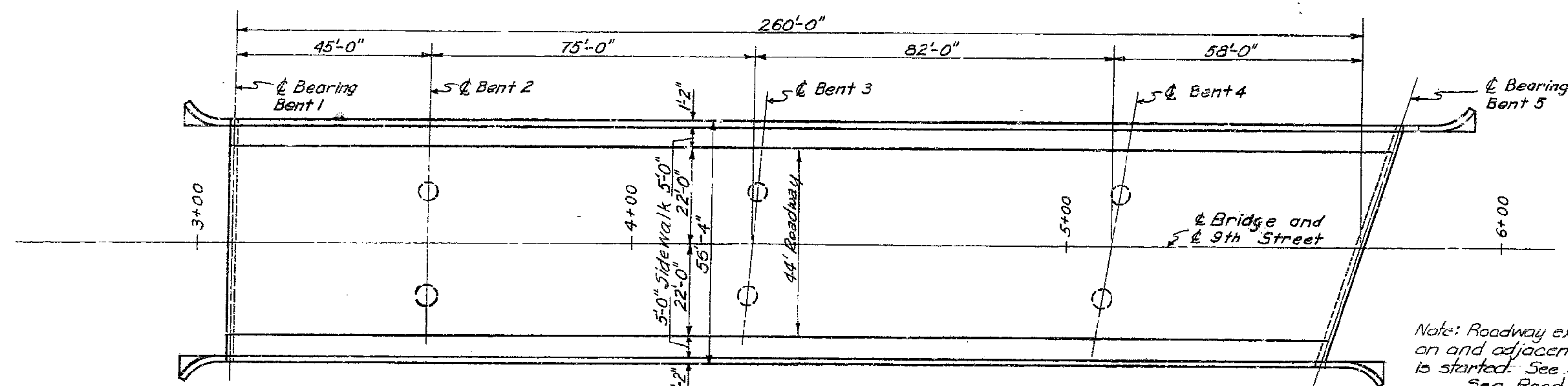
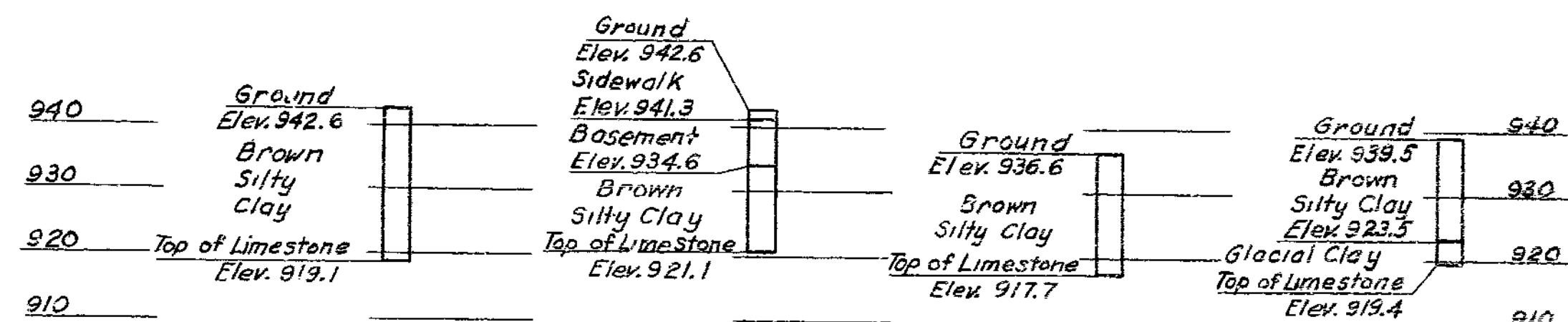
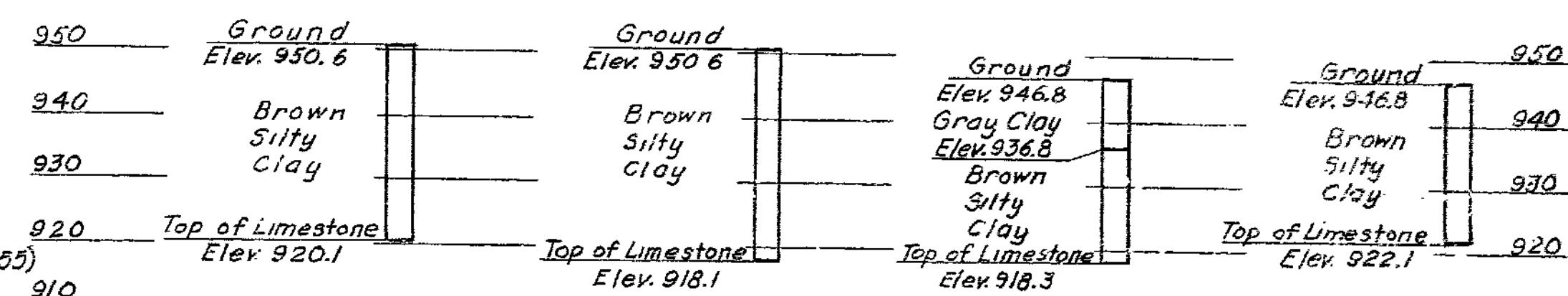
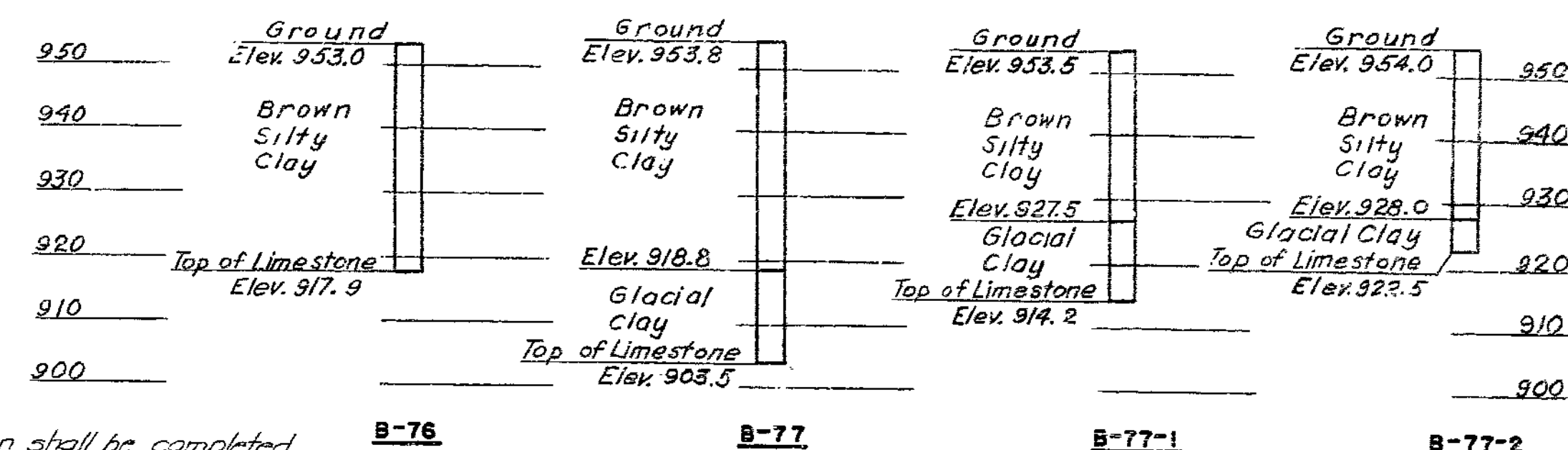


MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.			40	
DIST. NO.	COUNTY	DIST. NO.	SEC.		
4					

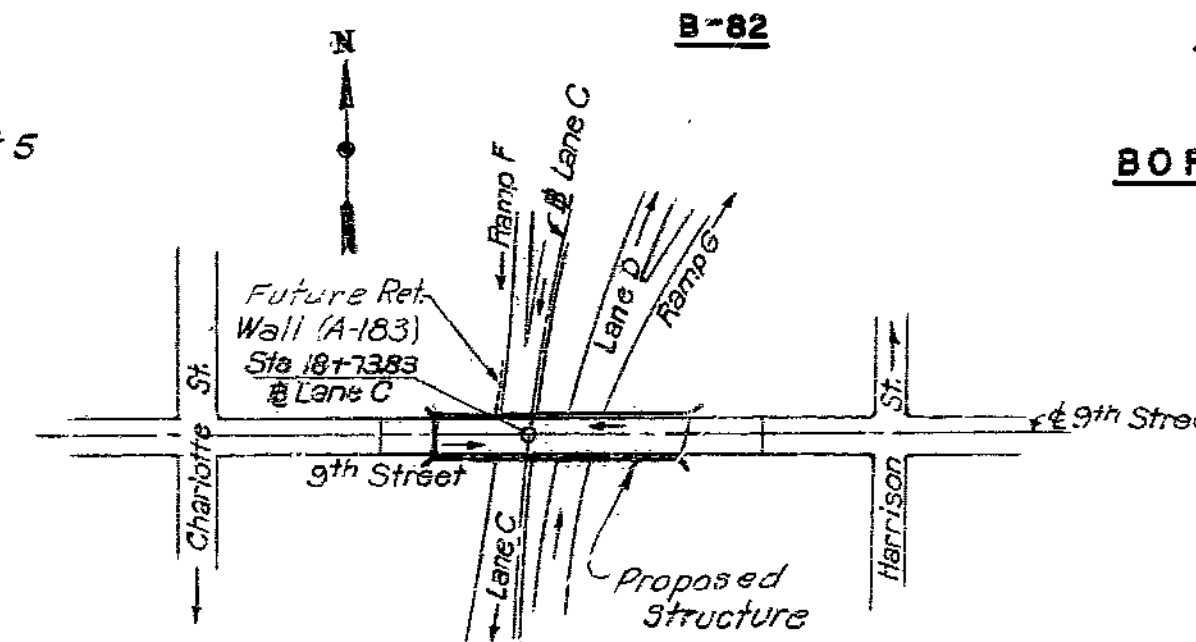
CONTINUOUS CONCRETE BOX GIRDER SPANS
PLAN

Note: Roadway excavation shall be completed on and adjacent to this site before substructure is started. See Special Provisions.
See Road Plans for lower limits of roadway excavation.



BORING LOGS

Note: Location of borings are marked thus: B-79 on the Ground Plan.



LOCATION SKETCH

Traverse Point 12 N.E. Corner 9th & Harrison Streets
Back in lead Elev. 962.09

SUBMITTED BY:

R. A. Bergendoff
REGISTERED PROFESSIONAL
ENGINEER MISSOURI NO. E-253

SUBMITTED BY: J. A. Williams DATE: 2-20-1958
APPROVED BY: R. M. Whittam DATE: 2-20-1958

BRIDGE: 9TH STREET UNDERPASS

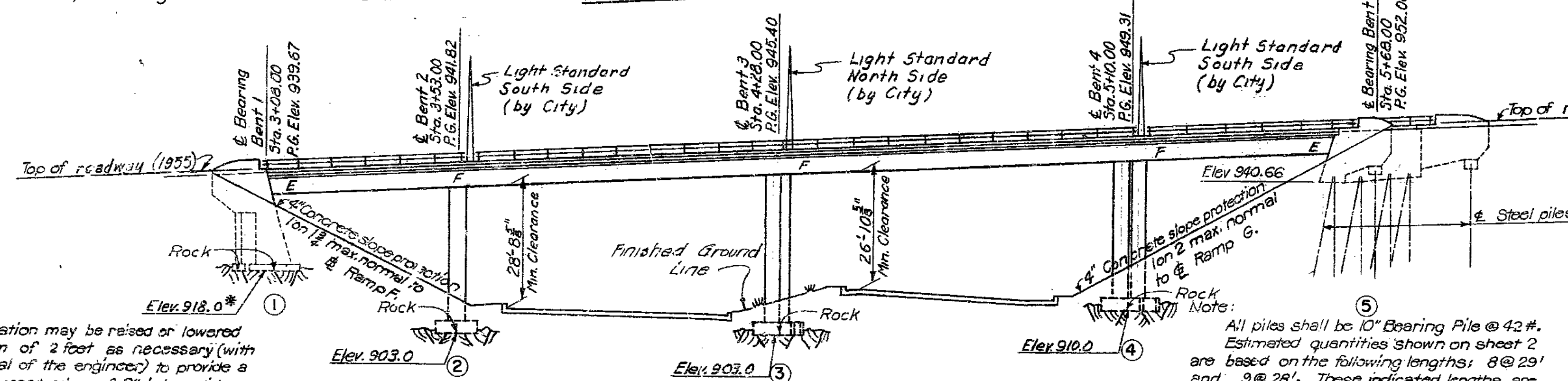
STATE ROAD 18
IN KANSAS CITY, MO.
PROJECT NO. I-352 (17) (FAI-RTE. 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

SHEET 1 OF 18

L-938

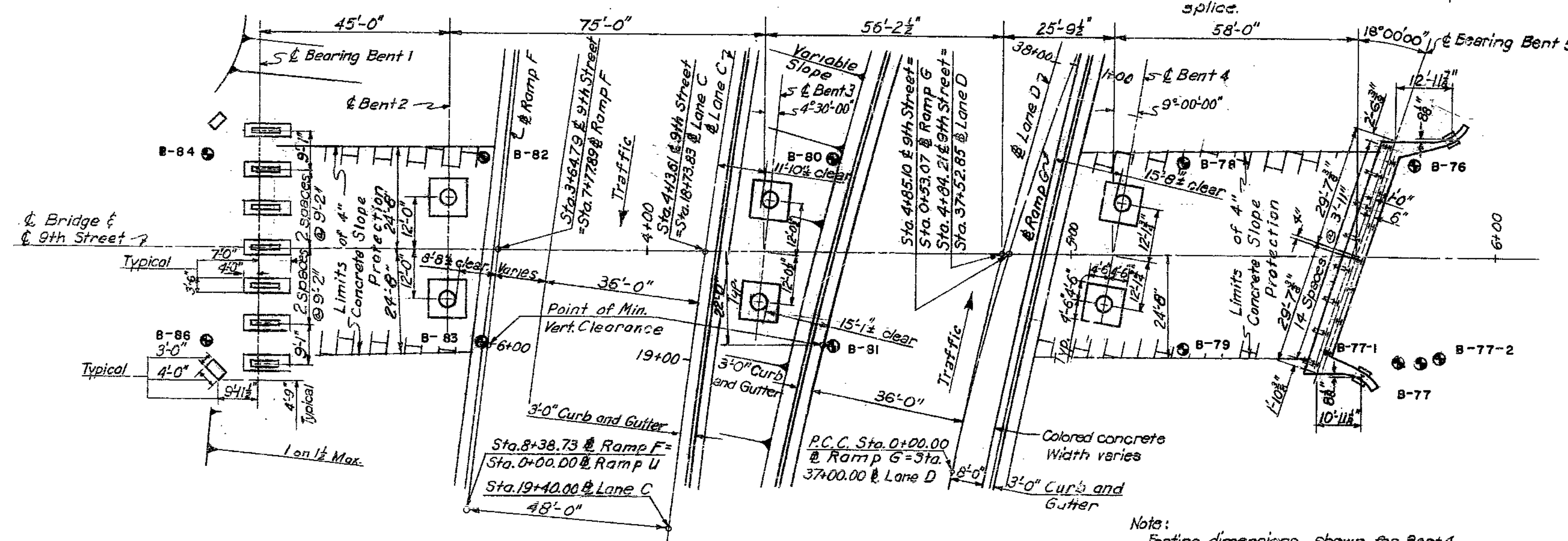
SEE FINAL PLANS BROWN LINES

Note: All loose, shelly or disintegrated rock shall be removed and the footings of Bents 1, 2, 3 and 4 placed on and at least 6" into hard, solid, undisturbed rock and cast against vertical faces of same. If soft rock or shale is encountered the footings shall be carried at least 18" into and cast against vertical faces of same. Footings of Bents 2, 3 and 4 shall not be placed higher than elevations shown.



ELEVATION

Note: All piles shall be 10" Bearing Pile @ 42#. Estimated quantities shown on sheet 2 are based on the following lengths: 8 @ 29' and 9 @ 28'. These indicated lengths are approximate only. Proper lengths to give required bearing and/or penetration shall be authorized by the engineer. Battered piles shall be battered 3'/ft. See Sheet 7 for details of pile splice.



GROUND PLAN

Note: Footing dimensions shown for Bent 4 are typical unless otherwise shown.

GENERAL PLAN AND ELEVATION

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE: BDM DATE: 11-30-56 TRACED: DATE: 1-15-57
CHECKED: GSK SCALE

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT No.	SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.				99	
DIST. NO.	COUNTY	ROUTE	SEC.			
4		40				

GENERAL NOTES

Design Specifications: A.A.S.H.O., 1953 with Tentative Revision T.14 (54).

Construction Specifications: Missouri Standard Specifications for State Roads, Materials, Bridges, Culverts, and incidental Structures, 1955.

Design Loading: H20-S16-44
15 lbs. per square foot future wearing surface.

Concrete: Concrete Stress (Class "B" and "B-I") $F_c = 1400 \text{ psi}$ ($F_c = 4000 \text{ psi}$).
Concrete for superstructure shall be Class "B-I" air entrained, see Special Provisions. Concrete for substructure shall be Class "B" air entrained. If the contractor desires, he may use Class "B-I" in lieu of Class "B" concrete in substructure with payment made on the basis of Class "B" concrete.
All forms are to be removed from the interior of box girders.

Reinforcing Steel: Allowable stress 20,000 psi.
All splices in reinforcing steel shall be 32 bar diameters.
Bar sizes are designated on the plans by numbers. The first digit after the letter in three digit marks and the first two digits after the letter in four digit marks indicate the size of the bar.
Dimension shown on plans from reinforcing steel to outside edge of concrete are all clear dimensions.
All bending dimensions are from "out" to "out" of bars except diameter dimensions on spirals which are from "center" to "center" of bar.

Welding: Qualification for welding operators will be required.

Slope Protection: Not included in this project. See sheet 18 for details. (Future Work)

Utilities: All utilities, unless shown otherwise, shall be removed or re-located by others. The contractor will notify the owner of the utilities of his work schedule sufficiently in advance to allow time for the disposition of utilities.

Deflection Joints: Deflection Joints shall be placed in the parapet or sidewalk and parapet where shown on the plans. The surface of the joint shall be coated with paraffin and the reinforcing steel shall be stopped 2" clear of joint. No chamfer shall be placed on the sidewalk.

Estimated Quantities: Estimated quantity of Class "B" concrete substructure, includes all concrete in end bents (including wingwalls and end posts) and footings of intermediate bents. All other concrete is included in estimated quantity of Class "B-I" superstructure.
Joint filler, roofing felt, insulation, pads and other incidental items shown on the plans shall be included in the price bid for other items.

Shipping: Permits will be required for all truck loads over the legal length.

Waterproofing of Decks: Waterproofing of decks shall be required, see special provisions.

Piling: Length of piles shown on plans is approximate only. Proper lengths to give required bearing and/or penetration will be authorized by the Engineer.
All piles shall be driven to or into rock, boulders, shale, or cemented gravel, or to not less than full length authorized, and to sustain a load of 37 tons per pile.
All piles shall be driven with a steam hammer.
Piles shall be painted in accordance with Section 22-9c of the Standard Specifications.

ESTIMATED QUANTITIES					
ITEM NO.	ITEM	UNIT	SUB-STRUCTURE	SUPER-STRUCTURE	TOTAL
1-G	Class I Excavation for Structures	Cu Yds.	.700		.700
16-B	Class B Concrete	Cu Yds.	(255.8)		(255.8)
16-B-I	Class B-I Concrete	Cu Yds.		(943.9)	(943.9)
17-B	Fabricated Structural Carbon Steel	Lbs.		8510	8510
40-A	Conduit System	Lump Sum			1
17-J	Aluminum Alloy Handrail	Lin. Ft.		530	530
17-B	Fabricated Structural Steel (Bearings)	Lbs.		2,390	2,390
19-A	Reinforcing Steel	Lbs.	(21,930)	(311,200)	(333,130)
22-D	Steel Pile Cut-off	Lin. Ft.	51		51
22-D	Steel Piles in Place (10 BP42)	Lin. Ft.	433		433

257.0 Δ
257.0
955.2 Δ
955.2
22,060
312,300 Δ
334,360

Note: All excavation for bridge shall be paid for as Class I Excavation for Structures.
Estimated quantities of Class I excavation for structures includes only amounts of excavation below lower limits of roadway excavation. (See Special Provisions.)

GENERAL NOTES AND ESTIMATED QUANTITIES

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD 110 TOWNSHIP
SOUTHWEST FREEWAY
IN KANSAS CITY, MO.
PROJECT NO. 1-352 (17) (PAI-RTS. 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

SHEET 2 OF 18

L-938

Revised 10-10-58

SEE FINAL PLANS SHOWN LINES

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

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE U.S.H. DATE 7-9-56 TRACED B.S.L. DATE 2-11-57
CHECKED K.A.W. DATE 2-4-57 SCALE

MISSOURI STATE HIGHWAY DEPARTMENT

STATE PROJECT NO. 8 SEC. 5 MO. DIST. NO. 4 COUNTY ROUTE 40

NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS			
					A	B	C	D
BENT 1								
6	6	3'-6"	F601	Str.				
6		2'-6"	F602	Str.				
68	↓	4'-5"	F603	101	3'-9"	8"		
28	7	10'-6"	F701	Str.				
56	↑	3'-0"	F702	Str.				
21	↓	4'-11"	F703	101	4'-1"	10"		
24	4	28'-9"	H401	Str.				
2		9'-1"	H402	105	5'-9"	1'-8"	1'-8"	
7		15'-7"	H403	109	6'-3"	1'-2"	4 1/2"	
4		7'-3"	H404	108	5'-9"	1'-6"	1'-5"	
2		22'-6"	H405	Str.				
4		11'-0"	H406	Str.*				
4		11'-9"	H407	Str.*				
2		9'-0"	H408	Str.*				
2		9'-9"	H409	Str.*				
2		11'-3"	H410	Str.*				
2		12'-0"	H411	Str.*				
32		7'-5"	H412	109	2'-8"	8"	4 1/2"	
28	↓	26'-8"	H413	109	11'-7 1/2"	1'-2"	4 1/2"	
2	5	11'-5"	H501	125	6"	4'-9"	1'-4"	4'-10"
2		9'-8"	H502	125	6"	3'-9"	1'-4"	4'-1"
2		7'-9"	H503	125	6"	2'-9"	1'-4"	3'-2"
2		6'-6"	H504	125	6"	2'-0"	1'-4"	2'-8"
4		10'-3"	H505	Str.				
4		7'-0"	H506	Str.				
4		4'-0"	H507	Str.				
4		2'-6"	H508	Str.				
4		1'-6"	H509	Str.				
2		12'-1"	H510	125	6"	5'-0"	1'-4"	5'-1"
32		11'-9"	H511	Str.*				
14	↓	10'-0"	H512	Str.				
16	6	56'-0"	H601	Str.				
6		15'-5"	H602	Str.				
3	↓	18'-5"	H603	Str.				
53	4	19'-1"	V401	123	2'-8"	4'-2"	5'-8"	5'-10"
4		17'-11"	V402	123	2'-10"	4'-2"	5'-0"	5'-2"
14	↓	7'-5"	V403	108	5'-9"	1'-8"	1'-7"	
88	5	6'-9"	V501	Str.				
10		9'-8"	V502	105	7'-0"	8"	2'-0"	
44		3'-6"	V503	125	4"	1'-2"	4"	1'-8"
6		5'-3"	V504	Str.				
4		7'-0"	V505	Str.				
12		22'-3"	V506	Str.				
12		12'-0"	V507	Str.				
2		8'-6"	V508	124	3'-4"	10"	3'-4"	1'-0"
4	↓	9'-9"	V509	108	7'-9"	2'-0"	5"	
42	6	10'-9"	V601	Str.				
12		19'-0"	V602	Str.				
14	↓	6'-2"	V603	Str.				
21	7	11'-0"	V701	Str.				
24	4	3'-6"	S458	105	11"	1'-3 1/2"	1'-3 1/2"	

NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS			
					A	B	C	D
BENTS 2,3 AND 4								

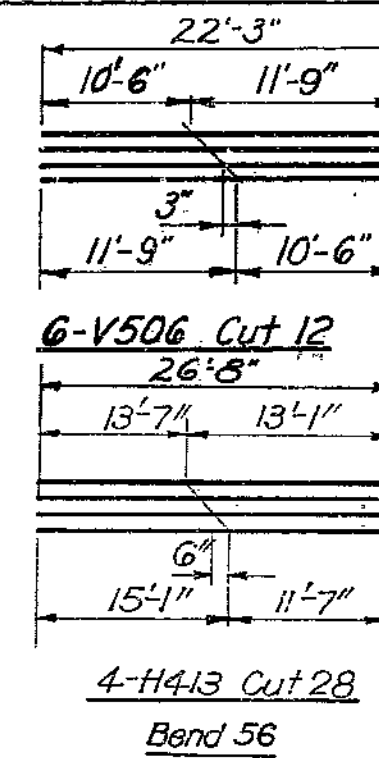
REINFORCING STEEL								
NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS			
					A	B	C	D
53	4	18'-11"	V401	123	2'-8"	4'-2"	5'-7"	5'-9"
6		17'-8"	V402	123	2'-11"	4'-2"	4'-10"	5'-0"
3		19'-5"	V403	123	2'-10"	4'-4"	5'-8"	5'-10"
2	↓	8'-6"	V404	124	3'-4"	10"	3'-4"	1'-0"
94	5	7'-2"	V501	Str.				
14		8'-1"	V502	108	6'-10"	1'-3"	1'-2"	
12		11'-2"	V503	105	8"	2'-10"	7'-8"	
56		4'-0"	V504	125	10"	1'-2"	4"	1'-8"
3		20'-11"	V505	Str.				
4		21'-3"	V506	Str.				
3		11'-8"	V507	Str.				
7		7'-8"	V508	Str.				
6		5'-10"	V509	Str.				
1		12'-0"	V510	Str.				
3		8'-11"	V511	Str.				
1		9'-0"	V512	Str.				
3		19'-5"	V513	Str.				
2		19'-3"	V514	Str.				
4		20'-7"	V515	Str.				
3		11'-6"	V516	Str.				
5		9'-9"	V517	Str.				
3	↓	8'-6"	V518	Str.				
31	4	3'-6"	S458	105	11"	1'-3 $\frac{1}{2}$ "	1'-3 $\frac{1}{2}$ "	
SUPERSTRUCTURE								
2	5	1337'	C501	127	3'-2 $\frac{3}{4}$ "	32'-9"		
2		1477'	C502	127	3'-2 $\frac{3}{4}$ "	36'-3"		
2	↓	1357'	C503	127	3'-2 $\frac{3}{4}$ "	33'-3"		
32	10	35'-3"	C1001	Str.				
32		39'-0"	C1002	Str.				
32		35'-9"	C1003	Str.				
96	↓	8'-3"	C1004	126	1'-9"	3'-2"	3'-4"	2'-0"
24	11	13'-0"	B1102	Str.				
12		51'-4"	B1103	Str.				
12		15'-0"	B1104	Str.				
18		51'-6"	B1105	Str.				
6		27'-6"	B1106	Str.				
12		43'-8"	B1127	Str.				
18	↓	52'-0"	B1101	Str.				
18	6	43'-8"	B601	Str.				
258	6	14'-1"	B602	109	2'-11 $\frac{1}{2}$ "	3'-7"	6"	
72	4	4'-3"	D402	109	8"	1'-1"	4 $\frac{1}{2}$ "	
72		4'-9"	D403	109	8"	1'-4"	4 $\frac{1}{2}$ "	
72		5'-3"	D404	109	8"	1'-7"	4 $\frac{1}{2}$ "	
36	↓	3'-9"	D401	109	8"	10"	4 $\frac{1}{2}$ "	
14	6	56'-0"	D601	Str.				
2		58'-10"	D602	Str.				
8		43'-8"	D603	Str.				
8		45'-11"	D604	Str.				
20		2'-8"	D605	Str.				
16		8'-4"	D606	105	1'-2"	3'-7"	3'-7"	
90		10'-8"	D607	109	1'-2"	3'-8"	6"	
24		5'-9"	D608	101	5'-1"	8"		
60	↓	10'-0"	D609	108	5'-0"	5'-0"	2'-2"	
204	4	40'-0"	G401	Str.				
12		36'-0"	G402	Str.				
36		18'-6"	G403	Str.				
12		11'-7"	G404	Str.				
12		22'-2"	G405	Str.				
6		28'-1"	G406	Str.				
6		25'-10"	G407	Str.				
6		30'-6"	G408	Str.				
6		16'-4"	G409	Str.				
12	↓	22'-6"	G410	Str.				

NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS			
					A	B	C	D
6	4	23'-0"	G411	Str.				
6		31'-6"	G412	Str.				
6	↓	27'-0"	G413	Str.				
579	5	5'-5"	G501	130	3'-5"	1'-0"		
579		5'-8"	G502	105	3'-8"	1'-0"	1'-0"	
2868	↓	6'-0"	G503	129	3'-3"	1'-0"	9"	6"
96	6	3'-0"	G601	Str.				
14	11	17'-0"	G1101	Str.				
29		25'-0"	G1102	Str.				
42		38'-0"	G1103	Str.				
14		46'-0"	G1104	Str.				
32		18'-0"	G1105	Str.				
30		28'-0"	G1106	Str.				
48		39'-0"	G1107	Str.				
14		47'-0"	G1108	Str.				
84		60'-0"	G1109	Str.				
36		31'-0"	G1110	Str.				
14		40'-0"	G1111	Str.				
9		24'-3"	G1112	Str.				
7		19'-3"	G1113	Str.				
2		20'-9"	G1114	Str.				
2		21'-6"	G1115	Str.				
2		22'-0"	G1116	Str.				
2		22'-6"	G1117	Str.				
2		23'-0"	G1118	Str.				
3		23'-6"	G1119	Str.				
1		33'-6"	G1120	Str.				
24		57'-0"	G1121	Str.				
22		35'-9"	G1122	Str.				
28		56'-0"	G1123	Str.				
28		48'-0"	G1124	Str.				
22		25'-9"	G1125	Str.				
24		27'-6"	G1126	Str.				
14		55'-0"	G1127	Str.				
7		35'-0"	G1128	Str.				
4		40'-9"	G1129	Str.				
10		44'-9"	G1130	Str.				
10		48'-9"	G1131	Str.				
4		52'-9"	G1132	Str.				
14		12'-8"	G1133	Str.				
1		32'-3"	G1134	Str.				
3		54'-6"	G1135	Str.				
3		52'-1"	G1136	Str.				
3		49'-9"	G1137	Str.				
3		47'-5"	G1138	Str.				
3		45'-0"	G1139	Str.				
3		42'-8"	G1140	Str.				
3		30'-6"	G1141	Str.				
3		30'-0"	G1142	Str.				
2		29'-6"	G1143	Str.				
4		29'-0"	G1144	Str.				
1	↓	36'-3"	G1145	Str.				
8	4	39'-5"	P401	Str.				
8		5'-8"	P402	Str.				
24		9'-8"	P403	Str.				
24		35'-0"	P404	Str.				
4		23'-3"	P405	Str.				
4		15'-10"	P406	Str.				
4		30'-3"	P407	Str.				
4		25'-9"	P408	Str.				
4		6'-8"	P409	Str.				
4		22'-11"	P410	Str.				
4	↓	13'-6"	P411	Str.				

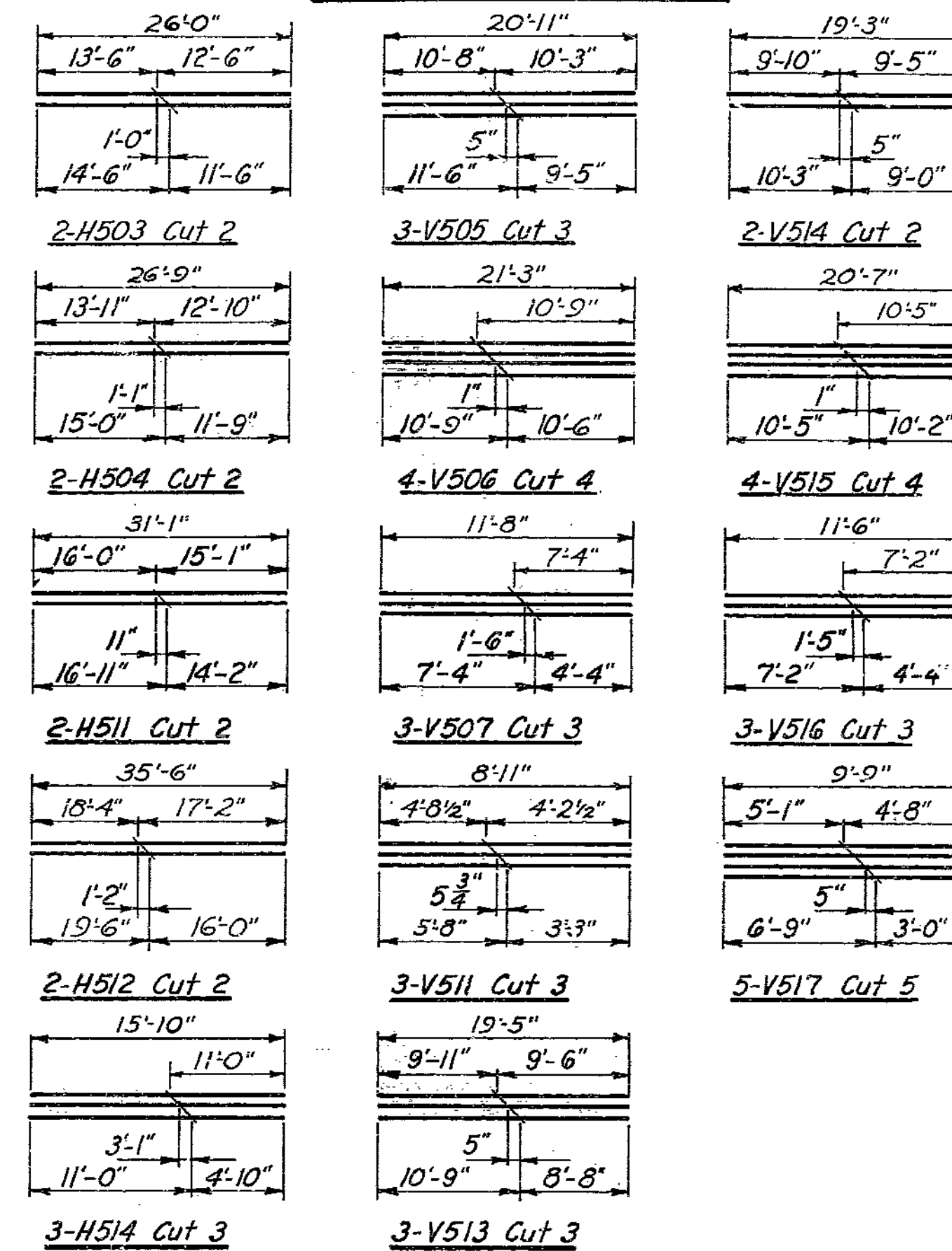
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT No. 8 Sec.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.			101	
DIST. NO.	COUNTY			ROUTE	SEC.
4				40	

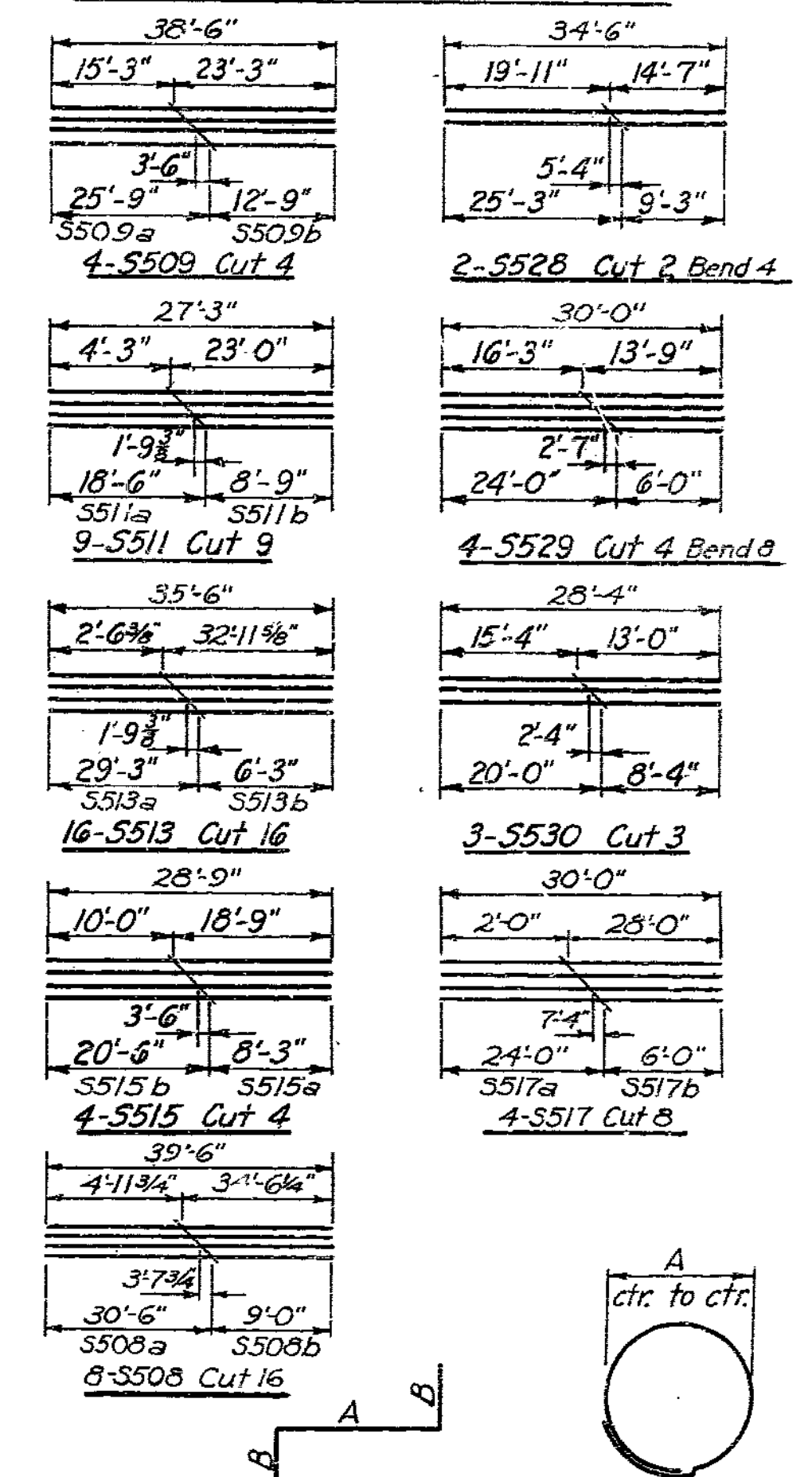
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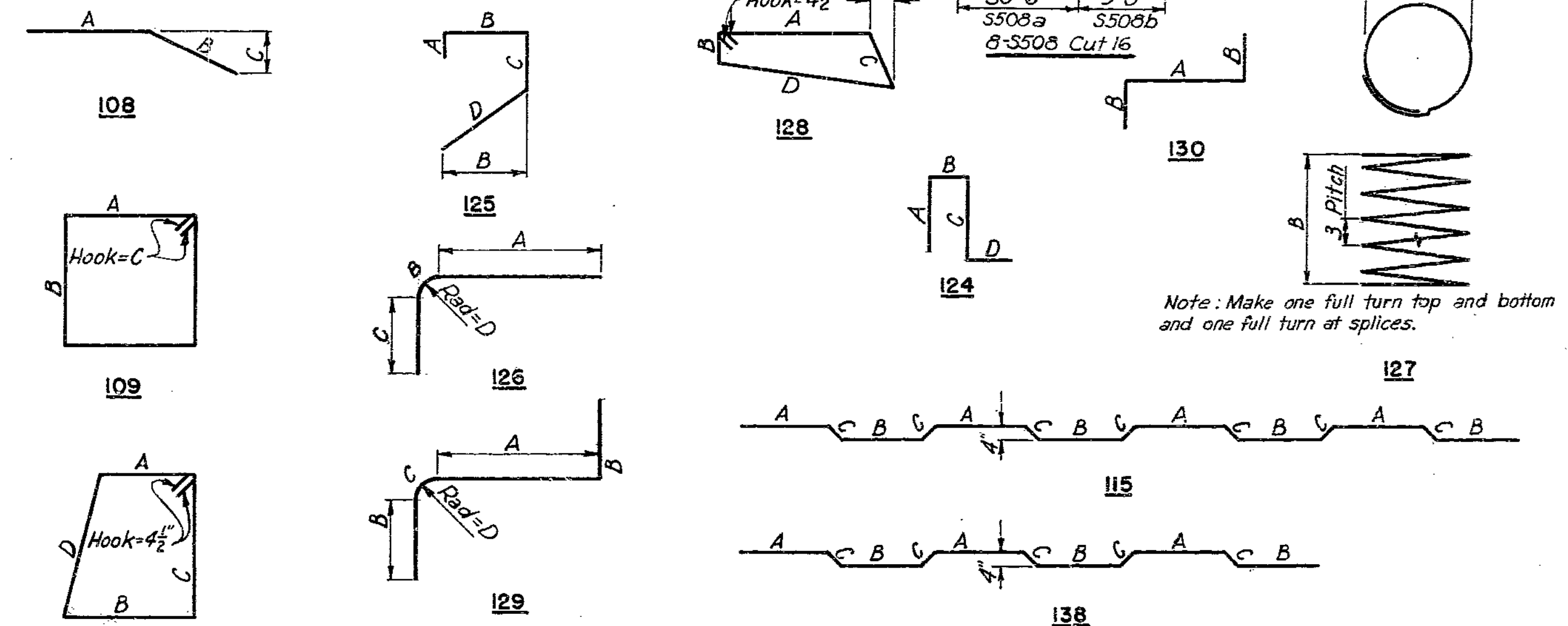
BENT 5 CUTTING DIAGRAMS



SUPERSTRUCTURE CUTTING DIAGRAMS



BENDING DIAGRAMS



Note: All dimensions are out to out unless otherwise shown.

REINFORCING SCHEDULE

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD MIDTOWN FREEWAY
IN KANSAS CITY, MO.
PROJECT NO. 1-352(17) (FAI-RFE, 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

SHEET 4 OF 18

L-938

NO CONSTRUCTION CHANGES

REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS			
					A	B	C	D

SUPERSTRUCTURE

197	5	25'-3"	5501	Str.				
197		23'-10"	5502	Str.				
182		29'-7"	5503	115	3'-5"	3'-3"	5"	
206		32'-6"	5504	Str.				
206		25'-8"	5505	Str.				
182		22'-1"	5506	138	3'-5"	3'-3"	5"	
54		4'-6"	5507	Str.				
16		39'-6"	5508	Str.				
4		38'-6"	5509	Str.				
1		8'-6"	5510	Str.				
9		27'-3"	5511	Str.				
1		6'-9	5512	Str.				
16		35'-6"	5513	Str.				
1		12'-6"	5514	Str.				
4		28'-9"	5515	Str.				
1		15'-3"	5516	Str.				
8		30'-0"	5517	Str.				
1		19'-6"	5518	Str.				
1		17'-0"	5519	Str.				
1		11'-0"	5520	Str.				
270		21'-9"	5521	Str.				
277		23'-5	5522	Str.				
549		3'-11"	5523	104	2'-3"	1'-8"		
12		4'-6"	5524	104	2'-3"	2'-3"		
12		11'-9"	5525	104	2'-3"	9'-6"		
25		11'-8"	5526	Str.				
5		14'-0"	5527	Str.				
2		34'-6"	5528	104	2'-3"	7'-0"		
4		30'-0"	5529	104	2'-3"	3'-0"		
3		28'-4"	5530	Str.				
1		5'-0"	5531	Str.				
1		16'-3"	5532	Str.				
1		6'-6"	5533	Str.				
1		20'-3"	5534	104	2'-3"	18'-0"		
1		14'-9"	5535	104	2'-3"	12'-6"		
1		9'-3	5536	104	2'-3"	7'-0"		
1		19'-0	5537	Str.				
1	↓	8'-0"	5538	Str.				

16	6	55'-0"	5601	Str.				
22		40'-0"	5602	Str.				
7		25'-0"	5603	Str.				
3		25'-9"	5604	Str.				
12		26'-9"	5605	Str.				
3		27'-9"	5606	Str.				
1		27'-0"	5607	Str.				
6		30'-2"	5608	Str.				
6		34'-2"	5609	Str.				
96		4'-6"	5610	Str.				
48		60'-0"	5611	Str.				
17		23'-0"	5612	Str.				
126		3'-6"	5613	125	5"	9"	11"	1'-5"
8		21'-9"	5614	Str.				
2		43'-6"	5615	Str.				
5		38'-10	5616	Str.				
2		41'-2"	5617	Str.				
2		40'-4"	5618	Str.				
1		41'-6"	5619	Str.				
1		33'-6"	5620	Str.				
6		55'-6"	5621	Str.				
2		30'-9"	5622	Str.				
2		36'-9"	5623	Str.				
2		38'-3"	5624	Str.				
2		39'-6"	5625	Str.				
2	↓	40'-9"	5626	Str.				

NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS			
					A	B	C	D
1	6	31'-6"	5627	Str.				
1		23'-6"	5628	Str.				
1		8'-6"	5629	Str.				
10		7'-9"	5630	Str.				
2		9'-9"	5631	Str.				
2		10'-3"	5632	Str.				
1		12'-3"	5633	Str.				
1		13'-3"	5634	Str.				
2		14'-9"	5635	Str.				
2		15'-6"	5636	Str.				
1		17'-0"	5637	Str.				
1		17'-9"	5638	Str.				
3		19'-9"	5639	Str.				
2		46'-6"	5640	Str.				
4	↓	42'-0"	5641	Str.				
12	↓	3'-0"	5801	Str.				
-14	4	16'-9"	W401	Str.				
56		30'-0"	W402	Str.				
14		40'-0"	W403	Str.				
7		38'-3"	W404	Str.				
8		33'-10"	W405	Str.				
8		26'-7"	W406	Str.				
7		22'-1"	W407	Str.				
2		34'-1"	W408	Str.				
2		25'-6"	W409	Str.				
1		25'-11"	W410	Str.				
1		33'-6"	W411	Str.				
1		33'-2"	W412	Str.				
1		32'-10"	W413	Str.				
1		32'-6"	W414	Str.				
1		27'-3"	W415	Str.				
1		26'-11"	W416	Str.				
1	↓	26'-3"	W417	Str.				

Notes:

Prefix all bar marks for Bent 1 with "B1,"
prefix all bar marks for Bents 2,3 and 4 with
"B2," prefix all bar marks for Bent 5 with "B5,"
prefix all bar marks for superstructure with
"SU."

Examples: B1-F601, B2-C501, B5-F601 and
SU-B601.

* indicates these bars may be bent in field.

All hooks and bends shall be in accordance with the A.A.S.H.O. Manual for Detailing Reinforced Concrete Highway Structures.

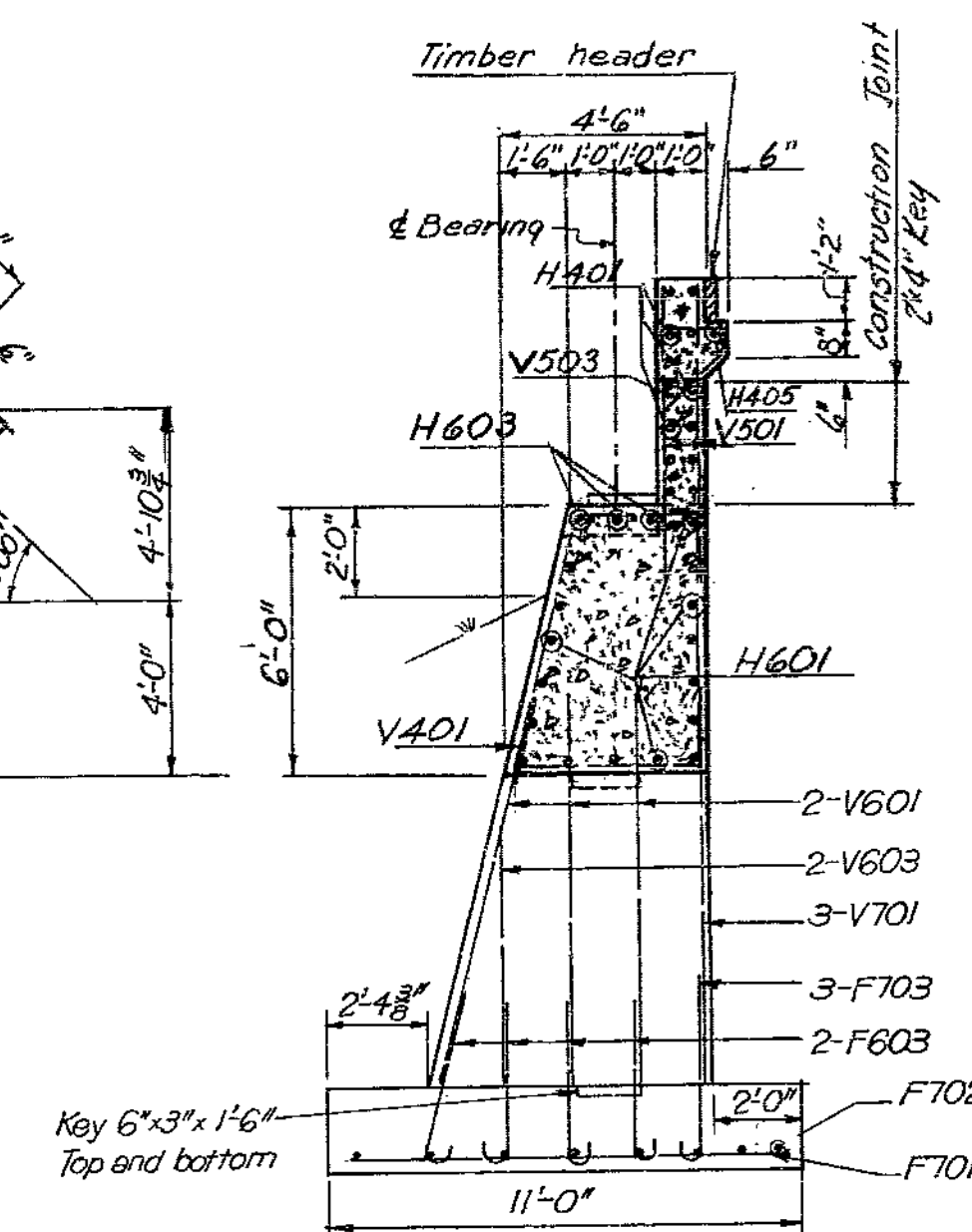
Cut bars of same mark for different locations shall be bundled and tagged accordingly.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

