


Woods Hardwick		Page 1
15-17 Goldington Road Bedford Bedfordshire MK40 3NH		
Date 17/01/2023 12:04	Designed by a.tew	
File SW PH9 & PH10 west Propo...	Checked by	
XP Solutions	Network 2014.1.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm



Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	2
Site Location GB 450500 225250 SP 50500 25250	
C (1km)	-0.023
D1 (1km)	0.328
D2 (1km)	0.309
D3 (1km)	0.264
E (1km)	0.292
F (1km)	2.461
Maximum Rainfall (mm/hr)	0
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.000
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits


Network Design Table for Storm

# - Indicates pipe length does not match coordinates














PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	9.050	0.650	13.9	0.026	5.00	0.0	0.600	\	-1	
1.001	9.000	0.500	18.0	0.016	0.00	0.0	0.600	\	-1	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	5.01	123.850	0.026	0.0	0.0	0.0	14.05	50669.7	0.0
1.001	0.00	5.02	123.200	0.042	0.0	0.0	0.0	12.36	44557.7	0.0


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Network Design Table for Storm















PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.002	7.527	0.250	30.1	0.024	0.00	0.0	0.600	\/	-1	
1.003	12.654	0.287	44.1	0.000	0.00	0.0	0.600	o	150	
1.004	45.169	0.115	392.8	0.053	0.00	0.0	0.600	o	450	
2.000	24.880	0.130	191.4	0.076	5.00	0.0	0.600	o	375	
2.001	6.893	0.027	255.3	0.000	0.00	0.0	0.600	o	375	
1.005	28.960	0.050	579.2	0.008	0.00	0.0	0.600	o	600	
3.000	25.800	0.112	230.4	0.028	5.00	0.0	0.600	oo	41	
1.006	10.020	0.017	589.4	0.049	0.00	0.0	0.600	o	600	
1.007	21.048	0.156	134.9	0.000	0.00	0.0	0.600	o	150	
1.008	16.030	0.300	53.4	0.000	0.00	0.0	0.600	o	150	
1.009	71.700	0.910	78.8	0.000	0.00	0.0	0.600	o	225	
4.000	21.492	0.116	185.0	0.500	5.00	0.0	0.600	o	225	
4.001	21.492	0.052	413.3	0.000	0.00	0.0	0.600	o	450	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.002	0.00	5.04	122.700	0.066	0.0	0.0	0.0	9.55	34441.1	0.0
1.003	0.00	5.17	122.450	0.066	0.0	0.0	0.0	1.52	26.9	0.0
1.004	0.00	5.91	121.863	0.119	0.0	0.0	0.0	1.02	162.2	0.0
2.000	0.00	5.32	121.980	0.076	0.0	0.0	0.0	1.31	144.3	0.0
2.001	0.00	5.42	121.850	0.076	0.0	0.0	0.0	1.13	124.7	0.0
1.005	0.00	6.39	121.598	0.203	0.0	0.0	0.0	1.00	284.1	0.0
3.000	0.00	5.42	121.660	0.028	0.0	0.0	0.0	1.03	145.2	0.0
1.006	0.00	6.56	121.548	0.280	0.0	0.0	0.0	1.00	281.6	0.0
1.007	0.00	6.97	121.531	0.280	0.0	0.0	0.0	0.86	15.3	0.0
1.008	0.00	7.16	121.375	0.280	0.0	0.0	0.0	1.38	24.4	0.0
1.009	0.00	7.97	121.000	0.280	0.0	0.0	0.0	1.47	58.6	0.0
4.000	0.00	5.37	121.507	0.500	0.0	0.0	0.0	0.96	38.1	0.0
4.001	0.00	5.73	121.391	0.500	0.0	0.0	0.0	0.99	158.0	0.0

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
5.000	8.295	0.322	25.8	0.050	5.00	0.0	0.600	o	150	
4.002	41.345	0.085	486.4	0.000	0.00	0.0	0.600	o	450	
6.000	17.870	0.182	98.2	0.250	5.00	0.0	0.600	o	375	
6.001	19.554	0.200	97.8	0.000	0.00	0.0	0.600	o	375	
6.002	25.372	0.246	103.1	0.000	0.00	0.0	0.600	o	375	
4.003	16.460	0.049	335.9	0.020	0.00	0.0	0.600	o	450	
4.004	27.573	0.085	324.4	0.000	0.00	0.0	0.600	o	450	
4.005	16.074	0.050	321.5	0.000	0.00	0.0	0.600	o	450	
4.006	40.510	0.130	311.6	0.000	0.00	0.0	0.600	o	450	
7.000	66.464	1.600	41.5	0.157	5.00	0.0	0.600	o	300	
7.001	24.115	0.220	109.6	0.198	0.00	0.0	0.600	o	375	
7.002	28.765	0.260	110.6	0.040	0.00	0.0	0.600	o	375	
7.003	7.679#	0.100	76.8	0.040	0.00	0.0	0.600	o	450	
7.004	11.675#	0.060	194.6	0.023	0.00	0.0	0.600	o	450	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
5.000	0.00	5.07	121.961	0.050	0.0	0.0	0.0	1.99	35.2	0.0
4.002	0.00	6.49	121.339	0.550	0.0	0.0	0.0	0.92	145.5	0.0
6.000	0.00	5.16	121.882	0.250	0.0	0.0	0.0	1.83	202.0	0.0
6.001	0.00	5.34	121.700	0.250	0.0	0.0	0.0	1.83	202.4	0.0
6.002	0.00	5.58	121.500	0.250	0.0	0.0	0.0	1.78	197.0	0.0
4.003	0.00	6.74	121.254	0.820	0.0	0.0	0.0	1.10	175.5	0.0
4.004	0.00	7.15	121.205	0.820	0.0	0.0	0.0	1.12	178.6	0.0
4.005	0.00	7.38	121.120	0.820	0.0	0.0	0.0	1.13	179.5	0.0
4.006	0.00	7.97	121.070	0.820	0.0	0.0	0.0	1.15	182.3	0.0
7.000	0.00	5.45	123.780	0.157	0.0	0.0	0.0	2.45	172.9	0.0
7.001	0.00	5.69	122.105	0.355	0.0	0.0	0.0	1.73	191.1	0.0
7.002	0.00	5.96	121.885	0.395	0.0	0.0	0.0	1.72	190.2	0.0
7.003	0.00	6.02	121.550	0.435	0.0	0.0	0.0	2.32	369.3	0.0
7.004	0.00	6.15	121.400	0.458	0.0	0.0	0.0	1.45	231.2	0.0















Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
8.000	32.103	0.340	94.4	0.016	5.00	0.0	0.600	o	300	
8.001	17.305	0.130	133.1	0.097	0.00	0.0	0.600	o	300	
8.002	13.694	0.110	124.5	0.051	0.00	0.0	0.600	o	300	
7.005	9.673#	0.050	193.5	0.032	0.00	0.0	0.600	o	450	
9.000	42.482	0.520	81.7	0.074	5.00	0.0	0.600	o	300	
9.001	43.239	1.200	36.0	0.041	0.00	0.0	0.600	o	375	
9.002	46.307	0.430	107.7	0.166	0.00	0.0	0.600	o	375	
9.003	11.632	0.180	64.6	0.056	0.00	0.0	0.600	o	375	
9.004	36.628	0.190	192.8	0.033	0.00	0.0	0.600	o	450	
9.005	7.190#	0.050	143.8	0.207	0.00	0.0	0.600	o	450	
7.006	3.663	0.030	122.1	0.070	0.00	0.0	0.600	o	450	
10.000	1.000	0.010	100.0	0.131	5.00	0.0	0.600	o	300	
7.007	2.191	0.080	27.4	0.000	0.00	0.0	0.600	o	300	

