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Manchester One Portland Street Manchester M1 3LF	Haverhill Great Willsey Park Area 2	
Date 28/03/2019 File HAVERHILL. ALL NETWORKS.MDX	Designed by RMV Checked by PV	
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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW 02

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	21.000	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	1.200
Ratio R	0.423	PIMP (%)	100	Min Vel for Auto Design only (m/s)	1.00
Maximum Rainfall (mm/hr)	50	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200		

Designed with Level Soffits


Network Design Table for SW 02

« - Indicates pipe capacity < flow







PN	Length	Fall	Slope	I.Area	T.E.	Base	k	n	HYD	DIA	Section Type	Auto
(m)	(m)	(1:X)	(ha)	(mins)	Flow	(l/s)	(mm)	SECT	(mm)		Design	

Network Results Table

PN	Rain	T.C.	US/IL	Σ I.Area	Σ Base	Foul	Add Flow	Vel	Cap	Flow
(mm/hr)	(mins)	(m)	(ha)	Flow	(l/s)	(l/s)	(l/s)	(m/s)	(l/s)	(l/s)


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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	48.845	1.061	46.0	0.160	12.00	0.0		0.045	-1	-1	Pipe/Conduit	
2.000	64.426	1.441	44.7	0.160	12.00	0.0	0.600		o	225	Pipe/Conduit	
1.001	64.464	1.427	45.2	0.080	0.00	0.0		0.045	-1	-1	Pipe/Conduit	
1.002	32.616	0.810	40.3	0.080	0.00	0.0		0.045	oo	375	Double Pipe	
3.000	44.918	0.249	180.4	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
4.000	42.998	1.017	42.3	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	36.97	12.48	95.900	0.160	0.0	0.0	0.0	1.68	3887.2	16.0
2.000	36.87	12.55	96.280	0.160	0.0	0.0	0.0	1.96	78.0	16.0
1.001	35.84	13.18	94.839	0.400	0.0	0.0	0.0	1.70	3924.1	38.8
1.002	34.70	13.93	93.412	0.480	0.0	0.0	0.0	0.72	159.6	45.1
3.000	36.49	12.77	94.008	0.080	0.0	0.0	0.0	0.97	38.6	7.9
4.000	37.19	12.36	94.776	0.080	0.0	0.0	0.0	2.02	80.2	8.1


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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
3.001	38.994	0.135	288.8	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
3.002	8.378	0.149	56.2	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
3.003	45.067	0.404	111.6	0.080	0.00	0.0	0.600		o	450	Pipe/Conduit	
5.000	71.955	1.056	68.1	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
6.000	61.078	1.044	58.5	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
6.001	12.142	0.499	24.3	0.080	0.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.001	35.52	13.38	93.609	0.240	0.0	0.0	0.0	1.06	117.2	23.1
3.002	35.43	13.44	93.474	0.320	0.0	0.0	0.0	2.42	267.4	30.7
3.003	34.85	13.83	93.250	0.400	0.0	0.0	0.0	1.92	306.0	37.7
5.000	36.52	12.76	95.801	0.080	0.0	0.0	0.0	1.59	63.1	7.9
6.000	36.79	12.59	97.458	0.080	0.0	0.0	0.0	1.71	68.1	8.0
6.001	36.66	12.67	96.414	0.160	0.0	0.0	0.0	2.66	105.9	15.9


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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
7.000	25.802	0.313	82.4	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
7.001	39.122	0.233	167.9	0.080	0.00	0.0	0.600		o	300	Pipe/Conduit	
7.002	38.910	0.290	134.2	0.080	0.00	0.0	0.600		o	300	Pipe/Conduit	
7.003	24.958	0.509	49.0	0.080	0.00	0.0	0.600		o	300	Pipe/Conduit	
7.004	12.898	0.835	15.4	0.160	0.00	0.0	0.600		o	300	Pipe/Conduit	
8.000	21.249	0.363	58.5	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
7.005	39.309	0.122	322.2	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
7.006	46.950	0.146	321.6	0.040	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)
7.000	37.29	12.30	98.363	0.080	0.0	0.0	0.0	1.44	57.3	8.1
7.001	36.39	12.84	97.975	0.160	0.0	0.0	0.0	1.21	85.6	15.8
7.002	35.63	13.32	97.742	0.240	0.0	0.0	0.0	1.36	95.8	23.2
7.003	35.34	13.50	97.452	0.320	0.0	0.0	0.0	2.25	159.1	30.6
7.004	35.26	13.55	96.943	0.480	0.0	0.0	0.0	4.02	284.2	45.8
8.000	37.45	12.21	96.546	0.080	0.0	0.0	0.0	1.71	68.1	8.1
7.005	34.30	14.21	96.033	0.640	0.0	0.0	0.0	1.00	110.9	59.5
7.006	33.24	14.98	95.911	0.680	0.0	0.0	0.0	1.00	111.0	61.2


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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k	n	HYD SECT	DIA (mm)	Section Type	Auto Design
6.002	71.277	1.170	60.9	0.080	0.00	0.0	0.600		o	450	Pipe/Conduit	
5.001	32.314	1.537	21.0	0.080	0.00	0.0	0.600		o	450	Pipe/Conduit	
9.000	16.202	0.991	16.3	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
10.000	60.505	1.035	58.5	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
9.001	28.639	0.604	47.4	0.080	0.00	0.0	0.600		o	225	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)
6.002	32.65	15.44	95.690	0.920	0.0	0.0	0.0	2.61	414.9	81.4
5.001	32.50	15.56	94.520	1.080	0.0	0.0	0.0	4.45	707.6	95.1
9.000	37.66	12.08	99.032	0.080	0.0	0.0	0.0	3.25	129.3	8.2
10.000	36.80	12.59	99.076	0.080	0.0	0.0	0.0	1.71	68.1	8.0
9.001	36.38	12.84	98.041	0.240	0.0	0.0	0.0	1.90	75.7	23.6


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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k	n	HYD SECT	DIA (mm)	Section Type	Auto Design
9.002	52.201	0.287	181.9	0.080	0.00	0.0	0.600		o	300	Pipe/Conduit	
9.003	55.398	0.307	180.5	0.080	0.00	0.0	0.600		o	300	Pipe/Conduit	
9.004	29.930	0.320	93.5	0.160	0.00	0.0	0.600		o	375	Pipe/Conduit	
11.000	43.127	0.833	51.8	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
9.005	27.944	0.492	56.8	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
9.006	87.397	0.214	408.4	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
9.007	24.262	0.099	245.1	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
9.008	33.610	2.610	12.9	0.160	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)
9.002	35.21	13.59	97.362	0.320	0.0	0.0	0.0	1.16	82.2	30.5
9.003	34.06	14.38	97.075	0.400	0.0	0.0	0.0	1.17	82.5	36.9
9.004	33.70	14.64	96.693	0.560	0.0	0.0	0.0	1.87	207.0	51.1
11.000	37.12	12.39	97.356	0.080	0.0	0.0	0.0	1.82	72.4	8.0
9.005	33.43	14.84	96.373	0.720	0.0	0.0	0.0	2.41	266.0	65.2
9.006	31.40	16.47	95.881	0.800	0.0	0.0	0.0	0.89	98.3	68.0
9.007	31.00	16.82	95.667	0.880	0.0	0.0	0.0	1.15	127.3	73.9
9.008	30.88	16.94	95.568	1.040	0.0	0.0	0.0	5.07	560.2	87.0


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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
5.002	80.739	0.212	380.8	0.080	0.00	0.0	0.600		o	600	Pipe/Conduit	
3.004	25.752	0.009	2861.3	0.080	0.00	0.0	0.600		o	750	Pipe/Conduit	
3.005	11.349	0.418	27.2	0.160	0.00	0.0	0.600		o	750	Pipe/Conduit	
12.000	53.609	1.300	41.2	0.255	12.00	0.0	0.600		o	450	Pipe/Conduit	
12.001	11.330	0.614	18.5	0.255	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.003	8.816	0.018	489.8	0.080	0.00	0.0	0.600		oo	675	Double Pipe	

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)
5.002	29.72	18.02	92.833	2.200	0.0	0.0	0.0	1.24	351.1	177.1
3.004	28.90	18.85	92.546	2.680	0.0	0.0	0.0	0.51	226.9	209.7
3.005	28.87	18.89	92.645	2.840	0.0	0.0	0.0	5.38	2378.2	222.0
12.000	37.32	12.28	94.441	0.255	0.0	0.0	0.0	3.17	504.7	25.8
12.001	37.25	12.32	93.141	0.510	0.0	0.0	0.0	4.75	755.5	51.4
1.003	28.75	19.01	92.625	3.910	0.0	0.0	0.0	1.18	842.7	304.4


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1.004	176.063	3.257	54.1	0.185	0.00	0.0		0.045	-1	-1	Pipe/Conduit	
1.005	28.119	0.650	43.3	0.080	0.00	0.0	0.600		ooo	450	Triple Pipe	
13.000	30.363	0.819	37.1	0.080	12.00	0.0	0.600		o	375	Pipe/Conduit	
13.001	110.662	0.409	270.6	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
13.002	54.358	0.409	132.9	0.080	0.00	0.0	0.600		o	375	Pipe/Conduit	
13.003	29.968	0.620	48.3	0.080	0.00	0.0	0.600		o	450	Pipe/Conduit	
13.004	26.481	0.238	111.3	0.080	0.00	0.0	0.600		o	525	Pipe/Conduit	
13.005	30.942	0.337	91.8	0.080	0.00	0.0	0.600		o	525	Pipe/Conduit	
13.006	37.297	1.291	28.9	0.080	0.00	0.0	0.600		o	525	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.004	27.10	20.90	92.607	4.095	0.0	0.0	0.0	1.55	3587.2	304.4
1.005	26.98	21.06	89.600	4.175	0.0	0.0	0.0	3.10	1478.1	305.1
13.000	37.51	12.17	97.086	0.080	0.0	0.0	0.0	2.98	329.6	8.1
13.001	34.82	13.85	96.267	0.160	0.0	0.0	0.0	1.10	121.1	15.1
13.002	33.99	14.43	95.858	0.240	0.0	0.0	0.0	1.57	173.4	22.1
13.003	33.76	14.60	95.374	0.320	0.0	0.0	0.0	2.93	466.0	29.3
13.004	33.48	14.81	94.679	0.400	0.0	0.0	0.0	2.12	459.6	36.3
13.005	33.18	15.03	94.441	0.480	0.0	0.0	0.0	2.34	506.2	43.1
13.006	32.99	15.18	94.104	0.560	0.0	0.0	0.0	4.18	904.6	50.0


