

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	0.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
4.0	0.152	5.00	106.650	600		522628.666	228403.683	0.525
5.0	0.024	5.00	99.250	600		522377.687	228487.032	0.525
4.1			99.150	600		522388.082	228471.760	0.525
HW1			98.750	1		522384.418	228450.571	0.799
HW2		5.00	98.750	1		522379.287	228446.515	0.800
4.2/FC			98.600	1200	675	522371.305	228446.279	1.300
Outfall			98.000	1		522360.834	228415.777	1.000

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)
4.000	4.0	4.1	250.100	0.600	106.125	98.625	7.500	33.3	225	6.83	0.0
5.000	5.0	4.1	20.200	0.600	98.725	98.625	0.100	202.0	225	5.37	0.0
4.001	4.1	HW1	21.500	0.600	98.625	97.951	0.674	31.9	225	6.99	0.0

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)
4.000	2.273	90.4	0.0	0.300	0.300	0.152	0.0	0	0.000
5.000	0.916	36.4	0.0	0.300	0.300	0.024	0.0	0	0.000
4.001	2.324	92.4	0.0	0.300	0.574	0.176	0.0	0	0.000

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)
HW OUT	HW2	4.2/FC	7.100	0.600	97.950	97.300	0.650	10.9	225	5.03	0.0
4.005	4.2/FC	Outfall	32.200	0.600	97.300	97.000	0.300	107.3	150	5.58	0.0

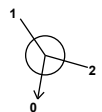
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
HW OUT	3.981	158.3	0.0	0.575	1.075	0.000	0.0	0	0.000
4.005	0.969	17.1	0.0	1.150	0.850	0.000	0.0	0	0.000

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)
4.000	250.100	33.3	225	Circular	106.650	106.125	0.300	99.150	98.625	0.300
5.000	20.200	202.0	225	Circular	99.250	98.725	0.300	99.150	98.625	0.300
4.001	21.500	31.9	225	Circular	99.150	98.625	0.300	98.750	97.951	0.574
HW OUT	7.100	10.9	225	Circular	98.750	97.950	0.575	98.600	97.300	1.075
4.005	32.200	107.3	150	Circular	98.600	97.300	1.150	98.000	97.000	0.850

Link	US Node	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node	Dia (mm)	Width (mm)	Node Type	MH Type
4.000	4.0	600		Manhole	Adoptable	4.1	600		Manhole	Adoptable
5.000	5.0	600		Manhole	Adoptable	4.1	600		Manhole	Adoptable
4.001	4.1	600		Manhole	Adoptable	HW1	1		Manhole	Adoptable
HW OUT	HW2	1		Manhole	Adoptable	4.2/FC	1200	675	Manhole	Adoptable
4.005	4.2/FC	1200	675	Manhole	Adoptable	Outfall	1		Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)
4.0	522628.666	228403.683	106.650	0.525	600					
							0	4.000	106.125	225
5.0	522377.687	228487.032	99.250	0.525	600					
							0	5.000	98.725	225
4.1	522388.082	228471.760	99.150	0.525	600			1	5.000	98.625
							2	4.000	98.625	225
							0	4.001	98.625	225
HW1	522384.418	228450.571	98.750	0.799	1			1	4.001	97.951
HW2	522379.287	228446.515	98.750	0.800	1					
							0	HW OUT	97.950	225
4.2/FC	522371.305	228446.279	98.600	1.300	1200	675		1	HW OUT	97.300
							0	4.005	97.300	150
Outfall	522360.834	228415.777	98.000	1.000	1			1	4.005	97.000

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

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 %)
2	0	0	0	100	25	0	0
30	25	0	0				

Node 4.2/FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	97.300	Product Number	CTL-SHE-0050-1300-1300-1300
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.3	Min Node Diameter (mm)	1200

Node HW2 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	10.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	97.950	Main Channel Slope (1:X)	9999.0
Safety Factor	2.0	Time to half empty (mins)	1008	Main Channel n	0.050

Inlets

HW1

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	124.2	0.0	0.800	255.9	0.0	0.801	0.0	0.0

Node 4.1 Link Surround Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	5.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	98.625	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	5	Diameter (mm)	1000