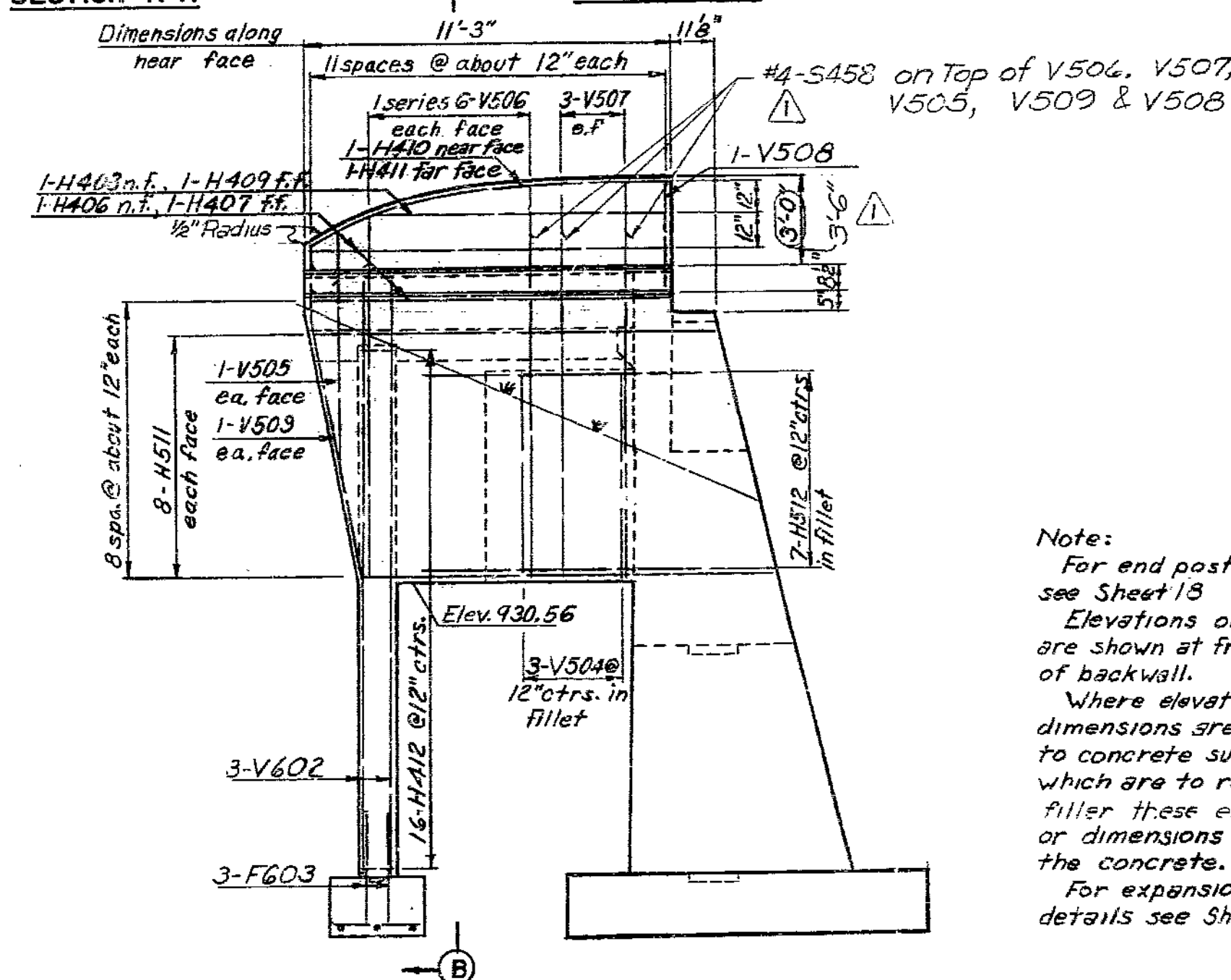
MADE <u>DLC</u>	DATE <u>1-28-57</u>	TRACED _____	DATE _____
CHECKED <u>WPO</u>	DATE <u>1-30-57</u>	SCALE _____	

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

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO. 8 SEC.	FISCAL YEAR	SHEET NO.	OF
5	MO.				
DIST. NO.	COUNTY			ROUTE	
4				40	



SECTION B-B



DEVELOPED WINGWALL ELEVATION

RUSTICATION DETAIL

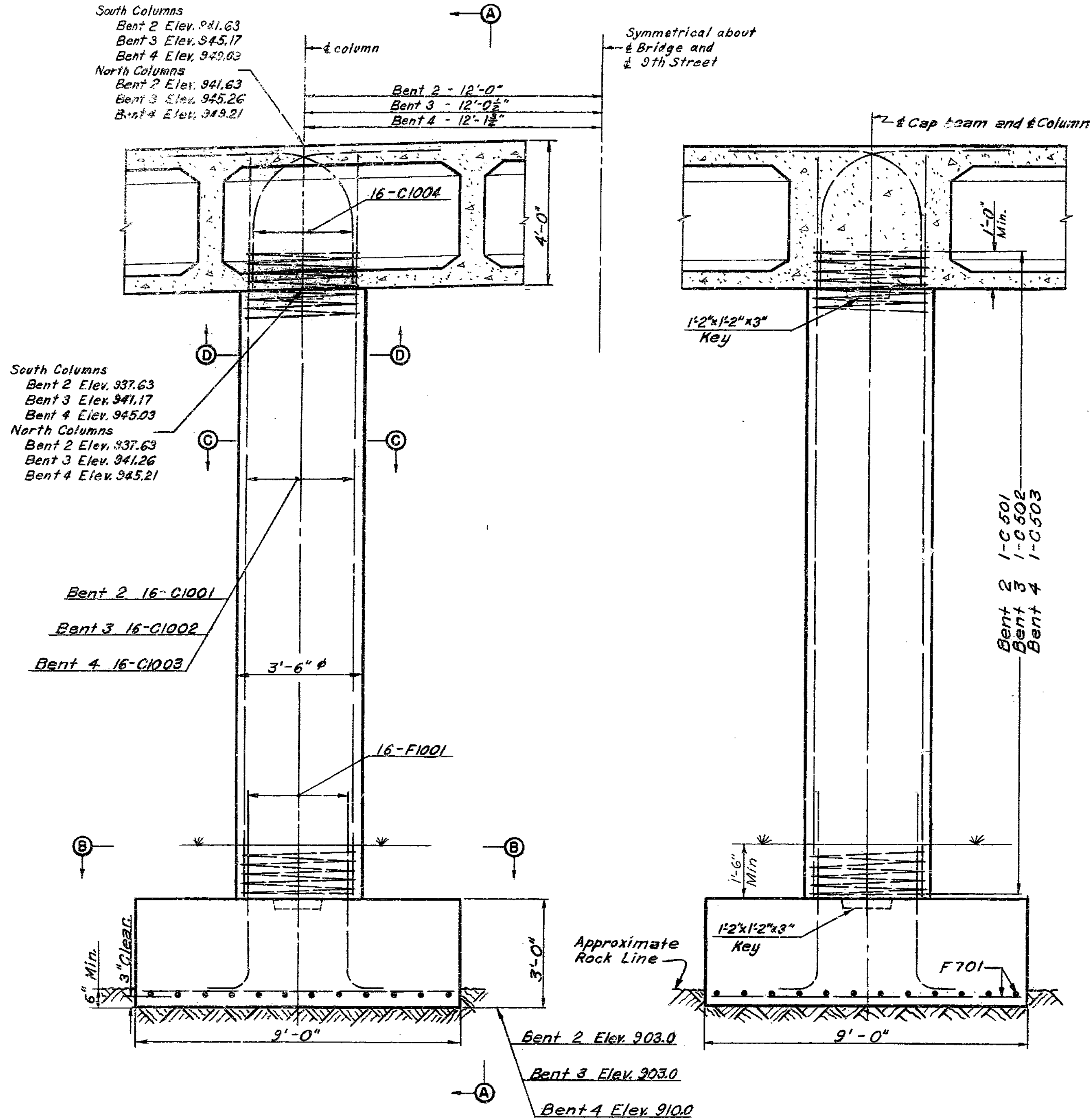
RUSTICATION DETAIL

L-938

STATE ROAD ~~SOUTHEAST~~ ^{MIDTOWN} FREEWAY
IN KANSAS CITY, MO.
PROJECT NO. I-352 (17) (FAI-RTE. 4) STA. 18 + 73.83 (LANE C)
JACKSON COUNTY

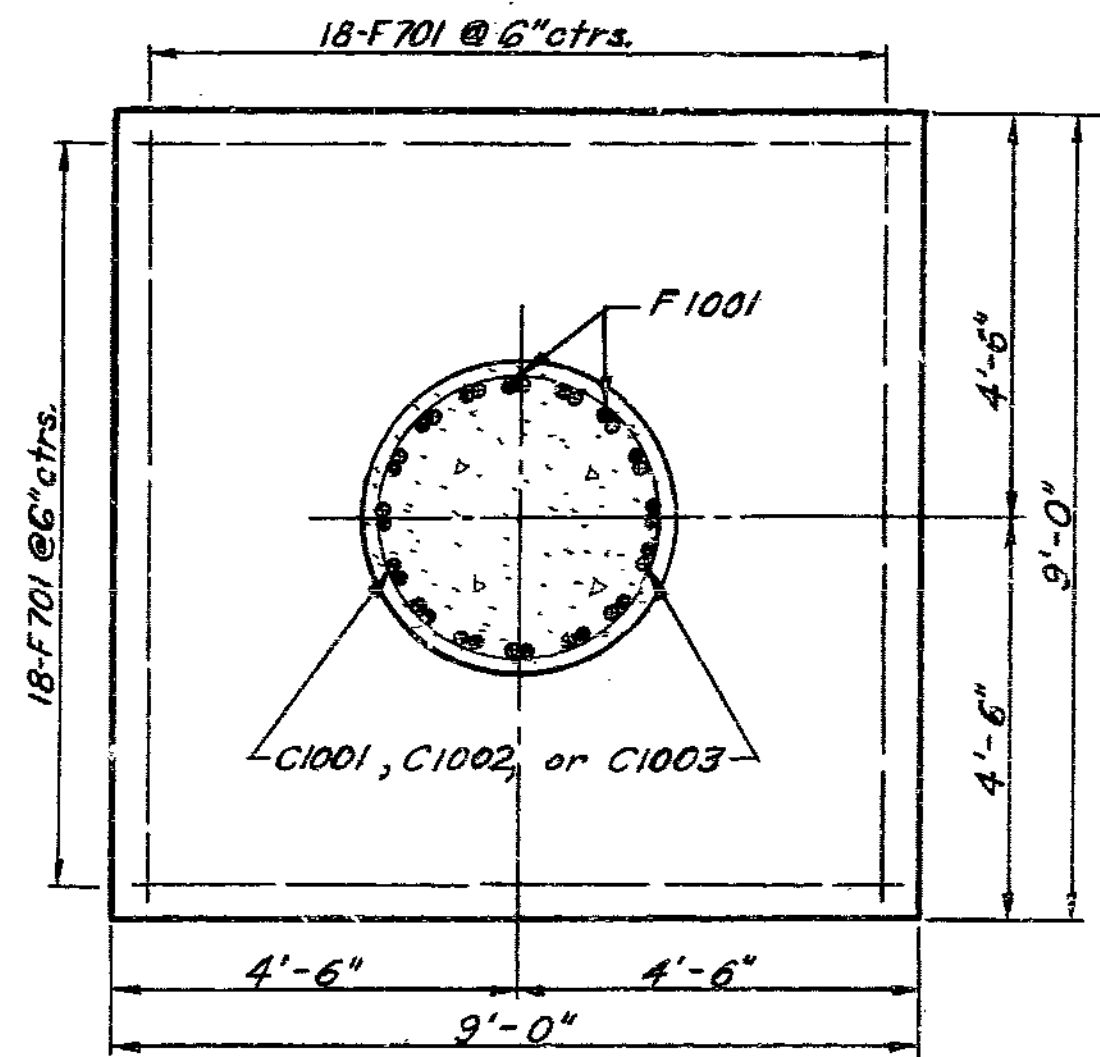
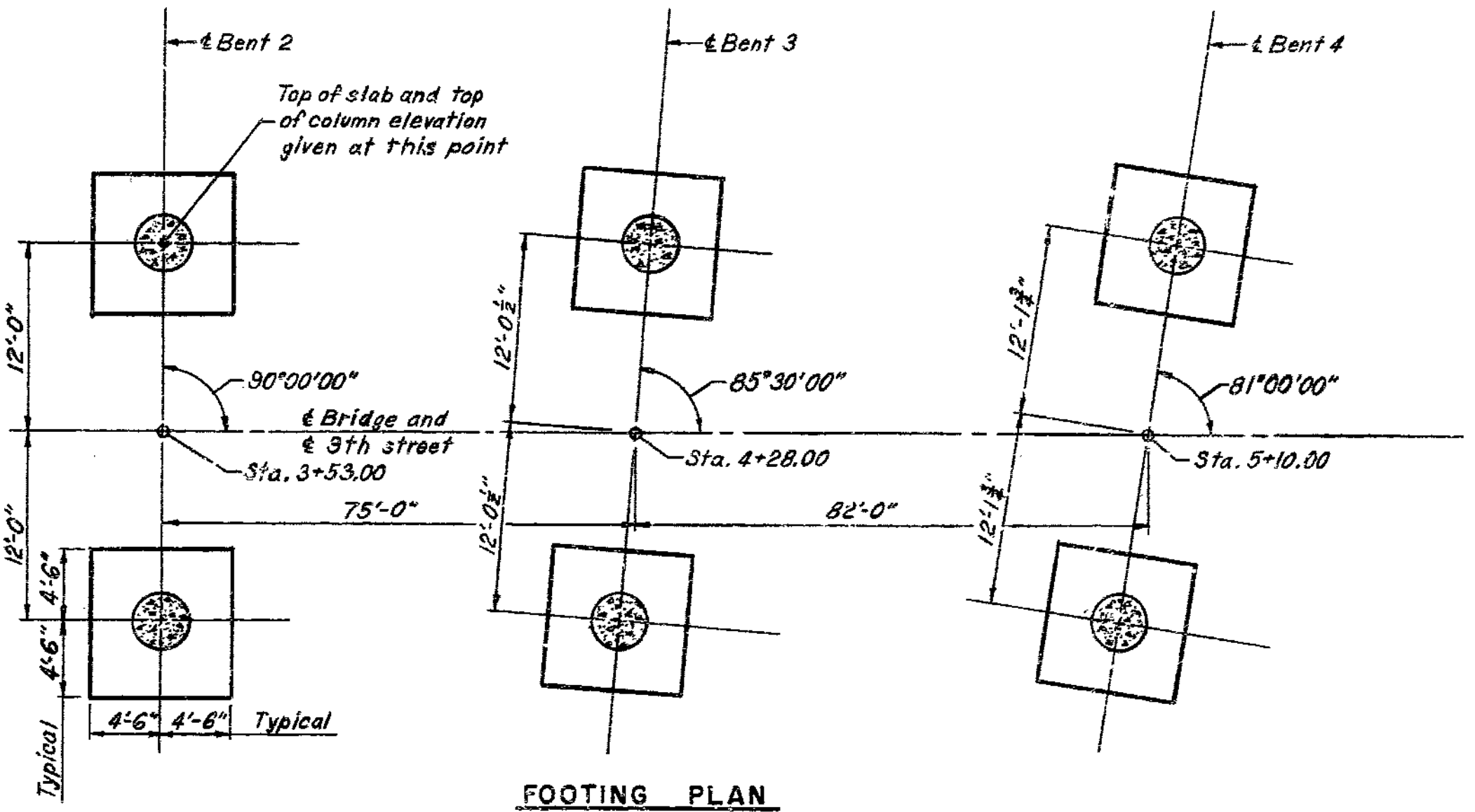
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO.	B SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.				102	
DIST. NO.		COUNTY		ROUTE	SEC.	
4				40		

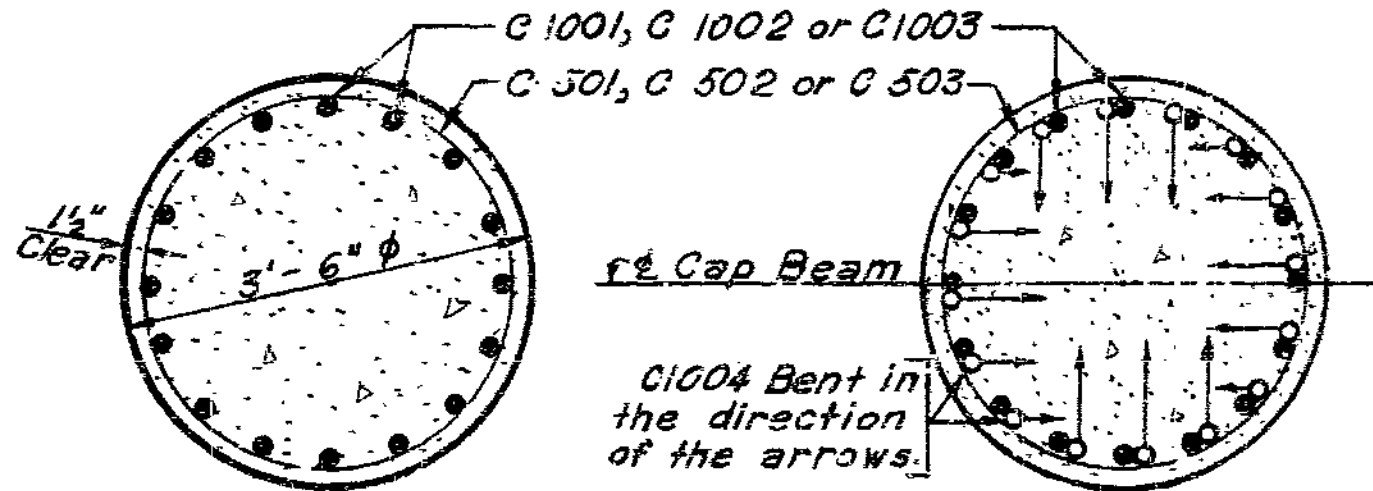


ELEVATION BENTS 2, 3, AND 4.

SECTION A-A



SECTION B-B



SECTION C-C

SECTION D-D

BENTS 2, 3, AND 4

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD
IN KANSAS CITY, MO.
PROJECT NO. 1-352 (7) (FAIR-RT. 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

SHEET 6 OF 18

L-938

SEE FINAL PLANS BROWN LINES

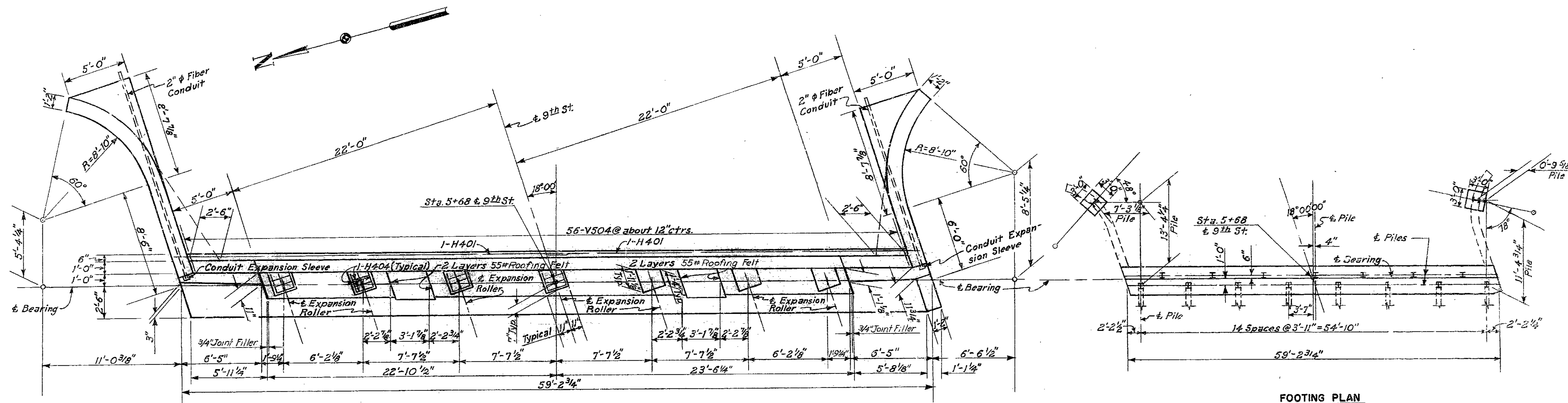
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE TDD DATE 7-3-56 TRACED DATE
CHECKED PHH DATE 7-17-56 SCALE

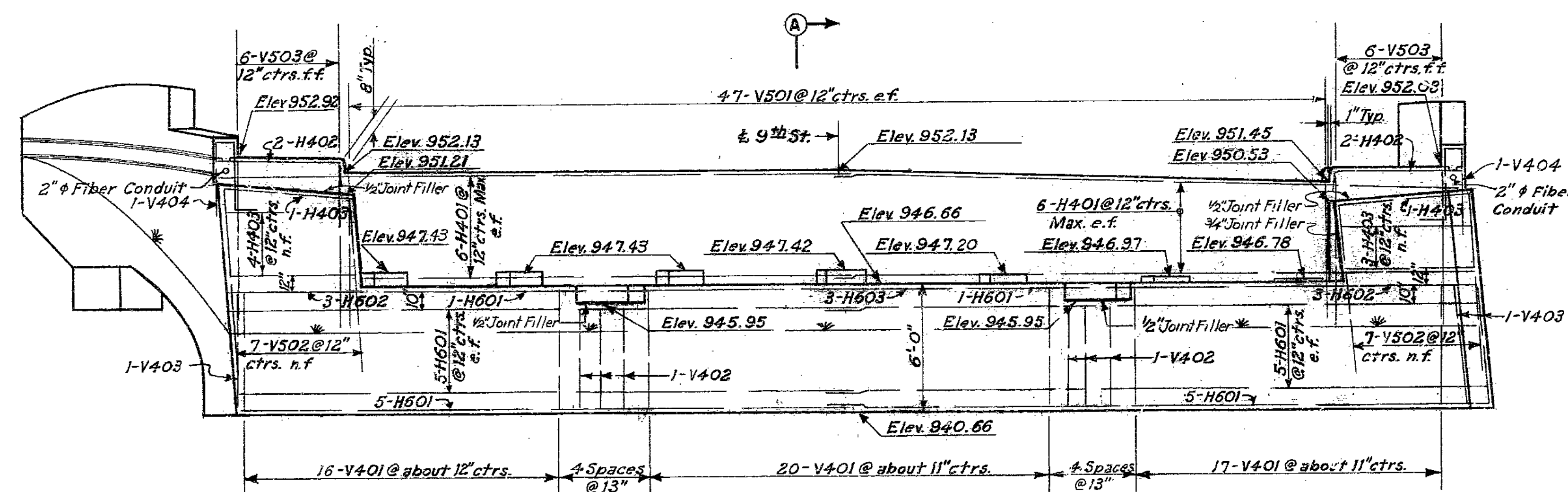
NOTE: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

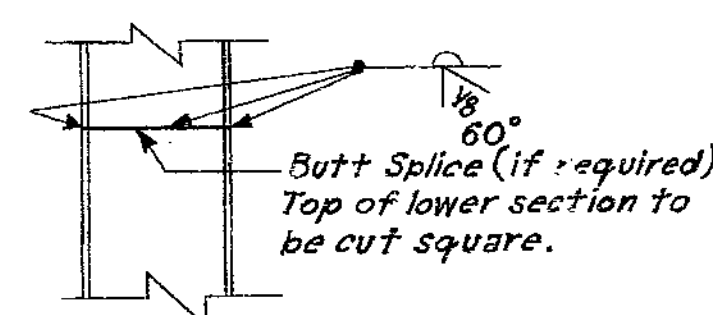
NO. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & SEC.	PIECE NO.	SHEET NO.	TOTAL SHEETS
5	MO.			103	
4		COUNTY	ROUTE	SEC.	
			40		



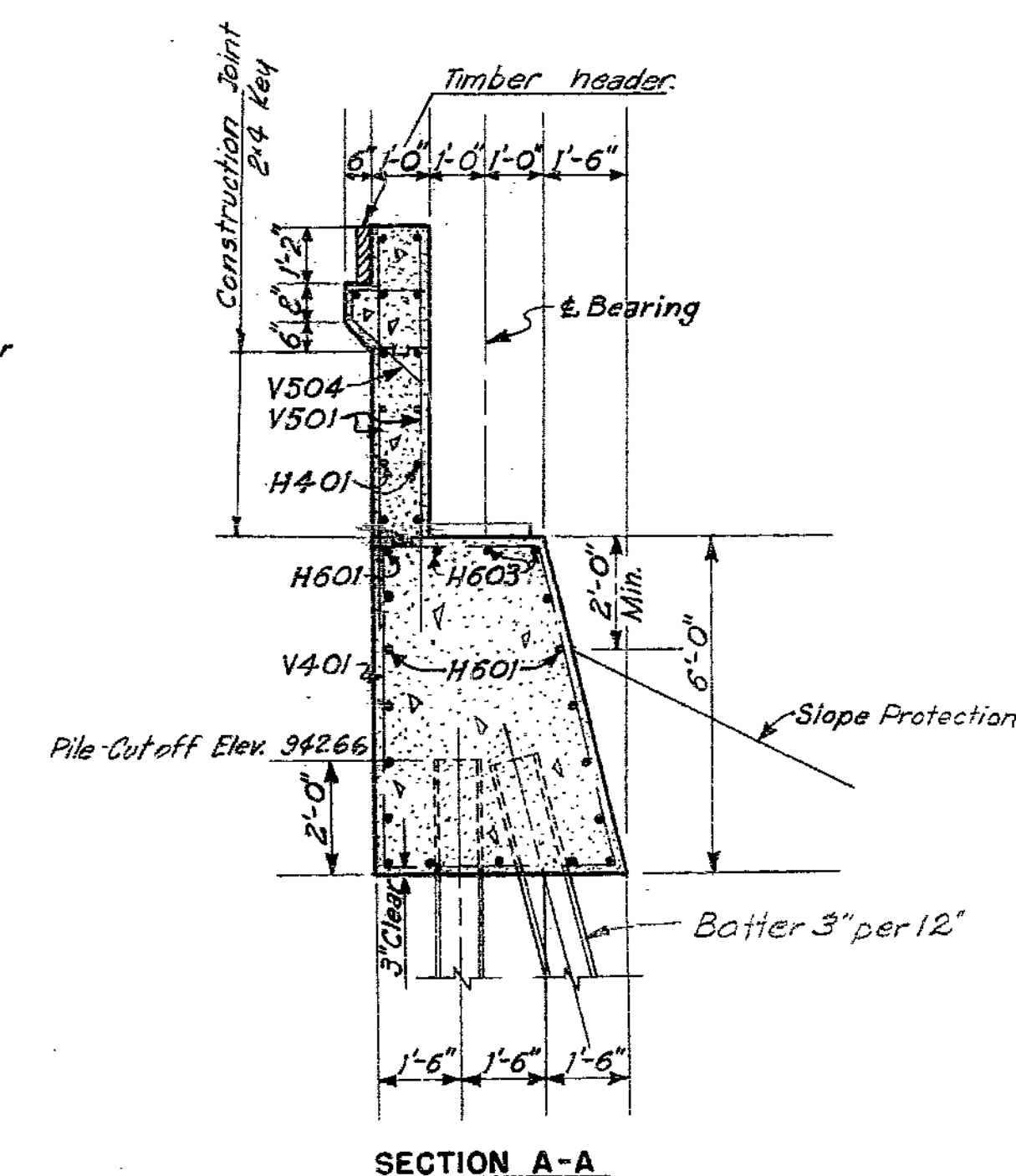
PLAN



ELEVATION



STEEL PILE DETAIL



SECTION A-A

LEGEND

n.f. - near face
f.f. - far face
e.f. - each face

Notes:
All Piles to be 10BP42
All battered piles to be battered 3" per foot.
Elevations on backwall are at West face of backwall.
Where elevations or dimensions are shown to concrete surfaces which are to receive Joint Filler, these elevations or dimensions are to the concrete.
For end post detail see sheet 18.
For expansion joint details see sheet 18.
For rustication detail see sheet 5.
Use 2" clear cover on all reinforcing unless shown otherwise.
For wingwall footing layout see sheet 8.
Pile lengths vary see sheet 1.
For standard handrail detail see sheet 18.
For detail of timber header see sheet 5.

