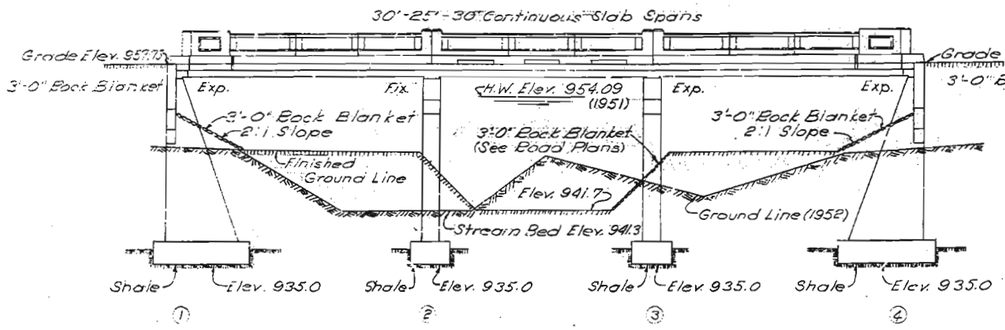
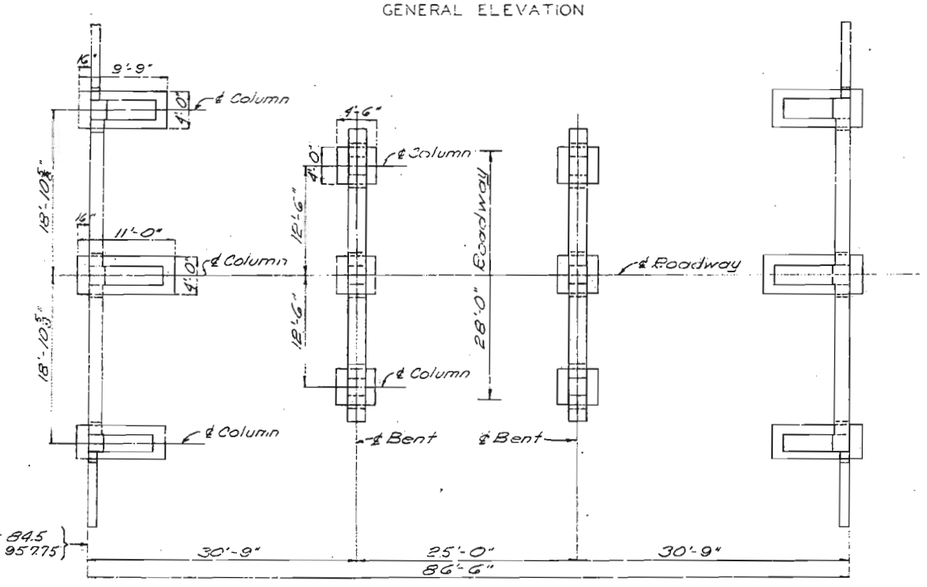
MISSOURI STATE HIGHWAY DEPARTMENT

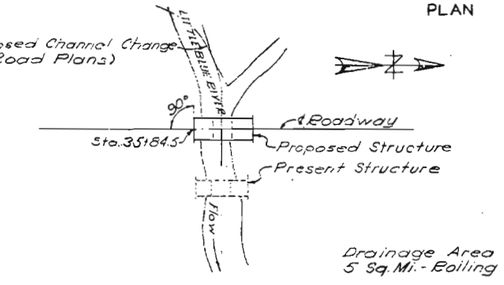
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-353(07) Sec. 1 (BRM)	19		



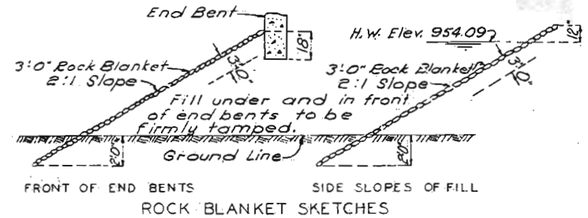
GENERAL ELEVATION



PLAN



LOCATION SKETCH



ROCK BLANKET SKETCHES

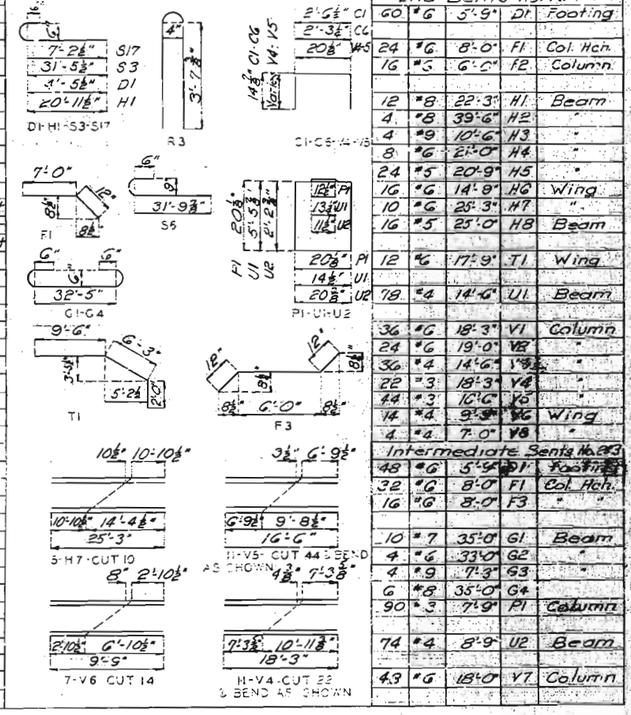
Note: 3'-0" Rock Blanket shall be placed on fills at ends of bridge as shown in sketches. See Road Plans for Quantities.

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

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
		Superstructure		
28	#5	5'-0"	C1	Fl. Curb
4	#5	6'-0"	C2	"
4	#5	7'-3"	C3	"
4	#5	8'-6"	C4	"
12	#5	25'-3"	C5	Curb
128	#5	4'-9"	C6	"
6	#6	24'-9"	C7	"
12	#4	6'-0"	E1	End Post
72	#4	9"	E2	Rail
60	#4	7'-9"	E3	Subpost
88	#6	3'-9"	E4	End Post
456	Cgs.	2'-4"	E5	Baluster
12	#4	6'-9"	E6	End Post
16	#4	9'-0"	E7	Rail
16	#4	7'-0"	E8	"
16	#4	8'-3"	E9	"
16	#4	8'-6"	E10	"
8	#4	7'-3"	E11	"
91	#5	32'-6"	S1	Slab
57	#5	33'-0"	S2	"
34	#8	32'-9"	S3	"
36	#9	25'-9"	S4	"
32	#9	22'-6"	S5	"
32	#9	33'-6"	S6	"
17	#5	28'-3"	S7	"
18	#5	14'-9"	S8	"
16	#6	11'-6"	S9	"
16	#8	29'-0"	S10	"
34	#6	30'-0"	S11	"
18	#9	39'-0"	S12	"
32	#9	9'-9"	S13	"
8	#9	33'-3"	S14	"
16	#9	38'-0"	S15	"
34	#5	16'-3"	S16	"
40	#5	8'-6"	S17	"
4	#4	30'-0"	S18	"
5	#5	5'-6"	S19	"

Bending Sketches & Cutting Diagrams



No.	Size	Length	Mark	Location
		End Bents No. 1 & 4		
60	#6	5'-9"	D1	Footing
24	#6	8'-0"	F1	Col. Hch.
16	#6	6'-6"	F2	Column
12	#8	22'-3"	H1	Beam
4	#8	39'-6"	H2	"
4	#9	10'-6"	H3	"
8	#6	21'-0"	H4	"
24	#5	20'-9"	H5	"
16	#6	14'-9"	H6	Wing
10	#6	28'-3"	H7	"
16	#5	25'-0"	H8	Beam
12	#6	17'-9"	T1	Wing
18	#4	14'-6"	U1	Beam
36	#6	18'-3"	V1	Column
24	#6	19'-0"	V2	"
36	#4	14'-6"	V3	"
22	#3	18'-3"	V4	"
44	#3	16'-6"	V5	"
14	#4	9'-3"	V6	Wing
4	#4	7'-0"	V8	"
		Intermediate Bents No. 2 & 3		
48	#6	5'-9"	D1	Footing
32	#6	8'-0"	F1	Col. Hch.
16	#6	8'-0"	F3	" "
10	#7	35'-0"	G1	Beam
4	#6	33'-0"	G2	"
4	#9	7'-3"	G3	"
6	#8	35'-0"	G4	"
90	#3	7'-9"	P1	Column
74	#4	8'-9"	U2	Beam
43	#6	18'-0"	V7	Column

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds.	110		110
Class 2 Excavation for Structures	Cu. Yds.	258		258
Class "B" Concrete (Handrail)	Cu. Yds.		11.3	11.3
Class "B" Concrete (Except Handrail)	Cu. Yds.	127.8	174.2	302.0
Reinforcing Steel	Lbs.	12,340	31,400	43,740

Note: Excavation for bridge made above Elev. 943.0 will be paid for as Class 1 Excavation for Structures. Excavation for bridge made below Elev. 943.0 will be paid for as Class 2 Excavation for Structures.

GENERAL NOTES:
Design Specifications: A.A.S.H.O. - 1953
Loading: H20-44
Reinforcing Steel Stress: 18,000 #/in²
Concrete, Class "B" Stress: 1,000 #/in²
All concrete shall be Class "B".
Where joint filler is specified on the plans, it shall conform with the requirements for Gray Rubber Compound Joints as given in Section 38-198 (2) of the Standard Specifications.
A rubbed surface finish will be required on all exposed surfaces of handrail and curbs and on outside faces of roadway slab.

FINISHED

B.M. Elev. 956.49. "X" chiseled in ℄ Highway 71 at ℄ Little Blue River Br.

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM ROUTE S.A.(150) SOUTH TO CASS CO. LINE

ABOUT 3.0 MILES N. OF BELTON

PROJECT NO. F-353(11) SEC. A (RT. 7) **STA.** 35+84.5

JACKSON **COUNTY**

SUBMITTED BY J. A. Williams BRIDGE ENGINEER DATE 11/10/1953

APPROVED BY Rex M. Whitton CHIEF ENGINEER DATE 11/10/1953

FINISHED

FINISHED

STD-C-110 R-3

L-5.30

Drawn July 1953 by J.D.M.
Checked July 1953 by R.H.L.

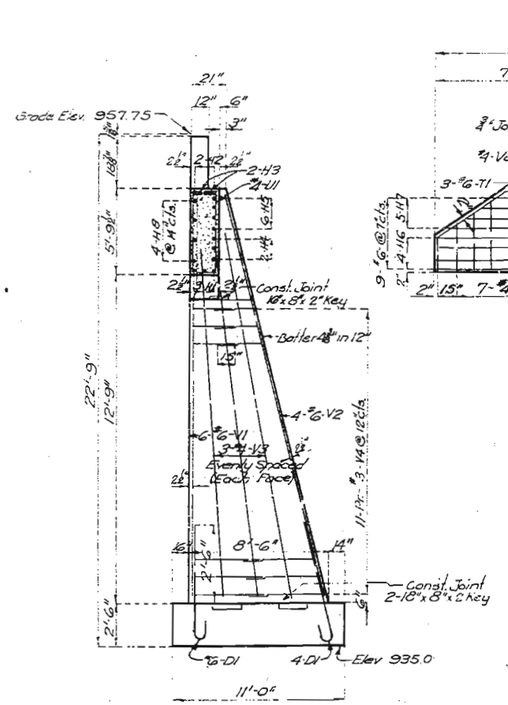
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 4

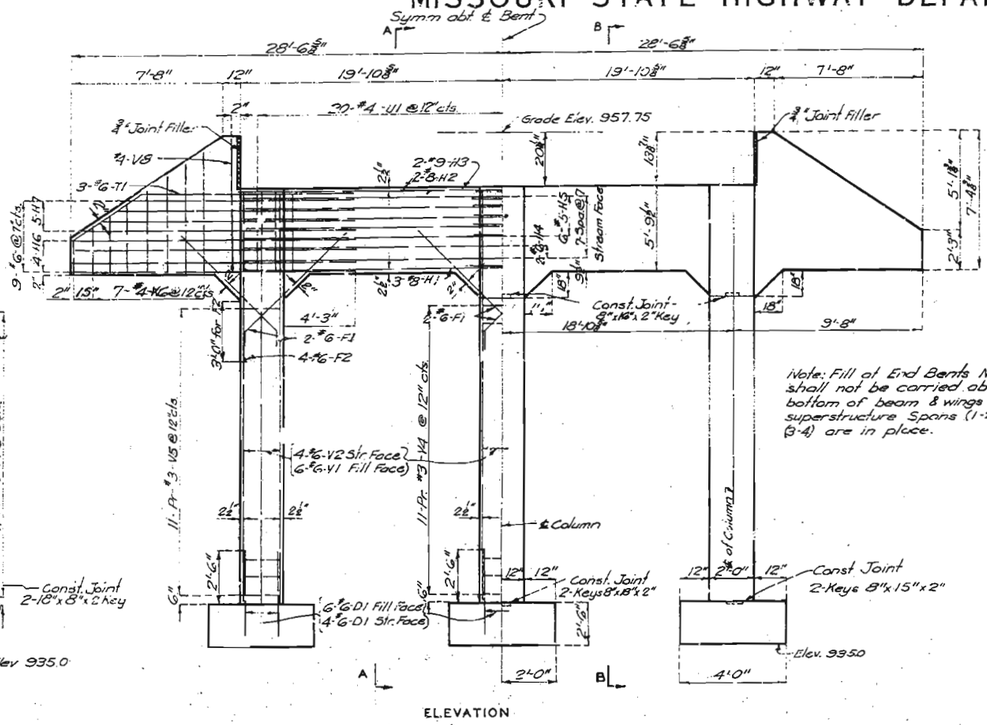
SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

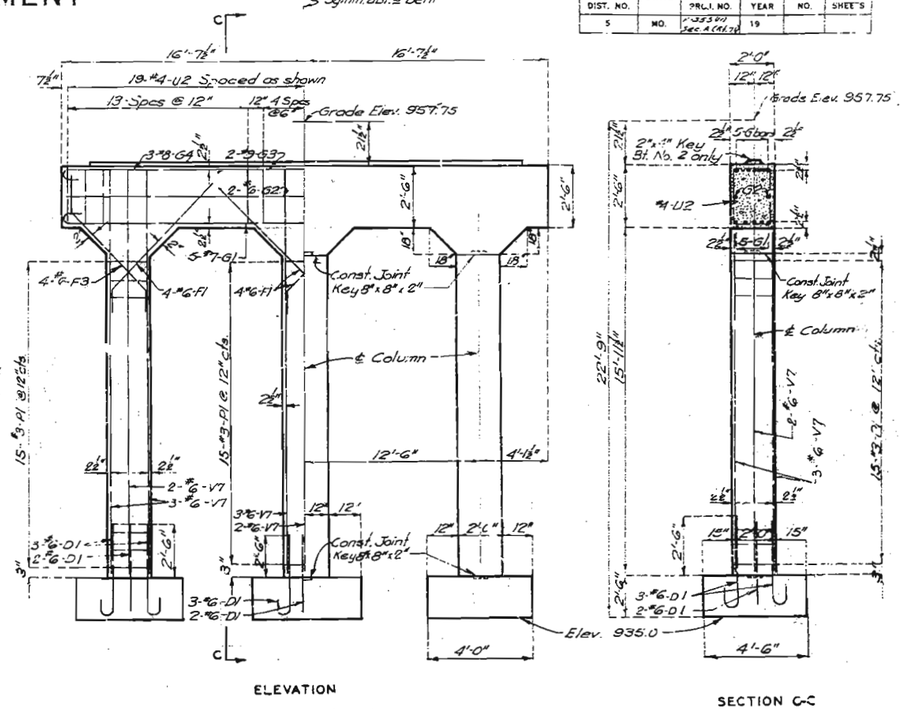
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-353(11) Sec A (RT. 7D)	19		



SECTION A-A

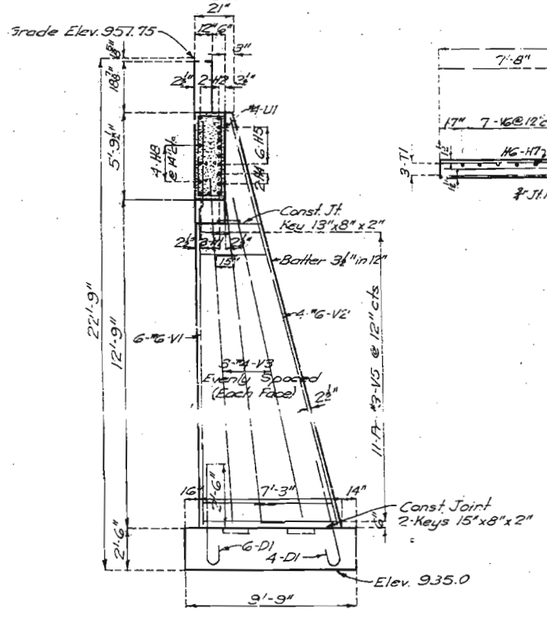


ELEVATION

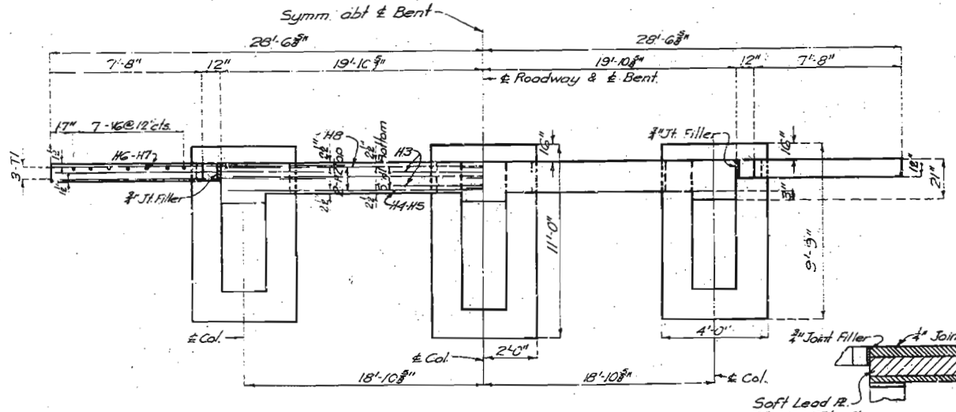


ELEVATION

SECTION C-C



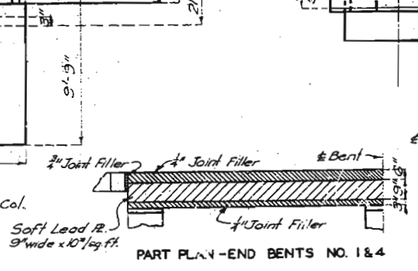
SECTION B-B



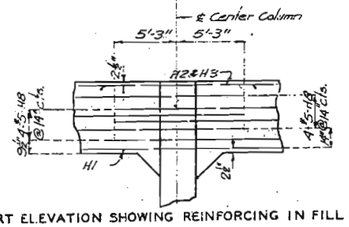
ELEVATION

PLAN

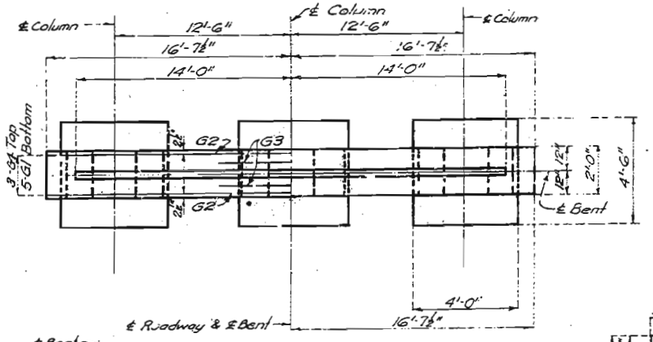
DETAILS OF END BENTS NO. 1 & 4



PART PLAN-END BENTS NO. 1 & 4

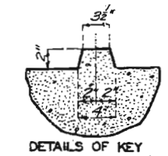


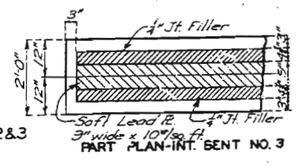
PART ELEVATION SHOWING REINFORCING IN FILL FACE



PLAN

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3





PART PLAN-INT. BENT NO. 3

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM ROUTE 5A(150) SOUTH TO CASS CO. LINE
ABOUT 3.0 MILES N. OF BELTON
PROJECT NO. F-353(11) SEC. A (RT. 7D) STA. 35+84.5

JACKSON COUNTY

FINISHED

FINISHED

FINISHED

L-530

Assumed July 1953 by J.D.M. & M.H.P.
Checked July 1953 by R.H.L.

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

Sheet No. 2 of 4.

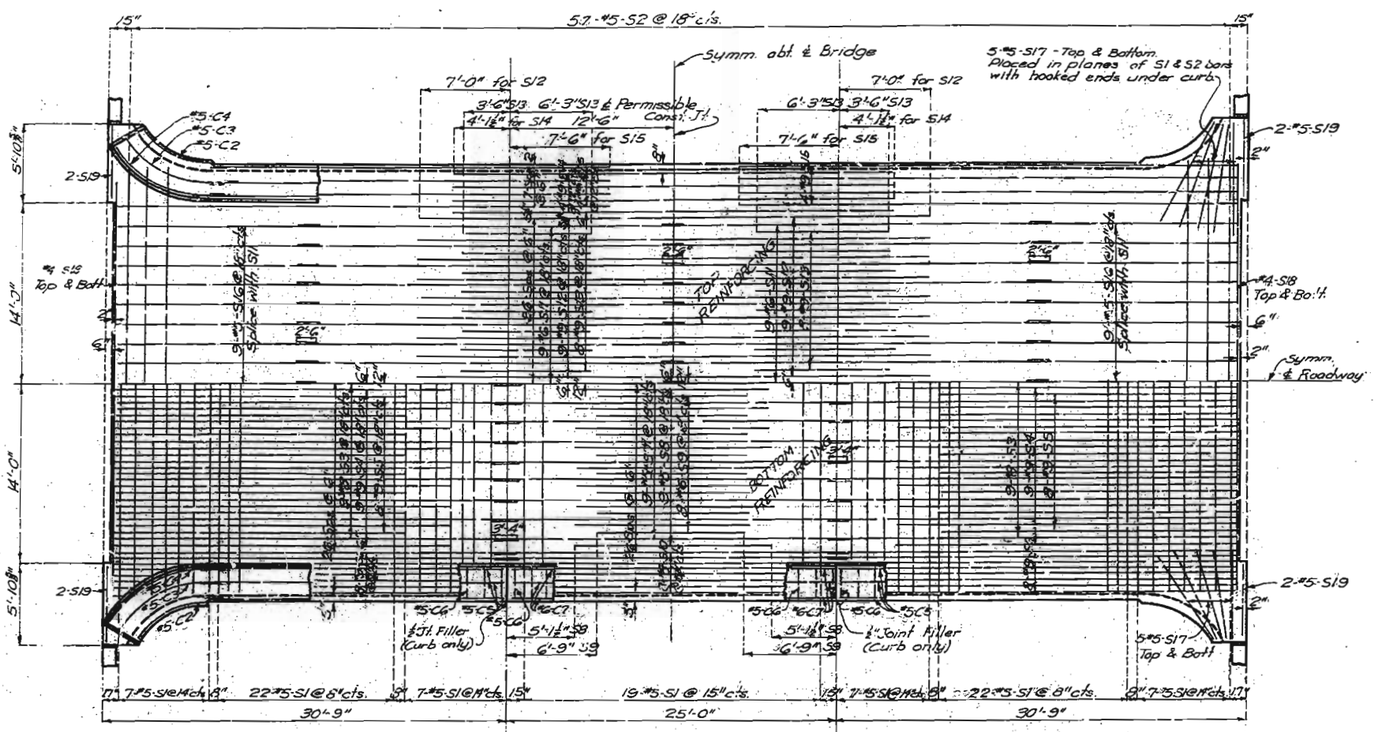
SEE FINAL PLANS FOR OWN-LINES

Deck Girder 3 col. End Bt. 2 or 3 col. Int Bt.

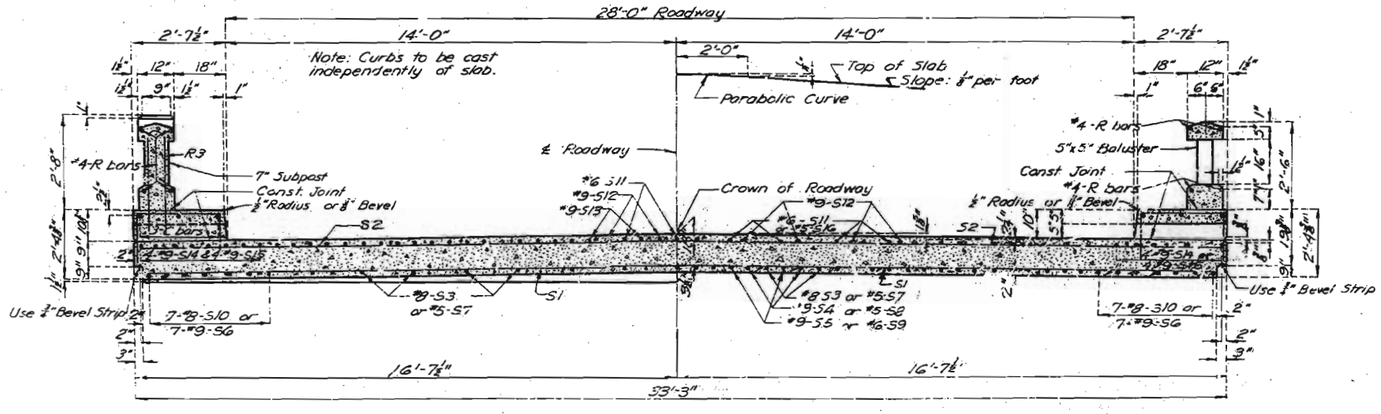
8'11

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.	F-353 (11) Sec. A (RT. 7)	19		



PLAN OF SLAB SHOWING REINFORCING STEEL



HALF SECTION NEAR INTERMEDIATE BENT

HALF SECTION NEAR CENTER OF SPAN

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM ROUTE 5A (150) SOUTH TO CASS CO. LINE
ABOUT 3.0 MILES N. OF BELTON
PROJECT NO. F-353 (11) SEC. A (RT. 7) STA. 35+84.5

JACKSON COUNTY

L-530

Drawn July 1953 by J.D.N.
Traced July 1953 by M.H.P.
Checked July 1953 by R.H.L.

