

Water Environment Ltd
Document:
22094-SWD-MH-01-P01

Tribeca Plot B and Plot C
Microdraiange Analysis

Client: Reef Group

Issue Date: 13/09/2023

Plot B

Roof drainage
discharge to
Regent's Canal

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6 Coppergate Mews Brighton Road Surbiton KT6 5NE										
Date 13/09/2023 12:21 File 22094-SWD-MH-01-P01.13 ...	Designed by Agnes.Gannon Checked by									
Micro Drainage Network 2017.1.2										
<u>Time Area Diagram for Roof B</u> <table border="1"> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>0-4</td> <td>0.146</td> <td>4-8</td> <td>0.057</td> </tr> </tbody> </table> Total Area Contributing (ha) = 0.202 Total Pipe Volume (m³) = 1.349			Time (mins)	Area (ha)	Time (mins)	Area (ha)	0-4	0.146	4-8	0.057
Time (mins)	Area (ha)	Time (mins)	Area (ha)							
0-4	0.146	4-8	0.057							
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Area Summary for Roof B

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.026	0.026	0.026
	User	-	100	0.062	0.062	0.088
2.000	User	-	100	0.021	0.021	0.021
	User	-	100	0.061	0.061	0.081
3.000	User	-	100	0.011	0.011	0.011
	User	-	100	0.011	0.011	0.023
	User	-	100	0.011	0.011	0.034
1.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.202	0.202	0.202

Free Flowing Outfall Details for Roof B

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.002	S	23.500	22.658	0.000	0	0

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Online Controls for Roof B

Complex Manhole: S2, DS/PN: S1.001, Volume (m³): 1.5

Depth/Flow Relationship

Invert Level (m) 22.950

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.005	0.2000	0.045	0.5700	0.085	0.7600	0.150	0.9900
0.010	0.3000	0.050	0.6000	0.090	0.7800	0.160	1.0100
0.015	0.3500	0.055	0.6300	0.095	0.8000	0.170	1.0300
0.020	0.3900	0.060	0.6600	0.100	0.8200	0.180	1.0500
0.025	0.4300	0.065	0.6800	0.110	0.8600	0.190	1.0700
0.030	0.4700	0.070	0.7000	0.120	0.9000	0.200	1.0900
0.035	0.5100	0.075	0.7200	0.130	0.9400		
0.040	0.5400	0.080	0.7400	0.140	0.9700		

Depth/Flow Relationship

Invert Level (m) 22.950

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.005	0.2000	0.045	0.5700	0.085	0.7600	0.150	0.9900
0.010	0.3000	0.050	0.6000	0.090	0.7800	0.160	1.0100
0.015	0.3500	0.055	0.6300	0.095	0.8000	0.170	1.0300
0.020	0.3900	0.060	0.6600	0.100	0.8200	0.180	1.0500
0.025	0.4300	0.065	0.6800	0.110	0.8600	0.190	1.0700
0.030	0.4700	0.070	0.7000	0.120	0.9000	0.200	1.0900
0.035	0.5100	0.075	0.7200	0.130	0.9400		
0.040	0.5400	0.080	0.7400	0.140	0.9700		

Depth/Flow Relationship

Invert Level (m) 22.950

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.005	0.2000	0.045	0.5700	0.085	0.7600	0.150	0.9900
0.010	0.3000	0.050	0.6000	0.090	0.7800	0.160	1.0100
0.015	0.3500	0.055	0.6300	0.095	0.8000	0.170	1.0300
0.020	0.3900	0.060	0.6600	0.100	0.8200	0.180	1.0500
0.025	0.4300	0.065	0.6800	0.110	0.8600	0.190	1.0700
0.030	0.4700	0.070	0.7000	0.120	0.9000	0.200	1.0900
0.035	0.5100	0.075	0.7200	0.130	0.9400		
0.040	0.5400	0.080	0.7400	0.140	0.9700		

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Storage Structures for Roof B

Complex Manhole: S2, DS/PN: S1.001

Cellular Storage

Invert Level (m) 22.950 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	1250.0	0.0	0.201	0.1	0.0
0.200	1250.0	0.0			

