

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 80	14VBR-2 & 14VBR-3	BUREAU	219	122
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 18
35 SHEETS

Contract No. 66731

	0.4 Sp. 1 0.6 Sp. 3	Pier 1 or Pier 2	0.5 Sp. 2
I_s	(in ⁴) 5660	5660	5660
$I_c(n)$	(in ⁴) 15282		15282
$I_c(3n)$	(in ⁴) 11180		11180
S_s	(in ³) 414	414	414
$S_c(n)$	(in ³) 601		601
$S_c(3n)$	(in ³) 544		544
DC1	(k/ft) .916	.916	.916
M _{DC1}	(k) 127	264	148
DC2	(k/ft) .150	.150	.150
M _{DC2}	(k) 25	34	34
DW	(k/ft) .367	.367	.367
M _{DW}	(k) 60	82	83
M _{ℓ + Imp}	(k) 500	306	568
M _u (Strength I)	(k) 1155	1031	1346
φ _r M _n	(k) 3064		3064
f _s DC1	(ksi) 3.7	7.7	4.3
f _s DC2	(ksi) 0.6	1.0	0.8
f _s DW	(ksi) 1.3	2.4	1.8
f _s 1.3(ℓ+I)	(ksi) 13.0	11.5	14.7
f _s (Service II)	(ksi) 18.6	22.6	21.6
f _s (Total)(Strength I)	(ksi) 24.8	30.0	28.9
V _r	(k) 23.1		23.1

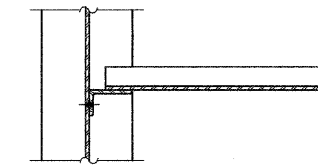
	Abutments	Piers
R _{DC1}	(k) 15.3	54.3
R _{DC2}	(k) 2.7	8.7
R _{DW}	(k) 6.7	21.2
R _{ℓ + Imp}	(k) 72.7	98.3
R _{Total}	(k) 97.4	182.5

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).

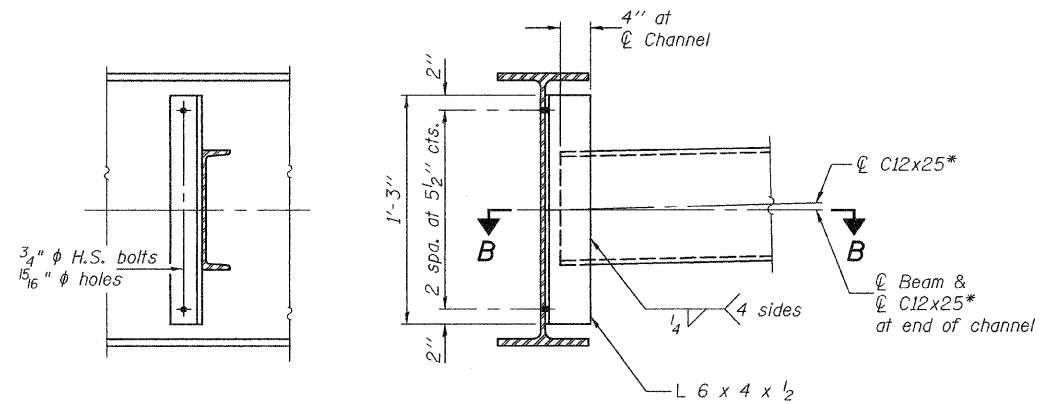
$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in.⁴ and in.³).

$I_c(3n), S_c(3n)$: 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).

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_{ℓ + Imp}: 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_{ℓ + Imp}
φ_rM_n: Compact composite positive moment capacity computed according to Article 6.10.7.1 (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_{ℓ + Imp}
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_{ℓ + Imp}
V_r: Factored shear range in span computed according to Art. 6.10.10.

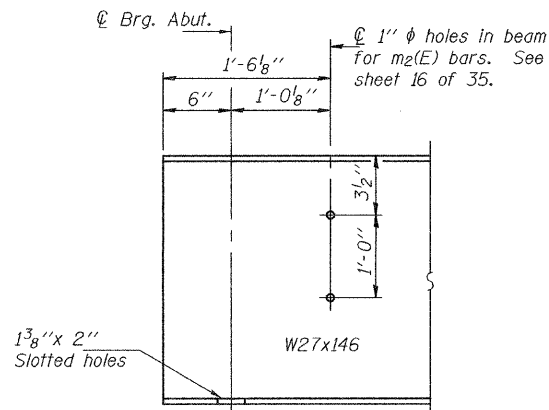


SECTION B-B

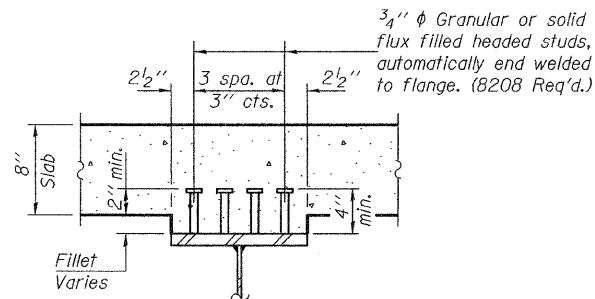


DIAPHRAGM D
(110 Required)

* Alternate channel C12x30 is permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.

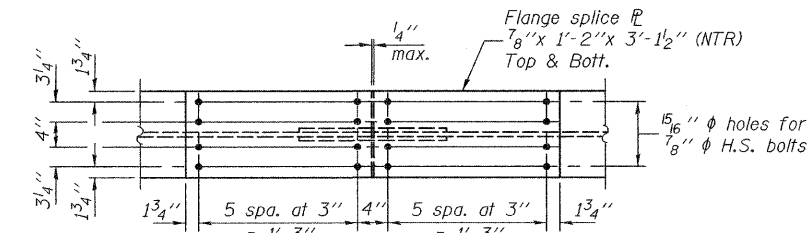


END OF BEAM ELEVATION

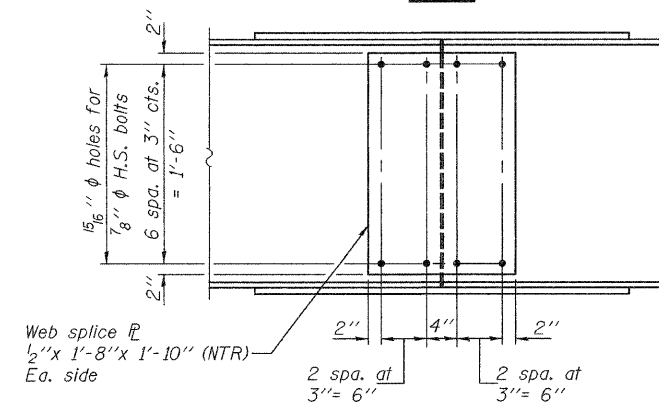


SECTION A-A

Notes: Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
Two hardened washers required for each set of oversized holes.



PLAN



ELEVATION
SPLICE DETAIL
(24 Required)

DESIGNED	Nicholas R. Barnett
CHECKED	Ray Ahanchi
DRAWN	h.t. duong
CHECKED	NRB/GRA

Sep. 30, 2008
EXAMINED *Thomas J. Domagala*
PASSED *Ralph E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES

STRUCTURAL STEEL DETAILS
F.A.I. RTE. 80 - SEC. 14VBR-2 & 14VBR-3
BUREAU COUNTY
STATION 413+39.84
STRUCTURE NO. 006-0167 (E.B.)
STRUCTURE NO. 006-0168 (W.B.)