

STORM DRAIN CALCULATIONS - 100 YR														HEAD LOSS AT CHANGE IN SECTION										Elev Difference		REMARKS
MH or INLET		DISTANCE	Peak Flow	FRICTIONAL SLOPE	HYDRAULIC GRADIENT		V1	V2	V2/(2)	V1/(2)	Kj	KjV1/(2)	Hj	Elev of	TC/FG - HGL		Elev at Des Pt									
UPSTRM STATION	DNSTRM STATION				Between Points	in Pipe									UPSTRM	DNSTRM		Flow IN	Flow OUT	2g	2g	Coef of Loss	Head Loss Upstream	Hyd Grade	TC/FG	
STATION	STATION	(ft)	(cfs)	(in)	(ft / ft)	(ft MSL)	(ft MSL)	(ft/s)	(ft/s)	(ft)	(ft)	(const)	(ft)	(ft)	(ft)	(ft)	(ft)									
<b>LINE A1</b>																										
1094.53	1094.53	0.00	66	0.0061	566.39	566.39	—	0.00	0.00	—	0.50	—	0.00	566.39	566.80	0.41	EXISTING MANHOLE W / 90° BEND									
1094.53	991.40	103.13	329.3	66	0.0096	566.39	565.40	0.00	13.86	2.98	0.00	0.50	2.98	0.00	566.39	567.70	1.31	90° BEND								
991.40	956.95	34.45	329.3	72	0.0060	563.16	562.95	13.86	11.65	2.11	2.98	0.75	-0.13	2.24	565.40	567.70	2.30	45° WYE								
956.95	920.40	36.55	343.1	72	0.0066	561.90	561.66	11.65	12.13	2.29	2.11	0.50	1.23	1.05	562.95	567.70	4.75	MANHOLE W / 90° BEND								
920.40	603.24	317.16	383.8	72	0.0082	559.94	557.34	12.13	13.57	2.86	2.29	0.75	1.15	1.71	561.66	567.70	6.04	60° WYE								
603.24	515.93	87.31	386.5	72	0.0083	555.91	555.18	13.57	13.67	2.90	2.86	0.50	1.47	1.43	557.34	561.50	4.16	MANHOLE W / 90° BEND								
515.93	483.89	32.04	437.6	72	0.0107	555.18	555.18	13.67	15.48	3.72	2.90	—	3.72	0.00	555.18	561.80	6.62	SUBMERGED 45° WYE								
483.89	351.58	132.31	445.5	72	0.0111	555.18	555.18	15.48	15.76	3.86	3.72	—	3.86	0.00	555.18	562.00	6.82	SUBMERGED MANHOLE								
351.58	329.69	21.89	445.5	66	0.0176	555.18	555.18	15.76	18.75	5.46	3.86	—	5.46	0.00	555.18	562.00	6.82	SUBMERGED 45° BEND								
329.69	322.19	7.50	445.5	66	0.0176	555.18	555.18	18.75	18.75	5.46	5.46	—	5.46	0.00	555.18	562.00	6.82	SUBMERGED 45° BEND								
322.19	305.26	16.93	445.5	66	0.0176	555.18	555.18	18.75	18.75	5.46	5.46	—	5.46	0.00	555.18	562.00	6.82	SUBMERGED OUTLET								
<b>LINE A2</b>																										
385.87	385.87	0.00	18	0.0061	560.34	560.34	—	0.00	0.00	—	—	—	0.00	560.34	567.80	7.46	END & PLUG									
385.87	363.20	22.67	8.2	18	0.0061	560.34	560.21	0.00	4.64	0.33	0.00	0.75	0.33	0.00	560.34	567.60	7.26	60° WYE								
363.20	313.44	49.76	11.1	18	0.0112	560.49	559.93	4.64	6.28	0.61	0.33	0.25	0.53	0.08	560.57	567.60	7.03	60° BEND								
313.44	303.32	10.12	11.1	24	0.0024	559.95	559.93	4.64	3.53	0.19	0.33	0.75	-0.06	0.25	560.21	567.50	7.29	60° WYE								
303.32	55.94	247.38	18.8	24	0.0069	559.88	558.17	3.53	5.98	0.56	0.19	0.25	0.51	0.05	559.93	562.30	2.37	MANHOLE W / 90° BRANCH								
