14TH AVENUE SOUTH BRIDGE

DUWAMISH WATERWAY

KING COUNTY, WASHINGTON

THOMAS D. HUNT — COUNTY ENGINEER.

D. L. EVANS — PRINCIPAL ASSISTANT ENGINEER.

THE SCHERZER ROLLING LIFT BRIDGE CO. — CONSULTING ENGINEERS.

CHICAGO

INSPECTOR NOTES BOOKS & INS. 239 240

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SEC NE32 TWP 24N R4E

DEC 29 1998 MICRO.

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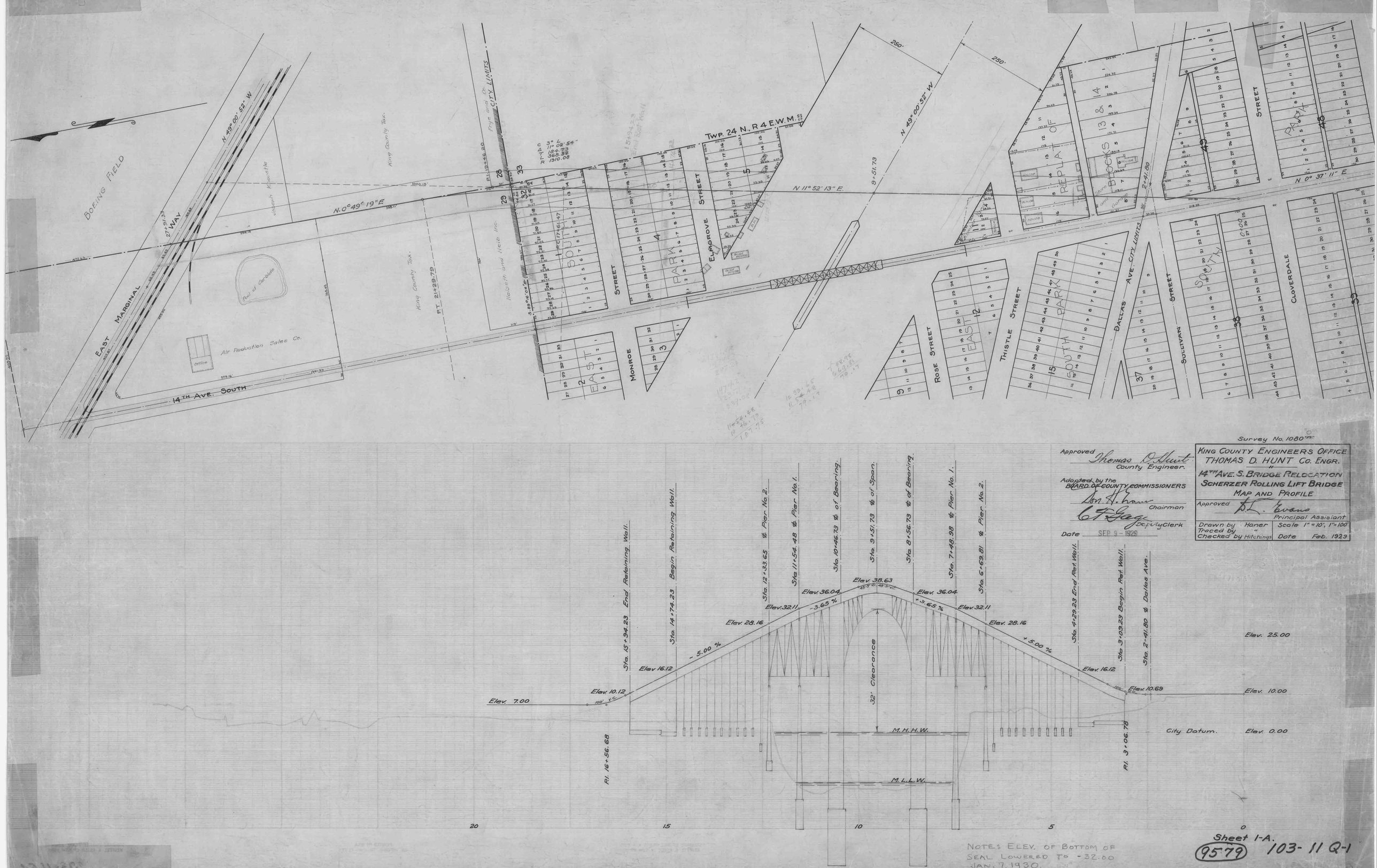
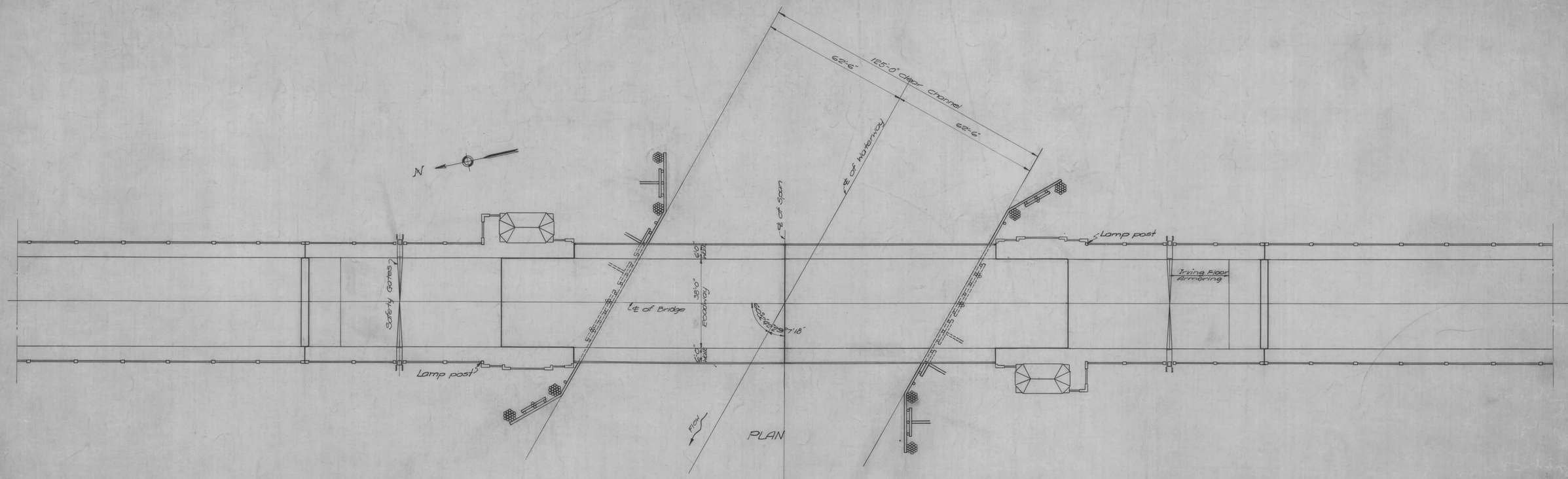
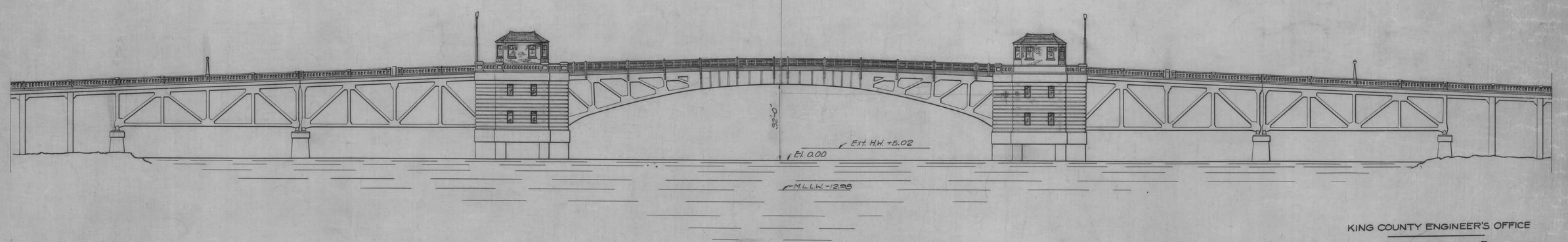

