

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)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	x
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1.01		5.00	93.888	475	466919.020	173799.487	0.501
1.02			93.914	475	466927.342	173808.586	0.850
2.01		5.00	93.873	475	466908.298	173803.251	0.492
3.01	0.044	5.00	93.885	1200	466919.457	173815.632	1.003
3.02	0.015	5.00	93.885	1050	466916.280	173819.826	1.070
4.01			93.625	1050	466914.340	173823.809	0.775
S/WAY			93.598	1200	466913.617	173820.908	0.816
PB1	0.013	5.00	93.575	1200	466912.464	173825.879	0.580
PB2	0.006	5.00	93.675	1200	466914.964	173818.215	0.430
Dummy			95.000	1200	466886.866	173790.321	1.500

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)
1.001	1.01	1.02	12.330	0.600	93.387	93.114	0.273	45.2	150	5.14	50.0
1.002	1.02	3.01	10.480	0.600	93.064	92.932	0.132	79.4	150	5.29	50.0
1.003	3.01	3.02	5.030	0.600	92.882	92.829	0.053	94.9	150	5.37	50.0
1.004	3.02	S/WAY	2.800	0.600	92.815	92.782	0.033	84.8	150	5.42	50.0
1.005	2.01	3.01	15.730	0.600	93.381	93.185	0.196	80.3	150	5.23	50.0
2.001	PB1	4.01	2.790	0.600	92.995	92.900	0.095	29.4	150	5.02	50.0
2.002	4.01	S/WAY	1.500	0.600	92.850	92.782	0.068	22.1	150	5.04	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)
1.001	1.501	26.5	0.0	0.351	0.650	0.000	0.0	0	0.000
1.002	1.129	20.0	0.0	0.700	0.803	0.000	0.0	0	0.000
1.003	1.032	18.2	6.0	0.853	0.906	0.044	0.0	59	0.924
1.004	1.092	19.3	8.8	0.920	0.666	0.065	0.0	71	1.068
1.005	1.123	19.8	0.0	0.342	0.550	0.000	0.0	0	0.000
2.001	1.864	32.9	1.8	0.430	0.575	0.013	0.0	24	0.998
2.002	2.153	38.1	1.8	0.625	0.666	0.013	0.0	22	1.100

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)
2.003	PB2	3.02	2.000	0.600	93.245	93.145	0.100	20.0	150	5.01	50.0
3.001	S/WAY	Dummy	40.635	0.600	92.782	93.500	-0.718	-56.6	150	6.09	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)
2.003	2.262	40.0	0.8	0.280	0.590	0.006	0.0	15	0.901
3.001	1.000	17.7	10.6	0.666	1.350	0.078	0.0	150	0.000

Pipeline Schedule

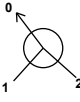
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.001	12.330	45.2	150	Circular	93.888	93.387	0.351	93.914	93.114	0.650
1.002	10.480	79.4	150	Circular	93.914	93.064	0.700	93.885	92.932	0.803
1.003	5.030	94.9	150	Circular	93.885	92.882	0.853	93.885	92.829	0.906
1.004	2.800	84.8	150	Circular	93.885	92.815	0.920	93.598	92.782	0.666
1.005	15.730	80.3	150	Circular	93.873	93.381	0.342	93.885	93.185	0.550
2.001	2.790	29.4	150	Circular	93.575	92.995	0.430	93.625	92.900	0.575
2.002	1.500	22.1	150	Circular	93.625	92.850	0.625	93.598	92.782	0.666
2.003	2.000	20.0	150	Circular	93.675	93.245	0.280	93.885	93.145	0.590
3.001	40.635	-56.6	150	Circular	93.598	92.782	0.666	95.000	93.500	1.350