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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k	n	HYD SECT	DIA (mm)	Section Type	Auto Design
14.000	50.279	1.179	42.6	0.080	12.00	0.0	0.600		o	225	Pipe/Conduit	
13.007	35.724	0.962	37.1	0.185	0.00	0.0	0.600		o	525	Pipe/Conduit	
13.008	27.681	1.081	25.6	0.185	0.00	0.0	0.600		o	600	Pipe/Conduit	
13.009	30.516	0.531	57.5	0.185	0.00	0.0	0.600		o	750	Pipe/Conduit	
13.010	30.068	0.378	79.5	0.185	0.00	0.0	0.600		o	750	Pipe/Conduit	
13.011	24.119	0.189	127.6	0.185	0.00	0.0	0.600		o	750	Pipe/Conduit	
13.012	49.654	0.189	262.7	0.185	0.00	0.0	0.600		o	750	Pipe/Conduit	
13.013	58.180	0.960	60.6	0.185	0.00	0.0	0.600		o	750	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)
14.000	37.09	12.42	94.292	0.080	0.0	0.0	0.0	2.01	79.9	8.0
13.007	32.78	15.34	92.813	0.825	0.0	0.0	0.0	3.68	797.5	73.2
13.008	32.66	15.43	91.776	1.010	0.0	0.0	0.0	4.83	1364.3	89.3
13.009	32.49	15.57	90.545	1.195	0.0	0.0	0.0	3.70	1632.8	105.1
13.010	32.29	15.73	90.014	1.380	0.0	0.0	0.0	3.14	1387.0	120.7
13.011	32.09	15.89	89.636	1.565	0.0	0.0	0.0	2.48	1093.9	136.0
13.012	31.52	16.37	89.447	1.750	0.0	0.0	0.0	1.72	760.7	149.4
13.013	31.21	16.64	89.610	1.935	0.0	0.0	0.0	3.60	1589.9	163.5


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15.000	48.920	1.992	24.6	1.020	12.00	0.0	0.600		o	525	Pipe/Conduit	
1.006	51.512	0.852	60.5	0.000	0.00	0.0	0.600		ooo	825	Triple Pipe	
1.007	20.552	0.559	36.8	0.000	0.00	0.0		0.045	4 \=/	6000	1:4 Swale	
1.008	15.793	0.202	78.2	0.000	0.00	0.0		0.045	4 \=/	6000	1:4 Swale	
1.009	7.896	0.962	8.2	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.010	7.896	0.150	52.6	0.000	0.00	0.0		0.045	4 \=/	6000	1:4 Swale	
1.011	93.201	0.348	267.8	0.000	0.00	0.0		0.045	4 \=/	6000	1:4 Swale	
1.012	9.453	0.500	18.9	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
15.000	37.49	12.18	90.867	1.020	0.0	0.0	0.0	4.53	981.4	103.6
1.006	26.81	21.28	88.875	7.130	0.0	0.0	0.0	3.82	6129.9	517.6
1.007	26.54	21.63	88.661	7.130	0.0	0.0	0.0	0.97	963.3	517.6
1.008	26.24	22.03	88.102	7.130	0.0	0.0	0.0	0.67	660.6	517.6
1.009	26.22	22.05	87.900	7.130	0.0	0.0	0.0	6.36	702.1	517.6
1.010	26.10	22.21	87.238	7.130	0.0	0.0	0.0	0.81	805.0	517.6
1.011	23.34	26.52	87.088	7.130	0.0	0.0	0.0	0.36	356.9«	517.6
1.012	23.32	26.56	86.740	7.130	0.0	0.0	0.0	3.63	256.8«	517.6


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Network Design Table for SW 02

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.013	73.364	0.540	135.9	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.014	4.303	0.100	43.0	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.015	5.537	0.010	553.7	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.016	10.003	0.573	17.5	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.017	0.535	0.025	21.4	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.013	22.82	27.47	86.240	7.130	0.0	0.0	0.0	1.35	95.2«	517.6
1.014	22.80	27.50	85.700	7.130	0.0	0.0	0.0	2.40	169.9«	517.6
1.015	22.73	27.64	85.600	7.130	0.0	0.0	0.0	0.66	46.7«	517.6
1.016	22.71	27.68	85.590	7.130	0.0	0.0	0.0	3.78	267.3«	517.6
1.017	22.70	27.68	85.025	7.130	0.0	0.0	0.0	3.41	241.3«	517.6


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Conduit Sections for SW 02

NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \ / open channel, oo dual pipe, ooo triple pipe, O egg.


Section numbers < 0 are taken from user conduit table

Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m ²)
-1	-1	6100	700			1.473	2.310

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Manhole Schedules for SW 02

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S2.01	96.600	0.700	Junction		1.000	95.900	-1				
S2.02	97.705	1.425	Open Manhole	1200	2.000	96.280	225				
S2.03	96.000	1.161	Open Manhole	10000	1.001	94.839	-1	1.000	94.839	-1	
								2.000	94.839	225	
S2.04	94.400	0.988	Junction		1.002	93.412	375	1.001	93.412	-1	
S2.05	95.948	1.940	Open Manhole	1200	3.000	94.008	225				
S2.06	96.719	1.943	Open Manhole	1200	4.000	94.776	225				
S2.07	95.110	1.501	Open Manhole	1350	3.001	93.609	375	3.000	93.759	225	
								4.000	93.759	225	
S2.08	94.531	1.057	Open Manhole	1350	3.002	93.474	375	3.001	93.474	375	
S2.09	94.276	1.026	Open Manhole	1350	3.003	93.250	450	3.002	93.325	375	
S2.10	97.229	1.428	Open Manhole	1200	5.000	95.801	225				
S2.11	98.758	1.300	Open Manhole	1200	6.000	97.458	225				
S2.12	98.026	1.612	Open Manhole	1200	6.001	96.414	225	6.000	96.414	225	
S2.13	99.713	1.350	Open Manhole	1200	7.000	98.363	225				
S2.14	99.832	1.857	Open Manhole	1200	7.001	97.975	300	7.000	98.050	225	
S2.15	99.453	1.711	Open Manhole	1200	7.002	97.742	300	7.001	97.742	300	
S2.16	98.877	1.425	Open Manhole	1200	7.003	97.452	300	7.002	97.452	300	
S2.17	98.367	1.424	Open Manhole	1200	7.004	96.943	300	7.003	96.943	300	

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Manhole Schedules for SW 02

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S2.18	97.846	1.300	Open Manhole	1200	8.000	96.546	225				
S2.19	97.911	1.878	Open Manhole	1350	7.005	96.033	375	7.004	96.108	300	
								8.000	96.183	225	
S2.20	98.036	2.125	Open Manhole	1350	7.006	95.911	375	7.005	95.911	375	
S2.21	97.845	2.155	Open Manhole	1350	6.002	95.690	450	6.001	95.915	225	
								7.006	95.765	375	
S2.22	96.503	1.983	Open Manhole	1350	5.001	94.520	450	5.000	94.745	225	
								6.002	94.520	450	
S2.23	100.332	1.300	Open Manhole	1200	9.000	99.032	225				
S2.24	100.376	1.300	Open Manhole	1200	10.000	99.076	225				
S2.25	100.362	2.321	Open Manhole	1200	9.001	98.041	225	9.000	98.041	225	
								10.000	98.041	225	
S2.26	99.862	2.500	Open Manhole	1200	9.002	97.362	300	9.001	97.437	225	
S2.27	99.258	2.183	Open Manhole	1200	9.003	97.075	300	9.002	97.075	300	
S2.28	98.351	1.658	Open Manhole	1350	9.004	96.693	375	9.003	96.768	300	
S2.29	98.656	1.300	Open Manhole	1200	11.000	97.356	225				
S2.30	98.250	1.877	Open Manhole	1350	9.005	96.373	375	9.004	96.373	375	
								11.000	96.523	225	
S2.31	97.750	1.869	Open Manhole	1350	9.006	95.881	375	9.005	95.881	375	

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Manhole Schedules for SW 02

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)	
S2.32	96.446	0.779	Open Manhole	1350	9.007	95.667	375	9.006	95.667	375	
S2.33	96.977	1.409	Open Manhole	1350	9.008	95.568	375	9.007	95.568	375	
S2.34	96.541	3.708	Open Manhole	1500	5.002	92.833	600	9.008	92.983	450	
S2.35	94.196	1.650	Open Manhole	1800	3.004	92.546	750	3.003	92.846	450	
								5.002	92.621	600	
S2.36	94.295	1.758	Open Manhole	1800	3.005	92.645	750	3.004	92.537	750	
S2.37	95.866	1.425	Open Manhole	1350	12.000	94.441	450				
S2.38	94.894	1.753	Open Manhole	1350	12.001	93.141	450	12.000	93.141	450	
S2.39	94.232	2.005	Open Manhole	2250	1.003	92.625	675	1.002	92.602	375	
								3.005	92.227	750	
								12.001	92.527	450	
S2.40	93.428	0.821	Open Manhole	10000	1.004	92.607	-1	1.003	92.607	675	
S2.41	90.300	0.950	Junction		1.005	89.600	450	1.004	89.350	-1	
S2.42	98.436	1.350	Open Manhole	1350	13.000	97.086	375				
S2.43	96.799	0.532	Open Manhole	1350	13.001	96.267	375	13.000	96.267	375	
S2.44	96.799	0.941	Open Manhole	1350	13.002	95.858	375	13.001	95.858	375	
S2.45	96.799	1.425	Open Manhole	1350	13.003	95.374	450	13.002	95.449	375	
S2.46	96.179	1.500	Open Manhole	1500	13.004	94.679	525	13.003	94.754	450	

