

COMPUTATION SHEET
HYDRAULIC COMPUTATIONS FOR STORM DRAINS

STORM DRAIN HYDRAULIC CALCULATIONS TABLE

FROM	TO	PIPE LENGTH	DRAINAGE AREA		RUNOFF COEFF.	INCR. MENTAL	TOTAL	TIME OF CONCENTRATION				5-YEAR INTENSITY	100-YEAR INTENSITY	Q5 RUNOFF (CFS)	Q100 RUNOFF (CFS)	INLET BYPASS (CFS)	PIPE Q (CFS)	PIPE SIZE (IN)	n	Sf (FT/FT)	HEADLOSS CALCULATIONS										DESIGN HGL	INVERT ELEV. FROM	TO	T/C ELEV.	COMMENTS	
			NO.	AREA				INLET (MIN.)	TRAVEL (MIN.)	TOTAL (MIN.)	INTENSITY (IN/HR)										INTENSITY (IN/HR)	Q5 RUNOFF (CFS)	Q100 RUNOFF (CFS)	V1 (IN)	V2 (OUT)	V1^2/2g (FT)	V2^2/2g (FT)	Kj	Kv1^2/2G (FT)	Hk						DS Elev.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34			
LINE 1																																				
8+63.55	8+66.82	33.27	P1-A	0.083	0.083	0.90	0.073	0.073	10.00	0.00	10.00	6.10	9.80	0.44	0.71	0.00	0.71	12	0.010	0.0150	485.60	486.10	0.00	11.91	0.00	2.20	1.25	0.00	2.20	488.30	485.47	485.97	481.52	CURB INLET		
8+27.79	8+63.55	35.76	P1-B	0.025	0.106	0.90	0.023	0.095	10.00	0.05	10.05	6.09	9.79	0.58	0.93	0.00	0.93	12	0.010	0.0150	485.09	485.63	11.91	11.52	2.20	2.06	0.10	0.22	1.84	485.60	484.93	485.47	490.57	CURB INLET		
7+97.75	8+27.79	30.04	P2	0.112	0.218	0.90	0.101	0.196	10.00	0.10	10.10	6.09	9.78	1.19	1.92	0.00	1.92	12	0.010	0.0150	484.82	485.27	11.52	8.15	2.06	1.03	0.75	1.55	0.10	0.22	1.84	485.09	484.48	484.93	487.55	60" WYE 1L
7+56.36	7+97.75	41.39	PHARM DRAIN	0.076	0.238	0.90	0.076	0.244	10.00	0.16	10.16	6.09	9.78	1.20	2.09	0.00	2.09	12	0.010	0.0150	484.79	484.85	8.15	7.92	0.03	0.98	0.75	1.25	0.10	0.22	1.84	484.82	483.98	484.48	481.08	60" WYE 1L
7+55.36	7+60.36	5.00	P3	0.070	0.308	0.90	0.063	0.277	10.00	0.24	10.24	6.07	9.76	1.68	2.71	0.00	2.71	12	0.010	0.0150	484.33	484.40	7.92	7.26	0.98	0.82	0.75	0.73	0.10	0.22	1.84	484.29	483.85	483.92	487.35	60" WYE 1J
7+18.88	7+55.36	36.48	3		0.308	0.90		0.277	10.00	0.25	10.25	6.07	9.76	1.68	2.71	0.00	2.71	15	0.013	0.0200	483.24	483.97	7.26	8.74	0.82	1.19	0.10	0.08	1.10	484.33	482.87	483.60	489.00	PIPE SIZE CHANGE		
6+25.39	7+18.88	93.49			0.308	0.90		0.277	10.00	0.32	10.32	6.06	9.75	1.68	2.70	0.00	2.70	15	0.013	0.0200	481.37	483.24	8.74	8.73	1.19	1.18	0.25	0.30	0.30	483.24	481.00	482.87	488.00	30" BEND		
6+20.39	6+25.39	5.00			0.308	0.90		0.277	10.00	0.50	10.50	6.04	9.72	1.67	2.69	0.00	2.69	24	0.013	0.0073	480.49	480.53	8.73	9.79	1.18	1.49	0.10	0.12	1.37	481.37	480.21	480.25	487.21	PIPE SIZE CHANGE		
