


APPENDIX 3 MICRODRAINAGE (SURFACE WATER) RESULTS

Ramboll UK Ltd		Page 1
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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)	1	Foul Sewage (l/s/ha)	0.000
		Maximum Backdrop Height (m)	1.500
M5-60 (mm)	20.000	Volumetric Runoff Coeff.	0.750
		Min Design Depth for Optimisation (m)	1.200
Ratio R	0.400	PIMP (%)	100
		Min Vel for Auto Design only (m/s)	1.00
Maximum Rainfall (mm/hr)	50	Add Flow / Climate Change (%)	0
		Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200


Designed with Level Soffits

Time Area Diagram for Storm at outfall S (pipe S16.005)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.184	4-8	0.060

Total Area Contributing (ha) = 0.244

Total Pipe Volume (m³) = 4.800

Ramboll UK Ltd		Page 2
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

Time Area Diagram at outfall S (pipe S19.006)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.192	4-8	0.045

Total Area Contributing (ha) = 0.237

Total Pipe Volume (m³) = 2.698

Time Area Diagram at outfall S (pipe S23.009)


Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.235	4-8	0.102

Total Area Contributing (ha) = 0.338

Total Pipe Volume (m³) = 6.449

Network Design Table for Storm

- Indicates pipe length does not match coordinates


Ramboll UK Ltd		Page 3
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

Network Design Table for Storm








PN	Length	Fall	Slope	I.Area	T.E.	Base	k	HYD	DIA	Section	Type	Auto
	(m)	(m)	(1:X)	(ha)	(mins)	Flow (l/s)	(mm)	SECT	(mm)			Design

Network Results Table

PN	Rain	T.C.	US/IL	Σ I.Area	Σ Base	Foul	Add Flow	Vel	Cap	Flow
	(mm/hr)	(mins)	(m)	(ha)	Flow (l/s)	(l/s)	(l/s)	(m/s)	(l/s)	(l/s)


Ramboll UK Ltd		Page 4
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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
S16.000	6.642	0.109	60.9	0.016	5.00	0.0	0.600	o	150	Pipe/Conduit	
S16.001	26.357	0.293	90.0	0.018	0.00	0.0	0.600	o	225	Pipe/Conduit	
S17.000	16.203	0.192	84.4	0.057	5.00	0.0	0.600	o	150	Pipe/Conduit	
S16.002	21.660	0.241	89.9	0.027	0.00	0.0	0.600	o	225	Pipe/Conduit	
S16.003	21.881	0.318	68.8	0.058	0.00	0.0	0.600	o	225	Pipe/Conduit	
S18.000	3.923	0.049	80.0	0.010	5.00	0.0	0.600	o	150	Pipe/Conduit	
S18.001	12.839	0.160	80.0	0.029	0.00	0.0	0.600	o	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)
S16.000	50.00	5.09	67.910	0.016	0.0	0.0	0.0	1.29	22.8	2.1
S16.001	50.00	5.40	67.726	0.034	0.0	0.0	0.0	1.38	54.8	4.6
S17.000	50.00	5.25	67.700	0.057	0.0	0.0	0.0	1.09	19.3	7.7
S16.002	50.00	5.67	67.433	0.117	0.0	0.0	0.0	1.38	54.9	15.9
S16.003	50.00	5.90	67.192	0.175	0.0	0.0	0.0	1.58	62.8	23.7
S18.000	50.00	5.06	67.540	0.010	0.0	0.0	0.0	1.12	19.9	1.3
S18.001	50.00	5.25	67.491	0.038	0.0	0.0	0.0	1.12	19.9	5.2


Ramboll UK Ltd		Page 5
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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
S18.002	7.901	0.099	80.0	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit	
S18.003	6.685	0.283	23.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S16.004	12.863	0.143	90.0	0.025	0.00	0.0	0.600	o	225	Pipe/Conduit	
S16.005	13.872	0.154	90.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S19.000	7.437	0.093	80.0	0.042	5.00	0.0	0.600	o	150	Pipe/Conduit	
S19.001	5.421	0.068	80.0	0.035	0.00	0.0	0.600	o	150	Pipe/Conduit	
S19.002	15.059	0.188	80.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S19.003	24.610	0.308	80.0	0.019	0.00	0.0	0.600	o	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)
S18.002	50.00	5.37	67.330	0.044	0.0	0.0	0.0	1.12	19.9	5.9
S18.003	50.00	5.42	67.232	0.044	0.0	0.0	0.0	2.08	36.8	5.9
S16.004	50.00	6.05	66.874	0.244	0.0	0.0	0.0	1.38	54.8	33.0
S16.005	49.51	6.22	66.731	0.244	0.0	0.0	0.0	1.38	54.8	33.0
S19.000	50.00	5.11	67.460	0.042	0.0	0.0	0.0	1.13	19.9	5.8
S19.001	50.00	5.19	67.367	0.077	0.0	0.0	0.0	1.12	19.9	10.5
S19.002	50.00	5.41	67.299	0.077	0.0	0.0	0.0	1.12	19.9	10.5
S19.003	50.00	5.78	67.111	0.097	0.0	0.0	0.0	1.12	19.9	13.1


Ramboll UK Ltd		Page 6
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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
S19.004	3.419	0.043	80.0	0.041	0.00	0.0	0.600	o	150	Pipe/Conduit	
S19.005	5.000#	0.153	32.7	0.014	0.00	0.0	0.600	o	150	Pipe/Conduit	
S20.000	6.900	0.138	50.0	0.034	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.001	7.620	0.152	50.0	0.003	0.00	0.0	0.600	o	150	Pipe/Conduit	
S21.000	10.469	0.105	99.7	0.003	5.00	0.0	0.600	o	150	Pipe/Conduit	
S21.001	4.747	0.075	62.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S20.002	13.570	0.271	50.1	0.008	0.00	0.0	0.600	o	225	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)
S19.004	50.00	5.83	66.803	0.138	0.0	0.0	0.0	1.12	19.9	18.7
S19.005	50.00	5.88	66.761	0.152	0.0	0.0	0.0	1.77	31.2	20.6
S20.000	50.00	5.08	67.300	0.034	0.0	0.0	0.0	1.43	25.2	4.7
S20.001	50.00	5.17	67.162	0.037	0.0	0.0	0.0	1.43	25.2	5.0
S21.000	50.00	5.17	67.640	0.003	0.0	0.0	0.0	1.01	17.8	0.4
S21.001	50.00	5.24	67.535	0.003	0.0	0.0	0.0	1.27	22.4	0.4
S20.002	50.00	5.36	66.935	0.049	0.0	0.0	0.0	1.85	73.7	6.6


Ramboll UK Ltd		Page 7
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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
S22.000	11.710	0.234	50.0	0.025	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.003	4.012	0.130	30.9	0.001	0.00	0.0	0.600	o	225	Pipe/Conduit	
S19.006	4.778	0.053	90.2	0.011	0.00	0.0	0.600	o	225	Pipe/Conduit	
S23.000	7.190	0.072	100.0	0.030	5.00	0.0	0.600	o	150	Pipe/Conduit	
S23.001	7.190	0.072	100.0	0.009	0.00	0.0	0.600	o	150	Pipe/Conduit	
S23.002	22.129	0.221	100.0	0.021	0.00	0.0	0.600	o	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)
S22.000	50.00	5.14	67.400	0.025	0.0	0.0	0.0	1.43	25.2	3.3
S20.003	50.00	5.39	66.664	0.074	0.0	0.0	0.0	2.36	94.0	10.0
S19.006	50.00	5.93	66.533	0.237	0.0	0.0	0.0	1.38	54.8	32.1
S23.000	50.00	5.12	67.800	0.030	0.0	0.0	0.0	1.00	17.8	4.0
S23.001	50.00	5.24	67.728	0.039	0.0	0.0	0.0	1.00	17.8	5.2
S23.002	50.00	5.61	67.656	0.060	0.0	0.0	0.0	1.00	17.8	8.1


Ramboll UK Ltd		Page 8
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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
S23.003	5.111	0.051	100.0	0.016	0.00	0.0	0.600	o	150	Pipe/Conduit	
S24.000	10.175	0.085	120.0	0.004	5.00	0.0	0.600	o	150	Pipe/Conduit	
S25.000	15.302	0.128	119.5	0.023	5.00	0.0	0.600	o	150	Pipe/Conduit	
S25.001	10.243	0.085	120.0	0.029	0.00	0.0	0.600	o	150	Pipe/Conduit	
S25.002	6.460	0.054	120.0	0.029	0.00	0.0	0.600	o	150	Pipe/Conduit	
S23.004	27.015	0.246	110.0	0.013	0.00	0.0	0.600	o	225	Pipe/Conduit	
S23.005	21.026	0.191	110.0	0.013	0.00	0.0	0.600	o	225	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)
S23.003	50.00	5.69	67.435	0.076	0.0	0.0	0.0	1.00	17.8	10.3
S24.000	50.00	5.19	67.700	0.004	0.0	0.0	0.0	0.92	16.2	0.5
S25.000	50.00	5.28	68.000	0.023	0.0	0.0	0.0	0.92	16.2	3.2
S25.001	50.00	5.46	67.872	0.053	0.0	0.0	0.0	0.92	16.2	7.1
S25.002	50.00	5.58	67.787	0.081	0.0	0.0	0.0	0.92	16.2	11.0
S23.004	50.00	6.05	67.309	0.174	0.0	0.0	0.0	1.25	49.5	23.6
S23.005	49.09	6.33	67.063	0.187	0.0	0.0	0.0	1.25	49.5	24.8

Ramboll UK Ltd		Page 9
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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
S23.006	7.759	0.071	110.0	0.008	0.00	0.0	0.600	o	225	Pipe/Conduit	
S23.007	9.315	0.085	110.0	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit	
S26.000	19.914	0.199	100.0	0.034	5.00	0.0	0.600	o	150	Pipe/Conduit	
S26.001	16.739	0.167	100.0	0.010	0.00	0.0	0.600	o	150	Pipe/Conduit	
S26.002	9.976	0.100	100.0	0.030	0.00	0.0	0.600	o	225	Pipe/Conduit	
S26.003	9.297	0.093	100.0	0.038	0.00	0.0	0.600	o	225	Pipe/Conduit	
S23.008	16.074	0.146	110.0	0.003	0.00	0.0	0.600	o	225	Pipe/Conduit	
S23.009	8.191	0.246	33.3	0.000	0.00	0.0	0.600	o	225	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)
S23.006	48.70	6.44	66.872	0.195	0.0	0.0	0.0	1.25	49.5	25.7
S23.007	48.25	6.56	66.802	0.223	0.0	0.0	0.0	1.25	49.5	29.2
S26.000	50.00	5.33	67.911	0.034	0.0	0.0	0.0	1.00	17.8	4.5
S26.001	50.00	5.61	67.712	0.043	0.0	0.0	0.0	1.00	17.8	5.9
S26.002	50.00	5.74	67.469	0.073	0.0	0.0	0.0	1.31	52.0	9.9
S26.003	50.00	5.85	67.370	0.112	0.0	0.0	0.0	1.31	52.0	15.1
S23.008	47.50	6.78	66.717	0.338	0.0	0.0	0.0	1.25	49.5	43.5
S23.009	47.29	6.84	66.571	0.338	0.0	0.0	0.0	2.28	90.5	43.5

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)	Backdrop (mm)
SSWMH 42	69.110	1.200	Open Manhole	1200	S16.000	67.910	150				
SSWMH12	68.740	1.014	Open Manhole	1200	S16.001	67.726	225	S16.000	67.801	150	
SSWMH 43	68.865	1.165	Open Manhole	1200	S17.000	67.700	150				
SSWMH13	68.750	1.317	Open Manhole	1200	S16.002	67.433	225	S16.001	67.433	225	
								S17.000	67.508	150	
SSWMH14	69.000	1.808	Open Manhole	1200	S16.003	67.192	225	S16.002	67.192	225	
SCATCHPIT 20	68.740	1.200	Open Manhole	1200	S18.000	67.540	150				
SCATCHPIT 21	68.740	1.249	Open Manhole	1200	S18.001	67.491	150	S18.000	67.491	150	
SSWMH 40	68.900	1.570	Open Manhole	1200	S18.002	67.330	150	S18.001	67.330	150	
SSWMH 41	69.000	1.768	Open Manhole	1200	S18.003	67.232	150	S18.002	67.232	150	
SSWMH15	69.000	2.126	Open Manhole	1200	S16.004	66.874	225	S16.003	66.874	225	
								S18.003	66.949	150	
SSDS GEOLIGHT TANK	68.650	1.919	Open Manhole	1200	S16.005	66.731	225	S16.004	66.731	225	
S	68.600	2.023	Open Manhole	0		OUTFALL		S16.005	66.577	225	
SSWMH 34	68.770	1.310	Open Manhole	1200	S19.000	67.460	150				
SCATCHPIT 13	68.770	1.403	Open Manhole	1200	S19.001	67.367	150	S19.000	67.367	150	
SCATCHPIT 14	68.750	1.451	Open Manhole	1200	S19.002	67.299	150	S19.001	67.299	150	
SSWMH 35	68.800	1.689	Open Manhole	1200	S19.003	67.111	150	S19.002	67.111	150	


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)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
SSWMH 36	68.650	1.847	Open Manhole	1200	S19.004	66.803	150	S19.003	66.803	150	
SCATCHPIT 15	68.650	1.889	Open Manhole	1200	S19.005	66.761	150	S19.004	66.761	150	
SSWMH 39	68.740	1.440	Open Manhole	900	S20.000	67.300	150				
S83	68.740	1.578	Open Manhole	1200	S20.001	67.162	150	S20.000	67.162	150	
SCATCHPIT 19	68.640	1.000	Open Manhole	600	S21.000	67.640	150				
SCATCHPIT 18	68.640	1.105	Open Manhole	600	S21.001	67.535	150	S21.000	67.535	150	
SCATCHPIT 17	68.410	1.475	Open Manhole	1200	S20.002	66.935	225	S20.001	67.010	150	
								S21.001	67.460	150	450
SSWMH 37	68.750	1.350	Open Manhole	1200	S22.000	67.400	150				
SCATCHPIT 16	68.750	2.086	Open Manhole	1200	S20.003	66.664	225	S20.002	66.664	225	
								S22.000	67.166	150	427
SSDS GEOLIGHT TANK	68.500	1.967	Open Manhole	1200	S19.006	66.533	225	S19.005	66.608	150	
								S20.003	66.534	225	1
S	68.500	2.020	Open Manhole	0		OUTFALL		S19.006	66.480	225	
SSWMH 20	69.000	1.200	Open Manhole	1200	S23.000	67.800	150				
SSWMH 21	69.000	1.272	Open Manhole	1200	S23.001	67.728	150	S23.000	67.728	150	
SSWMH 22	69.000	1.344	Open Manhole	1200	S23.002	67.656	150	S23.001	67.656	150	
SSWMH 26	68.700	1.265	Open Manhole	1200	S23.003	67.435	150	S23.002	67.435	150	



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)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
SSWMH 27	68.500	0.800	Open Manhole	1200	S24.000	67.700	150				
SSWMH 23	69.000	1.000	Open Manhole	1200	S25.000	68.000	150				
SSWMH 24	69.000	1.128	Open Manhole	1200	S25.001	67.872	150	S25.000	67.872	150	
SSWMH 25	68.700	0.913	Open Manhole	1200	S25.002	67.787	150	S25.001	67.787	150	
SSWMH 28	68.600	1.291	Open Manhole	1200	S23.004	67.309	225	S23.003	67.384	150	
								S24.000	67.615	150	231
								S25.002	67.733	150	349
SCATCHPIT 08	68.600	1.537	Open Manhole	1200	S23.005	67.063	225	S23.004	67.063	225	
SCATCHPIT 09	68.600	1.728	Open Manhole	1200	S23.006	66.872	225	S23.005	66.872	225	
SCATCHPIT 10	68.610	1.808	Open Manhole	1200	S23.007	66.802	225	S23.006	66.802	225	
SSWMH 32	69.190	1.279	Open Manhole	1200	S26.000	67.911	150				
SSWMH 31	69.120	1.408	Open Manhole	1200	S26.001	67.712	150	S26.000	67.712	150	
SSWMH 29	69.020	1.551	Open Manhole	1200	S26.002	67.469	225	S26.001	67.544	150	
SCATCHPIT 12	69.010	1.640	Open Manhole	1200	S26.003	67.370	225	S26.002	67.370	225	
SCATCHPIT 11	69.010	2.293	Open Manhole	1200	S23.008	66.717	225	S23.007	66.717	225	
								S26.003	67.277	225	560
SSDS GEOLIGHT TANK	68.440	1.869	Open Manhole	1200	S23.009	66.571	225	S23.008	66.571	225	
S	68.440	2.115	Open Manhole	0		OUTFALL		S23.009	66.325	225	

