

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	0.018	5.00	31.750	600	443137.099	120112.102	0.750	31.000
2	0.018	5.00	31.750	600	443124.473	120087.999	1.022	30.728
3	0.018	5.00	31.750	600	443117.065	120116.798	0.750	31.000
4	0.018	5.00	31.750	600	443106.735	120097.077	0.973	30.777
5	0.039	5.00	31.750	1200	443108.205	120087.756	1.185	30.565
5_OUT			32.010	600	443093.649	120084.705	2.670	29.340

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	27.210	0.600	31.000	30.728	0.272	100.0	150	5.45	50.0
1.001	2	5	16.270	0.600	30.728	30.565	0.163	100.0	150	5.72	50.0
2.000	3	4	22.263	0.600	31.000	30.777	0.223	100.0	150	5.37	50.0
2.001	4	5	9.436	0.600	30.777	30.565	0.212	44.5	150	5.47	50.0
1.002	5	5_OUT	14.872	0.600	30.565	29.340	1.225	12.1	150	5.81	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	1.005	17.8	2.4	0.600	0.872	0.018	0.0	38	0.709
1.001	1.005	17.8	4.9	0.872	1.035	0.036	0.0	54	0.858
2.000	1.005	17.8	2.4	0.600	0.823	0.018	0.0	38	0.709
2.001	1.512	26.7	4.9	0.823	1.035	0.036	0.0	43	1.150
1.002	2.907	51.4	15.0	1.035	2.520	0.111	0.0	55	2.527

Simulation Settings

Rainfall Methodology	FEH-22	Additional Storage (m³/ha)	20.0
Rainfall Events	Singular	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	✓
Winter CV	0.840	1 year (l/s)	0.8
Analysis Speed	Normal	100 year (l/s)	3.1
Skip Steady State	✓	Check Discharge Volume	x
Drain Down Time (mins)	1440		

Storm Durations

15	60	180	360	600	960
30	120	240	480	720	1440

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

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 1 year	0.85
Greenfield Method	FEH	Growth Factor 100 year	3.19
Positively Drained Area (ha)	0.108	Betterment (%)	0
SAAR (mm)	866	QMed	0.9
Host	1	QBar	1.0
BFIHost	0.302	Q 1 year (l/s)	0.8
Region	7	Q 100 year (l/s)	3.1
QBar/QMed conversion factor	1.136		

Node 5 Online Hydro-Brake® Control

Flap Valve	x
Replaces Downstream Link	x
Invert Level (m)	30.565
Design Depth (m)	1.000
Design Flow (l/s)	1.0
Objective	(HE) Minimise upstream storage
Sump Available	✓
Product Number	CTL-SHE-0047-1000-1000-1000
Min Outlet Diameter (m)	0.075
Min Node Diameter (mm)	1200

Node 5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Width (m)	23.000
Side Inf Coefficient (m/hr)	0.00000	Length (m)	18.000
Safety Factor	2.0	Slope (1:X)	300.0
Porosity	0.30	Depth (m)	0.600
Invert Level (m)	31.000	Inf Depth (m)	
Time to half empty (mins)	544		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.21%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	1	118	31.099	0.099	0.9	0.0754	0.0000	OK
120 minute winter	2	118	31.099	0.371	1.7	0.2353	0.0000	SURCHARGED
120 minute winter	3	114	31.099	0.099	0.9	0.0752	0.0000	OK
120 minute winter	4	118	31.099	0.322	1.7	0.2100	0.0000	SURCHARGED
120 minute winter	5	116	31.099	0.534	5.3	9.4796	0.0000	SURCHARGED
120 minute winter	5_OUT	36	29.353	0.013	0.8	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)
120 minute winter	1	1.000	2	0.8	0.262	0.045	0.4069	
120 minute winter	2	1.001	5	1.7	0.127	0.093	0.2864	
120 minute winter	3	2.000	4	0.8	0.332	0.046	0.3325	
120 minute winter	4	2.001	5	1.7	0.169	0.063	0.1661	
120 minute winter	5	1.002	5_OUT	0.8	1.074	0.016	0.0114	16.7

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	180	31.242	0.242	1.4	0.1843	0.0000	SURCHARGED
180 minute winter	2	180	31.241	0.513	2.7	0.3261	0.0000	SURCHARGED
180 minute winter	3	180	31.242	0.242	1.4	0.1843	0.0000	SURCHARGED
180 minute winter	4	180	31.241	0.464	2.7	0.3033	0.0000	SURCHARGED
180 minute winter	5	180	31.241	0.676	8.4	27.4688	0.0000	SURCHARGED
180 minute winter	5_OUT	180	29.353	0.013	0.8	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	1.3	0.290	0.075	0.4790	
180 minute winter	2	1.001	5	2.7	0.152	0.151	0.2864	
180 minute winter	3	2.000	4	1.3	0.342	0.075	0.3919	
180 minute winter	4	2.001	5	2.7	0.168	0.100	0.1661	
180 minute winter	5	1.002	5_OUT	0.8	1.077	0.016	0.0115	38.4

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.31%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	176	31.303	0.303	1.8	0.2314	0.0000	SURCHARGED
180 minute winter	2	180	31.303	0.575	3.5	0.3654	0.0000	SURCHARGED
180 minute winter	3	180	31.303	0.303	1.8	0.2315	0.0000	SURCHARGED
180 minute winter	4	180	31.303	0.526	3.5	0.3438	0.0000	SURCHARGED
180 minute winter	5	180	31.303	0.738	10.7	35.2916	0.0000	SURCHARGED
180 minute winter	5_OUT	180	29.354	0.014	0.9	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	1.7	0.290	0.097	0.4790	
180 minute winter	2	1.001	5	3.4	0.196	0.194	0.2864	
180 minute winter	3	2.000	4	1.7	0.342	0.097	0.3919	
180 minute winter	4	2.001	5	3.4	0.196	0.129	0.1661	
180 minute winter	5	1.002	5_OUT	0.9	1.090	0.017	0.0119	46.7

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	11	31.530	0.530	11.3	0.4044	0.0000	FLOOD RISK
360 minute winter	2	352	31.471	0.743	2.9	0.4718	0.0000	FLOOD RISK
360 minute winter	3	352	31.471	0.471	1.5	0.3593	0.0000	FLOOD RISK
360 minute winter	4	352	31.471	0.694	2.9	0.4531	0.0000	FLOOD RISK
360 minute winter	5	352	31.471	0.906	8.9	56.3754	0.0000	FLOOD RISK
360 minute winter	5_OUT	352	29.354	0.014	1.0	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)
15 minute winter	1	1.000	2	10.4	0.588	0.583	0.4790	
360 minute winter	2	1.001	5	2.9	0.163	0.161	0.2864	
360 minute winter	3	2.000	4	1.4	0.302	0.081	0.3919	
360 minute winter	4	2.001	5	2.9	0.163	0.107	0.1661	
360 minute winter	5	1.002	5_OUT	1.0	1.119	0.019	0.0127	77.8