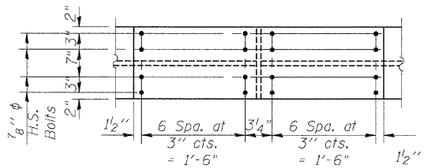
*SEC. 99 (1&2) R 3&9-1HB-1-BR2

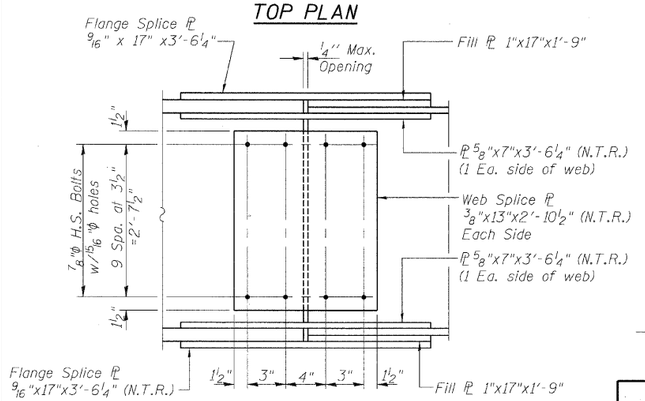
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI 57	*	WILL	303	171
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 17
28 SHEETS

Contract #62253

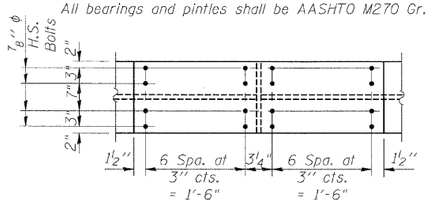


TOP PLAN

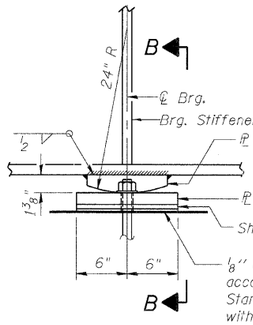


ELEVATION

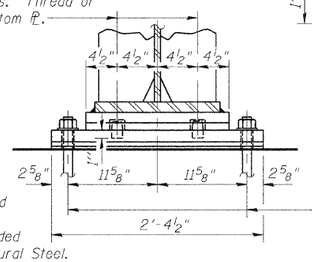
Note:
All splice material except fill plates shall be AASHTO M270 Gr. 50 and shall meet Notch Toughness Requirements (N.T.R.).
All bearings and pintles shall be AASHTO M270 Gr. 50.



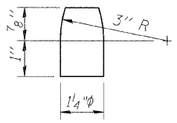
BOTTOM PLAN
FIELD SPLICE DETAIL



ELEVATION AT PIER

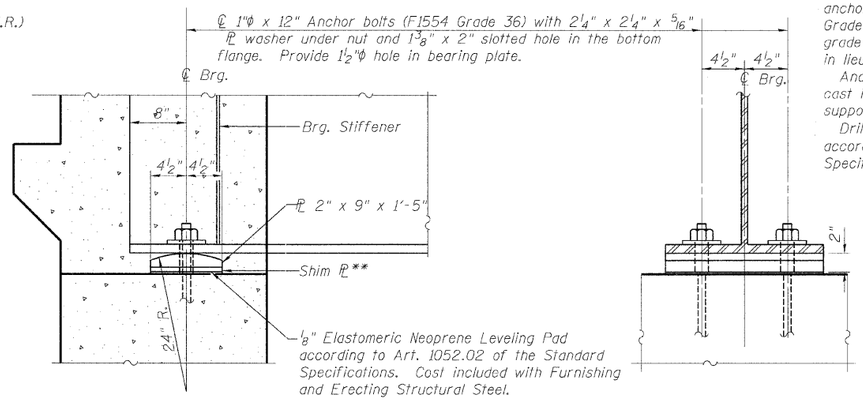


SECTION B-B



PINTLE

FIXED BEARING AT PIER
(11 Required)



FIXED BEARING AT WEST & EAST ABUTMENT
(22 Required)

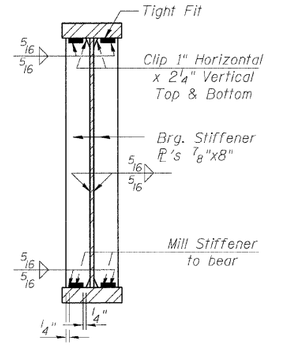
**Provide 1/4" Shim PL for bearings of Girder #6, otherwise as req'd at other locations

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
RP	(K)	55.0	197.3
RL	(K)	48.6	74.7
Imp.	(K)	10.6	16.2
R (Total)	(K)	114	288

INTERIOR GIRDER MOMENT TABLE			
		0.4 Sp. 1	Pier
Is	(in4)	14932	29223
Ic (n)	(in4)	31917	
Ic (3n)	(in4)	24204	
Ss	(in3)	747	1392
Sc (n)	(in3)	2399	
Sc (3n)	(in3)	1236	
W	(K/ft.)	0.944	1.450
MP	('K)	630	2292
sP	(K/ft.)	0.520	
MsP	('K)	389	
ML	('K)	901	824
M (Imp)	('K)	196	179
5/3[ML+M(Imp)]	('K)	1828	1672
Ma	('K)	3701	5153
Mu	('K)	4176	
fsP non-comp	(k.s.i.)	10.1	19.8
fsP (comp)	(k.s.i.)	3.8	
fs 5/3[ML+M(Imp)]	(k.s.i.)	9.2	14.4
fs (Overload)	(k.s.i.)	23.1	34.2
*** fs (Total)	(k.s.i.)		44.5
VR	(K)	50	