Ramboll UK Ltd		Page 13
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

PIPELINE SCHEDULES for Storm


Upstream Manhole

- Indicates pipe length does not match coordinates

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S16.000	o	150	SSWMH 42	69.110	67.910	1.050	Open Manhole	1200
S16.001	o	225	SSWMH12	68.740	67.726	0.789	Open Manhole	1200
S17.000	o	150	SSWMH 43	68.865	67.700	1.015	Open Manhole	1200
S16.002	o	225	SSWMH13	68.750	67.433	1.092	Open Manhole	1200
S16.003	o	225	SSWMH14	69.000	67.192	1.583	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)
S16.000	6.642	60.9	SSWMH12	68.740	67.801	0.789	Open Manhole	1200
S16.001	26.357	90.0	SSWMH13	68.750	67.433	1.092	Open Manhole	1200
S17.000	16.203	84.4	SSWMH13	68.750	67.508	1.092	Open Manhole	1200
S16.002	21.660	89.9	SSWMH14	69.000	67.192	1.583	Open Manhole	1200
S16.003	21.881	68.8	SSWMH15	69.000	66.874	1.901	Open Manhole	1200

Ramboll UK Ltd		Page 14
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Diam Sect (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S18.000	o 150	SCATCHPIT 20	68.740	67.540	1.050	Open Manhole	1200
S18.001	o 150	SCATCHPIT 21	68.740	67.491	1.099	Open Manhole	1200
S18.002	o 150	SSWMH 40	68.900	67.330	1.420	Open Manhole	1200
S18.003	o 150	SSWMH 41	69.000	67.232	1.618	Open Manhole	1200
S16.004	o 225	SSWMH15	69.000	66.874	1.901	Open Manhole	1200
S16.005	o 225	SSDS GEOLIGHT TANK	68.650	66.731	1.694	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)
S18.000	3.923	80.0	SCATCHPIT 21	68.740	67.491	1.099	Open Manhole	1200
S18.001	12.839	80.0	SSWMH 40	68.900	67.330	1.420	Open Manhole	1200
S18.002	7.901	80.0	SSWMH 41	69.000	67.232	1.618	Open Manhole	1200
S18.003	6.685	23.6	SSWMH15	69.000	66.949	1.901	Open Manhole	1200
S16.004	12.863	90.0	SSDS GEOLIGHT TANK	68.650	66.731	1.694	Open Manhole	1200
S16.005	13.872	90.0	S	68.600	66.577	1.798	Open Manhole	0

Ramboll UK Ltd		Page 15
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


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)
S19.000	o	150	SSWMH 34	68.770	67.460	1.160	Open Manhole	1200
S19.001	o	150	SCATCHPIT 13	68.770	67.367	1.253	Open Manhole	1200
S19.002	o	150	SCATCHPIT 14	68.750	67.299	1.301	Open Manhole	1200
S19.003	o	150	SSWMH 35	68.800	67.111	1.539	Open Manhole	1200
S19.004	o	150	SSWMH 36	68.650	66.803	1.697	Open Manhole	1200
S19.005	o	150	SCATCHPIT 15	68.650	66.761	1.739	Open Manhole	1200
S20.000	o	150	SSWMH 39	68.740	67.300	1.290	Open Manhole	900
S20.001	o	150	S83	68.740	67.162	1.428	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)
S19.000	7.437	80.0	SCATCHPIT 13	68.770	67.367	1.253	Open Manhole	1200
S19.001	5.421	80.0	SCATCHPIT 14	68.750	67.299	1.301	Open Manhole	1200
S19.002	15.059	80.0	SSWMH 35	68.800	67.111	1.539	Open Manhole	1200
S19.003	24.610	80.0	SSWMH 36	68.650	66.803	1.697	Open Manhole	1200
S19.004	3.419	80.0	SCATCHPIT 15	68.650	66.761	1.739	Open Manhole	1200
S19.005	5.000#	32.7	SSDS GEOLIGHT TANK	68.500	66.608	1.742	Open Manhole	1200
S20.000	6.900	50.0	S83	68.740	67.162	1.428	Open Manhole	1200
S20.001	7.620	50.0	SCATCHPIT 17	68.410	67.010	1.250	Open Manhole	1200

Ramboll UK Ltd		Page 16
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


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)
S21.000	o	150	SCATCHPIT 19	68.640	67.640	0.850	Open Manhole	600
S21.001	o	150	SCATCHPIT 18	68.640	67.535	0.955	Open Manhole	600
S20.002	o	225	SCATCHPIT 17	68.410	66.935	1.250	Open Manhole	1200
S22.000	o	150	SSWMH 37	68.750	67.400	1.200	Open Manhole	1200
S20.003	o	225	SCATCHPIT 16	68.750	66.664	1.861	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)
S21.000	10.469	99.7	SCATCHPIT 18	68.640	67.535	0.955	Open Manhole	600
S21.001	4.747	62.9	SCATCHPIT 17	68.410	67.460	0.800	Open Manhole	1200
S20.002	13.570	50.1	SCATCHPIT 16	68.750	66.664	1.861	Open Manhole	1200
S22.000	11.710	50.0	SCATCHPIT 16	68.750	67.166	1.434	Open Manhole	1200
S20.003	4.012	30.9	SSDS GEOLIGHT TANK	68.500	66.534	1.741	Open Manhole	1200

Ramboll UK Ltd		Page 17
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Diam Sect (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S19.006	o 225	SSDS GEOLIGHT TANK	68.500	66.533	1.742	Open Manhole	1200
S23.000	o 150	SSWMH 20	69.000	67.800	1.050	Open Manhole	1200
S23.001	o 150	SSWMH 21	69.000	67.728	1.122	Open Manhole	1200
S23.002	o 150	SSWMH 22	69.000	67.656	1.194	Open Manhole	1200
S23.003	o 150	SSWMH 26	68.700	67.435	1.115	Open Manhole	1200
S24.000	o 150	SSWMH 27	68.500	67.700	0.650	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)
S19.006	4.778	90.2	S	68.500	66.480	1.795	Open Manhole	0
S23.000	7.190	100.0	SSWMH 21	69.000	67.728	1.122	Open Manhole	1200
S23.001	7.190	100.0	SSWMH 22	69.000	67.656	1.194	Open Manhole	1200
S23.002	22.129	100.0	SSWMH 26	68.700	67.435	1.115	Open Manhole	1200
S23.003	5.111	100.0	SSWMH 28	68.600	67.384	1.066	Open Manhole	1200
S24.000	10.175	120.0	SSWMH 28	68.600	67.615	0.835	Open Manhole	1200

Ramboll UK Ltd		Page 18
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


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)
S25.000	o	150	SSWMH 23	69.000	68.000	0.850	Open Manhole	1200
S25.001	o	150	SSWMH 24	69.000	67.872	0.978	Open Manhole	1200
S25.002	o	150	SSWMH 25	68.700	67.787	0.763	Open Manhole	1200
S23.004	o	225	SSWMH 28	68.600	67.309	1.066	Open Manhole	1200
S23.005	o	225	SCATCHPIT 08	68.600	67.063	1.312	Open Manhole	1200
S23.006	o	225	SCATCHPIT 09	68.600	66.872	1.503	Open Manhole	1200
S23.007	o	225	SCATCHPIT 10	68.610	66.802	1.583	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)
S25.000	15.302	119.5	SSWMH 24	69.000	67.872	0.978	Open Manhole	1200
S25.001	10.243	120.0	SSWMH 25	68.700	67.787	0.763	Open Manhole	1200
S25.002	6.460	120.0	SSWMH 28	68.600	67.733	0.717	Open Manhole	1200
S23.004	27.015	110.0	SCATCHPIT 08	68.600	67.063	1.312	Open Manhole	1200
S23.005	21.026	110.0	SCATCHPIT 09	68.600	66.872	1.503	Open Manhole	1200
S23.006	7.759	110.0	SCATCHPIT 10	68.610	66.802	1.583	Open Manhole	1200
S23.007	9.315	110.0	SCATCHPIT 11	69.010	66.717	2.068	Open Manhole	1200

Ramboll UK Ltd		Page 19
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


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)
S26.000	o	150	SSWMH 32	69.190	67.911	1.129	Open Manhole	1200
S26.001	o	150	SSWMH 31	69.120	67.712	1.258	Open Manhole	1200
S26.002	o	225	SSWMH 29	69.020	67.469	1.326	Open Manhole	1200
S26.003	o	225	SCATCHPIT 12	69.010	67.370	1.415	Open Manhole	1200
S23.008	o	225	SCATCHPIT 11	69.010	66.717	2.068	Open Manhole	1200
S23.009	o	225	SSDS GEOLIGHT TANK	68.440	66.571	1.644	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)
S26.000	19.914	100.0	SSWMH 31	69.120	67.712	1.258	Open Manhole	1200
S26.001	16.739	100.0	SSWMH 29	69.020	67.544	1.326	Open Manhole	1200
S26.002	9.976	100.0	SCATCHPIT 12	69.010	67.370	1.415	Open Manhole	1200
S26.003	9.297	100.0	SCATCHPIT 11	69.010	67.277	1.508	Open Manhole	1200
S23.008	16.074	110.0	SSDS GEOLIGHT TANK	68.440	66.571	1.644	Open Manhole	1200
S23.009	8.191	33.3	S	68.440	66.325	1.890	Open Manhole	0

Ramboll UK Ltd		Page 20
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
16.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.009	0.009	0.011
	User	-	46	0.010	0.005	0.016
16.001	User	-	97	0.010	0.010	0.010
	User	-	97	0.008	0.008	0.018
17.000	User	-	97	0.055	0.053	0.053
	User	-	46	0.008	0.004	0.057
16.002	User	-	97	0.013	0.013	0.013
	User	-	100	0.002	0.002	0.015
	User	-	97	0.012	0.012	0.027
16.003	User	-	97	0.010	0.010	0.010
	User	-	97	0.030	0.029	0.039
	User	-	97	0.008	0.007	0.046
	User	-	100	0.008	0.008	0.054
	User	-	97	0.004	0.004	0.058
18.000	User	-	100	0.007	0.007	0.007
	User	-	46	0.001	0.000	0.007
	User	-	100	0.003	0.003	0.010
18.001	User	-	100	0.002	0.002	0.002
	User	-	97	0.027	0.026	0.028
	User	-	100	0.001	0.001	0.029
18.002	User	-	100	0.002	0.002	0.002
	User	-	46	0.007	0.003	0.005
	User	-	46	0.001	0.000	0.005
18.003	-	-	100	0.000	0.000	0.000
16.004	User	-	100	0.008	0.008	0.008
	User	-	100	0.003	0.003	0.011

Ramboll UK Ltd		Page 21
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
	User	-	97	0.007	0.007	0.017
	User	-	97	0.008	0.007	0.025
16.005	-	-	100	0.000	0.000	0.000
19.000	User	-	100	0.002	0.002	0.002
	User	-	97	0.019	0.018	0.020
	User	-	100	0.015	0.015	0.035
	User	-	100	0.005	0.005	0.041
	User	-	46	0.004	0.002	0.042
19.001	User	-	97	0.036	0.035	0.035
19.002	-	-	100	0.000	0.000	0.000
19.003	User	-	100	0.002	0.002	0.002
	User	-	100	0.009	0.009	0.011
	User	-	100	0.005	0.005	0.016
	User	-	100	0.003	0.003	0.019
19.004	User	-	100	0.008	0.008	0.008
	User	-	46	0.007	0.003	0.011
	User	-	97	0.031	0.030	0.041
	User	-	46	0.002	0.001	0.041
19.005	User	-	97	0.014	0.014	0.014
20.000	User	-	100	0.002	0.002	0.002
	User	-	97	0.022	0.021	0.023
	User	-	97	0.007	0.007	0.030
	User	-	46	0.004	0.002	0.031
	User	-	100	0.003	0.003	0.034
20.001	User	-	100	0.003	0.003	0.003
21.000	User	-	46	0.007	0.003	0.003
21.001	-	-	100	0.000	0.000	0.000

Ramboll UK Ltd		Page 22
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
20.002	User	-	97	0.008	0.008	0.008
22.000	User	-	97	0.025	0.025	0.025
20.003	User	-	46	0.002	0.001	0.001
19.006	User	-	46	0.023	0.011	0.011
23.000	User	-	97	0.027	0.027	0.027
	User	-	46	0.006	0.003	0.003
23.001	User	-	100	0.009	0.009	0.009
23.002	User	-	100	0.012	0.012	0.012
	User	-	100	0.009	0.009	0.009
23.003	User	-	100	0.012	0.012	0.012
	User	-	100	0.004	0.004	0.004
24.000	User	-	100	0.004	0.004	0.004
25.000	User	-	100	0.023	0.023	0.023
25.001	User	-	100	0.029	0.029	0.029
25.002	User	-	100	0.022	0.022	0.022
	User	-	100	0.006	0.006	0.006
23.004	User	-	100	0.013	0.013	0.013
23.005	User	-	100	0.013	0.013	0.013
23.006	User	-	100	0.008	0.008	0.008
23.007	User	-	100	0.022	0.022	0.022
	User	-	100	0.001	0.001	0.001
	User	-	100	0.005	0.005	0.005
26.000	User	-	100	0.025	0.025	0.025
	User	-	97	0.006	0.005	0.005
	User	-	100	0.003	0.003	0.003
26.001	User	-	100	0.006	0.006	0.006
	User	-	100	0.004	0.004	0.004

Ramboll UK Ltd		Page 23
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
26.002	User	-	100	0.024	0.024	0.024
	User	-	100	0.001	0.001	0.025
	User	-	100	0.005	0.005	0.030
26.003	User	-	100	0.025	0.025	0.025
	User	-	100	0.002	0.002	0.027
	User	-	100	0.004	0.004	0.031
	User	-	100	0.007	0.007	0.038
23.008	User	-	100	0.002	0.002	0.002
	User	-	100	0.001	0.001	0.003
23.009	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.874	0.819	0.819

Ramboll UK Ltd		Page 24
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


Network Classifications for Storm

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S16.000	SSWMH 42	150	0.789	1.050	Unclassified	1200	0	1.050	Unclassified
S16.001	SSWMH12	225	0.789	1.092	Unclassified	1200	0	0.789	Unclassified
S17.000	SSWMH 43	150	1.015	1.092	Unclassified	1200	0	1.015	Unclassified
S16.002	SSWMH13	225	1.092	1.583	Unclassified	1200	0	1.092	Unclassified
S16.003	SSWMH14	225	1.583	1.901	Unclassified	1200	0	1.583	Unclassified
S18.000	SCATCHPIT 20	150	1.050	1.099	Unclassified	1200	0	1.050	Unclassified
S18.001	SCATCHPIT 21	150	1.099	1.420	Unclassified	1200	0	1.099	Unclassified
S18.002	SSWMH 40	150	1.420	1.618	Unclassified	1200	0	1.420	Unclassified
S18.003	SSWMH 41	150	1.618	1.901	Unclassified	1200	0	1.618	Unclassified
S16.004	SSWMH15	225	1.694	1.901	Unclassified	1200	0	1.901	Unclassified
S16.005	SSDS GEOLIGHT TANK	225	1.694	1.798	Unclassified	1200	0	1.694	Unclassified
S19.000	SSWMH 34	150	1.160	1.253	Unclassified	1200	0	1.160	Unclassified
S19.001	SCATCHPIT 13	150	1.253	1.301	Unclassified	1200	0	1.253	Unclassified
S19.002	SCATCHPIT 14	150	1.301	1.539	Unclassified	1200	0	1.301	Unclassified
S19.003	SSWMH 35	150	1.539	1.697	Unclassified	1200	0	1.539	Unclassified
S19.004	SSWMH 36	150	1.697	1.739	Unclassified	1200	0	1.697	Unclassified
S19.005	SCATCHPIT 15	150	1.739	1.742	Unclassified	1200	0	1.739	Unclassified
S20.000	SSWMH 39	150	1.290	1.428	Unclassified	900	0	1.290	Unclassified
S20.001	S83	150	1.250	1.428	Unclassified	1200	0	1.428	Unclassified
S21.000	SCATCHPIT 19	150	0.850	0.955	Unclassified	600	0	0.850	Unclassified
S21.001	SCATCHPIT 18	150	0.800	0.955	Unclassified	600	0	0.955	Unclassified
S20.002	SCATCHPIT 17	225	1.250	1.861	Unclassified	1200	0	1.250	Unclassified
S22.000	SSWMH 37	150	1.200	1.434	Unclassified	1200	0	1.200	Unclassified
S20.003	SCATCHPIT 16	225	1.741	1.861	Unclassified	1200	0	1.861	Unclassified
S19.006	SSDS GEOLIGHT TANK	225	1.742	1.795	Unclassified	1200	0	1.742	Unclassified

