

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	2	Maximum Rainfall (mm/hr)	75.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	✓
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	4.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
DBSA			140.500	1200	410.861	336.031	1.443
S1		4.00	140.500	450	409.123	326.820	0.621
S2	0.010	4.00	140.500	450	408.053	334.278	1.410
S3		4.00	140.500	450	396.122	342.178	0.597
PP1	0.010	4.00	140.500	450	404.740	338.242	0.420
ATT			140.500	450	406.779	337.847	1.400
S4	0.010	4.00	140.500	450	403.799	340.469	0.800

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	S1	S2	7.534	0.600	139.879	139.090	0.789	9.5	100	4.05	55.2
1.000	S3	S4	7.865	0.600	139.903	139.700	0.203	38.7	100	4.11	55.2
1.003	S2	DBSA	3.310	0.600	139.090	139.057	0.033	100.0	100	4.24	55.2
1.001	S4	ATT	3.969	0.600	139.700	139.500	0.200	19.8	100	4.14	55.2

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)
2.000	2.516	19.8	0.0	0.521	1.310	0.000	0.0	0	0.000
1.000	1.242	9.8	0.0	0.497	0.700	0.000	0.0	0	0.000
1.003	0.769	6.0	4.0	1.310	1.343	0.020	0.0	59	0.819
1.001	1.741	13.7	2.0	0.700	0.900	0.010	0.0	26	1.251

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)
1.002	ATT	S2	1.000	0.600	139.100	139.090	0.010	100.0	100	4.17	55.2



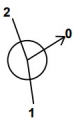




Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.002	0.769	6.0	2.0	1.300	1.310	0.010	0.0	39	0.689

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	7.534	9.5	100	Circular	140.500	139.879	0.521	140.500	139.090	1.310
1.000	7.865	38.7	100	Circular	140.500	139.903	0.497	140.500	139.700	0.700
1.003	3.310	100.0	100	Circular	140.500	139.090	1.310	140.500	139.057	1.343
1.001	3.969	19.8	100	Circular	140.500	139.700	0.700	140.500	139.500	0.900
1.002	1.000	100.0	100	Circular	140.500	139.100	1.300	140.500	139.090	1.310

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.000	S1	450	Manhole	Adoptable	S2	450	Manhole	Adoptable
1.000	S3	450	Manhole	Adoptable	S4	450	Manhole	Adoptable
1.003	S2	450	Manhole	Adoptable	DBSA	1200	Manhole	Adoptable
1.001	S4	450	Manhole	Adoptable	ATT	450	Manhole	Adoptable
1.002	ATT	450	Manhole	Adoptable	S2	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
DBSA	410.861	336.031	140.500	1.443	1200	 1	1.003	139.057	100
S1	409.123	326.820	140.500	0.621	450	 0	2.000	139.879	100
S2	408.053	334.278	140.500	1.410	450	 1 2 0	2.000 1.002	139.090 139.090	100 100
S3	396.122	342.178	140.500	0.597	450	 0	1.000	139.903	100
PP1	404.740	338.242	140.500	0.420	450				
ATT	406.779	337.847	140.500	1.400	450	 1 0	1.001 1.002	139.500 139.100	100 100
S4	403.799	340.469	140.500	0.800	450	 1 0	1.000 1.001	139.700 139.700	100 100

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	0	0	0	100	0	0	0
30	0	0	0	100	45	0	0
30	40	0	0				

Node DBSA Deep Bore Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.25200	Porosity	1.00	Diameter (m)	1.200	Borehole Depth (m)	16.000
Side Inf Coefficient (m/hr)	0.25200	Invert Level (m)	138.500	Depth (m)	2.000	Inf Depth (m)	8.000
Safety Factor	2.0	Time to half empty (mins)	121	Borehole Diameter (m)	0.150	Number Required	1

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00720	Porosity	0.30	Width (m)	10.000	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00720	Invert Level (m)	140.080	Length (m)	10.000	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	293	Slope (1:X)	9999.0		

Node ATT Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	3.000	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	139.100	Pit Length (m)	6.000	Number Required	1
Safety Factor	2.0	Time to half empty (mins)		Depth (m)	0.800		

Results for 10 year Critical Storm Duration. Lowest mass balance: 97.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	DBSA	480	139.393	0.336	0.4	1.6762	0.0000	OK
15 minute summer	S1	1	139.879	0.000	0.0	0.0000	0.0000	OK
480 minute summer	S2	480	139.393	0.303	0.6	0.0482	0.0000	SURCHARGED
15 minute summer	S3	1	139.903	0.000	0.0	0.0000	0.0000	OK
480 minute summer	PP1	328	140.189	0.109	0.6	3.2737	0.0000	OK
480 minute summer	ATT	480	139.393	0.293	0.9	5.0578	0.0000	SURCHARGED
15 minute summer	S4	10	139.741	0.041	4.1	0.0065	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute summer	DBSA	Infiltration		0.1			
15 minute summer	S1	2.000	S2	0.0	0.000	0.000	0.0295
480 minute summer	S2	1.003	DBSA	0.4	0.418	0.062	0.0259
15 minute summer	S3	1.000	S4	0.0	0.000	0.000	0.0119
480 minute summer	PP1	Infiltration		0.1			
480 minute summer	ATT	1.002	S2	-0.3	0.242	-0.048	0.0078
15 minute summer	S4	1.001	ATT	4.1	1.433	0.300	0.0114

