

APPENDIX 9

MICRO DRAINAGE ANALYSIS

Note: FW drainage routes / sizes are indicative only
subject to further detailed design.

Note: SW drainage scheme subject to WW / LLFA
approval as required.

Area allocated for
potential future
building extension

CLYWEDOG ROAD (NORTH)

EX WW 150dia CW Sewer

EX WW CW Sewer

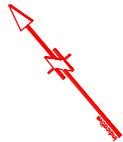
EX WW CW Sewer

Notes

- 1 All dimensions are in millimetres unless
stated otherwise.
- 2 All dimensions are in millimetres unless noted otherwise.
- 3 This drawing is to be read in conjunction with
all relevant Architects and Service Engineers
drawings.

Legend

- SWMH – Surface Water Manhole
- FWMH – New Foul Water Manhole
- Ex. SWMH – Existing Surface Water Manhole
- Ex. FWMH – Existing Foul Water Manhole
- Ex. WWCW/MH – Existing Wastewater Manhole
- G – New Road Gully
- S – New Channel Sump
- RWP – Assumed Rainwater Pipe Position
- New Drainage Channel
- New Surface Water Drain
- New Foul Water Drain
- Existing Surface Water Drain
- Existing Foul Water Drain
- Existing Combined Water Drain
- Site Boundary (Extent TBC by architect)



P1 US 11/18 Issued for Preliminary

Revised Date Description

PRELIMINARY

Contract
WREXHAM INDUSTRIAL
ESTATE,
WREXHAM

Drinking Water
SITE 2
CATCHMENTS
/MICRODRAINAGE INPUT

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Scale 1:200 @ A1

Date 10/18

Drawn RH

Checked NS

Contract No 3036

Drawing No 2.07

P1

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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)	30	Add Flow / Climate Change (%)	0
M5-60 (mm)	18.000	Minimum Backdrop Height (m)	0.200
Ratio R	0.335	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	50	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	400
PIMP (%)	100		

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.324	4-8	0.197

Total Area Contributing (ha) = 0.521

Total Pipe Volume (m³) = 277.087

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)
1.000	60.768	0.400	151.9	0.102	5.00	0.0	0.600	o	225
1.001	21.552	0.260	82.9	0.013	0.00	0.0	0.600	o	225
2.000	16.118	0.120	134.3	0.044	5.00	0.0	0.600	o	150
3.000	6.506	0.460	14.1	0.013	5.00	0.0	0.600	o	150

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	50.00	5.96	34.150	0.102	0.0	0.0	0.0	1.06	42.1	13.8
1.001	50.00	6.21	33.750	0.115	0.0	0.0	0.0	1.44	57.1	15.6
2.000	50.00	5.31	33.390	0.044	0.0	0.0	0.0	0.87	15.3	6.0
3.000	50.00	5.04	33.730	0.013	0.0	0.0	0.0	2.69	47.6	1.8

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1.006	9.417	0.175	53.8	0.000	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)
1.006	50.00	6.74	32.990	0.521	0.0	0.0	0.0	1.79	71.0	70.5

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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	225	1	34.750	34.150	0.375	Open Manhole	450
1.001	o	225	2	34.750	33.750	0.775	Open Manhole	450
2.000	o	150	3	34.100	33.390	0.560	Open Manhole	150
3.000	o	150	4	34.440	33.730	0.560	Open Manhole	150
1.002	o	300	5	34.350	33.120	0.930	Open Manhole	1050
1.003	[]	-1	6	34.350	33.100	0.450	Junction	
4.000	o	150	7	34.000	33.290	0.560	Open Manhole	150
4.001	o	150	8	34.270	33.210	0.910	Open Manhole	1050
5.000	o	150	9	34.320	33.610	0.560	Open Manhole	150
6.000	o	150	10	34.320	33.610	0.560	Open Manhole	150
5.001	o	225	11	34.440	33.460	0.755	Open Manhole	1050
5.002	o	300	12	34.730	33.310	1.120	Open Manhole	1050
7.000	o	150	13	34.600	33.890	0.560	Open Manhole	150

