

SGi Consulting		Page 1
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 20/12/2024 11:45 File SW NETWORK 1 & 2 DRAIN...	Designed by sgicivils Checked by	
Micro Drainage Network 2020.1.3		

Network 2020.1.3

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.280	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.228	4-8	0.233	8-12	0.006

Total Area Contributing (ha) = 0.467

Total Pipe Volume (m³) = 190.958

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	20.785	0.070	296.9	0.055	5.00	0.0	0.600		o	300	Pipe/Conduit	
1.001	25.832	0.090	287.0	0.023	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.002	8.624	0.030	287.5	0.020	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.003	21.691	0.075	289.2	0.043	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.004	10.886	0.040	272.2	0.049	0.00	0.0	0.600		o	300	Pipe/Conduit	

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)
1.000	50.00	5.38	29.000	0.055	0.0	0.0	0.0	0.91	64.1	9.9
1.001	50.00	5.85	28.930	0.078	0.0	0.0	0.0	0.92	65.2	14.1
1.002	50.00	6.00	28.840	0.098	0.0	0.0	0.0	0.92	65.2	17.7
1.003	50.00	6.40	28.810	0.141	0.0	0.0	0.0	0.92	65.0	25.5
1.004	50.00	6.59	28.735	0.190	0.0	0.0	0.0	0.95	67.0	34.3

SGi Consulting											Page 2	
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP												
Date 20/12/2024 11:45 File SW NETWORK 1 & 2 DRAINA...						Designed by sgicivils Checked by						
Micro Drainage						Network 2020.1.3						
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)	n	HYD SECT	DIA (mm)	Section	Type
1.005	23.481	0.060	391.4	0.000	0.00	0.0		0.050	→[↓]		Cellular	Storage
2.000	16.324	0.750	21.8	0.039	5.00	0.0	0.600		○	225	Pipe/Conduit	
1.006	9.300	0.035	265.7	0.000	0.00	0.0	0.600		○	300	Pipe/Conduit	
3.000	30.230	0.815	37.1	0.031	5.00	0.0	0.600		○	150	Pipe/Conduit	
4.000	24.111	0.815	29.6	0.025	5.00	0.0	0.600		○	150	Pipe/Conduit	
1.007	24.990	0.085	294.0	0.015	0.00	0.0	0.600		○	300	Pipe/Conduit	
5.000	11.979	0.115	104.2	0.018	5.00	0.0	0.600		○	300	Pipe/Conduit	
5.001	41.993	0.215	195.3	0.022	0.00	0.0	0.600		○	300	Pipe/Conduit	
5.002	10.418	1.040	10.0	0.028	0.00	0.0	0.600		○	300	Pipe/Conduit	
6.000	33.722	0.920	36.7	0.057	5.00	0.0	0.600		○	300	Pipe/Conduit	
1.008	17.769	0.135	131.6	0.024	0.00	0.0	0.600		○	300	Pipe/Conduit	
7.000	7.661	0.485	15.8	0.018	5.00	0.0	0.600		○	150	Pipe/Conduit	
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)		
1.005	50.00	7.22	27.810	0.190		0.0	0.0	0.0	0.62	4515.8	34.3	
2.000	50.00	5.10	28.575	0.039		0.0	0.0	0.0	2.82	112.0	7.0	
1.006	50.00	7.38	27.750	0.229		0.0	0.0	0.0	0.96	67.8	41.3	
3.000	50.00	5.30	28.680	0.031		0.0	0.0	0.0	1.66	29.3	5.6	
4.000	50.00	5.22	28.680	0.025		0.0	0.0	0.0	1.86	32.8	4.5	
1.007	50.00	7.84	27.715	0.300		0.0	0.0	0.0	0.91	64.5	54.2	
5.000	50.00	5.13	29.000	0.018		0.0	0.0	0.0	1.54	108.9	3.2	
5.001	50.00	5.75	28.885	0.040		0.0	0.0	0.0	1.12	79.3	7.2	
5.002	50.00	5.79	28.670	0.068		0.0	0.0	0.0	5.00	353.1	12.3	
6.000	50.00	5.22	28.550	0.057		0.0	0.0	0.0	2.61	184.2	10.3	
1.008	50.00	8.05	27.630	0.449		0.0	0.0	0.0	1.37	96.8	81.1	
7.000	50.00	5.05	28.130	0.018		0.0	0.0	0.0	2.55	45.0	3.2	
©1982-2020 Innovyze												

