

Project Title: Water Lane, Angmering

Project No/ Document Reference: A290-TN002

Date: 02 November 2020

Author: Shaun Letchford

DRAINAGE – HOLDING OBJECTION

1. Introduction

Further to your email, and our meeting of 27 October 2020, in response to our clients reserved matters and discharge of conditions application, please find below further information regarding your comments from Laura Gibbons, Engineer, on behalf of Adur & Worthing Councils. This response refers to Application Reference A/109/20/RES. We also refer you to the idom merebrook, Flood Risk Assessment, Ref: FRA-19495-16-139 Rev R2 approved at outline planning (A/99/17/OUT) and which we adhere to throughout.

2. Comments

Following our Technical Note A290-TN002, and our subsequent telephone conversation, we have responded to each of your comments below. The format follows A290-TN002 with additional responses following our meeting:

Please can the applicant confirm the depth of groundwater observed at the proposed attenuating and infiltrating locations.

The winter ground water monitoring was undertaken during outline planning by others and confirmed by Paul Cann to be suitable for the design moving forward. We have included the results in the appendix but also this is referred to in the Drainage Statement provided at Reserved Matters (RM). To confirm depths the following results are applicable:

- Southern Basin – MDH03 – Depth to water below ground – DRY
- Northern Basin – MDH05 – Depth to water below ground – 2.83m-7.34m
- Western Attenuation – MDH02 – Depth to water below ground – DRY

Therefore, as the infiltration is located at the southern and western areas only, the ground water is considerably in excess of the invert level and minimum 1m clearance.

N.B. Following our meeting it was requested a ground level for the Northern Basin at MDH05. MDH05 and MDH04, which are the nearest boreholes located to the proposed basin, have an approximate cover



level of 16.00m AOD with the depth to water below ground level in MDH05 being 2.83m-7.34m and the depth to water below ground level in MDH04 being 7.94m-8.15m.

There is no evidence of ground water spilling on the site and as discussed, the extreme 1 in 100 year plus climate change flood level of the Black Ditch is around 11.04m AOD. In addition, the northern basin is lined and draining by positive discharge only. Therefore, it is not envisaged high groundwater will affect the drainage scheme or its ability to drain.

Please can the applicant supply a manhole schedule.

A Manhole schedule is provided for all networks in the Micro Drainage output files.

Calculations should either apply a cv of 1 or use FEH to be compliant with WSCC policy for the management of surface water.

The Wallingford Rational method states the Cv should be between 0.6 and 0.9 and therefore defaults to 0.75. This default has been used for all designs, including at outline stage. The range in Cv is due to the 'permeable' nature of even impermeable surfaces, such as cracks, fissures, etc and also to account for areas that are not wholly impermeable that is included in area calculations such as grass verges, etc. In addition not all rainfall that lands on a surface enters the drainage system, irrelevant of the surface, as rainfall landing on, asphalt for example, will only run off once the surface is 'saturated' and even then once the rainfall has stopped will dry by transpiration as opposed to run off. Therefore, the range of Cv and the default is appropriate.

The WSCC policy states "Where calculations involve use of the Coefficient for Volumetric Runoff (Cv) Sewers for Adoption (7th Edition) recommends that a Cv of 1.0 should be used whenever calculating runoff from impermeable surfaces (roofs and paved areas should have an impermeability of 100%)". However, SfA does not recommend or discuss the Cv but only "roofs and paved areas should have an impermeability of 100%".

Within Micro Drainage the Cv is a global parameter which is overridden by individual areas, which can be set to whichever Cv is appropriate. In our calculations we have used 100% impermeability (PIMP) for all hardstanding areas. Therefore, the discussion regarding the overriding Cv value is irrelevant in the calculations and thus we will amend, but this does not preclude your ability to approve the design.

In addition, and in line with normal practices, we have also calculated the whole adoptable highway corridor within our calculations and again stated this as 100% impermeable. This is irrelevant of whether there is footway or grass verge and also includes for the large grass verge that runs the length of the spine road. To this end an overriding Cv of 0.75 is appropriate but also can you confirm whether this



grass verge should be included at 100% or a portion thereof, as to include all parameter stated above would suggest an overlay onerous design.

N.B. A screen shot of the PIMP for an area is included within the appendices.

Please confirm if the rain falling on basins is included in calculations.

Currently the rain falling on the basins is not included. Many years ago this argument was formed between LPA's and consultants and it was established that it would be impossible to replicate the rainfall falling on a basin and therefore this has not been included in any calculations for 10-15 years.

The reason for this is the basins are Greenfield and therefore any rain falling on them would first soak into the ground, be used by the planting or, where any standing water does not reach, drain by evapotranspiration. Only once the basin starts filling up would rain land on any standing water and contribute to any flow, but this was deemed negligible in the scheme of things and thus discounted. To this end the basin areas have not been included in any designs for a number of years.

Please confirm, if you intend for this to be included, as to an appropriate Cv to use for the basin area as 100% is wholly inappropriate and 10% was always deemed acceptable for greenfield areas contributing to run off.

N.B. Following our telephone conversation we have included the basins in all calculations.

Please confirm if an urbanisation allowance has been included for within calculations, please see WSCC policy for the management of surface water for further details on this.

It is assumed by urbanisation allowance you refer to Urban Creep, as the phrase urbanisation allowance is not found in the WSCC policy. Please refer to paragraphs 3.57 and 3.58 of the submitted drainage statement which confirms an Urban Creep allowance has been included.

N.B. Following our telephone conversation we have included calculations showing Urban Creep.

Please provide exceedance flow plans. Please also indicate where water is expected to flood (according to calculations, and the volumes of flooding expected).

These will be provided on agreement of the points raised in your objection.

N.B. Following our telephone conversation we have included exceedance flow plans.



Flow velocities are less than 1m/s in several pipes. Please ensure all pipes achieve 1m/s.

All pipes are designed with minimal 1m/s flow velocity. However, in accordance with SfA7 paragraph C4.9, where this requirement cannot be met a 150mm diameter sewer can be laid to a gradient not flatter than 1 in 150 and deemed acceptable, which is the only instances within our design where 1m/s is not achieved.

It does not appear that all pages of the results printout have been included for the northern network. I.e. where are the results for manholes 20 to 69.

The latest drainage statement includes for all pages.

Hydrobrake reference numbers need to be detailed on plan and be consistent with calculations.

This is a personal preference and should not preclude approval. The Hydrobrake details will be on all construction drawings but whilst the design is subject to change and not yet approved it is not yet stipulated on drawings. However, the Hydrobrake reference is provided in all calculations.

N.B. Following our telephone conversation we have included the Hydrobrake reference on our drawings.

Size of attenuation crates needs to be detailed on plan.

This is a personal preference and should not preclude approval. The size of attenuation crates will be on all construction drawings but whilst the design is subject to change and not yet approved it is not yet stipulated on drawings. However, it is provided in all calculations and the invert level, water level, cover level and total volume of crates is stipulated on the drawings.

N.B. Following our telephone conversation we have included the size of crates on our drawings.

Half drain times must be provided for infiltrating catchments.

The half drain times are included in the calculations. In addition, an infiltration scheme is not viable if half drain times cannot be achieved, without approval by the LPA, therefore a robust and compliant scheme has been provided with half drain times achieved.

Worst case infiltration rates must be used in design.



It is assumed you refer to the use of average rates between trial pits in the vicinity of the infiltration device as opposed to across the whole site which would be wholly inappropriate. In some cases we used worst case rates and in others we used an average across 2 or more pits. This provides a rate consistent with the ground conditions that range over where the devices are located. However, we will provide calculations with worst case scenarios for the most appropriate pit in relation to the devices.

N.B. Following our telephone conversation we have used worst case infiltration rates, namely:

- Southern Basin – SA3 – 1.93×10^{-4}
- Western Parcel – SA2/SA1 – 4.52×10^{-5}

Please provide impermeable areas drawings in .dwg format to enable review.

We have included drawing A290-RM-512 P2, Post Development Catchment Areas and Basins, providing the impermeable area plan. Within the RM submission we included drawings A290-RM-501 and 502, Drainage Layouts Sheets 1 and 2, providing all proposed drainage levels and manhole numbers. In addition, within the submitted Drainage Statement (A290-R007) we included all Micro Drainage calculations including impermeable areas draining to each manhole. Therefore, all information has been previously submitted and .dwg are not required. However, we can include drawing A290-RM-512 P2 in .dwg format for your information.

N.B. Following our telephone conversation we have included the cad drawing for reference.

Please provide a plan showing a clear 3m buffer around basins.

We confirm that adequate space, 3m minimum from top of water level, plus 300mm freeboard, and/or basin cover level, around all attenuation and infiltration basins, in line with Ciria guidance, has been allowed for in the design and this is shown on all drawings.

N.B. Following our telephone conversation we have included the 3m buffer on our drawings.



Appendix 1 - Supplementary Information

Abley Letchford Partnership Ltd										Page 1																																																																																																																																																																																									
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<u>STORM SEWER DESIGN by the Modified Rational Method</u> <u>Design Criteria for STORM NORTH</u> Pipe Sizes STANDARD Manhole Sizes STANDARD FSR Rainfall Model - England and Wales <table><tr><td>Return Period (years)</td><td>5</td><td>PIMP (%)</td><td>100</td></tr><tr><td>M5-60 (mm)</td><td>19.000</td><td>Add Flow / Climate Change (%)</td><td>0</td></tr><tr><td>Ratio R</td><td>0.350</td><td>Minimum Backdrop Height (m)</td><td>9.999</td></tr><tr><td>Maximum Rainfall (mm/hr)</td><td>50</td><td>Maximum Backdrop Height (m)</td><td>0.000</td></tr><tr><td>Maximum Time of Concentration (mins)</td><td>30</td><td>Min Design Depth for Optimisation (m)</td><td>1.200</td></tr><tr><td>Foul Sewage (l/s/ha)</td><td>0.000</td><td>Min Vel for Auto Design only (m/s)</td><td>1.00</td></tr><tr><td>Volumetric Runoff Coeff.</td><td>0.750</td><td>Min Slope for Optimisation (1:X)</td><td>500</td></tr></table> Designed with Level Soffits												Return Period (years)	5	PIMP (%)	100	M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0	Ratio R	0.350	Minimum Backdrop Height (m)	9.999	Maximum Rainfall (mm/hr)	50	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)	500																																																																																																																																																												
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Search House Charnham Lane Hungerford RG17 0EY					Water Lane, Angmering						
Date 20/10/2020 File NETWORK 2 V6.MDX					Designed by JS Checked by SL						
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S6.000	7.598	0.076	100.0	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
S7.000	11.968	0.120	99.7	0.011	5.00	0.0	0.600	o	150	Pipe/Conduit	
S3.002	16.608	0.281	59.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S8.000	7.308	0.067	109.1	0.011	5.00	0.0	0.600	o	150	Pipe/Conduit	
S9.000	4.100	0.177	23.2	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit	
S3.003	26.134	0.440	59.4	0.048	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.000	5.687	0.394	14.4	0.013	5.00	0.0	0.600	o	150	Pipe/Conduit	
S3.004	9.924	0.091	109.1	0.015	0.00	0.0	0.600	o	225	Pipe/Conduit	
S11.000	4.519	0.045	100.4	0.023	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	9.347	0.381	24.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S12.000	10.927	0.310	35.2	0.018	5.00	0.0	0.600	o	150	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)	
S6.000	50.00	5.13	16.279	0.008	0.0	0.0	0.0	1.00	17.8	1.1	
S7.000	50.00	5.20	16.323	0.011	0.0	0.0	0.0	1.01	17.8	1.4	
S3.002	50.00	5.54	16.128	0.142	0.0	0.0	0.0	1.70	67.8	19.2	
S8.000	50.00	5.13	15.989	0.011	0.0	0.0	0.0	0.96	17.0	1.4	
S9.000	50.00	5.03	16.099	0.018	0.0	0.0	0.0	2.10	37.1	2.4	
S3.003	50.00	5.80	15.847	0.218	0.0	0.0	0.0	1.70	67.6	29.6	
S10.000	50.00	5.04	15.876	0.013	0.0	0.0	0.0	2.67	47.1	1.7	
S3.004	50.00	5.93	15.407	0.246	0.0	0.0	0.0	1.25	49.8	33.3	
S11.000	50.00	5.08	15.436	0.023	0.0	0.0	0.0	1.00	17.7	3.1	
S1.002	50.00	5.98	15.241	0.378	0.0	0.0	0.0	3.19	225.3	51.2	
S12.000	50.00	5.11	15.320	0.018	0.0	0.0	0.0	1.70	30.1	2.4	
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XP Solutions					Network 2020.1						
<u>Network Design Table for STORM NORTH</u>											
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
S13.000	4.452	0.044	101.2	0.028	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	24.863	0.842	29.5	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
S14.000	6.629	0.093	71.3	0.010	5.00	0.0	0.600	o	150	Pipe/Conduit	
S15.000	10.788	0.211	51.1	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.004	17.561	0.716	24.5	0.019	0.00	0.0	0.600	o	300	Pipe/Conduit	
S16.000	11.469	0.270	42.5	0.010	5.00	0.0	0.600	o	150	Pipe/Conduit	
S17.000	5.749	0.074	77.7	0.022	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.005	13.001	0.494	26.3	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S18.000	12.154	0.344	35.3	0.022	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.006	17.689	0.271	65.3	0.032	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.007	13.409	0.532	25.2	0.052	0.00	0.0	0.600	o	300	Pipe/Conduit	
<u>Network Results Table</u>											
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)	
S13.000	50.00	5.07	15.054	0.028	0.0	0.0	0.0	1.00	17.7	3.8	
S1.003	50.00	6.12	14.860	0.444	0.0	0.0	0.0	2.90	205.3	60.1	
S14.000	50.00	5.09	14.261	0.010	0.0	0.0	0.0	1.19	21.1	1.3	
S15.000	50.00	5.13	14.379	0.018	0.0	0.0	0.0	1.41	24.9	2.4	
S1.004	50.00	6.21	14.018	0.490	0.0	0.0	0.0	3.19	225.3	66.4	
S16.000	50.00	5.12	13.722	0.010	0.0	0.0	0.0	1.55	27.4	1.3	
S17.000	50.00	5.08	13.526	0.022	0.0	0.0	0.0	1.14	20.2	2.9	
S1.005	50.00	6.28	13.302	0.522	0.0	0.0	0.0	3.08	217.5	70.7	
S18.000	50.00	5.12	13.302	0.022	0.0	0.0	0.0	1.70	30.0	3.0	
S1.006	50.00	6.44	12.808	0.576	0.0	0.0	0.0	1.95	137.8	78.0	
S1.007	50.00	6.51	12.537	0.628	0.0	0.0	0.0	3.14	222.3	85.1	
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Network Design Table for STORM NORTH											
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
S19.000	10.281	0.069	150.0	0.070	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.008	15.946	0.060	265.8	0.024	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.009	12.318	0.070	176.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S20.000	9.800	0.097	100.9	0.019	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.001	30.594	1.741	17.6	0.030	0.00	0.0	0.600	o	225	Pipe/Conduit	
S21.000	10.680	1.068	10.0	0.014	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.002	7.317	0.043	169.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S20.003	8.415	0.842	10.0	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit	
S22.000	5.810	0.581	10.0	0.007	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.004	7.317	0.732	10.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S23.000	12.356	0.074	167.0	0.021	5.00	0.0	0.600	o	225	Pipe/Conduit	
S24.000	9.017	0.089	101.3	0.041	5.00	0.0	0.600	o	150	Pipe/Conduit	
S25.000	4.683	0.378	12.4	0.009	5.00	0.0	0.600	o	150	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)	
S19.000	50.00	5.21	12.224	0.070		0.0	0.0	0.0	0.82	14.5	9.4
S1.008	50.00	6.75	11.930	0.722		0.0	0.0	0.0	1.11	122.2	97.8
S1.009	50.00	6.90	11.870	0.722		0.0	0.0	0.0	1.36	150.5	97.8
S20.000	50.00	5.16	17.178	0.019		0.0	0.0	0.0	1.00	17.7	2.5
S20.001	50.00	5.33	17.006	0.049		0.0	0.0	0.0	3.14	124.7	6.6
S21.000	50.00	5.06	16.408	0.014		0.0	0.0	0.0	3.21	56.6	1.9
S20.002	50.00	5.45	15.265	0.063		0.0	0.0	0.0	1.00	39.9	8.5
S20.003	50.00	5.48	15.222	0.081		0.0	0.0	0.0	4.16	165.5	11.0
S22.000	50.00	5.03	14.962	0.007		0.0	0.0	0.0	3.20	56.6	0.9
S20.004	50.00	5.51	14.306	0.088		0.0	0.0	0.0	4.16	165.5	12.0
S23.000	50.00	5.20	13.846	0.021		0.0	0.0	0.0	1.01	40.1	2.9
S24.000	50.00	5.15	14.556	0.041		0.0	0.0	0.0	1.00	17.6	5.6
S25.000	50.00	5.03	14.845	0.009		0.0	0.0	0.0	2.88	50.9	1.2
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Network Design Table for STORM NORTH											
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
S24.001	5.342	0.620	8.6	0.035	0.00	0.0	0.600	o	225	Pipe/Conduit	
S26.000	6.196	0.701	8.8	0.048	5.00	0.0	0.600	o	150	Pipe/Conduit	
S23.001	44.923	0.186	241.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S27.000	6.317	0.661	9.6	0.032	5.00	0.0	0.600	o	150	Pipe/Conduit	
S28.000	8.498	0.879	9.7	0.022	5.00	0.0	0.600	o	150	Pipe/Conduit	
S23.002	16.249	0.068	239.0	0.045	0.00	0.0	0.600	o	300	Pipe/Conduit	
S20.005	10.284	0.043	241.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S29.000	4.372	0.437	10.0	0.010	5.00	0.0	0.600	o	150	Pipe/Conduit	
S30.000	6.444	0.644	10.0	0.048	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.006	24.854	0.103	241.9	0.023	0.00	0.0	0.600	o	300	Pipe/Conduit	
S31.000	6.198	0.064	96.8	0.020	5.00	0.0	0.600	o	150	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)	
S24.001	50.00	5.17	14.392	0.086	0.0	0.0	0.0	4.49	178.3	11.6	
S26.000	50.00	5.03	14.548	0.048	0.0	0.0	0.0	3.41	60.3	6.5	
S23.001	50.00	5.95	13.697	0.156	0.0	0.0	0.0	1.01	71.2	21.1	
S27.000	50.00	5.03	14.322	0.032	0.0	0.0	0.0	3.28	57.9	4.3	
S28.000	50.00	5.04	14.540	0.022	0.0	0.0	0.0	3.26	57.6	2.9	
S23.002	50.00	6.21	13.511	0.254	0.0	0.0	0.0	1.01	71.6	34.4	
S20.005	50.00	6.39	13.443	0.342	0.0	0.0	0.0	1.01	71.1	46.3	
S29.000	50.00	5.02	13.987	0.010	0.0	0.0	0.0	3.21	56.6	1.3	
S30.000	50.00	5.03	14.194	0.048	0.0	0.0	0.0	3.20	56.6	6.5	
S20.006	50.00	6.80	13.400	0.423	0.0	0.0	0.0	1.01	71.1	57.3	
S31.000	50.00	5.10	16.082	0.020	0.0	0.0	0.0	1.02	18.0	2.6	
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Network Design Table for STORM NORTH											
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
S32.000	5.947	0.087	68.4	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit	
S31.001	15.937	0.499	31.9	0.033	0.00	0.0	0.600	o	225	Pipe/Conduit	
S33.000	5.992	0.215	27.9	0.014	5.00	0.0	0.600	o	150	Pipe/Conduit	
S34.000	11.090	0.058	191.3	0.014	5.00	0.0	0.600	o	150	Pipe/Conduit	
S31.002	21.388	1.434	14.9	0.030	0.00	0.0	0.600	o	225	Pipe/Conduit	
S35.000	4.309	0.431	10.0	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S36.000	7.649	0.765	10.0	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S31.003	6.374	0.637	10.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S20.007	14.355	0.045	321.4	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S37.000	6.268	0.627	10.0	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S38.000	5.191	0.519	10.0	0.021	5.00	0.0	0.600	o	150	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)	
S32.000	50.00	5.08	16.105	0.009	0.0	0.0	0.0	1.22	21.5	1.2	
S31.001	50.00	5.22	15.943	0.062	0.0	0.0	0.0	2.32	92.4	8.4	
S33.000	50.00	5.05	15.734	0.014	0.0	0.0	0.0	1.91	33.8	1.8	
S34.000	50.00	5.26	15.577	0.014	0.0	0.0	0.0	0.72	12.8	1.9	
S31.002	50.00	5.36	15.444	0.119	0.0	0.0	0.0	3.41	135.4	16.1	
S35.000	50.00	5.02	14.516	0.006	0.0	0.0	0.0	3.21	56.6	0.7	
S36.000	50.00	5.04	14.850	0.006	0.0	0.0	0.0	3.21	56.6	0.7	
S31.003	50.00	5.39	14.010	0.130	0.0	0.0	0.0	4.16	165.5	17.6	
S20.007	50.00	7.03	13.223	0.553	0.0	0.0	0.0	1.01	111.0	74.9	
S37.000	50.00	5.03	14.030	0.006	0.0	0.0	0.0	3.21	56.6	0.7	
S38.000	50.00	5.03	13.922	0.021	0.0	0.0	0.0	3.21	56.6	2.8	
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Network Design Table for STORM NORTH											
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
S20.008	13.102	0.041	321.4	0.040	0.00	0.0	0.600	o	375	Pipe/Conduit	
S20.009	14.885	0.046	321.4	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S39.000	6.775	0.121	56.0	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.010	11.007	0.369	29.8	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S40.000	7.087	0.245	28.9	0.015	5.00	0.0	0.600	o	150	Pipe/Conduit	
S20.011	20.134	0.357	56.4	0.030	0.00	0.0	0.600	o	375	Pipe/Conduit	
S20.012	23.361	0.565	41.3	0.123	0.00	0.0	0.600	o	375	Pipe/Conduit	
S41.000	11.710	0.319	36.7	0.057	5.00	0.0	0.600	o	225	Pipe/Conduit	
S42.000	4.870	0.290	16.8	0.041	5.00	0.0	0.600	o	150	Pipe/Conduit	
S41.001	18.046	0.310	58.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S41.002	40.357	0.714	56.5	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.010	24.669	1.473	16.7	0.000	0.00	0.0	0.600	o	375	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)	
S20.008	50.00	7.25	13.178	0.619	0.0	0.0	0.0	1.01	111.0	83.9	
S20.009	50.00	7.50	13.137	0.619	0.0	0.0	0.0	1.01	111.0	83.9	
S39.000	50.00	5.08	13.437	0.018	0.0	0.0	0.0	1.35	23.8	2.5	
S20.010	50.00	7.55	13.091	0.638	0.0	0.0	0.0	3.33	367.8	86.4	
S40.000	50.00	5.06	13.192	0.015	0.0	0.0	0.0	1.88	33.2	2.0	
S20.011	50.00	7.69	12.721	0.682	0.0	0.0	0.0	2.42	266.9	92.3	
S20.012	50.00	7.83	12.365	0.805	0.0	0.0	0.0	2.82	312.0	109.0	
S41.000	50.00	5.09	13.368	0.057	0.0	0.0	0.0	2.17	86.1	7.7	
S42.000	50.00	5.03	13.339	0.041	0.0	0.0	0.0	2.47	43.7	5.5	
S41.001	50.00	5.27	12.974	0.097	0.0	0.0	0.0	1.72	68.3	13.2	
S41.002	50.00	5.65	12.664	0.097	0.0	0.0	0.0	1.74	69.3	13.2	
S1.010	50.00	5.09	11.800	0.000	20.0	0.0	0.0	4.45	491.1	20.0	
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Manhole Schedules for STORM NORTH

