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Date 19/09/2024 12:24
File Surface Water Phase 3 D...

Designed by magdalenachmurska
Checked by

Innovyze

Network 2020.1.3

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 460400 220850 SP 60400 20850
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

- Indicates pipe length does not match coordinates
« - Indicates pipe capacity < flow

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
S1.000	23.370	0.240	97.4	0.208	5.00	0.0	0.600	o	300	Pipe/Conduit	
S2.000	14.827	0.100	148.3	0.117	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	37.623	0.250	150.5	0.163	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.002	17.260	0.120	143.8	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.24	62.880	0.208	0.0	0.0	0.0	1.59	112.6	28.2
S2.000	50.00	5.19	62.740	0.117	0.0	0.0	0.0	1.29	91.1	15.8
S1.001	50.00	5.62	62.490	0.488	0.0	0.0	0.0	1.65	263.2	66.1
S1.002	50.00	5.79	62.240	0.488	0.0	0.0	0.0	1.69	269.3	66.1

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Network Design Table for Storm

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
S1.003	16.563	0.110	150.6	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.004	15.063	0.100	150.6	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S3.000	5.151	0.050	103.0	0.203	5.00	0.0	0.600	o	300	Pipe/Conduit	
S3.001	7.994	0.001	7994.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.002	9.977	1.540	6.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.005	32.730	0.240	136.4	0.010	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.006	50.035	0.340	147.2	0.030	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.007	26.879	0.140	192.0	0.158	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.008	13.894	0.130	106.9	0.035	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.009	8.816	0.060	146.9	0.133	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.010	6.900#	0.070	98.6	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.011	3.600#	0.190	18.9	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.000	28.549	0.280	102.0	0.127	5.00	0.0	0.600	o	300	Pipe/Conduit	
S4.001	27.764	0.280	99.2	0.134	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.002	36.752	0.440	83.5	0.070	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.003	36.752	0.370	99.3	0.009	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.004	24.343	0.240	101.4	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.005	2.300#	0.300	7.7	0.000	0.00	0.0	0.600	o	450	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)
S1.003	50.00	5.96	62.120	0.488	0.0	0.0	0.0	1.65	263.1	66.1
S1.004	50.00	6.11	62.010	0.488	0.0	0.0	0.0	1.65	263.1	66.1
S3.000	50.00	5.06	63.650	0.203	0.0	0.0	0.0	1.55	109.5	27.5
S3.001	50.00	5.85	62.971	0.203	0.0	0.0	0.0	0.17	11.8«	27.5
S3.002	50.00	5.88	63.600	0.203	0.0	0.0	0.0	6.22	439.3	27.5
S1.005	50.00	6.43	61.910	0.701	0.0	0.0	0.0	1.74	276.6	94.9
S1.006	50.00	6.92	61.670	0.731	0.0	0.0	0.0	1.67	266.2	99.0
S1.007	50.00	7.23	61.330	0.889	0.0	0.0	0.0	1.46	232.8	120.4
S1.008	50.00	7.35	61.190	0.924	0.0	0.0	0.0	1.97	312.7	125.1
S1.009	50.00	7.44	61.060	1.057	0.0	0.0	0.0	1.68	266.4	143.1
S1.010	50.00	7.49	60.900	1.057	0.0	0.0	0.0	2.05	325.7	143.1
S1.011	50.00	7.50	60.830	1.057	0.0	0.0	0.0	4.69	745.5	143.1
S4.000	50.00	5.31	63.430	0.127	0.0	0.0	0.0	1.56	110.1	17.2
S4.001	50.00	5.53	62.970	0.261	0.0	0.0	0.0	2.04	324.7	35.3
S4.002	50.00	5.81	62.690	0.331	0.0	0.0	0.0	2.23	354.0	44.8
S4.003	50.00	6.11	62.250	0.340	0.0	0.0	0.0	2.04	324.5	46.0
S4.004	50.00	6.31	61.880	0.340	0.0	0.0	0.0	2.02	321.1	46.0
S4.005	50.00	6.31	61.640	0.340	0.0	0.0	0.0	7.38	1173.2	46.0

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Network Design Table for Storm

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
S5.000	28.002	0.280	100.0	0.164	5.00	0.0	0.600	o	450	Pipe/Conduit	
S5.001	27.900	0.285	97.9	0.232	0.00	0.0	0.600	o	450	Pipe/Conduit	
S5.002	14.110	0.140	100.8	0.232	0.00	0.0	0.600	o	525	Pipe/Conduit	
S5.003	24.259	0.240	101.1	0.117	0.00	0.0	0.600	o	525	Pipe/Conduit	
S5.004	9.900#	0.100	99.0	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.012	3.400#	0.150	22.7	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.013	12.907	-3.860	-3.3	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.014	15.427	0.060	257.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S6.000	51.470	0.510	100.9	0.015	5.00	0.0	0.600	o	300	Pipe/Conduit	
S6.001	77.202	0.770	100.3	0.093	0.00	0.0	0.600	o	300	Pipe/Conduit	
S6.002	54.463	0.540	100.9	0.029	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.003	49.354	0.450	109.7	0.101	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.004	12.200	0.120	101.7	0.081	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.005	39.055	0.270	144.6	0.168	0.00	0.0	0.600	o	450	Pipe/Conduit	
S7.000	49.806	0.330	150.9	0.276	5.00	0.0	0.600	o	450	Pipe/Conduit	
S8.000	10.829	0.070	154.7	0.177	5.00	0.0	0.600	o	300	Pipe/Conduit	
S7.001	26.748	0.180	148.6	0.272	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S5.000	50.00	5.23	63.460	0.164	0.0	0.0	0.0	2.03	323.3	22.2
S5.001	50.00	5.46	63.180	0.396	0.0	0.0	0.0	2.06	326.8	53.6
S5.002	50.00	5.56	62.820	0.628	0.0	0.0	0.0	2.23	483.0	85.0
S5.003	50.00	5.74	62.680	0.745	0.0	0.0	0.0	2.23	482.3	100.9
S5.004	50.00	5.82	62.440	0.745	0.0	0.0	0.0	2.25	487.4	100.9
S1.012	50.00	7.52	60.640	2.142	0.0	0.0	0.0	4.28	681.4	290.1
S1.013	50.00	7.32	60.490	0.000	7.4	0.0	0.0	0.09	1.6<<	7.4
S1.014	50.00	7.73	64.350	0.000	7.4	0.0	0.0	0.62	11.0	7.4
S6.000	50.00	5.55	64.670	0.015	0.0	0.0	0.0	1.57	110.6	2.0
S6.001	50.00	6.37	64.160	0.108	0.0	0.0	0.0	1.57	111.0	14.6
S6.002	50.00	6.82	63.240	0.137	0.0	0.0	0.0	2.02	322.0	18.6
S6.003	50.00	7.24	62.700	0.238	0.0	0.0	0.0	1.94	308.7	32.2
S6.004	50.00	7.34	62.250	0.319	0.0	0.0	0.0	2.02	320.7	43.2
S6.005	50.00	7.73	62.130	0.487	0.0	0.0	0.0	1.69	268.5	65.9
S7.000	50.00	5.50	62.370	0.276	0.0	0.0	0.0	1.65	262.8	37.4
S8.000	50.00	5.14	62.260	0.177	0.0	0.0	0.0	1.26	89.2	24.0
S7.001	50.00	5.77	62.040	0.725	0.0	0.0	0.0	1.67	264.9	98.2

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Network Design Table for Storm

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
S6.006	14.700#	0.100	147.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit		
S6.007	5.900#	0.040	147.5	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit		
S9.000	16.478	0.110	149.8	0.136	5.00	0.0	0.600	o	450	Pipe/Conduit		
S9.001	36.638	0.240	152.7	0.267	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.002	34.292	0.220	155.9	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.003	22.913	0.150	152.8	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.004	12.144	0.080	151.8	0.135	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.005	46.554	0.310	150.2	0.267	0.00	0.0	0.600	o	450	Pipe/Conduit		
S6.008	5.900#	0.040	147.5	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit		
S10.000	27.809	0.270	103.0	0.105	5.00	0.0	0.600	o	450	Pipe/Conduit		
S10.001	28.577	0.290	98.5	0.208	0.00	0.0	0.600	o	450	Pipe/Conduit		
S10.002	28.309	0.285	99.3	0.202	0.00	0.0	0.600	o	450	Pipe/Conduit		
S10.003	23.592	0.230	102.6	0.102	0.00	0.0	0.600	o	525	Pipe/Conduit		
S10.004	39.574	0.400	98.9	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		
S10.005	6.100#	0.060	101.7	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		
S6.009	20.529	0.140	146.6	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		
S6.010	12.700#	0.090	141.1	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S6.006	50.00	7.85	61.710	1.212	0.0	0.0	0.0	2.01	567.3	164.1
S6.007	50.00	7.90	61.610	1.212	0.0	0.0	0.0	2.00	566.3	164.1
S9.000	50.00	5.17	62.680	0.136	0.0	0.0	0.0	1.66	263.8	18.4
S9.001	50.00	5.54	62.570	0.403	0.0	0.0	0.0	1.64	261.3	54.6
S9.002	50.00	5.89	62.330	0.403	0.0	0.0	0.0	1.63	258.6	54.6
S9.003	50.00	6.12	62.110	0.403	0.0	0.0	0.0	1.64	261.2	54.6
S9.004	50.00	6.24	61.960	0.538	0.0	0.0	0.0	1.65	262.1	72.9
S9.005	50.00	6.71	61.880	0.805	0.0	0.0	0.0	1.66	263.5	109.0
S6.008	50.00	7.95	61.570	2.017	0.0	0.0	0.0	2.00	566.3	273.1
S10.000	50.00	5.23	64.320	0.105	0.0	0.0	0.0	2.00	318.6	14.2
S10.001	50.00	5.46	64.050	0.313	0.0	0.0	0.0	2.05	325.8	42.4
S10.002	50.00	5.70	63.760	0.515	0.0	0.0	0.0	2.04	324.5	69.7
S10.003	50.00	5.87	63.400	0.617	0.0	0.0	0.0	2.21	478.8	83.5
S10.004	50.00	6.17	63.170	0.617	0.0	0.0	0.0	2.25	487.5	83.5
S10.005	50.00	6.21	62.770	0.617	0.0	0.0	0.0	2.22	480.9	83.5
S6.009	50.00	8.13	61.510	2.634	0.0	0.0	0.0	1.85	400.0	356.7
S6.010	50.00	8.24	61.370	2.634	0.0	0.0	0.0	1.88	407.8	356.7

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Network Design Table for Storm

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
S6.011	11.710	-0.830	-14.1	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S6.012	4.430	0.001	4430.0	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S6.013	27.607	0.180	153.4	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S6.014	5.198	0.130	40.0	0.000	0.00	0.0	0.600	o	675	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)
S6.011	50.00	9.01	61.280	2.634	0.0	0.0	0.0	0.25	90.7«	356.7
S6.012	50.00	9.21	64.600	2.634	0.0	0.0	0.0	0.38	137.4«	356.7
S6.013	50.00	9.42	64.600	2.634	0.0	0.0	0.0	2.11	756.5	356.7
S6.014	50.00	9.44	64.420	2.634	0.0	0.0	0.0	4.15	1486.0	356.7

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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S1.014	S	64.740	64.290	0.000	0	0
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Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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S6.014	S	65.320	64.290	0.000	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	0.000
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	4
Number of Online Controls	2	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model FSR Region England and Wales
Return Period (years) 100 M5-60 (mm) 20.000

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Synthetic Rainfall Details

Ratio R 0.405 Cv (Winter) 1.000
Profile Type Winter Storm Duration (mins) 30
Cv (Summer) 1.000

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Online Controls for Storm

Pump Manhole: SS25 PUMP1 to S26, DS/PN: S1.013, Volume (m³): 6.7

Invert Level (m) 60.490

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.200	7.3600	1.800	7.3600	3.400	7.3600	5.000	7.3600
0.400	7.3600	2.000	7.3600	3.600	7.3600	5.200	7.3600
0.600	7.3600	2.200	7.3600	3.800	7.3600	5.400	7.3600
0.800	7.3600	2.400	7.3600	4.000	7.3600	5.600	7.3600
1.000	7.3600	2.600	7.3600	4.200	7.3600	5.800	7.3600
1.200	7.3600	2.800	7.3600	4.400	7.3600	6.000	7.3600
1.400	7.3600	3.000	7.3600	4.600	7.3600		
1.600	7.3600	3.200	7.3600	4.800	7.3600		

Pump Manhole: SS52 PUMP2 to HW4, DS/PN: S6.011, Volume (m³): 9.5

Invert Level (m) 61.280

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.200	9.3800	1.800	9.3800	3.400	9.3800	5.000	9.3800
0.400	9.3800	2.000	9.3800	3.600	9.3800	5.200	9.3800
0.600	9.3800	2.200	9.3800	3.800	9.3800	5.400	9.3800
0.800	9.3800	2.400	9.3800	4.000	9.3800	5.600	9.3800
1.000	9.3800	2.600	9.3800	4.200	9.3800	5.800	9.3800
1.200	9.3800	2.800	9.3800	4.400	9.3800	6.000	9.3800
1.400	9.3800	3.000	9.3800	4.600	9.3800		
1.600	9.3800	3.200	9.3800	4.800	9.3800		

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Storage Structures for Storm

Tank or Pond Manhole: SHW1 to HW2, DS/PN: S3.001

Invert Level (m) 63.625

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1.6	1.000	48.1	2.000	151.3
0.500	17.8	1.500	92.7		

Cellular Storage Manhole: SAT1 to S25 PUMP1, DS/PN: S1.012

Invert Level (m) 60.590 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	993.9	0.0	2.001	0.0	0.0
2.000	993.9	0.0			

Cellular Storage Manhole: SAT2 to S51, DS/PN: S6.009

Invert Level (m) 61.460 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	1270.3	0.0	2.001	0.0	0.0
2.000	1270.3	0.0			

Tank or Pond Manhole: SHW4 to HW5, DS/PN: S6.012

Invert Level (m) 64.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	30.2	0.500	76.9	1.000	138.0