SGi Consulting		Page 4
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 20/12/2024 11:45	Designed by sgicivils	
File SW NETWORK 1 & 2 DRAIN...	Checked by	
Micro Drainage		Network 2020.1.3

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdr (mm)
S1000	29.920	0.920	Open Manhole	600	1.000	29.000	300				
S1001	29.921	0.991	Open Manhole	600	1.001	28.930	300	1.000	28.930	300	
S1002	29.920	1.080	Open Manhole	600	1.002	28.840	300	1.001	28.840	300	
S1003	29.846	1.036	Open Manhole	600	1.003	28.810	300	1.002	28.810	300	
S1004	29.850	1.115	Open Manhole	600	1.004	28.735	300	1.003	28.735	300	
S1005 Tank	29.350	1.540	Open Manhole	1	1.005	27.810		1.004	28.695	300	
S1200	29.350	0.775	Open Manhole	600	2.000	28.575	225				
S1006	29.350	1.600	Open Manhole	1200	1.006	27.750	300	1.005	27.750		
								2.000	27.825	225	
RE01	29.859	1.179	Open Manhole	1	3.000	28.680	150				
RE02	29.902	1.222	Open Manhole	1	4.000	28.680	150				
S1007	29.905	2.190	Open Manhole	1200	1.007	27.715	300	1.006	27.715	300	
								3.000	27.865	150	
								4.000	27.865	150	
S3000	29.950	0.950	Open Manhole	600	5.000	29.000	300				
S3001	29.916	1.031	Open Manhole	600	5.001	28.885	300	5.000	28.885	300	
S3002	29.887	1.217	Open Manhole	600	5.002	28.670	300	5.001	28.670	300	
S4000	29.850	1.300	Open Manhole	1200	6.000	28.550	300				
S1008	29.874	2.244	Open Manhole	1350	1.008	27.630	300	1.007	27.630	300	
								5.002	27.630	300	
								6.000	27.630	300	
S5000	29.836	1.706	Open Manhole	600	7.000	28.130	150				
S1009	29.874	2.379	Open Manhole	1500	1.009	27.495	225	1.008	27.495	300	
								7.000	27.645	150	
	29.650	2.400	Open Manhole	0		OUTFALL		1.009	27.250	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
---------	---------------------	----------------------	--------------------------	---------------------------	----------------	----------------

S1000	382623.126	395148.006	382623.126	395148.006	Required	
-------	------------	------------	------------	------------	----------	---

S1001	382608.412	395162.687	382608.412	395162.687	Required	
-------	------------	------------	------------	------------	----------	---

S1002	382590.125	395180.932	382590.125	395180.932	Required	
-------	------------	------------	------------	------------	----------	---

SGi Consulting		Page 6
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 20/12/2024 11:45 File SW NETWORK 1 & 2 DRAINA...	Designed by sgicivils Checked by	
Micro Drainage Network 2020.1.3		

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
	382604.404	395235.694			No Entry	