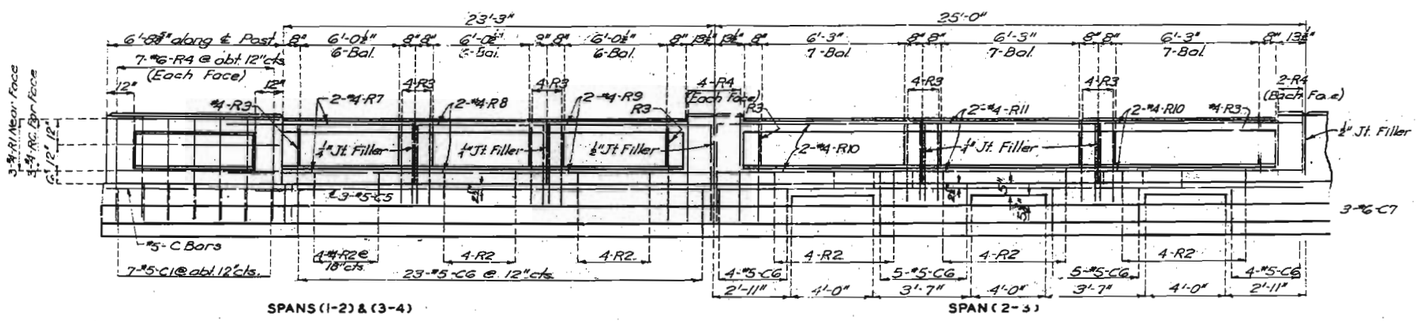
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 4.

NO CONSTRUCTION CHANGES

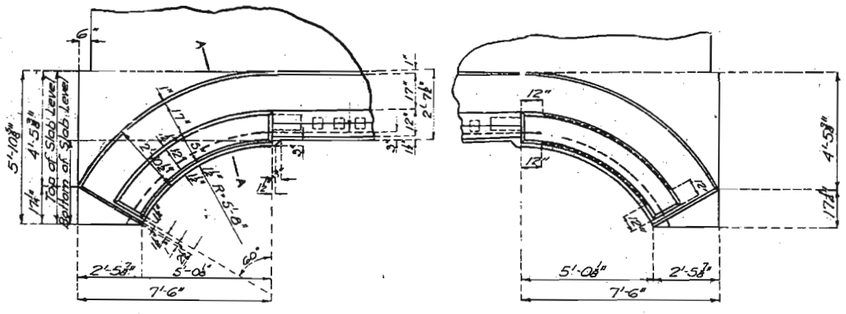
MISSOURI STATE HIGHWAY DEPARTMENT

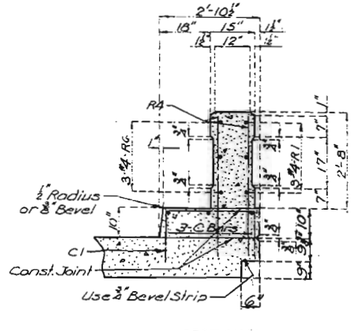
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		F-353(11) Sec A(Rt 71)			

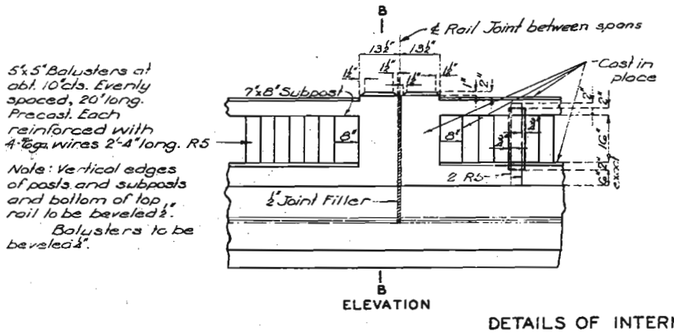


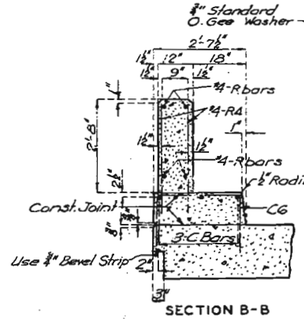
PART ELEVATION OF RAIL & CURB

Note: Omit outlets in spans (1-2) & (3-4).

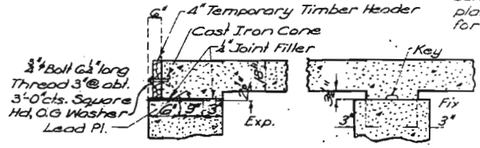








DETAILS OF INTERMEDIATE POSTS

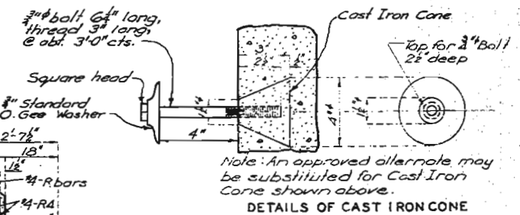


Note: Cost of temporary timber headers complete in place and cost of lead plates shall be included in price bid for concrete.

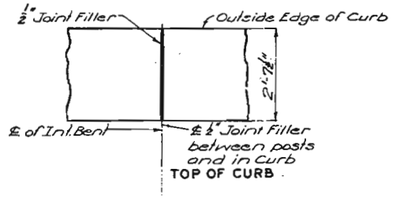
BENTS NO. 1 & 4 BENT NO 2 BENT NO. 3

PART LONGITUDINAL SECTION AT ℄ ROADWAY

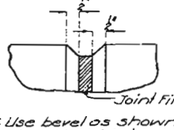
Note: For Plan of Bearings at Bents See Sheet No. 2 of 4.



DETAILS OF CAST IRON CONE

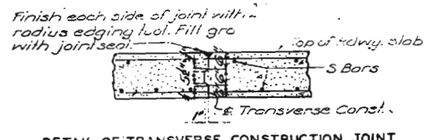


TOP OF CURB



Note: Use bevel as shown for exposed faces of all filled joints.

DETAIL OF BEVEL FOR FILLED JOINTS



DETAIL OF TRANSVERSE CONSTRUCTION JOINT
See plan of Slab for location

FINISHED

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM ROUTE SA(150) SOUTH TO CASS CO. LINE
ABOUT 3.0 MILES N. OF BELTON
PROJECT NO. F-353(11) SEC A (RT. 71) STA. 35+84.5

JACKSON COUNTY

FINISHED

FINISHED

L-530

Drawn July 1953 by J.D.M.
Traced July 1953 by M.H.P.
Checked July 1953 by R.H.L.

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

Sheet No. 4 of 4.

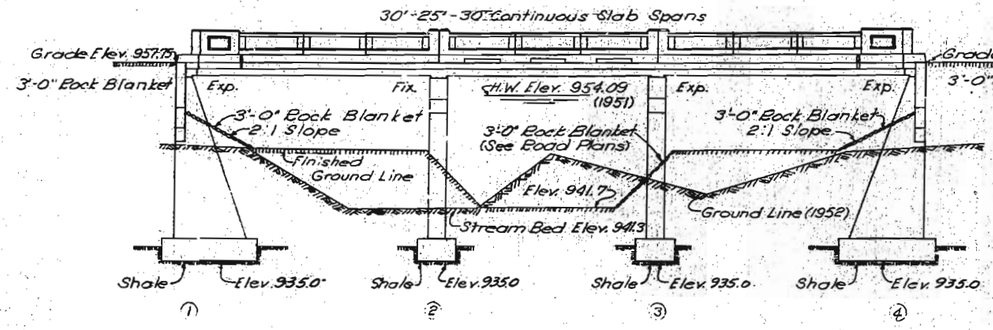
NO CONSTRUCTION CHANGES

180

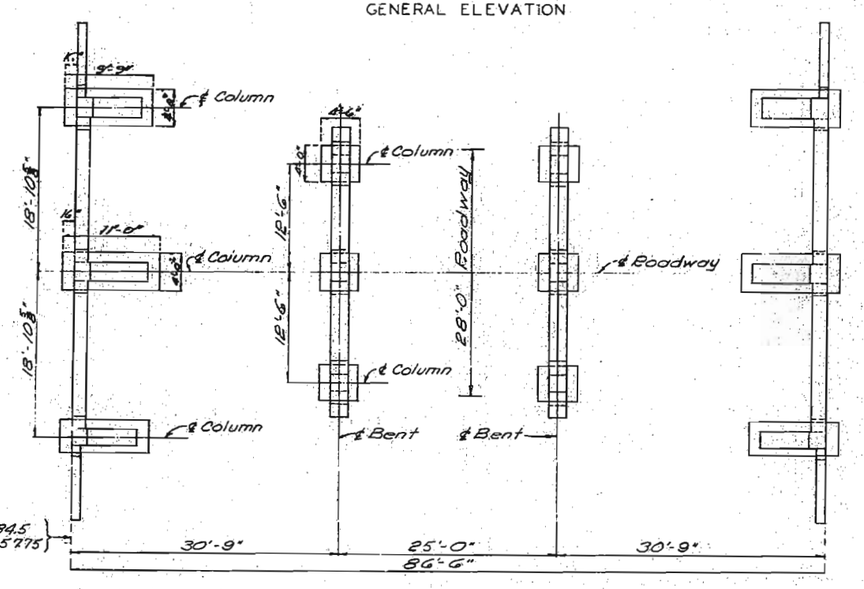
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-353(11) Sec.A(RT7)	19		

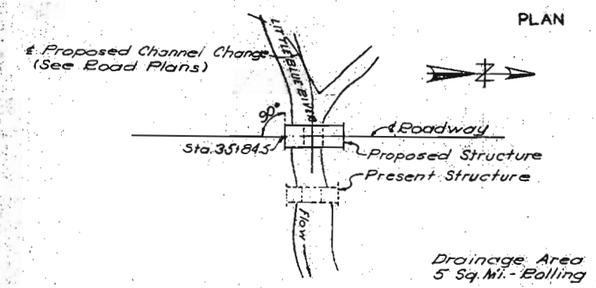
FINAL PLANS



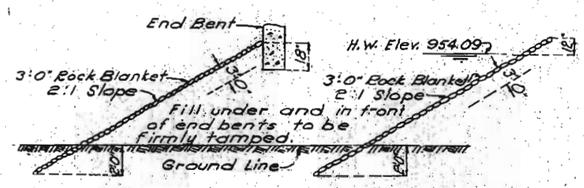
GENERAL ELEVATION



PLAN



LOCATION SKETCH



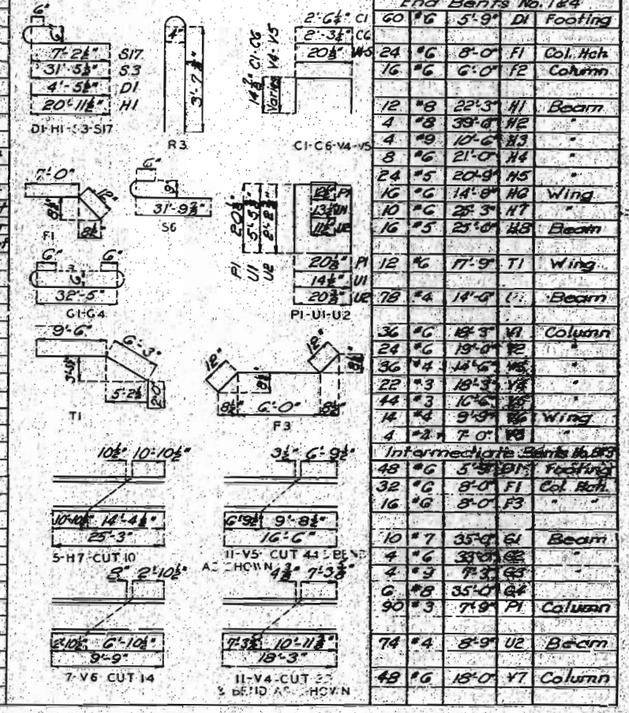
ROCK BLANKET SKETCHES

Note: 3'-0" Rock Blanket shall be placed on fills at ends of bridge as shown in sketches. See Road Plans for Quantities.

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
		Superstructure		
28	#5	5'-0"	C1	Fl. Curb
4	#5	6'-0"	C2	" "
4	#5	7'-3"	C3	" "
4	#5	8'-6"	C4	" "
12	#5	25'-3"	C5	Curb
128	#5	4'-9"	C6	"
6	#6	24'-9"	C7	"
12	#4	6'-0"	E1	End Post
72	#4	9"	E2	Rail
60	#4	7'-9"	E3	Sub post
88	#6	3'-9"	E4	End Post
456	Cgs.	2'-4"	E5	Baluster
12	#4	6'-9"	E6	End Post
16	#4	9'-0"	E7	Rail
16	#4	7'-0"	E8	"
16	#4	8'-3"	E9	"
16	#4	8'-6"	E10	"
8	#4	7'-3"	E11	"
91	#5	32'-6"	S1	Slab
57	#5	33'-0"	S2	"
34	#8	32'-9"	S3	"
36	#9	25'-9"	S4	"
32	#9	22'-6"	S5	"
32	#9	33'-6"	S6	"
17	#5	28'-3"	S7	"
18	#5	14'-9"	S8	"
16	#6	11'-6"	S9	"
16	#8	29'-0"	S10	"
34	#6	30'-0"	S11	"
18	#9	39'-0"	S12	"
32	#9	9'-9"	S13	"
8	#9	33'-3"	S14	"
16	#9	38'-0"	S15	"
34	#5	16'-3"	S16	"
40	#5	8'-6"	S17	"
4	#4	30'-0"	S18	"
8	#5	5'-6"	S19	"

Bending Sketches & Cutting Diagrams



No.	Size	Length	Mark	Location
		End Bents No. 1&4		
60	#6	5'-9"	D1	Footing
24	#6	8'-0"	F1	Col. Hch.
16	#6	6'-0"	F2	Column
12	#8	22'-3"	H1	Beam
4	#8	39'-6"	H2	"
4	#9	10'-6"	H3	"
8	#6	21'-0"	H4	"
24	#5	20'-9"	H5	"
16	#6	14'-8"	H6	Wing
10	#6	25'-3"	H7	"
16	#5	23'-0"	H8	Beam
12	#6	17'-9"	T1	Wing
78	#4	14'-9"	U1	Beam
36	#6	17'-3"	V1	Column
24	#6	19'-0"	V2	"
36	#4	16'-6"	V3	"
22	#3	19'-3"	V4	"
44	#3	10'-6"	V5	"
14	#4	9'-9"	V6	Wing
4	#8	7'-0"	V8	"
Intermediate Bents No. 2&3				
48	#6	5'-9"	D1	Footing
32	#6	8'-0"	F1	Col. Hch.
16	#6	8'-0"	F3	" "
10	#7	35'-0"	G1	Beam
4	#6	33'-0"	G2	"
4	#9	7'-3"	G3	"
6	#8	35'-0"	G4	"
90	#3	7'-9"	P1	Column
74	#4	8'-9"	U2	Beam
48	#6	18'-0"	V7	Column

FINAL QUANTITIES FINAL PLANS

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu.Yds.	125.5		125.5
Class 2 Excavation for Structures	Cu.Yds.	130.0		130.0
Class "B" Concrete (Handrail)	Cu.Yds.		4.1	4.1
Class "B" Concrete (Except Handrail)	Cu.Yds.	132.8	174.2	307.0
Reinforcing Steel	Lbs.	12340	31,100	43,440
Foundation Test Holes (Contingent)	Lin.Ft.	36		36

Note: Excavation for bridge made above Elev. 943.0 paid for as Class 1 Excavation for Structures. Excavation for bridge made below Elev. 943.0 paid for as Class 2 Excavation for Structures.

GENERAL NOTES:

Design Specifications: A.A.S.H.O. - 1953
Loading: H20-44
Reinforcing Steel Stress: 18,000 #/sq in
Concrete, Class "B" Stress: 1,000 #/sq in
All concrete shall be Class "B".
Where joint filler is specified on the plans, it shall conform with the requirements for Gray Rubber Compound Joints as given in Section 38-198(2) of the Standard Specifications.
A rubbed surface finish will be required on all exposed surfaces of handrail and curbs and on outside faces of roadway slab.

B.M. P.K. Spike set in top of West wingwall of the North abutment this Structure. Elev.

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM ROUTE S.A.(150) SOUTH TO CASS CO. LINE
ABOUT 3.0 MILES N. OF BELTON
PROJECT NO. F-353(11) SEC. A(RT7) STA. 35+84.5

JACKSON COUNTY

FINISHED

Submitted by J. A. Williams 11/10/1953
Approved by Rea M. Whittier 11/10/1953

FINISHED

STD. C-110 R3

L-530

Drawn July 1953 by J.D.M.
Checked July 1953 by R.H.L.

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

Sheet No. 1A of 2

FINISHED

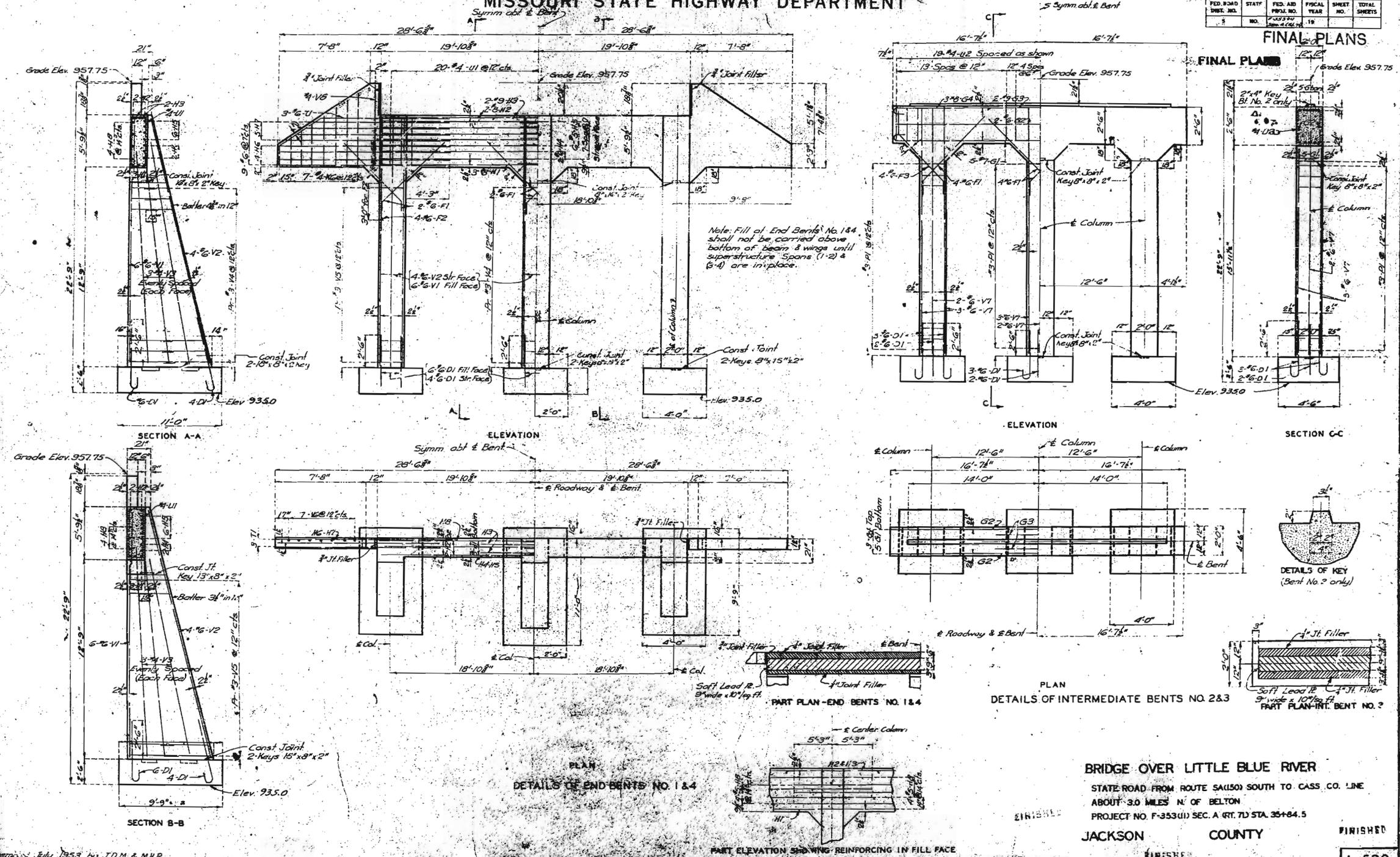
FINAL PLANS

181

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	F-353(11) Sec. A (RT. 71)	19		

FINAL PLANS



BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM ROUTE 5A(150) SOUTH TO CASS CO. LINE
ABOUT 3.0 MILES N. OF BELTON
PROJECT NO. F-353(11) SEC. A (RT. 71) STA. 35+84.5

JACKSON COUNTY

FINISHED

L-530

Sheet No. 2A of 2

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

Assembled July 1953 by J.D.M. & M.H.P.
Checked July 1953 by R.H.L.

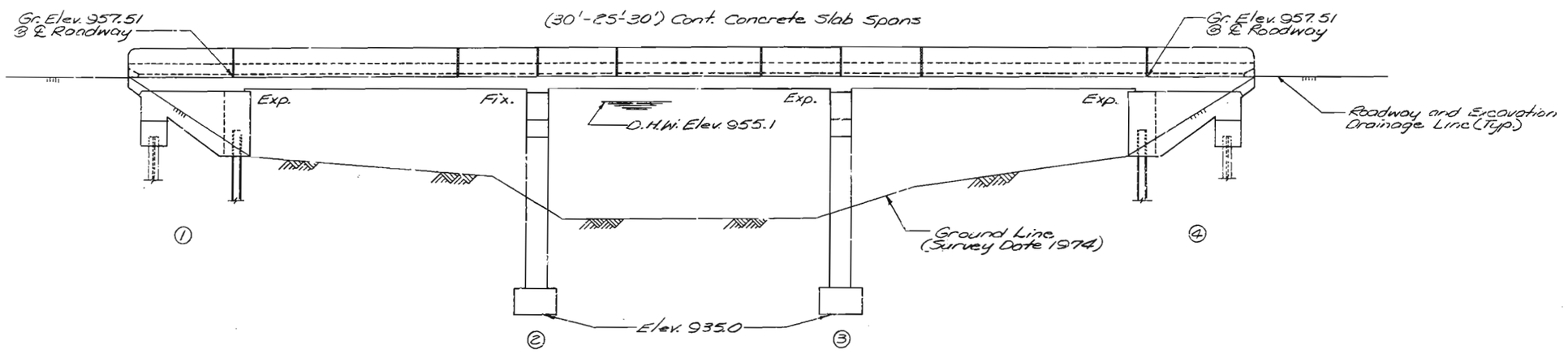
FINAL PLANS

Deck Girder Scale End Bt. 2 or 3 Col. Int. Bt.

