

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	30	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	0.750	Include Intermediate Ground	✓
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)
S1	0.035	5.00	64.250	600	401863.101	182285.773	0.650
S2	0.024	5.00	63.600	600	401736.674	182227.290	0.700
S3	0.007	5.00	63.600	600	401818.489	182271.887	0.800
S4	0.039	5.00	63.800	600	401829.777	182275.296	1.120
S5	0.035	5.00	63.600	600	401821.157	182303.790	1.220
S6	0.029	5.00	63.650	600	401852.520	182312.354	1.595
POND			63.600	1200	401850.107	182321.429	1.600
S7-HB			63.600	1200	401852.961	182331.342	1.601
S8			63.600	600	401853.406	182332.939	1.605
9_OUT			63.250		401853.387	182335.655	1.295

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	S1	S4	34.932	0.600	63.600	62.800	0.800	43.7	150	5.38	50.0
2.000	S2	S3	93.180	0.600	62.900	62.800	0.100	931.8	300	8.06	50.0
2.001	S3	S4	11.792	0.600	62.800	62.680	0.120	98.3	300	8.19	50.0
1.001	S4	S5	29.769	0.600	62.680	62.380	0.300	99.2	225	8.57	50.0
1.002	S5	S6	32.511	0.600	62.380	62.055	0.325	100.0	225	8.98	50.0
1.003	S6	POND	9.390	0.600	62.055	62.000	0.055	170.7	225	9.14	50.0
1.004	POND	S7-HB	10.316	0.600	62.000	61.999	0.001	10316.0	225	10.57	50.0
1.005	S7-HB	S8	1.658	0.600	61.999	61.995	0.004	414.5	150	10.63	50.0
1.006	S8	9_OUT	2.716	0.600	61.995	61.955	0.040	67.9	150	10.66	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)
1.000	1.527	27.0	4.7	0.500	0.850	0.035	0.0
2.000	0.507	35.8	3.3	0.400	0.500	0.024	0.0
2.001	1.586	112.1	4.2	0.500	0.820	0.031	0.0
1.001	1.312	52.2	14.2	0.895	0.995	0.105	0.0
1.002	1.307	52.0	19.0	0.995	1.370	0.140	0.0
1.003	0.997	39.7	22.9	1.370	1.375	0.169	0.0
1.004	0.120	4.8	22.9	1.375	1.376	0.169	0.0
1.005	0.487	8.6	22.9	1.451	1.455	0.169	0.0
1.006	1.222	21.6	22.9	1.455	1.145	0.169	0.0

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
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	35	0	0
100	45	0	0

Node S8 Surcharged Outfall

Overrides Design Area	x	Depression Storage Area (m ²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		
Applies to All storms					

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
0	63.750	300	63.750	600	63.750	900	63.750	1200	63.750	1500	63.750
100	63.750	400	63.750	700	63.750	1000	63.750	1300	63.750		
200	63.750	500	63.750	800	63.750	1100	63.750	1400	63.750		

Node S7-HB Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	62.000	Product Number	CTL-SHE-0029-5000-1500-5000
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	0.5	Min Node Diameter (mm)	1200

Node POND Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	62.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	10.0	0.0	1.600	188.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	63.650	0.050	6.4	0.0677	0.0000	OK
15 minute winter	S2	12	62.977	0.077	4.4	0.0743	0.0000	OK
15 minute winter	S3	12	62.841	0.041	4.8	0.0188	0.0000	OK
15 minute winter	S4	11	62.769	0.089	16.9	0.0872	0.0000	OK
960 minute winter	S5	930	62.640	0.260	1.7	0.2228	0.0000	SURCHARGED
960 minute winter	S6	930	62.640	0.585	2.1	0.3779	0.0000	SURCHARGED
960 minute winter	POND	930	62.640	0.640	2.0	29.9037	0.0000	SURCHARGED
960 minute winter	S7-HB	930	62.640	0.641	0.3	0.7249	0.0000	SURCHARGED
960 minute winter	S8	930	62.009	0.014	0.3	0.0039	0.0000	OK
960 minute winter	9_OUT	930	61.968	0.013	0.3	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S4	6.2	1.231	0.230	0.1761	
15 minute winter	S2	2.000	S3	3.8	0.386	0.105	0.9315	
15 minute winter	S3	2.001	S4	4.6	0.475	0.041	0.1348	
15 minute winter	S4	1.001	S5	16.9	1.045	0.324	0.4825	
960 minute winter	S5	1.002	S6	1.7	0.326	0.033	1.2930	
960 minute winter	S6	1.003	POND	2.0	0.436	0.051	0.3735	
960 minute winter	POND	1.004	S7-HB	0.3	0.056	0.072	0.4103	
960 minute winter	S7-HB	1.005	S8	0.3	0.335	0.040	0.0017	
960 minute winter	S8	1.006	9_OUT	0.3	0.443	0.016	0.0021	20.8

