

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	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
SW1	0.020	5.00	62.575	450	0.875
SW2	0.000		62.575	450	1.125
SW3	0.020	5.00	62.575	450	0.875
SW5	0.065	5.00	62.150	450	0.900
SW4	0.000		62.150	600	1.150
Tank			62.150	1200	1.550
SW6			62.150	1200	1.650
Com1			62.200	450	1.750

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	SW3	SW2	12.200	0.600	61.700	61.450	0.250	48.8	150	5.14	50.0
2.000	SW1	SW2	13.900	0.600	61.700	61.450	0.250	55.6	150	5.17	50.0
1.001	SW2	SW4	16.300	0.600	61.450	61.000	0.450	36.2	150	5.33	50.0
3.000	SW5	SW4	4.500	0.600	61.250	61.000	0.250	18.0	150	5.03	50.0
1.002	SW4	Tank	1.600	0.600	61.000	60.900	0.100	16.0	225	5.34	50.0
1.003	Tank	SW6	1.400	0.600	60.600	60.500	0.100	14.0	225	5.35	50.0
1.004	SW6	Com1	2.200	0.600	60.500	60.450	0.050	44.0	225	5.37	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	1.443	25.5	2.7	0.725	0.975	0.020	0.0	33	0.944
2.000	1.352	23.9	2.7	0.725	0.975	0.020	0.0	34	0.902
1.001	1.678	29.6	5.4	0.975	1.000	0.040	0.0	43	1.276
3.000	2.385	42.1	8.8	0.750	1.000	0.065	0.0	47	1.895
1.002	3.287	130.7	14.2	0.925	1.025	0.105	0.0	50	2.169
1.003	3.515	139.8	14.2	1.325	1.425	0.105	0.0	48	2.272
1.004	1.977	78.6	14.2	1.425	1.525	0.105	0.0	65	1.510

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	12.200	48.8	150	Circular	62.575	61.700	0.725	62.575	61.450	0.975
2.000	13.900	55.6	150	Circular	62.575	61.700	0.725	62.575	61.450	0.975
1.001	16.300	36.2	150	Circular	62.575	61.450	0.975	62.150	61.000	1.000
3.000	4.500	18.0	150	Circular	62.150	61.250	0.750	62.150	61.000	1.000
1.002	1.600	16.0	225	Circular	62.150	61.000	0.925	62.150	60.900	1.025
1.003	1.400	14.0	225	Circular	62.150	60.600	1.325	62.150	60.500	1.425
1.004	2.200	44.0	225	Circular	62.150	60.500	1.425	62.200	60.450	1.525

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	SW3	450	Manhole	Adoptable	SW2	450	Manhole	Adoptable
2.000	SW1	450	Manhole	Adoptable	SW2	450	Manhole	Adoptable
1.001	SW2	450	Manhole	Adoptable	SW4	600	Manhole	Adoptable
3.000	SW5	450	Manhole	Adoptable	SW4	600	Manhole	Adoptable
1.002	SW4	600	Manhole	Adoptable	Tank	1200	Manhole	Adoptable
1.003	Tank	1200	Manhole	Adoptable	SW6	1200	Manhole	Adoptable
1.004	SW6	1200	Manhole	Adoptable	Com1	450	Manhole	Adoptable

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SW1	62.575	0.875	450				
				0	2.000	61.700	150
SW2	62.575	1.125	450				
				1	2.000	61.450	150
				2	1.000	61.450	150
				0	1.001	61.450	150
SW3	62.575	0.875	450				
				0	1.000	61.700	150
SW5	62.150	0.900	450				
				0	3.000	61.250	150
SW4	62.150	1.150	600				
				1	3.000	61.000	150
				2	1.001	61.000	150
				0	1.002	61.000	225
Tank	62.150	1.550	1200				
				1	1.002	60.900	225
				0	1.003	60.600	225
SW6	62.150	1.650	1200				
				1	1.003	60.500	225
				0	1.004	60.500	225

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Com1	62.200	1.750	450	1	1.004	60.450	225

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
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 SW6 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	60.500	Product Number	CTL-SHE-0078-2500-0800-2500
Design Depth (m)	0.800	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.5	Min Node Diameter (mm)	1200

