

Netherton Park
Stannington
NE61 6EF

Miller Homes
Victoria Road
SW FEASIBILITY



Date 14 11 2016

Designed by AL / JM

File QD1183 SW 16 11 16.mdx

Checked by

XP Solutions

Network 2015.1

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm Network 18 08 16.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	Add Flow / Climate Change (%)	0
M5-60 (mm)	18.400	Minimum Backdrop Height (m)	0.000
Ratio R	0.350	Maximum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	50	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm Network 18 08 16.sws

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	42.762	0.317	134.9	0.218	4.00	0.0	0.600	o	300	
1.001	76.518	0.567	135.0	0.173	0.00	0.0	0.600	o	300	
1.002	38.190	0.283	134.9	0.242	0.00	0.0	0.600	o	450	
1.003	20.728	0.154	134.6	0.049	0.00	0.0	0.600	o	450	
1.004	17.119	0.127	134.8	0.084	0.00	0.0	0.600	o	450	
1.005	21.073	0.156	135.1	0.145	0.00	0.0	0.600	o	450	
1.006	35.032	0.259	135.3	0.000	0.00	0.0	0.600	o	450	
1.007	24.327	0.180	135.2	0.140	0.00	0.0	0.600	o	450	
1.008	25.326	0.230	110.1	0.097	0.00	0.0	0.600	o	675	
1.009	24.517	0.223	110.0	0.000	0.00	0.0	0.600	o	675	
1.010	26.041	0.237	110.0	0.077	0.00	0.0	0.600	o	750	
1.011	43.036	0.086	500.0	0.000	0.00	0.0	0.600	o	750	
2.000	26.402	0.518	51.0	0.119	4.00	0.0	0.600	o	225	
2.001	47.735	1.011	47.2	0.090	0.00	0.0	0.600	o	225	
3.000	36.389	0.738	49.3	0.157	4.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	49.09	4.53	44.000	0.218	0.0	0.0	0.0	1.35	95.6	29.0
1.001	45.38	5.47	43.683	0.391	0.0	0.0	0.0	1.35	95.5	48.1
1.002	44.12	5.83	42.966	0.633	0.0	0.0	0.0	1.75	278.1	75.6
1.003	43.47	6.03	42.683	0.682	0.0	0.0	0.0	1.75	278.4	80.3
1.004	42.95	6.20	42.529	0.766	0.0	0.0	0.0	1.75	278.2	89.1
1.005	42.33	6.40	42.402	0.911	0.0	0.0	0.0	1.75	277.9	104.4
1.006	41.34	6.73	42.246	0.911	0.0	0.0	0.0	1.75	277.8	104.4
1.007	40.69	6.96	41.987	1.051	0.0	0.0	0.0	1.75	277.9	115.8
1.008	40.22	7.13	41.582	1.148	0.0	0.0	0.0	2.50	893.6	125.1
1.009	39.79	7.30	41.352	1.148	0.0	0.0	0.0	2.50	894.1	125.1
1.010	39.36	7.46	41.054	1.225	0.0	0.0	0.0	2.67	1178.6	130.6
1.011	37.95	8.03	40.818	1.225	0.0	0.0	0.0	1.24	549.9	130.6
2.000	50.00	4.24	45.821	0.119	0.0	0.0	0.0	1.84	73.0	16.1
2.001	48.54	4.66	45.303	0.209	0.0	0.0	0.0	1.91	75.9	27.5
3.000	49.98	4.32	45.105	0.157	0.0	0.0	0.0	1.87	74.2	21.3

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Network Design Table for Storm Network 18 08 16.sws

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
2.002	40.921	0.802	51.0	0.000	0.00	0.0	0.600	o	300	
2.003	25.023	0.132	189.6	0.140	0.00	0.0	0.600	o	450	
2.004	29.095	0.153	190.2	0.078	0.00	0.0	0.600	o	450	
2.005	19.582	0.103	190.1	0.129	0.00	0.0	0.600	o	450	
2.006	19.427	0.102	190.0	0.000	0.00	0.0	0.600	o	450	
4.000	58.114	0.612	95.0	0.165	4.00	0.0	0.600	o	225	
4.001	25.894	0.857	30.2	0.092	0.00	0.0	0.600	o	225	
4.002	29.107	0.551	52.8	0.095	0.00	0.0	0.600	o	300	
5.000	20.807	0.124	167.8	0.200	4.00	0.0	0.600	o	225	
5.001	22.224	0.152	146.2	0.127	0.00	0.0	0.600	o	300	
4.003	20.807	0.069	300.0	0.000	0.00	0.0	0.600	o	750	
4.004	36.175	0.121	300.0	0.129	0.00	0.0	0.600	o	750	
2.007	26.979	0.054	500.0	0.036	0.00	0.0	0.600	o	750	
2.008	27.565	0.055	500.0	0.138	0.00	0.0	0.600	o	750	
2.009	27.804	0.056	500.0	0.000	0.00	0.0	0.600	o	750	
2.010	25.651	0.060	427.5	0.127	0.00	0.0	0.600	o	750	
6.000	53.858	1.200	44.9	0.188	4.00	0.0	0.600	o	225	
6.001	43.814	0.219	200.0	0.132	0.00	0.0	0.600	o	300	
6.002	26.536	0.133	200.0	0.132	0.00	0.0	0.600	o	300	
6.003	23.612	0.118	200.0	0.000	0.00	0.0	0.600	o	300	

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)
2.002	47.28	4.97	44.217	0.366	0.0	0.0	0.0	2.21	155.9	46.9
2.003	46.20	5.25	43.265	0.506	0.0	0.0	0.0	1.47	234.3	63.3
2.004	45.00	5.58	43.133	0.584	0.0	0.0	0.0	1.47	233.9	71.2
2.005	44.24	5.80	42.980	0.713	0.0	0.0	0.0	1.47	234.0	85.4
2.006	43.51	6.02	42.877	0.713	0.0	0.0	0.0	1.47	234.0	85.4
4.000	48.27	4.72	45.362	0.165	0.0	0.0	0.0	1.34	53.4	21.6
4.001	47.53	4.90	44.750	0.257	0.0	0.0	0.0	2.39	95.0	33.1
4.002	46.66	5.13	43.818	0.352	0.0	0.0	0.0	2.17	153.2	44.5
5.000	49.89	4.34	43.618	0.200	0.0	0.0	0.0	1.01	40.0	27.0
5.001	48.65	4.63	43.419	0.327	0.0	0.0	0.0	1.30	91.8	43.1
4.003	45.85	5.34	42.817	0.679	0.0	0.0	0.0	1.61	711.5	84.3
4.004	44.53	5.72	42.748	0.808	0.0	0.0	0.0	1.61	711.5	97.4
2.007	42.37	6.38	42.475	1.557	0.0	0.0	0.0	1.24	549.9	178.7
2.008	41.28	6.75	42.421	1.695	0.0	0.0	0.0	1.24	549.9	189.5
2.009	40.25	7.12	42.366	1.695	0.0	0.0	0.0	1.24	549.9	189.5
2.010	39.41	7.44	42.310	1.822	0.0	0.0	0.0	1.35	595.1	194.5
6.000	49.39	4.46	44.996	0.188	0.0	0.0	0.0	1.96	77.8	25.1
6.001	46.69	5.12	43.721	0.320	0.0	0.0	0.0	1.11	78.3	40.5
6.002	45.22	5.52	43.502	0.452	0.0	0.0	0.0	1.11	78.3	55.4
6.003	44.00	5.87	43.000	0.452	0.0	0.0	0.0	1.11	78.3	55.4

