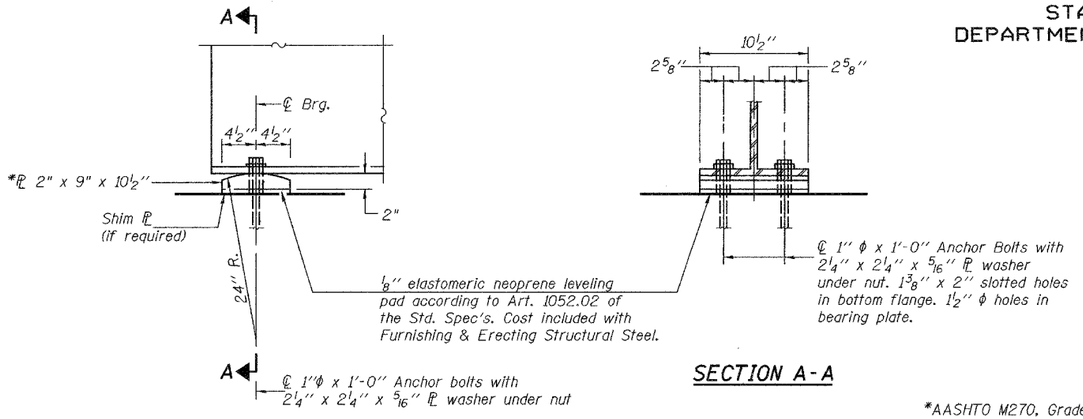
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 314	108BR-1	MADISON	123	41
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 13
29 SHEETS

Contract #76454

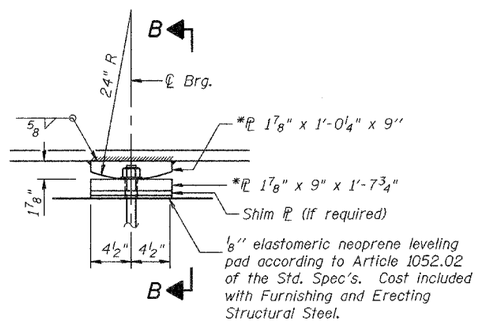


SECTION A-A

ELEVATION AT ABUTMENTS

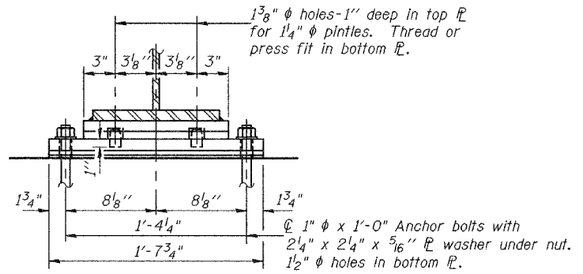
*AASHTO M270, Grade 50.

ABUTMENT BEARING
(12 Required)

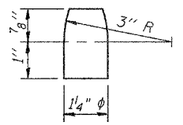


ELEVATION AT PIER

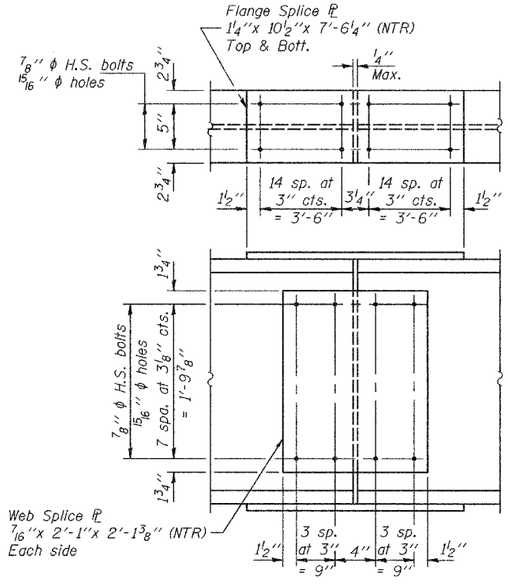
FIXED BEARING
(24 Required)



SECTION B-B



*PINTLE



SPLICE
(24 Required)