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coefficient	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	4
Number of Online Controls	2	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	0.406
Region England and Wales	Cv (Summer)		1.000
M5-60 (mm)	20.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 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) Surcharge	First (Y) Flood	First (Z) Overflow
S1.000	SS01	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
S2.000	SS02	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
S1.001	SS03	15 Summer	1	+0%	30/15 Summer		
S1.002	SS05	15 Summer	1	+0%	30/15 Summer		
S1.003	SS06	15 Summer	1	+0%	30/15 Summer		
S1.004	SS07	15 Summer	1	+0%	30/15 Summer		
S3.000	SS08 to HW1	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
S3.001	SHW1 to HW2	15 Summer	1	+0%	1/15 Summer		
S3.002	SHW2 to S09	15 Summer	1	+0%	100/15 Summer		
S1.005	SS09	15 Summer	1	+0%	30/15 Summer		
S1.006	SS10	15 Summer	1	+0%	30/15 Summer		
S1.007	SS11	15 Summer	1	+0%	30/15 Summer		
S1.008	SS60	15 Summer	1	+0%	2/15 Summer		
S1.009	SS12 to INT1 IN	15 Summer	1	+0%	2/15 Summer		
S1.010	SINT1 OUT to S13	15 Summer	1	+0%	30/15 Summer		
S1.011	SS13 to AT1	15 Summer	1	+0%	30/15 Summer		

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged Flooded			Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)
			Level (m)	Depth (m)	Volume (m ³)			
S1.000	SS01	63.007	-0.173	0.000	0.37			
S2.000	SS02	62.847	-0.193	0.000	0.27			
S1.001	SS03	62.675	-0.265	0.000	0.35			
S1.002	SS05	62.443	-0.247	0.000	0.42			
S1.003	SS06	62.327	-0.243	0.000	0.44			
S1.004	SS07	62.224	-0.236	0.000	0.46			
S3.000	SS08 to HW1	63.817	-0.133	0.000	0.59			
S3.001	SHW1 to HW2	63.689	0.418	0.000	1.00			
S3.002	SHW2 to S09	63.668	-0.232	0.000	0.12			
S1.005	SS09	62.133	-0.227	0.000	0.49			
S1.006	SS10	61.894	-0.226	0.000	0.49			
S1.007	SS11	61.608	-0.172	0.000	0.69			
S1.008	SS60	61.466	-0.174	0.000	0.69			
S1.009	SS12 to INT1 IN	61.398	-0.112	0.000	0.91			
S1.010	SINT1 OUT to S13	61.237	-0.113	0.000	0.91			
S1.011	SS13 to AT1	61.089	-0.191	0.000	0.63			

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S2.000	SS02	20.8	OK	5
S1.001	SS03	81.1	OK	
S1.002	SS05	81.8	OK	
S1.003	SS06	81.5	OK	
S1.004	SS07	81.2	OK	
S3.000	SS08 to HW1	36.1	OK	3
S3.001	SHW1 to HW2	35.8	SURCHARGED	
S3.002	SHW2 to S09	36.0	OK	
S1.005	SS09	117.4	OK	
S1.006	SS10	118.2	OK	
S1.007	SS11	136.8	OK	
S1.008	SS60	139.6	OK	
S1.009	SS12 to INT1 IN	153.2	OK	
S1.010	SINT1 OUT to S13	154.0	OK	
S1.011	SS13 to AT1	154.1	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S4.000	SS14	15 Summer	1	+0%	100/15 Summer		
S4.001	SS15	15 Summer	1	+0%			
S4.002	SS16	15 Summer	1	+0%			
S4.003	SS17	15 Summer	1	+0%			
S4.004	SS18	15 Summer	1	+0%			
S4.005	SS19 to AT1	15 Summer	1	+0%			
S5.000	SS20	15 Summer	1	+0%	100/15 Summer		
S5.001	SS21	15 Summer	1	+0%	100/15 Summer		
S5.002	SS22	15 Summer	1	+0%	30/15 Summer		
S5.003	SS23	15 Summer	1	+0%	30/15 Summer		
S5.004	SS24 to AT1	15 Summer	1	+0%	30/15 Summer		
S1.012	SAT1 to S25 PUMP1	60 Summer	1	+0%	30/30 Summer		
S1.013	SS25 PUMP1 to S26	60 Summer	1	+0%	1/15 Summer		
S1.014	SS26 to HW3	15 Summer	1	+0%			
S6.000	SS27	15 Summer	1	+0%	100/15 Summer		
S6.001	SS28	15 Summer	1	+0%	100/15 Summer		
S6.002	SS29	15 Summer	1	+0%	100/15 Summer		
S6.003	SS30	15 Summer	1	+0%	30/15 Summer		
S6.004	SS31	15 Summer	1	+0%	30/15 Summer		
S6.005	SS32	15 Summer	1	+0%	30/15 Summer		
S7.000	SS33	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
S8.000	SS35	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
S7.001	SS36	15 Summer	1	+0%	30/15 Summer		
S6.006	SS37 to INT2 IN	15 Summer	1	+0%	2/15 Summer		
S6.007	SINT2 OUT to S38	15 Summer	1	+0%	30/15 Summer		
S9.000	SS39	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
S9.001	SS40	15 Summer	1	+0%	30/15 Summer	100/15 Summer	
S9.002	SS41	15 Summer	1	+0%	30/15 Summer		
S9.003	SS42	15 Summer	1	+0%	30/15 Summer		
S9.004	SS43	15 Summer	1	+0%	30/15 Summer		
S9.005	SS44	15 Summer	1	+0%	30/15 Summer		
S6.008	SS38 to AT2	15 Summer	1	+0%	30/15 Summer		
S10.000	SS45	15 Summer	1	+0%	100/15 Summer		
S10.001	SS46	15 Summer	1	+0%	100/15 Summer		
S10.002	SS47	15 Summer	1	+0%	100/15 Summer		
S10.003	SS48	15 Summer	1	+0%	100/15 Summer		
S10.004	SS49	15 Summer	1	+0%	100/15 Summer		
S10.005	SS50	15 Summer	1	+0%	30/15 Summer		
S6.009	SAT2 to S51	60 Winter	1	+0%	30/60 Summer		
S6.010	SS51 to S52 PUMP2	60 Winter	1	+0%	30/30 Summer		
S6.011	SS52 PUMP2 to HW4	60 Winter	1	+0%	30/30 Summer		
S6.012	SHW4 to HW5	60 Summer	1	+0%			
S6.013	SHW5 to S55	60 Summer	1	+0%			
S6.014	SS55 to HW6	60 Winter	1	+0%			

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Half Drain Time (mins)
S4.000	SS14		63.527	-0.203	0.000	0.23	
S4.001	SS15		63.088	-0.332	0.000	0.15	
S4.002	SS16		62.815	-0.325	0.000	0.17	
S4.003	SS17		62.382	-0.318	0.000	0.19	
S4.004	SS18		62.017	-0.313	0.000	0.20	
S4.005	SS19 to AT1		61.766	-0.324	0.000	0.17	
S5.000	SS20		63.558	-0.352	0.000	0.11	
S5.001	SS21		63.326	-0.304	0.000	0.23	
S5.002	SS22		63.033	-0.312	0.000	0.34	
S5.003	SS23		62.881	-0.324	0.000	0.31	
S5.004	SS24 to AT1		62.692	-0.273	0.000	0.47	
S1.012	SAT1 to S25 PUMP1		60.859	-0.231	0.000	0.04	
S1.013	SS25 PUMP1 to S26		60.886	0.246	0.000	1.46	
S1.014	SS26 to HW3		64.445	-0.055	0.000	0.72	
S6.000	SS27		64.702	-0.268	0.000	0.03	
S6.001	SS28		64.239	-0.221	0.000	0.16	
S6.002	SS29		63.318	-0.372	0.000	0.07	
S6.003	SS30		62.805	-0.345	0.000	0.12	
S6.004	SS31		62.398	-0.302	0.000	0.23	
S6.005	SS32		62.296	-0.284	0.000	0.29	
S7.000	SS33		62.508	-0.312	0.000	0.20	
S8.000	SS35		62.406	-0.154	0.000	0.48	
S7.001	SS36		62.276	-0.214	0.000	0.53	
S6.006	SS37 to INT2 IN		62.086	-0.224	0.000	0.51	
S6.007	SINT2 OUT to S38		62.058	-0.152	0.000	0.59	
S9.000	SS39		62.788	-0.342	0.000	0.13	
S9.001	SS40		62.732	-0.288	0.000	0.28	
S9.002	SS41		62.493	-0.287	0.000	0.28	
S9.003	SS42		62.276	-0.284	0.000	0.29	
S9.004	SS43		62.182	-0.228	0.000	0.48	
S9.005	SS44		62.117	-0.213	0.000	0.48	
S6.008	SS38 to AT2		62.041	-0.129	0.000	0.97	
S10.000	SS45		64.397	-0.373	0.000	0.07	
S10.001	SS46		64.179	-0.321	0.000	0.18	
S10.002	SS47		63.926	-0.284	0.000	0.29	
S10.003	SS48		63.582	-0.343	0.000	0.26	
S10.004	SS49		63.338	-0.357	0.000	0.22	
S10.005	SS50		62.994	-0.301	0.000	0.38	
S6.009	SAT2 to S51		61.716	-0.319	0.000	0.08	
S6.010	SS51 to S52 PUMP2		61.714	-0.181	0.000	0.07	
S6.011	SS52 PUMP2 to HW4		61.712	-0.243	0.000	0.05	
S6.012	SHW4 to HW5		64.680	-0.595	0.000	0.03	
S6.013	SHW5 to S55		64.656	-0.619	0.000	0.02	
S6.014	SS55 to HW6		64.484	-0.611	0.000	0.02	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S4.000		SS14 22.4	OK	
S4.001		SS15 42.2	OK	
S4.002		SS16 52.7	OK	
S4.003		SS17 53.9	OK	
S4.004		SS18 53.4	OK	
S4.005	SS19 to AT1	53.7	OK	
S5.000		SS20 29.2	OK	
S5.001		SS21 63.3	OK	
S5.002		SS22 97.4	OK	
S5.003		SS23 115.4	OK	
S5.004	SS24 to AT1	116.0	OK	
S1.012	SAT1 to S25 PUMP1	9.0	OK	
S1.013	SS25 PUMP1 to S26	7.4	SURCHARGED	
S1.014	SS26 to HW3	7.4	OK	
S6.000		SS27 2.6	OK	
S6.001		SS28 16.6	OK	
S6.002		SS29 20.5	OK	
S6.003		SS30 34.4	OK	
S6.004		SS31 45.7	OK	
S6.005		SS32 68.6	OK	
S7.000		SS33 48.2	OK	3
S8.000		SS35 31.5	OK	3
S7.001		SS36 119.6	OK	
S6.006	SS37 to INT2 IN	178.7	OK	
S6.007	SINT2 OUT to S38	176.8	OK	
S9.000		SS39 24.2	OK	3
S9.001		SS40 63.3	OK	2
S9.002		SS41 63.5	OK	
S9.003		SS42 62.8	OK	
S9.004		SS43 80.8	OK	
S9.005		SS44 114.5	OK	
S6.008	SS38 to AT2	288.3	OK	
S10.000		SS45 18.6	OK	
S10.001		SS46 49.6	OK	
S10.002		SS47 79.2	OK	
S10.003		SS48 94.5	OK	
S10.004		SS49 94.6	OK	
S10.005		SS50 93.3	OK	
S6.009	SAT2 to S51	23.0	OK	
S6.010	SS51 to S52 PUMP2	16.3	OK	
S6.011	SS52 PUMP2 to HW4	9.4	OK	
S6.012	SHW4 to HW5	9.4	OK	
S6.013	SHW5 to S55	9.4	OK	
S6.014	SS55 to HW6	9.4	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 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 4
 Number of Online Controls 2 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 0.406
 Region England and Wales Cv (Summer) 1.000
 M5-60 (mm) 20.000 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60
 Return Period(s) (years) 1, 2, 30, 100
 Climate Change (%) 0, 0, 0, 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) Surcharge	First (Y) Flood	First (Z) Overflow
S1.000	SS01	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
S2.000	SS02	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
S1.001	SS03	15 Summer	2	+0%	30/15 Summer		
S1.002	SS05	15 Summer	2	+0%	30/15 Summer		
S1.003	SS06	15 Summer	2	+0%	30/15 Summer		
S1.004	SS07	15 Summer	2	+0%	30/15 Summer		
S3.000	SS08 to HW1	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
S3.001	SHW1 to HW2	15 Summer	2	+0%	1/15 Summer		
S3.002	SHW2 to S09	15 Summer	2	+0%	100/15 Summer		
S1.005	SS09	15 Summer	2	+0%	30/15 Summer		
S1.006	SS10	15 Summer	2	+0%	30/15 Summer		
S1.007	SS11	15 Summer	2	+0%	30/15 Summer		
S1.008	SS60	15 Summer	2	+0%	2/15 Summer		
S1.009	SS12 to INT1 IN	15 Summer	2	+0%	2/15 Summer		
S1.010	SINT1 OUT to S13	15 Summer	2	+0%	30/15 Summer		
S1.011	SS13 to AT1	15 Winter	2	+0%	30/15 Summer		

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged Flooded			Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)
			Level (m)	Depth (m)	Volume (m ³)			
S1.000	SS01		63.027	-0.153	0.000	0.48		
S2.000	SS02		62.863	-0.177	0.000	0.35		
S1.001	SS03		62.705	-0.235	0.000	0.45		
S1.002	SS05		62.476	-0.214	0.000	0.54		
S1.003	SS06		62.362	-0.208	0.000	0.56		
S1.004	SS07		62.260	-0.200	0.000	0.59		
S3.000	SS08 to HW1		63.848	-0.102	0.000	0.76		
S3.001	SHW1 to HW2		63.707	0.436	0.000	1.30		
S3.002	SHW2 to S09		63.678	-0.222	0.000	0.15		
S1.005	SS09		62.170	-0.190	0.000	0.63		
S1.006	SS10		61.933	-0.187	0.000	0.63		
S1.007	SS11		61.747	-0.033	0.000	0.84		
S1.008	SS60		61.659	0.019	0.000	0.76		
S1.009	SS12 to INT1 IN		61.534	0.024	0.000	1.01		
S1.010	SINT1 OUT to S13		61.280	-0.070	0.000	1.00		
S1.011	SS13 to AT1		61.105	-0.175	0.000	0.69		

