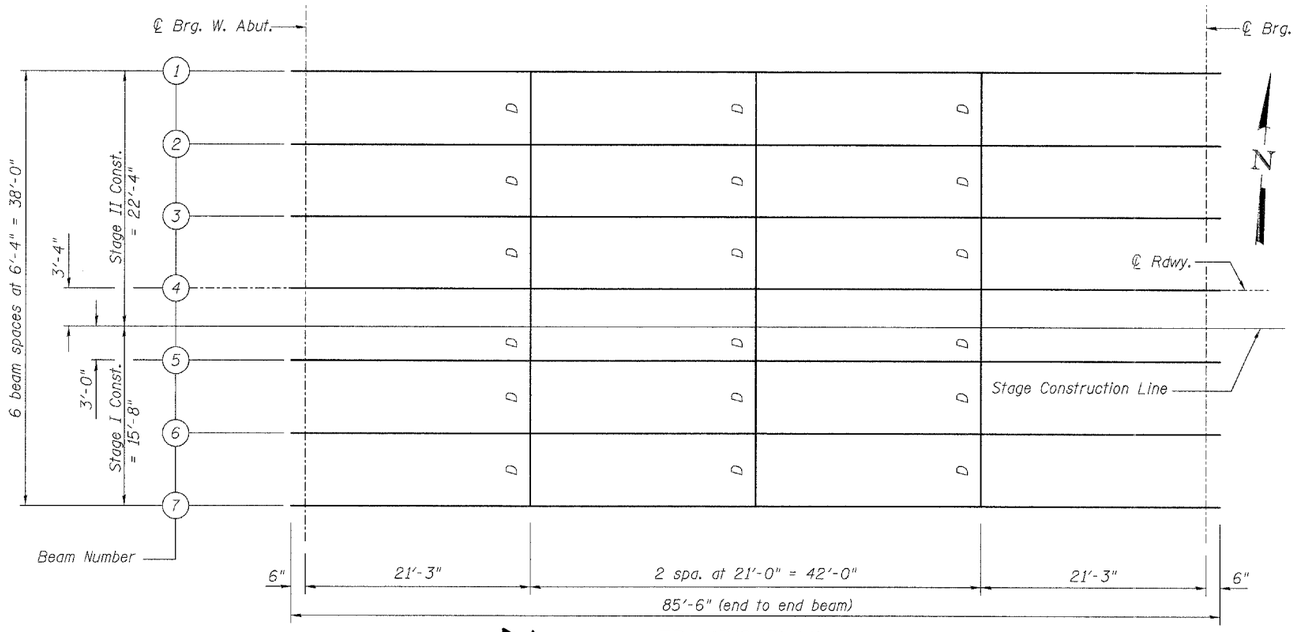
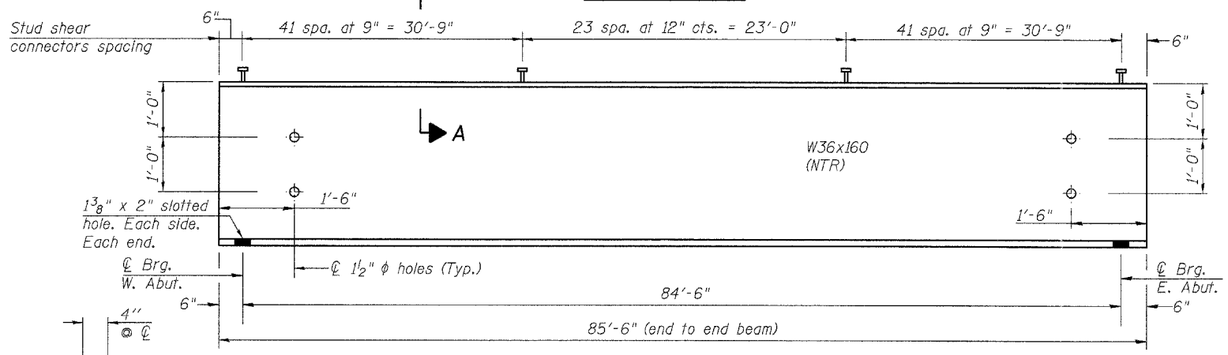
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 869	104B-2	Franklin	56	49
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 9
16 SHEETS

Contract # 98775



FRAMING PLAN



BEAM ELEVATION

"NTR" denotes members to which notch toughness requirements are applicable.

INTERIOR GIRDER MOMENT TABLE		0.5 Span
I_s	(in^4)	9750
$I_c(n)$	(in^4)	24016
$I_c(3n)$	(in^4)	17392
S_s	(in^3)	542
$S_c(n)$	(in^3)	773
$S_c(3n)$	(in^3)	694
DC1	(k/')	0.798
M_{DC1}	('k)	713
DC2	(k/')	0.129
M_{DC2}	('k)	115
DW	(k/')	0.289
M_{DW}	('k)	258
M_{L+Imp}	('k)	1224
M_u(Strength I)	('k)	3564
$\phi_f M_n$	('k)	3851
f_s DC1	(ksi)	15.79
f_s DC2	(ksi)	1.99
f_s DW	(ksi)	4.46
f_s 1.3(L+I)	(ksi)	24.70
f_s (Service II)	(ksi)	46.94
f_s (Total)(Strength I)	(ksi)	62.16
V_f	(k)	28.2

INTERIOR GIRDER REACTION TABLE HL93 Loading		Abut.
R_{DC1}	(k)	33.7
R_{DC2}	(k)	5.5
R_{DW}	(k)	12.2
R_{L+Imp}	(k)	78.0
R_{Total}	(k)	129.4

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}).