INTERIOR BEAM MOMENT TABLE - 5 SPAN SYMMETRICAL						
		0.4 Sp. 1 & 0.6 Sp. 5	Pier 1 & Pier 4	0.5 Sp. 2 & Sp. 4	Pier 2 & Pier 3	0.5 Sp. 3
Is	(in⁴)	6680	6680	6680	6680	6680
Ic (n)	(in⁴)	17051	———	17051	———	17051
Ic (3n)	(in⁴)	12386	———	12386	———	12386
Ss	(in³)	436	436	436	436	436
Sc (n)	(in³)	628	———	628	———	628
Sc (3n)	(in³)	565	———	565	———	565
DC1	(k/ft.)	0.800	0.800	0.800	0.800	0.800
M DC1	('k)	128	323	200	374	174
DC2	(k/ft.)	0.150	0.150	0.150	0.150	0.150
M DC2	('k)	29	48	50	57	45
DW	(k/ft.)	0.329	0.329	0.329	0.329	0.329
M DW	('k)	64	104	110	126	100
M(L+Imp	('k)	556	417	712	503	715
Ma (Strength I)	('k)	1265	1350	1724	1608	1675
ϕ Mn	('k)	3177	———	3177	———	3177
fs DC1	(k.s.i.)	3.5	8.9	5.5	10.3	4.8
fs DC2	(k.s.i.)	0.6	1.3	1.1	1.6	1.0
fs DW	(k.s.i.)	1.4	2.9	2.3	3.5	2.1
fs 1.3 (L+I)	(k.s.i.)	13.8	14.9	17.7	18.0	17.8
fs (Service II)	(k.s.i.)	19.3	28.0	26.6	33.4	25.7
fs (Total)(Strength I)	(k.s.i.)	———	37.2	———	44.4	———
ϕ Fnc		———	50.0	———	50.0	———
Vsr	(k)	22.3	———	26.5	———	26.3

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)+1.5M (DW)+1.75 M(L+Imp).

ϕ Mn is the full plastic moment capacity computed in accordance with Appendix D6.1 and 6.10.7.1.2.

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

fs (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).

ϕ Fnc is the allowable flexural resistance stress of the compression flange computed in accordance with Art. 6.5.4.2 and 6.10.8.2.

INTERIOR BEAM REACTION TABLE - HL 93 LOADING					
		N. Abut.	Pier 1 & Pier 4	Pier 2 & Pier 3	S. Abut.
R DC1	(k)	14.5	55.8	59.9	14.5
R DC2+DW	(k)	9.5	32.6	35.8	9.5
RL	(k)	51.9	82.3	86.5	51.9
Imp.	(k)	13.5	16.2	22.5	13.5
R (Total)	(k)	89.4	186.9	198.4	89.4

**TOP OF BEAM ELEVATIONS

Location	℄ Brg. N. Abut.	℄ Brg. Pier 1	℄ Splice 1	℄ Brg. Pier 2	℄ Splice 2	℄ Splice 3	℄ Brg. Pier 3	℄ Splice 4	℄ Brg. Pier 4	℄ Brg. S. Abut.
Beam 1	507.583	507.722	507.751	507.886	507.909	507.915	507.894	507.772	507.745	507.617
Beam 2	507.709	507.849	507.878	508.013	508.036	508.041	508.020	507.899	507.872	507.744
Beam 3	507.812	507.952	507.981	508.116	508.139	508.144	508.123	508.002	507.975	507.846
Beam 4	507.812	507.952	507.981	508.116	508.139	508.144	508.123	508.002	507.975	507.846
Beam 5	507.709	507.849	507.878	508.013	508.036	508.041	508.020	507.899	507.872	507.744
Beam 6	507.583	507.722	507.751	507.886	507.909	507.915	507.894	507.772	507.745	507.617

**For fabrication use only.

Notes: Two hardened washers shall be required over all 15/16" ϕ holes for diaphragms.
NTR denotes members to which Notch Toughness Requirements are applicable.
Anchor bolts at all bearings may be built into the masonry.
See sheet 14 of 29 for anchor bolt installation.

DESIGNED	Curt M. Evoy
CHECKED	Tom L. Kurtenbach
DRAWN	h.t. duong
CHECKED	CME/TLK

November 17, 2005
EXAMINED Thomas J. Domagalski
ENGINEER OF BRIDGE DESIGN
PASSED Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

STRUCTURAL STEEL DETAILS
F.A.P. RTE. 314 - SEC. 108BR-I
MADISON COUNTY
STATION 263+51
STRUCTURE NO. 060-0334