

		Dart Engineers Ltd	File: 23146 Storthes Flow.pfd Network: Storm Network Andy Dyson 26/02/2024		Page 1 23146 Storthes 220623
Design Settings					
Rainfall Methodology	FSR	Maximum Time of Concentration (mins)		30.00	
Return Period (years)	100	Maximum Rainfall (mm/hr)		50.0	
Additional Flow (%)	40	Minimum Velocity (m/s)		1.00	
FSR Region	England and Wales	Connection Type		Level Soffits	
M5-60 (mm)	20.000	Minimum Backdrop Height (m)		0.200	
Ratio-R	0.400	Preferred Cover Depth (m)		1.200	
CV	0.750	Include Intermediate Ground		✓	
Time of Entry (mins)	5.00	Enforce best practice design rules		✓	
Nodes					
Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
S1	0.202	5.00	185.180	1200	1.180
S2	0.202	5.00	181.470	1200	1.970
S3	0.202	5.00	179.880	1200	4.530
S4	0.202	5.00	176.220	1500	4.295
S5	0.202	5.00	172.280	1500	4.780
S6	0.202	5.00	171.300	1800	5.300
S7	0.202	5.00	171.000	1800	6.000
S8	0.202	5.00	168.410	1800	4.410
S9	0.202	5.00	167.350	2100	3.850
S10	0.202	5.00	166.910	2100	3.910
S11	0.202	5.00	166.700	2100	4.700
S12	0.202	5.00	164.000	2100	5.000
S13	0.202	5.00	161.000	1875	3.000
S14	0.202	5.00	179.160	1200	1.160
S15a	0.202	5.00	176.500	1200	1.500
S15	0.202	5.00	175.560	1500	1.560
S16	0.202	5.00	172.200	1500	2.200
S17	0.202	5.00	171.500	2100	3.000
S18	0.202	5.00	182.550	1200	1.550
S19	0.202	5.00	180.900	1200	2.900
S20	0.202	5.00	178.360	1200	2.360
S21	0.202	5.00	177.560	1200	2.560
S22	0.202	5.00	174.630	1500	2.630
S23	0.202	5.00	172.600	1500	2.600
S24	0.202	5.00	167.880	1500	1.880
S25	0.202	5.00	164.000	1200	1.320
H1	0.000		158.500		1.500
Flow+ v10.5.1 Copyright © 1988-2024 Causeway Technologies Ltd					

