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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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
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	

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)
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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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
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	

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)
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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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
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	

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)
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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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
S1.010	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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Area Summary for 9762 - SW

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 * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	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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Online Controls for 9762 - SW

Hydro-Brake® Optimum Manhole: S14 Flow Control 50 l/s, DS/PN: S1.002, Volume (m³): 19.9

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)

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

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	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		

Hydro-Brake® Optimum Manhole: S61 Flow Control 168 l/s, DS/PN: S1.010, Volume (m³): 22.2

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

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		

Hydro-Brake® Optimum Manhole: S79 Flow Control 187 l/s, DS/PN: S1.012, Volume (m³): 25.9

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 (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
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 (m²)	Depth (m)	Area (m²)
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 (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
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 (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
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

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 Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 4
Number of Online Controls 4 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 0.346
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 18.200 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, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 30
Climate Change (%) 0

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
S1.000	S05	15 Summer	30	+0%			
S2.000	S01	15 Summer	30	+0%			
S2.001	S02	15 Summer	30	+0%			
S2.002	S03	15 Winter	30	+0%			
S2.003	S04	15 Winter	30	+0%			
S2.004	S6	15 Winter	30	+0%	30/15 Summer		
S1.001	S7 Tank	120 Winter	30	+0%	30/15 Summer		
S3.000	S08	15 Summer	30	+0%			
S4.000	S10	15 Summer	30	+0%			
S3.001	S09	15 Summer	30	+0%			
S3.002	S8 Pond	30 Winter	30	+0%			
S5.000	S11	15 Summer	30	+0%			
S5.001	S12	15 Winter	30	+0%			
S5.002	S13	15 Summer	30	+0%	30/15 Summer		
S1.002	S14 Flow Control 50 l/s	30 Winter	30	+0%	30/15 Summer		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)
S1.000	S05		72.156	-0.069	0.000	0.80	
S2.000	S01		73.137	-0.163	0.000	0.41	
S2.001	S02		72.753	-0.096	0.000	0.87	
S2.002	S03		72.549	-0.002	0.000	1.00	
S2.003	S04		71.875	-0.214	0.000	0.37	
S2.004	S6		70.919	0.866	0.000	2.09	
S1.001	S7 Tank		70.736	0.799	0.000	0.43	
S3.000	S08		72.134	-0.166	0.000	0.38	
S4.000	S10		72.161	-0.139	0.000	0.54	
S3.001	S09		71.738	-0.136	0.000	0.81	
S3.002	S8 Pond		71.656	-0.294	0.000	0.26	
S5.000	S11		73.145	-0.155	0.000	0.44	
S5.001	S12		72.935	-0.004	0.000	0.77	
S5.002	S13		72.788	0.090	0.000	1.12	
S1.002	S14 Flow Control 50 l/s		71.381	1.840	0.000	0.59	

