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Unit 5, The Priory, London R... Sutton Coldfield B75 5SH	P19-1601 Deddington	
Date 16/11/2021 File P19-1601_SW Network_01.MDX	Designed by LAJ Checked by -	
Innovyze	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)	20.000	Add Flow / Climate Change (%)	0
Ratio R	0.408	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.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

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)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	16.033	0.450	35.6	0.018	5.00	0.0	0.600	o	100	Pipe/Conduit	
2.000	10.415	0.200	52.1	0.042	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.001	18.839	0.600	31.4	0.017	0.00	0.0	0.600	o	150	Pipe/Conduit	
3.000	9.241	0.850	10.9	0.027	5.00	0.0	0.600	o	100	Pipe/Conduit	
1.002	5.907	0.000	0.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
4.000	11.790	0.900	13.1	0.019	5.00	0.0	0.600	o	100	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)
1.000	50.00	5.21	123.550	0.018	0.0	0.0	0.0	1.30	10.2	2.4
2.000	50.00	5.16	123.250	0.042	0.0	0.0	0.0	1.07	8.4	5.7
1.001	50.00	5.38	123.050	0.077	0.0	0.0	0.0	1.80	31.9	10.4
3.000	50.00	5.07	123.350	0.027	0.0	0.0	0.0	2.36	18.5	3.7
1.002	50.00	6.44	122.450	0.104	0.0	0.0	0.0	0.09	1.6«	14.1
4.000	50.00	5.09	123.400	0.019	0.0	0.0	0.0	2.15	16.9	2.6

[illegible]

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<div>Storage Structures for Storm</div> <div>Cellular Storage Manhole: SMH9, DS/PN: 1.003</div> <div>Invert Level (m) 121.100 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.42840 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.42840</div> <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>54.0</td><td>54.0</td><td>1.600</td><td>0.0</td><td>99.0</td></tr><tr><td>1.500</td><td>54.0</td><td>99.0</td><td></td><td></td><td></td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	54.0	54.0	1.600	0.0	99.0	1.500	54.0	99.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)															
0.000	54.0	54.0	1.600	0.0	99.0															
1.500	54.0	99.0																		
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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	SMH1	124.261	0.611	0.000	0.90		8.7	SURCHARGED
2.000	SMH2	124.771	1.421	1.026	2.33		18.3	FLOOD
1.001	SMH3	123.915	0.715	0.000	1.09		32.4	SURCHARGED
3.000	SMH4	123.816	0.366	0.000	0.31		5.4	SURCHARGED
1.002	SMH5	123.810	1.210	0.000	2.42		20.7	SURCHARGED
4.000	SMH6	123.881	0.381	0.000	0.71		11.3	SURCHARGED
5.000	SMH7	124.600	1.200	0.130	1.26		20.2	FLOOD
4.001	SMH8	123.811	1.211	0.000	2.50		21.4	SURCHARGED
1.003	SMH9	123.804	1.204	0.000	0.00		0.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	SMH1	
2.000	SMH2	3
1.001	SMH3	
3.000	SMH4	
1.002	SMH5	
4.000	SMH6	
5.000	SMH7	1
4.001	SMH8	
1.003	SMH9	