END BENT 5

BRIDGE: 9TH STREET UNDERPASS

STATE ROAD 103

IN KANSAS CITY, MO.

PROJECT NO. 1-352 (17) (F&RTE. 4) STA. 18 + 73.83 (LANE C)

JACKSON

COUNTY

SHEET 7 OF 18

L-938

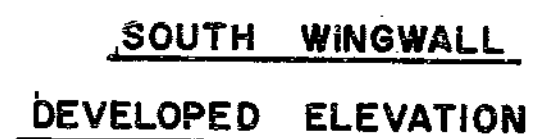
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE U.L.W. DATE 12-5-56 TRACED DATE
CHECKED JSH DATE 1-18-57 SCALE

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

NO CONSTRUCTION CHANGES

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO. 8 S2C.	FISCAL YEAR	SHEET NO.	TO SHEET
5	MO.			104	
DIST. NO.	COUNTY			ROUTE	SE
4				40	



Notes:
For pile location see sheet 7
For end post detail see sheet 18
For expansion joint details see sheet 18
Use 2" clear cover on all reinforcing unless
shown otherwise.
For rustication detail see sheet 5
For standard handrail detail see sheet 18

LEGEND
n.f. - near face
f.f. - far face
e.f. - each face

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD ~~MIDTOWN~~ FREEWAY
IN KANSAS CITY, MO.
PROJECT NO. I-352 (17) (FAL- RTE. 4) STA. 18 + 73.83 (LANE C)
JACKSON COUNTY

END BENT 5

SHEET 8 OF 18

⚠ Revised 10-10-58

NO CONSTRUCTION CHANGES

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

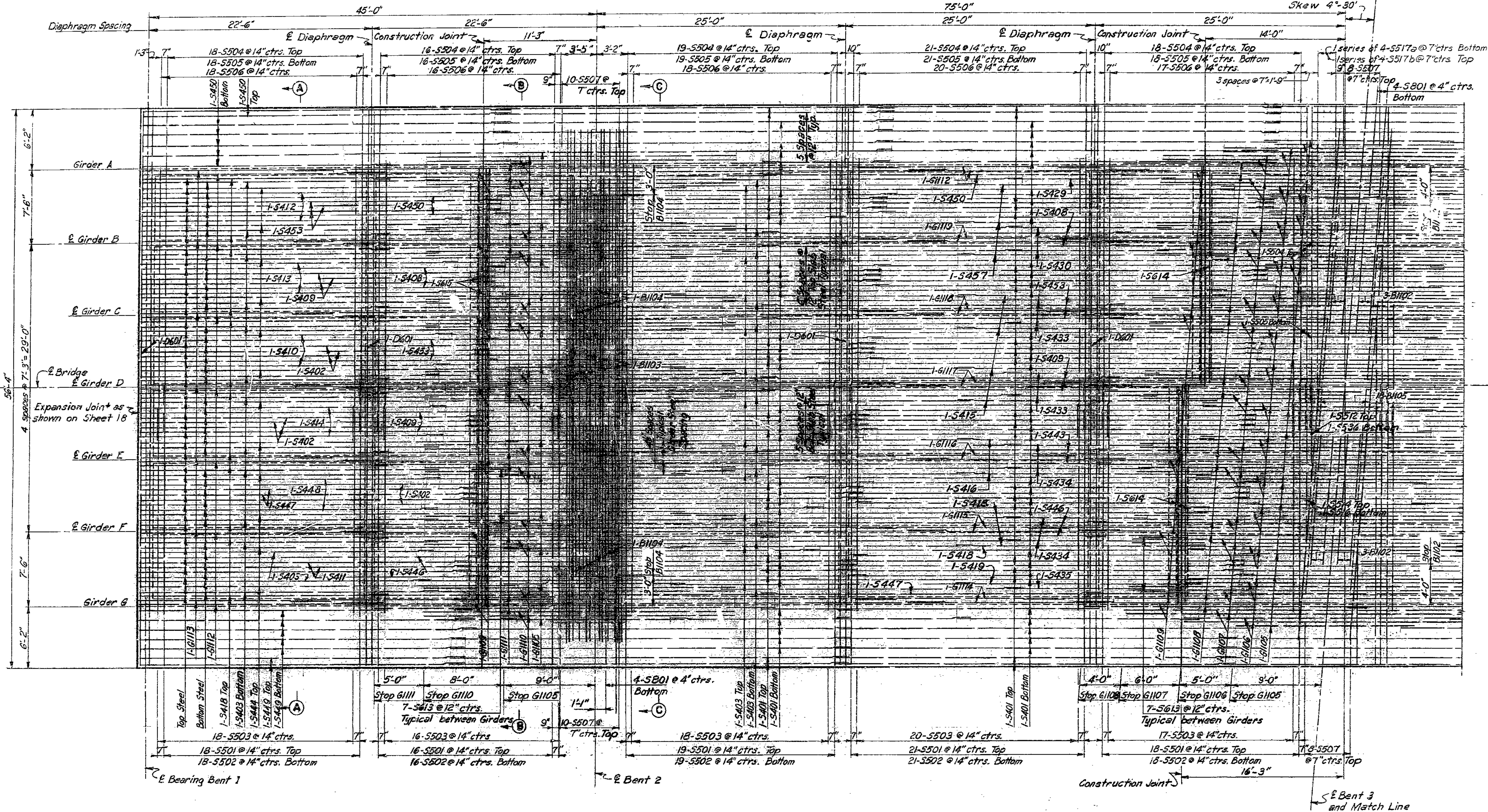
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE <u>J.L.W.</u>		DATE <u>12-17-56</u>		TRACED _____		DATE _____	
CHECKED <u>JSH</u>		DATE <u>1-18-56</u>		SCALE _____			

L-938

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.			105	
DIST. NO.	COUNTY	ROUTE	SEC.		
4			40		



Notes:
For Sections A-A, B-B and C-C
see Sheet 17
For details of interior and end
Diaphragms see Sheet 17
For details of Top Slab Construction
Joints see Sheet 17
For Pouring Sequence see Sheet 17
For Section thru Cap Beam see Sheet 17
For Handrail Post and Light Pole
spacing see Sheet 16

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD 160
IN KANSAS CITY, MO.
PROJECT NO. 1-382 (17) (FAL-RTE. 4) STA. 18 + 73.83 (LANE C)
JACKSON COUNTY

TOP SLAB PLAN

SHEET 9 OF 18

L-938

NO CONSTRUCTION CHANGES

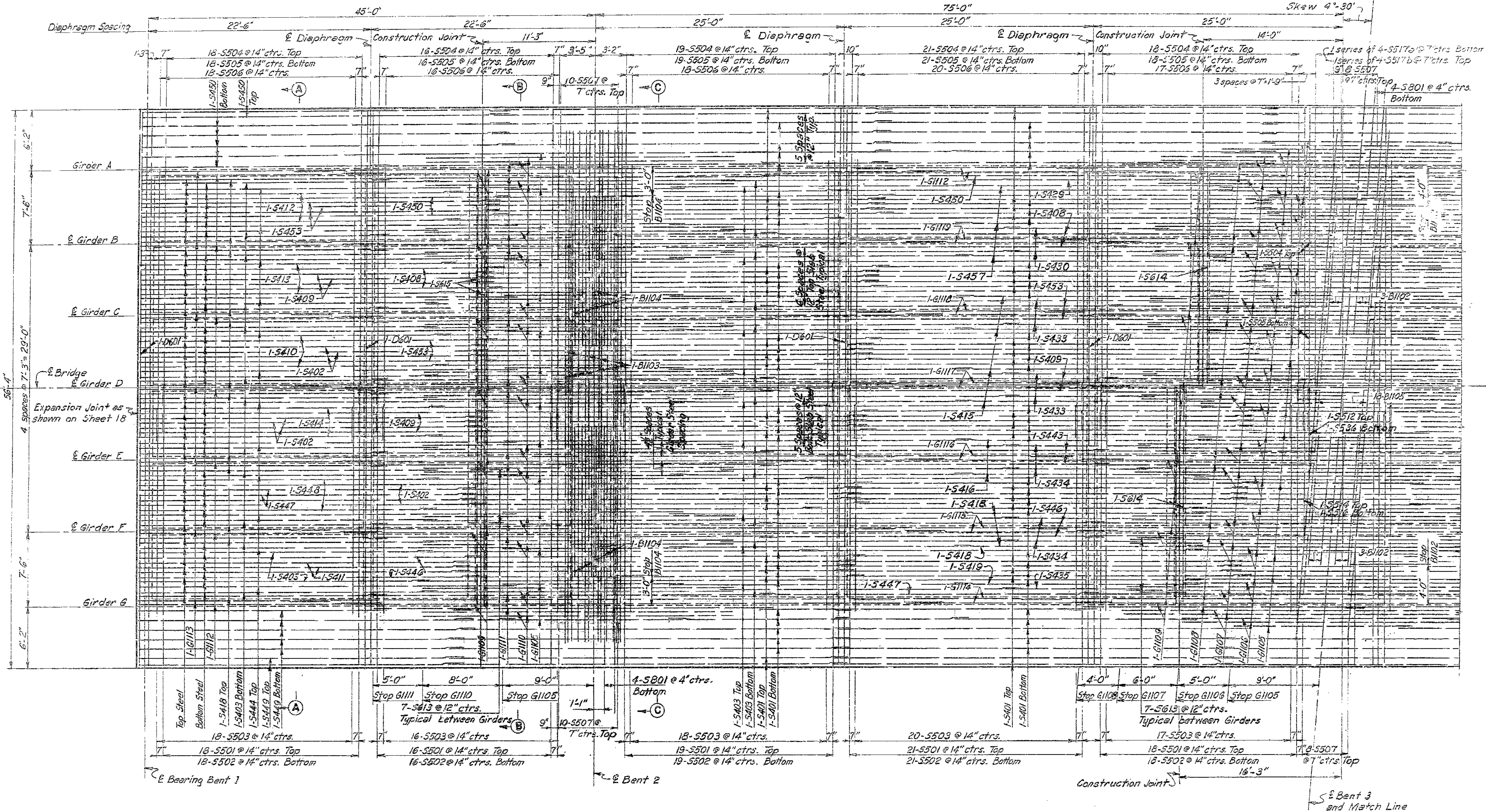
NOTE: This drawing is not to scale. Follow dimensions.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE BY: DATE: 12-11-56
CHECKED: W.D. DATE: 1-26-57
TRACED: DATE: SCALE:

3/3

MISSOURI STATE HIGHWAY DEPARTMENT

STATE PROJECT NO. 8	SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		40	
DIST. NO.	COUNTY	ROUTE	SEC.	
4				



Notes:
For Sections A-A, B-B and C-C
see Sheet 17
For details of interior and End
Diaphragms see Sheet 17
For details of Top Slab Construction
Joints see Sheet 17
For Pouring Sequence see Sheet 17
For Section thru Cap Beam see Sheet 17
For Handrail Post and Light Pole
spacing see Sheet 16

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD 163
IN KANSAS CITY, MO.
PROJECT NO. 1-382 (1) (FBI-RTE. 4) STA. 18 + 73.93 (LANE C)
JACKSON COUNTY

TOP SLAB PLAN

SHEET 9 OF 18

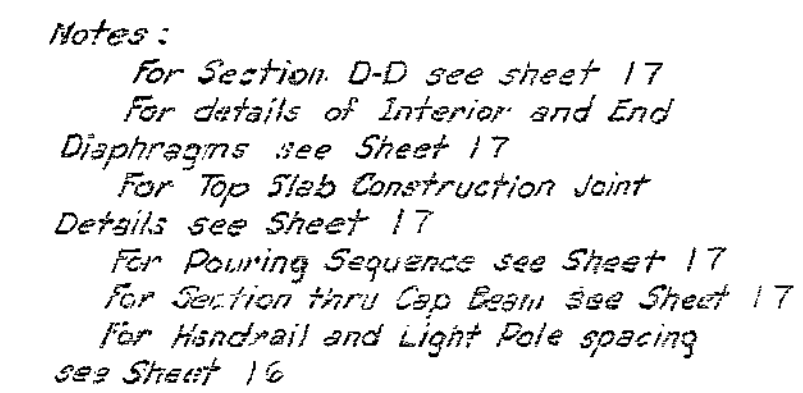
L-936

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE BY	DATE	TRACED	DATE
CHECKED	DATE	SCALE	

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

FED. ROAD DIST. NO.		STATE FEDERAL PROJECT NO. 8 SEC.		FISCAL YEAR		SHEET NO.		TOTAL SHEETS	
5		MO.				26			
DIST. NO.		COUNTY		ROUTE		SEC.			
4				40					



STATE ROAD ^{N. 270th AVE}
~~SOUTHWEST~~ FREEWAY
INKANSAS CITY, MO.
PROJECT NO. 1-352 (17) (FAHRT. 4) STA. 16+73.83 (LANE C)
JACKSON COUNTY

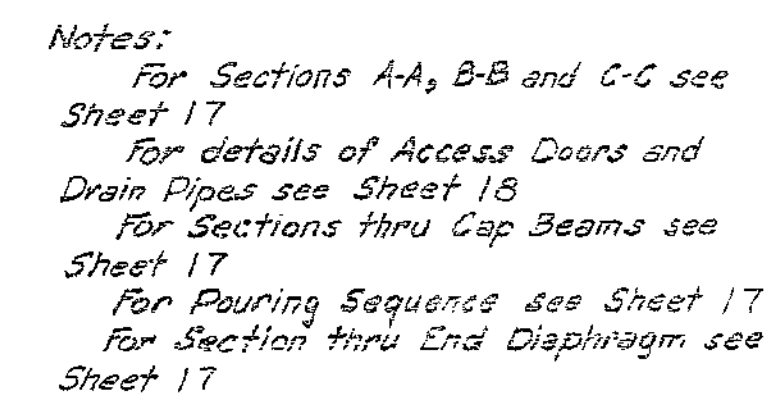
SHEET 10 OF 18

L-938

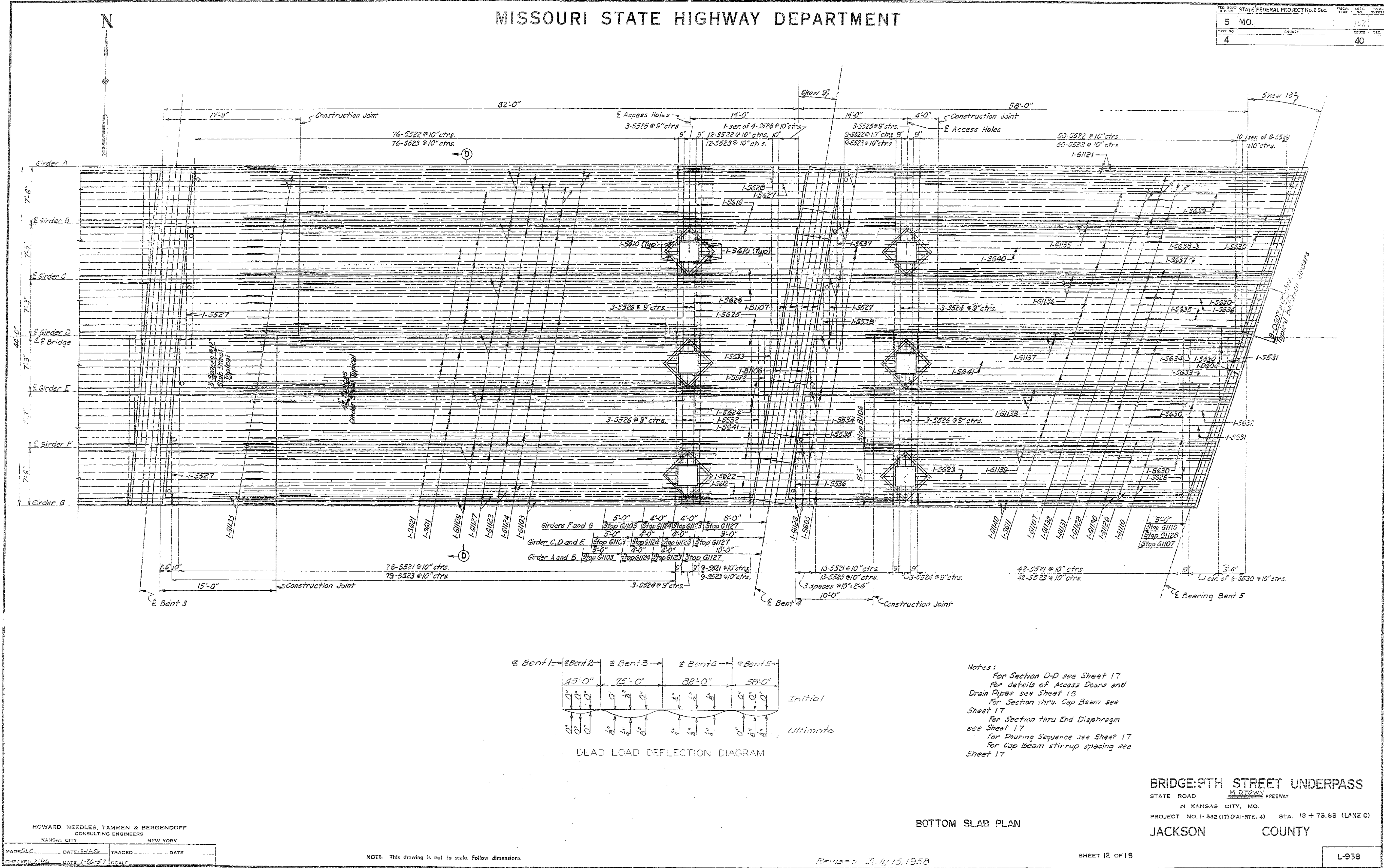
MADE <u>12-4-56</u>	DATE <u>12-4-56</u>	TRACED _____	DATE _____
CHECKED <u>WPC</u>	DATE <u>1-26-57</u>	SCALE _____	

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

FED. ROAD DIST. NO.	STATE FEDERAL PROJECT No. 8 SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		107	
DIST. NO.	COUNTY		ROUTE	SEC.
4			40	

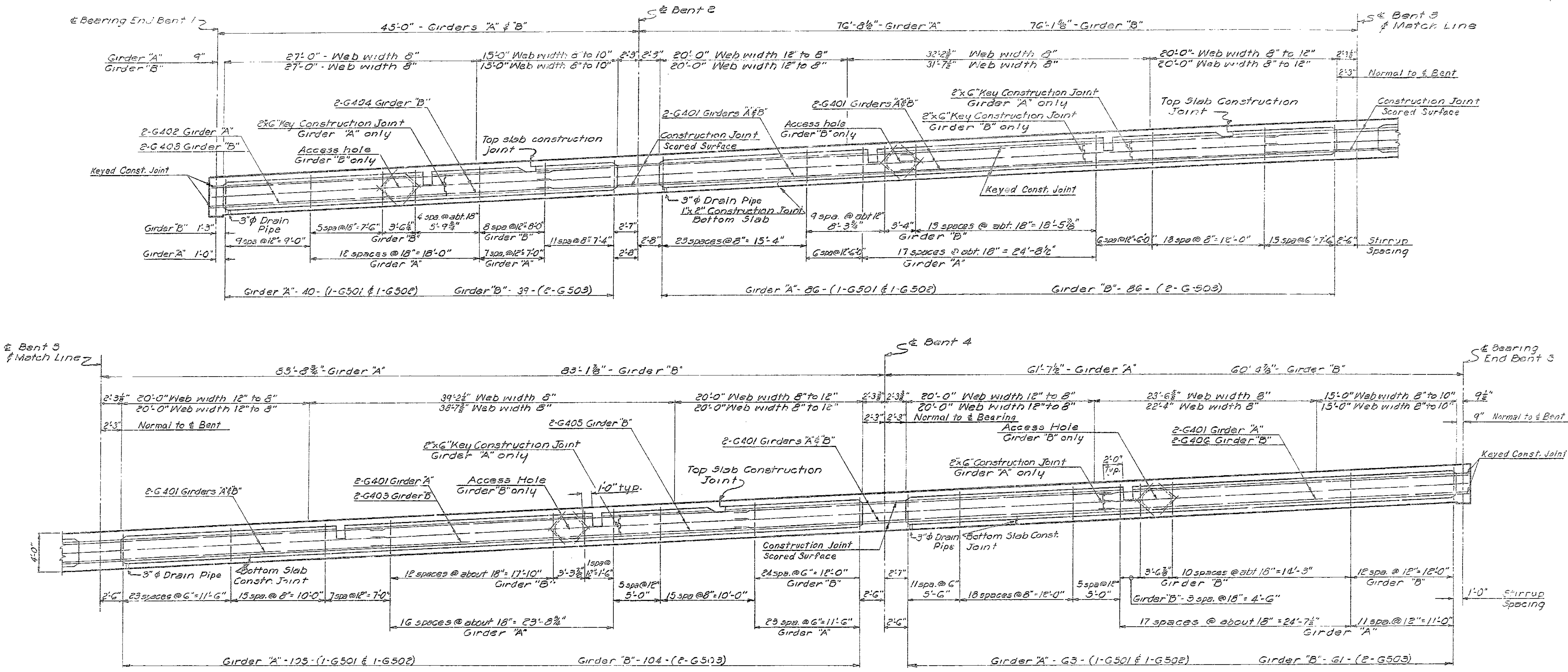


L-938



MISSOURI STATE HIGHWAY DEPARTMENT

PROJECT NO.	STATE	FEDERAL PR	SECTION	NO.	DATE	BY	CHKD.	TOTAL
5	MO.				10/21			
SHEET NO.	COUNTY	ROUTE	SECTION					
4		40						



Notes:
Stirrups shown is typical for all girders unless noted otherwise.
For access hole details see sheet 17
For drain pipe details see sheet 13

BRIDGE: 9 TH STREET UNDERPASS
STATE ROAD 11070N FREEWAY
IN KANSAS CITY, MO.
PROJECT NO. 1-352 (17) (PAV. RTE. 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

GIRDER ELEVATIONS, GIRDERS A AND B

SHEET 13 OF 18

L-938

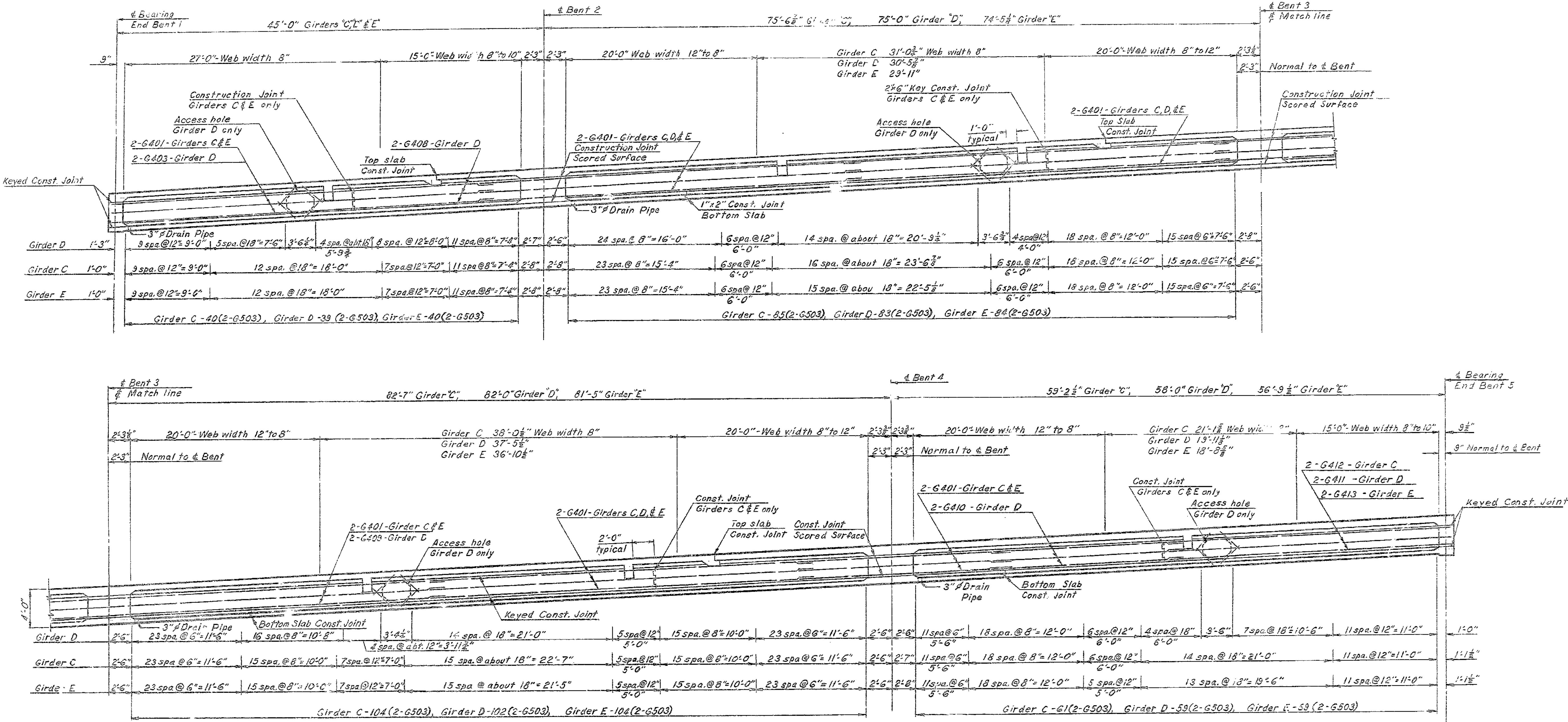
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE: JFP DATE 12-17-56 TRACED: DATE
CHECKED: RSP DATE 1-2-57 SCALE

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

317

MISSOURI STATE HIGHWAY DEPARTMENT

STATE	MO.	FEDERAL PROJECT NO.	9 SEC.	YEAR	1956	SHEET	110	TOTAL	110
DIST. NO.	4	COUNTY		ROUTE	SEC.				



