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4 Market Square	Levenshulme Road	
Old Amersham	Surface Water	
Buckinghamshire, HP7 0DQ	Network Calculations	
Date 24/02/2023	Designed by MDS	
File SW Network Calculations ...	Checked by MDS	
Innovyze	Network 2020.1.3	

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
FEH Rainfall Version	2013
Site Location GB 388687 395445 SJ 88687 95445	
Data Type	Point
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
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

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.239	4-8	0.061

Total Area Contributing (ha) = 0.300

Total Pipe Volume (m³) = 17.014

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)	Section Type	Auto Design
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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)
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<p align="center"><u>Manhole Schedules for Storm</u></p>										
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)
S1	66.350	0.750	Open Manhole	150	1.000	65.600	150			
S2	66.350	0.870	Open Manhole	460	1.001	65.480	150	1.000	65.480	150
S3	66.350	0.750	Open Manhole	150	2.000	65.600	150			
S4	66.350	1.010	Open Manhole	460	1.002	65.340	150	1.001	65.340	150
								2.000	65.340	150
S5	66.700	0.750	Open Manhole	150	3.000	65.950	150			
S6	66.700	1.560	Open Manhole	460	1.003	65.140	150	1.002	65.140	150
								3.000	65.140	150
S7	66.625	0.825	Open Manhole	150	4.000	65.800	150			
S8	66.550	0.750	Open Manhole	460	5.000	65.800	150			
S9	66.550	0.875	Open Manhole	460	5.001	65.675	150	5.000	65.675	150
S10	66.550	1.595	Open Manhole	1500	1.004	64.955	150	1.003	64.955	150
								4.000	64.955	150
								5.001	64.955	150
S11	66.250	1.285	Open Manhole	1500	6.000	64.965	375			
S12	66.550	1.900	Open Manhole	1500	1.005	64.650	375	1.004	64.875	150
								6.000	64.650	375
S16	66.750	2.335	Open Manhole	1500	1.006	64.415	375	1.005	64.415	375
S17	66.350	0.750	Open Manhole	460	7.000	65.600	150			
S18	66.350	1.000	Open Manhole	460	7.001	65.350	150	7.000	65.350	150
S19	66.250	1.655	Open Manhole	1500	7.002	64.595	375	7.001	64.820	150
S20	66.300	1.820	Open Manhole	1500	7.003	64.480	375	7.002	64.480	375
S21	66.350	1.450	Open Manhole	460	8.000	64.900	150			
S22	66.350	1.700	Open Manhole	460	8.001	64.650	150	8.000	64.650	150
S23	66.400	2.015	Open Manhole	1500	7.004	64.385	375	7.003	64.385	375
								8.001	64.610	150
S24	66.750	2.470	Open Manhole	1500	1.007	64.280	375	1.006	64.280	375
								7.004	64.280	375
S25/FC	66.200	1.940	Open Manhole	1500	1.008	64.260	375	1.007	64.260	375
S26	65.750	1.540	Open Manhole	1500		OUTFALL		1.008	64.210	375
No coordinates have been specified, layout information cannot be produced.										
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Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall C. Level Name	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.008	S26	65.750	64.210	0.000 1500	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.950	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /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)	4320
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 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 388687 395445 SJ 88687 95445
Data Type	Point
Summer Storms	No
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.950
Storm Duration (mins)	15