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	17.658	1.471	Open Manhole	600	S1.000	16.187	150				
S2	17.491	1.493	Open Manhole	600	S2.000	15.998	150				
S3	17.432	1.557	Open Manhole	1200	S1.001	15.875	225	S1.000	15.950	150	
								S2.000	15.950	150	
S4	17.981	1.246	Open Manhole	600	S3.000	16.735	150				
S5	18.213	1.471	Open Manhole	600	S4.000	16.742	150				
S6	18.032	1.425	Open Manhole	1200	S3.001	16.607	225	S3.000	16.682	150	
								S4.000	16.682	150	
S7A	17.733	1.478	Open Manhole	600	S5.000	16.255	150				
S7B	17.654	1.375	Open Manhole	600	S6.000	16.279	150				
S7C	17.858	1.535	Open Manhole	600	S7.000	16.323	150				
S7	17.553	1.425	Open Manhole	1200	S3.002	16.128	225	S3.001	16.128	225	
								S5.000	16.203	150	
								S6.000	16.203	150	
								S7.000	16.203	150	
S8	17.339	1.350	Open Manhole	600	S8.000	15.989	150				
S9	17.449	1.350	Open Manhole	600	S9.000	16.099	150				
S10	17.272	1.425	Open Manhole	1200	S3.003	15.847	225	S3.002	15.847	225	
								S8.000	15.922	150	
								S9.000	15.922	150	
S10A	17.248	1.372	Open Manhole	600	S10.000	15.876	150				
S11	16.839	1.432	Open Manhole	1200	S3.004	15.407	225	S3.003	15.407	225	
								S10.000	15.482	150	
S12	16.956	1.520	Open Manhole	600	S11.000	15.436	150				
S13	16.868	1.627	Open Manhole	1200	S1.002	15.241	300	S1.001	15.316	225	
								S3.004	15.316	225	
								S11.000	15.391	150	
S14	16.892	1.572	Open Manhole	600	S12.000	15.320	150				
S15	16.500	1.446	Open Manhole	600	S13.000	15.054	150				
S16	16.498	1.638	Open Manhole	1200	S1.003	14.860	300	S1.002	14.860	300	
								S12.000	15.010	150	
								S13.000	15.010	150	
S17	15.885	1.624	Open Manhole	600	S14.000	14.261	150				
S18	15.768	1.389	Open Manhole	600	S15.000	14.379	150				
S19	15.833	1.815	Open Manhole	1200	S1.004	14.018	300	S1.003	14.018	300	
								S14.000	14.168	150	
								S15.000	14.168	150	
S20	15.197	1.475	Open Manhole	600	S16.000	13.722	150				

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Manhole Schedules for STORM NORTH

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S21A	15.081	1.555	Open Manhole	600	S17.000	13.526	150				
S21	14.802	1.500	Open Manhole	1200	S1.005	13.302	300	S1.004	13.302	300	
								S16.000	13.452	150	
								S17.000	13.452	150	
S22A	14.893	1.591	Open Manhole	600	S18.000	13.302	150				
S22	14.309	1.501	Open Manhole	1200	S1.006	12.808	300	S1.005	12.808	300	
								S18.000	12.958	150	
S25	13.925	1.388	Open Manhole	1200	S1.007	12.537	300	S1.006	12.537	300	
S24	13.577	1.353	Open Manhole	1200	S19.000	12.224	150				
S25	13.561	1.631	Open Manhole	1350	S1.008	11.930	375	S1.007	12.005	300	
								S19.000	12.155	150	
S26	13.500	1.630	Open Manhole	1350	S1.009	11.870	375	S1.008	11.870	375	
S27	18.503	1.325	Open Manhole	600	S20.000	17.178	150				
S28	18.706	1.700	Open Manhole	1200	S20.001	17.006	225	S20.000	17.081	150	
S29	18.295	1.887	Open Manhole	600	S21.000	16.408	150				
S30	18.295	3.030	Open Manhole	1200	S20.002	15.265	225	S20.001	15.265	225	
								S21.000	15.340	150	
S31	18.138	2.916	Open Manhole	1200	S20.003	15.222	225	S20.002	15.222	225	
S32	18.139	3.177	Open Manhole	600	S22.000	14.962	150				
S33	17.926	3.620	Open Manhole	1200	S20.004	14.306	225	S20.003	14.381	225	75
								S22.000	14.381	150	
S38	15.450	1.604	Open Manhole	1200	S23.000	13.846	225				
S37	16.074	1.518	Open Manhole	600	S24.000	14.556	150				
S38	16.282	1.437	Open Manhole	600	S25.000	14.845	150				
S39	16.015	1.623	Open Manhole	1200	S24.001	14.392	225	S24.000	14.467	150	
								S25.000	14.467	150	
S40	15.849	1.301	Open Manhole	600	S26.000	14.548	150				
S41	15.944	2.247	Open Manhole	1200	S23.001	13.697	300	S23.000	13.772	225	
								S24.001	13.772	225	
								S26.000	13.847	150	
S42	17.584	3.262	Open Manhole	600	S27.000	14.322	150				
S43	17.170	2.630	Open Manhole	600	S28.000	14.540	150				
S44	17.493	3.982	Open Manhole	1200	S23.002	13.511	300	S23.001	13.511	300	
								S27.000	13.661	150	
								S28.000	13.661	150	
S45	17.716	4.273	Open Manhole	1200	S20.005	13.443	300	S20.004	13.574	225	56
								S23.002	13.443	300	
S46	17.534	3.547	Open Manhole	600	S29.000	13.987	150				

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Manhole Schedules for STORM NORTH

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S47	17.513	3.319	Open Manhole	600	S30.000	14.194	150				
S48	17.376	3.975	Open Manhole	1200	S20.006	13.400	300	S20.005	13.400	300	
								S29.000	13.550	150	
								S30.000	13.550	150	
S49	17.272	1.190	Open Manhole	600	S31.000	16.082	150				
S50	17.426	1.321	Open Manhole	600	S32.000	16.105	150				
S51	17.085	1.142	Open Manhole	1200	S31.001	15.943	225	S31.000	16.018	150	
								S32.000	16.018	150	
S52	17.119	1.385	Open Manhole	600	S33.000	15.734	150				
S53	17.123	1.546	Open Manhole	600	S34.000	15.577	150				
S54	16.765	1.321	Open Manhole	1200	S31.002	15.444	225	S31.001	15.444	225	
								S33.000	15.519	150	
								S34.000	15.519	150	
S55	16.565	2.049	Open Manhole	600	S35.000	14.516	150				
S56	16.754	1.904	Open Manhole	600	S36.000	14.850	150				
S57	16.359	2.349	Open Manhole	1200	S31.003	14.010	225	S31.002	14.010	225	
								S35.000	14.085	150	
								S36.000	14.085	150	
S58	16.393	3.170	Open Manhole	1350	S20.007	13.223	375	S20.006	13.298	300	
								S31.003	13.373	225	
S59	15.960	1.930	Open Manhole	600	S37.000	14.030	150				
S60	16.091	2.169	Open Manhole	600	S38.000	13.922	150				
S61	15.824	2.646	Open Manhole	1350	S20.008	13.178	375	S20.007	13.178	375	
								S37.000	13.403	150	
								S38.000	13.403	150	
S65	15.299	2.162	Open Manhole	1350	S20.009	13.137	375	S20.008	13.137	375	
S66A	15.077	1.640	Open Manhole	600	S39.000	13.437	150				
S66	14.698	1.607	Open Manhole	1350	S20.010	13.091	375	S20.009	13.091	375	
								S39.000	13.316	150	
S62	14.831	1.640	Open Manhole	600	S40.000	13.192	150				
S63	14.296	1.575	Open Manhole	1350	S20.011	12.721	375	S20.010	12.721	375	
								S40.000	12.946	150	
S64	13.500	1.135	Open Manhole	1350	S20.012	12.365	375	S20.011	12.365	375	
S65	14.718	1.350	Open Manhole	1200	S41.000	13.368	225				
S66	14.572	1.233	Open Manhole	600	S42.000	13.339	150				
S67	14.399	1.425	Open Manhole	1200	S41.001	12.974	225	S41.000	13.049	225	
								S42.000	13.049	150	
S68	13.500	0.836	Open Manhole	1200	S41.002	12.664	225	S41.001	12.664	225	

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Manhole Schedules for STORM NORTH

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S69	13.500	1.700	Open Manhole	1350	S1.010	11.800	375	S1.009	11.800	375	
								S20.012	11.800	375	
								S41.002	11.950	225	
S	12.000	1.673	Open Manhole	0		OUTFALL		S1.010	10.327	375	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	507512.929	104545.716	507512.929	104545.716	Required	
S2	507498.329	104543.409	507498.329	104543.409	Required	
S3	507503.025	104544.151	507503.025	104544.151	Required	
S4	507578.259	104571.333	507578.259	104571.333	Required	
S5	507579.752	104582.494	507579.752	104582.494	Required	
S6	507578.958	104576.562	507578.958	104576.562	Required	
S7A	507551.408	104575.224	507551.408	104575.224	Required	
S7B	507549.440	104587.860	507549.440	104587.860	Required	
S7C	507561.720	104584.800	507561.720	104584.800	Required	
S7	507550.609	104580.353	507550.609	104580.353	Required	
S8	507532.815	104584.974	507532.815	104584.974	Required	
S9	507534.975	104573.772	507534.975	104573.772	Required	

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<u>Manhole Schedules for STORM NORTH</u>						
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S10	507534.199	104577.798	507534.199	104577.798	Required	
S10A	507509.530	104567.251	507509.988	104567.466	Required	
S11	507508.538	104572.850	507509.107	104572.940	Required	
S12	507494.272	104570.596	507494.272	104570.596	Required	
S13	507498.735	104571.301	507498.735	104571.301	Required	
S14	507508.203	104580.453	507508.203	104580.453	Required	
S15	507492.830	104580.313	507492.830	104580.313	Required	
S16	507497.276	104580.534	507497.276	104580.534	Required	
S17	507492.353	104601.373	507492.353	104601.373	Required	
S18	507508.403	104605.000	507508.403	104605.000	Required	
S19	507497.623	104605.395	507497.623	104605.395	Required	
S20	507504.832	104621.085	507504.832	104621.085	Required	
S21A	507488.854	104618.990	507488.854	104618.990	Required	
S21	507493.445	104622.452	507493.445	104622.452	Required	
S22A	507499.553	104631.312	507499.553	104631.312	Required	
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S42	507618.730	104672.128	507618.730	104672.128	Required																																																																																																																	
S43	507605.690	104674.690	507605.690	104674.690	Required																																																																																																																	
S44	507612.781	104670.006	507612.781	104670.006	Required																																																																																																																	
S45	507603.830	104656.445	507603.830	104656.445	Required																																																																																																																	
S46	507593.808	104662.283	507593.808	104662.283	Required																																																																																																																	
S47	507593.736	104651.470	507593.736	104651.470	Required																																																																																																																	
S48	507593.652	104657.914	507593.652	104657.914	Required																																																																																																																	
S49	507553.083	104617.522	507553.083	104617.522	Required																																																																																																																	
S50	507563.811	104612.972	507563.811	104612.972	Required																																																																																																																	
S51	507559.235	104616.772	507559.235	104616.772	Required																																																																																																																	
S52	507571.302	104624.637	507571.302	104624.637	Required																																																																																																																	
S53	507558.147	104625.492	507558.147	104625.492	Required																																																																																																																	
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Online Controls for STORM NORTH

Hydro-Brake® Optimum Manhole: S69, DS/PN: S1.010, Volume (m³): 7.6

Unit Reference	MD-SHE-0107-5800-1400-5800
Design Head (m)	1.400
Design Flow (l/s)	5.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	107
Invert Level (m)	11.800
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.400	5.8
Flush-Flo™	0.411	5.8
Kick-Flo®	0.856	4.6
Mean Flow over Head Range	-	5.1

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.7	1.200	5.4	3.000	8.3	7.000	12.4
0.200	5.3	1.400	5.8	3.500	8.9	7.500	12.8
0.300	5.7	1.600	6.2	4.000	9.5	8.000	13.2
0.400	5.8	1.800	6.5	4.500	10.0	8.500	13.6
0.500	5.8	2.000	6.9	5.000	10.6	9.000	14.0
0.600	5.6	2.200	7.2	5.500	11.0	9.500	14.3
0.800	5.0	2.400	7.5	6.000	11.5		
1.000	5.0	2.600	7.7	6.500	12.0		

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Storage Structures for STORM NORTH

Tank or Pond Manhole: S69, DS/PN: S1.010

Invert Level (m) 11.800

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	500.1	0.700	842.0	1.400	1231.6	2.100	0.0
0.100	546.8	0.800	894.7	1.500	1291.2	2.200	0.0
0.200	593.5	0.900	948.4	1.600	1351.8	2.300	0.0
0.300	641.3	1.000	1003.0	1.700	1413.3	2.400	0.0
0.400	689.9	1.100	1058.7	1.701	0.0	2.500	0.0
0.500	739.7	1.200	1115.3	1.900	0.0		
0.600	793.4	1.300	1173.0	2.000	0.0		

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>								
Simulation Criteria								
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000								
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000								
Hot Start Level (mm) 0 Inlet 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 1								
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 0.350								
Region England and Wales Cv (Summer) 0.750								
M5-60 (mm) 19.000 Cv (Winter) 0.840								
Margin for Flood Risk Warning (mm) 300.0								
Analysis Timestep 2.5 Second Increment (Extended)								
DTS Status ON								
DVD Status OFF								
Inertia Status OFF								
Profile(s) Summer and Winter								
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440								
Return Period(s) (years) 2								
Climate Change (%) 0								
Water								
US/MH	Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	
PN Name Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)	
S1.000 S1 15 Winter	2	+0%					16.216	
S2.000 S2 15 Winter	2	+0%					16.057	
S1.001 S3 15 Winter	2	+0%					15.949	
S3.000 S4 15 Winter	2	+0%					16.787	
S4.000 S5 15 Winter	2	+0%					16.776	
S3.001 S6 15 Winter	2	+0%					16.679	
S5.000 S7A 15 Winter	2	+0%					16.313	
S6.000 S7B 15 Winter	2	+0%					16.309	
S7.000 S7C 15 Winter	2	+0%					16.356	
S3.002 S7 15 Winter	2	+0%					16.222	
S8.000 S8 15 Winter	2	+0%					16.023	
S9.000 S9 15 Winter	2	+0%					16.132	
S3.003 S10 15 Winter	2	+0%					15.964	
S10.000 S10A 15 Winter	2	+0%					15.898	
S3.004 S11 15 Winter	2	+0%					15.573	
S11.000 S12 15 Winter	2	+0%					15.491	
S1.002 S13 15 Winter	2	+0%					15.367	
S12.000 S14 15 Winter	2	+0%					15.353	
S13.000 S15 15 Winter	2	+0%					15.116	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>								
PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)		
S1.000	S1	-0.121	0.000	0.08			2.0	OK
S2.000	S2	-0.091	0.000	0.32			4.4	OK
S1.001	S3	-0.151	0.000	0.23			16.0	OK
S3.000	S4	-0.098	0.000	0.26			3.7	OK
S4.000	S5	-0.116	0.000	0.12			1.7	OK
S3.001	S6	-0.153	0.000	0.22			13.9	OK
S5.000	S7A	-0.092	0.000	0.31			4.5	OK
S6.000	S7B	-0.120	0.000	0.09			1.3	OK
S7.000	S7C	-0.117	0.000	0.11			1.7	OK
S3.002	S7	-0.131	0.000	0.36			21.5	OK
S8.000	S8	-0.116	0.000	0.12			1.7	OK
S9.000	S9	-0.117	0.000	0.11			2.9	OK
S3.003	S10	-0.108	0.000	0.52			32.8	OK
S10.000	S10A	-0.128	0.000	0.05			2.1	OK
S3.004	S11	-0.059	0.000	0.89			37.0	OK
S11.000	S12	-0.095	0.000	0.29			3.8	OK
S1.002	S13	-0.174	0.000	0.37			56.6	OK
S12.000	S14	-0.117	0.000	0.11			2.9	OK
S13.000	S15	-0.088	0.000	0.35			4.6	OK
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.003	S16	15 Winter	2	+0%					14.985
S14.000	S17	15 Winter	2	+0%					14.291
S15.000	S18	15 Winter	2	+0%					14.415
S1.004	S19	15 Winter	2	+0%					14.146
S16.000	S20	15 Winter	2	+0%					13.747
S17.000	S21A	15 Winter	2	+0%					13.573
S1.005	S21	15 Winter	2	+0%					13.442
S18.000	S22A	15 Winter	2	+0%					13.338
S1.006	S22	15 Winter	2	+0%					12.999
S1.007	S25	15 Winter	2	+0%					12.689
S19.000	S24	15 Winter	2	+0%					12.344
S1.008	S25	15 Winter	2	+0%					12.305
S1.009	S26	600 Winter	2	+0%	2/360 Winter				12.259
S20.000	S27	15 Winter	2	+0%					17.223
S20.001	S28	15 Winter	2	+0%					17.042
S21.000	S29	15 Winter	2	+0%					16.428
S20.002	S30	15 Winter	2	+0%					15.353
S20.003	S31	15 Winter	2	+0%					15.268
S22.000	S32	15 Winter	2	+0%					14.978
S20.004	S33	15 Winter	2	+0%					14.356
S23.000	S38	15 Winter	2	+0%					13.894
S24.000	S37	15 Winter	2	+0%					14.625
S25.000	S38	15 Winter	2	+0%					14.864
S24.001	S39	15 Winter	2	+0%					14.443
S26.000	S40	15 Winter	2	+0%					14.588
S23.001	S41	15 Winter	2	+0%					13.823
S27.000	S42	15 Winter	2	+0%					14.355
S28.000	S43	15 Winter	2	+0%					14.566
S23.002	S44	15 Winter	2	+0%					13.705
S20.005	S45	15 Winter	2	+0%					13.668
S29.000	S46	15 Winter	2	+0%					14.006
S30.000	S47	15 Winter	2	+0%					14.235
S20.006	S48	15 Winter	2	+0%					13.634
S31.000	S49	15 Winter	2	+0%					16.129
S32.000	S50	15 Winter	2	+0%					16.134
S31.001	S51	15 Winter	2	+0%					15.994
S33.000	S52	15 Winter	2	+0%					15.762
S34.000	S53	15 Winter	2	+0%					15.622
S31.002	S54	15 Winter	2	+0%					15.501
S35.000	S55	15 Winter	2	+0%					14.531
S36.000	S56	15 Winter	2	+0%					14.863
S31.003	S57	15 Winter	2	+0%					14.074
S20.007	S58	15 Winter	2	+0%					13.528
S37.000	S59	15 Winter	2	+0%					14.044
S38.000	S60	15 Winter	2	+0%					13.949
S20.008	S61	15 Winter	2	+0%					13.488
S20.009	S65	15 Winter	2	+0%					13.432
S39.000	S66A	15 Winter	2	+0%					13.476
S20.010	S66	15 Winter	2	+0%					13.246
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>									
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.003	S16	-0.175	0.000	0.36			66.6	OK	
S14.000	S17	-0.120	0.000	0.09			1.6	OK	
S15.000	S18	-0.114	0.000	0.13			2.9	OK	
S1.004	S19	-0.172	0.000	0.38			73.4	OK	
S16.000	S20	-0.125	0.000	0.06			1.6	OK	
S17.000	S21A	-0.103	0.000	0.21			3.5	OK	
S1.005	S21	-0.160	0.000	0.44			78.1	OK	
S18.000	S22A	-0.114	0.000	0.13			3.6	OK	
S1.006	S22	-0.109	0.000	0.72			85.3	OK	
S1.007	S25	-0.148	0.000	0.50			91.9	OK	
S19.000	S24	-0.030	0.000	0.87			11.2	OK	
S1.008	S25	0.000	0.000	1.06			104.6	OK	
S1.009	S26	0.014	0.000	0.12			13.0	SURCHARGED	
S20.000	S27	-0.105	0.000	0.19			3.1	OK	
S20.001	S28	-0.189	0.000	0.06			7.2	OK	
S21.000	S29	-0.130	0.000	0.04			2.3	OK	
S20.002	S30	-0.137	0.000	0.32			9.4	OK	
S20.003	S31	-0.179	0.000	0.09			12.1	OK	
S22.000	S32	-0.134	0.000	0.02			1.1	OK	
S20.004	S33	-0.175	0.000	0.11			13.2	OK	
S23.000	S38	-0.177	0.000	0.10			3.5	OK	
S24.000	S37	-0.081	0.000	0.43			6.7	OK	
S25.000	S38	-0.131	0.000	0.04			1.5	OK	
S24.001	S39	-0.174	0.000	0.12			13.0	OK	
S26.000	S40	-0.110	0.000	0.16			7.9	OK	
S23.001	S41	-0.174	0.000	0.36			23.9	OK	
S27.000	S42	-0.117	0.000	0.11			5.2	OK	
S28.000	S43	-0.124	0.000	0.07			3.5	OK	
S23.002	S44	-0.106	0.000	0.61			36.9	OK	
S20.005	S45	-0.075	0.000	0.89			49.8	OK	
S29.000	S46	-0.131	0.000	0.04			1.6	OK	
S30.000	S47	-0.109	0.000	0.17			7.9	OK	
S20.006	S48	-0.067	0.000	0.95			60.4	OK	
S31.000	S49	-0.103	0.000	0.21			3.2	OK	
S32.000	S50	-0.121	0.000	0.08			1.5	OK	
S31.001	S51	-0.174	0.000	0.11			9.2	OK	
S33.000	S52	-0.122	0.000	0.08			2.2	OK	
S34.000	S53	-0.105	0.000	0.20			2.3	OK	
S31.002	S54	-0.168	0.000	0.14			17.7	OK	
S35.000	S55	-0.135	0.000	0.02			0.9	OK	
S36.000	S56	-0.137	0.000	0.02			0.9	OK	
S31.003	S57	-0.161	0.000	0.17			19.6	OK	
S20.007	S58	-0.070	0.000	0.90			76.4	OK	
S37.000	S59	-0.136	0.000	0.02			0.9	OK	
S38.000	S60	-0.123	0.000	0.08			3.4	OK	
S20.008	S61	-0.065	0.000	1.00			83.7	OK	
S20.009	S65	-0.080	0.000	0.97			83.1	OK	
S39.000	S66A	-0.111	0.000	0.15			3.0	OK	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>								

