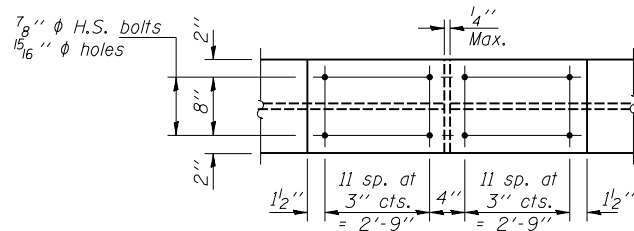


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

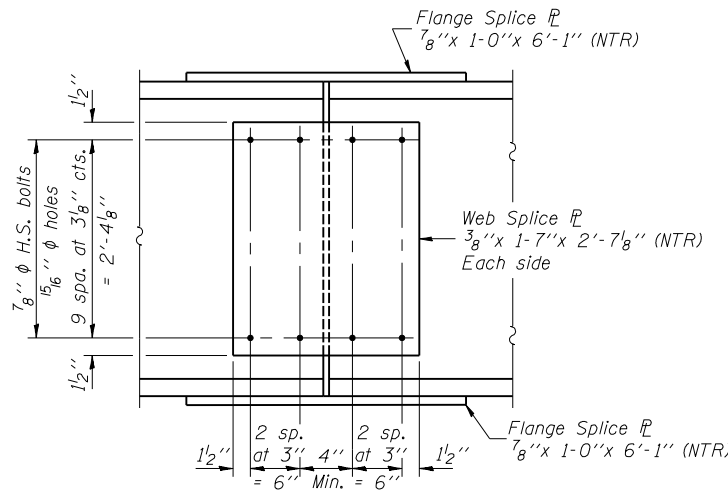
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 13 23 SHEETS
FAI 74	(57-22) BR-2	McLEAN	42	24	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Contract No. 70671



PLAN - SPLICES 1 & 2

(Top & Bottom flanges)



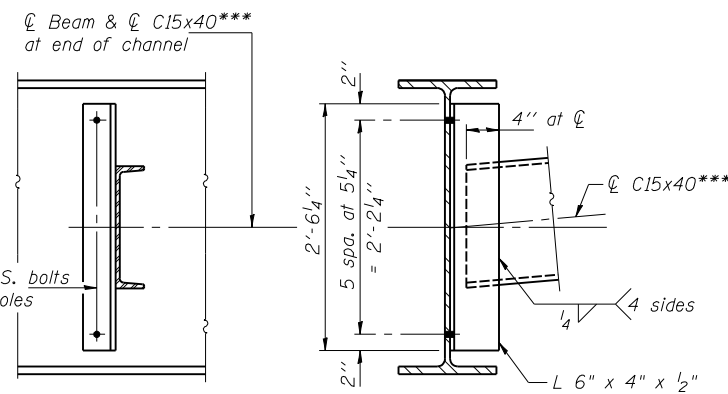
ELEVATION - SPLICES 1 & 2

(12 Required)

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 & 0.6 Sp. 3	Piers 1 & 2	0.5 Sp. 2
I_s	(in ⁴)	10500	10500	10500
$I_c(n)$	(in ⁴)	26418	10500	26418
$I_c(3n)$	(in ⁴)	19322	10500	19322
S_s	(in ³)	581	581	581
$S_c(n)$	(in ³)	831	581	831
$S_c(3n)$	(in ³)	750	581	750
ρ	(k/')	0.931	1.441	0.931
$M \rho$	(k)	237.8	558.1	174.8
$s \rho$	(k/')	0.510		0.510
$M_s \rho$	(k)	141.0		122.8
M_L	(k)	439.7	251.6	448.4
M_{Imp}	(k)	119.5	66.6	115.6
$^5_3 [M_L + M_{Imp}]$	(k)	932.0	530.3	940.0
M_a	(k)	1704	1415	1609
M_u	(k)	3921		4061
$f_s \rho$ non-comp	(ksi)	4.9	11.5	3.6
$f_s \rho$ (comp)	(ksi)	2.3		2.0
$f_s ^5_3 [M_L + M_{Imp}]$	(ksi)	13.5		13.6
f_s (Overload)	(ksi)	20.6	22.5	19.1
f_s (Total)	(ksi)		29.2	
VR	(k)	54.8		57.0

