

COMPUTATION SHEET
HYDRAULIC COMPUTATIONS FOR STORM DRAINS

STORM DRAIN HYDRAULIC CALCULATIONS TABLE

FROM	TO	PIPE LENGTH feet	DRAINAGE AREA		RUNOFF COEFF.	INCRE. METAL "CA"	TOTAL "CA"	TIME OF CONCENTRATION			5-YEAR INTENSITY (IN/HR)	100-YEAR INTENSITY (IN/HR)	Q5 RUNOFF (CFS)	Q100 RUNOFF (CFS)	INLET BYPASS (CFS)	Q PIPE (CFS)	PIPE SIZE (IN)	n	Sf (FT/FT)	HGL		HEADLOSS CALCULATIONS							DESIGN HGL ELEV.	INVERT ELEV.		T/C ELEV.	COMMENTS		
			INCREMENTAL NO.	AREA				INLET (MIN)	TRAVEL (MIN)	TOTAL (MIN)										D/S Elev.	U/S Elev.	V1(N) ft/sec	V2(OUT) ft/sec	V1^2/2g (FT)	V2^2/2g (FT)	Kj	KjV1^2/2G (FT)	Hk (FT)		FROM (FT)	TO (FT)				
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 4																																			
0+75.06	1+55.07	80.01	POND 1		0.000	0.90	0.000	10.00	0.00	10.00	6.10	9.80	-	21.50	0.00	21.50	27	0.013	0.0048	469.99	470.38	0.00	5.41	0.00	0.45	1.25	0.00	0.57	470.95	467.57	468.00	473.00	OUTLET STRUCTURE	1	
0+00.00	0+75.06	75.06			0.000	0.90	0.000	10.00	0.25	10.25	6.07	9.76	-	21.50	0.00	21.50	27	0.013	0.0050	469.47	469.83	5.41	5.43	0.45	0.46	0.35	0.16	0.16	469.99	467.22	467.57	474.00	45° BEND		
LINE 5																																			
1+32.76	1+46.58	13.82	P16-A	0.255	0.255	0.90	0.230	0.230	10.00	0.00	10.00	6.10	9.80	1.40	2.25	0.00	2.25	12	0.010	0.0024	473.97	474.00	0.00	2.86	0.00	0.13	1.25	0.00	0.13	474.13	471.93	471.99	474.74	CURB INLET	
0+92.86	1+32.76	39.90			0.255	0.90	0.230	0.230	10.00	0.08	10.08	6.09	9.79	1.40	2.25	0.00	2.25	12	0.010	0.0024	473.77	473.87	2.86	2.86	0.13	0.13	0.43	0.05	0.10	473.97	471.76	471.93	475.39	60° BEND	
0+87.86	0+92.86	5.00	P16-B	0.133	0.388	0.90	0.120	0.349	10.00	0.31	10.31	6.06	9.75	2.12	3.40	0.00	3.40	15	0.013	0.0028	473.65	473.67	2.86	2.77	0.13	0.12	0.10	0.01	0.11	473.77	471.49	471.51	483.00	PIPE SIZE CHANGE	
0+10.24	0+87.86	77.62			0.388	0.90	0.349	0.349	10.00	0.34	10.34	6.06	9.75	2.12	3.40	0.00	3.40	15	0.013	0.0028	473.34	473.55	2.77	2.77	0.12	0.12	0.75	0.09	0.10	473.65	471.15	471.49	482.71	60° WYE	5A
0+00.00	0+10.24	10.24			0.388	0.90	0.349	0.349	10.00	0.81	10.81	6.00	9.67	2.10	3.38	0.00	3.38	15	0.013	0.0027	473.21	473.24	2.77	2.75	0.12	0.12	0.25	0.03	0.10	473.34	471.10	471.15	482.62	30° BEND	
LAT 5A																																			
0+00.00	0+23.58	23.58	P16-B	0.133	0.133	0.90	0.120	0.120	10.00	0.00	10.00	6.10	9.80	0.73	1.17	0.00	1.17	8	0.010	0.0056	473.55	473.68	0.00	3.36	0.00	0.18	1.25	0.00	0.18	473.86	471.78	472.00	474.32	CURB INLET	
