FRAMING PLAN

FRAMING PLAN

INTERIOR GIRDER REACTION TABLE

		W. Abut.	Pier 1
R ℓ	(k)	25.0	83.5
R ℓ	(k)	34.3	41.0
Imp.	(k)	9.6	8.6
R Total	(k)	68.9	133.1

INTERIOR GIRDER MOMENT TABLE

		0.4 Sp. 1	Pier 1	0.5 Sp. 2
I_s	(in⁴)	3,100	3,100	3,100
$I_c(n)$	(in⁴)	8,977	--	8,977
$I_c(3n)$	(in⁴)	6,659	--	6,659
S_s	(in³)	258	258	258
$S_c(n)$	(in³)	386	--	386
$S_c(3n)$	(in³)	350	--	350
Z	(in³)		289	--
ℓ	(k/')	0.82	1.37	0.82
M ℓ	('k)	130	392	141
s ℓ	(k/')	0.55	--	0.55
M_sℓ	('k)	99	--	99
M ℓ	('k)	311	173	349
M Imp	('k)	390	49	94
⁵⁄₃ [M ℓ + Imp]	('k)	668	370	738
M_a	('k)	1,167	991	1,299
* M_u	('k)	1,500	--	1,500
f_s ℓ non-comp	(ksi)	6.0	18.2	6.6
f_s ℓ (comp)	(ksi)	3.4	--	4.1
f_s ⁵⁄₃ [M ℓ + M Imp]	(ksi)	20.7	17.2	23.0
f_s (Overload)	(ksi)	30.1	35.4	33.7
** f_s (Total)	(ksi)	--	46.0	--
VR	(k)	48.2	--	42.4

* Compact section
** Partially Braced non-compact

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).

ℓ: Un-factored non-composite dead load (kips/ft.).

M ℓ: Un-factored moment due to non-composite dead load (kip-ft.).

s ℓ: Un-factored long-term composite (superimposed) dead load (kips/ft.)

M_s ℓ: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M 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 ℓ + M_sℓ + ⁵⁄₃ (M 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 ℓ + M_sℓ + ⁵⁄₃ (M ℓ + M Imp)

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.3 [M ℓ + M_sℓ + ⁵⁄₃ (M ℓ + M Imp)]

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

NOTES:

1. All structural steel shall conform to the requirements of AASHTO M270, Grade 50W.

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

3. All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

* Point A is the projection of Line A.
See Sheet 25 for location of Line A.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Furnishing and Erecting Structural Steel	L SUM	1
Stud Shear Connectors	EACH	14,646

REVISIONS

NAME	DATE

FRAMING PLAN

75th STREET OVER THE
WEST BRANCH OF THE DUPAGE RIVER
FAP 369
SECTION 00-00114-00-PV STA. 151+38.03
DUPAGE COUNTY
S.N. 022-3118