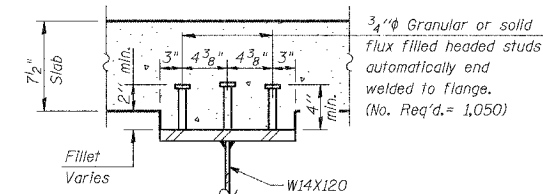
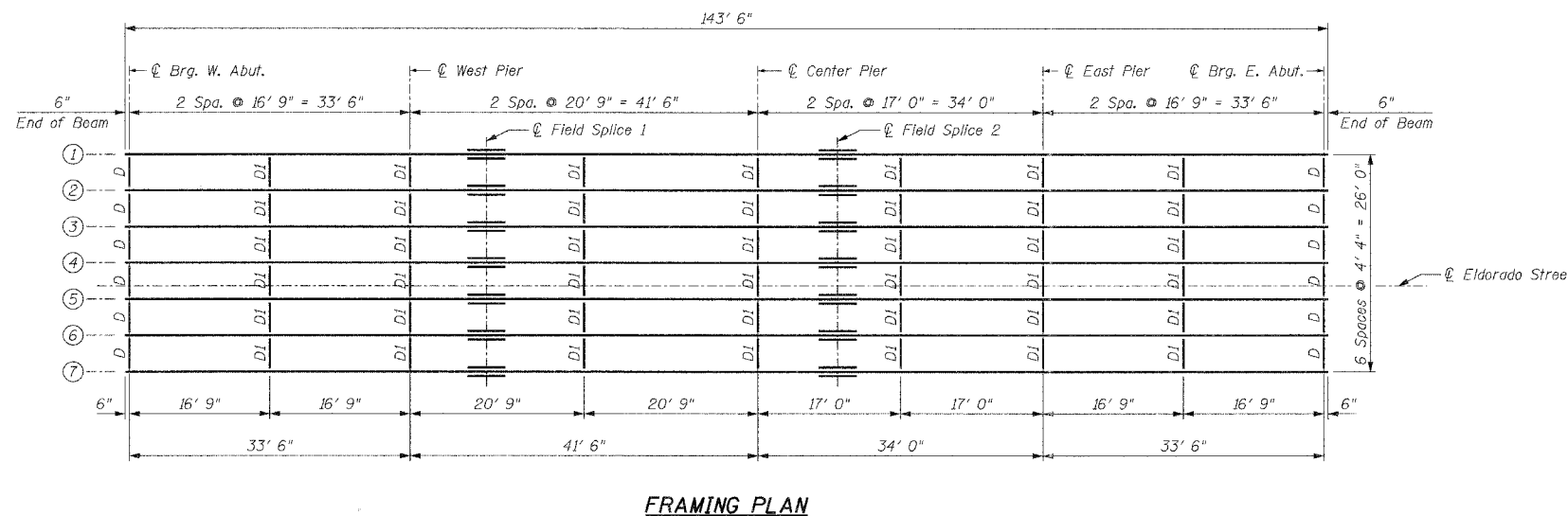


TOP OF BEAM ELEVATIONS

	℄ Brg. W. Abut.	℄ W. Pier	℄ Splice 1	℄ Ctr. Pier	℄ Splice 2	℄ E. Pier	℄ Brg. E. Abut.
Beam 1	664.230	665.171	666.04	658.928	666.30	658.396	657.225
Beam 2	664.230	658.728	666.04	658.985	666.30	658.426	657.231
Beam 3	664.298	658.810	666.10	659.040	666.36	658.455	657.237
Beam 4	664.366	658.892	666.17	659.095	666.43	658.483	657.241
Beam 5	664.384	658.948	666.24	659.124	666.50	658.486	657.220
Beam 6	664.316	658.906	666.31	659.054	666.57	658.390	657.100
Beam 7	664.249	658.862	666.37	658.984	666.63	658.293	656.980



SHEAR CONNECTOR DETAIL

TOTAL BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	L. Sum	1.0
Shear Stud Connectors	Each	1,050

NOTES:
Contractor to verify existing dimensions in the field and make necessary approved adjustments prior to ordering materials.
All splice plate material shall meet notch toughness requirements.

