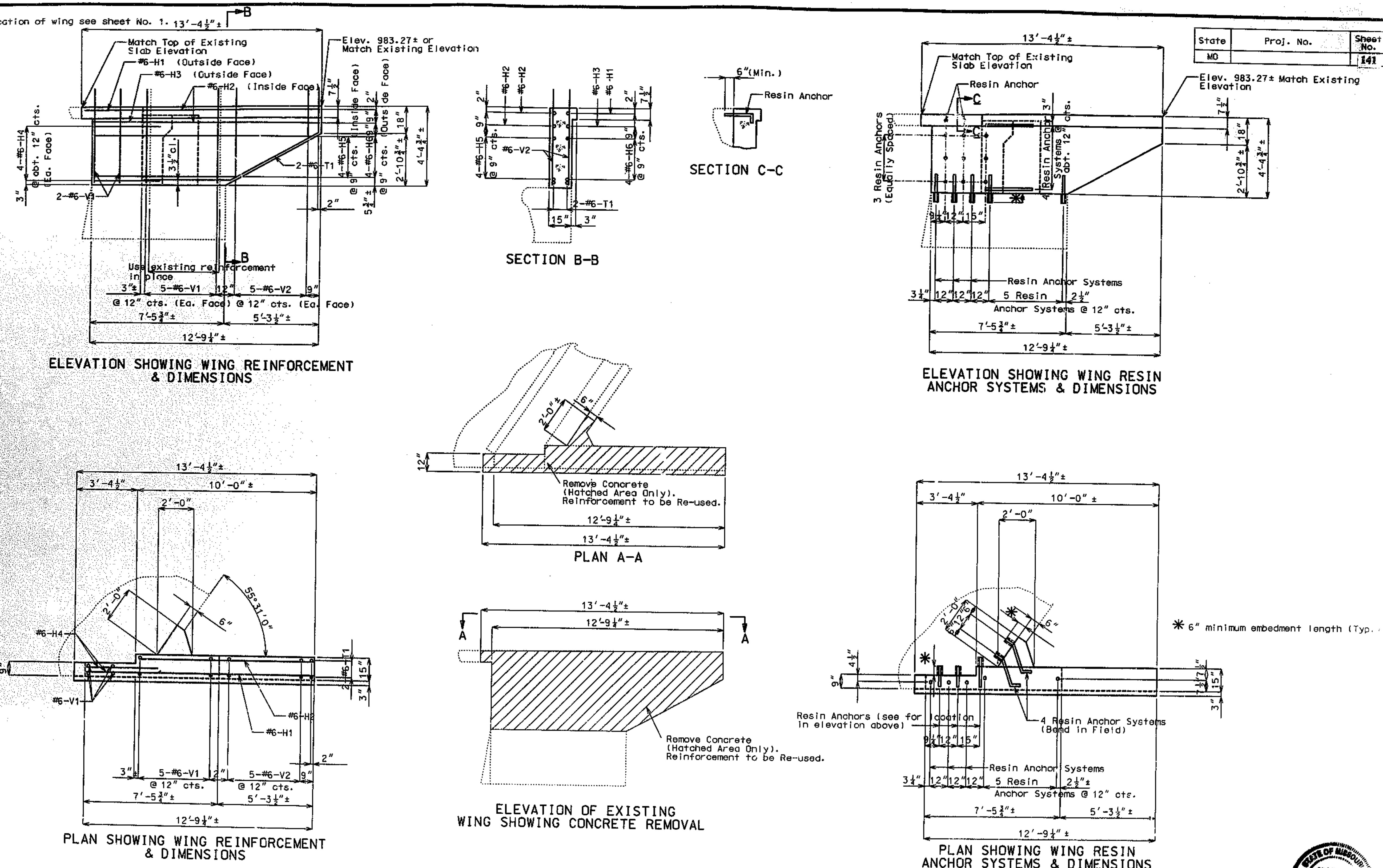
DETAILED NOV. 1997
CHECKED DEC. 1997

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

PLATTE COUNTY A11592

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

State	Proj. No.	Sheet No.
MO		141


ELEVATION SHOWING WING REINFORCEMENT & DIMENSIONS
SECTION B-B
SECTION C-C
ELEVATION SHOWING WING RESIN ANCHOR SYSTEMS & DIMENSIONS
PLAN A-A
PLAN SHOWING WING REINFORCEMENT & DIMENSIONS
ELEVATION OF EXISTING WING SHOWING CONCRETE REMOVAL
PLAN SHOWING WING RESIN ANCHOR SYSTEMS & DIMENSIONS
Match Top of Existing Slab Elevation
Elev. 983.27± or Match Existing Elevation
Use existing reinforcement in place
Remove Concrete (Hatched Area Only). Reinforcement to be Re-used.
Resin Anchor
4 Resin Anchor Systems (Bend in Field)
* 6" minimum embedment length (Typ.)

DETAILS SHOWING REHABILITATION OF NORTHEAST WING AT BENT #1

DETAILED DEC. 1997
CHECKED DEC. 1997

PLATTE COUNTY A115

230

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE 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.
4	5 R1	BLOCKOUT	E	20					9 7.000							9 7	9 7	40
22	5 R2	BLOCKOUT	E	20					9 9.000							9 9	9 9	224
5	5 R3	BLOCKOUT	E	20					10 4.000							10 4	10 4	54
14	5 R4	BLOCKOUT	E	10	S					11.250	2 7.000					4 6	4 3	62
2	5 R5	BLOCKOUT	E	10	S					11.250	2 5.000					4 4	4 1	9
24	5 R6	BLOCKOUT	E	10	S					15.000	2 7.000					5 1	4 11	123
6	5 R7	BLOCKOUT	E	20					21 9.000							21 9	21 9	136
12	5 R8	BLOCKOUT	E	20					8 8.000							8 8	8 8	108
6	5 R9	BLOCKOUT	E	20					30 10.000							30 10	30 10	193
3	5 R10	BLOCKOUT	E	20					37 3.000							37 3	37 3	117
2	5 R11	BLOCKOUT	E	20					13 1.000							13 1	13 1	27
-	5 R12	BLOCKOUT	E	6	S				15.000	2 7.000	9.000					4 7	4 5	18
4	5 R13	BLOCKOUT	E	10	S					15.000	2 0.000					4 6	4 4	18
14	5 R14	BLOCKOUT	E	10	S					11.250	22.000					3 9	3 6	51
2	5 R15	BLOCKOUT	E	10	S					11.250	20.000					3 7	3 4	7
24	5 R16	BLOCKOUT	E	10	S					15.000	22.000					4 4	4 2	104
3	5 R17	BLOCKOUT	E	20					9 5.000							9 5	9 5	29
1	6 H3	N.E. WING	E	20					13 1.000							13 1	13 1	20
8	6 H2	N.E. WING	E	20					9 9.000							9 9	9 9	88
1	6 H3	N.E. WING	E	20					12 6.000							12 6	12 6	19
8	6 H4	N.E. WING	E	20					4 2.000							4 2	4 2	50
4	6 H5	N.E. WING	E	20			V	1	5 2.000							5 2	5 2	
		INCREMENT = 16.375 INCH							9 3.000							9 3	9 3	43
4	6 H6	N.E. WING	E	20			V	1	7 11.000							7 11	7 11	
		INCREMENT = 16.375 INCH							12 0.000							12 0	12 0	60
2	6 T1	N.E. WING	E	25	S				2 0.875	5 6.375	4 10.000			2 7.875	4 10.250	12 5	12 4	37
14	6 V1	N.E. WING	E	20					4 10.000							4 10	4 10	102
10	6 V2	N.E. WING	E	20			V	2	2 4.500							2 5	2 5	
		INCREMENT = 6.500 INCH							4 7.000							4 7	4 7	53

