

Powell Tolner Associates		Page 1
29 Red Lion Street Chesham Bucks HP5 1EJ	Grimshaw Lane Manchester	
Date 13/08/2021 15:28 File SW.MDX	Designed by LB Checked by	
Innovyze	Network 2020.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 9762 - SW

Pipe Sizes PTA Manhole Sizes PTA

FSR Rainfall Model - England and Wales

Return Period (years)	1	PIMP (%)	100
M5-60 (mm)	18.100	Add Flow / Climate Change (%)	0
Ratio R	0.352	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.000
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

Time Area Diagram for 9762 - SW

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	1.481	4-8	5.062	8-12	1.298

Total Area Contributing (ha) = 7.841

Total Pipe Volume (m³) = 304.011

Network Design Table for 9762 - SW

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	51.100	0.514	99.5	0.112	3.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	34.370	0.451	76.2	0.137	3.00	0.0	0.600	o	300	Pipe/Conduit	
S2.001	44.923	0.299	150.3	0.273	0.00	0.0	0.600	o	375	Pipe/Conduit	
S2.002	70.916	0.461	153.8	0.123	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)
S1.000	50.00	3.65	72.000	0.112	0.0	0.0	0.0	1.31	52.1	15.2
S2.000	50.00	3.32	73.000	0.137	0.0	0.0	0.0	1.80	127.4	18.5
S2.001	50.00	3.83	72.474	0.410	0.0	0.0	0.0	1.48	163.0	55.5
S2.002	47.99	4.64	72.175	0.533	0.0	0.0	0.0	1.46	161.1	69.3

