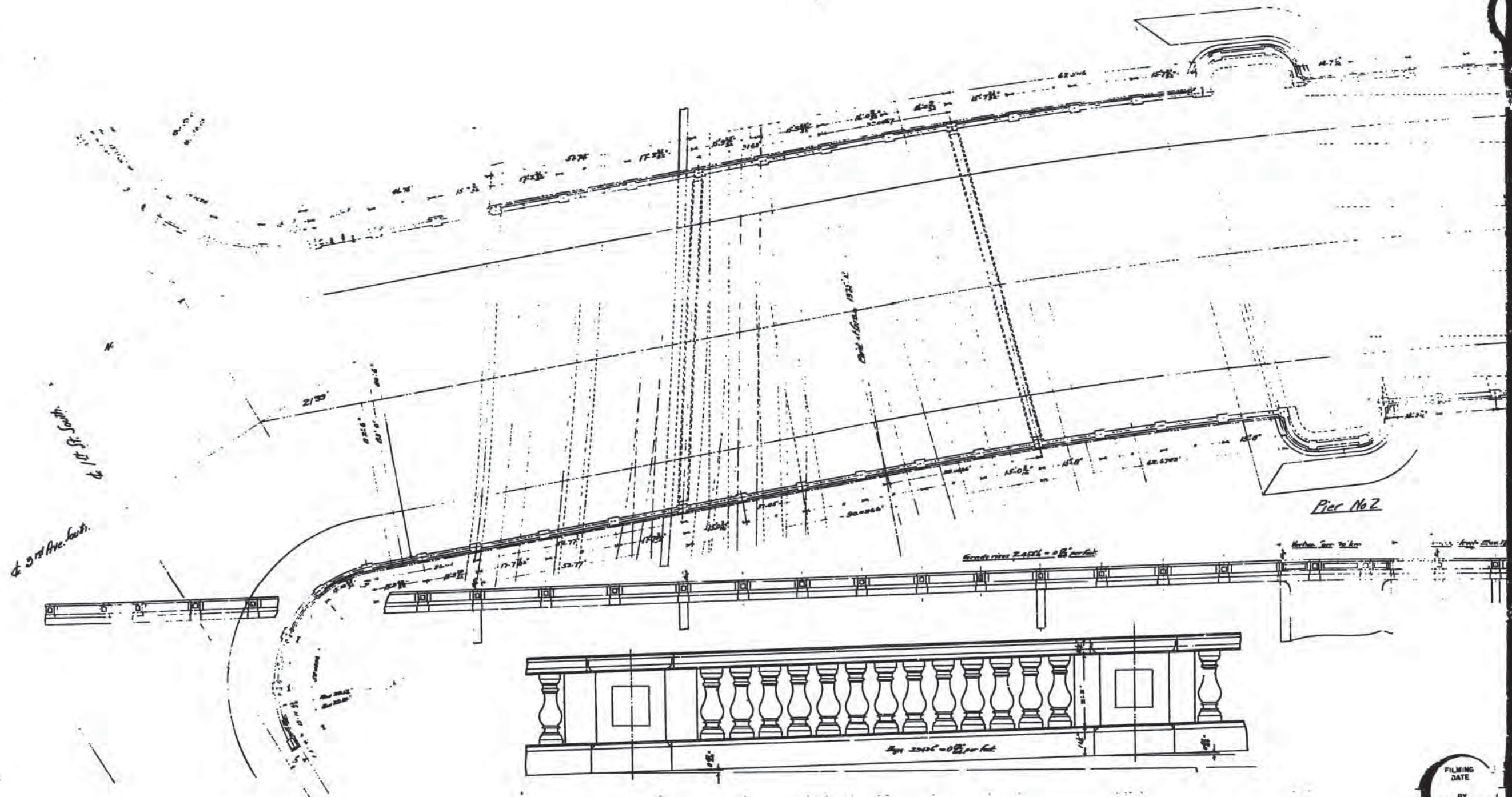


Mississippi River Bridge
 in the City of
 Minneapolis Minn
 3rd Ave So.
 City Engrs Office
 Scale "As Shown" Dec 10 1915
 Sheet No 12

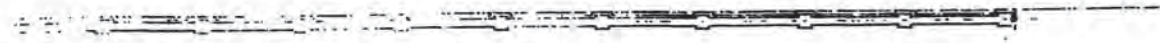
FILMING
 DATE
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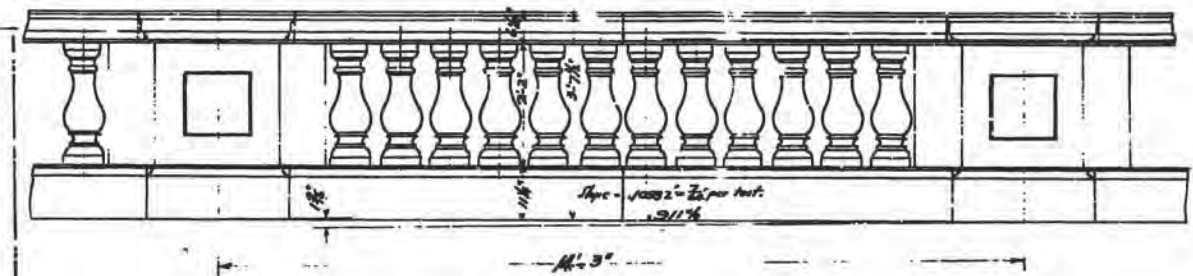
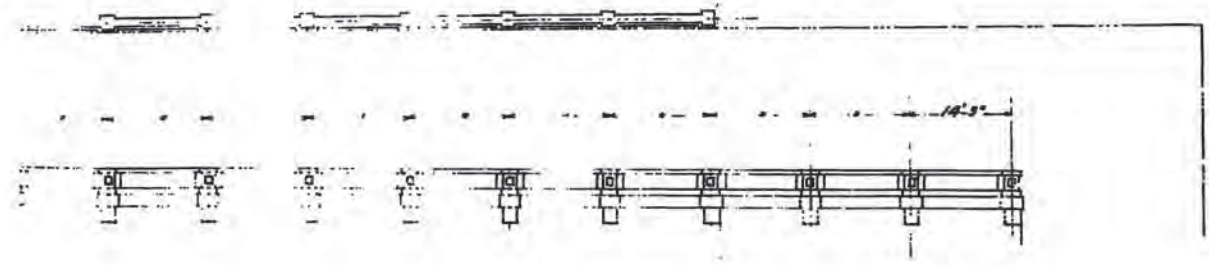


FILING
DATE
BY
BURKE MARSH





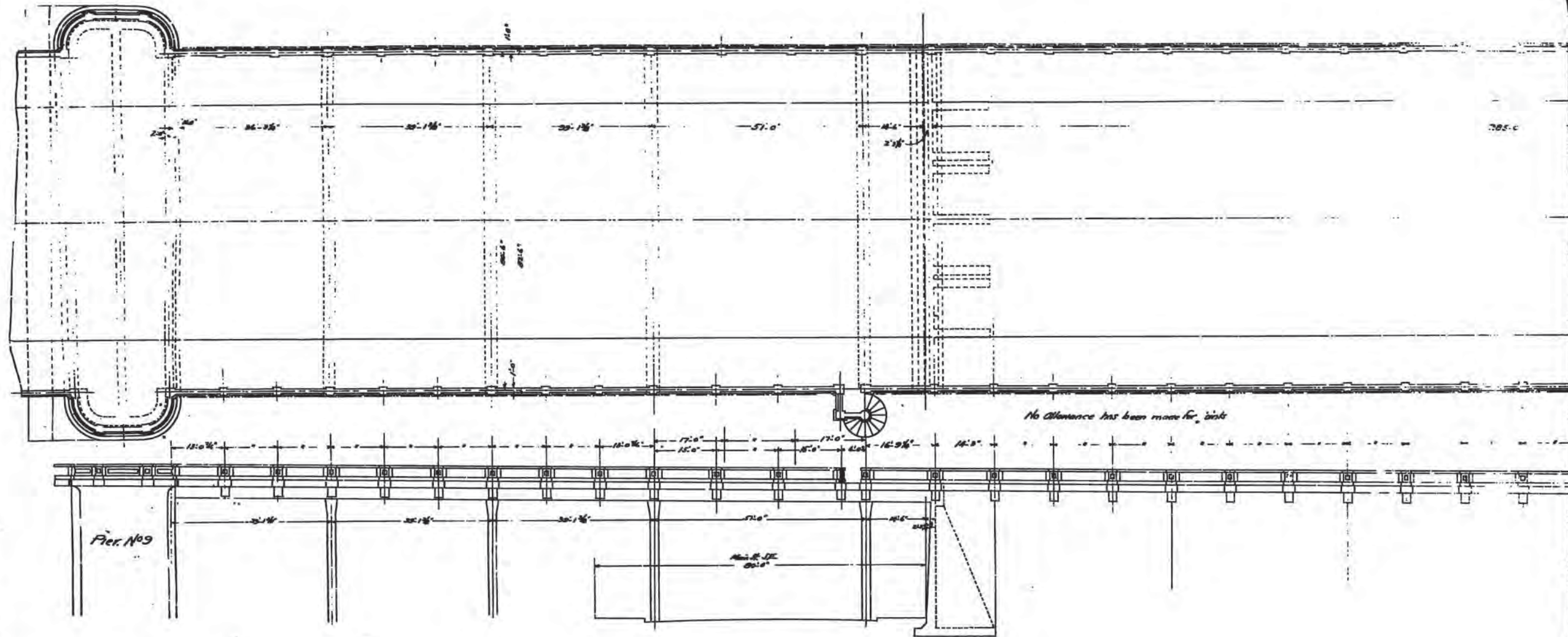
44-036



Mississippi River Bridge
In the City of
Minneapolis Minn.
3rd Ave. So.
City Engr's Office
Scale 3/16" = 1' July 10th 1916
Sheet No. A-6

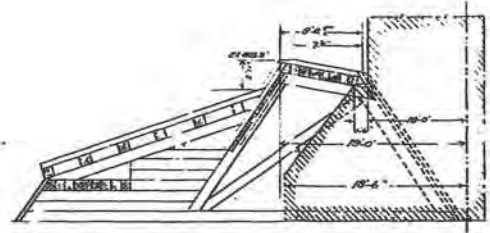
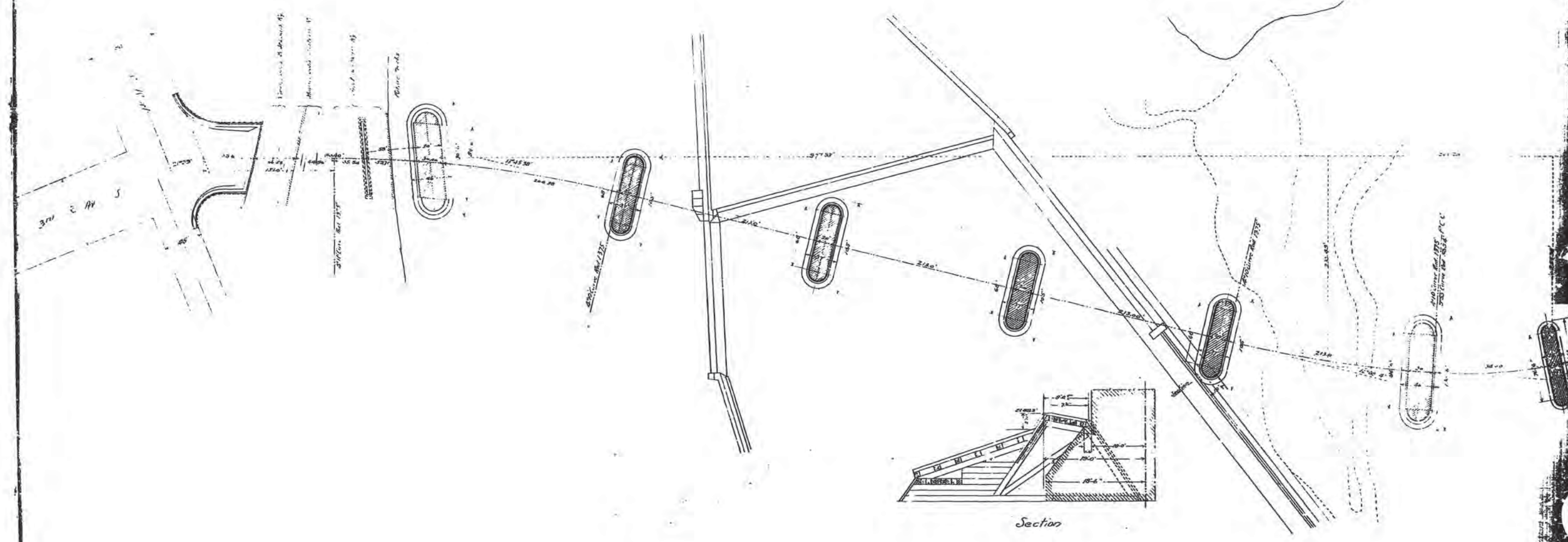
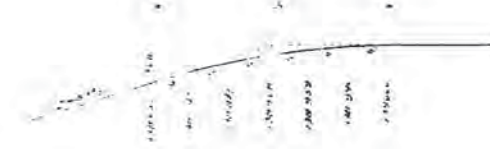
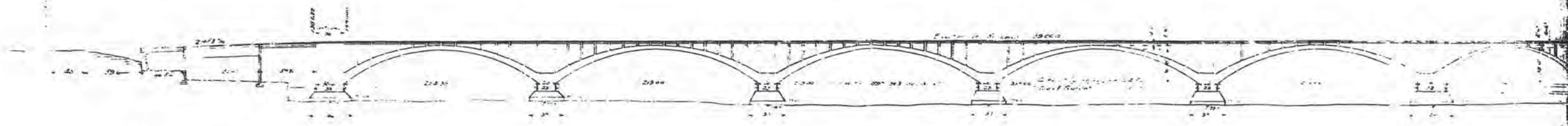
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BURKE MARSH

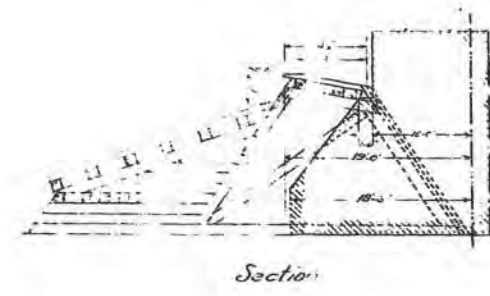
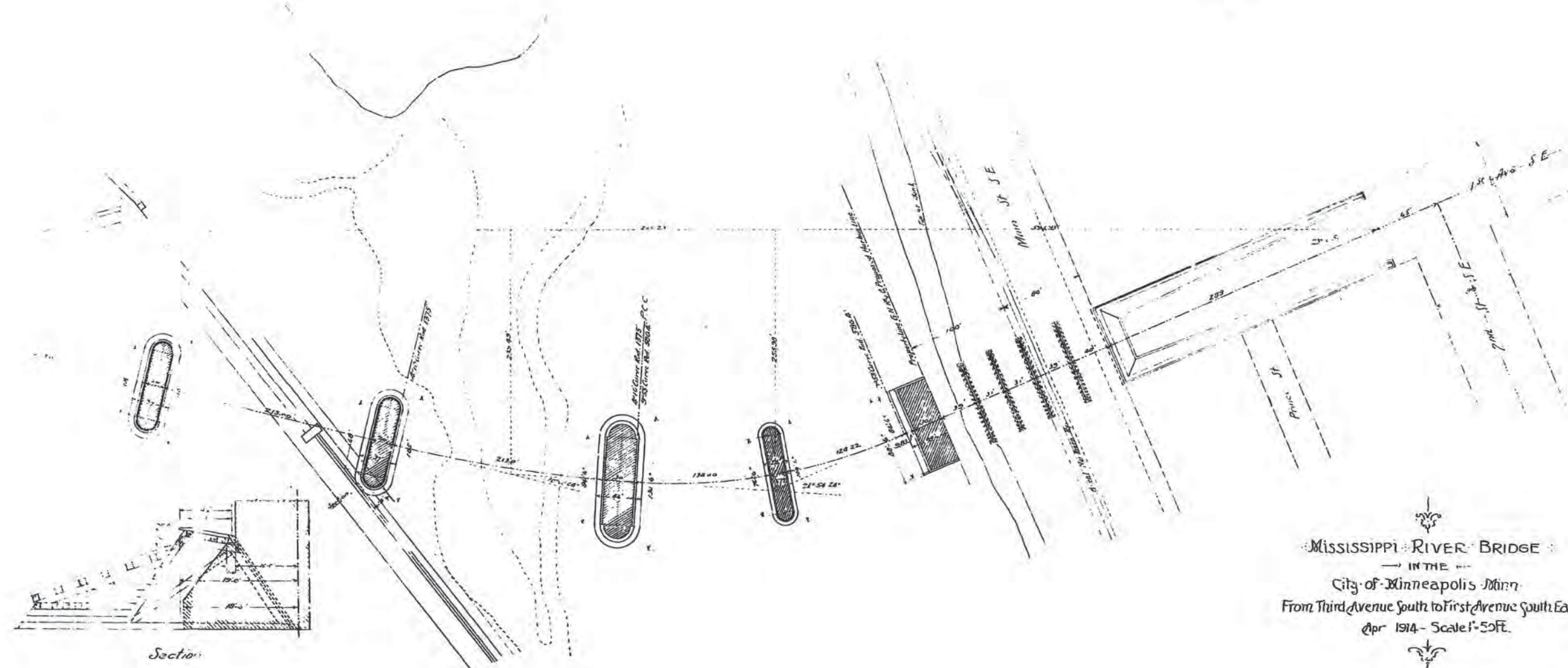
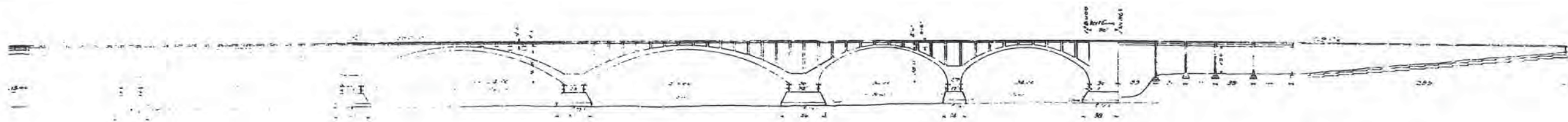




Section



FILMING DATE
BY
BURKE MARSKE



MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis Minn
 From Third Avenue South to First Avenue South East
 Apr 1914 - Scale 1" = 50 FT.

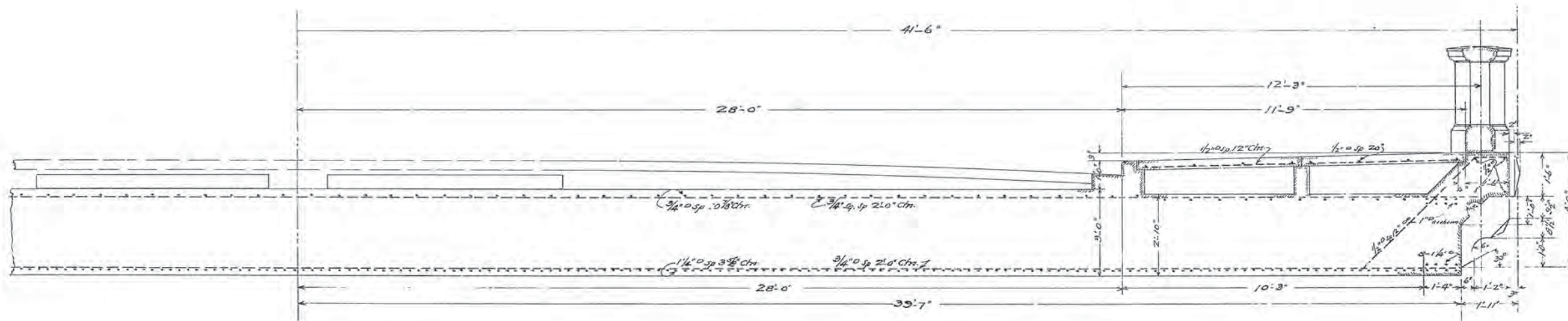
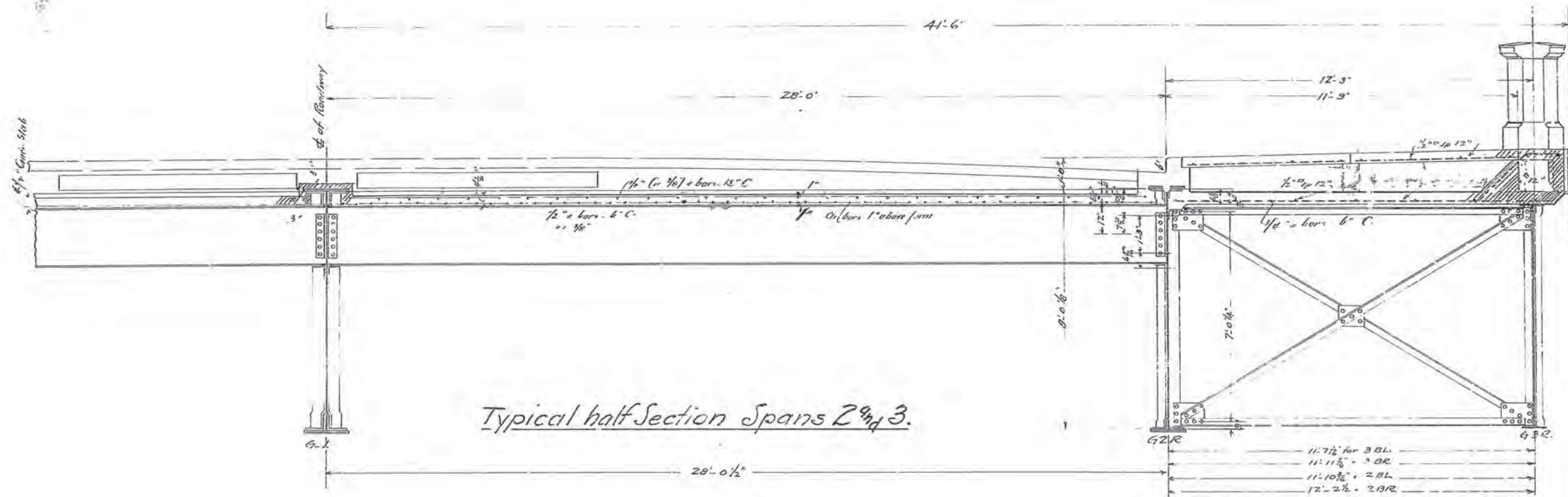
Office of the City Engineer
 Dept of Bridges.

20

DRWG. NO. 6A. ENV. NO.

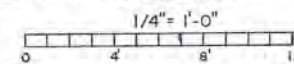


BY
 BURKE MARSH



Half Sections of Spans 1, 2nd & 3.
 West Approach to 3rd Ave. S. Bridge.
 Minneapolis Minn.
 Office of City Engineer
 Scale 1/4" = 1'-0" March 1916.

DRWG. NO. 33 ENV. NO. 2



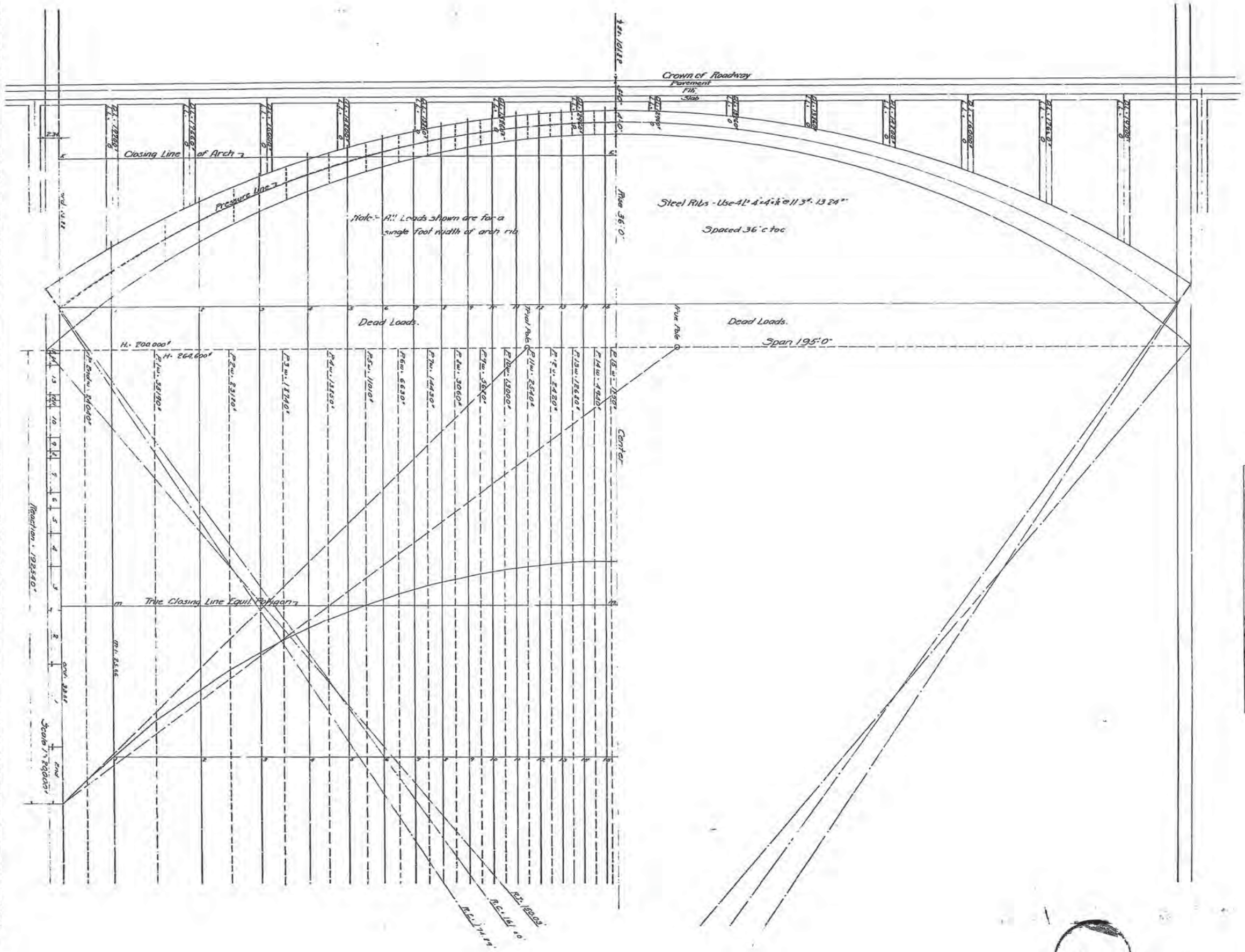


Table of Stresses
Arch calculated for Dead Load only.

Ribs	Section 1' Wide		Depth in Inches	Maximum Stresses per	
	Per Foot of Rib	Per Sq. Ft.		Concrete	Steel
End	27260	-3749	96.0	+220	5740
1	26130	-3749	86.4	+249	6140
2	24680	+662	73.2	+292	
3	23380	+2642	66.0	+360	7.10
4	22300	+2167	61.4		
5	22150	+2646	58.1	+394	9100
6	22720	+1764	55.7		
7	22570	+1103	53.4	+372	7200
8	22350	+221	52.1		
9	22320	0	50.6		
10	22230	-822	49.9	+407	8100
11	22120	-1543	49.2		
12	22110	-1103	48.6	+370	8340
13	22070	-1103	48.2		
14	22050	-1324	48.1	+321	8500
15	22050	-1984	47.0	+352	8760

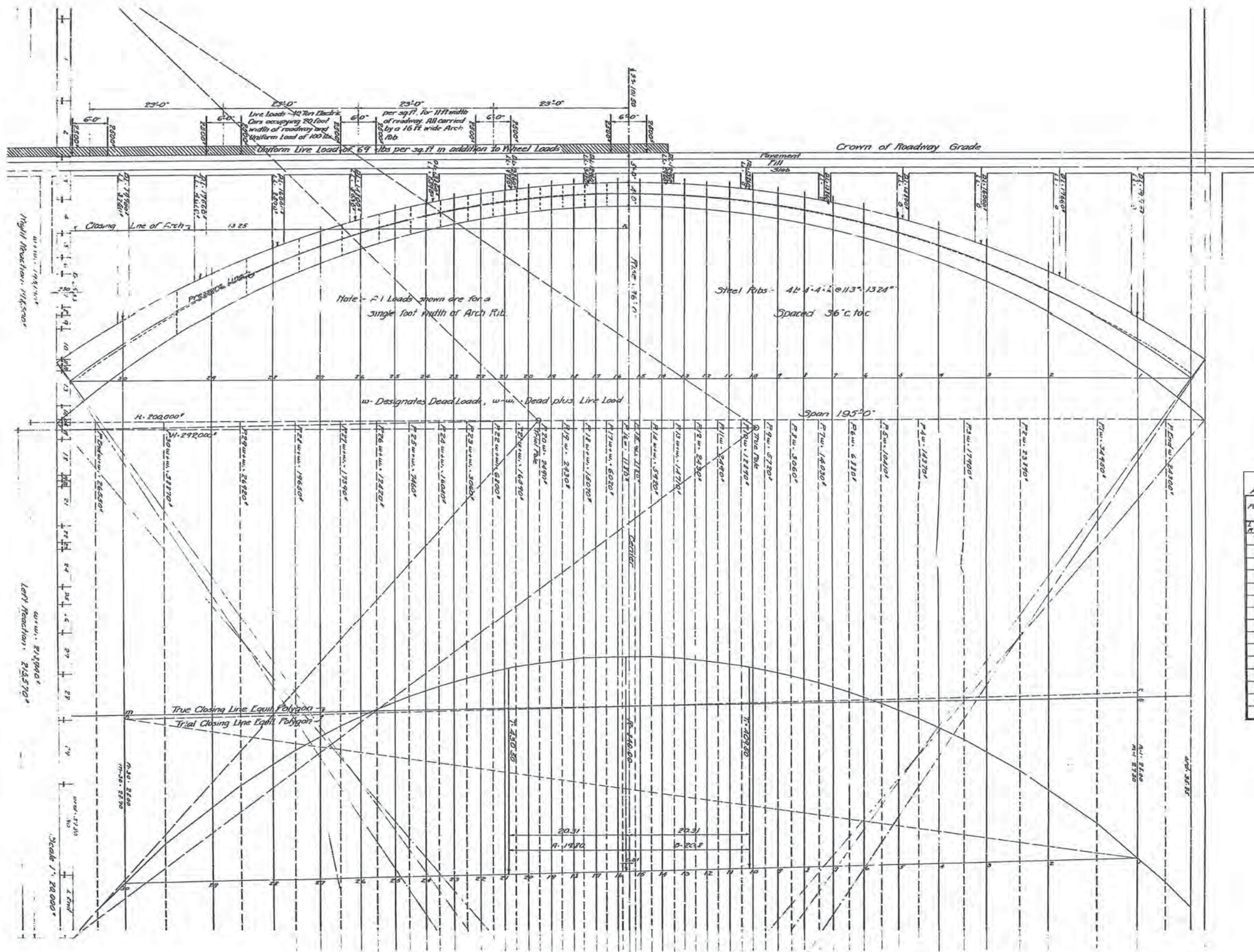


Table of Stresses
Arch calculated for live load over half span

Points	Section 1' Wide		Depth in Inches	Maximum Stresses per	
	Flex Thrust lbs	Wgt. lb		Concrete	Steel
1 End Rib Spd	29430	11730	96.0	+ 163	7980
2	29000	10460	86.4	+ 206	7720
3	27370	5110	73.2	+ 245	7800
4	26170	970	66.1		
5	25920	2920	61.4		
6	25396	4620	51.1	+ 312	9120
7	25120	5350	35.2		
8	24970	5350	53.4	+ 309	10020
9	24720	5350	52.0		
10	24610	5600	50.6	+ 345	10530
11	24450	4870	49.6		
12	24420	4380	49.0	+ 339	10360
13	24460	3410	48.5		
14	24440	2430	48.2		
15	24340	2170	48.1	+ 339	9660
16	24330	730	48.0		

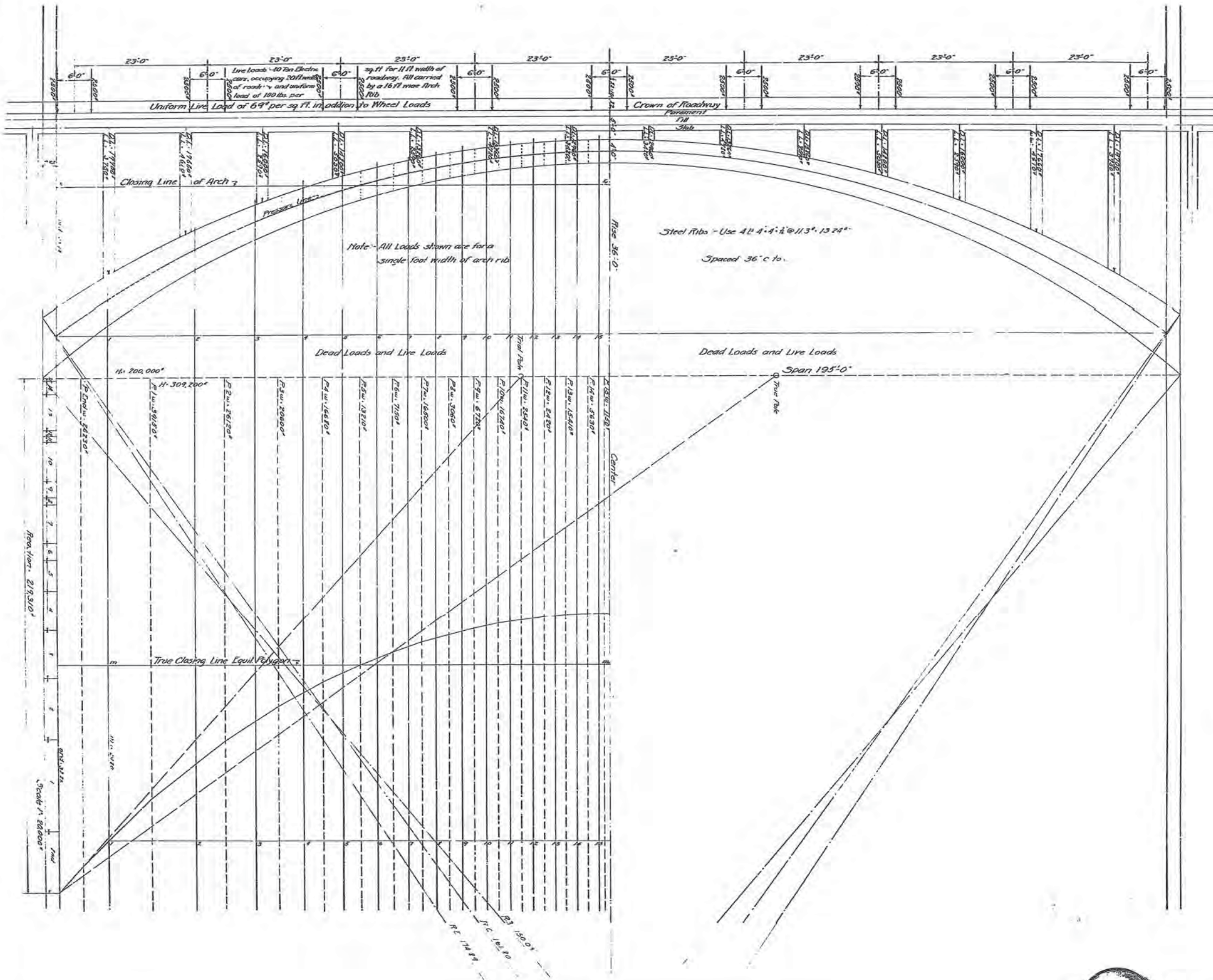
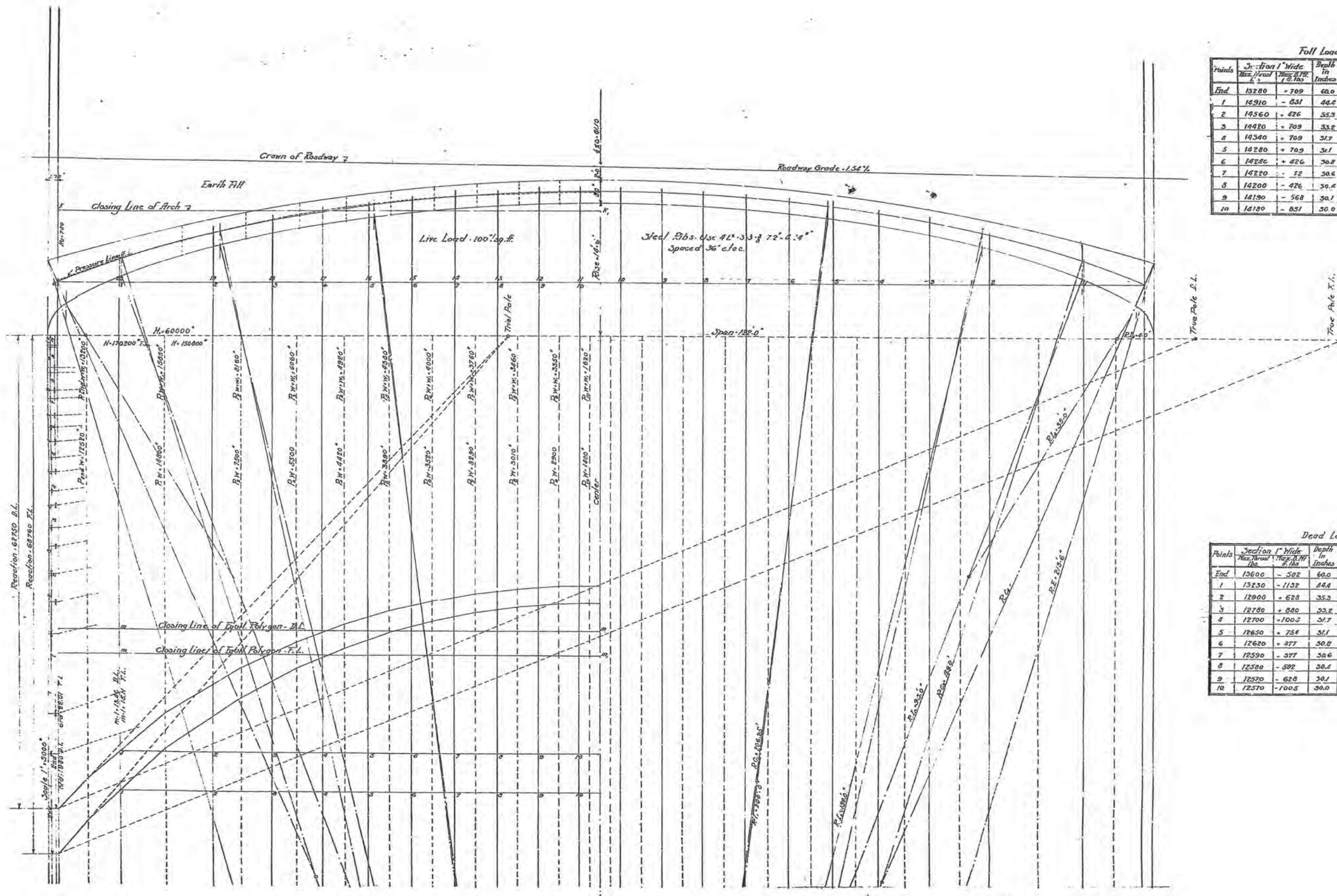


Table of Stresses
Arch c ventilated for live load over entire span.

Points	Section 1' Wide Max Thrust lbs	Max. Thrust lb	Depth in Inches	Maximum Stresses per Concrete	Steel
End	31,520	+ 3865	96.0	+ 227	6600
1	30360	- 1228	86.4	+ 334	6600
2	28780	- 773	73.2	+ 307	8020
3	27250	+ 1031	61.4	+ 330	8720
4	26830	+ 1203	58.1	+ 416	9100
5	26540	+ 515	55.7	+ 428	9520
6	26480	+ 1031	53.4	+ 435	9720
7	26150	- 515	52.1	+ 441	9720
8	26100	- 258	50.6	+ 441	9720
9	26000	0	49.9	+ 441	9720
10	25860	- 773	49.2	+ 441	9720
11	25830	- 773	48.6	+ 441	9720
12	25830	- 258	48.2	+ 441	9720
13	25770	- 1031	48.1	+ 441	9720
14	25770	- 27	48.0	+ 441	9420
15	25770	- 27	48.0	+ 441	9420



Foal Load

Points	Section 1" Wide	Depth in Inches	Maxim. Stresses	
End	Max. Thrust lbs.	Max. B.M. ft. lbs.	Concrete Steel	
1	15280 - 631	44.4	- 228 - 248	4340
2	14560 + 426	55.3	- 345 - 317	5720
3	14420 + 709	53.2	- 355 - 333	5320
4	14340 + 709	51.7	- 376 - 426	8420
5	14280 + 709	51.1	- 376 - 426	8420
6	14220 + 426	50.8	- 376 - 426	8420
7	14220 - 22	50.6	- 376 - 426	8420
8	14200 - 426	50.4	- 376 - 426	8420
9	14190 - 568	50.1	- 376 - 426	8420
10	14180 - 851	50.0	- 376 - 426	8420

Dead Load

Points	Section 1" Wide	Depth in Inches	Maxim. Stresses	
End	Max. Thrust lbs.	Max. B.M. ft. lbs.	Concrete Steel	
1	13250 - 1152	44.4	- 228 - 248	4340
2	12900 + 628	55.3	- 345 - 317	5720
3	12780 + 880	53.2	- 355 - 333	5320
4	12700 + 1005	51.7	- 376 - 426	8420
5	12650 + 754	51.1	- 376 - 426	8420
6	12620 + 377	50.8	- 376 - 426	8420
7	12590 - 377	50.6	- 376 - 426	8420
8	12580 - 502	50.4	- 376 - 426	8420
9	12570 - 628	50.1	- 376 - 426	8420
10	12570 - 1005	50.0	- 376 - 426	8420

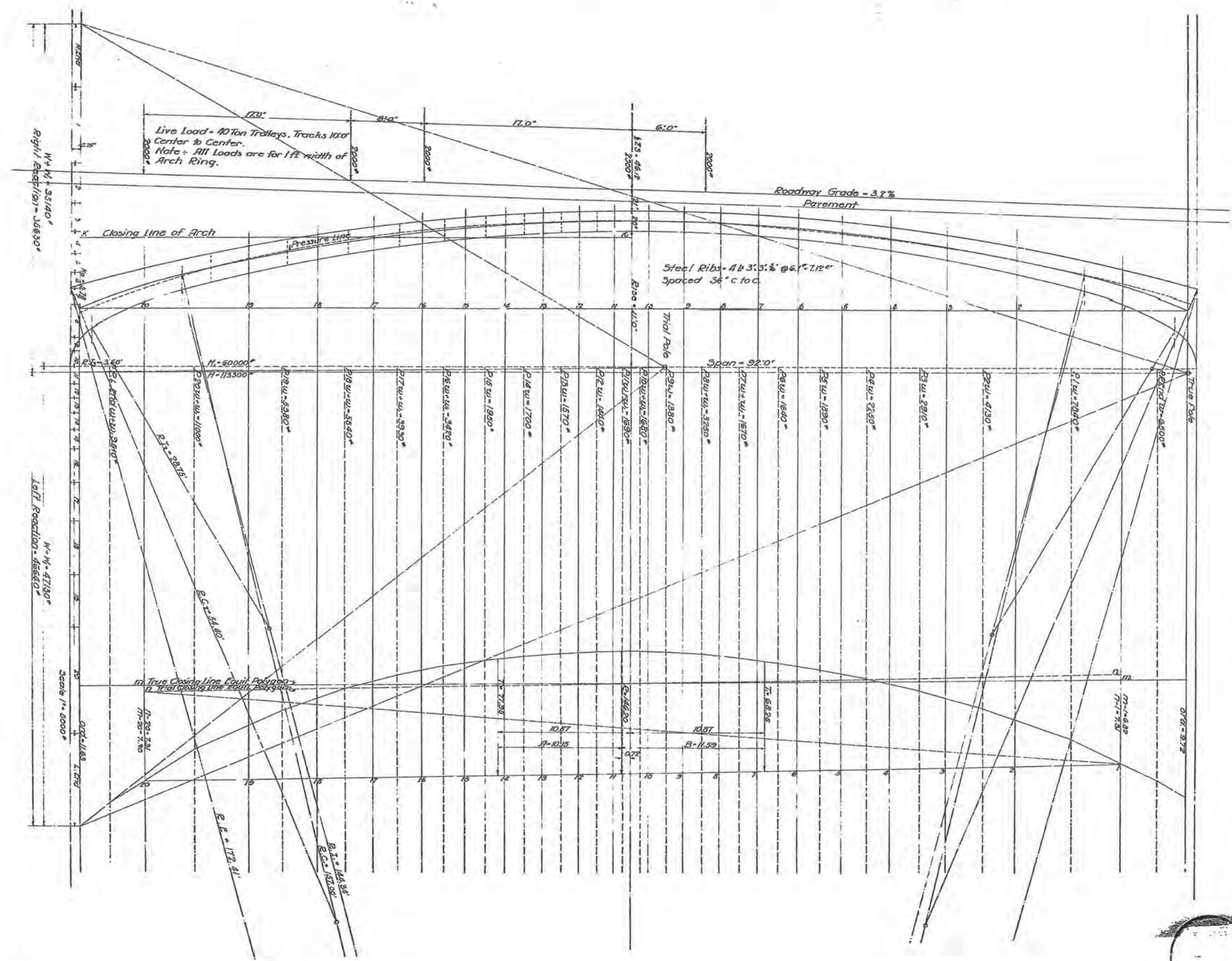


Table of Stresses.
Stresses in Arch for Half Span, Loading as Shown

Loc.	Section	Width	Depth	Maximum Stresses per ft.	
			Inches	Concrete	Steel
1. End					
2. 20'	9200	+5928	4.6	+374	7150
7	9460	-2927	3.6	+1429	8340
18	9610	+378	2.62		
17	9610	+1322	2.42		
4	9530	+1603	22.0	+734	9640
5	9490	+1417	22.0		
15	9480	-1133	21.2	-257	9660
7	9470	-944	20.3		
10	9460	-567	20.4	+312	8340
9	9450	-472	20.2		
10	9440	-189	20.0	+362	8240

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis, Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 4 Ft.



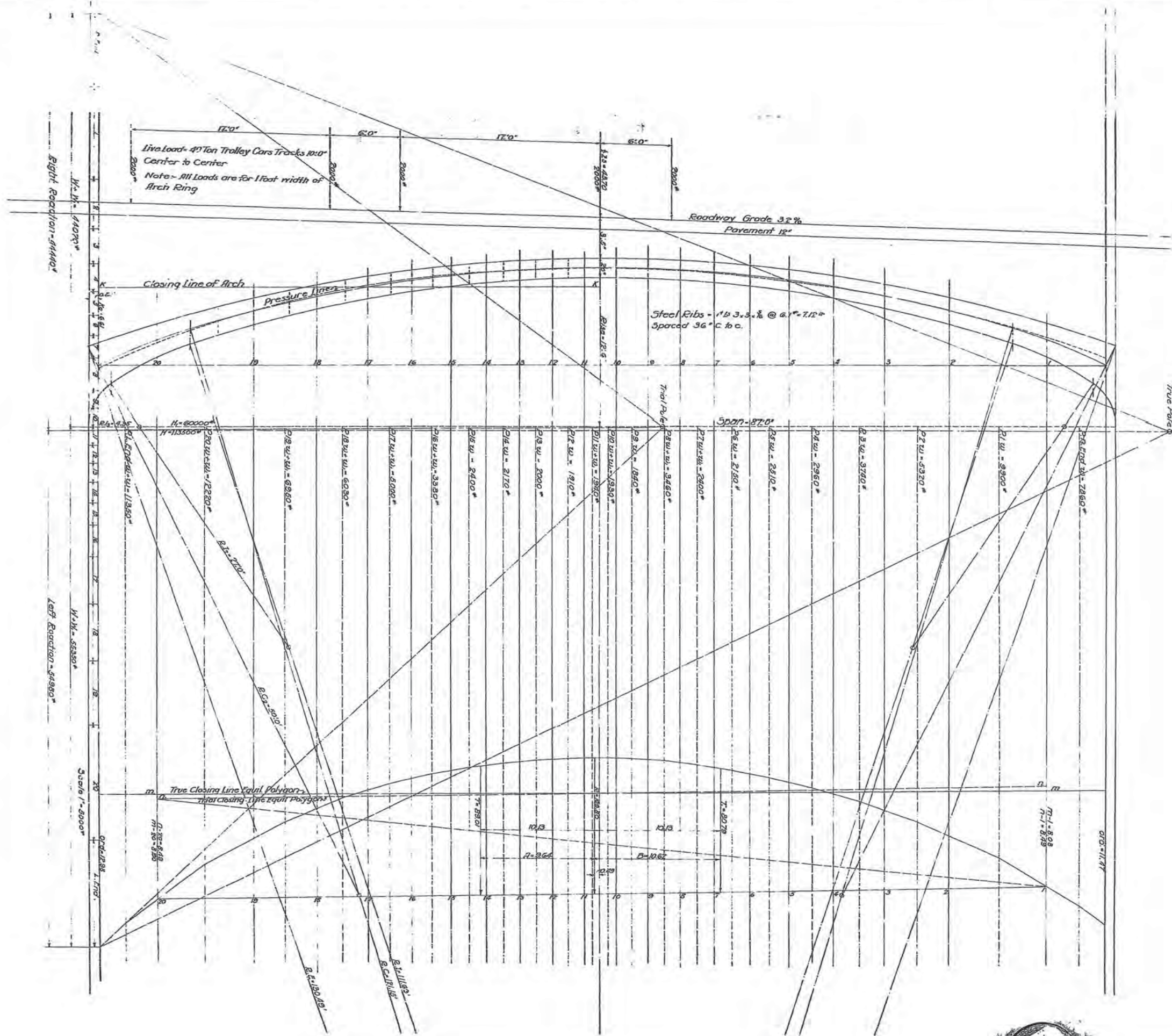
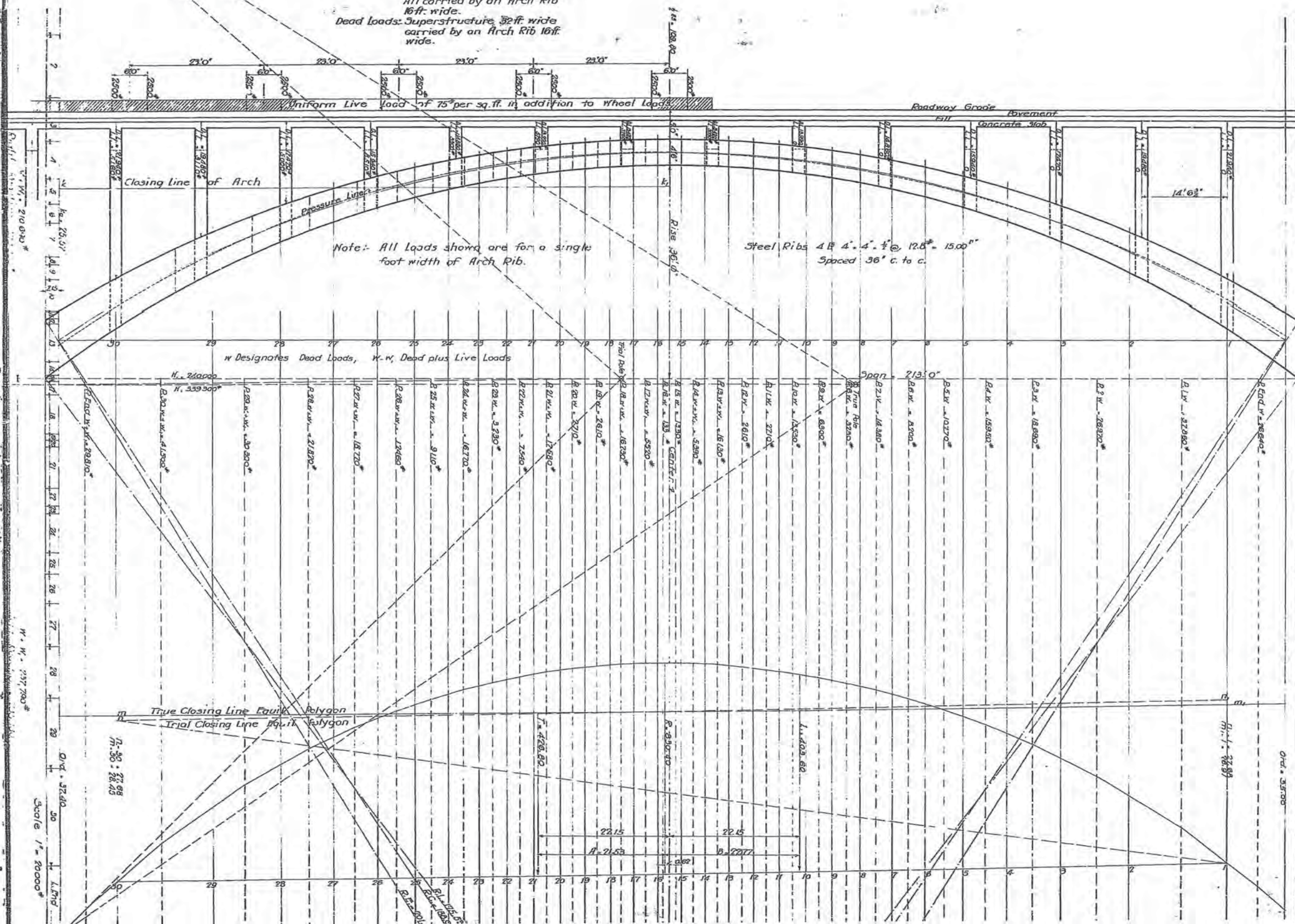


Table of Stresses.
 Stresses in Arch for Half-Span Loading as Shown.

Points	Section 1' Wide		Depth in Inches	Maximum Stresses per sq. in.	
	Max. Thrust lbs.	Max. Mts. lbs.		Concrete	Steel
1 End	10150	+5202	45.0	+361	6820
2	10130	-2553	32.0	+138	7980
3	9810	+284	26.6		
4	9680	+1418	24.2		
5	9580	+1206	22.8	+185	9720
6	9520	+1324	22.1		
7	9510	-946	21.1	+261	9300
8	9490	-662	20.6	+301	
9	9480	-662	20.3	+431	9080
10	9470	-473	20.1		
11	9460	-284	20.0	+333	8480

MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis Minn.
 From Third Avenue South to First Avenue South East
 Jan. 1914 - Scale 1" = 4 Ft.

Live Loads: 40 Ton Trolley Cars occupying
20 ft. width of Roadway and
Uniform Live load of 100 lbs.
per sq. ft. occupying 12 ft. width
of Roadway.
All carried by an Arch Rib
16 ft. wide.
Dead loads: Superstructure 32 ft. wide
carried by an Arch Rib 16 ft.
wide.



Note: All loads shown are for a single
foot width of Arch Rib.

Steel Ribs 4R 4" x 4" x 1/2" @ 12.5" = 15.00"
Spaced 36" c. to c.

w Designates Dead Loads, w + w' Dead plus Live Loads

Span 213.0'

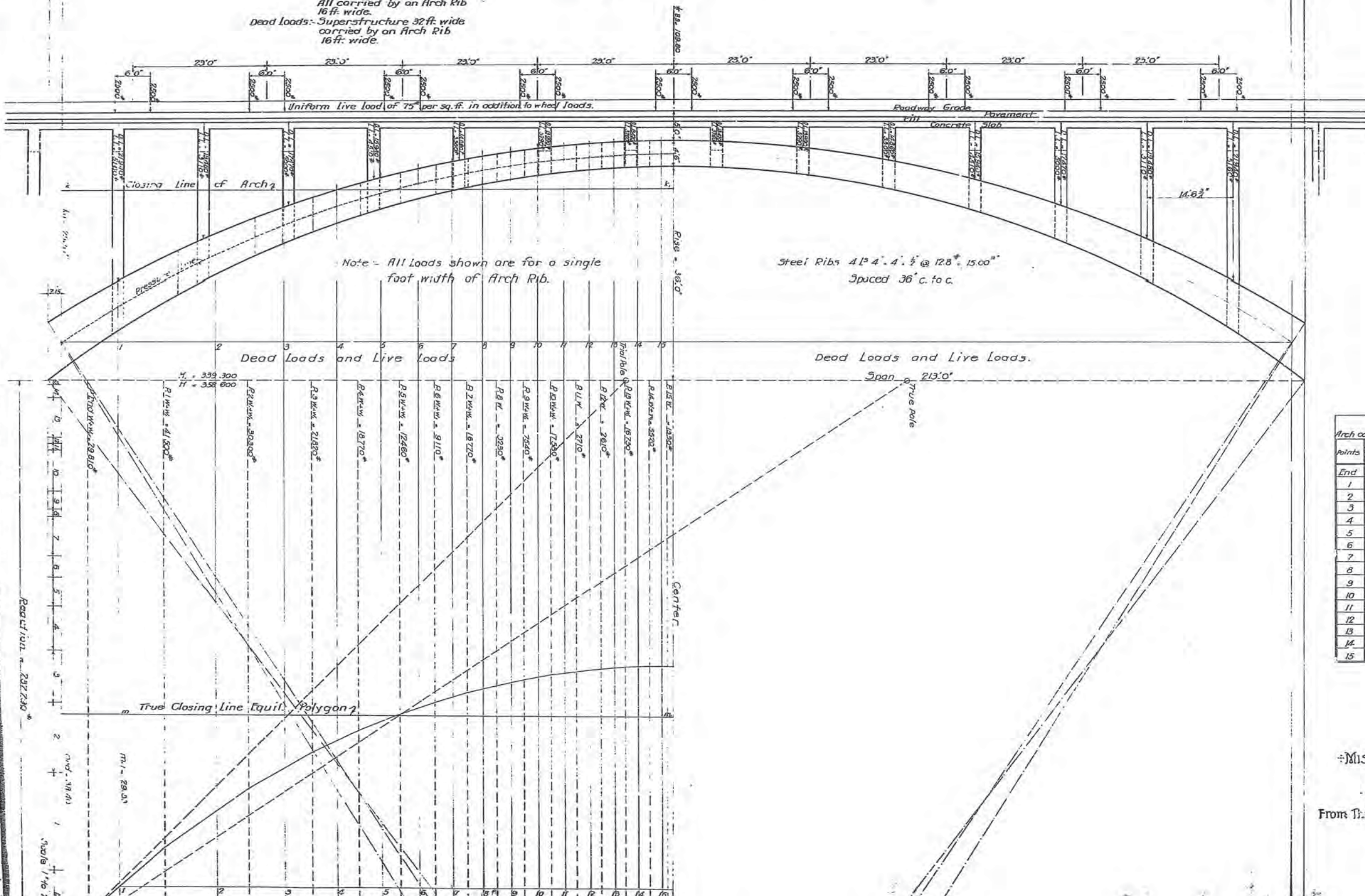
Table of Stresses
Arch calculated for live load over half span

Points	Section 1' wide Per Thrust Vec. & 1th lbs.	Depth in Inches	Maximum Stress - s per sq.	
			Concrete	Steel
1 (End Rib)	54,420	24.880	96.0	+ 1777 3680
2	33,080	16.680	87.6	+ 270 3260
3	30,830	+ 5660	75.8	
4	30,420	+ 1700	69.1	
5	29,750	+ 6220	65.3	+ 32 6600
6	29,330	+ 7630	62.4	+ 486 3680
7	29,040	+ 8200	61.2	+ 362 6300
8	28,830	+ 7920	59.8	+ 548 10200
9	28,670	+ 7070	57.1	
10	28,570	- 8770	55.9	+ 296 394
11	28,500	- 7070	55.2	+ 345 7720
12	28,370	- 5940	54.9	+ 553 10840
13	28,350	- 5370	54.6	
14	28,330	- 2550	54.4	+ 406 3990
15	28,280	+ 1410	54.2	+ 498 3690
16	28,250	- 850	54.0	+ 438 3460

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 8ft.

Live Loads- 40 Ton Trolley Cars occupying 20 ft. width of Roadway and Uniform Live Load of 100 lbs. per sq. ft. occupying 12 ft. width of Roadway. All carried by an Arch Rib 16 ft. wide.

Dead Loads- Superstructure 32 ft. wide carried by an Arch Rib 16 ft. wide.



Note - All Loads shown are for a single foot width of Arch Rib.

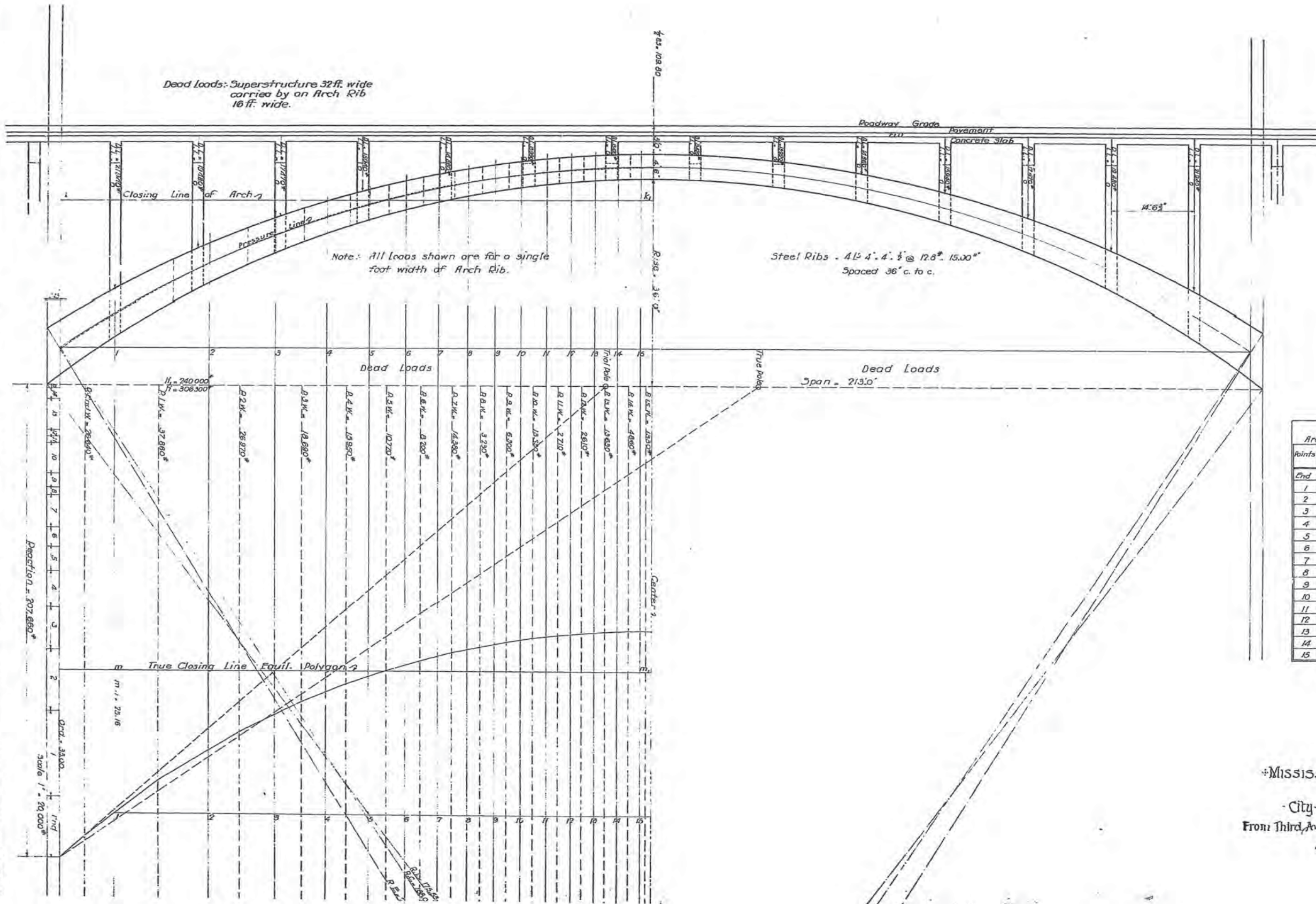
Steel Ribs 4 L 4 x 4 x 1/2 @ 128 x 1500 Spaced 36 c. to c.

Table of Stresses
Arch calculated for live load over entire span.

