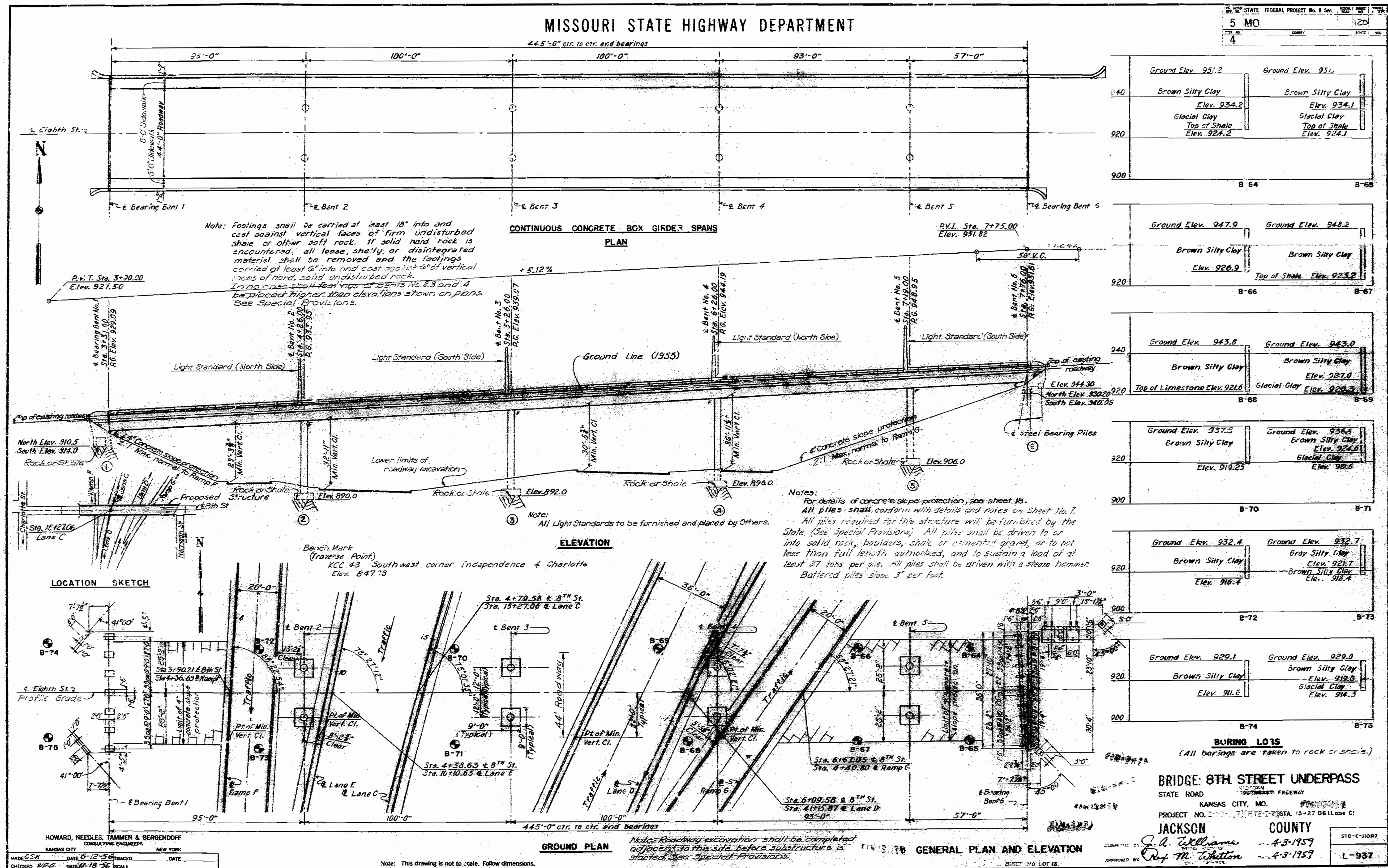




MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5 MO.			2	
4				

GENERAL NOTES

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

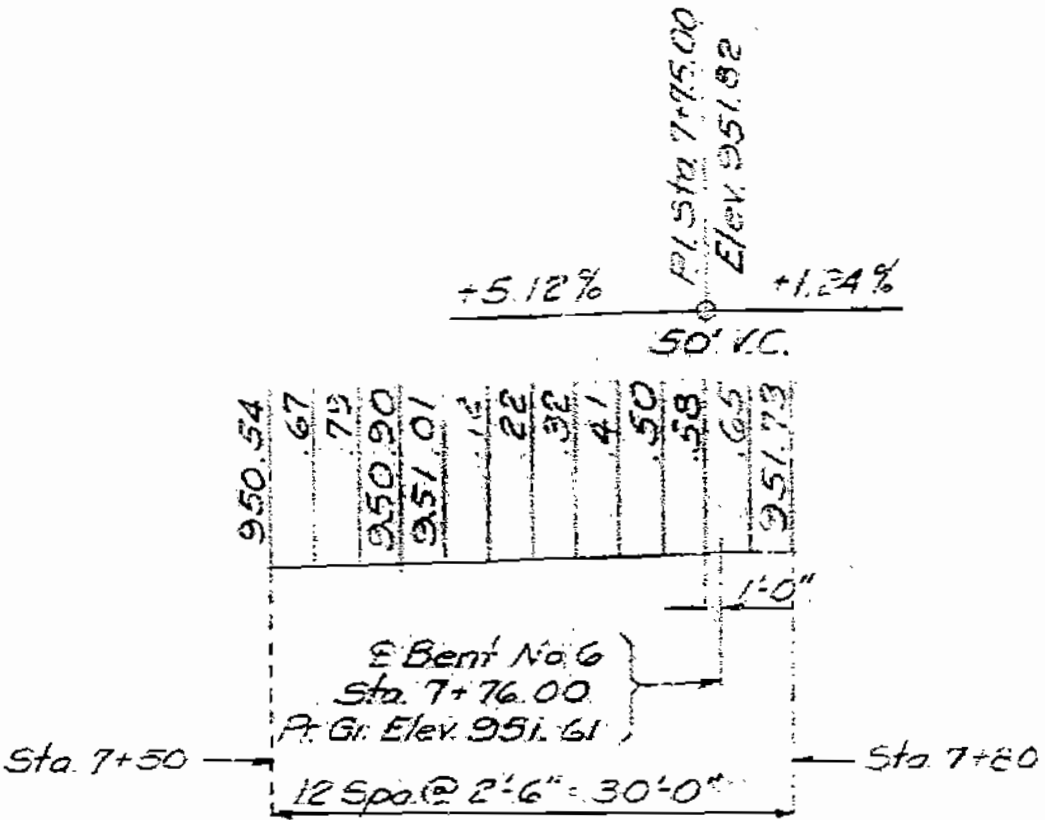
Construction Specifications: Missouri Standard Specifications for State Roads, Materials, Bridges, Culverts, and incidental Structures, 1955.

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

Concrete: Concrete Stress (Class "B" and "B1") $F_c = 4000$ psi ($F_c = 4000$ psi).
Concrete for superstructure shall be Class "B1" air entrained.
Concrete for substructure shall be Class "B" air entrained. If the contractor desires, he may use Class "B1" 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.

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

Painting: For painting see Special Provisions.
Piles shall be painted in accordance with Section 22-9c of the Standard Specifications.



PROFILE GRADE ELEVATIONS

Reinforcing Steel: Allowable stress 20,000 psi.
split 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.

Fiber Conduit: Expansion sleeves shall be required in fiber conduit at all expansion joints. Expansion sleeves shall be an oversized fiber conduit with rubber ring as provided by the manufacturer.

Welding: Qualification of welding operators will be required.

Slope Protection: Not included in Bridge Quantities. See sheet 18 for details.
See Road Plans for Quantities.

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 side-walk 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 side walk.

Estimated Quantities: Estimated quantity of Class "B" concrete substructure, includes all concrete in end bents (including wing walls and end posts) and footing of intermediate bents. All other concrete is included in estimated quantity of Class "B1" superstructure.
Joint filler, roof felt, insulation, piers 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.

ESTIMATED QUANTITIES					
ITEM NO.	ITEM	UNIT	SUB-STRUCTURE	SUPER-STRUCTURE	TOTAL
1-G	Class I Excavation for Structures	Cu Yds.	490		490
16-C	Class C Concrete	Cu Yds.	10.0		10.0
16-B	Class B Concrete	Cu Yds.	325.3		325.3
16-B1	Class B1 Concrete	Cu Yds.		1765.2	1765.2
17-B	Fabricated Structural Steel	Lbs.		7820	7820
40-W	Conduit System	Lump Sum		1	1
17-AA	Aluminum Alloy Handrail	Lin. Ft.		915	915
17-B	Fabricated Structural Steel (Bearings)	Lbs.		2950	2950
19-A	Reinforcing Steel	Lbs.	27,950	53,210	81,160
22-DD	Steel Piles in Place (State Furnished) (10 BP 42)	Lin. Ft.	462		462

Note: All excavation for bridge will be paid for as Class I excavation for structures. Estimated quantities of Class I Excavation includes only amounts of excavation below Roadway Excavation.
The estimated quantity of steel piles in place includes an allowance of 6"0 per splice for an estimated number of 0 splices for 10 BP 42.

GENERAL NOTES AND ESTIMATED QUANTITIES

BRIDGE: 8TH STREET UNDERPASS
STATE ROAD
MIDTOWN
SOUTHEAST FREEWAY
KANSAS CITY, MO.
PROJECT NO. 1-70-1(7)(PTE-1-70) STA. 15+27.06 (Lane C)
JACKSON COUNTY

SHEET 2 OF 18

L-937

SEE FINAL PLANS FOR NOTES

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

SUBMITTED BY:
R.M. Bergendoff
REGISTERED PROFESSIONAL
ENGINEER MISSOURI NO. E-253

284

FED. PROJ. NO.	STATE	FEDERAL PROJECT No. 8 Sec.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.			22	
SHEET NO.	COUNTY			NOPTS	SEC.
4					

Notes:

- Prefix all bar marks for Bent 1 with "B1",
example: B1-F401.
- Prefix all bar marks for Bents 2,3,4,5 with "B2",
example: B2-F901.
- Prefix all bar marks for Bent 6 with "B6",
example: B6-F301
- Prefix all bar marks for Superstructure with "SS",
example: SS-E2601

* indicates these bars may be bent in field
for bending and cutting diagrams see sheet 4

BRIDGE: 8TH STREET UNDERPASS

STATE ROAD ~~SOUTHEAST~~ MIDTOWN FREEWAY

KANSAS CITY, MO.

PROJECT NO. I-70-17(RTE-I-70) STA. 15+27.06 (Lane C)

JACKSON COUNTY

SHEET 3 OF 18

ENDS

1-937

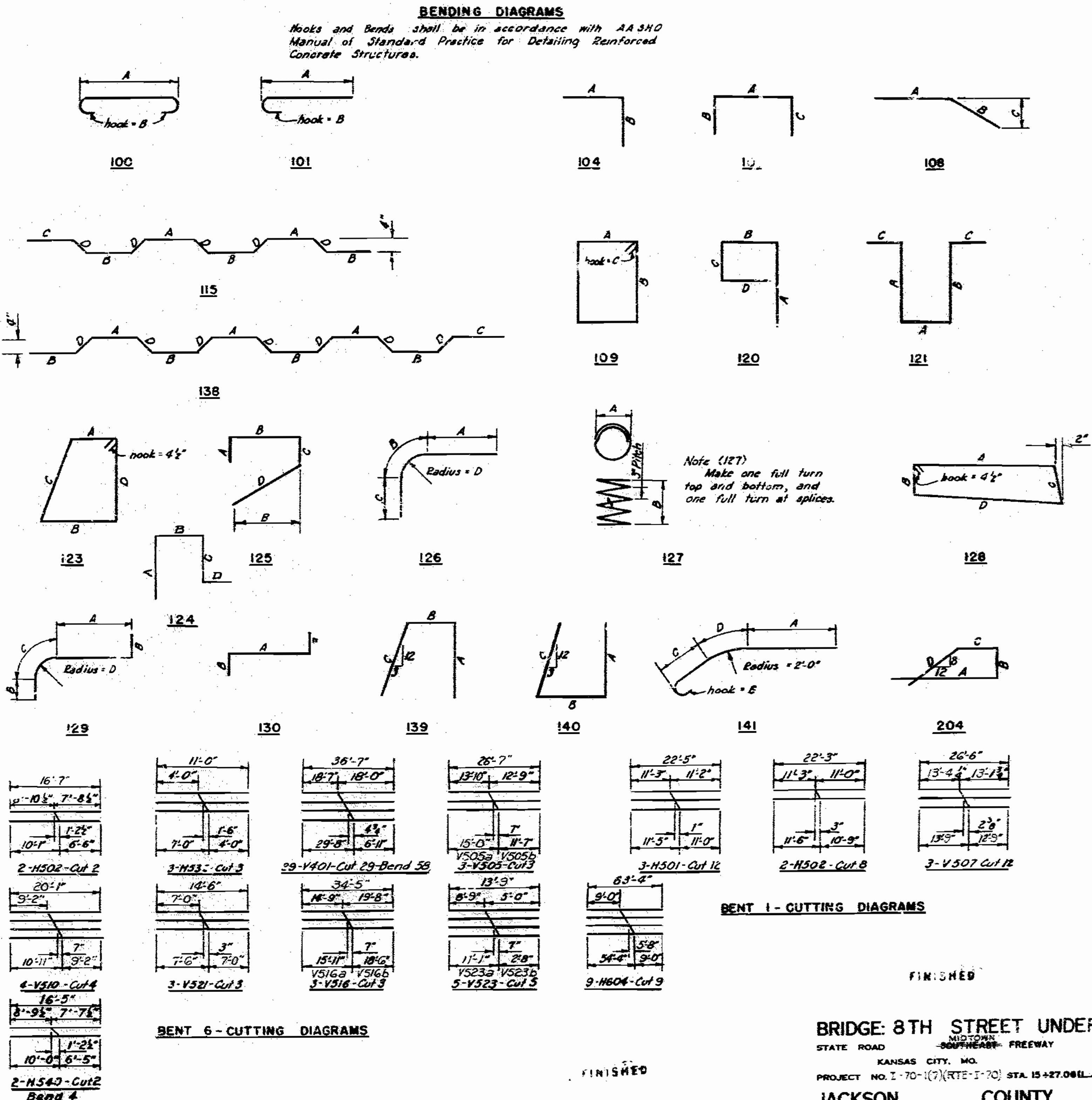
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

STATE/FEDERAL PROJECT NO. & SEC.	MO.	123
SHEET NO.	4	

PARTIAL BILL OF					REINFORCING STEEL													
NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS				NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS				
					A	B	C	D						A	B	C	D	
SUPERSTRUCTURE (CONTINUED)																		
35	#8	13'-0"	G1102	Shr.					168	#6	3'-5"	S601	125	0'-6"	0'-9"	0'-9"	1'-5"	
266		60'-0"	G1102						9		9'-6"	S602	Shr.					
42		51'-0"	G1103						12		14'-6"	S603						
28		37'-0"	G1104						69		60'-0"	S604						
28		26'-0"	G1105						1		9'-0"	S605						
35		18'-0"	G1106						6		11'-10"	S606						
42		31'-0"	G1107						6		52'-7"	S607						
84		22'-0"	G1108						2		57'-3"	S608						
18		55'-0"	G1109						3		16'-6"	S609						
56		45'-0"	G1110						2		47'-0"	S610						
49		54'-0"	G1111						2		36'-0"	S611						
98		67'-0"	G1112						10		53'-0"	S612						
28		36'-0"	G1113						1		58'-4"	S613						
28		32'-0"	G1114						20		55'-0"	S614						
14		52'-0"	G1115						2		43'-0"	S615						
14		38'-0"	G1116						2		40'-0"	S616						
14		26'-2"	G1117						4		22'-0"	S617						
12		25'-0"	G1118						1		13'-0"	S618						
14		44'-0"	G1119						1		54'-7"	S619						
14		57'-0"	G1120						2		42'-0"	S620						
21		44'-6"	G1121						12		33'-7"	S621						
14		58'-0"	G1122						1		18'-0"	S622						
12		30'-0"	G1123						2		49'-10"	S623						
12		23'-0"	G1124						6		37'-0"	S624						
26		40'-2"	G1125						9		44'-0"	S625						
28		47'-3"	G1126						2		12'-6"	S626						
14		40'-6"	G1127						6		17'-4"	S627						
14		21'-2"	G1128						11		21'-6"	S628						
49	#8	36'-6"	G1129	Shr.					1		42'-7"	S629						
428	#4	28'-2"	S401	Shr.					6		34'-4"	S630						
18		30'-3"	S402						7		51'-7"	S631						
24		25'-3"	S403						4		46'-4"	S632						
24		19'-3"	S404						2		19'-7"	S633						
48		35'-6"	S405	Shr.					2		46'-0"	S634						
770		14'-4"	S406	128	5'-8"	0'-10"	1'-3"	5'-10"	120	#6	4'-6"	S635	Shr.					
770		7'-1"	S407	109	0'-10"	2'-4"	0'-4"		16	#8	9'-0"	S801	Shr.					
36		40'-0"	S408	Shr.														
48		34'-6"	S409						40	#4	9'-8"	P401	Shr.					
48		27'-0"	S410						32		22'-5"	P402						
48		29'-0"	S411						32		40'-6"	P403						
48		30'-0"	S412						16		37'-0"	P404						
48		36'-6"	S413						8		6'-8"	P405						
36		41'-0"	S414						16	#4	25'-10"	P406	Shr.					
48		24'-2"	S415															
24		39'-0"	S416						16	#6	9'-8"	P601	Shr.					
10		33'-8"	S417						56	#4	24'-11"	N401	Shr.					
14	#4	17'-6"	S418	Shr.					112		25'-11"	N402						
338	#5	30'-8"	S501	138	3'-5"	3'-3"	4'-6"	0'-5"	56		24'-2"	N403						
338		23'-2"	S502	115	3'-5"	3'-3"	4'-6"	0'-5"	20	#6	29'-4"	N404	Shr.					
335		32'-6"	S503	Shr.														
335		25'-3"	S504															
343		25'-0"	S505															
343		24'-0"	S506															
104		8'-0"	S507															
16		8'-4"	S508	Shr.														
1010		5'-4"	S509	104	1'-9"	1'-8"												
9		16'-9"	S510	Shr.														
9	#5	24'-0"	S511	Shr.														

NO.	SIZE	LENGTH	MARK	TYPE	DIMENSIONS				
					A	B	C	D	
9	#5	26'-3"	S512	Shr.					
16		9'-7"	S513						
14		11'-8"	S514						
480		21'-8"	S515						
480	#5	23'-6"	S516	Shr.					
168	#6	3'-5"	S601	125	0'-6"	0'-9"	0'-9"	1'-5"	
9		9'-6"	S602	Shr.					
12		19'-6"	S603						
69		50'-0"	S604						
1		9'-0"	S605						
6		11'-10"	S606						
6		52'-7"	S607						
2		57'-3"	S608						
3		16'-6"	S609						
2		47'-0"	S610						
2		36'-0"	S611						
10		53'-0"	S612						
1		58'-6"	S613						
20		55'-0"	S614						
2		43'-0"	S615						
2		40'-0"	S616						
4		22'-0"	S617						
1		13'-0"	S618						
1		54'-7"	S619						
2		42'-0"	S620						
12		33'-7"	S621						
1		18'-0"	S622						
2		49'-10"	S623						
6		37'-0"	S624						
9		44'-0"	S625						
2		12'-6"	S626						
6		17'-4"	S627						
11		21'-6"	S628						
1		42'-7"	S629						
6		34'-4"	S630						
7		51'-7"	S631						
4		46'-4"	S632						
2		19'-7"	S633						
2		46'-0"	S634						
120	#6	2'-6"	S635	Shr.					
16	#8	9'-0"	S801	Shr.					
40	#4	9'-8"	P401	Shr.					
32		22'-5"	P402						
32		40'-6"	P403						
16		37'-0"	P404						
8		6'-8"	P405						
16	#4	25'-10"	P406	Shr.					
16	#6	9'-8"	P601	Shr.					
56	#4	24'-11"	N401	Shr.					
112		25'-11"	N402						
56		24'-2"	N403						
28	#6	29'-4"	N604	Shr.					



