

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	19.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.365	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
SW1	0.072	5.00	47.850	1200	437434.168	410477.192	1.950	45.900
SW2	0.088	5.00	47.110	1350	437440.444	410432.906	1.510	45.600
SW3	0.035	5.00	46.950	1350	437442.470	410417.412	1.550	45.400
SW4	0.101	5.00	46.767	1350	437408.155	410411.704	1.617	45.150
SW5	0.047	5.00	46.352	1350	437362.024	410395.233	1.602	44.750
SW6	0.112	5.00	46.457	1350	437380.491	410351.527	1.557	44.900
SW7	0.065	5.00	46.288	1800	437363.580	410345.203	1.888	44.400
SW8	0.155	5.00	45.810	1350	437413.545	410311.620	1.710	44.100
SW9	0.091	5.00	46.967	1350	437464.841	410407.917	1.567	45.400
SW10	0.053	5.00	46.831	1350	437444.630	410405.147	1.581	45.250
SW11	0.053	5.00	46.128	1350	437480.310	410353.842	1.378	44.750
SW12	0.126	5.00	45.967	1350	437452.511	410349.151	1.667	44.300
SW13	0.073	5.00	45.390	1350	437457.591	410318.824	1.740	43.650
SW14	0.052	5.00	45.386	1350	437488.918	410302.321	1.436	43.950
SW15	0.126	5.00	45.172	1500	437461.135	410297.586	1.772	43.400
SW16	0.127	5.00	45.410	1350	437429.333	410249.746	1.510	43.900
SW17	0.092	5.00	44.746	1500	437468.221	410255.798	1.796	42.950
SW18	0.068	5.00	44.810	1350	437443.986	410217.049	1.360	43.450
SW19	0.191	5.00	43.927	1800	437474.622	410221.707	1.427	42.500
SW20	0.066	5.00	47.221	1350	437302.534	410437.495	1.621	45.600
SW21	0.216	5.00	47.140	1350	437313.979	410441.341	1.690	45.450
SW22	0.081	5.00	46.505	1350	437332.254	410392.415	1.355	45.150
SW23	0.036	5.00	46.392	1350	437334.675	410384.846	1.442	44.950
SW24	0.152	5.00	46.548	1350	437237.713	410402.414	1.498	45.050
SW25	0.172	5.00	46.778	1500	437259.101	410347.015	2.178	44.600
SW26	0.099	5.00	47.050	2100	437247.448	410341.790	2.600	44.450
SW27	0.000		47.249	1200	437254.881	410329.351	2.899	44.350
SW28	0.144	5.00	46.997	1200	437286.427	410321.468	2.797	44.200
SW29	0.210	5.00	46.336	1350	437358.012	410271.451	2.586	43.750
SW30	0.085	5.00	45.980	1350	437381.102	410241.248	2.580	43.400
SW31	0.018	5.00	45.938	1200	437363.998	410206.625	2.138	43.800
SW32	0.174	5.00	45.816	1500	437391.371	410217.341	2.516	43.300
SW33	0.040	5.00	45.429	1500	437406.596	410176.252	2.279	43.150
SW34	0.125	5.00	44.330	1500	437476.323	410189.594	1.780	42.550
SW35			43.975	2700	437490.021	410187.834	2.075	41.900
SWHW1			45.800	450	437362.537	410381.756	1.297	44.503
SWHW2			45.800	450	437371.561	410358.705	1.297	44.503
SWHW3		5.00	45.800	450	437365.380	410356.510	1.300	44.500
SWHW5			43.300	450	437482.561	410216.284	1.297	42.003
SWHW6		5.00	43.300	450	437490.758	410199.508	1.300	42.000

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
SWHW7			43.433	450	437507.238	410185.353	1.633	41.800
1	0.500	5.00	47.200	1800	437424.561	410519.219	1.100	46.100
2	0.500	5.00	46.350	1800	437218.736	410446.410	1.100	45.250
3	0.500	5.00	46.000	1200	437338.390	410196.225	1.800	44.200