Points	Section 1' Wide		Depth in Inches	Maximum Stresses per sq. in.	
	Max. Thrust lbs.	Max. B. M. Ft. lbs.		Concrete	Steel
End	35830	-4180	93.0	+316	6360
1	34540	-3290	87.6	+335	6160
2	32960	-90	75.8	+382	1760
3	32000	+2390	65.1	+379	7660
4	31370	+3590	65.2	+420	9380
5	30710	+2090	62.4	+418	8490
6	30670	+2090	60.0	+441	9540
7	30500	+300	58.3		
8	30250	+170	57.1		
9	30220	0	55.9	+461	3300
10	30140	-600	55.2	+487	3660
11	29980	-90	54.9		
12	29960	-210	54.6		
13	29930	-1490	54.4	+430	3880
14	29890	-1490	54.2	+406	5020
15	29880	-2330	54.0	+428	3870
				+572	12340

MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis Minn.
 From Third Avenue South to First Avenue South East
 Jan. 1914 - Scale 1"=8ft.

Dead loads: Superstructure 32 ft. wide
carried by an Arch Rib
16 ft. wide.



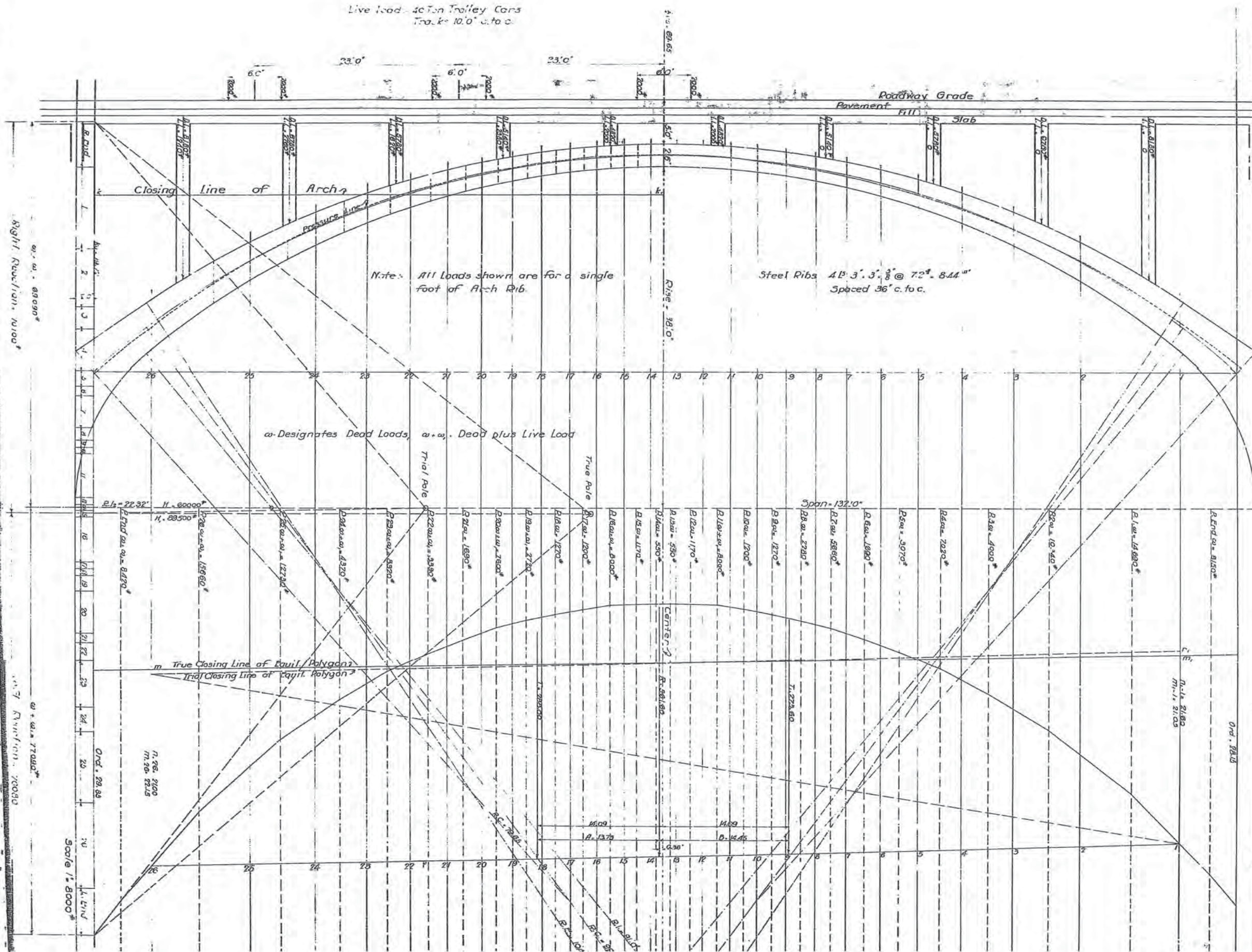
Note: All loads shown are for a single
foot width of Arch Rib.

Table of Stresses
Arch calculated for Dead Load only.

Points	Section 1" Wide		Depth in Inches	Maximum Stresses per in ²	
	No. of Ribs	Area, sq. ft.		Concrete	Steel
End	30,830	- 7400	96.0	+ 289	3040
1	29,670	- 4600	87.6	+ 214	2800
2	28,150	+ 260	75.8		
3	27,330	+ 3060	69.1	+ 307	2530
4	26,800	+ 4340	63.3	+ 271	2320
5	26,420	+ 3830	62.4		
6	26,230	+ 3320	60.0	+ 332	2180
7	26,170	+ 1260	58.3		
8	25,870	+ 1790	57.1	+ 366	2100
9	25,810	+ 770	55.9		
10	25,730	- 1530	55.2	+ 378	2000
11	25,630	- 1280	54.9		
12	25,620	- 2810	54.6	+ 367	1950
13	25,600	- 2300	54.4	+ 459	1900
14	25,540	- 2530	54.2		
15	25,530	- 3320	54.0	+ 350	1740

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis, Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 8 Ft.

Live load - 40 Ton Trolley Cars
Track - 10.0' c.to c.



w - Designates Dead Loads, $w + w_1$ - Dead plus Live Load

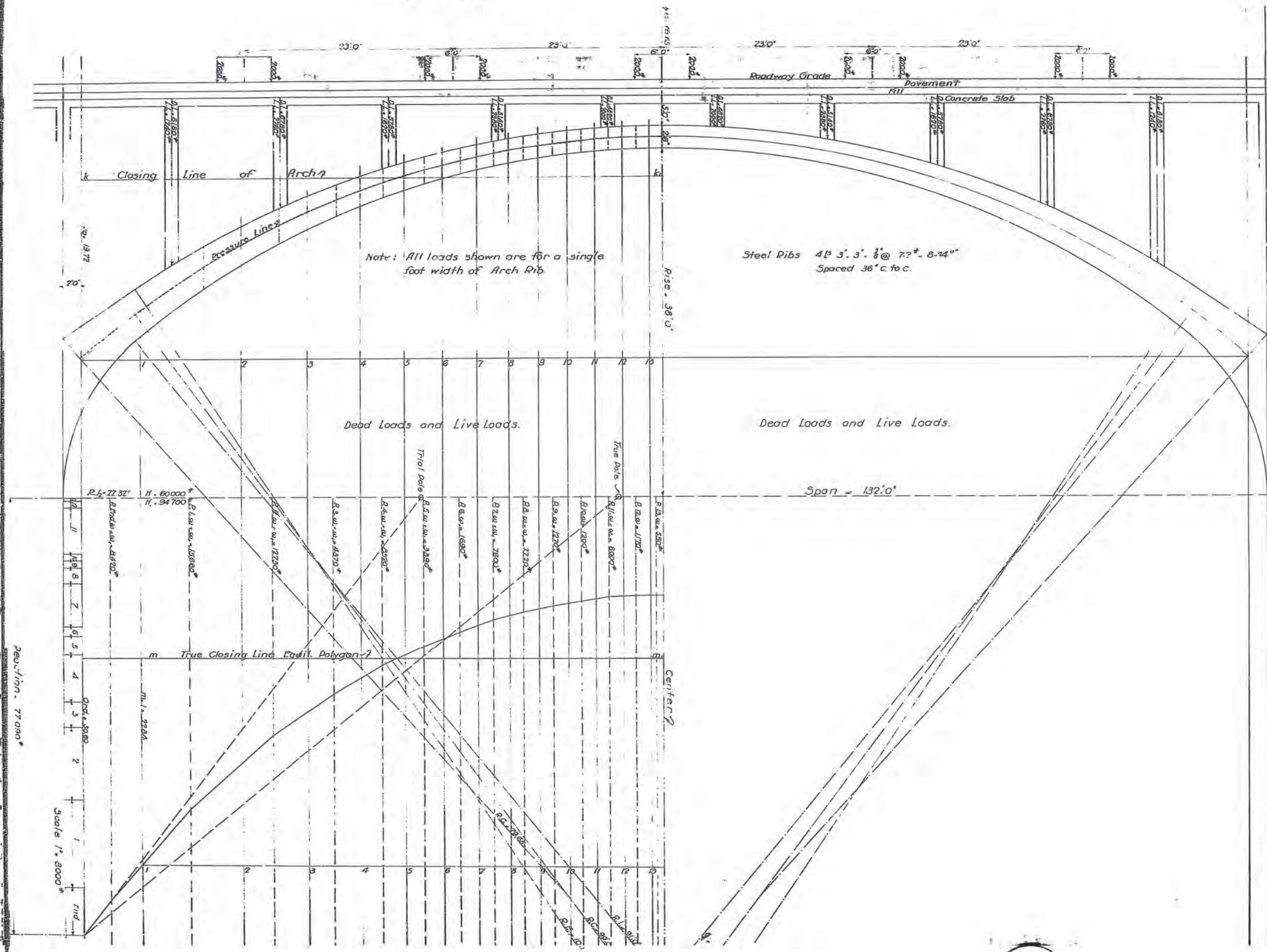
Steel Ribs 4L 3' x 3' x 3/8" @ 7.2" - 8.44"
Spaced 36" c.to c.

Table of Stresses
Arch calculated for Live load over half span

Points	Section 1' Wide		Depth in inches	Maximum Stresses per sq. in.	
	Max Thrust lbs.	Max. P. H. lbs.		Concrete	Steel
1 End	9350	+ 6260	73.0	+ 135	3760
2	9310	- 3060	54.0	+ 36	2660
3	8360	+ 370	44.6	+ 27	2500
4	8010	- 600	40.1		
5	7910	- 1340	37.3	+ 135	2640
6	7790	+ 1340	35.3	+ 243	4680
7	7670	- 1860	33.7	100	7380
8	7640	- 1640	32.5	+ 292	5320
9	7550	- 1770	31.7		
10	7530	- 1270	31.2	+ 135	3920
11	7510	- 820	30.8	+ 26	3760
12	7500	+ 1040	30.5	+ 45	5260
13	7470	+ 670	30.2		
14	7460	+ 150	30.0	+ 205	4260
15				- 222	4400

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 5 Ft.

Live Load: 40 Ton Trolley Cars
Tracks 10'0" c. to c.



Steel Ribs 4" 3" 3" 3" @ 7 1/2" - 8" 1/4"
Spaced 36" c. to c.

Note: All loads shown are for a single foot width of Arch Rib.

Dead loads and Live loads.

Dead loads and Live loads.

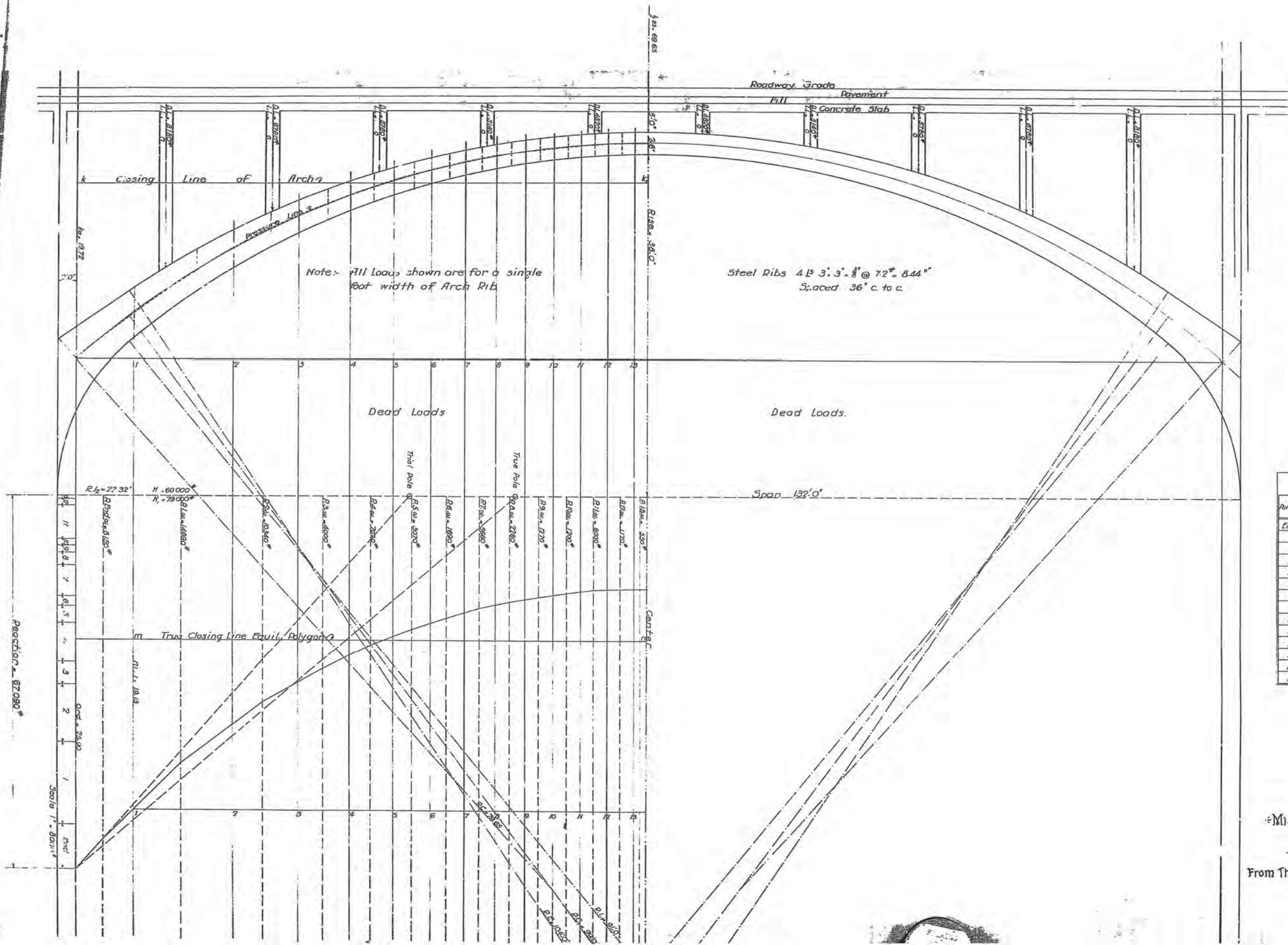
Span = 132'0"

Centerline

Table of Stresses
Arch calculated for live load over entire span.

Points	Section 1' Wide		Depth in Inches	Maximum Stresses per in ²	
	Max. Thrust	Max. B.M.		Concrete	Steel
End	10 170	+ 2530	73.0	+ 102	2080
1	9 750	- 390	54.0	+ 155	3180
2	9 040	+ 390	44.6	+ 174	3460
3	8 580	+ 320	40.1	+ 181	3640
4	8 430	+ 80	37.2	+ 181	3580
5	8 220	+ 320	35.3	+ 71	4200
6	8 140	- 160	33.7		
7	8 110	0	32.5		
8	7 980	+ 240	31.7	+ 222	4600
9	7 950	- 240	31.2	+ 198	4640
10	7 940	- 470	30.8	+ 252	4920
11	7 920	+ 160	30.5		
12	7 900	+ 160	30.2	+ 210	4780
13	7 880	- 390	30.0	+ 246	4820

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis, Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 5 ft.



*Table of Stresses
Arch calculated for Dead Load only*

Points	Section 1' Wide		Depth in Inches	Maximum Stresses per sq. in.	
	Max. Thrust lbs.	Per Sq. Ft.		Concrete	Steel
End	8640	+ 260	73.0	+ 107	2740
1	8220	- 1250	54.0	+ 114	2520
2	7550	+ 400	44.6	+ 181	3580
3	7170	+ 590	40.1	+ 138	2880
4	7050	+ 200	37.3	+ 183	3780
5	6860	+ 460	35.3	+ 131	3100
6	6750	+ 260	33.7	+ 183	3780
7	6760	+ 130	32.5	+ 172	3480
8	6670	+ 200	31.7	+ 194	5840
9	6650	- 200	31.2	+ 164	3360
10	6630	- 400	30.2	+ 210	4120
11	6620	- 200	30.5	+ 183	3780
12	6590	- 70	30.2	+ 183	3780
13	6580	- 590	30.0	+ 217	4240

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis - Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 5 Ft.

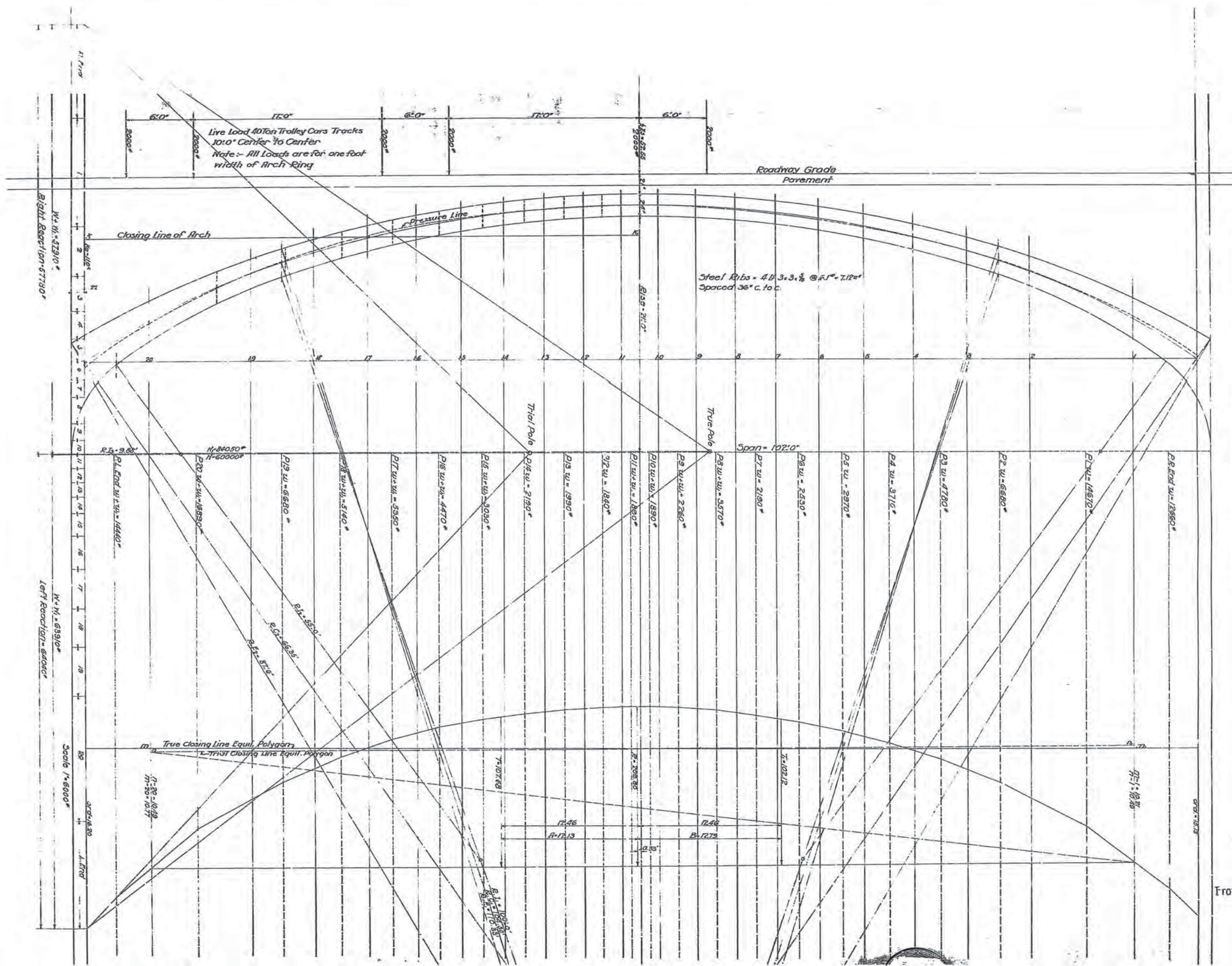
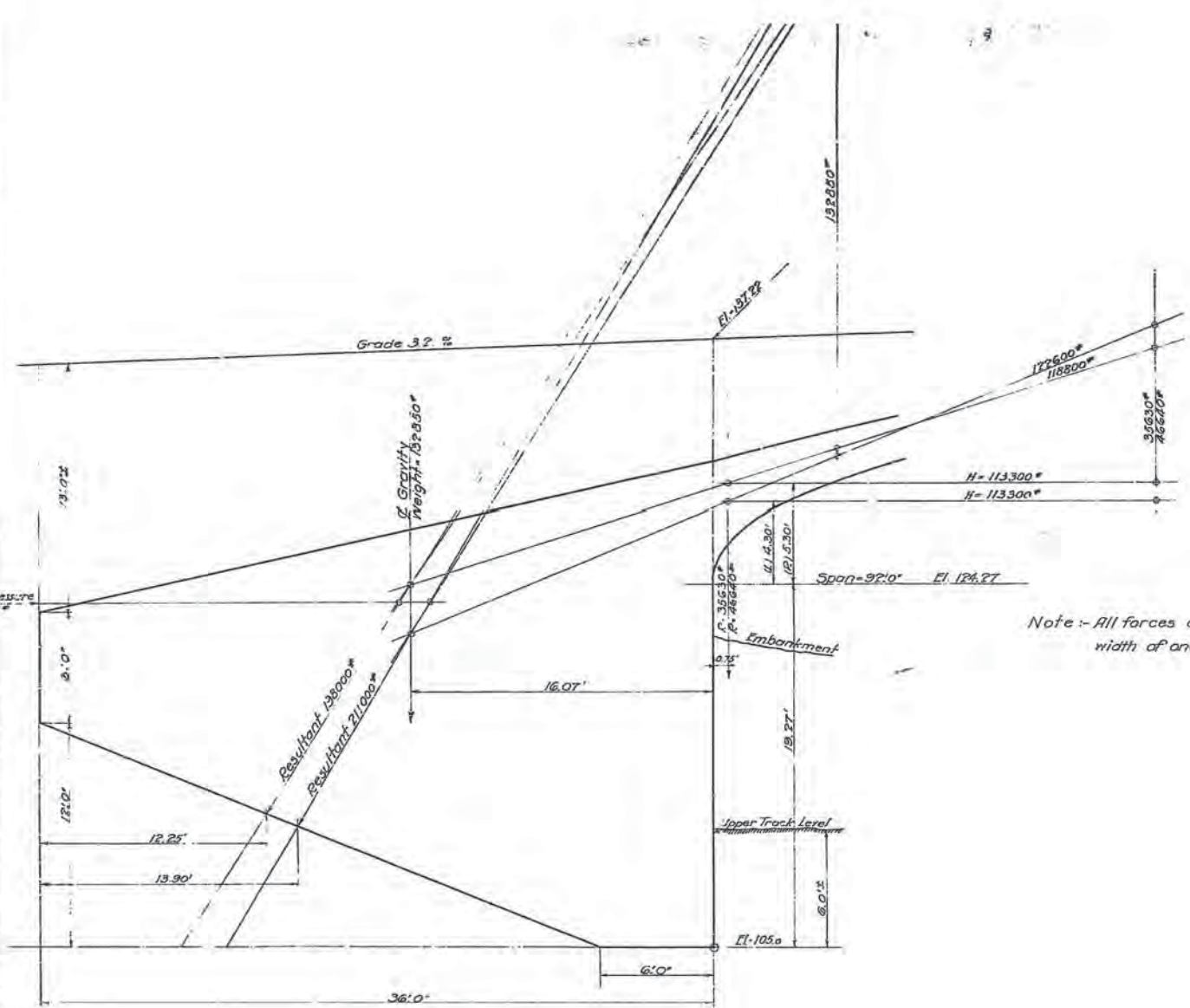


Table of Stresses
Stresses in Arch for Half Span, Loading as Shown

Points	Section 1' Wide Hor. Thrust lbs.	Depth in.	Max. Compressive Inches Concrete	Max. Tensile Stress per Sq. In. Steel
Left End	8800	-3872	31.0	+76
20	8180	-1750	38.5	+77
19	-570	280	30.1	
18	7330	+841	28.1	+129
17	7220	+1331	26.9	+359
16	7120	+1331	26.0	+167
15	7070	+841	25.4	+315
14	7050	-770	25.0	
13	7030	-560	24.6	+194
12	7020	-356	24.2	+298
11	7010	-70	24.0	+123
10			24.0	5000

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis, Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 4 Ft.



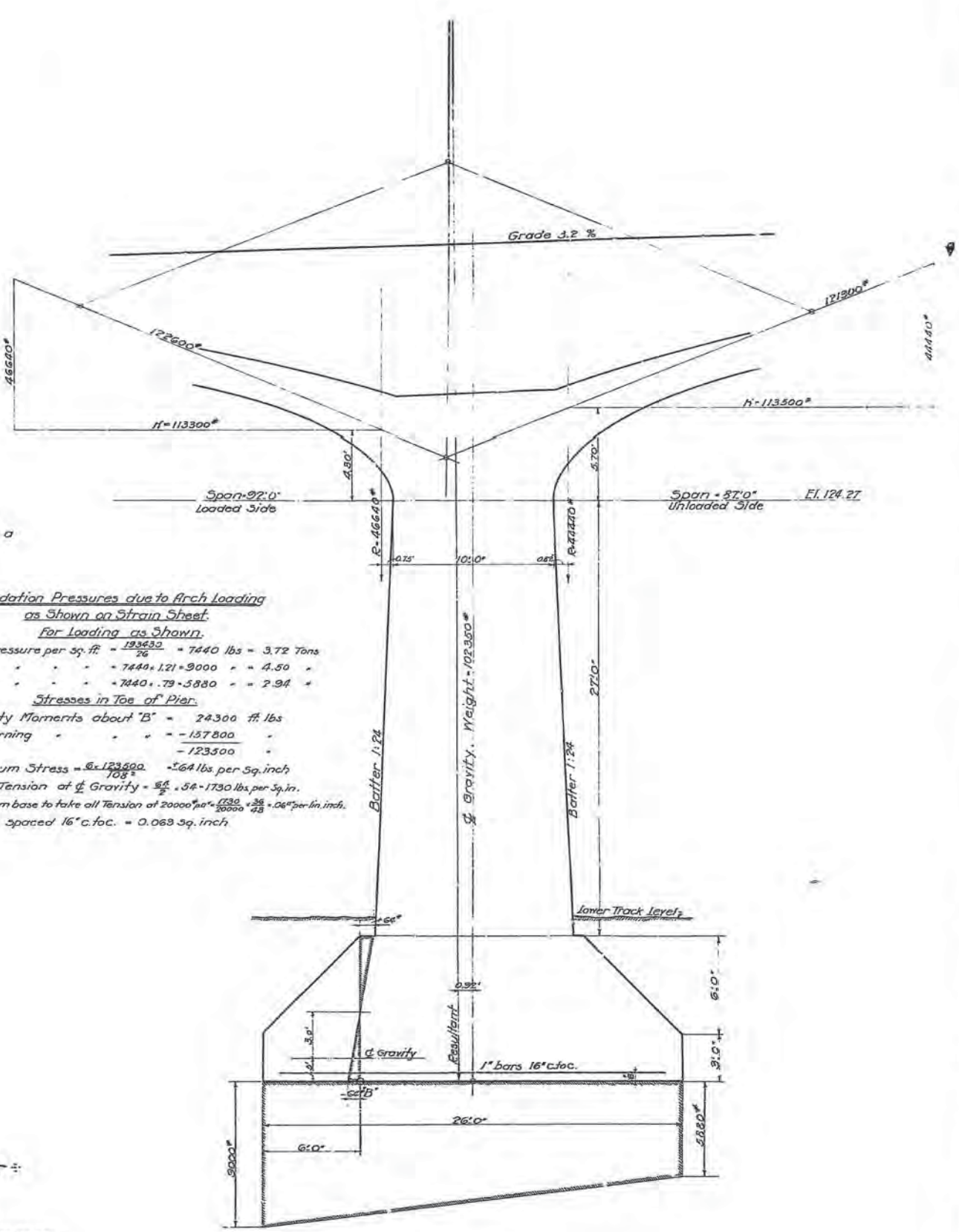
WEST ABUTMENT

Note: - All forces and loads shown are for a width of one foot of foundation.

Foundation Pressures due to Arch Loading as Shown on Strain Sheet
 For Loading as Shown:
 Average Pressure per sq. ft. = $\frac{192650}{26} = 7440$ lbs = 3.72 Tons
 Maximum " " " = $7440 + 1.21 \cdot 9000 = 4.50$ "
 Minimum " " " = $7440 - .79 \cdot 5880 = 2.94$ "
Stresses in Toe of Pier
 Stability Moments about "B" = 24300 ft. lbs
 Overturning " " " = -157800 "
 " " " = -123300 "
 Maximum Stress = $\frac{6 \cdot 123300}{108} = 68$ lbs per sq. inch
 Total Tension at $\frac{1}{2}$ Gravity = $\frac{68}{2} \cdot 56 = 1730$ lbs. per sq. in.
 Steel @ 6" from base to take all Tension at 20000 psi = $\frac{1730}{20000} \cdot \frac{36}{48} = .06$ in. per lin. inch.
 1" Bars spaced 16" c. fac. = 0.063 sq. inch.

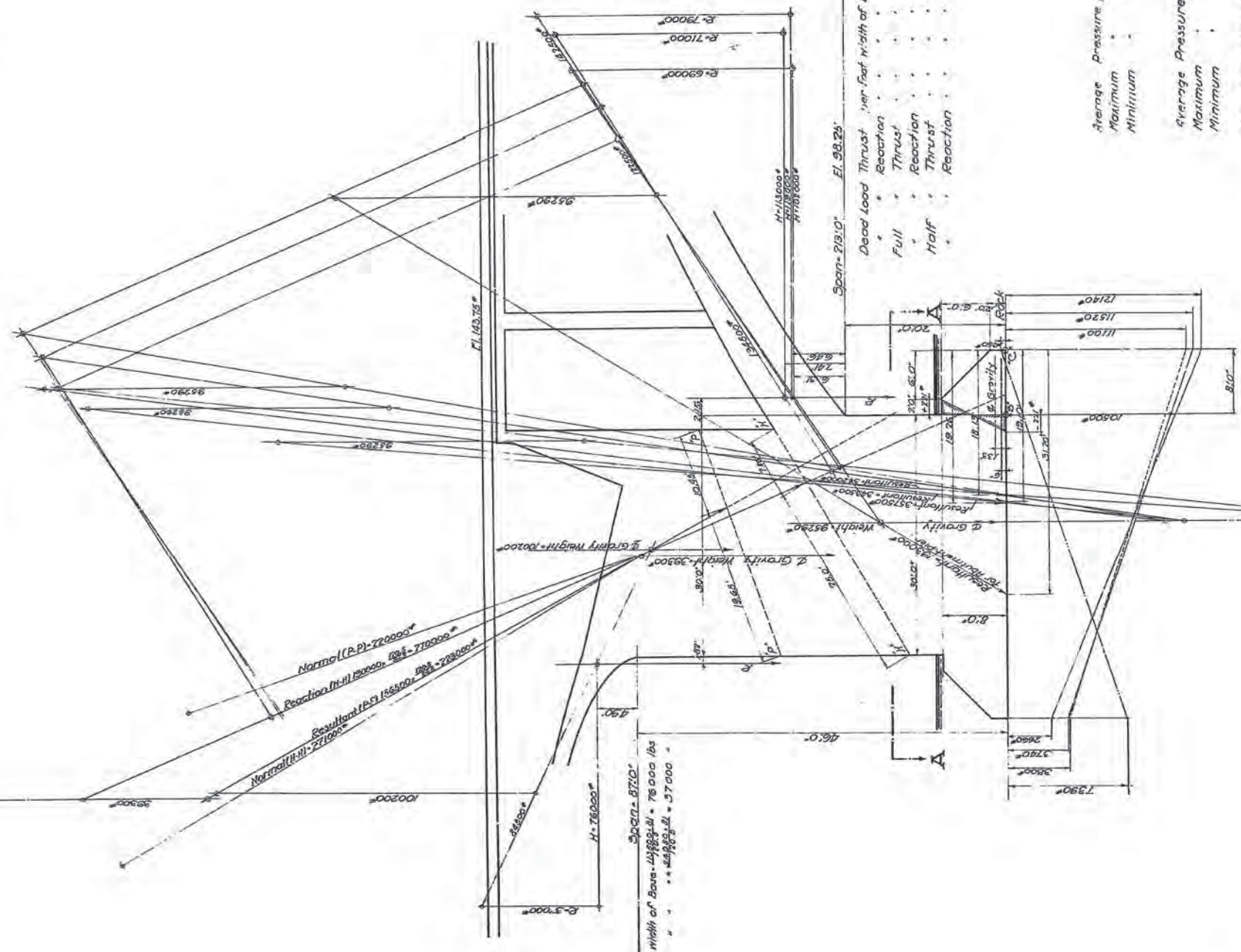
Foundation Pressures due to Arch Loading as Shown on Strain Sheet

Pressures due to unloaded half of Arch	Average Pressure per sq. ft. = $\frac{165480}{36} = 4680$ lbs = 2.39 Tons
Maximum	= $4680 + 1.96 \cdot 9170 = 4.59$ "
Minimum	= $4680 - .04 \cdot 190 = 0.09$ "
Pressures due to loaded half of Arch	Average Pressure per sq. ft. = $\frac{173490}{36} = 4819$ lbs = 2.50 Tons
Maximum	= $4990 + 1.69 \cdot 8430 = 4.77$ "
Minimum	= $4990 - .31 \cdot 1330 = 0.78$ "



PIER No 1

MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis, Minn.
 From Third Avenue South to First Avenue South East
 Jan. 1914 - Scale 1" = 4 ft.



Span - 213.0' El. 98.25'

Dead Load Thrust per Foot Width of Base	305,898.46	102,000 lbs.
Reaction	297,789.46	69,000 "
Full Thrust	358,989.46	119,000 "
Reaction	347,190.46	79,000 "
Half Thrust	358,989.46	119,000 "
Reaction	213,594.73	71,000 "

Section P-P

Average Pressure per foot	22922	7100 lbs. = 49 lbs. per sq. ft.
Maximum	7100	14060 = 98 "
Minimum	7100	140 = 1 "

Section H-H

Average Pressure per foot	22922	8230 lbs = 57 lbs. per sq. ft.
Maximum	8230	27150 = 187 "
Minimum	8230	4690 = 33 "

Pier below plane H-H to act as Abutment-Pier for Dead Load Loading of 213.0' Span

Location of Resultant = 8.20' Eccentricity

Average Pressure per foot	3370	307 = 7390 = 51 "
Maximum	3370	1007 = 240 = 2 "

Base of Foundation

87.0' Span Loaded against 213.0' Span Fully Loaded.

Average Pressure per foot	49222	7630 lbs = 53 lbs. per sq. ft.
Maximum	7630	11520 = 80 "
Minimum	7630	1049 = 3740 = 26 "

Base of Foundation

87.0' Span Loaded against 213.0' Span Unloaded.

Average Pressure per foot	3370	7400 lbs = 51 lbs. per sq. ft.
Maximum	7400	164 = 12140 = 84 "
Minimum	7400	136 = 2660 = 19 "

Base of Foundation

87.0' Span Loaded against 213.0' Span Half Loaded.

Average Pressure per foot	3370	7450 lbs = 52 lbs. per sq. ft.
Maximum	7450	1100 = 77 "
Minimum	7450	1081 = 3006 = 27 "

Maximum Stresses in Top of Pier.

Overturning Moment about "S" = 370970 ft. lbs.

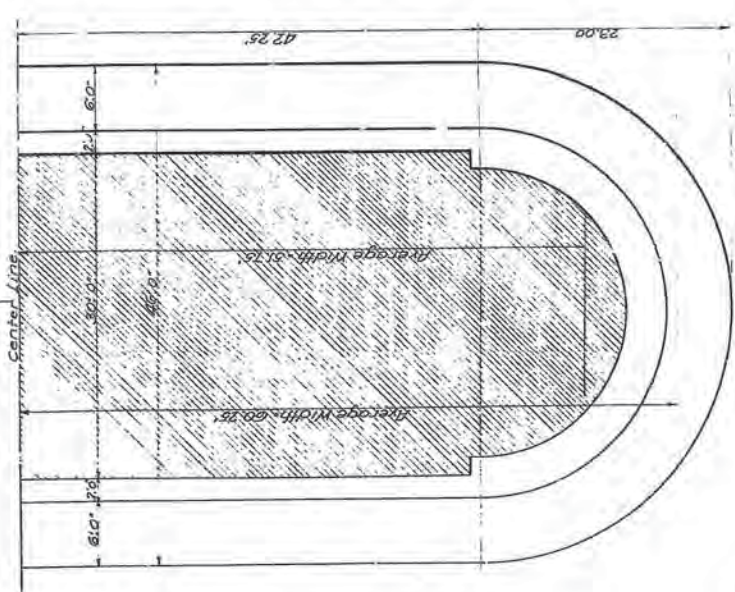
Stability

Maximum Stress = 28980 "

Minimum Stress = 2820 "

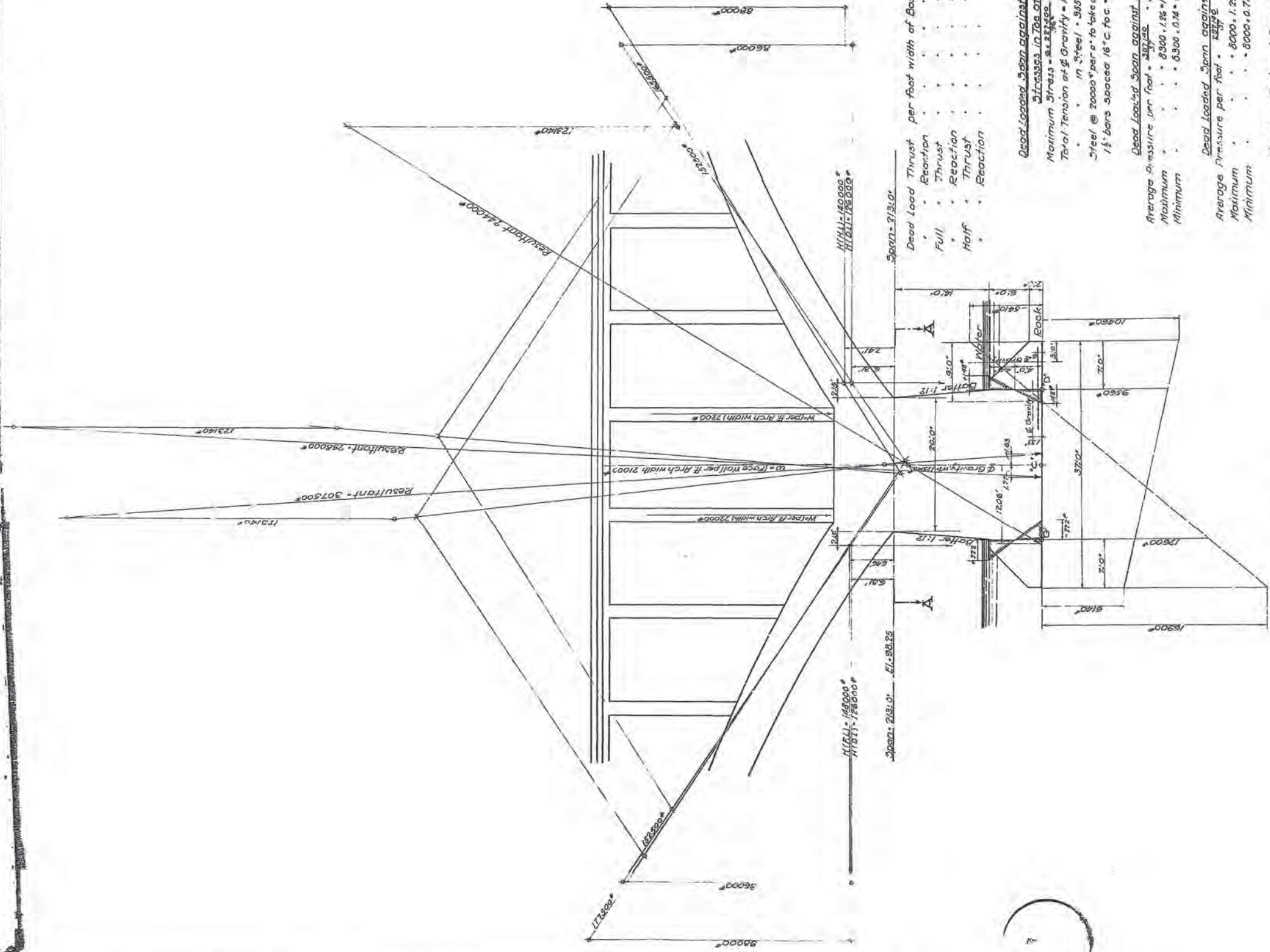
Total Tension of Gravity = 221,447 = 3300 lbs.

Steel @ 6" from bottom to take all tension @ 20000 per sq. inch = 1.14 sq. inch.



Section Plan A-A
PIER N°2

MISSISSIPPI RIVER BRIDGE
IN THE
City of Minneapolis, Minn.
From Third Avenue South to First Avenue South East
Jan. 1914 - Scale 1" = 8 Ft.



Span = 213.0'

Dead Load Thrust	per foot width of Base	50,300 x $\frac{59}{88}$	= 126,000 lbs.
Reaction		207,600 x $\frac{59}{88}$	= 88,000 "
Full Thrust		39,800 x $\frac{59}{88}$	= 14,800 "
Half Thrust		23,790 x $\frac{59}{88}$	= 9,800 "
Reaction		39,900 x $\frac{59}{88}$	= 14,000 "
Half Reaction		21,300 x $\frac{59}{88}$	= 8,800 "

Dead Loaded Span against Fully Loaded Span.
 Minimum Stress = $\frac{126,000}{148}$ = 850 lbs. per sq. in.
 Total Tension of ϕ Gravity = 48 # = 3,200 lbs.
 in steel = 3,600 # = 2,700 #
 Steel @ 20,000 lbs. per sq. in. to take all tension = $\frac{2,700}{20,000}$ = 0.14 sq. in.
 1 1/2" bars spaced 11" c. to c. = 0.14 sq. in.

Dead Loaded Span against Fully Loaded Span.
 Average Pressure per foot = $\frac{126,000}{148}$ = 850 lbs. = 38 lbs. per sq. inch.
 Maximum = 800 x 1.22 = 976 = 79
 Minimum = 800 x 0.74 = 592 = 43

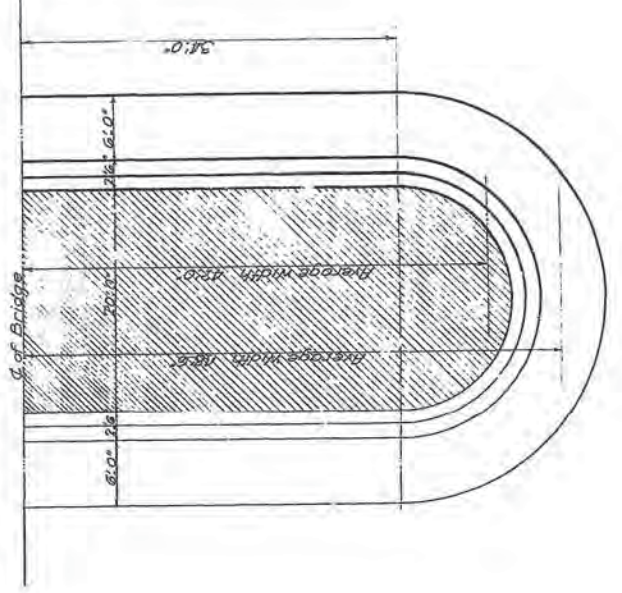
Dead Loaded Span against Half Loaded Span.
 Average Pressure per foot = $\frac{126,000}{148}$ = 850 lbs. = 38 lbs. per sq. in.
 Maximum = 800 x 1.29 = 1,032 = 72
 Minimum = 800 x 0.71 = 568 = 40

Pier as an Abutment Pier against Dead Load Only.
 Average Pressure per foot = $\frac{126,000}{148}$ = 850 lbs. = 40 lbs. per sq. in.
 Maximum = 800 x 1.29 = 1,032 = 72
 Minimum = 800 x 0.71 = 568 = 40

Stresses in Top of Pier.
 Acting as an Abutment Pier against Dead Load Only.
 Overturning Moment about G = 362,630 ft. lbs.
 Stability = $\frac{362,630}{21,530}$ = 16.8
 Minimum Stress = $\frac{8,340}{148}$ = 56 lbs. per sq. in.
 Max. Tension of ϕ Gravity = 222 # = 3,930 lbs.
 Steel @ 20,000 lbs. per sq. in. to take all tension = $\frac{3,930}{20,000}$ = 0.20 sq. in.
 1 1/2" bars spaced 11" c. to c. = 0.22 sq. in.

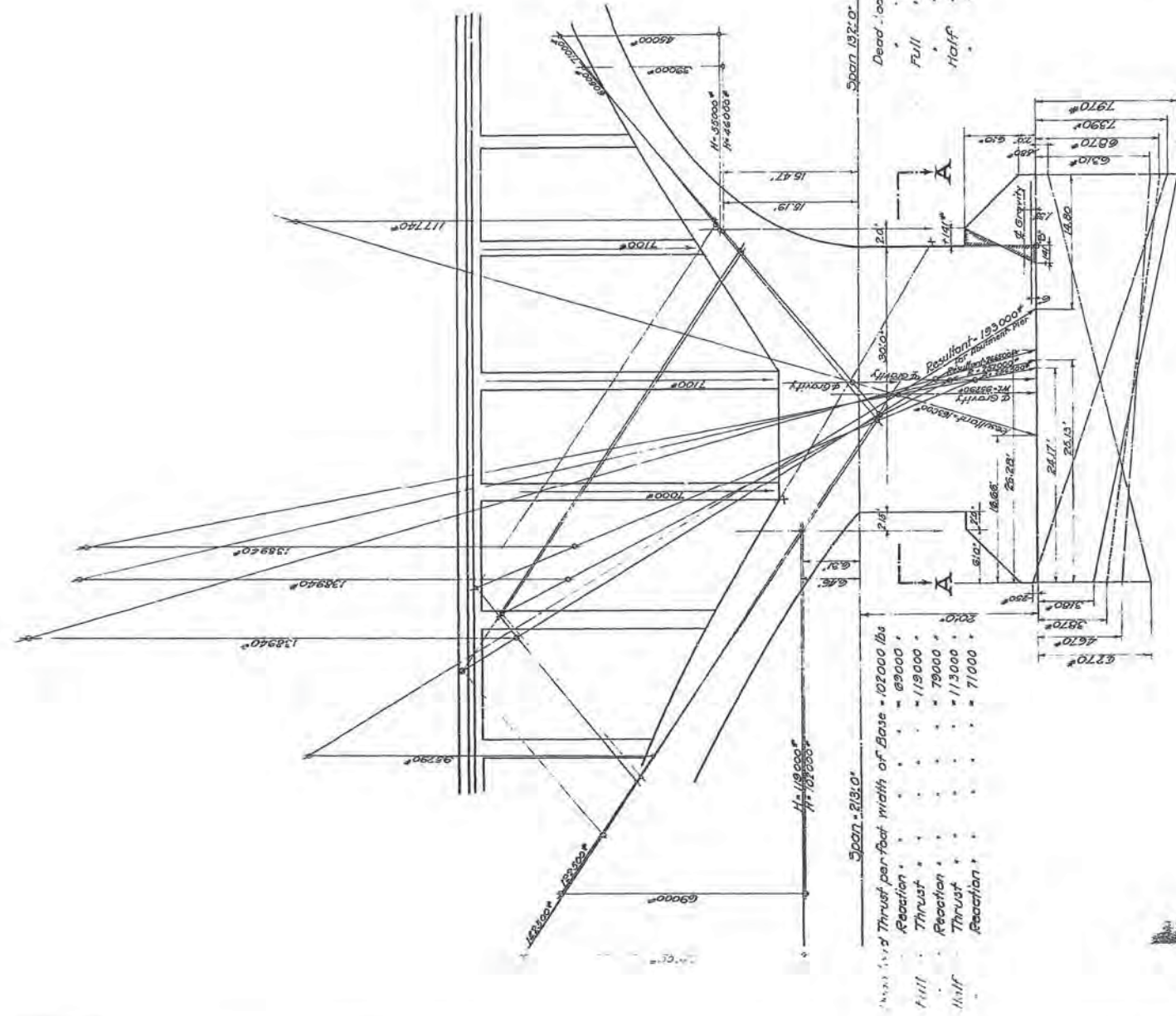
Anchor Bars for Abutment Pier.
 Total Tension of ϕ Gravity = 222 # = 3,930 lbs.
 Steel @ 20,000 lbs. per sq. in. = $\frac{3,930}{20,000}$ = 0.20 sq. in.
 1 1/2" bars spaced 21" c. to c. = 0.11

Note: Piers No. 3, 4, 5 or 6 may be used as Abutment Piers during construction, for this purpose space the 1 1/2" bars in Top of Pier 11" c. to c. and put 1 1/2" mesh bars grouted into bed rock. Spaced 21" c. to c.



Section Plan A-A
 PIERS N^o 3, 4, 5 & 6.

MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis, Minn.
 From Third Avenue South to First Avenue South East
 Jan. 1914 - Scale 1" = 8 Ft.



Pier as an Abutment Pier for 192.0' Span
 For Dead Load Only.

Average Pressure per foot = 15870
 Maximum = 3410 lbs = 24 lbs per sq. ft.
 Minimum = 3410 x 0.17 = 580

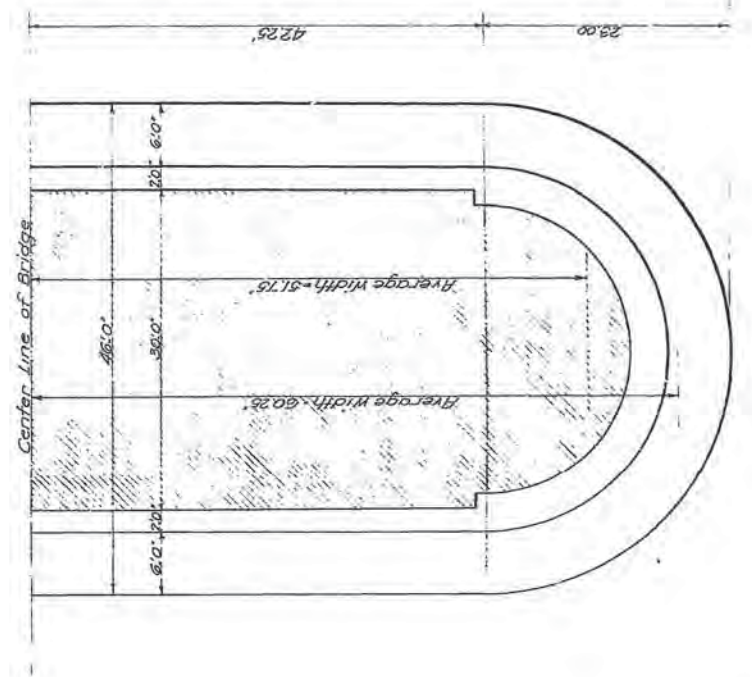
Pier below plate X-X to act as Abutment Pier for Dead Load Loading
 of 218.0' Span
 Average pressure per foot = 16320
 Maximum = 3670, 207 = 1390 lbs per sq. ft.
 Minimum = 3670 x 0.07 = 250

Location of Resultant = 8.20' Eccentricity.
 218.0' Span Fully Loaded against 192.0' Span Dead Load
 Average pressure per foot = 29800
 Maximum = 5370 lbs = 39 lbs per sq. ft.
 Minimum = 5370 x 1.18 = 6310

218.0' Span Fully Loaded against 218.0' Span Dead Load
 Average pressure per foot = 29800
 Maximum = 5370 lbs = 39 lbs per sq. ft.
 Minimum = 5370 x 1.18 = 6310

Dead Loaded Spans
 Average pressure per foot = 24680
 Maximum = 5370 lbs = 37 lbs per sq. ft.
 Minimum = 5370 x 0.72 = 3870

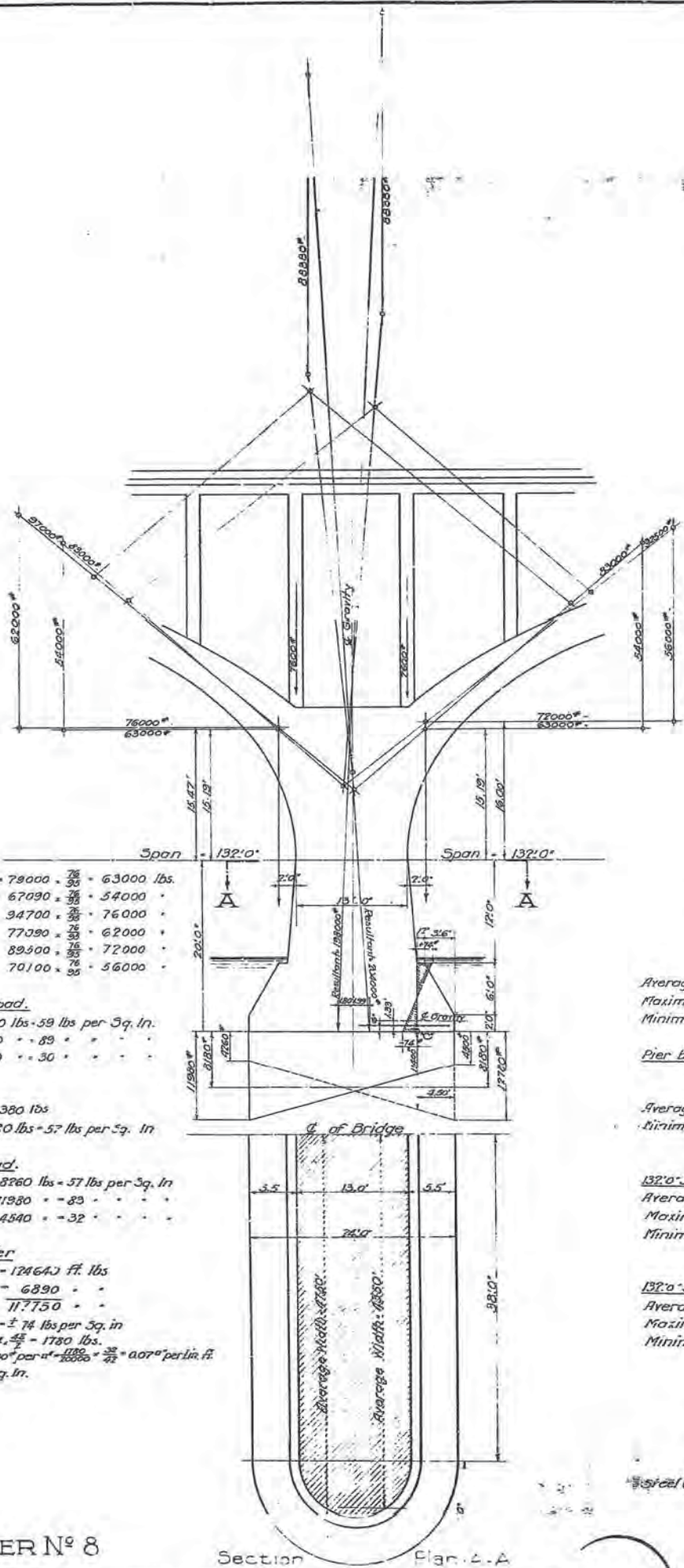
Stresses in the Pier.
 Overturning Moment about C = 248750 ft. lbs
 Stability = 28950
 Maximum Stress = 5147 lbs per sq. ft.
 Total Tension @ E Gravity = 141,440 = 3880 lbs.
 3 in. 1 in C from bottom to take all tension @ 2000 psi = 3880 x 37 = 143500 lbs.
 1 1/2" bars spaced 18" c/c = 0.128 sq. inch.



Section Plan A-A
 PIER No 7.

MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis, Minn.
 From Third Avenue South to First Avenue South East
 Jan. 1914 - Scale 1" = 8 ft.





Dead Load Thrust per foot width of Base	$79000 \cdot \frac{75}{85} = 63000$ lbs.
Reaction	$67090 \cdot \frac{75}{85} = 54000$
Full Thrust	$94700 \cdot \frac{75}{85} = 76000$
Reaction	$77090 \cdot \frac{75}{85} = 62000$
Half Thrust	$89000 \cdot \frac{75}{85} = 72000$
Reaction	$70100 \cdot \frac{75}{85} = 56000$

Dead Load against Full Live Load.
 Average Pressure per foot = $\frac{204,380}{24} = 8520$ lbs. = 59 lbs per Sq. In.
 Maximum = $8520 \cdot 1.80 = 12780$ = 89
 Minimum = $8520 \cdot 0.90 = 4260$ = 30

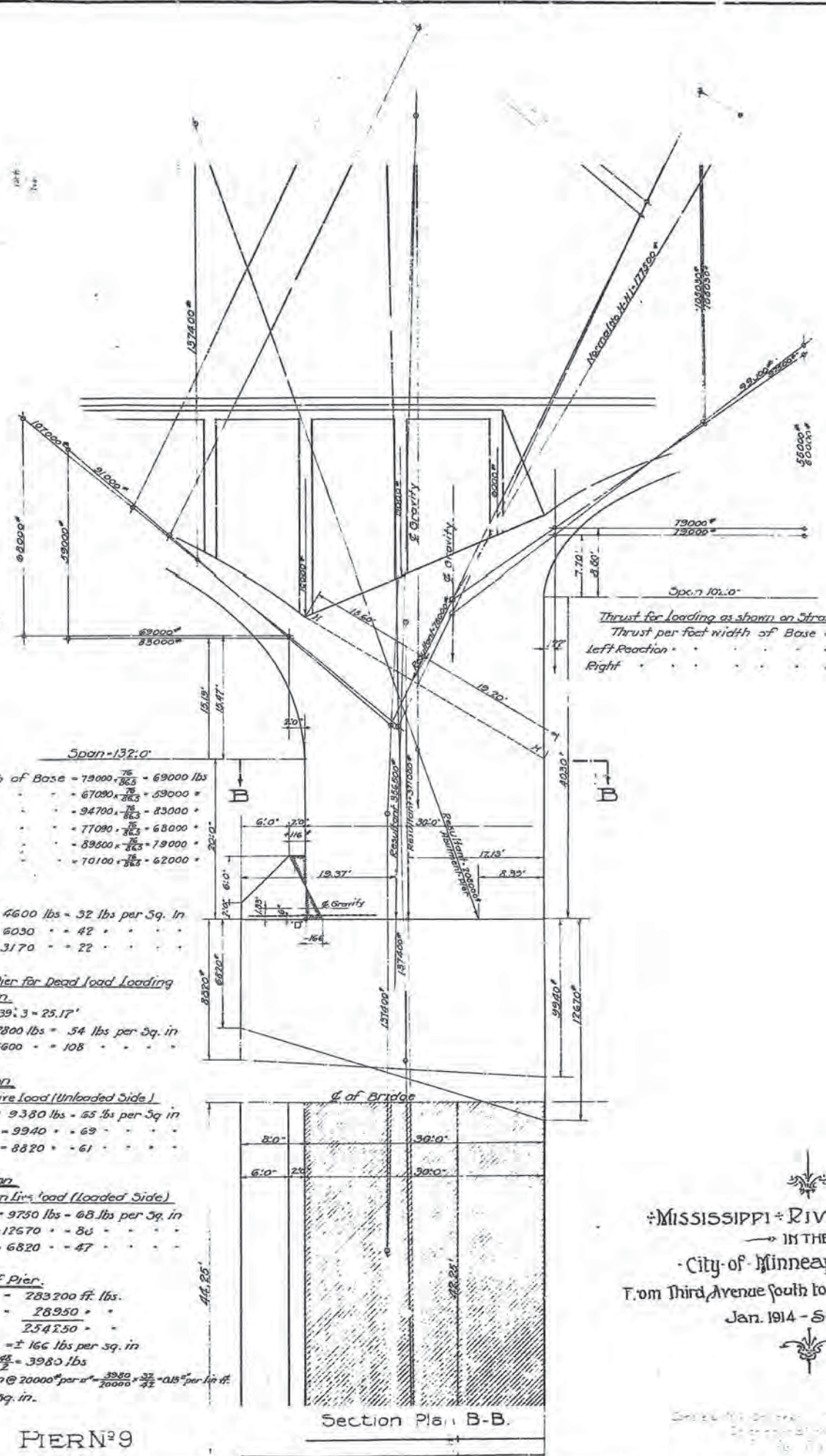
Dead Load Only.
 Total Weight = $88380 + 108000 = 196380$ lbs
 Maximum Pressure per foot = $\frac{196380}{24} = 8180$ lbs = 57 lbs per Sq. In.

Dead load against Half Load.
 Average Pressure per foot = $\frac{126,190}{16} = 8260$ lbs = 57 lbs per Sq. In.
 Maximum = $8260 \cdot 1.45 = 11980$ = 83
 Minimum = $8260 \cdot 0.55 = 4540$ = 32

Stresses in Toe of Pier
 Overturning Moment about 'C' = 124643 ft. lbs
 Stability = 6890
 117750
 Maximum Stress = $\frac{611750}{38} = \pm 74$ lbs per sq. in.
 Total Tension @ \angle of Gravity = $74 \cdot \frac{38}{2} = 1780$ lbs.
 Steel @ 6" from bottom to take all Tension @ $20000 \text{ per } \text{in}^2 = \frac{1780}{20000} = \frac{1}{1120} \text{ in}^2 = 0.07 \text{ per lin. ft.}$
 1" bars spaced 14" C. to C. = 0.07 Sq. In.