Survey No. 1080
Approved Thomas D. Hunt County Engineer.
Adopted by the BOARD OF COUNTY COMMISSIONERS
Chairman
Deputy Clerk
Date SEP 9 - 1929
KING COUNTY ENGINEERS OFFICE
THOMAS D. HUNT Co. ENGR.
14TH AVE. S. BRIDGE RELOCATION
SCHERZER ROLLING LIFT BRIDGE
MAP AND PROFILE
Approved
Principal Assistant
Drawn by Haner
Traced by
Checked by Hitchings
Scale 1" = 10', 1" = 100'
Date Feb. 1929
BOEING FIELD
EAST MARGINAL WAY
N. 49° 00' 52" W.
N. 0° 49' 19" E.
N 11° 52' 13" E.
N 49° 00' 52" W.
N 0° 37' 11" E.
14TH AVE. SOUTH
Air Reduction Sales Co.
Pool of Carbide
Office
King County Tax.
Wabash Hawaiite
Pyle and Co.
CITY LIMITS
Twp. 24 N., R 4 E.W.M.
SOUTH STREET
PARK STREET
ELMGROVE STREET
MONROE
EAST
ROSE STREET
THISTLE STREET
SOUTH PARK
DALLAS AVE.
SULLIVAN STREET
CLOVERDALE
Sta. 15+94.23 End Retaining Wall.
Sta. 14+74.23 Begin Retaining Wall.
Sta. 12+33.65 ℄ Pier No. 2.
Sta. 11+54.48 ℄ Pier No. 1.
Sta. 10+46.73 ℄ of Bearing.
Sta. 9+51.73 ℄ of Span.
Sta. 8+56.73 ℄ of Bearing.
Sta. 7+48.98 ℄ Pier No. 1.
Sta. 6+69.81 ℄ Pier No. 2.
Sta. 4+29.23 End Ret. Wall.
Sta. 3+03.23 Begin Ret. Wall.
Sta. 2+41.80 ℄ Dallas Ave.
Elev. 7.00
Elev. 10.12
Elev. 16.12
Elev. 28.16
Elev. 32.11
Elev. 36.04
Elev. 38.63
-5.00 %
-3.65 %
+3.65 %
+5.00 %
32' Clearance
M.H.H.W.
M.L.L.W.
Pi. 16+56.68
Pi. 3+06.78
Elev. 25.00
Elev. 10.00
City Datum. Elev. 0.00
20
15
10
5
0
NOTE: ELEV. OF BOTTOM OF SEAL LOWERED TO -32.00 JAN. 7, 1930.
Sheet 1-A.
95-79
103-11 Q-1