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	0.9
Membrane Percolation (mm/hr)	1000	Length (m)	175.8
Max Percolation (l/s)	44.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	22.950	Cap Volume Depth (m)	0.200

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

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	1
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	2	+0%	30/15 Summer				23.072
S2.000	S2	15 Summer	2	+0%	30/15 Summer				23.071
S3.000	S3	120 Summer	2	+0%					23.038
S1.001	S2	360 Summer	2	+0%	100/240 Summer				22.983
S1.002	S3	360 Summer	2	+0%					22.889

Surcharged Flooded					Pipe		Level
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status Exceeded
S1.000	S1	-0.078	0.000	0.46		18.6	OK
S2.000	S2	-0.079	0.000	0.45		17.3	OK
S3.000	S3	-0.112	0.000	0.14		2.0	OK
S1.001	S2	-0.117	0.000	0.16		1.5	OK
S1.002	S3	-0.201	0.000	0.03		1.5	OK

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

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	1
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	30	+0%	30/15 Summer				23.167
S2.000	S2	15 Summer	30	+0%	30/15 Summer				23.162
S3.000	S3	30 Summer	30	+0%					23.065
S1.001	S2	360 Winter	30	+0%	100/240 Summer				23.027
S1.002	S3	360 Winter	30	+0%					22.893

Surcharged Flooded				Pipe		Level	
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
S1.000	S1	0.017	0.000	1.20		48.1	SURCHARGED
S2.000	S2	0.012	0.000	1.15		44.5	SURCHARGED
S3.000	S3	-0.085	0.000	0.39		5.3	OK
S1.001	S2	-0.073	0.000	0.23		2.2	OK
S1.002	S3	-0.197	0.000	0.04		2.2	OK

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

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	1
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	100	+40%	30/15 Summer				23.347
S2.000	S2	15 Summer	100	+40%	30/15 Summer				23.329
S3.000	S3	480 Winter	100	+40%					23.114
S1.001	S2	480 Winter	100	+40%	100/240 Summer				23.113
S1.002	S3	480 Winter	100	+40%					22.898

Surcharged Flooded					Pipe		Level	
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Exceeded
S1.000	S1	0.197	0.000	2.21		89.1	FLOOD RISK	
S2.000	S2	0.179	0.000	2.14		82.6	FLOOD RISK	
S3.000	S3	-0.036	0.000	0.26		3.6	OK	
S1.001	S2	0.013	0.000	0.33		3.0	SURCHARGED	
S1.002	S3	-0.192	0.000	0.05		3.0	OK	

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Plot B

Runoff from canal
pathway discharging
into Regent's Canal

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<u>Time Area Diagram for Canal Unattenuated Plot B</u> <table border="1"> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>0-4</td> <td>0.013</td> <td>4-8</td> <td>0.004</td> </tr> </tbody> </table> Total Area Contributing (ha) = 0.017 Total Pipe Volume (m³) = 0.526			Time (mins)	Area (ha)	Time (mins)	Area (ha)	0-4	0.013	4-8	0.004
Time (mins)	Area (ha)	Time (mins)	Area (ha)							
0-4	0.013	4-8	0.004							
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Area Summary for Canal Unattenuated Plot B

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.017	0.017	0.017
1.001	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.017	0.017	0.017

Free Flowing Outfall Details for Canal Unattenuated Plot B

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.001	S	24.000	22.411	0.000	0	0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Canal Unattenuated Plot B

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	2	+0%					22.547
S1.001	S2	15 Summer	2	+0%					22.502

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.253	0.000	0.06		3.6	OK	
S1.001	S2	-0.253	0.000	0.06		3.6	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Canal Unattenuated Plot B

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	30	+0%					22.578
S1.001	S2	15 Summer	30	+0%					22.534

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.222	0.000	0.15		9.4	OK	
S1.001	S2	-0.221	0.000	0.15		9.3	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Canal Unattenuated Plot B