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Network Design Table for 9762 - SW												
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	
S2.003	21.608	2.037	10.6	0.169	0.00	0.0	0.600	o	375	Pipe/Conduit		
S2.004	47.640	0.115	414.3	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit		
S1.001	27.456	0.115	238.7	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit		
S3.000	49.000	0.426	115.0	0.109	3.00	0.0	0.600	o	300	Pipe/Conduit		
S4.000	20.000	0.426	46.9	0.218	3.00	0.0	0.600	o	300	Pipe/Conduit		
S3.001	30.390	0.203	149.7	0.225	0.00	0.0	0.600	o	450	Pipe/Conduit		
S3.002	35.707	0.357	100.0	0.074	0.00	0.0	0.600	o	450	Pipe/Conduit		
S5.000	34.370	0.361	95.2	0.134	3.00	0.0	0.600	o	300	Pipe/Conduit		
S5.001	34.814	0.241	144.5	0.266	0.00	0.0	0.600	o	375	Pipe/Conduit		
S5.002	55.079	0.366	150.7	0.201	0.00	0.0	0.600	o	375	Pipe/Conduit		
S1.002	54.519	0.352	154.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit		
S6.000	37.202	0.357	104.2	0.193	3.00	0.0	0.600	o	300	Pipe/Conduit		
S6.001	37.671	0.301	125.0	0.341	0.00	0.0	0.600	o	450	Pipe/Conduit		
S6.002	76.344	0.477	159.9	0.221	0.00	0.0	0.600	o	450	Pipe/Conduit		
Network Results Table												
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)		
S2.003	47.72	4.70	71.714	0.702	0.0	0.0	0.0	5.59	617.4	90.8		
S2.004	44.34	5.60	69.677	0.702	0.0	0.0	0.0	0.88	97.6	90.8		
S1.001	43.03	5.99	69.562	0.815	0.0	0.0	0.0	1.17	129.0	94.9		
S3.000	50.00	3.56	72.000	0.109	0.0	0.0	0.0	1.47	103.6	14.8		
S4.000	50.00	3.14	72.000	0.218	0.0	0.0	0.0	2.30	162.6	29.5		
S3.001	50.00	3.86	71.424	0.552	0.0	0.0	0.0	1.66	263.9	74.7		
S3.002	50.00	4.16	71.500	0.625	0.0	0.0	0.0	2.03	323.3	84.7		
S5.000	50.00	3.36	73.000	0.134	0.0	0.0	0.0	1.61	113.9	18.1		
S5.001	50.00	3.74	72.564	0.400	0.0	0.0	0.0	1.51	166.3	54.1		
S5.002	49.15	4.36	72.323	0.601	0.0	0.0	0.0	1.47	162.8	80.0		
S1.002	40.85	6.71	69.241	2.041	0.0	0.0	0.0	1.26	89.1«	225.7		
S6.000	50.00	3.40	71.200	0.193	0.0	0.0	0.0	1.54	108.9	26.2		
S6.001	50.00	3.75	70.693	0.535	0.0	0.0	0.0	1.82	289.0	72.4		
S6.002	48.39	4.54	70.392	0.756	0.0	0.0	0.0	1.61	255.3	99.0		
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<u>Network Design Table for 9762 - SW</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
S7.000	13.250	0.194	68.3	0.053	3.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	44.696	0.149	300.0	0.276	0.00	0.0	0.600	o	600	Pipe/Conduit	
S8.000	61.091	0.309	197.7	0.131	3.00	0.0	0.600	o	300	Pipe/Conduit	
S9.000	38.578	0.360	107.2	0.188	3.00	0.0	0.600	o	375	Pipe/Conduit	
S9.001	48.054	0.233	206.2	0.332	0.00	0.0	0.600	o	375	Pipe/Conduit	
S9.002	68.686	0.339	202.6	0.167	0.00	0.0	0.600	o	450	Pipe/Conduit	
S10.000	31.794	0.563	56.5	0.069	3.00	0.0	0.600	o	300	Pipe/Conduit	
S10.001	21.157	0.205	103.2	0.161	0.00	0.0	0.600	o	450	Pipe/Conduit	
S10.002	30.078	0.270	111.4	0.176	0.00	0.0	0.600	o	450	Pipe/Conduit	
S9.003	30.472	0.154	197.6	0.087	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.004	45.004	0.167	269.5	0.222	0.00	0.0	0.600	o	600	Pipe/Conduit	
S11.000	45.533	0.512	88.9	0.036	5.00	0.0	0.600	o	375	Pipe/Conduit	
S1.005	59.032	0.197	299.7	0.420	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.006	15.704	0.052	302.0	0.409	0.00	0.0	0.600	o	600	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)	
S7.000	50.00	3.18	70.500	0.053		0.0	0.0	0.0	1.22	21.5	7.2
S1.003	39.39	7.24	67.973	3.126		0.0	0.0	0.0	1.40	396.1	333.5
S8.000	50.00	3.91	70.200	0.131		0.0	0.0	0.0	1.11	78.8	17.7
S9.000	50.00	3.37	71.200	0.188		0.0	0.0	0.0	1.75	193.3	25.4
S9.001	50.00	4.00	70.840	0.520		0.0	0.0	0.0	1.26	138.9	70.3
S9.002	47.29	4.81	70.532	0.687		0.0	0.0	0.0	1.42	226.6	88.0
S10.000	50.00	3.25	70.250	0.069		0.0	0.0	0.0	2.10	148.2	9.3
S10.001	50.00	3.43	69.537	0.230		0.0	0.0	0.0	2.00	318.3	31.1
S10.002	50.00	3.69	69.332	0.405		0.0	0.0	0.0	1.93	306.3	54.9
S9.003	45.92	5.16	69.062	1.180		0.0	0.0	0.0	1.44	229.4	146.7
S1.004	38.11	7.75	67.674	4.659		0.0	0.0	0.0	1.48	418.1	480.9
S11.000	45.06	5.39	69.750	0.036		0.0	0.0	0.0	1.92	212.3	4.3
S1.005	36.50	8.45	67.282	5.114		0.0	0.0	0.0	1.40	396.3	505.5
S1.006	36.09	8.64	66.935	5.523		0.0	0.0	0.0	1.40	394.7	539.8
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S12.000	45.826	0.573	80.0	0.069	3.00	0.0	0.600	o	225	Pipe/Conduit	
S12.001	5.117	0.051	100.0	0.073	0.00	0.0	0.600	o	225	Pipe/Conduit	
S13.000	31.775	0.318	100.0	0.046	3.00	0.0	0.600	o	225	Pipe/Conduit	
S12.002	45.743	0.305	150.0	0.051	0.00	0.0	0.600	o	300	Pipe/Conduit	
S14.000	28.334	0.328	86.4	0.066	3.00	0.0	0.600	o	375	Pipe/Conduit	
S14.001	32.588	0.328	99.4	0.062	0.00	0.0	0.600	o	375	Pipe/Conduit	
S14.002	28.649	0.286	100.2	0.049	0.00	0.0	0.600	o	375	Pipe/Conduit	
S12.003	39.735	0.603	65.9	0.056	0.00	0.0	0.600	o	375	Pipe/Conduit	
S15.000	45.362	0.562	80.7	0.058	3.00	0.0	0.600	o	225	Pipe/Conduit	
S15.001	33.696	0.335	100.6	0.079	0.00	0.0	0.600	o	225	Pipe/Conduit	
S15.002	26.771	0.315	85.0	0.086	0.00	0.0	0.600	o	300	Pipe/Conduit	
S15.003	13.901	0.074	187.9	0.009	0.00	0.0	0.600	o	375	Pipe/Conduit	
S15.004	18.511	0.183	101.2	0.004	0.00	0.0	0.600	o	375	Pipe/Conduit	
S16.000	16.889	0.152	111.1	0.073	3.00	0.0	0.600	o	225	Pipe/Conduit	