ELEVATION

SHEET NOS. 1 TO 40 INCLUSIVE
APPROVED
By Thomas D. Hunt
County Engineer.
By D. L. Evans
Principal Assistant.
Adopted by the
BOARD OF COUNTY COMMISSIONERS.
Don H. Lowe
Chairman.
C. F. Gage
Deputy Clerk.
Date SEP 9 - 1929

KING COUNTY ENGINEER'S OFFICE

THOMAS D. HUNT COUNTY ENGINEER
D. L. EVANS PRINCIPAL ASSISTANT

GENERAL PLAN
FOR A
SCHERZER ROLLING LIFT BRIDGE
OVER
DUWAMISH WATERWAY
AT
14TH AVENUE SOUTH
SEATTLE, WASHINGTON

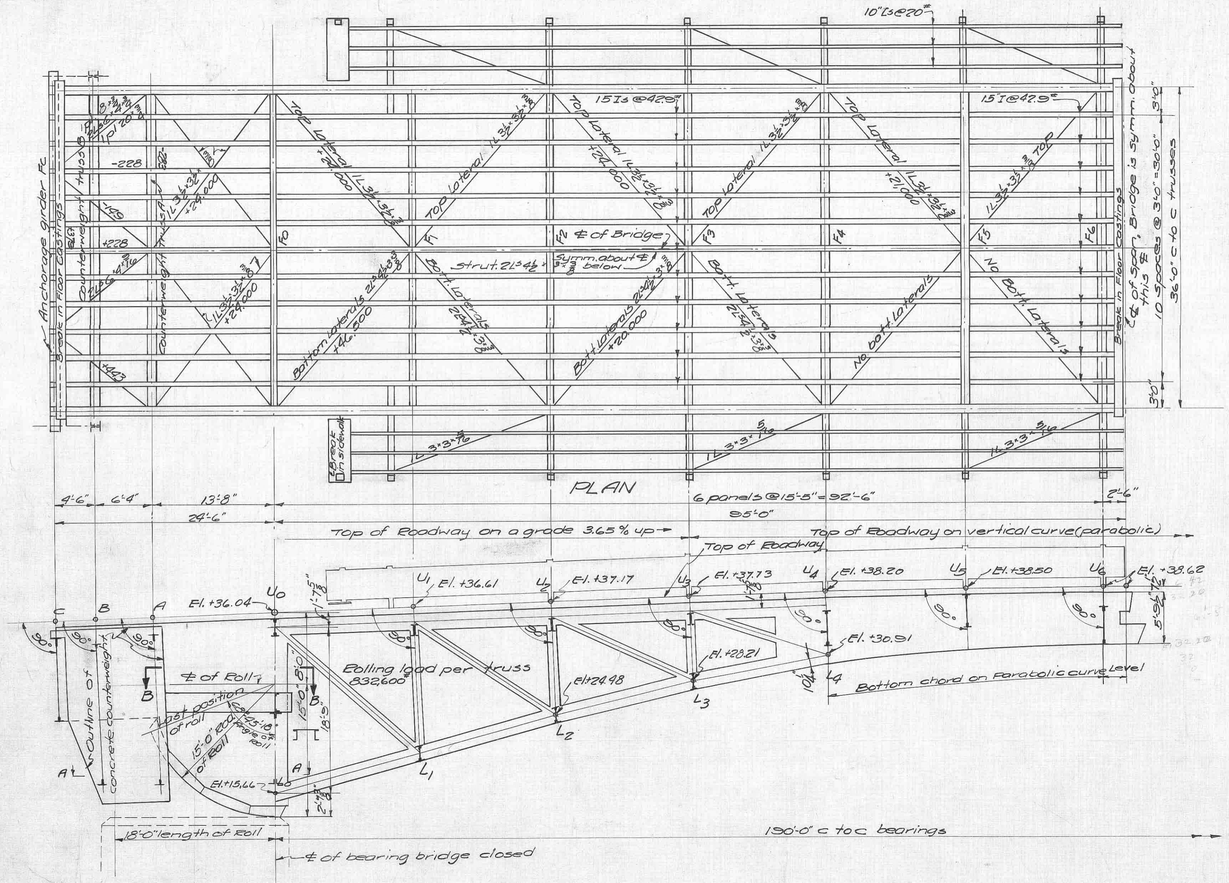
DESIGNED BY
THE SCHERZER ROLLING LIFT BRIDGE CO.
MONADNOCK BLOCK, CHICAGO, ILL.

