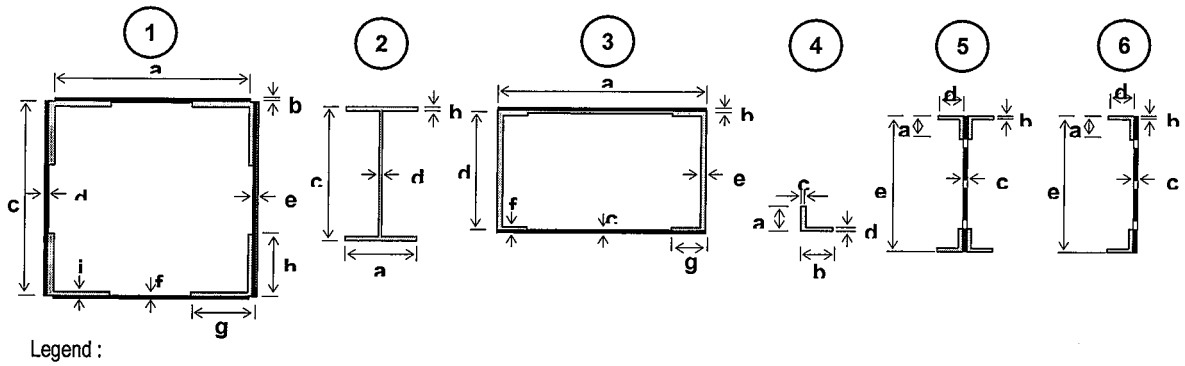
Appendix 21.1.4-1 (1/2)
SECTION PROPERTIES OF STEEL TRUSS MEMBERS



Legend :

A = Sectional area

$A_{v,y}$ = Conventional shearing area along Y-axis

I_x = Torsional moment of inertia

I_y = Inertia moment about centroidal Y-axis

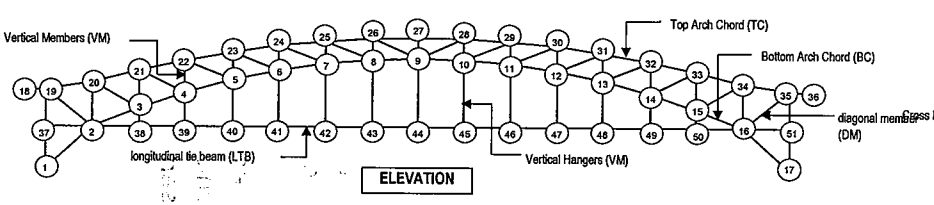
I_z = Inertia moment about centroidal Z-axis

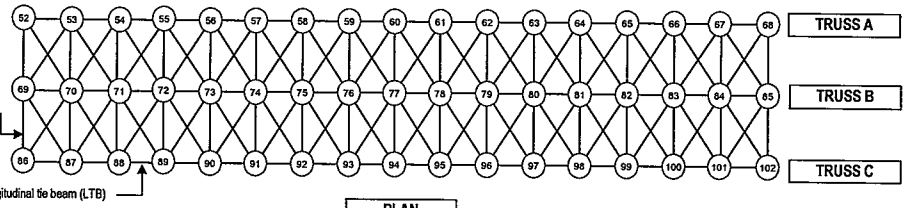
SECTION TYPE	MEMBER	LOCATION	GEOMETRIC DIMENSION								
			a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)	h (mm)	i (mm)
1	Top Arch Chord (Truss A&C)	GL1-GL6 / GL12 - GL17	560	11	660	14	13	8	175	200	14
1	Top Arch Chord (Truss A&C)	GL7-GL11	560	10	620	17	17	8	175	200	15
1	Top Arch Chord (Truss B)	GL1-GL17	560	15	620	14	14	8	150	200	14
1	Bottom Arch Chord (Truss A&C)	GL2-GL5 / GL13-GL16	560	10	690	20	20	8	150	200	15
1	Bottom Arch Chord (Truss A&C)	GL5-GL13	560	10	690	15	15	12	150	200	15
1	Bottom Arch Chord (Truss B)	GL2-GL6 / GL12-GL16	560	14	690	23	23	8	150	200	22
1	Bottom Arch Chord (Truss B)	GL6-GL12	560	13	690	15	23	8	150	200	15
2	Vertical Member (Truss A&C)	GL2-GL8 / GL10-GL16	310	610	20	14	-	-	-	-	-
2	Vertical Member (Truss A&C)	GL9	230	20	610	12	-	-	-	-	-
2	Vertical Member (Truss B)	GL2-GL8 / GL10-GL16	310	610	20	15	-	-	-	-	-
2	Vertical Member (Truss B)	GL9	230	20	610	12	-	-	-	-	-
3	Vertical Member (Truss A&C)	GL1 & GL17	610	12	12	410	15	12	90	-	-
3	Vertical Member (Truss B)	GL1 & GL17	610	15	15	410	15	12	90	-	-
2	Hangers (Truss A,B&C)	GL3-GL15	230	18	610	14	-	-	-	-	-
2	Diagonal Member (Truss A&C)	GL1-GL7 / GL11 - GL17	230	19	610	14	-	-	-	-	-
2	Diagonal Member (Truss A&C)	GL7-GL11	310	20	610	12	-	-	-	-	-
2	Diagonal Member (Truss B)	GL1-GL7 / GL11 - GL17	230	19	610	13	-	-	-	-	-
2	Diagonal Member (Truss B)	GL7-GL11	310	20	610	12	-	-	-	-	-
2	Cross Beam	GL1-GL17	300	25	900	15	-	-	-	-	-
5	Transverse Sway Braces (TC)	GL1-GL17	100	8	10	155	705	-	-	-	-
6	Diagonal Sway Braces (TC)	GL1-GL17	75	8	10	100	695	-	-	-	-
5	Transverse Sway Braces (BC)	GL1-GL17	100	8	10	155	765	-	-	-	-
6	Diagonal Sway Braces (BC)	GL1-GL17	75	8	10	100	745	-	-	-	-

Appendix 21.1.4-1 (2/2)
SECTION PROPERTIES OF STEEL TRUSS MEMBERS

SECTION TYPE	MEMBER	LOCATION	GEOMETRIC PROPERTIES					
			A (m^2)	$A_{v,y}$ (m^2)	I_x (m^4)	I_y (m^4)	I_z (m^4)	y_M (m)
1	Top Arch Chord (Truss A&C)	GL1-GL6 / GL12 - GL17	0.0477	0.01730	0.000020	0.00307	0.00291	0.32500
1	Top Arch Chord (Truss A&C)	GL7-GL11	0.0528	0.02108	0.000030	0.00344	0.00310	0.32470
1	Top Arch Chord (Truss B)	GL1-GL17	0.0465	0.01736	0.000020	0.00296	0.00287	0.33700
1	Bottom Arch Chord (Truss A&C)	GL2-GL5 / GL13-GL16	0.0578	0.02760	0.000035	0.00390	0.00400	0.35180
1	Bottom Arch Chord (Truss A&C)	GL5-GL13	0.0531	0.02622	0.000026	0.00350	0.00400	0.34949
1	Bottom Arch Chord (Truss B)	GL2-GL6 / GL12-GL16	0.0729	0.03174	0.000070	0.00480	0.00510	0.36940
1	Bottom Arch Chord (Truss B)	GL6-GL12	0.0613	0.02070	0.000040	0.00400	0.00460	0.36920
2	Vertical Member (Truss A&C)	GL2-GL8 / GL10-GL16	0.0204	0.00798	0.000003	0.00010	0.01300	0.30500
2	Vertical Member (Truss A&C)	GL9	0.0160	0.00684	0.000001	0.00004	0.00099	0.30500
2	Vertical Member (Truss B)	GL2-GL8 / GL10-GL16	0.0209	0.00855	0.000003	0.00010	0.00130	0.30500
2	Vertical Member (Truss B)	GL9	0.0160	0.00684	0.000001	0.00004	0.00099	0.30500
3	Vertical Member (Truss A&C)	GL1 & GL17	0.0298	0.01200	0.000007	0.00171	0.00085	0.20500
3	Vertical Member (Truss B)	GL1 & GL17	0.0342	0.01200	0.000012	0.00187	0.00100	0.20500
2	Hangers (Truss A,B&C)	GL3-GL15	0.0163	0.00804	0.000001	0.00004	0.00095	0.30500
2	Diagonal Member (Truss A&C)	GL1-GL7 / GL11 - GL17	0.0168	0.00800	0.000002	0.00004	0.00098	0.30500
2	Diagonal Member (Truss A&C)	GL7-GL11	0.0204	0.00684	0.000003	0.00010	0.00130	0.30500
2	Diagonal Member (Truss B)	GL1-GL7 / GL11 - GL17	0.0162	0.00744	0.000001	0.00004	0.00097	0.30500
2	Diagonal Member (Truss B)	GL7-GL11	0.0192	0.00684	0.000002	0.00010	0.00126	0.30500
2	Cross Beam	GL1-GL17	0.0278	0.01275	0.000003	0.00011	0.00364	0.45000
5	Transverse Sway Braces (TC)	GL1-GL17	0.0150	0.00705	0.000001	0.00004	0.00116	0.38250
6	Diagonal Sway Braces (TC)	GL1-GL17	0.0096	0.00695	0.0000004	0.00001	0.00057	0.34750
5	Transverse Sway Braces (BC)	GL1-GL17	0.0150	0.00765	0.000001	0.00004	0.00140	0.38250
6	Diagonal Sway Braces (BC)	GL1-GL17	0.0101	0.00705	0.0000004	0.00001	0.00068	0.37250

BRIDGE NAME : QUEZON BRIDGE





** Allowable Stresses for Inventory Rating*

$\sigma_a = 0.55\,fy$ (Axial)

$\sigma_b = 0.55\,fy$ (Bending)

$\sigma_v = 0.33\,fy$ (Shear)

** Rating Factor Formula*

$RF = [\text{Member Capacity} - (DL)]/(LL + I)$

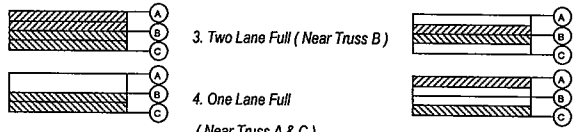
** Impact Load*

$I = 15.24/L + 38$ $\quad L = 102.4$ m.

$= 0.109$

Live Load Condition

1. Full Lane Load (4 Lanes) - Both Sides
2. Full Lane Load (2 Lanes) - One Side Only
3. Two Lane Full (Near Truss B)
4. One Lane Full (Near Truss A & C)



LOAD RATING - INVENTORY LEVEL (ASR)

LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
TOP CHORD (TRUSS A)	TC 18-19	0.04541	0.01946	0.338	0.00308	228	125.4	125.4	75.24	0.74	0.02	7.31	0.80	7.27	0.37	5694	1143	1464	1.11	1.11	1.11	5136.16	1024.213	1314.2432	32775
	TC 19-20	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	560.7	11.91	41.47	4.28	20.38	1.05	5905	1215	1464	116.77	5.39	1.53	45.77	217.76751	943.78039	1465
	TC 20-21	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	979.48	20.80	27.02	2.79	19.48	1.00	5905	1215	1464	191.46	8.50	2.22	25.73	139.68516	651.61441	823
	TC 21-22	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	1111.57	23.61	56.67	5.85	17.09	0.88	5905	1215	1464	197.63	12.88	1.39	24.3	89.9	1044.3	776
	TC 22-23	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	1421.56	30.19	77.11	7.96	15.27	0.78	5905	1215	1464	256.16	19.43	1.25	17.5	58.5	1156.7	560
	TC 23-24	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	2090.71	44.40	74	7.64	25.75	1.32	5905	1215	1464	421.64	17.67	3.27	9.0	64.6	439.9	289
	TC 24-25	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2576.93	50.38	37.34	3.85	13.54	0.57	6414	1215	1778	567.37	5.40	0.47	6.8	218.1	3789.6	216
	TC 25-26	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2919.15	57.07	43.07	4.45	14.74	0.62	6414	1215	1778	692.53	15.93	1.57	5.0	73.5	1120.1	161
	TC 26-27	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2951.66	57.71	167.78	17.32	34.32	1.45	6414	1215	1778	719.92	46.79	4.57	4.8	22.4	381.8	154
	TC 27-28	0.05059	0.02363	0.347	0.00336	228	125.4	125.4	75.24	2950.41	58.32	167.81	17.33	34.34	1.45	6344	1214	1778	719.64	46.80	4.57	4.7	22.4	381.8	151
	TC 28-29	0.04947	0.02363	0.339	0.0032	228	125.4	125.4	75.24	2915.47	58.93	43.02	4.56	14.74	0.62	6204	1184	1778	691.72	15.92	1.57	4.8	71.7	1120.1	152
	TC 29-30	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2571.7	50.28	37.27	3.85	13.52	0.57	6414	1215	1778	566.21	5.38	0.45	6.8	219.0	3882.0	217
	TC 30-31	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	2087.08	44.32	73.67	7.61	25.68	1.32	5905	1215	1464	420.85	17.60	3.25	9.1	64.8	442.9	290
	TC 31-32	0.04653	0.01946	0.347	0.00311	228	125.4	125.4	75.24	1420.35	30.53	76.76	8.56	15.1	0.78	5835	1124	1464	255.92	19.34	1.22	17.2	54.1	1188.3	552
	TC 32-33	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	1110.45	23.58	57.4	5.93	17.51	0.90	5905	1215	1464	197.39	13.04	1.47	24.3	88.8	981.2	777
	TC 33-34	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	980.63	20.82	25.24	2.61	18.77	0.96	5905	1215	1464	191.61	7.92	2.06	25.7	150.3	701.0	822
	TC 34-35	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	549.45	11.67	40.81	4.21	19.87	1.02	5905	1215	1464	114.18	5.30	1.42	46.9	221.5	1017.9	1501
	TC 35-36	0.04653	0.02363	0.347	0.00311	228	125.4	125.4	75.24	0.56	0.01	7.29	0.81	7.27	0.31	5835	1124	1778	1.11	1.11	1.11	5263.02	1007.2753	1597.2721	32233
TOP CHORD (TRUSS B)	TC 18-19	0.04724	0.01946	0.335	0.00332	228	125.4	125.4	75.24	1.4	0.03	13.84	1.40	13.77	0.71	5924	1243	1464	1.11	1.11	1.11	5342.58	1108.5954	1308.3797	35475
	TC 19-20	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	888.47	18.16	91.57	9.08	40.96	2.10	6135	1265	1464	202.76	19.18	4.87	25.87	61.178427	292.44922	828
	TC 20-21	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	1755.9	35.89	47.1	4.67	27.77	1.43	6135	1265	1464	391.97	12.34	1.62	11.17	98.697426	887.50038	357
	TC 21-22	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	2244.57	45.88	76.21	7.56	32.15	1.65	6135	1265	1464	494.06	14.75	2.52	7.87	80.559185	569.07464	252
	TC 22-23	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	2855.48	58.37	86.82	8.61	23.69	1.22	6135	1265	1464	642.71	19.60	0.74	5.10	60.105864	1939.4493	163
	TC 23-24	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	3775.63	77.18	88.25	8.75	38.13	1.96	6135	1265	1464	900.52	20.02	3.70	2.62	58.76975	385.15119	84
	TC 24-25	0.0584	0.01946	0.344	0.00422	228	125.4	125.4	75.24	4272.87	73.17	52.41	4.27	18.02	0.93	7323	1538	1464	1095.24	5.55	0.40	2.79	267.55046	3623.7385	89
	TC 25-26	0.06976	0.03058	0.347	0.0047	228	125.4	125.4	75.24	4660.21	66.80	62.1	4.58	18.62	0.61	8748	1699	2301	1299.14	27.06	3.43	3.15	60.473898	666.26157	101

LOAD RATING - INVENTORY LEVEL (ASR)

LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)																
TOP CHORD (TRUSS B)	TC 26-27	0.06976	0.03058	0.347	0.0047	228	125.4	125.4	75.24	4668.28	66.92	241.44	17.83	50.37	1.65	8748	1699	2301	1343.92	81.89	8.69	3.04	17.793265	258.94224	97
	TC 27-28	0.06976	0.03058	0.347	0.0047	228	125.4	125.4	75.24	4670.77	66.95	241.43	17.82	50.34	1.65	8748	1699	2301	1344.47	81.89	8.68	3.03	17.793387	259.2764	97
	TC 28-29	0.06976	0.03058	0.347	0.0047	228	125.4	125.4	75.24	4669.14	66.93	62.41	4.61	18.64	0.61	8748	1699	2301	1301.29	27.13	3.41	3.13	60.314189	668.41889	100
	TC 29-30	0.0589	0.01946	0.347	0.0043	228	125.4	125.4	75.24	4281.74	72.70	52.63	4.25	18.08	0.93	7386	1554	1464	1097.51	5.65	0.40	2.83	265.5513	3623.5881	91
	TC 30-31	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	3786.29	77.40	87.86	8.71	38.06	1.96	6135	1265	1464	903.24	19.91	3.68	2.60	59.116565	387.4904	83
	TC 31-32	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	2862.1	* 58.51	86.42	8.57	23.47	1.21	6135	1265	1464	644.59	19.49	0.69	5.08	60.468288	2096.1766	162
	TC 32-33	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	2248.28	45.96	77.3	7.66	32.75	1.68	6135	1265	1464	495.24	15.02	2.66	7.85	79.059741	538.02424	251
	TC 33-34	0.04892	0.01946	0.347	0.0035	228	125.4	125.4	75.24	1762.23	36.02	46.46	4.61	26.89	1.38	6135	1265	1464	393.87	11.71	1.41	11.10	104.07952	1020.9011	355
	TC 34-35	0.04836	0.01946	0.343	0.00345	228	125.4	125.4	75.24	877.22	18.14	91.31	9.08	40.51	2.08	6064	1261	1464	200.30	19.18	4.78	25.90	61.007941	297.9717	829
	TC 35-36	0.04724	0.01946	0.335	0.00332	228	125.4	125.4	75.24	1.06	0.02	13.81	1.39	13.77	0.71	5924	1243	1464	1.11	1.11	1.11	5342.88	1108.6225	1308.3797	35476
TOP CHORD (TRUSS C)	TC 18-19	0.04541	0.01946	0.338	0.00308	228	125.4	125.4	75.24	0.74	0.02	7.31	0.80	7.27	0.37	5694	1143	1464	1.11	1.11	1.11	5136.16	1024.213	1314.2432	32775
	TC 19-20	0.04653	0.01946	0.347	0.00311	228	125.4	125.4	75.24	560.47	12.05	41.44	4.62	20.37	1.05	5835	1124	1464	116.75	7.09	2.01	45.18	152.57331	719.57235	1446
	TC 20-21	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	978.86	20.79	27.01	2.79	19.48	1.00	5905	1215	1464	194.39	8.50	2.22	25.34	139.68634	651.61441	811
	TC 21-22	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	1110.21	23.58	56.66	5.85	17.09	0.88	5905	1215	1464	216.16	12.89	1.39	22.18	89.823516	1044.3078	710
	TC 22-23	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	1418.93	30.13	77.16	7.97	15.27	0.78	5905	1215	1464	282.88	19.46	1.25	15.86	58.47036	1156.6607	507
	TC 23-24	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	2086.51	44.31	74.05	7.64	25.74	1.32	5905	1215	1464	440.58	17.70	3.62	8.67	64.430826	396.814	277
	TC 24-25	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2570.64	50.26	37.19	3.84	13.55	0.57	6414	1215	1778	576.41	5.37	0.27	6.67	219.46509	6631.6959	213
	TC 25-26	0.05059	0.02363	0.347	0.00336	228	125.4	125.4	75.24	2910.59	57.53	42.77	4.42	14.72	0.62	6344	1214	1778	697.40	16.32	2.23	4.92	71.791355	791.3192	158
	TC 26-27	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2940.83	57.49	167.43	17.28	34.34	1.45	6414	1215	1778	723.56	46.92	5.07	4.80	22.31807	344.16909	154
	TC 27-28	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2939.71	57.47	167.32	17.27	34.43	1.46	6414	1215	1778	723.36	46.89	5.08	4.80	22.336244	343.3999	154
	TC 28-29	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2903.59	56.77	44.2	4.56	13.83	0.59	6414	1215	1778	696.51	16.10	2.03	5.04	72.71952	869.59259	161
	TC 29-30	0.05115	0.02363	0.351	0.0034	228	125.4	125.4	75.24	2550.33	49.86	37.28	3.85	11.66	0.49	6414	1215	1778	573.19	5.08	0.29	6.74	231.90608	6128.1229	216
	TC 30-31	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	2075.35	44.07	74.07	7.65	25.63	1.32	5905	1215	1464	439.47	17.69	3.59	8.71	64.470066	400.51883	279
	TC 31-32	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	1410.35	29.95	77.05	7.95	15.1	0.78	5905	1215	1464	282.17	19.40	1.22	15.93	58.643088	1188.3454	510
	TC 32-33	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	1103.82	23.44	57.58	5.94	17.51	0.90	5905	1215	1464	215.78	13.09	1.47	22.25	88.384215	981.20745	712
	TC 33-34	0.04541	0.01946	0.338	0.00308	228	125.4	125.4	75.24	976.82	21.51	25.05	2.75	18.75	0.96	5694	1143	1464	194.97	7.86	2.06	24.20	142.2017	701.01469	774
	TC 34-35	0.04709	0.01946	0.351	0.0034	228	125.4	125.4	75.24	547.66	11.63	40.62	4.19	19.81	1.02	5905	1215	1464	113.80	7.16	1.95	47.08	163.94998	740.30178	1506
	TC 35-36	0.04541	0.01946	0.338	0.00308	228	125.4	125.4	75.24	0.56	0.01	7.29	0.80	7.27	0.37	5694	1143	1464	1.11	1.11	1.11	5136.32	1024.231	1314.2432	32775
BOTTOM CHORD (TRUSS A)	BC 1-2	0.06628	0.03	0.372	0.00526	228	125.4	125.4	75.24	4864.23	73.39	103.33	7.31	4.66	0.16	8312	1773	2257	1031.76	24.69	3.25	3.3	67.6	693.5	107
	BC 2-3	0.0668	0.03	0.375	0.00534	228	125.4	125.4	75.24	4455.1	66.69	170.57	11.98	47.78	1.59	8377	1786	2257	1003.55	43.52	7.64	3.9	37.1	289.3	125
	BC 3-4	0.0591	0.0285	0.375	0.0047	228	125.4	125.4	75.24	3982.06	67.38	66.56	5.31	16.96	0.60	7411	1572	2144	928.31	14.62	0.61	3.7	102.9	3489.2	118
	BC 4-5	0.05852	0.0285	0.371	0.00462	228	125.4	125.4	75.24	3652.55	62.42	120.41	9.67	22.53	0.79	7338	1562	2144	878.91	29.88	2.25	4.2	48.2	942.9	134
	BC 5-6	0.04992	0.021	0.371	0.00418	228	125.4	125.4	75.24	3014.11	60.38	114.1	10.13	34.44	1.64	6260	1413	1580	732.98	28.40	5.23	4.4	45.7	295.4	142
	BC 6-7	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	2227.45	44.11	45	4.02	15.19	0.72	6333	1404	1580	519.02	7.79	0.79	7.9	174.4	1988.2	253
	BC 7-8	0.04992	0.021	0.371	0.00418	228	125.4	125.4	75.24	1645.82	32.97	48.95	4.34	15.89	0.76	6260	1413	1580	330.31	19.77	2.32	14.0	69.0	675.1	447
	BC 8-9	0.04992	0.021	0.371	0.00418	228	125.4	125.4	75.24	1268.09	25.40	210.96	18.72	39.5	1.88	6260	1413	1580	197.01	58.18	5.73	25.3	20.7	268.8	661
	BC 9-10	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	1267.3	25.10	210.98	18.84	39.51	1.88	6333	1404	1580	196.86	58.18	5.74	25.7	20.5	268.3	656
	BC 10-11	0.0488	0.021	0.362	0.00401	228	125.4	125.4	75.24	1644.33	33.70	48.88	4.41	15.91	0.76	6120	1389	1580	329.90	19.77	2.32	13.6	67.8	675.1	434
	BC 11-12	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	2225.41	44.07	45	4.02	15.21	0.72	6333	1404	1580	518.43	7.82	0.79	7.9	174.0	1988.2	254
	BC 12-13	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	3011.8	59.64	114.5	10.22	34.52	1.64	6333	1404	1580	732.30	28.48	5.24	4.5	45.3	294.8	145