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<div>Online Controls for Storm</div>																																																																										
<div>Hydro-Brake® Optimum Manhole: S25/FC, DS/PN: 1.008, Volume (m³): 3.6</div>																																																																										
<div><div>Unit Reference MD-SHE-0076-3400-1900-3400</div><div><div>Design Head (m)</div><div>Design Flow (l/s)</div><div>Flush-Flo™</div><div>Objective</div><div>Application</div><div>Sump Available</div><div>Diameter (mm)</div><div>Invert Level (m)</div><div>Minimum Outlet Pipe Diameter (mm)</div><div>Suggested Manhole Diameter (mm)</div></div><div><div>1.900</div><div>3.4</div><div>Calculated</div><div>Minimise upstream storage</div><div>Surface</div><div>Yes</div><div>76</div><div>64.260</div><div>100</div><div>1200</div></div></div>																																																																										
<table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.900</td><td>3.4</td><td>Kick-Flo®</td><td>0.676</td><td>2.1</td></tr><tr><td>Flush-Flo™</td><td>0.330</td><td>2.6</td><td>Mean Flow over Head Range</td><td>-</td><td>2.6</td></tr></table>			Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.900	3.4	Kick-Flo®	0.676	2.1	Flush-Flo™	0.330	2.6	Mean Flow over Head Range	-	2.6																																																						
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<div>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</div>																																																																										
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Date 24/02/2023	Designed by MDS	
File SW Network Calcualtions ...	Checked by MDS	
Innovyze	Network 2020.1.3	

Summary of Results for 360 minute 2 year Winter (Storm)

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

		Water	Surcharged	Flooded			Half Drain	Pipe	
PN	US/MH Name	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status
1.000	S1	65.608	-0.142	0.000	0.01			0.2	OK
1.001	S2	65.490	-0.140	0.000	0.01			0.3	OK
2.000	S3	65.605	-0.145	0.000	0.01			0.2	OK
1.002	S4	65.356	-0.134	0.000	0.02			0.5	OK
3.000	S5	65.953	-0.147	0.000	0.00			0.2	OK
1.003	S6	65.159	-0.131	0.000	0.04			0.7	OK
4.000	S7	65.804	-0.146	0.000	0.01			0.3	OK
5.000	S8	65.808	-0.142	0.000	0.01			0.2	OK
5.001	S9	65.681	-0.144	0.000	0.01			0.3	OK
1.004	S10	64.985	-0.120	0.000	0.09			1.5	OK
6.000	S11	64.976	-0.364	0.000	0.01			1.1	OK
1.005	S12	64.692	-0.333	0.000	0.03			4.3	OK
1.006	S16	64.528	-0.262	0.000	0.03			4.5	OK
7.000	S17	65.614	-0.136	0.000	0.02			0.4	OK
7.001	S18	65.366	-0.134	0.000	0.02			0.7	OK
7.002	S19	64.616	-0.354	0.000	0.01			1.6	OK
7.003	S20	64.529	-0.326	0.000	0.02			1.9	OK
8.000	S21	64.916	-0.134	0.000	0.02			0.5	OK
8.001	S22	64.677	-0.123	0.000	0.08			0.9	OK
7.004	S23	64.528	-0.232	0.000	0.03			3.6	OK
1.007	S24	64.527	-0.128	0.000	0.10			8.2	OK
1.008	S25/FC	64.527	-0.108	0.000	0.02		210	2.6	OK

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Old Amersham	Surface Water	
Buckinghamshire, HP7 0DQ	Network Calculations	
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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	30
FEH Rainfall Version	2013
Site Location	GB 388687 395445 SJ 88687 95445
Data Type	Point
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	40
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

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.950	Additional Flow - % of Total Flow	40.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /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)	4320
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 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
FEH Rainfall Version	2013
Site Location	GB 388687 395445 SJ 88687 95445
Data Type	Point
Summer Storms	No
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.950