PIER No 8

Section Plan A-A



Dead Load Thrust per foot width of Base	$79000 \cdot \frac{75}{85} = 69000$ lbs.
Reaction	$67090 \cdot \frac{75}{85} = 59000$
Full Thrust	$94700 \cdot \frac{75}{85} = 83000$
Reaction	$77090 \cdot \frac{75}{85} = 68000$
Half Thrust	$89000 \cdot \frac{75}{85} = 79000$
Reaction	$70100 \cdot \frac{75}{85} = 62000$

Section H-H
 Average pressure per foot = $\frac{150,030}{34.30} = 4600$ lbs = 32 lbs per Sq. In.
 Maximum = $4600 \cdot 1.31 = 6030$ = 42
 Minimum = $4600 \cdot 0.69 = 3170$ = 22

Pier below plane H-H to act as Abutment-Pier for Dead Load Loading of 132.0 Span.
 Assuming Effective Base = $8.39 \cdot 3 = 25.17'$
 Average pressure per sq foot = $\frac{126,400}{15.77} = 7800$ lbs = 54 lbs per Sq. in.
 Minimum = $7800 \cdot 2 = 15600$ = 108

Base of Foundation
 132.0 Span, Dead Load against 102.0 Span Live Load (Unloaded Side)
 Average Pressure per foot = $\frac{236,430}{25} = 9380$ lbs = 65 lbs per Sq. in.
 Maximum = $9380 \cdot 1.06 = 9940$ = 69
 Minimum = $9380 \cdot 0.54 = 8820$ = 61

Base of Foundation
 132.0 Span Fully Loaded against 102.0 Span Live Load (Loaded Side)
 Average Pressure per foot = $\frac{370,430}{38} = 9750$ lbs = 68 lbs per Sq. in.
 Maximum = $9750 \cdot 1.30 = 12670$ = 85
 Minimum = $9750 \cdot 0.70 = 6820$ = 47

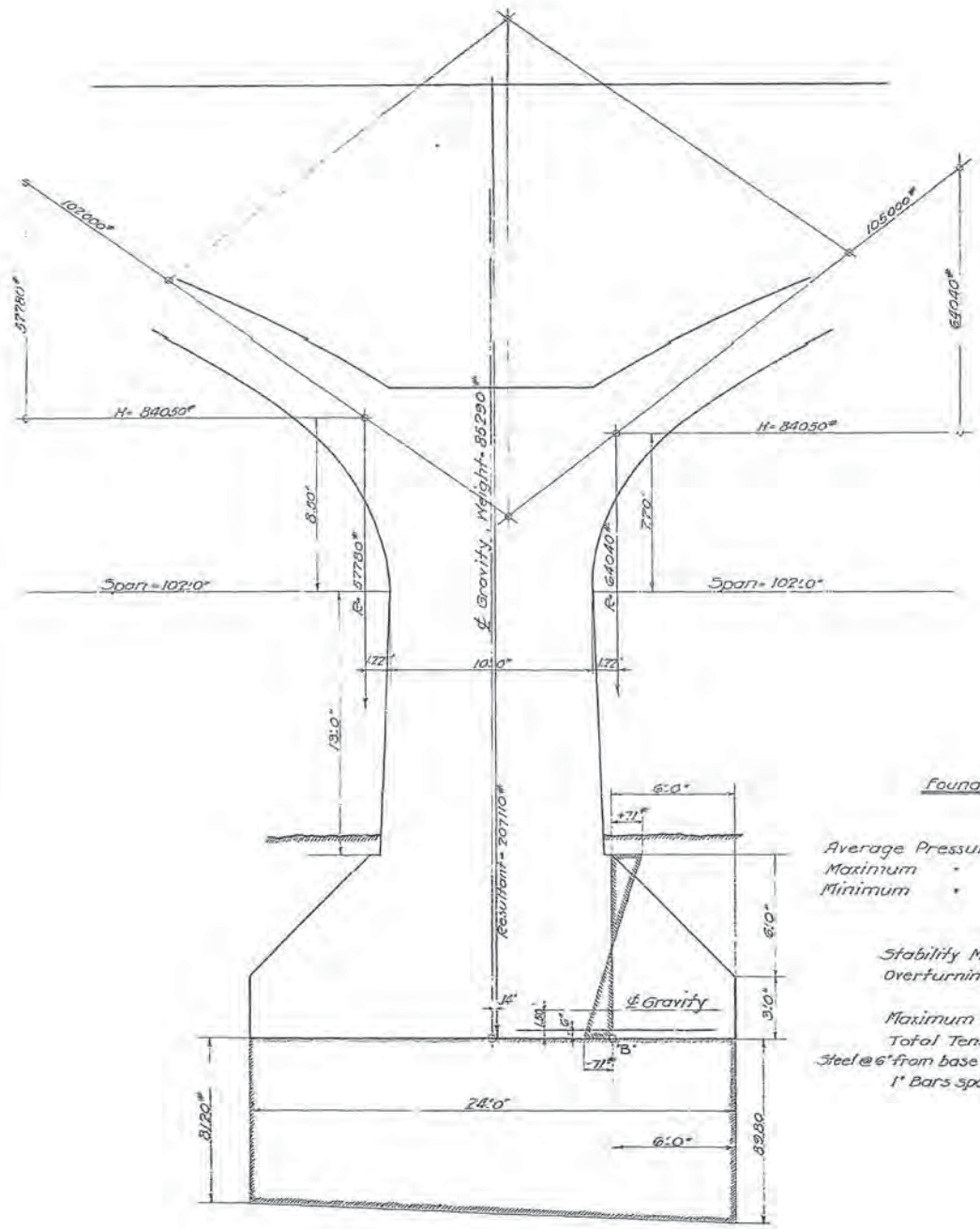
Stresses in Toe of Pier.
 Overturning Moment about 'D' = 283200 ft. lbs.
 Stability = 28950
 254250
 Maximum Stress = $\frac{61254250}{38} = \pm 166$ lbs per sq. in.
 Total Tension @ \angle of Gravity = $166 \cdot \frac{38}{2} = 3980$ lbs
 Steel @ 6" from bottom to take all Tension @ $20000 \text{ per } \text{in}^2 = \frac{3980}{20000} = \frac{1}{5000} \text{ in}^2 = 0.15 \text{ per lin. ft.}$
 1 1/2" bars spaced 15" C. to C. = 0.15 Sq. In.

PIER No 9

Section Plan B-B

Thrust for loading as shown on Strain Sheet
 Thrust per foot width of Base = $84050 \cdot \frac{81.5}{71.5} = 79020$ lbs
 Left Reaction = $64040 \cdot \frac{81.5}{71.5} = 60070$
 Right = $57180 \cdot \frac{81.5}{71.5} = 55000$

MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis, Minn.
 From Third Avenue South to First Avenue South East
 Jan. 1914 - Scale 1" = 8 Ft.



PIER N^o 10.

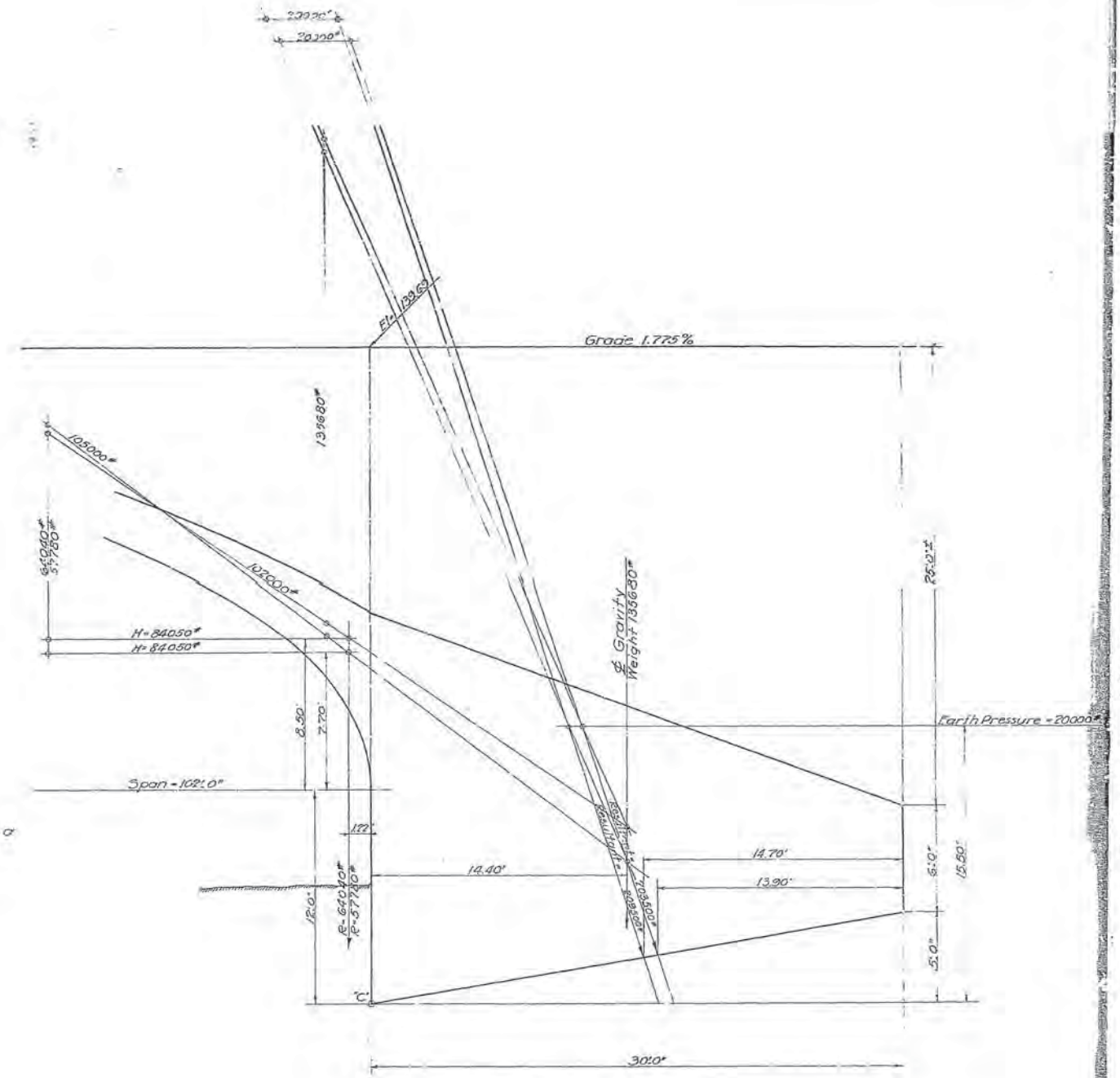
Note: - All forces and loads shown are for a width of one foot of foundation.

Foundation Pressures due to Arch Loading as shown on Strain Sheet

For loading as shown
 Average Pressure per sq. ft. = $\frac{20710}{24} = 8630 \text{ lbs} = 4.32 \text{ Tons}$
 Maximum " " " " = $8630 \cdot 1.04 = 8980 = 4.93$
 Minimum " " " " = $8630 \cdot 0.96 = 8120 = 4.06$

Stresses in Toe of Pier

Stability Moments about "b" = 24,300 ft. lbs
 Overturning " " " " = -162,200 " "
 -137,900 " "
 Maximum Stress = $\frac{6 \cdot 137900}{108} = \pm 71 \text{ lbs per sq. in.}$
 Total Tension at \bar{x} Gravity = $71 \cdot \frac{24}{2} = 1920 \text{ lbs per sq. in.}$
 Steel @ 6" from base to take all Tension of 20000 per sq. in. = $\frac{1920}{20000} = 0.096 \text{ in.}$
 1" Bars spaced 14" c.to c. = 0.072 sq. inch.



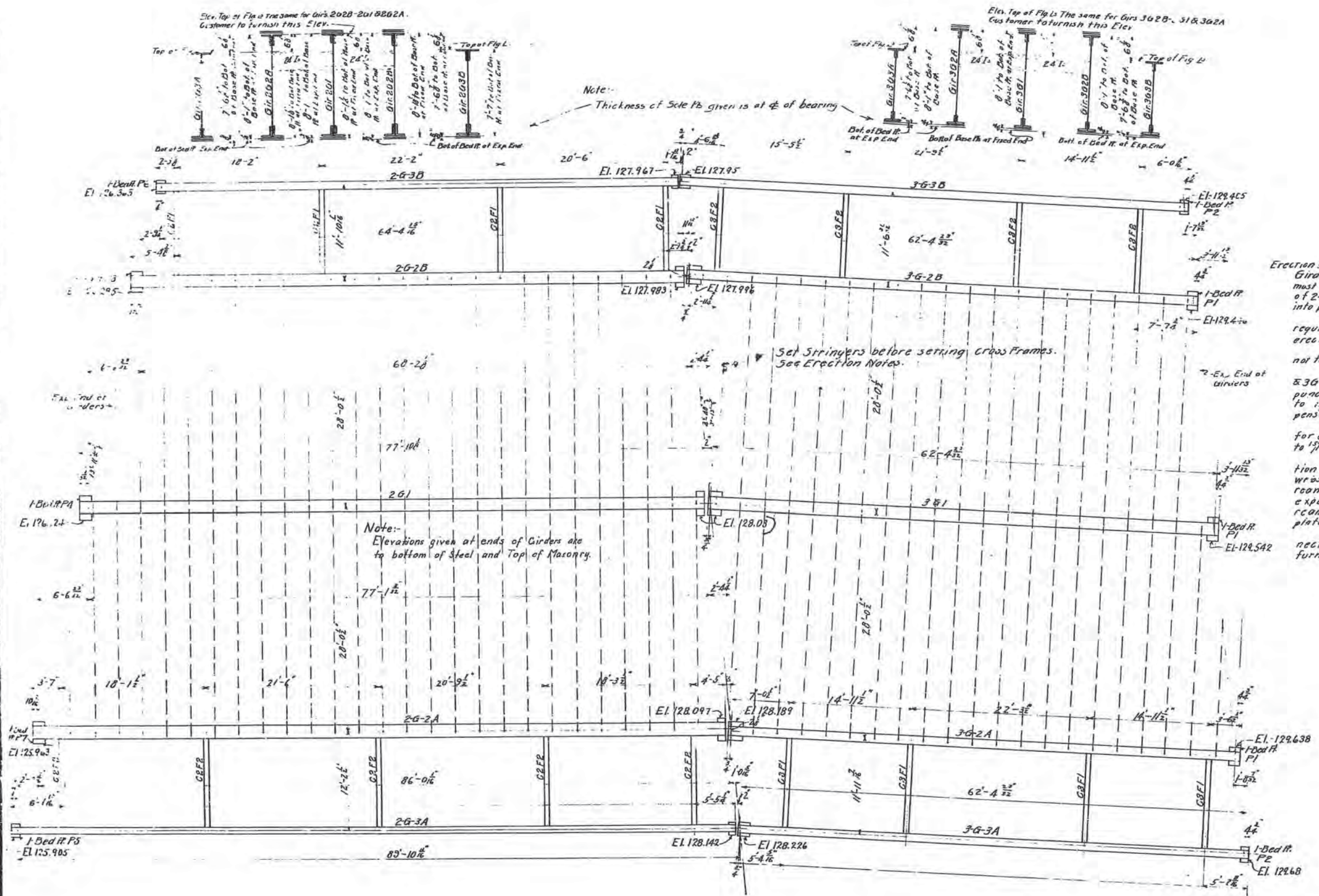
EAST ABUTMENT.

Foundation Pressures due to Arch Loading as shown on Strain Sheet

Pressures due to Unloaded Half of Arch
 Average Pressure per sq. foot = $\frac{135260}{30} = 6450 \text{ lbs} = 3.22 \text{ Tons}$
 Maximum " " " " = $6450 \cdot 1.22 = 7870 = 3.94$
 Minimum " " " " = $6450 \cdot 0.78 = 5030 = 2.52$

Pressures due to Loaded Half of Arch
 Average Pressure per sq. foot = $\frac{199720}{30} = 6660 \text{ lbs} = 3.33 \text{ Tons}$
 Maximum " " " " = $6660 \cdot 1.06 = 7000 = 3.50$
 Minimum " " " " = $6660 \cdot 0.94 = 6200 = 3.10$

MISSISSIPPI RIVER BRIDGE
 IN THE
 City of Minneapolis, Minn.
 From Third Avenue South to First Avenue South East
 Jan. 1914 - Scale 1" = 8 ft.



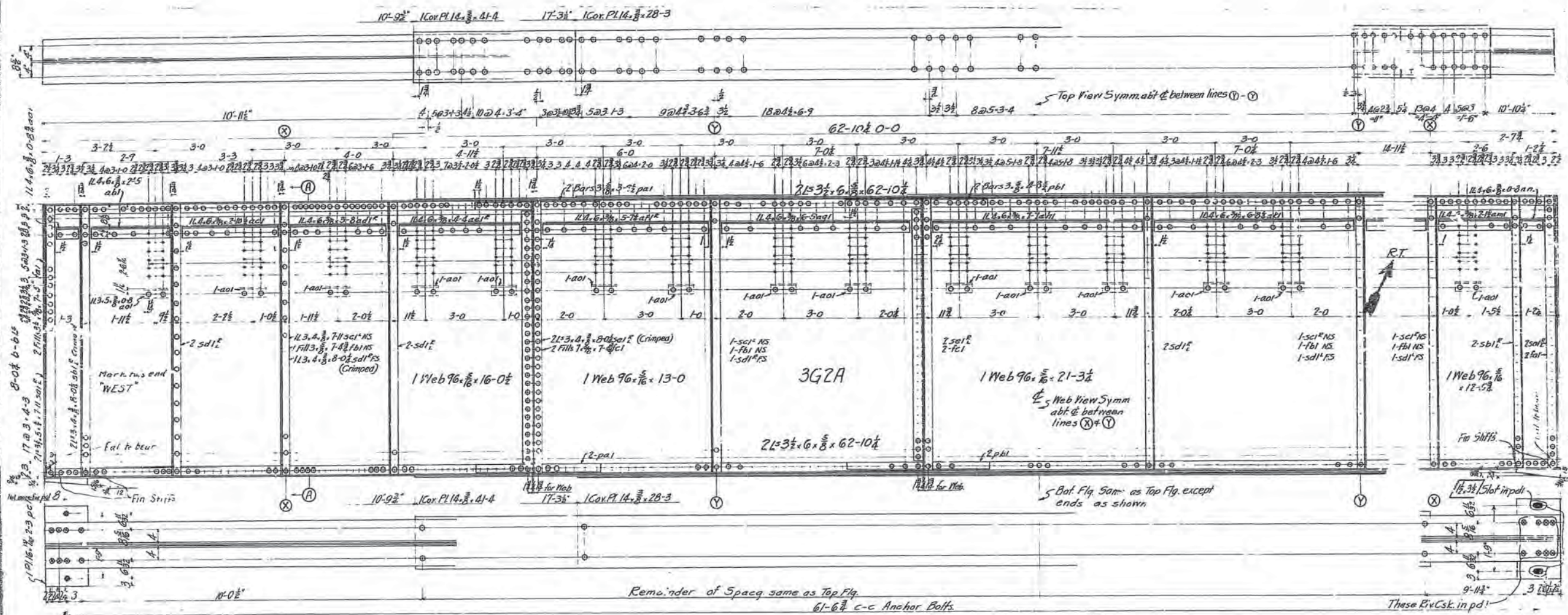
Erection Notes:
 Girders 2G2A, 2G2B, 3G2A & 3G2B must be set off 4" to permit erection of 24" I stringers, and then slip into position before erection of cross frames. Customer will give elevations required by constr. Contractor and erectors of steel.
 24" I Beam Stringers are not furnished by the Am Bridge Co.
 Holes in webs of Girs 2G1 & 3G1, for connection of stringer, punched 1/2" in shop; to be reamed to 15/16" in field at erectors expense.
 Holes in webs of other Girs, for connection of stringers, reamed to 15/16" in shop to a steel template.
 Face of stringer connection L1 A1, which connect to girder webs, punched 1/2", and are to be reamed to 15/16" in field at erectors expense. Face connecting to stringers reamed 1/2" in shop to a steel template.
 Field rivets to fasten end connection L1 A1 to stringers are not furnished by the Am Bridge Co.

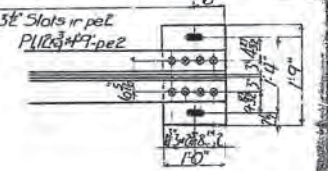
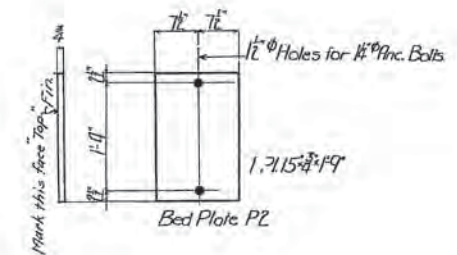
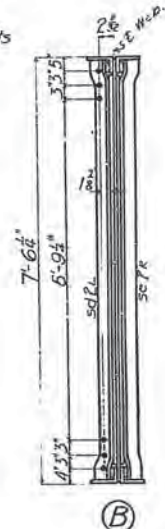
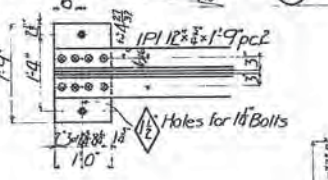
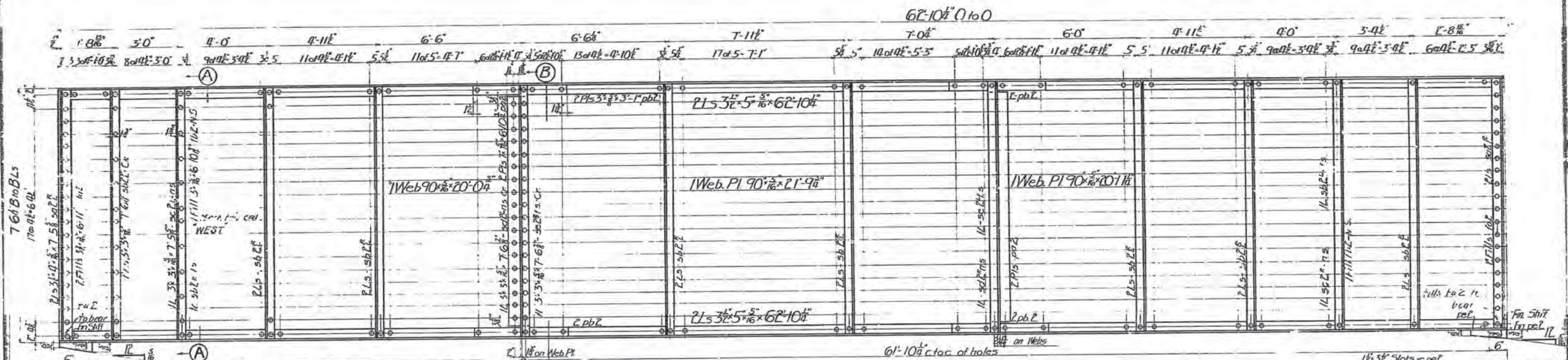
**WEST APPROACH
 Third Ave. Bridge
 MINNEAPOLIS, MINN.
 ERECTION PLAN**

Gary #1
 Gary
 Deck with
 J.O.R.
 E.R.M.

09856 EI

FILMING
 DATE
 BY
 BURKE MARSKE

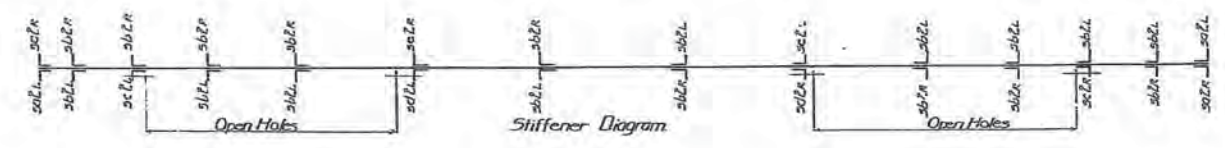




REQUIRED	
1	Girder 3G3B
2	Bed Plates P2

1-Bed Pl. P2 is to be used under Girder 3G3A - detailed on Steel 5.

WEST APPROACH
Third Ave. Bridge
MINNEAPOLIS, MINN.
Details of Girder 3G3B



Templet Note:
Work this sheet with 5h*4.

GENERAL NOTES:
RIVETS: 3/4" diam.
OPEN HOLES: 1/2" diam. unless noted.
PAINT: See sheet No. 1.
REMARKS: None.

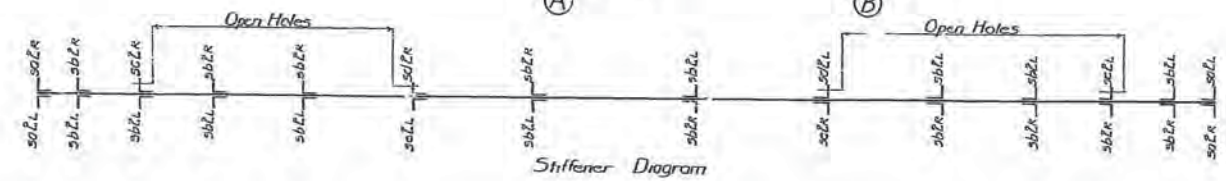
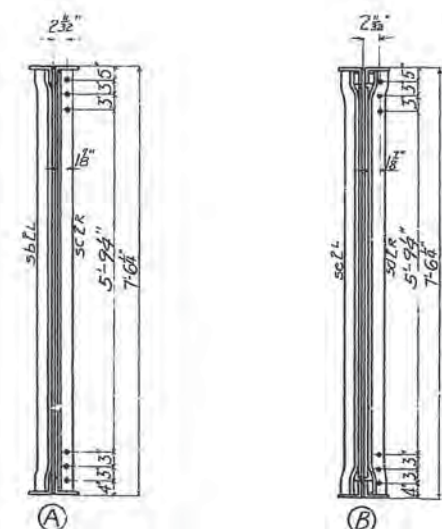
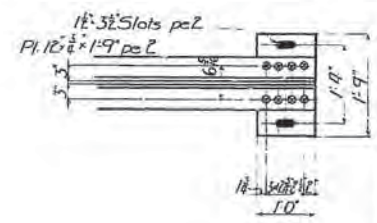
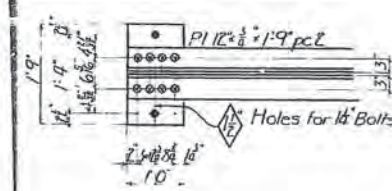
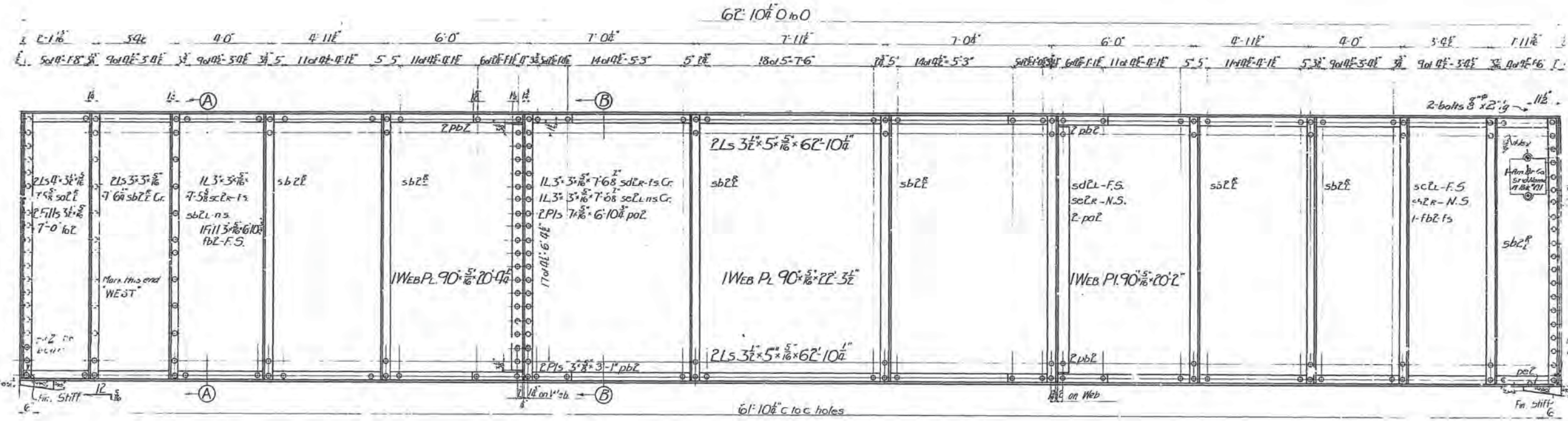
Gory #1
Gory
Beckwith
L.H.K.
F.R.H.

9-12-16
9-28-16

Main Mat. ord. P. 119 L.H.K.
Detail - . . . 9

C9856

FILING
DATE
BY
BURKE WAYSKE



REQUIRED	
1	Girder 3G3A

WEST APPROACH
Third Ave. Bridge
 MINNEAPOLIS, MINN.
 Details of Girder 3G3A

Templet Note:
Work this sheet with Sh.#2.

GENERAL NOTES:
 RIVETS: $\frac{3}{4}$ " diam.
 OPEN HOLES: $\frac{1}{16}$ " diam. unless noted.
 PAINT: See sheet No. 1
 REMARKS: None

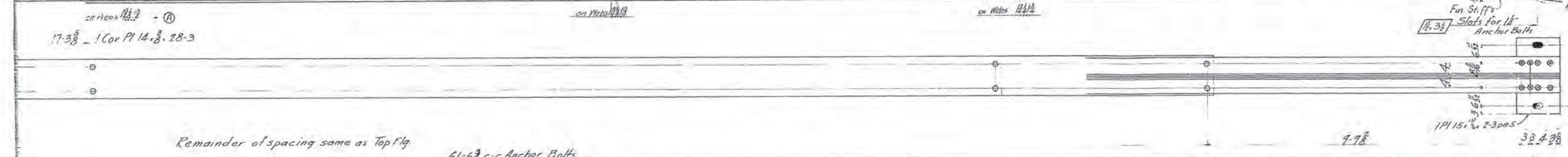
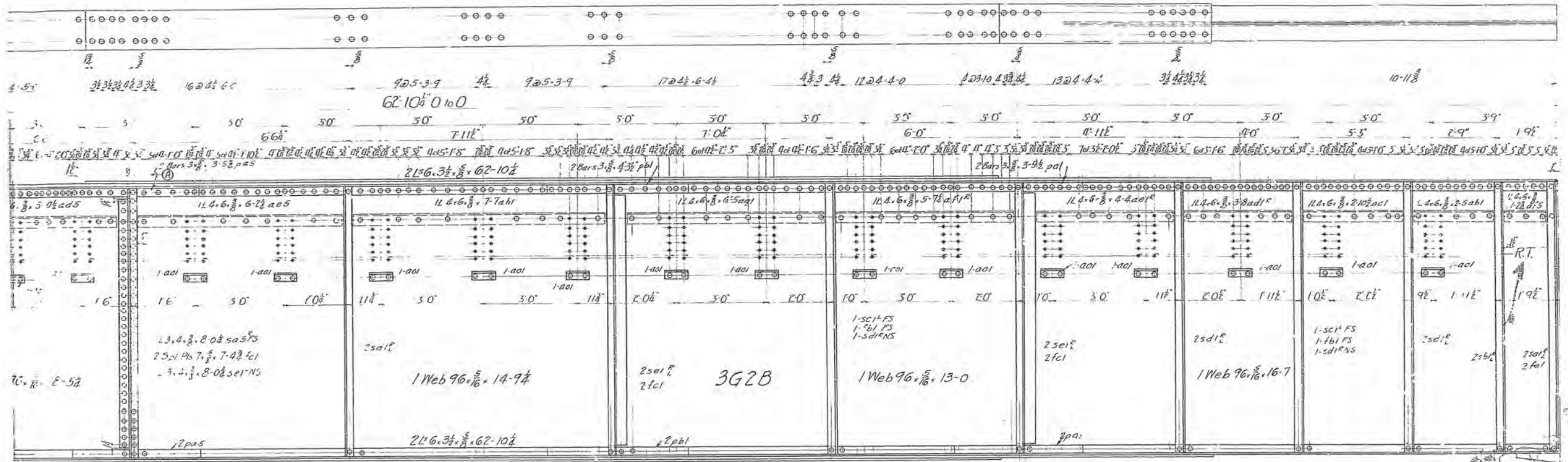
Gary #1
 Gary Deckwaff
 L.H.K. 4-13-16
 E.R.H. 4-28-16

Main Mat. ord. P.H. #1
 Det. P.H. #1 L.H.K.

C9856 4

FILMING
 DATE
 BY
 BURKE MARSH

17-38 1 Cor Pl 14. 28-3



Remainder of spacing same as Top Flg. 61-6 3/4 c-c Anchor Bolts

REQUIRED		
1	Girder	392B

WEST APPROACH
Third Ave. Bridge
MINNEAPOLIS, MINN.
Details of Girder 392B

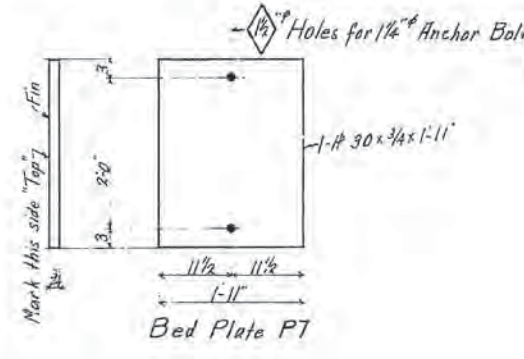
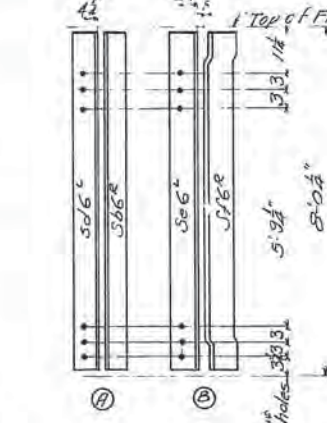
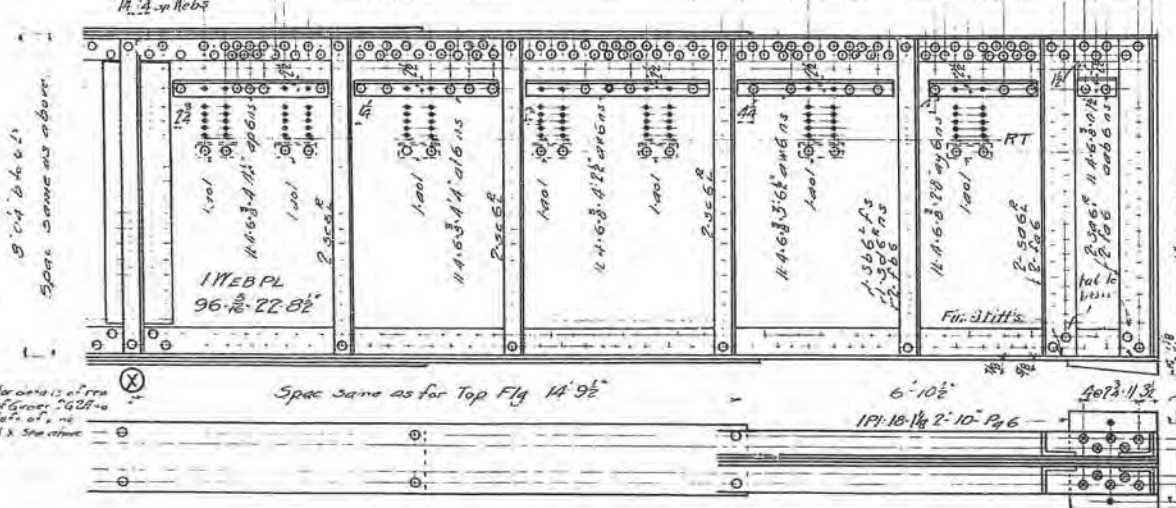
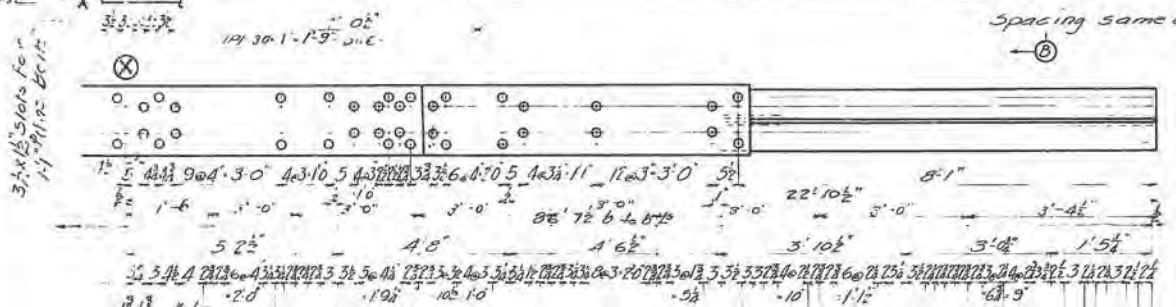
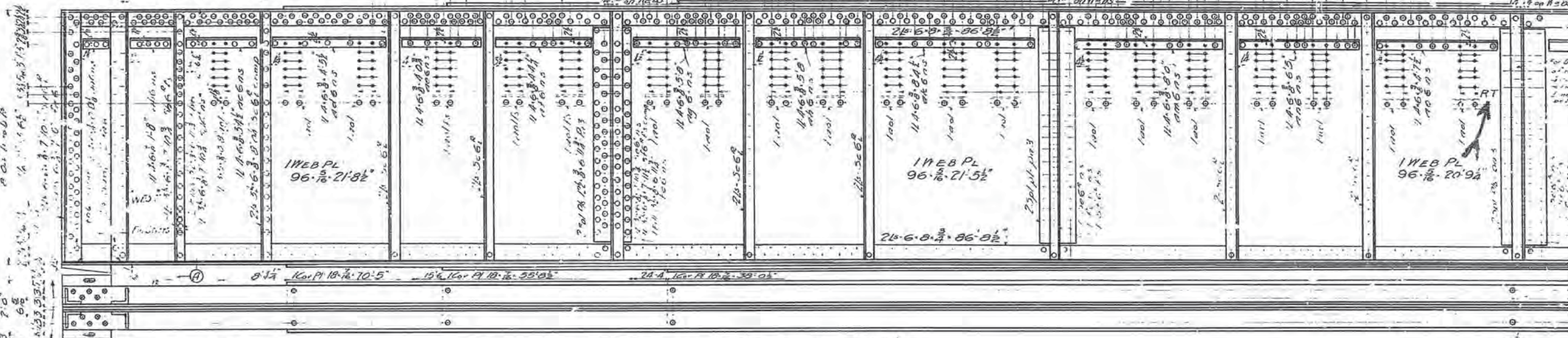
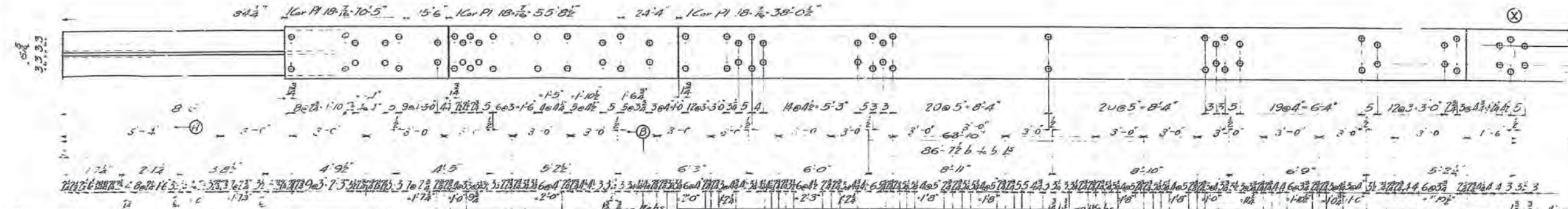
Templet Note:
Work this sheet with Sh #1

GENERAL NOTES:
RIVETS: 5/8" diam
OPEN HOLES: 5/8" diam unless noted
PAINT: See sheet No. 1
REAMING: All open hole in Web Pl to be sub-punched 5/8" diam, and reamed 5/8" diam to a steel templet.
No other reaming.

AMERICAN BRIDGE COMPANY
DRAWING MADE BY Gary #1
WORK ENGINEERED BY Gary
IN CHARGE BY Backwith
DRAWN MADE BY W.W.
CHECKED BY E.R.M.
ORDER NO. C9856
SHEET NO. 5

Rev-7-28-16
Matlan-Sh-1-4-9 H.W.

FILMING DATE
BY BURKE MARSKE



REQUIRED	
1	Girder 262A-1T
1	Bed Plate PT

WEST APPROACH
 Third Ave. Bridge
 MINNEAPOLIS, MINN.
 Details of GIRDER 262A

Template Note:
 Work this sheet with 30" 3

GENERAL NOTES:
 RIVETS: 3/8" diam.
 OPEN HOLES: 1/4" diam. unless noted.
 PAINT: See sheet No. 1
 FINISH: All open holes in this P.T. to be filled with 100% epoxy resin and steel reinforcement. No other reaming.

6" sub-punched 1/4" and reamed to 1/2"
 Rev. 8-25-16 Rev. 8-1-16

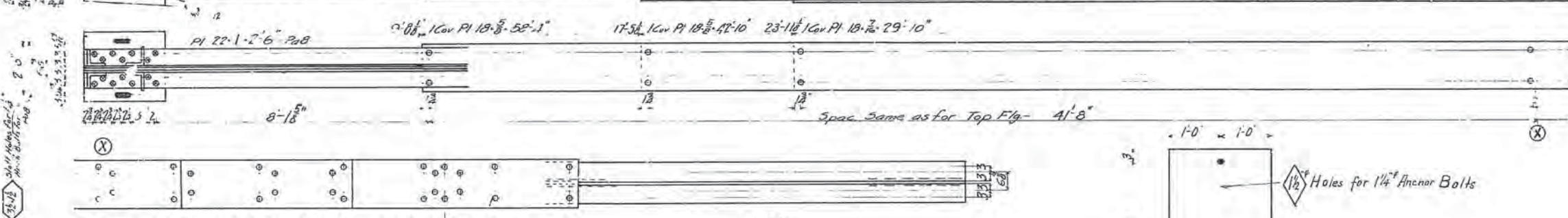
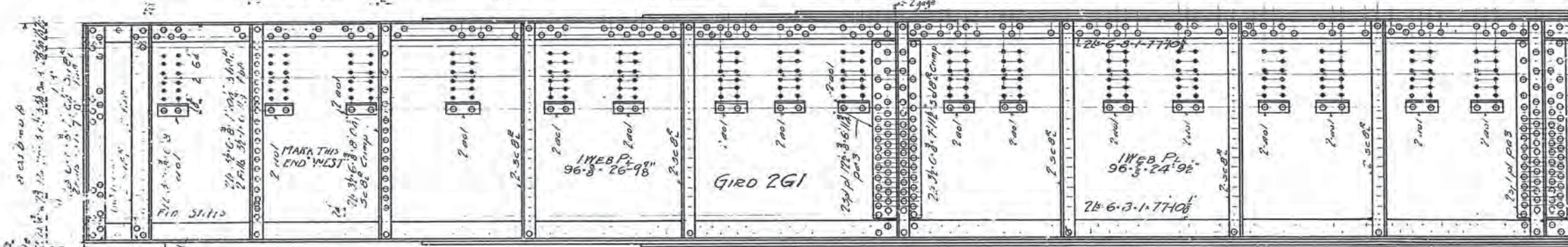
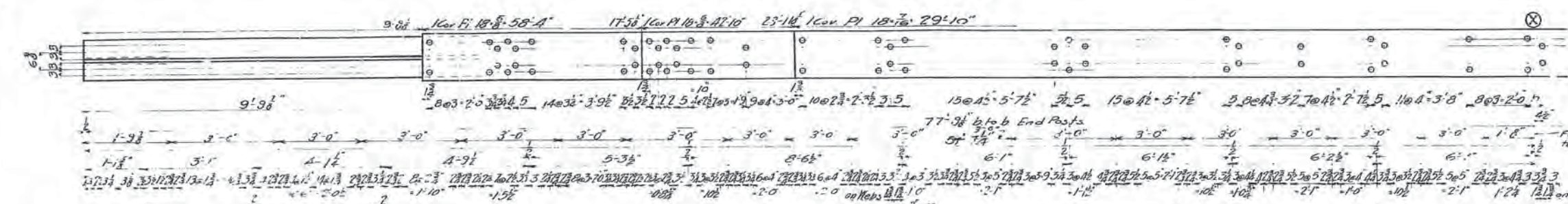
Rev. 7-28-16

Drawn by
 Gary Beck with
 Jule E.R.M.
 7/17-16
 4-28-16

C9856

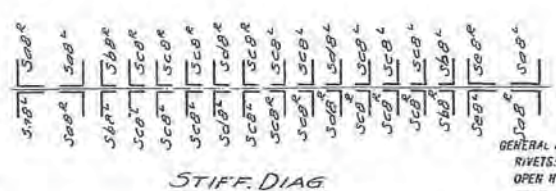
6

FILMING DATE
 BY BURKE MARSKO



REQUIRED		
1	Girder	2G1
1	Plate	PA

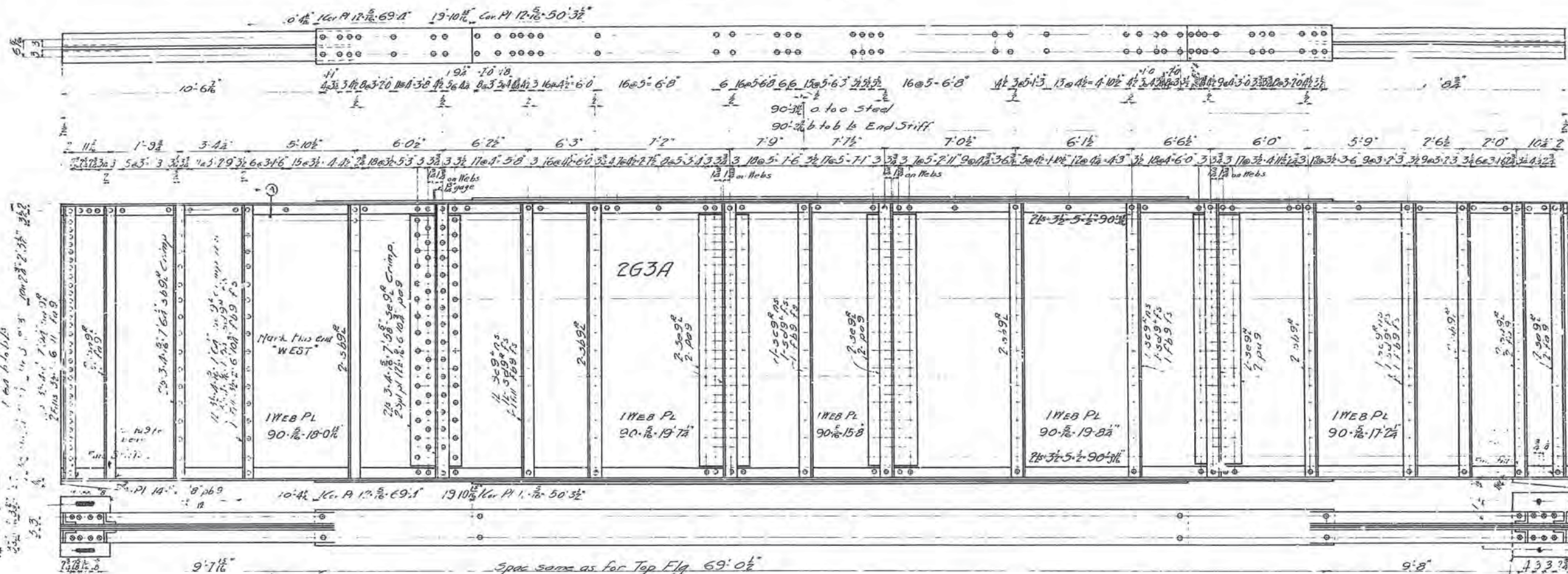
WEST APPROACH
Third Ave. Bridge
MINNEAPOLIS, MINN.
Details of GIRD 2G1



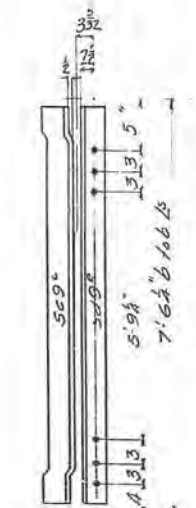
GENERAL NOTES:
RIVETS: 5/8" diam.
OPER HOLES: 1/2" diam. unless noted.
PAINT: See sheet A. 1
REMARKS: All open holes in web of Girds to be sub-punched 1/2" andreamed 1/2" in field at customer's expense. Top & Bot. Flg. to be sub-punched &reamed to 1/2".
Rev 7-28-16

Sory
Gary
Bank with
E.H.H.
4/18-16
7-28-16
C 9856 8
Not up 3 & 9

F. W. NG
DATE
BY
E. J. M. MARSH



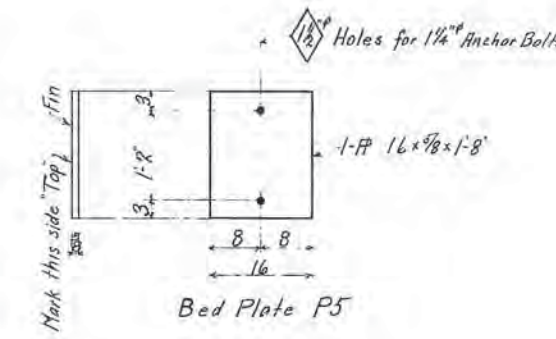
Mark this side Top 1/2" Fin
1 1/2" x 1 1/2" x 18' Anchor Bolts



Has Holes

STIFF DIAG

509	509	509	509	509	509	509	509	509	509	509	509	509	509	509	509	509	509	509	509
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



REQUIRED		
1	GIRDER	2G3A
1	PLATE	P5

WEST APPROACH
Third Ave. Bridge
MINNEAPOLIS, MINN.
Details of Girder 2G3A

Templet Note:
Work this sheet with Sh #11

GENERAL NOTES:
RIVETS: 1/2" diam.
OPER HOLES: 1/4" diam. unless noted.
PAINT: See sheet No. 1.
REWORKING: None

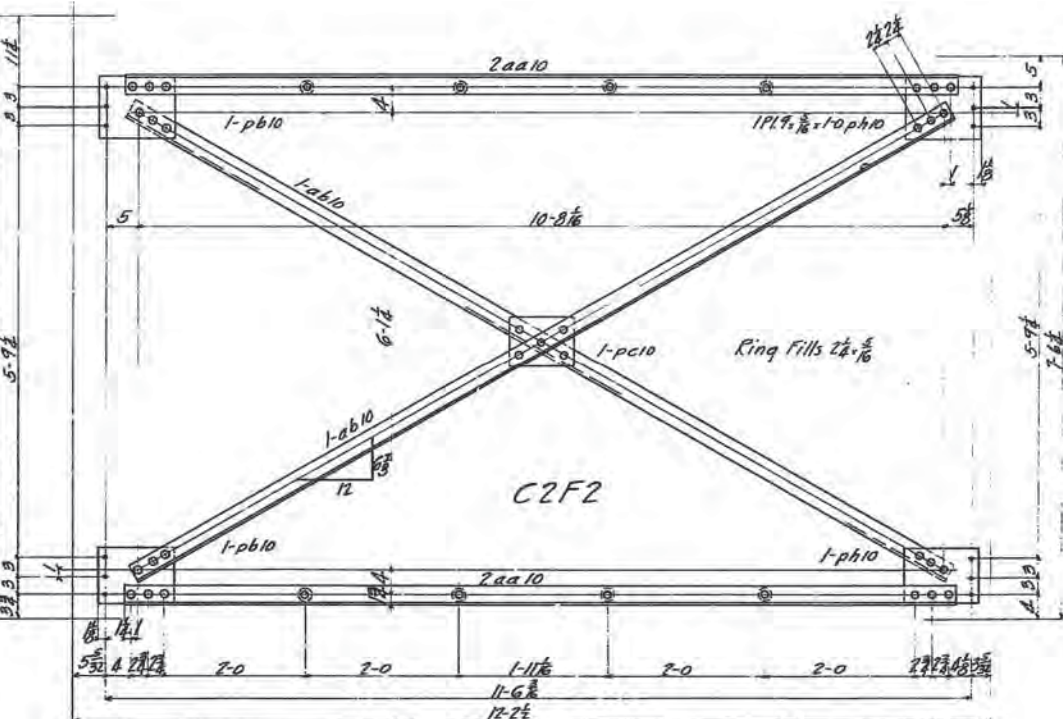
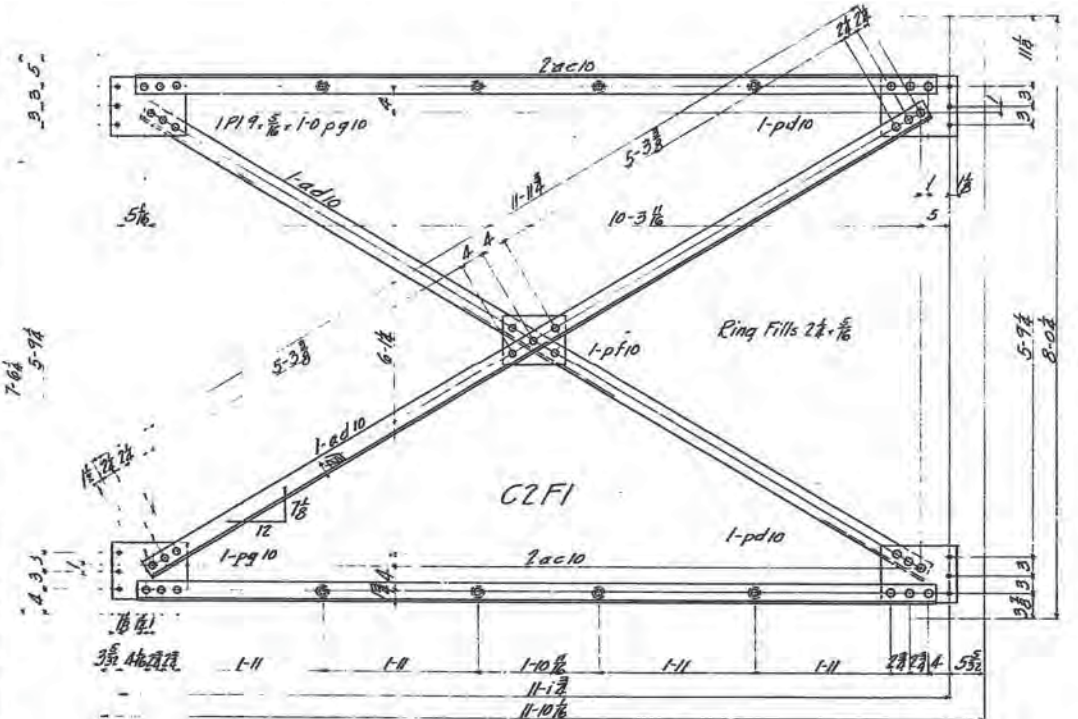
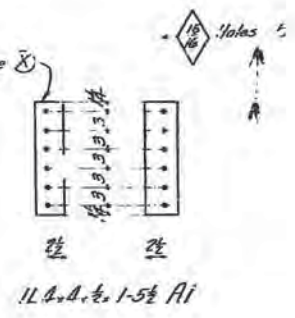
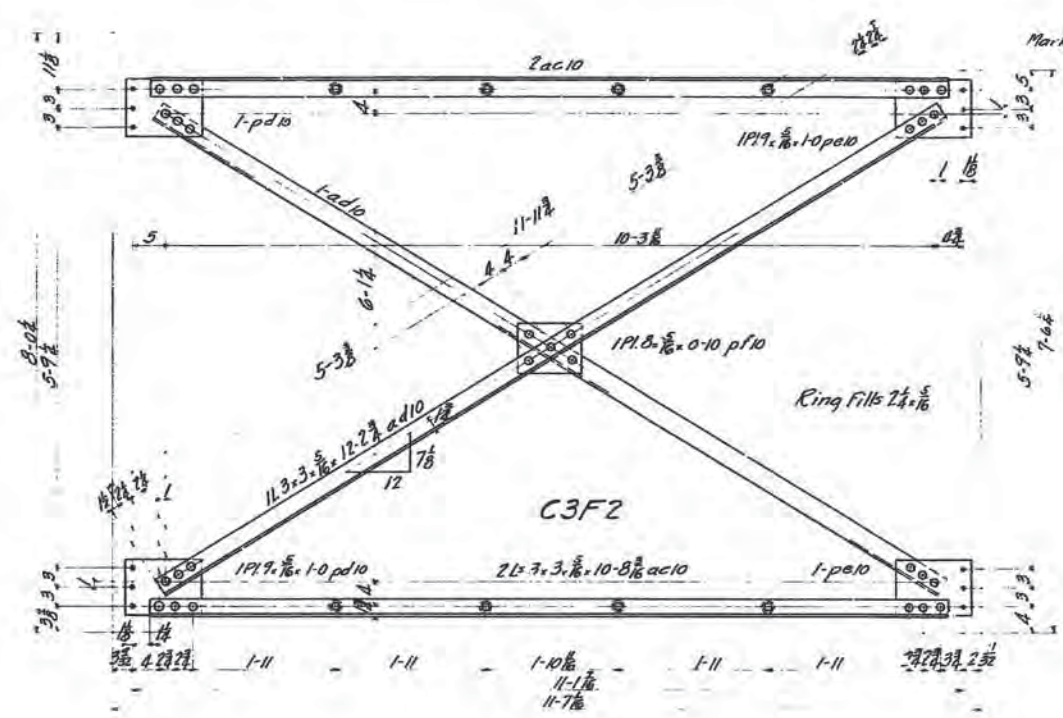
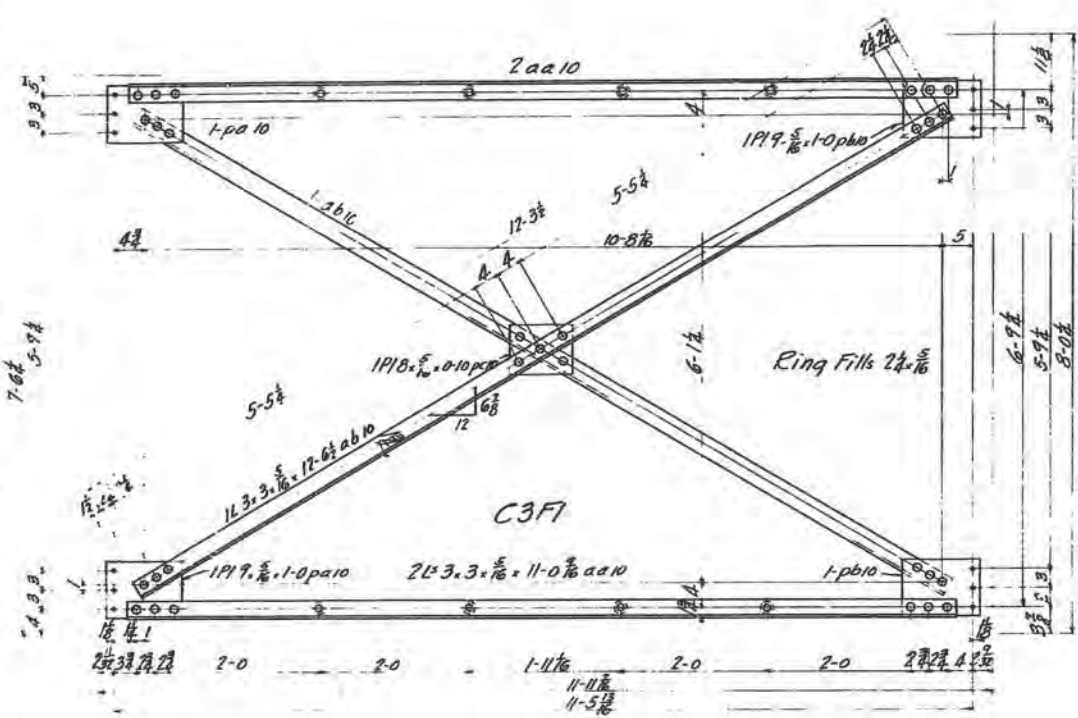
Gary
Gary Beckwith
julu
E.R.H. 4/20/16
4-28-16

Rev B-7-16

Rev. 7-28-16
Mall pt 6-9

C9856 9

FILMING
DATE
BY
BURKE MARSH



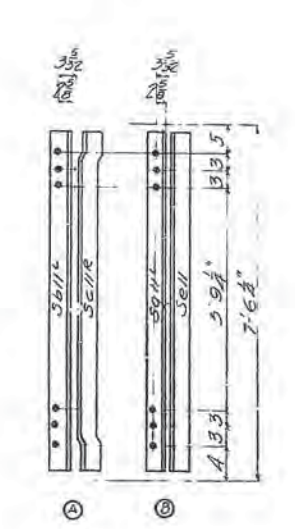
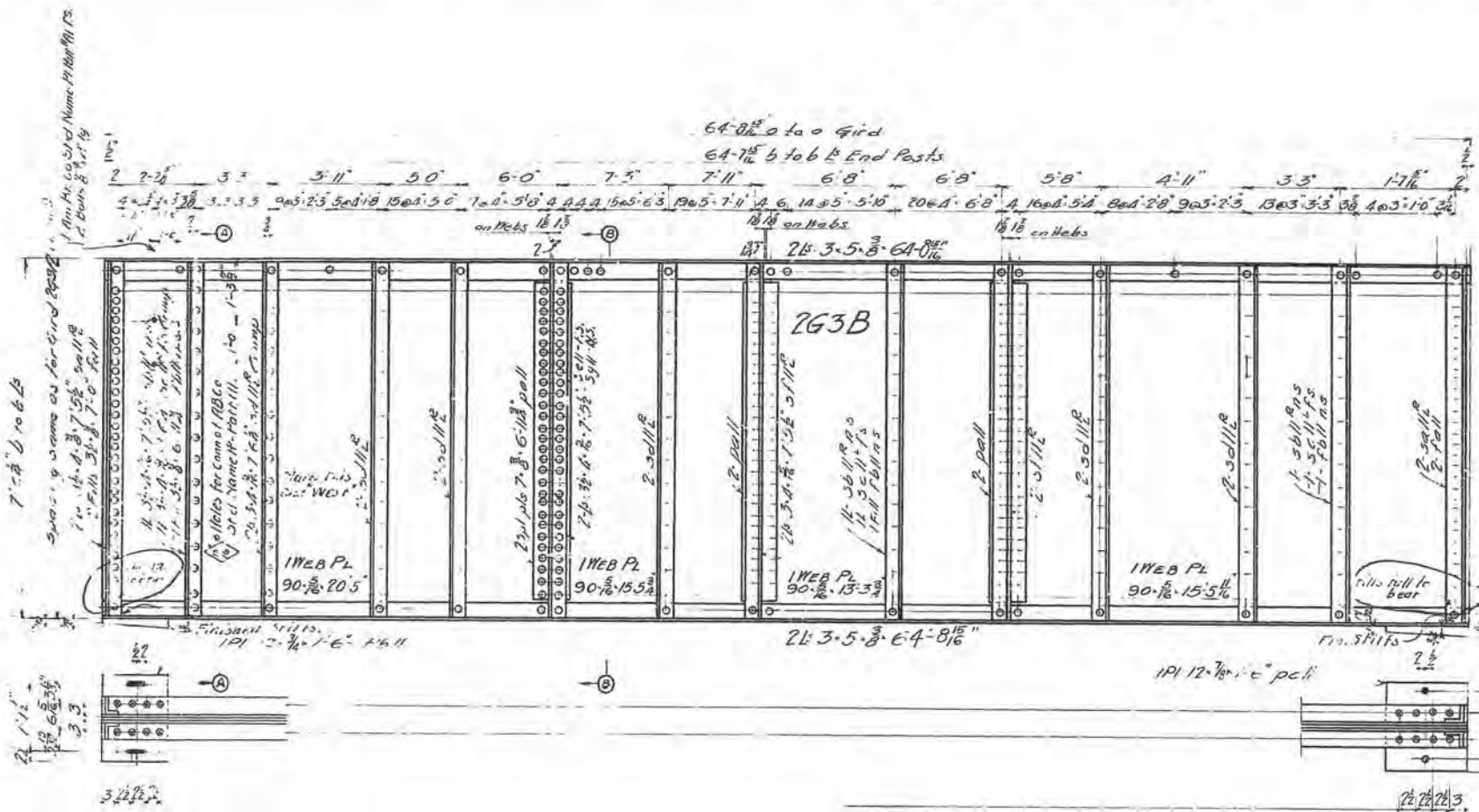
GENERAL NOTES
 Rivets 3/4"
 Open Holes 1/2" Unless Noted
 Paint See SH#1
 Reaming Holes marked L.T. in
 1/2" A1 are to be subpunched and
 reamed to 5/8" to a steel templet
 all other holes punched full size

REQUIRED		
4	Cross Frames	C3F1
4	"	C3F2
4	"	C2F1
5	"	C2F2
360		A1

WEST APPROACH
 Third Ave. Bridge
 MINNEAPOLIS, MINN.
 Details of Cross Frames

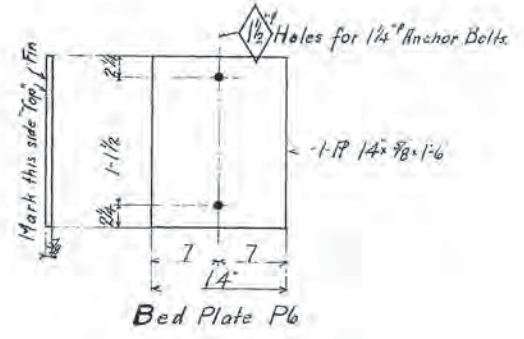
Gary #1
 Gary
 Jack with
 M.M. 4-20
 E.R.H. 4-22

C9856 10
 Matt. on Sh 5-6 11/11



STIFF DIAG

Scall	Scall
Scall	Scall
Scall	Scall
Scall	Scall
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Scall	Scall
Scall	Scall



REQUIRED		
1	G.I.O.E.2	2G3B
1	PLATE	P6

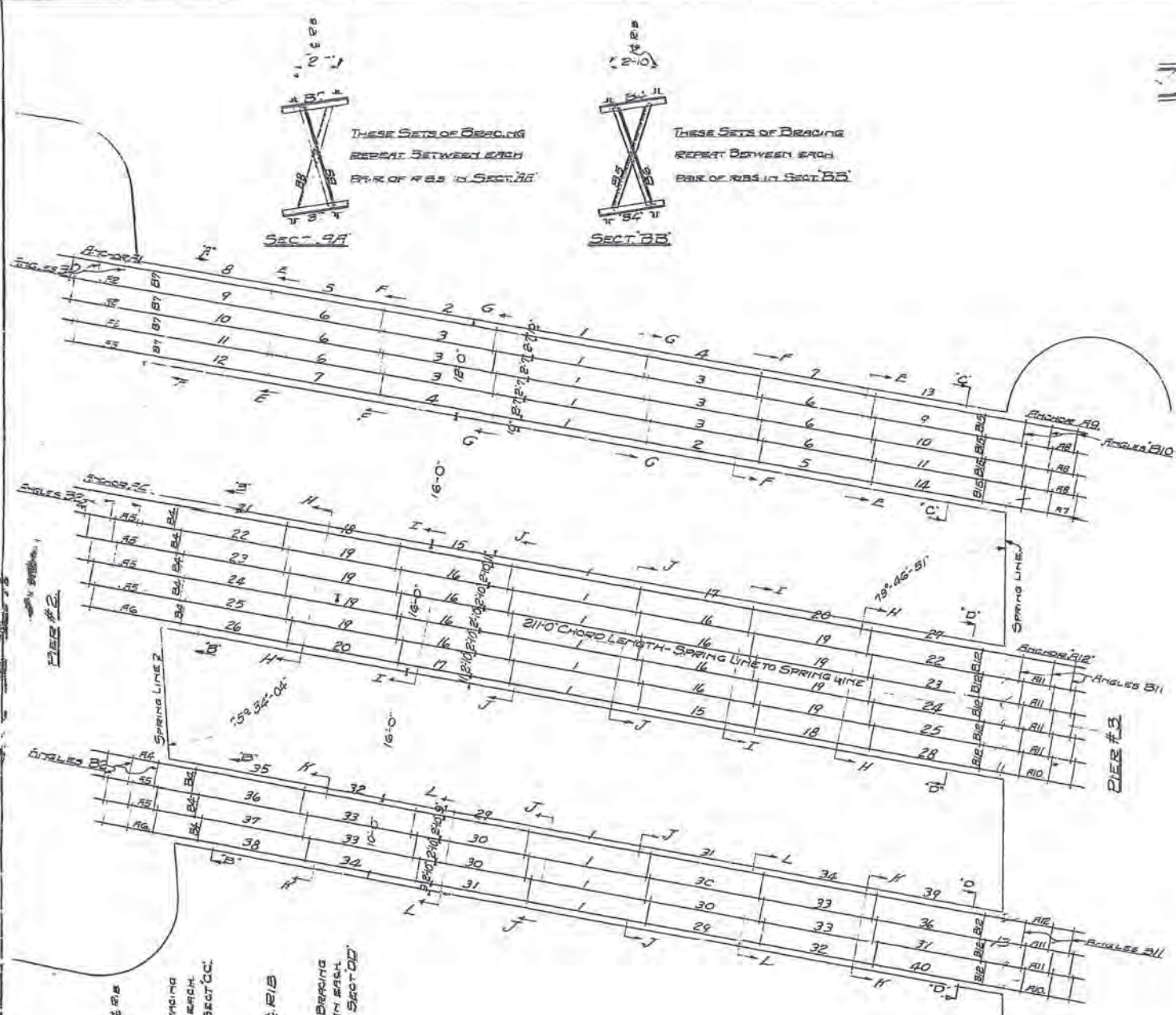
WEST APPROACH
Third Ave. Bridge
MINNEAPOLIS, MINN.
Details of Gir. 2G3B

Templet Note:
Work this sheet with Sh. #9.

