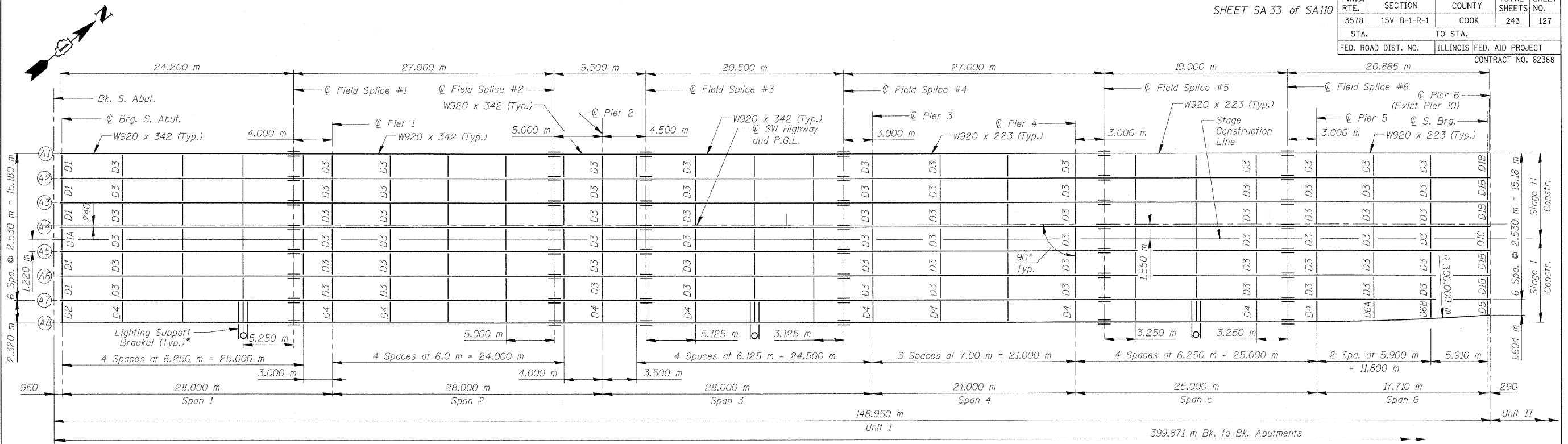


F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3578	15V B-1-R-1	COOK	243	127
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
		CONTRACT NO. 62388		



* For Lighting Support Bracket details, see Sheet SA39.

PLAN

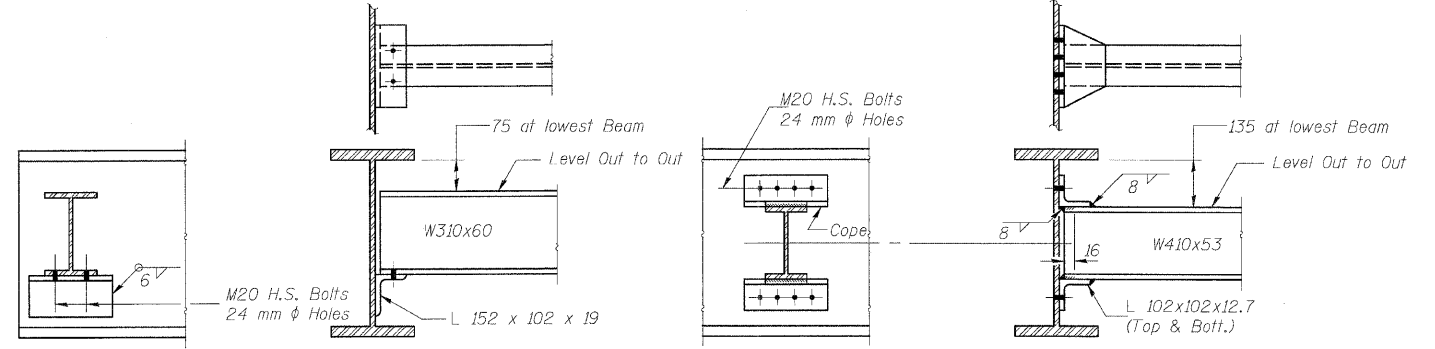
	S. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6
R _ℓ (kN)	269.5	751.2	678.1	557.3	516.1	549.5	142.0
R _ℓ (kN)	234.0	316.6	309.8	280.6	268.5	262.5	218.2
Imp. (kN)	53.2	71.9	70.4	67.3	66.0	66.4	58.8
R (Total) (kN)	556.7	1,139.7	1,058.3	905.3	850.6	878.4	419.0