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<div>Synthetic Rainfall Details</div> <div>Storm Duration (mins) 15</div>		
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<p><u>Summary of Results for 30 minute 30 year Winter (Storm)</u></p> <p>Margin for Flood Risk Warning (mm) 300.0 Analysis Timestep 2.5 Second Increment (Extended) DTS Status ON DVD Status OFF Inertia Status OFF</p> <table><thead><tr><th></th><th></th><th>Water</th><th>Surcharged</th><th>Flooded</th><th></th><th>Half Drain</th><th>Pipe</th><th></th></tr><tr><th>PN</th><th>US/MH Name</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th><th>Status</th></tr></thead><tbody><tr><td>1.000</td><td>S1</td><td>65.641</td><td>-0.109</td><td>0.000</td><td>0.17</td><td></td><td></td><td>3.0</td><td>OK</td></tr><tr><td>1.001</td><td>S2</td><td>65.527</td><td>-0.103</td><td>0.000</td><td>0.21</td><td></td><td></td><td>3.9</td><td>OK</td></tr><tr><td>2.000</td><td>S3</td><td>65.634</td><td>-0.116</td><td>0.000</td><td>0.11</td><td></td><td></td><td>3.0</td><td>OK</td></tr><tr><td>1.002</td><td>S4</td><td>65.404</td><td>-0.086</td><td>0.000</td><td>0.37</td><td></td><td></td><td>6.9</td><td>OK</td></tr><tr><td>3.000</td><td>S5</td><td>65.975</td><td>-0.125</td><td>0.000</td><td>0.06</td><td></td><td></td><td>3.0</td><td>OK</td></tr><tr><td>1.003</td><td>S6</td><td>65.225</td><td>-0.065</td><td>0.000</td><td>0.61</td><td></td><td></td><td>11.2</td><td>OK</td></tr><tr><td>4.000</td><td>S7</td><td>65.828</td><td>-0.122</td><td>0.000</td><td>0.08</td><td></td><td></td><td>3.9</td><td>OK</td></tr><tr><td>5.000</td><td>S8</td><td>65.841</td><td>-0.109</td><td>0.000</td><td>0.17</td><td></td><td></td><td>3.0</td><td>OK</td></tr><tr><td>5.001</td><td>S9</td><td>65.709</td><td>-0.116</td><td>0.000</td><td>0.12</td><td></td><td></td><td>4.3</td><td>OK</td></tr><tr><td>1.004</td><td>S10</td><td>65.156</td><td>0.051</td><td>0.000</td><td>1.30</td><td></td><td></td><td>22.0</td><td>SURCHARGED</td></tr><tr><td>6.000</td><td>S11</td><td>65.041</td><td>-0.299</td><td>0.000</td><td>0.09</td><td></td><td></td><td>16.3</td><td>OK</td></tr><tr><td>1.005</td><td>S12</td><td>64.828</td><td>-0.197</td><td>0.000</td><td>0.43</td><td></td><td></td><td>63.6</td><td>OK</td></tr><tr><td>1.006</td><td>S16</td><td>64.825</td><td>0.035</td><td>0.000</td><td>0.45</td><td></td><td></td><td>65.1</td><td>SURCHARGED</td></tr><tr><td>7.000</td><td>S17</td><td>65.656</td><td>-0.094</td><td>0.000</td><td>0.30</td><td></td><td></td><td>5.6</td><td>OK</td></tr><tr><td>7.001</td><td>S18</td><td>65.412</td><td>-0.088</td><td>0.000</td><td>0.36</td><td></td><td></td><td>11.2</td><td>OK</td></tr><tr><td>7.002</td><td>S19</td><td>64.826</td><td>-0.144</td><td>0.000</td><td>0.18</td><td></td><td></td><td>23.5</td><td>OK</td></tr><tr><td>7.003</td><td>S20</td><td>64.826</td><td>-0.029</td><td>0.000</td><td>0.21</td><td></td><td></td><td>25.7</td><td>OK</td></tr><tr><td>8.000</td><td>S21</td><td>64.963</td><td>-0.087</td><td>0.000</td><td>0.37</td><td></td><td></td><td>6.8</td><td>OK</td></tr><tr><td>8.001</td><td>S22</td><td>64.826</td><td>0.026</td><td>0.000</td><td>1.14</td><td></td><td></td><td>14.2</td><td>SURCHARGED</td></tr><tr><td>7.004</td><td>S23</td><td>64.825</td><td>0.065</td><td>0.000</td><td>0.40</td><td></td><td></td><td>51.1</td><td>SURCHARGED</td></tr><tr><td>1.007</td><td>S24</td><td>64.825</td><td>0.170</td><td>0.000</td><td>1.46</td><td></td><td></td><td>121.2</td><td>SURCHARGED</td></tr><tr><td>1.008</td><td>S25/FC</td><td>64.824</td><td>0.189</td><td>0.000</td><td>0.02</td><td></td><td>334</td><td>2.6</td><td>SURCHARGED</td></tr></tbody></table>										Water	Surcharged	Flooded		Half Drain	Pipe		PN	US/MH Name	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	1.000	S1	65.641	-0.109	0.000	0.17			3.0	OK	1.001	S2	65.527	-0.103	0.000	0.21			3.9	OK	2.000	S3	65.634	-0.116	0.000	0.11			3.0	OK	1.002	S4	65.404	-0.086	0.000	0.37			