

Design Settings

Rainfall Methodology	FEH-13	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)
1	0.002	5.00	9.700		387493.869	400628.713	0.600
2	0.001	5.00	9.700	450	387492.134	400638.256	0.750
3	0.002	5.00	9.700	450	387498.320	400627.840	0.600
4	0.003	5.00	9.700	450	387504.157	400629.051	0.700
5	0.008	5.00	9.700	300	387503.531	400640.298	0.700
6	0.000		9.700	500	387501.990	400639.990	0.900
7	0.000		9.700	450	387501.003	400641.142	0.925
7_OUT			9.700		387500.179	400642.393	0.950

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	9.699	0.600	9.100	8.950	0.150	64.7	100	5.17	50.0
1.001	2	6	10.007	0.600	8.950	8.800	0.150	66.7	100	5.35	49.4
2.000	3	4	5.961	0.600	9.100	9.000	0.100	59.6	100	5.10	50.0
2.001	4	6	11.152	0.600	9.000	8.800	0.200	55.8	100	5.28	49.6
3.000	5	6	1.571	0.600	9.000	8.800	0.200	7.9	100	5.01	50.0
1.002	6	7	1.517	0.600	8.800	8.775	0.025	60.7	100	5.37	49.3
1.003	7	7_OUT	1.498	0.600	8.775	8.750	0.025	59.9	100	5.40	49.2

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	0.959	7.5	0.3	0.500	0.650	0.002	0.0	13	0.442
1.001	0.944	7.4	0.4	0.650	0.800	0.003	0.0	16	0.501
2.000	0.999	7.8	0.3	0.500	0.600	0.002	0.0	13	0.461
2.001	1.034	8.1	0.7	0.600	0.800	0.005	0.0	19	0.615
3.000	2.775	21.8	1.1	0.600	0.800	0.008	0.0	15	1.438
1.002	0.990	7.8	2.1	0.800	0.825	0.016	0.0	36	0.841
1.003	0.997	7.8	2.1	0.825	0.850	0.016	0.0	36	0.847

Simulation Settings

Rainfall Methodology	FEH-13	Skip Steady State	✓	2 year (l/s)	0.1
Summer CV	0.750	Drain Down Time (mins)	240	100 year (l/s)	0.3
Winter CV	0.840	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
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	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 2 year	0.93
Greenfield Method	IH124	Growth Factor 100 year	2.08
Positively Drained Area (ha)	0.020	Betterment (%)	0
SAAR (mm)	934	QBar	0.1
Soil Index	4	Q 2 year (l/s)	0.1
SPR	0.47	Q 100 year (l/s)	0.3
Region	10		

Node 6 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.750	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	2.0		
Invert Level (m)	8.800	Diameter (m)	0.033		

Node 5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.350	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	22	Depth (m)	0.200
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	9.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	9.113	0.013	0.3	0.0008	0.0000	OK
15 minute winter	2	14	9.005	0.055	0.9	0.0101	0.0000	OK
15 minute winter	3	10	9.112	0.012	0.3	0.0028	0.0000	OK
15 minute winter	4	11	9.019	0.019	0.7	0.0047	0.0000	OK
15 minute winter	5	10	9.015	0.015	1.1	0.0046	0.0000	OK
15 minute winter	6	14	9.003	0.203	2.0	0.0399	0.0000	SURCHARGED
15 minute winter	7	15	8.800	0.025	1.0	0.0040	0.0000	OK
15 minute winter	7_OUT	15	8.774	0.024	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	0.3	0.409	0.034	0.0232	
15 minute winter	2	1.001	6	-0.5	-0.096	-0.070	0.0610	
15 minute winter	3	2.000	4	0.3	0.331	0.033	0.0047	
15 minute winter	4	2.001	6	0.7	0.170	0.080	0.0495	
15 minute winter	5	3.000	6	1.1	0.872	0.050	0.0067	
15 minute winter	6	Orifice	7	1.0				
15 minute winter	7	1.003	7_OUT	1.0	0.659	0.126	0.0022	0.9