DRAWN BY A.B.
TRACED BY J.E.
CHECKED BY J.C.
REVISED 6-24-27

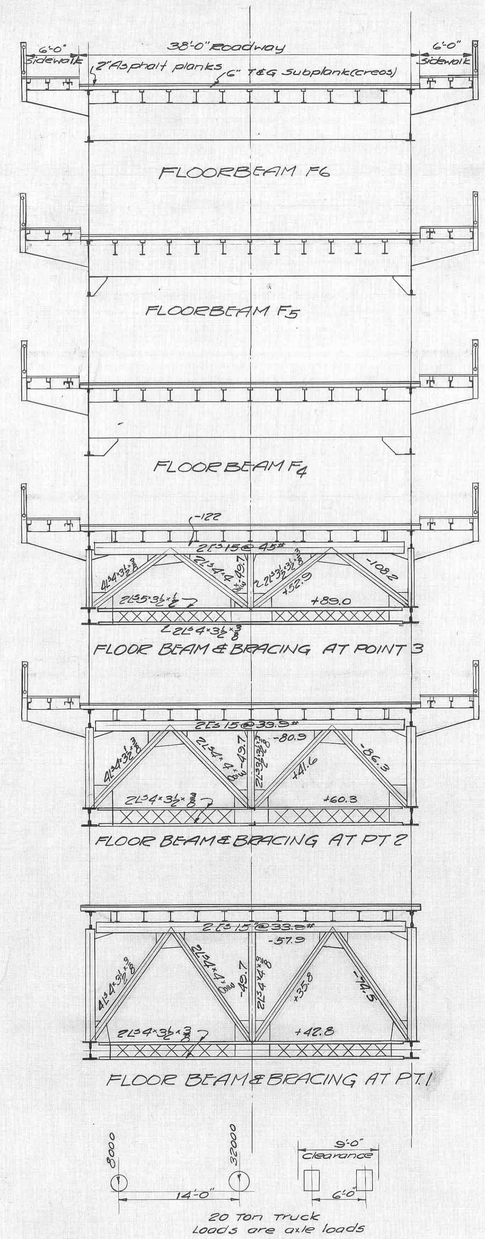
SCALE: 1"=20'
DATE: JUNE 6, 1929

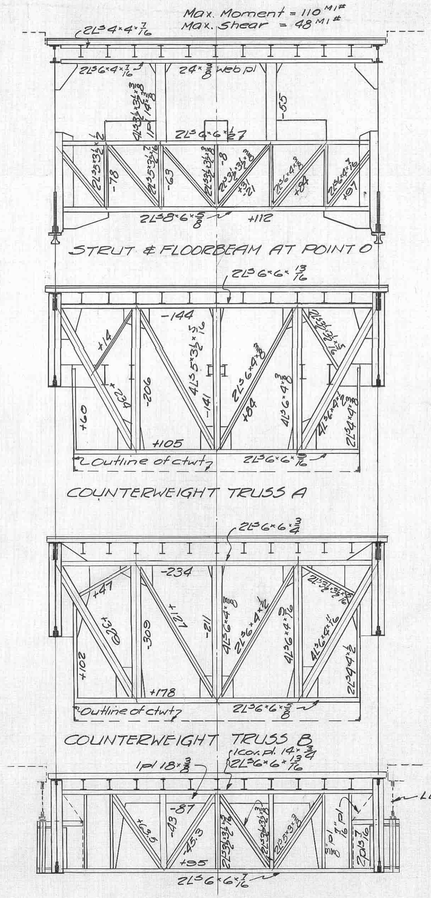
SHEET NO. 1223-1

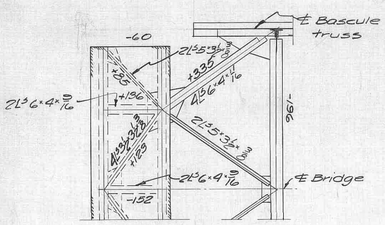
(9584) 103-11A



Max. Reaction at 0 (per truss) ELEVATION
Rolling Load 832600
Live Load 712000
Impact 68000
Total 1608600