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	100	+40%					22.609
S1.001	S2	15 Summer	100	+40%					22.564

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.191	0.000	0.29		17.5	OK	
S1.001	S2	-0.191	0.000	0.28		17.3	OK	

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Plot B

External ground-floor
areas discharging to
public sewer

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<u>Time Area Diagram for Plot B Unattenuated St Pancras Way</u> <table border="1"> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>0-4</td> <td>0.011</td> <td>4-8</td> <td>0.003</td> </tr> </tbody> </table> Total Area Contributing (ha) = 0.014 Total Pipe Volume (m³) = 0.234			Time (mins)	Area (ha)	Time (mins)	Area (ha)	0-4	0.011	4-8	0.003
Time (mins)	Area (ha)	Time (mins)	Area (ha)							
0-4	0.011	4-8	0.003							
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Area Summary for Plot B Unattenuated St Pancras Way

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.014	0.014	0.014
1.001	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.014	0.014	0.014

Free Flowing Outfall Details for Plot B Unattenuated St Pancras Way

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.001	S	21.485	20.511	0.000	0	0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Plot B Unattenuated St Pancras Way

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	2	+0%					20.643
S1.001	S2	15 Summer	2	+0%					20.598

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.257	0.000	0.05		3.0	OK	
S1.001	S2	-0.257	0.000	0.05		3.0	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Plot B Unattenuated St Pancras Way

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	30	+0%					20.671
S1.001	S2	15 Summer	30	+0%					20.626

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.229	0.000	0.13		7.8	OK	
S1.001	S2	-0.229	0.000	0.13		7.7	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Plot B Unattenuated St Pancras Way

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	100	+40%					20.699
S1.001	S2	15 Summer	100	+40%					20.654

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.201	0.000	0.23		14.4	OK	
S1.001	S2	-0.201	0.000	0.23		14.3	OK	

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Plot B and Plot C

Shared Ground-Floor
External Areas
discharging to public
sewer

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<u>Time Area Diagram for Network B C external areas</u> <table><thead><tr><th>Time (mins)</th><th>Area (ha)</th><th>Time (mins)</th><th>Area (ha)</th></tr></thead><tbody><tr><td>0-4</td><td>0.153</td><td>4-8</td><td>0.061</td></tr></tbody></table> Total Area Contributing (ha) = 0.214 Total Pipe Volume (m³) = 5.388			Time (mins)	Area (ha)	Time (mins)	Area (ha)	0-4	0.153	4-8	0.061
Time (mins)	Area (ha)	Time (mins)	Area (ha)							
0-4	0.153	4-8	0.061							
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Area Summary for Network B C external areas

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.000	0.000	0.000
	User	-	100	0.015	0.015	0.015
	User	-	100	0.018	0.018	0.033
	User	-	100	0.000	0.000	0.034
	User	-	100	0.002	0.002	0.036
2.000	User	-	100	0.025	0.025	0.025
	User	-	100	0.020	0.020	0.045
2.001	User	-	100	0.021	0.021	0.021
1.001	User	-	100	0.000	0.000	0.000
	User	-	100	0.001	0.001	0.001
	User	-	100	0.008	0.008	0.009
	User	-	100	0.024	0.024	0.032
1.002	User	-	100	0.024	0.024	0.024
	User	-	100	0.029	0.029	0.052
	User	-	100	0.007	0.007	0.060
3.000	User	-	100	0.004	0.004	0.004
	User	-	100	0.007	0.007	0.011
1.003	User	-	100	0.009	0.009	0.009
	User	-	100	0.001	0.001	0.010
				Total	Total	Total
				0.214	0.214	0.214

Free Flowing Outfall Details for Network B C external areas

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.003	GDP-01	20.100	18.295	0.000	1350	0

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Online Controls for Network B C external areas

Complex Manhole: FC01, DS/PN: 1.001, Volume (m³): 2.5

ACO Q-Brake

Design Head (m) 1.050 Diameter (mm) 115
Design Flow (l/s) 7.3 Invert Level (m) 21.370