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE 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: MO. | PROJ. NO. | SHEET NO. 142

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 · SHAPE 22 · SHAPE 23 · SHAPE 24 · SHAPE 25 · SHAPE 26 · SHAPE 27 · SHAPE 28 · SHAPE 29 · SHAPE 31 · SHAPE 30 · SHAPE 32 · SHAPE 36 · SHAPE 35 · SHAPE 34 · SHAPE 33

SPOT WELD AASHTO M32 SIZE W5 WIRE (TYP.)

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

BENDING DIAGRAMS

231

REVISED	DATE
STD 90.8	OCT. 1991
MAY 1974	

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

90° STIRRUP · 135° STIRRUP

DETAILED DEC. 1997
CHECKED DEC. 1997

STIRRUP HOOK DIMENSIONS

GRADES 40 - 50 - 60 KSI

BAR SIZE	D (IN.)	90° HOOK A OR G	135° 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° · 12d · 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"	8"
#4	3"	8"	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"

TWO ADDITIONAL #5-R2 & #6-H2 ARE INCLUDED IN THE BAR BILL FOR TESTING.

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG 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.

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

STATE OF MISSOURI · MICHAEL D. HARMS · NUMBER E-25651 · REGISTERED PROFESSIONAL ENGINEER

DATE 1/15/98

SHEET NO. 6 OF 6.

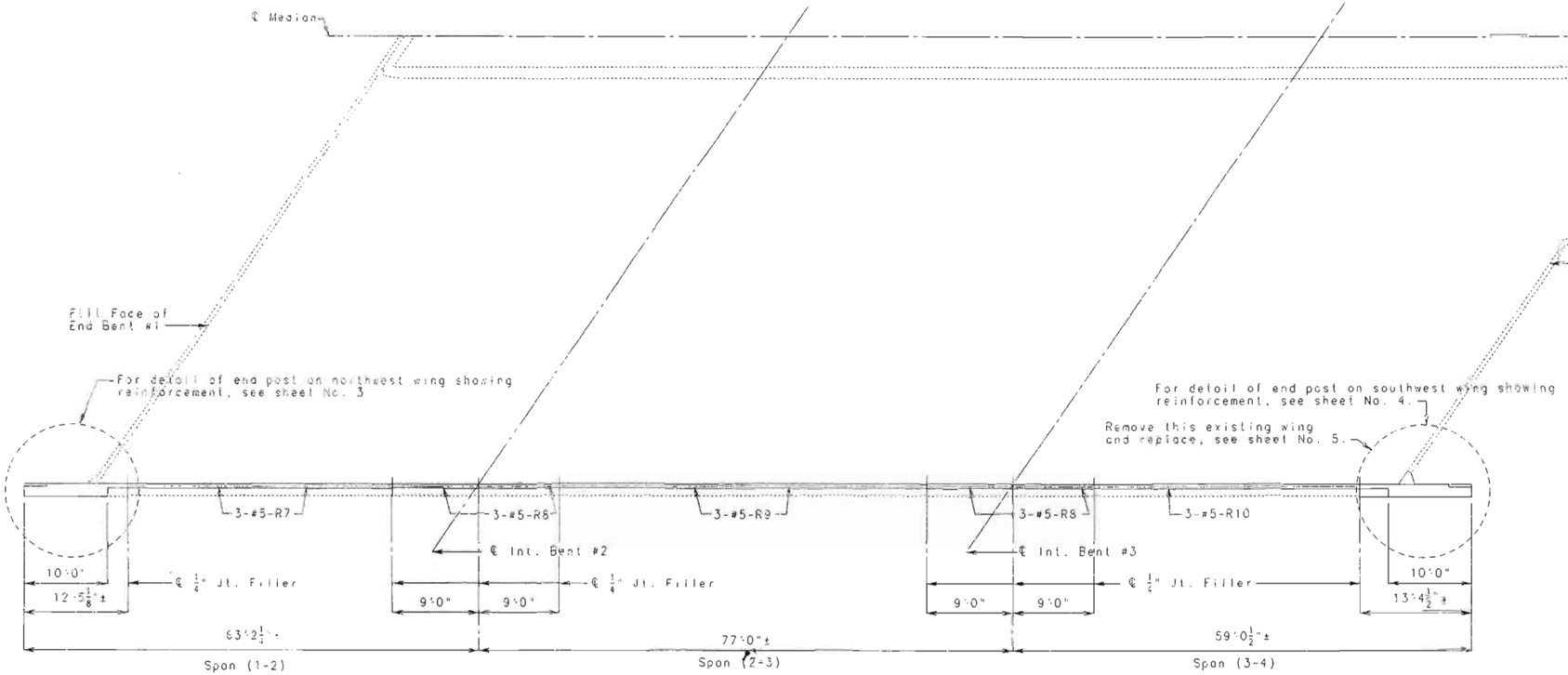
PLATTE COUNTY

A11592

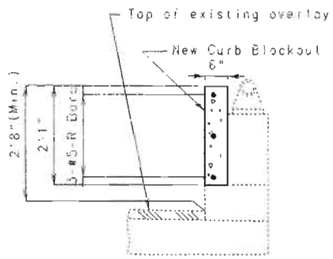
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		143

