INTERIOR BEAM MOMENT TABLE

		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
I_s	(in.^{4})	2,700	2,700	2,700
$I_c(n)$	(in.^{4})	8,228	—	8,228
$I_c(3n)$	(in.^{4})	5,997	—	5,997
S_s	(in.^{3})	222	222	222
$S_c(n)$	(in.^{3})	349	—	349
$S_c(3n)$	(in.^{3})	313	—	313
Z	(in.^{3})	—	254	—
$DC1$	(k/')	0.651	0.651	0.651
M_{DC1}	('k)	60	182	120
$DC2$	(k/')	0.033	0.033	0.033
M_{DC2}	('k)	3.7	7.5	7.9
DW	(k/')	0.254	0.254	0.254
M_{DW}	('k)	29	58	60
$M_{L + IM}$	('k)	358	266	550
M_u (Strength I)	('k)	750	789	1,212
*** $\phi_r M_n$, $\phi_r M_{nc}$	('k)	1,788	1,058	1,788
f_s DC1	(ksi)	3.2	9.8	6.5
f_s DC2	(ksi)	0.2	0.4	0.4
f_s DW	(ksi)	1.1	3.1	2.3
f_s 1.3(L+IM)	(ksi)	16.0	18.7	24.6
f_s (Service II)	(ksi)	20.5	32.0	33.8
**** f_s (Total)(Strength I)	(ksi)	27.4	42.6	45.2
V_f	(k)	21.1	—	19.9

*** Compact sections
**** Non-Compact and slender sections

INTERIOR BEAM REACTION TABLE

		Abuts.	Pier 1 & 2
R_{DC1}	(k)	9.0	37.7
R_{DC2}	(k)	0.5	1.9
R_{DW}	(k)	3.8	14.4
$R_{L + IM}$	(k)	62.1	94.4
R_{Total}	(k)	75.4	148.4

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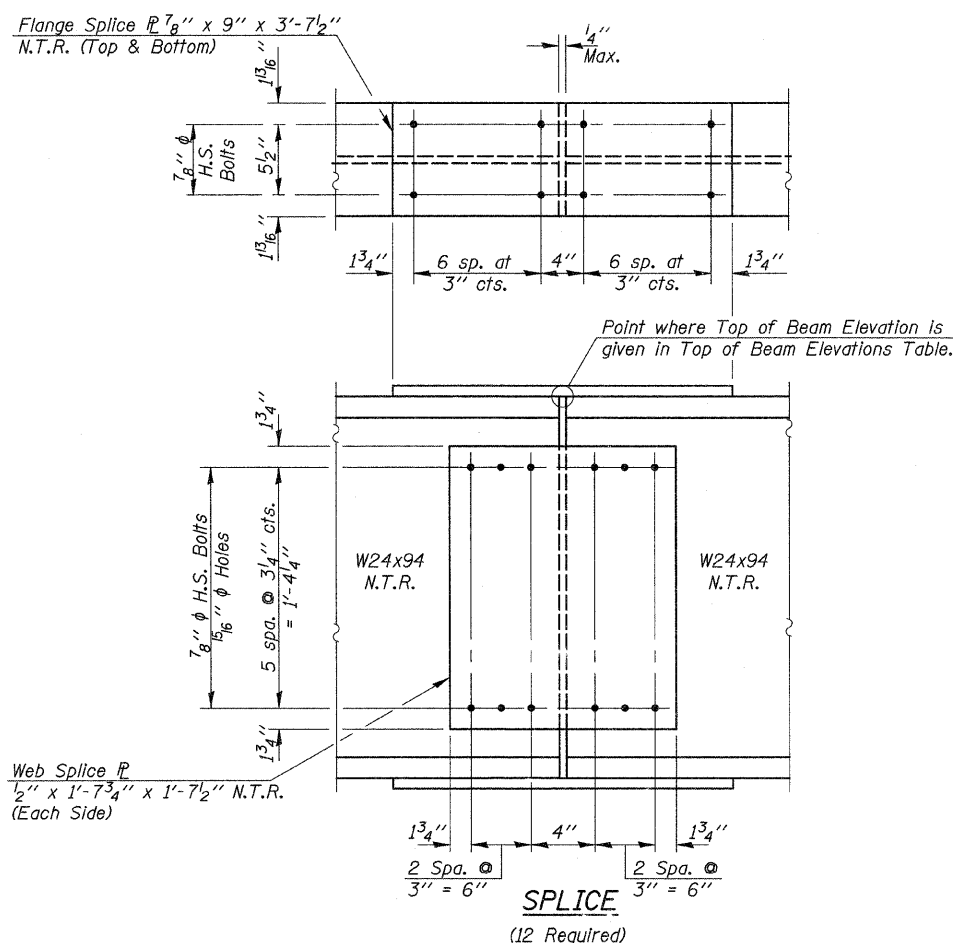
$I_c(3n)$, $S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s(Total–Strength I, and Service II) due to long-term composite (superimposed) dead loads (in.^{4} and in.^{3}).

