

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 10
F.A.P. 717	(111B)BR	DEWITT	53	30	16 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Contract #70387

	0.4 Sp. 1	Pier	0.6 Sp. 2
I_s	(in ⁴) 10500	10500	10500
I_c (n)	(in ⁴) 25037		25037
I_c (3n)	(in ⁴) 18057		18057
S_s	(in ³) 581	581	581
S_c (n)	(in ³) 819		819
S_c (3n)	(in ³) 733		733
Z	(in ³)	668	
DC1	(k/ft.) 0.789	0.789	0.789
M DC1	('k) 544	667	128
DC2	(k/ft.) 0.15	0.15	0.15
M DC2	('k) 117	94	37
DW	(k/ft.) 0.3	0.3	0.3
M DW	('k) 233	188	75
$M_{\perp} + Imp$	('k) 1028	647	671
M_a (Strength I)	('k) 2974	2366	1492
ϕfM_n	('k) 4062	2750	4062
f_s DC1	(k.s.i.) 11.3	13.8	2.6
f_s DC2	(k.s.i.) 1.9	1.9	0.6
f_s DW	(k.s.i.) 3.8	3.9	1.2
f_s 1.3(L+I)	(k.s.i.) 19.6	17.4	12.8
f_s (Service II)	(k.s.i.) 36.6	37.0	17.2
f_s (Total)(Strength I)	(k.s.i.)		
Vsr	(k) 28.3		26.7

	W. Abut.	Pier	E. Abut.
R DC1	(k) 29.3	79.5	15.1
R DC2+DW	(k) 17.8	42.8	10.2
R \perp	(k) 68.2	94.0	58.8
R Imp.	(k) 15.9	18.8	14.9
R (Total)	(k) 131.2	235.1	99.0

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s due to non-composite loads.

I_c (n) and S_c (n) are the moment of inertia and section modulus of the composite section used in computing f_s due to short-term composite loads.

I_c (3n) and S_c (3n) are the moment of inertia and section modulus of the composite section used in computing f_s due to long-term composite loads.

Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

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.