CG Clorba Group, Inc.
CONSULTING ENGINEERS
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VILLAGE OF WINNETKA, ILLINOIS
FRAMING PLAN AND BEAM ELEVATIONS
ELDORADO STREET OVER THE UNION PACIFIC R.R.
R.R. MILE POST 17.26 KENOSHA SUBDIVISION
COOK COUNTY STA. 201+07.21
STRUCTURE NO. 016-8260

SCALE: NONE
DATE: MARCH 2006
FILE: 3278

DRAWN BY: RCD
DESIGN BY: BWS
CHECKED BY: SCD

REVISIONS	
NAME	DATE

	0.4 Span #1	Pier #1	0.5 Span #2	Pier #2	0.5 Span #3	Pier #3	0.6 Span #4
I_s (in ⁴)	1380	1380	1380	1380	1380	1380	1380
I_c (in ⁴)	4886	-	4886	-	4886	-	4886
$I_c(3n)$ (in ⁴)	3177	-	3177	-	3177	-	3177
S_s (in ³)	190	190	190	190	190	190	190
$S_c(n)$ (in ³)	338	-	338	-	338	-	338
$S_c(3n)$ (in ³)	289	-	289	-	289	-	289
Z (in ³)		212		212		212	
D.L. (k/ft)	0.56	0.56	0.56	0.56	0.56	0.56	0.56
M D.L. (k)	41.94	-83.69	45.98	-65.47	16.56	-63.26	50.11
S D.L. (k/ft)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Ms D.L. (k)	43.17	-60.41	52.38	-50.12	24.1	-46.18	48.86
M L.L. (k)	114.55	7.75	137.46	11.04	95.97	10.42	113.89
M (Imp) (k)	34.36	2.32	41.24	3.31	28.79	3.12	34.17
5/3 (M L.L. + M I) (k)	246.2	16.8	297.8	23.9	207.9	22.6	246.8
M_u (k)	433.3	-165.47	515.81	-119.11	323.7	-112.87	450.1
M_u (k)	1254.73	883.33	1254.73	883.33	1254.73	883.33	1254.73
f_s DL non-comp (ksi)	-3.4	6.9	-3.8	5.4	-1.4	5.2	-4.1
f_s DL (comp) (ksi)	-0.7	5	-0.9	4.1	-0.4	3.8	-0.8
f_s 5/3 (M L.L. + M I) (ksi)	2.5	14	2.6	13.1	2.9	12.1	1.8
f_s (Overload)	-3.27	19.9	-3.65	17.4	2.26	16.22	-3.85
f_s (Total)	-4.2	25.9	-4.7	22.6	-1.8	21.1	-5
VR (k)	14.34	27.24	15.51	25.71	14.16	25.93	14.19

	W Abut	Pier 1	Pier 2	Pier 3	E Abut
R DL (kips)	16.68	55.40	48.95	48.13	17.95
R LL (kips)	46.35	66.42	66.48	64.48	46.27
Imp (kips)	13.90	21.85	19.94	19.34	13.88
R (Total)	76.93	143.67	135.37	131.94	78.11

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total & Overload).
 $I_c(n)$ and $S_c(n)$ are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.
 $I_c(3n)$ and $S_c(3n)$ 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_u (Applied Moment) = $1.3[M_{DL} + M_{SL} + 5/3(M_{LL} + M_I)]$.
 M_u is the Full Plastic Moment Capacity for Compact, Braced section.
 f_s (Overload) is the sum of the stresses due to $M_{DL} + M_{SL} + 5/3(M_{LL} + M_I)$.
 f_s (Total) (Non-compact section) is the sum of the stresses due to $1.3[M_{DL} + M_{SL} + 5/3(M_{LL} + M_I)]$.