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.6	1.200	7.7	3.000	12.2	7.000	18.7
0.200	6.5	1.400	8.4	3.500	13.2	7.500	19.4
0.300	7.2	1.600	8.9	4.000	14.1	8.000	20.0
0.400	7.2	1.800	9.5	4.500	15.0	8.500	20.6
0.500	6.7	2.000	10.0	5.000	15.8	9.000	21.2
0.600	5.7	2.200	10.5	5.500	16.6	9.500	21.8
0.800	6.3	2.400	11.0	6.000	17.3		
1.000	7.1	2.600	11.4	6.500	18.0		

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 22.420

Complex Manhole: FC02, DS/PN: 1.002, Volume (m³): 4.6

Orifice

Diameter (m) 0.105 Discharge Coefficient 0.600 Invert Level (m) 20.960

Weir

Discharge Coef 0.544 Width (m) 1.200 Invert Level (m) 21.450

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<u>Storage Structures for Network B C external areas</u> <u>Cellular Storage Manhole: FC01, DS/PN: 1.001</u> Invert Level (m) 21.940 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>214.5</td><td>0.0</td><td>0.401</td><td>0.4</td><td>0.0</td></tr><tr><td>0.400</td><td>214.5</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: FC02, DS/PN: 1.002</u> Invert Level (m) 20.960 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>124.5</td><td>0.0</td><td>0.351</td><td>0.4</td><td>0.0</td></tr><tr><td>0.350</td><td>124.5</td><td>0.0</td><td></td><td></td><td></td></tr></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	214.5	0.0	0.401	0.4	0.0	0.400	214.5	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	124.5	0.0	0.351	0.4	0.0	0.350	124.5	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																	
0.000	214.5	0.0	0.401	0.4	0.0																																	
0.400	214.5	0.0																																				
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																	
0.000	124.5	0.0	0.351	0.4	0.0																																	
0.350	124.5	0.0																																				
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6 Coppergate Mews

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

for Network B C external areas

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 2

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 529623 183745 TQ 29623 83745

Data Type Point

Cv (Summer) 1.000

Cv (Winter) 1.000

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) 2, 30, 100

Climate Change (%) 0, 0, 40

Water

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)
1.000	PRIVATE	15	Summer	2	+0%				22.372
2.000	2	15	Summer	2	+0%	100/15	Summer		22.358
2.001	3	15	Summer	2	+0%	100/15	Summer		22.269
1.001	FC01	30	Summer	2	+0%	2/15	Summer		21.972
1.002	FC02	360	Summer	2	+0%	2/15	Summer		21.109
3.000	4	15	Summer	2	+0%				18.877
1.003	SW01	360	Summer	2	+0%				18.737

Surcharged Flooded

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	PRIVATE	-0.128	0.000	0.06		7.6	OK	
2.000	2	-0.137	0.000	0.32		9.4	OK	
2.001	3	-0.126	0.000	0.40		13.1	OK	
1.001	FC01	0.542	0.000	0.06		6.3	SURCHARGED	
1.002	FC02	2.044	0.000	0.15		7.0	SURCHARGED	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Network B C external areas

PN	US/MH Name	Surcharged	Flooded	Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)		
3.000	4	-0.188	0.000	0.06		2.3	OK
1.003	SW01	-0.165	0.000	0.16		7.7	OK

6 Coppergate Mews
Brighton Road
Surbiton KT6 5NE

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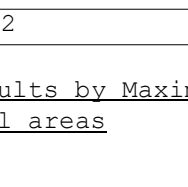


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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Network B C external areas

PN	US/MH Name	Surcharged	Flooded	Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)		
3.000	4	-0.164	0.000	0.16		6.1	OK
1.003	SW01	-0.144	0.000	0.27		13.5	OK

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Network B C external areas

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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	2
Number of Online Controls	2	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
1.000	PRIVATE	15 Summer	100	+40%					22.402
2.000	2	15 Summer	100	+40%	100/15 Summer				22.820
2.001	3	15 Summer	100	+40%	100/15 Summer				22.596
1.001	FC01	120 Winter	100	+40%	2/15 Summer				22.311
1.002	FC02	240 Summer	100	+40%	2/15 Summer				21.425
3.000	4	15 Summer	100	+40%					18.926
1.003	SW01	15 Summer	100	+40%					18.796