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<table><tr><th colspan="2"></th><th colspan="2">US/MH</th><th colspan="2">Return Climate</th><th>First (X)</th><th>First (Y)</th><th>First (Z)</th><th>Overflow</th><th>Water Level</th></tr><tr><th>PN</th><th>Name</th><th>Storm</th><th>Period</th><th>Change</th><th>Surcharge</th><th>Flood</th><th>Overflow</th><th>Act.</th><th></th><th>(m)</th></tr><tr><td>S40.000</td><td>S62</td><td>15 Winter</td><td>2</td><td>+0%</td><td></td><td></td><td></td><td></td><td></td><td>13.221</td></tr><tr><td>S20.011</td><td>S63</td><td>15 Winter</td><td>2</td><td>+0%</td><td></td><td></td><td></td><td></td><td></td><td>12.886</td></tr><tr><td>S20.012</td><td>S64</td><td>15 Winter</td><td>2</td><td>+0%</td><td></td><td></td><td></td><td></td><td></td><td>12.526</td></tr><tr><td>S41.000</td><td>S65</td><td>15 Winter</td><td>2</td><td>+0%</td><td></td><td></td><td></td><td></td><td></td><td>13.421</td></tr><tr><td>S42.000</td><td>S66</td><td>15 Winter</td><td>2</td><td>+0%</td><td></td><td></td><td></td><td></td><td></td><td>13.384</td></tr><tr><td>S41.001</td><td>S67</td><td>15 Winter</td><td>2</td><td>+0%</td><td></td><td></td><td></td><td></td><td></td><td>13.052</td></tr><tr><td>S41.002</td><td>S68</td><td>15 Winter</td><td>2</td><td>+0%</td><td></td><td></td><td></td><td></td><td></td><td>12.739</td></tr><tr><td>S1.010</td><td>S69</td><td>600 Winter</td><td>2</td><td>+0%</td><td>2/120 Winter</td><td></td><td></td><td></td><td></td><td>12.258</td></tr></table>												US/MH		Return Climate		First (X)	First (Y)	First (Z)	Overflow	Water Level	PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.		(m)	S40.000	S62	15 Winter	2	+0%						13.221	S20.011	S63	15 Winter	2	+0%						12.886	S20.012	S64	15 Winter	2	+0%						12.526	S41.000	S65	15 Winter	2	+0%						13.421	S42.000	S66	15 Winter	2	+0%						13.384	S41.001	S67	15 Winter	2	+0%						13.052	S41.002	S68	15 Winter	2	+0%						12.739	S1.010	S69	600 Winter	2	+0%	2/120 Winter					12.258
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>								
<u>Simulation Criteria</u>								
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		1			
Number of Online Controls		1	Number of Time/Area Diagrams		0			
Number of Offline Controls		0	Number of Real Time Controls		0			
<u>Synthetic Rainfall Details</u>								
Rainfall Model		FSR	Ratio R		0.350			
Region England and Wales Cv (Summer)		0.750						
M5-60 (mm)		19.000	Cv (Winter)		0.840			
Margin for Flood Risk Warning (mm)		300.0						
Analysis Timestep		2.5 Second Increment (Extended)						
DTS Status		ON						
DVD Status		OFF						
Inertia Status		OFF						
Profile(s)		Summer and Winter						
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440						
Return Period(s) (years)		30						
Climate Change (%)		0						
	US/MH	Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Level
							Act.	(m)
S1.000	S1	15 Winter	30	+0%				16.227
S2.000	S2	15 Winter	30	+0%				16.084
S1.001	S3	15 Winter	30	+0%				15.989
S3.000	S4	15 Winter	30	+0%				16.809
S4.000	S5	15 Winter	30	+0%				16.790
S3.001	S6	15 Winter	30	+0%				16.719
S5.000	S7A	15 Winter	30	+0%				16.358
S6.000	S7B	15 Winter	30	+0%				16.348
S7.000	S7C	15 Winter	30	+0%				16.369
S3.002	S7	15 Winter	30	+0%				16.341
S8.000	S8	15 Winter	30	+0%	30/15 Summer			16.223
S9.000	S9	15 Winter	30	+0%				16.223
S3.003	S10	15 Winter	30	+0%	30/15 Summer			16.215
S10.000	S10A	15 Winter	30	+0%				15.908
S3.004	S11	15 Winter	30	+0%	30/15 Summer			15.785
S11.000	S12	15 Winter	30	+0%				15.515
S1.002	S13	15 Winter	30	+0%				15.429
S12.000	S14	15 Winter	30	+0%				15.366
S13.000	S15	15 Winter	30	+0%				15.144
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Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH

PN	US/MH Name	Surcharged Flooded		Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
S1.000	S1	-0.110	0.000	0.16		3.8	OK	
S2.000	S2	-0.064	0.000	0.61		8.4	OK	
S1.001	S3	-0.111	0.000	0.51		35.1	OK	
S3.000	S4	-0.076	0.000	0.48		7.0	OK	
S4.000	S5	-0.102	0.000	0.22		3.3	OK	
S3.001	S6	-0.113	0.000	0.49		30.7	OK	
S5.000	S7A	-0.047	0.000	0.60		8.5	OK	
S6.000	S7B	-0.081	0.000	0.16		2.4	OK	
S7.000	S7C	-0.104	0.000	0.20		3.3	OK	
S3.002	S7	-0.012	0.000	0.69		41.3	OK	
S8.000	S8	0.084	0.000	0.20		3.0	SURCHARGED	
S9.000	S9	-0.026	0.000	0.19		5.0	OK	
S3.003	S10	0.143	0.000	0.98		61.2	SURCHARGED	
S10.000	S10A	-0.118	0.000	0.10		4.0	OK	
S3.004	S11	0.153	0.000	1.66		68.6	SURCHARGED	
S11.000	S12	-0.071	0.000	0.54		7.2	OK	
S1.002	S13	-0.112	0.000	0.70		108.3	OK	
S12.000	S14	-0.104	0.000	0.20		5.4	OK	
S13.000	S15	-0.060	0.000	0.67		8.8	OK	

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.003	S16	15 Winter	30	+0%					15.048
S14.000	S17	15 Winter	30	+0%					14.302
S15.000	S18	15 Winter	30	+0%					14.430
S1.004	S19	15 Winter	30	+0%					14.212
S16.000	S20	15 Winter	30	+0%					13.822
S17.000	S21A	15 Winter	30	+0%	30/15 Summer				13.826
S1.005	S21	15 Winter	30	+0%	30/15 Summer				13.814
S18.000	S22A	15 Winter	30	+0%	30/15 Winter				13.524
S1.006	S22	15 Winter	30	+0%	30/15 Summer				13.502
S1.007	S25	15 Winter	30	+0%	30/15 Summer				13.045
S19.000	S24	15 Winter	30	+0%	30/15 Summer				12.744
S1.008	S25	720 Winter	30	+0%	30/15 Summer				12.646
S1.009	S26	720 Winter	30	+0%	30/15 Summer				12.645
S20.000	S27	15 Winter	30	+0%					17.241
S20.001	S28	15 Winter	30	+0%					17.061
S21.000	S29	15 Winter	30	+0%					16.437
S20.002	S30	15 Winter	30	+0%					15.401
S20.003	S31	15 Winter	30	+0%					15.291
S22.000	S32	15 Winter	30	+0%					14.983
S20.004	S33	15 Winter	30	+0%					14.380
S23.000	S38	15 Winter	30	+0%	30/15 Summer				14.433
S24.000	S37	15 Winter	30	+0%					14.660
S25.000	S38	15 Winter	30	+0%					14.872
S24.001	S39	15 Winter	30	+0%					14.468
S26.000	S40	15 Winter	30	+0%					14.604
S23.001	S41	15 Winter	30	+0%	30/15 Summer				14.427
S27.000	S42	15 Winter	30	+0%					14.380
S28.000	S43	15 Winter	30	+0%					14.576
S23.002	S44	15 Winter	30	+0%	30/15 Summer				14.360
S20.005	S45	15 Winter	30	+0%	30/15 Summer				14.287
S29.000	S46	15 Winter	30	+0%	30/15 Winter				14.174
S30.000	S47	15 Winter	30	+0%					14.252
S20.006	S48	15 Winter	30	+0%	30/15 Summer				14.169
S31.000	S49	15 Winter	30	+0%					16.148
S32.000	S50	15 Winter	30	+0%					16.145
S31.001	S51	15 Winter	30	+0%					16.018
S33.000	S52	15 Winter	30	+0%					15.773
S34.000	S53	15 Winter	30	+0%					15.641
S31.002	S54	15 Winter	30	+0%					15.530
S35.000	S55	15 Winter	30	+0%					14.536
S36.000	S56	15 Winter	30	+0%					14.868
S31.003	S57	15 Winter	30	+0%					14.105
S20.007	S58	15 Winter	30	+0%	30/15 Summer				13.880
S37.000	S59	15 Winter	30	+0%					14.048
S38.000	S60	15 Winter	30	+0%					13.960
S20.008	S61	15 Winter	30	+0%	30/15 Summer				13.754
S20.009	S65	15 Winter	30	+0%	30/15 Summer				13.602
S39.000	S66A	15 Winter	30	+0%					13.491
S20.010	S66	15 Winter	30	+0%					13.315
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>									
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.003	S16	-0.112	0.000	0.70			128.3	OK	
S14.000	S17	-0.109	0.000	0.17			3.0	OK	
S15.000	S18	-0.099	0.000	0.25			5.6	OK	
S1.004	S19	-0.106	0.000	0.74			142.5	OK	
S16.000	S20	-0.050	0.000	0.12			3.0	OK	
S17.000	S21A	0.150	0.000	0.37			6.2	SURCHARGED	
S1.005	S21	0.212	0.000	0.81			143.0	SURCHARGED	
S18.000	S22A	0.072	0.000	0.24			6.6	SURCHARGED	
S1.006	S22	0.394	0.000	1.31			154.2	SURCHARGED	
S1.007	S25	0.208	0.000	0.90			163.7	SURCHARGED	
S19.000	S24	0.370	0.000	1.43			18.5	SURCHARGED	
S1.008	S25	0.341	0.000	0.21			20.3	SURCHARGED	
S1.009	S26	0.400	0.000	0.19			20.2	SURCHARGED	
S20.000	S27	-0.087	0.000	0.37			5.8	OK	
S20.001	S28	-0.170	0.000	0.13			15.7	OK	
S21.000	S29	-0.121	0.000	0.08			4.3	OK	
S20.002	S30	-0.089	0.000	0.67			19.9	OK	
S20.003	S31	-0.156	0.000	0.20			26.0	OK	
S22.000	S32	-0.129	0.000	0.05			2.2	OK	
S20.004	S33	-0.151	0.000	0.23			27.9	OK	
S23.000	S38	0.362	0.000	0.23			7.8	SURCHARGED	
S24.000	S37	-0.046	0.000	0.82			12.7	OK	
S25.000	S38	-0.123	0.000	0.07			2.8	OK	
S24.001	S39	-0.149	0.000	0.24			27.1	OK	
S26.000	S40	-0.094	0.000	0.30			15.0	OK	
S23.001	S41	0.430	0.000	0.58			38.6	SURCHARGED	
S27.000	S42	-0.092	0.000	0.20			9.8	OK	
S28.000	S43	-0.114	0.000	0.13			6.7	OK	
S23.002	S44	0.549	0.000	1.02			61.8	SURCHARGED	
S20.005	S45	0.544	0.000	1.54			86.1	SURCHARGED	
S29.000	S46	0.037	0.000	0.07			3.0	SURCHARGED	
S30.000	S47	-0.092	0.000	0.31			15.0	OK	
S20.006	S48	0.469	0.000	1.65			105.0	SURCHARGED	
S31.000	S49	-0.084	0.000	0.40			6.0	OK	
S32.000	S50	-0.110	0.000	0.16			2.8	OK	
S31.001	S51	-0.150	0.000	0.24			19.8	OK	
S33.000	S52	-0.111	0.000	0.15			4.2	OK	
S34.000	S53	-0.086	0.000	0.37			4.3	OK	
S31.002	S54	-0.139	0.000	0.31			38.0	OK	
S35.000	S55	-0.130	0.000	0.04			1.7	OK	
S36.000	S56	-0.132	0.000	0.04			1.7	OK	
S31.003	S57	-0.130	0.000	0.37			41.2	OK	
S20.007	S58	0.283	0.000	1.63			139.2	SURCHARGED	
S37.000	S59	-0.132	0.000	0.04			1.7	OK	
S38.000	S60	-0.112	0.000	0.14			6.5	OK	
S20.008	S61	0.201	0.000	1.84			153.8	SURCHARGED	
S20.009	S65	0.090	0.000	1.77			151.7	SURCHARGED	
S39.000	S66A	-0.096	0.000	0.28			5.7	OK	
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		Surcharged		Flooded		Half Drain		Pipe																																																																																																																
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>								
<u>Simulation Criteria</u>								
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		1			
Number of Online Controls		1	Number of Time/Area Diagrams		0			
Number of Offline Controls		0	Number of Real Time Controls		0			
<u>Synthetic Rainfall Details</u>								
Rainfall Model		FSR		Ratio R		0.350		
Region England and Wales		Cv (Summer)		0.750				
M5-60 (mm)		19.000		Cv (Winter)		0.840		
Margin for Flood Risk Warning (mm)		300.0						
Analysis Timestep		2.5 Second		Increment (Extended)				
DTS Status		ON						
DVD Status		OFF						
Inertia Status		OFF						
Profile(s)		Summer and Winter						
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440						
Return Period(s) (years)		100						
Climate Change (%)		40						
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S1	15 Winter	100	+40%	100/15 Winter			
S2.000	S2	15 Winter	100	+40%	100/15 Summer			
S1.001	S3	15 Winter	100	+40%	100/15 Summer			
S3.000	S4	15 Winter	100	+40%	100/15 Summer			
S4.000	S5	15 Winter	100	+40%	100/15 Summer			
S3.001	S6	15 Winter	100	+40%	100/15 Summer			
S5.000	S7A	15 Winter	100	+40%	100/15 Summer			
S6.000	S7B	15 Winter	100	+40%	100/15 Summer			
S7.000	S7C	15 Winter	100	+40%	100/15 Summer			
S3.002	S7	15 Winter	100	+40%	100/15 Summer			
S8.000	S8	15 Winter	100	+40%	100/15 Summer			
S9.000	S9	15 Winter	100	+40%	100/15 Summer			
S3.003	S10	15 Winter	100	+40%	100/15 Summer	100/15 Winter		
S10.000	S10A	15 Winter	100	+40%	100/15 Summer			
S3.004	S11	15 Winter	100	+40%	100/15 Summer			
S11.000	S12	15 Winter	100	+40%	100/15 Summer			
S1.002	S13	15 Winter	100	+40%	100/15 Summer			
S12.000	S14	15 Winter	100	+40%	100/15 Summer			
S13.000	S15	15 Winter	100	+40%	100/15 Summer			
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Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH

PN	US/MH Name	Water Surcharged		Flooded		Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
		Level (m)	Depth (m)	Volume (m³)	Flow / Cap.					
S1.000	S1	16.505	0.168	0.000	0.28				6.9	SURCHARGED
S2.000	S2	16.521	0.373	0.000	1.06				14.5	SURCHARGED
S1.001	S3	16.488	0.388	0.000	0.86				59.3	SURCHARGED
S3.000	S4	17.650	0.765	0.000	0.70				10.1	SURCHARGED
S4.000	S5	17.638	0.746	0.000	0.30				4.5	SURCHARGED
S3.001	S6	17.628	0.796	0.000	0.68				42.9	SURCHARGED
S5.000	S7A	17.521	1.116	0.000	0.80				11.5	FLOOD RISK
S6.000	S7B	17.495	1.066	0.000	0.21				3.2	FLOOD RISK
S7.000	S7C	17.502	1.029	0.000	0.24				3.9	SURCHARGED
S3.002	S7	17.486	1.133	0.000	0.84				50.6	FLOOD RISK
S8.000	S8	17.286	1.147	0.000	0.28				4.1	FLOOD RISK
S9.000	S9	17.286	1.037	0.000	0.27				7.1	FLOOD RISK
S3.003	S10	17.273	1.201	0.197	1.23				77.1	FLOOD
S10.000	S10A	16.683	0.657	0.000	0.17				6.4	SURCHARGED
S3.004	S11	16.671	1.039	0.000	2.07				85.7	FLOOD RISK
S11.000	S12	16.322	0.736	0.000	0.87				11.6	SURCHARGED
S1.002	S13	16.300	0.759	0.000	0.90				138.5	SURCHARGED
S12.000	S14	16.048	0.578	0.000	0.34				9.1	SURCHARGED
S13.000	S15	16.058	0.854	0.000	1.00				13.1	SURCHARGED

PN	US/MH Name	Level Exceeded
S1.000	S1	
S2.000	S2	
S1.001	S3	
S3.000	S4	
S4.000	S5	
S3.001	S6	
S5.000	S7A	
S6.000	S7B	
S7.000	S7C	
S3.002	S7	
S8.000	S8	
S9.000	S9	
S3.003	S10	1
S10.000	S10A	
S3.004	S11	
S11.000	S12	
S1.002	S13	
S12.000	S14	
S13.000	S15	