BOTTOM COUNTERWEIGHT BRACING SECTION A-A

Note: For section B-B Plan of Machinery floor see sheet #18

STRESSES IN BASCULE TRUSSES

Member	Dead Load Stress	Live Load Stresses: Due to Rd. LL on Leaf	Due to Sheet-Lock Reaction	Total due to Rd. L.L.	Impact on Total Rd. L.L.	Due to Sw. L.L. on leaf	Due to Sheet-Lock Reaction	Total due to Sw. L.L.	D.L. + L.L. + Imp	Allowable Unit Stress	Area Reqd G	Area Reqd N	Area Used G	Area Used N	Section
L_0U_1	+403	+401	+2	+403	+49	+112.5	+0.5	+113	+1008	16		63.0	98.3	83.8	1 pl 24"×½, 2 pls 24"×½ / 4 L 6"×6"×⅞, 2 pls 12"×⅞
U_1U_2	+380	+348	+9	+357	+45	+98.0	+3.0	+101	+883	16		55.0	86.3	73.3	1 pl 24"×½, 2 pls 24"×½ / 4 L 6"×6"×⅞, 2 pls 12"×⅞
U_2U_3	+305	+283	+23	+312	+41	-79.5	+8.5	+88	+746	16		46.7	70.1	60.2	1 pl 24"×½, 2 pls 24"×½ / 4 L 6"×6"×11/16
U_3U_4	+201	+147	+115	+262	+38	41.5	+32.5	+74	+575	16		35.9	65.6	56.5	2 pls 24"×⅞, 2 pls 12"×11/16 / 4 L 6"×6"×11/16
L_0L_1	-535	-477	0	-477	-56	-134.0	0	-134	-1202	12.2*	98.7		104.8		1 cov. pl 20"×⅜, 2 cov. pls 20"×11/16, 2 pls 20"×11/16 / 4 L 8"×6"×⅞
L_1L_2	-463	-417	-2	-419	-51	-117.5	-0.5	-118	-1051	11.6*	90.6		98.5		1 pl 20"×11/16, 2 cov. pls 20"×⅜, 2 pls 20"×11/16 / 4 L 8"×6"×⅞
L_2L_3	-393	-361	-9	-370	-46	-101.5	-2.5	-104	-913	11.1*	82.3		83.3		1 pl 20"×⅞, 2 pls 8"×⅞ / 2 cov. pls 20"×⅜, 4 L 8"×6"×⅞
L_3L_4	-318	-287	-29	-316	-41	-81.0	-8.0	-89	-759	10.5*	72.3		72.2		1 pl 20"×9/16 / 2 cov. pl 20"×11/16, 4 L 8"×6"×⅞
U_0L_1	+87	+84	+7	+91	+15	+24.0	+2.0	+26	+229	16		14.3	19.0	14.5	1 pl 1'-0"×⅜, 4 L 3"×3½"×⅜
U_1L_2	+80	+67	+17	+84	+14	+19.0	+5.0	+24	+202	16		12.6	16.8	13.2	1 pl 10"×11/16, 4 L 3½"×3½"×⅜
U_2L_3	+85	+79	+13	+92	+15	+22.0	+4.0	+26	+218	16		13.6	17.8	14.1	1 pl 10"×⅞, 4 L 3½"×3½"×7/16
U_3L_4	+113	+104.7	+1.3	+106	+14	+23.6	+0.4	+30	+263	16		16.4	22.4	17.2	2 pls 10"×⅜, 4 L 3½"×3½"×⅜
U_0L_0	-74	-73	-6	-79	-13	-20.0	-2.0	-22	-188	11.6	16.2		17.46		4 L 3"×6"×⅜
U_1L_1	-67	-65	-6	-71	-12	-18.0	-2.0	-20	-170	12.5	13.6		17.44		4 L 3"×6"×⅜
U_2L_2	-66	-67	0	-67	-8	-13.0	0	-13	-160	12.2	13.1		14.40		4 L 3"×4"×⅜

* Unit stress reduced for deflection. † Additional section provided on account of L.L. bending. Stresses in 1000# Units. Allowable unit stresses in 1000# per sq. in. Areas in sq. in. + denotes tension − denotes compression

STRESSES IN FLOOR BEAMS & STRINGERS

Member	Shears in 1000 lb: D.L.	L.L.	Imp	Total	Moments in 1000 ft. lb: D.L.	L.L.	Imp	Total	Section
Floor Beam F6	14.5	62.0	37.2	113.7	130	560	336	1026	1 web pl 50"×⅜, 4 L 3"×6"×11/16
Floor Beams F5-F3	17.5	52.4	11.8	81.7	158	470	105	733	1 web pl 48"×⅜, 4 L 3"×6"×11/16
Roadway Stringers	1.2	16.0	4.8	22.0	4.8	45.5	14.8	65.1	1 I 15" @ 42.9#

STRESSES IN BASCULE & SEGMENTAL GIRDERS

Panel	Shears in 1000 lb: D.L.	Rd. L.L.	Sw. L.L.	Imp.	Total	Point	Moments in 1000 ft. lb: D.L.	Rd. L.L.	Sw. L.L.	Imp.	Total	Section
6-℄	0	±34.0	±9.5	±5.2	±75.0*	6	0	±85.0	±23.9	±13.0	±187.8*	See details
5-6	+24	+38.8 / -15.4	+10.9 / -2.5	+5.5 / -3.2	+88.5* / -17.0	5	+370	+646 / -397	+182 / -95	+98 / -57	+1213* / -369	See details
4-5	+52	+59.2	+16.6	+8.1	+135.9	4	+1173	+1471	+413	+210	+3267	See details
0-A	+556	+37.0	+10.1	+42	+1063	0	+9820	+8870	+2400	+1010	+21800	See details
A-B	+346	+36.2	+10.1	+43	+852	A	+2320	+4160	+1160	+487	+8127	See details
B-C	+16	+36.2	+10.1	+43	+522	B	+72	+1630	+455	+191	+2348	See details

