

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.600
Ratio-R	0.400	Preferred Cover Depth (m)	0.350
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
RE1	0.000	5.00	10.750	1	495415.035	105248.150	0.450
S1	0.004	5.00	10.900	450	495427.998	105268.026	1.114
S2	0.005	5.00	10.900	300	495423.083	105245.472	0.549
S3	0.000	5.00	10.900	300	495428.037	105242.241	0.600
S4	0.005	5.00	10.900	450	495433.951	105251.607	0.707
S5	0.005	5.00	10.900	450	495435.400	105263.198	0.821
S6	0.003	5.00	10.900	450	495431.869	105265.501	1.158
SA1			10.330	1	495434.122	105269.299	0.630

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	RE1	S1	23.730	0.600	10.300	9.786	0.514	46.2	100	5.35	50.0
1.001	S1	S6	4.622	0.600	9.786	9.742	0.044	105.0	100	5.45	50.0
1.002	S6	SA1	4.416	0.600	9.742	9.700	0.042	105.1	100	5.77	50.0
2.000	S2	S3	5.915	0.600	10.351	10.300	0.051	116.0	100	5.14	50.0
2.001	S3	S4	11.077	0.600	10.300	10.193	0.107	103.5	100	5.38	50.0
2.002	S4	S5	11.681	0.600	10.193	10.079	0.114	102.5	100	5.64	50.0
2.003	S5	S6	4.216	0.600	10.079	9.742	0.337	12.5	100	5.67	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.137	8.9	0.0	0.350	1.014	0.000	0.0	0	0.000
1.001	0.750	5.9	0.5	1.014	1.058	0.004	0.0	21	0.467
1.002	0.749	5.9	3.0	1.058	0.530	0.022	0.0	50	0.752
2.000	0.713	5.6	0.7	0.449	0.500	0.005	0.0	24	0.483
2.001	0.755	5.9	0.7	0.500	0.607	0.005	0.0	23	0.502
2.002	0.759	6.0	1.4	0.607	0.721	0.010	0.0	32	0.614
2.003	2.196	17.2	2.0	0.721	1.058	0.015	0.0	23	1.467

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
RE1	495415.035	105248.150	10.750	0.450	1				
						0	1.000	10.300	100
S1	495427.998	105268.026	10.900	1.114	450		1	1.000	9.786
						0	1.001	9.786	100
S2	495423.083	105245.472	10.900	0.549	300				
						0	2.000	10.351	100
S3	495428.037	105242.241	10.900	0.600	300		1	2.000	10.300
						0	2.001	10.300	100
S4	495433.951	105251.607	10.900	0.707	450		1	2.001	10.193
						0	2.002	10.193	100
S5	495435.400	105263.198	10.900	0.821	450		1	2.002	10.079
						0	2.003	10.079	100
S6	495431.869	105265.501	10.900	1.158	450		1	2.003	9.742
						2	1.001	9.742	100
						0	1.002	9.742	100
SA1	495434.122	105269.299	10.330	0.630	1		1	1.002	9.700

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	0	0	0
100	40	0	0

Node SA1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.430	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.41040	Time to half empty (mins)	333	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	4.000	Number Required	1
Porosity	0.95	Pit Length (m)	6.000		

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE1	1	10.300	0.000	0.0	0.0000	0.0000	OK
15 minute winter	S1	12	9.863	0.077	1.4	0.0178	0.0000	OK
15 minute winter	S2	10	10.390	0.039	1.7	0.0100	0.0000	OK
15 minute winter	S3	11	10.336	0.036	1.7	0.0026	0.0000	OK
15 minute winter	S4	11	10.250	0.057	3.3	0.0170	0.0000	OK
15 minute winter	S5	11	10.116	0.037	4.9	0.0103	0.0000	OK
15 minute winter	S6	12	9.861	0.119	6.9	0.0250	0.0000	SURCHARGED

180 minute winter	SA1	172	9.701	0.001	1.7	6.1893	0.0000	OK
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Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	RE1	1.000	S1	0.0	0.000	0.000	0.0701
15 minute winter	S1	1.001	S6	1.5	0.301	0.262	0.0331
15 minute winter	S2	2.000	S3	1.7	0.622	0.299	0.0159
15 minute winter	S3	2.001	S4	1.7	0.465	0.278	0.0394
15 minute winter	S4	2.002	S5	3.3	0.919	0.552	0.0419
15 minute winter	S5	2.003	S6	4.9	0.866	0.285	0.0220
15 minute winter	S6	1.002	SA1	6.8	0.872	1.149	0.0327

180 minute winter	SA1	Infiltration		0.3			
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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE1	1	10.300	0.000	0.0	0.0000	0.0000	OK
360 minute winter	S1	288	10.243	0.457	0.5	0.1055	0.0000	SURCHARGED
15 minute winter	S2	10	10.407	0.056	3.1	0.0142	0.0000	OK
15 minute winter	S3	11	10.351	0.051	3.1	0.0036	0.0000	OK
15 minute winter	S4	11	10.284	0.091	6.1	0.0273	0.0000	OK
360 minute winter	S5	288	10.243	0.164	1.2	0.0460	0.0000	SURCHARGED
360 minute winter	S6	288	10.243	0.501	1.8	0.1057	0.0000	SURCHARGED
360 minute winter	SA1	288	10.242	0.542	1.8	9.1314	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	RE1	1.000	S1	0.0	0.000	0.000	0.0928
360 minute winter	S1	1.001	S6	0.3	0.190	0.051	0.0362
15 minute winter	S2	2.000	S3	3.1	0.722	0.549	0.0252
15 minute winter	S3	2.001	S4	3.0	0.526	0.514	0.0635
15 minute winter	S4	2.002	S5	6.0	0.956	1.008	0.0814
360 minute winter	S5	2.003	S6	1.2	0.662	0.070	0.0330
360 minute winter	S6	1.002	SA1	1.8	0.634	0.309	0.0346
360 minute winter	SA1	Infiltration		0.5			