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Manhole Schedules for SW 02

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S2.47	95.941	1.500	Open Manhole	1500	13.005	94.441	525	13.004	94.441	525	
S2.48	95.604	1.500	Open Manhole	1500	13.006	94.104	525	13.005	94.104	525	
S2.49	95.600	1.308	Open Manhole	1200	14.000	94.292	225				
S2.50	94.504	1.691	Open Manhole	1500	13.007	92.813	525	13.006	92.813	525	
								14.000	93.113	225	
S2.51	92.376	0.600	Open Manhole	1500	13.008	91.776	600	13.007	91.851	525	
S2.52	92.376	1.831	Open Manhole	1800	13.009	90.545	750	13.008	90.695	600	
S2.53	91.845	1.831	Open Manhole	1800	13.010	90.014	750	13.009	90.014	750	
S2.54	91.090	1.454	Open Manhole	1800	13.011	89.636	750	13.010	89.636	750	
S2.55	91.090	1.643	Open Manhole	1800	13.012	89.447	750	13.011	89.447	750	
S2.56	91.090	1.832	Open Manhole	1800	13.013	89.610	750	13.012	89.258	750	
S2.57	91.567	0.700	Open Manhole	1500	15.000	90.867	525				
S2.58	89.900	1.250	Open Manhole	2100	1.006	88.875	825	1.005	88.950	450	
								13.013	88.650	750	
								15.000	88.875	525	
S2.59	89.700	1.677	Junction		1.007	88.661	6000	1.006	88.023	825	
S2.60	89.700	1.598	Junction		1.008	88.102	6000	1.007	88.102	6000	
S2.61	89.700	1.800	Open Manhole	8000	1.009	87.900	375	1.008	87.900	6000	
S2.62	89.700	2.762	Open Manhole	10000	1.010	87.238	6000	1.009	86.938	375	

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Manhole Schedules for SW 02

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S2.63	88.500	1.412	Junction		1.011	87.088	6000	1.010	87.088	6000	
S2.64	88.500	1.760	Open Manhole	8000	1.012	86.740	300	1.011	86.740	6000	
S2.65	87.400	1.160	Junction		1.013	86.240	300	1.012	86.240	300	
S2.66	87.400	1.700	Open Manhole	1200	1.014	85.700	300	1.013	85.700	300	
S2.67	87.400	1.800	Junction		1.015	85.600	300	1.014	85.600	300	
S2.68 FC	87.400	1.810	Open Manhole	1200	1.016	85.590	300	1.015	85.590	300	
S2.69	87.400	2.383	Junction		1.017	85.025	300	1.016	85.017	300	
S2.01	85.450	0.450	Open Manhole	0		OUTFALL		1.017	85.000	300	

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PIPELINE SCHEDULES for SW 02

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	-1	-1	S2.01	96.600	95.900	0.000	Junction	
2.000	o	225	S2.02	97.705	96.280	1.200	Open Manhole	1200
1.001	-1	-1	S2.03	96.000	94.839	0.461	Open Manhole	10000
1.002	oo	375	S2.04	94.400	93.412	0.613	Junction	
3.000	o	225	S2.05	95.948	94.008	1.715	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	48.845	46.0	S2.03	96.000	94.839	0.461	Open Manhole	10000
2.000	64.426	44.7	S2.03	96.000	94.839	0.936	Open Manhole	10000
1.001	64.464	45.2	S2.04	94.400	93.412	0.288	Junction	
1.002	32.616	40.3	S2.39	94.232	92.602	1.255	Open Manhole	2250
3.000	44.918	180.4	S2.07	95.110	93.759	1.126	Open Manhole	1350

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PIPELINE SCHEDULES for SW 02

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)
4.000	o	225	S2.06	96.719	94.776	1.718	Open Manhole	1200
3.001	o	375	S2.07	95.110	93.609	1.126	Open Manhole	1350
3.002	o	375	S2.08	94.531	93.474	0.682	Open Manhole	1350
3.003	o	450	S2.09	94.276	93.250	0.576	Open Manhole	1350
5.000	o	225	S2.10	97.229	95.801	1.203	Open Manhole	1200
6.000	o	225	S2.11	98.758	97.458	1.075	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)
4.000	42.998	42.3	S2.07	95.110	93.759	1.126	Open Manhole	1350
3.001	38.994	288.8	S2.08	94.531	93.474	0.682	Open Manhole	1350
3.002	8.378	56.2	S2.09	94.276	93.325	0.576	Open Manhole	1350
3.003	45.067	111.6	S2.35	94.196	92.846	0.900	Open Manhole	1800
5.000	71.955	68.1	S2.22	96.503	94.745	1.533	Open Manhole	1350
6.000	61.078	58.5	S2.12	98.026	96.414	1.387	Open Manhole	1200

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PIPELINE SCHEDULES for SW 02

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)
6.001	o	225	S2.12	98.026	96.414	1.387	Open Manhole	1200
7.000	o	225	S2.13	99.713	98.363	1.125	Open Manhole	1200
7.001	o	300	S2.14	99.832	97.975	1.557	Open Manhole	1200
7.002	o	300	S2.15	99.453	97.742	1.411	Open Manhole	1200
7.003	o	300	S2.16	98.877	97.452	1.125	Open Manhole	1200
7.004	o	300	S2.17	98.367	96.943	1.124	Open Manhole	1200
8.000	o	225	S2.18	97.846	96.546	1.075	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)
6.001	12.142	24.3	S2.21	97.845	95.915	1.705	Open Manhole	1350
7.000	25.802	82.4	S2.14	99.832	98.050	1.557	Open Manhole	1200
7.001	39.122	167.9	S2.15	99.453	97.742	1.411	Open Manhole	1200
7.002	38.910	134.2	S2.16	98.877	97.452	1.125	Open Manhole	1200
7.003	24.958	49.0	S2.17	98.367	96.943	1.124	Open Manhole	1200
7.004	12.898	15.4	S2.19	97.911	96.108	1.503	Open Manhole	1350
8.000	21.249	58.5	S2.19	97.911	96.183	1.503	Open Manhole	1350

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PIPELINE SCHEDULES for SW 02

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)
7.005	o	375	S2.19	97.911	96.033	1.503	Open Manhole	1350
7.006	o	375	S2.20	98.036	95.911	1.750	Open Manhole	1350
6.002	o	450	S2.21	97.845	95.690	1.705	Open Manhole	1350
5.001	o	450	S2.22	96.503	94.520	1.533	Open Manhole	1350
9.000	o	225	S2.23	100.332	99.032	1.075	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)
7.005	39.309	322.2	S2.20	98.036	95.911	1.750	Open Manhole	1350
7.006	46.950	321.6	S2.21	97.845	95.765	1.705	Open Manhole	1350
6.002	71.277	60.9	S2.22	96.503	94.520	1.533	Open Manhole	1350
5.001	32.314	21.0	S2.34	96.541	92.983	3.108	Open Manhole	1500
9.000	16.202	16.3	S2.25	100.362	98.041	2.096	Open Manhole	1200

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PIPELINE SCHEDULES for SW 02

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)
10.000	o	225	S2.24	100.376	99.076	1.075	Open Manhole	1200
9.001	o	225	S2.25	100.362	98.041	2.096	Open Manhole	1200
9.002	o	300	S2.26	99.862	97.362	2.200	Open Manhole	1200
9.003	o	300	S2.27	99.258	97.075	1.883	Open Manhole	1200
9.004	o	375	S2.28	98.351	96.693	1.283	Open Manhole	1350
11.000	o	225	S2.29	98.656	97.356	1.075	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)
10.000	60.505	58.5	S2.25	100.362	98.041	2.096	Open Manhole	1200
9.001	28.639	47.4	S2.26	99.862	97.437	2.200	Open Manhole	1200
9.002	52.201	181.9	S2.27	99.258	97.075	1.883	Open Manhole	1200
9.003	55.398	180.5	S2.28	98.351	96.768	1.283	Open Manhole	1350
9.004	29.930	93.5	S2.30	98.250	96.373	1.502	Open Manhole	1350
11.000	43.127	51.8	S2.30	98.250	96.523	1.502	Open Manhole	1350

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PIPELINE SCHEDULES for SW 02

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)
9.005	o	375	S2.30	98.250	96.373	1.502	Open Manhole	1350
9.006	o	375	S2.31	97.750	95.881	1.494	Open Manhole	1350
9.007	o	375	S2.32	96.446	95.667	0.404	Open Manhole	1350
9.008	o	375	S2.33	96.977	95.568	1.034	Open Manhole	1350
5.002	o	600	S2.34	96.541	92.833	3.108	Open Manhole	1500
3.004	o	750	S2.35	94.196	92.546	0.900	Open Manhole	1800

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)
9.005	27.944	56.8	S2.31	97.750	95.881	1.494	Open Manhole	1350
9.006	87.397	408.4	S2.32	96.446	95.667	0.404	Open Manhole	1350
9.007	24.262	245.1	S2.33	96.977	95.568	1.034	Open Manhole	1350
9.008	33.610	12.9	S2.34	96.541	92.958	3.208	Open Manhole	1500
5.002	80.739	380.8	S2.35	94.196	92.621	0.975	Open Manhole	1800
3.004	25.752	2861.3	S2.36	94.295	92.537	1.008	Open Manhole	1800