LOAD RATING - INVENTORY LEVEL (ASR)

LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross} (m^2)	A_{shear} (m^2)	$c_{n.a.}$ (m)	$I_{bending}$ (m^4)	fy (MPa)	σ_a (allow) (MPa)	σ_b (allow) (MPa)	σ_v (allow) (MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
BOTTOM CHORD (TRUSS A)	BC 13-14	0.0591	0.0285	0.375	0.0047	228	125.4	125.4	75.24	3651.02	61.78	120.81	9.64	22.96	0.81	7411	1572	2144	878.41	29.94	2.34	4.3	48.5	906.9	137
	BC 14-15	0.0591	0.0285	0.375	0.0047	228	125.4	125.4	75.24	3979.94	67.34	64.05	5.11	15.04	0.53	7411	1572	2144	927.75	14.10	0.21	3.7	106.9	10109.5	118
	BC 15-16	0.0668	0.03	0.375	0.00534	228	125.4	125.4	75.24	4460.2	66.77	226.18	15.88	57.23	1.91	8377	1786	2257	1004.57	55.15	9.61	3.9	28.3	228.9	125
	BC 16-17	0.06628	0.03	0.372	0.00526	228	125.4	125.4	75.24	4880.61	73.64	184.33	13.04	81	2.70	8312	1773	2257	1035.36	42.07	19.38	3.3	37.8	112.3	106
BOTTOM CHORD (TRUSS B)	BC 1-2	0.07717	0.0375	0.385	0.00586	228	125.4	125.4	75.24	7563.04	98.00	157.94	10.38	5.07	0.14	9677	1909	2822	1875.22	44.18	5.92	1.13	39.63	475.78	36
	BC 2-3	0.0788	0.0375	0.379	0.0061	228	125.4	125.4	75.24	6479.38	82.23	244.81	15.21	58.29	1.55	9882	2018	2822	1658.28	72.64	11.07	2.05	24.41	249.51	66
	BC 3-4	0.0788	0.0375	0.379	0.0061	228	125.4	125.4	75.24	5600.02	71.07	84.89	5.27	27.42	0.73	9882	2018	2822	1451.40	18.97	1.92	2.95	101.93	1456.93	94
	BC 4-5	0.06859	0.0285	0.366	0.00546	228	125.4	125.4	75.24	5011.72	73.07	151.06	10.13	27.11	0.95	8601	1871	2144	1316.84	37.49	2.73	2.73	45.87	776.39	87
	BC 5-6	0.0703	0.0285	0.379	0.0057	228	125.4	125.4	75.24	4213.27	59.93	157.43	10.47	48.25	1.69	8816	1886	2144	1138.81	45.07	8.34	4.04	38.35	251.44	129
	BC 6-7	0.0644	0.0225	0.379	0.0054	228	125.4	125.4	75.24	3440.08	53.42	69.47	4.88	16.07	0.71	8076	1787	1693	953.54	8.92	0.92	4.86	192.43	1822.46	156
	BC 7-8	0.0644	0.0225	0.379	0.0054	228	125.4	125.4	75.24	2952.83	45.85	65.7	4.61	17.16	0.76	8076	1787	1693	798.90	31.25	4.48	6.41	55.07	374.17	205
	BC 8-9	0.06275	0.0225	0.365	0.0052	228	125.4	125.4	75.24	2607.37	41.55	294.48	20.67	56.5	2.51	7869	1787	1693	630.09	98.76	10.71	8.35	15.11	152.81	267
	BC 9-10	0.06275	0.0225	0.365	0.0052	228	125.4	125.4	75.24	2606.84	41.54	294.47	20.67	56.46	2.51	7869	1787	1693	629.80	98.76	10.70	8.36	15.11	152.97	267
	BC 10-11	0.0644	0.0225	0.379	0.0054	228	125.4	125.4	75.24	2951.85	45.84	66.04	4.64	17.17	0.76	8076	1787	1693	798.36	31.34	4.48	6.42	54.91	374.17	205
	BC 11-12	0.06275	0.0225	0.365	0.0052	228	125.4	125.4	75.24	3439.44	54.81	69.81	4.90	16.08	0.71	7869	1787	1693	953.01	9.01	0.91	4.65	190.48	1844.67	149
	BC 12-13	0.06859	0.0285	0.366	0.00546	228	125.4	125.4	75.24	4212.36	61.41	158.15	10.60	48.39	1.70	8601	1871	2144	1138.16	45.24	8.38	3.86	37.86	250.09	123
	BC 13-14	0.06859	0.0285	0.366	0.00546	228	125.4	125.4	75.24	5010.4	73.05	151.76	10.17	27.76	0.97	8601	1871	2144	1316.04	37.65	2.89	2.73	45.66	731.54	87
	BC 14-15	0.0788	0.0375	0.379	0.0061	228	125.4	125.4	75.24	5595.67	71.01	81.19	5.04	24.43	0.65	9882	2018	2822	1449.81	18.01	1.16	2.96	107.53	2403.03	95
	BC 15-16	0.0788	0.0375	0.379	0.0061	228	125.4	125.4	75.24	6484.51	82.29	330.57	20.54	72.92	1.94	9882	2018	2822	1659.03	94.24	14.77	2.05	17.91	186.14	66
	BC 16-17	0.07717	0.0375	0.385	0.00586	228	125.4	125.4	75.24	7589.85	98.35	282.1	18.53	123.28	3.29	9677	1909	2822	1880.64	75.21	35.06	1.11	21.63	76.95	36
BOTTOM CHORD (TRUSS C)	BC 1-2	0.06628	0.03	0.372	0.00526	228	125.4	125.4	75.24	4862.02	73.36	103.28	7.30	4.64	0.15	8312	1773	2257	1049.89	24.69	3.51	3.3	67.6	641.0	105
	BC 2-3	0.0668	0.03	0.375	0.00534	228	125.4	125.4	75.24	4453.41	66.67	170.52	11.97	47.77	1.59	8377	1786	2257	1003.37	43.52	7.64	3.9	37.1	289.3	125
	BC 3-4	0.0574	0.0285	0.364	0.00446	228	125.4	125.4	75.24	3981.03	69.36	66.54	5.43	16.96	0.60	7198	1536	2144	928.34	14.62	0.61	3.5	100.5	3489.2	111
	BC 4-5	0.05852	0.0285	0.371	0.00462	228	125.4	125.4	75.24	3652.52	62.41	120.48	9.67	22.55	0.79	7338	1562	2144	879.23	29.91	2.25	4.2	48.2	942.9	134
	BC 5-6	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	3015.56	59.71	114.17	10.19	34.43	1.64	6333	1404	1580	733.69	28.45	5.34	4.5	45.4	289.3	145
	BC 6-7	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	2230.7	44.17	44.83	4.00	15.2	0.72	6333	1404	1580	530.55	7.76	0.79	7.7	175.2	1988.2	247
	BC 7-8	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	1651.33	32.70	48.57	4.34	15.87	0.76	6333	1404	1580	375.97	19.80	2.98	12.5	68.5	524.5	398
	BC 8-9	0.0488	0.021	0.362	0.00401	228	125.4	125.4	75.24	1276.06	26.15	210.58	19.01	39.52	1.88	6120	1389	1580	245.93	58.29	6.32	19.7	20.2	243.8	630
	BC 9-10	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	1279.48	25.34	210.48	18.79	39.68	1.89	6333	1404	1580	246.20	58.24	6.34	20.5	20.5	242.9	656
	BC 10-11	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	1662.26	32.92	49.99	4.46	14.71	0.70	6333	1404	1580	377.46	19.48	2.69	12.4	69.5	581.1	396
	BC 11-12	0.0505	0.021	0.375	0.0042	228	125.4	125.4	75.24	2238.2	44.32	46.33	4.14	14.03	0.67	6333	1404	1580	531.27	7.45	0.52	7.7	182.3	3005.7	247
	BC 12-13	0.0488	0.021	0.362	0.00401	228	125.4	125.4	75.24	3022.29	61.93	114.9	10.37	34.34	1.64	6120	1389	1580	734.97	28.60	5.33	4.2	44.6	289.9	135
	BC 13-14	0.05852	0.0285	0.371	0.00462	228	125.4	125.4	75.24	3658.77	62.52	121.18	9.73	22.98	0.81	7338	1562	2144	880.75	30.05	2.34	4.2	47.9	906.9	134
	BC 14-15	0.0591	0.0285	0.375	0.0047	228	125.4	125.4	75.24	3985.19	67.43	64.33	5.13	15.06	0.53	7411	1572	2144	929.67	14.18	0.21	3.7	106.3	10109.4	118
	BC 15-16	0.0668	0.03	0.375	0.00534	228	125.4	125.4	75.24	4463.49	66.82	226.14	15.88	57.25	1.91	8377	1786	2257	1006.12	55.70	9.62	3.9	28.0	228.6	124
	BC 16-17	0.0668	0.03	0.375	0.00534	228	125.4	125.4	75.24	4883.63	73.11	184.51	12.96	81.07	2.70	8377	1786	2257	1052.01	42.14	20.02	3.3	38.0	108.7	106
VERTICAL / HANGER MEMBER (TRUSS A)	VM 37-19	0.02982	0.00984	0.205	0.00085	228	125.4	125.4	75.24	753.37	25.26	47.57	11.47	7.87	0.80	3739	520	740	139.42	8.44	1.27	21.42	56.00	574.58	685
	VM 1-37	0.02762	0.00984	0.188	0.00075	228	125.4	125.4	75.24	1011.73	36.63	101.38	25.41	54.11	5.50	3464	500	740	203.03	20.16	10.95	12.08	19.78	62.66	386
	VM 2-20	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	520.27	25.50	-	-	-	-	2558	534	600	79.58	0.00	0.00	25.61	-	-	819

LOAD RATING - INVENTORY LEVEL (ASR)

LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross} (m^2)	A_{shear} (m^2)	$c_{n.a.}$ (m)	$I_{bending}$ (m^4)	fy (MPa)	σ_a (allow) (MPa)	σ_b (allow) (MPa)	σ_v (allow) (MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
VERTICAL / HANGER MEMBER (TRUSS A)	VM 3-21	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	242.57	11.89	-	-	-	-	2558	534	600	26.02	0.00	0.00	89.00	-	-	2848
	VM 38-3	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	233.07	16.76	-	-	-	-	1744	362	421	56.62	0.00	0.00	26.69	-	-	854
	VM 4-22	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	251.66	12.34	-	-	-	-	2558	534	600	44.59	0.00	0.00	51.73	-	-	1655
	VM 39-4	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	237.41	17.07	-	-	-	-	1744	362	421	57.89	0.00	0.00	26.03	-	-	833
	VM 5-23	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	412.27	20.21	-	-	-	-	2558	534	600	99.16	0.00	0.00	21.64	-	-	693
VERTICAL / HANGER MEMBER (TRUSS A)	VM 40-5	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	246.33	15.88	-	-	-	-	1945	378	542	60.63	0.00	0.00	28.02	-	-	897
	VM 6-24	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	235.09	11.52	-	-	-	-	2558	534	600	68.64	0.00	0.00	33.84	-	-	1083
	VM 41-6	0.01632	0.008036	0.305	0.00095	228	125.4	125.4	75.24	242.87	14.88	-	-	-	-	2047	391	605	60.26	0.00	0.00	29.93	-	-	958
	VM 7-25	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	115.42	5.66	-	-	-	-	2558	534	600	46.96	0.00	0.00	52.02	-	-	1665
	VM 42-7	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	250.31	17.99	-	-	-	-	1744	362	421	63.86	0.00	0.00	23.39	-	-	749
	VM 8-26	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	46.34	2.27	-	-	-	-	2558	534	600	14.51	0.00	0.00	173.10	-	-	5539
	VM 43-8	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	254.47	18.29	-	-	-	-	1744	362	421	84.62	0.00	0.00	17.61	-	-	563
	VM 9-27	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	132.5	6.50	-	-	-	-	2558	534	600	36.18	0.00	0.00	67.04	-	-	2145
	VM 44-9	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	243.69	15.71	-	-	-	-	1945	378	542	84.06	0.00	0.00	20.24	-	-	648
	VM 10-28	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	46.63	2.29	-	-	-	-	2558	534	600	14.61	0.00	0.00	171.90	-	-	5501
	VM 45-10	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	254.4	16.40	-	-	-	-	1945	378	542	84.60	0.00	0.00	19.98	-	-	639
	VM 11-29	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	115.26	5.65	-	-	-	-	2558	534	600	46.89	0.00	0.00	52.10	-	-	1667
	VM 46-11	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	250.15	17.98	-	-	-	-	1744	362	421	63.82	0.00	0.00	23.41	-	-	749
	VM 12-30	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	235.12	11.53	-	-	-	-	2558	534	600	68.63	0.00	0.00	33.85	-	-	1083
	VM 47-12	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	242.8	17.46	-	-	-	-	1744	362	421	60.25	0.00	0.00	24.92	-	-	797
	VM 13-31	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	412.04	20.20	-	-	-	-	2558	534	600	99.10	0.00	0.00	21.66	-	-	693
	VM 48-13	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	246.43	17.72	-	-	-	-	1744	362	421	60.65	0.00	0.00	24.70	-	-	790
	VM 14-32	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	252.99	12.40	-	-	-	-	2558	534	600	44.90	0.00	0.00	51.34	-	-	1643
	VM 49-14	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	237.12	17.05	-	-	-	-	1744	362	421	57.83	0.00	0.00	26.06	-	-	834
	VM 15-33	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	240.44	11.79	-	-	-	-	2558	534	600	25.66	0.00	0.00	90.31	-	-	2890
	VM 50-15	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	234.98	16.89	-	-	-	-	1744	362	421	57.02	0.00	0.00	26.47	-	-	847
	VM 16-34	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	532.4	26.10	-	-	-	-	2558	534	600	82.21	0.00	0.00	24.64	-	-	789
	VM 51-35	0.02982	0.00984	0.205	0.00085	228	125.4	125.4	75.24	738.25	24.76	46.96	11.33	7.82	0.79	3739	520	740	135.91	8.27	1.25	22.08	57.20	584.79	707
	VM 17-51	0.02909	0.00984	0.199	0.00082	228	125.4	125.4	75.24	993.68	34.16	70.57	17.13	41.02	4.17	3648	517	740	198.88	13.65	8.19	13.35	32.69	85.37	427
VERTICAL / HANGER MEMBER (TRUSS B)	VM 37-19	0.02982	0.00984	0.205	0.00085	228	125.4	125.4	75.24	1171.64	39.29	90.65	21.86	16.34	1.66	3739	520	740	259.72	19.30	3.30	9.89	22.24	219.17	316
	VM 1-37	0.02762	0.00984	0.188	0.00075	228	125.4	125.4	75.24	1637.58	59.29	156.24	39.16	81.36	8.27	3464	500	740	409.89	35.94	19.01	4.45	9.57	34.66	143
	VM 2-20	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	936.36	45.90	-	-	-	-	2558	534	600	195.46	0.00	0.00	8.30	-	-	266
	VM 3-21	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	449.06	22.01	-	-	-	-	2558	534	600	75.46	0.00	0.00	27.95	-	-	894
	VM 38-3	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	477.5	30.79	-	-	-	-	1945	378	542	154.69	0.00	0.00	9.49	-	-	304
	VM 4-22	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	320.05	15.69	-	-	-	-	2558	534	600	54.11	0.00	0.00	41.36	-	-	1324
	VM 39-4	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	474.66	30.60	-	-	-	-	1945	378	542	151.72	0.00	0.00	9.69	-	-	310
	VM 5-23	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	445.19	21.82	-	-	-	-	2558	534	600	103.73	0.00	0.00	20.37	-	-	652
	VM 40-5	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	473.37	30.52	-	-	-	-	1945	378	542	149.92	0.00	0.00	9.82	-	-	314
	VM 6-24	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	165.44	8.11	-	-	-	-	2558	534	600	53.74	0.00	0.00	44.52	-	-	1425

LOAD RATING - INVENTORY LEVEL (ASR)																									
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
VERTICAL / HANGER MEMBER (TRUSS B)	VM 41-6	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	458.02	29.53	-	-	-	-	1945	378	542	143.31	0.00	0.00	10.38	-	-	332
	VM 7-25	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	16.38	0.80	-	-	-	-	2558	534	600	34.65	0.00	0.00	73.35	-	-	2347
	VM 42-7	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	457.29	29.48	-	-	-	-	1945	378	542	143.19	0.00	0.00	10.39	-	-	332
	VM 8-26	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	155.74	7.63	-	-	-	-	2558	534	600	56.36	0.00	0.00	42.63	-	-	1364
	VM 43-8	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	462.61	29.83	-	-	-	-	1945	378	542	216.22	0.00	0.00	6.86	-	-	219
	VM 9-27	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	256.72	12.58	-	-	-	-	2558	534	600	99.67	0.00	0.00	23.09	-	-	739
	VM 44-9	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	442.37	28.52	-	-	-	-	1945	378	542	212.12	0.00	0.00	7.08	-	-	227
VERTICAL / HANGER MEMBER (TRUSS B)	VM 10-28	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	156.27	7.66	-	-	-	-	2558	534	600	56.57	0.00	0.00	42.46	-	-	1359
	VM 45-10	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	462.78	29.84	-	-	-	-	1945	378	542	216.27	0.00	0.00	6.85	-	-	219
	VM 11-29	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	15.75	0.77	-	-	-	-	2558	534	600	34.43	0.00	0.00	73.84	-	-	2363
	VM 46-11	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	457.63	29.51	-	-	-	-	1945	378	542	143.27	0.00	0.00	10.38	-	-	332
	VM 12-30	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	165.15	8.10	-	-	-	-	2558	534	600	53.63	0.00	0.00	44.62	-	-	1428
	VM 47-12	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	458.15	29.54	-	-	-	-	1945	378	542	143.34	0.00	0.00	10.37	-	-	332
	VM 13-31	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	444.15	21.77	-	-	-	-	2558	534	600	103.42	0.00	0.00	20.44	-	-	654
	VM 48-13	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	473.41	30.52	-	-	-	-	1945	378	542	149.92	0.00	0.00	9.82	-	-	314
	VM 14-32	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	320.61	15.72	-	-	-	-	2558	534	600	54.22	0.00	0.00	41.27	-	-	1321
	VM 49-14	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	473.91	30.56	-	-	-	-	1945	378	542	151.52	0.00	0.00	9.71	-	-	311
	VM 15-33	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	444.33	21.78	-	-	-	-	2558	534	600	74.28	0.00	0.00	28.46	-	-	911
	VM 50-15	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	480.12	30.96	-	-	-	-	1945	378	542	155.26	0.00	0.00	9.43	-	-	302
	VM 16-34	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	953.64	46.75	-	-	-	-	2558	534	600	199.76	0.00	0.00	8.03	-	-	257
	VM 51-35	0.02982	0.00984	0.205	0.00085	228	125.4	125.4	75.24	1156.37	38.78	90.4	21.80	16.47	1.67	3739	520	740	256.42	19.30	3.35	10.07	22.26	216.23	322
	VM 17-51	0.02909	0.00984	0.199	0.00082	228	125.4	125.4	75.24	1617.48	55.60	107.25	26.03	60.16	6.11	3648	517	740	405.41	23.80	13.76	5.01	17.20	49.44	160
VERTICAL / HANGER MEMBER (TRUSS C)	VM 37-19	0.02982	0.00984	0.205	0.00085	228	125.4	125.4	75.24	753.37	25.26	47.57	11.47	7.87	0.80	3739	520	740	139.42	8.44	1.27	21.42	56.00	574.58	685
	VM 1-37	0.02762	0.00984	0.188	0.00075	228	125.4	125.4	75.24	1011.73	36.63	101.38	25.41	54.11	5.50	3464	500	740	203.03	20.16	10.95	12.08	19.78	62.66	386
	VM 2-20	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	520.27	25.50	-	-	-	-	2558	534	600	79.58	0.00	0.00	25.61	-	-	819
	VM 3-21	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	242.57	11.89	-	-	-	-	2558	534	600	26.02	0.00	0.00	89.00	-	-	2848
	VM 38-3	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	233.07	15.03	-	-	-	-	1945	378	542	56.62	0.00	0.00	30.23	-	-	967
	VM 4-22	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	251.66	12.34	-	-	-	-	2558	534	600	44.59	0.00	0.00	51.73	-	-	1655
	VM 39-4	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	237.41	17.07	-	-	-	-	1744	362	421	57.89	0.00	0.00	26.03	-	-	833
	VM 5-23	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	412.27	20.21	-	-	-	-	2558	534	600	99.16	0.00	0.00	21.64	-	-	693
	VM 40-5	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	246.33	15.88	-	-	-	-	1945	378	542	60.63	0.00	0.00	28.02	-	-	897
	VM 6-24	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	235.09	11.52	-	-	-	-	2558	534	600	68.64	0.00	0.00	33.84	-	-	1083
	VM 41-6	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	242.87	15.66	-	-	-	-	1945	378	542	60.26	0.00	0.00	28.25	-	-	904
	VM 7-25	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	115.42	5.66	-	-	-	-	2558	534	600	46.96	0.00	0.00	52.02	-	-	1665
	VM 42-7	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	250.31	16.14	-	-	-	-	1945	378	542	63.86	0.00	0.00	26.54	-	-	849
	VM 8-26	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	46.34	2.27	-	-	-	-	2558	534	600	14.51	0.00	0.00	173.10	-	-	5539
	VM 43-8	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	254.47	18.29	-	-	-	-	1744	362	421	84.62	0.00	0.00	17.61	-	-	563
	VM 9-27	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	132.5	6.50	-	-	-	-	2558	534	600	36.18	0.00	0.00	67.04	-	-	2145
	VM 44-9	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	243.69	15.71	-	-	-	-	1945	378	542	84.06	0.00	0.00	20.24	-	-	648