5+60.54	6+20.39	59.85		P4, P5	1.393	1.701	0.90	1.254	1.531	10.00	0.51	10.51	6.04	9.72	9.25	14.88	0.00	14.88	24	0.013	0.0073	481.31	481.75	9.79	5.73	1.49	0.51	0.75	1.12	0.10	0.22	1.84	480.49	479.77	480.21	486.95
4+78.17	5+60.54	82.37	P6	0.106	1.807	0.90	0.095	1.626	10.00	0.68	10.68	6.02	9.69	9.79	15.76	0.00	15.76	24	0.013	0.0073	480.80	481.40	5.73	5.72	0.51	0.51	0.75	0.38	0.12	481.31	479.17	479.77	486.95	60" WYE 1H		
4+36.39	4+78.17	41.78	P10 * 3/16	0.400	2.207	0.90	0.360	1.986	10.00	0.92	10.92	5.99	9.65	11.90	19.17	0.00	19.17	24	0.013	0.0073	480.85	481.15	5.72	6.11	0.51	0.58	0.75	0.38	0.20	480.80	478.87	479.17	488.00	60" WYE 1G		
3+69.67	4+36.39	66.72	P7	0.130	2.337	0.90	0.117	2.103	10.00	1.03	11.03	5.98	9.63	12.57	20.26	0.00	20.26	24	0.013	0.0080	480.78	481.32	6.11	6.45	0.58	0.65	0.75	0.44	0.21	480.85	478.38	478.87	486.95	60" WYE 1F		
3+28.97	3+69.67	40.70	P10 * 3/16	0.400	2.737	0.90	0.360	2.463	10.00	1.21	11.21	5.96	9.61	14.67	23.66	0.00	23.66	24	0.013	0.0109	479.94	480.39	6.45	7.53	0.65	0.88	0.75	0.48	0.40	480.78	478.09	478.38	487.00	60" WYE 1E		
3+12.48	3+28.97	16.49	P8	0.087	2.824	0.90	0.078	2.541	10.00	1.30	11.30	5.94	9.59	15.11	24.38	0.00	24.38	24	0.013	0.0116	479.48	479.67	7.53	7.76	0.88	0.94	0.75	0.66	0.27	479.94	477.97	478.09	486.95	60" WYE 1D		
2+72.40	3+12.48	40.08			2.824	0.90		2.541	10.00	1.33	11.33	5.94	9.59	15.10	24.36	0.00	24.36	24	0.013	0.0271	479.18	479.28	7.76	11.27	0.94	1.97	1.00	0.09	0.20	479.48	476.88	477.97	486.95	PIPE SLOPE CHANGE		
2+25.13	2+72.40	47.27	P10 * 3/16	0.400	3.224	0.90	0.360	2.901	10.00	1.39	11.39	5.93	9.58	17.21	27.79	0.00	27.79	24	0.013	0.0271	477.09	478.37	11.27	11.00	1.97	1.88	0.75	1.48	0.40	478.19	475.60	476.88	488.00	60" WYE 1C		
2+18.53	2+25.13	6.60	P10 * 3/16	0.400	3.624	0.90	0.360	3.261	10.00	1.46	11.46	5.92	9.57	19.32	31.20	0.00	31.20	24	0.013	0.0271	477.10	477.28	11.00	11.07	1.88	1.91	0.75	1.41	0.50	477.09	475.42	475.60	486.95	60" WYE 1B		
0+43.53	2+18.53	175.00	P9	0.130	3.754	0.90	0.117	3.378	10.00	1.47	11.47	5.92	9.56	20.01	32.31	0.00	32.31	24	0.013	0.0271	473.17	477.16	11.07	11.14	1.91	1.93	0.75	1.43	0.50	477.10	470.69	475.42	486.95	60" WYE 1A		
0+22.87	0+43.53	20.66			3.754	0.90		3.378	10.00	1.74	11.74	5.89	9.52	19.90	32.17	0.00	32.17	27	0.013	0.0108	472.54	472.72	11.14	8.09	1.93	1.02	0.10	0.19	0.82	473.17	470.23	470.44	485.00	PIPE SIZE CHANGE		