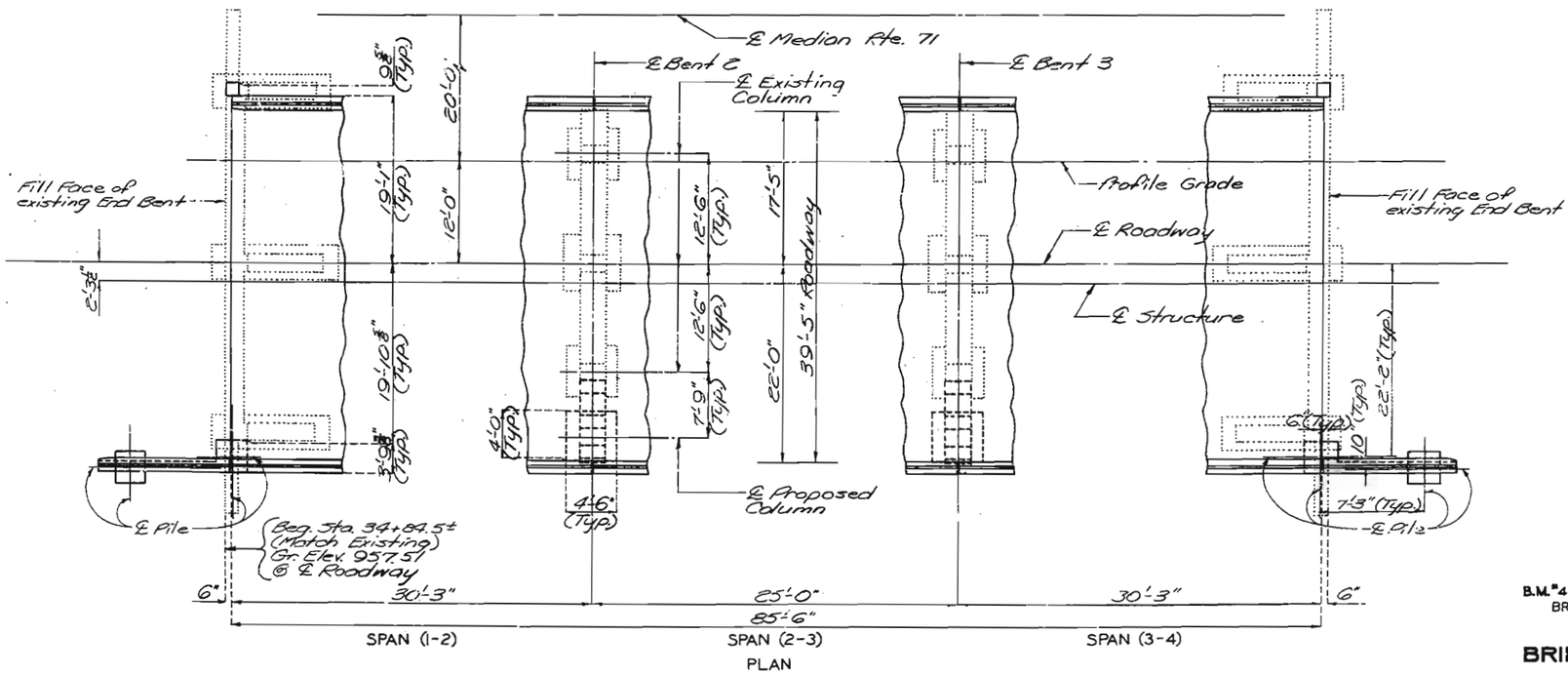
281

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	145	



GENERAL ELEVATION



PLAN

Note: For Hydraulic Data, Pile Data, General Notes, Estimated Quantities and Location Sketch see sheet No. 2

B.M. #4 ELEV. 957.04 TOP BOLT IN N.W. WING WALL OF S.B.L. BR. LT. STA. 35+70.00

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD TO CASS COUNTY LINE IN GRANDVIEW

PROJECT NO. U-F-71-4(30) **STA.** 34+84.5±

JOB NO. 4-U-71-71 **RTE.** 71

JACKSON **COUNTY**

DATE 1-11-79

STD.
STD. 706.30
L-530 R

DESIGNED Sept 19 78
DETAILED Oct. 19 78
CHECKED Nov. 19 78

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

Sheet No. 1 of 10.

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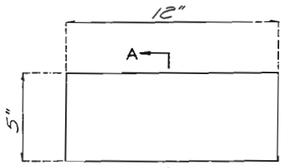
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	146	

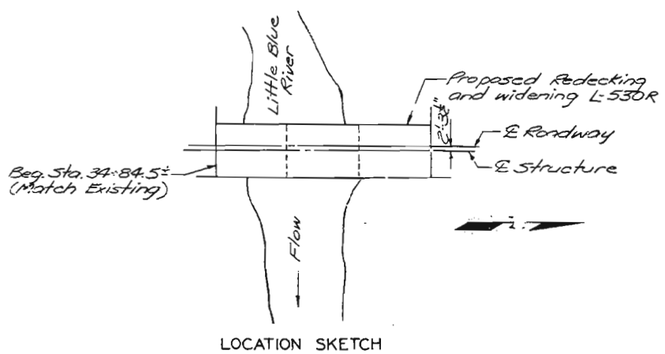
PILE DATA								
BENT NO.			(Wing) 1	(Bent)	2	3	(Wing) 4	(Beam)
BEARING PILES	Pile Type and Size		HP10x42	HP10x42			HP10x42	HP10x42
	Number		1	1			1	1
	Approximate Length	Ft.	17	17			17	17
	Design Bearing	Tons	5	15			5	15
	Hammer Energy Required	Ft. Lbs	7000	7000			7000	7000
SPREAD FOOTINGS	Foundation Material				Shale	Shale		
	Design Bearing	Tons/Sq.ft.			5	5		

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All pile shall be driven to practical refusal.



TYPICAL PLAN
NEOPRENE BEARING PAD

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq.ft.		2909	2909
Class B-1 Concrete	Cu yd		200.0	200.0
Class B Concrete	Cu. yd.	20.4		20.4
Class I Excavation	Cu yd	40		40
Plain Neoprene Brg. Pads (12"x5"x½")	Ea.	25		25
Laminated Neoprene Brg. Pads (12"x5"x1½")	Ea.	9		9
Reinforcing Steel	Lbs.	2790	30110	32900
Reinforcing Steel (Epoxy Coated)	Lbs.		16420	16420
Special Work (See Special Provisions)	Lump Sum	1		1
Slab drains	Ea		6	6
Structural Steel Pile (HP10x42)	Lin. ft.	68		68



LOCATION SKETCH

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1973 Load Factor Design

Design Loading:
H S 20-44 15#/sq.ft Future Wearing Surface
Modified E 9 000# Tandem Axle
Earth 120# Equivalent Fluid Pressure 30#

Design Unit Stresses:
Class B Concrete (Substructure) f'_c=3,000 psi
Class B1 Concrete (Superstructure) f'_c=4,000 psi
Reinforcing Steel f_y=60,000 psi

Steel Pile f_b=9,000 psi.

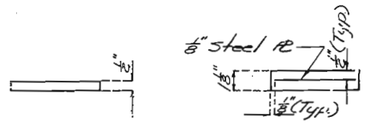
Joint Filler:
All Joint Filler shall meet the requirements of Std Spec 1057.6.4.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1½" unless otherwise shown.
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete as detailed on sheet's No. 3 & 5.

Note:
All concrete and reinforcement in Safety Barrier Curbs is included in Superstructure Quantities.
All concrete and reinforcement in End Bents above lower construction joint is included in Superstructure Quantities.

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

Compressive strain of any layer of an elastomeric bearing shall not exceed 7% at 540 psi average unit pressure.



SECTION A-A
BT. NO. 1, BT. NO. 3
NO. REQUIRED: 9 - BT. NO. 1
16 - BT. NO. 3

SECTION A-A
BT. NO. 4
NO. REQUIRED: 9 - BT. NO. 4

Note: All bearings to be 60 durometer

HYDRAULIC DATA	
Drainage Area:	5.03 sq.mi (Rolling)
Design Discharge:	3640 cfs (50% Urban)
Frequency:	25 yrs.
Design H.W. Elev. @ ℄ Median:	955.1

BASIC FLOOD DATA	
Discharge:	5020 cfs
Design H.W. Elev.	955.9

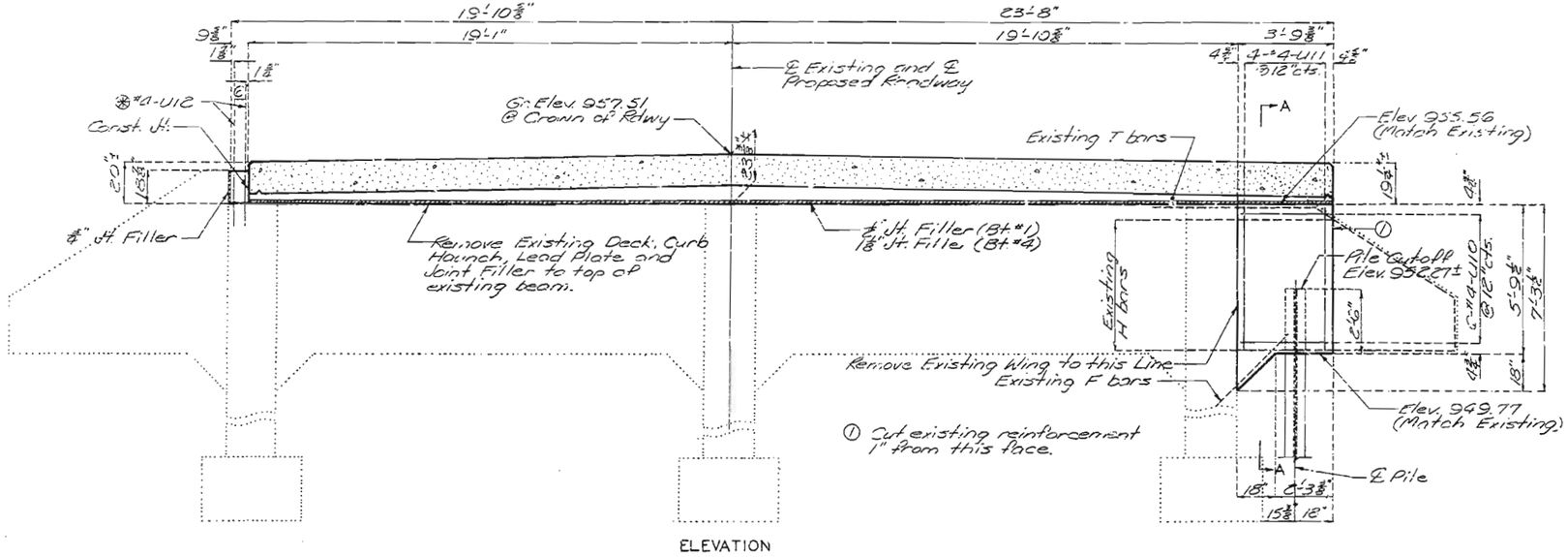
DETAILED Oct. 1978
CHECKED Nov. 1978

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

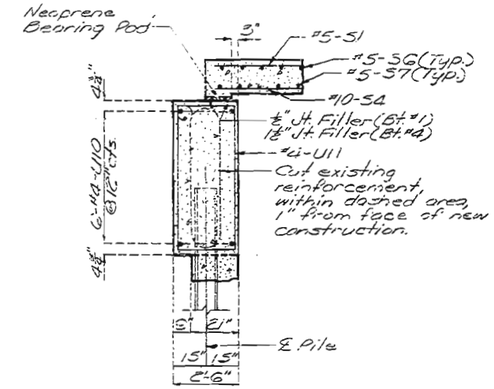
JACKSON COUNTY L-530R

MISSOURI STATE HIGHWAY DEPARTMENT

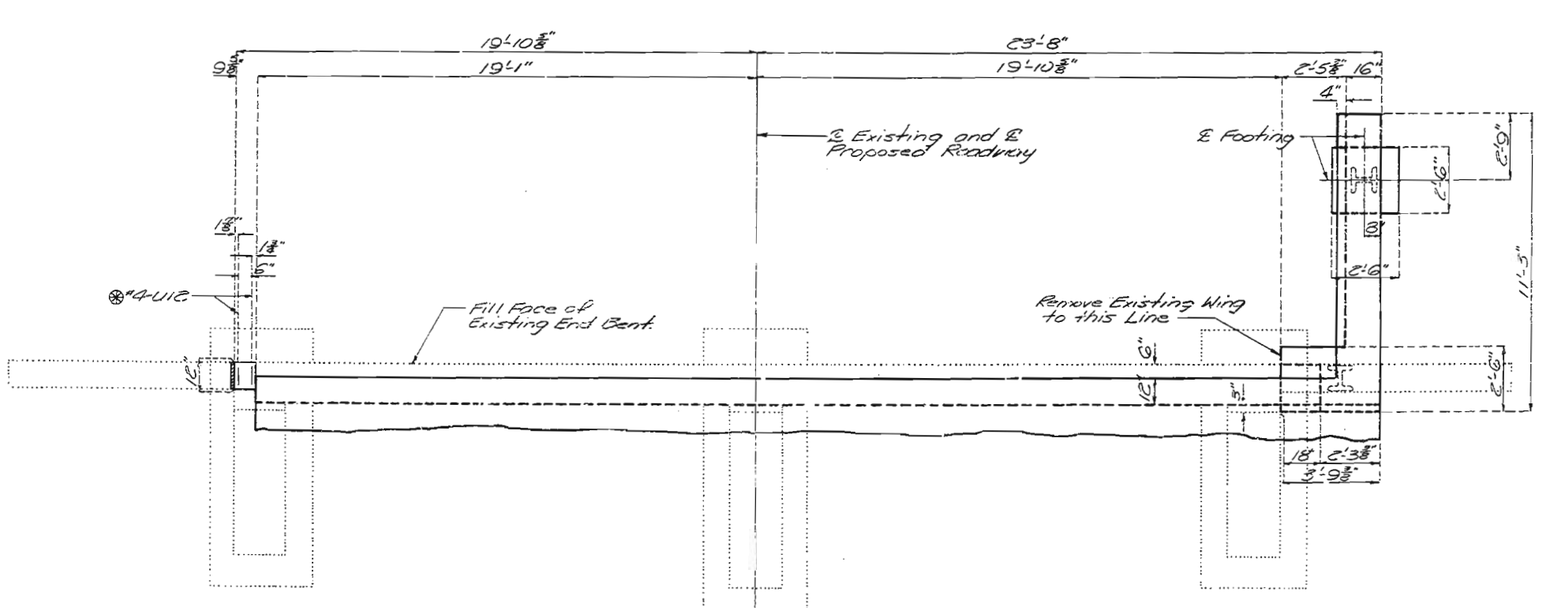
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		13	147	



ELEVATION



SECTION A-A



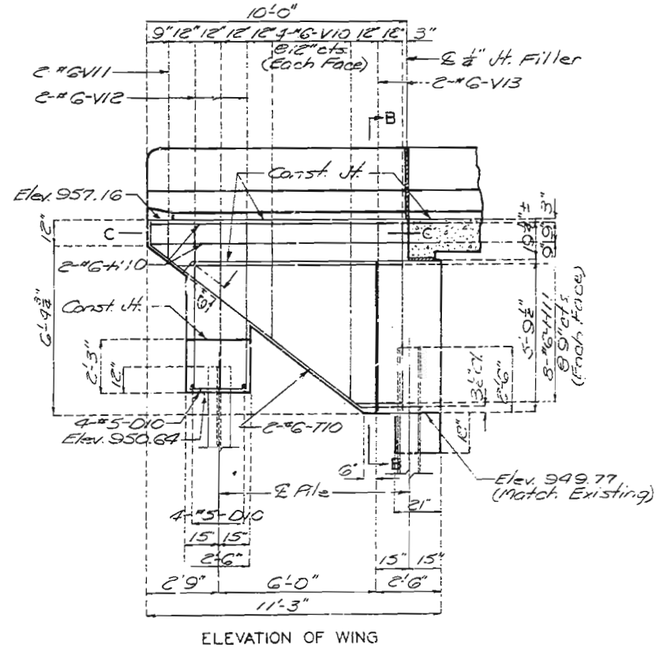
PLAN

"℗" Indicates Drill and Grout 12" into existing beam.

Note: For Plan of Beam at lower Construction Joint see sheet No. 4 For Pile location see sheet No. 4.

DETAILS OF END BENT NO. 4

END BENT NO. 1 SIMILAR BY 180° ROTATION



ELEVATION OF WING

Note: For reinforcement in barrier curb see sheets No. 8 & 9.
For Section B-B see sheet No. 4
For Section C-C see sheet No. 4
Bent Hll and T10 bars in field to clear piling

DETAILED Oct. 1978
CHECKED Nov 1978

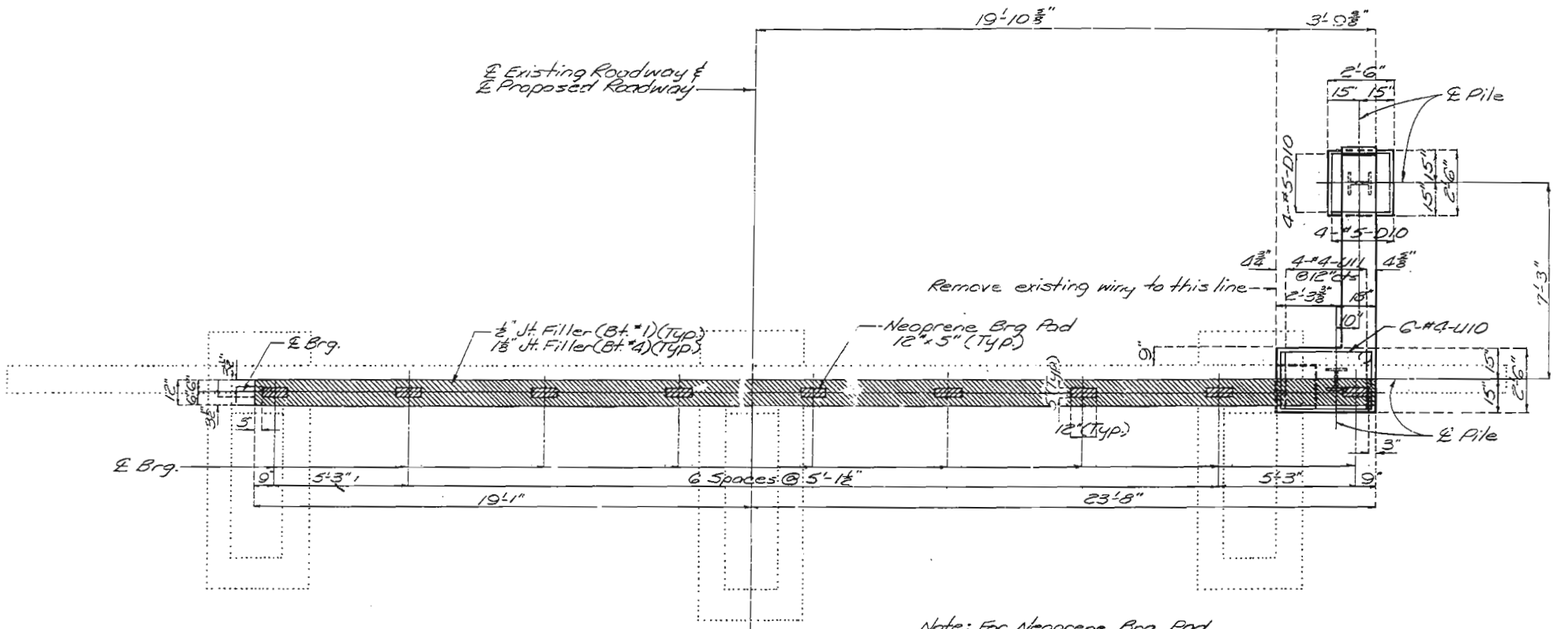
Note: This drawing is not to scale. Follow dimensions.

JACKSON COUNTY

L-530R

MISSOURI STATE HIGHWAY DEPARTMENT

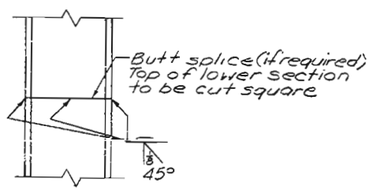
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	142	



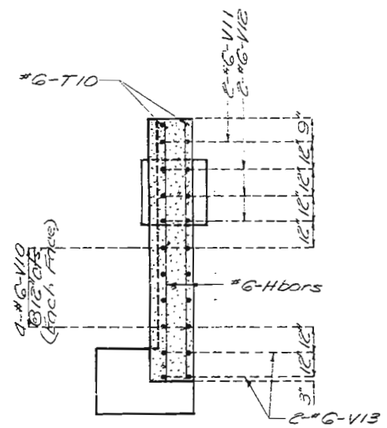
PLAN OF BEAM
(AT LOWER CONST. JOINT)

Note: For Neoprene Brg. Pad thickness see sheet No. 2

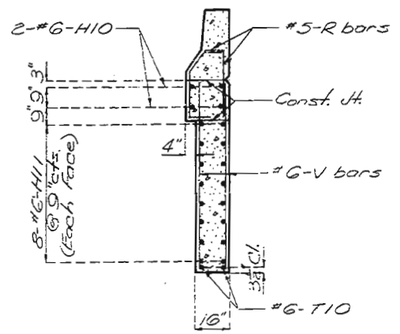
DETAILS OF END BENT NO. 4
(BENT NO.1 SIMILAR BY 180° ROTATION)



DETAIL OF STEEL PILE SPLICE



SECTION C-C



SECTION B-B

Note: For location of Section C-C and B-B see sheet No. 3.

DETAILED Oct. 19 78
CHECKED Nov. 19 78

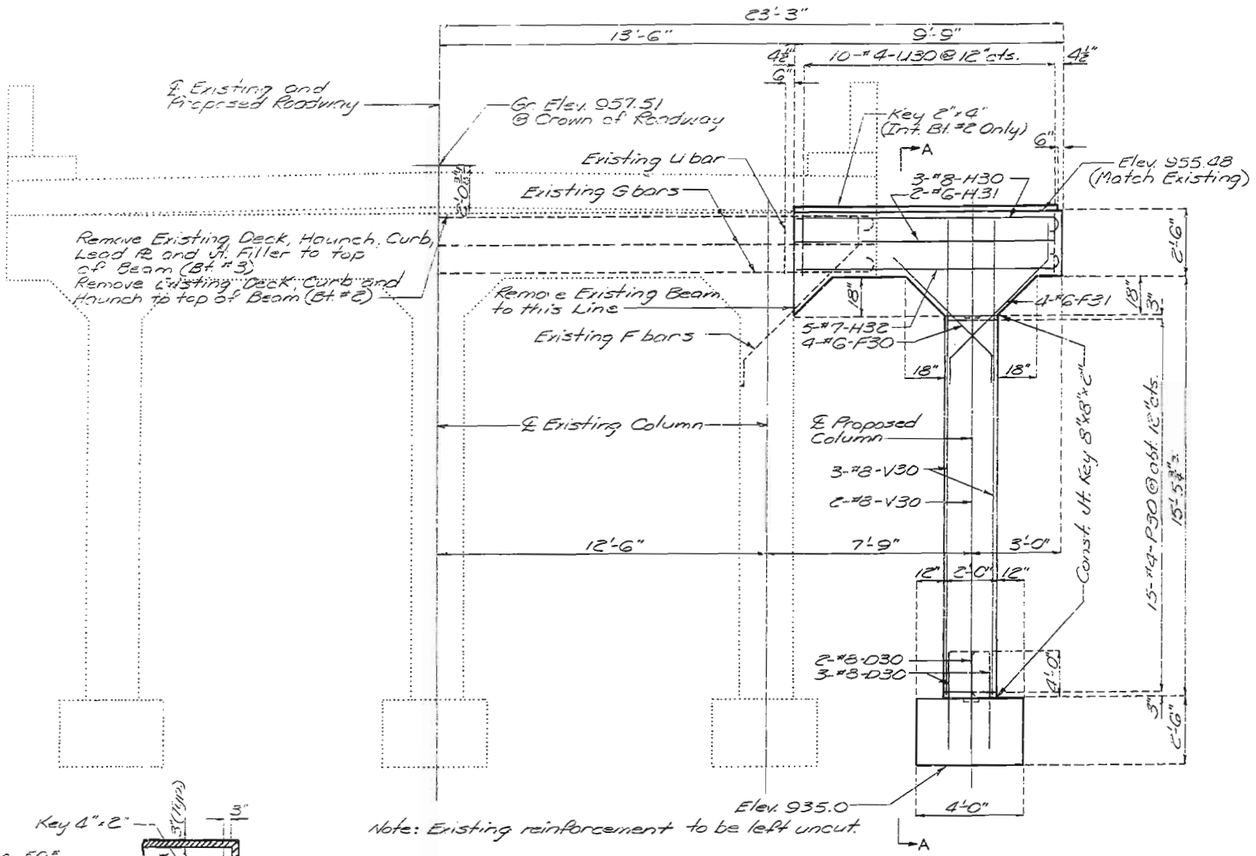
Note: This drawing is not to scale. Follow dimensions.

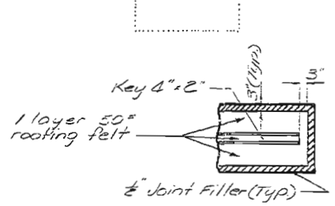
Sheet No. 4 of 10.