S16.001	35.495	1.958	18.1	0.043	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)	
S12.000	50.00	3.52	68.397	0.069	0.0	0.0	0.0	1.46	58.2	9.3	
S12.001	50.00	3.59	67.824	0.142	0.0	0.0	0.0	1.31	52.0	19.3	
S13.000	50.00	3.41	70.000	0.046	0.0	0.0	0.0	1.31	52.0	6.3	
S12.002	49.97	4.18	67.698	0.240	0.0	0.0	0.0	1.28	90.6	32.4	
S14.000	50.00	3.24	68.715	0.066	0.0	0.0	0.0	1.95	215.4	8.9	
S14.001	50.00	3.54	68.387	0.127	0.0	0.0	0.0	1.82	200.8	17.2	
S14.002	50.00	3.80	68.059	0.176	0.0	0.0	0.0	1.81	199.9	23.8	
S12.003	48.66	4.48	67.318	0.472	0.0	0.0	0.0	2.24	246.9	62.2	
S15.000	50.00	3.52	70.500	0.058	0.0	0.0	0.0	1.46	57.9	7.8	
S15.001	50.00	3.95	69.938	0.137	0.0	0.0	0.0	1.30	51.8	18.5	
S15.002	49.84	4.21	69.528	0.223	0.0	0.0	0.0	1.71	120.6	30.1	
S15.003	49.05	4.39	69.138	0.232	0.0	0.0	0.0	1.32	145.6	30.8	
S15.004	48.32	4.56	69.064	0.236	0.0	0.0	0.0	1.80	199.0	30.9	
S16.000	50.00	3.23	70.700	0.073	0.0	0.0	0.0	1.24	49.3	9.9	
S16.001	50.00	3.39	70.473	0.116	0.0	0.0	0.0	3.71	262.3	15.7	
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<u>Network Design Table for 9762 - SW</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
S15.005	6.363	0.068	93.6	0.067	0.00	0.0	0.600	o	375	Pipe/Conduit	
S15.006	12.004	0.120	100.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S15.007	16.234	1.829	8.9	0.000	0.00	0.0	0.600	o	545	Pipe/Conduit	
S1.007	46.248	0.154	300.0	0.098	0.00	0.0	0.600	o	750	Pipe/Conduit	
S17.000	22.605	0.226	100.0	0.047	3.00	0.0	0.600	o	150	Pipe/Conduit	
S17.001	14.717	0.149	98.8	0.039	0.00	0.0	0.600	o	225	Pipe/Conduit	
S17.002	23.769	0.212	112.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S17.003	10.624	3.119	3.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.008	18.014	0.060	300.0	0.132	0.00	0.0	0.600	o	750	Pipe/Conduit	
S18.000	40.375	0.364	110.9	0.042	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.009	18.838	0.063	300.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
S19.000	27.034	0.270	100.1	0.046	3.00	0.0	0.600	o	150	Pipe/Conduit	
S19.001	42.616	0.426	100.0	0.050	0.00	0.0	0.600	o	225	Pipe/Conduit	
S19.002	41.865	0.378	110.8	0.056	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)	
S15.005	48.08	4.61	68.440	0.420	0.0	0.0	0.0	1.87	206.9	54.6	
S15.006	47.67	4.71	68.297	0.420	0.0	0.0	0.0	2.03	323.3	54.6	
S15.007	47.53	4.75	68.082	0.420	0.0	0.0	0.0	7.73	1802.8	54.6	
S1.007	35.10	9.12	66.048	6.512	0.0	0.0	0.0	1.61	711.5	619.0	
S17.000	50.00	3.37	70.200	0.047	0.0	0.0	0.0	1.00	17.8	6.3	
S17.001	50.00	3.56	69.899	0.086	0.0	0.0	0.0	1.32	52.3	11.7	
S17.002	50.00	3.88	69.750	0.086	0.0	0.0	0.0	1.23	49.1	11.7	
S17.003	50.00	3.91	69.538	0.086	0.0	0.0	0.0	7.14	283.9	11.7	
S1.008	34.73	9.30	65.894	6.729	0.0	0.0	0.0	1.61	711.5	633.0	
S18.000	44.53	5.54	69.250	0.042	0.0	0.0	0.0	1.24	49.3	5.1	
S1.009	34.36	9.50	65.834	6.772	0.0	0.0	0.0	1.61	711.5	633.0	
S19.000	50.00	3.45	70.200	0.046	0.0	0.0	0.0	1.00	17.7	6.3	
S19.001	50.00	3.99	69.855	0.097	0.0	0.0	0.0	1.31	52.0	13.1	
S19.002	48.74	4.46	69.354	0.153	0.0	0.0	0.0	1.49	105.6	20.1	
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S1.010	33.983	0.113	300.7	0.131	0.00	0.0	0.600	o	525	Pipe/Conduit	
S20.000	36.064	0.451	80.0	0.030	3.00	0.0	0.600	o	150	Pipe/Conduit	
S20.001	29.852	0.299	99.8	0.052	0.00	0.0	0.600	o	225	Pipe/Conduit	
S20.002	28.645	0.191	150.0	0.028	0.00	0.0	0.600	o	225	Pipe/Conduit	
S21.000	25.600	0.320	80.0	0.019	3.00	0.0	0.600	o	150	Pipe/Conduit	
S21.001	35.060	0.351	99.9	0.032	0.00	0.0	0.600	o	225	Pipe/Conduit	
S21.002	28.941	0.365	79.3	0.118	0.00	0.0	0.600	o	300	Pipe/Conduit	
S22.000	15.105	0.189	79.9	0.007	3.00	0.0	0.600	o	150	Pipe/Conduit	
S22.001	29.679	0.297	99.9	0.015	0.00	0.0	0.600	o	225	Pipe/Conduit	
S22.002	28.373	0.189	150.1	0.086	0.00	0.0	0.600	o	300	Pipe/Conduit	
S21.003	21.137	0.141	149.9	0.086	0.00	0.0	0.600	o	375	Pipe/Conduit	
S21.004	5.774	0.038	151.9	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S23.000	29.448	0.196	150.2	0.023	3.00	0.0	0.600	o	150	Pipe/Conduit	
S21.005	36.465	0.623	58.5	0.038	0.00	0.0	0.600	o	300	Pipe/Conduit	
S20.003	13.328	0.167	80.0	0.032	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)	
S1.010	33.54	9.94	65.771	7.055		0.0	0.0	0.0	1.29	278.5	640.9
S20.000	50.00	3.53	68.500	0.030	0.0	0.0	0.0	1.13	19.9	4.1	
S20.001	50.00	3.91	67.974	0.083	0.0	0.0	0.0	1.31	52.0	11.2	
S20.002	49.16	4.36	67.675	0.111	0.0	0.0	0.0	1.07	42.4	14.8	
S21.000	50.00	3.38	68.500	0.019	0.0	0.0	0.0	1.12	19.9	2.6	
S21.001	50.00	3.83	68.105	0.051	0.0	0.0	0.0	1.31	52.0	7.0	
S21.002	50.00	4.10	67.679	0.169	0.0	0.0	0.0	1.77	124.9	22.9	
S22.000	50.00	3.22	68.500	0.007	0.0	0.0	0.0	1.13	19.9	0.9	
S22.001	50.00	3.60	68.236	0.022	0.0	0.0	0.0	1.31	52.0	3.0	
S22.002	50.00	3.97	67.864	0.108	0.0	0.0	0.0	1.28	90.5	14.6	
S21.003	49.27	4.34	67.239	0.364	0.0	0.0	0.0	1.48	163.2	48.5	
S21.004	48.98	4.40	67.098	0.364	0.0	0.0	0.0	1.47	162.1	48.5	
S23.000	50.00	3.60	68.500	0.023	0.0	0.0	0.0	0.82	14.4	3.1	
S21.005	47.73	4.70	67.060	0.425	0.0	0.0	0.0	2.06	145.5	54.9	
S20.003	47.22	4.82	66.437	0.568	0.0	0.0	0.0	1.76	124.4	72.6	
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Network Design Table for 9762 - SW

