

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SPANS 26-28 & 29-31 - INTERIOR GIRDER MOMENT TABLE

Properties	0.4 Span 26 0.4 Span 29	Pier 26 Pier 29	0.5 Span 27 0.5 Span 30	Pier 27 Pier 30	0.6 Span 28 0.6 Span 31
Is	(in4) 47501	82185	47501	82185	47501
Ic(n)	(in4) 130695	-----	130695	-----	130695
Ic(3n)	(in4) 94277	-----	94277	-----	94277
Ss	(in3) 1438	2199	1438	2199	1438
Sc(n)	(in3) 2111	-----	2111	-----	2111
Sc(3n)	(in3) 1912	-----	1912	-----	1912
Q	(k/ft) 1.240	1.716	1.240	1.716	1.240
M Q	(k-ft) 1655	3904	930	3904	1655
S Q	(k/ft) 0.380	-----	0.380	-----	0.380
Ms Q	(k-ft) 556	-----	399	-----	556
M L	(k-ft) 1582	1547	1528	1547	1582
M (Imp)	(k-ft) 300	282	268	282	300
5 <sub>3</sub> (M L + M (Imp))	(k-ft) 3142	3053	2998	3053	3142
* Mu	(k-ft) 8557	-----	7813	-----	8557
Ma	(k-ft) 6960	9044	5626	9044	6960
fs Q (non-composite)	(ksi) 13.8	21.3	7.8	21.3	13.8
fs Q (composite)	(ksi) 3.5	-----	2.5	-----	3.5
fs 5 <sub>3</sub> (M L + M (Imp))	(ksi) 17.9	16.7	17.0	16.7	17.9
fs (Overload)	(ksi) 35.2	38.0	27.3	38.0	35.2
** fs (Total)	(ksi) -----	49.4	-----	49.4	-----
VR	(k) 78.1	-----	67.4	-----	78.1

SPANS 32-34 - INTERIOR GIRDER MOMENT TABLE

Properties	0.4 Span 32	Pier 32	0.5 Span 33	Pier 33	0.6 Span 34
Is	(in4) 47501	82185	45542	82185	47501
Ic(n)	(in4) 130695	-----	123925	-----	130695
Ic(3n)	(in4) 94277	-----	89950	-----	94277
Ss	(in3) 1438	2199	1344	2199	1438
Sc(n)	(in3) 2111	-----	1983	-----	2111
Sc(3n)	(in3) 1912	-----	1794	-----	1912
Q	(k/ft) 1.240	1.716	1.234	1.716	1.240
M Q	(k-ft) 1577	3633	859	3560	1530
S Q	(k/ft) 0.380	-----	0.380	-----	0.380
Ms Q	(k-ft) 527	-----	372	-----	512
M L	(k-ft) 1540	1448	1446	1435	1517
M (Imp)	(k-ft) 296	269	259	267	294
5 <sub>3</sub> (M L + M (Imp))	(k-ft) 3066	2866	2848	2842	3024
* Mu	(k-ft) 8750	-----	7838	-----	8804
Ma	(k-ft) 6722	8449	5303	8323	6586
fs Q (non-composite)	(ksi) 13.2	19.8	7.7	19.4	12.8
fs Q (composite)	(ksi) 3.3	-----	2.5	-----	3.2
fs 5 <sub>3</sub> (M L + M (Imp))	(ksi) 17.4	15.6	17.2	15.5	17.2
fs (Overload)	(ksi) 33.9	35.5	27.4	34.9	33.2
** fs (Total)	(ksi) -----	46.1	-----	45.4	-----
VR	(k) 78.3	-----	67.4	-----	77.9

SPANS 26-28 & 29-31 - INTERIOR GIRDER REACTION TABLE

Properties	Pier 25 Pier 28	Pier 26 Pier 29	Pier 27 Pier 30	Pier 28 Pier 31
R Q	(k) 84.5	275.4	275.4	84.5
R L	(k) 59.5	115.1	115.1	59.5
Imp.	(k) 11.3	13.6	13.6	11.3
R (Total)	(k) 155.3	404.1	404.1	155.3

SPANS 32-34 - INTERIOR GIRDER REACTION TABLE

Properties	Pier 31	Pier 32	Pier 33	Pier 34
R Q	(k) 82.4	265.8	263.3	81.2
R L	(k) 59.4	111.8	111.3	59.3
Imp.	(k) 11.4	13.5	13.5	11.5
R (Total)	(k) 153.2	391.1	388.0	152.0

**NOTES:**

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).

Ic(n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing stresses due to live load.

Ic(3n) and Sc(3n) are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. See AASHTO 10.38.

VR is the maximum live load + impact shear range within the composite portion of the span.

Ma (Applied Moment) = 1.3[M Q + Ms Q + 5<sub>3</sub>(M L + M (Imp))].

The plastic moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.

fs (Overload) is the sum of the stresses due to M Q + Ms Q + 5<sub>3</sub>(M L + M (Imp)).

fs (Total) is the sum of the stresses due to 1.3[M Q + Ms Q + 5<sub>3</sub>(M L + M (Imp))].

M Q - Moment due to dead loads on non-composite section.

Ms Q - Moment due to dead loads on composite section.

M L - Moment due to live load on non-composite or composite section.

M (Imp) - Moment due to live load impact on non-composite or composite section.

\* Compact, Braced section.

\*\* Non-Compact section.

DESIGNED -	AJK
CHECKED -	KWS
DRAWN -	VH
CHECKED -	MRB

**benesch**

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STEEL PLATE GIRDER TABLES - 4 OF 9  
ABRAHAM LINCOLN MEMORIAL BRIDGE OVER

THE ILLINOIS RIVER (PUBLIC WATERS)

F.A.I. ROUTE 39 SEC. (50-4B) BR

LASALLE COUNTY

STATION 863+16.00

STRUCTURE NO. 050-0191 (SB & NB)