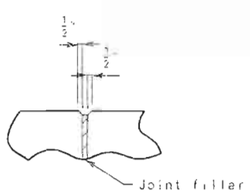
SEC./SUR. 20 & 29 TWP. 51N RGE. 33W



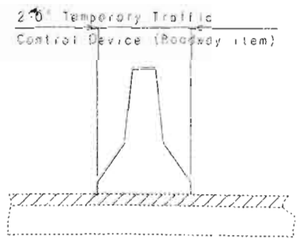
PLAN OF CURB BLOCKOUT SHOWING REINFORCEMENT (SOUTHBOUND ROADWAY)



TYPICAL SECTION
THRU CURB BLOCKOUT



FILLED JOINT DETAIL



DETAIL OF TEMPORARY
TRAFFIC BARRIER

ESTIMATED QUANTITIES		
ITEM		TOTAL
Curb Blockout	Lin.Ft.	199
*Rehabilitation of Existing Wing	Lump Sum	1

* Cost of partial removal of wing, resin anchors, excavation, Class B1 Concrete and reinforcing steel for southwest wing at Bent #4 to be included in bid price for rehabilitation of existing wing. (See Special Provisions)

GENERAL NOTES:

DESIGN SPECIFICATIONS:
A.A.S.H.T.O.-1996

DESIGN UNIT STRESSES:
Class B1 Concrete (Curb Blockout & End Bent Wing) f'c=4000 psi
Reinforcing Steel (Grade 60) fy=60,000 psi

JOINT FILLER:
All joint filler shall meet the requirements of Std. Spec. 1057.2.4, except as noted.

REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.

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

VERIFY DIMENSIONS:
Contractor shall verify dimensions in field before ordering new material.

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

The contractor shall use one of the resin anchor systems listed in the job special provisions for the curb blockout. These anchor systems shall be installed according to the manufacturer's specifications, except as modified by the job special provisions and that an epoxy coated #5 grade 60 reinforcing bar as shown shall be substituted for the ⅝"ø threaded rod stud.

Cost of furnishing and installing the anchor systems complete in place shall be included in the price bid per linear foot of curb blockout.

The 5/8" diameter resin anchor systems shall have a minimum ultimate pullout strength of 18,600 lbs. in concrete with f'c= 4000 psi. See special provisions.

NOTES FOR CURB BLOCKOUT
Concrete in curb blockout shall be Class B1. Measurement of curb blockout is to the nearest linear foot measured at the gutter line from end of wing to end of wing.
All exposed edges of curb blockout shall have 1/2" radius or 3/8" bevel unless otherwise shown.
Payment for concrete and reinforcing steel in curb blockout complete in place shall be included in the contract unit price for the curb blockout per linear foot.
Cost of any concrete end post and curb removal shall be considered completely covered in the contract unit price for the curb blockout per linear foot.
Minimum lap for R-bar reinforcement to be 2'-11".

TRAFFIC HANDLING:
See roadway plans for traffic control during construction.

EXISTING PARAPET RAILING:
Where parapet is removed reattach parapet railing to new concrete using ¾"x10" anchor bolts. Leave set screws out of rail post for expansion. Cost to be included in unit price for curb blockout.

EXISTING LOW SLUMP CONCRETE OVERLAY:
Any damage to the existing low slump concrete overlay shall be repaired or replaced as directed by the engineer. No direct payment will be made for any replacement or repairs to the low slump concrete overlay.

EXISTING SLOPE PROTECTION:
Contractor shall be responsible for any damage to existing paved slope protection.

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-28651
REGISTERED PROFESSIONAL ENGINEER
DATE 11/5/98

REPAIRS TO: BRIDGE OVER ROUTE 45

STATE ROAD FROM RTE. I-635 TO RTE. 152
ABOUT 2 MILES NW OF RTE. I-635
PROJECT NO. STA. 828+02.28 (MATCH EXISTING)
JOB NO. J411246 RTE. I-29 (SBL)

