

RSK LDE		Page 0
14 Beecham Court Pemberton Business Park Wigan WN3 6PR		
Date 01/01/0001 File SN1.MDX	Designed by mrayner Checked by	
XP Solutions	Network 2017.1.2	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SN1.SWS

Pipe Sizes SN1 Manhole Sizes UU MH

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.358	Minimum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	250	Maximum Backdrop Height (m)	0.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	400

Designed with Level Soffits

Network Design Table for SN1.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	26.615	0.266	100.1	0.071	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	86.169	0.574	150.1	0.125	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	28.332	0.283	100.1	0.078	5.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	10.527	0.105	100.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.002	53.746	0.968	55.5	0.071	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	26.781	0.116	230.9	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.003	17.369	0.076	230.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.004	55.409	0.828	66.9	0.087	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.005	24.295	0.061	398.3	0.029	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.006	71.498	0.179	400.0	0.214	0.00	0.0	0.600	o	900	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)
1.000	57.66	5.44	31.411	0.071	0.0	0.0	0.0	1.00	17.8	11.1
1.001	53.12	6.56	30.995	0.196	0.0	0.0	0.0	1.28	90.5	28.2
2.000	57.54	5.47	31.927	0.078	0.0	0.0	0.0	1.00	17.7	12.2
2.001	56.95	5.60	31.569	0.078	0.0	0.0	0.0	1.31	51.9	12.2
2.002	54.83	6.11	31.464	0.149	0.0	0.0	0.0	1.76	69.9	22.1
1.002	51.78	6.94	30.346	0.345	0.0	0.0	0.0	1.19	131.2	48.4
1.003	50.95	7.18	30.230	0.345	0.0	0.0	0.0	1.19	131.5	48.4
1.004	49.61	7.60	30.154	0.432	0.0	0.0	0.0	2.22	244.9	58.0
1.005	48.81	7.86	28.801	0.461	0.0	0.0	0.0	1.56	994.9	60.9
1.006	46.63	8.62	28.740	0.675	0.0	0.0	0.0	1.56	992.7	85.3

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Network Design Table for SN1.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.000	19.437	0.246	79.0	0.059	5.00	0.0	0.600	o	150	Pipe/Conduit	
4.000	18.456	0.185	99.8	0.087	5.00	0.0	0.600	o	150	Pipe/Conduit	
3.001	10.301	0.103	100.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.007	45.736	0.152	300.0	0.138	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.008	12.172	0.030	400.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
5.000	60.428	0.465	130.0	0.149	5.00	0.0	0.600	o	225	Pipe/Conduit	
5.001	38.943	0.300	129.8	0.055	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.002	20.249	0.156	130.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.003	17.242	0.133	130.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.004	7.974	0.061	130.0	0.025	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.005	63.655	1.313	48.5	0.132	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.006	42.723	0.107	399.3	0.162	0.00	0.0	0.600	o	900	Pipe/Conduit	
6.000	38.571	0.096	401.8	0.157	5.00	0.0	0.600	o	900	Pipe/Conduit	
6.001	12.580	0.031	400.0	0.084	0.00	0.0	0.600	o	900	Pipe/Conduit	
6.002	53.840	0.135	400.0	0.137	0.00	0.0	0.600	o	900	Pipe/Conduit	
5.007	18.467	0.046	400.0	0.076	0.00	0.0	0.600	o	900	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)
3.000	58.37	5.29	30.926	0.059	0.0	0.0	0.0	1.13	20.0	9.3
4.000	58.28	5.31	30.865	0.087	0.0	0.0	0.0	1.01	17.8	13.7
3.001	57.68	5.44	30.605	0.146	0.0	0.0	0.0	1.31	52.0	22.8
1.007	45.52	9.04	28.561	0.959	0.0	0.0	0.0	1.80	1147.5	118.2
1.008	45.19	9.17	28.409	0.959	0.0	0.0	0.0	1.56	992.7	118.2
5.000	55.78	5.88	31.634	0.149	0.0	0.0	0.0	1.15	45.5	22.5
5.001	53.92	6.35	31.094	0.204	0.0	0.0	0.0	1.38	97.4	29.8
5.002	53.00	6.60	30.794	0.204	0.0	0.0	0.0	1.38	97.4	29.8
5.003	52.25	6.80	30.638	0.204	0.0	0.0	0.0	1.38	97.4	29.8
5.004	51.91	6.90	30.506	0.229	0.0	0.0	0.0	1.38	97.4	32.2
5.005	50.34	7.37	30.444	0.361	0.0	0.0	0.0	2.26	160.0	49.2
5.006	48.91	7.82	28.531	0.523	0.0	0.0	0.0	1.56	993.6	69.3
6.000	57.79	5.41	28.686	0.157	0.0	0.0	0.0	1.56	990.5	24.6
6.001	57.20	5.55	28.590	0.241	0.0	0.0	0.0	1.56	992.7	37.3
6.002	54.80	6.12	28.559	0.378	0.0	0.0	0.0	1.56	992.7	56.1
5.007	48.32	8.02	28.424	0.977	0.0	0.0	0.0	1.56	992.7	127.9

