

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	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
CP1	0.117	9.000	1500	478879.160	385063.915	1.350
CP2	0.117	8.850	1500	478962.964	385043.681	1.350
CP3	0.117	8.700	1500	479051.596	385022.485	1.370
CP4	0.341	8.400	1500	479104.712	384998.595	1.180
Basin		8.300		479140.386	384958.683	1.100
FC		8.500	1800	479148.005	384952.505	1.320
S1		7.656	1200	479180.606	384927.658	0.756
Outfall		7.620		479182.928	384924.243	0.820

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	CP1	CP2	86.212	0.600	7.650	7.500	0.150	574.7	450	6.71	50.0
1.001	CP2	CP3	91.131	0.600	7.500	7.330	0.170	536.1	450	8.45	50.0
1.002	CP3	CP4	58.241	0.600	7.330	7.220	0.110	529.5	450	9.56	50.0
1.003	CP4	Basin	6.012	0.600	7.220	7.200	0.020	300.6	450	9.65	50.0
1.004	Basin	FC	3.000	0.600	7.200	7.180	0.020	150.0	450	9.68	50.0
1.005	FC	S1	40.990	0.600	7.180	6.900	0.280	146.4	150	10.50	49.0
1.006	S1	Outfall	4.130	0.600	6.900	6.800	0.100	41.3	150	10.55	48.9

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)
1.000	CP1	CP2	0.841	133.7	15.9	0.900	0.900	0.117
1.001	CP2	CP3	0.871	138.5	31.7	0.900	0.920	0.234
1.002	CP3	CP4	0.876	139.4	47.6	0.920	0.730	0.351
1.003	CP4	Basin	1.167	185.6	93.8	0.730	0.650	0.692
1.004	Basin	FC	1.657	263.6	93.8	0.650	0.870	0.692
1.005	FC	S1	0.828	14.6	91.9	1.170	0.606	0.692
1.006	S1	Outfall	1.570	27.7	91.7	0.606	0.670	0.692

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	25	0	0
30	0	0	0				

Node Outfall 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)	Time (mins)	Depth (m)
0	0.820	240	0.820	480	0.820	720	0.820	960	0.820	1200	0.820	1440	0.820
120	0.820	360	0.820	600	0.820	840	0.820	1080	0.820	1320	0.820		

Node FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	7.180	Product Number	CTL-SHE-0066-2000-1100-2000
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	7.200
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	790.0	0.0	1.100	1236.0	0.0

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute summer	113.088	32.000	30 year 120 minute winter	54.808	21.801
2 year 15 minute winter	79.360	32.000	30 year 180 minute summer	61.915	15.933
2 year 30 minute summer	71.963	20.363	30 year 180 minute winter	40.246	15.933
2 year 30 minute winter	50.500	20.363	30 year 240 minute summer	48.127	12.718
2 year 60 minute summer	47.608	12.581	30 year 240 minute winter	31.974	12.718
2 year 60 minute winter	31.630	12.581	30 year 360 minute summer	35.808	9.215
2 year 120 minute summer	32.732	8.650	30 year 360 minute winter	23.276	9.215
2 year 120 minute winter	21.746	8.650	30 year 480 minute summer	27.675	7.314
2 year 180 minute summer	26.292	6.766	30 year 480 minute winter	18.387	7.314
2 year 180 minute winter	17.090	6.766	30 year 600 minute summer	22.324	6.106
2 year 240 minute summer	21.257	5.618	30 year 600 minute winter	15.253	6.106
2 year 240 minute winter	14.123	5.618	30 year 720 minute summer	19.645	5.265
2 year 360 minute summer	16.505	4.247	30 year 720 minute winter	13.203	5.265
2 year 360 minute winter	10.728	4.247	30 year 960 minute summer	15.803	4.161
2 year 480 minute summer	13.041	3.446	30 year 960 minute winter	10.468	4.161
2 year 480 minute winter	8.664	3.446	30 year 1440 minute summer	11.134	2.984
2 year 600 minute summer	10.662	2.916	30 year 1440 minute winter	7.483	2.984
2 year 600 minute winter	7.285	2.916	100 year +25% CC 15 minute summer	523.398	148.104
2 year 720 minute summer	9.468	2.537	100 year +25% CC 15 minute winter	367.297	148.104
2 year 720 minute winter	6.363	2.537	100 year +25% CC 30 minute summer	342.721	96.978
2 year 960 minute summer	7.701	2.028	100 year +25% CC 30 minute winter	240.506	96.978
2 year 960 minute winter	5.101	2.028	100 year +25% CC 60 minute summer	228.970	60.510
2 year 1440 minute summer	5.485	1.470	100 year +25% CC 60 minute winter	152.122	60.510
2 year 1440 minute winter	3.686	1.470	100 year +25% CC 120 minute summer	132.626	35.049
30 year 15 minute summer	324.274	91.758	100 year +25% CC 120 minute winter	88.113	35.049
30 year 15 minute winter	227.561	91.758	100 year +25% CC 180 minute summer	98.691	25.397
30 year 30 minute summer	210.449	59.550	100 year +25% CC 180 minute winter	64.152	25.397
30 year 30 minute winter	147.684	59.550	100 year +25% CC 240 minute summer	76.401	20.191
30 year 60 minute summer	139.646	36.904	100 year +25% CC 240 minute winter	50.759	20.191
30 year 60 minute winter	92.778	36.904	100 year +25% CC 360 minute summer	56.743	14.602
30 year 120 minute summer	82.496	21.801	100 year +25% CC 360 minute winter	36.884	14.602

