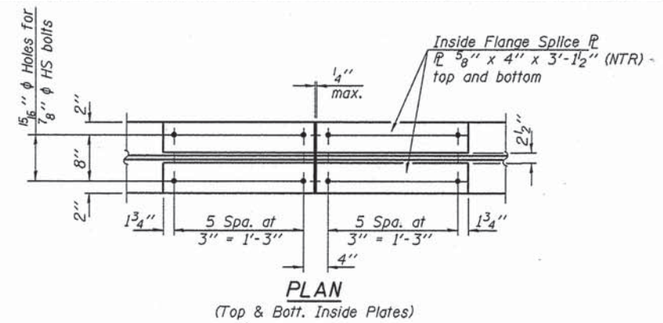
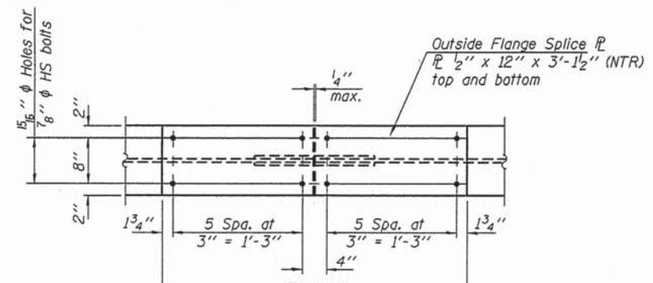


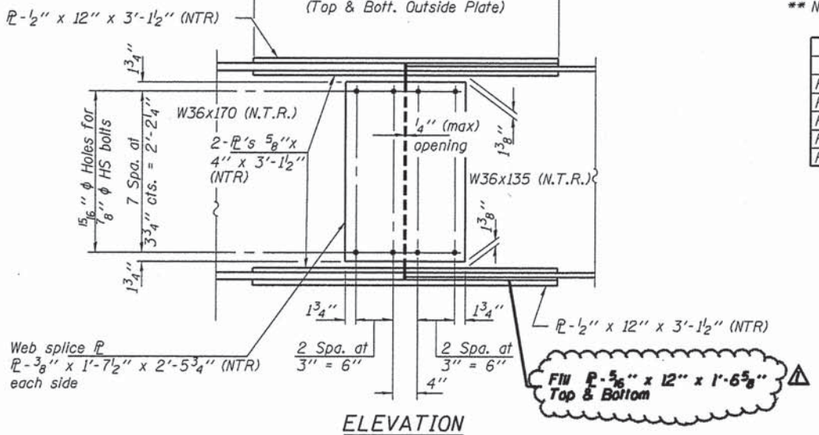
PLAN

(Top & Bott. Inside Plates)



PLAN

(Top & Bott. Outside Plate)



ELEVATION

SPLICE 1 & 2 DETAIL

(10 Required)

INTERIOR GIRDER MOMENT TABLE			
		0.4 Sp. 1 or 0.6 Sp. 3	Pier
I_s	(in^4)	7800	10500
$I_c(n)$	(in^4)	20600	25560
$I_c(3n)$	(in^4)	15070	18561
$I_c(cr)$	(in^4)	9295	13273
S_s	(in^3)	438	580
$S_c(n)$	(in^3)	646	822
$S_c(3n)$	(in^3)	582	739
$S_c(cr)$	(in^3)	435	634
DC1	(k/')	0.85	0.89
M_{DC1}	('k)	352	746
DC2	(k/')	0.03	0.03
M_{DC2}	('k)	13	26
DW	(k/')	0.30	0.30
M_{DW}	('k)	128	257
M_{L+IM}	('k)	847	977
M_u (Strength I)	('k)	2131	3060
* $\phi_f M_n$	('k)	3201	-
f_s DC1	(ksi)	9.6	15.4
f_s DC2	(ksi)	0.3	0.5
f_s DW	(ksi)	2.6	4.9
f_s 1.3(LL+IM)	(ksi)	15.7	18.5
f_f (Service II)	(ksi)	33.0	44.8
$0.95R_hF_yf_{s+l:}$	(ksi)	47.5	47.5
** f_s (Total)(Strength I)	(ksi)	-	59.6
** $\phi_f F_n$	(ksi)	-	-
Vr	(k)	26.9	26.9

* Compact sections

** Non-compact sections

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
R_{DC1}	(k)	24.5	87.5
R_{DC2}	(k)	0.9	3.1
R_{DW}	(k)	8.8	30.5
R_{L+IM}	(k)	74.9	106.7
R_{Total}	(k)	109.1	227.8

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) in uncracked sections, 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) in uncracked sections, 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+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

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

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

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(3n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

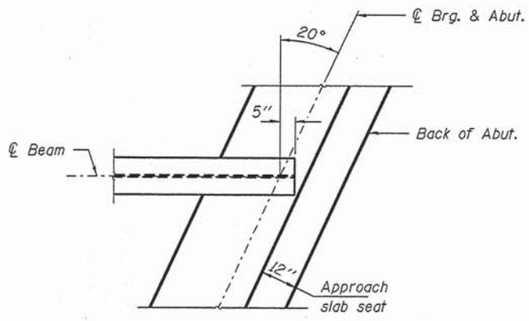
f_s (Service II): Sum of stresses as computed below (ksi).
$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (L + IM)$

$0.95R_hF_yf_{s+l:}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

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

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

Vr: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.