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S2.000	SS02	26.9	OK	5
S1.001	SS03	105.0	OK	
S1.002	SS05	105.4	OK	
S1.003	SS06	104.3	OK	
S1.004	SS07	105.2	OK	
S3.000	SS08 to HW1	46.6	OK	3
S3.001	SHW1 to HW2	46.5	SURCHARGED	
S3.002	SHW2 to S09	46.5	OK	
S1.005	SS09	151.1	OK	
S1.006	SS10	152.6	OK	
S1.007	SS11	166.1	OK	
S1.008	SS60	155.4	SURCHARGED	
S1.009	SS12 to INT1 IN	170.4	SURCHARGED	
S1.010	SINT1 OUT to S13	169.1	OK	
S1.011	SS13 to AT1	169.0	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S4.000	SS14	15 Summer	2	+0%	100/15 Summer		
S4.001	SS15	15 Summer	2	+0%			
S4.002	SS16	15 Summer	2	+0%			
S4.003	SS17	15 Summer	2	+0%			
S4.004	SS18	15 Summer	2	+0%			
S4.005	SS19 to AT1	15 Summer	2	+0%			
S5.000	SS20	15 Summer	2	+0%	100/15 Summer		
S5.001	SS21	15 Summer	2	+0%	100/15 Summer		
S5.002	SS22	15 Summer	2	+0%	30/15 Summer		
S5.003	SS23	15 Summer	2	+0%	30/15 Summer		
S5.004	SS24 to AT1	15 Summer	2	+0%	30/15 Summer		
S1.012	SAT1 to S25 PUMP1	60 Summer	2	+0%	30/30 Summer		
S1.013	SS25 PUMP1 to S26	60 Summer	2	+0%	1/15 Summer		
S1.014	SS26 to HW3	60 Summer	2	+0%			
S6.000	SS27	15 Summer	2	+0%	100/15 Summer		
S6.001	SS28	15 Summer	2	+0%	100/15 Summer		
S6.002	SS29	15 Summer	2	+0%	100/15 Summer		
S6.003	SS30	15 Summer	2	+0%	30/15 Summer		
S6.004	SS31	15 Summer	2	+0%	30/15 Summer		
S6.005	SS32	15 Summer	2	+0%	30/15 Summer		
S7.000	SS33	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
S8.000	SS35	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
S7.001	SS36	15 Summer	2	+0%	30/15 Summer		
S6.006	SS37 to INT2 IN	15 Summer	2	+0%	2/15 Summer		
S6.007	SINT2 OUT to S38	15 Summer	2	+0%	30/15 Summer		
S9.000	SS39	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
S9.001	SS40	15 Summer	2	+0%	30/15 Summer	100/15 Summer	
S9.002	SS41	15 Summer	2	+0%	30/15 Summer		
S9.003	SS42	15 Summer	2	+0%	30/15 Summer		
S9.004	SS43	15 Summer	2	+0%	30/15 Summer		
S9.005	SS44	15 Summer	2	+0%	30/15 Summer		
S6.008	SS38 to AT2	15 Summer	2	+0%	30/15 Summer		
S10.000	SS45	15 Summer	2	+0%	100/15 Summer		
S10.001	SS46	15 Summer	2	+0%	100/15 Summer		
S10.002	SS47	15 Summer	2	+0%	100/15 Summer		
S10.003	SS48	15 Summer	2	+0%	100/15 Summer		
S10.004	SS49	15 Summer	2	+0%	100/15 Summer		
S10.005	SS50	15 Summer	2	+0%	30/15 Summer		
S6.009	SAT2 to S51	60 Summer	2	+0%	30/60 Summer		
S6.010	SS51 to S52 PUMP2	60 Summer	2	+0%	30/30 Summer		
S6.011	SS52 PUMP2 to HW4	60 Summer	2	+0%	30/30 Summer		
S6.012	SHW4 to HW5	60 Winter	2	+0%			
S6.013	SHW5 to S55	60 Winter	2	+0%			
S6.014	SS55 to HW6	60 Summer	2	+0%			

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Half Drain Time (mins)
S4.000	SS14		63.541	-0.189	0.000	0.29	
S4.001	SS15		63.107	-0.313	0.000	0.20	
S4.002	SS16		62.833	-0.307	0.000	0.22	
S4.003	SS17		62.400	-0.300	0.000	0.24	
S4.004	SS18		62.035	-0.295	0.000	0.26	
S4.005	SS19 to AT1		61.785	-0.305	0.000	0.22	
S5.000	SS20		63.571	-0.339	0.000	0.14	
S5.001	SS21		63.348	-0.282	0.000	0.29	
S5.002	SS22		63.066	-0.279	0.000	0.44	
S5.003	SS23		62.911	-0.294	0.000	0.40	
S5.004	SS24 to AT1		62.734	-0.231	0.000	0.60	
S1.012	SAT1 to S25 PUMP1		60.935	-0.155	0.000	0.04	
S1.013	SS25 PUMP1 to S26		60.951	0.311	0.000	1.46	
S1.014	SS26 to HW3		64.445	-0.055	0.000	0.72	
S6.000	SS27		64.705	-0.265	0.000	0.03	
S6.001	SS28		64.251	-0.209	0.000	0.20	
S6.002	SS29		63.331	-0.359	0.000	0.09	
S6.003	SS30		62.821	-0.329	0.000	0.16	
S6.004	SS31		62.420	-0.280	0.000	0.30	
S6.005	SS32		62.363	-0.217	0.000	0.37	
S7.000	SS33		62.528	-0.292	0.000	0.26	
S8.000	SS35		62.431	-0.129	0.000	0.61	
S7.001	SS36		62.378	-0.112	0.000	0.69	
S6.006	SS37 to INT2 IN		62.313	0.003	0.000	0.57	
S6.007	SINT2 OUT to S38		62.210	0.000	0.000	0.62	
S9.000	SS39		62.807	-0.323	0.000	0.17	
S9.001	SS40		62.758	-0.262	0.000	0.36	
S9.002	SS41		62.518	-0.262	0.000	0.36	
S9.003	SS42		62.333	-0.227	0.000	0.36	
S9.004	SS43		62.298	-0.112	0.000	0.57	
S9.005	SS44		62.269	-0.061	0.000	0.57	
S6.008	SS38 to AT2		62.170	0.000	0.000	1.07	
S10.000	SS45		64.411	-0.359	0.000	0.09	
S10.001	SS46		64.197	-0.303	0.000	0.23	
S10.002	SS47		63.951	-0.259	0.000	0.37	
S10.003	SS48		63.610	-0.315	0.000	0.33	
S10.004	SS49		63.362	-0.333	0.000	0.29	
S10.005	SS50		63.031	-0.264	0.000	0.49	
S6.009	SAT2 to S51		61.787	-0.248	0.000	0.10	
S6.010	SS51 to S52 PUMP2		61.784	-0.111	0.000	0.08	
S6.011	SS52 PUMP2 to HW4		61.781	-0.174	0.000	0.05	
S6.012	SHW4 to HW5		64.680	-0.595	0.000	0.03	
S6.013	SHW5 to S55		64.656	-0.619	0.000	0.02	
S6.014	SS55 to HW6		64.484	-0.611	0.000	0.02	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S4.000		SS14 29.0	OK	
S4.001		SS15 54.5	OK	
S4.002		SS16 68.1	OK	
S4.003		SS17 69.8	OK	
S4.004		SS18 69.3	OK	
S4.005	SS19 to AT1	69.3	OK	
S5.000		SS20 37.8	OK	
S5.001		SS21 81.9	OK	
S5.002		SS22 126.0	OK	
S5.003		SS23 149.2	OK	
S5.004	SS24 to AT1	149.9	OK	
S1.012	SAT1 to S25 PUMP1	8.9	OK	
S1.013	SS25 PUMP1 to S26	7.4	SURCHARGED	
S1.014	SS26 to HW3	7.4	OK	
S6.000		SS27 3.4	OK	
S6.001		SS28 21.5	OK	
S6.002		SS29 26.5	OK	
S6.003		SS30 44.5	OK	
S6.004		SS31 59.1	OK	
S6.005		SS32 88.8	OK	
S7.000		SS33 62.4	OK	3
S8.000		SS35 40.7	OK	3
S7.001		SS36 154.2	OK	
S6.006	SS37 to INT2 IN	196.9	SURCHARGED	
S6.007	SINT2 OUT to S38	185.6	OK	
S9.000		SS39 31.3	OK	3
S9.001		SS40 81.8	OK	2
S9.002		SS41 82.1	OK	
S9.003		SS42 77.8	OK	
S9.004		SS43 95.6	OK	
S9.005		SS44 135.3	OK	
S6.008	SS38 to AT2	318.6	OK	
S10.000		SS45 24.0	OK	
S10.001		SS46 64.2	OK	
S10.002		SS47 102.2	OK	
S10.003		SS48 122.3	OK	
S10.004		SS49 122.4	OK	
S10.005		SS50 120.9	OK	
S6.009	SAT2 to S51	29.6	OK	
S6.010	SS51 to S52 PUMP2	19.3	OK	
S6.011	SS52 PUMP2 to HW4	9.4	OK	
S6.012	SHW4 to HW5	9.4	OK	
S6.013	SHW5 to S55	9.4	OK	
S6.014	SS55 to HW6	9.4	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 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 4
Number of Online Controls 2 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 0.406
Region England and Wales Cv (Summer) 1.000
M5-60 (mm) 20.000 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60
Return Period(s) (years) 1, 2, 30, 100
Climate Change (%) 0, 0, 0, 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) Surcharge	First (Y) Flood	First (Z) Overflow
S1.000	SS01	15 Summer	30	+0%	30/15 Summer	100/15 Summer	
S2.000	SS02	15 Summer	30	+0%	30/15 Summer	100/15 Summer	
S1.001	SS03	15 Summer	30	+0%	30/15 Summer		
S1.002	SS05	15 Summer	30	+0%	30/15 Summer		
S1.003	SS06	15 Summer	30	+0%	30/15 Summer		
S1.004	SS07	15 Summer	30	+0%	30/15 Summer		
S3.000	SS08 to HW1	15 Summer	30	+0%	30/15 Summer	100/15 Summer	
S3.001	SHW1 to HW2	15 Summer	30	+0%	1/15 Summer		
S3.002	SHW2 to S09	15 Summer	30	+0%	100/15 Summer		
S1.005	SS09	15 Summer	30	+0%	30/15 Summer		
S1.006	SS10	15 Summer	30	+0%	30/15 Summer		
S1.007	SS11	15 Summer	30	+0%	30/15 Summer		
S1.008	SS60	15 Summer	30	+0%	2/15 Summer		
S1.009	SS12 to INT1 IN	15 Summer	30	+0%	2/15 Summer		
S1.010	SINT1 OUT to S13	15 Summer	30	+0%	30/15 Summer		
S1.011	SS13 to AT1	15 Summer	30	+0%	30/15 Summer		

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)
S1.000	SS01		63.548	0.368	0.000	0.90		
S2.000	SS02		63.534	0.494	0.000	0.67		
S1.001	SS03		63.411	0.471	0.000	0.91		
S1.002	SS05		63.266	0.576	0.000	0.98		
S1.003	SS06		63.144	0.574	0.000	0.94		
S1.004	SS07		63.033	0.573	0.000	0.88		
S3.000	SS08 to HW1		64.012	0.062	0.000	1.44		
S3.001	SHW1 to HW2		63.837	0.566	0.000	2.48		
S3.002	SHW2 to S09		63.709	-0.191	0.000	0.29		
S1.005	SS09		62.926	0.566	0.000	0.96		
S1.006	SS10		62.711	0.591	0.000	0.96		
S1.007	SS11		62.465	0.685	0.000	1.31		
S1.008	SS60		62.206	0.566	0.000	1.32		
S1.009	SS12 to INT1 IN		61.964	0.454	0.000	1.79		
S1.010	SINT1 OUT to S13		61.643	0.293	0.000	1.79		
S1.011	SS13 to AT1		61.353	0.073	0.000	1.22		

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SS01	90.3	SURCHARGED	3
S2.000	SS02	51.1	SURCHARGED	5
S1.001	SS03	211.8	SURCHARGED	
S1.002	SS05	191.3	SURCHARGED	
S1.003	SS06	175.6	SURCHARGED	
S1.004	SS07	156.7	SURCHARGED	
S3.000	SS08 to HW1	88.5	SURCHARGED	3
S3.001	SHW1 to HW2	88.5	SURCHARGED	
S3.002	SHW2 to S09	88.6	OK	
S1.005	SS09	229.6	SURCHARGED	
S1.006	SS10	231.8	SURCHARGED	
S1.007	SS11	257.6	SURCHARGED	
S1.008	SS60	267.7	SURCHARGED	
S1.009	SS12 to INT1 IN	302.9	SURCHARGED	
S1.010	SINT1 OUT to S13	302.5	SURCHARGED	
S1.011	SS13 to AT1	299.8	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S4.000		SS14 15 Summer	30	+0%	100/15 Summer		
S4.001		SS15 15 Summer	30	+0%			
S4.002		SS16 15 Summer	30	+0%			
S4.003		SS17 15 Summer	30	+0%			
S4.004		SS18 15 Summer	30	+0%			
S4.005	SS19 to AT1	15 Summer	30	+0%			
S5.000		SS20 15 Summer	30	+0%	100/15 Summer		
S5.001		SS21 15 Summer	30	+0%	100/15 Summer		
S5.002		SS22 15 Summer	30	+0%	30/15 Summer		
S5.003		SS23 15 Summer	30	+0%	30/15 Summer		
S5.004	SS24 to AT1	15 Summer	30	+0%	30/15 Summer		
S1.012	SAT1 to S25 PUMP1	60 Summer	30	+0%	30/30 Summer		
S1.013	SS25 PUMP1 to S26	60 Winter	30	+0%	1/15 Summer		
S1.014	SS26 to HW3	60 Winter	30	+0%			
S6.000		SS27 15 Summer	30	+0%	100/15 Summer		
S6.001		SS28 15 Summer	30	+0%	100/15 Summer		
S6.002		SS29 15 Summer	30	+0%	100/15 Summer		
S6.003		SS30 15 Summer	30	+0%	30/15 Summer		
S6.004		SS31 15 Summer	30	+0%	30/15 Summer		
S6.005		SS32 15 Summer	30	+0%	30/15 Summer		
S7.000		SS33 15 Summer	30	+0%	30/15 Summer	100/15 Summer	
S8.000		SS35 15 Summer	30	+0%	30/15 Summer	100/15 Summer	
S7.001		SS36 15 Summer	30	+0%	30/15 Summer		
S6.006	SS37 to INT2 IN	15 Summer	30	+0%	2/15 Summer		
S6.007	SINT2 OUT to S38	15 Summer	30	+0%	30/15 Summer		
S9.000		SS39 15 Summer	30	+0%	30/15 Summer	100/15 Summer	
S9.001		SS40 15 Summer	30	+0%	30/15 Summer	100/15 Summer	
S9.002		SS41 15 Summer	30	+0%	30/15 Summer		
S9.003		SS42 15 Summer	30	+0%	30/15 Summer		
S9.004		SS43 15 Summer	30	+0%	30/15 Summer		
S9.005		SS44 15 Summer	30	+0%	30/15 Summer		
S6.008	SS38 to AT2	15 Summer	30	+0%	30/15 Summer		
S10.000		SS45 15 Summer	30	+0%	100/15 Summer		
S10.001		SS46 15 Summer	30	+0%	100/15 Summer		
S10.002		SS47 15 Summer	30	+0%	100/15 Summer		
S10.003		SS48 15 Summer	30	+0%	100/15 Summer		
S10.004		SS49 15 Summer	30	+0%	100/15 Summer		
S10.005		SS50 15 Summer	30	+0%	30/15 Summer		
S6.009	SAT2 to S51	60 Winter	30	+0%	30/60 Summer		
S6.010	SS51 to S52 PUMP2	60 Summer	30	+0%	30/30 Summer		
S6.011	SS52 PUMP2 to HW4	60 Summer	30	+0%	30/30 Summer		
S6.012	SHW4 to HW5	60 Winter	30	+0%			
S6.013	SHW5 to S55	60 Summer	30	+0%			
S6.014	SS55 to HW6	60 Winter	30	+0%			