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PIPELINE SCHEDULES for SW 02

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)
3.005	o	750	S2.36	94.295	92.645	0.900	Open Manhole	1800
12.000	o	450	S2.37	95.866	94.441	0.975	Open Manhole	1350
12.001	o	450	S2.38	94.894	93.141	1.303	Open Manhole	1350
1.003	oo	675	S2.39	94.232	92.625	0.932	Open Manhole	2250
1.004	-1	-1	S2.40	93.428	92.607	0.121	Open Manhole	10000
1.005	ooo	450	S2.41	90.300	89.600	0.250	Junction	

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)
3.005	11.349	27.2	S2.39	94.232	92.227	1.255	Open Manhole	2250
12.000	53.609	41.2	S2.38	94.894	93.141	1.303	Open Manhole	1350
12.001	11.330	18.5	S2.39	94.232	92.527	1.255	Open Manhole	2250
1.003	8.816	489.8	S2.40	93.428	92.607	0.146	Open Manhole	10000
1.004	176.063	54.1	S2.41	90.300	89.350	0.250	Junction	
1.005	28.119	43.3	S2.58	89.900	88.950	0.500	Open Manhole	2100

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PIPELINE SCHEDULES for SW 02

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)
13.000	o	375	S2.42	98.436	97.086	0.975	Open Manhole	1350
13.001	o	375	S2.43	96.799	96.267	0.157	Open Manhole	1350
13.002	o	375	S2.44	96.799	95.858	0.566	Open Manhole	1350
13.003	o	450	S2.45	96.799	95.374	0.975	Open Manhole	1350
13.004	o	525	S2.46	96.179	94.679	0.975	Open Manhole	1500
13.005	o	525	S2.47	95.941	94.441	0.975	Open Manhole	1500
13.006	o	525	S2.48	95.604	94.104	0.975	Open Manhole	1500
14.000	o	225	S2.49	95.600	94.292	1.083	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)
13.000	30.363	37.1	S2.43	96.799	96.267	0.157	Open Manhole	1350
13.001	110.662	270.6	S2.44	96.799	95.858	0.566	Open Manhole	1350
13.002	54.358	132.9	S2.45	96.799	95.449	0.975	Open Manhole	1350
13.003	29.968	48.3	S2.46	96.179	94.754	0.975	Open Manhole	1500
13.004	26.481	111.3	S2.47	95.941	94.441	0.975	Open Manhole	1500
13.005	30.942	91.8	S2.48	95.604	94.104	0.975	Open Manhole	1500
13.006	37.297	28.9	S2.50	94.504	92.813	1.166	Open Manhole	1500
14.000	50.279	42.6	S2.50	94.504	93.113	1.166	Open Manhole	1500

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PIPELINE SCHEDULES for SW 02

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)
13.007	o	525	S2.50	94.504	92.813	1.166	Open Manhole	1500
13.008	o	600	S2.51	92.376	91.776	0.000	Open Manhole	1500
13.009	o	750	S2.52	92.376	90.545	1.081	Open Manhole	1800
13.010	o	750	S2.53	91.845	90.014	1.081	Open Manhole	1800
13.011	o	750	S2.54	91.090	89.636	0.704	Open Manhole	1800
13.012	o	750	S2.55	91.090	89.447	0.893	Open Manhole	1800
13.013	o	750	S2.56	91.090	89.610	0.730	Open Manhole	1800

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)
13.007	35.724	37.1	S2.51	92.376	91.851	0.000	Open Manhole	1500
13.008	27.681	25.6	S2.52	92.376	90.695	1.081	Open Manhole	1800
13.009	30.516	57.5	S2.53	91.845	90.014	1.081	Open Manhole	1800
13.010	30.068	79.5	S2.54	91.090	89.636	0.704	Open Manhole	1800
13.011	24.119	127.6	S2.55	91.090	89.447	0.893	Open Manhole	1800
13.012	49.654	262.7	S2.56	91.090	89.258	1.082	Open Manhole	1800
13.013	58.180	60.6	S2.58	89.900	88.650	0.500	Open Manhole	2100

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PIPELINE SCHEDULES for SW 02

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)
15.000	o	525	S2.57	91.567	90.867	0.175	Open Manhole	1500
1.006	ooo	825	S2.58	89.900	88.875	0.200	Open Manhole	2100
1.007	4 \=/	6000	S2.59	89.700	88.661	0.889	Junction	
1.008	4 \=/	6000	S2.60	89.700	88.102	1.448	Junction	
1.009	o	375	S2.61	89.700	87.900	1.425	Open Manhole	8000
1.010	4 \=/	6000	S2.62	89.700	87.238	2.312	Open Manhole	10000
1.011	4 \=/	6000	S2.63	88.500	87.088	1.262	Junction	
1.012	o	300	S2.64	88.500	86.740	1.460	Open Manhole	8000

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)
15.000	48.920	24.6	S2.58	89.900	88.875	0.500	Open Manhole	2100
1.006	51.512	60.5	S2.59	89.700	88.023	0.852	Junction	
1.007	20.552	36.8	S2.60	89.700	88.102	1.448	Junction	
1.008	15.793	78.2	S2.61	89.700	87.900	1.650	Open Manhole	8000
1.009	7.896	8.2	S2.62	89.700	86.938	2.387	Open Manhole	10000
1.010	7.896	52.6	S2.63	88.500	87.088	1.262	Junction	
1.011	93.201	267.8	S2.64	88.500	86.740	1.610	Open Manhole	8000
1.012	9.453	18.9	S2.65	87.400	86.240	0.860	Junction	

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PIPELINE SCHEDULES for SW 02

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)
1.013	o	300	S2.65	87.400	86.240	0.860	Junction	
1.014	o	300	S2.66	87.400	85.700	1.400	Open Manhole	1200
1.015	o	300	S2.67	87.400	85.600	1.500	Junction	
1.016	o	300	S2.68 FC	87.400	85.590	1.510	Open Manhole	1200
1.017	o	300	S2.69	87.400	85.025	2.075	Junction	


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)
1.013	73.364	135.9	S2.66	87.400	85.700	1.400	Open Manhole	1200
1.014	4.303	43.0	S2.67	87.400	85.600	1.500	Junction	
1.015	5.537	553.7	S2.68 FC	87.400	85.590	1.510	Open Manhole	1200
1.016	10.003	17.5	S2.69	87.400	85.017	2.083	Junction	
1.017	0.535	21.4	S2.01	85.450	85.000	0.150	Open Manhole	0

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Area Summary for SW 02

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.160	0.160	0.160
2.000	-	-	100	0.160	0.160	0.160
1.001	-	-	100	0.080	0.080	0.080
1.002	-	-	100	0.080	0.080	0.080
3.000	-	-	100	0.080	0.080	0.080
4.000	-	-	100	0.080	0.080	0.080
3.001	-	-	100	0.080	0.080	0.080
3.002	-	-	100	0.080	0.080	0.080
3.003	-	-	100	0.080	0.080	0.080
5.000	-	-	100	0.080	0.080	0.080
6.000	-	-	100	0.080	0.080	0.080
6.001	-	-	100	0.080	0.080	0.080
7.000	-	-	100	0.080	0.080	0.080
7.001	-	-	100	0.080	0.080	0.080
7.002	-	-	100	0.080	0.080	0.080
7.003	-	-	100	0.080	0.080	0.080
7.004	-	-	100	0.160	0.160	0.160
8.000	-	-	100	0.080	0.080	0.080
7.005	-	-	100	0.080	0.080	0.080
7.006	-	-	100	0.040	0.040	0.040
6.002	-	-	100	0.080	0.080	0.080
5.001	-	-	100	0.080	0.080	0.080
9.000	-	-	100	0.080	0.080	0.080
10.000	-	-	100	0.080	0.080	0.080
9.001	-	-	100	0.080	0.080	0.080
9.002	-	-	100	0.080	0.080	0.080
9.003	-	-	100	0.080	0.080	0.080
9.004	-	-	100	0.160	0.160	0.160

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Area Summary for SW 02

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
11.000	-	-	100	0.080	0.080	0.080
9.005	-	-	100	0.080	0.080	0.080
9.006	-	-	100	0.080	0.080	0.080
9.007	-	-	100	0.080	0.080	0.080
9.008	-	-	100	0.160	0.160	0.160
5.002	-	-	100	0.080	0.080	0.080
3.004	-	-	100	0.080	0.080	0.080
3.005	-	-	100	0.160	0.160	0.160
12.000	-	-	100	0.255	0.255	0.255
12.001	-	-	100	0.255	0.255	0.255
1.003	-	-	100	0.080	0.080	0.080
1.004	-	-	100	0.185	0.185	0.185
1.005	-	-	100	0.080	0.080	0.080
13.000	-	-	100	0.080	0.080	0.080
13.001	-	-	100	0.080	0.080	0.080
13.002	-	-	100	0.080	0.080	0.080
13.003	-	-	100	0.080	0.080	0.080
13.004	-	-	100	0.080	0.080	0.080
13.005	-	-	100	0.080	0.080	0.080
13.006	-	-	100	0.080	0.080	0.080
14.000	-	-	100	0.080	0.080	0.080
13.007	-	-	100	0.185	0.185	0.185
13.008	-	-	100	0.185	0.185	0.185
13.009	-	-	100	0.185	0.185	0.185
13.010	-	-	100	0.185	0.185	0.185
13.011	-	-	100	0.185	0.185	0.185
13.012	-	-	100	0.185	0.185	0.185
13.013	-	-	100	0.185	0.185	0.185