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)
S1	SW1	SW2	44.729	0.600	45.900	45.600	0.300	149.1	300	6.25	50.0
S2	SW2	SW3	15.626	0.600	45.600	45.400	0.200	78.1	300	6.40	50.0
S3	SW3	SW4	34.786	0.600	45.400	45.225	0.175	198.8	300	6.92	50.0
S4	SW4	SW5	48.984	0.600	45.150	44.750	0.400	122.5	375	7.42	50.0
S5	SW5	SWHW1	13.487	0.600	44.750	44.650	0.100	134.9	375	7.57	50.0
S6	SW6	SWHW2	11.457	0.600	44.900	44.650	0.250	45.8	225	5.10	50.0
S7	SW7	SW8	60.203	0.600	44.400	44.100	0.300	200.7	300	6.04	50.0
S8	SW8	SW13	44.631	0.600	44.100	43.800	0.300	148.8	300	6.62	50.0
S9	SW9	SW10	20.400	0.600	45.400	45.250	0.150	136.0	225	5.30	50.0
S10	SW10	SW12	56.547	0.600	45.250	44.375	0.875	64.6	225	5.88	50.0
S11	SW11	SW12	28.192	0.600	44.750	44.450	0.300	94.0	150	5.45	50.0
S12	SW12	SW13	30.750	0.600	44.300	43.800	0.500	61.5	300	6.14	50.0
S13	SW13	SW15	21.532	0.600	43.650	43.400	0.250	86.1	450	6.78	50.0
S14	SW14	SW15	28.184	0.600	43.950	43.700	0.250	112.7	150	5.50	50.0
S15	SW15	SW17	42.384	0.600	43.400	43.025	0.375	113.0	450	7.15	50.0
S16	SW16	SW17	39.356	0.600	43.900	43.250	0.650	60.5	225	5.39	50.0
S17	SW17	SW19	34.687	0.600	42.950	42.500	0.450	77.1	525	7.38	50.0
S18	SW18	SW19	30.988	0.600	43.450	42.875	0.575	53.9	150	5.38	50.0
S19	SW19	SWHW5	9.614	0.600	42.500	42.250	0.250	38.5	525	7.42	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)
S1	1.285	90.8	77.5	1.650	1.210	0.572	0.0	214	1.437
S2	1.780	125.8	89.4	1.210	1.250	0.660	0.0	187	1.926
S3	1.111	78.6	94.2	1.250	1.242	0.695	0.0	300	1.126
S4	1.636	180.7	107.9	1.242	1.227	0.796	0.0	209	1.705
S5	1.558	172.1	114.2	1.227	0.775	0.843	0.0	224	1.662
S6	1.937	77.0	15.2	1.332	0.925	0.112	0.0	67	1.512
S7	1.106	78.2	8.8	1.588	1.410	0.065	0.0	68	0.739
S8	1.287	90.9	29.8	1.410	1.290	0.220	0.0	118	1.156
S9	1.119	44.5	12.3	1.342	1.356	0.091	0.0	80	0.958
S10	1.629	64.8	19.5	1.356	1.367	0.144	0.0	85	1.433
S11	1.037	18.3	7.2	1.228	1.367	0.053	0.0	65	0.975
S12	2.008	141.9	43.8	1.367	1.290	0.323	0.0	114	1.775
S13	2.191	348.5	83.5	1.290	1.322	0.616	0.0	149	1.812
S14	0.945	16.7	7.0	1.286	1.322	0.052	0.0	68	0.904
S15	1.911	304.0	107.6	1.322	1.271	0.794	0.0	184	1.752
S16	1.684	66.9	17.2	1.285	1.271	0.127	0.0	78	1.418
S17	2.553	552.6	137.3	1.271	0.902	1.013	0.0	177	2.133
S18	1.373	24.3	9.2	1.210	0.902	0.068	0.0	64	1.281
S19	3.619	783.5	172.4	0.902	0.525	1.272	0.0	166	2.931

