

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	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	0.300	Preferred Cover Depth (m)	1.200
CV	1.000	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)	Depth (m)
SW1	0.032	5.00	141.150	1200	1.350
SW2	0.058	5.00	139.350	1200	1.350
SW3	0.045	5.00	138.550	1200	1.425
SW4	0.033	5.00	137.450	1200	1.425
SW5	0.032	5.00	136.800	1200	1.425
SW6	0.031	5.00	135.700	1200	1.567
SW7	0.037	5.00	135.575	1200	1.842
SW8	0.052	5.00	143.350	1200	1.350
SW9	0.039	5.00	142.750	1200	1.350
SW10	0.039	5.00	142.000	1200	1.450
SW11	0.062	5.00	138.800	1200	1.438
SW12	0.088	5.00	137.500	1200	2.701
SW13	0.032	5.00	141.500	1200	1.350
SW14	0.047	5.00	138.800	1200	1.350
SW15	0.035	5.00	138.400	1200	1.425
SW16	0.054	5.00	136.100	1200	1.554
SW17	0.035	5.00	136.050	1200	1.603
SW18	0.054	5.00	136.000	1350	2.000
SW19	0.020	5.00	138.000	1200	1.350
SW20	0.031	5.00	137.600	1200	1.350
SW21	0.028	5.00	136.950	1200	1.350
SW22	0.032	5.00	136.650	1200	1.350
SW23	0.068	5.00	136.500	1350	2.986
SW24	0.055	5.00	136.050	1350	2.725
SW25			136.100	1350	2.999
POND INLET			132.550		1.190
POND OUTLET		5.00	132.550		1.400
SW26			132.550	1800	1.470
OUTFALL			131.200		0.400