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	S1	S2	51.000	0.600	184.000	179.500	4.500	11.3	300	5.18	50.0
1.001	S2	S3	25.000	0.600	179.500	175.500	4.000	6.3	300	5.25	50.0
1.002	S3	S4	55.000	0.600	175.350	172.000	3.350	16.4	450	5.43	50.0
1.003	S4	S5	55.000	0.600	171.925	167.500	4.425	12.4	525	5.69	50.0
1.004	S5	S6	18.000	0.600	167.500	166.000	1.500	12.0	600	5.74	50.0
1.005	S6	S7	35.000	0.600	166.000	165.000	1.000	35.0	600	5.88	50.0
1.006	S7	S8	68.000	0.600	165.000	164.000	1.000	68.0	600	6.26	50.0
1.007	S8	S9	33.000	0.600	164.000	163.500	0.500	66.0	900	6.40	50.0
1.008	S9	S10	25.000	0.600	163.500	163.000	0.500	50.0	975	6.60	50.0
1.009	S10	S11	15.000	0.600	163.000	162.000	1.000	15.0	975	6.63	50.0
1.010	S11	S12	75.000	0.600	162.000	159.000	3.000	25.0	975	6.82	50.0
1.011	S12	S13	71.000	0.600	159.000	158.000	1.000	71.0	975	7.12	50.0
2.000	S14	S15a	54.000	0.600	178.000	175.000	3.000	18.0	300	5.24	50.0
2.001	S15a	S15	23.000	0.600	175.000	174.000	1.000	23.0	300	5.36	50.0
2.002	S15	S4	51.000	0.600	174.000	172.000	2.000	25.5	525	5.55	50.0
3.000	S18	S19	30.000	0.600	181.000	178.000	3.000	10.0	300	5.10	50.0
3.001	S19	S3	24.000	0.600	178.000	175.500	2.500	9.6	300	5.18	50.0
4.000	S20	S21	18.000	0.600	176.000	175.000	1.000	18.0	300	5.08	50.0
4.001	S21	S4	41.000	0.600	175.000	172.150	2.850	14.4	300	5.24	50.0
5.000	S22	S5	52.000	0.600	172.000	167.500	4.500	11.6	450	5.14	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)
1.000	4.695	331.9	38.3	0.880	1.670	0.202	0.0	68	3.165
1.001	6.327	447.2	76.7	1.670	4.080	0.404	0.0	83	4.770
1.002	5.036	800.9	191.6	4.080	3.770	1.010	0.0	149	4.167
1.003	6.377	1380.4	421.6	3.770	4.255	2.222	0.0	198	5.633
1.004	7.054	1994.4	498.2	4.180	4.700	2.626	0.0	203	5.911
1.005	4.125	1166.2	613.2	4.700	5.400	3.232	0.0	309	4.173
1.006	2.956	835.7	689.9	5.400	3.810	3.636	0.0	418	3.282
1.007	3.859	2455.3	766.5	3.510	2.950	4.040	0.0	344	3.435
1.008	4.661	3479.9	804.9	2.875	2.935	4.242	0.0	317	3.833
1.009	8.520	6361.5	843.2	2.935	3.725	4.444	0.0	237	6.024
1.010	6.597	4925.4	919.8	3.725	4.025	4.848	0.0	282	5.120
1.011	3.909	2918.7	958.2	4.025	2.025	5.050	0.0	383	3.525
2.000	3.723	263.1	38.3	0.860	1.200	0.202	0.0	77	2.685
2.001	3.292	232.7	76.7	1.200	1.260	0.404	0.0	118	2.960
2.002	4.448	962.8	115.0	1.035	3.695	0.606	0.0	121	3.042
3.000	4.999	353.4	38.3	1.250	2.600	0.202	0.0	66	3.304
3.001	5.102	360.7	76.7	2.600	4.080	0.404	0.0	93	4.083
4.000	3.723	263.1	38.3	2.060	2.260	0.202	0.0	77	2.685
4.001	4.166	294.5	76.7	2.260	3.770	0.404	0.0	104	3.521
5.000	6.005	955.1	38.3	2.180	4.330	0.202	0.0	60	2.985

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)
6.000	S23	S7	71.000	0.600	170.000	165.150	4.850	14.6	450	5.22	50.0
7.000	S24	S8	81.000	0.600	166.000	164.300	1.700	47.6	600	5.38	50.0
8.000	S25	S11	52.000	0.600	162.680	162.450	0.230	226.1	300	5.83	50.0
1.012	S13	H1	10.000	0.600	158.000	157.000	1.000	10.0	975	7.14	50.0
9.000	S16	S17	51.000	0.600	170.000	168.500	1.500	34.0	525	5.22	50.0
9.001	S17	S6	60.000	0.600	168.500	166.000	2.500	24.0	600	5.42	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)
6.000	5.334	848.3	38.3	2.150	5.400	0.202	0.0	65	2.765
7.000	3.533	999.0	38.3	1.280	3.510	0.202	0.0	79	1.744
8.000	1.041	73.6	38.3	1.020	3.950	0.202	0.0	154	1.052
1.012	10.438	7793.5	996.5	2.025	0.525	5.252	0.0	232	7.301
9.000	3.850	833.5	38.3	1.675	2.475	0.202	0.0	76	2.004
9.001	4.984	1409.1	76.7	2.400	4.700	0.404	0.0	93	2.725

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)
1.000	51.000	11.3	300	Circular	185.180	184.000	0.880	181.470	179.500	1.670
1.001	25.000	6.3	300	Circular	181.470	179.500	1.670	179.880	175.500	4.080
1.002	55.000	16.4	450	Circular	179.880	175.350	4.080	176.220	172.000	3.770
1.003	55.000	12.4	525	Circular	176.220	171.925	3.770	172.280	167.500	4.255
1.004	18.000	12.0	600	Circular	172.280	167.500	4.180	171.300	166.000	4.700
1.005	35.000	35.0	600	Circular	171.300	166.000	4.700	171.000	165.000	5.400
1.006	68.000	68.0	600	Circular	171.000	165.000	5.400	168.410	164.000	3.810
1.007	33.000	66.0	900	Circular	168.410	164.000	3.510	167.350	163.500	2.950
1.008	25.000	50.0	975	Circular	167.350	163.500	2.875	166.910	163.000	2.935
1.009	15.000	15.0	975	Circular	166.910	163.000	2.935	166.700	162.000	3.725