* Stress increased on account of reversal – see specifications

Loading
Dead Load = Actual weight
Live Load
For Floor system: 20 ton trucks – 80% of 4 trucks, 90% of 3 trucks, 100% of 1 or 2 trucks
For trusses: 100#/ft on Roadway + 80# per sq. ft. on sidewalks.
Impact
For stringers 30%
For stringer Brackets 100%
For End Floor Beams 60%
For Trusses and intermediate Floor Beams $\frac{36}{W+18} \times \frac{L+250}{70L+3500}$ Max. value 30
where W = loaded width & L = loaded length.
Specifications: Am. Assoc. of State Highway Officials specifications in conjunction with the specifications of The Scherzer Rolling Lift Bridge Co. accompanying these plans

KING COUNTY ENGINEER'S OFFICE

THOMAS D. HUNT COUNTY ENGINEER
D. L. EVANS PRINCIPAL ASSISTANT

BASCULE SPAN STRESS SHEET

FOR A

SCHERZER ROLLING LIFT BRIDGE

OVER

DUWAMISH WATERWAY AT 14TH AVENUE SOUTH SEATTLE, WASHINGTON

DESIGNED BY
THE SCHERZER ROLLING LIFT BRIDGE CO.
MONADNOCK BLOCK, CHICAGO, ILL.

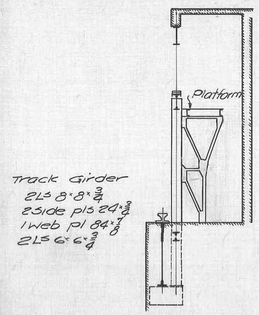
DRAWN BY A.L.R.S
TRACED BY J.E.
CHECKED BY A.B.
REVISED 8-29-29

SCALE: ⅛" = 1'-0"
DATE: JUNE 6, 1929

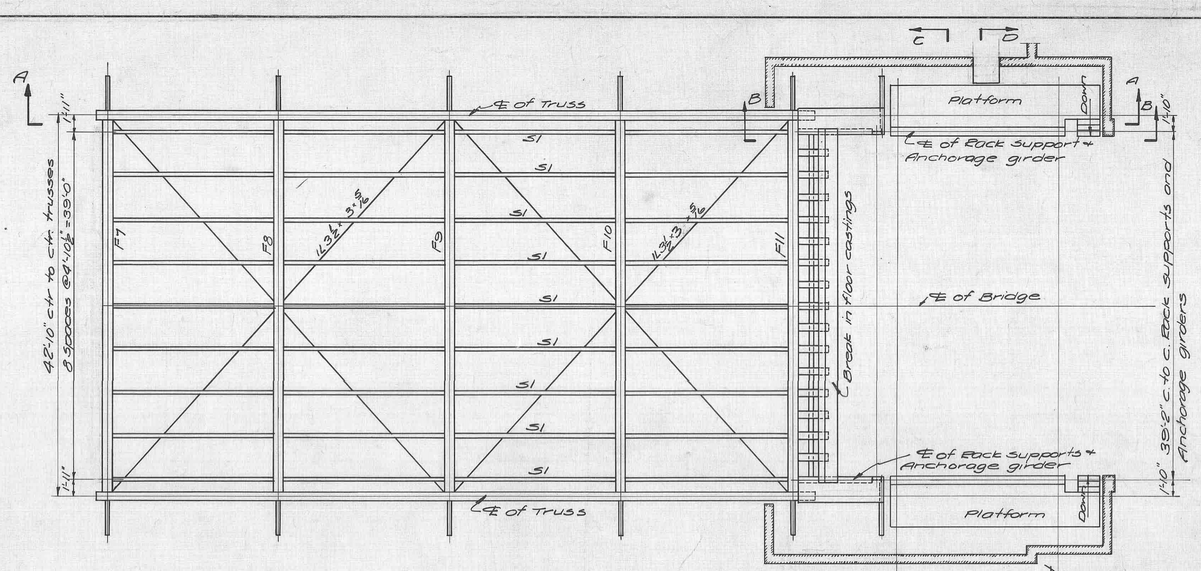
SHEET NO. 1223-2

DEC 29 1998 MICRO.