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	SW1	SW2	50.751	0.600	139.800	138.000	1.800	28.2	150	5.44	50.0
1.001	SW2	SW3	28.079	0.600	138.000	137.200	0.800	35.1	150	5.72	50.0
1.002	SW3	SW4	32.066	0.600	137.125	136.025	1.100	29.2	225	5.94	50.0
1.003	SW4	SW5	17.646	0.600	136.025	135.375	0.650	27.1	225	6.06	50.0
1.004	SW5	SW6	25.713	0.600	135.375	134.208	1.167	22.0	225	6.21	50.0
1.005	SW6	SW7	60.020	0.600	134.133	133.733	0.400	150.0	300	6.99	50.0
1.006	SW7	SW24	38.764	0.600	133.733	133.475	0.258	150.0	300	7.49	50.0
2.000	SW8	SW9	19.161	0.600	142.000	141.400	0.600	31.9	150	5.18	50.0
2.001	SW9	SW10	13.434	0.600	141.400	140.550	0.850	15.8	150	5.27	50.0
2.002	SW10	SW11	32.365	0.600	140.550	137.437	3.113	10.4	150	5.44	50.0
2.003	SW11	SW12	63.849	0.600	137.362	134.799	2.563	24.9	225	5.84	50.0
2.004	SW12	SW18	33.957	0.600	134.799	134.150	0.649	52.3	225	6.15	50.0
3.000	SW13	SW14	41.036	0.600	140.150	137.450	2.700	15.2	150	5.26	50.0
3.001	SW14	SW15	9.097	0.600	137.450	137.050	0.400	22.7	150	5.33	50.0
3.002	SW15	SW16	66.486	0.600	136.975	134.621	2.354	28.2	225	5.78	50.0
3.003	SW16	SW17	9.896	0.600	134.546	134.447	0.099	100.0	300	5.89	50.0
3.004	SW17	SW18	25.644	0.600	134.447	134.075	0.372	68.9	300	6.11	50.0
2.005	SW18	SW23	61.682	0.600	134.000	133.589	0.411	150.0	375	6.85	50.0
4.000	SW19	SW20	18.921	0.600	136.650	136.250	0.400	47.3	150	5.22	50.0
4.001	SW20	SW21	26.771	0.600	136.250	135.600	0.650	41.2	150	5.50	50.0
4.002	SW21	SW22	18.106	0.600	135.600	135.300	0.300	60.4	150	5.73	50.0
4.003	SW22	SW23	30.993	0.600	135.300	133.814	1.486	20.9	150	5.96	50.0
2.006	SW23	SW24	28.357	0.600	133.514	133.325	0.189	150.0	450	7.14	50.0
1.007	SW24	SW25	33.621	0.600	133.325	133.101	0.224	150.1	450	7.83	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	1.903	33.6	8.1	1.200	1.200	0.032	0.0	50	1.571
1.001	1.704	30.1	22.8	1.200	1.200	0.090	0.0	98	1.869
1.002	2.432	96.7	34.2	1.200	1.200	0.135	0.0	92	2.223
1.003	2.521	100.2	42.5	1.200	1.200	0.168	0.0	102	2.422
1.004	2.799	111.3	50.6	1.200	1.267	0.200	0.0	107	2.739
1.005	1.281	90.6	58.4	1.267	1.542	0.231	0.0	175	1.358
1.006	1.281	90.6	67.8	1.542	2.275	0.268	0.0	194	1.401
2.000	1.787	31.6	13.2	1.200	1.200	0.052	0.0	68	1.710
2.001	2.546	45.0	23.0	1.200	1.300	0.091	0.0	76	2.558
