STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INTERIOR GIRDER MOMENT TABLE		0.4 Sp. 1 or 0.6 Sp. 3	Pier	0.5 Sp. 2
I_s	(in^4)	3990	5770	5770
$I_c(n)$	(in^4)	12443		16364
$I_c(3n)$	(in^4)	9262		11921
S_s	(in^3)	269	380	380
$S_c(n)$	(in^3)	428		576
$S_c(3n)$	(in^3)	386		518
Z	(in^3)		432	
DC1	(k/')	0.856	0.883	0.883
M_{DC1}	('k)	68.1	275.7	200.5
DC2	(k/')	0.15	0.15	0.15
M_{DC2}	('k)	16.6	34.6	44.4
DW	(k/')	0.311	0.311	0.311
M_{DW}	('k)	35.5	73.6	94.5
M_{LL+IM}	('k)	428.1	315.9	695.7
M_u (Strength I)	('k)	908.3	1051.1	1665.4
* $\phi_f M_n$, $\phi_f M_{nc}$	('k)	2238		2918
f_s DC1	(ksi)	3.08	8.80	6.40
f_s DC2	(ksi)	0.52	1.10	1.03
f_s DW	(ksi)	1.11	2.35	2.18
f_s 1.3(LL+IM)	(ksi)	15.61	13.11	18.83
f_s (Service II)	(ksi)	20.32	25.36	28.44
** f_s (Total)(Strength I)	(ksi)		38.84	
V_f	(k)	19.3		19.3

* Compact sections
** Non-Compact and slender sections

INTERIOR GIRDER REACTION TABLE		Abut.	Pier
R_{DC1}	(k)	11.2	53.4
R_{DC2}	(k)	2.2	8.7
R_{DW}	(k)	4.7	18.5
R_{LL+IM}	(k)	62.6	118.8
R_{Total}	(k)	80.7	199.4

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 $in.^3$).

Z: Plastic Section Modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations ($in.^3$).

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.).
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{LL+IM}$

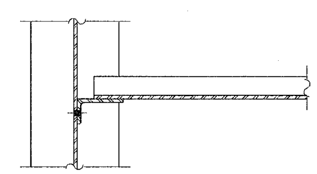
$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_f M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

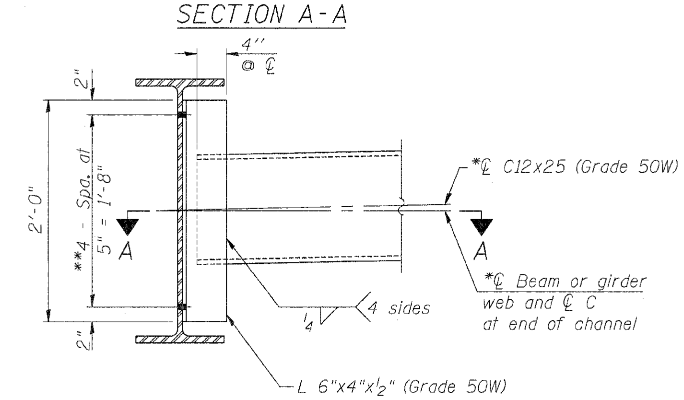
f_s (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{LL+IM}$

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

V_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

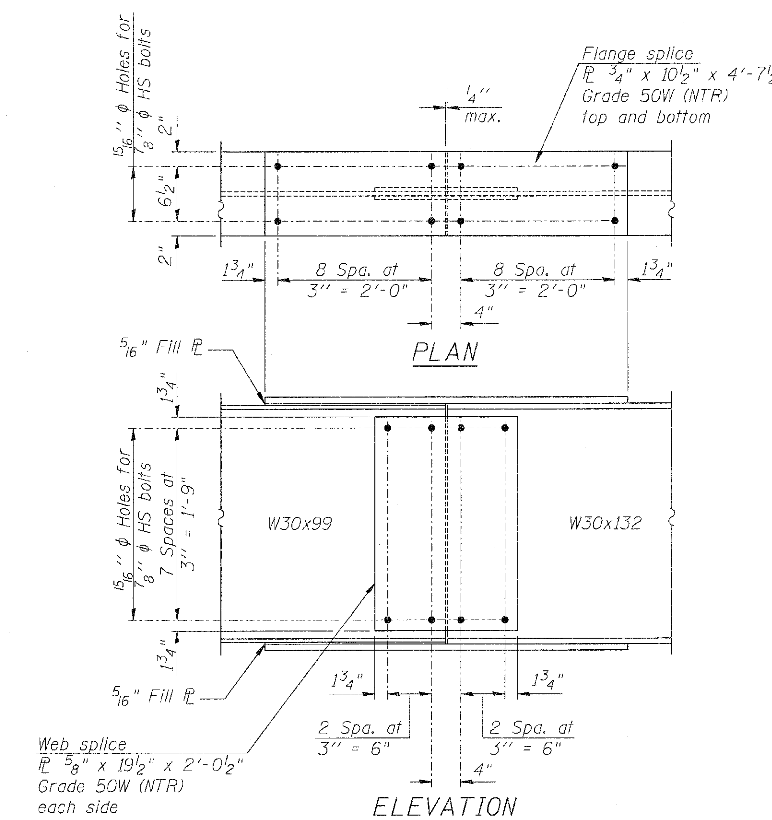


SECTION A-A



INTERIOR DIAPHRAGM

Note:
Two hardened washers required for each set of oversized holes.
*Alternate channels C12X30 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.
**3/4" ϕ HS bolts, 15/16" ϕ holes



SPLICE DETAIL
(12 Required)

Fasteners shall be AASHTO M164 Type 3 bolts.
Bolts 7/8" dia., holes 15/16" dia.

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613

DESIGNED	LAS
CHECKED	JLA
DRAWN	SAW
CHECKED	LAS

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 053-0189

SHEET NO. 15 OF 26 SHEETS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	68	(102)BR-1	LIVINGSTON	58	26
	SN 053-0189		CONTRACT NO. 66822		
	FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

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