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.).

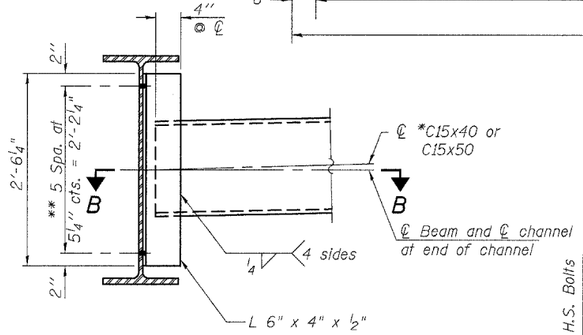
M_u (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+Imp}$

$\phi_f M_n$: 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).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+Imp}$

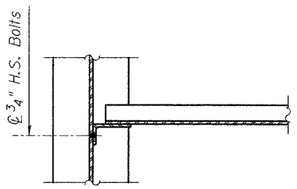
V_f: Factored shear range computed according to Article 6.10.10.



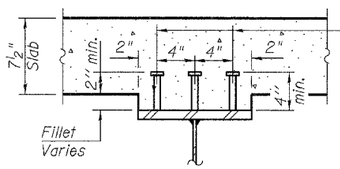
DIAPHRAGM D

(18 Required)

Note:
Two hardened washers required for each set of oversized holes and 5/16" plate washer over slotted holes.

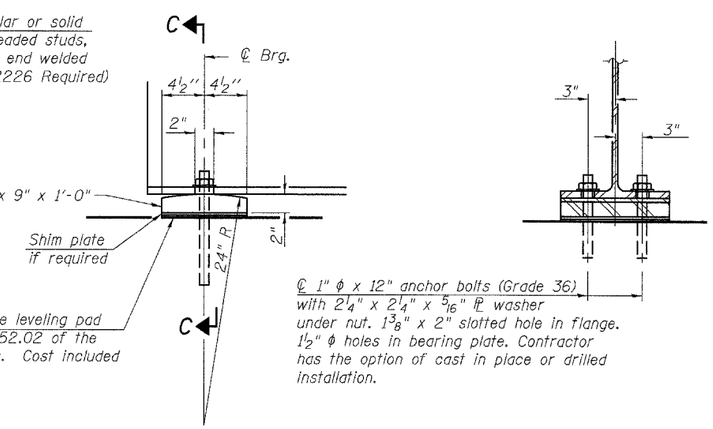


SECTION B-B



3/4" ϕ Granular or solid flux filled headed studs, automatically end welded to flange. (2226 Required)

SECTION A-A



1/8" elastomeric neoprene leveling pad according to Article 1052.02 of the Standard Specifications. Cost included with Structural Steel.

℄ 1" ϕ x 12" anchor bolts (Grade 36) with 2 1/4" x 2 1/4" x 5/16" ℄ washer under nut. 1 3/8" x 2" slotted hole in flange. 1 1/2" ϕ holes in bearing plate. Contractor has the option of cast in place or drilled installation.

ELEVATION AT ABUTMENT

SECTION C-C

FIXED BEARING

NOTES:

1. All beams shall be W36x160 AASHTO M270 Grade 50 (NTR).
All diaphragms and connecting angles shall be AASHTO M270 Grade 36.

2. All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted.

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

4. 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.

5. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

* Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.

** 3/4" ϕ HS bolts, 15/16" ϕ holes. For diaphragms at stage construction provide 13/16"x1 1/8" vertical slotted holes at south side of beam 4 in angle and beam and for north side of beam 5 provide oversize holes in angle and beam. Bolts in slotted holes shall be finger tightened prior to the deck slab pouring and then fully tightened after completion of the pour.

TOP OF BEAM ELEVATIONS

(For Fabrication Only)

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7
℄ Brg. W. Abut.	395.11	395.23	395.35	395.48	395.60	395.72	395.84
℄ Brg. E. Abut.	395.62	395.72	395.81	395.91	396.00	396.10	396.19

LIN ENGINEERING, LTD.
Consulting Engineers
Chatham, Illinois
Designed By: JGY | Checked By: MTH | Drawn By: AJF
Date: 12/06 | File: 028-0076.DGN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

FRAMING PLAN & STEEL DETAILS
ILLINOIS ROUTE 14 OVER ANDY CREEK
F.A.P. ROUTE 869 - SECTION 104B-2
FRANKLIN COUNTY
STATION 603+80.00
STRUCTURE NO. 028-0076

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