

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)	50.0	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)	Easting (m)	Northing (m)	Depth (m)
PS2	0.108	5.00	33.820	530922.980	121251.243	1.793
PS3	0.009	5.00	34.309	530958.243	121230.867	2.467
S1	0.060	5.00	35.145	530969.927	121270.505	1.648
S2	0.042	5.00	35.309	530980.249	121258.134	1.907
S3	0.034	5.00	35.042	530976.733	121242.893	1.732
S4			34.205	530968.248	121226.687	1.655
S5	0.041	5.00	33.455	530954.819	121221.706	1.655
S6			32.600	530958.542	121210.671	0.850
S7			32.600	530953.412	121200.193	1.000
S8	0.014	5.00	32.600	530948.255	121200.320	1.380
PS5	0.074	5.00	32.002	530907.219	121192.734	1.630
PS4			32.479	530937.523	121194.798	2.286
S9	0.040	5.00	32.348	530941.502	121194.942	2.328
S10	0.033	5.00	31.904	530945.776	121181.200	1.954
S11	0.031	5.00	31.619	530951.669	121172.943	1.729
S12	0.040	5.00	30.760	530936.705	121144.719	1.010
PS7	0.018	5.00	30.900	530905.853	121136.069	0.910
PS6	0.004	5.00	30.905	530927.215	121138.550	1.041
S13	0.011	5.00	30.881	530929.436	121139.238	1.181
S14			31.000	530931.896	121135.126	1.350
S19			30.500	530924.638	121129.431	1.000
S15			30.500	530921.115	121125.288	1.070
S16			29.727	530910.368	121121.733	0.357

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)
1.001	PS2	PS3	40.727	0.600	32.027	31.842	0.185	220.1	300	5.64
1.002	PS3	S5	9.779	0.600	31.842	31.800	0.042	232.8	300	5.80
2.000	S1	S2	16.111	0.600	33.497	33.402	0.095	169.6	225	5.27
2.001	S2	S3	15.641	0.600	33.402	33.310	0.092	170.0	225	5.53
2.002	S3	S4	18.292	0.600	33.310	32.550	0.760	24.1	225	5.64
2.003	S4	S5	14.323	0.600	32.550	31.875	0.675	21.2	225	5.73
1.003	S5	S6	11.646	0.600	31.800	31.750	0.050	232.9	300	5.99
1.004	S6	S7	11.666	0.600	31.750	31.600	0.150	77.8	375	6.09
1.005	S7	S8	5.159	0.600	31.600	31.220	0.380	13.6	300	6.11
1.006	S8	S9	8.632	0.600	31.220	30.095	1.125	7.7	300	6.13
3.000	PS5	PS4	30.374	0.600	30.372	30.193	0.179	169.7	225	5.51
3.001	PS4	S9	3.982	0.600	30.193	30.170	0.023	173.1	225	5.57
1.007	S9	S10	14.391	0.600	30.020	29.950	0.070	205.6	375	6.32
1.008	S10	S11	10.145	0.600	29.950	29.890	0.060	169.1	375	6.44

US Depth (m)	DS Depth (m)	Maximum Depth (m)	Σ Area (ha)
1.493	2.167	2.167	0.108
2.167	1.355	2.167	0.117
1.423	1.682	1.682	0.060
1.682	1.507	1.682	0.102
1.507	1.430	1.507	0.136
1.430	1.355	1.430	0.136
1.355	0.550	1.355	0.293
0.475	0.625	0.625	0.293
0.700	1.080	1.080	0.293
1.080	1.953	1.953	0.307
1.405	2.061	2.061	0.074
2.061	1.953	2.061	0.074
1.953	1.579	1.953	0.421
1.579	1.354	1.579	0.454

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)
1.009	S11	S12	31.945	0.600	29.890	29.750	0.140	228.2	375	6.89
1.010	S12	S13	9.103	0.600	29.750	29.700	0.050	182.1	375	7.00
4.000	PS7	PS6	21.505	0.600	29.990	29.864	0.126	170.7	225	5.36
4.001	PS6	S13	2.326	0.600	29.864	29.850	0.014	166.1	225	5.40
1.011	S13	S14	4.792	0.600	29.700	29.650	0.050	95.8	375	7.05
1.012	S14	S19	9.226	0.600	29.650	29.500	0.150	61.5	375	7.11
1.013	S19	S15	5.439	0.600	29.500	29.430	0.070	77.7	375	7.16
1.014	S15	S16	11.319	0.600	29.430	29.370	0.060	188.7	225	7.35

