

The Old Chapel
Station Road, Hugglescote
Leicestershire LE67 2GB

Bicester
Parcel I
SWS NET 1

Date 01/08/2018
File 23431 parcel I1 rev a.MDX

Designed by as
Checked by



XP Solutions

Network 2015.1

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)	1
Site Location GB 457850 220300 SP 57850 20300	
C (1km)	-0.023
D1 (1km)	0.309
D2 (1km)	0.343
D3 (1km)	0.255
E (1km)	0.288
F (1km)	2.462
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
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)
0-4	0.754	4-8	0.475

Total Area Contributing (ha) = 1.229

Total Pipe Volume (m³) = 46.866

Network Design Table for Surface Network 1

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	7.874	0.079	99.7	0.127	5.00	0.0	0.600	o	150	
1.001	14.005	0.140	100.0	0.000	0.00	0.0	0.600	o	150	
1.002	25.505	0.170	150.0	0.035	0.00	0.0	0.600	o	300	
1.003	53.651	0.703	76.3	0.052	0.00	0.0	0.600	o	300	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.13	79.600	0.127	0.0	0.0	0.0	1.01	17.8	17.2
1.001	50.00	5.36	79.521	0.127	0.0	0.0	0.0	1.00	17.8	17.2
1.002	50.00	5.69	79.231	0.162	0.0	0.0	0.0	1.28	90.6	21.9
1.003	50.00	6.19	79.061	0.214	0.0	0.0	0.0	1.80	127.3	29.0

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Network Design Table for Surface Network 1

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
2.000	5.143	0.232	22.2	0.050	5.00	0.0	0.600	o	150	🔒
2.001	5.321	0.053	100.4	0.067	0.00	0.0	0.600	o	225	👤
2.002	14.753	0.148	99.7	0.075	0.00	0.0	0.600	o	225	👤
3.000	32.055	0.758	42.3	0.096	5.00	0.0	0.600	o	225	👤
2.003	69.972	0.909	77.0	0.103	0.00	0.0	0.600	o	375	👤
4.000	9.051	0.091	100.0	0.061	5.00	0.0	0.600	o	150	🔒
4.001	10.008	0.701	14.3	0.000	0.00	0.0	0.600	o	150	👤
1.004	35.402	0.425	83.3	0.070	0.00	0.0	0.600	o	375	👤
5.000	55.960	2.025	27.6	0.128	5.00	0.0	0.600	o	225	👤
1.005	51.259	1.361	37.7	0.066	0.00	0.0	0.600	o	450	👤
6.000	18.877	0.190	99.4	0.041	5.00	0.0	0.600	o	150	👤
6.001	25.844	0.395	65.4	0.047	0.00	0.0	0.600	o	150	👤
7.000	2.939	0.098	30.0	0.126	5.00	0.0	0.600	o	150	🔒
7.001	5.546	0.157	35.3	0.000	0.00	0.0	0.600	o	150	👤
6.002	57.187	1.723	33.2	0.055	0.00	0.0	0.600	o	450	👤
1.006	22.928	0.183	125.3	0.030	0.00	0.0	0.600	o	450	👤

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
2.000	50.00	5.04	79.850	0.050	0.0	0.0	0.0	2.15	38.0	6.8
2.001	50.00	5.11	79.543	0.117	0.0	0.0	0.0	1.30	51.9	15.8
2.002	50.00	5.30	79.490	0.192	0.0	0.0	0.0	1.31	52.1	26.0
3.000	50.00	5.26	80.100	0.096	0.0	0.0	0.0	2.02	80.2	13.0
2.003	50.00	5.86	79.192	0.391	0.0	0.0	0.0	2.07	228.3	52.9
4.000	50.00	5.15	79.300	0.061	0.0	0.0	0.0	1.00	17.8	8.3
4.001	50.00	5.21	79.209	0.061	0.0	0.0	0.0	2.68	47.4	8.3
1.004	50.00	6.49	78.283	0.736	0.0	0.0	0.0	1.99	219.4	99.7
5.000	50.00	5.37	80.033	0.128	0.0	0.0	0.0	2.50	99.3	17.3
1.005	50.00	6.75	77.783	0.930	0.0	0.0	0.0	3.32	528.2	125.9
6.000	50.00	5.31	79.030	0.041	0.0	0.0	0.0	1.01	17.8	5.6
6.001	50.00	5.66	78.840	0.088	0.0	0.0	0.0	1.25	22.0	11.9
7.000	50.00	5.03	78.700	0.126	0.0	0.0	0.0	1.85	32.6	17.1
7.001	50.00	5.08	78.602	0.126	0.0	0.0	0.0	1.70	30.0	17.1
6.002	50.00	5.93	78.145	0.269	0.0	0.0	0.0	3.54	562.8	36.4
1.006	50.00	6.96	76.422	1.229	0.0	0.0	0.0	1.82	288.7	166.4