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	1	25	9.227	0.127	1.1	0.0085	0.0000	SURCHARGED
30 minute winter	2	25	9.227	0.277	1.0	0.0516	0.0000	SURCHARGED
30 minute winter	3	25	9.227	0.127	0.6	0.0287	0.0000	SURCHARGED
30 minute winter	4	25	9.227	0.227	1.3	0.0556	0.0000	SURCHARGED
30 minute winter	5	24	9.227	0.227	2.1	0.0679	0.0000	SURCHARGED
30 minute winter	6	24	9.227	0.427	3.3	0.0836	0.0000	SURCHARGED
30 minute winter	7	25	8.806	0.031	1.5	0.0049	0.0000	OK
30 minute winter	7_OUT	25	8.779	0.029	1.5	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)
30 minute winter	1	1.000	2	-0.6	0.443	-0.075	0.0759	
30 minute winter	2	1.001	6	-0.5	-0.099	-0.073	0.0783	
30 minute winter	3	2.000	4	0.5	0.362	0.064	0.0466	
30 minute winter	4	2.001	6	0.9	0.166	0.110	0.0873	
30 minute winter	5	3.000	6	2.3	1.003	0.104	0.0123	
30 minute winter	6	Orifice	7	1.5				
30 minute winter	7	1.003	7_OUT	1.5	0.732	0.186	0.0030	3.3

Results for 100 year Critical Storm Duration. Lowest mass balance: 95.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	1	25	9.365	0.265	1.1	0.0177	0.0000	SURCHARGED
30 minute winter	2	25	9.364	0.414	1.4	0.0771	0.0000	SURCHARGED
30 minute winter	3	25	9.365	0.265	1.0	0.0598	0.0000	SURCHARGED
30 minute winter	4	25	9.365	0.365	1.5	0.0893	0.0000	SURCHARGED
30 minute winter	5	25	9.364	0.364	2.9	0.1627	0.0000	SURCHARGED
30 minute winter	6	25	9.364	0.564	2.7	0.1105	0.0000	SURCHARGED
30 minute winter	7	26	8.809	0.034	1.7	0.0053	0.0000	OK
30 minute winter	7_OUT	26	8.782	0.032	1.7	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)
30 minute winter	1	1.000	2	0.6	0.436	0.074	0.0759	
30 minute winter	2	1.001	6	-0.8	-0.103	-0.105	0.0783	
30 minute winter	3	2.000	4	0.6	0.382	0.072	0.0466	
30 minute winter	4	2.001	6	0.9	0.200	0.106	0.0873	
30 minute winter	5	3.000	6	2.2	1.003	0.102	0.0123	
30 minute winter	6	Orifice	7	1.7				
30 minute winter	7	1.003	7_OUT	1.7	0.761	0.215	0.0033	4.5

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 95.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	1	45	9.509	0.409	0.9	0.0274	0.0000	FLOOD RISK
60 minute winter	2	46	9.509	0.559	0.7	0.1039	0.0000	FLOOD RISK
60 minute winter	3	45	9.510	0.410	0.7	0.0927	0.0000	FLOOD RISK
60 minute winter	4	45	9.510	0.510	1.4	0.1249	0.0000	FLOOD RISK
60 minute winter	5	46	9.509	0.509	2.8	0.9884	0.0000	FLOOD RISK
60 minute winter	6	46	9.508	0.708	3.1	0.1389	0.0000	FLOOD RISK
60 minute winter	7	46	8.811	0.036	1.9	0.0057	0.0000	OK
60 minute winter	7_OUT	46	8.784	0.034	1.9	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)
60 minute winter	1	1.000	2	0.5	0.442	0.061	0.0759	
60 minute winter	2	1.001	6	0.6	0.084	0.087	0.0783	
60 minute winter	3	2.000	4	0.5	0.351	0.059	0.0466	
60 minute winter	4	2.001	6	1.0	0.162	0.125	0.0873	
60 minute winter	5	3.000	6	2.5	0.872	0.117	0.0123	
60 minute winter	6	Orifice	7	1.9				
60 minute winter	7	1.003	7_OUT	1.9	0.785	0.242	0.0036	8.3