

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 5-17
		KANE	72	36	SHEETS 33
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Project No. BR05-D001641  
Contract No. 63080

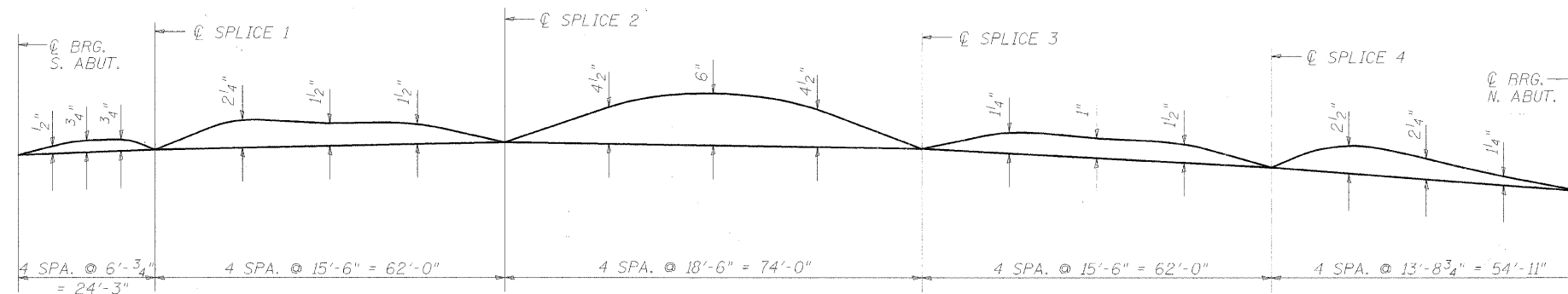
TOP OF WEB ELEVATIONS *						
LOCATION	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6
☉ BRG. S. ABUT	705.365	705.577	705.787	705.863	705.804	705.744
☉ SPLICE 1	706.295	706.486	706.676	706.731	706.652	706.571
☉ PIER 1	707.186	707.346	707.505	707.529	707.419	707.307
☉ SPLICE 2	707.596	707.735	707.872	707.874	707.742	707.608
☉ SPLICE 3	706.454	706.530	706.604	706.543	706.347	706.151
☉ PIER 2	704.944	704.993	705.041	704.955	704.733	704.510
☉ SPLICE 4	703.200	703.223	703.244	703.130	702.882	702.632
☉ BRG. N. ABUT	698.986	698.978	698.970	698.829	698.554	698.280

\* For fabrication only

INTERIOR GIRDER REACTION TABLE				
HL 93 Loading				
	S. Abut.	Pier 1	Pier 2	N. Abut.
R <sub>DC1</sub> (k)	9.76	100.45	116.12	22.11
R <sub>DC2</sub> (k)	5.34	39.75	46.02	10.43
R <sub>DW</sub> (k)	4.86	36.16	41.87	9.49
R <sub>L + Imp</sub> (k)	60.10	118.72	127.58	65.86
R <sub>Total</sub> (k)	80.07	295.08	331.59	107.86

INTERIOR GIRDER MOMENT TABLE					
	0.2 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.7 Sp. 3
I <sub>s</sub> (in <sup>4</sup> )	12084	27107	21864	33594	12084
I <sub>c(n)</sub> (in <sup>4</sup> )	31258		52604		31258
I <sub>c(3n)</sub> (in <sup>4</sup> )	22846		37504		22846
S <sub>s</sub> (in <sup>3</sup> )	556	1179	1100	1430	556
S <sub>c(n)</sub> (in <sup>3</sup> )	824		1483		824
S <sub>c(3n)</sub> (in <sup>3</sup> )	739		1347		739
DC1 (k/')	0.876	1.596	0.876	1.586	0.876
M <sub>DC1</sub> (k)	54.0	1670	775.0	2201	286.0
DC2 (k/')	0.366		0.366		0.366
M <sub>DC2</sub> (k)	38.0		361.0		147.0
DW (k/')	0.344		0.344		0.344
M <sub>DW</sub> (k)	34.0		328.0		134.0
M <sub>L + Imp</sub> (k)	482.0	984.0	1380.0	1227.0	930.0
M <sub>u</sub> (Strength I) (k)	1010	3810	4327	4899	2370
φ <sub>r</sub> M <sub>n</sub> , φ <sub>r</sub> M <sub>nc</sub> (k)	4407	4114	7131	5196	4182
f <sub>e</sub> DC1 (ksi)	1.2	17.0	8.5	18.5	6.2
f <sub>e</sub> DC2 (ksi)	0.6		3.2		2.4
f <sub>e</sub> DW (ksi)	0.6		2.9		2.2
f <sub>e</sub> 1.3(4+I) (ksi)	9.1	13.0	14.5	13.4	17.6
f <sub>s</sub> (Service II) (ksi)	11.5	30.0	29.1	31.9	28.4
f <sub>s</sub> (Total)(Strength I) (ksi)	15.4	38.8	38.5	41.1	37.7
V <sub>r</sub> (k)	18.9		25.2		22.3

- I<sub>s</sub>, S<sub>s</sub>: Non-composite moment of inertia and section modulus of the steel section used for computing f<sub>s</sub> (Total-Strength I, and Service II) due to non-composite dead loads (in<sup>4</sup> and in<sup>3</sup>).
- I<sub>c(n)</sub>, S<sub>c(n)</sub>: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f<sub>s</sub> (Total-Strength I, and Service II) due to short-term composite live loads (in<sup>4</sup> and in<sup>3</sup>).
- I<sub>c(3n)</sub>, S<sub>c(3n)</sub>: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f<sub>s</sub> (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in<sup>4</sup> and 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 + Imp</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<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>L + Imp</sub>
- φ<sub>r</sub>M<sub>n</sub>: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
- φ<sub>r</sub>M<sub>nc</sub>: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).
- f<sub>s</sub> (Service II): Sum of stresses as computed from the moments below (ksi).  
M<sub>DC1</sub> + M<sub>DC2</sub> + M<sub>DW</sub> + 1.3 M<sub>L + Imp</sub>
- f<sub>s</sub> (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).  
1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>L + Imp</sub>
- V<sub>r</sub>: Factored shear range computed according to Article 6.10.10.



CAMBER DIAGRAM

DESIGNED	200
CHECKED	EXAMINED
DRAWN	ENGINEER OF BRIDGE DESIGN
CHECKED	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
CAMBER DIAGRAM  
WOOD ST. BRIDGE OVER B.N.S.F. R.R.  
AND INDIAN CREEK  
SECTION -BR STATION 15+24.92  
KANE COUNTY STRUCTURE NO. 045-6022

SCALE: DRAWN BY: MCC  
DATE: SEPTEMBER 2008 CHECKED BY: ATI