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)
S20	SW20	SW21	12.074	0.600	45.600	45.525	0.075	161.0	225	5.20	50.0
S21	SW21	SW22	52.228	0.600	45.450	45.225	0.225	232.1	300	6.04	50.0
S22	SW22	SW23	7.946	0.600	45.150	44.950	0.200	39.7	375	6.09	50.0
S23	SW23	SW25	84.514	0.600	44.950	44.675	0.275	307.3	375	7.46	50.0
S24	SW24	SW25	59.384	0.600	45.050	44.750	0.300	197.9	300	6.68	50.0
S25	SW25	SW26	12.770	0.600	44.600	44.525	0.075	170.3	450	7.60	50.0
S26	SW26	SW27	14.491	0.600	44.450	44.350	0.100	144.9	300	7.78	50.0
S27	SW27	SW28	32.516	0.600	44.350	44.200	0.150	216.8	300	8.29	50.0
S28	SW28	SW29	87.328	0.600	44.200	43.825	0.375	232.9	300	9.71	50.0
S29	SW29	SW30	38.019	0.600	43.750	43.475	0.275	138.3	375	10.12	50.0
S30	SW30	SW32	26.019	0.600	43.400	43.300	0.100	260.2	450	10.47	50.0
S31	SW31	SW32	29.396	0.600	43.800	43.525	0.275	106.9	225	5.81	50.0
S32	SW32	SW33	43.818	0.600	43.300	43.150	0.150	292.1	450	11.08	50.0
S33	SW33	SW34	70.992	0.600	43.150	42.550	0.600	118.3	450	11.72	50.0
S34	SW34	SW35	13.810	0.600	42.550	41.975	0.575	24.0	450	11.77	50.0
S35	SW35	SWHW7	17.395	0.600	41.900	41.800	0.100	174.0	450	11.96	50.0
S7A	SWHW3	SW7	11.449	0.600	44.500	44.400	0.100	114.5	300	5.13	50.0
S35A	SWHW6	SW35	11.697	0.600	42.000	41.900	0.100	117.0	525	5.09	50.0
1	1	SW1	43.111	0.600	46.100	45.900	0.200	215.6	300	5.67	50.0
2	2	SW24	47.914	0.600	45.250	45.050	0.200	239.6	300	5.79	50.0
3	3	SW31	27.639	0.600	44.200	43.875	0.325	85.0	150	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)
S20	1.028	40.9	8.9	1.396	1.390	0.066	0.0	72	0.828
S21	1.027	72.6	38.2	1.390	0.980	0.282	0.0	154	1.039
S22	2.882	318.3	49.2	0.980	1.067	0.363	0.0	99	2.116
S23	1.028	113.5	54.1	1.067	1.728	0.399	0.0	182	1.016
S24	1.114	78.7	88.4	1.198	1.728	0.652	0.0	300	1.128
S25	1.555	247.3	165.7	1.728	2.075	1.223	0.0	270	1.662
S26	1.304	92.2	179.2	2.300	2.599	1.322	0.0	300	1.321
S27	1.064	75.2	179.2	2.599	2.497	1.322	0.0	300	1.077
S28	1.026	72.5	198.7	2.497	2.211	1.466	0.0	300	1.039
S29	1.539	170.0	227.1	2.211	2.130	1.676	0.0	375	1.558
S30	1.255	199.7	238.7	2.130	2.066	1.761	0.0	450	1.271
S31	1.264	50.3	70.2	1.913	2.066	0.518	0.0	225	1.287
S32	1.184	188.3	332.4	2.066	1.829	2.453	0.0	450	1.199
S33	1.868	297.0	337.9	1.829	1.330	2.493	0.0	450	1.891
S34	4.161	661.8	354.8	1.330	1.550	2.618	0.0	234	4.227
S35	1.538	244.6	354.8	1.625	1.183	2.618	0.0	450	1.558
S7A	1.468	103.8	0.0	1.000	1.588	0.000	0.0	0	0.000
S35A	2.070	448.1	0.0	0.775	1.550	0.000	0.0	0	0.000
1	1.067	75.4	67.8	0.800	1.650	0.500	0.0	223	1.201
2	1.011	71.5	67.8	0.800	1.198	0.500	0.0	234	1.145
3	1.090	19.3	67.8	1.650	1.913	0.500	0.0	150	1.111

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	19.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.365	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160
30	120	240	480	720	1440	2880

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	35	0	0
100	40	0	0

Node SW7 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	44.400	Product Number	CTL-SHE-0139-9200-1100-9200
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	9.2	Min Node Diameter (mm)	1200

Node SW26 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	44.450	Product Number	CTL-SHE-0188-1780-1050-1780
Design Depth (m)	1.050	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	17.8	Min Node Diameter (mm)	1500

Node SW35 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	41.900	Product Number	CTL-SHE-0381-9280-1100-9280
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.450
Design Flow (l/s)	92.8	Min Node Diameter (mm)	2700

Node 1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	46.100	Product Number	CTL-SHE-0225-2700-1100-2700
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	27.0	Min Node Diameter (mm)	1800

Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	45.250	Product Number	CTL-SHE-0225-2700-1100-2700
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	27.0	Min Node Diameter (mm)	1800

Node 3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	44.200	Product Number	CTL-SHE-0119-6600-1100-6600
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	6.6	Min Node Diameter (mm)	1200

Node SWHW3 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	30.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	44.500	Main Channel Slope (1:X)	10000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.035

Inlets

SWHW1 | SWHW2

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	550.0	0.0	1.000	550.0	0.0	1.001	0.0	0.0

Node SW26 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	44.500
Side Inf Coefficient (m/hr)	0.00000	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	600.0	600.0	1.000	600.0	686.8	1.001	0.0	686.8

Node SWHW6 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	30.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	42.000	Main Channel Slope (1:X)	10000.0
Safety Factor	2.0	Time to half empty (mins)	136	Main Channel n	0.035

Inlets

SWHW5

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	780.0	780.0	1.000	780.0	879.0	1.001	0.0	879.0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	46.200
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	69

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	150.0	150.0	1.000	150.0	193.4	1.001	0.0	193.4

Node 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	45.350
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	67

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	165.0	165.0	1.000	165.0	210.5	1.001	0.0	210.5

Node 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	44.300
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)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	260.0	260.0	1.000	260.0	317.2	1.001	0.0	317.2

