

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET	SHEET NO. 207
F.A.I. 39	50-4B	LASALLE		238	313 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS		FED. AID PROJECT		

Contract # 66586

SPANS 36-38 - INTERIOR GIRDER MOMENT TABLE

Properties		0.4 Span 36	Pier 36	0.5 Span 37	Pier 37	0.6 Span 38
I_s	(in ⁴)	47501	82185	47501	82185	47501
$I_c(n)$	(in ⁴)	130695	-----	130695	-----	130695
$I_c(3n)$	(in ⁴)	94277	-----	94277	-----	94277
S_s	(in ³)	1438	2199	1438	2199	1438
$S_c(n)$	(in ³)	2111	-----	2111	-----	2111
$S_c(3n)$	(in ³)	1912	-----	1912	-----	1912
\bar{Q}	(k/ft)	1.240	1.716	1.240	1.716	1.240
$M \bar{Q}$	(k-ft)	1454	3673	1027	3743	1501
$S \bar{Q}$	(k/ft)	0.380	-----	0.380	-----	0.380
$M_s \bar{Q}$	(k-ft)	491	-----	426	-----	507
$M \bar{L}$	(k-ft)	1503	1454	1522	1472	1524
$M (Imp)$	(k-ft)	292	269	268	271	294
$^5_3(M \bar{L} + M (Imp))$	(k-ft)	2997	2876	2990	2910	3035
* M_u	(k-ft)	8770	-----	8096	-----	8711
M_a	(k-ft)	6425	8514	5775	8649	6557
$f_s \bar{Q}$ (non-composite)	(ksi)	12.1	20.0	8.6	20.4	12.5
$f_s \bar{Q}$ (composite)	(ksi)	3.1	-----	2.7	-----	3.2
$f_s ^5_3(M \bar{L} + M (Imp))$	(ksi)	17.0	15.7	17.0	15.9	17.3
f_s (Overload)	(ksi)	32.3	35.7	28.2	36.3	33.0
** f_s (Total)	(ksi)	-----	46.5	-----	47.2	-----
VR	(k)	78.3	-----	67.4	-----	77.8

SPANS 39-41 - INTERIOR GIRDER MOMENT TABLE

Properties		0.4 Span 39	Pier 39	0.5 Span 40	Pier 40	0.6 Span 41
I_s	(in ⁴)	47501	82185	47501	82185	47501
$I_c(n)$	(in ⁴)	130695	-----	130695	-----	130695
$I_c(3n)$	(in ⁴)	94277	-----	94277	-----	94277
S_s	(in ³)	1438	2199	1438	2199	1438
$S_c(n)$	(in ³)	2111	-----	2111	-----	2111
$S_c(3n)$	(in ³)	1912	-----	1912	-----	1912
\bar{Q}	(k/ft)	1.240	1.716	1.240	1.716	1.240
$M \bar{Q}$	(k-ft)	1507	3728	1012	3728	1507
$S \bar{Q}$	(k/ft)	0.380	-----	0.380	-----	0.380
$M_s \bar{Q}$	(k-ft)	509	-----	421	-----	509
$M \bar{L}$	(k-ft)	1525	1473	1521	1473	1525
$M (Imp)$	(k-ft)	294	271	268	271	294
$^5_3(M \bar{L} + M (Imp))$	(k-ft)	3038	2912	2988	2912	3038
* M_u	(k-ft)	8717	-----	8033	-----	8717
M_a	(k-ft)	6569	8633	5748	8633	6569
$f_s \bar{Q}$ (non-composite)	(ksi)	12.6	20.3	8.4	20.3	12.6
$f_s \bar{Q}$ (composite)	(ksi)	3.2	-----	2.6	-----	3.2
$f_s ^5_3(M \bar{L} + M (Imp))$	(ksi)	17.3	15.9	17.0	15.9	17.3
f_s (Overload)	(ksi)	33.0	36.2	28.1	36.2	33.0
** f_s (Total)	(ksi)	-----	47.1	-----	47.1	-----
VR	(k)	78.2	-----	67.4	-----	78.2

SPANS 36-38 - INTERIOR GIRDER REACTION TABLE

Properties		Pier 35	Pier 36	Pier 37	Pier 38
$R \bar{Q}$	(k)	79.3	267.9	270.4	80.6
$R \bar{L}$	(k)	59.3	112.4	113.0	59.3
Imp.	(k)	11.5	13.5	13.5	11.5
R (Total)	(k)	150.2	393.8	396.8	151.4

SPANS 39-41 - INTERIOR GIRDER REACTION TABLE

Properties		Pier 38	Pier 39	Pier 40	Pier 41
$R \bar{Q}$	(k)	80.7	269.8	269.8	80.7
$R \bar{L}$	(k)	59.4	113.0	113.0	59.4
Imp.	(k)	11.5	13.5	13.5	11.5
R (Total)	(k)	151.5	396.3	396.3	151.5

NOTES:

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total & Overload).

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

$I_c(3n)$ and $S_c(3n)$ 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.

M_a (Applied Moment) = $1.3[M \bar{Q} + M_s \bar{Q} + ^5_3(M \bar{L} + M (Imp))]$.

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

f_s (Overload) is the sum of the stresses due to $M \bar{Q} + M_s \bar{Q} + ^5_3(M \bar{L} + M (Imp))$.

f_s (Total) is the sum of the stresses due to $1.3[M \bar{Q} + M_s \bar{Q} + ^5_3(M \bar{L} + M (Imp))]$.

$M \bar{Q}$ - Moment due to dead loads on non-composite section.

$M_s \bar{Q}$ - Moment due to dead loads on composite section.

$M \bar{L}$ - 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 -	KWS
CHECKED -	AJK
DRAWN -	VH
CHECKED -	MRB

benesch

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STEEL PLATE GIRDER TABLES - 7 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)

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