

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
1	0.020	5.00	99.400	600	527275.237	187695.195	0.825	98.575
2			99.400	600	527286.350	187684.800	0.901	98.499
3	0.020	5.00	99.400	600	527273.381	187675.908	0.980	98.420
4	0.021	5.00	99.800	600	527243.925	187679.459	1.528	98.272
5	0.022	5.00	99.800	1200	527245.297	187693.258	1.597	98.203
5_OUT			99.700	600	527225.122	187699.714	1.638	98.062

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	15.217	0.600	98.575	98.499	0.076	200.0	225	5.28	50.0
1.001	2	3	15.725	0.600	98.499	98.420	0.079	200.0	225	5.56	50.0
1.002	3	4	29.669	0.600	98.420	98.272	0.148	200.0	225	6.10	50.0
1.003	4	5	13.867	0.600	98.272	98.203	0.069	200.0	225	6.35	50.0
1.004	5	5_OUT	21.183	0.600	98.203	98.062	0.141	150.0	150	6.78	49.1

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	0.921	36.6	2.7	0.600	0.676	0.020	0.0	41	0.538
1.001	0.921	36.6	2.7	0.676	0.755	0.020	0.0	41	0.538
1.002	0.921	36.6	5.4	0.755	1.303	0.040	0.0	58	0.664
1.003	0.921	36.6	8.3	1.303	1.372	0.061	0.0	73	0.747
1.004	0.818	14.5	11.0	1.447	1.488	0.083	0.0	98	0.899

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	✓	2 year (l/s)	3.2
Rainfall Events	Singular	Drain Down Time (mins)	240	100 year (l/s)	12.2
Summer CV	0.750	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Winter CV	0.840	Starting Level (m)			
Analysis Speed	Normal	Check Discharge Rate(s)	✓		

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	10	0
30	0	10	0
100	0	10	0
100	40	10	0

Pre-development Discharge Rate

Site Makeup	Brownfield	Time of Concentration (mins)	5.00
Brownfield Method	MRM	Betterment (%)	75
Contributing Area (ha)	0.083	Q 2 year (l/s)	3.2
PIMP (%)	100	Q 100 year (l/s)	12.2
CV	0.750		

Node 5 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	98.203	Product Number	CTL-SHE-0082-3000-1000-3000
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.0	Min Node Diameter (mm)	1200

Node 5 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.203
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	160
Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	60.0	60.0	0.800	60.0	82.0
			0.801	0.0	82.0

Results for 2 year +10% A Critical Storm Duration. Lowest mass balance: 99.08%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	98.620	0.045	3.1	0.0366	0.0000	OK
15 minute winter	2	11	98.542	0.043	3.0	0.0123	0.0000	OK
15 minute winter	3	11	98.481	0.061	6.0	0.0447	0.0000	OK
15 minute winter	4	11	98.352	0.080	9.1	0.0466	0.0000	OK
180 minute winter	5	120	98.331	0.128	3.7	7.4911	0.0000	OK
180 minute winter	5_OUT	120	98.101	0.039	2.2	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)
15 minute winter	1	1.000	2	3.0	0.559	0.083	0.0826	
15 minute winter	2	1.001	3	3.0	0.434	0.083	0.1104	
15 minute winter	3	1.002	4	6.0	0.566	0.164	0.3156	
15 minute winter	4	1.003	5	9.2	1.116	0.252	0.1441	
180 minute winter	5	1.004	5_OUT	2.2	0.586	0.150	0.0784	15.5

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 99.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute winter	1	10	98.657	0.082	9.7	0.0667	0.0000	OK
15 minute winter	2	10	98.576	0.077	9.5	0.0218	0.0000	OK
120 minute winter	3	94	98.567	0.147	6.0	0.1075	0.0000	OK
120 minute winter	4	94	98.567	0.295	9.2	0.1724	0.0000	SURCHARGED
120 minute winter	5	94	98.566	0.363	11.8	21.2300	0.0000	SURCHARGED
120 minute winter	5_OUT	82	98.108	0.046	3.0	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 winter	1	1.000	2	9.5	0.763	0.260	0.1903	
15 minute winter	2	1.001	3	9.4	0.591	0.257	0.2514	
120 minute winter	3	1.002	4	6.0	0.524	0.164	0.9969	
120 minute winter	4	1.003	5	8.5	0.738	0.231	0.5515	
120 minute winter	5	1.004	5_OUT	3.0	0.642	0.208	0.0991	34.5

Results for 100 year +10% A Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	140	98.716	0.141	3.0	0.1149	0.0000	OK
180 minute winter	2	140	98.716	0.217	3.0	0.0614	0.0000	OK
180 minute winter	3	140	98.716	0.296	6.0	0.2165	0.0000	SURCHARGED
180 minute winter	4	140	98.716	0.444	8.7	0.2596	0.0000	SURCHARGED
180 minute winter	5	140	98.715	0.512	11.4	29.9418	0.0000	SURCHARGED
30 minute winter	5_OUT	62	98.108	0.046	3.0	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)
180 minute winter	1	1.000	2	3.0	0.554	0.082	0.4977	
180 minute winter	2	1.001	3	3.0	0.426	0.082	0.6216	
180 minute winter	3	1.002	4	5.7	0.465	0.156	1.1800	
180 minute winter	4	1.003	5	8.1	0.699	0.223	0.5515	
180 minute winter	5	1.004	5_OUT	3.0	0.642	0.208	0.0991	51.6

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	172	99.215	0.640	4.2	0.5225	0.0000	FLOOD RISK
180 minute winter	2	172	99.215	0.716	4.0	0.2027	0.0000	FLOOD RISK
180 minute winter	3	172	99.215	0.795	7.5	0.5820	0.0000	FLOOD RISK
180 minute winter	4	164	99.215	0.943	11.4	0.5516	0.0000	SURCHARGED
180 minute winter	5	164	99.215	1.012	15.7	47.0792	0.0000	SURCHARGED
960 minute summer	5_OUT	510	98.108	0.046	3.0	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)
180 minute winter	1	1.000	2	4.0	0.592	0.109	0.6052	
180 minute winter	2	1.001	3	3.7	0.433	0.102	0.6254	
180 minute winter	3	1.002	4	7.2	0.443	0.196	1.1800	
180 minute winter	4	1.003	5	11.2	0.747	0.305	0.5515	
180 minute winter	5	1.004	5_OUT	3.0	0.642	0.208	0.0991	62.9