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Area Summary for SW 02

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
15.000	-	-	100	1.020	1.020	1.020
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
1.014	-	-	100	0.000	0.000	0.000
1.015	-	-	100	0.000	0.000	0.000
1.016	-	-	100	0.000	0.000	0.000
1.017	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				7.130	7.130	7.130

Free Flowing Outfall Details for SW 02

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
1.017	S2.01	85.450	85.000	0.000	0	0

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Simulation Criteria for SW 02


Volumetric Runoff Coeff	0.840	Manhole Headloss Coeff (Global)	0.500	Inlet Coefficient	0.800
Areal Reduction Factor	1.000	Foul Sewage per hectare (l/s)	0.000	Flow per Person per Day (l/per/day)	0.000
Hot Start (mins)	0	Additional Flow - % of Total Flow	0.000	Run Time (mins)	60
Hot Start Level (mm)	0	MADD Factor * 10m ³ /ha Storage	4.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm)	21.000	Cv (Summer)	0.750
Return Period (years)	100	Ratio R	0.423	Cv (Winter)	0.840
Region	England and Wales	Profile Type	Winter Storm	Duration (mins)	15

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<p><u>Online Controls for SW 02</u></p> <p><u>Complex Manhole: S2.68 FC, DS/PN: 1.016, Volume (m³): 2.4</u></p> <p><u>Orifice</u></p> <p>Diameter (m) 0.080 Discharge Coefficient 0.600 Invert Level (m) 85.590</p> <p><u>Orifice</u></p> <p>Diameter (m) 0.180 Discharge Coefficient 0.600 Invert Level (m) 86.790</p>		
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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha Storage	4.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000


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

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.297
FEH Rainfall Version	1999	E (1km)	0.307
Site Location	GB 568800 245850 TL 68800 45850	F (1km)	2.496
C (1km)	-0.024	Cv (Summer)	0.750
D1 (1km)	0.285	Cv (Winter)	0.840
D2 (1km)	0.289		


Margin for Flood Risk Warning (mm)	300.0	DTS Status	OFF	Inertia Status	OFF
Analysis Timestep	Fine	DVD 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)		1, 30, 100
Climate Change (%)		0, 0, 30

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

US/MH	Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water	Surcharged	Flooded	Pipe	Level					
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level	Depth	Volume	Flow /	Overflow	Flow	Status	Exceeded
									(m)	(m)	(m ³)	Cap.	(l/s)	(l/s)		

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status
1.000	S2.01	15	Winter	1	+0%				95.941	-0.659	0.000	0.00	14.3	OK
2.000	S2.02	15	Winter	1	+0%	100/15	Summer		96.346	-0.159	0.000	0.19	14.3	OK
1.001	S2.03	15	Winter	1	+0%				94.917	-0.622	0.000	0.01	33.4	OK
1.002	S2.04	15	Winter	1	+0%	100/15	Summer		93.537	-0.250	0.000	0.24	37.7	OK*
3.000	S2.05	15	Winter	1	+0%	100/15	Summer		94.075	-0.158	0.000	0.19	7.2	OK
4.000	S2.06	15	Winter	1	+0%	100/15	Winter		94.822	-0.179	0.000	0.09	7.2	OK
3.001	S2.07	15	Winter	1	+0%	30/15	Summer		93.726	-0.258	0.000	0.21	22.2	OK
3.002	S2.08	15	Winter	1	+0%	30/15	Summer		93.589	-0.260	0.000	0.21	31.0	OK
3.003	S2.09	15	Winter	1	+0%	30/15	Summer	100/15 Summer	93.364	-0.336	0.000	0.14	39.7	OK
5.000	S2.10	15	Winter	1	+0%	100/15	Summer		95.852	-0.174	0.000	0.12	7.2	OK
6.000	S2.11	15	Winter	1	+0%	100/15	Winter		97.507	-0.176	0.000	0.11	7.1	OK
6.001	S2.12	15	Winter	1	+0%	100/15	Summer		96.478	-0.161	0.000	0.18	16.0	OK
7.000	S2.13	15	Winter	1	+0%	100/15	Summer	100/15 Summer	98.418	-0.170	0.000	0.14	7.2	OK
7.001	S2.14	15	Winter	1	+0%	100/15	Summer		98.067	-0.208	0.000	0.20	16.0	OK
7.002	S2.15	15	Winter	1	+0%	30/15	Winter	100/15 Summer	97.852	-0.190	0.000	0.29	25.3	OK
7.003	S2.16	15	Winter	1	+0%	30/15	Summer	100/15 Summer	97.553	-0.199	0.000	0.24	34.4	OK
7.004	S2.17	15	Winter	1	+0%	30/15	Summer	100/15 Summer	97.042	-0.201	0.000	0.23	53.5	OK
8.000	S2.18	15	Winter	1	+0%	30/15	Summer	100/15 Summer	96.597	-0.174	0.000	0.12	7.2	OK
7.005	S2.19	15	Winter	1	+0%	30/15	Summer	100/15 Summer	96.264	-0.144	0.000	0.68	68.8	OK
7.006	S2.20	15	Winter	1	+0%	30/15	Summer		96.145	-0.141	0.000	0.69	70.8	OK
6.002	S2.21	15	Winter	1	+0%	100/15	Summer		95.840	-0.300	0.000	0.24	92.8	OK
5.001	S2.22	15	Winter	1	+0%	100/15	Summer		94.647	-0.323	0.000	0.17	107.2	OK
9.000	S2.23	15	Winter	1	+0%	100/15	Summer	100/15 Summer	99.068	-0.189	0.000	0.06	7.2	OK
10.000	S2.24	15	Winter	1	+0%	100/15	Summer	100/15 Summer	99.125	-0.176	0.000	0.11	7.1	OK
9.001	S2.25	15	Winter	1	+0%	30/15	Summer	100/15 Summer	98.129	-0.137	0.000	0.32	22.6	OK

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Level Exceeded
1.000	S2.01	
2.000	S2.02	
1.001	S2.03	
1.002	S2.04	
3.000	S2.05	
4.000	S2.06	
3.001	S2.07	
3.002	S2.08	
3.003	S2.09	4
5.000	S2.10	
6.000	S2.11	
6.001	S2.12	
7.000	S2.13	2
7.001	S2.14	
7.002	S2.15	2
7.003	S2.16	2
7.004	S2.17	4
8.000	S2.18	4
7.005	S2.19	4
7.006	S2.20	
6.002	S2.21	
5.001	S2.22	
9.000	S2.23	4
10.000	S2.24	4

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH	Level
PN	Name	Exceeded
9.001	S2.25	2

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

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)	Flooded Volume (m³)	Flow / Overflow Cap. (l/s)	Pipe Flow (l/s)	Status	
9.002	S2.26	15	Winter	1	+0%	30/15	Summer	100/15	Summer	97.497	-0.165	0.000	0.41	31.6	OK
9.003	S2.27	15	Winter	1	+0%	30/15	Summer	100/15	Summer	97.229	-0.146	0.000	0.51	39.8	OK
9.004	S2.28	15	Winter	1	+0%	30/15	Summer	100/15	Summer	96.837	-0.231	0.000	0.31	56.5	OK
11.000	S2.29	15	Winter	1	+0%	100/15	Summer			97.404	-0.177	0.000	0.10	7.2	OK
9.005	S2.30	15	Winter	1	+0%	30/15	Summer			96.516	-0.232	0.000	0.31	71.9	OK
9.006	S2.31	15	Winter	1	+0%	30/15	Summer	100/15	Summer	96.150	-0.106	0.000	0.81	75.7	OK
9.007	S2.32	15	Winter	1	+0%	30/15	Summer	100/15	Summer	95.906	-0.136	0.000	0.73	79.9	OK
9.008	S2.33	15	Winter	1	+0%	100/15	Summer			95.676	-0.267	0.000	0.18	91.0	OK
5.002	S2.34	15	Winter	1	+0%	30/15	Summer			93.241	-0.192	0.000	0.61	198.1	OK
3.004	S2.35	15	Winter	1	+0%	30/15	Summer	100/15	Summer	93.156	-0.140	0.000	1.09	226.4	OK
3.005	S2.36	15	Winter	1	+0%	30/15	Summer			93.036	-0.359	0.000	0.23	233.8	OK
12.000	S2.37	15	Winter	1	+0%					94.505	-0.386	0.000	0.05	22.8	OK
12.001	S2.38	15	Winter	1	+0%	100/15	Summer			93.244	-0.347	0.000	0.12	51.8	OK
1.003	S2.39	15	Winter	1	+0%	30/15	Summer			93.014	-0.286	0.000	0.73	308.8	OK
1.004	S2.40	15	Winter	1	+0%					92.851	-0.456	0.000	0.08	299.2	OK
1.005	S2.41	15	Winter	1	+0%	100/15	Winter			89.737	-0.313	0.000	0.22	300.9	OK*
13.000	S2.42	15	Winter	1	+0%					97.125	-0.336	0.000	0.02	7.2	OK
13.001	S2.43	15	Winter	1	+0%					96.360	-0.282	0.000	0.13	15.1	OK
13.002	S2.44	15	Winter	1	+0%					95.953	-0.280	0.000	0.14	23.3	OK
13.003	S2.45	15	Winter	1	+0%					95.458	-0.366	0.000	0.08	31.8	OK
13.004	S2.46	15	Winter	1	+0%					94.795	-0.409	0.000	0.11	40.7	OK
13.005	S2.47	15	Winter	1	+0%					94.560	-0.406	0.000	0.12	49.8	OK
13.006	S2.48	15	Winter	1	+0%					94.200	-0.429	0.000	0.08	58.8	OK
14.000	S2.49	15	Winter	1	+0%					94.338	-0.179	0.000	0.09	7.2	OK
13.007	S2.50	15	Winter	1	+0%					92.938	-0.400	0.000	0.13	86.6	OK