2.002	3.142	55.5	32.9	1.300	1.213	0.130	0.0	83	3.268
2.003	2.632	104.6	48.6	1.213	2.476	0.192	0.0	108	2.584
2.004	1.812	72.0	70.8	2.476	1.625	0.280	0.0	182	2.055
3.000	2.597	45.9	8.1	1.200	1.200	0.032	0.0	42	1.962
3.001	2.120	37.5	20.0	1.200	1.200	0.079	0.0	78	2.157
3.002	2.471	98.2	28.8	1.200	1.254	0.114	0.0	83	2.152
3.003	1.572	111.1	42.5	1.254	1.303	0.168	0.0	129	1.471
3.004	1.896	134.0	51.4	1.303	1.625	0.203	0.0	129	1.774
2.005	1.477	163.1	135.9	1.625	2.536	0.537	0.0	263	1.644
4.000	1.466	25.9	5.1	1.200	1.200	0.020	0.0	45	1.140
4.001	1.572	27.8	12.9	1.200	1.200	0.051	0.0	72	1.543
4.002	1.297	22.9	20.0	1.200	1.200	0.079	0.0	109	1.458
4.003	2.215	39.1	28.1	1.200	2.536	0.111	0.0	94	2.404
2.006	1.657	263.6	181.1	2.536	2.275	0.716	0.0	275	1.780
1.007	1.657	263.5	262.8	2.275	2.549	1.039	0.0	370	1.875

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)
1.008	SW25	POND INLET	69.914	0.600	133.101	131.370	1.731	40.4	450	8.20	50.0
1.010	POND OUTLET	SW26	7.058	0.600	131.150	131.080	0.070	100.8	300	5.08	50.0
1.011	SW26	OUTFALL	12.097	0.600	131.080	130.800	0.280	43.2	300	5.16	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)
1.008	3.206	509.9	262.8	2.549	0.730	1.039	0.0	229	3.228
1.010	1.565	110.7	0.0	1.100	1.170	0.000	0.0	0	0.000
1.011	2.398	169.5	0.0	1.170	0.100	0.000	0.0	0	0.000

Simulation Settings

Rainfall Methodology	FSR	Additional Storage (m ³ /ha)	20.0
FSR Region	England and Wales	Check Discharge Rate(s)	✓
M5-60 (mm)	17.000	1 year (l/s)	22.2
Ratio-R	0.300	2 year (l/s)	23.7
Summer CV	1.000	30 year (l/s)	43.4
Winter CV	1.000	100 year (l/s)	53.1
Analysis Speed	Detailed	Check Discharge Volume	✓
Skip Steady State	x	100 year +40% 360 minute (m ³)	1312
Drain Down Time (mins)	240		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	10	0
2	0	10	0
30	0	10	0
100	0	10	0
100	40	10	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)	2.873	Betterment (%)	0
SAAR (mm)	1178	QBar	25.5
Soil Index	4	Q 1 year (l/s)	
SPR	0.47	Q 30 year (l/s)	
Region	10	Q 100 year (l/s)	
Growth Factor 1 year	0.85		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	40
Positively Drained Area (ha)	2.873	Storm Duration (mins)	360
Soil Index	4	Betterment (%)	0
SPR	0.47	PR	0.536
CWI	125.445	Runoff Volume (m ³)	1312