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2.011	17.046	0.363	47.0	0.129	0.00	0.0	0.600	o	750	
2.012	19.659	0.418	47.0	0.000	0.00	0.0	0.600	o	750	
7.000	73.805	0.600	123.0	0.199	4.00	0.0	0.600	o	300	
7.001	23.698	0.200	118.5	0.122	0.00	0.0	0.600	o	300	
7.002	28.971	0.200	144.9	0.182	0.00	0.0	0.600	o	300	
7.003	39.446	0.350	112.7	0.086	0.00	0.0	0.600	o	375	
2.013	11.123	0.237	47.0	0.000	0.00	0.0	0.600	o	750	
2.014	22.217	0.473	47.0	0.126	0.00	0.0	0.600	o	750	
1.012	14.184	0.028	500.0	0.000	0.00	0.0	0.600	o	750	
1.013	17.337	0.035	500.0	0.070	0.00	0.0	0.600	o	750	
1.014	20.812	0.042	500.0	0.071	0.00	0.0	0.600	o	750	
1.015	18.402	0.037	500.0	0.000	0.00	0.0	0.600	o	750	
1.016	23.478	0.047	500.0	0.117	0.00	0.0	0.600	o	750	
1.017	56.265	0.113	500.0	0.107	0.00	0.0	0.600	o	750	
1.018	63.232	0.675	93.7	0.147	0.00	0.0	0.600	o	750	
1.019	30.510	0.900	33.9	0.185	0.00	0.0	0.600	o	900	
1.020	35.938	0.797	45.1	1.400	0.00	0.0	0.600	o	600	
1.021	72.763	4.000	18.2	0.000	0.00	0.0	0.600	o	600	
1.022	32.097	2.600	12.3	0.000	0.00	0.0	0.600	o	600	
1.023	67.687	6.200	10.9	0.000	0.00	0.0	0.600	o	600	
1.024	75.403	3.800	19.8	0.000	0.00	0.0	0.600	o	600	
1.025	35.254	2.000	17.6	0.000	0.00	0.0	0.600	o	600	

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)
2.011	39.23	7.51	42.250	2.403	0.0	0.0	0.0	4.09	1806.2	255.3
2.012	39.03	7.59	41.887	2.403	0.0	0.0	0.0	4.09	1806.2	255.3
7.000	47.67	4.87	43.500	0.199	0.0	0.0	0.0	1.42	100.1	25.7
7.001	46.60	5.14	42.900	0.321	0.0	0.0	0.0	1.44	102.0	40.5
7.002	45.24	5.51	42.700	0.503	0.0	0.0	0.0	1.30	92.2	61.6
7.003	43.91	5.90	42.425	0.589	0.0	0.0	0.0	1.71	188.4	70.0
2.013	38.92	7.64	41.469	2.992	0.0	0.0	0.0	4.09	1806.2	315.3
2.014	38.69	7.73	41.232	3.118	0.0	0.0	0.0	4.09	1806.2	326.7
1.012	37.51	8.22	40.732	4.343	0.0	0.0	0.0	1.24	549.9	441.2
1.013	36.98	8.46	40.703	4.413	0.0	0.0	0.0	1.24	549.9	442.0
1.014	36.38	8.73	40.668	4.484	0.0	0.0	0.0	1.24	549.9	442.0
1.015	35.86	8.98	40.627	4.484	0.0	0.0	0.0	1.24	549.9	442.0
1.016	35.23	9.30	40.590	4.601	0.0	0.0	0.0	1.24	549.9	442.0
1.017	33.81	10.05	40.543	4.708	0.0	0.0	0.0	1.24	549.9	442.0
1.018	33.17	10.41	40.431	4.855	0.0	0.0	0.0	2.89	1277.7	442.0
1.019	33.01	10.51	39.606	5.040	0.0	0.0	0.0	5.39	3429.9	450.5
1.020	32.73	10.67	37.000	6.440	0.0	0.0	0.0	3.63	1027.2	570.9
1.021	32.38	10.88	36.203	6.440	0.0	0.0	0.0	5.73	1619.4	570.9
1.022	32.26	10.96	32.203	6.440	0.0	0.0	0.0	6.96	1966.6	570.9
1.023	32.02	11.11	29.603	6.440	0.0	0.0	0.0	7.40	2091.5	570.9
1.024	31.66	11.34	23.403	6.440	0.0	0.0	0.0	5.48	1550.4	570.9
1.025	31.50	11.44	19.603	6.440	0.0	0.0	0.0	5.82	1645.2	570.9

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Manhole Schedules for Storm Network 18 08 16.sws

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)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	45.672	1.672	Open Manhole	1200	1.000	44.000	300				
S2	45.362	1.679	Open Manhole	1200	1.001	43.683	300	1.000	43.683	300	
S3	44.585	1.619	Open Manhole	1500	1.002	42.966	450	1.001	43.116	300	
S4	44.380	1.697	Open Manhole	1500	1.003	42.683	450	1.002	42.683	450	
S5	45.091	2.562	Open Manhole	1500	1.004	42.529	450	1.003	42.529	450	
S6	45.026	2.624	Open Manhole	1500	1.005	42.402	450	1.004	42.402	450	
S7	44.384	2.138	Open Manhole	1500	1.006	42.246	450	1.005	42.246	450	
S8	44.249	2.262	Open Manhole	1500	1.007	41.987	450	1.006	41.987	450	
S9	43.700	2.118	Open Manhole	1500	1.008	41.582	675	1.007	41.807	450	
S10	43.400	2.048	Open Manhole	1500	1.009	41.352	675	1.008	41.352	675	
S11	43.300	2.246	Open Manhole	1800	1.010	41.054	750	1.009	41.129	675	
S12	43.200	2.382	Open Manhole	1800	1.011	40.818	750	1.010	40.818	750	
S30	47.171	1.350	Open Manhole	1200	2.000	45.821	225				
S31	47.018	1.715	Open Manhole	1200	2.001	45.303	225	2.000	45.303	225	
S45	46.530	1.425	Open Manhole	1200	3.000	45.105	225				
S32	46.208	1.991	Open Manhole	1200	2.002	44.217	300	2.001	44.292	225	
								3.000	44.367	225	75
S33	45.170	1.905	Open Manhole	1500	2.003	43.265	450	2.002	43.415	300	
S34	45.154	2.021	Open Manhole	1500	2.004	43.133	450	2.003	43.133	450	
S35	45.223	2.243	Open Manhole	1500	2.005	42.980	450	2.004	42.980	450	
S36	45.228	2.351	Open Manhole	1500	2.006	42.877	450	2.005	42.877	450	
S46	46.787	1.425	Open Manhole	1200	4.000	45.362	225				
S47	46.175	1.425	Open Manhole	1200	4.001	44.750	225	4.000	44.750	225	
S48	45.318	1.500	Open Manhole	1200	4.002	43.818	300	4.001	43.893	225	
S51	45.200	1.582	Open Manhole	1200	5.000	43.618	225				
S52	45.033	1.614	Open Manhole	1500	5.001	43.419	300	5.000	43.494	225	
S49	45.190	2.373	Open Manhole	1500	4.003	42.817	750	4.002	43.267	300	
								5.001	43.267	300	
S50	45.217	2.469	Open Manhole	1500	4.004	42.748	750	4.003	42.748	750	
S37	45.233	2.758	Open Manhole	1800	2.007	42.475	750	2.006	42.775	450	
								4.004	42.627	750	152
S38	45.019	2.598	Open Manhole	1800	2.008	42.421	750	2.007	42.421	750	
S39	45.037	2.671	Open Manhole	1800	2.009	42.366	750	2.008	42.366	750	
S40	45.016	2.706	Open Manhole	1800	2.010	42.310	750	2.009	42.310	750	
S53	46.346	1.350	Open Manhole	1200	6.000	44.996	225				
S54	45.010	1.289	Open Manhole	1200	6.001	43.721	300	6.000	43.796	225	
S55	45.019	1.517	Open Manhole	1500	6.002	43.502	300	6.001	43.502	300	
BASIN	45.000	2.000	Open Manhole	1200	6.003	43.000	300	6.002	43.369	300	369
S41	45.095	2.845	Open Manhole	1800	2.011	42.250	750	2.010	42.250	750	
								6.003	42.882	300	182
S42	43.974	2.087	Open Manhole	1800	2.012	41.887	750	2.011	41.887	750	
S56	45.027	1.527	Open Manhole	1200	7.000	43.500	300				
S57	44.984	2.084	Open Manhole	1200	7.001	42.900	300	7.000	42.900	300	
S58	45.015	2.315	Open Manhole	1200	7.002	42.700	300	7.001	42.700	300	