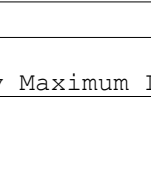
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Network Design Table for SN1.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.009	21.000	0.053	400.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.010	42.601	0.108	394.5	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
7.000	12.275	0.031	396.0	0.101	5.00	0.0	0.600	o	900	Pipe/Conduit	
7.001	57.875	0.145	400.0	0.120	0.00	0.0	0.600	o	900	Pipe/Conduit	
7.002	78.817	0.198	398.1	0.315	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.011	8.866	0.022	400.0	0.108	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.012	13.629	0.068	200.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.009	44.64	9.40	28.378	1.936	0.0	0.0	0.0	1.56	992.7	234.1
1.010	43.57	9.85	28.325	1.936	0.0	0.0	0.0	1.57	999.7	234.1
7.000	59.09	5.13	28.591	0.101	0.0	0.0	0.0	1.57	997.8	16.2
7.001	56.33	5.75	28.560	0.221	0.0	0.0	0.0	1.56	992.7	33.7
7.002	53.03	6.59	28.415	0.536	0.0	0.0	0.0	1.56	995.1	77.0
1.011	43.35	9.94	28.217	2.580	0.0	0.0	0.0	1.56	992.7	302.9
1.012	58.74	5.20	28.195	0.000	45.0	0.0	0.0	1.11	78.3	45.0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for SN1.SWS

Simulation Criteria

Areal Reduction Factor 1.000	Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0	MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0	Inlet 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 2
Number of Online Controls 1	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 0.358
Region England and Wales Cv (Summer)	0.750	
M5-60 (mm)	18.000 Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	260.0
Analysis Timestep 2.5 Second Increment (Extended)	
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440	Summer and Winter
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1 15	Winter	2	+0%	30/15	Summer			31.500
1.001	2 15	Winter	2	+0%	100/15	Summer			31.111
2.000	3 15	Winter	2	+0%	30/15	Summer			32.022
2.001	4 15	Winter	2	+0%					31.650
2.002	5 15	Winter	2	+0%	100/15	Winter			31.551
1.002	6 15	Winter	2	+0%	100/15	Summer			30.514
1.003	7 15	Winter	2	+0%	100/15	Summer			30.403
1.004	8 15	Winter	2	+0%	30/120	Winter			30.281
1.005	9 15	Winter	2	+0%	30/60	Winter			28.994
1.006	10 60	Winter	2	+0%	30/60	Winter			28.974
3.000	11 15	Winter	2	+0%	100/15	Summer			31.001
4.000	12 15	Winter	2	+0%	30/15	Summer			30.969
3.001	13 15	Winter	2	+0%	100/15	Summer			30.721
1.007	14 60	Winter	2	+0%	30/30	Winter			28.973
1.008	15 60	Winter	2	+0%	30/30	Summer			28.971
5.000	16 15	Winter	2	+0%	100/15	Summer			31.751
5.001	17 15	Winter	2	+0%	100/15	Winter			31.212
5.002	18 15	Winter	2	+0%	100/15	Summer			30.915
5.003	19 15	Winter	2	+0%	100/15	Summer			30.760

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for SN1.SWS

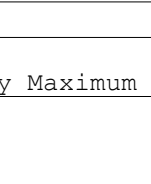
PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Level	
		Depth (m)	Volume (m³)				Status	Exceeded
1.000	1	-0.061	0.000	0.65		11.0	OK	
1.001	2	-0.184	0.000	0.30		26.0	OK	
2.000	3	-0.055	0.000	0.71		12.1	OK	
2.001	4	-0.144	0.000	0.28		12.1	OK	
2.002	5	-0.138	0.000	0.32		21.2	OK	
1.002	6	-0.207	0.000	0.41		47.2	OK	
1.003	7	-0.202	0.000	0.43		46.6	OK	
1.004	8	-0.248	0.000	0.25		56.4	OK	
1.005	9	-0.707	0.000	0.08		59.0	OK	
1.006	10	-0.666	0.000	0.06		51.6	OK	
3.000	11	-0.075	0.000	0.48		9.0	OK	
4.000	12	-0.046	0.000	0.80		13.3	OK	
3.001	13	-0.109	0.000	0.52		22.6	OK	
1.007	14	-0.488	0.000	0.07		60.5	OK	
1.008	15	-0.337	0.000	0.09		45.0	OK	
5.000	16	-0.108	0.000	0.51		22.5	OK	
5.001	17	-0.182	0.000	0.32		29.0	OK	
5.002	18	-0.179	0.000	0.34		29.2	OK	
5.003	19	-0.178	0.000	0.35		29.0	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for SN1.SWS