Node SW26 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	131.080	Product Number	CTL-SHE-0220-2560-1070-2560
Design Depth (m)	1.070	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	25.6	Min Node Diameter (mm)	1500

Node POND OUTLET Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	42.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	131.150	Main Channel Slope (1:X)	200.0
Safety Factor	2.0	Time to half empty (mins)	216	Main Channel n	0.030

Inlets

POND INLET

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	511.1	0.0	1.400	1190.3	0.0

Approval Settings

Node Size	x	Backdrops	x	Return Period (years)	100
Node Losses	x	Full Bore Velocity	x	Discharge Rates	✓
Link Size	x	Proportional Velocity	x	1 year (l/s)	25.6
Link Length	x	Surcharged Depth	x	30 year (l/s)	25.6
Coordinates	x	Flooding	✓	100 year (l/s)	25.6
Crossings	x	Return Period (years)	30	Discharge Volume	✓
Cover Depth	x	Time to Half Empty	✓	100 year +40% 360 minute (m ³)	1312

Approval Results

The network has been designed for a 1 in 100 year storm using FSR rainfall
 It contains 29 nodes (1 outfall) and 27 links
 The total impermeable area is 1.039 ha
 1 online control has been defined
 1 structure has been defined, providing 1071m³ of storage below the flood risk level
 Infiltration has not been utilised
 Simulations have been completed using FSR summer and winter storms from 15 to 1440 minute duration

The node size test has not been completed

The node losses test has not been completed

The link size test has not been completed

The link length test has not been completed

The coordinates test has not been completed

The crossings test has not been completed

The cover depth test has not been completed

The backdrops test has not been completed

The full bore velocity test has not been completed

The proportional velocity test has not been completed

The surcharged depth test has not been completed

No nodes flood during the 30 year return period

No infiltrating structures failed to half empty in 1440 minutes during the 100 year return period

No outfalls have a discharge rate greater than 25.6l/s during the 1 year return period

No outfalls have a discharge rate greater than 25.6l/s during the 30 year return period

No outfalls have a discharge rate greater than 25.6l/s during the 100 year return period

No outfalls have a discharge volume greater than 1312m³ during the 100 year 360 minute storm

