

Pipe ID Number	CRITICAL HYDRAULIC POINT		Incremental Drainage Calculation										Design Storm (Year)	System Intensity (in/hr)	Total Hydraulic Slope (ft/ft)	Section Size (in)	Velocity Coefficient (K)	Velocity (ft/s)	Flow Time (min)	Downstream System Flow Time (min)	Remarks
	Upstream Node (Station)	Downstream Node (Station)	Length (ft)	Upstream Inlet Area (acres)	Upstream Inlet Coefficient	Upstream Inlet CA (acres)	System CA (acres)	Upstream System Flow Time (min)	Design Storm (Year)	System Intensity (in/hr)	Total Hydraulic Slope (ft/ft)	Section Size (in)									
A1	Line A1 Sta 0+77.18	Outfall A1	13.28	N/A	N/A	N/A	24.40	100	9.51	234.66	0.00822	6.00	10.71	0.2	0.38	0.02	11.83				
A2	Line A1 Sta 0+145.00	Line A1 Sta 0+77.18	67.82	N/A	N/A	N/A	23.35	117.8	100	9.52	223.92	0.02198	6.00	10.22	0.2	0.14	11.83				
A3	MHI Line A1 Sta 2+43.00	Line A1 Sta 0+145.00	94.5	N/A	N/A	N/A	22.42	116.8	100	9.53	225.37	0.00826	6.00	10.41	0.5	0.84	11.83				
A4	Line A1 Sta 4+86.37	MHI Line A1 Sta 2+43.00	219.87	N/A	N/A	N/A	19.39	11.4	100	9.58	188.11	0.02199	5.40	10.47	0.2	0.34	11.83				
A5	MHI Line A1 Sta 7+42.40	Line A1 Sta 4+86.37	342.95	N/A	N/A	N/A	17.63	11.2	100	9.61	180.78	0.02281	5.40	9.9	0.5	0.78	11.83				
A6	MHI Line A1 Sta 9+94.07	MHI Line A1 Sta 7+42.40	237.11	N/A	N/A	N/A	17.63	10.95	100	9.65	179.94	0.02286	5.40	9.36	0.5	0.68	11.83				
A7	MHI Line A1 Sta 11+45.99	Line A1 Sta 9+94.07	192.39	0.4	0.4	0.4	16.82	10.2	100	9.8	174.4	0.02471	5.40	8.7	0.2	0.29	10.52				
A8	Line A2 Sta 0+02.89	Line A1 Sta 11+45.99	117.5	N/A	N/A	N/A	11.4	12.4	100	9.42	10.85	0.023	24.00	3.46	0.3	0.06	10.4				
A9	MHI Line A1 Sta 0+48.12	Line A1 Sta 0+02.89	87.67	0.47	0.9	0.42	11.13	10.2	100	9.77	11.02	0.0112	18.00	6.27	0.26	0.15	10.26				
A10	MHI Line A1 Sta 1+48.84	MHI Line A1 Sta 0+48.12	57.5	0.56	0.9	0.5	10.11	10	100	9.78	8.92	0.01341	18.00	3.92	0.5	0.12	10.4				
A11	MHI Line A1 Sta 1+48.84	MHI Line A1 Sta 1+48.84	0	0.22	0.2	0.2	10	10	100	9.8	1.96	-0.00228	18.00	1.16	1.25	0.03	0.47	10.35			
A12	MHI Line A1 Sta 1+48.84	MHI Line A1 Sta 1+48.84	0	0.22	0.2	0.2	10	10	100	9.8	1.96	-0.00228	18.00	1.16	1.25	0.03	0.47	10.35			
A13	MHI Line A1 Sta 1+48.84	MHI Line A1 Sta 1+48.84	0	0.22	0.2	0.2	10	10	100	9.8	1.96	-0.00228	18.00	1.16	1.25	0.03	0.47	10.35			
A14	Line A2 Sta 0+91.18	MHI Line A1 Sta 2+43.00	87.86	N/A	N/A	N/A	11.4	11.3	100	9.59	30.37	0.02542	30.00	6.19	0.5	0.24	11.83				
A15	Line A2 Sta 2+22.26	Line A2 Sta 0+91.18	131.1	N/A	N/A	N/A	3.14	11.89	100	9.65	30.47	0.02542	30.00	6.27	0.2	0.12	10.5				
