

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	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	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)
RE1	0.002	4.00	6.300	150	502956.320	103063.930	0.500	5.800
S1	0.001	4.00	6.300	315	502961.810	103063.350	0.555	5.745
S2	0.001	4.00	6.300	900	502963.150	103054.100	0.698	5.602
SA1			6.300	150	502962.390	103049.710	1.000	5.300
RE2	0.005	4.00	6.300	150	502946.739	103056.150	0.400	5.900
PP1	0.002		6.250		502963.447	103064.773	0.420	5.830
PP2	0.004		6.300		502955.137	103057.165	0.255	6.045

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)
2.000	RE1	S1	5.521	0.600	5.800	5.745	0.055	100.0	150	4.09	50.0
2.001	S1	S2	9.347	0.600	5.745	5.602	0.143	65.4	150	4.22	50.0
1.001	S2	SA1	3.000	0.600	5.602	5.300	0.302	9.9	150	4.23	50.0
1.000	RE2	S2	16.539	0.600	5.900	5.602	0.298	55.5	150	4.20	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)
2.000	1.005	17.8	0.4	0.350	0.405	0.002	0.0	15	0.397
2.001	1.246	22.0	0.5	0.405	0.548	0.003	0.0	16	0.519
1.001	3.215	56.8	1.6	0.548	0.850	0.009	0.0	17	1.412
1.000	1.353	23.9	0.9	0.250	0.548	0.005	0.0	20	0.653

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
2.000	5.521	100.0	150	Circular	6.300	5.800	0.350	6.300	5.745	0.405
2.001	9.347	65.4	150	Circular	6.300	5.745	0.405	6.300	5.602	0.548
1.001	3.000	9.9	150	Circular	6.300	5.602	0.548	6.300	5.300	0.850
1.000	16.539	55.5	150	Circular	6.300	5.900	0.250	6.300	5.602	0.548

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.000	RE1	150	Manhole	Adoptable	S1	315	Manhole	Adoptable
2.001	S1	315	Manhole	Adoptable	S2	900	Manhole	Adoptable
1.001	S2	900	Manhole	Adoptable	SA1	150	Manhole	Adoptable
1.000	RE2	150	Manhole	Adoptable	S2	900	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
RE1	502956.320	103063.930	6.300	0.500	150				
						0	2.000	5.800	150
S1	502961.810	103063.350	6.300	0.555	315		1	2.000	5.745
						0	2.001	5.745	150
S2	502963.150	103054.100	6.300	0.698	900		1	2.001	5.602
						2	1.000	5.602	150
						0	1.001	5.602	150
SA1	502962.390	103049.710	6.300	1.000	150		1	1.001	5.300
RE2	502946.739	103056.150	6.300	0.400	150				
						0	1.000	5.900	150
PP1	502963.447	103064.773	6.250	0.420		°			
PP2	502955.137	103057.165	6.300	0.255		°			

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	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	30	60	120	180	240	360	480	600	720	960	1440
Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)					
1	0	10	0	30	40	10	0					
10	0	0	0	100	0	0	0					
10	40	10	0	100	45	10	0					
30	0	0	0									

Node SA1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.300	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.30300	Time to half empty (mins)	304	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.500	Number Required	1
Porosity	0.95	Pit Length (m)	3.000		

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.30300	Invert Level (m)	5.830	Slope (1:X)	80.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	7	Depth (m)	0.300
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	4.000		

