

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

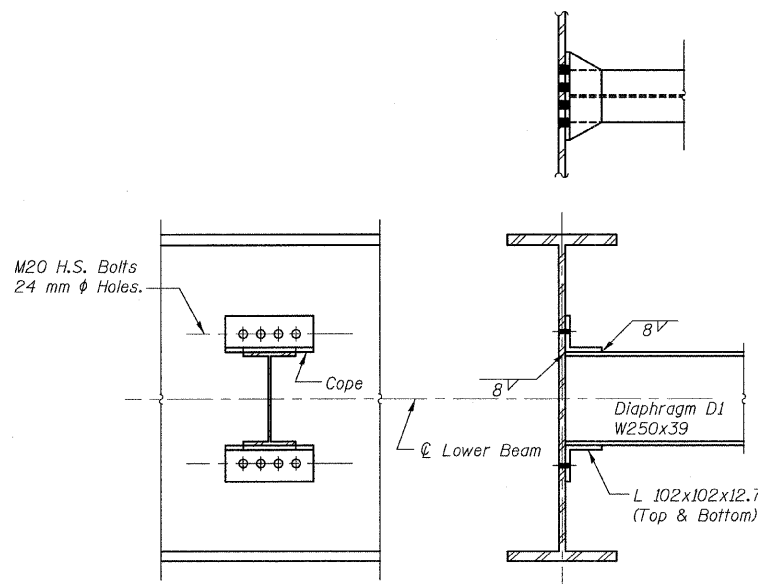
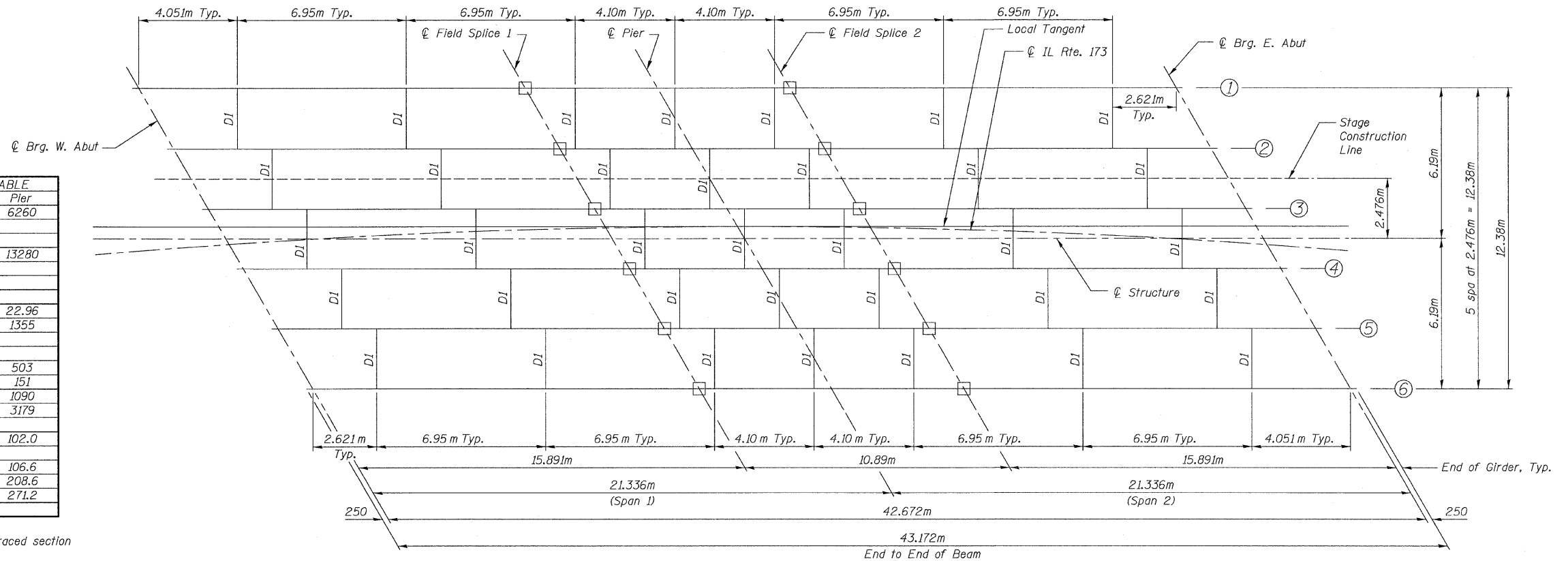
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 13 23 SHEETS
FAP 303 IL 173	2010-086-F	LAKE	29	24	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

	0.4 Sp. 1	Pier
I_s (10^6 mm^4)	4720	6260
I_c (n) (10^6 mm^4)	11790	
I_c (3n) (10^6 mm^4)	8610	
S_s (10^3 mm^3)	10230	13280
S_c (n) (10^3 mm^3)	14610	
S_c (3n) (10^3 mm^3)	13170	
Z (10^3 mm^3)		
D (kN/m)	14.84	22.96
$M\ell$ (kN·m)	442	1355
$s\ell$ (kN/m)	8.12	
$M_s\ell$ (kN·m)	276	
$M\ell$ (kN·m)	802	503
M (Imp) (kN·m)	241	151
$S_3[M\ell + M(\text{Imp})]$ (kN·m)	1735	1090
M_a (kN·m)	3189	3179
M_u (kN·m)	5898	
$f_s\ell$ (non-comp) (MPa)	43.2	102.0
$f_s\ell$ (comp) (MPa)	21.0	
$f_s S_3(\ell + \text{Imp})$ (MPa)	118.8	106.6
f_s (Overload) (MPa)	177.7	208.6
f_s (Total) (MPa)		271.2
VR (kN)	298	

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

	Abut.	Pier
$R\ell$ (kN)	181	617
$R\ell$ (kN)	213	254
Imp. (kN)	64	76
R (Total) (kN)	458	947

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total & Overload).
 I_{cn} and S_{cn} are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.
 I_{c3n} and S_{c3n} are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)
 VR is the maximum Live Load + Impact shear range in span.
 Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.
 M_a (Applied Moment) = $1.3[M\ell + M_s\ell + S_3(M\ell + M(\text{Imp}))]$.
 The Plastic Moment capacity (M_u) is computed according to AASHTO 10.48.1 and 10.50.1.1.
 f_s (Overload) is the sum of the stresses due to $M\ell + M_s\ell + S_3(M\ell + M(\text{Imp}))$.
 f_s (Total) (Non-compact section) is the sum of the stresses due to $1.3[M\ell + M_s\ell + S_3(M\ell + M(\text{Imp}))]$.



DIAPHRAGM D1
(35 Required)

Note: Two hardened washers shall be required over all oversized holes.

FRAMING PLAN

NOTES

- Not Included in this Contract** - 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.
- For Beam Elevations see Sheet #14.
- For Bearing Details see Sheet #15.
- All dimensions are in millimeters (mm) except as noted.

**FRAMING PLAN AND
DESIGN DATA TABLES
FAP 303 IL. ROUTE 173
OVER EAST BOAT CHANNEL
SECTION 2010-086-F
LAKE COUNTY
STATION 26+271.906
STRUCTURE NO. 049-0198**

DESIGNED	JRF
CHECKED	RCJ
DRAWN	RDS
CHECKED	JRF

