



Shepherd Gilmour
Consulting Engineers

VILLAGE HOTEL EASTLEIGH

PLANNING CONDITION 4

*Shepherd Gilmour Infrastructure Ltd.
3rd Floor Phoenix House,
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M2 4JF*



Report Title: Village Hotel Eastleigh
Planning Condition 4

Client: Village Hotel

Report Status: Version: Rev A

Date of First Issue: 29.05.2024

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Prepared by: _____
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Checked & Approved: _____
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Version	Date	Initials	Comments
-	29.05.2024	DOR	First Issue
A	04.07.2024	DOR	Amended to suit feedback
B	04.04.2024	NU	Amended to suit feedback



SECTION I INTRODUCTION

- 1.1. This report has been prepared by Shepherd Gilmour Infrastructure Ltd (SGi) to support the discharging of Condition 4 on Planning Application F/23/96070.

Planning Description

- 1.2. Erection of an outdoor gymnasium unit with associated lighting columns and fencing

Planning Condition 4

- 1.3. Prior to commencement of works, details of the existing drainage system to show there is available capacity to accept the required additional volume proposed and/or that any additional surface water runoff could be satisfactorily mitigated shall be submitted to and approved by the Local Planning Authority. This shall be in broad accordance with the approved drainage plan (ref E56I-SG-ZZ-XX-DR-C-2042) and also include details of drainage maintenance.

Reason: To ensure the proposed surface water drainage is appropriate, in accordance with DM6 from the Eastleigh Borough Local Plan (2016-2036)

SECTION 2 EXISTING DRAINAGE

Existing Drainage Plans

- 2.1. The existing drainage infrastructure that serves the Village Hotel was constructed in 2021. A copy of the drainage design E56I-SG-ZZ-XX-DR-C-2000 Rev C12 has been included within **Appendix A** of this report.

Existing Drainage Summary

- 2.2. Surface water runoff generated by the hardstanding areas on the development were collected and are conveyed by an underground network to an outfall on the northern most point of the site.
- 2.3. Prior to entering the underground network, the surface water runoff was generally treated at source via pervious pavements, filter trenches and swales. This ensured that the runoff leaving the site was cleansed and mitigated any pollution risk downstream.
- 2.4. The surface water runoff leaving the site was also restricted to the calculated greenfield. The below table has been taken from the approved Flood Risk Assessment (C1274-20170146 Rev-) and shows the greenfield runoff rate for several return periods that cannot be exceeded onsite.

Hydrological Region	7				
Estimated QBAR Value	7.42				
Growth Curve Year	1	2	5	30	100
Greenfield Peak Runoff (l/s)	6.3	6.5	9.5	16.8	23.7

Table 5.3 Peak Greenfield Runoff Rates

Figure 2.1 – Greenfield Results from Report C1274-20170146 Rev-

Existing Microdrainage Calculations

- 2.5. A copy of the original Microdrainage results has been included within **Appendix B** and will be used as a benchmark when comparing the new results.
- 2.6. The results shows that discharge rate from the development never exceeded the calculated greenfield rate. It also indicates that some minor flooding occurred during the most extreme event, but this was controlled by the topography onsite and reintroduced back into the network.

Existing Microdrainage Calculations					
Return Period	1	2	5	30	100
Proposed Runoff (l/s)	5.6	6.2	7.0	13.0	23.4
1% AEP+ 40% CC Controlled Surface Flooding (m ³)	Node HW609			7.4m ³	
	Node B1800			0.9m ³	

Table 2.1 Existing Simulation Results

SECTION 3 DEVELOPMENT PROPOSALS

Drainage Proposals

- 3.1. The client's proposals are for an outdoor gym on the soft landscaped area southern portion of the development. The outdoor gym is a 15m x 15m compound which will be graded to a fall and will require positive drainage to maximise its potential use.
- 3.2. The strategy submitted during the planning application (E561-SG-ZZ-XX-DR-C-2042) indicated a series of land drains beneath the compound which then discharged runoff to the adjacent swale.
- 3.3. The proposed layout shown in **Appendix C** has considered the proposed gradient of the compound and has opted for a single filter trench along one side of the gym compound. The catchment attributed to the gravel trench is approximately 225m² and this area has been added into the existing Microdrainage model between node SW102 and SW103.
- 3.4. The simulation results confirmed that the additional area would result in an increased flow rate from the overall site. To prevent this occurring, a new orifice plate has been placed at Manhole SW107 which will temporarily restrict flows from the swale. This has ensured that the existing Hydrobrake at SW115 maintains its greenfield runoff rate.
- 3.5. A copy of these of the Microdrainage Results have been included within **Appendix D** and summarised below.

Adjusted Microdrainage Calculations					
Return Period	1	2	5	30	100
Proposed Runoff (l/s)	5.7	6.3	7.1	13.3	23.6
1% AEP+ 40% CC Controlled Surface Flooding (m ³)	Node HW609		3.6m ³		
	Node B1800		0.6m ³		

Table 3.1 Adjusted Simulation Results

Verdict

- 3.6. The simulation results show that adding an extra 225m² to the network does not have any adverse impact on the existing infrastructure. The discharge rate during the extreme events has crept up but are still under the approved greenfield runoff rates. The onsite flooding has also slightly decreased due to the introduction of the orifice plate.
- 3.7. Therefore, SGi consider these proposals to be acceptable in discharging condition 4.



SECTION 4 DRAINAGE MAINTENANCE

Existing Drainage Maintenance

- 4.1. The existing drainage is maintained by a Maintenance Company that was appointed on the site in 2021.

Proposed Drainage Maintenance

- 4.2. The Maintenance Company will be provided updated as built plans. Once the proposed gym compound has been constructed the new drainage will be added to the existing maintenance regime.

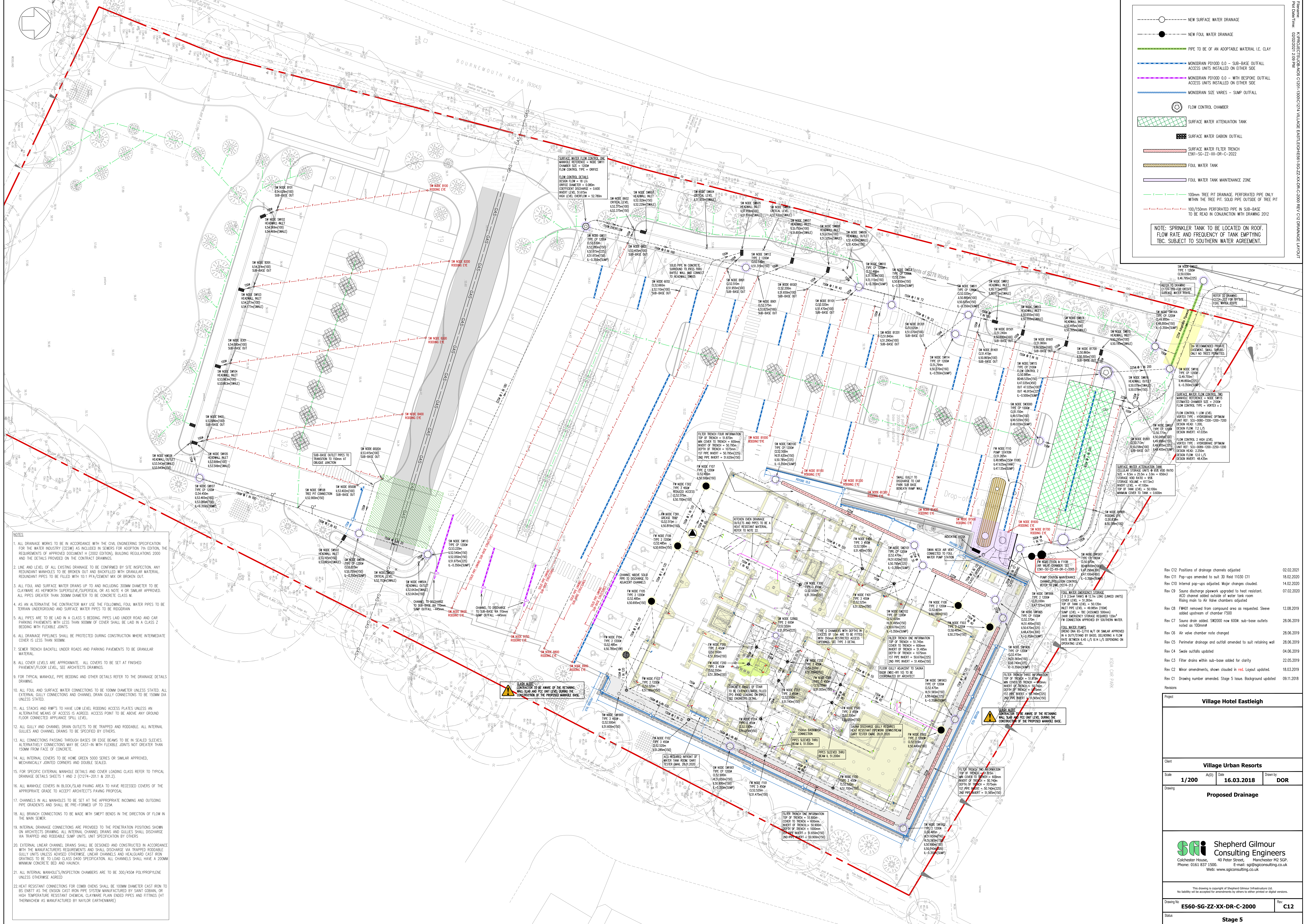
- 4.3. The expected minimum maintenance requirement based on the preliminary proposals of a the filter strip will require the following:

Regular Maintenance (Monthly) – Inspection, Litter/ debris removal and grass cutting

Occasional Maintenance (Annually) – Sediment Management

- 4.4. The swale and downstream manholes are already included within the existing agreement.

APPENDIX A I

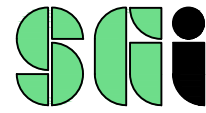


- NOTES**
1. ALL DRAINAGE WORKS TO BE IN ACCORDANCE WITH THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (CESW) AS INCLUDED IN SEWERS FOR ADOPTION 7TH EDITION, THE REQUIREMENTS OF APPROVED DOCUMENT H (2002 EDITION), BUILDING REGULATIONS 2000 AND THE DETAILS PROVIDED ON THE CONTRACT DRAWINGS.
 2. LINE AND LEVEL OF ALL EXISTING DRAINAGE TO BE CONFIRMED BY SITE INSPECTION. ANY REDUNDANT MANHOLES TO BE BROKEN OUT AND BACKFILLED WITH GRANULAR MATERIAL. REDUNDANT PIPES TO BE FILLED WITH 10:1 FFA CEMENT MIX OR BROKEN OUT.
 3. ALL FOLL AND SURFACE WATER DRAINS UP TO AND INCLUDING 300mm DIAMETER TO BE CLAYWARE AS HIGHWORTH SUPERSEAL/SUPERSEAL OR AS NOTE 4 OR SIMILAR APPROVED. ALL PIPES GREATER THAN 300mm DIAMETER TO BE CONCRETE CLASS M.
 4. AS AN ALTERNATIVE THE CONTRACTOR MAY USE THE FOLLOWING. FOLL WATER PIPES TO BE TERRAIN UNDERGROUND AND SURFACE WATER PIPES TO BE RIDGEBRAIN.
 5. ALL PIPES ARE TO BE LAD IN A CLASS 5 BEDDING. PIPES LAD UNDER ROAD AND CAR PARKING PAVEMENTS WITH LESS THAN 300mm OF COVER SHALL BE LAD IN A CLASS 2 BEDDING WITH FLEXIBLE JOINTS.
 6. ALL DRAINAGE PIPELINES SHALL BE PROTECTED DURING CONSTRUCTION WHERE INTERMEDIATE COVER IS LESS THAN 300mm.
 7. SEWER TRENCH BACKFILL UNDER ROADS AND PARKING PAVEMENTS TO BE GRANULAR MATERIAL.
 8. ALL COVER LEVELS ARE APPROXIMATE. ALL COVERS TO BE SET AT FINISHED PAVEMENT/FLOOR LEVEL. SEE ARCHITECTS DRAWINGS.
 9. FOR TYPICAL MANHOLE, PIPE BEDDING AND OTHER DETAILS REFER TO THE DRAINAGE DETAILS DRAWING.
 10. ALL FOLL AND SURFACE WATER CONNECTIONS TO BE 100mm DIAMETER UNLESS STATED. ALL EXTERNAL GULLY CONNECTIONS AND CHANNEL DRAIN GULLY CONNECTIONS TO BE 150mm DIA UNLESS STATED.
 11. ALL STACKS AND RIMPS TO HAVE LOW LEVEL ROODING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT TO BE ABOVE ANY GROUND FLOOR CONNECTED APPLIANCE SPILL LEVEL.
 12. ALL GULLY AND CHANNEL DRAIN OUTLETS TO BE TRAPPED AND RODDABLE. ALL INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.
 13. ALL CONNECTIONS PASSING THROUGH BASES OR EDGE BEAMS TO BE IN SEALED SLEEVES. ALTERNATIVE CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150mm FROM FACE OF CONCRETE.
 14. ALL INTERNAL COVERS TO BE HOME GREEN 5000 SERIES OR SIMILAR APPROVED, MECHANICALLY JOINTED CORNERS AND DOUBLE SEALED.
 15. FOR SPECIFIC EXTERNAL MANHOLE DETAILS AND COVER LOADING CLASS REFER TO TYPICAL DRAINAGE DETAILS SHEETS 1 AND 2 (C1274-201.1 & 201.2).
 16. ALL MANHOLE COVERS IN BLOCK/SLAB PAVING AREA TO HAVE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT ARCHITECTS PAVING PROPOSAL.
 17. CHANNELS IN ALL MANHOLES TO BE SET AT THE APPROPRIATE INCOMING AND OUTGOING PIPE GRADIENTS AND SHALL BE PRE-FORMED UP TO 225°.
 18. ALL BRANCH CONNECTIONS TO BE MADE WITH SWEPT BENDS IN THE DIRECTION OF FLOW IN THE MAIN SEWER.
 19. INTERNAL DRAINAGE CONNECTIONS ARE PROVIDED TO THE PENETRATION POSITIONS SHOWN ON ARCHITECTS DRAWING. ALL INTERNAL CHANNEL DRAINS AND GULLIES SHALL DISCHARGE VIA TRAPPED AND RODDABLE SUMP UNITS. UNIT SPECIFICATION BY OTHERS.
 20. EXTERNAL LINEAR CHANNEL DRAINS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS AND SHALL DISCHARGE VIA TRAPPED RODDABLE GULLY UNITS UNLESS ADVISED OTHERWISE. LINEAR CHANNELS AND HEADWARD CAST IRON GRATINGS TO BE TO LOAD CLASS D400 SPECIFICATION. ALL CHANNELS SHALL HAVE A 200mm MINIMUM CONCRETE BED AND HAUNCH.
 21. ALL INTERNAL MANHOLE/INSPECTION CHAMBERS ARE TO BE 300/450mm POLYPROPYLENE UNLESS OTHERWISE AGREED.
 22. HEAT RESISTANT CONNECTIONS FOR COMBI OVENS SHALL BE 100mm DIAMETER CAST IRON TO BS EN877 AS THE DESIGN CAST IRON PIPE SYSTEM MANUFACTURED BY SAINT GOBAIN, OR HIGH TEMPERATURE RESISTANT CHEMICAL CLAYWARE PLAIN ENDED PIPES AND FITTINGS (HT THERMACHEM AS MANUFACTURED BY NAYLOR EARTHENWARE).

LEGEND

- NEW SURFACE WATER DRAINAGE
- NEW FOUL WATER DRAINAGE
- PIPE TO BE OF AN ADOPTABLE MATERIAL I.E. CLAY
- MONODRAIN P1000 0.0 - SUB-BASE OUTFALL ACCESS UNITS INSTALLED ON EITHER SIDE
- MONODRAIN P1000 0.0 - WITH BESPOKE OUTFALL ACCESS UNITS INSTALLED ON EITHER SIDE
- MONODRAIN SIZE VARES - SUMP OUTFALL
- FLOW CONTROL CHAMBER
- SURFACE WATER ATTENUATION TANK
- SURFACE WATER GABION OUTFALL
- SURFACE WATER FILTER TRENCH ES61-SG-ZZ-XR-DR-C-2022
- FOUL WATER TANK
- FOUL WATER TANK MAINTENANCE ZONE
- 100mm TREE PIT DRAINAGE. PERFORATED PIPE ONLY WITHIN THE TREE PIT. SOLID PIPE OUTSIDE OF TREE PIT
- 100/150mm PERFORATED PIPE IN SUB-BASE TO BE READ IN CONJUNCTION WITH DRAWING 2012

NOTE: SPRINKLER TANK TO BE LOCATED ON ROOF. FLOW RATE AND FREQUENCY OF TANK EMPTYING TBC. SUBJECT TO SOUTHERN WATER AGREEMENT.

Rev C12	Positions of drainage channels adjusted	02.02.2021
Rev C11	Pop-ups amended to suit 3D Reild 11030 C11	18.02.2020
Rev C10	Internal pop-ups adjusted. Major changes clouded.	14.02.2020
Rev C9	Sanna discharge pipework upgraded to heat resistant. ACO channel added outside of water tank room Rising main to Air Valve chambers adjusted	07.02.2020
Rev C8	FW401 removed from compound area as requested. Sleeve added upstream of chamber F500	12.08.2019
Rev C7	Sanna drain added. SW2000 now 600mm sub-base outlets noted as 100mm	28.06.2019
Rev C6	Air valve chamber note changed	28.06.2019
Rev C5	Perimeter drainage and outlet amended to suit retaining wall	28.06.2019
Rev C4	Swale outfalls updated	04.06.2019
Rev C3	Filter drains within sub-base added for clarity	22.05.2019
Rev C2	Minor amendments, shown clouded in red. Layout updated.	18.03.2019
Rev C1	Drawing number amended. Stage 5 issue. Background updated	09.11.2018
Revisions		
Project		
Village Hotel Eastleigh		
Client		
Village Urban Resorts		
Scale	A(0) Date	Drawn by
1/200	16.03.2018	DOR
Drawing		
Proposed Drainage		
		
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Drawing No	E560-SG-ZZ-XX-DR-C-2000	Rev
C12		
Status	Stage 5	

APPENDIX B I

SGi Consulting		Page 1
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 23/05/2024 08:55 File C1274 Original.MDX	Designed by sgicivils Checked by	
Micro Drainage Network 2020.1.3		

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.010	0.010	0.010
1.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
2.000	-	-	100	0.040	0.040	0.040
2.001	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.046	0.046	0.046
3.001	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.046	0.046	0.046
4.001	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.038	0.038	0.038
5.001	-	-	100	0.000	0.000	0.000
5.002	-	-	100	0.000	0.000	0.000
5.003	-	-	100	0.000	0.000	0.000
5.004	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
1.014	-	-	100	0.000	0.000	0.000
6.000	-	-	100	0.092	0.092	0.092
6.001	-	-	100	0.000	0.000	0.000
6.002	-	-	100	0.000	0.000	0.000
6.003	-	-	100	0.000	0.000	0.000
7.000	-	-	100	0.088	0.088	0.088
7.001	-	-	100	0.000	0.000	0.000
6.004	-	-	100	0.000	0.000	0.000
8.000	-	-	100	0.045	0.045	0.045
8.001	-	-	100	0.000	0.000	0.000
6.005	-	-	100	0.000	0.000	0.000
6.006	-	-	100	0.000	0.000	0.000
9.000	-	-	100	0.100	0.100	0.100
9.001	-	-	100	0.000	0.000	0.000
6.007	-	-	100	0.000	0.000	0.000
10.000	-	-	100	0.023	0.023	0.023
10.001	-	-	100	0.000	0.000	0.000
6.008	-	-	100	0.000	0.000	0.000
6.009	-	-	100	0.000	0.000	0.000
11.000	-	-	100	0.028	0.028	0.028
11.001	-	-	100	0.000	0.000	0.000
12.000	-	-	100	0.032	0.032	0.032
12.001	-	-	100	0.000	0.000	0.000
6.010	-	-	100	0.021	0.021	0.021
13.000	-	-	100	0.020	0.020	0.020
13.001	-	-	100	0.000	0.000	0.000
14.000	-	-	100	0.022	0.022	0.022
14.001	-	-	100	0.000	0.000	0.000
6.011	-	-	100	0.020	0.020	0.020
6.012	-	-	100	0.000	0.000	0.000
15.000	-	-	100	0.026	0.026	0.026
15.001	-	-	100	0.000	0.000	0.000
6.013	-	-	100	0.000	0.000	0.000
16.000	-	-	100	0.026	0.026	0.026
16.001	-	-	100	0.000	0.000	0.000

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
6.014	-	-	100	0.000	0.000	0.000
17.000	-	-	100	0.027	0.027	0.027
17.001	-	-	100	0.000	0.000	0.000
6.015	-	-	100	0.000	0.000	0.000
6.016	-	-	100	0.000	0.000	0.000
18.000	-	-	100	0.011	0.011	0.011
18.001	-	-	100	0.000	0.000	0.000
6.017	-	-	100	0.000	0.000	0.000
19.000	-	-	100	0.028	0.028	0.028
19.001	-	-	100	0.033	0.033	0.033
19.002	-	-	100	0.026	0.026	0.026
20.000	-	-	100	0.072	0.072	0.072
19.003	-	-	100	0.025	0.025	0.025
19.004	-	-	100	0.000	0.000	0.000
21.000	-	-	100	0.048	0.048	0.048
21.001	-	-	100	0.054	0.054	0.054
21.002	-	-	100	0.000	0.000	0.000
19.005	-	-	100	0.000	0.000	0.000
19.006	-	-	100	0.000	0.000	0.000
19.007	-	-	100	0.000	0.000	0.000
6.018	-	-	100	0.000	0.000	0.000
1.015	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.047	1.047	1.047

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Micro Drainage		Network 2020.1.3

Online Controls for Storm

Orifice Manhole: MH S111, DS/PN: 1.011, Volume (m³): 4.7

Diameter (m) 0.080 Discharge Coefficient 0.600 Invert Level (m) 51.615

Complex Manhole: MH S115, DS/PN: 1.015, Volume (m³): 14.6

Hydro-Brake® Optimum

Unit Reference MD-SCU-0080-7200-1200-7200
Design Head (m) 1.200
Design Flow (l/s) 7.2
Flush-Flo™ Calculated
Objective Linear discharge profile
Application Surface
Sump Available Yes
Diameter (mm) 80
Invert Level (m) 47.035
Minimum Outlet Pipe Diameter (mm) 100
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	7.2	Kick-Flo®	0.120	2.5
Flush-Flo™	0.106	2.5	Mean Flow over Head Range	-	4.9