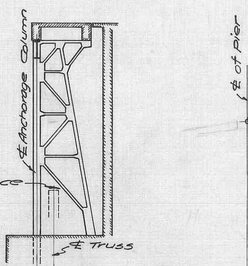
9585 103-11B



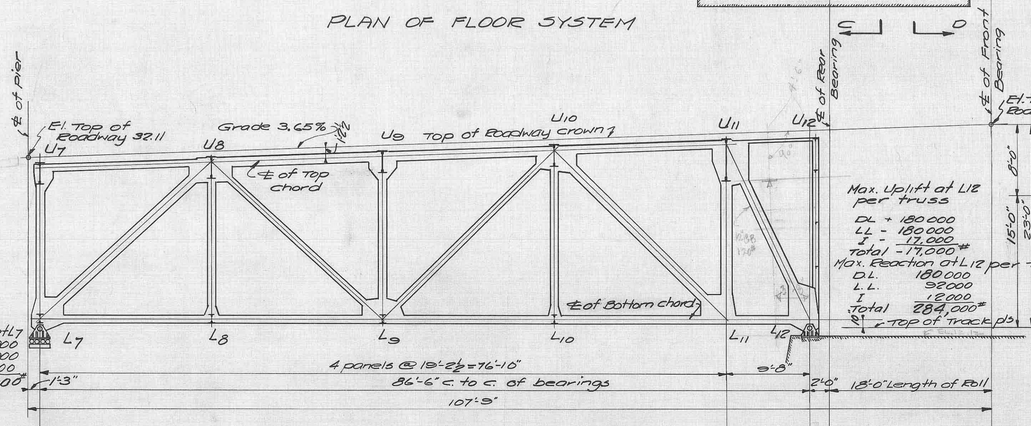
HALF SECTION C-C
Section D-D similar



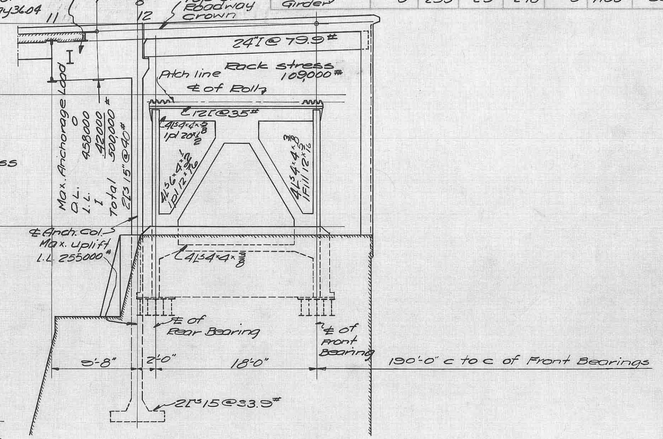
PLAN OF FLOOR SYSTEM



HALF SECTION AT PT. 12



LONGITUDINAL SECTION A-A



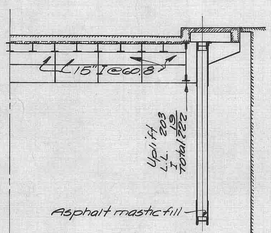
SECTION B-B

Max. Reaction on Rear Grillage

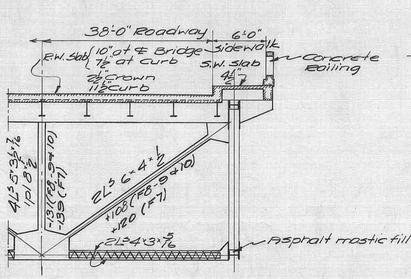
D.L.	836,000
L.L.	0
I	0
	836000

Max. Reaction on Front Grillage

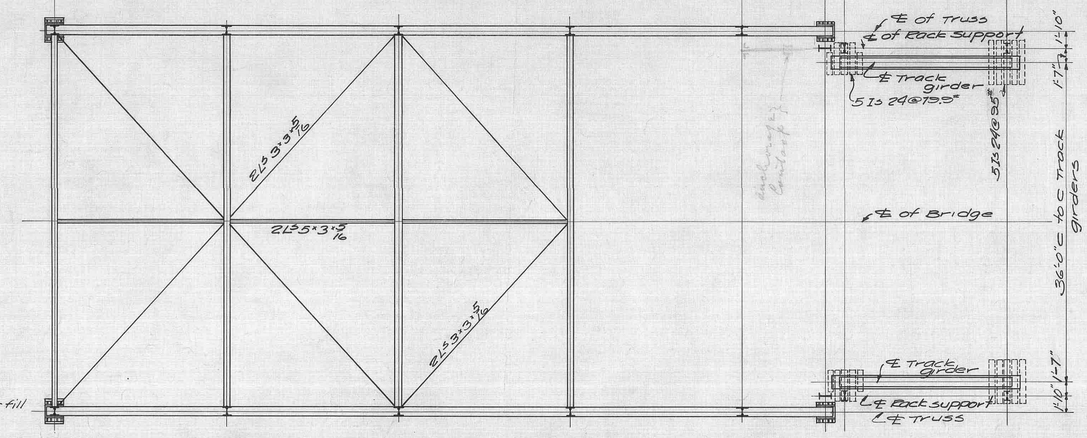
D.L.	836000
L.L.	712000
I	0
	1,548,000



HALF SECTION AT POINT 11



HALF SECTION AT PT 8
Sections at points 7, 9 + 10 similar



PLAN OF BOTTOM LATERALS

STRESSES IN APPROACH TRUSSES

Member	Dead Load	R.W. Live Load	Imp. Coeff.	Imp.	S.W. Live Load	L.L.+Imp. from Approach	L.L.+Imp. from Bascule	Max. D.L. +L.L.+Imp.	Design Stress	All. U.S.	Area reqd. G	Area reqd. N	Area Used G	Area Used N	Section
U_7U_8	0	0	–			0	0	0					9.1		10" CB @ 31# ×
U_8U_{10}	-225	-95	.162	-15	-24	-139	+80	-359	-359	112	32.1		38.2		12" CB @ 130# ×
$U_{10}U_{11}$	-86	-36	.162	-6	-9	-51	+88	-137 +28	-151 +42	105	14.4		20.6		10" CB @ 70# ×
L_7L_9	+165	+69	.162	+11	+18	+98	-26	+263	+263	160		16.9	22.1	18.8	12" CB @ 75# ×
L_9L_{11}	+195	+82	.162	+13	+21	+116	-71	+311	+311	160		19.4	24.9	21.2	12" CB @ 83# ×
$L_{11}L_{12}$	+86	+36	.162	+6	+9	+51	-88	+137 -28	+151 -42	160		9.4	24.9	21.2	12" CB @ 83# ×
L_7U_8	-224	-94	.162	-15	-24	-133	+35	-357	-357	107	33.4		44.1		12" CB @ 150# ×
U_8L_9	+83	+47 -21	.136 .21	+9 -4	+12 -3	+68 -28	-32	+151	+151	160		9.4	14.4	11.9	10" CB @ 49# ×
L_9U_{10}	+43	+37 -19	.210 .238	+8 -5	+9 -5	+94 -29	+30	+127	+127	160		7.9	10.6	9.1	10" CB @ 36# ×
