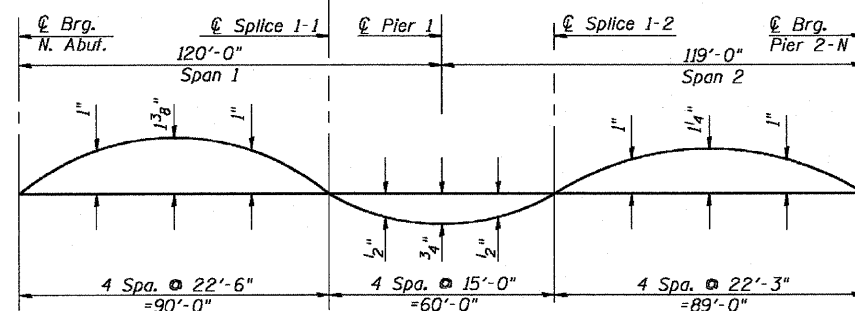


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



CAMBER DIAGRAM UNIT 1 (GIRDERS 1 THRU 6)

**TOP OF WEB ELEVATIONS BEFORE DEFLECTION
(FOR FABRICATION ONLY)**

Location	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
N. Abut.	521.23	521.34	521.44	521.35	521.25	521.11
Splice 1-1	525.62	525.73	525.83	525.74	525.63	525.50
Pier 1	527.04	527.15	527.26	527.17	527.06	526.92
Splice 1-2	528.59	528.70	528.80	528.72	528.61	528.47
Pier 2-N	533.11	533.22	533.32	533.23	533.13	532.99

	0.4 Sp. 1	Pier 1	0.6 Sp. 2
I_s	28,300	43,047	28,300
$I_c(n)$	71,380	---	71,380
$I_c(3n)$	51,535	---	51,535
S_s	970	1,367	970
$S_c(n)$	1,395	---	1,395
$S_c(3n)$	1,255	---	1,255
Z	---	---	---
ϕ	0.877	1.348	0.877
$M\phi$	817	2,506	792
$s\phi$	0.413	---	0.413
$M_s\phi$	434	---	422
M_t	946	801	937
M_{imp}	193	164	192
$S_y [M_t + M_{imp}]$	1,898	1,608	1,882
M_a	4,094	5,349	4,024
M_u	5,813	---	5,813
$f_s \phi$ non-comp	10.11	22.00	9.80
$f_s \phi$ (comp)	4.15	---	4.04
$f_s S_y [M_t + M_{imp}]$	16.33	14.12	16.19
f_s (Overload)	30.59	36.12	30.02
f_s (Total)	---	46.95	---
VR	56.8	---	56.9

* Compact section

** Braced non-compact and partially braced section

	N. Abut.	Pier 1	Pier 2-N
$R\phi$	57	198	56
R_t	44	71	44
Imp.	9	15	9
R_{Total}	110	284	109

- I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) 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 and Overload) 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 and Overload) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).
- Z : Plastic Section Modulus of the steel section in non-composite areas (in.³).
- ϕ : Un-factored non-composite dead load (kips/ft.).
- $M\phi$: Un-factored moment due to non-composite dead load (kip-ft.).
- $s\phi$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
- $M_s\phi$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
- M_t : Un-factored live load moment (kip-ft.).
- M_{imp} : Un-factored moment due to Impact (kip-ft.).
- M_a : Factored design moment (kip-ft.).
 $1.3 [M\phi + M_s\phi + \frac{2}{3} (M_t + M_{imp})]$
- M_u : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
- f_s (Overload): Sum of stresses as computed from the moments below (ksi).
 $M\phi + M_s\phi + \frac{2}{3} (M_t + M_{imp})$
- f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M\phi + M_s\phi + \frac{2}{3} (M_t + M_{imp})]$
- VR: Maximum $\frac{1}{4}$ + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

DESIGNED - CLS
CHECKED - OPY
DRAWN - JHR
CHECKED - RJC

**CAMBER DIAGRAM
UNIT 1
IL. 170 F.A.P. 786 OVER
ILLINOIS RIVER AT SENECA
PUBLIC WATERS
LA SALLE COUNTY, SECTION 109 BR
STATION 79+04.42
STRUCTURE NO. 050-0246**