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	2.5	0.800	6.0	2.000	9.2	4.000	12.8	7.000	16.7
0.200	3.1	1.000	6.6	2.200	9.6	4.500	13.5	7.500	17.2
0.300	3.8	1.200	7.2	2.400	10.0	5.000	14.2	8.000	17.8
0.400	4.3	1.400	7.7	2.600	10.4	5.500	14.9	8.500	18.3
0.500	4.8	1.600	8.2	3.000	11.1	6.000	15.5	9.000	18.8
0.600	5.2	1.800	8.7	3.500	12.0	6.500	16.1	9.500	19.3

Hydro-Brake® Optimum

Unit Reference MD-SCU-0089-1200-2250-1200
Design Head (m) 2.250
Design Flow (l/s) 12.0
Flush-Flo™ Calculated
Objective Linear discharge profile
Application Surface
Sump Available Yes
Diameter (mm) 89
Invert Level (m) 48.435
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)	2.250	12.0	Kick-Flo®	0.133	3.2
Flush-Flo™	0.111	3.3	Mean Flow over Head Range	-	8.1

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

Hydro-Brake® Optimum

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	3.0	0.800	7.4	2.000	11.3	4.000	15.8	7.000	20.7
0.200	3.9	1.000	8.2	2.200	11.9	4.500	16.7	7.500	21.4
0.300	4.7	1.200	8.9	2.400	12.4	5.000	17.6	8.000	22.1
0.400	5.3	1.400	9.6	2.600	12.9	5.500	18.4	8.500	22.7
0.500	5.9	1.600	10.2	3.000	13.8	6.000	19.2	9.000	23.3
0.600	6.4	1.800	10.8	3.500	14.8	6.500	20.0	9.500	24.0

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Micro Drainage Network 2020.1.3		

Storage Structures for Storm

Porous Car Park Pipe: 1.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	27043.0
Max Percolation (l/s)	56.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	54.628		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 1.002

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	13.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	45.4
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	54.469	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 2.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	35.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	35150.0
Max Percolation (l/s)	73.2	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	54.314		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 1.003

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	14.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	45.5
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	54.177	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 3.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	35.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	35150.0
Max Percolation (l/s)	73.2	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	54.000		

Under Drain Details

Depth above Invert Level (m)	0.000	Diameter (m)	0.150
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Porous Car Park Pipe: 3.000

Number of Pipes 1 Manning's N 0.012

Swale Pipe: 1.004

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	14.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	45.5
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	53.863	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 4.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	35.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	35150.0
Max Percolation (l/s)	73.2	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	53.686		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 1.005

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	1.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	166.7
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	53.549	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 5.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	8.4
Membrane Percolation (mm/hr)	1000	Slope (1:X)	47.7
Max Percolation (l/s)	9.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	53.465		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 5.002

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	12.2
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	29.3
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	53.120	Cap Infiltration Depth (m)	0.000

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Swale Pipe: 5.003

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	4.7
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	78.5
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	52.703	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 6.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	72.3
Membrane Percolation (mm/hr)	1000	Slope (1:X)	72256.9
Max Percolation (l/s)	98.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	52.405		

Swale Pipe: 6.003

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	11.2
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	40.7
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	52.229	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 7.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	73.9
Membrane Percolation (mm/hr)	1000	Slope (1:X)	73853.0
Max Percolation (l/s)	100.5	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	52.110		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 6.004

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	6.8
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	49.0
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	51.955	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 8.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	75.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	75225.3
Max Percolation (l/s)	83.6	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.955		

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Porous Car Park Pipe: 8.000

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.005

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 3.3
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 48.6
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 51.816 Cap Infiltration Depth (m) 0.000

Swale Pipe: 6.006

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 6.1
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 65.1
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 51.748 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 9.000

Manning's N 0.100 Width (m) 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 76.3
Membrane Percolation (mm/hr) 1000 Slope (1:X) 76331.0
Max Percolation (l/s) 84.8 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 51.805

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.007

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 5.0
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 61.7
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 51.650 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 10.000

Manning's N 0.100 Width (m) 4.8
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 32.0
Membrane Percolation (mm/hr) 1000 Slope (1:X) 32000.0
Max Percolation (l/s) 42.7 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 51.705

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

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Swale Pipe: 6.008

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	5.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	29.6
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	51.569	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 11.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	32.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	32000.0
Max Percolation (l/s)	43.6	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.505		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Porous Car Park Pipe: 12.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	27000.0
Max Percolation (l/s)	30.0	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.305		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Porous Car Park Pipe: 13.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	27000.3
Max Percolation (l/s)	30.0	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.105		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Porous Car Park Pipe: 14.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	26999.3
Max Percolation (l/s)	30.0	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	50.905		

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Porous Car Park Pipe: 14.000

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.012

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 4.7
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 40.1
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 50.673 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 15.000

Manning's N 0.100 Width (m) 4.9
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 32.0
Membrane Percolation (mm/hr) 1000 Slope (1:X) 32000.0
Max Percolation (l/s) 43.6 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 50.705

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.013

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 8.0
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 40.0
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 50.555 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 16.000

Manning's N 0.100 Width (m) 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 33.1
Membrane Percolation (mm/hr) 1000 Slope (1:X) 33106.0
Max Percolation (l/s) 36.8 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 50.505

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.014

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 6.4
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 40.0
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 50.355 Cap Infiltration Depth (m) 0.000

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Porous Car Park Pipe: 17.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	33.1
Membrane Percolation (mm/hr)	1000	Slope (1:X)	33107.0
Max Percolation (l/s)	45.1	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	50.305		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 6.015

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	11.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	97.4
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	50.195	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 18.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	19.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	19200.0
Max Percolation (l/s)	21.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	50.158		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Filter Drain Pipe: 19.001

Manning's N	0.030	Trench Length (m)	33.7
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	33724.0
Invert Level (m)	50.900	Cap Volume Depth (m)	1.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 19.002

Manning's N	0.030	Trench Length (m)	21.7
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.225
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	21650.0
Invert Level (m)	50.740	Cap Volume Depth (m)	1.075
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 19.003

Manning's N	0.030	Infiltration Coefficient Side (m/hr)	0.00000
Infiltration Coefficient Base (m/hr)	0.00000	Safety Factor	1.0

Filter Drain Pipe: 19.003

Porosity	0.30	Pipe Depth above Invert (m)	0.000
Invert Level (m)	50.740	Number of Pipes	1
Trench Width (m)	0.6	Slope (1:X)	20000.0
Trench Length (m)	20.0	Cap Volume Depth (m)	1.075
Pipe Diameter (m)	0.225	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 21.000

Manning's N	0.030	Trench Length (m)	27.4
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.225
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	27426.0
Invert Level (m)	50.795	Cap Volume Depth (m)	1.075
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 21.002

Manning's N	0.030	Trench Length (m)	14.3
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.225
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	14323.0
Invert Level (m)	50.670	Cap Volume Depth (m)	1.075
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Cellular Storage Pipe: 19.007

Manning's N	0.030	Infiltration Coefficient Side (m/hr)	0.00000
Invert Level (m)	47.100	Safety Factor	1.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	210.0	153.0	3.000	210.0	215.4	3.001	0.0	215.4

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1 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 17 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 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	Surcharged Depth
									(m)	(m)
1.000	B100	15 Summer	1	+0%				0	54.670	-0.383
1.001	B101	240 Summer	1	+0%					54.639	-0.138
1.002	SW102	240 Summer	1	+0%					54.486	-0.783
2.000	B200	15 Summer	1	+0%				0	54.410	-0.329
2.001	B201	120 Summer	1	+0%					54.348	-0.115
1.003	SW103	120 Summer	1	+0%					54.227	-0.750
3.000	B300	15 Summer	1	+0%				0	54.103	-0.322
3.001	B301	120 Summer	1	+0%	100/30 Summer				54.038	-0.111
1.004	SW104	120 Summer	1	+0%					53.935	-0.728
4.000	B400	15 Summer	1	+0%				0	53.790	-0.446
4.001	B401	120 Summer	1	+0%	100/30 Summer				53.724	-0.111
1.005	SW105	120 Summer	1	+0%					53.665	-0.684
1.006	HW106	120 Summer	1	+0%	30/60 Summer				53.600	-0.093
1.007	MH S107	120 Summer	1	+0%	30/30 Summer				53.108	-0.092
1.008	MH S108	120 Summer	1	+0%	30/30 Summer				52.818	-0.087
1.009	MH S109	120 Summer	1	+0%	30/60 Summer				52.737	-0.113
5.000	B500	15 Summer	1	+0%					53.518	-0.372
5.001	B501	15 Summer	1	+0%	100/15 Summer				53.353	-0.086
5.002	SW502	15 Summer	1	+0%					53.205	-0.315
5.003	SW503	15 Summer	1	+0%					52.810	-0.693
5.004	HW504	15 Summer	1	+0%	100/15 Summer				52.700	-0.093
1.010	MH S110	15 Summer	1	+0%	5/120 Summer				52.036	-0.164
1.011	MH S111	180 Summer	1	+0%	1/15 Summer	30/30 Summer		28	51.843	0.078
1.012	MH S112	180 Summer	1	+0%					51.484	-0.101
1.013	MH S113	180 Summer	1	+0%					50.696	-0.104
1.014	MH S114	180 Summer	1	+0%	100/360 Summer				50.306	-0.114
6.000	B600	15 Summer	1	+0%		30/15 Summer		18	52.588	-0.242
6.001	B601	180 Summer	1	+0%	100/30 Summer				52.455	-0.099
6.002	N602	180 Summer	1	+0%					52.421	-0.104
6.003	SW603	180 Summer	1	+0%					52.291	-0.738

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

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.000	B100	0.000	0.00	0.0	10	0.1	OK	
1.001	B101	0.000	0.02			0.3	OK	
1.002	SW102	0.000	0.00		41	0.3	OK	
2.000	B200	0.000	0.02	0.0	14	0.7	OK	
2.001	B201	0.000	0.13			1.5	OK	
1.003	SW103	0.000	0.00		62	1.7	OK	
3.000	B300	0.000	0.02	0.0	14	0.9	OK	
3.001	B301	0.000	0.15			1.8	OK	
1.004	SW104	0.000	0.00		64	3.6	OK	
4.000	B400	0.000	0.02	0.0	13	1.1	OK	
4.001	B401	0.000	0.15			1.9	OK	
1.005	SW105	0.000	0.01		12	5.4	OK	
1.006	HW106	0.000	0.31			5.4	OK	
1.007	MH S107	0.000	0.32			5.4	OK	
1.008	MH S108	0.000	0.37			5.4	OK	
1.009	MH S109	0.000	0.14			5.4	OK	
5.000	B500	0.000	0.06		5	6.3	OK	
5.001	B501	0.000	0.38			6.2	OK	
5.002	SW502	0.000	0.01		6	6.2	OK	
5.003	SW503	0.000	0.05		5	6.2	OK	
5.004	HW504	0.000	0.31			6.2	OK	
1.010	MH S110	0.000	0.16			5.8	OK	
1.011	MH S111	0.000	0.35	0.0		5.8	SURCHARGED	
1.012	MH S112	0.000	0.24			5.8	OK	
1.013	MH S113	0.000	0.20			5.8	OK	
1.014	MH S114	0.000	0.14			5.8	OK	
6.000	B600	0.000	0.03	0.0	20	0.9	OK	
6.001	B601	0.000	0.26			2.8	OK	
6.002	N602	0.000	0.21			2.8	OK*	
6.003	SW603	0.000	0.00		87	2.8	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	1	+0%			30/15 Summer	16	52.283
7.001	B701	180 Summer	1	+0%	100/120 Summer				52.151
6.004	SW604	180 Summer	1	+0%					52.043
8.000	B800	15 Summer	1	+0%			30/15 Summer	17	52.093
8.001	B801	240 Summer	1	+0%	30/120 Summer				51.983
6.005	SW605	360 Summer	1	+0%					51.940
6.006	SW606	360 Summer	1	+0%					51.940
9.000	B900	15 Summer	1	+0%			5/15 Summer	48	52.006
9.001	B901	360 Summer	1	+0%	2/120 Summer				51.940
6.007	SW607	360 Summer	1	+0%					51.939
10.000	B1000	360 Summer	1	+0%			2/120 Summer	82	51.939
10.001	B1001	360 Summer	1	+0%	1/120 Summer				51.939
6.008	SW608	360 Summer	1	+0%					51.939
6.009	HW609	360 Summer	1	+0%	1/15 Summer	100/60 Summer			51.939
11.000	B1100	15 Summer	1	+0%			30/180 Summer	22	51.603
11.001	B1101	120 Summer	1	+0%	100/15 Summer				51.523
12.000	B1200	15 Summer	1	+0%			100/15 Summer	20	51.422
12.001	B1201	60 Summer	1	+0%	100/15 Summer				51.334
6.010	MH S610	240 Summer	1	+0%	30/120 Summer				51.181
13.000	B1300	15 Summer	1	+0%			100/15 Summer	16	51.195
13.001	B1301	60 Summer	1	+0%	100/15 Summer				51.124
14.000	B1400	15 Summer	1	+0%			100/15 Summer	20	51.000
14.001	B1401	60 Summer	1	+0%	100/15 Summer				50.933
6.011	MH S611	240 Summer	1	+0%	30/15 Summer				50.911
6.012	SW612	240 Summer	1	+0%					50.772
15.000	B1500	15 Summer	1	+0%			100/15 Summer	18	50.799
15.001	B1501	180 Summer	1	+0%	100/15 Summer				50.760
6.013	SW613	240 Summer	1	+0%					50.657
16.000	B1600	15 Summer	1	+0%			100/15 Summer	16	50.608
16.001	B1601	180 Summer	1	+0%	100/15 Summer				50.571
6.014	SW614	240 Summer	1	+0%					50.461
17.000	B1700	15 Summer	1	+0%			100/15 Summer	16	50.401
17.001	B1701	240 Summer	1	+0%	100/15 Summer				50.339
6.015	SW615	240 Summer	1	+0%					50.334
6.016	HW616	240 Summer	1	+0%	30/30 Summer				50.159
18.000	B1800	15 Summer	1	+0%	100/30 Summer	100/120 Summer			50.221
18.001	B1801	60 Summer	1	+0%	100/30 Summer				50.173
6.017	MH S617	240 Summer	1	+0%	100/240 Summer				49.936
19.000	MH S1900	15 Summer	1	+0%	100/15 Summer				51.639
19.001	MH S1901	15 Summer	1	+0%	100/15 Summer				51.130
19.002	MH S1902	30 Summer	1	+0%	100/15 Summer				51.058
20.000	MH S2000	15 Summer	1	+0%	100/15 Summer				51.439
19.003	MH S1903	30 Summer	1	+0%	100/15 Summer				51.046
19.004	MH S1904	30 Summer	1	+0%	5/15 Summer				50.884
21.000	MH S2100	15 Summer	1	+0%					50.976
21.001	MH S2101	30 Summer	1	+0%	5/15 Summer				50.912
21.002	MH S2102	30 Summer	1	+0%					50.893
19.005	MH S1905	30 Summer	1	+0%	100/60 Summer				48.545
19.006	MH S1906	30 Summer	1	+0%	5/240 Summer				47.798
19.007	MH S1907	960 Summer	1	+0%	100/240 Summer				47.751
6.018	N618	960 Summer	1	+0%	1/120 Summer				47.751
1.015	MH S115	960 Summer	1	+0%	1/30 Summer				47.757

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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		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.247	0.000	0.03	0.0	19	0.8	OK	
7.001	B701	-0.108	0.000	0.17			2.5	OK	
6.004	SW604	-0.712	0.000	0.01		99	5.3	OK	
8.000	B800	-0.287	0.000	0.01	0.0	16	0.1	OK	
8.001	B801	-0.121	0.000	0.08			1.0	OK	
6.005	SW605	-0.676	0.000	0.01		78	5.7	OK	
6.006	SW606	-0.608	0.000	0.01		115	5.6	OK	
9.000	B900	-0.224	0.000	0.04	0.0	21	1.1	OK	
9.001	B901	-0.014	0.000	0.19			2.5	OK	
6.007	SW607	-0.511	0.000	0.01		151	7.6	OK	
10.000	B1000	-0.191	0.000	0.04	0.0	179	1.0	OK	
10.001	B1001	0.085	0.000	0.11			1.3	SURCHARGED	
6.008	SW608	-0.430	0.000	0.00		179	4.4	OK	
6.009	HW609	0.389	0.000	2.58			3.5	FLOOD RISK	9
11.000	B1100	-0.327	0.000	0.03	0.0	14	0.8	OK	
11.001	B1101	-0.131	0.000	0.04			1.3	OK	
12.000	B1200	-0.308	0.000	0.08	0.0	15	1.5	OK	
12.001	B1201	-0.120	0.000	0.09			2.0	OK	
6.010	MH S610	-0.099	0.000	0.25			5.7	OK	
13.000	B1300	-0.335	0.000	0.04	0.0	13	0.7	OK	
13.001	B1301	-0.130	0.000	0.04			1.1	OK	
14.000	B1400	-0.330	0.000	0.05	0.0	14	0.8	OK	
14.001	B1401	-0.121	0.000	0.08			1.2	OK	
6.011	MH S611	-0.074	0.000	0.51			7.9	OK	
6.012	SW612	-0.701	0.000	0.01		305	7.9	OK	
15.000	B1500	-0.331	0.000	0.02	0.0	14	0.6	OK	
15.001	B1501	-0.094	0.000	0.30			0.7	OK	
6.013	SW613	-0.698	0.000	0.01		304	8.6	OK	
16.000	B1600	-0.322	0.000	0.03	0.0	15	0.6	OK	
16.001	B1601	-0.083	0.000	0.42			0.7	OK	
6.014	SW614	-0.694	0.000	0.01		281	9.3	OK	
17.000	B1700	-0.329	0.000	0.02	0.0	14	0.6	OK	
17.001	B1701	-0.115	0.000	0.09			1.0	OK	
6.015	SW615	-0.661	0.000	0.02		32	10.2	OK	
6.016	HW616	-0.070	0.000	0.56			10.2	OK	
18.000	B1800	-0.362	0.000	0.03		12	0.5	OK	2
18.001	B1801	-0.134	0.000	0.03			0.7	OK	
6.017	MH S617	-0.194	0.000	0.05			10.6	OK	
19.000	MH S1900	-0.111	0.000	0.15			4.6	OK	
19.001	MH S1901	-0.770	0.000	0.31		9	7.8	OK	
19.002	MH S1902	-0.757	0.000	0.41		12	10.1	OK	
20.000	MH S2000	-0.161	0.000	0.18			11.7	OK	
19.003	MH S1903	-0.769	0.000	0.79		14	18.8	OK	
19.004	MH S1904	-0.080	0.000	0.75			18.8	OK	
21.000	MH S2100	-0.894	0.000	0.24		8	6.8	OK	
21.001	MH S2101	-0.107	0.000	0.39			12.5	OK	
21.002	MH S2102	-0.852	0.000	0.43		10	12.3	OK	
19.005	MH S1905	-0.225	0.000	0.14			31.0	OK	
19.006	MH S1906	-0.227	0.000	0.14			30.9	OK	
19.007	MH S1907	-2.350	0.000	0.00		499	6.0	OK	
6.018	N618	0.256	0.000	0.05			5.5	SURCHARGED	
1.015	MH S115	0.497	0.000	0.18			5.6	SURCHARGED	

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2 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 17 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	B100	15 Summer	2	+0%				0	54.677	-0.376
1.001	B101	180 Summer	2	+0%					54.643	-0.134
1.002	SW102	180 Summer	2	+0%					54.490	-0.779
2.000	B200	15 Summer	2	+0%				0	54.423	-0.316
2.001	B201	120 Summer	2	+0%					54.354	-0.109
1.003	SW103	120 Summer	2	+0%					54.236	-0.741
3.000	B300	15 Summer	2	+0%				0	54.118	-0.307
3.001	B301	120 Summer	2	+0%	100/30 Summer				54.045	-0.104
1.004	SW104	120 Summer	2	+0%					53.946	-0.717
4.000	B400	15 Summer	2	+0%				0	53.808	-0.428
4.001	B401	120 Summer	2	+0%	100/30 Summer				53.731	-0.104
1.005	SW105	120 Summer	2	+0%					53.685	-0.664
1.006	HW106	120 Summer	2	+0%	30/60 Summer				53.610	-0.083
1.007	MH S107	120 Summer	2	+0%	30/30 Summer				53.118	-0.082
1.008	MH S108	120 Summer	2	+0%	30/30 Summer				52.830	-0.075
1.009	MH S109	120 Summer	2	+0%	30/60 Summer				52.744	-0.106
5.000	B500	15 Summer	2	+0%					53.527	-0.363
5.001	B501	15 Summer	2	+0%	100/15 Summer				53.363	-0.076
5.002	SW502	15 Summer	2	+0%					53.214	-0.306
5.003	SW503	15 Summer	2	+0%					52.825	-0.678
5.004	HW504	15 Summer	2	+0%	100/15 Summer				52.709	-0.084
1.010	MH S110	120 Summer	2	+0%	5/120 Summer				52.046	-0.154
1.011	MH S111	180 Summer	2	+0%	1/15 Summer	30/30 Summer		28	51.958	0.193
1.012	MH S112	180 Summer	2	+0%					51.491	-0.094
1.013	MH S113	180 Summer	2	+0%					50.702	-0.098
1.014	MH S114	180 Summer	2	+0%	100/360 Summer				50.312	-0.108
6.000	B600	15 Summer	2	+0%		30/15 Summer		18	52.612	-0.218
6.001	B601	120 Summer	2	+0%	100/30 Summer				52.466	-0.088
6.002	N602	120 Summer	2	+0%					52.430	-0.095
6.003	SW603	120 Summer	2	+0%					52.303	-0.726