GENERAL NOTES:
RIVETS: 3/8" dia.
OPEN HOLES: 1/8" diam. unless noted.
PAINT: See sheet No. 7
Reaming - None

Gary #1
Gary
Deck with
4/20/16
4/20/16

C9856
11
Rev. 7-28-16
11/11 2-6-2



THESE SETS OF BRACING
REPEAT BETWEEN EACH
PAIR OF RIBS IN SECT. AA



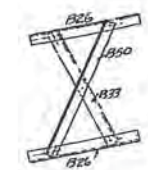
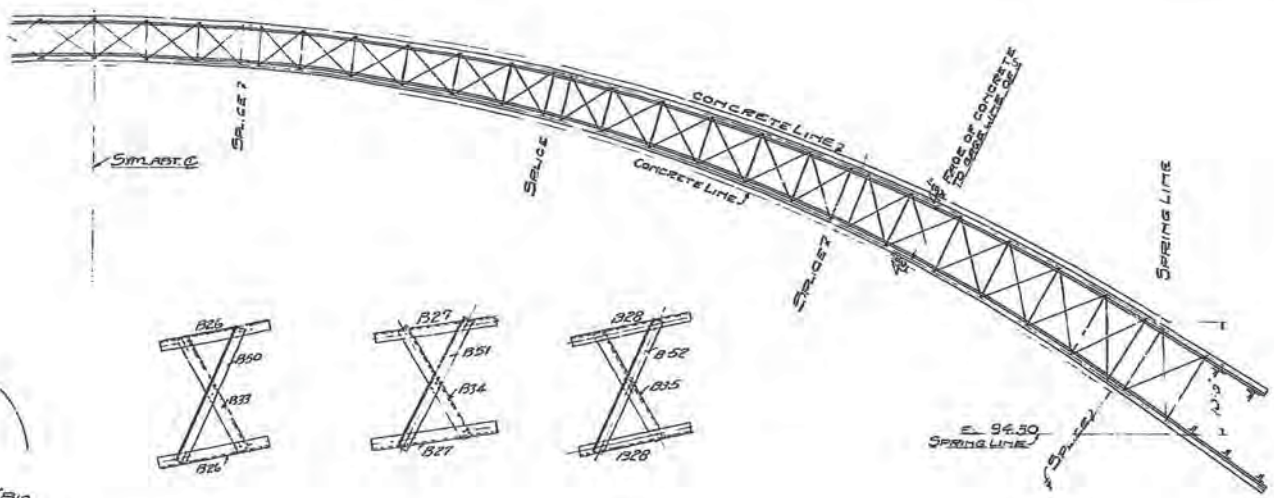
THESE SETS OF BRACING
REPEAT BETWEEN EACH
PAIR OF RIBS IN SECT. BB



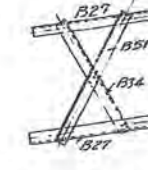
THESE SETS OF BRACING
REPEAT BETWEEN EACH
PAIR OF RIBS IN SECT. CC



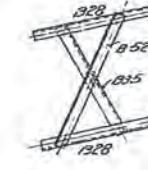
THESE SETS OF BRACING
REPEAT BETWEEN EACH
PAIR OF RIBS IN SECT. DD



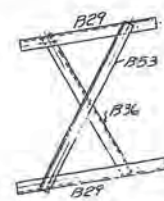
SECT. EE



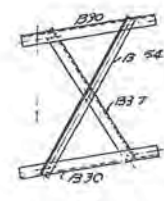
SECT. FF



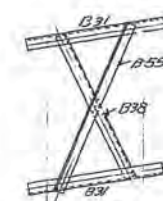
SECT. GG



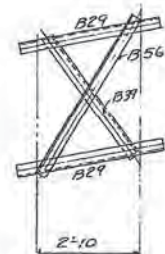
SECT. HH



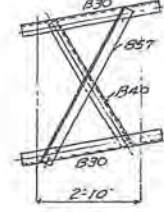
SECT. II



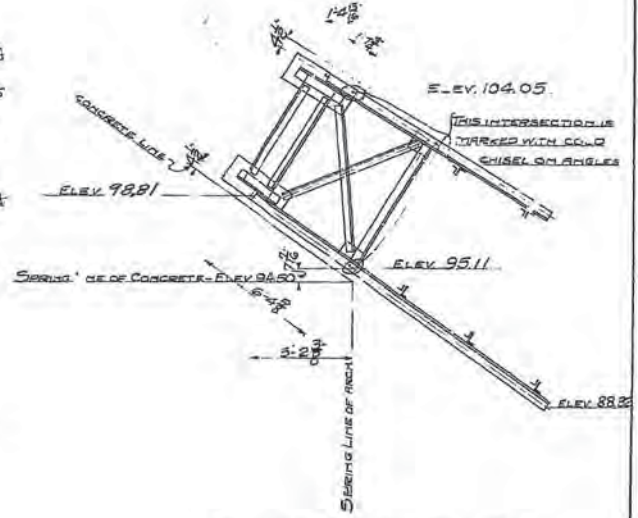
SECT. JJ



SECT. KK



SECT. LL



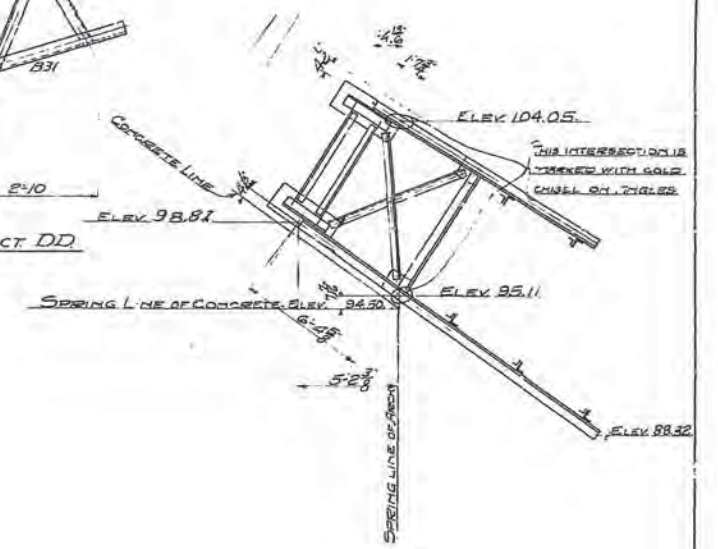
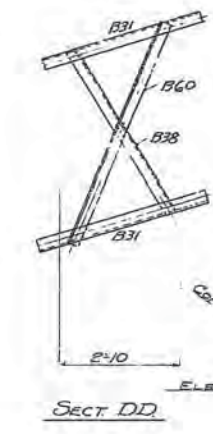
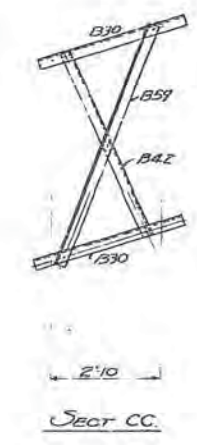
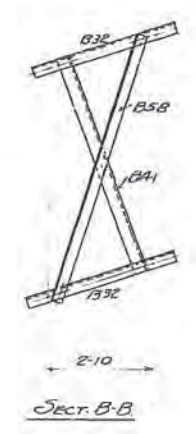
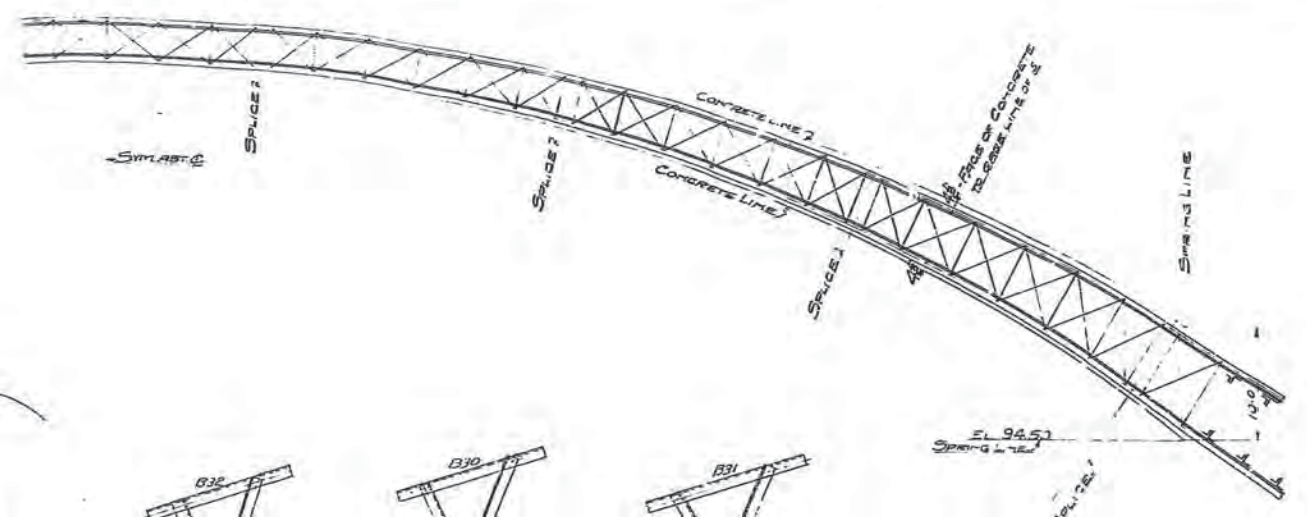
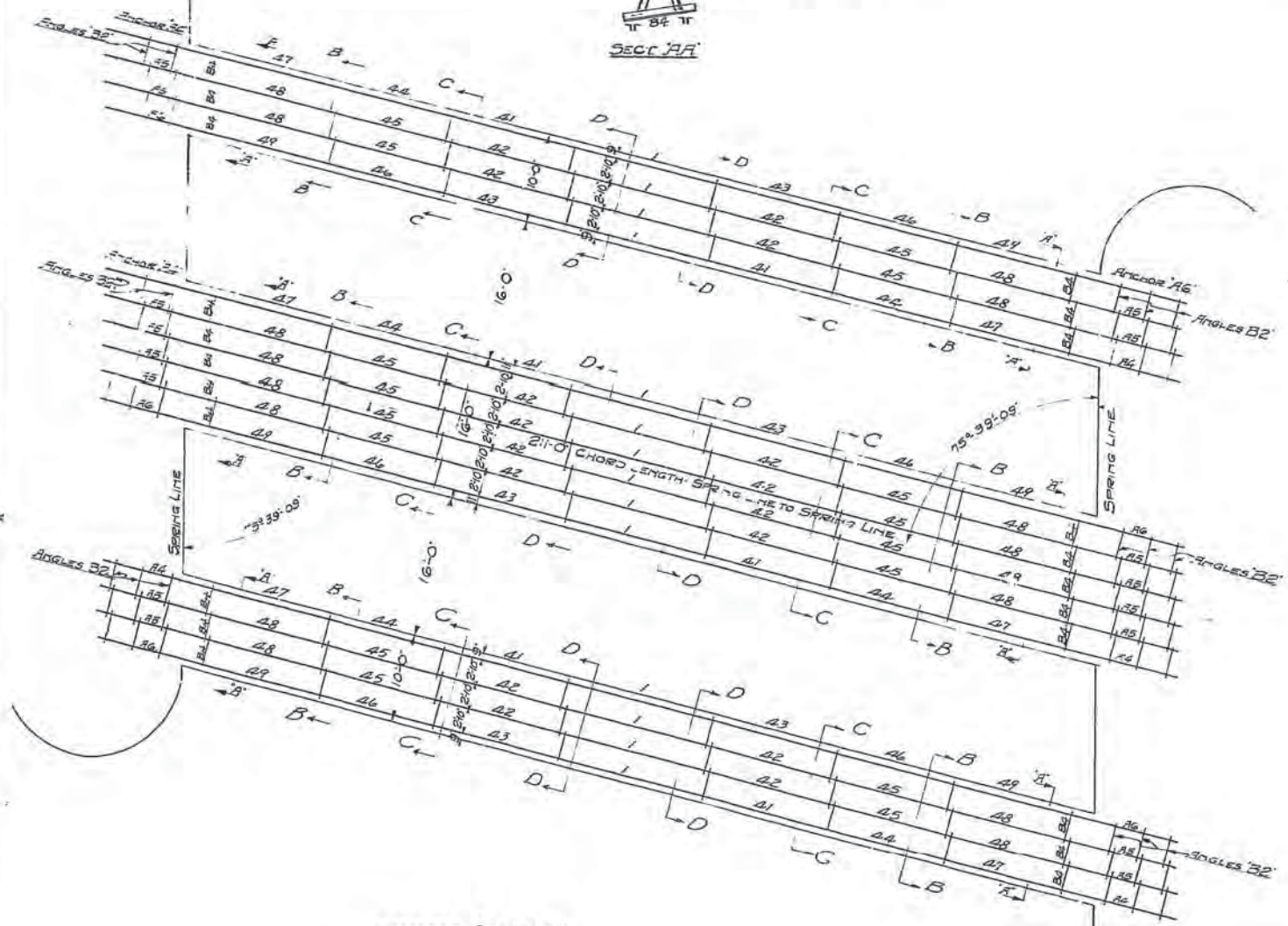
SECTION SHOWING ELEVATIONS
FOR SETTING RIB ANCHORS

ERECTION PLAN
FOR
SPAN # 3
3RD AVE BRIDGE
MPLS, MINN.

MINNEAPOLIS STEEL & MACHINERY CO.
MINNEAPOLIS, MINN.
APPROVED _____ CHIEF ENGR.
MADE BY DIMOND DATE 9-14-1914
TRACED BY LINDGREN DATE 9-15-1914
CHECKED BY _____ DATE _____
ORDER NO. 68110 SHEET 10
EACH



FILING
DATE
BY
E. W. KE MARSKE



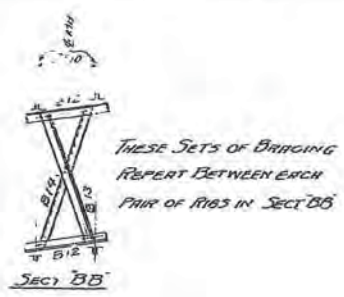
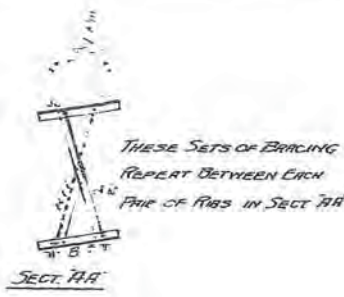
SECTION SHOWING ELEVATIONS FOR SETTING RIB ANCHORS

ERECTION PLAN FOR SPANS 4-5-6 3RD AVE BRIDGE MINNEAPOLIS, MINN.

MILWAUKEE STEEL & MACHINERY CO. MILWAUKEE, WIS. APPROVED _____ CHIEF ENGR. MADE BY DUNFORD DATE SEPT 16, 1914. TRACED BY LINDSEEN DATE 10, 1914. CHECKED BY CHASE DATE 10, 1914. ORDER NO. 68110 SHEET NO. 2 D. 150 E. B. TEACH



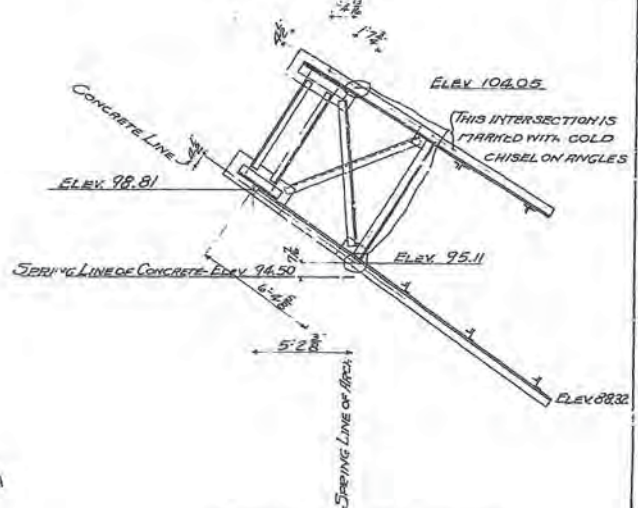
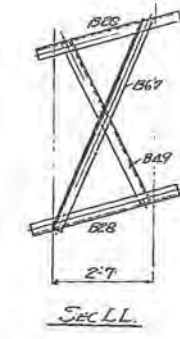
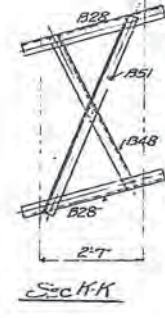
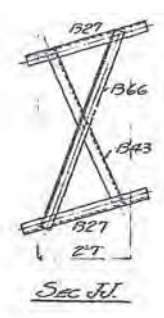
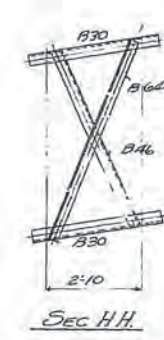
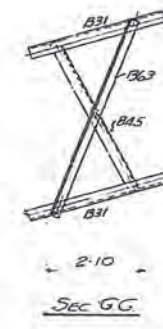
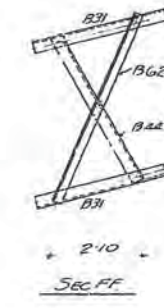
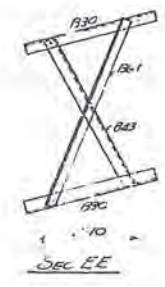
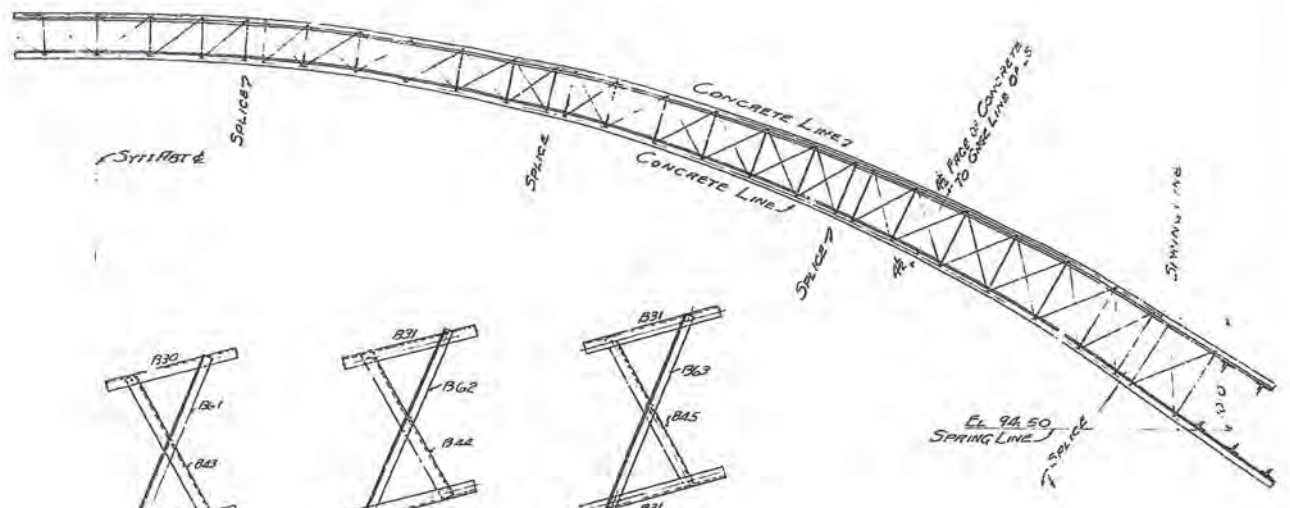
FILMING DATE: BY BURKE MARSKE



THESE SETS OF BRACING REPEAT BETWEEN EACH PAIR OF RIBS IN SECT CC



THESE SETS OF BRACING REPEAT BETWEEN EACH PAIR OF RIBS IN SECT DD



SECTION SHOWING ELEVATIONS FOR SETTING RIB ANCHORS

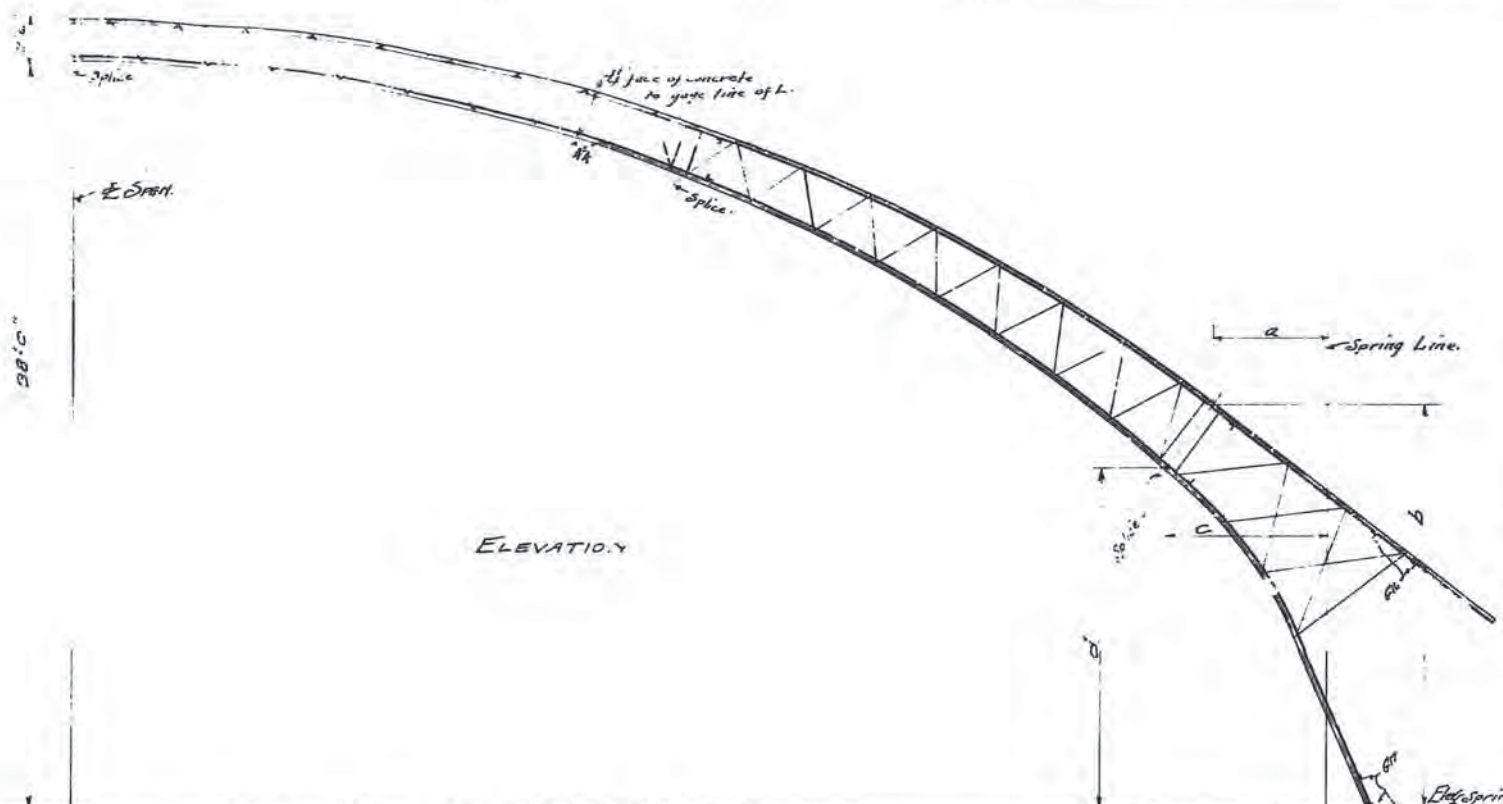
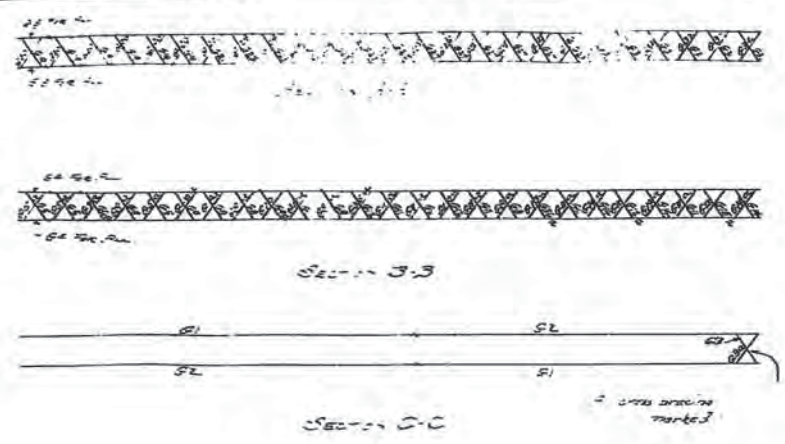
ERECTION PLAN FOR SPRING # 7 3RD AVE BRIDGE MPLS MINN

MINNEAPOLIS STEEL & MACHINERY CO. MINNEAPOLIS MINN.
 APPROVED _____ CHIEF ENG
 MADE BY D. D. D. DATE SEPT-26-1914
 TRACED BY C.T. DATE 28-1914
 CHECKED BY Chas. DATE _____
 ORDER NO. 68110 SHEET NO. 3

Draw 151 Env. 8 TEACH

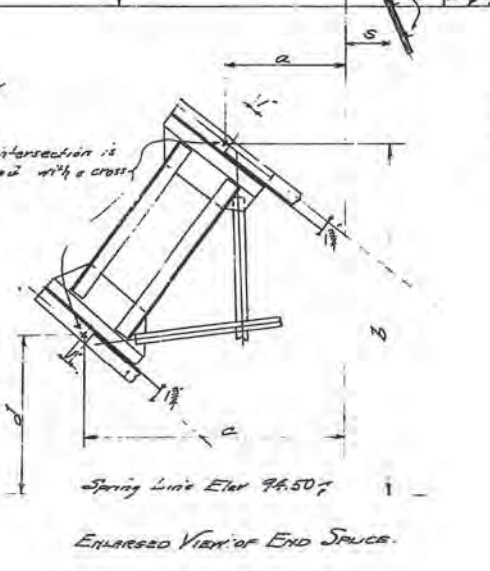
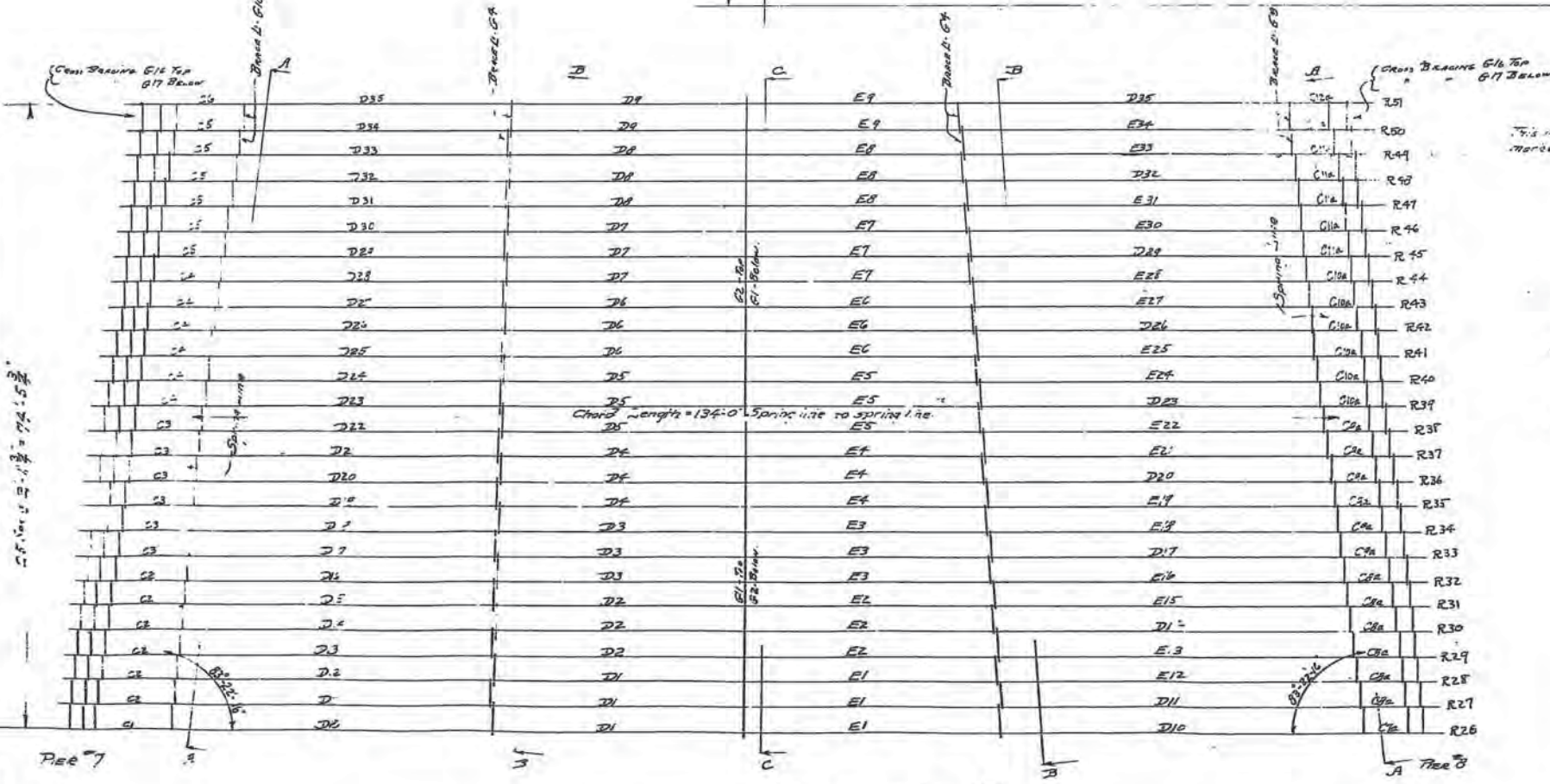


FILING DATE: _____ BY BURKE MARSH



Rib	a	b	c	d
R1	6.04	20.64	1.29	17.25
R2	6.81	-	9.25	-
R3	6.78	-	9.23	-
R4	6.75	-	9.22	-
R5	6.71	-	9.18	-
R6	6.67	-	9.14	-
R7	6.64	-	9.12	-
R8	6.59	20.58	9.12	17.28
R9	6.53	-	9.11	-
R10	6.50	-	9.11	-
R11	6.46	-	9.10	-
R12	6.43	-	9.10	-
R13	6.40	-	9.10	-
R14	6.3	20.52	9.10	17.31
R15	6.28	-	9.10	-
R16	6.25	-	9.10	-
R17	6.21	-	9.10	-
R18	6.18	-	9.10	-
R19	6.15	-	9.10	-
R20	6.12	20.44	9.10	17.35
R21	6.08	-	9.10	-
R22	6.04	-	9.10	-
R23	6.01	-	9.10	-
R24	5.97	-	9.10	-
R25	5.93	-	9.10	-

Dimensions a-b-c+d are for anchors at each end of rib



Rib	S
R26-32	2'-0 1/2"
R33-38	2'-0 3/4"
R39-44	2'-1 1/4"
R45-51	2'-1 1/2"

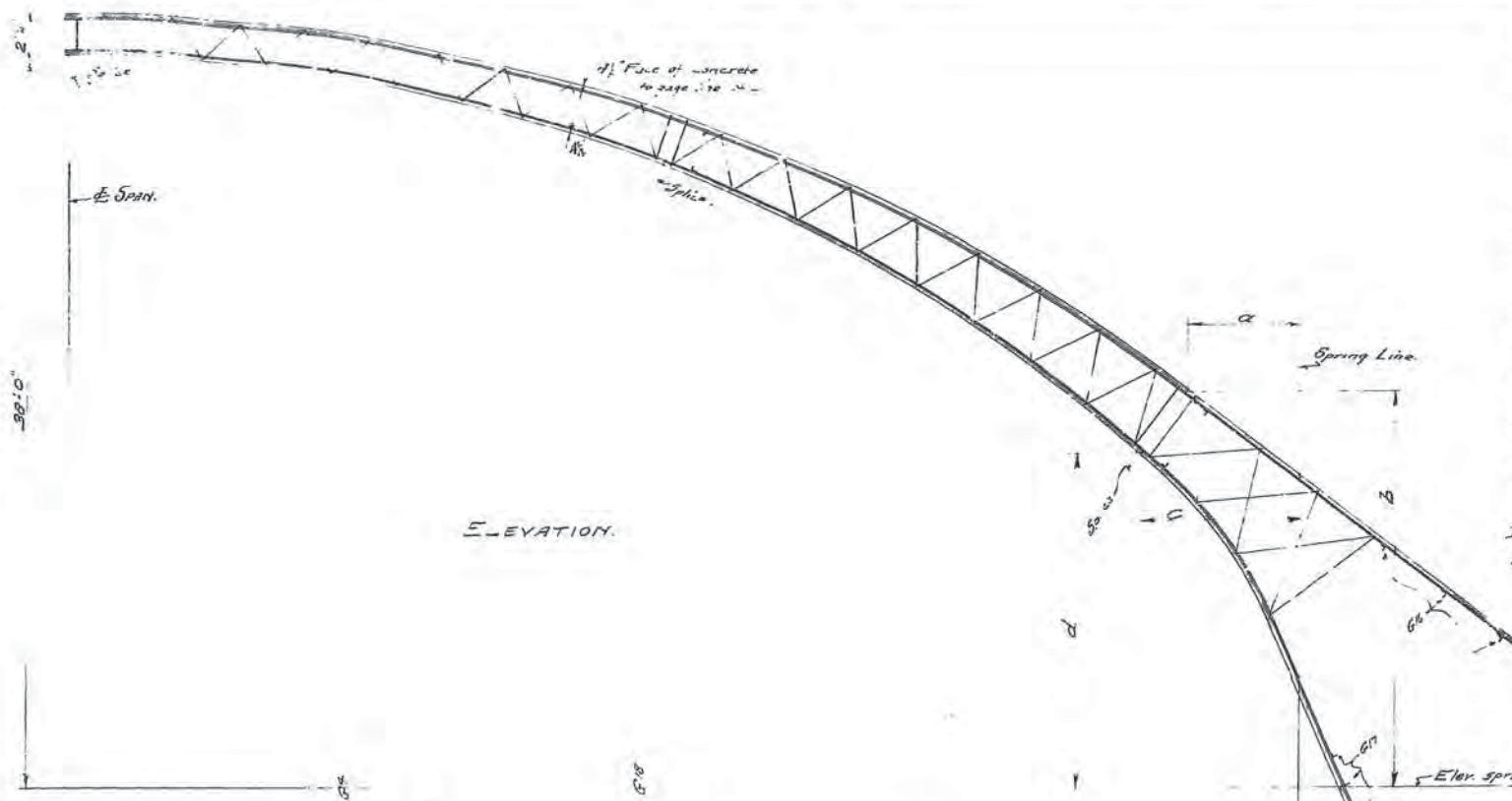
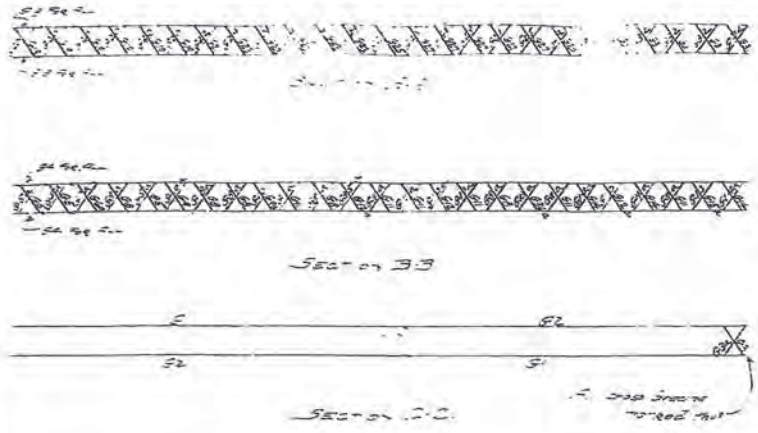
PLAN OF SPAN #8

ERECTION PLAN
FOR
SPAN #8
3RD AVE. BRIDGE
Mpls., Minn.
MINNEAPOLIS STEEL & MACHINERY CO.
Minneapolis, Minn.
Approved by _____
Made by CHASE
Turned in by _____
Checked by _____
ORDER No. 68110 SH. No. 4

Drawg. 152 Env. : B TRAC.



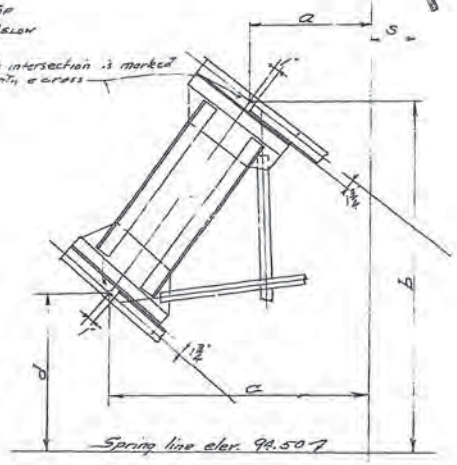
FILING DATE
JUN 24 1911
BY
JURKE MARSH



Rib	a	b	c	d
R26	6.88	20.64	9.21	17.85
R27	6.81		9.26	
R28	6.78		9.33	
R29	6.75		9.38	
R30	6.71		9.43	
R31	6.67		9.48	
R32	6.64		9.53	
R33	6.61	20.58	9.58	17.85
R34	6.58		9.63	
R35	6.54		9.68	
R36	6.51		9.73	
R37	6.48		9.78	
R38	6.45		9.83	
R39	6.42	20.52	9.88	17.81
R40	6.39		9.93	
R41	6.36		9.98	
R42	6.33		10.03	
R43	6.30		10.08	
R44	6.27		10.13	
R45	6.24	20.46	10.18	17.75
R46	6.21		10.23	
R47	6.18		10.28	
R48	6.15		10.33	
R49	6.12		10.38	
R50	6.09		10.43	
R51	6.06		10.48	

Dimensions a-b-c-d are for anchors at each end of rib.

Span	Chord	Web	Diagonal	Member	Span	Chord	Web	Diagonal	Member
22	D35	D9	E7	D35	E6A	R51			
21	D34	D8	E6	E34	G5A	R50			
20	D33	D7	E5	E33	G5A	R49			
19	D32	D6	E4	E32	G5A	R48			
18	D31	D5	E3	E31	G5A	R47			
17	D30	D4	E2	E30	G5A	R46			
16	D29	D3	E1	D29	G5A	R45			
15	D28	D2	E0	E28	C9A	R44			
14	D27	D1	E-1	E27	C9A	R43			
13	D26	D0	E-2	D26	C9A	R42			
12	D25	D-1	E-3	E25	C9A	R41			
11	D24	D-2	E-4	E24	C9A	R40			
10	D23	D-3	E-5	D23	C9A	R39			
9	D22	D-4	E-6	E22	C3A	R38			
8	D21	D-5	E-7	E21	C3A	R37			
7	D20	D-6	E-8	D20	C3A	R36			
6	D19	D-7	E-9	E19	C3A	R35			
5	D18	D-8	E-10	E18	C3A	R34			
4	D17	D-9	E-11	D17	C3A	R33			
3	D16	D-10	E-12	E16	C2A	R32			
2	D15	D-11	E-13	E15	C2A	R31			
1	D14	D-12	E-14	D14	C2A	R30			
0	D13	D-13	E-15	E13	C2A	R29			
-1	D12	D-14	E-16	E12	C2A	R28			
-2	D11	D-15	E-17	D11	C2A	R27			
-3	D10	D-16	E-18	D10	C1A	R26			



Rib	s
R26-32	2'-0 1/4"
R33-38	2'-0 3/4"
R39-44	2'-1 1/4"
R45-51	2'-1 1/2"

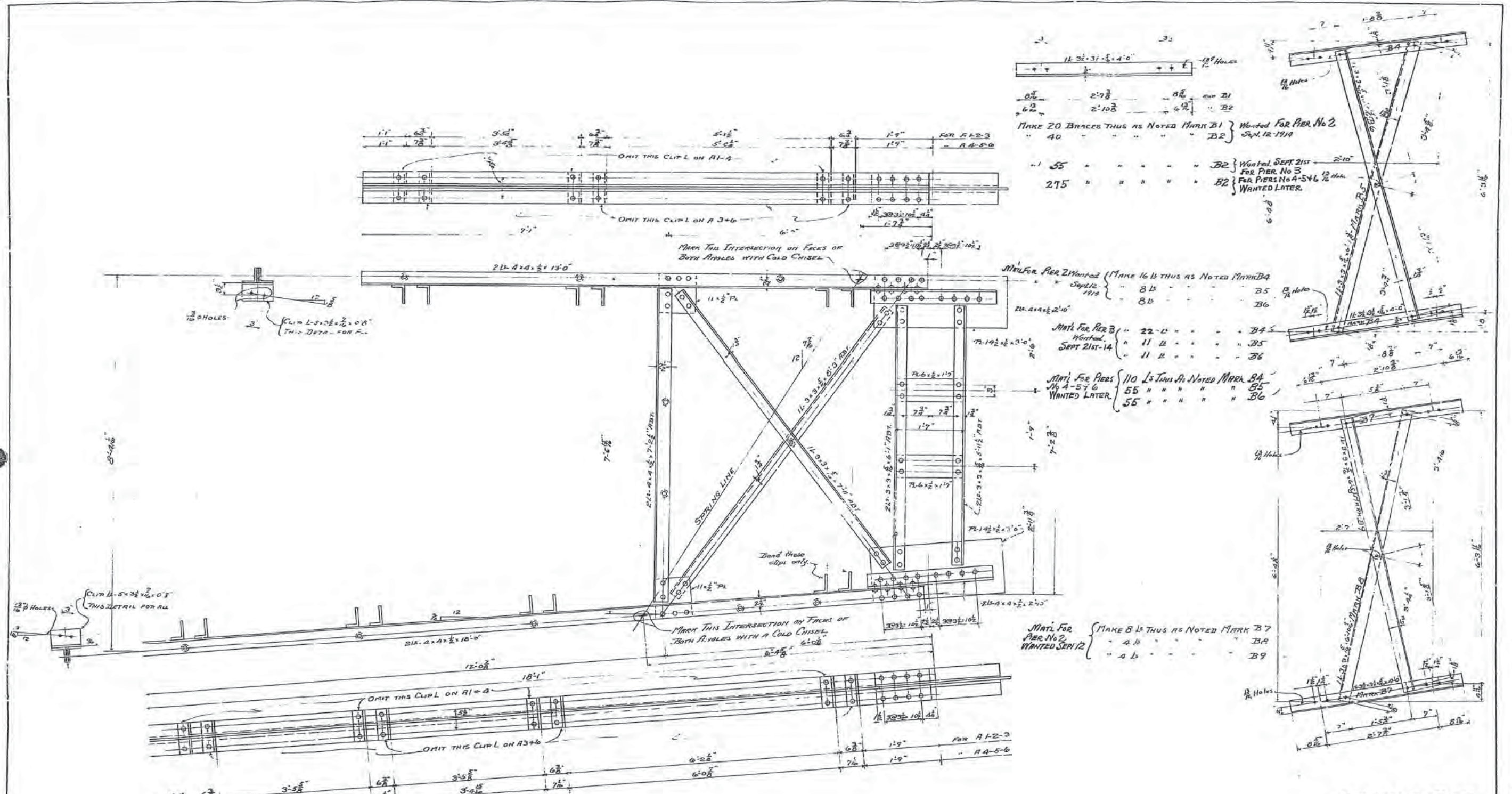
PLAN OF SPAN 9

ERECTION PLAN FOR SPAN 9
 3RD AVE. BRIDGE
 MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS, MINN.
 APPROVED BY: [Signature] DATE 11-13-16
 MADE BY: [Signature] DRAWN BY: [Signature]
 CHECKED BY: [Signature] ORDER NO. 6810 SH. 76 5

Drwg. 153 Env. 8



FILING DATE
 BY BURKE MARSKE



11 3/4 x 3/4 x 4'0"
 18" Holes
 2'7 3/8
 2'10 3/8
 8 1/2
 6 1/2
 4
 MAKE 20 BRACES THUS AS NOTED MARK B1 } WANTED FOR PIER No 2
 " 40 " " " " B2 } Sept. 12 1914

55 " " " " B2 } WANTED SEPT. 21ST
 275 " " " " B2 } FOR PIER No 3
 " " " " " B2 } FOR PIERS No 4-5+6
 " " " " " B2 } WANTED LATER

MATERIAL FOR PIER 2 WANTED (MAKE 16 IS THUS AS NOTED MARK B4
 Sept. 12 1914 8 IS B5
 " " " " " B6

MATERIAL FOR PIER 3 WANTED
 Sept. 21st-14 22 IS B4
 " " " " " B5
 " " " " " B6

MATERIAL FOR PIERS 4-5+6 WANTED LATER
 110 IS THUS AS NOTED MARK B4
 55 " " " " B5
 55 " " " " B6

MATERIAL FOR PIER No 2 WANTED SEPT 12
 MAKE 8 IS THUS AS NOTED MARK B7
 " 4 IS B8
 " 4 IS B9

MAKE-1 ANCHOR THUS AS NOTED MARK A1

3	A1
1	A2
2	A3
6	A4
2	A5
3	A6
8	A7
3	A8
15	A9
40	A10
15	A11

This material is for Pier No 2
 wanted Sept. 12 - 1914

This material is for Piers 4-5+6
 wanted LATER

GEN. NOTE -
 RVS. 7/8"
 HOLES 1/2" UNLESS NOTED
 NO PAINT.
 INSPECTION BY P.I.L.
 THIS DRAWING REVISED SEPT 16TH 14 - MATERIAL FOR PIERS No 3-4-5+6 ADDED

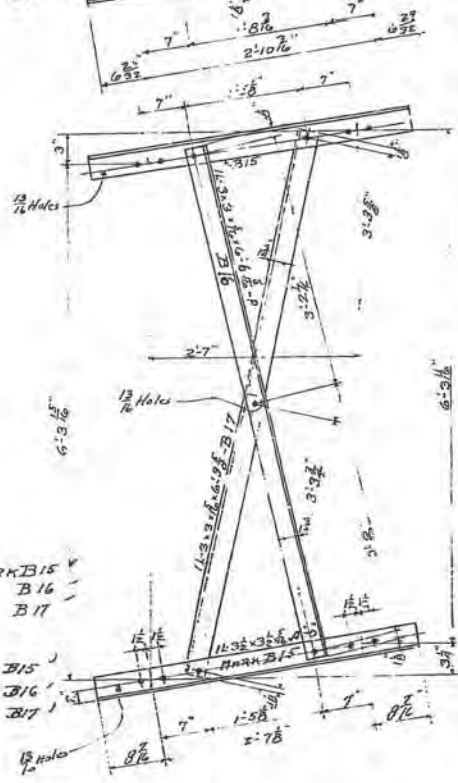
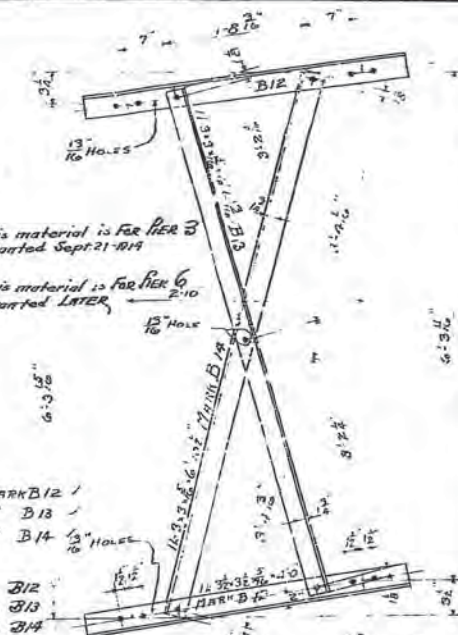
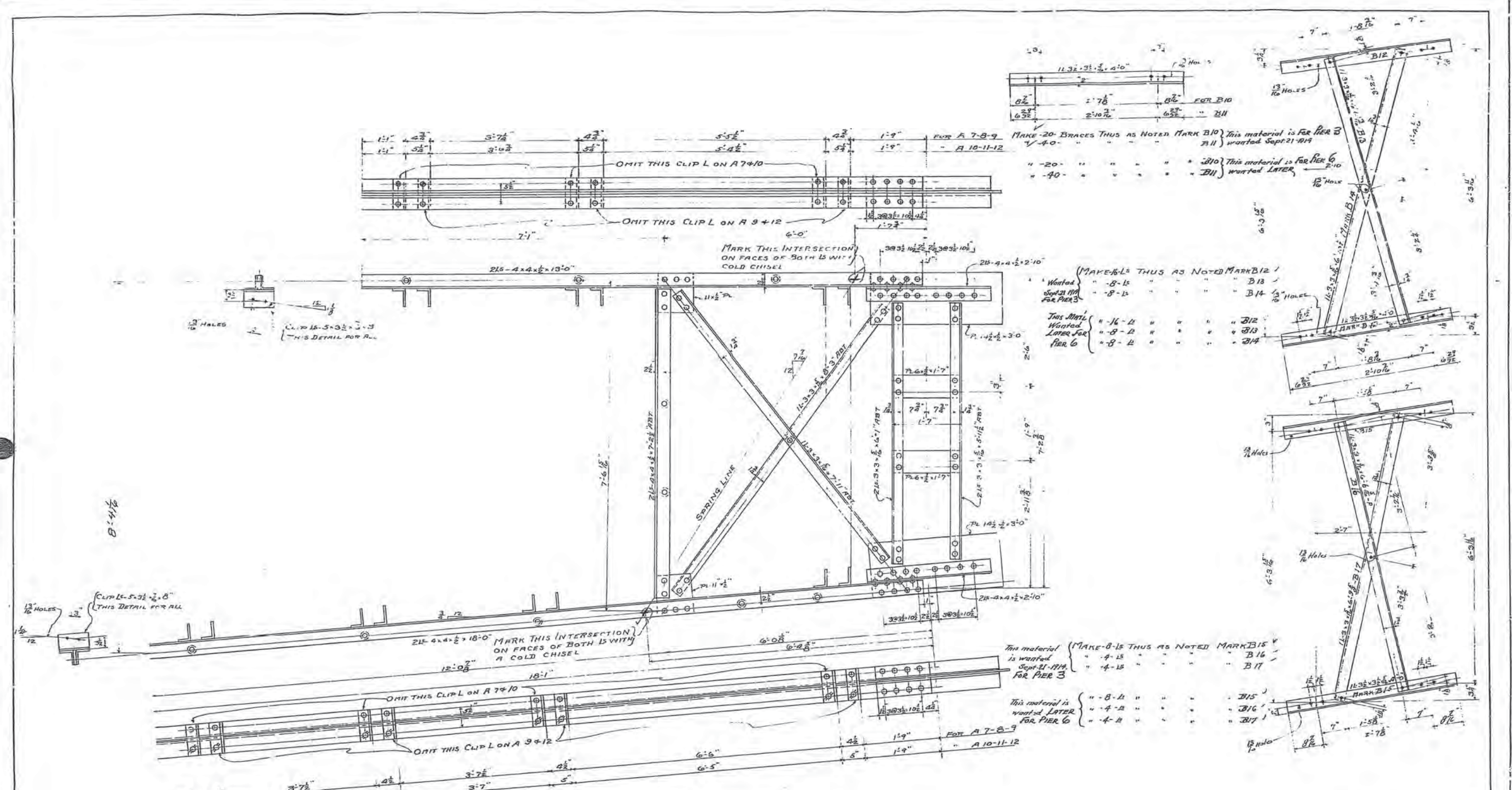
ANCHORS FOR PIERS
 2-3-4-5+6
 3RD AVE BRIDGE
 MINNEAPOLIS MINN.

MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS, MINN.
 APPROVED: [Signature] CHIEF ENG.
 MADE BY [Signature] DATE 7-7 1914
 TRACED BY [Signature] DATE 13/14
 CHECKED BY [Signature] DATE 7/10 1914
 ORDER NO. 68110 SHEET NO. 6

Dwg. 154 E.v. 8 T.B.A.C.H.



FILMING
 DATE:
 BY
 BURKE MARSKE



MAKE-20 BRACES THUS AS NOTED MARK B10
 This material is for PIER 3
 wanted Sept 21-1914
 B10 This material is for PIER 6
 B11 wanted LATER

MAKE-LS THUS AS NOTED MARK B12
 B12
 B13
 B14
 This material is wanted LATER for PIER 6
 B12
 B13
 B14

MAKE-LS THUS AS NOTED MARK B15
 B15
 B16
 B17
 This material is wanted LATER for PIER 6
 B15
 B16
 B17

3	"	"	"	"	"	A7	This material is for PIER 3 wanted Sept 21-1914
1	"	"	"	"	"	A8	
2	"	"	"	"	"	A9	
6	"	"	"	"	"	A10	
2	"	"	"	"	"	A11	
2	"	"	"	"	"	A12	
1	"	"	"	"	"	A7	This material is for PIER 6 wanted
3	"	"	"	"	"	A8	
1	"	"	"	"	"	A9	
2	"	"	"	"	"	A10	
6	"	"	"	"	"	A11	
2	"	"	"	"	"	A12	

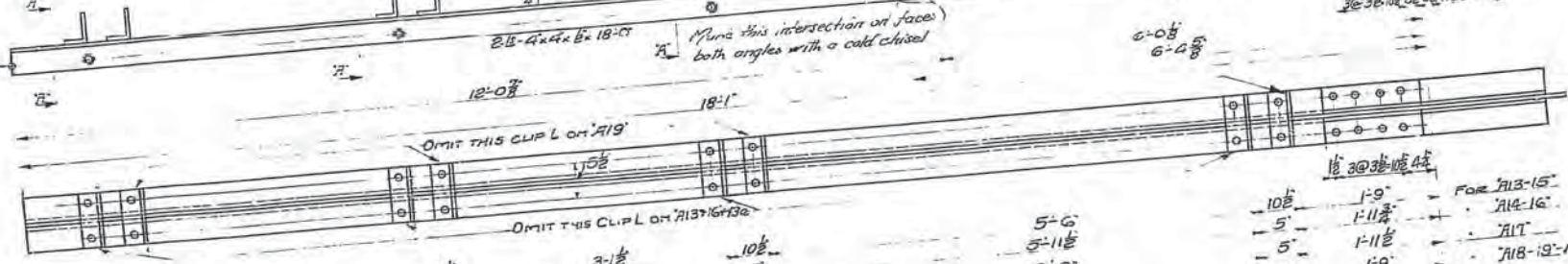
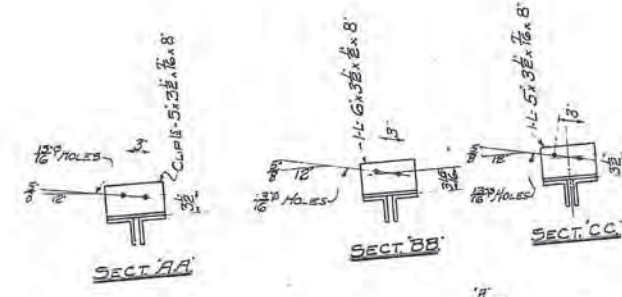
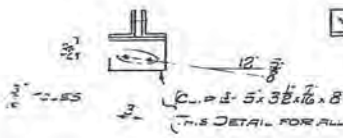
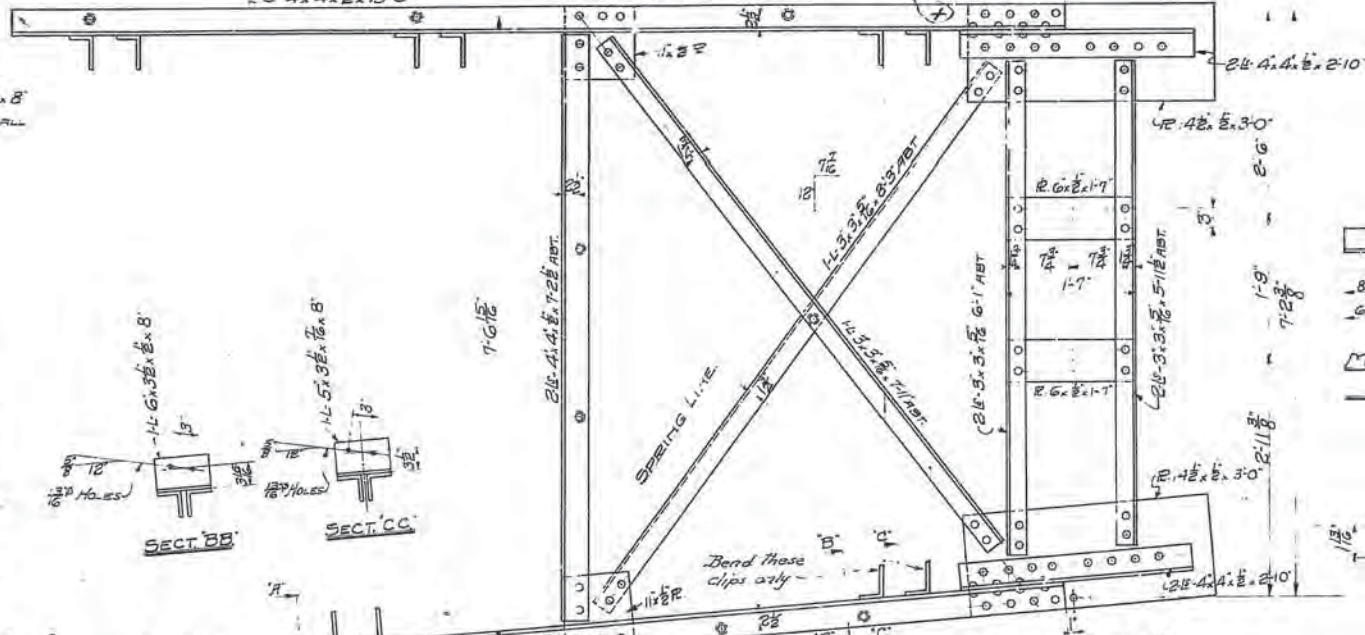
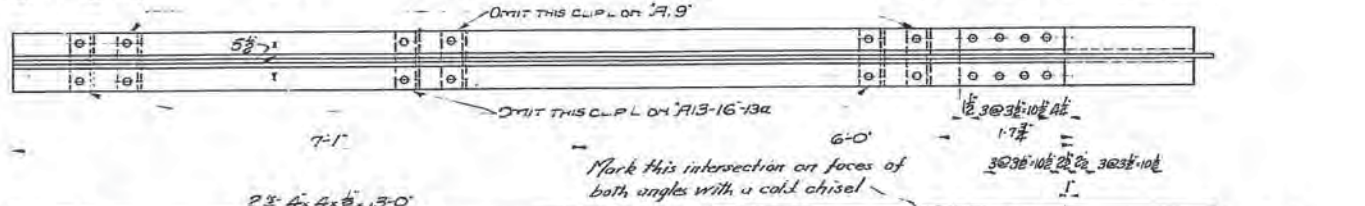
GENERAL NOTE
 HOLES 1/16" UNLESS NOTED
 RIVETS 8
 NO PAINT
 INSPECTION BY P.T.L.