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MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out		Pipes In			Backdrop (mm)	
					PN	Invert Level (m)	Diameter (mm)	PN	Invert Level (m)		Diameter (mm)
S59	44.482	2.057	Open Manhole	1500	7.003	42.425	375	7.002	42.500	300	
S43	43.500	2.031	Open Manhole	1800	2.013	41.469	750	2.012	41.469	750	
								7.003	42.075	375	231
S44	43.246	2.014	Open Manhole	1800	2.014	41.232	750	2.013	41.232	750	
S13	43.087	2.355	Open Manhole	1800	1.012	40.732	750	1.011	40.732	750	
								2.014	40.760	750	28
S14	43.208	2.505	Open Manhole	1800	1.013	40.703	750	1.012	40.703	750	
S15	43.183	2.515	Open Manhole	1800	1.014	40.668	750	1.013	40.668	750	
S16	43.209	2.582	Open Manhole	1800	1.015	40.627	750	1.014	40.627	750	
S17	43.094	2.504	Open Manhole	1800	1.016	40.590	750	1.015	40.590	750	
S18	43.098	2.555	Open Manhole	1800	1.017	40.543	750	1.016	40.543	750	
S19	43.234	2.803	Open Manhole	1800	1.018	40.431	750	1.017	40.431	750	
S20	42.417	2.811	Open Manhole	1800	1.019	39.606	900	1.018	39.756	750	
S21	41.282	4.282	Open Manhole	1800	1.020	37.000	600	1.019	38.706	900	2006
S22	40.158	3.955	Open Manhole	1500	1.021	36.203	600	1.020	36.203	600	
S23	34.143	1.940	Open Manhole	1500	1.022	32.203	600	1.021	32.203	600	
S24	31.541	1.938	Open Manhole	1500	1.023	29.603	600	1.022	29.603	600	
S25	25.344	1.941	Open Manhole	1500	1.024	23.403	600	1.023	23.403	600	
S26	21.500	1.897	Open Manhole	1500	1.025	19.603	600	1.024	19.603	600	
S29	21.000	3.397	Open Manhole	0		OUTFALL		1.025	17.603	600	

Netherton Park
Stannington
NE61 6EFMiller Homes
Victoria Road
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PIPELINE SCHEDULES for Storm Network 18 08 16.sws

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	300	S1	45.672	44.000	1.372	Open Manhole	1200
1.001	o	300	S2	45.362	43.683	1.379	Open Manhole	1200
1.002	o	450	S3	44.585	42.966	1.169	Open Manhole	1500
1.003	o	450	S4	44.380	42.683	1.247	Open Manhole	1500
1.004	o	450	S5	45.091	42.529	2.112	Open Manhole	1500
1.005	o	450	S6	45.026	42.402	2.174	Open Manhole	1500
1.006	o	450	S7	44.384	42.246	1.688	Open Manhole	1500
1.007	o	450	S8	44.249	41.987	1.812	Open Manhole	1500
1.008	o	675	S9	43.700	41.582	1.443	Open Manhole	1500
1.009	o	675	S10	43.400	41.352	1.373	Open Manhole	1500
1.010	o	750	S11	43.300	41.054	1.496	Open Manhole	1800
1.011	o	750	S12	43.200	40.818	1.632	Open Manhole	1800
2.000	o	225	S30	47.171	45.821	1.125	Open Manhole	1200
2.001	o	225	S31	47.018	45.303	1.490	Open Manhole	1200
3.000	o	225	S45	46.530	45.105	1.200	Open Manhole	1200
2.002	o	300	S32	46.208	44.217	1.691	Open Manhole	1200
2.003	o	450	S33	45.170	43.265	1.455	Open Manhole	1500
2.004	o	450	S34	45.154	43.133	1.571	Open Manhole	1500
2.005	o	450	S35	45.223	42.980	1.793	Open Manhole	1500
2.006	o	450	S36	45.228	42.877	1.901	Open Manhole	1500
4.000	o	225	S46	46.787	45.362	1.200	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	42.762	134.9	S2	45.362	43.683	1.379	Open Manhole	1200
1.001	76.518	135.0	S3	44.585	43.116	1.169	Open Manhole	1500
1.002	38.190	134.9	S4	44.380	42.683	1.247	Open Manhole	1500
1.003	20.728	134.6	S5	45.091	42.529	2.112	Open Manhole	1500
1.004	17.119	134.8	S6	45.026	42.402	2.174	Open Manhole	1500
1.005	21.073	135.1	S7	44.384	42.246	1.688	Open Manhole	1500
1.006	35.032	135.3	S8	44.249	41.987	1.812	Open Manhole	1500
1.007	24.327	135.2	S9	43.700	41.807	1.443	Open Manhole	1500
1.008	25.326	110.1	S10	43.400	41.352	1.373	Open Manhole	1500
1.009	24.517	110.0	S11	43.300	41.129	1.496	Open Manhole	1800
1.010	26.041	110.0	S12	43.200	40.818	1.632	Open Manhole	1800
1.011	43.036	500.0	S13	43.087	40.732	1.605	Open Manhole	1800
2.000	26.402	51.0	S31	47.018	45.303	1.490	Open Manhole	1200
2.001	47.735	47.2	S32	46.208	44.292	1.691	Open Manhole	1200
3.000	36.389	49.3	S32	46.208	44.367	1.616	Open Manhole	1200
2.002	40.921	51.0	S33	45.170	43.415	1.455	Open Manhole	1500
2.003	25.023	189.6	S34	45.154	43.133	1.571	Open Manhole	1500
2.004	29.095	190.2	S35	45.223	42.980	1.793	Open Manhole	1500
2.005	19.582	190.1	S36	45.228	42.877	1.901	Open Manhole	1500
2.006	19.427	190.0	S37	45.233	42.775	2.008	Open Manhole	1800
4.000	58.114	95.0	S47	46.175	44.750	1.200	Open Manhole	1200

Netherton Park
Stannington
NE61 6EF

Miller Homes
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PIPELINE SCHEDULES for Storm Network 18 08 16.sws

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.001	o	225	S47	46.175	44.750	1.200	Open Manhole	1200
4.002	o	300	S48	45.318	43.818	1.200	Open Manhole	1200
5.000	o	225	S51	45.200	43.618	1.357	Open Manhole	1200
5.001	o	300	S52	45.033	43.419	1.314	Open Manhole	1500
4.003	o	750	S49	45.190	42.817	1.623	Open Manhole	1500
4.004	o	750	S50	45.217	42.748	1.719	Open Manhole	1500
2.007	o	750	S37	45.233	42.475	2.008	Open Manhole	1800
2.008	o	750	S38	45.019	42.421	1.848	Open Manhole	1800
2.009	o	750	S39	45.037	42.366	1.921	Open Manhole	1800
2.010	o	750	S40	45.016	42.310	1.956	Open Manhole	1800
6.000	o	225	S53	46.346	44.996	1.125	Open Manhole	1200
6.001	o	300	S54	45.010	43.721	0.989	Open Manhole	1200
6.002	o	300	S55	45.019	43.502	1.217	Open Manhole	1500
6.003	o	300	BASIN	45.000	43.000	1.700	Open Manhole	1200
2.011	o	750	S41	45.095	42.250	2.095	Open Manhole	1800
2.012	o	750	S42	43.974	41.887	1.337	Open Manhole	1800
7.000	o	300	S56	45.027	43.500	1.227	Open Manhole	1200
7.001	o	300	S57	44.984	42.900	1.784	Open Manhole	1200
7.002	o	300	S58	45.015	42.700	2.015	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.001	25.894	30.2	S48	45.318	43.893	1.200	Open Manhole	1200
4.002	29.107	52.8	S49	45.190	43.267	1.623	Open Manhole	1500
5.000	20.807	167.8	S52	45.033	43.494	1.314	Open Manhole	1500
5.001	22.224	146.2	S49	45.190	43.267	1.623	Open Manhole	1500
4.003	20.807	300.0	S50	45.217	42.748	1.719	Open Manhole	1500
4.004	36.175	300.0	S37	45.233	42.627	1.856	Open Manhole	1800
2.007	26.979	500.0	S38	45.019	42.421	1.848	Open Manhole	1800
2.008	27.565	500.0	S39	45.037	42.366	1.921	Open Manhole	1800
2.009	27.804	500.0	S40	45.016	42.310	1.956	Open Manhole	1800
2.010	25.651	427.5	S41	45.095	42.250	2.095	Open Manhole	1800
6.000	53.858	44.9	S54	45.010	43.796	0.989	Open Manhole	1200
6.001	43.814	200.0	S55	45.019	43.502	1.217	Open Manhole	1500
6.002	26.536	200.0	BASIN	45.000	43.369	1.331	Open Manhole	1200
6.003	23.612	200.0	S41	45.095	42.882	1.913	Open Manhole	1800
2.011	17.046	47.0	S42	43.974	41.887	1.337	Open Manhole	1800
2.012	19.659	47.0	S43	43.500	41.469	1.281	Open Manhole	1800
7.000	73.805	123.0	S57	44.984	42.900	1.784	Open Manhole	1200
7.001	23.698	118.5	S58	45.015	42.700	2.015	Open Manhole	1200
7.002	28.971	144.9	S59	44.482	42.500	1.682	Open Manhole	1500

Netherton Park
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PIPELINE SCHEDULES for Storm Network 18 08 16.sws