PLATTE COUNTY

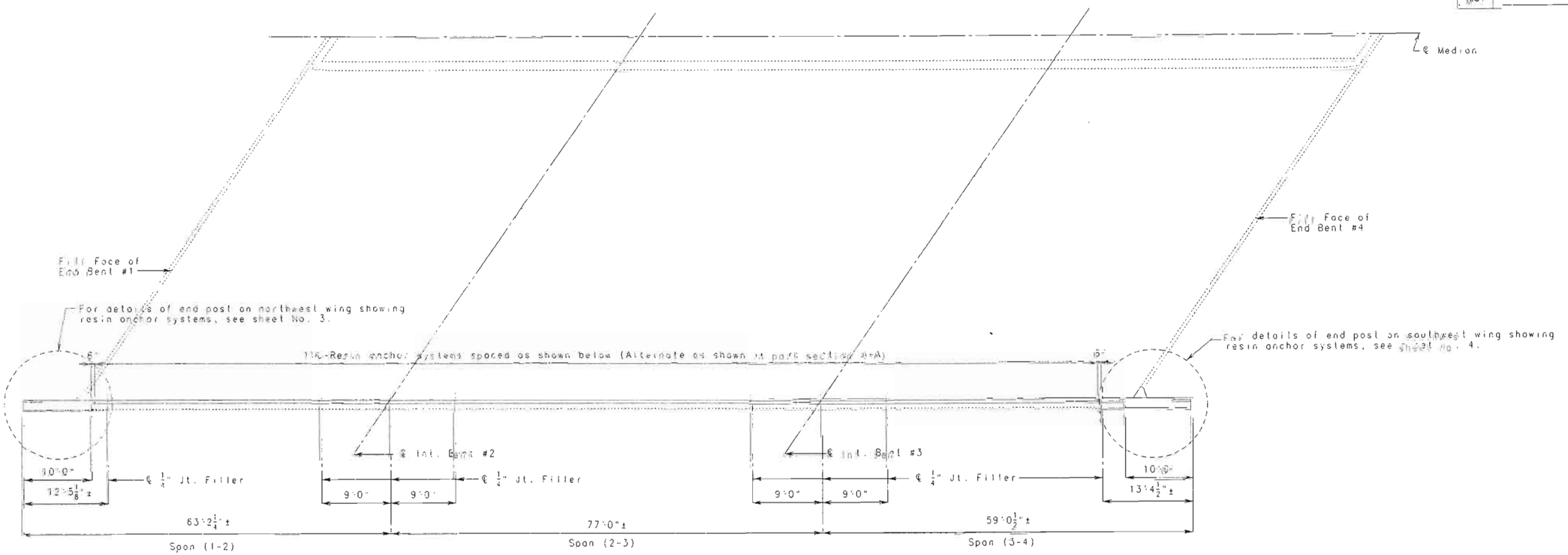
DATE 1/27/98

STD.
STD.
A11593

DESIGNED MAY 1997
DETAILED MAY 1997
CHECKED DEC. 1997

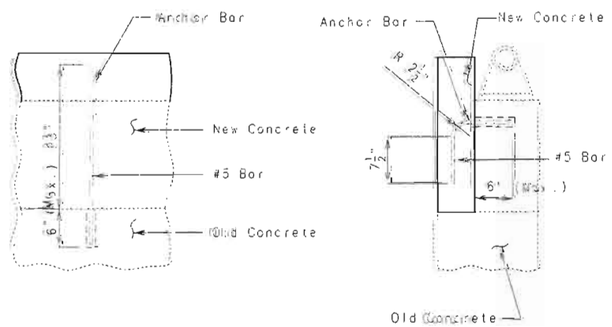
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

STATE	PROJ. NO.	SHEET NO.
MO.		144

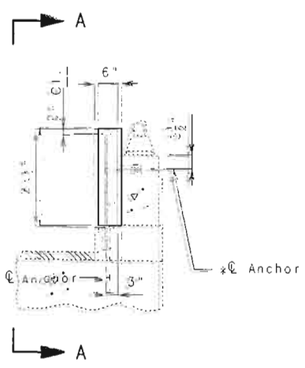


PLAN OF CURB BLOCKOUT SHOWING RESIN ANCHOR SPACING (SOUTHBOUND ROADWAY)

Note: Curb Blockout Joint Filler shall match those of Existing Structure.

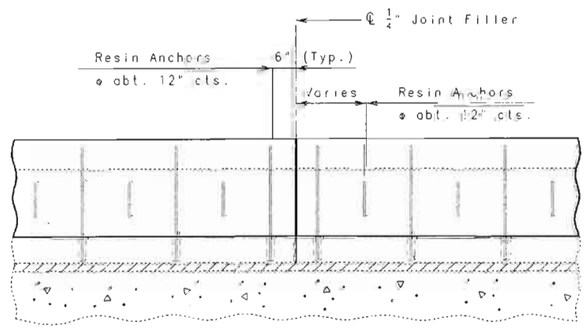


RESIN ANCHOR SYSTEMS DETAILS



TYPICAL SECTION THRU CURB

* Shift Resin Anchors to clear existing steel anchor bolts for tube rail.



PART SECTION A-A

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-26651
REGISTERED PROFESSIONAL ENGINEER

DATE 1/15/98

DETAILED: MAY 1997
CHECKED: DEC. 1997

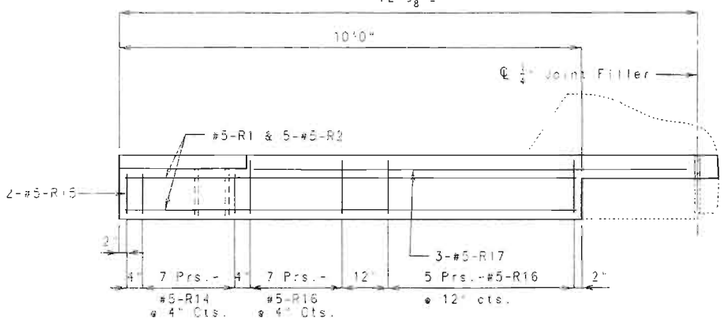
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2 OF 6

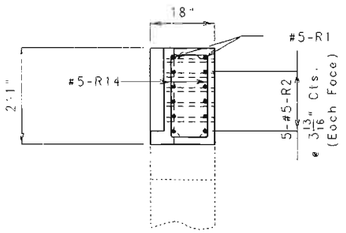
PLATTE COUNTY

A11593

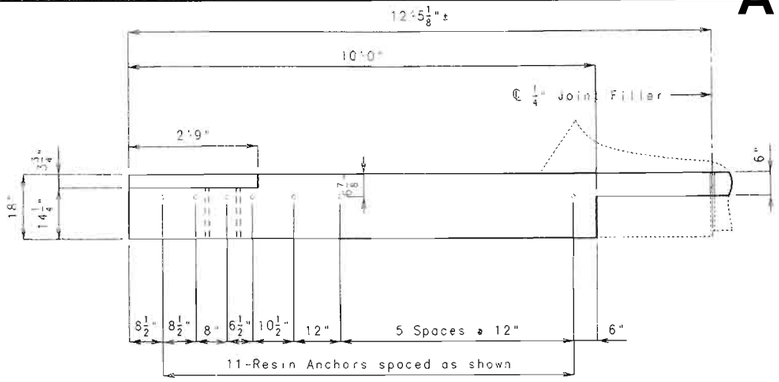
STATE	PROJ. NO.	SHEET NO.
MO.		145



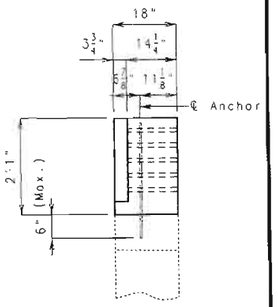
PLAN SHOWING END POST REINFORCEMENT



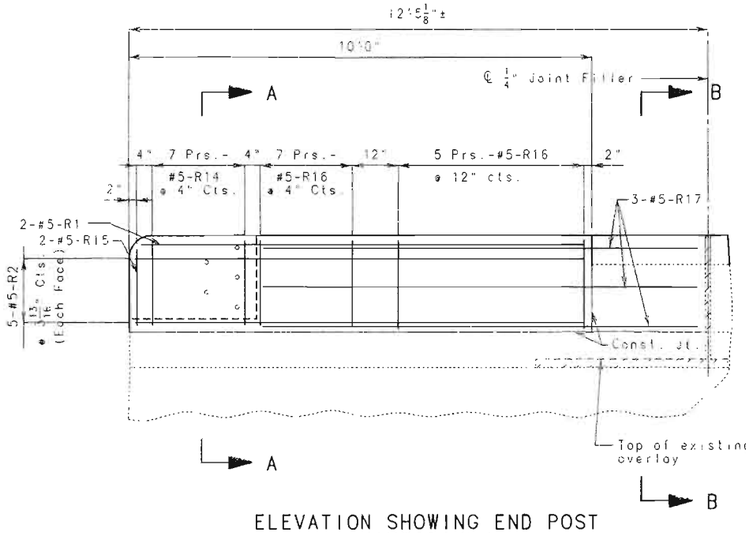
SECTION A-A



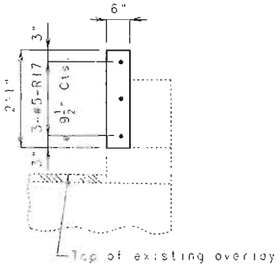
PLAN SHOWING END POST
RESIN ANCHOR SYSTEMS & DIMENSIONS