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	SW1	22	45.995	0.095	19.2	0.1766	0.0000	OK
15 minute winter	SW2	11	45.701	0.101	28.3	0.2634	0.0000	OK
15 minute winter	SW3	12	45.537	0.137	32.2	0.2584	0.0000	OK
15 minute winter	SW4	11	45.275	0.125	43.3	0.3349	0.0000	OK
15 minute winter	SW5	12	44.897	0.147	48.5	0.2974	0.0000	OK
15 minute winter	SW6	10	44.970	0.070	14.5	0.2002	0.0000	OK
240 minute winter	SW7	200	44.680	0.280	26.1	0.9049	0.0000	OK
15 minute winter	SW8	11	44.212	0.112	26.8	0.3633	0.0000	OK
15 minute winter	SW9	10	45.481	0.081	11.8	0.2105	0.0000	OK
15 minute winter	SW10	11	45.332	0.082	18.5	0.1729	0.0000	OK
15 minute winter	SW11	11	44.814	0.064	6.9	0.1406	0.0000	OK
15 minute winter	SW12	11	44.414	0.114	40.2	0.3345	0.0000	OK
15 minute winter	SW13	11	43.802	0.152	75.5	0.3447	0.0000	OK
15 minute winter	SW14	11	44.016	0.066	6.7	0.1425	0.0000	OK
15 minute winter	SW15	11	43.583	0.183	97.6	0.5824	0.0000	OK
15 minute winter	SW16	10	43.976	0.076	16.5	0.2375	0.0000	OK
15 minute winter	SW17	11	43.126	0.176	124.7	0.4924	0.0000	OK
15 minute winter	SW18	10	43.513	0.063	8.8	0.1527	0.0000	OK
15 minute winter	SW19	11	42.689	0.189	156.5	0.9863	0.0000	OK
15 minute winter	SW20	10	45.673	0.073	8.6	0.1641	0.0000	OK
15 minute winter	SW21	11	45.601	0.151	36.4	0.6012	0.0000	OK
15 minute winter	SW22	11	45.259	0.109	45.2	0.2851	0.0000	OK
15 minute winter	SW23	12	45.121	0.171	49.6	0.3305	0.0000	OK
15 minute winter	SW24	12	45.171	0.121	27.5	0.4191	0.0000	OK
15 minute winter	SW25	12	44.809	0.209	91.0	0.6984	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)
30 minute winter	SW1	S1	SW2	19.1	1.033	0.210	0.8631	
15 minute winter	SW2	S2	SW3	27.9	1.075	0.222	0.4081	
15 minute winter	SW3	S3	SW4	31.9	1.046	0.406	1.0621	
15 minute winter	SW4	S4	SW5	42.9	1.194	0.237	1.7602	
15 minute winter	SW5	S5	SWHW1	48.3	1.282	0.281	0.5088	
15 minute winter	SW6	S6	SWHW2	14.3	1.429	0.186	0.1147	
240 minute winter	SW7	Hydro-Brake®	SW8	9.2				
15 minute winter	SW8	S8	SW13	26.1	1.111	0.287	1.0492	
15 minute winter	SW9	S9	SW10	11.6	0.903	0.260	0.2617	
15 minute winter	SW10	S10	SW12	18.1	1.396	0.279	0.7331	
15 minute winter	SW11	S11	SW12	6.7	0.948	0.364	0.1984	
15 minute winter	SW12	S12	SW13	40.4	1.706	0.285	0.7292	
15 minute winter	SW13	S13	SW15	75.7	1.413	0.217	1.1556	
15 minute winter	SW14	S14	SW15	6.5	0.879	0.387	0.2075	
15 minute winter	SW15	S15	SW17	97.6	1.681	0.321	2.4598	
15 minute winter	SW16	S16	SW17	15.9	1.375	0.238	0.4573	
15 minute winter	SW17	S17	SW19	124.6	1.868	0.226	2.3146	
15 minute winter	SW18	S18	SW19	8.5	1.241	0.350	0.2129	
15 minute winter	SW19	S19	SWHW5	155.9	2.531	0.199	0.5935	
15 minute winter	SW20	S20	SW21	8.4	0.762	0.206	0.1368	
15 minute winter	SW21	S21	SW22	35.3	1.022	0.486	1.8027	
15 minute winter	SW22	S22	SW23	45.2	1.313	0.142	0.2952	
15 minute winter	SW23	S23	SW25	47.2	1.019	0.416	3.9167	
15 minute winter	SW24	S24	SW25	26.3	1.006	0.334	1.5540	
15 minute winter	SW25	S25	SW26	91.6	1.371	0.371	0.8539	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	SW26	184	44.693	0.243	32.0	117.0054	0.0000	OK
240 minute winter	SW27	188	44.438	0.088	13.6	0.0993	0.0000	OK
15 minute winter	SW28	12	44.302	0.102	19.9	0.2198	0.0000	OK
15 minute winter	SW29	11	43.883	0.133	43.2	0.4054	0.0000	OK
15 minute winter	SW30	11	43.571	0.171	53.5	0.3564	0.0000	OK