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.001	1.01	475	Manhole	Adoptable	1.02	475	Manhole	Adoptable
1.002	1.02	475	Manhole	Adoptable	3.01	1200	Manhole	Adoptable
1.003	3.01	1200	Manhole	Adoptable	3.02	1050	Manhole	Adoptable
1.004	3.02	1050	Manhole	Adoptable	S/WAY	1200	Manhole	Adoptable
1.005	2.01	475	Manhole	Adoptable	3.01	1200	Manhole	Adoptable
2.001	PB1	1200	Manhole	Adoptable	4.01	1050	Manhole	Adoptable
2.002	4.01	1050	Manhole	Adoptable	S/WAY	1200	Manhole	Adoptable
2.003	PB2	1200	Manhole	Adoptable	3.02	1050	Manhole	Adoptable
3.001	S/WAY	1200	Manhole	Adoptable	Dummy	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1.01	466919.020	173799.487	93.888	0.501	475				
						0	1.001	93.387	150
1.02	466927.342	173808.586	93.914	0.850	475				
						1	1.001	93.114	150
						0	1.002	93.064	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
2.01	466908.298	173803.251	93.873	0.492	475				
						0	1.005	93.381	150
3.01	466919.457	173815.632	93.885	1.003	1200		1	1.005	93.185
						2	1.002	92.932	150
						0	1.003	92.882	150
3.02	466916.280	173819.826	93.885	1.070	1050		1	2.003	93.145
						2	1.003	92.829	150
						0	1.004	92.815	150
4.01	466914.340	173823.809	93.625	0.775	1050		1	2.001	92.900
						0	2.002	92.850	150
S/WAY	466913.617	173820.908	93.598	0.816	1200		1	2.002	92.782
						2	1.004	92.782	150
						0	3.001	92.782	150
PB1	466912.464	173825.879	93.575	0.580	1200		0	2.001	92.995
PB2	466914.964	173818.215	93.675	0.430	1200				
						0	2.003	93.245	150
Dummy	466886.866	173790.321	95.000	1.500	1200		1	3.001	93.500
									150

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	17.000	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 %)
1	0	0	0
30	0	0	0
100	40	0	0

Node S/WAY Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.06120	Invert Level (m)	92.182	Depth (m)	0.800
Side Inf Coefficient (m/hr)	0.06120	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	4.000	Number Required	1
Porosity	0.95	Pit Length (m)	7.500		

Node PB1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	93.195	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	5.000	Number Required	1
Porosity	0.30	Pit Length (m)	25.000		

Node PB2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	93.345	Depth (m)	0.200
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	2.500	Number Required	1
Porosity	0.30	Pit Length (m)	24.000		

Results for 1 year Critical Storm Duration. Lowest mass balance: 97.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1.01	1	93.387	0.000	0.0	0.0000	0.0000	OK
15 minute summer	1.02	1	93.064	0.000	0.0	0.0000	0.0000	OK
15 minute summer	2.01	1	93.381	0.000	0.0	0.0000	0.0000	OK
15 minute winter	3.01	10	92.942	0.060	5.2	0.1200	0.0000	OK
15 minute winter	3.02	10	92.890	0.075	7.6	0.0857	0.0000	OK
15 minute winter	4.01	11	92.873	0.023	1.5	0.0196	0.0000	OK
240 minute winter	S/WAY	228	92.445	-0.337	1.8	7.4881	0.0000	OK
15 minute winter	PB1	11	93.018	0.023	1.5	0.0368	0.0000	OK
15 minute winter	PB2	11	93.260	0.015	0.7	0.0206	0.0000	OK
15 minute summer	Dummy	1	93.500	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1.01	1.001	1.02	0.0	0.000	0.000	0.0000	
15 minute summer	1.02	1.002	3.01	0.0	0.000	0.000	0.0020	
15 minute summer	2.01	1.005	3.01	0.0	0.000	0.000	0.0000	
15 minute winter	3.01	1.003	3.02	5.1	0.771	0.280	0.0333	
15 minute winter	3.02	1.004	S/WAY	7.5	0.937	0.390	0.0225	
15 minute winter	4.01	2.002	S/WAY	1.5	0.971	0.039	0.0023	
240 minute winter	S/WAY	3.001	Dummy	0.0	0.000	0.000	0.0000	0.0
240 minute winter	S/WAY	Infiltration		0.3				
15 minute winter	PB1	2.001	4.01	1.5	0.905	0.046	0.0046	
15 minute winter	PB2	2.003	3.02	0.7	0.829	0.018	0.0017	