LOAD RATING - INVENTORY LEVEL (ASR)

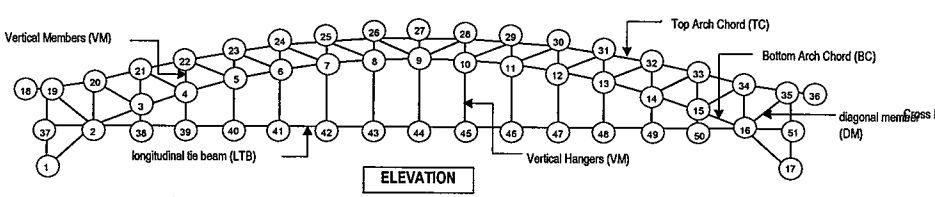
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)																
VERTICAL / HANGER MEMBER (TRUSS C)	VM 10-28	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	46.63	2.29	-	-	-	-	2558	534	600	14.61	0.00	0.00	171.90	-	-	5501
	VM 45-10	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	254.4	16.40	-	-	-	-	1945	378	542	84.60	0.00	0.00	19.98	-	-	639
	VM 11-29	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	115.26	5.65	-	-	-	-	2558	534	600	46.89	0.00	0.00	52.10	-	-	1667
	VM 46-11	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	250.15	17.98	-	-	-	-	1744	362	421	63.82	0.00	0.00	23.41	-	-	749
	VM 12-30	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	235.12	11.53	-	-	-	-	2558	534	600	68.63	0.00	0.00	33.85	-	-	1083
	VM 47-12	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	242.8	15.65	-	-	-	-	1945	378	542	60.25	0.00	0.00	28.25	-	-	904
	VM 13-31	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	412.04	20.20	-	-	-	-	2558	534	600	99.10	0.00	0.00	21.66	-	-	693
	VM 48-31	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	246.43	17.72	-	-	-	-	1744	362	421	60.65	0.00	0.00	24.70	-	-	790
	VM 14-32	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	252.99	12.40	-	-	-	-	2558	534	600	44.90	0.00	0.00	51.34	-	-	1643
VERTICAL / HANGER MEMBER (TRUSS C)	VM 49-14	0.01391	0.0056	0.305	0.00088	228	125.4	125.4	75.24	237.12	17.05	-	-	-	-	1744	362	421	57.83	0.00	0.00	26.06	-	-	834
	VM 15-33	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	240.44	11.79	-	-	-	-	2558	534	600	25.66	0.00	0.00	90.31	-	-	2890
	VM 50-15	0.01551	0.0072	0.305	0.00092	228	125.4	125.4	75.24	234.98	15.15	-	-	-	-	1945	378	542	57.02	0.00	0.00	29.99	-	-	960
	VM 16-34	0.0204	0.00798	0.305	0.0013	228	125.4	125.4	75.24	532.4	26.10	-	-	-	-	2558	534	600	82.21	0.00	0.00	24.64	-	-	789
	VM 51-35	0.02982	0.00984	0.205	0.00085	228	125.4	125.4	75.24	738.25	24.76	46.96	11.33	7.82	0.79	3739	520	740	135.91	8.27	1.25	22.08	57.20	584.79	707
	VM 17-51	0.02909	0.00984	0.199	0.00082	228	125.4	125.4	75.24	993.68	34.16	70.57	17.13	41.02	4.17	3648	517	740	198.88	13.65	8.19	13.35	32.69	85.37	427
DIAGONAL MEMBER (TRUSS A & C)	DM 19-2	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	850.84	50.80	-	-	-	-	2100	403	14	169.62	0.00	0.00	7.37	-	-	236
	DM 20-3	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	549.08	32.78	-	-	-	-	2100	403	14	88.18	0.00	0.00	17.59	-	-	563
	DM 21-4	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	196.22	11.71	-	-	-	-	2100	403	14	29.82	0.00	0.00	63.86	-	-	2043
	DM 22-5	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	414.35	24.74	-	-	-	-	2100	403	14	83.99	0.00	0.00	20.07	-	-	642
	DM 23-6	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	782.52	46.72	-	-	-	-	2100	403	14	195.04	0.00	0.00	6.76	-	-	216
	DM 24-7	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	577.79	34.49	-	-	-	-	2100	403	14	174.19	0.00	0.00	8.74	-	-	280
	DM 25-8	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	396.67	20.62	-	-	-	-	2413	518	515	147.31	0.00	0.00	13.69	-	-	438
	DM 26-9	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	60.4	3.14	-	-	-	-	2413	518	515	39.63	0.00	0.00	59.36	-	-	1899
	DM 9-28	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	59.57	3.10	-	-	-	-	2413	518	515	39.38	0.00	0.00	59.76	-	-	1912
	DM 10-29	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	396	20.58	-	-	-	-	2413	518	515	147.12	0.00	0.00	13.71	-	-	439
	DM 11-30	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	577.35	34.47	-	-	-	-	2100	403	14	174.05	0.00	0.00	8.75	-	-	280
	DM 12-31	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	782.32	46.71	-	-	-	-	2100	403	14	194.97	0.00	0.00	6.76	-	-	216
	DM 13-32	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	415.42	24.80	-	-	-	-	2100	403	14	84.26	0.00	0.00	20.00	-	-	640
	DM 14-33	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	194.61	11.62	-	-	-	-	2100	403	14	29.49	0.00	0.00	64.63	-	-	2068
	DM 15-34	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	564.91	33.73	-	-	-	-	2100	403	14	91.60	0.00	0.00	16.76	-	-	536
	DM 16-35	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	832.81	49.72	-	-	-	-	2100	403	14	165.42	0.00	0.00	7.66	-	-	245
DIAGONAL MEMBER (TRUSS B)	DM 19-2	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	1319.72	78.79	-	-	-	-	2100	403	14	319.94	0.00	0.00	2.44	-	-	78
	DM 20-3	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	1014.19	60.55	-	-	-	-	2100	403	14	239.36	0.00	0.00	4.54	-	-	145
	DM 21-4	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	410.33	24.50	-	-	-	-	2100	403	14	87.89	0.00	0.00	19.23	-	-	615
	DM 22-5	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	561.77	33.54	-	-	-	-	2100	403	14	133.51	0.00	0.00	11.52	-	-	369
	DM 23-6	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	962.45	57.46	-	-	-	-	2100	403	14	264.53	0.00	0.00	4.30	-	-	138
	DM 24-7	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	571.2	34.10	-	-	-	-	2100	403	14	212.56	0.00	0.00	7.19	-	-	230
	DM 25-8	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	398.68	20.72	-	-	-	-	2413	518	515	210.34	0.00	0.00	9.58	-	-	306
	DM 26-9	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	3.46	0.18	-	-	-	-	2413	518	515	42.63	0.00	0.00	56.51	-	-	1808

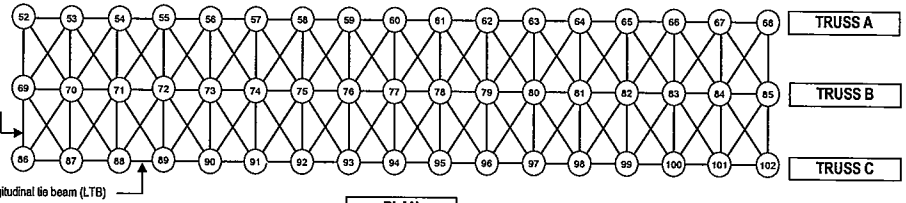
LOAD RATING - INVENTORY LEVEL (ASR)																									
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
DIAGONAL MEMBER (TRUSS B)	DM 9-28	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	4.15	0.22	-	-	-	-	2413	518	515	42.29	0.00	0.00	56.95	-	-	1822
	DM 10-29	0.01924	0.00684	0.305	0.00126	228	125.4	125.4	75.24	398.08	20.69	-	-	-	-	2413	518	515	210.06	0.00	0.00	9.59	-	-	307
	DM 11-30	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	571.27	34.11	-	-	-	-	2100	403	14	212.48	0.00	0.00	7.20	-	-	230
	DM 12-31	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	962.02	57.43	-	-	-	-	2100	403	14	264.36	0.00	0.00	4.31	-	-	138
	DM 13-32	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	561.57	33.53	-	-	-	-	2100	403	14	133.44	0.00	0.00	11.53	-	-	369
	DM 14-33	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	405.64	24.22	-	-	-	-	2100	403	14	86.70	0.00	0.00	19.55	-	-	626
	DM 15-34	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	1036.6	61.89	-	-	-	-	2100	403	14	244.96	0.00	0.00	4.34	-	-	139
	DM 16-35	0.01675	0.000182	0.305	0.00098	228	125.4	125.4	75.24	1301.62	77.71	-	-	-	-	2100	403	14	316.01	0.00	0.00	2.53	-	-	81
CROSS BEAM	CB 52-69	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	26.16	0.94	337.33	41.70	213.46	16.74	3480	1014	959	9.63	113.91	72.12	358.52	5.94	10.34	190
	CB 69-86	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	26.16	0.94	337.37	41.71	213.47	16.74	3480	1014	959	9.63	150.41	72.12	358.52	4.50	10.34	144
	CB 53-70	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	10.55	0.38	341.02	42.16	228.37	17.91	3480	1014	959	2.11	110.23	75.75	1647.15	6.11	9.65	195
	CB 70-87	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	10.55	0.38	340.97	42.15	228.36	17.91	3480	1014	959	2.31	150.41	75.75	1504.61	4.48	9.65	143
	CB 54-71	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	8.71	0.31	296.8	36.69	228.08	17.89	3480	1014	959	1.77	101.23	76.52	1957.03	7.09	9.56	227
	CB 71-88	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	8.72	0.31	296.79	36.69	228.06	17.89	3480	1014	959	1.77	150.41	76.52	1957.03	4.77	9.56	153
	CB 55-72	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	0.33	0.01	310.81	38.42	224.55	17.61	3480	1014	959	1.23	107.47	74.92	2827.76	6.55	9.81	209
	CB 72-89	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	0.32	0.01	310.81	38.42	224.54	17.61	3480	1014	959	1.23	150.41	74.92	2827.77	4.68	9.81	150
	CB 56-73	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.59	0.06	323.09	39.94	221.52	17.37	3480	1014	959	1.72	113.36	73.49	2024.31	6.10	10.04	195
	CB 73-90	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.58	0.06	323.08	39.94	221.51	17.37	3480	1014	959	1.72	150.41	73.49	2024.31	4.60	10.04	147
	CB 57-74	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.53	0.06	333.91	41.28	218.51	17.14	3480	1014	959	1.71	119.57	71.91	2037.49	5.69	10.30	182
	CB 74-91	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.52	0.05	333.91	41.28	218.5	17.14	3480	1014	959	1.71	150.41	71.91	2037.49	4.52	10.30	145
	CB 58-75	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.51	0.05	343.12	42.42	216.19	16.96	3480	1014	959	1.70	126.40	70.10	2050.82	5.31	10.60	170
	CB 75-92	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.49	0.05	343.12	42.42	216.18	16.96	3480	1014	959	1.70	150.41	70.10	2050.83	4.46	10.60	143
	CB 59-76	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.51	0.05	345.81	42.75	215.41	16.89	3480	1014	959	1.70	219.29	107.43	2050.82	3.05	6.92	98
	CB 76-93	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.49	0.05	345.81	42.75	215.4	16.89	3480	1014	959	1.70	283.42	107.43	2050.83	2.36	6.92	75
	CB 60-77	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.51	0.05	347.61	42.97	214.62	16.83	3480	1014	959	1.70	223.17	106.31	2050.82	2.99	7.00	96
	CB 77-94	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.5	0.05	347.61	42.97	214.61	16.83	3480	1014	959	1.70	283.42	106.31	2050.82	2.35	7.01	75
	CB 61-78	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.51	0.05	345.51	42.71	215.48	16.90	3480	1014	959	1.70	219.22	107.45	2050.82	3.05	6.92	98
	CB 78-95	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.49	0.05	345.51	42.71	215.47	16.90	3480	1014	959	1.70	283.42	107.45	2050.83	2.36	6.92	76
	CB 62-79	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.51	0.05	342.47	42.34	216.35	16.97	3480	1014	959	1.70	126.23	70.14	2050.82	5.32	10.59	170
	CB 79-96	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.49	0.05	342.44	42.33	216.33	16.97	3480	1014	959	1.70	150.41	70.14	2050.83	4.47	10.59	143
	CB 63-80	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.54	0.06	333.68	41.25	218.57	17.14	3480	1014	959	1.71	119.52	71.92	2037.48	5.69	10.30	182
	CB 80-97	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.51	0.05	333.68	41.25	218.56	17.14	3480	1014	959	1.71	150.41	71.92	2037.50	4.53	10.30	145
	CB 64-81	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.66	0.06	323.2	39.96	221.49	17.37	3480	1014	959	1.74	113.42	73.47	1998.48	6.09	10.04	195
	CB 81-98	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	1.63	0.06	323.2	39.96	221.48	17.37	3480	1014	959	1.74	150.41	73.47	1998.50	4.60	10.04	147
	CB 65-82	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	0.57	0.02	311.11	38.46	224.48	17.61	3480	1014	959	1.31	107.58	74.89	2659.83	6.54	9.81	209
	CB 82-99	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	0.54	0.02	311.11	38.46	224.46	17.60	3480	1014	959	1.31	150.41	74.89	2659.85	4.68	9.81	150
	CB 66-83	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	8.98	0.32	297.27	36.75	227.93	17.88	3480	1014	959	1.86	101.40	76.47	1863.70	7.07	9.56	226
	CB 83-100	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	9.02	0.33	297.26	36.75	227.92	17.88	3480	1014	959	1.87	150.41	76.47	1852.65	4.77	9.56	153
	CB 67-84	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	11.19	0.40	342.45	42.34	228.96	17.96	3480	1014	959	2.32	110.83	75.99	1497.14	6.06	9.61	194

LOAD RATING - INVENTORY LEVEL (ASR)																								
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
CROSS BEAM	CB 84-101	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	11.21	0.40	342.38	42.33	228.95	17.96	3480	1014	959	2.32	150.41	75.99	1497.13	4.47	9.61	143
	CB 68-85	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	25.37	0.91	337.33	41.70	213.46	16.74	3480	1014	959	9.30	113.91	72.12	371.42	5.94	10.34	190
	CB 85-102	0.02775	0.01275	0.45	0.00364	228	125.4	125.4	75.24	25.38	0.91	337.25	41.69	213.44	16.74	3480	1014	959	9.30	150.41	72.12	371.42	4.50	10.34	144
LONGITUDINAL TIE BEAM	LTB 52-53	0.01108	0.006	0.15	0.00015	228	125.4	125.4	75.24	21.46	1.94	44	44.00	12.98	2.16	1389	125	451	6.65	7.93	1.55	205.67	10.27	282.52	329
	LTB 53-54	0.00988	0.0048	0.15	0.00014	228	125.4	125.4	75.24	34.5	3.49	7.16	7.67	6.88	1.43	1239	117	361	17.10	1.91	0.39	70.42	57.63	913.09	1844
	LTB 54-55	0.00988	0.0048	0.15	0.00014	228	125.4	125.4	75.24	10.65	1.08	10.45	11.20	6.02	1.25	1239	117	361	9.19	1.39	0.13	133.66	76.92	2669.65	2462
	LTB 55-56	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7	0.87	14.65	16.90	6.09	2.03	1013	109	226	7.84	2.62	0.19	128.39	35.94	1165.44	1150
	LTB 56-57	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.98	0.86	14.61	16.86	7.5	2.50	1013	109	226	7.82	2.59	0.51	128.75	36.26	427.94	1160
	LTB 57-58	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7.01	0.87	6.84	7.89	5.59	1.86	1013	109	226	7.83	0.72	0.08	128.57	141.34	2836.79	4114
	LTB 58-59	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7.01	0.87	7.5	8.65	5.78	1.93	1013	109	226	7.83	2.45	0.34	128.57	41.30	640.01	1322
	LTB 59-60	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7.02	0.87	18.77	21.66	8.01	2.67	1013	109	226	7.83	5.69	0.50	128.57	15.81	436.43	506
	LTB 60-61	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7.03	0.87	18.77	21.66	8.01	2.67	1013	109	226	7.84	5.69	0.50	128.38	15.81	436.43	506
	LTB 61-62	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7.05	0.87	7.49	8.64	5.78	1.93	1013	109	226	7.84	2.45	0.34	128.38	41.30	640.01	1322
LONGITUDINAL TIE BEAM	LTB 62-63	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7.07	0.88	6.84	7.89	5.59	1.86	1013	109	226	7.85	0.72	0.08	128.20	141.34	2836.79	4102
	LTB 63-64	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	7.05	0.87	14.64	16.89	7.5	2.50	1013	109	226	7.84	2.59	0.52	128.38	36.25	418.83	1160
	LTB 64-65	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.96	0.86	14.68	16.94	6.13	2.04	1013	109	226	7.82	2.62	0.20	128.76	35.93	1100.49	1150
	LTB 65-66	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	10.1	1.25	10.24	11.82	5.83	1.94	1013	109	226	9.00	1.34	0.10	111.44	73.39	2203.99	2348
	LTB 66-67	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	33.63	4.16	10.09	11.64	7.79	2.60	1013	109	226	16.79	2.92	0.58	58.33	33.82	378.06	1082
	LTB 67-68	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	17.78	2.20	39.42	45.48	11.17	3.72	1013	109	226	5.80	6.96	1.18	171.70	9.95	182.59	318
	LTB 69-70	0.00988	0.0048	0.15	0.00014	228	125.4	125.4	75.24	10.19	1.03	57.27	61.36	15.26	3.18	1239	117	361	5.22	12.47	2.31	235.34	4.79	150.01	153
	LTB 70-71	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	26.69	3.30	8.87	10.23	6.22	2.07	1013	109	226	4.51	2.24	0.27	218.66	44.57	825.03	1426
	LTB 71-72	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	1.17	0.14	11.1	12.81	6.77	2.26	1013	109	226	5.72	1.50	0.32	176.93	65.20	681.07	2087
	LTB 72-73	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.73	0.83	14.18	16.36	5.92	1.97	1013	109	226	7.73	2.67	0.19	130.27	35.37	1166.34	1132
	LTB 73-74	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.95	0.86	14.21	16.40	7.44	2.48	1013	109	226	7.83	2.68	0.54	128.58	35.21	401.85	1127
	LTB 74-75	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.91	0.86	7.74	8.93	5.58	1.86	1013	109	226	7.82	0.81	0.24	128.76	124.73	902.66	3992
	LTB 75-76	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.92	0.86	8.02	9.25	5.49	1.83	1013	109	226	7.82	3.80	0.71	128.76	26.47	310.41	847
	LTB 76-77	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.93	0.86	19.77	22.81	8.37	2.79	1013	109	226	7.82	7.02	0.51	128.76	12.67	426.23	405
	LTB 77-78	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.93	0.86	19.77	22.81	8.37	2.79	1013	109	226	7.82	7.02	0.51	128.76	12.67	426.23	405
	LTB 78-79	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.92	0.86	8.05	9.29	5.5	1.83	1013	109	226	7.82	3.80	0.71	128.76	26.47	310.40	847
	LTB 79-80	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.91	0.86	7.77	8.97	5.59	1.86	1013	109	226	7.82	0.82	0.24	128.76	123.01	902.61	3936
	LTB 80-81	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.97	0.86	14.25	16.44	7.44	2.48	1013	109	226	7.84	2.69	0.54	128.39	35.05	401.85	1122
	LTB 81-82	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.94	0.86	14.22	16.41	5.97	1.99	1013	109	226	7.80	2.68	0.20	128.94	35.21	1101.29	1127
	LTB 82-83	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	1.92	0.24	10.84	12.51	6.53	2.18	1013	109	226	5.96	1.43	0.27	169.57	68.42	823.86	2189
	LTB 83-84	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	25.63	3.17	12.46	14.38	7.44	2.48	1013	109	226	4.41	3.87	0.57	223.84	24.87	386.09	796
	LTB 84-85	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	10.72	1.33	51.28	59.17	12.89	4.30	1013	109	226	5.30	10.99	1.72	189.19	5.22	123.86	167
	LTB 86-87	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	21.46	2.66	43.97	50.73	12.98	4.33	1013	109	226	6.65	7.93	1.55	149.11	8.16	137.08	261
	LTB 87-88	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	34.48	4.27	7.15	8.25	6.88	2.29	1013	109	226	17.13	1.92	0.39	57.15	52.94	564.03	1694
	LTB 88-89	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	10.61	1.31	10.45	12.06	6.02	2.01	1013	109	226	9.21	1.39	0.13	108.84	70.89	1651.56	2268
	LTB 89-90	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.94	0.86	14.66	16.92	6.09	2.03	1013	109	226	7.85	2.62	0.19	128.21	35.94	1165.44	1150

LOAD RATING - INVENTORY LEVEL (ASR)																									
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
LONGITUDINAL TIE BEAM	LTB 90-91	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.89	0.85	14.62	16.87	7.5	2.50	1013	109	226	7.82	2.59	0.51	128.77	36.26	427.94	1160
	LTB 91-92	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.9	0.85	6.82	7.87	5.59	1.86	1013	109	226	7.83	0.71	0.08	128.58	143.57	2836.79	4115
	LTB 92-93	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.87	0.85	7.46	8.61	5.78	1.93	1013	109	226	7.82	2.43	0.34	128.77	41.69	640.01	1334
	LTB 93-94	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.85	0.85	18.72	21.60	8.01	2.67	1013	109	226	7.82	5.68	0.50	128.77	15.85	436.43	507
	LTB 94-95	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.84	0.85	18.69	21.57	8.03	2.68	1013	109	226	7.80	5.68	0.50	128.96	15.86	436.39	507
	LTB 95-96	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.83	0.85	7.67	8.85	5.67	1.89	1013	109	226	7.80	2.41	0.31	128.96	41.99	708.94	1344
	LTB 96-97	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.83	0.85	7.03	8.11	5.48	1.83	1013	109	226	7.80	0.69	0.06	128.96	147.90	3973.49	4127
	LTB 97-98	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.79	0.84	14.68	16.94	7.48	2.49	1013	109	226	7.79	2.61	0.51	129.15	36.08	427.98	1155
	LTB 98-99	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	6.67	0.83	14.72	16.98	6.13	2.04	1013	109	226	7.76	2.63	0.20	129.71	35.76	1100.49	1144
	LTB 99-100	0.00808	0.003	0.15	0.00013	228	125.4	125.4	75.24	9.78	1.21	10.27	11.85	5.83	1.94	1013	109	226	8.95	1.35	0.10	112.17	72.77	2203.99	2328
	LTB 100-101	0.00988	0.0048	0.15	0.00014	228	125.4	125.4	75.24	33.29	3.37	10.08	10.80	7.79	1.62	1239	117	361	16.73	2.93	0.58	72.07	36.55	613.00	1170
	LTB 101-102	0.00988	0.0048	0.15	0.00014	228	125.4	125.4	75.24	17.8	1.80	39.39	42.20	11.16	2.33	1239	117	361	5.81	6.96	1.18	210.22	11.15	297.85	357

BRIDGE NAME : QUEZON BRIDGE





** Allowable Stresses for Inventory Rating*

σ_a = 0.75 fy (Axial)

σ_b = 0.75 fy (Bending)

σ_v = 0.45 fy (Shear)

** Rating Factor Formula*

RF = [Member Capacity - (DL)]/ (LL + I)

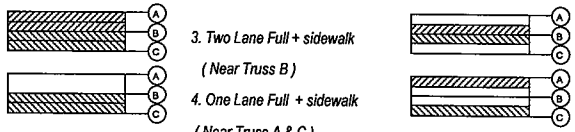
** Impact Load*

I = 15.24 / L + 38 L = 102.4 m.