Network Results Table


PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
8.000	0.00	5.33	122.070	0.016	0.0	0.0	0.0	1.62	114.4	0.0
8.001	0.00	5.54	121.730	0.113	0.0	0.0	0.0	1.36	96.2	0.0
8.002	0.00	5.70	121.600	0.164	0.0	0.0	0.0	1.41	99.5	0.0
7.005	0.00	6.26	121.340	0.654	0.0	0.0	0.0	1.46	231.9	0.0
9.000	0.00	5.41	123.920	0.074	0.0	0.0	0.0	1.74	123.1	0.0
9.001	0.00	5.64	123.325	0.115	0.0	0.0	0.0	3.03	334.3	0.0
9.002	0.00	6.09	122.125	0.281	0.0	0.0	0.0	1.75	192.8	0.0
9.003	0.00	6.17	121.695	0.337	0.0	0.0	0.0	2.26	249.3	0.0
9.004	0.00	6.59	121.440	0.370	0.0	0.0	0.0	1.46	232.3	0.0
9.005	0.00	6.66	121.250	0.577	0.0	0.0	0.0	1.69	269.3	0.0
7.006	0.00	6.69	121.200	1.301	0.0	0.0	0.0	1.84	292.4	0.0
10.000	0.00	5.01	121.280	0.131	0.0	0.0	0.0	1.57	111.1	0.0
7.007	0.00	6.71	121.170	1.432	0.0	0.0	0.0	3.02	213.2	0.0

Network Design Table for Storm














PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
4.007	7.445	0.035	212.7	0.000	0.00	0.0	0.600	o	450	
11.000	17.914	0.241	74.3	0.020	5.00	0.0	0.600	o	100	
11.001	32.522	0.601	54.1	0.022	0.00	0.0	0.600	o	150	
12.000	9.469	0.090	105.2	0.019	5.00	0.0	0.600	o	300	
12.001	2.518#	0.045	56.0	0.000	0.00	0.0	0.600	o	150	
11.002	54.826	0.620	88.4	0.000	0.00	0.0	0.600	o	225	
11.003	43.038	0.315	136.6	0.000	0.00	0.0	0.600	o	300	
4.008	5.470	0.025	218.8	0.000	0.00	0.0	0.600	o	450	
4.009	15.678	0.050	313.6	0.000	0.00	0.0	0.600	o	450	
4.010	10.454	0.040	261.4	0.000	0.00	0.0	0.600	o	450	
4.011	17.440	0.150	116.3	0.000	0.00	0.0	0.600	oo	42	
4.012	36.660	0.120	305.5	0.000	0.00	0.0	0.600	o	525	
4.013	64.888	0.210	309.0	0.000	0.00	0.0	0.600	o	525	
4.014	49.402	0.160	308.8	0.000	0.00	0.0	0.600	o	525	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
4.007	0.00	8.06	120.940	2.252	0.0	0.0	0.0	1.39	221.1	0.0
11.000	0.00	5.33	123.132	0.020	0.0	0.0	0.0	0.89	7.0	0.0
11.001	0.00	5.73	122.891	0.042	0.0	0.0	0.0	1.37	24.2	0.0
12.000	0.00	5.10	122.620	0.019	0.0	0.0	0.0	1.53	108.3	0.0
12.001	0.00	5.13	122.530	0.019	0.0	0.0	0.0	1.35	23.8	0.0
11.002	0.00	6.39	122.215	0.061	0.0	0.0	0.0	1.39	55.3	0.0
11.003	0.00	6.92	121.520	0.061	0.0	0.0	0.0	1.34	95.0	0.0
4.008	0.00	8.13	120.905	2.313	0.0	0.0	0.0	1.37	218.0	0.0
4.009	0.00	8.36	120.780	2.313	0.0	0.0	0.0	1.14	181.7	0.0
4.010	0.00	8.50	120.730	2.313	0.0	0.0	0.0	1.25	199.3	0.0
4.011	0.00	8.67	120.690	2.313	0.0	0.0	0.0	1.68	371.3	0.0
4.012	0.00	9.15	120.540	2.313	0.0	0.0	0.0	1.28	276.3	0.0
4.013	0.00	10.00	120.420	2.313	0.0	0.0	0.0	1.27	274.7	0.0
4.014	0.00	10.65	120.210	2.313	0.0	0.0	0.0	1.27	274.8	0.0


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Network Design Table for Storm













PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
13.000	1.000	0.100	10.0	0.000	5.00	0.0	0.600	o	100	
14.000	30.130	0.690	43.7	0.221	5.00	0.0	0.600	o	300	
14.001	14.283	0.250	57.1	0.048	0.00	0.0	0.600	o	375	
14.002	39.587	0.900	44.0	0.055	0.00	0.0	0.600	o	375	
15.000	58.183	0.265	219.6	0.339	5.00	0.0	0.600	o	450	
14.003	43.381	0.280	154.9	0.137	0.00	0.0	0.600	o	525	
14.004	10.311	0.170	60.7	0.000	0.00	0.0	0.600	o	525	
13.001	61.528	0.170	361.9	0.151	0.00	0.0	0.600	o	750	
16.000	49.643	0.380	130.6	0.098	5.00	0.0	0.600	o	300	
16.001	29.531	0.150	196.9	0.171	0.00	0.0	0.600	o	450	
16.002	56.417	0.325	173.6	0.314	0.00	0.0	0.600	o	525	
16.003	8.196	0.240	34.2	0.107	0.00	0.0	0.600	o	600	
17.000	24.053	0.555	43.3	0.000	5.00	0.0	0.600	o	750	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
13.000	0.00	5.01	120.605	0.000	0.0	0.0	0.0	2.46	19.3	0.0
14.000	0.00	5.21	123.520	0.221	0.0	0.0	0.0	2.39	168.6	0.0
14.001	0.00	5.31	122.755	0.269	0.0	0.0	0.0	2.40	265.2	0.0
14.002	0.00	5.55	122.505	0.324	0.0	0.0	0.0	2.74	302.5	0.0
15.000	0.00	5.71	121.305	0.339	0.0	0.0	0.0	1.37	217.6	0.0
14.003	0.00	6.11	120.965	0.800	0.0	0.0	0.0	1.80	389.0	0.0
14.004	0.00	6.17	120.685	0.800	0.0	0.0	0.0	2.88	623.4	0.0
13.001	0.00	6.87	120.505	0.951	0.0	0.0	0.0	1.47	647.3	0.0
16.000	0.00	5.60	121.730	0.098	0.0	0.0	0.0	1.37	97.1	0.0
16.001	0.00	5.94	121.200	0.269	0.0	0.0	0.0	1.45	229.9	0.0
16.002	0.00	6.50	120.975	0.583	0.0	0.0	0.0	1.70	367.4	0.0
16.003	0.00	6.53	120.575	0.690	0.0	0.0	0.0	4.18	1180.9	0.0
17.000	0.00	5.09	120.890	0.000	0.0	0.0	0.0	4.26	1881.1	0.0


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Network Design Table for Storm













PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
13.002	2.406	0.060	40.1	0.000	0.00	0.0	0.600	o	300	
4.015	36.168	0.120	301.4	0.000	0.00	0.0	0.600	o	525	
18.000	24.393	0.110	221.8	0.020	5.00	0.0	0.600	o	450	
18.001	40.256	0.150	268.4	0.067	0.00	0.0	0.600	o	600	
19.000	13.311	0.925	14.4	0.060	5.00	0.0	0.600	o	225	
18.002	8.528	0.145	58.8	0.000	0.00	0.0	0.600	o	150	
4.016	28.200	0.140	201.4	0.000	0.00	0.0	0.600	o	525	
1.010	50.410	0.120	420.1	0.000	0.00	0.0	0.600	o	525	
1.011	10.500	0.030	350.0	0.000	0.00	0.0	0.600	o	525	
1.012	37.570	0.090	417.4	0.000	0.00	0.0	0.600	o	525	
1.013	9.819	0.032	305.0	0.000	0.00	0.0	0.600	o	525	
1.014	13.878	0.038	365.2	0.000	0.00	0.0	0.600	o	525	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
13.002	0.00	6.89	120.335	1.641	0.0	0.0	0.0	2.49	176.0	0.0
4.015	0.00	11.12	120.050	3.954	0.0	0.0	0.0	1.28	278.2	0.0
18.000	0.00	5.30	120.860	0.020	0.0	0.0	0.0	1.36	216.5	0.0
18.001	0.00	5.75	120.600	0.087	0.0	0.0	0.0	1.48	418.9	0.0
19.000	0.00	5.06	121.375	0.060	0.0	0.0	0.0	3.47	137.9	0.0
18.002	0.00	5.86	120.450	0.147	0.0	0.0	0.0	1.31	23.2	0.0
4.016	0.00	11.42	119.930	4.101	0.0	0.0	0.0	1.57	340.9	0.0
1.010	0.00	12.19	119.790	4.381	0.0	0.0	0.0	1.09	235.2	0.0
1.011	0.00	12.34	119.670	4.381	0.0	0.0	0.0	1.19	257.9	0.0
1.012	0.00	12.91	119.640	4.381	0.0	0.0	0.0	1.09	236.0	0.0
1.013	0.00	13.04	119.550	4.381	0.0	0.0	0.0	1.28	276.5	0.0
1.014	0.00	13.24	119.518	4.381	0.0	0.0	0.0	1.17	252.4	0.0

