

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT TABLE - CENTRAL AVE.

	Fascia Girder G1 and G22 (Note 1)							Interior girder G2 and 21						
	0.4 Sp.7	C. Abt 2	0.5 Sp.8	Pier 6	0.5 Sp.9	C. Abt 3	0.6 Sp.10	0.4 Sp.7	C. Abt 2	0.5 Sp.8	Pier 6	0.5 Sp.9	C. Abt 3	0.6 Sp.10
Is	(in <sup>4</sup> ) 128965	179592	179592	179592	179592	179592	128965	83898	83898	83898	83898	83898	83898	83898
Ic (n)	(in <sup>4</sup> ) 209125	-	268800	-	268800	-	209125	152934	-	152934	-	152934	-	152934
Ic (3n)	(in <sup>4</sup> ) 163380	-	216353	-	216353	-	163380	116348	-	116348	-	116348	-	116348
Ss	(in <sup>3</sup> ) 3474	4742	4742	4742	4742	4742	3474	2283	2283	2283	2283	2283	2283	2283
Sc (n)	(in <sup>3</sup> ) 4103	-	5385	-	5385	-	4103	2801	-	2801	-	2801	-	2801
Sc (3n)	(in <sup>3</sup> ) 3793	-	5050	-	5050	-	3793	2577	-	2577	-	2577	-	2577
Z	(in <sup>3</sup> ) -	-	-	-	-	-	-	-	-	-	-	-	-	-
ρ	(k/')	6.49	8.26	3.75	4.63	3.26	7.25	5.31	1.08	1.43	1.08	1.43	1.08	1.43
M <sub>D</sub>	(k)	2486.8	5444.7	1192.0	2942.8	1036.1	4780.4	2033.1	416.7	921.1	351.2	894.7	351.2	921.1
s <sub>D</sub>	(k/')	2.66	-	1.64	-	1.31	-	2.26	0.35	-	0.35	-	0.35	-
M <sub>sD</sub>	(k)	1020.3	-	522.5	-	417.2	-	863.8	140.6	-	124.6	-	124.6	-
M <sub>L</sub>	(k)	944.5	621.8	943.5	625.7	943.5	621.7	944.5	554.8	68.3	560.6	66.7	560.6	68.3
M (IM)	(k)	238.0	151.2	221.6	147.0	221.6	151.2	238.0	139.8	16.6	131.6	15.7	131.6	16.6
S <sub>y</sub> [M <sub>L</sub> +I]	(k)	1970.8	1288.3	1941.8	1287.8	1941.8	1288.2	1970.8	1157.7	141.5	1153.8	137.3	1153.8	141.5
Ma	(k)	7121.3	8752.9	4753.2	5499.8	4413.7	7889.1	6328.1	2229.5	1381.4	2118.4	1341.6	2118.4	1381.4
Mu	(k)	18145.3	-	22060.0	-	22060.0	-	18145.3	13987.1	-	13987.1	-	13987.1	-
f <sub>sD</sub> non-comp	(ksi)	8.6	13.8	3.0	7.4	2.6	12.1	7.0	2.2	4.8	1.8	4.7	1.8	4.8
f <sub>sD</sub> (comp)	(ksi)	3.2	-	1.2	-	1.0	-	2.7	0.7	-	0.6	-	0.6	-
f <sub>s</sub> (M <sub>L</sub> +M <sub>I</sub> )	(ksi)	5.8	3.3	4.3	3.3	4.3	3.3	5.8	5.0	0.7	4.9	0.7	4.9	0.7
f <sub>s</sub> (Overload)	(ksi)	17.6	17.0	8.6	10.7	7.9	15.4	15.5	7.8	5.6	7.4	5.4	7.4	5.6
f <sub>s</sub> (Total)	(ksi)	-	22.2	-	13.9	-	20.0	-	-	7.3	-	7.1	-	7.3
VR	(k)	90.3	-	79.0	-	79.0	-	90.3	24.8	-	22.7	-	22.7	-

Note 1: Moments for G22 are opposite hand.

	Girder G3 thru G20			
	0.4 Sp.7 & 0.6 Sp.10	C. Abt 2 & C. Abt 3	0.5 Sp.8 & 0.5 Sp. 9	Pier 6
Is	(in <sup>4</sup> ) 12100	12100	12100	12100
Ic (n)	(in <sup>4</sup> ) 27387	-	27387	-
Ic (3n)	(in <sup>4</sup> ) 20020	-	20020	-
Ss	(in <sup>3</sup> ) 664	664	664	664
Sc (n)	(in <sup>3</sup> ) 907	-	907	-
Sc (3n)	(in <sup>3</sup> ) 818	-	818	-
Z	(in <sup>3</sup> ) -	767	-	767
ρ	(k/')	0.89	1.29	0.89
M <sub>D</sub>	(k)	340	808	287
s <sub>D</sub>	(k/')	0.4	-	0.4
M <sub>sD</sub>	(k)	167	-	155
M <sub>L</sub>	(k)	550	358	573
M (IM)	(k)	139	87	135
S <sub>y</sub> [M <sub>L</sub> +I]	(k)	1149	742	1180
Ma	(k)	2153	2015	2109
Mu	(k)	4191	-	4407
f <sub>sD</sub> non-comp	(ksi)	6.14	14.6	5.19
f <sub>sD</sub> (comp)	(ksi)	2.45	-	2.27
f <sub>s</sub> (M <sub>L</sub> +M <sub>I</sub> )	(ksi)	15.2	13.41	15.61
f <sub>s</sub> (Overload)	(ksi)	23.79	28.01	23.07
f <sub>s</sub> (Total)	(ksi)	-	36.41	-
VR	(k)	40	-	40

GIRDER REACTION TABLE - CENTRAL AVE.