SGi Consulting								Page 7	
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP									
Date 20/12/2024 11:45 File SW NETWORK 1 & 2 DRAINA...				Designed by sgicivils Checked by					
Micro Drainage				Network 2020.1.3					
PIPELINE SCHEDULES for Storm									
Upstream Manhole									
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
1.000	o	300	S1000	29.920	29.000	0.620	Open Manhole		600
1.001	o	300	S1001	29.921	28.930	0.691	Open Manhole		600
1.002	o	300	S1002	29.920	28.840	0.780	Open Manhole		600
1.003	o	300	S1003	29.846	28.810	0.736	Open Manhole		600
1.004	o	300	S1004	29.850	28.735	0.815	Open Manhole		600
1.005	→[↓]		S1005 Tank	29.350	27.810	0.339	Open Manhole		1
2.000	o	225	S1200	29.350	28.575	0.550	Open Manhole		600
1.006	o	300	S1006	29.350	27.750	1.300	Open Manhole		1200
3.000	o	150	RE01	29.859	28.680	1.029	Open Manhole		1
4.000	o	150	RE02	29.902	28.680	1.072	Open Manhole		1
1.007	o	300	S1007	29.905	27.715	1.890	Open Manhole		1200
5.000	o	300	S3000	29.950	29.000	0.650	Open Manhole		600
5.001	o	300	S3001	29.916	28.885	0.731	Open Manhole		600
5.002	o	300	S3002	29.887	28.670	0.917	Open Manhole		600
Downstream Manhole									
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
1.000	20.785	296.9	S1001	29.921	28.930	0.691	Open Manhole		600
1.001	25.832	287.0	S1002	29.920	28.840	0.780	Open Manhole		600
1.002	8.624	287.5	S1003	29.846	28.810	0.736	Open Manhole		600
1.003	21.691	289.2	S1004	29.850	28.735	0.815	Open Manhole		600
1.004	10.886	272.2	S1005 Tank	29.350	28.695	0.355	Open Manhole		1
1.005	23.481	391.4	S1006	29.350	27.750	0.399	Open Manhole		1200
2.000	16.324	21.8	S1006	29.350	27.825	1.300	Open Manhole		1200
1.006	9.300	265.7	S1007	29.905	27.715	1.890	Open Manhole		1200
3.000	30.230	37.1	S1007	29.905	27.865	1.890	Open Manhole		1200
4.000	24.111	29.6	S1007	29.905	27.865	1.890	Open Manhole		1200
1.007	24.990	294.0	S1008	29.874	27.630	1.944	Open Manhole		1350
5.000	11.979	104.2	S3001	29.916	28.885	0.731	Open Manhole		600
5.001	41.993	195.3	S3002	29.887	28.670	0.917	Open Manhole		600
5.002	10.418	10.0	S1008	29.874	27.630	1.944	Open Manhole		1350
©1982-2020 Innovyze									

SGi Consulting		Page 8
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 20/12/2024 11:45	Designed by sgicivils	
File SW NETWORK 1 & 2 DRAINA...	Checked by	
Micro Drainage		Network 2020.1.3

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
6.000	o	300	S4000	29.850	28.550	1.000	Open Manhole	1200
1.008	o	300	S1008	29.874	27.630	1.944	Open Manhole	1350
7.000	o	150	S5000	29.836	28.130	1.556	Open Manhole	600
1.009	o	225	S1009	29.874	27.495	2.154	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
6.000	33.722	36.7	S1008	29.874	27.630	1.944	Open Manhole	1350
1.008	17.769	131.6	S1009	29.874	27.495	2.079	Open Manhole	1500
7.000	7.661	15.8	S1009	29.874	27.645	2.079	Open Manhole	1500
1.009	33.195	135.5		29.650	27.250	2.175	Open Manhole	0

SGi Consulting		Page 9
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 20/12/2024 11:45	Designed by sgicivils	
File SW NETWORK 1 & 2 DRAIN...	Checked by	
Micro Drainage		Network 2020.1.3

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.055	0.055	0.055
1.001	-	-	100	0.023	0.023	0.023
1.002	-	-	100	0.020	0.020	0.020
1.003	-	-	100	0.043	0.043	0.043
1.004	-	-	100	0.049	0.049	0.049
1.005	-	-	100	0.000	0.000	0.000
2.000	-	-	100	0.039	0.039	0.039
1.006	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.031	0.031	0.031
4.000	-	-	100	0.025	0.025	0.025
1.007	-	-	100	0.015	0.015	0.015
5.000	-	-	100	0.018	0.018	0.018
5.001	-	-	100	0.022	0.022	0.022
5.002	-	-	100	0.028	0.028	0.028
6.000	-	-	100	0.057	0.057	0.057
1.008	-	-	100	0.024	0.024	0.024
7.000	-	-	100	0.018	0.018	0.018
1.009	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.467	0.467	0.467

