

Coast Consulting Engineers Ltd		Page 0
Suite 6, Vita House Fish Quay North Shields NE30 1JA	FLOSH MEADOWS CLEATOR	
Date 12/10/2021 File 211012 REVISED COMBINED...	Designed by RH Checked by PL	
Innovyze	Network 2020.1	

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for 180518 SW1.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	41.957	0.420	99.9	0.049	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	53.639	1.516	35.4	0.083	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	31.512	0.770	40.9	0.096	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.003	25.483	0.255	100.0	0.104	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.004	17.652	0.177	100.0	0.035	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.005	18.982	0.077	245.0	0.028	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.006	13.655	0.192	71.1	0.029	0.00	0.0	0.600	o	375	Pipe/Conduit	
2.000	71.706	0.718	99.9	0.095	5.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	37.730	0.314	120.2	0.195	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.002	22.253	0.091	245.0	0.078	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.003	33.218	0.136	245.0	0.065	0.00	0.0	0.600	o	375	Pipe/Conduit	
2.004	13.246	0.033	400.0	0.062	0.00	0.0	0.600	o	825	Pipe/Conduit	
2.005	14.105	0.035	400.0	0.042	0.00	0.0	0.600	o	825	Pipe/Conduit	
1.007	24.092	0.048	501.9	0.021	0.00	0.0	0.600	o	825	Pipe/Conduit	
1.008	21.726	0.041	529.9	0.029	0.00	0.0	0.600	o	825	Pipe/Conduit	
3.000	15.459	0.039	400.0	0.070	5.00	0.0	0.600	o	825	Pipe/Conduit	
1.009	13.858	0.082	170.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	5.70	64.855	0.049	0.0	0.0	0.0	1.01	17.8	0.0
1.001	0.00	6.10	64.360	0.132	0.0	0.0	0.0	2.21	87.7	0.0
1.002	0.00	6.36	62.844	0.228	0.0	0.0	0.0	2.05	81.5	0.0
1.003	0.00	6.68	62.074	0.332	0.0	0.0	0.0	1.31	52.0	0.0
1.004	0.00	6.87	61.744	0.367	0.0	0.0	0.0	1.57	111.1	0.0
1.005	0.00	7.19	61.568	0.395	0.0	0.0	0.0	1.00	70.7	0.0
1.006	0.00	7.29	61.415	0.424	0.0	0.0	0.0	2.15	237.6	0.0
2.000	0.00	6.19	62.776	0.095	0.0	0.0	0.0	1.01	17.8	0.0
2.001	0.00	6.72	61.983	0.290	0.0	0.0	0.0	1.19	47.4	0.0
2.002	0.00	7.09	61.594	0.368	0.0	0.0	0.0	1.00	70.7	0.0
2.003	0.00	7.57	61.428	0.433	0.0	0.0	0.0	1.15	127.4	0.0
2.004	0.00	7.72	60.843	0.495	0.0	0.0	0.0	1.48	790.2	0.0
2.005	0.00	7.88	60.809	0.537	0.0	0.0	0.0	1.48	790.2	0.0
1.007	0.00	8.18	60.773	0.982	0.0	0.0	0.0	1.32	704.7	0.0
1.008	0.00	8.46	60.725	1.011	0.0	0.0	0.0	1.28	685.7	0.0
3.000	0.00	5.17	61.323	0.070	0.0	0.0	0.0	1.48	790.2	0.0
1.009	0.00	8.69	60.684	1.081	0.0	0.0	0.0	1.00	39.8	0.0

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Network Design Table for 180518 SW1.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.010	4.168	0.025	170.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.010	0.00	8.76	60.603	1.081	0.0	0.0	0.0	1.00	39.8	0.0

Free Flowing Outfall Details for 180518 SW1.SWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.010	C1	63.006	60.578	60.578	1350	0

Simulation Criteria for 180518 SW1.SWS

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	13
Number of Online Controls	3	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Storm Duration (mins)	30
Ratio R	0.223		

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Online Controls for 180518 SW1.SWS

Hydro-Brake® Optimum Manhole: 3, DS/PN: 1.002, Volume (m³): 5.0

Unit Reference MD-SHE-0075-3400-2049-3400
Design Head (m) 2.049
Design Flow (l/s) 3.4
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 75
Invert Level (m) 62.844
Minimum Outlet Pipe Diameter (mm) 100
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.049	3.4
Flush-Flo™	0.327	2.5
Kick-Flo®	0.667	2.0
Mean Flow over Head Range	-	2.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.0	1.200	2.7	3.000	4.1	7.000	6.0
0.200	2.4	1.400	2.8	3.500	4.4	7.500	6.2
0.300	2.5	1.600	3.0	4.000	4.6	8.000	6.4
0.400	2.5	1.800	3.2	4.500	4.9	8.500	6.6
0.500	2.4	2.000	3.4	5.000	5.2	9.000	6.8
0.600	2.3	2.200	3.5	5.500	5.4	9.500	7.0
0.800	2.2	2.400	3.7	6.000	5.6		
1.000	2.4	2.600	3.8	6.500	5.8		