6.9	OK	3.000	S5	65.975	-0.125	0.000	0.06			3.0	OK	1.003	S6	65.225	-0.065	0.000	0.61			11.2	OK	4.000	S7	65.828	-0.122	0.000	0.08			3.9	OK	5.000	S8	65.841	-0.109	0.000	0.17			3.0	OK	5.001	S9	65.709	-0.116	0.000	0.12			4.3	OK	1.004	S10	65.156	0.051	0.000	1.30			22.0	SURCHARGED	6.000	S11	65.041	-0.299	0.000	0.09			16.3	OK	1.005	S12	64.828	-0.197	0.000	0.43			63.6	OK	1.006	S16	64.825	0.035	0.000	0.45			65.1	SURCHARGED	7.000	S17	65.656	-0.094	0.000	0.30			5.6	OK	7.001	S18	65.412	-0.088	0.000	0.36			11.2	OK	7.002	S19	64.826	-0.144	0.000	0.18			23.5	OK	7.003	S20	64.826	-0.029	0.000	0.21			25.7	OK	8.000	S21	64.963	-0.087	0.000	0.37			6.8	OK	8.001	S22	64.826	0.026	0.000	1.14			14.2	SURCHARGED	7.004	S23	64.825	0.065	0.000	0.40			51.1	SURCHARGED	1.007	S24	64.825	0.170	0.000	1.46			121.2	SURCHARGED	1.008	S25/FC	64.824	0.189	0.000	0.02		334	2.6	SURCHARGED
		Water	Surcharged	Flooded		Half Drain	Pipe																																																																																																																																																																																																																																															
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5.000	S8	65.841	-0.109	0.000	0.17			3.0	OK																																																																																																																																																																																																																																													
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6.000	S11	65.041	-0.299	0.000	0.09			16.3	OK																																																																																																																																																																																																																																													
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7.002	S19	64.826	-0.144	0.000	0.18			23.5	OK																																																																																																																																																																																																																																													
7.003	S20	64.826	-0.029	0.000	0.21			25.7	OK																																																																																																																																																																																																																																													
8.000	S21	64.963	-0.087	0.000	0.37			6.8	OK																																																																																																																																																																																																																																													
8.001	S22	64.826	0.026	0.000	1.14			14.2	SURCHARGED																																																																																																																																																																																																																																													
7.004	S23	64.825	0.065	0.000	0.40			51.1	SURCHARGED																																																																																																																																																																																																																																													
1.007	S24	64.825	0.170	0.000	1.46			121.2	SURCHARGED																																																																																																																																																																																																																																													
1.008	S25/FC	64.824	0.189	0.000	0.02		334	2.6	SURCHARGED																																																																																																																																																																																																																																													
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Micro
Drainage