A16	MHI Line A1 Sta 2+43.00	Line A2 Sta 2+22.26	124.47	0.31	0.3	0.3	3.28	10	100	9.8	2.76	0.02343	18.00	1.58	1.25	0.05	0.13	10.13			
A17	Line A2 Sta 3+46.44	Line A2 Sta 2+22.26	164.18	N/A	N/A	N/A	2.98	10.82	100	9.87	27.88	0.02292	30.00	5.58	0.5	0.25	11.40				
A18	Line A2 Sta 4+27.18	Line A2 Sta 3+46.44	40.65	N/A	N/A	N/A	2.98	10.78	100	9.88	27.92	0.02292	30.00	5.65	0.5	0.28	11.1				
A19	Line A2 Sta 4+27.18	Line A2 Sta 4+27.18	0	0.63	N/A	N/A	2.91	10.71	100	9.89	19.6	-0.00763	30.00	4.25	0.5	0.14	11.2				
A20	Line A2 Sta 4+83.32	Line A2 Sta 4+27.18	6.63	N/A	N/A	N/A	1.5	10.7	100	9.89	14.66	-0.00481	30.00	3.84	0.5	0.11	10.8				
A21	Line A2 Sta 4+83.32	Line A2 Sta 4+83.32	116.84	N/A	N/A	N/A	1.5	10.45	100	9.73	14.74	0.03322	24.00	8.02	0.6	0.60	10.25				
A22	Line A2 Sta 4+83.32	Line A2 Sta 4+83.32	5	N/A	N/A	N/A	0.93	10.44	100	9.73	0.9	-0.00312	24.00	3.1	0.25	0.04	10.2				
A23	Line A2 Sta 7+33.81	Line A2 Sta 4+83.32	145.82	N/A	N/A	N/A	0.68	10.19	100	9.77	9.13	0.02328	18.00	5.43	0.6	0.27	10.4				
A24	Line A2 Sta 7+33.81	Line A2 Sta 7+33.81	3.37	N/A	N/A	N/A	0.62	10.17	100	9.77	6.12	0.00641	18.00	3.46	0.5	0.09	10.4				
A25	MHI Line A1 Sta 7+42.40	Line A2 Sta 7+33.81	75.58	0.25	0.3	0.31	3.62	10.22	100	9.8	8.15	0.01491	18.00	3.5	0.5	0.25	10.32				
A26	MHI Line A1 Sta 7+42.40	MHI Line A1 Sta 7+42.40	7	0.35	0.3	0.31	3.62	10	100	9.8	3.07	-0.00725	18.00	1.58	1.25	0.08	10.26				
A27	MHI Line A1 Sta 7+42.40	MHI Line A1 Sta 7+42.40	7	0.48	0.3	0.48	0.48	10	100	9.8	4.22	0.01164	18.00	2.38	1.25	0.11	10.5				
A28	Sta 0+00.00	Line A2 Sta 7+33.81	9.4	N/A	N/A	N/A	0.58	10.86	100	9.79	5.68	0.04428	18.00	6.74	0.6	0.42	10.12				
A29	MHI Line A1 Sta 0+00.00	Line A2 Sta 7+33.81	82.1	0.54	0.3	0.54	0.1	10	100	9.8	3.02	0.01118	18.00	1.71	1.25	0.6	0.82	10.81			
A30	MHI Line A1 Sta 0+00.00	Line A1 Sta 4+83.32	10.07	1.83	0.3	1.65	1.05	10	100	9.8	16.27	0.12047	18.00	12.19	1.25	2.88	0.01	10.02			
A31	MHI Line A1 Sta 1+48.84	MHI Line A1 Sta 7+42.40	142.75	0.06	0.3	0.05	0.05	10	100	9.8	0.33	0.00006	18.00	0.3	1.25	0.00	7.33	10.85			
A32	Line A3 Sta 0+25.57	MHI Line A1 Sta 7+42.40	25.97	N/A	N/A	N/A	0.76	10.76	100	9.68	7.29	0.00198	24.00	2.32	0.5	0.04	11.9				
A33	MHI Line A1 Sta 1+48.84	Line A3 Sta 0+25.57	107.65	0.83	0.3	0.75	0.75	10	100	9.8	7.38	0.00184	24.00	2.35	1.25	0.11	10.76				
A34	MHI Line A1 Sta 1+48.84	Sta 0+00.00	4	0.02	0.0	0.02	0.0	10	100	9.8	0.18	0.00003	18.00	0.1	1.25	0.00	10.76				
A35	Sta 0+00.00	Line A4 Sta 0+00.00	7.03	N/A	N/A	N/A	0.02	10.98	100	9.8	0.02	0.00000	18.00	0.1	1.25	0.00	11.34				
A36	Line A4 Sta 0+00.00	Line A4 Sta 0+00.00	4.5	N/A	N/A	N/A	1.14	12.18	100	9.45	10.69	0.02277	24.00	3.47	0.2	0.04	11.2				