Ramboll UK Ltd		Page 25
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

Network Classifications for Storm

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S23.000	SSWMH 20	150	1.050	1.122	Unclassified	1200	0	1.050	Unclassified
S23.001	SSWMH 21	150	1.122	1.194	Unclassified	1200	0	1.122	Unclassified
S23.002	SSWMH 22	150	1.115	1.194	Unclassified	1200	0	1.194	Unclassified
S23.003	SSWMH 26	150	1.066	1.115	Unclassified	1200	0	1.115	Unclassified
S24.000	SSWMH 27	150	0.650	0.835	Unclassified	1200	0	0.650	Unclassified
S25.000	SSWMH 23	150	0.850	0.978	Unclassified	1200	0	0.850	Unclassified
S25.001	SSWMH 24	150	0.763	0.978	Unclassified	1200	0	0.978	Unclassified
S25.002	SSWMH 25	150	0.717	0.763	Unclassified	1200	0	0.763	Unclassified
S23.004	SSWMH 28	225	1.066	1.312	Unclassified	1200	0	1.066	Unclassified
S23.005	SCATCHPIT 08	225	1.312	1.503	Unclassified	1200	0	1.312	Unclassified
S23.006	SCATCHPIT 09	225	1.503	1.583	Unclassified	1200	0	1.503	Unclassified
S23.007	SCATCHPIT 10	225	1.583	2.068	Unclassified	1200	0	1.583	Unclassified
S26.000	SSWMH 32	150	1.129	1.258	Unclassified	1200	0	1.129	Unclassified
S26.001	SSWMH 31	150	1.258	1.326	Unclassified	1200	0	1.258	Unclassified
S26.002	SSWMH 29	225	1.326	1.415	Unclassified	1200	0	1.326	Unclassified
S26.003	SCATCHPIT 12	225	1.415	1.508	Unclassified	1200	0	1.415	Unclassified
S23.008	SCATCHPIT 11	225	1.644	2.068	Unclassified	1200	0	2.068	Unclassified
S23.009	SSDS GEOLIGHT TANK	225	1.644	1.890	Unclassified	1200	0	1.644	Unclassified

Ramboll UK Ltd		Page 26
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S16.005	S	68.600	66.577	0.000	0	0
---------	---	--------	--------	-------	---	---

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S19.006	S	68.500	66.480	0.000	0	0
---------	---	--------	--------	-------	---	---

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)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S23.009	S	68.440	66.325	0.000	0	0
---------	---	--------	--------	-------	---	---

Ramboll UK Ltd		Page 27
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Manhole Headloss Coeff (Global)	0.500	Inlet Coeffiecient	0.800
Areal Reduction Factor	1.000	Foul Sewage per hectare (l/s)	0.000	Flow per Person per Day (l/per/day)	0.000
Hot Start (mins)	0	Additional Flow - % of Total Flow	0.000	Run Time (mins)	60
Hot Start Level (mm)	0	MADD Factor * 10m ³ /ha Storage	2.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 6
Number of Online Controls 3 Number of Storage Structures 8 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm)	20.000	Cv (Summer)	0.750
Return Period (years)	1	Ratio R	0.400	Cv (Winter)	0.840
Region England and Wales Profile Type			Summer Storm Duration (mins)	30	

Ramboll UK Ltd		Page 28
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

Online Controls for Storm

Pump Manhole: SSDS GEOLIGHT TANK, DS/PN: S16.005, Volume (m³): 2.6

Invert Level (m) 66.731

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.000	0.0000	2.000	0.0000	3.000	0.0000

Pump Manhole: SSDS GEOLIGHT TANK, DS/PN: S19.006, Volume (m³): 2.4


Invert Level (m) 66.533

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.000	0.0000	2.000	0.0000	2.500	0.0000	3.000	0.0000

Pump Manhole: SSDS GEOLIGHT TANK, DS/PN: S23.009, Volume (m³): 2.7

Invert Level (m) 66.571

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.000	0.0000	2.000	0.0000	2.500	0.0000	3.000	0.0000

Ramboll UK Ltd		Page 29
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

Storage Structures for Storm

Porous Car Park Manhole: SCATCHPIT 21, DS/PN: S18.001

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	100.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	67.491	Depression Storage (mm)	5
Max Percolation (l/s)	4.2	Width (m)	3.0	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	5.0	Cap Volume Depth (m)	0.400


Cellular Storage Manhole: SSDS GEOLIGHT TANK, DS/PN: S16.005

Invert Level (m)	66.730	Infiltration Coefficient Side (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	150.0	150.0	0.800	150.0	189.2	1.201	0.0	208.8
0.400	150.0	169.6	1.200	150.0	208.8			

Porous Car Park Manhole: SCATCHPIT 14, DS/PN: S19.002

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30	Slope (1:X)	100.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	67.249	Depression Storage (mm)	5
Max Percolation (l/s)	24.2	Width (m)	6.0	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	14.5	Cap Volume Depth (m)	0.400

Ramboll UK Ltd		Page 30
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

Porous Car Park Manhole: SCATCHPIT 16, DS/PN: S20.003

Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30 Slope (1:X) 100.0
 Membrane Percolation (mm/hr) 1000 Invert Level (m) 66.688 Depression Storage (mm) 5
 Max Percolation (l/s) 27.5 Width (m) 3.0 Evaporation (mm/day) 3
 Safety Factor 2.0 Length (m) 33.0 Cap Volume Depth (m) 0.400

Cellular Storage Manhole: SSDS GEOLIGHT TANK, DS/PN: S19.006

Invert Level (m) 66.533 Infiltration Coefficient Side (m/hr) 0.24480 Porosity 0.95
 Infiltration Coefficient Base (m/hr) 0.24480 Safety Factor 2.0


Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	60.0	70.0	0.500	60.0	86.7	1.000	60.0	103.5	1.001	0.0	103.5

Porous Car Park Manhole: SCATCHPIT 10, DS/PN: S23.007

Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30 Slope (1:X) 100.0
 Membrane Percolation (mm/hr) 1000 Invert Level (m) 66.802 Depression Storage (mm) 5
 Max Percolation (l/s) 56.7 Width (m) 3.0 Evaporation (mm/day) 3
 Safety Factor 2.0 Length (m) 68.0 Cap Volume Depth (m) 0.400

Porous Car Park Manhole: SCATCHPIT 11, DS/PN: S23.008


Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30 Slope (1:X) 100.0
 Membrane Percolation (mm/hr) 1000 Invert Level (m) 66.717 Depression Storage (mm) 5
 Max Percolation (l/s) 23.3 Width (m) 3.0 Evaporation (mm/day) 3
 Safety Factor 2.0 Length (m) 28.0 Cap Volume Depth (m) 0.400

Ramboll UK Ltd		Page 31
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

Cellular Storage Manhole: SSDS GEOLIGHT TANK, DS/PN: S23.009

Invert Level (m) 66.571 Infiltration Coefficient Side (m/hr) 0.05832 Porosity 0.95
 Infiltration Coefficient Base (m/hr) 0.05832 Safety Factor 2.0

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	160.0	212.0	0.800	160.0	258.6	1.201	0.0	281.9
0.400	160.0	235.3	1.200	160.0	281.9			

Ramboll UK Ltd		Page 32
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 6
Number of Online Controls 3 Number of Storage Structures 8 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged Flooded			Pipe Flow	
									Level (m)	Depth (m)	Volume (m ³)		Flow / Cap.
S16.000	SSWMH 42	60 Winter	1	+0%	100/15 Summer				67.913	-0.147	0.000	0.00	0.1
S16.001	SSWMH12	15 Winter	1	+0%	100/15 Summer				67.756	-0.195	0.000	0.04	2.1

Ramboll UK Ltd		Page 33
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


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

PN	US/MH Name	Status	Level Exceeded
S16.000	SSWMH 42	OK	
S16.001	SSWMH12	OK	

Ramboll UK Ltd		Page 34
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)
									Level (m)	Depth (m)	Volume (m ³)		
S17.000	SSWMH 43	15 Winter	1	+0%	30/15 Winter				67.770	-0.080	0.000	0.44	
S16.002	SSWMH13	15 Winter	1	+0%	100/15 Summer				67.512	-0.146	0.000	0.26	
S16.003	SSWMH14	15 Winter	1	+0%	30/15 Summer				67.284	-0.133	0.000	0.35	
S18.000	SCATCHPIT 20	15 Winter	1	+0%					67.571	-0.119	0.000	0.09	
S18.001	SCATCHPIT 21	15 Winter	1	+0%					67.517	-0.124	0.000	0.07	
S18.002	SSWMH 40	15 Winter	1	+0%	100/15 Summer				67.358	-0.123	0.000	0.07	
S18.003	SSWMH 41	15 Winter	1	+0%	100/15 Summer				67.251	-0.130	0.000	0.04	
S16.004	SSWMH15	15 Winter	1	+0%	30/15 Summer				66.988	-0.111	0.000	0.51	
S16.005	SSDS GEOLIGHT TANK	120 Winter	1	+0%	30/30 Winter				66.835	-0.121	0.000	0.00	
S19.000	SSWMH 34	60 Winter	1	+0%					67.463	-0.147	0.000	0.00	
S19.001	SCATCHPIT 13	15 Winter	1	+0%	100/15 Summer				67.418	-0.099	0.000	0.25	
S19.002	SCATCHPIT 14	15 Winter	1	+0%	100/15 Summer				67.342	-0.107	0.000	0.18	
S19.003	SSWMH 35	15 Winter	1	+0%	100/15 Summer				67.153	-0.108	0.000	0.18	
S19.004	SSWMH 36	15 Winter	1	+0%	30/15 Summer				66.885	-0.069	0.000	0.55	
S19.005	SCATCHPIT 15	15 Winter	1	+0%	30/15 Summer				66.822	-0.088	0.000	0.35	
S20.000	SSWMH 39	60 Winter	1	+0%					67.303	-0.147	0.000	0.00	
S20.001	S83	15 Winter	1	+0%	100/120 Winter				67.173	-0.139	0.000	0.02	
S21.000	SCATCHPIT 19	15 Winter	1	+0%					67.656	-0.134	0.000	0.03	
S21.001	SCATCHPIT 18	15 Winter	1	+0%					67.551	-0.134	0.000	0.02	
S20.002	SCATCHPIT 17	15 Winter	1	+0%	100/30 Winter				66.959	-0.200	0.000	0.03	
S22.000	SSWMH 37	15 Winter	1	+0%					67.439	-0.111	0.000	0.15	
S20.003	SCATCHPIT 16	15 Winter	1	+0%	30/30 Winter				66.712	-0.177	0.000	0.10	
S19.006	SSDS GEOLIGHT TANK	60 Winter	1	+0%	30/15 Summer				66.683	-0.075	0.000	0.00	
S23.000	SSWMH 20	15 Winter	1	+0%	30/15 Summer				67.853	-0.097	0.000	0.27	
S23.001	SSWMH 21	15 Winter	1	+0%	30/15 Summer				67.789	-0.089	0.000	0.34	

Ramboll UK Ltd		Page 35
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


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

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S17.000	SSWMH 43	7.8	OK	
S16.002	SSWMH13	13.1	OK	
S16.003	SSWMH14	20.0	OK	
S18.000	SCATCHPIT 20	1.3	OK	
S18.001	SCATCHPIT 21	1.3	OK	
S18.002	SSWMH 40	1.3	OK	
S18.003	SSWMH 41	1.3	OK	
S16.004	SSWMH15	24.0	OK	
S16.005	SSDS GEOLIGHT TANK	0.0	OK	
S19.000	SSWMH 34	0.1	OK	
S19.001	SCATCHPIT 13	4.1	OK	
S19.002	SCATCHPIT 14	3.4	OK	
S19.003	SSWMH 35	3.4	OK	
S19.004	SSWMH 36	7.2	OK	
S19.005	SCATCHPIT 15	8.6	OK	
S20.000	SSWMH 39	0.1	OK	
S20.001	S83	0.3	OK	
S21.000	SCATCHPIT 19	0.4	OK	
S21.001	SCATCHPIT 18	0.4	OK	
S20.002	SCATCHPIT 17	1.7	OK	
S22.000	SSWMH 37	3.4	OK	
S20.003	SCATCHPIT 16	5.2	OK	
S19.006	SSDS GEOLIGHT TANK	0.0	OK	
S23.000	SSWMH 20	4.1	OK	

Ramboll UK Ltd		Page 36
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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


PN	US/MH Name	Pipe Flow (1/s)	Status	Level Exceeded
S23.001	SSWMH	21 5.1	OK	

Ramboll UK Ltd		Page 37
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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


PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged Flooded			Flow / Overflow Cap. (l/s)
									Level (m)	Depth (m)	Volume (m ³)	
S23.002	SSWMH 22	15 Winter	1	+0%	30/15 Summer				67.727	-0.079	0.000	0.45
S23.003	SSWMH 26	15 Winter	1	+0%	30/15 Summer				67.525	-0.060	0.000	0.67
S24.000	SSWMH 27	15 Winter	1	+0%	100/15 Summer				67.719	-0.131	0.000	0.04
S25.000	SSWMH 23	15 Winter	1	+0%	30/15 Summer				68.048	-0.102	0.000	0.21
S25.001	SSWMH 24	15 Winter	1	+0%	30/15 Summer				67.944	-0.078	0.000	0.46
S25.002	SSWMH 25	15 Winter	1	+0%	30/15 Summer				67.883	-0.054	0.000	0.74
S23.004	SSWMH 28	15 Winter	1	+0%	30/15 Summer				67.417	-0.117	0.000	0.46
S23.005	SCATCHPIT 08	15 Winter	1	+0%	30/15 Summer				67.177	-0.111	0.000	0.50
S23.006	SCATCHPIT 09	15 Winter	1	+0%	30/15 Summer				67.002	-0.095	0.000	0.63
S23.007	SCATCHPIT 10	15 Winter	1	+0%	30/15 Summer				66.931	-0.095	0.000	0.63
S26.000	SSWMH 32	15 Winter	1	+0%	100/15 Summer				67.965	-0.096	0.000	0.27
S26.001	SSWMH 31	15 Winter	1	+0%	100/15 Summer				67.773	-0.088	0.000	0.35
S26.002	SSWMH 29	15 Winter	1	+0%	100/15 Summer				67.540	-0.154	0.000	0.21
S26.003	SCATCHPIT 12	15 Winter	1	+0%	100/15 Summer				67.457	-0.137	0.000	0.32
S23.008	SCATCHPIT 11	15 Winter	1	+0%	30/15 Summer				66.875	-0.066	0.000	0.83
S23.009	SSDS GEOLIGHT TANK 240	Winter	1	+0%	30/15 Summer				66.796	0.000	0.000	0.00

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S23.002	SSWMH 22	7.6	OK	
S23.003	SSWMH 26	9.5	OK	
S24.000	SSWMH 27	0.5	OK	

Ramboll UK Ltd		Page 38
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

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

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S25.000	SSWMH 23	3.2	OK	
S25.001	SSWMH 24	6.7	OK	
S25.002	SSWMH 25	10.1	OK	
S23.004	SSWMH 28	21.2	OK	
S23.005	SCATCHPIT 08	22.7	OK	
S23.006	SCATCHPIT 09	23.6	OK	
S23.007	SCATCHPIT 10	25.7	OK	
S26.000	SSWMH 32	4.6	OK	
S26.001	SSWMH 31	5.8	OK	
S26.002	SSWMH 29	9.3	OK	
S26.003	SCATCHPIT 12	13.7	OK	
S23.008	SCATCHPIT 11	36.6	OK	
S23.009	SSDS GEOLIGHT TANK	0.0	OK	

Ramboll UK Ltd		Page 39
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 6
Number of Online Controls 3 Number of Storage Structures 8 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Pipe Flow	
									Level (m)	Depth (m)	Volume (m ³)		Flow / Overflow Cap. (l/s)
S16.000	SSWMH 42	30 Winter	30	+0%	100/15	Summer			67.918	-0.142	0.000	0.01	0.2
S16.001	SSWMH12	15 Winter	30	+0%	100/15	Summer			67.780	-0.171	0.000	0.13	6.7

Ramboll UK Ltd		Page 40
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Status	Level Exceeded
S16.000	SSWMH 42	OK	
S16.001	SSWMH12	OK	