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
S1.011	50.678	0.169	299.9	0.035	0.00	0.0	0.600	o	675	Pipe/Conduit	
S24.000	9.581	0.144	66.5	0.062	3.00	0.0	0.600	o	300	Pipe/Conduit	
S25.000	7.555	0.094	80.4	0.035	3.00	0.0	0.600	o	300	Pipe/Conduit	
S1.012	11.530	0.038	303.4	0.086	0.00	0.0	0.600	o	525	Pipe/Conduit	
S1.013	5.278	0.053	100.0	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)
S1.011	32.57	10.50	65.358	7.658	0.0	0.0	0.0	1.51	539.7«	675.5
S24.000	50.00	3.08	65.500	0.062	0.0	0.0	0.0	1.93	136.5	8.4
S25.000	50.00	3.07	65.500	0.035	0.0	0.0	0.0	1.76	124.1	4.8
S1.012	32.32	10.65	64.756	7.841	0.0	0.0	0.0	1.28	277.2«	686.4
S1.013	32.24	10.70	64.343	7.841	0.0	0.0	0.0	1.81	200.1«	686.4

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<u>Area Summary for 9762 - SW</u>						
Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.112	0.112	0.112
2.000	User	-	100	0.137	0.137	0.137
2.001	User	-	100	0.273	0.273	0.273
2.002	User	-	100	0.123	0.123	0.123
2.003	User	-	100	0.169	0.169	0.169
2.004	-	-	100	0.000	0.000	0.000
1.001	-	-	100	0.000	0.000	0.000
3.000	User	-	100	0.109	0.109	0.109
4.000	User	-	100	0.218	0.218	0.218
3.001	User	-	100	0.225	0.225	0.225
3.002	User	-	100	0.074	0.074	0.074
5.000	User	-	100	0.134	0.134	0.134
5.001	User	-	100	0.266	0.266	0.266
5.002	User	-	100	0.201	0.201	0.201
1.002	-	-	100	0.000	0.000	0.000
6.000	User	-	100	0.193	0.193	0.193
6.001	User	-	100	0.341	0.341	0.341
6.002	User	-	100	0.221	0.221	0.221
7.000	User	-	100	0.053	0.053	0.053
1.003	User	-	100	0.276	0.276	0.276
8.000	User	-	100	0.131	0.131	0.131
9.000	User	-	100	0.188	0.188	0.188
9.001	User	-	100	0.332	0.332	0.332
9.002	User	-	100	0.167	0.167	0.167
10.000	User	-	100	0.069	0.069	0.069
10.001	User	-	100	0.161	0.161	0.161
10.002	User	-	100	0.176	0.176	0.176
9.003	User	-	100	0.087	0.087	0.087
1.004	User	-	100	0.222	0.222	0.222
11.000	User	-	100	0.036	0.036	0.036
1.005	User	-	100	0.420	0.420	0.420
1.006	User	-	100	0.409	0.409	0.409
12.000	User	-	100	0.069	0.069	0.069
12.001	User	-	100	0.073	0.073	0.073
13.000	User	-	100	0.046	0.046	0.046
12.002	User	-	100	0.051	0.051	0.051
14.000	User	-	100	0.066	0.066	0.066
14.001	User	-	100	0.062	0.062	0.062
14.002	User	-	100	0.049	0.049	0.049
12.003	User	-	100	0.056	0.056	0.056
15.000	User	-	100	0.058	0.058	0.058
15.001	User	-	100	0.079	0.079	0.079
15.002	User	-	100	0.086	0.086	0.086
15.003	User	-	100	0.009	0.009	0.009
15.004	User	-	100	0.004	0.004	0.004
16.000	User	-	100	0.073	0.073	0.073
16.001	User	-	100	0.043	0.043	0.043
15.005	User	-	100	0.067	0.067	0.067
15.006	-	-	100	0.000	0.000	0.000
15.007	-	-	100	0.000	0.000	0.000
1.007	User	-	100	0.098	0.098	0.098
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Area Summary for 9762 - SW

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
17.000	User	-	100	0.047	0.047	0.047
17.001	User	-	100	0.039	0.039	0.039
17.002	-	-	100	0.000	0.000	0.000
17.003	-	-	100	0.000	0.000	0.000
1.008	User	-	100	0.132	0.132	0.132
18.000	User	-	100	0.042	0.042	0.042
1.009	-	-	100	0.000	0.000	0.000
19.000	User	-	100	0.046	0.046	0.046
19.001	User	-	100	0.050	0.050	0.050
19.002	User	-	100	0.056	0.056	0.056
1.010	User	-	100	0.131	0.131	0.131
20.000	User	-	100	0.030	0.030	0.030
20.001	User	-	100	0.052	0.052	0.052
20.002	User	-	100	0.028	0.028	0.028
21.000	User	-	100	0.019	0.019	0.019
21.001	User	-	100	0.032	0.032	0.032
21.002	User	-	100	0.118	0.118	0.118
22.000	User	-	100	0.007	0.007	0.007
22.001	User	-	100	0.015	0.015	0.015
22.002	User	-	100	0.086	0.086	0.086
21.003	User	-	100	0.086	0.086	0.086
21.004	-	-	100	0.000	0.000	0.000
23.000	User	-	100	0.023	0.023	0.023
21.005	User	-	100	0.038	0.038	0.038
20.003	User	-	100	0.032	0.032	0.032
1.011	User	-	100	0.035	0.035	0.035
24.000	User	-	100	0.062	0.062	0.062
25.000	User	-	100	0.035	0.035	0.035
1.012	User	-	100	0.086	0.086	0.086
1.013	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				7.841	7.841	7.841

