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.^{4} and in.^{3}).

$I_c(n)$, $S_c(n)$: 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) in uncracked sections, due to short-term composite live loads (in.^{4} and in.^{3}).

$I_c(3n)$, $S_c(3n)$: 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) in uncracked sections, due to long-term composite (superimposed) dead loads (in.^{4} and in.^{3}).

$I_c(cr)$, $S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite dead loads (in.^{4} and in.^{3}).

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

M_{DC1}: 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_{DC2}: 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_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) ((kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+IM}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(3n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

$0.95R_hF_yf$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_{sL+IM}$

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V_f: Maximum factored shear range in span computed according to Article 6.10.10.

INTERIOR GIRDER MOMENT TABLE - UNIT 2

		0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.6 Sp. 7
I_s	(in^4)	11,312	19,829	11,312	19,829	11,312	19,829	11,312
$I_c(n)$	(in^4)	27,983	-	27,983	-	27,983	-	27,983
$I_c(3n)$	(in^4)	20,817	-	20,817	-	20,817	-	20,817
$I_c(cr)$	(in^4)	-	23,685	-	23,685	-	23,685	-
S_s	(in^3)	520	896	520	896	520	896	520
$S_c(n)$	(in^3)	737	-	737	-	737	-	737
$S_c(3n)$	(in^3)	669	-	669	-	669	-	669
$S_c(cr)$	(in^3)	-	959	-	959	-	959	-
DC1	(k/')	0.795	0.865	0.795	0.865	0.795	0.865	0.795
M_{DC1}	('k)	375.0	922.0	348.0	927.0	333.0	952.0	420.0
DC2	(k/')	0.150	0.150	0.150	0.150	0.150	0.150	0.150
M_{DC2}	('k)	73.0	166.0	68.0	168.0	66.0	171.0	82.0
DW	(k/')	0.313	0.313	0.313	0.313	0.313	0.313	0.313
M_{DW}	('k)	152.0	345.0	143.0	350.0	138.0	356.0	170.0
M_{L+IM}	('k)	1,025.0	1,305.0	1,021.0	1,335.0	1,024.0	1,322.0	1,066.0
M_u (Strength I)	('k)	2,582.0	4,161.0	2,521.0	4,230.0	2,498.0	4,251.0	2,748.0
$\phi_f M_n$	('k)	3,779	4,457	3,801	4,456	3,812	4,455	3,743
f_s DC1	(ksi)	8.65	12.35	8.03	12.42	7.68	12.75	9.69
f_s DC2	(ksi)	1.31	2.08	1.22	2.10	1.18	2.14	1.47
f_s DW	(ksi)	2.72	4.32	2.56	4.38	2.47	4.45	3.05
f_s (L+IM)	(ksi)	16.70	16.33	16.64	16.70	16.68	16.54	17.37
f_s (Service II)	(ksi)	34.40	39.97	33.44	40.61	33.03	40.85	36.79
$0.95R_hF_{yf}$	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	-	-	-	-	-	-
$\phi_f F_n$	(ksi)	-	-	-	-	-	-	-
V_f	(k)	26.6	29.6	20.2	29.1	20.2	29.5	26.2

INTERIOR GIRDER REACTION TABLE - UNIT 2

		S. Brg. Pier 3	Pier 4	Pier 5	Pier 6	S. Abut.
R_{DC1}	(k)	25.4	93.2	92.7	94.8	26.7
R_{DC2}	(k)	4.7	16.9	16.8	17.1	5.0
R_{DW}	(k)	9.8	35.2	35.1	35.8	10.4
R_{L+IM}	(k)	75.0	140.8	144.8	141.9	75.8
R_{Total}	(k)	114.9	286.1	289.4	289.6	117.9

Hutchison Engineering, Inc.
Jacksonville, Peoria, & Shorewood, Illinois

USER NAME = jdeen	DESIGNED - JOH	REVISED -
PLOT SCALE = NONE	CHECKED - BAN	REVISED -
PLOT DATE = 7/25/2013	DRAWN - TAC	REVISED -
	CHECKED - JOH/BAN	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MOMENT, SHEAR & REACTION TABLES – UNIT 2
STRUCTURE NO. 062-0086
SHEET NO. 32 OF 62 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
698	(125VBR)BR	MARSHALL	148	57
		CONTRACT NO. 68580		
		ILLINOIS FED. AID PROJECT		

v:\transportation\3013\cadd_sheets\0620086-68580-032- MOMENT TABLE - UNIT 2.dgn