US Depth (m)	DS Depth (m)	Maximum Depth (m)	Σ Area (ha)
1.354	0.635	1.354	0.485
0.635	0.806	0.806	0.524
0.685	0.816	0.816	0.018
0.816	0.806	0.816	0.022
0.806	0.975	0.975	0.557
0.975	0.625	0.975	0.557
0.625	0.695	0.695	0.557
0.845	0.132	0.845	0.557

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	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 | 2160 | 2880 | 4320 | 5760 | 7200 | 8640

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	45	0	0
30	0	0	0				

Node PS4 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	30.193	Product Number	CTL-SHE-0032-5000-1000-5000
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	0.5	Min Node Diameter (mm)	1200

Node S8 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	31.220	Product Number	CTL-SHE-0109-5000-0800-5000
Design Depth (m)	0.800	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node S15 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	29.430	Product Number	CTL-SHE-0145-9900-1000-9900
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	9.9	Min Node Diameter (mm)	1200

Node S7 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	31.600
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	118.8	118.8	1.000	282.7	289.9

Node S19 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	29.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	19.5	19.5	1.000	115.0	118.7

Node PS6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	29.900
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	80.0	80.0	0.400	80.0	92.7	0.410	0.0	92.7

Node PS4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	30.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	90.0	90.0	0.800	90.0	116.9	0.810	0.0	116.9

Results for 2 year 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
15 minute summer	PS2	10	32.130	0.103	19.6	0.1471	0.0000	OK
15 minute summer	PS3	11	31.997	0.155	20.9	0.1756	0.0000	OK
15 minute summer	S1	10	33.578	0.081	10.9	0.1153	0.0000	OK
15 minute summer	S2	10	33.514	0.112	18.5	0.1262	0.0000	OK
15 minute summer	S3	10	33.387	0.077	24.5	0.0871	0.0000	OK
15 minute summer	S4	11	32.620	0.070	24.3	0.1007	0.0000	OK
15 minute summer	S5	11	31.988	0.188	52.3	0.2687	0.0000	OK
15 minute summer	S6	10	31.894	0.144	52.6	0.2060	0.0000	OK
180 minute summer	S7	132	31.829	0.229	21.8	31.8571	0.0000	OK
180 minute summer	S8	132	31.829	0.609	14.9	0.8716	0.0000	SURCHARGED
15 minute summer	PS5	10	30.473	0.101	13.5	0.0160	0.0000	OK
600 minute winter	PS4	480	30.381	0.188	1.7	15.7178	0.0000	OK
15 minute summer	S9	10	30.098	0.078	12.2	0.1110	0.0000	OK
15 minute summer	S10	10	30.046	0.096	18.3	0.1373	0.0000	OK
15 minute summer	S11	10	29.999	0.109	23.8	0.1557	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	PS2	1.001	PS3	19.3	0.710	0.258	1.1782	
15 minute summer	PS3	1.002	S5	20.9	0.523	0.289	0.4066	
15 minute summer	S1	2.000	S2	10.8	0.668	0.271	0.2609	
15 minute summer	S2	2.001	S3	18.3	1.162	0.460	0.2474	
15 minute summer	S3	2.002	S4	24.3	2.156	0.228	0.2063	
15 minute summer	S4	2.003	S5	24.3	1.815	0.214	0.2183	
15 minute summer	S5	1.003	S6	52.6	1.337	0.726	0.4610	
15 minute summer	S6	1.004	S7	53.1	2.237	0.234	0.3286	
180 minute summer	S7	1.005	S8	14.1	0.279	0.046	0.3306	
180 minute summer	S8	1.006	S9	5.0	1.940	0.012	0.0222	
15 minute summer	PS5	3.000	PS4	13.5	1.365	0.339	0.3289	
600 minute winter	PS4	3.001	S9	0.3	0.318	0.009	0.0044	
15 minute summer	S9	1.007	S10	12.3	0.638	0.088	0.2780	
15 minute summer	S10	1.008	S11	18.2	0.747	0.118	0.2470	
15 minute summer	S11	1.009	S12	23.6	0.798	0.179	0.9455	

Results for 2 year 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
15 minute summer	S12	11	29.878	0.128	30.6	0.1826	0.0000	OK
15 minute summer	PS7	10	30.035	0.045	3.3	0.0071	0.0000	OK
15 minute summer	PS6	13	29.904	0.040	3.8	0.3836	0.0000	OK
120 minute summer	S13	80	29.841	0.141	20.9	0.2020	0.0000	OK
180 minute summer	S14	112	29.842	0.192	17.3	0.3399	0.0000	OK
120 minute summer	S19	80	29.841	0.341	26.7	12.6654	0.0000	OK
120 minute summer	S15	80	29.840	0.410	12.8	0.5871	0.0000	SURCHARGED
120 minute summer	S16	70	29.448	0.078	9.9	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)
15 minute summer	S12	1.010	S13	30.7	0.963	0.208	0.2903	
15 minute summer	PS7	4.000	PS6	3.2	0.649	0.081	0.1080	
15 minute summer	PS6	4.001	S13	2.4	0.530	0.060	0.0106	
120 minute summer	S13	1.011	S14	20.6	1.194	0.101	0.2251	
180 minute summer	S14	1.012	S19	20.6	0.878	0.081	0.7423	
120 minute summer	S19	1.013	S15	12.8	0.416	0.056	0.5860	
120 minute summer	S15	1.014	S16	9.9	0.778	0.262	0.1438	94.9