SGi Consulting		Page 11																																																																								
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP																																																																										
Date 20/12/2024 11:45	Designed by sgicivils																																																																									
File SW NETWORK 1 & 2 DRAINA...	Checked by																																																																									
Micro Drainage		Network 2020.1.3																																																																								
Online Controls for Storm Hydro-Brake® Optimum Manhole: S1009, DS/PN: 1.009, Volume (m³): 5.5 Unit Reference MD-SCU-0149-3000-1855-3000 Design Head (m)1.855 Design Flow (l/s)30.0 Flush-Flo™Calculated ObjectiveLinear discharge profile ApplicationSurface Sump AvailableYes Diameter (mm)149 Invert Level (m)27.495 Minimum Outlet Pipe Diameter (mm)225 Suggested Manhole Diameter (mm)1200 Control Points Head (m)Flow (l/s) Design Point (Calculated)1.85530.0 Flush-Flo™0.17711.3 Kick-Flo®0.22311.0 Mean Flow over Head Range-20.2 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 <table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>5.9</td><td>1.200</td><td>24.3</td><td>3.000</td><td>37.8</td><td>7.000</td><td>57.0</td></tr><tr><td>0.200</td><td>11.2</td><td>1.400</td><td>26.2</td><td>3.500</td><td>40.8</td><td>7.500</td><td>59.0</td></tr><tr><td>0.300</td><td>12.6</td><td>1.600</td><td>27.9</td><td>4.000</td><td>43.5</td><td>8.000</td><td>60.9</td></tr><tr><td>0.400</td><td>14.4</td><td>1.800</td><td>29.6</td><td>4.500</td><td>46.0</td><td>8.500</td><td>62.7</td></tr><tr><td>0.500</td><td>16.0</td><td>2.000</td><td>31.1</td><td>5.000</td><td>48.4</td><td>9.000</td><td>64.5</td></tr><tr><td>0.600</td><td>17.5</td><td>2.200</td><td>32.6</td><td>5.500</td><td>50.7</td><td>9.500</td><td>66.2</td></tr><tr><td>0.800</td><td>20.1</td><td>2.400</td><td>34.0</td><td>6.000</td><td>52.9</td><td></td><td></td></tr><tr><td>1.000</td><td>22.3</td><td>2.600</td><td>35.3</td><td>6.500</td><td>55.0</td><td></td><td></td></tr></table>			Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	5.9	1.200	24.3	3.000	37.8	7.000	57.0	0.200	11.2	1.400	26.2	3.500	40.8	7.500	59.0	0.300	12.6	1.600	27.9	4.000	43.5	8.000	60.9	0.400	14.4	1.800	29.6	4.500	46.0	8.500	62.7	0.500	16.0	2.000	31.1	5.000	48.4	9.000	64.5	0.600	17.5	2.200	32.6	5.500	50.7	9.500	66.2	0.800	20.1	2.400	34.0	6.000	52.9			1.000	22.3	2.600	35.3	6.500	55.0		
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																			
0.100	5.9	1.200	24.3	3.000	37.8	7.000	57.0																																																																			
0.200	11.2	1.400	26.2	3.500	40.8	7.500	59.0																																																																			
0.300	12.6	1.600	27.9	4.000	43.5	8.000	60.9																																																																			
0.400	14.4	1.800	29.6	4.500	46.0	8.500	62.7																																																																			
0.500	16.0	2.000	31.1	5.000	48.4	9.000	64.5																																																																			
0.600	17.5	2.200	32.6	5.500	50.7	9.500	66.2																																																																			
0.800	20.1	2.400	34.0	6.000	52.9																																																																					
1.000	22.3	2.600	35.3	6.500	55.0																																																																					
©1982-2020 Innovyze																																																																										

