STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Network 1

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 346206 243350 SO 46206 43350
Data Type	Point
Maximum Rainfall (mm/hr)	75
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Surface Network 1

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.000	4-8	0.016	8-12	0.852	12-16	0.249

Total Area Contributing (ha) = 1.117

Total Pipe Volume (m³) = 75.431

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Manhole Schedules for Surface Network 1

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)	Backd (mm
S1	82.843	1.350	Open Manhole	1200	1.000	81.493	150				
S2	82.000	1.350	Open Manhole	1200	1.001	80.650	150	1.000	80.650	150	
S3	81.087	1.800	Open Manhole	1200	1.002	79.287	300	1.001	79.437	150	
S4	81.117	1.350	Open Manhole	1200	2.000	79.767	150				
S5	80.966	1.799	Open Manhole	1200	1.003	79.167	300	1.002	79.167	300	
								2.000	79.317	150	
S6	77.801	1.500	Open Manhole	1350	3.000	76.301	300				
S7	78.677	1.350	Open Manhole	1350	4.000	77.327	150				
S8	78.678	2.656	Open Manhole	1200	3.001	76.022	375	3.000	76.099	300	
								4.000	76.249	150	
S9	78.530	2.571	Open Manhole	1500	1.004	75.961	375	1.003	76.036	300	
								3.001	75.959	375	
S10	77.325	1.350	Open Manhole	1200	5.000	75.975	225				
S11	78.189	2.535	Open Manhole	1500	1.005	75.657	375	1.004	75.654	375	
								5.000	75.807	225	
S12	78.230	2.790	Open Manhole	1500	1.006	75.440	450	1.005	75.505	375	
Tank S13	77.728	2.506	Open Manhole	1350	6.000	75.222	375				
S14	77.900	2.768	Open Manhole	1500	1.007	75.132	450	1.006	75.132	450	
								6.000	75.207	375	
S15	77.547	2.463	Open Manhole	1500	1.008	75.084	450	1.007	75.084	450	
S16	79.712	1.500	Open Manhole	1200	7.000	78.212	300				
S17	80.276	2.249	Open Manhole	1200	7.001	78.027	300	7.000	78.027	300	
S18	80.388	2.421	Open Manhole	1200	7.002	77.967	300	7.001	77.967	300	
S19	82.714	1.350	Open Manhole	1200	8.000	81.364	150				
S20	81.039	1.725	Open Manhole	1200	9.000	79.314	225				
S21	80.731	2.947	Open Manhole	1200	7.003	77.784	300	7.002	77.784	300	
								8.000	77.934	150	
								9.000	77.859	225	
S22	80.546	2.792	Open Manhole	1200	7.004	77.754	300	7.003	77.754	300	
S23	78.693	1.800	Open Manhole	1200	7.005	76.893	300	7.004	76.893	300	
S24	78.246	2.019	Open Manhole	1200	7.006	76.227	300	7.005	76.227	300	
S25	77.805	2.786	Open Manhole	1500	1.009	75.019	450	1.008	75.019	450	
								7.006	75.184	300	
S26	76.997	2.076	Open Manhole	1500	1.010	74.921	450	1.009	74.935	450	
S27	76.873	1.981	Open Manhole	1500	1.011	74.892	450	1.010	74.892	450	
Tank 2 S28	76.841	3.041	Open Manhole	1800	10.000	73.800	450				
HB S29	76.850	3.156	Open Manhole	1350	1.012	73.723	300	1.011	73.694	450	
								10.000	73.709	450	

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Manhole Schedules for Surface Network 1