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MADE WFO DATE 12-28-56 TRACED DATE
CHECKED ASR DATE 1-3-57 SCALE

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

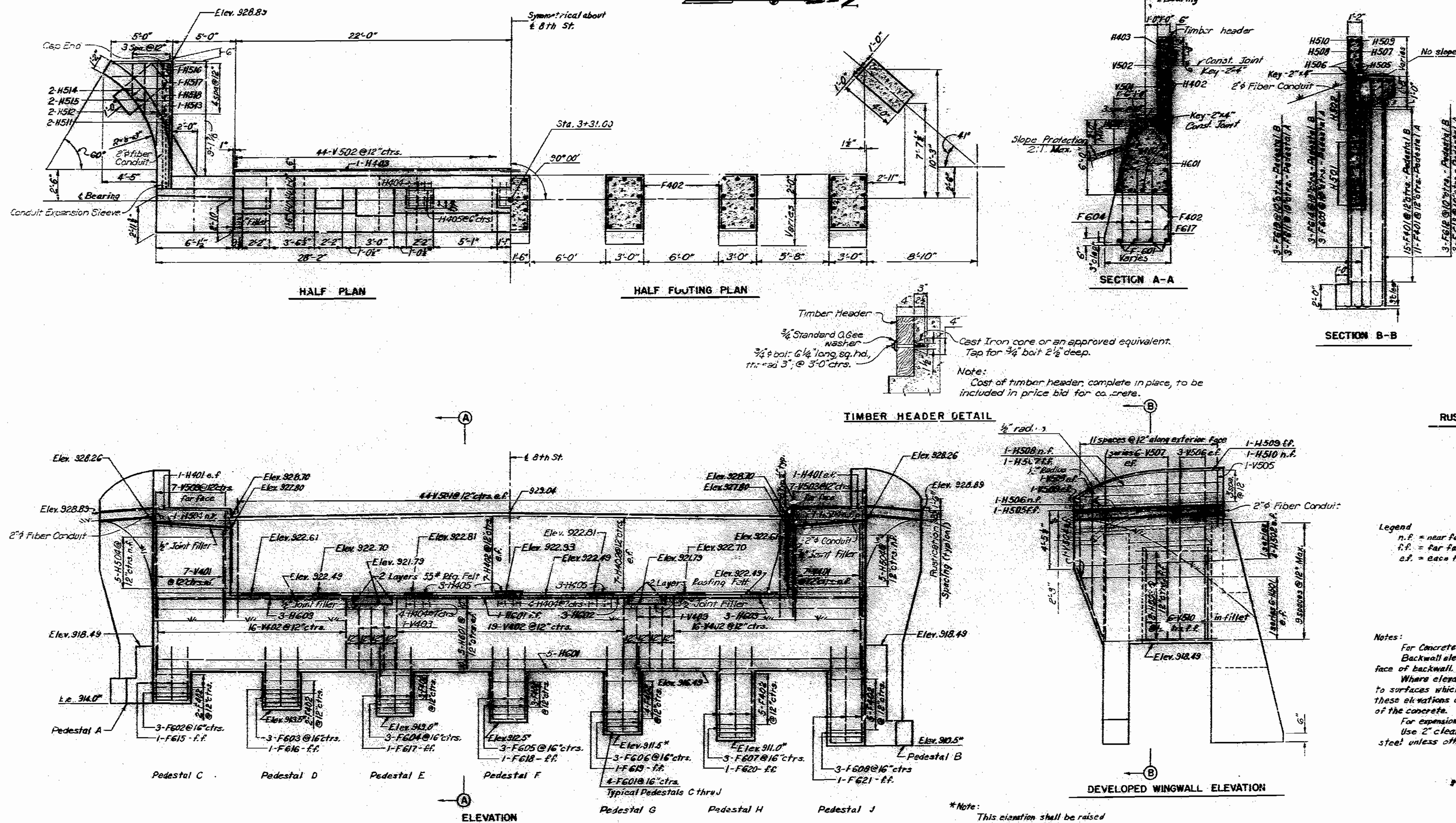
REINFORCING SCHEDULE

SHEET 4 OF 10

NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT NO. & SEC.	SHEET NO.	TOTAL SHEETS
MO		24	
COUNTY	ROUTE	SPEC.	
4			



BRIDGE: 8TH STREET UNDERPASS
 STATE ROAD **SOUTHWEST** FREEWAY
 KANSAS CITY, MO.
 PROJECT NO. I-70-17(RTE-170) STA. 15+27.35 (Lane C)
JACKSON COUNTY

END BENT 1

SHEET 5 OF 18

FINISHED

L-937

SEE FINAL PLANS BROWN-LINES

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 KANSAS CITY NEW YORK

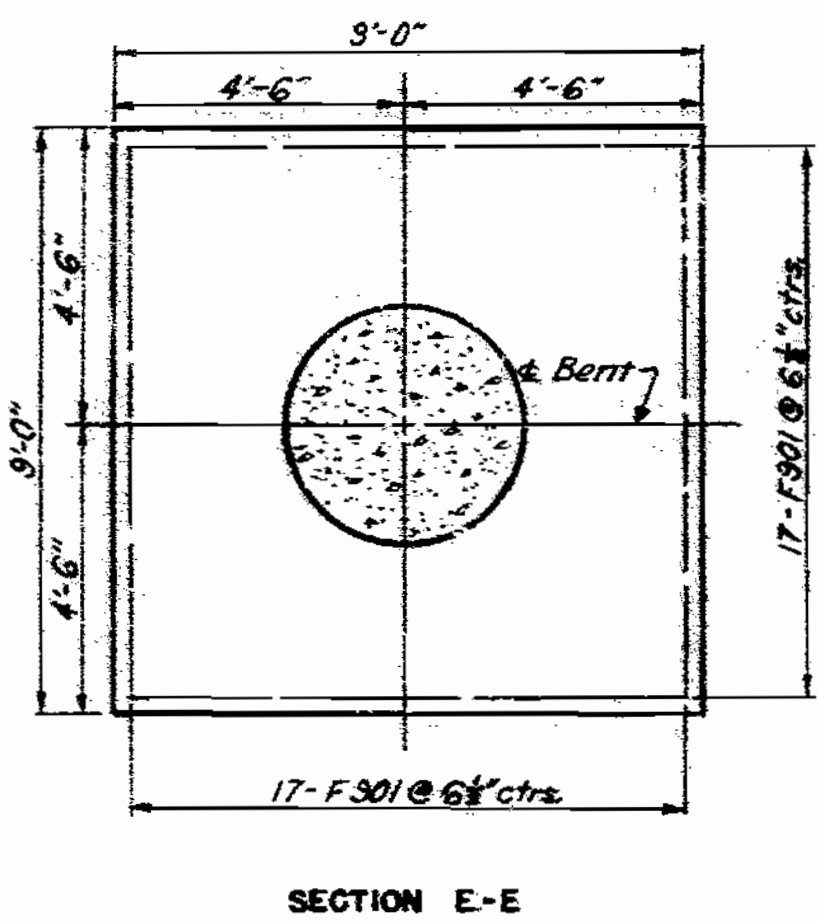
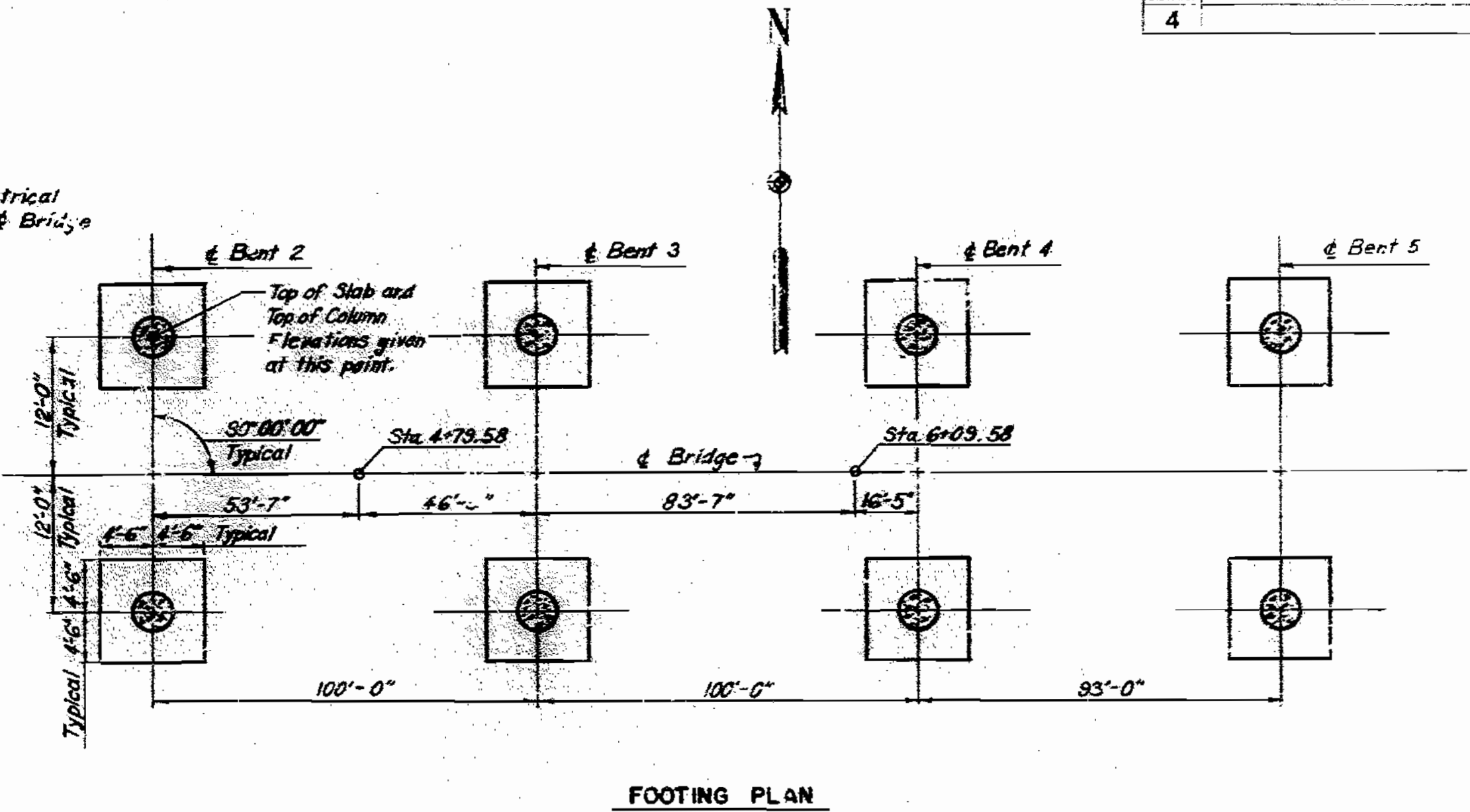
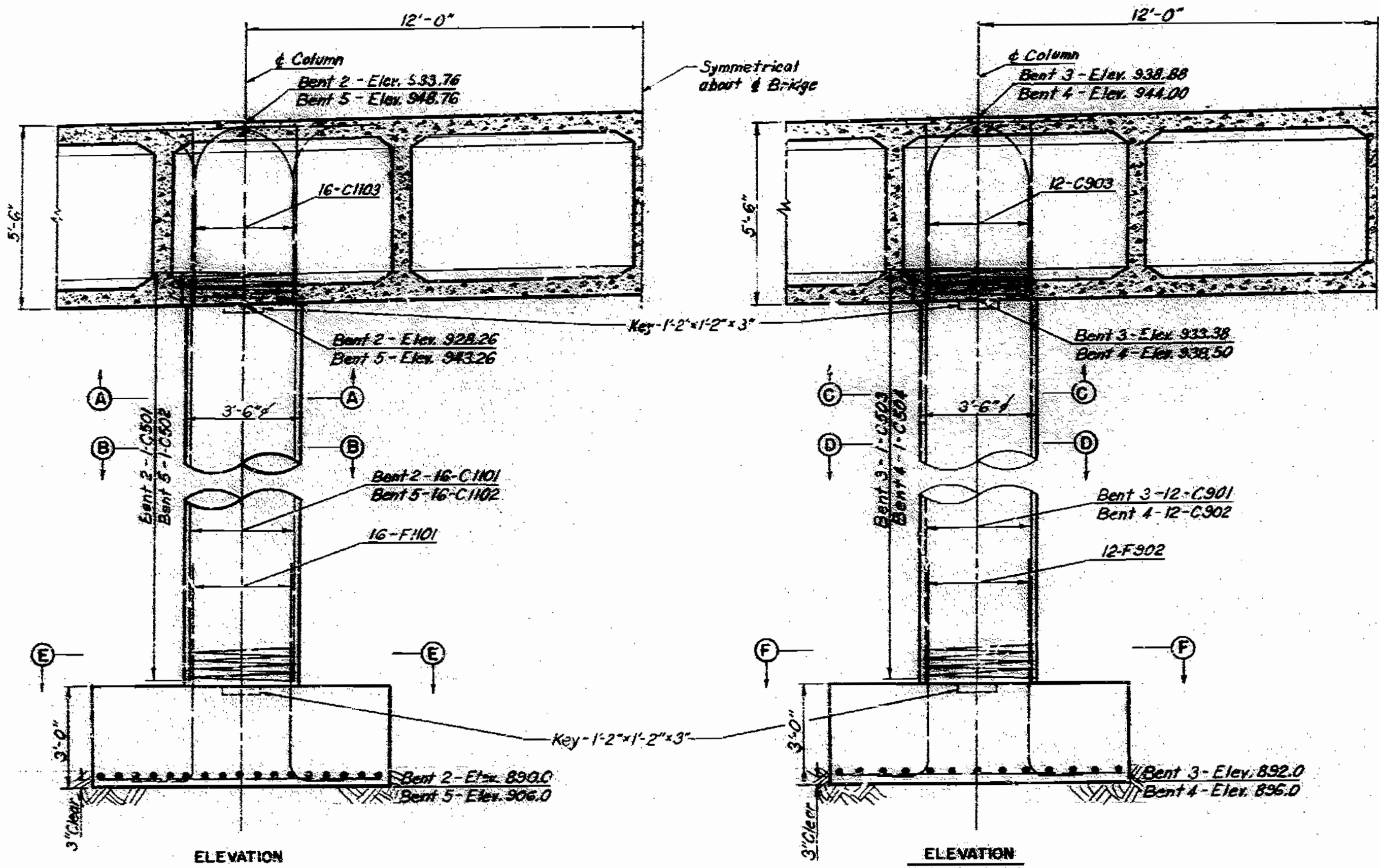
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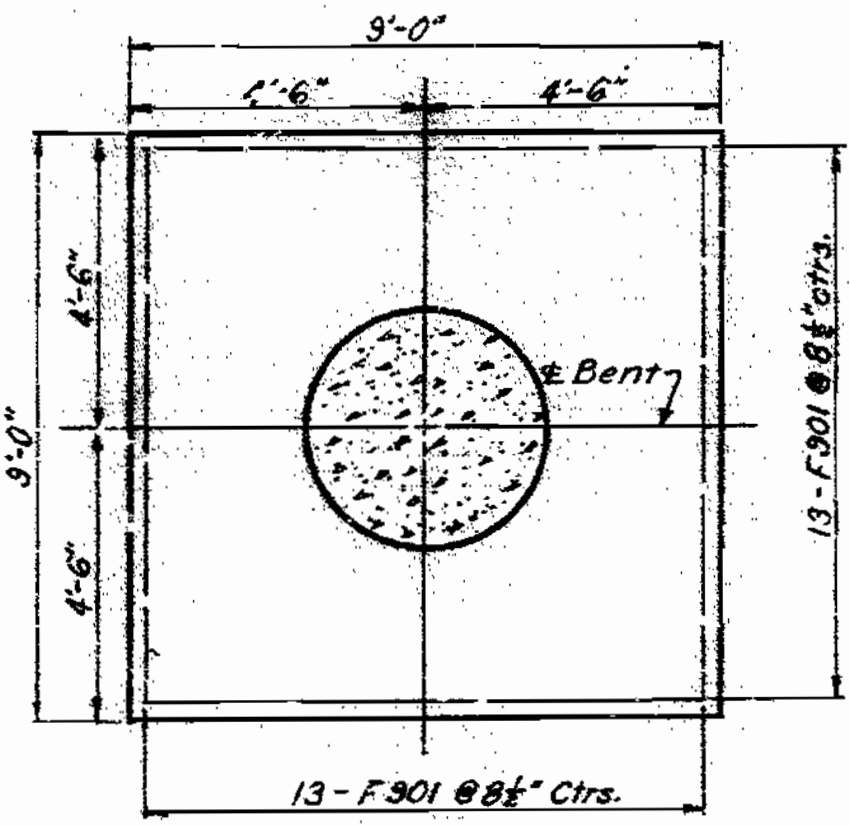
287

MISSOURI STATE HIGHWAY DEPARTMENT

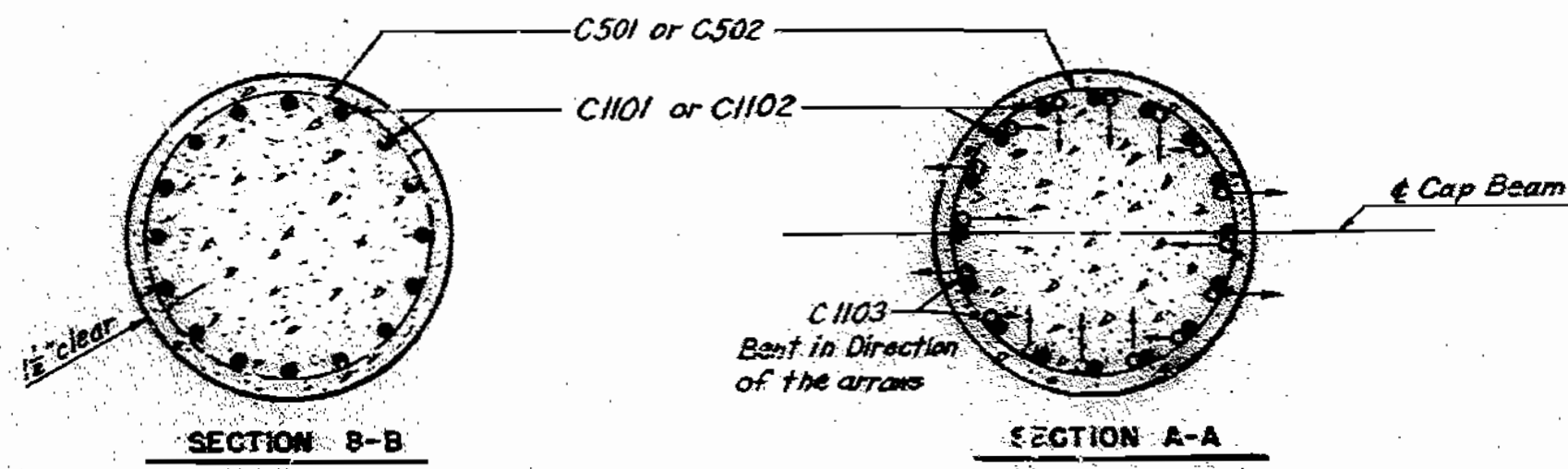
FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FIG. 1	SHEET	TOTAL SHEETS
5	MO.		25		
DIST. NO.	COUNTY	ROUTE	SEC.		
4					



