

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

*TOP OF BEAM ELEVATIONS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET	SHEET NO. 11
F.A.S. 1848	28-4BR	ST. CLAIR	101	78	22 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT			

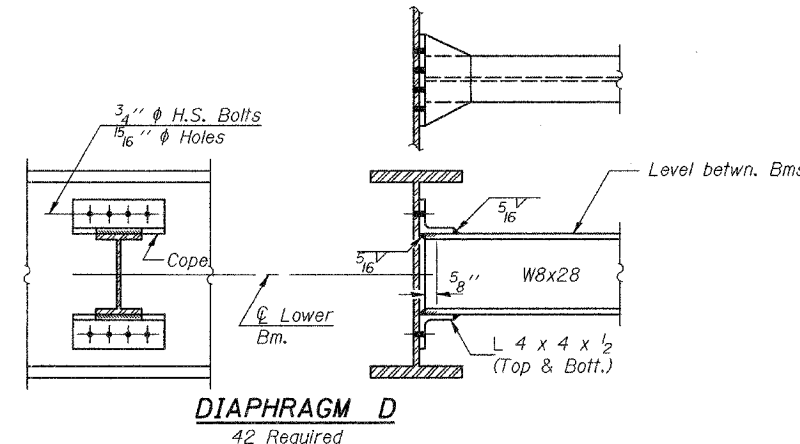
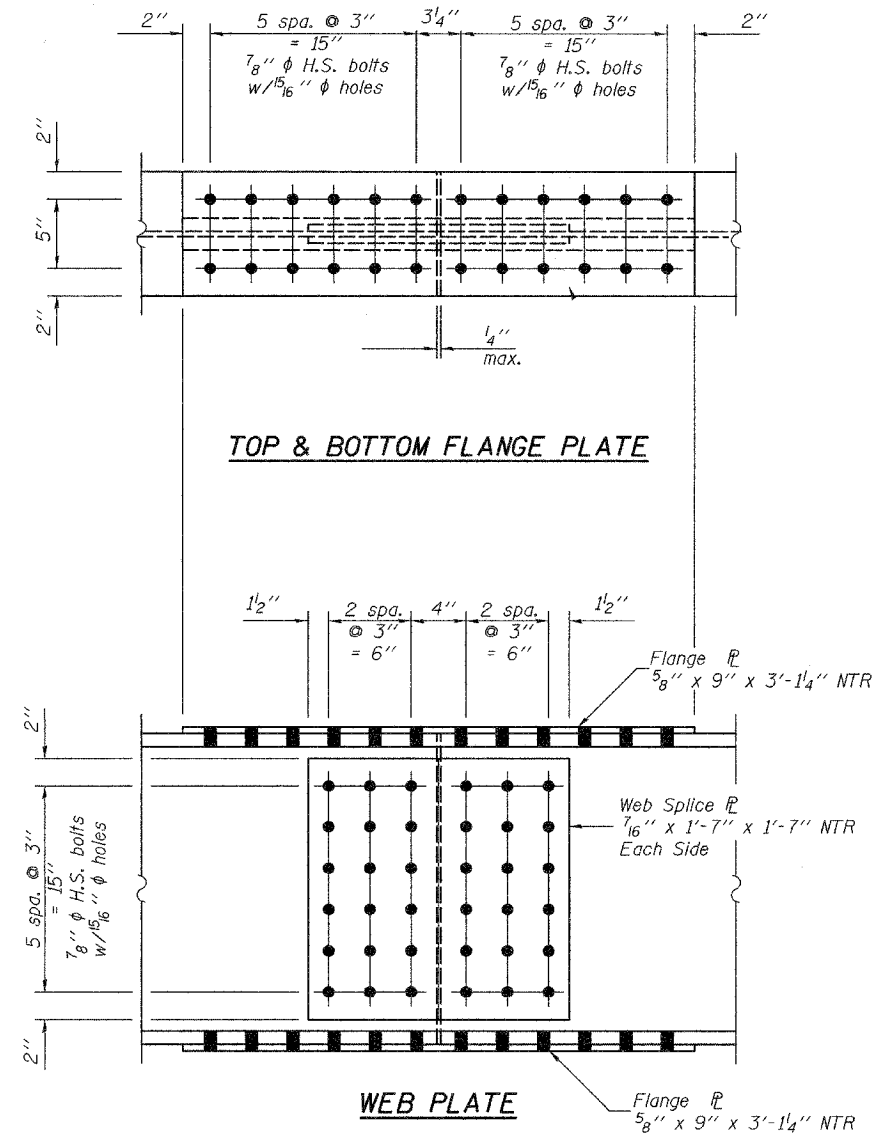
Contract #76394

