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Unit 23, The Maltings Stanstead Abbotts Hertfordshire, SG12 8HG	52 Holmes Road saturated greenroofs lin100yr+40%CC	
Date 25/02/2020 09:47 File EXISTING SW NETWORK NO ...	Designed by MD Checked by	
Innovyze	Network 2019.1	

Existing Network Details for Storm

* - Indicates pipe has been modified outside of System 1

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	k (mm)	HYD SECT	DIA (mm)	Section Type
* 1.000	13.400	0.100	134.0	0.010	5.00	0.600	o	225	Pipe/Conduit
* 2.000	10.000	0.100	100.0	0.000	5.00	0.600	o	100	Pipe/Conduit
* 2.001	10.000	1.765	5.7	0.005	0.00	0.600	o	100	Pipe/Conduit
* 1.001	3.500	1.060	3.3	0.004	0.00	0.600	o	225	Pipe/Conduit
* 3.000	10.000	0.100	100.0	0.000	5.00	0.600	o	100	Pipe/Conduit
* 3.001	10.000	1.850	5.4	0.004	0.00	0.600	o	100	Pipe/Conduit
* 4.000	10.000	0.100	100.0	0.000	5.00	0.600	o	100	Pipe/Conduit
* 4.001	10.000	1.850	5.4	0.005	0.00	0.600	o	100	Pipe/Conduit
* 3.002	3.500	1.050	3.3	0.004	0.00	0.600	o	150	Pipe/Conduit
* 1.002	10.000	-2.350	-4.3	0.000	0.00	0.600	o	150	Pipe/Conduit
* 1.003	10.000	0.200	50.0	0.000	0.00	0.600	o	150	Pipe/Conduit


PN	US/MH Name	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl	US/MH (mm)
* 1.000	MH01	32.510	31.610	0.675	31.920	31.510	0.185		600
* 2.000	DUMMY	34.000	33.500	0.400	34.000	33.400	0.500		600
* 2.001	GR1	34.000	33.400	0.500	31.920	31.635	0.185		600
* 1.001	MH02	31.920	31.510	0.185	32.510	30.450	1.835		600
* 3.000	DUMMY	34.000	33.500	0.400	34.000	33.400	0.500		600
* 3.001	GR2	34.000	33.400	0.500	31.920	31.550	0.270		600
* 4.000	DUMMY	34.000	33.500	0.400	34.000	33.400	0.500		600
* 4.001	GR3	34.000	33.400	0.500	31.920	31.550	0.270		600
* 3.002	MH03	31.920	31.500	0.270	32.510	30.450	1.910		600
* 1.002	TANK-PUMP	32.510	30.450	1.910	34.000	32.800	1.050	Pump	600
* 1.003	TW SEWER	34.000	32.800	1.050	34.000	32.600	1.250		1200

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Manhole Schedules for Storm

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)
MH01	32.510	0.900	Open Manhole	600	1.000	31.610	225				
DUMMY	34.000	0.500	Open Manhole	600	2.000	33.500	100				
GR1	34.000	0.600	Open Manhole	600	2.001	33.400	100	2.000	33.400	100	
MH02	31.920	0.410	Open Manhole	600	1.001	31.510	225	1.000	31.510	225	
								2.001	31.635	100	
DUMMY	34.000	0.500	Open Manhole	600	3.000	33.500	100				
GR2	34.000	0.600	Open Manhole	600	3.001	33.400	100	3.000	33.400	100	
DUMMY	34.000	0.500	Open Manhole	600	4.000	33.500	100				
GR3	34.000	0.600	Open Manhole	600	4.001	33.400	100	4.000	33.400	100	
MH03	31.920	0.420	Open Manhole	600	3.002	31.500	150	3.001	31.550	100	
								4.001	31.550	100	
TANK-PUMP	32.510	2.060	Open Manhole	600	1.002	30.450	150	1.001	30.450	225	
								3.002	30.450	150	
TW SEWER	34.000	1.200	Open Manhole	1200	1.003	32.800	150	1.002	32.800	150	
	34.000	1.400	Open Manhole	0		OUTFALL		1.003	32.600	150	

No coordinates have been specified, layout information cannot be produced.