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
7.003	o	375	S59	44.482	42.425	1.682	Open Manhole	1500
2.013	o	750	S43	43.500	41.469	1.281	Open Manhole	1800
2.014	o	750	S44	43.246	41.232	1.264	Open Manhole	1800
1.012	o	750	S13	43.087	40.732	1.605	Open Manhole	1800
1.013	o	750	S14	43.208	40.703	1.755	Open Manhole	1800
1.014	o	750	S15	43.183	40.668	1.765	Open Manhole	1800
1.015	o	750	S16	43.209	40.627	1.832	Open Manhole	1800
1.016	o	750	S17	43.094	40.590	1.754	Open Manhole	1800
1.017	o	750	S18	43.098	40.543	1.805	Open Manhole	1800
1.018	o	750	S19	43.234	40.431	2.053	Open Manhole	1800
1.019	o	900	S20	42.417	39.606	1.911	Open Manhole	1800
1.020	o	600	S21	41.282	37.000	3.682	Open Manhole	1800
1.021	o	600	S22	40.158	36.203	3.355	Open Manhole	1500
1.022	o	600	S23	34.143	32.203	1.340	Open Manhole	1500
1.023	o	600	S24	31.541	29.603	1.338	Open Manhole	1500
1.024	o	600	S25	25.344	23.403	1.341	Open Manhole	1500
1.025	o	600	S26	21.500	19.603	1.297	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
7.003	39.446	112.7	S43	43.500	42.075	1.050	Open Manhole	1800
2.013	11.123	47.0	S44	43.246	41.232	1.264	Open Manhole	1800
2.014	22.217	47.0	S13	43.087	40.760	1.577	Open Manhole	1800
1.012	14.184	500.0	S14	43.208	40.703	1.755	Open Manhole	1800
1.013	17.337	500.0	S15	43.183	40.668	1.765	Open Manhole	1800
1.014	20.812	500.0	S16	43.209	40.627	1.832	Open Manhole	1800
1.015	18.402	500.0	S17	43.094	40.590	1.754	Open Manhole	1800
1.016	23.478	500.0	S18	43.098	40.543	1.805	Open Manhole	1800
1.017	56.265	500.0	S19	43.234	40.431	2.053	Open Manhole	1800
1.018	63.232	93.7	S20	42.417	39.756	1.911	Open Manhole	1800
1.019	30.510	33.9	S21	41.282	38.706	1.676	Open Manhole	1800
1.020	35.938	45.1	S22	40.158	36.203	3.355	Open Manhole	1500
1.021	72.763	18.2	S23	34.143	32.203	1.340	Open Manhole	1500
1.022	32.097	12.3	S24	31.541	29.603	1.338	Open Manhole	1500
1.023	67.687	10.9	S25	25.344	23.403	1.341	Open Manhole	1500
1.024	75.403	19.8	S26	21.500	19.603	1.297	Open Manhole	1500
1.025	35.254	17.6	S29	21.000	17.603	2.797	Open Manhole	0

Surcharged Outfall Details for Storm Network 18 08 16.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
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1.025 S29 21.000 17.603 0.000 0 0

Datum (m) 17.000 Offset (mins) 0

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Surcharged Outfall Details for Storm Network 18 08 16.sws

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	2.000	60	2.000	119	2.000	178	2.000	237	2.000	296	2.000	355	2.000
2	2.000	61	2.000	120	2.000	179	2.000	238	2.000	297	2.000	356	2.000
3	2.000	62	2.000	121	2.000	180	2.000	239	2.000	298	2.000	357	2.000
4	2.000	63	2.000	122	2.000	181	2.000	240	2.000	299	2.000	358	2.000
5	2.000	64	2.000	123	2.000	182	2.000	241	2.000	300	2.000	359	2.000
6	2.000	65	2.000	124	2.000	183	2.000	242	2.000	301	2.000	360	2.000
7	2.000	66	2.000	125	2.000	184	2.000	243	2.000	302	2.000	361	2.000
8	2.000	67	2.000	126	2.000	185	2.000	244	2.000	303	2.000	362	2.000
9	2.000	68	2.000	127	2.000	186	2.000	245	2.000	304	2.000	363	2.000
10	2.000	69	2.000	128	2.000	187	2.000	246	2.000	305	2.000	364	2.000
11	2.000	70	2.000	129	2.000	188	2.000	247	2.000	306	2.000	365	2.000
12	2.000	71	2.000	130	2.000	189	2.000	248	2.000	307	2.000	366	2.000
13	2.000	72	2.000	131	2.000	190	2.000	249	2.000	308	2.000	367	2.000
14	2.000	73	2.000	132	2.000	191	2.000	250	2.000	309	2.000	368	2.000
15	2.000	74	2.000	133	2.000	192	2.000	251	2.000	310	2.000	369	2.000
16	2.000	75	2.000	134	2.000	193	2.000	252	2.000	311	2.000	370	2.000
17	2.000	76	2.000	135	2.000	194	2.000	253	2.000	312	2.000	371	2.000
18	2.000	77	2.000	136	2.000	195	2.000	254	2.000	313	2.000	372	2.000
19	2.000	78	2.000	137	2.000	196	2.000	255	2.000	314	2.000	373	2.000
20	2.000	79	2.000	138	2.000	197	2.000	256	2.000	315	2.000	374	2.000
21	2.000	80	2.000	139	2.000	198	2.000	257	2.000	316	2.000	375	2.000
22	2.000	81	2.000	140	2.000	199	2.000	258	2.000	317	2.000	376	2.000
23	2.000	82	2.000	141	2.000	200	2.000	259	2.000	318	2.000	377	2.000
24	2.000	83	2.000	142	2.000	201	2.000	260	2.000	319	2.000	378	2.000
25	2.000	84	2.000	143	2.000	202	2.000	261	2.000	320	2.000	379	2.000
26	2.000	85	2.000	144	2.000	203	2.000	262	2.000	321	2.000	380	2.000
27	2.000	86	2.000	145	2.000	204	2.000	263	2.000	322	2.000	381	2.000
28	2.000	87	2.000	146	2.000	205	2.000	264	2.000	323	2.000	382	2.000
29	2.000	88	2.000	147	2.000	206	2.000	265	2.000	324	2.000	383	2.000
30	2.000	89	2.000	148	2.000	207	2.000	266	2.000	325	2.000	384	2.000
31	2.000	90	2.000	149	2.000	208	2.000	267	2.000	326	2.000	385	2.000
32	2.000	91	2.000	150	2.000	209	2.000	268	2.000	327	2.000	386	2.000
33	2.000	92	2.000	151	2.000	210	2.000	269	2.000	328	2.000	387	2.000
34	2.000	93	2.000	152	2.000	211	2.000	270	2.000	329	2.000	388	2.000
35	2.000	94	2.000	153	2.000	212	2.000	271	2.000	330	2.000	389	2.000
36	2.000	95	2.000	154	2.000	213	2.000	272	2.000	331	2.000	390	2.000
37	2.000	96	2.000	155	2.000	214	2.000	273	2.000	332	2.000	391	2.000
38	2.000	97	2.000	156	2.000	215	2.000	274	2.000	333	2.000	392	2.000
39	2.000	98	2.000	157	2.000	216	2.000	275	2.000	334	2.000	393	2.000
40	2.000	99	2.000	158	2.000	217	2.000	276	2.000	335	2.000	394	2.000
41	2.000	100	2.000	159	2.000	218	2.000	277	2.000	336	2.000	395	2.000
42	2.000	101	2.000	160	2.000	219	2.000	278	2.000	337	2.000	396	2.000
43	2.000	102	2.000	161	2.000	220	2.000	279	2.000	338	2.000	397	2.000
44	2.000	103	2.000	162	2.000	221	2.000	280	2.000	339	2.000	398	2.000
45	2.000	104	2.000	163	2.000	222	2.000	281	2.000	340	2.000	399	2.000
46	2.000	105	2.000	164	2.000	223	2.000	282	2.000	341	2.000	400	2.000
47	2.000	106	2.000	165	2.000	224	2.000	283	2.000	342	2.000	401	2.000
48	2.000	107	2.000	166	2.000	225	2.000	284	2.000	343	2.000	402	2.000
49	2.000	108	2.000	167	2.000	226	2.000	285	2.000	344	2.000	403	2.000
50	2.000	109	2.000	168	2.000	227	2.000	286	2.000	345	2.000	404	2.000
51	2.000	110	2.000	169	2.000	228	2.000	287	2.000	346	2.000	405	2.000
52	2.000	111	2.000	170	2.000	229	2.000	288	2.000	347	2.000	406	2.000
53	2.000	112	2.000	171	2.000	230	2.000	289	2.000	348	2.000	407	2.000
54	2.000	113	2.000	172	2.000	231	2.000	290	2.000	349	2.000	408	2.000
55	2.000	114	2.000	173	2.000	232	2.000	291	2.000	350	2.000	409	2.000
56	2.000	115	2.000	174	2.000	233	2.000	292	2.000	351	2.000	410	2.000
57	2.000	116	2.000	175	2.000	234	2.000	293	2.000	352	2.000	411	2.000
58	2.000	117	2.000	176	2.000	235	2.000	294	2.000	353	2.000	412	2.000
59	2.000	118	2.000	177	2.000	236	2.000	295	2.000	354	2.000	413	2.000