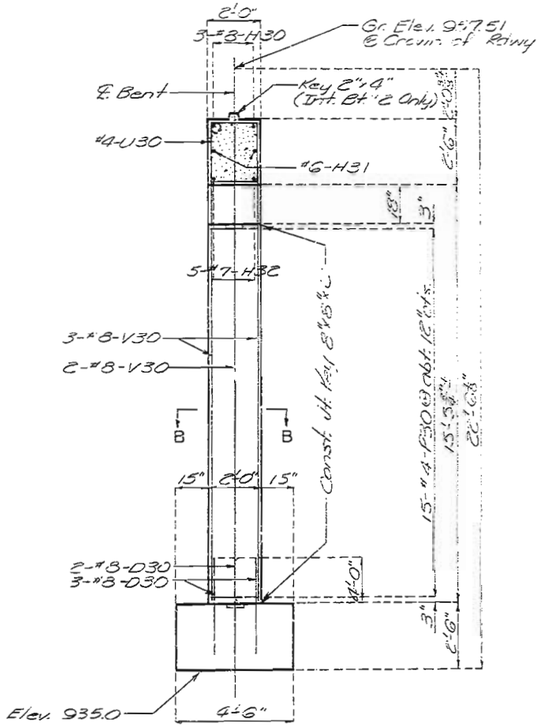
JACKSON COUNTY L-530R

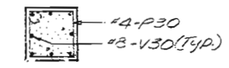
MISSOURI STATE HIGHWAY DEPARTMENT

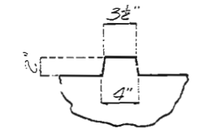
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	149	

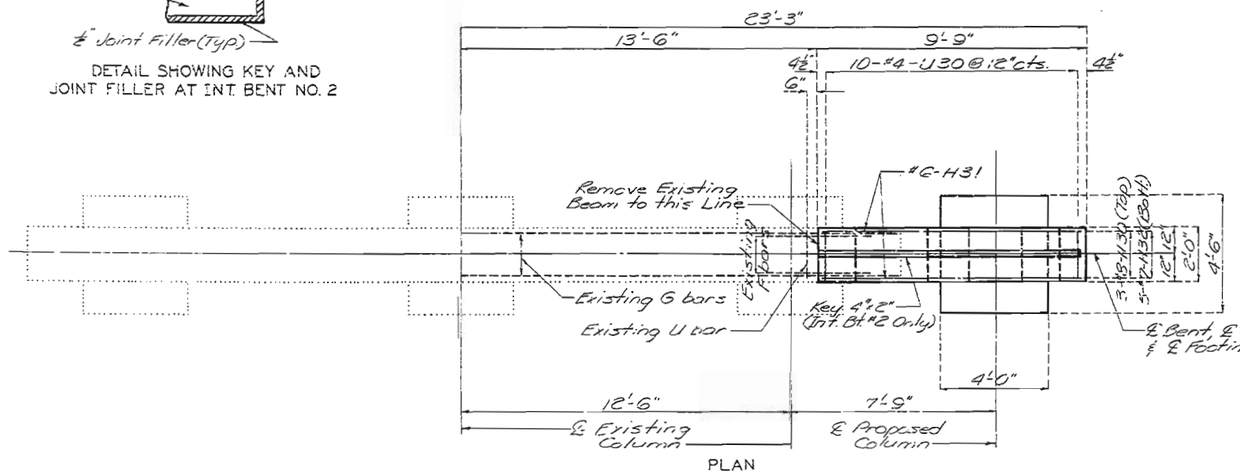


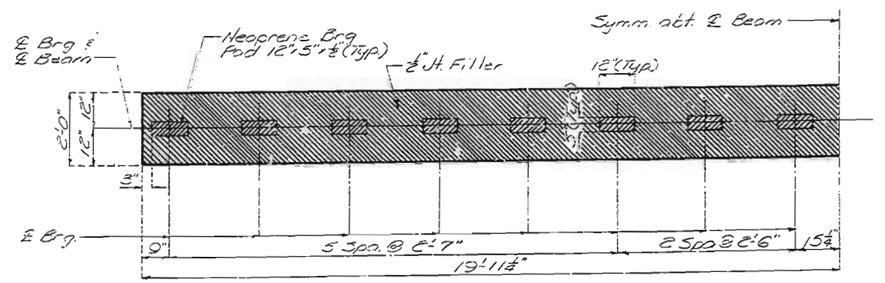












DETAILS OF INT. BTS. NO. 2 & 3

DETAILED Oct. 1973
CHECKED Nov. 1973

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

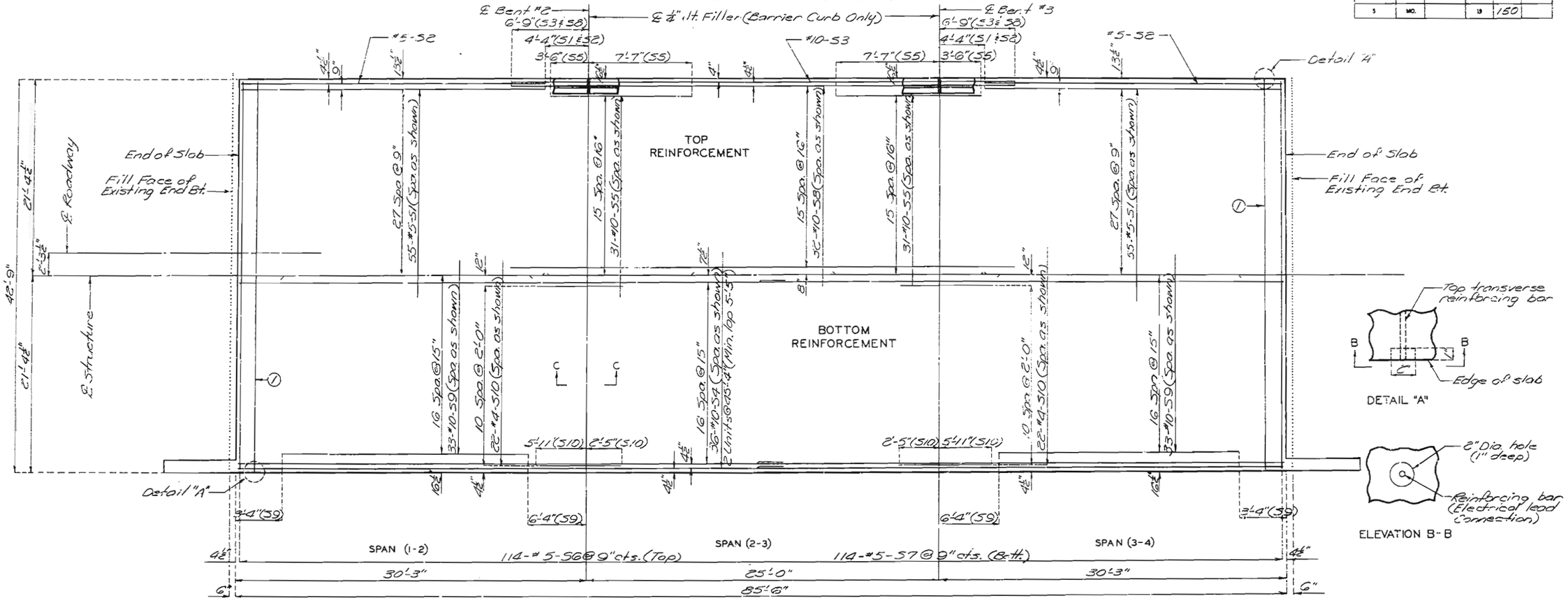
Sheet No. 5 of 10.

JACKSON COUNTY

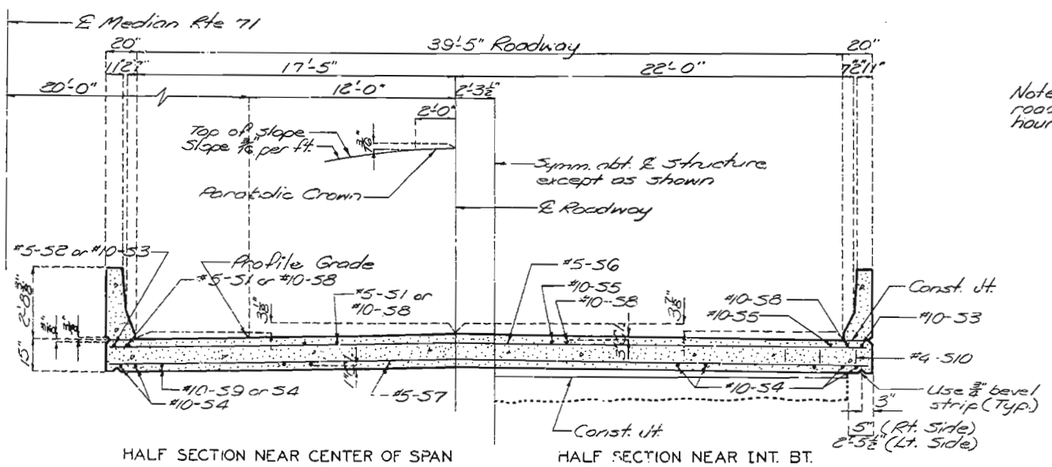
L-530R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	150	



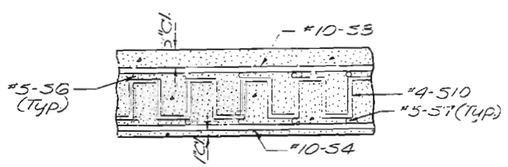
PLAN OF SLAB SHOWING REINFORCEMENT



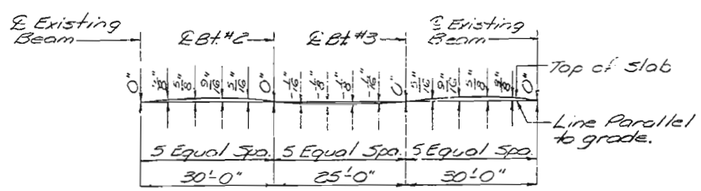
HALF SECTION NEAR CENTER OF SPAN

HALF SECTION NEAR INT. BT.

Note: The contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 40 cubic yards per hour.



SECTION C-C



CAMBER DIAGRAM

DETAILED Oct. 1978
CHECKED Nov. 1978

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

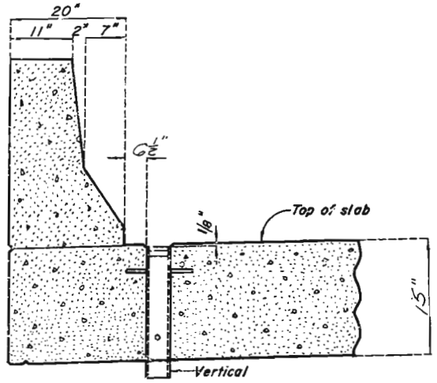
Sheet No. 6 of 10.

JACKSON COUNTY

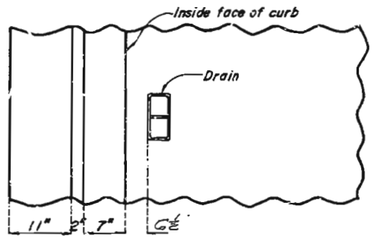
L-530R

MISSOURI STATE HIGHWAY DEPARTMENT

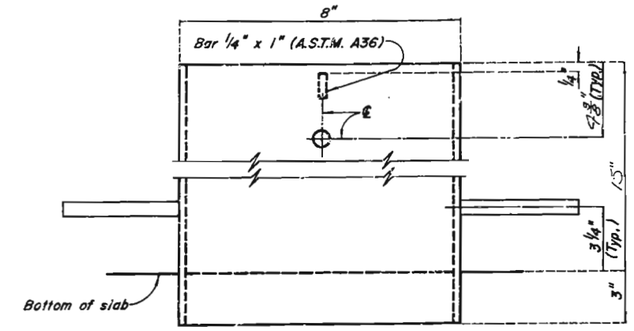
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	151	



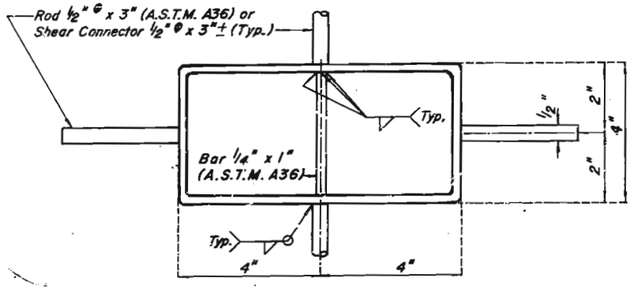
PART ELEVATION OF SLAB



PART PLAN OF SLAB



ELEVATION



PLAN

SLAB DRAIN DETAILS

GENERAL NOTES: SLAB DRAINS

SLAB DRAINS MAY BE FABRICATED OF EITHER 1/4" WELDED SHEETS OF A.S.T.M. A36 STEEL OR FROM 1/4" STRUCTURAL STEEL TUBING A.S.T.M. A500 OR A501.

OUTSIDE DIMENSIONS OF DRAINS ARE 8"x4".

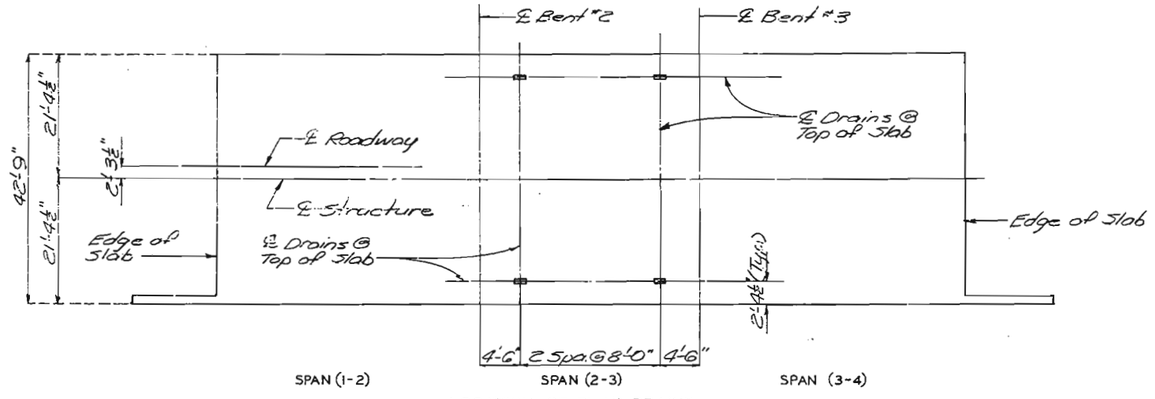
THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING 1/8" BELOW THE FINISHED CONCRETE LINE.

LOCATE DRAINS IN THE SLAB BY DIMENSIONS SHOWN IN THE PART ELEVATION.

SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.

THE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.



LOCATION OF SLAB DRAINS

S.P.S. S.D.N.W.S. | REVISED MARCH 1978
FEB. 1975

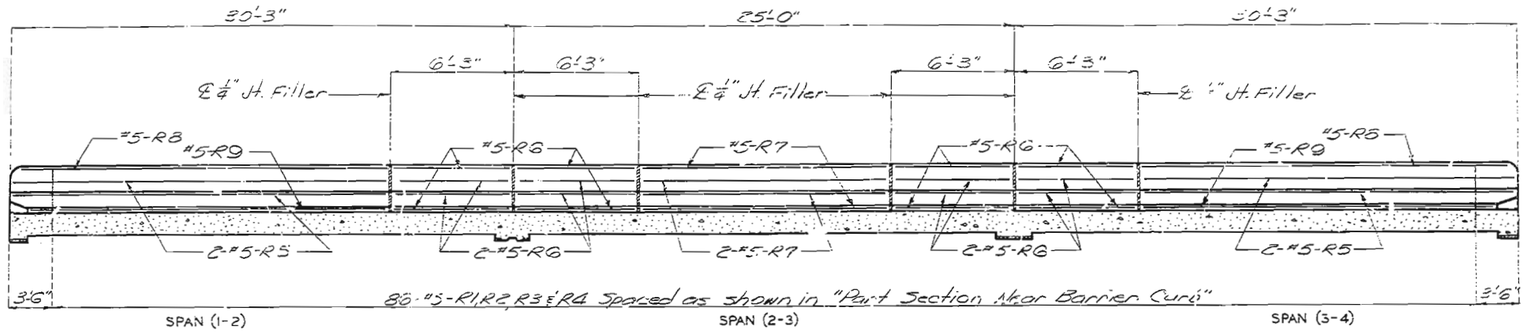
DETAILED Nov. 1978
CHECKED Nov. 1978

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

JACKSON COUNTY L-530R

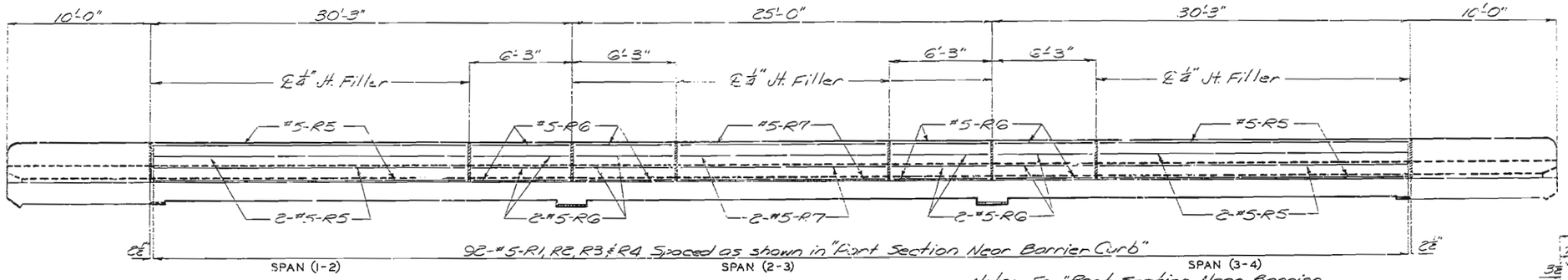
MISSOURI STATE HIGHWAY DEPARTMENT

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



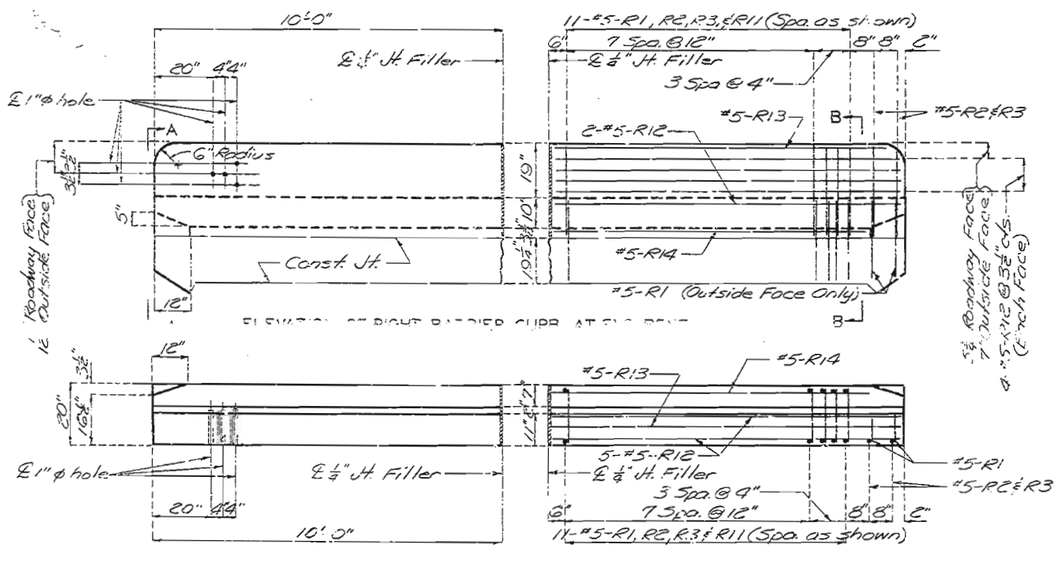
SECTION NEAR LEFT BARRIER CURB

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 ¾" radius or ¾" bevel unless otherwise noted.



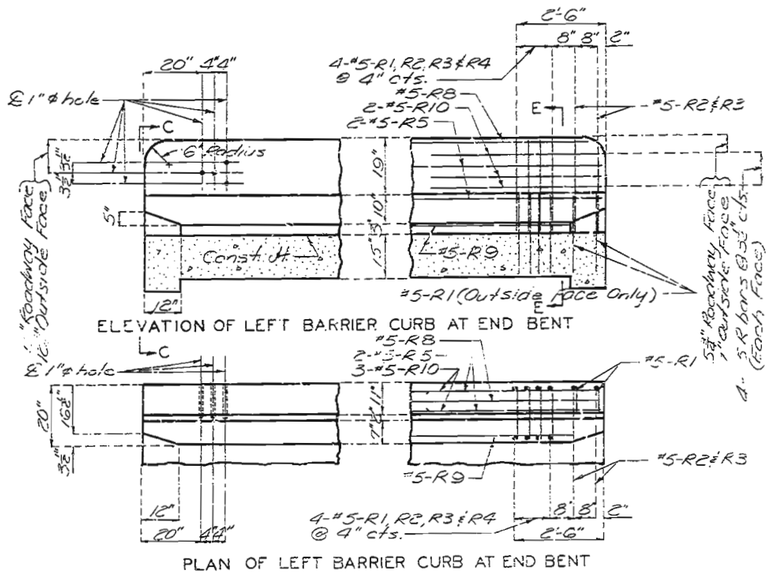
ELEVATION OF RIGHT BARRIER CURB

Note: For "Part Section Near Barrier Curb" See sheet No. 9.



PLAN OF RIGHT BARRIER CURB AT END BENT

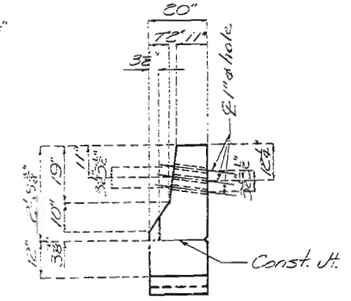
Note: For Section B-B see sheet No. 9



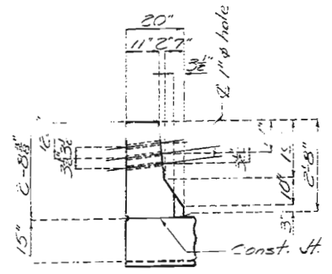
ELEVATION OF LEFT BARRIER CURB AT END BENT

PLAN OF LEFT BARRIER CURB AT END BENT

Note: For Section E-E see sheet No. 9



ELEVATION A-A



ELEVATION C-C

DETAILED Oct 1978
CHECKED Nov 1978

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

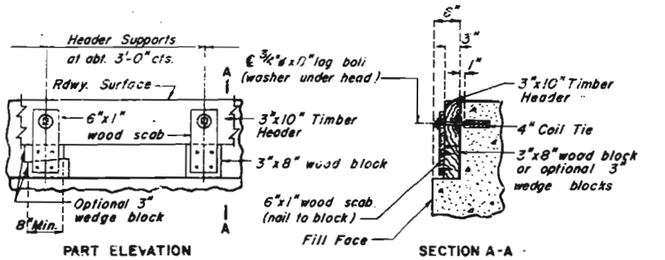
Sheet No. 8 of 10.

JACKSON COUNTY

L-530R

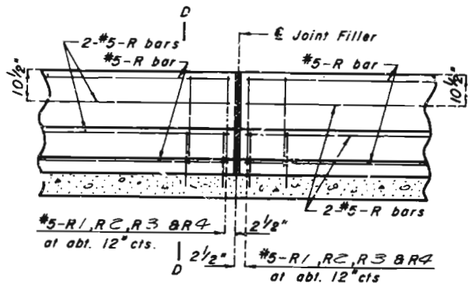
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	153	

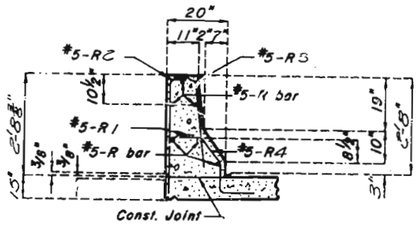


Note: Cost of timber headers complete in place to be included in price bid for concrete.

DETAILS OF TIMBER HEADER AT END BENTS

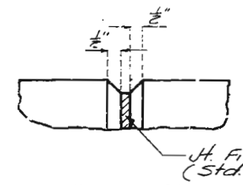


PART SECTION NEAR BARRIER CURB

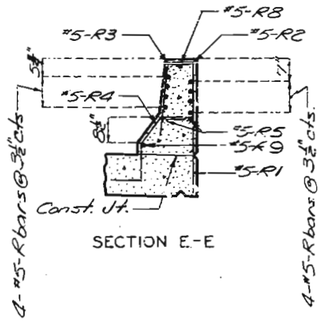


SECTION D-D

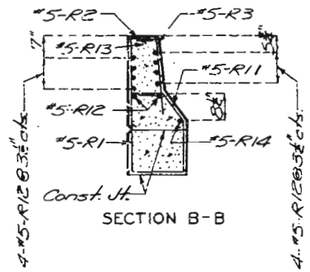
Note: Use minimum lap of 17" for #5 horizontal barrier curb bars.



FILLED JOINT DETAIL



SECTION E-E



SECTION B-B

DETAILED Oct 1978
CHECKED Nov 1978

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

Sheet No. 9 of 10.