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Half Drain Time (mins)
S4.000	SS14		63.591	-0.139	0.000	0.55	
S4.001	SS15		63.179	-0.241	0.000	0.43	
S4.002	SS16		62.915	-0.225	0.000	0.49	
S4.003	SS17		62.489	-0.211	0.000	0.54	
S4.004	SS18		62.127	-0.203	0.000	0.58	
S4.005	SS19 to AT1		61.867	-0.223	0.000	0.50	
S5.000	SS20		63.616	-0.294	0.000	0.26	
S5.001	SS21		63.494	-0.136	0.000	0.64	
S5.002	SS22		63.375	0.030	0.000	0.98	
S5.003	SS23		63.236	0.031	0.000	0.89	
S5.004	SS24 to AT1		63.032	0.067	0.000	1.34	
S1.012	SAT1 to S25 PUMP1		61.257	0.167	0.000	0.08	
S1.013	SS25 PUMP1 to S26		61.440	0.800	0.000	1.46	
S1.014	SS26 to HW3		64.445	-0.055	0.000	0.72	
S6.000	SS27		64.719	-0.251	0.000	0.06	
S6.001	SS28		64.308	-0.152	0.000	0.48	
S6.002	SS29		63.411	-0.279	0.000	0.22	
S6.003	SS30		63.365	0.215	0.000	0.32	
S6.004	SS31		63.258	0.558	0.000	0.60	
S6.005	SS32		63.127	0.547	0.000	0.60	
S7.000	SS33		63.426	0.606	0.000	0.47	
S8.000	SS35		63.373	0.813	0.000	1.09	
S7.001	SS36		63.289	0.799	0.000	1.31	
S6.006	SS37 to INT2 IN		62.980	0.670	0.000	1.22	
S6.007	SINT2 OUT to S38		62.790	0.580	0.000	1.40	
S9.000	SS39		63.748	0.618	0.000	0.29	
S9.001	SS40		63.661	0.641	0.000	0.71	
S9.002	SS41		63.522	0.742	0.000	0.68	
S9.003	SS42		63.388	0.828	0.000	0.72	
S9.004	SS43		63.260	0.850	0.000	1.17	
S9.005	SS44		63.126	0.796	0.000	1.18	
S6.008	SS38 to AT2		62.610	0.440	0.000	2.36	
S10.000	SS45		64.444	-0.326	0.000	0.17	
S10.001	SS46		64.284	-0.216	0.000	0.53	
S10.002	SS47		64.091	-0.119	0.000	0.88	
S10.003	SS48		63.758	-0.167	0.000	0.78	
S10.004	SS49		63.511	-0.184	0.000	0.67	
S10.005	SS50		63.346	0.051	0.000	1.11	
S6.009	SAT2 to S51		62.088	0.053	0.000	0.10	
S6.010	SS51 to S52 PUMP2		62.103	0.208	0.000	0.08	
S6.011	SS52 PUMP2 to HW4		62.105	0.150	0.000	0.05	
S6.012	SHW4 to HW5		64.680	-0.595	0.000	0.03	
S6.013	SHW5 to S55		64.656	-0.619	0.000	0.02	
S6.014	SS55 to HW6		64.484	-0.611	0.000	0.02	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S4.000		SS14 55.1	OK	
S4.001		SS15 119.8	OK	
S4.002		SS16 151.3	OK	
S4.003		SS17 155.5	OK	
S4.004		SS18 156.0	OK	
S4.005	SS19 to AT1	154.4	OK	
S5.000		SS20 71.7	OK	
S5.001		SS21 178.2	OK	
S5.002		SS22 280.9	SURCHARGED	
S5.003		SS23 332.9	SURCHARGED	
S5.004	SS24 to AT1	334.0	SURCHARGED	
S1.012	SAT1 to S25 PUMP1	18.1	SURCHARGED	
S1.013	SS25 PUMP1 to S26	7.4	SURCHARGED	
S1.014	SS26 to HW3	7.4	OK	
S6.000		SS27 6.4	OK	
S6.001		SS28 51.3	OK	
S6.002		SS29 63.9	OK	
S6.003		SS30 88.2	SURCHARGED	
S6.004		SS31 116.7	SURCHARGED	
S6.005		SS32 143.4	SURCHARGED	
S7.000		SS33 111.4	SURCHARGED	3
S8.000		SS35 72.0	SURCHARGED	3
S7.001		SS36 293.3	SURCHARGED	
S6.006	SS37 to INT2 IN	422.0	SURCHARGED	
S6.007	SINT2 OUT to S38	418.8	SURCHARGED	
S9.000		SS39 53.8	SURCHARGED	3
S9.001		SS40 163.3	SURCHARGED	2
S9.002		SS41 152.8	SURCHARGED	
S9.003		SS42 155.9	SURCHARGED	
S9.004		SS43 197.8	SURCHARGED	
S9.005		SS44 280.6	SURCHARGED	
S6.008	SS38 to AT2	706.1	SURCHARGED	
S10.000		SS45 45.6	OK	
S10.001		SS46 147.0	OK	
S10.002		SS47 242.5	OK	
S10.003		SS48 287.6	OK	
S10.004		SS49 285.5	OK	
S10.005		SS50 275.3	SURCHARGED	
S6.009	SAT2 to S51	29.4	SURCHARGED	
S6.010	SS51 to S52 PUMP2	18.9	SURCHARGED	
S6.011	SS52 PUMP2 to HW4	9.4	SURCHARGED	
S6.012	SHW4 to HW5	9.4	OK	
S6.013	SHW5 to S55	9.4	OK	
S6.014	SS55 to HW6	9.4	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coefficient	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	4
Number of Online Controls	2	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	0.406
Region England and Wales	Cv (Summer)		1.000
M5-60 (mm)	20.000	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 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) Surchage	First (Y) Flood	First (Z) Overflow
S1.000	SS01	15 Summer	100	+40%	30/15 Summer	100/15 Summer	
S2.000	SS02	30 Summer	100	+40%	30/15 Summer	100/15 Summer	
S1.001	SS03	15 Summer	100	+40%	30/15 Summer		
S1.002	SS05	15 Summer	100	+40%	30/15 Summer		
S1.003	SS06	15 Summer	100	+40%	30/15 Summer		
S1.004	SS07	15 Summer	100	+40%	30/15 Summer		
S3.000	SS08 to HW1	15 Summer	100	+40%	30/15 Summer	100/15 Summer	
S3.001	SHW1 to HW2	15 Summer	100	+40%	1/15 Summer		
S3.002	SHW2 to S09	15 Summer	100	+40%	100/15 Summer		
S1.005	SS09	15 Summer	100	+40%	30/15 Summer		
S1.006	SS10	15 Summer	100	+40%	30/15 Summer		
S1.007	SS11	15 Summer	100	+40%	30/15 Summer		
S1.008	SS60	15 Summer	100	+40%	2/15 Summer		
S1.009	SS12 to INT1 IN	15 Summer	100	+40%	2/15 Summer		
S1.010	SINT1 OUT to S13	15 Summer	100	+40%	30/15 Summer		
S1.011	SS13 to AT1	60 Summer	100	+40%	30/15 Summer		

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)
S1.000	SS01		64.853	1.673	9.178	1.38		
S2.000	SS02		64.353	1.313	43.345	1.39		
S1.001	SS03		64.681	1.741	0.000	1.16		
S1.002	SS05		64.554	1.864	0.000	1.12		
S1.003	SS06		64.520	1.950	0.000	1.13		
S1.004	SS07		64.479	2.019	0.000	1.08		
S3.000	SS08 to HW1		64.779	0.829	1.248	2.49		
S3.001	SHW1 to HW2		64.570	1.299	0.000	4.28		
S3.002	SHW2 to S09		64.458	0.558	0.000	0.51		
S1.005	SS09		64.389	2.029	0.000	1.24		
S1.006	SS10		64.241	2.121	0.000	1.26		
S1.007	SS11		63.977	2.197	0.000	1.78		
S1.008	SS60		63.580	1.940	0.000	1.82		
S1.009	SS12 to INT1 IN		63.154	1.644	0.000	2.73		
S1.010	SINT1 OUT to S13		62.457	1.107	0.000	2.67		
S1.011	SS13 to AT1		61.932	0.652	0.000	1.64		

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SS01	138.2	FLOOD	3
S2.000	SS02	106.2	FLOOD	5
S1.001	SS03	270.5	FLOOD RISK	
S1.002	SS05	219.1	SURCHARGED	
S1.003	SS06	210.7	SURCHARGED	
S1.004	SS07	192.6	SURCHARGED	
S3.000	SS08 to HW1	152.6	FLOOD	3
S3.001	SHW1 to HW2	152.7	SURCHARGED	
S3.002	SHW2 to S09	157.2	SURCHARGED	
S1.005	SS09	299.0	SURCHARGED	
S1.006	SS10	305.6	SURCHARGED	
S1.007	SS11	351.2	SURCHARGED	
S1.008	SS60	370.7	SURCHARGED	
S1.009	SS12 to INT1 IN	461.0	SURCHARGED	
S1.010	SINT1 OUT to S13	451.9	SURCHARGED	
S1.011	SS13 to AT1	401.9	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S4.000		SS14 15 Summer	100	+40%	100/15 Summer		
S4.001		SS15 15 Summer	100	+40%			
S4.002		SS16 15 Summer	100	+40%			
S4.003		SS17 15 Summer	100	+40%			
S4.004		SS18 15 Summer	100	+40%			
S4.005	SS19 to AT1	15 Summer	100	+40%			
S5.000		SS20 15 Summer	100	+40%	100/15 Summer		
S5.001		SS21 15 Summer	100	+40%	100/15 Summer		
S5.002		SS22 15 Summer	100	+40%	30/15 Summer		
S5.003		SS23 15 Summer	100	+40%	30/15 Summer		
S5.004	SS24 to AT1	15 Summer	100	+40%	30/15 Summer		
S1.012	SAT1 to S25	PUMP1 60 Summer	100	+40%	30/30 Summer		
S1.013	SS25	PUMP1 to S26 60 Winter	100	+40%	1/15 Summer		
S1.014	SS26 to HW3	15 Winter	100	+40%			
S6.000		SS27 15 Summer	100	+40%	100/15 Summer		
S6.001		SS28 15 Summer	100	+40%	100/15 Summer		
S6.002		SS29 15 Summer	100	+40%	100/15 Summer		
S6.003		SS30 15 Summer	100	+40%	30/15 Summer		
S6.004		SS31 15 Summer	100	+40%	30/15 Summer		
S6.005		SS32 15 Summer	100	+40%	30/15 Summer		
S7.000		SS33 15 Summer	100	+40%	30/15 Summer	100/15 Summer	
S8.000		SS35 15 Summer	100	+40%	30/15 Summer	100/15 Summer	
S7.001		SS36 15 Summer	100	+40%	30/15 Summer		
S6.006	SS37 to INT2	IN 15 Summer	100	+40%	2/15 Summer		
S6.007	SINT2 OUT	to S38 15 Summer	100	+40%	30/15 Summer		
S9.000		SS39 15 Summer	100	+40%	30/15 Summer	100/15 Summer	
S9.001		SS40 15 Summer	100	+40%	30/15 Summer	100/15 Summer	
S9.002		SS41 15 Summer	100	+40%	30/15 Summer		
S9.003		SS42 15 Summer	100	+40%	30/15 Summer		
S9.004		SS43 15 Summer	100	+40%	30/15 Summer		
S9.005		SS44 15 Summer	100	+40%	30/15 Summer		
S6.008	SS38 to AT2	15 Summer	100	+40%	30/15 Summer		
S10.000		SS45 15 Summer	100	+40%	100/15 Summer		
S10.001		SS46 15 Summer	100	+40%	100/15 Summer		
S10.002		SS47 15 Summer	100	+40%	100/15 Summer		
S10.003		SS48 15 Summer	100	+40%	100/15 Summer		
S10.004		SS49 15 Summer	100	+40%	100/15 Summer		
S10.005		SS50 15 Summer	100	+40%	30/15 Summer		
S6.009	SAT2 to S51	60 Winter	100	+40%	30/60 Summer		
S6.010	SS51 to S52	PUMP2 60 Summer	100	+40%	30/30 Summer		
S6.011	SS52	PUMP2 to HW4 60 Summer	100	+40%	30/30 Summer		
S6.012	SHW4 to HW5	60 Winter	100	+40%			
S6.013	SHW5 to S55	60 Summer	100	+40%			
S6.014	SS55 to HW6	60 Summer	100	+40%			