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Surcharged Outfall Details for Storm Network 18 08 16.sws

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
473	2.000	504	2.000	535	2.000	566	2.000	597	2.000	628	2.000	659	2.000
474	2.000	505	2.000	536	2.000	567	2.000	598	2.000	629	2.000	660	2.000
475	2.000	506	2.000	537	2.000	568	2.000	599	2.000	630	2.000	661	2.000
476	2.000	507	2.000	538	2.000	569	2.000	600	2.000	631	2.000	662	2.000
477	2.000	508	2.000	539	2.000	570	2.000	601	2.000	632	2.000	663	2.000
478	2.000	509	2.000	540	2.000	571	2.000	602	2.000	633	2.000	664	2.000
479	2.000	510	2.000	541	2.000	572	2.000	603	2.000	634	2.000	665	2.000
480	2.000	511	2.000	542	2.000	573	2.000	604	2.000	635	2.000	666	2.000
481	2.000	512	2.000	543	2.000	574	2.000	605	2.000	636	2.000	667	2.000
482	2.000	513	2.000	544	2.000	575	2.000	606	2.000	637	2.000	668	2.000
483	2.000	514	2.000	545	2.000	576	2.000	607	2.000	638	2.000	669	2.000
484	2.000	515	2.000	546	2.000	577	2.000	608	2.000	639	2.000	670	2.000
485	2.000	516	2.000	547	2.000	578	2.000	609	2.000	640	2.000	671	2.000
486	2.000	517	2.000	548	2.000	579	2.000	610	2.000	641	2.000	672	2.000
487	2.000	518	2.000	549	2.000	580	2.000	611	2.000	642	2.000	673	2.000
488	2.000	519	2.000	550	2.000	581	2.000	612	2.000	643	2.000	674	2.000
489	2.000	520	2.000	551	2.000	582	2.000	613	2.000	644	2.000	675	2.000
490	2.000	521	2.000	552	2.000	583	2.000	614	2.000	645	2.000	676	2.000
491	2.000	522	2.000	553	2.000	584	2.000	615	2.000	646	2.000	677	2.000
492	2.000	523	2.000	554	2.000	585	2.000	616	2.000	647	2.000	678	2.000
493	2.000	524	2.000	555	2.000	586	2.000	617	2.000	648	2.000	679	2.000
494	2.000	525	2.000	556	2.000	587	2.000	618	2.000	649	2.000	680	2.000
495	2.000	526	2.000	557	2.000	588	2.000	619	2.000	650	2.000	681	2.000
496	2.000	527	2.000	558	2.000	589	2.000	620	2.000	651	2.000	682	2.000
497	2.000	528	2.000	559	2.000	590	2.000	621	2.000	652	2.000	683	2.000
498	2.000	529	2.000	560	2.000	591	2.000	622	2.000	653	2.000	684	2.000
499	2.000	530	2.000	561	2.000	592	2.000	623	2.000	654	2.000	685	2.000
500	2.000	531	2.000	562	2.000	593	2.000	624	2.000	655	2.000	686	2.000
501	2.000	532	2.000	563	2.000	594	2.000	625	2.000	656	2.000	687	2.000
502	2.000	533	2.000	564	2.000	595	2.000	626	2.000	657	2.000	688	2.000
503	2.000	534	2.000	565	2.000	596	2.000	627	2.000	658	2.000	689	2.000

Simulation Criteria for Storm Network 18 08 16.sws

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	1	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.400	Storm Duration (mins)	30
Ratio R	0.350		

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Online Controls for Storm Network 18 08 16.sws

Non Return Valve Manhole: BASIN, DS/PN: 6.003, Volume (m³): 4.0

Orifice Manhole: S41, DS/PN: 2.011, Volume (m³): 19.3

Diameter (m) 0.300 Discharge Coefficient 0.600 Invert Level (m) 42.250

Hydro-Brake Optimum® Manhole: S20, DS/PN: 1.019, Volume (m³): 34.3

Unit Reference	MD-SHE-0881-7500-2811-7500
Design Head (m)	2.811
Design Flow (l/s)	750.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	881
Invert Level (m)	39.606
Minimum Outlet Pipe Diameter (mm)	Error (Contact Hydro International)
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.811	746.8	Kick-Flo®	2.207	663.0
Flush-Flo™	1.291	745.1	Mean Flow over Head Range	-	594.8

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)	Depth (m)	Flow (l/s)
0.100	17.3	0.800	706.8	2.000	699.3	4.000	888.6	7.000	1171.3
0.200	66.6	1.000	734.1	2.200	664.9	4.500	941.8	7.500	1211.9
0.300	143.0	1.200	744.1	2.400	690.9	5.000	992.0	8.000	1251.2
0.400	241.3	1.400	743.8	2.600	718.7	5.500	1039.8	8.500	1289.3
0.500	355.3	1.600	736.0	3.000	771.2	6.000	1085.4	9.000	1326.2
0.600	477.3	1.800	721.6	3.500	832.0	6.500	1129.2	9.500	1362.2

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Offline Controls for Storm Network 18 08 16.sws

Pipe Manhole: S40, DS/PN: 2.010, Loop to PN: 6.003

Diameter (m)	0.375	Roughness k (mm)	0.600
Section Type	Pipe/Conduit	Entry Loss Coefficient	0.500
Slope (1:X)	100.0	Coefficient of Contraction	0.600
Length (m)	10.000	Upstream Invert Level (m)	43.200

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Storage Structures for Storm Network 18 08 16.sws

Tank or Pond Manhole: BASIN, DS/PN: 6.003

Invert Level (m) 43.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	141.0	1.200	440.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	181.0	1.400	505.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	225.0	1.600	0.0	2.800	0.0	4.000	0.0		
0.600	273.0	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	325.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	381.0	2.200	0.0	3.400	0.0	4.600	0.0		

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm Network 18 08 16.sws

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
Number of Online Controls 3 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.400 Cv (Summer) 0.750
Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	S1 15	Winter	1	+0%	30/15	Winter	100/15	Summer	44.116	-0.184
1.001	S2 15	Winter	1	+0%	30/15	Summer	100/15	Summer	43.834	-0.149
1.002	S3 15	Winter	1	+0%	100/15	Summer			43.130	-0.286
1.003	S4 15	Winter	1	+0%	100/15	Summer			42.863	-0.270
1.004	S5 15	Winter	1	+0%	100/15	Summer			42.729	-0.250
1.005	S6 15	Winter	1	+0%	30/15	Winter			42.607	-0.245
1.006	S7 15	Winter	1	+0%	100/15	Summer			42.441	-0.255
1.007	S8 15	Winter	1	+0%	30/15	Summer			42.202	-0.236
1.008	S9 15	Winter	1	+0%	100/15	Summer			41.780	-0.477
1.009	S10 15	Winter	1	+0%	30/15	Winter			41.551	-0.476
1.010	S11 15	Winter	1	+0%	30/15	Summer			41.399	-0.405
1.011	S12 15	Winter	1	+0%	30/15	Summer			41.367	-0.201
2.000	S30 15	Summer	1	+0%	100/15	Summer			45.894	-0.152
2.001	S31 15	Winter	1	+0%	100/15	Summer			45.394	-0.134
3.000	S45 15	Winter	1	+0%	100/15	Summer			45.188	-0.142
2.002	S32 15	Winter	1	+0%	100/15	Summer			44.332	-0.185
2.003	S33 15	Winter	1	+0%	30/15	Summer	100/15	Winter	43.434	-0.281
2.004	S34 15	Winter	1	+0%	30/15	Summer			43.312	-0.271
2.005	S35 15	Winter	1	+0%	30/15	Summer			43.188	-0.242
2.006	S36 15	Winter	1	+0%	30/15	Summer			43.084	-0.243
4.000	S46 15	Winter	1	+0%	100/15	Summer	100/15	Summer	45.463	-0.124
4.001	S47 15	Winter	1	+0%	100/15	Summer			44.842	-0.133
4.002	S48 15	Winter	1	+0%	100/15	Summer			43.929	-0.189
5.000	S51 15	Winter	1	+0%	30/15	Summer	100/15	Summer	43.760	-0.083
5.001	S52 15	Winter	1	+0%	30/15	Summer			43.567	-0.152
4.003	S49 15	Winter	1	+0%	30/15	Summer			43.015	-0.552
4.004	S50 30	Winter	1	+0%	30/15	Summer			43.000	-0.498
2.007	S37 15	Winter	1	+0%	30/15	Summer			42.978	-0.247
2.008	S38 15	Winter	1	+0%	30/15	Summer			42.948	-0.222