	Fascia Girder G1 & G22 (Note 2)					Interior Girder G2 & G21					
	N. Brg. C. Abt.1	C. Abt.2	Pier 6	C. Abt.3	S. Brg. C. Abt.4	N. Brg. C. Abt.1	C. Abt.2	Pier 6	C. Abt.3	S. Brg. C. Abt.4	
R <sub>D</sub>	(k)	177.9	748.3	375.0	720.2	233.3	41.0	128.3	125.3	128.3	41.0
R <sub>L</sub>	(k)	66.9	83.8	83.8	83.8	66.9	43.1	54.2	55.2	53.9	43.0
Imp.	(k)	16.8	14.6	13.9	14.6	16.8	10.9	9.5	9.2	9.4	10.8
R (Total)	(k)	261.6	846.7	472.7	818.6	317.0	95.0	191.9	189.7	191.7	94.9

Note 2: Reactions for G22 are opposite hand

	Interior Girder G3-G20		
	N. Brg. C. Abt.1 & S. Brg. C. Abt.4	C. Abt.2 & C. Abt.3	Pier 6
R <sub>D</sub>	(k)	37	115
R <sub>L</sub>	(k)	38	50
Imp.	(k)	10	12
R (Total)	(k)	85	177

BRIDGE SEAT ELEVATIONS  
(For Information Only)

Location	© N. Brg. C. Abut. 1	© C. Abut. 2	© Pier 6	© C. Abut. 3	© S. Brg. C. Abut. 4
G1	619.08	619.70	620.47	620.82	621.55
G2	619.47	620.37	621.12	621.50	621.99
G3	622.81	623.91	624.73	625.07	625.36
G4	622.90	624.01	624.85	625.20	625.49
G5	622.98	624.11	624.97	625.32	625.62
G6	623.07	624.21	625.09	625.45	625.74
G7	623.15	624.31	625.20	625.57	625.87
G8	623.22	624.39	625.30	625.68	625.98
G9	623.26	624.45	625.39	625.77	626.07
G10	623.31	624.52	625.47	625.86	626.17
G11	623.36	624.58	625.55	625.95	626.26
G12	623.31	624.54	625.53	625.94	626.25
G13	623.15	624.40	625.41	625.83	626.14
G14	622.99	624.26	625.29	625.72	626.03
G15	622.84	624.12	625.16	625.61	625.92
G16	622.66	623.96	625.02	625.48	625.79
G17	622.47	623.78	624.86	625.34	625.64
G18	622.28	623.60	624.71	625.19	625.50
G19	622.09	623.43	624.55	625.05	625.35
G20	621.89	623.25	624.39	624.90	625.21
G21	618.45	619.63	620.74	621.31	621.81
G22	617.94	618.89	620.04	620.61	621.35

MOMENT & REACTION TABLES  
CENTRAL/I-55  
STRUCTURE NO. 016-0724

\* Compact section  
\*\* Braced non-compact and partially braced section

Is, Ss: Non-composite moment of inertia and section modulus of the steel section used for computing f<sub>s</sub> (Total and Overload) due to non-composite dead loads (in.4 and in.3).  
Ic(n), Sc(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f<sub>s</sub> (Total and Overload) due to short-term composite live loads (in.4 and in.3).  
Ic(3n), Sc(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f<sub>s</sub> (Total and Overload) due to long-term composite (superimposed) dead loads (in.4 and in.3).  
Z: Plastic Section Modulus of the steel section in non-composite areas (in.3).  
ρ: Un-factored non-composite dead load (kips/ft.).  
M<sub>D</sub>: Un-factored moment due to non-composite dead load (kip-ft.).  
s<sub>D</sub>: Un-factored long-term composite (superimposed) dead load (kips/ft.).  
M<sub>sD</sub>: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).  
M<sub>L</sub>: Un-factored live load moment (kip-ft.).  
M<sub>I</sub>: Un-factored moment due to impact (kip-ft.).  
Ma: Factored design moment (kip-ft.).  
1.3 [M<sub>D</sub> + M<sub>sD</sub> +  $\frac{5}{8}$  (M<sub>L</sub> + M<sub>I</sub>)]  
Mu: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).  
f<sub>s</sub> (Overload): Sum of stresses as computed from the moments below (ksi).  
M<sub>D</sub> + M<sub>sD</sub> +  $\frac{5}{8}$  (M<sub>L</sub> + M<sub>I</sub>)  
f<sub>s</sub> (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).  
1.3 [M<sub>D</sub> + M<sub>sD</sub> +  $\frac{5}{8}$  (M<sub>L</sub> + M<sub>I</sub>)]  
VR: Maximum  $\frac{1}{4}$  + impact shear range within the composite portion of the span for stud shear connector design (kips).

TYLIN INTERNATIONAL	DESIGNED - JMA	REVISIONS		SHEET NO. 45	F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	CHECKED - AMD,	NAME	DATE		137 SHEETS	55	0711.2R & 1011.1BR	COOK	200	75
	DRAWN - JMA				CONTRACT NO. 60L39					
	CHECKED - AMD,				FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT					
DATE - 08/02/10										