A37	MHI Line A1 Sta 0+00.00	Sta 0+00.00	15.61	0.27	0.3	0.24	0.24	10	100	9.8	2.4	0.01363	18.00	1.65	1.25	0.06	10.18				
A38	MHI Line A1 Sta 0+00.00	Sta 0+00.00	10	0.37	0.3	0.33	0.33	10	100	9.8	3.29	0.00727	18.00	3.31	1.25	0.21	0.05	10.16			
A39	Sta 0+00.00	Sta 0+00.00	23.57	N/A	N/A	N/A	0.33	10.02	100	9.8	3.29	0.00192	18.00	2.26	0.5	0.04	11.7				
A40	Sta 0+00.00	Sta 0+00.00	71.7	N/A	N/A	N/A	0.5	10.14	100	9.78	4.97	0.03123	18.00	5.76	0.5	0.26	10.16				
A41	MHI Line A1 Sta 0+00.00	Sta 0+00.00	57.14	0.56	0.3	0.5	0.5	10	100	9.8	4.98	0.01915	18.00	3.84	1.25	0.29	0.25	10.25			
A42	MHI Line A1 Sta 0+00.00	Sta 0+00.00	195.82	N/A	N/A	N/A	54.97	12.7	100	9.37	598.01	0.02640	84.00	13.83	0.5	1.51	8.13	13.82			
B1	MHI Line A1 Sta 1+48.84	Line B1 Sta 1+48.84	233.53	N/A	N/A	N/A	40.55	12.7	100	9.46	421.96	0.02727	84.00	6.01	0.5	2.08	10.8				
B2	Line B1 Sta 1+48.84	Line B1 Sta 1+48.84	18.13	N/A	N/A	N/A	41.07	11.2	100	9.59	426.82	0.03190	78.00	13.48	0.2	0.27	11.83				
B3	Line B1 Sta 2+43.00	Line B1 Sta 1+48.84	42.41	N/A	N/A	N/A	42.58	11.2	100	9.59	426.82	0.03190	78.00	12.53	0.5	0.9	11.83				
B4	Line B1 Sta 3+46.44	Line B1 Sta 2+43.00	83.12	N/A	N/A	N/A	42.58	11.2	100	9.61	428.23	0.03204	78.00	12.54	0.2	0.48	11.23				
B5	Line B1 Sta 4+27.18	Line B1 Sta 3+46.44	145.16	N/A	N/A	N/A	42.58	11.09	100	9.63	432.23	0.03244	78.00	12.45	0.2	0.48	11.11				
B6	Line B1 Sta 7+42.40	Line B1 Sta 4+27.18	34.48	N/A	N/A	N/A	41.13	11.06	100	9.63	398.29	0.03077	78.00	12.03	0.2	0.45	10.5				
B7	Line B1 Sta 7+42.40	Line B1 Sta 7+42.40	37.58	N/A	N/A	N/A	40.84	11.03	100	9.64	398.63	0.03083	78.00	11.95	0.2	0.44	10.5				
B8	MHI Line A1 Sta 7+42.40	Line B1 Sta 7+42.40	79.78	N/A	N/A	N/A	40.48	11.07	100	9.64	393.5	-0.00023	78.00	11.66	0.5	1.09	11.1				
B9	CP2 MHI Line A1 Sta 7+42.40	Line B1 Sta 7+42.40	23.1	36.6	0.9	36.64	35.64	10	100	9.8	322.07	0.04611	78.00	10.81	0.5	0.87	10.4				
B10	Line B4 Sta 0+00.00	Line B1 Sta 7+42.40	6.42	N/A	N/A	N/A	6.42	12.82	100	9.38	61.08	0.00368	40.00	6.31	0.2	0.12	10.27				
B11	Line B4 Sta 0+00.00	Line B1 Sta 0+00.00	103.48	N/A	N/A	N/A	5.51	12.29	100	9.40	52.38	0.0071	42.00	5.44	0.2	0.29	10.3				
B12	MHI Line A1 Sta 0+00.00	Line B4 Sta 0+00.00	9	0.8	0.9	0.72	0.72	10	100	9.8	1.11	0.00271	18.00	4.07	1.25	0.44	10.84				
B13	Line B4 Sta 2+43.00	Line B4 Sta 0+00.00	102.11	N/A	N/A	N/A	4.07	11.83	100	9.5	38.95	0.0304	30.00	5.51	0.5	0.24	10.23				
B14	MHI Line A1 Sta 0+00.00	Line B4 Sta 2+43.00	122.1	N/A	N/A	N/A	4.07	11.83	100	9.5	38.95	0.0304	30.00	5.51	0.5	0.24	10.23				