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm
Network 18 08 16.sws

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)		
1.000	S1	0.000	0.31		28.0	OK	2
1.001	S2	0.000	0.50		45.5	OK	4
1.002	S3	0.000	0.28		68.9	OK	
1.003	S4	0.000	0.33		74.1	OK	
1.004	S5	0.000	0.41		81.9	OK	
1.005	S6	0.000	0.43		95.0	OK	
1.006	S7	0.000	0.39		94.5	OK	
1.007	S8	0.000	0.46		106.4	OK	
1.008	S9	0.000	0.19		114.3	OK	
1.009	S10	0.000	0.19		113.9	OK	
1.010	S11	0.000	0.15		112.2	OK	
1.011	S12	0.000	0.21		96.5	OK	
2.000	S30	0.000	0.23		15.6	OK	
2.001	S31	0.000	0.34		24.5	OK	
3.000	S45	0.000	0.29		20.5	OK	
2.002	S32	0.000	0.31		44.6	OK	
2.003	S33	0.000	0.30		59.5	OK	2
2.004	S34	0.000	0.33		66.0	OK	
2.005	S35	0.000	0.44		78.8	OK	
2.006	S36	0.000	0.43		77.9	OK	
4.000	S46	0.000	0.40		20.8	OK	2
4.001	S47	0.000	0.34		30.2	OK	
4.002	S48	0.000	0.29		40.2	OK	
5.000	S51	0.000	0.71		26.0	OK	4
5.001	S52	0.000	0.48		38.9	OK	
4.003	S49	0.000	0.16		79.3	OK	
4.004	S50	0.000	0.13		74.0	OK	
2.007	S37	0.000	0.38		157.3	OK	
2.008	S38	0.000	0.37		153.5	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm Network 18 08 16.sws

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth
									(m)	(m)
2.009	S39	15 Winter	1	+0%	30/15 Summer				42.915	-0.201
2.010	S40	15 Winter	1	+0%	30/15 Summer		30/15 Summer	21	42.882	-0.178
6.000	S53	15 Winter	1	+0%	100/15 Summer	100/15 Summer			45.085	-0.136
6.001	S54	15 Winter	1	+0%	30/15 Summer	100/15 Summer			43.875	-0.146
6.002	S55	15 Winter	1	+0%	30/15 Summer				43.690	-0.112
6.003	BASIN	30 Winter	1	+0%	30/15 Summer				43.119	-0.181
2.011	S41	15 Winter	1	+0%	30/15 Summer				42.845	-0.155
2.012	S42	15 Winter	1	+0%	100/15 Summer				42.062	-0.576
7.000	S56	15 Winter	1	+0%	100/15 Summer	100/15 Summer			43.606	-0.194
7.001	S57	15 Winter	1	+0%	30/15 Summer				43.035	-0.165
7.002	S58	15 Winter	1	+0%	30/15 Summer				42.879	-0.121
7.003	S59	15 Winter	1	+0%	100/15 Summer				42.584	-0.216
2.013	S43	15 Winter	1	+0%	100/15 Summer				41.707	-0.512
2.014	S44	15 Winter	1	+0%	100/15 Summer	100/30 Winter			41.435	-0.547
1.012	S13	15 Winter	1	+0%	30/15 Summer				41.313	-0.168
1.013	S14	30 Winter	1	+0%	30/15 Summer				41.246	-0.207
1.014	S15	15 Winter	1	+0%	30/15 Summer				41.194	-0.224
1.015	S16	30 Winter	1	+0%	30/15 Summer				41.141	-0.236
1.016	S17	30 Winter	1	+0%	30/15 Summer				41.046	-0.294
1.017	S18	30 Winter	1	+0%	30/15 Winter				40.950	-0.343
1.018	S19	30 Winter	1	+0%	100/30 Winter				40.681	-0.500
1.019	S20	30 Winter	1	+0%	100/15 Winter				40.037	-0.469
1.020	S21	30 Winter	1	+0%	100/15 Summer				37.252	-0.348
1.021	S22	30 Winter	1	+0%					36.391	-0.412
1.022	S23	30 Winter	1	+0%					32.382	-0.421
1.023	S24	30 Winter	1	+0%					29.765	-0.438
1.024	S25	30 Winter	1	+0%					23.593	-0.410
1.025	S26	30 Winter	1	+0%	100/15 Winter				19.796	-0.407

PN	US/MH Name	Flooded		Pipe		Level Exceeded
		Volume (m³)	Flow / Cap.	Flow (l/s)	Flow (l/s)	
2.009	S39	0.000	0.31		131.0	OK
2.010	S40	0.000	0.25	0.0	111.2	OK
6.000	S53	0.000	0.33		24.4	OK 2
6.001	S54	0.000	0.51		37.2	OK 4
6.002	S55	0.000	0.71		49.9	OK
6.003	BASIN	0.000	0.33		23.2	OK
2.011	S41	0.000	0.13		124.9	OK
2.012	S42	0.000	0.12		125.0	OK
7.000	S56	0.000	0.26		24.5	OK 2
7.001	S57	0.000	0.41		37.4	OK
7.002	S58	0.000	0.66		55.1	OK
7.003	S59	0.000	0.37		63.7	OK
2.013	S43	0.000	0.22		167.8	OK
2.014	S44	0.000	0.16		176.3	OK 1
1.012	S13	0.000	0.97		265.7	OK
1.013	S14	0.000	0.84		262.9	OK
1.014	S15	0.000	0.74		264.4	OK
1.015	S16	0.000	0.81		263.4	OK
1.016	S17	0.000	0.68		266.6	OK
1.017	S18	0.000	0.57		267.4	OK
1.018	S19	0.000	0.24		271.1	OK
1.019	S20	0.000	0.13		275.0	OK

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm
Network 18 08 16.sws

PN	US/MH Name	Flooded		Pipe		Level Exceeded
		Volume (m ³)	Flow / Cap. (l/s)	Flow (l/s)	Status	
1.020	S21	0.000	0.36	313.1	OK	
1.021	S22	0.000	0.21	313.2	OK	
1.022	S23	0.000	0.19	313.3	OK	
1.023	S24	0.000	0.17	313.3	OK	
1.024	S25	0.000	0.22	313.2	OK	
1.025	S26	0.000	0.23	313.1	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm Network 18 08 16.sws

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
Number of Online Controls 3 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.400 Cv (Summer) 0.750
Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	S1 15	Winter	30	+0%	30/15 Winter	100/15 Summer			44.311	0.011
1.001	S2 15	Winter	30	+0%	30/15 Summer	100/15 Summer			44.171	0.188
1.002	S3 15	Winter	30	+0%	100/15 Summer				43.246	-0.170
1.003	S4 15	Winter	30	+0%	100/15 Summer				43.059	-0.074
1.004	S5 15	Winter	30	+0%	100/15 Summer				42.967	-0.013
1.005	S6 15	Winter	30	+0%	30/15 Winter				42.853	0.001
1.006	S7 15	Winter	30	+0%	100/15 Summer				42.666	-0.030
1.007	S8 15	Winter	30	+0%	30/15 Summer				42.453	0.016
1.008	S9 30	Winter	30	+0%	100/15 Summer				42.134	-0.123
1.009	S10 30	Winter	30	+0%	30/15 Winter				42.065	0.038
1.010	S11 30	Winter	30	+0%	30/15 Summer				41.904	0.099
1.011	S12 30	Winter	30	+0%	30/15 Summer				41.733	0.165
2.000	S30 15	Winter	30	+0%	100/15 Summer				45.942	-0.104
2.001	S31 15	Summer	30	+0%	100/15 Summer				45.473	-0.055
3.000	S45 15	Winter	30	+0%	100/15 Summer				45.246	-0.084
2.002	S32 15	Winter	30	+0%	100/15 Summer				44.422	-0.095
2.003	S33 30	Winter	30	+0%	30/15 Summer	100/15 Winter			44.111	0.396
2.004	S34 30	Winter	30	+0%	30/15 Summer				43.992	0.409
2.005	S35 30	Winter	30	+0%	30/15 Summer				43.882	0.452
2.006	S36 30	Winter	30	+0%	30/15 Summer				43.781	0.454
4.000	S46 15	Winter	30	+0%	100/15 Summer	100/15 Summer			45.578	-0.009
4.001	S47 15	Winter	30	+0%	100/15 Summer				44.918	-0.057
4.002	S48 15	Winter	30	+0%	100/15 Summer				44.025	-0.093
5.000	S51 15	Winter	30	+0%	30/15 Summer	100/15 Summer			44.130	0.287
5.001	S52 15	Summer	30	+0%	30/15 Summer				43.933	0.214
4.003	S49 15	Winter	30	+0%	30/15 Summer				43.913	0.346
4.004	S50 15	Winter	30	+0%	30/15 Summer				43.716	0.219
2.007	S37 30	Winter	30	+0%	30/15 Summer				43.679	0.454
2.008	S38 30	Winter	30	+0%	30/15 Summer				43.648	0.477