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.015	42.621	0.510	83.6	0.000	0.00	0.0	0.600	o	525	
20.000	53.163	0.360	147.7	0.213	5.00	0.0	0.600	o	375	
21.000	15.820	0.210	75.3	0.064	5.00	0.0	0.600	o	150	
21.001	38.537	0.810	47.6	0.061	0.00	0.0	0.600	o	300	
20.001	7.739	0.290	26.7	0.009	0.00	0.0	0.600	o	375	
22.000	30.705	0.190	161.6	0.133	5.00	0.0	0.600	o	300	
20.002	40.050	0.200	200.3	0.105	0.00	0.0	0.600	o	450	
20.003	12.752	0.070	182.2	0.052	0.00	0.0	0.600	o	525	
23.000	54.226	0.860	63.1	0.152	5.00	0.0	0.600	o	300	
20.004	19.449	0.300	64.8	0.069	0.00	0.0	0.600	o	525	
20.005	11.031	0.060	183.9	0.012	0.00	0.0	0.600	o	600	
20.006	60.371	0.300	201.2	0.087	0.00	0.0	0.600	o	750	















Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.015	0.00	13.53	119.480	4.381	0.0	0.0	0.0	2.45	530.7	0.0
20.000	0.00	5.60	123.005	0.213	0.0	0.0	0.0	1.49	164.4	0.0
21.000	0.00	5.23	123.890	0.064	0.0	0.0	0.0	1.16	20.5	0.0
21.001	0.00	5.51	123.530	0.125	0.0	0.0	0.0	2.29	161.5	0.0
20.001	0.00	5.63	122.645	0.347	0.0	0.0	0.0	3.52	388.7	0.0
22.000	0.00	5.41	122.620	0.133	0.0	0.0	0.0	1.23	87.2	0.0
20.002	0.00	6.10	122.280	0.585	0.0	0.0	0.0	1.43	227.9	0.0
20.003	0.00	6.23	122.005	0.637	0.0	0.0	0.0	1.66	358.6	0.0
23.000	0.00	5.46	123.020	0.152	0.0	0.0	0.0	1.98	140.2	0.0
20.004	0.00	6.34	121.935	0.858	0.0	0.0	0.0	2.79	602.9	0.0
20.005	0.00	6.44	121.560	0.870	0.0	0.0	0.0	1.79	506.9	0.0
20.006	0.00	6.96	121.350	0.957	0.0	0.0	0.0	1.97	869.9	0.0




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Network Design Table for Storm














PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
24.000	19.311	0.130	148.5	0.045	5.00	0.0	0.600	o	150	
24.001	7.717	0.060	128.6	0.000	0.00	0.0	0.600	o	225	
24.002	36.223	0.250	144.9	0.040	0.00	0.0	0.600	o	300	
24.003	14.362	0.100	143.6	0.035	0.00	0.0	0.600	o	375	
24.004	26.956	0.130	207.4	0.031	0.00	0.0	0.600	o	750	
24.005	50.007	0.340	147.1	0.045	0.00	0.0	0.600	o	750	
20.007	21.961	0.320	68.6	0.190	0.00	0.0	0.600	o	750	
25.000	24.657	0.170	145.0	0.059	5.00	0.0	0.600	o	300	
25.001	11.150	0.050	223.0	0.000	0.00	0.0	0.600	o	375	
25.002	57.319	0.250	229.3	0.100	0.00	0.0	0.600	o	375	
25.003	57.682	0.250	230.7	0.209	0.00	0.0	0.600	o	525	
20.008	53.514	0.270	198.2	0.060	0.00	0.0	0.600	o	750	
26.000	26.369	1.060	24.9	0.100	5.00	0.0	0.600	o	225	
26.001	26.368	1.360	19.4	0.032	0.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
24.000	0.00	5.39	122.660	0.045	0.0	0.0	0.0	0.82	14.5	0.0
24.001	0.00	5.50	122.455	0.045	0.0	0.0	0.0	1.15	45.8	0.0
24.002	0.00	5.97	122.320	0.085	0.0	0.0	0.0	1.30	92.2	0.0
24.003	0.00	6.12	121.995	0.120	0.0	0.0	0.0	1.51	166.8	0.0
24.004	0.00	6.36	121.520	0.151	0.0	0.0	0.0	1.94	856.9	0.0
24.005	0.00	6.72	121.390	0.196	0.0	0.0	0.0	2.31	1018.5	0.0
20.007	0.00	7.06	121.050	1.343	0.0	0.0	0.0	3.38	1493.7	0.0
25.000	0.00	5.32	121.900	0.059	0.0	0.0	0.0	1.30	92.1	0.0
25.001	0.00	5.47	121.655	0.059	0.0	0.0	0.0	1.21	133.6	0.0
25.002	0.00	6.27	121.605	0.159	0.0	0.0	0.0	1.19	131.7	0.0
25.003	0.00	6.92	121.205	0.368	0.0	0.0	0.0	1.47	318.3	0.0
20.008	0.00	7.51	120.730	1.771	0.0	0.0	0.0	1.98	876.6	0.0
26.000	0.00	5.17	123.405	0.100	0.0	0.0	0.0	2.63	104.7	0.0
26.001	0.00	5.31	122.345	0.132	0.0	0.0	0.0	2.99	118.7	0.0


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Network Design Table for Storm
















PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
20.009	47.191	0.440	107.3	0.110	0.00	0.0	0.600	o	750	
20.010	41.163	0.210	196.0	0.238	0.00	0.0	0.600	o	900	
27.000	39.777	0.370	107.5	0.211	5.00	0.0	0.600	o	300	
27.001	55.655	2.340	23.8	0.079	0.00	0.0	0.600	o	375	
20.011	26.994	0.153	176.4	0.045	0.00	0.0	0.600	o	900	
20.012	26.010	0.147	176.9	0.040	0.00	0.0	0.600	o	900	
28.000	22.710	0.560	40.6	0.235	5.00	0.0	0.600	o	300	
28.001	10.044	0.070	143.5	0.000	0.00	0.0	0.600	o	300	
28.002	67.567	0.770	87.7	0.109	0.00	0.0	0.600	o	375	
28.003	55.711	0.190	293.2	0.119	0.00	0.0	0.600	o	375	
28.004	55.725	1.555	35.8	0.050	0.00	0.0	0.600	o	375	
20.013	19.547	0.035	558.5	0.145	0.00	0.0	0.600	o	1050	
20.014	25.868	0.045	574.8	0.027	0.00	0.0	0.600	o	1050	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
20.009	0.00	7.80	120.460	2.013	0.0	0.0	0.0	2.70	1193.7	0.0
20.010	0.00	8.11	119.870	2.251	0.0	0.0	0.0	2.23	1421.5	0.0
27.000	0.00	5.44	122.970	0.211	0.0	0.0	0.0	1.52	107.2	0.0
27.001	0.00	5.69	122.525	0.290	0.0	0.0	0.0	3.73	411.8	0.0
20.011	0.00	8.30	119.660	2.586	0.0	0.0	0.0	2.36	1498.8	0.0
20.012	0.00	8.49	119.507	2.626	0.0	0.0	0.0	2.35	1496.6	0.0
28.000	0.00	5.15	123.105	0.235	0.0	0.0	0.0	2.48	175.0	0.0
28.001	0.00	5.28	122.545	0.235	0.0	0.0	0.0	1.31	92.6	0.0
28.002	0.00	5.86	122.400	0.344	0.0	0.0	0.0	1.94	213.7	0.0
28.003	0.00	6.74	121.630	0.463	0.0	0.0	0.0	1.05	116.3	0.0
28.004	0.00	7.05	121.440	0.513	0.0	0.0	0.0	3.04	335.2	0.0
20.013	0.00	8.71	119.210	3.284	0.0	0.0	0.0	1.45	1256.5	0.0
20.014	0.00	9.01	119.175	3.311	0.0	0.0	0.0	1.43	1238.3	0.0