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

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.000	B100	0.000	0.00	0.0	11	0.2	OK	
1.001	B101	0.000	0.02			0.4	OK	
1.002	SW102	0.000	0.00		47	0.4	OK	
2.000	B200	0.000	0.03	0.0	15	1.3	OK	
2.001	B201	0.000	0.17			2.1	OK	
1.003	SW103	0.000	0.00		59	2.3	OK	
3.000	B300	0.000	0.04	0.0	15	1.7	OK	
3.001	B301	0.000	0.21			2.5	OK	
1.004	SW104	0.000	0.01		62	4.8	OK	
4.000	B400	0.000	0.03	0.0	14	1.9	OK	
4.001	B401	0.000	0.21			2.5	OK	
1.005	SW105	0.000	0.01		16	7.3	OK	
1.006	HW106	0.000	0.42			7.3	OK	
1.007	MH S107	0.000	0.43			7.3	OK	
1.008	MH S108	0.000	0.50			7.3	OK	
1.009	MH S109	0.000	0.19			7.3	OK	
5.000	B500	0.000	0.07		5	8.1	OK	
5.001	B501	0.000	0.49			8.1	OK	
5.002	SW502	0.000	0.01		6	8.0	OK	
5.003	SW503	0.000	0.07		4	8.0	OK	
5.004	HW504	0.000	0.39			7.9	OK	
1.010	MH S110	0.000	0.22			8.3	OK	
1.011	MH S111	0.000	0.44	0.0		7.4	SURCHARGED	
1.012	MH S112	0.000	0.30			7.4	OK	
1.013	MH S113	0.000	0.26			7.4	OK	
1.014	MH S114	0.000	0.17			7.4	OK	
6.000	B600	0.000	0.05	0.0	22	1.5	OK	
6.001	B601	0.000	0.36			3.9	OK	
6.002	N602	0.000	0.29			3.9	OK*	
6.003	SW603	0.000	0.00		71	3.9	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	2	+0%			30/15 Summer	16	52.307
7.001	B701	120 Summer	2	+0%	100/120 Summer				52.159
6.004	SW604	120 Summer	2	+0%					52.055
8.000	B800	15 Summer	2	+0%			30/15 Summer	17	52.112
8.001	B801	360 Summer	2	+0%	30/120 Summer				51.987
6.005	SW605	360 Summer	2	+0%					51.978
6.006	SW606	360 Summer	2	+0%					51.977
9.000	B900	15 Summer	2	+0%			5/15 Summer	48	52.034
9.001	B901	360 Summer	2	+0%	2/120 Summer				51.977
6.007	SW607	360 Summer	2	+0%					51.976
10.000	B1000	360 Summer	2	+0%			2/120 Summer	82	51.952
10.001	B1001	360 Summer	2	+0%	1/120 Summer				51.964
6.008	SW608	360 Summer	2	+0%					51.976
6.009	HW609	360 Summer	2	+0%	1/15 Summer	100/60 Summer			51.976
11.000	B1100	15 Summer	2	+0%			30/180 Summer	22	51.618
11.001	B1101	360 Summer	2	+0%	100/15 Summer				51.529
12.000	B1200	15 Summer	2	+0%			100/15 Summer	20	51.438
12.001	B1201	30 Summer	2	+0%	100/15 Summer				51.339
6.010	MH S610	180 Summer	2	+0%	30/120 Summer				51.186
13.000	B1300	15 Summer	2	+0%			100/15 Summer	16	51.210
13.001	B1301	60 Summer	2	+0%	100/15 Summer				51.128
14.000	B1400	15 Summer	2	+0%			100/15 Summer	20	51.016
14.001	B1401	60 Summer	2	+0%	100/15 Summer				50.940
6.011	MH S611	180 Summer	2	+0%	30/15 Summer				50.922
6.012	SW612	180 Summer	2	+0%					50.782
15.000	B1500	15 Summer	2	+0%			100/15 Summer	18	50.814
15.001	B1501	120 Summer	2	+0%	100/15 Summer				50.769
6.013	SW613	180 Summer	2	+0%					50.669
16.000	B1600	15 Summer	2	+0%			100/15 Summer	16	50.624
16.001	B1601	120 Summer	2	+0%	100/15 Summer				50.583
6.014	SW614	180 Summer	2	+0%					50.473
17.000	B1700	15 Summer	2	+0%			100/15 Summer	16	50.417
17.001	B1701	180 Summer	2	+0%	100/15 Summer				50.355
6.015	SW615	180 Summer	2	+0%					50.354
6.016	HW616	180 Summer	2	+0%	30/30 Summer				50.172
18.000	B1800	15 Summer	2	+0%	100/30 Summer	100/120 Summer			50.231
18.001	B1801	60 Summer	2	+0%	100/30 Summer				50.176
6.017	MH S617	180 Summer	2	+0%	100/240 Summer				49.940
19.000	MH S1900	15 Summer	2	+0%	100/15 Summer				51.645
19.001	MH S1901	30 Summer	2	+0%	100/15 Summer				51.172
19.002	MH S1902	30 Summer	2	+0%	100/15 Summer				51.127
20.000	MH S2000	15 Summer	2	+0%	100/15 Summer				51.449
19.003	MH S1903	30 Summer	2	+0%	100/15 Summer				51.114
19.004	MH S1904	30 Summer	2	+0%	5/15 Summer				50.918
21.000	MH S2100	15 Summer	2	+0%					51.001
21.001	MH S2101	30 Summer	2	+0%	5/15 Summer				50.958
21.002	MH S2102	30 Summer	2	+0%					50.929
19.005	MH S1905	30 Summer	2	+0%	100/60 Summer				48.557
19.006	MH S1906	720 Summer	2	+0%	5/240 Summer				47.919
19.007	MH S1907	720 Summer	2	+0%	100/240 Summer				47.918
6.018	N618	720 Summer	2	+0%	1/120 Summer				47.918
1.015	MH S115	720 Summer	2	+0%	1/30 Summer				47.925

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

PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.223	0.000	0.04	0.0	21	1.3	OK	
7.001	B701	-0.100	0.000	0.24			3.5	OK	
6.004	SW604	-0.700	0.000	0.01		82	7.4	OK	
8.000	B800	-0.268	0.000	0.01	0.0	18	0.4	OK	
8.001	B801	-0.117	0.000	0.11			1.3	OK	
6.005	SW605	-0.638	0.000	0.01		118	7.1	OK	
6.006	SW606	-0.571	0.000	0.01		155	6.9	OK	
9.000	B900	-0.196	0.000	0.07	0.0	22	1.8	OK	
9.001	B901	0.023	0.000	0.23			3.1	SURCHARGED	
6.007	SW607	-0.474	0.000	0.01		193	8.8	OK	
10.000	B1000	-0.178	0.000	0.04	2.4	250	1.0	OK	
10.001	B1001	0.110	0.000	0.11			1.3	FLOOD RISK	
6.008	SW608	-0.393	0.000	0.00		223	4.7	OK	
6.009	HW609	0.426	0.000	2.68			3.6	FLOOD RISK	9
11.000	B1100	-0.312	0.000	0.05	0.0	15	1.2	OK	
11.001	B1101	-0.125	0.000	0.07			2.2	OK	
12.000	B1200	-0.292	0.000	0.13	0.0	15	2.3	OK	
12.001	B1201	-0.115	0.000	0.12			2.8	OK	
6.010	MH S610	-0.094	0.000	0.30			6.7	OK	
13.000	B1300	-0.320	0.000	0.06	0.0	14	1.1	OK	
13.001	B1301	-0.126	0.000	0.06			1.5	OK	
14.000	B1400	-0.314	0.000	0.07	0.0	14	1.3	OK	
14.001	B1401	-0.114	0.000	0.11			1.7	OK	
6.011	MH S611	-0.063	0.000	0.63			9.9	OK	
6.012	SW612	-0.691	0.000	0.01		8	9.9	OK	
15.000	B1500	-0.316	0.000	0.04	0.0	15	1.0	OK	
15.001	B1501	-0.085	0.000	0.40			1.0	OK	
6.013	SW613	-0.686	0.000	0.01		16	10.8	OK	
16.000	B1600	-0.306	0.000	0.05	0.0	15	1.0	OK	
16.001	B1601	-0.071	0.000	0.55			0.9	OK	
6.014	SW614	-0.682	0.000	0.01		17	11.7	OK	
17.000	B1700	-0.313	0.000	0.04	0.0	14	1.0	OK	
17.001	B1701	-0.099	0.000	0.12			1.3	OK	
6.015	SW615	-0.641	0.000	0.02		30	12.8	OK	
6.016	HW616	-0.057	0.000	0.71			12.8	OK	
18.000	B1800	-0.352	0.000	0.05		13	0.8	OK	2
18.001	B1801	-0.131	0.000	0.04			0.9	OK	
6.017	MH S617	-0.190	0.000	0.06			13.4	OK	
19.000	MH S1900	-0.105	0.000	0.20			6.0	OK	
19.001	MH S1901	-0.728	0.000	0.36		9	9.1	OK	
19.002	MH S1902	-0.688	0.000	0.52		11	12.8	OK	
20.000	MH S2000	-0.151	0.000	0.23			15.2	OK	
19.003	MH S1903	-0.701	0.000	1.05		14	24.8	OK	
19.004	MH S1904	-0.046	0.000	0.99			24.9	OK	
21.000	MH S2100	-0.869	0.000	0.30		8	8.4	OK	
21.001	MH S2101	-0.061	0.000	0.49			15.7	OK	
21.002	MH S2102	-0.816	0.000	0.54		10	15.5	OK	
19.005	MH S1905	-0.213	0.000	0.19			40.2	OK	
19.006	MH S1906	-0.106	0.000	0.04			8.9	OK	
19.007	MH S1907	-2.183	0.000	0.00		505	8.7	OK	
6.018	N618	0.423	0.000	0.05			6.1	SURCHARGED	
1.015	MH S115	0.665	0.000	0.19			6.2	SURCHARGED	

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5 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 17 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 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)	Surcharged Depth (m)
1.000	B100	15 Summer	5	+0%				0	54.685	-0.368
1.001	B101	120 Summer	5	+0%					54.645	-0.132
1.002	SW102	120 Summer	5	+0%					54.495	-0.774
2.000	B200	15 Summer	5	+0%				0	54.440	-0.299
2.001	B201	60 Summer	5	+0%					54.363	-0.100
1.003	SW103	120 Summer	5	+0%					54.246	-0.731
3.000	B300	15 Summer	5	+0%				0	54.135	-0.290
3.001	B301	60 Summer	5	+0%	100/30 Summer				54.055	-0.094
1.004	SW104	60 Summer	5	+0%					53.958	-0.705
4.000	B400	15 Summer	5	+0%				0	53.828	-0.408
4.001	B401	60 Summer	5	+0%	100/30 Summer				53.741	-0.094
1.005	SW105	60 Summer	5	+0%					53.713	-0.636
1.006	HW106	60 Summer	5	+0%	30/60 Summer				53.626	-0.067
1.007	MH S107	60 Summer	5	+0%	30/30 Summer				53.135	-0.065
1.008	MH S108	60 Summer	5	+0%	30/30 Summer				52.848	-0.057
1.009	MH S109	60 Summer	5	+0%	30/60 Summer				52.752	-0.098
5.000	B500	15 Summer	5	+0%					53.537	-0.353
5.001	B501	15 Summer	5	+0%	100/15 Summer				53.376	-0.063
5.002	SW502	15 Summer	5	+0%					53.224	-0.296
5.003	SW503	15 Summer	5	+0%					52.840	-0.663
5.004	HW504	15 Summer	5	+0%	100/15 Summer				52.719	-0.074
1.010	MH S110	120 Summer	5	+0%	5/120 Summer				52.250	0.050
1.011	MH S111	120 Summer	5	+0%	1/15 Summer	30/30 Summer		28	52.215	0.450
1.012	MH S112	120 Summer	5	+0%					51.502	-0.083
1.013	MH S113	120 Summer	5	+0%					50.711	-0.089
1.014	MH S114	120 Summer	5	+0%	100/360 Summer				50.319	-0.101
6.000	B600	15 Summer	5	+0%		30/15 Summer		18	52.639	-0.191
6.001	B601	120 Summer	5	+0%	100/30 Summer				52.481	-0.073
6.002	N602	120 Summer	5	+0%					52.443	-0.082
6.003	SW603	120 Summer	5	+0%					52.315	-0.714

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

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.000	B100	0.000	0.01	0.0	11	0.3	OK	
1.001	B101	0.000	0.03			0.5	OK	
1.002	SW102	0.000	0.00		50	0.5	OK	
2.000	B200	0.000	0.05	0.0	15	2.1	OK	
2.001	B201	0.000	0.24			2.9	OK	
1.003	SW103	0.000	0.00		58	3.3	OK	
3.000	B300	0.000	0.07	0.0	16	2.6	OK	
3.001	B301	0.000	0.30			3.7	OK	
1.004	SW104	0.000	0.01		47	6.8	OK	
4.000	B400	0.000	0.05	0.0	14	2.9	OK	
4.001	B401	0.000	0.30			3.6	OK	
1.005	SW105	0.000	0.01		17	10.4	OK	
1.006	HW106	0.000	0.59			10.4	OK	
1.007	MH S107	0.000	0.61			10.4	OK	
1.008	MH S108	0.000	0.71			10.4	OK	
1.009	MH S109	0.000	0.27			10.4	OK	
5.000	B500	0.000	0.09		5	10.5	OK	
5.001	B501	0.000	0.64			10.5	OK	
5.002	SW502	0.000	0.01		6	10.4	FLOOD RISK	
5.003	SW503	0.000	0.08		4	10.4	OK	
5.004	HW504	0.000	0.51			10.3	OK	
1.010	MH S110	0.000	0.30			11.1	SURCHARGED	
1.011	MH S111	0.000	0.60	0.0		10.0	SURCHARGED	
1.012	MH S112	0.000	0.41			10.0	OK	
1.013	MH S113	0.000	0.35			10.0	OK	
1.014	MH S114	0.000	0.23			10.0	OK	
6.000	B600	0.000	0.08	0.0	23	2.4	OK	
6.001	B601	0.000	0.52			5.6	OK	
6.002	N602	0.000	0.42			5.6	OK*	
6.003	SW603	0.000	0.01		66	5.6	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	5	+0%			30/15 Summer	16	52.333
7.001	B701	120 Summer	5	+0%	100/120 Summer				52.170
6.004	SW604	120 Summer	5	+0%					52.074
8.000	B800	15 Summer	5	+0%			30/15 Summer	17	52.134
8.001	B801	240 Summer	5	+0%	30/120 Summer				52.016
6.005	SW605	240 Summer	5	+0%					52.013
6.006	SW606	240 Summer	5	+0%					52.012
9.000	B900	15 Summer	5	+0%			5/15 Summer	48	52.053
9.001	B901	240 Summer	5	+0%	2/120 Summer				52.012
6.007	SW607	240 Summer	5	+0%					52.012
10.000	B1000	240 Summer	5	+0%			2/120 Summer	82	51.955
10.001	B1001	240 Summer	5	+0%	1/120 Summer				51.983
6.008	SW608	240 Summer	5	+0%					52.011
6.009	HW609	240 Summer	5	+0%	1/15 Summer	100/60 Summer			52.011
11.000	B1100	360 Summer	5	+0%			30/180 Summer	22	51.646
11.001	B1101	360 Summer	5	+0%	100/15 Summer				51.543
12.000	B1200	15 Summer	5	+0%			100/15 Summer	20	51.458
12.001	B1201	30 Summer	5	+0%	100/15 Summer				51.346
6.010	MH S610	360 Summer	5	+0%	30/120 Summer				51.198
13.000	B1300	15 Summer	5	+0%			100/15 Summer	16	51.224
13.001	B1301	60 Summer	5	+0%	100/15 Summer				51.133
14.000	B1400	15 Summer	5	+0%			100/15 Summer	20	51.030
14.001	B1401	60 Summer	5	+0%	100/15 Summer				50.953
6.011	MH S611	60 Summer	5	+0%	30/15 Summer				50.942
6.012	SW612	60 Summer	5	+0%					50.800
15.000	B1500	15 Summer	5	+0%			100/15 Summer	18	50.829
15.001	B1501	120 Summer	5	+0%	100/15 Summer				50.782
6.013	SW613	60 Summer	5	+0%					50.687
16.000	B1600	15 Summer	5	+0%			100/15 Summer	16	50.641
16.001	B1601	120 Summer	5	+0%	100/15 Summer				50.599
6.014	SW614	60 Summer	5	+0%					50.492
17.000	B1700	15 Summer	5	+0%			100/15 Summer	16	50.431
17.001	B1701	60 Summer	5	+0%	100/15 Summer				50.374
6.015	SW615	60 Summer	5	+0%					50.372
6.016	HW616	60 Summer	5	+0%	30/30 Summer				50.193
18.000	B1800	15 Summer	5	+0%	100/30 Summer	100/120 Summer			50.243
18.001	B1801	30 Summer	5	+0%	100/30 Summer				50.179
6.017	MH S617	60 Summer	5	+0%	100/240 Summer				49.946
19.000	MH S1900	15 Summer	5	+0%	100/15 Summer				51.652
19.001	MH S1901	30 Summer	5	+0%	100/15 Summer				51.242
19.002	MH S1902	30 Summer	5	+0%	100/15 Summer				51.207
20.000	MH S2000	15 Summer	5	+0%	100/15 Summer				51.460
19.003	MH S1903	30 Summer	5	+0%	100/15 Summer				51.190
19.004	MH S1904	30 Summer	5	+0%	5/15 Summer				50.999
21.000	MH S2100	15 Summer	5	+0%					51.058
21.001	MH S2101	15 Summer	5	+0%	5/15 Summer				51.031
21.002	MH S2102	15 Summer	5	+0%					50.978
19.005	MH S1905	30 Summer	5	+0%	100/60 Summer				48.569
19.006	MH S1906	720 Summer	5	+0%	5/240 Summer				48.182
19.007	MH S1907	720 Summer	5	+0%	100/240 Summer				48.182
6.018	N618	720 Summer	5	+0%	1/120 Summer				48.182
1.015	MH S115	720 Summer	5	+0%	1/30 Summer				48.188

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

PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.197	0.000	0.07	0.0	22	2.1	OK	
7.001	B701	-0.089	0.000	0.35			5.1	OK	
6.004	SW604	-0.681	0.000	0.01		13	10.7	OK	
8.000	B800	-0.246	0.000	0.03	0.0	19	0.7	OK	
8.001	B801	-0.088	0.000	0.14			1.8	OK	
6.005	SW605	-0.603	0.000	0.01		103	10.5	OK	
6.006	SW606	-0.536	0.000	0.01		130	10.2	OK	
9.000	B900	-0.177	0.000	0.11	3.5	25	2.8	OK	
9.001	B901	0.058	0.000	0.33			4.3	SURCHARGED	
6.007	SW607	-0.438	0.000	0.02		174	11.8	OK	
10.000	B1000	-0.175	0.000	0.05	5.8	253	1.2	OK	
10.001	B1001	0.129	0.000	0.12			1.3	FLOOD RISK	
6.008	SW608	-0.358	0.000	0.01		202	5.8	OK	
6.009	HW609	0.461	0.000	2.77			3.8	FLOOD RISK	9
11.000	B1100	-0.284	0.000	0.21	0.0	97	5.1	OK	
11.001	B1101	-0.111	0.000	0.15			5.1	OK	
12.000	B1200	-0.272	0.000	0.19	0.0	15	3.4	OK	
12.001	B1201	-0.108	0.000	0.18			4.0	OK	
6.010	MH S610	-0.082	0.000	0.43			9.7	OK	
13.000	B1300	-0.306	0.000	0.09	0.0	15	1.7	OK	
13.001	B1301	-0.121	0.000	0.08			2.1	OK	
14.000	B1400	-0.300	0.000	0.11	0.0	14	1.9	OK	
14.001	B1401	-0.101	0.000	0.16			2.3	OK	
6.011	MH S611	-0.043	0.000	0.86			13.3	OK	
6.012	SW612	-0.673	0.000	0.01		8	13.3	OK	
15.000	B1500	-0.301	0.000	0.07	0.0	15	1.6	OK	
15.001	B1501	-0.072	0.000	0.54			1.3	OK	
6.013	SW613	-0.668	0.000	0.01		11	14.4	OK	
16.000	B1600	-0.289	0.000	0.08	0.0	17	1.7	OK	
16.001	B1601	-0.055	0.000	0.73			1.2	OK	
6.014	SW614	-0.663	0.000	0.02		15	15.5	OK	
17.000	B1700	-0.299	0.000	0.07	0.0	14	1.6	OK	
17.001	B1701	-0.080	0.000	0.18			1.9	OK	
6.015	SW615	-0.623	0.000	0.03		26	17.1	OK	
6.016	HW616	-0.036	0.000	0.94			17.0	OK	
18.000	B1800	-0.340	0.000	0.07		13	1.1	OK	2
18.001	B1801	-0.128	0.000	0.05			1.3	OK	
6.017	MH S617	-0.184	0.000	0.08			18.0	OK	
19.000	MH S1900	-0.098	0.000	0.26			7.7	OK	
19.001	MH S1901	-0.658	0.000	0.45		9	11.5	OK	
19.002	MH S1902	-0.608	0.000	0.66		10	16.4	OK	
20.000	MH S2000	-0.140	0.000	0.30			19.6	OK	
19.003	MH S1903	-0.625	0.000	1.36		13	32.2	OK	
19.004	MH S1904	0.035	0.000	1.28			32.3	SURCHARGED	
21.000	MH S2100	-0.812	0.000	0.38		7	10.5	OK	
21.001	MH S2101	0.012	0.000	0.62			20.0	SURCHARGED	
21.002	MH S2102	-0.767	0.000	0.69		8	19.6	OK	
19.005	MH S1905	-0.201	0.000	0.24			51.5	OK	
19.006	MH S1906	0.157	0.000	0.05			10.9	SURCHARGED	
19.007	MH S1907	-1.919	0.000	0.00		574	10.6	OK	
6.018	N618	0.687	0.000	0.06			6.9	SURCHARGED	
1.015	MH S115	0.928	0.000	0.22			7.0	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 Offline Controls 17 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	B100	15 Summer	30	+0%				0	54.699	-0.354
1.001	B101	120 Summer	30	+0%					54.651	-0.126
1.002	SW102	120 Summer	30	+0%					54.506	-0.763
2.000	B200	15 Summer	30	+0%				0	54.467	-0.272
2.001	B201	60 Summer	30	+0%					54.384	-0.079
1.003	SW103	60 Summer	30	+0%					54.269	-0.708
3.000	B300	15 Summer	30	+0%				0	54.163	-0.262
3.001	B301	60 Summer	30	+0%	100/30 Summer				54.080	-0.069
1.004	SW104	60 Summer	30	+0%					53.992	-0.671
4.000	B400	15 Summer	30	+0%				0	53.857	-0.379
4.001	B401	60 Summer	30	+0%	100/30 Summer				53.767	-0.068
1.005	SW105	60 Summer	30	+0%					53.759	-0.590
1.006	HW106	60 Summer	30	+0%	30/60 Summer				53.697	0.004
1.007	MH S107	60 Summer	30	+0%	30/30 Summer				53.280	0.080
1.008	MH S108	60 Summer	30	+0%	30/30 Summer				52.958	0.053
1.009	MH S109	60 Summer	30	+0%	30/60 Summer				52.879	0.029
5.000	B500	15 Summer	30	+0%					53.556	-0.334
5.001	B501	15 Summer	30	+0%	100/15 Summer				53.403	-0.036
5.002	SW502	15 Summer	30	+0%					53.246	-0.274
5.003	SW503	15 Summer	30	+0%					52.867	-0.636
5.004	HW504	60 Summer	30	+0%	100/15 Summer				52.750	-0.043
1.010	MH S110	60 Summer	30	+0%	5/120 Summer				52.749	0.549
1.011	MH S111	60 Summer	30	+0%	1/15 Summer	30/30 Summer		28	52.658	0.893
1.012	MH S112	60 Summer	30	+0%					51.514	-0.071
1.013	MH S113	60 Summer	30	+0%					50.722	-0.078
1.014	MH S114	60 Summer	30	+0%	100/360 Summer				50.327	-0.093
6.000	B600	15 Summer	30	+0%		30/15 Summer		18	52.655	-0.175
6.001	B601	60 Summer	30	+0%	100/30 Summer				52.547	-0.007
6.002	N602	60 Summer	30	+0%					52.525	0.000
6.003	SW603	60 Summer	30	+0%					52.365	-0.664