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Miller Homes
Victoria Road
SW FEASIBILITY



Date 14 11 2016

Designed by AL / JM

File QD1183 SW 16 11 16.mdx

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Network 2015.1

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm
Network 18 08 16.sws

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Cap.	Flow / (l/s)	Flow (l/s)		
1.000	S1	0.000	0.72		64.1	SURCHARGED	2
1.001	S2	0.000	1.14		104.3	SURCHARGED	4
1.002	S3	0.000	0.69		169.0	OK	
1.003	S4	0.000	0.79		174.2	OK	
1.004	S5	0.000	0.97		194.0	OK	
1.005	S6	0.000	1.00		223.4	SURCHARGED	
1.006	S7	0.000	0.92		223.7	OK	
1.007	S8	0.000	1.08		250.0	SURCHARGED	
1.008	S9	0.000	0.42		252.6	OK	
1.009	S10	0.000	0.40		238.6	SURCHARGED	
1.010	S11	0.000	0.33		252.4	SURCHARGED	
1.011	S12	0.000	0.49		221.7	SURCHARGED	
2.000	S30	0.000	0.56		38.1	OK	
2.001	S31	0.000	0.91		66.0	OK	
3.000	S45	0.000	0.72		50.2	OK	
2.002	S32	0.000	0.79		114.2	OK	
2.003	S33	0.000	0.60		117.0	SURCHARGED	2
2.004	S34	0.000	0.59		118.3	SURCHARGED	
2.005	S35	0.000	0.74		134.0	SURCHARGED	
2.006	S36	0.000	0.70		126.9	SURCHARGED	
4.000	S46	0.000	0.98		50.4	OK	2
4.001	S47	0.000	0.89		78.5	OK	
4.002	S48	0.000	0.78		108.0	OK	
5.000	S51	0.000	1.64		59.7	SURCHARGED	4
5.001	S52	0.000	1.19		96.6	SURCHARGED	
4.003	S49	0.000	0.38		192.0	SURCHARGED	
4.004	S50	0.000	0.35		197.5	SURCHARGED	
2.007	S37	0.000	0.68		284.4	SURCHARGED	
2.008	S38	0.000	0.72		302.5	SURCHARGED	

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PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
2.009	S39	30 Winter	30	+0%	30/15 Summer				43.612	0.497
2.010	S40	15 Winter	30	+0%	30/15 Summer		30/15 Summer	21	43.575	0.515
6.000	S53	15 Winter	30	+0%	100/15 Summer	100/15 Summer			45.151	-0.070
6.001	S54	15 Winter	30	+0%	30/15 Summer	100/15 Summer			44.408	0.387
6.002	S55	15 Winter	30	+0%	30/15 Summer				44.077	0.276
6.003	BASIN	30 Winter	30	+0%	30/15 Summer				43.535	0.235
2.011	S41	30 Winter	30	+0%	30/15 Summer				43.555	0.554
2.012	S42	30 Winter	30	+0%	100/15 Summer				42.113	-0.525
7.000	S56	15 Winter	30	+0%	100/15 Summer	100/15 Summer			43.683	-0.117
7.001	S57	15 Winter	30	+0%	30/15 Summer				43.485	0.285
7.002	S58	15 Winter	30	+0%	30/15 Summer				43.308	0.308
7.003	S59	15 Winter	30	+0%	100/15 Summer				42.704	-0.096
2.013	S43	15 Winter	30	+0%	100/15 Summer				41.817	-0.402
2.014	S44	15 Winter	30	+0%	100/15 Summer	100/30 Winter			41.768	-0.215
1.012	S13	30 Winter	30	+0%	30/15 Summer				41.702	0.221
1.013	S14	30 Winter	30	+0%	30/15 Summer				41.637	0.184
1.014	S15	30 Winter	30	+0%	30/15 Summer				41.564	0.145
1.015	S16	30 Winter	30	+0%	30/15 Summer				41.480	0.104
1.016	S17	30 Summer	30	+0%	30/15 Summer				41.404	0.064
1.017	S18	30 Winter	30	+0%	30/15 Winter				41.311	0.018
1.018	S19	30 Winter	30	+0%	100/30 Winter				40.816	-0.365
1.019	S20	30 Winter	30	+0%	100/15 Winter				40.302	-0.203
1.020	S21	30 Winter	30	+0%	100/15 Summer				37.447	-0.153
1.021	S22	30 Winter	30	+0%					36.513	-0.290
1.022	S23	30 Winter	30	+0%					32.494	-0.309
1.023	S24	30 Winter	30	+0%					29.867	-0.336
1.024	S25	30 Winter	30	+0%					23.716	-0.287
1.025	S26	30 Winter	30	+0%	100/15 Winter				19.921	-0.282

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m³)	Flow / Cap. (l/s)	Flow (l/s)	Overflow (l/s)		
2.009	S39	0.000	0.70	294.4		SURCHARGED	
2.010	S40	0.000	0.43	125.1	189.9	SURCHARGED	
6.000	S53	0.000	0.80		59.7	OK	2
6.001	S54	0.000	1.22		89.1	SURCHARGED	4
6.002	S55	0.000	1.75		123.3	SURCHARGED	
6.003	BASIN	0.000	1.08		75.4	SURCHARGED	
2.011	S41	0.000	0.21	200.3		SURCHARGED	
2.012	S42	0.000	0.20	200.1		OK	
7.000	S56	0.000	0.63	60.2		OK	2
7.001	S57	0.000	0.98	89.2		SURCHARGED	
7.002	S58	0.000	1.57	130.7		SURCHARGED	
7.003	S59	0.000	0.89	152.4		OK	
2.013	S43	0.000	0.44	334.4		OK	
2.014	S44	0.000	0.32	346.3		OK	1
1.012	S13	0.000	1.96	537.1		SURCHARGED	
1.013	S14	0.000	1.74	543.7		SURCHARGED	
1.014	S15	0.000	1.54	552.4		SURCHARGED	
1.015	S16	0.000	1.69	552.1		SURCHARGED	
1.016	S17	0.000	1.40	547.3		SURCHARGED	
1.017	S18	0.000	1.21	570.8		SURCHARGED	
1.018	S19	0.000	0.52	581.0		OK	
1.019	S20	0.000	0.28	594.5		OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm
Network 18 08 16.sws

PN	US/MH Name	Flooded		Pipe	Status	Level Exceeded
		Volume (m ³)	Flow / Cap.	Overflow (l/s)		
1.020	S21	0.000	0.89	762.3	OK	
1.021	S22	0.000	0.52	760.3	OK	
1.022	S23	0.000	0.47	762.2	OK	
1.023	S24	0.000	0.40	763.3	OK	
1.024	S25	0.000	0.54	763.6	OK	
1.025	S26	0.000	0.56	763.1	OK	