*** Non-Compact section

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

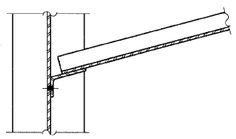


SECTION AT PIER & ABUTMENTS
(Similar at abutments)

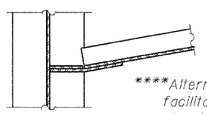
I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s(Total and Overload) due to non-composite dead loads (in4 and in3).
$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used 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).
P: Un-factored non-composite dead load (kips/ft.).
MP: Un-factored moment due to non-composite dead load (kip-ft).
sP: Un-factored long-term composite (superimposed) dead load (kips/ft.).
MsP: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
ML: Un-factored live load moment (kip-ft.).
M1: Un-factored moment due to impact (kip-ft).
Ma: Factored design moment (kip-ft.) 1.3 [MP + MsP + 5/3 (ML + M1)]
f_s (Overload): Sum of stresses as computed from the moments below (ksi). MP + MsP + 5/3 (ML + M1)
f_s (Total): Sum of stresses as computed from the moments below (ksi). 1.3 [MP + MsP + 5/3 (ML + M1)]
VR: Maximum L+ impact horizontal shear range within span for stud shear connector design (kips).

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1"	Each	44
Anchor Bolts, 1 1/2"	Each	22

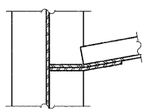


SECTION A-A

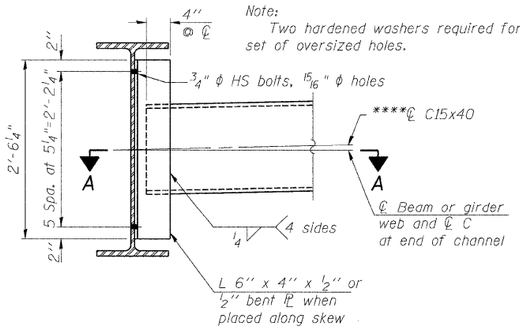


SECTION A-A

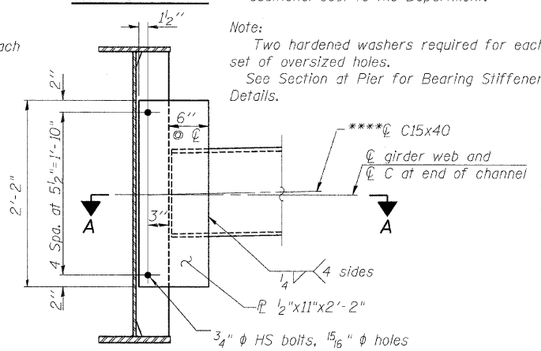
****Alternate channel, C15x50, is permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.



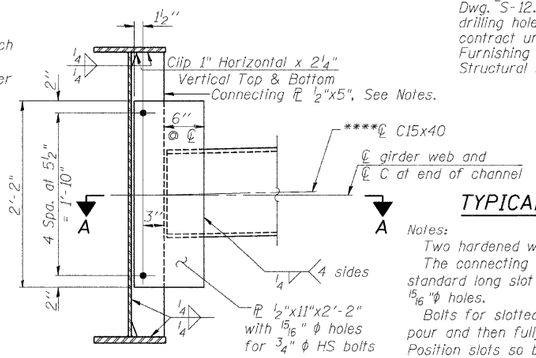
SECTION A-A



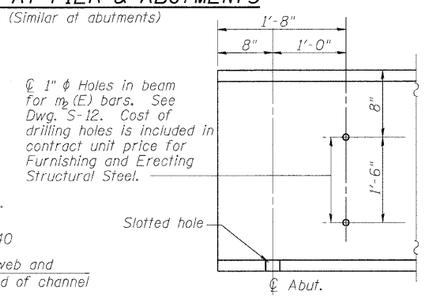
DIAPHRAGM D
(90 Required)



DIAPHRAGM D1
(10 Required)



DIAPHRAGM D2
(10 Required)



TYPICAL END OF BEAM ELEVATION

Notes:
Two hardened washers required for each set of oversized holes.
The connecting PL of Girder 5 shall have 15/16"x1 7/8" standard long slot holes. The connecting PL of Girder 4 shall have 15/16"ϕ holes.
Bolts for slotted holes shall be finger tightened prior to deck slab pour and then fully tightened after completion of Stage II pouring. Position slots so bolts start at bottom end of slot with no concrete load and finish near top end under deck load.

STRUCTURAL STEEL DETAILS, FIXED BEARING DETAILS AND MOMENT TABLE

MANHATTAN-MONEE ROAD (CH-6)
OVER I-57
F.A. I-57 SEC. 99(1&2) R 3&9-1HB-1-BR2
WILL COUNTY STA.14037+43.90
STRUCTURE NUMBER 099-4647

Clark Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
1817 SOUTH NEIL STREET SUITE 100
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

ACTIVITY	INITIALS		
DESIGNED BY:	SMM	PROJECT NO:	102230
DRAWN BY:	MEW/SLD	DATE:	06/2008
CHECKED BY:	SLD		
APPROVED BY:	SMM		

DRAWING NUMBER
S-17