$U_{10}U_{11}$	-160	-72	.184	-13	-18	-103	-28	-291	-291	97	29.9		38.2		12" CB @ 130# ×
$U_{11}L_{12}$	-137	-82	.162	-13	-20	-115	+219	-312 +81	-353 +122	107	33.0		35.3		12" CB @ 120# ×
L_7L_7	-50	-61	.60	-37	-5	-103	0	-153	-153	108	14.2		20.1		4 Ls 5"x3½"x½" (1 pl 11"x3/8")
U_8L_8 $U_{10}U_{10}$	+6	0	–	0	0	0	0	+6	+6				16.3		4 Ls 5"x3½"x3/8" 1 pl 11"x3/8"
U_9L_9	-80	-57	.60	-34	-9	-100	0	-180	-180	105	17.1		22.0		4 Ls 5"x3½"x7/16" (1 pl 11"x3/8")
$U_{11}L_{11}$	+117	+52	.184	+10	+12	+74	+20	+211	+211	160		13.2	19.4	15.6	4 Ls 7"x3½"x3/8" 1 pl 11"x3/8"

Note: + indicates tension
– " compression
Areas are given in stresses in 1000#

× Sections also figured for stress due to bending from D.L. of member

STRESSES IN STRINGERS & FLOOR BEAMS

Member	Shear in 1000# D.L.	L.L.	Imp.	Tot.	Moment in 1000'# D.L.	L.L.	Imp.	Tot.	Section
Stringer S1	6	17	5	28	29	76	23	128	20" I @ 65.4#
Floor Bm F7	11	47	28	86	44	176	105	325	4 Ls 6"x4"x7/16" 1 pl 30"x½"
Fl. Bms. F8, F9 + F10	21	44	9	74	78	166	35	279	4 Ls 6"x4"x½" 1 pl 30"x3/8"
Floor Bm. F11	59	75	45	179	632	832	533	2059	4 Ls 6"x6"x3/8" 1 pl 35"x½" & Cover pl 14"x½"
Anchorage Girder	0	255	23	278	0	1100	99	1199	4 Ls 8"x6"x13/16" 1 pl 32"x7/8"

General Note:
For loading & specifications see sheet # 2

KING COUNTY ENGINEER'S OFFICE

THOMAS D. HUNT COUNTY ENGINEER
D.L. EVANS PRINCIPAL ASSISTANT

APPROACH SPAN STRESS SHEET

FOR A

SCHERZER ROLLING LIFT BRIDGE

OVER

DUWAMISH WATERWAY

AT

14TH AVENUE SOUTH

SEATTLE, WASHINGTON

DESIGNED BY

THE SCHERZER ROLLING LIFT BRIDGE CO.
MONADNOCK BLOCK, CHICAGO, ILL.

DRAWN BY A.B.
TRACED BY A.B.
CHECKED BY P.I.D.
REVISED

SCALE: ½" = 1'-0"
DATE: JUNE 6, 1929

SHEET NO. 1223-3

DEC 29 1998 MICROFILM

9586 103-11C