Free Flowing Outfall Details for 9762 - SW

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.013	S	66.500	64.290	0.000	0	0

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Simulation Criteria for 9762 - SW

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 Storage Structures	4
Number of Online Controls	4	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.200	Storm Duration (mins)	30
Ratio R	0.350		

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<u>Online Controls for 9762 - SW</u>																																																																										
<u>Hydro-Brake® Optimum Manhole: S14 Flow Control 50 l/s, DS/PN: S1.002, Volume (m³): 19.9</u>																																																																										
Unit Reference	MD-SHE-0271-5000-2700-5000																																																																									
Design Head (m)	2.700																																																																									
Design Flow (l/s)	50.0																																																																									
Flush-Flo™	Calculated																																																																									
Objective	Minimise upstream storage																																																																									
Application	Surface																																																																									
Sump Available	Yes																																																																									
Diameter (mm)	271																																																																									
Invert Level (m)	69.241																																																																									
Minimum Outlet Pipe Diameter (mm)	300																																																																									
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)																																																																									
<table><tr><td>Control Points</td><td>Head (m)</td><td>Flow (l/s)</td></tr><tr><td>Design Point (Calculated)</td><td>2.700</td><td>49.9</td></tr><tr><td>Flush-Flo™</td><td>0.790</td><td>50.0</td></tr><tr><td>Kick-Flo®</td><td>1.686</td><td>39.8</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>43.5</td></tr></table>			Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	2.700	49.9	Flush-Flo™	0.790	50.0	Kick-Flo®	1.686	39.8	Mean Flow over Head Range	-	43.5																																																									
Control Points	Head (m)	Flow (l/s)																																																																								
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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																																																																										
<table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>8.6</td><td>1.200</td><td>48.4</td><td>3.000</td><td>52.5</td><td>7.000</td><td>79.2</td></tr><tr><td>0.200</td><td>27.9</td><td>1.400</td><td>46.3</td><td>3.500</td><td>56.6</td><td>7.500</td><td>81.9</td></tr><tr><td>0.300</td><td>43.1</td><td>1.600</td><td>42.4</td><td>4.000</td><td>60.4</td><td>8.000</td><td>84.5</td></tr><tr><td>0.400</td><td>46.3</td><td>1.800</td><td>41.1</td><td>4.500</td><td>63.9</td><td>8.500</td><td>87.0</td></tr><tr><td>0.500</td><td>48.2</td><td>2.000</td><td>43.2</td><td>5.000</td><td>67.3</td><td>9.000</td><td>89.5</td></tr><tr><td>0.600</td><td>49.3</td><td>2.200</td><td>45.2</td><td>5.500</td><td>70.4</td><td>9.500</td><td>91.9</td></tr><tr><td>0.800</td><td>50.0</td><td>2.400</td><td>47.2</td><td>6.000</td><td>73.5</td><td></td><td></td></tr><tr><td>1.000</td><td>49.5</td><td>2.600</td><td>49.0</td><td>6.500</td><td>76.4</td><td></td><td></td></tr></table>			Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	8.6	1.200	48.4	3.000	52.5	7.000	79.2	0.200	27.9	1.400	46.3	3.500	56.6	7.500	81.9	0.300	43.1	1.600	42.4	4.000	60.4	8.000	84.5	0.400	46.3	1.800	41.1	4.500	63.9	8.500	87.0	0.500	48.2	2.000	43.2	5.000	67.3	9.000	89.5	0.600	49.3	2.200	45.2	5.500	70.4	9.500	91.9	0.800	50.0	2.400	47.2	6.000	73.5			1.000	49.5	2.600	49.0	6.500	76.4		
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																			
0.100	8.6	1.200	48.4	3.000	52.5	7.000	79.2																																																																			
0.200	27.9	1.400	46.3	3.500	56.6	7.500	81.9																																																																			
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0.500	48.2	2.000	43.2	5.000	67.3	9.000	89.5																																																																			
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0.800	50.0	2.400	47.2	6.000	73.5																																																																					
1.000	49.5	2.600	49.0	6.500	76.4																																																																					
<u>Hydro-Brake® Optimum Manhole: S61 Flow Control 168 l/s, DS/PN: S1.010, Volume (m³): 22.2</u>																																																																										
Unit Reference	MD-SHE-0442-1680-4500-1680																																																																									
Design Head (m)	4.500																																																																									
Design Flow (l/s)	168.0																																																																									
Flush-Flo™	Calculated																																																																									
Objective	Minimise upstream storage																																																																									
Application	Surface																																																																									
Sump Available	Yes																																																																									
Diameter (mm)	442																																																																									
Invert Level (m)	65.771																																																																									
Minimum Outlet Pipe Diameter (mm)	Site Specific Design (Contact Hydro International)																																																																									
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Hydro-Brake® Optimum Manhole: S61 Flow Control 168 l/s, DS/PN: S1.010,
Volume (m³): 22.2