PN	US/MH Name	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	PRIVATE	-0.098	0.000	0.29		36.8	OK	
2.000	2	0.325	0.000	1.48		44.3	FLOOD RISK	
2.001	3	0.201	0.000	1.95		65.0	SURCHARGED	
1.001	FC01	0.881	0.000	0.07		6.9	SURCHARGED	
1.002	FC02	2.360	0.000	0.32		14.7	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Network B C external areas

PN	US/MH Name	Surcharged Flooded		Flow / Overflow		Pipe Flow	Status	Level Exceeded
		Depth (m)	Volume (m ³)	Cap.	(l/s)	(l/s)		
3.000	4	-0.139	0.000	0.30		11.3	OK	
1.003	SW01	-0.106	0.000	0.53		26.3	OK	

Plot C

Roof C1 to C3 discharge
to the Regent's Canal

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<u>Time Area Diagram for Roof C1 C2 C3</u> <table border="1"> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>0-4</td> <td>0.281</td> <td>4-8</td> <td>0.189</td> </tr> </tbody> </table> Total Area Contributing (ha) = 0.469 Total Pipe Volume (m³) = 14.274			Time (mins)	Area (ha)	Time (mins)	Area (ha)	0-4	0.281	4-8	0.189
Time (mins)	Area (ha)	Time (mins)	Area (ha)							
0-4	0.281	4-8	0.189							
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Area Summary for Roof C1 C2 C3

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.070	0.070	0.070
1.001	-	-	100	0.000	0.000	0.000
2.000	User	-	100	0.148	0.148	0.148
2.001	-	-	100	0.000	0.000	0.000
3.000	User	-	100	0.128	0.128	0.128
3.001	-	-	100	0.000	0.000	0.000
3.002	-	-	100	0.000	0.000	0.000
4.000	User	-	100	0.027	0.027	0.027
5.000	User	-	100	0.020	0.020	0.020
6.000	User	-	100	0.026	0.026	0.026
7.000	User	-	100	0.029	0.029	0.029
5.001	-	-	100	0.000	0.000	0.000
1.002	User	-	100	0.001	0.001	0.001
	User	-	100	0.019	0.019	0.020
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.469	0.469	0.469

Free Flowing Outfall Details for Roof C1 C2 C3

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.004	S	24.100	23.696	0.000	0	0

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Micro Drainage Network 2017.1.2		

Online Controls for Roof C1 C2 C3

Complex Manhole: SRoof C2, DS/PN: S1.001, Volume (m³): 1.6

Depth/Flow Relationship

Invert Level (m) 24.650

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.005	0.2000	0.045	0.5700	0.085	0.7600	0.150	0.9900
0.010	0.3000	0.050	0.6000	0.090	0.7800	0.160	1.0100
0.015	0.3500	0.055	0.6300	0.095	0.8000	0.170	1.0300
0.020	0.3900	0.060	0.6600	0.100	0.8200	0.180	1.0500
0.025	0.4300	0.065	0.6800	0.110	0.8600	0.190	1.0700
0.030	0.4700	0.070	0.7000	0.120	0.9000	0.200	1.0900
0.035	0.5100	0.075	0.7200	0.130	0.9400		
0.040	0.5400	0.080	0.7400	0.140	0.9700		

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Invert Level (m) 24.650

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0.005	0.2000	0.045	0.5700	0.085	0.7600	0.150	0.9900
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0.030	0.4700	0.070	0.7000	0.120	0.9000	0.200	1.0900
0.035	0.5100	0.075	0.7200	0.130	0.9400		
0.040	0.5400	0.080	0.7400	0.140	0.9700		