Note: For access hole details see sheet 111
For drain pipe details see sheet 112

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD 162 FREeway
IN KANSAS CITY, MO.
PROJECT NO. 1-332 (17A) (RTE 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

GIRDER ELEVATIONS, GIRDERS C, D, AND E

SHEET 14 OF 18

L 938

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

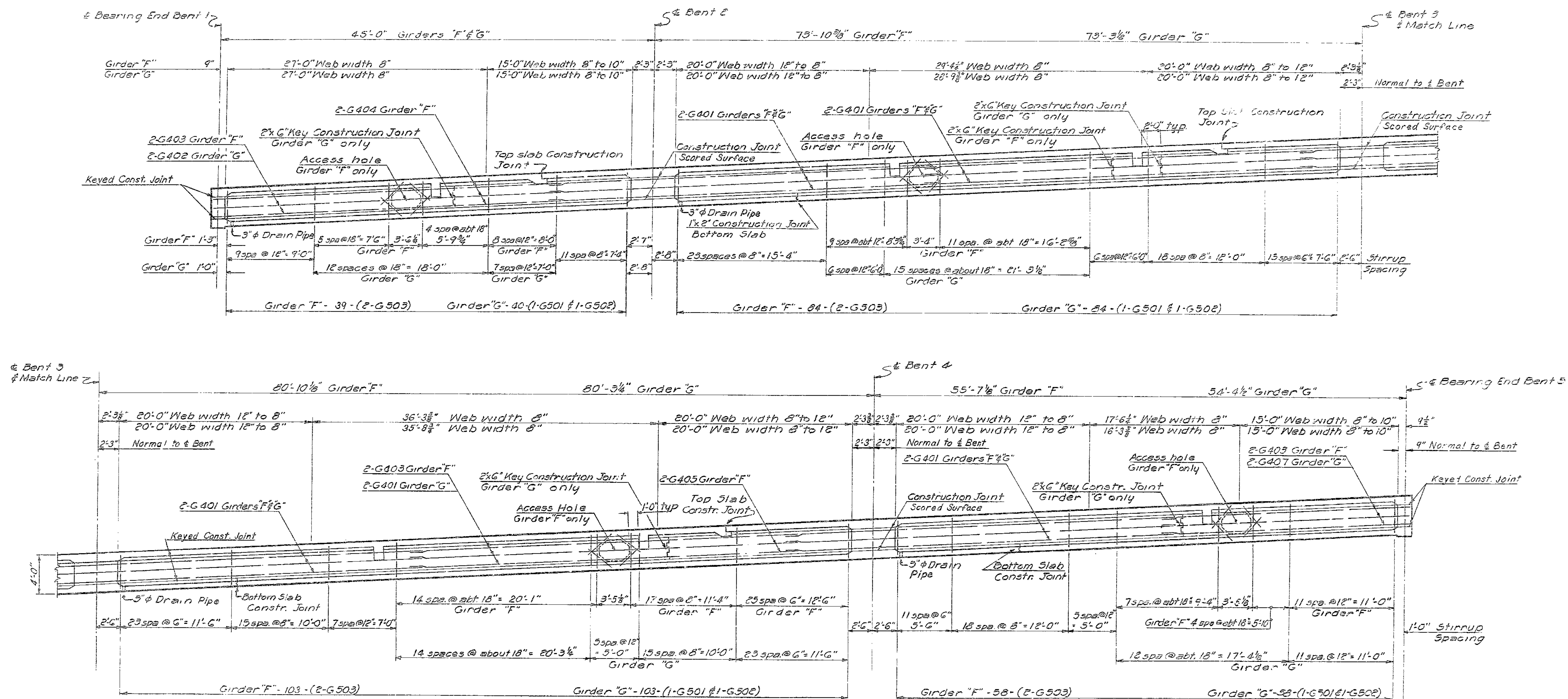
MADE JUN 12-1956 DATE 12-19-56
CHECKED ASR DATE 1-2-57 SCALE

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

NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

5 MO.	111
4	40



Notes:
 Stirrup spacing shown is typical for all girders unless noted otherwise.
 For access hole details see sheet 17
 For drain pipe details see sheet 18

BRIDGE: 9 TH STREET UNDERPASS
 STATE ROAD 162
 IN KANSAS CITY MO.
 PROJECT NO. 1-352 (17) (FAI RATE 4) STA. 18 + 73.83 (LANE C)
 JACKSON COUNTY

GIRDER ELEVATIONS, GIRDERS F AND G

SHEET 15 OF 18

L 938

CONSTRUCTION DETAILS

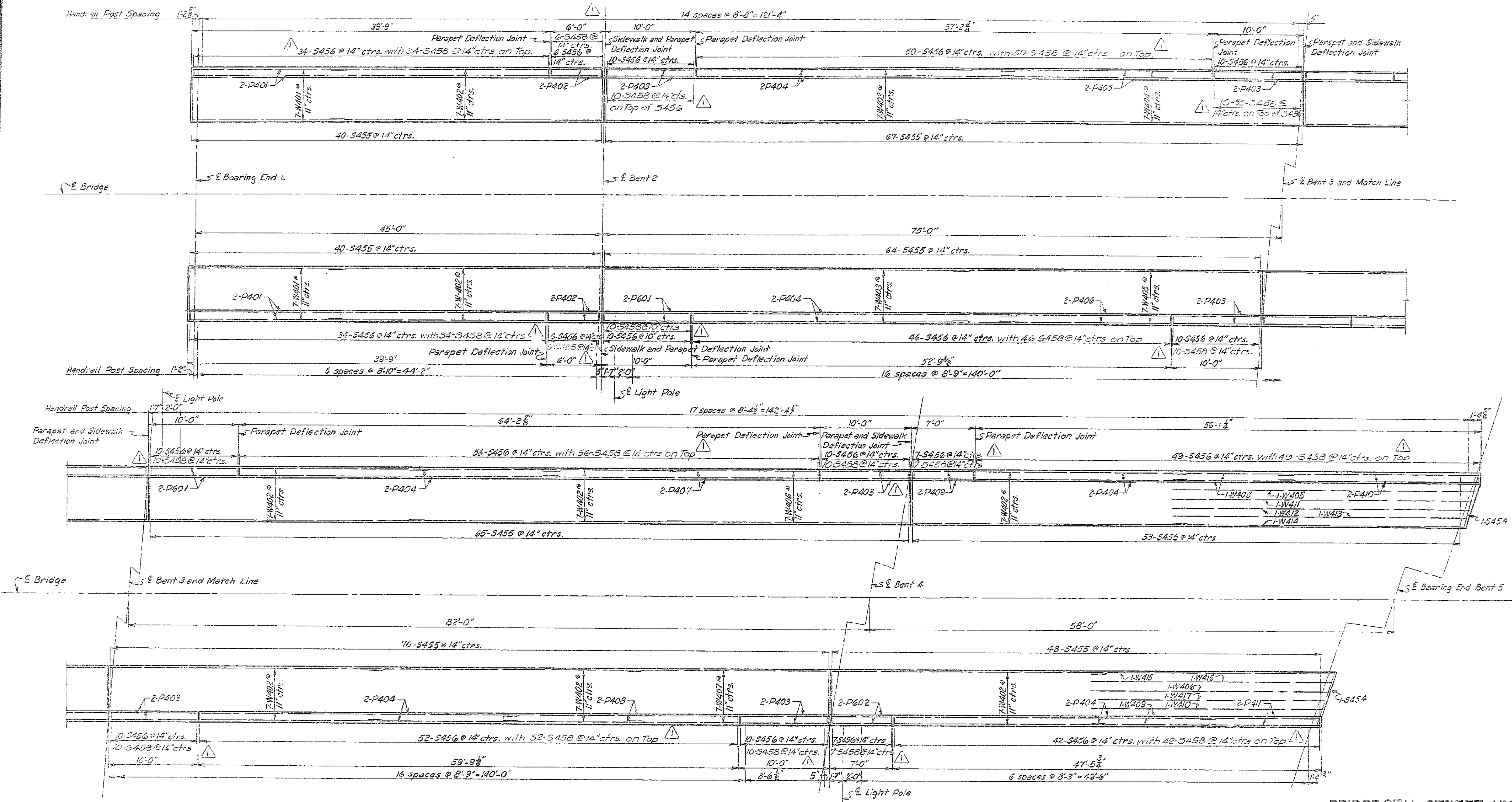
NOTE: This drawing is not to scale. Follow dimensions.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS
 KANSAS CITY NEW YORK
 MADE JFP DATE 12-19-50 TRACED DATE
 CHECKED LEC DATE 1-2-57 SCALE

613

MISSOURI STATE HIGHWAY DEPARTMENT

STATE PROJECT NO. 2 SEC.		SHEET NO.		TOTAL SHEETS	
5 MO.		42		42	
DIST. NO.	COUNTY	ROUTE	SEC.		
4			40		



HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

MADE BY: DATE: 12/1/56 TRACED: DATE: 1/26/57
CHECKED BY: DATE: 1/26/57 SCALE:

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

PARAPET AND SIDEWALK PLAN

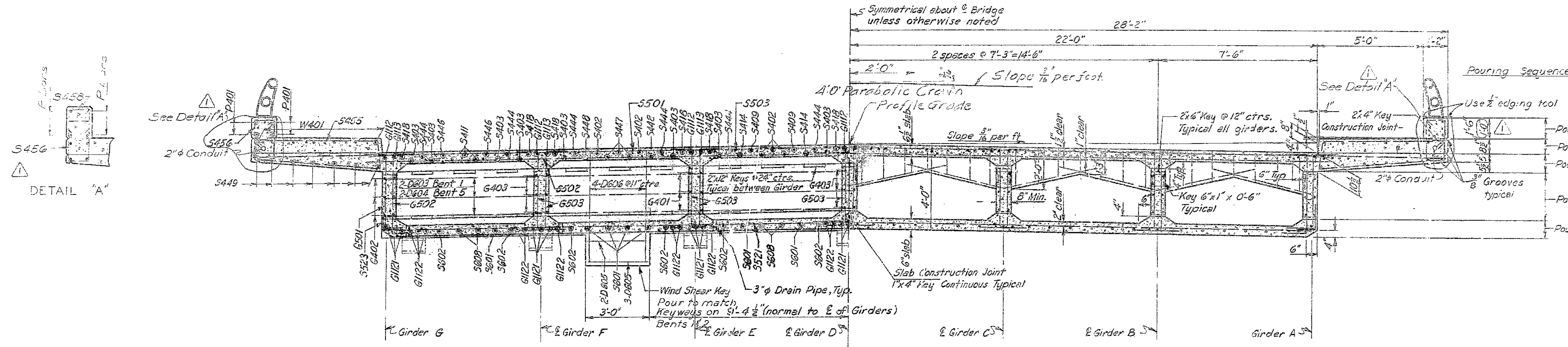
BRIDGE 9TH STREET UNDERPASS
STATE ROAD 113 FREEWAY
IN KANSAS CITY, MO.
PROJECT NO. 11-352 (17) (FAI-RT. 4) STA. 13 + 73.85 (LANE C)
JACKSON COUNTY

SHEET 16 OF 18

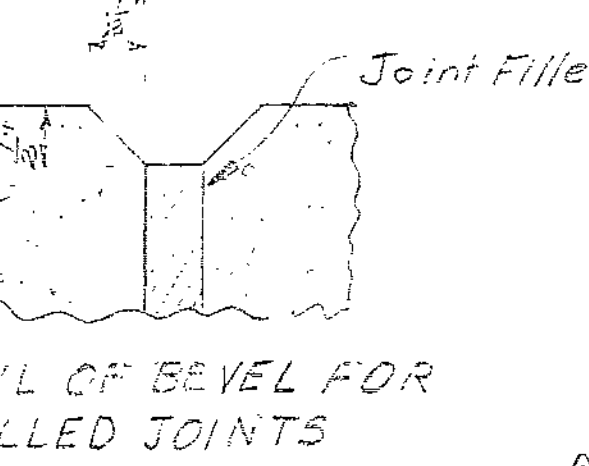
L-938

MISSOURI STATE HIGHWAY DEPARTMENT

STATE FEDERAL PROJECT NO. 8 SEC.	1024	SHEET NO.	1025
5 MO.		ROUTE	40
4		COUNTY	JACKSON



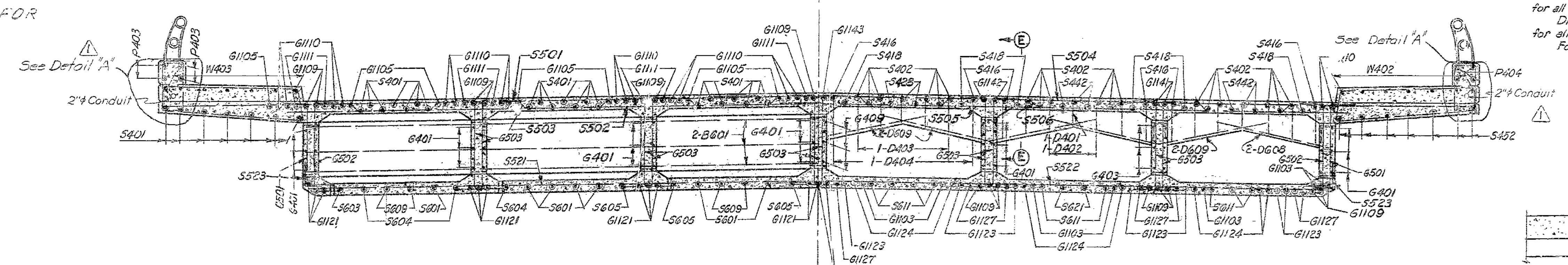
Note: Pour interior diaphragms with Pour 3. Pour end diaphragms and cap beams with Pour 2. Order and direction of longitudinal pours is from West to East.



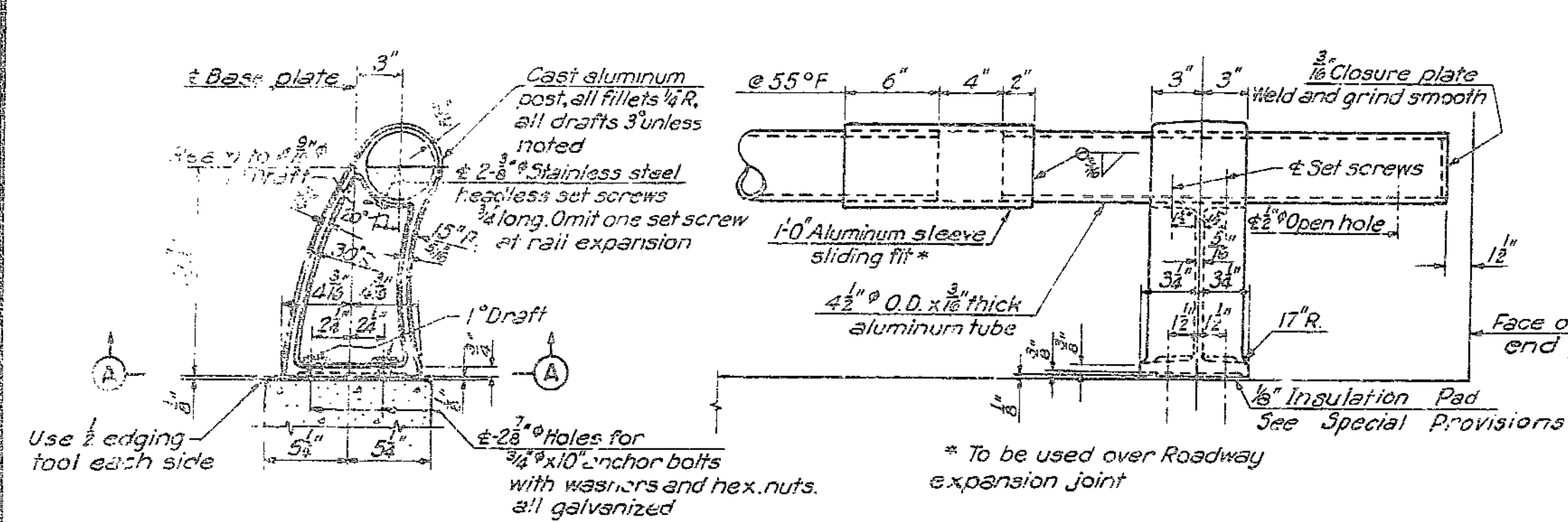
HALF SECTION A-A
Showing End Diaphragm Bent 1
End Diaphragm Bent 5 similar except as noted.

HALF SECTION B-B

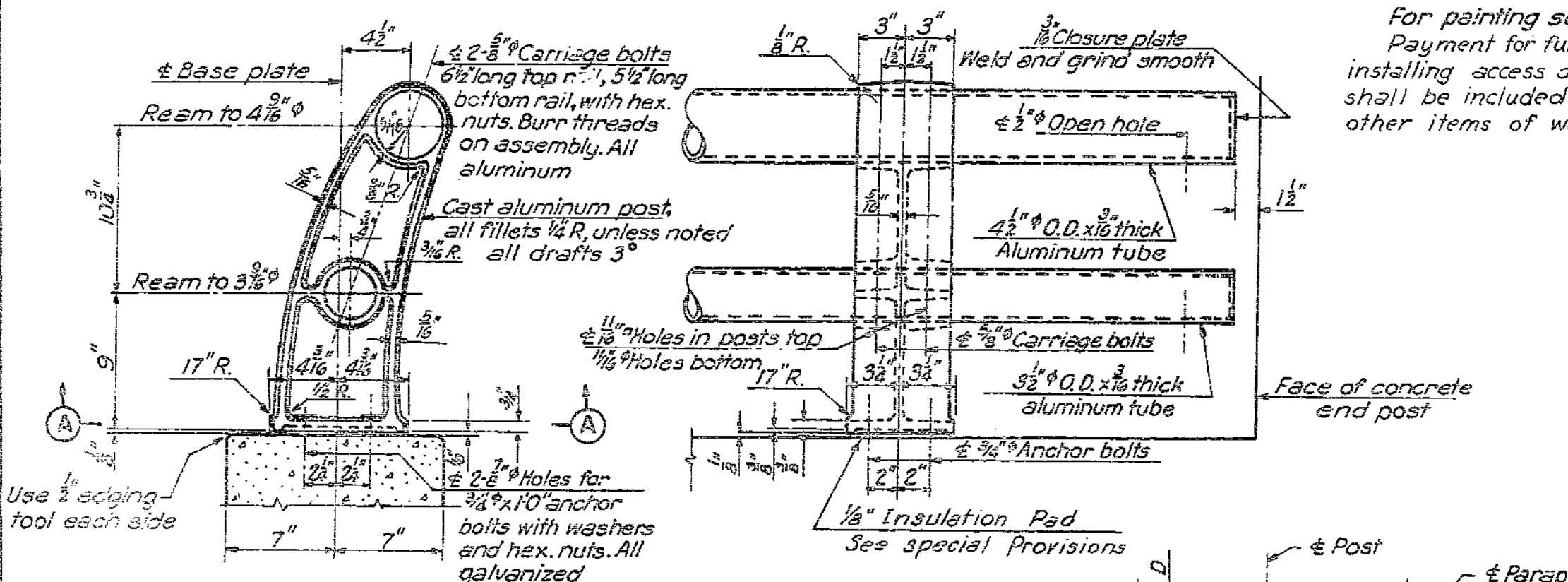
Note:
For location of Sections A-A, B-B and C-C see Sheet 9 and Sheet 11.
For location of Section D-D see Sheet 10 and Sheet 12.
Stirrups in girder webs consist of two bars.
Pouring Sequence noted in Section B-B is typical for all sections.
Dimensions shown in Section B-B are typical for all sections.
For detail of 3/8" grooves, see rustication detail sheet 5.



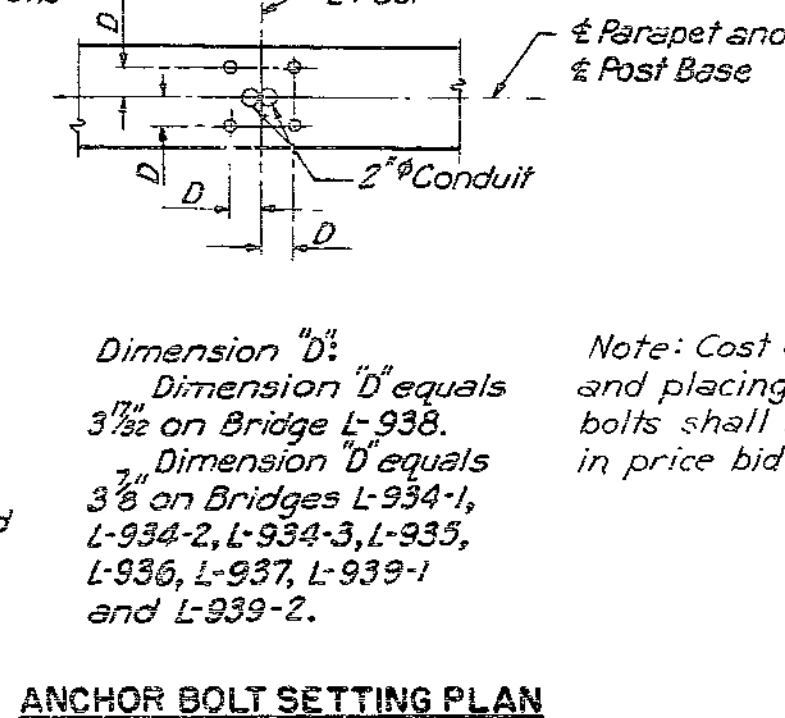
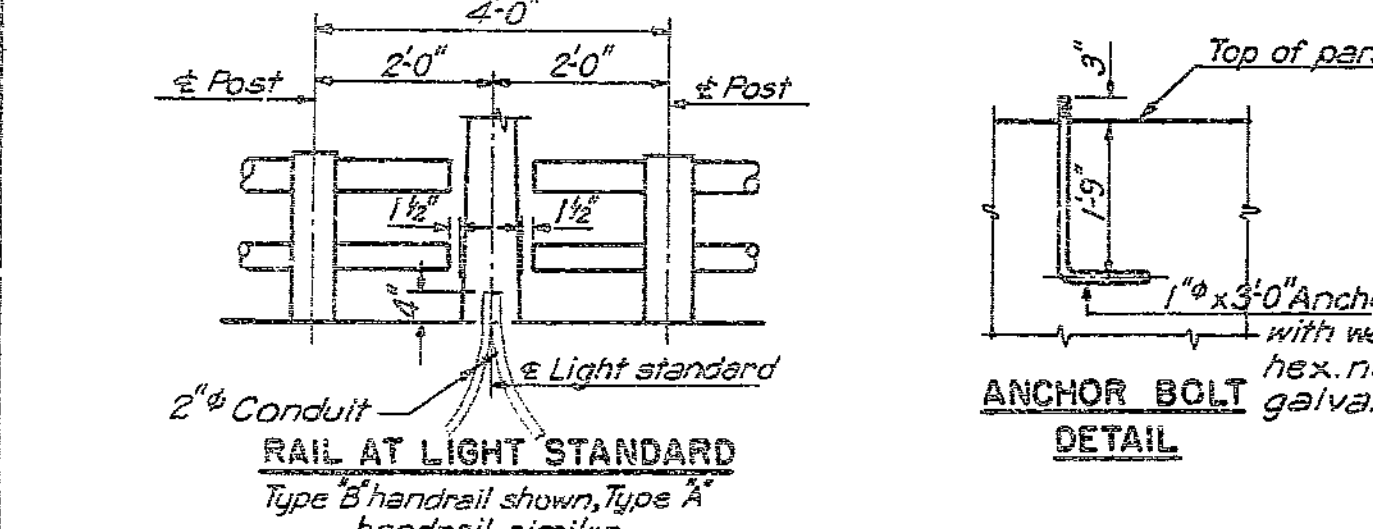
MISSOURI STATE HIGHWAY DEPARTMENT



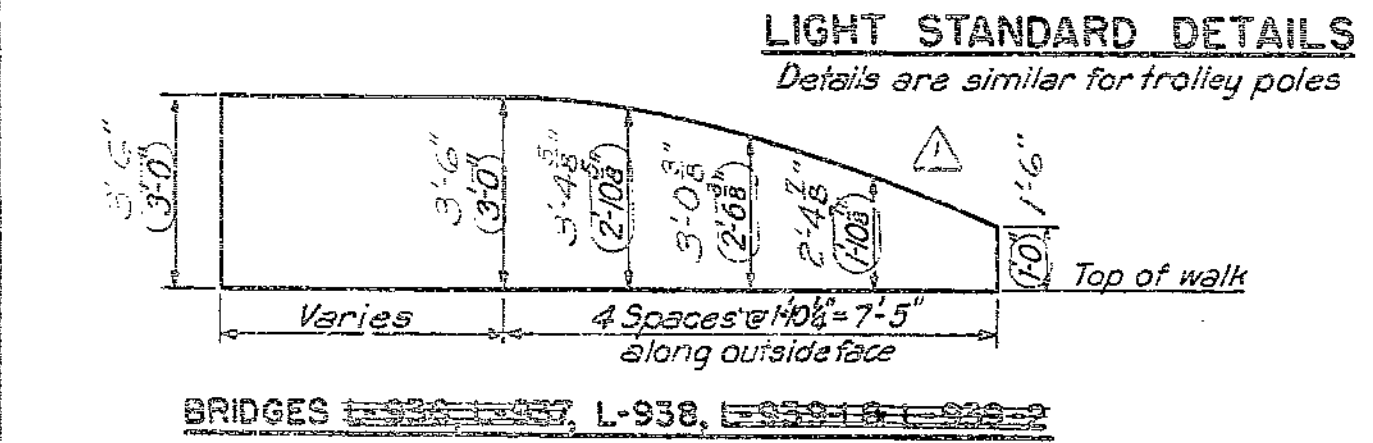
TYPE "A" HANDRAIL
BRIDGES L-934-1, L-934-2, L-934-3 & L-935