ANCHORS FOR PIER # 3+6
 3RD AVE BRIDGE
 MPLS. MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS, MINN.
 APPROVED: CHIEF ENG.
 MADE BY [Signature] DATE 4-11-1914
 TRACED BY: DATE 7/14
 CHECKED BY: [Signature] DATE 9/14 914
 ORDER NO. 68110 SHEET NO. 7



FILMING DATE
 BY BURKE MARSH

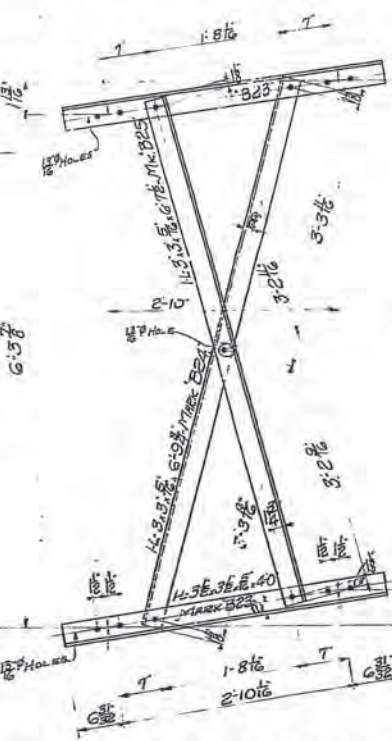
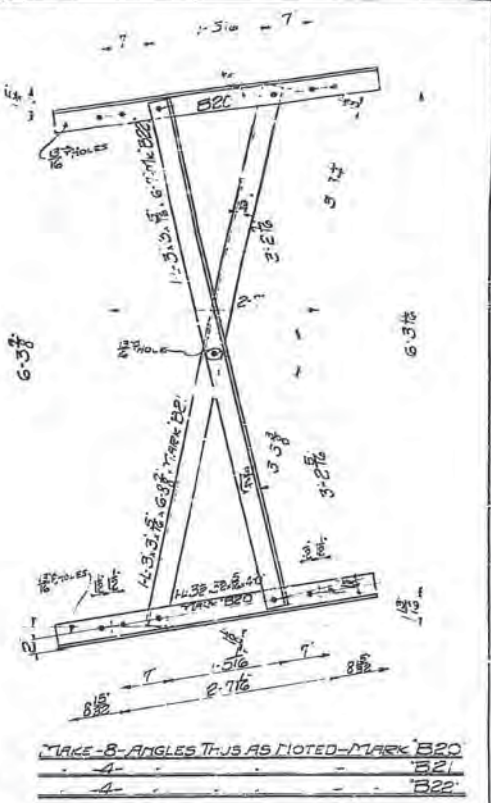
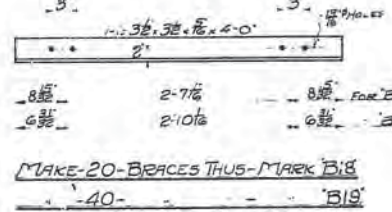
1'-1"	10 1/2"	3'-1 1/2"	5"	4'-5 1/2"	10 1/2"	1'-5"	FOR A13-15
1'-5"	5"	3'-7"	5"	4'-11 1/2"	5"	1'-11 1/2"	A14-16
1'-3 1/2"	5"	3'-7"	5"	4'-1 1/2"	5"	1'-11 1/2"	A17
1'-10 1/2"	10 1/2"	3'-1 1/2"	10 1/2"	4'-6 1/2"	10 1/2"	1'-9"	A18-19-13a



1'-3 1/2"	5"	10 1/2"	3'-7"	5"	5'-6"	5'-11 1/2"	FOR A13-15
1'-3 1/2"	5"	10 1/2"	3'-7"	5"	5'-11 1/2"	5'-11 1/2"	A14-16
1'-3 1/2"	5"	10 1/2"	3'-2"	5'-7"	5'-11 1/2"	5'-7"	A17
1'-3 1/2"	5"	10 1/2"	3'-2"	5'-7"	5'-11 1/2"	5'-7"	A18-19-13a

MAKE-2-ANCHORS THUS AS NOTED-MARK A13

-3-	A13
-3-	A15
-2-	A16
-2-	A17
-1-	A18
-1-	A19
-1-	A13a



A13	1
A14	1
A15	1
A16	1
A17	1
A18	1
A19	1
A13a	1
B18	20
B20	8
B23	16
B24	8
B25	8

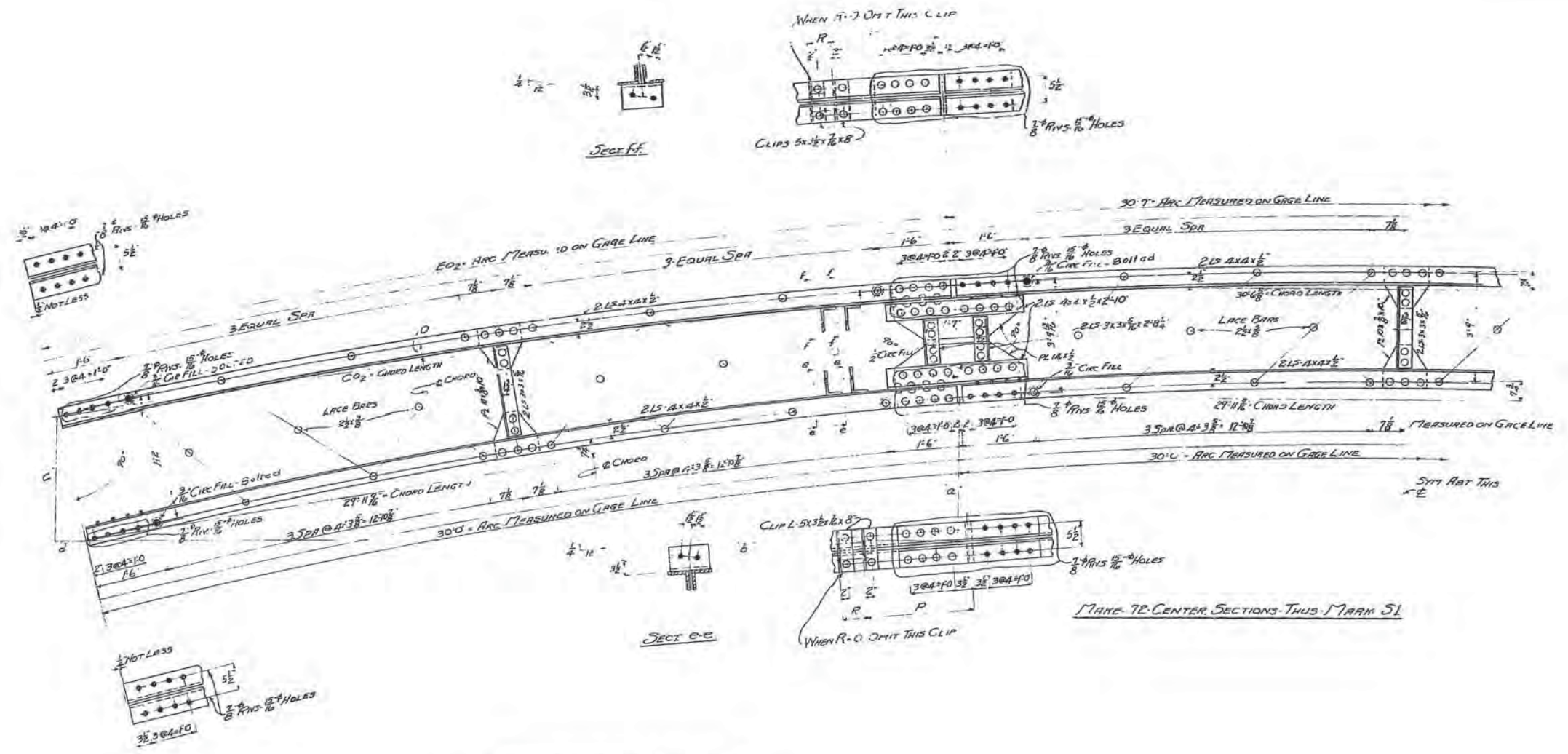
GENERAL NOTE
RIVETS 7/8"
HOLES 1 1/8" UNLESS NOTED
NO PAINT
INSPECTION BY PTL

ANCHORS FOR
PER #7
3RD AVE BRIDGE
MINNEAPOLIS, MINN

MINNEAPOLIS STEEL & MACHINERY CO.
MINNEAPOLIS, MINN.
APPROVED 9/17/19
BY CHIEF ENGR.
MADE BY DIMOND DATE 5-16-1919
CHECKED BY LINDGREEN DATE 9-17-19
CHECKED BY CHEST DATE 9/19
ORDER NO. 68110 SHEET NO. 2



FILMING DATE
BY BURKE MARSKE



SCHEDULE OF ABOVE SECTIONS

Member	Span	EO ₂	CO ₂	HP	O	P	R	a	b	c	d
2	52	30'7"	30'6"	4'4"	0'6"	2'9"	0	5'0"	2'1/2"	4'2"	1'1/2"
6	53	30'7"	30'6"	4'4"	2'8"	2'9"	0	6'1/2"	"	"	"
2	54	30'7"	30'6"	4'4"	0'6"	3'3"	0	"	"	"	"
2	515	30'7"	30'7"	4'4"	0'7"	2'9"	0	5'1/2"	2'1/2"	4'3"	1'0"
8	516	30'7"	30'7"	4'4"	0'7"	2'9"	0	"	"	"	"
2	517	30'7"	30'7"	4'4"	2'7"	3'4"	0	"	"	"	"
2	529	30'7"	30'7"	4'4"	2'7"	2'9"	0	5'3"	2'5"	4'3"	1'0"
4	530	30'7"	30'7"	4'4"	0'7"	2'9"	0	"	"	"	"
2	531	30'7"	30'7"	4'4"	0'7"	3'4"	0	"	"	"	"
18	541	30'7"	30'7"	4'4"	0'7"	2'9"	0	Same as for 5-15	"	"	"
48	542	30'7"	30'7"	4'4"	0'7"	2'9"	0	"	"	"	"
18	543	30'7"	30'7"	4'4"	0'7"	3'5"	0	"	"	"	"
2	550	30'7"	30'6"	4'4"	0'6"	2'9"	0	Same as for 5-12	"	"	"
4	551	30'7"	30'6"	4'4"	0'6"	2'9"	0	"	"	"	"
2	552	30'7"	30'6"	4'4"	0'6"	3'1"	0	"	"	"	"
2	562	30'7"	30'7"	4'4"	0'7"	2'9"	0	Same as for 5-15	"	"	"
8	563	30'7"	30'7"	4'4"	0'7"	2'9"	0	"	"	"	"
2	564	30'7"	30'7"	4'4"	0'7"	3'1"	0	"	"	"	"
2	576	30'7"	30'7"	4'4"	0'7"	2'9"	0	Same as for 5-12	"	"	"
6	577	30'7"	30'7"	4'4"	0'7"	2'9"	0	"	"	"	"
2	578	30'7"	30'7"	4'4"	0'7"	3'1"	0	"	"	"	"

GEN. NOTE:
 RIVETS 3/8" UNLESS NOTED
 HOLES 1/8"
 NO PAINT
 INSPECTION BY P.T.L.

DETAIL OF RIBS
 FOR
 SPANS 3-4-5-6-7
 3RD AVE BRIDGE
 MPLS. MINN.

MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS-MINN.
 APPROVED 11-1-1914
 MADE BY DEPEND DATE 3-27-1914
 TRACED BY G.T. DATE OCT-1-1914
 CHECKED BY CHASE DATE 11-1-1914
 ORDER NO 68110 SHEET NO 9

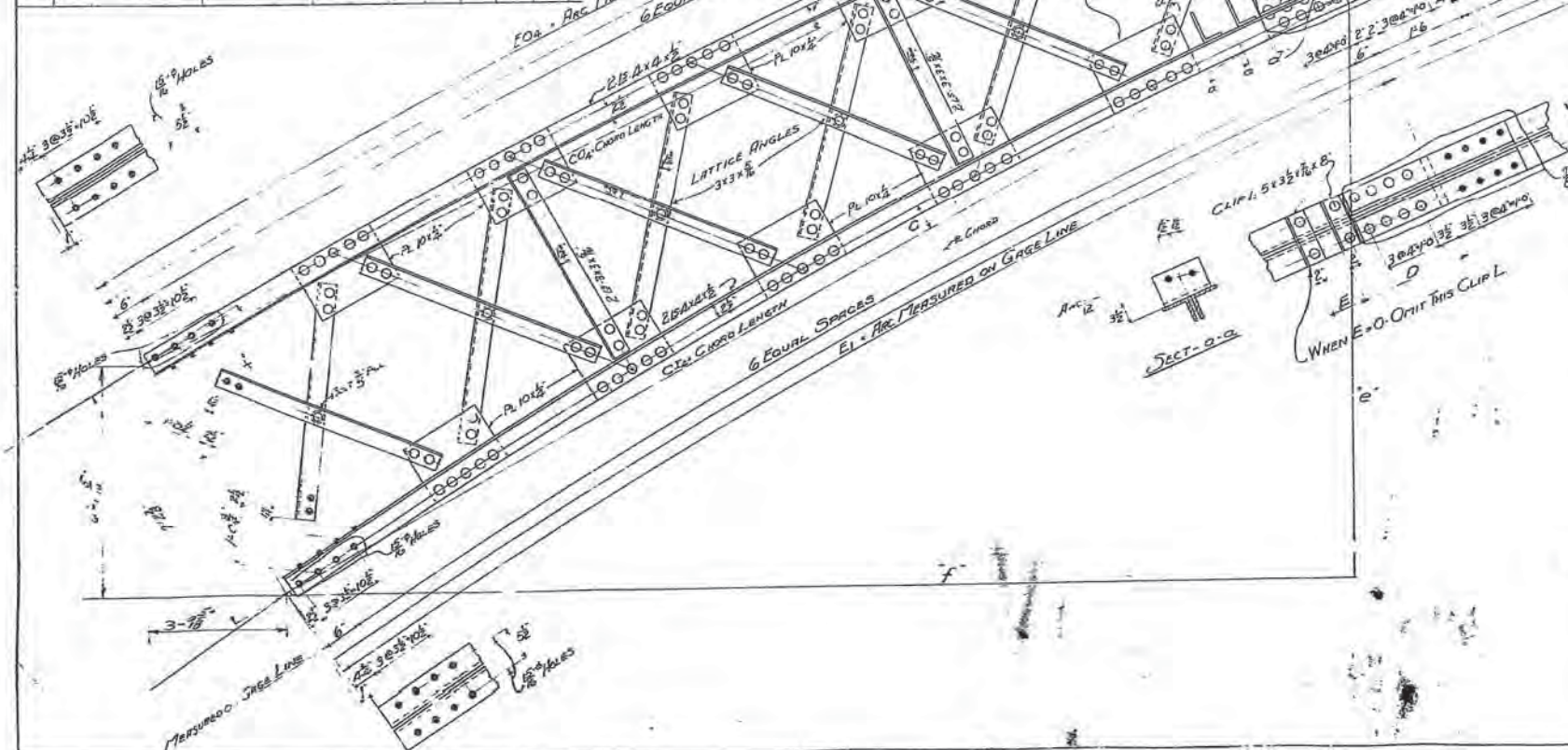
Drawg. 157 ENV. 8 TEACH.



FILMING
 DATE:
 BY
 BURKE MARSKE

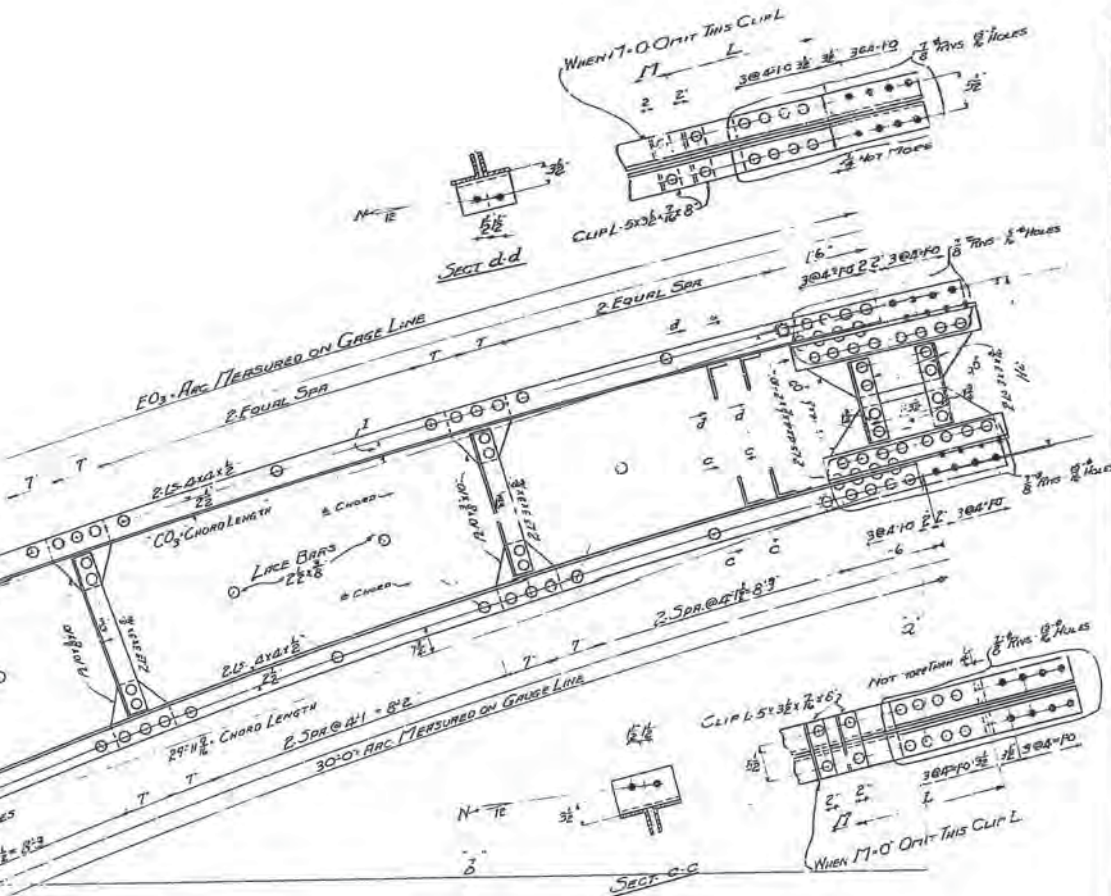
SCHEDULE OF SECTIONS

Span	Max	E0	CO	H1	H2	N	I	a	B	L	T	c	d
1	58	30 1/2	30 3/8	5 1/4	4 3/4	0 1/2	0 1/4	20 1/2	2 1/2	0	5 0 1/2	2 0 1/2	
2	59	31 1/2	31 1/8	5 1/2	5 0	0 5/8	0 1/4	"	"	"	2 1/2	0 6 3/4	"
3	59 1/2	32 1/8	31 3/8	5 5/8	5 1/4	0 7/8	0 1/4	"	"	"	3 3/8	0	"
4	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
5	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
6	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
7	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
8	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
9	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
10	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
11	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
12	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
13	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
14	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
15	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
16	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
17	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
18	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
19	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
20	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
21	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
22	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
23	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
24	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
25	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
26	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
27	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
28	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
29	59 1/2	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"
30	59 1/4	32 1/4	31 3/4	5 3/4	5 1/2	0 7/8	0 1/4	"	"	"	3 3/8	0	"



SCHEDULE OF ABOVE SECTIONS

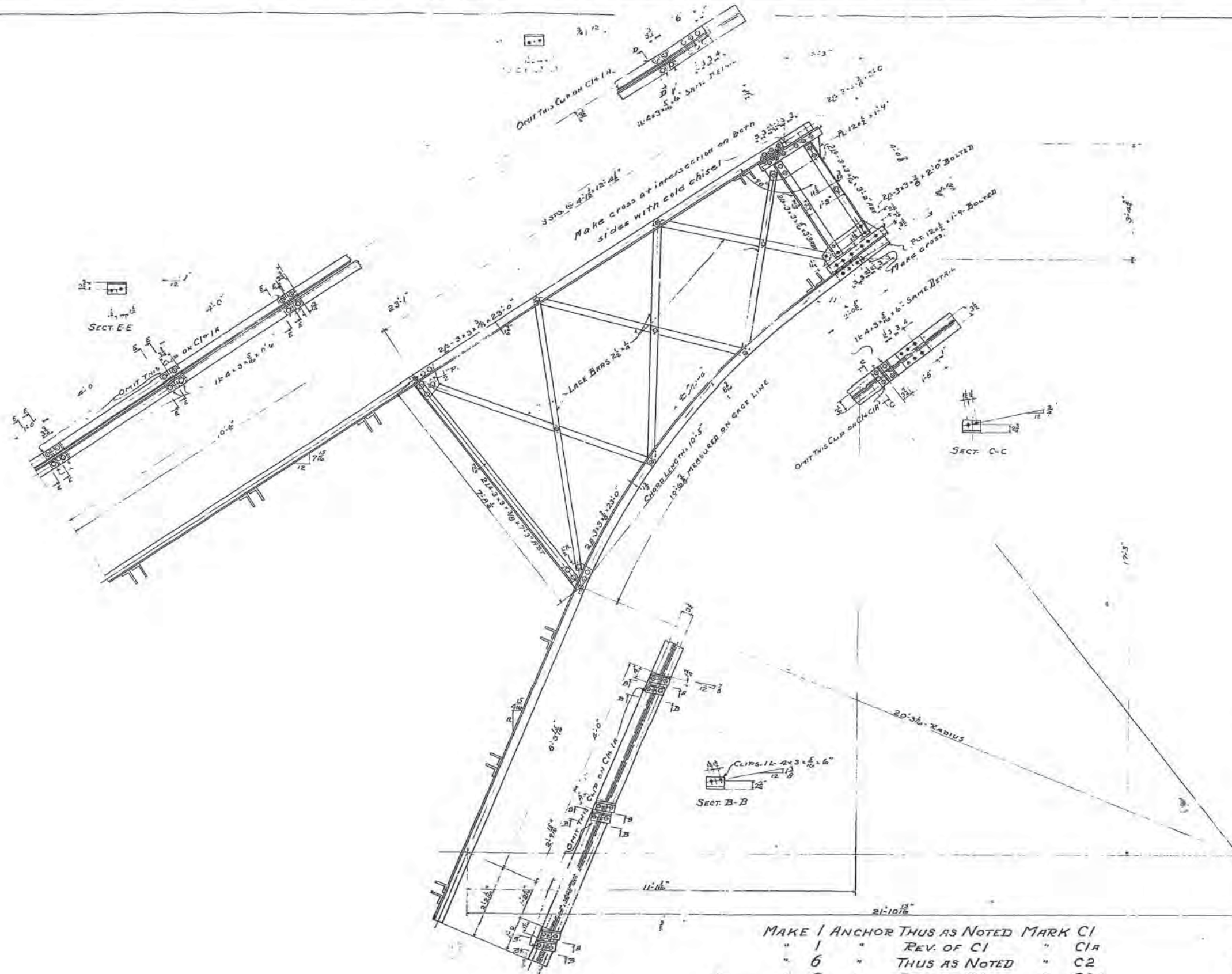
Span	Max	E0	CO	H1	H2	N	I	a	B	L	T	c	d
2	55	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	19 1/2	2 1/2	0	5 0 1/2	2 0 1/2	
6	56	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	2 1/2	0 6 3/4	"
2	57	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	3 3/8	0	"
2	58	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	10 2	28 1/2	2 1/2	0	5 0 1/2	2 0 1/2
8	59 1/4	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	2 1/2	0 7 1/2	"
2	58 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	3 3/8	0	"
2	59 1/4	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	10 2	28 1/2	2 1/2	0	5 0 1/2	2 1/2
4	59 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	2 1/2	0 7 1/2	"
2	59 1/4	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	3 3/8	0	"
18	54 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	10 2	28 1/2	2 1/2	0	5 0 1/2	2 0 1/2
48	54 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	2 1/2	0 8 1/2	"
18	54 1/4	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	3 3/8	0	"
2	55 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	19 1/2	28 1/2	2 1/2	0	5 0 1/2	2 0 1/2
4	59 1/4	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	2 1/2	0 4 1/2	"
2	58 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	3 3/8	0	"
2	56 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	10 2	28 1/2	2 1/2	0	5 0 1/2	2 0 1/2
8	56 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	2 1/2	0 4 1/2	"
2	56 1/4	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	3 3/8	0	"
2	57 1/4	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	10 2	28 1/2	2 1/2	0	5 0 1/2	2 1/2
6	58 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	2 1/2	0 4 1/2	"
2	58 1/2	30 3/8	30 3/8	5 1/2	4 3/4	0 5/8	0 1/4	"	"	"	3 3/8	0	"



GEN. NOTE:
 RIV. 3" UNLESS NOTED
 HOLES 1/2" UNLESS NOTED
 NO. PAINT.
 INSPECTION BY P.T.L.

DETAILS OF RIBS
 FOR
 SPANS 3-4-5-6-7
 3RD AVE BRIDGE
 MPLS MINN.

MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS MINN.
 APPROVED BY *[Signature]* CHIEF ENG.
 MADE BY *[Signature]* DATE *[Date]*
 TRACED BY *[Signature]* DATE *[Date]*
 CHECKED BY *[Signature]* DATE *[Date]*
 ORDER NO. 8110 SHEET NO. 10
 Dwg. 158 E.V. 8 TEAC



GEN. NOTE:
 RIVETS - 3/4" ϕ
 HOLES - 1 1/16" ϕ
 NO PAINT
 INSPECTION - P.T.L.

DETAIL OF ANCHORS
 FOR
 SPANS 8 & 9
 3RD AVE. BRIDGE
 MPLS. MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS MINN.

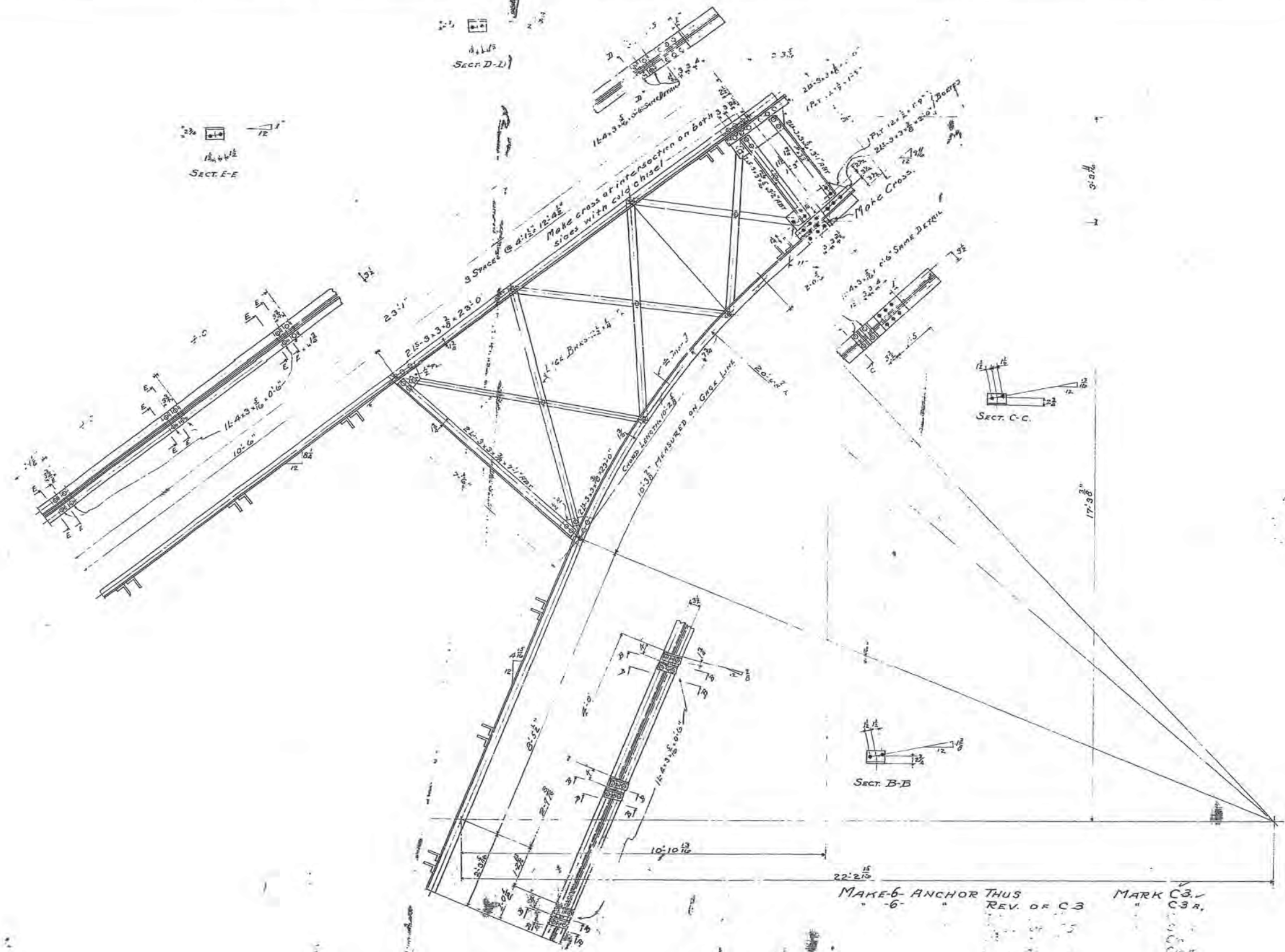
MAKE 1 ANCHOR THUS AS NOTED MARK C1
 " 1 " REV. OF C1 " C1A
 " 6 " THUS AS NOTED " C2
 " 6 " REV. OF C2 " C2A

APPROVED *[Signature]* 10-27-14 CHIEF ENG.
 MADE BY *[Signature]* DATE 10-28-14
 TRACED BY *[Signature]* DATE 10-29-14
 CHECKED BY *[Signature]* DATE 11-9-14
 ORDER No 68110 SHEET No. 11

Draw. 159 Env. B TEACH



FILMING
 DATE
 BY
 BURKE MARSH



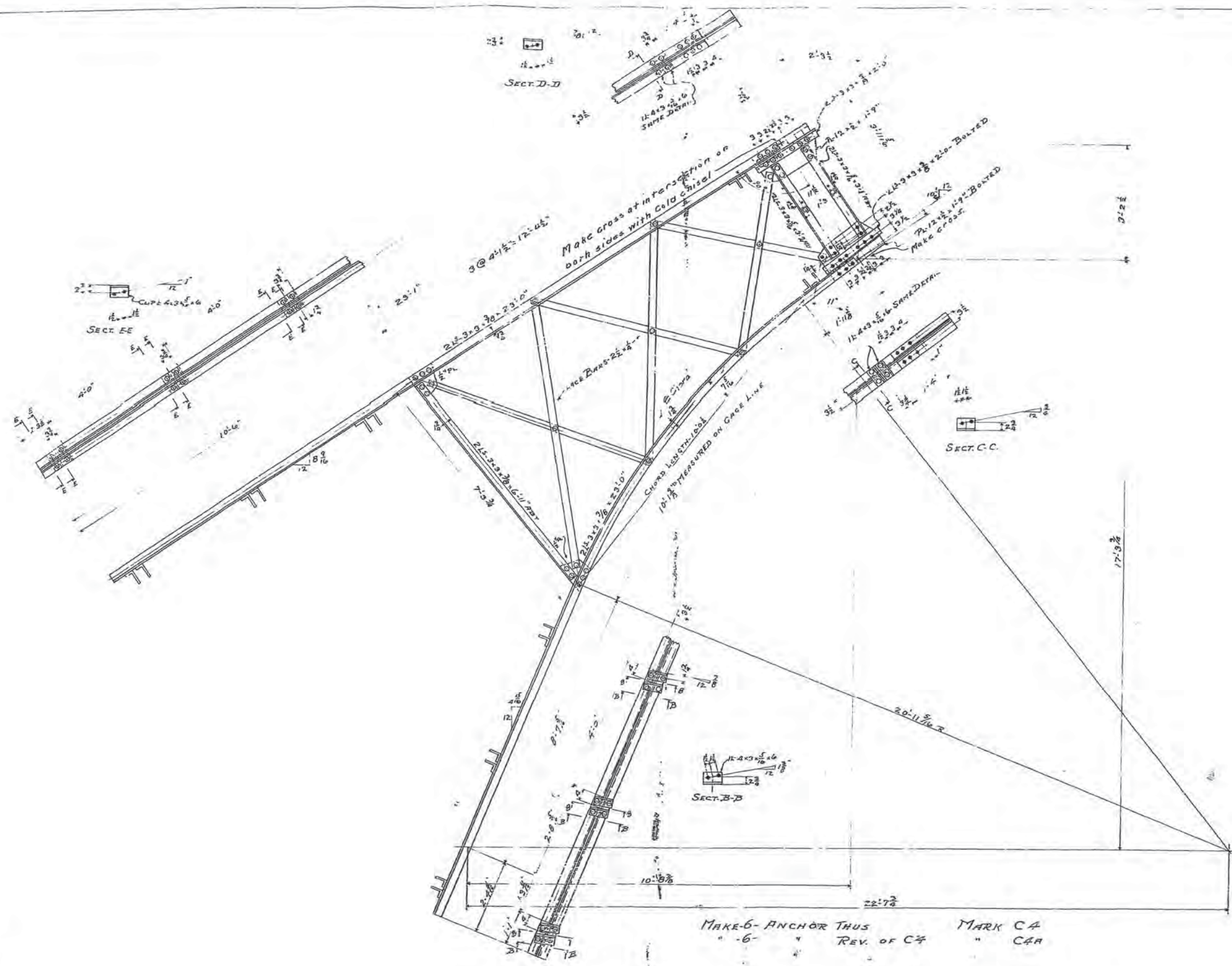
GENL. NOTE
 HOLES - $\frac{1}{16}$ "
 RIVETS - $\frac{3}{4}$ "
 NO PAINT
 INSPECTION PTL.

DETAIL OF ANCHORS
 FOR
 3RD AVE BRIDGE
 SPANS-8 AND 9
 MPLS. MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS MINN.
 APPROVED 10-12-14 CHIEF ENG.
 MADE BY J. H. D. DATE 10-26-14
 TRACED BY K. DATE 10-30-14
 CHECKED BY C. W. DATE 11-9-14
 ORDER NO 68110 SHEET NO 2
 DRUG 160 ENW 8 TEAL

MAKE-6 ANCHOR THUS
 REV. OF C3
 MARK C3-1
 C3 R.
 C3
 C3 4



FILMING
 DATE
 BY
 BURKE MARSKE



GEN'L. NOTE
 RIVS. 3/4
 HOLES - 1 3/16
 NO PAINT
 INSPECTION P.L.

DETAIL OF ANCHORS
 FOR
 SPANS 8 AND 9
 3RD AVE BRIDGE
 MPLS. MINN.

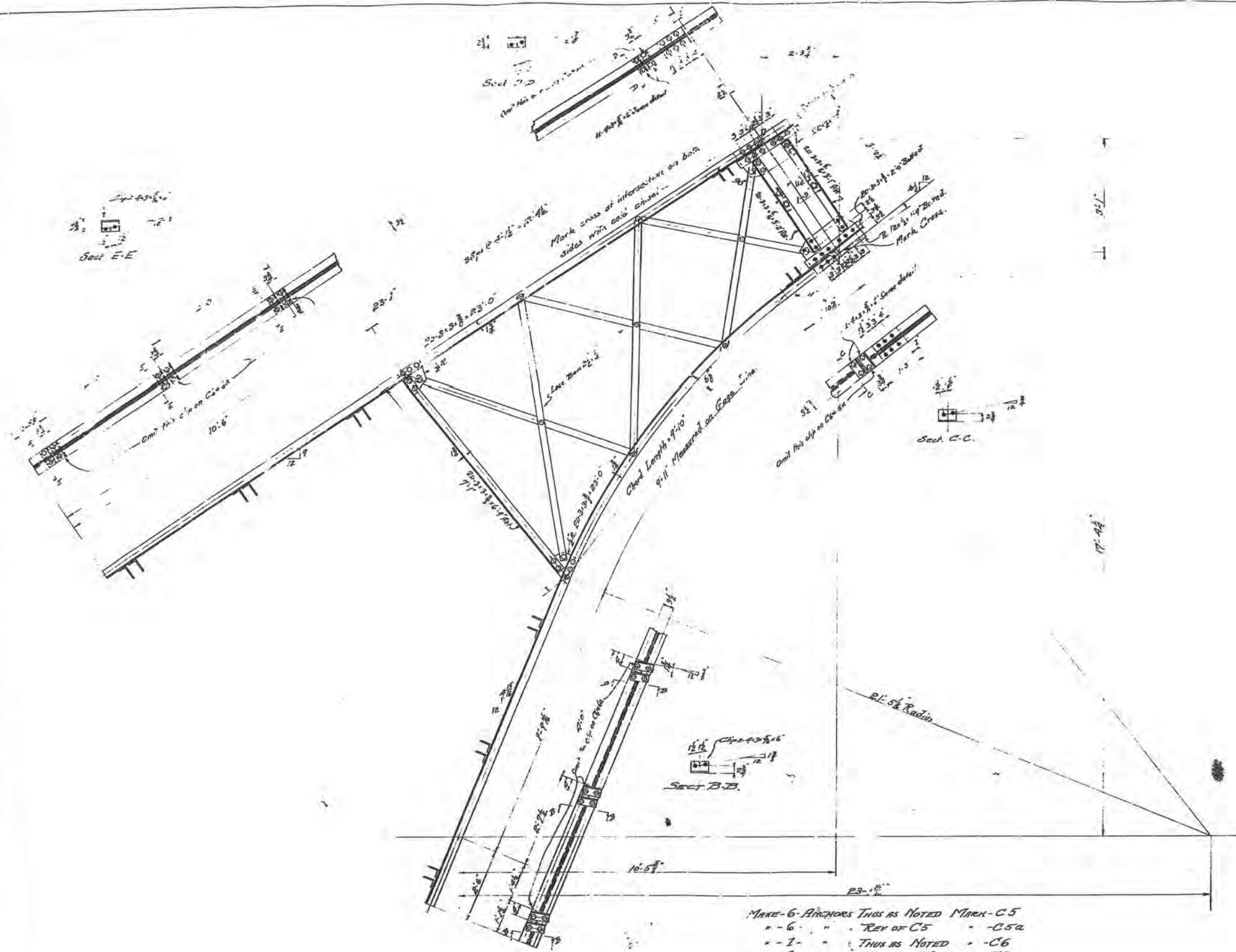
MINNEAPOLIS STEEL & MACHINERY CO
 MINNEAPOLIS MINN.
 APPROVED 11/12/16 CHIEF ENG.
 MADE BY DIMOND DATE 10-30-16
 TRACED BY H. DATE 10-31-16
 CHECKED BY CLAY DATE 11-9-16
 ORDER NO. 68110 SHEET NO. 13

MAKE 6 ANCHOR THUS MARK C4
 REV. OF C2 " C4

Aug. 161 Env. 8 TEACH



FILMING
 DATE
 BY
 BURKE MARSKE



GEN. NOTE:-
 RIPS $\frac{3}{8}$ "
 HOLES $\frac{1}{2}$ "
 NO PAINT
 INSPECTION - P.T.L.

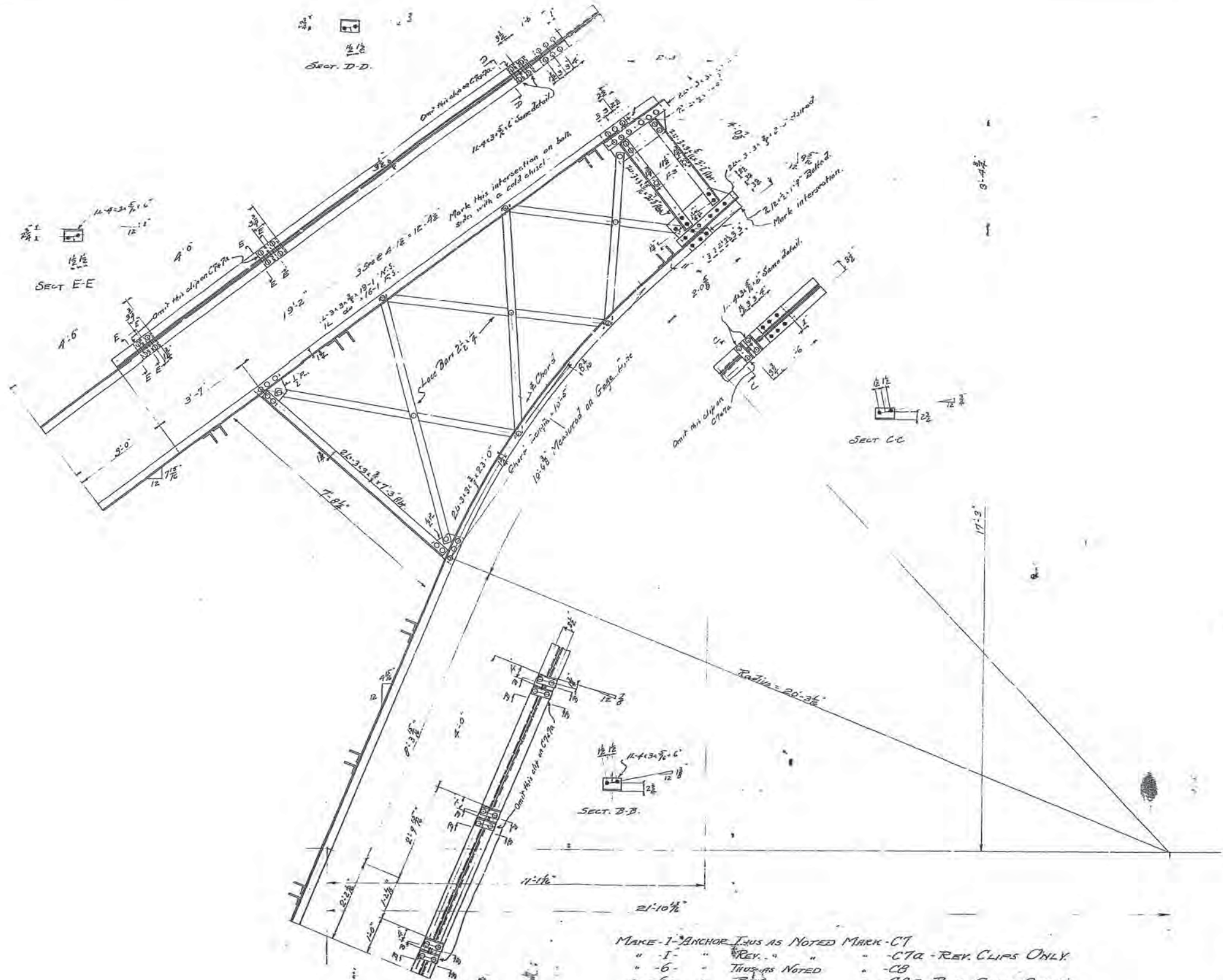
MAKE 6 ANCHORS THUS AS NOTED MARK - C5
 -- 6 -- REV OF C5 -- C5a
 -- 1 -- THUS AS NOTED -- C6
 -- 1 -- REV OF C6 -- C6a.

DETAILS OF ANCHORS
 SPANS 8 & 9
 3RD AVE. BRIDGE
 MILLS, MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS, MINN.
 Approved By _____ DATE 10-22-12
 Made By _____ DATE 11-9-12
 Checked By _____ DATE 11-9-12
 ORDER NO. 68170 SHEET NO. 4

Drawn 162 Eng. 8 Tenth.



FILMING
 DATE:
 JUL 24 1961
 BY
 BURKE MARSKE



GEN. NOTE:
 RIVS - $\frac{3}{4}$ "
 HOLES - $\frac{1}{2}$ "
 NO PAINT
 INSPECTION - P.T.I.

DETAILS OF ANCHORS
 FOR
 SPANS 20-2
 3RD AVE. BRIDGE.

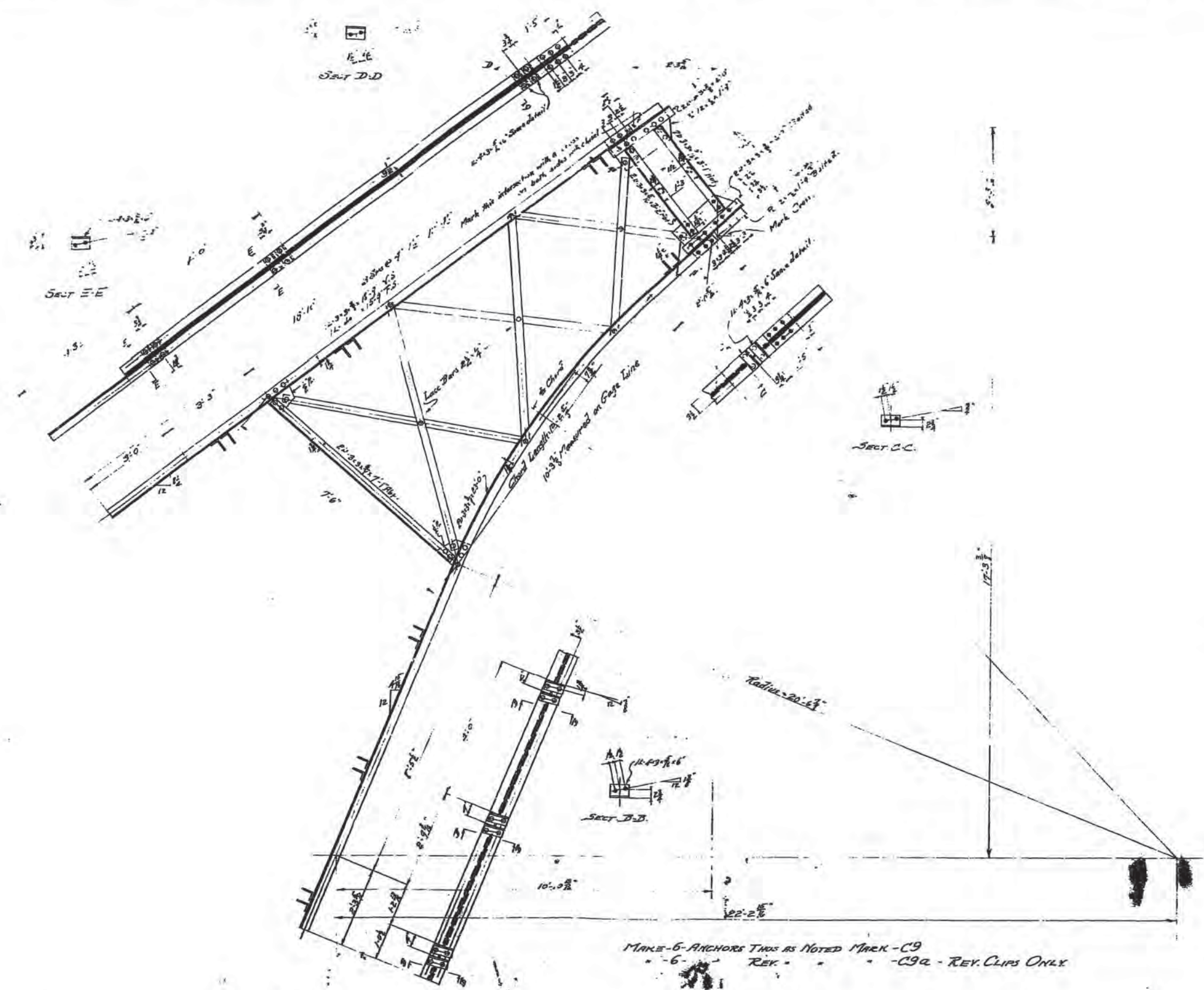
MPLS, MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 Minneapolis, Minn.
 APPROVED BY J.M. [Signature] DATE 10-26-14
 MADE BY [Signature] DATE []
 CHECKED BY [Signature] DATE 11-8-14
 ORDER NO. 68110 SHEET NO. 15

Using 163 Env. 8 TRACH.

- MAKE 1-ANCHOR PLAYS AS NOTED MARK -CT
 " 1 - " REV. " -CTA - REV. CLIPS ONLY.
 " 6 - " THUS AS NOTED -CB
 " 6 - " REV. " -CB - REV. CLIPS ONLY.



FILING
 DATE: []
 BY
 BURKE MARSH



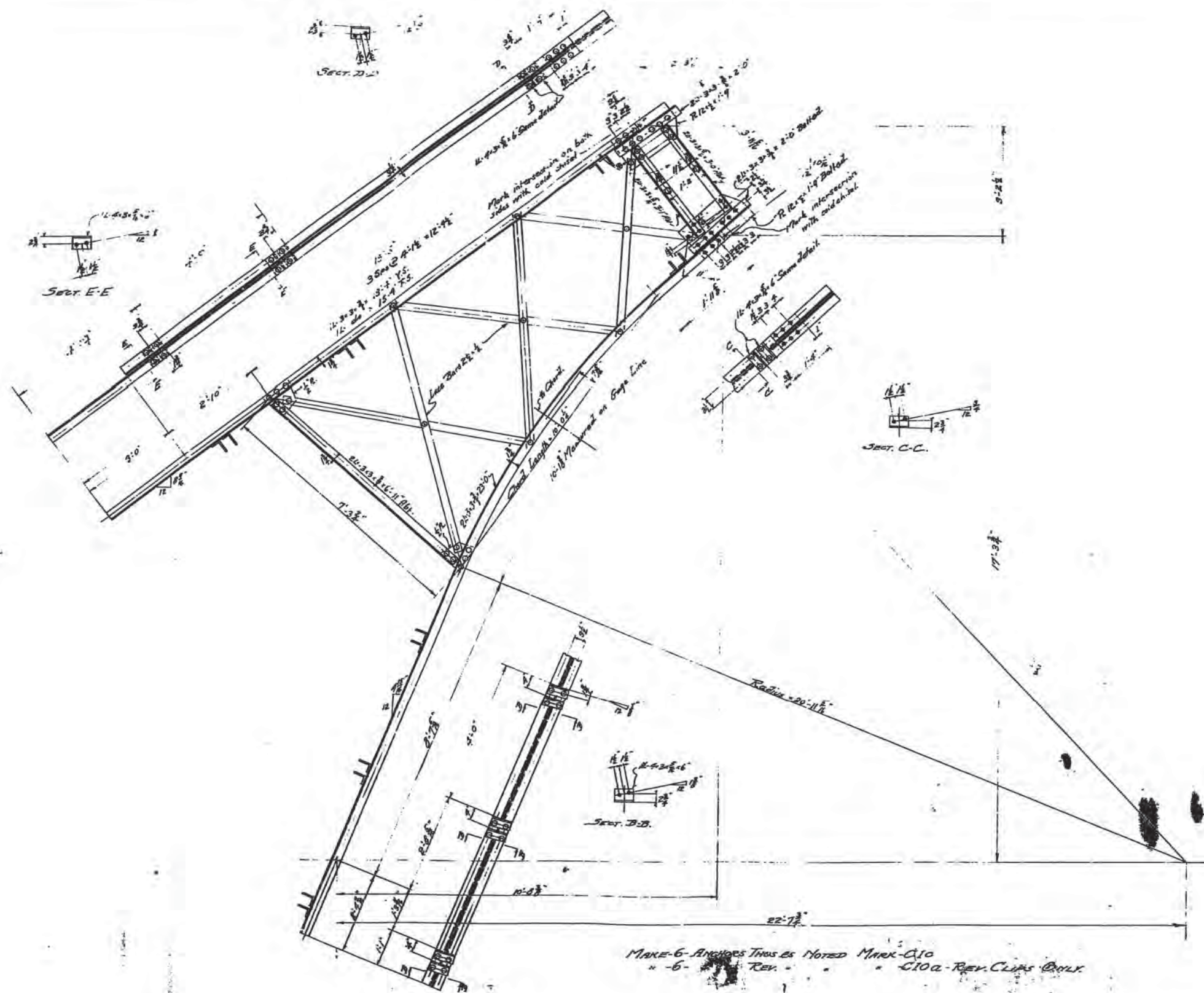
GEN. NOTES:
 RIV. $\frac{3}{8}$ "
 HOLES $\frac{1}{8}$ "
 NO PAINT.
 INSPECTION - P.T.L.

DETAILS OF ANCHORS
 FOR
 SPANS 8-9
 3RD AVE. BRIDGE
 MPLS, MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 Minneapolis, Minn.
 Approved By Edwards Date 11-11-14
 Made By Edwards Date 11-6-14
 Traced By DATA
 Checked By Chase Date 1-2-15
 ORDER NO. 68110 SHEET NO. 16
 Draw. 164 Eng. B TECH

MAKE 6 ANCHORS THIS AS NOTED MARK - C9
 - 6 - REV. - C9A - REV. CLIPS ONLY



FILMING
 DATE:
 JUL 24 1961
 BY
 BURKE MARSH



GEN. NOTE:
RIVS - 3/4"
HOLES - 1/8"
NO PAINT
INSPECTION - P.I.L.

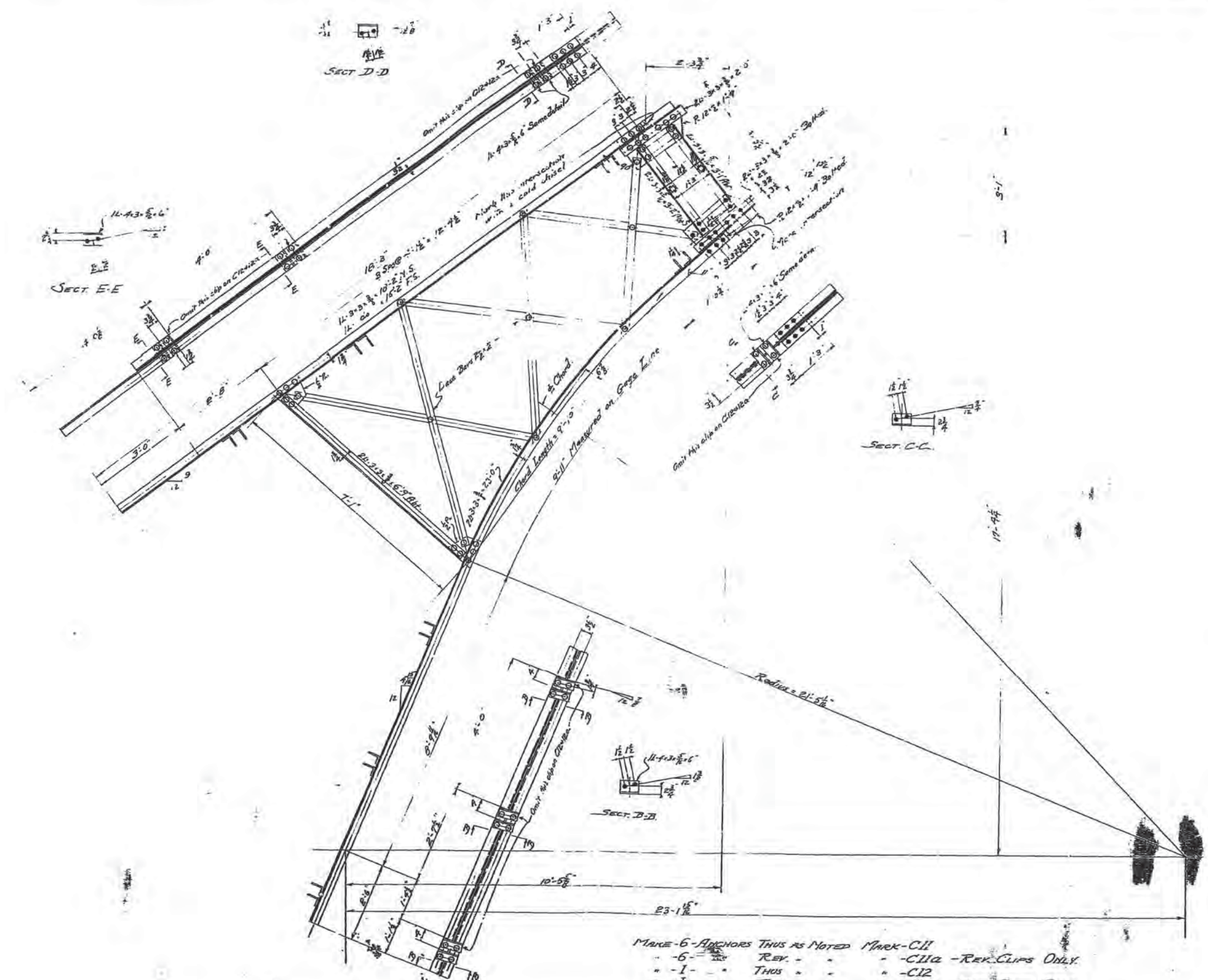
DETAILS OF ANCHORS
FOR
SPANS 8-9
3rd AVE. BRIDGE

M.P.L'S, MINN.
MINNEAPOLIS STEEL & MACHINERY CO.
Minneapolis, Minn.
Approved By [Signature] Date 11-6-18
Made By [Signature] Date 11-6-18
Checked By [Signature] Date 11-7-18
ORDER NO. 68110 SHEET NO. 11

MAKE 6 ANCHORS THIS AS NOTED MARK-Q10
" - 6 - Rev. " " - Q10 - REV. CLIP & BOLT



FILMING
DATE:
NOV 24 1918
BY
BURKE MARSH



GEN. NOTE:
 RIPS - 3/8"
 HOLES - 9/16"
 NO PRINT
 INSPECTION - P. T. L.

DETAILS OF ANCHORS
 FOR
SPANS 8+0
3RD AVE. BRIDGE

MPL'S, MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 Minneapolis, Minn.
 Approved by W. J. 1-6-14
 Made By W. J. 1-6-14 Date 11-7-14
 Traced By _____ Date _____
 Checked By Chas. 11-9-14 Date 11-9-14
 ORDER NO 60110 SHEET NO 18
 Drawg. 166 Env. B TECH.

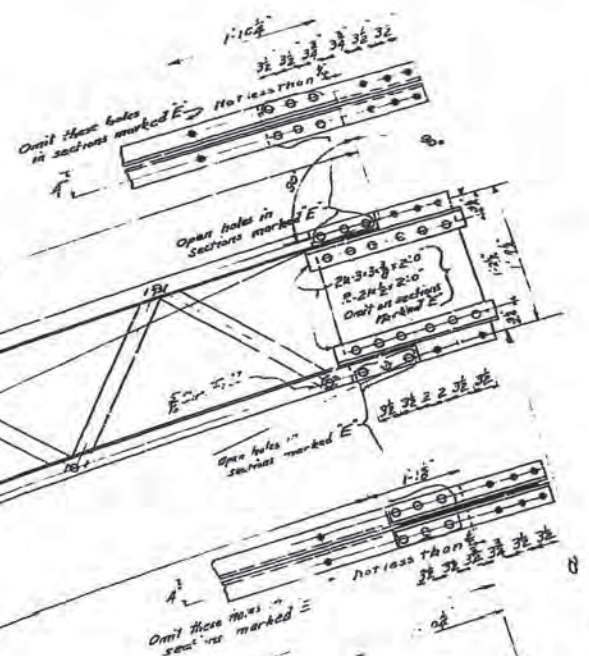
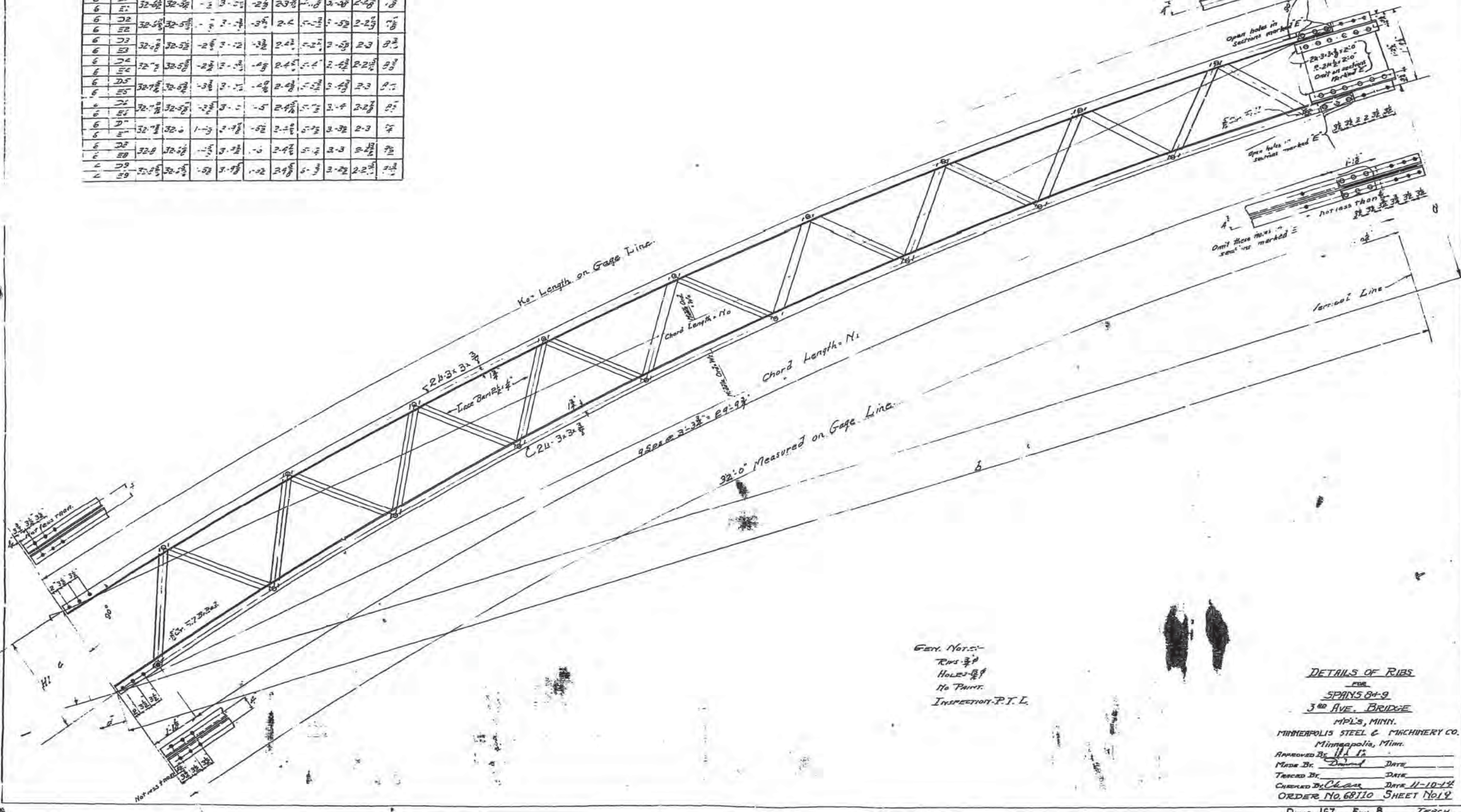
MAKE 6 ANCHORS THIS AS NOTED MARK - C11
 - 6 - REV. - - - C11a - REV. CLIPS ONLY.
 - 1 - THUS - - - C12
 - 1 - REV. - - - C12a - REV. CLIPS ONLY.



FILMING
 DATE:
 JUL 24, 1964
 BY
 BURKE MARSKE

MAKE THE FOLLOWING SECTIONS AS NOTED

No.	MAK.	N ₂	N ₁	W ₂	N ₁	W ₁	H ₁	c	d
6	E1	32-4 1/2	32-3 1/2	-1	3-1 1/2	-2 1/2	2 3/8	3-1 1/2	2-2 1/2
6	E2	32-5 1/2	32-5 1/2	-1	2-1 1/2	-3 1/2	2-1 1/2	3-1 1/2	2-2 1/2
6	E3	32-6 1/2	32-5 1/2	-2	3-1 1/2	-3 1/2	2-4 1/2	3-1 1/2	2-3
6	E4	32-7 1/2	32-5 1/2	-2 1/2	3-1 1/2	-4 1/2	2-4 1/2	3-1 1/2	2-2 1/2
6	E5	32-7 1/2	32-6 1/2	-3	3-1 1/2	-4 1/2	2-4 1/2	3-1 1/2	2-3
6	E6	32-7 1/2	32-5 1/2	-2 1/2	3-1 1/2	-5	2-4 1/2	3-1 1/2	2-2 1/2
6	E7	32-7 1/2	32-6	-1-3/4	2-7/8	-5 1/2	2-4 1/2	3-3/4	2-3
6	E8	32-8	32-6 1/2	-1 1/2	3-1 1/2	-6	2-4 1/2	3-3	2-2 1/2
6	E9	32-8 1/2	32-5 1/2	-5/8	3-1 1/2	-1-1/2	2-4 1/2	3-2 1/2	2-2 1/2

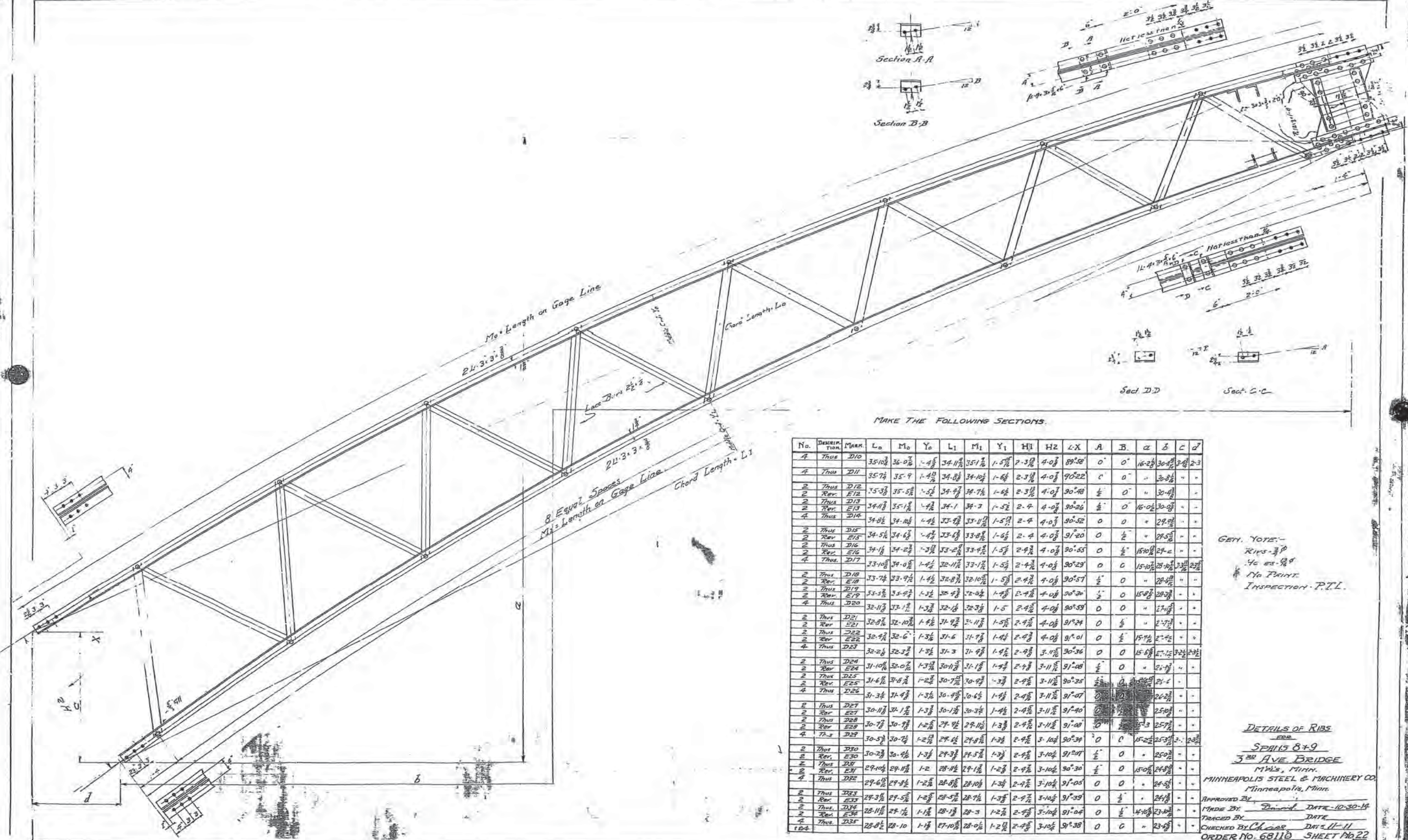
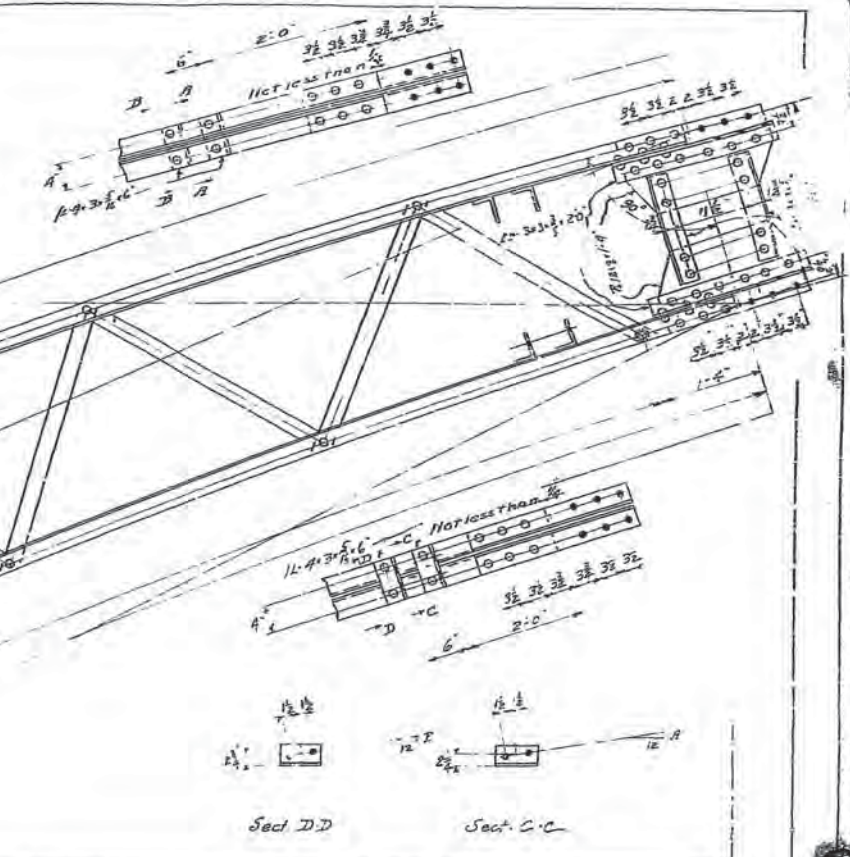
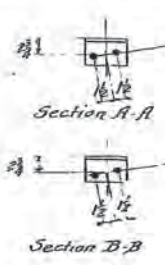


Gen. Note:-
 Riv. 3/4"
 Holes 1/4"
 No Paint.
 Inspection P.T.L.