Node PP2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.30300	Invert Level (m)	6.045	Slope (1:X)	9999.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.150
Safety Factor	2.0	Width (m)	4.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Results for 1 year +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE1	10	5.814	0.014	0.3	0.0002	0.0000	OK
15 minute winter	S1	10	5.759	0.014	0.4	0.0011	0.0000	OK
15 minute summer	S2	9	5.617	0.015	1.2	0.0098	0.0000	OK
240 minute summer	SA1	168	5.394	0.094	0.6	0.9359	0.0000	OK
15 minute winter	RE2	10	5.918	0.018	0.7	0.0003	0.0000	OK
15 minute winter	PP1	10	5.845	0.015	0.3	0.0146	0.0000	OK
15 minute summer	PP2	12	6.055	0.010	0.6	0.1091	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	RE1	2.000	S1	0.3	0.368	0.017	0.0045
15 minute winter	S1	2.001	S2	0.4	0.451	0.018	0.0081
15 minute summer	S2	1.001	SA1	1.2	1.467	0.021	0.0066
240 minute summer	SA1	Infiltration		0.1			
15 minute winter	RE2	1.000	S2	0.7	0.656	0.029	0.0178
15 minute winter	PP1	Infiltration		0.3			
15 minute summer	PP2	Infiltration		0.3			

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE1	10	5.822	0.022	0.8	0.0004	0.0000	OK
15 minute summer	S1	10	5.769	0.024	1.2	0.0019	0.0000	OK
15 minute summer	S2	10	5.628	0.026	3.7	0.0165	0.0000	OK
180 minute winter	SA1	136	5.547	0.247	0.8	2.4689	0.0000	OK
15 minute summer	RE2	10	5.931	0.031	2.1	0.0006	0.0000	OK
15 minute summer	PP1	11	5.865	0.035	0.8	0.0765	0.0000	OK
15 minute summer	PP2	12	6.071	0.026	1.6	0.3073	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	RE1	2.000	S1	0.8	0.467	0.045	0.0095
15 minute summer	S1	2.001	S2	1.2	0.624	0.055	0.0180
15 minute summer	S2	1.001	SA1	3.7	1.532	0.065	0.0255
180 minute winter	SA1	Infiltration		0.1			
15 minute summer	RE2	1.000	S2	2.1	0.895	0.088	0.0389
15 minute summer	PP1	Infiltration		0.6			
15 minute summer	PP2	Infiltration		0.9			

Results for 10 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE1	10	5.828	0.028	1.3	0.0005	0.0000	OK
15 minute summer	S1	10	5.775	0.030	1.9	0.0024	0.0000	OK
480 minute summer	S2	312	5.672	0.070	0.9	0.0445	0.0000	OK
360 minute winter	SA1	256	5.672	0.372	0.8	3.7157	0.0000	OK
15 minute summer	RE2	10	5.939	0.039	3.2	0.0007	0.0000	OK
15 minute summer	PP1	11	5.879	0.049	1.3	0.1445	0.0000	OK
15 minute summer	PP2	12	6.085	0.040	2.5	0.4751	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	RE1	2.000	S1	1.3	0.535	0.073	0.0134
15 minute summer	S1	2.001	S2	1.9	0.717	0.086	0.0248
480 minute summer	S2	1.001	SA1	0.9	0.966	0.016	0.0385
360 minute winter	SA1	Infiltration		0.2			
15 minute summer	RE2	1.000	S2	3.2	1.007	0.134	0.0527
15 minute summer	PP1	Infiltration		0.8			
15 minute summer	PP2	Infiltration		1.3			

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE1	10	5.826	0.026	1.1	0.0005	0.0000	OK
15 minute summer	S1	10	5.773	0.028	1.6	0.0022	0.0000	OK
15 minute summer	S2	10	5.632	0.030	4.8	0.0188	0.0000	OK
240 minute summer	SA1	168	5.611	0.311	1.2	3.1073	0.0000	OK
15 minute summer	RE2	10	5.936	0.036	2.7	0.0006	0.0000	OK
15 minute summer	PP1	11	5.874	0.044	1.1	0.1163	0.0000	OK
30 minute summer	PP2	20	6.080	0.035	1.9	0.4116	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	RE1	2.000	S1	1.1	0.513	0.062	0.0118
15 minute summer	S1	2.001	S2	1.6	0.683	0.073	0.0219
15 minute summer	S2	1.001	SA1	4.8	1.559	0.084	0.0283
240 minute summer	SA1	Infiltration		0.2			
15 minute summer	RE2	1.000	S2	2.7	0.960	0.113	0.0466
15 minute summer	PP1	Infiltration		0.7			
30 minute summer	PP2	Infiltration		1.2			

