

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	20	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	0.75
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.500
Ratio-R	0.300	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)	Easting (m)	Northing (m)	Depth (m)
1	0.395	5.00	78.141	20	373861.824	438462.689	1.575
2	0.000		78.283	1350	373850.080	438421.935	2.146
3	0.014	5.00	78.332	2100	373847.784	438415.822	2.382
4	0.078	5.00	77.277	2100	373819.543	438415.325	4.178
5	0.000		75.378	2700	373781.216	438425.101	2.378
6			75.131	1200	373775.381	438428.949	2.326

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	1	2	42.412	0.600	76.566	76.137	0.429	98.9	150	5.70	50.0
1.001	2	3	6.531	0.600	76.137	75.950	0.187	35.0	150	5.76	50.0
1.002	3	4	28.245	0.600	75.950	75.143	0.807	35.0	150	6.04	50.0
1.003	4	5	39.554	0.600	73.099	73.000	0.099	400.0	900	6.46	50.0
1.004	5	6	6.989	0.600	73.000	72.805	0.195	35.8	150	6.53	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	1.010	17.9	53.5	1.425	1.996	0.395	0.0
1.001	1.707	30.2	53.5	1.996	2.232	0.395	0.0
1.002	1.707	30.2	55.4	2.232	1.984	0.409	0.0
1.003	1.560	992.5	66.0	3.278	1.478	0.487	0.0
1.004	1.686	29.8	66.0	2.228	2.176	0.487	0.0

Node 5 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	73.000	Product Number	CTL-SHE-0055-2000-2400-2000
Design Depth (m)	2.400	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node 2 Online Orifice Control

Flap Valve	x	Invert Level (m)	76.137	Diameter (m)	0.020
Downstream Link	1.001	Design Depth (m)	0.800	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	2.0		

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	76.566
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)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	379.5	0.0	0.800	379.5	0.0	0.801	0.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.80%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	1	720	76.751	0.185	8.1	71.0156	0.0000	SURCHARGED
720 minute summer	2	720	76.750	0.613	0.8	0.8773	0.0000	SURCHARGED
15 minute summer	3	11	75.980	0.030	2.6	0.1059	0.0000	OK
240 minute summer	4	196	73.341	0.242	5.0	0.9295	0.0000	OK
240 minute summer	5	196	73.341	0.341	3.2	1.9545	0.0000	SURCHARGED
15 minute summer	6	1	72.805	0.000	1.2	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)
720 minute summer	1	1.000	2	0.8	0.149	0.046	0.7467	
720 minute summer	2	Orifice	3	0.6				
15 minute summer	3	1.002	4	2.5	1.031	0.083	0.0687	
240 minute summer	4	1.003	5	3.2	0.230	0.003	7.0728	
240 minute summer	5	Hydro-Brake®	6	1.2				29.9

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.80%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	1	960	76.933	0.367	11.7	141.0167	0.0000	SURCHARGED
960 minute summer	2	960	76.932	0.795	0.9	1.1375	0.0000	SURCHARGED
15 minute summer	3	11	75.991	0.041	4.9	0.1484	0.0000	OK
360 minute summer	4	360	73.663	0.564	6.6	2.1624	0.0000	OK
360 minute summer	5	360	73.663	0.663	4.0	3.7939	0.0000	SURCHARGED
15 minute summer	6	1	72.805	0.000	1.2	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)
960 minute summer	1	1.000	2	0.9	0.180	0.049	0.7467	
960 minute summer	2	Orifice	3	0.7				
15 minute summer	3	1.002	4	4.9	1.246	0.162	0.1105	
360 minute summer	4	1.003	5	4.0	0.224	0.004	18.1581	
360 minute summer	5	Hydro-Brake®	6	1.2				36.1

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.80%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	1	1440	77.325	0.759	15.4	292.0146	0.0000	SURCHARGED
1440 minute summer	2	1440	77.324	1.187	0.9	1.6989	0.0000	SURCHARGED
15 minute summer	3	10	76.008	0.058	9.3	0.2067	0.0000	OK
240 minute summer	4	240	75.240	2.141	15.8	8.2157	0.0000	SURCHARGED
240 minute summer	5	240	75.240	2.240	8.8	12.8272	0.0000	FLOOD RISK
15 minute summer	6	1	72.805	0.000	1.2	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)
1440 minute summer	1	1.000	2	0.9	0.176	0.051	0.7467	
1440 minute summer	2	Orifice	3	0.9				
15 minute summer	3	1.002	4	9.1	1.478	0.301	0.1737	
240 minute summer	4	1.003	5	8.8	0.382	0.009	25.0683	
240 minute summer	5	Hydro-Brake®	6	1.9				43.4