JACKSON COUNTY

L-530R

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	154	

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.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			SUBSTRUCTURE																									
			END BTS NO 1 & 4																									
16	5D10		PILE FOOTING		20		X			2	3.000													2	3	2	3	38
32	6H11		WING		20		X	V	4	2	5.000													2	5	2	5	
			INCR = 11.750 IN							9	3.000													9	3	9	3	280
4	6T10		WING		25	S	X				9.500	10	1.000	2	8.000					6	1.750	8	0.000	13	7	13	6	81
12	4U10		BEAM		13	S	X			2	2.000	3	6.375	2	2.000	3	6.375							12	2	11	11	96
8	4U11		BEAM		13	S	X			2	3.000	5	6.500	2	3.000	5	6.500							16	4	16	1	86
16	6V10		WING		20		X	V	4	4	5.000													4	5	4	5	
			INCR = 9.375 IN							6	9.000													6	9	6	9	134
12	6V12		WING		20		X			6	3.000													6	3	6	3	113
8	6V13		WING		20		X			7	1.000													7	1	7	1	85
			BENT																									
			INT BTS NO 2 & 3																									
16	8D30		FOOTING		20		X			6	4.000													6	4	6	4	271
8	6F30		COLUMN		15	S	X				14.125	5	7.000							10.000		10.000		6	9	6	9	81
8	6F31		COLUMN		23	S	X				14.125	4	4.500	14.125		10.000		10.000		10.000		10.000		6	9	6	8	80
6	8H30		BEAM		17		X			9	6.000													10	5	10	5	167
4	6H31		BEAM		20		X			9	6.000													9	6	9	6	57
10	7H32		BEAM		17		X			9	6.000													10	4	10	4	211
30	4P30		COLUMN		13	S	X				21.000		21.000		21.000		21.000							7	5	7	6	150
20	4U30		BEAM		13	S	X				21.000	2	3.000		21.000	2	3.000							8	9	8	6	114
16	8V30		COLUMN		20		X			17	6.000													17	6	17	6	748
			SUPERSTRUCTURE																									
216	5R1		BARRIER CURB		19	S				2	1.000		9.000											2	10	2	9	620
216	5R2		BARRIER CURB		19	S				2	6.000		6.000											3	0	2	11	657
216	5R3		BARRIER CURB		15	S				2	6.125		6.000							2	6.000		3.000	3	0	2	11	657
184	5R4		BARRIER CURB		27	S							9.000		11.125		10.000		12.000		9.125		6.375	3	6	3	4	647
20	5R5		BARRIER CURB		20					23	9.000													23	9	23	9	495
48	5R6		BARRIER CURB		20					6	0.000													6	0	6	0	300
12	5R7		BARRIER CURB		20					12	3.000													12	3	12	3	153
2	5R8		BARRIER CURB		20					23	7.000													23	7	23	7	49
2	5R9		BARRIER CURB		20					22	9.000													22	9	22	9	47
12	5R10		BARRIER CURB		20					5	6.000													5	6	5	6	69
22	5R11		BARRIER CURB		27	S					12.000		16.000		11.125		9.000				6.375		9.125	4	0	3	10	88
20	5R12		BARRIER CURB		20					9	9.000													9	9	9	9	203
2	5R13		BARRIER CURB		20					9	7.000													9	7	9	7	20
2	5R14		BARRIER CURB		20					8	9.000													8	9	8	9	18
112	5S1		SLAB ①	E	20					25	10.000													25	10	25	10	3010
4	5S2		SLAB		20					25	10.000													25	10	25	10	108
2	10S3		SLAB		20					38	6.000													38	6	38	6	331
72	10S4		SLAB		20					45	4.000													45	4	45	4	14045
64	10S5		SLAB ①	E	20					11	1.000													11	1	11	1	3052
114	5S6		SLAB	E	20					42	6.000													42	6	42	6	5053

COMPLETE BILL OF REINFORCING STEEL

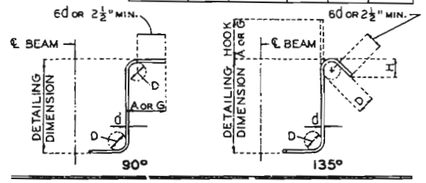
NO. REQD.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
114	5S7		SLAB		20					42	6.000													42	6	42	6	5053
32	10S8		SLAB	E	20					38	6.000													38	6	38	6	5306
66	10S9		SLAB		20					20	7.000													20	7	20	7	5846
44	4S10		SLAB		50						7.250		5.500											21	10	18	6	344
8	6H10		WING		20					11	5.000													11	5	11	5	137
4	6V11		WING		20						16.000													16		16		8
4	4U12		SLAB FILL IN		10	S						3	5.000		9.000									5	7	5	5	14

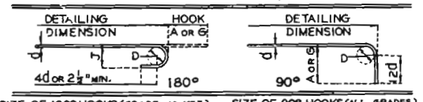
STIRRUP HOOK DIMENSIONS

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.





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 = 8d 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"	2'-0"
#14	2'-2"	20-1/2"	2'-2"	20-1/2"	2'-7"
#18	2'-11"	2'-3"	2'-11"	2'-3"	3'-5"

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.

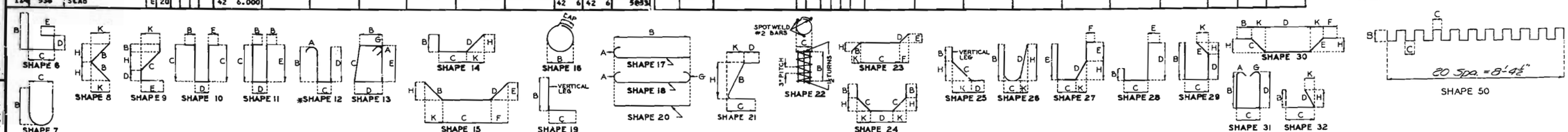
NO. EA. - NUMBER OF BARS OF EACH LENGTH.

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.

* ALL HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.

① Two additional 31 and 35 bars are included in bar bill for testing. See Special Provisions.



BENDING DIAGRAMS

STD. 90.8	REVISED
MAY 1974	OCT. 1978

DETAILED Nov. 1978
CHECKED Nov. 1978

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

Sheet No. 10 of 10.

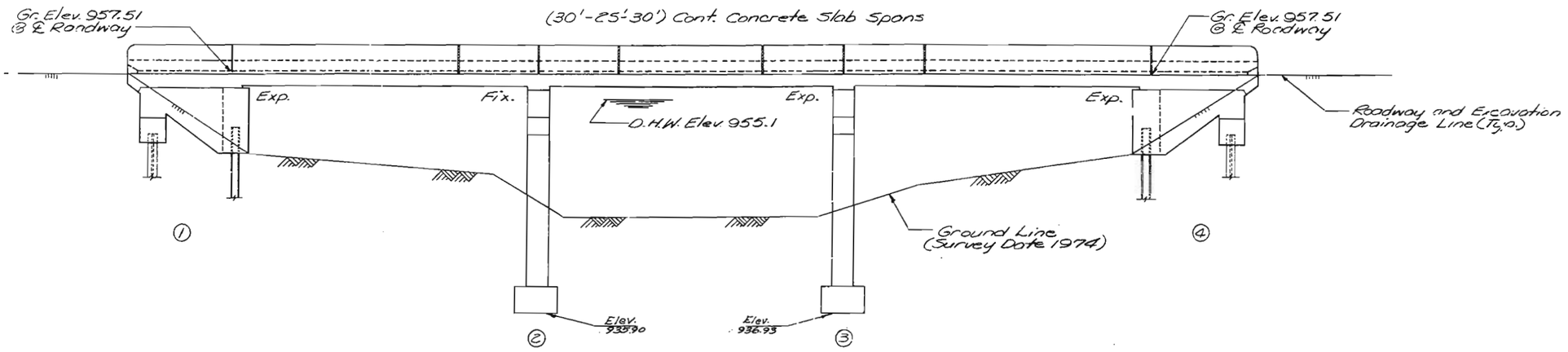
JACKSON COUNTY

L-530 R

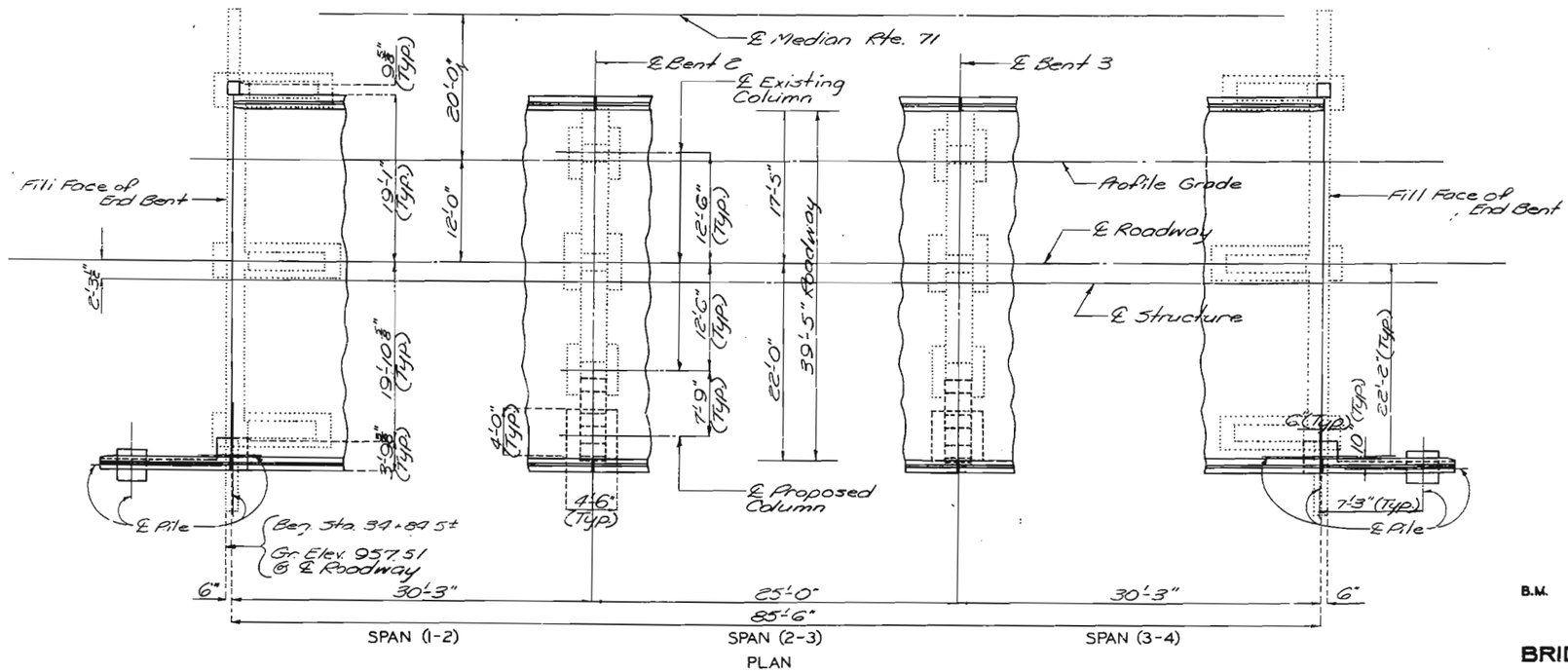
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	145	

FINAL PLANS



GENERAL ELEVATION



PLAN

Note: For Hydraulic Data, Pile Data, General Notes, Quantities and Location Sketch see sheet No. 2

B.M. ELEV. 960.08 TOP BOLT IN S.W. WING WALL STA. 34+84.5

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD TO CASS COUNTY LINE IN GRANDVIEW

PROJECT NO. U-5-71-4(30) **STA.** 34+84.5±

JOB NO. 4-U-71-71 **RTE.** 71

JACKSON **COUNTY**

DATE 1-11-79

STD.
STD. 706.30
L-530 R

DESIGNED Sept. 1978
DETAILED Oct. 1978
CHECKED Nov. 1978

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

Sheet No. 1A of 10.

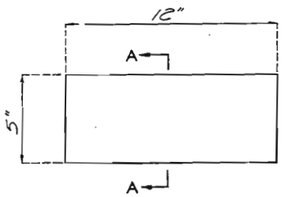
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		79	146	

FINAL PLANS

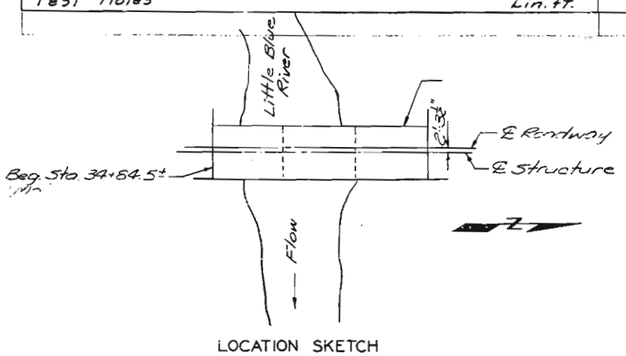
PILE DATA								
BENT NO.			(Wing) 1	(Beam)	2	3	(Wing) 4	(Beam)
BEARING PILES	Pile Type and Size		HP10x42	HP10x42			HP10x42	HP10x42
	Number		1	1			1	1
	Approximate Length	Ft.	17	17			17	17
	Design Bearing	Tons	5	15			5	15
	Hammer Energy Required	Ft. Lbs	7000	7000			7000	7000
SPREAD FOOTINGS	Foundation Material				Shale	Shale		
	Design Bearing	Tons/Sq.ft.			5	5		

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All pile were driven to practical refusal.



TYPICAL PLAN
NEOPRENE BEARING PAD

QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq.ft.		2909	2909
Class B-1 Concrete	Cu yd		200.0	200.0
Class B Concrete	Cu. yd.	120.0		120.0
Class I Excavation	Cu yd	128.0		128.0
Plain Neoprene Brg. Pads (12"x5"x⅜")	Ea.	25		25
Laminated Neoprene Brg. Pads (12"x5"x1⅛")	Ea.	9		9
Reinforcing Steel	Lbs.	2790	30110	32900
Reinforcing Steel (Epoxy Coated)	Lbs.		16420	16420
Special Work (See Special Provisions)	Lump Sum	1		1
Slab drains	Ea.		6	6
Structural Steel Pile (HP10x42)	Lin. ft.	72		72
Test Holes	Lin. ft.	18		18



LOCATION SKETCH

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O.-1973 Load Factor Design

Design Loading:
HS 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) f'c=3,000 psi
Class B1 Concrete (Superstructure) f'c=4,000 psi
Reinforcing Steel fy=60,000 psi

Steel Pile fb=9,000 psi.

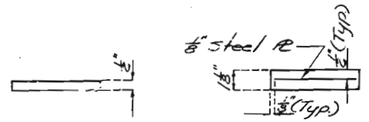
Joint Filler:
All Joint Filler did meet the requirements of Std. Spec 1057.2.4.

Reinforcing Steel:
Minimum clearance to reinforcing steel is 1½" unless otherwise shown.
Bars bonded in old concrete not removed was cleanly stripped and embedded into new concrete as detailed on sheets No. 3 & 5.

Note:
All concrete and reinforcement in Safety Barrier Curbs is included in Superstructure Quantities
All concrete and reinforcement in End Bents above lower construction joint is included in Superstructure Quantities.

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

Compressive strain of any layer of an elastomeric bearing did not exceed 7% at 540 psi average unit pressure.



SECTION A-A
BT. NO. 1, BT. NO. 3
NO. REQUIRED: 9 - BT. NO. 1
16 - BT. NO. 3

SECTION A-A
BT. NO. 4
NO. REQUIRED: 9 - BT. NO. 4

Note: All bearings are 60 durometer

HYDRAULIC DATA	
Drainage Area:	5.0 sq.mi. (Rolling)
Design Discharge:	3640 cfs (50% Urban)
Frequency:	25 yrs.
Design H.W. Elev. @ ℄ Median:	955.1
BASIC FLOOD DATA	
Discharge:	5020 cfs
Design T.W. Elev.	955.9

DETAILED Oct. 1978
CHECKED Nov. 1978

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

Sheet No. 2 of 10.

JACKSON COUNTY

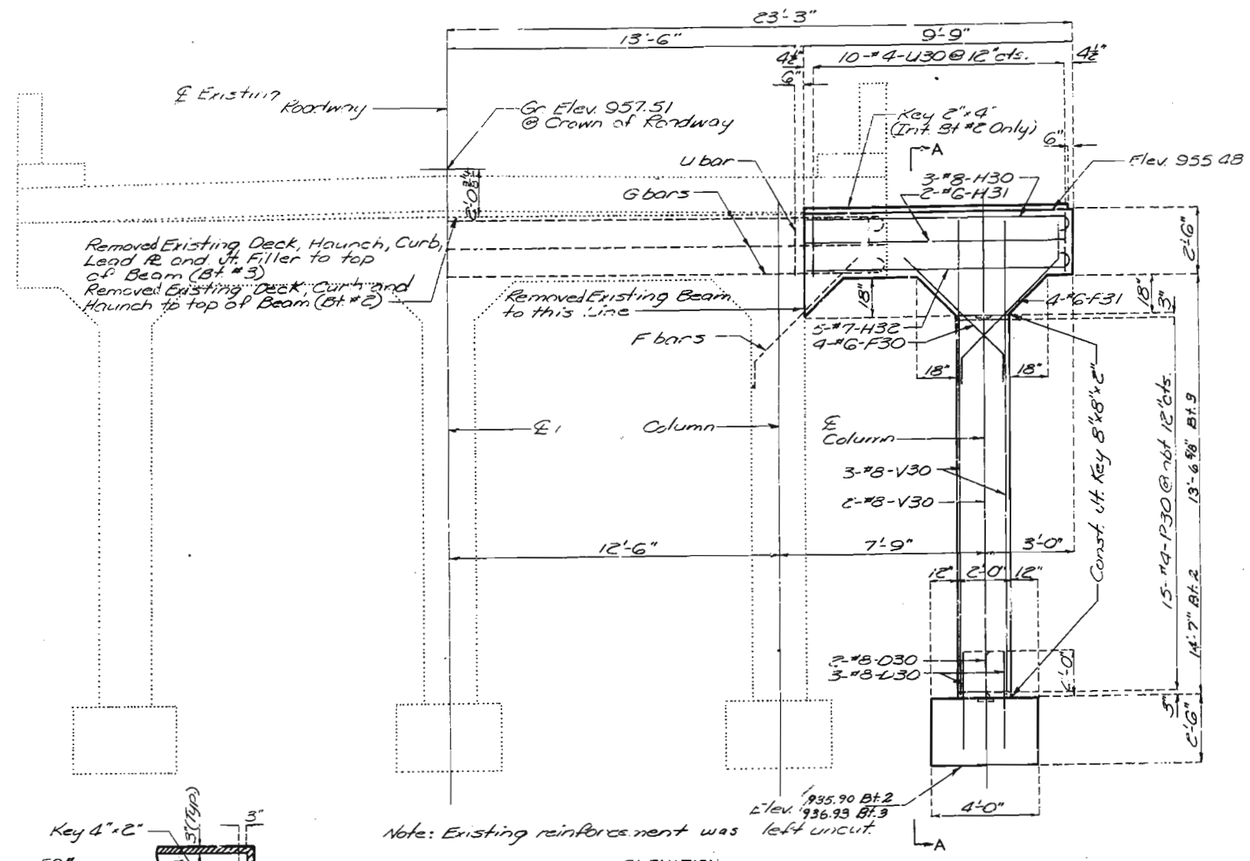
L-530R

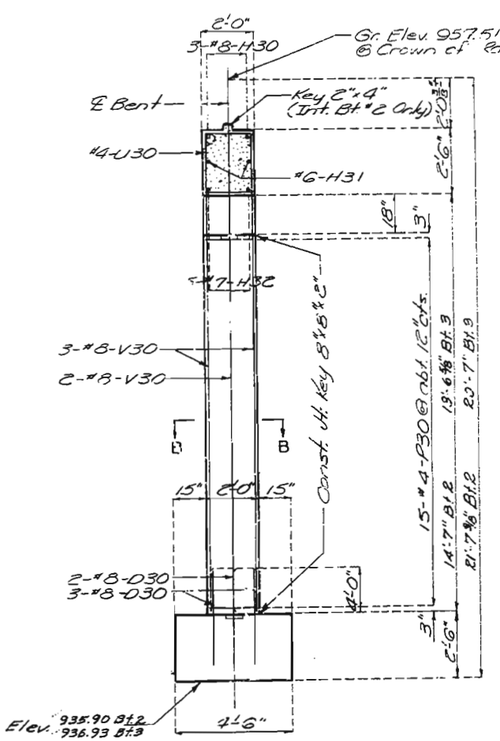
MISSOURI STATE HIGHWAY DEPARTMENT

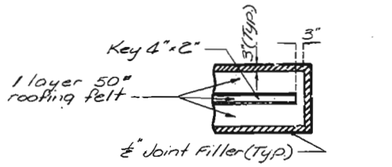
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	149	

FINAL PLANS

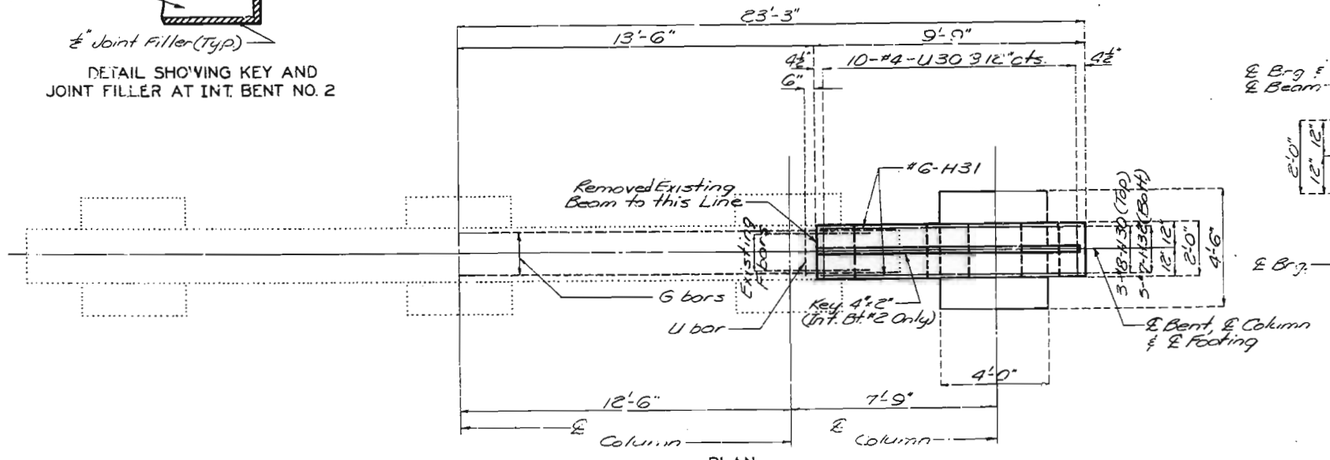
422

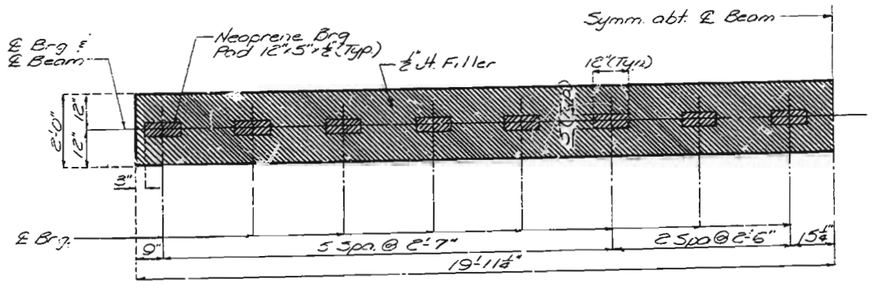






DETAIL SHOWING KEY AND JOINT FILLER AT INT. BENT NO. 2





DETAIL SHOWING BEARING PADS AND JOINT FILLER AT INT. BENT NO. 3

DETAILS OF INT. BTS. NO. 2 & 3

DETAILED Oct. 1978
CHECKED Nov. 1978

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

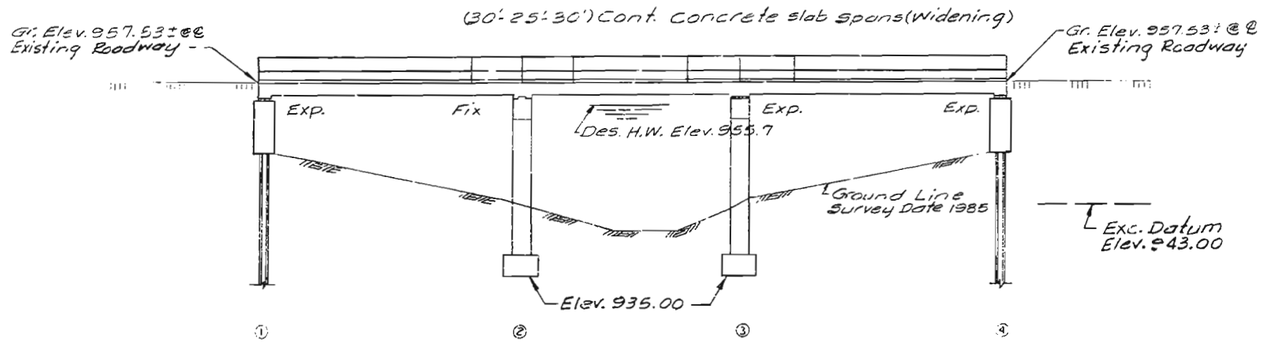
Sheet No. 5 of 10.

JACKSON COUNTY

L-530R

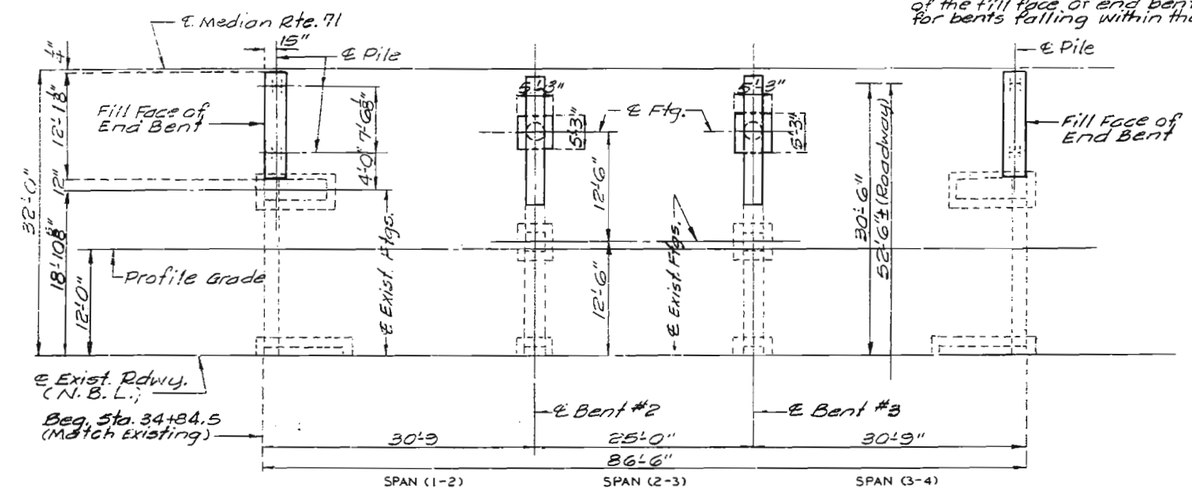
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO	SHEET NO.
MO.		34
SEC./SUR 36	TWP 47 N	RGE. 33 W

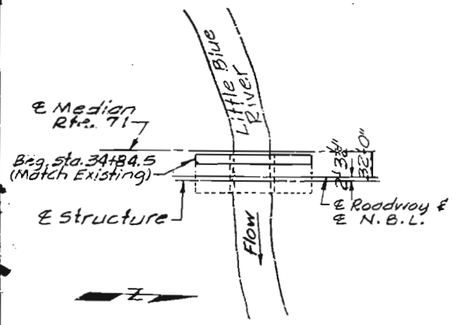


GENERAL ELEVATION

Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25' in back of the fill face of end bents before piles are driven for bents falling within the embankment section.