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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 Offline Controls 1 Number of Time/Area Diagrams 0
Number of Online Controls 3 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.400 Cv (Summer) 0.750
Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	S1 15	Winter	100	+40%	30/15 Winter	100/15 Summer			45.674	1.374
1.001	S2 15	Winter	100	+40%	30/15 Summer	100/15 Summer			45.368	1.385
1.002	S3 15	Winter	100	+40%	100/15 Summer				44.469	1.053
1.003	S4 30	Winter	100	+40%	100/15 Summer				44.279	1.146
1.004	S5 30	Winter	100	+40%	100/15 Summer				44.154	1.175
1.005	S6 30	Winter	100	+40%	30/15 Winter				44.003	1.150
1.006	S7 30	Winter	100	+40%	100/15 Summer				43.790	1.094
1.007	S8 30	Winter	100	+40%	30/15 Summer				43.496	1.059
1.008	S9 30	Winter	100	+40%	100/15 Summer				43.344	1.086
1.009	S10 30	Winter	100	+40%	30/15 Winter				43.199	1.172
1.010	S11 30	Winter	100	+40%	30/15 Summer				43.176	1.372
1.011	S12 30	Winter	100	+40%	30/15 Summer				43.070	1.503
2.000	S30 15	Winter	100	+40%	100/15 Summer				47.013	0.967
2.001	S31 15	Winter	100	+40%	100/15 Summer				46.816	1.288
3.000	S45 15	Winter	100	+40%	100/15 Summer				46.191	0.861
2.002	S32 15	Winter	100	+40%	100/15 Summer				45.774	1.257
2.003	S33 30	Winter	100	+40%	30/15 Summer	100/15 Winter			45.176	1.461
2.004	S34 30	Winter	100	+40%	30/15 Summer				45.138	1.555
2.005	S35 30	Winter	100	+40%	30/15 Summer				45.027	1.597
2.006	S36 30	Winter	100	+40%	30/15 Summer				44.892	1.565
4.000	S46 15	Winter	100	+40%	100/15 Summer	100/15 Summer			46.788	1.201
4.001	S47 15	Winter	100	+40%	100/15 Summer				45.973	0.998
4.002	S48 30	Winter	100	+40%	100/15 Summer				45.149	1.031
5.000	S51 15	Winter	100	+40%	30/15 Summer	100/15 Summer			45.203	1.360
5.001	S52 30	Winter	100	+40%	30/15 Summer				44.995	1.276
4.003	S49 30	Winter	100	+40%	30/15 Summer				44.842	1.275
4.004	S50 30	Winter	100	+40%	30/15 Summer				44.820	1.322
2.007	S37 30	Winter	100	+40%	30/15 Summer				44.790	1.565
2.008	S38 30	Winter	100	+40%	30/15 Summer				44.736	1.565

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PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)		
1.000	S1	2.215	0.98		87.8	FLOOD	2
1.001	S2	6.125	1.49		136.8	FLOOD	4
1.002	S3	0.000	0.93		228.6	FLOOD RISK	
1.003	S4	0.000	0.95		210.2	FLOOD RISK	
1.004	S5	0.000	1.15		232.0	SURCHARGED	
1.005	S6	0.000	1.22		272.6	SURCHARGED	
1.006	S7	0.000	1.09		266.3	SURCHARGED	
1.007	S8	0.000	1.31		302.8	SURCHARGED	
1.008	S9	0.000	0.54		330.8	SURCHARGED	
1.009	S10	0.000	0.54		326.1	FLOOD RISK	
1.010	S11	0.000	0.45		344.9	FLOOD RISK	
1.011	S12	0.000	0.73		331.8	FLOOD RISK	
2.000	S30	0.000	0.77		51.7	FLOOD RISK	
2.001	S31	0.000	1.14		83.1	FLOOD RISK	
3.000	S45	0.000	1.06		74.4	SURCHARGED	
2.002	S32	0.000	0.94		136.2	SURCHARGED	
2.003	S33	5.733	0.78		154.1	FLOOD	2
2.004	S34	0.000	0.88		175.4	FLOOD RISK	
2.005	S35	0.000	1.20		216.2	FLOOD RISK	
2.006	S36	0.000	1.17		210.6	SURCHARGED	
4.000	S46	0.903	1.32		68.0	FLOOD	2
4.001	S47	0.000	1.11		97.8	FLOOD RISK	
4.002	S48	0.000	0.85		118.7	FLOOD RISK	
5.000	S51	2.889	2.25		81.7	FLOOD	4
5.001	S52	0.000	1.34		108.3	FLOOD RISK	
4.003	S49	0.000	0.41		208.7	SURCHARGED	
4.004	S50	0.000	0.44		249.1	SURCHARGED	
2.007	S37	0.000	1.11		462.2	SURCHARGED	
2.008	S38	0.000	1.20		500.9	FLOOD RISK	

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PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth
									(m)	(m)
2.009	S39	30 Winter	100	+40%	30/15 Summer				44.665	1.549
2.010	S40	30 Winter	100	+40%	30/15 Summer		30/15 Summer	21	44.591	1.531
6.000	S53	15 Winter	100	+40%	100/15 Summer	100/15 Summer			46.348	1.127
6.001	S54	15 Winter	100	+40%	30/15 Summer	100/15 Summer			45.015	0.994
6.002	S55	15 Winter	100	+40%	30/15 Summer				44.555	0.753
6.003	BASIN	60 Winter	100	+40%	30/15 Summer				44.243	0.943
2.011	S41	30 Winter	100	+40%	30/15 Summer				44.570	1.569
2.012	S42	30 Winter	100	+40%	100/15 Summer				43.568	0.930
7.000	S56	15 Winter	100	+40%	100/15 Summer	100/15 Summer			45.031	1.231
7.001	S57	15 Winter	100	+40%	30/15 Summer				44.832	1.632
7.002	S58	15 Winter	100	+40%	30/15 Summer				44.481	1.481
7.003	S59	30 Winter	100	+40%	100/15 Summer				43.509	0.709
2.013	S43	30 Winter	100	+40%	100/15 Summer				43.338	1.119
2.014	S44	30 Winter	100	+40%	100/15 Summer	100/30 Winter			43.247	1.265
1.012	S13	30 Winter	100	+40%	30/15 Summer				43.041	1.559
1.013	S14	30 Winter	100	+40%	30/15 Summer				42.978	1.525
1.014	S15	30 Winter	100	+40%	30/15 Summer				42.906	1.487
1.015	S16	30 Winter	100	+40%	30/15 Summer				42.816	1.439
1.016	S17	30 Winter	100	+40%	30/15 Summer				42.724	1.384
1.017	S18	30 Winter	100	+40%	30/15 Winter				42.578	1.285
1.018	S19	30 Winter	100	+40%	100/30 Winter				42.376	1.196
1.019	S20	30 Winter	100	+40%	100/15 Winter				42.128	1.623
1.020	S21	30 Winter	100	+40%	100/15 Summer				38.494	0.894
1.021	S22	30 Winter	100	+40%					36.629	-0.174
1.022	S23	30 Winter	100	+40%					32.602	-0.201
1.023	S24	30 Winter	100	+40%					29.961	-0.242
1.024	S25	30 Winter	100	+40%					23.843	-0.160
1.025	S26	30 Winter	100	+40%	100/15 Winter				20.666	0.463

PN	US/MH Name	Flooded			Pipe		Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)			
2.009	S39	0.000	1.18		494.4	SURCHARGED		
2.010	S40	0.000	0.47	345.2	209.1	SURCHARGED		
6.000	S53	1.557	1.05		78.8	FLOOD	2	
6.001	S54	4.620	1.77		129.3	FLOOD	4	
6.002	S55	0.000	2.57		181.1	SURCHARGED		
6.003	BASIN	0.000	1.51		105.1	SURCHARGED		
2.011	S41	0.000	0.25		234.1	SURCHARGED		
2.012	S42	0.000	0.28		286.7	SURCHARGED		
7.000	S56	3.838	0.89		85.2	FLOOD	2	
7.001	S57	0.000	1.37		123.8	FLOOD RISK		
7.002	S58	0.000	2.49		208.2	SURCHARGED		
7.003	S59	0.000	1.25		213.5	SURCHARGED		
2.013	S43	0.000	0.53		400.5	FLOOD RISK		
2.014	S44	1.433	0.40		430.8	FLOOD	1	
1.012	S13	0.000	2.74		751.4	FLOOD RISK		
1.013	S14	0.000	2.46		766.4	FLOOD RISK		
1.014	S15	0.000	2.17		776.8	FLOOD RISK		
1.015	S16	0.000	2.38		776.8	SURCHARGED		
1.016	S17	0.000	2.03		796.1	SURCHARGED		
1.017	S18	0.000	1.69		798.4	SURCHARGED		
1.018	S19	0.000	0.67		750.1	SURCHARGED		
1.019	S20	0.000	0.34		733.6	FLOOD RISK		

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PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
1.020	S21	0.000	1.45	1251.9		SURCHARGED	
1.021	S22	0.000	0.85	1248.3		OK	
1.022	S23	0.000	0.77	1245.8		OK	
1.023	S24	0.000	0.66	1249.1		OK	
1.024	S25	0.000	0.88	1251.2		OK	
1.025	S26	0.000	0.91	1249.4		SURCHARGED	