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.001	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.002	S3	1200	Manhole	Adoptable	S4	1500	Manhole	Adoptable
1.003	S4	1500	Manhole	Adoptable	S5	1500	Manhole	Adoptable
1.004	S5	1500	Manhole	Adoptable	S6	1800	Manhole	Adoptable
1.005	S6	1800	Manhole	Adoptable	S7	1800	Manhole	Adoptable
1.006	S7	1800	Manhole	Adoptable	S8	1800	Manhole	Adoptable
1.007	S8	1800	Manhole	Adoptable	S9	2100	Manhole	Adoptable
1.008	S9	2100	Manhole	Adoptable	S10	2100	Manhole	Adoptable
1.009	S10	2100	Manhole	Adoptable	S11	2100	Manhole	Adoptable

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)
1.010	75.000	25.0	975	Circular	166.700	162.000	3.725	164.000	159.000	4.025
1.011	71.000	71.0	975	Circular	164.000	159.000	4.025	161.000	158.000	2.025
2.000	54.000	18.0	300	Circular	179.160	178.000	0.860	176.500	175.000	1.200
2.001	23.000	23.0	300	Circular	176.500	175.000	1.200	175.560	174.000	1.260
2.002	51.000	25.5	525	Circular	175.560	174.000	1.035	176.220	172.000	3.695
3.000	30.000	10.0	300	Circular	182.550	181.000	1.250	180.900	178.000	2.600
3.001	24.000	9.6	300	Circular	180.900	178.000	2.600	179.880	175.500	4.080
4.000	18.000	18.0	300	Circular	178.360	176.000	2.060	177.560	175.000	2.260
4.001	41.000	14.4	300	Circular	177.560	175.000	2.260	176.220	172.150	3.770
5.000	52.000	11.6	450	Circular	174.630	172.000	2.180	172.280	167.500	4.330
6.000	71.000	14.6	450	Circular	172.600	170.000	2.150	171.000	165.150	5.400
7.000	81.000	47.6	600	Circular	167.880	166.000	1.280	168.410	164.300	3.510
8.000	52.000	226.1	300	Circular	164.000	162.680	1.020	166.700	162.450	3.950
1.012	10.000	10.0	975	Circular	161.000	158.000	2.025	158.500	157.000	0.525
9.000	51.000	34.0	525	Circular	172.200	170.000	1.675	171.500	168.500	2.475
9.001	60.000	24.0	600	Circular	171.500	168.500	2.400	171.300	166.000	4.700

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.010	S11	2100	Manhole	Adoptable	S12	2100	Manhole	Adoptable
1.011	S12	2100	Manhole	Adoptable	S13	1875	Manhole	Adoptable
2.000	S14	1200	Manhole	Adoptable	S15a	1200	Manhole	Adoptable
2.001	S15a	1200	Manhole	Adoptable	S15	1500	Manhole	Adoptable
2.002	S15	1500	Manhole	Adoptable	S4	1500	Manhole	Adoptable
3.000	S18	1200	Manhole	Adoptable	S19	1200	Manhole	Adoptable
3.001	S19	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
4.000	S20	1200	Manhole	Adoptable	S21	1200	Manhole	Adoptable
4.001	S21	1200	Manhole	Adoptable	S4	1500	Manhole	Adoptable
5.000	S22	1500	Manhole	Adoptable	S5	1500	Manhole	Adoptable
6.000	S23	1500	Manhole	Adoptable	S7	1800	Manhole	Adoptable
7.000	S24	1500	Manhole	Adoptable	S8	1800	Manhole	Adoptable
8.000	S25	1200	Manhole	Adoptable	S11	2100	Manhole	Adoptable
1.012	S13	1875	Manhole	Adoptable	H1		Junction	
9.000	S16	1500	Manhole	Adoptable	S17	2100	Manhole	Adoptable
9.001	S17	2100	Manhole	Adoptable	S6	1800	Manhole	Adoptable