PLAN



LOCATION SKETCH

HYDROLOGIC DATA	
Drainage Area = 5.0 Sq. Mi. (Rolling)	
Design Discharge = 4220 cfs. (25 Years)	
Design H.W. Elev. 955.7 (25 Years)	
BASIC FLOOD DATA	
Q100 =	5935 cfs.
High water stage =	956.7

PILE & FOOTING DATA					
BENT NO		1	2	3	4
BEARING PILE	Pile Type and Size	HP10x42	—	—	HP10x42
	Number	2	—	—	2
	Approximate Length Ft	17	—	—	17
	Design Bearing Tons	23	—	—	23
	Hammer Energy Req'd. Ft. Lbs.	7,000	—	—	7,000
SPREAD FOOTING	Foundation Material	—	Shale	Shale	—
	Design Bearing Tons/Sq. Ft.	—	5.0	5.0	—

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims thru 1985 Load Factor Design

Design Loading:
HS20-44 35#/sq. ft. Future wearing surface
Modified 24,000# Tandem Axle
Earth 120#/cu. ft. Equivalent Fluid pressure 30#/cu. ft.

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi.
Class B2 Concrete (Superstructure)	f'c = 4,000 psi.
Class B1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi.
Reinforcing Steel (Grade 60)	fy = 60,000 psi.
Steel Pile	fb = 9,000 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 steel shall be 1½", unless otherwise shown.
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.

Traffic Maintained: Traffic to be maintained during construction. (See Spec. Prov.)

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

Cost of furnishing and installing Resin Anchor Assemblies shall be included in Contract unit price for Concrete.

Neoprene Pads:
Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, will be paid for at the contract unit price for Plain & Laminated Neoprene Bearing Pads per each.

ESTIMATED QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		86	86
Partial Removal of Substructure Conc.	Lump sum	1		1
Class 1 Excavation	Cu. Yd.	25		25
Class 2 Excavation	Cu. Yd.	40		40
Structural Steel Piles (10 in.)	Lin. Ft.	68		68
Class B Concrete	Cu. Yd.	27.6		27.6
Class B2 Concrete (Superstr. Solid Slab)	Cu. Yds.		57.9	57.9
Slab Drains	Each		3	3
Safety Barrier Curb	Lin. Ft.		86	86
Plain Neoprene Bearing Pads	Each		10	10
Laminated Neoprene Bearing Pads	Each		4	4
Reinforcing Steel (Epoxy)	Lb.		5,800	5,800
Reinforcing Steel (Plain)	Lb.	3,260	8,800	12,060

B.M. #4 Elev. 957.04 Top Bolt in N.W. Wing Wall of S.B.L. Bridge.

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD. TO CASS COUNTY LINE IN GRANDVIEW

PROJECT NO. 4-U-71-732C **STA.** 34+84.5±

JOB NO. 4-U-71-732C **RTE.** 71 N.B.L.

Cass-JACKSON **COUNTY**

DATE 12/22/87

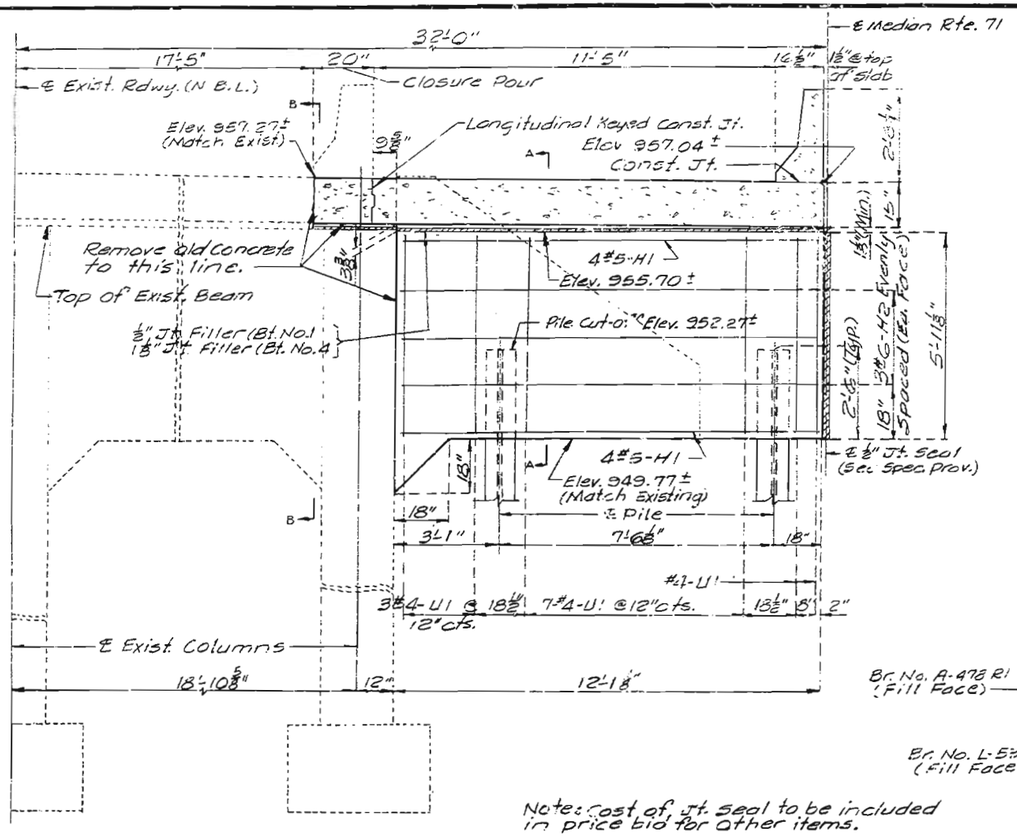
STD.
STD. 705.35
L-530 RI

DESIGNED Apr. 1986
DETAILED JUNE 1986
CHECKED Sept. 1986

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

#34 327

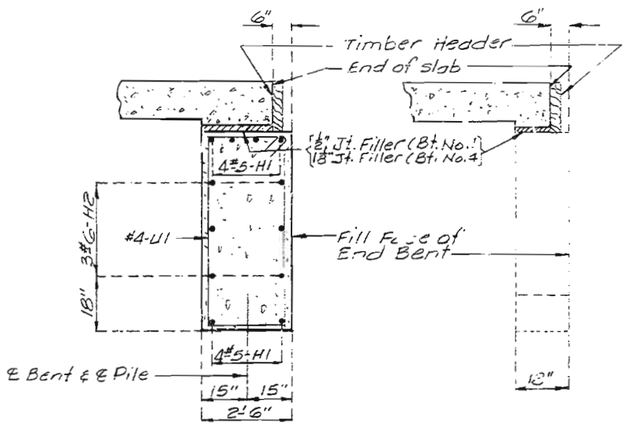
STATE	PROJ NO	SHEET NO
MO.		35



PART ELEVATION

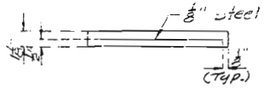
Note: Cost of Jt. Seal to be included in price bid for other items.

Note: For reinforcement of barrier curb, see Sheet No. 8.
For details of timber header, see Sheet No. 8.



SECTION A-A

SECTION B-B



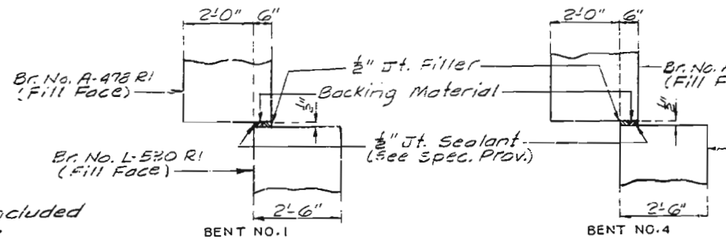
TYPICAL SECTION THRU NEOPRENE BEARING PAD (AT BENT NO. 4)

No. Required 4

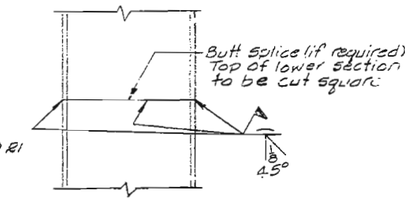
TYPICAL SECTION THRU NEOPRENE BEARING PAD AT BENT NO. 1

No. Required 4

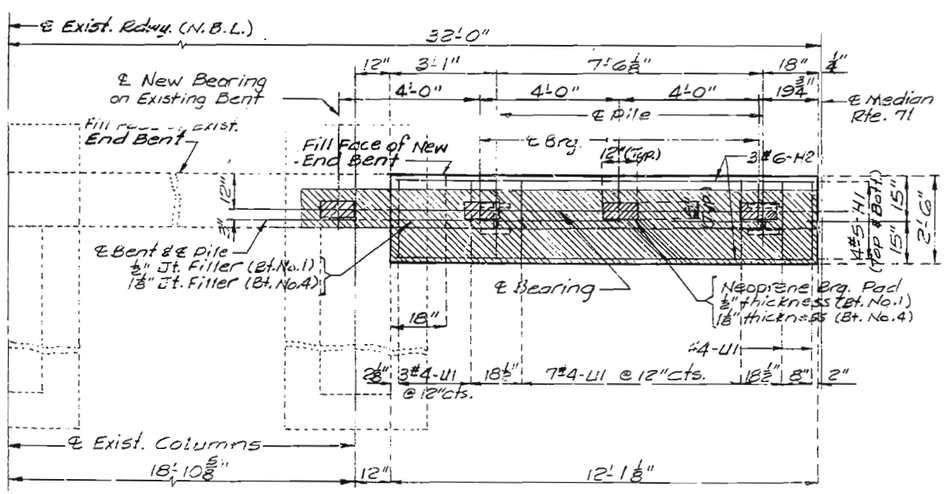
Note: All Neoprene bearings shall be 60 durometer.



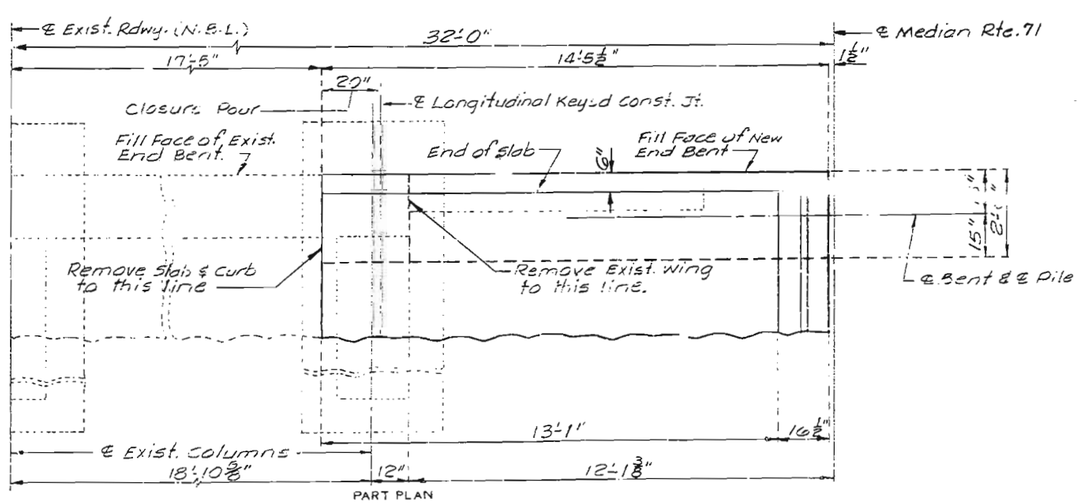
DETAILS OF END BENTS NO. 1 & 4
(SHOWING JT. SEAL)



DETAIL OF STEEL PILE SPLICE



PART PLAN OF BEAM (BELOW HAUNCH)



PART PLAN

DETAILS OF END BENT NO. 1
(BENT NO. 4 OPPOSITE HAND)

#5 3628

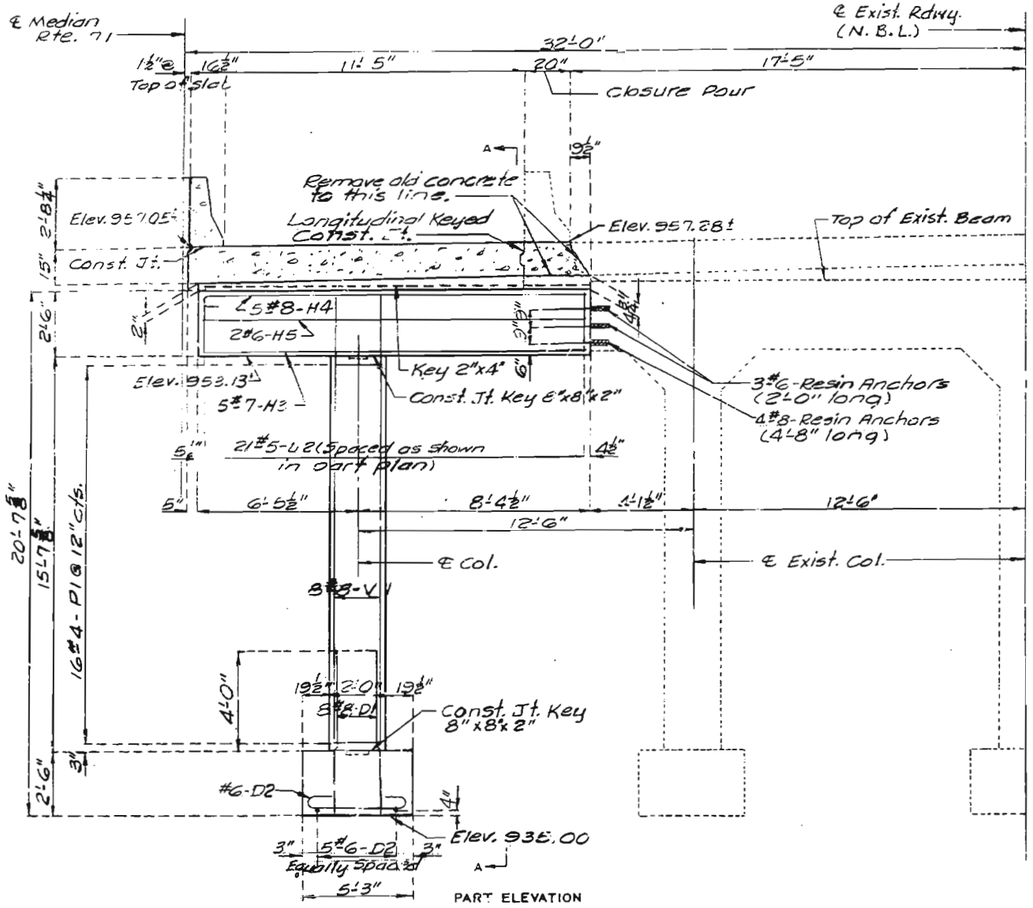
DETAILED MAY 1986
CHECKED Sept. 1986

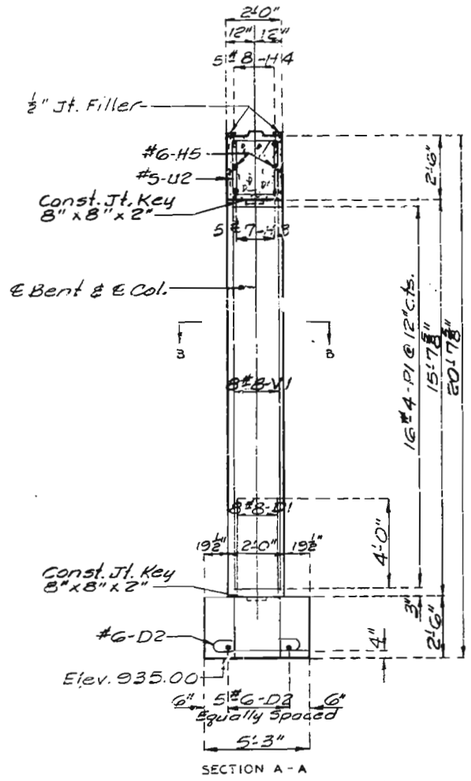
Note: This drawing is not to scale. Follow dimensions.

Cass-JACKSON COUNTY

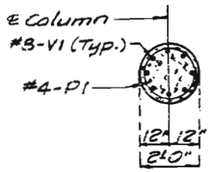
L-530 R1

STATE	PROJ NO	SHEET NO
MO		30

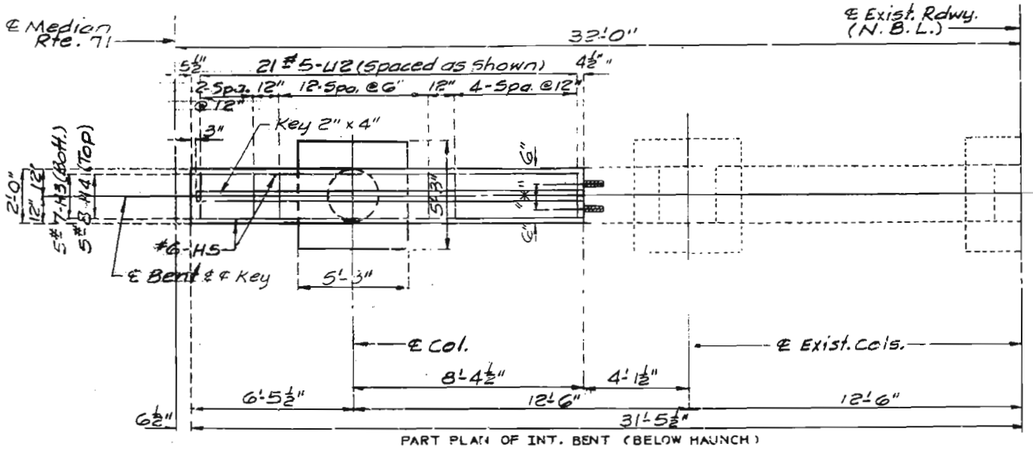


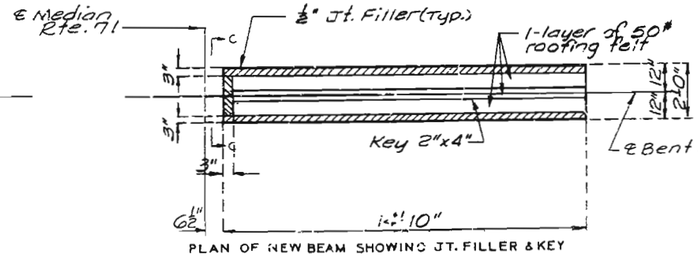


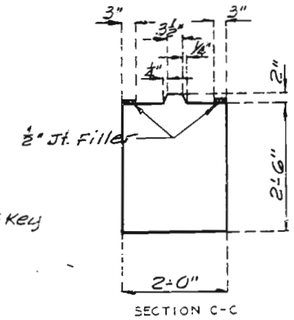
Note: Slab & haunch not shown in section A-A for clarity.



SECTION B-B







Note: "*" 3 #6-Resin Anchors Equally Spaced (2'-0" long) Top & Middle
4 #8-Resin Anchors Equally Spaced (4'-8" long) Bottom

DETAILS OF INT. BENT NO. 2

DETAILED JUNE 1986
CHECKED Sept 1986

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

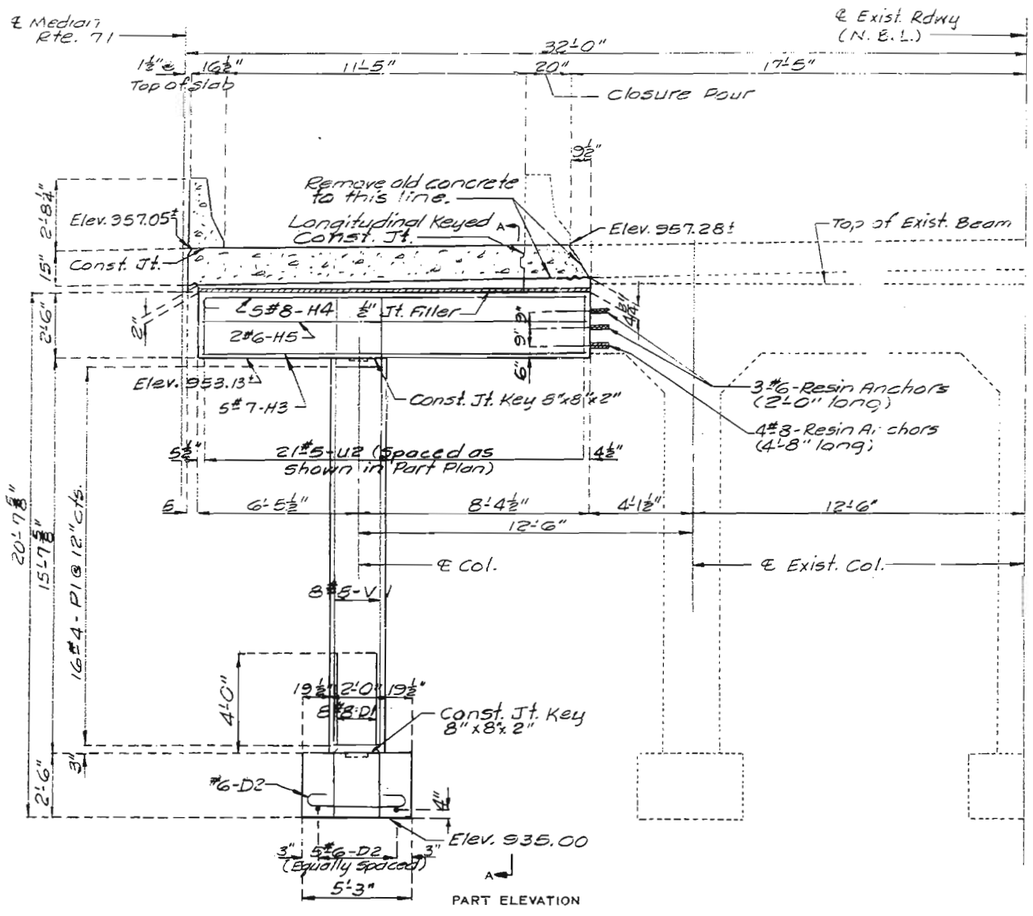
Sheet No. 3 of 9

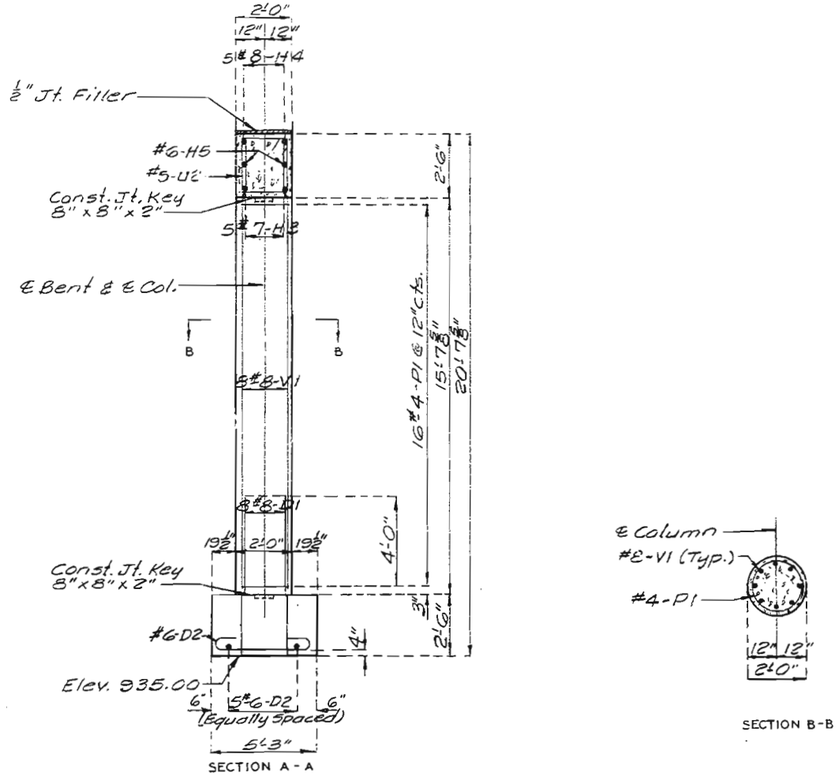
Cass-JACKSON **COUNTY**

L-530 R1

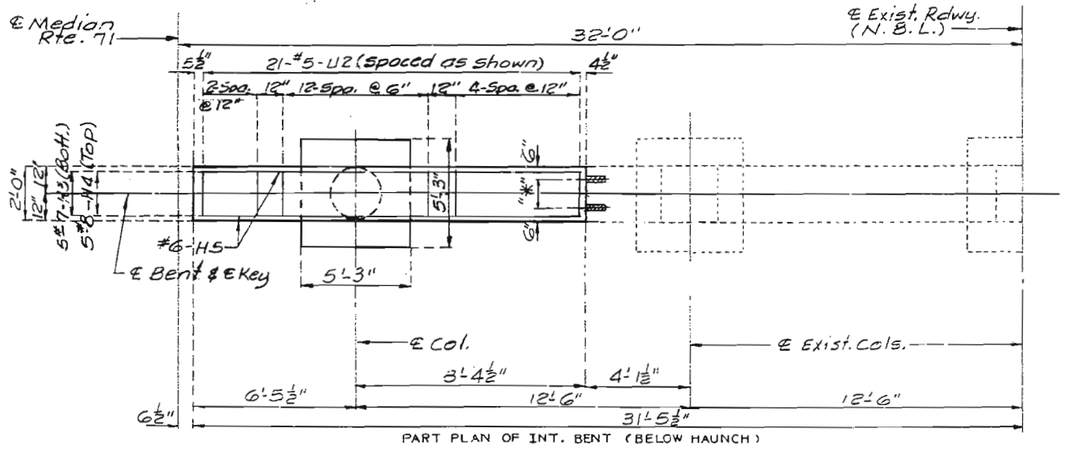
46 329

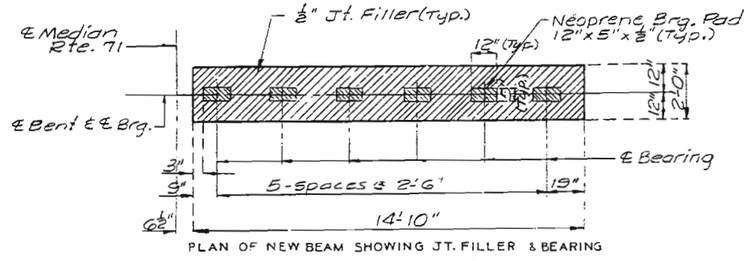
STATE	PROJ NO	SHEET NO.
MO.		37





SECTION B-B





PLAN OF NEW BEAM SHOWING JT. FILLER & BEARING

Note: "*" 3 #6 Resin Anchors Equally Spaced (2'-0" long) Top & Middle
4 #8 Resin Anchors Equally Spaced (4'-8" long) Bottom

DETAILS OF INT. BENT NO. 3

DETAILED JUNE 1986
CHECKED Sept. 1986

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

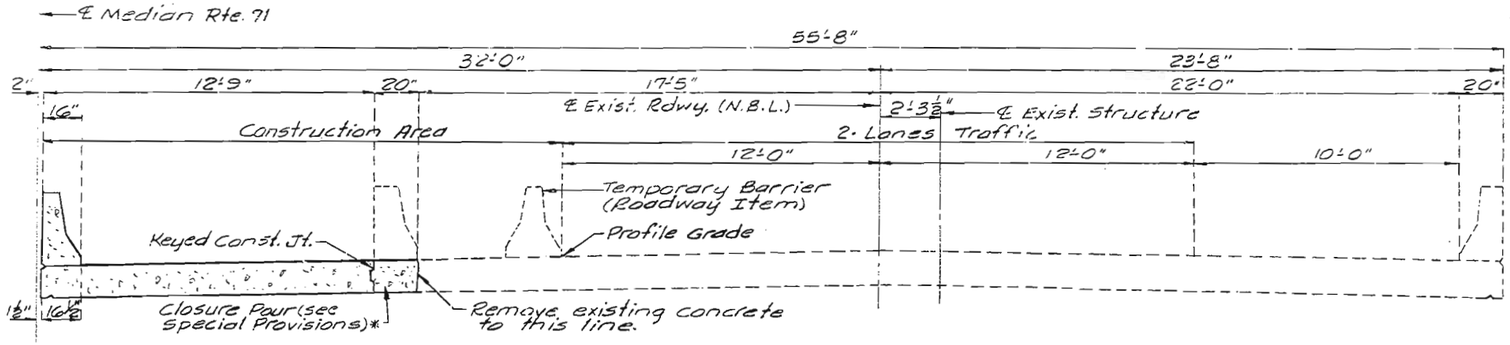
Sheet No. 4 of 9.