LINE 6																																			
0+38.49	0+97.79	59.30	P24	0.424	0.424	0.90	0.382	0.382	10.00	0.00	10.00	6.10	9.80	2.33	3.74	0.00	3.74	18	0.013	0.0100	478.11	478.18	0.00	6.53	0.00	0.66	1.25	0.00	0.66	478.84	476.86	477.46	483.90	CURB INLET	
0+00.00	0+38.49	38.49			0.424	0.90	0.382	0.382	10.00	0.15	10.15	6.08	9.78	2.32	3.73	0.00	3.73	18	0.013	0.0100	477.97	478.01	6.53	6.51	0.66	0.66	0.35	0.23	0.23	478.11	476.47	476.86	483.03	45° BEND	
LINE 7																																			
0+49.03	0+86.92	37.89	P20	0.535	0.535	0.90	0.482	0.482	10.00	0.00	10.00	6.10	9.80	2.94	4.72	0.00	4.72	18	0.013	0.0020	477.76	477.84	0.00	2.67	0.00	0.11	1.25	0.00	0.11	477.95	473.88	475.13	481.00	CURB INLET	
0+17.18	0+49.03	31.85	P26	1.126	1.661	0.90	1.013	1.495	10.00	0.24	10.24	6.07	9.76	9.08	14.59	0.00	14.59	18	0.013	0.0193	476.17	476.79	2.67	8.26	0.11	1.06	0.75	0.08	0.98	477.76	472.83	473.88	480.05	60° WYE	7B
0+12.18	0+17.18	5.00			1.661	0.90	1.013	1.495	10.00	0.30	10.30	6.06	9.75	9.06	14.58	0.00	14.58	18	0.013	0.0193	475.71	475.80	8.26	8.25	1.06	1.06	0.35	0.37	0.37	476.17	472.66	472.83	480.11	45° BEND	
0+07.18	0+12.18	5.00			1.661	0.90	1.013	1.495	10.00	0.31	10.31	6.06	9.75	9.06	14.58	0.00	14.58	21	0.013	0.0085	475.20	475.24	8.25	6.06	1.06	0.57	0.10	0.11	0.46	475.71	472.25	472.41	480.27	PIPE SIZE CHANGE	
0+05.00	0+07.18	2.18			1.661	0.90	1.013	1.495	10.00	0.32	10.32	6.06	9.75	9.06	14.57	0.00	14.57	21	0.013	0.0085	474.98	475.00	6.06	6.06	0.57	0.57	0.35	0.20	0.20	475.20	472.17	472.25	480.25	45° BEND	
0+00.00	0+05.00	5.00	P27	0.821	2.482	0.90	0.739	2.234	10.00	0.33	10.33	6.06	9.75	13.54	21.77	0.00	21.77	21	0.013	0.0330	473.21	473.49	6.06	11.10	0.57	1.92	0.75	0.43	1.49	474.98	472.01	472.17	480.75	60° WYE	7A
LAT 7A																																			
0+18.49	0+45.66	27.17	P27	0.821	0.821	0.90	0.739	0.739	10.00	0.00	10.00	6.10	9.80	4.51	7.24	0.00	7.24	15	0.013	0.0550	474.10	475.59	0.00	12.43	0.00	2.40	1.25	0.00	2.40	477.99	473.50	474.99	479.75	CURB INLET	
0+00.00	0+18.49	18.49			0.821	0.90	0.739	0.739	10.00	0.04	10.04	6.10	9.79	4.50	7.24	0.00	7.24	15	0.013	0.0550	473.49	474.10	12.43	12.43	2.40	2.40	0.25	0.60	0.60	474.10	742.48	473.50	479.57	30° BEND	
LAT 7B																																			
0+00.00	0+05.77	5.77	P26	1.126	1.126	0.90	1.013	1.013	10.00	0.00	10.00	6.10	9.80	6.18	9.93	0.00	9.93	15	0.013	0.0236	476.79	476.92	0.00	8.09	0.00	1.02	1.25	0.00	1.02	477.94	474.00	474.31	479.75	CURB INLET	