55.94	0.00	55.94	51.1	24	0.0510	558.03	555.18	5.98	16.27	4.11	0.56	0.25	3.97	0.14	558.17	561.50	3.33	MANHOLE W / 90° BRANCH								
<b>LINE A3</b>																										
64.94	64.94	0.00	24	0.0061	559.47	559.47	—	0.00	0.00	—	—	—	0.00	559.47	562.00	2.53	END & PLUG									
64.94	50.77	14.17	12.2	24	0.0029	559.47	559.43	0.00	3.88	0.23	0.00	0.75	0.23	0.00	559.47	561.75	2.28	60° WYE								
50.77	45.90	4.87	17.6	24	0.0061	559.26	559.23	3.88	5.60	0.49	0.23	0.75	0.31	0.18	559.43	561.75	2.32	60° WYE								
45.90	0.00	45.90	32.3	24	0.0204	559.11	558.17	5.60	10.28	1.64	0.49	0.25	1.52	0.12	559.23	562.30	3.07	MANHOLE W / 90° BRANCH								
<b>LINE A4</b>																										
55.00	55.00	0.00	24	0.0061	561.70	561.70	—	0.00	0.00	—	—	—	0.00	561.70	567.50	5.80	END & PLUG									
55.00	0.00	55.00	6.1	24	0.0007	561.70	561.66	0.00	1.94	0.06	0.00	0.25	0.06	0.00	561.70	567.70	6.00	MANHOLE W / 90° BRANCH								
<b>LINE A5</b>																										
81.00	81.00	0.00	24	0.0000	563.58	563.58	—	0.00	0.00	—	—	—	0.00	563.58	570.00	6.42	END & PLUG									
81.00	53.00	28.00	26.9	24	0.0141	563.58	563.18	0.00	8.56	1.14	0.00	0.75	1.14	0.00	563.58	569.30	5.72	60° WYE								
53.00	0.00	53.00	34.6	24	0.0234	562.90	561.66	8.56	11.01	1.88	1.14	0.25	1.60	0.28	563.18	567.70	4.52	MANHOLE W / 90° BRANCH								
<b>LINE B1</b>																										
759.86	759.86	0.00	48	0.0000	567.94	567.94	—	0.00	0.00	—	—	—	0.00	567.94	566.60	-1.34	TEMPORARY EXISTING FLOW									
759.86	741.86	18.00	126.0	48	0.0077	567.94	567.80	0.00	10.03	1.56	0.00	—	1.56	0.00	567.94	568.10	0.16	TEMPORARY EXISTING FLOW								
741.86	673.93	67.93	126.0	48	0.0077	567.80	567.28	10.03	10.03	1.56	1.56	—	1.56	0.00	567.80	568.40	0.60	TEMPORARY EXISTING FLOW								
673.93	644.52	29.41	130.8	54	0.0044	567.28	567.15	10.03	8.22	1.05	1.56	—	1.05	0.00	567.28	568.80	1.52	PIPE SIZE CHANGE								
644.52	635.86	8.66	132.9	54	0.0046	566.36	566.32	8.22	8.36	1.08	1.05	0.75	0.30	0.79	567.15	568.80	1.65	60° WYE								
635.86	548.02	87.84	135.0	54	0.0047	565.51	565.09	8.36	8.49	1.12	1.08	0.75	0.31	0.81	566.32	568.80	2.48	45° WYE								
548.02	467.81	80.21	138.4	54	0.0050	564.25	563.85	8.49	8.70	1.18	1.12	0.75	0.34	0.84	565.09	565.85	0.76	60° WYE								
467.81	459.14	8.67	140.5	54	0.0051	562.97	562.93	8.70	8.83	1.21	1.18	0.75	0.33	0.88	563.85	568.80	4.95	60° WYE								
459.14	354.25	104.89	142.6	54	0.0053	562.02	561.47	8.83	8.97	1.25	1.21	0.75	0.34	0.91	562.93	568.80	5.87	45° WYE								
354.25	145.77	208.48	142.6	54	0.0053	561.16	560.06	8.97	8.97	1.25	1.25	0.25	0.94	0.31	561.47	570.05	8.58	MANHOLE W / 90° BRANCH								