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	60.768	151.9	2	34.750	33.750	0.775	Open Manhole	450
1.001	21.552	82.9	5	34.350	33.490	0.635	Open Manhole	1050
2.000	16.118	134.3	5	34.350	33.270	0.930	Open Manhole	1050
3.000	6.506	14.1	5	34.350	33.270	0.930	Open Manhole	1050
1.002	2.022	101.1	6	34.350	33.100	0.950	Junction	
1.003	15.500	407.9	15	34.580	33.062	0.718	Junction	
4.000	10.394	129.9	8	34.270	33.210	0.910	Open Manhole	1050
4.001	11.099	75.0	15	34.580	33.062	1.368	Junction	
5.000	9.001	120.0	11	34.440	33.535	0.755	Open Manhole	1050
6.000	11.250	150.0	11	34.440	33.535	0.755	Open Manhole	1050
5.001	13.293	177.2	12	34.730	33.385	1.120	Open Manhole	1050
5.002	48.209	209.6	14	34.670	33.080	1.290	Open Manhole	1050
7.000	5.076	7.7	14	34.670	33.230	1.290	Open Manhole	1050

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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)
5.003	o	300	14	34.670	33.080	1.290	Open Manhole	1050
1.004	[]	-1	15	34.580	33.062	0.718	Junction	
1.005	o	450	16	34.400	33.050	0.900	Junction	
8.000	o	150	17	33.880	33.350	0.380	Open Manhole	450
1.006	o	225	18	34.140	32.990	0.925	Open Manhole	1200

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)
5.003	3.212	178.4	15	34.580	33.062	1.218	Junction	
1.004	5.000	416.7	16	34.400	33.050	0.550	Junction	
1.005	18.091	301.5	18	34.140	32.990	0.700	Open Manhole	1200
8.000	9.559	26.6	18	34.140	32.990	1.000	Open Manhole	1200
1.006	9.417	53.8		34.400	32.815	1.360	Open Manhole	0

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.102	0.102	0.102
1.001	-	-	100	0.013	0.013	0.013
2.000	-	-	100	0.044	0.044	0.044
3.000	-	-	100	0.013	0.013	0.013
1.002	-	-	100	0.016	0.016	0.016
1.003	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.022	0.022	0.022
4.001	-	-	100	0.028	0.028	0.028
5.000	-	-	100	0.056	0.056	0.056
6.000	-	-	100	0.057	0.057	0.057
5.001	-	-	100	0.000	0.000	0.000
5.002	-	-	100	0.129	0.129	0.129
7.000	-	-	100	0.010	0.010	0.010
5.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.013	0.013	0.013
1.005	-	-	100	0.000	0.000	0.000
8.000	-	-	100	0.018	0.018	0.018
1.006	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.521	0.521	0.521

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)
1.006		34.400	32.815	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
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 Storage Structures
Number of Online Controls		1	Number of Time/Area Diagrams
Number of Offline Controls		0	Number of Real Time Controls

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.335		

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Online Controls for Storm

Depth/Flow Relationship Manhole: 18, DS/PN: 1.006, Volume (m³): 4.2

Invert Level (m) 32.990

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.018	0.1930	0.257	4.9910	0.496	4.6640	0.735	4.5450
0.037	0.7250	0.276	4.9920	0.514	4.5950	0.753	4.5970
0.055	1.5040	0.294	4.9870	0.533	4.5110	0.771	4.6490
0.073	2.4170	0.312	4.9760	0.551	4.4090	0.790	4.7000
0.092	3.3090	0.331	4.9610	0.569	4.2870	0.808	4.7500
0.110	4.0340	0.349	4.9430	0.588	4.1420	0.827	4.7990
0.129	4.5680	0.367	4.9220	0.606	4.1600	0.845	4.8480
0.147	4.6970	0.386	4.8980	0.624	4.2180	0.863	4.8970
0.165	4.7950	0.404	4.8710	0.643	4.2740	0.882	4.9450
0.184	4.8680	0.422	4.8420	0.661	4.3300	0.900	4.9920
0.202	4.9210	0.441	4.8080	0.680	4.3850	0.990	5.2180
0.220	4.9570	0.459	4.7680	0.698	4.4390	1.080	5.4330
0.239	4.9800	0.478	4.7210	0.716	4.4930		

Manhole Headloss for Storm

PN	US/MH	US/MH
Name	Headloss	
1.000	1	0.500
1.001	2	0.500
2.000	3	0.500
3.000	4	0.500
1.002	5	0.500
1.003	6	0.000
4.000	7	0.500
4.001	8	0.500
5.000	9	0.500
6.000	10	0.500
5.001	11	0.500
5.002	12	0.500
7.000	13	0.500
5.003	14	0.500
1.004	15	0.000
1.005	16	0.000
8.000	17	0.500
1.006	18	0.500

