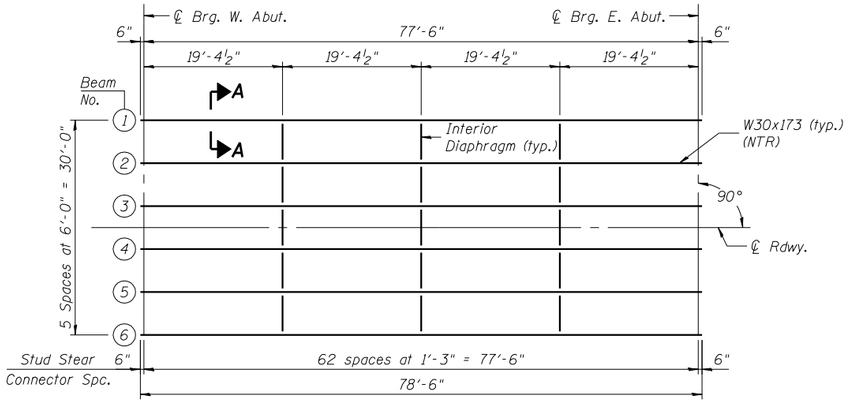
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
693	120B	MCLEAN	31	18
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACT NO. 70518



FRAMING PLAN

TOP OF BEAM ELEVATIONS*

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
℄ Brg. W. Abut.	727.53	727.63	727.72	727.72	727.63	727.53
℄ Brg. E. Abut.	728.29	728.40	728.49	728.49	728.40	728.29

* For Fabrication only. (Theoretical elevations before dead load deflection.)

INTERIOR GIRDER MOMENT TABLE		
		0.5 Span
I_s	(in^4)	8230
$I_c(n)$	(in^4)	21880
$I_c(3n)$	(in^4)	15590
S_s	(in^3)	541
$S_c(n)$	(in^3)	792
$S_c(3n)$	(in^3)	710
Z	(in^3)	---
$\mathcal{D}$	(k/')	0.833
$M\mathcal{D}$	('k)	625
$s\mathcal{D}$	(k/')	0.417
$M_s\mathcal{D}$	('k)	313
$M\mathcal{L}$	('k)	608
M_{Imp}	('k)	150
$\frac{5}{3}[M\mathcal{L} + Imp]$	('k)	1264
M_a	('k)	2863
* M_u	('k)	3347
f_s $\mathcal{D}$ non-comp	(ksi)	13.9
f_s $\mathcal{D}$ (comp)	(ksi)	5.3
f_s $\frac{5}{3}[M\mathcal{L} + M_{Imp}]$	(ksi)	19.2
f_s (Overload)	(ksi)	38.3
f_s (Total)	(ksi)	---
VR	(k)	43.0

INTERIOR GIRDER REACTION TABLE		
		Abut.
$R\mathcal{D}$	(k)	50.0
$R\mathcal{L}$	(k)	34.5
Imp.	(k)	8.5
R_{Total}	(k)	93.0

* Compact 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.).

$M\mathcal{L}$: Un-factored live load moment (kip-ft.).

M_{Imp}: Un-factored moment due to impact (kip-ft.).

M_a: Factored design moment (kip-ft.).
$1.3\ [\ M\mathcal{D} + M_s\mathcal{D} + \frac{5}{3}\ (M\mathcal{L} + M_{Imp})]$

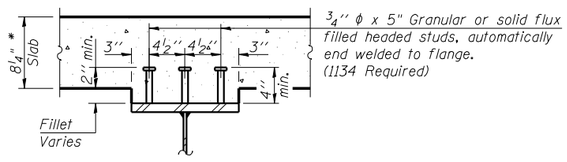
M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

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

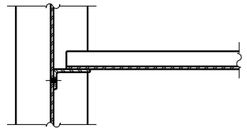
f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.3\ [M\mathcal{D} + M_s\mathcal{D} + \frac{5}{3}\ (M\mathcal{L} + M_{Imp})]$

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

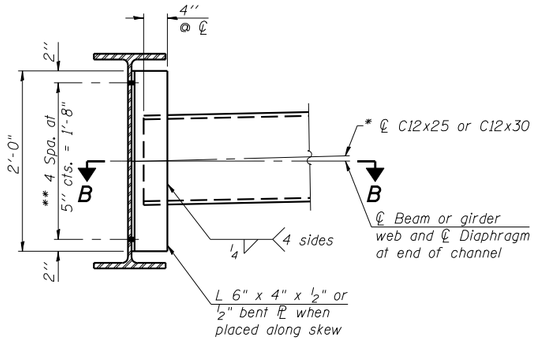
*Before grinding according to Bridge Smoothness Specification.



SECTION A-A



SECTION B-B

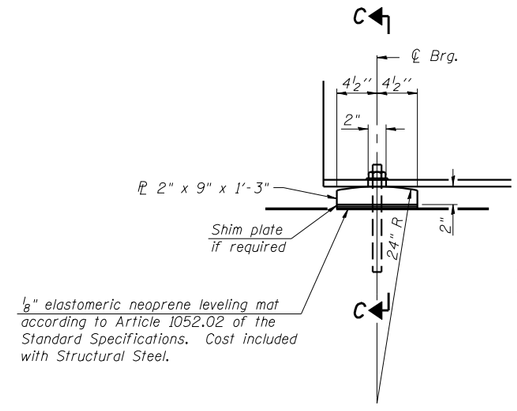


INTERIOR DIAPHRAGM

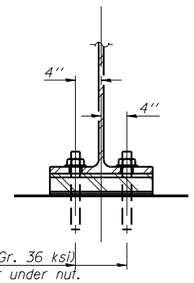
Note:
Two hardened washers required for each set of oversized holes.

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

** ¾" ϕ HS bolts, $^{15}/_{16}$" ϕ holes



ELEVATION AT ABUTMENT



SECTION C-C

FIXED BEARING

Notes:
All structural steel shall be AASHTO M270 Gr. 50W.
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

Johnson, Depp & Quisenberry
CONSULTING ENGINEERS
Springfield, Illinois

DESIGNED:	CDB	DRAWN:	SJS
CHECKED:	DCD	CHECKED:	CDB/DCD

STRUCTURAL STEEL & FRAMING PLAN
FAP 693 (IL 9) OVER
WEST FORK SUGAR CREEK
FAP ROUTE 693 SECTION 120B
MCLEAN COUNTY
STATION 1209+03.00
STRUCTURE NO. 057-0242