Node Tank Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	60.600
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	124

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	49.0	0.0	0.800	49.0	0.0	0.801	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	61.732	0.032	2.4	0.0196	0.0000	OK
15 minute winter	SW2	10	61.490	0.040	4.7	0.0064	0.0000	OK
15 minute winter	SW3	10	61.731	0.031	2.4	0.0190	0.0000	OK
15 minute winter	SW5	10	61.295	0.045	7.7	0.0728	0.0000	OK
15 minute winter	SW4	10	61.059	0.059	12.3	0.0166	0.0000	OK
30 minute winter	Tank	27	60.690	0.090	10.6	4.2861	0.0000	OK
30 minute winter	SW6	24	60.726	0.226	15.6	0.2557	0.0000	SURCHARGED
15 minute summer	Com1	1	60.450	0.000	2.5	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	2.000	SW2	2.4	0.730	0.099	0.0451	
15 minute winter	SW2	1.001	SW4	4.6	0.916	0.155	0.0827	
15 minute winter	SW3	1.000	SW2	2.4	0.745	0.093	0.0388	
15 minute winter	SW5	3.000	SW4	7.7	1.412	0.182	0.0245	
15 minute winter	SW4	1.002	Tank	12.1	1.734	0.093	0.0113	
15 minute winter	Tank	1.003	SW6	15.7	0.690	0.112	0.0355	
30 minute winter	SW6	Hydro-Brake®	Com1	2.5				7.4

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	61.750	0.050	5.8	0.0309	0.0000	OK
15 minute winter	SW2	10	61.514	0.064	11.5	0.0102	0.0000	OK
15 minute winter	SW3	10	61.748	0.048	5.8	0.0298	0.0000	OK
15 minute winter	SW5	10	61.330	0.080	18.9	0.1274	0.0000	OK
15 minute winter	SW4	10	61.103	0.103	30.2	0.0291	0.0000	OK
60 minute winter	Tank	60	60.916	0.316	24.0	15.0580	0.0000	SURCHARGED
60 minute winter	SW6	59	60.916	0.416	11.9	0.4703	0.0000	SURCHARGED
15 minute summer	Com1	1	60.450	0.000	2.5	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	2.000	SW2	5.8	0.930	0.241	0.0861	
15 minute winter	SW2	1.001	SW4	11.4	1.129	0.384	0.1639	
15 minute winter	SW3	1.000	SW2	5.8	0.951	0.226	0.0741	
15 minute winter	SW5	3.000	SW4	18.8	1.677	0.446	0.0503	
15 minute winter	SW4	1.002	Tank	30.0	2.089	0.229	0.0231	
30 minute winter	Tank	1.003	SW6	14.2	0.688	0.102	0.0557	
15 minute summer	SW6	Hydro-Brake®	Com1	2.5				12.5

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	10	61.771	0.071	10.5	0.0437	0.0000	OK
15 minute winter	SW2	10	61.543	0.093	20.8	0.0148	0.0000	OK
15 minute winter	SW3	10	61.768	0.068	10.5	0.0421	0.0000	OK
15 minute winter	SW5	10	61.388	0.138	34.2	0.2216	0.0000	OK
120 minute winter	SW4	116	61.312	0.312	17.8	0.0882	0.0000	SURCHARGED
120 minute winter	Tank	116	61.312	0.712	23.8	33.9635	0.0000	SURCHARGED
120 minute winter	SW6	118	61.311	0.811	13.8	0.9172	0.0000	SURCHARGED
15 minute summer	Com1	1	60.450	0.000	2.5	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW1	2.000	SW2	10.4	1.057	0.436	0.1368	
15 minute winter	SW2	1.001	SW4	20.5	1.328	0.693	0.2372	
15 minute winter	SW3	1.000	SW2	10.4	1.079	0.409	0.1178	
15 minute winter	SW5	3.000	SW4	33.7	1.931	0.800	0.0778	
15 minute winter	SW4	1.002	Tank	54.1	2.347	0.414	0.0367	
30 minute winter	Tank	1.003	SW6	16.7	0.724	0.120	0.0557	
120 minute winter	SW6	Hydro-Brake®	Com1	2.5				49.3