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Network Design Table for Surface Network 1

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.007	8.945	0.089	100.5	0.000	0.00	0.0	0.600	o	450	👍
1.008	7.944	0.089	89.3	0.000	0.00	0.0	0.600	o	450	👍

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)
1.007	50.00	7.03	76.239	1.229	0.0	0.0	0.0	2.03	322.5	166.4
1.008	50.00	7.09	76.150	1.229	0.0	0.0	0.0	2.15	342.4	166.4

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)
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1.008 S3 Exist 80.594 76.061 76.060 1800 0

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 * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 3 Number of Storage Structures 5 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH	E (1km)	0.288
Return Period (years)	1	F (1km)	2.462
Site Location	GB 457850 220300 SP 57850 20300	Summer Storms	Yes
C (1km)	-0.023	Winter Storms	Yes
D1 (1km)	0.309	Cv (Summer)	0.750
D2 (1km)	0.343	Cv (Winter)	0.840
D3 (1km)	0.255	Storm Duration (mins)	30

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Online Controls for Surface Network 1

Garastor Manhole: S102, DS/PN: 1.001, Volume (m³): 0.4

Invert Level (m) 79.521 Model 400mm Overflow

Garastor Manhole: S118, DS/PN: 7.001, Volume (m³): 0.4

Invert Level (m) 78.602 Model 400mm Overflow

Complex Manhole: S121HB, DS/PN: 1.007, Volume (m³): 34.0

Hydro-Brake Optimum®

Unit Reference MD-SHE-0101-8100-3700-8100
 Design Head (m) 3.700
 Design Flow (l/s) 8.1
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Diameter (mm) 101
 Invert Level (m) 76.239
 Minimum Outlet Pipe Diameter (mm) 150
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	3.700	8.1	Kick-Flo®	0.907	4.2
Flush-Flo™	0.444	5.3	Mean Flow over Head Range	-	5.9

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)	Depth (m)	Flow (l/s)
0.100	3.4	0.800	4.7	2.000	6.1	4.000	8.4	7.000	10.9
0.200	4.7	1.000	4.4	2.200	6.3	4.500	8.9	7.500	11.3
0.300	5.1	1.200	4.8	2.400	6.6	5.000	9.3	8.000	11.7
0.400	5.3	1.400	5.1	2.600	6.8	5.500	9.8	8.500	12.0
0.500	5.3	1.600	5.5	3.000	7.3	6.000	10.2	9.000	12.3
0.600	5.2	1.800	5.8	3.500	7.9	6.500	10.6	9.500	12.7

Weir

Discharge Coef 0.544 Width (m) 0.150 Invert Level (m) 80.022

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Storage Structures for Surface Network 1

Tank or Pond Manhole: S101, DS/PN: 1.000

Invert Level (m) 79.600

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	105.0	1.200	0.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	105.0	1.400	0.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	105.0	1.600	0.0	2.800	0.0	4.000	0.0		
0.600	105.0	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	105.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	0.0	2.200	0.0	3.400	0.0	4.600	0.0		

Tank or Pond Manhole: S114, DS/PN: 1.005

Invert Level (m) 79.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	480.0	1.200	0.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	480.0	1.400	0.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	480.0	1.600	0.0	2.800	0.0	4.000	0.0		
0.600	480.0	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	480.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	0.0	2.200	0.0	3.400	0.0	4.600	0.0		

Tank or Pond Manhole: S115, DS/PN: 6.000

Invert Level (m) 79.300

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	45.0	1.200	0.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	45.0	1.400	0.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	45.0	1.600	0.0	2.800	0.0	4.000	0.0		
0.600	45.0	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	45.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	0.0	2.200	0.0	3.400	0.0	4.600	0.0		