SGi Consulting			Page 12																																																																																																																																												
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP																																																																																																																																															
Date 20/12/2024 11:45 File SW NETWORK 1 & 2 DRAINA...		Designed by sgicivils Checked by																																																																																																																																													
Micro Drainage		Network 2020.1.3																																																																																																																																													
Storage Structures for Storm Cellular Storage Pipe: 1.005 Manning's N0.050Infiltration Coefficient Side (m/hr)0.00000 Invert Level (m)27.810Safety Factor1.0 Infiltration Coefficient Base (m/hr)0.00000Porosity0.95 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>150.0</td><td>0.0</td><td>1.201</td><td>0.0</td><td>0.0</td></tr><tr><td>1.200</td><td>150.0</td><td>0.0</td><td></td><td></td><td></td></tr></tbody></table> Volume Summary (Static) Length Calculations based on Centre-Centre <table><thead><tr><th>Pipe Number</th><th>USMH Name</th><th>Manhole Volume (m³)</th><th>Pipe Volume (m³)</th><th>Storage Structure Volume (m³)</th><th>Total Volume (m³)</th></tr></thead><tbody><tr><td>1.000</td><td>S1000</td><td>0.260</td><td>1.469</td><td>0.000</td><td>1.729</td></tr><tr><td>1.001</td><td>S1001</td><td>0.280</td><td>1.826</td><td>0.000</td><td>2.106</td></tr><tr><td>1.002</td><td>S1002</td><td>0.305</td><td>0.610</td><td>0.000</td><td>0.915</td></tr><tr><td>1.003</td><td>S1003</td><td>0.293</td><td>1.533</td><td>0.000</td><td>1.826</td></tr><tr><td>1.004</td><td>S1004</td><td>0.315</td><td>0.769</td><td>0.000</td><td>1.085</td></tr><tr><td>1.005</td><td>S1005 Tank</td><td>0.000</td><td>171.071</td><td>0.000</td><td>171.071</td></tr><tr><td>2.000</td><td>S1200</td><td>0.219</td><td>0.649</td><td>0.000</td><td>0.868</td></tr><tr><td>1.006</td><td>S1006</td><td>1.810</td><td>0.657</td><td>0.000</td><td>2.467</td></tr><tr><td>3.000</td><td>RE01</td><td>0.000</td><td>0.534</td><td>0.000</td><td>0.534</td></tr><tr><td>4.000</td><td>RE02</td><td>0.000</td><td>0.426</td><td>0.000</td><td>0.426</td></tr><tr><td>1.007</td><td>S1007</td><td>2.477</td><td>1.766</td><td>0.000</td><td>4.243</td></tr><tr><td>5.000</td><td>S3000</td><td>0.269</td><td>0.847</td><td>0.000</td><td>1.115</td></tr><tr><td>5.001</td><td>S3001</td><td>0.292</td><td>2.968</td><td>0.000</td><td>3.260</td></tr><tr><td>5.002</td><td>S3002</td><td>0.344</td><td>0.736</td><td>0.000</td><td>1.081</td></tr><tr><td>6.000</td><td>S4000</td><td>1.470</td><td>2.384</td><td>0.000</td><td>3.854</td></tr><tr><td>1.008</td><td>S1008</td><td>3.212</td><td>1.256</td><td>0.000</td><td>4.468</td></tr><tr><td>7.000</td><td>S5000</td><td>0.482</td><td>0.135</td><td>0.000</td><td>0.618</td></tr><tr><td>1.009</td><td>S1009</td><td>4.204</td><td>1.320</td><td>0.000</td><td>5.524</td></tr><tr><td colspan="2">Total</td><td>16.232</td><td>190.958</td><td>0.000</td><td>207.191</td></tr></tbody></table>						Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	150.0	0.0	1.201	0.0	0.0	1.200	150.0	0.0				Pipe Number	USMH Name	Manhole Volume (m³)	Pipe Volume (m³)	Storage Structure Volume (m³)	Total Volume (m³)	1.000	S1000	0.260	1.469	0.000	1.729	1.001	S1001	0.280	1.826	0.000	2.106	1.002	S1002	0.305	0.610	0.000	0.915	1.003	S1003	0.293	1.533	0.000	1.826	1.004	S1004	0.315	0.769	0.000	1.085	1.005	S1005 Tank	0.000	171.071	0.000	171.071	2.000	S1200	0.219	0.649	0.000	0.868	1.006	S1006	1.810	0.657	0.000	2.467	3.000	RE01	0.000	0.534	0.000	0.534	4.000	RE02	0.000	0.426	0.000	0.426	1.007	S1007	2.477	1.766	0.000	4.243	5.000	S3000	0.269	0.847	0.000	1.115	5.001	S3001	0.292	2.968	0.000	3.260	5.002	S3002	0.344	0.736	0.000	1.081	6.000	S4000	1.470	2.384	0.000	3.854	1.008	S1008	3.212	1.256	0.000	4.468	7.000	S5000	0.482	0.135	0.000	0.618	1.009	S1009	4.204	1.320	0.000	5.524	Total		16.232	190.958	0.000	207.191
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																																																																																										
0.000	150.0	0.0	1.201	0.0	0.0																																																																																																																																										
1.200	150.0	0.0																																																																																																																																													
Pipe Number	USMH Name	Manhole Volume (m³)	Pipe Volume (m³)	Storage Structure Volume (m³)	Total Volume (m³)																																																																																																																																										
1.000	S1000	0.260	1.469	0.000	1.729																																																																																																																																										
1.001	S1001	0.280	1.826	0.000	2.106																																																																																																																																										
1.002	S1002	0.305	0.610	0.000	0.915																																																																																																																																										
1.003	S1003	0.293	1.533	0.000	1.826																																																																																																																																										
1.004	S1004	0.315	0.769	0.000	1.085																																																																																																																																										
1.005	S1005 Tank	0.000	171.071	0.000	171.071																																																																																																																																										
2.000	S1200	0.219	0.649	0.000	0.868																																																																																																																																										
1.006	S1006	1.810	0.657	0.000	2.467																																																																																																																																										
3.000	RE01	0.000	0.534	0.000	0.534																																																																																																																																										
4.000	RE02	0.000	0.426	0.000	0.426																																																																																																																																										
1.007	S1007	2.477	1.766	0.000	4.243																																																																																																																																										
5.000	S3000	0.269	0.847	0.000	1.115																																																																																																																																										
5.001	S3001	0.292	2.968	0.000	3.260																																																																																																																																										
5.002	S3002	0.344	0.736	0.000	1.081																																																																																																																																										
6.000	S4000	1.470	2.384	0.000	3.854																																																																																																																																										
1.008	S1008	3.212	1.256	0.000	4.468																																																																																																																																										
7.000	S5000	0.482	0.135	0.000	0.618																																																																																																																																										
1.009	S1009	4.204	1.320	0.000	5.524																																																																																																																																										
Total		16.232	190.958	0.000	207.191																																																																																																																																										
©1982-2020 Innovyze																																																																																																																																															