Results for 1 year +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	SW1	10	139.838	0.038	4.8	0.0628	0.0000	OK
15 minute summer	SW2	11	138.072	0.072	13.5	0.1486	0.0000	OK
15 minute summer	SW3	11	137.194	0.069	19.8	0.1256	0.0000	OK
15 minute summer	SW4	11	136.104	0.079	24.6	0.1291	0.0000	OK
15 minute summer	SW5	11	135.457	0.082	29.3	0.1327	0.0000	OK
15 minute summer	SW6	11	134.262	0.128	33.9	0.2012	0.0000	OK
15 minute summer	SW7	12	133.873	0.140	39.4	0.2206	0.0000	OK
15 minute summer	SW8	10	142.051	0.051	7.9	0.1010	0.0000	OK
15 minute summer	SW9	10	141.458	0.058	13.7	0.1030	0.0000	OK
15 minute summer	SW10	10	140.613	0.063	19.5	0.1077	0.0000	OK
15 minute summer	SW11	11	137.442	0.080	28.7	0.1656	0.0000	OK
15 minute summer	SW12	11	134.926	0.127	41.6	0.2351	0.0000	OK
15 minute summer	SW13	10	140.183	0.033	4.8	0.0539	0.0000	OK
15 minute summer	SW14	10	137.512	0.062	11.8	0.1169	0.0000	OK
15 minute summer	SW15	11	137.039	0.063	17.0	0.1060	0.0000	OK
15 minute summer	SW16	11	134.651	0.105	24.6	0.1983	0.0000	OK
15 minute summer	SW17	10	134.545	0.098	29.8	0.1584	0.0000	OK
15 minute summer	SW18	11	134.188	0.188	79.1	0.3798	0.0000	OK
15 minute summer	SW19	10	136.684	0.034	3.0	0.0500	0.0000	OK
15 minute summer	SW20	10	136.303	0.053	7.7	0.0874	0.0000	OK
15 minute summer	SW21	11	135.680	0.080	11.8	0.1270	0.0000	OK
15 minute summer	SW22	11	135.369	0.069	16.3	0.1146	0.0000	OK
15 minute summer	SW23	11	133.728	0.214	103.5	0.4142	0.0000	OK
15 minute summer	SW24	12	133.580	0.254	147.6	0.4772	0.0000	OK
15 minute summer	SW25	12	133.268	0.167	148.7	0.2390	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	SW1	1.000	SW2	4.7	0.817	0.140	0.2986	
15 minute summer	SW2	1.001	SW3	13.2	1.626	0.440	0.2287	
15 minute summer	SW3	1.002	SW4	19.8	1.753	0.205	0.3628	
15 minute summer	SW4	1.003	SW5	24.7	1.950	0.247	0.2238	
15 minute summer	SW5	1.004	SW6	29.4	2.323	0.264	0.3257	
15 minute summer	SW6	1.005	SW7	34.1	1.130	0.376	1.8214	
15 minute summer	SW7	1.006	SW24	38.3	1.217	0.423	1.2192	
15 minute summer	SW8	2.000	SW9	7.8	1.348	0.248	0.1112	
15 minute summer	SW9	2.001	SW10	13.6	2.052	0.302	0.0891	
15 minute summer	SW10	2.002	SW11	19.3	2.820	0.347	0.2212	
15 minute summer	SW11	2.003	SW12	28.4	1.621	0.271	1.1395	
15 minute summer	SW12	2.004	SW18	41.3	1.838	0.573	0.7630	
15 minute summer	SW13	3.000	SW14	4.7	1.003	0.103	0.1978	
15 minute summer	SW14	3.001	SW15	11.7	1.791	0.311	0.0592	
15 minute summer	SW15	3.002	SW16	16.8	1.849	0.171	0.6048	
15 minute summer	SW16	3.003	SW17	24.7	1.180	0.222	0.2071	
15 minute summer	SW17	3.004	SW18	30.0	1.423	0.224	0.5657	
15 minute summer	SW18	2.005	SW23	77.4	1.460	0.474	3.2967	
15 minute summer	SW19	4.000	SW20	3.0	0.694	0.115	0.0819	
15 minute summer	SW20	4.001	SW21	7.6	1.000	0.272	0.2028	
15 minute summer	SW21	4.002	SW22	11.6	1.329	0.508	0.1586	
15 minute summer	SW22	4.003	SW23	16.3	2.086	0.417	0.2427	
15 minute summer	SW23	2.006	SW24	102.8	1.235	0.390	2.3601	
15 minute summer	SW24	1.007	SW25	148.7	2.041	0.564	2.4529	
15 minute summer	SW25	1.008	POND INLET	148.7	2.817	0.292	3.6913	

Results for 1 year +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	POND INLET	12	131.404	0.043	148.7	0.0000	0.0000	OK
120 minute summer	POND OUTLET	82	131.394	0.244	78.8	0.0000	0.0000	OK
120 minute winter	SW26	78	131.417	0.337	45.9	0.8579	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	130.800	0.000	25.3	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	POND INLET	Flow through pond	POND OUTLET	155.2	0.253	0.004	52.7499	
120 minute summer	POND OUTLET	1.010	SW26	34.6	0.732	0.312	0.4649	
120 minute winter	SW26	Hydro-Brake®	OUTFALL	25.6				157.6