Suggested Manhole Diameter (mm) Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	4.500	167.8
Flush-Flo™	1.283	167.9
Kick-Flo®	2.754	132.0
Mean Flow over Head Range	-	145.7

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	11.7	1.200	167.7	3.000	137.7	7.000	208.2
0.200	42.4	1.400	167.6	3.500	148.4	7.500	215.3
0.300	84.0	1.600	166.4	4.000	158.4	8.000	222.3
0.400	124.4	1.800	164.2	4.500	167.8	8.500	229.0
0.500	145.5	2.000	161.3	5.000	176.6	9.000	235.5
0.600	152.5	2.200	157.0	5.500	185.0	9.500	241.8
0.800	161.5	2.400	150.8	6.000	193.1		
1.000	166.0	2.600	141.8	6.500	200.8		

Hydro-Brake® Optimum Manhole: S75 Flow Control 10 l/s, DS/PN: S20.003,
Volume (m³): 7.0

Unit Reference	MD-SHE-0124-1000-2500-1000
Design Head (m)	2.500
Design Flow (l/s)	10.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	124
Invert Level (m)	66.437
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.500	10.0
Flush-Flo™	0.539	8.6
Kick-Flo®	1.107	6.8
Mean Flow over Head Range	-	8.0

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

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<u>Hydro-Brake® Optimum Manhole: S75 Flow Control 10 l/s, DS/PN: S20.003,</u> <u>Volume (m³): 7.0</u>							
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.4	1.200	7.1	3.000	10.9	7.000	16.3
0.200	7.4	1.400	7.6	3.500	11.7	7.500	16.9
0.300	8.1	1.600	8.1	4.000	12.5	8.000	17.4
0.400	8.5	1.800	8.6	4.500	13.2	8.500	17.9
0.500	8.6	2.000	9.0	5.000	13.9	9.000	18.4
0.600	8.6	2.200	9.4	5.500	14.5	9.500	18.9
0.800	8.3	2.400	9.8	6.000	15.2		
1.000	7.6	2.600	10.2	6.500	15.7		
<u>Hydro-Brake® Optimum Manhole: S79 Flow Control 187 l/s, DS/PN: S1.012,</u> <u>Volume (m³): 25.9</u>							
Unit Reference		MD-SHE-0493-1870-2600-1870					
Design Head (m)		2.600					
Design Flow (l/s)		187.0					
Flush-Flo™		Calculated					
Objective		Minimise upstream storage					
Application		Surface					
Sump Available		Yes					
Diameter (mm)		493					
Invert Level (m)		64.756					
Minimum Outlet Pipe Diameter (mm)		Site Specific Design (Contact Hydro International)					
Suggested Manhole Diameter (mm)		Site Specific Design (Contact Hydro International)					
Control Points		Head (m) Flow (l/s)					
Design Point (Calculated)		2.600		186.8			
Flush-Flo™		0.873		186.9			
Kick-Flo®		1.839		157.8			
Mean Flow over Head Range		-		158.2			
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	12.5	1.200	183.9	3.000	200.4	7.000	303.4
0.200	45.9	1.400	180.1	3.500	216.1	7.500	313.9
0.300	92.8	1.600	173.8	4.000	230.6	8.000	324.0
0.400	143.5	1.800	161.6	4.500	244.3	8.500	333.8
0.500	177.4	2.000	164.4	5.000	257.3	9.000	343.3
0.600	182.4	2.200	172.2	5.500	269.6	9.500	352.6
0.800	186.7	2.400	179.7	6.000	281.3		
1.000	186.3	2.600	186.8	6.500	292.6		
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Storage Structures for 9762 - SW

Cellular Storage Manhole: S7 Tank, DS/PN: S1.001

Invert Level (m) 70.250 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	600.0	0.0	1.001	0.0	0.0
1.000	600.0	0.0			

Tank or Pond Manhole: S8 Pond, DS/PN: S3.002

Invert Level (m) 71.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	382.0	1.500	738.0

Cellular Storage Manhole: S30 Tank, DS/PN: S1.005

Invert Level (m) 67.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	1150.0	0.0	1.501	0.0	0.0
1.500	1150.0	0.0	2.000	0.0	0.0

Cellular Storage Manhole: S72 Tank 3, DS/PN: S21.004

Invert Level (m) 67.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	230.0	0.0	1.001	0.0	0.0
1.000	230.0	0.0	2.000	0.0	0.0

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Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW

PN	US/MH Name	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S1.000		S05		72.688	0.463	0.000	1.35
S2.000		S01		74.025	0.725	0.000	0.59
S2.001		S02		73.880	1.031	0.000	1.30
S2.002		S03		73.408	0.857	0.000	1.59
S2.003		S04		72.255	0.165	0.000	0.54
S2.004		S6		72.132	2.080	0.000	1.44
S1.001	S7 Tank			72.064	2.126	0.000	0.52
S3.000		S08		72.241	-0.059	0.000	0.67
S4.000		S10		72.412	0.112	0.000	0.91
S3.001		S09		72.059	0.185	0.000	1.36
S3.002	S8 Pond			71.912	-0.038	0.000	0.37
S5.000		S11		74.246	0.946	0.000	0.60
S5.001		S12		74.108	1.169	0.000	1.29
S5.002		S13		73.691	0.993	0.000	1.91
S1.002	S14 Flow Control 50 l/s			72.025	2.484	0.000	0.59