SGi Consulting		Page 13
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 20/12/2024 11:45	Designed by sgicivils	
File SW NETWORK 1 & 2 DRAIN...	Checked by	
Micro Drainage		Network 2020.1.3

Volume Summary (Static)

Length Calculations based on True Length

Pipe Number	USMH Name	Manhole Volume (m³)	Pipe Volume (m³)	Storage Structure Volume (m³)	Total Volume (m³)
1.000	S1000	0.260	1.427	0.000	1.687
1.001	S1001	0.280	1.784	0.000	2.064
1.002	S1002	0.305	0.567	0.000	0.873
1.003	S1003	0.293	1.491	0.000	1.784
1.004	S1004	0.315	0.748	0.000	1.064
1.005	S1005 Tank	0.000	166.696	0.000	166.696
2.000	S1200	0.219	0.613	0.000	0.832
1.006	S1006	1.810	0.573	0.000	2.382
3.000	RE01	0.000	0.524	0.000	0.524
4.000	RE02	0.000	0.415	0.000	0.415
1.007	S1007	2.477	1.676	0.000	4.153
5.000	S3000	0.269	0.804	0.000	1.073
5.001	S3001	0.292	2.926	0.000	3.217
5.002	S3002	0.344	0.667	0.000	1.012
6.000	S4000	1.470	2.294	0.000	3.764
1.008	S1008	3.212	1.155	0.000	4.367
7.000	S5000	0.482	0.117	0.000	0.599
1.009	S1009	4.204	1.290	0.000	5.494
Total		16.232	185.768	0.000	202.000

SGi Consulting

4th Floor, Colchester House
40 Peter Street
Manchester, M2 5GP

Date 20/12/2024 11:45
File SW NETWORK 1 & 2 DRAINAGE...

Designed by sgicivils
Checked by

Micro Drainage

Network 2020.1.3

Page 14



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 * 10m³/ha Storage 2.000

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 Storage Structures 1

Number of Online Controls 1

Number of Time/Area Diagrams 0

Number of Offline Controls 0

Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model

FSR

Ratio R 0.280

Region England and Wales Cv (Summer) 1.000

M5-60 (mm)

19.000 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm)

300.0

Analysis Timestep 2.5 Second Increment (Extended)

DTS Status

OFF

DVD Status

ON

Inertia Status

ON

Profile(s)

Summer and Winter

Duration(s) (mins)

15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440

Return Period(s) (years)

1, 2, 5, 30, 100

Climate Change (%)

