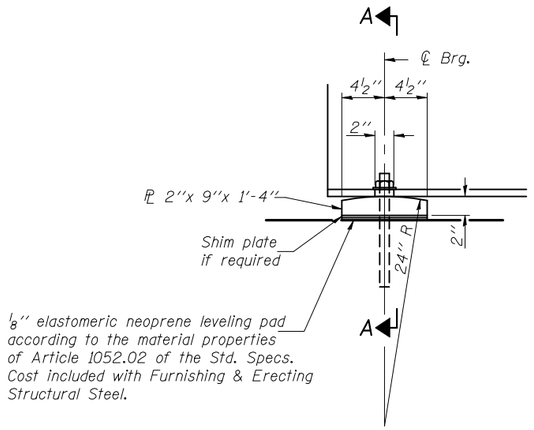
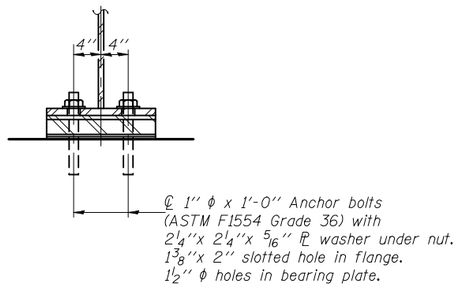
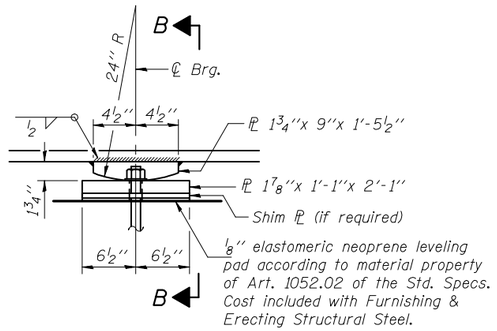
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



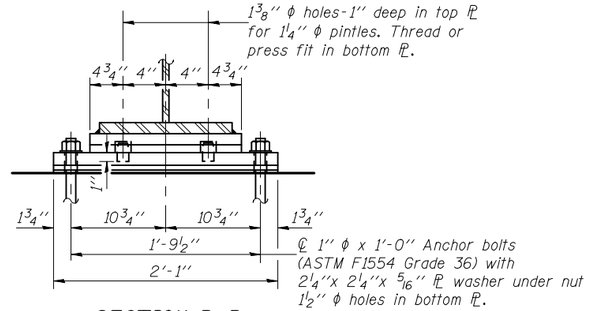
ELEVATION AT ABUTMENT



SECTION A-A



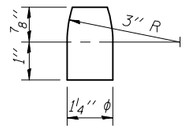
ELEVATION AT PIER



SECTION B-B

FIXED BEARING
(12 Required)

FIXED BEARING
(12 Required)



PINTLE

INTERIOR GIRDER MOMENT TABLE						
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
I_s	(in^4)	17399	25193	18369	25193	17399
$I_c(n)$	(in^4)	40882	———	43864	———	40882
$I_c(3n)$	(in^4)	29940	———	31847	———	29940
S_s	(in^3)	776	1061	849	1061	776
$S_c(n)$	(in^3)	1051	———	1144	———	1051
$S_c(3n)$	(in^3)	958	———	1044	———	958
DC1	(k/')	0.810	0.867	0.818	0.867	0.810
M_{DC1}	('k)	426.6	1179.8	615.2	1062.9	279.7
DC2	(k/')	0.150	0.150	0.150	0.150	0.150
M_{DC2}	('k)	95.9	175.5	149.6	159.1	66.6
DW	(k/')	0.300	0.300	0.300	0.300	0.300
M_{DW}	('k)	191.8	350.9	299.2	318.3	133.1
M_{L+Imp}	('k)	1095.8	1033.5	1296.8	1002.7	957.2
M_u(Strength I)	('k)	2858.5	4029.1	3674.1	3759.7	2307.6
$\phi_f M_n$	('k)	5305.7	———	5683.9	———	5305.7
f_s DC1	(ksi)	6.6	13.3	8.7	12.0	4.3
f_s DC2	(ksi)	1.2	2.0	1.7	1.8	0.8
f_s DW	(ksi)	2.4	4.0	3.4	3.6	1.7
f_s 1.3(L+I)	(ksi)	16.3	15.2	17.7	14.7	14.2
f_s (Service II)	(ksi)	26.5	34.5	31.5	32.1	21.0
f_s (Total)(Strength I)	(ksi)	———	45.6	———	42.5	———
V_f	(k)	30.0	———	26.5	———	29.5

INTERIOR GIRDER REACTION TABLE HL93 Loading					
		N. Abut.	Pier 1	Pier 2	S. Abut.
R_{DC1}	(k)	26.7	106.8	100.7	22.0
R_{DC2}	(k)	5.4	18.9	17.9	4.5
R_{DW}	(k)	10.8	37.8	35.7	9.0
R_{L+Imp}	(k)	84.5	141.7	138.6	81.1
R_{Total}	(k)	127.4	305.2	292.9	116.6

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in.^{4} and in.^{3}).

$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in.^{4} and in.^{3}).

$I_c(3n)$, $S_c(3n)$: 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-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in.^{4} and in.^{3}).

DC1: Un-factored non-composite dead load (kips/ft.).

M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M_{L+Imp}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+Imp}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

f_s (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\ M_{L+Imp}$

f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+Imp}$

V_f: Factored shear range computed according to Article 6.10.10.

*TOP OF GIRDER WEB ELEVATIONS

Location	℄ Brg. N. Abut.	℄ Brg. Pier 1	℄ Splice 1	℄ Splice 2	℄ Brg. Pier 2	℄ Brg. S. Abut.
Girder 1	628.78	629.48	629.59	629.42	629.28	628.41
Girder 2	628.93	629.60	629.65	629.46	629.36	628.46
Girder 3	629.06	629.70	629.75	629.53	629.43	628.50
Girder 4	629.10	629.72	629.76	629.51	629.40	628.45
Girder 5	629.05	629.63	629.67	629.39	629.28	628.30
Girder 6	628.98	629.53	629.56	629.26	629.14	628.14

*For fabrication use only.

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.

All bearing plates and pintles shall be AASHTO M270 Grade 50W.

Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

SHIM PLATE THICKNESS

Location	N. Abut.	Pier 1	Pier 2	S. Abut.
Girder 1	———	———	———	¼''
Girder 2	———	———	———	⅛''
Girder 3	¼''	———	———	5/8''
Girder 4	———	¼''	3/8''	———
Girder 5	⅛''	———	———	———
Girder 6	———	———	———	———

DESIGNED	Nicholas R. Barnett
CHECKED	Michael D. Rolape
DRAWN	h.t. duong
CHECKED	NRB/MDR

September 17, 2010

EXAMINED Thomas J. Domagalski
ENGINEER OF BRIDGE DESIGN

PASSED Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

BEARING DETAILS
STRUCTURE NO. 084-0517

SHEET NO. 17	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
27 SHEETS	8159	110X-3VB-4	SANGAMON	78	42
			CONTRACT NO. 72692		
		ILLINOIS	FED. AID PROJECT		