Cass - JACKSON COUNTY

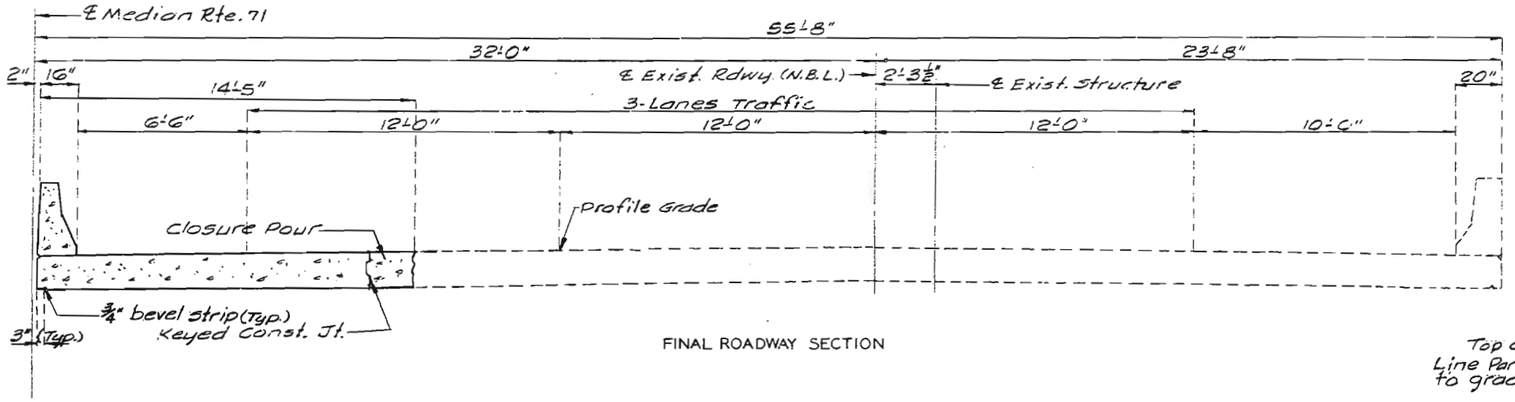
L-530 RI

47 330

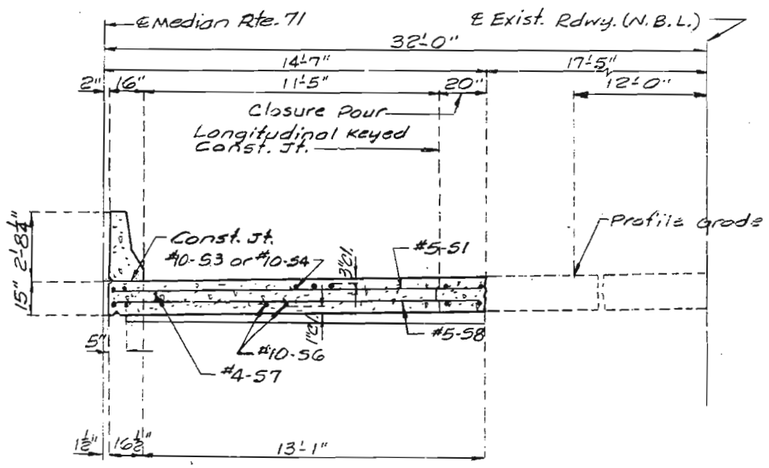
STATE	PROJ. NO	SHEET NO.
MO		33



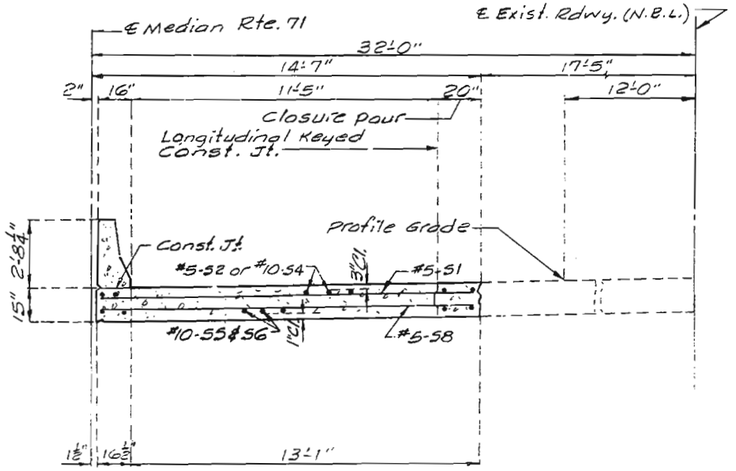
CONSTRUCTION STAGE



FINAL ROADWAY SECTION

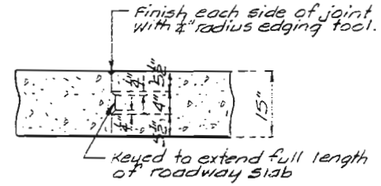


PART CROSS SECTION NEAR INT. BENT (N.B.L.)

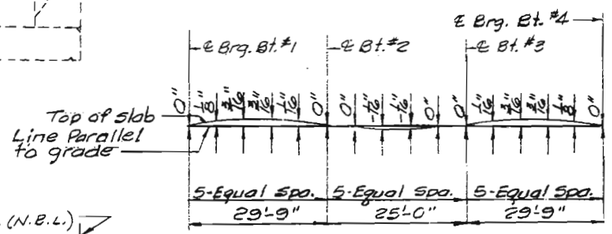


PART CROSS SECTION NEAR CENTER OF SPAN (N.B.L.)

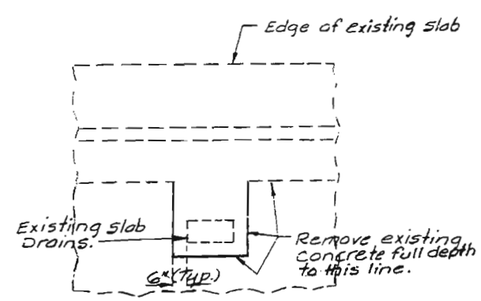
Note: "*" Release forms before closure pour is placed. Closure pour shall be placed before curbs.



DETAIL OF LONGITUDINAL KEYED CONST. JT. (THRU SLAB)



CAMBER DIAGRAM



DETAIL OF EXISTING SLAB DRAIN REMOVAL

Note: Initiate concrete removal around slab drains with 1" deep sawcut for removal of existing slab drains on widened side of bridge.

118 331

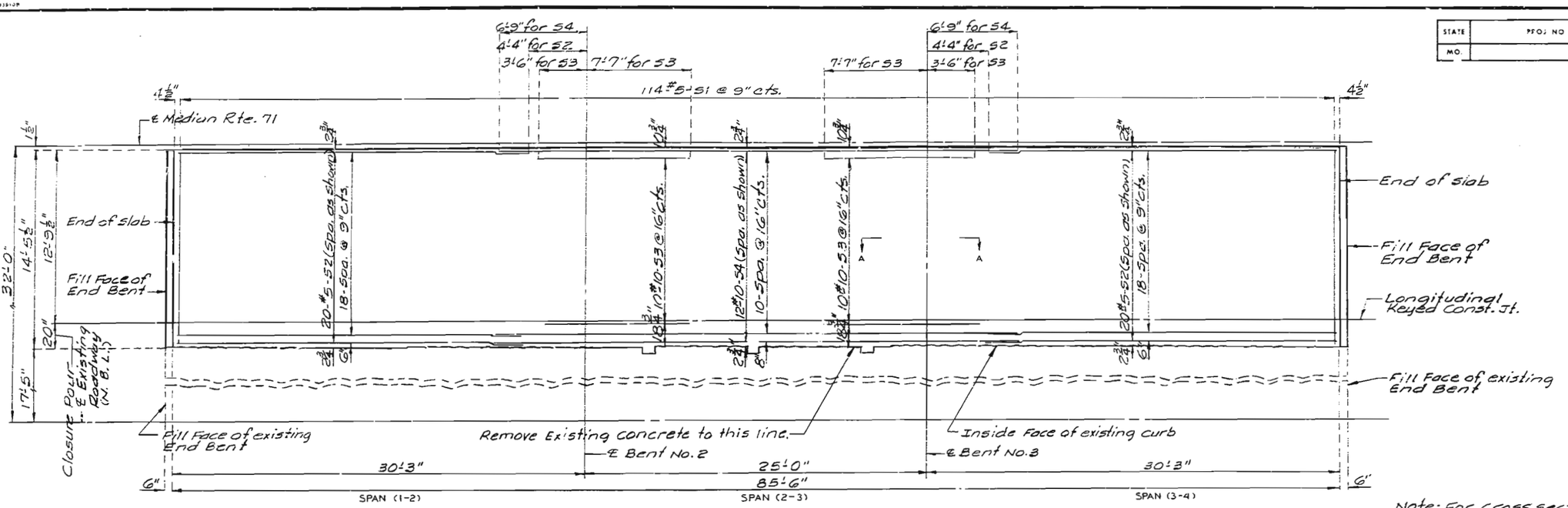
DETAILED MAY 1986
CHECKED Sept. 1986

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

Cass-JACKSON COUNTY

L 530 R1

STATE	PROJ. NO	SHEET NO.
MO.		39

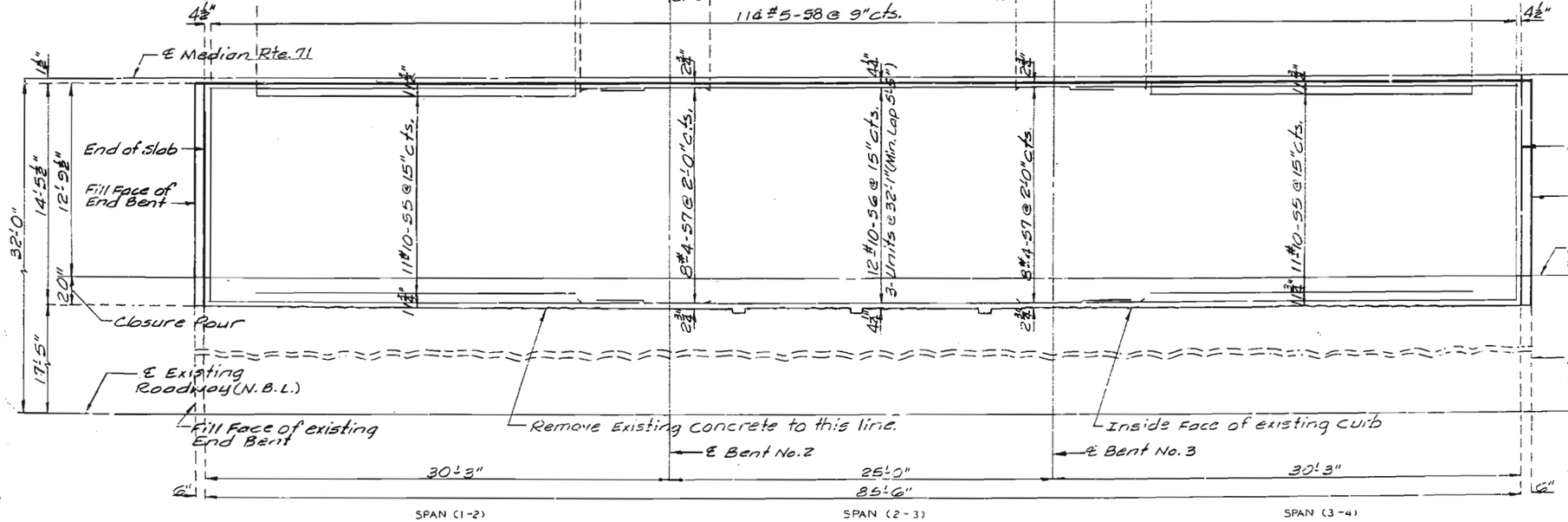


PART PLAN OF TOP SLAB REINFORCEMENT

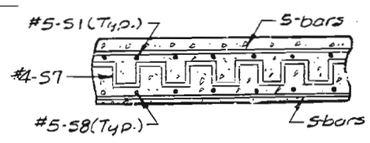
Note: For cross section of slab showing reinforcement, see Sheet No. 5
For Camber Diagram, see sheet No. 5

The Contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.

For removal of Existing slab drains, see sheet No. 5.
For location and details of slab drains, see sheet No. 7.
Epoxy coating on Existing slab reinforcing to be repaired before placement of new slab concrete.



PART PLAN OF BOTTOM SLAB REINFORCEMENT



SECTION A-A

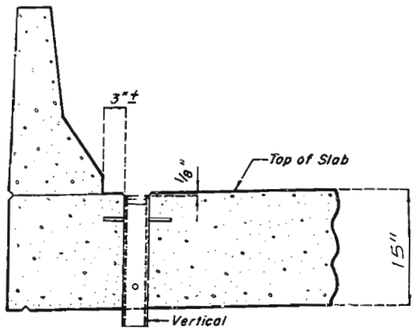
HG 338

DETAILED MAY 1986
CHECKED Sept. 1986

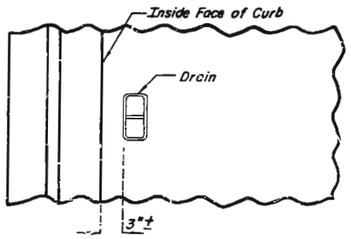
Note: This drawing is not to scale. Follow dimensions.

Cass-JACKSON COUNTY L-530RI

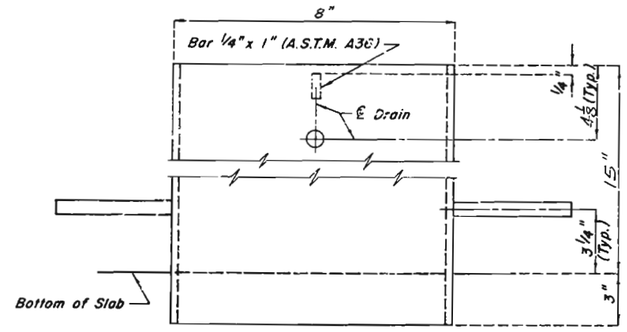
STATE	PROJ. NO	SHEET NO
MO		40



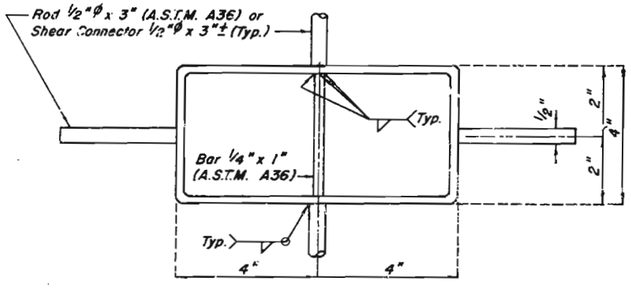
PART ELEVATION OF SLAB AT DRAIN



PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF DRAIN

GENERAL NOTES:

SLAB DRAINS MAY BE FABRICATED OF EITHER ¼" WELDED SHEETS OF A.S.T.M. A36 STEEL OR FROM ¼" STRUCTURAL STEEL TUBING A.S.T.M. A500 OR A501.

OUTSIDE DIMENSIONS OF DRAINS ARE 8" x 4".

THE DRAINS SHALL BE CAST IN THE CONCRETE WITH THE TOP OF THE DRAINS BEING ⅛" BELOW THE FINISHED CONCRETE LINE.

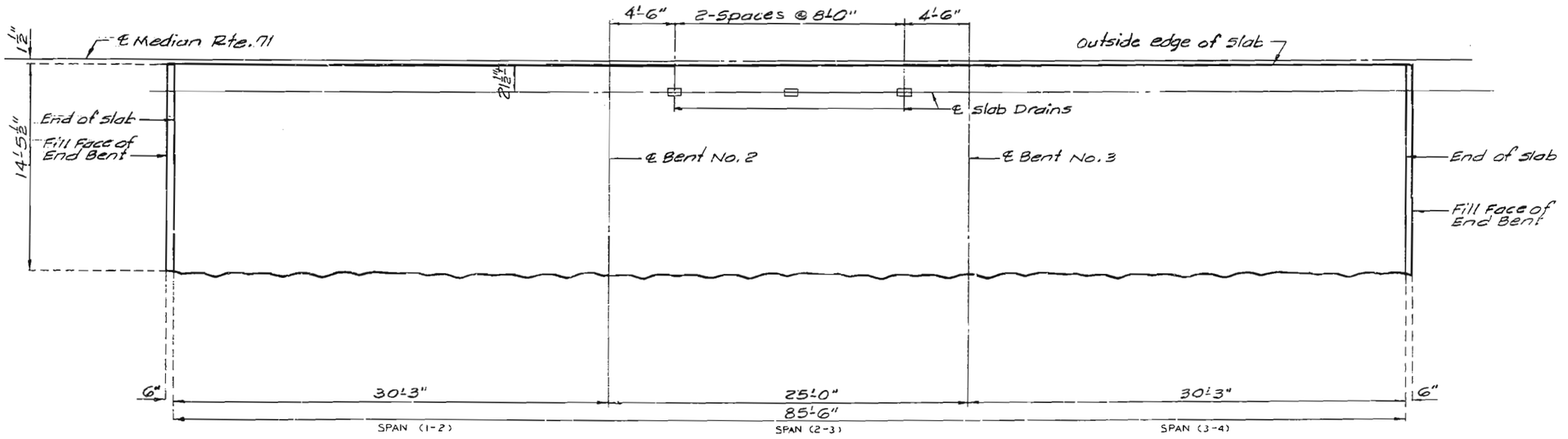
LOCATE DRAINS IN THE SLAB BY DIMENSIONS SHOWN IN THE PART ELEVATION.

SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS.

THE DRAINS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A123.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE SLAB DRAINS.

SLAB DRAIN DETAILS



PART PLAN SHOWING SLAB DRAINS

Solid Slab Structures
SPS-SD(N.W.S.)
FEB. 1975
REVISED
MARCH 1978

DETAILED MAY 1986
CHECKED Sept. 1986

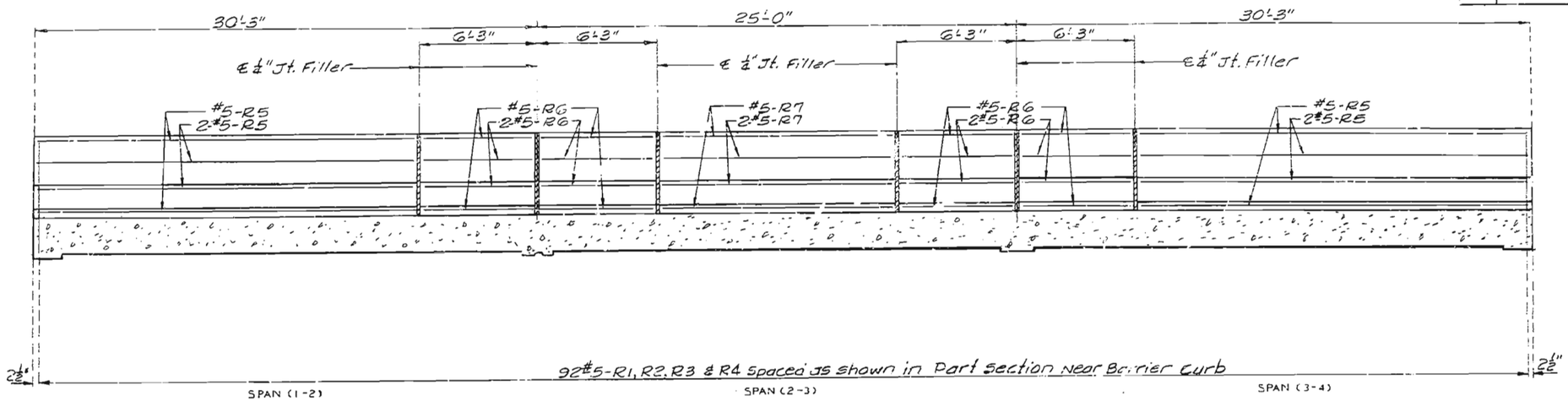
Note: This drawing is not to scale. Follow dimensions.

Cass-JACKSON COUNTY

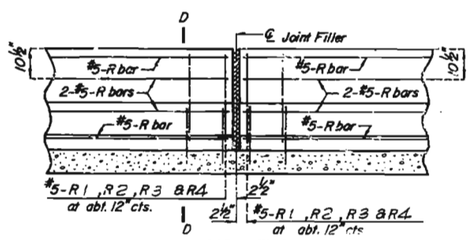
L-530R1

120 333

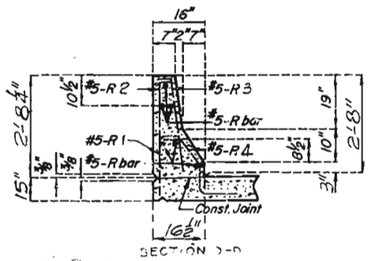
STATE	PROJ NO	SHEET NO.
MO		41



ELEVATION OF LEFT BARRIER CURB

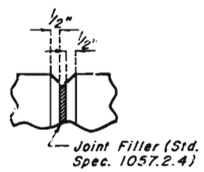


PART SECTION NEAR LEFT BARRIER CURB

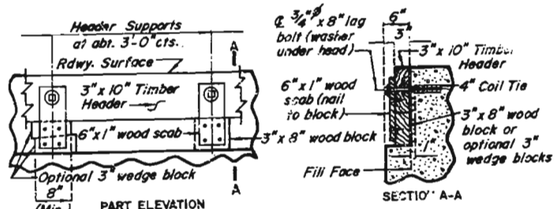


SECTION C-D

Note: The cross sectional area is 2.33 sq. ft. Use a minimum lap of 17" for #5 horizontal barrier bars.



FILLED JOINT DETAIL



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

DETAILS OF TIMBER HEADER AT END BENTS

NOTES:

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 ⅜" 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 Class B1.