0, 0, 0, 0, 45

PN	US/MH Name	US Label	Event	Duration (mins)	Storm Rank	US/CL (m)	Water Level (m)
1.000	S1000		15 minute 100 year Summer I+45%	15	1	29.920	29.654
1.001	S1001		15 minute 100 year Summer I+45%	15	1	29.921	29.584
1.002	S1002		15 minute 100 year Summer I+45%	15	1	29.920	29.505
1.003	S1003		15 minute 100 year Summer I+45%	15	1	29.846	29.434
1.004	S1004		180 minute 100 year Summer I+45%	180	1	29.850	29.359
1.005	S1005 Tank		180 minute 100 year Summer I+45%	180	1	29.350	29.349
2.000	S1200		180 minute 100 year Summer I+45%	180	1	29.350	29.346
1.006	S1006		180 minute 100 year Summer I+45%	180	1	29.350	29.349
3.000	RE01		180 minute 100 year Summer I+45%	180	1	29.859	29.356
4.000	RE02		180 minute 100 year Summer I+45%	180	1	29.902	29.352
1.007	S1007		180 minute 100 year Summer I+45%	180	1	29.905	29.342
5.000	S3000		180 minute 100 year Summer I+45%	180	1	29.950	29.331
5.001	S3001		180 minute 100 year Summer I+45%	180	1	29.916	29.330
5.002	S3002		180 minute 100 year Summer I+45%	180	1	29.887	29.326
6.000	S4000		180 minute 100 year Summer I+45%	180	1	29.850	29.328
1.008	S1008		180 minute 100 year Summer I+45%	180	1	29.874	29.323
7.000	S5000		180 minute 100 year Summer I+45%	180	1	29.836	29.235
1.009	S1009		180 minute 100 year Summer I+45%	180	1	29.874	29.231

©1982-2020 Innovyze

SGi Consulting		Page 15
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 20/12/2024 11:45	Designed by sgicivils	
File SW NETWORK 1 & 2 DRAIN...	Checked by	
Micro Drainage		Network 2020.1.3

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

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Overflow Act.	Total		Level Exceeded
		Depth (m)	Volume (m³)				Overflow Vol (m³)	Overflow Vol (m³)	
1.000	S1000	0.354	0.000	0.65					
1.001	S1001	0.354	0.000	0.85					
1.002	S1002	0.365	0.000	1.27					
1.003	S1003	0.324	0.000	1.57					
1.004	S1004	0.324	0.000	1.00					
1.005	S1005 Tank	0.338	0.000	0.01					
2.000	S1200	0.546	0.000	0.11					
1.006	S1006	1.299	0.000	0.41					
3.000	RE01	0.526	0.000	0.32					
4.000	RE02	0.522	0.000	0.23					
1.007	S1007	1.327	0.000	0.38					
5.000	S3000	0.031	0.000	0.06					
5.001	S3001	0.145	0.000	0.16					
5.002	S3002	0.356	0.000	0.08					
6.000	S4000	0.478	0.000	0.09					
1.008	S1008	1.393	0.000	0.34					
7.000	S5000	0.955	0.000	0.13					
1.009	S1009	1.511	0.000	0.69					

PN	US/MH Name	Maximum Discharge		Maximum Velocity (m/s)	Pipe Flow (l/s)	Status
		Vol (m³)	Vol (m³)			
1.000	S1000	0.183	16.418	0.7	36.3	FLOOD RISK
1.001	S1001	1.610	23.292	0.7	49.9	SURCHARGED
1.002	S1002	1.970	29.261	0.9	62.7	SURCHARGED
1.003	S1003	0.742	42.088	1.3	89.6	SURCHARGED
1.004	S1004	1.666	154.721	0.9	53.3	SURCHARGED
1.005	S1005 Tank	0.748	154.722	0.2	53.2	FLOOD RISK
2.000	S1200	0.217	31.759	1.7	11.2	FLOOD RISK
1.006	S1006	169.113	184.754	0.5	21.4	FLOOD RISK
3.000	RE01	0.000	25.242	1.4	8.9	SURCHARGED
4.000	RE02	0.000	20.358	1.5	7.2	SURCHARGED
1.007	S1007	3.346	242.506	0.6	21.8	SURCHARGED
5.000	S3000	0.092	14.658	0.7	5.2	SURCHARGED
5.001	S3001	0.928	32.574	0.8	11.5	SURCHARGED
5.002	S3002	3.110	55.375	2.2	19.6	SURCHARGED
6.000	S4000	0.875	46.417	1.5	15.9	SURCHARGED
1.008	S1008	7.053	363.783	0.8	28.3	SURCHARGED
7.000	S5000	0.311	14.658	1.3	4.9	SURCHARGED
1.009	S1009	4.332	378.330	1.2	29.1	SURCHARGED