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Network Design Table for Storm




PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
29.000	21.406	0.680	31.5	0.164	5.00	0.0	0.600	o	225	
29.001	36.607	0.250	146.4	0.019	0.00	0.0	0.600	o	300	
29.002	21.558	0.400	53.9	0.056	0.00	0.0	0.600	o	300	
29.003	29.650	1.840	16.1	0.076	0.00	0.0	0.600	o	300	
20.015	31.235#	0.100	312.4	0.100	0.00	0.0	0.600	o	1050	
20.016	3.234	0.020	161.7	0.000	0.00	0.0	0.600	o	225	
30.000	12.438	1.200	10.4	0.142	5.00	0.0	0.600	o	225	
1.016	12.868	0.040	321.7	0.000	0.00	0.0	0.600	o	525	
1.017	4.635	0.020	231.8	0.000	0.00	0.0	0.600	o	525	
1.018	7.557	0.040	188.9	0.000	0.00	0.0	0.600	o	525	
1.019	3.323	0.030	110.8	0.000	0.00	0.0	0.600	o	525	
1.020	43.797	0.490	89.4	0.000	0.00	0.0	0.600	\	-1	
1.021	49.124	0.300	163.7	0.000	0.00	0.0	0.600	\	-1	
1.022	15.633	0.400	39.1	0.000	0.00	0.0	0.600	o	600	
1.023	110.199	0.700	157.4	0.000	0.00	0.0	0.600	\	-1	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
29.000	0.00	5.15	123.125	0.164	0.0	0.0	0.0	2.34	93.0	0.0
29.001	0.00	5.62	122.370	0.183	0.0	0.0	0.0	1.30	91.7	0.0
29.002	0.00	5.79	122.120	0.239	0.0	0.0	0.0	2.15	151.7	0.0
29.003	0.00	5.92	121.720	0.315	0.0	0.0	0.0	3.94	278.2	0.0
20.015	0.00	9.28	119.130	3.726	0.0	0.0	0.0	1.94	1683.8	0.0
20.016	0.00	9.33	118.990	3.726	0.0	0.0	0.0	1.03	40.8	0.0
30.000	0.00	5.05	120.470	0.142	0.0	0.0	0.0	4.09	162.5	0.0
1.016	0.00	13.70	118.970	8.249	0.0	0.0	0.0	1.24	269.1	0.0
1.017	0.00	13.75	118.930	8.249	0.0	0.0	0.0	1.47	317.6	0.0
1.018	0.00	13.83	118.710	8.249	0.0	0.0	0.0	1.63	352.0	0.0
1.019	0.00	13.85	118.670	8.249	0.0	0.0	0.0	2.13	460.6	0.0
1.020	0.00	13.99	118.590	8.249	0.0	0.0	0.0	5.54	19969.3	0.0
1.021	0.00	14.19	118.100	8.249	0.0	0.0	0.0	4.09	14741.4	0.0
1.022	0.00	14.25	117.800	8.249	0.0	0.0	0.0	3.90	1103.7	0.0
1.023	0.00	14.69	117.400	8.249	0.0	0.0	0.0	4.17	15035.3	0.0

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
31.000	219.023	0.500	438.0	1.070	5.00	0.0	0.600	o	600	
31.001	13.850	0.180	76.9	4.000	0.00	0.0	0.600	o	225	
1.024	8.191	0.050	163.8	0.000	0.00	0.0	0.600	\/	-1	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
31.000	0.00	8.15	117.430	1.070	0.0	0.0	0.0	1.16	327.1	0.0
31.001	0.00	8.31	116.930	5.070	0.0	0.0	0.0	1.49	59.3	0.0
1.024	0.00	14.73	116.700	13.319	0.0	0.0	0.0	4.09	14738.1	0.0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.024		0.000	116.650	0.000	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m <sup>3</sup> /ha Storage	1.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0    Number of Offline Controls 0    Number of Time/Area Diagrams 0  
Number of Online Controls 8    Number of Storage Structures 7    Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 450500 225250 SP 50500 25250
C (1km)	-0.023
D1 (1km)	0.328

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Synthetic Rainfall Details

D2 (1km) 0.309  
 D3 (1km) 0.264  
 E (1km) 0.292  
 F (1km) 2.461  
 Summer Storms No  
 Winter Storms Yes  
 Cv (Summer) 0.750  
 Cv (Winter) 0.840  
 Storm Duration (mins) 15

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Online Controls for Storm

Orifice Manhole: Swale, DS/PN: 1.001, Volume (m<sup>3</sup>): 32.6

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 123.200

Orifice Manhole: Swale, DS/PN: 1.002, Volume (m<sup>3</sup>): 32.5

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 122.700

Hydro-Brake® Manhole: Bl- 9, DS/PN: 1.007, Volume (m<sup>3</sup>): 5.6

Design Head (m) 1.200 Hydro-Brake® Type Md5 SW Only Invert Level (m) 121.531  
Design Flow (l/s) 15.0 Diameter (mm) 150


Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.0	1.200	14.8	3.000	23.5	7.000	35.8
0.200	9.8	1.400	16.0	3.500	25.3	7.500	37.1
0.300	10.9	1.600	17.1	4.000	27.1	8.000	38.3
0.400	10.8	1.800	18.2	4.500	28.7	8.500	39.5
0.500	10.8	2.000	19.2	5.000	30.3	9.000	40.6
0.600	11.1	2.200	20.1	5.500	31.8	9.500	41.7
0.800	12.3	2.400	21.0	6.000	33.2		
1.000	13.6	2.600	21.8	6.500	34.5		

Hydro-Brake Optimum® Manhole: 310 (HB), DS/PN: 7.007, Volume (m<sup>3</sup>): 4.2

Unit Reference MD-SHE-0104-5500-1400-5500  
Design Head (m) 1.400  
Design Flow (l/s) 5.5  
Flush-Flo™ Calculated  
Objective Minimise upstream storage  
Diameter (mm) 104  
Invert Level (m) 121.170  
Minimum Outlet Pipe Diameter (mm) 150  
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.400	5.5	Kick-Flo®	0.857	4.4
Flush-Flo™	0.416	5.5	Mean Flow over Head Range	-	4.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

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Hydro-Brake Optimum® Manhole: 310 (HB), DS/PN: 7.007, Volume (m<sup>3</sup>): 4.2

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.5	1.200	5.1	3.000	7.8	7.000	11.7
0.200	5.0	1.400	5.5	3.500	8.4	7.500	12.1
0.300	5.4	1.600	5.8	4.000	9.0	8.000	12.5
0.400	5.5	1.800	6.2	4.500	9.5	8.500	12.8
0.500	5.4	2.000	6.5	5.000	10.0	9.000	13.2
0.600	5.3	2.200	6.8	5.500	10.4	9.500	13.5
0.800	4.7	2.400	7.1	6.000	10.9		
1.000	4.7	2.600	7.3	6.500	11.3		