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

PN	US/MH Name	Flooded Volume (m³)	Flow / Overflow Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	B100	0.000	0.02	0.0	12	0.6	OK	
1.001	B101	0.000	0.06			1.0	OK	
1.002	SW102	0.000	0.00		48	1.0	OK	
2.000	B200	0.000	0.10	0.0	17	4.0	OK	
2.001	B201	0.000	0.46			5.6	OK	
1.003	SW103	0.000	0.01		38	6.3	OK	
3.000	B300	0.000	0.13	0.0	18	5.0	OK	
3.001	B301	0.000	0.56			6.8	OK	
1.004	SW104	0.000	0.01		9	12.9	OK	
4.000	B400	0.000	0.09	0.0	16	5.5	OK	
4.001	B401	0.000	0.54			6.6	OK	
1.005	SW105	0.000	0.02		21	18.7	OK	
1.006	HW106	0.000	1.07			18.7	SURCHARGED	
1.007	MH S107	0.000	1.09			18.6	SURCHARGED	
1.008	MH S108	0.000	1.25			18.4	SURCHARGED	
1.009	MH S109	0.000	0.46			17.8	SURCHARGED	
5.000	B500	0.000	0.13		5	15.4	OK	
5.001	B501	0.000	0.93			15.3	OK	
5.002	SW502	0.000	0.01		3	15.2	FLOOD RISK	
5.003	SW503	0.000	0.12		4	15.3	OK	
5.004	HW504	0.000	0.54			10.8	FLOOD RISK	
1.010	MH S110	0.000	0.50			18.8	SURCHARGED	
1.011	MH S111	0.000	0.80	5.4		13.4	SURCHARGED	
1.012	MH S112	0.000	0.55			13.4	OK	
1.013	MH S113	0.000	0.47			13.4	OK	
1.014	MH S114	0.000	0.31			13.4	OK	
6.000	B600	0.000	0.14	10.0	27	4.0	OK	
6.001	B601	0.000	0.90			9.8	OK	
6.002	N602	0.000	1.13			15.1	SURCHARGED*	
6.003	SW603	0.000	0.02		8	15.2	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	30	+0%			30/15 Summer	16	52.362
7.001	B701	60 Summer	30	+0%	100/120 Summer				52.202
6.004	SW604	60 Summer	30	+0%					52.136
8.000	B800	15 Summer	30	+0%			30/15 Summer	17	52.205
8.001	B801	120 Summer	30	+0%	30/120 Summer				52.116
6.005	SW605	120 Summer	30	+0%					52.118
6.006	SW606	120 Summer	30	+0%					52.117
9.000	B900	15 Summer	30	+0%			5/15 Summer	48	52.064
9.001	B901	120 Summer	30	+0%	2/120 Summer				52.102
6.007	SW607	120 Summer	30	+0%					52.116
10.000	B1000	180 Summer	30	+0%			2/120 Summer	82	51.962
10.001	B1001	120 Summer	30	+0%	1/120 Summer				52.045
6.008	SW608	120 Summer	30	+0%					52.115
6.009	HW609	120 Summer	30	+0%	1/15 Summer	100/60 Summer			52.115
11.000	B1100	180 Summer	30	+0%			30/180 Summer	22	51.747
11.001	B1101	180 Summer	30	+0%	100/15 Summer				51.585
12.000	B1200	15 Summer	30	+0%			100/15 Summer	20	51.491
12.001	B1201	180 Summer	30	+0%	100/15 Summer				51.375
6.010	MH S610	180 Summer	30	+0%	30/120 Summer				51.373
13.000	B1300	15 Summer	30	+0%			100/15 Summer	16	51.252
13.001	B1301	30 Summer	30	+0%	100/15 Summer				51.142
14.000	B1400	15 Summer	30	+0%			100/15 Summer	20	51.059
14.001	B1401	240 Summer	30	+0%	100/15 Summer				51.054
6.011	MH S611	240 Summer	30	+0%	30/15 Summer				51.055
6.012	SW612	240 Summer	30	+0%					50.842
15.000	B1500	15 Summer	30	+0%			100/15 Summer	18	50.857
15.001	B1501	60 Summer	30	+0%	100/15 Summer				50.814
6.013	SW613	180 Summer	30	+0%					50.728
16.000	B1600	15 Summer	30	+0%			100/15 Summer	16	50.669
16.001	B1601	120 Summer	30	+0%	100/15 Summer				50.643
6.014	SW614	180 Summer	30	+0%					50.532
17.000	B1700	15 Summer	30	+0%			100/15 Summer	16	50.461
17.001	B1701	60 Summer	30	+0%	100/15 Summer				50.414
6.015	SW615	240 Summer	30	+0%					50.411
6.016	HW616	240 Summer	30	+0%	30/30 Summer				50.319
18.000	B1800	15 Summer	30	+0%	100/30 Summer	100/120 Summer			50.264
18.001	B1801	30 Summer	30	+0%	100/30 Summer				50.188
6.017	MH S617	60 Summer	30	+0%	100/240 Summer				49.956
19.000	MH S1900	15 Summer	30	+0%	100/15 Summer				51.664
19.001	MH S1901	15 Summer	30	+0%	100/15 Summer				51.488
19.002	MH S1902	15 Summer	30	+0%	100/15 Summer				51.456
20.000	MH S2000	15 Summer	30	+0%	100/15 Summer				51.522
19.003	MH S1903	15 Summer	30	+0%	100/15 Summer				51.431
19.004	MH S1904	30 Summer	30	+0%	5/15 Summer				51.141
21.000	MH S2100	15 Summer	30	+0%					51.252
21.001	MH S2101	15 Summer	30	+0%	5/15 Summer				51.230
21.002	MH S2102	15 Summer	30	+0%					51.101
19.005	MH S1905	720 Summer	30	+0%	100/60 Summer				48.723
19.006	MH S1906	720 Summer	30	+0%	5/240 Summer				48.721
19.007	MH S1907	720 Summer	30	+0%	100/240 Summer				48.720
6.018	N618	720 Summer	30	+0%	1/120 Summer				48.720
1.015	MH S115	720 Summer	30	+0%	1/30 Summer				48.723

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

PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.168	0.000	0.13	16.5	26	4.0	FLOOD RISK	
7.001	B701	-0.057	0.000	0.71			10.3	OK	
6.004	SW604	-0.619	0.000	0.03		19	25.4	OK	
8.000	B800	-0.175	0.000	0.08	9.8	20	2.1	OK	
8.001	B801	0.012	0.000	0.25			3.0	SURCHARGED	
6.005	SW605	-0.498	0.000	0.03		51	23.4	OK	
6.006	SW606	-0.431	0.000	0.03		65	22.3	OK	
9.000	B900	-0.166	0.000	0.16	24.6	27	4.0	FLOOD RISK	
9.001	B901	0.148	0.000	0.70			9.3	FLOOD RISK	
6.007	SW607	-0.334	0.000	0.03		91	22.2	OK	
10.000	B1000	-0.168	0.000	0.07	21.4		1.8	FLOOD RISK	
10.001	B1001	0.191	0.000	0.26			2.9	FLOOD RISK	
6.008	SW608	-0.254	0.000	0.01		120	9.9	FLOOD RISK	
6.009	HW609	0.565	0.000	3.03			4.1	FLOOD RISK	9
11.000	B1100	-0.183	0.000	0.76	0.1	89	18.7	OK	
11.001	B1101	-0.069	0.000	0.57			18.7	OK	
12.000	B1200	-0.239	0.000	0.34	0.0	15	6.3	OK	
12.001	B1201	-0.079	0.000	0.18			4.0	OK	
6.010	MH S610	0.093	0.000	1.04			23.6	SURCHARGED	
13.000	B1300	-0.278	0.000	0.17	0.0	15	3.1	OK	
13.001	B1301	-0.112	0.000	0.15			3.7	OK	
14.000	B1400	-0.271	0.000	0.19	0.0	15	3.5	OK	
14.001	B1401	0.000	0.000	0.18			2.6	OK	
6.011	MH S611	0.070	0.000	1.50			23.4	SURCHARGED	
6.012	SW612	-0.631	0.000	0.02		41	23.4	OK	
15.000	B1500	-0.273	0.000	0.12	0.0	20	3.1	OK	
15.001	B1501	-0.040	0.000	0.89			2.2	OK	
6.013	SW613	-0.627	0.000	0.03		55	24.9	OK	
16.000	B1600	-0.261	0.000	0.16	0.0	26	3.2	OK	
16.001	B1601	-0.011	0.000	1.00			1.7	OK	
6.014	SW614	-0.623	0.000	0.03		56	26.6	OK	
17.000	B1700	-0.269	0.000	0.12	0.0	19	3.0	OK	
17.001	B1701	-0.040	0.000	0.26			2.8	OK	
6.015	SW615	-0.584	0.000	0.04		67	26.7	OK	
6.016	HW616	0.090	0.000	1.47			26.7	SURCHARGED	
18.000	B1800	-0.319	0.000	0.13		12	2.0	OK	2
18.001	B1801	-0.119	0.000	0.09			2.3	OK	
6.017	MH S617	-0.174	0.000	0.12			27.1	OK	
19.000	MH S1900	-0.086	0.000	0.38			11.3	OK	
19.001	MH S1901	-0.412	0.000	0.70		6	17.7	OK	
19.002	MH S1902	-0.359	0.000	0.97		7	23.8	OK	
20.000	MH S2000	-0.078	0.000	0.44			28.8	OK	
19.003	MH S1903	-0.384	0.000	2.02		9	47.7	OK	
19.004	MH S1904	0.177	0.000	1.92			48.3	SURCHARGED	
21.000	MH S2100	-0.618	0.000	0.65		6	18.1	OK	
21.001	MH S2101	0.211	0.000	0.96			31.0	SURCHARGED	
21.002	MH S2102	-0.644	0.000	1.08		9	30.6	OK	
19.005	MH S1905	-0.047	0.000	0.07			15.7	OK	
19.006	MH S1906	0.696	0.000	0.07			15.6	SURCHARGED	
19.007	MH S1907	-1.381	0.000	0.00		668	15.1	OK	
6.018	N618	1.225	0.000	0.10			11.7	SURCHARGED	
1.015	MH S115	1.463	0.000	0.40			13.0	SURCHARGED	

SGi Consulting		Page 29
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
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Micro Drainage		Network 2020.1.3

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 Offline Controls 17 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 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)	Surcharged Depth (m)
1.000	B100	15 Summer	100	+40%				0	54.730	-0.323
1.001	B101	60 Summer	100	+40%					54.667	-0.110
1.002	SW102	60 Summer	100	+40%					54.530	-0.739
2.000	B200	15 Summer	100	+40%				0	54.517	-0.222
2.001	B201	60 Summer	100	+40%					54.442	-0.021
1.003	SW103	60 Summer	100	+40%					54.314	-0.663
3.000	B300	15 Summer	100	+40%				0	54.216	-0.209
3.001	B301	30 Summer	100	+40%	100/30 Summer				54.154	0.005
1.004	SW104	60 Summer	100	+40%					54.048	-0.615
4.000	B400	60 Summer	100	+40%				0	53.936	-0.300
4.001	B401	60 Summer	100	+40%	100/30 Summer				53.934	0.099
1.005	SW105	60 Summer	100	+40%					53.938	-0.411
1.006	HW106	60 Summer	100	+40%	30/60 Summer				53.951	0.258
1.007	MH S107	60 Summer	100	+40%	30/30 Summer				53.812	0.612
1.008	MH S108	120 Summer	100	+40%	30/30 Summer				53.349	0.444
1.009	MH S109	120 Summer	100	+40%	30/60 Summer				53.233	0.383
5.000	B500	15 Summer	100	+40%					53.596	-0.294
5.001	B501	15 Summer	100	+40%	100/15 Summer				53.535	0.096
5.002	SW502	15 Summer	100	+40%					53.285	-0.235
5.003	SW503	120 Winter	100	+40%					53.044	-0.459
5.004	HW504	120 Winter	100	+40%	100/15 Summer				53.043	0.250
1.010	MH S110	120 Summer	100	+40%	5/120 Summer				53.039	0.839
1.011	MH S111	120 Summer	100	+40%	1/15 Summer		30/30 Summer	28	52.883	1.118
1.012	MH S112	120 Summer	100	+40%					51.520	-0.065
1.013	MH S113	120 Summer	100	+40%					50.727	-0.073
1.014	MH S114	600 Summer	100	+40%	100/360 Summer				50.520	0.100
6.000	B600	15 Summer	100	+40%			30/15 Summer	18	52.662	-0.168
6.001	B601	120 Summer	100	+40%	100/30 Summer				52.612	0.058
6.002	N602	240 Winter	100	+40%					52.525	0.000
6.003	SW603	120 Summer	100	+40%					52.391	-0.638

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

PN	US/MH Name	Flooded		Flow / Cap.	Overflow (l/s)	Half Drain		Pipe Flow (l/s)	Status	Level Exceeded
		Volume (m³)	Flow			Time (mins)				
1.000	B100	0.000	0.05		0.0	14		1.9	OK	
1.001	B101	0.000	0.16					2.5	OK	
1.002	SW102	0.000	0.00			31		2.5	OK	
2.000	B200	0.000	0.28		0.0	18		11.3	OK	
2.001	B201	0.000	1.00					12.0	OK	
1.003	SW103	0.000	0.02			8		14.5	OK	
3.000	B300	0.000	0.35		0.0	18		14.1	OK	
3.001	B301	0.000	1.15					13.8	SURCHARGED	
1.004	SW104	0.000	0.03			16		27.5	OK	
4.000	B400	0.000	0.25		0.0	26		15.2	OK	
4.001	B401	0.000	0.93					11.2	SURCHARGED	
1.005	SW105	0.000	0.04			21		28.5	OK	
1.006	HW106	0.000	1.53					26.8	SURCHARGED	
1.007	MH S107	0.000	1.37					23.4	SURCHARGED	
1.008	MH S108	0.000	1.45					21.4	SURCHARGED	
1.009	MH S109	0.000	0.55					21.4	SURCHARGED	
5.000	B500	0.000	0.23			5		26.1	OK	
5.001	B501	0.000	1.57					25.9	SURCHARGED	
5.002	SW502	0.000	0.02			4		25.8	FLOOD RISK	
5.003	SW503	0.000	0.07			24		9.2	OK	
5.004	HW504	0.000	0.43					8.6	FLOOD RISK	
1.010	MH S110	0.000	0.66					24.7	FLOOD RISK	
1.011	MH S111	0.000	0.88		9.9			14.8	SURCHARGED	
1.012	MH S112	0.000	0.61					14.8	OK	
1.013	MH S113	0.000	0.52					14.8	OK	
1.014	MH S114	0.000	0.31					13.3	SURCHARGED	
6.000	B600	0.000	0.22		41.1	33		6.5	FLOOD RISK	
6.001	B601	0.000	1.02					11.0	SURCHARGED	
6.002	N602	0.000	1.42					19.1	SURCHARGED*	
6.003	SW603	0.000	0.02			42		20.7	OK	

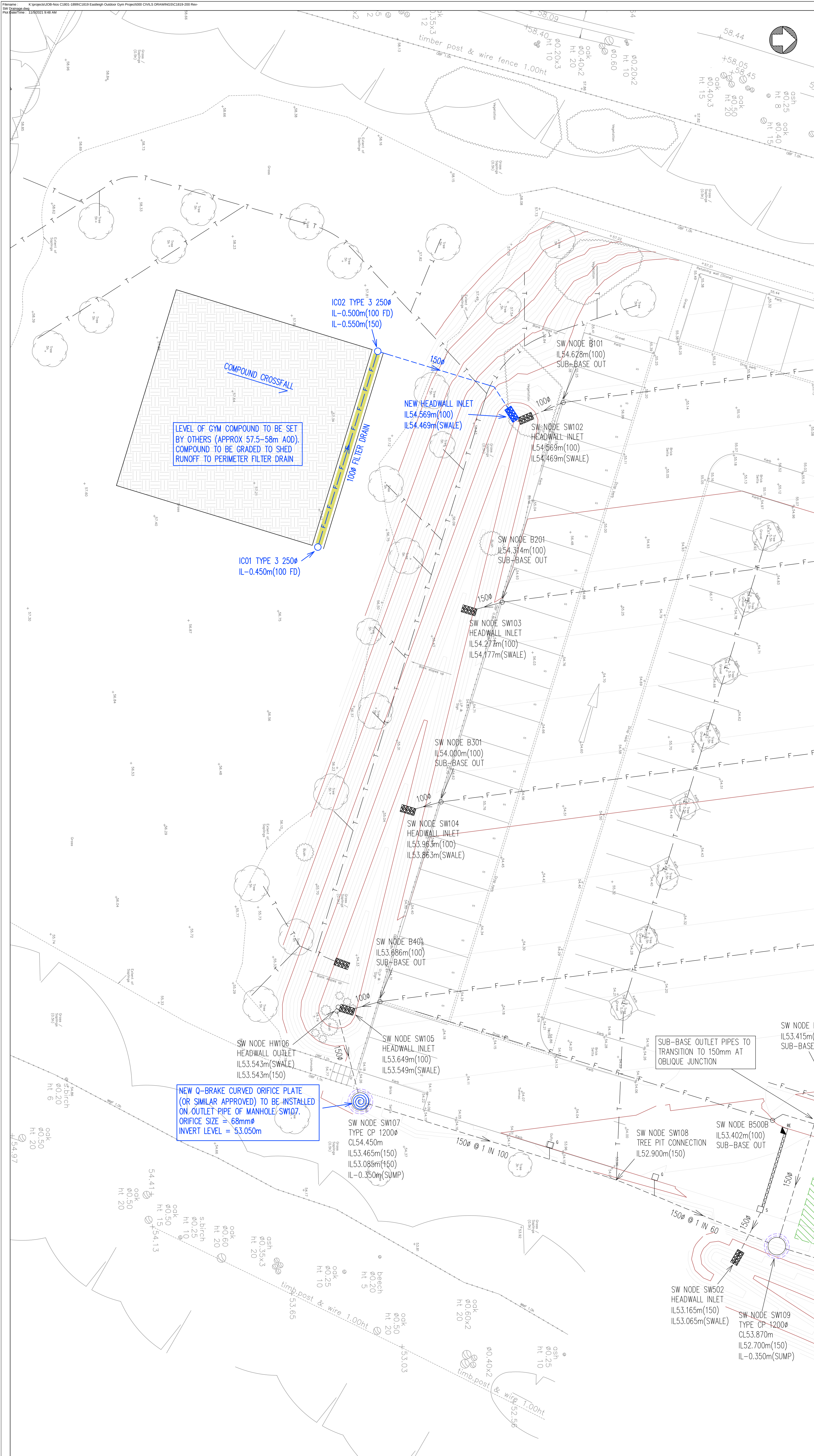
100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	100	+40%			30/15 Summer	16	52.371
7.001	B701	180 Summer	100	+40%	100/120 Summer				52.266
6.004	SW604	120 Winter	100	+40%					52.220
8.000	B800	15 Summer	100	+40%			30/15 Summer	17	52.217
8.001	B801	120 Winter	100	+40%	30/120 Summer				52.219
6.005	SW605	120 Winter	100	+40%					52.214
6.006	SW606	120 Winter	100	+40%					52.213
9.000	B900	15 Summer	100	+40%			5/15 Summer	48	52.081
9.001	B901	120 Summer	100	+40%	2/120 Summer				52.179
6.007	SW607	120 Winter	100	+40%					52.210
10.000	B1000	15 Summer	100	+40%			2/120 Summer	82	51.978
10.001	B1001	180 Summer	100	+40%	1/120 Summer				52.095
6.008	SW608	120 Winter	100	+40%					52.208
6.009	HW609	120 Winter	100	+40%	1/15 Summer	100/60 Summer			52.207
11.000	B1100	15 Summer	100	+40%			30/180 Summer	22	51.777
11.001	B1101	120 Summer	100	+40%	100/15 Summer				51.754
12.000	B1200	15 Summer	100	+40%			100/15 Summer	20	51.578
12.001	B1201	60 Summer	100	+40%	100/15 Summer				51.650
6.010	MH S610	180 Summer	100	+40%	30/120 Summer				51.644
13.000	B1300	180 Summer	100	+40%			100/15 Summer	16	51.377
13.001	B1301	180 Summer	100	+40%	100/15 Summer				51.370
14.000	B1400	180 Summer	100	+40%			100/15 Summer	20	51.179
14.001	B1401	30 Summer	100	+40%	100/15 Summer				51.281
6.011	MH S611	30 Winter	100	+40%	30/15 Summer				51.290
6.012	SW612	30 Winter	100	+40%					50.881
15.000	B1500	180 Summer	100	+40%			100/15 Summer	18	50.980
15.001	B1501	180 Summer	100	+40%	100/15 Summer				51.047
6.013	SW613	30 Summer	100	+40%					50.775
16.000	B1600	180 Summer	100	+40%			100/15 Summer	16	50.779
16.001	B1601	240 Winter	100	+40%	100/15 Summer				50.837
6.014	SW614	120 Summer	100	+40%					50.656
17.000	B1700	180 Summer	100	+40%			100/15 Summer	16	50.670
17.001	B1701	120 Summer	100	+40%	100/15 Summer				50.671
6.015	SW615	120 Summer	100	+40%					50.651
6.016	HW616	120 Summer	100	+40%	30/30 Summer				50.647
18.000	B1800	180 Summer	100	+40%	100/30 Summer	100/120 Summer			50.713
18.001	B1801	120 Winter	100	+40%	100/30 Summer				50.656
6.017	MH S617	600 Summer	100	+40%	100/240 Summer				50.516
19.000	MH S1900	15 Summer	100	+40%	100/15 Summer				52.272
19.001	MH S1901	30 Summer	100	+40%	100/15 Summer				52.032
19.002	MH S1902	30 Summer	100	+40%	100/15 Summer				51.977
20.000	MH S2000	15 Summer	100	+40%	100/15 Summer				52.232
19.003	MH S1903	30 Summer	100	+40%	100/15 Summer				51.936
19.004	MH S1904	30 Summer	100	+40%	5/15 Summer				51.841
21.000	MH S2100	15 Summer	100	+40%					51.788
21.001	MH S2101	15 Summer	100	+40%	5/15 Summer				51.752
21.002	MH S2102	15 Summer	100	+40%					51.397
19.005	MH S1905	600 Summer	100	+40%	100/60 Summer				50.507
19.006	MH S1906	600 Summer	100	+40%	5/240 Summer				50.504
19.007	MH S1907	600 Summer	100	+40%	100/240 Summer				50.502
6.018	N618	600 Summer	100	+40%	1/120 Summer				50.502
1.015	MH S115	600 Summer	100	+40%	1/30 Summer				50.499