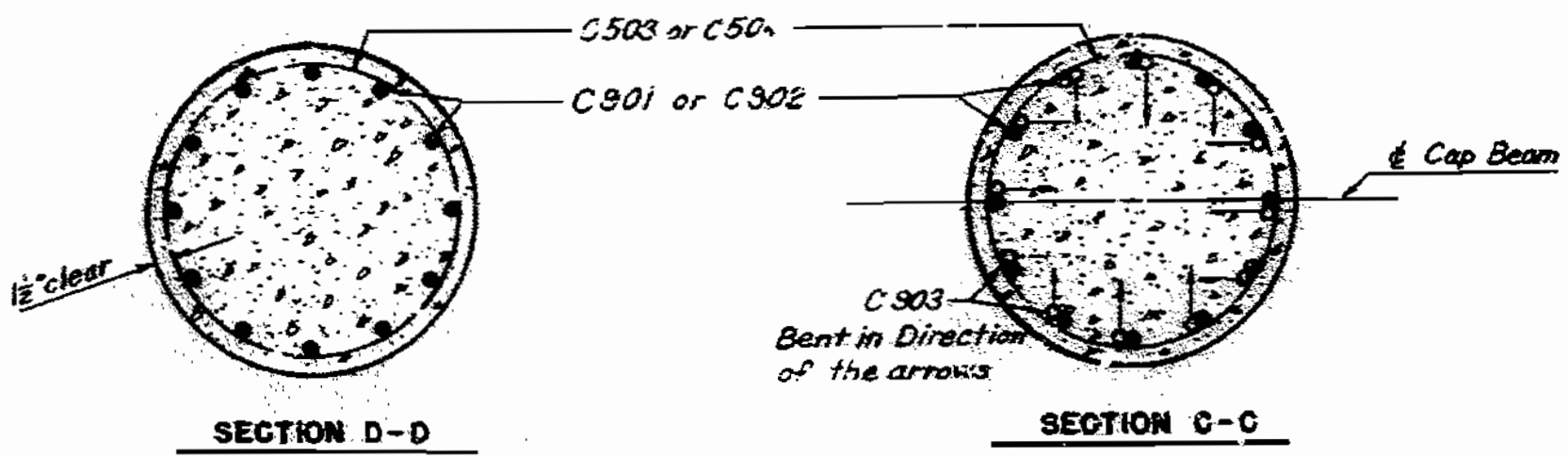
BENTS 2 AND 5



BENTS 3 AND 4



BENTS 2 AND 5



BENTS 3 AND 4

FINISHED

BRIDGE: 8 TH STREET UNDERPASS
STATE ROAD 15
KANSAS CITY, MO.
PROJECT NO. I-70-1070 (X) STA. 15+27.06 (LINE C)
JACKSON COUNTY

FINISHED

BENTS 2, 3, 4, AND 5

SHEET 6 OF 18

L-937

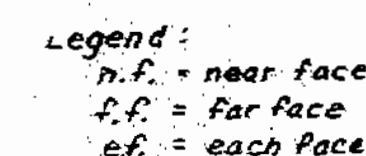
SEE FINAL PLANS BROWN LINES

882

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE JJN DATE 10-2-56 TRACED DATE
CHECKED KAW DATE 11-14-56 SCALE

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

FED. ROAD DIV. NO.	STATE FEDERAL PROJECT NO. & SEC.		FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.			126	
DIST. NO.	COUNTY		ROUTE		SE
4					



Notes:

- Files are 10 BP 42 and shall be battered 3" per ft where indicated.
- For rustication detail see sheet 8.
- For concrete endpost detail see sheet 10.
- Dimensions or elevations shown to surfaces which receive joint filler are to surface of concrete.
- For Elevation D-D and Footing Plan see sheet 8.
- Elevations on backwall are at front face of backwall.
- For expansion joint details see sheet 18.
- For Timber Header Detail see sheet 5.

BRIDGE: 8TH STREET UNDERPASS
STATE ROAD ~~SOUTH~~ ^{MIDTOWN} ~~ACT~~ ^{FREEWAY}
KANSAS CITY, MO.
PROJECT NO. I-70-1(7)(RTE-170) STA. 15 + 27.06 (LINE C)
JACKSON COUNTY

SHEET 7 OF 18

L-937

~~NO CONSTRUCTION CHANGES~~

FINISHED

END BENT 6

Butt Splice (if required)
Top of lower section
to be cut square

FILE SPLICE DETAIL

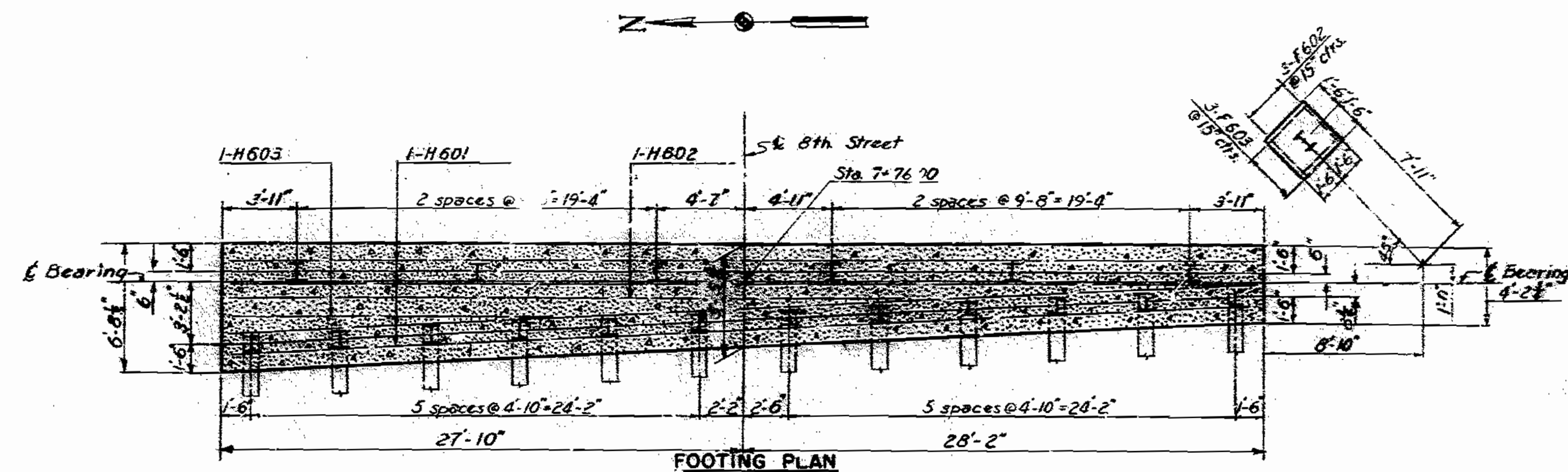
NOTE: This drawing is not to scale. Follow dimensions.

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

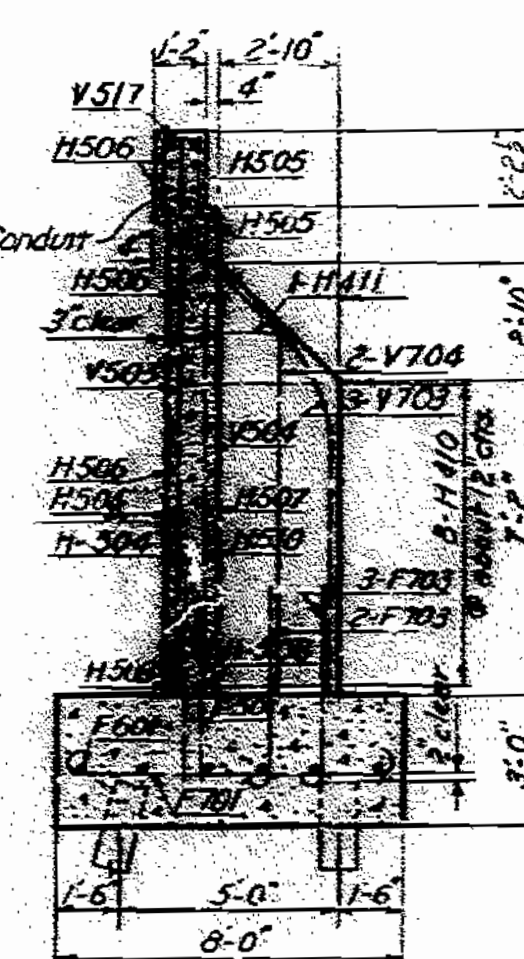
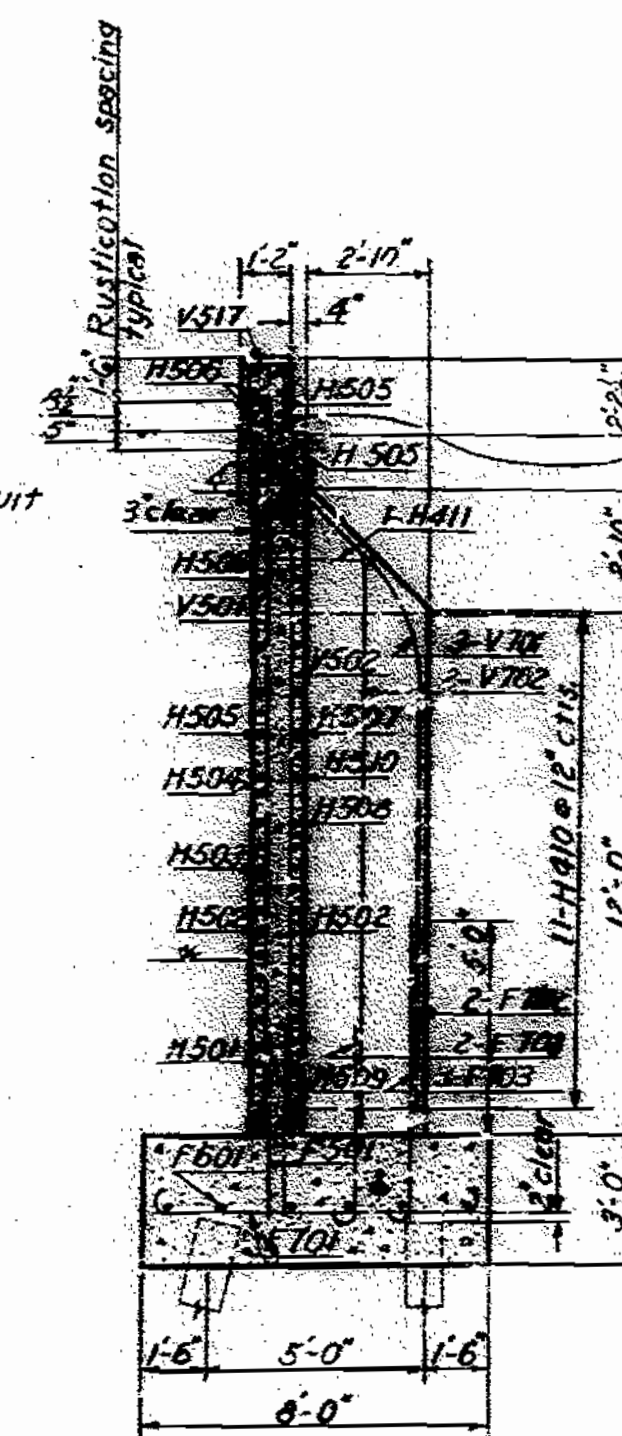
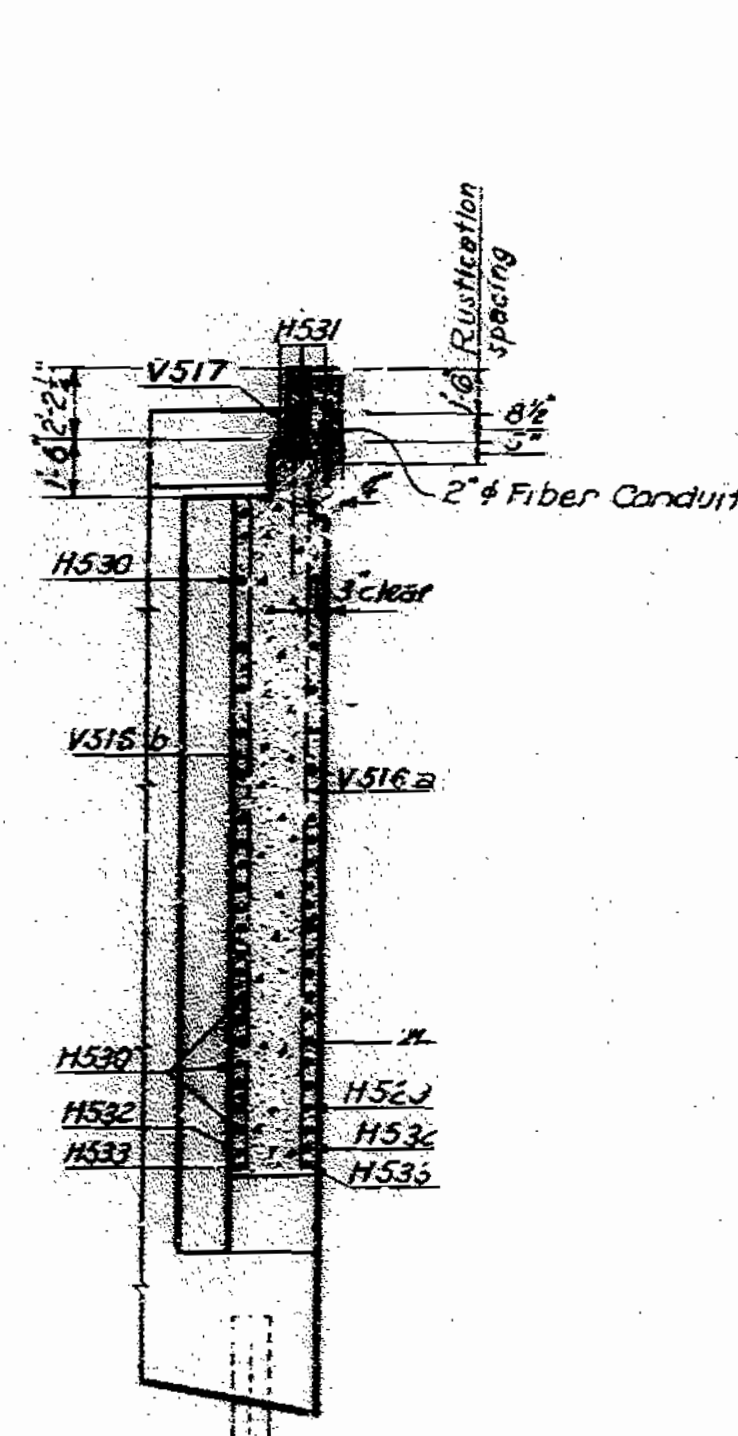
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CHECKED WFO DATE 12-21-56 SCALE _____

682

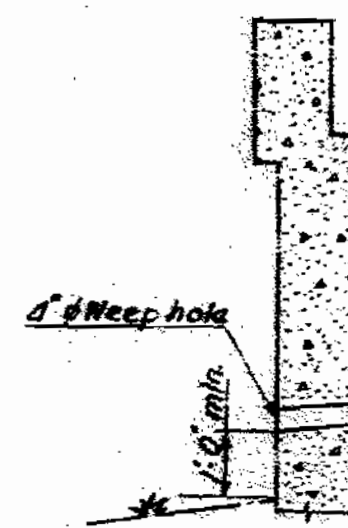
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5	MO.		127	
DIST. NO.	COUNTY		ROUTE	SE.
4				



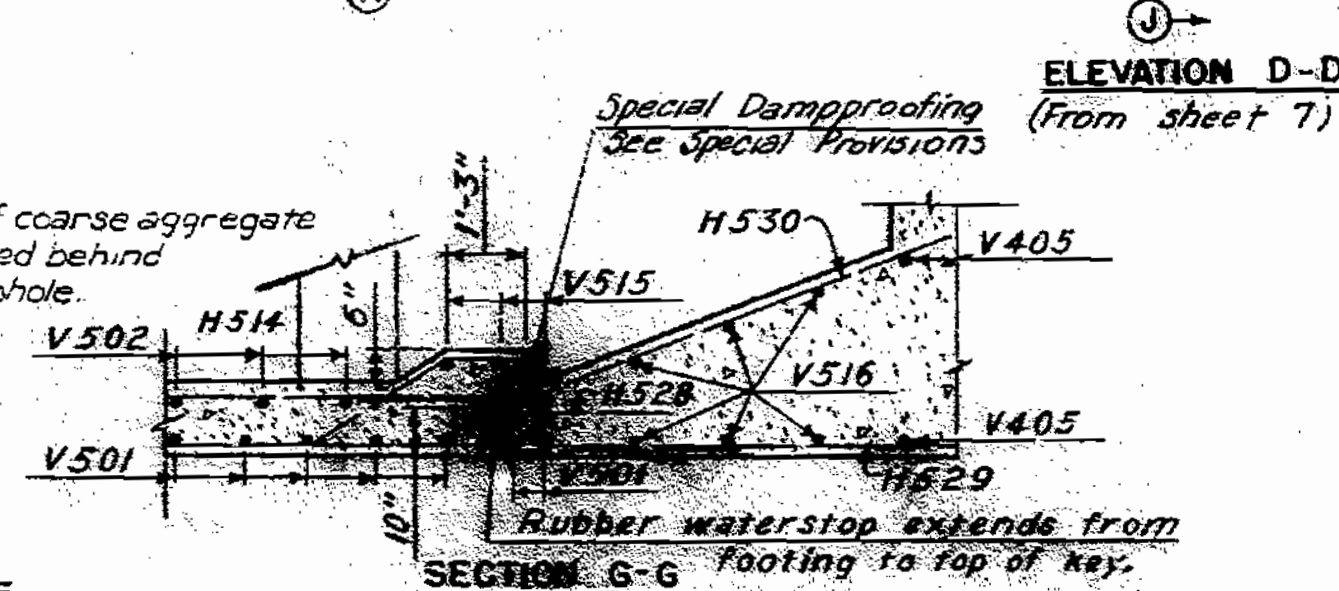
reinforcing steel in North Terminal
Post Footing refer to Footing
Plan of South Terminal Post
this sheet.



Notes:
For end post detail see sheet No. 18.
Use 2" clear cover on all reinforcing
steel unless otherwise shown.
Piles are 10 BP42 and shall be battered
3" per ft. where indicated.



Note:
5 cu. ft. of coarse aggregate
to be placed behind
each weephole.