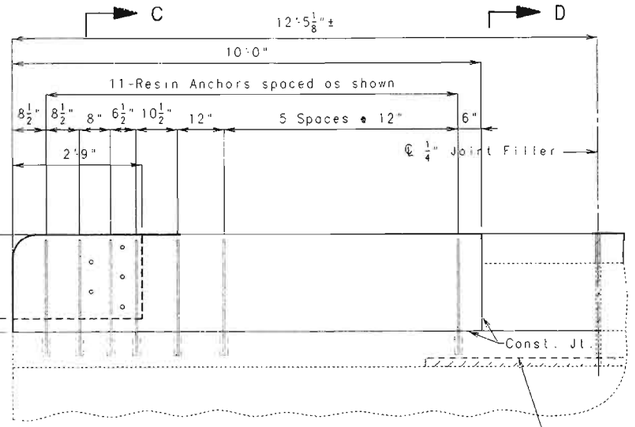
SECTION C-C



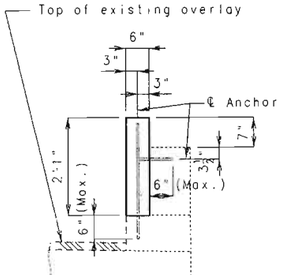
ELEVATION SHOWING END POST
REINFORCEMENT



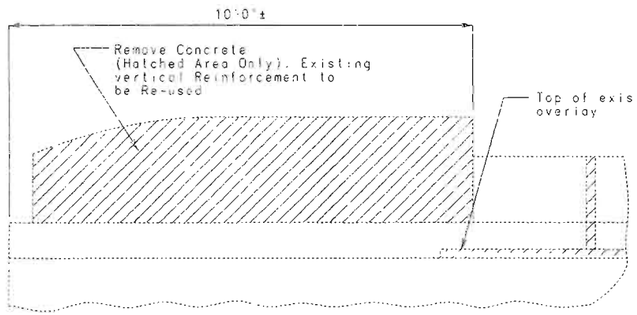
SECTION B-B



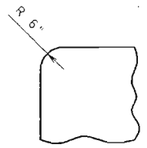
ELEVATION SHOWING END POST
RESIN ANCHOR SYSTEMS & DIMENSIONS



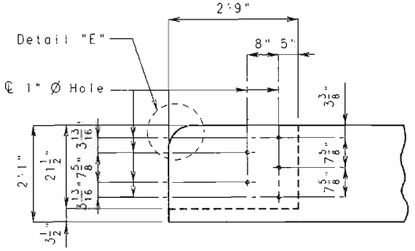
SECTION D-D



ELEVATION OF EXISTING END POST
SHOWING CONCRETE REMOVAL



DETAIL "E"



DETAILS OF GUARD RAIL
ATTACHMENT

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-26851
REGISTERED PROFESSIONAL ENGINEER

DATE 11/13/98

DETAILS OF END POST ON NORTHWEST WING

DETAILED NOV. 1997
CHECKED DEC. 1997

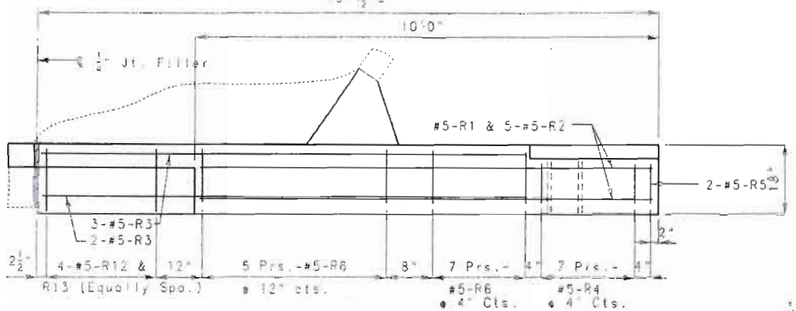
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

SHEET NO. 3 OF 6.

