INTERIOR GIRDER 5 REACTION TABLE (S.N. 082-0323)		E. Abut.	Pier 1	Pier 2	Pier 3-E
R_{DC1}	(k)	44.47	216.35	247.70	56.17
R_{DC2}	(k)	7.73	35.79	39.74	9.71
R_{DW}	(k)	14.27	65.33	72.62	18.03
R_{LL+IM}	(k)	81.13	178.18	180.60	86.30
R_{Total}	(k)	147.60	495.65	540.66	170.21

EXTERIOR GIRDER 6 REACTION TABLE (S.N. 082-0323)		E. Abut.	Pier 1	Pier 2	Pier 3-E
R_{DC1}	(k)	44.27	205.06	231.68	56.89
R_{DC2}	(k)	9.53	40.42	43.69	11.51
R_{DW}	(k)	12.33	54.91	60.76	16.46
R_{LL+IM}	(k)	81.17	174.42	178.46	91.44
R_{Total}	(k)	147.30	474.81	514.59	176.30

EXTERIOR GIRDER 1A REACTION TABLE (S.N. 082-0325 - Unit 1)		E. Abut.	Pier 1	Pier 2	Pier 3-E
R_{DC1}	(k)	35.83	147.55	200.48	70.28
R_{DC2}	(k)	8.43	32.89	40.50	14.36
R_{DW}	(k)	9.27	37.43	49.55	19.36
R_{LL+IM}	(k)	69.85	147.80	158.34	91.68
R_{Total}	(k)	123.38	365.67	448.87	195.68

INTERIOR GIRDER 2A REACTION TABLE (S.N. 082-0325 - Unit 1)		E. Abut.	Pier 1	Pier 2	Pier 3-E
R_{DC1}	(k)	35.04	161.19	233.60	65.34
R_{DC2}	(k)	6.71	29.97	41.16	11.95
R_{DW}	(k)	10.46	45.98	63.49	18.97
R_{LL+IM}	(k)	65.89	146.03	160.01	74.73
R_{Total}	(k)	118.10	383.17	498.26	170.99

EXTERIOR GIRDER 1A REACTION TABLE (S.N. 082-0325 - Unit 2)		Pier 3-W	Pier 4	Pier 5	Pier 6	Pier 7-E
R_{DC1}	(k)	51.94	197.81	236.58	197.09	47.57
R_{DC2}	(k)	11.35	39.93	46.79	41.05	10.46
R_{DW}	(k)	14.43	48.57	59.27	50.20	12.91
R_{LL+IM}	(k)	90.13	161.30	176.19	165.05	75.83
R_{Total}	(k)	167.85	447.61	518.83	453.39	146.77

INTERIOR GIRDER 2A REACTION TABLE (S.N. 082-0325 - Unit 2)		Pier 3-W	Pier 4	Pier 5	Pier 6	Pier 7-E
R_{DC1}	(k)	50.18	237.16	234.16	194.02	47.40
R_{DC2}	(k)	9.48	41.54	40.52	34.75	9.05
R_{DW}	(k)	14.94	64.26	63.98	54.60	14.17
R_{LL+IM}	(k)	75.57	164.62	156.64	148.25	72.31
R_{Total}	(k)	150.17	507.58	495.30	431.62	142.93

EXTERIOR GIRDER 1B REACTION TABLE (S.N. 082-0325 - Unit 3)		Pier 7-W	Pier 8	Pier 9	Pier 10	W. Abut.
R_{DC1}	(k)	47.05	173.10	292.24	292.23	41.52
R_{DC2}	(k)	11.29	40.66	51.59	51.02	10.56
R_{DW}	(k)	12.81	45.24	73.84	73.53	11.43
R_{LL+IM}	(k)	89.96	182.91	220.12	218.32	97.11
R_{Total}	(k)	161.11	441.91	637.79	635.10	160.62

INTERIOR GIRDER 2B REACTION TABLE (S.N. 082-0325 - Unit 3)		Pier 7-W	Pier 8	Pier 9	Pier 10	W. Abut.
R_{DC1}	(k)	49.30	170.28	272.02	271.65	42.49
R_{DC2}	(k)	8.30	27.70	35.59	35.21	7.41
R_{DW}	(k)	15.89	53.69	78.26	77.91	14.23
R_{LL+IM}	(k)	100.40	180.68	208.10	202.93	105.90
R_{Total}	(k)	173.89	432.35	593.97	587.70	170.03

INTERIOR GIRDER 7B REACTION TABLE (S.N. 082-0325 - Unit 3)		Pier 7-W	Pier 8	Pier 9	Pier 10	W. Abut.
R_{DC1}	(k)	13.99	163.23	244.70	244.96	34.48
R_{DC2}	(k)	0.00	0.00	12.36	21.86	7.46
R_{DW}	(k)	9.47	53.98	67.78	63.85	11.46
R_{LL+IM}	(k)	74.26	189.08	214.10	203.88	107.81
R_{Total}	(k)	97.72	406.29	538.94	534.55	161.21

INTERIOR GIRDER 8B REACTION TABLE (S.N. 082-0325 - Unit 3)		Pier 7-W	Pier 8	Pier 9	Pier 10
R_{DC1}	(k)	68.86	148.33	222.72	224.86
R_{DC2}	(k)	1.12	4.68	20.19	34.29
R_{DW}	(k)	21.49	45.99	54.33	51.81
R_{LL+IM}	(k)	123.09	178.61	198.91	157.34
R_{Total}	(k)	214.56	377.61	496.15	468.30

INTERIOR GIRDER 9B REACTION TABLE (S.N. 082-0325 - Unit 3)		Pier 7-W	Pier 8	Pier 9
R_{DC1}	(k)	44.42	140.26	215.75
R_{DC2}	(k)	2.83	13.33	35.05
R_{DW}	(k)	15.29	38.19	46.90
R_{LL+IM}	(k)	97.05	167.12	139.15
R_{Total}	(k)	159.59	358.90	436.85

GDR. 10B REACT. TABLE (S.N. 082-0325 - Unit 3)		Pier 7-W	Pier 8
R_{DC1}	(k)	50.07	122.18
R_{DC2}	(k)	8.24	25.74
R_{DW}	(k)	15.77	28.14
R_{LL+IM}	(k)	97.71	112.03
R_{Total}	(k)	171.79	288.09

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) 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) due to long-term composite (superimposed) dead loads (in.^{4} and in.^{3}).

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

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

M_{bf}: Factored lateral bending moment for controlling flange plate (kip-ft.).

f_f: 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).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\ M_{LL+IM}$

f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{LL+IM}$

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_f: Maximum factored shear range computed according to Article 6.10.10.

Note:
M_{LL} and R_{LL} include the effects of centrifugal force and superelevation.

AECOM

USER NAME = BhattA	DESIGNED - CLS	REVISED -	
	DRAWN - JHR	REVISED -	
PLOT SCALE = 0:2 ':' / in.	CHECKED - CHY	REVISED -	
PLOT DATE = $DATE$	DATE - 03/18/2011	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES III
I-70W OVER I-55, CSX & KCS RAILROADS

SCALE: NONE | SHEET NO. S-80 OF S-138 SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-1	ST. CLAIR	319	195
	S.N. 082-0323 & S.N. 082-0325	CONTRACT NO. 76C75		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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