= 0.109

Live Load Condition

1. Full Lane Load + Sidewalk (4 Lanes) - Both Sides
2. Full Lane Load + Sidewalk (2 Lanes) - One Side Only
3. Two Lane Full + sidewalk (Near Truss B)
4. One Lane Full + sidewalk (Near Truss A & C)



LOAD RATING - OPERATING LEVEL (ASR)

LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)																
TOP CHORD (TRUSS A)	TC 18-19	0.04541	0.01946	0.338	0.00308	228	171	171	102.6	0.74	0.02	7.31	0.80	7.27	0.37	7765	1558	4659	1.11	1.11	1.11	7004.10	1399.0519	4196.3002	44770
	TC 19-20	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	560.7	11.91	41.47	4.28	20.38	1.05	8052	1656	4831	205.45	14.77	3.98	36.47	109.36998	1208.9036	1167
	TC 20-21	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	979.48	20.80	27.02	2.79	19.48	1.00	8052	1656	4831	358.26	12.04	2.47	19.74	135.34468	1946.5362	632
	TC 21-22	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	1111.57	23.61	56.67	5.85	17.09	0.88	8052	1656	4831	413.98	16.57	1.81	16.8	96.5	2664.4	537
	TC 22-23	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	1421.56	30.19	77.11	7.96	15.27	0.78	8052	1656	4831	545.49	25.95	1.35	12.2	60.9	3561.1	389
	TC 23-24	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	2090.71	44.40	74	7.64	25.75	1.32	8052	1656	4831	820.79	25.91	5.61	7.3	61.1	856.7	232
	TC 24-25	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2576.93	50.38	37.34	3.85	13.54	0.57	8747	1656	5248	1036.69	11.31	0.53	6.0	143.2	9837.3	190
	TC 25-26	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2919.15	57.07	43.07	4.45	14.74	0.62	8747	1656	5248	1208.36	20.20	1.67	4.8	79.9	3126.4	154
	TC 26-27	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2951.66	57.71	167.78	17.32	34.32	1.45	8747	1656	5248	1236.85	76.97	8.77	4.7	19.3	594.6	150
	TC 27-28	0.05059	0.02363	0.347	0.00346	228	171	171	102.6	2950.41	58.32	167.81	16.83	34.34	1.45	8651	1705	5191	1236.32	76.98	8.77	4.6	20.0	588.0	148
	TC 28-29	0.04947	0.02363	0.339	0.0033	228	171	171	102.6	2915.47	58.93	43.02	4.42	14.74	0.62	8459	1665	5076	1206.88	20.18	1.67	4.6	80.4	3023.4	147
	TC 29-30	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2571.7	50.28	37.27	3.85	13.52	0.57	8747	1656	5248	1034.65	11.26	0.52	6.0	143.8	10046.6	191
	TC 30-31	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	2087.08	44.32	73.67	7.61	25.68	1.32	8052	1656	4831	819.48	25.76	5.58	7.3	61.4	861.9	233
	TC 31-32	0.04653	0.01946	0.347	0.00311	228	171	171	102.6	1420.35	30.53	76.76	8.56	15.1	0.78	7957	1533	4774	545.28	25.80	1.29	12.0	56.4	3700.8	384
	TC 32-33	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	1110.45	23.58	57.4	5.93	17.51	0.90	8052	1656	4831	413.85	16.86	1.97	16.8	94.8	2439.6	537
	TC 33-34	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	980.63	20.82	25.24	2.61	18.77	0.96	8052	1656	4831	359.11	11.11	2.21	19.7	146.9	2181.6	630
	TC 34-35	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	549.45	11.67	40.81	4.21	19.87	1.02	8052	1656	4831	201.43	14.60	3.81	37.2	110.7	1261.8	1192
	TC 31-32	0.04653	0.02363	0.347	0.00311	228	171	171	102.6	0.56	0.01	7.29	0.81	7.27	0.31	7957	1533	4774	1.11	1.11	1.11	7177.03	1375.9486	4299.9602	44030
TOP CHORD (TRUSS B)	TC 18-19	0.04724	0.01946	0.335	0.00332	228	171	171	102.6	1.4	0.03	13.84	1.40	13.77	0.71	8078	1695	4847	1.11	1.11	1.11	7285.79	1516.261	4359.8097	48520
	TC 19-20	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	888.47	18.16	91.57	9.08	40.96	2.10	8365	1725	5019	293.14	23.12	6.16	25.51	70.627631	807.69283	816
	TC 20-21	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	1755.9	35.89	47.1	4.67	27.77	1.43	8365	1725	5019	547.47	17.66	2.77	12.07	95.003638	1801.0682	386
	TC 21-22	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	2244.57	45.88	76.21	7.56	32.15	1.65	8365	1725	5019	656.79	22.59	3.44	9.32	72.970969	1451.1998	298
	TC 22-23	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	2855.48	58.37	86.82	8.61	23.69	1.22	8365	1725	5019	829.64	29.10	1.04	6.64	56.288658	4793.9905	213
	TC 23-24	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	3775.63	77.18	88.25	8.75	38.13	1.96	8365	1725	5019	1167.24	29.31	5.47	3.93	55.835374	911.42495	126
	TC 24-25	0.0584	0.01946	0.344	0.00422	228	171	171	102.6	4272.87	73.17	52.41	4.27	18.02	0.93	9986	2098	5992	1420.75	11.33	0.85	4.02	180.53308	6998.5375	129
	TC 25-26	0.06976	0.03058	0.347	0.0047	228	171	171	102.6	4660.21	66.80	62.1	4.58	18.62	0.61	11929	2316	7157	1671.46	36.72	4.04	4.35	61.392717	1769.1597	139

LOAD RATING - OPERATING LEVEL (ASR)																								
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
	TC 26-27	0.06976	0.03058	0.347	0.0047	228	171	171	102.6	4668.28	66.92	241.44	17.83	50.37	1.65	11929	2316	7157	1724.37	106.25	10.93	4.21	19.525795	650.21301	135
	TC 27-28	0.06976	0.03058	0.347	0.0047	228	171	171	102.6	4670.77	66.95	241.43	17.82	50.34	1.65	11929	2316	7157	1725.39	106.24	10.91	4.21	19.527926	651.53733	135
TOP CHORD (TRUSS B)	TC 28-29	0.06976	0.03058	0.347	0.0047	228	171	171	102.6	4669.14	66.93	62.41	4.61	18.64	0.61	11929	2316	7157	1675.34	36.85	4.04	4.33	61.16267	1769.1548	139
	TC 29-30	0.0589	0.01946	0.347	0.0043	228	171	171	102.6	4281.74	72.70	52.63	4.25	18.08	0.93	10072	2119	6043	1424.77	11.52	0.88	4.06	179.40836	6879.869	130
	TC 30-31	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	3786.29	77.40	87.86	8.71	38.06	1.96	8365	1725	5019	1172.02	29.17	5.44	3.91	56.124633	915.15034	125
	TC 31-32	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	2862.1	58.51	86.42	8.57	23.47	1.21	8365	1725	5019	832.62	28.96	0.96	6.61	56.582623	5179.942	212
	TC 32-33	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	2248.28	45.96	77.3	7.66	32.75	1.68	8365	1725	5019	658.38	22.94	3.62	9.29	71.830115	1375.5897	297
	TC 33-34	0.04892	0.01946	0.347	0.0035	228	171	171	102.6	1762.23	36.02	46.46	4.61	26.89	1.38	8365	1725	5019	549.36	16.64	2.47	12.02	100.86511	2019.4908	385
	TC 34-35	0.04836	0.01946	0.343	0.00346	228	171	171	102.6	877.22	18.14	91.31	9.05	40.51	2.08	8270	1725	4962	289.08	22.92	5.98	25.57	71.26124	823.62673	818
	TC 35-36	0.04724	0.01946	0.335	0.00332	228	171	171	102.6	1.06	0.02	13.81	1.39	13.77	0.71	8078	1695	4847	1.11	1.11	1.11	7286.10	1516.288	4359.8097	48521
	TC 18-19	0.04541	0.01946	0.338	0.00308	228	171	171	102.6	0.74	0.02	7.31	0.80	7.27	0.37	7765	1558	4659	1.11	1.11	1.11	7004.10	1399.0519	4196.3002	44770
	TC 19-20	0.04653	0.01946	0.347	0.00311	228	171	171	102.6	560.47	12.05	41.44	4.62	20.37	1.05	7957	1533	4774	205.40	14.74	3.97	36.01	101.13853	1197.8053	1152
	TC 20-21	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	978.86	20.79	27.01	2.79	19.48	1.00	8052	1656	4831	358.04	12.05	2.47	19.76	135.22099	1946.5362	632
	TC 21-22	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	1110.21	23.58	56.66	5.85	17.09	0.88	8052	1656	4831	413.38	16.58	1.81	16.79	96.46427	2664.3753	537
	TC 22-23	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	1418.93	30.13	77.16	7.97	15.27	0.78	8052	1656	4831	544.33	26.00	1.35	12.19	60.751079	3561.1259	390
	TC 23-24	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	2086.51	44.31	74.05	7.64	25.74	1.32	8052	1656	4831	819.03	25.95	5.61	7.28	60.974723	856.74481	233
	TC 24-25	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2570.64	50.26	37.19	3.84	13.55	0.57	8747	1656	5248	1034.17	11.23	0.53	5.97	144.1924	9837.2764	191
	TC 25-26	0.05059	0.02363	0.347	0.00346	228	171	171	102.6	2910.59	57.53	42.77	4.29	14.72	0.62	8651	1705	5191	1205.10	20.03	2.23	4.76	82.984632	2322.8892	152
TOP CHORD (TRUSS C)	TC 26-27	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2940.83	57.49	167.43	17.28	34.34	1.45	8747	1656	5248	1232.96	76.83	8.78	4.71	19.379337	593.83061	151
	TC 27-28	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2939.71	57.47	167.32	17.27	34.43	1.46	8747	1656	5248	1232.54	76.78	8.80	4.71	19.39476	592.32459	151
	TC 28-29	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2903.59	56.77	44.2	4.56	13.83	0.59	8747	1656	5248	1203.05	19.67	2.03	4.86	81.981139	2580.1312	155
	TC 29-30	0.05115	0.02363	0.351	0.0034	228	171	171	102.6	2550.33	49.86	37.28	3.85	11.66	0.49	8747	1656	5248	1027.51	10.70	0.29	6.03	151.35625	18167.683	193
	TC 30-31	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	2075.35	44.07	74.07	7.65	25.63	1.32	8052	1656	4831	816.01	25.92	5.53	7.32	61.052191	868.78316	234
	TC 31-32	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	1410.35	29.95	77.05	7.95	15.1	0.78	8052	1656	4831	541.81	25.90	1.27	12.26	60.989385	3778.0234	392
	TC 32-33	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	1103.82	23.44	57.58	5.94	17.51	0.90	8052	1656	4831	411.36	16.96	1.97	16.89	94.266376	2439.6364	541
	TC 33-34	0.04541	0.01946	0.338	0.00308	228	171	171	102.6	976.82	21.51	25.05	2.75	18.75	0.96	7765	1558	4659	357.65	11.02	2.19	18.98	139.13974	2114.1133	607
	TC 34-35	0.04709	0.01946	0.351	0.0034	228	171	171	102.6	547.66	11.63	40.62	4.19	19.81	1.02	8052	1656	4831	200.75	14.53	3.79	37.38	111.18039	1269.1456	1196
	TC 33-34	0.04541	0.01946	0.338	0.00308	228	171	171	102.6	0.56	0.01	7.29	0.80	7.27	0.37	7765	1558	4659	1.11	1.11	1.11	7004.26	1399.07	4196.3002	44770
	BC 1-2	0.06628	0.03	0.372	0.00526	228	171	171	102.6	4864.23	73.39	103.33	7.31	4.66	0.16	11334	2418	6800	1949.80	46.83	6.49	3.3	49.4	1047.9	106
	BC 2-3	0.0668	0.03	0.375	0.00534	228	171	171	102.6	4455.1	66.69	170.57	11.98	47.78	1.59	11423	2435	6854	1780.14	78.24	13.08	3.9	28.9	520.3	125
	BC 3-4	0.0591	0.0285	0.375	0.0047	228	171	171	102.6	3982.06	67.38	66.56	5.31	16.96	0.60	10106	2143	6064	1586.84	19.88	0.83	3.9	104.5	7272.8	123
	BC 4-5	0.05852	0.0285	0.371	0.00462	228	171	171	102.6	3652.55	62.42	120.41	9.67	22.53	0.79	10007	2129	6004	1453.60	42.63	3.35	4.4	47.1	1786.7	140
	BC 5-6	0.04992	0.021	0.371	0.00418	228	171	171	102.6	3014.11	60.38	114.1	10.13	34.44	1.64	8536	1927	5122	1212.10	41.60	8.70	4.6	43.6	584.6	146
	BC 6-7	0.0505	0.021	0.375	0.0042	228	171	171	102.6	2227.45	44.11	45	4.02	15.19	0.72	8636	1915	5181	916.37	16.15	1.40	7.0	115.8	3698.6	224
	BC 7-8	0.04992	0.021	0.371	0.00418	228	171	171	102.6	1645.82	32.97	48.95	4.34	15.89	0.76	8536	1927	5122	681.92	24.55	2.46	10.1	76.5	2074.7	323
BOTTOM CHORD (TRUSS A)	BC 8-9	0.04992	0.021	0.371	0.00418	228	171	171	102.6	1268.09	25.40	210.96	18.72	39.5	1.88	8536	1927	5122	504.16	95.59	11.00	14.4	17.9	462.2	461
	BC 9-10	0.0505	0.021	0.375	0.0042	228	171	171	102.6	1267.3	25.10	210.98	18.84	39.51	1.88	8636	1915	5181	503.78	95.60	11.00	14.6	17.8	467.6	468
	BC 10-11	0.0488	0.021	0.362	0.00401	228	171	171	102.6	1644.33	33.70	48.88	4.41	15.91	0.76	8345	1894	5007	681.21	24.54	2.47	9.8	75.2	2019.0	315
	BC 11-12	0.0505	0.021	0.375	0.0042	228	171	171	102.6	2225.41	44.07	45	4.02	15.21	0.72	8636	1915	5181	915.29	16.18	1.41	7.0	115.6	3669.5	224

LOAD RATING - OPERATING LEVEL (ASR)																								
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
	BC 12-13	0.0505	0.021	0.375	0.0042	228	171	171	102.6	3011.8	59.64	114.5	10.22	34.52	1.64	8636	1915	5181	1210.67	41.74	8.72	4.6	43.1	589.9	149
	BC 13-14	0.0591	0.0285	0.375	0.0047	228	171	171	102.6	3651.02	61.78	120.81	9.64	22.96	0.81	10106	2143	6064	1452.25	42.78	3.53	4.4	47.3	1713.6	142
	BC 14-15	0.0591	0.0285	0.375	0.0047	228	171	171	102.6	3979.94	67.34	64.05	5.11	15.04	0.53	10106	2143	6064	1585.08	18.82	0.16	3.9	110.5	38973.9	124
	BC 15-16	0.0668	0.03	0.375	0.00534	228	171	171	102.6	4460.2	66.77	226.18	15.88	57.23	1.91	11423	2435	6854	1781.18	100.94	16.94	3.9	21.9	401.2	125
	BC 16-17	0.06628	0.03	0.372	0.00526	228	171	171	102.6	4880.61	73.64	184.33	13.04	81	2.70	11334	2418	6800	1954.11	79.48	36.89	3.3	28.1	182.1	106
BOTTOM CHORD (TRUSS B)	BC 1-2	0.07717	0.0375	0.385	0.00586	228	171	171	102.6	7563.04	98.00	157.94	10.38	5.07	0.14	13196	2603	7918	2358.94	55.36	7.19	2.39	44.16	1099.81	76
	BC 2-3	0.0788	0.0375	0.379	0.0061	228	171	171	102.6	6479.38	82.23	244.81	15.21	58.29	1.55	13475	2752	8085	2166.69	94.47	14.91	3.23	26.54	538.34	103
	BC 3-4	0.0788	0.0375	0.379	0.0061	228	171	171	102.6	5600.02	71.07	84.89	5.27	27.42	0.73	13475	2752	8085	1946.94	28.12	2.48	4.04	94.84	3244.86	129
	BC 4-5	0.06859	0.0285	0.366	0.00546	228	171	171	102.6	5011.72	73.07	151.06	10.13	27.11	0.95	11729	2551	7037	1812.80	62.32	5.04	3.71	38.51	1389.85	119
	BC 5-6	0.0703	0.0285	0.379	0.0057	228	171	171	102.6	4213.27	59.93	157.43	10.47	48.25	1.69	12021	2572	7213	1542.86	58.15	10.66	5.06	41.52	671.83	162
	BC 6-7	0.0644	0.0225	0.379	0.0054	228	171	171	102.6	3440.08	53.42	69.47	4.88	16.07	0.71	11012	2436	6607	1222.41	11.22	0.75	6.19	210.99	8744.05	198
	BC 7-8	0.0644	0.0225	0.379	0.0054	228	171	171	102.6	2952.83	45.85	65.7	4.61	17.16	0.76	11012	2436	6607	947.59	42.40	5.21	8.51	55.91	1264.89	272
	BC 8-9	0.06275	0.0225	0.365	0.0052	228	171	171	102.6	2607.37	41.55	294.48	20.67	56.5	2.51	10730	2436	6438	697.93	127.90	13.46	11.64	16.74	474.20	372
	BC 9-10	0.06275	0.0225	0.365	0.0052	228	171	171	102.6	2606.84	41.54	294.47	20.67	56.46	2.51	10730	2436	6438	697.35	127.89	13.44	11.65	16.75	474.98	373
	BC 10-11	0.0644	0.0225	0.379	0.0054	228	171	171	102.6	2951.85	45.84	66.04	4.64	17.17	0.76	11012	2436	6607	946.51	42.57	5.20	8.52	55.68	1267.58	273
	BC 11-12	0.06275	0.0225	0.365	0.0052	228	171	171	102.6	3439.44	54.81	69.81	4.90	16.08	0.71	10730	2436	6438	1221.43	11.37	0.75	5.97	208.06	8519.46	191
	BC 12-13	0.06859	0.0285	0.366	0.00546	228	171	171	102.6	4212.36	61.41	158.15	10.60	48.39	1.70	11729	2551	7037	1542.03	58.32	10.71	4.87	41.03	652.65	156
	BC 13-14	0.06859	0.0285	0.366	0.00546	228	171	171	102.6	5010.4	73.05	151.76	10.17	27.76	0.97	11729	2551	7037	1812.18	62.51	5.23	3.71	38.38	1339.66	119
	BC 14-15	0.0788	0.0375	0.379	0.0061	228	171	171	102.6	5595.67	71.01	81.19	5.04	24.43	0.65	13475	2752	8085	1945.71	26.98	1.57	4.05	98.99	5120.55	130
	BC 15-16	0.0788	0.0375	0.379	0.0061	228	171	171	102.6	6484.51	82.29	330.57	20.54	72.92	1.94	13475	2752	8085	2168.66	120.78	19.39	3.22	20.05	413.23	103
	BC 16-17	0.07717	0.0375	0.385	0.00586	228	171	171	102.6	7589.85	98.35	282.1	18.53	123.28	3.29	13196	2603	7918	2369.94	94.54	43.93	2.37	24.55	177.42	76
BOTTOM CHORD (TRUSS C)	BC 1-2	0.06628	0.03	0.372	0.00526	228	171	171	102.6	4862.02	73.36	103.28	7.30	4.64	0.15	11334	2418	6800	1949.09	46.81	6.49	3.3	49.4	1047.9	106
	BC 2-3	0.0668	0.03	0.375	0.00534	228	171	171	102.6	4453.41	66.67	170.52	11.97	47.77	1.59	11423	2435	6854	1779.84	78.24	13.08	3.9	28.9	520.3	125
	BC 3-4	0.0574	0.0285	0.364	0.00446	228	171	171	102.6	3981.03	69.36	66.54	5.43	16.96	0.60	9815	2095	5889	1586.90	19.89	0.83	3.7	102.0	7063.0	118
	BC 4-5	0.05852	0.0285	0.371	0.00462	228	171	171	102.6	3652.52	62.41	120.48	9.67	22.55	0.79	10007	2129	6004	1454.20	42.70	3.36	4.4	47.0	1780.8	140
	BC 5-6	0.0505	0.021	0.375	0.0042	228	171	171	102.6	3015.56	59.71	114.17	10.19	34.43	1.64	8636	1915	5181	1213.39	41.67	8.70	4.6	43.2	591.5	148
	BC 6-7	0.0505	0.021	0.375	0.0042	228	171	171	102.6	2230.7	44.17	44.83	4.00	15.2	0.72	8636	1915	5181	918.41	16.09	1.41	7.0	116.3	3669.5	223
	BC 7-8	0.0505	0.021	0.375	0.0042	228	171	171	102.6	1651.33	32.70	48.57	4.34	15.87	0.76	8636	1915	5181	684.86	24.34	2.98	10.2	76.7	1732.2	326
	BC 8-9	0.0488	0.021	0.362	0.00401	228	171	171	102.6	1276.06	26.15	210.58	19.01	39.52	1.88	8345	1894	5007	507.97	95.47	11.02	13.9	17.6	450.8	445
	BC 9-10	0.0505	0.021	0.375	0.0042	228	171	171	102.6	1279.48	25.34	210.48	18.79	39.68	1.89	8636	1915	5181	508.72	95.42	11.07	14.5	17.9	464.3	463
	BC 10-11	0.0505	0.021	0.375	0.0042	228	171	171	102.6	1662.26	32.92	49.99	4.46	14.71	0.70	8636	1915	5181	688.09	23.78	2.69	10.1	78.4	1918.0	324
	BC 11-12	0.0505	0.021	0.375	0.0042	228	171	171	102.6	2238.2	44.32	46.33	4.14	14.03	0.67	8636	1915	5181	920.33	15.53	0.92	7.0	120.3	5616.0	222
	BC 12-13	0.0488	0.021	0.362	0.00401	228	171	171	102.6	3022.29	61.93	114.9	10.37	34.34	1.64	8345	1894	5007	1215.57	41.97	8.68	4.4	42.4	572.9	140
	BC 13-14	0.04992	0.0285	0.371	0.00418	228	171	171	102.6	3658.77	73.29	121.18	10.76	22.98	0.81	8536	1927	5122	1456.53	42.99	3.54	3.3	42.0	1441.9	107
	BC 14-15	0.0591	0.0285	0.375	0.0047	228	171	171	102.6	3985.19	67.43	64.33	5.13	15.06	0.53	10106	2143	6064	1588.59	18.97	0.16	3.9	109.6	38973.8	123
	BC 15-16	0.0668	0.03	0.375	0.00534	228	171	171	102.6	4463.49	66.82	226.14	15.88	57.25	1.91	11423	2435	6854	1784.02	100.99	16.96	3.9	21.9	400.7	125
	BC 16-17	0.0668	0.03	0.375	0.00534	228	171	171	102.6	4883.63	73.11	184.51	12.96	81.07	2.70	11423	2435	6854	1956.86	79.63	36.95	3.3	28.3	183.3	107
	VM 37-19	0.02982	0.00984	0.205	0.00085	228	171	171	102.6	753.37	25.26	47.57	11.47	7.87	0.80	5099	709	3060	271.65	16.33	2.45	16.00	40.51	1245.63	512
	VM 1-37	0.02762	0.00984	0.188	0.00075	228	171	171	102.6	1011.73	36.63	101.38	25.41	54.11	5.50	4723	682	2834	423.15	37.80	20.24	8.77	15.36	137.32	281