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)
S4.000	SS14		63.730	0.000	0.000	1.00	
S4.001	SS15		63.275	-0.145	0.000	0.78	
S4.002	SS16		63.023	-0.117	0.000	0.88	
S4.003	SS17		62.617	-0.083	0.000	0.97	
S4.004	SS18		62.298	-0.032	0.000	1.00	
S4.005	SS19 to AT1		61.964	-0.126	0.000	0.87	
S5.000	SS20		65.185	1.275	0.000	0.49	
S5.001	SS21		65.023	1.393	0.000	1.14	
S5.002	SS22		64.630	1.285	0.000	1.75	
S5.003	SS23		64.156	0.951	0.000	1.60	
S5.004	SS24 to AT1		63.486	0.521	0.000	2.44	
S1.012	SAT1 to S25 PUMP1		61.817	0.727	0.000	0.15	
S1.013	SS25 PUMP1 to S26		62.126	1.486	0.000	1.46	
S1.014	SS26 to HW3		64.445	-0.055	0.000	0.72	
S6.000	SS27		65.771	0.801	0.000	0.15	
S6.001	SS28		65.757	1.297	0.000	0.74	
S6.002	SS29		65.414	1.724	0.000	0.32	
S6.003	SS30		65.242	2.092	0.000	0.51	
S6.004	SS31		65.073	2.373	0.000	0.94	
S6.005	SS32		64.945	2.365	0.000	1.16	
S7.000	SS33		65.253	2.433	5.283	0.83	
S8.000	SS35		65.136	2.576	11.636	2.22	
S7.001	SS36		65.124	2.634	0.000	2.17	
S6.006	SS37 to INT2 IN		64.515	2.205	0.000	1.98	
S6.007	SINT2 OUT to S38		64.029	1.819	0.000	2.31	
S9.000	SS39		65.831	2.701	13.221	0.81	
S9.001	SS40		65.839	2.819	3.233	1.15	
S9.002	SS41		65.795	3.015	0.000	1.05	
S9.003	SS42		65.614	3.054	0.000	1.13	
S9.004	SS43		65.449	3.039	0.000	1.91	
S9.005	SS44		65.104	2.774	0.000	2.17	
S6.008	SS38 to AT2		63.551	1.381	0.000	4.00	
S10.000	SS45		65.473	0.703	0.000	0.31	
S10.001	SS46		65.331	0.831	0.000	0.86	
S10.002	SS47		65.097	0.887	0.000	1.43	
S10.003	SS48		64.467	0.542	0.000	1.29	
S10.004	SS49		64.073	0.378	0.000	1.11	
S10.005	SS50		63.588	0.293	0.000	1.87	
S6.009	SAT2 to S51		62.612	0.577	0.000	0.10	
S6.010	SS51 to S52 PUMP2		62.652	0.757	0.000	0.07	
S6.011	SS52 PUMP2 to HW4		62.666	0.711	0.000	0.05	
S6.012	SHW4 to HW5		64.680	-0.595	0.000	0.03	
S6.013	SHW5 to S55		64.656	-0.619	0.000	0.02	
S6.014	SS55 to HW6		64.484	-0.611	0.000	0.02	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S4.000	SS14	99.8	SURCHARGED	
S4.001	SS15	216.4	OK	
S4.002	SS16	273.2	OK	
S4.003	SS17	277.4	OK	
S4.004	SS18	267.9	OK	
S4.005	SS19 to AT1	267.9	OK	
S5.000	SS20	134.3	FLOOD RISK	
S5.001	SS21	318.4	FLOOD RISK	
S5.002	SS22	503.5	SURCHARGED	
S5.003	SS23	600.8	SURCHARGED	
S5.004	SS24 to AT1	605.6	SURCHARGED	
S1.012	SAT1 to S25 PUMP1	32.0	SURCHARGED	
S1.013	SS25 PUMP1 to S26	7.4	SURCHARGED	
S1.014	SS26 to HW3	7.4	OK	
S6.000	SS27	15.4	FLOOD RISK	
S6.001	SS28	78.9	FLOOD RISK	
S6.002	SS29	94.2	FLOOD RISK	
S6.003	SS30	142.1	SURCHARGED	
S6.004	SS31	183.5	SURCHARGED	
S6.005	SS32	275.2	FLOOD RISK	
S7.000	SS33	198.1	FLOOD	3
S8.000	SS35	147.2	FLOOD	3
S7.001	SS36	485.9	FLOOD RISK	
S6.006	SS37 to INT2 IN	688.5	SURCHARGED	
S6.007	SINT2 OUT to S38	689.5	SURCHARGED	
S9.000	SS39	151.0	FLOOD	3
S9.001	SS40	263.9	FLOOD	2
S9.002	SS41	236.5	FLOOD RISK	
S9.003	SS42	243.2	FLOOD RISK	
S9.004	SS43	322.5	SURCHARGED	
S9.005	SS44	515.4	SURCHARGED	
S6.008	SS38 to AT2	1195.7	SURCHARGED	
S10.000	SS45	84.7	SURCHARGED	
S10.001	SS46	238.4	SURCHARGED	
S10.002	SS47	395.2	SURCHARGED	
S10.003	SS48	474.1	SURCHARGED	
S10.004	SS49	468.5	SURCHARGED	
S10.005	SS50	464.1	SURCHARGED	
S6.009	SAT2 to S51	28.2	SURCHARGED	
S6.010	SS51 to S52 PUMP2	18.4	SURCHARGED	
S6.011	SS52 PUMP2 to HW4	9.4	SURCHARGED	
S6.012	SHW4 to HW5	9.4	OK	
S6.013	SHW5 to S55	9.4	OK	
S6.014	SS55 to HW6	9.4	OK	

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 460400 220850 SP 60400 20850
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

- Indicates pipe length does not match coordinates
« - Indicates pipe capacity < flow

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
S1.000	23.370	0.240	97.4	0.208	5.00	0.0	0.600	o	300	Pipe/Conduit	
S2.000	14.827	0.100	148.3	0.117	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	37.623	0.250	150.5	0.163	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.002	17.260	0.120	143.8	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.24	62.880	0.208	0.0	0.0	0.0	1.59	112.6	28.2
S2.000	50.00	5.19	62.740	0.117	0.0	0.0	0.0	1.29	91.1	15.8
S1.001	50.00	5.62	62.490	0.488	0.0	0.0	0.0	1.65	263.2	66.1
S1.002	50.00	5.79	62.240	0.488	0.0	0.0	0.0	1.69	269.3	66.1

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Network Design Table for Storm

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
S1.003	16.563	0.110	150.6	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.004	15.063	0.100	150.6	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S3.000	5.151	0.050	103.0	0.203	5.00	0.0	0.600	o	300	Pipe/Conduit	
S3.001	7.994	0.001	7994.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.002	9.977	1.540	6.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.005	32.730	0.240	136.4	0.010	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.006	50.035	0.340	147.2	0.030	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.007	26.879	0.140	192.0	0.158	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.008	13.894	0.130	106.9	0.035	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.009	8.816	0.060	146.9	0.133	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.010	6.900#	0.070	98.6	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.011	3.600#	0.190	18.9	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.000	28.549	0.280	102.0	0.127	5.00	0.0	0.600	o	300	Pipe/Conduit	
S4.001	27.764	0.280	99.2	0.134	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.002	36.752	0.440	83.5	0.070	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.003	36.752	0.370	99.3	0.009	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.004	24.343	0.240	101.4	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S4.005	2.300#	0.300	7.7	0.000	0.00	0.0	0.600	o	450	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)
S1.003	50.00	5.96	62.120	0.488	0.0	0.0	0.0	1.65	263.1	66.1
S1.004	50.00	6.11	62.010	0.488	0.0	0.0	0.0	1.65	263.1	66.1
S3.000	50.00	5.06	63.650	0.203	0.0	0.0	0.0	1.55	109.5	27.5
S3.001	50.00	5.85	62.971	0.203	0.0	0.0	0.0	0.17	11.8«	27.5
S3.002	50.00	5.88	63.600	0.203	0.0	0.0	0.0	6.22	439.3	27.5
S1.005	50.00	6.43	61.910	0.701	0.0	0.0	0.0	1.74	276.6	94.9
S1.006	50.00	6.92	61.670	0.731	0.0	0.0	0.0	1.67	266.2	99.0
S1.007	50.00	7.23	61.330	0.889	0.0	0.0	0.0	1.46	232.8	120.4
S1.008	50.00	7.35	61.190	0.924	0.0	0.0	0.0	1.97	312.7	125.1
S1.009	50.00	7.44	61.060	1.057	0.0	0.0	0.0	1.68	266.4	143.1
S1.010	50.00	7.49	60.900	1.057	0.0	0.0	0.0	2.05	325.7	143.1
S1.011	50.00	7.50	60.830	1.057	0.0	0.0	0.0	4.69	745.5	143.1
S4.000	50.00	5.31	63.430	0.127	0.0	0.0	0.0	1.56	110.1	17.2
S4.001	50.00	5.53	62.970	0.261	0.0	0.0	0.0	2.04	324.7	35.3
S4.002	50.00	5.81	62.690	0.331	0.0	0.0	0.0	2.23	354.0	44.8
S4.003	50.00	6.11	62.250	0.340	0.0	0.0	0.0	2.04	324.5	46.0
S4.004	50.00	6.31	61.880	0.340	0.0	0.0	0.0	2.02	321.1	46.0
S4.005	50.00	6.31	61.640	0.340	0.0	0.0	0.0	7.38	1173.2	46.0

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Network Design Table for Storm

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
S5.000	28.002	0.280	100.0	0.164	5.00	0.0	0.600	o	450	Pipe/Conduit	
S5.001	27.900	0.285	97.9	0.232	0.00	0.0	0.600	o	450	Pipe/Conduit	
S5.002	14.110	0.140	100.8	0.232	0.00	0.0	0.600	o	525	Pipe/Conduit	
S5.003	24.259	0.240	101.1	0.117	0.00	0.0	0.600	o	525	Pipe/Conduit	
S5.004	9.900#	0.100	99.0	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.012	3.400#	0.150	22.7	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.013	12.907	-3.860	-3.3	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.014	15.427	0.060	257.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S6.000	51.470	0.510	100.9	0.015	5.00	0.0	0.600	o	300	Pipe/Conduit	
S6.001	77.202	0.770	100.3	0.093	0.00	0.0	0.600	o	300	Pipe/Conduit	
S6.002	54.463	0.540	100.9	0.029	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.003	49.354	0.450	109.7	0.101	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.004	12.200	0.120	101.7	0.081	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.005	39.055	0.270	144.6	0.168	0.00	0.0	0.600	o	450	Pipe/Conduit	
S7.000	49.806	0.330	150.9	0.276	5.00	0.0	0.600	o	450	Pipe/Conduit	
S8.000	10.829	0.070	154.7	0.177	5.00	0.0	0.600	o	300	Pipe/Conduit	
S7.001	26.748	0.180	148.6	0.272	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S5.000	50.00	5.23	63.460	0.164	0.0	0.0	0.0	2.03	323.3	22.2
S5.001	50.00	5.46	63.180	0.396	0.0	0.0	0.0	2.06	326.8	53.6
S5.002	50.00	5.56	62.820	0.628	0.0	0.0	0.0	2.23	483.0	85.0
S5.003	50.00	5.74	62.680	0.745	0.0	0.0	0.0	2.23	482.3	100.9
S5.004	50.00	5.82	62.440	0.745	0.0	0.0	0.0	2.25	487.4	100.9
S1.012	50.00	7.52	60.640	2.142	0.0	0.0	0.0	4.28	681.4	290.1
S1.013	50.00	7.32	60.490	0.000	7.4	0.0	0.0	0.09	1.6<<	7.4
S1.014	50.00	7.73	64.350	0.000	7.4	0.0	0.0	0.62	11.0	7.4
S6.000	50.00	5.55	64.670	0.015	0.0	0.0	0.0	1.57	110.6	2.0
S6.001	50.00	6.37	64.160	0.108	0.0	0.0	0.0	1.57	111.0	14.6
S6.002	50.00	6.82	63.240	0.137	0.0	0.0	0.0	2.02	322.0	18.6
S6.003	50.00	7.24	62.700	0.238	0.0	0.0	0.0	1.94	308.7	32.2
S6.004	50.00	7.34	62.250	0.319	0.0	0.0	0.0	2.02	320.7	43.2
S6.005	50.00	7.73	62.130	0.487	0.0	0.0	0.0	1.69	268.5	65.9
S7.000	50.00	5.50	62.370	0.276	0.0	0.0	0.0	1.65	262.8	37.4
S8.000	50.00	5.14	62.260	0.177	0.0	0.0	0.0	1.26	89.2	24.0
S7.001	50.00	5.77	62.040	0.725	0.0	0.0	0.0	1.67	264.9	98.2

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Network Design Table for Storm

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
S6.006	14.700#	0.100	147.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit		
S6.007	5.900#	0.040	147.5	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit		
S9.000	16.478	0.110	149.8	0.136	5.00	0.0	0.600	o	450	Pipe/Conduit		
S9.001	36.638	0.240	152.7	0.267	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.002	34.292	0.220	155.9	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.003	22.913	0.150	152.8	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.004	12.144	0.080	151.8	0.135	0.00	0.0	0.600	o	450	Pipe/Conduit		
S9.005	46.554	0.310	150.2	0.267	0.00	0.0	0.600	o	450	Pipe/Conduit		
S6.008	5.900#	0.040	147.5	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit		
S10.000	27.809	0.270	103.0	0.105	5.00	0.0	0.600	o	450	Pipe/Conduit		
S10.001	28.577	0.290	98.5	0.208	0.00	0.0	0.600	o	450	Pipe/Conduit		
S10.002	28.309	0.285	99.3	0.202	0.00	0.0	0.600	o	450	Pipe/Conduit		
S10.003	23.592	0.230	102.6	0.102	0.00	0.0	0.600	o	525	Pipe/Conduit		
S10.004	39.574	0.400	98.9	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		
S10.005	6.100#	0.060	101.7	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		
S6.009	20.529	0.140	146.6	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		
S6.010	12.700#	0.090	141.1	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit		