Ramboll UK Ltd		Page 41
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) SurchARGE	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)
S17.000	SSWMH 43	15 Winter	30	+0%	30/15 Winter				67.866	0.016	0.000	1.05	
S16.002	SSWMH13	15 Winter	30	+0%	100/15 Summer				67.572	-0.086	0.000	0.68	
S16.003	SSWMH14	15 Winter	30	+0%	30/15 Summer				67.461	0.044	0.000	0.91	
S18.000	SCATCHPIT 20	15 Winter	30	+0%					67.589	-0.101	0.000	0.23	
S18.001	SCATCHPIT 21	15 Winter	30	+0%					67.533	-0.108	0.000	0.18	
S18.002	SSWMH 40	15 Winter	30	+0%	100/15 Summer				67.374	-0.107	0.000	0.18	
S18.003	SSWMH 41	15 Winter	30	+0%	100/15 Summer				67.264	-0.118	0.000	0.10	
S16.004	SSWMH15	15 Winter	30	+0%	30/15 Summer				67.200	0.101	0.000	1.32	
S16.005	SSDS GEOLIGHT TANK	120 Winter	30	+0%	30/30 Winter				67.053	0.097	0.000	0.00	
S19.000	SSWMH 34	30 Winter	30	+0%					67.470	-0.140	0.000	0.01	
S19.001	SCATCHPIT 13	15 Summer	30	+0%	100/15 Summer				67.468	-0.049	0.000	0.79	
S19.002	SCATCHPIT 14	15 Winter	30	+0%	100/15 Summer				67.383	-0.067	0.000	0.59	
S19.003	SSWMH 35	15 Winter	30	+0%	100/15 Summer				67.193	-0.068	0.000	0.57	
S19.004	SSWMH 36	15 Winter	30	+0%	30/15 Summer				67.071	0.118	0.000	1.73	
S19.005	SCATCHPIT 15	120 Winter	30	+0%	30/15 Summer				66.959	0.048	0.000	0.41	
S20.000	SSWMH 39	30 Winter	30	+0%					67.308	-0.142	0.000	0.01	
S20.001	S83	15 Summer	30	+0%	100/120 Winter				67.183	-0.129	0.000	0.05	
S21.000	SCATCHPIT 19	15 Winter	30	+0%					67.665	-0.125	0.000	0.07	
S21.001	SCATCHPIT 18	15 Winter	30	+0%					67.559	-0.126	0.000	0.06	
S20.002	SCATCHPIT 17	15 Winter	30	+0%	100/30 Winter				66.977	-0.183	0.000	0.08	
S22.000	SSWMH 37	15 Winter	30	+0%					67.463	-0.087	0.000	0.37	
S20.003	SCATCHPIT 16	120 Winter	30	+0%	30/30 Winter				66.956	0.067	0.000	0.07	
S19.006	SSDS GEOLIGHT TANK	120 Winter	30	+0%	30/15 Summer				66.955	0.197	0.000	0.00	
S23.000	SSWMH 20	15 Winter	30	+0%	30/15 Summer				68.011	0.061	0.000	0.57	
S23.001	SSWMH 21	15 Winter	30	+0%	30/15 Summer				67.990	0.112	0.000	0.67	

Ramboll UK Ltd		Page 42
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S17.000	SSWMH 43	18.8	SURCHARGED	
S16.002	SSWMH13	34.1	OK	
S16.003	SSWMH14	52.0	SURCHARGED	
S18.000	SCATCHPIT 20	3.2	OK	
S18.001	SCATCHPIT 21	3.2	OK	
S18.002	SSWMH 40	3.2	OK	
S18.003	SSWMH 41	3.2	OK	
S16.004	SSWMH15	62.3	SURCHARGED	
S16.005	SSDS GEOLIGHT TANK	0.0	SURCHARGED	
S19.000	SSWMH 34	0.2	OK	
S19.001	SCATCHPIT 13	12.8	OK	
S19.002	SCATCHPIT 14	10.8	OK	
S19.003	SSWMH 35	10.8	OK	
S19.004	SSWMH 36	22.5	SURCHARGED	
S19.005	SCATCHPIT 15	10.1	SURCHARGED	
S20.000	SSWMH 39	0.2	OK	
S20.001	S83	1.0	OK	
S21.000	SCATCHPIT 19	1.0	OK	
S21.001	SCATCHPIT 18	1.0	OK	
S20.002	SCATCHPIT 17	5.1	OK	
S22.000	SSWMH 37	8.4	OK	
S20.003	SCATCHPIT 16	3.6	SURCHARGED	
S19.006	SSDS GEOLIGHT TANK	0.0	SURCHARGED	
S23.000	SSWMH 20	8.7	SURCHARGED	

Ramboll UK Ltd		Page 43
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm


PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S23.001	SSWMH 21	10.2	SURCHARGED	

Ramboll UK Ltd		Page 44
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm


PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged Flooded			Flow / Overflow Cap. (l/s)
									Level (m)	Depth (m)	Volume (m ³)	
S23.002	SSWMH 22	15 Winter	30	+0%	30/15 Summer				67.960	0.154	0.000	0.96
S23.003	SSWMH 26	15 Winter	30	+0%	30/15 Summer				67.795	0.211	0.000	1.37
S24.000	SSWMH 27	15 Winter	30	+0%	100/15 Summer				67.731	-0.119	0.000	0.09
S25.000	SSWMH 23	15 Winter	30	+0%	30/15 Summer				68.209	0.059	0.000	0.52
S25.001	SSWMH 24	15 Winter	30	+0%	30/15 Summer				68.177	0.155	0.000	1.14
S25.002	SSWMH 25	15 Winter	30	+0%	30/15 Summer				68.068	0.131	0.000	1.86
S23.004	SSWMH 28	15 Winter	30	+0%	30/15 Summer				67.711	0.178	0.000	1.03
S23.005	SCATCHPIT 08	15 Winter	30	+0%	30/15 Summer				67.476	0.188	0.000	1.05
S23.006	SCATCHPIT 09	15 Winter	30	+0%	30/15 Summer				67.278	0.181	0.000	1.28
S23.007	SCATCHPIT 10	15 Winter	30	+0%	30/15 Summer				67.178	0.151	0.000	1.11
S26.000	SSWMH 32	15 Winter	30	+0%	100/15 Summer				68.003	-0.058	0.000	0.68
S26.001	SSWMH 31	15 Winter	30	+0%	100/15 Summer				67.824	-0.038	0.000	0.89
S26.002	SSWMH 29	15 Winter	30	+0%	100/15 Summer				67.595	-0.100	0.000	0.57
S26.003	SCATCHPIT 12	15 Winter	30	+0%	100/15 Summer				67.539	-0.056	0.000	0.89
S23.008	SCATCHPIT 11	360 Winter	30	+0%	30/15 Summer				67.134	0.193	0.000	0.31
S23.009	SSDS GEOLIGHT TANK	360 Winter	30	+0%	30/15 Summer				67.131	0.335	0.000	0.00

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S23.002	SSWMH 22	16.2	SURCHARGED	
S23.003	SSWMH 26	19.4	SURCHARGED	
S24.000	SSWMH 27	1.3	OK	

Ramboll UK Ltd		Page 45
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S25.000	SSWMH 23	7.8	SURCHARGED	
S25.001	SSWMH 24	16.4	SURCHARGED	
S25.002	SSWMH 25	25.5	SURCHARGED	
S23.004	SSWMH 28	47.1	SURCHARGED	
S23.005	SCATCHPIT 08	47.2	SURCHARGED	
S23.006	SCATCHPIT 09	48.0	SURCHARGED	
S23.007	SCATCHPIT 10	45.4	SURCHARGED	
S26.000	SSWMH 32	11.3	OK	
S26.001	SSWMH 31	14.7	OK	
S26.002	SSWMH 29	24.9	OK	
S26.003	SCATCHPIT 12	38.3	OK	
S23.008	SCATCHPIT 11	13.8	SURCHARGED	
S23.009	SSDS GEOLIGHT TANK	0.0	SURCHARGED	

Ramboll UK Ltd		Page 46
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 6
Number of Online Controls 3 Number of Storage Structures 8 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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


Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Pipe Flow (l/s)	
									Level (m)	Depth (m)	Volume (m ³)		Flow / Cap. (l/s)
S16.000	SSWMH 42	15 Winter	100	+40%	100/15	Summer			68.251	0.191	0.000	0.18	3.5
S16.001	SSWMH12	15 Winter	100	+40%	100/15	Summer			68.265	0.314	0.000	0.23	11.9

Ramboll UK Ltd		Page 47
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Status	Level Exceeded
S16.000	SSWMH 42	SURCHARGED	
S16.001	SSWMH12	SURCHARGED	

Ramboll UK Ltd		Page 48
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)
S17.000	SSWMH 43	15 Winter	100	+40%	30/15 Winter				68.737	0.887	0.000	1.60
S16.002	SSWMH13	15 Winter	100	+40%	100/15 Summer				68.251	0.593	0.000	1.00
S16.003	SSWMH14	15 Winter	100	+40%	30/15 Summer				68.042	0.625	0.000	1.30
S18.000	SCATCHPIT 20	15 Winter	100	+40%					67.609	-0.081	0.000	0.42
S18.001	SCATCHPIT 21	15 Winter	100	+40%					67.550	-0.091	0.000	0.32
S18.002	SSWMH 40	15 Winter	100	+40%	100/15 Summer				67.518	0.037	0.000	0.41
S18.003	SSWMH 41	15 Winter	100	+40%	100/15 Summer				67.502	0.121	0.000	0.25
S16.004	SSWMH15	15 Winter	100	+40%	30/15 Summer				67.491	0.392	0.000	1.93
S16.005	SSDS GEOLIGHT TANK	240 Winter	100	+40%	30/30 Winter				67.419	0.463	0.000	0.00
S19.000	SSWMH 34	15 Winter	100	+40%					67.564	-0.046	0.000	0.05
S19.001	SCATCHPIT 13	15 Winter	100	+40%	100/15 Summer				67.574	0.057	0.000	1.38
S19.002	SCATCHPIT 14	15 Winter	100	+40%	100/15 Summer				67.495	0.046	0.000	0.73
S19.003	SSWMH 35	15 Winter	100	+40%	100/15 Summer				67.432	0.171	0.000	0.76
S19.004	SSWMH 36	15 Winter	100	+40%	30/15 Summer				67.416	0.463	0.000	2.36
S19.005	SCATCHPIT 15	120 Winter	100	+40%	30/15 Summer				67.348	0.437	0.000	0.71
S20.000	SSWMH 39	120 Winter	100	+40%					67.345	-0.105	0.000	0.01
S20.001	S83	120 Winter	100	+40%	100/120 Winter				67.345	0.033	0.000	0.04
S21.000	SCATCHPIT 19	15 Winter	100	+40%					67.674	-0.116	0.000	0.12
S21.001	SCATCHPIT 18	15 Winter	100	+40%					67.568	-0.117	0.000	0.11
S20.002	SCATCHPIT 17	120 Winter	100	+40%	100/30 Winter				67.344	0.185	0.000	0.05
S22.000	SSWMH 37	15 Winter	100	+40%					67.491	-0.059	0.000	0.67
S20.003	SCATCHPIT 16	120 Winter	100	+40%	30/30 Winter				67.344	0.455	0.000	0.07
S19.006	SSDS GEOLIGHT TANK	120 Winter	100	+40%	30/15 Summer				67.343	0.585	0.000	0.00
S23.000	SSWMH 20	15 Winter	100	+40%	30/15 Summer				68.966	1.016	0.000	0.76
S23.001	SSWMH 21	15 Winter	100	+40%	30/15 Summer				68.923	1.045	0.000	0.90

Ramboll UK Ltd		Page 49
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	


100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S17.000	SSWMH 43	28.7	FLOOD RISK	
S16.002	SSWMH13	49.8	SURCHARGED	
S16.003	SSWMH14	74.4	SURCHARGED	
S18.000	SCATCHPIT 20	5.9	OK	
S18.001	SCATCHPIT 21	5.8	OK	
S18.002	SSWMH 40	7.0	SURCHARGED	
S18.003	SSWMH 41	7.9	SURCHARGED	
S16.004	SSWMH15	91.2	SURCHARGED	
S16.005	SSDS GEOLIGHT TANK	0.0	SURCHARGED	
S19.000	SSWMH 34	0.8	OK	
S19.001	SCATCHPIT 13	22.5	SURCHARGED	
S19.002	SCATCHPIT 14	13.5	SURCHARGED	
S19.003	SSWMH 35	14.4	SURCHARGED	
S19.004	SSWMH 36	30.6	SURCHARGED	
S19.005	SCATCHPIT 15	17.3	SURCHARGED	
S20.000	SSWMH 39	0.3	OK	
S20.001	S83	0.9	SURCHARGED	
S21.000	SCATCHPIT 19	1.9	OK	
S21.001	SCATCHPIT 18	1.9	OK	
S20.002	SCATCHPIT 17	3.0	SURCHARGED	
S22.000	SSWMH 37	15.3	OK	
S20.003	SCATCHPIT 16	3.8	SURCHARGED	
S19.006	SSDS GEOLIGHT TANK	0.0	SURCHARGED	
S23.000	SSWMH 20	11.6	FLOOD RISK	

Ramboll UK Ltd		Page 50
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm


PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S23.001	SSWMH 21	13.7	FLOOD RISK	

Ramboll UK Ltd		Page 51
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)
									Level (m)	Depth (m)	Volume (m ³)		
S23.002	SSWMH 22	15 Winter	100	+40%	30/15 Summer				68.867	1.060	0.000	1.17	
S23.003	SSWMH 26	15 Winter	100	+40%	30/15 Summer				68.562	0.977	0.000	1.72	
S24.000	SSWMH 27	15 Winter	100	+40%	100/15 Summer				68.413	0.563	0.000	0.19	
S25.000	SSWMH 23	15 Winter	100	+40%	30/15 Summer				68.953	0.803	0.000	0.72	
S25.001	SSWMH 24	15 Winter	100	+40%	30/15 Summer				68.889	0.867	0.000	1.54	
S25.002	SSWMH 25	15 Winter	100	+40%	30/15 Summer				68.697	0.760	0.000	2.54	
S23.004	SSWMH 28	15 Winter	100	+40%	30/15 Summer				68.409	0.875	0.000	1.32	
S23.005	SCATCHPIT 08	15 Winter	100	+40%	30/15 Summer				68.001	0.712	0.000	1.43	
S23.006	SCATCHPIT 09	480 Winter	100	+40%	30/15 Summer				67.673	0.576	0.000	0.34	
S23.007	SCATCHPIT 10	480 Winter	100	+40%	30/15 Summer				67.671	0.645	0.000	0.29	
S26.000	SSWMH 32	15 Winter	100	+40%	100/15 Summer				68.383	0.322	0.000	1.11	
S26.001	SSWMH 31	15 Winter	100	+40%	100/15 Summer				68.129	0.268	0.000	1.43	
S26.002	SSWMH 29	15 Winter	100	+40%	100/15 Summer				67.814	0.120	0.000	0.93	
S26.003	SCATCHPIT 12	15 Winter	100	+40%	100/15 Summer				67.706	0.111	0.000	1.47	
S23.008	SCATCHPIT 11	480 Winter	100	+40%	30/15 Summer				67.669	0.727	0.000	0.39	
S23.009	SSDS GEOLIGHT TANK	480 Winter	100	+40%	30/15 Summer				67.665	0.869	0.000	0.00	

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S23.002	SSWMH 22	19.6	FLOOD RISK	
S23.003	SSWMH 26	24.3	FLOOD RISK	
S24.000	SSWMH 27	2.8	FLOOD RISK	

Ramboll UK Ltd		Page 52
240 Blackfriars Road London SE1 8NW	Begbroke New Buildings Stage 3	
Date 10/09/2021 File sw commercial and academic building desi...	Designed by AT Checked by LF	
Micro Drainage	Network 2018.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S25.000	SSWMH 23	10.7	FLOOD RISK	
S25.001	SSWMH 24	22.2	FLOOD RISK	
S25.002	SSWMH 25	34.7	FLOOD RISK	
S23.004	SSWMH 28	60.8	FLOOD RISK	
S23.005	SCATCHPIT 08	64.4	SURCHARGED	
S23.006	SCATCHPIT 09	12.7	SURCHARGED	
S23.007	SCATCHPIT 10	11.9	SURCHARGED	
S26.000	SSWMH 32	18.6	SURCHARGED	
S26.001	SSWMH 31	23.6	SURCHARGED	
S26.002	SSWMH 29	40.1	SURCHARGED	
S26.003	SCATCHPIT 12	62.8	SURCHARGED	
S23.008	SCATCHPIT 11	17.0	SURCHARGED	
S23.009	SSDS GEOLIGHT TANK	0.0	SURCHARGED	



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)	1	Maximum Time of Concentration (mins)	30	Add Flow / Climate Change (%)	0	Min Vel for Auto Design only (m/s)	1.00
M5-60 (mm)	20.000	Foul Sewage (l/s/ha)	0.000	Minimum Backdrop Height (m)	0.200	Min Slope for Optimisation (1:X)	500
Ratio R	0.400	Volumetric Runoff Coeff.	0.750	Maximum Backdrop Height (m)	1.500		
Maximum Rainfall (mm/hr)	50	PIMP (%)	100	Min Design Depth for Optimisation (m)	1.200		