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

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) 2
 Climate Change (%) 0

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
1.000	15 Winter	2	0%					
1.001	15 Winter	2	0%					
2.000	15 Winter	2	0%					
3.000	15 Winter	2	0%					
1.002	120 Winter	2	0%					
1.003	120 Winter	2	0%					
4.000	15 Winter	2	0%					
4.001	120 Winter	2	0%					
5.000	15 Winter	2	0%					
6.000	15 Winter	2	0%					
5.001	15 Winter	2	0%					
5.002	15 Winter	2	0%					
7.000	15 Winter	2	0%					
5.003	120 Winter	2	0%					
1.004	120 Winter	2	0%					
1.005	120 Winter	2	0%					
8.000	15 Winter	2	0%					
1.006	120 Winter	2	0%	2/15 Summer				

PN	US/MH Name	Water		Flooded		Pipe		Status
		Level (m)	Surch'd Depth (m)	Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	
1.000	1	34.247	-0.128	0.000	0.36	0.0	14.8	OK
1.001	2	33.837	-0.138	0.000	0.31	0.0	16.4	OK
2.000	3	33.463	-0.077	0.000	0.46	0.0	6.6	OK
3.000	4	33.751	-0.129	0.000	0.05	0.0	2.0	OK
1.002	5	33.291	-0.129	0.000	0.18	0.0	9.9	OK
1.003	6	33.291	-0.609	0.000	0.00	0.0	9.8	OK*
4.000	7	33.340	-0.100	0.000	0.24	0.0	3.3	OK
4.001	8	33.293	-0.067	0.000	0.14	0.0	2.7	OK
5.000	9	33.694	-0.066	0.000	0.59	0.0	8.5	OK
6.000	10	33.701	-0.059	0.000	0.66	0.0	8.6	OK
5.001	11	33.575	-0.110	0.000	0.51	0.0	17.1	OK
5.002	12	33.455	-0.155	0.000	0.46	0.0	32.7	OK
7.000	13	33.907	-0.133	0.000	0.03	0.0	1.5	OK
5.003	14	33.292	-0.088	0.000	0.25	0.0	12.8	OK
1.004	15	33.291	-0.571	0.000	0.00	0.0	14.0	OK*

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

PN	US/MH Name	Water	Surch'd Depth (m)	Flooded	Flow / Cap.	O'flow (1/s)	Pipe	Status
		Level (m)		Volume (m³)			Flow (1/s)	
1.005	16	33.291	-0.209	0.000	0.04	0.0	6.1	OK*
8.000	17	33.380	-0.120	0.000	0.09	0.0	2.7	OK
1.006	18	33.291	0.076	0.000	0.08	0.0	5.0	SURCHARGED

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PIMP (%)	100		

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Time	Area	Time	Area
(mins)	(ha)	(mins)	(ha)
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1.006	50.00	6.74	32.990	0.521	0.0	0.0	0.0	1.79	71.0	70.5