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S6.006	50.00	7.85	61.710	1.212	0.0	0.0	0.0	2.01	567.3	164.1
S6.007	50.00	7.90	61.610	1.212	0.0	0.0	0.0	2.00	566.3	164.1
S9.000	50.00	5.17	62.680	0.136	0.0	0.0	0.0	1.66	263.8	18.4
S9.001	50.00	5.54	62.570	0.403	0.0	0.0	0.0	1.64	261.3	54.6
S9.002	50.00	5.89	62.330	0.403	0.0	0.0	0.0	1.63	258.6	54.6
S9.003	50.00	6.12	62.110	0.403	0.0	0.0	0.0	1.64	261.2	54.6
S9.004	50.00	6.24	61.960	0.538	0.0	0.0	0.0	1.65	262.1	72.9
S9.005	50.00	6.71	61.880	0.805	0.0	0.0	0.0	1.66	263.5	109.0
S6.008	50.00	7.95	61.570	2.017	0.0	0.0	0.0	2.00	566.3	273.1
S10.000	50.00	5.23	64.320	0.105	0.0	0.0	0.0	2.00	318.6	14.2
S10.001	50.00	5.46	64.050	0.313	0.0	0.0	0.0	2.05	325.8	42.4
S10.002	50.00	5.70	63.760	0.515	0.0	0.0	0.0	2.04	324.5	69.7
S10.003	50.00	5.87	63.400	0.617	0.0	0.0	0.0	2.21	478.8	83.5
S10.004	50.00	6.17	63.170	0.617	0.0	0.0	0.0	2.25	487.5	83.5
S10.005	50.00	6.21	62.770	0.617	0.0	0.0	0.0	2.22	480.9	83.5
S6.009	50.00	8.13	61.510	2.634	0.0	0.0	0.0	1.85	400.0	356.7
S6.010	50.00	8.24	61.370	2.634	0.0	0.0	0.0	1.88	407.8	356.7

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Network Design Table for Storm

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
S6.011	11.710	-0.830	-14.1	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S6.012	4.430	0.001	4430.0	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S6.013	27.607	0.180	153.4	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S6.014	5.198	0.130	40.0	0.000	0.00	0.0	0.600	o	675	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)
S6.011	50.00	9.01	61.280	2.634	0.0	0.0	0.0	0.25	90.7«	356.7
S6.012	50.00	9.21	64.600	2.634	0.0	0.0	0.0	0.38	137.4«	356.7
S6.013	50.00	9.42	64.600	2.634	0.0	0.0	0.0	2.11	756.5	356.7
S6.014	50.00	9.44	64.420	2.634	0.0	0.0	0.0	4.15	1486.0	356.7

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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S1.014	S	64.740	64.290	0.000	0	0
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Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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S6.014	S	65.320	64.290	0.000	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	0.000
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	4
Number of Online Controls	2	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model FEH
Return Period (years) 100

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Synthetic Rainfall Details

FEH Rainfall Version	2013
Site Location	GB 460400 220850 SP 60400 20850
Data Type	Catchment
Summer Storms	No
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Storm Duration (mins)	30

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Online Controls for Storm

Pump Manhole: SS25 PUMP1 to S26, DS/PN: S1.013, Volume (m³): 6.7

Invert Level (m) 60.490

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.200	7.3600	1.800	7.3600	3.400	7.3600	5.000	7.3600
0.400	7.3600	2.000	7.3600	3.600	7.3600	5.200	7.3600
0.600	7.3600	2.200	7.3600	3.800	7.3600	5.400	7.3600
0.800	7.3600	2.400	7.3600	4.000	7.3600	5.600	7.3600
1.000	7.3600	2.600	7.3600	4.200	7.3600	5.800	7.3600
1.200	7.3600	2.800	7.3600	4.400	7.3600	6.000	7.3600
1.400	7.3600	3.000	7.3600	4.600	7.3600		
1.600	7.3600	3.200	7.3600	4.800	7.3600		

Pump Manhole: SS52 PUMP2 to HW4, DS/PN: S6.011, Volume (m³): 9.5

Invert Level (m) 61.280

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.200	9.3800	1.800	9.3800	3.400	9.3800	5.000	9.3800
0.400	9.3800	2.000	9.3800	3.600	9.3800	5.200	9.3800
0.600	9.3800	2.200	9.3800	3.800	9.3800	5.400	9.3800
0.800	9.3800	2.400	9.3800	4.000	9.3800	5.600	9.3800
1.000	9.3800	2.600	9.3800	4.200	9.3800	5.800	9.3800
1.200	9.3800	2.800	9.3800	4.400	9.3800	6.000	9.3800
1.400	9.3800	3.000	9.3800	4.600	9.3800		
1.600	9.3800	3.200	9.3800	4.800	9.3800		

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Storage Structures for Storm

Tank or Pond Manhole: SHW1 to HW2, DS/PN: S3.001

Invert Level (m) 63.625

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1.6	1.000	48.1	2.000	151.3
0.500	17.8	1.500	92.7		

Cellular Storage Manhole: SAT1 to S25 PUMP1, DS/PN: S1.012

Invert Level (m) 60.590 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	993.9	0.0	2.001	0.0	0.0
2.000	993.9	0.0			

Cellular Storage Manhole: SAT2 to S51, DS/PN: S6.009

Invert Level (m) 61.460 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	1270.3	0.0	2.001	0.0	0.0
2.000	1270.3	0.0			

Tank or Pond Manhole: SHW4 to HW5, DS/PN: S6.012

Invert Level (m) 64.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	30.2	0.500	76.9	1.000	138.0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coefficient	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	4
Number of Online Controls	2	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 460400 220850 SP 60400 20850
Data Type	Catchment
Cv (Summer)	1.000
Cv (Winter)	1.000
Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON
Profile(s)	Summer and Winter
Duration(s) (mins)	120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 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) Surcharge	First (Y) Flood	First (Z) Overflow
S1.000	SS01	120 Summer	2	+0%	100/120 Summer		
S2.000	SS02	120 Summer	2	+0%	100/120 Summer	100/120 Summer	
S1.001	SS03	120 Summer	2	+0%	100/120 Summer		
S1.002	SS05	120 Summer	2	+0%	100/120 Summer		
S1.003	SS06	120 Summer	2	+0%	100/120 Summer		
S1.004	SS07	120 Summer	2	+0%	100/120 Summer		
S3.000	SS08 to HW1	120 Summer	2	+0%	100/120 Summer		
S3.001	SHW1 to HW2	120 Summer	2	+0%	2/120 Summer		
S3.002	SHW2 to S09	120 Summer	2	+0%			
S1.005	SS09	120 Summer	2	+0%	100/120 Summer		
S1.006	SS10	120 Summer	2	+0%	100/120 Summer		

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged			Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
			Level (m)	Depth (m)	Volume (m ³)				
S1.000	SS01	62.974	-0.206	0.000	0.21			21.5	
S2.000	SS02	62.819	-0.221	0.000	0.16			12.1	
S1.001	SS03	62.630	-0.310	0.000	0.21			49.6	
S1.002	SS05	62.393	-0.297	0.000	0.25			49.6	
S1.003	SS06	62.277	-0.293	0.000	0.27			49.7	
S1.004	SS07	62.171	-0.289	0.000	0.28			49.6	
S3.000	SS08 to HW1	63.771	-0.179	0.000	0.34			20.9	
S3.001	SHW1 to HW2	63.662	0.391	0.000	0.59			21.0	
S3.002	SHW2 to S09	63.651	-0.249	0.000	0.07			21.0	
S1.005	SS09	62.077	-0.283	0.000	0.30			71.1	
S1.006	SS10	61.840	-0.280	0.000	0.31			74.0	

PN	US/MH Name	Status	Level Exceeded
S1.000	SS01	OK	
S2.000	SS02	OK	1
S1.001	SS03	OK	
S1.002	SS05	OK	
S1.003	SS06	OK	
S1.004	SS07	OK	
S3.000	SS08 to HW1	OK	
S3.001	SHW1 to HW2	SURCHARGED	
S3.002	SHW2 to S09	OK	
S1.005	SS09	OK	
S1.006	SS10	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S1.007	SS11	120 Summer	2	+0%	30/120 Summer		
S1.008	SS60	120 Summer	2	+0%	30/120 Summer		
S1.009	SS12 to INT1 IN	120 Summer	2	+0%	30/120 Summer		
S1.010	SINT1 OUT to S13	120 Summer	2	+0%	30/120 Summer		
S1.011	SS13 to AT1	480 Winter	2	+0%	30/120 Summer		
S4.000	SS14	120 Summer	2	+0%			
S4.001	SS15	120 Summer	2	+0%			
S4.002	SS16	120 Summer	2	+0%			
S4.003	SS17	120 Summer	2	+0%	100/600 Winter		
S4.004	SS18	120 Summer	2	+0%	100/180 Summer		
S4.005	SS19 to AT1	120 Summer	2	+0%	100/120 Summer		
S5.000	SS20	120 Summer	2	+0%			
S5.001	SS21	120 Summer	2	+0%			
S5.002	SS22	120 Summer	2	+0%			
S5.003	SS23	120 Summer	2	+0%			
S5.004	SS24 to AT1	120 Summer	2	+0%	100/120 Summer		
S1.012	SAT1 to S25 PUMP1	480 Winter	2	+0%	2/360 Summer		
S1.013	SS25 PUMP1 to S26	480 Winter	2	+0%	2/120 Summer		
S1.014	SS26 to HW3	10080 Summer	2	+0%			
S6.000	SS27	120 Summer	2	+0%			
S6.001	SS28	120 Summer	2	+0%			
S6.002	SS29	120 Summer	2	+0%	100/120 Summer		
S6.003	SS30	120 Summer	2	+0%	100/120 Summer		
S6.004	SS31	120 Summer	2	+0%	100/120 Summer		
S6.005	SS32	120 Summer	2	+0%	100/120 Summer		
S7.000	SS33	120 Summer	2	+0%	100/120 Summer		
S8.000	SS35	120 Summer	2	+0%	30/120 Summer		
S7.001	SS36	120 Summer	2	+0%	30/120 Summer		
S6.006	SS37 to INT2 IN	120 Summer	2	+0%	30/120 Summer		
S6.007	SINT2 OUT to S38	480 Winter	2	+0%	30/120 Summer		
S9.000	SS39	120 Summer	2	+0%	100/120 Summer		
S9.001	SS40	120 Summer	2	+0%	100/120 Summer		
S9.002	SS41	120 Summer	2	+0%	100/120 Summer		
S9.003	SS42	120 Summer	2	+0%	30/120 Summer		
S9.004	SS43	120 Summer	2	+0%	30/120 Summer		
S9.005	SS44	120 Summer	2	+0%	30/120 Summer		
S6.008	SS38 to AT2	480 Winter	2	+0%	30/120 Summer		
S10.000	SS45	120 Summer	2	+0%			
S10.001	SS46	120 Summer	2	+0%			
S10.002	SS47	120 Summer	2	+0%			
S10.003	SS48	120 Summer	2	+0%			
S10.004	SS49	120 Summer	2	+0%			
S10.005	SS50	120 Summer	2	+0%	100/360 Summer		
S6.009	SAT2 to S51	480 Winter	2	+0%	30/120 Summer		
S6.010	SS51 to S52 PUMP2	480 Winter	2	+0%	2/240 Summer		
S6.011	SS52 PUMP2 to HW4	480 Winter	2	+0%	30/120 Summer		
S6.012	SHW4 to HW5	8640 Summer	2	+0%			
S6.013	SHW5 to S55	8640 Summer	2	+0%			

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (1/s)	Half Drain Time (mins)
S1.007	SS11		61.542	-0.238	0.000	0.45		
S1.008	SS60		61.402	-0.238	0.000	0.45		
S1.009	SS12 to INT1 IN		61.317	-0.193	0.000	0.62		
S1.010	SINT1 OUT to S13		61.156	-0.194	0.000	0.62		
S1.011	SS13 to AT1		61.107	-0.173	0.000	0.11		
S4.000	SS14		63.502	-0.228	0.000	0.13		
S4.001	SS15		63.063	-0.357	0.000	0.10		
S4.002	SS16		62.788	-0.352	0.000	0.11		
S4.003	SS17		62.353	-0.347	0.000	0.12		
S4.004	SS18		61.986	-0.344	0.000	0.13		
S4.005	SS19 to AT1		61.739	-0.351	0.000	0.11		
S5.000	SS20		63.532	-0.378	0.000	0.06		
S5.001	SS21		63.293	-0.337	0.000	0.14		
S5.002	SS22		62.986	-0.359	0.000	0.22		
S5.003	SS23		62.838	-0.367	0.000	0.20		
S5.004	SS24 to AT1		62.636	-0.329	0.000	0.30		
S1.012	SAT1 to S25 PUMP1		61.106	0.016	0.000	0.04		
S1.013	SS25 PUMP1 to S26		61.134	0.494	0.000	1.46		
S1.014	SS26 to HW3		64.445	-0.055	0.000	0.72		
S6.000	SS27		64.691	-0.279	0.000	0.01		
S6.001	SS28		64.224	-0.236	0.000	0.10		
S6.002	SS29		63.302	-0.388	0.000	0.05		
S6.003	SS30		62.787	-0.363	0.000	0.08		
S6.004	SS31		62.370	-0.330	0.000	0.16		
S6.005	SS32		62.266	-0.314	0.000	0.20		
S7.000	SS33		62.473	-0.347	0.000	0.12		
S8.000	SS35		62.367	-0.193	0.000	0.28		
S7.001	SS36		62.217	-0.273	0.000	0.33		
S6.006	SS37 to INT2 IN		61.975	-0.335	0.000	0.35		
S6.007	SINT2 OUT to S38		61.946	-0.264	0.000	0.11		
S9.000	SS39		62.761	-0.369	0.000	0.08		
S9.001	SS40		62.696	-0.324	0.000	0.18		
S9.002	SS41		62.458	-0.322	0.000	0.18		
S9.003	SS42		62.241	-0.319	0.000	0.19		
S9.004	SS43		62.133	-0.277	0.000	0.32		
S9.005	SS44		62.059	-0.271	0.000	0.33		
S6.008	SS38 to AT2		61.945	-0.225	0.000	0.18		
S10.000	SS45		64.378	-0.392	0.000	0.04		
S10.001	SS46		64.150	-0.350	0.000	0.11		
S10.002	SS47		63.891	-0.319	0.000	0.19		
S10.003	SS48		63.543	-0.382	0.000	0.17		
S10.004	SS49		63.303	-0.392	0.000	0.15		
S10.005	SS50		62.946	-0.349	0.000	0.25		
S6.009	SAT2 to S51		61.945	-0.090	0.000	0.04		
S6.010	SS51 to S52 PUMP2		61.938	0.043	0.000	0.04		
S6.011	SS52 PUMP2 to HW4		61.936	-0.019	0.000	0.05		
S6.012	SHW4 to HW5		64.680	-0.595	0.000	0.03		