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

PN	US/MH Name	Water	Surcharged	Flooded	Flow / Cap.	Half Drain	Pipe	Status
		Level (m)	Depth (m)	Volume (m³)		Overflow (l/s)	Time (mins)	
1.000	S1	65.617	-0.133	0.000	0.03		0.6	OK
1.001	S2	65.499	-0.131	0.000	0.04		0.7	OK
2.000	S3	65.615	-0.135	0.000	0.02		0.6	OK
1.002	S4	65.366	-0.124	0.000	0.07		1.3	OK
3.000	S5	65.959	-0.141	0.000	0.01		0.6	OK
1.003	S6	65.187	-0.103	0.000	0.11		2.1	OK
4.000	S7	65.811	-0.139	0.000	0.02		0.7	OK
5.000	S8	65.817	-0.133	0.000	0.03		0.6	OK
5.001	S9	65.690	-0.135	0.000	0.02		0.8	OK
1.004	S10	65.186	0.081	0.000	0.24		4.1	SURCHARGED
6.000	S11	65.185	-0.155	0.000	0.02		3.0	OK
1.005	S12	65.185	0.160	0.000	0.08		11.5	SURCHARGED
1.006	S16	65.184	0.394	0.000	0.07		10.7	SURCHARGED
7.000	S17	65.623	-0.127	0.000	0.05		1.0	OK
7.001	S18	65.375	-0.125	0.000	0.07		2.1	OK
7.002	S19	65.185	0.215	0.000	0.03		4.2	SURCHARGED
7.003	S20	65.185	0.330	0.000	0.03		4.1	SURCHARGED
8.000	S21	65.186	0.136	0.000	0.07		1.3	SURCHARGED
8.001	S22	65.185	0.385	0.000	0.20		2.5	SURCHARGED
7.004	S23	65.184	0.424	0.000	0.07		8.5	SURCHARGED
1.007	S24	65.184	0.529	0.000	0.24		19.7	SURCHARGED
1.008	S25/FC	65.183	0.548	0.000	0.02	612	2.6	SURCHARGED

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4 Market Square Old Amersham Buckinghamshire, HP7 0DQ	Levenshulme Road Surface Water Network Calculations	
Date 24/02/2023	Designed by MDS	
File SW Network Calcualtions ...	Checked by MDS	
Innovyze	Network 2020.1.3	

Summary of Results for 1440 minute 30 year Winter (Storm)

PN	US/MH Name	Water	Surcharged	Flooded	Flow / Cap.	Half Drain	Pipe	Status
		Level (m)	Depth (m)	Volume (m³)		Overflow (l/s)	Time (mins)	
1.000	S1	65.608	-0.142	0.000	0.01		0.2	OK
1.001	S2	65.490	-0.140	0.000	0.01		0.3	OK
2.000	S3	65.605	-0.145	0.000	0.01		0.2	OK
1.002	S4	65.356	-0.134	0.000	0.02		0.5	OK
3.000	S5	65.953	-0.147	0.000	0.00		0.2	OK
1.003	S6	65.159	-0.131	0.000	0.04		0.7	OK
4.000	S7	65.804	-0.146	0.000	0.01		0.3	OK
5.000	S8	65.808	-0.142	0.000	0.01		0.2	OK
5.001	S9	65.681	-0.144	0.000	0.01		0.3	OK
1.004	S10	65.084	-0.021	0.000	0.09		1.5	OK
6.000	S11	65.083	-0.257	0.000	0.01		1.1	OK
1.005	S12	65.083	0.058	0.000	0.03		4.2	SURCHARGED
1.006	S16	65.082	0.292	0.000	0.03		4.0	SURCHARGED
7.000	S17	65.614	-0.136	0.000	0.02		0.4	OK
7.001	S18	65.366	-0.134	0.000	0.02		0.7	OK
7.002	S19	65.082	0.112	0.000	0.01		1.5	SURCHARGED
7.003	S20	65.082	0.227	0.000	0.01		1.5	SURCHARGED
8.000	S21	65.083	0.033	0.000	0.02		0.5	SURCHARGED
8.001	S22	65.083	0.283	0.000	0.07		0.9	SURCHARGED
7.004	S23	65.082	0.322	0.000	0.02		3.1	SURCHARGED
1.007	S24	65.082	0.427	0.000	0.09		7.4	SURCHARGED
1.008	S25/FC	65.081	0.446	0.000	0.02	816	2.6	SURCHARGED

