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3 Worsley Court Walkden Manchester M28 3NJ	Spout Farm, Longridge Proposed SW Network Inc Urban Creep & Surcharge	
Date 03/08/2020	Designed by srg	
File Spout Farm Proposed 20080...	Checked by	
Micro Drainage	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	18.800	Add Flow / Climate Change (%)	0
Ratio R	0.285	Minimum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	0.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.258	4-8	0.676

Total Area Contributing (ha) = 0.934

Total Pipe Volume (m³) = 267.402

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
1.000	38.386	0.096	399.9	0.088	4.00	0.0	0.600	o	1050	Pipe/Conduit	
1.001	25.149	0.063	400.0	0.173	0.00	0.0	0.600	o	1050	Pipe/Conduit	
1.002	16.596	0.041	400.0	0.017	0.00	0.0	0.600	o	1050	Pipe/Conduit	
1.003	10.581	0.026	400.0	0.010	0.00	0.0	0.600	o	1050	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	4.37	82.731	0.088	0.0	0.0	0.0	1.72	1486.9	0.0
1.001	0.00	4.62	82.635	0.261	0.0	0.0	0.0	1.72	1486.6	0.0
1.002	0.00	4.78	82.572	0.278	0.0	0.0	0.0	1.72	1486.6	0.0
1.003	0.00	4.88	82.531	0.288	0.0	0.0	0.0	1.72	1486.6	0.0

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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
1.004	8.198	0.020	400.0	0.000	0.00	0.0	0.600	o	1050	Pipe/Conduit	
2.000	45.120	0.113	399.3	0.080	4.00	0.0	0.600	oo	-3	Pipe/Conduit	
1.005	44.923	0.112	401.1	0.137	0.00	0.0	0.600	o	1050	Pipe/Conduit	
1.006	27.962	0.070	400.0	0.122	0.00	0.0	0.600	o	1050	Pipe/Conduit	
3.000	11.072	0.028	395.4	0.179	4.00	0.0	0.600	o	900	Pipe/Conduit	
3.001	22.302	0.056	398.3	0.016	0.00	0.0	0.600	o	900	Pipe/Conduit	
1.007	22.060	0.055	401.1	0.033	0.00	0.0	0.600	o	1050	Pipe/Conduit	
1.008	19.256	0.048	400.0	0.079	0.00	0.0	0.600	o	1050	Pipe/Conduit	
1.009	21.197	0.125	170.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.010	33.373	0.196	170.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.011	51.781	0.305	169.8	0.000	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)
1.004	0.00	4.96	82.505	0.288	0.0	0.0	0.0	1.72	1486.6	0.0
2.000	0.00	4.48	82.748	0.080	0.0	0.0	0.0	1.56	1987.2	0.0
1.005	0.00	5.40	82.485	0.505	0.0	0.0	0.0	1.71	1484.6	0.0
1.006	0.00	5.67	82.373	0.627	0.0	0.0	0.0	1.72	1486.6	0.0
3.000	0.00	4.12	82.537	0.179	0.0	0.0	0.0	1.57	998.5	0.0
3.001	0.00	4.36	82.509	0.195	0.0	0.0	0.0	1.56	994.9	0.0
1.007	0.00	5.88	82.303	0.855	0.0	0.0	0.0	1.71	1484.6	0.0
1.008	0.00	6.07	82.248	0.934	0.0	0.0	0.0	1.72	1486.6	0.0
1.009	0.00	6.42	82.200	0.934	0.0	0.0	0.0	1.00	39.8	0.0
1.010	0.00	6.98	82.075	0.934	0.0	0.0	0.0	1.00	39.7	0.0
1.011	0.00	7.84	81.879	0.934	0.0	0.0	0.0	1.00	39.8	0.0