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.003	S16	15 Winter	100	+40%	100/15 Summer			
S14.000	S17	15 Winter	100	+40%	100/15 Summer			
S15.000	S18	15 Winter	100	+40%	100/15 Summer			
S1.004	S19	15 Winter	100	+40%	100/15 Summer			
S16.000	S20	15 Winter	100	+40%	100/15 Summer			
S17.000	S21A	15 Winter	100	+40%	100/15 Summer			
S1.005	S21	15 Winter	100	+40%	100/15 Summer	100/15 Summer		
S18.000	S22A	15 Winter	100	+40%	100/15 Summer			
S1.006	S22	15 Winter	100	+40%	100/15 Summer	100/15 Summer		
S1.007	S25	15 Winter	100	+40%	100/15 Summer			
S19.000	S24	15 Winter	100	+40%	100/15 Summer			
S1.008	S25	1440 Winter	100	+40%	100/15 Summer			
S1.009	S26	1440 Winter	100	+40%	100/15 Summer			
S20.000	S27	15 Winter	100	+40%				
S20.001	S28	15 Winter	100	+40%				
S21.000	S29	15 Winter	100	+40%				
S20.002	S30	15 Winter	100	+40%	100/15 Summer			
S20.003	S31	15 Winter	100	+40%	100/15 Winter			
S22.000	S32	15 Winter	100	+40%	100/15 Summer			
S20.004	S33	15 Winter	100	+40%	100/15 Summer			
S23.000	S38	15 Winter	100	+40%	100/15 Summer	100/15 Summer		
S24.000	S37	15 Winter	100	+40%	100/15 Summer			
S25.000	S38	15 Winter	100	+40%	100/15 Summer			
S24.001	S39	15 Winter	100	+40%	100/15 Summer			
S26.000	S40	15 Winter	100	+40%	100/15 Summer			
S23.001	S41	15 Winter	100	+40%	100/15 Summer			
S27.000	S42	15 Winter	100	+40%	100/15 Summer			
S28.000	S43	15 Winter	100	+40%	100/15 Summer			
S23.002	S44	15 Winter	100	+40%	100/15 Summer			
S20.005	S45	15 Winter	100	+40%	100/15 Summer			
S29.000	S46	15 Winter	100	+40%	100/15 Summer			
S30.000	S47	15 Winter	100	+40%	100/15 Summer			
S20.006	S48	15 Winter	100	+40%	100/15 Summer			
S31.000	S49	15 Winter	100	+40%				
S32.000	S50	15 Winter	100	+40%				
S31.001	S51	15 Winter	100	+40%				
S33.000	S52	15 Winter	100	+40%				
S34.000	S53	15 Winter	100	+40%				
S31.002	S54	15 Winter	100	+40%				
S35.000	S55	15 Winter	100	+40%	100/15 Winter			
S36.000	S56	15 Winter	100	+40%				
S31.003	S57	15 Winter	100	+40%	100/15 Summer			
S20.007	S58	15 Winter	100	+40%	100/15 Summer			
S37.000	S59	15 Winter	100	+40%	100/15 Summer			
S38.000	S60	15 Winter	100	+40%	100/15 Summer			
S20.008	S61	15 Winter	100	+40%	100/15 Summer			
S20.009	S65	15 Winter	100	+40%	100/15 Summer			
S39.000	S66A	15 Winter	100	+40%	100/15 Winter			
S20.010	S66	15 Winter	100	+40%	100/15 Summer			
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>									
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.003	S16	16.021	0.861	0.000	0.87			159.9	SURCHARGED
S14.000	S17	15.407	0.996	0.000	0.23			4.1	SURCHARGED
S15.000	S18	15.425	0.896	0.000	0.35			7.9	SURCHARGED
S1.004	S19	15.397	1.079	0.000	0.90			173.2	SURCHARGED
S16.000	S20	14.822	0.950	0.000	0.18			4.5	SURCHARGED
S17.000	S21A	14.840	1.164	0.000	0.60			10.0	FLOOD RISK
S1.005	S21	14.803	1.201	1.328	1.00			175.9	FLOOD
S18.000	S22A	14.376	0.924	0.000	0.38			10.4	SURCHARGED
S1.006	S22	14.311	1.203	1.388	1.67			196.8	FLOOD
S1.007	S25	13.677	0.840	0.000	1.13			205.8	FLOOD RISK
S19.000	S24	13.455	1.081	0.000	2.59			33.4	FLOOD RISK
S1.008	S25	13.221	0.916	0.000	0.21			21.2	SURCHARGED
S1.009	S26	13.220	0.975	0.000	0.20			21.1	FLOOD RISK
S20.000	S27	17.268	-0.060	0.000	0.67			10.5	OK
S20.001	S28	17.081	-0.150	0.000	0.24			28.5	OK
S21.000	S29	16.447	-0.111	0.000	0.15			7.8	OK
S20.002	S30	15.557	0.067	0.000	1.21			36.1	SURCHARGED
S20.003	S31	15.527	0.080	0.000	0.36			47.0	SURCHARGED
S22.000	S32	15.476	0.364	0.000	0.08			3.6	SURCHARGED
S20.004	S33	15.469	0.938	0.000	0.33			39.4	SURCHARGED
S23.000	S38	15.455	1.384	4.814	1.31			45.2	FLOOD
S24.000	S37	15.774	1.068	0.000	1.21			18.9	SURCHARGED
S25.000	S38	15.639	0.644	0.000	0.11			4.3	SURCHARGED
S24.001	S39	15.632	1.015	0.000	0.33			36.8	SURCHARGED
S26.000	S40	15.711	1.013	0.000	0.44			22.4	FLOOD RISK
S23.001	S41	15.562	1.565	0.000	1.17			77.8	SURCHARGED
S27.000	S42	15.582	1.110	0.000	0.30			14.8	SURCHARGED
S28.000	S43	15.552	0.862	0.000	0.19			9.8	SURCHARGED
S23.002	S44	15.517	1.706	0.000	1.56			94.4	SURCHARGED
S20.005	S45	15.398	1.655	0.000	2.08			116.1	SURCHARGED
S29.000	S46	15.206	1.069	0.000	0.10			4.2	SURCHARGED
S30.000	S47	15.331	0.987	0.000	0.50			23.7	SURCHARGED
S20.006	S48	15.198	1.497	0.000	2.36			150.1	SURCHARGED
S31.000	S49	16.178	-0.054	0.000	0.72			10.9	OK
S32.000	S50	16.160	-0.095	0.000	0.29			5.2	OK
S31.001	S51	16.048	-0.120	0.000	0.44			35.8	OK
S33.000	S52	15.787	-0.097	0.000	0.27			7.6	OK
S34.000	S53	15.668	-0.059	0.000	0.67			7.8	OK
S31.002	S54	15.565	-0.104	0.000	0.56			68.7	OK
S35.000	S55	14.786	0.120	0.000	0.07			2.9	SURCHARGED
S36.000	S56	14.875	-0.125	0.000	0.06			3.1	OK
S31.003	S57	14.781	0.546	0.000	0.59			66.7	SURCHARGED
S20.007	S58	14.641	1.043	0.000	2.46			209.1	SURCHARGED
S37.000	S59	14.376	0.196	0.000	0.06			2.9	SURCHARGED
S38.000	S60	14.390	0.318	0.000	0.24			10.8	SURCHARGED
S20.008	S61	14.370	0.817	0.000	2.78			233.1	SURCHARGED
S20.009	S65	14.018	0.506	0.000	2.69			231.0	SURCHARGED
S39.000	S66A	13.687	0.100	0.000	0.51			10.3	SURCHARGED
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Date 20/10/2020 File NETWORK 2 V6.MDX	Designed by JS Checked by SL	
XP Solutions Network 2020.1		
<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>		
	US/MH Level PN Name Exceeded	
	S20.007 S58	
	S37.000 S59	
	S38.000 S60	
	S20.008 S61	
	S20.009 S65	
	S39.000 S66A	
	S20.010 S66	
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Search House Charnham Lane Hungerford RG17 0EY				Water Lane, Angmering					
Date 20/10/2020 File NETWORK 2 V6.MDX				Designed by JS Checked by SL					
XP Solutions				Network 2020.1					
<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM NORTH</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	
S40.000	S62	15 Winter	100	+40%					
S20.011	S63	15 Winter	100	+40%	100/15 Summer				
S20.012	S64	1440 Winter	100	+40%	100/15 Summer				
S41.000	S65	15 Winter	100	+40%					
S42.000	S66	15 Winter	100	+40%					
S41.001	S67	1440 Winter	100	+40%	100/960 Winter				
S41.002	S68	1440 Winter	100	+40%	100/120 Winter				
S1.010	S69	1440 Winter	100	+40%	100/15 Summer				
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S40.000	S62	13.312	-0.029	0.000	0.29			8.2	OK
S20.011	S63	13.296	0.199	0.000	1.13			253.7	SURCHARGED
S20.012	S64	13.220	0.480	0.000	0.09			23.7	FLOOD RISK
S41.000	S65	13.472	-0.121	0.000	0.43			31.7	OK
S42.000	S66	13.430	-0.059	0.000	0.67			22.7	OK
S41.001	S67	13.220	0.021	0.000	0.05			2.9	SURCHARGED
S41.002	S68	13.220	0.331	0.000	0.04			2.9	FLOOD RISK
S1.010	S69	13.219	1.044	0.000	0.01			5.8	FLOOD RISK
PN	US/MH Name	Level Exceeded							
S40.000	S62								
S20.011	S63								
S20.012	S64								
S41.000	S65								
S42.000	S66								
S41.001	S67								
S41.002	S68								
S1.010	S69								
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XP Solutions			Network 2020.1			
Area Summary for STORM NORTH						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.004	0.004	0.008
	User	-	100	0.004	0.004	0.012
2.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.006	0.006	0.012
	User	-	100	0.005	0.005	0.017
	User	-	100	0.004	0.004	0.021
	User	-	100	0.006	0.006	0.027
1.001	User	-	100	0.030	0.030	0.030
	User	-	100	0.040	0.040	0.069
3.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.006	0.006	0.010
	User	-	100	0.005	0.005	0.015
4.000	User	-	100	0.008	0.008	0.023
	User	-	100	0.006	0.006	0.006
	User	-	100	0.005	0.005	0.011
3.001	User	-	100	0.023	0.023	0.023
	User	-	100	0.040	0.040	0.063
5.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.005	0.005	0.010
	User	-	100	0.003	0.003	0.013
	User	-	100	0.005	0.005	0.018
	User	-	100	0.005	0.005	0.023
	User	-	100	0.005	0.005	0.028
6.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.003	0.003	0.008
7.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.003	0.003	0.008
	User	-	100	0.002	0.002	0.011
3.002	-	-	100	0.000	0.000	0.000
8.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.005	0.005	0.011
9.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.005	0.005	0.010
	User	-	100	0.005	0.005	0.014
	User	-	100	0.003	0.003	0.018
3.003	User	-	100	0.028	0.028	0.028
	User	-	100	0.009	0.009	0.037
	User	-	100	0.011	0.011	0.048
10.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.007	0.007	0.013
3.004	User	-	100	0.015	0.015	0.015
11.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.005	0.005	0.011
	User	-	100	0.007	0.007	0.018
	User	-	100	0.005	0.005	0.023
1.002	-	-	100	0.000	0.000	0.000
12.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.007	0.007	0.012
	User	-	100	0.005	0.005	0.018
13.000	User	-	100	0.006	0.006	0.006
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Area Summary for STORM NORTH						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
	User	-	100	0.004	0.004	0.010
	User	-	100	0.002	0.002	0.012
	User	-	100	0.006	0.006	0.018
	User	-	100	0.002	0.002	0.020
	User	-	100	0.008	0.008	0.028
1.003	User	-	100	0.020	0.020	0.020
14.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.003	0.003	0.010
15.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.005	0.005	0.011
	User	-	100	0.007	0.007	0.018
1.004	User	-	100	0.019	0.019	0.019
16.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.005	0.005	0.010
17.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.005	0.005	0.013
	User	-	100	0.005	0.005	0.018
	User	-	100	0.004	0.004	0.022
1.005	-	-	100	0.000	0.000	0.000
18.000	User	-	100	0.003	0.003	0.003
	User	-	100	0.002	0.002	0.005
	User	-	100	0.007	0.007	0.012
	User	-	100	0.004	0.004	0.016
	User	-	100	0.005	0.005	0.022
1.006	User	-	100	0.010	0.010	0.010
	User	-	100	0.022	0.022	0.032
1.007	User	-	100	0.017	0.017	0.017
	User	-	100	0.011	0.011	0.028
	User	-	100	0.024	0.024	0.052
19.000	User	-	100	0.042	0.042	0.042
	User	-	100	0.004	0.004	0.046
	User	-	100	0.008	0.008	0.054
	User	-	100	0.005	0.005	0.059
	User	-	100	0.005	0.005	0.064
	User	-	100	0.006	0.006	0.070
1.008	User	-	100	0.024	0.024	0.024
1.009	-	-	100	0.000	0.000	0.000
20.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.007	0.007	0.013
	User	-	100	0.006	0.006	0.019
20.001	User	-	100	0.009	0.009	0.009
	User	-	100	0.019	0.019	0.028
	User	-	100	0.002	0.002	0.030
	User	-	100	0.001	0.001	0.030
21.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.003	0.003	0.008
	User	-	100	0.006	0.006	0.014
20.002	-	-	100	0.000	0.000	0.000
20.003	User	-	100	0.009	0.009	0.009
	User	-	100	0.006	0.006	0.015
	User	-	100	0.004	0.004	0.019
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<u>Area Summary for STORM NORTH</u>						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
22.000	User	-	100	0.007	0.007	0.007
20.004	-	-	100	0.000	0.000	0.000
23.000	User	-	100	0.010	0.010	0.010
	User	-	100	0.011	0.011	0.021
24.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.001	0.001	0.006
	User	-	100	0.028	0.028	0.035
	User	-	100	0.001	0.001	0.036
	User	-	100	0.002	0.002	0.039
	User	-	100	0.002	0.002	0.041
25.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.007	0.007	0.009
24.001	User	-	100	0.005	0.005	0.005
	User	-	100	0.004	0.004	0.009
	User	-	100	0.005	0.005	0.014
	User	-	100	0.001	0.001	0.015
	User	-	100	0.020	0.020	0.035
26.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.005	0.005	0.009
	User	-	100	0.005	0.005	0.013
	User	-	100	0.005	0.005	0.018
	User	-	100	0.005	0.005	0.023
	User	-	100	0.002	0.002	0.025
	User	-	100	0.007	0.007	0.032
	User	-	100	0.004	0.004	0.036
	User	-	100	0.006	0.006	0.042
	User	-	100	0.002	0.002	0.044
	User	-	100	0.004	0.004	0.048
23.001	User	-	100	0.000	0.000	0.000
	User	-	100	0.000	0.000	0.000
27.000	User	-	100	0.013	0.013	0.013
	User	-	100	0.017	0.017	0.030
	User	-	100	0.001	0.001	0.032
28.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.004	0.004	0.008
	User	-	100	0.004	0.004	0.013
	User	-	100	0.004	0.004	0.017
	User	-	100	0.002	0.002	0.019
	User	-	100	0.002	0.002	0.022
23.002	User	-	100	0.045	0.045	0.045
20.005	-	-	100	0.000	0.000	0.000
29.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.004	0.004	0.010
30.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.004	0.004	0.010
	User	-	100	0.005	0.005	0.015
	User	-	100	0.005	0.005	0.021
	User	-	100	0.006	0.006	0.026
	User	-	100	0.004	0.004	0.030
	User	-	100	0.005	0.005	0.036
	User	-	100	0.005	0.005	0.041
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<u>Area Summary for STORM NORTH</u>						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
	User	-	100	0.007	0.007	0.048
20.006	User	-	100	0.023	0.023	0.023
31.000	User	-	100	0.009	0.009	0.009
	User	-	100	0.005	0.005	0.014
	User	-	100	0.005	0.005	0.020
32.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.005	0.005	0.009
31.001	User	-	100	0.020	0.020	0.020
	User	-	100	0.006	0.006	0.026
	User	-	100	0.008	0.008	0.033
33.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.006	0.006	0.011
	User	-	100	0.001	0.001	0.012
	User	-	100	0.002	0.002	0.014
34.000	User	-	100	0.003	0.003	0.003
	User	-	100	0.006	0.006	0.008
	User	-	100	0.006	0.006	0.014
31.002	User	-	100	0.030	0.030	0.030
35.000	User	-	100	0.006	0.006	0.006
36.000	User	-	100	0.006	0.006	0.006
31.003	-	-	100	0.000	0.000	0.000
20.007	-	-	100	0.000	0.000	0.000
37.000	User	-	100	0.006	0.006	0.006
38.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.004	0.004	0.008
	User	-	100	0.004	0.004	0.013
	User	-	100	0.008	0.008	0.021
20.008	User	-	100	0.040	0.040	0.040
20.009	-	-	100	0.000	0.000	0.000
39.000	User	-	100	0.009	0.009	0.009
	User	-	100	0.006	0.006	0.015
	User	-	100	0.002	0.002	0.016
	User	-	100	0.002	0.002	0.018
20.010	-	-	100	0.000	0.000	0.000
40.000	User	-	100	0.003	0.003	0.003
	User	-	100	0.006	0.006	0.009
	User	-	100	0.005	0.005	0.015
20.011	User	-	100	0.030	0.030	0.030
20.012	User	-	100	0.123	0.123	0.123
41.000	User	-	100	0.033	0.033	0.033
	User	-	100	0.006	0.006	0.039
	User	-	100	0.005	0.005	0.045
	User	-	100	0.005	0.005	0.050
	User	-	100	0.007	0.007	0.057
42.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.004	0.004	0.009
	User	-	100	0.005	0.005	0.014
	User	-	100	0.005	0.005	0.019
	User	-	100	0.021	0.021	0.041
41.001	-	-	100	0.000	0.000	0.000
41.002	-	-	100	0.000	0.000	0.000
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XP Solutions		Network 2020.1																													
Area Summary for STORM NORTH <table><thead><tr><th>Pipe Number</th><th>PIMP Type</th><th>PIMP Name</th><th>PIMP (%)</th><th>Gross Area (ha)</th><th>Imp. Area (ha)</th><th>Pipe Total (ha)</th></tr></thead><tbody><tr><td>1.010</td><td>-</td><td>-</td><td>100</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td></td><td></td><td></td><td></td><td>Total</td><td>Total</td><td>Total</td></tr><tr><td></td><td></td><td></td><td></td><td>1.624</td><td>1.624</td><td>1.624</td></tr></tbody></table>				Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)	1.010	-	-	100	0.000	0.000	0.000					Total	Total	Total					1.624	1.624	1.624
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)																									
1.010	-	-	100	0.000	0.000	0.000																									
				Total	Total	Total																									
				1.624	1.624	1.624																									
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XP Solutions Network 2020.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for STORM SOUTH

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	5	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	50	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)	500

Designed with Level Soffits

Network Design Table for STORM SOUTH

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	8.350	0.083	100.9	0.023	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	45.674	0.270	169.0	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	4.766	0.130	36.7	0.012	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	25.430	0.209	121.7	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit	
S3.000	3.700	0.037	100.0	0.016	5.00	0.0	0.600	o	100	Pipe/Conduit	
S3.001	24.713	0.190	130.0	0.025	0.00	0.0	0.600	o	150	Pipe/Conduit	
S3.002	6.115	0.051	119.9	0.013	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	38.916	0.391	99.5	0.036	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)
S1.000	50.00	5.14	17.244	0.023	0.0	0.0	0.0	1.00	17.7	3.1
S1.001	50.00	5.90	17.087	0.051	0.0	0.0	0.0	1.00	39.9	6.9
S2.000	50.00	5.05	17.022	0.012	0.0	0.0	0.0	1.67	29.5	1.6
S1.002	50.00	6.26	16.816	0.091	0.0	0.0	0.0	1.18	47.1	12.3
S3.000	50.00	5.08	17.011	0.016	0.0	0.0	0.0	0.77	6.0	2.2
S3.001	50.00	5.55	16.924	0.041	0.0	0.0	0.0	0.88	15.5	5.6
S3.002	50.00	5.66	16.734	0.054	0.0	0.0	0.0	0.92	16.2	7.3
S1.003	50.00	6.67	16.532	0.181	0.0	0.0	0.0	1.58	111.4	24.5

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<u>Network Design Table for STORM SOUTH</u>												
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
S4.000	4.738	0.239	19.8	0.094	5.00	0.0	0.600	o	225	Pipe/Conduit		
S1.004	26.259	0.259	101.4	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
S5.000	4.699	0.146	32.2	0.014	5.00	0.0	0.600	o	150	Pipe/Conduit		
S1.005	21.319	0.088	241.0	0.047	0.00	0.0	0.600	o	300	Pipe/Conduit		
S6.000	4.300	0.211	20.4	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit		
S1.006	18.914	0.078	241.0	0.003	0.00	0.0	0.600	o	300	Pipe/Conduit		
S1.007	5.536	0.023	241.0	0.032	0.00	0.0	0.600	o	300	Pipe/Conduit		
S1.008	5.500	0.023	241.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
S7.000	4.326	0.549	7.9	0.015	5.00	0.0	0.600	o	150	Pipe/Conduit		
S1.009	29.749	0.123	241.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
S8.000	5.606	0.603	9.3	0.027	5.00	0.0	0.600	o	150	Pipe/Conduit		
S9.000	13.450	0.090	150.0	0.076	5.00	0.0	0.600	o	150	Pipe/Conduit		
<u>Network Results Table</u>												
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)		
S4.000	50.00	5.03	16.380	0.094	0.0	0.0	0.0	2.95	117.4	12.8		
S1.004	50.00	6.95	16.141	0.275	0.0	0.0	0.0	1.56	110.4	37.3		
S5.000	50.00	5.04	16.179	0.014	0.0	0.0	0.0	1.78	31.5	1.9		
S1.005	50.00	7.30	15.882	0.337	0.0	0.0	0.0	1.01	71.3	45.6		
S6.000	50.00	5.03	16.155	0.018	0.0	0.0	0.0	2.24	39.6	2.5		
S1.006	50.00	7.61	15.794	0.359	0.0	0.0	0.0	1.01	71.3	48.6		
S1.007	50.00	7.70	15.715	0.391	0.0	0.0	0.0	1.01	71.3	52.9		
S1.008	50.00	7.80	15.693	0.391	0.0	0.0	0.0	1.01	71.3	52.9		
S7.000	50.00	5.02	16.369	0.015	0.0	0.0	0.0	3.61	63.8	2.0		
S1.009	50.00	8.29	15.670	0.406	0.0	0.0	0.0	1.01	71.3	54.9		
S8.000	50.00	5.03	16.300	0.027	0.0	0.0	0.0	3.32	58.7	3.7		
S9.000	50.00	5.27	16.014	0.076	0.0	0.0	0.0	0.82	14.5	10.3		
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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
S10.000	8.703	0.066	131.9	0.032	5.00	0.0	0.600	o	150	Pipe/Conduit	
S9.001	23.388	0.160	146.2	0.056	0.00	0.0	0.600	o	225	Pipe/Conduit	
S11.000	6.668	0.489	13.6	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
S9.002	7.320	0.067	109.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.010	28.649	0.119	241.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.011	19.203	0.080	241.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.012	7.680	0.268	28.7	0.067	0.00	0.0	0.600	o	375	Pipe/Conduit	
S12.000	7.073	0.071	99.6	0.026	5.00	0.0	0.600	o	150	Pipe/Conduit	
S13.000	5.650	0.056	100.9	0.018	5.00	0.0	0.600	o	100	Pipe/Conduit	
S13.001	39.916	0.396	100.8	0.062	0.00	0.0	0.600	o	225	Pipe/Conduit	
S13.002	9.140	0.190	48.1	0.049	0.00	0.0	0.600	o	225	Pipe/Conduit	
S12.001	28.349	0.242	117.1	0.076	0.00	0.0	0.600	o	300	Pipe/Conduit	
S14.000	5.233	0.143	36.6	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
S14.001	14.990	0.149	100.9	0.015	0.00	0.0	0.600	o	150	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)	
S10.000	50.00	5.17	15.990	0.032	0.0	0.0	0.0	0.87	15.4	4.3	
S9.001	50.00	5.64	15.849	0.163	0.0	0.0	0.0	1.08	42.9	22.1	
S11.000	50.00	5.04	16.253	0.008	0.0	0.0	0.0	2.74	48.5	1.1	
S9.002	50.00	5.73	15.689	0.172	0.0	0.0	0.0	1.25	49.7	23.2	
S1.010	50.00	8.70	15.471	0.604	0.0	0.0	0.0	1.16	128.4	81.8	
S1.011	50.00	8.97	15.352	0.604	0.0	0.0	0.0	1.16	128.4	81.8	
S1.012	50.00	9.01	15.273	0.672	0.0	0.0	0.0	3.40	375.1	90.9	
S12.000	50.00	5.12	16.421	0.026	0.0	0.0	0.0	1.01	17.8	3.6	
S13.000	50.00	5.12	16.992	0.018	0.0	0.0	0.0	0.77	6.0	2.4	
S13.001	50.00	5.63	16.861	0.080	0.0	0.0	0.0	1.30	51.8	10.9	
S13.002	50.00	5.71	16.465	0.129	0.0	0.0	0.0	1.89	75.2	17.5	
S12.001	50.00	6.04	16.200	0.232	0.0	0.0	0.0	1.45	102.6	31.4	
S14.000	50.00	5.05	16.400	0.008	0.0	0.0	0.0	1.67	29.5	1.1	
S14.001	50.00	5.30	16.257	0.023	0.0	0.0	0.0	1.00	17.7	3.1	
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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
S12.002	10.370	0.043	241.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
S15.000	7.746	0.573	13.5	0.062	5.00	0.0	0.600	o	150	Pipe/Conduit		
S16.000	5.957	0.427	14.0	0.021	5.00	0.0	0.600	o	150	Pipe/Conduit		
S12.003	26.418	0.109	241.9	0.029	0.00	0.0	0.600	o	300	Pipe/Conduit		
S17.000	6.074	0.061	99.6	0.004	5.00	0.0	0.600	o	150	Pipe/Conduit		
S18.000	6.074	0.065	93.4	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit		
S12.004	17.263	0.071	241.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
S19.000	6.164	0.061	101.0	0.021	5.00	0.0	0.600	o	150	Pipe/Conduit		
S12.005	11.191	0.046	243.3	0.025	0.00	0.0	0.600	o	375	Pipe/Conduit		
S20.000	6.510	0.113	57.6	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit		
S12.006	11.080	0.102	108.6	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit		
<u>Network Results Table</u>												
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)		
S12.002	50.00	6.21	15.958	0.255	0.0	0.0	0.0	1.01	71.1	34.5		
S15.000	50.00	5.05	16.638	0.062	0.0	0.0	0.0	2.75	48.7	8.4		
S16.000	50.00	5.04	16.492	0.021	0.0	0.0	0.0	2.71	47.9	2.9		
S12.003	50.00	6.65	15.915	0.368	0.0	0.0	0.0	1.01	71.1	49.8		
S17.000	50.00	5.10	16.017	0.004	0.0	0.0	0.0	1.01	17.8	0.5		
S18.000	50.00	5.10	16.021	0.008	0.0	0.0	0.0	1.04	18.4	1.1		
S12.004	50.00	6.94	15.806	0.379	0.0	0.0	0.0	1.01	71.1	51.4		
S19.000	50.00	5.10	15.946	0.021	0.0	0.0	0.0	1.00	17.7	2.8		
S12.005	50.00	7.10	15.659	0.425	0.0	0.0	0.0	1.16	127.8	57.5		
S20.000	50.00	5.08	15.951	0.018	0.0	0.0	0.0	1.33	23.5	2.4		
S12.006	50.00	7.20	15.613	0.442	0.0	0.0	0.0	1.74	192.0	59.9		
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<u>Network Design Table for STORM SOUTH</u>											
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
S21.000	13.783	0.336	41.0	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S12.007	20.387	0.068	300.0	0.085	0.00	0.0	0.600	o	375	Pipe/Conduit	
S22.000	7.697	0.232	33.2	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
S23.000	4.590	0.282	16.3	0.029	5.00	0.0	0.600	o	150	Pipe/Conduit	
S12.008	19.583	0.065	300.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S24.000	4.516	0.197	22.9	0.026	5.00	0.0	0.600	o	150	Pipe/Conduit	
S25.000	5.645	0.297	19.0	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit	
S12.009	17.038	0.057	300.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S26.000	7.761	0.154	50.4	0.016	5.00	0.0	0.600	o	150	Pipe/Conduit	
S12.010	5.768	0.036	160.2	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S27.000	4.003	0.090	44.5	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
<u>Network Results Table</u>											
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)	
S21.000	50.00	5.15	16.072	0.006	0.0	0.0	0.0	1.58	27.8	0.7	
S12.007	50.00	7.53	15.511	0.533	0.0	0.0	0.0	1.04	115.0	72.2	
S22.000	50.00	5.07	15.900	0.008	0.0	0.0	0.0	1.75	31.0	1.0	
S23.000	50.00	5.03	15.950	0.029	0.0	0.0	0.0	2.51	44.3	3.9	
S12.008	50.00	7.84	15.443	0.570	0.0	0.0	0.0	1.04	115.0	77.1	
S24.000	50.00	5.04	15.800	0.026	0.0	0.0	0.0	2.11	37.3	3.5	
S25.000	50.00	5.04	15.900	0.018	0.0	0.0	0.0	2.32	41.0	2.5	
S12.009	50.00	8.12	15.378	0.614	0.0	0.0	0.0	1.04	115.0	83.1	
S26.000	50.00	5.09	15.700	0.016	0.0	0.0	0.0	1.42	25.1	2.2	
S12.010	50.00	8.18	15.321	0.630	0.0	0.0	0.0	1.43	157.8	85.3	
S27.000	50.00	5.04	15.600	0.008	0.0	0.0	0.0	1.51	26.7	1.1	
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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																																																																																																																																																																																								
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S1.013	3.221	0.013	250.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit																																																																																																																																																																																									
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S12.015	50.00	9.53	15.034	0.769	0.0	0.0	0.0	1.04	115.0	104.1																																																																																																																																																																																									
S1.013	50.00	9.57	14.930	1.440	0.0	0.0	0.0	1.28	203.8	195.1																																																																																																																																																																																									
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Manhole Schedules for STORM SOUTH