PN	US/MH Name	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000		S05		67.6	SURCHARGED	
S2.000		S01		69.3	SURCHARGED	
S2.001		S02		194.1	SURCHARGED	
S2.002		S03		242.7	SURCHARGED	
S2.003		S04		280.9	SURCHARGED	
S2.004		S6		129.7	SURCHARGED	
S1.001	S7 Tank			59.1	SURCHARGED	
S3.000		S08		65.7	OK	
S4.000		S10		128.6	SURCHARGED	
S3.001		S09		308.0	SURCHARGED	
S3.002	S8 Pond			104.8	OK	
S5.000		S11		63.1	FLOOD RISK	
S5.001		S12		193.2	SURCHARGED	
S5.002		S13		289.7	SURCHARGED	
S1.002	S14 Flow Control 50 l/s			50.0	SURCHARGED	

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<u>Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW</u>						
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood
S6.000		S15 15 Winter	100	+40%	100/15 Summer	
S6.001		S16 15 Winter	100	+40%	100/15 Summer	
S6.002		S17 15 Winter	100	+40%	100/15 Summer	
S7.000		S18 15 Summer	100	+40%	100/15 Summer	
S1.003		S19 120 Winter	100	+40%	100/15 Summer	
S8.000		S20 15 Summer	100	+40%	100/15 Summer	
S9.000		S21 15 Winter	100	+40%	100/15 Summer	
S9.001		S22 15 Winter	100	+40%	100/15 Summer	
S9.002		S23 15 Winter	100	+40%	100/15 Summer	
S10.000		S24 15 Winter	100	+40%	100/15 Summer	
S10.001		S25 15 Winter	100	+40%	100/15 Summer	
S10.002		S26 15 Winter	100	+40%	100/15 Summer	
S9.003		S27 15 Winter	100	+40%	100/15 Summer	
S1.004		S28 120 Winter	100	+40%	100/15 Summer	
S11.000		S29 120 Winter	100	+40%	100/120 Winter	
S1.005	S30 Tank	120 Winter	100	+40%	100/15 Summer	
S1.006		S31 120 Winter	100	+40%	100/15 Summer	
S12.000		S32 15 Winter	100	+40%	100/15 Summer	
S12.001		S33 15 Winter	100	+40%	100/15 Summer	
S13.000		S34 120 Winter	100	+40%		
S12.002		S35 120 Winter	100	+40%	100/15 Summer	
S14.000		S36 120 Winter	100	+40%	100/15 Summer	
S14.001		S37 120 Winter	100	+40%	100/15 Summer	
S14.002		S38 120 Winter	100	+40%	100/15 Summer	
S12.003		S39 120 Winter	100	+40%	100/15 Summer	
S15.000		S40 15 Winter	100	+40%	100/15 Summer	
S15.001		S41 15 Winter	100	+40%	100/15 Summer	
S15.002		S42 15 Summer	100	+40%	100/15 Summer	
S15.003		S43 15 Winter	100	+40%	100/15 Summer	
S15.004		S44 15 Winter	100	+40%	100/15 Summer	
S16.000		S45 15 Summer	100	+40%	100/15 Summer	
S16.001		S46 15 Summer	100	+40%		
S15.005		S47 120 Winter	100	+40%	100/15 Summer	
S15.006		S48 120 Winter	100	+40%	100/15 Summer	
S15.007		S49 120 Winter	100	+40%	100/15 Summer	
S1.007		S50 120 Winter	100	+40%	100/15 Summer	
S17.000		S51 15 Summer	100	+40%	100/15 Summer	
S17.001		S52 120 Winter	100	+40%	100/15 Summer	
S17.002		S53 120 Winter	100	+40%	100/15 Summer	
S17.003		S54 120 Winter	100	+40%	100/60 Winter	
S1.008		S55 120 Winter	100	+40%	100/15 Summer	
S18.000		S56 120 Winter	100	+40%	100/30 Summer	
S1.009		S57 120 Winter	100	+40%	100/15 Summer	
S19.000		S58 15 Summer	100	+40%	100/15 Summer	
S19.001		S59 120 Winter	100	+40%	100/15 Summer	
S19.002		S60 120 Winter	100	+40%	100/60 Winter	
S1.010	S61 Flow Control 168	1/s 120 Winter	100	+40%	100/15 Summer	
S20.000		S62 180 Winter	100	+40%	100/15 Summer	
S20.001		S63 180 Winter	100	+40%	100/15 Summer	
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Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW							
PN	US/MH Name	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S6.000		S15		72.144	0.644	0.000	0.97
S6.001		S16		71.838	0.695	0.000	1.03
S6.002		S17		71.510	0.668	0.000	1.52
S7.000		S18		71.029	0.379	0.000	1.68
S1.003		S19		70.287	1.714	0.000	0.71
S8.000		S20		70.579	0.079	0.000	1.08
S9.000		S21		72.415	0.840	0.000	0.46
S9.001		S22		72.291	1.076	0.000	1.88
S9.002		S23		71.425	0.443	0.000	1.48
S10.000		S24		70.983	0.433	0.000	0.30
S10.001		S25		70.962	0.975	0.000	0.41
S10.002		S26		70.821	1.039	0.000	0.71
S9.003		S27		70.663	1.151	0.000	2.44
S1.004		S28		70.273	1.999	0.000	1.46
S11.000		S29		70.221	0.096	0.000	0.03
S1.005	S30 Tank			70.221	2.339	0.000	1.07
S1.006		S31		70.187	2.652	0.000	1.27
S12.000		S32		70.409	1.787	0.000	0.51
S12.001		S33		70.259	2.210	0.000	1.97
S13.000		S34		70.182	-0.043	0.000	0.18
S12.002		S35		70.179	2.181	0.000	0.89
S14.000		S36		70.177	1.087	0.000	0.13
S14.001		S37		70.176	1.414	0.000	0.31
S14.002		S38		70.174	1.740	0.000	0.51
S12.003		S39		70.171	2.478	0.000	0.82
S15.000		S40		71.155	0.430	0.000	0.60
S15.001		S41		71.055	0.892	0.000	1.27
S15.002		S42		70.586	0.758	0.000	0.92
S15.003		S43		70.334	0.821	0.000	1.05
S15.004		S44		70.235	0.796	0.000	0.75
S16.000		S45		70.951	0.026	0.000	1.04
S16.001		S46		70.584	-0.189	0.000	0.29
S15.005		S47		70.171	1.356	0.000	1.47
S15.006		S48		70.168	1.421	0.000	0.84
S15.007		S49		70.165	1.538	0.000	0.17
S1.007		S50		70.163	3.365	0.000	0.82
S17.000		S51		70.733	0.383	0.000	1.61
S17.001		S52		70.151	0.027	0.000	0.35
S17.002		S53		70.148	0.173	0.000	0.43
S17.003		S54		70.198	0.435	0.000	0.13
S1.008		S55		70.151	3.507	0.000	0.81
S18.000		S56		70.183	0.708	0.000	0.35
S1.009		S57		70.153	3.569	0.000	0.56
S19.000		S58		70.767	0.417	0.000	1.53
S19.001		S59		70.142	0.062	0.000	0.38
S19.002		S60		70.187	0.533	0.000	0.54
S1.010	S61 Flow Control 168	l/s		70.149	3.853	0.000	0.71
S20.000		S62		68.919	0.269	0.000	0.22
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Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW