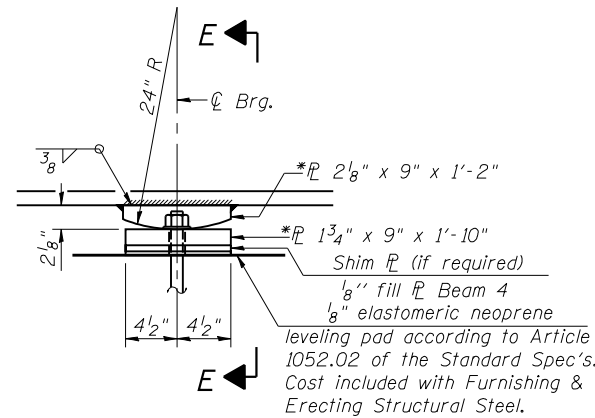
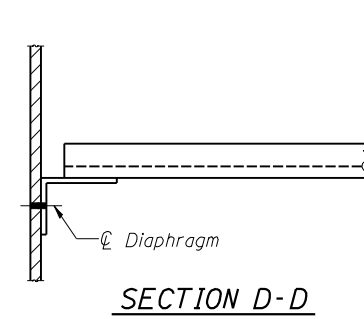
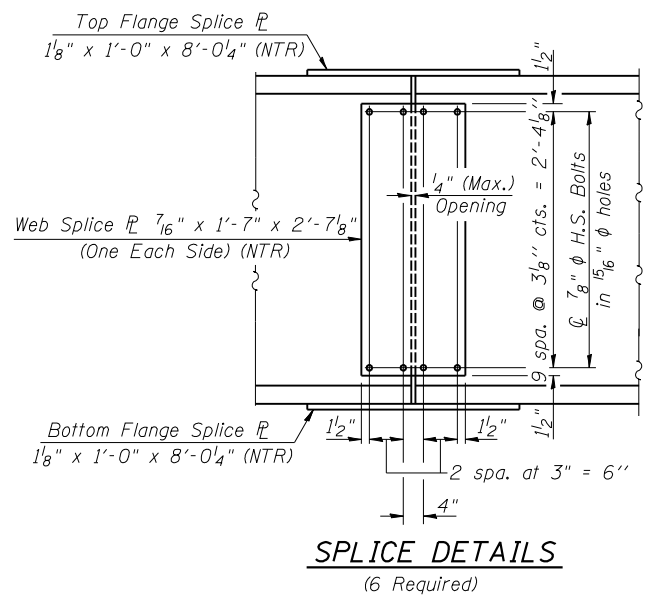
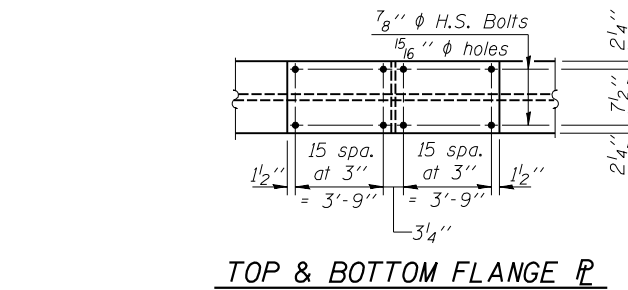
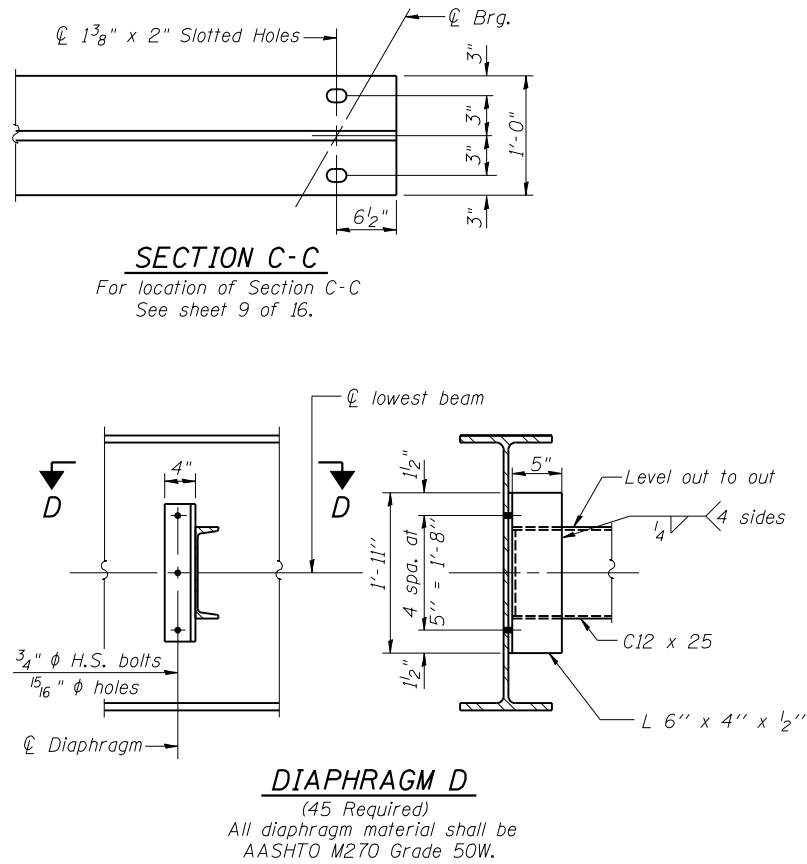
M_a (Strength I) = 1.25 (MDC1+DC2) + 1.5M (DW) + 1.75 M(L+Imp).

ϕfM_n is the full plastic moment capacity computed in accordance with appendix D6.1 and 6.10.7.

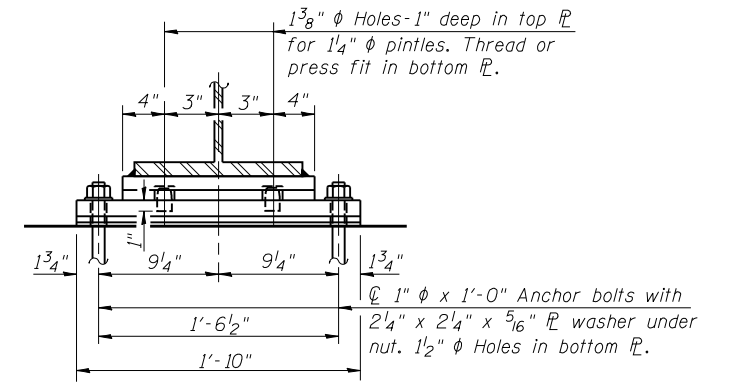
f_s (Service II) is the sum of the stresses due to DC1+DC2+DW+1.3(L+Imp).

f_s (Total) (Strength I) (Non-compact section) is the sum of the stresses due to 1.25(DC1+DC2)+1.5DW+1.75(L+Imp).