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	SW1	10	139.861	0.061	11.8	0.1006	0.0000	OK
15 minute summer	SW2	12	138.189	0.189	33.0	0.3927	0.0000	SURCHARGED
15 minute summer	SW3	10	137.237	0.112	47.4	0.2037	0.0000	OK
15 minute summer	SW4	10	136.159	0.134	59.5	0.2195	0.0000	OK
15 minute summer	SW5	10	135.510	0.135	70.8	0.2192	0.0000	OK
15 minute summer	SW6	12	134.371	0.238	81.6	0.3726	0.0000	OK
15 minute summer	SW7	12	134.148	0.415	92.2	0.6529	0.0000	SURCHARGED
15 minute summer	SW8	10	142.086	0.086	19.2	0.1696	0.0000	OK
15 minute summer	SW9	10	141.502	0.102	33.4	0.1809	0.0000	OK
15 minute summer	SW10	10	140.662	0.112	47.6	0.1927	0.0000	OK
15 minute summer	SW11	10	137.495	0.133	69.9	0.2762	0.0000	OK
15 minute summer	SW12	12	135.672	0.873	101.6	1.6133	0.0000	SURCHARGED
15 minute summer	SW13	10	140.202	0.052	11.8	0.0854	0.0000	OK
15 minute summer	SW14	10	137.562	0.112	29.0	0.2127	0.0000	OK
15 minute summer	SW15	10	137.077	0.102	41.4	0.1711	0.0000	OK
15 minute summer	SW16	10	134.726	0.180	61.0	0.3415	0.0000	OK
15 minute summer	SW17	12	134.642	0.195	73.1	0.3144	0.0000	OK
15 minute summer	SW18	12	134.569	0.568	173.9	1.1512	0.0000	SURCHARGED
15 minute summer	SW19	10	136.705	0.055	7.4	0.0795	0.0000	OK
15 minute summer	SW20	11	136.340	0.090	18.7	0.1476	0.0000	OK
15 minute summer	SW21	11	135.913	0.312	28.8	0.4959	0.0000	SURCHARGED
15 minute summer	SW22	11	135.422	0.122	37.7	0.2009	0.0000	OK
15 minute summer	SW23	12	134.071	0.557	222.7	1.0756	0.0000	SURCHARGED
15 minute summer	SW24	12	133.884	0.559	322.2	1.0488	0.0000	SURCHARGED
15 minute summer	SW25	12	133.365	0.264	323.6	0.3773	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	SW1	1.000	SW2	11.6	0.973	0.346	0.6137	
15 minute summer	SW2	1.001	SW3	30.8	1.864	1.022	0.4876	
15 minute summer	SW3	1.002	SW4	47.3	2.137	0.489	0.7091	
15 minute summer	SW4	1.003	SW5	59.0	2.385	0.588	0.4362	
15 minute summer	SW5	1.004	SW6	70.2	2.707	0.631	0.6803	
15 minute summer	SW6	1.005	SW7	78.9	1.317	0.872	3.9116	
15 minute summer	SW7	1.006	SW24	83.6	1.260	0.923	2.7297	
15 minute summer	SW8	2.000	SW9	19.1	1.639	0.603	0.2224	
15 minute summer	SW9	2.001	SW10	33.2	2.468	0.738	0.1807	
15 minute summer	SW10	2.002	SW11	47.1	3.437	0.848	0.4434	
15 minute summer	SW11	2.003	SW12	69.2	1.932	0.662	2.0479	
15 minute summer	SW12	2.004	SW18	86.4	2.172	1.199	1.3505	
15 minute summer	SW13	3.000	SW14	11.7	1.195	0.255	0.4001	
15 minute summer	SW14	3.001	SW15	28.5	2.165	0.760	0.1196	
15 minute summer	SW15	3.002	SW16	41.1	2.302	0.418	1.1891	
15 minute summer	SW16	3.003	SW17	60.8	1.466	0.547	0.4544	
15 minute summer	SW17	3.004	SW18	71.3	1.509	0.532	1.5249	
15 minute summer	SW18	2.005	SW23	166.4	1.629	1.020	6.8033	
15 minute summer	SW19	4.000	SW20	7.3	0.878	0.283	0.1582	
15 minute summer	SW20	4.001	SW21	18.5	1.161	0.665	0.3837	
15 minute summer	SW21	4.002	SW22	26.5	1.530	1.157	0.2979	
15 minute summer	SW22	4.003	SW23	37.9	2.434	0.968	0.5099	
15 minute summer	SW23	2.006	SW24	223.0	1.407	0.846	4.4930	
15 minute summer	SW24	1.007	SW25	323.6	2.297	1.228	4.2858	
15 minute summer	SW25	1.008	POND INLET	323.2	3.417	0.634	6.6119	