30 minute winter	SW31	22	43.858	0.058	7.0	0.0748	0.0000	OK
15 minute winter	SW32	11	43.509	0.209	81.2	0.6591	0.0000	OK
15 minute winter	SW33	12	43.324	0.174	85.4	0.3681	0.0000	OK
15 minute winter	SW34	12	42.668	0.118	98.1	0.3752	0.0000	OK
360 minute winter	SW35	248	42.270	0.370	47.2	2.1191	0.0000	OK
15 minute winter	SWHW1	12	44.668	0.165	48.3	0.0263	0.0000	OK
180 minute winter	SWHW2	172	44.646	0.143	3.8	0.0227	0.0000	OK
240 minute winter	SWHW3	196	44.646	0.146	36.1	0.0232	0.0000	OK
360 minute winter	SWHW5	248	42.270	0.267	34.1	0.0425	0.0000	OK
360 minute winter	SWHW6	248	42.270	0.270	21.1	0.0430	0.0000	OK
360 minute winter	SWHW7	248	41.932	0.132	47.2	0.0000	0.0000	OK
60 minute winter	1	43	46.350	0.250	34.6	25.4745	0.0000	OK
60 minute winter	2	44	45.492	0.242	34.6	26.3683	0.0000	OK
120 minute winter	3	92	44.434	0.234	22.2	36.6657	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)
240 minute winter	SW26	S26	SW27	13.6	0.834	0.148	0.2370	817.0
240 minute winter	SW27	S27	SW28	13.6	0.774	0.181	0.5756	
15 minute winter	SW28	S28	SW29	18.0	0.861	0.248	1.8210	
15 minute winter	SW29	S29	SW30	43.1	1.275	0.254	1.2855	
15 minute winter	SW30	S30	SW32	53.4	0.841	0.268	1.6547	
30 minute winter	SW31	S31	SW32	7.0	0.887	0.139	0.2316	
15 minute winter	SW32	S32	SW33	80.5	1.256	0.427	2.8105	
15 minute winter	SW33	S33	SW34	84.9	1.908	0.286	3.1822	
15 minute winter	SW34	S34	SW35	98.1	1.810	0.148	0.8723	
360 minute winter	SW35	S35	SWHW7	47.2	1.158	0.193	0.7090	
15 minute winter	SWHW1	Flow through Pond	SWHW3	50.9	0.080	0.016	32.5920	
180 minute winter	SWHW2	Flow through Pond	SWHW3	34.6	0.024	0.011	79.0589	
240 minute winter	SWHW3	S7A	SW7	26.1	0.624	0.251	0.5817	
360 minute winter	SWHW5	Flow through Pond	SWHW6	21.1	0.017	0.005	209.6709	
360 minute winter	SWHW6	S35A	SW35	22.2	0.307	0.049	1.6065	
60 minute winter	1	1	SW1	15.8	0.848	0.210	0.8113	
60 minute winter	2	2	SW24	15.0	0.760	0.209	0.9788	
120 minute winter	3	3	SW31	6.2	0.963	0.322	0.1779	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	11	46.068	0.168	56.3	0.3145	0.0000	OK
15 minute winter	SW2	12	45.913	0.313	91.7	0.8134	0.0000	SURCHARGED
15 minute winter	SW3	12	45.782	0.382	97.5	0.7194	0.0000	SURCHARGED
15 minute winter	SW4	11	45.406	0.256	136.8	0.6876	0.0000	OK
360 minute winter	SW5	360	45.198	0.448	47.0	0.9043	0.0000	SURCHARGED
360 minute winter	SW6	360	45.197	0.297	7.1	0.8532	0.0000	SURCHARGED
360 minute winter	SW7	360	45.196	0.796	24.0	2.5745	0.0000	SURCHARGED
15 minute winter	SW8	10	44.314	0.214	75.5	0.6956	0.0000	OK
15 minute winter	SW9	10	45.577	0.177	39.0	0.4592	0.0000	OK
15 minute winter	SW10	10	45.426	0.176	60.9	0.3710	0.0000	OK
15 minute winter	SW11	11	44.981	0.231	22.7	0.5083	0.0000	SURCHARGED
15 minute winter	SW12	11	44.557	0.257	133.0	0.7562	0.0000	OK
15 minute winter	SW13	11	43.985	0.335	235.9	0.7603	0.0000	OK
15 minute winter	SW14	11	44.211	0.261	22.3	0.5622	0.0000	SURCHARGED
15 minute winter	SW15	11	43.817	0.417	307.6	1.3313	0.0000	OK
15 minute winter	SW16	10	44.059	0.159	54.5	0.4954	0.0000	OK
15 minute winter	SW17	11	43.323	0.373	393.6	1.0418	0.0000	OK
15 minute winter	SW18	11	43.742	0.292	29.2	0.7108	0.0000	SURCHARGED
15 minute winter	SW19	11	42.907	0.407	497.4	2.1231	0.0000	OK
15 minute winter	SW20	12	46.218	0.618	28.3	1.3880	0.0000	SURCHARGED