Tank or Pond Manhole: S117, DS/PN: 7.000

Invert Level (m) 78.700

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	120.0	1.200	120.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	120.0	1.400	0.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	120.0	1.600	0.0	2.800	0.0	4.000	0.0		
0.600	120.0	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	120.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	120.0	2.200	0.0	3.400	0.0	4.600	0.0		

Tank or Pond Manhole: S120, DS/PN: 1.006

Invert Level (m) 79.500

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Tank or Pond Manhole: S120, DS/PN: 1.006

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	63.0	1.200	0.0	2.400	0.0	3.600	0.0	4.800	0.0
0.200	63.0	1.400	0.0	2.600	0.0	3.800	0.0	5.000	0.0
0.400	63.0	1.600	0.0	2.800	0.0	4.000	0.0		
0.600	63.0	1.800	0.0	3.000	0.0	4.200	0.0		
0.800	63.0	2.000	0.0	3.200	0.0	4.400	0.0		
1.000	0.0	2.200	0.0	3.400	0.0	4.600	0.0		

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 5 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.255
 Site Location GB 457850 220300 SP 57850 20300 E (1km) 0.288
 C (1km) -0.023 F (1km) 2.462
 D1 (1km) 0.309 Cv (Summer) 0.750
 D2 (1km) 0.343 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status ON
 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) 10, 30, 100
 Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged	
									Level (m)	Depth (m)
1.000	S101	240 Winter	10	+0%	10/30 Summer				79.818	0.068
1.001	S102	240 Winter	10	+0%	10/15 Summer				79.993	0.322
1.002	S103	15 Winter	10	+0%	30/15 Winter				79.305	-0.226
1.003	S104	15 Winter	10	+0%	30/15 Summer				79.259	-0.102
2.000	S105	15 Winter	10	+0%	30/15 Summer	100/15 Summer			79.923	-0.077
2.001	S106	15 Winter	10	+0%	10/15 Summer	100/15 Summer			79.847	0.079
2.002	S107	15 Winter	10	+0%	10/15 Summer	100/15 Summer			79.787	0.072
3.000	S108	15 Winter	10	+0%	100/15 Summer	100/15 Summer			80.194	-0.131
2.003	S109	15 Winter	10	+0%	30/15 Summer				79.399	-0.168
4.000	S110	15 Winter	10	+0%	10/15 Summer	100/15 Summer			79.465	0.015
4.001	S111	15 Winter	10	+0%	30/15 Summer				79.303	-0.057
1.004	S112	15 Winter	10	+0%	10/15 Summer				79.233	0.575
5.000	S113	15 Winter	10	+0%	100/15 Summer				80.129	-0.129
1.005	S114	240 Winter	10	+0%	10/15 Summer				79.185	0.952
6.000	S115	15 Winter	10	+0%	10/15 Summer				79.301	0.121
6.001	S116	15 Winter	10	+0%	10/15 Summer				79.271	0.281
7.000	S117	240 Winter	10	+0%	10/15 Summer				79.184	0.334
7.001	S118	240 Winter	10	+0%	10/15 Summer				79.183	0.431
6.002	S119	240 Winter	10	+0%	10/15 Summer				79.182	0.587
1.006	S120	240 Winter	10	+0%	10/15 Summer				79.182	2.310
1.007	S121HB	240 Winter	10	+0%	10/15 Summer				79.179	2.490
1.008	S122	240 Winter	10	+0%					76.210	-0.390

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

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
1.000	S101	0.000	0.13	2.1	SURCHARGED		
1.001	S102	0.000	0.13	2.0	SURCHARGED		
1.002	S103	0.000	0.14	11.2	OK		
1.003	S104	0.000	0.22	26.3	OK		
2.000	S105	0.000	0.47	14.1	OK		4
2.001	S106	0.000	1.04	33.9	SURCHARGED		3
2.002	S107	0.000	1.23	56.0	SURCHARGED		2
3.000	S108	0.000	0.36	26.8	OK		2
2.003	S109	0.000	0.51	110.5	OK		
4.000	S110	0.000	1.09	17.1	SURCHARGED		2
4.001	S111	0.000	0.40	16.9	OK		
1.004	S112	0.000	0.69	136.2	SURCHARGED		
5.000	S113	0.000	0.37	35.7	OK		
1.005	S114	0.000	0.04	18.7	SURCHARGED		
6.000	S115	0.000	0.67	11.1	SURCHARGED		
6.001	S116	0.000	1.01	21.3	SURCHARGED		
7.000	S117	0.000	0.07	1.4	SURCHARGED		
7.001	S118	0.000	0.06	1.4	SURCHARGED		
6.002	S119	0.000	0.01	4.5	SURCHARGED		
1.006	S120	0.000	0.06	13.2	SURCHARGED		
1.007	S121HB	0.000	0.04	7.3	SURCHARGED		
1.008	S122	0.000	0.04	7.3	OK		