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

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)						
7.000	B700	-0.159	0.000	0.22	77.0	31	6.6	FLOOD RISK	
7.001	B701	0.007	0.000	0.95			13.8	SURCHARGED	
6.004	SW604	-0.535	0.000	0.04		39	34.2	OK	
8.000	B800	-0.163	0.000	0.16	85.5	27	4.0	FLOOD RISK	
8.001	B801	0.115	0.000	0.48			6.0	FLOOD RISK	
6.005	SW605	-0.402	0.000	0.04		50	38.7	OK	
6.006	SW606	-0.335	0.000	0.05		54	38.7	OK	
9.000	B900	-0.149	0.000	0.19	131.7		4.7	FLOOD RISK	
9.001	B901	0.225	0.000	0.52			6.9	FLOOD RISK	
6.007	SW607	-0.240	0.000	0.04		64	33.6	FLOOD RISK	
10.000	B1000	-0.152	0.000	0.84	106.6		20.2	FLOOD RISK	
10.001	B1001	0.241	0.000	0.08			0.9	FLOOD RISK	
6.008	SW608	-0.161	0.000	0.01		77	15.5	FLOOD RISK	
6.009	HW609	0.657	7.374	3.05			4.1	FLOOD	9
11.000	B1100	-0.153	0.000	0.83	92.3		20.4	FLOOD RISK	
11.001	B1101	0.100	0.000	0.62			20.3	SURCHARGED	
12.000	B1200	-0.152	0.000	1.05	86.7	19	19.4	FLOOD RISK	
12.001	B1201	0.196	0.000	0.40			9.0	FLOOD RISK	
6.010	MH S610	0.364	0.000	1.15			26.1	SURCHARGED	
13.000	B1300	-0.153	0.000	0.92	84.8	65	16.8	FLOOD RISK	
13.001	B1301	0.116	0.000	0.62			15.7	FLOOD RISK	
14.000	B1400	-0.151	0.000	0.19	95.9	98	3.5	FLOOD RISK	
14.001	B1401	0.227	0.000	0.47			6.9	FLOOD RISK	
6.011	MH S611	0.305	0.000	2.45			38.2	SURCHARGED	
6.012	SW612	-0.592	0.000	0.04			38.1	OK	
15.000	B1500	-0.150	0.000	0.40	102.5	95	9.8	FLOOD RISK	
15.001	B1501	0.193	0.000	2.25			5.6	FLOOD RISK	
6.013	SW613	-0.580	0.000	0.04			43.2	OK	
16.000	B1600	-0.151	0.000	0.29	111.3	94	5.9	FLOOD RISK	
16.001	B1601	0.183	0.000	2.20			3.7	FLOOD RISK	
6.014	SW614	-0.499	0.000	0.05		43	45.0	OK	
17.000	B1700	-0.060	0.000	0.65	69.1	84	16.4	FLOOD RISK	
17.001	B1701	0.217	0.000	1.24			13.5	FLOOD RISK	
6.015	SW615	-0.344	0.000	0.08		60	51.2	OK	
6.016	HW616	0.418	0.000	2.46			44.7	FLOOD RISK	
18.000	B1800	0.130	0.819	2.91		2	47.0	FLOOD	2
18.001	B1801	0.349	0.000	1.74			43.9	FLOOD RISK	
6.017	MH S617	0.386	0.000	0.21			48.6	FLOOD RISK	
19.000	MH S1900	0.522	0.000	0.58			17.5	FLOOD RISK	
19.001	MH S1901	0.132	0.000	1.38		9	35.0	SURCHARGED	
19.002	MH S1902	0.162	0.000	1.91		10	47.0	SURCHARGED	
20.000	MH S2000	0.632	0.000	0.73			47.8	SURCHARGED	
19.003	MH S1903	0.121	0.000	3.99		11	94.4	SURCHARGED	
19.004	MH S1904	0.877	0.000	3.69			92.7	SURCHARGED	
21.000	MH S2100	-0.082	0.000	1.14		6	31.9	OK	
21.001	MH S2101	0.733	0.000	1.62			52.2	SURCHARGED	
21.002	MH S2102	-0.348	0.000	1.82		9	51.8	OK	
19.005	MH S1905	1.737	0.000	0.15			32.1	SURCHARGED	
19.006	MH S1906	2.479	0.000	0.14			31.4	SURCHARGED	
19.007	MH S1907	0.401	0.000	0.00		483	30.5	SURCHARGED	
6.018	N618	3.007	0.000	0.17			20.1	SURCHARGED	
1.015	MH S115	3.239	0.000	0.73			23.4	SURCHARGED	

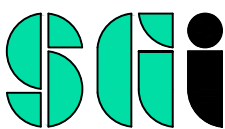
APPENDIX C I



Drainage notes

- This drainage drawing is to be read in conjunction with all relevant Architect's, Engineer's drawings and specifications.
- Do not scale this drawing. Any ambiguities, omissions and errors on the drawings shall be brought to the Engineer's attention immediately. All dimensions must be checked and verified on-site before construction commences.
- All external underground drainage works are to be constructed in accordance with the Civil Engineering Specification for the Water Industry 7th Edition (CESW), Sewers for Adoption 7th Edition (SFA) and any site-specific details provided on the contract drawings.
- All internal underground drainage works are to be constructed in accordance with the Building Regulations Approved Document H (2015 Edition) and any site-specific details provided on the contract drawings.
- The contractor must survey any retained drainage on-site and report the line, level and condition of the existing drainage to the engineer. We would recommend that the existing drainage is cleaned before any surveying and that these works are undertaken before the contractor commences on-site.
- Any redundant manholes are to be broken out to at least 600mm below formation level and backfilled with an approved compacted granular material.
- Any redundant pipes up to and including 300mm diameter are to be filled with a 10:1 PFA/cement mix or broken out and backfilled with an approved compacted granular material. Any redundant pipes over 300mm diameter are to be broken out and backfilled with an approved compacted granular material.
- Adoptable Drainage Pipes – All foul and surface water pipes up to and including 300mm diameter are to be Vitrified Clay in accordance with BS EN 295-1. All pipes greater than 300mm diameter to be concrete Class 120 in accordance with BS EN 1916:2002. **Whilst Sewers for adoption permits the use of structural welded pipes, SG would highly recommend that this material is avoided on adoptable lengths due to odour risks that have become apparent across the industry. Should odour issues arise during an as built inspections then the contractor will be responsible for the replacement of the affected pipe lengths to remedy the issue.**
- Private Drainage Pipes – All foul and surface water pipes up to and including 100mm diameter are to be Vitrified Clay in accordance with BS EN 295-1 or Solid Walled PVC-U in accordance with BS EN 1401. All foul and surface water pipes greater than 100mm diameter are to be Vitrified Clay in accordance with BS EN 295-1, Concrete Class 120 in accordance with BS EN 1916:2002 or Structural Walled PVC-U in accordance with MS 4-35-01 and BS EN 13476.
- All new lateral/branch connections are to be formed using oblique junction pieces to ensure a rigid watertight connection. The use of saddle branch connections onto new laid pipes will not be permitted without the Client/Engineers approval. Saddle branch connections onto an existing private pipes will be permitted if specified on the drawing.
- All concrete manholes are to be in accordance with BS EN 1917. All plastic inspection chambers are to be in accordance with BS EN 13598.
- All pipes laid within vehicle trafficked areas with less than 900mm of cover shall be surrounded in Class 2 bedding. All pipes less than 300mm below the underside of a ground floor slab shall be surrounded in Class 2 bedding. Where Class 2 bedding is used as a surround a compressible material must be placed at every pipe joint to provide flexibility. All other pipes are to be laid in a Class S bedding.
- All underground drainage must be protected during the construction phase where intermediate cover is less than 900mm.
- Where foul and surface drains and/or sewers cross within 100mm of each other then concrete protection (Class 2 bedding) may be required to prevent any potential cross-contamination.
- All cover levels shown are approximate only. All manhole covers are to be set at the proposed finished pavement or floor level provided by the Architect.
- For typical manhole construction details, pipe bedding/trench details and typical drainage details refer to SG1 typical details drawing.
- The internal foul and surface water pop-up positions and sizes shown are indicative only. The internal pop-up positions, pop-up end use and the pop-up size must be confirmed by the architect/M&E consultant. The drawings must be cross referenced by the contractor before the works commence and any errors reported to the Engineer as soon as possible.
- The external gully connections and channel drain connections are to be 150mm diameter unless otherwise stated. All gully and channel drain outlets to be trapped and roddable. All internal gully types and channel drains to be specified by others.
- Channel drains to have a 200mm minimum concrete bed and haunch and be fitted with a heel guard cast iron grating. Gratings to be to load Class D400 specification unless otherwise agreed.
- All foul water stacks and RWP's to have low level rodding access plates unless an alternative means of access or maintenance is agreed. The access plate size must be in accordance with Document H and sited above any connected ground floor appliance spill level.
- All drainage connections passing through foundation bases and/or edge beams to be located within sealed sleeves. With the approval of the Engineer, drainage connections may be cast-in with flexible joints either side. Flexible joints to be no greater than 150mm from face of the concrete.
- All manhole covers located within the road and car parking areas shall be Class D400. Covers within hard and soft landscaped areas with pedestrian traffic only shall be Class B125. Covers located within block/slab paving areas are to be recessed to suit the proposed paving and of the appropriate grade. All internal covers are to be recessed, double sealed ball down type such as howe green 5000 series or similar approved.
- Channels within Type 1 & 2 manholes must use pre-formed using clayware sections for pipes up to and including 300mm diameter. All manhole channels to be set at the appropriate level for the incoming and outgoing pipe gradients.
- All manholes connections to be formed at soffit to soffit unless otherwise stated. All internal branch connections to be made with swept bends in the direction of flow in the main pipe.
- The type and size of the separator is specified on this drawing and shall be a class 1 type. It shall be installed in complete accordance with the manufacturers instructions and vented via 75mm pipe work. The interceptor requires power for the high level oil alarm and the arrangement shall be intrinsically safe and explosion proof. The contractor shall provide the required ducting & cabling to internal monitoring position together with audio and visual monitoring unit all in accordance with BS7671:2008 +a1:2011

--- PROPOSED SW DRAIN
--- PROPOSED SW FILTER DRAIN
NEW HEADWALL TO SWALE

Rev.	Description	Rev. by	Date
 Shepherd Gilmour Consulting Engineers 3rd Floor Phoenix House, 45 Cross Street, Manchester, M2 4JF T: 0161 837 1500 W: www.sginfrastructure.co.uk			
Client			
Village Hotel, Eastleigh			
Architect			
Project			
Village Hotel Outdoor Gym			
Title			
Proposed Surface Water Drainage Planning Condition 4			
Date 23.05.2024		Drawn By DOR	
Size A1		Checked By	
Scale 1/250		Approved By	
Dwg. No.		Rev	
C1822-200		-	

APPENDIX D I

SGi Consulting		Page 1
4th Floor, Colchester House 40 Peter Street Manchester, M2 5GP		
Date 23/05/2024 08:52	Designed by sgicivils	
File C1819-200 Rev-.MDX	Checked by	
Micro Drainage		Network 2020.1.3

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.010	0.010	0.010
1.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.023	0.023	0.023
2.000	-	-	100	0.040	0.040	0.040
2.001	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.046	0.046	0.046
3.001	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.046	0.046	0.046
4.001	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.038	0.038	0.038
5.001	-	-	100	0.000	0.000	0.000
5.002	-	-	100	0.000	0.000	0.000
5.003	-	-	100	0.000	0.000	0.000
5.004	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
1.014	-	-	100	0.000	0.000	0.000
6.000	-	-	100	0.092	0.092	0.092
6.001	-	-	100	0.000	0.000	0.000
6.002	-	-	100	0.000	0.000	0.000
6.003	-	-	100	0.000	0.000	0.000
7.000	-	-	100	0.088	0.088	0.088
7.001	-	-	100	0.000	0.000	0.000
6.004	-	-	100	0.000	0.000	0.000
8.000	-	-	100	0.045	0.045	0.045
8.001	-	-	100	0.000	0.000	0.000
6.005	-	-	100	0.000	0.000	0.000
6.006	-	-	100	0.000	0.000	0.000
9.000	-	-	100	0.100	0.100	0.100
9.001	-	-	100	0.000	0.000	0.000
6.007	-	-	100	0.000	0.000	0.000
10.000	-	-	100	0.023	0.023	0.023
10.001	-	-	100	0.000	0.000	0.000
6.008	-	-	100	0.000	0.000	0.000
6.009	-	-	100	0.000	0.000	0.000
11.000	-	-	100	0.028	0.028	0.028
11.001	-	-	100	0.000	0.000	0.000
12.000	-	-	100	0.032	0.032	0.032
12.001	-	-	100	0.000	0.000	0.000
6.010	-	-	100	0.021	0.021	0.021
13.000	-	-	100	0.020	0.020	0.020
13.001	-	-	100	0.000	0.000	0.000
14.000	-	-	100	0.022	0.022	0.022
14.001	-	-	100	0.000	0.000	0.000
6.011	-	-	100	0.020	0.020	0.020
6.012	-	-	100	0.000	0.000	0.000
15.000	-	-	100	0.026	0.026	0.026
15.001	-	-	100	0.000	0.000	0.000
6.013	-	-	100	0.000	0.000	0.000
16.000	-	-	100	0.026	0.026	0.026
16.001	-	-	100	0.000	0.000	0.000

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
6.014	-	-	100	0.000	0.000	0.000
17.000	-	-	100	0.027	0.027	0.027
17.001	-	-	100	0.000	0.000	0.000
6.015	-	-	100	0.000	0.000	0.000
6.016	-	-	100	0.000	0.000	0.000
18.000	-	-	100	0.011	0.011	0.011
18.001	-	-	100	0.000	0.000	0.000
6.017	-	-	100	0.000	0.000	0.000
19.000	-	-	100	0.028	0.028	0.028
19.001	-	-	100	0.033	0.033	0.033
19.002	-	-	100	0.026	0.026	0.026
20.000	-	-	100	0.072	0.072	0.072
19.003	-	-	100	0.025	0.025	0.025
19.004	-	-	100	0.000	0.000	0.000
21.000	-	-	100	0.048	0.048	0.048
21.001	-	-	100	0.054	0.054	0.054
21.002	-	-	100	0.000	0.000	0.000
19.005	-	-	100	0.000	0.000	0.000
19.006	-	-	100	0.000	0.000	0.000
19.007	-	-	100	0.000	0.000	0.000
6.018	-	-	100	0.000	0.000	0.000
1.015	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.070	1.070	1.070

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)
1.015		51.000	46.980	0.000	0	0

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Micro Drainage	Network 2020.1.3	

Online Controls for Storm

Orifice Manhole: MH S107, DS/PN: 1.007, Volume (m³): 1.6

Diameter (m) 0.064 Discharge Coefficient 0.600 Invert Level (m) 53.050

Orifice Manhole: MH S111, DS/PN: 1.011, Volume (m³): 4.7

Diameter (m) 0.080 Discharge Coefficient 0.600 Invert Level (m) 51.615

Complex Manhole: MH S115, DS/PN: 1.015, Volume (m³): 14.6

Hydro-Brake® Optimum

Unit Reference	MD-SCU-0080-7200-1200-7200
Design Head (m)	1.200
Design Flow (l/s)	7.2
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	80
Invert Level (m)	47.035
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	7.2	Kick-Flo®	0.120	2.5
Flush-Flo™	0.106	2.5	Mean Flow over Head Range	-	4.9

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	2.5	0.800	6.0	2.000	9.2	4.000	12.8	7.000	16.7
0.200	3.1	1.000	6.6	2.200	9.6	4.500	13.5	7.500	17.2
0.300	3.8	1.200	7.2	2.400	10.0	5.000	14.2	8.000	17.8
0.400	4.3	1.400	7.7	2.600	10.4	5.500	14.9	8.500	18.3
0.500	4.8	1.600	8.2	3.000	11.1	6.000	15.5	9.000	18.8
0.600	5.2	1.800	8.7	3.500	12.0	6.500	16.1	9.500	19.3

Hydro-Brake® Optimum

Unit Reference	MD-SCU-0089-1200-2250-1200
Design Head (m)	2.250
Design Flow (l/s)	12.0
Flush-Flo™	Calculated
Objective	Linear discharge profile
Application	Surface
Sump Available	Yes
Diameter (mm)	89
Invert Level (m)	48.435
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

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Micro Drainage		Network 2020.1.3

Storage Structures for Storm

Porous Car Park Pipe: 1.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	27043.0
Max Percolation (l/s)	56.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	54.628		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 1.002

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	13.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	45.4
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	54.469	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 2.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	35.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	35150.0
Max Percolation (l/s)	73.2	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	54.314		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 1.003

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	14.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	45.5
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	54.177	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 3.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	35.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	35150.0
Max Percolation (l/s)	73.2	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	54.000		

Under Drain Details

Depth above Invert Level (m)	0.000	Diameter (m)	0.150
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Porous Car Park Pipe: 3.000

Number of Pipes 1 Manning's N 0.012

Swale Pipe: 1.004

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	14.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	45.5
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	53.863	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 4.000

Manning's N	0.100	Width (m)	7.5
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	35.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	35150.0
Max Percolation (l/s)	73.2	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	53.686		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 1.005

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	1.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	166.7
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	53.549	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 5.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	8.4
Membrane Percolation (mm/hr)	1000	Slope (1:X)	47.7
Max Percolation (l/s)	9.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	53.465		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 5.002

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	12.2
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	29.3
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	53.120	Cap Infiltration Depth (m)	0.000

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Swale Pipe: 5.003

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	4.7
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	78.5
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	52.703	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 6.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	72.3
Membrane Percolation (mm/hr)	1000	Slope (1:X)	72256.9
Max Percolation (l/s)	98.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	52.405		

Swale Pipe: 6.003

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	11.2
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	40.7
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	52.229	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 7.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	73.9
Membrane Percolation (mm/hr)	1000	Slope (1:X)	73853.0
Max Percolation (l/s)	100.5	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	52.110		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 6.004

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	6.8
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	49.0
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	51.955	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 8.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	75.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	75225.3
Max Percolation (l/s)	83.6	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.955		

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Porous Car Park Pipe: 8.000

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.005

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 3.3
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 48.6
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 51.816 Cap Infiltration Depth (m) 0.000

Swale Pipe: 6.006

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 6.1
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 65.1
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 51.748 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 9.000

Manning's N 0.100 Width (m) 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 76.3
Membrane Percolation (mm/hr) 1000 Slope (1:X) 76331.0
Max Percolation (l/s) 84.8 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 51.805

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.007

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 5.0
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 61.7
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 51.650 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 10.000

Manning's N 0.100 Width (m) 4.8
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 32.0
Membrane Percolation (mm/hr) 1000 Slope (1:X) 32000.0
Max Percolation (l/s) 42.7 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 51.705

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

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Swale Pipe: 6.008

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	5.0
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	29.6
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	51.569	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 11.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	32.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	32000.0
Max Percolation (l/s)	43.6	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.505		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Porous Car Park Pipe: 12.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	27000.0
Max Percolation (l/s)	30.0	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.305		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Porous Car Park Pipe: 13.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	27000.3
Max Percolation (l/s)	30.0	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	51.105		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Porous Car Park Pipe: 14.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	27.0
Membrane Percolation (mm/hr)	1000	Slope (1:X)	26999.3
Max Percolation (l/s)	30.0	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	50.905		

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Porous Car Park Pipe: 14.000

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.012

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 4.7
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 40.1
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 50.673 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 15.000

Manning's N 0.100 Width (m) 4.9
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 32.0
Membrane Percolation (mm/hr) 1000 Slope (1:X) 32000.0
Max Percolation (l/s) 43.6 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 50.705

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.013

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 8.0
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 40.0
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 50.555 Cap Infiltration Depth (m) 0.000

Porous Car Park Pipe: 16.000

Manning's N 0.100 Width (m) 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 33.1
Membrane Percolation (mm/hr) 1000 Slope (1:X) 33106.0
Max Percolation (l/s) 36.8 Depression Storage (mm) 5
Safety Factor 1.0 Evaporation (mm/day) 3
Porosity 0.30 Membrane Depth (mm) 130
Invert Level (m) 50.505