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH	Level
PN	Name	Exceeded
9.002	S2.26	2
9.003	S2.27	4
9.004	S2.28	4
11.000	S2.29	
9.005	S2.30	
9.006	S2.31	4
9.007	S2.32	4
9.008	S2.33	
5.002	S2.34	
3.004	S2.35	2
3.005	S2.36	
12.000	S2.37	
12.001	S2.38	
1.003	S2.39	
1.004	S2.40	
1.005	S2.41	
13.000	S2.42	
13.001	S2.43	
13.002	S2.44	
13.003	S2.45	
13.004	S2.46	
13.005	S2.47	
13.006	S2.48	
14.000	S2.49	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH	Level
PN	Name	Exceeded
13.007	S2.50	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Pipe Flow (l/s)
									Level (m)	Depth (m)	Volume (m ³)	
13.008	S2.51	15 Winter	1	+0%	100/15 Summer	100/15 Summer		91.905	-0.471	0.000	0.10	108.0
13.009	S2.52	15 Winter	1	+0%	100/15 Summer			90.714	-0.581	0.000	0.11	129.3
13.010	S2.53	15 Winter	1	+0%	100/15 Summer			90.213	-0.551	0.000	0.16	150.9
13.011	S2.54	15 Winter	1	+0%	30/15 Winter	100/15 Summer		89.915	-0.471	0.000	0.25	170.6
13.012	S2.55	15 Winter	1	+0%	30/15 Summer			89.859	-0.338	0.000	0.29	185.4
13.013	S2.56	15 Winter	1	+0%				89.802	-0.558	0.000	0.15	204.1
15.000	S2.57	15 Winter	1	+0%				90.980	-0.412	0.000	0.10	91.1
1.006	S2.58	15 Winter	1	+0%	100/30 Winter			89.042	-0.658	0.000	0.10	520.2
1.007	S2.59	15 Winter	1	+0%				88.765	-0.935	0.000	0.02	519.5
1.008	S2.60	30 Winter	1	+0%				88.280	-1.420	0.000	0.01	499.0
1.009	S2.61	30 Winter	1	+0%	30/15 Summer			88.271	-0.004	0.000	0.99	378.5
1.010	S2.62	30 Winter	1	+0%				87.335	-2.365	0.000	0.00	378.5
1.011	S2.63	60 Winter	1	+0%				87.283	-1.217	0.000	0.02	364.9
1.012	S2.64	60 Winter	1	+0%	1/15 Summer			87.269	0.229	0.000	0.64	113.2
1.013	S2.65	960 Winter	1	+0%				86.540	0.000	0.000	0.73	69.8
1.014	S2.66	960 Winter	1	+0%	1/15 Summer			86.624	0.624	0.000	0.88	69.6
1.015	S2.67	360 Winter	1	+0%				85.900	0.000	0.000	1.51	93.0
1.016	S2.68 FC	1440 Winter	1	+0%	1/15 Summer			86.464	0.574	0.000	0.06	12.2
1.017	S2.69	1440 Winter	1	+0%				85.115	-0.210	0.000	0.20	12.2

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH	Status	Level
	Name		Exceeded
13.008	S2.51	OK	2
13.009	S2.52	OK	
13.010	S2.53	OK	
13.011	S2.54	OK	2
13.012	S2.55	OK	
13.013	S2.56	OK	
15.000	S2.57	OK	
1.006	S2.58	OK	
1.007	S2.59	OK	
1.008	S2.60	OK	
1.009	S2.61	OK	
1.010	S2.62	OK	
1.011	S2.63	OK	
1.012	S2.64	SURCHARGED	
1.013	S2.65	SURCHARGED*	
1.014	S2.66	SURCHARGED	
1.015	S2.67	SURCHARGED*	
1.016	S2.68 FC	SURCHARGED	
1.017	S2.69	OK*	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha Storage	4.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000


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

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.297
FEH Rainfall Version	1999	E (1km)	0.307
Site Location	GB 568800 245850 TL 68800 45850	F (1km)	2.496
C (1km)		-0.024 Cv (Summer)	0.750
D1 (1km)		0.285 Cv (Winter)	0.840
D2 (1km)		0.289	


Margin for Flood Risk Warning (mm)	300.0	DTS Status	OFF	Inertia Status	OFF
Analysis Timestep	Fine	DVD 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)		1, 30, 100
Climate Change (%)		0, 0, 30

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

US/MH	Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water	Surcharged	Flooded	Pipe	Level				
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level	Depth	Volume	Flow /	Overflow	Flow	Level
									(m)	(m)	(m ³)	Cap.	(l/s)	(l/s)	Status Exceeded

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow	Pipe	Status
									Level (m)	Depth (m)	Volume (m³)		Flow / (l/s)	Flow (l/s)	
1.000	S2.01	15 Winter	30	+0%					95.988	-0.612	0.000	0.01		45.3	OK
2.000	S2.02	15 Winter	30	+0%	100/15	Summer			96.406	-0.099	0.000	0.60		45.2	OK
1.001	S2.03	15 Winter	30	+0%					94.973	-0.566	0.000	0.03		109.8	OK
1.002	S2.04	15 Winter	30	+0%	100/15	Summer			93.786	-0.001	0.000	0.75		120.1	OK*
3.000	S2.05	15 Winter	30	+0%	100/15	Summer			94.232	-0.001	0.000	0.62		22.9	OK
4.000	S2.06	15 Winter	30	+0%	100/15	Winter			94.859	-0.142	0.000	0.30		22.7	OK
3.001	S2.07	15 Winter	30	+0%	30/15	Summer			94.142	0.158	0.000	0.64		68.4	SURCHARGED
3.002	S2.08	15 Winter	30	+0%	30/15	Summer			94.057	0.208	0.000	0.58		86.9	SURCHARGED
3.003	S2.09	15 Winter	30	+0%	30/15	Summer	100/15	Summer	93.928	0.228	0.000	0.41		112.6	SURCHARGED
5.000	S2.10	15 Winter	30	+0%	100/15	Summer			95.895	-0.131	0.000	0.37		22.6	OK
6.000	S2.11	15 Winter	30	+0%	100/15	Winter			97.549	-0.134	0.000	0.34		22.6	OK
6.001	S2.12	15 Winter	30	+0%	100/15	Summer			96.546	-0.093	0.000	0.63		57.0	OK
7.000	S2.13	15 Winter	30	+0%	100/15	Summer	100/15	Summer	98.465	-0.123	0.000	0.43		22.7	OK
7.001	S2.14	15 Winter	30	+0%	100/15	Summer			98.182	-0.093	0.000	0.71		56.2	OK
7.002	S2.15	15 Winter	30	+0%	30/15	Winter	100/15	Summer	98.087	0.045	0.000	0.96		85.3	SURCHARGED
7.003	S2.16	15 Winter	30	+0%	30/15	Summer	100/15	Summer	97.875	0.123	0.000	0.74		105.4	SURCHARGED
7.004	S2.17	15 Winter	30	+0%	30/15	Summer	100/15	Summer	97.626	0.383	0.000	0.68		155.8	SURCHARGED
8.000	S2.18	15 Winter	30	+0%	30/15	Summer	100/15	Summer	97.280	0.509	0.000	0.60		37.1	SURCHARGED
7.005	S2.19	15 Winter	30	+0%	30/15	Summer	100/15	Summer	97.238	0.830	0.000	1.98		199.0	SURCHARGED
7.006	S2.20	15 Winter	30	+0%	30/15	Summer			96.750	0.464	0.000	2.04		209.0	SURCHARGED
6.002	S2.21	15 Winter	30	+0%	100/15	Summer			95.979	-0.161	0.000	0.73		280.7	OK
5.001	S2.22	15 Winter	30	+0%	100/15	Summer			94.834	-0.136	0.000	0.52		320.5	OK
9.000	S2.23	15 Winter	30	+0%	100/15	Summer	100/15	Summer	99.100	-0.157	0.000	0.20		22.7	OK
10.000	S2.24	15 Winter	30	+0%	100/15	Summer	100/15	Summer	99.167	-0.134	0.000	0.34		22.6	OK
9.001	S2.25	15 Winter	30	+0%	30/15	Summer	100/15	Summer	98.896	0.630	0.000	0.92		65.0	SURCHARGED

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Level Exceeded
1.000	S2.01	
2.000	S2.02	
1.001	S2.03	
1.002	S2.04	
3.000	S2.05	
4.000	S2.06	
3.001	S2.07	
3.002	S2.08	
3.003	S2.09	4
5.000	S2.10	
6.000	S2.11	
6.001	S2.12	
7.000	S2.13	2
7.001	S2.14	
7.002	S2.15	2
7.003	S2.16	2
7.004	S2.17	4
8.000	S2.18	4
7.005	S2.19	4
7.006	S2.20	
6.002	S2.21	
5.001	S2.22	
9.000	S2.23	4
10.000	S2.24	4

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH	Level
PN	Name	Exceeded
9.001	S2.25	2