ELEVATION D-D
(From sheet 7)

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

DETAIL OF BEVEL FOR FILLED JOINTS

FINISHED

RUSTICATION DETAIL

END BENT 6 DETAILS

SHEET 8 OF 18

BRIDGE: 8TH STREET UNDERPASS
STATE ROAD MIDTOWN
SOUTHEAST FREEWAY

KANSAS CITY, MO.
PROJECT NO. I-70-1(7)(RTE-I-70) STA. 15+27.06 (Lane C)
JACKSON COUNTY

518

L-937

NO CONSTRUCTION CHANGES

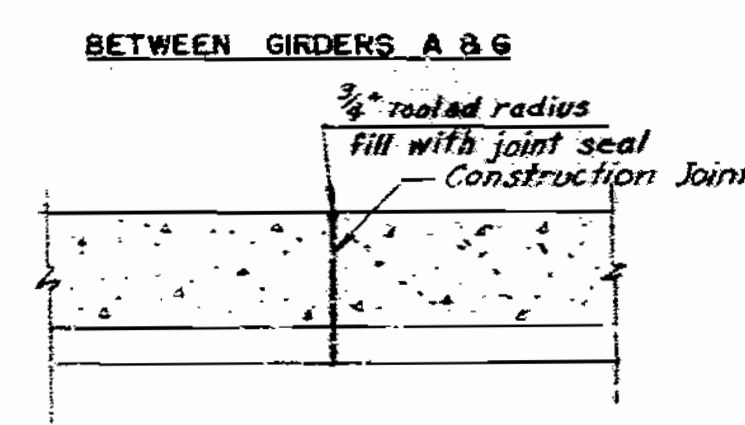
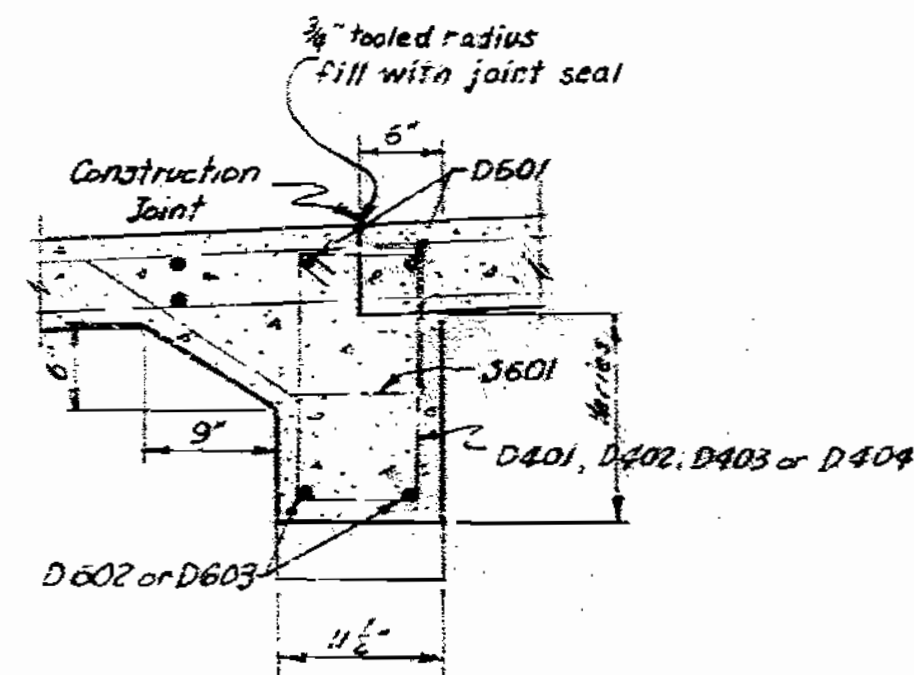
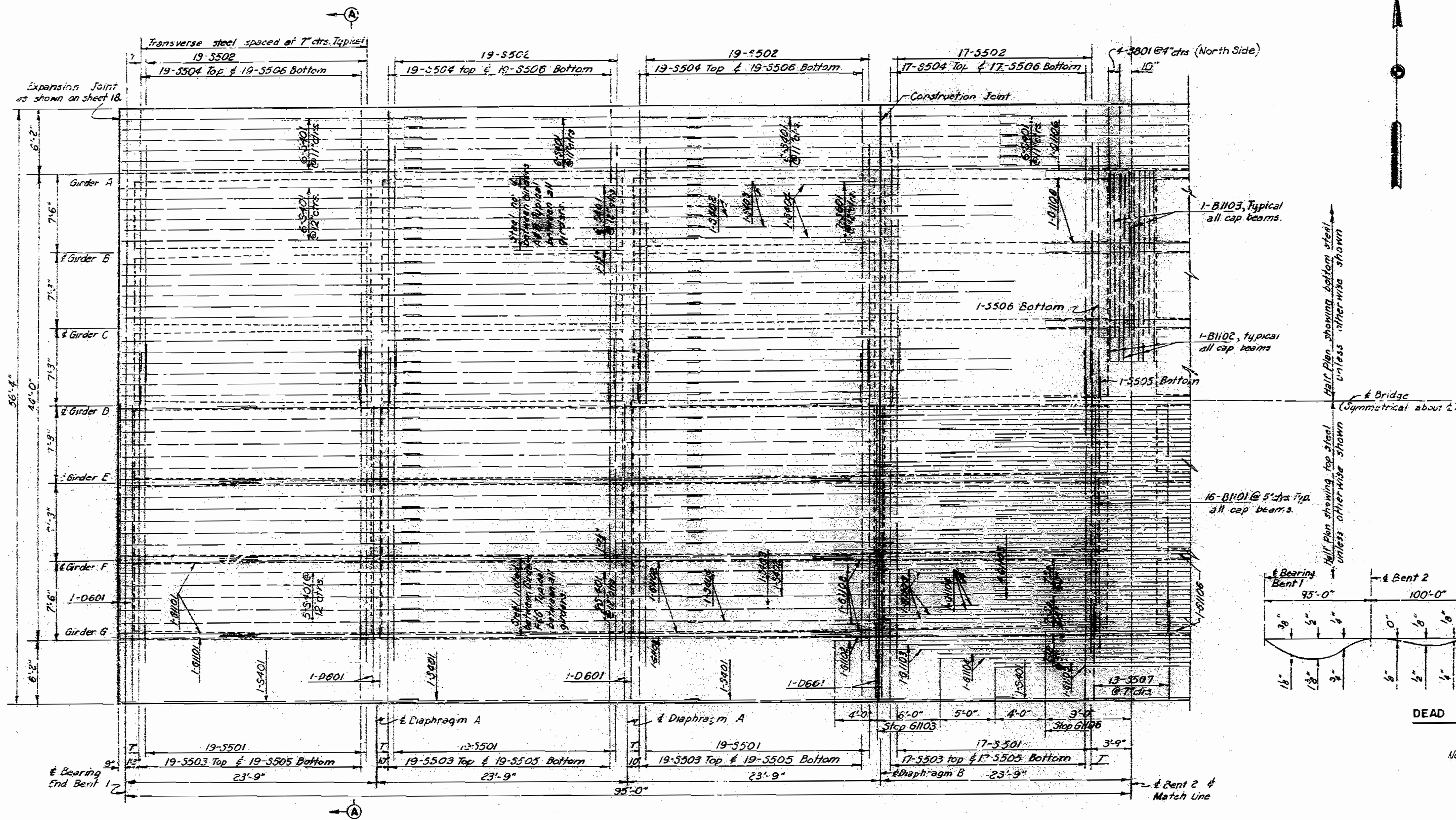
HOWARD, NEEDLES, TAMMEN & BERGENDOFF			
CONSULTING ENGINEERS			
KANSAS CITY		NEW YORK	
MADE <u>BAR</u>	DATE <u>11-2-56</u>	TRACE <u>1</u>	DATE _____
CHECKED <u>WPO</u>	DATE <u>12-17-56</u>	SCALE	

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

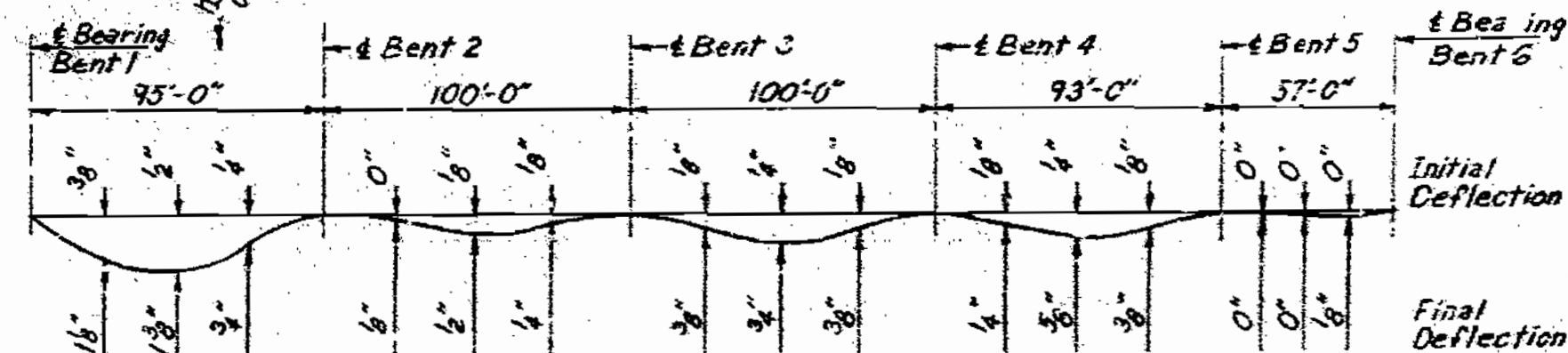
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MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT NO. & SEC.	SHEET NO.	TOTAL SHEETS
5 MO		128	
COUNTY	ROUTE	SEC.	
4			

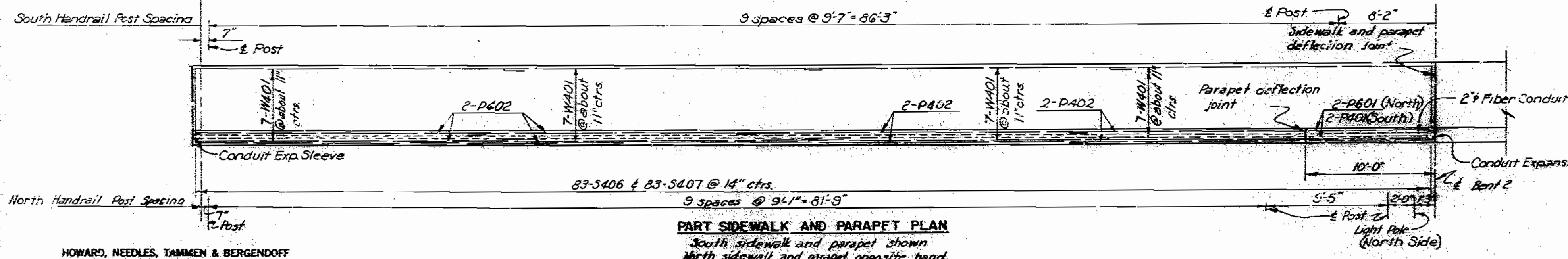


TOP SLAB CONSTRUCTION JOINT DETAILS



DEAD LOAD DEFLECTION DIAGRAM

Notes:
 For Section A-A see sheet 17.
 For Handrail and Light pole anchor bolt setting plan see sheet 18.
 For Pouring sequence see Section DD sheet 17.
 For details of diaphragms A and B see sheet 17.
 Dead load deflections are shown at quarter points of each span.
 For detail of conduit at light standard see sheet 10.



PART SIDEWALK AND PARAPET PLAN

TOP SLAB PLAN

BRIDGE: 8TH STREET UNDERPASS
 STATE ROAD 15
 KANSAS CITY, MO.
 PROJECT NO. I-70-10(7) RTE I-70 STA. 15+27.06 (Lane C)
 JACKSON COUNTY

SHEET # OF 18

L-937

NO CONSTRUCTION CHANGES

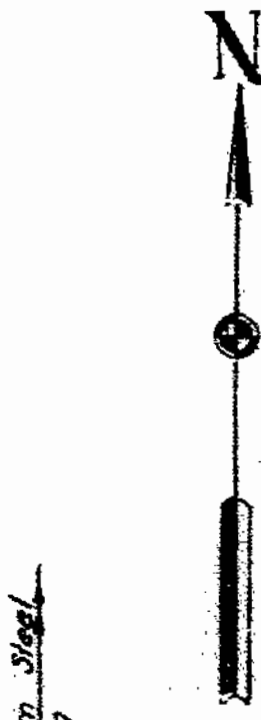
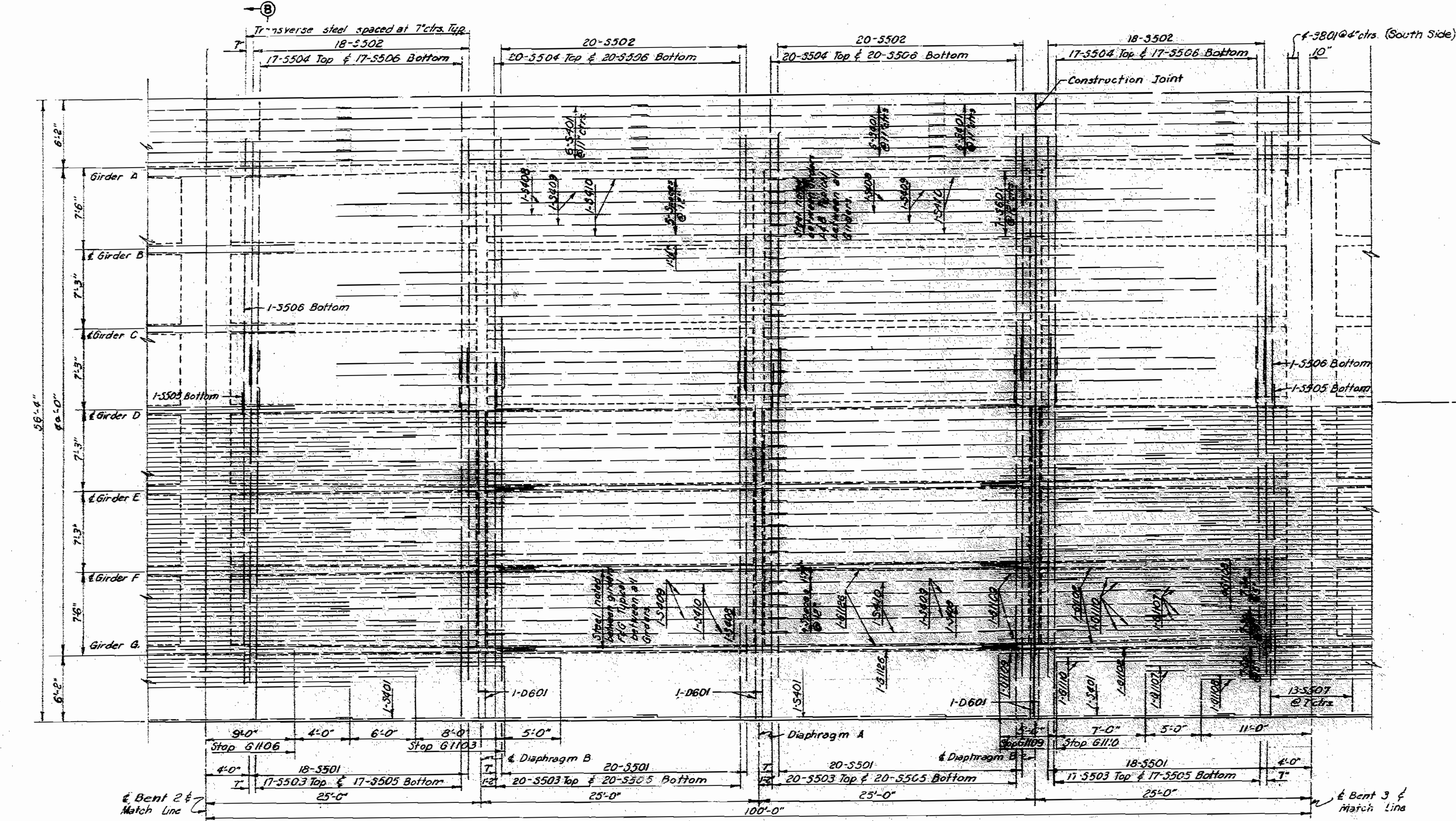
291

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS
 KANSAS CITY, MISSOURI
 DATE 3-3-56
 CHECKED C.C.F. DATE 6-3-59

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

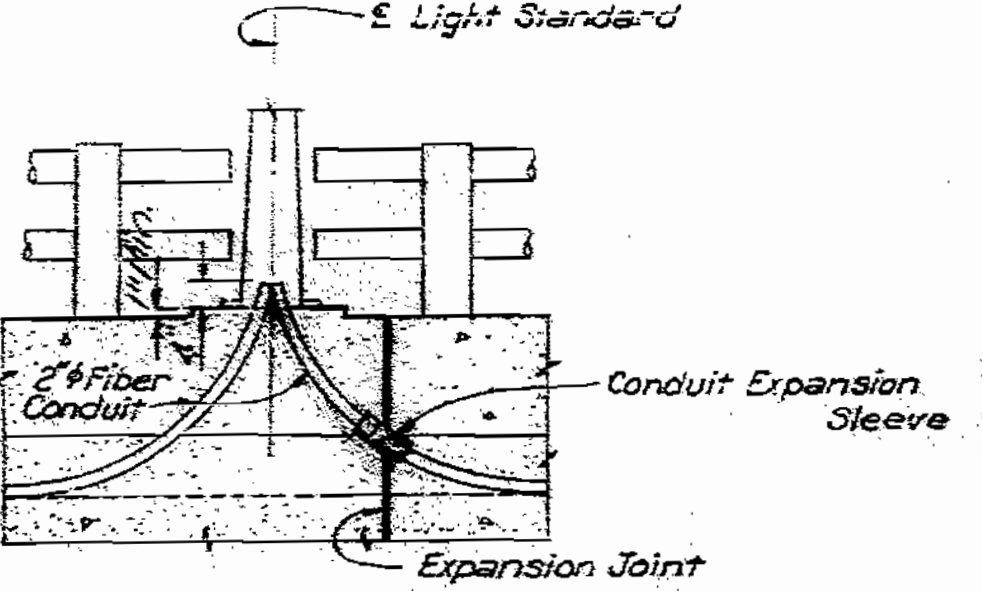
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO			129	
4		COUNTY	ROUTE	SEC.	



Half Plan showing Bottom Slab
unless otherwise shown

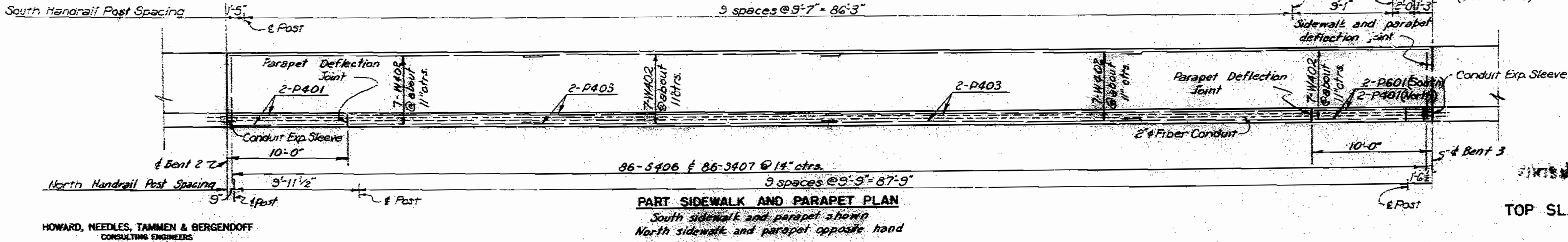
Bridge
(Symmetrical about E)



DETAIL OF CONDUIT AT LIGHT STANDARD

- Notes:
- For top slab construction joint details see sheet 9.
 - For section B-B see sheet 17.
 - For Handrail and Light pole anchor bolt setting plan see sheet 18.
 - For pouring sequence see section D-D sheet 18.
 - For Cap beam reinforcing for Bents 2 & 3 see cap beam Bent 2 sheet 3.
 - For details of diaphragms A and B see sheet 17.

