

INTERIOR GIRDER MOMENT TABLE (UNIT 2-GIRDER 7)

Property	Unit	0.4 Span 7	Pier 7	0.5 Span 8	Pier 8	0.6 Span 9
I_s	(in ⁴)	37,670	60,215	37,670	60,215	37,670
I_c (n)	(in ⁴)	80,675	---	80,675	---	80,675
I_c (3n)	(in ⁴)	58,495	---	58,495	---	58,495
S_s	(in ³)	1,704	2,316	1,704	2,316	1,704
S_c (n)	(in ³)	2,137	---	2,137	---	2,137
S_c (3n)	(in ³)	1,969	---	1,969	---	1,969
Z	(in ³)	---	2,524	---	2,524	---
Q	(K/')	1.141	1.716	1.141	1.716	1.141
M_D	(' K)	1,101	2,761	612	2,940	1,211
s_D	(K/')	0.446	---	0.446	---	0.446
M_{sD}	(' K)	451	---	294	---	497
M_L	(' K)	1,179	1,129	1,127	1,165	1,235
M (Imp)	(' K)	244	224	216	230	249
$^5_3[M_L + M_{(imp)}]$	(' K)	2,372	2,255	2,238	2,325	2,473
M_a	(' K)	5,101	6,521	4,088	6,845	5,436
M_u	(' K)	9,902	10,517	9,902	10,517	9,902
f_s non-comp	(Ksi)	7.75	14.31	4.31	15.23	8.53
f_s (comp)	(Ksi)	2.75	---	1.79	---	3.03
f_s $^5_3[M_L + M_{(imp)}]$	(Ksi)	13.32	11.68	12.57	12.05	13.89
f_s (Overload)	(Ksi)	23.82	25.99	18.67	27.28	25.45
f_s (Total)	(Ksi)	---	---	---	---	---
VR	(K)	72.4	---	58.9	---	72.0

* Compact section
 ** Braced noncompact and partially braced section

INTERIOR GIRDER REACTION TABLE (UNIT 2-GIRDER 7)

Reaction	Unit	Pier 6-N	Pier 7	Pier 8	Pier 9-S
R_D	(K)	71.0	227.6	234.7	74.4
R_L	(K)	54.7	93.3	94.7	54.9
R (Imp)	(K)	11.3	18.6	18.7	11.1
R (Total)	(K)	137.0	339.5	348.1	140.4

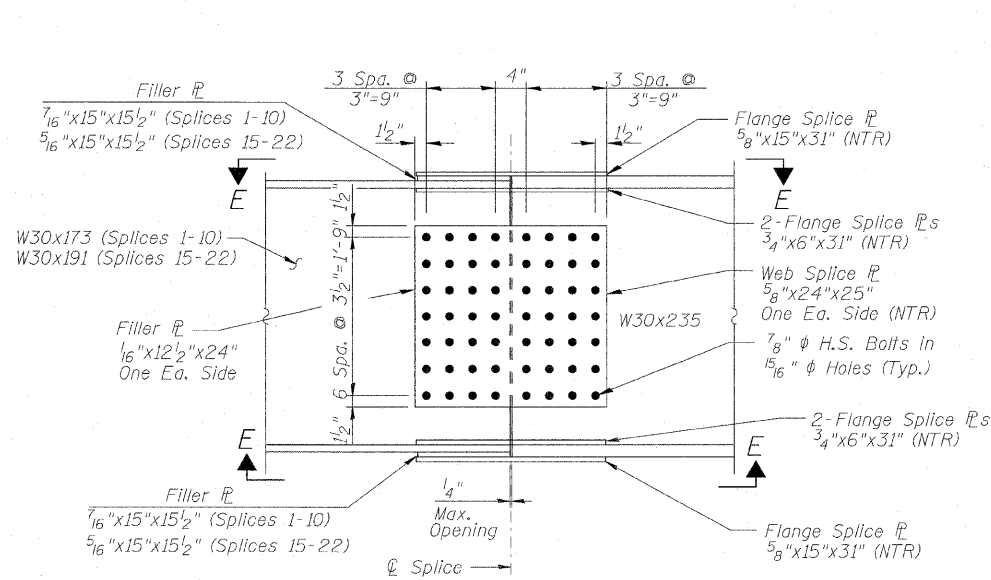
INTERIOR GIRDER MOMENT TABLE (UNIT 2-GIRDER 11)