Hydro-Brake® Optimum Manhole: 10, DS/PN: 2.002, Volume (m³): 3.8

Unit Reference MD-SHE-0075-3100-1610-3100
Design Head (m) 1.610
Design Flow (l/s) 3.1
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 75
Invert Level (m) 61.594
Minimum Outlet Pipe Diameter (mm) 100
Suggested Manhole Diameter (mm) 1200

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1.400	4.0	2.600	5.3	5.500	7.5	8.500	9.3
1.600	4.2	3.000	5.7	6.000	7.8	9.000	9.5
1.800	4.5	3.500	6.1	6.500	8.1	9.500	9.8
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Storage Structures for 180518 SW1.SWS Cellular Storage Manhole: 1, DS/PN: 1.000 Invert Level (m) 63.655 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>51.8</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>51.8</td><td>0.0</td><td></td><td></td><td></td></tr></table> Cellular Storage Manhole: 2, DS/PN: 1.001 Invert Level (m) 64.360 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>207.0</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>207.0</td><td>0.0</td><td></td><td></td><td></td></tr></table> Cellular Storage Manhole: 4, DS/PN: 1.003 Invert Level (m) 62.074 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>129.5</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>129.5</td><td>0.0</td><td></td><td></td><td></td></tr></table> Cellular Storage Manhole: 6, DS/PN: 1.005 Invert Level (m) 61.568 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>25.9</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>25.9</td><td>0.0</td><td></td><td></td><td></td></tr></table> Cellular Storage Manhole: 7, DS/PN: 1.006 Invert Level (m) 61.415 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	51.8	0.0	0.521	0.0	0.0	0.520	51.8	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	207.0	0.0	0.521	0.0	0.0	0.520	207.0	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	129.5	0.0	0.521	0.0	0.0	0.520	129.5	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	25.9	0.0	0.521	0.0	0.0	0.520	25.9	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	51.8	0.0	0.521	0.0	0.0																																																																					
0.520	51.8	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	207.0	0.0	0.521	0.0	0.0																																																																					
0.520	207.0	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	129.5	0.0	0.521	0.0	0.0																																																																					
0.520	129.5	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	25.9	0.0	0.521	0.0	0.0																																																																					
0.520	25.9	0.0																																																																								
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Innovyze		Network 2020.1																																																																																													
<u>Cellular Storage Manhole: 7, DS/PN: 1.006</u> <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>25.9</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>25.9</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: 8, DS/PN: 2.000</u> Invert Level (m) 62.776 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>77.7</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>77.7</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: 9, DS/PN: 2.001</u> Invert Level (m) 61.983 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>388.5</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>388.5</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: 10, DS/PN: 2.002</u> Invert Level (m) 61.594 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>103.6</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>103.6</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: 11, DS/PN: 2.003</u> Invert Level (m) 61.428 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>181.4</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>181.4</td><td>0.0</td><td></td><td></td><td></td></tr></table>						Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	25.9	0.0	0.521	0.0	0.0	0.520	25.9	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	77.7	0.0	0.521	0.0	0.0	0.520	77.7	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	388.5	0.0	0.521	0.0	0.0	0.520	388.5	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	103.6	0.0	0.521	0.0	0.0	0.520	103.6	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	181.4	0.0	0.521	0.0	0.0	0.520	181.4	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																																										
0.000	25.9	0.0	0.521	0.0	0.0																																																																																										
0.520	25.9	0.0																																																																																													
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																																										
0.000	77.7	0.0	0.521	0.0	0.0																																																																																										
0.520	77.7	0.0																																																																																													
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																																										
0.000	388.5	0.0	0.521	0.0	0.0																																																																																										
0.520	388.5	0.0																																																																																													
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																																										
0.000	103.6	0.0	0.521	0.0	0.0																																																																																										
0.520	103.6	0.0																																																																																													
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																																										
0.000	181.4	0.0	0.521	0.0	0.0																																																																																										
0.520	181.4	0.0																																																																																													
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Cellular Storage Manhole: 12, DS/PN: 2.004 Invert Level (m) 60.868 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>129.5</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>129.5</td><td>0.0</td><td></td><td></td><td></td></tr></table> Cellular Storage Manhole: 15, DS/PN: 1.008 Invert Level (m) 60.783 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>25.9</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>25.9</td><td>0.0</td><td></td><td></td><td></td></tr></table> Cellular Storage Manhole: 16, DS/PN: 3.000 Invert Level (m) 61.323 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>51.8</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>51.8</td><td>0.0</td><td></td><td></td><td></td></tr></table> Cellular Storage Manhole: 17 HB, DS/PN: 1.009 Invert Level (m) 60.684 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>77.7</td><td>0.0</td><td>0.521</td><td>0.0</td><td>0.0</td></tr><tr><td>0.520</td><td>77.7</td><td>0.0</td><td></td><td></td><td></td></tr></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	129.5	0.0	0.521	0.0	0.0	0.520	129.5	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	25.9	0.0	0.521	0.0	0.0	0.520	25.9	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	51.8	0.0	0.521	0.0	0.0	0.520	51.8	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	77.7	0.0	0.521	0.0	0.0	0.520	77.7	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	129.5	0.0	0.521	0.0	0.0																																																																					
0.520	129.5	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	25.9	0.0	0.521	0.0	0.0																																																																					
0.520	25.9	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	51.8	0.0	0.521	0.0	0.0																																																																					
0.520	51.8	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	77.7	0.0	0.521	0.0	0.0																																																																					
0.520	77.7	0.0																																																																								
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<u>Summary of Critical Results by Maximum Level (Rank 1) for 180518 SW1.SWS</u>								
Simulation Criteria								
Areal Reduction Factor		1.000	Additional Flow - % of Total Flow 0.000					
Hot Start (mins)		0	MADD Factor * 10m³/ha Storage 2.000					
Hot Start Level (mm)		0	Inlet Coeffiecient 0.800					
Manhole Headloss Coeff (Global)		0.500	Flow per Person per Day (l/per/day) 0.000					
Foul Sewage per hectare (l/s)		0.000						
Number of Input Hydrographs		0	Number of Storage Structures 13					
Number of Online Controls		3	Number of Time/Area Diagrams 0					
Number of Offline Controls		0	Number of Real Time Controls 0					
Synthetic Rainfall Details								
Rainfall Model		FSR	Ratio R 0.220					
Region England and Wales		Cv (Summer)	0.750					
M5-60 (mm)		18.600	Cv (Winter) 0.840					
Margin for Flood Risk Warning (mm)			300.0					
Analysis Timestep		2.5	Second Increment (Extended)					
DTS Status			OFF					
DVD Status			OFF					
Inertia Status			OFF					
Profile(s)			Summer and Winter					
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360						
Return Period(s) (years)			100					
Climate Change (%)			40					
WARNING: Half Drain Time has not been calculated as the structure is too full.								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	1	240 Winter	100	+40%				
1.001	2	360 Winter	100	+40%	100/60 Summer			
1.002	3	15 Winter	100	+40%	100/15 Summer	100/15 Summer		
1.003	4	360 Winter	100	+40%	100/240 Winter			
1.004	5	360 Winter	100	+40%	100/180 Winter			
1.005	6	360 Winter	100	+40%	100/180 Summer			
1.006	7	360 Winter	100	+40%	100/120 Winter			
2.000	8	360 Winter	100	+40%	100/15 Winter			
2.001	9	360 Winter	100	+40%	100/60 Winter			
2.002	10	360 Winter	100	+40%	100/15 Summer			
2.003	11	360 Winter	100	+40%	100/120 Winter	100/360 Winter		
2.004	12	360 Winter	100	+40%	100/120 Summer			
2.005	13	360 Winter	100	+40%	100/120 Summer			
1.007	14	360 Winter	100	+40%	100/120 Summer			
1.008	15	360 Winter	100	+40%	100/60 Winter			
3.000	16	360 Winter	100	+40%	100/180 Winter			
1.009	17	HB 360 Winter	100	+40%	100/15 Summer			
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Summary of Critical Results by Maximum Level (Rank 1) for 180518 SW1.SWS