Complex Manhole: SRoof C3 12th Floor, DS/PN: S2.001, Volume (m³): 1.1

Depth/Flow Relationship

Invert Level (m) 24.650

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.005	0.2000	0.045	0.5700	0.085	0.7600	0.150	0.9900
0.010	0.3000	0.050	0.6000	0.090	0.7800	0.160	1.0100
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Complex Manhole: SRoof C3 8th Floor, DS/PN: S3.001, Volume (m³): 1.4 Depth/Flow Relationship Invert Level (m) 24.650 <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow 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Storage Structures for Roof C1 C2 C3

Cellular Storage Manhole: SRoof C2, DS/PN: S1.001

Invert Level (m) 24.650 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	435.0	0.0	0.201	0.4	0.0
0.200	435.0	0.0			

Cellular Storage Manhole: SRoof C3 12th Floor, DS/PN: S2.001

Invert Level (m) 24.650 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	950.0	0.0	0.201	0.4	0.0
0.200	950.0	0.0			

Cellular Storage Manhole: SRoof C3 8th Floor, DS/PN: S3.001

Invert Level (m) 24.650 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	690.0	0.0	0.201	0.4	0.0
0.200	690.0	0.0			

Complex Manhole: SRoof C1 Storage 01, DS/PN: S5.001

Cellular Storage

Invert Level (m) 24.650 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	200.0	0.0	0.201	0.4	0.0
0.200	200.0	0.0			

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6 Coppergate Mews Brighton Road Surbiton KT6 5NE																										
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Micro Drainage Network 2017.1.2																										
<u>Porous Car Park</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00000</td> <td>Width (m)</td> <td>0.9</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>95.0</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>23.8</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>24.650</td> <td>Cap Volume Depth (m)</td> <td>0.200</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	0.9	Membrane Percolation (mm/hr)	1000	Length (m)	95.0	Max Percolation (l/s)	23.8	Slope (1:X)	0.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	24.650	Cap Volume Depth (m)	0.200
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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Roof C1 C2 C3

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	4
Number of Online Controls	4	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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
S1.000		S1 15 Summer	2	+0%			
S1.001	SRoof C2	240 Summer	2	+0%			
S2.000		S1 15 Summer	2	+0%	100/15 Summer		
S2.001	SRoof C3 12th Floor	360 Summer	2	+0%			
S3.000		S3 15 Summer	2	+0%			
S3.001	SRoof C3 8th Floor	240 Summer	2	+0%			
S3.002		S7 240 Summer	2	+0%			
S4.000	SRoof C1 Terrace	15 Summer	2	+0%			
S5.000	SRoof C1 02	15 Summer	2	+0%			
S6.000	SRoof C1 03	15 Summer	2	+0%			
S7.000	SRoof C1 01	15 Summer	2	+0%			
S5.001	SRoof C1 Storage 01	30 Summer	2	+0%			
S1.002	SCanalside Storage	15 Summer	2	+0%	100/15 Summer		
S1.003		S14 30 Summer	2	+0%			
S1.004		S15 30 Summer	2	+0%	2/15 Summer		

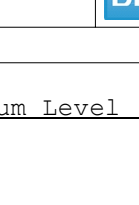
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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Roof C1 C2 C3

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)
S1.000	S1		24.799	-0.176	0.000	0.11		15.0
S1.001	SRoof C2		24.678	-0.197	0.000	0.01		0.9
S2.000	S1		24.814	-0.161	0.000	0.23		31.4
S2.001	SRoof C3 12th Floor		24.681	-0.194	0.000	0.02		1.4
S3.000	S3		24.814	-0.161	0.000	0.20		27.1
S3.001	SRoof C3 8th Floor		24.680	-0.195	0.000	0.04		2.0
S3.002	S7		24.304	-0.196	0.000	0.04		2.0
S4.000	SRoof C1 Terrace		24.222	-0.128	0.000	0.06		5.8
S5.000	SRoof C1 02		24.774	-0.126	0.000	0.07		4.2
S6.000	SRoof C1 03		24.781	-0.119	0.000	0.10		5.6
S7.000	SRoof C1 01		24.792	-0.108	0.000	0.18		6.2
S5.001	SRoof C1 Storage 01		24.668	-0.132	0.000	0.31		7.5
S1.002	SCanalside Storage		23.911	-0.189	0.000	0.29		18.0
S1.003	S14		23.875	-0.375	0.000	0.11		17.9
S1.004	S15		23.836	0.036	0.000	1.49		17.6

