

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)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	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	0.002	4.00	9.850	150	2006.223	979.505	0.450
S2	0.002	4.00	9.850	450	2008.295	985.247	0.511
SA1			9.700	100	2012.834	997.355	0.625

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	S2	6.104	0.800	9.400	9.339	0.061	100.0	100	4.13	50.0
1.001	S2	SA1	12.931	0.600	9.339	9.075	0.264	49.0	100	4.33	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	0.763	6.0	0.4	0.350	0.411	0.002	0.0	17	0.420
1.001	1.104	8.7	0.7	0.411	0.525	0.004	0.0	20	0.673

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	6.104	100.0	100	Circular	9.850	9.400	0.350	9.850	9.339	0.411
1.001	12.931	49.0	100	Circular	9.850	9.339	0.411	9.700	9.075	0.525

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	RE1	150	Manhole	Adoptable	S2	450	Manhole	Adoptable
1.001	S2	450	Manhole	Adoptable	SA1	100	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
RE1	2006.223	979.505	9.850	0.450	150				
							0	1.000	9.400
							1	1.000	9.339
S2	2008.295	985.247	9.850	0.511	450				
							0	1.001	9.339
									100

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SA1	2012.834	997.355	9.700	0.625	100	1	1001	9.075	100



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 (m ³ /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 %)
1	0	0	0
10	0	0	0
30	0	0	0
100	40	0	0

Node SA1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	8.800	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.24984	Time to half empty (mins)	147	Inf Depth (m)	
Safety Factor	1.5	Pit Width (m)	2.000	Number Required	1
Porosity	0.95	Pit Length (m)	1.500		

Results for 1 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 winter	RE1	11	9.415	0.015	0.3	0.0016	0.0000	OK
15 minute winter	S2	11	9.357	0.018	0.6	0.0043	0.0000	OK
180 minute winter	SA1	112	8.929	-0.146	0.2	0.3686	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 winter	RE1	1.000	S2	0.3	0.357	0.050	0.0052
15 minute winter	S2	1.001	SA1	0.6	0.629	0.069	0.0123
180 minute winter	SA1	Infiltration		0.0			

Results for 10 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	10	9.421	0.021	0.6	0.0023	0.0000	OK
15 minute winter	S2	10	9.364	0.025	1.2	0.0060	0.0000	OK
360 minute winter	SA1	232	9.071	-0.004	0.2	0.7730	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	S2	0.6	0.429	0.099	0.0085
15 minute winter	S2	1.001	SA1	1.2	0.765	0.137	0.0200
360 minute winter	SA1	Infiltration		0.1			

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	10	9.423	0.023	0.7	0.0025	0.0000	OK
15 minute winter	S2	10	9.367	0.028	1.4	0.0065	0.0000	OK
480 minute winter	SA1	304	9.116	0.041	0.2	0.9018	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	S2	0.7	0.446	0.116	0.0096
15 minute winter	S2	1.001	SA1	1.4	0.800	0.160	0.0224
480 minute winter	SA1	Infiltration		0.1			

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
180 minute winter	RE1	164	9.535	0.135	0.3	0.0145	0.0000	SURCHARGED
180 minute winter	S2	164	9.535	0.196	0.6	0.0466	0.0000	SURCHARGED
180 minute winter	SA1	164	9.535	0.460	0.6	1.1451	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute winter	RE1	1.000	S2	0.3	0.355	0.050	0.0478
180 minute winter	S2	1.001	SA1	0.6	0.616	0.069	0.1012
180 minute winter	SA1	Infiltration		0.1			