Complex Manhole: 243a (HB), DS/PN: 13.002, Volume (m<sup>3</sup>): 49.5


#### Hydro-Brake Optimum®

Unit Reference MD-SHE-0045-1400-2400-1400  
Design Head (m) 2.400  
Design Flow (l/s) 1.4  
Flush-Flo™ Calculated  
Objective Minimise upstream storage  
Diameter (mm) 45  
Invert Level (m) 120.335  
Minimum Outlet Pipe Diameter (mm) 75  
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.400	1.4	Kick-Flo®	0.404	0.6
Flush-Flo™	0.200	0.8	Mean Flow over Head Range	-	1.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	1.200	1.0	3.000	1.5	7.000	2.3
0.200	0.8	1.400	1.1	3.500	1.7	7.500	2.4
0.300	0.7	1.600	1.2	4.000	1.8	8.000	2.4
0.400	0.6	1.800	1.2	4.500	1.9	8.500	2.5
0.500	0.7	2.000	1.3	5.000	2.0	9.000	2.6
0.600	0.8	2.200	1.3	5.500	2.0	9.500	2.6
0.800	0.9	2.400	1.4	6.000	2.1		
1.000	0.9	2.600	1.4	6.500	2.2		

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Hydro-Brake Optimum®

Unit Reference MD-SHE-0070-2100-0900-2100  
Design Head (m) 0.900  
Design Flow (l/s) 2.1  
Flush-Flo™ Calculated  
Objective Minimise upstream storage  
Diameter (mm) 70  
Invert Level (m) 121.835  
Minimum Outlet Pipe Diameter (mm) 100  
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.900	2.1	Kick-Flo®	0.564	1.7
Flush-Flo™	0.273	2.1	Mean Flow over Head Range	-	1.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.8	1.200	2.4	3.000	3.7	7.000	5.4
0.200	2.1	1.400	2.6	3.500	3.9	7.500	5.6
0.300	2.1	1.600	2.7	4.000	4.2	8.000	5.8
0.400	2.0	1.800	2.9	4.500	4.4	8.500	6.0
0.500	1.9	2.000	3.0	5.000	4.6	9.000	6.1
0.600	1.7	2.200	3.2	5.500	4.8	9.500	6.3
0.800	2.0	2.400	3.3	6.000	5.1		
1.000	2.2	2.600	3.4	6.500	5.2		


Hydro-Brake Optimum® Manhole: 234 (HB), DS/PN: 18.002, Volume (m³): 18.0

Unit Reference MD-SHE-0074-3000-1600-3000  
Design Head (m) 1.600  
Design Flow (l/s) 3.0  
Flush-Flo™ Calculated  
Objective Minimise upstream storage  
Diameter (mm) 74  
Invert Level (m) 120.450  
Minimum Outlet Pipe Diameter (mm) 100  
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.600	3.0	Kick-Flo®	0.661	2.0
Flush-Flo™	0.323	2.5	Mean Flow over Head Range	-	2.4

The hydrological calculations have been based on the Head/Discharge relationship for the



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Hydro-Brake Optimum® Manhole: 234 (HB), DS/PN: 18.002, Volume (m³): 18.0

Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.0	1.200	2.6	3.000	4.0	7.000	6.0
0.200	2.4	1.400	2.8	3.500	4.3	7.500	6.2
0.300	2.5	1.600	3.0	4.000	4.6	8.000	6.4
0.400	2.5	1.800	3.2	4.500	4.9	8.500	6.5
0.500	2.4	2.000	3.3	5.000	5.1	9.000	6.7
0.600	2.2	2.200	3.5	5.500	5.3	9.500	6.9
0.800	2.2	2.400	3.6	6.000	5.6		
1.000	2.4	2.600	3.8	6.500	5.8		

Complex Manhole: 256 (HB), DS/PN: 20.016, Volume (m³): 38.0


#### Hydro-Brake Optimum®

Unit Reference	MD-SCL-0042-1300-2400-1300
Design Head (m)	2.400
Design Flow (l/s)	1.3
Flush-Flo™	Calculated
Objective	Minimise blockage risk
Diameter (mm)	42
Invert Level (m)	118.990
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.400	1.3	Kick-Flo®	0.372	0.6
Flush-Flo™	0.170	0.7	Mean Flow over Head Range	-	0.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	0.800	0.8	2.000	1.2	4.000	1.6
0.200	0.7	1.000	0.9	2.200	1.2	4.500	1.7
0.300	0.7	1.200	1.0	2.400	1.3	5.000	1.8
0.400	0.6	1.400	1.0	2.600	1.3	5.500	1.9
0.500	0.7	1.600	1.1	3.000	1.4	6.000	2.0
0.600	0.7	1.800	1.1	3.500	1.5	6.500	2.0

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Hydro-Brake Optimum®

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
7.000	2.1	8.000	2.2	9.000	2.4		
7.500	2.2	8.500	2.3	9.500	2.4		

Hydro-Brake Optimum®

Unit Reference	MD-SHE-0107-4900-0820-4900
Design Head (m)	0.820
Design Flow (l/s)	4.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	107
Invert Level (m)	120.560
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200


Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.820	4.9	Kick-Flo®	0.545	4.1
Flush-Flo™	0.245	4.9	Mean Flow over Head Range	-	4.2

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.7	1.200	5.8	3.000	9.0	7.000	13.5
0.200	4.9	1.400	6.3	3.500	9.7	7.500	13.9
0.300	4.9	1.600	6.7	4.000	10.3	8.000	14.3
0.400	4.7	1.800	7.1	4.500	10.9	8.500	14.7
0.500	4.4	2.000	7.4	5.000	11.5	9.000	15.2
0.600	4.2	2.200	7.8	5.500	12.0	9.500	15.6
0.800	4.8	2.400	8.1	6.000	12.5		
1.000	5.4	2.600	8.4	6.500	13.0		

Hydro-Brake Optimum® Manhole: Future PH16, DS/PN: 31.001, Volume (m³): 63.4

Unit Reference	MD-SHE-0205-2180-1000-2180
Design Head (m)	1.000
Design Flow (l/s)	21.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	205
Invert Level (m)	116.930

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Hydro-Brake Optimum® Manhole: Future PH16, DS/PN: 31.001, Volume (m³): 63.4

Minimum Outlet Pipe Diameter (mm) 225  
Suggested Manhole Diameter (mm) 1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	21.4	Kick-Flo®	0.723	18.4
Flush-Flo™	0.346	21.4	Mean Flow over Head Range	-	17.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake Optimum® as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.0	1.200	23.4	3.000	36.2	7.000	54.6
0.200	19.5	1.400	25.1	3.500	39.0	7.500	56.5
0.300	21.3	1.600	26.8	4.000	41.6	8.000	58.3
0.400	21.3	1.800	28.4	4.500	44.1	8.500	60.0
0.500	20.9	2.000	29.8	5.000	46.4	9.000	61.7
0.600	20.3	2.200	31.2	5.500	48.6	9.500	63.4
0.800	19.3	2.400	32.6	6.000	50.7		
1.000	21.4	2.600	33.8	6.500	52.7		

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Storage Structures for Storm

Complex Manhole: SW MH, DS/PN: 2.001

Tank or Pond

Invert Level (m) 121.840

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	69.0	0.401	0.0	0.403	7.0	0.704	0.0
0.400	69.0	0.402	0.0	0.703	7.0		

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	8.7
Membrane Percolation (mm/hr)	1000	Length (m)	60.0
Max Percolation (l/s)	145.0	Slope (1:X)	80.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	5
Invert Level (m)	122.630	Cap Volume Depth (m)	0.000

Tank or Pond Manhole: PH10 Pond2, DS/PN: 7.004

Invert Level (m) 121.400


Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	318.4	1.300	925.6

Tank or Pond Manhole: PH10 Pond3, DS/PN: 7.006

Invert Level (m) 121.200

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	109.1	1.400	468.9

Complex Manhole: Pond, DS/PN: 17.000

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Tank or Pond

Invert Level (m) 120.890

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	337.7	2.200	1044.5

Trench Soakaway

Infiltration Coefficient Base (m/hr)	0.12564	Trench Width (m)	10.0
Infiltration Coefficient Side (m/hr)	0.00000	Trench Length (m)	22.0
Safety Factor	1.0	Slope (1:X)	0.0
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	120.890	Cap Infiltration Depth (m)	0.000