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	1	64.905	-0.100	0.000	0.23		4.0	OK
1.001	2	64.872	0.287	0.000	0.04	283	3.2	SURCHARGED
1.002	3	64.894	1.825	0.727	0.04		3.4	FLOOD
1.003	4	63.005	0.706	0.000	0.28		13.6	SURCHARGED
1.004	5	62.996	0.952	0.000	0.18		17.1	SURCHARGED
1.005	6	62.992	1.125	0.000	0.32		19.8	SURCHARGED
1.006	7	62.988	1.198	0.000	0.12		21.3	SURCHARGED
2.000	8	63.085	0.159	0.000	0.55	187	9.5	SURCHARGED
2.001	9	63.095	0.887	0.000	0.34		15.2	SURCHARGED
2.002	10	63.092	1.198	0.000	0.04		2.6	FLOOD RISK
2.003	11	62.984	1.180	0.622	0.07		7.9	FLOOD
2.004	12	62.986	1.318	0.000	0.02		9.0	FLOOD RISK
2.005	13	62.986	1.352	0.000	0.02		8.4	FLOOD RISK
1.007	14	62.986	1.388	0.000	0.05		23.2	SURCHARGED
1.008	15	62.986	1.436	0.000	0.04		18.7	SURCHARGED
3.000	16	62.986	0.838	0.000	0.01		5.8	SURCHARGED
1.009	17 HB	62.986	2.077	0.000	0.14		5.0	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	1	
1.001	2	
1.002	3	3
1.003	4	
1.004	5	
1.005	6	
1.006	7	
2.000	8	
2.001	9	
2.002	10	
2.003	11	1
2.004	12	
2.005	13	
1.007	14	
1.008	15	
3.000	16	
1.009	17 HB	

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Innovyze	Network 2020.1	

Summary of Critical Results by Maximum Level (Rank 1) for 180518 SW1.SWS

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.010	18	360 Winter	100	+40%					60.667

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.010	18	-0.161	0.000	0.18			5.0	OK	