Results for 30 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	RE1	272	5.941	0.141	0.2	0.0025	0.0000	OK
360 minute winter	S1	272	5.941	0.196	0.3	0.0153	0.0000	SURCHARGED
360 minute winter	S2	272	5.941	0.339	1.6	0.2153	0.0000	SURCHARGED
360 minute winter	SA1	272	5.940	0.640	1.2	4.0065	0.0000	OK
15 minute summer	RE2	10	5.944	0.044	4.1	0.0008	0.0000	OK
15 minute summer	PP1	12	5.894	0.064	1.7	0.2394	0.0000	OK
30 minute summer	PP2	20	6.098	0.053	2.9	0.6308	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute winter	RE1	2.000	S1	0.2	0.313	0.011	0.0959
360 minute winter	S1	2.001	S2	0.3	0.433	0.014	0.1646
360 minute winter	S2	1.001	SA1	1.2	0.966	0.021	0.0528
360 minute winter	SA1	Infiltration		0.2			
15 minute summer	RE2	1.000	S2	4.1	1.075	0.172	0.0632
15 minute summer	PP1	Infiltration		0.8			
30 minute summer	PP2	Infiltration		1.7			

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE1	10	5.830	0.030	1.4	0.0005	0.0000	OK
15 minute summer	S1	10	5.777	0.032	2.1	0.0025	0.0000	OK
120 minute winter	S2	112	5.677	0.075	1.7	0.0474	0.0000	OK
120 minute winter	SA1	116	5.677	0.377	1.7	3.7626	0.0000	OK
15 minute summer	RE2	10	5.940	0.040	3.4	0.0007	0.0000	OK
15 minute summer	PP1	12	5.882	0.052	1.4	0.1665	0.0000	OK
30 minute summer	PP2	20	6.088	0.043	2.4	0.5118	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	RE1	2.000	S1	1.4	0.540	0.079	0.0143
15 minute summer	S1	2.001	S2	2.1	0.742	0.095	0.0265
120 minute winter	S2	1.001	SA1	1.7	0.975	0.030	0.0395
120 minute winter	SA1	Infiltration		0.2			
15 minute summer	RE2	1.000	S2	3.4	1.018	0.142	0.0553
15 minute summer	PP1	Infiltration		0.8			
30 minute summer	PP2	Infiltration		1.5			

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	RE1	224	6.282	0.482	0.3	0.0087	0.0000	FLOOD RISK
240 minute winter	S1	224	6.282	0.537	0.5	0.0419	0.0000	FLOOD RISK
240 minute winter	S2	224	6.282	0.680	1.6	0.4323	0.0000	FLOOD RISK
240 minute winter	SA1	224	6.282	0.982	2.8	4.0127	0.0000	OK
240 minute winter	RE2	224	6.282	0.382	0.9	0.0069	0.0000	FLOOD RISK
15 minute summer	PP1	13	5.916	0.086	2.2	0.3701	0.0000	OK
30 minute summer	PP2	21	6.121	0.076	3.8	0.9025	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute winter	RE1	2.000	S1	0.3	0.367	0.017	0.0972
240 minute winter	S1	2.001	S2	0.5	0.487	0.023	0.1646
240 minute winter	S2	1.001	SA1	2.8	0.893	0.048	0.0528
240 minute winter	SA1	Infiltration		0.2			
240 minute winter	RE2	1.000	S2	0.9	0.663	0.038	0.2912
15 minute summer	PP1	Infiltration		0.8			
30 minute summer	PP2	Infiltration		1.7			