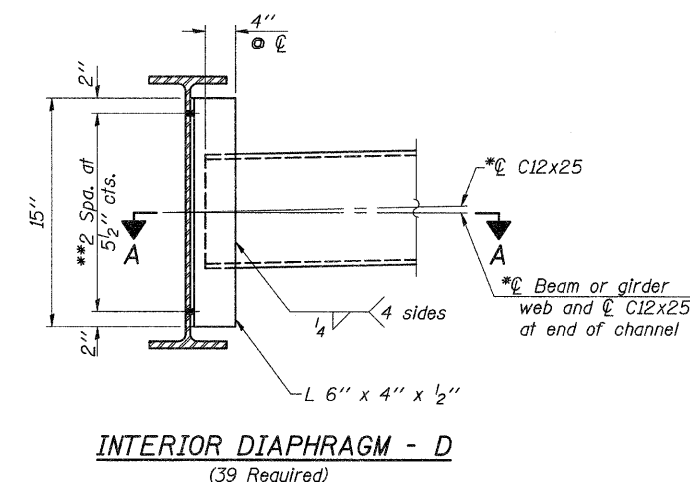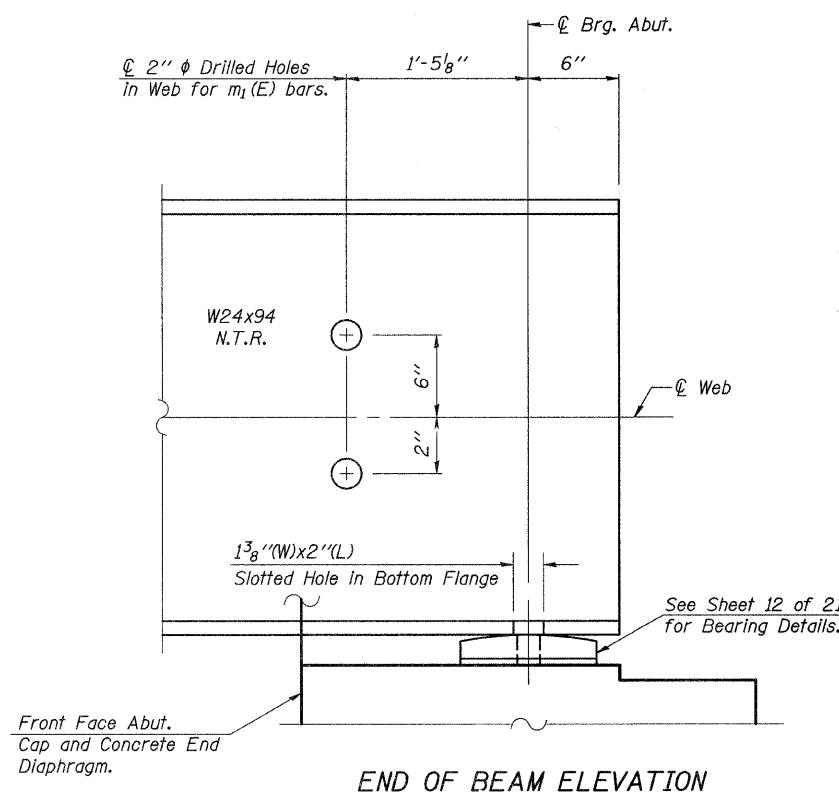Z: Plastic Section Modulus of the steel section in non-composite areas.

$DC1$: 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 $M_{L + IM}$

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

$\phi_r M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

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

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 $M_{L + IM}$

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

SECTION A-A

INTERIOR DIAPHRAGM - D
(39 Required)

Note:
Two hardened washers required for each set of oversized holes.
*Alternate channels C12x30 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.
**$3/4''$ ϕ HS bolts, $^{15}/_{16}''$ ϕ holes
Work this Sheet with Sheets 10 & 12 of 21.

Flange Splice $\mathbb{P}$ $7/8''$ x 9" x 3'-7$1/2''$ N.T.R. (Top & Bottom)

Point where Top of Beam Elevation is given in Top of Beam Elevations Table.

Web Splice $\mathbb{P}$ $1/2''$ x 1'-7$3/4''$ x 1'-7$1/2''$ N.T.R. (Each Side)

SPLICE
(12 Required)

$\mathbb{C}$ 2" ϕ Drilled Holes in Web for m_1(E) bars.

W24x94 N.T.R.

$1^3/8''$(W)x2"(L) Slotted Hole in Bottom Flange

Front Face Abut. Cap and Concrete End Diaphragm.

See Sheet 12 of 21 for Bearing Details.

END OF BEAM ELEVATION

STRUCTURAL STEEL
S.N. 038-4558

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

FEHR-GRAHAM & ASSOCIATES, LLC
ENGINEERING AND SCIENCE CONSULTANTS
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TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	15

CONTRACT NO. 87487

MARTINTON ROAD DIST. ILLINOIS | F.A. PROJ. BROS-075(145)