Results for 30 year Critical Storm Duration. Lowest mass balance: 97.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1.01	1	93.387	0.000	0.0	0.0000	0.0000	OK
15 minute summer	1.02	1	93.064	0.000	0.0	0.0000	0.0000	OK
15 minute summer	2.01	1	93.381	0.000	0.0	0.0000	0.0000	OK
15 minute winter	3.01	11	92.997	0.115	12.8	0.2309	0.0000	OK
15 minute winter	3.02	11	92.961	0.146	18.5	0.1674	0.0000	OK
480 minute winter	4.01	448	92.890	0.040	0.5	0.0350	0.0000	OK
360 minute winter	S/WAY	352	92.890	0.108	3.1	20.2984	0.0000	OK
15 minute winter	PB1	10	93.033	0.038	3.8	0.0602	0.0000	OK
15 minute winter	PB2	10	93.268	0.023	1.7	0.0323	0.0000	OK
15 minute summer	Dummy	1	93.500	0.000	0.0	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1.01	1.001	1.02	0.0	0.000	0.000	0.0000	
15 minute summer	1.02	1.002	3.01	0.0	0.000	0.000	0.0339	
15 minute summer	2.01	1.005	3.01	0.0	0.000	0.000	0.0000	
15 minute winter	3.01	1.003	3.02	12.4	0.826	0.679	0.0777	
15 minute winter	3.02	1.004	S/WAY	18.2	1.122	0.945	0.0449	
480 minute winter	4.01	2.002	S/WAY	0.5	0.675	0.013	0.0129	
360 minute winter	S/WAY	3.001	Dummy	0.0	0.000	0.000	0.2756	0.0
360 minute winter	S/WAY	Infiltration		0.4				
15 minute winter	PB1	2.001	4.01	3.8	1.152	0.114	0.0091	
15 minute winter	PB2	2.003	3.02	1.7	1.054	0.042	0.0032	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 97.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	1.01	472	93.487	0.100	0.0	0.0177	0.0000	OK
480 minute winter	1.02	472	93.487	0.423	0.9	0.0749	0.0000	SURCHARGED
480 minute winter	2.01	472	93.487	0.106	0.1	0.0188	0.0000	OK
480 minute winter	3.01	472	93.487	0.605	2.6	1.2150	0.0000	SURCHARGED
480 minute winter	3.02	472	93.487	0.672	3.9	0.7702	0.0000	SURCHARGED
480 minute winter	4.01	472	93.487	0.637	2.4	0.5517	0.0000	FLOOD RISK
480 minute winter	S/WAY	472	93.487	0.705	6.3	23.6122	0.0000	FLOOD RISK
480 minute winter	PB1	472	93.487	0.492	3.1	11.7484	0.0000	FLOOD RISK
480 minute winter	PB2	472	93.487	0.242	0.7	2.9078	0.0000	FLOOD RISK
15 minute summer	Dummy	1	93.500	0.000	0.0	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	1.01	1.001	1.02	0.0	-0.004	-0.002	0.1855	
480 minute winter	1.02	1.002	3.01	-0.9	-0.057	-0.046	0.1845	
480 minute winter	2.01	1.005	3.01	-0.1	-0.006	-0.003	0.2432	
480 minute winter	3.01	1.003	3.02	2.6	0.689	0.142	0.0886	
480 minute winter	3.02	1.004	S/WAY	3.7	0.774	0.193	0.0493	
480 minute winter	4.01	2.002	S/WAY	2.5	0.789	0.067	0.0264	
480 minute winter	S/WAY	3.001	Dummy	0.0	0.000	0.000	0.3577	0.0
480 minute winter	S/WAY	Infiltration		0.4				
480 minute winter	PB1	2.001	4.01	-2.4	0.758	-0.071	0.0491	
480 minute winter	PB2	2.003	3.02	-0.5	0.705	-0.014	0.0352	