

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	60-10K-1,60-10HB	MADISON	420	263
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 76709				

**MOMENT AND REACTION TABLES - RAMP GIRDERS**

		Girder A1 & C1	Girder A2 & C2	Girder A3 & C3	Girder A4 & C4	Girder A5 & C5	Girder A6 & C6	Girder B1 & D1	Girder B2 & D2	Girder B3 & D3	Girder B4 & D4	Girder B5 & D5
		0.5 Span	0.5 Span	0.5 Span	0.5 Span	0.5 Span	0.5 Span	0.5 Span	0.5 Span	0.5 Span	0.5 Span	0.5 Span
<i>I<sub>s</sub></i>	(in <sup>4</sup> )	5900	5900	5900	5900	5900	8160	5900	5900	5900	8160	13182
<i>I<sub>c</sub> (n)</i>	(in <sup>4</sup> )	-	16429	16564	16960	17852	23069	-	16242	16682	22198	28227
<i>I<sub>c</sub> (3n)</i>	(in <sup>4</sup> )	-	12263	12349	12600	13168	16459	-	12045	12321	16032	20781
<i>S<sub>s</sub></i>	(in <sup>3</sup> )	359	359	359	359	359	487	359	359	359	487	799
<i>S<sub>c</sub> (n)</i>	(in <sup>3</sup> )	-	537	540	547	565	746	-	535	544	728	1033
<i>S<sub>c</sub> (3n)</i>	(in <sup>3</sup> )	-	488	490	496	510	664	-	485	492	653	944
<i>Z</i>	(in <sup>3</sup> )	-	-	-	-	-	-	-	-	-	-	-
<i>DL</i>	(k/')	0.86	0.86	0.86	0.86	0.86	0.83	0.81	0.81	0.81	0.84	0.90
<i>M<sub>dl</sub></i>	(' k)	10.5	53	129	238	380	537	17.6	93	227	439	749
<i>s DL</i>	(k/')	0.46	0.46	0.46	0.46	0.53	0.72	0.46	0.46	0.46	0.53	0.72
<i>M<sub>sdl</sub></i>	(' k)	5.7	29	70	129	237	470	10.1	53	130	276	603
<i>M<sub>ll</sub></i>	(' k)	54.1	122	243	394	545	652	67.2	182	370	565	727
<i>M (Imp)</i>	(' k)	16.2	37	73	114	148	166	20.2	55	107	149	176
<i>5/3[M<sub>ll</sub> + M(Imp)]</i>	(' k)	117	264	527	847	1155	1363	146	395	796	1189	1504
<i>M<sub>a</sub></i>	(' k)	173	450	945	1578	2303	3081	225	704	1499	2476	3714
<i>M<sub>u</sub></i>	(' k)	1729	2611	2915	2915	2915	3484	1729	2816	2816	3463	4568
<i>f<sub>s</sub> DL non-comp</i>	(ksi)	0.35	1.8	4.3	8.0	12.7	13.2	0.59	3.1	7.6	10.8	11.3
<i>f<sub>s</sub> DL (comp)</i>	(ksi)	-	0.7	1.7	3.1	5.6	8.5	0.34	1.3	3.2	5.1	7.7
<i>f<sub>s</sub> 5/3[M<sub>ll</sub> + M(Imp)]</i>	(ksi)	-	5.9	11.7	18.6	24.5	21.9	-	8.9	17.5	19.6	17.5
<i>f<sub>s</sub> (Overload)</i>	(ksi)	-	8.4	17.8	29.6	42.8	43.6	-	13.3	28.3	35.5	36.4
<i>f<sub>s</sub> (total)</i>	(ksi)	0.24	-	-	-	-	-	0.32	-	-	-	-
<i>VR</i>	(k)	28.4	38.9	46.7	50.8	52.6	50.2	26.6	41.2	47.4	49.5	48.2
<i>Girder Reaction Table</i>												
		Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia	Abut. or Fascia
<i>R<sub>dl</sub></i>	(k)	6.5	14.7	22.9	31.1	41.4	55.9	8.4	19.3	30.1	44.4	66.3
<i>R<sub>ll</sub></i>	(k)	21.8	29.9	35.9	39.4	41.4	40.0	20.4	31.7	36.8	39.2	38.8
<i>Imp.</i>	(k)	6.5	9.0	10.8	11.4	11.2	10.2	6.1	9.5	10.7	10.3	9.4
<i>R (Total)</i>	(k)	34.9	53.6	69.6	81.9	94.0	106.1	34.9	60.5	77.6	93.9	114.5

*I<sub>s</sub>* and *S<sub>s</sub>* are the moment of inertia and section modulus of the steel section used in computing *f<sub>s</sub>* (Total & Overload).

*I<sub>c</sub>(n)* and *S<sub>c</sub>(n)* are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

*I<sub>c</sub>(3n)* and *S<sub>c</sub>(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 in span.

*Z* is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

*M<sub>a</sub>* (Applied Moment) = 1.3[M<sub>ll</sub> + M<sub>sdl</sub> + 5/3(M<sub>ll</sub> + M(Imp))].

The Plastic Moment capacity (*M<sub>u</sub>*) is computed according to AASHTO 10.48.1 and 10.50.1.1.

*f<sub>s</sub>* (Overload) is the sum of the stresses due to *M<sub>ll</sub>* + *M<sub>sdl</sub>* + 5/3(M<sub>ll</sub> + M(Imp)).

*f<sub>s</sub>* (Total) (Non-compact section) is the sum of the stresses due to 1.3[M<sub>ll</sub> + M<sub>sdl</sub> + 5/3(M<sub>ll</sub> + M(Imp))].

SHT. S-45 OF S-68



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 IL ROUTE 162 OVER I-55/70 IN TROY  
 F.A.I ROUTE 70 SECTION 60-10K-1, 60-10HB  
 MADISON COUNTY STATION 499+48.35  
 STRUCTURE NO. 060-0338  
**MOMENT AND REACTION TABLES  
 RAMP GIRDERS**  
 DESIGNED: JAN DRAWN: BTO  
 CHECKED: BTO CHECKED: JAN  
 DATE: 03/06