

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 39	50-4B	LASALLE		221
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 202

313 SHEETS

Contract # 66586

SPANS 7-10 - INTERIOR GIRDER MOMENT TABLE

Properties	0.4 Span 7	Pier 7	0.5 Span 8	Pier 8	0.5 Span 9	Pier 9	0.6 Span 10
I_s	(in ⁴) 49364	114144	51766	88492	49789	107667	49364
$I_c(n)$	(in ⁴) 137343	-----	146421	-----	139045	-----	137343
$I_c(3n)$	(in ⁴) 98466	-----	104056	-----	99500	-----	98466
S_s	(in ³) 1532	3004	1669	2360	1562	2842	1532
$S_c(n)$	(in ³) 2238	-----	2424	-----	2278	-----	2238
$S_c(3n)$	(in ³) 2029	-----	2200	-----	2066	-----	2029
D	(k/ft) 1.245	1.793	1.254	1.732	1.247	1.778	1.245
$M D$	(k-ft) 1650	4740	1072	3632	1053	4638	1650
$S D$	(k-ft) 0.380	-----	0.380	-----	0.380	-----	0.380
$M_s D$	(k-ft) 568	-----	424	-----	421	-----	565
$M L$	(k-ft) 1626	1841	1645	1718	1620	1811	1624
$M (Imp)$	(k-ft) 301	328	283	296	279	324	302
$^{5}_3(M L + M (Imp))$	(k-ft) 3218	3622	3220	3363	3173	3565	3215
M_u	(k-ft) 9850	-----	9677	-----	9216	-----	9659
M_a	(k-ft) 7066	10872	6131	9094	6041	10664	7058
$f_s D$ (non-composite)	(ksi) 12.9	18.9	7.7	18.5	8.1	19.6	12.9
$f_s D$ (composite)	(ksi) 3.4	-----	2.3	-----	2.4	-----	3.3
$f_s ^{5}_3(M L + M (Imp))$	(ksi) 17.3	14.5	15.9	17.1	16.7	15.1	17.2
f_s (Overload)	(ksi) 33.5	33.4	26.0	35.6	27.3	34.6	33.5
f_s (Total)	(ksi) -----	43.4	-----	46.2	-----	45.0	-----
VR	(k) 78.0	-----	71.0	-----	70.7	-----	77.9

SPANS 7-10 - INTERIOR GIRDER REACTION TABLE

Properties	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
$R D$ (k)	84.8	301.6	263.6	298.2	84.8
$R L$ (k)	59.6	121.8	120.2	121.2	59.6
Imp. (k)	11.0	14.0	13.2	14.0	11.1
R (Total) (k)	155.4	437.4	397.1	433.3	155.5

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) = $1.3[M D + M_s D + ^{5}_3(M L + M (Imp))]$.

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 $M D + M_s D + ^{5}_3(M L + M (Imp))$.

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

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

$M_s D$ - 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.

SPANS 11-14, 18-21 & 22-25 - INTERIOR GIRDER MOMENT TABLE

Properties	0.4 Span 11 0.4 Span 18 0.4 Span 22	Pier 11 Pier 18 Pier 22	0.5 Span 12 0.5 Span 19 0.5 Span 23	Pier 12 Pier 19 Pier 23	0.5 Span 13 0.5 Span 20 0.5 Span 24	Pier 13 Pier 20 Pier 24	0.6 Span 14 0.6 Span 21 0.6 Span 25
I_s	(in ⁴) 49364	107667	49789	82185	49789	107667	49364
$I_c(n)$	(in ⁴) 137343	-----	139045	-----	139045	-----	137343
$I_c(3n)$	(in ⁴) 98466	-----	99500	-----	99500	-----	98466
S_s	(in ³) 1532	2842	1562	2199	1562	2842	1532
$S_c(n)$	(in ³) 2238	-----	2278	-----	2278	-----	2238
$S_c(3n)$	(in ³) 2029	-----	2066	-----	2066	-----	2029
D	(k/ft) 1.245	1.778	1.247	1.716	1.247	1.778	1.245
$M D$	(k-ft) 1636	4680	1102	3442	1102	4680	1636
$S D$	(k-ft) 0.380	-----	0.380	-----	0.380	-----	0.380
$M_s D$	(k-ft) 562	-----	439	-----	439	-----	562
$M L$	(k-ft) 1616	1804	1658	1603	1658	1804	1616
$M (Imp)$	(k-ft) 300	323	286	276	286	323	300
$^{5}_3(M L + M (Imp))$	(k-ft) 3201	3552	3247	3138	3247	3552	3201
M_u	(k-ft) 9619	-----	8977	-----	8977	-----	9619
M_a	(k-ft) 7019	10700	6224	8554	6224	10700	7019
$f_s D$ (non-composite)	(ksi) 12.8	19.8	8.5	18.8	8.5	19.8	12.8
$f_s D$ (composite)	(ksi) 3.3	-----	2.6	-----	2.6	-----	3.3
$f_s ^{5}_3(M L + M (Imp))$	(ksi) 17.2	15.0	17.1	17.1	17.1	15.0	17.2
f_s (Overload)	(ksi) 33.3	34.8	28.1	35.9	28.1	34.8	33.3
f_s (Total)	(ksi) -----	45.2	-----	46.7	-----	45.2	-----
VR	(k) 77.8	-----	70.2	-----	70.2	-----	77.8

SPANS 11-14, 18-21 & 22-25 - INTERIOR GIRDER REACTION TABLE

Properties	Pier 10 Pier 17 Pier 21	Pier 11 Pier 18 Pier 22	Pier 12 Pier 19 Pier 23	Pier 13 Pier 20 Pier 24	Pier 14 Pier 21 Pier 25
$R D$ (k)	84.6	299.8	258.4	299.8	84.6
$R L$ (k)	59.6	121.2	119.1	121.2	59.6
Imp. (k)	11.1	14.0	13.1	14.0	11.1
R (Total) (k)	155.2	435.0	390.6	435.0	155.2

STEEL PLATE GIRDER TABLES - 2 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)

benesch

alfred benesch & company
Engineers - Surveyors - Planners
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450
Job # 3856

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8/30/2006

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