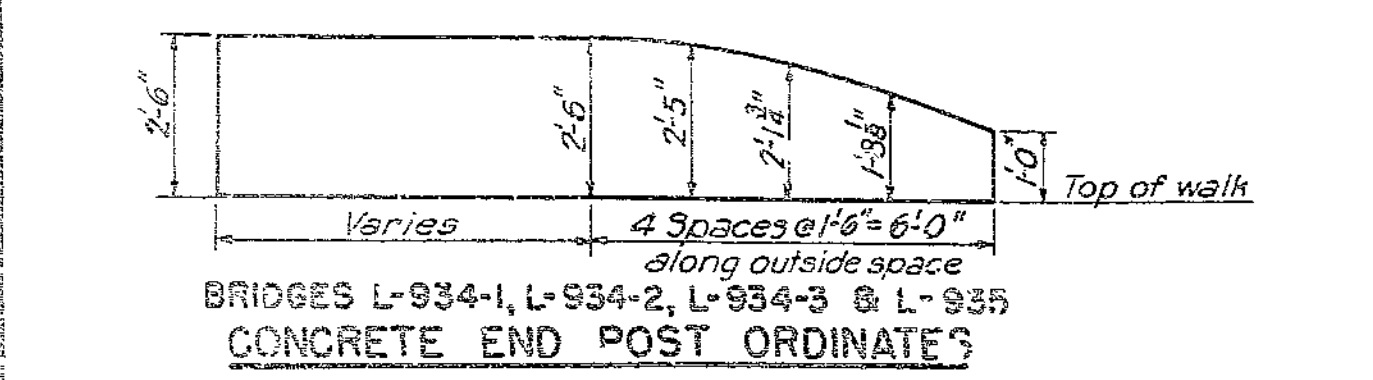
TYPE "B" HANDRAIL
BRIDGES L-936, L-937, L-938, L-939-1 & L-939-2



ANCHOR BOLT SETTING PLAN



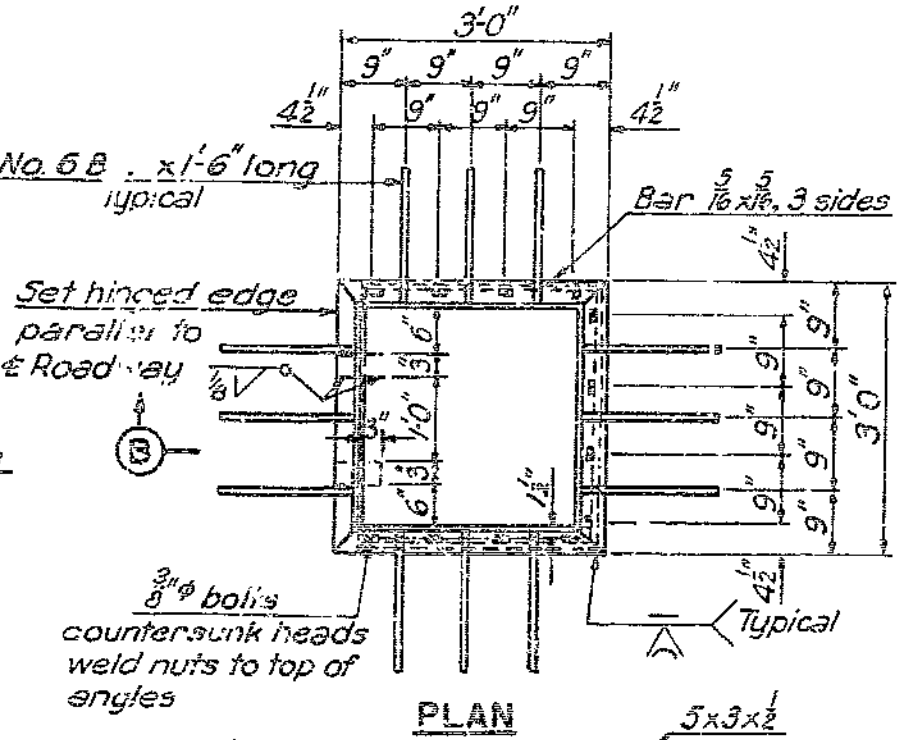
LIGHT STANDARD DETAILS
Details are similar for trolley poles



CONCRETE END POST ORDINATES

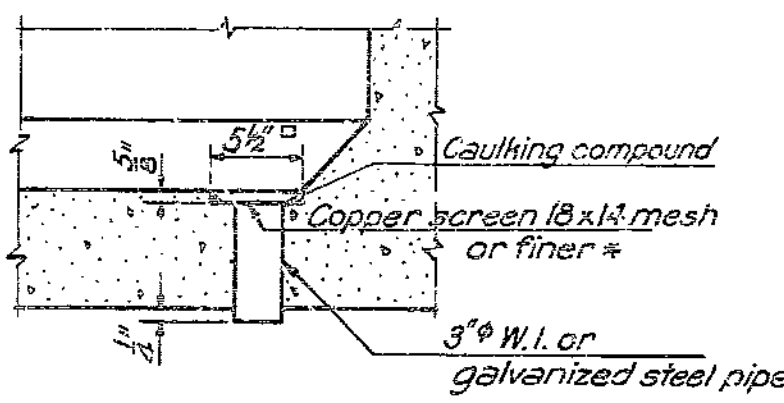
ACCESS DOOR NOTES

Unit to be assembled and in place while slab is being poured. Bottom surface of door to be flush with bottom of slab. For painting see special provisions. Payment for furnishing and installing access doors and frames shall be included in price bid for other items of work.



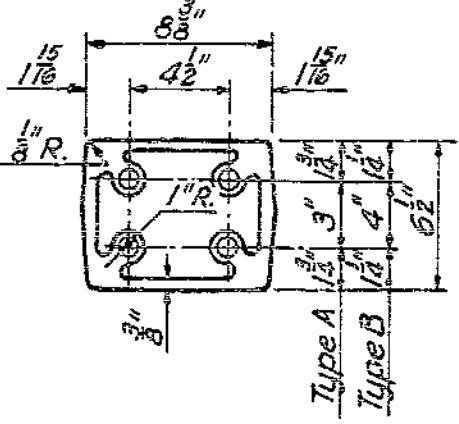
SECTION B-B

ACCESS DOOR IN BOTTOM SLAB



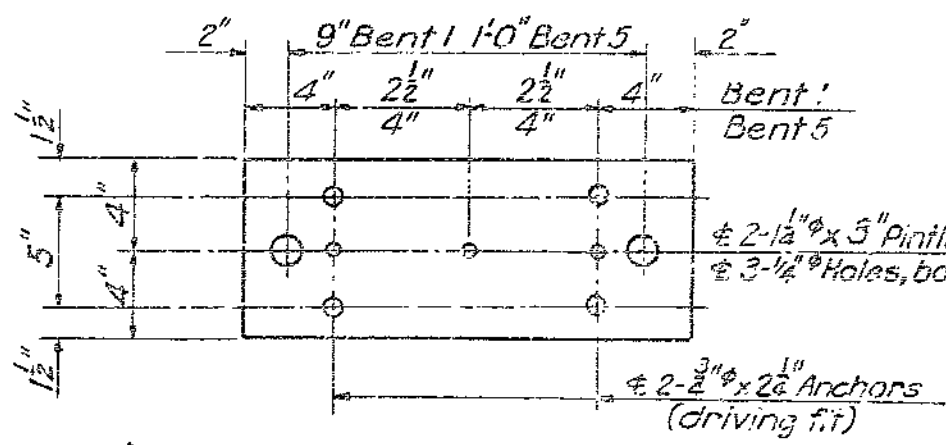
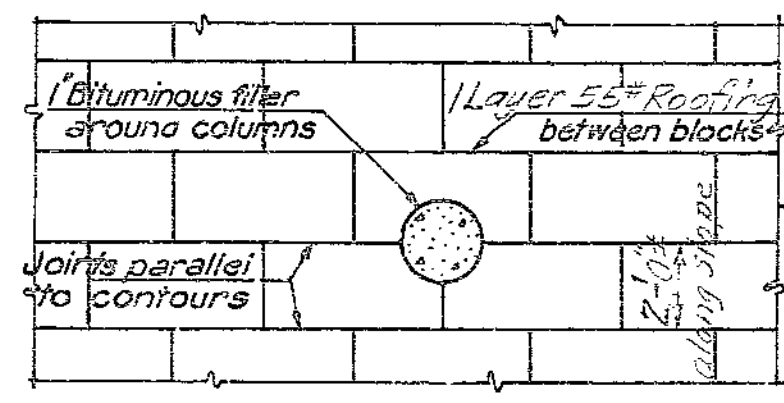
PIPE DRAIN IN BOTTOM SLAB

Note: Cost of furnishing and placing pipe screen and caulking compound shall be included in price bid for other items.



SECTION A-A

SLOPE PROTECTION UNDER ENDS OF SUPERSTRUCTURE

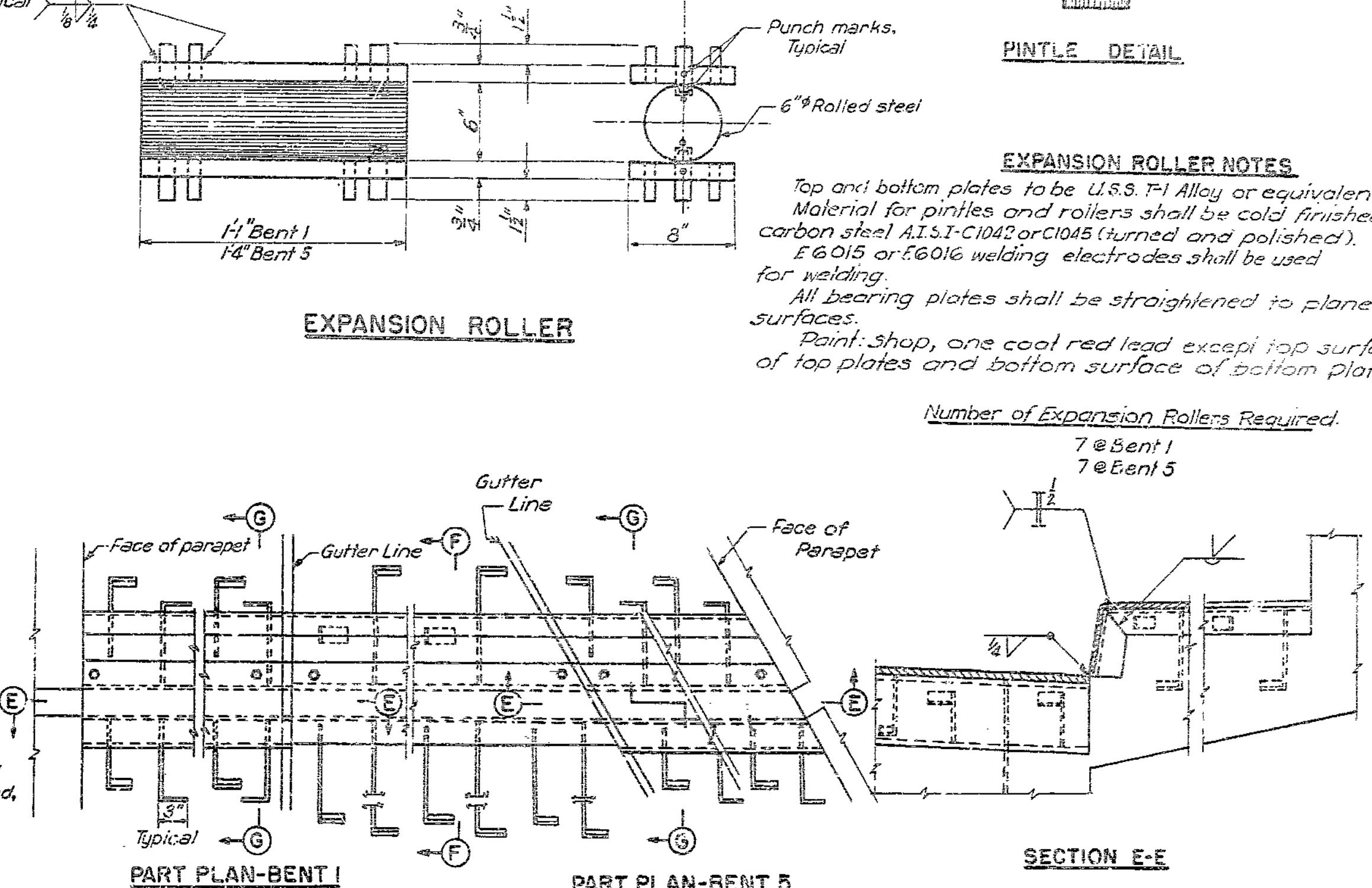


EXPANSION ROLLER

EXPANSION ROLLER NOTES
Top and bottom plates to be U.S.S. F1 Alloy or equivalent. Material for pintles and rollers shall be cold finished carbon steel A1.3.1-C1042 or C1045 (turned and polished). E 6015 or E 6016 welding electrodes shall be used for welding. All bearing plates shall be straightened to plane surfaces. Paint: Shop, one coat red lead except top surface of top plates and bottom surface of bottom plates.

Number of Expansion Rollers Required

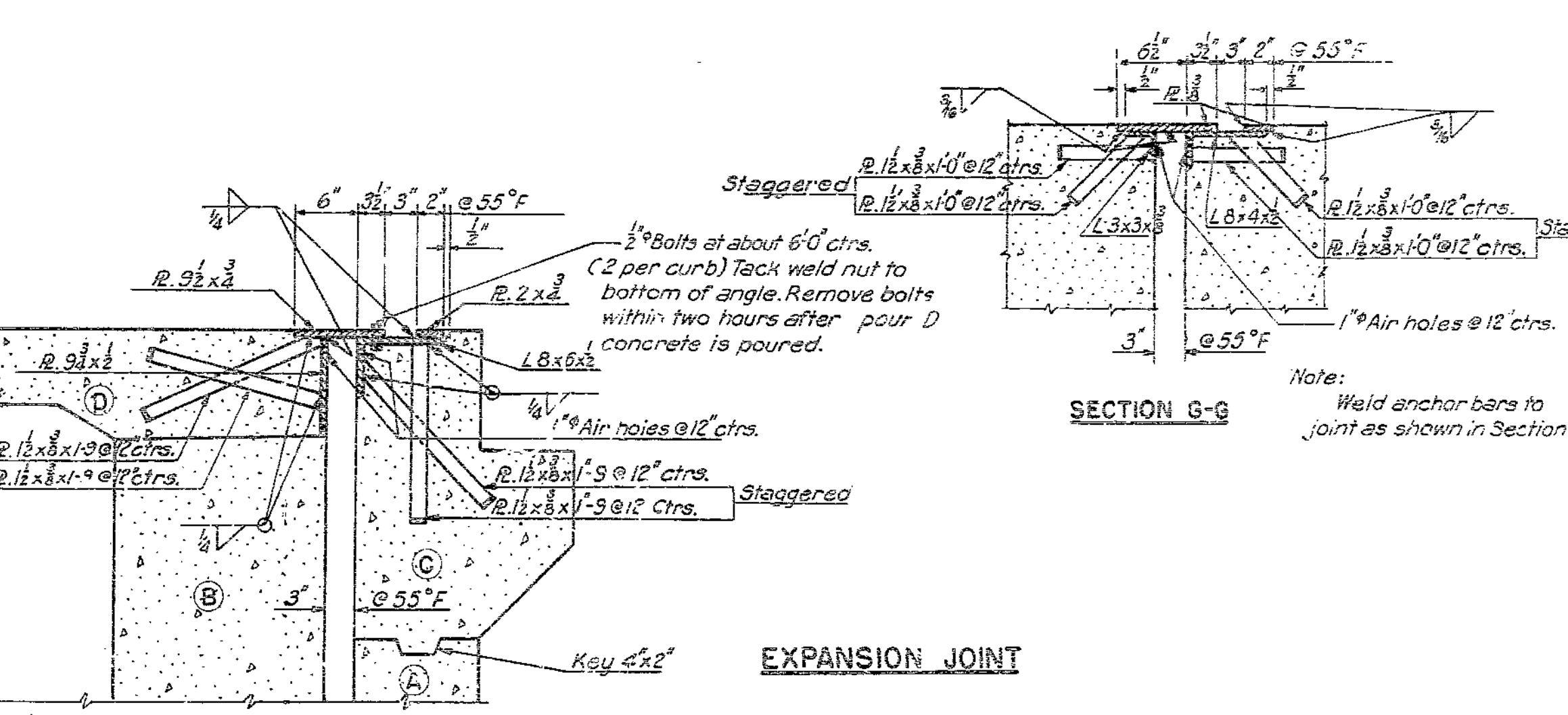
7 @ Bent 1
7 @ Bent 5



PART PLAN-BENT 1

PART PLAN-BENT 5

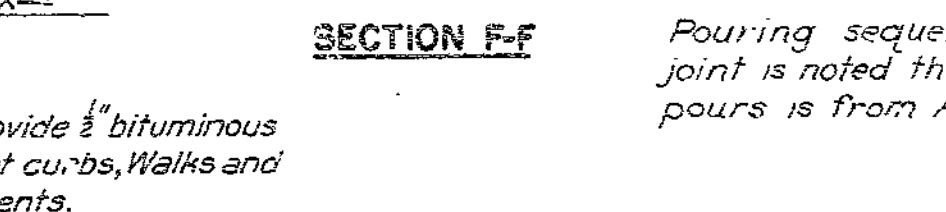
SECTION E-E



EXPANSION JOINT

SECTION G-G

Note: Weld anchor bars to joint as shown in Section F-F



SECTION F-F

Pouring sequence of expansion joint is noted thus (A). Order of pours is from A to D.

BRIDGE 9TH STREET UNDERPASS

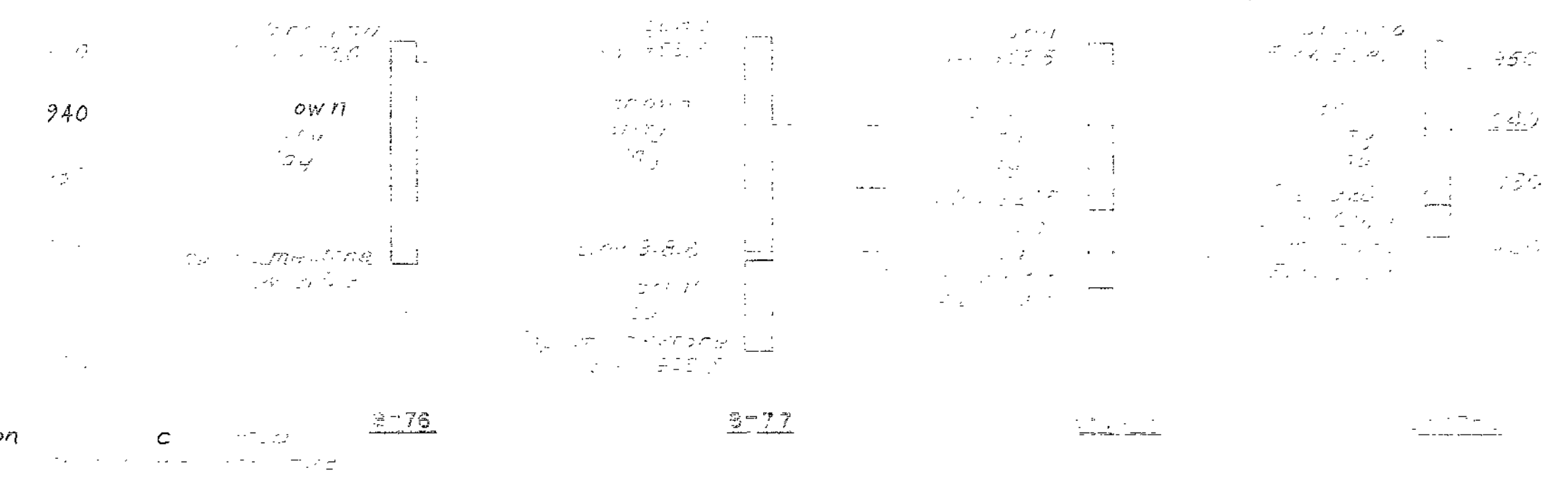
STATE ROAD
IN KANSAS CITY, MO.
PROJECT NO. 1-352 (17) (FAI-RTZ 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

MISCELLANEOUS DETAILS

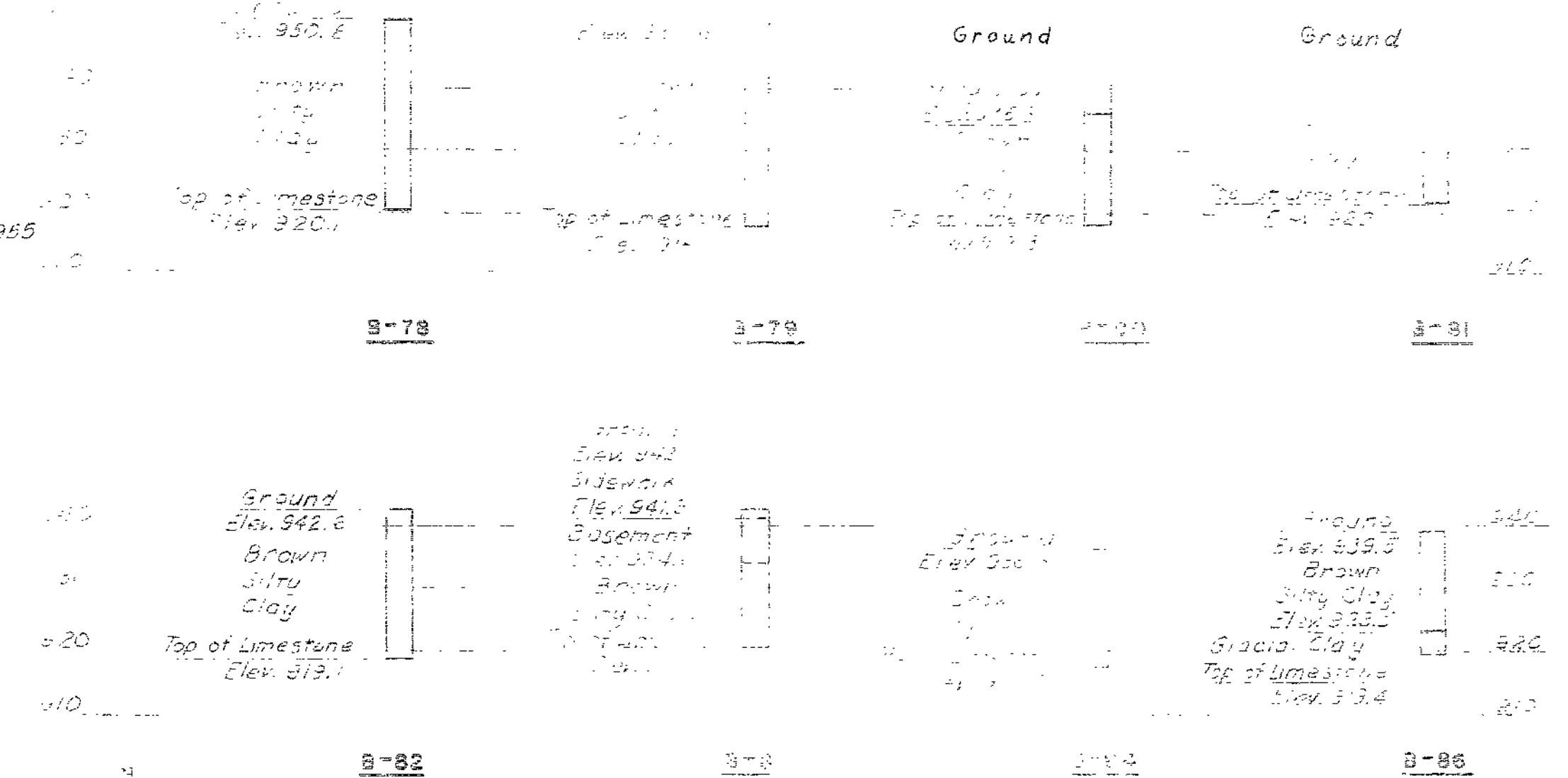
Revised 10-10-56

L-938

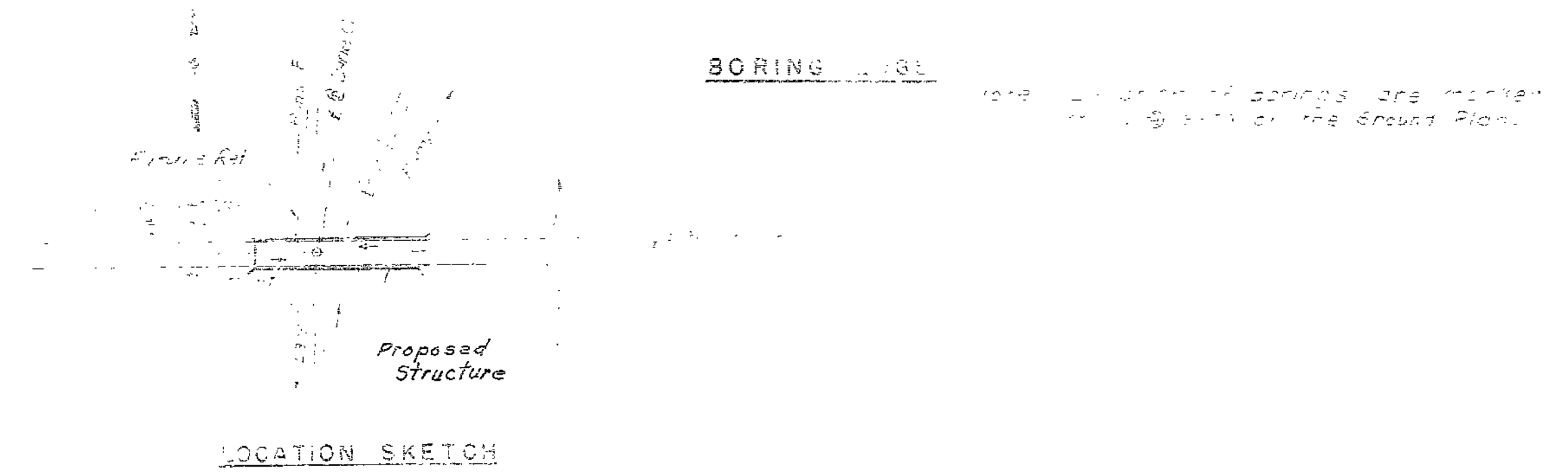
1-252 (7)
BLACK & WHITE
CHALK PLANE



CONTINUOUS CONCRETE BOX GIRDER SPANS
PLAN



battered 3



1014 - Location of springs are marked
on a 1:50,000 scale of the ground plan.