Results for 30 year Critical Storm Duration. Lowest mass balance: 97.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
720 minute summer	DBSA	720	139.510	0.453	0.2	1.9410	0.0000	OK
15 minute summer	S1	1	139.879	0.000	0.0	0.0000	0.0000	OK
720 minute summer	S2	720	139.510	0.420	0.6	0.0668	0.0000	SURCHARGED
15 minute summer	S3	1	139.903	0.000	0.0	0.0000	0.0000	OK
600 minute summer	PP1	420	140.222	0.142	0.7	4.2564	0.0000	OK
720 minute summer	ATT	720	139.510	0.410	0.9	7.0785	0.0000	SURCHARGED
15 minute summer	S4	10	139.749	0.049	5.4	0.0077	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)
720 minute summer	DBSA	Infiltration		0.1			
15 minute summer	S1	2.000	S2	0.0	0.000	0.000	0.0295
720 minute summer	S2	1.003	DBSA	0.2	0.349	0.041	0.0259
15 minute summer	S3	1.000	S4	0.0	0.000	0.000	0.0148
600 minute summer	PP1	Infiltration		0.1			
720 minute summer	ATT	1.002	S2	-0.3	0.219	-0.048	0.0078
15 minute summer	S4	1.001	ATT	5.4	1.529	0.395	0.0140

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 97.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	DBSA	960	139.728	0.671	0.3	2.4334	0.0000	OK
15 minute summer	S1	1	139.879	0.000	0.0	0.0000	0.0000	OK
960 minute summer	S2	960	139.728	0.638	0.7	0.1014	0.0000	SURCHARGED
15 minute summer	S3	1	139.903	0.000	0.0	0.0000	0.0000	OK
360 minute winter	PP1	344	140.293	0.213	0.9	6.4008	0.0000	OK
960 minute summer	ATT	960	139.728	0.628	1.1	10.8350	0.0000	SURCHARGED
15 minute summer	S4	10	139.761	0.061	7.6	0.0097	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute summer	DBSA	Infiltration		0.1			
15 minute summer	S1	2.000	S2	0.0	0.000	0.000	0.0295
960 minute summer	S2	1.003	DBSA	0.3	0.349	0.045	0.0259
15 minute summer	S3	1.000	S4	0.0	0.000	0.000	0.0196
360 minute winter	PP1	Infiltration		0.1			
960 minute summer	ATT	1.002	S2	-0.4	0.219	-0.059	0.0078
15 minute summer	S4	1.001	ATT	7.6	1.644	0.556	0.0183

Results for 100 year Critical Storm Duration. Lowest mass balance: 97.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
960 minute summer	DBSA	960	139.677	0.620	0.2	2.3192	0.0000	OK
15 minute summer	S1	1	139.879	0.000	0.0	0.0000	0.0000	OK
960 minute summer	S2	960	139.677	0.587	0.6	0.0934	0.0000	SURCHARGED
15 minute summer	S3	1	139.903	0.000	0.0	0.0000	0.0000	OK
960 minute summer	PP1	645	140.264	0.184	0.6	5.5340	0.0000	OK
960 minute summer	ATT	960	139.677	0.577	0.9	9.9642	0.0000	SURCHARGED
15 minute summer	S4	10	139.756	0.056	6.8	0.0090	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)
960 minute summer	DBSA	Infiltration		0.1			
15 minute summer	S1	2.000	S2	0.0	0.000	0.000	0.0295
960 minute summer	S2	1.003	DBSA	0.2	0.349	0.041	0.0259
15 minute summer	S3	1.000	S4	0.0	0.000	0.000	0.0179
960 minute summer	PP1	Infiltration		0.1			
960 minute summer	ATT	1.002	S2	-0.3	0.219	-0.048	0.0078
15 minute summer	S4	1.001	ATT	6.8	1.607	0.497	0.0168

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 97.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
1440 minute winter	DBSA	1380	140.256	1.199	0.2	3.6274	0.0000	OK
1440 minute winter	S1	1380	140.256	0.377	0.1	0.0599	0.0000	FLOOD RISK
1440 minute winter	S2	1380	140.256	1.166	0.4	0.1854	0.0000	FLOOD RISK
1440 minute winter	S3	1380	140.256	0.353	0.1	0.0561	0.0000	FLOOD RISK
480 minute winter	PP1	456	140.375	0.295	1.0	8.8781	0.0000	OK
1440 minute winter	ATT	1380	140.256	1.156	0.6	13.8723	0.0000	FLOOD RISK
1440 minute winter	S4	1380	140.256	0.556	0.4	0.0884	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)
1440 minute winter	DBSA	Infiltration		0.1			
1440 minute winter	S1	2.000	S2	-0.1	-0.008	-0.003	0.0589
1440 minute winter	S2	1.003	DBSA	0.2	0.349	0.040	0.0259
1440 minute winter	S3	1.000	S4	-0.1	-0.010	-0.005	0.0615
480 minute winter	PP1	Infiltration		0.1			
1440 minute winter	ATT	1.002	S2	-0.2	0.219	-0.027	0.0078
1440 minute winter	S4	1.001	ATT	0.4	0.759	0.029	0.0311