		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
Is	(in ⁴)	1830	1830	1830
Ic (n)	(in ⁴)	6048	-	6048
Ic (3n)	(in ⁴)	4563	-	4563
Ss	(in ³)	154	154	154
Sc (n)	(in ³)	252	-	252
Sc (3n)	(in ³)	228	-	228
DC1	(k/')	0.665	0.665	0.665
M DC1	(k)	16.2	118.8	89.0
DC2	(k/')	0.13	0.13	0.13
M DC2	(k)	5.8	16.7	23.9
DW	(k/')	0.31	0.31	0.31
M DW	(k)	13.7	39.9	56.9
M $\frac{1}{4}$ +Imp	(k)	242.2	191.3	379.8
Ma (Strength I)	(k)	471.9	564.0	891.1
ϕ Mn	(k)	1,257.1	669.2	1,257.1
fs DC1	(ksi)	1.3	9.3	6.9
fs DC2	(ksi)	0.3	1.3	1.3
fs DW	(ksi)	0.7	3.1	3.0
fs 1.3($\frac{1}{4}$ +I)	(ksi)	15.0	19.4	23.5
fs (Service II)	(ksi)	17.3	33.1	34.7
fs (Total)(Strength I)	(ksi)	23.2	44.0	46.4
Vsr	(k)	17.5	-	16.8

	Abutment	Pier	
R DC1	(k)	5.2	30.2
R DC2+DW	(k)	4.2	19.2
R $\frac{1}{4}$	(k)	35.8	59.1
R Imp	(k)	11.8	19.5
R Total	(k)	57.0	128.0

Location	\bar{C} Brg. W. Abut.	\bar{C} Brg. Pier 1	\bar{C} Splice	\bar{C} Brg. Pier 2	\bar{C} Brg. E. Abut.
Beam 1 & 7	440.02	440.02	439.86	440.02	439.96
Beam 2 & 6	440.15	440.15	439.99	440.15	440.09
Beam 3 & 5	440.24	440.24	440.08	440.24	440.18
Beam 4	440.34	440.34	440.18	440.34	440.28

*For fabrication only



Notes:
Use $\frac{13}{16}$ " x $1\frac{1}{2}$ " slotted holes in top and bottom connection angles 4 x 4 x 1/2 at South side of Beam 4 only. Provide $\frac{5}{16}$ " plate washers for slotted holes. Bolts shall be finger-tightened prior to the deck pour for Stage II Construction and then be fully tightened after completion of the deck pour for Stage II Construction.
Two hardened washers shall be required over all oversize holes for diaphragms.

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs due to non-composite loads.
Ic(n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing fs due to short-term composite loads.
Ic(3n) and Sc(3n) are the moment of inertia and section modulus of the composite section used in computing fs due to long-term composite loads.
DC1 is the dead load acting on the non-composite section.
DC2 is the dead load acting on the long-term composite section.
DW is the dead load acting on the long-term composite section due to wearing surface.
Ma (Strength I) = 1.25 M(DC1+DC2) + 1.5 M DW + 1.75 M($\frac{1}{4}$ +Imp)
 ϕ Mn is the full plastic moment capacity computed in accordance with Appendix D6.1 and 6.10.7.
fs (Service II) is the sum of the stresses due to DC1+DC2+DW+1.3($\frac{1}{4}$ +Imp)
fs (Total) (Strength I) (Non-Compact Section) is the sum of the stresses due to 1.25(DC1+DC2)+1.5DW+1.75($\frac{1}{4}$ +Imp)
Vsr is the maximum shear range in the span 0.75($\frac{1}{4}$ +Imp)

DETAIL OF SPLICE
"NTR" denotes members to which Notch Toughness Requirements are applicable.
All structural steel for splice plates shall be AASHTO M270 Grade 50.

DESIGNED	M.D. Cima
CHECKED	R.J.C.
DRAWN	W.D. Collins
CHECKED	M.D.C. R.J.C.

March 17, 2006
EXAMINED *Thomas J. Domagalaki*
PASSED *Ralph E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES

STRUCTURAL STEEL DETAILS
F.A.S. ROUTE 1848 - SECTION 28-4BR
ST. CLAIR COUNTY
STATION 356+18.50
STRUCTURE NO. 082-0272