

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

MOMENT TABLE	INTERIOR GIRDER			EXTERIOR GIRDER		
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	0.4 Sp. 1	Pier 1	0.5 Sp. 2
$I_s$	(in <sup>4</sup> ) 8,568	14,420	8,568	8,568	14,420	8,568
$I_c(n)$	(in <sup>4</sup> ) 21,569	15,292	21,569	21,569	15,292	21,569
$I_c(3n)$	(in <sup>4</sup> ) 15,423	15,292	15,423	15,423	15,292	15,423
$S_s$	(in <sup>3</sup> ) 558	867	558	558	867	558
$S_c(n)$	(in <sup>3</sup> ) 787	869	787	787	869	787
$S_c(3n)$	(in <sup>3</sup> ) 708	869	708	708	869	708
$S_{xt}$	(in <sup>3</sup> ) 43	69	43	43	69	43
DC1	(k/ft) 0.79	0.85	0.79	0.79	0.85	0.79
M <sub>DC1</sub>	(k) 281	500	114	290	521	123
DC2	(k/ft) 0.17	0.17	0.17	0.35	0.35	0.35
M <sub>DC2</sub>	(k) 67	90	32	137	186	67
DW	(k/ft) 0.29	0.29	0.29	0.23	0.23	0.23
M <sub>DW</sub>	(k) 113	153	54	89	121	44
M <sub>L + IM</sub>	(k) 797	610	532	810	639	644
M <sub>u</sub> (Strength I)	(k) 1,999	2,035	1,369	2,085	2,184	1,430
M <sub>bt</sub>	(k) 41.84	36.45	28.66	43.98	39.41	30.17
$f_s$ DC1	(ksi) 6.0	6.9	2.5	6.2	7.2	2.6
$f_s$ DC2	(ksi) 1.13	1.24	0.54	2.32	2.57	1.13
$f_s$ DW	(ksi) 1.91	2.11	0.91	1.51	1.67	0.75
$f_s$ 1.3(L+IM)	(ksi) 15.80	10.95	12.53	16.07	11.47	12.77
$f_r$	(ksi) 14.99	9.74	11.28	15.59	10.52	11.71
$f_s$ (Service II)	(ksi) 24.89	21.22	16.43	26.13	22.92	17.29
$f_s$ (Total)(Strength I)	(ksi) 33.1	28.1	22.0	34.6	30.2	23.0
$F_{cr}$ (Service II)	(ksi) 47.5	47.5	47.5	47.5	47.5	47.5
V <sub>r</sub>	(k) 57.18	73.61	35.10	69.64	89.66	38.86
$F_{cr}$	(ksi) 50.00	40.54	50.00	50.00	40.57	50.00

REACTION TABLE	INTERIOR GIRDER			EXTERIOR GIRDER		
	S. Abut.	Pier 1	N. Abut.	S. Abut.	Pier 1	N. Abut.
R <sub>DC1</sub>	(k) 32	87	22	36	98	23
R <sub>DC2</sub>	(k) 1	2	2	10	27	7
R <sub>DW</sub>	(k) 9	28	7	10	23	7
R <sub>L + IM</sub>	(k) 61	121	70	82	105	51
R <sub>Total</sub>	(k) 103	238	101	138	253	88

$I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total-Strength I, and Service II) due to non-composite dead loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total-Strength I, and Service II) due to short-term composite live loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).

$S_{xt}$ : Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (in<sup>3</sup>).

DC1: Un-factored non-composite dead load (kips/ft.).

M<sub>DC1</sub>: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M<sub>DC2</sub>: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M<sub>L + IM</sub>: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M<sub>u</sub> (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L + IM}$

M<sub>bt</sub>: Factored lateral bending moment for controlling flange plate (kip-ft.).

$f_r$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending (kip-ft.).

$f_s$  (Service II): Sum of stresses as computed from the moments below (ksi).

$M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{L + IM}$

$f_s$  (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).

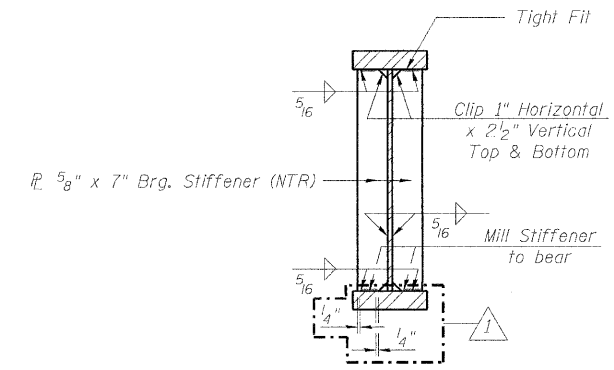
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L + IM}$

$F_{cr}$  (Service II): Critical flange stress at Service II computed according to Article 6.10.4.2 (ksi).

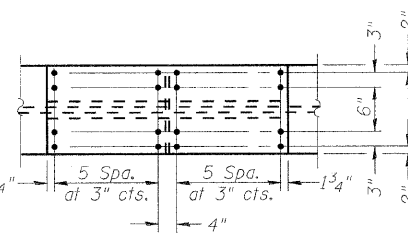
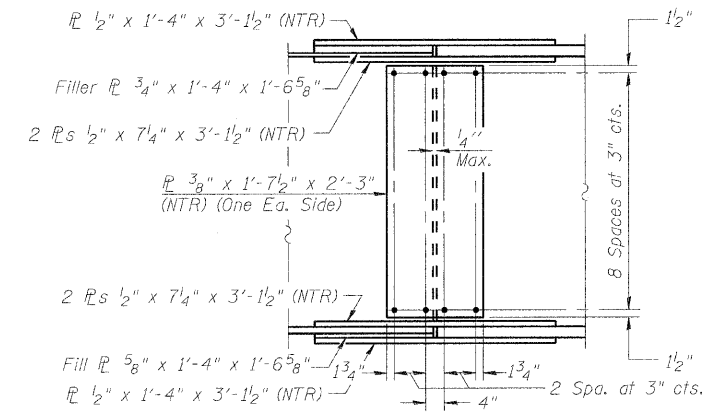
$F_{cr}$ : Critical flange stress computed according to Article 6.10.7 or 6.10.8 (ksi).

V<sub>r</sub>: Maximum factored shear range computed according to Article 6.10.10.

Note:  
M<sub>L</sub> and R<sub>L</sub> include the effects of centrifugal force and superelevation.



SECTION AT ABUTMENTS AND PIERS



FIELD SPLICE DETAIL

"NTR" denotes plates to which notch toughness requirements are applicable.

MOMENT AND REACTION TABLE  
& STEEL DETAILS  
STRUCTURE NO. 101-0190

SHEET NO. 42	F.A.* RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	*	1-HBR & 1-2HB-D	WINNEBAGO	216	97
61 SHEETS	IL RTE 251 & FOREST HILLS RD CONTRACT NO. 64B79				
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT					

\* F.A.P. 303 & F.A.U. 5146

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