Property	Unit	0.4 Span 7	Pier 7	0.5 Span 8	Pier 8	0.6 Span 9
I_s	(in ⁴)	37,670	60,215	37,670	60,215	37,670
I_c (n)	(in ⁴)	80,675	---	80,675	---	80,675
I_c (3n)	(in ⁴)	58,495	---	58,495	---	58,495
S_s	(in ³)	1,704	2,316	1,704	2,316	1,704
S_c (n)	(in ³)	2,137	---	2,137	---	2,137
S_c (3n)	(in ³)	1,969	---	1,969	---	1,969
Z	(in ³)	---	2,524	---	2,524	---
Q	(K/')	1.141	1.953	1.141	1.953	1.141
M_D	(' K)	754	2,331	509	4,219	1,738
s_D	(K/')	0.683	---	0.683	---	0.683
M_{sD}	(' K)	465	---	394	---	1,098
M_L	(' K)	969	1,008	1,097	1,338	1,465
M (Imp)	(' K)	217	211	212	254	274
$^5_3[M_L + M_{(imp)}]$	(' K)	1,977	2,032	2,182	2,653	2,898
M_a	(' K)	4,154	5,671	4,010	8,934	7,455
M_u	(' K)	9,902	10,517	9,902	10,517	9,902
f_s non-comp	(Ksi)	5.31	12.08	3.58	21.86	12.24
f_s (comp)	(Ksi)	2.83	---	2.40	---	6.69
f_s $^5_3[M_L + M_{(imp)}]$	(Ksi)	11.10	10.53	12.25	13.75	16.28
f_s (Overload)	(Ksi)	19.24	22.60	18.24	35.61	35.21
f_s (Total)	(Ksi)	---	---	---	---	---
VR	(K)	74.0	---	58.9	---	70.8

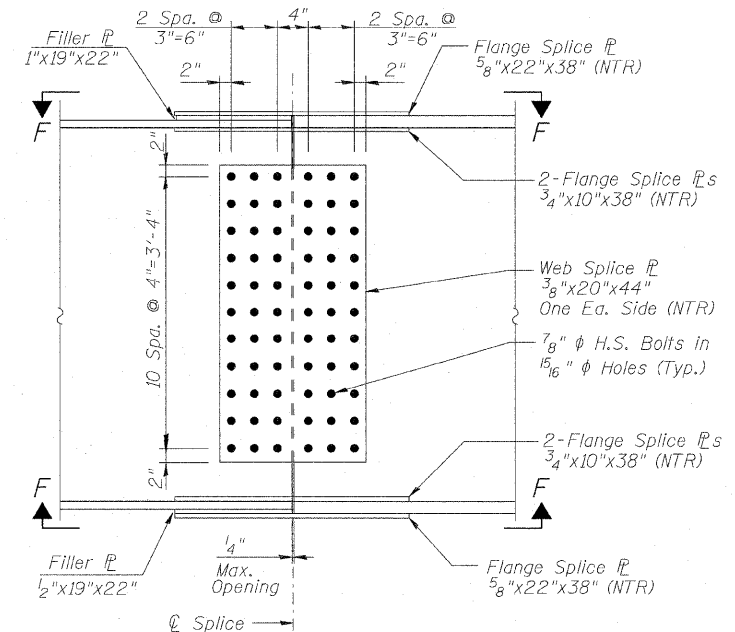
* Compact section
 ** Braced noncompact and partially braced section