Results for 30 year 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
15 minute summer	PS2	11	32.392	0.365	50.1	0.5217	0.0000	SURCHARGED
15 minute summer	PS3	11	32.301	0.459	51.8	0.5188	0.0000	SURCHARGED
15 minute summer	S1	10	33.659	0.162	27.8	0.2311	0.0000	OK
15 minute summer	S2	10	33.613	0.211	46.9	0.2388	0.0000	OK
15 minute summer	S3	10	33.443	0.133	62.0	0.1504	0.0000	OK
15 minute summer	S4	11	32.686	0.136	61.8	0.1951	0.0000	OK
15 minute summer	S5	11	32.265	0.465	132.0	0.6649	0.0000	SURCHARGED
120 minute winter	S6	118	32.139	0.389	41.2	0.5561	0.0000	SURCHARGED
120 minute winter	S7	118	32.139	0.539	39.8	88.5203	0.0000	SURCHARGED
120 minute winter	S8	118	32.138	0.918	18.1	1.3141	0.0000	SURCHARGED
600 minute winter	PS5	585	30.612	0.240	3.2	0.0381	0.0000	SURCHARGED
600 minute winter	PS4	585	30.612	0.419	3.2	35.7247	0.0000	SURCHARGED
15 minute summer	S9	10	30.132	0.112	23.5	0.1609	0.0000	OK
15 minute summer	S10	10	30.101	0.151	38.7	0.2160	0.0000	OK
120 minute winter	S11	114	30.069	0.179	20.0	0.2559	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	PS2	1.001	PS3	47.9	0.800	0.642	2.8680	
15 minute summer	PS3	1.002	S5	51.9	0.737	0.715	0.6886	
15 minute summer	S1	2.000	S2	27.3	0.781	0.685	0.5577	
15 minute summer	S2	2.001	S3	46.2	1.435	1.163	0.4938	
15 minute summer	S3	2.002	S4	61.8	2.621	0.580	0.4494	
15 minute summer	S4	2.003	S5	62.1	1.718	0.547	0.4650	
15 minute summer	S5	1.003	S6	132.3	1.917	1.824	0.7587	
120 minute winter	S6	1.004	S7	39.8	1.416	0.175	1.2867	
120 minute winter	S7	1.005	S8	17.3	0.344	0.057	0.3633	
120 minute winter	S8	1.006	S9	5.3	1.971	0.013	0.0231	
600 minute winter	PS5	3.000	PS4	3.2	0.429	0.080	1.2080	
600 minute winter	PS4	3.001	S9	0.3	0.318	0.009	0.0044	
15 minute summer	S9	1.007	S10	23.3	0.676	0.167	0.4979	
15 minute summer	S10	1.008	S11	38.3	0.850	0.250	0.4576	
120 minute winter	S11	1.009	S12	19.9	0.719	0.151	2.4209	

Results for 30 year 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
120 minute winter	S12	116	30.068	0.318	25.7	0.4556	0.0000	OK
120 minute winter	PS7	116	30.068	0.078	2.6	0.0124	0.0000	OK
120 minute winter	PS6	116	30.068	0.204	11.9	12.8809	0.0000	OK
120 minute winter	S13	116	30.068	0.368	26.1	0.5269	0.0000	OK
120 minute winter	S14	116	30.068	0.418	24.4	0.7385	0.0000	SURCHARGED
120 minute winter	S19	116	30.068	0.568	23.3	27.2618	0.0000	SURCHARGED
120 minute winter	S15	116	30.067	0.637	10.9	0.9119	0.0000	SURCHARGED
180 minute winter	S16	80	29.448	0.078	9.9	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)
120 minute winter	S12	1.010	S13	24.6	0.831	0.166	0.9538	
120 minute winter	PS7	4.000	PS6	2.6	0.533	0.066	0.5393	
120 minute winter	PS6	4.001	S13	-9.0	-0.520	-0.224	0.0899	
120 minute winter	S13	1.011	S14	24.4	1.137	0.120	0.5273	
120 minute winter	S14	1.012	S19	23.3	1.075	0.091	1.0176	
120 minute winter	S19	1.013	S15	10.9	0.481	0.048	0.5999	
120 minute winter	S15	1.014	S16	9.9	0.778	0.262	0.1438	176.1