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	18.447	1.203	Open Manhole	600	S1.000	17.244	150				
S2	18.705	1.619	Open Manhole	1200	S1.001	17.087	225	S1.000	17.162	150	
S3	18.430	1.408	Open Manhole	600	S2.000	17.022	150				
S4	18.287	1.470	Open Manhole	1200	S1.002	16.816	225	S1.001	16.816	225	
								S2.000	16.892	150	1
S5	18.362	1.351	Open Manhole	600	S3.000	17.011	100				
S6	18.401	1.477	Open Manhole	1200	S3.001	16.924	150	S3.000	16.974	100	
S7	18.192	1.458	Open Manhole	1200	S3.002	16.734	150	S3.001	16.734	150	
S8	18.032	1.500	Open Manhole	1200	S1.003	16.532	300	S1.002	16.607	225	
								S3.002	16.683	150	
S9	17.805	1.425	Open Manhole	600	S4.000	16.380	225				
S10	17.642	1.501	Open Manhole	1200	S1.004	16.141	300	S1.003	16.141	300	
								S4.000	16.141	225	
S11	17.529	1.350	Open Manhole	600	S5.000	16.179	150				
S12	17.383	1.500	Open Manhole	1200	S1.005	15.882	300	S1.004	15.882	300	
								S5.000	16.033	150	1
S13	17.505	1.350	Open Manhole	600	S6.000	16.155	150				
S14	17.305	1.511	Open Manhole	1200	S1.006	15.794	300	S1.005	15.794	300	
								S6.000	15.944	150	
S15	17.501	1.786	Open Manhole	1200	S1.007	15.715	300	S1.006	15.715	300	
S16	17.554	1.861	Open Manhole	1200	S1.008	15.693	300	S1.007	15.693	300	
S17	17.719	1.350	Open Manhole	600	S7.000	16.369	150				
S18	17.614	1.944	Open Manhole	1200	S1.009	15.670	300	S1.008	15.670	300	
								S7.000	15.820	150	
S19	17.711	1.411	Open Manhole	600	S8.000	16.300	150				
S20	17.364	1.350	Open Manhole	600	S9.000	16.014	150				
S21	17.340	1.350	Open Manhole	600	S10.000	15.990	150				
S22	17.316	1.467	Open Manhole	1200	S9.001	15.849	225	S9.000	15.924	150	
								S10.000	15.924	150	
S23	17.603	1.350	Open Manhole	600	S11.000	16.253	150				
S24	17.560	1.871	Open Manhole	1200	S9.002	15.689	225	S9.001	15.689	225	
								S11.000	15.764	150	
S25	17.636	2.164	Open Manhole	1350	S1.010	15.471	375	S1.009	15.546	300	
								S8.000	15.697	150	1
								S9.002	15.622	225	1
S26	17.090	1.737	Open Manhole	1350	S1.011	15.352	375	S1.010	15.352	375	
S27	17.001	1.729	Open Manhole	1350	S1.012	15.273	375	S1.011	15.273	375	
S28	17.788	1.367	Open Manhole	600	S12.000	16.421	150				

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<u>Manhole Schedules for STORM SOUTH</u>										
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)
S29	18.216	1.224	Open Manhole	600	S13.000	16.992	100			
S30	18.326	1.465	Open Manhole	1200	S13.001	16.861	225	S13.000	16.936	
S31	17.911	1.446	Open Manhole	1200	S13.002	16.465	225	S13.001	16.465	
S32	17.700	1.500	Open Manhole	1200	S12.001	16.200	300	S12.000	16.350	
								S13.002	16.275	
S33	17.750	1.350	Open Manhole	600	S14.000	16.400	150			
S34	17.607	1.350	Open Manhole	1200	S14.001	16.257	150	S14.000	16.257	
S35	17.843	1.885	Open Manhole	1200	S12.002	15.958	300	S12.001	15.958	
								S14.001	16.108	
S36	17.989	1.351	Open Manhole	1200	S15.000	16.638	150			
S37	17.890	1.398	Open Manhole	600	S16.000	16.492	150			
S38	17.761	1.846	Open Manhole	1200	S12.003	15.915	300	S12.002	15.915	
								S15.000	16.065	
								S16.000	16.065	
S39	17.701	1.684	Open Manhole	600	S17.000	16.017	150			
S40	17.525	1.504	Open Manhole	600	S18.000	16.021	150			
S41	17.505	1.699	Open Manhole	1200	S12.004	15.806	300	S12.003	15.806	
								S17.000	15.956	
								S18.000	15.956	
S42	17.386	1.440	Open Manhole	600	S19.000	15.946	150			
S43	17.323	1.664	Open Manhole	1350	S12.005	15.659	375	S12.004	15.734	
								S19.000	15.885	
S44	17.301	1.350	Open Manhole	600	S20.000	15.951	150			
S45	17.211	1.598	Open Manhole	1350	S12.006	15.613	375	S12.005	15.613	
								S20.000	15.838	
S46	17.422	1.350	Open Manhole	600	S21.000	16.072	150			
S47	17.086	1.575	Open Manhole	1350	S12.007	15.511	375	S12.006	15.511	
								S21.000	15.736	
S48	17.305	1.405	Open Manhole	600	S22.000	15.900	150			
S49	17.321	1.371	Open Manhole	600	S23.000	15.950	150			
S50	17.213	1.770	Open Manhole	1350	S12.008	15.443	375	S12.007	15.443	
								S22.000	15.668	
								S23.000	15.668	
S51	17.209	1.409	Open Manhole	600	S24.000	15.800	150			
S52	17.236	1.336	Open Manhole	600	S25.000	15.900	150			
S53	17.092	1.714	Open Manhole	1350	S12.009	15.378	375	S12.008	15.378	
								S24.000	15.603	
								S25.000	15.603	
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Manhole Schedules for STORM SOUTH

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S54	17.030	1.330	Open Manhole	600	S26.000	15.700	150				
S55	16.932	1.611	Open Manhole	1350	S12.010	15.321	375	S12.009	15.321	375	
								S26.000	15.546	150	
S56	16.988	1.388	Open Manhole	600	S27.000	15.600	150				
S57	16.860	1.575	Open Manhole	1350	S12.011	15.285	375	S12.010	15.285	375	
								S27.000	15.510	150	
S58	16.645	1.431	Open Manhole	1350	S12.012	15.213	375	S12.011	15.213	375	
S59	17.115	1.350	Open Manhole	1200	S28.000	15.765	150				
S60	16.871	1.731	Open Manhole	1350	S12.013	15.141	375	S12.012	15.141	375	
								S28.000	15.366	150	
S61	16.964	1.881	Open Manhole	1350	S12.014	15.083	375	S12.013	15.083	375	
S62	16.976	1.942	Open Manhole	1350	S12.015	15.034	375	S12.014	15.034	375	
S63	16.997	2.068	Open Manhole	1350	S1.013	14.930	450	S1.012	15.005	375	
								S12.015	15.005	375	
S	17.005	2.088	Open Manhole	0		OUTFALL		S1.013	14.917	450	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	507600.828	104591.424	507600.828	104591.424	Required	
S2	507609.104	104590.317	507609.104	104590.317	Required	
S3	507600.289	104547.015	507600.289	104547.015	Required	
S4	507604.546	104544.871	507604.546	104544.871	Required	
S5	507574.099	104525.258	507574.099	104525.258	Required	
S6	507573.844	104521.567	507573.844	104521.567	Required	
S7	507598.499	104519.863	507598.499	104519.863	Required	

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<u>Manhole Schedules for STORM SOUTH</u>						
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S8	507604.600	104519.441	507604.600	104519.441	Required	
S9	507599.956	104480.858	507599.956	104480.858	Required	
S10	507604.682	104480.526	507604.682	104480.526	Required	
S11	507603.357	104453.503	507603.357	104453.503	Required	
S12	507607.955	104454.471	507607.955	104454.471	Required	
S13	507608.142	104432.723	507608.142	104432.723	Required	
S14	507612.350	104433.610	507612.350	104433.610	Required	
S15	507616.249	104415.101	507616.249	104415.101	Required	
S16	507614.301	104409.919	507614.301	104409.919	Required	
S17	507609.484	104410.300	507609.484	104410.300	Required	
S18	507610.376	104406.067	507610.376	104406.067	Required	
S19	507581.516	104403.042	507581.516	104403.042	Required	
S20	507554.637	104428.599	507554.637	104428.599	Required	
S21	507550.757	104411.354	507550.757	104411.354	Required	
S22	507558.318	104415.662	507558.318	104415.662	Required	
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<u>Manhole Schedules for STORM SOUTH</u>						
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S23	507569.874	104394.475	507569.874	104394.475	Required	
S24	507574.752	104399.021	507574.752	104399.021	Required	
S25	507581.902	104397.450	507581.902	104397.450	Required	
S26	507579.084	104368.940	507579.084	104368.940	Required	
S27	507593.568	104356.332	507593.568	104356.332	Required	
S28	507502.827	104517.647	507502.827	104517.647	Required	
S29	507558.206	104528.871	507558.206	104528.871	Required	
S30	507558.639	104523.238	507558.639	104523.238	Required	
S31	507518.841	104520.178	507518.841	104520.178	Required	
S32	507509.813	104518.751	507509.813	104518.751	Required	
S33	507498.786	104499.168	507498.786	104499.168	Required	
S34	507499.603	104493.999	507499.603	104493.999	Required	
S35	507514.237	104490.750	507514.237	104490.750	Required	
S36	507521.618	104479.484	507521.618	104479.484	Required	
S37	507508.046	104481.347	507508.046	104481.347	Required	
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<u>Manhole Schedules for STORM SOUTH</u>						
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S38	507513.924	104480.384	507513.924	104480.384	Required	
S39	507515.646	104455.318	507515.646	104455.318	Required	
S40	507503.665	104453.308	507503.665	104453.308	Required	
S41	507509.656	104454.313	507509.656	104454.313	Required	
S42	507506.348	104437.336	507506.348	104437.336	Required	
S43	507512.512	104437.288	507512.512	104437.288	Required	
S44	507506.067	104425.808	507506.067	104425.808	Required	
S45	507512.571	104426.097	507512.571	104426.097	Required	
S46	507524.500	104427.722	507524.500	104427.722	Required	
S47	507517.200	104416.031	507517.200	104416.031	Required	
S48	507520.776	104401.014	507520.776	104401.014	Required	
S49	507510.606	104396.276	507510.606	104396.276	Required	
S50	507515.165	104395.746	507515.165	104395.746	Required	
S51	507508.389	104376.132	507508.389	104376.132	Required	
S52	507518.454	104377.314	507518.454	104377.314	Required	
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Manhole Schedules for STORM SOUTH <table><thead><tr><th>MH Name</th><th>Manhole Easting (m)</th><th>Manhole Northing (m)</th><th>Intersection Easting (m)</th><th>Intersection Northing (m)</th><th>Manhole Access</th><th>Layout (North)</th></tr></thead><tbody><tr><td>S53</td><td>507512.902</td><td>104376.294</td><td>507512.902</td><td>104376.294</td><td>Required</td><td></td></tr><tr><td>S54</td><td>507508.995</td><td>104362.719</td><td>507508.995</td><td>104362.719</td><td>Required</td><td></td></tr><tr><td>S55</td><td>507516.081</td><td>104359.555</td><td>507516.081</td><td>104359.555</td><td>Required</td><td></td></tr><tr><td>S56</td><td>507521.979</td><td>104358.487</td><td>507521.979</td><td>104358.487</td><td>Required</td><td></td></tr><tr><td>S57</td><td>507519.788</td><td>104355.136</td><td>507519.788</td><td>104355.136</td><td>Required</td><td></td></tr><tr><td>S58</td><td>507537.777</td><td>104343.378</td><td>507537.777</td><td>104343.378</td><td>Required</td><td></td></tr><tr><td>S59</td><td>507559.503</td><td>104354.247</td><td>507559.503</td><td>104354.247</td><td>Required</td><td></td></tr><tr><td>S60</td><td>507559.588</td><td>104343.552</td><td>507559.588</td><td>104343.552</td><td>Required</td><td></td></tr><tr><td>S61</td><td>507576.803</td><td>104343.689</td><td>507576.803</td><td>104343.689</td><td>Required</td><td></td></tr><tr><td>S62</td><td>507591.411</td><td>104345.507</td><td>507591.411</td><td>104345.507</td><td>Required</td><td></td></tr><tr><td>S63</td><td>507598.585</td><td>104350.517</td><td>507598.585</td><td>104350.517</td><td>Required</td><td></td></tr><tr><td>S</td><td>507600.120</td><td>104347.686</td><td></td><td></td><td>No Entry</td><td></td></tr></tbody></table>							MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)	S53	507512.902	104376.294	507512.902	104376.294	Required		S54	507508.995	104362.719	507508.995	104362.719	Required		S55	507516.081	104359.555	507516.081	104359.555	Required		S56	507521.979	104358.487	507521.979	104358.487	Required		S57	507519.788	104355.136	507519.788	104355.136	Required		S58	507537.777	104343.378	507537.777	104343.378	Required		S59	507559.503	104354.247	507559.503	104354.247	Required		S60	507559.588	104343.552	507559.588	104343.552	Required		S61	507576.803	104343.689	507576.803	104343.689	Required		S62	507591.411	104345.507	507591.411	104345.507	Required		S63	507598.585	104350.517	507598.585	104350.517	Required		S	507600.120	104347.686			No Entry	
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)																																																																																											
S53	507512.902	104376.294	507512.902	104376.294	Required																																																																																												
S54	507508.995	104362.719	507508.995	104362.719	Required																																																																																												
S55	507516.081	104359.555	507516.081	104359.555	Required																																																																																												
S56	507521.979	104358.487	507521.979	104358.487	Required																																																																																												
S57	507519.788	104355.136	507519.788	104355.136	Required																																																																																												
S58	507537.777	104343.378	507537.777	104343.378	Required																																																																																												
S59	507559.503	104354.247	507559.503	104354.247	Required																																																																																												
S60	507559.588	104343.552	507559.588	104343.552	Required																																																																																												
S61	507576.803	104343.689	507576.803	104343.689	Required																																																																																												
S62	507591.411	104345.507	507591.411	104345.507	Required																																																																																												
S63	507598.585	104350.517	507598.585	104350.517	Required																																																																																												
S	507600.120	104347.686			No Entry																																																																																												
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Storage Structures for STORM SOUTH

Infiltration Basin Manhole: S63, DS/PN: S1.013

Invert Level (m) 15.000 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.69480 Porosity 1.00
 Infiltration Coefficient Side (m/hr) 0.69480

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	316.0	0.700	554.6	1.400	935.2	2.001	0.0
0.100	347.1	0.800	592.7	1.500	999.5	2.200	0.0
0.200	379.2	0.900	644.7	1.600	1065.8	2.300	0.0
0.300	412.3	1.000	698.7	1.700	1134.1	2.400	0.0
0.400	446.4	1.100	754.7	1.800	1204.5	2.500	0.0
0.500	481.5	1.200	812.8	1.900	1277.0		
0.600	517.6	1.300	873.0	2.000	1351.9		

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XP Solutions				Network 2020.1					
<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>									
<u>Simulation Criteria</u>									
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		1			
Number of Online Controls		1		Number of Time/Area Diagrams		0			
Number of Offline Controls		0		Number of Real Time Controls		0			
<u>Synthetic Rainfall Details</u>									
Rainfall Model		FSR		Ratio R		0.350			
Region England and Wales Cv (Summer)		0.750							
M5-60 (mm)		19.000		Cv (Winter)		0.840			
Margin for Flood Risk Warning (mm)						300.0			
Analysis Timestep		2.5		Second Increment (Extended)					
DTS Status						ON			
DVD Status						OFF			
Inertia Status						OFF			
Profile(s)						Summer and Winter			
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080							
Return Period(s) (years)						2			
Climate Change (%)						0			
									Water
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)
S1.000	S1	15 Winter	2	+0%					17.294
S1.001	S2	15 Winter	2	+0%					17.155
S2.000	S3	15 Winter	2	+0%					17.051
S1.002	S4	15 Winter	2	+0%					16.901
S3.000	S5	15 Winter	2	+0%					17.062
S3.001	S6	15 Winter	2	+0%					16.992
S3.002	S7	15 Winter	2	+0%					16.816
S1.003	S8	15 Winter	2	+0%					16.634
S4.000	S9	15 Winter	2	+0%					16.452
S1.004	S10	15 Winter	2	+0%					16.274
S5.000	S11	15 Winter	2	+0%					16.210
S1.005	S12	15 Winter	2	+0%					16.091
S6.000	S13	15 Winter	2	+0%					16.187
S1.006	S14	15 Winter	2	+0%					16.049
S1.007	S15	15 Winter	2	+0%					16.004
S1.008	S16	15 Winter	2	+0%					15.941
S7.000	S17	15 Winter	2	+0%					16.391
S1.009	S18	15 Winter	2	+0%					15.870
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Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH

PN	US/MH Name	Surcharged Flooded		Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
S1.000	S1	-0.100	0.000	0.24		3.7	OK	
S1.001	S2	-0.157	0.000	0.20		7.4	OK	
S2.000	S3	-0.121	0.000	0.08		1.9	OK	
S1.002	S4	-0.141	0.000	0.30		13.1	OK	
S3.000	S5	-0.049	0.000	0.51		2.6	OK	
S3.001	S6	-0.082	0.000	0.41		6.1	OK	
S3.002	S7	-0.068	0.000	0.58		7.9	OK	
S1.003	S8	-0.199	0.000	0.25		25.4	OK	
S4.000	S9	-0.153	0.000	0.22		15.4	OK	
S1.004	S10	-0.167	0.000	0.40		39.9	OK	
S5.000	S11	-0.119	0.000	0.10		2.3	OK	
S1.005	S12	-0.091	0.000	0.75		47.2	OK	
S6.000	S13	-0.118	0.000	0.10		3.0	OK	
S1.006	S14	-0.045	0.000	0.77		47.5	OK	
S1.007	S15	-0.012	0.000	1.00		48.6	OK	
S1.008	S16	-0.052	0.000	1.00		48.5	OK	
S7.000	S17	-0.128	0.000	0.05		2.4	OK	
S1.009	S18	-0.100	0.000	0.77		50.0	OK	

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>									
	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level
									(m)
S8.000	S19	15 Winter	2	+0%					16.331
S9.000	S20	15 Winter	2	+0%					16.130
S10.000	S21	15 Winter	2	+0%					16.055
S9.001	S22	15 Winter	2	+0%					15.981
S11.000	S23	15 Winter	2	+0%					16.271
S9.002	S24	15 Winter	2	+0%					15.831
S1.010	S25	15 Winter	2	+0%					15.700
S1.011	S26	15 Winter	2	+0%					15.587
S1.012	S27	15 Winter	2	+0%					15.440
S12.000	S28	15 Winter	2	+0%					16.475
S13.000	S29	15 Winter	2	+0%					17.045
S13.001	S30	15 Winter	2	+0%					16.935
S13.002	S31	15 Winter	2	+0%					16.549
S12.001	S32	15 Winter	2	+0%					16.324
S14.000	S33	15 Winter	2	+0%					16.423
S14.001	S34	15 Winter	2	+0%					16.304
S12.002	S35	15 Winter	2	+0%					16.151
S15.000	S36	15 Winter	2	+0%					16.688
S16.000	S37	15 Winter	2	+0%					16.522
S12.003	S38	15 Winter	2	+0%					16.124
S17.000	S39	15 Winter	2	+0%					16.037
S18.000	S40	15 Winter	2	+0%					16.050
S12.004	S41	15 Winter	2	+0%					16.024
S19.000	S42	15 Winter	2	+0%					15.995
S12.005	S43	15 Winter	2	+0%					15.872
S20.000	S44	15 Winter	2	+0%					15.989
S12.006	S45	15 Winter	2	+0%					15.799
S21.000	S46	15 Winter	2	+0%					16.090
S12.007	S47	15 Winter	2	+0%					15.758
S22.000	S48	15 Winter	2	+0%					15.921
S23.000	S49	15 Winter	2	+0%					15.987
S12.008	S50	15 Winter	2	+0%					15.699
S24.000	S51	15 Winter	2	+0%					15.839
S25.000	S52	15 Winter	2	+0%					15.930
S12.009	S53	15 Winter	2	+0%					15.639
S26.000	S54	15 Winter	2	+0%					15.735
S12.010	S55	15 Winter	2	+0%					15.579
S27.000	S56	15 Winter	2	+0%					15.626
S12.011	S57	15 Winter	2	+0%					15.558
S12.012	S58	15 Winter	2	+0%					15.493
S28.000	S59	15 Winter	2	+0%					15.830
S12.013	S60	15 Winter	2	+0%					15.436
S12.014	S61	15 Winter	2	+0%					15.391
S12.015	S62	15 Winter	2	+0%					15.347
S1.013	S63	60 Winter	2	+0%					15.240
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>									
		Surcharged Flooded			Half Drain		Pipe		
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
S8.000	S19	-0.119	0.000	0.09			4.4	OK	
S9.000	S20	-0.034	0.000	0.92			12.2	OK	
S10.000	S21	-0.085	0.000	0.38			5.2	OK	
S9.001	S22	-0.093	0.000	0.64			25.1	OK	
S11.000	S23	-0.132	0.000	0.03			1.3	OK	
S9.002	S24	-0.083	0.000	0.72			26.1	OK	
S1.010	S25	-0.146	0.000	0.68			76.7	OK	
S1.011	S26	-0.140	0.000	0.71			75.9	OK	
S1.012	S27	-0.208	0.000	0.41			82.5	OK	
S12.000	S28	-0.096	0.000	0.28			4.3	OK	
S13.000	S29	-0.047	0.000	0.54			2.9	OK	
S13.001	S30	-0.151	0.000	0.23			11.5	OK	
S13.002	S31	-0.141	0.000	0.30			18.2	OK	
S12.001	S32	-0.176	0.000	0.35			32.9	OK	
S14.000	S33	-0.127	0.000	0.06			1.3	OK	
S14.001	S34	-0.103	0.000	0.21			3.4	OK	
S12.002	S35	-0.107	0.000	0.64			35.9	OK	
S15.000	S36	-0.100	0.000	0.24			10.1	OK	
S16.000	S37	-0.120	0.000	0.09			3.4	OK	
S12.003	S38	-0.091	0.000	0.82			52.2	OK	
S17.000	S39	-0.130	0.000	0.04			0.6	OK	
S18.000	S40	-0.121	0.000	0.08			1.3	OK	
S12.004	S41	-0.082	0.000	0.88			53.3	OK	
S19.000	S42	-0.101	0.000	0.23			3.4	OK	
S12.005	S43	-0.162	0.000	0.61			58.6	OK	
S20.000	S44	-0.112	0.000	0.15			2.9	OK	
S12.006	S45	-0.189	0.000	0.49			61.0	OK	
S21.000	S46	-0.132	0.000	0.04			0.9	OK	
S12.007	S47	-0.128	0.000	0.73			70.8	OK	
S22.000	S48	-0.129	0.000	0.05			1.3	OK	
S23.000	S49	-0.113	0.000	0.14			4.7	OK	
S12.008	S50	-0.119	0.000	0.76			73.3	OK	
S24.000	S51	-0.111	0.000	0.15			4.2	OK	
S25.000	S52	-0.120	0.000	0.09			3.0	OK	
S12.009	S53	-0.114	0.000	0.82			77.4	OK	
S26.000	S54	-0.115	0.000	0.12			2.6	OK	
S12.010	S55	-0.117	0.000	0.78			78.1	OK	
S27.000	S56	-0.124	0.000	0.07			1.3	OK	
S12.011	S57	-0.102	0.000	0.86			83.4	OK	
S12.012	S58	-0.095	0.000	0.84			82.0	OK	
S28.000	S59	-0.085	0.000	0.39			11.9	OK	
S12.013	S60	-0.080	0.000	0.90			84.6	OK	
S12.014	S61	-0.067	0.000	0.90			82.5	OK	
S12.015	S62	-0.062	0.000	1.00			82.0	OK	
S1.013	S63	-0.140	0.000	0.00		29	0.0	OK	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>								
<u>Simulation Criteria</u>								
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 1					
Number of Online Controls 1			Number of Time/Area Diagrams 0					
Number of Offline Controls 0			Number of Real Time Controls 0					
<u>Synthetic Rainfall Details</u>								
Rainfall Model			FSR		Ratio R 0.350			
Region England and Wales			Cv (Summer)		0.750			
M5-60 (mm)			19.000		Cv (Winter) 0.840			
Margin for Flood Risk Warning (mm)					300.0			
Analysis Timestep 2.5			Second Increment (Extended)					
DTS Status					ON			
DVD Status					OFF			
Inertia Status					OFF			
Profile(s)					Summer and Winter			
Duration(s) (mins)			15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080					
Return Period(s) (years)					30			
Climate Change (%)					0			