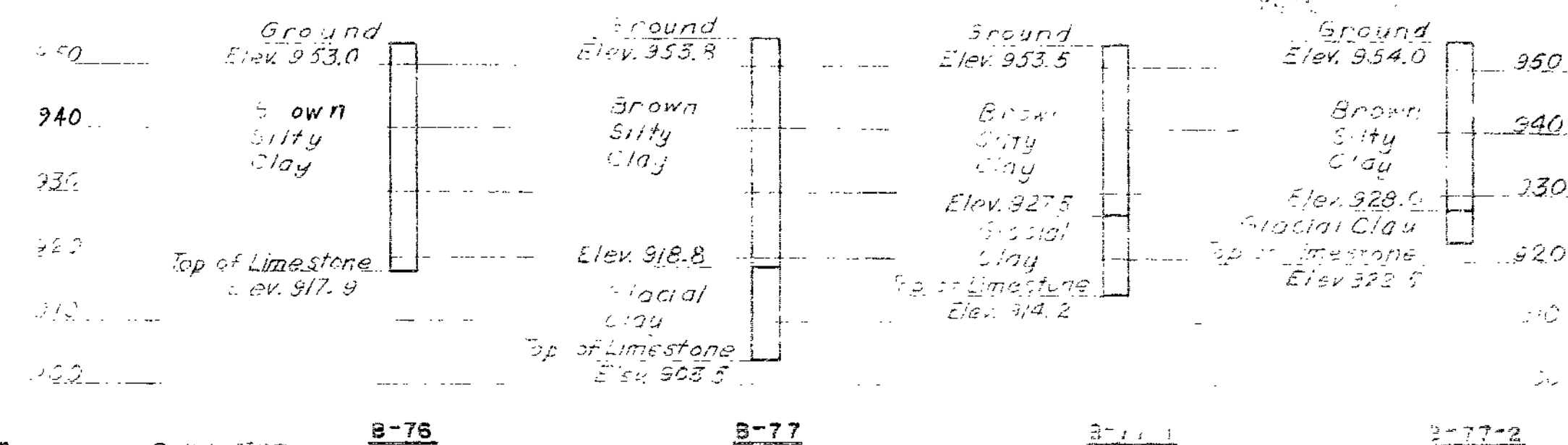
GENERAL PLAN AND ELEVATION

BRIDGE: 071 (STATE HWY 140)
DATE: 10/1/81
BY: J. K. K. (J. K. K.)
PROJECT: NO. 071 (STATE HWY 140)
JACKSON COUNTY

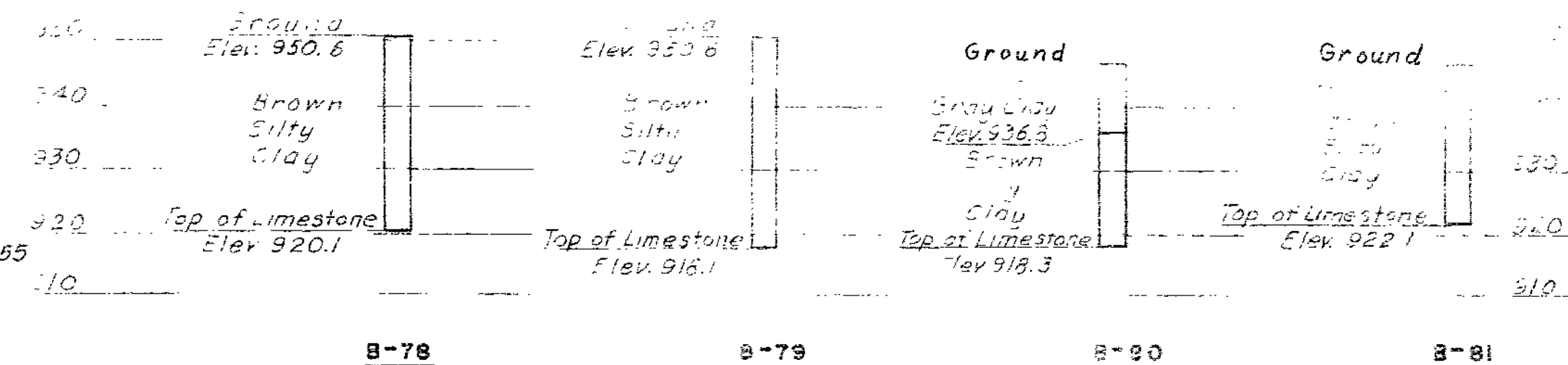
FINAL PAPER

1-030

STATE FEDERAL PROJECT No 8 SEC.		SCALE	SHEET	TO
5	MO. I-352 (17)		40	510
4	JACKSON		40	
FINAL PLANS				

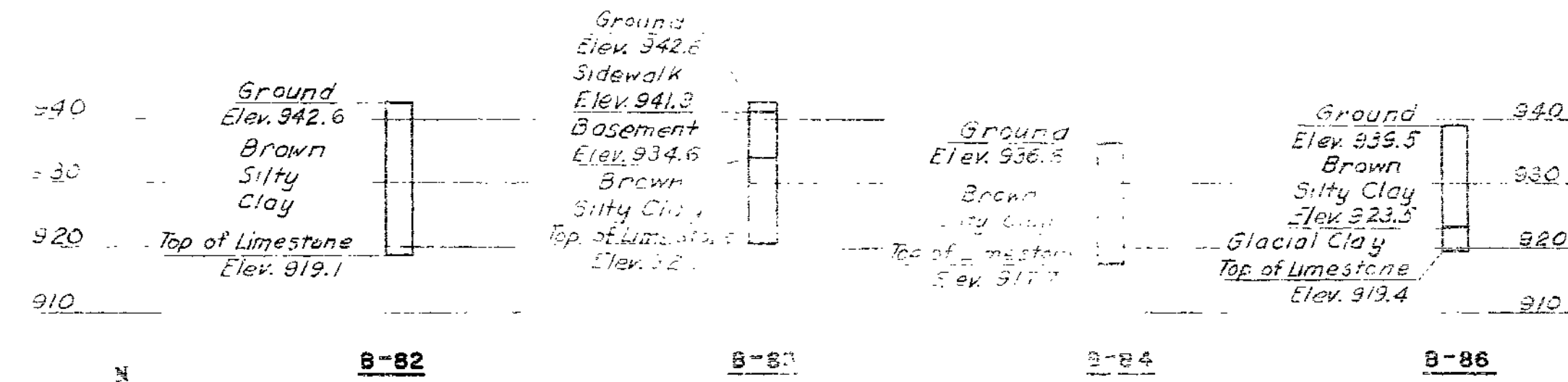


CONTINUOUS CONCRETE BOX GIRDER SPANS
PLAN

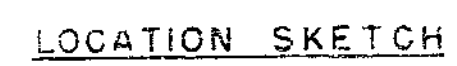


All piles 10" Bearing Pile @ 42 #
Estimated quantities shown
are based on the following
and @ 28'. These indicated lengths are
approximate only. Further lengths to give re-
quired bearing and/or penetration shall
be authorized by the engineer.
Battered piles battered 3:1
See Sheet 6 for details of pile

ELEVATION



Note: Location of borings are marked thus:  8-79 on the Ground Plan.



J. H. Williams 2-20-1958
 Rep. M. G. Sutton 2-20-1958

PROJECT NO. I-352 (I-75/FAI-RTE. 4) STA. 19 + 73.83 (LANE C)
JACKSON COUNTY

JACKSON COUNTY 544

SHEET 1A of 4

L- 938

FINAL PLANS

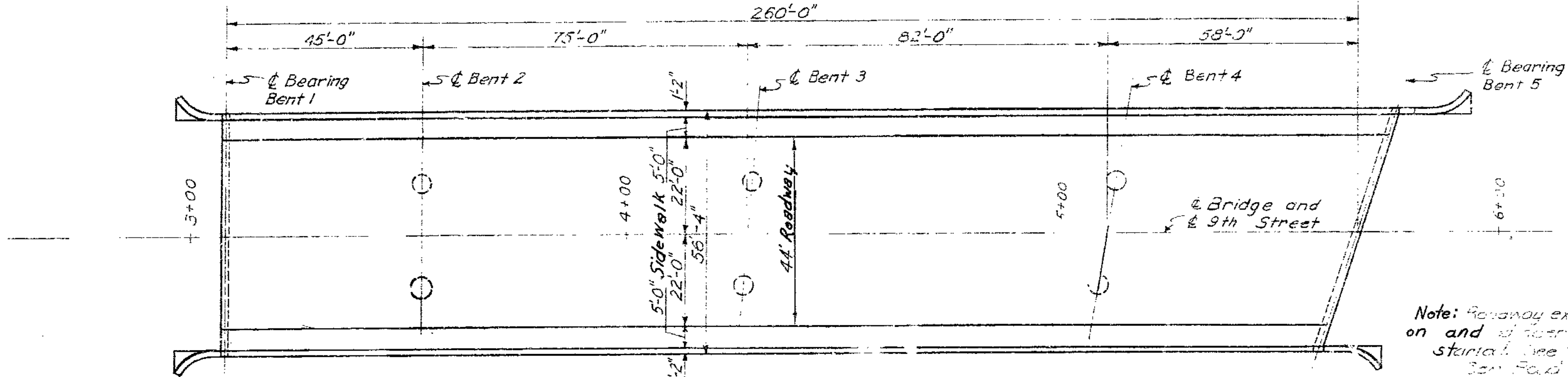
MADE BDM DATE 11-30-56 TRACED ... DATE ...
CHECKED GSK DATE 1-15-57 SCALE ...

NOTE: This drawing is not to scale. Follow dimension

GENERAL PLAN AND ELEVATION

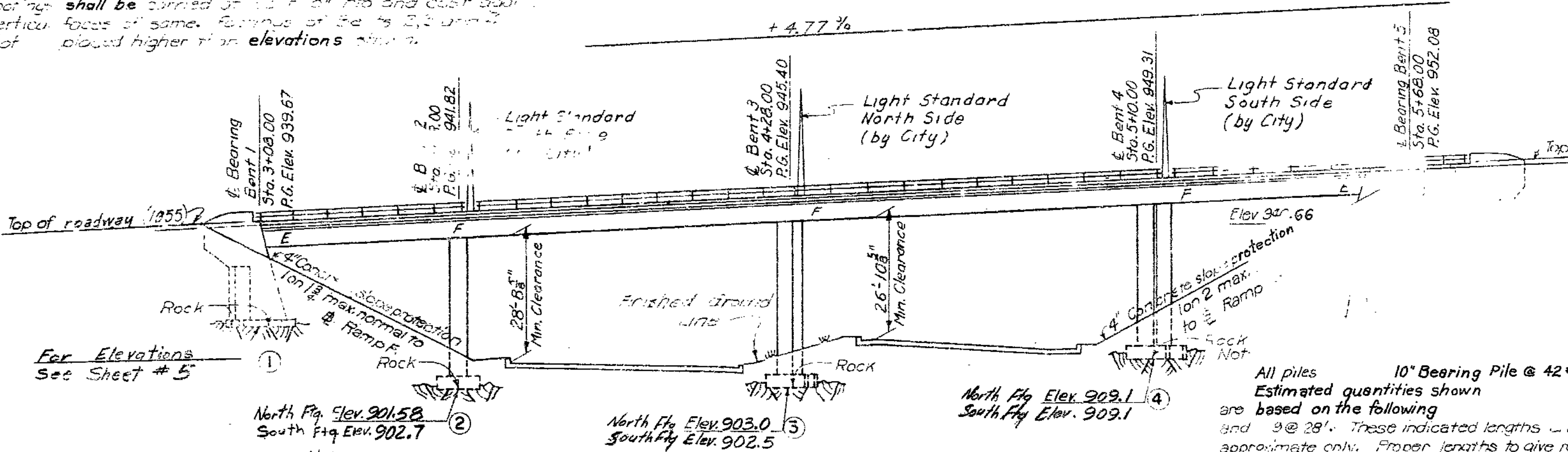
MISSOURI STATE HIGHWAY DEPARTMENT

STATE FEDERAL PROJECT NO. 8 SEC. 5 MO. I-352 (17)
COUNTY JACKSON
ROUTE 40
SHEET 40



Note: All loose, shelly or disintegrated rock removed and the footings of Bents 1, 2, 3 and 4 placed on and at least 2' into hard, solid, undisturbed rock and cast against vertical faces of same. If soft rock is encountered the footing shall be carried up into it and cast against vertical faces of same. Footings of Bents 2, 3 and 4 not placed higher than elevations shown.

CONTINUOUS CONCRETE BOX GIRDER SPANS
PLAN

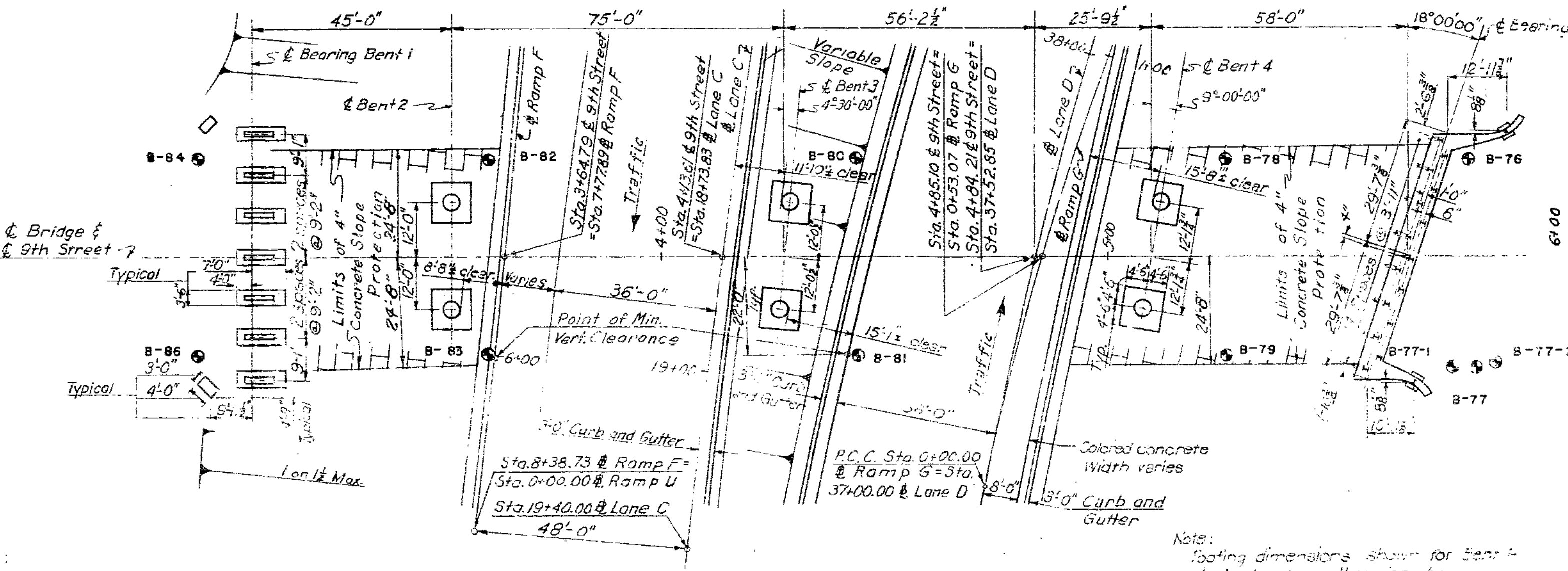


ELEVATION

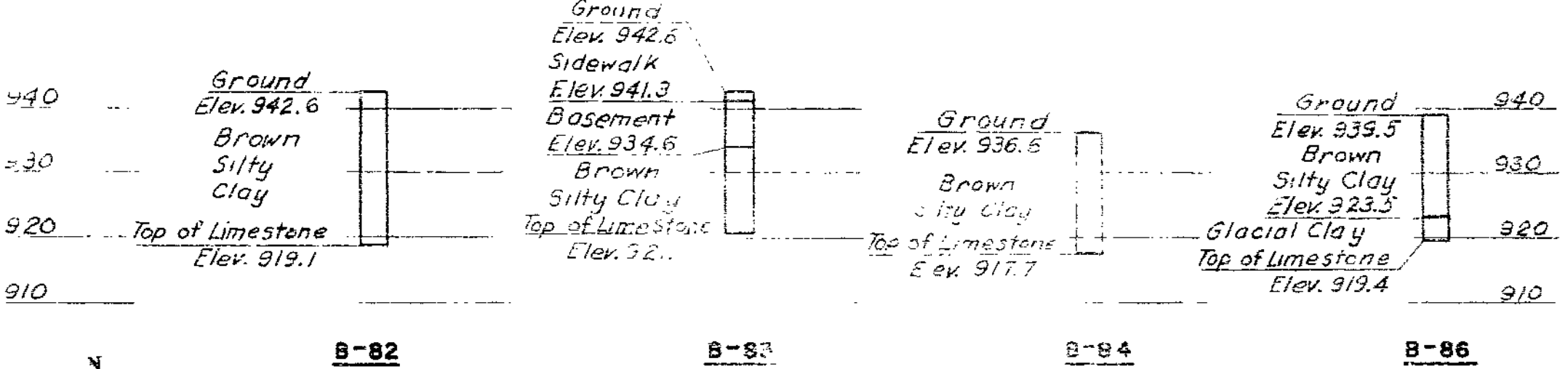
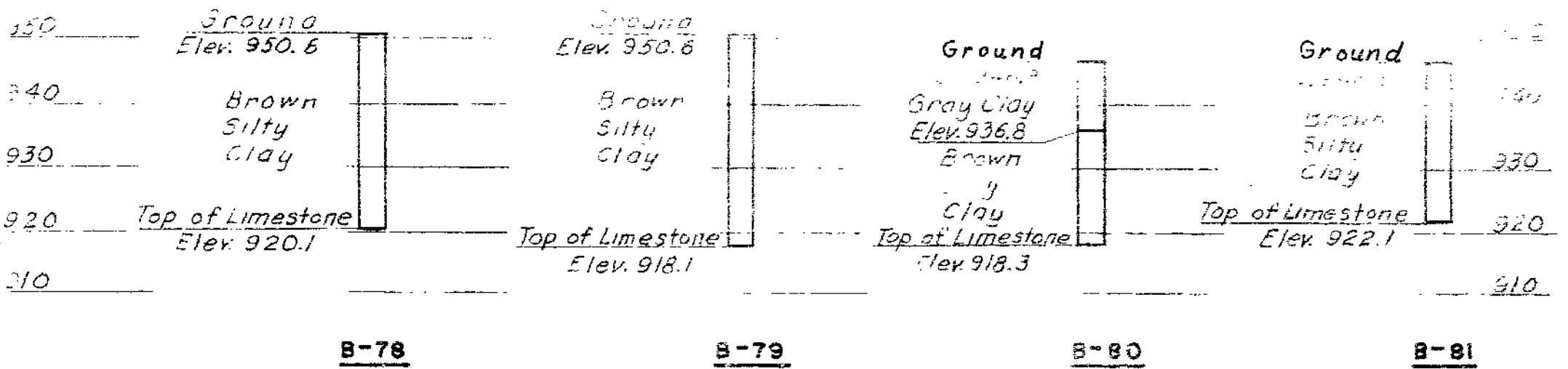
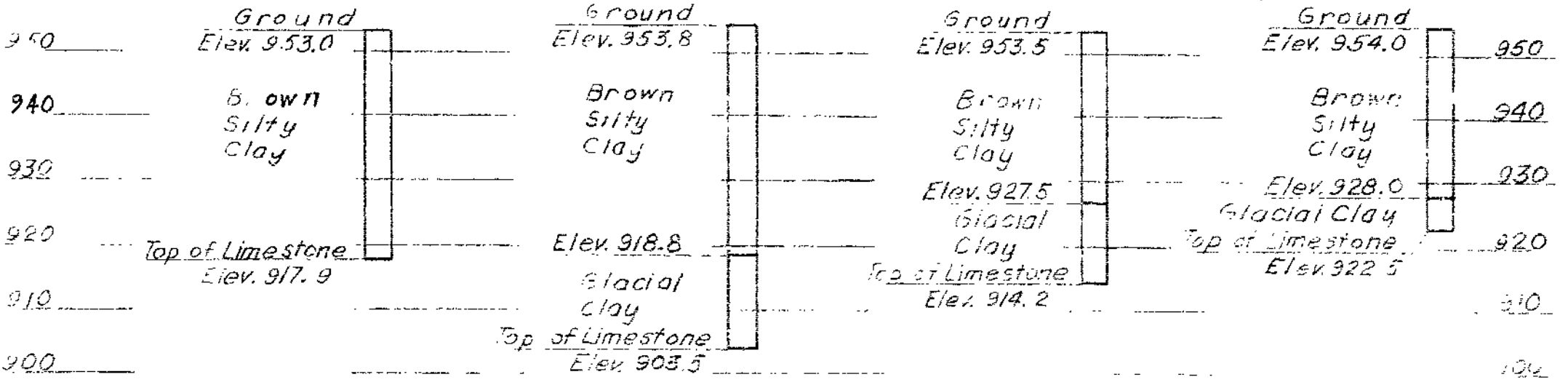
For Elevations See Sheet #5

Note: See Sheet 18 for detail of concrete slope protection (Future Work)

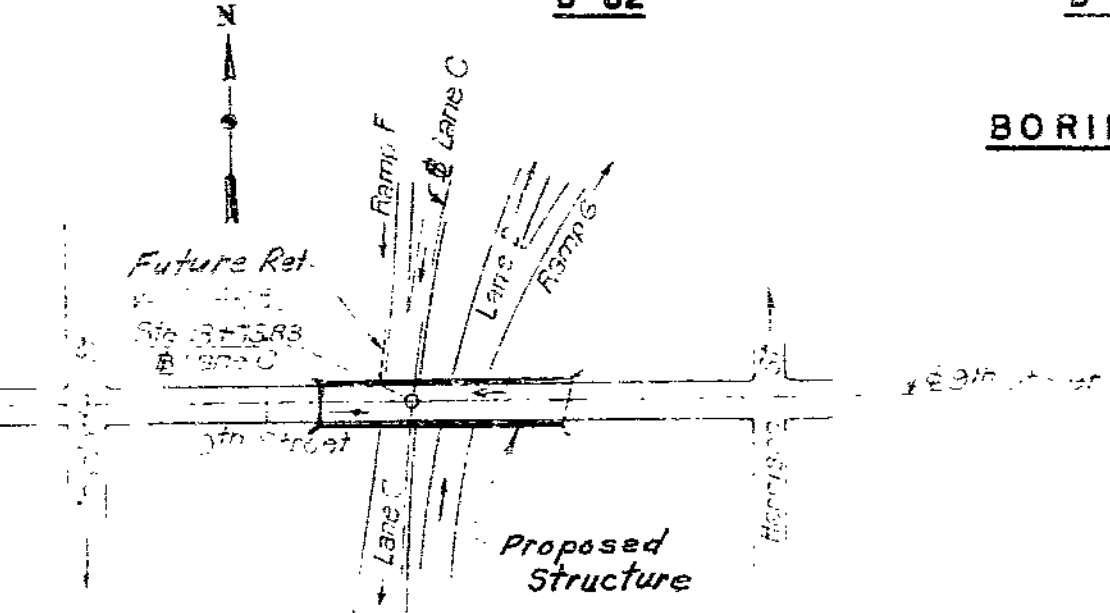
All piles 10" Bearing Pile @ 42" Estimated quantities shown are based on the following and 9' @ 28'. These indicated lengths are approximate only. Proper lengths to give required bearing and/or penetration shall be authorized by the engineer. Battered piles battered 3 1/2". See Sheet 17 for details of pile caps.



GROUND PLAN



BORING LOGS



LOCATION SKETCH

Traverse Point # 12 N.E. Corner 9th & Harrison Streets
Tack in lead Elev. 962.09

Note: Location of borings are marked thus: B-79 on the Ground Plan.

DESIGNED BY:
REGISTERED PROFESSIONAL
ENGINEER MISSOURI NO. E-253

J. A. Williams 2-20-1958
Prof. M. W. Fulton 2-20-1958

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD 40
IN KANSAS CITY, MO.
PROJECT NO. I-352 (17) (FAI-RTE. 4) STA. 19+73.83 (LANE C)
JACKSON COUNTY

GENERAL PLAN AND ELEVATION

SHEET 1A OF 4

323

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE BY: BDM DATE 11-30-56
CHECKED BY: GSK DATE 1-15-57

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & S.C.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	I-352 (17)		1	1
DIST. NO.	COUNTY	ROUTE	SEC.		
4	JACKSON	40			

FINAL PLANS

GENERAL NOTES

Design Specifications: A.A.S.H.O., 1953 with Tentative Revision T.14 (54).

Construction Specifications: Missouri Standard Specifications for State Roads, Materials, Bridges, Culverts, and incidental Structures, 1955.

Design Loading: H20-S16-44
15 lbs. per square foot future wearing surface.

Concrete: Concrete Stress (Class "B" and "B1") $F_c = 1400 \text{ psi}$ ($F_c = 4000 \text{ psi}$).
Concrete for superstructure Class "B" air entrained, see Special Provisions. Concrete for substructure Class "B" air entrained. If the contractor desires, he may use Class "B-1" in lieu of Class "B" concrete in substructure with payment made on the basis of Class "B" concrete.
All forms are removed from the interior of box girders.

Reinforcing Steel: Allowable stress 20,000 psi.
All splices in reinforcing steel 32 bar diameters.
Bar sizes are designated on the plans by numbers. The first digit after the letter in three digit marks and the first two digits after the letter in four digit marks indicate the size of the bar.
Dimension shown on plans from reinforcing steel to outside edge of concrete are all clear dimensions.
All bending dimensions are from "out" to "out" of bars except diameter dimensions on spirals which are from "center" to "center" of bar.

Welding: Qualification for welding operators will be required.

Slope Protection: Not included in this project. See sheet 18 for details. (Future Work)

Utilities: All utilities, unless shown otherwise, removed or re-located by others. The contractor will notify the owner of the utilities of his work schedule sufficiently in advance to allow time for the disposition of utilities.

Deflection Joints: Deflection Joints placed in the parapet or sidewalk and parapet where shown on the plans. The surface of the joint coated with paraffin and the reinforcing steel stopped 2" clear of joint. No chamfer placed on the sidewalk.

Estimated Quantities: Estimated quantity of Class "B" concrete substructure, includes all concrete in end bents (including wingwalls and end posts) and footings of intermediate bents. All other concrete is included in estimated quantity of Class "B-1" superstructure.
Joint filler, roofing felt, insulation, pads and other incidental items shown on the plans shall be included in the price bid for other items.

Shipping: Permits will be required for all truck loads over the legal length.

Waterproofing of Decks: Waterproofing of decks required, see special provisions.

Piling: Length of piles shown on plans is approximate only. Proper lengths to give required bearing and/or penetration will be authorized by the Engineer.
All piles driven into or into rock, boulders, shale, or cemented gravel, or to no less than full length authorized, and to sustain a load of 31 tons per pile.
All piles driven with a steam hammer.
Piles painted in accordance with Section 22-9c of the Standard Specifications.