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
180 minute summer	POND INLET	136	131.651	0.291	145.8	0.0000	0.0000	OK
180 minute summer	POND OUTLET	136	131.650	0.500	95.7	0.0000	0.0000	SURCHARGED
180 minute summer	SW26	140	131.645	0.565	48.6	1.4374	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	130.800	0.000	25.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
180 minute summer	POND INLET	Flow through pond	POND OUTLET	95.7	0.094	0.002	242.6643	
180 minute summer	POND OUTLET	1.010	SW26	48.6	0.814	0.439	0.4970	
180 minute summer	SW26	Hydro-Brake®	OUTFALL	25.6				430.7

Results for 100 year +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	SW1	10	139.870	0.070	15.1	0.1157	0.0000	OK
15 minute summer	SW2	12	138.552	0.552	42.4	1.1449	0.0000	SURCHARGED
15 minute summer	SW3	11	137.247	0.122	54.6	0.2222	0.0000	OK
15 minute summer	SW4	10	136.173	0.148	69.3	0.2421	0.0000	OK
15 minute summer	SW5	12	135.565	0.190	84.1	0.3091	0.0000	OK
15 minute summer	SW6	12	134.964	0.831	95.2	1.3014	0.0000	SURCHARGED
15 minute summer	SW7	12	134.499	0.766	105.1	1.2042	0.0000	SURCHARGED
15 minute summer	SW8	10	142.102	0.102	24.6	0.2011	0.0000	OK
15 minute summer	SW9	12	141.633	0.233	42.9	0.4121	0.0000	SURCHARGED
15 minute summer	SW10	12	140.888	0.338	60.3	0.5817	0.0000	SURCHARGED
30 minute summer	SW11	20	137.774	0.412	84.4	0.8561	0.0000	SURCHARGED
15 minute summer	SW12	12	136.470	1.671	121.4	3.0875	0.0000	SURCHARGED
15 minute summer	SW13	10	140.209	0.059	15.1	0.0975	0.0000	OK
15 minute summer	SW14	11	137.657	0.207	37.2	0.3929	0.0000	SURCHARGED
15 minute summer	SW15	11	137.089	0.113	50.4	0.1896	0.0000	OK
15 minute summer	SW16	12	135.189	0.643	75.5	1.2192	0.0000	SURCHARGED
15 minute summer	SW17	12	135.136	0.689	86.0	1.1102	0.0000	SURCHARGED
15 minute summer	SW18	12	134.988	0.988	193.4	2.0002	0.0000	SURCHARGED
15 minute summer	SW19	10	136.713	0.062	9.5	0.0911	0.0000	OK
15 minute summer	SW20	12	136.651	0.401	24.1	0.6559	0.0000	SURCHARGED
15 minute summer	SW21	12	136.352	0.752	33.2	1.1933	0.0000	SURCHARGED
15 minute summer	SW22	12	135.869	0.569	42.0	0.9406	0.0000	SURCHARGED
15 minute summer	SW23	12	134.324	0.810	254.1	1.5645	0.0000	SURCHARGED
15 minute summer	SW24	12	134.080	0.755	379.4	1.4152	0.0000	SURCHARGED
15 minute summer	SW25	12	133.394	0.293	379.0	0.4190	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	SW1	1.000	SW2	14.9	1.014	0.444	0.6513	
15 minute summer	SW2	1.001	SW3	35.0	1.988	1.162	0.4943	
15 minute summer	SW3	1.002	SW4	54.4	2.228	0.563	0.7913	
15 minute summer	SW4	1.003	SW5	69.7	2.466	0.695	0.5466	
15 minute summer	SW5	1.004	SW6	81.2	2.673	0.729	0.9718	
15 minute summer	SW6	1.005	SW7	91.3	1.335	1.009	4.2266	
15 minute summer	SW7	1.006	SW24	105.2	1.494	1.161	2.7297	
15 minute summer	SW8	2.000	SW9	24.4	1.676	0.773	0.2874	
15 minute summer	SW9	2.001	SW10	41.8	2.511	0.930	0.2365	
15 minute summer	SW10	2.002	SW11	55.5	3.340	0.999	0.5698	
30 minute summer	SW11	2.003	SW12	80.7	2.133	0.772	2.5393	
15 minute summer	SW12	2.004	SW18	100.2	2.519	1.390	1.3505	
15 minute summer	SW13	3.000	SW14	15.0	1.227	0.327	0.4932	
15 minute summer	SW14	3.001	SW15	34.6	2.179	0.923	0.1453	
15 minute summer	SW15	3.002	SW16	50.4	2.293	0.513	1.9888	
15 minute summer	SW16	3.003	SW17	69.4	1.414	0.625	0.6969	
15 minute summer	SW17	3.004	SW18	78.2	1.491	0.584	1.8058	
15 minute summer	SW18	2.005	SW23	193.4	1.754	1.186	6.8033	
15 minute summer	SW19	4.000	SW20	9.4	0.893	0.363	0.2305	
15 minute summer	SW20	4.001	SW21	20.6	1.244	0.743	0.4713	
15 minute summer	SW21	4.002	SW22	26.9	1.531	1.176	0.3188	
15 minute summer	SW22	4.003	SW23	38.1	2.365	0.973	0.5456	
15 minute summer	SW23	2.006	SW24	253.9	1.602	0.963	4.4930	
15 minute summer	SW24	1.007	SW25	379.0	2.577	1.438	4.4991	
15 minute summer	SW25	1.008	POND INLET	376.3	3.536	0.738	7.4634	