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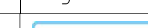
PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	1050	1	85.150	82.731	1.369	Open Manhole	2400
1.001	o	1050	2	85.700	82.635	2.015	Open Manhole	2400
1.002	o	1050	3	85.950	82.572	2.328	Open Manhole	2400
1.003	o	1050	4	86.120	82.531	2.539	Open Manhole	2400
1.004	o	1050	5	86.000	82.505	2.445	Open Manhole	2400
2.000	oo	-3	6	85.240	82.748	1.592	Open Manhole	3000
1.005	o	1050	7	85.900	82.485	2.365	Open Manhole	3000
1.006	o	1050	8	85.100	82.373	1.677	Open Manhole	2400
3.000	o	900	9	84.350	82.537	0.913	Open Manhole	2100
3.001	o	900	10	84.500	82.509	1.091	Open Manhole	2400
1.007	o	1050	10	84.300	82.303	0.947	Open Manhole	2700
1.008	o	1050	11	84.370	82.248	1.072	Open Manhole	2400
1.009	o	225	12	84.150	82.200	1.725	Open Manhole	2400
1.010	o	225	13	84.000	82.075	1.700	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	38.386	399.9	2	85.700	82.635	2.015	Open Manhole	2400
1.001	25.149	400.0	3	85.950	82.572	2.328	Open Manhole	2400
1.002	16.596	400.0	4	86.120	82.531	2.539	Open Manhole	2400
1.003	10.581	400.0	5	86.000	82.505	2.445	Open Manhole	2400
1.004	8.198	400.0	7	85.900	82.485	2.365	Open Manhole	3000
2.000	45.120	399.3	7	85.900	82.635	2.365	Open Manhole	3000
1.005	44.923	401.1	8	85.100	82.373	1.677	Open Manhole	2400
1.006	27.962	400.0	10	84.300	82.303	0.947	Open Manhole	2700
3.000	11.072	395.4	10	84.500	82.509	1.091	Open Manhole	2400
3.001	22.302	398.3	10	84.300	82.453	0.947	Open Manhole	2700
1.007	22.060	401.1	11	84.370	82.248	1.072	Open Manhole	2400
1.008	19.256	400.0	12	84.150	82.200	0.900	Open Manhole	2400
1.009	21.197	170.0	13	84.000	82.075	1.700	Open Manhole	1200
1.010	33.373	170.3	14	83.350	81.879	1.246	Open Manhole	1200

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Surcharged Outfall Details for Storm

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1340	1.020	1460	1.020	1580	1.020	1700	1.020	1820	1.020	1940	1.020	2060	1.020
1350	1.020	1470	1.020	1590	1.020	1710	1.020	1830	1.020	1950	1.020	2070	1.020
1360	1.020	1480	1.020	1600	1.020	1720	1.020	1840	1.020	1960	1.020	2080	1.020
1370	1.020	1490	1.020	1610	1.020	1730	1.020	1850	1.020	1970	1.020	2090	1.020
1380	1.020	1500	1.020	1620	1.020	1740	1.020	1860	1.020	1980	1.020	2100	1.020
1390	1.020	1510	1.020	1630	1.020	1750	1.020	1870	1.020	1990	1.020	2110	1.020
1400	1.020	1520	1.020	1640	1.020	1760	1.020	1880	1.020	2000	1.020	2120	1.020
1410	1.020	1530	1.020	1650	1.020	1770	1.020	1890	1.020	2010	1.020	2130	1.020
1420	1.020	1540	1.020	1660	1.020	1780	1.020	1900	1.020	2020	1.020	2140	1.020
1430	1.020	1550	1.020	1670	1.020	1790	1.020	1910	1.020	2030	1.020	2150	1.020
1440	1.020	1560	1.020	1680	1.020	1800	1.020	1920	1.020	2040	1.020	2160	1.020
1450	1.020	1570	1.020	1690	1.020	1810	1.020	1930	1.020	2050	1.020		

Simulation Criteria for Storm

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 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 3
 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) 2 Cv (Summer) 0.750
 Region England and Wales Cv (Winter) 0.840
 M5-60 (mm) 18.800 Storm Duration (mins) 30
 Ratio R 0.285

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: 12, DS/PN: 1.009, Volume (m³): 23.4

Unit Reference	MD-SHE-0150-1290-1900-1290
Design Head (m)	1.900
Design Flow (l/s)	12.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	150
Invert Level (m)	82.200
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.900	12.9	Kick-Flo®	1.154	10.2
Flush-Flo™	0.551	12.9	Mean Flow over Head Range	-	11.3

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	5.4	1.200	10.4	3.000	16.0	7.000	24.0
0.200	10.9	1.400	11.2	3.500	17.2	7.500	24.8
0.300	12.1	1.600	11.9	4.000	18.4	8.000	25.6
0.400	12.7	1.800	12.6	4.500	19.4	8.500	26.4
0.500	12.9	2.000	13.2	5.000	20.4	9.000	27.1
0.600	12.9	2.200	13.8	5.500	21.4	9.500	27.8
0.800	12.5	2.400	14.4	6.000	22.3		
1.000	11.7	2.600	15.0	6.500	23.2		