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged Flooded			Flow / Overflow Cap. (l/s)	Half Drain Time (mins)
			Level (m)	Depth (m)	Volume (m ³)		
S6.013	SHW5 to S55		64.656	-0.619	0.000	0.02	

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S1.007	SS11	88.7	OK	
S1.008	SS60	92.2	OK	
S1.009	SS12 to INT1 IN	104.6	OK	
S1.010	SINT1 OUT to S13	104.6	OK	
S1.011	SS13 to AT1	27.7	OK	
S4.000	SS14	13.1	OK	
S4.001	SS15	26.4	OK	
S4.002	SS16	33.3	OK	
S4.003	SS17	34.2	OK	
S4.004	SS18	34.2	OK	
S4.005	SS19 to AT1	34.1	OK	
S5.000	SS20	16.9	OK	
S5.001	SS21	39.9	OK	
S5.002	SS22	62.9	OK	
S5.003	SS23	74.4	OK	
S5.004	SS24 to AT1	74.6	OK	
S1.012	SAT1 to S25 PUMP1	9.1	SURCHARGED	
S1.013	SS25 PUMP1 to S26	7.4	SURCHARGED	
S1.014	SS26 to HW3	7.4	OK	
S6.000	SS27	1.5	OK	
S6.001	SS28	10.8	OK	
S6.002	SS29	13.6	OK	
S6.003	SS30	23.5	OK	
S6.004	SS31	31.4	OK	
S6.005	SS32	47.8	OK	
S7.000	SS33	28.4	OK	
S8.000	SS35	18.3	OK	
S7.001	SS36	73.4	OK	
S6.006	SS37 to INT2 IN	120.5	OK	
S6.007	SINT2 OUT to S38	31.6	OK	
S9.000	SS39	14.0	OK	
S9.001	SS40	40.4	OK	
S9.002	SS41	40.4	OK	
S9.003	SS42	40.3	OK	
S9.004	SS43	53.4	OK	
S9.005	SS44	79.3	OK	
S6.008	SS38 to AT2	52.3	OK	
S10.000	SS45	10.8	OK	
S10.001	SS46	31.5	OK	
S10.002	SS47	51.4	OK	
S10.003	SS48	61.5	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S10.004		SS49 61.6		OK
S10.005		SS50 61.4		OK
S6.009	SAT2 to S51	12.6		OK
S6.010	SS51 to S52 PUMP2	11.1	SURCHARGED	
S6.011	SS52 PUMP2 to HW4	9.4		OK
S6.012	SHW4 to HW5	9.4		OK
S6.013	SHW5 to S55	9.4		OK

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.
S6.014	SS55 to HW6	8640 Summer	2	+0%				

PN	US/MH Name	Water			Surcharged		Flooded		Half Drain Pipe	
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	
S6.014	SS55 to HW6	64.484	-0.611	0.000	0.02			9.4	OK	

PN	US/MH Name	Level Exceeded
S6.014	SS55 to HW6	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 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 4
Number of Online Controls 2 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 460400 220850 SP 60400 20850
Data Type Catchment
Cv (Summer) 1.000
Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 120, 180, 240, 360, 480, 600, 720, 960,
1440, 2160, 2880, 4320, 5760, 7200, 8640,
10080
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 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) Surcharge	First (Y) Flood	First (Z) Overflow
S1.000	SS01	120 Summer	30	+0%	100/120 Summer		
S2.000	SS02	120 Summer	30	+0%	100/120 Summer	100/120 Summer	
S1.001	SS03	120 Summer	30	+0%	100/120 Summer		
S1.002	SS05	120 Summer	30	+0%	100/120 Summer		
S1.003	SS06	120 Summer	30	+0%	100/120 Summer		
S1.004	SS07	120 Summer	30	+0%	100/120 Summer		
S3.000	SS08 to HW1	120 Summer	30	+0%	100/120 Summer		
S3.001	SHW1 to HW2	120 Summer	30	+0%	2/120 Summer		
S3.002	SHW2 to S09	120 Summer	30	+0%			
S1.005	SS09	120 Summer	30	+0%	100/120 Summer		
S1.006	SS10	240 Winter	30	+0%	100/120 Summer		

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged Flooded			Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
			Level (m)	Depth (m)	Volume (m ³)				
S1.000	SS01	63.022	-0.158	0.000	0.46			45.8	
S2.000	SS02	62.860	-0.180	0.000	0.34			25.8	
S1.001	SS03	62.705	-0.235	0.000	0.46			107.8	
S1.002	SS05	62.479	-0.211	0.000	0.55			107.4	
S1.003	SS06	62.365	-0.205	0.000	0.58			107.6	
S1.004	SS07	62.262	-0.198	0.000	0.60			107.6	
S3.000	SS08 to HW1	63.841	-0.109	0.000	0.73			44.7	
S3.001	SHW1 to HW2	63.701	0.430	0.000	1.25			44.8	
S3.002	SHW2 to S09	63.675	-0.225	0.000	0.14			44.8	
S1.005	SS09	62.172	-0.188	0.000	0.64			153.8	
S1.006	SS10	62.120	0.000	0.000	0.27			64.4	

PN	US/MH Name	Status	Level Exceeded
S1.000	SS01	OK	
S2.000	SS02	OK	1
S1.001	SS03	OK	
S1.002	SS05	OK	
S1.003	SS06	OK	
S1.004	SS07	OK	
S3.000	SS08 to HW1	OK	
S3.001	SHW1 to HW2	SURCHARGED	
S3.002	SHW2 to S09	OK	
S1.005	SS09	OK	
S1.006	SS10	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S1.007	SS11	240 Winter	30	+0%	30/120 Summer		
S1.008	SS60	240 Winter	30	+0%	30/120 Summer		
S1.009	SS12 to INT1 IN	360 Winter	30	+0%	30/120 Summer		
S1.010	SINT1 OUT to S13	360 Winter	30	+0%	30/120 Summer		
S1.011	SS13 to AT1	480 Winter	30	+0%	30/120 Summer		
S4.000	SS14	120 Summer	30	+0%			
S4.001	SS15	120 Summer	30	+0%			
S4.002	SS16	120 Summer	30	+0%			
S4.003	SS17	120 Summer	30	+0%	100/600 Winter		
S4.004	SS18	120 Summer	30	+0%	100/180 Summer		
S4.005	SS19 to AT1	120 Summer	30	+0%	100/120 Summer		
S5.000	SS20	120 Summer	30	+0%			
S5.001	SS21	120 Summer	30	+0%			
S5.002	SS22	120 Summer	30	+0%			
S5.003	SS23	120 Summer	30	+0%			
S5.004	SS24 to AT1	120 Summer	30	+0%	100/120 Summer		
S1.012	SAT1 to S25 PUMP1	480 Winter	30	+0%	2/360 Summer		
S1.013	SS25 PUMP1 to S26	480 Winter	30	+0%	2/120 Summer		
S1.014	SS26 to HW3	10080 Winter	30	+0%			
S6.000	SS27	120 Summer	30	+0%			
S6.001	SS28	120 Summer	30	+0%			
S6.002	SS29	120 Summer	30	+0%	100/120 Summer		
S6.003	SS30	120 Summer	30	+0%	100/120 Summer		
S6.004	SS31	480 Winter	30	+0%	100/120 Summer		
S6.005	SS32	480 Winter	30	+0%	100/120 Summer		
S7.000	SS33	120 Summer	30	+0%	100/120 Summer		
S8.000	SS35	120 Summer	30	+0%	30/120 Summer		
S7.001	SS36	120 Summer	30	+0%	30/120 Summer		
S6.006	SS37 to INT2 IN	480 Winter	30	+0%	30/120 Summer		
S6.007	SINT2 OUT to S38	480 Winter	30	+0%	30/120 Summer		
S9.000	SS39	120 Summer	30	+0%	100/120 Summer		
S9.001	SS40	120 Summer	30	+0%	100/120 Summer		
S9.002	SS41	120 Summer	30	+0%	100/120 Summer		
S9.003	SS42	120 Summer	30	+0%	30/120 Summer		
S9.004	SS43	120 Summer	30	+0%	30/120 Summer		
S9.005	SS44	480 Winter	30	+0%	30/120 Summer		
S6.008	SS38 to AT2	480 Winter	30	+0%	30/120 Summer		
S10.000	SS45	120 Summer	30	+0%			
S10.001	SS46	120 Summer	30	+0%			
S10.002	SS47	120 Summer	30	+0%			
S10.003	SS48	120 Summer	30	+0%			
S10.004	SS49	120 Summer	30	+0%			
S10.005	SS50	120 Summer	30	+0%	100/360 Summer		
S6.009	SAT2 to S51	480 Winter	30	+0%	30/120 Summer		
S6.010	SS51 to S52 PUMP2	480 Winter	30	+0%	2/240 Summer		
S6.011	SS52 PUMP2 to HW4	480 Winter	30	+0%	30/120 Summer		
S6.012	SHW4 to HW5	10080 Summer	30	+0%			
S6.013	SHW5 to S55	10080 Summer	30	+0%			

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (1/s)	Half Drain Time (mins)
S1.007	SS11		62.043	0.263	0.000	0.40		
S1.008	SS60		61.925	0.285	0.000	0.40		
S1.009	SS12 to INT1 IN		61.826	0.316	0.000	0.40		
S1.010	SINT1 OUT to S13		61.723	0.373	0.000	0.39		
S1.011	SS13 to AT1		61.675	0.395	0.000	0.21		
S4.000	SS14		63.538	-0.192	0.000	0.28		
S4.001	SS15		63.109	-0.311	0.000	0.21		
S4.002	SS16		62.838	-0.302	0.000	0.24		
S4.003	SS17		62.406	-0.294	0.000	0.26		
S4.004	SS18		62.042	-0.288	0.000	0.28		
S4.005	SS19 to AT1		61.790	-0.300	0.000	0.24		
S5.000	SS20		63.568	-0.342	0.000	0.13		
S5.001	SS21		63.353	-0.277	0.000	0.32		
S5.002	SS22		63.079	-0.266	0.000	0.49		
S5.003	SS23		62.924	-0.281	0.000	0.44		
S5.004	SS24 to AT1		62.754	-0.211	0.000	0.67		
S1.012	SAT1 to S25 PUMP1		61.675	0.585	0.000	0.07		
S1.013	SS25 PUMP1 to S26		61.704	1.064	0.000	1.46		
S1.014	SS26 to HW3		64.445	-0.055	0.000	0.72		
S6.000	SS27		64.705	-0.265	0.000	0.03		
S6.001	SS28		64.256	-0.204	0.000	0.23		
S6.002	SS29		63.336	-0.354	0.000	0.10		
S6.003	SS30		62.832	-0.318	0.000	0.19		
S6.004	SS31		62.474	-0.226	0.000	0.08		
S6.005	SS32		62.474	-0.106	0.000	0.10		
S7.000	SS33		62.558	-0.262	0.000	0.25		
S8.000	SS35		62.602	0.042	0.000	0.57		
S7.001	SS36		62.512	0.022	0.000	0.67		
S6.006	SS37 to INT2 IN		62.473	0.163	0.000	0.17		
S6.007	SINT2 OUT to S38		62.472	0.262	0.000	0.19		
S9.000	SS39		62.817	-0.313	0.000	0.16		
S9.001	SS40		62.787	-0.233	0.000	0.39		
S9.002	SS41		62.737	-0.043	0.000	0.37		
S9.003	SS42		62.645	0.085	0.000	0.47		
S9.004	SS43		62.515	0.105	0.000	0.66		
S9.005	SS44		62.473	0.143	0.000	0.17		
S6.008	SS38 to AT2		62.472	0.302	0.000	0.32		
S10.000	SS45		64.408	-0.362	0.000	0.09		
S10.001	SS46		64.202	-0.298	0.000	0.25		
S10.002	SS47		63.962	-0.248	0.000	0.41		
S10.003	SS48		63.622	-0.303	0.000	0.37		
S10.004	SS49		63.375	-0.320	0.000	0.32		
S10.005	SS50		63.049	-0.246	0.000	0.55		
S6.009	SAT2 to S51		62.471	0.436	0.000	0.06		
S6.010	SS51 to S52 PUMP2		62.506	0.611	0.000	0.06		
S6.011	SS52 PUMP2 to HW4		62.514	0.559	0.000	0.05		
S6.012	SHW4 to HW5		64.680	-0.595	0.000	0.03		

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged Flooded			Flow / Overflow Cap. (l/s)	Half Drain Time (mins)
			Level (m)	Depth (m)	Volume (m ³)		
S6.013	SHW5 to S55		64.656	-0.619	0.000	0.02	

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S1.007	SS11	78.2	SURCHARGED	
S1.008	SS60	81.2	SURCHARGED	
S1.009	SS12 to INT1 IN	67.0	SURCHARGED	
S1.010	SINT1 OUT to S13	66.1	SURCHARGED	
S1.011	SS13 to AT1	51.3	SURCHARGED	
S4.000	SS14	28.0	OK	
S4.001	SS15	57.8	OK	
S4.002	SS16	73.4	OK	
S4.003	SS17	75.2	OK	
S4.004	SS18	75.1	OK	
S4.005	SS19 to AT1	75.3	OK	
S5.000	SS20	36.1	OK	
S5.001	SS21	87.8	OK	
S5.002	SS22	139.5	OK	
S5.003	SS23	165.8	OK	
S5.004	SS24 to AT1	165.7	OK	
S1.012	SAT1 to S25 PUMP1	16.3	SURCHARGED	
S1.013	SS25 PUMP1 to S26	7.4	SURCHARGED	
S1.014	SS26 to HW3	7.4	OK	
S6.000	SS27	3.3	OK	
S6.001	SS28	24.1	OK	
S6.002	SS29	30.4	OK	
S6.003	SS30	52.5	OK	
S6.004	SS31	15.9	OK	
S6.005	SS32	24.3	OK	
S7.000	SS33	60.2	OK	
S8.000	SS35	37.8	SURCHARGED	
S7.001	SS36	149.2	SURCHARGED	
S6.006	SS37 to INT2 IN	58.9	SURCHARGED	
S6.007	SINT2 OUT to S38	57.9	SURCHARGED	
S9.000	SS39	30.0	OK	
S9.001	SS40	89.4	OK	
S9.002	SS41	84.4	OK	
S9.003	SS42	101.0	SURCHARGED	
S9.004	SS43	111.9	SURCHARGED	
S9.005	SS44	39.8	SURCHARGED	
S6.008	SS38 to AT2	95.6	SURCHARGED	
S10.000	SS45	23.1	OK	
S10.001	SS46	69.4	OK	
S10.002	SS47	114.5	OK	
S10.003	SS48	137.4	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S10.004		SS49 137.1		OK
S10.005		SS50 137.0		OK
S6.009	SAT2 to S51	16.9	SURCHARGED	
S6.010	SS51 to S52 PUMP2	14.0	SURCHARGED	
S6.011	SS52 PUMP2 to HW4	9.4	SURCHARGED	
S6.012	SHW4 to HW5	9.4		OK
S6.013	SHW5 to S55	9.4		OK