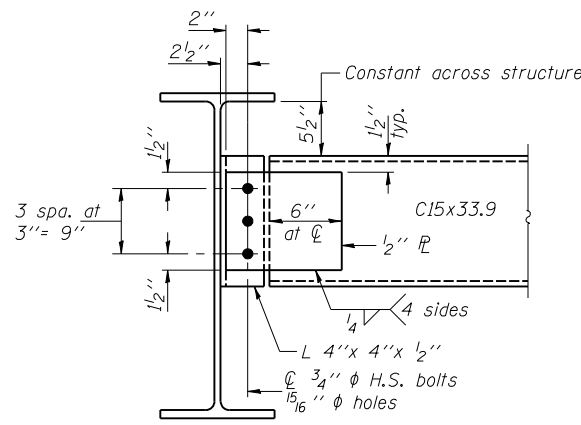
INTERIOR BEAM REACTION TABLE		
	Abutments	Piers
$R \rho$	(k)	33.0
R_L	(k)	38.6
Imp.	(k)	10.5
R_{Total}	(k)	82.1

- 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 (in⁴ and in³).
- $I_c(n), S_c(n)$: 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 (in⁴ and in³).
- $I_c(3n), S_c(3n)$: 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 (in⁴ and in³).
- ρ : Un-factored non-composite dead load (kips/ft.).
- $M \rho$: Un-factored moment due to non-composite dead load (kip-ft.).
- $s \rho$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
- $M_s \rho$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
- M_L : Un-factored live load moment (kip-ft.).
- M_{Imp} : Un-factored moment due to impact (kip-ft.).
- M_a : Factored design moment (kip-ft.).
- 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).
 $M \rho + M_s \rho + \frac{5}{3} (M_L + M_{Imp})$
- f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M \rho + M_s \rho + \frac{5}{3} (M_L + M_{Imp})]$
- VR: Maximum $\frac{1}{4}$ + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).



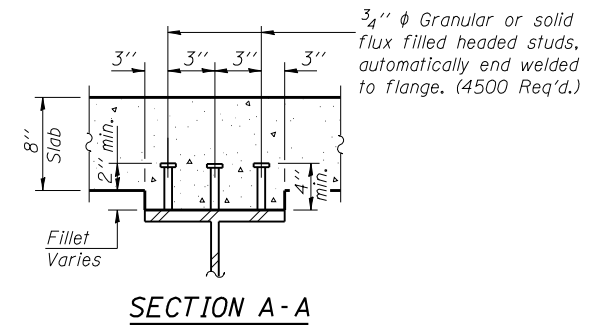
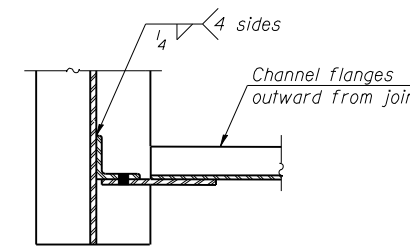
DIAPHRAGM D

(45 Required)



DIAPHRAGM D1

(10 Required)



***Alternate channel C15x40 may be used to facilitate material acquisition. The calculated weight of structural steel is based on the lighter section, C15x40. The alternate, if utilized, will be provided at no extra cost to the department.

**TOP OF BEAM ELEVATIONS (W.B.)

Location	☉ Brg. W. Abut.	☉ Brg. Pier 1	☉ Splice 1	☉ Brg. Pier 2	☉ Splice 2	☉ Brg. E. Abut.
Beam 1	756.10	755.70	755.62	755.44	755.41	755.41
Beam 2	756.22	755.83	755.75	755.56	755.53	755.55
Beam 3	756.34	755.95	755.87	755.68	755.64	755.66
Beam 4	756.27	755.88	755.80	755.62	755.58	755.60
Beam 5	756.16	755.77	755.69	755.50	755.47	755.48
Beam 6	756.01	755.62	755.54	755.36	755.32	755.33

**For fabrication use only.

BEARING SEAT ELEVATIONS

For information only.

Location	W. Abut.*	Pier 1*	Pier 2	E. Abut.*
Beam 1	751.79	751.38	751.99	751.06
Beam 2	751.94	751.50	752.12	751.22
Beam 3	752.07	751.64	752.24	751.34
Beam 4	751.99	751.56	752.17	751.29
Beam 5	751.86	751.43	752.06	751.14
Beam 6	751.70	751.31	751.91	750.98

*Existing

- Notes: . Two hardened washers required for each set of oversized holes.
- . All splice plates shall be AASHTO M 270, Grade 50.

DESIGNED	DHC
CHECKED	CCC
DRAWN	h.t. duong
CHECKED	DHC/CCC

Aug. 2, 2007
EXAMINED *Thomas J. Demagala*
ENGINEER OF BRIDGE DESIGN
PASSED *Ralph E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES

STRUCTURAL STEEL DETAILS
F.A.I. RT. 74 - SEC. (57-22)BR-2
McLEAN COUNTY
STATION 1039+00
STRUCTURE NO. 057-0126 (W.B.)