

INTERIOR GIRDER 6B MOMENT TABLE - UNIT II				
		0.4 Sp. 3	Pier 3	0.6 Sp. 4
I_s	(in ⁴)	80,649	179,188	80,649
$I_c(n)$	(in ⁴)	169,080	-	169,080
$I_c(3n)$	(in ⁴)	126,315	-	126,315
$I_c(cr)$	(in ⁴)	-	193,702	-
S_s	(in ³)	2,321	4,778	2,321
$S_c(n)$	(in ³)	2,957	-	2,957
$S_c(3n)$	(in ³)	2,725	-	2,725
$S_c(cr)$	(in ³)	-	4,903	-
DC1	(k/')	1.27	1.55	1.27
M _{DC1}	('k)	1,815	5,938	2,267
DC2	(k/')	0.08	0.08	0.08
M _{DC2}	('k)	242	337	75
DW	(k/')	0.45	0.45	0.45
M _{DW}	('k)	640	1,811	828
M ξ + IM	('k)	3,306	4,192	3,246
M _u (Strength I)	('k)	9,317	17,896	9,850
$\phi_r M_n$	('k)	-	22,287	-
f_s DC1	(ksi)	9.38	14.91	11.72
f_s DC2	(ksi)	1.07	0.82	0.33
f_s DW	(ksi)	2.82	4.43	3.65
f_s (ξ +IM)	(ksi)	13.42	10.26	13.17
f_s (Service II)	(ksi)	30.71	33.51	32.82
0.95R _n F _{yr}	(ksi)	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	40.77	-	43.58
$\phi_r F_n$	(ksi)	50.00	-	50.00
V _r	(k)	90.60	103.00	92.10

INTERIOR GIRDER 6B REACTION TABLE - UNIT II				
		Pier 2-N	Pier 3	Pier 4-S
R _{DC1}	(k)	70.0	305.2	77.9
R _{DC2}	(k)	5.3	13.4	2.7
R _{DW}	(k)	24.1	94.3	27.3
R ξ + IM	(k)	151.2	276.6	155.2
R _{Total}	(k)	250.5	689.6	263.1

EXTERIOR GIRDER 1B MOMENT TABLE - UNIT II				
		0.4 Sp. 3	Pier 3	0.6 Sp. 4
I_s	(in ⁴)	85,868	179,188	85,868
$I_c(n)$	(in ⁴)	171,714	-	150,273
$I_c(3n)$	(in ⁴)	127,050	-	113,721
$I_c(cr)$	(in ⁴)	-	190,034	-
S_s	(in ³)	2,572	4,778	2,572
$S_c(n)$	(in ³)	3,214	-	3,103
$S_c(3n)$	(in ³)	2,954	-	2,850
$S_c(cr)$	(in ³)	-	4,873	-
DC1	(k/')	1.09	1.28	0.82
M _{DC1}	('k)	1,618	5,340	2,415
DC2	(k/')	0.19	0.19	0.19
M _{DC2}	('k)	218	1,378	643
DW	(k/')	0.27	0.24	0.14
M _{DW}	('k)	450	1,246	728
M ξ + IM	('k)	3,952	4,606	3,748
M _u (Strength I)	('k)	9,886	18,327	11,474
$\phi_r M_n$	('k)	-	22,227	-
f_s DC1	(ksi)	7.55	13.41	11.27
f_s DC2	(ksi)	0.89	3.39	2.71
f_s DW	(ksi)	1.83	3.07	3.07
f_s (ξ +IM)	(ksi)	14.75	11.34	14.50
f_s (Service II)	(ksi)	29.44	34.62	35.89
0.95R _n F _{yr}	(ksi)	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	39.11	-	47.44
$\phi_r F_n$	(ksi)	50.00	-	50.00
V _r	(k)	80.30	102.30	62.10