Designed with Level Soffits

Time Area Diagram for Storm at outfall S (pipe S1.007)

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.183	4-8	0.307	8-12	0.017

Total Area Contributing (ha) = 0.508

Total Pipe Volume (m³) = 30.720

Time Area Diagram at outfall S (pipe S23.004)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.023	4-8	0.010

Total Area Contributing (ha) = 0.033

Total Pipe Volume (m³) = 2.298

Network Design Table for Storm

PN	Length	Fall	Slope	I.Area	T.E.	Base	k	HYD	DIA	Section	Type	Auto
(m)	(m)	(1:X)	(ha)	(mins)	Flow	(l/s)	(mm)	SECT	(mm)			Design

Network Results Table

PN	Rain	T.C.	US/IL	E I.Area	E Base	Foul	Add Flow	Vel	Cap	Flow
	(mm/hr)	(mins)	(m)	(ha)	Flow	(l/s)	(l/s)	(m/s)	(l/s)	(l/s)

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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
S1.000	52.344	0.349	150.0	0.000	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S1.001	3.147	0.021	149.2	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S2.000	47.231	0.236	200.1	0.023	5.00	0.0	0.600	o	150	Pipe/Conduit	🚧
S2.001	7.208	0.048	149.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	🚧
S1.002	30.927	0.189	164.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	🚧
S3.000	66.079	0.330	200.0	0.043	5.00	0.0	0.600	o	150	Pipe/Conduit	🚧
S3.001	11.558	0.152	75.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	🚧
S4.000	43.200	0.288	150.0	0.000	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S4.001	9.840	0.066	150.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S1.003	26.065	0.189	138.3	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	🚧
S5.000	55.265	0.366	151.0	0.000	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S5.001	3.358	0.022	150.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S6.000	55.416	0.277	200.0	0.029	5.00	0.0	0.600	o	100	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)
S1.000	50.00	5.85	68.050	0.000	0.0	0.0	0.0	1.03	32.9	0.0
S1.001	50.00	5.90	67.701	0.000	0.0	0.0	0.0	1.03	33.0	0.0
S2.000	49.92	6.11	67.550	0.023	0.0	0.0	0.0	0.71	12.5	3.1
S2.001	49.36	6.26	67.314	0.023	0.0	0.0	0.0	0.82	14.5	3.1
S1.002	47.01	6.92	67.266	0.023	0.0	0.0	0.0	0.78	13.8	3.1
S3.000	48.27	6.56	67.560	0.043	0.0	0.0	0.0	0.71	12.5	5.7
S3.001	47.68	6.72	67.230	0.043	0.0	0.0	0.0	1.16	20.4	5.7
S4.000	50.00	5.70	68.060	0.000	0.0	0.0	0.0	1.03	32.9	0.0
S4.001	50.00	5.86	67.772	0.000	0.0	0.0	0.0	1.03	32.9	0.0
S1.003	45.35	7.43	67.077	0.066	0.0	0.0	0.0	0.85	15.1	8.2
S5.000	50.00	5.90	67.990	0.000	0.0	0.0	0.0	1.02	32.8	0.0
S5.001	50.00	5.95	67.624	0.000	0.0	0.0	0.0	1.03	32.9	0.0
S6.000	47.73	6.71	67.510	0.029	0.0	0.0	0.0	0.54	4.2	3.7

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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
S6.001	6.623	0.044	150.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S7.000	11.669	0.077	151.0	0.013	5.00	0.0	0.600	o	100	Pipe/Conduit	
S7.001	17.315	0.115	151.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S1.004	45.021	0.298	151.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S8.000	44.870	0.297	151.0	0.024	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	
S8.001	3.667	0.024	150.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	
S9.000	43.537	0.218	200.0	0.022	5.00	0.0	0.600	o	100	Pipe/Conduit	
S9.001	7.249	0.048	151.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S1.005	7.737	0.208	37.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.000	11.499	0.076	151.0	0.006	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	
S10.001	6.829	0.045	151.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	
S11.000	9.767	0.049	200.0	0.006	5.00	0.0	0.600	o	100	Pipe/Conduit	
S11.001	8.956	0.059	151.0	0.000	0.00	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)
S6.001	47.12	6.89	67.233	0.029	0.0	0.0	0.0	0.63	4.9	3.7
S7.000	50.00	5.31	67.520	0.013	0.0	0.0	0.0	0.62	4.9	1.7
S7.001	50.00	5.77	67.443	0.013	0.0	0.0	0.0	0.62	4.9	1.7
S1.004	43.27	8.14	66.814	0.108	0.0	0.0	0.0	1.06	42.2	12.6
S8.000	50.00	5.73	68.010	0.024	0.0	0.0	0.0	1.02	32.8	3.2
S8.001	50.00	5.79	67.713	0.024	0.0	0.0	0.0	1.03	32.9	3.2
S9.000	49.05	6.34	67.530	0.022	0.0	0.0	0.0	0.54	4.2	2.9
S9.001	48.34	6.54	67.312	0.022	0.0	0.0	0.0	0.62	4.9	2.9
S1.005	43.10	8.20	66.516	0.154	0.0	0.0	0.0	2.15	85.6	17.9
S10.000	50.00	5.19	68.070	0.006	0.0	0.0	0.0	1.02	32.8	0.8
S10.001	50.00	5.30	67.994	0.006	0.0	0.0	0.0	1.02	32.8	0.8
S11.000	50.00	5.30	67.600	0.006	0.0	0.0	0.0	0.54	4.2	0.8
S11.001	50.00	5.54	67.551	0.006	0.0	0.0	0.0	0.62	4.9	0.8

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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
S10.002	35.528	0.235	151.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	🟢
S12.000	27.459	0.183	150.0	0.033	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🟡
S12.001	7.739	0.051	151.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🟢
S13.000	23.705	0.119	200.0	0.013	5.00	0.0	0.600	o	100	Pipe/Conduit	🟢
S13.001	6.898	0.046	151.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	🟢
S10.003	36.746	0.243	151.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	🟢
S14.000	20.269	0.134	151.0	0.000	5.00	0.0	0.600	o	100	Pipe/Conduit	🟢
S15.000	69.596	0.461	151.0	0.051	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🟡
S15.001	6.576	0.044	151.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🟢
S16.000	34.948	0.175	199.7	0.021	5.00	0.0	0.600	o	150	Pipe/Conduit	🟡
S16.001	4.829	0.032	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	🟢
S10.004	25.946	0.052	499.0	0.033	0.00	0.0	0.600	o	225	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)
S10.002	48.51	6.49	67.492	0.012	0.0	0.0	0.0	0.62	4.9	1.6
S12.000	50.00	5.45	68.100	0.033	0.0	0.0	0.0	1.03	32.9	4.5
S12.001	50.00	5.57	67.917	0.033	0.0	0.0	0.0	1.02	32.8	4.5
S13.000	50.00	5.73	67.640	0.013	0.0	0.0	0.0	0.54	4.2	1.7
S13.001	50.00	5.92	67.521	0.013	0.0	0.0	0.0	0.62	4.9	1.7
S10.003	45.95	7.24	67.207	0.058	0.0	0.0	0.0	0.81	14.4	7.2
S14.000	50.00	5.54	68.000	0.000	0.0	0.0	0.0	0.62	4.9	0.0
S15.000	49.85	6.13	68.130	0.051	0.0	0.0	0.0	1.02	32.8	6.9
S15.001	49.44	6.24	67.669	0.051	0.0	0.0	0.0	1.02	32.8	6.9
S16.000	50.00	5.82	67.610	0.021	0.0	0.0	0.0	0.71	12.5	2.8
S16.001	50.00	5.92	67.435	0.021	0.0	0.0	0.0	0.82	14.5	2.8
S10.004	43.69	7.99	66.889	0.163	0.0	0.0	0.0	0.58	23.0	19.3

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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
S17.000	15.521	0.103	150.0	0.009	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🔒
S17.001	7.856	0.052	151.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🔒
S18.000	11.928	0.204	58.5	0.009	5.00	0.0	0.600	o	100	Pipe/Conduit	🔒
S18.001	7.508	0.050	151.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	🔒
S10.005	55.107	0.365	151.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	🔒
S19.000	72.060	0.360	200.0	0.047	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🔒
S19.001	4.281	0.028	152.9	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🔒
S20.000	67.429	0.337	200.1	0.034	5.00	0.0	0.600	o	100	Pipe/Conduit	🔒
S20.001	8.119	0.054	151.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	🔒
S10.006	6.720	0.164	40.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	🔒
S21.000	9.600	0.064	151.0	0.016	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🔒
S21.001	3.774	0.025	151.0	0.000	0.00	0.0	0.600	MD7	-16	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)
S17.000	50.00	5.25	68.000	0.009	0.0	0.0	0.0	1.03	32.9	1.2
S17.001	50.00	5.38	67.897	0.009	0.0	0.0	0.0	1.02	32.8	1.2
S18.000	50.00	5.20	67.520	0.009	0.0	0.0	0.0	1.01	7.9	1.2
S18.001	50.00	5.40	67.316	0.009	0.0	0.0	0.0	0.62	4.9	1.2
S10.005	41.37	8.85	66.837	0.182	0.0	0.0	0.0	1.06	42.2	20.3
S19.000	49.01	6.35	68.150	0.047	0.0	0.0	0.0	0.89	28.4	6.2
S19.001	48.75	6.42	67.790	0.047	0.0	0.0	0.0	1.02	32.5	6.2
S20.000	46.47	7.08	67.630	0.034	0.0	0.0	0.0	0.54	4.2	4.2
S20.001	45.77	7.30	67.293	0.034	0.0	0.0	0.0	0.62	4.9	4.2
S10.006	41.24	8.91	66.472	0.262	0.0	0.0	0.0	2.05	81.5	29.3
S21.000	50.00	5.16	68.480	0.016	0.0	0.0	0.0	1.02	32.8	2.1
S21.001	50.00	5.22	68.416	0.016	0.0	0.0	0.0	1.02	32.8	2.1

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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
S22.000	10.744	0.071	151.0	0.020	5.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S22.001	4.117	0.027	151.0	0.000	0.00	0.0	0.600	MD7	-16	Pipe/Conduit	🚧
S1.006	8.392	0.361	23.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	👍
S1.007	32.155	0.291	110.4	0.056	0.00	0.0	0.600	o	300	Pipe/Conduit	👍
S23.000	26.371	0.293	90.0	0.010	5.00	0.0	0.600	o	150	Pipe/Conduit	🚧
S23.001	21.649	0.241	90.0	0.013	0.00	0.0	0.600	o	150	Pipe/Conduit	👍
S23.002	21.881	0.243	90.0	0.010	0.00	0.0	0.600	o	150	Pipe/Conduit	👍
S23.003	12.863	0.143	90.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	👍
S23.004	13.872	0.154	90.0	0.000	0.00	0.0	0.600	o	225	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)
S22.000	50.00	5.17	68.210	0.020	0.0	0.0	0.0	1.02	32.8	2.8
S22.001	50.00	5.24	68.139	0.020	0.0	0.0	0.0	1.02	32.8	2.8
S1.006	41.12	8.96	66.308	0.452	0.0	0.0	0.0	2.73	108.4	50.3
S1.007	40.30	9.32	65.871	0.508	0.0	0.0	0.0	1.50	105.7	55.4
S23.000	50.00	5.41	67.800	0.010	0.0	0.0	0.0	1.06	18.7	1.4
S23.001	50.00	5.76	67.507	0.023	0.0	0.0	0.0	1.06	18.7	3.1
S23.002	49.98	6.10	67.266	0.033	0.0	0.0	0.0	1.06	18.7	4.4
S23.003	49.38	6.25	67.023	0.033	0.0	0.0	0.0	1.38	54.8	4.4
S23.004	48.76	6.42	66.805	0.033	0.0	0.0	0.0	1.38	54.8	4.4

240 Blackfriars Road
 London
 SE1 8NW

Begbroke
 Surface Car Park



Date 06/12/2021 19:43
 File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Designed by AT
 Checked by LF

Micro Drainage

Network 2018.1

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)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)	MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S49	68.530	0.320	Junction		S22.000	68.210	-16																
S50	68.600	0.461	Junction		S22.001	68.139	-16	S22.000	68.139	-16		SSWMH12	68.740	0.940	Open Manhole	1200	S23.000	67.800	150				
SSWMH04	68.670	2.362	Open Manhole	1200	S1.006	66.308	225	S1.005	66.308	225		SSWMH13	69.020	1.513	Open Manhole	1200	S23.001	67.507	150	S23.000	67.507	150	
								S10.006	66.308	225		SSWMH14	69.000	1.734	Open Manhole	1200	S23.002	67.266	150	S23.001	67.266	150	
								S21.001	68.391	-16	2143	SSWMH15	69.000	1.977	Open Manhole	1200	S23.003	67.023	225	S23.002	67.023	150	
								S22.001	68.112	-16	1864	S66	68.650	1.845	Open Manhole	1200	S23.004	66.805	225	S23.003	66.880	225	
S7	68.320	2.449	Open Manhole	450	S1.007	65.871	300	S1.006	65.946	225		S	68.600	1.949	Open Manhole	0		OUTFALL		S23.004	66.651	225	
S	68.320	2.740	Open Manhole	0		OUTFALL		S1.007	65.580	300													



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)
S1.000	MD7	-16	S1	68.370	68.050	0.035	Junction	
S1.001	MD7	-16	S2	68.320	67.701	0.334	Junction	
S2.000	o	150	S3	68.350	67.550	0.650	Junction	
S2.001	o	150	S4	68.320	67.314	0.856	Junction	
S1.002	o	150	SSWMH01	68.320	67.266	0.904	Open Manhole	1200
S3.000	o	150	S26	68.360	67.560	0.650	Junction	
S3.001	o	150	S28	68.350	67.230	0.970	Open Manhole	1200
S4.000	MD7	-16	S16	68.380	68.060	0.035	Junction	
S4.001	MD7	-16	S17	68.330	67.772	0.273	Junction	
S1.003	o	150	SSWMH06	68.390	67.077	1.163	Open Manhole	1200
S5.000	MD7	-16	S4	68.310	67.990	0.035	Junction	
S5.001	MD7	-16	S5	68.330	67.624	0.421	Junction	

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)
S1.000	52.344	150.0	S2	68.320	67.701	0.334	Junction	
S1.001	3.147	149.2	SSWMH01	68.320	67.680	0.355	Open Manhole	1200
S2.000	47.231	200.1	S4	68.320	67.314	0.856	Junction	
S2.001	7.208	149.4	SSWMH01	68.320	67.266	0.904	Open Manhole	1200
S1.002	30.927	164.1	SSWMH06	68.390	67.077	1.163	Open Manhole	1200
S3.000	66.079	200.0	S28	68.350	67.230	0.970	Open Manhole	1200
S3.001	11.558	75.9	SSWMH06	68.390	67.077	1.163	Open Manhole	1200
S4.000	43.200	150.0	S17	68.330	67.772	0.273	Junction	
S4.001	9.840	150.0	SSWMH06	68.390	67.706	0.399	Open Manhole	1200
S1.003	26.065	138.3	SSWMH02	68.460	66.889	1.421	Open Manhole	1200
S5.000	55.265	151.0	S5	68.330	67.624	0.421	Junction	
S5.001	3.358	150.0	SSWMH02	68.460	67.602	0.573	Open Manhole	1200

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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)
S6.000	o	100	S8	68.310	67.510	0.700	Junction	
S6.001	o	100	S9	68.330	67.233	0.997	Junction	
S7.000	o	100	S10	68.320	67.520	0.700	Junction	
S7.001	o	100	S11	68.320	67.443	0.777	Junction	
S1.004	o	225	SSWMH02	68.460	66.814	1.421	Open Manhole	1200
S8.000	MD7	-16	S7	68.330	68.010	0.035	Junction	
S8.001	MD7	-16	S8	68.470	67.713	0.472	Junction	
S9.000	o	100	S15	68.330	67.530	0.700	Junction	
S9.001	o	100	S16	68.470	67.312	1.058	Junction	
S1.005	o	225	SSWMH03	68.620	66.516	1.879	Open Manhole	1200
S10.000	MD7	-16	S6	68.390	68.070	0.035	Junction	