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

DETAILS OF BARRIER CURB

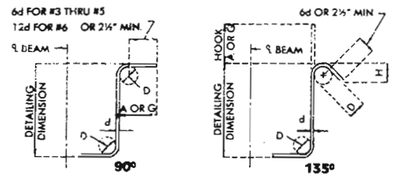
DETAILED MAY 1986
CHECKED Sept. 1986

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

Cass-JACKSON COUNTY

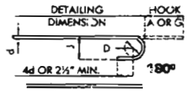
L 530 R1

127 334



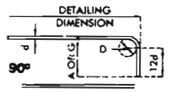
STIRRUP HOOK DIMENSIONS					
		GRADES 40-50-60 KSI			
BAR SIZE	D (IN.)	90° HOOK	135° HOOK		
		HOOK A OR G	HOOK A OR G	APPROX H	
#3	1½"	4"	4"	2½"	
#4	2"	4½"	4½"	3"	
#5	2½"	6"	5½"	3¾"	
#6	4½"	12"	7¾"	4½"	

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



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	D (IN.)	180° HOOKS ALL GRADES		90° HOOKS ALL GRADES
		A OR G	J	A OR G
#3	2¼"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"
#7	5¼"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9½"	15"	11¾"	19"
#10	10¾""	17"	13¼"	22"
#11	12"	19"	14¾"	2'-0"
#14	18¼"	2'-3"	21¾"	2'-7"

NOTES:

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.

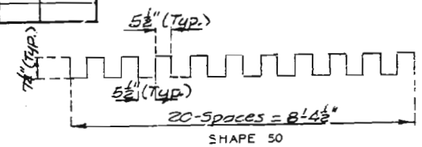
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

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.
PAYMENT QUANTITIES ARE BASED ON ACTUAL LENGTHS.

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE MARK	LOCATION	(E) EPOXY	SHAPE NO	(S) STIRRUP	(X) SUBSTR.	(V) VARIES	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT IN	ACTUAL LENGTH FT IN	WEIGHT LBS.
		SUBSTRUCTURE																
		END BTS.NO.164																
16	5H1	BEAM		20		X		11	10.000							11 10	11 10	197
12	6H2	BEAM		20		X		11	10.000							11 10	11 10	213
24	4U1	BEAM		13		X		2	3.000	5 8.125	2 3.000	5 8.125				17 2	16 11	271
		INT.BTS.NO.2 63																
16	8D1	FOOTING & COL.		20		X		6	6.000							6 6	6 6	278
20	6D2	FOOTING		18		X		4	0.000							6 4	6 4	190
10	7H3	BEAM		20		X		14	7.000							14 7	14 7	298
20	8H4	BEAM		17		X		14	7.000							15 6	15 6	414
4	6H5	BEAM		20		X		14	7.000							14 7	14 7	86
32	4P1	COLUMN		16		X			21.000							6 4	6 4	135
42	5U2	BEAM		13		X			21.000	2 3.000	21.000	2 3.000				9 8	9 4	409
16	8V1	COLUMN & BEAM		20		X		17	11.000							17 11	17 11	765
		SUPERSTRUCTURE																
92	5R1	BARRIER CURB	E	19	S				17.000	6.000						23	22	176
92	5R2	BARRIER CURB	E	19	S			2	5.000	3.500						2 4	2 7	248
92	5R3	BARRIER CURB	E	15	S			2	5.125	3.500				2 5.000	3.000	2 9	2 8	256
92	5R4	BARRIER CURB	E	27	S					6.000	11.125	7.000	12.000	5.125	6.375	3 0	2 10	272
12	5R5	BARRIER CURB	E	20				23	9.000							23 9	23 9	297
24	5R6	BARRIER CURB	E	20				6	6.000							6 0	6 0	152
8	5R7	BARRIER CURB	E	20				12	3.000							12 3	12 3	103
114	5S1	SLAB	E	20				14	2.000							14 2	14 2	1686
40	5S2	SLAB	E	20				25	10.000							25 10	25 10	1078
22	1053	SLAB	E	20				11	1.000							11 1	11 1	1049
12	1054	SLAB	E	20				38	6.000							38 6	38 6	1938
22	1055	SLAB		20				20	7.000							20 7	20 7	1949
36	1056	SLAB		20				32	1.000							32 1	32 1	4970
16	457	SLAB		50	S											21 10	18 6	198
114	558	SLAB		20				14	2.000							14 2	14 2	1684
		END OF BAR LIST																

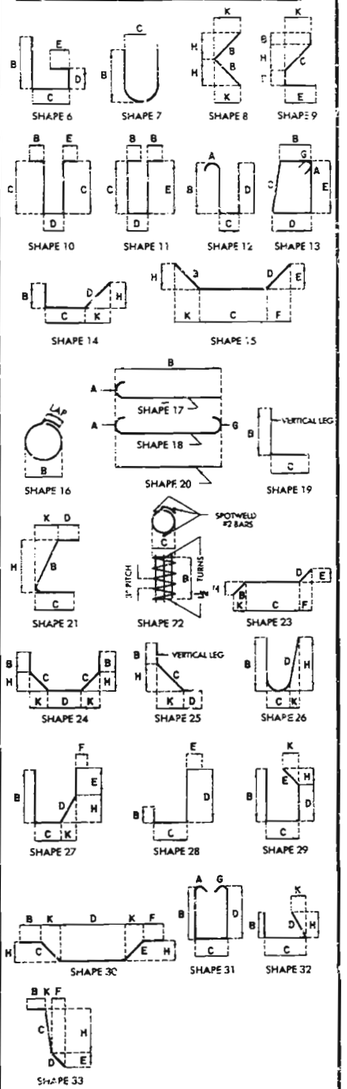
Note: Two additional #5-R5 & #10-S8 included in bar bill for testing.



SHAPE 50

BENDING DIAGRAMS

STATE	PROJ NO	SHEET NO
MO		42



REVISED (JUNE 1986)	STD. 90.6.5
	MAY 1974

DETAILED Sept. 1986
CHECKED Oct. 1986

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

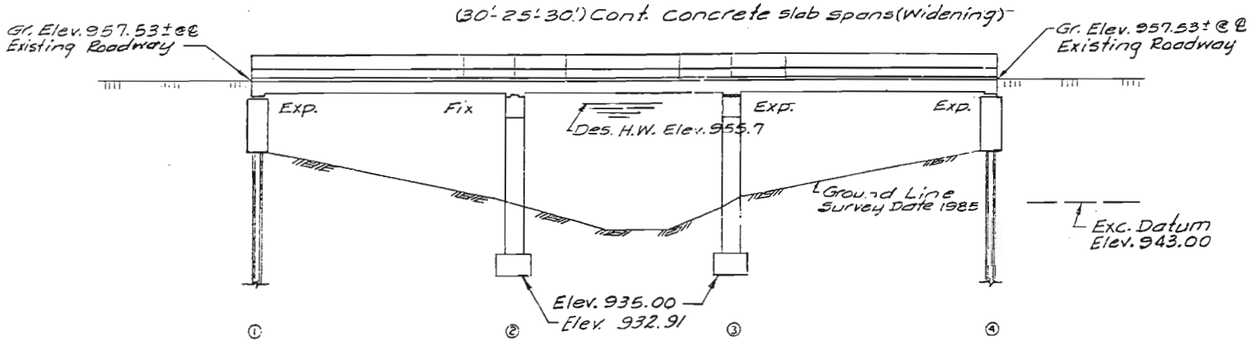
Cass-JACKSON COUNTY

L-530 RI

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

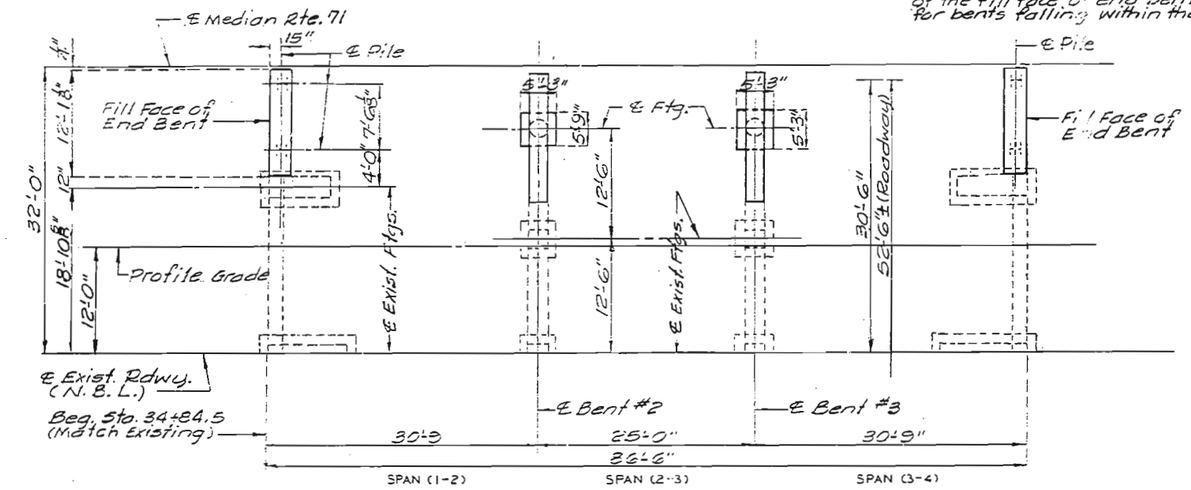
STATE	PROJ. NO.	SHEET NO.
MO	4-U-71-732C	26
SEC./SUR. 36	TWP. 47 N	RGE. 33 W

FINAL PLANS

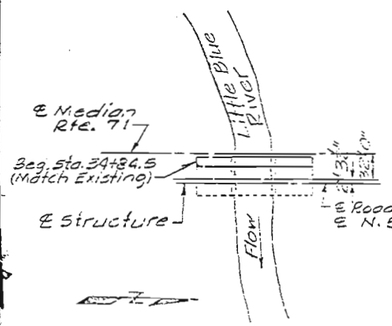


GENERAL ELEVATION

Note: Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25' in back of the fill face of end bents before piles are driven for bents falling within the embankment section.



PLAN



LOCATION SKETCH

HYDROLOGIC DATA
Drainage Area = 5.0 Sq. Mi. (Rolling)
Design Discharge = 4220 cfs. (25 Years)
Design H.W. Elev. 955.7 (25 Years)
BASIC FLOOD DATA
Q 100 = 5935 cfs.
High water Stage = 956.7

PILE & FOOTING DATA						
BENT NO			1	2	3	4
BEARING PILE	Pile Type and Size		HP10x42	—	—	HP10x42
	Number		2	—	—	2
	Approximate Length	Ft.	18	—	—	17
	Design Bearing	Tons	23	—	—	23
	Hammer Energy Reqd.	Ft. Lbs.	17000	—	—	17000
SPREAD FOOTING	Foundation Material		—	Shale	Shale	—
	Design Bearing	Tons/Sq. Ft.	—	5.0	5.0	—

Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.

GENERAL NOTES:

Design Specifications: A.A.S.H.T.O. - 1983 and Interims thru 1985 Load Factor Design

Design Loading:
HS 20-44 35#/sq. ft. Future wearing Surface
Modified 24,000# Tandem Axle
Earth 120#/cu. ft. Equivalent Fluid pressure 30#/cu. ft.

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi.
Class B2 Concrete (Superstructure)	f'c = 4,000 psi.
Class B1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi.
Reinforcing Steel (Grade 60)	fy = 60,000 psi.
– Steel Pile	fb = 9,000 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 steel shall be 1½", unless otherwise shown.
Bars banded 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.

Traffic Maintained: Traffic to be maintained during construction. (See Spec. Prov.)

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

Cost of furnishing and installing Resin Anchor Assemblies shall be included in Contract unit price for Concrete.

Neoprene Pads:
Cost of furnishing, fabricating and installing Neoprene Bearing Pads complete in place, will be paid for at the contract unit price for Plain & Laminated Neoprene Bearing Pads per each.

ESTIMATED QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Curb Removal	Lin. Ft.		86	86
Partial Removal of Substructure Conc.	Lump Sum	1		1
Class 1 Excavation	Cu. Yd.	30.5		30.5
Class 2 Excavation	Cu. Yd.	39.5		39.5
Structural Steel Piles (10 in.)	Lin. Ft.	70		70
Class B Concrete	Cu. Yd.	28.6		28.6
Class B2 Concrete (Superstr. Solid Slab)	Cu. Yd.		57.9	57.9
Slab Drains	Each		3	3
Safety Barrier Curb	Lin. Ft.		86	86
Plain Neoprene Bearing Pads	Each		10	10
Laminated Neoprene Bearing Pads	Each		4	4
Reinforcing Steel (Epoxy)	Lb.		5,800	5,800
Reinforcing Steel (Plain)	Lb.	3,400	8,800	12,200
Class 2 Excavation +50%	Cu Yd.	3.5		3.5
Test Holes	Lin Ft.	12		12

B.M. #4 Elev. 957.04 Top bolt in N.W. Wing Wall of S.B.L. Bridge.

BRIDGE OVER LITTLE BLUE RIVER

STATE ROAD FROM BLUE RIDGE BLVD. TO CASS COUNTY LINE

IN GRANDVIEW

PROJECT NO. 4-U-71-732C — STA. 34+84.5

JOB NO. 4-U-71-732C — RTE. 71 N.B.L.

Cass-JACKSON — COUNTY

DATE 1-13-87

STD.
STD. 706.35

L-530 RI

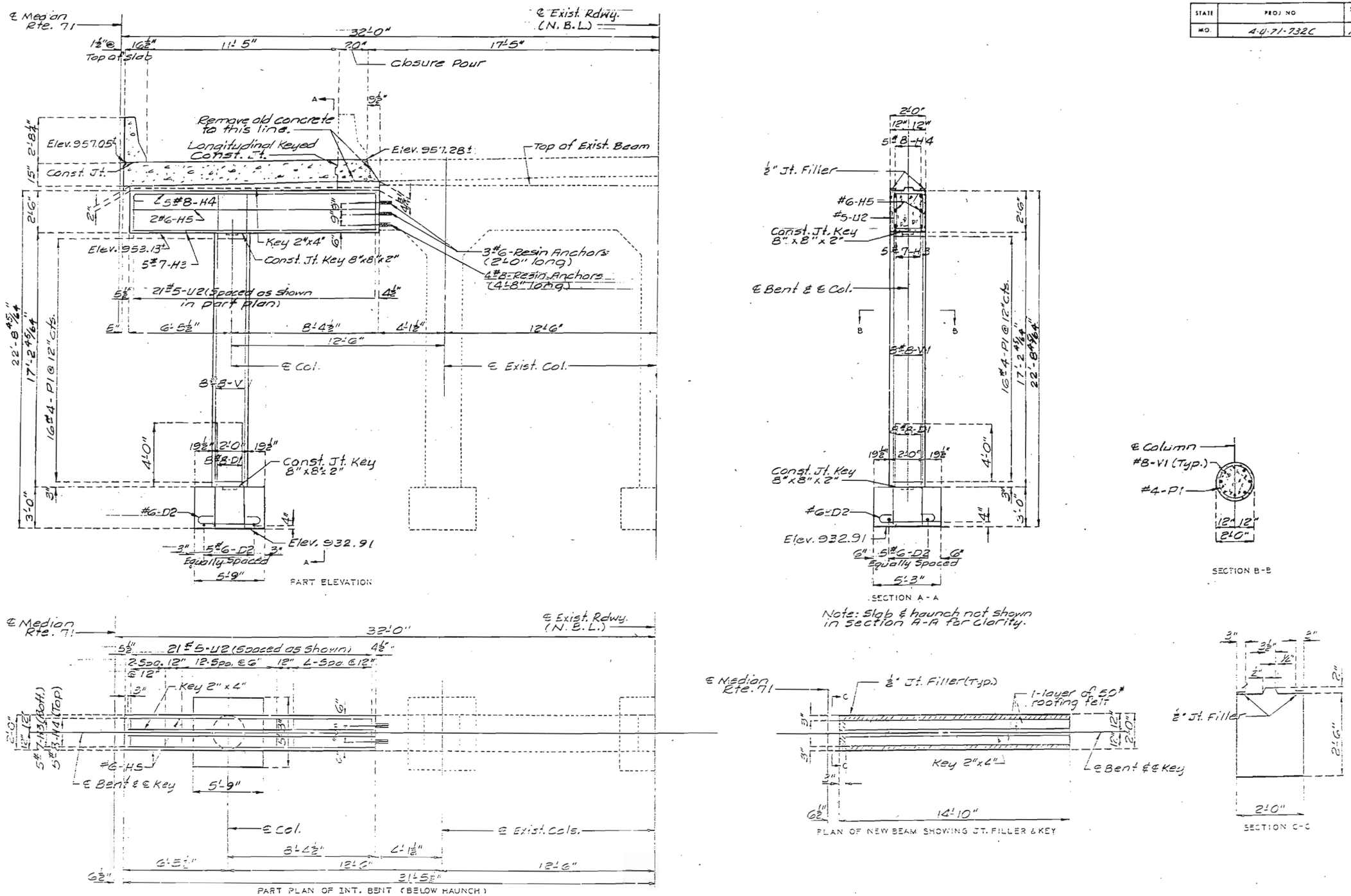
100 336

DESIGNED Apr. 1986
DETAILED JUNE 1986
CHECKED Sept. 1986

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

Sheet No. 1A of 3.

STATE	PROJ NO	SHEET NO
MO.	4-U-71-732C	22



Note: 3#6-Resin Anchors Equally Spaced (2'-0" long) Top & Middle
4#8-Resin Anchors Equally Spaced (4'-8" long) Bottom

DETAILS OF INT. BENT NO. 2

DETAILED JUNE 1986
CHECKED Sept. 1986

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

Sheet No. 3A of 9

Cass - JACKSON COUNTY

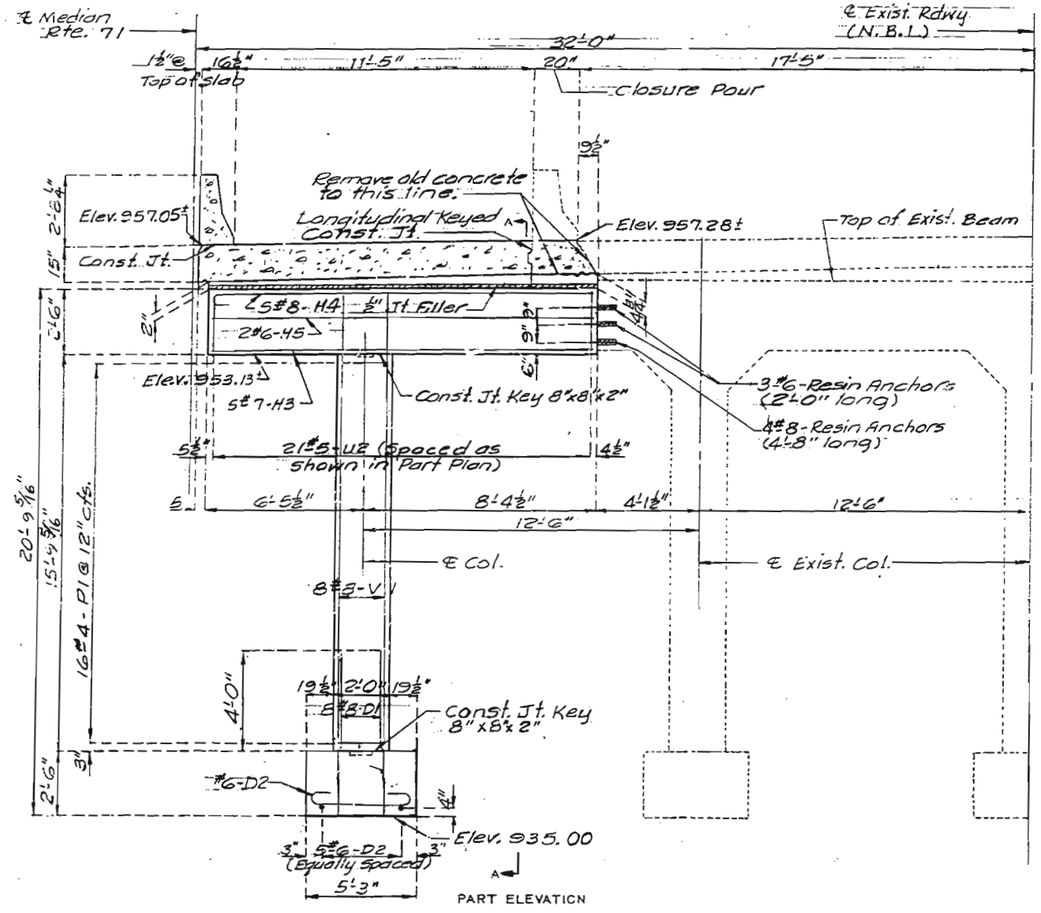
L-530 R1

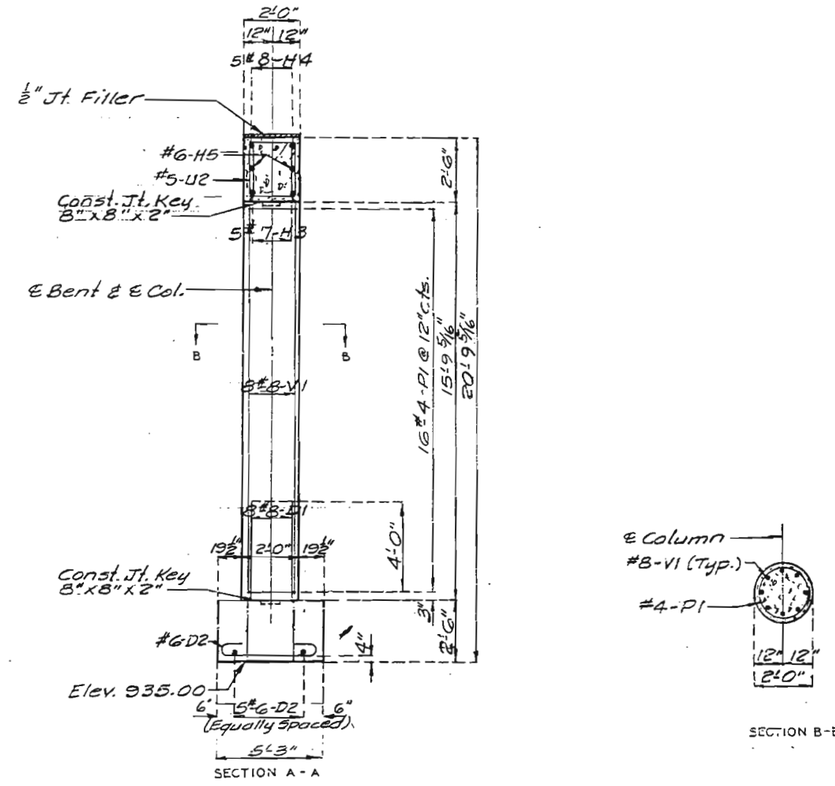
~~101~~ 337

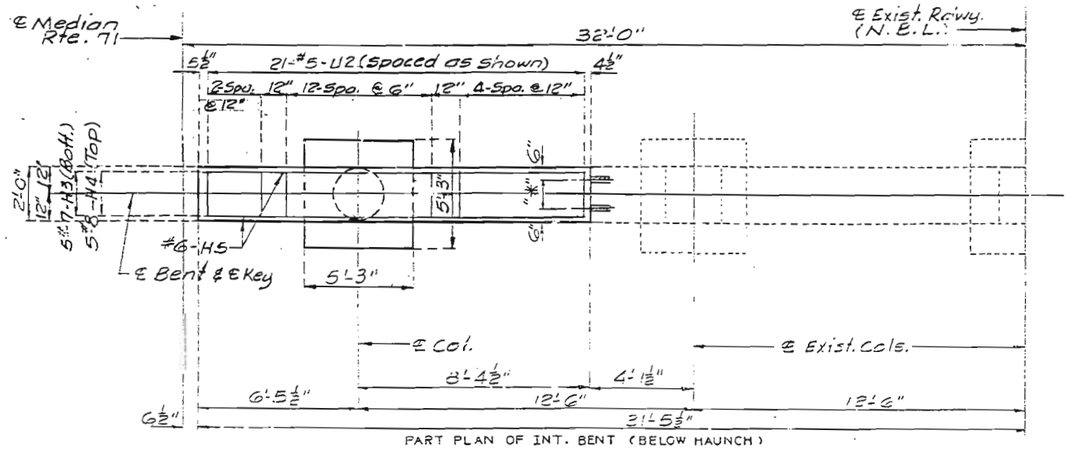
STATE	PROJ. NO.	SHEET NO.
MO.	4-U-71-732C	23

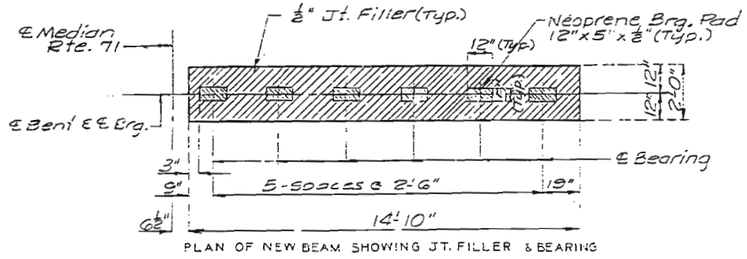
FINAL PLANS

102 338









Note: "*" 3#6 Resin Anchors Equally Spaced (2'-0" long) Top & Middle
4#8 Resin Anchors Equally Spaced (4'-8" long) Bottom

DETAILS OF INT. BENT NO. 3

DETAILED JUNE 1986
CHECKED Sept. 1986

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

Sheet No. 4A of 5

Cass-JACKSON COUNTY

L530 R1