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4 Market Square	Levenshulme Road	
Old Amersham	Surface Water	
Buckinghamshire, HP7 0DQ	Network Calculations	
Date 24/02/2023	Designed by MDS	
File SW Network Calculations ...	Checked by MDS	
Innovyze	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 388687 395445 SJ 88687 95445	
Data Type	Point
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	45
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

Simulation Criteria for Storm

Volumetric Runoff Coeff 0.950	Additional Flow - % of Total Flow 45.000
Areal Reduction Factor 1.000	MADD Factor * 10m ³ /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) 4320
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 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 388687 395445 SJ 88687 95445	
Data Type	Point
Summer Storms	No
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.950

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4 Market Square Old Amersham Buckinghamshire, HP7 0DQ	Levenshulme Road Surface Water Network Calculations	
Date 24/02/2023	Designed by MDS	
File SW Network Calcualtions ...	Checked by MDS	
Innovyze	Network 2020.1.3	
<div>Synthetic Rainfall Details</div> <div>Storm Duration (mins) 15</div>		
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Micro
Drainage

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

PN	US/MH Name	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
		Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	S1	65.640	-0.110	0.000	0.16			2.9	OK
1.001	S2	65.526	-0.104	0.000	0.21			3.7	OK
2.000	S3	65.633	-0.117	0.000	0.11			2.9	OK
1.002	S4	65.402	-0.088	0.000	0.36			6.6	OK
3.000	S5	65.974	-0.126	0.000	0.06			2.9	OK
1.003	S6	65.280	-0.010	0.000	0.58			10.7	OK
4.000	S7	65.828	-0.122	0.000	0.08			3.7	OK
5.000	S8	65.840	-0.110	0.000	0.16			2.9	OK
5.001	S9	65.709	-0.116	0.000	0.11			4.1	OK
1.004	S10	65.276	0.171	0.000	1.27			21.4	SURCHARGED
6.000	S11	65.272	-0.068	0.000	0.09			15.6	OK
1.005	S12	65.271	0.246	0.000	0.41			59.4	SURCHARGED
1.006	S16	65.268	0.478	0.000	0.37			53.7	SURCHARGED
7.000	S17	65.655	-0.095	0.000	0.28			5.3	OK
7.001	S18	65.411	-0.089	0.000	0.34			10.8	OK
7.002	S19	65.270	0.300	0.000	0.16			21.8	SURCHARGED
7.003	S20	65.269	0.414	0.000	0.18			21.5	SURCHARGED
8.000	S21	65.273	0.223	0.000	0.35			6.6	SURCHARGED
8.001	S22	65.270	0.470	0.000	1.02			12.8	SURCHARGED
7.004	S23	65.269	0.509	0.000	0.35			44.6	SURCHARGED
1.007	S24	65.268	0.613	0.000	1.23			102.4	SURCHARGED
1.008	S25/FC	65.267	0.632	0.000	0.02		642	2.6	SURCHARGED

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4 Market Square Old Amersham Buckinghamshire, HP7 0DQ	Levenshulme Road Surface Water Network Calculations	
Date 24/02/2023	Designed by MDS	
File SW Network Calcualtions ...	Checked by MDS	
Innovyze	Network 2020.1.3	

Summary of Results for 240 minute 100 year Winter (Storm)