LINE 8																																			
0+14.58	0+20.08	5.50	POND 2	9.333	9.333	0.90	8.400	8.400	10.00	0.00	10.00	6.10	9.80	51.24	82.32	0.00	82.32	54	0.013	0.0074	473.21	473.21	0.00	10.62	0.00	1.75	1.25	0.00	2.19	473.21	466.88	467.00	480.00	CULVERT	2
0+00.00	0+14.58	14.58	OUTLET		9.333	0.90	8.400	8.400	10.00	0.01	10.01	6.10	9.80	-	22.00	0.00	22.00	30	0.013	0.0185	467.56	467.87	10.62	12.41	1.75	2.39	1.25	2.19	2.99	469.07	466.57	466.88	475.00	OUTLET STRUCTURE	2
-1+43.55	0+00.00	143.55			9.333	0.90	8.400	8.400	10.00	0.03	10.03	6.10	9.80	51.21	22.00	0.00	22.00	30	0.013	0.0130	466.00	467.75	12.41	9.70	2.39	1.46	0.10	0.24	0.15	467.56	464.71	466.57	475.00	CONNECT TO EXISTING	
LINE 9																																			
2+71.97	4+07.87	135.90	CVS	1.880	1.880	0.90	1.692	1.692	10.00	0.00	10.00	6.10	9.80	10.32	16.58	0.00	16.58	18	0.013	0.0249	473.50	476.89	0.00	9.38	0.00	1.37	0.50	0.00	0.68	476.89	471.63	473.32	479.37	INLET AT BEGINNING	
2+65.73	2+71.97	6.24			1.880	0.90	1.692	1.692	10.00	0.24	10.24	6.07	9.76	10.27	16.52	0.00	16.52	24	0.013	0.0053	473.21	473.21	9.38	5.26	1.37	0.43	0.10	0.14	0.29	473.50	471.06	471.13	477.32	PIPE SIZE CHANGE	
1+64.54	2+65.73	101.19	QUAIL RUN	2.545	4.425	0.90	2.291	3.983	10.00	0.26	10.26	6.07	9.76	24.17	38.86	0.00	38.86	24	0.013	0.0295	473.21	473.21	5.26	12.37	0.43	2.38	0.75	0.32	2.06	473.21	469.92	471.06	482.38	45° WYE	
1+18.18	1+64.54	46.36			4.425	0.90	2.291	3.983	10.00	0.40	10.40	6.05	9.74	24.10	38.78	0.00	38.78	24	0.013	0.0294	473.21	473.21	12.37	12.34	2.38	2.37	0.35	0.83	0.83	473.21	469.39	469.92	482.38	45° BEND	
0+99.18	1+18.18	19.00			4.425	0.90	2.291	3.983	10.00	0.46	10.46	6.04	9.73	24.07	38.74	0.00	38.74	36	0.013	0.0034	473.21	473.21	12.34	5.48	2.37	0.47	0.10	0.24	0.23	473.21	468.18	468.39	482.38	PIPE SIZE CHANGE	
0+57.61	0+99.18	41.57			4.425	0.90	2.291	3.983	10.00	0.52	10.52	6.04	9.72	24.05	38.70	0.00	38.70	36	0.013	0.0034	473.21	473.21	5.48	5.47	0.47	0.47	0.10	0.05	0.10	473.21	468.07	468.18	482.25	CONNECT TO EXISTING	
LAT 9A																																			
0+50.00	1+51.36	101.36	OFF 18	0.755	0.755	0.90	0.680	0.680	10.00	0.00	10.00	6.10	9.80	4.14	6.66	0.00	6.66	21	0.013	0.0493	473.77	477.99	0.00	20.93	0.00	6.81	1.25	0.00	6.81	477.99	472.67	477.66	482.63	CURB INLET	
0+48.00	0+50.00	2.00			0.755	0.90	0.680	0.680	10.00	0.08	10.08	6.09	9.79	4.																					