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Manhole</td><td>1050</td></tr><tr><td>1.003</td><td>[]</td><td>-1</td><td>6</td><td>34.350</td><td>33.100</td><td>0.450</td><td>Junction</td><td></td></tr><tr><td>4.000</td><td>o</td><td>150</td><td>7</td><td>34.000</td><td>33.290</td><td>0.560</td><td>Open Manhole</td><td>150</td></tr><tr><td>4.001</td><td>o</td><td>150</td><td>8</td><td>34.270</td><td>33.210</td><td>0.910</td><td>Open Manhole</td><td>1050</td></tr><tr><td>5.000</td><td>o</td><td>150</td><td>9</td><td>34.320</td><td>33.610</td><td>0.560</td><td>Open Manhole</td><td>150</td></tr><tr><td>6.000</td><td>o</td><td>150</td><td>10</td><td>34.320</td><td>33.610</td><td>0.560</td><td>Open Manhole</td><td>150</td></tr><tr><td>5.001</td><td>o</td><td>225</td><td>11</td><td>34.440</td><td>33.460</td><td>0.755</td><td>Open Manhole</td><td>1050</td></tr><tr><td>5.002</td><td>o</td><td>300</td><td>12</td><td>34.730</td><td>33.310</td><td>1.120</td><td>Open Manhole</td><td>1050</td></tr><tr><td>7.000</td><td>o</td><td>150</td><td>13</td><td>34.600</td><td>33.890</td><td>0.560</td><td>Open Manhole</td><td>150</td></tr></table> <u>Downstream Manhole</u> <table><tr><th>PN</th><th>Length (m)</th><th>Slope (1:X)</th><th>MH Name</th><th>C.Level (m)</th><th>I.Level (m)</th><th>D.Depth (m)</th><th>MH Connection</th><th>MH DIAM., L*W (mm)</th></tr><tr><td>1.000</td><td>60.768</td><td>151.9</td><td>2</td><td>34.750</td><td>33.750</td><td>0.775</td><td>Open Manhole</td><td>450</td></tr><tr><td>1.001</td><td>21.552</td><td>82.9</td><td>5</td><td>34.350</td><td>33.490</td><td>0.635</td><td>Open Manhole</td><td>1050</td></tr><tr><td>2.000</td><td>16.118</td><td>134.3</td><td>5</td><td>34.350</td><td>33.270</td><td>0.930</td><td>Open Manhole</td><td>1050</td></tr><tr><td>3.000</td><td>6.506</td><td>14.1</td><td>5</td><td>34.350</td><td>33.270</td><td>0.930</td><td>Open 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Manhole	1050	5.002	o	300	12	34.730	33.310	1.120	Open Manhole	1050	7.000	o	150	13	34.600	33.890	0.560	Open Manhole	150	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	60.768	151.9	2	34.750	33.750	0.775	Open Manhole	450	1.001	21.552	82.9	5	34.350	33.490	0.635	Open Manhole	1050	2.000	16.118	134.3	5	34.350	33.270	0.930	Open Manhole	1050	3.000	6.506	14.1	5	34.350	33.270	0.930	Open Manhole	1050	1.002	2.022	101.1	6	34.350	33.100	0.950	Junction		1.003	15.500	407.9	15	34.580	33.062	0.718	Junction		4.000	10.394	129.9	8	34.270	33.210	0.910	Open Manhole	1050	4.001	11.099	75.0	15	34.580	33.062	1.368	Junction		5.000	9.001	120.0	11	34.440	33.535	0.755	Open Manhole	1050	6.000	11.250	150.0	11	34.440	33.535	0.755	Open Manhole	1050	5.001	13.293	177.2	12	34.730	33.385	1.120	Open Manhole	1050	5.002	48.209	209.6	14	34.670	33.080	1.290	Open Manhole	1050	7.000	5.076	7.7	14	34.670	33.230	1.290	Open Manhole	1050
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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)
5.003	o	300	14	34.670	33.080	1.290	Open Manhole	1050
1.004	[]	-1	15	34.580	33.062	0.718	Junction	
1.005	o	450	16	34.400	33.050	0.900	Junction	
8.000	o	150	17	33.880	33.350	0.380	Open Manhole	450
1.006	o	225	18	34.140	32.990	0.925	Open Manhole	1200

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)
5.003	3.212	178.4	15	34.580	33.062	1.218	Junction	
1.004	5.000	416.7	16	34.400	33.050	0.550	Junction	
1.005	18.091	301.5	18	34.140	32.990	0.700	Open Manhole	1200
8.000	9.559	26.6	18	34.140	32.990	1.000	Open Manhole	1200
1.006	9.417	53.8		34.400	32.815	1.360	Open Manhole	0

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.102	0.102	0.102
1.001	-	-	100	0.013	0.013	0.013
2.000	-	-	100	0.044	0.044	0.044
3.000	-	-	100	0.013	0.013	0.013
1.002	-	-	100	0.016	0.016	0.016
1.003	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.022	0.022	0.022
4.001	-	-	100	0.028	0.028	0.028
5.000	-	-	100	0.056	0.056	0.056
6.000	-	-	100	0.057	0.057	0.057
5.001	-	-	100	0.000	0.000	0.000
5.002	-	-	100	0.129	0.129	0.129
7.000	-	-	100	0.010	0.010	0.010
5.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.013	0.013	0.013
1.005	-	-	100	0.000	0.000	0.000
8.000	-	-	100	0.018	0.018	0.018
1.006	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.521	0.521	0.521

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)
1.006		34.400	32.815	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
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 Storage Structures
Number of Online Controls		1	Number of Time/Area Diagrams
Number of Offline Controls		0	Number of Real Time Controls