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Storage Structures for Storm

Cellular Storage Manhole: 3, DS/PN: 1.002

Invert Level (m) 83.250 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	102.0	0.0	0.801	0.0	0.0
0.800	102.0	0.0			

Cellular Storage Manhole: 6, DS/PN: 2.000

Invert Level (m) 83.250 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	105.0	0.0	0.801	0.0	0.0
0.800	105.0	0.0			

Cellular Storage Manhole: 9, DS/PN: 3.000

Invert Level (m) 83.300 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	33.0	0.0	0.401	0.0	0.0
0.400	33.0	0.0			



Micro
Drainage

Storm

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	3
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Rainfall Model	FSR	Ratio R	0.285
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.800	Cv (Winter)	0.840

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Analysis Timestep 2.5 Second Increment (Extended)
      DTS Status                                OFF
      DVD Status                                ON
      Inertia Status                            ON
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Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960
Time Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

									Water
	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)
1.000	1	180 Winter	1	+0%	100/120 Winter				82.860
1.001	2	180 Winter	1	+0%	100/120 Winter				82.860
1.002	3	180 Winter	1	+0%	100/120 Summer				82.860
1.003	4	180 Winter	1	+0%	100/60 Winter				82.860
1.004	5	180 Winter	1	+0%	100/60 Winter				82.859
2.000	6	180 Winter	1	+0%	100/120 Summer				82.859
1.005	7	180 Winter	1	+0%	100/60 Winter				82.859
1.006	8	180 Winter	1	+0%	100/60 Summer				82.858
3.000	9	180 Winter	1	+0%	100/60 Summer				82.857
3.001	10	180 Winter	1	+0%	100/60 Summer				82.857
1.007	10	180 Winter	1	+0%	100/30 Winter				82.857
1.008	11	180 Winter	1	+0%	100/30 Summer				82.855
1.009	12	180 Winter	1	+0%	1/15 Summer				82.852

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1 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 (m ³)	Flow / Cap.	Overflow (l/s)			
1.000	1	-0.921	0.000	0.00		3.0	OK	
1.001	2	-0.825	0.000	0.01		8.0	OK	
1.002	3	-0.762	0.000	0.01		7.4	OK	
1.003	4	-0.721	0.000	0.01		6.4	OK	
1.004	5	-0.696	0.000	0.01		5.5	OK	
2.000	6	-0.789	0.000	0.00		2.7	OK	
1.005	7	-0.676	0.000	0.01		10.0	OK	
1.006	8	-0.565	0.000	0.01		10.0	OK	
3.000	9	-0.580	0.000	0.01		6.0	OK	
3.001	10	-0.552	0.000	0.01		5.5	OK	
1.007	10	-0.496	0.000	0.01		12.4	OK	
1.008	11	-0.443	0.000	0.01		12.9	OK	
1.009	12	0.427	0.000	0.33		11.9	SURCHARGED	

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

US/MH		Return Climate		First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Level
1.010	13	180 Winter	1	+0%	1/15 Summer			82.560
1.011	14	180 Winter	1	+0%	1/15 Summer			82.528

		Surcharged		Flooded	Pipe		Level	
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Exceeded
1.010	13	0.260	0.000	0.32		11.9	SURCHARGED	
1.011	14	0.424	0.000	0.31		11.9	SURCHARGED	

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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 Storage Structures 3
 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 0.285
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 18.800 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 0, 40

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	1	240 Winter	30	+0%	100/120 Winter				83.283
1.001	2	240 Winter	30	+0%	100/120 Winter				83.283
1.002	3	240 Winter	30	+0%	100/120 Summer				83.282
1.003	4	240 Winter	30	+0%	100/60 Winter				83.282
1.004	5	240 Winter	30	+0%	100/60 Winter				83.282
2.000	6	240 Winter	30	+0%	100/120 Summer				83.282
1.005	7	240 Winter	30	+0%	100/60 Winter				83.282
1.006	8	240 Winter	30	+0%	100/60 Summer				83.279
3.000	9	240 Winter	30	+0%	100/60 Summer				83.275
3.001	10	240 Winter	30	+0%	100/60 Summer				83.274
1.007	10	240 Winter	30	+0%	100/30 Winter				83.274
1.008	11	240 Winter	30	+0%	100/30 Summer				83.260
1.009	12	240 Winter	30	+0%	1/15 Summer				83.238