LOAD RATING - OPERATING LEVEL (ASR)																								
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)															
VERTICAL / HANGER MEMBER (TRUSS A)	VM 2-20	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	520.27	25.50	-	-	-	-	3488	729	2093	188.81	0.00	0.00	15.72	-	-	503
	VM 3-21	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	242.57	11.89	-	-	-	-	3488	729	2093	75.60	0.00	0.00	42.93	-	-	1374
	VM 38-3	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	233.07	16.76	-	-	-	-	2379	493	1427	137.79	0.00	0.00	15.57	-	-	498
	VM 4-22	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	251.66	12.34	-	-	-	-	3488	729	2093	78.33	0.00	0.00	41.32	-	-	1322
	VM 39-4	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	237.41	17.07	-	-	-	-	2379	493	1427	136.52	0.00	0.00	15.68	-	-	502
	VM 5-23	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	412.27	20.21	-	-	-	-	3488	729	2093	145.31	0.00	0.00	21.17	-	-	677
VERTICAL / HANGER MEMBER (TRUSS A)	VM 40-5	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	246.33	15.88	-	-	-	-	2652	516	1591	138.05	0.00	0.00	17.43	-	-	558
	VM 6-24	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	235.09	11.52	-	-	-	-	3488	729	2093	81.56	0.00	0.00	39.89	-	-	1276
	VM 41-6	0.01632	0.008036	0.305	0.00095	228	171	171	102.6	242.87	14.88	-	-	-	-	2791	533	1674	135.34	0.00	0.00	18.83	-	-	602
	VM 7-25	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	115.42	5.66	-	-	-	-	3488	729	2093	41.22	0.00	0.00	81.84	-	-	2619
	VM 42-7	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	250.31	17.99	-	-	-	-	2379	493	1427	139.03	0.00	0.00	15.31	-	-	490
	VM 8-26	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	46.34	2.27	-	-	-	-	3488	729	2093	35.67	0.00	0.00	96.49	-	-	3088
	VM 43-8	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	254.47	18.29	-	-	-	-	2379	493	1427	159.82	0.00	0.00	13.29	-	-	425
	VM 9-27	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	132.5	6.50	-	-	-	-	3488	729	2093	74.65	0.00	0.00	44.96	-	-	1439
	VM 44-9	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	243.69	15.71	-	-	-	-	2652	516	1591	156.45	0.00	0.00	15.39	-	-	493
	VM 10-28	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	46.63	2.29	-	-	-	-	3488	729	2093	35.86	0.00	0.00	95.97	-	-	3071
	VM 45-10	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	254.4	16.40	-	-	-	-	2652	516	1591	159.79	0.00	0.00	15.01	-	-	480
	VM 11-29	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	115.26	5.65	-	-	-	-	3488	729	2093	41.05	0.00	0.00	82.17	-	-	2630
	VM 46-11	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	250.15	17.98	-	-	-	-	2379	493	1427	138.96	0.00	0.00	15.32	-	-	490
	VM 12-30	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	235.12	11.53	-	-	-	-	3488	729	2093	81.44	0.00	0.00	39.94	-	-	1278
	VM 47-12	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	242.8	17.46	-	-	-	-	2379	493	1427	135.29	0.00	0.00	15.79	-	-	505
	VM 13-31	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	412.04	20.20	-	-	-	-	3488	729	2093	145.05	0.00	0.00	21.21	-	-	679
	VM 48-31	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	246.43	17.72	-	-	-	-	2379	493	1427	138.06	0.00	0.00	15.44	-	-	494
	VM 14-32	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	252.99	12.40	-	-	-	-	3488	729	2093	78.72	0.00	0.00	41.10	-	-	1315
	VM 49-14	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	237.12	17.05	-	-	-	-	2379	493	1427	136.36	0.00	0.00	15.70	-	-	503
	VM 15-33	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	240.44	11.79	-	-	-	-	3488	729	2093	74.67	0.00	0.00	43.50	-	-	1392
	VM 50-15	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	234.98	16.89	-	-	-	-	2379	493	1427	138.48	0.00	0.00	15.48	-	-	495
	VM 16-34	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	532.4	26.10	-	-	-	-	3488	729	2093	193.61	0.00	0.00	15.27	-	-	489
	VM 51-35	0.02982	0.00984	0.205	0.00085	228	171	171	102.6	738.25	24.76	46.96	11.33	7.82	0.79	5099	709	3060	266.31	16.16	2.46	16.38	40.96	1240.04	524
	VM 17-51	0.02909	0.00984	0.199	0.00082	228	171	171	102.6	993.68	34.16	70.57	17.13	41.02	4.17	4974	705	2985	416.67	25.40	14.97	9.55	24.97	196.69	306
VERTICAL / HANGER MEMBER (TRUSS	VM 37-19	0.02982	0.00984	0.205	0.00085	228	171	171	102.6	1171.64	39.29	90.65	21.86	16.34	1.66	5099	709	3060	324.73	24.60	4.32	12.10	25.14	703.90	387
	VM 1-37	0.02762	0.00984	0.188	0.00075	228	171	171	102.6	1637.58	59.29	156.24	39.16	81.36	8.27	4723	682	2834	477.54	45.35	24.20	6.46	11.60	113.74	207
	VM 2-20	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	936.36	45.90	-	-	-	-	3488	729	2093	222.23	0.00	0.00	11.48	-	-	367
	VM 3-21	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	449.06	22.01	-	-	-	-	3488	729	2093	78.07	0.00	0.00	38.93	-	-	1246
	VM 38-3	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	477.5	30.79	-	-	-	-	2652	516	1591	165.73	0.00	0.00	13.12	-	-	420
	VM 4-22	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	320.05	15.69	-	-	-	-	3488	729	2093	71.78	0.00	0.00	44.14	-	-	1413
	VM 39-4	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	474.66	30.60	-	-	-	-	2652	516	1591	167.52	0.00	0.00	13.00	-	-	416
	VM 5-23	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	445.19	21.82	-	-	-	-	3488	729	2093	157.40	0.00	0.00	19.33	-	-	619
	VM 40-5	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	473.37	30.52	-	-	-	-	2652	516	1591	169.88	0.00	0.00	12.83	-	-	410

LOAD RATING - OPERATING LEVEL (ASR)																								
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
B)	VM 6-24	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	165.44	8.11	-	-	-	-	3488	729	2093	89.66	0.00	0.00	37.06	-	-	1186
	VM 41-6	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	458.02	29.53	-	-	-	-	2652	516	1591	164.55	0.00	0.00	13.33	-	-	427
	VM 7-25	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	16.38	0.80	-	-	-	-	3488	729	2093	57.25	0.00	0.00	60.65	-	-	1941
	VM 42-7	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	457.29	29.48	-	-	-	-	2652	516	1591	166.03	0.00	0.00	13.22	-	-	423
	VM 8-26	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	155.74	7.63	-	-	-	-	3488	729	2093	56.50	0.00	0.00	58.98	-	-	1887
	VM 43-8	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	462.61	29.83	-	-	-	-	2652	516	1591	240.55	0.00	0.00	9.10	-	-	291
	VM 9-27	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	256.72	12.58	-	-	-	-	3488	729	2093	111.80	0.00	0.00	28.91	-	-	925
	VM 44-9	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	442.37	28.52	-	-	-	-	2652	516	1591	236.39	0.00	0.00	9.35	-	-	299
VERTICAL / HANGER MEMBER (TRUSS B)	VM 10-28	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	156.27	7.66	-	-	-	-	3488	729	2093	56.85	0.00	0.00	58.62	-	-	1876
	VM 45-10	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	462.78	29.84	-	-	-	-	2652	516	1591	240.64	0.00	0.00	9.10	-	-	291
	VM 11-29	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	15.75	0.77	-	-	-	-	3488	729	2093	56.92	0.00	0.00	61.01	-	-	1952
	VM 46-11	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	457.63	29.51	-	-	-	-	2652	516	1591	166.20	0.00	0.00	13.20	-	-	423
	VM 12-30	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	165.15	8.10	-	-	-	-	3488	729	2093	89.58	0.00	0.00	37.10	-	-	1187
	VM 47-12	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	458.15	29.54	-	-	-	-	2652	516	1591	164.66	0.00	0.00	13.32	-	-	426
	VM 13-31	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	444.15	21.77	-	-	-	-	3488	729	2093	157.18	0.00	0.00	19.37	-	-	620
	VM 48-31	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	473.41	30.52	-	-	-	-	2652	516	1591	169.95	0.00	0.00	12.82	-	-	410
	VM 14-32	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	320.61	15.72	-	-	-	-	3488	729	2093	72.18	0.00	0.00	43.89	-	-	1404
	VM 49-14	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	473.91	30.56	-	-	-	-	2652	516	1591	167.34	0.00	0.00	13.02	-	-	417
	VM 15-33	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	444.33	21.78	-	-	-	-	3488	729	2093	76.84	0.00	0.00	39.61	-	-	1268
	VM 50-15	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	480.12	30.96	-	-	-	-	2652	516	1591	166.58	0.00	0.00	13.04	-	-	417
	VM 16-34	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	953.64	46.75	-	-	-	-	3488	729	2093	227.90	0.00	0.00	11.12	-	-	356
	VM 51-35	0.02982	0.00984	0.205	0.00085	228	171	171	102.6	1156.37	38.78	90.4	21.80	16.47	1.67	5099	709	3060	319.02	24.40	4.32	12.36	25.35	703.87	395
	VM 17-51	0.02909	0.00984	0.199	0.00082	228	171	171	102.6	1617.48	55.60	107.25	26.03	60.16	6.11	4974	705	2985	470.28	30.12	17.63	7.14	19.83	165.92	228
VERTICAL / HANGER MEMBER (TRUSS C)	VM 37-19	0.02982	0.00984	0.205	0.00085	228	171	171	102.6	753.37	25.26	47.57	11.47	7.87	0.80	5099	709	3060	271.65	16.33	2.45	16.00	40.51	1245.63	512
	VM 1-37	0.02762	0.00984	0.188	0.00075	228	171	171	102.6	1011.73	36.63	101.38	25.41	54.11	5.50	4723	682	2834	423.15	37.80	20.24	8.77	15.36	137.32	281
	VM 2-20	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	520.27	25.50	-	-	-	-	3488	729	2093	188.81	0.00	0.00	15.72	-	-	503
	VM 3-21	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	242.57	11.89	-	-	-	-	3488	729	2093	75.60	0.00	0.00	42.93	-	-	1374
	VM 38-3	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	233.07	15.03	-	-	-	-	2652	516	1591	137.79	0.00	0.00	17.56	-	-	562
	VM 4-22	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	251.66	12.34	-	-	-	-	3488	729	2093	78.33	0.00	0.00	41.32	-	-	1322
	VM 39-4	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	237.41	17.07	-	-	-	-	2379	493	1427	136.52	0.00	0.00	15.68	-	-	502
	VM 5-23	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	412.27	20.21	-	-	-	-	3488	729	2093	145.31	0.00	0.00	21.17	-	-	677
	VM 40-5	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	246.33	15.88	-	-	-	-	2652	516	1591	138.05	0.00	0.00	17.43	-	-	558
	VM 6-24	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	235.09	11.52	-	-	-	-	3488	729	2093	81.56	0.00	0.00	39.89	-	-	1276
	VM 41-6	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	242.87	15.66	-	-	-	-	2652	516	1591	135.34	0.00	0.00	17.80	-	-	570
	VM 7-25	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	115.42	5.66	-	-	-	-	3488	729	2093	41.22	0.00	0.00	81.84	-	-	2619
	VM 42-7	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	250.31	16.14	-	-	-	-	2652	516	1591	139.03	0.00	0.00	17.28	-	-	553
	VM 8-26	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	46.34	2.27	-	-	-	-	3488	729	2093	35.67	0.00	0.00	96.49	-	-	3088
	VM 43-8	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	254.47	18.29	-	-	-	-	2379	493	1427	159.82	0.00	0.00	13.29	-	-	425
	VM 9-27	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	132.5	6.50	-	-	-	-	3488	729	2093	74.65	0.00	0.00	44.96	-	-	1439

LOAD RATING - OPERATING LEVEL (ASR)

LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross} (m^2)	A_{shear} (m^2)	$c_{n.a.}$ (m)	$I_{bending}$ (m^4)	fy (MPa)	σ_a (allow) (MPa)	σ_b (allow) (MPa)	σ_v (allow) (MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
	VM 44-9	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	243.69	15.71	-	-	-	-	2652	516	1591	156.45	0.00	0.00	15.39	-	-	493
	VM 10-28	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	46.63	2.29	-	-	-	-	3488	729	2093	35.86	0.00	0.00	95.97	-	-	3071
	VM 45-10	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	254.4	16.40	-	-	-	-	2652	516	1591	159.79	0.00	0.00	15.01	-	-	480
	VM 11-29	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	115.26	5.65	-	-	-	-	3488	729	2093	41.05	0.00	0.00	82.17	-	-	2630
	VM 46-11	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	250.15	17.98	-	-	-	-	2379	493	1427	138.96	0.00	0.00	15.32	-	-	490
	VM 12-30	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	235.12	11.53	-	-	-	-	3488	729	2093	81.44	0.00	0.00	39.94	-	-	1278
	VM 47-12	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	242.8	15.65	-	-	-	-	2652	516	1591	135.29	0.00	0.00	17.81	-	-	570
	VM 13-31	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	412.04	20.20	-	-	-	-	3488	729	2093	145.05	0.00	0.00	21.21	-	-	679
	VM 48-31	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	246.43	17.72	-	-	-	-	2379	493	1427	138.06	0.00	0.00	15.44	-	-	494
	VM 14-32	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	252.99	12.40	-	-	-	-	3488	729	2093	78.72	0.00	0.00	41.10	-	-	1315
VERTICAL / HANGER MEMBER (TRUSS C)	VM 49-14	0.01391	0.0056	0.305	0.00088	228	171	171	102.6	237.12	17.05	-	-	-	-	2379	493	1427	136.36	0.00	0.00	15.70	-	-	503
	VM 15-33	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	240.44	11.79	-	-	-	-	3488	729	2093	74.67	0.00	0.00	43.50	-	-	1392
	VM 50-15	0.01551	0.0072	0.305	0.00092	228	171	171	102.6	234.98	15.15	-	-	-	-	2652	516	1591	138.48	0.00	0.00	17.46	-	-	559
	VM 16-34	0.0204	0.00798	0.305	0.0013	228	171	171	102.6	532.4	26.10	-	-	-	-	3488	729	2093	193.61	0.00	0.00	15.27	-	-	489
	VM 51-35	0.02982	0.00984	0.205	0.00085	228	171	171	102.6	738.25	24.76	46.96	11.33	7.82	0.79	5099	709	3060	266.31	16.16	2.46	16.38	40.96	1240.04	524
	VM 17-51	0.02909	0.00984	0.199	0.00082	228	171	171	102.6	993.68	34.16	70.57	17.13	41.02	4.17	4974	705	2985	416.67	25.40	14.97	9.55	24.97	196.69	306
	DM 19-2	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	850.84	50.80	-	-	-	-	2864	549	1719	332.60	0.00	0.00	6.05	-	-	194
	DM 20-3	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	549.08	32.78	-	-	-	-	2864	549	1719	225.12	0.00	0.00	10.28	-	-	329
	DM 21-4	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	196.22	11.71	-	-	-	-	2864	549	1719	80.66	0.00	0.00	33.08	-	-	1059
	DM 22-5	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	414.35	24.74	-	-	-	-	2864	549	1719	161.96	0.00	0.00	15.13	-	-	484
	DM 23-6	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	782.52	46.72	-	-	-	-	2864	549	1719	314.05	0.00	0.00	6.63	-	-	212
	DM 24-7	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	577.79	34.49	-	-	-	-	2864	549	1719	249.10	0.00	0.00	9.18	-	-	294
	DM 25-8	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	396.67	20.62	-	-	-	-	3290	706	1974	193.88	0.00	0.00	14.92	-	-	478
DIAGONAL MEMBER (TRUSS A & C)	DM 26-9	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	60.4	3.14	-	-	-	-	3290	706	1974	38.80	0.00	0.00	83.24	-	-	2664
	DM 9-28	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	59.57	3.10	-	-	-	-	3290	706	1974	38.32	0.00	0.00	84.30	-	-	2698
	DM 10-29	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	396	20.58	-	-	-	-	3290	706	1974	193.44	0.00	0.00	14.96	-	-	479
	DM 11-30	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	577.35	34.47	-	-	-	-	2864	549	1719	248.71	0.00	0.00	9.19	-	-	294
	DM 12-31	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	782.32	46.71	-	-	-	-	2864	549	1719	313.72	0.00	0.00	6.64	-	-	212
	DM 13-32	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	415.42	24.80	-	-	-	-	2864	549	1719	162.20	0.00	0.00	15.10	-	-	483
	DM 14-33	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	194.61	11.62	-	-	-	-	2864	549	1719	79.86	0.00	0.00	33.43	-	-	1070
	DM 15-34	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	564.91	33.73	-	-	-	-	2864	549	1719	231.40	0.00	0.00	9.94	-	-	318
	DM 16-35	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	832.81	49.72	-	-	-	-	2864	549	1719	326.22	0.00	0.00	6.23	-	-	199
	DM 19-2	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	1319.72	78.79	-	-	-	-	2864	549	1719	398.84	0.00	0.00	3.87	-	-	124
	DM 20-3	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	1014.19	60.55	-	-	-	-	2864	549	1719	254.84	0.00	0.00	7.26	-	-	232
	DM 21-4	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	410.33	24.50	-	-	-	-	2864	549	1719	71.21	0.00	0.00	34.46	-	-	1103
	DM 22-5	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	561.77	33.54	-	-	-	-	2864	549	1719	161.13	0.00	0.00	14.29	-	-	457
	DM 23-6	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	962.45	57.46	-	-	-	-	2864	549	1719	362.95	0.00	0.00	5.24	-	-	168
	DM 24-7	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	571.2	34.10	-	-	-	-	2864	549	1719	291.69	0.00	0.00	7.86	-	-	252
	DM 25-8	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	398.68	20.72	-	-	-	-	3290	706	1974	273.29	0.00	0.00	10.58	-	-	339

LOAD RATING - OPERATING LEVEL (ASR)

LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
										AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)																
DIAGONAL MEMBER (TRUSS B)	DM 26-9	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	3.46	0.18	-	-	-	-	3290	706	1974	59.02	0.00	0.00	55.69	-	-	1782
	DM 9-28	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	4.15	0.22	-	-	-	-	3290	706	1974	58.48	0.00	0.00	56.19	-	-	1798
	DM 10-29	0.01924	0.00684	0.305	0.00126	228	171	171	102.6	398.08	20.69	-	-	-	-	3290	706	1974	272.91	0.00	0.00	10.60	-	-	339
	DM 11-30	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	571.27	34.11	-	-	-	-	2864	549	1719	291.80	0.00	0.00	7.86	-	-	251
	DM 12-31	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	962.02	57.43	-	-	-	-	2864	549	1719	363.06	0.00	0.00	5.24	-	-	168
	DM 13-32	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	561.57	33.53	-	-	-	-	2864	549	1719	161.42	0.00	0.00	14.27	-	-	456
	DM 14-33	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	405.64	24.22	-	-	-	-	2864	549	1719	70.41	0.00	0.00	34.92	-	-	1117
	DM 15-34	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	1036.6	61.89	-	-	-	-	2864	549	1719	262.12	0.00	0.00	6.97	-	-	223
	DM 16-35	0.01675	0.000182	0.305	0.00098	228	171	171	102.6	1301.62	77.71	-	-	-	-	2864	549	1719	392.05	0.00	0.00	3.99	-	-	128
CROSS BEAM	CB 52-69	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	26.16	0.94	337.33	41.70	213.46	16.74	4745	1383	2847	4.21	117.15	72.75	1120.26	8.93	36.20	286
	CB 69-86	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	26.16	0.94	337.37	41.71	213.47	16.74	4745	1383	2847	4.21	150.41	72.77	1120.26	6.95	36.19	223
	CB 53-70	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	10.55	0.38	341.02	42.16	228.37	17.91	4745	1383	2847	5.17	139.22	80.98	916.54	7.49	32.34	240
CROSS BEAM	CB 70-87	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	10.55	0.38	340.97	42.15	228.36	17.91	4745	1383	2847	5.15	150.41	80.98	918.51	6.93	32.34	222
	CB 54-71	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	8.71	0.31	296.8	36.69	228.08	17.89	4745	1383	2847	1.21	139.97	81.37	3919.95	7.76	32.19	248
	CB 71-88	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	8.72	0.31	296.79	36.69	228.06	17.89	4745	1383	2847	1.21	150.41	81.37	3919.94	7.22	32.19	231
	CB 55-72	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	0.33	0.01	310.81	38.42	224.55	17.61	4745	1383	2847	2.05	145.20	81.98	2313.68	7.39	31.99	236
	CB 72-89	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	0.32	0.01	310.81	38.42	224.54	17.61	4745	1383	2847	2.05	150.41	81.98	2313.68	7.13	31.99	228
	CB 56-73	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.59	0.06	323.09	39.94	221.52	17.37	4745	1383	2847	1.94	146.72	82.17	2445.24	7.23	31.96	231
	CB 73-90	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.58	0.06	323.08	39.94	221.51	17.37	4745	1383	2847	1.94	150.41	82.17	2445.24	7.05	31.96	226
	CB 57-74	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.53	0.06	333.91	41.28	218.51	17.14	4745	1383	2847	1.87	142.97	81.69	2532.08	7.34	32.18	235
	CB 74-91	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.52	0.05	333.91	41.28	218.5	17.14	4745	1383	2847	1.87	150.41	81.70	2532.09	6.98	32.17	223
	CB 58-75	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.51	0.05	343.12	42.42	216.19	16.96	4745	1383	2847	1.87	132.29	80.41	2532.10	7.86	32.72	252
	CB 75-92	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.49	0.05	343.12	42.42	216.18	16.96	4745	1383	2847	1.87	150.41	80.41	2532.11	6.92	32.72	221
	CB 59-76	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.51	0.05	345.81	42.75	215.41	16.89	4745	1383	2847	1.87	211.75	118.26	2532.10	4.90	22.25	157
	CB 76-93	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.49	0.05	345.81	42.75	215.4	16.89	4745	1383	2847	1.87	283.42	118.26	2532.11	3.66	22.25	117
	CB 60-77	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.51	0.05	347.61	42.97	214.62	16.83	4745	1383	2847	1.87	207.92	117.67	2532.10	4.98	22.37	159
	CB 77-94	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.5	0.05	347.61	42.97	214.61	16.83	4745	1383	2847	1.87	283.42	117.67	2532.10	3.65	22.37	117
	CB 61-78	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.51	0.05	345.51	42.71	215.48	16.90	4745	1383	2847	1.87	212.10	118.29	2532.10	4.89	22.25	157
	CB 78-95	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.49	0.05	345.51	42.71	215.47	16.90	4745	1383	2847	1.87	283.42	118.29	2532.11	3.66	22.25	117
	CB 62-79	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.51	0.05	342.47	42.34	216.35	16.97	4745	1383	2847	1.87	133.05	80.49	2532.10	7.82	32.68	250
	CB 79-96	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.49	0.05	342.44	42.33	216.33	16.97	4745	1383	2847	1.87	150.41	80.49	2532.11	6.92	32.68	221
	CB 63-80	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.54	0.06	333.68	41.25	218.57	17.14	4745	1383	2847	1.88	143.40	81.74	2517.18	7.32	32.16	234
	CB 80-97	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.51	0.05	333.68	41.25	218.56	17.14	4745	1383	2847	1.87	150.41	81.74	2532.10	6.98	32.16	223
	CB 64-81	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.66	0.06	323.2	39.96	221.49	17.37	4745	1383	2847	1.94	146.87	82.18	2445.20	7.22	31.95	231
	CB 81-98	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	1.63	0.06	323.2	39.96	221.48	17.37	4745	1383	2847	1.93	150.41	82.18	2459.27	7.05	31.95	226
	CB 65-82	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	0.57	0.02	311.11	38.46	224.48	17.61	4745	1383	2847	2.10	145.21	81.98	2264.60	7.38	31.99	236
	CB 82-99	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	0.54	0.02	311.11	38.46	224.46	17.60	4745	1383	2847	2.08	150.41	81.99	2276.66	7.13	31.99	228
	CB 66-83	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	8.98	0.32	297.27	36.75	227.93	17.88	4745	1383	2847	1.27	139.85	81.36	3715.22	7.76	32.19	248
	CB 83-100	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	9.02	0.33	297.26	36.75	227.92	17.88	4745	1383	2847	1.29	150.41	81.36	3683.16	7.22	32.19	231

LOAD RATING - OPERATING LEVEL (ASR)																								
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
	CB 67-84	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	11.19	0.40	342.45	42.34	228.96	17.96	4745	1383	2847	5.56	139.54	81.10	850.70	7.46	32.28	239
	CB 84-101	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	11.21	0.40	342.38	42.33	228.95	17.96	4745	1383	2847	5.58	150.41	81.10	849.00	6.92	32.28	221
	CB 68-85	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	25.37	0.91	337.33	41.70	213.46	16.74	4745	1383	2847	3.90	117.16	72.75	1209.58	8.93	36.20	286
	CB 85-102	0.02775	0.01275	0.45	0.00364	228	171	171	102.6	25.38	0.91	337.25	41.69	213.44	16.74	4745	1383	2847	3.90	150.41	72.75	1209.58	6.95	36.20	223
LONGITUDINAL TIE BEAM	LTB 52-53	0.01108	0.006	0.15	0.00015	228	171	171	102.6	21.46	1.94	44	44.00	12.98	2.16	1895	171	1137	4.04	15.09	2.87	464.23	8.42	391.42	269
	LTB 53-54	0.00988	0.0048	0.15	0.00014	228	171	171	102.6	34.5	3.49	7.16	7.67	6.88	1.43	1689	160	1014	10.51	3.18	0.57	157.48	47.91	1780.83	1533
	LTB 54-55	0.00988	0.0048	0.15	0.00014	228	171	171	102.6	10.65	1.08	10.45	11.20	6.02	1.25	1689	160	1014	8.14	1.83	0.22	206.33	81.54	4544.99	2609
	LTB 55-56	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7	0.87	14.65	16.90	6.09	2.03	1382	148	829	8.47	3.64	0.28	162.31	36.73	2969.36	1175
	LTB 56-57	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.98	0.86	14.61	16.86	7.5	2.50	1382	148	829	8.62	3.64	0.81	159.39	36.74	1015.16	1176
	LTB 57-58	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7.01	0.87	6.84	7.89	5.59	1.86	1382	148	829	8.64	1.57	0.13	159.19	89.80	6189.92	2874
	LTB 58-59	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7.01	0.87	7.5	8.65	5.78	1.93	1382	148	829	8.65	3.00	0.35	158.98	46.84	2320.68	1499
	LTB 59-60	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7.02	0.87	18.77	21.66	8.01	2.67	1382	148	829	8.65	9.35	0.99	158.98	13.85	832.14	443
	LTB 60-61	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7.03	0.87	18.77	21.66	8.01	2.67	1382	148	829	8.66	9.35	0.99	158.78	13.85	832.14	443
	LTB 61-62	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7.05	0.87	7.49	8.64	5.78	1.93	1382	148	829	8.66	2.99	0.35	158.77	47.01	2320.68	1504
LONGITUDINAL TIE BEAM	LTB 62-63	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7.07	0.88	6.84	7.89	5.59	1.86	1382	148	829	8.67	1.59	0.13	158.57	89.17	6189.92	2854
	LTB 63-64	0.00808	0.003	0.15	0.00013	228	171	171	102.6	7.05	0.87	14.64	16.89	7.5	2.50	1382	148	829	8.67	3.65	0.82	158.57	36.62	1001.44	1172
	LTB 64-65	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.96	0.86	14.68	16.94	6.13	2.04	1382	148	829	8.51	3.65	0.30	161.47	36.61	2749.27	1172
	LTB 65-66	0.00808	0.003	0.15	0.00013	228	171	171	102.6	10.1	1.25	10.24	11.82	5.83	1.94	1382	148	829	8.13	1.74	0.14	168.80	79.27	5712.11	2537
	LTB 66-67	0.00808	0.003	0.15	0.00013	228	171	171	102.6	33.63	4.16	10.09	11.64	7.79	2.60	1382	148	829	10.48	5.15	0.93	128.68	26.79	881.91	857
	LTB 67-68	0.00808	0.003	0.15	0.00013	228	171	171	102.6	17.78	2.20	39.42	45.48	11.17	3.72	1382	148	829	3.66	13.22	2.14	372.83	8.23	382.26	263
	LTB 69-70	0.00988	0.0048	0.15	0.00014	228	171	171	102.6	10.19	1.03	57.27	61.36	15.26	3.18	1689	160	1014	3.53	15.59	2.98	476.37	6.57	334.82	210
	LTB 70-71	0.00808	0.003	0.15	0.00013	228	171	171	102.6	26.69	3.30	8.87	10.23	6.22	2.07	1382	148	829	5.33	3.14	0.43	254.12	44.41	1903.13	1421
	LTB 71-72	0.00808	0.003	0.15	0.00013	228	171	171	102.6	1.17	0.14	11.1	12.81	6.77	2.26	1382	148	829	9.02	2.39	0.43	152.99	57.26	1901.86	1832
	LTB 72-73	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.73	0.83	14.18	16.36	5.92	1.97	1382	148	829	8.84	3.97	0.24	155.62	33.77	3374.97	1081
	LTB 73-74	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.95	0.86	14.21	16.40	7.44	2.48	1382	148	829	8.65	3.97	0.79	158.99	33.76	1043.83	1080
	LTB 74-75	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.91	0.86	7.74	8.93	5.58	1.86	1382	148	829	8.62	1.10	0.20	159.40	127.99	4126.66	4096
	LTB 75-76	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.92	0.86	8.02	9.25	5.49	1.83	1382	148	829	8.64	4.72	0.78	159.20	29.68	1061.26	950
	LTB 76-77	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.93	0.86	19.77	22.81	8.37	2.79	1382	148	829	8.64	9.28	0.71	159.20	13.84	1156.69	443
	LTB 77-78	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.93	0.86	19.77	22.81	8.37	2.79	1382	148	829	8.64	9.28	0.71	159.20	13.84	1156.69	443
	LTB 78-79	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.92	0.86	8.05	9.29	5.5	1.83	1382	148	829	8.64	4.73	0.78	159.20	29.61	1061.25	947
	LTB 79-80	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.91	0.86	7.77	8.97	5.59	1.86	1382	148	829	8.62	1.10	0.20	159.40	127.96	4126.61	4095
	LTB 80-81	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.97	0.86	14.25	16.44	7.44	2.48	1382	148	829	8.65	3.98	0.80	158.99	33.66	1029.34	1077
	LTB 81-82	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.94	0.86	14.22	16.41	5.97	1.99	1382	148	829	8.85	3.98	0.27	155.40	33.67	3093.53	1077
	LTB 82-83	0.00808	0.003	0.15	0.00013	228	171	171	102.6	1.92	0.24	10.84	12.51	6.53	2.18	1382	148	829	9.11	2.32	0.37	151.42	59.29	2248.31	1897
	LTB 83-84	0.00808	0.003	0.15	0.00013	228	171	171	102.6	25.63	3.17	12.46	14.38	7.44	2.48	1382	148	829	5.40	5.12	0.80	251.18	26.50	1029.34	848
	LTB 84-85	0.00808	0.003	0.15	0.00013	228	171	171	102.6	10.72	1.33	51.28	59.17	12.89	4.30	1382	148	829	3.60	13.73	2.24	380.53	7.06	364.46	226
	LTB 86-87	0.00808	0.003	0.15	0.00013	228	171	171	102.6	21.46	2.66	43.97	50.73	12.98	4.33	1382	148	829	4.04	15.08	2.87	337.10	6.91	284.22	221
	LTB 87-88	0.00808	0.003	0.15	0.00013	228	171	171	102.6	34.48	4.27	7.15	8.25	6.88	2.29	1382	148	829	10.55	3.18	0.57	127.66	44.33	1454.17	1419
	LTB 88-89	0.00808	0.003	0.15	0.00013	228	171	171	102.6	10.61	1.31	10.45	12.06	6.02	2.01	1382	148	829	8.16	1.83	0.22	168.05	75.31	3712.01	2410

LOAD RATING - OPERATING LEVEL (ASR)																								
LOCATION	MEMBER I.D.	SECTION PROPERTIES				ALLOWABLE STRESSES (SERVICEABILITY LIMIT)				DEAD LOAD						MEMBER CAPACITY			LIVE LOAD plus IMPACT			RATING FACTOR (RF)			EQUIV. LL (HS20)
		A_{gross}	A_{shear}	$c_{n.a.}$	$I_{bending}$	fy	σ_a (allow)	σ_b (allow)	σ_v (allow)	AXIAL		BENDING		SHEAR		Axial	Bending	Shear	AXIAL	BENDING	SHEAR	RF = (Cap. - DL) / (LL+I)			
		(m^2)	(m^2)	(m)	(m^4)	(MPa)	(MPa)	(MPa)	(MPa)	P_{DL} (KN)	$\sigma_{a\text{-}DL}$ (MPa)	M_{DL} (KN-m)	$\sigma_{b\text{-}DL}$ (MPa)	V_{DL} (KN)	$\sigma_{v\text{-}DL}$ (MPa)	P_{cap} (KN)	M_{cap} (KN-m)	V_{cap} (KN)	P_{LL} (KN)	M_{LL} (KN-m)	V_{LL} (KN)	Axial	Bending	Shear	32 TONS
	LTB 89-90	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.94	0.86	14.66	16.92	6.09	2.03	1382	148	829	8.48	3.64	0.28	162.11	36.73	2969.36	1175
	LTB 90-91	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.89	0.85	14.62	16.87	7.5	2.50	1382	148	829	8.62	3.64	0.81	159.41	36.74	1015.16	1176
	LTB 91-92	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.9	0.85	6.82	7.87	5.59	1.86	1382	148	829	8.62	1.57	0.13	159.40	89.81	6189.92	2874
	LTB 92-93	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.87	0.85	7.46	8.61	5.78	1.93	1382	148	829	8.61	2.98	0.35	159.61	47.20	2320.68	1510
	LTB 93-94	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.85	0.85	18.72	21.60	8.01	2.67	1382	148	829	8.61	9.33	0.99	159.62	13.87	832.14	444
	LTB 94-95	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.84	0.85	18.69	21.57	8.03	2.68	1382	148	829	8.60	9.33	1.00	159.82	13.88	822.88	444
	LTB 95-96	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.83	0.85	7.67	8.85	5.67	1.89	1382	148	829	8.60	2.93	0.30	159.82	48.02	2750.81	1537
	LTB 96-97	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.83	0.85	7.03	8.11	5.48	1.83	1382	148	829	8.59	1.53	0.09	160.03	92.28	9286.12	2953
	LTB 97-98	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.79	0.84	14.68	16.94	7.48	2.49	1382	148	829	8.58	3.67	0.81	160.24	36.39	1015.19	1164
	LTB 98-99	0.00808	0.003	0.15	0.00013	228	171	171	102.6	6.67	0.83	14.72	16.98	6.13	2.04	1382	148	829	8.42	3.67	0.30	163.21	36.38	2749.27	1164
	LTB 99-100	0.00808	0.003	0.15	0.00013	228	171	171	102.6	9.78	1.21	10.27	11.85	5.83	1.94	1382	148	829	8.01	1.75	0.14	171.17	78.75	5712.11	2520
	LTB 100-101	0.00988	0.0048	0.15	0.00014	228	171	171	102.6	33.29	3.37	10.08	10.80	7.79	1.62	1689	160	1014	10.35	5.15	0.93	159.96	29.01	1080.24	928
	LTB 101-102	0.00988	0.0048	0.15	0.00014	228	171	171	102.6	17.8	1.80	39.39	42.20	11.16	2.33	1689	160	1014	3.66	13.22	2.14	456.97	9.09	468.58	291

ABUTMENT ON TIMBER PILES

Section Properties

Section Dimensions

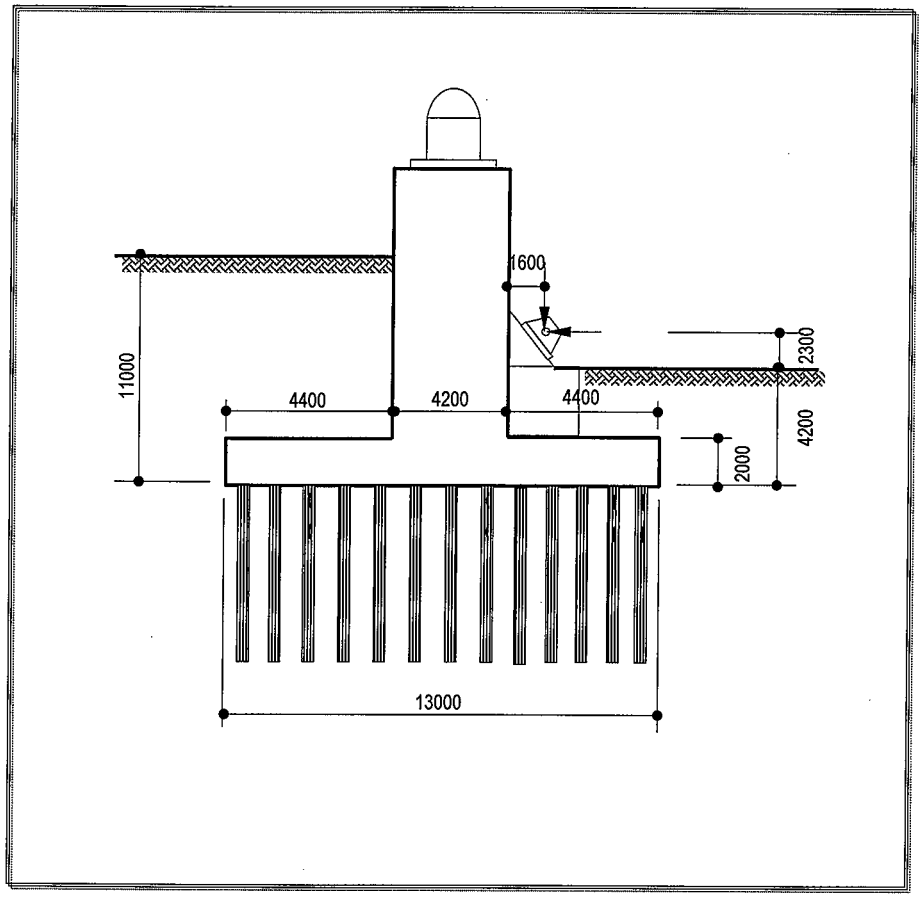
Footing Foundation

base thickness (T_f) =	2000 mm
length of base (L_b) =	13000 mm
length of toe (L_t) =	4400 mm
length of heel (L_h) =	4400 mm

Height of Soil

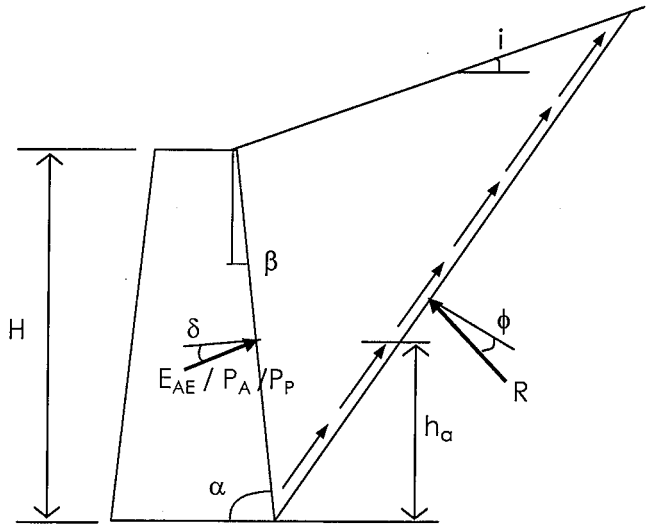
Passive Soil (H_{ps}) =	4200 mm
Active Soil (H_{as}) =	11000 mm

Length of Abut. (L) =	27000 mm



Abutment Diagram Detail

Earth Pressures



Earth Pressure Parameters

The earth pressures are calculated based on the following :

(1) for the dynamic earth pressure due to earthquake, the psuedo-static Mononobe-Okabe formula is used, and

(2) for the static earth pressures, the Coulomb equation for both the active and passive earth pressures are used.

(a) COMBINED STATIC AND SEISMIC EARTH PRESSURE (Mononobe-Okabe Principle)

$$P_{AE} = 1/2\,\gamma\,H^2\,(1-K_v)\,K_{AE}$$

$$K_{AE} = \frac{\cos^2(\phi-\theta-\beta)}{\varphi\cos\theta\cos^2\beta\cos(\delta+\beta+\theta)} \qquad \varphi = \left[1+\sqrt{\frac{\sin(\phi+\delta)\sin(\phi-\theta-i)}{\cos(\delta+\beta+\theta)\cos(i-\beta)}}\right]^2$$

K_{AE} has two components (seismic and static). The seismic component (K_{AE} - K_A) is assumed to be an inverted triangular force (max. at the ground surface) acting at a height of 0.6H.

(b) STATIC ACTIVE EARTH PRESSURE

$$P_A = 1/2\,\gamma\,H^2\,K_A$$

$$K_A = \frac{\sin^2(\alpha+\phi)}{\varphi\,\sin^2\alpha\,\sin(\alpha-\delta)} \qquad \varphi = \left[1+\sqrt{\frac{\sin(\phi+\delta)\sin(\phi-i)}{\sin(\alpha-\delta)\sin(\alpha+i)}}\right]^2$$

The K_A component is the familiar triangular distribution acting at H/3.