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1	185.180	1.180	1200					
				0	1.000	184.000	300	
S2	181.470	1.970	1200		1	1.000	179.500	300
				0	1.001	179.500	300	
S3	179.880	4.530	1200		1	3.001	175.500	300
				2	1.001	175.500	300	
				0	1.002	175.350	450	
S4	176.220	4.295	1500		1	4.001	172.150	300
				2	2.002	172.000	525	
				3	1.002	172.000	450	
				0	1.003	171.925	525	
S5	172.280	4.780	1500		1	5.000	167.500	450
				2	1.003	167.500	525	
				0	1.004	167.500	600	
S6	171.300	5.300	1800		1	9.001	166.000	600
				2	1.004	166.000	600	
				0	1.005	166.000	600	
S7	171.000	6.000	1800		1	6.000	165.150	450
				2	1.005	165.000	600	
				0	1.006	165.000	600	
S8	168.410	4.410	1800		1	7.000	164.300	600
				2	1.006	164.000	600	
				0	1.007	164.000	900	
S9	167.350	3.850	2100		1	1.007	163.500	900
				0	1.008	163.500	975	
S10	166.910	3.910	2100		1	1.008	163.000	975
				0	1.009	163.000	975	
S11	166.700	4.700	2100		1	8.000	162.450	300
				2	1.009	162.000	975	
				0	1.010	162.000	975	
S12	164.000	5.000	2100		1	1.010	159.000	975
				0	1.011	159.000	975	
S13	161.000	3.000	1875		1	1.011	158.000	975
				0	1.012	158.000	975	



Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S14	179.160	1.160	1200					
				0	2.000	178.000	300	
S15a	176.500	1.500	1200		1	2.000	175.000	300
				0	2.001	175.000	300	
S15	175.560	1.560	1500		1	2.001	174.000	300
				0	2.002	174.000	525	
S16	172.200	2.200	1500					
				0	9.000	170.000	525	
S17	171.500	3.000	2100		1	9.000	168.500	525
				0	9.001	168.500	600	
S18	182.550	1.550	1200					
				0	3.000	181.000	300	
S19	180.900	2.900	1200		1	3.000	178.000	300
				0	3.001	178.000	300	
S20	178.360	2.360	1200					
				0	4.000	176.000	300	
S21	177.560	2.560	1200		1	4.000	175.000	300
				0	4.001	175.000	300	
S22	174.630	2.630	1500					
				0	5.000	172.000	450	
S23	172.600	2.600	1500					
				0	6.000	170.000	450	
S24	167.880	1.880	1500					
				0	7.000	166.000	600	
S25	164.000	1.320	1200					
				0	8.000	162.680	300	

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
H1	158.500	1.500		1	1.012	157.000	975

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

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 %)
1	0	0	0
30	0	0	0
100	40	0	0