PN	US/MH Name	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.009		S57		275.7	FLOOD RISK	
S19.000		S58		26.0	FLOOD RISK	
S19.001		S59		18.6	SURCHARGED	
S19.002		S60		53.2	SURCHARGED	
S1.010	S61 Flow Control 168	1/s		167.6	FLOOD RISK	
S20.000		S62		4.3	SURCHARGED	
S20.001		S63		11.3	SURCHARGED	

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<u>Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW</u>							
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	
S20.002		S64 180 Winter	100	+40%	100/15 Summer		
S21.000		S65 180 Winter	100	+40%	100/180 Winter		
S21.001		S66 180 Winter	100	+40%	100/60 Winter		
S21.002		S67 180 Winter	100	+40%	100/15 Summer		
S22.000		S68 180 Winter	100	+40%	100/180 Winter		
S22.001		S69 180 Winter	100	+40%	100/120 Winter		
S22.002		S70 180 Winter	100	+40%	100/30 Summer		
S21.003		S71 180 Winter	100	+40%	100/15 Summer		
S21.004	S72 Tank 3	180 Winter	100	+40%	100/15 Summer		
S23.000		S73 180 Winter	100	+40%	100/15 Summer		
S21.005		S74 180 Winter	100	+40%	100/15 Summer		
S20.003	S75 Flow Control 10	1/s 180 Winter	100	+40%	100/15 Summer		
S1.011		S76 60 Winter	100	+40%	100/15 Summer		
S24.000		S77 60 Winter	100	+40%	100/15 Summer		
S25.000		S78 60 Winter	100	+40%	100/15 Summer		
S1.012	S79 Flow Control 187	1/s 60 Winter	100	+40%	100/15 Summer		
S1.013		S80 120 Summer	100	+40%	100/15 Summer		
PN	US/MH Name	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S20.002		S64		68.912	1.012	0.000	0.37
S21.000		S65		68.930	0.280	0.000	0.14
S21.001		S66		68.928	0.598	0.000	0.15
S21.002		S67		68.926	0.947	0.000	0.20
S22.000		S68		68.926	0.276	0.000	0.05
S22.001		S69		68.925	0.464	0.000	0.06
S22.002		S70		68.924	0.760	0.000	0.18
S21.003		S71		68.922	1.308	0.000	0.35
S21.004	S72 Tank 3			68.918	1.445	0.000	0.10
S23.000		S73		68.919	0.269	0.000	0.23
S21.005		S74		68.917	1.557	0.000	0.08
S20.003	S75 Flow Control 10	1/s		68.907	2.170	0.000	0.10
S1.011		S76		67.484	1.451	0.000	0.39
S24.000		S77		67.451	1.651	0.000	0.19
S25.000		S78		67.451	1.651	0.000	0.13
S1.012	S79 Flow Control 187	1/s		67.449	2.168	0.000	0.99
S1.013		S80		64.874	0.156	0.000	1.74
PN	US/MH Name	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded	
S20.002		S64		14.4	SURCHARGED		
S21.000		S65		2.7	SURCHARGED		
S21.001		S66		7.2	SURCHARGED		
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Summary of Critical Results by Maximum Level (Rank 1) for 9762 - SW

PN	US/MH Name	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S21.002		S67		22.1	SURCHARGED	
S22.000		S68		1.0	SURCHARGED	
S22.001		S69		3.1	SURCHARGED	
S22.002		S70		14.5	SURCHARGED	
S21.003		S71		47.6	SURCHARGED	
S21.004	S72 Tank 3			10.6	SURCHARGED	
S23.000		S73		3.2	SURCHARGED	
S21.005		S74		10.2	SURCHARGED	
S20.003	S75 Flow Control 10	l/s		9.9	SURCHARGED	
S1.011		S76		181.4	FLOOD RISK	
S24.000		S77		18.2	FLOOD RISK	
S25.000		S78		9.9	FLOOD RISK	
S1.012	S79 Flow Control 187	l/s		186.8	FLOOD RISK	
S1.013		S80		186.8	SURCHARGED	