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)
S6.000	55.416	200.0	S9	68.330	67.233	0.997	Junction	
S6.001	6.623	150.0	SSWMH02	68.460	67.189	1.171	Open Manhole	1200
S7.000	11.669	151.0	S11	68.320	67.443	0.777	Junction	
S7.001	17.315	151.0	SSWMH02	68.460	67.328	1.032	Open Manhole	1200
S1.004	45.021	151.0	SSWMH03	68.620	66.516	1.879	Open Manhole	1200
S8.000	44.870	151.0	S8	68.470	67.713	0.472	Junction	
S8.001	3.667	150.0	SSWMH03	68.620	67.688	0.647	Open Manhole	1200
S9.000	43.537	200.0	S16	68.470	67.312	1.058	Junction	
S9.001	7.249	151.0	SSWMH03	68.620	67.264	1.256	Open Manhole	1200
S1.005	7.737	37.2	SSWMH04	68.670	66.308	2.137	Open Manhole	1200
S10.000	11.499	151.0	S7	68.420	67.994	0.141	Junction	

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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)
S10.001	MD7	-16	S7	68.420	67.994	0.141	Junction	
S11.000	o	100	S20	68.400	67.600	0.700	Junction	
S11.001	o	100	S21	68.480	67.551	0.829	Junction	
S10.002	o	100	SSWMH11	68.430	67.492	0.838	Open Manhole	1200
S12.000	MD7	-16	S13	68.420	68.100	0.035	Junction	
S12.001	MD7	-16	S14	68.420	67.917	0.218	Junction	
S13.000	o	100	S19	68.440	67.640	0.700	Junction	
S13.001	o	100	S20	68.410	67.521	0.789	Junction	
S10.003	o	150	SSWMH10	68.470	67.207	1.113	Open Manhole	1200
S14.000	o	100	SSWMH09	68.900	68.000	0.800	Open Manhole	1200
S15.000	MD7	-16	S18	68.450	68.130	0.035	Junction	

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)
S10.001	6.829	151.0	SSWMH11	68.430	67.949	0.196	Open Manhole	1200
S11.000	9.767	200.0	S21	68.480	67.551	0.829	Junction	
S11.001	8.956	151.0	SSWMH11	68.430	67.492	0.838	Open Manhole	1200
S10.002	35.528	151.0	SSWMH10	68.470	67.257	1.113	Open Manhole	1200
S12.000	27.459	150.0	S14	68.420	67.917	0.218	Junction	
S12.001	7.739	151.0	SSWMH10	68.470	67.866	0.319	Open Manhole	1200
S13.000	23.705	200.0	S20	68.410	67.521	0.789	Junction	
S13.001	6.898	151.0	SSWMH10	68.470	67.476	0.894	Open Manhole	1200
S10.003	36.746	151.2	SSWMH08	68.330	66.964	1.216	Open Manhole	1200
S14.000	20.269	151.0	SSWMH08	68.330	67.866	0.364	Open Manhole	1200
S15.000	69.596	151.0	S19	68.320	67.669	0.366	Junction	

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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)
S15.001	MD7	-16	S19	68.320	67.669	0.366	Junction	
S16.000	o	150	S25	68.410	67.610	0.650	Junction	
S16.001	o	150	S26	68.320	67.435	0.735	Junction	
S10.004	o	225	SSWMH08	68.330	66.889	1.216	Open Manhole	1200
S17.000	MD7	-16	S19	68.320	68.000	0.035	Junction	
S17.001	MD7	-16	S20	68.330	67.897	0.148	Junction	
S18.000	o	100	S36	68.320	67.520	0.700	Junction	
S18.001	o	100	S37	68.350	67.316	0.934	Junction	
S10.005	o	225	Sdummy	68.300	66.837	1.238	Junction	
S19.000	MD7	-16	S24	68.470	68.150	0.035	Junction	
S19.001	MD7	-16	S25	68.860	67.790	0.785	Junction	

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)
S15.001	6.576	151.0	SSWMH08	68.330	67.626	0.419	Open Manhole	1200
S16.000	34.948	199.7	S26	68.320	67.435	0.735	Junction	
S16.001	4.829	150.0	SSWMH08	68.330	67.403	0.777	Open Manhole	1200
S10.004	25.946	499.0	Sdummy	68.300	66.837	1.238	Junction	
S17.000	15.521	150.0	S20	68.330	67.897	0.148	Junction	
S17.001	7.856	151.0	Sdummy	68.300	67.845	0.170	Junction	
S18.000	11.928	58.5	S37	68.350	67.316	0.934	Junction	
S18.001	7.508	151.0	Sdummy	68.300	67.266	0.934	Junction	
S10.005	55.107	151.0	SSWMH05	68.700	66.472	2.003	Open Manhole	1200
S19.000	72.060	200.0	S25	68.860	67.790	0.785	Junction	
S19.001	4.281	152.9	SSWMH05	68.700	67.762	0.653	Open Manhole	1200

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1


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)
S20.000	o	100	S45	68.430	67.630	0.700	Junction	
S20.001	o	100	S46	68.890	67.293	1.497	Junction	
S10.006	o	225	SSWMH05	68.700	66.472	2.003	Open Manhole	1200
S21.000	MD7	-16	S47	68.800	68.480	0.035	Junction	
S21.001	MD7	-16	S48	68.600	68.416	-0.101	Junction	
S22.000	MD7	-16	S49	68.530	68.210	0.035	Junction	
S22.001	MD7	-16	S50	68.600	68.139	0.176	Junction	
S1.006	o	225	SSWMH04	68.670	66.308	2.137	Open Manhole	1200
S1.007	o	300	S7	68.320	65.871	2.149	Open Manhole	450
S23.000	o	150	SSWMH12	68.740	67.800	0.790	Open Manhole	1200
S23.001	o	150	SSWMH13	69.020	67.507	1.363	Open Manhole	1200
S23.002	o	150	SSWMH14	69.000	67.266	1.584	Open Manhole	1200
S23.003	o	225	SSWMH15	69.000	67.023	1.827	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)
S20.000	67.429	200.1	S46	68.890	67.293	1.497	Junction	
S20.001	8.119	151.0	SSWMH05	68.700	67.239	1.361	Open Manhole	1200
S10.006	6.720	40.9	SSWMH04	68.670	66.308	2.137	Open Manhole	1200
S21.000	9.600	151.0	S48	68.600	68.416	-0.101	Junction	
S21.001	3.774	151.0	SSWMH04	68.670	68.391	-0.006	Open Manhole	1200
S22.000	10.744	151.0	S50	68.600	68.139	0.176	Junction	
S22.001	4.117	151.0	SSWMH04	68.670	68.112	0.273	Open Manhole	1200
S1.006	8.392	23.2	S7	68.320	65.946	2.149	Open Manhole	450
S1.007	32.155	110.4	S	68.320	65.580	2.440	Open Manhole	0
S23.000	26.371	90.0	SSWMH13	69.020	67.507	1.363	Open Manhole	1200
S23.001	21.649	90.0	SSWMH14	69.000	67.266	1.584	Open Manhole	1200
S23.002	21.881	90.0	SSWMH15	69.000	67.023	1.827	Open Manhole	1200
S23.003	12.863	90.0	S66	68.650	66.880	1.620	Open Manhole	1200

Ramboll UK Ltd	Begbroke	Page 14
240 Blackfriars Road	Surface Car Park	
London		
SE1 8NW	Designed by AT	
Date 06/12/2021 19:43	Checked by LF	
File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX	Network 2018.1	
Micro Drainage		

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd	Diam	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	Sect	(mm)	Name	(m)	(m)	(m)	Connection	(mm)
S23.004	o	225	S66	68.650	66.805	1.620	Open Manhole	1200

Downstream Manhole

PN	Length	Slope	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	(m)	(1:X)	Name	(m)	(m)	(m)	Connection	(mm)
S23.004	13.872	90.0	S	68.600	66.651	1.724	Open Manhole	0

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.000	0.000	0.000
1.001	-	-	100	0.000	0.000	0.000
2.000	User	-	100	0.023	0.023	0.023
2.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
3.000	User	-	97	0.045	0.043	0.043
3.001	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.000	0.000	0.000
4.001	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.000	0.000	0.000
5.001	-	-	100	0.000	0.000	0.000
6.000	User	-	100	0.029	0.029	0.029
6.001	-	-	100	0.000	0.000	0.000
7.000	User	-	97	0.013	0.013	0.013
7.001	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
8.000	User	-	97	0.025	0.024	0.024
8.001	-	-	100	0.000	0.000	0.000
9.000	User	-	100	0.022	0.022	0.022
9.001	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
10.000	User	-	100	0.006	0.006	0.006
10.001	-	-	100	0.000	0.000	0.000
11.000	User	-	100	0.006	0.006	0.006
11.001	-	-	100	0.000	0.000	0.000
10.002	-	-	100	0.000	0.000	0.000
12.000	User	-	97	0.034	0.033	0.033
12.001	-	-	100	0.000	0.000	0.000
13.000	User	-	100	0.013	0.013	0.013
13.001	-	-	100	0.000	0.000	0.000
10.003	-	-	100	0.000	0.000	0.000
14.000	-	-	100	0.000	0.000	0.000
15.000	User	-	100	0.040	0.040	0.040
	User	-	100	0.012	0.012	0.051
15.001	-	-	100	0.000	0.000	0.000
16.000	User	-	97	0.021	0.021	0.021
16.001	-	-	100	0.000	0.000	0.000
10.004	User	-	100	0.008	0.008	0.008
	User	-	100	0.025	0.025	0.033
17.000	User	-	100	0.009	0.009	0.009
17.001	-	-	100	0.000	0.000	0.000
18.000	User	-	100	0.009	0.009	0.009
18.001	-	-	100	0.000	0.000	0.000
10.005	-	-	100	0.000	0.000	0.000
19.000	User	-	100	0.047	0.047	0.047



Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
19.001	-	-	100	0.000	0.000	0.000
20.000	User	-	100	0.034	0.034	0.034
20.001	-	-	100	0.000	0.000	0.000
10.006	-	-	100	0.000	0.000	0.000
21.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.005	0.005	0.012
	User	-	100	0.004	0.004	0.016
21.001	-	-	100	0.000	0.000	0.000
22.000	User	-	100	0.009	0.009	0.009
	User	-	100	0.006	0.006	0.014
	User	-	100	0.006	0.006	0.020
22.001	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	User	-	100	0.056	0.056	0.056
23.000	User	-	97	0.010	0.010	0.010
23.001	User	-	97	0.013	0.013	0.013
23.002	User	-	97	0.010	0.010	0.010
23.003	-	-	100	0.000	0.000	0.000
23.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.545	0.540	0.540

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)
S1.007	S	68.320	65.580	0.000	0	0

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)
S23.004	S	68.600	66.651	0.000	0	0

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43
File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Designed by AT
Checked by LF

Micro Drainage

Network 2018.1

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000	
Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha	Storage	2.000	Run Time (mins)	60
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coefficient	0.800	Output Interval (mins)	1	

Number of Input Hydrographs 0 Number of Online Controls 2 Number of Offline Controls 0 Number of Storage Structures 10 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Region	England and Wales	Ratio R	0.400	Cv (Summer)	0.750	Storm Duration (mins)	30
Return Period (years)	1	M5-60 (mm)		20.000	Profile Type	Summer	Cv (Winter)	0.840	

240 Blackfriars Road
 London
 SE1 8NW

Begbroke
 Surface Car Park



Date 06/12/2021 19:43
 File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Designed by AT
 Checked by LF

Micro Drainage

Network 2018.1

Online Controls for Storm

Pump Manhole: S7, DS/PN: S1.007, Volume (m³): 0.7

Invert Level (m) 65.871

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.000	0.0000	2.000	0.0000	3.000	0.0000

Pump Manhole: S66, DS/PN: S23.004, Volume (m³): 2.6

Invert Level (m) 66.805

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.000	0.0000	2.000	0.0000	3.000	0.0000

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

Storage Structures for Storm

Porous Car Park Manhole: S4, DS/PN: S2.001

Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0	Width (m)	4.7	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	48.0	Evaporation (mm/day)	3
Max Percolation (l/s)	62.7	Invert Level (m)	67.314	Slope (1:X)	200.0	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: S9, DS/PN: S6.001

Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0	Width (m)	4.6	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	60.0	Evaporation (mm/day)	3
Max Percolation (l/s)	76.7	Invert Level (m)	67.233	Slope (1:X)	200.0	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: S11, DS/PN: S7.001

Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0	Width (m)	4.6	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	14.4	Evaporation (mm/day)	3
Max Percolation (l/s)	18.4	Invert Level (m)	67.443	Slope (1:X)	200.0	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: S16, DS/PN: S9.001

Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0	Width (m)	4.6	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	45.5	Evaporation (mm/day)	3
Max Percolation (l/s)	58.1	Invert Level (m)	67.312	Slope (1:X)	200.0	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: S20, DS/PN: S13.001

Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0	Width (m)	4.6	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	26.4	Evaporation (mm/day)	3
Max Percolation (l/s)	33.7	Invert Level (m)	67.521	Slope (1:X)	200.0	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: S26, DS/PN: S16.001

Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0	Width (m)	4.6	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	45.7	Evaporation (mm/day)	3
Max Percolation (l/s)	58.4	Invert Level (m)	67.435	Slope (1:X)	200.0	Cap Volume Depth (m)	0.400

Porous Car Park Manhole: S37, DS/PN: S18.001

Infiltration Coefficient Base (m/hr)	0.12492	Safety Factor	2.0	Width (m)	4.6	Depression Storage (mm)	5
Membrane Percolation (mm/hr)	1000	Porosity	0.30	Length (m)	14.4	Evaporation (mm/day)	3
Max Percolation (l/s)	18.4	Invert Level (m)	67.316	Slope (1:X)	200.0	Cap Volume Depth (m)	0.400

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

Porous Car Park Manhole: S46, DS/PN: S20.001

Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0 Width (m) 4.6 Depression Storage (mm) 5
 Membrane Percolation (mm/hr) 1000 Porosity 0.30 Length (m) 72.0 Evaporation (mm/day) 3
 Max Percolation (1/s) 92.0 Invert Level (m) 67.293 Slope (1:X) 200.0 Cap Volume Depth (m) 0.400

Cellular Storage Manhole: S7, DS/PN: S1.007

Invert Level (m) 65.900 Infiltration Coefficient Side (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Base (m/hr) 0.12492 Safety Factor 2.0

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	195.0	190.0	0.400	195.0	212.1	0.800	195.0	234.1	1.200	195.0	256.2	1.201	0.0	256.2

Cellular Storage Manhole: S66, DS/PN: S23.004

Invert Level (m) 66.650 Infiltration Coefficient Side (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Base (m/hr) 0.12492 Safety Factor 2.0

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	40.0	0.0	0.400	40.0	0.0	0.800	40.0	0.0	1.200	40.0	0.0	1.201	0.0	0.0

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

Simulation Criteria

Areal Reduction Factor 1.000 Hot Start Level (mm) 0 Foul Sewage per hectare (l/s) 0.000 MADD Factor * 10m³/ha Storage 2.000 Flow per Person per Day (l/per/day) 0.000
 Hot Start (mins) 0 Manhole Headloss Coeff (Global) 0.500 Additional Flow - % of Total Flow 0.000 Inlet Coefficient 0.800

Number of Input Hydrographs 0 Number of Online Controls 2 Number of Offline Controls 0 Number of Storage Structures 10 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Region England and Wales M5-60 (mm) 20.000 Ratio R 0.400 Cv (Summer) 0.750 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 450.0 DTS Status OFF Inertia Status ON
 Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Surcharged			Flooded		Pipe		Status
				Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)		
S1.000	S1	60 minute 1 year Winter I+0%	68.370	68.050	-0.285	0.000	0.00	0.0		OK	
S1.001	S2	60 minute 1 year Winter I+0%	68.320	67.701	-0.285	0.000	0.00	0.0		OK	
S2.000	S3	15 minute 1 year Winter I+0%	68.350	67.602	-0.098	0.000	0.24	3.0		OK*	
S2.001	S4	15 minute 1 year Winter I+0%	68.320	67.354	-0.110	0.000	0.16	2.2		OK*	
S1.002	SSWMH01	15 minute 1 year Winter I+0%	68.320	67.307	-0.109	0.000	0.16	2.2		OK	
S3.000	S26	15 minute 1 year Winter I+0%	68.360	67.634	-0.076	0.000	0.44	5.5		OK*	
S3.001	S28	15 minute 1 year Winter I+0%	68.350	67.286	-0.094	0.000	0.30	5.5		OK	
S4.000	S16	60 minute 1 year Winter I+0%	68.380	68.060	-0.285	0.000	0.00	0.0		OK	
S4.001	S17	60 minute 1 year Winter I+0%	68.330	67.772	-0.285	0.000	0.00	0.0		OK	
S1.003	SSWMH06	15 minute 1 year Winter I+0%	68.390	67.154	-0.073	0.000	0.52	7.5		OK	
S5.000	S4	60 minute 1 year Winter I+0%	68.310	67.990	-0.285	0.000	0.00	0.0		OK	
S5.001	S5	60 minute 1 year Winter I+0%	68.330	67.624	-0.285	0.000	0.00	0.0		OK	
S6.000	S8	15 minute 1 year Winter I+0%	68.310	67.587	-0.023	0.000	0.87	3.7		OK*	
S6.001	S9	15 minute 1 year Winter I+0%	68.330	67.283	-0.050	0.000	0.49	2.4		OK*	
S7.000	S10	15 minute 1 year Winter I+0%	68.320	67.562	-0.058	0.000	0.35	1.7		OK*	
S7.001	S11	15 minute 1 year Winter I+0%	68.320	67.476	-0.067	0.000	0.24	1.2		OK*	
S1.004	SSWMH02	15 minute 1 year Winter I+0%	68.460	66.893	-0.145	0.000	0.27	10.8		OK	
S8.000	S7	15 minute 1 year Winter I+0%	68.330	68.066	-0.229	0.000	0.10	3.2	FLOOD RISK*		
S8.001	S8	15 minute 1 year Winter I+0%	68.470	67.767	-0.230	0.000	0.14	3.2		OK	
S9.000	S15	15 minute 1 year Winter I+0%	68.330	67.593	-0.037	0.000	0.68	2.9		OK*	
S9.001	S16	15 minute 1 year Winter I+0%	68.470	67.356	-0.057	0.000	0.39	1.9		OK*	
S1.005	SSWMH03	15 minute 1 year Winter I+0%	68.620	66.590	-0.151	0.000	0.24	15.2		OK	
S10.000	S6	15 minute 1 year Winter I+0%	68.390	68.096	-0.259	0.000	0.03	0.8	FLOOD RISK*		
S10.001	S7	15 minute 1 year Winter I+0%	68.420	68.019	-0.260	0.000	0.03	0.8	FLOOD RISK*		
S11.000	S20	15 minute 1 year Winter I+0%	68.400	67.629	-0.071	0.000	0.18	0.8		OK*	