Node H1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.74600	Safety Factor	2.0	Invert Level (m)	157.000
Side Inf Coefficient (m/hr)	0.74600	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	3250.0	0.0	1.500	3750.0	0.0	1.501	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 98.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	184.059	0.059	28.5	0.2675	0.0000	OK
15 minute winter	S2	10	179.574	0.074	56.7	0.2358	0.0000	OK
15 minute winter	S3	10	175.480	0.130	140.8	0.2625	0.0000	OK
15 minute winter	S4	10	172.095	0.170	305.9	0.4608	0.0000	OK
15 minute winter	S5	10	167.679	0.179	361.0	0.4663	0.0000	OK
15 minute winter	S6	11	166.271	0.271	441.8	0.8960	0.0000	OK
15 minute winter	S7	11	165.357	0.357	501.0	1.1476	0.0000	OK
15 minute winter	S8	11	164.322	0.322	557.5	1.1130	0.0000	OK
15 minute winter	S9	11	163.809	0.309	583.1	1.3936	0.0000	OK
15 minute winter	S10	11	163.235	0.235	607.6	1.0553	0.0000	OK
15 minute winter	S11	11	162.233	0.233	660.1	1.0072	0.0000	OK
15 minute winter	S12	12	159.345	0.345	682.9	1.4756	0.0000	OK
15 minute winter	S13	12	158.239	0.239	705.0	0.9826	0.0000	OK
15 minute winter	S14	10	178.066	0.066	28.5	0.3036	0.0000	OK
15 minute winter	S15a	10	175.104	0.104	56.6	0.3981	0.0000	OK
15 minute winter	S15	10	174.105	0.105	84.2	0.4592	0.0000	OK
15 minute winter	S16	10	170.065	0.065	28.5	0.2346	0.0000	OK
15 minute winter	S17	10	168.580	0.080	56.6	0.3840	0.0000	OK
15 minute winter	S18	10	181.057	0.057	28.5	0.2132	0.0000	OK
15 minute winter	S19	10	178.083	0.083	56.8	0.2100	0.0000	OK
15 minute winter	S20	10	176.066	0.066	28.5	0.1878	0.0000	OK
15 minute winter	S21	10	175.091	0.091	56.8	0.2460	0.0000	OK
15 minute winter	S22	10	172.053	0.053	28.5	0.1737	0.0000	OK
15 minute winter	S23	10	170.056	0.055	28.5	0.1843	0.0000	OK
15 minute winter	S24	11	166.068	0.068	28.5	0.2664	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 winter	S1	1.000	S2	28.2	2.438	0.085	0.5919
15 minute winter	S2	1.001	S3	56.0	4.272	0.125	0.3282
15 minute winter	S3	1.002	S4	139.0	3.774	0.174	2.0262
15 minute winter	S4	1.003	S5	304.3	4.868	0.220	3.4435
15 minute winter	S5	1.004	S6	360.1	3.742	0.181	1.7426
15 minute winter	S6	1.005	S7	447.0	2.998	0.383	5.2158
15 minute winter	S7	1.006	S8	503.3	3.066	0.602	11.1620
15 minute winter	S8	1.007	S9	556.3	2.817	0.227	6.5272
15 minute winter	S9	1.008	S10	580.8	3.447	0.167	4.2469
15 minute winter	S10	1.009	S11	605.9	4.427	0.095	2.0531
15 minute winter	S11	1.010	S12	656.1	3.556	0.133	13.9449
15 minute winter	S12	1.011	S13	682.9	3.645	0.234	13.3911
15 minute winter	S13	1.012	H1	709.5	10.833	0.091	0.7759
15 minute winter	S14	2.000	S15a	28.1	1.717	0.107	0.8940
15 minute winter	S15a	2.001	S15	55.7	2.547	0.240	0.5034
15 minute winter	S15	2.002	S4	82.9	2.750	0.086	1.5388
15 minute winter	S16	9.000	S17	28.1	1.568	0.034	0.9167
15 minute winter	S17	9.001	S6	55.3	0.815	0.039	4.3658
15 minute winter	S18	3.000	S19	28.3	2.264	0.080	0.3782
15 minute winter	S19	3.001	S3	56.2	3.649	0.156	0.3699
15 minute winter	S20	4.000	S21	28.3	1.936	0.108	0.2650
15 minute winter	S21	4.001	S4	56.0	3.185	0.190	0.7211
15 minute winter	S22	5.000	S5	28.2	0.885	0.030	1.7895
15 minute winter	S23	6.000	S7	28.1	1.786	0.033	2.9078
15 minute winter	S24	7.000	S8	27.4	1.577	0.027	1.4084

Results for 1 year Critical Storm Duration. Lowest mass balance: 98.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute winter	S25	11	162.809	0.129	28.5	0.5403	0.0000	OK
1440 minute winter	H1	1680	157.430	0.430	41.6	1428.3200	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	
15 minute winter	S25	8.000	S11	27.4	0.967	0.373	1.4756	
1440 minute winter	H1	Infiltration		0.0				