Under Drain Details

Depth above Invert Level (m) 0.000 Number of Pipes 1
Diameter (m) 0.150 Manning's N 0.012

Swale Pipe: 6.014

Manning's N 0.150 Base Width (m) 0.2
Infiltration Coefficient Base (m/hr) 0.00000 Length (m) 6.4
Infiltration Coefficient Side (m/hr) 0.00000 Side Slope (1:X) 2.5
Safety Factor 1.0 Slope (1:X) 40.0
Porosity 1.00 Cap Volume Depth (m) 0.800
Invert Level (m) 50.355 Cap Infiltration Depth (m) 0.000

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Porous Car Park Pipe: 17.000

Manning's N	0.100	Width (m)	4.9
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	33.1
Membrane Percolation (mm/hr)	1000	Slope (1:X)	33107.0
Max Percolation (l/s)	45.1	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	50.305		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Swale Pipe: 6.015

Manning's N	0.150	Base Width (m)	0.2
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	11.3
Infiltration Coefficient Side (m/hr)	0.00000	Side Slope (1:X)	2.5
Safety Factor	1.0	Slope (1:X)	97.4
Porosity	1.00	Cap Volume Depth (m)	0.800
Invert Level (m)	50.195	Cap Infiltration Depth (m)	0.000

Porous Car Park Pipe: 18.000

Manning's N	0.100	Width (m)	4.0
Infiltration Coefficient Base (m/hr)	0.00000	Length (m)	19.2
Membrane Percolation (mm/hr)	1000	Slope (1:X)	19200.0
Max Percolation (l/s)	21.3	Depression Storage (mm)	5
Safety Factor	1.0	Evaporation (mm/day)	3
Porosity	0.30	Membrane Depth (mm)	130
Invert Level (m)	50.158		

Under Drain Details

Depth above Invert Level (m)	0.000	Number of Pipes	1
Diameter (m)	0.150	Manning's N	0.012

Filter Drain Pipe: 19.001

Manning's N	0.030	Trench Length (m)	33.7
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.150
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	33724.0
Invert Level (m)	50.900	Cap Volume Depth (m)	1.000
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 19.002

Manning's N	0.030	Trench Length (m)	21.7
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.225
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	21650.0
Invert Level (m)	50.740	Cap Volume Depth (m)	1.075
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 19.003

Manning's N	0.030	Infiltration Coefficient Side (m/hr)	0.00000
Infiltration Coefficient Base (m/hr)	0.00000	Safety Factor	1.0

Filter Drain Pipe: 19.003

Porosity	0.30	Pipe Depth above Invert (m)	0.000
Invert Level (m)	50.740	Number of Pipes	1
Trench Width (m)	0.6	Slope (1:X)	20000.0
Trench Length (m)	20.0	Cap Volume Depth (m)	1.075
Pipe Diameter (m)	0.225	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 21.000

Manning's N	0.030	Trench Length (m)	27.4
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.225
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	27426.0
Invert Level (m)	50.795	Cap Volume Depth (m)	1.075
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Filter Drain Pipe: 21.002

Manning's N	0.030	Trench Length (m)	14.3
Infiltration Coefficient Base (m/hr)	0.00000	Pipe Diameter (m)	0.225
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Depth above Invert (m)	0.000
Safety Factor	1.0	Number of Pipes	1
Porosity	0.30	Slope (1:X)	14323.0
Invert Level (m)	50.670	Cap Volume Depth (m)	1.075
Trench Width (m)	0.6	Cap Infiltration Depth (m)	0.000

Cellular Storage Pipe: 19.007

Manning's N	0.030	Infiltration Coefficient Side (m/hr)	0.00000
Invert Level (m)	47.100	Safety Factor	1.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	210.0	153.0	3.000	210.0	215.4	3.001	0.0	215.4

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1 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 17 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 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	B100	15 Summer	1	+0%				0	54.670	-0.383
1.001	B101	240 Summer	1	+0%					54.639	-0.138
1.002	SW102	15 Summer	1	+0%					54.538	-0.731
2.000	B200	15 Summer	1	+0%				0	54.410	-0.329
2.001	B201	120 Summer	1	+0%					54.348	-0.115
1.003	SW103	15 Summer	1	+0%					54.246	-0.731
3.000	B300	15 Summer	1	+0%				0	54.103	-0.322
3.001	B301	120 Summer	1	+0%	100/30 Summer				54.038	-0.111
1.004	SW104	180 Summer	1	+0%					53.940	-0.723
4.000	B400	15 Summer	1	+0%			100/60 Summer	11	53.790	-0.446
4.001	B401	120 Summer	1	+0%	30/60 Summer				53.724	-0.111
1.005	SW105	120 Summer	1	+0%					53.669	-0.680
1.006	HW106	120 Summer	1	+0%	2/60 Summer				53.603	-0.090
1.007	MH S107	180 Summer	1	+0%	1/15 Summer				53.529	0.329
1.008	MH S108	180 Summer	1	+0%	100/30 Summer				52.820	-0.085
1.009	MH S109	180 Summer	1	+0%	100/15 Summer				52.738	-0.112
5.000	B500	15 Summer	1	+0%					53.518	-0.372
5.001	B501	15 Summer	1	+0%	100/15 Summer				53.353	-0.086
5.002	SW502	15 Summer	1	+0%					53.205	-0.315
5.003	SW503	15 Summer	1	+0%					52.810	-0.693
5.004	HW504	15 Summer	1	+0%	100/15 Summer				52.700	-0.093
1.010	MH S110	15 Summer	1	+0%	30/15 Summer				52.049	-0.151
1.011	MH S111	180 Summer	1	+0%	1/15 Summer	100/15 Summer		15	51.871	0.106
1.012	MH S112	180 Summer	1	+0%					51.486	-0.099
1.013	MH S113	180 Summer	1	+0%					50.697	-0.103
1.014	MH S114	180 Summer	1	+0%	100/360 Summer				50.308	-0.112
6.000	B600	15 Summer	1	+0%			30/15 Summer	17	52.588	-0.242
6.001	B601	180 Summer	1	+0%	100/60 Summer				52.455	-0.099
6.002	N602	180 Summer	1	+0%					52.421	-0.104
6.003	SW603	180 Summer	1	+0%					52.291	-0.738

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

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.000	B100	0.000	0.00	0.0	10	0.1	OK	
1.001	B101	0.000	0.02			0.3	OK	
1.002	SW102	0.000	0.00		8	3.2	OK	
2.000	B200	0.000	0.02	0.0	14	0.7	OK	
2.001	B201	0.000	0.13			1.5	OK	
1.003	SW103	0.000	0.00		8	3.2	OK	
3.000	B300	0.000	0.02	0.0	14	0.9	OK	
3.001	B301	0.000	0.15			1.8	OK	
1.004	SW104	0.000	0.00		74	4.0	OK	
4.000	B400	0.000	0.02	0.0	13	1.1	OK	
4.001	B401	0.000	0.15			1.9	OK	
1.005	SW105	0.000	0.01		14	5.8	OK	
1.006	HW106	0.000	0.33			5.8	OK	
1.007	MH S107	0.000	0.33			5.7	SURCHARGED	
1.008	MH S108	0.000	0.39			5.7	OK	
1.009	MH S109	0.000	0.15			5.7	OK	
5.000	B500	0.000	0.06		5	6.3	OK	
5.001	B501	0.000	0.38			6.2	OK	
5.002	SW502	0.000	0.01		6	6.2	OK	
5.003	SW503	0.000	0.05		5	6.2	OK	
5.004	HW504	0.000	0.31			6.2	OK	
1.010	MH S110	0.000	0.23			8.5	OK	
1.011	MH S111	0.000	0.37	0.0		6.2	SURCHARGED	
1.012	MH S112	0.000	0.25			6.2	OK	
1.013	MH S113	0.000	0.22			6.2	OK	
1.014	MH S114	0.000	0.15			6.2	OK	
6.000	B600	0.000	0.03	0.0	20	0.9	OK	
6.001	B601	0.000	0.26			2.8	OK	
6.002	N602	0.000	0.21			2.8	OK*	
6.003	SW603	0.000	0.00		87	2.8	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	1	+0%			30/15 Summer	16	52.283
7.001	B701	180 Summer	1	+0%	100/120 Summer				52.151
6.004	SW604	180 Summer	1	+0%					52.043
8.000	B800	15 Summer	1	+0%			30/15 Summer	16	52.093
8.001	B801	240 Summer	1	+0%	100/30 Summer				51.983
6.005	SW605	360 Summer	1	+0%					51.940
6.006	SW606	360 Summer	1	+0%					51.940
9.000	B900	15 Summer	1	+0%			5/15 Summer	48	52.006
9.001	B901	360 Summer	1	+0%	2/120 Summer				51.940
6.007	SW607	360 Summer	1	+0%					51.939
10.000	B1000	360 Summer	1	+0%			2/120 Summer	82	51.939
10.001	B1001	360 Summer	1	+0%	1/120 Summer				51.939
6.008	SW608	360 Summer	1	+0%					51.939
6.009	HW609	360 Summer	1	+0%	1/15 Summer	100/60 Winter			51.939
11.000	B1100	15 Summer	1	+0%			100/15 Summer	21	51.603
11.001	B1101	120 Summer	1	+0%	100/15 Summer				51.523
12.000	B1200	15 Summer	1	+0%			100/15 Summer	20	51.422
12.001	B1201	60 Summer	1	+0%	100/15 Summer				51.334
6.010	MH S610	240 Summer	1	+0%	30/120 Summer				51.181
13.000	B1300	15 Summer	1	+0%			100/15 Summer	15	51.195
13.001	B1301	60 Summer	1	+0%	100/15 Summer				51.124
14.000	B1400	15 Summer	1	+0%			100/15 Summer	20	51.000
14.001	B1401	60 Summer	1	+0%	100/15 Summer				50.933
6.011	MH S611	240 Summer	1	+0%	30/15 Summer				50.911
6.012	SW612	240 Summer	1	+0%					50.772
15.000	B1500	15 Summer	1	+0%			100/15 Summer	17	50.799
15.001	B1501	180 Summer	1	+0%	100/15 Summer				50.760
6.013	SW613	240 Summer	1	+0%					50.657
16.000	B1600	15 Summer	1	+0%			100/15 Summer	16	50.608
16.001	B1601	180 Summer	1	+0%	100/15 Summer				50.571
6.014	SW614	240 Summer	1	+0%					50.461
17.000	B1700	15 Summer	1	+0%			100/15 Summer	20	50.401
17.001	B1701	240 Summer	1	+0%	100/15 Summer				50.339
6.015	SW615	240 Summer	1	+0%					50.334
6.016	HW616	240 Summer	1	+0%	30/30 Summer				50.159
18.000	B1800	15 Summer	1	+0%	100/30 Summer	100/120 Summer			50.221
18.001	B1801	60 Summer	1	+0%	100/30 Summer				50.173
6.017	MH S617	240 Summer	1	+0%	100/360 Summer				49.936
19.000	MH S1900	15 Summer	1	+0%	100/15 Summer				51.639
19.001	MH S1901	15 Summer	1	+0%	100/15 Summer				51.130
19.002	MH S1902	30 Summer	1	+0%	100/15 Summer				51.058
20.000	MH S2000	15 Summer	1	+0%	100/15 Summer				51.439
19.003	MH S1903	30 Summer	1	+0%	100/15 Summer				51.046
19.004	MH S1904	30 Summer	1	+0%	5/15 Summer				50.884
21.000	MH S2100	15 Summer	1	+0%					50.976
21.001	MH S2101	30 Summer	1	+0%	5/15 Summer				50.912
21.002	MH S2102	30 Summer	1	+0%					50.893
19.005	MH S1905	30 Summer	1	+0%	100/60 Summer				48.545
19.006	MH S1906	30 Summer	1	+0%	5/240 Summer				47.798
19.007	MH S1907	960 Summer	1	+0%	100/360 Summer				47.772
6.018	N618	960 Summer	1	+0%	1/120 Summer				47.773
1.015	MH S115	960 Summer	1	+0%	1/30 Summer				47.779

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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		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.247	0.000	0.03	0.0	19	0.8	OK	
7.001	B701	-0.108	0.000	0.17			2.5	OK	
6.004	SW604	-0.712	0.000	0.01		99	5.3	OK	
8.000	B800	-0.287	0.000	0.01	0.0	16	0.1	OK	
8.001	B801	-0.121	0.000	0.08			1.0	OK	
6.005	SW605	-0.676	0.000	0.01		78	5.7	OK	
6.006	SW606	-0.608	0.000	0.01		115	5.6	OK	
9.000	B900	-0.224	0.000	0.04	0.0	21	1.1	OK	
9.001	B901	-0.014	0.000	0.19			2.5	OK	
6.007	SW607	-0.511	0.000	0.01		151	7.6	OK	
10.000	B1000	-0.191	0.000	0.04	0.0	179	1.0	OK	
10.001	B1001	0.085	0.000	0.11			1.3	SURCHARGED	
6.008	SW608	-0.430	0.000	0.00		179	4.4	OK	
6.009	HW609	0.389	0.000	2.58			3.5	FLOOD RISK	6
11.000	B1100	-0.327	0.000	0.03	0.0	14	0.8	OK	
11.001	B1101	-0.131	0.000	0.04			1.3	OK	
12.000	B1200	-0.308	0.000	0.08	0.0	15	1.5	OK	
12.001	B1201	-0.120	0.000	0.09			2.0	OK	
6.010	MH S610	-0.099	0.000	0.25			5.7	OK	
13.000	B1300	-0.335	0.000	0.04	0.0	13	0.7	OK	
13.001	B1301	-0.130	0.000	0.04			1.1	OK	
14.000	B1400	-0.330	0.000	0.05	0.0	14	0.8	OK	
14.001	B1401	-0.121	0.000	0.08			1.2	OK	
6.011	MH S611	-0.074	0.000	0.51			7.9	OK	
6.012	SW612	-0.701	0.000	0.01		305	7.9	OK	
15.000	B1500	-0.331	0.000	0.02	0.0	14	0.6	OK	
15.001	B1501	-0.094	0.000	0.30			0.7	OK	
6.013	SW613	-0.698	0.000	0.01		304	8.6	OK	
16.000	B1600	-0.322	0.000	0.03	0.0	15	0.6	OK	
16.001	B1601	-0.083	0.000	0.42			0.7	OK	
6.014	SW614	-0.694	0.000	0.01		281	9.3	OK	
17.000	B1700	-0.329	0.000	0.02	0.0	14	0.6	OK	
17.001	B1701	-0.115	0.000	0.09			1.0	OK	
6.015	SW615	-0.661	0.000	0.02		32	10.2	OK	
6.016	HW616	-0.070	0.000	0.56			10.2	OK	
18.000	B1800	-0.362	0.000	0.03		12	0.5	OK	1
18.001	B1801	-0.134	0.000	0.03			0.7	OK	
6.017	MH S617	-0.194	0.000	0.05			10.6	OK	
19.000	MH S1900	-0.111	0.000	0.15			4.6	OK	
19.001	MH S1901	-0.770	0.000	0.31		9	7.8	OK	
19.002	MH S1902	-0.757	0.000	0.41		12	10.1	OK	
20.000	MH S2000	-0.161	0.000	0.18			11.7	OK	
19.003	MH S1903	-0.769	0.000	0.79		14	18.8	OK	
19.004	MH S1904	-0.080	0.000	0.75			18.8	OK	
21.000	MH S2100	-0.894	0.000	0.24		8	6.8	OK	
21.001	MH S2101	-0.107	0.000	0.39			12.5	OK	
21.002	MH S2102	-0.852	0.000	0.43		10	12.3	OK	
19.005	MH S1905	-0.225	0.000	0.14			31.0	OK	
19.006	MH S1906	-0.227	0.000	0.14			30.9	OK	
19.007	MH S1907	-2.329	0.000	0.00		501	6.0	OK	
6.018	N618	0.278	0.000	0.05			5.5	SURCHARGED	
1.015	MH S115	0.519	0.000	0.18			5.7	SURCHARGED	

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2 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 17 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	B100	15 Summer	2	+0%				0	54.677	-0.376
1.001	B101	180 Summer	2	+0%					54.643	-0.134
1.002	SW102	15 Summer	2	+0%					54.548	-0.721
2.000	B200	15 Summer	2	+0%				0	54.423	-0.316
2.001	B201	120 Summer	2	+0%					54.354	-0.109
1.003	SW103	15 Summer	2	+0%					54.256	-0.721
3.000	B300	15 Summer	2	+0%				0	54.118	-0.307
3.001	B301	120 Summer	2	+0%	100/30 Summer				54.045	-0.104
1.004	SW104	120 Summer	2	+0%					53.950	-0.713
4.000	B400	15 Summer	2	+0%			100/60 Summer	11	53.808	-0.428
4.001	B401	120 Summer	2	+0%	30/60 Summer				53.739	-0.096
1.005	SW105	120 Summer	2	+0%					53.736	-0.613
1.006	HW106	120 Summer	2	+0%	2/60 Summer				53.735	0.042
1.007	MH S107	120 Summer	2	+0%	1/15 Summer				53.727	0.527
1.008	MH S108	120 Summer	2	+0%	100/30 Summer				52.827	-0.078
1.009	MH S109	120 Summer	2	+0%	100/15 Summer				52.742	-0.108
5.000	B500	15 Summer	2	+0%					53.527	-0.363
5.001	B501	15 Summer	2	+0%	100/15 Summer				53.363	-0.076
5.002	SW502	15 Summer	2	+0%					53.214	-0.306
5.003	SW503	15 Summer	2	+0%					52.825	-0.678
5.004	HW504	15 Summer	2	+0%	100/15 Summer				52.709	-0.084
1.010	MH S110	15 Summer	2	+0%	30/15 Summer				52.059	-0.141
1.011	MH S111	180 Summer	2	+0%	1/15 Summer		100/15 Summer	15	51.976	0.211
1.012	MH S112	180 Summer	2	+0%					51.492	-0.093
1.013	MH S113	180 Summer	2	+0%					50.703	-0.097
1.014	MH S114	180 Summer	2	+0%	100/360 Summer				50.312	-0.108
6.000	B600	15 Summer	2	+0%			30/15 Summer	17	52.612	-0.218
6.001	B601	120 Summer	2	+0%	100/60 Summer				52.466	-0.088
6.002	N602	120 Summer	2	+0%					52.430	-0.095
6.003	SW603	120 Summer	2	+0%					52.303	-0.726

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

PN	US/MH Name	Flooded		Flow / Cap.	Overflow (l/s)	Half Drain Pipe		Status	Level Exceeded
		Volume (m³)	Flow			Time (mins)	Flow (l/s)		
1.000	B100	0.000	0.00		0.0	11	0.2	OK	
1.001	B101	0.000	0.02				0.4	OK	
1.002	SW102	0.000	0.00			8	4.1	OK	
2.000	B200	0.000	0.03		0.0	15	1.3	OK	
2.001	B201	0.000	0.17				2.1	OK	
1.003	SW103	0.000	0.00			8	4.2	OK	
3.000	B300	0.000	0.04		0.0	15	1.7	OK	
3.001	B301	0.000	0.21				2.5	OK	
1.004	SW104	0.000	0.01			60	5.5	OK	
4.000	B400	0.000	0.03		0.0	14	1.9	OK	
4.001	B401	0.000	0.21				2.5	OK	
1.005	SW105	0.000	0.01			15	7.6	OK	
1.006	HW106	0.000	0.42				7.4	SURCHARGED	
1.007	MH S107	0.000	0.40				6.9	SURCHARGED	
1.008	MH S108	0.000	0.47				6.9	OK	
1.009	MH S109	0.000	0.18				6.9	OK	
5.000	B500	0.000	0.07			5	8.1	OK	
5.001	B501	0.000	0.49				8.1	OK	
5.002	SW502	0.000	0.01			6	8.0	OK	
5.003	SW503	0.000	0.07			4	8.0	OK	
5.004	HW504	0.000	0.39				7.9	OK	
1.010	MH S110	0.000	0.29				10.9	OK	
1.011	MH S111	0.000	0.45		0.0		7.6	SURCHARGED	
1.012	MH S112	0.000	0.31				7.6	OK	
1.013	MH S113	0.000	0.27				7.6	OK	
1.014	MH S114	0.000	0.18				7.6	OK	
6.000	B600	0.000	0.05		0.0	22	1.5	OK	
6.001	B601	0.000	0.36				3.9	OK	
6.002	N602	0.000	0.29				3.9	OK*	
6.003	SW603	0.000	0.00			71	3.9	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	2	+0%			30/15 Summer	16	52.307
7.001	B701	120 Summer	2	+0%	100/120 Summer				52.159
6.004	SW604	120 Summer	2	+0%					52.055
8.000	B800	15 Summer	2	+0%			30/15 Summer	16	52.112
8.001	B801	360 Summer	2	+0%	100/30 Summer				51.987
6.005	SW605	360 Summer	2	+0%					51.978
6.006	SW606	360 Summer	2	+0%					51.977
9.000	B900	15 Summer	2	+0%			5/15 Summer	48	52.034
9.001	B901	360 Summer	2	+0%	2/120 Summer				51.977
6.007	SW607	360 Summer	2	+0%					51.976
10.000	B1000	360 Summer	2	+0%			2/120 Summer	82	51.952
10.001	B1001	360 Summer	2	+0%	1/120 Summer				51.964
6.008	SW608	360 Summer	2	+0%					51.976
6.009	HW609	360 Summer	2	+0%	1/15 Summer	100/60 Winter			51.976
11.000	B1100	15 Summer	2	+0%			100/15 Summer	21	51.618
11.001	B1101	360 Summer	2	+0%	100/15 Summer				51.529
12.000	B1200	15 Summer	2	+0%			100/15 Summer	20	51.438
12.001	B1201	30 Summer	2	+0%	100/15 Summer				51.339
6.010	MH S610	180 Summer	2	+0%	30/120 Summer				51.186
13.000	B1300	15 Summer	2	+0%			100/15 Summer	15	51.210
13.001	B1301	60 Summer	2	+0%	100/15 Summer				51.128
14.000	B1400	15 Summer	2	+0%			100/15 Summer	20	51.016
14.001	B1401	60 Summer	2	+0%	100/15 Summer				50.940
6.011	MH S611	180 Summer	2	+0%	30/15 Summer				50.922
6.012	SW612	180 Summer	2	+0%					50.782
15.000	B1500	15 Summer	2	+0%			100/15 Summer	17	50.814
15.001	B1501	120 Summer	2	+0%	100/15 Summer				50.769
6.013	SW613	180 Summer	2	+0%					50.669
16.000	B1600	15 Summer	2	+0%			100/15 Summer	16	50.624
16.001	B1601	120 Summer	2	+0%	100/15 Summer				50.583
6.014	SW614	180 Summer	2	+0%					50.473
17.000	B1700	15 Summer	2	+0%			100/15 Summer	20	50.417
17.001	B1701	180 Summer	2	+0%	100/15 Summer				50.355
6.015	SW615	180 Summer	2	+0%					50.354
6.016	HW616	180 Summer	2	+0%	30/30 Summer				50.172
18.000	B1800	15 Summer	2	+0%	100/30 Summer	100/120 Summer			50.231
18.001	B1801	60 Summer	2	+0%	100/30 Summer				50.176
6.017	MH S617	180 Summer	2	+0%	100/360 Summer				49.940
19.000	MH S1900	15 Summer	2	+0%	100/15 Summer				51.645
19.001	MH S1901	30 Summer	2	+0%	100/15 Summer				51.172
19.002	MH S1902	30 Summer	2	+0%	100/15 Summer				51.127
20.000	MH S2000	15 Summer	2	+0%	100/15 Summer				51.449
19.003	MH S1903	30 Summer	2	+0%	100/15 Summer				51.114
19.004	MH S1904	30 Summer	2	+0%	5/15 Summer				50.918
21.000	MH S2100	15 Summer	2	+0%					51.001
21.001	MH S2101	30 Summer	2	+0%	5/15 Summer				50.958
21.002	MH S2102	30 Summer	2	+0%					50.929
19.005	MH S1905	30 Summer	2	+0%	100/60 Summer				48.557
19.006	MH S1906	720 Summer	2	+0%	5/240 Summer				47.945
19.007	MH S1907	720 Summer	2	+0%	100/360 Summer				47.945
6.018	N618	720 Summer	2	+0%	1/120 Summer				47.945
1.015	MH S115	720 Summer	2	+0%	1/30 Summer				47.951