DETAILS OF RIBS
 FOR
 SPANS 8+9
 3RD AVE. BRIDGE
 MPLS, MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 Minneapolis, Minn.
 Approved By: H.A. F.
 Made By: [Signature] Date: _____
 Traced By: [Signature] Date: _____
 Checked By: [Signature] Date: 11-10-12
 ORDER NO. 68110 SHEET NO. 19
 Drawg. 167 Env. B TENCH.



FILING
 DATE:
 11 24 1912
 BY
 BURK. MARSKE



MAKE THE FOLLOWING SECTIONS.

No.	DESCRIPTION	MARK.	L_0	M_0	Y_0	L_1	M_1	Y_1	H_1	H_2	$L \cdot X$	A	B	α	δ	C	D
4	Thus	D10	35.10	36.00	1.40	34.11	35.10	1.50	2.30	4.00	89°58'	0'	0'	16.20	30.40	3.40	2.3
4	Thus	D11	35.70	35.9	1.40	34.00	34.10	1.60	2.30	4.00	90°22'	0'	0'	16.20	30.40	3.40	2.3
2	Thus	D12	35.30	35.5	1.50	34.40	34.70	1.60	2.30	4.00	90°40'	0'	0'	16.20	30.40	3.40	2.3
2	Rev.	E12	35.30	35.5	1.50	34.40	34.70	1.60	2.30	4.00	90°40'	0'	0'	16.20	30.40	3.40	2.3
2	Thus	D13	34.40	35.10	1.40	34.1	34.3	1.50	2.4	4.00	90°26'	0'	0'	16.20	30.40	3.40	2.3
2	Rev.	E13	34.40	35.10	1.40	34.1	34.3	1.50	2.4	4.00	90°26'	0'	0'	16.20	30.40	3.40	2.3
4	Thus	D14	34.80	34.10	1.40	33.70	33.10	1.50	2.4	4.00	90°52'	0'	0'	16.20	30.40	3.40	2.3
2	Thus	D15	34.50	34.60	1.40	33.00	33.00	1.60	2.4	4.00	91°20'	0'	0'	16.20	30.40	3.40	2.3
2	Rev.	E15	34.50	34.60	1.40	33.00	33.00	1.60	2.4	4.00	91°20'	0'	0'	16.20	30.40	3.40	2.3
2	Thus	D16	34.10	34.20	1.30	33.00	33.00	1.50	2.4	4.00	90°55'	0'	0'	15.10	29.00	2.30	2.3
2	Rev.	E16	34.10	34.20	1.30	33.00	33.00	1.50	2.4	4.00	90°55'	0'	0'	15.10	29.00	2.30	2.3
4	Thus	D17	33.10	34.00	1.40	32.10	33.10	1.50	2.4	4.00	90°28'	0'	0'	15.10	28.10	3.30	2.3
2	Thus	D18	33.70	33.90	1.40	32.00	32.10	1.50	2.4	4.00	90°51'	0'	0'	15.10	28.10	3.30	2.3
2	Rev.	E18	33.70	33.90	1.40	32.00	32.10	1.50	2.4	4.00	90°51'	0'	0'	15.10	28.10	3.30	2.3
2	Thus	D19	33.50	33.40	1.30	32.00	32.00	1.40	2.4	4.00	90°30'	0'	0'	15.00	28.00	3.20	2.3
2	Rev.	E19	33.50	33.40	1.30	32.00	32.00	1.40	2.4	4.00	90°30'	0'	0'	15.00	28.00	3.20	2.3
4	Thus	D20	32.10	33.10	1.30	32.00	32.30	1.50	2.4	4.00	90°58'	0'	0'	14.00	27.00	3.00	2.3
2	Thus	D21	32.80	32.10	1.40	31.90	31.10	1.50	2.4	4.00	91°24'	0'	0'	13.00	26.00	2.80	2.3
2	Rev.	E21	32.80	32.10	1.40	31.90	31.10	1.50	2.4	4.00	91°24'	0'	0'	13.00	26.00	2.80	2.3
2	Thus	D22	32.40	32.6	1.30	31.6	31.90	1.40	2.4	4.00	91°01'	0'	0'	13.00	26.00	2.80	2.3
2	Rev.	E22	32.40	32.6	1.30	31.6	31.90	1.40	2.4	4.00	91°01'	0'	0'	13.00	26.00	2.80	2.3
4	Thus	D23	32.20	32.30	1.30	31.3	31.40	1.40	2.4	3.90	90°36'	0'	0'	12.00	25.00	2.70	2.3
2	Thus	D24	31.10	32.00	1.30	30.10	31.10	1.40	2.4	3.10	91°08'	0'	0'	11.00	24.00	2.60	2.3
2	Rev.	E24	31.10	32.00	1.30	30.10	31.10	1.40	2.4	3.10	91°08'	0'	0'	11.00	24.00	2.60	2.3
2	Thus	D25	31.60	31.80	1.20	30.70	30.90	1.30	2.4	3.10	90°35'	0'	0'	10.00	23.00	2.50	2.3
2	Rev.	E25	31.60	31.80	1.20	30.70	30.90	1.30	2.4	3.10	90°35'	0'	0'	10.00	23.00	2.50	2.3
4	Thus	D26	31.30	31.40	1.30	30.40	30.60	1.40	2.4	3.10	91°07'	0'	0'	9.00	22.00	2.40	2.3
2	Thus	D27	30.10	31.10	1.30	30.10	30.30	1.40	2.4	3.10	91°40'	0'	0'	8.00	21.00	2.30	2.3
2	Rev.	E27	30.10	31.10	1.30	30.10	30.30	1.40	2.4	3.10	91°40'	0'	0'	8.00	21.00	2.30	2.3
2	Thus	D28	30.70	30.90	1.20	29.90	29.10	1.30	2.4	3.10	91°08'	0'	0'	7.00	20.00	2.20	2.3
2	Rev.	E28	30.70	30.90	1.20	29.90	29.10	1.30	2.4	3.10	91°08'	0'	0'	7.00	20.00	2.20	2.3
4	Thus	D29	30.50	30.70	1.20	29.60	29.80	1.30	2.4	3.10	90°34'	0'	0'	6.00	19.00	2.10	2.3
2	Thus	D30	30.20	30.40	1.30	29.30	29.50	1.30	2.4	3.10	91°01'	0'	0'	5.00	18.00	2.00	2.3
2	Rev.	E30	30.20	30.40	1.30	29.30	29.50	1.30	2.4	3.10	91°01'	0'	0'	5.00	18.00	2.00	2.3
2	Thus	D31	29.10	29.10	1.2	28.10	28.10	1.20	2.4	3.10	90°30'	0'	0'	4.00	17.00	1.90	2.3
2	Rev.	E31	29.10	29.10	1.2	28.10	28.10	1.20	2.4	3.10	90°30'	0'	0'	4.00	17.00	1.90	2.3
4	Thus	D32	29.60	29.80	1.20	28.60	28.10	1.30	2.4	3.10	91°05'	0'	0'	3.00	16.00	1.80	2.3
2	Thus	D33	29.30	29.50	1.20	28.50	28.10	1.30	2.4	3.10	91°39'	0'	0'	2.00	15.00	1.70	2.3
2	Rev.	E33	29.30	29.50	1.20	28.50	28.10	1.30	2.4	3.10	91°39'	0'	0'	2.00	15.00	1.70	2.3
2	Thus	D34	28.10	28.10	1.10	28.10	28.10	1.20	2.4	3.10	91°04'	0'	0'	1.00	14.00	1.60	2.3
2	Rev.	E34	28.10	28.10	1.10	28.10	28.10	1.20	2.4	3.10	91°04'	0'	0'	1.00	14.00	1.60	2.3
4	Thus	D35	28.80	28.10	1.10	27.10	28.00	1.20	2.4	3.10	91°38'	0'	0'	0.00	13.00	1.50	2.3
2	Thus	D35	28.80	28.10	1.10	27.10	28.00	1.20	2.4	3.10	91°38'	0'	0'	0.00	13.00	1.50	2.3

GET NOTE:-
 RIBS 3/4"
 1/4" ES 3/4"
 1/4" PAINT
 INSPECTION P.T.L.

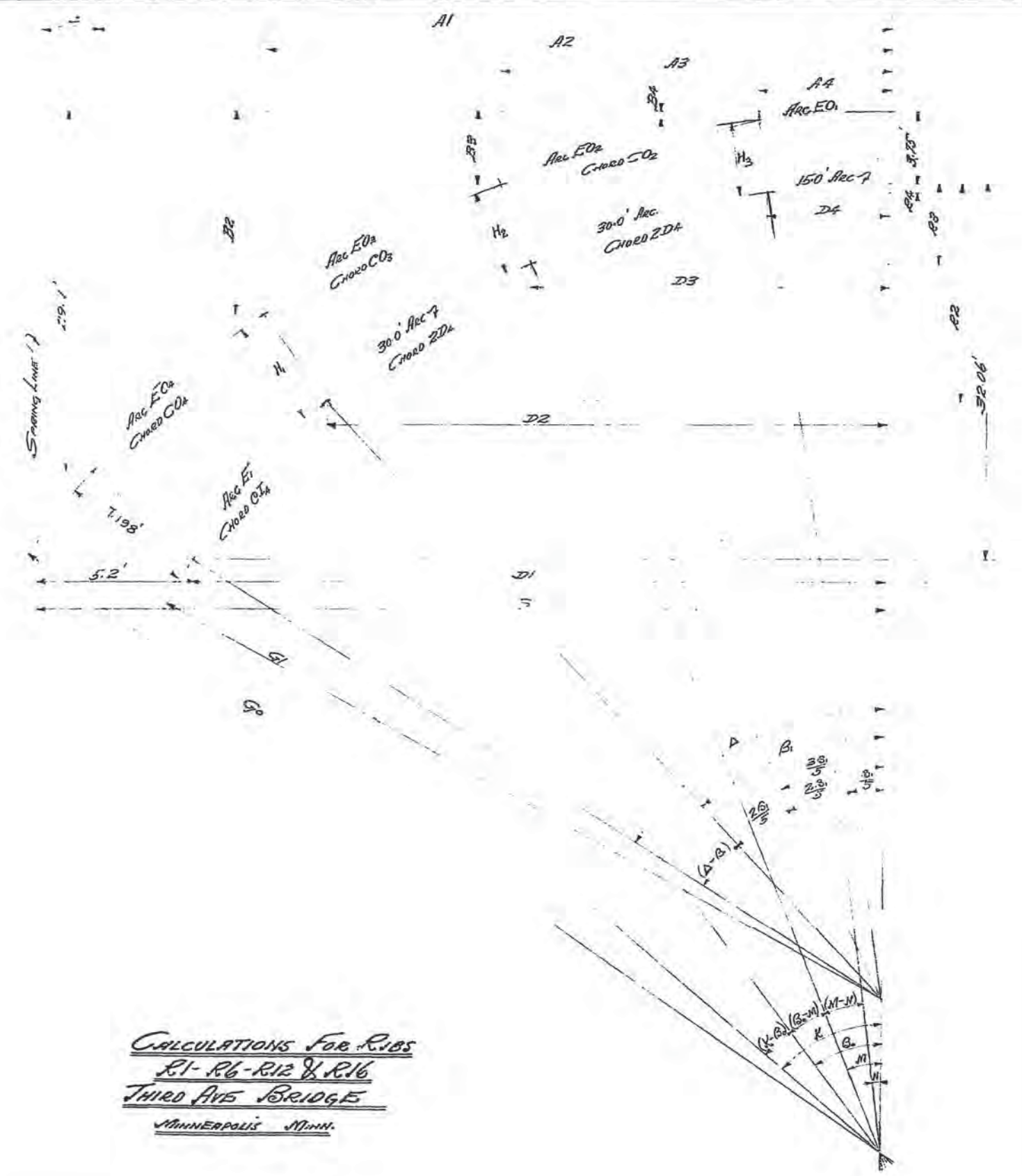
DETAILS OF RIBS
 SPANS 8x9
 3RD AVE BRIDGE
 MINNEAPOLIS, MINN.
 MINNEAPOLIS STEEL & MACHINERY CO.
 MINNEAPOLIS, MINN.

APPROVED BY _____
 MADE BY _____ DATE 10-30-14
 TRACED BY _____ DATE _____
 CHECKED BY C. G. G. DATE 11-11
 ORDER NO. 68110 SHEET No. 22

Drawg. 167.1 Env. 8 TEA-W.



FILMING
 DATE
 BY
 BURKE MARSKO



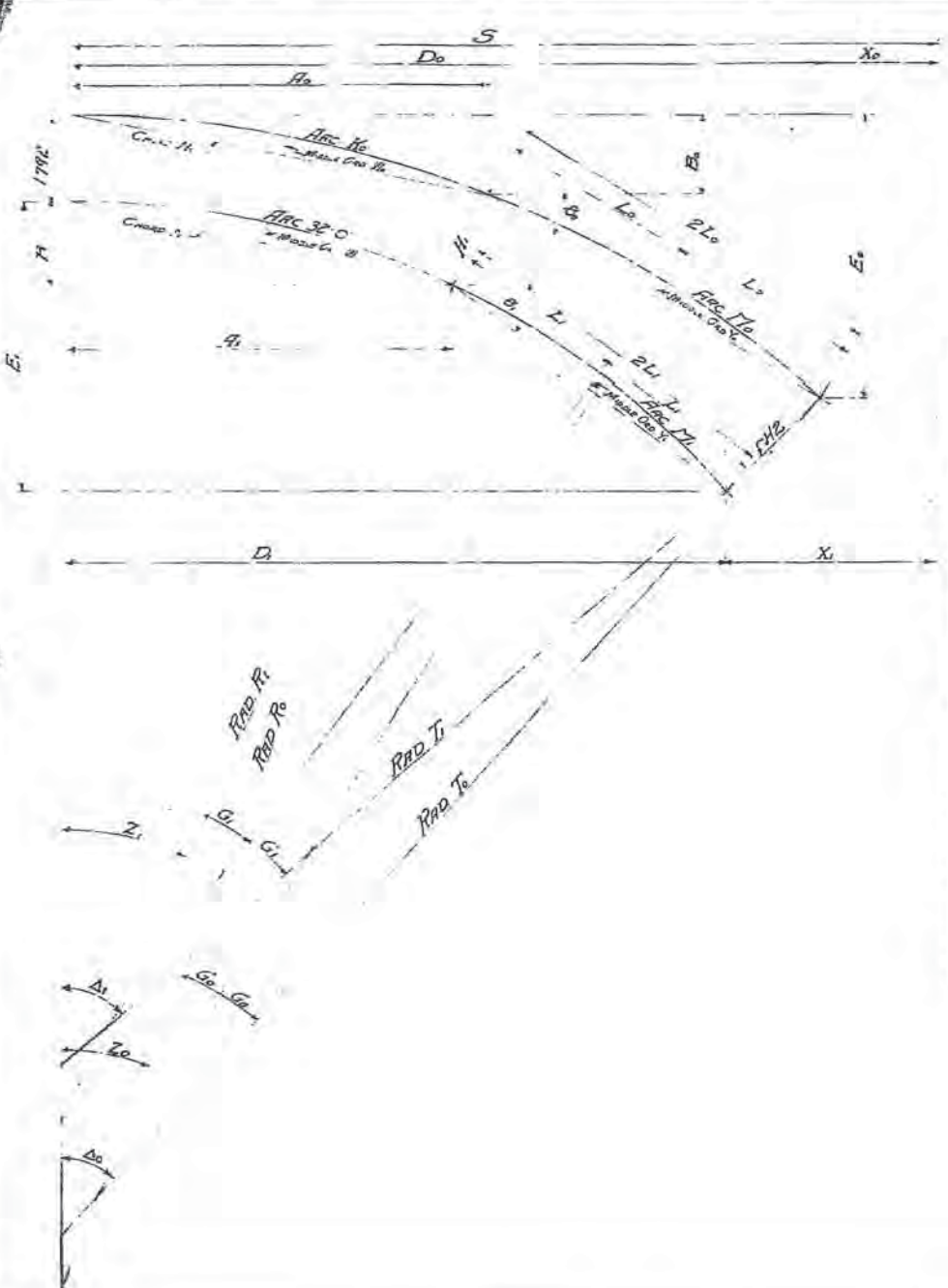
CALCULATIONS FOR RIBS
R1-R6-R12 & R16
THIRD AVE BRIDGE
MINNEAPOLIS MINN.

	R1	R6	R12 & R21	R16
A1	105.455	104.375	103.145	104.10
A2	74.787	74.749	74.768	74.739
A3	45.499	45.500	45.504	45.501
A4	15.271	15.275	15.281	15.277
B2	14.349	14.632	14.965	14.705
B3	5.189	5.292	5.413	5.319
B4	0.578	0.59	0.603	0.593
C1A	33.218	32.209	31.06	31.952
CO2	30.378	30.588	30.604	30.592
CO3	30.687	30.704	30.726	30.712
CO4	34.294	33.238	32.030	32.966
D1	101.655	100.575	99.345	100.30
D2	72.780	72.693	72.589	72.670
D3	44.518	44.495	44.476	44.494
D4	14.982	14.981	14.980	14.981
ZDA	29.964	29.962	29.96	29.962
E1	33.267	32.256	31.105	32.00
EO1	15.285	15.29	15.297	15.292
EO2	30.607	30.618	30.635	30.626
EO3	30.717	30.735	30.738	30.736
EO4	34.336	33.276	32.065	33.006
G1	177.193	173.786	169.952	172.924
G0	207.068	199.255	193.957	197.288
H1	5.423	5.455	5.50	5.463
H2	4.357	4.365	4.383	4.370
H3	3.817	3.815	3.820	3.820
R2	15.637	15.933	16.282	16.011
R3	5.683	5.793	5.923	5.822
R4	0.634	0.646	0.662	0.650
B1	24° 15' 5"	24° 43' 36"	25° 17' 5"	24° 51' 0"
B2	4° 51' 1"	4° 56' 43"	5° 3' 25"	4° 58' 12"
B3	7° 42' 2"	9° 53' 26"	10° 6' 50"	9° 56' 26"
B4	14° 33' 3"	14° 50' 9"	15° 10' 15"	14° 54' 36"
A	35° 0' 30"	35° 21' 40"	35° 46' 16"	35° 27' 8"
A-B	10° 45' 75"	10° 38' 4"	10° 29' 11"	10° 36' 8"
B	21° 43' 21"	22° 9' 1"	22° 39' 17"	22° 15' 42"
K	31° 27' 30"	31° 46' 2"	32° 7' 36"	31° 50' 50"
M	13° 0' 46"	13° 16' 4"	13° 30' 7"	13° 20' 4"
N	4° 20' 3"	4° 25' 8"	4° 31' 8"	4° 26' 28"
B-M	8° 42' 35"	8° 52' 57"	9° 5' 10"	8° 55' 38"
K-B	9° 44' 9"	9° 37' 1"	9° 28' 19"	9° 35' 7"
M-N	8° 40' 43"	8° 50' 56"	9° 2' 59"	8° 53' 36"
S	106.885	105.775	104.545	105.50

O# 8810 S.V. B
 Drawg 176 Env B TEACH.



FILMING
 DATE
 JUL 24 1960
 BY
 BURKE MARSKE

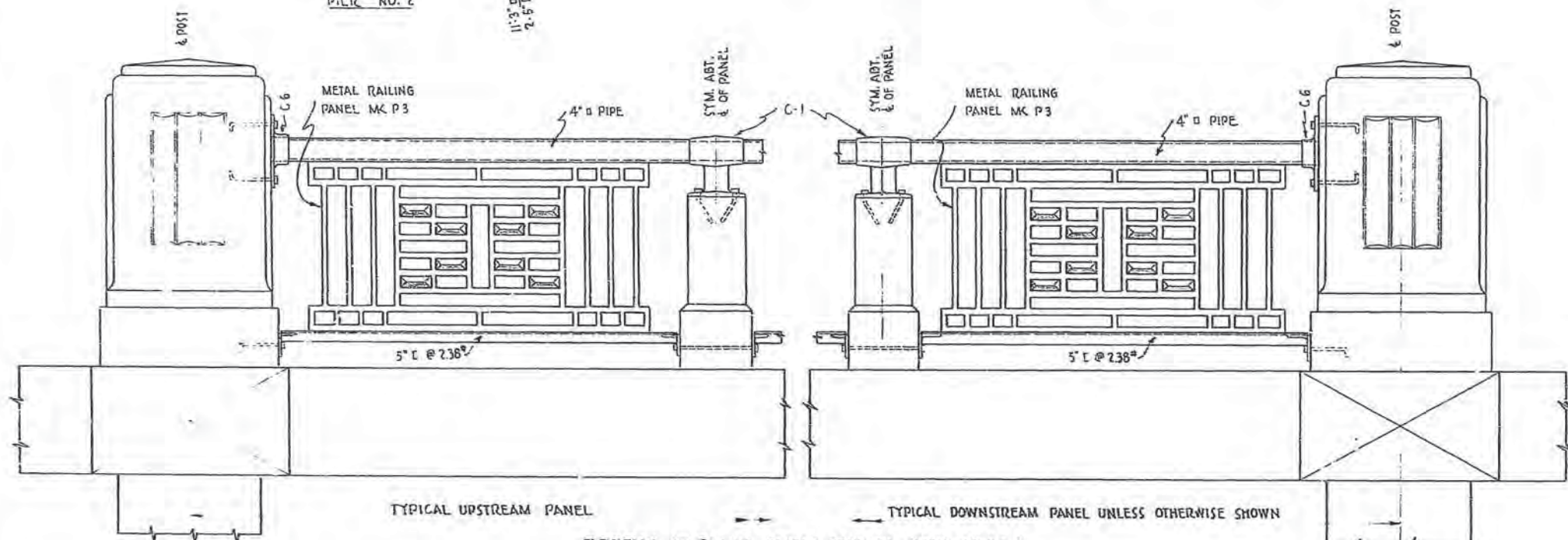
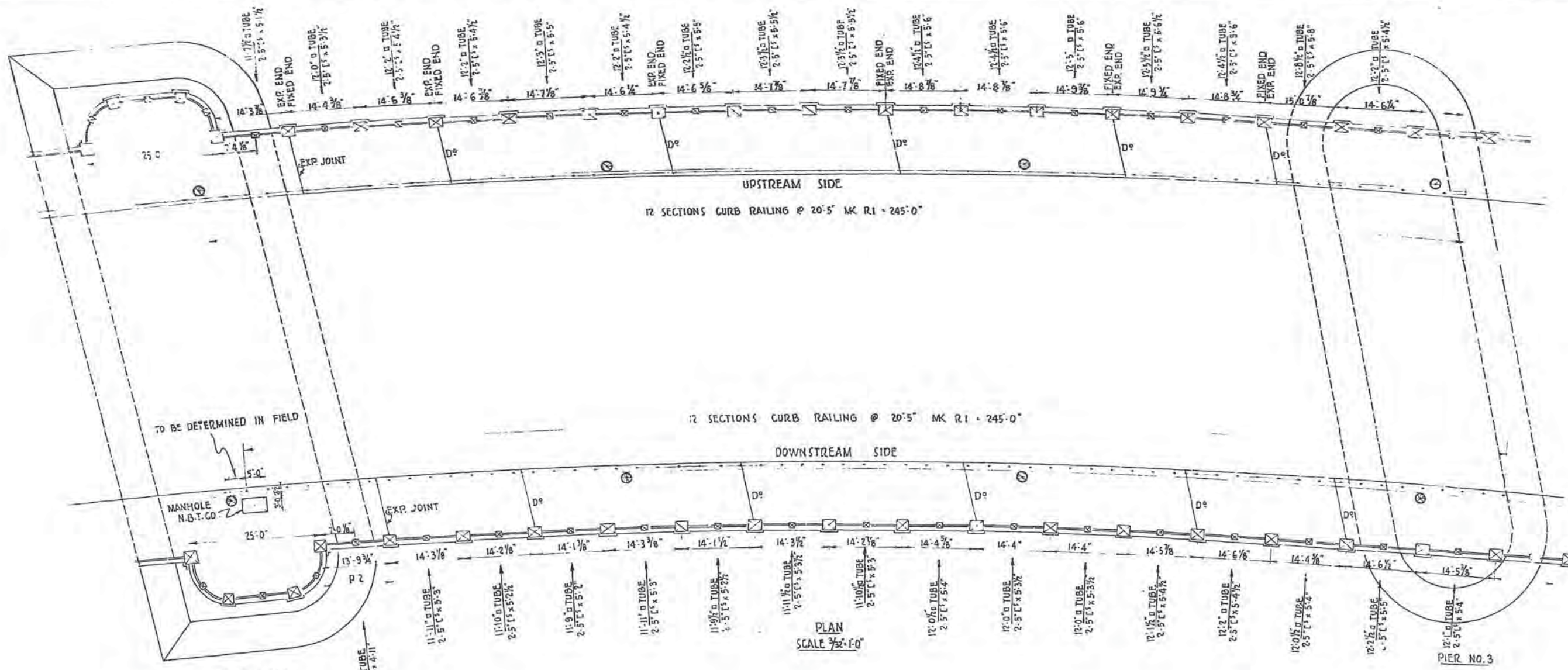


	R26	R27	R28	R29	R30	R31	R32	R33	R34	R35	R36	R37	R38	R39	R40	R41	R42	R43	R44	R45	R46	R47	R48	R49	R50	R51
S	71.57	71.22	70.88	70.53	70.19	69.83	69.49	69.14	68.80	68.45	68.11	67.76	67.42	67.07	66.72	66.37	66.03	65.68	65.34	64.99	64.65	64.29	63.95	63.60	63.25	62.91
Fd	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488	31.488
Bd	4.929	4.929	4.929	5.064	5.064	5.064	5.208	5.208	5.208	5.356	5.356	5.356	5.486	5.486	5.486	5.628	5.628	5.628	5.791	5.791	5.791	5.943	5.943	5.943	6.116	6.116
Zi	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36	17.47.36
Fl	103.042	103.042	103.042	100.251	100.251	100.251	97.532	97.532	97.532	95.040	95.040	95.040	92.390	92.390	92.390	90.018	90.018	90.018	87.429	87.429	87.429	85.132	85.132	85.132	82.673	82.673
Fo	32.124	32.124	32.124	32.116	32.116	32.116	32.109	32.109	32.109	32.098	32.098	32.098	32.088	32.088	32.088	32.074	32.074	32.074	32.060	32.060	32.060	32.043	32.043	32.043	32.026	32.026
Bo	4.499	4.499	4.499	4.615	4.615	4.615	4.745	4.745	4.745	4.885	4.885	4.885	5.026	5.026	5.026	5.178	5.178	5.178	5.332	5.332	5.332	5.5	5.5	5.5	5.665	5.665
Lo	15.54.36	15.54.36	15.54.36	16.21.15	16.21.15	16.21.15	16.44.48	16.44.48	16.44.48	17.18.27	17.18.27	17.18.27	17.48.20	17.48.20	17.48.20	18.20.26	18.20.26	18.20.26	18.53.13	18.53.13	18.53.13	19.28.47	19.28.47	19.28.47	20.3.46	20.3.46
Fc	11.187	11.187	11.187	11.057	11.057	11.057	11.005	11.005	11.005	10.870	10.870	10.870	10.734	10.734	10.734	10.593	10.593	10.593	10.442	10.442	10.442	10.287	10.287	10.287	10.135	10.135
Ho	32.541	32.541	32.541	32.535	32.535	32.535	32.525	32.525	32.525	32.512	32.512	32.512	32.498	32.498	32.498	32.482	32.482	32.482	32.468	32.468	32.468	32.452	32.452	32.452	32.437	32.437
Xi	9.089	9.089	9.089	8.998	8.998	8.998	8.898	8.898	8.898	8.772	8.772	8.772	8.662	8.662	8.662	8.573	8.573	8.573	8.453	8.453	8.453	8.333	8.333	8.333	8.193	8.193
Di	2.482	2.482	2.482	2.452	2.452	2.452	2.402	2.402	2.402	2.308	2.308	2.308	2.208	2.208	2.208	2.147	2.147	2.147	2.087	2.087	2.087	2.027	2.027	2.027	1.957	1.957
Ei	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105	2.105
Di-Bi		30.474	30.364		29.744	29.444		28.880	28.570		27.770	27.660		27.102	26.785		26.184	25.864		25.327	25.017		24.425	24.115		23.550
Ei-Bi		16.176	16.176		16.081	16.081		15.870	15.870		15.787	15.787		15.658	15.658		15.411	15.411		15.209	15.209		15.027	15.027		14.814
2L	34.961	34.671	34.404	34.093	33.811	33.530	33.216	32.953	32.692	32.382	32.073	31.815	31.50	31.248	30.971	30.661	30.333	30.107	29.794	29.543	29.279	28.989	28.697	28.430	28.112	27.857
Li	17.480	17.357	17.202	17.046	16.905	16.765	16.608	16.476	16.341	16.181	16.046	15.907	15.75	15.624	15.485	15.380	15.253	15.097	14.711	14.638	14.479	14.346	14.210	14.056	13.920	
Bo		27.40.11	27.2.45		27.45.22	27.34.58		27.19.19	27.34.58		27.1.50	27.34.97		27.50.38	27.31.28		27.21.47	27.17.56		27.8.6	27.17.56		27.31.8	27.58.48		27.17.3
Go-Bi	7.46.2	10.0.42	10.15.9	7.47.14	10.1.57	10.17.33	7.48.16	7.57.27	10.15.9	7.48.10	10.4.21	10.21.11	7.48.52	10.0.22	10.11.2	7.48.20	10.1.48	10.28.18	7.48.37	10.0.50	10.19.30	7.47.31	10.6.55	10.26.36	7.47.21	10.6.57
Ti	103.042	99.726	96.648	100.251	97.035	93.830	97.532	94.368	91.110	95.040	91.747	88.417	92.390	89.221	85.991	90.018	86.523	83.222	87.429	84.946	81.622	85.132	81.681	78.422	82.673	79.305
Fd	35.130	34.954	34.588	34.251	33.933	33.711	33.390	33.120	32.857	32.522	32.258	31.998	31.655	31.407	31.137	30.811	30.560	30.273	29.940	29.693	29.432	29.098	28.861	28.589	28.247	28.002
Xi	6.838	6.808	6.778	6.748	6.718	6.678	6.658	6.598	6.528	6.448	6.438	6.408	6.31	6.28	6.24	6.22	6.19	6.16	6.162	6.032	5.992	5.962	5.882	5.822	5.842	
Do	6.4732	6.4412	6.4102	6.3752	6.3472	6.3152	6.2802	6.2522	6.2272	6.1952	6.1642	6.1322	6.1012	6.076	6.044	6.013	5.981	5.949	5.918	5.8928	5.8618	5.8298	5.7988	5.7678	5.7368	5.7058
Eo	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501	19.501
Di-Fo		32.288	31.978		31.356	31.036		30.473	30.153		29.544	29.224		28.722	28.352		27.786	27.416		26.888	26.538		25.945	25.625		25.142
Eo-Bo		15.002	15.002		14.886	14.886		14.815	14.815		14.675	14.675		14.599	14.599		14.447	14.447		14.374	14.374		14.206	14.206		14.041
2L	35.896	35.603	35.322	34.990	34.710	34.421	34.072	33.884	33.605	33.214	32.782	32.307	31.855	31.407	31.010	30.558	30.178	30.490	30.666	30.471	30.198	29.952	29.580	29.972	29.710	
Li	17.948	17.801	17.661	17.495	17.355	17.211	17.041	16.942	16.802	16.632	16.431	16.185	16.087	15.945	15.795	15.636	15.495	15.328	15.285	15.099	14.926	14.770	14.654	14.486	14.355	
Bo		24.55.16	24.5.57		25.23.44	25.31.27		25.52.37	26.8.31		26.28.52	26.8.50		26.59.2	27.14.41		27.30.50	27.47.44		28.8.46	28.25.25		28.42.9	28.57.37		29.14.45
Go-Bi	7.49.37	7.0.40	7.13.23	7.47.25	7.2.27	7.16.12	7.50.1	7.6.51	7.26.43	7.32.5	7.16.23	7.21.21	7.52.22	7.10.42	7.32.21	7.54.17	7.10.24	7.26.48	7.54.16	7.15.33	7.32.12	7.54.11	7.13.22	7.30.36	7.55.35	7.12.57
Ti	117.187	113.653	110.190	114.057	110.483	106.843	111.045	106.956	103.479	107.890	104.215	100.58	104.934	100.854	97.225	101.93	98.072	94.407	99.142	94.1.6	91.134	96.487	92.280	88.653	93.357	89.627
Fd	36.089	35.748	35.475	35.129	34.855	34.578	34.228	34.027	33.752	33.298	32.928	32.547	32.199	32.011	32.034	31.684	31.406	31.130	30.78	30.601	30.498	29.975	29.707	29.443	29.090	28.835
Xi	2.320	2.320	2.320	2.335	2.335	2.335	2.35	2.35	2.35	2.357	2.357	2.357	2.366	2.366	2.366	2.360	2.36	2.36	2.371	2.379	2.379	2.372	2.372	2.372	2.388	
Do	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073	4.073
Di	37.9.40			37.31.48			36.28.28			35.53.50			35.28.21			34.58.44			34.36.36			34.15.15			33.54.22	
Eo	33.31.6			33.0.6			32.28.48			32.5.40			32.32.4			32.8.4			32.4.24			32.10.6			31.54.26	
Ni	31.872	31.872	31.872	31.864	31.864	31.864	31.856	31.856	31.856	31.850	31.850	31.841	31.841	31.841	31.832	31.832	31.832	31.822	31.822	31.822	31.811	31.811	31.811	31.80	31.80	
Ni	32.436	32.436	32.436	32.444	32.444	32.444	32.458	32.458	32.458	32.468	32.468	32.468	32.480	32.480	32.480	32.488	32.488	32.488	32.50	32.50	32.50	32.511	32.511	32.511	32.524	32.524
Wi	1.127	1.127	1.127	1.154	1.154	1.154	1.192	1.192	1.192	1.228	1.228	1.228	1.264	1.264	1.264	1.308	1.308	1.308	1.342	1.342	1.342	1.385	1.385	1.385	1.427	1.427
Wi	1.240	1.240	1.240	1.274	1.274	1.274	1.310	1.310	1.310	1.344	1.344	1.344	1.392	1.392	1.392	1.438	1.438	1.438	1.459	1.459	1.459	1.50	1.50	1.50	1.544	1.544
Yi	1.383	1.383	1.383	1.351	1.351	1.351	1.316	1.316	1.316	1.270	1.270	1.270	1.224	1.224	1.224	1.229	1.229	1.229	1.255	1.255	1.255	1.244	1.244	1.244	1.259	1.259
Yi	1.494	1.494	1.494	1.459	1.459	1.459	1.425	1.425	1.425	1.388	1.388	1.388	1.352	1.352	1.352	1.315	1.315	1.315	1.244	1.244	1.244	1.229	1.229	1.229	1.204	1.204

NOTE: Ribs in the above schedule appearing between the same heavy vertical lines are R35-R36, R37 are grouped together in detailing with all calculations based upon the rib marked thus - @ R35.

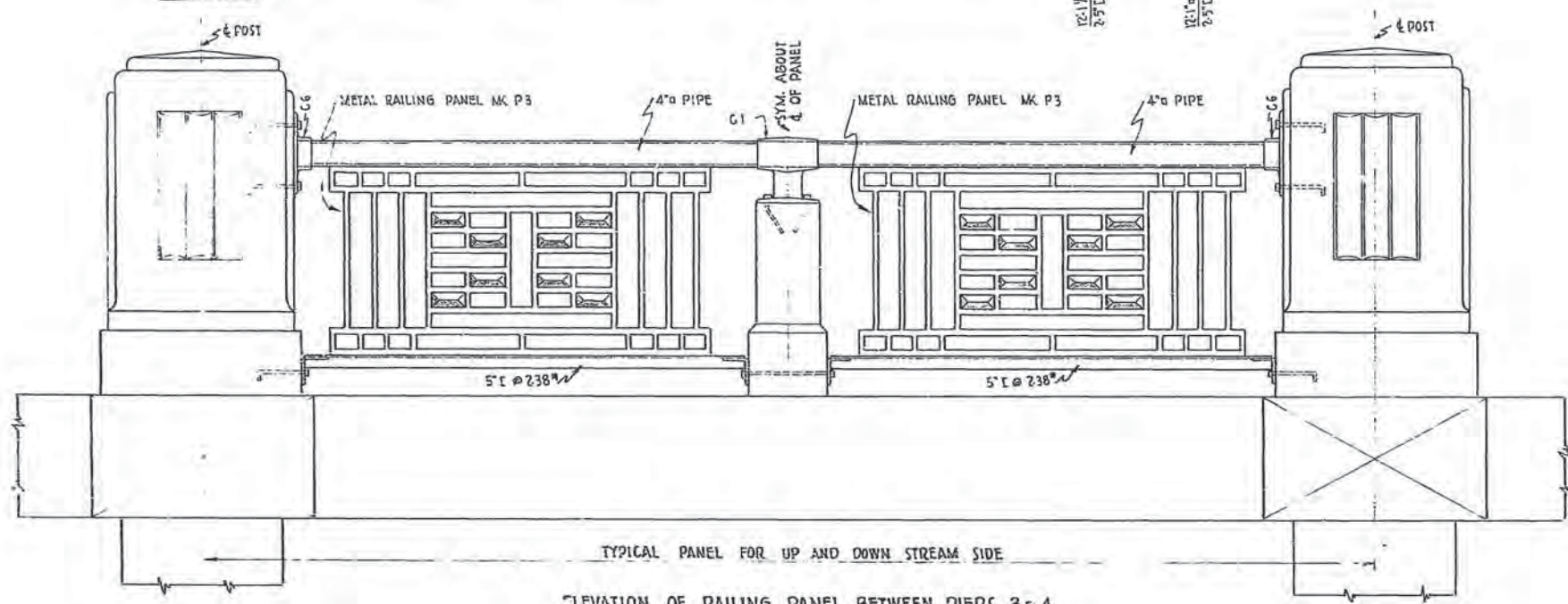
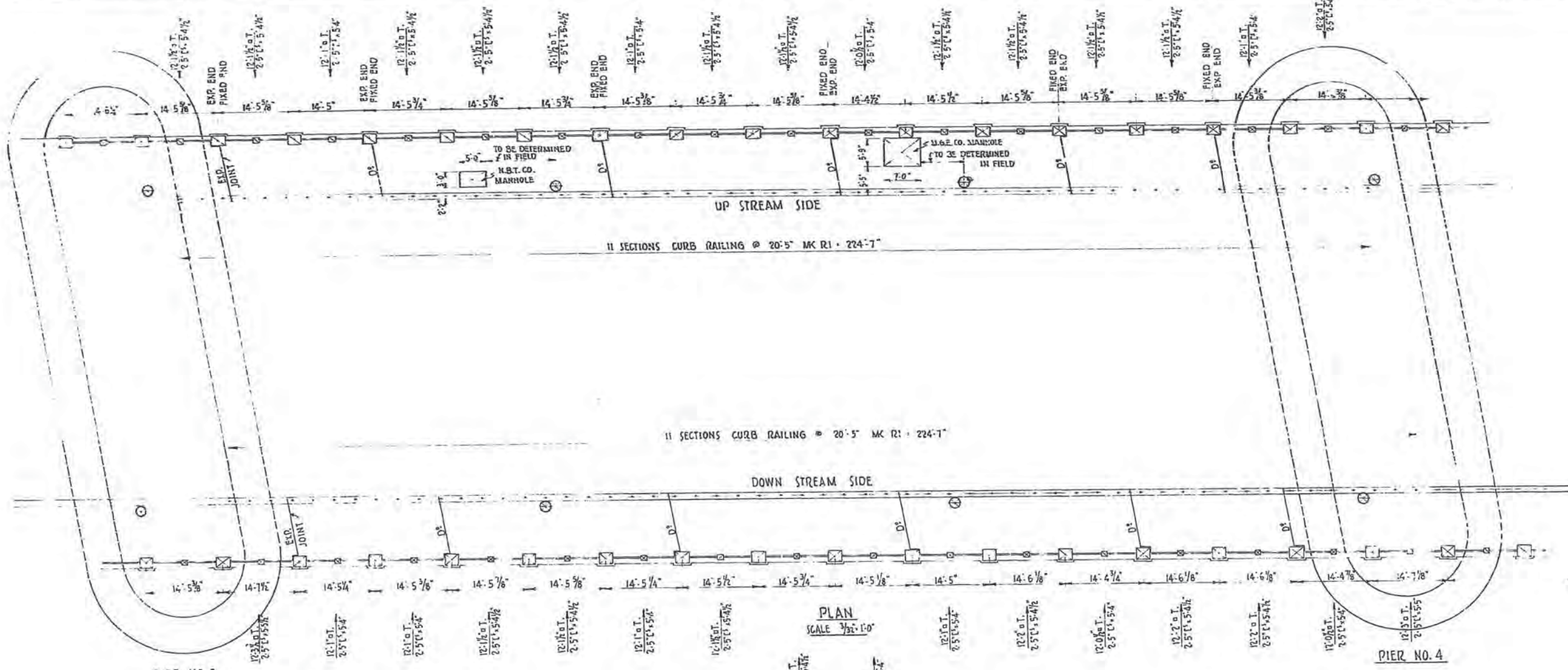
CALCULATIONS FOR RIBS
R26 TO R51 INC.
THIRD AVE BRIDGE
MINNEAPOLIS MINN.





GENERAL NOTE:
 FOR DETAILS OF SIDEWALK AND CURB SEE DRWG. NO. 14
 CONCRETE MIX FOR SIDEWALK AND CURB = 2500 #
 " POSTS - 3000 #
 FOR DETAIL OF CONCRETE POSTS SEE DRWG. NO. 9 TO 14
 " METAL RAILING PANELS SEE DRWG. NO. 15, 16
 " RAILING TUBE AND CHANNELS SEE DRG. NO. 17, '8
 MISCELLANEOUS DETAILS SEE DRWG. NO. 19
 FOR DETAILS OF CURB RAILING SEE DRWG. NO. 14

BRIDGE RAILING		
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER		
WORK. S.B.	CITY ENGINEERS OFFICE	SCALE
TRCD. F.D.	BRIDGE DEPT. MINNEAPOLIS MUN.	3/32" = 1'-10"
CHKD. T.J.	ST. PAUL CITY ENGINEER	DRWG. NO. 2
DATE 11-29-38	E. GORSEKSON BRIDGE ENGINEER	

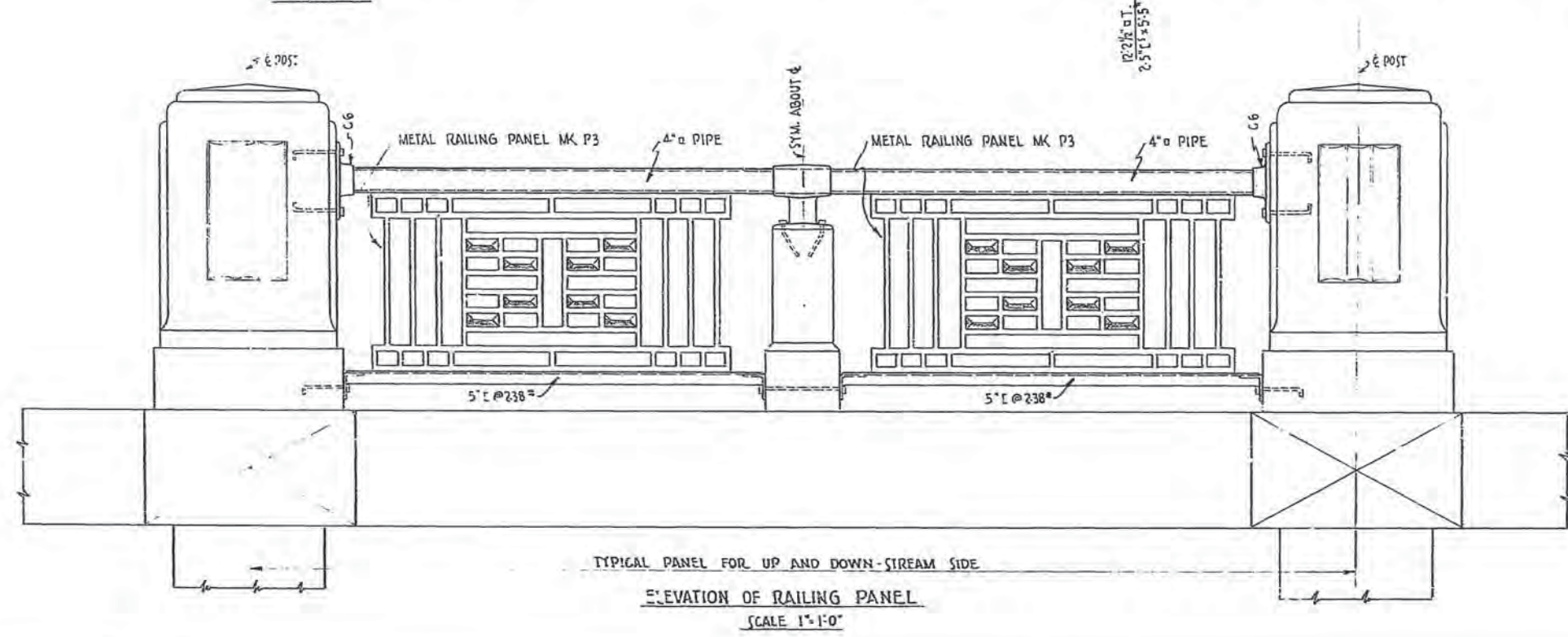
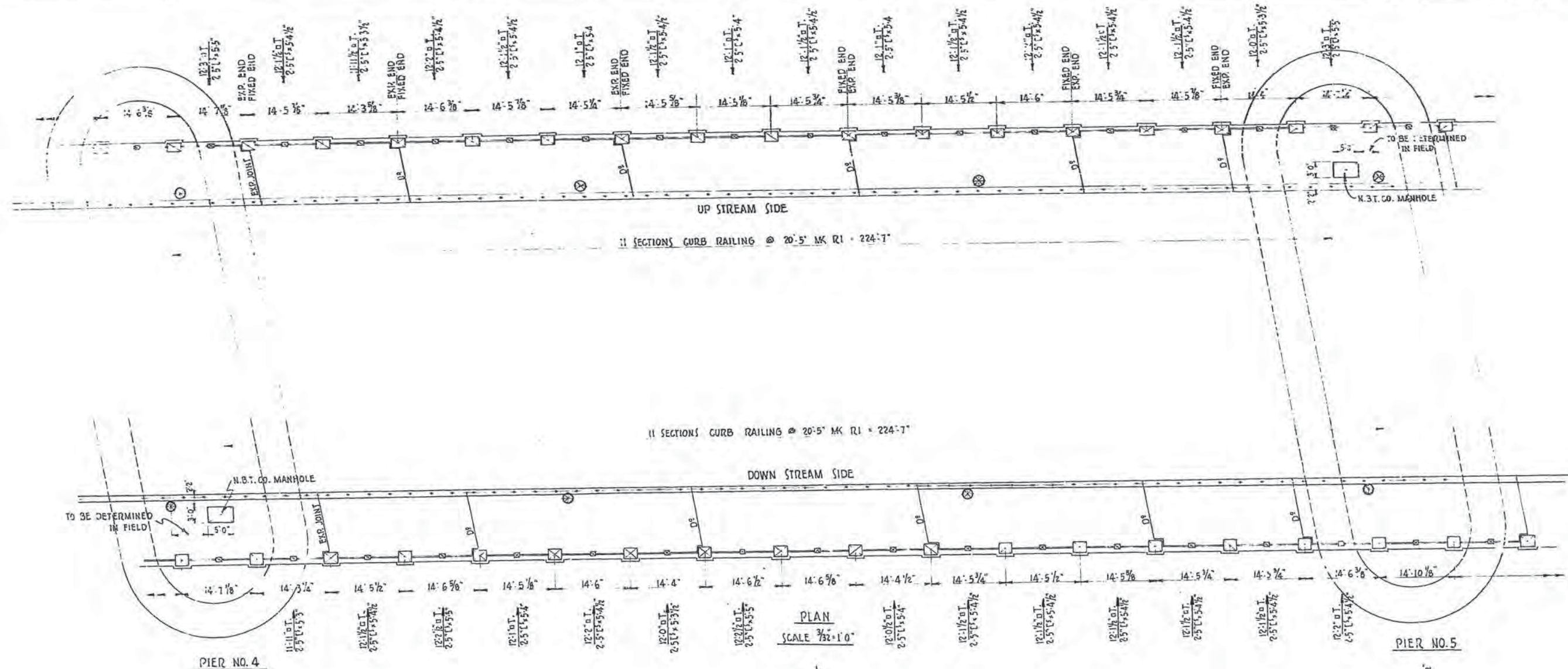


GENERAL NOTE:

- FOR DETAILS OF SIDEWALK AND CURB SEE DRAWING NO. 14
- CONCRETE MIX FOR SIDEWALK AND CURB = 2500 #
- POSTS = 3000 #
- FOR DETAIL OF CONCRETE POSTS SEE DRAWING NO. 9 TO 14
- METAL RAILING PANELS SEE DRAWING NO. 15, 16
- RAILING TUBE AND CHANNELS SEE DRAWING NO. 17, 18
- MISCELLANEOUS DETAILS SEE DRAWING NO. 19
- DETAIL OF CURB RAILING SEE DRAWING NO. 1

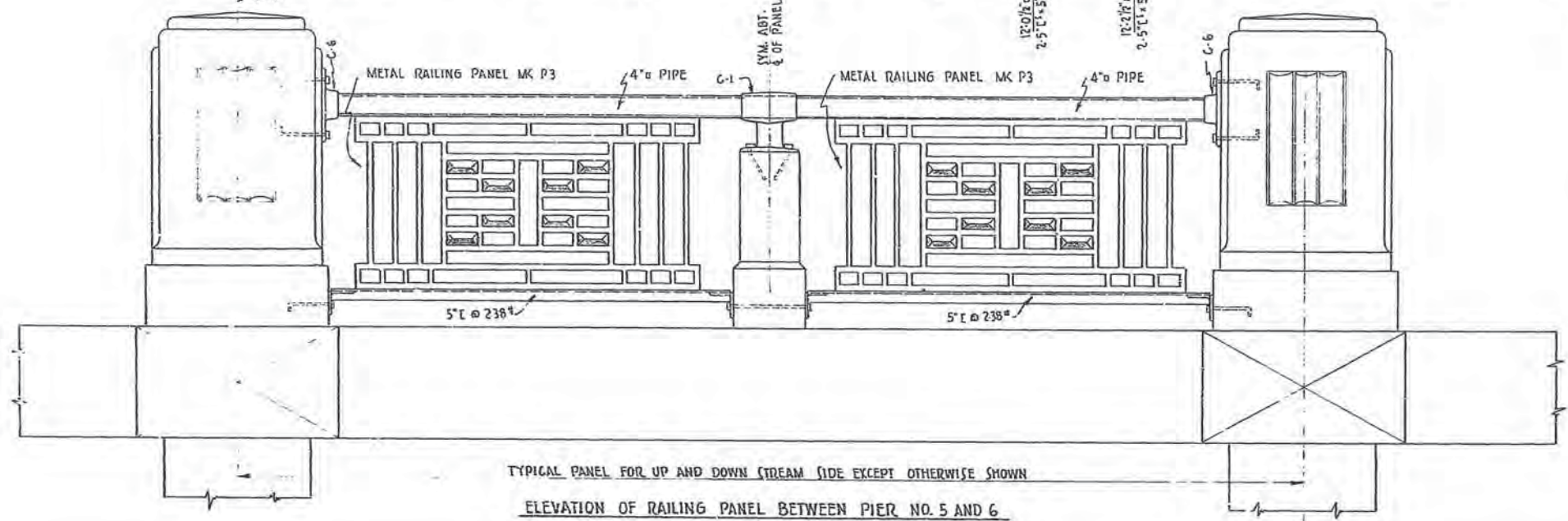
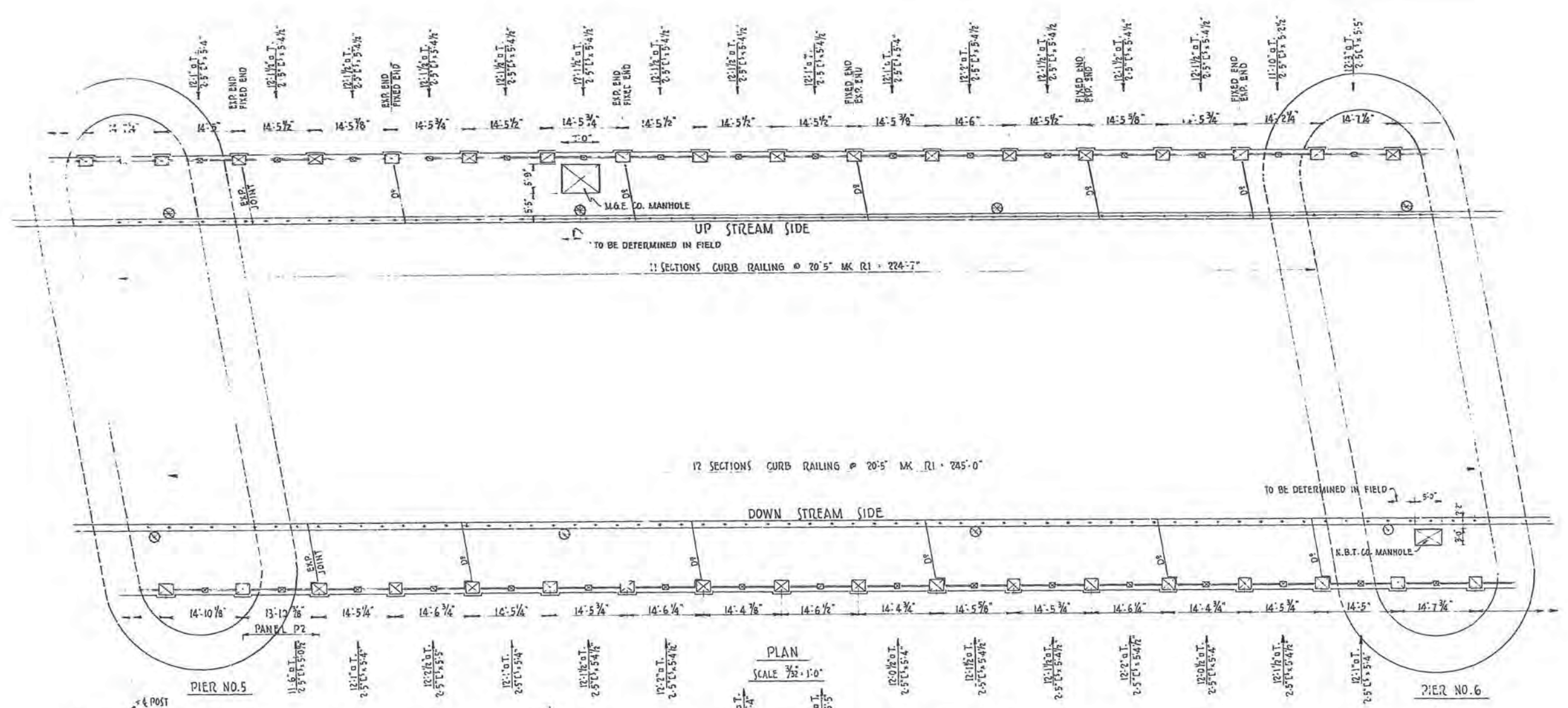
BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. E.G.	BRIDGE DEPT.	CITY ENGINEERS OFFICE	SCALE
TRCD. E.O.	MINNEAPOLIS	MINNESOTA	3/8" = 1'-0"
CHKD. T.J.	ST. PAUL	CITY ENGINEER	DRWG. NO. 3
DATE 12-6-38	E. GORDENSON	BRIDGE ENGINEER	

BY
E. W. MARSKE



GENERAL NOTE:
 FOR DETAIL OF SIDEWALK AND CURB SEE DRAWING NO. 14.
 CONCRETE MIX FOR SIDEWALK AND CURB = 2500#
 POSTS = 3000#
 FOR DETAIL OF CONCRETE POSTS SEE DRAWING NO. 3 TO 14.
 METAL RAILING PANELS SEE DRAWING NO. 15, 16.
 RAILING TUBE AND CHANNELS SEE DRAWING NO. 17, 18.
 MISCELLANEOUS DETAILS SEE DRAWING NO. 19.
 DETAIL OF CURB RAILING SEE DRAWING NO. 14.