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 98.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	63.685	0.085	16.3	0.1156	0.0000	OK
960 minute winter	S2	945	63.102	0.202	0.7	0.1959	0.0000	OK
960 minute winter	S3	945	63.102	0.302	0.9	0.1385	0.0000	SURCHARGED
960 minute winter	S4	945	63.102	0.422	3.1	0.4135	0.0000	SURCHARGED
960 minute winter	S5	945	63.102	0.722	3.9	0.6191	0.0000	SURCHARGED
960 minute winter	S6	945	63.102	1.047	4.7	0.6766	0.0000	SURCHARGED
960 minute winter	POND	945	63.102	1.102	4.6	79.8632	0.0000	SURCHARGED
960 minute winter	S7-HB	945	63.102	1.103	0.4	1.2479	0.0000	SURCHARGED
960 minute winter	S8	945	62.010	0.015	0.4	0.0044	0.0000	OK
960 minute winter	9_OUT	945	61.970	0.015	0.4	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 winter	S1	1.000	S4	16.6	1.525	0.616	0.4748	
960 minute winter	S2	2.000	S3	0.7	0.213	0.021	5.6357	
960 minute winter	S3	2.001	S4	0.9	0.270	0.008	0.8303	
960 minute winter	S4	1.001	S5	2.9	0.526	0.056	1.1839	
960 minute winter	S5	1.002	S6	3.8	0.398	0.074	1.2930	
960 minute winter	S6	1.003	POND	4.6	0.436	0.117	0.3735	
960 minute winter	POND	1.004	S7-HB	0.4	0.044	0.092	0.4103	
960 minute winter	S7-HB	1.005	S8	0.4	0.359	0.051	0.0020	
960 minute winter	S8	1.006	9_OUT	0.4	0.473	0.020	0.0025	25.7

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	11	63.711	0.111	22.8	0.1511	0.0000	OK
15 minute winter	S2	13	63.540	0.640	28.2	0.6193	0.0000	FLOOD RISK
15 minute winter	S3	13	63.473	0.673	35.5	0.3081	0.0000	FLOOD RISK
15 minute winter	S4	13	63.462	0.782	57.1	0.7653	0.0000	SURCHARGED
1440 minute winter	S5	1410	63.378	0.998	3.4	0.8556	0.0000	FLOOD RISK
1440 minute winter	S6	1410	63.378	1.323	4.0	0.8549	0.0000	FLOOD RISK
1440 minute winter	POND	1410	63.378	1.378	4.0	121.0134	0.0000	FLOOD RISK
1440 minute winter	S7-HB	1410	63.378	1.379	0.5	1.5600	0.0000	FLOOD RISK
1440 minute winter	S8	1410	62.011	0.016	0.5	0.0046	0.0000	OK
1440 minute winter	9_OUT	1410	61.971	0.016	0.5	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 winter	S1	1.000	S4	22.3	1.557	0.826	0.5517	
15 minute winter	S2	2.000	S3	23.1	0.493	0.645	6.5617	
15 minute winter	S3	2.001	S4	22.3	0.432	0.199	0.8304	
15 minute winter	S4	1.001	S5	42.9	1.146	0.822	1.1839	
1440 minute winter	S5	1.002	S6	3.3	0.352	0.063	1.2930	
1440 minute winter	S6	1.003	POND	4.0	0.287	0.101	0.3735	
1440 minute winter	POND	1.004	S7-HB	0.5	0.096	0.101	0.4103	
1440 minute winter	S7-HB	1.005	S8	0.5	0.370	0.056	0.0022	
1440 minute winter	S8	1.006	9_OUT	0.5	0.487	0.022	0.0027	38.4