	ℓ Brg. S. Abut.	ℓ Field Splice #1	ℓ Brg. Pier1	ℓ Field Splice #2	ℓ Brg. Pier2	ℓ Field Splice #3	ℓ Field Splice #4	ℓ Brg. Pier3	ℓ Brg. Pier4	ℓ Field Splice #5	ℓ Field Splice #6	ℓ Brg. Pier5	ℓ Brg. Pier6
Beam A1	183.379	184.456	184.634	185.658	185.888	186.095	187.010	187.145	188.090	188.225	189.008	189.103	189.663
Beam A2	183.419	184.495	184.673	185.697	185.927	186.134	187.049	187.184	188.129	188.264	189.047	189.142	189.703
Beam A3	183.457	184.533	184.711	185.735	185.965	186.172	187.087	187.222	188.167	188.302	189.085	189.180	189.741
Beam A4	183.487	184.563	184.741	185.765	185.995	186.202	187.117	187.252	188.197	188.332	189.116	189.211	189.772
Beam A5	183.449	184.525	184.703	185.727	185.957	186.164	187.079	187.214	188.159	188.294	189.078	189.173	189.734
Beam A6	183.412	184.488	184.666	185.690	185.920	186.127	187.042	187.177	188.122	188.257	189.040	189.135	189.696
Beam A7	183.369	184.445	184.623	185.646	185.877	186.084	186.999	187.134	188.079	188.214	188.998	189.093	189.654
Beam A8	183.323	184.399	184.577	185.600	185.831	186.038	186.953	187.088	188.033	188.168	188.951	189.048	189.622

	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.5 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.6 Sp. 6
I _s (10 ⁶ mm ⁴)	6,250	6,250	6,250	6,250	6,250	3,770	3,770	3,770	3,770	3,770	3,770
I _c (n) (10 ⁶ mm ⁴)	13,540	13,540	13,540	13,540	13,540	9,652	9,652	9,652	9,652	9,652	9,652
I _c (3n) (10 ⁶ mm ⁴)	10,010	10,010	10,010	10,010	10,010	7,156	7,156	7,156	7,156	7,156	7,156
S _s (10 ³ mm ³)	13,710	13,710	13,710	13,710	13,710	8,277	8,277	8,277	8,277	8,277	8,277
S _c (n) (10 ³ mm ³)	17,990	17,990	17,990	17,990	17,990	11,860	11,860	11,860	11,860	11,860	11,860
S _c (3n) (10 ³ mm ³)	16,400	16,400	16,400	16,400	16,400	10,770	10,770	10,770	10,770	10,770	10,770
Z (10 ³ mm ³)											
ℓ (kN/m)	15.64	24.03	15.64	24.03	15.64	23.39	14.35	22.75	14.35	22.75	14.35
M _ℓ (kN·m)	962	1,872	378	1,545	663	1,013	141	949	456	1,053	258
s _ℓ (kN/m)	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40
M _s (kN·m)	549	268	268	399	132	320	177	177	320	177	177
M _ℓ (kN·m)	1,203	754	1,005	719	1,058	521	690	496	891	470	677
M (Imp) (kN·m)	273	171	229	163	241	125	175	122	212	119	182
M _s (M _ℓ + M(Imp)) (kN·m)	2,461	1,542	2,057	1,471	2,165	1,076	1,443	1,029	1,840	981	1,431
M _a (kN·m)	5,164	4,439	3,513	3,921	4,194	2,715	2,231	2,572	3,400	2,644	2,426
M _u (kN·m)	7,012	7,012	7,012	7,012	7,012	6,348	4,232	4,375	4,375	4,943	4,943
f _s (non-comp) (MPa)	70.16	136.55	27.54	112.71	48.34	122.35	17.08	114.69	55.11	127.27	31.13
f _s (comp) (MPa)	33.49	33.49	16.35	16.35	24.34	24.34	12.24	29.71	29.71	16.46	16.46
f _s (ℓ + Imp) (MPa)	136.79	112.50	114.32	107.27	120.32	129.97	121.66	124.34	155.10	118.47	120.68
f _s (Overload) (MPa)	240.44	249.05	158.20	219.97	193.00	252.32	150.98	239.03	239.93	245.73	168.27
f _s (Total) (MPa)	323.8	323.8	286.0	286.0	328.0	310.7	310.7	310.7	319.5	319.5	302
VR (kN)	306	243	243	243	251	225	240	240	240	302	302

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_a (Applied Moment) = 1.3[M_ℓ + M_sℓ + S₃(M_ℓ + M(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_ℓ + M_sℓ + S₃(M_ℓ + M(Imp)).
 f_s (Total) (Non-compact section) is the sum of the stresses due to 1.3[M_ℓ + M_sℓ + S₃(M_ℓ + M(Imp))].



END DIAPHRAGMS D1 & D2

D1 - 5 Required
 D2 - 1 Required

DIAPHRAGMS D3, D4, D6A & D6B

D3 - 144 Required
 D4 - 22 Required
 D6A - 1 Required
 D6B - 1 Required

NOTES

- Two hardened washers shall be required over all oversize holes for diaphragms.
- All dimensions are in millimeters (mm) except as noted.
- See Sheet SA35 for Diaphragm D1A details. See Sheet SA35A for Diaphragm D1B, D1C and D2 details.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

FRAMING PLAN - UNIT I

SOUTHWEST HIGHWAY OVER

B&O RAILROAD AND STONY CREEK

FAU 3578 SECTION 15V B-1-R-1

STRUCTURE NUMBER 016-2771

COOK COUNTY STATION 4+716.497

SCALE: NONE DRAWN BY: E. Mroozek

DATE: 6/17/09 CHECKED BY: G. Hatfield

C:\NDOT\9556.AD\Drawings\STRUCT\33 Framing UnitI.dgn
 k:\epc\p\rdwy_l\is\l4444.dwg
 6/26/2003

