ELEVATION AT ABUTMENT

FIXED BEARING

- ℄ Brg.
- 4½″ 4½″
- 2″
- ℄ 2″ x 9″ x 1'-0″
- Shim plate if required
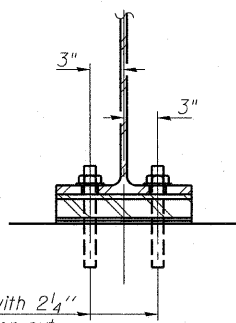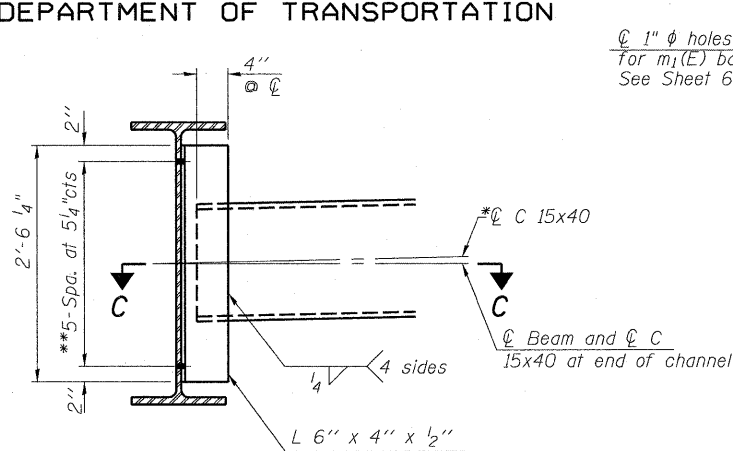- ⅛″ elastomeric neoprene leveling mat according to the material properties of Article 1052.02 of the Standard Specifications. Cost included with Structural Steel.
- 2¼″ R
- 2″

SECTION A-A

- 3″ 3″
- ℄ 1″ φ x 12″ anchor bolts with 2¼″ x 2¼″ x 5/16″ ℄ washer under nut. 1⅜″ x 2″ slotted hole in flange. 1½″ φ holes in bearing plate.

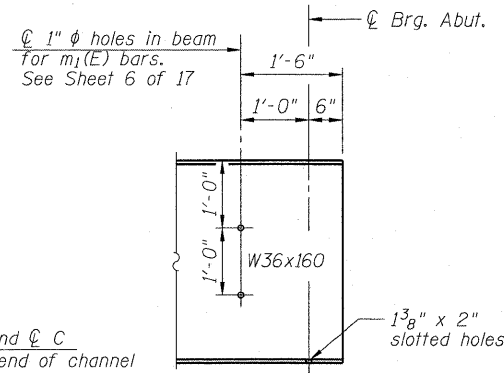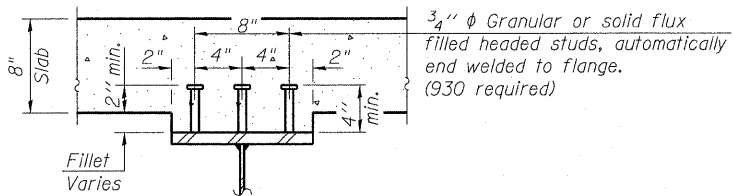### INTERIOR DIAPHRAGM D
20 Required

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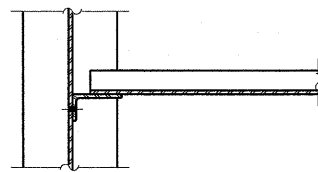**¾″ φ HS bolts, 15/16″ φ holes

SECTION C-C

TYP. END OF BEAM ELEVATION

- ℄ 1″ φ holes in beam for m₁(E) bars. See Sheet 6 of 17
- ℄ Brg. Abut.
- 1'-6″
- 1'-0″ 6″
- 2'-6 ¼″
- **5-Spa. at 5¼″cts
- 2″
- *℄ C 15x40
- ℄ Beam and ℄ C 15x40 at end of channel
- 4 sides
- L 6″ x 4″ x ½″
- W36x160
- 1⅜″ x 2″ slotted holes

SECTION B-B

- 8″
- 8″ Slab
- 2½″ min.
- Fillet Varies
- 2″ 4″ 4″ 2″
- 4″ min.
- ¾″ φ Granular or solid flux filled headed studs, automatically end welded to flange. (930 required)

INTERIOR GIRDER MOMENT TABLE

		0.5 Span
I_s	(in⁴)	9760
$I_c(n)$	(in⁴)	23,693
$I_c(3n)$	(in⁴)	18,329
S_s	(in³)	542
$S_c(n)$	(in³)	761
$S_c(3n)$	(in³)	716
$DC1$	(k/')	0.855
M_{DC1}	('k)	675.5
$DC2$	(k/')	0.020
M_{DC2}	('k)	15.8
DW	(k/')	0.30
M_{DW}	('k)	237.0
M_{L+IM}	('k)	1179.8
M_u (Strength I)	('k)	3284.3
* $\phi_f M_n$		3847.6
f_s DC1	(ksi)	15.0
f_s DC2	(ksi)	0.26
f_s DW	(ksi)	4.0
f_s 1.3($L+IM$)	(ksi)	24.2
f_s (Service II)	(ksi)	43.5
f_s (Total)(Strength I)	(ksi)	
** V_r	(k)	27.2