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

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

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
S11.001	S21	15 minute 1 year Winter I+0%	68.480	67.578	-0.074	0.000	0.16		0.8	OK*
S10.002	SSWMH11	15 minute 1 year Winter I+0%	68.430	67.531	-0.061	0.000	0.32		1.5	OK
S12.000	S13	15 minute 1 year Winter I+0%	68.420	68.168	-0.217	0.000	0.14		4.5	FLOOD RISK*
S12.001	S14	15 minute 1 year Winter I+0%	68.420	67.985	-0.217	0.000	0.17		4.4	FLOOD RISK*
S13.000	S19	15 minute 1 year Winter I+0%	68.440	67.685	-0.055	0.000	0.41		1.7	OK*
S13.001	S20	15 minute 1 year Winter I+0%	68.410	67.554	-0.067	0.000	0.23		1.1	OK*
S10.003	SSWMH10	15 minute 1 year Winter I+0%	68.470	67.282	-0.075	0.000	0.49		6.8	OK
S14.000	SSWMH09	60 minute 1 year Winter I+0%	68.900	68.000	-0.100	0.000	0.00		0.0	OK
S15.000	S18	15 minute 1 year Winter I+0%	68.450	68.221	-0.194	0.000	0.20		6.5	FLOOD RISK*
S15.001	S19	15 minute 1 year Winter I+0%	68.320	67.757	-0.198	0.000	0.28		6.6	OK
S16.000	S25	15 minute 1 year Winter I+0%	68.410	67.659	-0.101	0.000	0.22		2.8	OK*
S16.001	S26	15 minute 1 year Winter I+0%	68.320	67.476	-0.109	0.000	0.17		1.9	OK*
S10.004	SSWMH08	15 minute 1 year Winter I+0%	68.330	67.052	-0.061	0.000	0.86		18.3	OK
S17.000	S19	15 minute 1 year Winter I+0%	68.320	68.033	-0.252	0.000	0.04		1.3	FLOOD RISK*
S17.001	S20	15 minute 1 year Winter I+0%	68.330	67.930	-0.252	0.000	0.05		1.3	FLOOD RISK*
S18.000	S36	15 minute 1 year Winter I+0%	68.320	67.547	-0.073	0.000	0.16		1.3	OK*
S18.001	S37	15 minute 1 year Winter I+0%	68.350	67.344	-0.072	0.000	0.18		0.9	OK*
S10.005	Sdummy	15 minute 1 year Winter I+0%	68.300	66.946	-0.116	0.000	0.47		19.7	OK*
S19.000	S24	15 minute 1 year Winter I+0%	68.470	68.244	-0.191	0.000	0.21		5.9	FLOOD RISK*
S19.001	S25	15 minute 1 year Winter I+0%	68.860	67.871	-0.203	0.000	0.25		5.8	OK
S20.000	S45	15 minute 1 year Winter I+0%	68.430	67.730	0.000	0.000	0.96		4.1	SURCHARGED*
S20.001	S46	15 minute 1 year Winter I+0%	68.890	67.354	-0.039	0.000	0.68		3.3	OK*
S10.006	SSWMH05	15 minute 1 year Winter I+0%	68.700	66.583	-0.113	0.000	0.50		28.3	OK
S21.000	S47	15 minute 1 year Winter I+0%	68.800	68.524	-0.241	0.000	0.08		2.2	FLOOD RISK*
S21.001	S48	15 minute 1 year Winter I+0%	68.600	68.460	-0.241	0.000	0.09		2.2	FLOOD RISK*
S22.000	S49	15 minute 1 year Winter I+0%	68.530	68.261	-0.234	0.000	0.09		2.8	FLOOD RISK*
S22.001	S50	15 minute 1 year Winter I+0%	68.600	68.189	-0.235	0.000	0.12		2.8	FLOOD RISK*
S1.006	SSWMH04	15 minute 1 year Winter I+0%	68.670	66.427	-0.105	0.000	0.55		46.7	OK
S1.007	S7	120 minute 1 year Winter I+0%	68.320	66.146	-0.025	0.000	0.00		0.0	OK
S23.000	SSWMH12	15 minute 1 year Winter I+0%	68.740	67.828	-0.122	0.000	0.08		1.4	OK
S23.001	SSWMH13	15 minute 1 year Winter I+0%	69.020	67.547	-0.110	0.000	0.16		2.8	OK
S23.002	SSWMH14	15 minute 1 year Winter I+0%	69.000	67.314	-0.102	0.000	0.22		4.0	OK
S23.003	SSWMH15	15 minute 1 year Winter I+0%	69.000	67.067	-0.181	0.000	0.08		4.0	OK
S23.004	S66	1440 minute 1 year Winter I+0%	68.650	66.872	-0.158	0.000	0.00		0.0	OK

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Hot Start Level (mm) 0 Foul Sewage per hectare (l/s) 0.000 MADD Factor * 10m³/ha Storage 2.000 Flow per Person per Day (l/per/day) 0.000
Hot Start (mins) 0 Manhole Headloss Coeff (Global) 0.500 Additional Flow - % of Total Flow 0.000 Inlet Coefficient 0.800

Number of Input Hydrographs 0 Number of Online Controls 2 Number of Offline Controls 0 Number of Storage Structures 10 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Region England and Wales M5-60 (mm) 20.000 Ratio R 0.400 Cv (Summer) 0.750 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 450.0 DTS Status OFF Inertia Status ON
Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
S1.000	S1	60 minute 30 year Winter I+0%	68.370	68.050	-0.285	0.000	0.00	0.0	0.0	OK
S1.001	S2	60 minute 30 year Winter I+0%	68.320	67.701	-0.285	0.000	0.00	0.0	0.0	OK
S2.000	S3	15 minute 30 year Winter I+0%	68.350	67.637	-0.063	0.000	0.60	7.5	7.5	OK*
S2.001	S4	15 minute 30 year Winter I+0%	68.320	67.380	-0.084	0.000	0.40	5.6	5.6	OK*
S1.002	SSWMH01	15 minute 30 year Winter I+0%	68.320	67.333	-0.083	0.000	0.41	5.4	5.4	OK
S3.000	S26	15 minute 30 year Winter I+0%	68.360	67.710	0.000	0.000	1.04	13.0	13.0	SURCHARGED*
S3.001	S28	15 minute 30 year Winter I+0%	68.350	67.335	-0.045	0.000	0.70	12.9	12.9	OK
S4.000	S16	60 minute 30 year Winter I+0%	68.380	68.060	-0.285	0.000	0.00	0.0	0.0	OK
S4.001	S17	60 minute 30 year Winter I+0%	68.330	67.772	-0.285	0.000	0.00	0.0	0.0	OK
S1.003	SSWMH06	15 minute 30 year Winter I+0%	68.390	67.281	0.054	0.000	1.14	16.4	16.4	SURCHARGED
S5.000	S4	60 minute 30 year Winter I+0%	68.310	67.990	-0.285	0.000	0.00	0.0	0.0	OK
S5.001	S5	60 minute 30 year Winter I+0%	68.330	67.624	-0.285	0.000	0.00	0.0	0.0	OK
S6.000	S8	60 minute 30 year Winter I+0%	68.310	67.610	0.000	0.000	1.11	4.7	4.7	SURCHARGED*
S6.001	S9	15 minute 30 year Winter I+0%	68.330	67.311	-0.022	0.000	0.96	4.7	4.7	OK*
S7.000	S10	15 minute 30 year Winter I+0%	68.320	67.593	-0.027	0.000	0.87	4.2	4.2	OK*
S7.001	S11	15 minute 30 year Winter I+0%	68.320	67.496	-0.046	0.000	0.56	2.7	2.7	OK*
S1.004	SSWMH02	15 minute 30 year Winter I+0%	68.460	66.936	-0.102	0.000	0.57	23.0	23.0	OK
S8.000	S7	15 minute 30 year Winter I+0%	68.330	68.110	-0.185	0.000	0.24	7.9	7.9	FLOOD RISK*
S8.001	S8	15 minute 30 year Winter I+0%	68.470	67.810	-0.188	0.000	0.33	7.8	7.8	OK
S9.000	S15	30 minute 30 year Winter I+0%	68.330	67.630	0.000	0.000	1.22	5.2	5.2	SURCHARGED*
S9.001	S16	15 minute 30 year Winter I+0%	68.470	67.382	-0.030	0.000	0.83	4.1	4.1	OK*
S1.005	SSWMH03	15 minute 30 year Winter I+0%	68.620	66.668	-0.073	0.000	0.50	32.0	32.0	OK
S10.000	S6	15 minute 30 year Winter I+0%	68.390	68.113	-0.242	0.000	0.07	2.1	2.1	FLOOD RISK*
S10.001	S7	15 minute 30 year Winter I+0%	68.420	68.037	-0.242	0.000	0.09	2.1	2.1	FLOOD RISK*
S11.000	S20	15 minute 30 year Winter I+0%	68.400	67.648	-0.052	0.000	0.45	1.9	1.9	OK*

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
S11.001	S21	15 minute 30 year Winter I+0%	68.480	67.629	-0.022	0.000	0.38		1.9	OK*
S10.002	SSWMH11	15 minute 30 year Winter I+0%	68.430	67.621	0.029	0.000	0.71		3.4	SURCHARGED
S12.000	S13	15 minute 30 year Winter I+0%	68.420	68.222	-0.163	0.000	0.34		11.1	FLOOD RISK*
S12.001	S14	15 minute 30 year Winter I+0%	68.420	68.037	-0.165	0.000	0.43		11.0	FLOOD RISK*
S13.000	S19	15 minute 30 year Winter I+0%	68.440	67.725	-0.015	0.000	0.99		4.2	OK*
S13.001	S20	15 minute 30 year Winter I+0%	68.410	67.575	-0.046	0.000	0.54		2.7	OK*
S10.003	SSWMH10	15 minute 30 year Winter I+0%	68.470	67.555	0.198	0.000	1.05		14.7	SURCHARGED
S14.000	SSWMH09	60 minute 30 year Winter I+0%	68.900	68.000	-0.100	0.000	0.00		0.0	OK
S15.000	S18	15 minute 30 year Winter I+0%	68.450	68.294	-0.121	0.000	0.49		16.2	FLOOD RISK*
S15.001	S19	15 minute 30 year Winter I+0%	68.320	67.825	-0.129	0.000	0.69		16.3	OK
S16.000	S25	15 minute 30 year Winter I+0%	68.410	67.691	-0.069	0.000	0.55		6.9	OK*
S16.001	S26	15 minute 30 year Winter I+0%	68.320	67.503	-0.082	0.000	0.42		4.8	OK*
S10.004	SSWMH08	15 minute 30 year Winter I+0%	68.330	67.306	0.192	0.000	1.92		40.9	SURCHARGED
S17.000	S19	15 minute 30 year Winter I+0%	68.320	68.054	-0.231	0.000	0.09		3.1	FLOOD RISK*
S17.001	S20	15 minute 30 year Winter I+0%	68.330	67.951	-0.231	0.000	0.12		3.1	FLOOD RISK*
S18.000	S36	15 minute 30 year Winter I+0%	68.320	67.564	-0.056	0.000	0.40		3.1	OK*
S18.001	S37	15 minute 30 year Winter I+0%	68.350	67.361	-0.055	0.000	0.43		2.1	OK*
S10.005	Sdummy	15 minute 30 year Winter I+0%	68.300	67.135	0.073	0.000	0.99		41.7	SURCHARGED*
S19.000	S24	15 minute 30 year Winter I+0%	68.470	68.320	-0.115	0.000	0.51		14.6	FLOOD RISK*
S19.001	S25	15 minute 30 year Winter I+0%	68.860	67.935	-0.140	0.000	0.62		14.4	OK
S20.000	S45	60 minute 30 year Winter I+0%	68.430	67.730	0.000	0.000	1.23		5.2	SURCHARGED*
S20.001	S46	15 minute 30 year Winter I+0%	68.890	67.394	0.001	0.000	1.05		5.1	SURCHARGED*
S10.006	SSWMH05	15 minute 30 year Winter I+0%	68.700	66.788	0.092	0.000	1.02		58.1	SURCHARGED
S21.000	S47	15 minute 30 year Winter I+0%	68.800	68.557	-0.208	0.000	0.19		5.3	FLOOD RISK*
S21.001	S48	15 minute 30 year Winter I+0%	68.600	68.493	-0.208	0.000	0.23		5.4	FLOOD RISK*
S22.000	S49	15 minute 30 year Winter I+0%	68.530	68.301	-0.194	0.000	0.23		6.8	FLOOD RISK*
S22.001	S50	15 minute 30 year Winter I+0%	68.600	68.230	-0.194	0.000	0.30		6.9	FLOOD RISK*
S1.006	SSWMH04	240 minute 30 year Winter I+0%	68.670	66.624	0.091	0.000	0.32		27.3	SURCHARGED
S1.007	S7	240 minute 30 year Winter I+0%	68.320	66.620	0.448	0.000	0.00		0.0	SURCHARGED
S23.000	SSWMH12	15 minute 30 year Winter I+0%	68.740	67.845	-0.105	0.000	0.19		3.4	OK
S23.001	SSWMH13	15 minute 30 year Winter I+0%	69.020	67.578	-0.079	0.000	0.44		7.7	OK
S23.002	SSWMH14	15 minute 30 year Winter I+0%	69.000	67.355	-0.062	0.000	0.63		11.1	OK
S23.003	SSWMH15	15 minute 30 year Winter I+0%	69.000	67.098	-0.151	0.000	0.24		11.2	OK
S23.004	S66	1440 minute 30 year Winter I+0%	68.650	67.097	0.066	0.000	0.00		0.0	SURCHARGED

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

Micro Drainage

Network 2018.1

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Hot Start Level (mm) 0 Foul Sewage per hectare (l/s) 0.000 MADD Factor * 10m³/ha Storage 2.000 Flow per Person per Day (l/per/day) 0.000
Hot Start (mins) 0 Manhole Headloss Coeff (Global) 0.500 Additional Flow - % of Total Flow 0.000 Inlet Coefficient 0.800