Vsr is the maximum shear range in the span 0.75 (L+Imp).

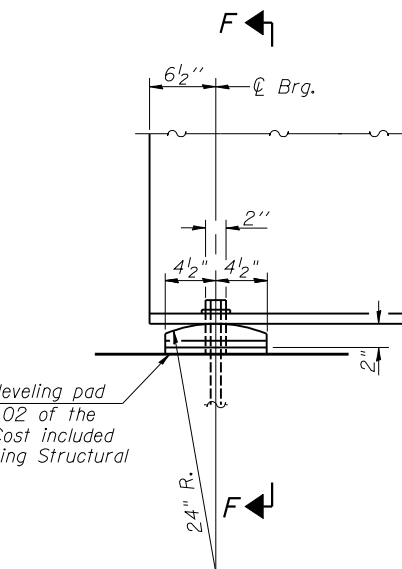


ELEVATION AT PIER

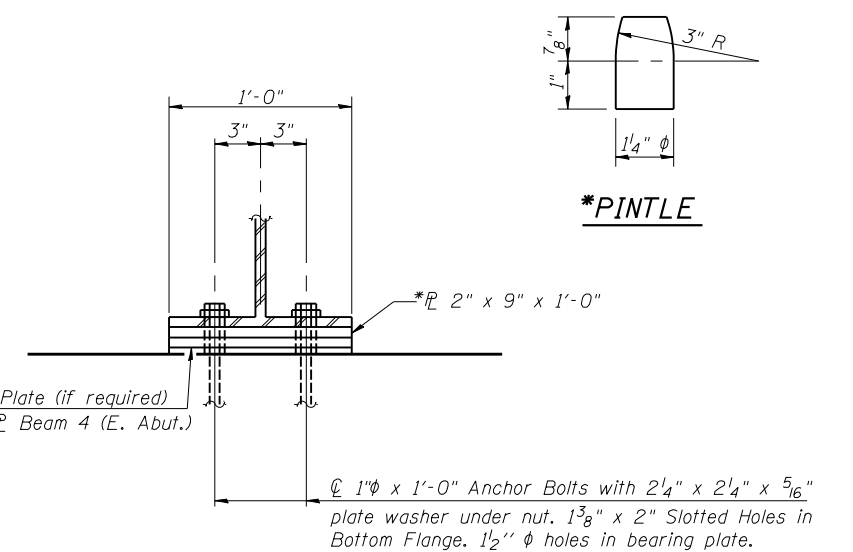


SECTION E-E

PIER BEARING
(6 Required)



ELEVATION AT ABUTMENTS



SECTION F-F

ABUTMENT BEARING
(12 Req'd.)

Notes: All splice plates shall be AASHTO M 270 Grade 50W.
"NTR" denotes members to which Notch Toughness Requirements are applicable.
Anchor Bolts at all bearings may be built into the concrete. See sheet 11 of 16 for Anchor Bolt Details.
Two hardened washers shall be required for all 1 5/16'' holes in diaphragms.
*AASHTO M270 Grade 50W.

STRUCTURAL STEEL &
BEARING DETAILS
F.A.P. RT. 717 SEC. (111B)BR
DEWITT COUNTY
STATION 1069+54.00
STRUCTURE NO. 020-0063

DESIGNED Stephen M. Ryan
CHECKED Angela J. Bryant
DRAWN R. Sommer
CHECKED S.M.R./F.T.

September 29, 2006
EXAMINED Thomas J. Domagalaki
PASSED Ralph E. Anderson
ENGINEER OF BRIDGE DESIGN
ENGINEER OF BRIDGES AND STRUCTURES