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	184.092	0.092	69.9	0.4208	0.0000	OK
15 minute winter	S2	10	179.621	0.121	139.2	0.3862	0.0000	OK
15 minute winter	S3	10	175.566	0.216	346.1	0.4364	0.0000	OK
15 minute winter	S4	10	172.204	0.279	755.6	0.7553	0.0000	OK
15 minute winter	S5	12	167.994	0.494	900.3	1.2894	0.0000	OK
15 minute winter	S6	12	167.615	1.615	1047.2	5.3409	0.0000	SURCHARGED
15 minute winter	S7	12	166.597	1.597	1110.2	5.1395	0.0000	SURCHARGED
15 minute winter	S8	12	164.528	0.528	1215.6	1.8271	0.0000	OK
15 minute winter	S9	12	163.994	0.494	1275.0	2.2286	0.0000	OK
15 minute winter	S10	12	163.384	0.383	1331.6	1.7246	0.0000	OK
15 minute winter	S11	12	162.353	0.353	1449.7	1.5248	0.0000	OK
15 minute winter	S12	12	159.556	0.556	1508.0	2.3767	0.0000	OK
15 minute winter	S13	12	158.360	0.360	1565.4	1.4783	0.0000	OK
15 minute winter	S14	10	178.104	0.104	69.9	0.4808	0.0000	OK
15 minute winter	S15a	10	175.183	0.183	139.1	0.7007	0.0000	OK
15 minute winter	S15	10	174.162	0.162	207.0	0.7070	0.0000	OK
15 minute winter	S16	10	170.101	0.101	69.9	0.3626	0.0000	OK
15 minute winter	S17	10	168.624	0.124	139.1	0.5963	0.0000	OK
15 minute winter	S18	10	181.090	0.090	69.9	0.3346	0.0000	OK
15 minute winter	S19	10	178.138	0.138	139.4	0.3492	0.0000	OK
15 minute winter	S20	10	176.105	0.105	69.9	0.2997	0.0000	OK
15 minute winter	S21	10	175.151	0.151	139.5	0.4096	0.0000	OK
15 minute winter	S22	10	172.081	0.081	69.9	0.2678	0.0000	OK
15 minute winter	S23	10	170.086	0.086	69.9	0.2848	0.0000	OK
15 minute winter	S24	10	166.105	0.105	69.9	0.4096	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 winter	S1	1.000	S2	69.3	3.083	0.209	1.1501
15 minute winter	S2	1.001	S3	138.0	5.412	0.309	0.6376
15 minute winter	S3	1.002	S4	343.5	4.753	0.429	3.9836
15 minute winter	S4	1.003	S5	761.1	5.700	0.551	8.8055
15 minute winter	S5	1.004	S6	847.3	4.007	0.425	4.7677
15 minute winter	S6	1.005	S7	985.5	3.499	0.845	9.8587
15 minute winter	S7	1.006	S8	1103.1	3.922	1.320	18.5067
15 minute winter	S8	1.007	S9	1220.4	3.291	0.497	12.2541
15 minute winter	S9	1.008	S10	1277.0	3.936	0.367	8.1237
15 minute winter	S10	1.009	S11	1332.4	5.183	0.209	3.8577
15 minute winter	S11	1.010	S12	1453.4	4.275	0.295	25.5560
15 minute winter	S12	1.011	S13	1510.8	4.422	0.518	24.4300
15 minute winter	S13	1.012	H1	1566.7	12.326	0.201	1.5639
15 minute winter	S14	2.000	S15a	69.2	2.077	0.263	1.8037
15 minute winter	S15a	2.001	S15	137.2	3.267	0.589	0.9654
15 minute winter	S15	2.002	S4	204.4	3.152	0.212	3.4208
15 minute winter	S16	9.000	S17	69.2	2.051	0.083	1.7256
15 minute winter	S17	9.001	S6	137.1	0.902	0.097	9.7083
15 minute winter	S18	3.000	S19	69.5	2.835	0.197	0.7403
15 minute winter	S19	3.001	S3	138.3	4.588	0.383	0.7234
15 minute winter	S20	4.000	S21	69.6	2.420	0.264	0.5189
15 minute winter	S21	4.001	S4	137.9	4.014	0.468	1.4084
15 minute winter	S22	5.000	S5	69.4	1.037	0.073	4.6070
15 minute winter	S23	6.000	S7	69.2	1.814	0.082	6.3706
15 minute winter	S24	7.000	S8	68.6	1.738	0.069	5.1536

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute winter	S25	11	162.915	0.235	69.9	0.9859	0.0000	OK
1440 minute winter	H1	1680	157.851	0.851	83.2	2886.5870	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	
15 minute winter	S25	8.000	S11	67.3	1.223	0.914	2.8552	
1440 minute winter	H1	Infiltration		0.0				