PN	US/MH Name	Status	Level Exceeded
S1.000	S1	FLOOD RISK	
S1.001	SRoof C2	OK	
S2.000	S1	FLOOD RISK	
S2.001	SRoof C3 12th Floor	OK	
S3.000	S3	FLOOD RISK	
S3.001	SRoof C3 8th Floor	OK	
S3.002	S7	OK	
S4.000	SRoof C1 Terrace	OK	
S5.000	SRoof C1 02	FLOOD RISK	
S6.000	SRoof C1 03	FLOOD RISK	
S7.000	SRoof C1 01	FLOOD RISK	
S5.001	SRoof C1 Storage 01	OK	
S1.002	SCanalside Storage	OK	
S1.003	S14	OK	
S1.004	S15	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Roof C1 C2 C3

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	4
Number of Online Controls	4	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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
S1.000	S1	15 Summer	30	+0%			
S1.001	SRoof C2	240 Summer	30	+0%			
S2.000	S1	15 Summer	30	+0%	100/15 Summer		
S2.001	SRoof C3 12th Floor	240 Winter	30	+0%			
S3.000	S3	15 Summer	30	+0%			
S3.001	SRoof C3 8th Floor	240 Summer	30	+0%			
S3.002	S7	240 Summer	30	+0%			
S4.000	SRoof C1 Terrace	15 Summer	30	+0%			
S5.000	SRoof C1 02	15 Summer	30	+0%			
S6.000	SRoof C1 03	15 Summer	30	+0%			
S7.000	SRoof C1 01	15 Summer	30	+0%			
S5.001	SRoof C1 Storage 01	30 Summer	30	+0%			
S1.002	SCanalside Storage	15 Summer	30	+0%	100/15 Summer		
S1.003	S14	15 Summer	30	+0%			
S1.004	S15	15 Summer	30	+0%	2/15 Summer		

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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Roof C1 C2 C3</u>							
			Water	Surcharged	Flooded		Pipe
PN	US/MH	Overflow	Level	Depth	Volume	Flow /	Overflow
	Name	Act.	(m)	(m)	(m³)	Cap.	(l/s)
							Pipe Flow (l/s)
S1.000		S1	24.870	-0.105	0.000	0.55	72.2
S1.001	SRoof C2		24.794	-0.081	0.000	0.02	2.0
S2.000		S1	24.986	0.011	0.000	1.10	147.1
S2.001	SRoof C3 12th Floor		24.804	-0.071	0.000	0.04	3.0
S3.000		S3	24.933	-0.042	0.000	0.98	130.4
S3.001	SRoof C3 8th Floor		24.811	-0.064	0.000	0.07	3.7
S3.002		S7	24.315	-0.185	0.000	0.07	3.7
S4.000	SRoof C1 Terrace		24.252	-0.098	0.000	0.27	28.0
S5.000	SRoof C1 02		24.806	-0.094	0.000	0.34	20.1
S6.000	SRoof C1 03		24.823	-0.077	0.000	0.48	27.2
S7.000	SRoof C1 01		24.862	-0.038	0.000	0.86	29.8
S5.001	SRoof C1 Storage 01		24.776	-0.024	0.000	0.58	14.0
S1.002	SCanalside Storage		24.174	0.074	0.000	0.91	56.0
S1.003		S14	24.153	-0.097	0.000	0.33	54.2
S1.004		S15	24.138	0.338	0.000	4.16	49.1
	PN	US/MH		Status	Level		
		Name			Exceeded		
	S1.000		S1	FLOOD RISK			
	S1.001		SRoof C2	FLOOD RISK			
	S2.000		S1	FLOOD RISK			
	S2.001	SRoof C3 12th Floor		FLOOD RISK			
	S3.000		S3	FLOOD RISK			
	S3.001	SRoof C3 8th Floor		FLOOD RISK			
	S3.002		S7	OK			
	S4.000	SRoof C1 Terrace		OK			
	S5.000		SRoof C1 02	FLOOD RISK			
	S6.000		SRoof C1 03	FLOOD RISK			
	S7.000		SRoof C1 01	FLOOD RISK			
	S5.001	SRoof C1 Storage 01		FLOOD RISK			
	S1.002	SCanalside Storage		FLOOD RISK			
	S1.003		S14	OK			
	S1.004		S15	FLOOD RISK			