PART SLAB PLAN



PART SIDEWALK AND PARAPET PLAN

TOP SLAB PLAN

BRIDGE: 8TH STREET UNDERPASS
STATE ROAD 160
KANSAS CITY, MO.
PROJECT NO. I-70-1(7)(RTE I-70) STA. 15+27.05 (Lane C)
JACKSON COUNTY

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

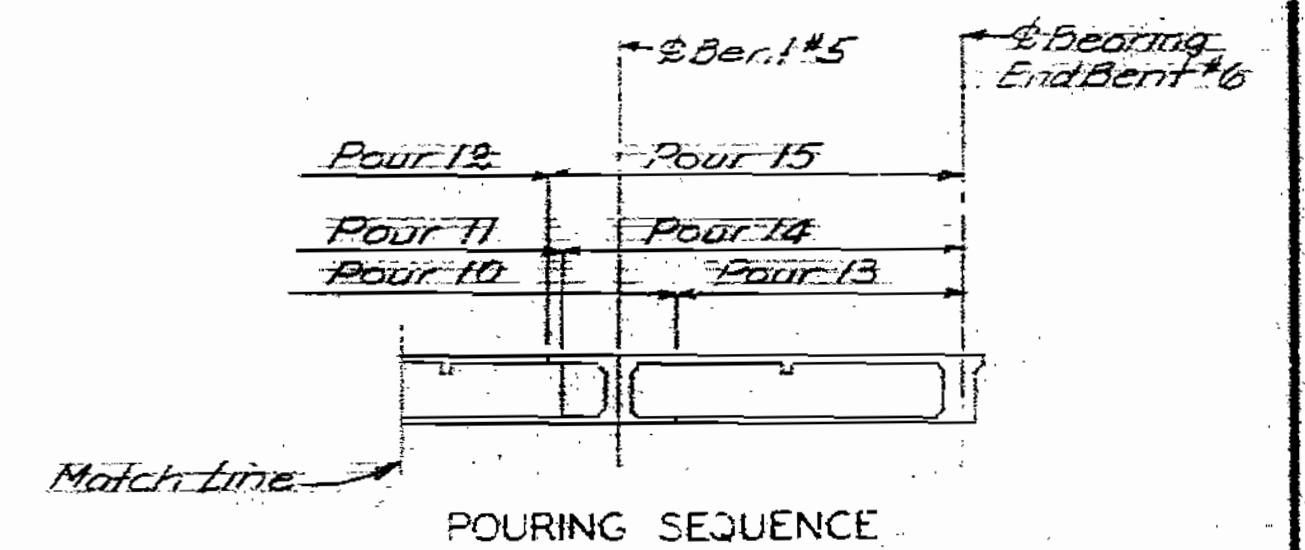
Note: This drawing is not to scale. Follow dimensions.

SHEET 10 OF 18

NO CONSTRUCTION CHANGES

292

ST. NO.	ROAD NO.	STATE	FEDERAL PROJECT No. & Sec.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	5	MO			130	
DIST. NO.			COUNTY	ROUTE		SEC.
4						



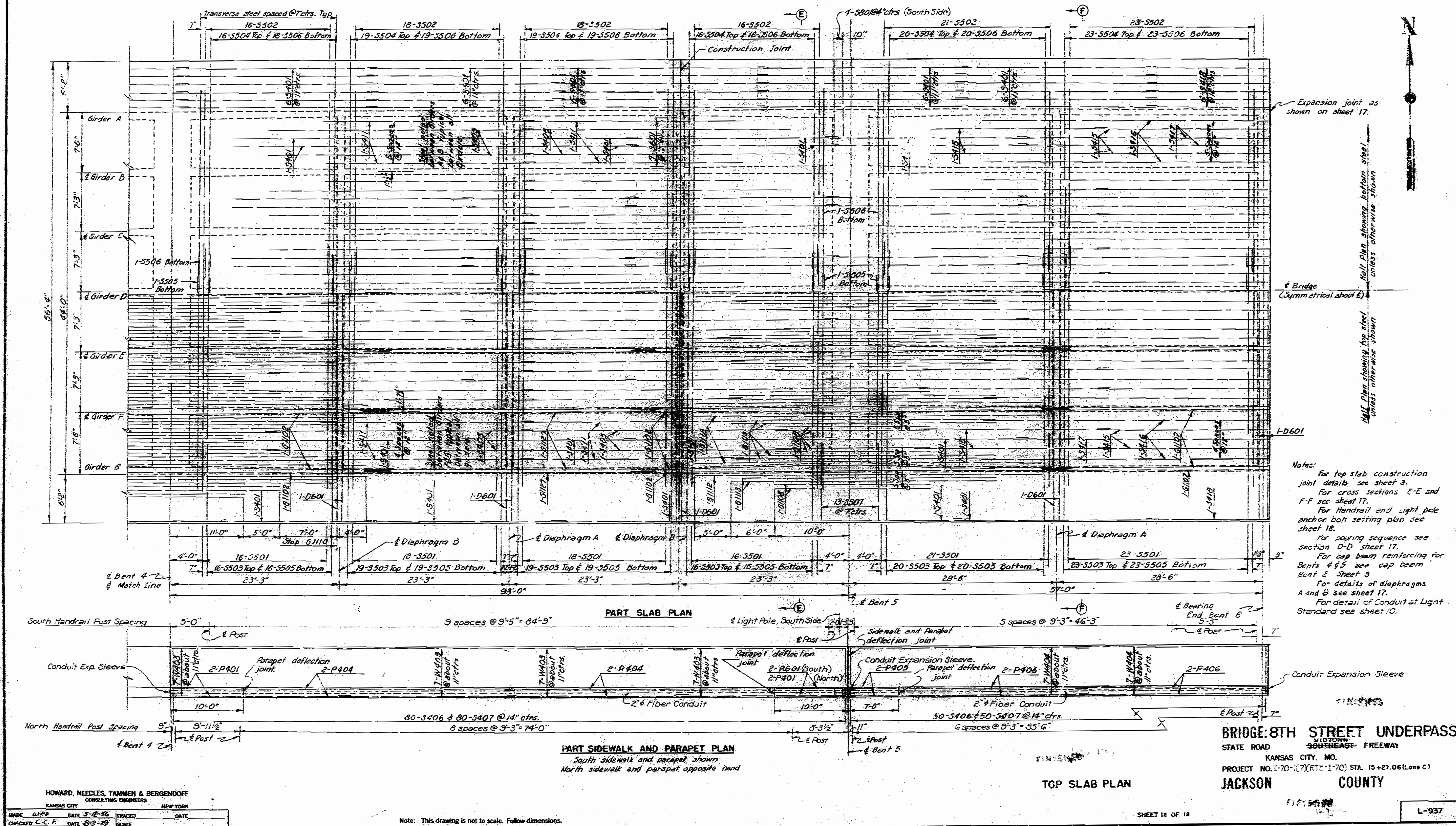
Notes:

- For top slab construction joint details see sheet 9.
- For cross section C-C and D-D see sheet 17.
- For Handrail and Light pole anchor bolt setting plan see sheet 18.
- For pouring sequence see section D-D sheet 17.
- For cap beam reinforcing for Bents 3 & 4 see cap beam Bent 2 sheet 9.
- For details of diaphragms A and B see sheet 12.
- For detail of Conduit at Light Standard see sheet 10.



BRIDGE: 8TH STREET UNDERPASS
STATE ROAD ~~MIDTOWN~~ ^{SOUTHEAST} FREEWAY
KANSAS CITY, MO.
PROJECT NO. I-70-(7)(RTE-I-70) STA. IS+27.06 (Lane C)
JACKSON COUNTY

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT No. 8 Sec.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO			131	
DIST. NO.		COUNTY		ROUTE	SE
4					



BRIDGE: 8TH STREET UNDERPASS
STATE ROAD ~~90TH EAST~~ ^{MIDTOWN} FREEWAY
KANSAS CITY, MO.
PROJECT NO. I-70-(7)(RTE-I-70) STA. 15+27.06 (Lane C)
JACKSON COUNTY

TOP SLAB PLAN

SHEET 12 OF 18

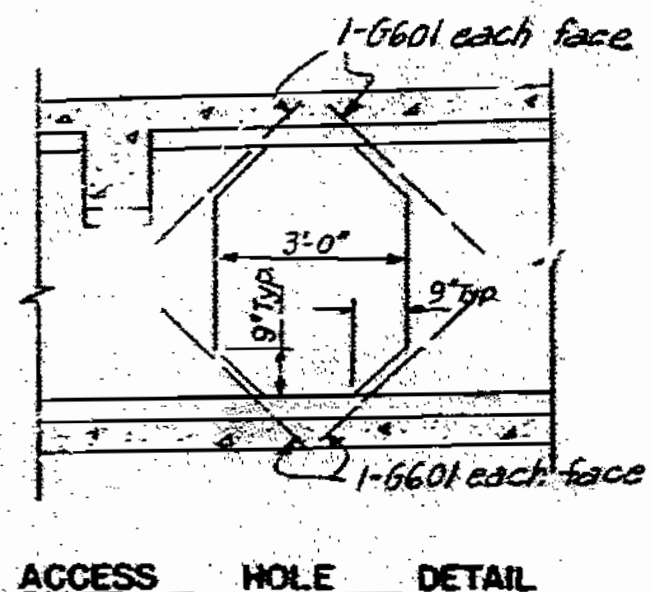
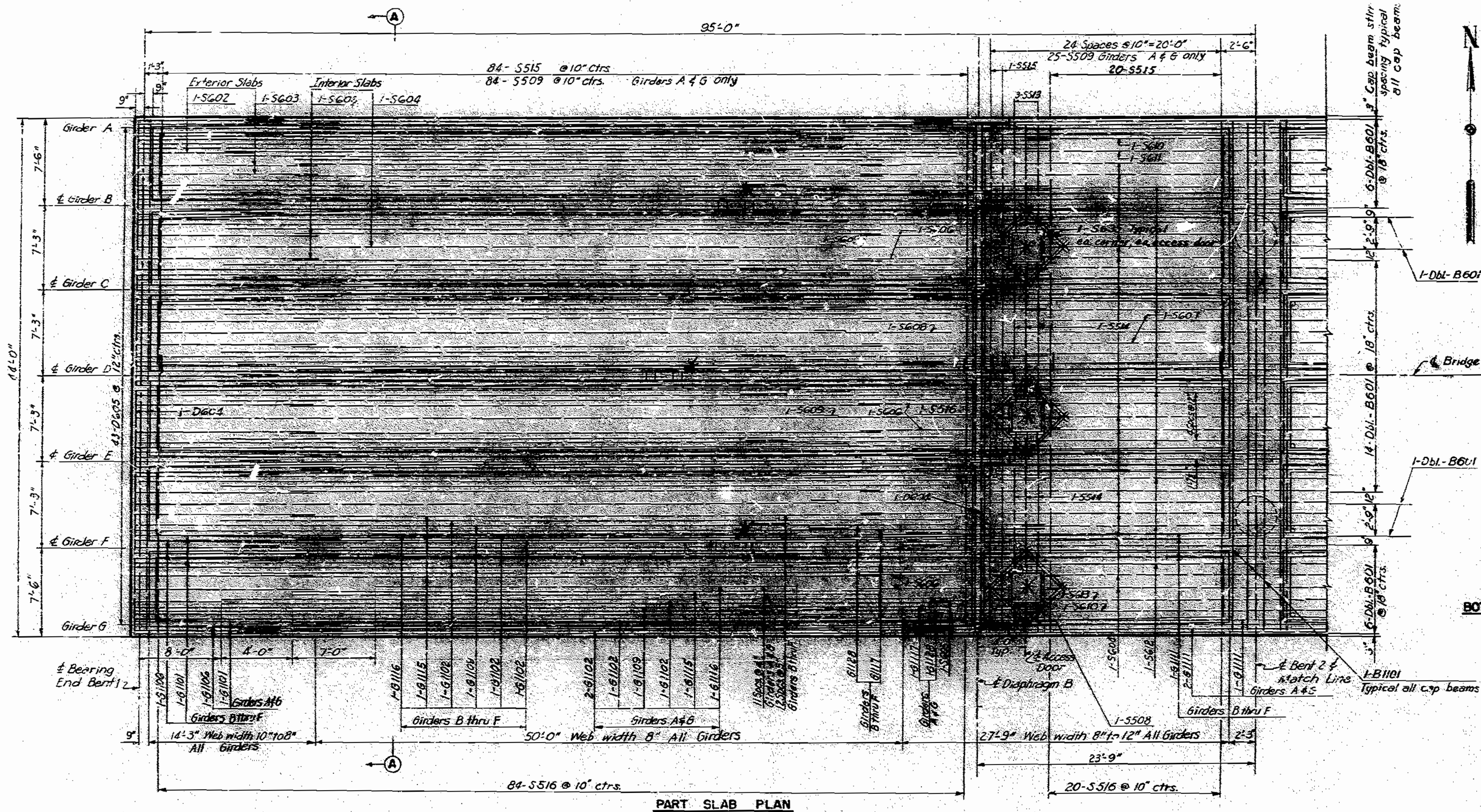
NO CONSTRUCTION CHANGES

L-937

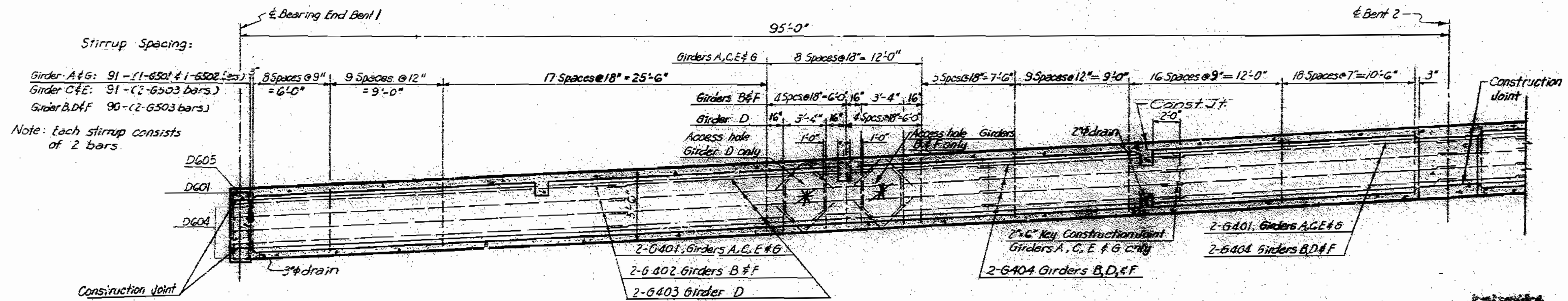
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & SEC.	PROJECT NO.	SHEET NO.
5	MO		32	
4				



BOTTOM SLAB CONSTRUCTION JOINT DETAIL



Notes:
For additional details of End Diaphragm see sheet 17.
For additional details of Cap Beam see Section thru cap beam sheet 14 and Section B-3 sheet 17.
For drainage details see sheet 18.
For Pouring Sequence see Section D-D sheet 17.
For Cross-section A-A see sheet 17.
For Access Door detail see sheet 18.

BRIDGE 8TH STREET UNDERPASS
STATE ROAD 150
KANSAS CITY, MO.
PROJECT NO. I-70-1(7)(RTE-I-70) STA. 15+27.06 (Lane C)
JACKSON COUNTY

BOTTOM SLAB PLAN

GIRDER ELEVATION

SHEET B OF 18

L-937

* CONSTRUCTION CHANGES NOTED HEREON

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

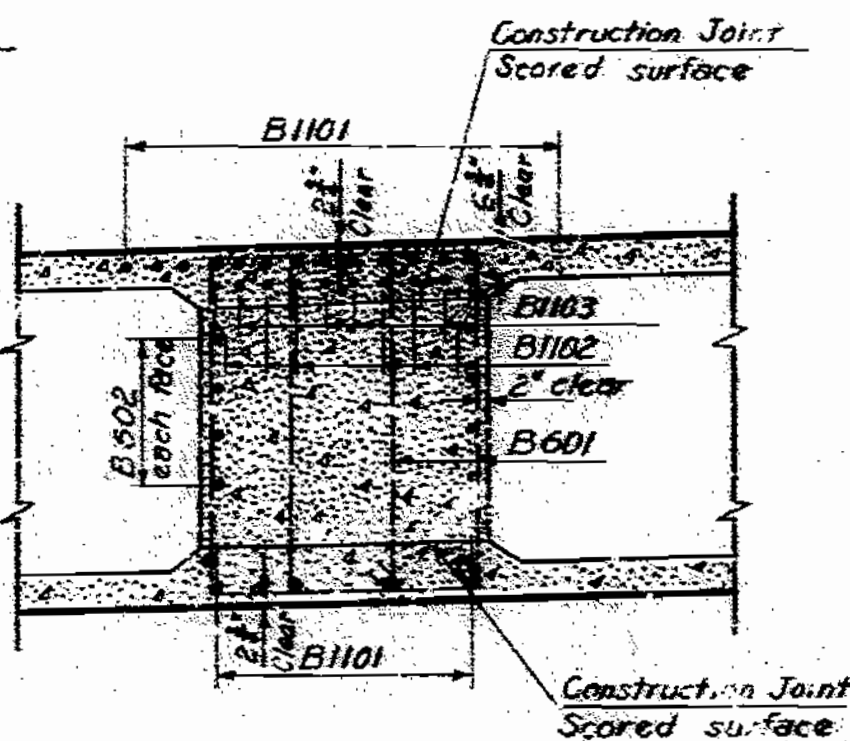
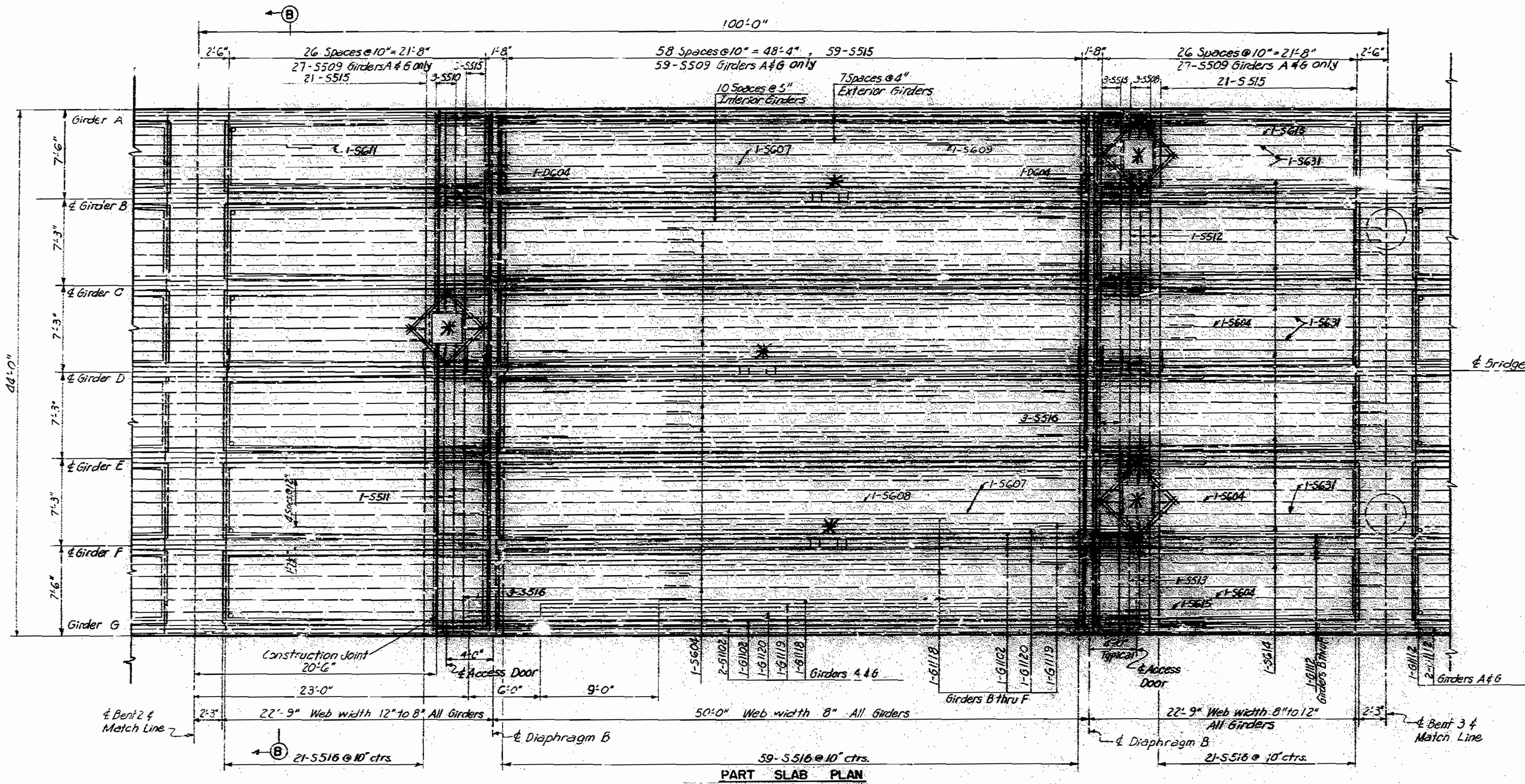
Note: Access doors and holes omitted during construction