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)
S30	76.244	2.553	Open Manhole	1200	1.013	73.691	300	1.012	73.691	300	
S31	75.826	2.229	Open Manhole	1200	1.014	73.597	300	1.013	73.597	300	
S32	76.280	3.012	Open Manhole	1200	1.015	73.268	300	1.014	73.268	300	
S33	74.248	1.339	Open Manhole	1200	1.016	72.909	300	1.015	72.909	300	
S34	74.620	2.039	Open Manhole	1200	1.017	72.581	300	1.016	72.581	300	
S35	74.246	1.996	Open Manhole	1200	1.018	72.250	300	1.017	72.250	300	
S36	73.045	1.076	Open Manhole	1200	1.019	71.969	300	1.018	71.969	300	
S38	70.500	1.200	Open Manhole	1200		OUTFALL		1.019	69.300	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	346124.876	243392.336	346124.876	243392.336	Required	
S2	346140.323	243403.735	346140.323	243403.735	Required	
S3	346158.419	243407.854	346158.419	243407.854	Required	
S4	346165.906	243375.935	346165.906	243375.935	Required	
S5	346162.446	243390.354	346162.446	243390.354	Required	
S6	346248.071	243425.995	346248.071	243425.995	Required	
S7	346210.980	243436.145	346210.980	243436.145	Required	
S8	346215.126	243418.601	346215.126	243418.601	Required	
S9	346218.172	243403.578	346218.172	243403.578	Required	
S10	346253.384	243379.809	346253.384	243379.809	Required	

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Manhole Schedules for Surface Network 1

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S11	346226.520	243371.882	346226.520	243371.882	Required	
S12	346229.228	243362.851	346229.228	243362.851	Required	
Tank S13	346245.223	243354.906	346245.223	243354.906	Required	
S14	346242.951	243351.817	346242.951	243351.817	Required	
S15	346252.137	243344.179	346252.137	243344.179	Required	
S16	346172.414	243268.660	346172.414	243268.660	Required	
S17	346194.988	243289.759	346194.988	243289.759	Required	
S18	346197.241	243299.440	346197.241	243299.440	Required	
S19	346149.301	243316.494	346149.301	243316.494	Required	
S20	346179.032	243354.221	346179.032	243354.221	Required	
S21	346187.621	243328.459	346187.621	243328.459	Required	
S22	346192.349	243330.035	346192.349	243330.035	Required	
S23	346228.917	243336.369	346228.917	243336.369	Required	
S24	346238.471	243335.569	346238.471	243335.569	Required	
S25	346246.493	243328.902	346246.493	243328.902	Required	

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Manhole Schedules for Surface Network 1

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S26	346250.728	243308.285	346250.728	243308.285	Required	
S27	346253.484	243301.681	346253.484	243301.681	Required	
Tank 2 S28	346262.588	243307.202	346262.588	243307.202	Required	
HB S29	346263.731	243303.936	346263.731	243303.936	Required	
S30	346271.475	243303.681	346271.475	243303.681	Required	
S31	346271.214	243280.792	346271.214	243280.792	Required	
S32	346242.664	243206.006	346242.664	243206.006	Required	
S33	346289.552	243132.563	346289.552	243132.563	Required	
S34	346311.339	243056.000	346311.339	243056.000	Required	
S35	346333.126	242979.436	346333.126	242979.436	Required	
S36	346339.518	242911.382	346339.518	242911.382	Required	
S38	346362.151	242870.620			No Entry	

Free Flowing Outfall Details for Surface Network 1

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.019	S38	70.500	69.300	0.000	1200	0

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Simulation Criteria for Surface Network 1

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	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	2
FEH Rainfall Version	2013
Site Location	GB 346206 243350 SO 46206 43350
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

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Online Controls for Surface Network 1

Hydro-Brake® Optimum Manhole: HB S29, DS/PN: 1.012, Volume (m³): 6.2

Unit Reference	MD-SHE-0130-1110-2600-1110
Design Head (m)	2.600
Design Flow (l/s)	11.1
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	130
Invert Level (m)	73.723
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.600	11.1
Flush-Flo™	0.564	9.6
Kick-Flo®	1.161	7.6
Mean Flow over Head Range	-	8.9

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	4.7	1.200	7.7	3.000	11.9	7.000	17.8
0.200	8.1	1.400	8.3	3.500	12.8	7.500	18.4
0.300	9.0	1.600	8.8	4.000	13.6	8.000	19.0
0.400	9.4	1.800	9.3	4.500	14.4	8.500	19.5
0.500	9.6	2.000	9.8	5.000	15.1	9.000	20.1
0.600	9.6	2.200	10.3	5.500	15.8	9.500	20.6
0.800	9.4	2.400	10.7	6.000	16.5		
1.000	8.7	2.600	11.1	6.500	17.2		