ESTIMATED QUANTITIES					
ITEM NO.	ITEM	UNIT	SUB STRUCTURE	SUPER STRUCTURE	TOTAL
1-G	Class I Excavation for Structures	Cu Yds.	802		802
Contingent	Class I Excavation + 25%	Cu Yds.	22.5		22.5
Contingent	Test Holes	Lin. Ft.	63		63
	Drill Holes (Shear Key)	Lin. Ft.			9
16-B	Class B Concrete		261.2		261.2
16-B-1	Class B-1 Concrete	Cu Yds.		956.6	956.6
17-B	Fabricated Structural Carbon Steel	Lbs.		8540	8540
40-A	Conduit System	Lump Sum			1
17-J	Aluminum Alloy Handrail	Lin. Ft.		530	530
17-B	Fabricated Structural Steel (Bearings)	Lbs.		2370	2370
19-A	Reinforcing Steel	Lbs.	22,110	313,480	334,590
22D1	Steel Pile Cut-off	Lin. Ft.	50		50
22-D	Steel Piles in Place (10 BP42)	Lin. Ft.	500		500

Note: All excavation for bridge shall be paid for as Class I Excavation for Structures.
Estimated quantities of Class I excavation for structures includes only amounts of excavation below lower limits of roadway excavation. (See Special Provisions.)

GENERAL NOTES AND ESTIMATE QUANTITIES

BRIDGE: 9
STATE ROAD
IN KANSAS
PROJECT NO. 1352 (I-352, Rte. 4) STA. 18+73.83 (LANE C)
JACKSON COUNTY

SHEET 24 OF 4

FINAL PLANS

L-938

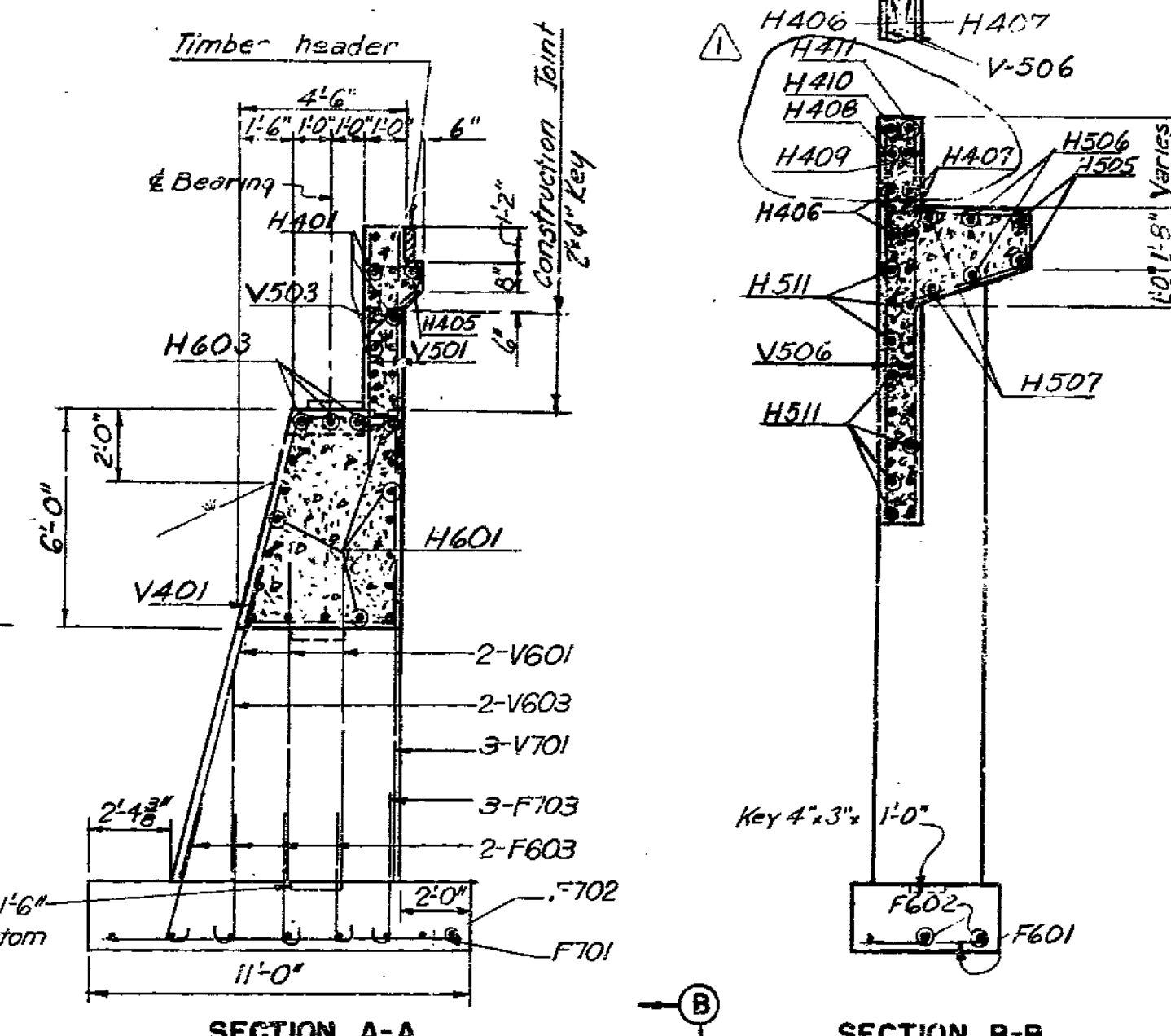
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE J.S.H. DATE 7-9-50 TRACED B.S.L. DATE 2-11-57
CHECKED K.A.W. DATE 2-4-57 SCALE

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

324

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MC.	I-352(17)			
DIST. NO.	COUNTY			ROUTE	SEC.
4	JACKSON			40	



FINAL PLANS

Cast Iron Cone or an approved equivalent

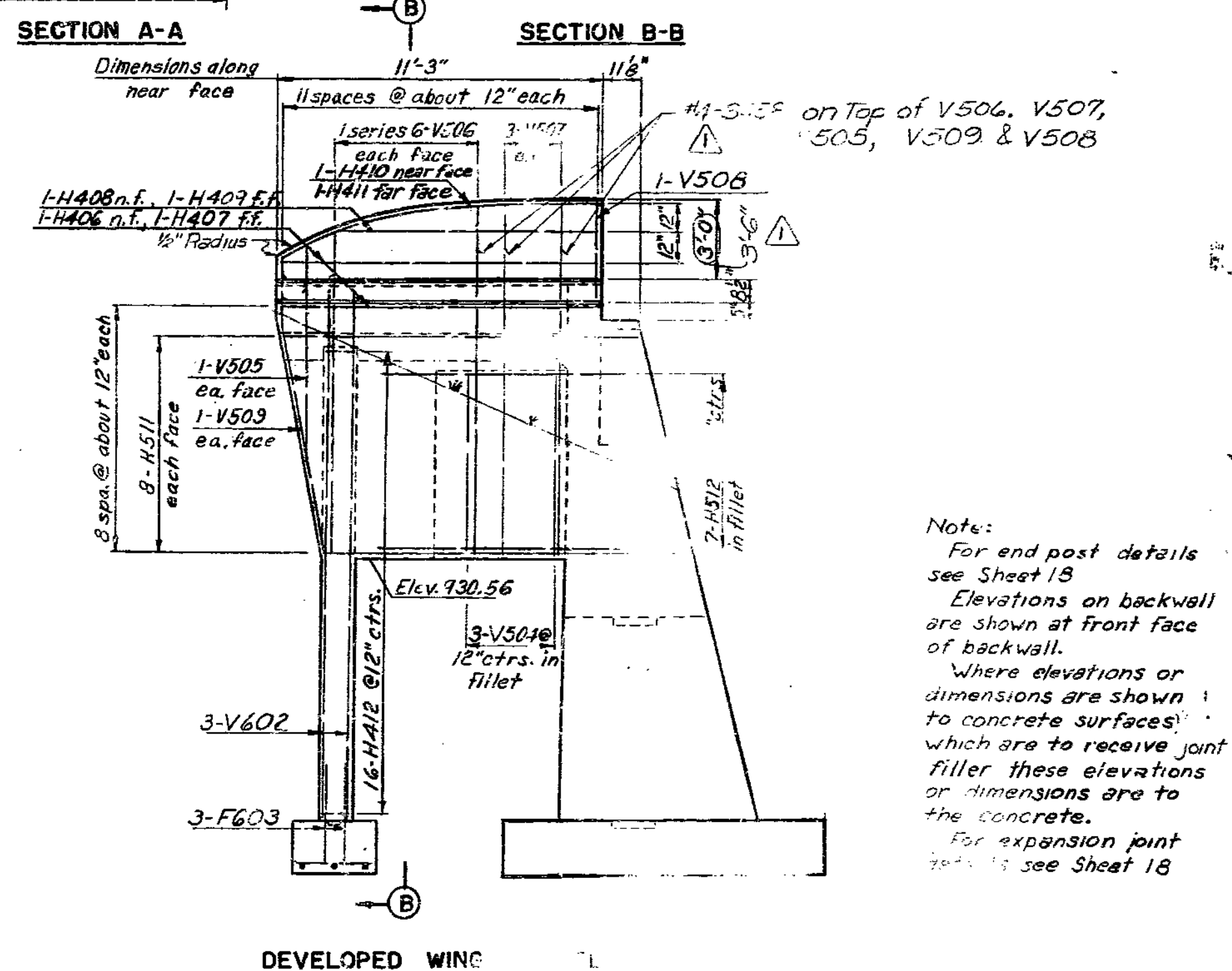
Timber Header
3/4" bolt, 6 1/2" long
Thread 3" long
@ abt. 3:00 ctrs.

OG. 4" x 6" x 1/2" Washer

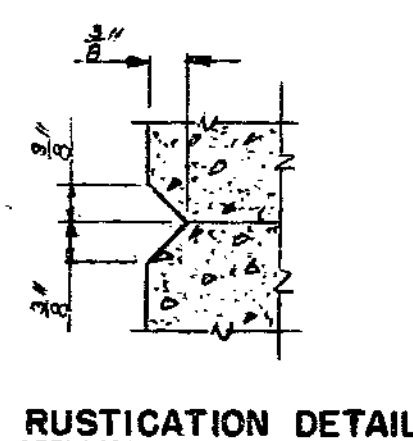
Tap for 3/4" bolt
2 1/2" deep

CAST IRON CONE

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



Note:
For end post details see Sheet 13
Elevations on backwall are shown at front face of backwall.
Where elevations or dimensions are shown to concrete surfaces which are to receive joint filler these elevations or dimensions are to the concrete.
For expansion joint details see Sheet 18



RUSTICATION DETAIL

END BENT

SHEET 5A OF 4

FINAL PLANS

L-938

BRIDGE: 9TH STREET UNDERPASS
STATE ROAD ~~SOUTHEAST~~ FREEWAY
IN KANSAS CITY, MO.
PROJECT NO. 1-352 (17) (FBI RTE. 4) STA. 18 + 73.83 (LANE. C)
JACKSON COUNTY

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

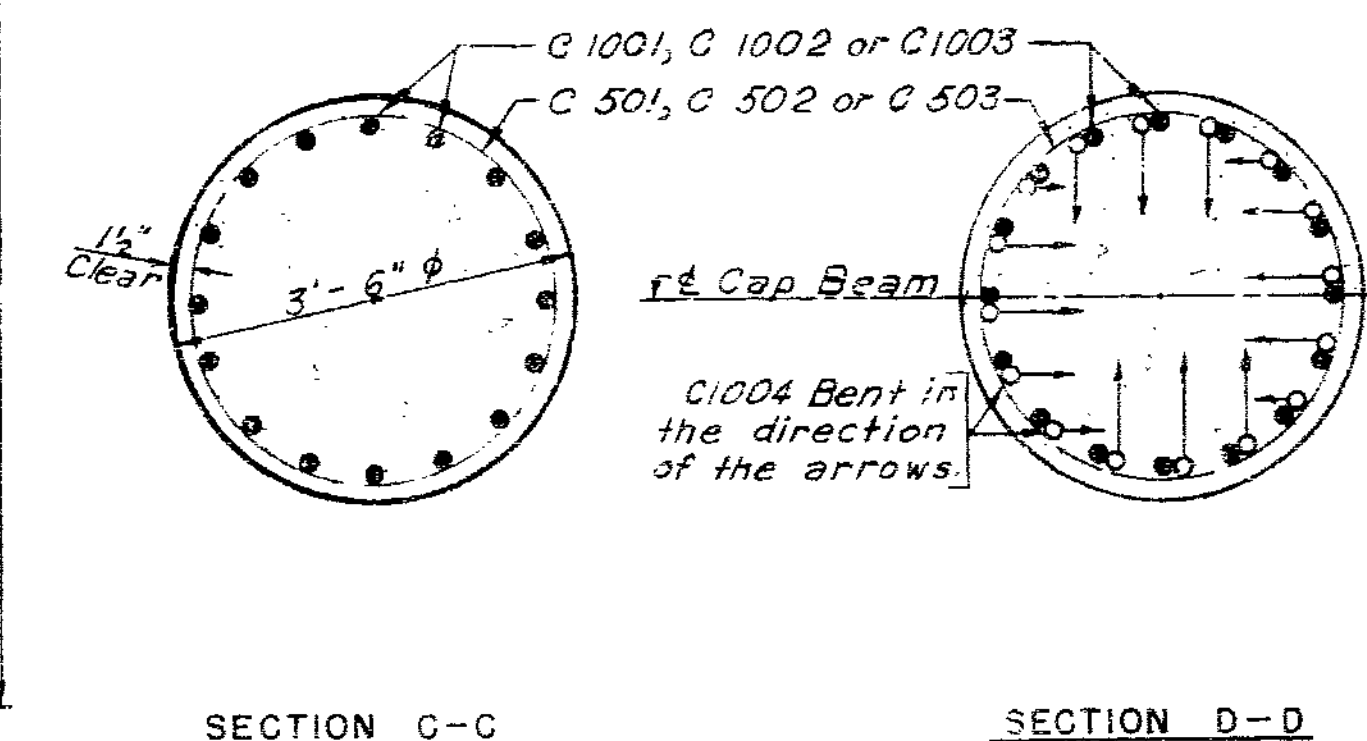
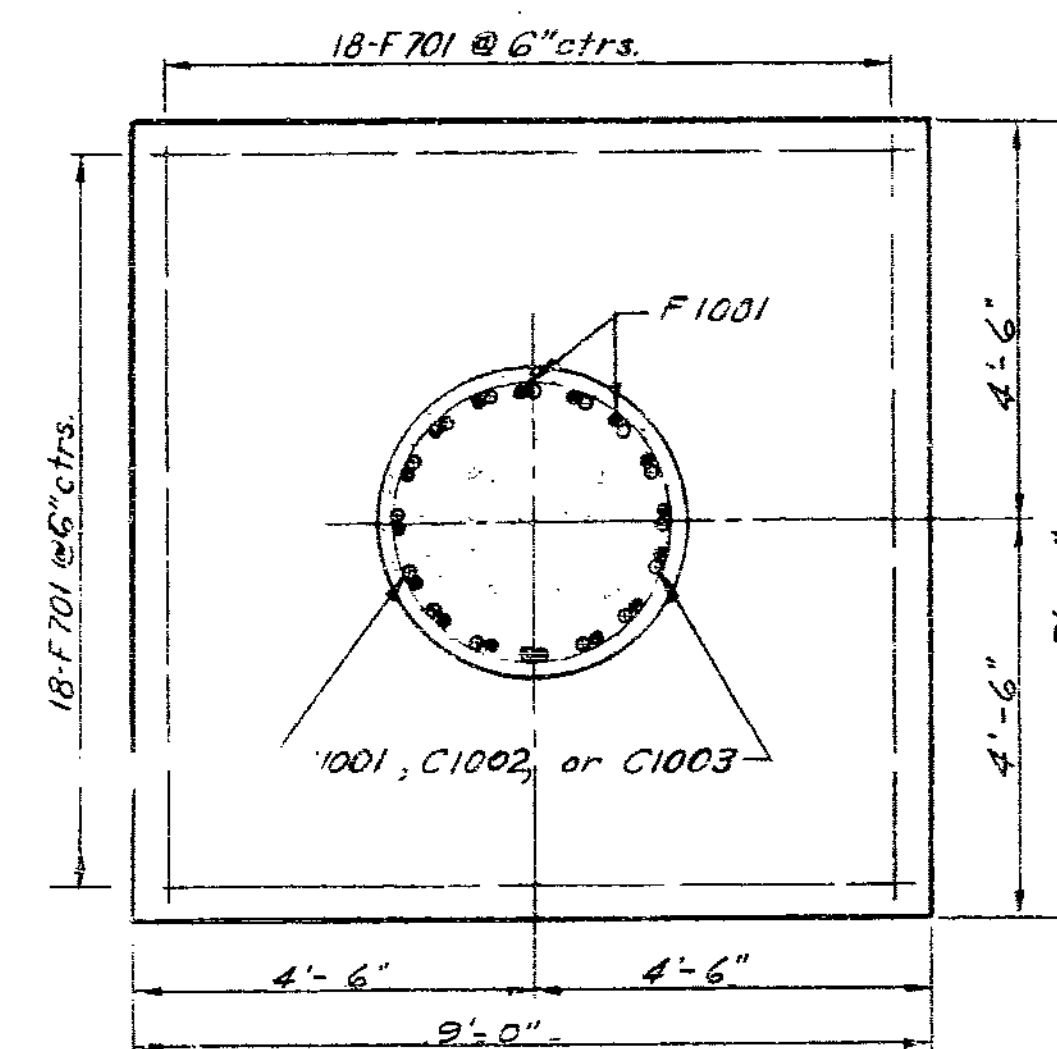
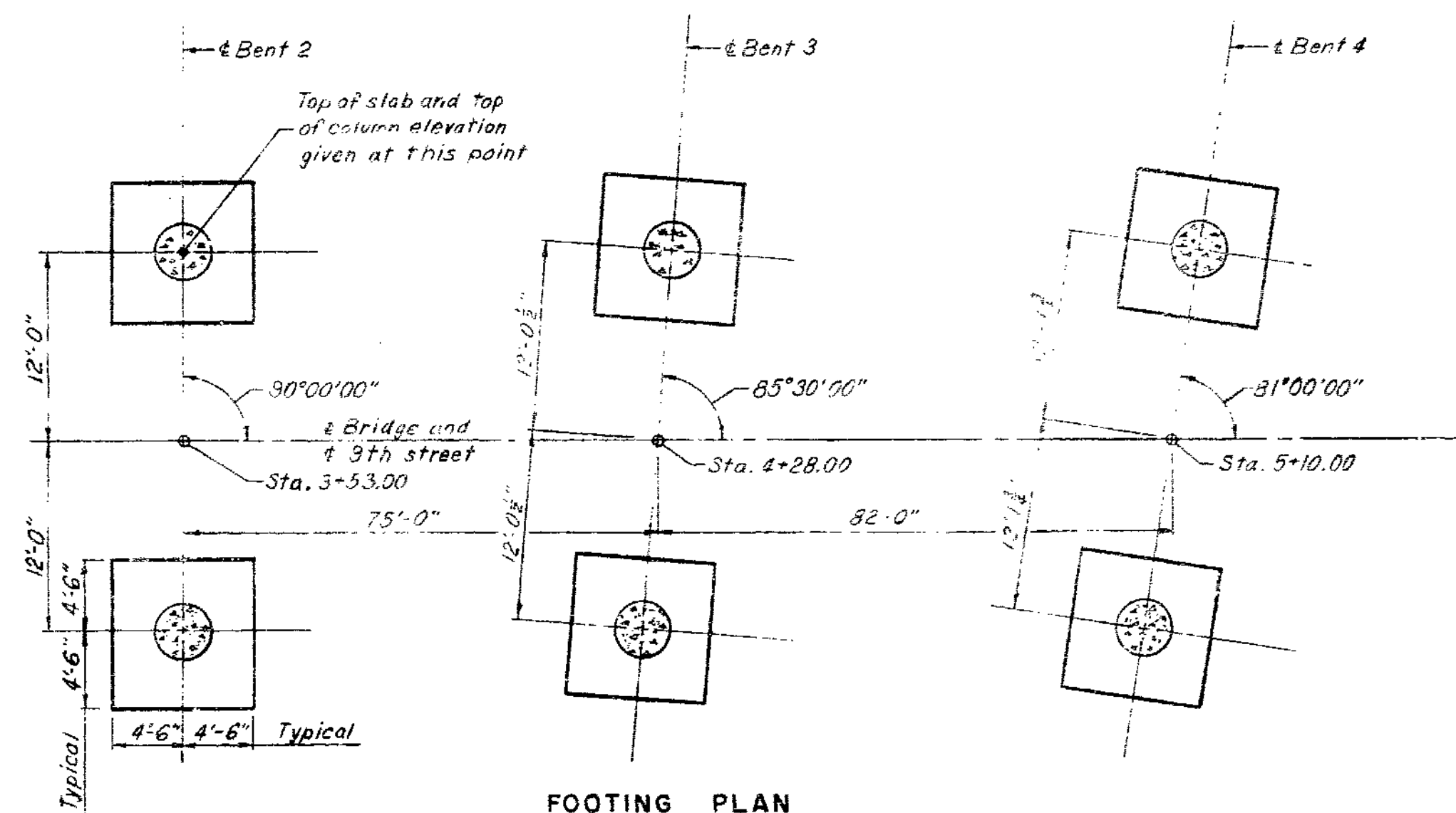
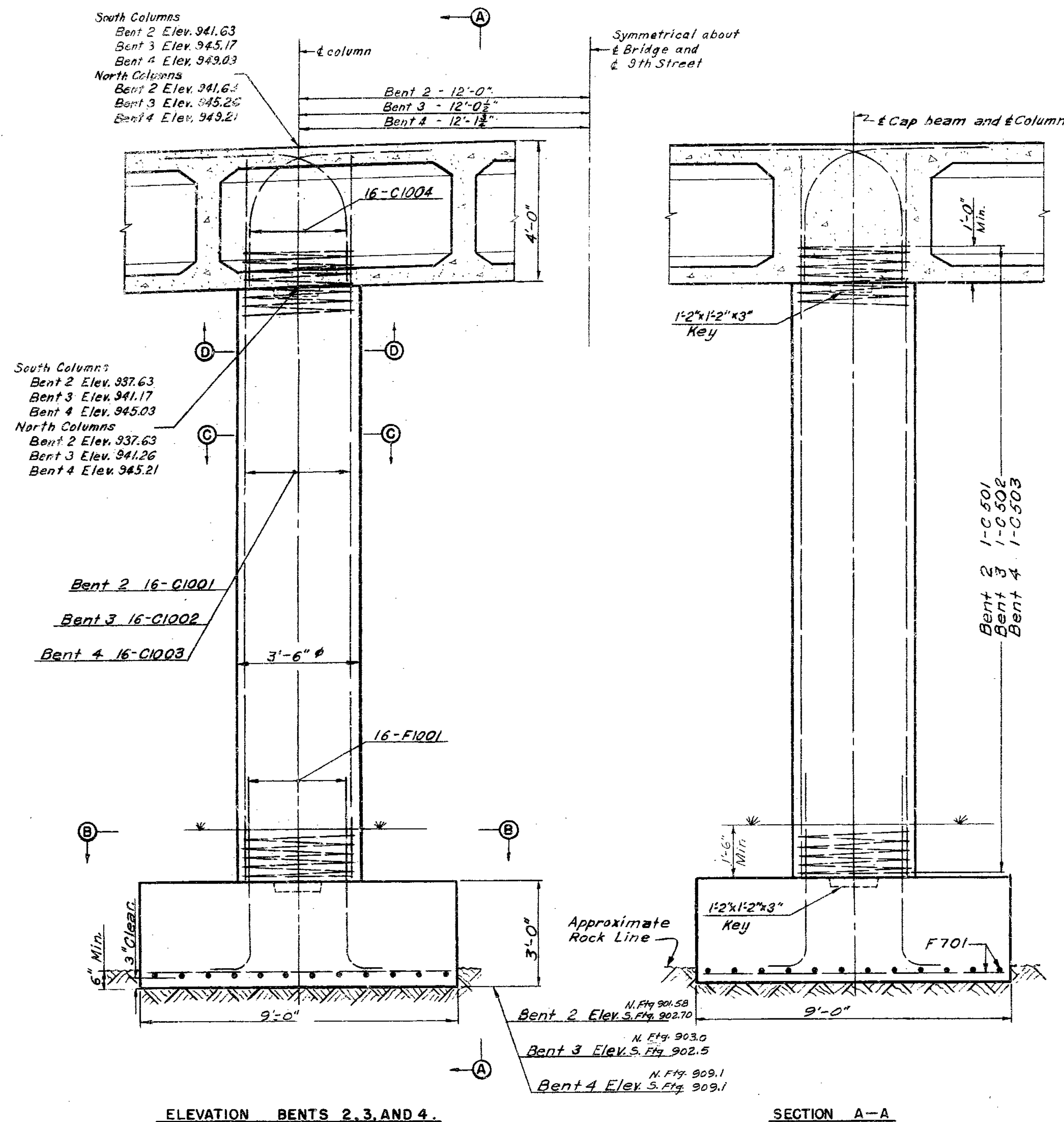
KANSAS CITY		NEW YORK	
MADE <u>RSG</u>	DATE <u>7-6-56</u>	TRACED _____	DATE _____
CHECKED <u>JSB</u>	DATE <u>7-24-56</u>	SCALE _____	

NOTE: This drawing is not to scale. Follow dimensions

① Revised 10-10-58

MISSOURI STATE HIGHWAY DEPARTMENT

STATE FEDERAL PROJECT NO. 8 SEC. 5
 DIST. NO. 4 COUNTY JACKSON SHEET NO. 40
FINAL PLANS



HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS
 KANSAS CITY NEW YORK

MADE 7-2-56 DATE 7-3-56 TRACED DATE 7-11-56
 CHECKED BY DATE 7-11-56 SCALE

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

BENTS 2, 3, AND 4

SHEET 64 OF 4

BRIDGE: 9TH STREET UNDERPASS
 STATE ROAD 304
 IN KANSAS CITY, MO
 PROJECT NO. 1-352 (17) (FAIR-RT 4) STA. 18 + 73.83 (LANE C)
 JACKSON COUNTY

FINAL PLANS

L-938

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