* Compact sections
** Non-Compact and slender sections

INTERIOR GIRDER REACTION TABLE

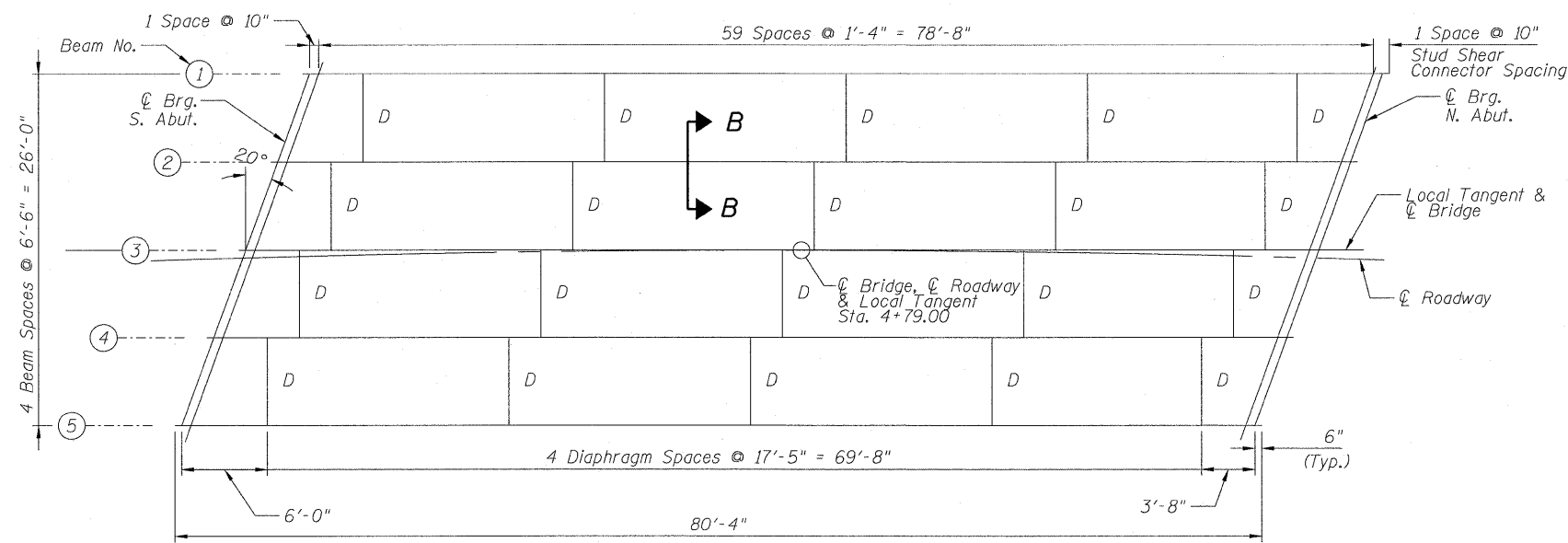|		Abut.
R_{DC1}	(k)	34.0
R_{DC2}	(k)	0.80
R_{DW}	(k)	11.9
R_{L+IM}	(k)	85.3
R_{Total}	(k)	132.0

Notes:
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.

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

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 (in⁴ and in.).

$I_c(n)$, $S_c(n)$: 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 (in⁴ and in³).

$I_c(3n)$, $S_c(3n)$: 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 (in⁴ and in³).

Z: Plastic Section Modulus of the steel section in non-composite areas. Omit line in Moment Table if not used in design calculations (in³).

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.).

$\phi_f M_{nc}$: 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_r: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

FRAMING PLAN
(All Beams W36x160 "NTR" - M270 GR. 50)

- Beam No.
- 1 Space @ 10″ Stud Shear Connector Spacing
- 59 Spaces @ 1'-4″ = 78'-8″
- 1 Space @ 10″
- ℄ Brg. S. Abut.
- ℄ Brg. N. Abut.
- 20°
- Local Tangent & ℄ Bridge
- ℄ Bridge, ℄ Roadway & Local Tangent Sta. 4+79.00
- ℄ Roadway
- 4 Beam Spaces @ 6'-6″ = 26'-0″
- 4 Diaphragm Spaces @ 17'-5″ = 69'-8″
- 6'-0″
- 80'-4″
- 3'-8″
- 6″ (Typ.)

STRUCTURAL STEEL DETAILS
F.A.S. ROUTE 454
SECTION 04-00070-00-BR
SCHUYLER COUNTY
STATION 4+79.00
S.N. 085-3055