Results for 100 year +45% CC 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
15 minute summer	PS2	11	33.243	1.216	91.3	1.7399	0.0000	SURCHARGED
15 minute summer	PS3	11	32.960	1.118	94.2	1.2640	0.0000	SURCHARGED
15 minute summer	S1	12	34.861	1.364	50.6	1.9521	0.0000	FLOOD RISK
15 minute summer	S2	12	34.722	1.320	76.5	1.4931	0.0000	SURCHARGED
15 minute summer	S3	12	34.327	1.017	99.7	1.1501	0.0000	SURCHARGED
15 minute summer	S4	12	33.528	0.978	95.9	1.3995	0.0000	SURCHARGED
30 minute summer	S5	19	32.858	1.058	202.0	1.5143	0.0000	SURCHARGED
240 minute winter	S6	232	32.570	0.820	44.3	1.1734	0.0000	FLOOD RISK
240 minute winter	S7	232	32.570	0.970	44.0	193.6828	0.0000	FLOOD RISK
240 minute winter	S8	232	32.569	1.349	19.1	1.9311	0.0000	FLOOD RISK
960 minute winter	PS5	915	31.901	1.529	4.1	0.2431	0.0000	FLOOD RISK
960 minute winter	PS4	915	31.901	1.708	4.1	70.8017	0.0000	SURCHARGED
240 minute winter	S9	232	30.472	0.452	12.1	0.6471	0.0000	SURCHARGED
240 minute winter	S10	232	30.472	0.522	17.1	0.7464	0.0000	SURCHARGED
240 minute winter	S11	236	30.472	0.582	21.1	0.8331	0.0000	SURCHARGED

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	PS2	1.001	PS3	86.7	1.231	1.162	2.8680	
15 minute summer	PS3	1.002	S5	91.1	1.294	1.257	0.6886	
15 minute summer	S1	2.000	S2	42.5	1.070	1.069	0.6408	
15 minute summer	S2	2.001	S3	72.1	1.814	1.815	0.6221	
15 minute summer	S3	2.002	S4	95.9	2.586	0.901	0.7275	
15 minute summer	S4	2.003	S5	96.6	2.429	0.852	0.5696	
30 minute summer	S5	1.003	S6	200.5	2.848	2.766	0.8201	
240 minute winter	S6	1.004	S7	44.0	1.339	0.194	1.2867	
240 minute winter	S7	1.005	S8	18.7	0.364	0.062	0.3633	
240 minute winter	S8	1.006	S9	6.3	1.986	0.016	0.3167	
960 minute winter	PS5	3.000	PS4	4.1	0.427	0.102	1.2080	
960 minute winter	PS4	3.001	S9	0.6	0.337	0.016	0.0487	
240 minute winter	S9	1.007	S10	11.9	0.636	0.085	1.5873	
240 minute winter	S10	1.008	S11	16.3	0.737	0.106	1.1190	
240 minute winter	S11	1.009	S12	20.0	0.685	0.151	3.5234	

Results for 100 year +45% CC 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	S12	232	30.471	0.721	26.2	1.0321	0.0000	FLOOD RISK
240 minute winter	PS7	232	30.470	0.480	2.9	0.0763	0.0000	SURCHARGED
240 minute winter	PS6	236	30.471	0.607	10.8	30.9899	0.0000	SURCHARGED
240 minute winter	S13	236	30.471	0.771	27.0	1.1038	0.0000	SURCHARGED
240 minute winter	S14	232	30.471	0.821	20.0	1.4499	0.0000	SURCHARGED
240 minute winter	S19	236	30.470	0.970	25.8	65.2704	0.0000	FLOOD RISK
240 minute winter	S15	236	30.470	1.040	10.7	1.4882	0.0000	FLOOD RISK
240 minute summer	S16	96	29.448	0.078	9.9	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)
240 minute winter	S12	1.010	S13	25.4	0.782	0.172	1.0040	
240 minute winter	PS7	4.000	PS6	2.6	0.482	0.065	0.8553	
240 minute winter	PS6	4.001	S13	-7.9	0.494	-0.197	0.0925	
240 minute winter	S13	1.011	S14	20.0	1.048	0.098	0.5285	
240 minute winter	S14	1.012	S19	25.8	1.002	0.101	1.0176	
240 minute winter	S19	1.013	S15	10.7	0.446	0.047	0.5999	
240 minute winter	S15	1.014	S16	9.9	0.778	0.262	0.1438	249.6