BRIDGE RAILING			
3RD AVE. SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. T.R.C.CHKD. DATE	E.G. T.J.	BRIDGE DEPT. CITY ENGINEER'S OFFICE MINNEAPOLIS ST. PAUL E. GORANSON	CITY ENGINEER MINNEAPOLIS ST. PAUL BRIDGE ENGINEER
			SCALE 3/32" = 1'-0" DRWG. NO. 4

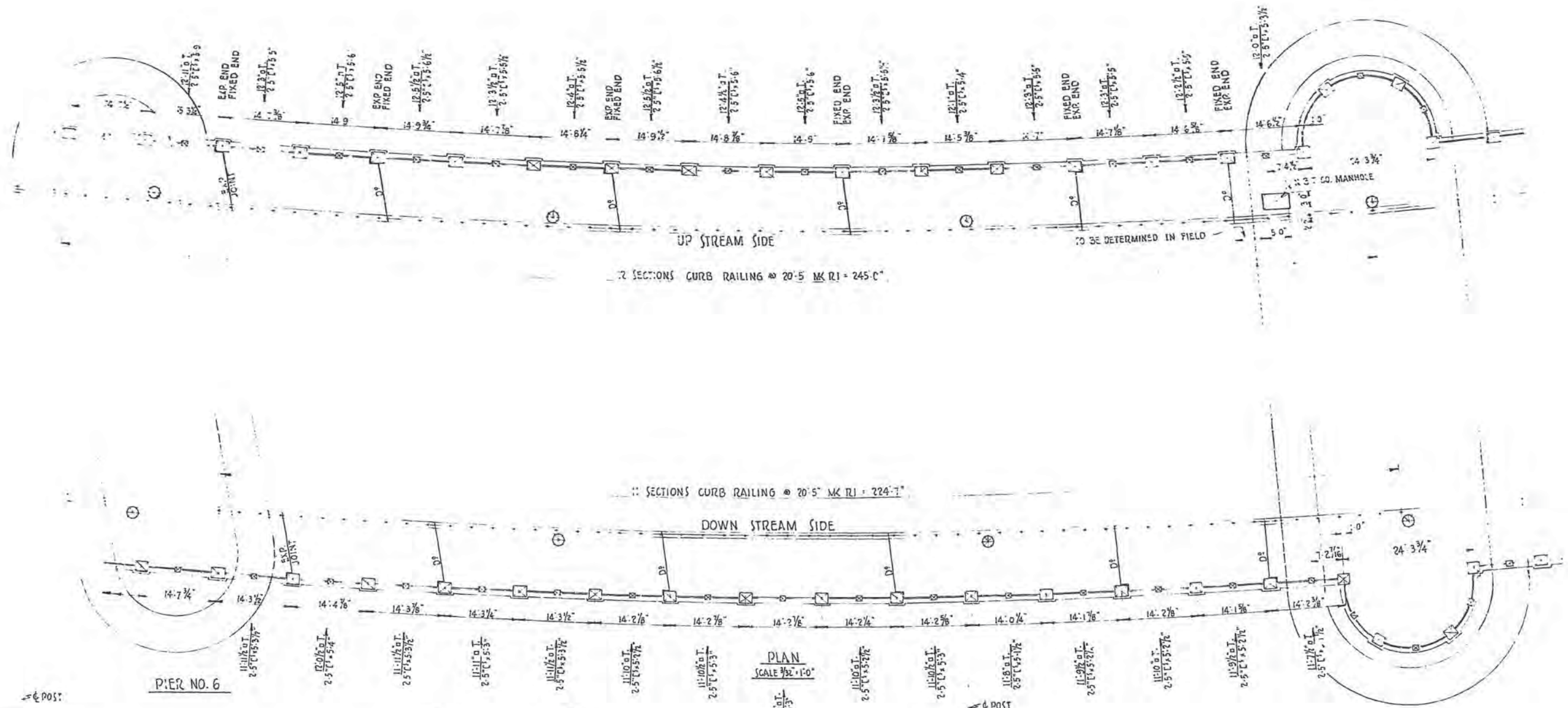


TYPICAL PANEL FOR UP AND DOWN STREAM SIDE EXCEPT OTHERWISE SHOWN
 ELEVATION OF RAILING PANEL BETWEEN PIER NO. 5 AND 6
 SCALE 1"=1'-0"

GENERAL NOTE:
 FOR DETAIL OF SIDEWALK AND CURB SEE DRAWING NO. 14
 CONCRETE MIX FOR SIDEWALK AND CURB = 2500 #
 POSTS = 3000 #
 FOR DETAIL OF CONCRETE POSTS DRAWINGS NO. 9 TO 14
 METAL RAILING PANELS SEE DRAWINGS NO. 15, 16
 RAILING TUBE AND CHANNELS SEE DRAWINGS NO. 17, 18
 MISCELLANEOUS DETAILS SEE DRAWING NO. 19
 DETAIL OF CURB RAILING SEE DRAWING NO. 14

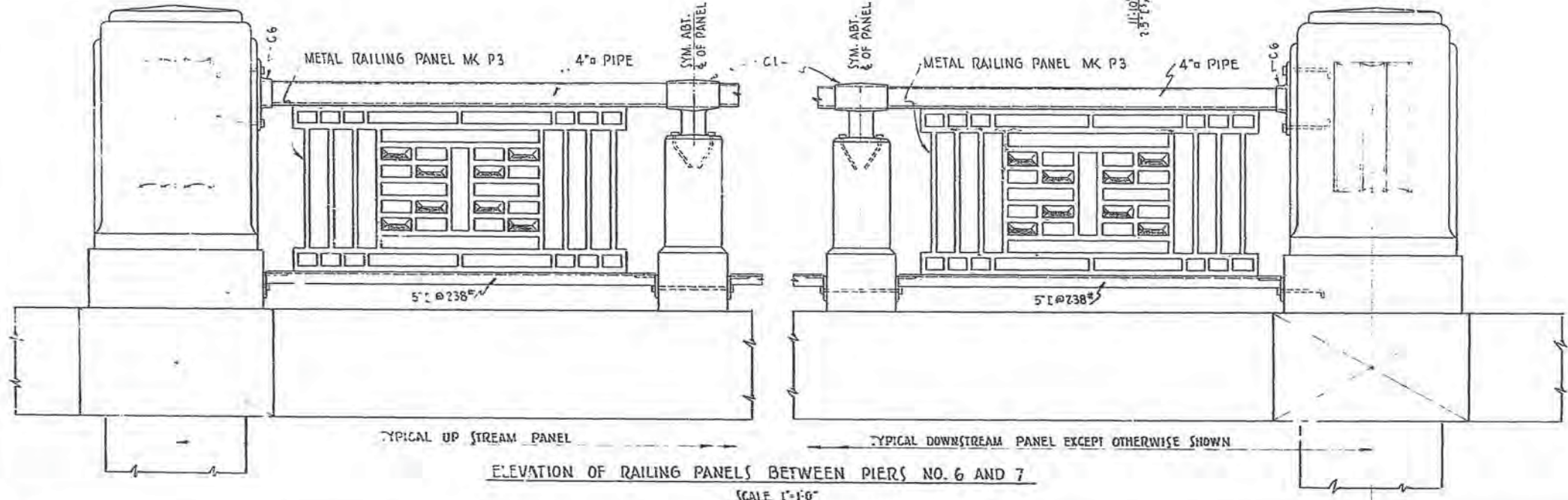
BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
CONV. E.G.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE
TRCD. F.O.	MINNEAPOLIS	MINNESOTA	3/8"=1'-0"
CHKD. T.J.	ST. PAUL	CITY ENGINEER	WORK NO. 5
DATE	E. GORGENSON	BRIDGE ENGINEER	

F. M. NG
 - - -
 - - -
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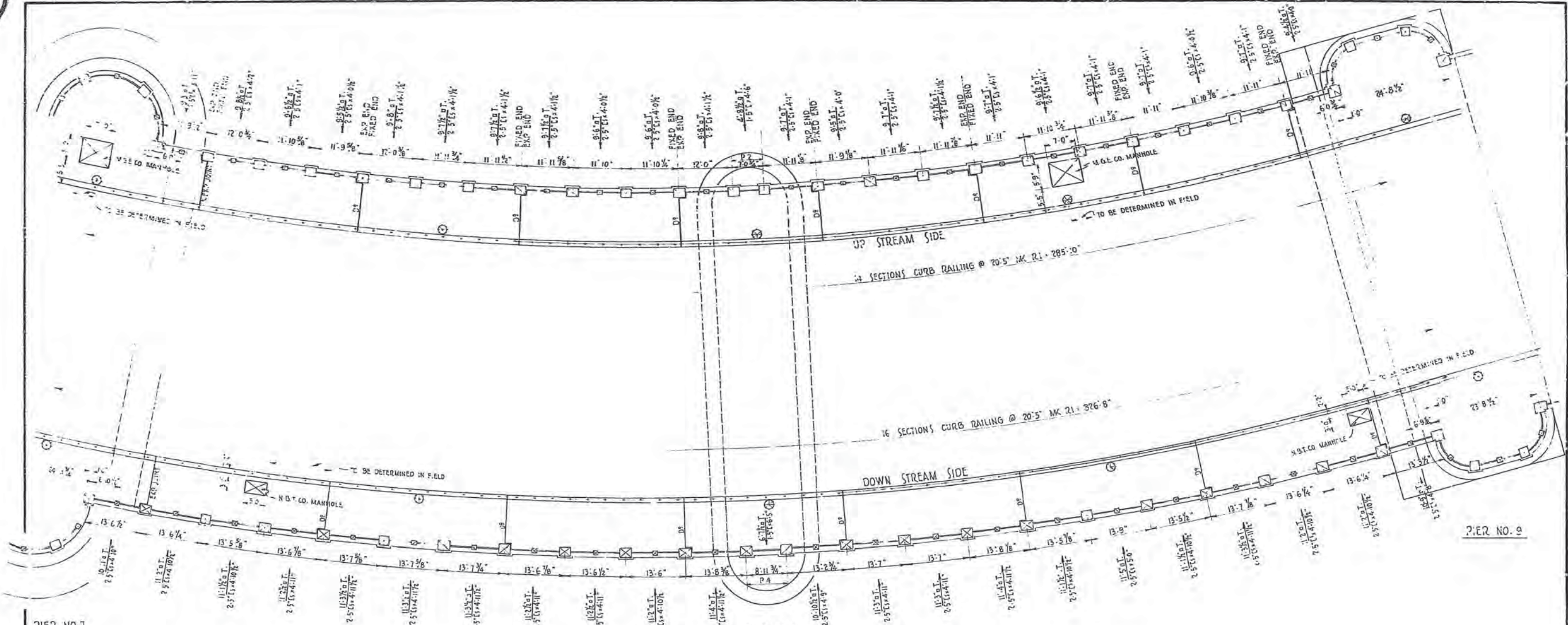


GENERAL NOTE:

- FOR DETAIL OF SIDEWALK AND CURB SEE DRAWING NO. 14.
- CONCRETE MIX FOR SIDEWALK AND CURB = 2500 #
- POSTS = 3000 #
- FOR DETAIL OF CONCRETE POSTS SEE DRAWING NO. 9 TO 14.
- METAL RAILING PANELS SEE DRAWING NO. 15, 16.
- RAILING TUBE AND CHANNELS SEE DRAWING NO. 17, 18.
- MISCELLANEOUS DETAILS SEE DRAWING NO. 19.
- DETAIL OF CURB RAILING SEE DRAWING NO. 14.



BRIDGE RAILING				
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER				
DESIGNED BY	E. G. BRIDGE DEPT	CITY ENGINEER'S OFFICE	SCALE	
DRAWN BY	F. D. MINNEAPOLIS	MINNEAPOLIS	3/32" = 1'-0"	
CHECKED BY	T. J. PAUL	CITY ENGINEER		
DATE	5 GOUDENSON	BRIDGE ENGINEER		DRWG NO. 6

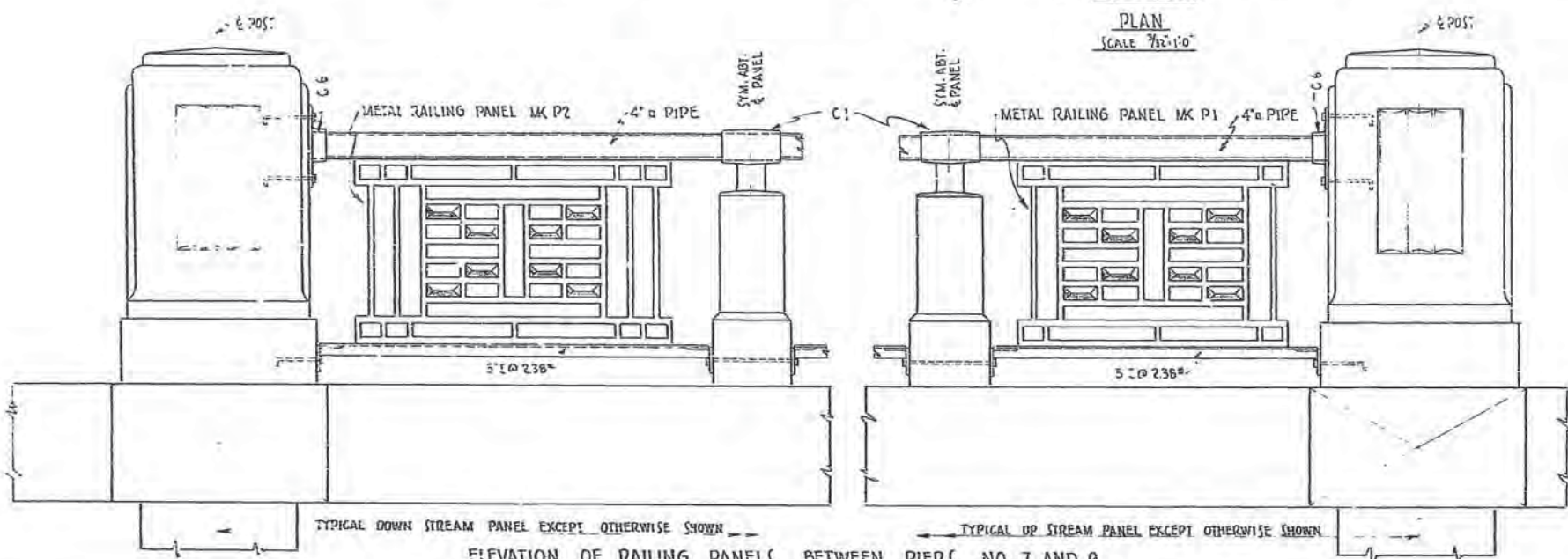


PIER NO. 7

PIER NO. 8

PIER NO. 9

PLAN
SCALE 7/8"=1'-0"

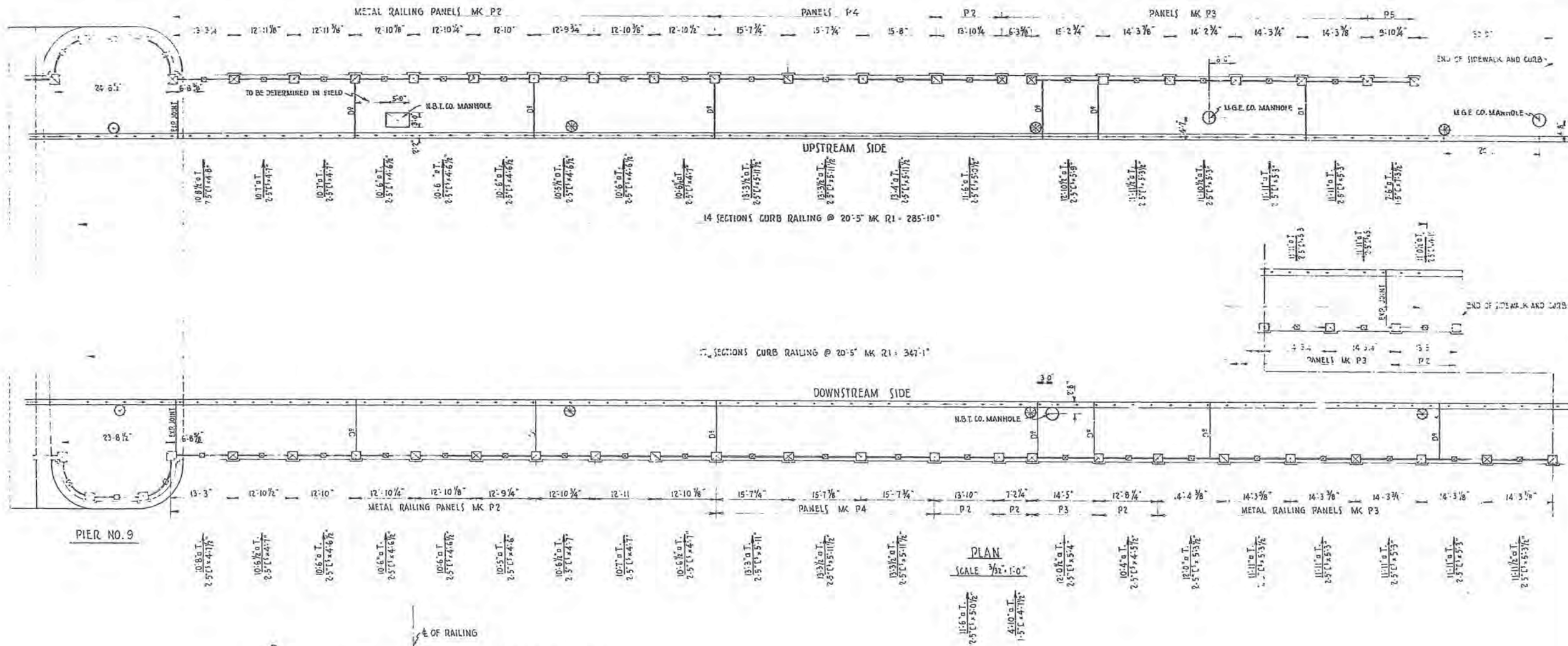


ELEVATION OF RAILING PANELS BETWEEN PIER NO. 7 AND 9

- GENERAL NOTE:
- FOR DETAIL OF SIDEWALK AND CURB SEE DRAWING NO. 14.
 - CONCRETE MIX FOR SIDEWALK AND CURB = 2500#
 - POSTS = 3000#
 - FOR DETAIL OF CONCRETE POSTS SEE DRAWING NO. 9 TO 14.
 - METAL RAILING PANELS SEE DRAWING NO. 15, 16.
 - MISCELLANEOUS DETAILS SEE DRAWING NO. 9.
 - DETAIL OF CURB RAILING SEE DRAWING NO. 14.
 - RAILING TUBE AND CHANNELS SEE DRAWING NO. 17, 18.

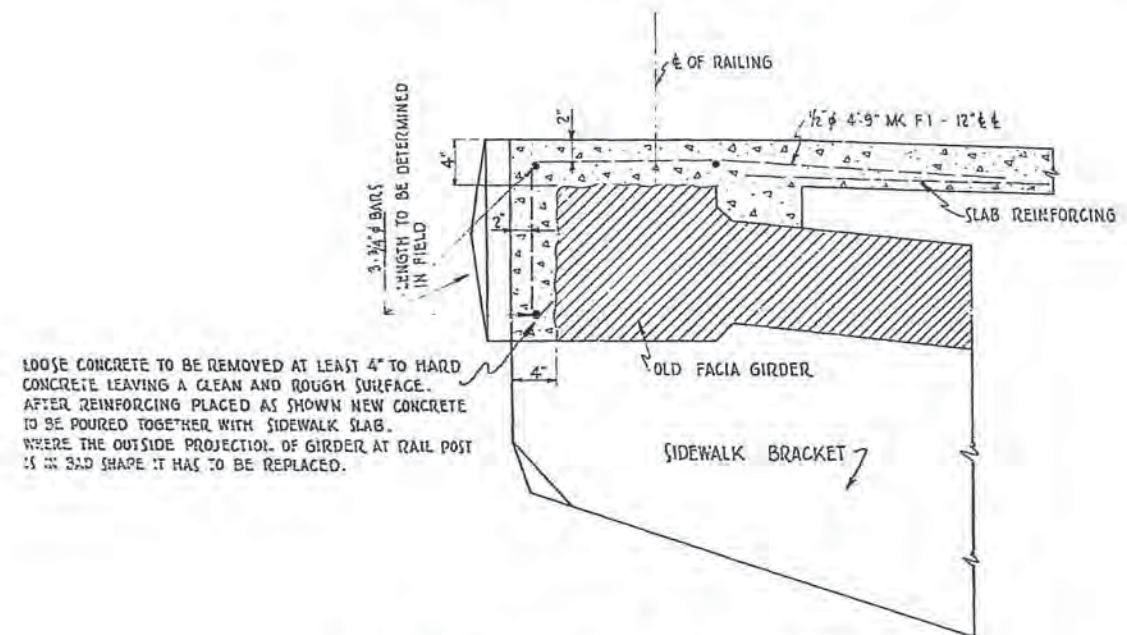
BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
CHKD. E. G.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE 3/8"=1'-0"
CHKD. J. A.	MINNEAPOLIS	MINNESOTA	DRWG. NO. 1
DATE	F. T. BIRD E. GORGENSON	CITY ENGINEER BRIDGE ENGINEER	

BY
P. W. MARSKE



PIER NO. 9

PLAN
SCALE 3/32" = 1'-0"



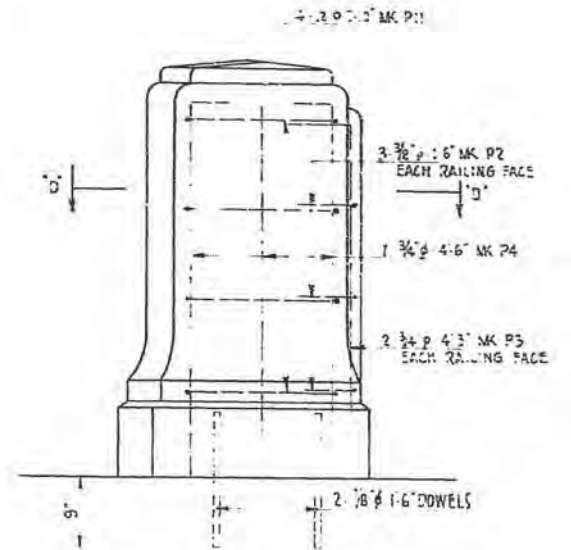
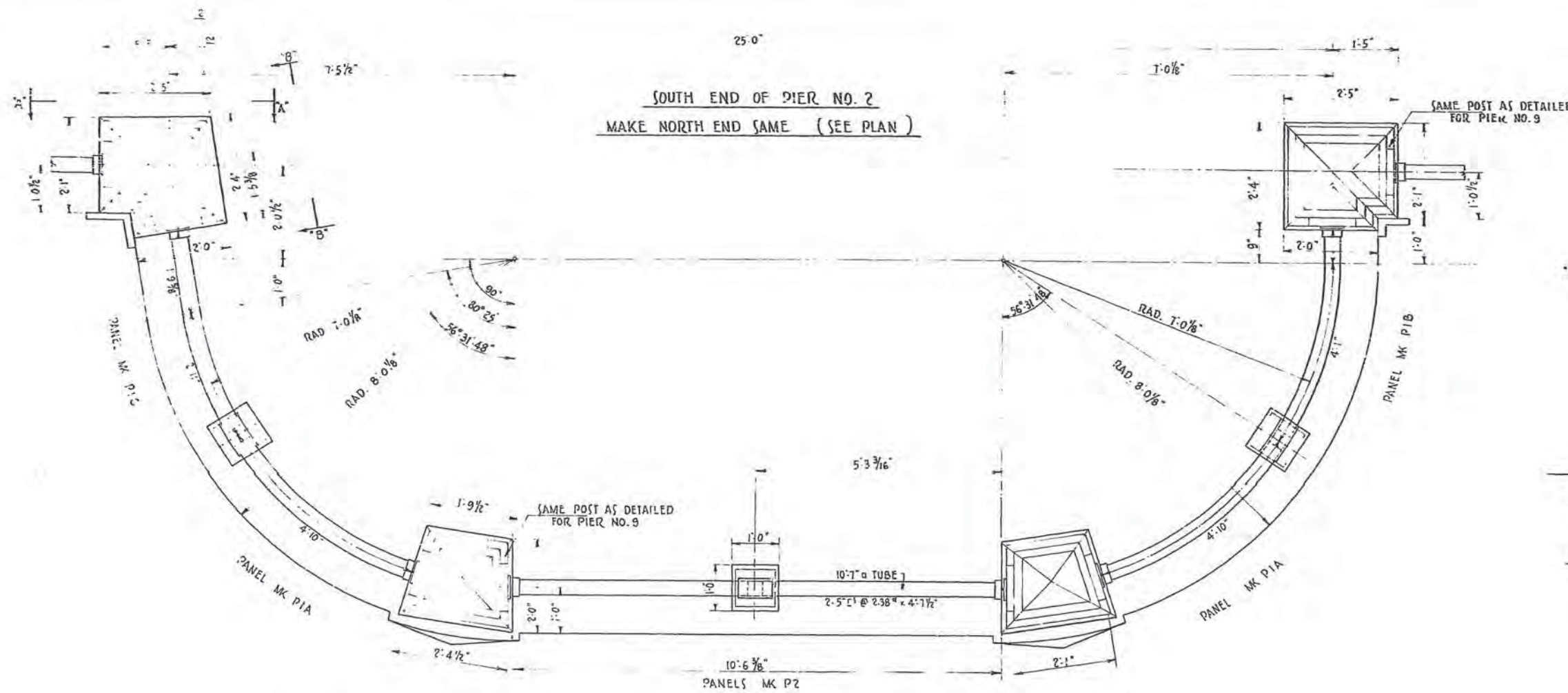
DETAIL SHOWING REPAIR OF BAD FACIA GIRDERS

GENERAL NOTE:
 FOR DETAIL OF SIDEWALK AND CURB SEE DRAWING NO. 14.
 CONCRETE MIX FOR SIDEWALK AND CURB = 2500 #
 POSTS = 3000 #
 FOR DETAIL OF CONCRETE POSTS SEE DRAWING NO. 9 TO 14.
 METAL RAILING PANELS SEE DRAWING NO. 15, 16.
 RAILING TUBE AND CHANNELS SEE DRAWING NO. 17, 18.
 MISCELLANEOUS DETAILS SEE DRAWING NO. 19.
 DETAIL OF CURB RAILING SEE DRAWING NO. 14.

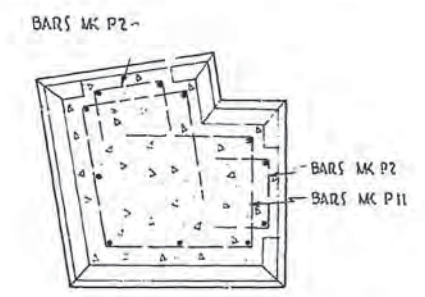
BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. E.B.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE
PLD. E.A.	MINNEAPOLIS	MINNEAPOLIS	3/32" = 1'-0"
CHKD. E.J.	ST. PAUL	CITY ENGINEER	DRAW. NO. 6
DATE	ST. PAUL	BRIDGE ENGINEER	

F.M.N.G.
 L.A.E.
 BY
 RAYE MAR. 8

SOUTH END OF PIER NO. 2
MAKE NORTH END SAME (SEE PLAN)

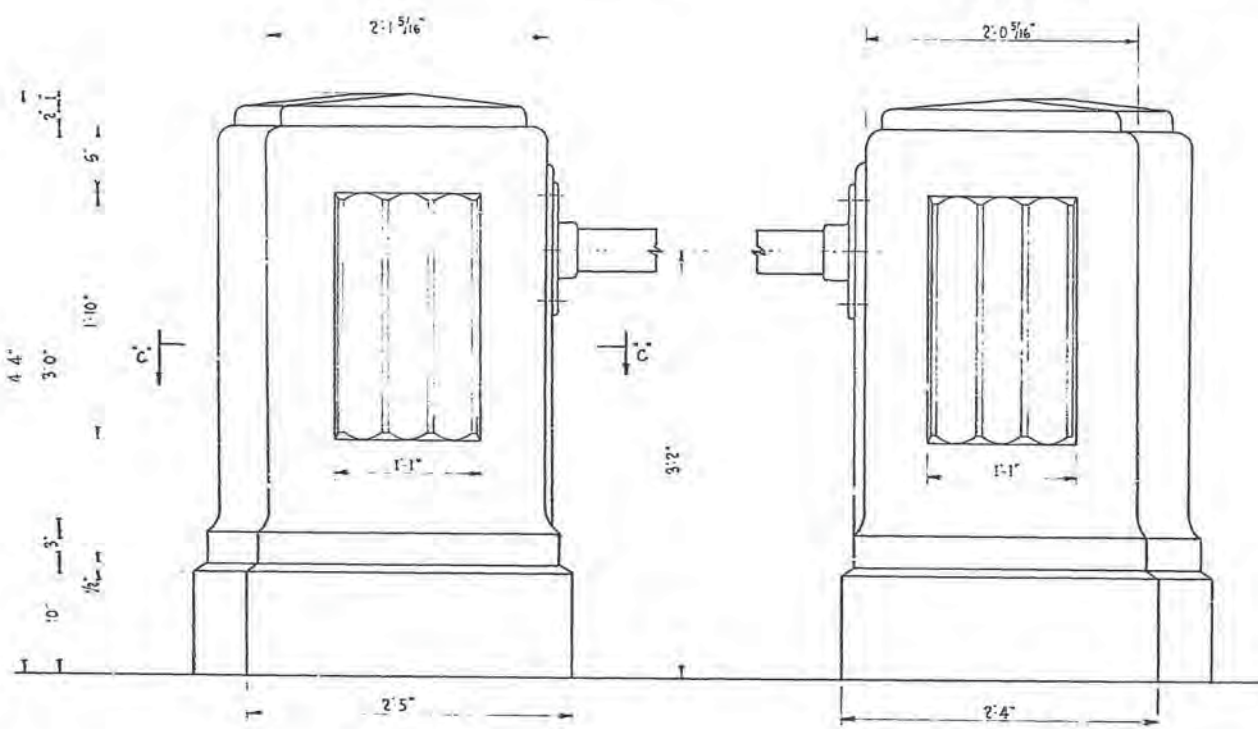


REINFORCING DETAIL OF PIER POST



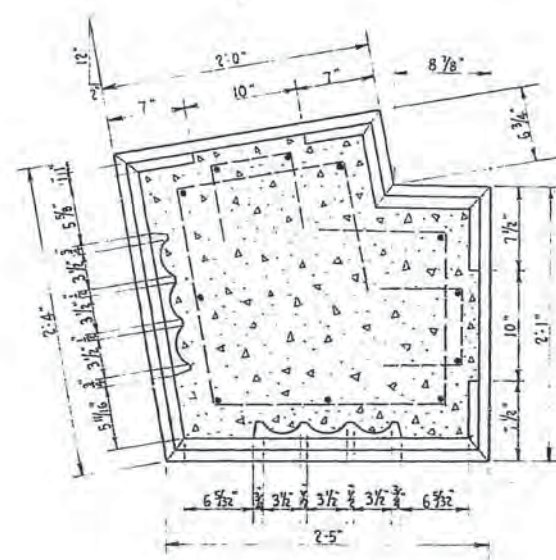
SECTION 'D-D'

GENERAL NOTE:
FOR GENERAL NOTE SEE DRAWING NO. 1 TO 8.
FOR REINFORCING STEEL LIST SEE SK. SHEET NO. A3.
FOR BENDING DETAILS SEE SK. SHEET NO. A3.



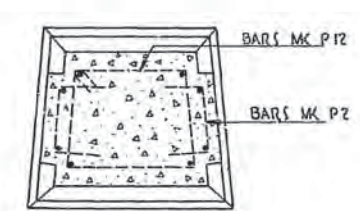
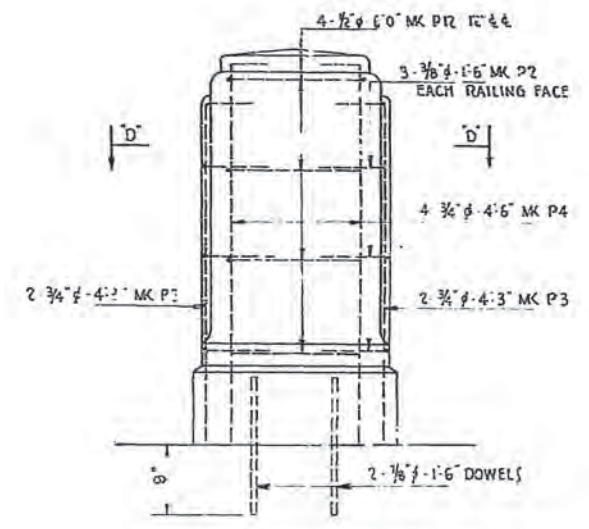
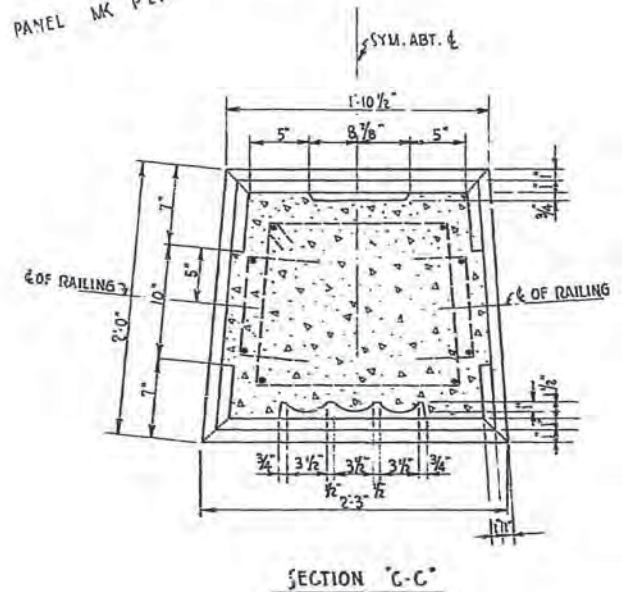
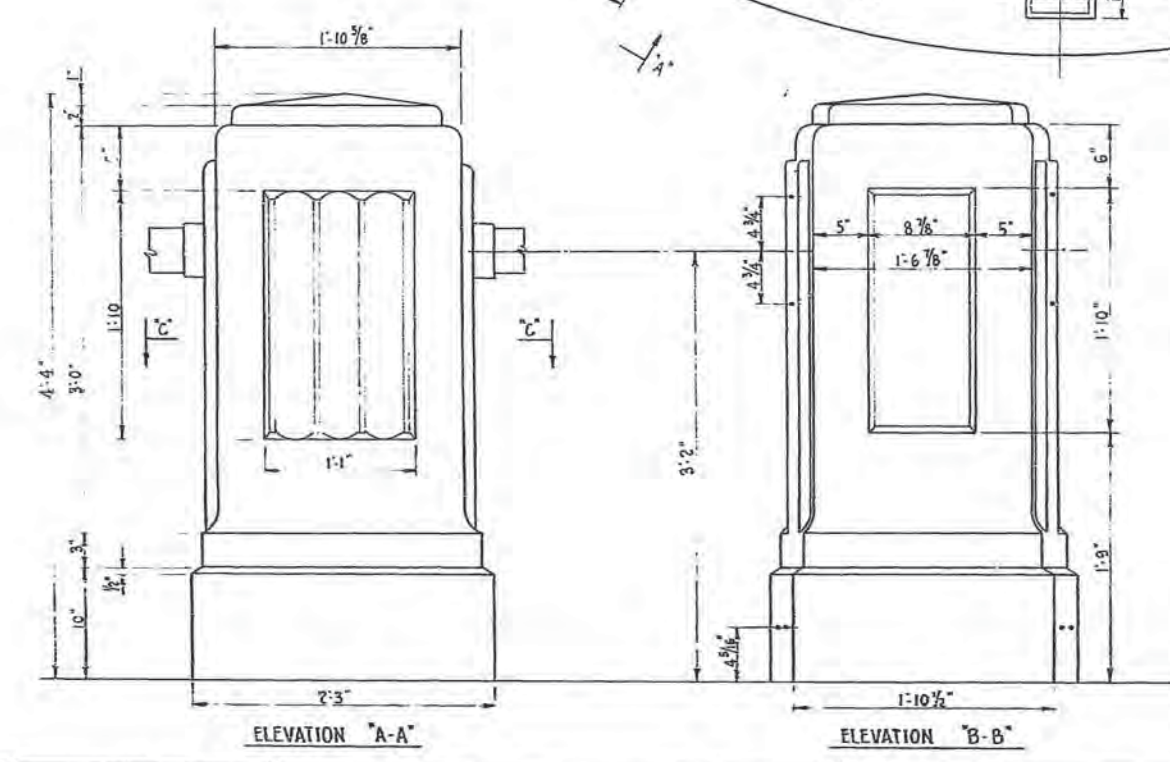
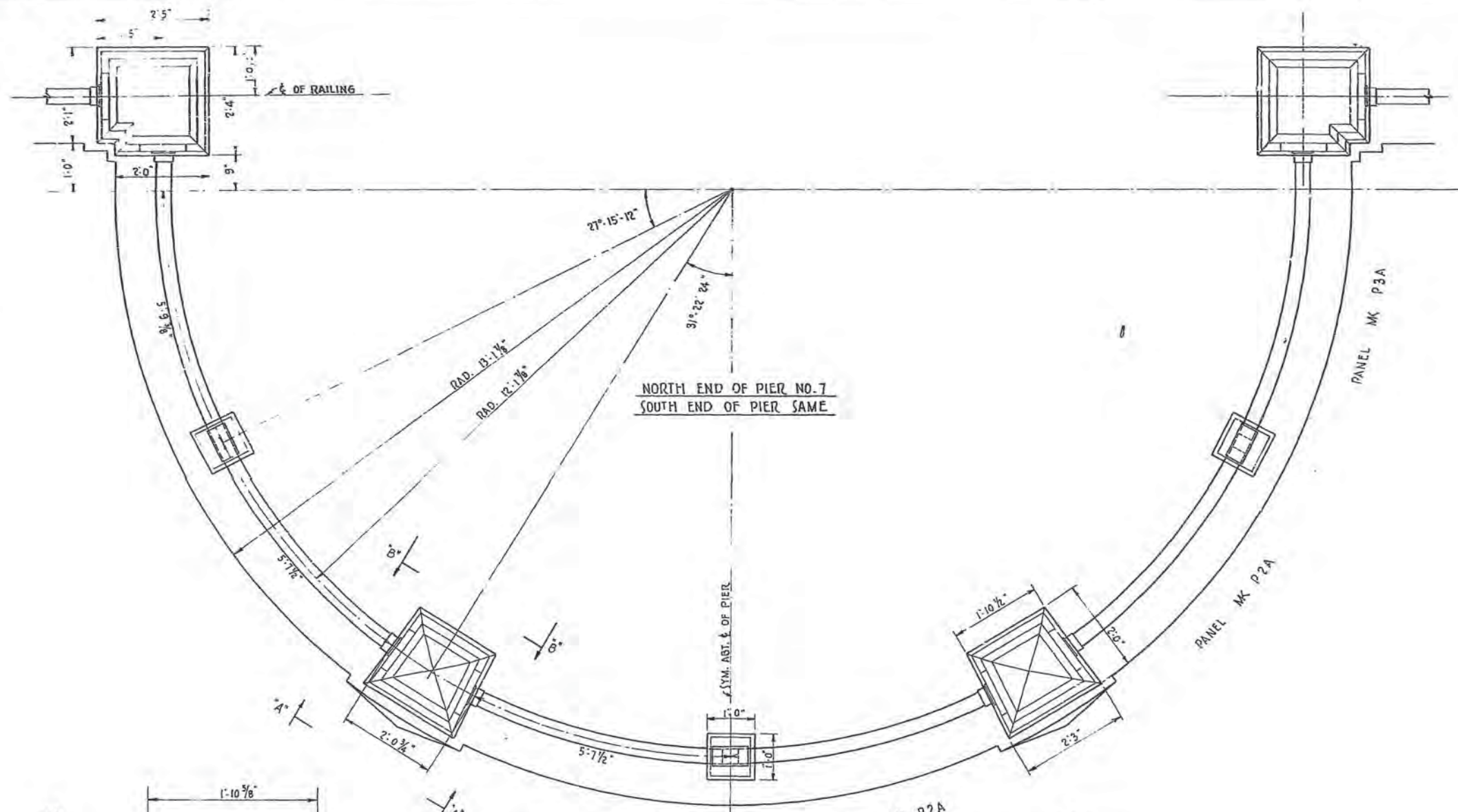
ELEVATION 'A-A'

ELEVATION 'B-B'



SECTION 'C-C'

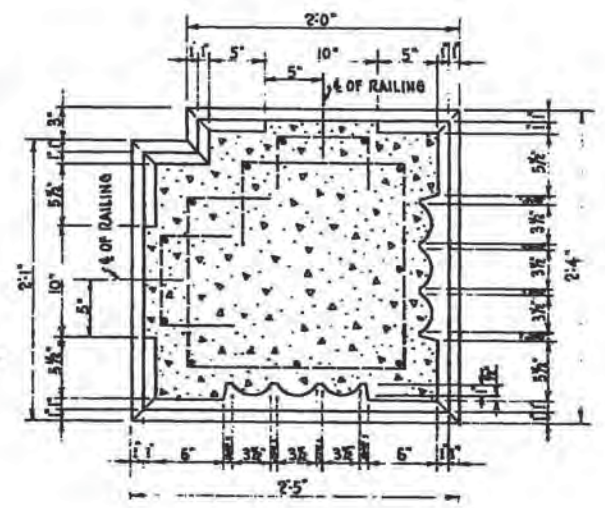
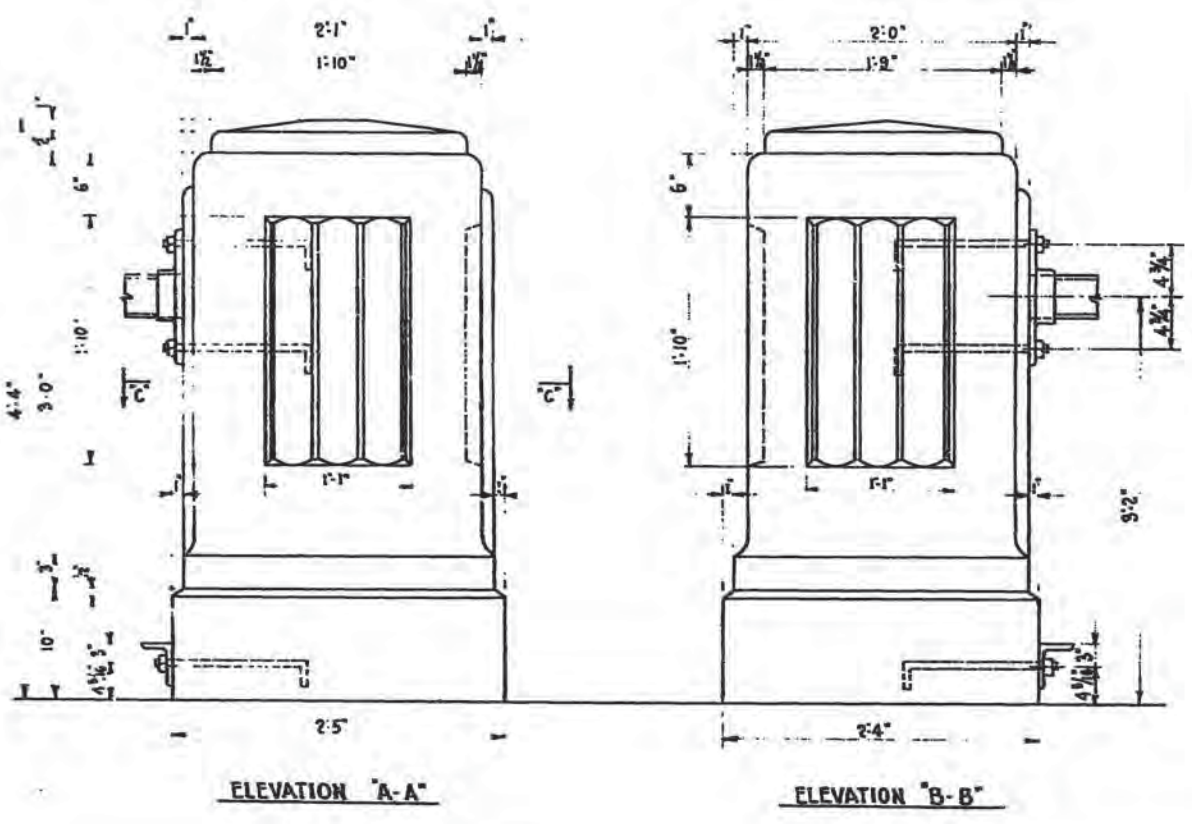
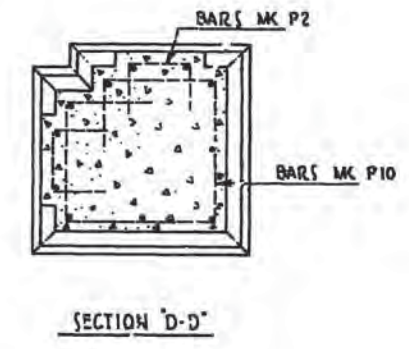
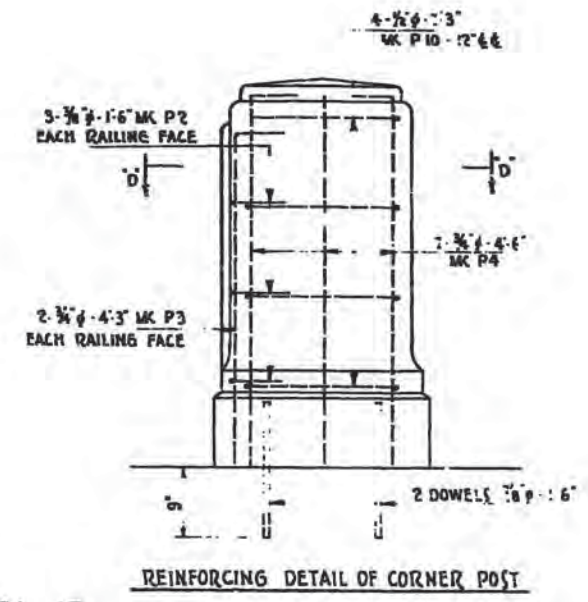
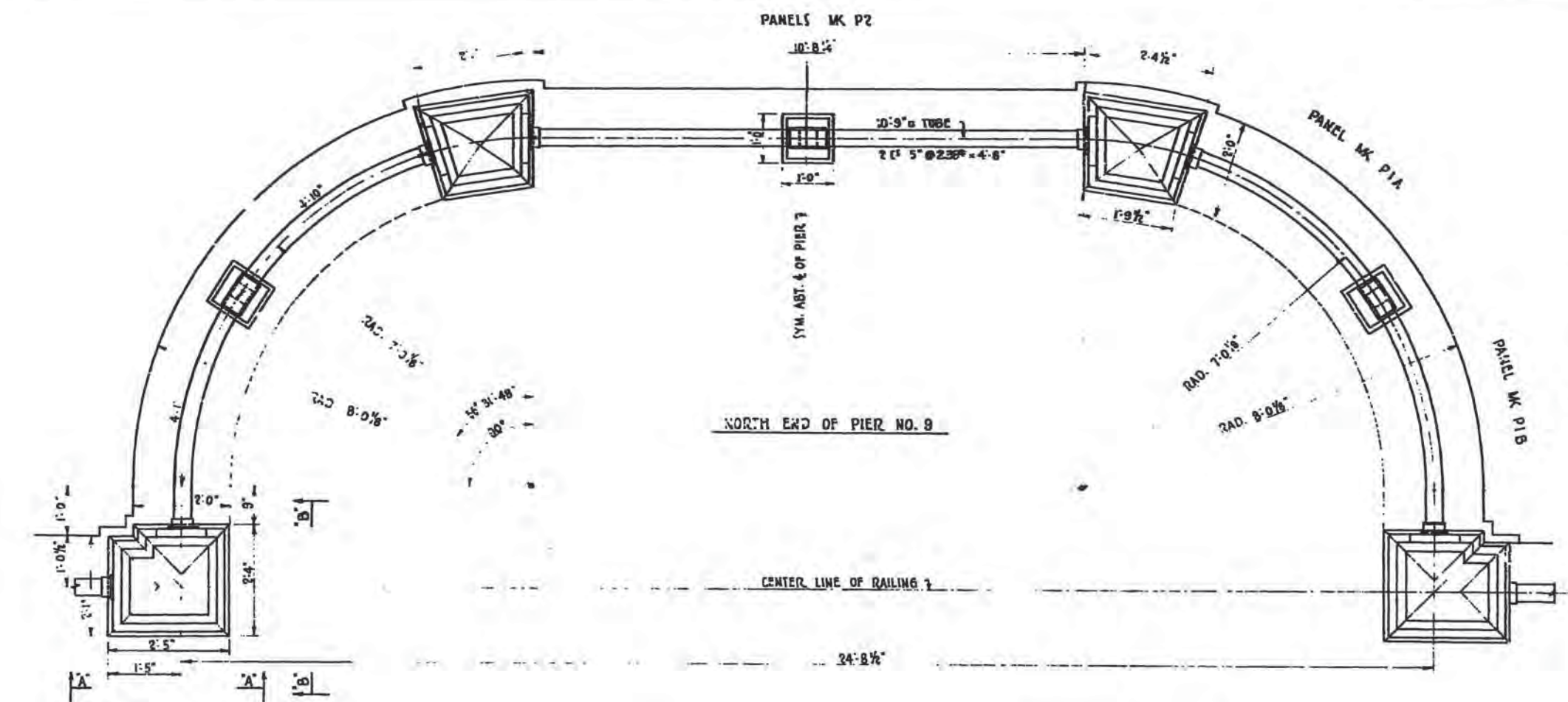
BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. E.G.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE
TRCD. E.O.	MINNEAPOLIS	MINNEAPOLIS	3/4" = 1'-0"
CHKD. T.J.			FIG. NO. 5
DATE.	FF PAUL E. GARDNER	CITY ENGINEER BRIDGE ENGINEER	



GENERAL NOTE:
 FOR GENERAL NOTE SEE DRAWING NO. 1 TO 8.
 FOR REINFORCING STEEL LIST SEE SK. SH. NO. A.3.
 FOR BENDING DETAILS SEE SK. SH. NO. A.3.

BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. TREC. CHGD. DATE	E.G. F.O. T.J.	BRIDGE DEPT. MINNEAPOLIS	CITY ENGINEER'S OFFICE MINNESOTA
		RE-PHIL E. GOGGENSON	CITY ENGINEER BRIDGE ENGINEER
			SCALE 3/4" = 1'-0" DWG. NO. 10

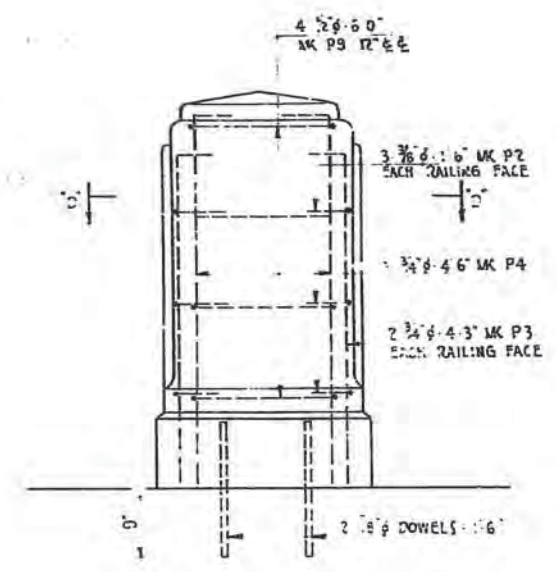
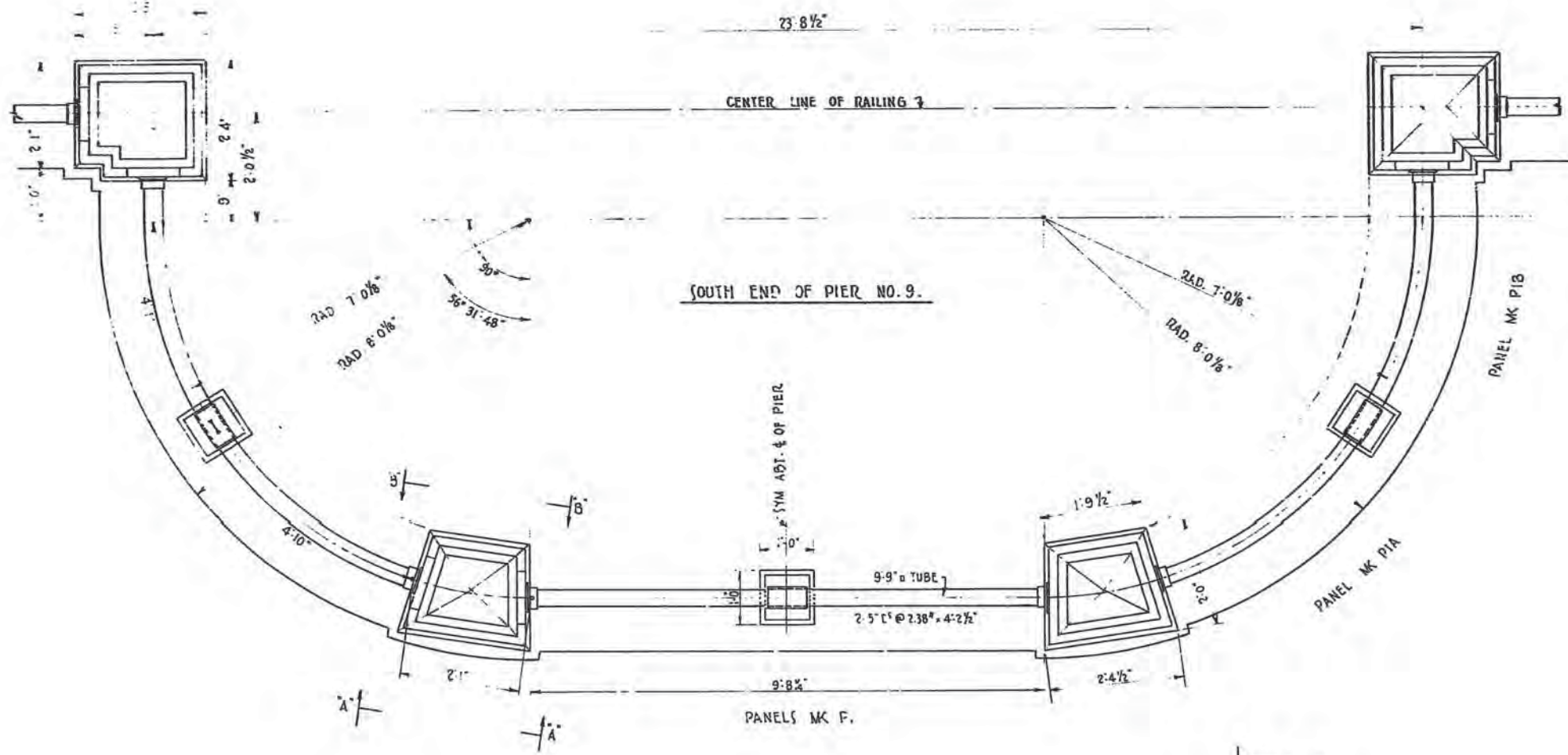
BY
 BURKE MARSH



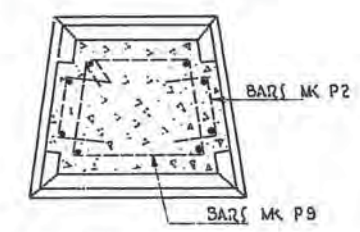
GENERAL NOTE:
FOR GENERAL NOTE: SEE DRAWING NO. 1 TO 8.
FOR REINFORCING STEEL LIST SEE SK. SH. NO. A.3.
FOR BENDING DETAILS SEE SK. SH. NO. A.3.

BRIDGE RAILING				
3RD AVENUE S.D. BRIDGE OVER MISSISSIPPI RIVER				
DESIGN.	E.A.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE
TRACED.	E.A.	MINNEAPOLIS	MINNEAPOLIS	1/4" = 1'-0"
CHECKED.	E.A.	E.T. PAUL	CITY ENGINEER	DATE
DATE		E. BRONCKHOFF	BRIDGE ENGINEER	

BY
E. BRONCKHOFF

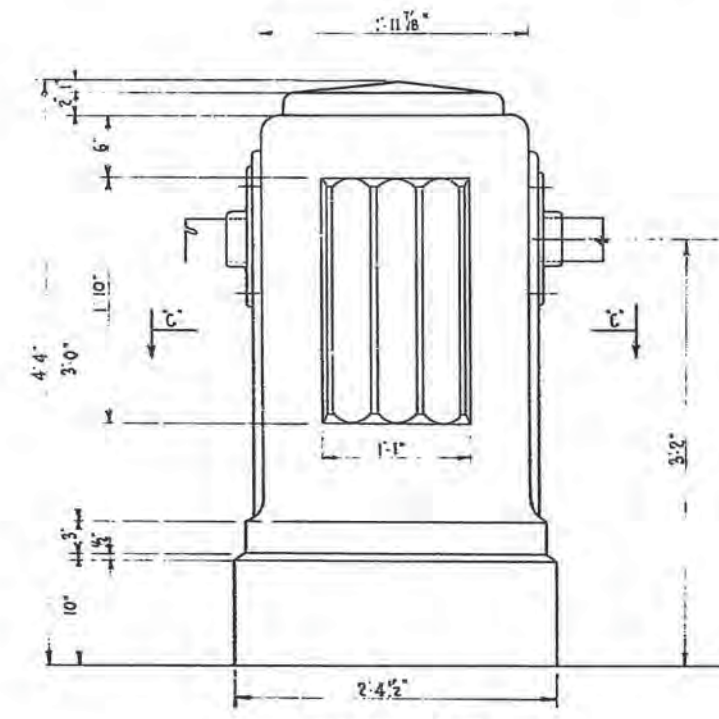


REINFORCING DETAIL OF PIER POSTS

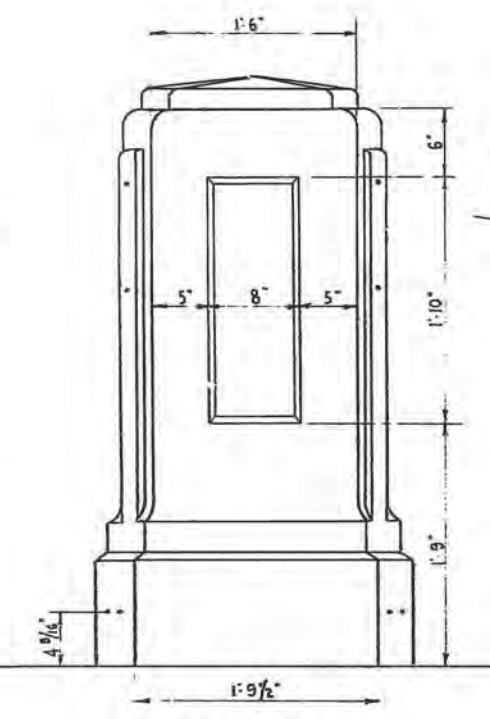


SECTION "D-D"

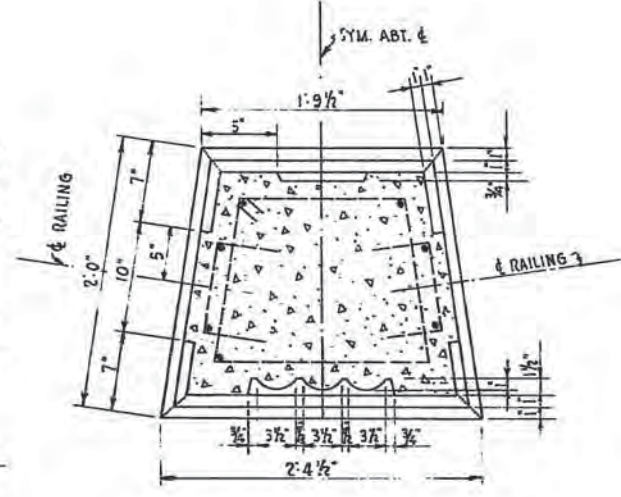
GENERAL NOTE:
 FOR GENERAL NOTE SEE DRAWING NO. 1 TO 8.
 FOR REINFORCING STEEL LIST SEE SK. SH. NO. A3.
 FOR BENDING DETAIL SEE SK. SH. NO. A2.