PN	US/MH Name	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S05		39.8	OK	
S2.000	S01		47.4	OK	
S2.001	S02		130.4	OK	
S2.002	S03		152.2	OK	
S2.003	S04		196.0	OK	
S2.004	S6		188.4	SURCHARGED	
S1.001	S7 Tank	74	48.7	SURCHARGED	
S3.000	S08		37.1	OK	
S4.000	S10		77.1	OK	
S3.001	S09		183.9	OK	
S3.002	S8 Pond		74.3	OK	
S5.000	S11		46.1	OK	
S5.001	S12		115.5	OK	
S5.002	S13		170.0	SURCHARGED	
S1.002	S14 Flow Control 50 l/s		49.7	SURCHARGED	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood
S6.000	S15	15 Summer	30	+0%		
S6.001	S16	15 Summer	30	+0%		
S6.002	S17	15 Summer	30	+0%		
S7.000	S18	15 Summer	30	+0%		
S1.003	S19	15 Winter	30	+0%	30/15 Summer	
S8.000	S20	15 Summer	30	+0%		
S9.000	S21	15 Summer	30	+0%		
S9.001	S22	15 Summer	30	+0%	30/15 Summer	
S9.002	S23	15 Winter	30	+0%		
S10.000	S24	15 Summer	30	+0%		
S10.001	S25	15 Winter	30	+0%		
S10.002	S26	15 Winter	30	+0%	30/15 Summer	
S9.003	S27	15 Winter	30	+0%	30/15 Summer	
S1.004	S28	15 Winter	30	+0%	30/15 Summer	
S11.000	S29	15 Winter	30	+0%		
S1.005	S30 Tank	60 Winter	30	+0%	30/15 Winter	
S1.006	S31	15 Winter	30	+0%	30/15 Summer	
S12.000	S32	15 Winter	30	+0%	30/15 Summer	
S12.001	S33	15 Summer	30	+0%	30/15 Summer	
S13.000	S34	15 Summer	30	+0%		
S12.002	S35	15 Summer	30	+0%	30/15 Summer	
S14.000	S36	15 Summer	30	+0%		
S14.001	S37	15 Winter	30	+0%	30/15 Winter	
S14.002	S38	15 Summer	30	+0%	30/15 Summer	
S12.003	S39	15 Summer	30	+0%	30/15 Summer	
S15.000	S40	15 Summer	30	+0%		
S15.001	S41	15 Summer	30	+0%		
S15.002	S42	15 Summer	30	+0%		
S15.003	S43	15 Summer	30	+0%		
S15.004	S44	15 Summer	30	+0%		
S16.000	S45	15 Summer	30	+0%		
S16.001	S46	15 Summer	30	+0%		
S15.005	S47	15 Summer	30	+0%	30/15 Summer	
S15.006	S48	15 Summer	30	+0%	30/15 Summer	
S15.007	S49	15 Summer	30	+0%	30/15 Summer	
S1.007	S50	30 Winter	30	+0%	30/15 Summer	
S17.000	S51	15 Summer	30	+0%		
S17.001	S52	15 Summer	30	+0%		
S17.002	S53	15 Summer	30	+0%		
S17.003	S54	15 Summer	30	+0%		
S1.008	S55	30 Winter	30	+0%	30/15 Summer	
S18.000	S56	15 Winter	30	+0%		
S1.009	S57	30 Winter	30	+0%	30/15 Summer	
S19.000	S58	15 Summer	30	+0%		
S19.001	S59	15 Summer	30	+0%		
S19.002	S60	15 Summer	30	+0%		
S1.010	S61 Flow Control 168 l/s	30 Winter	30	+0%	30/15 Summer	
S20.000	S62	15 Summer	30	+0%		
S20.001	S63	15 Summer	30	+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.
S6.000	S15			71.387	-0.113	0.000	0.65
S6.001	S16			70.969	-0.174	0.000	0.68
S6.002	S17			70.759	-0.082	0.000	1.00
S7.000	S18			70.627	-0.023	0.000	0.95
S1.003	S19			69.001	0.428	0.000	1.05
S8.000	S20			70.375	-0.125	0.000	0.64
S9.000	S21			71.371	-0.204	0.000	0.36
S9.001	S22			71.320	0.105	0.000	1.19
S9.002	S23			70.875	-0.107	0.000	0.94
S10.000	S24			70.337	-0.213	0.000	0.18
S10.001	S25			69.982	-0.005	0.000	0.27
S10.002	S26			69.876	0.094	0.000	0.37
S9.003	S27			69.725	0.213	0.000	1.56
S1.004	S28			68.833	0.559	0.000	2.08
S11.000	S29			69.806	-0.319	0.000	0.05
S1.005	S30 Tank			68.130	0.248	0.000	0.71
S1.006	S31			68.464	0.929	0.000	0.79
S12.000	S32			68.974	0.352	0.000	0.40
S12.001	S33			68.892	0.842	0.000	1.27
S13.000	S34			70.092	-0.133	0.000	0.33
S12.002	S35			68.819	0.821	0.000	0.70
S14.000	S36			68.804	-0.286	0.000	0.12
S14.001	S37			68.767	0.005	0.000	0.24
S14.002	S38			68.705	0.271	0.000	0.51
S12.003	S39			68.687	0.994	0.000	0.75
S15.000	S40			70.597	-0.128	0.000	0.36
S15.001	S41			70.108	-0.055	0.000	0.91
S15.002	S42			69.706	-0.122	0.000	0.65
S15.003	S43			69.369	-0.144	0.000	0.67
S15.004	S44			69.241	-0.198	0.000	0.45
S16.000	S45			70.827	-0.098	0.000	0.59
S16.001	S46			70.555	-0.218	0.000	0.16
S15.005	S47			69.043	0.228	0.000	1.19
S15.006	S48			68.958	0.211	0.000	0.67
S15.007	S49			68.837	0.210	0.000	0.14
S1.007	S50			68.825	2.027	0.000	0.70
S17.000	S51			70.332	-0.018	0.000	0.96
S17.001	S52			70.029	-0.095	0.000	0.63
S17.002	S53			69.880	-0.095	0.000	0.63
S17.003	S54			69.590	-0.173	0.000	0.12
S1.008	S55			68.876	2.232	0.000	0.67
S18.000	S56			69.329	-0.146	0.000	0.26
S1.009	S57			68.875	2.291	0.000	0.51
S19.000	S58			70.323	-0.027	0.000	0.93
S19.001	S59			69.988	-0.092	0.000	0.63
S19.002	S60			69.504	-0.150	0.000	0.48
S1.010	S61 Flow Control 168 l/s			68.870	2.574	0.000	0.71
S20.000	S62			68.582	-0.068	0.000	0.54

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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.
S20.001	S63			68.095	-0.104	0.000	0.55