SECTION B-B

Notes:

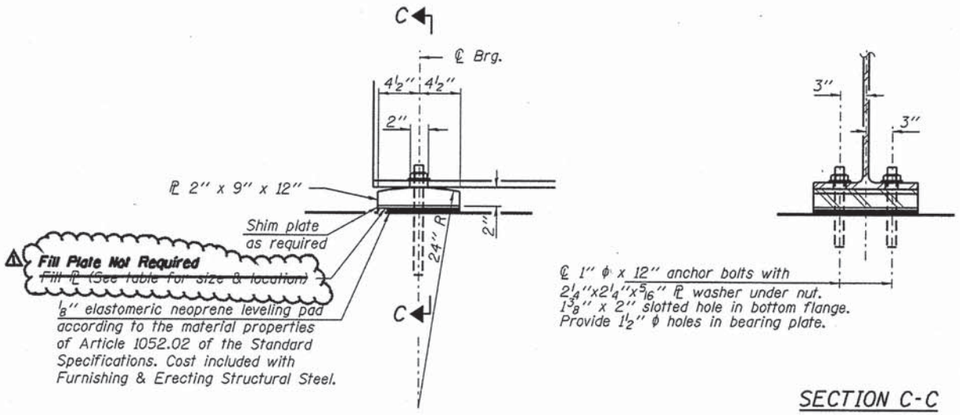
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

All beams and splices shall be M270 Grade 50W.

⚠ Revised 12-31-2015

FILE NAME = 110346-sht-bridge.dgn	USER NAME = *USER*	DESIGNED - D.W.T.	REVISED -	STATE OF ILLINOIS EDGAR COUNTY HIGHWAY DEPARTMENT	STRUCTURAL STEEL DETAILS STRUCTURE NO. 023-5331 SHEET NO. 10 OF 19 SHEETS
HAMPTON, LENZINI AND RENWICK, INC. 3065 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.003959		CHECKED - S.W.M.	REVISED -		
	PLOT SCALE = *SCALE*	DRAWN - D.A.B.	REVISED -		
	PLOT DATE = 1/4/2016	CHECKED - S.W.M.	REVISED - ⚠ 12/31/15 S.W.M.		

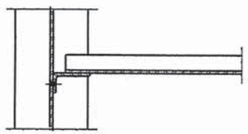
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
158	11-14126-00-BR	EDGAR	71	28
SYMMES ROAD DISTRICT		CONTRACT NO. 91508		
ILLINOIS FED. AID PROJECT BROS-0045(053)				



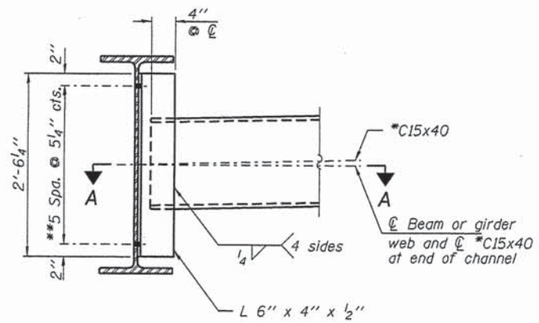
ELEVATION

SECTION C-C

FIXED BEARING AT ABUTMENT
(10 required)

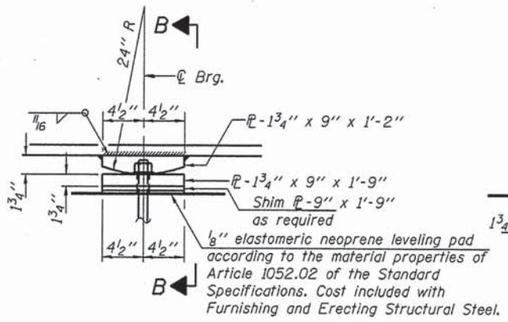


SECTION A-A

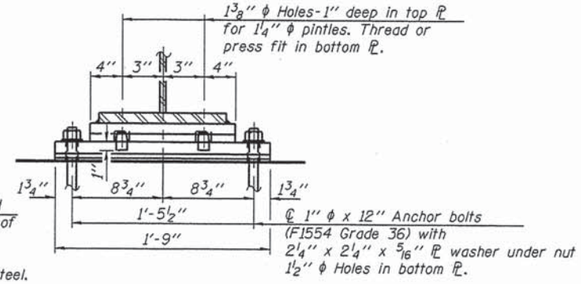


INTERIOR DIAPHRAGM D
(36 Required)

Note:
Two hardened washers required for each set of oversized holes.
*Alternate channels (C15x50) are 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.
**¾" ϕ HS bolts, 15/16" ϕ holes.

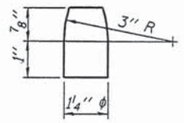


ELEVATION



SECTION B-B

FIXED BEARING AT PIER
(5 required)



PINTLE

Notes:
Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified.
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 Art. 521.06 of the Standard Specifications.
All structural steel of the bearing assembly including plate material and pintles shall be M270 Grade 50W.
The anchor bolts and sizes shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade bolts will not be allowed.
All diaphragms and connecting plates or angles shall be ASSHTO M270, Gr. 50W.

Revised 12-31-2015

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1"	Each	30

FILE NAME = 110346-sht-bridge.dgn	USER NAME = *USER*	DESIGNED - D.W.T.	REVISED -	
HAMPTON, LENZINI AND RENWICK, INC. 3045 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS/PE/SE CORP. 184.009658		CHECKED - S.W.M.	REVISED -	
	PLOT SCALE = *SCALE*	DRAWN - D.A.B.	REVISED -	
	PLOT DATE = 1/4/2016	CHECKED - S.W.M.	REVISED - 12/31/15 S.W.M.	

STATE OF ILLINOIS
EDGAR COUNTY HIGHWAY DEPARTMENT

STRUCTURAL STEEL DETAILS
STRUCTURE NO. 023-5331
SHEET NO. 11 OF 19 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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