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY
MADE CCF
DATE 5-15-56
CHECKED WPD
DATE 12-11-56
NEW YORK
DATE
SCALE

295

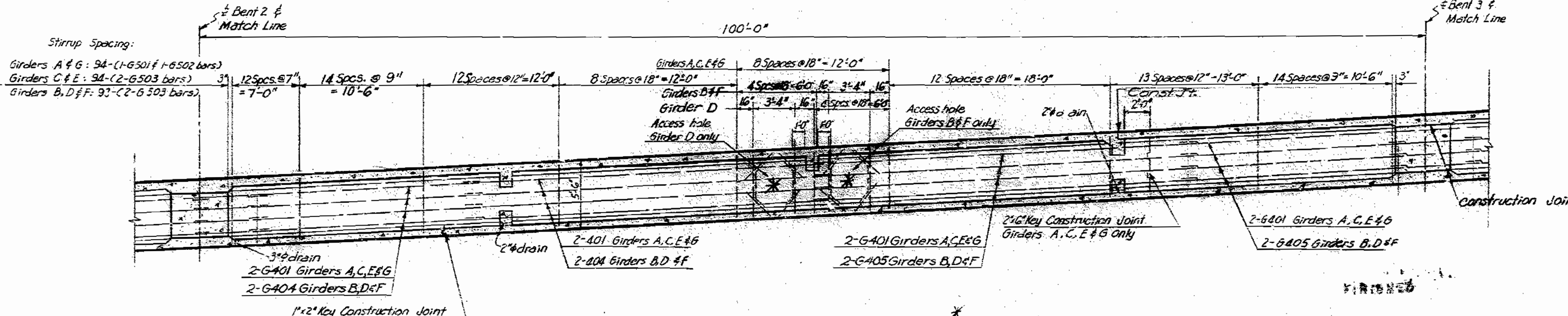
MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT NO. & SEC.	PROJECT	DATE
5 MO		133	
SHEET NO.	COUNTY	ROUTE	SEC.
4			



SECTION THRU CAP BEAM

Notes:
For additional details of diaphragms see sheet 17.
For Cap Beam reinforcing see Cap Beam Bent 2 Sheet 13.
For additional details of cap beam reinforcing see Section B-B sheet 17.
For Access Hole Details and bottom slab construction joint see sheet 13.
For Access Door and Drainage Details see sheet 18.
For Pouring Sequence see Section D-D sheet 17.
For Cross-section B-B see sheet 17.



BRIDGE 8TH STREET UNDERPASS
STATE ROAD 15
KANSAS CITY, MO.
PROJECT NO. I-70-17(RTE-1-70) STA. 15+27.06 (Lone C)
JACKSON COUNTY

HCM, JR., NEEDLES, TAMMEN & BERGENDORF
CONSULTING ENGINEERS
KANSAS CITY, MO.
NEW YORK

MADE C.O.E. DATE 5-19-56 TRACED DATE
CHECKED W.P. DATE 11-26 SCALE

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

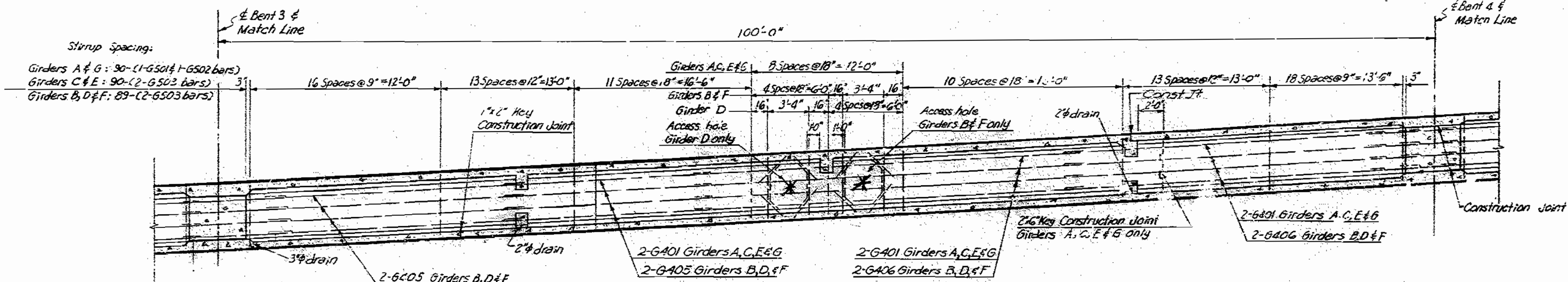
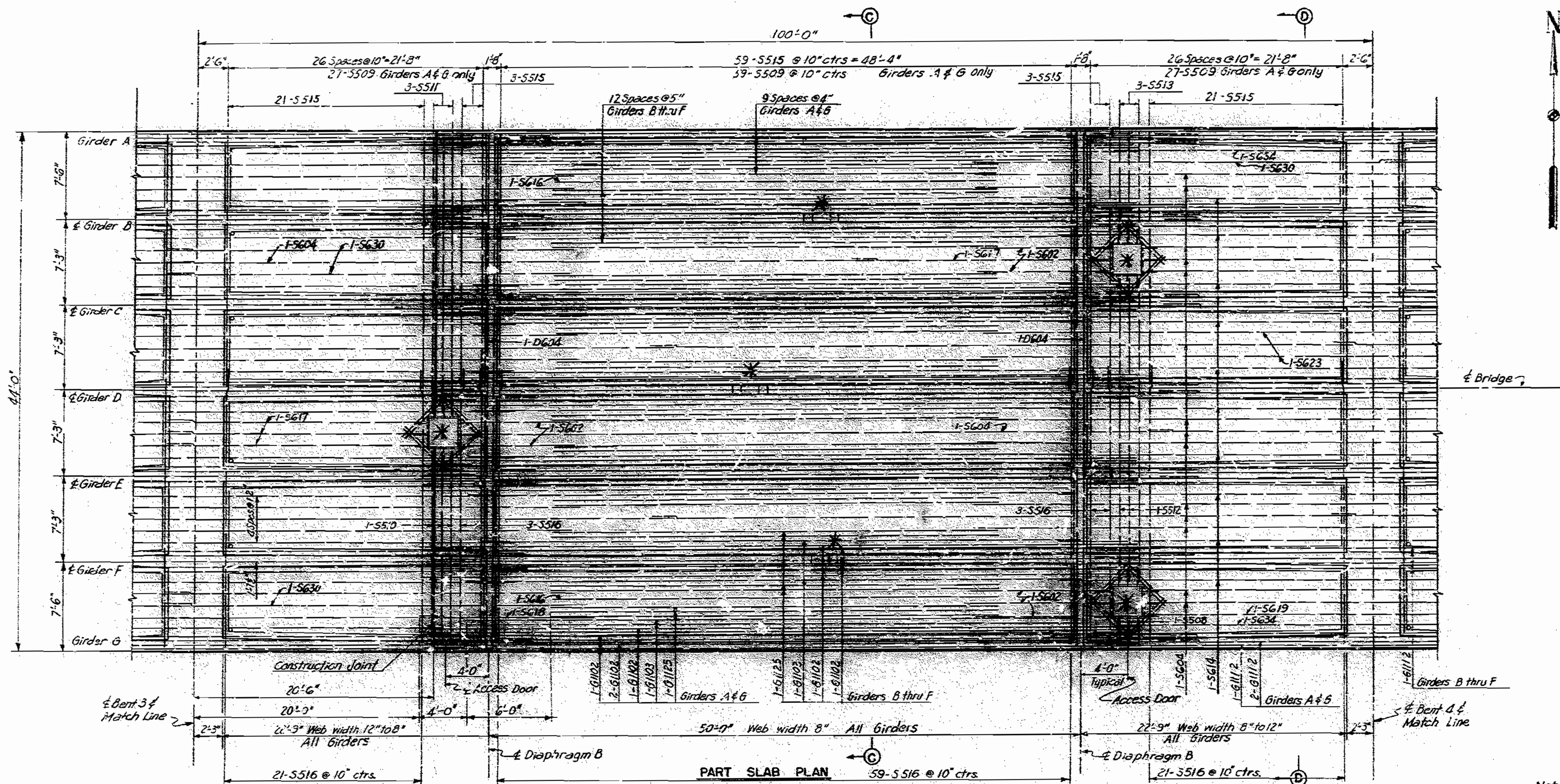
SHEET 14 OF 16

L-937

* CONSTRUCTION CHANGES NOTED HEREON

MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT No. 8 Sec.	PLAN	SHEET 1	20
5 MO			134	
DIST. NO.	COUNTY	ROUTE	SEC.	
4				



Notes:
For additional details of diaphragms see sheet 17.
For Cap Beam reinforcing see Cap Beam Bent 2 sheet 13.
For additional details of cap beams see Section thru cap beam sheet 14 and Section B-B sheet 17.
For Access Hole Detail and Bottom slab construction joint see sheet 13.
For Access Door and Drainage Details see sheet 18.
For Pouring Sequence see Section D-D sheet 17.
For Cross-sections C-C and D-D, see sheet 17.

BRIDGE: 8TH STREET UNDERPASS
STATE ROAD
KANSAS CITY, MO.
PROJECT NO. 3-70-1 (XRT-1-70) STA. 15+27.06 (Lane C)
JACKSON COUNTY

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY, MO.
MADE C.C.F. DATE 5-21-56 TRACED DATE
CHECKED IN PD DATE 12-14-56 SCALE

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

*Note: Access doors and holes omitted during construction

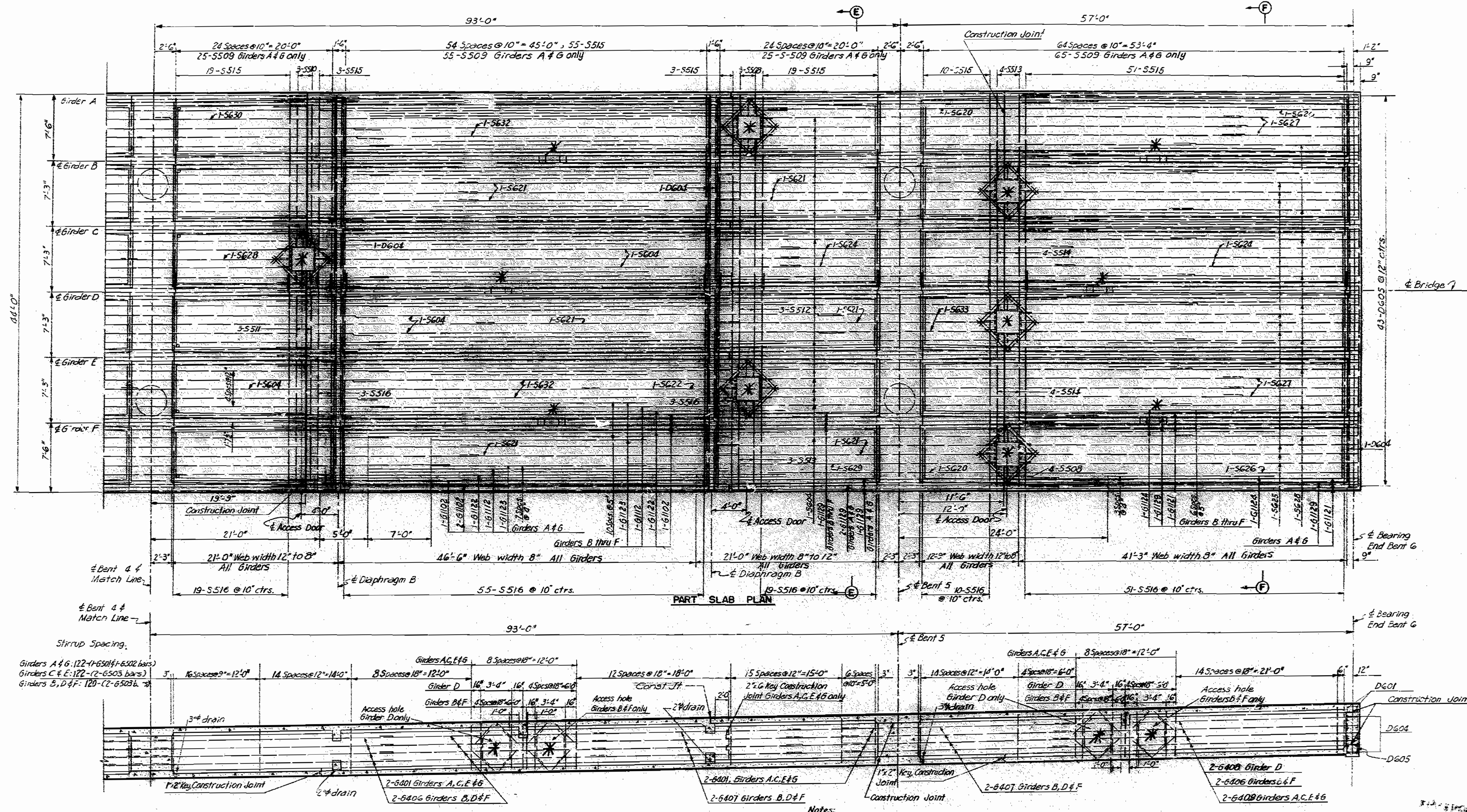
FINISHED
BOTTOM SLAB PLAN

* CONSTRUCTION CHANGES NOTED HEREON

L-937

MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
MO	5	135	135
4			



Notes:
 For additional details of diaphragms see sheet 17.
 For Cap Beam reinforcing see cap beam Bent 2 sheet 13.
 For additional details of cap beams see Section thru Cap Beam sheet 14 and Section B-B sheet 17.
 For Access Hole Detail and bottom slab construction joint details see sheet 13.
 For Access Door and Drainage Details see sheet 12.
 For Pouring Sequence see Section D-D sheet 17.
 For Cross-sections E-E and F-F see sheet 17.

* Note Access doors and holes omitted during construction

GIRDER ELEVATION

BOTTOM SLAB PLAN

BRIDGE: 8TH STREET UNDERPASS
 STATE ROAD 15
 KANSAS CITY, MO.
 PROJECT NO. I-70-170 (RTE I-70) STA. 15+27.06 (Lane C)
 JACKSON COUNTY

SHEET 16 OF 18

L-937

* CONSTRUCTION CHANGES NOTED HEREON

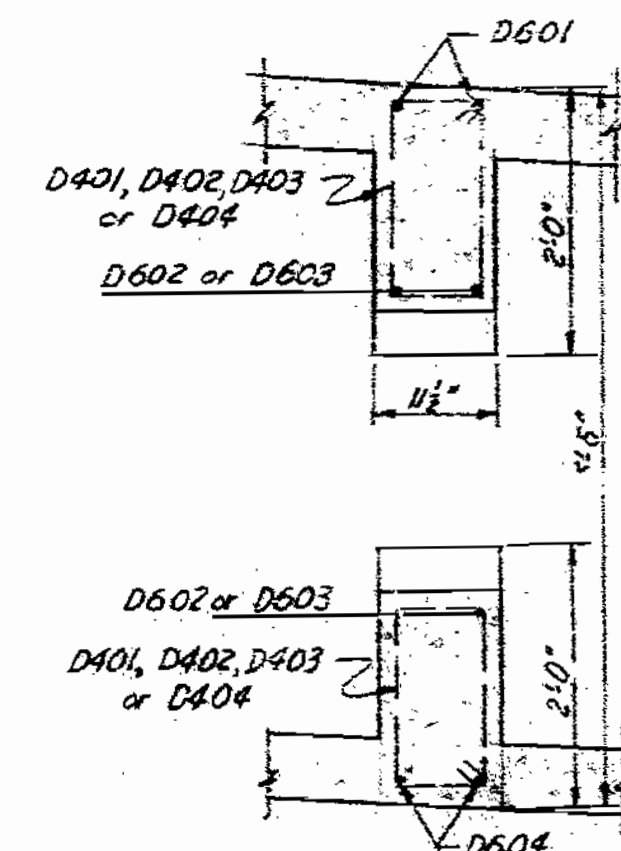
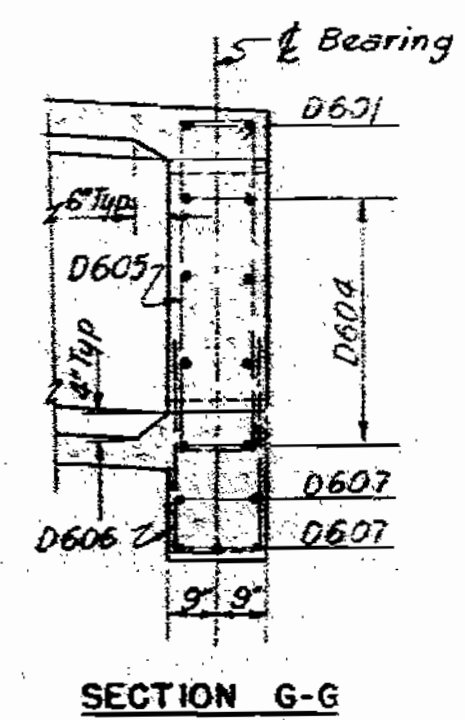
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS

MADE CCF DATE 5-22-56 TRACED DATE
 CHECKED KPD DATE 12-19-56 SCALE

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

298

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT No. 8 Sec.	FISCAL YEAR	SHEET NO.	TOT. SHEETS
5	MO			136	
DIST. NO.	COUNTY		MILEAGE		SEC.
4					