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.
S6.014	SS55 to HW6	10080 Summer	30	+0%				

PN	US/MH Name	Water			Surcharged		Flooded		Half Drain Pipe	
		Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	
S6.014	SS55 to HW6	64.484	-0.611	0.000	0.02			9.4	OK	

PN	US/MH Name	Level Exceeded
S6.014	SS55 to HW6	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
Hot Start Level (mm) 0 Inlet Coefficient 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 4
Number of Online Controls 2 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 460400 220850 SP 60400 20850
Data Type Catchment
Cv (Summer) 1.000
Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 120, 180, 240, 360, 480, 600, 720, 960,
1440, 2160, 2880, 4320, 5760, 7200, 8640,
10080
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 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) Surcharge	First (Y) Flood	First (Z) Overflow
S1.000	SS01	120 Summer	100	+40%	100/120 Summer		
S2.000	SS02	120 Summer	100	+40%	100/120 Summer	100/120 Summer	
S1.001	SS03	120 Summer	100	+40%	100/120 Summer		
S1.002	SS05	120 Summer	100	+40%	100/120 Summer		
S1.003	SS06	120 Summer	100	+40%	100/120 Summer		
S1.004	SS07	120 Summer	100	+40%	100/120 Summer		
S3.000	SS08 to HW1	120 Summer	100	+40%	100/120 Summer		
S3.001	SHW1 to HW2	120 Summer	100	+40%	2/120 Summer		
S3.002	SHW2 to S09	120 Summer	100	+40%			
S1.005	SS09	120 Summer	100	+40%	100/120 Summer		
S1.006	SS10	120 Summer	100	+40%	100/120 Summer		

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged Flooded			Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
			Level (m)	Depth (m)	Volume (m ³)				
S1.000	SS01	64.347	1.167	0.000	0.75			74.8	
S2.000	SS02	64.310	1.270	0.024	0.53			40.7	
S1.001	SS03	64.213	1.273	0.000	0.73			170.5	
S1.002	SS05	64.074	1.384	0.000	0.85			165.7	
S1.003	SS06	63.959	1.389	0.000	0.88			165.3	
S1.004	SS07	63.850	1.390	0.000	0.92			164.7	
S3.000	SS08 to HW1	63.987	0.037	0.000	1.30			79.9	
S3.001	SHW1 to HW2	63.876	0.605	0.000	2.24			79.9	
S3.002	SHW2 to S09	63.811	-0.089	0.000	0.26			79.8	
S1.005	SS09	63.747	1.387	0.000	0.96			231.9	
S1.006	SS10	63.527	1.407	0.000	0.99			240.4	

PN	US/MH Name	Status	Level Exceeded
S1.000	SS01	SURCHARGED	
S2.000	SS02	FLOOD	1
S1.001	SS03	SURCHARGED	
S1.002	SS05	SURCHARGED	
S1.003	SS06	SURCHARGED	
S1.004	SS07	SURCHARGED	
S3.000	SS08 to HW1	SURCHARGED	
S3.001	SHW1 to HW2	SURCHARGED	
S3.002	SHW2 to S09	OK	
S1.005	SS09	SURCHARGED	
S1.006	SS10	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S1.007	SS11	120 Summer	100	+40%	30/120 Summer		
S1.008	SS60	120 Summer	100	+40%	30/120 Summer		
S1.009	SS12 to INT1 IN	720 Winter	100	+40%	30/120 Summer		
S1.010	SINT1 OUT to S13	720 Winter	100	+40%	30/120 Summer		
S1.011	SS13 to AT1	720 Winter	100	+40%	30/120 Summer		
S4.000	SS14	120 Summer	100	+40%			
S4.001	SS15	120 Summer	100	+40%			
S4.002	SS16	120 Summer	100	+40%			
S4.003	SS17	720 Winter	100	+40%	100/600 Winter		
S4.004	SS18	720 Winter	100	+40%	100/180 Summer		
S4.005	SS19 to AT1	720 Winter	100	+40%	100/120 Summer		
S5.000	SS20	120 Summer	100	+40%			
S5.001	SS21	120 Summer	100	+40%			
S5.002	SS22	120 Summer	100	+40%			
S5.003	SS23	120 Summer	100	+40%			
S5.004	SS24 to AT1	120 Summer	100	+40%	100/120 Summer		
S1.012	SAT1 to S25 PUMP1	720 Winter	100	+40%	2/360 Summer		
S1.013	SS25 PUMP1 to S26	720 Winter	100	+40%	2/120 Summer		
S1.014	SS26 to HW3	10080 Winter	100	+40%			
S6.000	SS27	120 Summer	100	+40%			
S6.001	SS28	120 Summer	100	+40%			
S6.002	SS29	120 Summer	100	+40%	100/120 Summer		
S6.003	SS30	120 Summer	100	+40%	100/120 Summer		
S6.004	SS31	120 Summer	100	+40%	100/120 Summer		
S6.005	SS32	720 Winter	100	+40%	100/120 Summer		
S7.000	SS33	120 Summer	100	+40%	100/120 Summer		
S8.000	SS35	120 Summer	100	+40%	30/120 Summer		
S7.001	SS36	120 Summer	100	+40%	30/120 Summer		
S6.006	SS37 to INT2 IN	720 Winter	100	+40%	30/120 Summer		
S6.007	SINT2 OUT to S38	720 Winter	100	+40%	30/120 Summer		
S9.000	SS39	120 Summer	100	+40%	100/120 Summer		
S9.001	SS40	120 Summer	100	+40%	100/120 Summer		
S9.002	SS41	120 Summer	100	+40%	100/120 Summer		
S9.003	SS42	120 Summer	100	+40%	30/120 Summer		
S9.004	SS43	120 Summer	100	+40%	30/120 Summer		
S9.005	SS44	720 Winter	100	+40%	30/120 Summer		
S6.008	SS38 to AT2	720 Winter	100	+40%	30/120 Summer		
S10.000	SS45	120 Summer	100	+40%			
S10.001	SS46	120 Summer	100	+40%			
S10.002	SS47	120 Summer	100	+40%			
S10.003	SS48	120 Summer	100	+40%			
S10.004	SS49	120 Summer	100	+40%			
S10.005	SS50	720 Winter	100	+40%	100/360 Summer		
S6.009	SAT2 to S51	720 Winter	100	+40%	30/120 Summer		
S6.010	SS51 to S52 PUMP2	720 Winter	100	+40%	2/240 Summer		
S6.011	SS52 PUMP2 to HW4	720 Winter	100	+40%	30/120 Summer		
S6.012	SHW4 to HW5	360 Winter	100	+40%			
S6.013	SHW5 to S55	360 Winter	100	+40%			

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)
S1.007	SS11		63.190	1.410	0.000	1.48	
S1.008	SS60		62.888	1.248	0.000	1.49	
S1.009	SS12 to INT1 IN		62.802	1.292	0.000	0.36	
S1.010	SINT1 OUT to S13		62.801	1.451	0.000	0.36	
S1.011	SS13 to AT1		62.800	1.520	0.000	0.25	
S4.000	SS14		63.580	-0.150	0.000	0.50	
S4.001	SS15		63.161	-0.259	0.000	0.37	
S4.002	SS16		62.893	-0.247	0.000	0.42	
S4.003	SS17		62.801	0.101	0.000	0.07	
S4.004	SS18		62.800	0.470	0.000	0.08	
S4.005	SS19 to AT1		62.800	0.710	0.000	0.07	
S5.000	SS20		63.607	-0.303	0.000	0.23	
S5.001	SS21		63.423	-0.207	0.000	0.56	
S5.002	SS22		63.220	-0.125	0.000	0.86	
S5.003	SS23		63.134	-0.071	0.000	0.78	
S5.004	SS24 to AT1		62.986	0.021	0.000	1.18	
S1.012	SAT1 to S25 PUMP1		62.800	1.710	0.000	0.06	
S1.013	SS25 PUMP1 to S26		62.799	2.159	0.000	1.46	
S1.014	SS26 to HW3		64.445	-0.055	0.000	0.72	
S6.000	SS27		64.716	-0.254	0.000	0.06	
S6.001	SS28		64.292	-0.168	0.000	0.40	
S6.002	SS29		63.726	0.036	0.000	0.18	
S6.003	SS30		63.571	0.421	0.000	0.29	
S6.004	SS31		63.401	0.701	0.000	0.53	
S6.005	SS32		63.364	0.784	0.000	0.12	
S7.000	SS33		63.533	0.713	0.000	0.44	
S8.000	SS35		63.479	0.919	0.000	1.02	
S7.001	SS36		63.392	0.902	0.000	1.24	
S6.006	SS37 to INT2 IN		63.363	1.053	0.000	0.21	
S6.007	SINT2 OUT to S38		63.362	1.152	0.000	0.24	
S9.000	SS39		63.891	0.761	0.000	0.27	
S9.001	SS40		63.781	0.761	0.000	0.67	
S9.002	SS41		63.643	0.863	0.000	0.67	
S9.003	SS42		63.507	0.947	0.000	0.70	
S9.004	SS43		63.378	0.968	0.000	1.19	
S9.005	SS44		63.363	1.033	0.000	0.20	
S6.008	SS38 to AT2		63.361	1.191	0.000	0.40	
S10.000	SS45		64.437	-0.333	0.000	0.15	
S10.001	SS46		64.261	-0.239	0.000	0.45	
S10.002	SS47		64.050	-0.160	0.000	0.74	
S10.003	SS48		63.714	-0.211	0.000	0.67	
S10.004	SS49		63.457	-0.238	0.000	0.58	
S10.005	SS50		63.361	0.066	0.000	0.15	
S6.009	SAT2 to S51		63.361	1.326	0.000	0.07	
S6.010	SS51 to S52 PUMP2		63.399	1.504	0.000	0.06	
S6.011	SS52 PUMP2 to HW4		63.407	1.452	0.000	0.05	
S6.012	SHW4 to HW5		64.680	-0.595	0.000	0.03	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Overflow Act.	Water Surcharged			Flow / Overflow Cap. (l/s)	Flooded Depth (m)	Volume (m ³)	Half Drain Time (mins)
			Level (m)	Depth (m)	Level (m)				
S6.013	SHW5 to S55		64.656	-0.619	0.000	0.02			

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S1.007		SS11 291.2	SURCHARGED	
S1.008		SS60 301.9	SURCHARGED	
S1.009	SS12 to INT1 IN	60.7	SURCHARGED	
S1.010	SINT1 OUT to S13	60.6	SURCHARGED	
S1.011	SS13 to AT1	60.4	SURCHARGED	
S4.000		SS14 50.0	OK	
S4.001		SS15 103.2	OK	
S4.002		SS16 131.1	OK	
S4.003		SS17 20.9	SURCHARGED	
S4.004		SS18 20.9	SURCHARGED	
S4.005	SS19 to AT1	20.9	SURCHARGED	
S5.000		SS20 64.5	OK	
S5.001		SS21 156.8	OK	
S5.002		SS22 247.8	OK	
S5.003		SS23 294.0	OK	
S5.004		SS24 to AT1 293.9	SURCHARGED	
S1.012	SAT1 to S25 PUMP1	12.6	SURCHARGED	
S1.013	SS25 PUMP1 to S26	7.4	SURCHARGED	
S1.014	SS26 to HW3	7.4	OK	
S6.000		SS27 5.9	OK	
S6.001		SS28 43.0	OK	
S6.002		SS29 52.6	SURCHARGED	
S6.003		SS30 80.4	SURCHARGED	
S6.004		SS31 103.6	SURCHARGED	
S6.005		SS32 29.6	SURCHARGED	
S7.000		SS33 105.4	SURCHARGED	
S8.000		SS35 67.5	SURCHARGED	
S7.001		SS36 277.6	SURCHARGED	
S6.006	SS37 to INT2 IN	71.9	SURCHARGED	
S6.007	SINT2 OUT to S38	71.7	SURCHARGED	
S9.000		SS39 51.3	SURCHARGED	
S9.001		SS40 154.2	SURCHARGED	
S9.002		SS41 151.9	SURCHARGED	
S9.003		SS42 151.2	SURCHARGED	
S9.004		SS43 201.2	SURCHARGED	
S9.005		SS44 48.4	SURCHARGED	
S6.008	SS38 to AT2	119.7	SURCHARGED	
S10.000		SS45 41.3	OK	
S10.001		SS46 124.0	OK	
S10.002		SS47 204.6	OK	
S10.003		SS48 245.3	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Pipe Flow (l/s)	Status	Level Exceeded
S10.004		SS49 244.5		OK
S10.005		SS50 38.0	SURCHARGED	
S6.009	SAT2 to S51	18.7	SURCHARGED	
S6.010	SS51 to S52 PUMP2	14.5	SURCHARGED	
S6.011	SS52 PUMP2 to HW4	9.4	SURCHARGED	
S6.012	SHW4 to HW5	9.4		OK
S6.013	SHW5 to S55	9.4		OK

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S6.014	SS55 to HW6	360 Winter	100	+40%				

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S6.014	SS55 to HW6	64.484	-0.611	0.000	0.02		9.4	OK

PN	US/MH Name	Level Exceeded
S6.014	SS55 to HW6	