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	184.127	0.127	127.0	0.5790	0.0000	OK
15 minute summer	S2	10	179.671	0.171	240.9	0.5427	0.0000	OK
15 minute winter	S3	12	176.677	1.327	639.8	2.6852	0.0000	SURCHARGED
15 minute winter	S4	12	174.996	3.071	1279.3	8.3174	0.0000	SURCHARGED
15 minute winter	S5	13	172.039	4.538	1313.8	11.8546	0.0000	FLOOD RISK
15 minute winter	S6	13	171.058	5.058	1454.0	16.7280	0.0000	FLOOD RISK
15 minute winter	S7	13	168.993	3.993	1597.2	12.8479	0.0000	SURCHARGED
15 minute winter	S8	12	164.690	0.690	1733.5	2.3884	0.0000	OK
15 minute winter	S9	12	164.131	0.631	1837.0	2.8474	0.0000	OK
15 minute winter	S10	12	163.495	0.495	1942.2	2.2240	0.0000	OK
15 minute winter	S11	12	162.449	0.449	2158.9	1.9416	0.0000	OK
15 minute winter	S12	12	159.744	0.744	2270.8	3.1786	0.0000	OK
1440 minute winter	S13	1440	158.458	0.458	190.0	1.8796	0.0000	OK
15 minute winter	S14	10	178.145	0.145	127.0	0.6687	0.0000	OK
15 minute winter	S15a	12	175.965	0.965	253.0	3.6917	0.0000	SURCHARGED
15 minute winter	S15	12	175.187	1.187	351.5	5.1726	0.0000	SURCHARGED
15 minute winter	S16	13	171.176	1.176	127.0	4.2366	0.0000	SURCHARGED
15 minute winter	S17	12	171.146	2.646	403.3	12.7256	0.0000	SURCHARGED
15 minute winter	S18	10	181.123	0.123	127.0	0.4594	0.0000	OK
15 minute winter	S19	10	178.205	0.205	253.5	0.5166	0.0000	OK
15 minute winter	S20	12	176.480	0.480	127.0	1.3638	0.0000	SURCHARGED
15 minute winter	S21	12	176.312	1.312	254.2	3.5548	0.0000	SURCHARGED
15 minute winter	S22	10	172.109	0.109	127.0	0.3600	0.0000	OK
15 minute winter	S23	10	170.116	0.116	127.0	0.3838	0.0000	OK
15 minute winter	S24	10	166.141	0.141	127.0	0.5504	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 winter	S1	1.000	S2	126.2	3.756	0.380	1.7657
15 minute summer	S2	1.001	S3	241.0	6.052	0.539	1.2722
15 minute winter	S3	1.002	S4	601.9	4.891	0.752	8.7144
15 minute winter	S4	1.003	S5	1062.3	5.705	0.770	11.8818
15 minute winter	S5	1.004	S6	1234.5	4.383	0.619	5.0702
15 minute winter	S6	1.005	S7	1402.4	4.979	1.203	9.8587
15 minute winter	S7	1.006	S8	1570.5	5.576	1.879	19.1541
15 minute winter	S8	1.007	S9	1737.9	3.509	0.708	16.4447
15 minute winter	S9	1.008	S10	1843.0	4.154	0.530	11.1061
15 minute winter	S10	1.009	S11	1946.3	5.472	0.306	5.3529
15 minute winter	S11	1.010	S12	2171.6	4.557	0.441	35.4166
15 minute winter	S12	1.011	S13	2287.6	4.768	0.784	33.8085
1440 minute winter	S13	1.012	H1	211.7	3.858	0.027	5.4372
15 minute winter	S14	2.000	S15a	126.0	2.197	0.479	2.8111
15 minute winter	S15a	2.001	S15	224.5	3.432	0.965	1.6196
15 minute winter	S15	2.002	S4	329.0	3.075	0.342	11.0177
15 minute winter	S16	9.000	S17	125.9	2.384	0.151	11.0177
15 minute winter	S17	9.001	S6	385.0	1.641	0.273	16.9006
15 minute winter	S18	3.000	S19	126.5	3.215	0.358	1.1756
15 minute winter	S19	3.001	S3	255.8	5.107	0.709	1.4308
15 minute winter	S20	4.000	S21	127.2	2.714	0.484	1.2675
15 minute winter	S21	4.001	S4	240.6	4.262	0.817	2.8872
15 minute winter	S22	5.000	S5	126.3	1.116	0.132	4.8881
15 minute winter	S23	6.000	S7	126.0	1.883	0.149	6.7651
15 minute winter	S24	7.000	S8	125.1	1.746	0.125	9.6555

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S25	11	163.345	0.665	127.0	2.7878	0.0000	SURCHARGED

1440 minute winter	H1	1680	158.455	1.455	211.7	5082.7340	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 winter	S25	8.000	S11	119.5	1.699	1.623	3.5390

1440 minute winter	H1	Infiltration		0.0			
--------------------	----	--------------	--	-----	--	--	--