Number of Input Hydrographs 0 Number of Online Controls 2 Number of Offline Controls 0 Number of Storage Structures 10 Number of Time/Area Diagrams 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Region England and Wales M5-60 (mm) 20.000 Ratio R 0.400 Cv (Summer) 0.750 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 450.0 DTS Status OFF Inertia Status ON
Analysis Timestep 2.5 Second Increment (Extended) DVD Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
S1.000	S1	60 minute 100 year Winter I+40%	68.370	68.050	-0.285	0.000	0.00	0.0	0.0	OK
S1.001	S2	60 minute 100 year Winter I+40%	68.320	67.701	-0.285	0.000	0.00	0.0	0.0	OK
S2.000	S3	15 minute 100 year Winter I+40%	68.350	67.700	0.000	0.000	1.06	13.3	13.3	SURCHARGED*
S2.001	S4	15 minute 100 year Winter I+40%	68.320	67.454	-0.010	0.000	0.66	9.1	9.1	OK*
S1.002	SSWMH01	15 minute 100 year Winter I+40%	68.320	67.460	0.044	0.000	0.70	9.3	9.3	SURCHARGED
S3.000	S26	15 minute 100 year Winter I+40%	68.360	67.710	0.000	0.000	1.63	20.3	20.3	SURCHARGED*
S3.001	S28	15 minute 100 year Winter I+40%	68.350	67.608	0.229	0.000	0.97	17.8	17.8	SURCHARGED
S4.000	S16	60 minute 100 year Winter I+40%	68.380	68.060	-0.285	0.000	0.00	0.0	0.0	OK
S4.001	S17	60 minute 100 year Winter I+40%	68.330	67.772	-0.285	0.000	0.00	0.0	0.0	OK
S1.003	SSWMH06	15 minute 100 year Winter I+40%	68.390	67.466	0.238	0.000	1.28	18.5	18.5	SURCHARGED
S5.000	S4	60 minute 100 year Winter I+40%	68.310	67.990	-0.285	0.000	0.00	0.0	0.0	OK
S5.001	S5	60 minute 100 year Winter I+40%	68.330	67.624	-0.285	0.000	0.00	0.0	0.0	OK
S6.000	S8	15 minute 100 year Winter I+40%	68.310	67.610	0.000	0.000	2.41	10.2	10.2	SURCHARGED*
S6.001	S9	360 minute 100 year Winter I+40%	68.330	67.408	0.075	0.000	0.38	1.9	1.9	SURCHARGED*
S7.000	S10	15 minute 100 year Winter I+40%	68.320	67.620	0.000	0.000	1.54	7.5	7.5	SURCHARGED*
S7.001	S11	15 minute 100 year Winter I+40%	68.320	67.522	-0.021	0.000	0.98	4.8	4.8	OK*
S1.004	SSWMH02	360 minute 100 year Winter I+40%	68.460	67.444	0.405	0.000	0.20	8.1	8.1	SURCHARGED
S8.000	S7	15 minute 100 year Winter I+40%	68.330	68.157	-0.138	0.000	0.44	14.4	14.4	FLOOD RISK*
S8.001	S8	15 minute 100 year Winter I+40%	68.470	67.856	-0.142	0.000	0.61	14.2	14.2	OK
S9.000	S15	15 minute 100 year Winter I+40%	68.330	67.630	0.000	0.000	2.19	9.3	9.3	SURCHARGED*
S9.001	S16	360 minute 100 year Winter I+40%	68.470	67.432	0.020	0.000	0.29	1.4	1.4	SURCHARGED*
S1.005	SSWMH03	360 minute 100 year Winter I+40%	68.620	67.456	0.715	0.000	0.17	10.6	10.6	SURCHARGED
S10.000	S6	15 minute 100 year Winter I+40%	68.390	68.132	-0.223	0.000	0.12	3.8	3.8	FLOOD RISK*
S10.001	S7	15 minute 100 year Winter I+40%	68.420	68.055	-0.224	0.000	0.16	3.8	3.8	FLOOD RISK*
S11.000	S20	15 minute 100 year Winter I+40%	68.400	67.700	0.000	0.000	0.72	3.1	3.1	SURCHARGED*

240 Blackfriars Road
London
SE1 8NW

Begbroke
Surface Car Park



Date 06/12/2021 19:43

Designed by AT

File SURFACE CAR PARK AND ANCILLARY BUILDING - PLANNING MD RESULTS.MDX

Checked by LF

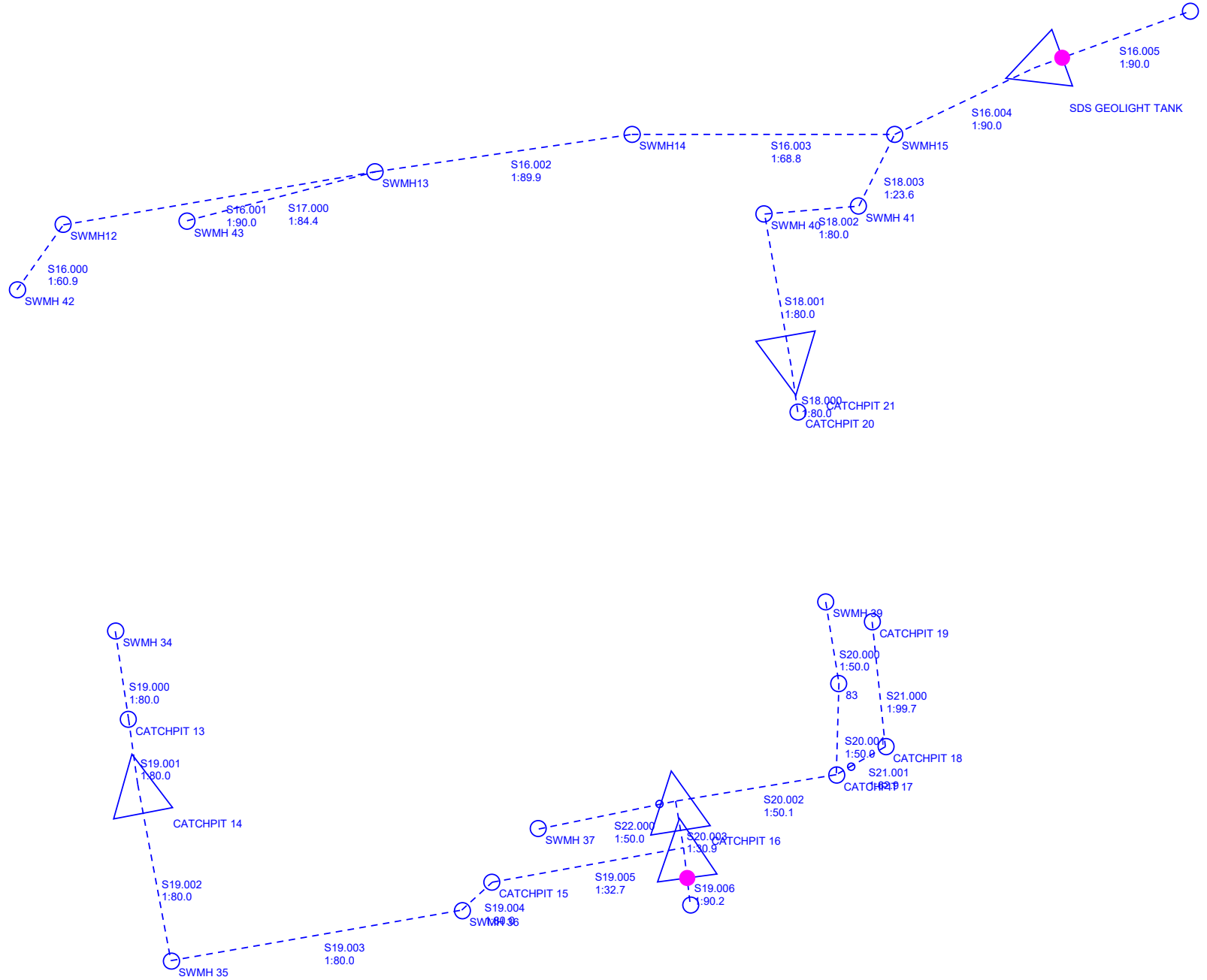
Micro Drainage

Network 2018.1

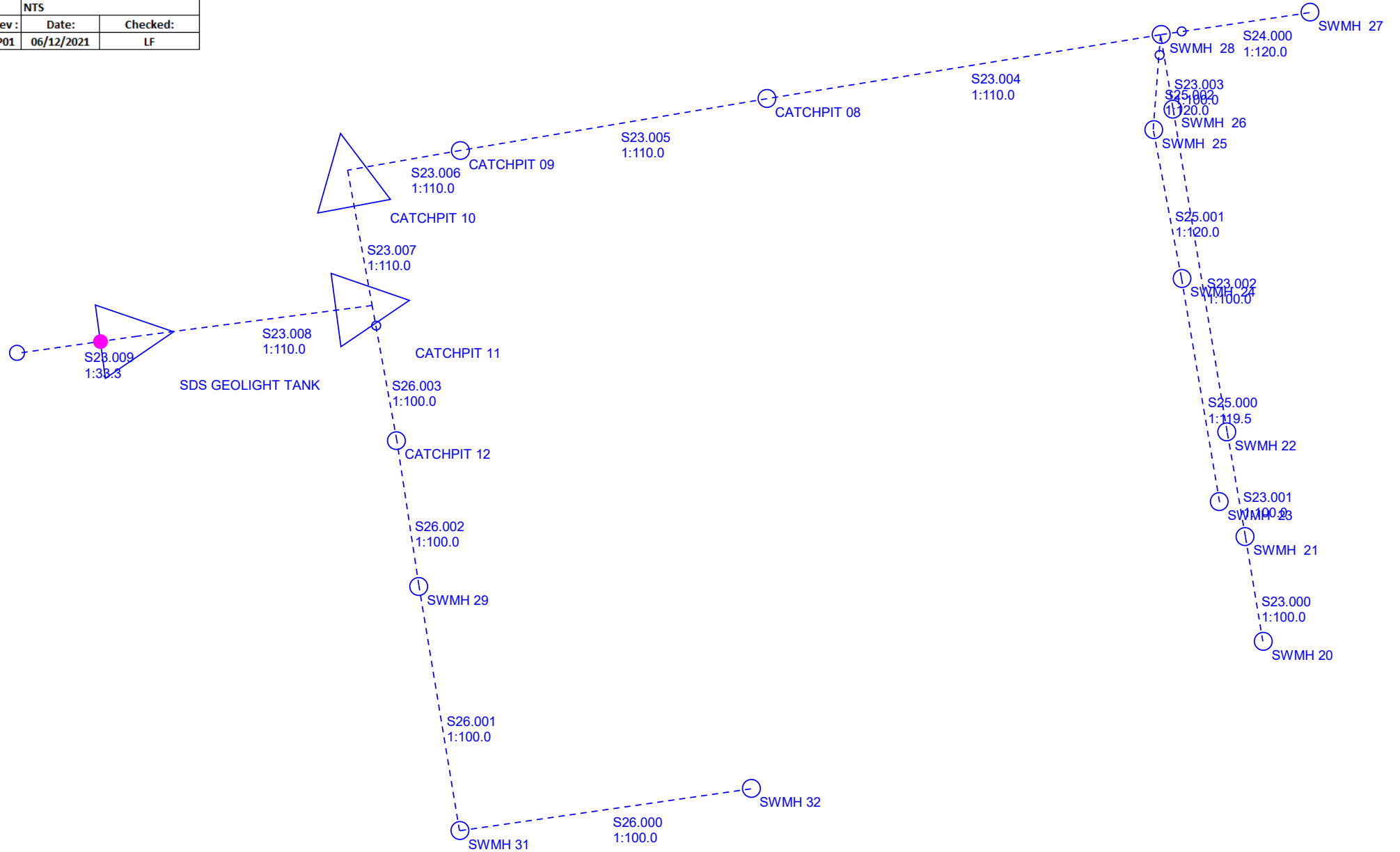
100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
S11.001	S21	15 minute 100 year Winter I+40%	68.480	67.651	0.000	0.000	0.46		2.3	SURCHARGED*
S10.002	SSWMH11	15 minute 100 year Winter I+40%	68.430	67.965	0.373	0.000	0.87		4.2	SURCHARGED
S12.000	S13	15 minute 100 year Winter I+40%	68.420	68.286	-0.099	0.000	0.61		20.2	FLOOD RISK*
S12.001	S14	15 minute 100 year Winter I+40%	68.420	68.099	-0.103	0.000	0.78		20.0	FLOOD RISK*
S13.000	S19	15 minute 100 year Winter I+40%	68.440	67.740	0.000	0.000	1.60		6.8	SURCHARGED*
S13.001	S20	15 minute 100 year Winter I+40%	68.410	67.712	0.091	0.000	1.50		7.3	SURCHARGED*
S10.003	SSWMH10	15 minute 100 year Winter I+40%	68.470	67.840	0.484	0.000	0.99		13.7	SURCHARGED
S14.000	SSWMH09	60 minute 100 year Winter I+40%	68.900	68.000	-0.100	0.000	0.00		0.0	OK
S15.000	S18	15 minute 100 year Winter I+40%	68.450	68.390	-0.025	0.000	0.90		29.4	FLOOD RISK*
S15.001	S19	15 minute 100 year Winter I+40%	68.320	67.946	-0.008	0.000	1.15		27.3	FLOOD RISK*
S16.000	S25	15 minute 100 year Winter I+40%	68.410	67.747	-0.013	0.000	0.98		12.3	OK*
S16.001	S26	15 minute 100 year Winter I+40%	68.320	67.639	0.054	0.000	1.36		15.3	SURCHARGED*
S10.004	SSWMH08	15 minute 100 year Winter I+40%	68.330	67.665	0.551	0.000	2.31		49.3	SURCHARGED
S17.000	S19	15 minute 100 year Winter I+40%	68.320	68.080	-0.205	0.000	0.17		5.7	FLOOD RISK*
S17.001	S20	15 minute 100 year Winter I+40%	68.330	67.977	-0.205	0.000	0.22		5.7	FLOOD RISK*
S18.000	S36	15 minute 100 year Winter I+40%	68.320	67.584	-0.036	0.000	0.72		5.7	OK*
S18.001	S37	360 minute 100 year Winter I+40%	68.350	67.460	0.044	0.000	0.13		0.6	SURCHARGED*
S10.005	Sdummy	15 minute 100 year Winter I+40%	68.300	67.489	0.428	0.000	1.17		49.2	SURCHARGED*
S19.000	S24	15 minute 100 year Winter I+40%	68.470	68.427	-0.008	0.000	0.93		26.6	FLOOD RISK*
S19.001	S25	15 minute 100 year Winter I+40%	68.860	68.058	-0.016	0.000	1.00		23.4	OK
S20.000	S45	15 minute 100 year Winter I+40%	68.430	67.730	0.000	0.000	2.46		10.4	SURCHARGED*
S20.001	S46	360 minute 100 year Winter I+40%	68.890	67.472	0.079	0.000	0.59		2.9	SURCHARGED*
S10.006	SSWMH05	360 minute 100 year Winter I+40%	68.700	67.468	0.771	0.000	0.36		20.6	SURCHARGED
S21.000	S47	15 minute 100 year Winter I+40%	68.800	68.592	-0.173	0.000	0.34		9.7	FLOOD RISK*
S21.001	S48	15 minute 100 year Winter I+40%	68.600	68.528	-0.173	0.000	0.42		9.8	FLOOD RISK*
S22.000	S49	15 minute 100 year Winter I+40%	68.530	68.342	-0.153	0.000	0.41		12.4	FLOOD RISK*
S22.001	S50	15 minute 100 year Winter I+40%	68.600	68.271	-0.153	0.000	0.54		12.6	FLOOD RISK*
S1.006	SSWMH04	360 minute 100 year Winter I+40%	68.670	67.464	0.931	0.000	0.40		33.6	SURCHARGED
S1.007	S7	360 minute 100 year Winter I+40%	68.320	67.462	1.290	0.000	0.00		0.0	SURCHARGED
S23.000	SSWMH12	15 minute 100 year Winter I+40%	68.740	67.861	-0.089	0.000	0.34		6.1	OK
S23.001	SSWMH13	15 minute 100 year Winter I+40%	69.020	67.613	-0.044	0.000	0.80		14.1	OK
S23.002	SSWMH14	15 minute 100 year Winter I+40%	69.000	67.460	0.044	0.000	1.09		19.4	SURCHARGED
S23.003	SSWMH15	1440 minute 100 year Winter I+40%	69.000	67.421	0.173	0.000	0.02		0.9	SURCHARGED
S23.004	S66	1440 minute 100 year Winter I+40%	68.650	67.421	0.391	0.000	0.00		0.0	SURCHARGED

Project Title		BEGBROKE SCIENCE PARK COMMERCIAL BUILDING	
Project No		1620011508	
Title		MICRODRAINAGE SURFACE WATER DRAINAGE LAYOUT	
Scale		NTS	
Eng :	Rev :	Date:	Checked:
AT	P01	06/12/2021	LF



Project Title		BEGBROKE SCIENCE PARK ACADEMIC BUILDING	
Project No		1620011508	
Title		MICRODRAINAGE SURFACE WATER DRAINAGE LAYOUT	
Scale		NTS	
Eng :	Rev :	Date:	Checked:
AT	P01	06/12/2021	LF



Project Title		BEGBROKE SCIENCE PARK SURFACE CARPARK BUILDING	
Project No		1620011508	
Title		MICRODRAINAGE SURFACE WATER DRAINAGE LAYOUT	
Scale		NTS	
Eng :	Rev :	Date:	Checked:
AT	P01	06/12/2021	LF