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH		Return Period	Climate Change	First (X)		First (Y)		First (Z)		Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
	Name	Storm			Surcharge	Flood	Overflow	Overflow										
9.002	S2.26	15 Winter	30	+0%	30/15	Summer	100/15	Summer				98.473	0.811	0.000	1.07		83.2	SURCHARGED
9.003	S2.27	15 Winter	30	+0%	30/15	Summer	100/15	Summer				98.182	0.807	0.000	1.28		100.2	SURCHARGED
9.004	S2.28	15 Winter	30	+0%	30/15	Summer	100/15	Summer				97.692	0.624	0.000	0.77		141.4	SURCHARGED
11.000	S2.29	15 Winter	30	+0%	100/15	Summer						97.564	-0.017	0.000	0.39		27.1	OK
9.005	S2.30	15 Winter	30	+0%	30/15	Summer						97.499	0.751	0.000	0.76		178.3	SURCHARGED
9.006	S2.31	15 Winter	30	+0%	30/15	Summer	100/15	Summer				97.211	0.955	0.000	2.01		189.1	SURCHARGED
9.007	S2.32	15 Winter	30	+0%	30/15	Summer	100/15	Summer				96.261	0.219	0.000	1.83		201.3	FLOOD RISK
9.008	S2.33	15 Winter	30	+0%	100/15	Summer						95.753	-0.190	0.000	0.47		237.6	OK
5.002	S2.34	15 Winter	30	+0%	30/15	Summer						94.426	0.993	0.000	1.74		561.0	SURCHARGED
3.004	S2.35	15 Winter	30	+0%	30/15	Summer	100/15	Summer				93.761	0.465	0.000	3.16		658.7	SURCHARGED
3.005	S2.36	15 Winter	30	+0%	30/15	Summer						93.582	0.187	0.000	0.68		686.9	SURCHARGED
12.000	S2.37	15 Winter	30	+0%								94.559	-0.332	0.000	0.16		72.2	OK
12.001	S2.38	15 Winter	30	+0%	100/15	Summer						93.455	-0.136	0.000	0.40		175.6	OK
1.003	S2.39	15 Winter	30	+0%	30/15	Summer						93.361	0.061	0.000	2.20		931.9	SURCHARGED
1.004	S2.40	15 Winter	30	+0%								93.012	-0.295	0.000	0.26		918.3	OK
1.005	S2.41	15 Winter	30	+0%	100/15	Winter						89.860	-0.190	0.000	0.68		927.5	OK*
13.000	S2.42	15 Winter	30	+0%								97.155	-0.306	0.000	0.08		22.7	OK
13.001	S2.43	15 Winter	30	+0%								96.457	-0.185	0.000	0.44		51.9	OK
13.002	S2.44	15 Winter	30	+0%								96.053	-0.180	0.000	0.51		82.6	OK
13.003	S2.45	15 Winter	30	+0%								95.542	-0.282	0.000	0.29		116.7	OK
13.004	S2.46	15 Winter	30	+0%								94.915	-0.289	0.000	0.41		151.8	OK
13.005	S2.47	15 Winter	30	+0%								94.688	-0.278	0.000	0.44		188.3	OK
13.006	S2.48	15 Winter	30	+0%								94.298	-0.331	0.000	0.29		224.2	OK
14.000	S2.49	15 Winter	30	+0%								94.375	-0.142	0.000	0.30		22.7	OK
13.007	S2.50	15 Winter	30	+0%								93.074	-0.264	0.000	0.48		326.9	OK

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH	Level
PN	Name	Exceeded
9.002	S2.26	2
9.003	S2.27	4
9.004	S2.28	4
11.000	S2.29	
9.005	S2.30	
9.006	S2.31	4
9.007	S2.32	4
9.008	S2.33	
5.002	S2.34	
3.004	S2.35	2
3.005	S2.36	
12.000	S2.37	
12.001	S2.38	
1.003	S2.39	
1.004	S2.40	
1.005	S2.41	
13.000	S2.42	
13.001	S2.43	
13.002	S2.44	
13.003	S2.45	
13.004	S2.46	
13.005	S2.47	
13.006	S2.48	
14.000	S2.49	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH	Level
PN	Name	Exceeded
13.007	S2.50	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow	Pipe
									Level (m)	Depth (m)	Volume (m ³)		Flow (l/s)	Flow (l/s)
13.008	S2.51	15 Winter	30	+0%	100/15 Summer	100/15 Summer			92.043	-0.333	0.000	0.39		411.5
13.009	S2.52	15 Winter	30	+0%	100/15 Summer				90.897	-0.398	0.000	0.44		496.4
13.010	S2.53	15 Winter	30	+0%	100/15 Summer				90.505	-0.259	0.000	0.59		566.6
13.011	S2.54	15 Winter	30	+0%	30/15 Winter	100/15 Summer			90.404	0.018	0.000	0.92		624.2
13.012	S2.55	15 Winter	30	+0%	30/15 Summer				90.240	0.043	0.000	1.08		694.2
13.013	S2.56	15 Winter	30	+0%					90.011	-0.349	0.000	0.55		756.3
15.000	S2.57	15 Winter	30	+0%					91.074	-0.318	0.000	0.33		288.8
1.006	S2.58	15 Winter	30	+0%	100/30 Winter				89.213	-0.487	0.000	0.36		1842.7
1.007	S2.59	30 Winter	30	+0%					88.940	-0.760	0.000	0.06		1603.8
1.008	S2.60	30 Winter	30	+0%					88.919	-0.781	0.000	0.03		1474.2
1.009	S2.61	30 Winter	30	+0%	30/15 Summer				88.903	0.628	0.000	1.27		486.2
1.010	S2.62	180 Winter	30	+0%					87.859	-1.841	0.000	0.00		380.4
1.011	S2.63	180 Winter	30	+0%					87.857	-0.643	0.000	0.02		377.3
1.012	S2.64	180 Winter	30	+0%	1/15 Summer				87.820	0.780	0.000	0.67		118.4
1.013	S2.65	360 Winter	30	+0%					86.540	0.000	0.000	1.17		111.3
1.014	S2.66	1440 Winter	30	+0%	1/15 Summer				87.142	1.142	0.000	0.98		77.9
1.015	S2.67	360 Winter	30	+0%					85.900	0.000	0.000	1.81		111.2
1.016	S2.68 FC	960 Winter	30	+0%	1/15 Summer				86.932	1.042	0.000	0.14		26.2
1.017	S2.69	960 Winter	30	+0%					85.162	-0.163	0.000	0.43		26.2

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Status	Level Exceeded
13.008	S2.51	OK	2
13.009	S2.52	OK	
13.010	S2.53	OK	
13.011	S2.54	SURCHARGED	2
13.012	S2.55	SURCHARGED	
13.013	S2.56	OK	
15.000	S2.57	OK	
1.006	S2.58	OK	
1.007	S2.59	OK	
1.008	S2.60	OK	
1.009	S2.61	SURCHARGED	
1.010	S2.62	OK	
1.011	S2.63	OK	
1.012	S2.64	SURCHARGED	
1.013	S2.65	SURCHARGED*	
1.014	S2.66	FLOOD RISK	
1.015	S2.67	SURCHARGED*	
1.016	S2.68 FC	SURCHARGED	
1.017	S2.69	OK*	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

Simulation Criteria

Areal Reduction Factor	1.000	Manhole Headloss Coeff (Global)	0.500	MADD Factor * 10m ³ /ha Storage	4.000
Hot Start (mins)	0	Foul Sewage per hectare (l/s)	0.000	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Additional Flow - % of Total Flow	0.000	Flow per Person per Day (l/per/day)	0.000


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

Synthetic Rainfall Details

Rainfall Model	FEH	D3 (1km)	0.297
FEH Rainfall Version	1999	E (1km)	0.307
Site Location	GB 568800 245850 TL 68800 45850	F (1km)	2.496
C (1km)		-0.024 Cv (Summer)	0.750
D1 (1km)		0.285 Cv (Winter)	0.840
D2 (1km)		0.289	


Margin for Flood Risk Warning (mm)	300.0	DTS Status	OFF	Inertia Status	OFF
Analysis Timestep	Fine	DVD 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)		1, 30, 100
Climate Change (%)		0, 0, 30

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

US/MH	Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water	Surcharged	Flooded	Pipe	Level					
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level	Depth	Volume	Flow /	Overflow	Flow	Status	Exceeded
									(m)	(m)	(m ³)	Cap.	(l/s)	(l/s)		

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH		Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Flow / Overflow Cap.	Pipe
	Name	Storm							Level (m)	Depth (m)	Volume (m ³)		Flow (l/s)
1.000	S2.01	15 Winter	100	+30%					96.019	-0.581	0.000	0.02	89.0
2.000	S2.02	15 Winter	100	+30%	100/15 Summer				96.842	0.337	0.000	1.11	83.8
1.001	S2.03	15 Winter	100	+30%					95.040	-0.499	0.000	0.06	212.3
1.002	S2.04	15 Winter	100	+30%	100/15 Summer				94.366	0.579	0.000	1.08	171.6
3.000	S2.05	15 Winter	100	+30%	100/15 Summer				95.033	0.800	0.000	1.25	45.9
4.000	S2.06	15 Winter	100	+30%	100/15 Winter				95.021	0.020	0.000	0.61	46.2
3.001	S2.07	15 Winter	100	+30%	30/15 Summer				94.730	0.746	0.000	1.20	127.5
3.002	S2.08	15 Winter	100	+30%	30/15 Summer				94.523	0.674	0.000	1.21	182.7
3.003	S2.09	15 Winter	100	+30%	30/15 Summer	100/15 Summer			94.306	0.606	30.898	0.57	157.4
5.000	S2.10	15 Winter	100	+30%	100/15 Summer				96.562	0.536	0.000	0.78	47.5
6.000	S2.11	15 Winter	100	+30%	100/15 Winter				97.863	0.180	0.000	0.78	51.4
6.001	S2.12	15 Winter	100	+30%	100/15 Summer				97.525	0.886	0.000	1.03	93.1
7.000	S2.13	15 Winter	100	+30%	100/15 Summer	100/15 Summer			99.716	1.128	3.576	1.15	61.0
7.001	S2.14	15 Summer	100	+30%	100/15 Summer				99.697	1.422	0.000	0.92	72.7
7.002	S2.15	15 Winter	100	+30%	30/15 Winter	100/15 Summer			99.453	1.411	0.769	1.40	124.2
7.003	S2.16	15 Winter	100	+30%	30/15 Summer	100/15 Summer			98.885	1.133	8.006	0.99	140.9
7.004	S2.17	15 Winter	100	+30%	30/15 Summer	100/15 Summer			98.390	1.147	22.787	0.82	187.4
8.000	S2.18	15 Winter	100	+30%	30/15 Summer	100/15 Summer			97.871	1.100	25.446	1.43	88.3
7.005	S2.19	15 Winter	100	+30%	30/15 Summer	100/15 Summer			97.920	1.512	8.933	2.27	228.9
7.006	S2.20	15 Winter	100	+30%	30/15 Summer				97.681	1.395	0.000	2.35	240.0
6.002	S2.21	15 Winter	100	+30%	100/15 Summer				97.169	1.029	0.000	0.91	353.1
5.001	S2.22	15 Winter	100	+30%	100/15 Summer				96.218	1.248	0.000	0.70	430.5
9.000	S2.23	15 Winter	100	+30%	100/15 Summer	100/15 Summer			100.341	1.084	9.588	0.48	55.1
10.000	S2.24	15 Winter	100	+30%	100/15 Summer	100/15 Summer			100.387	1.086	10.689	0.81	53.6
9.001	S2.25	15 Summer	100	+30%	30/15 Summer	100/15 Summer			100.362	2.096	0.116	1.25	88.4