EXTERIOR GIRDER 1B REACTION TABLE - UNIT II				
		Pier 2-N	Pier 3	Pier 4-S
R _{DC1}	(k)	62.4	276.3	73.4
R _{DC2}	(k)	9.0	80.9	19.1
R _{DW}	(k)	15.7	62.4	18.8
R ξ + IM	(k)	140.9	266.6	98.6
R _{Total}	(k)	228.0	686.2	209.9

EXTERIOR GIRDER 9B MOMENT TABLE - UNIT II				
		0.4 Sp. 3	Pier 3	0.6 Sp. 4
I_s	(in ⁴)	80,649	179,188	80,649
$I_c(n)$	(in ⁴)	158,951	-	153,811
$I_c(3n)$	(in ⁴)	118,709	-	115,178
$I_c(cr)$	(in ⁴)	-	187,422	-
S_s	(in ³)	2,321	4,778	2,321
$S_c(n)$	(in ³)	2,910	-	2,885
$S_c(3n)$	(in ³)	2,672	-	2,646
$S_c(cr)$	(in ³)	-	4,851	-
DC1	(k/')	1.08	1.14	0.99
M _{DC1}	('k)	1,791	4,617	1,875
DC2	(k/')	0.19	0.19	0.19
M _{DC2}	('k)	439	1,121	255
DW	(k/')	0.27	0.17	0.23
M _{DW}	('k)	526	1,049	532
M ξ + IM	('k)	3,907	4,429	3,660
M _u (Strength I)	('k)	10,414	16,497	9,866
$\phi_r M_n$	('k)	-	22,181	-
f_s DC1	(ksi)	9.26	11.59	9.69
f_s DC2	(ksi)	1.97	2.77	1.16
f_s DW	(ksi)	2.36	2.59	2.41
f_s (ξ +IM)	(ksi)	16.11	10.96	15.23
f_s (Service II)	(ksi)	34.54	31.21	33.06
0.95R _n F _{yr}	(ksi)	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	45.78	-	43.83
$\phi_r F_n$	(ksi)	50.00	-	50.00
V _r	(k)	81.00	98.90	78.30

EXTERIOR GIRDER 9B REACTION TABLE - UNIT II				
		Pier 2-N	Pier 3	Pier 4-S
R _{DC1}	(k)	65.8	223.1	64.7
R _{DC2}	(k)	12.5	71.6	10.6
R _{DW}	(k)	17.7	46.6	17.1
R ξ + IM	(k)	136.1	258.3	131.3
R _{Total}	(k)	232.1	599.5	223.7

- 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 (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-Strength I, and Service II) in uncracked sections 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-Strength I, and Service II) in uncracked sections, due to long-term composite (superimposed) dead loads (in⁴ and in³).
- $I_c(cr), S_c(cr)$: 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 (superimposed) dead loads (in⁴ and in³).
- 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 ξ + 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 ξ + IM
- $\phi_r M_n$: 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_s
- 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 (ξ +IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
M ξ + IM / S_{c(n)} or M ξ + IM / S_{c(cr)} as applicable.
- f_s (Service II): Sum of stresses as computed below (ksi).
 $f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(\xi + IM)$
- 0.95R_nF_{yr}: 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 $f_{sDW} + 1.75 f_s(\xi + IM)$
- $\phi_r F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).
- V_r: Maximum factored shear range in span computed according to Article 6.10.10.

* Includes Overhead Sign Structure dead load

0161705-60W28-5081-SuperStruct.dgn



USER NAME = floresg	DESIGNED - DD	REVISED
PLOT SCALE = N.T.S.	CHECKED - ATB	REVISED
PLOT DATE = 5/7/2014	DRAWN - MRK	REVISED
	CHECKED - DD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT AND REACTION TABLES 1 - UNIT II
STRUCTURE NO. 016-1705

SHEET NO. S-81 OF S-165 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2013-01OR	COOK	747	397
CONTRACT NO.			60W28	
ILLINOIS FED. AID PROJECT				