ELEVATION "A-A"

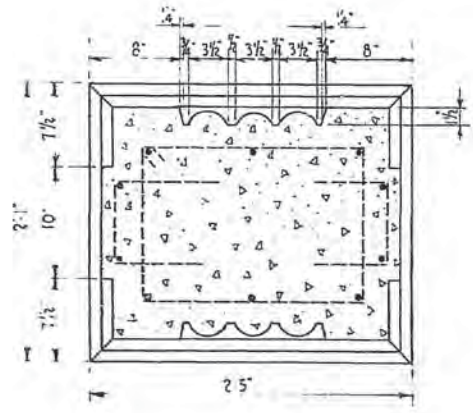
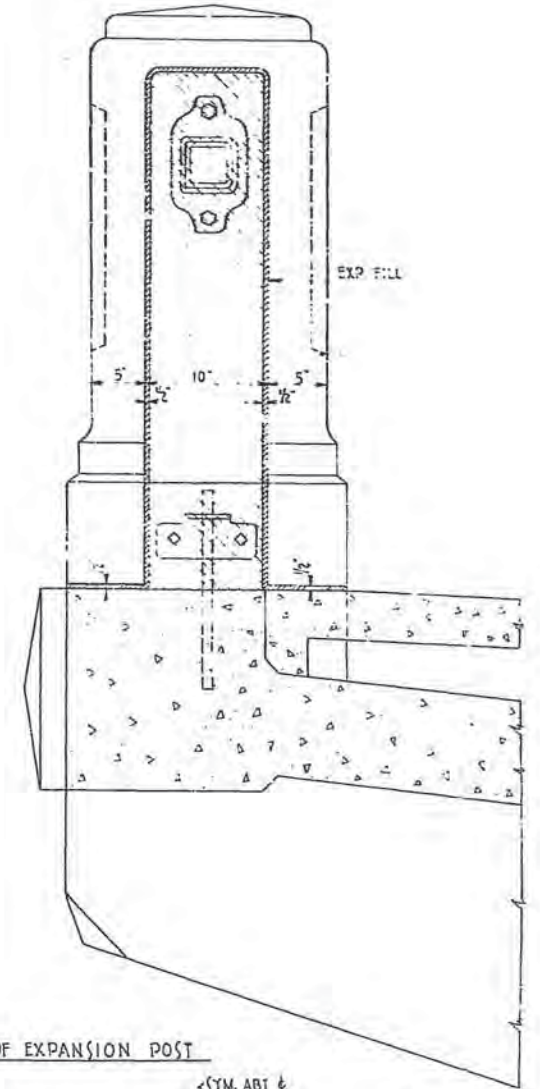
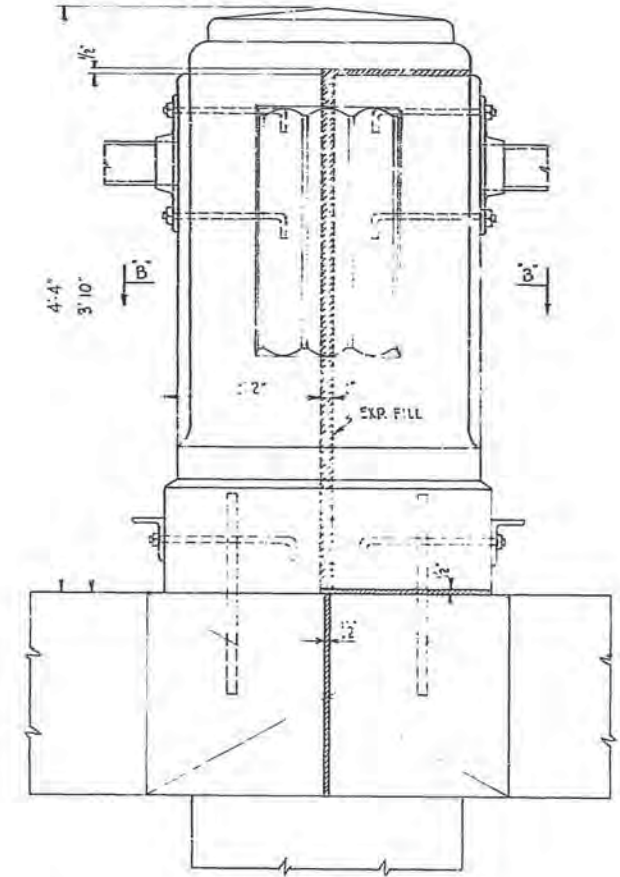
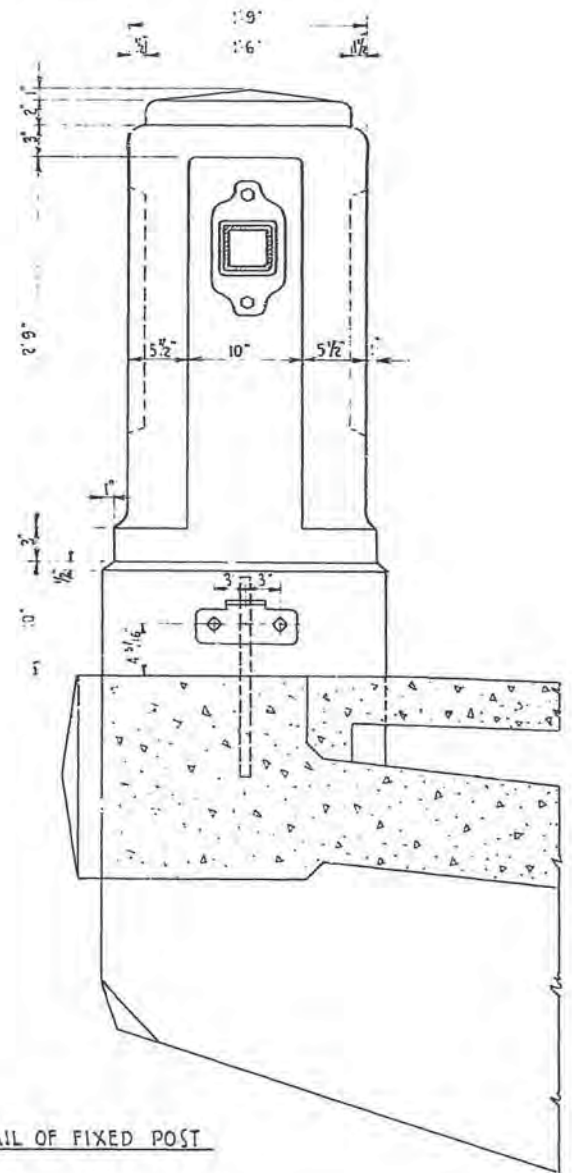
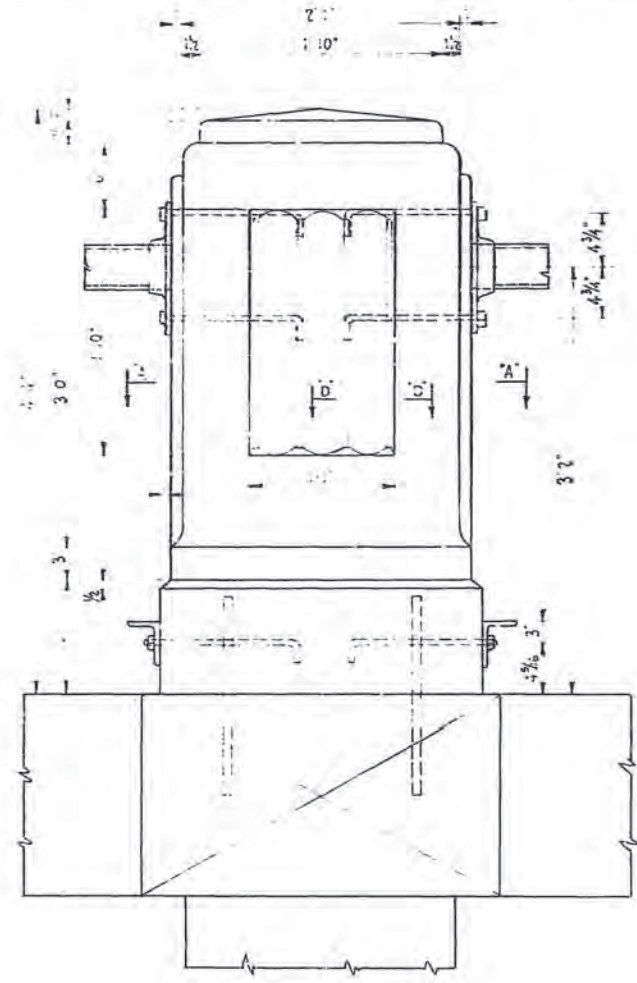


ELEVATION "B-B"

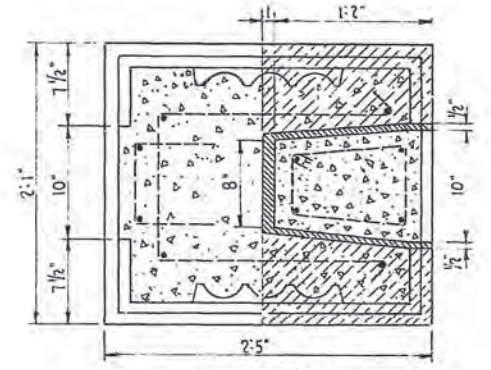


SECTION "C-C"

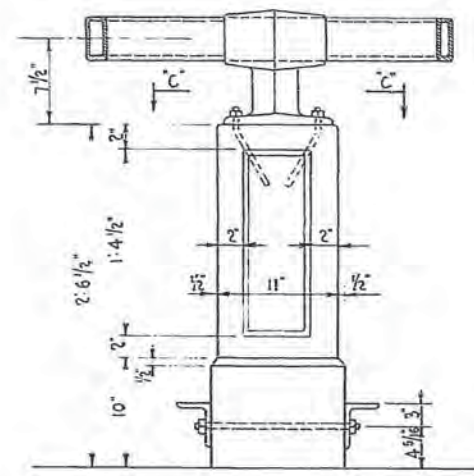
BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. TDCD. CHKD. DATE	E.G. F.O. T.J.	BRIDGE DEPT. MINNEAPOLIS ST. PAUL E. GORDENSON	CITY ENGINEER'S OFFICE MINNESOTA CITY ENGINEER, BRIDGE ENGINEER
		SCALE 1" = 12'-0"	DWG. NO. R2



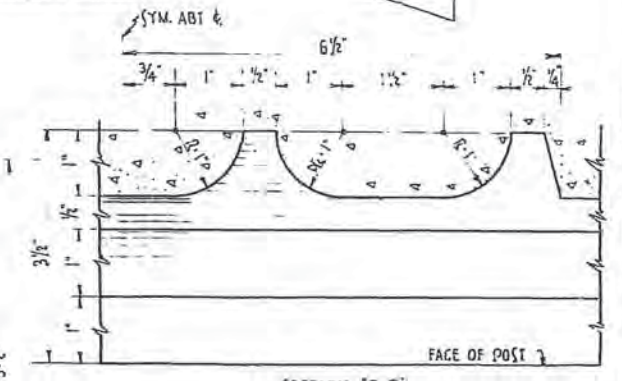
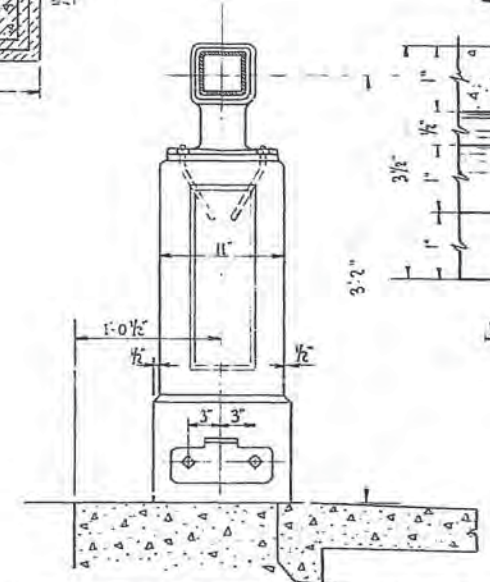
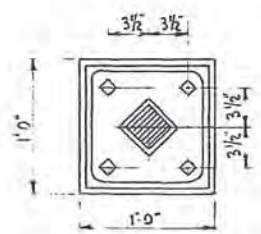
DETAIL OF FIXED POST



DETAIL OF EXPANSION POST

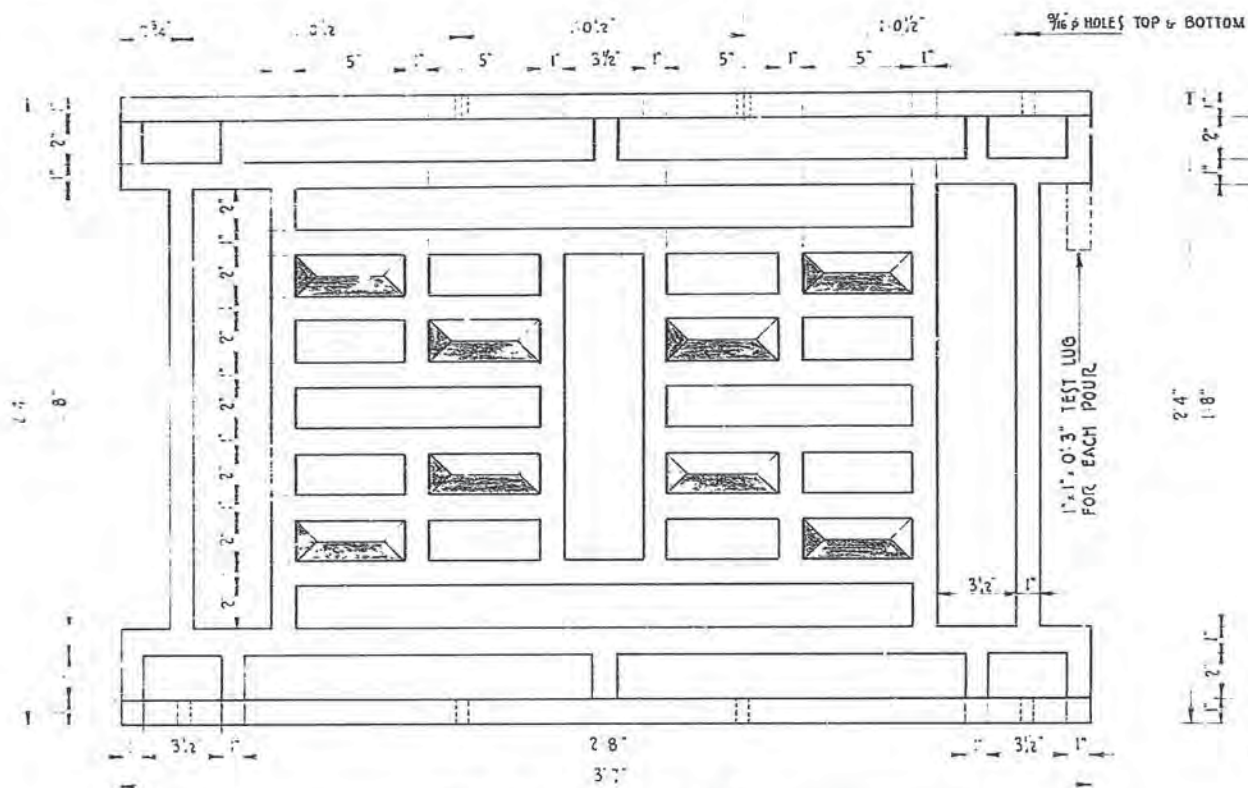


DETAIL OF INTERMEDIATE POST

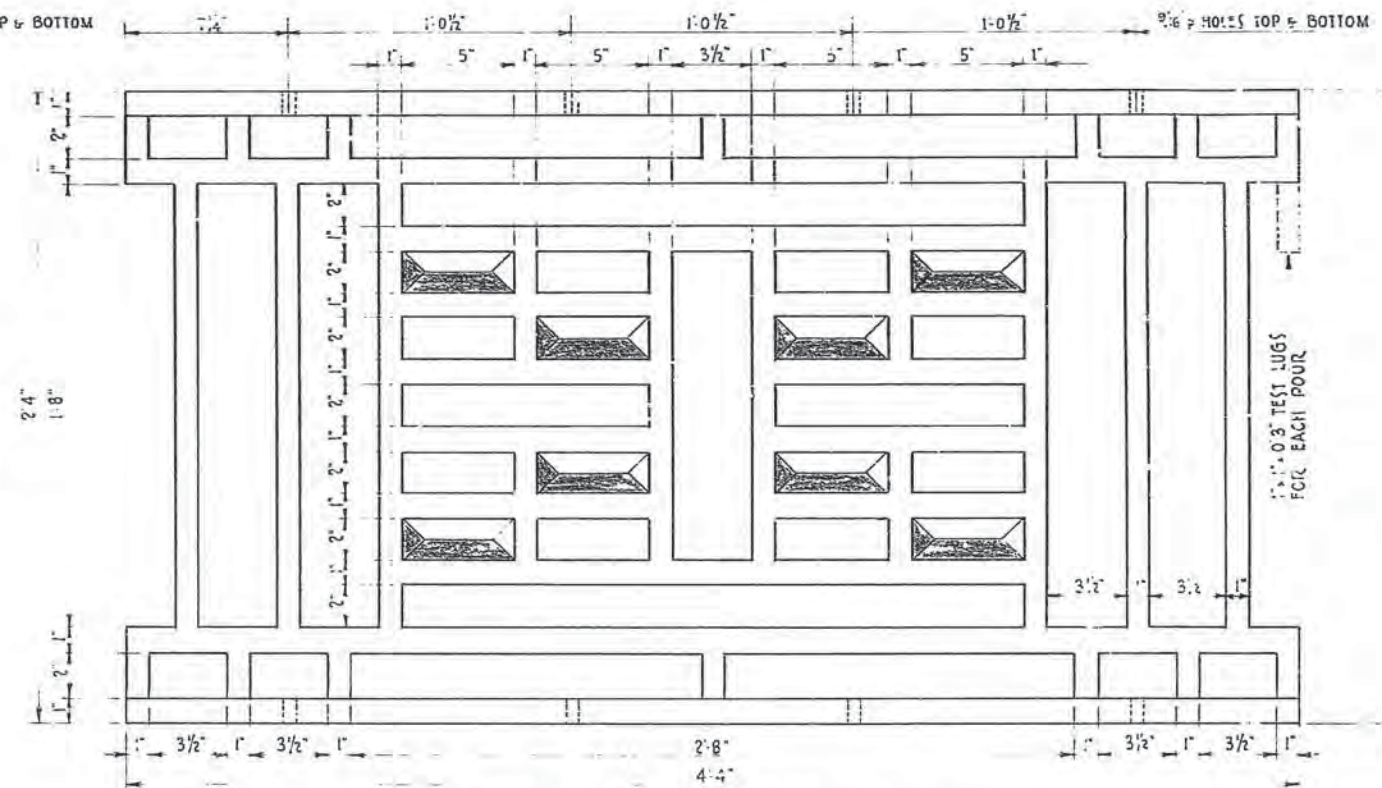


PART DETAIL OF DEPRESSED PANEL IN MAIN RAIL POST
SCALE 3/4"=1'-0"

BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DATE	BY	CITY ENGINEER'S OFFICE	SCALE
		MINNEAPOLIS	1 1/2"=1'-0"
		CITY ENGINEER	DRAWING NO.
		BRIDGE ENGINEER	

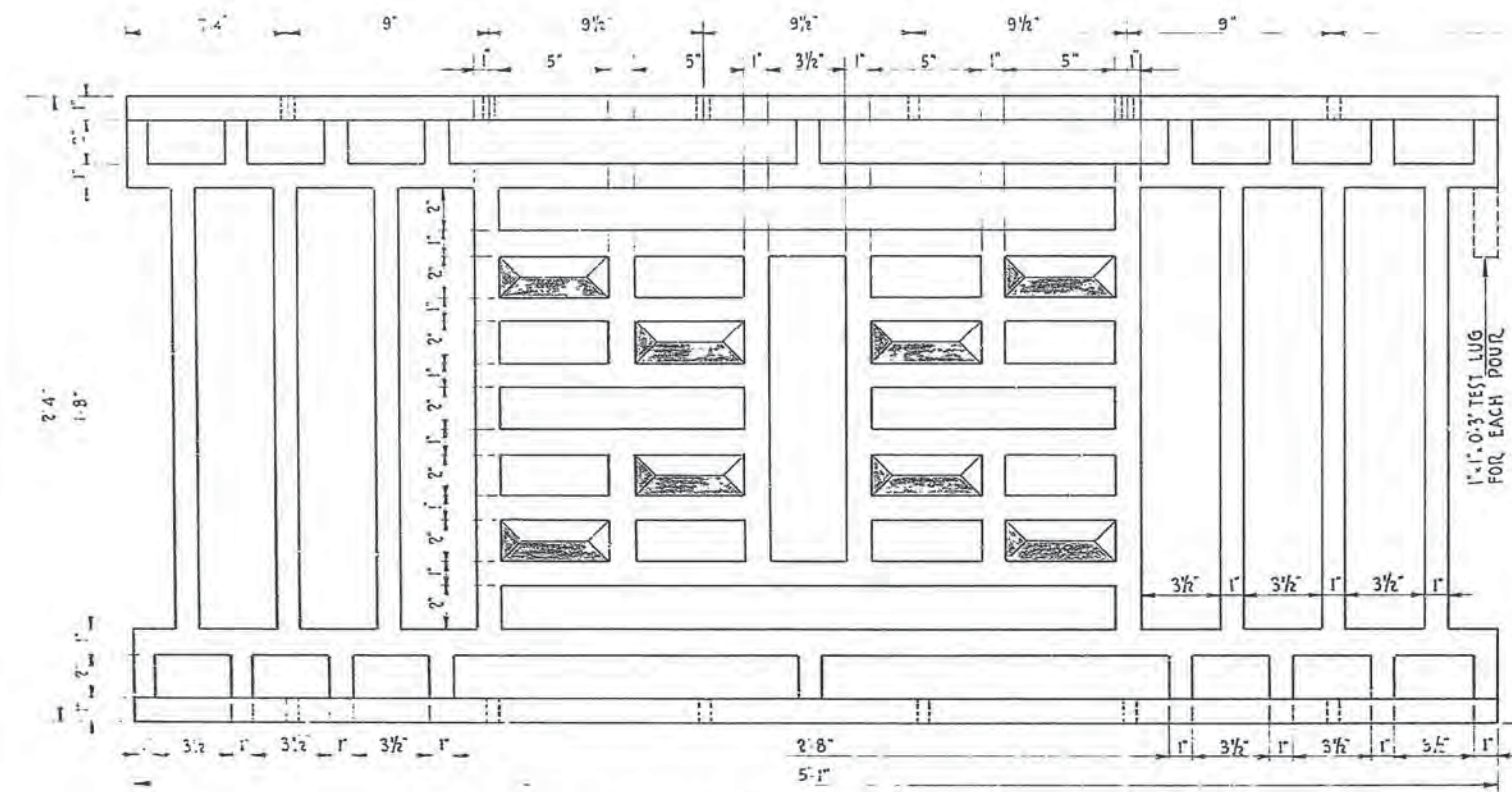


MAKE 46 PANELS THUS MK P1
 8 BENT MK P1A (SEE DETAIL)
 6 MK P1B
 2 MK P1C

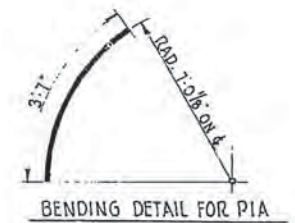


MAKE 116 PANELS THUS MK P2
 8 BENT MK P2A (SEE DETAIL)
 6 MK P2B

DIAMOND SECTIONS TO BE
 CAST SOL. OR 3/4\"/>



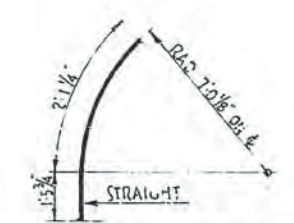
MAKE 352 PANELS THUS MK P3
 4 BENT MK P3A (SEE DETAIL)



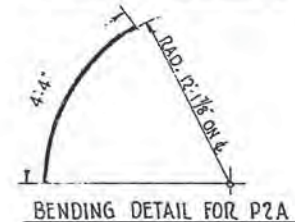
BENDING DETAIL FOR P1A



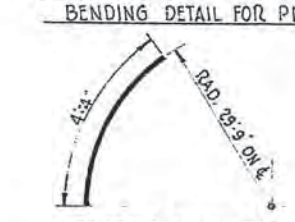
BENDING DETAIL FOR P1B



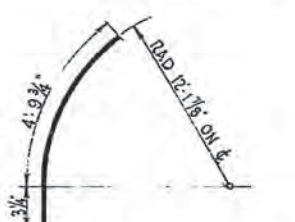
BENDING DETAIL FOR P1C



BENDING DETAIL FOR P2A

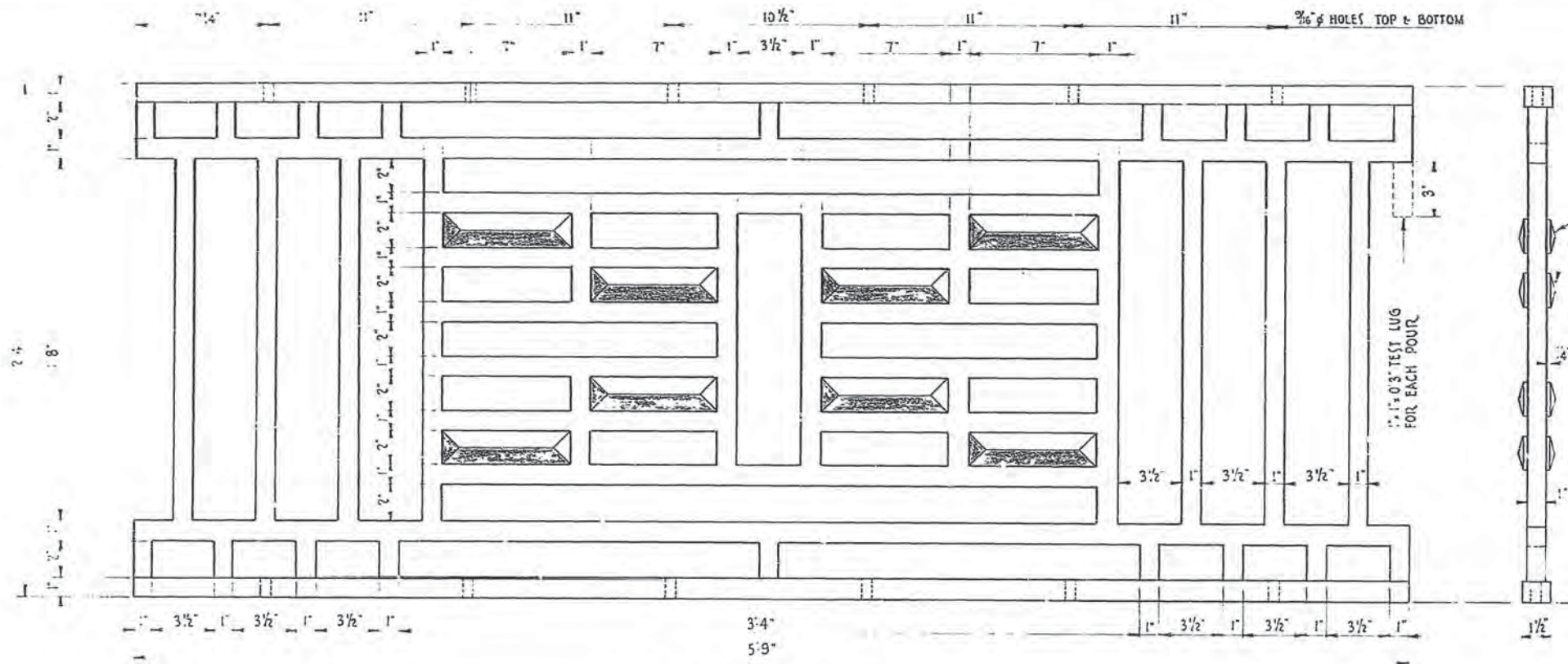


BENDING DETAIL FOR P2B

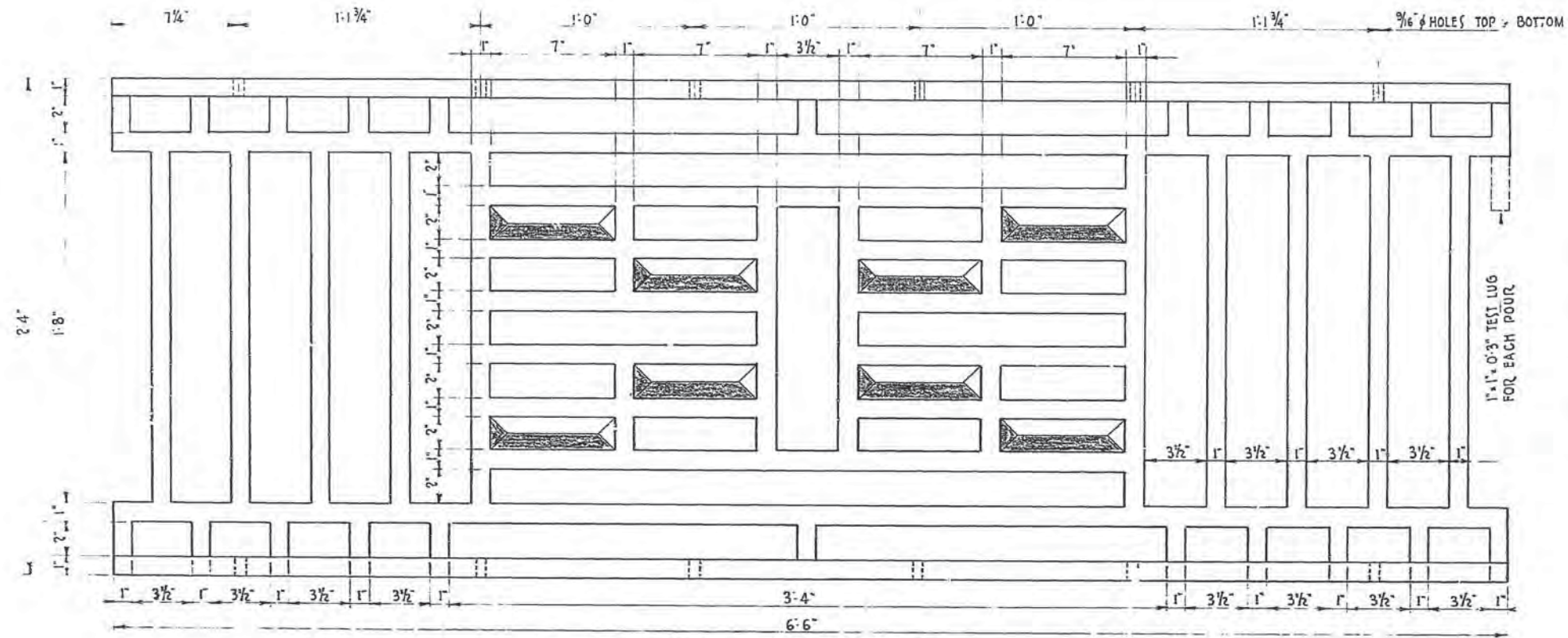


BENDING DETAIL FOR P3A

BRIDGE RAILING				
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER				
DRWN. E.G.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE	3\"/>
REC'D. F.O.	MINNEAPOLIS	MINNESOTA	5\"/>	
CHKD. T.J.	FT. PAUL	CITY ENGINEER	DRW. NO. 15	
DATE	E. GODSCHON	BRIDGE ENGINEER		



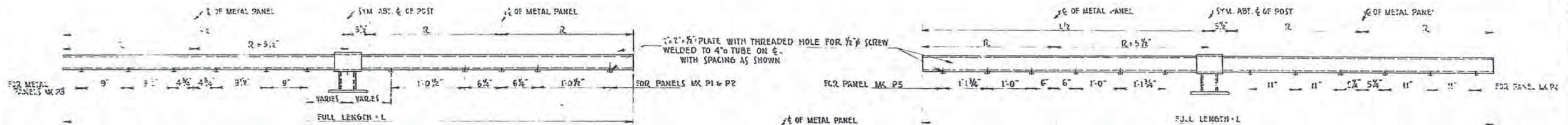
MAKE 33 PANELS THUS MK P4



MAKE 13 PANELS THUS MK P5

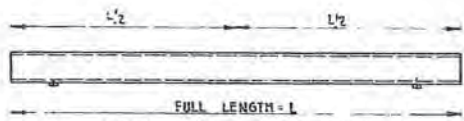
DIAMOND SECTIONS TO BE CAST SOLID, OR IF HOLLOW, MINIMUM WALL THICKNESS TO BE 1/8 INCH.

BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. E.G.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE
TRCD. F.O.	MINNEAPOLIS	MINNESOTA	3" = 1'-0"
CHKD. T.J.	ST. PAUL	CITY ENGINEER	DRWS. NO. 15
DATE	E. GARDNER	BRIDGE ENGINEER	



DETAIL OF RAILING TUBE FOR PANELS P1, P2 & P3
INTERMEDIATE POST IN PANEL

DETAIL OF RAILING TUBE FOR PANELS P4 & P5
INTERMEDIATE POST IN PANEL



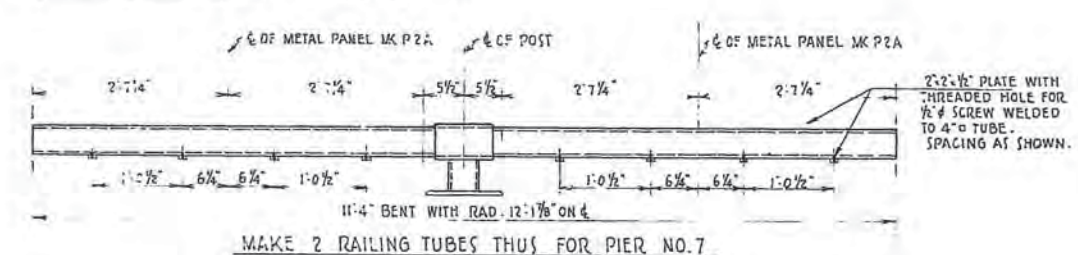
DETAIL OF RAILING TUBE FOR PANELS P2, P4 & P5
(NO INTERMEDIATE POST)

ITEM	NO. TUBES	SIZE	LENGTH - L	MARK
1	1	4" x 4"	9'-9"	P1
2	2	"	9'-8 1/2"	P1
3	2	"	9'-8"	P1
4	4	"	9'-7 1/2"	P1
5	6	"	9'-7"	P1
6	2	"	9'-6 1/2"	P1
7	3	"	9'-6"	P1
8	1	"	9'-5 1/2"	P1
9	1	"	9'-5"	P1
10	1	"	9'-4 1/2"	P1
11	1	"	9'-3 1/2"	P1
12	1	"	9'-3"	P1
13	1	"	11'-3"	P2
14	1	"	11'-2 1/2"	P2
15	1	"	11'-6 1/2"	P2
16	3	"	11'-6"	P2
17	1	"	11'-5 1/2"	P2
18	2	"	11'-4 1/2"	P2
19	4	"	11'-3 1/2"	P2
20	3	"	11'-3"	P2
21	3	"	11'-2 1/2"	P2
22	4	"	11'-2"	P2
23	3	"	11'-1 1/2"	P2
24	1	"	11'-1 1/4"	P2
25	1	"	10'-11"	P2
26	1	"	10'-10 1/2"	P2
27	2	"	10'-9 1/2"	P2
28	1	"	10'-8 1/2"	P2
29	5	"	10'-8"	P2
30	4	"	10'-7 1/2"	P2
31	7	"	10'-6 1/2"	P2
32	1	"	10'-6"	P2
33	1	"	10'-5 1/2"	P2
34	3	"	10'-5"	P2
35	3	"	10'-4 1/2"	P2
36	1	"	10'-4"	P2

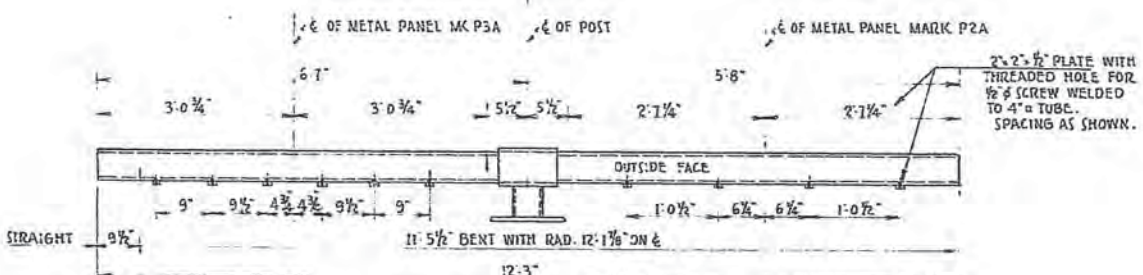
ITEM	NO. TUBES	SIZE	LENGTH - L	MARK
36	1	4" x 4"	12'-11"	P3
37	1	"	12'-10 1/2"	P3
38	3	"	12'-8 1/2"	P3
39	2	"	12'-8"	P3
40	1	"	12'-7 1/2"	P3
41	1	"	12'-7"	P3
42	1	"	12'-6"	P3
43	3	"	12'-5 1/2"	P3
44	3	"	12'-5"	P3
45	4	"	12'-4 1/2"	P3
46	1	"	12'-4"	P3
47	6	"	12'-3 1/2"	P3
48	8	"	12'-3"	P3
49	5	"	12'-2 1/2"	P3
50	6	"	12'-2"	P3
51	43	"	12'-1 1/2"	P3
52	20	"	12'-1"	P3
53	11	"	12'-0 1/2"	P3
54	7	"	12'-0"	P3
55	7	"	11'-10 1/2"	P3
56	12	"	11'-11"	P3
57	5	"	11'-10 1/2"	P3
58	5	"	11'-10"	P3
59	3	"	11'-9 1/2"	P3
60	1	"	11'-9"	P3
61	1	"	11'-8"	P3
62	2	"	11'-7 1/2"	P3

ITEM	NO. TUBES	SIZE	LENGTH - L	MARK
71	1	4" x 4"	4'-10"	P2
72	1	"	4'-8 1/2"	P2
73	1	"	5'-7 1/2"	P4
74	1	"	7'-6"	P5

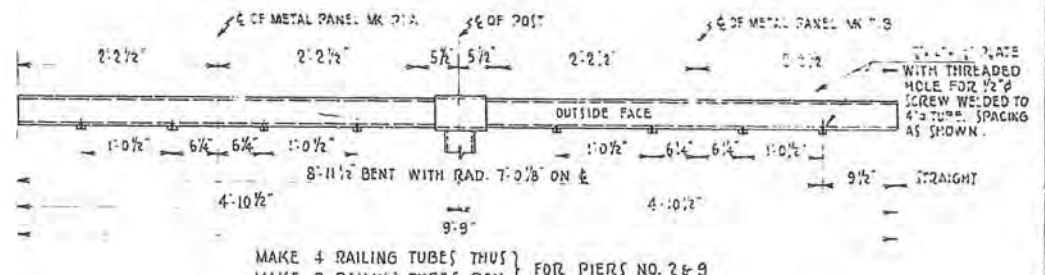
ITEM	NO. TUBES	SIZE	LENGTH - L	MARK
63	2	4" x 4"	13'-4"	P4
64	8	"	13'-3 1/2"	P4
65	1	"	13'-3"	P4
66	4	"	13'-2 1/2"	P4
67	1	"	12'-11 1/2"	P4
68	1	"	15'-7 1/2"	P5
69	2	"	15'-7"	P5
70	3	"	14'-11"	P5



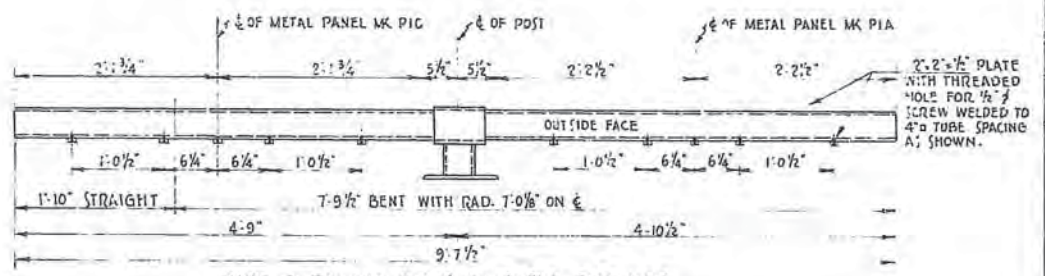
MAKE 2 RAILING TUBES THUS FOR PIER NO. 7



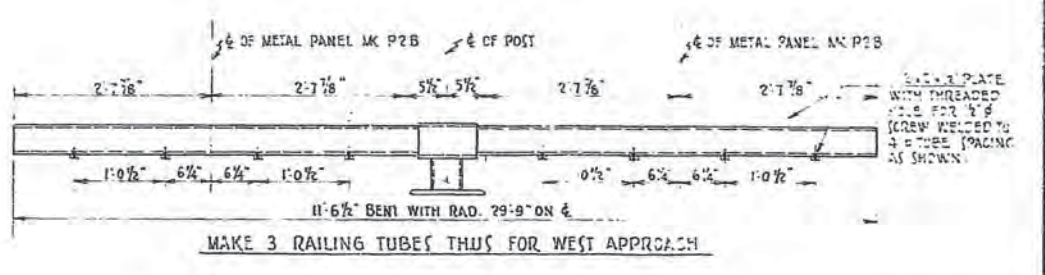
MAKE 2 RAILING TUBES THUS }
MAKE 2 RAILING TUBES REV. } FOR PIER NO. 7



MAKE 4 RAILING TUBES THUS }
MAKE 2 RAILING TUBES REV. } FOR PIERS NO. 2 & 9



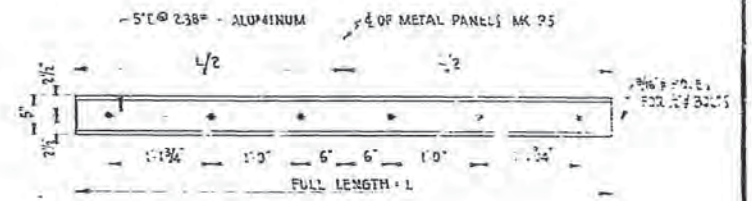
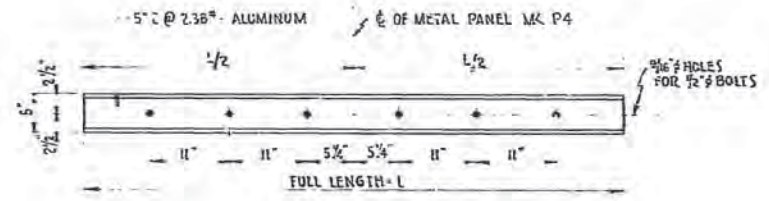
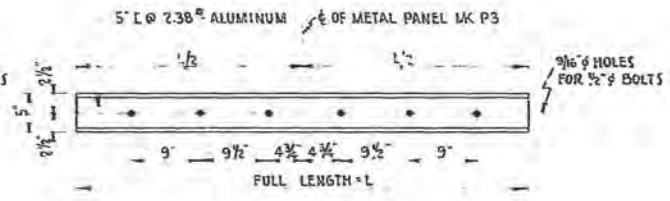
MAKE 2 RAILING TUBES THUS FOR PIER NO. 2



MAKE 3 RAILING TUBES THUS FOR WEST APPROACH

BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. E.B.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE
TRCD. F.O.	MINNEAPOLIS	MINNESOTA	
CHKD. T.J.	ST. PAUL	CITY ENGINEER	DRWG. NO. 17
DATE	E. GORRISON	BRIDGE ENGINEER	

FILING DATE
BY
RUBEN MARSH

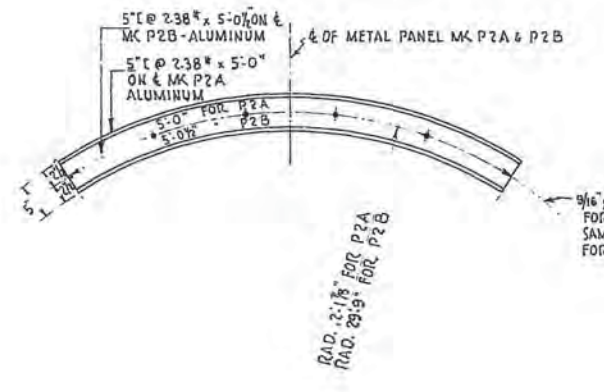
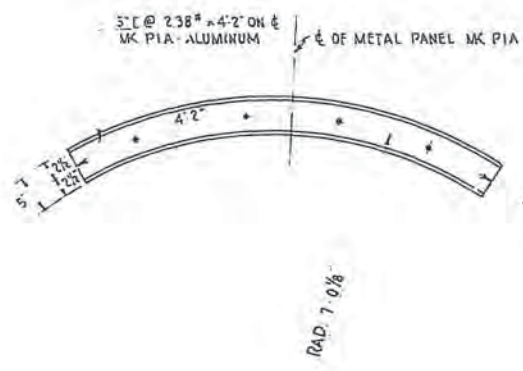
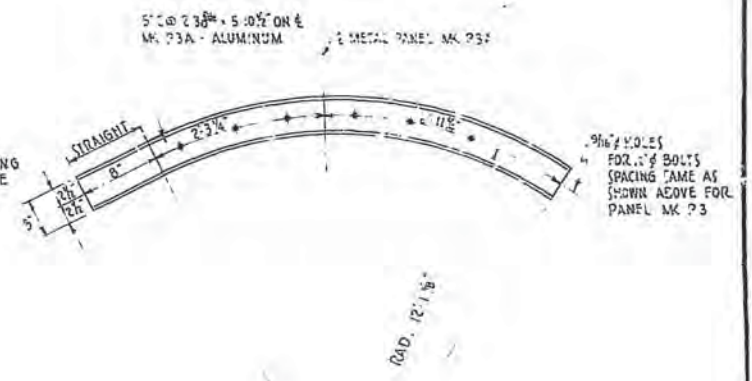
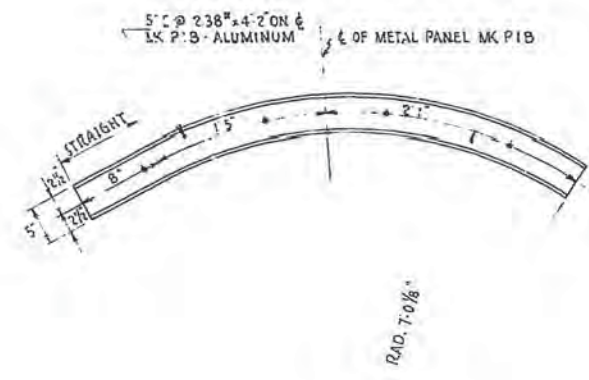


ITEM	NO. PCS.	SIZE	LENGTH - L	MARK
1	2	5" I	4' 2 1/2"	P1
2	2	5" I	4' 2"	P1
3	2	5" I	4' 1 1/2"	P1
4	2	5" I	4' 1"	P1
5	2	5" I	4' 3/4"	P1
6	2	5" I	4' 2 1/2"	P1
7	2	5" I	4' 2"	P1
8	2	5" I	4' 1 1/2"	P1
9	2	5" I	4' 1"	P1
10	2	5" I	4' 3/4"	P1
11	2	5" I	4' 2 1/2"	P1
12	2	5" I	4' 2"	P1
13	2	5" I	4' 1 1/2"	P1
14	2	5" I	4' 1"	P1
15	2	5" I	4' 3/4"	P1
16	2	5" I	4' 2 1/2"	P1
17	2	5" I	4' 2"	P1
18	2	5" I	4' 1 1/2"	P1
19	2	5" I	4' 1"	P1
20	2	5" I	4' 3/4"	P1
21	2	5" I	4' 2 1/2"	P1
22	2	5" I	4' 2"	P1
23	2	5" I	4' 1 1/2"	P1

ITEM	NO. PCS.	SIZE	LENGTH - L	MARK
24	4	5" I	5' 9"	P3
25	6	5" I	5' 8"	P3
26	6	5" I	5' 7 1/2"	P3
27	2	5" I	5' 7"	P3
28	8	5" I	5' 6 1/2"	P3
29	14	5" I	5' 6"	P3
30	14	5" I	5' 5 1/2"	P3
31	32	5" I	5' 5"	P3
32	20	5" I	5' 4 1/2"	P3
33	60	5" I	5' 4"	P3
34	30	5" I	5' 3 1/2"	P3
35	32	5" I	5' 3"	P3
36	16	5" I	5' 2 1/2"	P3
37	2	5" I	5' 2"	P3
38	6	5" I	5' 1 1/2"	P3

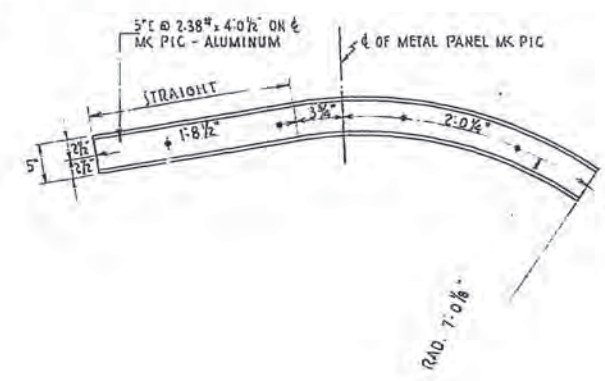
ITEM	NO. PCS.	SIZE	LENGTH - L	MARK
39	1	5" I	6' 5"	P4
40	2	5" I	6' 0"	P4
41	18	5" I	5' 1 1/2"	P4
42	10	5" I	5' 11"	P4
43	2	5" I	5' 10"	P4

ITEM	NO. PCS.	SIZE	LENGTH - L	MARK
44	2	5" I	7' 3 1/2"	P5
45	2	5" I	7' 1 1/2"	P5
46	4	5" I	7' 1"	P5
47	6	5" I	6' 9"	P5



MAKE 2-5" I @ 4'-2" THUS MK P1B^L
MAKE 4-5" I @ 4'-2" REV. MK P1B^R

MAKE 2-5" I @ 5'-10 1/2" THUS MK P3A^L
MAKE 2-5" I @ 5'-10 1/2" REV. MK P3A^R



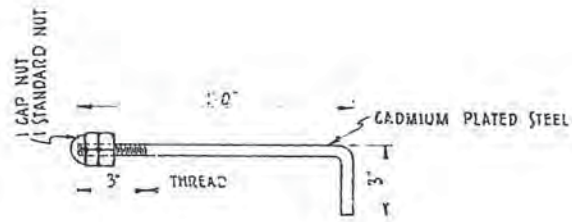
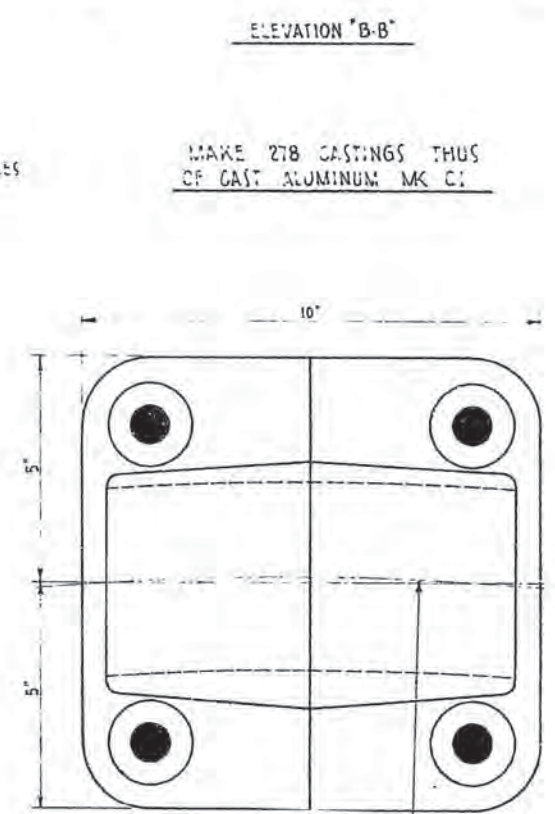
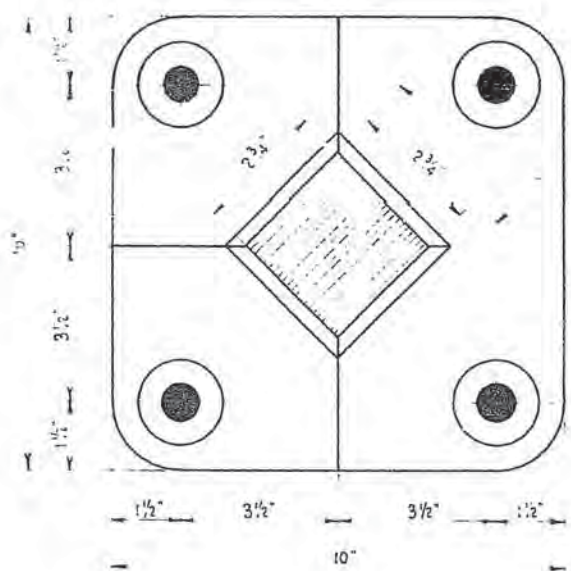
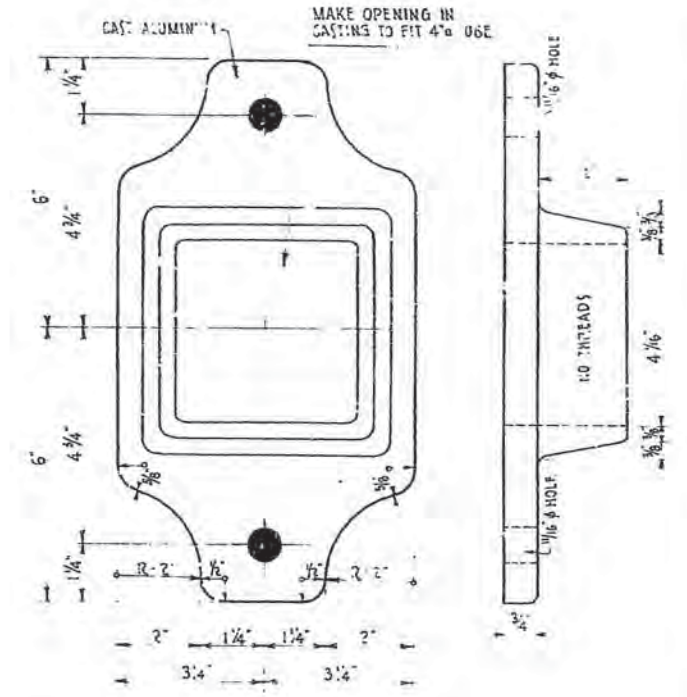
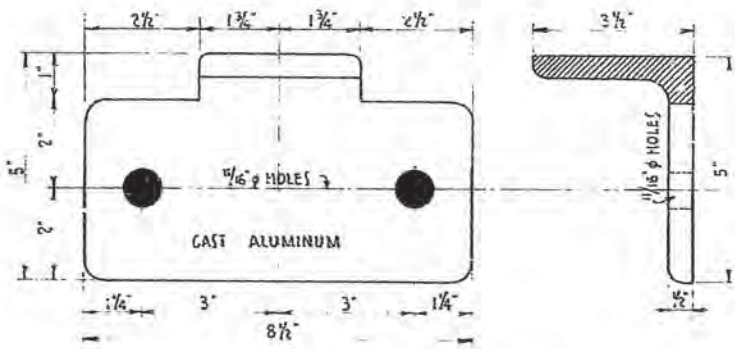
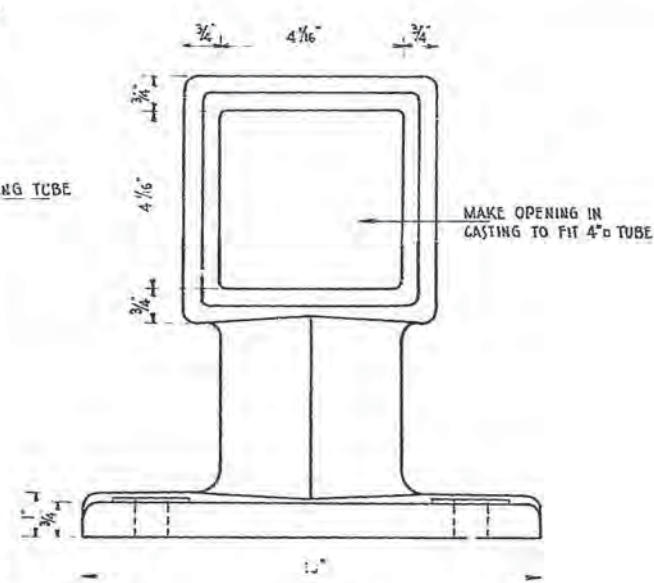
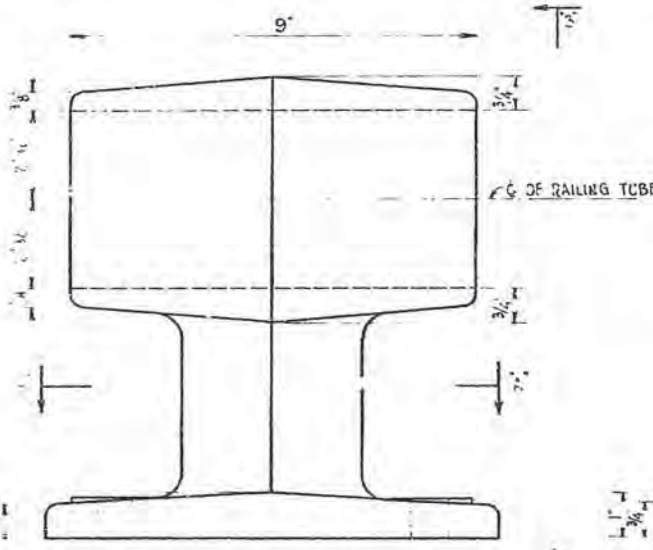
MAKE ONE 5" I @ 238# 4'-0 1/2" THUS MK P1C^L
MAKE ONE 5" I @ 238# 4'-0 1/2" REV. MK P1C^R

MAKE 8-5" I @ 4'-2" THUS MK P1A

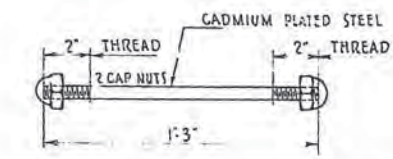
MAKE 8-5" I @ 5'-0" THUS MK P2A
MAKE 6-5" I @ 5'-0" THUS MK P2B

BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRWN. E.G.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE 1"=10'
TRD. F.O.	MINNEAPOLIS	MINNESOTA	DRWG. NO. 15
CHKD. T.J.	F. PAUL	CITY ENGINEER	
DATE	E. GORRESON	BRIDGE ENGINEER	

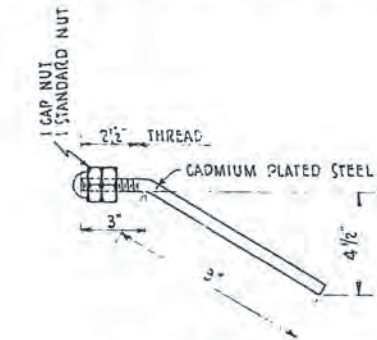
FILED
DATE
BY
J. W. HARRIS



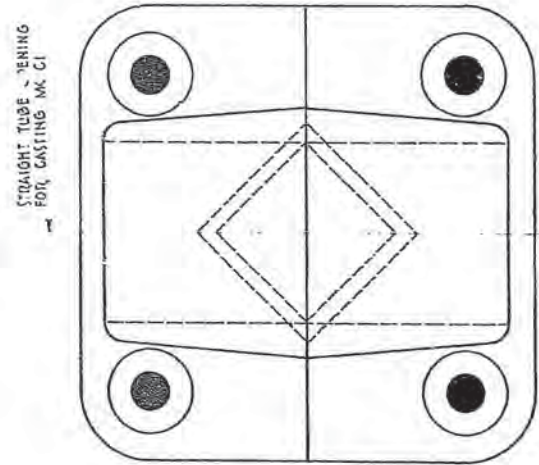
MAKE 2392 - 5/8" ϕ x 1.3" BOLTS THUS



MAKE 590 - 5/8" ϕ x 1.3" BOLTS THUS



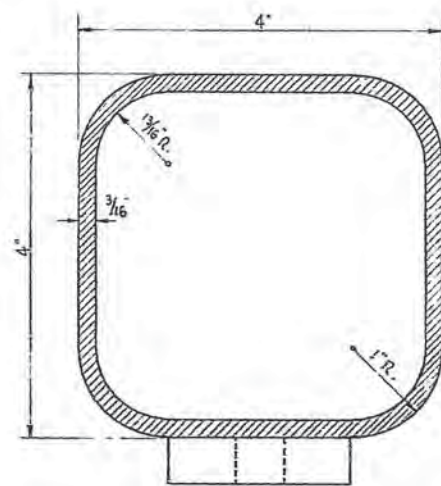
MAKE 118C 5/8" ϕ x 1.0" BOLTS THUS



TOP ELEVATION OF CASTING

NOTE: OTHER DETAILS SAME AS SHOWN FOR CASTING MARK C1
 RAD. ON ϕ OF TUBE OPENING
 • 12.176 FOR C2
 • 7.076 FOR C4
 • 29.9 FOR C5

MAKE 6 CASTINGS THUS MARK C2
 MAKE 8 CASTINGS THUS MARK C4
 MAKE 3 CASTINGS THUS MARK C5



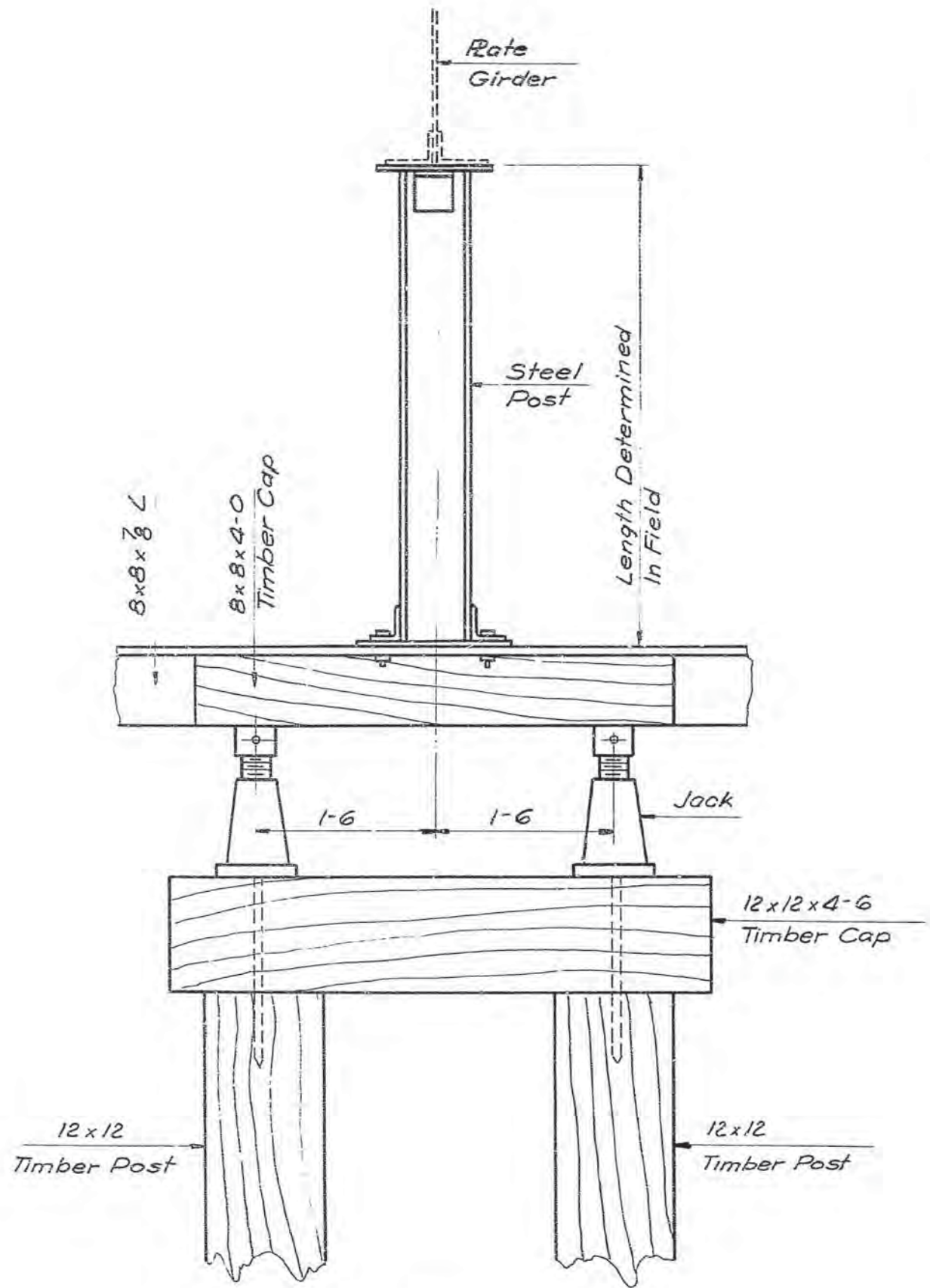
CROSSSECTION OF 4" TUBE

BRIDGE RAILING			
3RD AVENUE SO. BRIDGE OVER MISSISSIPPI RIVER			
DRN. E.G.	BRIDGE DEPT.	CITY ENGINEER'S OFFICE	SCALE
DES. F.O.	MINNEAPOLIS	MINNESOTA	6" = 1'-0"
CHKD. T.J.			DRWG. NO. 15
DATE	ST. PAUL	CITY ENGINEER	
	E. GORRISON	BRIDGE ENGINEER	

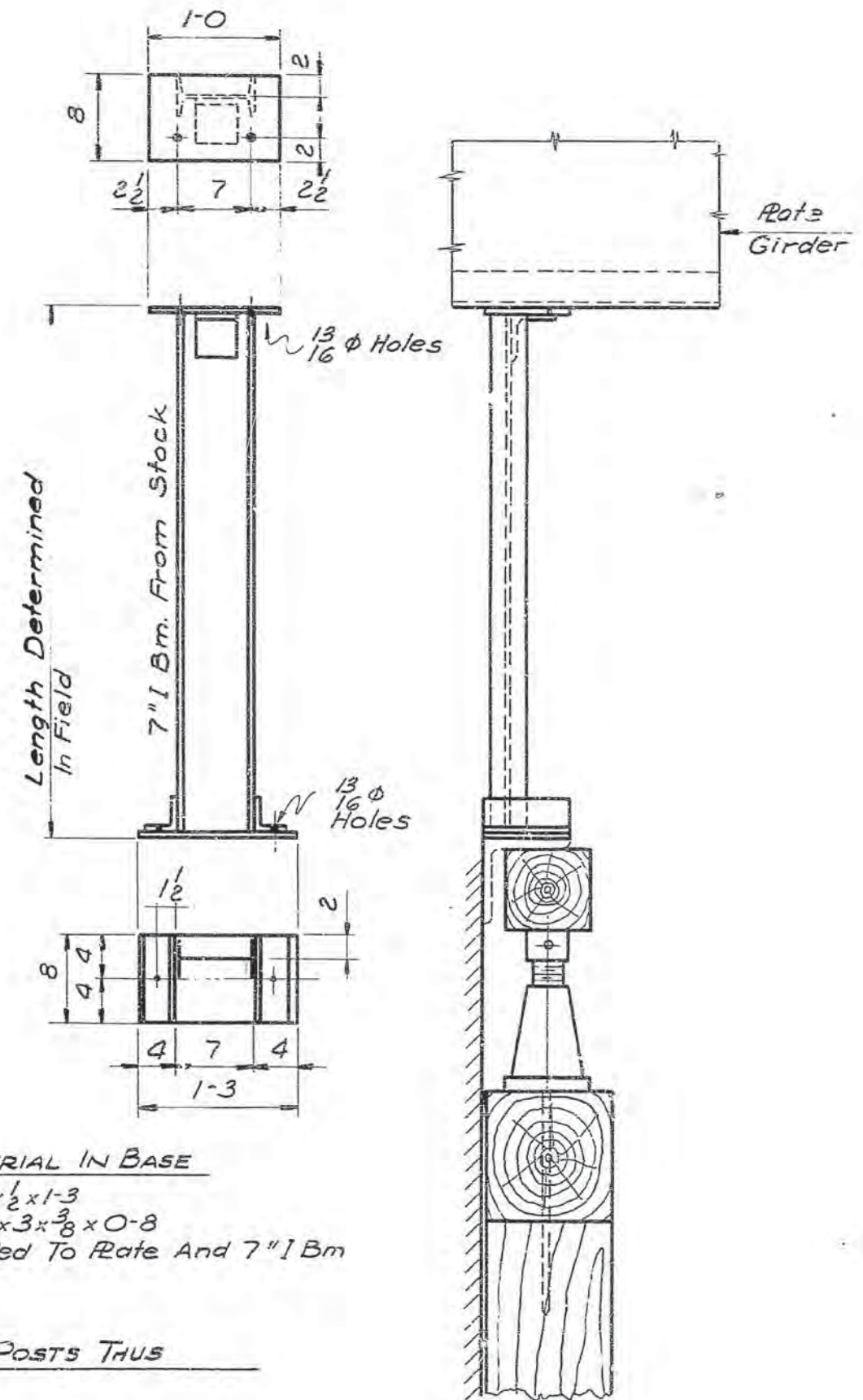
FILMING DATE BY BURKE MARS...

3rd Ave. Bridge				3rd Ave. Bridge				3rd Ave. Bridge				3rd Ave. Bridge				3rd Ave. Bridge				3rd Ave. Bridge															
DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.	DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.	DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.	DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.	DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.	DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.	DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.	DESCRIPTION	YEAR DRAWN	DRAWER NO.	DRAWING NO.				
Artist's Drawing of Steel Bridge	1913	20	1	Plan and Elevations	1916	20	8	Plan Stair Rail and Fittings	1917	20	15	Concrete Bent, Girder and Slab Construction East Approach	1917	20	18 & 16A	Proposed Additional Tracks West Approach	1918	20	23	Track Location Original Drawing	1916	20	29	Track Location Original Drawing	1916	20	29	Track Location Original Drawing	1916	20	29				
Proposed Steel Bridge Plan and Elevation	1913	20	2	Plan and Elevations with notations	1916	20	9	Plan Concrete Stairway	1921	20	16	Plan of Abutment and Retaining Wall East Approach	20	19		Plan and Profile, West Approach	1918	20	24	Track Locations West Approach	1916	20	30	Track Locations West Approach	1916	20	30	Track Locations West Approach	1916	20	30				
Plan showing Breaks and Limestone from U.S. Government Map	20	4		Elevations and Tie in of Piers	20	10	Elevation and Sections Showing Details of Bents and Slabs East Approach	20	17, 17A, & 17B			East Approach Details	20	20		Track Locations West Approach Original Drawing	1918	20	26	Plan, Elevation and Sections Showing Details of Bents No. 1 and 2	1916	20	31	Plan, Elevation and Sections Showing Details of Bents No. 1 and 2	1916	20	31	Plan, Elevation and Sections Showing Details of Bents No. 1 and 2	1916	20	31				
Proposed Locations (2 Tracings)	20	5A & B		Plan and Elevation Stairway	1915	20	12	Plan and Profile West Approach	1918	20	21 & 21B	Plan and Profile West Approach	1918	20	21 & 21B	Track Locations West Approach	1918	20	27	Plan, Elevation and Sections Showing Details of Bents No. 3 and 4	1916	20	32	Plan, Elevation and Sections Showing Details of Bents No. 3 and 4	1916	20	32	Plan, Elevation and Sections Showing Details of Bents No. 3 and 4	1916	20	32				
Plan and Location approved by Great Northern Railway Company	1914	20	6A	Proposed Stair Sewer	1915	20	13	W. E. and M. and St. L. Ry. under West Approach	20	22		W. E. and M. and St. L. Ry. under West Approach	20	22		Track Locations West Approach Original Drawing	1918	20	28	Half Section of Span 1, 2 & 3 West Approach	1916	20	33	Half Section of Span 1, 2 & 3 West Approach	1916	20	33	Half Section of Span 1, 2 & 3 West Approach	1916	20	33				
Location Pier and Tracks	20	7A & B		Plan of Stair Reinforcing	1917	20	14	W.P.A.-O.P. No. 665-71-3-405				W.P.A.-O.P. No. 665-71-3-405				W.P.A.-O.P. No. 665-71-3-405				W.P.A.-O.P. No. 665-71-3-405				W.P.A.-O.P. No. 665-71-3-405				W.P.A.-O.P. No. 665-71-3-405				W.P.A.-O.P. No. 665-71-3-405			

DATE
FILMING
OCT 22 1970
BY
RURKE MARKE



MATERIAL IN CAP
 1R 8x1/2x1-0
 1L 4x4x3/8x0-4
 Welded To Rate And
 7" I Bm.



MATERIAL IN BASE
 1R 8x1/2x1-3
 2L 3x3x3/8x0-8
 Welded To Rate And 7" I Bm

MAKE 2 POSTS THUS

3rd AVE. BRIDGE