(c) STATIC PASSIVE EARTH PRESSURE

$$P_P = 1/2\,\gamma\,H^2\,K_P$$

$$K_P = \frac{\sin^2(\alpha-\phi)}{\varphi\,\sin^2\alpha\,\sin(\alpha+\delta)} \qquad \varphi = \left[1-\sqrt{\frac{\sin(\phi+\delta)\sin(\phi+i)}{\sin(\alpha+\delta)\sin(\alpha+i)}}\right]^2$$

where :

- γ = *unit weight of soil*
- H = *height of soil face*
- ϕ = *angle of friction of soil*
- θ = *arc tan (kh / 1 - kv)*
- δ = *angle of friction between soil and abutment*
- P_{AE} = *total force (active and seismic)*
- P_A = *static active earth presure*
- P_P = *static passive earth presure*
- k_h = *horizontal acceleration coefficient*
- k_v = *vertical acceleration coefficeient*
- i = *backfill slope angle*
- β = *slope of soil face*
- α = *slope of wall*

Soil Parameters

The following data are used to calculate the earth pressures based on the above formula :

A =	0.40	(seismic acceleration coefficient)
K_h =	0.5A	(K_h is taken as 1/2 A)
K_h =	0.20	(horizontal acceleration coefficient)
K_v =	0.00	(vertical acceleration coefficient)

Check horizontal acceleration coefficient (AASHTO C6.3.2 1-A)

$K_h \leq (1 - K_v) \tan(\phi - i)$

0.20 ≤ 0.58 **OK !**

ϕ	30.0	deg.	
θ	11.31	deg.	
β	0	deg.	* vertical wall
α	90	deg.	* vertical wall
δ	22.5	deg.	
i	0	deg.	* horizontal backfill
γs	18.00	KN/m³	(Unit Wt. of Soil)
γc	24.50	KN/m³	(Unit Wt. of Concrete)
h	600.00	mm	* equiv. height for surcharge

Calculated Pressures and Forces

The earth pressure coefficients and earth pressures calculated based on the above formula are:

Seismic Active Earth Pressure

φ	2.412	
K_{AE}	0.457	
P_{AE}	332.83	KN/m (for stem)
P_{AE}	497.19	KN/m (for wall)

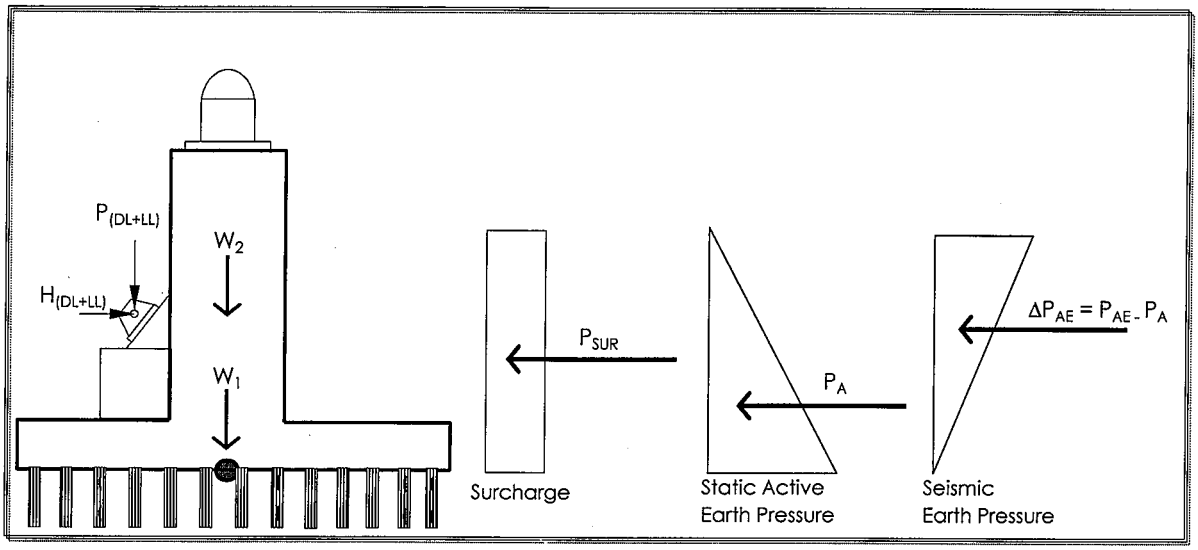
Static Active Earth Pressure

φ	2.740	
K_A	0.296	
P_A	215.99	KN/m (for stem)
P_A	322.66	KN/m (for wall)

Static Passive Earth Pressure

φ	0.119	
K_P	6.830	
P_P	1084.41	KN/m

Design Loads



Forces on Abutment

The horizontal and vertical forces at different load conditions are presented in Table 1.1 and the load combinations shown in Table 1.2.

Table 1.1 Forces on Abutment

Forces		F_V (kN)	F_H (kN)	x (m)	y (m)	F_V x(kN-m)	F_H y(kN-m)
1.0 Dead Load (DL)							
Abutment	W_1	18860.24		0.00		0.00	
Footing	W_2	16848.00		0.00		0.00	
superstructure	P_{DL}	12790.00		3.70		47323.00	
soil@heel	P_{soil}	19224.00		-4.30		-82663.20	
soil@toe	P_{soil}	4698.00		4.30		20201.40	
active	P_A		8711.79		3.67		31943.24
passive	P_P		29278.98		-1.40		-40990.58
3.0 Live Load (LL)							
surcharge	P_{SUR}	1283.04	950.38	-4.30	5.50	-5517.07	5227.08
superstructure, vert	P_{LL}	2209.00		3.70		8173.30	
superstructure, hor	H_{LL}		3269.00		6.50		21248.50
4.0 Earthquake (EQ)							
seismic earth pressure	ΔP_{AE}		4712.27		6.60		31100.96
seismic-wall	$k_h W_1$		3772.05		5.50		20746.26
superstructure	H_{EQ}		5614.00		6.50		36491.00
5.0 Buoyancy (B)							
buoyant force	B_F	0.00		0.00		0.00	

Table 1.2 Load Combinations (Service Load)

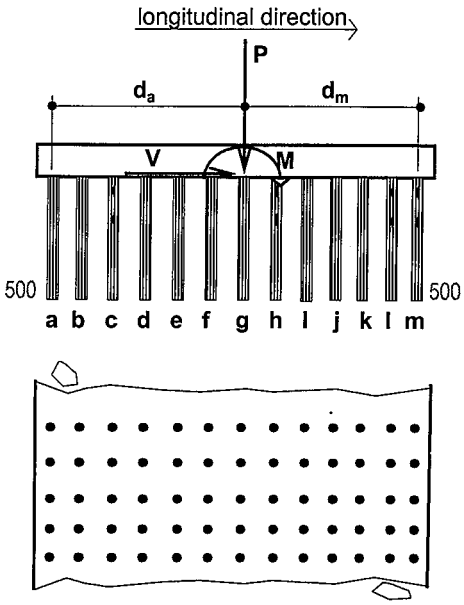
Load Case	Σ F_V (kN)	Σ F_H (kN)			Σ RM	Σ OM
CASE I (Normal Stage)	51990.28	42210.15			12482.57	17428.23
CASE VII (E.Q. Stage)	72420.24	22810.11			15138.80	120281.46

where : CASE I (N. Stage) = DL + LL+I + B + E
CASE VII (E.Q. Stage) = DL + E + B + EQ

CAPACITY-DEMAND RATIO OF ABUTMENT FOUNDATION

PROJECT TITLE: PASIG-MARIKINA RIVER BR. INSPECTION, QUEZON BRIDGE
ITEM : ANALYTICAL ASSESSMENT OF BRIDGE STRUCTURAL SOUNDNESS

TIMBER PILE REACTIONS (A1 AND A2)



Forces	Case I (Old Code)	Case VIIa (New Code)	Units
P	51990.3	72420.2	KN
M	29910.81	105142.66	KN-m
V	42210.15	22810.11	KN

FOOTING DIMENSIONS:

S = 13.00 m
L = 27.00 m

$P_p = P_t / n + Mx / \Sigma x^2$ *-- Gen. Equation*

where :

P_p = load per pile (KN or Tons)
M = moment about axis considered (KN-m)
x = distance from axis to any pile (m.)
Σx^2 = summation of moment of Inertia

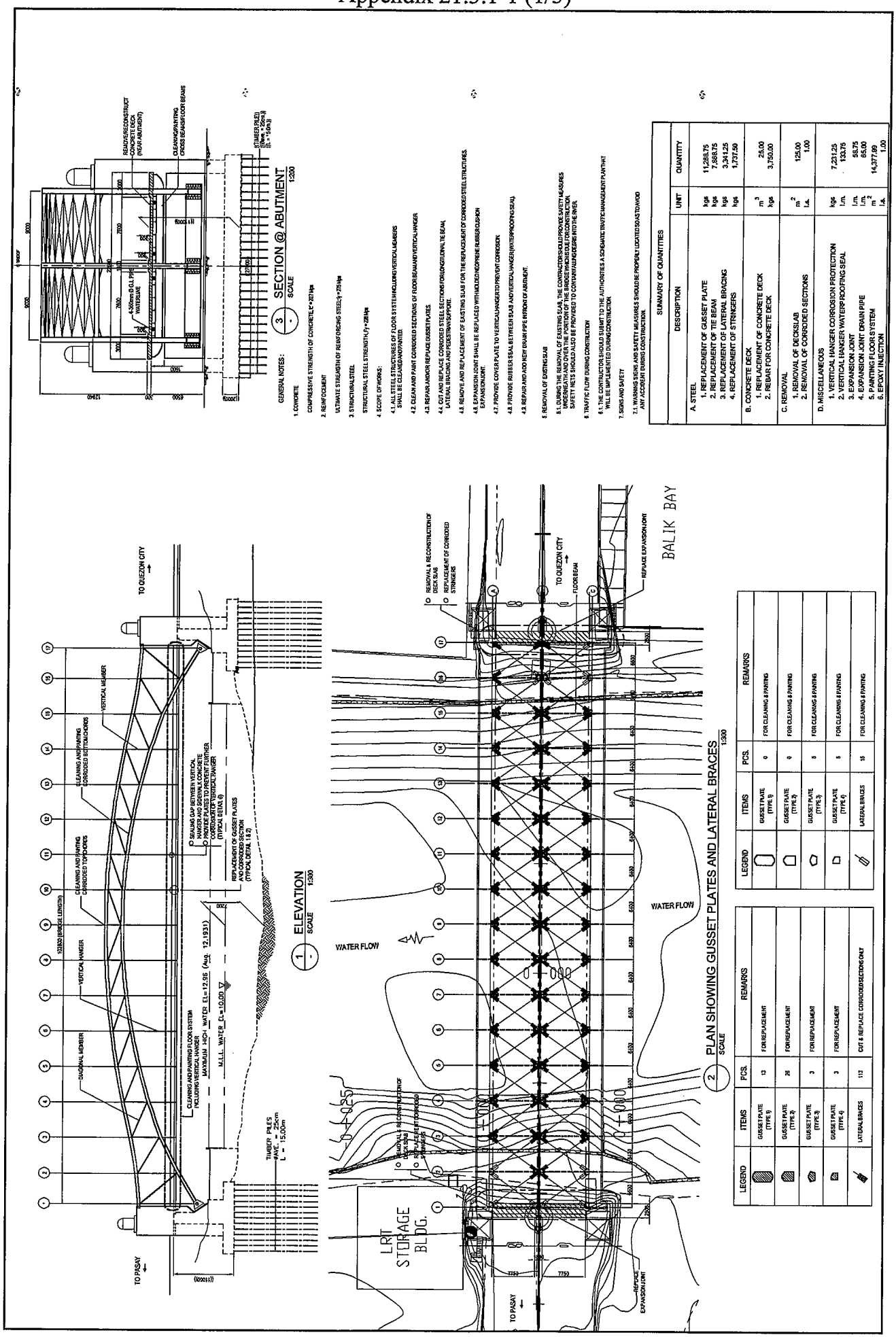
Location	No. of Piles (n)	Pile Distance (x)	nx^2	Case I (KN)	Case I (tons)	Case VIIa (KN)	Case VIIa (tons)
At row a'	0	7.75	0	195.29	19.91	372.15	
At row a	27	6.00	972	184.64	18.82	334.70	34.12
At row b	27	5.00	675	178.55	18.20	313.31	31.94
At row c	27	4.00	432	172.47	17.58	291.91	29.76
At row d	27	3.00	243	148.12	15.10	270.52	27.58
At row e	27	2.00	108	148.12	15.10	249.12	25.39
At row f	27	1.00	27	148.12	15.10	227.72	23.21
At row g	27	0.00	0	148.12	15.10	206.33	21.03
At row h	27	-1.00	27	148.12	15.10	184.93	18.85
At row i	27	-2.00	108	148.12	15.10	163.53	16.67
At row j	27	-3.00	243	148.12	15.10	142.14	14.49
At row k	27	-4.00	432	148.12	15.10	120.74	12.31
At row l	27	-5.00	675	148.12	15.10	99.34	10.13
At row m	27	-6.00	972	148.12	15.10	77.95	7.95
At row m'	0	-7.75	0	148.12	15.10		

Total n = 351 **Σx^2 = 4914**

		Case I		Case VIIa	
P_{max}	=	-19.91	tons *...Compression*	0.00	tons *...Tension*
P_{min}	=	15.10	tons *...Tension*	0.00	tons *...Tension*

Allowable Timber Pile Capacity = 20 tons
Ultimate Timber Pile Capacity = 24 tons

SUMMARY OF CAPACITY / DEMAND RATIO			
Location	Capacity (tons)	Demand (tons)	C / D
(Old Code)Case I, P_a	20	19.91	1.00
(New Code) Case VII, P_a	24	34.12	0.70

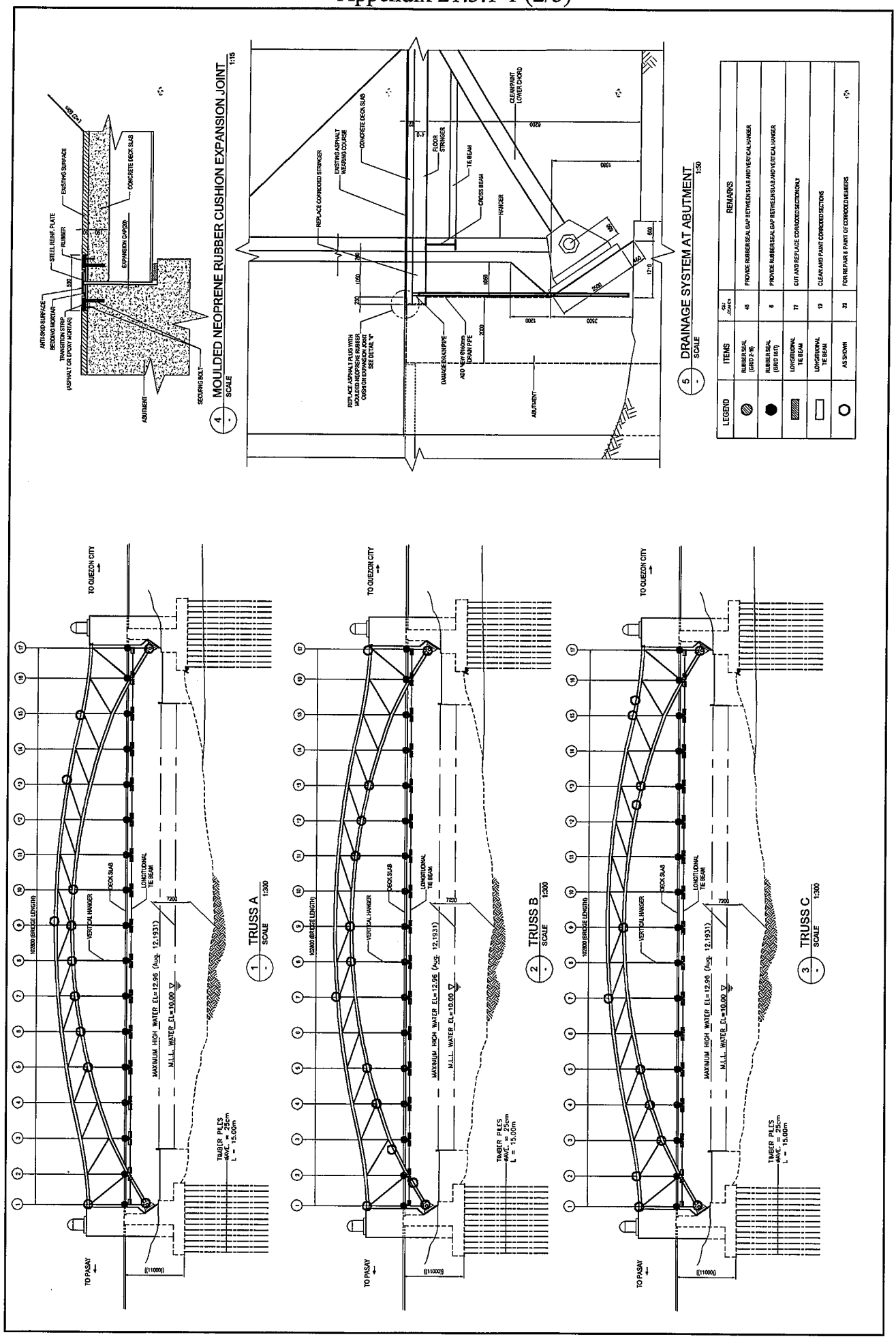


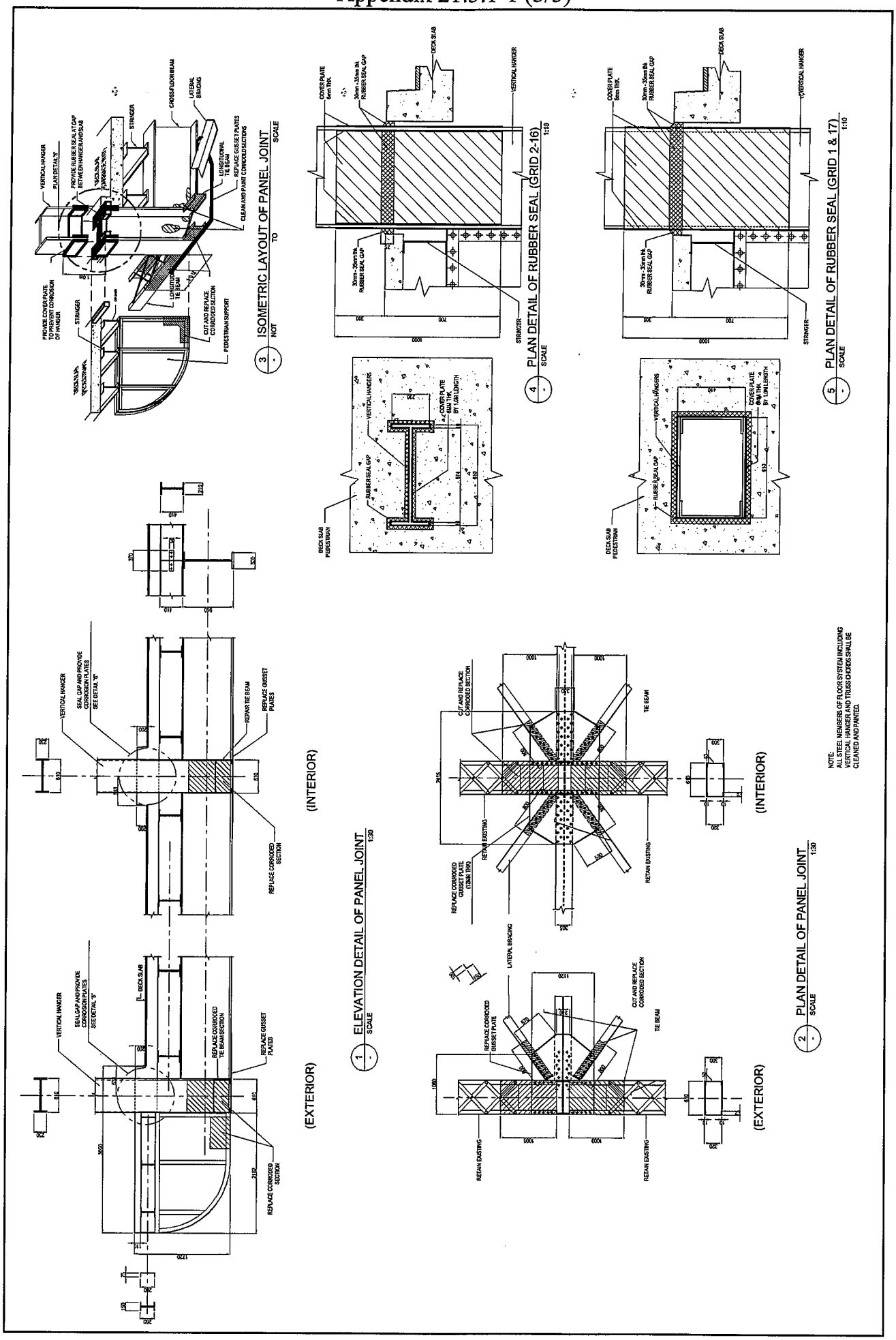
SUMMARY OF QUANTITIES

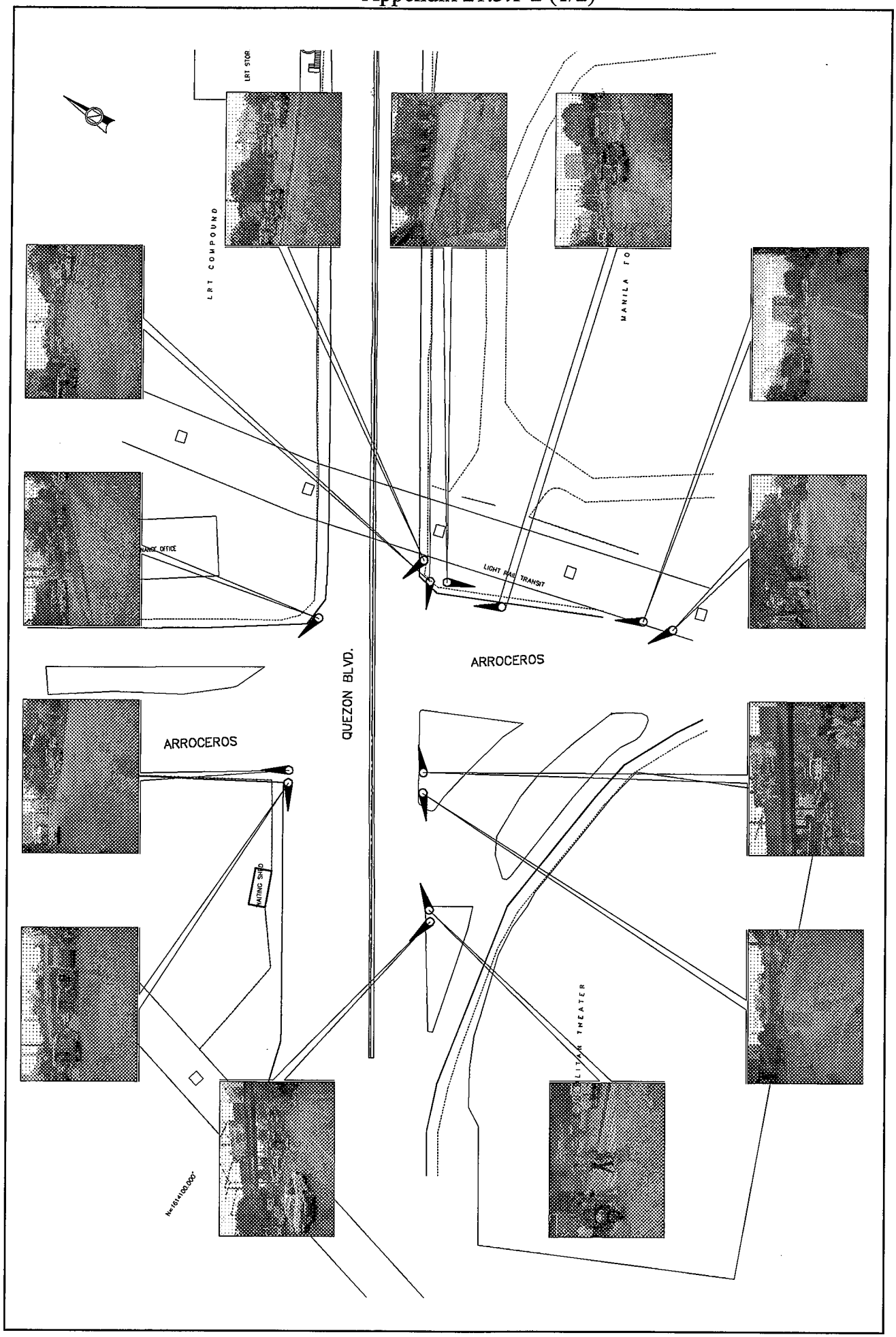
DESCRIPTION	UNIT	QUANTITY
A. STEEL		
1. REPLACEMENT OF GUSSET PLATE	kgs	11,288.75
2. REPLACEMENT OF TIE BEAM	kgs	7,568.75
3. REPLACEMENT OF LATERAL BRACING	kgs	3,341.25
4. REPLACEMENT OF STRINGERS	kgs	1,737.50
B. CONCRETE DECK		
1. REPLACEMENT OF CONCRETE DECK	m^3	25.00
2. REBAR FOR CONCRETE DECK	kgs	3,750.00
C. REMOVAL		
1. REMOVAL OF DECKSLAB	m^2	125.00
2. REMOVAL OF CORRODED SECTIONS	l.s.	1.00
D. MISCELLANEOUS		
1. VERTICAL HANGER CORROSION PROTECTION	kgs	7,231.25
2. VERTICAL HANGER WATERPROOFING SEAL	l.m.	133.75
3. EXPANSION JOINT	l.m.	58.75
4. EXPANSION JOINT DRAIN PIPE	l.m.	85.00
5. PAINTING FLOOR SYSTEM	m^2	14,377.89
6. EPOXY INJECTION	l.s.	1.00