15 minute winter	SW21	12	46.178	0.728	115.8	2.9043	0.0000	SURCHARGED
15 minute winter	SW22	12	45.664	0.514	137.5	1.3497	0.0000	SURCHARGED
15 minute winter	SW23	12	45.592	0.642	144.0	1.2406	0.0000	SURCHARGED
15 minute winter	SW24	12	45.425	0.375	89.0	1.2992	0.0000	SURCHARGED
240 minute winter	SW25	236	45.232	0.632	87.8	2.1143	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 winter	SW1	S1	SW2	56.1	1.192	0.618	2.4782	
15 minute winter	SW2	S2	SW3	85.6	1.288	0.680	1.1004	
15 minute winter	SW3	S3	SW4	98.5	1.421	1.254	2.2902	
15 minute winter	SW4	S4	SW5	137.4	1.514	0.761	4.4153	
360 minute winter	SW5	S5	SWHW1	47.1	1.247	0.273	1.4876	
360 minute winter	SW6	S6	SWHW2	7.1	1.130	0.092	0.4557	
360 minute winter	SW7	Hydro-Brake®	SW8	9.2				
15 minute winter	SW8	S8	SW13	73.6	1.417	0.809	2.3166	
15 minute winter	SW9	S9	SW10	38.2	1.151	0.858	0.6829	
15 minute winter	SW10	S10	SW12	60.2	1.792	0.930	1.9145	
15 minute winter	SW11	S11	SW12	20.8	1.184	1.135	0.4785	
15 minute winter	SW12	S12	SW13	132.8	2.191	0.936	1.8647	
15 minute winter	SW13	S13	SW15	236.3	1.690	0.678	3.0138	
15 minute winter	SW14	S14	SW15	20.3	1.157	1.214	0.4764	
15 minute winter	SW15	S15	SW17	303.8	2.124	1.000	6.3002	
15 minute winter	SW16	S16	SW17	53.0	1.834	0.791	1.1419	
15 minute winter	SW17	S17	SW19	394.3	2.304	0.714	5.9596	
15 minute winter	SW18	S18	SW19	25.9	1.486	1.069	0.5376	
15 minute winter	SW19	S19	SWHW5	497.6	3.238	0.635	1.4670	
15 minute winter	SW20	S20	SW21	26.2	0.786	0.640	0.4802	
15 minute winter	SW21	S21	SW22	102.8	1.461	1.416	3.6779	
15 minute winter	SW22	S22	SW23	131.8	1.457	0.414	0.8764	
15 minute winter	SW23	S23	SW25	145.5	1.319	1.282	9.3216	
15 minute winter	SW24	S24	SW25	77.6	1.186	0.986	4.1818	
240 minute winter	SW25	S25	SW26	85.5	1.157	0.346	2.0233	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	SW26	240	45.231	0.781	94.0	442.0490	0.0000	SURCHARGED
30 minute winter	SW27	52	44.452	0.102	17.8	0.1148	0.0000	OK
15 minute winter	SW28	11	44.418	0.218	67.3	0.4714	0.0000	OK
15 minute winter	SW29	12	44.151	0.401	150.2	1.2244	0.0000	SURCHARGED
15 minute winter	SW30	12	43.918	0.518	177.8	1.0832	0.0000	SURCHARGED
15 minute winter	SW31	10	43.880	0.080	14.0	0.1042	0.0000	OK
15 minute winter	SW32	11	43.823	0.523	246.3	1.6479	0.0000	SURCHARGED
15 minute winter	SW33	11	43.503	0.353	264.7	0.7469	0.0000	OK
15 minute winter	SW34	12	42.812	0.262	314.8	0.8318	0.0000	OK
120 minute winter	SW35	94	42.744	0.844	135.4	4.8323	0.0000	SURCHARGED
360 minute winter	SWHW1	344	45.199	0.696	47.1	0.1107	0.0000	OK
360 minute winter	SWHW2	360	45.197	0.694	7.1	0.1104	0.0000	OK
360 minute winter	SWHW3	360	45.197	0.697	40.3	0.1109	0.0000	SURCHARGED
180 minute winter	SWHW5	132	42.735	0.732	252.1	0.1164	0.0000	OK
180 minute winter	SWHW6	140	42.736	0.736	346.7	0.1170	0.0000	SURCHARGED
240 minute winter	SWHW7	164	41.988	0.188	92.8	0.0000	0.0000	OK
60 minute winter	1	49	46.837	0.737	113.0	104.1261	0.0000	SURCHARGED
60 minute winter	2	49	45.937	0.687	113.0	104.8757	0.0000	SURCHARGED
240 minute winter	3	232	44.944	0.744	42.8	172.6741	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)
240 minute winter	SW26	S26	SW27	17.8	0.911	0.193	0.2904	
30 minute winter	SW27	S27	SW28	17.8	0.848	0.236	1.1000	
15 minute winter	SW28	S28	SW29	65.3	1.120	0.900	5.4036	
15 minute winter	SW29	S29	SW30	142.5	1.475	0.838	4.1934	
