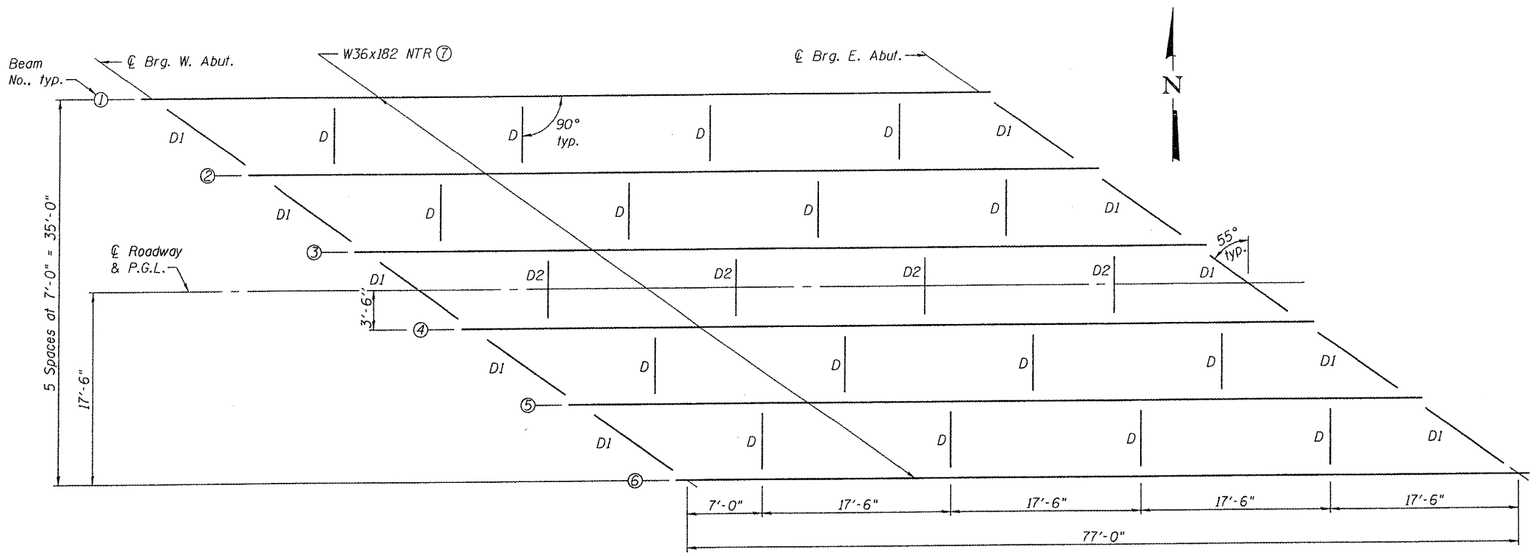
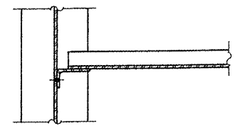
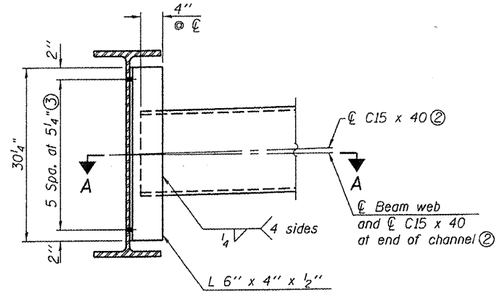
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



PLAN



SECTION A-A



INTERIOR DIAPHRAGM D
(16 Required)

INTERIOR BEAM MOMENT TABLE		
		0.5 Span
I_s	(in^4)	11300
$I_c(n)$	(in^4)	27006
$I_c(3n)$	(in^4)	19772
S_s	(in^3)	623
$S_c(n)$	(in^3)	870
$S_c(3n)$	(in^3)	786
Z	(in^3)	———
$\mathcal{D}$	(k/')	1.071
$M\mathcal{D}$	('k)	793.7
$s\mathcal{D}$	(k/')	0.575
$M_s\mathcal{D}$	('k)	426.1
ML	('k)	704.5
MIM	('k)	174.7
$\frac{5}{3}[ML + I]$	('k)	1465.3
M_o	('k)	3490.9
* M_u	('k)	4246.6
f_s $\mathcal{D}$ non-comp	(ksi)	15.29
f_s $\mathcal{D}$ (comp)	(ksi)	6.51
f_s $\frac{5}{3}[ML + M_I]$	(ksi)	20.21
f_s (Overload)	(ksi)	42.01
** f_s (Total)	(ksi)	———
VR	(k)	56.2

INTERIOR BEAM REACTION TABLE		
		E. & W. Abut.
$R\mathcal{D}$	(k)	63.4
RL	(k)	45.1
R_I	(k)	11.2
R_{Total}	(k)	119.7

* Compact section
** Braced non-compact and partially braced section

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) 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 and Overload) 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 and Overload) 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 ($in.^3$).

$\mathcal{D}$: Un-factored non-composite dead load (kips/ft.).

$M\mathcal{D}$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\mathcal{D}$: Un-factored long-term composite (superimposed) dead load (kips/ft.)

$M_s\mathcal{D}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

ML: Un-factored live load moment (kip-ft.).

M_I: Un-factored moment due to impact (kip-ft.).

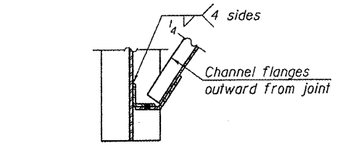
M_o: Factored design moment (kip-ft.).
$1.3\ [\ M\mathcal{D} + M_s\mathcal{D} + \frac{5}{3}(ML + M_I)]$

M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

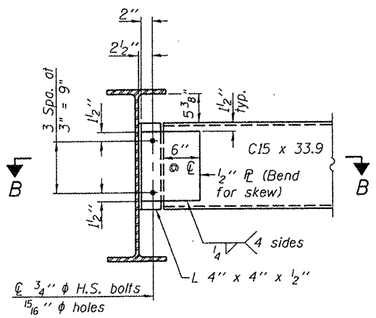
f_s (Overload): Sum of stresses as computed from the moments below (ksi).
$M\mathcal{D} + M_s\mathcal{D} + \frac{5}{3}(ML + M_I)$

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.3\ [M\mathcal{D} + M_s\mathcal{D} + \frac{5}{3}(ML + M_I)]$

VR: Maximum L + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).



SECTION B-B



END DIAPHRAGM D1
(10 Required)

Notes:
1. Two hardened washers required for each set of oversized holes.
2. Alternate C15 x 50 channels 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. ¾" ϕ HS bolts, 15/16" ϕ holes
4. All diaphragms shall be installed as steel is erected and secured with erection pins and bolts. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
5. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
6. For beam elevation, beam details, and Diaphragm D2, see sheet 17 of 31.
7. AASHTO M 270 Grade 50 Steel.

FRAMING PLAN
STRUCTURE NO. 082-6113

SHEET NO. 16	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
31 SHEETS	9274	04-00202-00-BR	ST. CLAIR	55	33
			CONTRACT NO. 97369		
	FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

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618-345-2200
Design Firm License No. 184.001115

DESIGNED	JAD
CHECKED	NEL
DRAWN	JAD
CHECKED	NEL