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One Little London Chichester Sussex PO19 1PP	ELM GROVE SOUTH PIPE NETWORK M20 EVENT	
Date Jan. 2023 File SOUTH M20.sws	Designed By PF Checked By	
Micro Drainage	System1 W.11.2	

STORM SEWER DESIGN by the Modified Rational Method

Global Variables

Pipe Size File C:\Program Files\Micro Drainage Ltd\WinDes\STANDARD.PIP
Manhole Size File C:\Program Files\Micro Drainage Ltd\WinDes\STANDARD.MHS

Location - England & Wales

Return Period (years)	20
M5-60 (mm)	20.000
Ratio R	0.350
Maximum Rainfall (mm/hr)	50
Foul Sewage (l/s/ha)	0.00
Overflow Setting (*Foul only)	0
Volumetric Runoff Coeff.	1.00
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Cover Depth for Optimisation (m)	0.100
Min Vel for Auto Design Only (m/s)	1.00
Min Slope for Optimisation (1:X)	500
Minimum Outfall Invert (m)	0.000
Ground Level at Outfall (m)	0.000
Outfall Manhole Name	
Outfall Manhole Dia/Length (mm)	0
Outfall Manhole Width (mm)	0

Designed with Level Soffits

Network Design Table

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	T.E. (mins)	DWF (l/s)	k (mm)	HYD SECT	DIA (mm)
1.000	7.88	0.035	225.1	0.015	5.00	0.0	0.600	o	225
2.000	4.50	0.070	64.3	0.027	5.00	0.0	0.600	o	100
1.001	10.12	0.045	224.9	0.000	0.00	0.0	0.600	o	225

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E.Area (ha)	E.DWF (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	CAP (l/s)	Flow (l/s)
1.000	50.0	5.2	5.890	0.015	0.0	0.0	0.0	0.87	34.5	2.7
2.000	50.0	5.1	6.050	0.027	0.0	0.0	0.0	0.96	7.6	4.9
1.001	50.0	5.3	5.855	0.042	0.0	0.0	0.0	0.87	34.5	7.6

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Network Design Table

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	T.E. (mins)	DWF (l/s)	k (mm)	HYD SECT	DIA (mm)
3.000	11.25	0.050	225.0	0.019	5.00	0.0	0.600	o	225
1.002	2.25	0.010	225.0	0.040	0.00	0.0	0.600	o	225
1.003	29.25	0.130	225.0	0.012	0.00	0.0	0.600	o	225

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E.Area (ha)	E.DWF (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	CAP (l/s)	Flow (l/s)
3.000	50.0	5.2	5.860	0.019	0.0	0.0	0.0	0.87	34.5	3.4
1.002	50.0	5.4	5.810	0.101	0.0	0.0	0.0	0.87	34.5	18.2
1.003	50.0	6.0	5.800	0.113	0.0	0.0	0.0	0.87	34.5	20.4

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Time Area Diagram

Time From (mins)	Time To (mins)	Area (ha)
0	4	0.082
4	8	0.031

Total Area Contributing (ha) = 0.113

Total Pipe Volume (m³) = 2.451

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PIPELINE SCHEDULES

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH No.	C.Level (m)	I.Level (m)	C.Depth (m)	MH DIAM., L*W (mm)
1.000	o	225	1	6.550	5.890	0.435	1050
2.000	o	100	2	6.500	6.050	0.350	1050
1.001	o	225	3	6.500	5.855	0.420	1050
3.000	o	225	4	6.500	5.860	0.415	1050
1.002	o	225	5	6.500	5.810	0.465	1050
1.003	o	225	6	6.500	5.800	0.475	1050

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH No.	C.Level (m)	I.Level (m)	C.Depth (m)	MH DIAM., L*W (mm)
1.000	7.88	225.1	3	6.500	5.855	0.420	1050
2.000	4.50	64.3	3	6.500	5.980	0.420	1050
1.001	10.12	224.9	5	6.500	5.810	0.465	1050
3.000	11.25	225.0	5	6.500	5.810	0.465	1050
1.002	2.25	225.0	6	6.500	5.800	0.475	1050
1.003	29.25	225.0		0.000	5.670	-5.895	0

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MANHOLE SCHEDULES

M/Ho1e Number	Cover Level (m)	M/Ho1e Depth (m)	M/Ho1e Diam., L*W (mm)	Pipes Out			Pipes In		
				PN	IL. (m)	D (mm)	PN	IL. (m)	D (mm)
1	6.550	0.660	1050	1.000	5.890	225			
2	6.500	0.450	1050	2.000	6.050	100			
3	6.500	0.645	1050	1.001	5.855	225	1.000 2.000	5.855 5.980	225 100
4	6.500	0.640	1050	3.000	5.860	225			
5	6.500	0.690	1050	1.002	5.810	225	1.001 3.000	5.810 5.810	225 225
6	6.500	0.700	1050	1.003	5.800	225	1.002	5.800	225
	0.000	-5.670	0		OUTFALL		1.003	5.670	225