US/MH		Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water
PN	Name								Level (m)
5.004	20 15	Winter	2	+0%	100/15	Summer			30.659
5.005	21 15	Winter	2	+0%	100/15	Summer			30.558
5.006	22 60	Winter	2	+0%	30/30	Winter			28.972
6.000	23 60	Winter	2	+0%	30/60	Winter			28.971
6.001	24 60	Winter	2	+0%	30/30	Winter			28.972
6.002	25 60	Winter	2	+0%	30/30	Winter			28.972
5.007	26 60	Winter	2	+0%	30/30	Winter			28.972
1.009	27 60	Winter	2	+0%	30/30	Summer			28.970
1.010	28 60	Winter	2	+0%	30/30	Summer			28.968
7.000	29 60	Winter	2	+0%	30/30	Winter			28.965
7.001	30 60	Winter	2	+0%	30/30	Winter			28.965
7.002	31 60	Winter	2	+0%	30/30	Winter			28.965
1.011	32 60	Winter	2	+0%	30/15	Winter			28.965
1.012	33 60	Winter	2	+0%	2/15	Summer			28.965

US/MH		Surcharged		Flooded		Pipe		Status	Level Exceeded
PN	Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)			
5.004	20	-0.147	0.000	0.51		31.8		OK	
5.005	21	-0.186	0.000	0.30		46.5		OK	
5.006	22	-0.459	0.000	0.05		40.0		OK	
6.000	23	-0.615	0.000	0.02		12.6		OK	
6.001	24	-0.518	0.000	0.03		15.1		OK	
6.002	25	-0.487	0.000	0.03		23.4		OK	
5.007	26	-0.352	0.000	0.07		40.6		OK	
1.009	27	-0.307	0.000	0.11		74.7		OK	
1.010	28	-0.257	0.000	0.08		65.7		OK	
7.000	29	-0.526	0.000	0.01		7.3		OK	
7.001	30	-0.495	0.000	0.02		14.5		OK	
7.002	31	-0.350	0.000	0.03		21.9		OK	
1.011	32	-0.152	0.000	0.10		43.0		OK	
1.012	33	0.470	0.000	0.62		40.0	SURCHARGED		

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for SN1.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet 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	2
Number of Online Controls	1	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	0.358
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	260.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)

Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440	Summer and Winter
Return Period(s) (years)	2, 30, 100	
Climate Change (%)	0, 0, 40	

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	30	+0%	30/15 Summer				31.641
1.001	2	15 Winter	30	+0%	100/15 Summer				31.174
2.000	3	15 Winter	30	+0%	30/15 Summer				32.221
2.001	4	15 Winter	30	+0%					31.678
2.002	5	15 Winter	30	+0%	100/15 Winter				31.592
1.002	6	15 Winter	30	+0%	100/15 Summer				30.604
1.003	7	120 Winter	30	+0%	100/15 Summer				30.588
1.004	8	120 Winter	30	+0%	30/120 Winter				30.585
1.005	9	120 Winter	30	+0%	30/60 Winter				30.580
1.006	10	120 Winter	30	+0%	30/60 Winter				30.580
3.000	11	15 Winter	30	+0%	100/15 Summer				31.040
4.000	12	15 Winter	30	+0%	30/15 Summer				31.200
3.001	13	15 Winter	30	+0%	100/15 Summer				30.775
1.007	14	120 Winter	30	+0%	30/30 Winter				30.580
1.008	15	120 Winter	30	+0%	30/30 Summer				30.579
5.000	16	15 Winter	30	+0%	100/15 Summer				31.818
5.001	17	15 Winter	30	+0%	100/15 Winter				31.270
5.002	18	15 Winter	30	+0%	100/15 Summer				30.974
5.003	19	15 Winter	30	+0%	100/15 Summer				30.821