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>									
PN	US/MH Name	Depth (m)	Surcharged Volume (m³)	Flooded Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.079	0.000	0.45			7.0	OK	
S1.001	S2	-0.122	0.000	0.41			15.6	OK	
S2.000	S3	-0.110	0.000	0.16			3.6	OK	
S1.002	S4	-0.092	0.000	0.64			27.9	OK	
S3.000	S5	-0.021	0.000	0.97			4.9	OK	
S3.001	S6	-0.022	0.000	0.86			12.8	OK	
S3.002	S7	0.021	0.000	1.23			16.7	SURCHARGED	
S1.003	S8	-0.058	0.000	0.52			53.9	OK	
S4.000	S9	0.119	0.000	0.40			27.9	SURCHARGED	
S1.004	S10	0.267	0.000	0.66			65.0	SURCHARGED	
S5.000	S11	0.279	0.000	0.15			3.6	SURCHARGED	
S1.005	S12	0.420	0.000	1.21			75.6	SURCHARGED	
S6.000	S13	0.176	0.000	0.18			5.2	SURCHARGED	
S1.006	S14	0.380	0.000	1.28			78.8	SURCHARGED	
S1.007	S15	0.330	0.000	1.72			83.4	SURCHARGED	
S1.008	S16	0.244	0.000	1.72			83.2	SURCHARGED	
S7.000	S17	-0.118	0.000	0.10			4.6	OK	
S1.009	S18	0.157	0.000	1.32			85.6	SURCHARGED	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S8.000	S19	15 Winter	30	+0%					16.342
S9.000	S20	15 Winter	30	+0%	30/15 Summer				16.433
S10.000	S21	15 Winter	30	+0%	30/15 Summer				16.215
S9.001	S22	15 Winter	30	+0%	30/15 Summer				16.186
S11.000	S23	15 Winter	30	+0%					16.277
S9.002	S24	15 Winter	30	+0%	30/15 Summer				15.996
S1.010	S25	15 Winter	30	+0%	30/15 Summer				15.908
S1.011	S26	15 Winter	30	+0%	30/15 Summer				15.749
S1.012	S27	15 Winter	30	+0%					15.502
S12.000	S28	15 Winter	30	+0%	30/15 Summer				16.717
S13.000	S29	15 Winter	30	+0%	30/15 Winter				17.092
S13.001	S30	15 Winter	30	+0%					16.977
S13.002	S31	15 Winter	30	+0%	30/15 Winter				16.735
S12.001	S32	15 Winter	30	+0%	30/15 Summer				16.700
S14.000	S33	15 Winter	30	+0%	30/15 Summer				16.654
S14.001	S34	15 Winter	30	+0%	30/15 Summer				16.651
S12.002	S35	15 Winter	30	+0%	30/15 Summer				16.636
S15.000	S36	15 Winter	30	+0%					16.710
S16.000	S37	15 Winter	30	+0%					16.609
S12.003	S38	15 Winter	30	+0%	30/15 Summer				16.599
S17.000	S39	15 Winter	30	+0%	30/15 Summer				16.445
S18.000	S40	15 Winter	30	+0%	30/15 Summer				16.447
S12.004	S41	15 Winter	30	+0%	30/15 Summer				16.443
S19.000	S42	15 Winter	30	+0%	30/15 Summer				16.344
S12.005	S43	15 Winter	30	+0%	30/15 Summer				16.335
S20.000	S44	15 Winter	30	+0%	30/15 Summer				16.307
S12.006	S45	15 Winter	30	+0%	30/15 Summer				16.299
S21.000	S46	15 Winter	30	+0%	30/15 Winter				16.266
S12.007	S47	15 Winter	30	+0%	30/15 Summer				16.262
S22.000	S48	15 Winter	30	+0%	30/15 Summer				16.193
S23.000	S49	15 Winter	30	+0%	30/15 Winter				16.198
S12.008	S50	15 Winter	30	+0%	30/15 Summer				16.189
S24.000	S51	15 Winter	30	+0%	30/15 Summer				16.116
S25.000	S52	15 Winter	30	+0%	30/15 Winter				16.115
S12.009	S53	15 Winter	30	+0%	30/15 Summer				16.108
S26.000	S54	15 Winter	30	+0%	30/15 Summer				16.031
S12.010	S55	15 Winter	30	+0%	30/15 Summer				16.023
S27.000	S56	15 Winter	30	+0%	30/15 Summer				15.937
S12.011	S57	15 Winter	30	+0%	30/15 Summer				15.935
S12.012	S58	15 Winter	30	+0%	30/15 Summer				15.819
S28.000	S59	15 Winter	30	+0%					15.862
S12.013	S60	15 Winter	30	+0%	30/15 Summer				15.704
S12.014	S61	15 Winter	30	+0%	30/15 Summer				15.590
S12.015	S62	60 Winter	30	+0%	30/15 Summer				15.506
S1.013	S63	60 Winter	30	+0%	30/15 Winter				15.492
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Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH									
PN	US/MH Name	Depth (m)	Surcharged Volume (m³)	Flooded Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S8.000	S19	-0.108	0.000	0.17			8.4	OK	
S9.000	S20	0.269	0.000	1.65			21.9	SURCHARGED	
S10.000	S21	0.075	0.000	0.68			9.2	SURCHARGED	
S9.001	S22	0.112	0.000	1.17			46.2	SURCHARGED	
S11.000	S23	-0.126	0.000	0.06			2.5	OK	
S9.002	S24	0.082	0.000	1.28			46.8	SURCHARGED	
S1.010	S25	0.062	0.000	1.16			131.2	SURCHARGED	
S1.011	S26	0.022	0.000	1.22			130.8	SURCHARGED	
S1.012	S27	-0.145	0.000	0.68			138.1	OK	
S12.000	S28	0.146	0.000	0.49			7.4	SURCHARGED	
S13.000	S29	0.000	0.000	1.00			5.4	SURCHARGED	
S13.001	S30	-0.109	0.000	0.52			25.6	OK	
S13.002	S31	0.045	0.000	0.62			37.9	SURCHARGED	
S12.001	S32	0.200	0.000	0.68			62.9	SURCHARGED	
S14.000	S33	0.104	0.000	0.10			2.3	SURCHARGED	
S14.001	S34	0.244	0.000	0.35			5.8	SURCHARGED	
S12.002	S35	0.378	0.000	1.12			63.0	SURCHARGED	
S15.000	S36	-0.078	0.000	0.46			19.2	OK	
S16.000	S37	-0.033	0.000	0.16			6.5	OK	
S12.003	S38	0.384	0.000	1.46			93.2	SURCHARGED	
S17.000	S39	0.278	0.000	0.05			0.8	SURCHARGED	
S18.000	S40	0.276	0.000	0.13			2.0	SURCHARGED	
S12.004	S41	0.338	0.000	1.49			90.6	SURCHARGED	
S19.000	S42	0.248	0.000	0.43			6.4	SURCHARGED	
S12.005	S43	0.301	0.000	0.97			93.4	SURCHARGED	
S20.000	S44	0.206	0.000	0.28			5.5	SURCHARGED	
S12.006	S45	0.311	0.000	0.75			93.4	SURCHARGED	
S21.000	S46	0.044	0.000	0.07			1.7	SURCHARGED	
S12.007	S47	0.376	0.000	1.08			104.4	SURCHARGED	
S22.000	S48	0.143	0.000	0.09			2.4	SURCHARGED	
S23.000	S49	0.098	0.000	0.27			8.8	SURCHARGED	
S12.008	S50	0.371	0.000	1.12			108.2	SURCHARGED	
S24.000	S51	0.166	0.000	0.29			8.0	SURCHARGED	
S25.000	S52	0.065	0.000	0.17			5.7	SURCHARGED	
S12.009	S53	0.356	0.000	1.21			113.6	SURCHARGED	
S26.000	S54	0.181	0.000	0.23			5.0	SURCHARGED	
S12.010	S55	0.327	0.000	1.15			115.9	SURCHARGED	
S27.000	S56	0.187	0.000	0.12			2.3	SURCHARGED	
S12.011	S57	0.275	0.000	1.26			123.1	SURCHARGED	
S12.012	S58	0.230	0.000	1.25			122.4	SURCHARGED	
S28.000	S59	-0.053	0.000	0.73			22.6	OK	
S12.013	S60	0.188	0.000	1.41			132.6	SURCHARGED	
S12.014	S61	0.132	0.000	1.44			132.2	SURCHARGED	
S12.015	S62	0.097	0.000	1.31			107.2	SURCHARGED	
S1.013	S63	0.113	0.000	0.00		44	0.0	SURCHARGED	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>							
<u>Simulation Criteria</u>							
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		1		
Number of Online Controls		1	Number of Time/Area Diagrams		0		
Number of Offline Controls		0	Number of Real Time Controls		0		
<u>Synthetic Rainfall Details</u>							
Rainfall Model		FSR	Ratio R		0.350		
Region England and Wales Cv (Summer)		0.750					
M5-60 (mm)		19.000	Cv (Winter)		0.840		
Margin for Flood Risk Warning (mm)		300.0					
Analysis Timestep		2.5 Second Increment (Extended)					
DTS Status		ON					
DVD Status		OFF					
Inertia Status		OFF					
Profile(s)		Summer and Winter					
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080					
Return Period(s) (years)		100					
Climate Change (%)		40					

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>								
		Water	Surcharged	Flooded		Half Drain	Pipe	
	US/MH	Level	Depth	Volume	Flow /	Time	Flow	
PN	Name	(m)	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)
								Status
S1.000	S1	17.991	0.596	0.000	0.75		11.6	SURCHARGED
S1.001	S2	17.960	0.648	0.000	0.63		24.0	SURCHARGED
S2.000	S3	17.904	0.732	0.000	0.26		5.9	SURCHARGED
S1.002	S4	17.894	0.853	0.000	0.78		34.0	SURCHARGED
S3.000	S5	18.092	0.981	0.000	1.31		6.7	FLOOD RISK
S3.001	S6	18.033	0.959	0.000	1.13		16.7	SURCHARGED
S3.002	S7	17.863	0.979	0.000	1.31		17.8	SURCHARGED
S1.003	S8	17.779	0.947	0.000	0.58		59.4	FLOOD RISK
S4.000	S9	17.740	1.135	0.000	0.62		42.9	FLOOD RISK
S1.004	S10	17.642	1.200	0.023	0.97		96.4	FLOOD
S5.000	S11	17.398	1.069	0.000	0.27		6.4	FLOOD RISK
S1.005	S12	17.387	1.205	4.436	1.68		105.4	FLOOD
S6.000	S13	17.252	0.947	0.000	0.29		8.4	FLOOD RISK
S1.006	S14	17.234	1.140	0.000	1.74		107.4	FLOOD RISK
S1.007	S15	17.034	1.019	0.000	2.30		111.8	SURCHARGED
S1.008	S16	16.853	0.860	0.000	2.33		112.8	SURCHARGED
S7.000	S17	16.681	0.162	0.000	0.18		8.1	SURCHARGED
S1.009	S18	16.670	0.700	0.000	1.78		115.0	SURCHARGED
					</			

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH</u>								
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow Overflow	Overflow Act.
S8.000	S19	15 Winter	100	+40%				
S9.000	S20	15 Winter	100	+40%	100/15 Summer	100/15 Summer		
S10.000	S21	15 Winter	100	+40%	100/15 Summer			
S9.001	S22	15 Winter	100	+40%	100/15 Summer			
S11.000	S23	15 Winter	100	+40%	100/15 Summer			
S9.002	S24	15 Winter	100	+40%	100/15 Summer			
S1.010	S25	15 Winter	100	+40%	100/15 Summer			
S1.011	S26	30 Winter	100	+40%	100/15 Summer			
S1.012	S27	60 Winter	100	+40%	100/15 Winter			
S12.000	S28	15 Winter	100	+40%	100/15 Summer			
S13.000	S29	15 Winter	100	+40%	100/15 Summer			
S13.001	S30	15 Winter	100	+40%	100/15 Summer			
S13.002	S31	15 Winter	100	+40%	100/15 Summer			
S12.001	S32	15 Winter	100	+40%	100/15 Summer	100/15 Summer		
S14.000	S33	15 Summer	100	+40%	100/15 Summer			
S14.001	S34	30 Winter	100	+40%	100/15 Summer	100/15 Summer		
S12.002	S35	15 Winter	100	+40%	100/15 Summer			
S15.000	S36	15 Winter	100	+40%	100/15 Summer			
S16.000	S37	15 Winter	100	+40%	100/15 Summer			
S12.003	S38	15 Winter	100	+40%	100/15 Summer			
S17.000	S39	15 Winter	100	+40%	100/15 Summer			
S18.000	S40	15 Winter	100	+40%	100/15 Summer			
S12.004	S41	15 Winter	100	+40%	100/15 Summer			
S19.000	S42	15 Winter	100	+40%	100/15 Summer			
S12.005	S43	15 Winter	100	+40%	100/15 Summer			
S20.000	S44	15 Winter	100	+40%	100/15 Summer			
S12.006	S45	15 Winter	100	+40%	100/15 Summer			
S21.000	S46	15 Winter	100	+40%	100/15 Summer			
S12.007	S47	30 Winter	100	+40%	100/15 Summer	100/15 Winter		
S22.000	S48	15 Winter	100	+40%	100/15 Summer			
S23.000	S49	15 Winter	100	+40%	100/15 Summer			
S12.008	S50	15 Winter	100	+40%	100/15 Summer			
S24.000	S51	15 Winter	100	+40%	100/15 Summer			
S25.000	S52	15 Winter	100	+40%	100/15 Summer			
S12.009	S53	15 Winter	100	+40%	100/15 Summer			
S26.000	S54	15 Winter	100	+40%	100/15 Summer			
S12.010	S55	15 Winter	100	+40%	100/15 Summer			
S27.000	S56	30 Winter	100	+40%	100/15 Summer			
S12.011	S57	30 Winter	100	+40%	100/15 Summer			
S12.012	S58	30 Winter	100	+40%	100/15 Summer			
S28.000	S59	15 Winter	100	+40%	100/15 Summer			
S12.013	S60	30 Winter	100	+40%	100/15 Summer			
S12.014	S61	60 Winter	100	+40%	100/15 Summer			
S12.015	S62	60 Winter	100	+40%	100/15 Summer			
S1.013	S63	60 Winter	100	+40%	100/15 Summer			
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Summary of Critical Results by Maximum Level (Rank 1) for STORM SOUTH									
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap.	Half Drain Time (mins)	Pipe Flow (l/s)	Status	
S8.000	S19	16.358	-0.092	0.000	0.31		15.2	OK	
S9.000	S20	17.365	1.201	1.284	2.54		33.6	FLOOD	
S10.000	S21	17.076	0.936	0.000	1.13		15.3	FLOOD RISK	
S9.001	S22	16.986	0.912	0.000	1.78		70.2	SURCHARGED	
S11.000	S23	16.524	0.121	0.000	0.10		4.2	SURCHARGED	
S9.002	S24	16.515	0.601	0.000	1.95		71.1	SURCHARGED	
S1.010	S25	16.282	0.436	0.000	1.72		194.1	SURCHARGED	
S1.011	S26	15.935	0.207	0.000	1.74		186.7	SURCHARGED	
S1.012	S27	15.876	0.228	0.000	0.82		166.6	SURCHARGED	
S12.000	S28	17.763	1.192	0.000	0.80		12.2	FLOOD RISK	
S13.000	S29	18.185	1.093	0.000	1.55		8.2	FLOOD RISK	
S13.001	S30	18.063	0.977	0.000	0.68		33.4	FLOOD RISK	
S13.002	S31	17.859	1.169	0.000	0.85		52.5	FLOOD RISK	
S12.001	S32	17.707	1.207	6.965	0.85		79.1	FLOOD	
S14.000	S33	17.617	1.067	0.000	0.14		3.3	FLOOD RISK	
S14.001	S34	17.609	1.202	2.351	1.29		21.0	FLOOD	
S12.002	S35	17.668	1.410	0.000	1.45		81.2	FLOOD RISK	
S15.000	S36	17.871	1.083	0.000	0.61		25.8	FLOOD RISK	
S16.000	S37	17.674	1.032	0.000	0.24		9.7	FLOOD RISK	
S12.003	S38	17.644	1.429	0.000	1.63		104.0	FLOOD RISK	
S17.000	S39	17.432	1.265	0.000	0.10		1.5	FLOOD RISK	
S18.000	S40	17.436	1.265	0.000	0.21		3.2	FLOOD RISK	
S12.004	S41	17.427	1.322	0.000	1.62		98.4	FLOOD RISK	
S19.000	S42	17.292	1.196	0.000	0.57		8.5	FLOOD RISK	
S12.005	S43	17.267	1.233	0.000	1.17		113.4	FLOOD RISK	
S20.000	S44	17.205	1.104	0.000	0.37		7.4	FLOOD RISK	
S12.006	S45	17.185	1.197	0.000	0.94		117.8	FLOOD RISK	
S21.000	S46	17.098	0.876	0.000	0.09		2.3	SURCHARGED	
S12.007	S47	17.090	1.204	3.806	1.41		136.1	FLOOD	
S22.000	S48	17.025	0.975	0.000	0.12		3.3	FLOOD RISK	
S23.000	S49	17.055	0.955	0.000	0.36		12.0	FLOOD RISK	
S12.008	S50	17.015	1.197	0.000	1.55		149.3	FLOOD RISK	
S24.000	S51	16.934	0.984	0.000	0.39		10.9	FLOOD RISK	
S25.000	S52	16.923	0.873	0.000	0.23		7.9	SURCHARGED	
S12.009	S53	16.906	1.153	0.000	1.66		155.7	FLOOD RISK	
S26.000	S54	16.778	0.928	0.000	0.31		6.8	FLOOD RISK	
S12.010	S55	16.760	1.064	0.000	1.57		157.3	FLOOD RISK	
S27.000	S56	16.603	0.853	0.000	0.14		2.6	SURCHARGED	
S12.011	S57	16.598	0.938	0.000	1.78		173.9	FLOOD RISK	
S12.012	S58	16.384	0.796	0.000	1.77		173.3	FLOOD RISK	
S28.000	S59	16.495	0.580	0.000	1.05		32.5	SURCHARGED	
S12.013	S60	16.162	0.647	0.000	2.09		197.2	SURCHARGED	
S12.014	S61	16.012	0.554	0.000	1.81		166.3	SURCHARGED	
S12.015	S62	15.904	0.495	0.000	2.02		165.5	SURCHARGED	
S1.013	S63	15.864	0.485	0.000	0.00	57	0.0	SURCHARGED	
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<u>Area Summary for STORM SOUTH</u>						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.010	0.010	0.010
	User	-	100	0.007	0.007	0.017
	User	-	100	0.005	0.005	0.023
1.001	User	-	100	0.006	0.006	0.006
	User	-	100	0.017	0.017	0.024
	User	-	100	0.002	0.002	0.026
	User	-	100	0.003	0.003	0.028
2.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.005	0.005	0.012
1.002	User	-	100	0.007	0.007	0.007
	User	-	100	0.018	0.018	0.026
	User	-	100	0.003	0.003	0.028
3.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.007	0.007	0.012
	User	-	100	0.004	0.004	0.016
3.001	User	-	100	0.010	0.010	0.010
	User	-	100	0.000	0.000	0.010
	User	-	100	0.001	0.001	0.012
	User	-	100	0.001	0.001	0.013
	User	-	100	0.000	0.000	0.013
	User	-	100	0.004	0.004	0.017
	User	-	100	0.008	0.008	0.025
3.002	User	-	100	0.007	0.007	0.007
	User	-	100	0.006	0.006	0.013
1.003	User	-	100	0.007	0.007	0.007
	User	-	100	0.002	0.002	0.008
	User	-	100	0.007	0.007	0.015
	User	-	100	0.004	0.004	0.019
	User	-	100	0.017	0.017	0.036
4.000	User	-	100	0.001	0.001	0.001
	User	-	100	0.002	0.002	0.003
	User	-	100	0.002	0.002	0.005
	User	-	100	0.001	0.001	0.005
	User	-	100	0.020	0.020	0.026
	User	-	100	0.001	0.001	0.026
	User	-	100	0.002	0.002	0.028
	User	-	100	0.002	0.002	0.030
	User	-	100	0.001	0.001	0.031
	User	-	100	0.004	0.004	0.035
	User	-	100	0.006	0.006	0.041
	User	-	100	0.004	0.004	0.045
	User	-	100	0.006	0.006	0.051
	User	-	100	0.008	0.008	0.058
	User	-	100	0.005	0.005	0.064
	User	-	100	0.005	0.005	0.069
	User	-	100	0.007	0.007	0.076
	User	-	100	0.006	0.006	0.082
	User	-	100	0.006	0.006	0.088
	User	-	100	0.002	0.002	0.090
	User	-	100	0.002	0.002	0.092
	User	-	100	0.002	0.002	0.094
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Area Summary for STORM SOUTH						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.004	-	-	100	0.000	0.000	0.000
5.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.005	0.005	0.009
	User	-	100	0.005	0.005	0.014
1.005	User	-	100	0.019	0.019	0.019
	User	-	100	0.026	0.026	0.046
	User	-	100	0.002	0.002	0.047
6.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.005	0.005	0.011
	User	-	100	0.002	0.002	0.013
	User	-	100	0.005	0.005	0.018
1.006	User	-	100	0.003	0.003	0.003
1.007	User	-	100	0.032	0.032	0.032
1.008	-	-	100	0.000	0.000	0.000
7.000	User	-	100	0.008	0.008	0.008
	User	-	100	0.002	0.002	0.010
	User	-	100	0.005	0.005	0.015
1.009	-	-	100	0.000	0.000	0.000
8.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.002	0.002	0.008
	User	-	100	0.002	0.002	0.010
	User	-	100	0.008	0.008	0.018
	User	-	100	0.010	0.010	0.027
9.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.002	0.002	0.008
	User	-	100	0.004	0.004	0.012
	User	-	100	0.004	0.004	0.017
	User	-	100	0.002	0.002	0.019
	User	-	100	0.006	0.006	0.024
	User	-	100	0.002	0.002	0.026
	User	-	100	0.008	0.008	0.035
	User	-	100	0.005	0.005	0.040
	User	-	100	0.003	0.003	0.043
	User	-	100	0.012	0.012	0.055
	User	-	100	0.007	0.007	0.062
	User	-	100	0.012	0.012	0.074
	User	-	100	0.002	0.002	0.076
10.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.002	0.002	0.008
	User	-	100	0.006	0.006	0.014
	User	-	100	0.002	0.002	0.016
	User	-	100	0.002	0.002	0.018
	User	-	100	0.005	0.005	0.023
	User	-	100	0.005	0.005	0.027
	User	-	100	0.004	0.004	0.032
9.001	User	-	100	0.056	0.056	0.056
11.000	User	-	100	0.008	0.008	0.008
9.002	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	User	-	100	0.067	0.067	0.067
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Area Summary for STORM SOUTH						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
12.000	User	-	100	0.008	0.008	0.008
	User	-	100	0.004	0.004	0.012
	User	-	100	0.008	0.008	0.020
	User	-	100	0.004	0.004	0.024
	User	-	100	0.002	0.002	0.026
13.000	User	-	100	0.008	0.008	0.008
	User	-	100	0.005	0.005	0.012
	User	-	100	0.005	0.005	0.018
13.001	User	-	100	0.011	0.011	0.011
	User	-	100	0.001	0.001	0.012
	User	-	100	0.000	0.000	0.012
	User	-	100	0.001	0.001	0.013
	User	-	100	0.010	0.010	0.023
	User	-	100	0.005	0.005	0.028
	User	-	100	0.007	0.007	0.035
	User	-	100	0.004	0.004	0.039
	User	-	100	0.004	0.004	0.044
	User	-	100	0.000	0.000	0.044
	User	-	100	0.005	0.005	0.049
	User	-	100	0.011	0.011	0.060
	User	-	100	0.000	0.000	0.060
	User	-	100	0.001	0.001	0.061
	User	-	100	0.001	0.001	0.062
13.002	User	-	100	0.010	0.010	0.010
	User	-	100	0.008	0.008	0.017
	User	-	100	0.002	0.002	0.019
	User	-	100	0.008	0.008	0.027
	User	-	100	0.010	0.010	0.037
	User	-	100	0.002	0.002	0.039
	User	-	100	0.010	0.010	0.049
12.001	User	-	100	0.007	0.007	0.007
	User	-	100	0.036	0.036	0.043
	User	-	100	0.026	0.026	0.069
	User	-	100	0.001	0.001	0.069
	User	-	100	0.007	0.007	0.076
14.000	User	-	100	0.008	0.008	0.008
14.001	User	-	100	0.003	0.003	0.003
	User	-	100	0.001	0.001	0.004
	User	-	100	0.008	0.008	0.011
	User	-	100	0.001	0.001	0.012
	User	-	100	0.003	0.003	0.015
12.002	-	-	100	0.000	0.000	0.000
15.000	User	-	100	0.009	0.009	0.009
	User	-	100	0.008	0.008	0.017
	User	-	100	0.005	0.005	0.021
	User	-	100	0.002	0.002	0.023
	User	-	100	0.006	0.006	0.029
	User	-	100	0.009	0.009	0.038
	User	-	100	0.002	0.002	0.040
	User	-	100	0.008	0.008	0.048
	User	-	100	0.011	0.011	0.058
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Area Summary for STORM SOUTH							
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)	
16.000	User	-	100	0.004	0.004	0.062	
	User	-	100	0.008	0.008	0.008	
	User	-	100	0.009	0.009	0.017	
	User	-	100	0.004	0.004	0.021	
12.003	User	-	100	0.010	0.010	0.010	
	User	-	100	0.020	0.020	0.029	
17.000	User	-	100	0.004	0.004	0.004	
18.000	User	-	100	0.008	0.008	0.008	
12.004	-	-	100	0.000	0.000	0.000	
19.000	User	-	100	0.008	0.008	0.008	
	User	-	100	0.002	0.002	0.010	
	User	-	100	0.006	0.006	0.016	
	User	-	100	0.004	0.004	0.021	
12.005	User	-	100	0.025	0.025	0.025	
20.000	User	-	100	0.002	0.002	0.002	
	User	-	100	0.002	0.002	0.004	
	User	-	100	0.006	0.006	0.010	
	User	-	100	0.008	0.008	0.018	
12.006	-	-	100	0.000	0.000	0.000	
21.000	User	-	100	0.006	0.006	0.006	
12.007	User	-	100	0.085	0.085	0.085	
22.000	User	-	100	0.008	0.008	0.008	
23.000	User	-	100	0.008	0.008	0.008	
	User	-	100	0.002	0.002	0.010	
	User	-	100	0.002	0.002	0.012	
	User	-	100	0.006	0.006	0.018	
	User	-	100	0.005	0.005	0.023	
	User	-	100	0.005	0.005	0.029	
	12.008	-	-	100	0.000	0.000	0.000
	24.000	User	-	100	0.007	0.007	0.007
User		-	100	0.002	0.002	0.009	
User		-	100	0.008	0.008	0.018	
User		-	100	0.004	0.004	0.022	
User		-	100	0.004	0.004	0.026	
25.000	User	-	100	0.006	0.006	0.006	
	User	-	100	0.002	0.002	0.008	
	User	-	100	0.002	0.002	0.010	
	User	-	100	0.004	0.004	0.014	
	User	-	100	0.004	0.004	0.018	
12.009	-	-	100	0.000	0.000	0.000	
26.000	User	-	100	0.008	0.008	0.008	
	User	-	100	0.002	0.002	0.010	
	User	-	100	0.006	0.006	0.016	
12.010	-	-	100	0.000	0.000	0.000	
27.000	User	-	100	0.008	0.008	0.008	
12.011	User	-	100	0.058	0.058	0.058	
12.012	-	-	100	0.000	0.000	0.000	
28.000	User	-	100	0.008	0.008	0.008	
	User	-	100	0.002	0.002	0.010	
	User	-	100	0.008	0.008	0.019	
	User	-	100	0.002	0.002	0.020	
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Area Summary for STORM SOUTH <table><thead><tr><th>Pipe Number</th><th>PIMP Type</th><th>PIMP Name</th><th>PIMP (%)</th><th>Gross Area (ha)</th><th>Imp. Area (ha)</th><th>Pipe Total (ha)</th></tr></thead><tbody><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.002</td><td>0.002</td><td>0.022</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.006</td><td>0.006</td><td>0.028</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.002</td><td>0.002</td><td>0.030</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.004</td><td>0.004</td><td>0.034</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.030</td><td>0.030</td><td>0.064</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.007</td><td>0.007</td><td>0.070</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.003</td><td>0.003</td><td>0.073</td></tr><tr><td>12.013</td><td>-</td><td>-</td><td>100</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>12.014</td><td>-</td><td>-</td><td>100</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>12.015</td><td>-</td><td>-</td><td>100</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>1.013</td><td>-</td><td>-</td><td>100</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td></td><td></td><td></td><td></td><td>Total</td><td>Total</td><td>Total</td></tr><tr><td></td><td></td><td></td><td></td><td>1.440</td><td>1.440</td><td>1.440</td></tr></tbody></table>							Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)		User	-	100	0.002	0.002	0.022		User	-	100	0.006	0.006	0.028		User	-	100	0.002	0.002	0.030		User	-	100	0.004	0.004	0.034		User	-	100	0.030	0.030	0.064		User	-	100	0.007	0.007	0.070		User	-	100	0.003	0.003	0.073	12.013	-	-	100	0.000	0.000	0.000	12.014	-	-	100	0.000	0.000	0.000	12.015	-	-	100	0.000	0.000	0.000	1.013	-	-	100	0.000	0.000	0.000					Total	Total	Total					1.440	1.440	1.440
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)																																																																																																		
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1.013	-	-	100	0.000	0.000	0.000																																																																																																		
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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for STORM WEST