0+00.00	0+22.87	22.87			3.754	0.90		3.378	10.00	1.78	11.78	5.89	9.52	19.89	32.15	0.00	32.15	27	0.013	0.0108	472.04	472.29	8.09	8.09	1.02	1.02	0.25	0.25	0.25	472.54	470.00	470.23	473.53	30" BEND		
LINE 2																																				
LAT 1A	0+00.00	0+05.77	5.77	P9	0.130	0.130	0.90	0.117	0.117	10.00	0.00	10.00	6.10	9.80	0.71	1.15	0.00	1.15	15	0.013	0.0200	477.16	477.16	0.00	12.23	0.00	2.32	1.25	0.00	2.32	479.48	475.80	475.91	486.95	CURB INLET	
LAT 1B	0+00.00	0+17.60	17.60	P10 * 3/16	0.400	0.400	0.90	0.360	0.360	10.00	0.00	10.00	6.10	9.80	2.20	3.53	0.00	3.53	12	0.010	0.0380	477.28	477.37	0.00	12.44	0.00	2.40	1.25	0.00	3.01	480.37	476.10	476.77	488.00	ROOF DRAIN	
LAT 1C	0+00.00	0+16.77	16.77	P10 * 3/16	0.400	0.400	0.90	0.360	0.360	10.00	0.00	10.00	6.10	9.80	2.20	3.53	0.00	3.53	12	0.010	0.0380	478.37	478.46	0.00	12.44	0.00	2.40	1.25	0.00	3.01	481.46	477.38	478.02	488.00	ROOF DRAIN	
LAT 1D	0+00.00	0+05.77	5.77	P8	0.087	0.087	0.90	0.078	0.078	10.00	0.00	10.00	6.10	9.80	0.48	0.77	0.00	0.77	15	0.013	0.0125	479.67	479.67	0.00	10.45	0.00	1.70	1.25	0.00	1.70	481.36	478.46	478.53	486.95	CURB INLET	
LAT 1E	0+00.00	0+11.18	11.18	P10 * 3/16	0.400	0.400	0.90	0.360	0.360	10.00	0.00	10.00	6.10	9.80	2.20	3.53	0.00	3.53	12	0.010	0.0058	480.39	480.45	0.00	4.49	0.00	0.31	1.25	0.00	0.39	480.84	478.88	479.44	486.95	ROOF DRAIN	
LAT 1F	0+00.00	0+05.77	5.77	P7	0.130	0.130	0.90	0.117	0.117	10.00	0.00	10.00	6.10	9.80	0.71	1.15	0.00	1.15	8	0.010	0.0053	481.32	481.35	0.00	3.28	0.00	0.17	1.25	0.00	0.17	481.52	479.54	480.08	486.95	CURB INLET	
LAT 1G	0+00.00	0+15.96	15.96	P10 * 3/16	0.400	0.400	0.90	0.360	0.360	10.00	0.00	10.00	6.10	9.80	2.20	3.53	0.00	3.53	12	0.010	0.0380	481.15	481.24	0.00	12.44	0.00	2.40	1.25	0.00	3.01	484.24	479.67	480.28	488.00	ROOF DRAIN	
LAT 1H	0+00.00	0+05.77	5.77	P6	0.106	0.106	0.90	0.095	0.095	10.00	0.00	10.00	6.10	9.80	0.58	0.93	0.00	0.93	8	0.010	0.0035	481.40	481.42	0.00	2.68	0.00	0.11	1.25	0.00	0.11	481.53	480.44	480.74	486.95	CURB INLET	
LAT 1I	0+23.08	0+99.60	76.52	P5	0.638	0.638	0.90	0.574	0.574	10.00	0.00	10.00	6.10	9.80	3.50	5.63	0.00	5.63	18	0.013	0.0125	482.22	482.67	0.00	6.71	0.00	0.70	1.25	0.00	0.87	483.54	481.00	481.95	500.45	DROP INLET	
0+05.00	0+23.08	18.08	P4	0.755	1.393	0.90	0.680	1.254	10.00	0.19	10.19	6.0																								