CROSS SECTIONS

BRIDGE: 8TH STREET UNDERPASS
STATE ROAD ~~MIDTOWN~~ ~~SOUTHEAST~~ FREEWAY
KANSAS CITY, MO.
PROJECT NO. I-70-1(7) (RTE-70-1) STA. 15+27.06 (Lane C)
JACKSON COUNTY

SHEET 17 OF 18

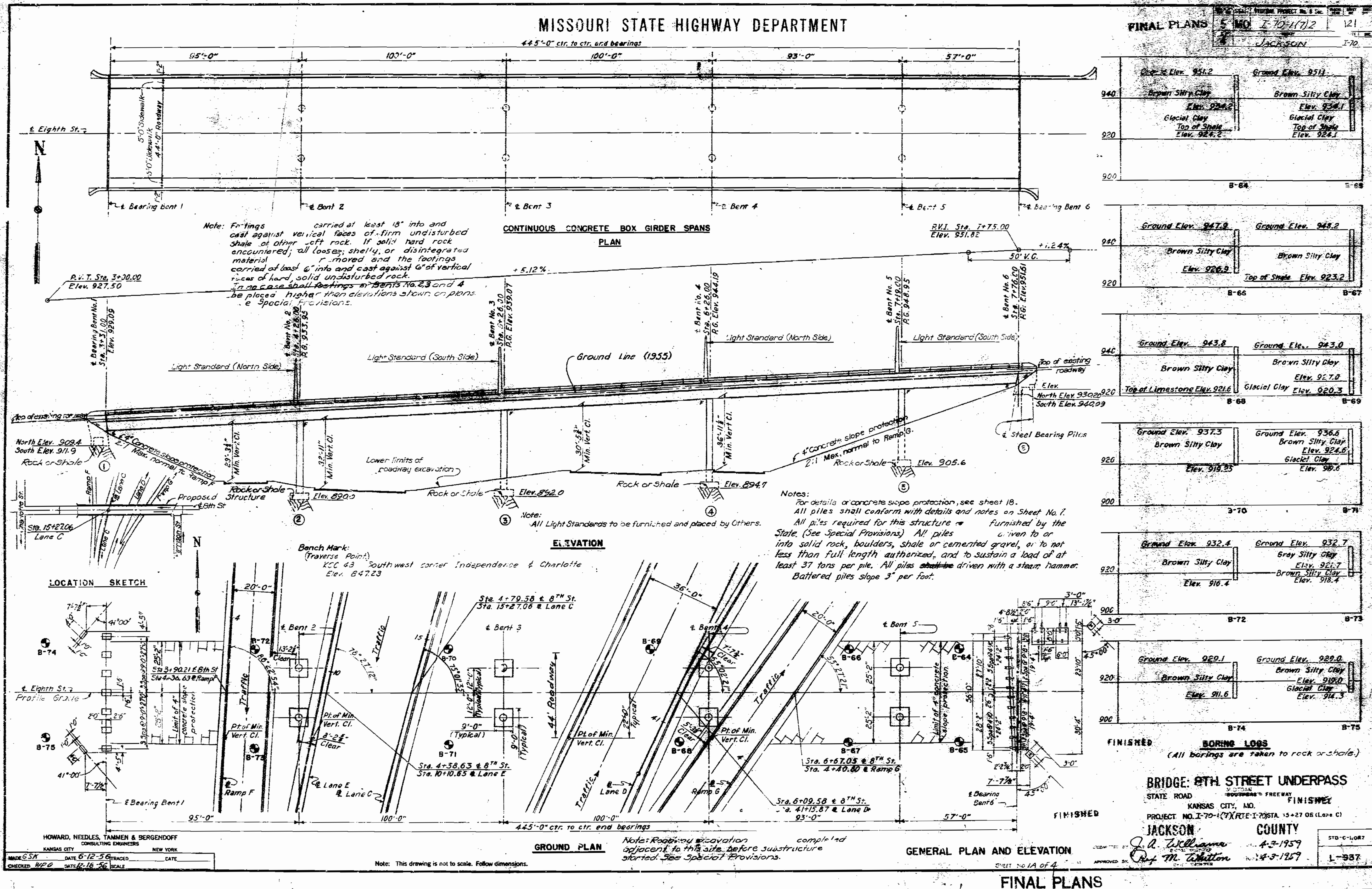
-937

NO CONSTRUCTION CHANGES

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

KANSAS CITY		NEW YORK	
MADE <u>WFO</u>	DATE <u>7-20-56</u>	TRACED	DATE
CHECKED <u>C.C.F.</u>	DATE <u>8-3-59</u>	SCALE	

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



MISSOURI STATE HIGHWAY DEPARTMENT

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-1") $F_c = 1400 \text{ p.s.i.}$ ($F_c = 4000 \text{ psi}$).
Concrete for superstructure is Class "B-1" air entrained.
Concrete for substructure is Class "B" air entrained.

Forms are not removed from the interior of box girders.
Stay-in-place forms for top deck permitted to remain in place.

Reinforcing Steel: Allowable stress 20,000 psi.
All splices in reinforcing steel are 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.

Fiber Conduit: Expansion sleeves shall be required in fiber conduit at all expansion joints. Expansion sleeves are an oversized fiber conduit with rubber ring as provided by the manufacturer.

Welding: Qualification of welding operators will be required.

Slope Protection: Not included in Bridge Quantities. See sheet 18 for details.
See Road Plans for Quantities.

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.

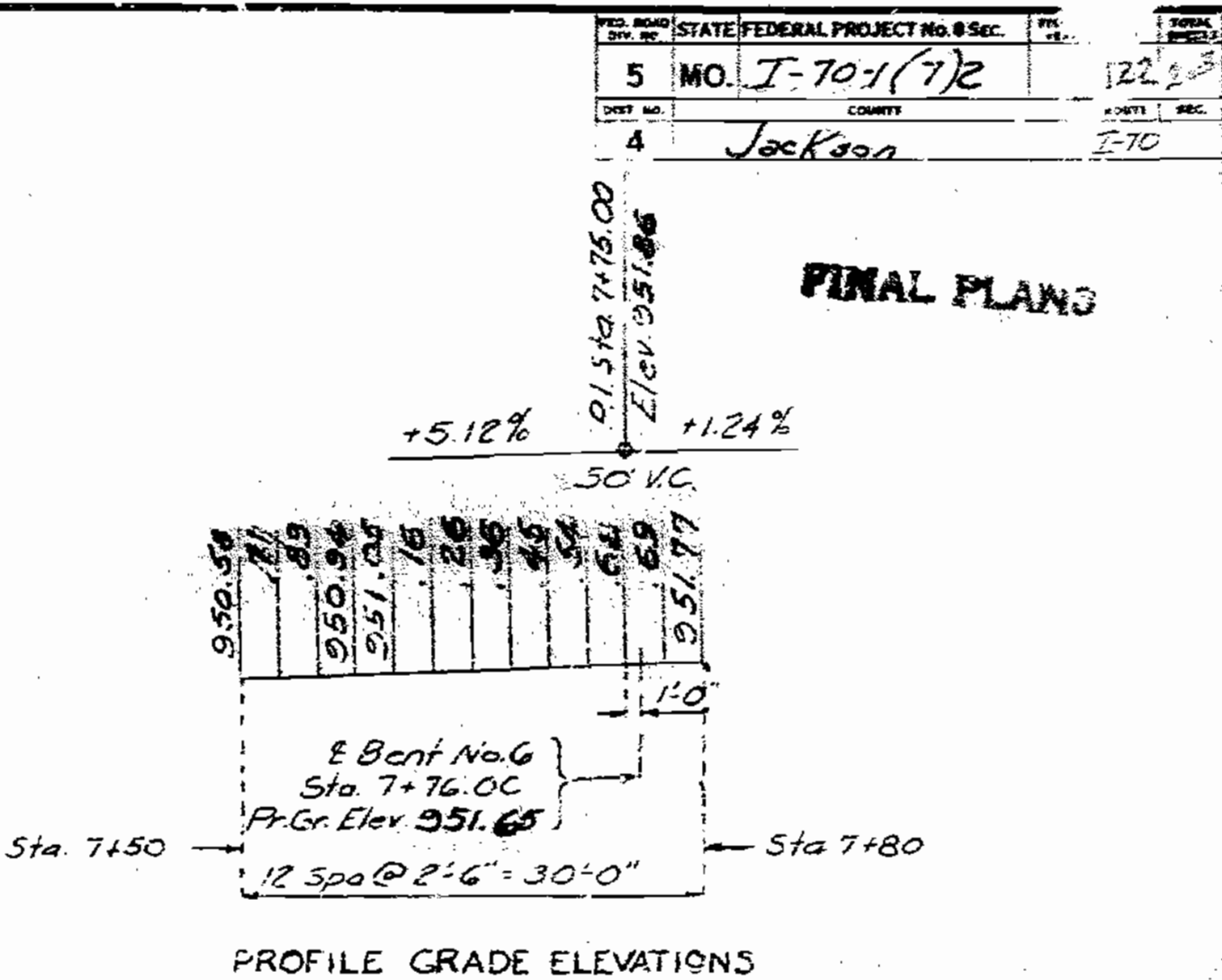
Deflection Joints: Deflection joints placed in the parapet or sidewalk and parapet where shown on the plans. The surface of the joint coated with parafin and the reinforcing steel stopped 2" clear of joint. No chamfer placed on the sidewalk.

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

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

Waterproofing of Decks: Waterproofing of decks was required; see special provisions.

Painting: For painting see Special Provisions.
Piles shall be painted in accordance with Section 22-3c of the Standard Specifications.



QUANTITIES					
ITEM NO.	ITEM	UNIT	SUB-STRUCTURE	SUPER-STRUCTURE	TOTAL
1-G	Class I Excavation for Structures	Cu Yds.	776.0		776.0
	Class I Exc. +25%	Cu Yds.	61.5		61.5
16-C	Class C Concrete	Cu Yds.			0
	Test Holes	Lin Ft.	68		68
16-B	Class B Concrete	Cu Yds.	355.2		355.2
16-B-1	Class B-1 Concrete	Cu Yds.		1794.5	1794.5
	Stay-in-Place forms for Class B-1 Conc. (Super)	Cu Yds.		1794.5	1794.5
17-B	Fabricated Structural Steel	Lbs.		7820	7820
	Remodel Exp. Devices	L.S.		1	1
40-W	Conduit System	Lump Sum		1	1
	Eliminate Access Doors	Each.		15	15
17-A	Aluminum Alloy Handrail	Lin Ft.		915	915
17-B	Fabricated Structural Steel (Bearings)	Lbs.		2930	2930
19-A	Reinforcing Steel	Lbs.	28,660	537,390	566,050
22-DC	Steel Piles in Place (State Furnished) (10BP42)	Lin Ft.	413		413

Note: All excavation for bridge paid for as Class I excavation for structures. Quantities of Class I Excavation includes only amounts of excavation below Roadway Excavation.
The quantity of steel piles in place includes an allowance of 8" O per splice for an estimated number of 0 splices for 10BP42.

FINISHED

BRIDGE: 8TH STREET UNDERPASS
STATE ROAD SOUTHEAST FREEWAY
KANSAS CITY, MO.
PROJECT NO. I-70-1(7) RTE-I-70 STA. 15+27.06 (Long C)
JACKSON COUNTY

NOTES AND

QUANTITIES

FINISHED

FINISHED

SHEET 2A of 4

L-957

FINAL PLANS

302

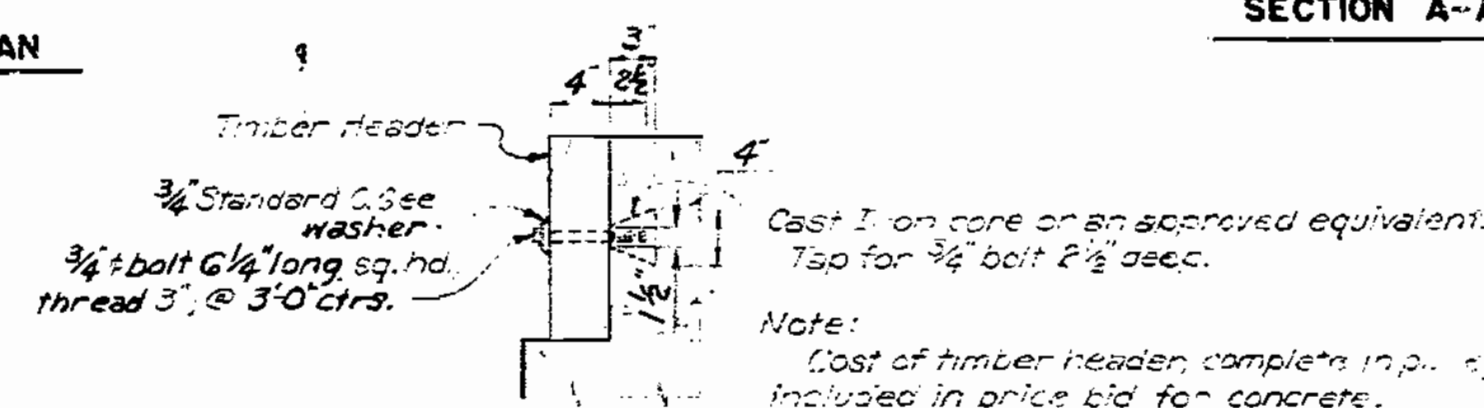
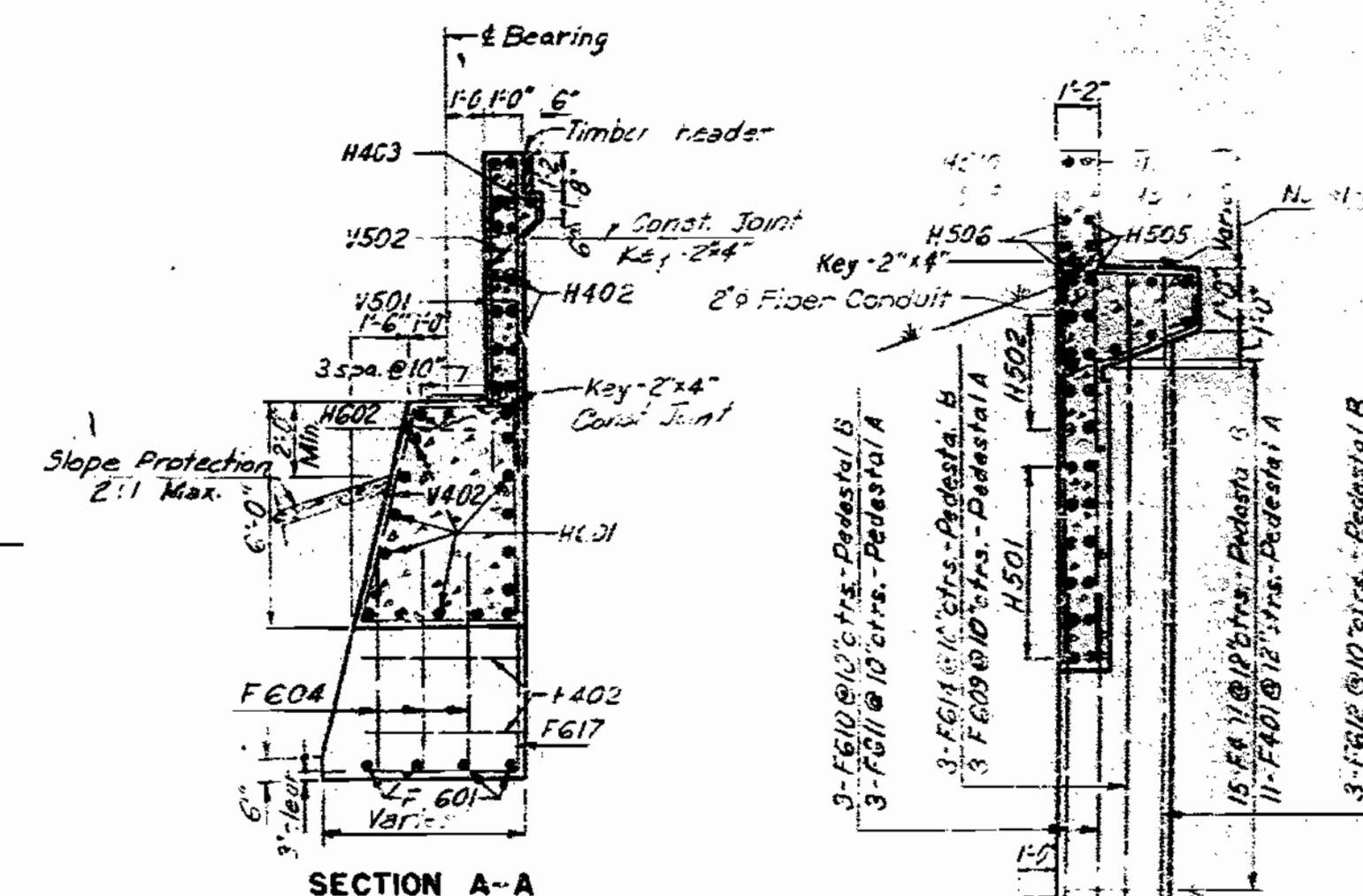
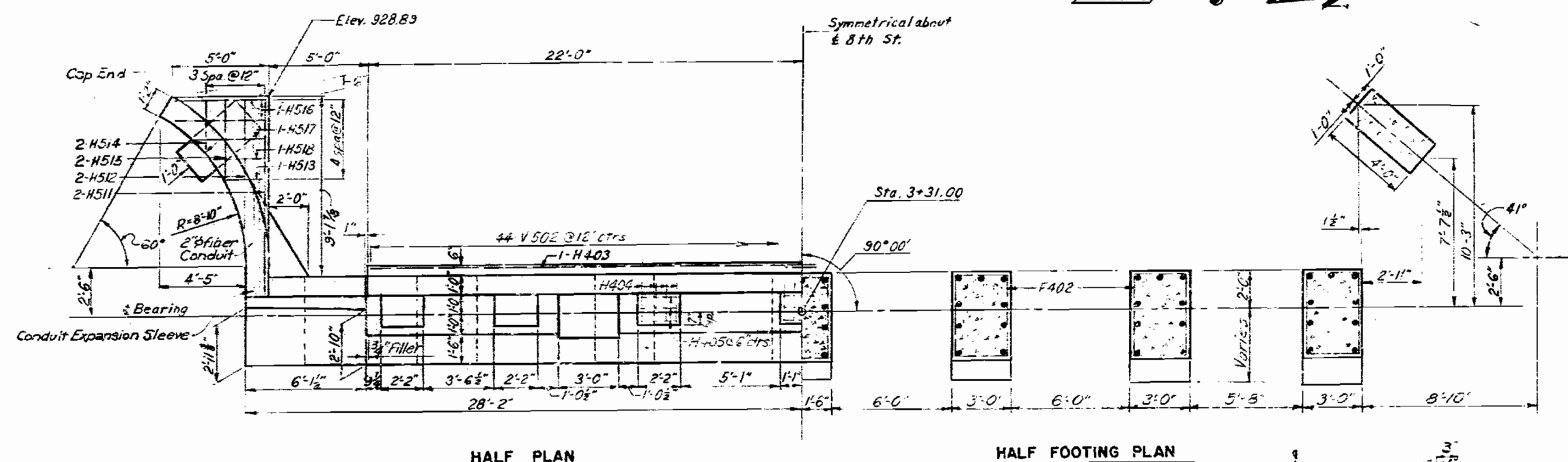
HOWARD, NEEDLE & TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE J.S.H. DATE 7-9-56 TRACED B.S.L. DATE 2-11-57
CHECKED K.A.W. DATE 2-4-57 SCALE