INTERIOR GIRDER REACTION TABLE (UNIT 2-GIRDER 11)

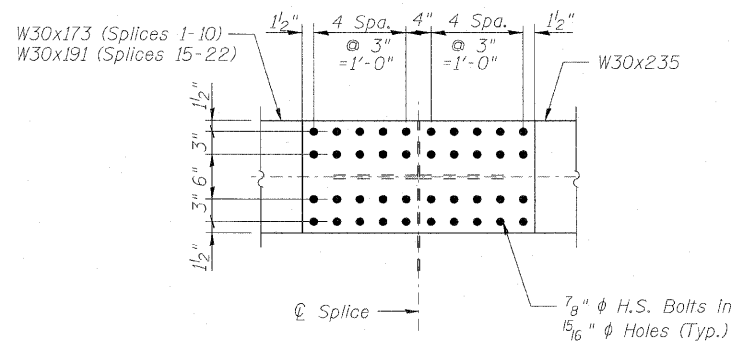
Reaction	Unit	Pier 6-N	Pier 7	Pier 8	Pier 9-S
R_D	(K)	67.5	225.9	300.7	102.4
R_L	(K)	53.8	87.8	100.8	55.7
R (Imp)	(K)	12.1	18.3	19.2	10.4
R (Total)	(K)	133.4	332.0	420.7	168.5



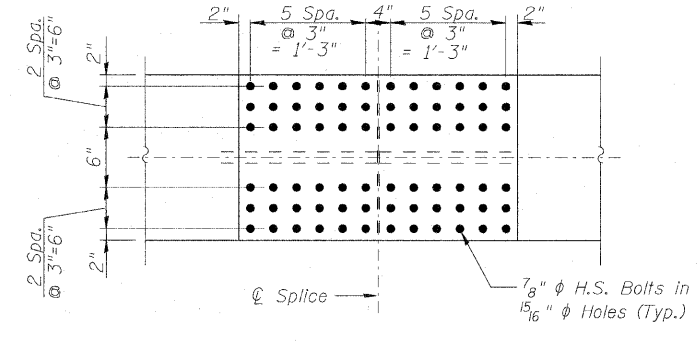
TYPICAL SPLICE ELEVATION
 (Splices 1-10, 15-22)



TYPICAL SPLICE ELEVATION
 (Splices 11-14)



VIEW E-E



VIEW F-F

I_s , S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads (in⁴ and in³).
 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 and Overload) due to short-term composite live loads (in⁴ and in³).
 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 and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).
 Z : Plastic Section Modulus of the steel section in non-composite areas (in³).
 Q : Un-factored non-composite dead load (kips/ft.).
 M_D : Un-factored moment due to non-composite dead load (kip-ft.).
 s_D : Un-factored long-term composite (superimposed) dead load (kips/ft.).

M_{sD} : Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
 M_L : Un-factored live load moment (kip-ft.).
 M_{Imp} : Un-factored moment due to Impact (kip-ft.).
 M_a : Factored design moment (kip-ft.).
 M_u : 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_s (Overload): Sum of stresses as computed from the moments below (ksi).
 f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 VR : Maximum + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

Notes:

- See Sheets S24-S26 for splice locations.
- AASHTO M270 Grade 50 steel shall be used for all splice plates.
- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2) including all splice plate material (except fill plates).
- H.S. bolts for splices shall be 7/8" φ AASHTO M164/ASTM A325 H.S. bolts (Type 1) in 15/16" φ standard size holes.
- Design of the H.S. bolts assumes threads in the shear plane and a Class A surface for slip resistance.

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION	
NAME	DATE	STEEL DETAILS II	
		FAP 330 US 12/45 (MANNHEIM RD.) OVER 500 LINE RR & FRANKLIN AVE. STRUCTURE NO. 016-2815	
		SECTION 465 VB-R-1 COOK COUNTY	
		STA. 183+33.30 DRAWN BY JHR	
		DATE 7/2009 CHECKED BY CLS	

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