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	5	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	50	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)	500

Designed with Level Soffits

Network Design Table for STORM WEST

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	36.615	0.282	130.0	0.031	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.001	21.470	0.160	134.2	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	59.509	0.593	100.4	0.016	0.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	3.984	0.039	102.1	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S3.000	6.742	0.087	77.5	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	6.568	0.330	19.9	0.048	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.000	9.665	0.058	166.6	0.011	5.00	0.0	0.600	o	225	Pipe/Conduit	
S5.000	6.570	0.144	45.6	0.015	5.00	0.0	0.600	o	150	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)
S1.000	50.00	5.53	15.473	0.031	0.0	0.0	0.0	1.15	45.5	4.2
S1.001	50.00	5.85	15.191	0.060	0.0	0.0	0.0	1.13	44.8	8.1
S1.002	50.00	6.61	15.031	0.076	0.0	0.0	0.0	1.31	51.9	10.3
S2.000	50.00	5.07	14.552	0.006	0.0	0.0	0.0	0.99	17.6	0.7
S3.000	50.00	5.10	14.600	0.008	0.0	0.0	0.0	1.14	20.2	1.0
S1.003	50.00	6.65	14.438	0.136	0.0	0.0	0.0	2.95	117.2	18.5
S4.000	50.00	5.16	14.166	0.011	0.0	0.0	0.0	1.01	40.2	1.5
S5.000	50.00	5.07	14.327	0.015	0.0	0.0	0.0	1.49	26.4	2.0

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Network Design Table for STORM WEST <table><tr><th>PN</th><th>Length (m)</th><th>Fall (m)</th><th>Slope (1:X)</th><th>I.Area (ha)</th><th>T.E. (mins)</th><th>Base Flow (l/s)</th><th>k (mm)</th><th>HYD SECT</th><th>DIA (mm)</th><th>Section Type</th><th>Auto Design</th></tr><tr><td>S1.004</td><td>16.840</td><td>0.100</td><td>169.0</td><td>0.000</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>225</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S6.000</td><td>5.343</td><td>0.338</td><td>15.8</td><td>0.014</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S1.005</td><td>4.953</td><td>0.029</td><td>169.0</td><td>0.028</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>225</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S7.000</td><td>9.478</td><td>0.445</td><td>21.3</td><td>0.043</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S8.000</td><td>7.032</td><td>0.351</td><td>20.0</td><td>0.013</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S1.006</td><td>4.953</td><td>0.029</td><td>169.0</td><td>0.000</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>225</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S9.000</td><td>3.252</td><td>0.242</td><td>13.4</td><td>0.028</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S1.007</td><td>38.886</td><td>0.208</td><td>187.0</td><td>0.007</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>300</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S10.000</td><td>4.013</td><td>0.223</td><td>18.0</td><td>0.028</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S11.000</td><td>7.319</td><td>0.139</td><td>52.7</td><td>0.017</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td><td></td></tr><tr><td>S1.008</td><td>6.718</td><td>0.063</td><td>106.6</td><td>0.036</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>300</td><td>Pipe/Conduit</td><td></td></tr></table> Network Results Table <table><tr><th>PN</th><th>Rain (mm/hr)</th><th>T.C. (mins)</th><th>US/IL (m)</th><th>Σ I.Area (ha)</th><th>Σ Base Flow (l/s)</th><th>Foul (l/s)</th><th>Add Flow (l/s)</th><th>Vel (m/s)</th><th>Cap (l/s)</th><th>Flow (l/s)</th></tr><tr><td>S1.004</td><td>50.00</td><td>6.93</td><td>14.108</td><td>0.163</td><td>0.0</td><td>0.0</td><td>0.0</td><td>1.00</td><td>39.9</td><td>22.0</td></tr><tr><td>S6.000</td><td>50.00</td><td>5.03</td><td>14.422</td><td>0.014</td><td>0.0</td><td>0.0</td><td>0.0</td><td>2.55</td><td>45.0</td><td>1.9</td></tr><tr><td>S1.005</td><td>50.00</td><td>7.01</td><td>14.008</td><td>0.205</td><td>0.0</td><td>0.0</td><td>0.0</td><td>1.00</td><td>39.9</td><td>27.8</td></tr><tr><td>S7.000</td><td>50.00</td><td>5.07</td><td>14.499</td><td>0.043</td><td>0.0</td><td>0.0</td><td>0.0</td><td>2.19</td><td>38.7</td><td>5.9</td></tr><tr><td>S8.000</td><td>50.00</td><td>5.05</td><td>14.406</td><td>0.013</td><td>0.0</td><td>0.0</td><td>0.0</td><td>2.26</td><td>39.9</td><td>1.8</td></tr><tr><td>S1.006</td><td>50.00</td><td>7.09</td><td>13.979</td><td>0.262</td><td>0.0</td><td>0.0</td><td>0.0</td><td>1.00</td><td>39.9</td><td>35.5</td></tr><tr><td>S9.000</td><td>50.00</td><td>5.02</td><td>14.267</td><td>0.028</td><td>0.0</td><td>0.0</td><td>0.0</td><td>2.76</td><td>48.8</td><td>3.8</td></tr><tr><td>S1.007</td><td>50.00</td><td>7.66</td><td>13.875</td><td>0.296</td><td>0.0</td><td>0.0</td><td>0.0</td><td>1.15</td><td>81.0</td><td>40.1</td></tr><tr><td>S10.000</td><td>50.00</td><td>5.03</td><td>14.040</td><td>0.028</td><td>0.0</td><td>0.0</td><td>0.0</td><td>2.39</td><td>42.2</td><td>3.7</td></tr><tr><td>S11.000</td><td>50.00</td><td>5.09</td><td>13.956</td><td>0.017</td><td>0.0</td><td>0.0</td><td>0.0</td><td>1.39</td><td>24.6</td><td>2.3</td></tr><tr><td>S1.008</td><td>50.00</td><td>7.73</td><td>13.667</td><td>0.377</td><td>0.0</td><td>0.0</td><td>0.0</td><td>1.52</td><td>107.6</td><td>51.1</td></tr></table>												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	S1.004	16.840	0.100	169.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		S6.000	5.343	0.338	15.8	0.014	5.00	0.0	0.600	o	150	Pipe/Conduit		S1.005	4.953	0.029	169.0	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit		S7.000	9.478	0.445	21.3	0.043	5.00	0.0	0.600	o	150	Pipe/Conduit		S8.000	7.032	0.351	20.0	0.013	5.00	0.0	0.600	o	150	Pipe/Conduit		S1.006	4.953	0.029	169.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		S9.000	3.252	0.242	13.4	0.028	5.00	0.0	0.600	o	150	Pipe/Conduit		S1.007	38.886	0.208	187.0	0.007	0.00	0.0	0.600	o	300	Pipe/Conduit		S10.000	4.013	0.223	18.0	0.028	5.00	0.0	0.600	o	150	Pipe/Conduit		S11.000	7.319	0.139	52.7	0.017	5.00	0.0	0.600	o	150	Pipe/Conduit		S1.008	6.718	0.063	106.6	0.036	0.00	0.0	0.600	o	300	Pipe/Conduit		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)	S1.004	50.00	6.93	14.108	0.163	0.0	0.0	0.0	1.00	39.9	22.0	S6.000	50.00	5.03	14.422	0.014	0.0	0.0	0.0	2.55	45.0	1.9	S1.005	50.00	7.01	14.008	0.205	0.0	0.0	0.0	1.00	39.9	27.8	S7.000	50.00	5.07	14.499	0.043	0.0	0.0	0.0	2.19	38.7	5.9	S8.000	50.00	5.05	14.406	0.013	0.0	0.0	0.0	2.26	39.9	1.8	S1.006	50.00	7.09	13.979	0.262	0.0	0.0	0.0	1.00	39.9	35.5	S9.000	50.00	5.02	14.267	0.028	0.0	0.0	0.0	2.76	48.8	3.8	S1.007	50.00	7.66	13.875	0.296	0.0	0.0	0.0	1.15	81.0	40.1	S10.000	50.00	5.03	14.040	0.028	0.0	0.0	0.0	2.39	42.2	3.7	S11.000	50.00	5.09	13.956	0.017	0.0	0.0	0.0	1.39	24.6	2.3	S1.008	50.00	7.73	13.667	0.377	0.0	0.0	0.0	1.52	107.6	51.1
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																																																																																																																																																																																																																																																																																				
S1.004	16.840	0.100	169.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S6.000	5.343	0.338	15.8	0.014	5.00	0.0	0.600	o	150	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S1.005	4.953	0.029	169.0	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S7.000	9.478	0.445	21.3	0.043	5.00	0.0	0.600	o	150	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S8.000	7.032	0.351	20.0	0.013	5.00	0.0	0.600	o	150	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S1.006	4.953	0.029	169.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S9.000	3.252	0.242	13.4	0.028	5.00	0.0	0.600	o	150	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S1.007	38.886	0.208	187.0	0.007	0.00	0.0	0.600	o	300	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S10.000	4.013	0.223	18.0	0.028	5.00	0.0	0.600	o	150	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S11.000	7.319	0.139	52.7	0.017	5.00	0.0	0.600	o	150	Pipe/Conduit																																																																																																																																																																																																																																																																																					
S1.008	6.718	0.063	106.6	0.036	0.00	0.0	0.600	o	300	Pipe/Conduit																																																																																																																																																																																																																																																																																					
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)																																																																																																																																																																																																																																																																																					
S1.004	50.00	6.93	14.108	0.163	0.0	0.0	0.0	1.00	39.9	22.0																																																																																																																																																																																																																																																																																					
S6.000	50.00	5.03	14.422	0.014	0.0	0.0	0.0	2.55	45.0	1.9																																																																																																																																																																																																																																																																																					
S1.005	50.00	7.01	14.008	0.205	0.0	0.0	0.0	1.00	39.9	27.8																																																																																																																																																																																																																																																																																					
S7.000	50.00	5.07	14.499	0.043	0.0	0.0	0.0	2.19	38.7	5.9																																																																																																																																																																																																																																																																																					
S8.000	50.00	5.05	14.406	0.013	0.0	0.0	0.0	2.26	39.9	1.8																																																																																																																																																																																																																																																																																					
S1.006	50.00	7.09	13.979	0.262	0.0	0.0	0.0	1.00	39.9	35.5																																																																																																																																																																																																																																																																																					
S9.000	50.00	5.02	14.267	0.028	0.0	0.0	0.0	2.76	48.8	3.8																																																																																																																																																																																																																																																																																					
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S10.000	50.00	5.03	14.040	0.028	0.0	0.0	0.0	2.39	42.2	3.7																																																																																																																																																																																																																																																																																					
S11.000	50.00	5.09	13.956	0.017	0.0	0.0	0.0	1.39	24.6	2.3																																																																																																																																																																																																																																																																																					
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Search House Charnham Lane Hungerford RG17 0EY					Water Lane, Angmering						
Date 02/11/2020 File NETWORK 2 V6.MDX					Designed by JS Checked by SL						
XP Solutions					Network 2020.1						
<u>Network Design Table for STORM WEST</u>											
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
S12.000	3.420	0.189	18.1	0.015	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.009	16.231	0.161	100.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S13.000	6.778	0.097	69.9	0.052	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.010	6.166	0.060	102.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.011	7.966	0.025	321.0	0.022	0.00	0.0	0.600	o	375	Pipe/Conduit	
S14.000	4.638	0.179	25.9	0.019	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.012	10.959	0.034	321.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.013	13.286	0.041	321.0	0.017	0.00	0.0	0.600	o	375	Pipe/Conduit	
S15.000	6.778	0.282	24.0	0.027	5.00	0.0	0.600	o	150	Pipe/Conduit	
S16.000	12.749	0.406	31.4	0.039	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.014	6.852	0.021	321.0	0.027	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.015	4.848	0.015	321.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
<u>Network Results Table</u>											
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)	
S12.000	50.00	5.02	13.943	0.015		0.0	0.0	0.0	2.38	42.0	2.0
S1.009	50.00	7.90	13.604	0.392		0.0	0.0	0.0	1.57	110.7	53.1
S13.000	50.00	5.09	13.690	0.052		0.0	0.0	0.0	1.20	21.3	7.0
S1.010	50.00	7.97	13.443	0.444		0.0	0.0	0.0	1.55	109.6	60.1
S1.011	50.00	8.10	13.308	0.466		0.0	0.0	0.0	1.01	111.1	63.1
S14.000	50.00	5.04	13.687	0.019		0.0	0.0	0.0	1.99	35.1	2.6
S1.012	50.00	8.28	13.283	0.486		0.0	0.0	0.0	1.01	111.1	65.8
S1.013	50.00	8.50	13.249	0.503		0.0	0.0	0.0	1.01	111.1	68.1
S15.000	50.00	5.05	13.715	0.027		0.0	0.0	0.0	2.06	36.4	3.7
S16.000	50.00	5.12	13.839	0.039		0.0	0.0	0.0	1.80	31.9	5.3
S1.014	50.00	8.62	13.207	0.596		0.0	0.0	0.0	1.01	111.1	80.7
S1.015	50.00	8.70	13.186	0.596		0.0	0.0	0.0	1.01	111.1	80.7
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Manhole Schedules for STORM WEST

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S1	16.898	1.425	Open Manhole	1200	S1.000	15.473	225				
S2	16.667	1.475	Open Manhole	1200	S1.001	15.191	225	S1.000	15.191	225	
S3	16.456	1.425	Open Manhole	1200	S1.002	15.031	225	S1.001	15.031	225	
S4	15.874	1.322	Open Manhole	600	S2.000	14.552	150				
S5	16.023	1.423	Open Manhole	600	S3.000	14.600	150				
S6	15.863	1.425	Open Manhole	1200	S1.003	14.438	225	S1.002	14.438	225	
								S2.000	14.513	150	
								S3.000	14.513	150	
S7	15.512	1.346	Open Manhole	1200	S4.000	14.166	225				
S8	15.791	1.464	Open Manhole	600	S5.000	14.327	150				
S9	15.812	1.704	Open Manhole	1200	S1.004	14.108	225	S1.003	14.108	225	
								S4.000	14.108	225	
								S5.000	14.183	150	
S10	15.787	1.365	Open Manhole	600	S6.000	14.422	150				
S11	15.639	1.631	Open Manhole	1200	S1.005	14.008	225	S1.004	14.008	225	
								S6.000	14.084	150	1
S12	15.856	1.357	Open Manhole	600	S7.000	14.499	150				
S13	15.773	1.367	Open Manhole	600	S8.000	14.406	150				
S14	15.594	1.615	Open Manhole	1200	S1.006	13.979	225	S1.005	13.979	225	
								S7.000	14.054	150	
								S8.000	14.055	150	1
S15	15.680	1.413	Open Manhole	600	S9.000	14.267	150				
S16	15.549	1.674	Open Manhole	1200	S1.007	13.875	300	S1.006	13.950	225	
								S9.000	14.025	150	
S17	15.390	1.350	Open Manhole	600	S10.000	14.040	150				
S18	15.326	1.370	Open Manhole	600	S11.000	13.956	150				
S19	15.166	1.500	Open Manhole	1200	S1.008	13.667	300	S1.007	13.667	300	
								S10.000	13.817	150	
								S11.000	13.817	150	
S20	15.242	1.299	Open Manhole	600	S12.000	13.943	150				
S21	15.103	1.500	Open Manhole	1200	S1.009	13.604	300	S1.008	13.604	300	
								S12.000	13.754	150	
S22	15.068	1.378	Open Manhole	600	S13.000	13.690	150				
S23	14.943	1.500	Open Manhole	1200	S1.010	13.443	300	S1.009	13.443	300	
								S13.000	13.593	150	
S24	14.882	1.575	Open Manhole	1350	S1.011	13.308	375	S1.010	13.383	300	
S25	14.990	1.303	Open Manhole	600	S14.000	13.687	150				
S26	14.863	1.580	Open Manhole	1350	S1.012	13.283	375	S1.011	13.283	375	

