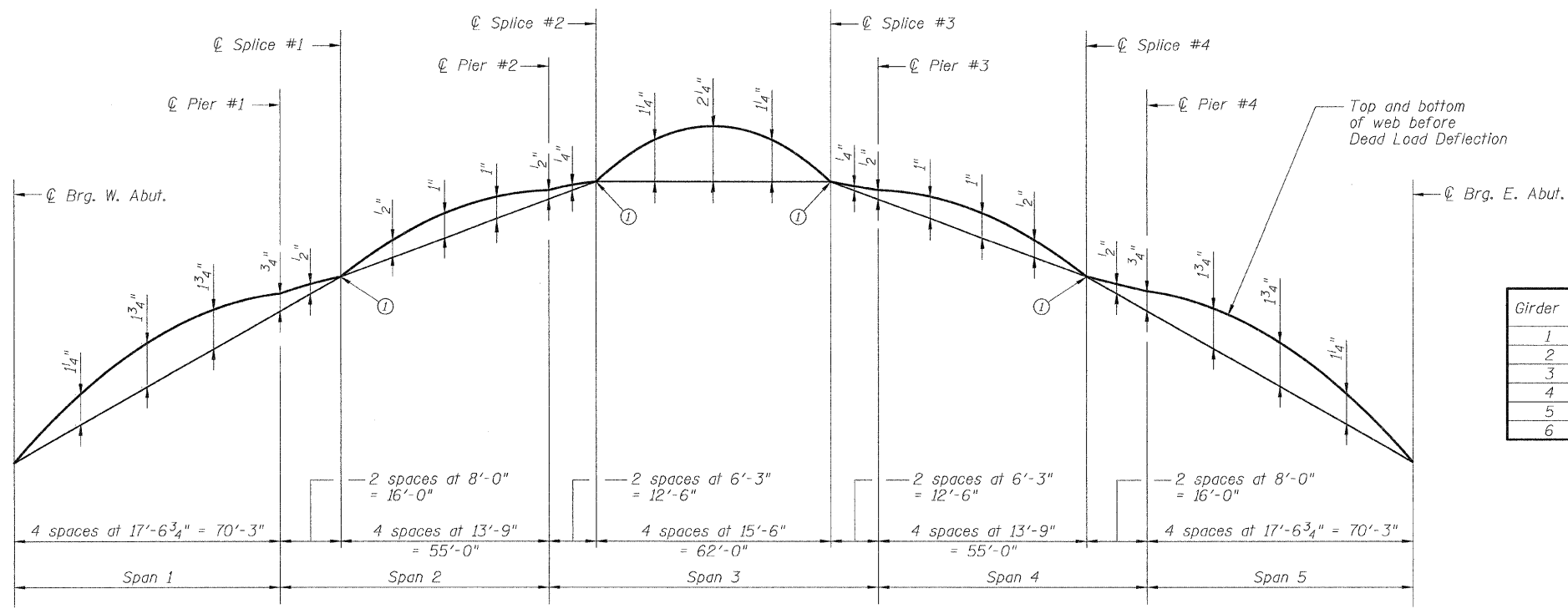


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ROUTE NO.	SECTION	COUNTY	ISTD SHEETS	SHEET NO.	SHEET NO. 15 27 SHEETS
F.A.S. 1780	27-1BR-1	CLINTON	69	40	
FED. ROAD DIST. NO. 8	ILLINOIS	FED. AID PROJECT-			

Contract # 76961



**CAMBER DIAGRAM**

① Theoretical elevation before dead load deflection

**② TOP OF WEB ELEVATIONS**

Girder No.	℄ Brg. W. Abut.	Pier #1	Splice #1	Pier #2	Splice #2	Splice #3	Pier #3	Splice #4	Pier #4	℄ Brg. E. Abut.
1	448.695	449.298	449.351	449.654	449.684	449.684	449.655	449.353	449.300	448.698
2	448.804	449.407	449.460	449.763	449.792	449.792	449.763	449.461	449.409	448.807
3	448.896	449.499	449.552	449.855	449.884	449.885	449.856	449.554	449.501	448.899
4	448.902	449.505	449.558	449.861	449.890	449.891	449.862	449.560	449.507	448.905
5	448.810	449.413	449.466	449.768	449.798	449.798	449.769	449.467	449.414	448.813
6	448.704	449.307	449.360	449.663	449.692	449.692	449.663	449.361	449.309	448.707

② For fabrication only

	0.4 Sp. 1 or 0.6 Sp. 5	Pier #1 & #4	0.5 Sp. 2 or 0.5 Sp. 4	Pier #2 & #3	0.5 sp. 3
$I_s$ (in <sup>4</sup> )	10,140	14086	16,795	16,795	10,140
$I_c(n)$ (in <sup>4</sup> )	25,900	-	36,793	-	25,900
$I_c(3n)$ (in <sup>4</sup> )	19,057	-	27,186	-	19,057
$S_s$ (in <sup>3</sup> )	489	667	786	786	489
$S_c(n)$ (in <sup>3</sup> )	706	-	1034	-	706
$S_c(3n)$ (in <sup>3</sup> )	634	-	944	-	634
DC1 (k/')	0.76	0.79	0.81	0.81	0.76
M <sub>DC1</sub> (k)	290	401	79	457	264
DC2 (k/')	0.15	0.15	0.15	0.15	0.15
M <sub>DC2</sub> (k)	62	66	22	80	62
DW (k/')	0.27	0.27	0.27	0.27	0.27
M <sub>DW</sub> (k)	112	119	39	144	112
M <sub>L + Imp</sub> (k)	741	528	667	638	739
M <sub>u</sub> (Strength I) (k)	1905	1686	1352	2004	1869
$\phi_r M_n$ , $\phi_r M_{nc}$ (k)					
$f_s$ DC1 (ksi)	7.1	7.2	1.2	7.0	6.5
$f_s$ DC2 (ksi)	1.2	1.2	0.3	1.2	1.2
$f_s$ DW (ksi)	2.1	2.1	0.5	2.2	2.1
$f_s$ 1.3( $t+I$ ) (ksi)	16.4	12.3	10.1	12.7	16.3
$f_s$ (Service II) (ksi)	26.8	22.9	12.0	23.1	26.1
$f_s$ (Total)(Strength I) (ksi)	35.6	30.3	16.1	30.6	34.7
V <sub>r</sub> (k)	14.7	25.3	14.7	26.2	16.7

- $I_s, S_s$ : 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 (in<sup>4</sup> and in<sup>3</sup>).
- $I_c(n), S_c(n)$ : 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<sup>4</sup> and in<sup>3</sup>).
- $I_c(3n), S_c(3n)$ : 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<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>
- $\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
- $\phi_r M_{nc}$ : Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).
- $f_s$  (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>
- $f_s$  (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.

	W. & E. Abut.	Piers #1 & #4	Piers #2 & #3
R <sub>DC1</sub> (k)	21.0	60.4	63.0
R <sub>DC2</sub> (k)	4.3	11.3	12.0
R <sub>DW</sub> (k)	7.8	20.4	21.7
R <sub>L + Imp</sub> (k)	67.4	96.9	101.6
R <sub>Total</sub> (k)	100.5	189.0	198.3

DESIGNED	ADL
CHECKED	WLW
DRAWN	BGJ
CHECKED	WLW

**STRUCTURAL STEEL DETAILS**  
**FAS RTE 1780 (OLD US 50) OVER**  
**SUGAR CREEK**  
**SECTION 27-1BR-1**  
**CLINTON COUNTY**  
**STATION 9+14.50**  
**STRUCTURE NUMBER 014-0077**