PN	US/MH Name	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S6.000	S15			65.6	OK	
S6.001	S16			173.6	OK	
S6.002	S17			238.5	OK	
S7.000	S18			18.8	OK	
S1.003	S19			358.1	SURCHARGED	
S8.000	S20			47.7	OK	
S9.000	S21			63.6	OK	
S9.001	S22			152.4	SURCHARGED	
S9.002	S23			197.3	OK	
S10.000	S24			24.1	OK	
S10.001	S25			70.1	OK	
S10.002	S26			96.7	SURCHARGED	
S9.003	S27			308.8	SURCHARGED	
S1.004	S28			751.0	SURCHARGED	
S11.000	S29			10.3	OK	
S1.005	S30 Tank		59	249.7	SURCHARGED	
S1.006	S31			223.5	SURCHARGED	
S12.000	S32			22.1	SURCHARGED	
S12.001	S33			40.4	SURCHARGED	
S13.000	S34			15.9	OK	
S12.002	S35			59.2	SURCHARGED	
S14.000	S36			23.0	OK	
S14.001	S37			42.3	SURCHARGED	
S14.002	S38			89.5	SURCHARGED	
S12.003	S39			167.1	SURCHARGED	
S15.000	S40			19.7	OK	
S15.001	S41			44.2	OK	
S15.002	S42			70.1	OK	
S15.003	S43			71.9	OK	
S15.004	S44			74.3	OK	
S16.000	S45			25.7	OK	
S16.001	S46			38.6	OK	
S15.005	S47			127.5	SURCHARGED	
S15.006	S48			131.3	SURCHARGED	
S15.007	S49			160.0	SURCHARGED	
S1.007	S50			416.5	SURCHARGED	
S17.000	S51			16.1	OK	
S17.001	S52			28.7	OK	
S17.002	S53			28.4	OK	
S17.003	S54			28.0	OK	
S1.008	S55			325.5	SURCHARGED	
S18.000	S56			12.4	OK	

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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			254.7	SURCHARGED	
S19.000	S58			15.8	OK	
S19.001	S59			31.2	OK	
S19.002	S60			47.4	OK	
S1.010	S61 Flow Control 168 l/s			167.6	SURCHARGED	
S20.000	S62			10.3	OK	
S20.001	S63			26.8	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood
S20.002	S64	120 Winter	30	+0%	30/120 Winter	
S21.000	S65	15 Summer	30	+0%		
S21.001	S66	15 Summer	30	+0%		
S21.002	S67	60 Winter	30	+0%		
S22.000	S68	15 Summer	30	+0%		
S22.001	S69	15 Summer	30	+0%		
S22.002	S70	15 Summer	30	+0%		
S21.003	S71	120 Winter	30	+0%	30/15 Summer	
S21.004	S72 Tank 3	120 Winter	30	+0%	30/15 Summer	
S23.000	S73	15 Summer	30	+0%		
S21.005	S74	180 Winter	30	+0%	30/15 Summer	
S20.003	S75 Flow Control 10 l/s	120 Winter	30	+0%	30/15 Summer	
S1.011	S76	60 Winter	30	+0%		
S24.000	S77	60 Winter	30	+0%		
S25.000	S78	60 Winter	30	+0%		
S1.012	S79 Flow Control 187 l/s	60 Winter	30	+0%	30/15 Summer	
S1.013	S80	60 Winter	30	+0%	30/15 Summer	

PN	US/MH Name	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
S20.002	S64			67.946	0.046	0.000	0.28
S21.000	S65			68.563	-0.087	0.000	0.35
S21.001	S66			68.197	-0.133	0.000	0.34
S21.002	S67			67.966	-0.013	0.000	0.23
S22.000	S68			68.537	-0.113	0.000	0.14
S22.001	S69			68.294	-0.167	0.000	0.15
S22.002	S70			67.999	-0.165	0.000	0.42
S21.003	S71			67.943	0.329	0.000	0.25
S21.004	S72 Tank 3			67.939	0.466	0.000	0.11
S23.000	S73			68.584	-0.066	0.000	0.57
S21.005	S74			67.956	0.596	0.000	0.08
S20.003	S75 Flow Control 10 l/s			67.965	1.228	0.000	0.08
S1.011	S76			65.789	-0.244	0.000	0.38
S24.000	S77			65.734	-0.066	0.000	0.10
S25.000	S78			65.732	-0.068	0.000	0.07
S1.012	S79 Flow Control 187 l/s			65.730	0.449	0.000	0.98
S1.013	S80			64.873	0.155	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			11.2	SURCHARGED	
S21.000	S65			6.6	OK	
S21.001	S66			16.8	OK	

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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			26.2	OK	
S22.000	S68			2.5	OK	
S22.001	S69			7.2	OK	
S22.002	S70			34.2	OK	
S21.003	S71			34.4	SURCHARGED	
S21.004	S72 Tank 3			11.1	SURCHARGED	
S23.000	S73			7.9	OK	
S21.005	S74			10.1	SURCHARGED	
S20.003	S75 Flow Control 10 l/s			8.6	SURCHARGED	
S1.011	S76			177.3	OK	
S24.000	S77			9.4	OK	
S25.000	S78			5.5	OK	
S1.012	S79 Flow Control 187 l/s			186.4	SURCHARGED	
S1.013	S80			186.4	SURCHARGED	

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