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

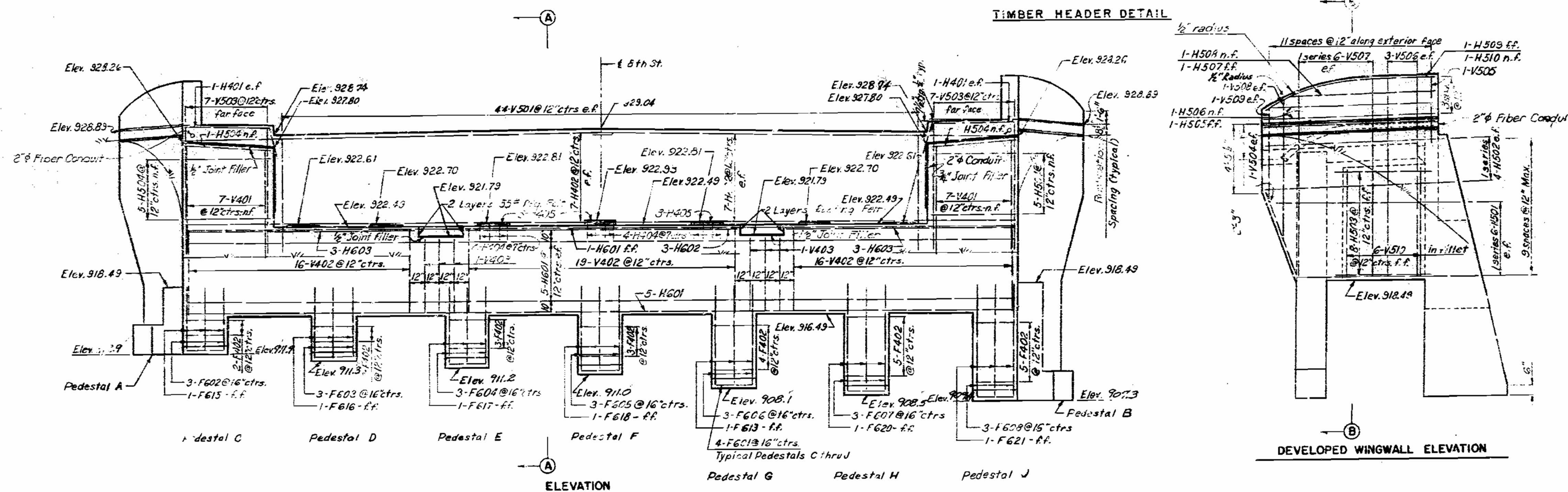
MISSOURI STATE HIGHWAY DEPARTMENT

TO: MISSOURI STATE HIGHWAY DEPARTMENT	PROJECT NO. 8 SEC.	DATE	12-13-56
5 MO. I-70-1(7)2	125		
4 Jackson	IF-70		

FINAL PLANS



RUSTICATION DETAIL



as necessary engineer to provide a minimum penetration of 6" rock. See Special Provisions

FINISHED

BRIDGE: 8TH STREET UNDERPASS
 STATE ROAD 15
 KANSAS CITY, MO.
 PROJECT NO. I-70-1(7)2 STA. 15+27.06 (LINE C)
JACKSON COUNTY
 FINISHED

END BENT 1

SHEET 64 OF 74

FINAL PLANS

HICVARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS
 KANSAS CITY, MO.

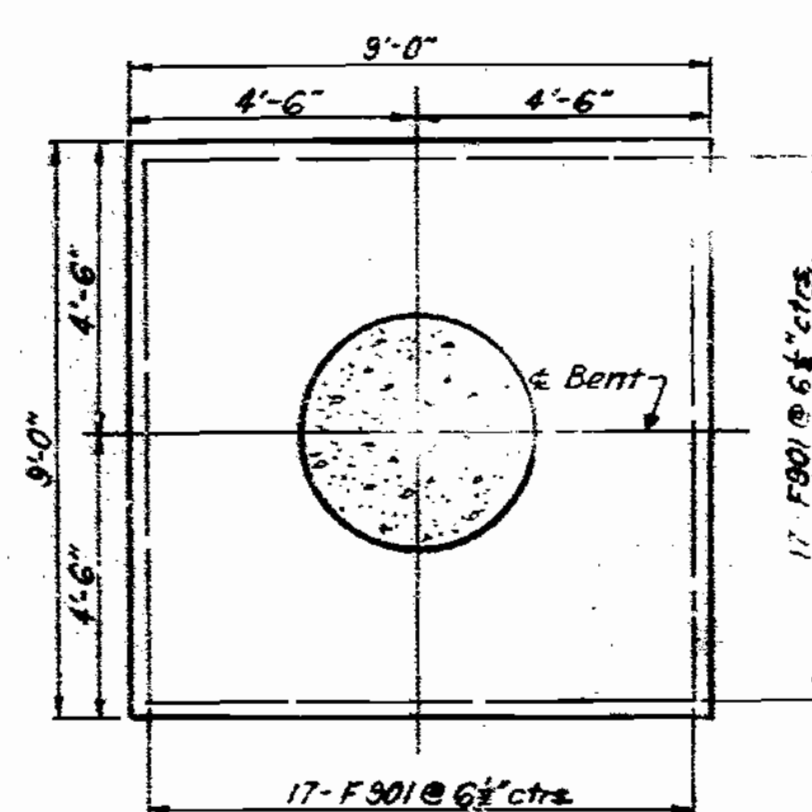
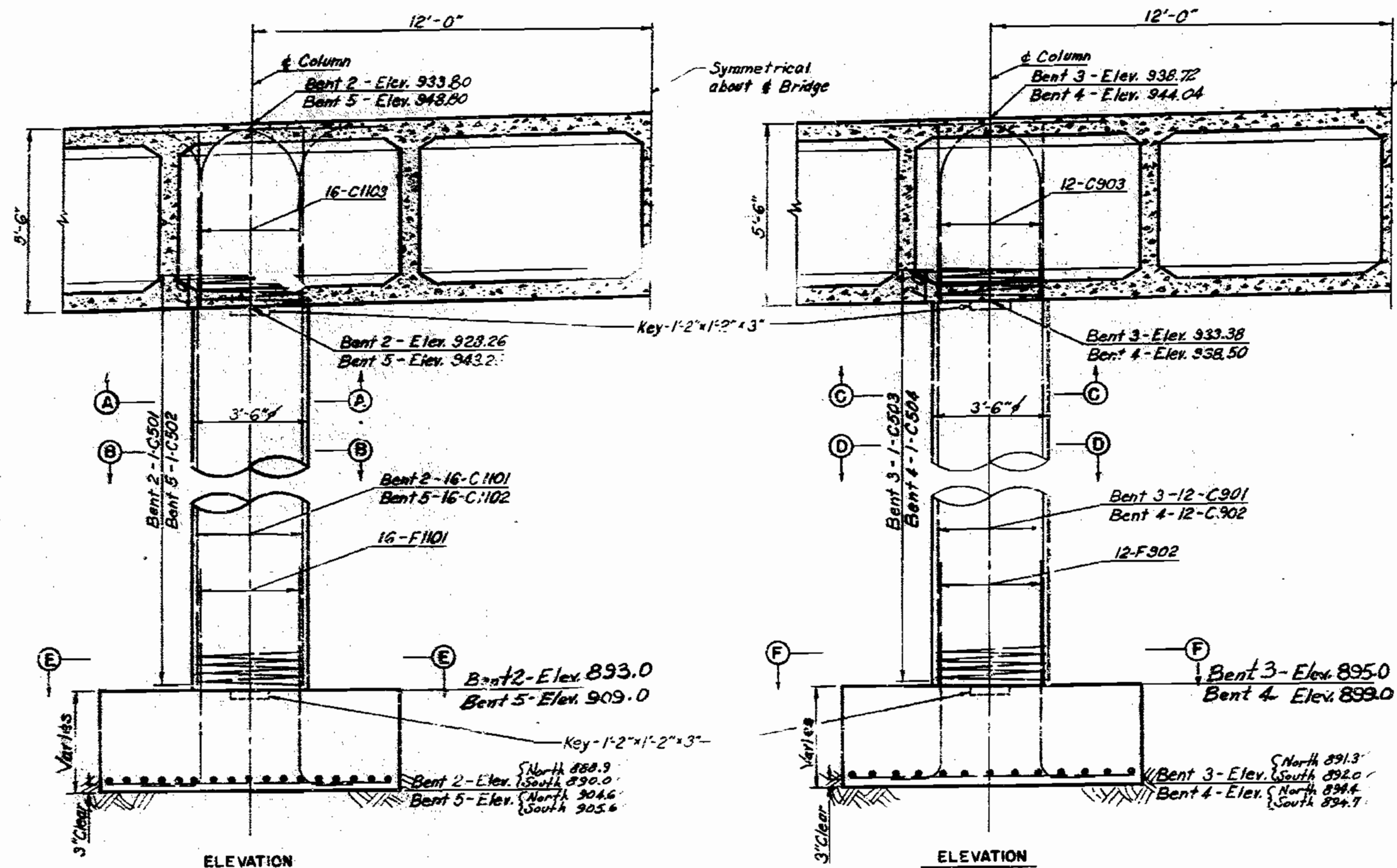
MADE J.J.N. DATE 11-13-56 TRACED DATE
 CHECKED B.E.P. DATE 12-13-56 SCALE

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

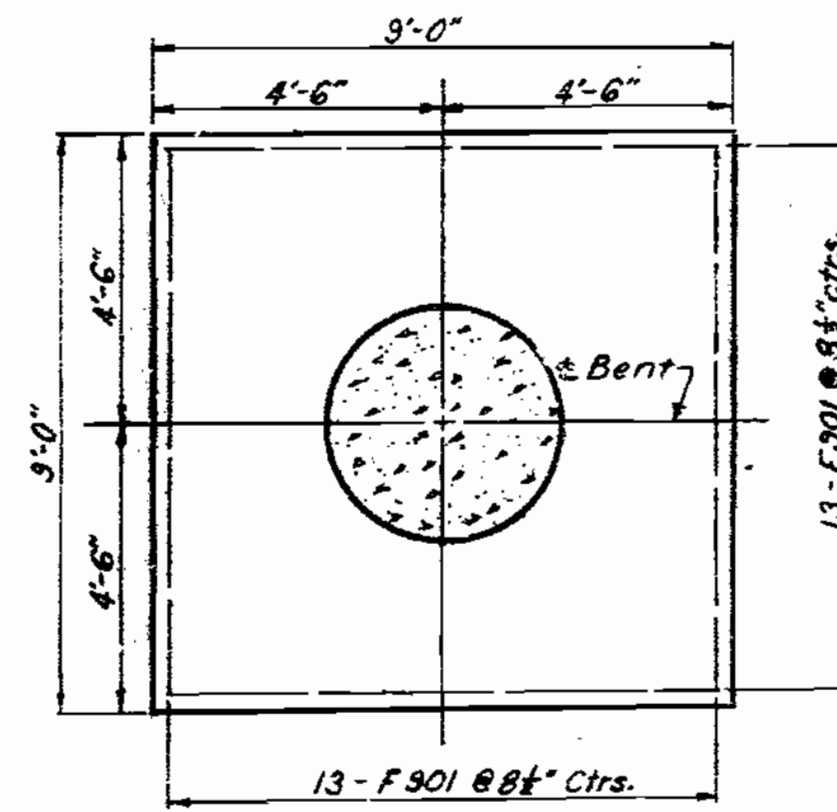
L-937

MISSOURI STATE HIGHWAY DEPARTMENT

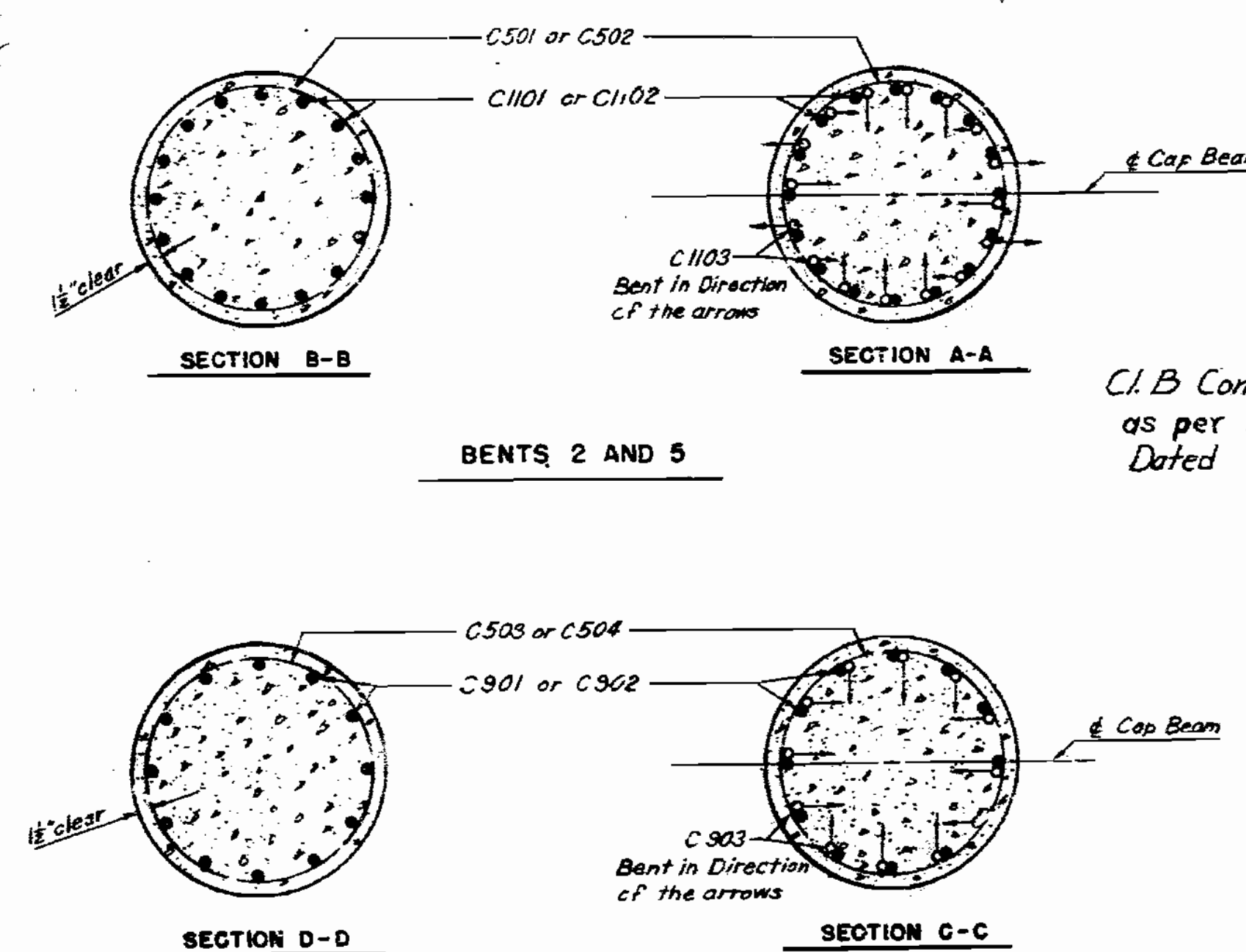
STATE	FEDERAL PROJECT NO.	STATE	FEDERAL PROJECT NO.
MO.	7-70-1(7)2	MO.	7-70-1(7)2
COUNTY	JACKSON	COUNTY	JACKSON
DATE	10-2-56	DATE	10-2-56



BENTS 2 AND 5

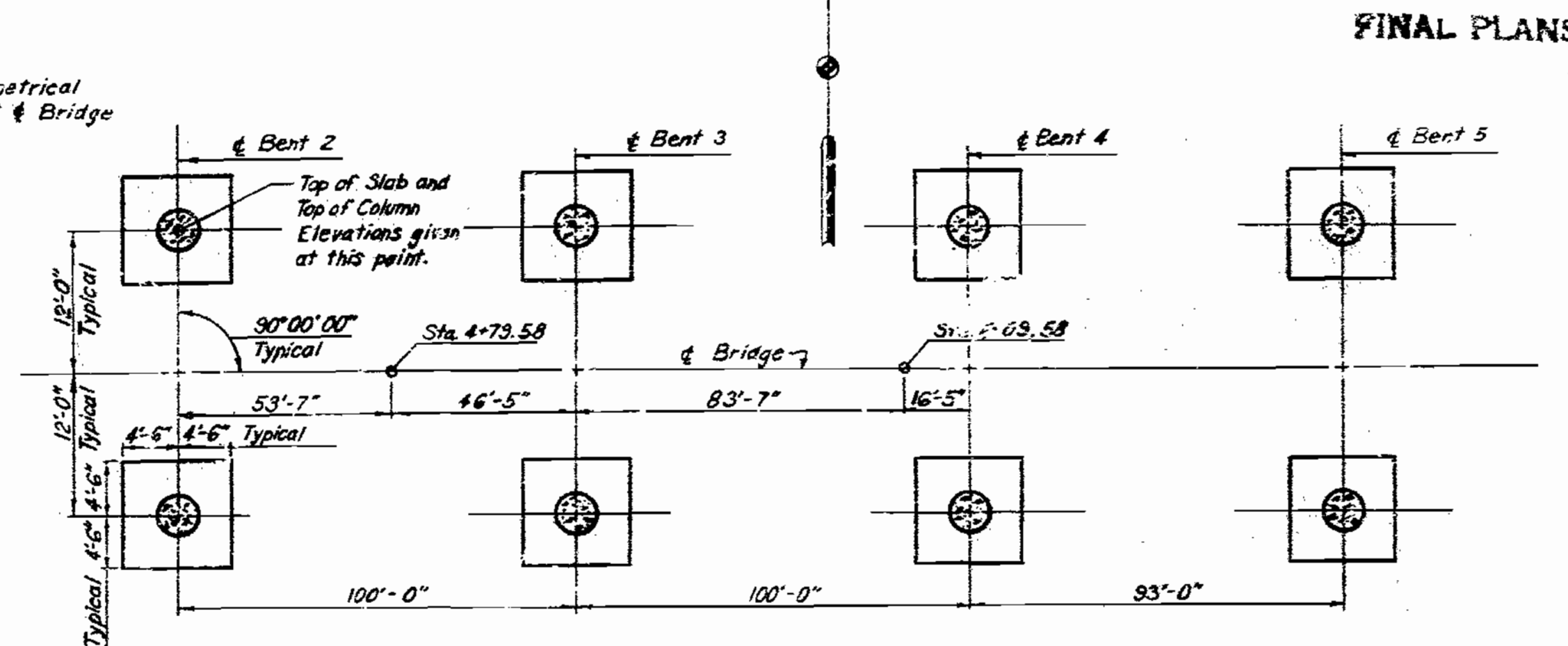


BENTS 3 AND 4



BENTS 2 AND 5

BENTS 3 AND 4



FOOTING PLAN

C.I.B. Concrete Used in Lieu of C.I.C. Conc.
 as per letter C.C. Tevis to M.J. Spinder
 Dated October 14, 1959.

FINISHED

BRIDGE: 8 TH STREET UNDERPASS

STATE ROAD: SOUTHWEST FREEWAY

KANSAS CITY, MO.

PROJECT NO. 70-1(7)2(1-70) STA. 15+27.06 (Lane C)

JACKSON

COUNTY

FINISHED

BENTS 2, 3, 4, AND 5

SHEET 64 OF 4

FINAL PLANS

L-937

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

MADE: JHN DATE: 10-2-56 TRACED: DATE:
 CHECKED: HAW DATE: 11-14-56 SCALE:

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