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 5 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.255
 Site Location GB 457850 220300 SP 57850 20300 E (1km) 0.288
 C (1km) -0.023 F (1km) 2.462
 D1 (1km) 0.309 Cv (Summer) 0.750
 D2 (1km) 0.343 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status ON
 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) 10, 30, 100
 Climate Change (%) 0, 0, 40

PN	US/MH		Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged	
	Name	Storm							Level (m)	Depth (m)
1.000	S101	240 Winter	30	+0%	10/30 Summer				79.897	0.147
1.001	S102	960 Summer	30	+0%	10/15 Summer				79.982	0.311
1.002	S103	15 Winter	30	+0%	30/15 Winter				79.542	0.011
1.003	S104	15 Winter	30	+0%	30/15 Summer				79.530	0.169
2.000	S105	15 Winter	30	+0%	30/15 Summer	100/15 Summer			80.352	0.352
2.001	S106	15 Winter	30	+0%	10/15 Summer	100/15 Summer			80.266	0.498
2.002	S107	15 Winter	30	+0%	10/15 Summer	100/15 Summer			80.177	0.462
3.000	S108	15 Winter	30	+0%	100/15 Summer	100/15 Summer			80.216	-0.109
2.003	S109	15 Winter	30	+0%	30/15 Summer				79.843	0.276
4.000	S110	15 Winter	30	+0%	10/15 Summer	100/15 Summer			79.835	0.385
4.001	S111	15 Winter	30	+0%	30/15 Summer				79.655	0.296
1.004	S112	15 Winter	30	+0%	10/15 Summer				79.494	0.836
5.000	S113	15 Winter	30	+0%	100/15 Summer				80.152	-0.106
1.005	S114	360 Winter	30	+0%	10/15 Summer				79.339	1.106
6.000	S115	15 Winter	30	+0%	10/15 Summer				79.363	0.183
6.001	S116	15 Summer	30	+0%	10/15 Summer				79.397	0.407
7.000	S117	360 Winter	30	+0%	10/15 Summer				79.338	0.488
7.001	S118	360 Winter	30	+0%	10/15 Summer				79.337	0.585
6.002	S119	360 Winter	30	+0%	10/15 Summer				79.336	0.741
1.006	S120	360 Winter	30	+0%	10/15 Summer				79.336	2.464
1.007	S121HB	360 Winter	30	+0%	10/15 Summer				79.333	2.644
1.008	S122	360 Winter	30	+0%					76.210	-0.390

The Old Chapel
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Bicester
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SWS NET 1



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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	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
1.000	S101	0.000	0.23	3.5	SURCHARGED		
1.001	S102	0.000	0.13	2.1	SURCHARGED		
1.002	S103	0.000	0.18	14.9	SURCHARGED		
1.003	S104	0.000	0.28	33.2	SURCHARGED		
2.000	S105	0.000	0.63	19.1	SURCHARGED		4
2.001	S106	0.000	1.43	46.5	SURCHARGED		3
2.002	S107	0.000	1.69	77.2	SURCHARGED		2
3.000	S108	0.000	0.51	38.5	OK		2
2.003	S109	0.000	0.64	137.6	SURCHARGED		
4.000	S110	0.000	1.47	23.0	SURCHARGED		2
4.001	S111	0.000	0.51	21.4	SURCHARGED		
1.004	S112	0.000	0.97	190.9	SURCHARGED		
5.000	S113	0.000	0.53	51.1	OK		
1.005	S114	0.000	0.03	13.5	SURCHARGED		
6.000	S115	0.000	0.67	11.1	SURCHARGED		
6.001	S116	0.000	1.10	23.0	SURCHARGED		
7.000	S117	0.000	0.07	1.5	SURCHARGED		
7.001	S118	0.000	0.06	1.4	SURCHARGED		
6.002	S119	0.000	0.01	3.4	SURCHARGED		
1.006	S120	0.000	0.05	11.4	SURCHARGED		
1.007	S121HB	0.000	0.04	7.4	SURCHARGED		
1.008	S122	0.000	0.04	7.4	OK		