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Status	Level Exceeded
1.000	S2.01	OK	
2.000	S2.02	SURCHARGED	
1.001	S2.03	OK	
1.002	S2.04	FLOOD RISK*	
3.000	S2.05	SURCHARGED	
4.000	S2.06	SURCHARGED	
3.001	S2.07	SURCHARGED	
3.002	S2.08	FLOOD RISK	
3.003	S2.09	FLOOD	4
5.000	S2.10	SURCHARGED	
6.000	S2.11	SURCHARGED	
6.001	S2.12	SURCHARGED	
7.000	S2.13	FLOOD	2
7.001	S2.14	FLOOD RISK	
7.002	S2.15	FLOOD	2
7.003	S2.16	FLOOD	2
7.004	S2.17	FLOOD	4
8.000	S2.18	FLOOD	4
7.005	S2.19	FLOOD	4
7.006	S2.20	SURCHARGED	
6.002	S2.21	SURCHARGED	
5.001	S2.22	FLOOD RISK	
9.000	S2.23	FLOOD	4
10.000	S2.24	FLOOD	4

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Status	Level Exceeded
9.001	S2.25	FLOOD	2

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)
9.002	S2.26	15 Winter	100	+30%	30/15 Summer	100/15 Summer			99.863	2.201	1.471	1.44		111.8
9.003	S2.27	15 Winter	100	+30%	30/15 Summer	100/15 Summer			99.265	1.890	7.279	1.70		132.8
9.004	S2.28	15 Winter	100	+30%	30/15 Summer	100/15 Summer			98.383	1.315	32.775	0.99		181.4
11.000	S2.29	15 Winter	100	+30%	100/15 Summer				98.531	0.950	0.000	0.65		44.8
9.005	S2.30	15 Winter	100	+30%	30/15 Summer				98.228	1.480	0.000	0.97		225.2
9.006	S2.31	15 Winter	100	+30%	30/15 Summer	100/15 Summer			97.762	1.506	12.505	2.46		230.8
9.007	S2.32	15 Winter	100	+30%	30/15 Summer	100/15 Summer			96.470	0.428	23.616	2.34		256.9
9.008	S2.33	15 Winter	100	+30%	100/15 Summer				96.316	0.373	0.000	0.62		312.1
5.002	S2.34	15 Winter	100	+30%	30/15 Summer				95.437	2.004	0.000	2.30		742.2
3.004	S2.35	15 Winter	100	+30%	30/15 Summer	100/15 Summer			94.207	0.911	11.192	4.36		909.9
3.005	S2.36	15 Winter	100	+30%	30/15 Summer				93.955	0.560	0.000	0.92		934.8
12.000	S2.37	15 Winter	100	+30%					94.611	-0.280	0.000	0.31		142.0
12.001	S2.38	15 Winter	100	+30%	100/15 Summer				93.981	0.390	0.000	0.79		349.2
1.003	S2.39	15 Winter	100	+30%	30/15 Summer				93.589	0.289	0.000	3.46		1462.6
1.004	S2.40	15 Winter	100	+30%					93.111	-0.196	0.000	0.40		1432.9
1.005	S2.41	15 Winter	100	+30%	100/15 Winter				90.078	0.028	0.000	1.04		1412.2
13.000	S2.42	15 Winter	100	+30%					97.183	-0.278	0.000	0.15		44.6
13.001	S2.43	15 Winter	100	+30%					96.567	-0.075	0.000	0.88		102.4
13.002	S2.44	15 Winter	100	+30%					96.174	-0.059	0.000	1.00		160.6
13.003	S2.45	15 Winter	100	+30%					95.619	-0.205	0.000	0.56		224.2
13.004	S2.46	15 Winter	100	+30%					95.038	-0.166	0.000	0.78		293.5
13.005	S2.47	15 Winter	100	+30%					94.821	-0.145	0.000	0.86		364.9
13.006	S2.48	15 Winter	100	+30%					94.388	-0.241	0.000	0.56		435.0
14.000	S2.49	15 Winter	100	+30%					94.415	-0.102	0.000	0.58		44.6
13.007	S2.50	15 Winter	100	+30%					93.234	-0.104	0.000	0.93		638.2

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH		Level
PN	Name	Status	Exceeded
9.002	S2.26	FLOOD	2
9.003	S2.27	FLOOD	4
9.004	S2.28	FLOOD	4
11.000	S2.29	FLOOD RISK	
9.005	S2.30	FLOOD RISK	
9.006	S2.31	FLOOD	4
9.007	S2.32	FLOOD	4
9.008	S2.33	SURCHARGED	
5.002	S2.34	SURCHARGED	
3.004	S2.35	FLOOD	2
3.005	S2.36	SURCHARGED	
12.000	S2.37	OK	
12.001	S2.38	SURCHARGED	
1.003	S2.39	SURCHARGED	
1.004	S2.40	OK	
1.005	S2.41	FLOOD RISK*	
13.000	S2.42	OK	
13.001	S2.43	FLOOD RISK	
13.002	S2.44	OK	
13.003	S2.45	OK	
13.004	S2.46	OK	
13.005	S2.47	OK	
13.006	S2.48	OK	
14.000	S2.49	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

	US/MH		Level
PN	Name	Status	Exceeded
13.007	S2.50	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded	Pipe	
									Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)
13.008	S2.51	15 Winter	100	+30%	100/15 Summer	100/15 Summer			92.382	0.006	6.124	0.71	744.3
13.009	S2.52	15 Winter	100	+30%	100/15 Summer				91.873	0.578	0.000	0.77	878.0
13.010	S2.53	15 Winter	100	+30%	100/15 Summer				91.554	0.790	0.000	1.08	1035.0
13.011	S2.54	15 Winter	100	+30%	30/15 Winter	100/15 Summer			91.123	0.737	33.858	1.52	1033.7
13.012	S2.55	15 Winter	100	+30%	30/15 Summer				90.747	0.550	0.000	1.72	1103.7
13.013	S2.56	15 Winter	100	+30%					90.179	-0.181	0.000	0.92	1256.4
15.000	S2.57	15 Winter	100	+30%					91.176	-0.216	0.000	0.65	568.1
1.006	S2.58	60 Winter	100	+30%	100/30 Winter				89.783	0.083	0.000	0.42	2163.9
1.007	S2.59	60 Winter	100	+30%					89.484	-0.216	0.000	0.07	2103.1
1.008	S2.60	60 Winter	100	+30%					89.422	-0.278	0.000	0.04	1931.7
1.009	S2.61	60 Winter	100	+30%	30/15 Summer				89.382	1.107	0.000	1.38	529.8
1.010	S2.62	360 Winter	100	+30%					88.236	-1.464	0.000	0.00	371.5
1.011	S2.63	360 Winter	100	+30%					88.232	-0.268	0.000	0.02	368.0
1.012	S2.64	360 Winter	100	+30%	1/15 Summer				88.159	1.119	0.000	0.67	117.8
1.013	S2.65	360 Winter	100	+30%					86.540	0.000	0.000	1.22	115.7
1.014	S2.66	1440 Winter	100	+30%	1/15 Summer				87.366	1.366	0.000	1.22	96.6
1.015	S2.67	360 Winter	100	+30%					85.900	0.000	0.000	1.88	115.6
1.016	S2.68 FC	1440 Winter	100	+30%	1/15 Summer				87.175	1.285	0.000	0.28	53.3
1.017	S2.69	1440 Winter	100	+30%					85.241	-0.084	0.000	0.87	53.3

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Manchester One Portland Street Manchester M1 3LF	Haverhill Great Willsey Park Area 2	
Date 28/03/2019 File HAVERHILL. ALL NETWORKS.MDX	Designed by RMV Checked by PV	
Innovyze	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW 02

PN	US/MH Name	Status	Level Exceeded
13.008	S2.51	FLOOD	2
13.009	S2.52	SURCHARGED	
13.010	S2.53	FLOOD RISK	
13.011	S2.54	FLOOD	2
13.012	S2.55	SURCHARGED	
13.013	S2.56	OK	
15.000	S2.57	OK	
1.006	S2.58	FLOOD RISK	
1.007	S2.59	FLOOD RISK*	
1.008	S2.60	FLOOD RISK*	
1.009	S2.61	SURCHARGED	
1.010	S2.62	OK	
1.011	S2.63	FLOOD RISK*	
1.012	S2.64	SURCHARGED	
1.013	S2.65	SURCHARGED*	
1.014	S2.66	FLOOD RISK	
1.015	S2.67	SURCHARGED*	
1.016	S2.68 FC	FLOOD RISK	
1.017	S2.69	OK*	