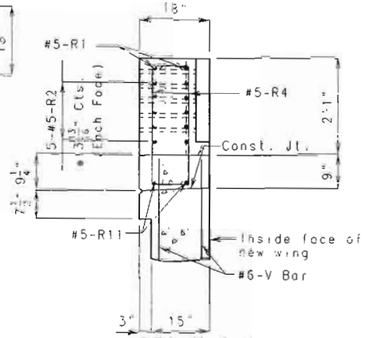
PLATTE COUNTY

A11593

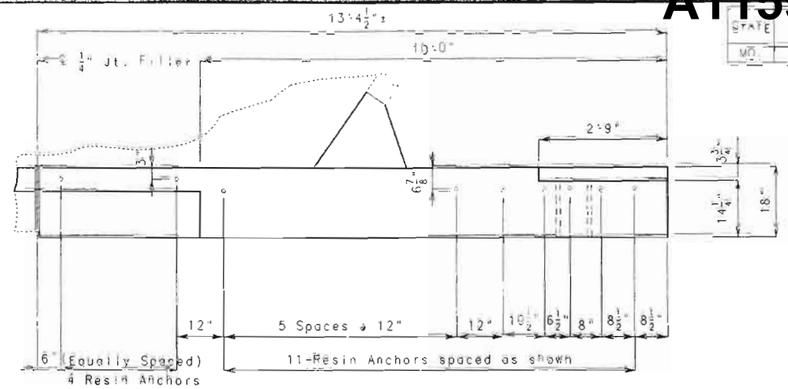
STATE	PROJ. NO.	SHEET NO.
MO.		146



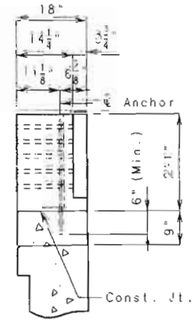
PLAN SHOWING END POST
REINFORCEMENT



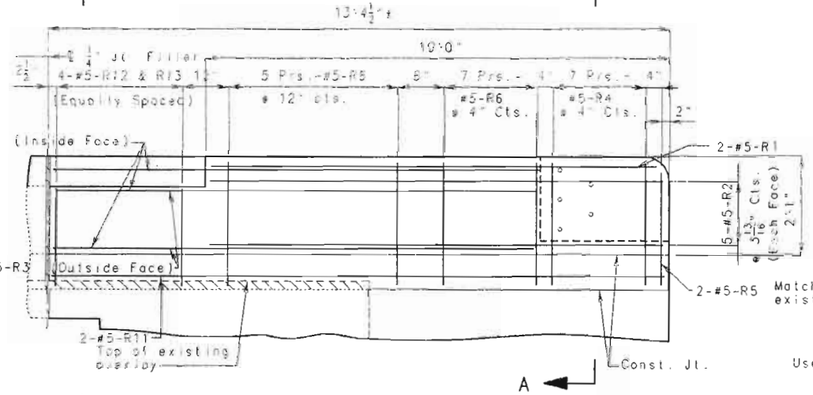
SECTION A-A



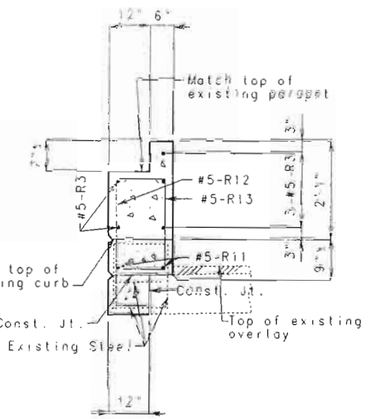
PLAN SHOWING END POST
RESIN ANCHOR SYSTEMS & DIMENSIONS



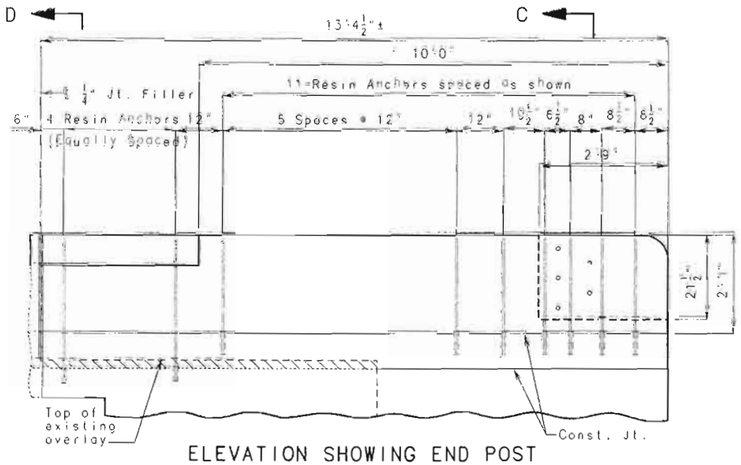
SECTION C-C



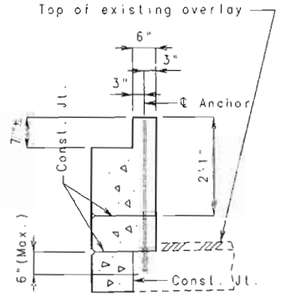
ELEVATION SHOWING END POST
REINFORCEMENT



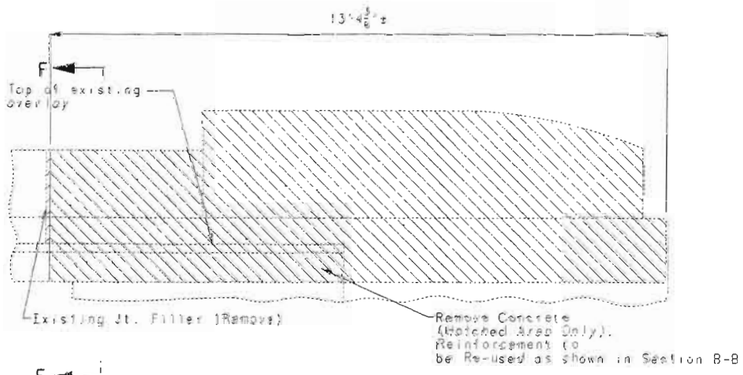
SECTION B-B



ELEVATION SHOWING END POST
RESIN ANCHOR SYSTEMS & DIMENSIONS

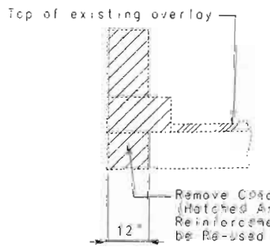


SECTION D-D

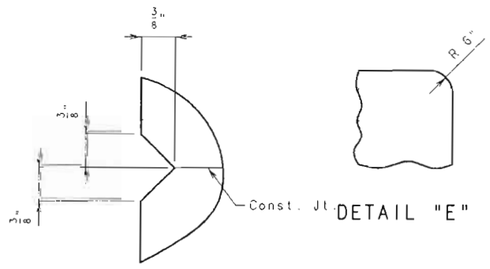


ELEVATION OF EXISTING END POST, CURB,
PARAPET AND PARTIAL REMOVAL OF BRIDGE DECK
SHOWING CONCRETE REMOVAL

Note: For limits of removal of wing see sheet No. 5.

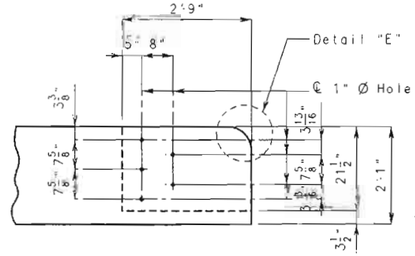


SECTION F-F



RUSTICATION DETAIL

DETAIL "E"



DETAILS OF GUARD RAIL
ATTACHMENT

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-26651
REGISTERED PROFESSIONAL ENGINEER

