

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	10	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
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)
9	0.073	5.00	57.650	1200	477657.346	164536.107	1.386
MH201			57.540	1200	477654.133	164521.287	1.429

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	9	MH201	15.164	0.600	56.264	56.111	0.153	99.1	150	5.25	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	1.009	17.8	10.9	1.236	1.279	0.073	0.0	85	1.058

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s) x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume x
Winter CV	1.000	Additional Storage (m³/ha)	0.0	

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

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

Node 9 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	56.264	Product Number	CTL-SHE-0062-1700-1000-1700
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.7	Min Node Diameter (mm)	1200

Node 9 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.264	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.700
Safety Factor	2.0	Width (m)	31.500	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year +10% A 15 minute summer	107.269	30.354
2 year +10% A 15 minute winter	75.277	30.354
2 year +10% A 30 minute summer	68.871	19.488
2 year +10% A 30 minute winter	48.330	19.488
2 year +10% A 60 minute summer	45.364	11.988
2 year +10% A 60 minute winter	30.139	11.988
2 year +10% A 120 minute summer	32.376	8.556
2 year +10% A 120 minute winter	21.510	8.556
2 year +10% A 180 minute summer	26.144	6.728
2 year +10% A 180 minute winter	16.994	6.728
2 year +10% A 240 minute summer	21.096	5.575
2 year +10% A 240 minute winter	14.016	5.575
2 year +10% A 360 minute summer	16.228	4.176
2 year +10% A 360 minute winter	10.549	4.176
2 year +10% A 480 minute summer	12.715	3.360
2 year +10% A 480 minute winter	8.447	3.360
2 year +10% A 600 minute summer	10.333	2.826
2 year +10% A 600 minute winter	7.060	2.826
2 year +10% A 720 minute summer	9.135	2.448
2 year +10% A 720 minute winter	6.139	2.448
2 year +10% A 960 minute summer	7.393	1.947
2 year +10% A 960 minute winter	4.897	1.947
2 year +10% A 1440 minute summer	5.274	1.413
2 year +10% A 1440 minute winter	3.544	1.413
2 year +10% A 2160 minute summer	3.739	1.033
2 year +10% A 2160 minute winter	2.576	1.033
2 year +10% A 2880 minute summer	3.112	0.834
2 year +10% A 2880 minute winter	2.091	0.834
2 year +10% A 4320 minute summer	2.410	0.630
2 year +10% A 4320 minute winter	1.587	0.630
2 year +10% A 5760 minute summer	2.049	0.524
2 year +10% A 5760 minute winter	1.326	0.524
2 year +10% A 7200 minute summer	1.803	0.460
2 year +10% A 7200 minute winter	1.164	0.460
2 year +10% A 8640 minute summer	1.632	0.416
2 year +10% A 8640 minute winter	1.053	0.416
2 year +10% A 10080 minute summer	1.508	0.385
2 year +10% A 10080 minute winter	0.974	0.385
30 year +10% A 15 minute summer	309.903	87.692
30 year +10% A 15 minute winter	217.476	87.692
30 year +10% A 30 minute summer	201.605	57.047
30 year +10% A 30 minute winter	141.477	57.047
30 year +10% A 60 minute summer	134.629	35.578
30 year +10% A 60 minute winter	89.444	35.578
30 year +10% A 120 minute summer	82.152	21.710