15 minute winter	SW30	S30	SW32	171.0	1.079	0.857	4.1225	
15 minute winter	SW31	S31	SW32	13.9	0.938	0.276	0.7710	
15 minute winter	SW32	S32	SW33	248.6	1.606	1.320	6.3911	
15 minute winter	SW33	S33	SW34	264.3	2.303	0.890	8.1319	
15 minute winter	SW34	S34	SW35	310.4	2.573	0.469	1.7426	
120 minute winter	SW35	S35	SWHW7	92.8	1.378	0.379	1.1714	1263.6
360 minute winter	SWHW1	Flow through Pond	SWHW3	34.2	0.028	0.011	382.6547	
360 minute winter	SWHW2	Flow through Pond	SWHW3	34.2	0.028	0.011	382.6547	
360 minute winter	SWHW3	S7A	SW7	21.6	0.543	0.208	0.8062	
180 minute winter	SWHW5	Flow through Pond	SWHW6	346.7	0.035	0.076	571.1140	
180 minute winter	SWHW6	S35A	SW35	72.0	0.333	0.161	2.5269	
60 minute winter	1	1	SW1	26.9	1.011	0.357	1.3406	
60 minute winter	2	2	SW24	26.9	0.972	0.376	1.8931	
240 minute winter	3	3	SW31	6.6	0.979	0.342	0.1863	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 97.14%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW1	12	46.275	0.375	68.1	0.7012	0.0000	SURCHARGED
15 minute winter	SW2	12	46.136	0.536	107.5	1.3932	0.0000	SURCHARGED
15 minute winter	SW3	12	45.968	0.568	115.4	1.0704	0.0000	SURCHARGED
15 minute winter	SW4	11	45.551	0.401	169.9	1.0748	0.0000	SURCHARGED
480 minute winter	SW5	440	45.520	0.770	49.8	1.5534	0.0000	SURCHARGED
360 minute winter	SW6	352	45.517	0.617	9.5	1.7707	0.0000	SURCHARGED
360 minute winter	SW7	344	45.514	1.114	22.7	3.6007	0.0000	SURCHARGED
15 minute winter	SW8	11	44.625	0.525	97.6	1.7038	0.0000	SURCHARGED
15 minute winter	SW9	12	46.197	0.797	52.3	2.0675	0.0000	SURCHARGED
15 minute winter	SW10	12	46.032	0.782	73.7	1.6432	0.0000	SURCHARGED
15 minute winter	SW11	12	45.607	0.857	30.5	1.8871	0.0000	SURCHARGED
15 minute winter	SW12	11	45.009	0.709	156.2	2.0859	0.0000	SURCHARGED
15 minute winter	SW13	11	44.316	0.666	273.3	1.5121	0.0000	SURCHARGED
15 minute winter	SW14	12	44.715	0.765	29.9	1.6489	0.0000	SURCHARGED
15 minute winter	SW15	11	44.085	0.685	364.3	2.1834	0.0000	SURCHARGED
15 minute winter	SW16	11	44.177	0.277	73.0	0.8639	0.0000	SURCHARGED
15 minute winter	SW17	11	43.407	0.457	479.5	1.2755	0.0000	OK
15 minute winter	SW18	12	44.201	0.751	39.1	1.8264	0.0000	SURCHARGED
240 minute winter	SW19	160	43.031	0.531	148.4	2.7749	0.0000	SURCHARGED
15 minute winter	SW20	12	47.119	1.519	38.0	3.4120	0.0000	FLOOD RISK
15 minute winter	SW21	12	47.055	1.605	144.9	6.4023	0.0000	FLOOD RISK
15 minute winter	SW22	12	46.191	1.041	171.8	2.7354	0.0000	SURCHARGED
15 minute winter	SW23	12	46.071	1.121	187.3	2.1642	0.0000	SURCHARGED
15 minute winter	SW24	11	45.665	0.615	103.2	2.1288	0.0000	SURCHARGED
360 minute winter	SW25	328	45.593	0.993	88.3	3.3236	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 winter	SW1	S1	SW2	68.3	1.192	0.752	3.1498	
15 minute winter	SW2	S2	SW3	97.7	1.387	0.776	1.1004	
15 minute winter	SW3	S3	SW4	113.9	1.625	1.450	2.4496	
15 minute winter	SW4	S4	SW5	162.4	1.533	0.899	5.4028	
480 minute winter	SW5	S5	SWHW1	48.6	1.216	0.283	1.4876	
360 minute winter	SW6	S6	SWHW2	9.5	1.155	0.123	0.4557	
360 minute winter	SW7	Hydro-Brake®	SW8	9.2				
15 minute winter	SW8	S8	SW13	85.2	1.419	0.937	3.1429	
15 minute winter	SW9	S9	SW10	45.1	1.160	1.013	0.8113	
15 minute winter	SW10	S10	SW12	67.8	1.851	1.047	2.2489	
15 minute winter	SW11	S11	SW12	25.5	1.451	1.394	0.4963	