145.77	101.00	44.77	142.6	54	0.0053	554.30	554.30	8.97	8.97	1.25	1.25	0.44	0.70	0.55	554.30	566.00	11.70	MANHOLE (Enlargement)								

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MH or INLET		DISTANCE	Peak Flow	FRICTIONAL SLOPE	HYDRAULIC GRADIENT		V1	V2	V2/(2)	V1/(2)	Kj	KjV1/(2)	Hj	Elev of	TC/FG - HGL		Elev at Des Pt									
UPSTRM STATION	DNSTRM STATION				Between Points	in Pipe									UPSTRM	DNSTRM		Flow IN	Flow OUT	2g	2g	Coef of Loss	Head Loss Upstream	Hyd Grade	TC/FG	
STATION	STATION	(ft)	(cfs)	(in)	(ft / ft)	(ft MSL)	(ft MSL)	(ft/s)	(ft/s)	(ft)	(ft)	(const)	(ft)	(ft)	(ft)	(ft)	(ft)									
<b>LINE B2</b>																										
98.45	98.45	0.00	18	0.0000	560.22	560.22	—	0.00	0.00	—	—	—	0.00	560.22	568.85	8.63	CURB INLET									
98.45	77.09	21.36	1.7	18	0.0003	560.21	560.20	0.00	0.96	0.01	0.00	1.25	0.01	0.02	560.22	568.85	8.63	CURB INLET								
77.09	57.45	19.64	1.7	18	0.0003	560.19	560.18	0.96	0.96	0.01	0.01	0.75	0.00	0.01	560.20	568.90	8.70	60° BEND								
57.45	0.00	57.45	3.4	18	0.0010	560.18	560.12	0.96	1.92	0.06	0.01	0.25	0.05	0.00	560.18	569.25	9.07	60° BEND								
<b>LINE C1</b>																										
166.09	166.09	0.00	18	0.0000	555.57	555.57	—	0.00	0.00	—	—	—	0.00	555.57	566.60	11.03	CURB INLET									
166.09	148.77	17.32	5.1	18	0.0024	555.41	555.37	0.00	2.89	0.13	0.00	1.25	0.13	0.16	555.57	566.60	11.03	CURB INLET								
148.77	142.61	6.16	5.1	18	0.0024	555.32	555.30	2.89	2.89	0.13	0.13	0.43	0.07	0.06	555.37	568.10	12.73	60° BEND								
142.61	113.76	28.85	10.1	18	0.0092	555.20	554.94	2.89	5.72	0.51	0.13	0.75	0.41	0.10	555.30	568.40	13.10	45° WYE								
113.76	69.00	44.76	10.1	18	0.0092	554.71	554.30	5.72	5.72	0.51	0.51	0.44	0.28	0.22	554.94	568.80	13.86	MANHOLE (Enlargement)								
<b>LINE C2</b>																										
106.50	0.00	106.50	5.1	18	0.0024	552.25	552.00	—	2.89	0.13	—	1.25	—	0.16	552.41	552.50	0.09	CURB INLET								
<b>LINE C3</b>																										
97.82	97.82	0.00	42	0.0000	553.27	553.27	—	0.00	0.00	—	—	—	0.00	553.27	553.90	0.63	END & PLUG									
97.82	87.41	10.41	73.3	42	0.0053	553.27	553.22	0.00	7.62	0.90	0.00	—	0.90	0.00	553.27	553.90	0.63	END & PLUG								
87.41	0.00	87.41	79.2	42	0.0062	552.54	552.00	7.62	8.23	1.05	0.90	0.75	0.38	0.68	553.22	553.70	0.48	60° BEND								
<b>LINE D1</b>																										
1068.38	1068.38	0.00	18	0.0000	551.20	551.20	—	0.00	0.00	—	—	—	0.00	551.20	556.05	4.85	END & PLUG									
1068.38	1057.88	10.50	5.6	18	0.0028	551.20	551.17	0.00	3.17	0.16	0.00	—	0.16	0.00	551.20	556.05	4.85	END & PLUG								
1057.88	1026.06	31.82	5.6	18	0.0028	551.11	551.02	3.17																		