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

PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.223	0.000	0.04	0.0	21	1.3	OK	
7.001	B701	-0.100	0.000	0.24			3.5	OK	
6.004	SW604	-0.700	0.000	0.01		82	7.4	OK	
8.000	B800	-0.268	0.000	0.01	0.0	18	0.4	OK	
8.001	B801	-0.117	0.000	0.11			1.3	OK	
6.005	SW605	-0.638	0.000	0.01		118	7.1	OK	
6.006	SW606	-0.571	0.000	0.01		155	6.9	OK	
9.000	B900	-0.196	0.000	0.07	0.0	22	1.8	OK	
9.001	B901	0.023	0.000	0.23			3.1	SURCHARGED	
6.007	SW607	-0.474	0.000	0.01		193	8.8	OK	
10.000	B1000	-0.178	0.000	0.04	2.4	250	1.0	OK	
10.001	B1001	0.110	0.000	0.11			1.3	FLOOD RISK	
6.008	SW608	-0.393	0.000	0.00		223	4.7	OK	
6.009	HW609	0.426	0.000	2.68			3.6	FLOOD RISK	6
11.000	B1100	-0.312	0.000	0.05	0.0	15	1.2	OK	
11.001	B1101	-0.125	0.000	0.07			2.2	OK	
12.000	B1200	-0.292	0.000	0.13	0.0	15	2.3	OK	
12.001	B1201	-0.115	0.000	0.12			2.8	OK	
6.010	MH S610	-0.094	0.000	0.30			6.7	OK	
13.000	B1300	-0.320	0.000	0.06	0.0	14	1.1	OK	
13.001	B1301	-0.126	0.000	0.06			1.5	OK	
14.000	B1400	-0.314	0.000	0.07	0.0	14	1.3	OK	
14.001	B1401	-0.114	0.000	0.11			1.7	OK	
6.011	MH S611	-0.063	0.000	0.63			9.9	OK	
6.012	SW612	-0.691	0.000	0.01		8	9.9	OK	
15.000	B1500	-0.316	0.000	0.04	0.0	15	1.0	OK	
15.001	B1501	-0.085	0.000	0.40			1.0	OK	
6.013	SW613	-0.686	0.000	0.01		16	10.8	OK	
16.000	B1600	-0.306	0.000	0.05	0.0	15	1.0	OK	
16.001	B1601	-0.071	0.000	0.55			0.9	OK	
6.014	SW614	-0.682	0.000	0.01		17	11.7	OK	
17.000	B1700	-0.313	0.000	0.04	0.0	14	1.0	OK	
17.001	B1701	-0.099	0.000	0.12			1.3	OK	
6.015	SW615	-0.641	0.000	0.02		30	12.8	OK	
6.016	HW616	-0.057	0.000	0.71			12.8	OK	
18.000	B1800	-0.352	0.000	0.05		13	0.8	OK	1
18.001	B1801	-0.131	0.000	0.04			0.9	OK	
6.017	MH S617	-0.190	0.000	0.06			13.4	OK	
19.000	MH S1900	-0.105	0.000	0.20			6.0	OK	
19.001	MH S1901	-0.728	0.000	0.36		9	9.1	OK	
19.002	MH S1902	-0.688	0.000	0.52		11	12.8	OK	
20.000	MH S2000	-0.151	0.000	0.23			15.2	OK	
19.003	MH S1903	-0.701	0.000	1.05		14	24.8	OK	
19.004	MH S1904	-0.046	0.000	0.99			24.9	OK	
21.000	MH S2100	-0.869	0.000	0.30		8	8.4	OK	
21.001	MH S2101	-0.061	0.000	0.49			15.7	OK	
21.002	MH S2102	-0.816	0.000	0.54		10	15.5	OK	
19.005	MH S1905	-0.213	0.000	0.19			40.2	OK	
19.006	MH S1906	-0.080	0.000	0.04			8.9	OK	
19.007	MH S1907	-2.156	0.000	0.00		513	8.7	OK	
6.018	N618	0.450	0.000	0.05			6.2	SURCHARGED	
1.015	MH S115	0.691	0.000	0.20			6.3	SURCHARGED	

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5 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 17 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	B100	15 Summer	5	+0%				0	54.685	-0.368
1.001	B101	120 Summer	5	+0%					54.645	-0.132
1.002	SW102	15 Summer	5	+0%					54.556	-0.713
2.000	B200	15 Summer	5	+0%				0	54.440	-0.299
2.001	B201	60 Summer	5	+0%					54.363	-0.100
1.003	SW103	15 Summer	5	+0%					54.264	-0.713
3.000	B300	15 Summer	5	+0%				0	54.135	-0.290
3.001	B301	60 Summer	5	+0%	100/30 Summer				54.055	-0.094
1.004	SW104	60 Summer	5	+0%					53.962	-0.701
4.000	B400	15 Summer	5	+0%			100/60 Summer	11	53.828	-0.408
4.001	B401	120 Summer	5	+0%	30/60 Summer				53.784	-0.051
1.005	SW105	120 Summer	5	+0%					53.783	-0.566
1.006	HW106	120 Summer	5	+0%	2/60 Summer				53.783	0.090
1.007	MH S107	120 Summer	5	+0%	1/15 Summer				53.775	0.575
1.008	MH S108	120 Summer	5	+0%	100/30 Summer				52.829	-0.076
1.009	MH S109	120 Summer	5	+0%	100/15 Summer				52.743	-0.107
5.000	B500	15 Summer	5	+0%					53.537	-0.353
5.001	B501	15 Summer	5	+0%	100/15 Summer				53.376	-0.063
5.002	SW502	15 Summer	5	+0%					53.224	-0.296
5.003	SW503	15 Summer	5	+0%					52.840	-0.663
5.004	HW504	15 Summer	5	+0%	100/15 Summer				52.719	-0.074
1.010	MH S110	180 Summer	5	+0%	30/15 Summer				52.092	-0.108
1.011	MH S111	180 Summer	5	+0%	1/15 Summer		100/15 Summer	15	52.062	0.297
1.012	MH S112	180 Summer	5	+0%					51.496	-0.089
1.013	MH S113	180 Summer	5	+0%					50.706	-0.094
1.014	MH S114	180 Summer	5	+0%	100/360 Summer				50.315	-0.105
6.000	B600	15 Summer	5	+0%			30/15 Summer	17	52.639	-0.191
6.001	B601	120 Summer	5	+0%	100/60 Summer				52.481	-0.073
6.002	N602	120 Summer	5	+0%					52.443	-0.082
6.003	SW603	120 Summer	5	+0%					52.315	-0.714

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

PN	US/MH Name	Flooded		Flow / Cap.	Overflow (l/s)	Half Drain Pipe		Status	Level Exceeded
		Volume (m³)	Flow			Time (mins)	Flow (l/s)		
1.000	B100	0.000	0.01		0.0	11	0.3	OK	
1.001	B101	0.000	0.03				0.5	OK	
1.002	SW102	0.000	0.01			8	5.3	OK	
2.000	B200	0.000	0.05		0.0	15	2.1	OK	
2.001	B201	0.000	0.24				2.9	OK	
1.003	SW103	0.000	0.01			30	5.3	OK	
3.000	B300	0.000	0.07		0.0	16	2.6	OK	
3.001	B301	0.000	0.30				3.7	OK	
1.004	SW104	0.000	0.01			44	7.5	OK	
4.000	B400	0.000	0.05		0.0	14	2.9	OK	
4.001	B401	0.000	0.27				3.2	OK	
1.005	SW105	0.000	0.01			31	8.2	OK	
1.006	HW106	0.000	0.45				7.9	SURCHARGED	
1.007	MH S107	0.000	0.42				7.1	SURCHARGED	
1.008	MH S108	0.000	0.48				7.1	OK	
1.009	MH S109	0.000	0.18				7.1	OK	
5.000	B500	0.000	0.09			5	10.5	OK	
5.001	B501	0.000	0.64				10.5	OK	
5.002	SW502	0.000	0.01			6	10.4	FLOOD RISK	
5.003	SW503	0.000	0.08			4	10.4	OK	
5.004	HW504	0.000	0.51				10.3	OK	
1.010	MH S110	0.000	0.25				9.4	OK	
1.011	MH S111	0.000	0.51		0.0		8.5	SURCHARGED	
1.012	MH S112	0.000	0.35				8.5	OK	
1.013	MH S113	0.000	0.30				8.5	OK	
1.014	MH S114	0.000	0.20				8.5	OK	
6.000	B600	0.000	0.08		0.0	23	2.4	OK	
6.001	B601	0.000	0.52				5.6	OK	
6.002	N602	0.000	0.42				5.6	OK*	
6.003	SW603	0.000	0.01			66	5.6	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	5	+0%			30/15 Summer	16	52.333
7.001	B701	120 Summer	5	+0%	100/120 Summer				52.170
6.004	SW604	120 Summer	5	+0%					52.074
8.000	B800	15 Summer	5	+0%			30/15 Summer	16	52.134
8.001	B801	240 Summer	5	+0%	100/30 Summer				52.016
6.005	SW605	240 Summer	5	+0%					52.013
6.006	SW606	240 Summer	5	+0%					52.012
9.000	B900	15 Summer	5	+0%			5/15 Summer	48	52.053
9.001	B901	240 Summer	5	+0%	2/120 Summer				52.012
6.007	SW607	240 Summer	5	+0%					52.012
10.000	B1000	240 Summer	5	+0%			2/120 Summer	82	51.955
10.001	B1001	240 Summer	5	+0%	1/120 Summer				51.983
6.008	SW608	240 Summer	5	+0%					52.011
6.009	HW609	240 Summer	5	+0%	1/15 Summer	100/60 Winter			52.011
11.000	B1100	360 Summer	5	+0%			100/15 Summer	21	51.646
11.001	B1101	360 Summer	5	+0%	100/15 Summer				51.543
12.000	B1200	15 Summer	5	+0%			100/15 Summer	20	51.458
12.001	B1201	30 Summer	5	+0%	100/15 Summer				51.346
6.010	MH S610	360 Summer	5	+0%	30/120 Summer				51.198
13.000	B1300	15 Summer	5	+0%			100/15 Summer	15	51.224
13.001	B1301	60 Summer	5	+0%	100/15 Summer				51.133
14.000	B1400	15 Summer	5	+0%			100/15 Summer	20	51.030
14.001	B1401	60 Summer	5	+0%	100/15 Summer				50.953
6.011	MH S611	60 Summer	5	+0%	30/15 Summer				50.942
6.012	SW612	60 Summer	5	+0%					50.800
15.000	B1500	15 Summer	5	+0%			100/15 Summer	17	50.829
15.001	B1501	120 Summer	5	+0%	100/15 Summer				50.782
6.013	SW613	60 Summer	5	+0%					50.687
16.000	B1600	15 Summer	5	+0%			100/15 Summer	16	50.641
16.001	B1601	120 Summer	5	+0%	100/15 Summer				50.599
6.014	SW614	60 Summer	5	+0%					50.492
17.000	B1700	15 Summer	5	+0%			100/15 Summer	20	50.431
17.001	B1701	60 Summer	5	+0%	100/15 Summer				50.374
6.015	SW615	60 Summer	5	+0%					50.372
6.016	HW616	60 Summer	5	+0%	30/30 Summer				50.193
18.000	B1800	15 Summer	5	+0%	100/30 Summer	100/120 Summer			50.243
18.001	B1801	30 Summer	5	+0%	100/30 Summer				50.179
6.017	MH S617	60 Summer	5	+0%	100/360 Summer				49.946
19.000	MH S1900	15 Summer	5	+0%	100/15 Summer				51.652
19.001	MH S1901	30 Summer	5	+0%	100/15 Summer				51.242
19.002	MH S1902	30 Summer	5	+0%	100/15 Summer				51.207
20.000	MH S2000	15 Summer	5	+0%	100/15 Summer				51.460
19.003	MH S1903	30 Summer	5	+0%	100/15 Summer				51.190
19.004	MH S1904	30 Summer	5	+0%	5/15 Summer				50.999
21.000	MH S2100	15 Summer	5	+0%					51.058
21.001	MH S2101	15 Summer	5	+0%	5/15 Summer				51.031
21.002	MH S2102	15 Summer	5	+0%					50.978
19.005	MH S1905	30 Summer	5	+0%	100/60 Summer				48.569
19.006	MH S1906	720 Summer	5	+0%	5/240 Summer				48.216
19.007	MH S1907	720 Summer	5	+0%	100/360 Summer				48.215
6.018	N618	720 Summer	5	+0%	1/120 Summer				48.215
1.015	MH S115	720 Summer	5	+0%	1/30 Summer				48.221

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

PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.197	0.000	0.07	0.0	22	2.1	OK	
7.001	B701	-0.089	0.000	0.35			5.1	OK	
6.004	SW604	-0.681	0.000	0.01		13	10.7	OK	
8.000	B800	-0.246	0.000	0.03	0.0	19	0.7	OK	
8.001	B801	-0.088	0.000	0.14			1.8	OK	
6.005	SW605	-0.603	0.000	0.01		103	10.5	OK	
6.006	SW606	-0.536	0.000	0.01		130	10.2	OK	
9.000	B900	-0.177	0.000	0.11	3.5	25	2.8	OK	
9.001	B901	0.058	0.000	0.33			4.3	SURCHARGED	
6.007	SW607	-0.438	0.000	0.02		174	11.8	OK	
10.000	B1000	-0.175	0.000	0.05	5.8	253	1.2	OK	
10.001	B1001	0.129	0.000	0.12			1.3	FLOOD RISK	
6.008	SW608	-0.358	0.000	0.01		202	5.8	OK	
6.009	HW609	0.461	0.000	2.77			3.8	FLOOD RISK	6
11.000	B1100	-0.284	0.000	0.21	0.0	97	5.1	OK	
11.001	B1101	-0.111	0.000	0.15			5.1	OK	
12.000	B1200	-0.272	0.000	0.19	0.0	15	3.4	OK	
12.001	B1201	-0.108	0.000	0.18			4.0	OK	
6.010	MH S610	-0.082	0.000	0.43			9.7	OK	
13.000	B1300	-0.306	0.000	0.09	0.0	15	1.7	OK	
13.001	B1301	-0.121	0.000	0.08			2.1	OK	
14.000	B1400	-0.300	0.000	0.11	0.0	14	1.9	OK	
14.001	B1401	-0.101	0.000	0.16			2.3	OK	
6.011	MH S611	-0.043	0.000	0.86			13.3	OK	
6.012	SW612	-0.673	0.000	0.01		8	13.3	OK	
15.000	B1500	-0.301	0.000	0.07	0.0	15	1.6	OK	
15.001	B1501	-0.072	0.000	0.54			1.3	OK	
6.013	SW613	-0.668	0.000	0.01		11	14.4	OK	
16.000	B1600	-0.289	0.000	0.08	0.0	17	1.7	OK	
16.001	B1601	-0.055	0.000	0.73			1.2	OK	
6.014	SW614	-0.663	0.000	0.02		15	15.5	OK	
17.000	B1700	-0.299	0.000	0.07	0.0	14	1.6	OK	
17.001	B1701	-0.080	0.000	0.18			1.9	OK	
6.015	SW615	-0.623	0.000	0.03		26	17.1	OK	
6.016	HW616	-0.036	0.000	0.94			17.0	OK	
18.000	B1800	-0.340	0.000	0.07		13	1.1	OK	1
18.001	B1801	-0.128	0.000	0.05			1.3	OK	
6.017	MH S617	-0.184	0.000	0.08			18.0	OK	
19.000	MH S1900	-0.098	0.000	0.26			7.7	OK	
19.001	MH S1901	-0.658	0.000	0.45		9	11.5	OK	
19.002	MH S1902	-0.608	0.000	0.66		10	16.4	OK	
20.000	MH S2000	-0.140	0.000	0.30			19.6	OK	
19.003	MH S1903	-0.625	0.000	1.36		13	32.2	OK	
19.004	MH S1904	0.035	0.000	1.28			32.3	SURCHARGED	
21.000	MH S2100	-0.812	0.000	0.38		7	10.5	OK	
21.001	MH S2101	0.012	0.000	0.62			20.0	SURCHARGED	
21.002	MH S2102	-0.767	0.000	0.69		8	19.6	OK	
19.005	MH S1905	-0.201	0.000	0.24			51.5	OK	
19.006	MH S1906	0.191	0.000	0.05			10.9	SURCHARGED	
19.007	MH S1907	-1.886	0.000	0.00		578	10.6	OK	
6.018	N618	0.720	0.000	0.06			7.0	SURCHARGED	
1.015	MH S115	0.961	0.000	0.22			7.1	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 Offline Controls 17 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	B100	15 Summer	30	+0%				0	54.699	-0.354
1.001	B101	120 Summer	30	+0%					54.651	-0.126
1.002	SW102	15 Summer	30	+0%					54.584	-0.685
2.000	B200	15 Summer	30	+0%				0	54.467	-0.272
2.001	B201	60 Summer	30	+0%					54.384	-0.079
1.003	SW103	15 Summer	30	+0%					54.292	-0.685
3.000	B300	15 Summer	30	+0%				0	54.163	-0.262
3.001	B301	60 Summer	30	+0%	100/30 Summer				54.080	-0.069
1.004	SW104	60 Summer	30	+0%					53.997	-0.666
4.000	B400	120 Summer	30	+0%			100/60 Summer	11	53.908	-0.328
4.001	B401	120 Summer	30	+0%	30/60 Summer				53.907	0.072
1.005	SW105	120 Summer	30	+0%					53.909	-0.440
1.006	HW106	120 Summer	30	+0%	2/60 Summer				53.912	0.219
1.007	MH S107	120 Summer	30	+0%	1/15 Summer				53.899	0.699
1.008	MH S108	120 Summer	30	+0%	100/30 Summer				52.832	-0.073
1.009	MH S109	120 Summer	30	+0%	100/15 Summer				52.745	-0.105
5.000	B500	15 Summer	30	+0%					53.556	-0.334
5.001	B501	15 Summer	30	+0%	100/15 Summer				53.403	-0.036
5.002	SW502	15 Summer	30	+0%					53.246	-0.274
5.003	SW503	15 Summer	30	+0%					52.867	-0.636
5.004	HW504	15 Summer	30	+0%	100/15 Summer				52.741	-0.052
1.010	MH S110	30 Summer	30	+0%	30/15 Summer				52.583	0.383
1.011	MH S111	30 Summer	30	+0%	1/15 Summer		100/15 Summer	15	52.541	0.776
1.012	MH S112	30 Summer	30	+0%					51.511	-0.074
1.013	MH S113	30 Summer	30	+0%					50.720	-0.080
1.014	MH S114	30 Summer	30	+0%	100/360 Summer				50.325	-0.095
6.000	B600	15 Summer	30	+0%			30/15 Summer	17	52.655	-0.175
6.001	B601	60 Summer	30	+0%	100/60 Summer				52.523	-0.031
6.002	N602	60 Summer	30	+0%					52.477	-0.048
6.003	SW603	60 Summer	30	+0%					52.343	-0.686