15 minute winter	SW12	S12	SW13	152.0	2.174	1.071	2.1654	
15 minute winter	SW13	S13	SW15	272.2	1.718	0.781	3.4116	
15 minute winter	SW14	S14	SW15	25.2	1.432	1.508	0.4962	
15 minute winter	SW15	S15	SW17	362.6	2.290	1.193	6.5593	
15 minute winter	SW16	S16	SW17	68.5	1.851	1.023	1.5356	
15 minute winter	SW17	S17	SW19	478.3	2.348	0.866	7.1104	
15 minute winter	SW18	S18	SW19	33.1	1.882	1.365	0.5400	
240 minute winter	SW19	S19	SWHW5	148.9	2.325	0.190	2.0769	
15 minute winter	SW20	S20	SW21	34.3	0.861	0.838	0.4802	
15 minute winter	SW21	S21	SW22	132.4	1.880	1.823	3.6779	
15 minute winter	SW22	S22	SW23	171.0	1.551	0.537	0.8764	
15 minute winter	SW23	S23	SW25	188.7	1.711	1.662	9.3216	
15 minute winter	SW24	S24	SW25	88.3	1.254	1.122	4.1818	
360 minute winter	SW25	S25	SW26	85.1	0.958	0.344	2.0233	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 97.14%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	SW26	328	45.592	1.142	93.5	605.4266	0.0000	SURCHARGED
15 minute winter	SW27	12	44.850	0.500	28.1	0.5655	0.0000	SURCHARGED
15 minute winter	SW28	11	44.843	0.643	82.8	1.3901	0.0000	SURCHARGED
15 minute winter	SW29	12	44.579	0.829	181.9	2.5337	0.0000	SURCHARGED
15 minute winter	SW30	12	44.292	0.892	206.5	1.8647	0.0000	SURCHARGED
15 minute winter	SW31	12	44.207	0.407	17.1	0.5284	0.0000	SURCHARGED
15 minute winter	SW32	12	44.156	0.856	307.6	2.6967	0.0000	SURCHARGED
15 minute winter	SW33	12	43.695	0.545	323.3	1.1544	0.0000	SURCHARGED
180 minute winter	SW34	124	43.024	0.474	137.9	1.5038	0.0000	SURCHARGED
120 minute winter	SW35	92	43.067	1.167	201.3	6.6843	0.0000	SURCHARGED
360 minute winter	SWHW1	352	45.521	1.018	55.1	0.1619	0.0000	OK
360 minute winter	SWHW2	352	45.519	1.016	9.5	0.1616	0.0000	OK
360 minute winter	SWHW3	352	45.520	1.020	42.6	0.1622	0.0000	FLOOD RISK
120 minute winter	SWHW5	88	43.094	1.091	5153.2	0.1734	0.0000	OK
120 minute winter	SWHW6	88	43.040	1.040	2353.7	0.1654	0.0000	FLOOD RISK
30 minute winter	SWHW7	60	41.988	0.188	92.8	0.0000	0.0000	OK
60 minute winter	1	58	47.172	1.072	153.9	158.2896	0.0000	FLOOD RISK
60 minute winter	2	58	46.248	0.998	153.9	159.8169	0.0000	FLOOD RISK
240 minute winter	3	236	45.252	1.052	58.0	254.7352	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)
360 minute winter	SW26	S26	SW27	17.8	0.911	0.193	0.2898	1447.2
15 minute winter	SW27	S27	SW28	32.7	0.848	0.435	2.2898	
15 minute winter	SW28	S28	SW29	74.1	1.244	1.022	6.1496	
15 minute winter	SW29	S29	SW30	157.6	1.478	0.927	4.1934	
15 minute winter	SW30	S30	SW32	202.9	1.280	1.016	4.1225	
15 minute winter	SW31	S31	SW32	20.6	0.915	0.409	1.1691	
15 minute winter	SW32	S32	SW33	301.6	1.904	1.601	6.9427	
15 minute winter	SW33	S33	SW34	317.8	2.290	1.070	9.9686	
180 minute winter	SW34	S34	SW35	173.7	1.489	0.262	2.1881	
120 minute winter	SW35	S35	SWHW7	92.8	1.381	0.379	1.1713	
360 minute winter	SWHW1	Flow through Pond	SWHW3	35.3	0.031	0.011	553.1541	
360 minute winter	SWHW2	Flow through Pond	SWHW3	35.3	0.031	0.011	553.1541	
360 minute winter	SWHW3	S7A	SW7	20.3	0.585	0.195	0.8062	
120 minute winter	SWHW5	Flow through Pond	SWHW6	-4965.3	-0.210	-1.091	783.2029	
120 minute winter	SWHW6	S35A	SW35	86.3	-0.440	0.193	2.5269	
60 minute winter	1	1	SW1	26.9	1.011	0.357	1.3978	
60 minute winter	2	2	SW24	26.9	0.938	0.377	2.0949	
240 minute winter	3	3	SW31	6.6	0.979	0.342	0.1863	