DATE 1/15/98

DETAILED NOV. 1997
CHECKED DEC. 1997

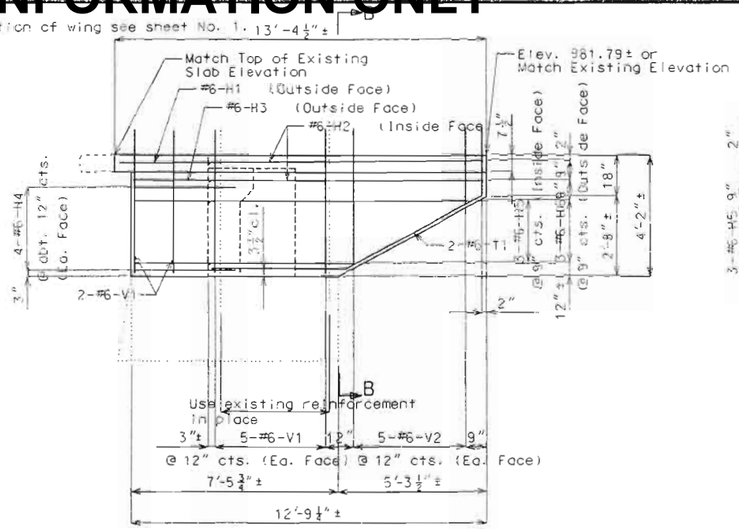
DETAILS OF END POST ON SOUTHWEST WING

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

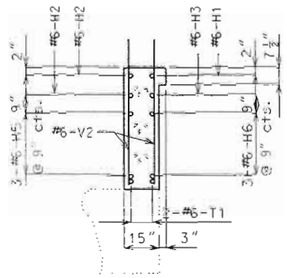
PLATTE COUNTY

A11593

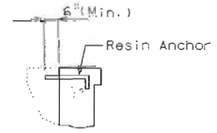
Note: For location of wing see sheet No. 1.



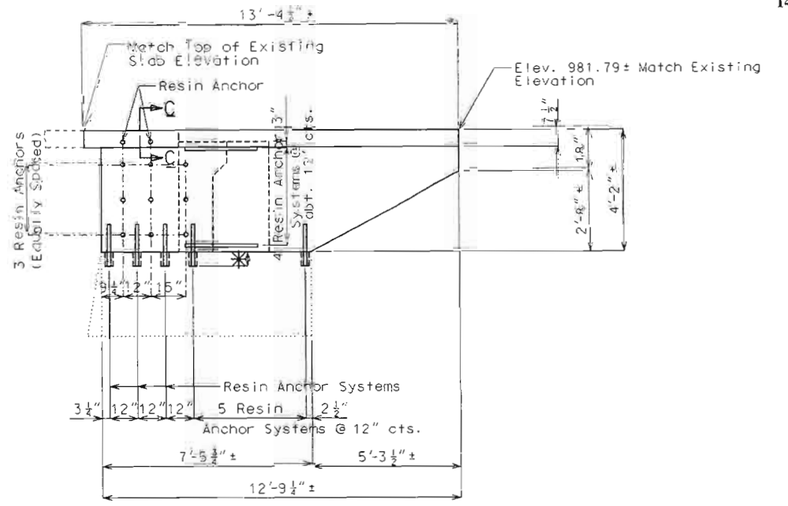
ELEVATION SHOWING WING REINFORCEMENT & DIMENSIONS



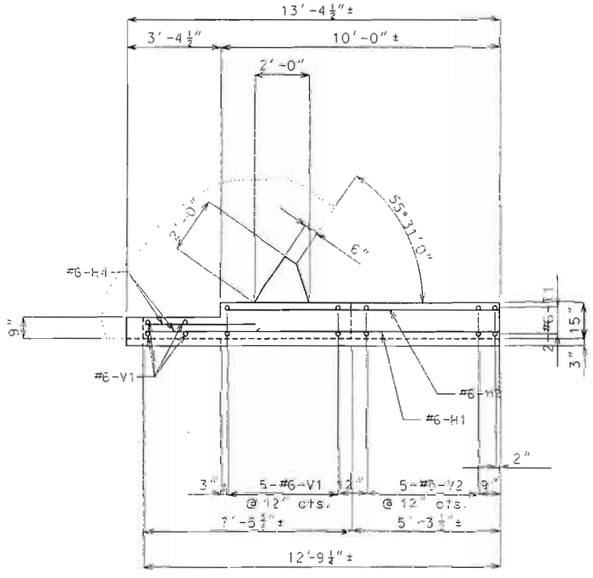
SECTION B-B



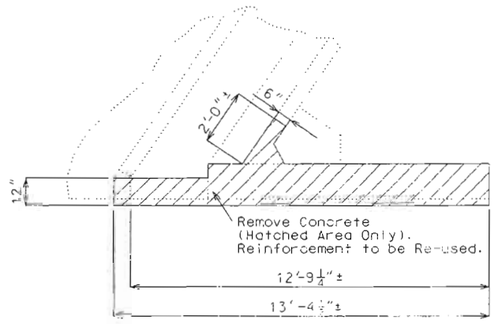
SECTION C-C



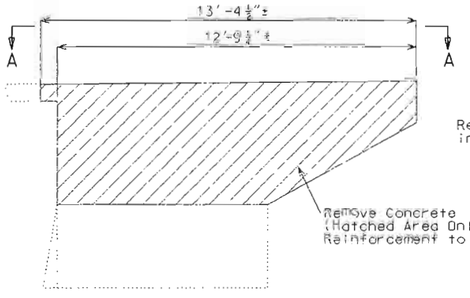
ELEVATION SHOWING WING RESIN ANCHOR SYSTEMS & DIMENSIONS



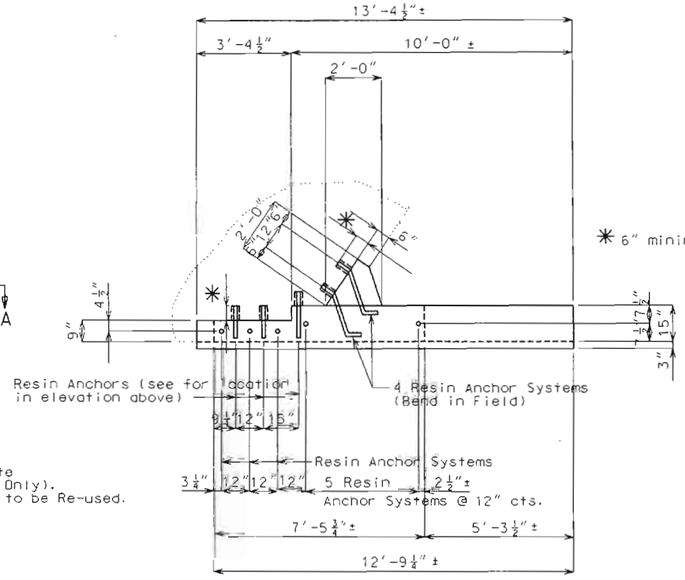
PLAN SHOWING WING REINFORCEMENT & DIMENSIONS



