

GIRDER ELEVATION

Indicates Limits of Girder to be Cleaned and Painted. See Special Provision for Cleaning and Painting Existing Steel Structures.

EXISTING GIRDER DIMENSIONS

Location	A	B	C	D	E	F	G	H	I	J	K
Gdr. A	111'-1 7/8"	100'-11 1/4"	153'-3 3/8"	186'-11 1/4"	495'-2 1/2"	11 3/8"	105'-0"	3'-0"	91'-0"	2'-8"	2'-7 5/8"
Gdr. B	109'-8 1/4"	99'-2 1/2"	151'-10 1/4"	185'-2 1/2"	490'-8"	10 3/4"	105'-0"	1'-8"	91'-0"	2'-0"	2'-1 1/4"
Gdr. C-L	108'-4"	97'-6"	150'-6"	183'-6"	486'-2"	10"	103'-4"	2'-0"	89'-3"	2'-0"	2'-1 1/2"
Gdr. M	107'-6 1/2"	96'-6"	149'-8 1/2"	182'-6"	483'-6 1/2"	1'-0 1/8"	101'-8"	2'-8"	87'-6"	2'-4"	2'-2"
Gdr. N	106'-8 1/2"	95'-6 1/2"	148'-10 1/2"	181'-6 1/2"	480'-10 1/8"	10 1/8"	101'-8"	2'-0"	85'-9"	2'-8"	2'-2 1/4"

PROPOSED SHEAR STUDS

Location	No. of Spaces at 10" Centers	No. of Spaces at 10 1/2" Centers	No. of Studs Required
Gdr. A	125	103	1368
Gdr. B	125	103	1358
Gdr. C-L	123	101	1350
Gdr. M	121	99	1332
Gdr. N	121	97	1326
		Total =	18,894

INTERIOR GIRDER MOMENT TABLE

	0.4 Span 1 or 0.6 Span 3	Pier	0.5 Span 2
I_s	56,656	98,727	51,708
$I_c(n)$	148,132	105,054	131,113
$I_c(3n)$	101,997	105,054	91,897
S_x	2167	2849	1842
$S_c(n)$	3001	2908	2566
$S_c(3n)$	2707	2908	2312
q	1.123	1.242	1.100
M_D	1677	3471	1234
s_D	0.526	0.528	0.528
M_{sD}	809	1567	659
M_L	1327	1707	1279
M_{Iu}	238	307	230
$S_x(M_L + I)$	2609	3357	2515
M_o	6624	10,844	5731
M_u	-	-	-
f_s non-comp	9.3	14.6	8.1
f_s comp	3.6	6.5	3.4
f_s $S_x(M_L + I)$	10.4	13.8	11.8
f_s (Overload)	23.3	34.9	23.3
f_s (Total)	30.3	45.4	30.3
VR	57.6	58.8	58.8

INTERIOR GIRDER REACTION TABLE

	Abut.	Pier
R_D	92.1	312.7
R_L	45.2	98.0
R_I	8.2	17.6
R_{Total}	145.5	428.3

** Braced non-compact and partially braced section

I_s, S_x : 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).

q : Un-factored non-composite dead load (kips/ft.).

M_D : Un-factored moment due to non-composite dead load (kip-ft.).

s_D : Un-factored long-term composite (superimposed) dead load (kip/ft.).

M_{sD} : Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_L : Un-factored live load moment (kip-ft.).

M_I : Un-factored moment due to impact (kip-ft.).

M_o : Factored design moment (kip-ft.).

$L_3 I M_D + M_{sD} + \frac{1}{3} (M_L + M_I)$

M_{u1} : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.46.1 (kip-ft.).

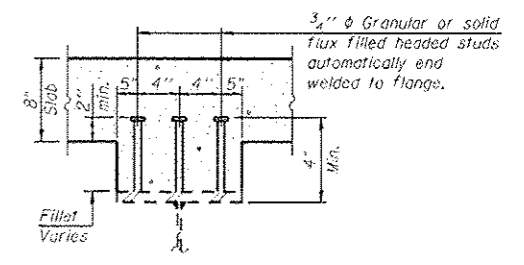
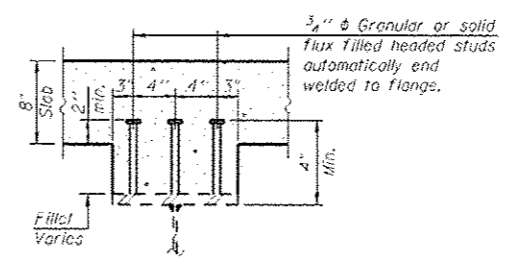
f_s (Overload): Sum of stresses as computed from the moments below (ksi).

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).

$L_3 I M_D + M_{sD} + \frac{1}{3} (M_L + M_I)$

VR: Maximum impact shear range within the composite portion of the span for stud shear connector design (kips).

* Remove Existing Shear Studs at \bar{C} Brg. at East Abutment for Finger Plate.
 ** Center new studs between existing studs



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