Node 4.1 Link Surround Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Link	4.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	98.625	Surround Shape	(Trench)
Safety Factor	2.0	Time to half empty (mins)	0	Diameter (mm)	1000

Results for 2 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	4.0	11	106.204	0.079	25.5	0.4801	0.0000	OK
15 minute summer	5.0	10	98.775	0.049	4.0	0.0592	0.0000	OK
15 minute summer	4.1	12	98.724	0.099	28.0	0.3137	0.0000	OK
240 minute winter	HW1	232	98.129	0.178	6.7	0.0000	0.0000	OK
240 minute winter	HW2	232	98.129	0.179	4.3	0.0000	0.0000	OK
240 minute winter	4.2/FC	232	98.129	0.829	1.9	0.6716	0.0000	SURCHARGED
15 minute summer	Outfall	1	97.000	0.000	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 summer	4.0	4.000	4.1	24.2	1.773	0.267	3.5799	
15 minute summer	5.0	5.000	4.1	3.9	0.443	0.108	0.2282	
15 minute summer	4.1	4.001	HW1	26.5	2.651	0.286	0.2259	
240 minute winter	HW1	Flow through Pond	HW2	4.3	0.013	0.002	24.8420	
240 minute winter	HW2	HW OUT	4.2/FC	1.9	0.269	0.012	0.2616	
240 minute winter	4.2/FC	Hydro-Brake®	Outfall	1.1				38.8

Results for 30 year +25% CC Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	4.0	11	106.294	0.169	86.9	1.0264	0.0000	OK
15 minute summer	5.0	12	98.912	0.187	13.7	0.2237	0.0000	OK
15 minute summer	4.1	12	98.904	0.279	94.2	1.5800	0.0000	FLOOD RISK
360 minute winter	HW1	360	98.478	0.527	13.1	0.0000	0.0000	OK
360 minute winter	HW2	360	98.478	0.528	7.2	0.0000	0.0000	FLOOD RISK
360 minute winter	4.2/FC	360	98.478	1.178	1.9	0.9541	0.0000	FLOOD RISK
15 minute summer	Outfall	1	97.000	0.000	1.1	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 summer	4.0	4.000	4.1	83.6	2.378	0.925	8.9750	
15 minute summer	5.0	5.000	4.1	12.5	0.588	0.344	0.7578	
15 minute summer	4.1	4.001	HW1	86.2	3.023	0.933	0.7819	
360 minute winter	HW1	Flow through Pond	HW2	7.2	0.013	0.004	88.4202	
360 minute winter	HW2	HW OUT	4.2/FC	1.9	0.254	0.012	0.2824	
360 minute winter	4.2/FC	Hydro-Brake®	Outfall	1.2				113.0

Results for 100 year +25% CC Critical Storm Duration. Lowest mass balance: 96.13%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	4.0	12	106.633	0.508	109.8	3.0866	0.0000	FLOOD RISK
15 minute summer	5.0	12	99.093	0.368	17.4	0.4400	0.0000	FLOOD RISK
15 minute summer	4.1	13	99.089	0.464	103.1	3.3831	0.0000	FLOOD RISK
360 minute winter	HW1	360	98.591	0.640	16.2	0.0000	0.0000	OK
360 minute winter	HW2	360	98.591	0.641	9.1	0.0000	0.0000	FLOOD RISK
360 minute winter	4.2/FC	360	98.591	1.291	1.9	1.0456	0.0000	FLOOD RISK
15 minute summer	Outfall	1	97.000	0.000	1.2	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 summer	4.0	4.000	4.1	89.2	2.464	0.987	9.9467	
15 minute summer	5.0	5.000	4.1	15.8	0.630	0.434	0.8034	
15 minute summer	4.1	4.001	HW1	96.9	2.993	1.048	0.8551	
360 minute winter	HW1	Flow through Pond	HW2	9.1	0.016	0.005	113.2931	
360 minute winter	HW2	HW OUT	4.2/FC	1.9	0.235	0.012	0.2824	
360 minute winter	4.2/FC	Hydro-Brake®	Outfall	1.3				124.1