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
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PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
1.000	1	0.080	0.000	1.14		19.3	SURCHARGED	
1.001	2	-0.121	0.000	0.62		53.8	OK	
2.000	3	0.144	0.000	1.22		20.7	SURCHARGED	
2.001	4	-0.116	0.000	0.48		20.7	OK	
2.002	5	-0.097	0.000	0.59		40.0	OK	
1.002	6	-0.117	0.000	0.80		92.1	OK	
1.003	7	-0.017	0.000	0.32		34.4	OK	
1.004	8	0.056	0.000	0.19		42.9	SURCHARGED	
1.005	9	0.879	0.000	0.06		43.8	SURCHARGED	
1.006	10	0.940	0.000	0.07		55.9	SURCHARGED	
3.000	11	-0.036	0.000	0.91		17.0	OK	
4.000	12	0.185	0.000	1.40		23.3	SURCHARGED	
3.001	13	-0.055	0.000	0.92		40.2	OK	
1.007	14	1.119	0.000	0.06		56.2	SURCHARGED	
1.008	15	1.270	0.000	0.08		39.3	SURCHARGED	
5.000	16	-0.041	0.000	0.96		42.2	OK	
5.001	17	-0.124	0.000	0.63		56.9	OK	
5.002	18	-0.120	0.000	0.66		56.3	OK	
5.003	19	-0.118	0.000	0.68		56.7	OK	

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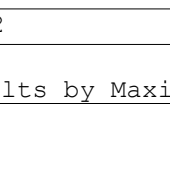


30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for SN1.SWS

									Water
US/MH	Return	Climate	First (X)	First (Y)	First (Z)	Overflow		Level	
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)
5.004	20	15 Winter	30	+0%	100/15 Summer				30.746
5.005	21	15 Winter	30	+0%	100/15 Summer				30.617
5.006	22	120 Winter	30	+0%	30/30 Winter				30.579
6.000	23	120 Winter	30	+0%	30/60 Winter				30.579
6.001	24	120 Winter	30	+0%	30/30 Winter				30.579
6.002	25	120 Winter	30	+0%	30/30 Winter				30.579
5.007	26	120 Winter	30	+0%	30/30 Winter				30.579
1.009	27	120 Winter	30	+0%	30/30 Summer				30.578
1.010	28	120 Winter	30	+0%	30/30 Summer				30.576
7.000	29	120 Winter	30	+0%	30/30 Winter				30.574
7.001	30	120 Winter	30	+0%	30/30 Winter				30.574
7.002	31	120 Winter	30	+0%	30/30 Winter				30.574
1.011	32	120 Winter	30	+0%	30/15 Winter				30.574
1.012	33	120 Winter	30	+0%	2/15 Summer				30.572

				Surcharged	Flooded			Pipe		
US/MH	Depth	Volume	Flow /	Overflow	Flow				Level	
PN	Name	(m)	(m³)	Cap.	(l/s)	(l/s)	Status		Exceeded	
5.004	20	-0.060	0.000	1.00		61.7	OK			
5.005	21	-0.127	0.000	0.61		92.4	OK			
5.006	22	1.148	0.000	0.06		49.4	SURCHARGED			
6.000	23	0.993	0.000	0.02		13.2	SURCHARGED			
6.001	24	1.089	0.000	0.02		10.6	SURCHARGED			
6.002	25	1.120	0.000	0.02		16.9	SURCHARGED			
5.007	26	1.255	0.000	0.06		36.3	SURCHARGED			
1.009	27	1.300	0.000	0.09		62.4	SURCHARGED			
1.010	28	1.351	0.000	0.07		52.9	SURCHARGED			
7.000	29	1.083	0.000	0.02		7.8	SURCHARGED			
7.001	30	1.114	0.000	0.02		13.9	SURCHARGED			
7.002	31	1.258	0.000	0.03		21.9	SURCHARGED			
1.011	32	1.456	0.000	0.11		48.8	SURCHARGED			
1.012	33	2.077	0.000	0.63		40.5	SURCHARGED			

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SN1.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet 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	2
Number of Online Controls	1	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	0.358
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	260.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)

Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440	Summer and Winter
Return Period(s) (years)	2, 30, 100	
Climate Change (%)	0, 0, 40	