PN	US/MH Name	Water	Surcharged	Flooded	Flow / Cap.	Half Drain	Pipe	Status
		Level (m)	Depth (m)	Volume (m³)		Overflow (l/s)	Time (mins)	
1.000	S1	65.832	0.082	0.000	0.06		1.1	SURCHARGED
1.001	S2	65.831	0.201	0.000	0.08		1.4	SURCHARGED
2.000	S3	65.831	0.081	0.000	0.04		1.1	SURCHARGED
1.002	S4	65.831	0.341	0.000	0.13		2.4	SURCHARGED
3.000	S5	65.965	-0.135	0.000	0.02		1.1	OK
1.003	S6	65.830	0.540	0.000	0.22		4.0	SURCHARGED
4.000	S7	65.829	-0.121	0.000	0.03		1.4	OK
5.000	S8	65.829	-0.121	0.000	0.06		1.1	OK
5.001	S9	65.829	0.004	0.000	0.04		1.5	SURCHARGED
1.004	S10	65.829	0.724	0.000	0.47		7.9	SURCHARGED
6.000	S11	65.828	0.488	0.000	0.03		5.7	SURCHARGED
1.005	S12	65.828	0.803	0.000	0.14		20.3	SURCHARGED
1.006	S16	65.826	1.036	0.000	0.14		20.1	SURCHARGED
7.000	S17	65.829	0.079	0.000	0.11		2.0	SURCHARGED
7.001	S18	65.828	0.328	0.000	0.13		4.0	SURCHARGED
7.002	S19	65.827	0.857	0.000	0.06		7.9	SURCHARGED
7.003	S20	65.827	0.972	0.000	0.07		8.6	SURCHARGED
8.000	S21	65.828	0.778	0.000	0.13		2.4	SURCHARGED
8.001	S22	65.827	1.027	0.000	0.37		4.7	SURCHARGED
7.004	S23	65.827	1.067	0.000	0.14		17.5	SURCHARGED
1.007	S24	65.826	1.171	0.000	0.47		39.2	SURCHARGED
1.008	S25/FC	65.825	1.190	0.000	0.03	808	3.1	SURCHARGED



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

PN	US/MH Name	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
		Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	S1	65.611	-0.139	0.000	0.01			0.3	OK
1.001	S2	65.522	-0.108	0.000	0.02			0.3	OK
2.000	S3	65.607	-0.143	0.000	0.01			0.3	OK
1.002	S4	65.521	0.031	0.000	0.03			0.6	SURCHARGED
3.000	S5	65.954	-0.146	0.000	0.01			0.3	OK
1.003	S6	65.521	0.231	0.000	0.05			1.0	SURCHARGED
4.000	S7	65.805	-0.145	0.000	0.01			0.3	OK
5.000	S8	65.810	-0.140	0.000	0.01			0.3	OK
5.001	S9	65.682	-0.143	0.000	0.01			0.4	OK
1.004	S10	65.520	0.415	0.000	0.12			2.0	SURCHARGED
6.000	S11	65.518	0.178	0.000	0.01			1.4	SURCHARGED
1.005	S12	65.518	0.493	0.000	0.04			5.2	SURCHARGED
1.006	S16	65.517	0.727	0.000	0.04			5.1	SURCHARGED
7.000	S17	65.616	-0.134	0.000	0.03			0.5	OK
7.001	S18	65.519	0.019	0.000	0.03			1.0	SURCHARGED
7.002	S19	65.518	0.548	0.000	0.02			2.0	SURCHARGED
7.003	S20	65.518	0.663	0.000	0.02			2.2	SURCHARGED
8.000	S21	65.519	0.469	0.000	0.03			0.6	SURCHARGED
8.001	S22	65.518	0.718	0.000	0.09			1.2	SURCHARGED
7.004	S23	65.518	0.758	0.000	0.04			4.4	SURCHARGED
1.007	S24	65.517	0.862	0.000	0.12			9.9	SURCHARGED
1.008	S25/FC	65.516	0.881	0.000	0.03		1032	2.8	SURCHARGED