LEGEND	ITEMS	PCS.	REMARKS
	GUSSET PLATE (TYPE 1)	13	FOR REPLACEMENT
	GUSSET PLATE (TYPE 2)	26	FOR REPLACEMENT
	GUSSET PLATE (TYPE 3)	3	FOR REPLACEMENT
	GUSSET PLATE (TYPE 4)	3	FOR REPLACEMENT
	LATERAL BRACES	113	CUT & REPLACE CORRODED SECTIONS ONLY

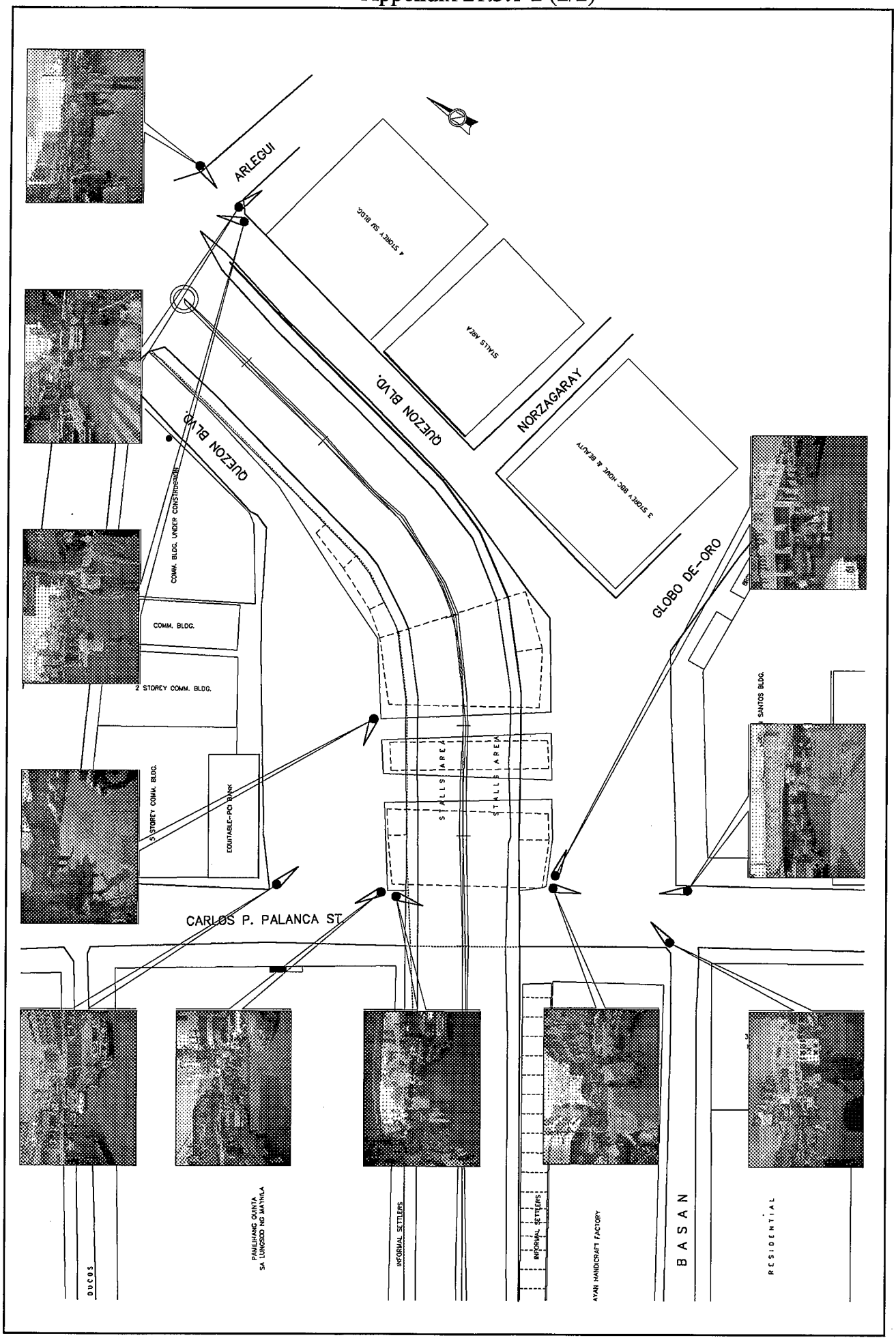
LEGEND	ITEMS	PCS.	REMARKS
	GUSSET PLATE (TYPE 1)	0	FOR CLEANING & PAINTING
	GUSSET PLATE (TYPE 2)	0	FOR CLEANING & PAINTING
	GUSSET PLATE (TYPE 3)	5	FOR CLEANING & PAINTING
	GUSSET PLATE (TYPE 4)	5	FOR CLEANING & PAINTING
	LATERAL BRACES	15	FOR CLEANING & PAINTING


4 MOULDED NEOPRENE RUBBER CUSHION EXPANSION JOINT SCALE 1:15
EXISTING SURFACE
CONCRETE DECK SLAB
STEEL REINF. PLATE
RUBBER
EXPANSION GAP(20)
ANTI-SKID SURFACE
BEDDING MORTAR
TRANSITION STRIP (ASPHALT OR EPOXY MORTAR)
SECURING BOLT
ABUTMENT
5 DRAINAGE SYSTEM AT ABUTMENT SCALE 1:50
REPLACE CORRODED STRINGER
EXISTING ASPHALT WEARING COURSE
CONCRETE DECK SLAB
FLOOR STRINGER
TIE BEAM
CROSS BEAM
HANGER
CLEAN/PAINT LOWER CHORD
REPLACE ASPHALT PLUG WITH MOULDED NEOPRENE RUBBER CUSHION EXPANSION JOINT SEE DETAIL "4"
DAMAGED DRAIN PIPE
ADD NEW Ø150mm DRAIN PIPE
ABUTMENT
LEGEND
ITEMS
QUANTITY
REMARKS
RUBBER SEAL (GRID J-16)
45
PROVIDE RUBBER SEAL GAP BETWEEN SLAB AND VERTICAL HANGER
RUBBER SEAL (GRID 16-T)
6
PROVIDE RUBBER SEAL GAP BETWEEN SLAB AND VERTICAL HANGER
LONGITUDINAL TIE BEAM
77
CUT AND REPLACE CORRODED SECTION/BOLT
LONGITUDINAL TIE BEAM
13
CLEAN AND PAINT CORRODED SECTIONS
AS SHOWN
32
FOR REPAIR & PAINT OF CORRODED MEMBERS
1 TRUSS A SCALE 1:300
2 TRUSS B SCALE 1:300
3 TRUSS C SCALE 1:300
TO QUEZON CITY
TO PASAY
102000 (BRIDGE LENGTH)
LONGITUDINAL TIE BEAM
DECK SLAB
VERTICAL HANGER
7200
MAXIMUM HIGH WATER EL=12.96 (Aug. 12,1931)
M.L.L.W. EL=10.00
TIMBER PILES WAVE. = 25cm L = 15.00m
((11000))


3 - ISOMETRIC LAYOUT OF PANEL JOINT NOT TO SCALE
4 - PLAN DETAIL OF RUBBER SEAL (GRID 2-16) 1:10 SCALE
5 - PLAN DETAIL OF RUBBER SEAL (GRID 1 & 17) 1:10 SCALE
1 - ELEVATION DETAIL OF PANEL JOINT 1:30 SCALE
2 - PLAN DETAIL OF PANEL JOINT 1:30 SCALE
(INTERIOR)
(EXTERIOR)
NOTE:
ALL STEEL MEMBERS OF FLOOR SYSTEM INCLUDING VERTICAL HANGER AND TRUSS CHORDS SHALL BE CLEANED AND PAINTED.



APPROACH 1 SITE OCULAR INSPECTION (QUEZON BRIDGE)

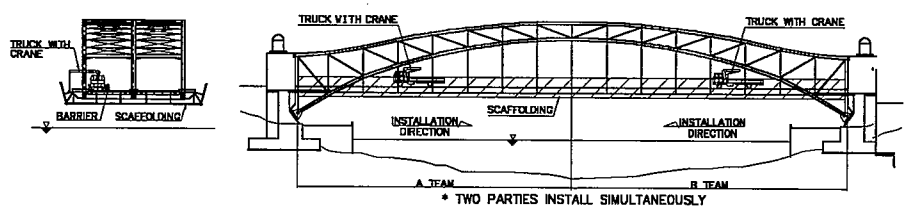


APPROACH 2 SITE OCULAR INSPECTION (QUEZON BRIDGE)

CONSTRUCTION SEQUENCE FOR QUEZON BRIDGE REHABILITATION (1/2)

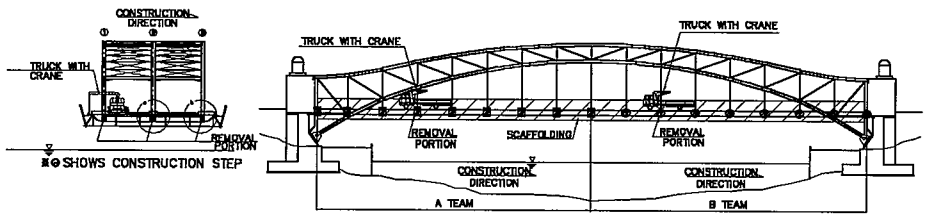
A. CONSTRUCTION SEQUENCE

STEP ①INSTALLATION OF SCAFFOLDING



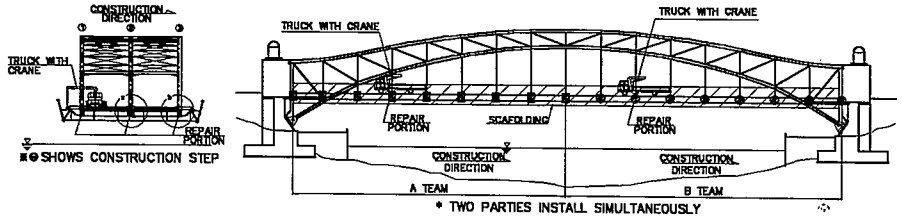
* TWO PARTIES INSTALL SIMULTANEOUSLY

STEP ②REMOVAL OF EXISTING MEMBERS AND TEMPORARY SUPPORT



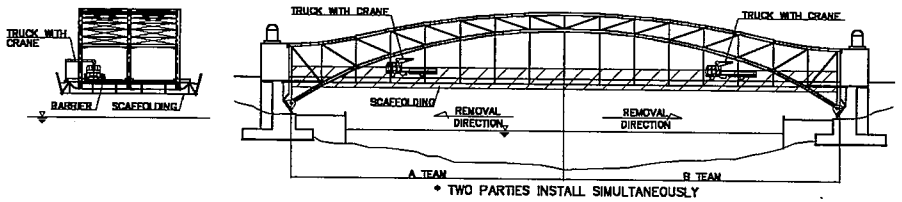
* TWO PARTIES INSTALL SIMULTANEOUSLY

STEP ③ADDITION OF NEW MEMBERS AND REMOVAL OF SCAFFOLDING AND TEMPORARY SUPPORT



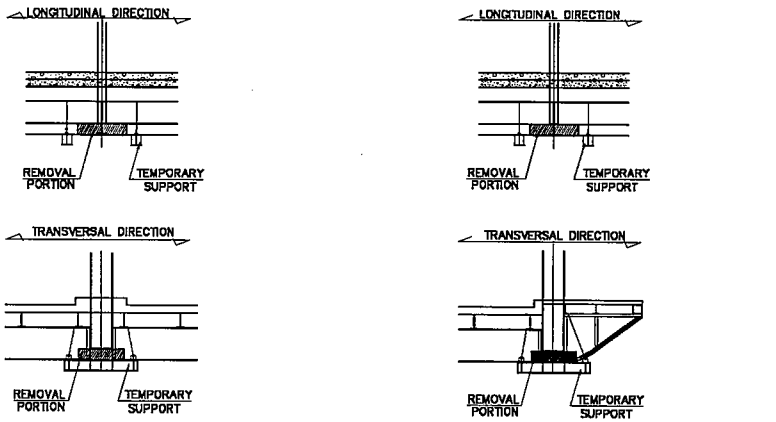
* TWO PARTIES INSTALL SIMULTANEOUSLY

STEP ④REMOVAL OF SCAFFOLDING



* TWO PARTIES INSTALL SIMULTANEOUSLY

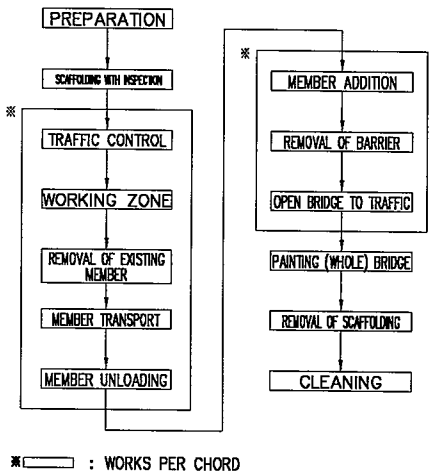
B. SECTION REPLACEMENT AND TEMPORARY SUPPORT



B1 INTERIOR TRUSS DETAIL ②

B2 EXTERIOR TRUSS DETAIL ① & ③

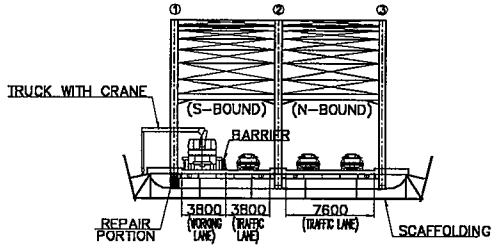
C. CONSTRUCTION FLOW



※□ : WORKS PER CHORD

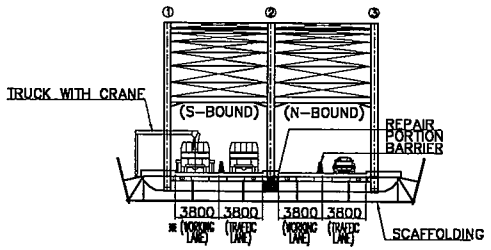
CONSTRUCTION SEQUENCE FOR QUEZON BRIDGE REHABILITATION (2/2)

D. TRAFFIC MANAGEMENT DURING CONSTRUCTION



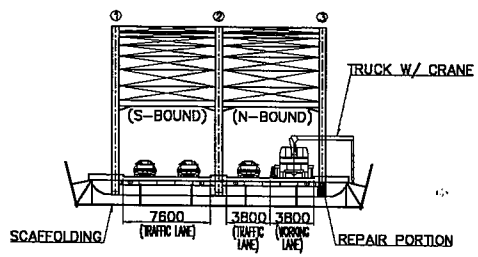
- DURING CHORD CONSTRUCTION, USE ONE LANE OF SOUTH BOUND FOR CONSTRUCTION WORK
- OPEN TWO LANES OF TRAFFIC AT NORTH BOUND

D1 TRUSS CHORD ① CONSTRUCTION



- DURING CHORD ② CONSTRUCTION, USE ② LANES OF NORTH BOUND AND SOUTH BOUND TOGETHER WITH LEFT SIDEWALK TEMPORARILY. WHEN SIDEWALK IS USED FOR LOADING/UNLOADING AT THIS STAGE, ONLY ONE LANE IS OPEN FOR TRAFFIC.
- BASICALLY ONE LANE FOR EACH DIRECTION IS OPEN TO TRAFFIC (SIDEWALK SIDE).

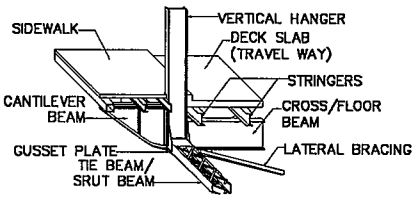
D2 TRUSS CHORD ② CONSTRUCTION



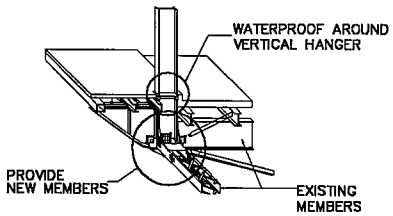
- AT CHORD ① CONSTRUCTION, USE OUTSIDE 1 LANE OF NORTH BOUND CONSTRUCTION.
- OPEN TWO LANES OF TRAFFIC AT SOUTH BOUND.

D3 TRUSS CHORD ③ CONSTRUCTION

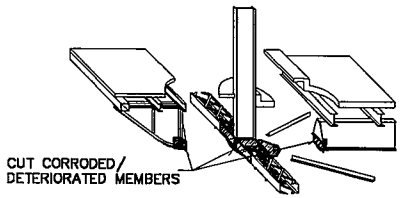
E. DETAILS OF REPAIR WORKS



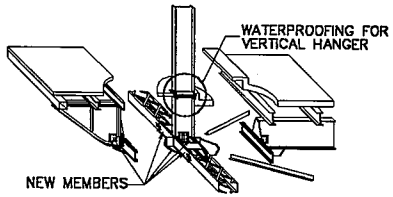
E1 PRESENT CONDITION



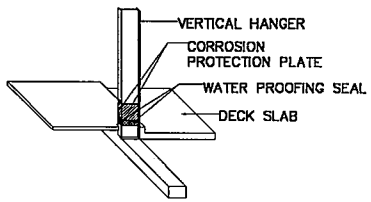
E2 CONDITION AFTER REPAIR



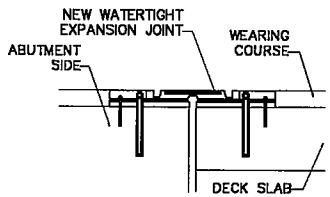
E3 CUTTING OF DETERIORATED MEMBER/PARTS



E4 REPLACEMENT OF NEW MEMBER

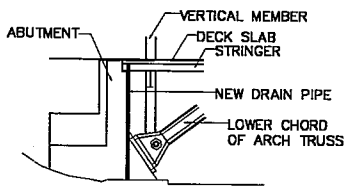


E5 VERTICAL HANGER WATER PROOFING



PROVIDE WATERPROOF AT EXPANSION JOINT

E6 EXPANSION JOINT DETAILS



PREVENT WATER LEAKAGE TO THE ARCH SUPPORT

E7 PROVISION OF NEW DRAIN PIPE

Construction Cost for Rehabilitation of Quezon Bridge

Description	Unit	Quantity	Unit Price	Cost	Components		
					Foreign	Local	Taxes
A. Steel Structures (Fabricate & Transport)							
Steel I Girder	kgs	24,217.00	150.00	3,632,550.00	2,688,087.00	399,580.50	544,882.50
B. Scaffoldings/Temporary Works							
Scaffoldings/Temporary Works	sq. m.	2,625.00	1,200.00	3,150,000.00	2,142,000.00	567,000.00	441,000.00
C. Siteworks							
Bridge Survey at Site	days	120.00	83,000.00	9,960,000.00	7,370,400.00	1,095,600.00	1,494,000.00
Removal of Existing Member	place	45.00	200,000.00	9,000,000.00	6,660,000.00	990,000.00	1,350,000.00
Installation	place	45.00	134,000.00	6,030,000.00	4,462,200.00	663,300.00	904,500.00
Section Repair	place	180.00	50,000.00	9,000,000.00	6,660,000.00	990,000.00	1,350,000.00
Painting Works	sq. m.	8,820.00	4,020.00	35,456,400.00	26,237,736.00	3,900,204.00	5,318,460.00
Expansion Joint	l.m.	58.75	130,000.00	7,637,500.00	5,651,750.00	840,125.00	1,145,625.00
Expansion Joint Drain Pipe	l.m.	65.00	950.00	61,750.00	45,695.00	6,792.50	9,262.50
Epoxy Injection	l.s.	1.00	1,250,000.00	1,250,000.00	925,000.00	137,500.00	187,500.00
			Sub-total	78,395,650.00	58,012,781.00	8,623,521.50	11,759,347.50
D. Total Direct cost				85,178,200.00	62,842,868.00	9,590,102.00	12,745,230.00
E. Indirect Cost							
Traffic Management							
Temporary Facilities							
Mobilization/Demobilization							
40% of Total Direct Cost				34,071,280.00	25,137,147.20	3,836,040.80	5,098,092.00
F. Total Construction Cost				**119,249,480.00**	**87,980,015.20**	**13,426,142.80**	**17,843,322.00**

Roadway Improvement Cost (Quezon Bridge)

Item No.	Description	Unit	Quantity	Unit Cost	Amount	Component		
						Foreign	Local	Tax
	Earthworks							
101(3)a	Removal of Island	m^3	42.80	114.15	4,885.49	3,175.57	1,025.95	683.97
	Miscellaneous							
	Concrete Median	m^2	506.00	272.93	138,103.59	89,767.33	29,001.75	19,334.50
600(1)	Concrete Curb	l.m.	170.00	562.46	95,618.71	62,152.16	20,079.93	13,386.62
612(1)	Pavement Markings	m^2	146.00	862.13	125,870.25	81,815.66	26,432.75	17,621.84
	Contingencies	l.s.	1.00	18,223.90	18,223.90	13,667.93	2,733.59	1,822.39
				Total	**382,701.95**	**250,578.65**	**79,273.97**	**52,849.32**
				% Component	**100%**	**65%**	**21%**	**14%**