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Micro Drainage	Network 2019.1	

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

PN	US/MH Name	Surcharged		Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)			
1.000	1	-0.498	0.000	0.00		5.2		OK	
1.001	2	-0.402	0.000	0.01		11.6		OK	
1.002	3	-0.340	0.000	0.01		9.1		OK	
1.003	4	-0.299	0.000	0.01		7.2		OK	
1.004	5	-0.273	0.000	0.01		5.8		OK	
2.000	6	-0.366	0.000	0.00		4.3		OK	
1.005	7	-0.253	0.000	0.01		10.0		OK	
1.006	8	-0.144	0.000	0.01		10.8		OK	
3.000	9	-0.162	0.000	0.02		11.4		OK	
3.001	10	-0.135	0.000	0.02		10.6		OK	
1.007	10	-0.079	0.000	0.01		13.9		OK	
1.008	11	-0.038	0.000	0.02		15.7		OK	
1.009	12	0.813	0.000	0.36		12.9	SURCHARGED		

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

US/MH		Return Climate		First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Level
1.010	13	480 Summer	30	+0%	1/15 Summer			82.566
1.011	14	480 Summer	30	+0%	1/15 Summer			82.532

US/MH		Surcharged	Flooded	Pipe		Level	
PN	Name	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status
1.010	13	0.265	0.000	0.34		12.9	SURCHARGED
1.011	14	0.427	0.000	0.34		12.9	SURCHARGED

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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		

Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
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Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
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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 3

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 0.285
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Region England and Wales Cv (Summer) 0.750

M5-60 (mm) 18.800 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm)	300.0
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Analysis Timestep 2.5 Second Increment (Extended)

DTS Status OFF

DVD Status ON

Inertia Status ON

Profile(s) Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600,

720, 960

Return Period(s) (years) 1, 30, 100

Climate Change (%) 0, 0, 40

									Water
	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)
1.000	1	360	Winter	100	+40%	100/120	Winter		84.145
1.001	2	360	Winter	100	+40%	100/120	Winter		84.145
1.002	3	360	Winter	100	+40%	100/120	Summer		84.145
1.003	4	360	Winter	100	+40%	100/60	Winter		84.145
1.004	5	360	Winter	100	+40%	100/60	Winter		84.146
2.000	6	360	Winter	100	+40%	100/120	Summer		84.145
1.005	7	360	Winter	100	+40%	100/60	Winter		84.146
1.006	8	360	Winter	100	+40%	100/60	Summer		84.146
3.000	9	360	Winter	100	+40%	100/60	Summer		84.146
3.001	10	360	Winter	100	+40%	100/60	Summer		84.146
1.007	10	360	Winter	100	+40%	100/30	Winter		84.146
1.008	11	360	Winter	100	+40%	100/30	Summer		84.145
1.009	12	360	Winter	100	+40%	1/15	Summer		84.145

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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		Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)			
1.000	1	0.364	0.000	0.01		7.5		SURCHARGED	
1.001	2	0.460	0.000	0.02		20.3		SURCHARGED	
1.002	3	0.523	0.000	0.05		37.2		SURCHARGED	
1.003	4	0.564	0.000	0.06		41.5		SURCHARGED	
1.004	5	0.591	0.000	0.07		41.7		SURCHARGED	
2.000	6	0.497	0.000	0.02		36.4		SURCHARGED	
1.005	7	0.611	0.000	0.05		59.9		SURCHARGED	
1.006	8	0.723	0.000	0.05		47.3		SURCHARGED	
3.000	9	0.709	0.000	0.07		33.4		FLOOD RISK	
3.001	10	0.737	0.000	0.05		34.4		SURCHARGED	
1.007	10	0.793	0.000	0.04		37.1		FLOOD RISK	
1.008	11	0.847	0.000	0.03		25.4		FLOOD RISK	
1.009	12	1.720	0.000	0.36		12.9		FLOOD RISK	

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

US/MH		Return Climate		First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Level
1.010	13	480 Winter	100	+40%	1/15 Summer			82.566
1.011	14	600 Winter	100	+40%	1/15 Summer			82.532

US/MH		Surcharged	Flooded	Pipe		Level	
PN	Name	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status
1.010	13	0.265	0.000	0.34		12.9	SURCHARGED
1.011	14	0.427	0.000	0.34		12.9	SURCHARGED