Tank or Pond Manhole: 232, DS/PN: 18.000

Invert Level (m) 120.860

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	60.0	0.500	60.0	0.501	0.0

Tank or Pond Manhole: 256 (HB), DS/PN: 20.016


Invert Level (m) 118.990

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	632.9	2.800	2195.0	2.801	0.0

Tank or Pond Manhole: Future PH16, DS/PN: 31.001

Invert Level (m) 116.930

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	4454.0	1.000	5311.0

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000    Additional Flow - % of Total Flow 0.000  
Hot Start (mins) 0    MADD Factor \* 10m<sup>3</sup>/ha Storage 1.000  
Hot Start Level (mm) 0    Inlet Coefficient 0.800  
Manhole Headloss Coeff (Global) 0.500    Flow per Person per Day (l/per/day) 0.000  
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0    Number of Offline Controls 0    Number of Time/Area Diagrams 0  
Number of Online Controls 8    Number of Storage Structures 7    Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model    FEH    D3 (1km) 0.264  
Site Location GB 450500 225250 SP 50500 25250    E (1km) 0.292  
C (1km)    -0.023    F (1km) 2.461  
D1 (1km)    0.328    Cv (Summer) 0.750  
D2 (1km)    0.309    Cv (Winter) 0.840


Margin for Flood Risk Warning (mm)    300.0  
Analysis Timestep 2.5 Second Increment (Extended)  
DTS Status    ON  
DVD Status    ON  
Inertia Status    ON

Profile(s)    Summer and Winter  
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440  
Return Period(s) (years)    100  
Climate Change (%)    40

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow Act.	O/F	Lvl Exc.
1.000	30 Winter	100	+40%					
1.001	30 Winter	100	+40%					
1.002	60 Winter	100	+40%					
1.003	60 Winter	100	+40%	100/15 Winter				
1.004	60 Winter	100	+40%	100/15 Summer				
2.000	60 Winter	100	+40%	100/15 Summer				
2.001	60 Winter	100	+40%	100/15 Summer				
1.005	60 Winter	100	+40%	100/15 Summer				
3.000	60 Winter	100	+40%	100/15 Summer				
1.006	60 Winter	100	+40%	100/15 Summer				
1.007	60 Winter	100	+40%	100/15 Summer	100/30 Winter			3
1.008	60 Winter	100	+40%					
1.009	60 Winter	100	+40%					
4.000	15 Winter	100	+40%	100/15 Summer	100/15 Summer			7
4.001	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	Storm	Return Climate Period Change	First X Surcharge	First Y Flood	First Z Overflow Act.	O/F	Lvl Exc.
5.000	15 Winter	100	+40%	100/15 Summer	100/15 Summer		4
4.002	15 Summer	100	+40%	100/15 Summer			
6.000	15 Winter	100	+40%	100/15 Summer			
6.001	15 Winter	100	+40%	100/15 Summer			
6.002	15 Winter	100	+40%	100/15 Summer			
4.003	15 Winter	100	+40%	100/15 Summer			
4.004	15 Winter	100	+40%	100/15 Summer			
4.005	15 Winter	100	+40%	100/15 Summer			
4.006	15 Winter	100	+40%	100/15 Summer			
7.000	15 Winter	100	+40%	100/15 Summer			
7.001	15 Winter	100	+40%	100/15 Summer			
7.002	15 Winter	100	+40%	100/15 Summer			
7.003	960 Winter	100	+40%	100/15 Summer			
7.004	960 Winter	100	+40%	100/15 Summer			
8.000	960 Winter	100	+40%	100/15 Summer			
8.001	960 Winter	100	+40%	100/15 Summer			
8.002	960 Winter	100	+40%	100/15 Summer			
7.005	960 Winter	100	+40%	100/15 Summer			
9.000	15 Winter	100	+40%				
9.001	15 Winter	100	+40%	100/15 Summer			
9.002	15 Winter	100	+40%	100/15 Summer			
9.003	15 Winter	100	+40%	100/15 Summer			
9.004	15 Winter	100	+40%	100/15 Summer			
9.005	960 Winter	100	+40%	100/15 Summer			
7.006	960 Winter	100	+40%	100/15 Summer			
10.000	960 Winter	100	+40%	100/15 Summer			
7.007	960 Winter	100	+40%	100/15 Summer			
4.007	15 Winter	100	+40%	100/15 Summer			
11.000	15 Winter	100	+40%	100/15 Summer			
11.001	15 Winter	100	+40%	100/15 Summer			
12.000	15 Winter	100	+40%				
12.001	15 Winter	100	+40%	100/15 Summer			
11.002	15 Winter	100	+40%				
11.003	15 Winter	100	+40%	100/15 Summer			
4.008	15 Winter	100	+40%	100/15 Summer			
4.009	15 Winter	100	+40%	100/15 Summer			
4.010	15 Winter	100	+40%	100/15 Summer			
4.011	15 Winter	100	+40%	100/15 Summer			
4.012	15 Winter	100	+40%	100/15 Summer			
4.013	15 Winter	100	+40%				
4.014	30 Winter	100	+40%				
13.000	60 Winter	100	+40%				
14.000	15 Winter	100	+40%	100/15 Summer			
14.001	15 Winter	100	+40%	100/15 Summer			
14.002	15 Winter	100	+40%	100/15 Summer			

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
15.000	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
14.003	15 Winter	100	+40%	100/15 Summer				
14.004	15 Winter	100	+40%	100/15 Summer				
13.001	480 Winter	100	+40%	100/15 Summer				
16.000	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
16.001	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
16.002	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
16.003	480 Winter	100	+40%	100/15 Summer				
17.000	480 Winter	100	+40%	100/15 Summer				
13.002	480 Winter	100	+40%	100/15 Summer				
4.015	30 Winter	100	+40%	100/15 Summer				
18.000	120 Winter	100	+40%	100/15 Summer				
18.001	120 Winter	100	+40%	100/15 Summer				
19.000	120 Winter	100	+40%	100/15 Summer				
18.002	120 Winter	100	+40%	100/15 Summer				
4.016	15 Winter	100	+40%	100/15 Summer				
1.010	30 Winter	100	+40%	100/15 Summer				
1.011	30 Winter	100	+40%	100/15 Summer				
1.012	30 Winter	100	+40%	100/15 Summer				
1.013	15 Winter	100	+40%	100/15 Summer				
1.014	15 Winter	100	+40%	100/15 Winter				
1.015	30 Winter	100	+40%					
20.000	15 Winter	100	+40%	100/15 Summer	100/15 Winter			1
21.000	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
21.001	15 Winter	100	+40%	100/15 Summer				
20.001	15 Winter	100	+40%	100/15 Summer				
22.000	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
20.002	15 Winter	100	+40%	100/15 Summer				
20.003	15 Winter	100	+40%	100/15 Summer				
23.000	15 Winter	100	+40%	100/15 Summer				
20.004	15 Winter	100	+40%	100/15 Summer				
20.005	15 Winter	100	+40%	100/15 Summer				
20.006	15 Winter	100	+40%	100/15 Summer				
24.000	15 Winter	100	+40%	100/15 Summer				
24.001	15 Winter	100	+40%	100/15 Summer				
24.002	15 Winter	100	+40%	100/15 Summer				
24.003	15 Winter	100	+40%	100/15 Summer				
24.004	15 Winter	100	+40%	100/15 Summer				
24.005	15 Winter	100	+40%	100/15 Summer				
20.007	15 Winter	100	+40%	100/15 Summer				
25.000	15 Winter	100	+40%	100/15 Summer				
25.001	15 Winter	100	+40%	100/15 Summer				
25.002	15 Winter	100	+40%	100/15 Summer				
25.003	15 Winter	100	+40%	100/15 Summer				
20.008	15 Winter	100	+40%	100/15 Summer				



Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	Storm	Return Climate Period	Change	First X Surcharge	First Y Flood	First Z Overflow Act.	O/F	Lvl Exc.
26.000	15 Winter	100	+40%					
26.001	15 Winter	100	+40%	100/15 Summer				
20.009	15 Winter	100	+40%	100/15 Summer				
20.010	15 Winter	100	+40%	100/15 Summer				
27.000	15 Winter	100	+40%	100/15 Summer				
27.001	15 Winter	100	+40%					
20.011	1440 Winter	100	+40%	100/15 Summer				
20.012	1440 Winter	100	+40%	100/15 Summer				
28.000	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
28.001	15 Winter	100	+40%	100/15 Summer	100/15 Summer			2
28.002	15 Winter	100	+40%	100/15 Summer				
28.003	15 Winter	100	+40%	100/15 Summer				
28.004	15 Winter	100	+40%	100/15 Summer				
20.013	1440 Winter	100	+40%	100/15 Summer				
20.014	1440 Winter	100	+40%	100/15 Summer				
29.000	15 Winter	100	+40%	100/15 Summer				
29.001	15 Winter	100	+40%	100/15 Summer				
29.002	15 Winter	100	+40%	100/15 Summer				
29.003	15 Winter	100	+40%					
20.015	1440 Winter	100	+40%	100/15 Summer				
20.016	1440 Winter	100	+40%	100/15 Summer				
30.000	15 Winter	100	+40%					
1.016	30 Summer	100	+40%	100/15 Summer				
1.017	30 Winter	100	+40%					
1.018	30 Winter	100	+40%	100/15 Winter				
1.019	30 Winter	100	+40%	100/30 Winter				
1.020	30 Winter	100	+40%					
1.021	30 Winter	100	+40%					
1.022	30 Winter	100	+40%					
1.023	30 Winter	100	+40%					
31.000	15 Winter	100	+40%	100/15 Summer				
31.001	1440 Winter	100	+40%	100/15 Summer				
1.024	30 Winter	100	+40%					

PN	US/MH Name	Water Level (m)	Surch'ed Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
1.000	Swale	124.087	-0.763	0.000	0.00	0.0	14.8	OK
1.001	Swale	124.087	-0.113	0.000	0.00	0.0	4.1	FLOOD RISK
1.002	Swale	123.499	-0.201	0.000	0.00	0.0	4.5	FLOOD RISK
1.003	Swale	122.842	0.242	0.000	0.31	0.0	7.6	SURCHARGED
1.004	B1- 5	122.826	0.513	0.000	0.15	0.0	21.6	SURCHARGED
2.000	SW MH	122.830	0.475	0.000	0.21	0.0	26.5	SURCHARGED
2.001	SW MH	122.823	0.598	0.000	0.16	0.0	13.2	FLOOD RISK

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water	Flooded			Pipe	Status	
		Level (m)	Surch'd Depth (m)	Volume (m <sup>3</sup> )	Flow / Cap.	O'flow (l/s)		Flow (l/s)
1.005	B1- 6	122.822	0.624	0.000	0.08	0.0	18.7	FLOOD RISK
3.000	B1- 13	122.820	0.860	0.000	0.08	0.0	9.9	SURCHARGED
1.006	B1- 8	122.819	0.671	0.000	0.19	0.0	27.6	FLOOD RISK
1.007	B1- 9	122.817	1.136	6.085	1.03	0.0	14.9	FLOOD
1.008	Ex MH	121.464	-0.061	0.000	0.66	0.0	14.9	OK
1.009	Ex MH	121.078	-0.147	0.000	0.26	0.0	14.9	OK
4.000	Ex MH 1113	123.287	1.555	110.269	3.37	0.0	117.0	FLOOD
4.001	281 (div)	122.805	0.964	4.326	0.90	0.0	116.0	FLOOD
5.000	Ex MH 1109	122.574	0.463	13.280	1.37	0.0	42.0	FLOOD
4.002	282 (div)	122.797	1.008	0.000	1.03	0.0	134.3	FLOOD RISK
6.000	283 (div)	123.485	1.228	0.000	1.09	0.0	180.9	FLOOD RISK
6.001	284 (div)	123.251	1.176	0.000	1.02	0.0	173.1	FLOOD RISK
6.002	285 (div)	123.033	1.158	0.000	1.01	0.0	172.5	FLOOD RISK
4.003	286 (div)	122.792	1.088	0.000	2.04	0.0	276.6	FLOOD RISK
4.004	286a (div)	122.660	1.005	0.000	1.75	0.0	265.1	SURCHARGED
4.005	287 (div)	122.477	0.907	0.000	1.82	0.0	254.0	SURCHARGED
4.006	288 (div)	122.296	0.776	0.000	1.51	0.0	244.6	SURCHARGED
7.000	296	124.525	0.445	0.000	0.73	0.0	120.9	SURCHARGED
7.001	297	123.640	1.160	0.000	1.63	0.0	268.3	FLOOD RISK
7.002	298	123.049	0.789	0.000	1.77	0.0	296.3	SURCHARGED
7.003	299	122.593	0.593	0.000	0.10	0.0	17.6	SURCHARGED
7.004	PH10 Pond2	122.593	0.743	0.000	0.02	0.0	3.5	FLOOD RISK
8.000	300	122.593	0.223	0.000	0.01	0.0	0.7	SURCHARGED
8.001	301	122.593	0.563	0.000	0.06	0.0	4.5	SURCHARGED
8.002	302	122.593	0.693	0.000	0.08	0.0	6.5	SURCHARGED
7.005	303	122.592	0.802	0.000	0.02	0.0	3.8	SURCHARGED
9.000	304	124.077	-0.143	0.000	0.53	0.0	60.4	OK
9.001	305	123.912	0.212	0.000	0.30	0.0	91.0	SURCHARGED
9.002	306	123.711	1.211	0.000	1.06	0.0	188.3	SURCHARGED
9.003	307	123.202	1.132	0.000	1.38	0.0	229.5	FLOOD RISK
9.004	308	122.869	0.979	0.000	1.22	0.0	248.8	FLOOD RISK
9.005	309	122.592	0.892	0.000	0.14	0.0	23.5	FLOOD RISK
7.006	PH10 Pond3	122.592	0.942	0.000	0.04	0.0	5.6	FLOOD RISK
10.000	PH10 UC	122.593	1.013	0.000	0.10	0.0	5.5	FLOOD RISK
7.007	310 (HB)	122.595	1.125	0.000	0.08	0.0	5.5	FLOOD RISK
4.007	289 (div)	122.052	0.662	0.000	1.74	0.0	246.2	SURCHARGED
11.000	Ex MH 1097	124.322	1.090	0.000	2.06	0.0	13.9	FLOOD RISK
11.001	Ex MH 1115	123.376	0.335	0.000	1.24	0.0	28.8	SURCHARGED
12.000	Carpark	122.715	-0.205	0.000	0.21	0.0	15.7	OK
12.001	Carpark	122.687	0.007	0.000	1.14	0.0	15.1	SURCHARGED
11.002	290 (div)	122.372	-0.068	0.000	0.82	0.0	43.4	OK
11.003	291 (div)	122.004	0.184	0.000	0.44	0.0	39.1	SURCHARGED
4.008	292 (div)	121.882	0.527	0.000	2.18	0.0	276.8	SURCHARGED
4.009	293 (PI)	121.652	0.422	0.000	1.92	0.0	269.6	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m <sup>3</sup> )	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
4.010	294 (div)	121.432	0.252	0.000	1.92	0.0	269.4	SURCHARGED
4.011	295 (div)	121.214	0.149	0.000	0.88	0.0	268.1	SURCHARGED
4.012	Ex MH	121.074	0.009	0.000	1.12	0.0	267.0	SURCHARGED
4.013	100 (D)	120.938	-0.007	0.000	1.00	0.0	250.4	OK
4.014	101 (D)	120.725	-0.010	0.000	0.97	0.0	238.1	OK
13.000	Dummy	120.705	0.000	0.000	0.01	0.0	0.1	SURCHARGED*
14.000	237	125.287	1.467	0.000	1.09	0.0	166.8	FLOOD RISK
14.001	238	124.405	1.275	0.000	1.04	0.0	203.9	SURCHARGED
14.002	239	124.125	1.245	0.000	0.89	0.0	243.2	SURCHARGED
15.000	240	123.592	1.837	12.131	1.23	0.0	247.0	FLOOD
14.003	241	123.431	1.941	0.000	1.52	0.0	519.4	SURCHARGED
14.004	242	122.760	1.550	0.000	1.64	0.0	518.7	SURCHARGED
13.001	243	122.494	1.239	0.000	0.12	0.0	67.5	SURCHARGED
16.000	229	122.978	0.948	7.785	0.91	0.0	83.1	FLOOD
16.001	230	122.920	1.270	1.115	0.90	0.0	177.5	FLOOD
16.002	231	122.803	1.303	2.760	1.23	0.0	408.2	FLOOD
16.003	235	122.494	1.319	0.000	0.10	0.0	49.1	SURCHARGED
17.000	Pond	122.491	0.851	0.000	0.00	0.0	2.9	SURCHARGED
13.002	243a (HB)	122.493	1.858	0.000	0.05	0.0	3.3	SURCHARGED
4.015	102 (D)	120.617	0.042	0.000	0.94	0.0	225.7	SURCHARGED
18.000	232	122.883	1.573	0.000	0.03	0.0	4.6	SURCHARGED
18.001	233	122.883	1.683	0.000	0.01	0.0	4.3	FLOOD RISK
19.000	234a	122.886	1.286	0.000	0.11	0.0	12.9	SURCHARGED
18.002	234 (HB)	122.883	2.283	0.000	0.18	0.0	3.6	FLOOD RISK
4.016	103 (D)	120.514	0.059	0.000	0.76	0.0	215.2	SURCHARGED
1.010	Ex MH	120.389	0.074	0.000	1.07	0.0	225.0	SURCHARGED
1.011	Ex MH	120.252	0.057	0.000	1.40	0.0	224.5	SURCHARGED
1.012	Ex MH	120.202	0.037	0.000	1.10	0.0	224.3	SURCHARGED
1.013	Ex MH	120.105	0.030	0.000	1.23	0.0	221.8	SURCHARGED
1.014	104 (D)	120.044	0.002	0.000	1.34	0.0	221.6	SURCHARGED
1.015	105 (D)	119.737	-0.268	0.000	0.48	0.0	224.3	OK
20.000	200	124.591	1.211	1.561	0.95	0.0	145.4	FLOOD
21.000	201	125.258	1.218	1.402	2.21	0.0	41.9	FLOOD
21.001	202	124.554	0.724	0.000	0.58	0.0	87.2	SURCHARGED
20.001	203	124.376	1.356	0.000	1.07	0.0	225.8	FLOOD RISK
22.000	204	123.953	1.033	12.848	1.18	0.0	93.4	FLOOD
20.002	205	124.090	1.360	0.000	1.77	0.0	358.8	SURCHARGED
20.003	206	123.647	1.117	0.000	1.54	0.0	383.8	SURCHARGED
23.000	207	123.893	0.573	0.000	0.87	0.0	115.4	SURCHARGED
20.004	208	123.416	0.956	0.000	1.23	0.0	517.0	SURCHARGED
20.005	209	123.101	0.941	0.000	1.57	0.0	515.5	SURCHARGED
20.006	210	122.903	0.803	0.000	0.71	0.0	532.8	SURCHARGED
24.000	211	123.610	0.800	0.000	2.55	0.0	34.7	FLOOD RISK
24.001	212	123.199	0.519	0.000	0.99	0.0	34.0	SURCHARGED

Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	O'flow (l/s)	Pipe Flow (l/s)	Status
24.002	213	123.126	0.506	0.000	0.76	0.0	65.0	SURCHARGED
24.003	214	123.001	0.631	0.000	0.74	0.0	91.5	SURCHARGED
24.004	215	122.881	0.611	0.000	0.19	0.0	115.0	SURCHARGED
24.005	216	122.867	0.727	0.000	0.17	0.0	143.5	FLOOD RISK
20.007	217	122.750	0.950	0.000	0.73	0.0	647.3	SURCHARGED
25.000	218	122.919	0.719	0.000	0.59	0.0	48.2	FLOOD RISK
25.001	219	122.819	0.789	0.000	0.37	0.0	36.9	SURCHARGED
25.002	220	122.768	0.788	0.000	0.95	0.0	116.2	SURCHARGED
25.003	221	122.664	0.934	0.000	0.87	0.0	250.3	SURCHARGED
20.008	222	122.548	1.068	0.000	1.13	0.0	847.9	SURCHARGED
26.000	223	123.567	-0.063	0.000	0.86	0.0	83.1	OK
26.001	223a	122.869	0.299	0.000	0.99	0.0	108.5	SURCHARGED
20.009	224	122.181	0.971	0.000	0.96	0.0	964.7	SURCHARGED
20.010	225	121.765	0.995	0.000	1.01	0.0	1044.2	SURCHARGED
27.000	226	124.035	0.765	0.000	1.73	0.0	171.8	SURCHARGED
27.001	227	122.741	-0.159	0.000	0.61	0.0	234.2	OK
20.011	228	121.618	1.058	0.000	0.08	0.0	79.5	SURCHARGED
20.012	228a	121.618	1.211	0.000	0.08	0.0	80.5	SURCHARGED
28.000	244	124.844	1.439	4.133	0.99	0.0	153.3	FLOOD
28.001	245	124.295	1.450	5.488	2.62	0.0	174.0	FLOOD
28.002	246	124.126	1.351	0.000	1.03	0.0	207.8	FLOOD RISK
28.003	247	123.402	1.397	0.000	2.61	0.0	283.0	FLOOD RISK
28.004	248	122.330	0.515	0.000	0.93	0.0	291.4	SURCHARGED
20.013	249	121.617	1.357	0.000	0.15	0.0	100.4	SURCHARGED
20.014	250	121.617	1.392	0.000	0.13	0.0	101.0	SURCHARGED
29.000	251	124.869	1.519	0.000	1.46	0.0	123.5	FLOOD RISK
29.001	252	123.375	0.705	0.000	1.62	0.0	136.8	SURCHARGED
29.002	253	122.715	0.295	0.000	1.29	0.0	171.6	SURCHARGED
29.003	254	121.946	-0.074	0.000	0.90	0.0	228.2	OK
20.015	255	121.617	1.437	0.000	0.09	0.0	113.5	SURCHARGED
20.016	256 (HB)	121.617	2.402	0.000	0.25	0.0	6.6	FLOOD RISK
30.000	Tennis courts	120.630	-0.065	0.000	0.85	0.0	118.1	OK
1.016	106 (D)	119.533	0.038	0.000	1.25	0.0	230.2	SURCHARGED
1.017	107 (D)	119.455	0.000	0.000	1.44	0.0	234.0	OK
1.018	108 (PI)	119.251	0.016	0.000	1.08	0.0	231.8	SURCHARGED
1.019	109	119.203	0.008	0.000	1.12	0.0	231.9	SURCHARGED
1.020	HW01	118.713	-0.877	0.000	0.03	0.0	231.3	OK
1.021	Ditch (TBC)	118.241	-0.859	0.000	0.03	0.0	231.4	OK
1.022	PH10 crossing	118.050	-0.350	0.000	0.36	0.0	231.0	OK
1.023	Ditch (TBC)	117.536	-0.864	0.000	0.02	0.0	230.2	OK
31.000	Future PH16	121.370	3.340	0.000	2.19	0.0	692.5	SURCHARGED
31.001	Future PH16	117.763	0.608	0.000	0.41	0.0	21.3	FLOOD RISK
1.024	Ditch (TBC)	116.877	-0.823	0.000	0.05	0.0	251.4	OK