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	100	+40%	30/15 Summer				32.300
1.001	2	240 Winter	100	+40%	100/15 Summer				31.698
2.000	3	15 Winter	100	+40%	30/15 Summer				32.928
2.001	4	15 Winter	100	+40%					31.751
2.002	5	240 Winter	100	+40%	100/15 Winter				31.700
1.002	6	240 Winter	100	+40%	100/15 Summer				31.692
1.003	7	240 Winter	100	+40%	100/15 Summer				31.688
1.004	8	240 Winter	100	+40%	30/120 Winter				31.685
1.005	9	240 Winter	100	+40%	30/60 Winter				31.679
1.006	10	240 Winter	100	+40%	30/60 Winter				31.678
3.000	11	240 Winter	100	+40%	100/15 Summer				31.686
4.000	12	15 Winter	100	+40%	30/15 Summer				31.918
3.001	13	240 Winter	100	+40%	100/15 Summer				31.682
1.007	14	240 Winter	100	+40%	30/30 Winter				31.678
1.008	15	240 Winter	100	+40%	30/30 Summer				31.677
5.000	16	15 Winter	100	+40%	100/15 Summer				32.580
5.001	17	240 Winter	100	+40%	100/15 Winter				31.700
5.002	18	240 Winter	100	+40%	100/15 Summer				31.696
5.003	19	240 Winter	100	+40%	100/15 Summer				31.692

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100 year Return Period Summary of Critical Results by Maximum Level (Rank
1) for SN1.SWS

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
1.000	1	0.739	0.000	1.86		31.5	SURCHARGED	
1.001	2	0.403	0.000	0.25		21.9	SURCHARGED	
2.000	3	0.851	0.000	1.98		33.7	SURCHARGED	
2.001	4	-0.043	0.000	0.79		34.6	OK	
2.002	5	0.011	0.000	0.25		16.6	SURCHARGED	
1.002	6	0.971	0.000	0.32		36.5	SURCHARGED	
1.003	7	1.083	0.000	0.33		35.8	SURCHARGED	
1.004	8	1.156	0.000	0.20		44.8	SURCHARGED	
1.005	9	1.978	0.000	0.06		41.1	SURCHARGED	
1.006	10	2.038	0.000	0.07		62.2	SURCHARGED	
3.000	11	0.610	0.000	0.35		6.6	SURCHARGED	
4.000	12	0.903	0.000	2.28		37.9	SURCHARGED	
3.001	13	0.852	0.000	0.37		16.1	SURCHARGED	
1.007	14	2.217	0.000	0.10		89.8	SURCHARGED	
1.008	15	2.368	0.000	0.18		87.9	SURCHARGED	
5.000	16	0.721	0.000	1.55		68.0	SURCHARGED	
5.001	17	0.306	0.000	0.25		22.8	SURCHARGED	
5.002	18	0.602	0.000	0.27		22.7	SURCHARGED	
5.003	19	0.754	0.000	0.26		21.9	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SN1.SWS

US/MH		Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level
PN	Name								(m)
5.004	20	240 Winter	100	+40%	100/15 Summer				31.689
5.005	21	240 Winter	100	+40%	100/15 Summer				31.687
5.006	22	240 Winter	100	+40%	30/30 Winter				31.677
6.000	23	240 Winter	100	+40%	30/60 Winter				31.677
6.001	24	240 Winter	100	+40%	30/30 Winter				31.677
6.002	25	240 Winter	100	+40%	30/30 Winter				31.677
5.007	26	240 Winter	100	+40%	30/30 Winter				31.677
1.009	27	240 Winter	100	+40%	30/30 Summer				31.676
1.010	28	240 Winter	100	+40%	30/30 Summer				31.674
7.000	29	240 Winter	100	+40%	30/30 Winter				31.667
7.001	30	240 Winter	100	+40%	30/30 Winter				31.665
7.002	31	240 Winter	100	+40%	30/30 Winter				31.664
1.011	32	240 Winter	100	+40%	30/15 Winter				31.666
1.012	33	240 Winter	100	+40%	2/15 Summer				31.696

US/MH		Surcharged		Flooded		Pipe		Level Exceeded
PN	Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	
5.004	20	0.883	0.000	0.39		24.4	SURCHARGED	
5.005	21	0.943	0.000	0.25		38.3	SURCHARGED	
5.006	22	2.246	0.000	0.06		49.5	SURCHARGED	
6.000	23	2.091	0.000	0.02		15.3	SURCHARGED	
6.001	24	2.187	0.000	0.05		22.7	SURCHARGED	
6.002	25	2.219	0.000	0.04		35.5	SURCHARGED	
5.007	26	2.353	0.000	0.15		91.4	SURCHARGED	
1.009	27	2.398	0.000	0.26		176.4	SURCHARGED	
1.010	28	2.448	0.000	0.06		44.4	SURCHARGED	
7.000	29	2.176	0.000	0.02		10.4	SURCHARGED	
7.001	30	2.205	0.000	0.02		20.7	SURCHARGED	
7.002	31	2.349	0.000	0.06		52.3	SURCHARGED	
1.011	32	2.549	0.000	0.11		49.2	SURCHARGED	
1.012	33	3.201	0.000	0.63		40.5	SURCHARGED	