



Micro
Drainage

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20 East Sands	19320	
Burbage Marlborough	Ageas bowl	
Wiltshire SN8 3AN	CA5.2	
Date 22/06/2023	Designed by Robbie Parnham	
File 13920 - AGAES BOWL - CHA...	Checked by	
Micro Drainage	Network 2018.1	

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.009	14.694	0.098	149.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.010	2.534	0.017	149.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.009	40.33	8.20	49.500	0.149	0.0	0.0	0.0	0.82	14.5«	16.8
S1.010	40.20	8.25	49.402	0.149	0.0	0.0	0.0	0.82	14.5«	16.8

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd	Diam	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	Sect	(mm)	Name	(m)	(m)	(m)	Connection	(mm)
S1.000	o	150	SS48	56.000	55.500	0.350	Open Manhole	1200
S1.001	o	150	SS49	55.500	55.000	0.350	Open Manhole	1200
S1.002	o	150	SS50	55.000	54.500	0.350	Open Manhole	1200
S1.003	o	150	SS51	53.000	52.500	0.350	Open Manhole	1200
S1.004	o	150	SS52	52.000	51.500	0.350	Open Manhole	1200
S1.005	o	150	SS53	51.500	51.000	0.350	Open Manhole	1200
S1.006	o	150	SS54	51.500	50.896	0.454	Open Manhole	1200
S1.007	o	150	SPCP3	51.600	50.796	0.654	Open Manhole	1200
S1.008	o	150	SS55	51.600	50.796	0.654	Open Manhole	1200
S1.009	o	150	SS56	50.000	49.500	0.350	Open Manhole	1200
S1.010	o	150	SS57	50.000	49.402	0.448	Open Manhole	1200

Downstream Manhole

PN	Length	Slope	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	(m)	(1:X)	Name	(m)	(m)	(m)	Connection	(mm)
S1.000	12.999	26.0	SS49	55.500	55.000	0.350	Open Manhole	1200
S1.001	26.207	52.4	SS50	55.000	54.500	0.350	Open Manhole	1200
S1.002	30.937	15.5	SS51	53.000	52.500	0.350	Open Manhole	1200
S1.003	14.180	14.2	SS52	52.000	51.500	0.350	Open Manhole	1200
S1.004	13.911	27.8	SS53	51.500	51.000	0.350	Open Manhole	1200
S1.005	10.667	102.6	SS54	51.500	50.896	0.454	Open Manhole	1200
S1.006	7.489	74.9	SPCP3	51.600	50.796	0.654	Open Manhole	1200
S1.007	8.989	0.0	SS55	51.600	50.796	0.654	Open Manhole	1200
S1.008	23.887	18.4	SS56	50.000	49.500	0.350	Open Manhole	1200
S1.009	14.694	149.9	SS57	50.000	49.402	0.448	Open Manhole	1200
S1.010	2.534	149.1	S	50.000	49.385	0.465	Open Manhole	0

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Online Controls for Storm

Orifice Manhole: SPCP3, DS/PN: S1.007, Volume (m³): 1.0

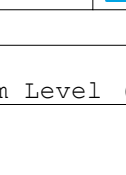
Diameter (m) 0.036 Discharge Coefficient 0.600 Invert Level (m) 50.796

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Storage Structures for Storm

Porous Car Park Manhole: SPCP3, DS/PN: S1.007

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	15.0
Membrane Percolation (mm/hr)	1000	Length (m)	32.0
Max Percolation (l/s)	133.3	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	50.796	Membrane Depth (mm)	200

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

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	1	Number of Storage Structures	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.800	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)

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 40, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	SS48	15 Winter	30	+40%					55.526
S1.001	SS49	15 Winter	30	+40%					55.045
S1.002	SS50	15 Winter	30	+40%					54.554
S1.003	SS51	15 Winter	30	+40%					52.563
S1.004	SS52	15 Winter	30	+40%	100/15 Summer				51.588
S1.005	SS53	15 Winter	30	+40%	30/15 Summer	100/15 Winter			51.303
S1.006	SS54	960 Winter	30	+40%	30/15 Summer				51.276
S1.007	SPCP3	960 Winter	30	+40%	1/360 Winter				51.275
S1.008	SS55	960 Winter	30	+40%					50.815
S1.009	SS56	960 Winter	30	+40%					49.534
S1.010	SS57	960 Winter	30	+40%					49.440

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
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PN	US/MH Name	Surcharged		Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)			
S1.000	SS48	-0.124	0.000	0.07		2.3		OK	
S1.001	SS49	-0.105	0.000	0.20		4.6		OK	
S1.002	SS50	-0.096	0.000	0.28		12.3		OK	
S1.003	SS51	-0.087	0.000	0.37		16.1		OK	
S1.004	SS52	-0.062	0.000	0.64		19.9		OK	
S1.005	SS53	0.153	0.000	1.43		22.5	FLOOD RISK		4
S1.006	SS54	0.230	0.000	0.09		1.6	FLOOD RISK		
S1.007	SPCP3	0.329	0.000	0.27		1.6	SURCHARGED		
S1.008	SS55	-0.131	0.000	0.04		1.6		OK	
S1.009	SS56	-0.116	0.000	0.12		1.6		OK	
S1.010	SS57	-0.112	0.000	0.15		1.6		OK	

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

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

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.800 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)	1, 30, 100
Climate Change (%)	0, 40, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	SS48	15 Winter	100	+45%					55.531
S1.001	SS49	15 Winter	100	+45%					55.053
S1.002	SS50	15 Winter	100	+45%					54.564
S1.003	SS51	15 Winter	100	+45%					52.575
S1.004	SS52	15 Winter	100	+45%	100/15 Summer				51.798
S1.005	SS53	960 Winter	100	+45%	30/15 Summer	100/15 Winter			51.502
S1.006	SS54	960 Winter	100	+45%	30/15 Summer				51.500
S1.007	SPCP3	480 Winter	100	+45%	1/360 Winter				51.503
S1.008	SS55	480 Winter	100	+45%					50.818
S1.009	SS56	480 Winter	100	+45%					49.539
S1.010	SS57	480 Winter	100	+45%					49.446

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

PN	US/MH Name	Surcharged		Flooded		Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)			
S1.000	SS48	-0.119	0.000	0.09		3.0	OK	
S1.001	SS49	-0.097	0.000	0.26		6.2	OK	
S1.002	SS50	-0.086	0.000	0.38		16.5	OK	
S1.003	SS51	-0.075	0.000	0.50		21.7	OK	
S1.004	SS52	0.148	0.000	0.78		24.3	FLOOD RISK	
S1.005	SS53	0.352	1.721	0.14		2.1	FLOOD	4
S1.006	SS54	0.454	0.000	0.12		2.1	FLOOD RISK	
S1.007	SPCP3	0.557	0.000	0.34		2.0	FLOOD RISK	
S1.008	SS55	-0.128	0.000	0.05		2.0	OK	
S1.009	SS56	-0.111	0.000	0.15		2.0	OK	
S1.010	SS57	-0.106	0.000	0.19		2.0	OK	