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year +10% A 120 minute winter	54.580	21.710
30 year +10% A 180 minute summer	62.218	16.011
30 year +10% A 180 minute winter	40.443	16.011
30 year +10% A 240 minute summer	48.395	12.789
30 year +10% A 240 minute winter	32.153	12.789
30 year +10% A 360 minute summer	35.710	9.189
30 year +10% A 360 minute winter	23.212	9.189
30 year +10% A 480 minute summer	27.314	7.218
30 year +10% A 480 minute winter	18.147	7.218
30 year +10% A 600 minute summer	21.826	5.970
30 year +10% A 600 minute winter	14.913	5.970
30 year +10% A 720 minute summer	19.047	5.105
30 year +10% A 720 minute winter	12.801	5.105
30 year +10% A 960 minute summer	15.114	3.980
30 year +10% A 960 minute winter	10.012	3.980
30 year +10% A 1440 minute summer	10.473	2.807
30 year +10% A 1440 minute winter	7.038	2.807
30 year +10% A 2160 minute summer	7.195	1.988
30 year +10% A 2160 minute winter	4.957	1.988
30 year +10% A 2880 minute summer	5.842	1.566
30 year +10% A 2880 minute winter	3.926	1.566
30 year +10% A 4320 minute summer	4.343	1.135
30 year +10% A 4320 minute winter	2.860	1.135
30 year +10% A 5760 minute summer	3.574	0.915
30 year +10% A 5760 minute winter	2.313	0.915
30 year +10% A 7200 minute summer	3.062	0.781
30 year +10% A 7200 minute winter	1.976	0.781
30 year +10% A 8640 minute summer	2.708	0.691
30 year +10% A 8640 minute winter	1.748	0.691
30 year +10% A 10080 minute summer	2.454	0.626
30 year +10% A 10080 minute winter	1.584	0.626
100 year +40% CC +10% A 15 minute summer	558.488	158.033
100 year +40% CC +10% A 15 minute winter	391.921	158.033
100 year +40% CC +10% A 30 minute summer	367.311	103.936
100 year +40% CC +10% A 30 minute winter	257.762	103.936
100 year +40% CC +10% A 60 minute summer	245.915	64.988
100 year +40% CC +10% A 60 minute winter	163.380	64.988
100 year +40% CC +10% A 120 minute summer	146.828	38.802
100 year +40% CC +10% A 120 minute winter	97.549	38.802
100 year +40% CC +10% A 180 minute summer	110.109	28.335
100 year +40% CC +10% A 180 minute winter	71.574	28.335
100 year +40% CC +10% A 240 minute summer	85.217	22.520
100 year +40% CC +10% A 240 minute winter	56.616	22.520
100 year +40% CC +10% A 360 minute summer	62.647	16.121
100 year +40% CC +10% A 360 minute winter	40.722	16.121
100 year +40% CC +10% A 480 minute summer	47.778	12.626
100 year +40% CC +10% A 480 minute winter	31.742	12.626
100 year +40% CC +10% A 600 minute summer	38.083	10.416
100 year +40% CC +10% A 600 minute winter	26.020	10.416
100 year +40% CC +10% A 720 minute summer	33.163	8.888
100 year +40% CC +10% A 720 minute winter	22.287	8.888
100 year +40% CC +10% A 960 minute summer	26.220	6.904

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +40% CC +10% A 960 minute winter	17.369	6.904
100 year +40% CC +10% A 1440 minute summer	18.044	4.836
100 year +40% CC +10% A 1440 minute winter	12.127	4.836
100 year +40% CC +10% A 2160 minute summer	12.279	3.394
100 year +40% CC +10% A 2160 minute winter	8.461	3.394
100 year +40% CC +10% A 2880 minute summer	9.891	2.651
100 year +40% CC +10% A 2880 minute winter	6.647	2.651
100 year +40% CC +10% A 4320 minute summer	7.250	1.895
100 year +40% CC +10% A 4320 minute winter	4.774	1.895
100 year +40% CC +10% A 5760 minute summer	5.899	1.510
100 year +40% CC +10% A 5760 minute winter	3.818	1.510
100 year +40% CC +10% A 7200 minute summer	5.007	1.277
100 year +40% CC +10% A 7200 minute winter	3.232	1.277
100 year +40% CC +10% A 8640 minute summer	4.395	1.121
100 year +40% CC +10% A 8640 minute winter	2.837	1.121
100 year +40% CC +10% A 10080 minute summer	3.956	1.009
100 year +40% CC +10% A 10080 minute winter	2.553	1.009

Results for 2 year +10% A Critical Storm Duration. Lowest mass balance: 97.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	9	156	56.373	0.109	4.7	9.5181	0.0000	OK
15 minute summer	MH201	1	56.111	0.000	1.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
240 minute summer	9	Hydro-Brake®	MH201	1.4	17.5

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 97.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	9	118	56.554	0.290	12.1	26.8339	0.0000	SURCHARGED
15 minute summer	MH201	1	56.111	0.000	1.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
120 minute winter	9	Hydro-Brake®	MH201	1.6	29.4

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 97.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
180 minute winter	9	180	56.855	0.591	15.7	55.5660	0.0000	SURCHARGED
15 minute summer	MH201	1	56.111	0.000	1.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m ³)
180 minute winter	9	Hydro-Brake®	MH201	1.6	33.2