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Storage Structures for Surface Network 1

Cellular Storage Manhole: Tank S13, DS/PN: 6.000

Invert Level (m) 75.250 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	0.1	360.0	1.201	0.0	451.2
1.200	0.1	451.2			

Cellular Storage Manhole: Tank 2 S28, DS/PN: 10.000

Invert Level (m) 73.800 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	170.0	180.0	2.001	0.0	292.0
2.000	170.0	292.0			

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

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 2
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
FEH Rainfall Version 2013
Site Location GB 346206 243350 SO 46206 43350
Data Type Point
Cv (Summer) 0.750
Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 2, 30
Climate Change (%) 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S1	15 Winter	2	+0%					81.544
1.001	S2	15 Winter	2	+0%					80.702
1.002	S3	15 Winter	2	+0%					79.392
2.000	S4	15 Winter	2	+0%					79.822
1.003	S5	15 Winter	2	+0%					79.246
3.000	S6	15 Winter	2	+0%					76.353
4.000	S7	15 Winter	2	+0%					77.372
3.001	S8	15 Winter	2	+0%	30/15 Summer				76.144
1.004	S9	15 Winter	2	+0%	30/15 Summer				76.118
5.000	S10	15 Winter	2	+0%	30/15 Summer				76.028
1.005	S11	15 Winter	2	+0%	30/15 Summer				75.836
1.006	S12	15 Winter	2	+0%	30/15 Summer				75.586
6.000	Tank S13	15 Winter	2	+0%	30/15 Summer				75.393
1.007	S14	15 Winter	2	+0%	30/15 Summer				75.391
1.008	S15	15 Winter	2	+0%	30/15 Summer				75.363
7.000	S16	15 Winter	2	+0%					78.284

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S1	-0.099	0.000	0.25			8.7	OK	
1.001	S2	-0.098	0.000	0.25			10.9	OK	
1.002	S3	-0.195	0.000	0.26			20.3	OK	
2.000	S4	-0.095	0.000	0.29			8.3	OK	
1.003	S5	-0.221	0.000	0.16			38.7	OK	
3.000	S6	-0.248	0.000	0.07			5.4	OK	
4.000	S7	-0.105	0.000	0.19			7.9	OK	
3.001	S8	-0.253	0.000	0.16			16.7	OK	
1.004	S9	-0.218	0.000	0.36			63.0	OK	
5.000	S10	-0.172	0.000	0.12			4.6	OK	
1.005	S11	-0.196	0.000	0.46			69.8	OK	
1.006	S12	-0.304	0.000	0.23			71.0	OK	
6.000	Tank S13	-0.204	0.000	0.14		5	11.0	OK	
1.007	S14	-0.191	0.000	0.54			79.8	OK	
1.008	S15	-0.171	0.000	0.50			78.5	OK	
7.000	S16	-0.228	0.000	0.13			9.9	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
7.001	S17	15 Winter	2	+0%				
7.002	S18	15 Winter	2	+0%	30/15 Summer			
8.000	S19	15 Winter	2	+0%				
9.000	S20	15 Winter	2	+0%				
7.003	S21	15 Winter	2	+0%	30/15 Summer			
7.004	S22	15 Winter	2	+0%				
7.005	S23	15 Winter	2	+0%				
7.006	S24	15 Winter	2	+0%				
1.009	S25	15 Winter	2	+0%	30/15 Summer			
1.010	S26	15 Winter	2	+0%	30/15 Summer			
1.011	S27	15 Winter	2	+0%	30/60 Winter			
10.000	Tank 2 S28	240 Winter	2	+0%	2/30 Winter			
1.012	HB S29	240 Winter	2	+0%	2/15 Summer			
1.013	S30	480 Winter	2	+0%				
1.014	S31	480 Winter	2	+0%				
1.015	S32	480 Winter	2	+0%				
1.016	S33	480 Winter	2	+0%				
1.017	S34	480 Winter	2	+0%				
1.018	S35	480 Winter	2	+0%				
1.019	S36	480 Winter	2	+0%				