Results for 100 year +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
180 minute summer	POND INLET	152	131.801	0.441	192.7	0.0000	0.0000	OK
180 minute summer	POND OUTLET	156	131.801	0.651	116.6	0.0000	0.0000	SURCHARGED
180 minute summer	SW26	156	131.796	0.716	27.1	1.8231	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	130.800	0.000	25.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
180 minute summer	POND INLET	Flow through pond	POND OUTLET	116.6	0.121	0.003	354.0528	
180 minute summer	POND OUTLET	1.010	SW26	27.1	0.613	0.245	0.4970	
180 minute summer	SW26	Hydro-Brake®	OUTFALL	25.6				570.7

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	SW1	11	139.901	0.101	21.2	0.1662	0.0000	OK
15 minute summer	SW2	12	139.330	1.330	58.4	2.7608	0.0000	FLOOD RISK
30 minute summer	SW3	20	137.499	0.374	69.3	0.6834	0.0000	SURCHARGED
30 minute summer	SW4	20	136.975	0.950	87.0	1.5578	0.0000	SURCHARGED
30 minute summer	SW5	20	136.495	1.120	93.8	1.8201	0.0000	SURCHARGED
15 minute summer	SW6	12	135.578	1.445	108.2	2.2626	0.0000	FLOOD RISK
15 minute summer	SW7	12	134.971	1.238	123.1	1.9475	0.0000	SURCHARGED
15 minute summer	SW8	13	143.069	1.069	34.5	2.1138	0.0000	FLOOD RISK
15 minute summer	SW9	13	142.731	1.331	49.2	2.3518	0.0000	FLOOD RISK
30 minute summer	SW10	20	142.000	1.450	63.3	2.4984	0.1561	FLOOD
30 minute summer	SW11	19	138.800	1.438	91.2	2.9910	1.5605	FLOOD
30 minute summer	SW12	19	137.500	2.701	131.4	4.9914	0.6502	FLOOD
15 minute summer	SW13	10	140.221	0.071	21.2	0.1180	0.0000	OK
15 minute summer	SW14	11	138.039	0.589	52.1	1.1182	0.0000	SURCHARGED
15 minute summer	SW15	12	137.147	0.172	69.2	0.2876	0.0000	OK
15 minute summer	SW16	12	136.100	1.554	101.0	2.9448	0.8039	FLOOD
15 minute summer	SW17	12	136.015	1.568	98.7	2.5255	0.0000	FLOOD RISK
15 minute summer	SW18	12	135.754	1.754	236.0	3.5524	0.0000	FLOOD RISK
30 minute summer	SW19	20	137.451	0.801	12.6	1.1666	0.0000	SURCHARGED
30 minute summer	SW20	20	137.402	1.152	28.7	1.8841	0.0000	FLOOD RISK
30 minute summer	SW21	19	136.950	1.350	35.4	2.1425	1.3883	FLOOD
15 minute summer	SW22	12	136.559	1.259	47.6	2.0796	0.0000	FLOOD RISK
15 minute summer	SW23	12	134.762	1.248	310.1	2.4111	0.0000	SURCHARGED
15 minute summer	SW24	12	134.399	1.074	461.0	2.0138	0.0000	SURCHARGED
30 minute summer	SW25	20	133.442	0.341	458.3	0.4881	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	SW1	1.000	SW2	20.0	1.253	0.594	0.7654	
15 minute summer	SW2	1.001	SW3	42.8	2.432	1.422	0.4943	
30 minute summer	SW3	1.002	SW4	66.3	2.165	0.685	1.2753	
30 minute summer	SW4	1.003	SW5	77.8	2.438	0.776	0.7018	
30 minute summer	SW5	1.004	SW6	90.6	2.685	0.814	1.0226	
15 minute summer	SW6	1.005	SW7	105.2	1.495	1.162	4.2266	
15 minute summer	SW7	1.006	SW24	122.7	1.742	1.355	2.7297	
15 minute summer	SW8	2.000	SW9	25.2	1.686	0.798	0.3373	
15 minute summer	SW9	2.001	SW10	41.8	2.523	0.929	0.2365	
30 minute summer	SW10	2.002	SW11	53.5	3.445	0.963	0.5698	
30 minute summer	SW11	2.003	SW12	81.2	2.110	0.776	2.5393	
30 minute summer	SW12	2.004	SW18	110.8	2.786	1.538	1.3505	
15 minute summer	SW13	3.000	SW14	21.1	1.414	0.459	0.5308	
15 minute summer	SW14	3.001	SW15	47.1	2.677	1.258	0.1601	
15 minute summer	SW15	3.002	SW16	66.0	2.303	0.672	2.4058	
15 minute summer	SW16	3.003	SW17	87.5	1.392	0.787	0.6969	
15 minute summer	SW17	3.004	SW18	103.4	1.471	0.772	1.8058	
15 minute summer	SW18	2.005	SW23	235.6	2.136	1.444	6.8033	
30 minute summer	SW19	4.000	SW20	11.0	0.912	0.426	0.3331	
30 minute summer	SW20	4.001	SW21	21.2	1.243	0.764	0.4713	
30 minute summer	SW21	4.002	SW22	28.8	1.637	1.257	0.3188	
15 minute summer	SW22	4.003	SW23	39.9	2.312	1.019	0.5456	
15 minute summer	SW23	2.006	SW24	309.8	1.955	1.175	4.4930	
15 minute summer	SW24	1.007	SW25	460.6	3.000	1.748	4.8305	
30 minute summer	SW25	1.008	POND INLET	459.0	3.648	0.900	8.7977	

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.07%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
180 minute winter	POND INLET	180	132.052	0.692	184.6	0.0000	0.0000	OK
180 minute winter	POND OUTLET	176	132.053	0.902	113.2	0.0000	0.0000	SURCHARGED
180 minute winter	SW26	176	132.048	0.967	48.2	2.4622	0.0000	SURCHARGED
15 minute summer	OUTFALL	1	130.800	0.000	25.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
180 minute winter	POND INLET	Flow through pond	POND OUTLET	113.2	0.112	0.003	564.3482	
180 minute winter	POND OUTLET	1.010	SW26	48.2	0.847	0.436	0.4970	
180 minute winter	SW26	Hydro-Brake®	OUTFALL	25.6				801.2