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.335		

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Online Controls for Storm

Depth/Flow Relationship Manhole: 18, DS/PN: 1.006, Volume (m³): 4.2

Invert Level (m) 32.990

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.018	0.1930	0.257	4.9910	0.496	4.6640	0.735	4.5450
0.037	0.7250	0.276	4.9920	0.514	4.5950	0.753	4.5970
0.055	1.5040	0.294	4.9870	0.533	4.5110	0.771	4.6490
0.073	2.4170	0.312	4.9760	0.551	4.4090	0.790	4.7000
0.092	3.3090	0.331	4.9610	0.569	4.2870	0.808	4.7500
0.110	4.0340	0.349	4.9430	0.588	4.1420	0.827	4.7990
0.129	4.5680	0.367	4.9220	0.606	4.1600	0.845	4.8480
0.147	4.6970	0.386	4.8980	0.624	4.2180	0.863	4.8970
0.165	4.7950	0.404	4.8710	0.643	4.2740	0.882	4.9450
0.184	4.8680	0.422	4.8420	0.661	4.3300	0.900	4.9920
0.202	4.9210	0.441	4.8080	0.680	4.3850	0.990	5.2180
0.220	4.9570	0.459	4.7680	0.698	4.4390	1.080	5.4330
0.239	4.9800	0.478	4.7210	0.716	4.4930		

Manhole Headloss for Storm

PN	US/MH	US/MH
Name	Headloss	
1.000	1	0.500
1.001	2	0.500
2.000	3	0.500
3.000	4	0.500
1.002	5	0.500
1.003	6	0.000
4.000	7	0.500
4.001	8	0.500
5.000	9	0.500
6.000	10	0.500
5.001	11	0.500
5.002	12	0.500
7.000	13	0.500
5.003	14	0.500
1.004	15	0.000
1.005	16	0.000
8.000	17	0.500
1.006	18	0.500

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

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 (%)

30

PN	Storm	Return Period	Climate Change	First X Surchage	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
1.000	15 Winter	100	+30%	100/15 Summer				
1.001	15 Winter	100	+30%					
2.000	360 Winter	100	+30%	100/15 Summer				
3.000	360 Winter	100	+30%					
1.002	360 Winter	100	+30%	100/15 Summer				
1.003	360 Winter	100	+30%					
4.000	360 Winter	100	+30%	100/15 Summer				
4.001	360 Winter	100	+30%	100/15 Summer				
5.000	15 Winter	100	+30%	100/15 Summer	100/15 Winter			1
6.000	15 Winter	100	+30%	100/15 Summer	100/15 Summer			2
5.001	15 Winter	100	+30%	100/15 Summer				
5.002	15 Winter	100	+30%	100/15 Summer				
7.000	15 Winter	100	+30%					
5.003	360 Winter	100	+30%	100/15 Summer				
1.004	360 Winter	100	+30%					
1.005	360 Winter	100	+30%	100/30 Summer				
8.000	240 Winter	100	+30%	100/30 Summer				
1.006	360 Winter	100	+30%	100/15 Summer				

PN	US/MH Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
1.000	1	34.486	0.111	0.000	1.11	0.0	45.0	FLOOD RISK
1.001	2	33.926	-0.049	0.000	0.95	0.0	49.6	OK
2.000	3	33.855	0.315	0.000	0.23	0.0	3.3	FLOOD RISK
3.000	4	33.853	-0.027	0.000	0.03	0.0	1.0	OK
1.002	5	33.853	0.433	0.000	0.26	0.0	14.3	SURCHARGED
1.003	6	33.852	-0.048	0.000	0.00	0.0	14.2	OK*
4.000	7	33.855	0.415	0.000	0.12	0.0	1.6	FLOOD RISK
4.001	8	33.854	0.494	0.000	0.20	0.0	3.7	SURCHARGED
5.000	9	34.320	0.560	0.098	1.73	0.0	24.7	FLOOD
6.000	10	34.320	0.560	0.302	1.95	0.0	25.4	FLOOD
5.001	11	34.114	0.429	0.000	1.50	0.0	50.6	SURCHARGED
5.002	12	33.979	0.369	0.000	1.37	0.0	98.3	SURCHARGED
7.000	13	33.921	-0.119	0.000	0.10	0.0	4.8	OK
5.003	14	33.853	0.473	0.000	0.37	0.0	18.6	SURCHARGED
1.004	15	33.852	-0.010	0.000	0.00	0.0	12.2	OK*

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2nd Floor, Fountain H...		
83 Fountain Street		
Manchester M2 2EE		
Date 06/11/2018 17:16	Designed by jansk	
File 3036 - SITE 2 MD...	Checked by	
Micro Drainage		Network W.12.6.1

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 (m³)	Flow / Cap.	O'flow (l/s)	Flow (l/s)	
1.005	16	33.850	0.350	0.000	0.03	0.0	5.8	SURCHARGED*
8.000	17	33.838	0.338	0.000	0.06	0.0	1.8	FLOOD RISK
1.006	18	33.829	0.614	0.000	0.08	0.0	5.0	SURCHARGED