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
7.001	S17	78.126	-0.201	0.000	0.24			14.4	OK
7.002	S18	78.074	-0.193	0.000	0.27			21.3	OK
8.000	S19	81.400	-0.114	0.000	0.13			6.5	OK
9.000	S20	79.364	-0.175	0.000	0.11			12.4	OK
7.003	S21	77.972	-0.112	0.000	0.71			40.7	OK
7.004	S22	77.865	-0.189	0.000	0.29			45.9	OK
7.005	S23	76.990	-0.203	0.000	0.23			46.1	OK
7.006	S24	76.314	-0.213	0.000	0.18			47.1	OK
1.009	S25	75.335	-0.134	0.000	0.75			125.0	OK
1.010	S26	75.278	-0.093	0.000	0.98			128.1	OK
1.011	S27	75.032	-0.310	0.000	0.21			131.8	OK
10.000	Tank 2 S28	74.455	0.205	0.000	0.08		131	14.1	SURCHARGED
1.012	HB S29	74.507	0.484	0.000	0.18			9.6	SURCHARGED
1.013	S30	73.769	-0.222	0.000	0.15			9.6	OK
1.014	S31	73.671	-0.226	0.000	0.14			9.6	OK
1.015	S32	73.342	-0.226	0.000	0.14			9.6	OK
1.016	S33	72.983	-0.226	0.000	0.14			9.6	OK
1.017	S34	72.655	-0.226	0.000	0.14			9.6	OK
1.018	S35	72.325	-0.225	0.000	0.14			9.6	OK
1.019	S36	72.007	-0.262	0.000	0.04			9.6	OK

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

PN	US/MH Name	Level Exceeded
7.001	S17	
7.002	S18	
8.000	S19	
9.000	S20	
7.003	S21	
7.004	S22	
7.005	S23	
7.006	S24	
1.009	S25	
1.010	S26	
1.011	S27	
10.000	Tank 2 S28	
1.012	HB S29	
1.013	S30	
1.014	S31	
1.015	S32	
1.016	S33	
1.017	S34	
1.018	S35	
1.019	S36	

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

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	2
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 346206 243350 SO 46206 43350
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	2, 30
Climate Change (%)	0, 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	Overflow Act.	Water Level (m)
1.000	S1	15 Winter	30	+0%					81.580
1.001	S2	15 Winter	30	+0%					80.742
1.002	S3	15 Winter	30	+0%					79.485
2.000	S4	15 Winter	30	+0%					79.864
1.003	S5	15 Winter	30	+0%					79.309
3.000	S6	15 Winter	30	+0%					76.498
4.000	S7	15 Winter	30	+0%					77.401
3.001	S8	15 Winter	30	+0%	30/15 Summer				76.483
1.004	S9	15 Winter	30	+0%	30/15 Summer				76.463
5.000	S10	15 Winter	30	+0%	30/15 Summer				76.305
1.005	S11	15 Winter	30	+0%	30/15 Summer				76.282
1.006	S12	15 Winter	30	+0%	30/15 Summer				76.136
6.000	Tank S13	15 Winter	30	+0%	30/15 Summer				76.078