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

PN	US/MH Name	Flooded		Half Drain		Pipe	Status	Level Exceeded
		Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
1.000	B100	0.000	0.02	0.0	12	0.6	OK	
1.001	B101	0.000	0.06			1.0	OK	
1.002	SW102	0.000	0.01		2	10.4	OK	
2.000	B200	0.000	0.10	0.0	17	4.0	OK	
2.001	B201	0.000	0.46			5.6	OK	
1.003	SW103	0.000	0.01		3	10.1	OK	
3.000	B300	0.000	0.13	0.0	18	5.0	OK	
3.001	B301	0.000	0.56			6.8	OK	
1.004	SW104	0.000	0.02		10	14.0	OK	
4.000	B400	0.000	0.06	0.0	52	3.6	OK	
4.001	B401	0.000	0.40			4.8	SURCHARGED	
1.005	SW105	0.000	0.01		46	8.5	OK	
1.006	HW106	0.000	0.47			8.1	SURCHARGED	
1.007	MH S107	0.000	0.45			7.7	SURCHARGED	
1.008	MH S108	0.000	0.53			7.7	OK	
1.009	MH S109	0.000	0.20			7.7	OK	
5.000	B500	0.000	0.13		5	15.4	OK	
5.001	B501	0.000	0.93			15.3	OK	
5.002	SW502	0.000	0.01		3	15.2	FLOOD RISK	
5.003	SW503	0.000	0.12		4	15.3	OK	
5.004	HW504	0.000	0.76			15.2	OK	
1.010	MH S110	0.000	0.49			18.5	SURCHARGED	
1.011	MH S111	0.000	0.75	0.0		12.6	SURCHARGED	
1.012	MH S112	0.000	0.51			12.5	OK	
1.013	MH S113	0.000	0.44			12.5	OK	
1.014	MH S114	0.000	0.29			12.5	OK	
6.000	B600	0.000	0.14	10.0	27	4.0	OK	
6.001	B601	0.000	0.99			10.7	OK	
6.002	N602	0.000	0.80			10.7	OK*	
6.003	SW603	0.000	0.01		5	10.7	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	30	+0%			30/15 Summer	16	52.362
7.001	B701	60 Summer	30	+0%	100/120 Summer				52.202
6.004	SW604	60 Summer	30	+0%					52.123
8.000	B800	15 Summer	30	+0%			30/15 Summer	16	52.205
8.001	B801	180 Summer	30	+0%	100/30 Summer				52.099
6.005	SW605	120 Summer	30	+0%					52.097
6.006	SW606	120 Summer	30	+0%					52.097
9.000	B900	15 Summer	30	+0%			5/15 Summer	48	52.064
9.001	B901	180 Summer	30	+0%	2/120 Summer				52.088
6.007	SW607	120 Summer	30	+0%					52.096
10.000	B1000	180 Summer	30	+0%			2/120 Summer	82	51.962
10.001	B1001	120 Summer	30	+0%	1/120 Summer				52.033
6.008	SW608	120 Summer	30	+0%					52.095
6.009	HW609	120 Summer	30	+0%	1/15 Summer	100/60 Winter			52.095
11.000	B1100	240 Summer	30	+0%			100/15 Summer	21	51.738
11.001	B1101	240 Summer	30	+0%	100/15 Summer				51.581
12.000	B1200	15 Summer	30	+0%			100/15 Summer	20	51.491
12.001	B1201	30 Summer	30	+0%	100/15 Summer				51.362
6.010	MH S610	240 Summer	30	+0%	30/120 Summer				51.353
13.000	B1300	15 Summer	30	+0%			100/15 Summer	15	51.252
13.001	B1301	30 Summer	30	+0%	100/15 Summer				51.142
14.000	B1400	15 Summer	30	+0%			100/15 Summer	20	51.059
14.001	B1401	240 Summer	30	+0%	100/15 Summer				51.042
6.011	MH S611	240 Summer	30	+0%	30/15 Summer				51.054
6.012	SW612	240 Summer	30	+0%					50.841
15.000	B1500	15 Summer	30	+0%			100/15 Summer	17	50.857
15.001	B1501	60 Summer	30	+0%	100/15 Summer				50.814
6.013	SW613	240 Summer	30	+0%					50.728
16.000	B1600	15 Summer	30	+0%			100/15 Summer	16	50.669
16.001	B1601	120 Summer	30	+0%	100/15 Summer				50.643
6.014	SW614	240 Summer	30	+0%					50.532
17.000	B1700	15 Summer	30	+0%			100/15 Summer	20	50.461
17.001	B1701	60 Summer	30	+0%	100/15 Summer				50.414
6.015	SW615	240 Summer	30	+0%					50.411
6.016	HW616	240 Summer	30	+0%	30/30 Summer				50.317
18.000	B1800	15 Summer	30	+0%	100/30 Summer	100/120 Summer			50.264
18.001	B1801	30 Summer	30	+0%	100/30 Summer				50.188
6.017	MH S617	60 Summer	30	+0%	100/360 Summer				49.956
19.000	MH S1900	15 Summer	30	+0%	100/15 Summer				51.664
19.001	MH S1901	15 Summer	30	+0%	100/15 Summer				51.488
19.002	MH S1902	15 Summer	30	+0%	100/15 Summer				51.456
20.000	MH S2000	15 Summer	30	+0%	100/15 Summer				51.522
19.003	MH S1903	15 Summer	30	+0%	100/15 Summer				51.431
19.004	MH S1904	30 Summer	30	+0%	5/15 Summer				51.141
21.000	MH S2100	15 Summer	30	+0%					51.252
21.001	MH S2101	15 Summer	30	+0%	5/15 Summer				51.230
21.002	MH S2102	15 Summer	30	+0%					51.101
19.005	MH S1905	720 Summer	30	+0%	100/60 Summer				48.761
19.006	MH S1906	720 Summer	30	+0%	5/240 Summer				48.760
19.007	MH S1907	720 Summer	30	+0%	100/360 Summer				48.758
6.018	N618	720 Summer	30	+0%	1/120 Summer				48.758
1.015	MH S115	720 Summer	30	+0%	1/30 Summer				48.762

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

PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.168	0.000	0.13	16.5	26	4.0	FLOOD RISK	
7.001	B701	-0.057	0.000	0.71			10.3	OK	
6.004	SW604	-0.632	0.000	0.02		21	21.0	OK	
8.000	B800	-0.175	0.000	0.08	9.8	20	2.1	OK	
8.001	B801	-0.005	0.000	0.22			2.7	OK	
6.005	SW605	-0.519	0.000	0.02		56	19.6	OK	
6.006	SW606	-0.451	0.000	0.03		74	18.8	OK	
9.000	B900	-0.166	0.000	0.16	24.6	27	4.0	FLOOD RISK	
9.001	B901	0.134	0.000	0.51			6.8	FLOOD RISK	
6.007	SW607	-0.354	0.000	0.03		102	20.2	OK	
10.000	B1000	-0.168	0.000	0.07	19.3		1.8	FLOOD RISK	
10.001	B1001	0.179	0.000	0.26			2.9	FLOOD RISK	
6.008	SW608	-0.274	0.000	0.01		142	9.1	FLOOD RISK	
6.009	HW609	0.545	0.000	2.98			4.0	FLOOD RISK	6
11.000	B1100	-0.192	0.000	0.69	0.0	102	17.1	OK	
11.001	B1101	-0.073	0.000	0.52			17.1	OK	
12.000	B1200	-0.239	0.000	0.34	0.0	15	6.3	OK	
12.001	B1201	-0.092	0.000	0.32			7.2	OK	
6.010	MH S610	0.073	0.000	1.01			22.8	SURCHARGED	
13.000	B1300	-0.278	0.000	0.17	0.0	15	3.1	OK	
13.001	B1301	-0.112	0.000	0.15			3.7	OK	
14.000	B1400	-0.271	0.000	0.19	0.0	15	3.5	OK	
14.001	B1401	-0.012	0.000	0.18			2.6	OK	
6.011	MH S611	0.069	0.000	1.49			23.3	SURCHARGED	
6.012	SW612	-0.632	0.000	0.02		47	23.3	OK	
15.000	B1500	-0.273	0.000	0.12	0.0	20	3.1	OK	
15.001	B1501	-0.040	0.000	0.89			2.2	OK	
6.013	SW613	-0.627	0.000	0.03		54	24.9	OK	
16.000	B1600	-0.261	0.000	0.16	0.0	26	3.2	OK	
16.001	B1601	-0.011	0.000	1.00			1.7	OK	
6.014	SW614	-0.623	0.000	0.03		55	26.4	OK	
17.000	B1700	-0.269	0.000	0.12	0.0	19	3.0	OK	
17.001	B1701	-0.040	0.000	0.26			2.8	OK	
6.015	SW615	-0.584	0.000	0.04		67	26.6	OK	
6.016	HW616	0.088	0.000	1.46			26.5	SURCHARGED	
18.000	B1800	-0.319	0.000	0.13		12	2.0	OK	1
18.001	B1801	-0.119	0.000	0.09			2.3	OK	
6.017	MH S617	-0.174	0.000	0.12			27.1	OK	
19.000	MH S1900	-0.086	0.000	0.38			11.3	OK	
19.001	MH S1901	-0.412	0.000	0.70		6	17.7	OK	
19.002	MH S1902	-0.359	0.000	0.97		7	23.8	OK	
20.000	MH S2000	-0.078	0.000	0.44			28.8	OK	
19.003	MH S1903	-0.384	0.000	2.02		9	47.7	OK	
19.004	MH S1904	0.177	0.000	1.92			48.3	SURCHARGED	
21.000	MH S2100	-0.618	0.000	0.65		6	18.1	OK	
21.001	MH S2101	0.211	0.000	0.96			31.0	SURCHARGED	
21.002	MH S2102	-0.644	0.000	1.08		9	30.6	OK	
19.005	MH S1905	-0.009	0.000	0.07			15.7	OK	
19.006	MH S1906	0.735	0.000	0.07			15.5	SURCHARGED	
19.007	MH S1907	-1.343	0.000	0.00		661	15.1	OK	
6.018	N618	1.263	0.000	0.10			11.9	SURCHARGED	
1.015	MH S115	1.502	0.000	0.42			13.3	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

Number of Input Hydrographs 0 Number of Offline Controls 17 Number of Time/Area Diagrams 0
 Number of Online Controls 3 Number of Storage Structures 40 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 1.000
 Region England and Wales Ratio R 0.340 Cv (Winter) 1.000

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, 1440
 Return Period(s) (years) 1, 2, 5, 30, 100
 Climate Change (%) 0, 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged	
									Level (m)	Depth (m)
1.000	B100	15 Summer	100	+40%				0	54.730	-0.323
1.001	B101	60 Summer	100	+40%					54.667	-0.110
1.002	SW102	15 Summer	100	+40%					54.628	-0.641
2.000	B200	15 Summer	100	+40%				0	54.517	-0.222
2.001	B201	60 Summer	100	+40%					54.442	-0.021
1.003	SW103	15 Summer	100	+40%					54.335	-0.642
3.000	B300	15 Summer	100	+40%				0	54.216	-0.209
3.001	B301	120 Summer	100	+40%	100/30 Summer				54.158	0.009
1.004	SW104	120 Summer	100	+40%					54.152	-0.511
4.000	B400	120 Summer	100	+40%			100/60 Summer	11	54.087	-0.149
4.001	B401	120 Summer	100	+40%	30/60 Summer				54.118	0.283
1.005	SW105	120 Summer	100	+40%					54.149	-0.200
1.006	HW106	120 Summer	100	+40%	2/60 Summer				54.152	0.459
1.007	MH S107	120 Summer	100	+40%	1/15 Summer				54.137	0.937
1.008	MH S108	120 Summer	100	+40%	100/30 Summer				52.984	0.079
1.009	MH S109	120 Summer	100	+40%	100/15 Summer				52.966	0.116
5.000	B500	15 Summer	100	+40%					53.596	-0.294
5.001	B501	15 Summer	100	+40%	100/15 Summer				53.535	0.096
5.002	SW502	15 Summer	100	+40%					53.285	-0.235
5.003	SW503	120 Summer	100	+40%					52.991	-0.512
5.004	HW504	120 Summer	100	+40%	100/15 Summer				52.988	0.195
1.010	MH S110	120 Summer	100	+40%	30/15 Summer				52.933	0.733
1.011	MH S111	120 Summer	100	+40%	1/15 Summer		100/15 Summer	15	52.800	1.035
1.012	MH S112	120 Summer	100	+40%					51.518	-0.067
1.013	MH S113	120 Summer	100	+40%					50.725	-0.075
1.014	MH S114	720 Summer	100	+40%	100/360 Summer				50.613	0.193
6.000	B600	15 Summer	100	+40%			30/15 Summer	17	52.662	-0.168
6.001	B601	120 Winter	100	+40%	100/60 Summer				52.589	0.035
6.002	N602	240 Winter	100	+40%					52.525	0.000
6.003	SW603	120 Winter	100	+40%					52.385	-0.644

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

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	B100	0.000	0.05	0.0	14	1.9	OK	
1.001	B101	0.000	0.16			2.5	OK	
1.002	SW102	0.000	0.02		4	18.8	OK	
2.000	B200	0.000	0.28	0.0	18	11.3	OK	
2.001	B201	0.000	1.00			12.0	OK	
1.003	SW103	0.000	0.02		3	18.3	OK	
3.000	B300	0.000	0.35	0.0	18	14.1	OK	
3.001	B301	0.000	1.00			12.0	SURCHARGED	
1.004	SW104	0.000	0.03		34	26.4	OK	
4.000	B400	0.000	0.08	20.7	105	4.5	FLOOD RISK	
4.001	B401	0.000	0.47			5.7	FLOOD RISK	
1.005	SW105	0.000	0.01		73	9.9	FLOOD RISK	
1.006	HW106	0.000	0.50			8.8	FLOOD RISK	
1.007	MH S107	0.000	0.51			8.8	SURCHARGED	
1.008	MH S108	0.000	0.63			9.3	SURCHARGED	
1.009	MH S109	0.000	0.25			9.7	SURCHARGED	
5.000	B500	0.000	0.23		5	26.1	OK	
5.001	B501	0.000	1.57			25.9	SURCHARGED	
5.002	SW502	0.000	0.02		4	25.8	FLOOD RISK	
5.003	SW503	0.000	0.17		7	20.9	OK	
5.004	HW504	0.000	0.83			16.7	FLOOD RISK	
1.010	MH S110	0.000	0.61			23.0	FLOOD RISK	
1.011	MH S111	0.000	0.85	8.6		14.3	SURCHARGED	
1.012	MH S112	0.000	0.59			14.3	OK	
1.013	MH S113	0.000	0.50			14.3	OK	
1.014	MH S114	0.000	0.26			11.2	SURCHARGED	
6.000	B600	0.000	0.22	41.1	33	6.5	FLOOD RISK	
6.001	B601	0.000	1.21			13.2	SURCHARGED	
6.002	N602	0.000	1.27			17.1	SURCHARGED*	
6.003	SW603	0.000	0.02		17	19.3	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
7.000	B700	15 Summer	100	+40%			30/15 Summer	16	52.371
7.001	B701	120 Summer	100	+40%	100/120 Summer				52.261
6.004	SW604	120 Summer	100	+40%					52.217
8.000	B800	15 Summer	100	+40%			30/15 Summer	16	52.217
8.001	B801	120 Summer	100	+40%	100/30 Summer				52.216
6.005	SW605	120 Summer	100	+40%					52.210
6.006	SW606	120 Summer	100	+40%					52.209
9.000	B900	15 Summer	100	+40%			5/15 Summer	48	52.081
9.001	B901	120 Summer	100	+40%	2/120 Summer				52.174
6.007	SW607	120 Summer	100	+40%					52.206
10.000	B1000	15 Summer	100	+40%			2/120 Summer	82	51.978
10.001	B1001	120 Summer	100	+40%	1/120 Summer				52.093
6.008	SW608	120 Winter	100	+40%					52.204
6.009	HW609	120 Winter	100	+40%	1/15 Summer	100/60 Winter			52.204
11.000	B1100	15 Summer	100	+40%			100/15 Summer	21	51.777
11.001	B1101	120 Summer	100	+40%	100/15 Summer				51.753
12.000	B1200	15 Summer	100	+40%			100/15 Summer	20	51.578
12.001	B1201	60 Summer	100	+40%	100/15 Summer				51.651
6.010	MH S610	60 Summer	100	+40%	30/120 Summer				51.645
13.000	B1300	180 Summer	100	+40%			100/15 Summer	15	51.376
13.001	B1301	180 Summer	100	+40%	100/15 Summer				51.369
14.000	B1400	180 Summer	100	+40%			100/15 Summer	20	51.178
14.001	B1401	30 Summer	100	+40%	100/15 Summer				51.282
6.011	MH S611	30 Winter	100	+40%	30/15 Summer				51.291
6.012	SW612	30 Summer	100	+40%					50.881
15.000	B1500	60 Summer	100	+40%			100/15 Summer	17	50.980
15.001	B1501	180 Summer	100	+40%	100/15 Summer				51.046
6.013	SW613	30 Summer	100	+40%					50.775
16.000	B1600	60 Summer	100	+40%			100/15 Summer	16	50.779
16.001	B1601	30 Summer	100	+40%	100/15 Summer				50.835
6.014	SW614	120 Summer	100	+40%					50.651
17.000	B1700	120 Summer	100	+40%			100/15 Summer	20	50.658
17.001	B1701	120 Summer	100	+40%	100/15 Summer				50.665
6.015	SW615	120 Summer	100	+40%					50.647
6.016	HW616	120 Summer	100	+40%	30/30 Summer				50.642
18.000	B1800	120 Summer	100	+40%	100/30 Summer	100/120 Summer			50.713
18.001	B1801	120 Summer	100	+40%	100/30 Summer				50.645
6.017	MH S617	720 Summer	100	+40%	100/360 Summer				50.566
19.000	MH S1900	15 Summer	100	+40%	100/15 Summer				52.272
19.001	MH S1901	30 Summer	100	+40%	100/15 Summer				52.032
19.002	MH S1902	30 Summer	100	+40%	100/15 Summer				51.977
20.000	MH S2000	15 Summer	100	+40%	100/15 Summer				52.232
19.003	MH S1903	30 Summer	100	+40%	100/15 Summer				51.936
19.004	MH S1904	30 Summer	100	+40%	5/15 Summer				51.841
21.000	MH S2100	15 Summer	100	+40%					51.788
21.001	MH S2101	15 Summer	100	+40%	5/15 Summer				51.752
21.002	MH S2102	15 Summer	100	+40%					51.397
19.005	MH S1905	720 Summer	100	+40%	100/60 Summer				50.559
19.006	MH S1906	720 Summer	100	+40%	5/240 Summer				50.557
19.007	MH S1907	720 Summer	100	+40%	100/360 Summer				50.554
6.018	N618	720 Summer	100	+40%	1/120 Summer				50.555
1.015	MH S115	720 Summer	100	+40%	1/30 Summer				50.552

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

PN	US/MH Name	Surcharged Flooded		Half Drain		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)		
7.000	B700	-0.159	0.000	0.22	77.0	31	6.6	FLOOD RISK	
7.001	B701	0.002	0.000	1.00			14.6	SURCHARGED	
6.004	SW604	-0.538	0.000	0.04		30	32.0	OK	
8.000	B800	-0.163	0.000	0.16	85.5	27	4.0	FLOOD RISK	
8.001	B801	0.112	0.000	0.46			5.7	FLOOD RISK	
6.005	SW605	-0.406	0.000	0.04		50	35.0	OK	
6.006	SW606	-0.339	0.000	0.05		55	34.9	OK	
9.000	B900	-0.149	0.000	0.22	131.7		5.5	FLOOD RISK	
9.001	B901	0.220	0.000	0.52			6.8	FLOOD RISK	
6.007	SW607	-0.244	0.000	0.04		66	29.7	FLOOD RISK	
10.000	B1000	-0.152	0.000	0.84	106.6		20.2	FLOOD RISK	
10.001	B1001	0.239	0.000	0.72			8.2	FLOOD RISK	
6.008	SW608	-0.165	0.000	0.01		75	11.4	FLOOD RISK	
6.009	HW609	0.654	3.644	3.03			4.1	FLOOD	6
11.000	B1100	-0.153	0.000	0.83	92.3	15	20.4	FLOOD RISK	
11.001	B1101	0.099	0.000	0.61			20.2	SURCHARGED	
12.000	B1200	-0.152	0.000	1.05	86.7	19	19.4	FLOOD RISK	
12.001	B1201	0.197	0.000	0.40			8.9	FLOOD RISK	
6.010	MH S610	0.365	0.000	1.18			26.8	SURCHARGED	
13.000	B1300	-0.154	0.000	0.91	74.8	55	16.8	FLOOD RISK	
13.001	B1301	0.115	0.000	0.62			15.7	FLOOD RISK	
14.000	B1400	-0.152	0.000	0.19	84.9	94	3.5	FLOOD RISK	
14.001	B1401	0.228	0.000	0.49			7.1	FLOOD RISK	
6.011	MH S611	0.306	0.000	2.45			38.2	SURCHARGED	
6.012	SW612	-0.592	0.000	0.04			38.2	OK	
15.000	B1500	-0.150	0.000	0.41	96.1	53	10.1	FLOOD RISK	
15.001	B1501	0.192	0.000	2.24			5.6	FLOOD RISK	
6.013	SW613	-0.580	0.000	0.04			43.2	OK	
16.000	B1600	-0.151	0.000	0.29	111.0	45	6.0	FLOOD RISK	
16.001	B1601	0.181	0.000	2.19			3.6	FLOOD RISK	
6.014	SW614	-0.504	0.000	0.05		41	45.0	OK	
17.000	B1700	-0.072	0.000	0.62	63.2	70	15.6	FLOOD RISK	
17.001	B1701	0.211	0.000	1.20			13.0	FLOOD RISK	
6.015	SW615	-0.348	0.000	0.08		55	50.9	OK	
6.016	HW616	0.413	0.000	2.45			44.5	FLOOD RISK	
18.000	B1800	0.130	0.594	2.97		2	47.9	FLOOD	1
18.001	B1801	0.338	0.000	1.78			44.8	FLOOD RISK	
6.017	MH S617	0.436	0.000	0.17			39.4	FLOOD RISK	
19.000	MH S1900	0.522	0.000	0.58			17.5	FLOOD RISK	
19.001	MH S1901	0.132	0.000	1.38		9	35.0	SURCHARGED	
19.002	MH S1902	0.162	0.000	1.91		10	47.0	SURCHARGED	
20.000	MH S2000	0.632	0.000	0.73			47.8	SURCHARGED	
19.003	MH S1903	0.121	0.000	3.99		11	94.4	SURCHARGED	
19.004	MH S1904	0.877	0.000	3.69			92.7	SURCHARGED	
21.000	MH S2100	-0.082	0.000	1.14		6	31.9	OK	
21.001	MH S2101	0.733	0.000	1.62			52.2	SURCHARGED	
21.002	MH S2102	-0.348	0.000	1.82		9	51.8	OK	
19.005	MH S1905	1.789	0.000	0.13			27.8	SURCHARGED	
19.006	MH S1906	2.532	0.000	0.12			27.2	SURCHARGED	
19.007	MH S1907	0.453	0.000	0.00		488	26.4	SURCHARGED	
6.018	N618	3.060	0.000	0.17			19.8	SURCHARGED	
1.015	MH S115	3.292	0.000	0.74			23.6	SURCHARGED	