PLAN A-A



ELEVATION OF EXISTING WING SHOWING CONCRETE REMOVAL



PLAN SHOWING WING RESIN ANCHOR SYSTEMS & DIMENSIONS

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER PE-28651
REGISTERED PROFESSIONAL ENGINEER
DATE 11/15/93

DETAILS SHOWING REHABILITATION OF SOUTHWEST WING AT BENT #4

Detailed Nov. 1997
Checked DEC. 1997

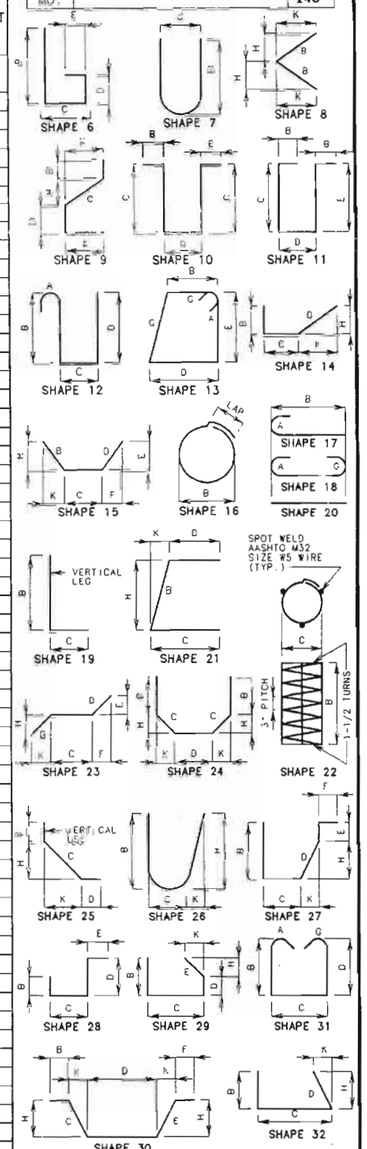
BILL OF REINFORCING STEEL

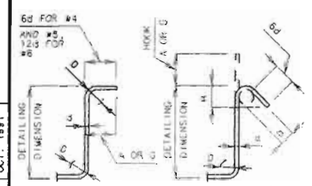
NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B	C	D	E	F	H	K	NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
									FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	LBS.
4	5 R1	BLOCKOUT	E	20					9 7.000							9 7	9 7	40
22	5 R2	BLOCKOUT	E	20					9 9.000							9 9	9 9	224
5	5 R3	BLOCKOUT	E	20					10 4.000							10 4	10 4	54
14	5 R4	BLOCKOUT	E	10	S					11.250	2 7.000					4 6	4 3	62
2	5 R5	BLOCKOUT	E	10	S					11.250	2 5.000					4 4	4 1	9
24	5 R6	BLOCKOUT	E	10	S					15.000	2 7.000					5 1	4 11	125
6	5 R7	BLOCKOUT	E	20					22 3.000							22 3	22 3	139
12	5 R8	BLOCKOUT	E	20					8 3.000							8 3	8 3	103
6	5 R9	BLOCKOUT	E	20					30 10.000							30 10	30 10	188
3	5 R10	BLOCKOUT	E	20					36 4.000							36 4	36 4	234
2	5 R11	BLOCKOUT	E	20					13 1.000							13 1	13 1	27
4	5 R12	BLOCKOUT	E	6	S				15.000	2 7.000	9.000					4 7	4 5	18
4	5 R13	BLOCKOUT	E	10	S					15.000	2 0.000					4 6	4 4	18
14	5 R14	BLOCKOUT	E	10	S					11.250	22.000					3 9	3 6	51
2	5 R15	BLOCKOUT	E	10	S					11.250	20.000					3 7	3 4	7
24	5 R16	BLOCKOUT	E	10	S					15.000	22.000					4 4	4 2	104
3	5 R17	BLOCKOUT	E	20					9 5.000							9 5	9 5	29
1	6 H1	S.W. WING	E	20					13 1.000							13 1	13 1	20
6	6 H2	S.W. WING	E	20					9 9.000							9 9	9 9	88
1	6 H3	S.W. WING	E	20					12 6.000							12 6	12 6	19
8	6 H4	S.W. WING	E	20					4 2.000							4 2	4 2	50
3	6 H5	S.W. WING	E	20			V	1	6 3.000							6 3	6 3	
		INCREMENT = 16.375 INCH							9 3.000							9 3	9 3	35
3	6 H6	S.W. WING	E	20			V	1	9 0.000							9 0	9 0	
		INCREMENT = 16.375 INCH							12 0.000							12 0	12 0	47
2	6 T1	S.W. WING	E	25	S				2 0.750	5 4.750	4 10.000			2 5.125	4 9.875	12 4	12 3	37
14	6 V1	S.W. WING	E	20					1 8.000							4 2	4 3	85
10	6 V2	S.W. WING	E	20			V	2	2 4.000							2 4	2 4	
		INCREMENT = 6.500 INCH							6 4.000							4 4	4 3	50

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE 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 MO. PROJ. NO. SHEET NO. 148

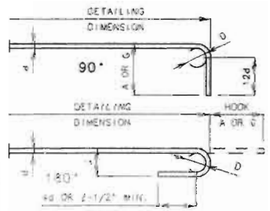




DETAILED DEC. 1997
CHECKED DEC. 1997

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

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

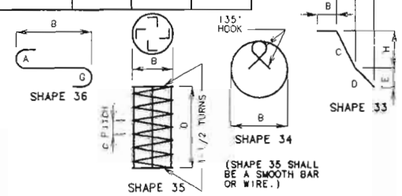


END HOOK DIMENSIONS					
BAR SIZE	D (IN.)	ALL GRADES			
		180° HOOKS		90° HOOKS	
		A OR G	J	A OR G	
#3	2-1/4"	5"	3"	6"	
#4	3"	6"	4"	8"	
#5	3-3/4"	7"	5"	10"	
#6	4-1/2"	8"	6"	12"	
#7	5-1/4"	10"	7"	14"	
#8	6"	11"	8"	16"	
#9	9-1/2"	15"	11-3/4"	19"	
#10	10-3/4"	17"	13-1/4"	22"	
#11	12"	19"	14-3/4"	2'-0"	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

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

TWO ADDITIONAL #5-R2 & #6-H2 ARE INCLUDED IN THE BAR BILL FOR TESTING.

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 ON BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) = FY 60,000 PSI.



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

BENDING DIAGRAMS

STATE OF MISSOURI
MICHAEL D. HARMS
NUMBER E-26651
REGISTERED PROFESSIONAL ENGINEER

DATE 1/15/98

STD 90.8	REVISED
MAY 1974	OCT. 1991

SHEET NO. 6 OF 6.

PLATTE COUNTY

A11593