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +25% CC 480 minute summer	43.852	11.589	100 year +25% CC 720 minute winter	20.958	8.358
100 year +25% CC 480 minute winter	29.134	11.589	100 year +25% CC 960 minute summer	25.160	6.625
100 year +25% CC 600 minute summer	35.398	9.682	100 year +25% CC 960 minute winter	16.667	6.625
100 year +25% CC 600 minute winter	24.186	9.682	100 year +25% CC 1440 minute summer	17.779	4.765
100 year +25% CC 720 minute summer	31.184	8.358	100 year +25% CC 1440 minute winter	11.948	4.765

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	CP1	11	7.767	0.117	21.6	0.2064	0.0000	OK
15 minute summer	CP2	12	7.656	0.156	41.1	0.2757	0.0000	OK
15 minute summer	CP3	12	7.526	0.196	56.6	0.3467	0.0000	OK
1440 minute summer	CP4	2310	7.479	0.259	10.6	0.4572	0.0000	OK
1440 minute summer	Basin	2850	7.479	0.279	10.4	235.9412	0.0000	OK
1440 minute summer	FC	2280	7.479	0.299	0.2	0.7603	0.0000	SURCHARGED
1440 minute summer	S1	2880	7.479	0.579	0.1	0.6545	0.0000	FLOOD RISK
15 minute summer	Outfall	1	7.620	0.820	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Link Vol (m³)
15 minute summer	CP1	1.000	CP2	20.5	3.4580
15 minute summer	CP2	1.001	CP3	37.3	5.2456
15 minute summer	CP3	1.002	CP4	51.4	4.3495
1440 minute summer	CP4	1.003	Basin	10.4	0.5934
1440 minute summer	Basin	1.004	FC	0.2	0.3223
1440 minute summer	FC	Hydro-Brake®	S1	0.1	
1440 minute summer	S1	1.006	Outfall	0.0	0.0727

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	CP1	12	7.870	0.220	62.0	0.3890	0.0000	OK
15 minute summer	CP2	12	7.858	0.358	120.6	0.6332	0.0000	OK
15 minute summer	CP3	12	7.775	0.445	147.8	0.7865	0.0000	OK
1440 minute winter	CP4	1410	7.693	0.473	13.8	0.8363	0.0000	SURCHARGED
1440 minute winter	Basin	1410	7.693	0.493	13.6	439.0132	0.0000	SURCHARGED
1440 minute winter	FC	1410	7.693	0.513	1.3	1.3063	0.0000	SURCHARGED
1440 minute winter	S1	1410	7.620	0.720	1.3	0.8146	0.0000	FLOOD RISK
15 minute summer	Outfall	1	7.620	0.820	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Link Vol (m³)
15 minute summer	CP1	1.000	CP2	58.6	9.1552
15 minute summer	CP2	1.001	CP3	98.6	13.3747
15 minute summer	CP3	1.002	CP4	151.3	9.1513
1440 minute winter	CP4	1.003	Basin	13.6	0.9526
1440 minute winter	Basin	1.004	FC	1.3	0.4753
1440 minute winter	FC	Hydro-Brake®	S1	1.3	
1440 minute winter	S1	1.006	Outfall	1.3	0.0727

Results for 100 year +25% CC Critical Storm Duration. Lowest mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	CP1	11	8.787	1.137	100.0	2.0087	0.0000	FLOOD RISK
15 minute summer	CP2	11	8.711	1.211	196.6	2.1396	0.0000	FLOOD RISK
15 minute summer	CP3	11	8.283	0.953	291.2	1.6846	0.0000	SURCHARGED
1440 minute winter	CP4	1410	7.919	0.699	21.5	1.2349	0.0000	SURCHARGED
1440 minute winter	Basin	1410	7.919	0.719	21.3	672.6538	0.0000	SURCHARGED
1440 minute winter	FC	1410	7.919	0.739	1.9	1.8804	0.0000	SURCHARGED
1440 minute summer	S1	1260	7.621	0.721	1.9	0.8150	0.0000	FLOOD RISK
15 minute summer	Outfall	1	7.620	0.820	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Link Vol (m³)
15 minute summer	CP1	1.000	CP2	101.2	13.6597
15 minute summer	CP2	1.001	CP3	195.8	14.4391
15 minute summer	CP3	1.002	CP4	284.3	9.2279
1440 minute winter	CP4	1.003	Basin	21.3	0.9526
1440 minute winter	Basin	1.004	FC	1.9	0.4753
1440 minute winter	FC	Hydro-Brake®	S1	1.9	
1440 minute summer	S1	1.006	Outfall	1.9	0.0727