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Plot C

Canal-side footway
discharge to
Regent's Canal

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<u>Time Area Diagram for Canal Unattenuated Plot C</u> <table border="1"> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>0-4</td> <td>0.016</td> <td>4-8</td> <td>0.005</td> </tr> </tbody> </table> Total Area Contributing (ha) = 0.020 Total Pipe Volume (m³) = 0.708			Time (mins)	Area (ha)	Time (mins)	Area (ha)	0-4	0.016	4-8	0.005
Time (mins)	Area (ha)	Time (mins)	Area (ha)							
0-4	0.016	4-8	0.005							
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Area Summary for Canal Unattenuated Plot C

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.020	0.020	0.020
1.001	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.020	0.020	0.020

Free Flowing Outfall Details for Canal Unattenuated Plot C

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.001	S	24.000	22.411	0.000	0	0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Canal Unattenuated Plot C

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	2	+0%					22.553
S1.001	S2	15 Summer	2	+0%					22.508

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.247	0.000	0.07		4.3	OK	
S1.001	S2	-0.247	0.000	0.07		4.3	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Canal Unattenuated Plot C

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	30	+0%					22.587
S1.001	S2	15 Summer	30	+0%					22.542

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.213	0.000	0.18		11.3	OK	
S1.001	S2	-0.213	0.000	0.18		11.2	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Canal Unattenuated Plot C

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	100	+40%					22.621
S1.001	S2	15 Summer	100	+40%					22.577

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.179	0.000	0.34		21.0	OK	
S1.001	S2	-0.178	0.000	0.34		20.8	OK	

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Plot C

Low-lying external
ground-floor areas
adjacent to St
Pancreas Way direct
discharge to public
sewer

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<u>Time Area Diagram for Plot C Unattenuated St Pancras Way</u> <table border="1"> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>0-4</td> <td>0.007</td> <td>4-8</td> <td>0.002</td> </tr> </tbody> </table> Total Area Contributing (ha) = 0.009 Total Pipe Volume (m³) = 0.354			Time (mins)	Area (ha)	Time (mins)	Area (ha)	0-4	0.007	4-8	0.002
Time (mins)	Area (ha)	Time (mins)	Area (ha)							
0-4	0.007	4-8	0.002							
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Area Summary for Plot C Unattenuated St Pancras Way

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.006	0.006	0.009
1.001	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.009	0.009	0.009

Free Flowing Outfall Details for Plot C Unattenuated St Pancras Way

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.001	S	20.350	19.411	0.000	0	0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Plot C Unattenuated St Pancras Way

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	2	+0%					19.534
S1.001	S2	15 Summer	2	+0%					19.489

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.266	0.000	0.03		1.9	OK	
S1.001	S2	-0.266	0.000	0.03		1.8	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Plot C Unattenuated St Pancras Way

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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	30	+0%					19.556
S1.001	S2	15 Summer	30	+0%					19.511

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.244	0.000	0.08		4.8	OK	
S1.001	S2	-0.244	0.000	0.08		4.8	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Plot C Unattenuated St Pancras Way

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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	0
Number of Online Controls	0	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 529623 183745 TQ 29623 83745
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

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)	2, 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 Level (m)
S1.000	S1	15 Summer	100	+40%					19.576
S1.001	S2	15 Summer	100	+40%					19.531

PN	US/MH Name	Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.224	0.000	0.15		8.9	OK	
S1.001	S2	-0.224	0.000	0.14		8.9	OK	

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