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Manhole Schedules for STORM WEST

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S27	14.920	1.671	Open Manhole	1350	S1.013	13.249	375	S14.000	13.508	150	
S28	15.142	1.427	Open Manhole	600	S15.000	13.715	150	S1.012	13.249	375	
S29	15.189	1.350	Open Manhole	1200	S16.000	13.839	150				
S30	15.063	1.855	Open Manhole	1350	S1.014	13.207	375	S1.013	13.207	375	
								S15.000	13.433	150	1
								S16.000	13.433	150	1
S31	15.173	1.987	Open Manhole	1350	S1.015	13.186	375	S1.014	13.186	375	
S	15.099	1.928	Open Manhole	0		OUTFALL		S1.015	13.171	375	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	507453.240	104484.843	507453.240	104484.843	Required	
S2	507417.319	104477.750	507417.319	104477.750	Required	
S3	507399.830	104490.204	507399.830	104490.204	Required	
S4	507339.150	104491.127	507339.150	104491.127	Required	
S5	507345.494	104482.936	507345.494	104482.936	Required	
S6	507340.391	104487.342	507340.391	104487.342	Required	
S7	507331.094	104490.639	507331.094	104490.639	Required	
S8	507329.535	104482.063	507329.535	104482.063	Required	
S9	507336.098	104482.370	507336.098	104482.370	Required	

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<u>Manhole Schedules for STORM WEST</u>						
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S10	507342.028	104466.999	507342.028	104466.999	Required	
S11	507336.886	104465.548	507336.886	104465.548	Required	
S12	507343.353	104458.983	507343.353	104458.983	Required	
S13	507330.554	104467.414	507330.554	104467.414	Required	
S14	507334.188	104461.394	507334.188	104461.394	Required	
S15	507330.135	104455.588	507330.135	104455.588	Required	
S16	507329.947	104458.834	507329.947	104458.834	Required	
S17	507291.358	104452.579	507291.358	104452.579	Required	
S18	507293.953	104463.337	507293.953	104463.337	Required	
S19	507291.126	104456.585	507291.126	104456.585	Required	
S20	507282.875	104456.445	507282.875	104456.445	Required	
S21	507284.929	104459.179	507284.929	104459.179	Required	
S22	507274.156	104475.338	507274.156	104475.338	Required	
S23	507271.953	104468.929	507271.953	104468.929	Required	
S24	507265.987	104470.486	507265.987	104470.486	Required	
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XP Solutions			Network 2020.1																																																																		
<u>Manhole Schedules for STORM WEST</u> <table><tr><th>MH Name</th><th>Manhole Easting (m)</th><th>Manhole Northing (m)</th><th>Intersection Easting (m)</th><th>Intersection Northing (m)</th><th>Manhole Access</th><th>Layout (North)</th></tr><tr><td>S25</td><td>507260.975</td><td>104464.438</td><td>507260.975</td><td>104464.438</td><td>Required</td><td></td></tr><tr><td>S26</td><td>507258.340</td><td>104468.254</td><td>507258.340</td><td>104468.254</td><td>Required</td><td></td></tr><tr><td>S27</td><td>507249.323</td><td>104462.026</td><td>507249.323</td><td>104462.026</td><td>Required</td><td></td></tr><tr><td>S28</td><td>507246.276</td><td>104453.713</td><td>507246.276</td><td>104453.713</td><td>Required</td><td></td></tr><tr><td>S29</td><td>507232.996</td><td>104463.994</td><td>507232.996</td><td>104463.994</td><td>Required</td><td></td></tr><tr><td>S30</td><td>507239.530</td><td>104453.046</td><td>507239.530</td><td>104453.046</td><td>Required</td><td></td></tr><tr><td>S31</td><td>507235.200</td><td>104447.736</td><td>507235.200</td><td>104447.736</td><td>Required</td><td></td></tr><tr><td>S</td><td>507232.272</td><td>104443.872</td><td></td><td></td><td>No Entry</td><td></td></tr></table>							MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)	S25	507260.975	104464.438	507260.975	104464.438	Required		S26	507258.340	104468.254	507258.340	104468.254	Required		S27	507249.323	104462.026	507249.323	104462.026	Required		S28	507246.276	104453.713	507246.276	104453.713	Required		S29	507232.996	104463.994	507232.996	104463.994	Required		S30	507239.530	104453.046	507239.530	104453.046	Required		S31	507235.200	104447.736	507235.200	104447.736	Required		S	507232.272	104443.872			No Entry	
MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)																																																															
S25	507260.975	104464.438	507260.975	104464.438	Required																																																																
S26	507258.340	104468.254	507258.340	104468.254	Required																																																																
S27	507249.323	104462.026	507249.323	104462.026	Required																																																																
S28	507246.276	104453.713	507246.276	104453.713	Required																																																																
S29	507232.996	104463.994	507232.996	104463.994	Required																																																																
S30	507239.530	104453.046	507239.530	104453.046	Required																																																																
S31	507235.200	104447.736	507235.200	104447.736	Required																																																																
S	507232.272	104443.872			No Entry																																																																
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Storage Structures for STORM WEST

Cellular Storage Manhole: S31, DS/PN: S1.015

Invert Level (m) 13.373 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.16272 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.16272

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	288.0	288.0	1.100	0.0	370.0
1.000	288.0	370.0			

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Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST

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 1
 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 0.350
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 19.000 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600,
 720, 960, 1440, 2160, 2880, 4320, 5760,
 7200, 8640, 10080
 Return Period(s) (years) 2
 Climate Change (%) 0

PN	US/MH		Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level
	Name	Storm							(m)
S1.000	S1	15 Winter	2	+0%					15.525
S1.001	S2	15 Winter	2	+0%					15.263
S1.002	S3	15 Winter	2	+0%					15.103
S2.000	S4	15 Winter	2	+0%					14.579
S3.000	S5	15 Winter	2	+0%					14.626
S1.003	S6	15 Winter	2	+0%					14.512
S4.000	S7	15 Winter	2	+0%					14.294
S5.000	S8	15 Winter	2	+0%					14.360
S1.004	S9	15 Winter	2	+0%					14.292
S6.000	S10	15 Winter	2	+0%					14.447
S1.005	S11	15 Winter	2	+0%	2/15 Summer				14.250
S7.000	S12	15 Winter	2	+0%					14.545
S8.000	S13	15 Winter	2	+0%					14.431
S1.006	S14	15 Winter	2	+0%	2/15 Summer				14.225
S9.000	S15	15 Winter	2	+0%					14.306
S1.007	S16	15 Winter	2	+0%					14.028
S10.000	S17	15 Winter	2	+0%					14.079
S11.000	S18	15 Winter	2	+0%					13.993

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST</u>									
PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.173	0.000	0.12			5.0	OK	
S1.001	S2	-0.154	0.000	0.22			8.9	OK	
S1.002	S3	-0.154	0.000	0.22			10.8	OK	
S2.000	S4	-0.123	0.000	0.07			0.9	OK	
S3.000	S5	-0.124	0.000	0.07			1.2	OK	
S1.003	S6	-0.151	0.000	0.23			19.0	OK	
S4.000	S7	-0.097	0.000	0.04			1.5	OK	
S5.000	S8	-0.117	0.000	0.11			2.5	OK	
S1.004	S9	-0.041	0.000	0.62			21.9	OK	
S6.000	S10	-0.125	0.000	0.06			2.3	OK	
S1.005	S11	0.017	0.000	0.94			27.1	SURCHARGED	
S7.000	S12	-0.104	0.000	0.21			7.1	OK	
S8.000	S13	-0.125	0.000	0.06			2.2	OK	
S1.006	S14	0.021	0.000	1.20			34.7	SURCHARGED	
S9.000	S15	-0.111	0.000	0.15			4.6	OK	
S1.007	S16	-0.146	0.000	0.51			38.4	OK	
S10.000	S17	-0.111	0.000	0.15			4.5	OK	
S11.000	S18	-0.113	0.000	0.13			2.8	OK	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST</u>									
	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level
									(m)
S1.008	S19	15 Winter	2	+0%					13.866
S12.000	S20	15 Winter	2	+0%					13.973
S1.009	S21	15 Winter	2	+0%					13.760
S13.000	S22	15 Winter	2	+0%					13.763
S1.010	S23	15 Winter	2	+0%					13.669
S1.011	S24	15 Winter	2	+0%					13.589
S14.000	S25	15 Winter	2	+0%					13.721
S1.012	S26	120 Winter	2	+0%					13.584
S1.013	S27	120 Winter	2	+0%					13.581
S15.000	S28	15 Winter	2	+0%					13.753
S16.000	S29	15 Winter	2	+0%					13.887
S1.014	S30	120 Winter	2	+0%					13.578
S1.015	S31	120 Winter	2	+0%	2/60 Winter				13.576

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST</u>								
<u>Simulation Criteria</u>								
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		1			
Number of Online Controls		1	Number of Time/Area Diagrams		0			
Number of Offline Controls		0	Number of Real Time Controls		0			
<u>Synthetic Rainfall Details</u>								
Rainfall Model		FSR	Ratio R		0.350			
Region England and Wales Cv (Summer)		0.750						
M5-60 (mm)		19.000	Cv (Winter)		0.840			
Margin for Flood Risk Warning (mm)		300.0						
Analysis Timestep		2.5 Second Increment (Extended)						
DTS Status		ON						
DVD Status		OFF						
Inertia Status		OFF						
Profile(s)		Summer and Winter						
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080						
Return Period(s) (years)		30						
Climate Change (%)		0						

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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST</u>									
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.152	0.000	0.22			9.5	OK	
S1.001	S2	-0.118	0.000	0.45			18.3	OK	
S1.002	S3	-0.116	0.000	0.45			22.8	OK	
S2.000	S4	0.076	0.000	0.13			1.6	SURCHARGED	
S3.000	S5	0.031	0.000	0.13			2.2	SURCHARGED	
S1.003	S6	0.113	0.000	0.41			33.4	SURCHARGED	
S4.000	S7	0.340	0.000	0.14			4.6	SURCHARGED	
S5.000	S8	0.260	0.000	0.18			3.9	SURCHARGED	
S1.004	S9	0.395	0.000	1.08			38.2	SURCHARGED	
S6.000	S10	0.060	0.000	0.11			4.1	SURCHARGED	
S1.005	S11	0.392	0.000	1.57			45.5	SURCHARGED	
S7.000	S12	-0.083	0.000	0.39			13.4	OK	
S8.000	S13	-0.021	0.000	0.12			4.2	OK	
S1.006	S14	0.323	0.000	2.07			60.1	SURCHARGED	
S9.000	S15	-0.044	0.000	0.28			8.7	OK	
S1.007	S16	0.189	0.000	0.89			66.6	SURCHARGED	
S10.000	S17	0.032	0.000	0.29			8.5	SURCHARGED	
S11.000	S18	0.117	0.000	0.23			4.9	SURCHARGED	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST</u>									
Water									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)
S1.008	S19	15 Winter	30	+0%	30/15 Summer				14.212
S12.000	S20	15 Winter	30	+0%	30/15 Winter				14.109
S1.009	S21	15 Winter	30	+0%	30/15 Summer				14.104
S13.000	S22	15 Winter	30	+0%	30/15 Summer				14.015
S1.010	S23	15 Winter	30	+0%	30/15 Summer				13.972
S1.011	S24	180 Winter	30	+0%	30/15 Summer				13.852
S14.000	S25	180 Winter	30	+0%	30/120 Winter				13.851
S1.012	S26	180 Winter	30	+0%	30/15 Summer				13.850
S1.013	S27	180 Winter	30	+0%	30/15 Summer				13.848
S15.000	S28	180 Winter	30	+0%					13.845
S16.000	S29	15 Winter	30	+0%					13.907
S1.014	S30	180 Winter	30	+0%	30/15 Summer				13.844
S1.015	S31	180 Winter	30	+0%	30/15 Summer				13.842
Surcharged Flooded Half Drain Pipe									
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.008	S19	0.245	0.000	1.31			82.4	SURCHARGED	
S12.000	S20	0.016	0.000	0.17			4.5	SURCHARGED	
S1.009	S21	0.201	0.000	0.90			84.7	SURCHARGED	
S13.000	S22	0.175	0.000	0.80			14.4	SURCHARGED	
S1.010	S23	0.229	0.000	1.57			96.3	SURCHARGED	
S1.011	S24	0.170	0.000	0.47			35.5	SURCHARGED	
S14.000	S25	0.014	0.000	0.06			1.5	SURCHARGED	
S1.012	S26	0.192	0.000	0.45			36.6	SURCHARGED	
S1.013	S27	0.224	0.000	0.45			37.6	SURCHARGED	
S15.000	S28	-0.020	0.000	0.07			2.1	OK	
S16.000	S29	-0.082	0.000	0.41			12.0	OK	
S1.014	S30	0.262	0.000	0.62			44.5	SURCHARGED	
S1.015	S31	0.281	0.000	0.00		173	0.0	SURCHARGED	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST</u>								
<u>Simulation Criteria</u>								
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 1					
Number of Online Controls 1			Number of Time/Area Diagrams 0					
Number of Offline Controls 0			Number of Real Time Controls 0					
<u>Synthetic Rainfall Details</u>								
Rainfall Model			FSR		Ratio R 0.350			
Region England and Wales			Cv (Summer)		0.750			
M5-60 (mm)			19.000		Cv (Winter) 0.840			
Margin for Flood Risk Warning (mm)			300.0					
Analysis Timestep 2.5			Second Increment (Extended)					
DTS Status			ON					
DVD Status			OFF					
Inertia Status			OFF					
Profile(s)			Summer and Winter					
Duration(s) (mins)			15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080					
Return Period(s) (years)			100					
Climate Change (%)			40					

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Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST

PN	US/MH Name	Water Surcharged Flooded			Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
		Level (m)	Depth (m)	Volume (m³)					
S1.000	S1	15.919	0.221	0.000	0.39			16.9	SURCHARGED
S1.001	S2	15.884	0.468	0.000	0.70			28.4	SURCHARGED
S1.002	S3	15.839	0.583	0.000	0.59			29.5	SURCHARGED
S2.000	S4	15.692	0.990	0.000	0.20			2.4	FLOOD RISK
S3.000	S5	15.696	0.946	0.000	0.19			3.3	SURCHARGED
S1.003	S6	15.688	1.025	0.000	0.53			42.6	FLOOD RISK
S4.000	S7	15.516	1.125	4.518	1.06			35.2	FLOOD
S5.000	S8	15.613	1.136	0.000	0.31			6.8	FLOOD RISK
S1.004	S9	15.594	1.261	0.000	1.65			58.7	FLOOD RISK
S6.000	S10	15.560	0.988	0.000	0.17			6.3	FLOOD RISK
S1.005	S11	15.546	1.313	0.000	2.23			64.7	FLOOD RISK
S7.000	S12	15.600	0.951	0.000	0.55			18.7	FLOOD RISK
S8.000	S13	15.477	0.921	0.000	0.17			5.7	FLOOD RISK
S1.006	S14	15.462	1.258	0.000	2.51			72.7	FLOOD RISK
S9.000	S15	15.289	0.872	0.000	0.39			12.1	SURCHARGED
S1.007	S16	15.251	1.076	0.000	1.06			79.5	FLOOD RISK
S10.000	S17	15.054	0.864	0.000	0.42			12.5	SURCHARGED
S11.000	S18	15.039	0.933	0.000	0.36			7.5	FLOOD RISK

PN	US/MH Name	Level Exceeded
S1.000	S1	
S1.001	S2	
S1.002	S3	
S2.000	S4	
S3.000	S5	
S1.003	S6	
S4.000	S7	4
S5.000	S8	
S1.004	S9	
S6.000	S10	
S1.005	S11	
S7.000	S12	
S8.000	S13	
S1.006	S14	
S9.000	S15	
S1.007	S16	
S10.000	S17	
S11.000	S18	

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XP Solutions					Network 2020.1				
<u>Summary of Critical Results by Maximum Level (Rank 1) for STORM WEST</u>									
Water									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)
S1.008	S19	15 Winter	100	+40%	100/15 Summer				15.019
S12.000	S20	15 Winter	100	+40%	100/15 Summer				14.831
S1.009	S21	15 Winter	100	+40%	100/15 Summer				14.822
S13.000	S22	15 Winter	100	+40%	100/15 Summer				14.731
S1.010	S23	15 Winter	100	+40%	100/15 Summer				14.575
S1.011	S24	240 Winter	100	+40%	100/15 Summer				14.390
S14.000	S25	240 Winter	100	+40%	100/15 Summer				14.388
S1.012	S26	240 Winter	100	+40%	100/15 Summer				14.387
S1.013	S27	240 Winter	100	+40%	100/15 Summer				14.384
S15.000	S28	240 Winter	100	+40%	100/15 Winter				14.381
S16.000	S29	240 Winter	100	+40%	100/15 Winter				14.382
S1.014	S30	240 Winter	100	+40%	100/15 Summer				14.380
S1.015	S31	240 Winter	100	+40%	100/15 Summer				14.377
Surcharged Flooded Half Drain Pipe									
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.008	S19	1.052	0.000	1.74			109.3	FLOOD RISK	
S12.000	S20	0.738	0.000	0.23			6.4	SURCHARGED	
S1.009	S21	0.918	0.000	1.23			115.4	FLOOD RISK	
S13.000	S22	0.891	0.000	1.40			25.3	SURCHARGED	
S1.010	S23	0.832	0.000	2.23			136.6	SURCHARGED	
S1.011	S24	0.707	0.000	0.69			51.4	SURCHARGED	
S14.000	S25	0.551	0.000	0.08			2.1	SURCHARGED	
S1.012	S26	0.729	0.000	0.66			53.2	SURCHARGED	
S1.013	S27	0.760	0.000	0.65			54.8	SURCHARGED	
S15.000	S28	0.516	0.000	0.10			3.0	SURCHARGED	
S16.000	S29	0.393	0.000	0.15			4.5	SURCHARGED	
S1.014	S30	0.798	0.000	0.90			64.6	SURCHARGED	
S1.015	S31	0.816	0.000	0.00		330	0.0	SURCHARGED	
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XP Solutions			Network 2020.1			
Area Summary for STORM WEST						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.020	0.020	0.020
	User	-	100	0.008	0.008	0.028
	User	-	100	0.004	0.004	0.031
1.001	User	-	100	0.007	0.007	0.007
	User	-	100	0.004	0.004	0.011
	User	-	100	0.018	0.018	0.028
1.002	User	-	100	0.010	0.010	0.010
	User	-	100	0.004	0.004	0.014
	User	-	100	0.002	0.002	0.016
2.000	User	-	100	0.006	0.006	0.006
3.000	User	-	100	0.008	0.008	0.008
1.003	User	-	100	0.012	0.012	0.012
	User	-	100	0.030	0.030	0.042
	User	-	100	0.000	0.000	0.043
	User	-	100	0.001	0.001	0.044
	User	-	100	0.004	0.004	0.048
4.000	User	-	100	0.008	0.008	0.008
	User	-	100	0.003	0.003	0.011
5.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.008	0.008	0.010
	User	-	100	0.005	0.005	0.015
1.004	-	-	100	0.000	0.000	0.000
6.000	User	-	100	0.008	0.008	0.008
	User	-	100	0.006	0.006	0.014
1.005	User	-	100	0.018	0.018	0.018
	User	-	100	0.008	0.008	0.025
	User	-	100	0.001	0.001	0.026
	User	-	100	0.001	0.001	0.027
	User	-	100	0.001	0.001	0.028
7.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.014	0.014	0.018
	User	-	100	0.007	0.007	0.025
	User	-	100	0.004	0.004	0.029
	User	-	100	0.008	0.008	0.037
	User	-	100	0.006	0.006	0.043
8.000	User	-	100	0.006	0.006	0.006
	User	-	100	0.002	0.002	0.008
	User	-	100	0.006	0.006	0.013
1.006	-	-	100	0.000	0.000	0.000
9.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.004	0.004	0.011
	User	-	100	0.008	0.008	0.019
	User	-	100	0.009	0.009	0.028
1.007	User	-	100	0.001	0.001	0.001
	User	-	100	0.004	0.004	0.006
	User	-	100	0.001	0.001	0.007
10.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.004	0.004	0.011
	User	-	100	0.008	0.008	0.019
	User	-	100	0.008	0.008	0.028
11.000	User	-	100	0.002	0.002	0.002
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XP Solutions				Network 2020.1		
Area Summary for STORM WEST						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.008	User	-	100	0.008	0.008	0.010
	User	-	100	0.004	0.004	0.014
	User	-	100	0.003	0.003	0.017
	User	-	100	0.022	0.022	0.022
	User	-	100	0.008	0.008	0.030
	User	-	100	0.001	0.001	0.031
	User	-	100	0.000	0.000	0.031
	User	-	100	0.001	0.001	0.032
	User	-	100	0.001	0.001	0.033
	User	-	100	0.000	0.000	0.033
	User	-	100	0.001	0.001	0.034
	User	-	100	0.001	0.001	0.035
12.000	User	-	100	0.001	0.001	0.036
	User	-	100	0.005	0.005	0.005
	User	-	100	0.009	0.009	0.015
1.009	-	-	100	0.000	0.000	0.000
13.000	User	-	100	0.010	0.010	0.010
	User	-	100	0.014	0.014	0.024
	User	-	100	0.006	0.006	0.030
	User	-	100	0.005	0.005	0.035
	User	-	100	0.005	0.005	0.040
	User	-	100	0.004	0.004	0.044
	User	-	100	0.003	0.003	0.047
	User	-	100	0.004	0.004	0.052
1.010	-	-	100	0.000	0.000	0.000
1.011	User	-	100	0.006	0.006	0.006
	User	-	100	0.014	0.014	0.021
	User	-	100	0.000	0.000	0.021
	User	-	100	0.001	0.001	0.022
	User	-	100	0.000	0.000	0.022
14.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.004	0.004	0.011
	User	-	100	0.008	0.008	0.019
1.012	-	-	100	0.000	0.000	0.000
1.013	User	-	100	0.009	0.009	0.009
	User	-	100	0.004	0.004	0.014
	User	-	100	0.000	0.000	0.014
	User	-	100	0.003	0.003	0.017
15.000	User	-	100	0.008	0.008	0.008
	User	-	100	0.007	0.007	0.015
	User	-	100	0.009	0.009	0.024
	User	-	100	0.003	0.003	0.027
16.000	User	-	100	0.005	0.005	0.005
	User	-	100	0.001	0.001	0.005
	User	-	100	0.008	0.008	0.013
	User	-	100	0.004	0.004	0.017
	User	-	100	0.007	0.007	0.024
	User	-	100	0.008	0.008	0.032
	User	-	100	0.007	0.007	0.039
1.014	User	-	100	0.023	0.023	0.023
	User	-	100	0.002	0.002	0.025
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Area Summary for STORM WEST

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
	User	-	100	0.000	0.000	0.025
	User	-	100	0.000	0.000	0.025
	User	-	100	0.002	0.002	0.027
1.015	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.596	0.596	0.596