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 5 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.255
 Site Location GB 457850 220300 SP 57850 20300 E (1km) 0.288
 C (1km) -0.023 F (1km) 2.462
 D1 (1km) 0.309 Cv (Summer) 0.750
 D2 (1km) 0.343 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status ON
 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) 10, 30, 100
 Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged	
									Level (m)	Depth (m)
1.000	S101	30 Winter	100	+40%	10/30 Summer				80.117	0.367
1.001	S102	15 Winter	100	+40%	10/15 Summer				80.136	0.465
1.002	S103	15 Winter	100	+40%	30/15 Winter				80.581	1.050
1.003	S104	15 Winter	100	+40%	30/15 Summer				80.574	1.213
2.000	S105	15 Winter	100	+40%	30/15 Summer	100/15 Summer			81.798	1.798
2.001	S106	15 Winter	100	+40%	10/15 Summer	100/15 Summer			81.776	2.008
2.002	S107	15 Winter	100	+40%	10/15 Summer	100/15 Summer			81.731	2.016
3.000	S108	15 Winter	100	+40%	100/15 Summer	100/15 Summer			81.840	1.515
2.003	S109	15 Winter	100	+40%	30/15 Summer				81.356	1.789
4.000	S110	15 Winter	100	+40%	10/15 Summer	100/15 Summer			81.302	1.852
4.001	S111	15 Winter	100	+40%	30/15 Summer				80.906	1.547
1.004	S112	15 Winter	100	+40%	10/15 Summer				80.482	1.824
5.000	S113	15 Winter	100	+40%	100/15 Summer				81.189	0.931
1.005	S114	480 Winter	100	+40%	10/15 Summer				79.981	1.748
6.000	S115	480 Winter	100	+40%	10/15 Summer				79.979	0.799
6.001	S116	480 Winter	100	+40%	10/15 Summer				79.979	0.989
7.000	S117	480 Winter	100	+40%	10/15 Summer				79.981	1.131
7.001	S118	480 Winter	100	+40%	10/15 Summer				79.980	1.228
6.002	S119	480 Winter	100	+40%	10/15 Summer				79.978	1.383
1.006	S120	480 Winter	100	+40%	10/15 Summer				79.978	3.106
1.007	S121HB	480 Winter	100	+40%	10/15 Summer				79.975	3.286
1.008	S122	480 Winter	100	+40%					76.213	-0.387

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

PN	US/MH Name	Flooded		Pipe Flow (l/s)	Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)			
1.000	S101	0.000	0.64	9.8	SURCHARGED	
1.001	S102	0.000	0.57	9.3	SURCHARGED	
1.002	S103	0.000	0.23	18.9	SURCHARGED	
1.003	S104	0.000	0.35	41.8	SURCHARGED	
2.000	S105	7.861	2.01	60.6	FLOOD	4
2.001	S106	6.422	2.52	81.7	FLOOD	3
2.002	S107	1.323	2.37	108.5	FLOOD	2
3.000	S108	0.900	0.92	69.4	FLOOD	2
2.003	S109	0.000	0.99	214.4	FLOOD RISK	
4.000	S110	2.130	2.37	37.1	FLOOD	2
4.001	S111	0.000	0.91	38.3	SURCHARGED	
1.004	S112	0.000	1.71	337.0	SURCHARGED	
5.000	S113	0.000	0.97	92.8	SURCHARGED	
1.005	S114	0.000	0.02	11.9	SURCHARGED	
6.000	S115	0.000	0.14	2.3	SURCHARGED	
6.001	S116	0.000	0.24	5.1	SURCHARGED	
7.000	S117	0.000	0.10	1.9	SURCHARGED	
7.001	S118	0.000	0.08	1.9	SURCHARGED	
6.002	S119	0.000	0.01	3.0	SURCHARGED	
1.006	S120	0.000	0.04	9.8	SURCHARGED	
1.007	S121HB	0.000	0.05	8.1	SURCHARGED	
1.008	S122	0.000	0.05	8.1	OK	