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

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S1	-0.063	0.000	0.63			22.1	OK	
1.001	S2	-0.058	0.000	0.68			29.1	OK	
1.002	S3	-0.102	0.000	0.76			58.9	OK	
2.000	S4	-0.053	0.000	0.73			21.0	OK	
1.003	S5	-0.158	0.000	0.45			111.0	OK	
3.000	S6	-0.103	0.000	0.17			13.3	OK	
4.000	S7	-0.076	0.000	0.49			19.9	OK	
3.001	S8	0.086	0.000	0.42			43.3	SURCHARGED	
1.004	S9	0.127	0.000	0.92			158.6	SURCHARGED	
5.000	S10	0.105	0.000	0.29			10.7	SURCHARGED	
1.005	S11	0.250	0.000	1.00			151.9	SURCHARGED	
1.006	S12	0.246	0.000	0.49			152.8	SURCHARGED	
6.000	Tank S13	0.481	0.000	0.30		6	23.9	SURCHARGED	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.007	S14	15 Winter	30	+0%	30/15 Summer			
1.008	S15	15 Winter	30	+0%	30/15 Summer			
7.000	S16	15 Winter	30	+0%				
7.001	S17	15 Winter	30	+0%				
7.002	S18	15 Winter	30	+0%	30/15 Summer			
8.000	S19	15 Winter	30	+0%				
9.000	S20	15 Winter	30	+0%				
7.003	S21	15 Winter	30	+0%	30/15 Summer			
7.004	S22	15 Winter	30	+0%				
7.005	S23	15 Winter	30	+0%				
7.006	S24	15 Winter	30	+0%				
1.009	S25	15 Winter	30	+0%	30/15 Summer			
1.010	S26	240 Winter	30	+0%	30/15 Summer			
1.011	S27	240 Winter	30	+0%	30/60 Winter			
10.000	Tank 2 S28	240 Winter	30	+0%	2/30 Winter			
1.012	HB S29	240 Winter	30	+0%	2/15 Summer			
1.013	S30	240 Winter	30	+0%				
1.014	S31	240 Winter	30	+0%				
1.015	S32	240 Winter	30	+0%				
1.016	S33	240 Winter	30	+0%				
1.017	S34	240 Winter	30	+0%				
1.018	S35	240 Winter	30	+0%				
1.019	S36	240 Winter	30	+0%				

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.007	S14	76.073	0.491	0.000	1.17			174.6	SURCHARGED
1.008	S15	75.974	0.440	0.000	1.11			176.1	SURCHARGED
7.000	S16	78.353	-0.159	0.000	0.31			24.6	OK
7.001	S17	78.323	-0.004	0.000	0.61			37.6	OK
7.002	S18	78.299	0.032	0.000	0.69			54.1	SURCHARGED
8.000	S19	81.423	-0.091	0.000	0.32			16.4	OK
9.000	S20	79.395	-0.144	0.000	0.28			31.4	OK
7.003	S21	78.209	0.125	0.000	1.80			102.3	SURCHARGED
7.004	S22	77.951	-0.103	0.000	0.75			117.3	OK
7.005	S23	77.057	-0.136	0.000	0.58			118.7	OK
7.006	S24	76.372	-0.155	0.000	0.47			120.0	OK
1.009	S25	75.875	0.406	0.000	1.76			292.4	SURCHARGED
1.010	S26	75.632	0.261	0.000	0.56			72.9	SURCHARGED
1.011	S27	75.645	0.303	0.000	0.12			75.7	SURCHARGED
10.000	Tank 2 S28	75.599	1.349	0.000	0.09			15.0	SURCHARGED
1.012	HB S29	75.660	1.637	0.000	0.18			9.6	SURCHARGED
1.013	S30	73.769	-0.222	0.000	0.15			9.6	OK
1.014	S31	73.671	-0.226	0.000	0.14			9.6	OK
1.015	S32	73.342	-0.226	0.000	0.14			9.6	OK

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.016	S33	72.983	-0.226	0.000	0.14			9.6	OK
1.017	S34	72.655	-0.226	0.000	0.14			9.6	OK
1.018	S35	72.325	-0.225	0.000	0.14			9.6	OK
1.019	S36	72.007	-0.262	0.000	0.04			9.6	OK

PN	US/MH Name	Level Exceeded
1.007	S14	
1.008	S15	
7.000	S16	
7.001	S17	
7.002	S18	
8.000	S19	
9.000	S20	
7.003	S21	
7.004	S22	
7.005	S23	
7.006	S24	
1.009	S25	
1.010	S26	
1.011	S27	
10.000	Tank 2 S28	
1.012	HB S29	
1.013	S30	
1.014	S31	
1.015	S32	
1.016	S33	
1.017	S34	
1.018	S35	
1.019	S36	

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