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PIPELINE SCHEDULES for Storm

Upstream Manhole


PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
1.000	o	225	MH01	32.510	31.610	0.675	Open Manhole		600
2.000	o	100	DUMMY	34.000	33.500	0.400	Open Manhole		600
2.001	o	100	GR1	34.000	33.400	0.500	Open Manhole		600
1.001	o	225	MH02	31.920	31.510	0.185	Open Manhole		600
3.000	o	100	DUMMY	34.000	33.500	0.400	Open Manhole		600
3.001	o	100	GR2	34.000	33.400	0.500	Open Manhole		600
4.000	o	100	DUMMY	34.000	33.500	0.400	Open Manhole		600
4.001	o	100	GR3	34.000	33.400	0.500	Open Manhole		600
3.002	o	150	MH03	31.920	31.500	0.270	Open Manhole		600
1.002	o	150	TANK-PUMP	32.510	30.450	1.910	Open Manhole		600
1.003	o	150	TW SEWER	34.000	32.800	1.050	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., (mm)	L*W
1.000	13.400	134.0	MH02	31.920	31.510	0.185	Open Manhole		600
2.000	10.000	100.0	GR1	34.000	33.400	0.500	Open Manhole		600
2.001	10.000	5.7	MH02	31.920	31.635	0.185	Open Manhole		600
1.001	3.500	3.3	TANK-PUMP	32.510	30.450	1.835	Open Manhole		600
3.000	10.000	100.0	GR2	34.000	33.400	0.500	Open Manhole		600
3.001	10.000	5.4	MH03	31.920	31.550	0.270	Open Manhole		600
4.000	10.000	100.0	GR3	34.000	33.400	0.500	Open Manhole		600
4.001	10.000	5.4	MH03	31.920	31.550	0.270	Open Manhole		600
3.002	3.500	3.3	TANK-PUMP	32.510	30.450	1.910	Open Manhole		600
1.002	10.000	-4.3	TW SEWER	34.000	32.800	1.050	Open Manhole		1200
1.003	10.000	50.0		34.000	32.600	1.250	Open Manhole		0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
1.003		34.000	32.600	0.000	0	0


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Simulation Criteria for Storm

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 Storage Structures	1
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	FSR	Profile Type	Summer
Return Period (years)	5	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.800	Storm Duration (mins)	30
Ratio R	0.445		


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Online Controls for Storm

Pump Manhole: TANK-PUMP, DS/PN: 1.002, Volume (m³): 0.7

Invert Level (m) 30.450

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.0000	0.900	5.0000	1.700	5.0000	2.500	5.0000
0.200	2.0000	1.000	5.0000	1.800	5.0000	2.600	5.0000
0.300	2.0000	1.100	5.0000	1.900	5.0000	2.700	5.0000
0.400	2.0000	1.200	5.0000	2.000	5.0000	2.800	5.0000
0.500	3.0000	1.300	5.0000	2.100	5.0000	2.900	5.0000
0.600	5.0000	1.400	5.0000	2.200	5.0000	3.000	5.0000
0.700	5.0000	1.500	5.0000	2.300	5.0000		
0.800	5.0000	1.600	5.0000	2.400	5.0000		


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Storage Structures for Storm

Cellular Storage Manhole: TANK-PUMP, DS/PN: 1.002

Invert Level (m) 30.450 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	10.3	0.0	1.000	10.3	0.0
0.500	10.3	0.0	1.010	0.0	0.0

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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 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 Storage Structures 1
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 FSR Ratio R 0.445
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 20.800 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON


Profile(s)

Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 100
Climate Change (%) 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	MH01	15 Winter	100	+40%				
2.000	DUMMY	60 Winter	100	+40%				
2.001	GR1	15 Winter	100	+40%				
1.001	MH02	15 Winter	100	+40%				
3.000	DUMMY	60 Winter	100	+40%				
3.001	GR2	15 Winter	100	+40%				
4.000	DUMMY	60 Winter	100	+40%				
4.001	GR3	15 Winter	100	+40%				
3.002	MH03	15 Winter	100	+40%				
1.002	TANK-PUMP	30 Winter	100	+40%	100/15 Summer			
1.003	TW SEWER	30 Winter	100	+40%				

PN	US/MH Name	Water			Surcharged		Flooded		Pipe Flow (l/s)	Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)					
1.000	MH01	31.673	-0.162	0.000	0.17			6.7	OK		
2.000	DUMMY	33.500	-0.100	0.000	0.00			0.0	OK		
2.001	GR1	33.426	-0.074	0.000	0.15			3.6	OK		
1.001	MH02	31.556	-0.179	0.000	0.09			13.1	OK		

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

PN	US/MH Name	Water		Surcharged		Flooded		Pipe Flow (l/s)	Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)				
3.000	DUMMY	33.500	-0.100	0.000	0.00		0.0		OK	
3.001	GR2	33.423	-0.077	0.000	0.12		2.9		OK	
4.000	DUMMY	33.500	-0.100	0.000	0.00		0.0		OK	
4.001	GR3	33.425	-0.075	0.000	0.15		3.6		OK	
3.002	MH03	31.538	-0.112	0.000	0.15		9.4		OK	
1.002	TANK-PUMP	31.236	0.636	0.000	0.88		5.0		SURCHARGED	
1.003	TW SEWER	32.848	-0.102	0.000	0.22		5.0		OK	